

V1778

REPORT NO. TRC-92-N02

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

CHRYSLER CORPORATION
1993 DODGE INTREPID
4-DOOR SEDAN
NHTSA NO. MP0303
TRC TEST NO. 921110

PREPARED BY:
TRANSPORTATION RESEARCH CENTER INC.
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DECEMBER 3, 1992

FINAL REPORT

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16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1993 Dodge Intrepid, NHTSA No. MP0303, at the Transportation Research Center Inc. on November 10, 1992. This test was conducted to obtain new car assessment and research data indicant of FMVSS No. 208 performance. The barrier impact velocity was 56.2 kph. The vehicle's maximum crush was 709 millimeters. The ambient temperature was 22° C. The driver's head injury criteria (HIC) was 770. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 45.5 g. The driver's chest maximum deflection was 39 mm. The driver's left and right femur maximum axial forces were 2394 N and 3440 N, respectively. The passenger's head injury criteria (HIC) was 622. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 52.0 g. The passenger's chest maximum deflection was 45 millimeters. The passenger's left and right femur maximum axial forces were 5236 N and 4678 N, respectively.			
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol When You Know Multiply by To Find Symbol

LENGTH

in
ft
yd
mi

centimeters
meters
kilometers

cm
m
km

AREA

square inches
square feet
square yards
square miles
acres

square centimeters
square meters
square kilometers
hectares

cm²
m²
km²
ha

MASS (weight)

oz
lb

grams
kilograms
tonnes

g
kg
t

VOLUME

teaspoons
tablespoons
fluid ounces
cups
pints
quarts
gallons
cubic feet
cubic yards

milliliters
milliliters
liters
liters
liters
liters
cubic meters
cubic meters

ml
ml
l
l
l
l
m³
m³

TEMPERATURE (exact)

°F Fahrenheit temperature

°C Celsius temperature

°C

Approximate Conversions from Metric Measures

Symbol When You Know Multiply by To Find Symbol

LENGTH

millimeters
centimeters
meters
kilometers

inches
inches
feet
yards
miles

in
in
ft
yd
mi

AREA

square centimeters
square meters
square kilometers
hectares (10,000 m²)

square inches
square yards
square miles
acres

in²
yd²
mi²

MASS (weight)

grams
kilograms
tonnes (1000 kg)

ounces
pounds
short tons

oz
lb

VOLUME

milliliters
liters
liters
liters
cubic meters
cubic meters

fluid ounces
pints
quarts
gallons
cubic feet
cubic yards

fl oz
pt
qt
gal
ft³
yd³

TEMPERATURE (exact)

°C Celsius temperature

°F Fahrenheit temperature

°F



* 1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures. Price \$2.25, SD Catalog No. C13.10-286.

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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 the 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 Dodge Intrepid 4-door sedan, NHTSA No. MP0303, 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" 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 572E 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. Each Part 572 E dummy's instrumentation also included a chest potentiometer to measure longitudinal deflection and a six-axis neck load cell to measure longitudinal, lateral and vertical forces and moments.

The eighty-three (83) 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 occupant, camera, and vehicle measurements are presented in Section 3.0. 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 November 10, 1992.

The test vehicle, a 1993 Dodge Intrepid 4-door sedan, NHTSA No. MP0303, was equipped with a 3.3 liter inline engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1679 KG. The vehicle's impact speed was 56.2 kph. The vehicle sustained 709 mm of static crush during the impact.

The driver's head injury criteria (HIC) was 770. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 45.5 g. The driver's chest maximum deflection was 39 mm. The driver's left and right femur maximum axial forces were 2394 N and 3440 N, respectively.

The passenger's HIC was 622. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 52.0 g. The passenger's chest maximum deflection was 45 mm. The passenger's left and right femur maximum axial forces were 5236 N and 4678 N, respectively.

DATA ACQUISITION EXPLANATIONS

The engine top X-axis accelerometer, ENGXG1, lost data at 30 milliseconds due to the accelerometer cable being cut by the vehicle's crush upon impact.

TABLE 1 CRASH TEST SUMMARY

NHTSA NO.: MP0303 TEST TYPE: Frontal Load Cell Barrier

TEST DATE: 11/10/92 TEST TIME: 1437 AMBIENT TEMP.: 22° C

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Dodge/Intrepid/4-door sedan

VEHICLE TEST WEIGHT (KG): 1679

IMPACT ANGLE (DEG)*: 0

IMPACT VELOCITY (KPH)**: PRIMARY = 56.2 SECONDARY = 56.3

MAXIMUM STATIC CRUSH (MM): 709

AVERAGE REBOUND (MM): 488

DUMMIES:	Driver #142	Passenger #192
TYPE:	Part 572 E	Part 572 E
LOCATION:	Left front	Right front
RESTRAINT:	Airbag & 3-point unibelt	Airbag & 3-point unibelt

NUMBER OF DATA CHANNELS: 83

NUMBER OF CAMERAS: HIGH-SPEED 16 REAL-TIME 2

*With respect to tow track centerline.

**Speed trap measurement ($\pm$.08 kph accuracy)

TABLE 2 TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Chrysler Corporation

MAKE/MODEL: Dodge/Intrepid

VIN: 2B3ED46TXPH505389

BODY STYLE: 4-door sedan

MODEL YEAR: 1993

NHTSA NO.: MP0303

COLOR: Maroon

ENGINE DATA: TYPE: longitudinal CYLINDERS: 6 DISPLACEMENT: 3.3 liter

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

DATE VEHICLE RECEIVED: 09/29/92

ODOMETER READING: 49.0

DEALER'S NAME AND ADDRESS: Greg Nelson Chrysler, Plymouth, Dodge, Inc.
1000 Delaware Avenue
Marysville, OH 43040

ACCESSORIES:

POWER STEERING Yes
POWER BRAKES Yes
POWER SEATS No
POWER WINDOWS Yes
TINTED GLASS Yes
RADIO Yes
CLOCK Yes
OTHER None

AUTOMATIC TRANSMISSION Yes
AUTOMATIC SPEED CONTROL Yes
TILTING STEERING WHEEL Yes
TELESCOPING STEERING WHEEL No
AIR CONDITIONING Yes
ANTI-SKID BRAKE No
REAR WINDOW DEFROSTER Yes

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: Chrysler Corporation

DATE OF MANUFACTURE: 08/92

VIN: 2B3ED46TXPH505389

GVWR: 2022 KG

GAWR: FRONT: 1161 KG, REAR: 894 KG

TABLE 2 TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Michelin, XW4, P205/70R15

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

SPARE TIRE (MFR., LINE, SIZE): Goodyear, T135/80D15

TYPE OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually-adjustable

MAXIMUM WIDTH: 1882 MM

WHEELBASE: 2873 MM

LOCATION OF LABEL STATING TIRE DATA:

The label was located on the driver's door.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P205/70R15

RECOMMENDED COLD TIRE PRESSURE: FRONT: 240 kPa; REAR: 240 kPa

DESIGNATED SEATING CAPACITY: 2 FRONT 3 REAR 5 TOTAL

VEHICLE CAPACITY WEIGHT: 392 KG

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN MILLIMETERS):

DELIVERED ATTITUDE: LF 716; RF 714; LR 737; RR 739

PRE-TEST ATTITUDE: LF 711; RF 706; LR 711; RR 706

POST-TEST ATTITUDE: LF NA*; RF NA*; LR 701; RR 698

*Front post-test attitude measurements could not be taken due to vehicle damage.

TABLE 2 TEST VEHICLE INFORMATION CONT'D

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

RIGHT FRONT	476 KG	RIGHT REAR	254 KG
LEFT FRONT	484 KG	LEFT REAR	262 KG
TOTAL FRONT WEIGHT	960 KG	(65.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	516 KG	(34.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	1476 KG		

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT*

UDW = UNLOADED DELIVERED WEIGHT (1477 KG)

VCW = VEHICLE CAPACITY WEIGHT (392 KG)

DSC = DESIGNATED SEATING CAPACITY (5)

RCLW* = VCW - 68 (DSC) = 52 KG

TARGET TEST WEIGHT = UDW + RCLW* + (NO. OF HYBRID III DUMMIES X 76 KG/DUMMY)

TARGET TEST WEIGHT = 1476 + 52 + 152

TARGET TEST WEIGHT = 1680 KG

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 51 KG OF CARGO WEIGHT:

RIGHT FRONT	510 KG	RIGHT REAR	325 KG
LEFT FRONT	511 KG	LEFT REAR	333 KG
TOTAL FRONT WEIGHT	1021 KG	(60.8% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	658 KG	(39.2% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	1679 KG	(1 KG UNDER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 0 KG

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: Rear bumper & bumper skin, trunk lid, rear deck trim, rear seat belts, rear door trim & glass

CG = 1125 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: 921110 NHTSA NO.: MP0303
TEST DATE: 11/10/92 TEST TIME: 1437
TEST TYPE: Frontal load cell barrier IMPACT ANGLE: 0°
AMBIENT TEMPERATURE AT IMPACT AREA: 22° C
TEMPERATURE IN OCCUPANT COMPARTMENT: 22° C
IMPACT VELOCITY: PRIMARY = 56.2 KPH SECONDARY = 56.3 KPH
(SPECIFIED RANGE = 55.5 TO 57.1 KPH)

DISTANCE FROM VEHICLE TO BARRIER: ENTERING VELOCITY TRAP = 660 MM

EXITING VELOCITY TRAP = 51 MM

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

OVERALL LENGTH OF TEST VEHICLE: PRE-TEST: L 4940; C 5108; R 4950

POST-TEST: L 4396; C 4399; R 4378

TOTAL CRUSH: L 544; C 709; R 572

AVERAGE CRUSH: 608

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

DISTANCE FROM TEST VEHICLE TO BARRIER: L 451; C 438; R 575; AVG. 488

TABLE 4 FUEL SYSTEM DATA

MAKE/MODEL: Dodge/Intrepid

NHTSA NO.: MPO303

FUEL SYSTEM CAPACITY: 68.5 LITERS (FROM OWNER'S MANUAL)

USABLE CAPACITY: 68.1 LITERS (FURNISHED BY COTR)

TEST VOLUME RANGE: 62.7 LITERS TO 64.0 LITERS (92-94% OF USABLE)

ACTUAL TEST VOLUME: 63.2 LITERS (WITH ENTIRE FUEL SYSTEM FILLED)

TEST FLUID TYPE: STODDARD SOLVENT

SPECIFIC GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

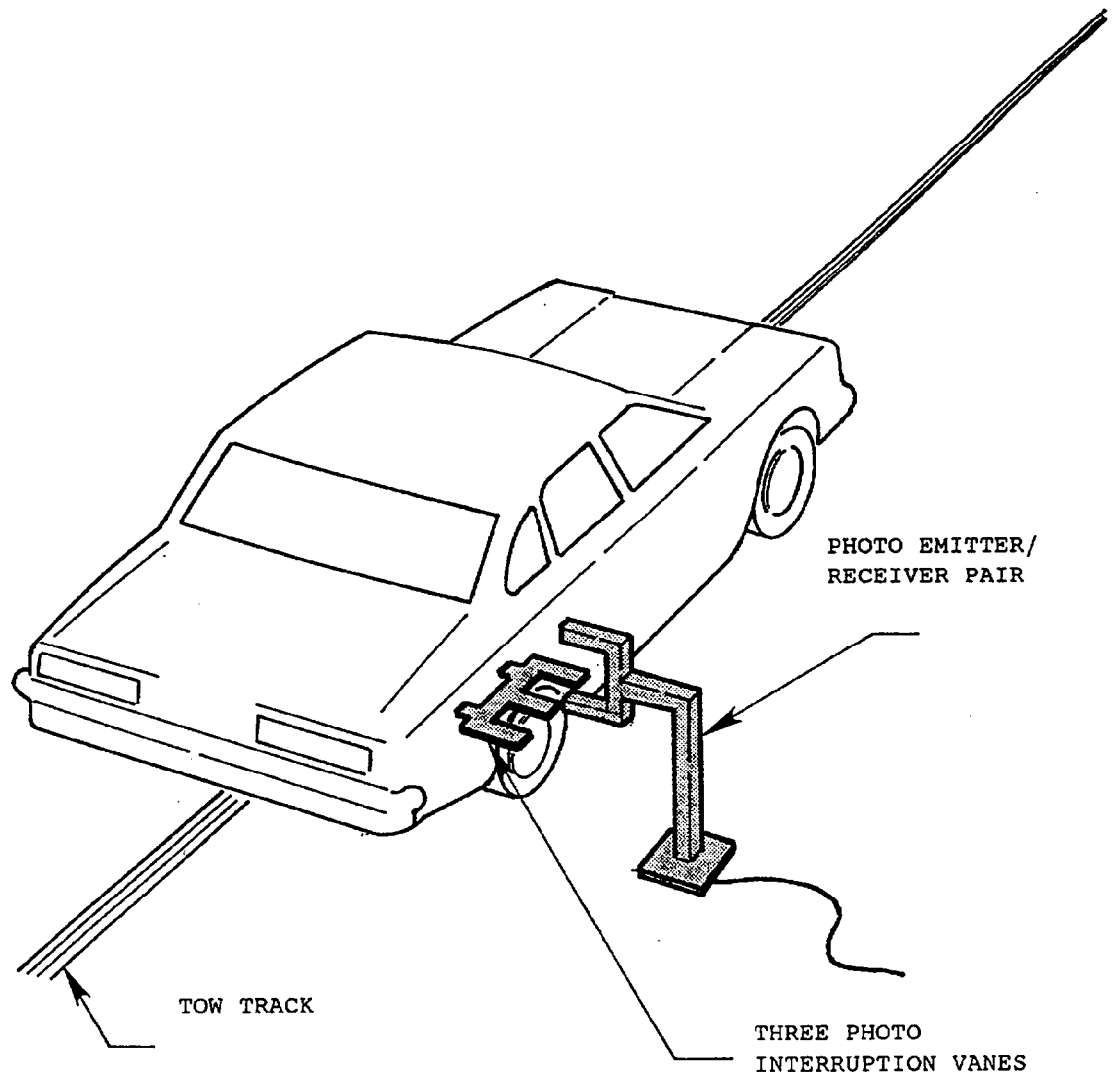
TEST FLUID COLOR: PURPLE

DETAILS OF FUEL SYSTEM: The fuel filler is on the right side. The fuel tank is positioned so that its rearmost portion is over the rear axle. The fuel lines run slightly to the right of the vehicle center line 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

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: Dodge/Intrepid/4-door sedan
 VEHICLE NHTSA NO.: MP0303; VIN: 2B3ED46TXPH505389
 MODEL YEAR: 1993; BUILD DATE: 08/92; TEST DATE: 11/10/92
 VEHICLE SIZE CATEGORY: Large; TEST WEIGHT: 1679 KG
 VEHICLE WHEELBASE: 2873 MM
 MAXIMUM WIDTH: 1882 MM
 FRONT OVERHANG: 1105 MM

COLLISION DEFORMATION
 CLASSIFICATION (CDC) CODE: 12FDEW3

CRUSH DEPTH
 MEASUREMENTS:

C1 =	<u>544</u>	MM
C2 =	<u>658</u>	MM
C3 =	<u>701</u>	MM
C4 =	<u>704</u>	MM
C5 =	<u>653</u>	MM
C6 =	<u>572</u>	MM

MIDPOINT OF DAMAGE: D = VEHICLE CENTERLINE
(LONGITUDINAL)

LENGTH OF DAMAGED
 REGION: L = 1524 MM

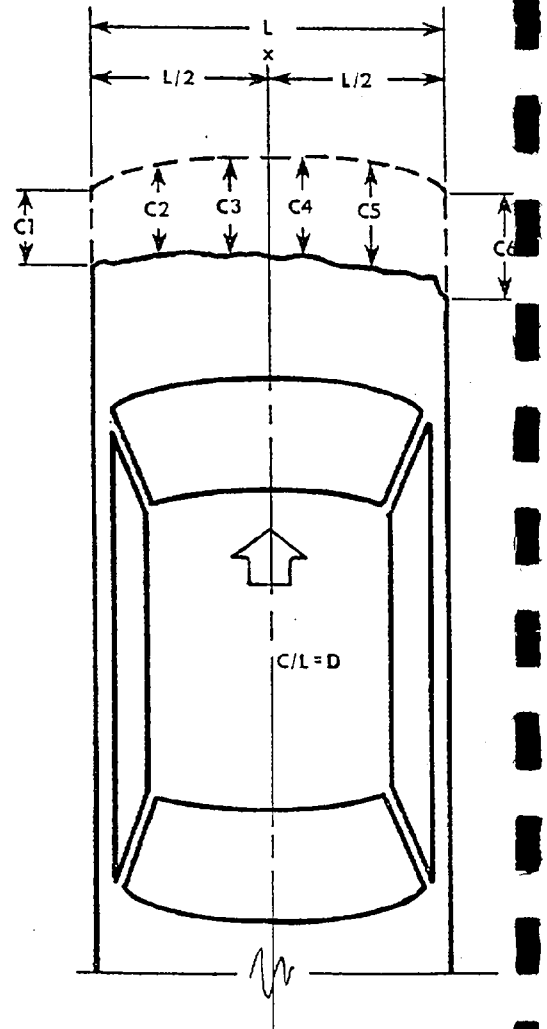
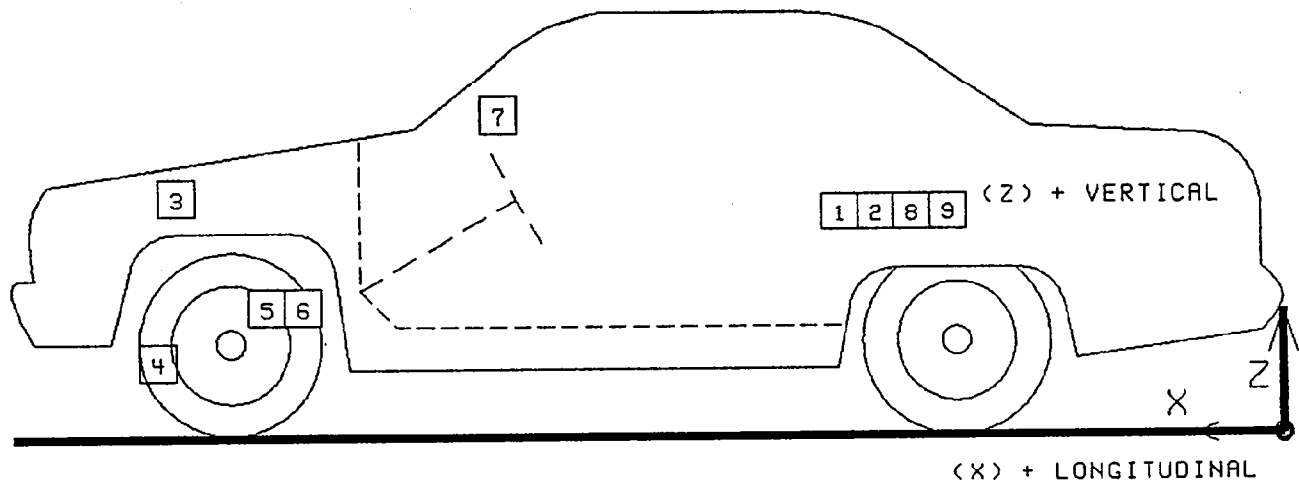
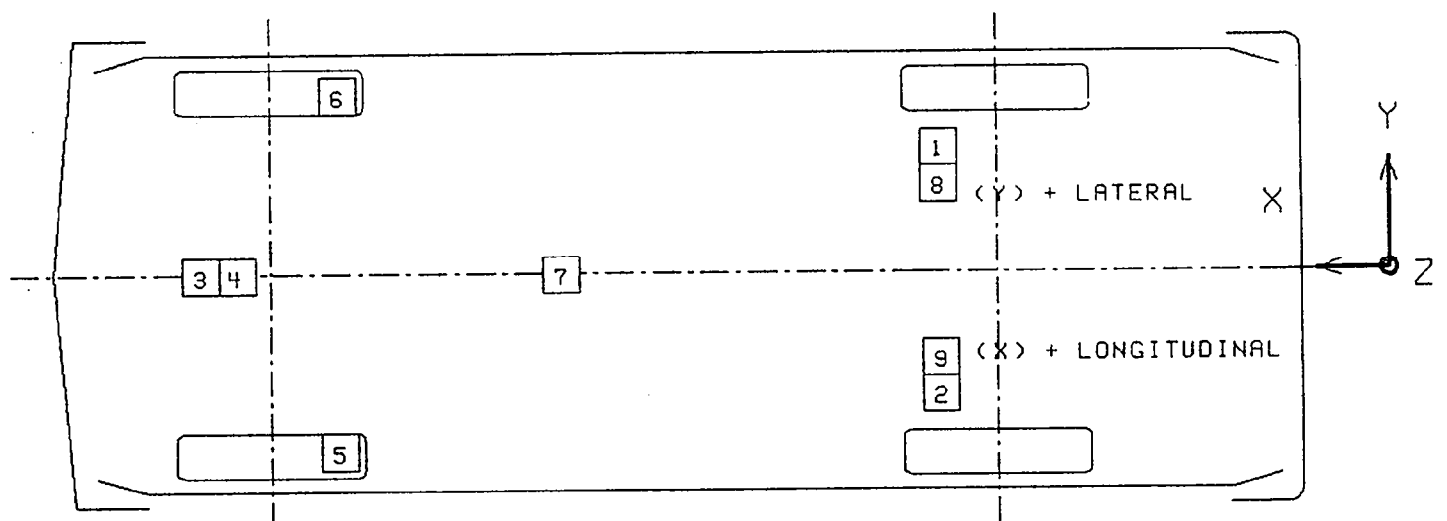


FIGURE 3
VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 5

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 921110

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G MSEC		MAX G MSEC	
1	LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	3124	559	378	2.1	157.1	32.6	37.0
2	RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	3096	-536	366	2.5	139.3	35.4	46.6
3	ENGINE TOP LONGITUDINAL	780	-157	795	---	---	---	---
4	ENGINE BOTTOM LONGITUDINAL	709	-5	254	34.8	39.4	133.8	30.6
5	RIGHT BRAKE CALIPER LONGITUDINAL	947	-655	274	80.2	61.6	136.4	39.1
6	LEFT BRAKE CALIPER LONGITUDINAL	947	655	279	88.9	59.4	138.0	39.6
7	INSTRUMENT PANEL CENTER LONGITUDINAL	1565	30	38	15.3	32.8	61.8	67.0
8	LEFT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	3124	528	378	1.5	147.8	33.6	37.1
9	RIGHT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	3096	-505	366	2.9	145.8	44.3	46.6

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

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

^Y See DATA ACQUISITION EXPLANATIONS

TABLE 6 POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #142	PASSENGER #192
HEAD	<u>Airbag</u>	<u>Airbag</u>
CHEST	<u>Airbag</u>	<u>Airbag</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>Easy</u>	<u>Easy</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 cracked upon impact.

OTHER NOTABLE IMPACT EFFECTS:

None

TABLE 7 FMVSS 208 DATA SUMMARY

VEH. YR./MAKE/MODEL/BODY STYLE: 1993/Dodge/Intrepid/4-door sedan

VEH. NHTSA NO.: MPO303 ; TEST DATE: 11/10/92

	DRIVER DUMMY #142	PASSENGER DUMMY #192
<u>MAXIMUM ACCELERATIONS (G):</u>		
HEAD X-AXIS	-71.1	-65.9
HEAD Y-AXIS	-20.4	7.2
HEAD Z-AXIS	20.6	-30.0
HEAD RESULTANT	71.6	66.4
 CHEST X-AXIS	 -47.0	 -51.6
CHEST Y-AXIS	5.1	-5.7
CHEST Z-AXIS	15.6	-14.9
CHEST RESULTANT*	45.5	52.0
CHEST RESULTANT TIME INTERVAL (SEC.)*	.003	.003

HEAD INJURY CRITERIA (HIC) VALUES:

HIC**	770	622
HIC STARTING TIME (SEC.)	.058	.058
HIC ENDING TIME (SEC.)	.089	.089
AVG. HEAD RESULTANT ACCEL. DURING HIC TIME INTERVAL (G)	57.4	52.2

MAXIMUM CHEST DEFLECTIONS (MM):

CHEST X-AXIS	39	45
MAXIMUM CHEST DEFLECTION TIME (SEC.)	.073	.071

MAXIMUM COMPRESSIVE FEMUR FORCES (N):

LEFT FEMUR	2394	5236
RIGHT FEMUR	3440	4678

MAXIMUM SEAT BELT FORCES (N):

LAP BELT	5777	5306
SHOULDER BELT	7769	7207

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.

TABLE 8 HYBRID III NECK DATA SUMMARY

VEHICLE YR./MAKE/MODEL/BODY STYLE: 1993/Dodge/Intrepid/4-door sedan

VEHICLE NHTSA NO.: MP0303; TEST DATE: 11/10/92

<u>MAXIMUM VALUES:</u>	<u>DRIVER DUMMY #142</u>	<u>PASSENGER DUMMY #192</u>
NECK X-AXIS FORCE (N)	-569	384
NECK Y-AXIS FORCE (N)	-521	-213
NECK Z-AXIS FORCE (N)	2298	2104
NECK MOMENT ABOUT X AXIS (N-M)	-20	8
NECK MOMENT ABOUT Y AXIS (N-M)	-34	-34
NECK MOMENT ABOUT Z AXIS (N-M)	-37	19

NOTE: ALL VALUES LISTED MUST BE OCCURRING DURING PRIMARY IMPACT EVENT.

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

Upon impact the driver dummy translated forward on the seat with the dummy's head and chest impacting the airbag. The dummy's knees impacted the instrument panel. The dummy's head rotated to the right and slightly rearward. The driver dummy was restrained by the airbag and three-point unbelt. The dummy rebounded rearward into the seat back as the dummy's head rotated to the left and slightly forward contacting the head restraint. The driver dummy came to rest in the driver's seat restrained by the three-point unbelt.

RIGHT FRONT PASSENGER DUMMY

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

TABLE 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

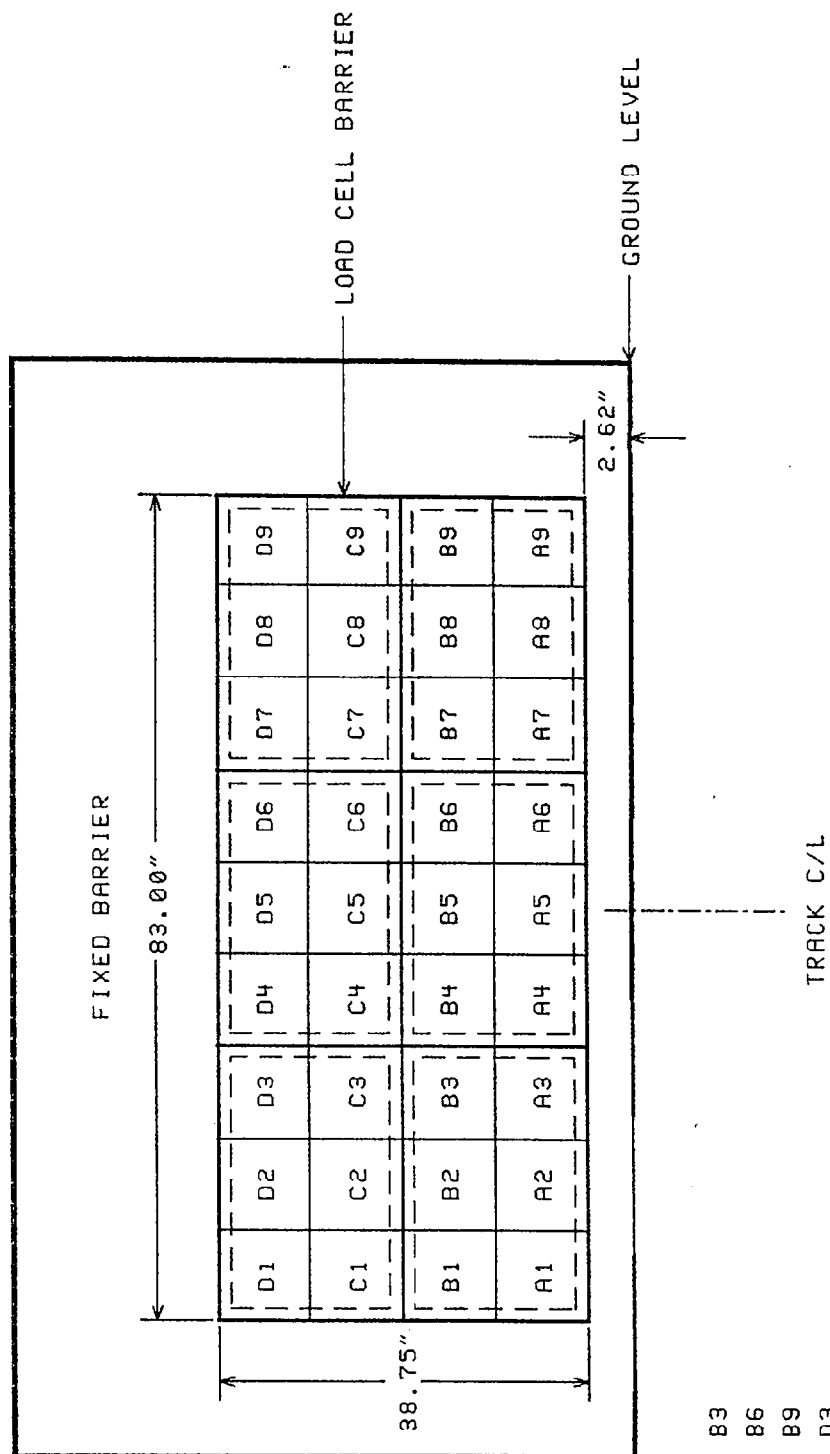
	DRIVER	PASSENGER
<u>BELT LENGTH DATA:</u>		
BELT LENGTH FROM TRIM PANEL EXIT TO BOLT HOLE ANCHOR POINT FOR CONTINUOUS WEBBING SYSTEMS.	2743	2738
SHOULDER BELT LENGTH AS MEASURED ON PART 572 DUMMY.	864	838
LAP BELT LENGTH AS MEASURED ON PART 572 DUMMY.	813	838
<u>SHOULDER BELT SPOOL-OFF LENGTH:</u>		
AS DETERMINED BY FILM ANALYSIS	20	25
AS DETERMINED MECHANICALLY	20	17
AS DETERMINED ELECTRONICALLY	26	22
<u>BELT STRETCH LENGTH (MM/M):</u>		
AS MEASURED MECHANICALLY	0	0
AS MEASURED ELECTRONICALLY	0	9
<u>RETRACTOR LOCK-UP TIME (MS):</u>		
AS DETERMINED BY SHOULDER BELT SPOOL-OFF	24	28

ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

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 10

LOAD CELL BARRIER DATA SUMMARY

TEST NUMBER 921110

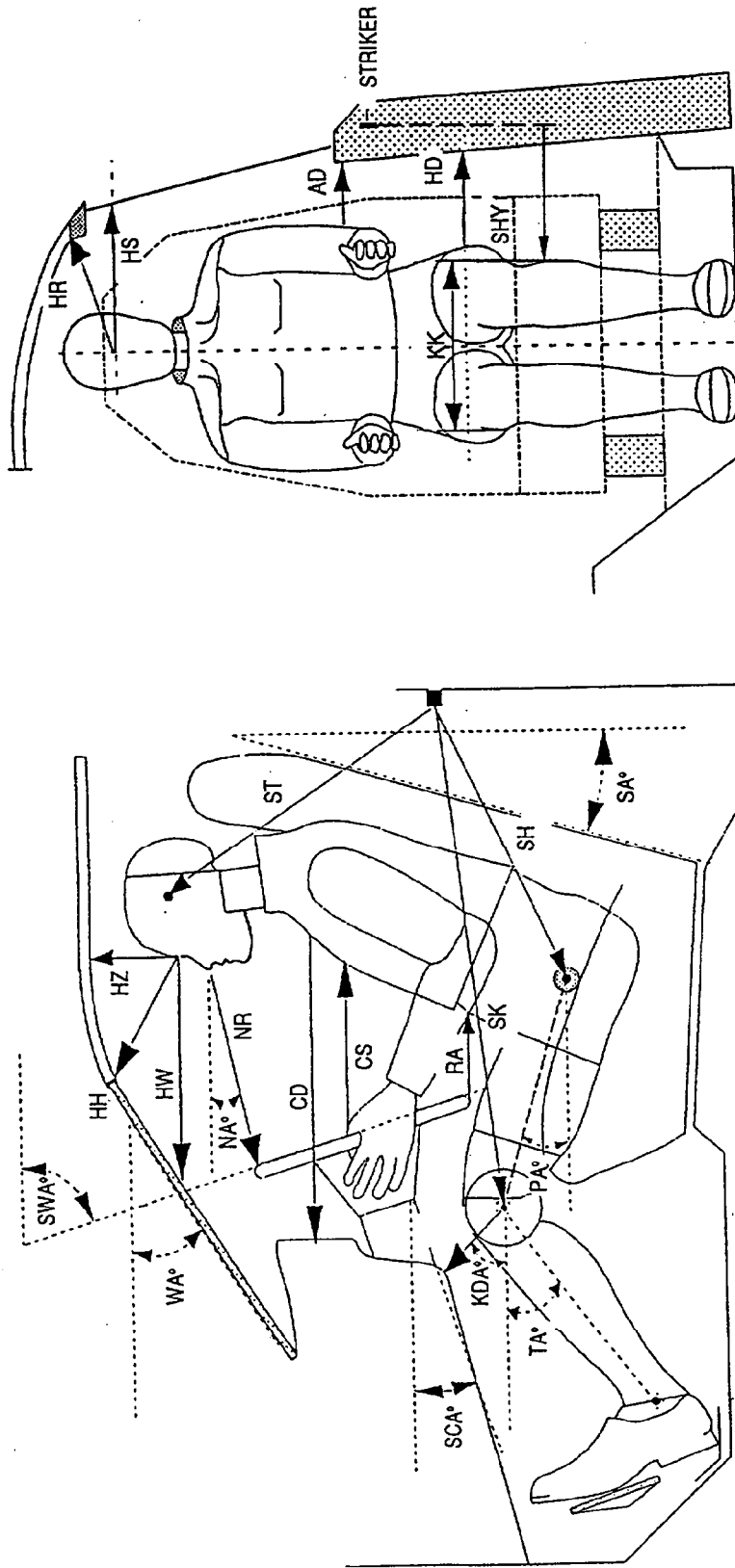
LOCATION	POSITIVE DIRECTION		NEGATIVE DIRECTION	
	KN	MSEC	KN	MSEC
TOTAL GROUP 1	2.4	212.0	84.6	16.5
TOTAL GROUP 2	2.6	319.5	338.6	32.0
TOTAL GROUP 3	1.2	313.1	85.2	16.0
TOTAL GROUP 4	1.2	220.9	34.7	26.1
TOTAL GROUP 5	1.6	3.3	152.4	31.6
TOTAL GROUP 6	1.5	131.4	39.6	39.6
TOTAL LOAD CELL FORCE	6.2	262.6	637.8	31.9
TENSION IS POSITIVE COMPRESSION IS NEGATIVE				

SECTION 3.0

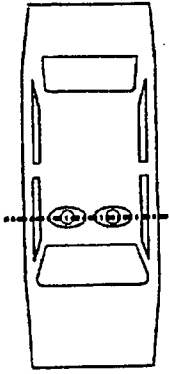
OCCUPANT, CAMERA, & VEHICLE MEASUREMENTS

FIGURE 5

DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS



VERTICAL TRANSVERSE PLANE



VERTICAL LONGITUDINAL PLANE

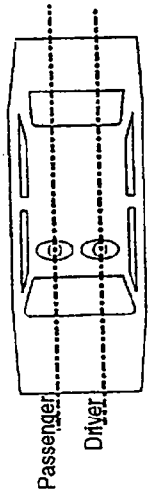


TABLE 11 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

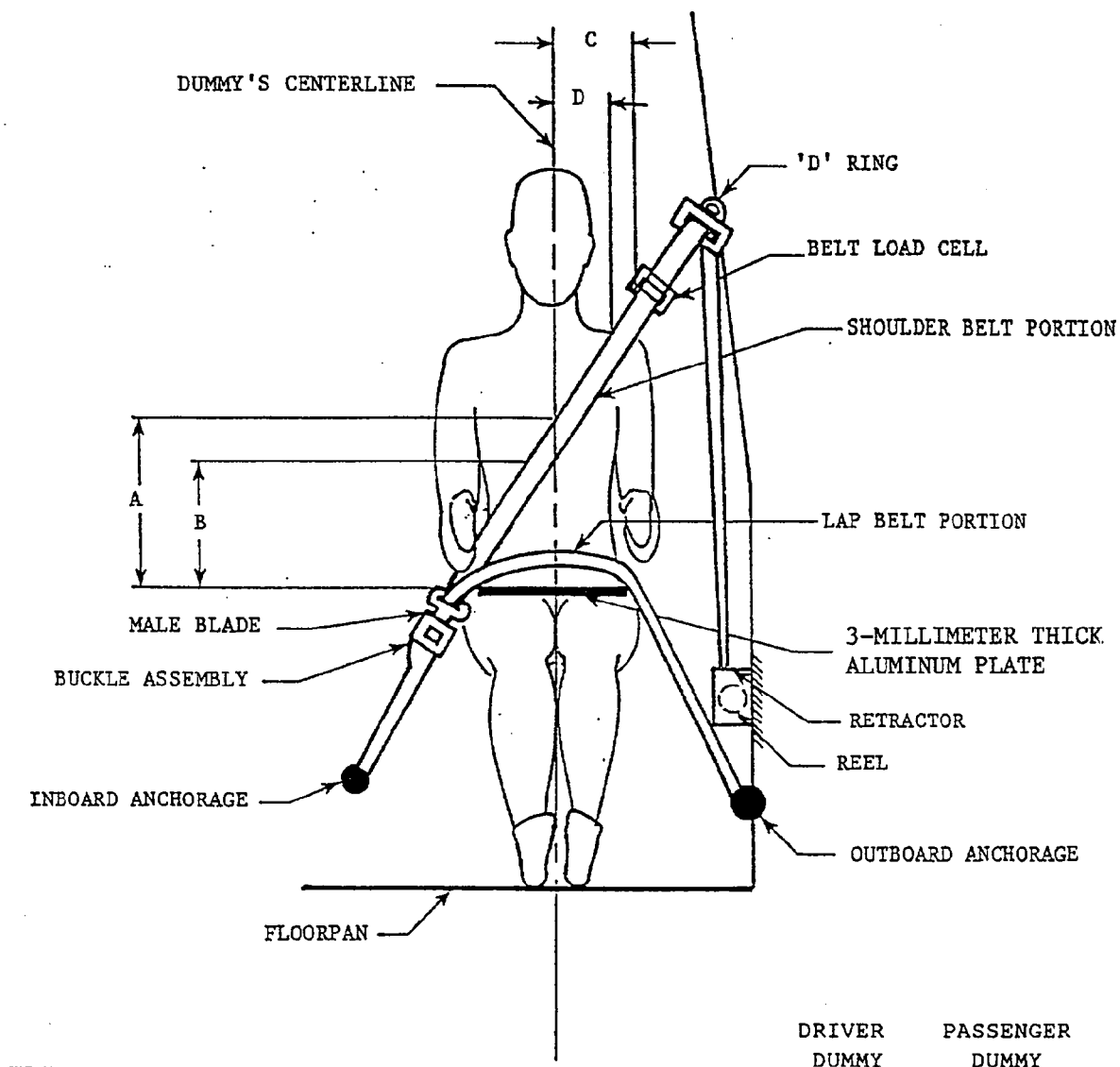
DESIGNATION	TYPE OF MEASUREMENT	DRIVER (SERIAL #142)	PASSENGER (SERIAL #192)
WA°	WINDSHIELD ANGLE	24.5°	NA
SWA°	STEERING WHEEL ANGLE	68°	NA
SCA°	STEERING COLUMN ANGLE	23°	NA
SA°	SEAT BACK ANGLE	15.5°	15.5°
HZ	HEAD TO ROOF	168	168
HH	HEAD TO HEADER	310	340
HW	HEAD TO WINDSHIELD	610	650
HR	HEAD TO SIDE HEADER	206	188
NR	NOSE TO RIM	381	NA
NA	NOSE TO RIM ANGLE	10°	NA
CD	CHEST TO DASH	528	516
CS	STEERING WHEEL TO CHEST	310	NA
RA	RIM TO ABDOMEN	193	NA
KDL	LEFT KNEE TO DASH	150	142
KDR	RIGHT KNEE TO DASH	152	132
KDA	OUTBOARD KNEE TO DASH ANGLE	55°	37°
PA°	PELVIC ANGLE	21°	24°
TA°	TIBIAL ANGLE	41°	44°
KK	KNEE TO KNEE	262	254
ST*	STRIKER TO HEAD	536	546
	STRIKER TO HEAD ANGLE	-96°	-98°
SK*	STRIKER TO KNEE	615	594
	STRIKER TO KNEE ANGLE	0°	2°
SH*	STRIKER TO H-POINT	229	236
	STRIKER TO H-POINT ANGLE	25°	35°
SHY	STRIKER TO H-POINT (Y DIR.)	244	254
HS	HEAD TO SIDE WINDOW	325	307
HD	H-POINT TO DOOR	201	198
AD	ARM TO DOOR	137	142

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

*A negative angle indicates the measurement point was located above the striker.

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 6 SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
A - TOP SURFACE OF ALUMINUM PLATE TO BELT UPPER EDGE	319	324
B - TOP SURFACE OF ALUMINUM PLATE TO BELT LOWER EDGE	241	248
C - DUMMY CENTERLINE TO OUTER EDGE OF BELT AT CHEST FLESH TOP	149	114
D - DUMMY CENTERLINE TO INNER EDGE OF BELT AT CHEST FLESH TOP	95	64
LAPBELT TENSION (N)	13	18
SHOULDER BELT TENSION (N)	13	9
ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.		

Diagram illustrating the camera positions for a vehicle impact test. The diagram shows a side view of a vehicle (labeled 'PHOTOGRAPHIC TARGET') positioned on a test track. The vehicle is equipped with multiple cameras (labeled 4, 5, 6, 7, 8) and sensors (labeled 1, 2, 3). The test setup includes a 'BARRIER' and a 'LOAD CELL ASSEMBLY' (labeled 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100). The diagram also shows a 'BARRIER FACE EXTENSION ABOVE LOAD CELL ASSEMBLY' and a 'LOAD CELL ASSEMBLY'.

FIGURE 7

CAMERA POSITIONS, CONTINUED

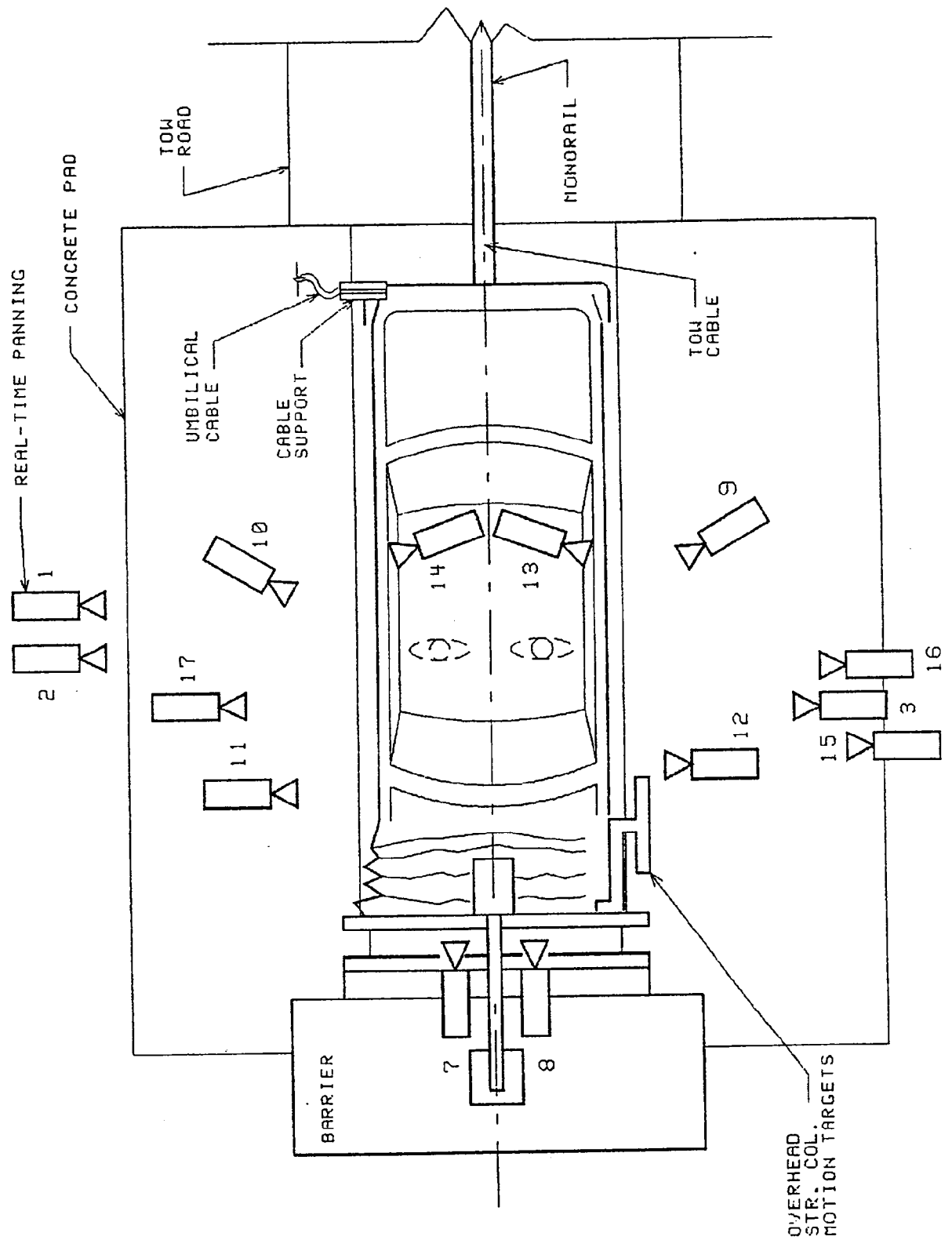


TABLE 12 MOTION PICTURE CAMERA LOCATIONS

TEST NO.: 921110		VEHICLE: 1993 Dodge Intrepid 4-door sedan					FILM PLANE		FILM SPEED
CAMERA NO.	VIEW	CAMERA POSITIONS (MM)*			ANGLE** (DEG)	TO HEAD TARGET	LENS (MM)	SPEED (FPS)	
		X	Y	Z					
1	Real-time panning	-3607	-12802	1549	NA	NA	16	24	
2	Vehicle crush	-2065	-6767	942	-2	NA	13	500	
3	Dummy kinematics	-1054	7493	1118	-12	5842	25	998	
4	Windshield damage	-925	0	2489	-40	NA	13	500	
5	Crush & fluid spillage	-1283	0	-2347	90	NA	13	998	
6	Fluid spillage	-2522	0	-2515	90	NA	13	1000	
7	Passenger kinematics	-114	-351	2159	-40	NA	17	510	
8	Driver kinematics	-173	368	2159	-41	NA	17	505	
9	Driver kinematics	-4572	1854	2591	-27	2743	25	508	
10	Passenger kinematics	-4674	-1880	2540	-26	2642	25	498	
11	Windshield intrusion	-968	-7775	1118	0	NA	50	520	
12	Windshield intrusion	-1346	7859	1074	0	NA	50	498	
13	Driver seatbelt movement	NA	NA	NA	NA	NA	13	498	
14	Passenger seatbelt movement	NA	NA	NA	NA	NA	13	498	
15	Column movement	-3404	7264	2616	-14	NA	25	505	
16	Column movement	-3404	7264	1908	-9	NA	25	505	
17	Passenger kinematics	-986	-5354	1151	7	5969	25	1030	

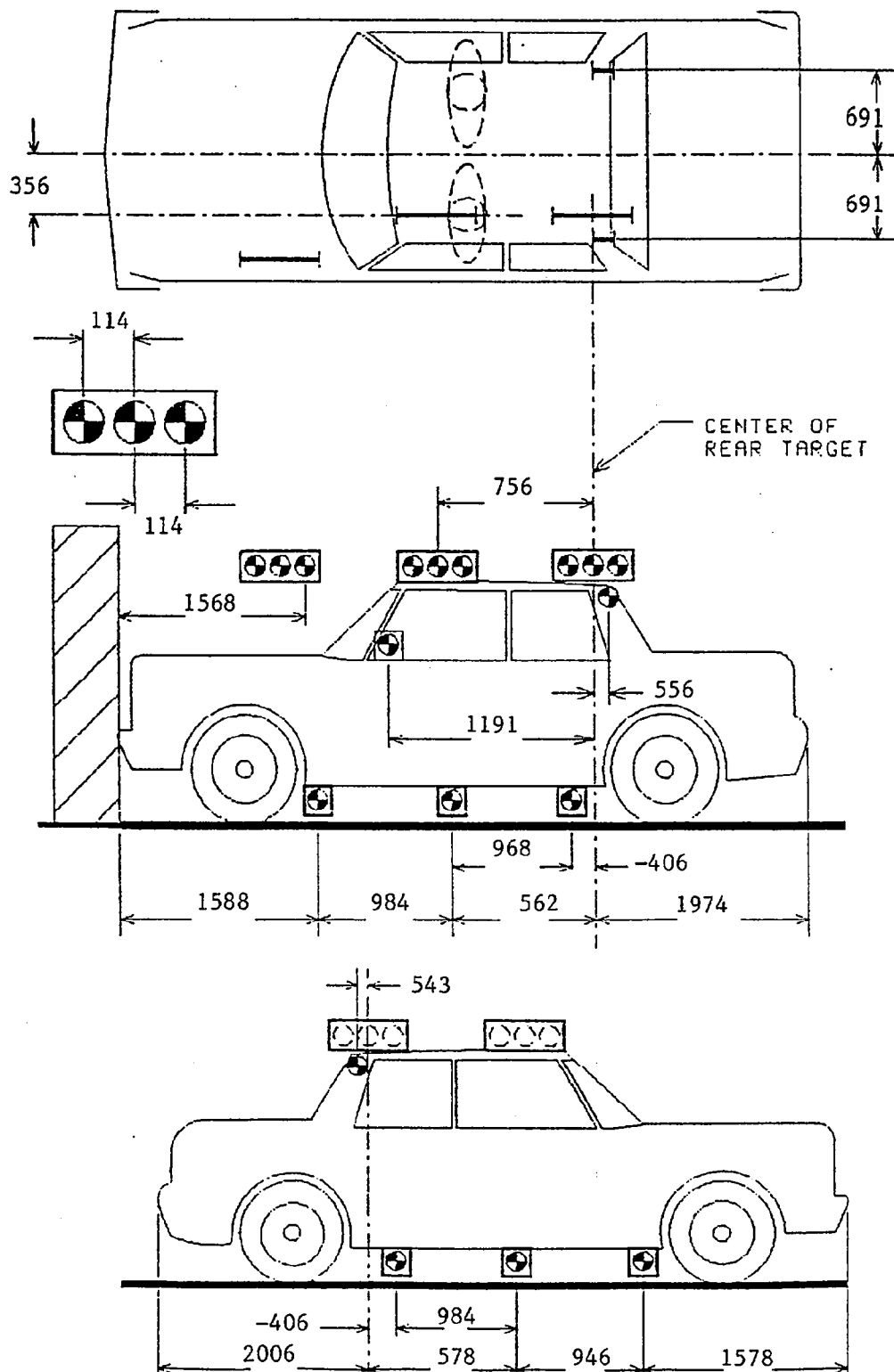
**X = Film plane forward of barrier face

+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

***Angle = Film plane angled upward from horizontal plane

FIGURE 8
VEHICLE TARGET LOCATIONS



ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 9

PRE-TEST AND POST-TEST MEASUREMENT POINTS

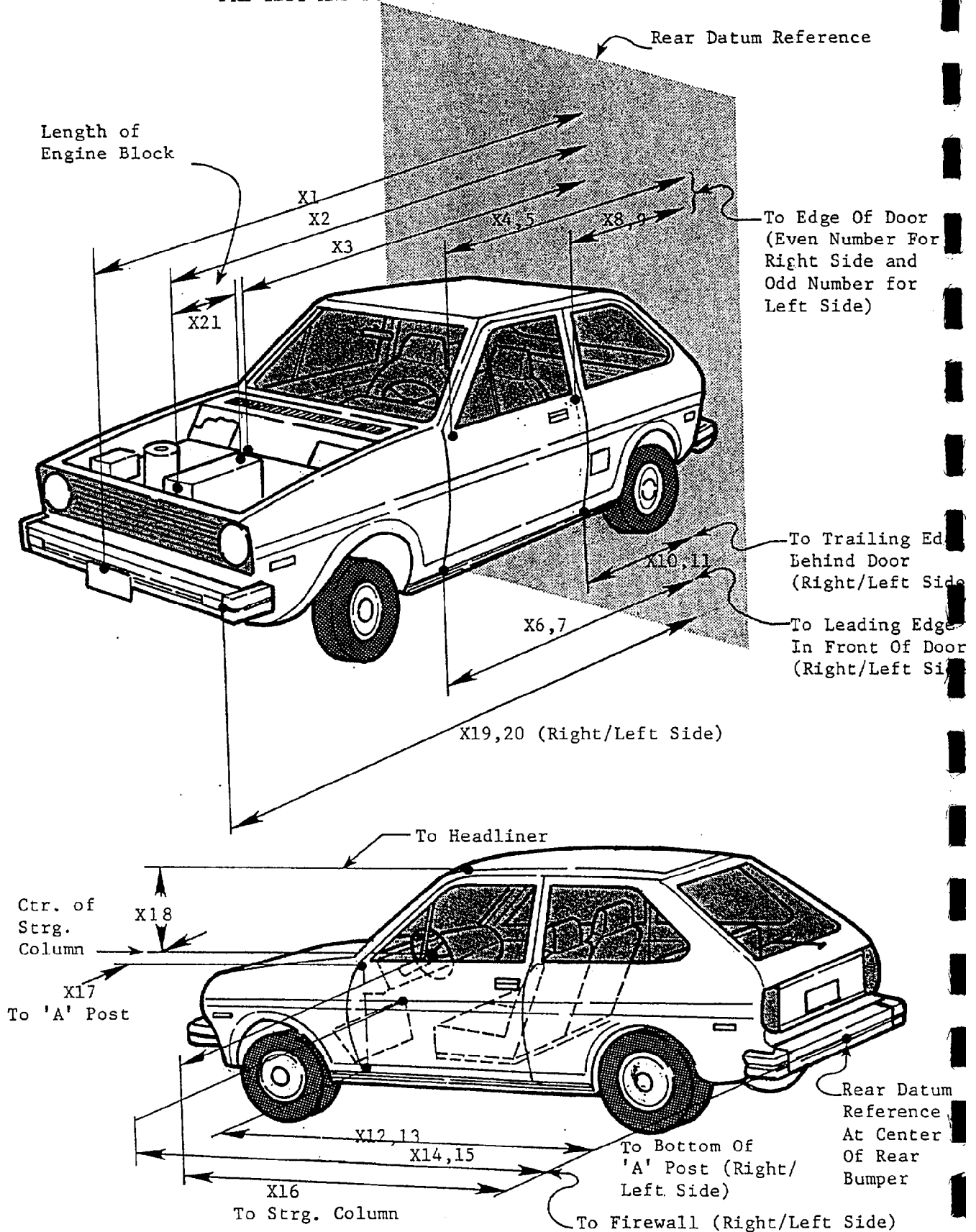


TABLE 13 IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Dodge/Intrepid		TEST NUMBER: 921110		ALL MEASUREMENTS ARE IN MM		
NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.		
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	5108	4399	709		
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	4587	4247	340		
X3	REAR SURFACE OF VEHICLE TO FIREWALL	4000	3840	160		
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	3526	3541	-15		
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	3518	3536	-18		
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3454	3454	0		
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3467	3480	-13		
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2398	2416	-18		
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2418	2416	2		
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2400	2416	-16		
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2410	2418	-8		
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	3424	3467	-43		
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	3459	3457	2		
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	3679	3642	37		
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	3724	3706	18		
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	3002	3038	-36		
X17	CENTER OF STEERING COLUMN TO "A" POST	324	254	70		
X18	CENTER OF STEERING COLUMN TO HEADLINER	391	386	5		
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4950	4378	572		
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4940	4396	544		
X21	LENGTH OF ENGINE BLOCK	559	559	0		

APPENDIX A

PHOTOGRAPHS

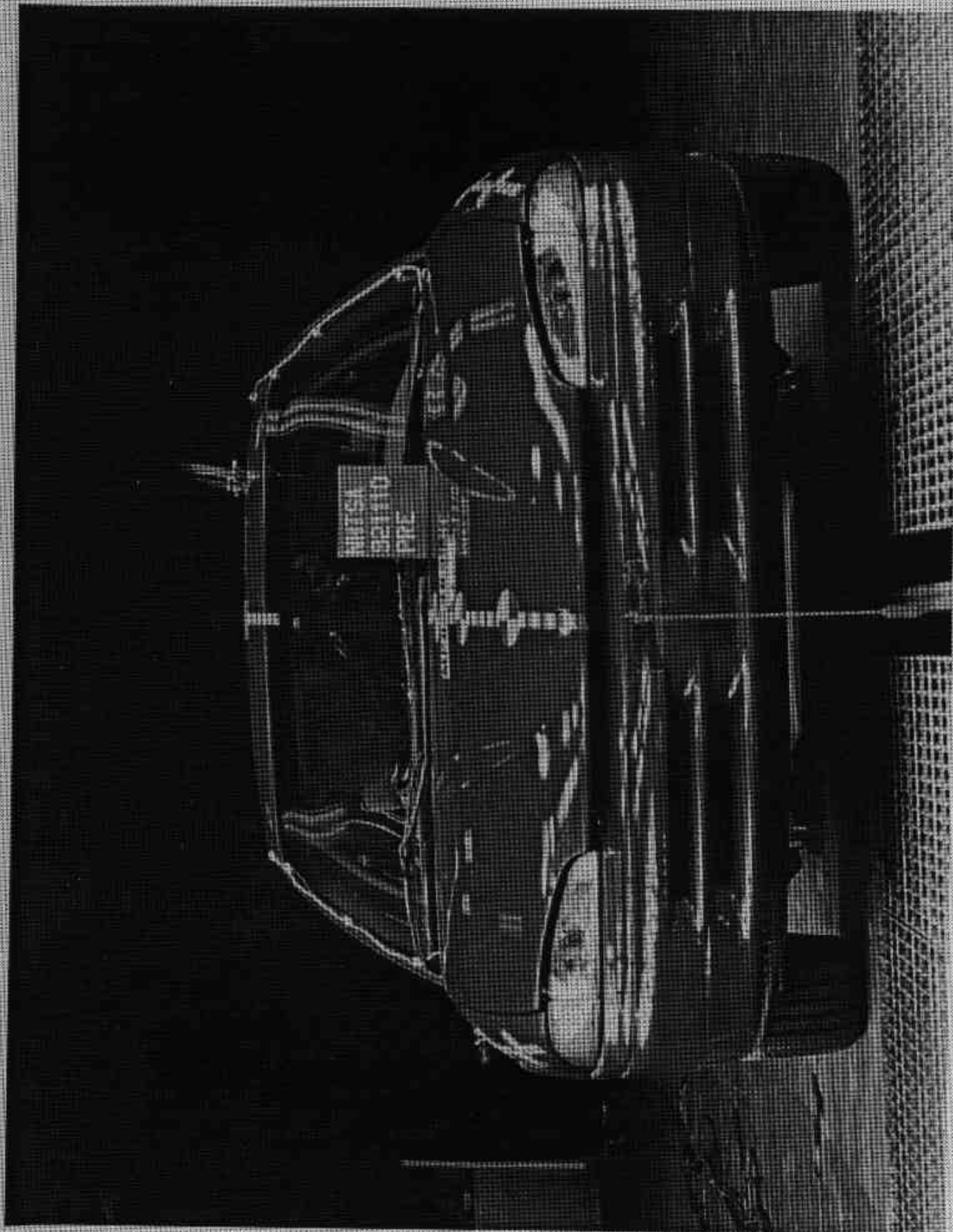


FIGURE A-1. PRE-TEST FRONT VIEW

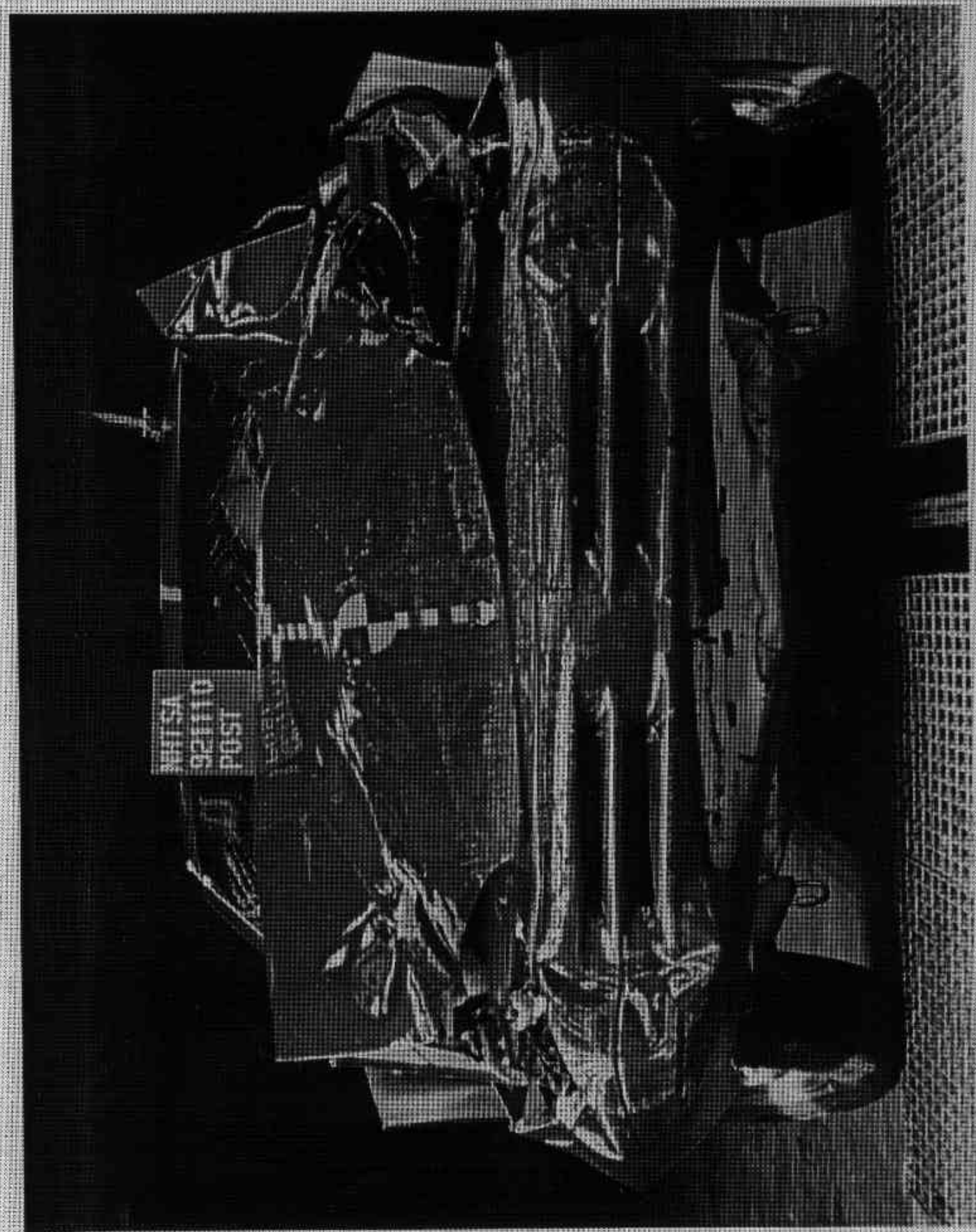


FIGURE A-2. POST-TEST FRONT VIEW

A-3

921110

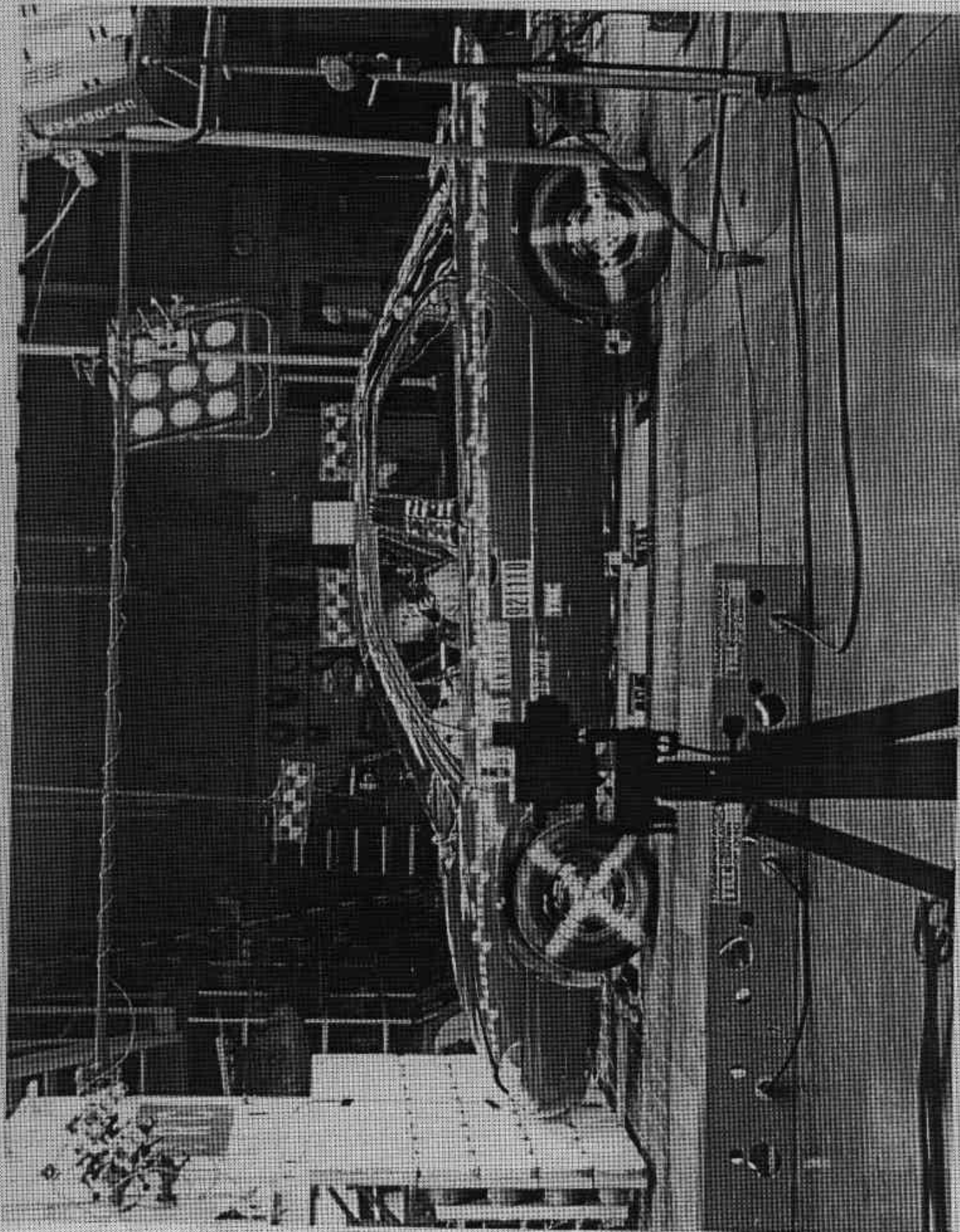


FIGURE A-3. PRE-TEST LEFT SIDE VIEW

A-4

921110

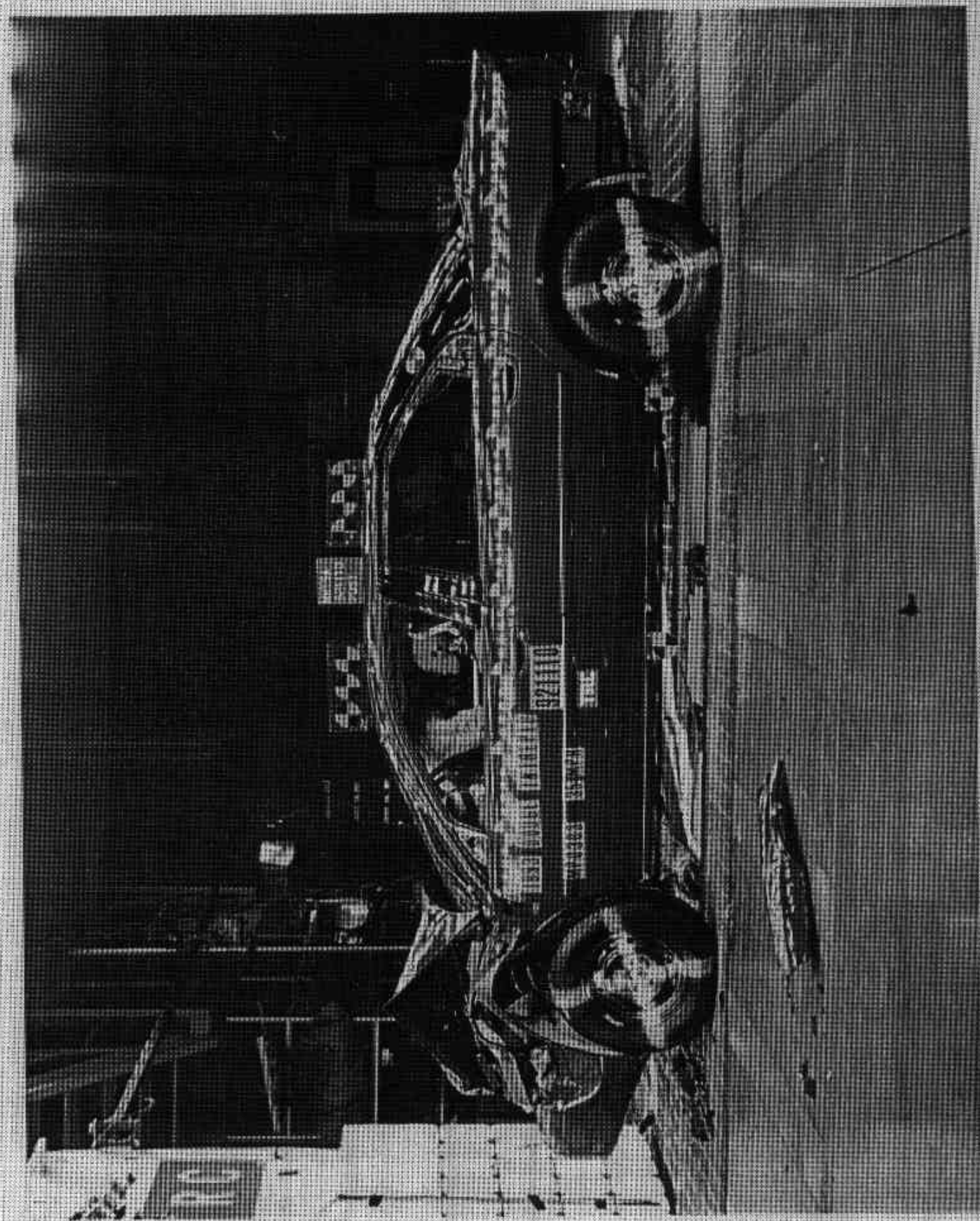


FIGURE A-4. POST-TEST LEFT SIDE VIEW
A-5

921110

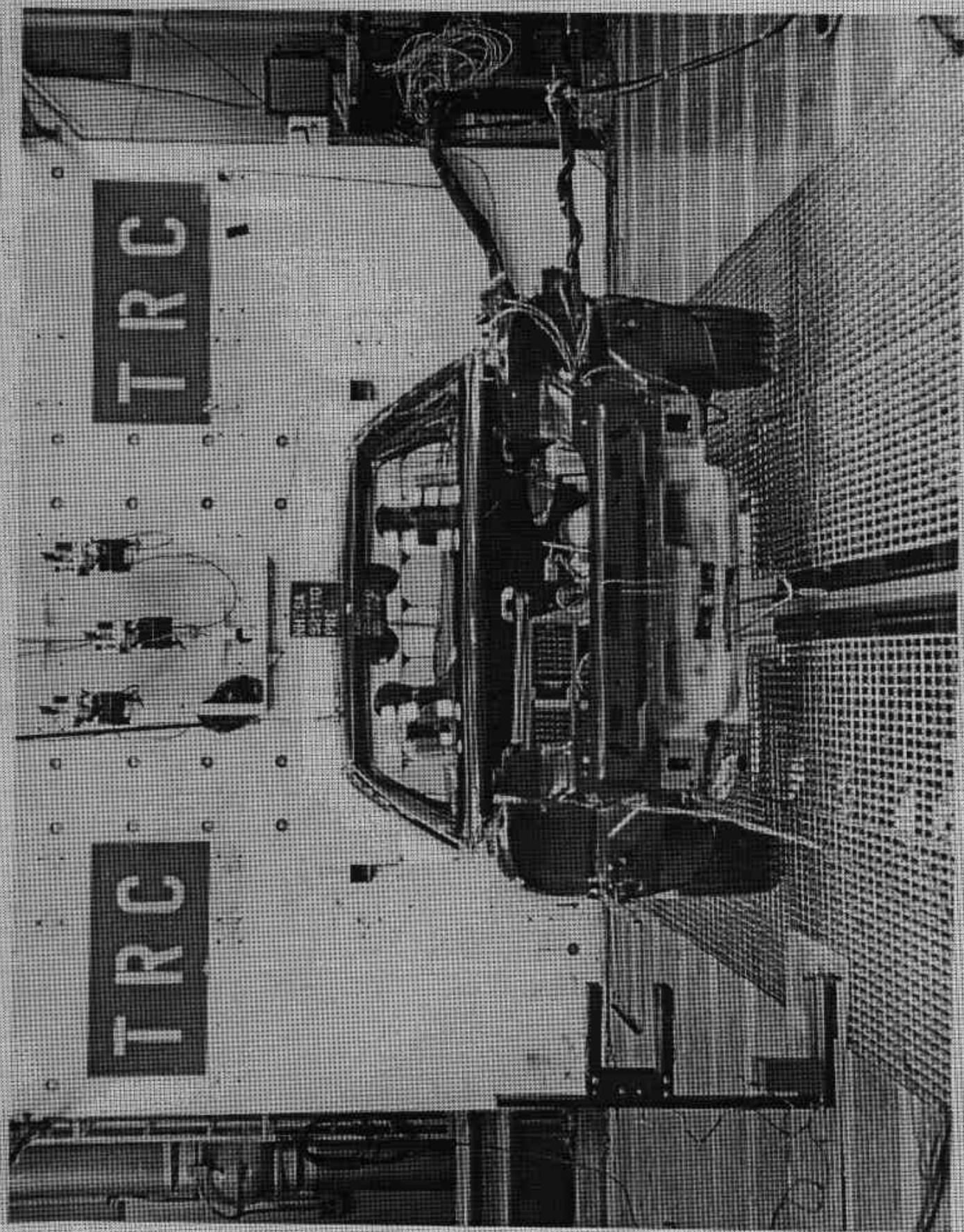


FIGURE A-5. PRE-TEST REAR VIEW

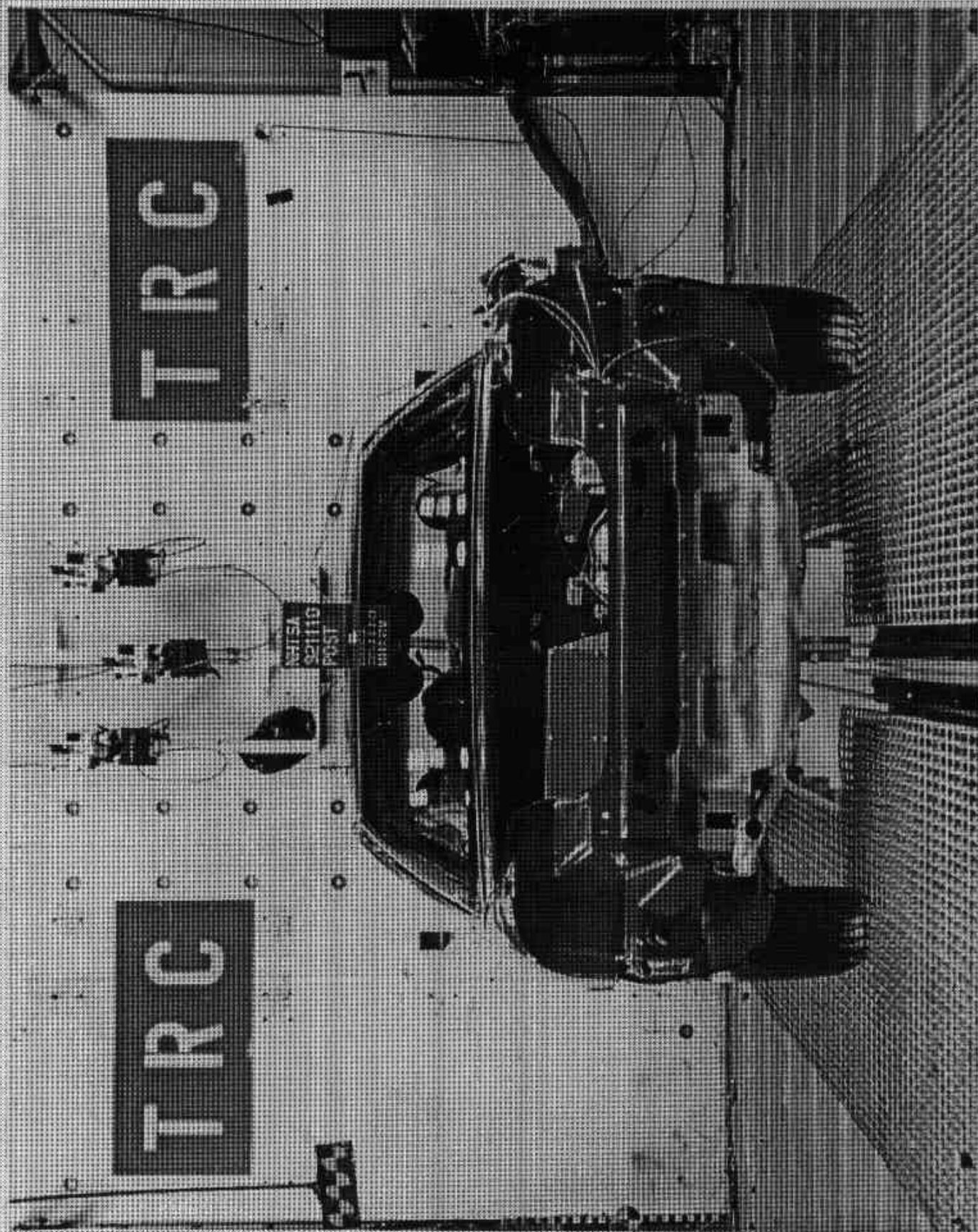


FIGURE A-6. POST-TEST REAR VIEW

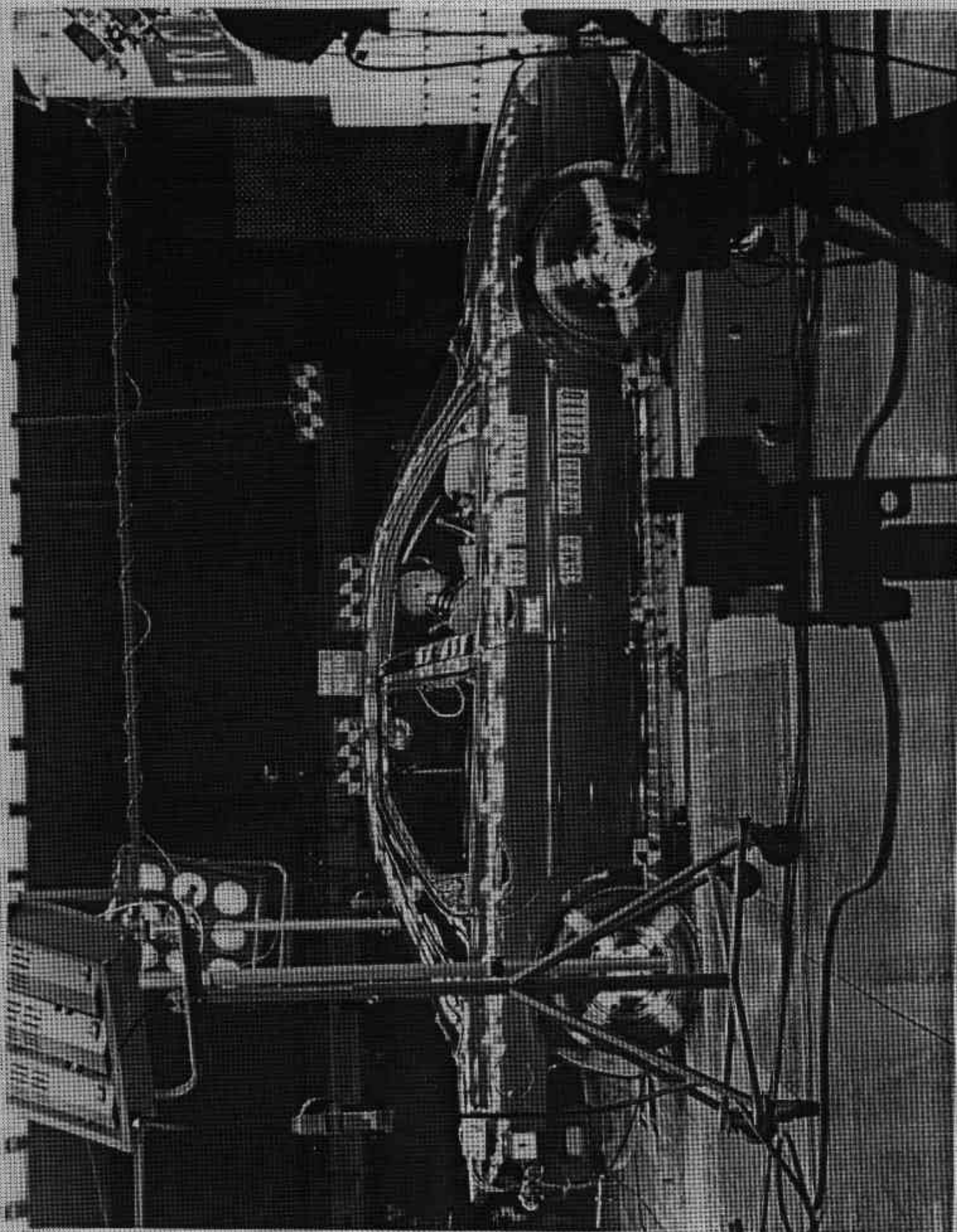


FIGURE A-7. PRE-TEST RIGHT SIDE VIEW

A-8

921110

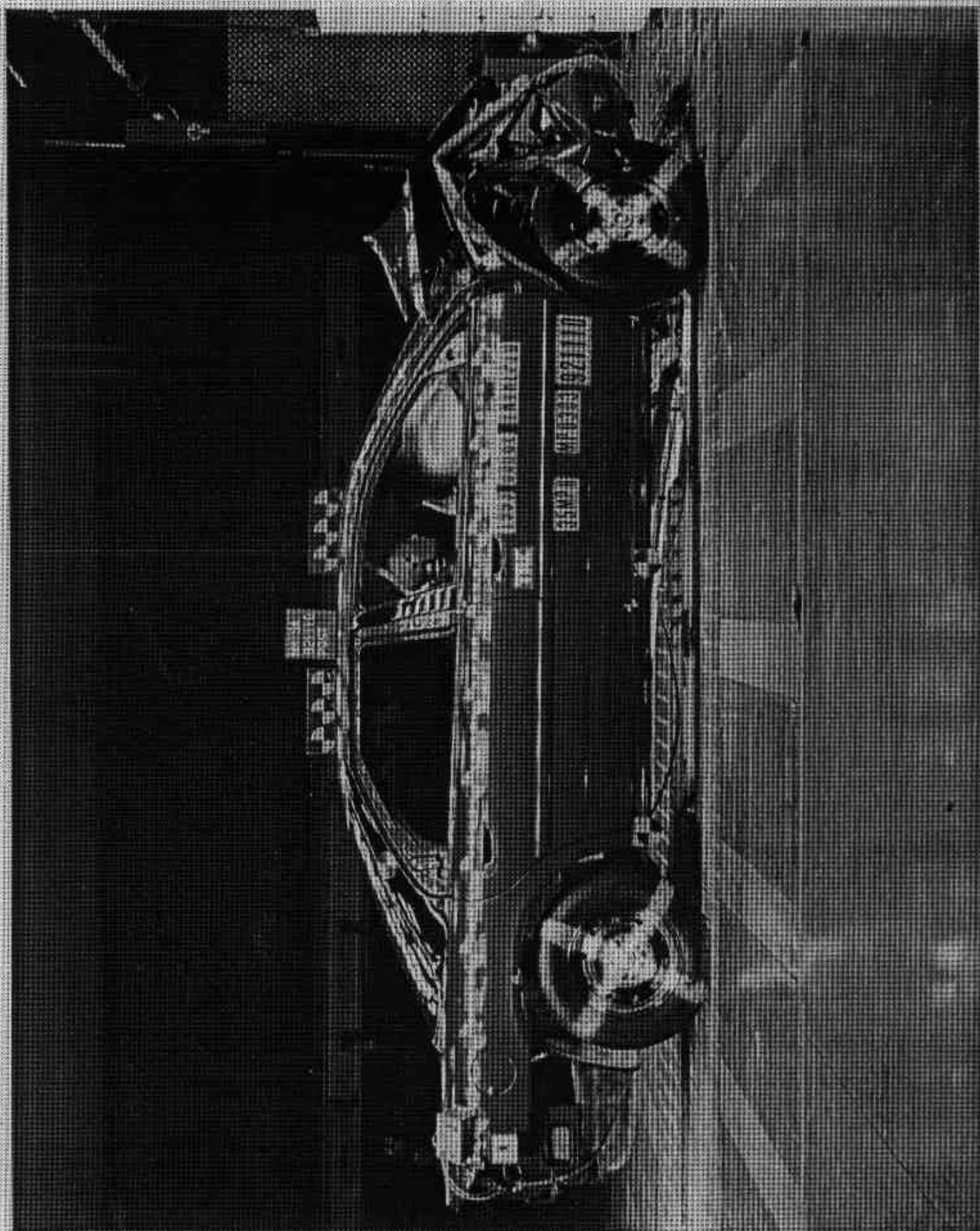


FIGURE A-8. POST-TEST RIGHT SIDE VIEW

A-9

921110

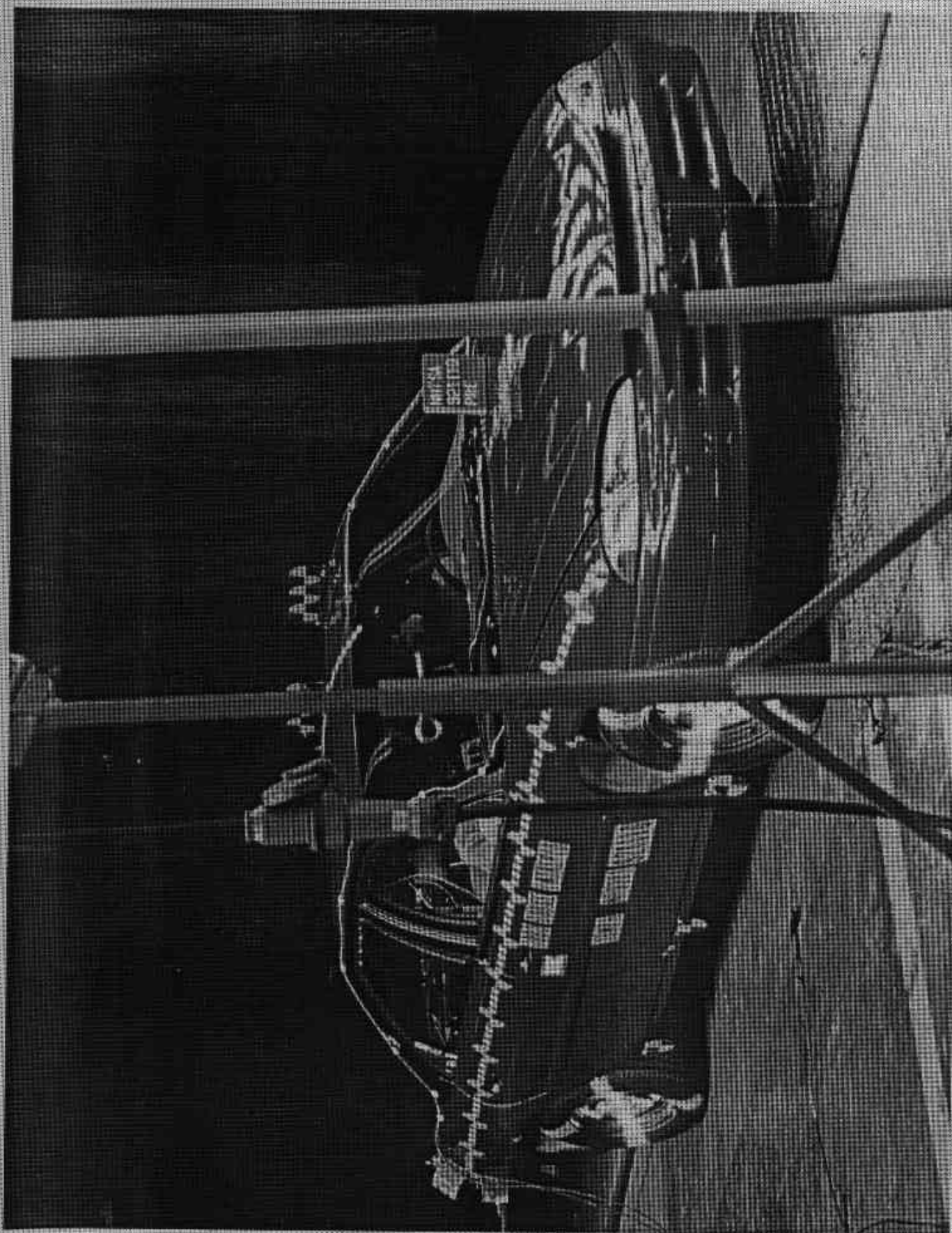


FIGURE A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

A-10

921110

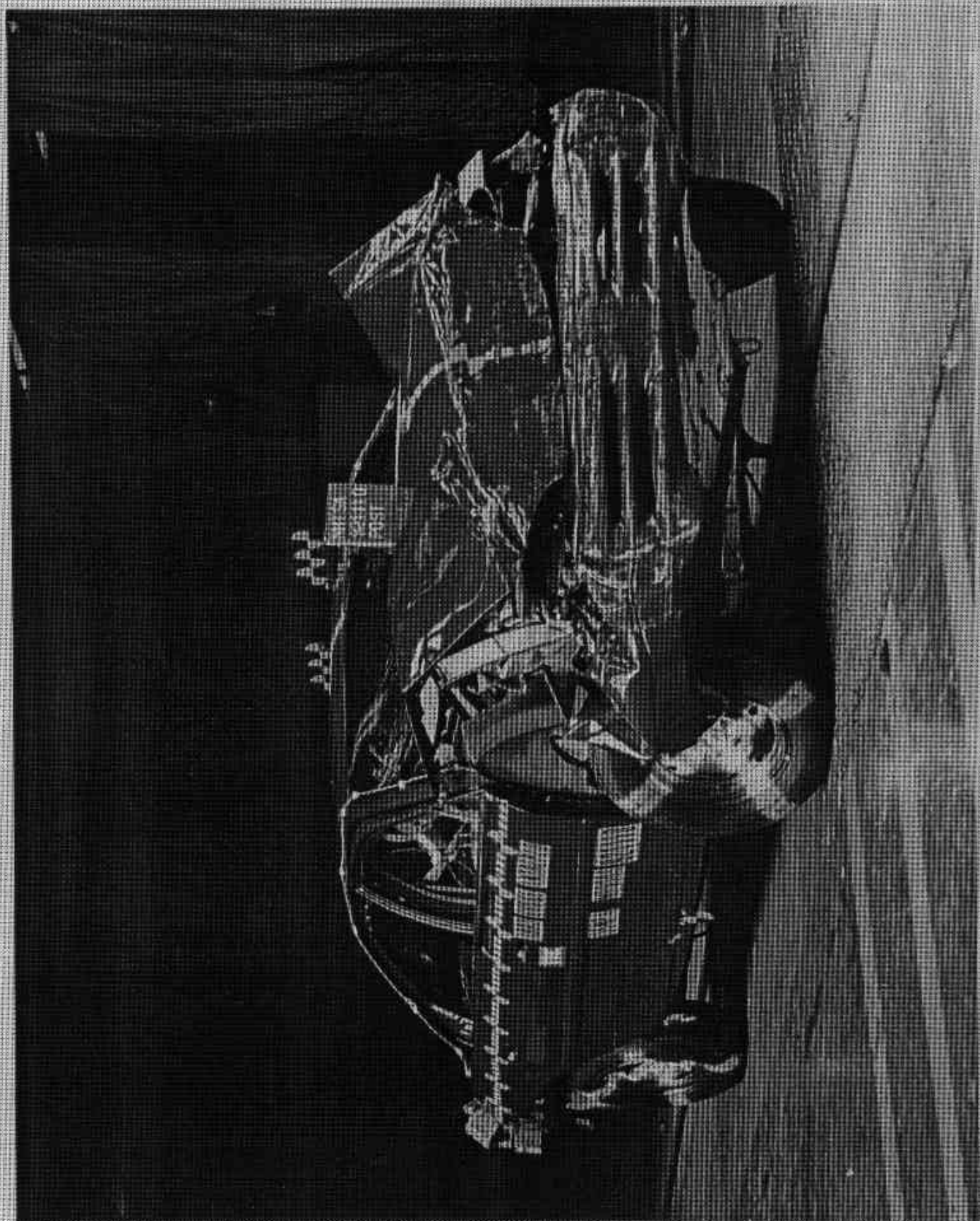


FIGURE A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-11

921110

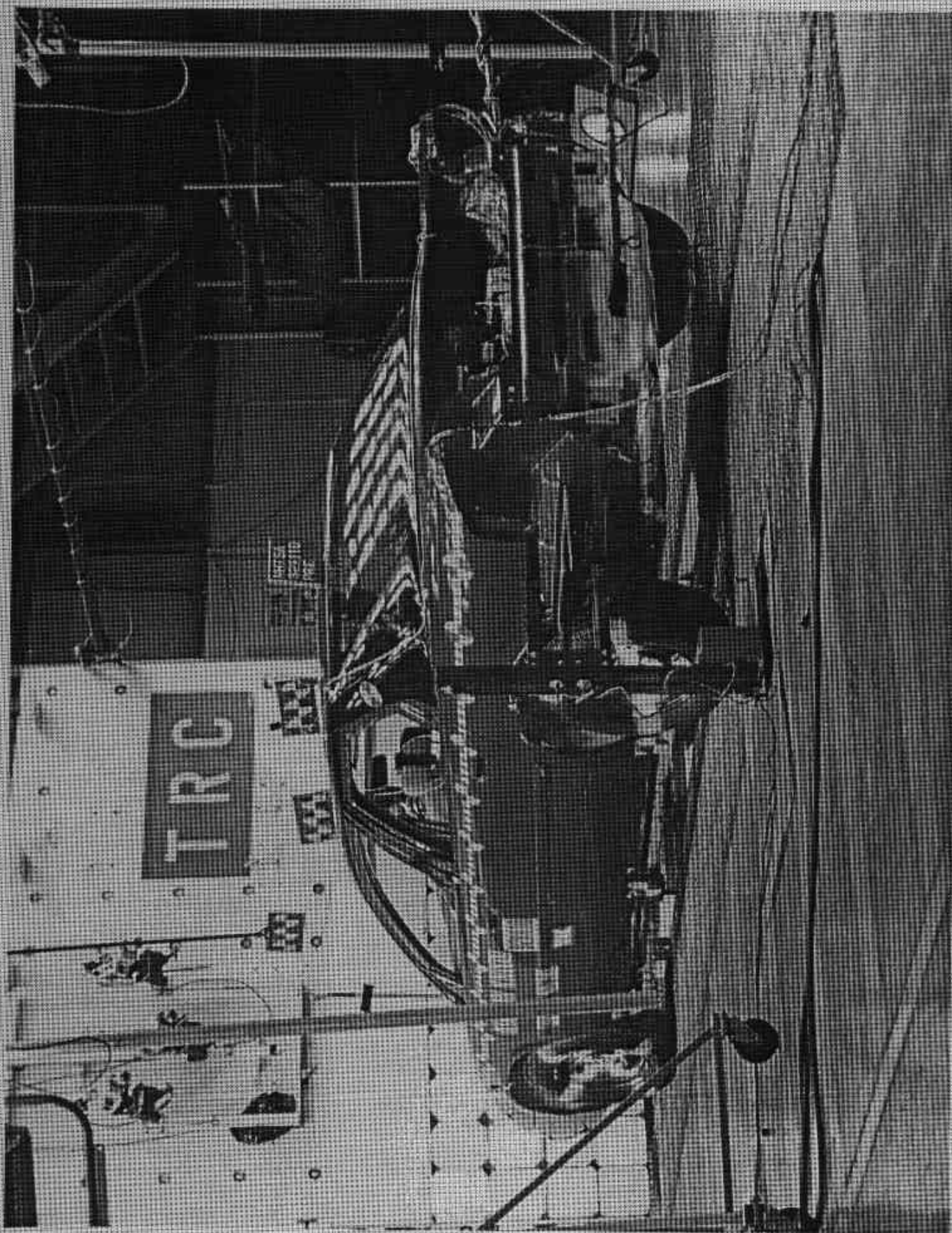


FIGURE A-11. PRE-TEST LEFT REAR THREE-QUARTER VIEW
A-12

921110

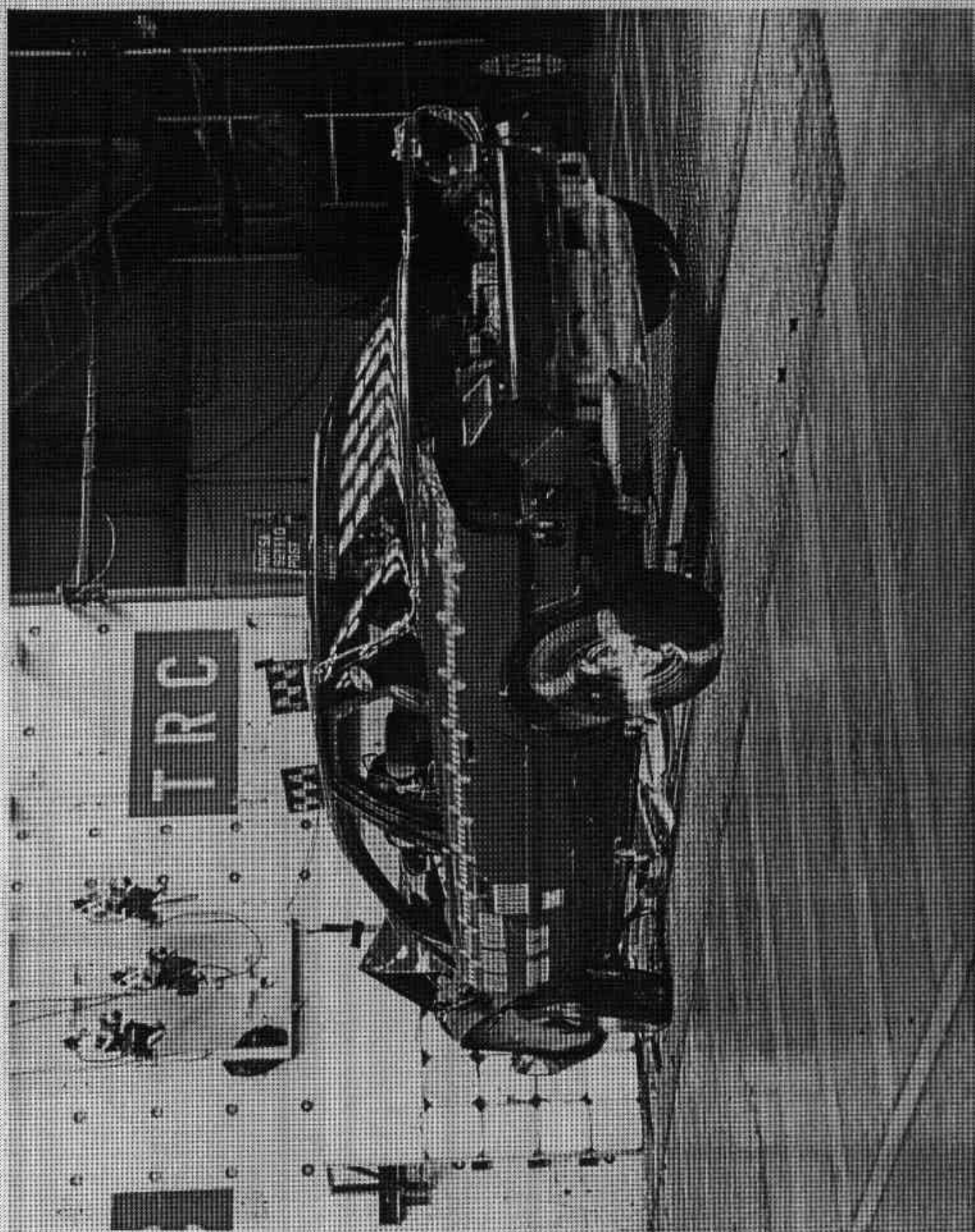


FIGURE A-12. POST-TEST LEFT REAR THREE-QUARTER VIEW
A-13

921110

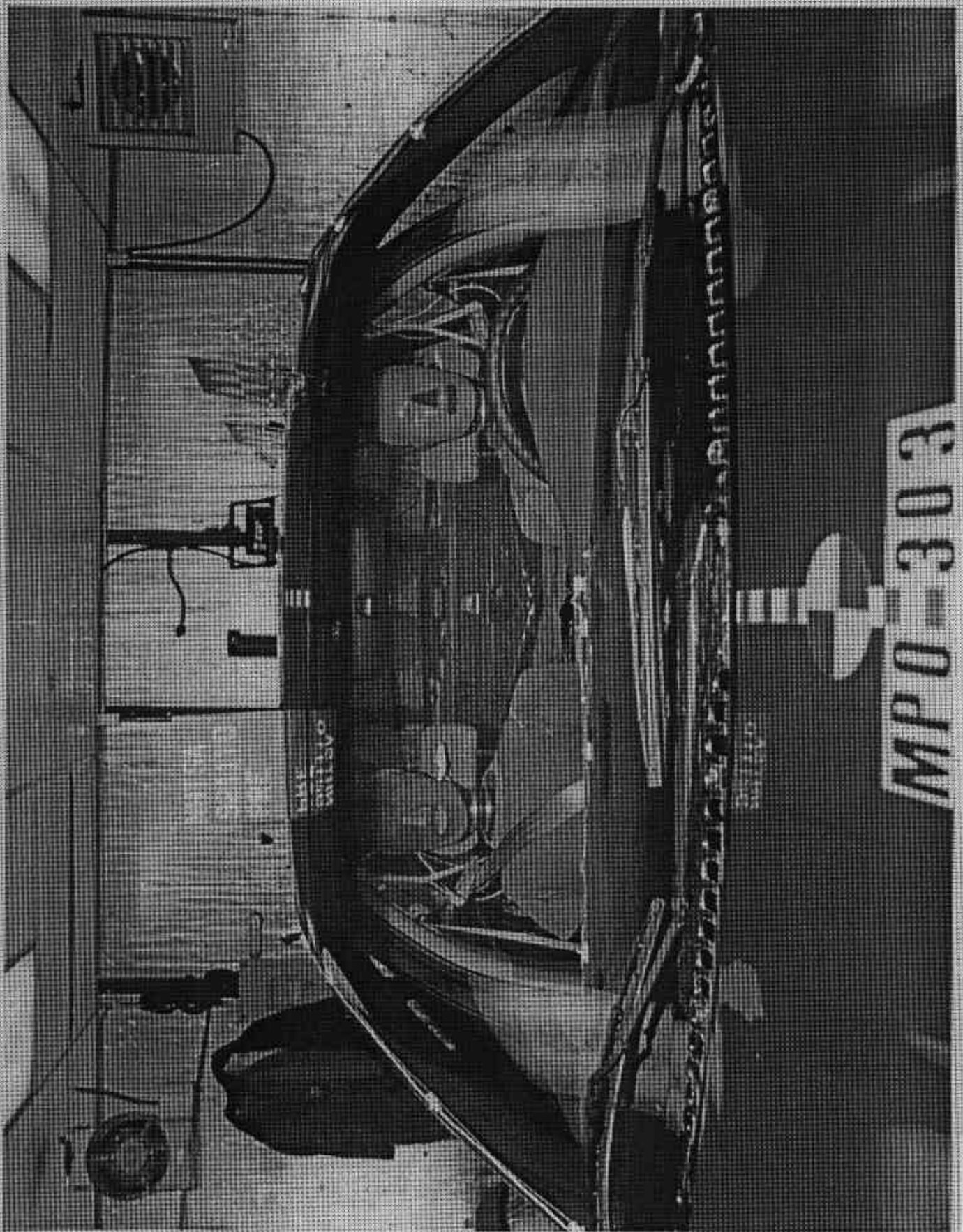


FIGURE A-13. PRE-TEST WINDSHIELD VIEW

A-14

921110

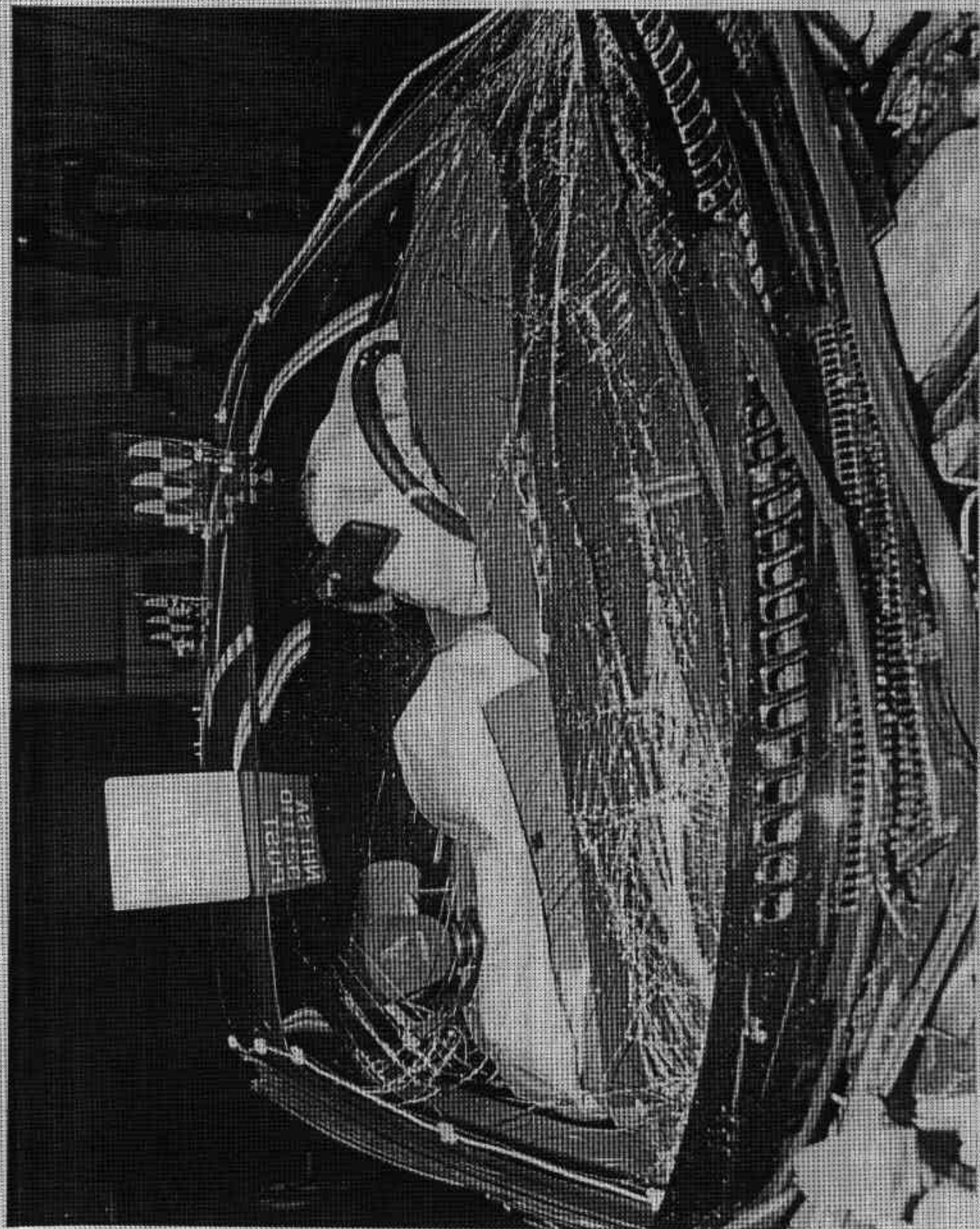


FIGURE A-14. POST-TEST WINDSHIELD VIEW
A-15

921110

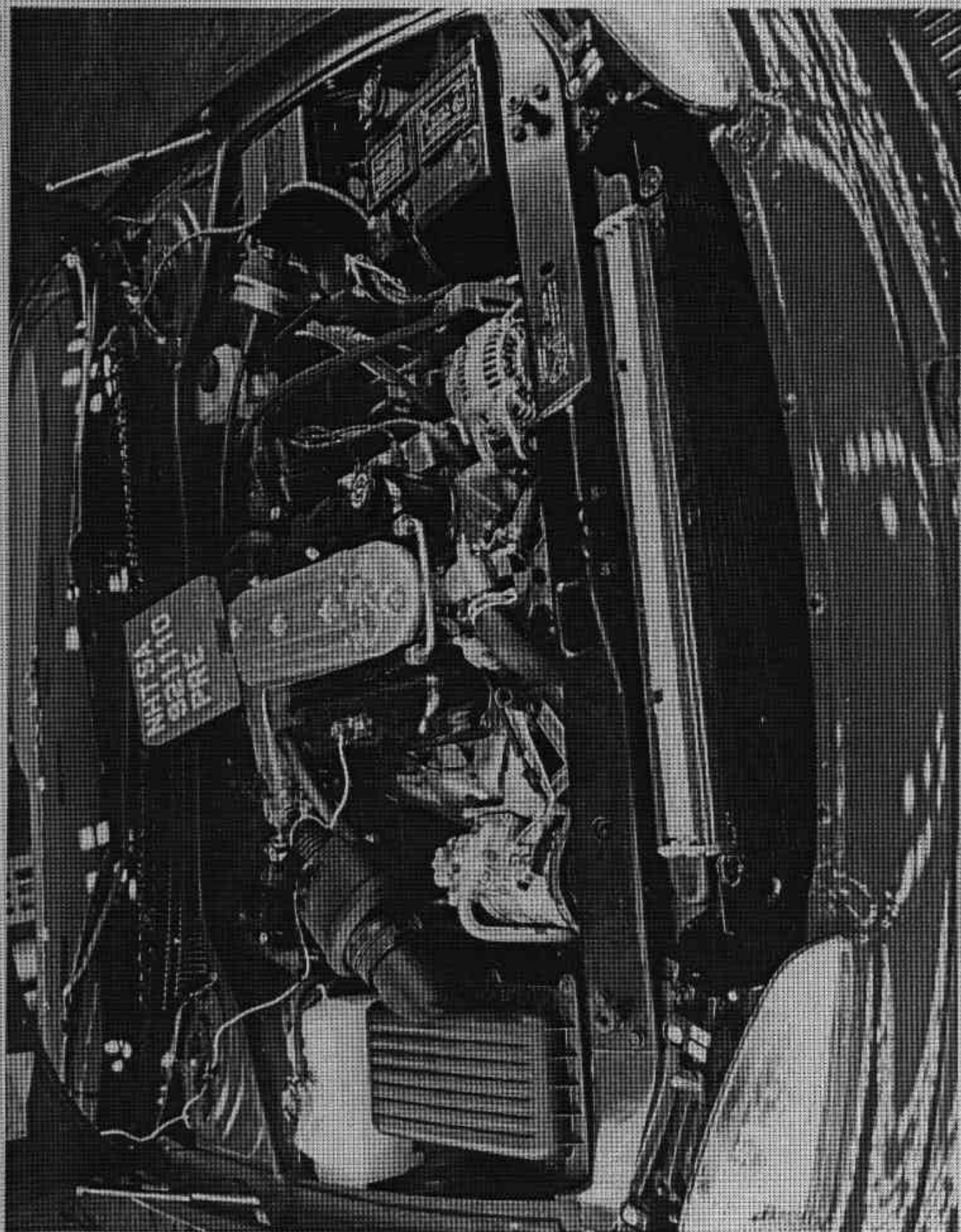


FIGURE A-15. PRE-TEST ENGINE COMPARTMENT VIEW
A-16

921110

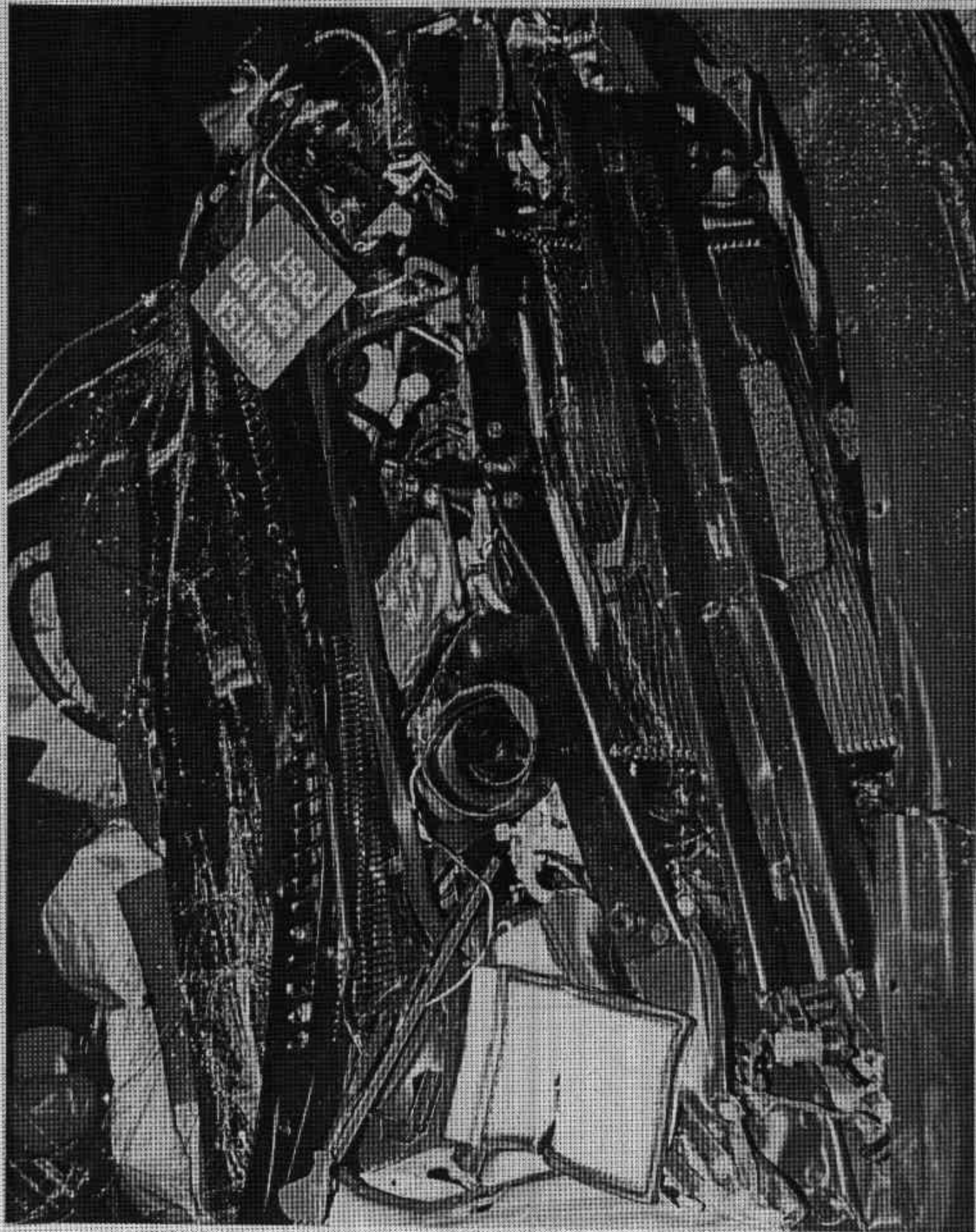


FIGURE A-16. POST-TEST ENGINE COMPARTMENT VIEW
A-17

921110

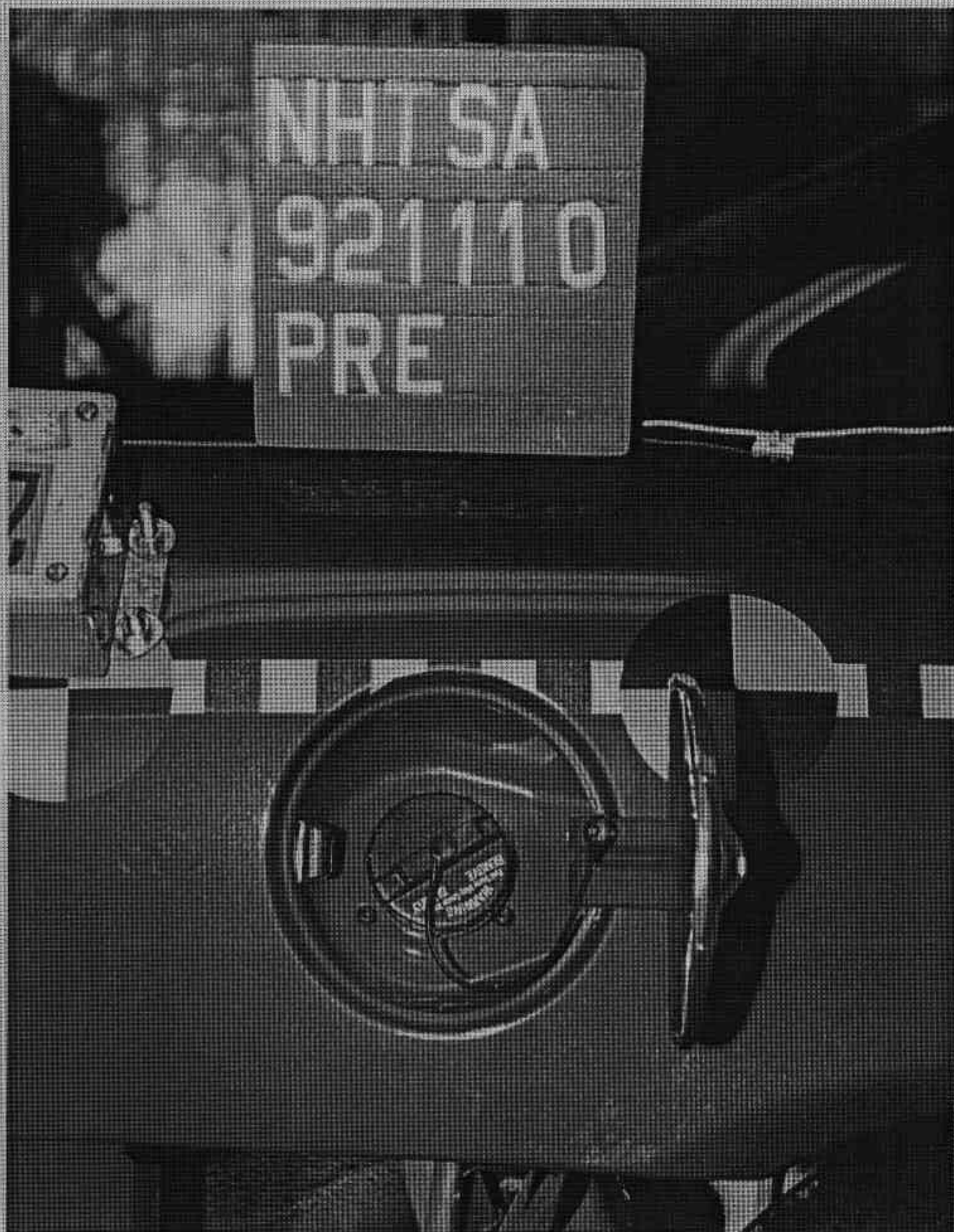


FIGURE A-17. PRE-TEST FUEL FILLER CAP VIEW
A-18

921110

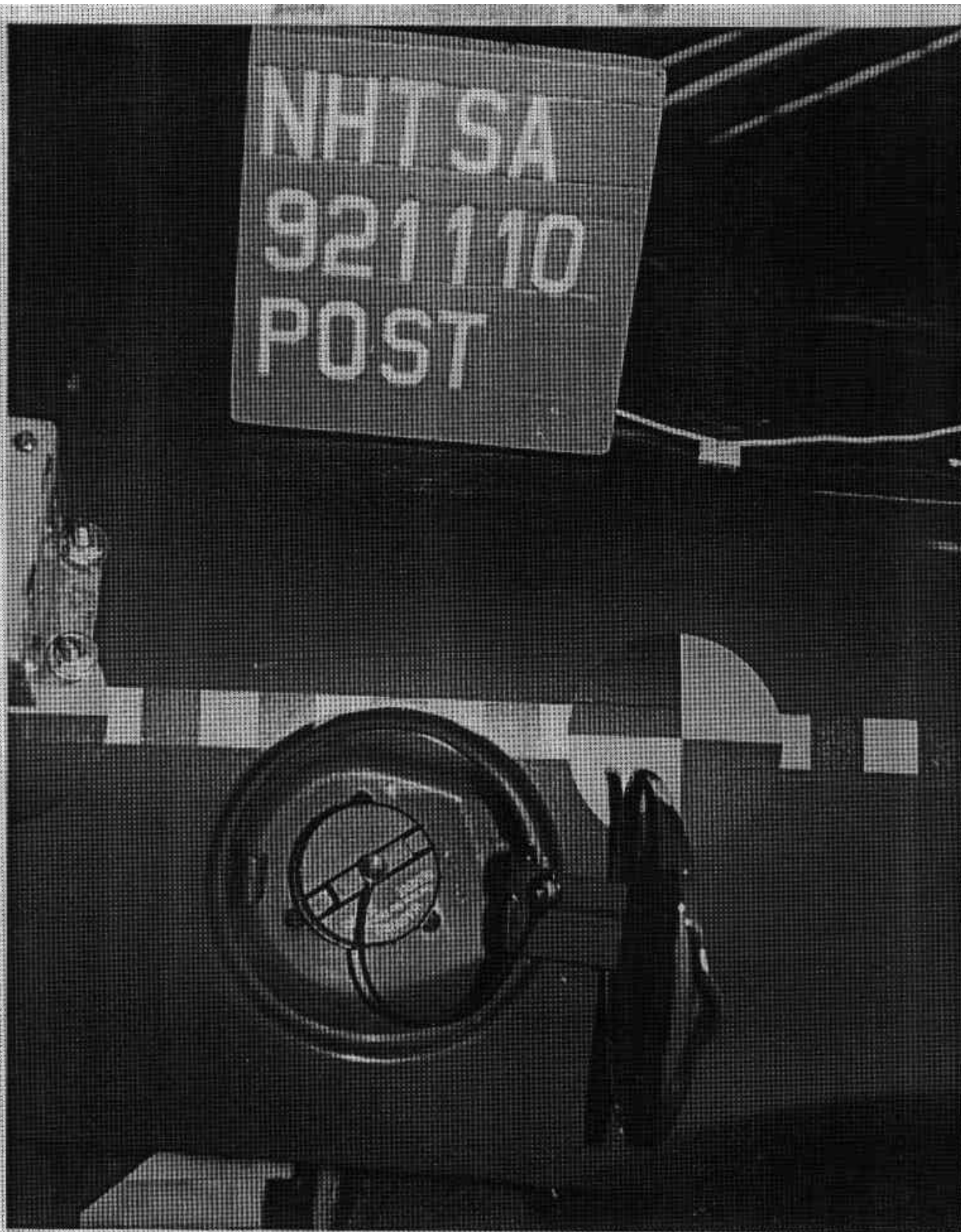


FIGURE A-18. POST-TEST FUEL FILLER CAP VIEW

A-19

921110



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

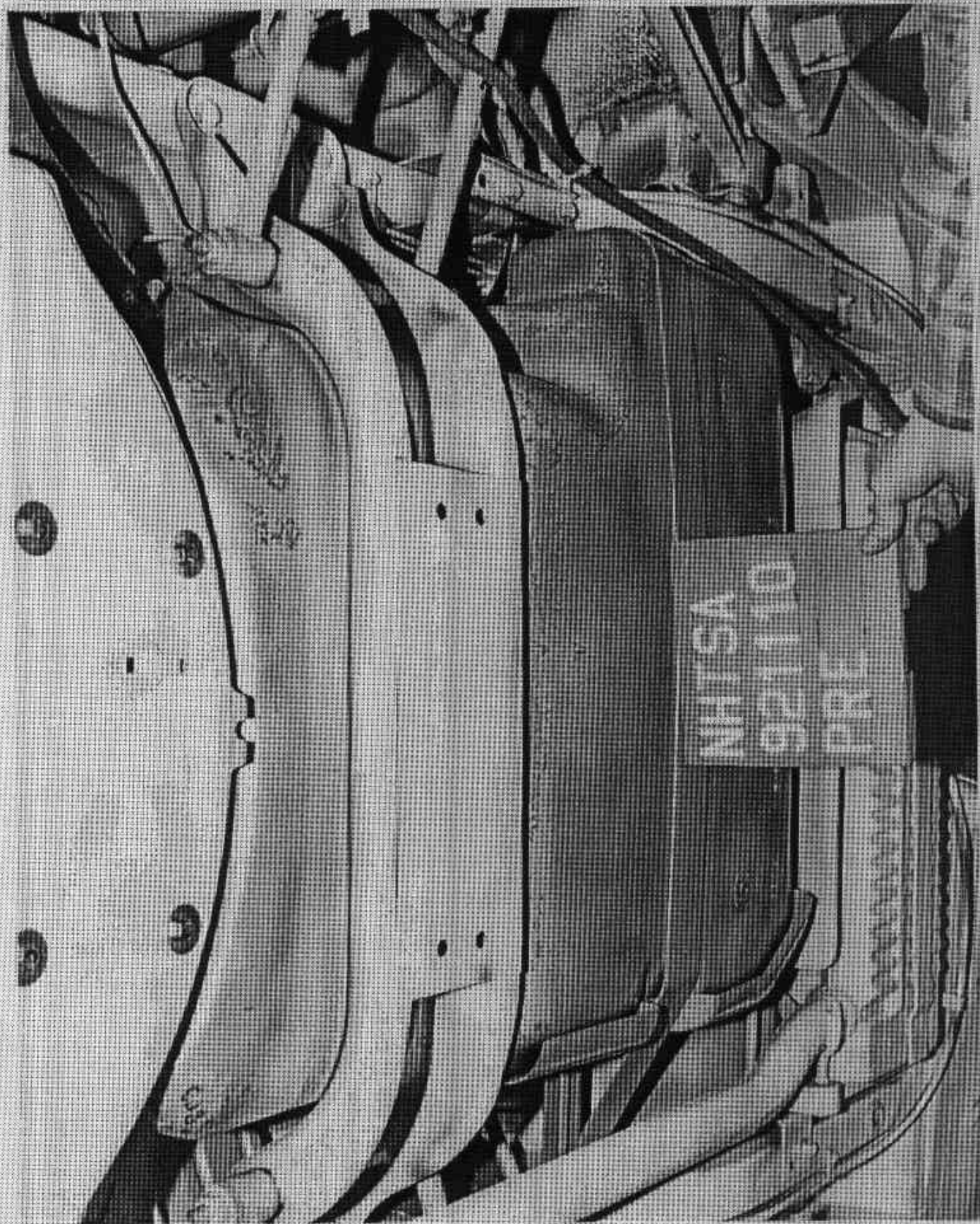


FIGURE A-20. PRE-TEST FUEL TANK VIEW
A-21

921110

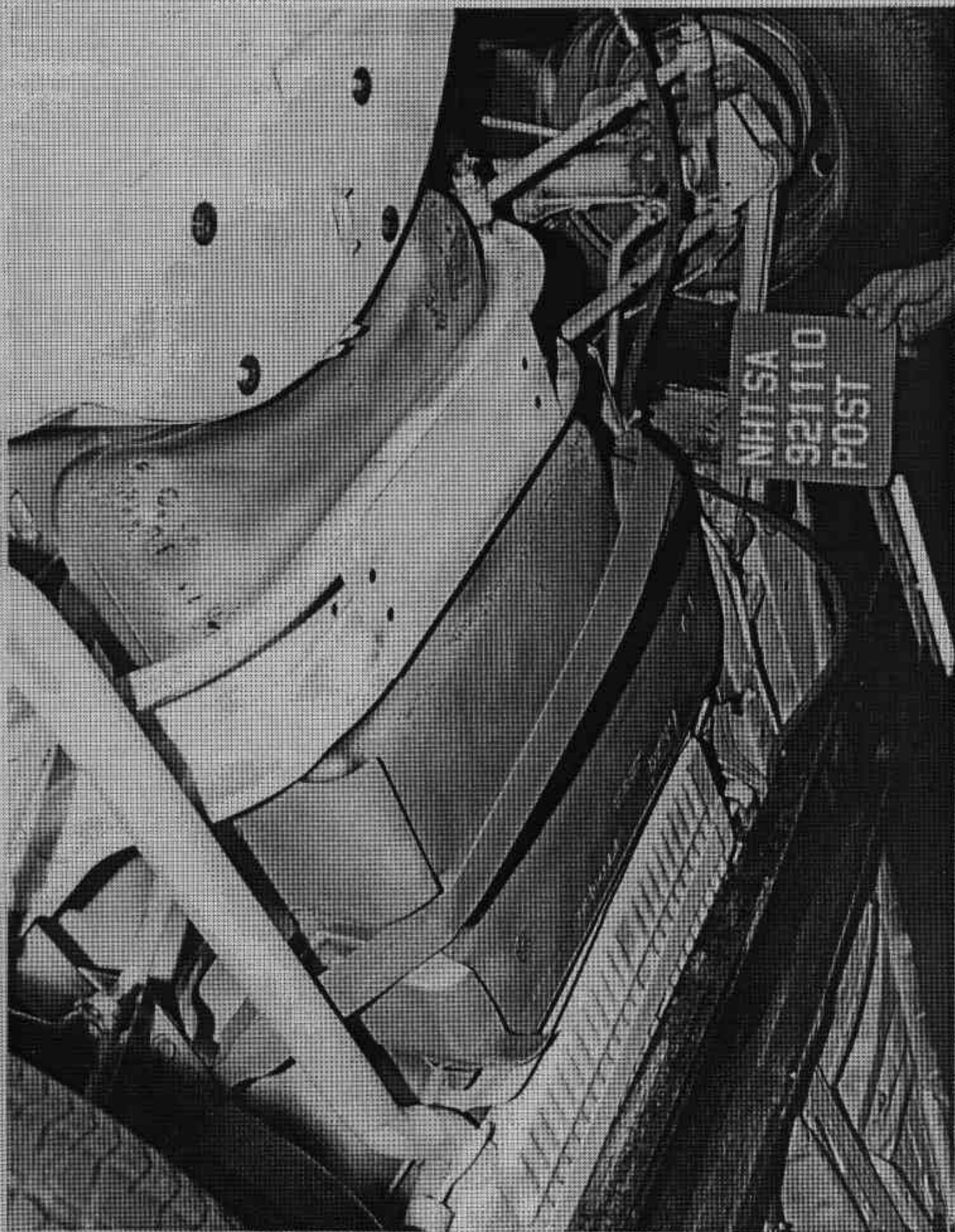


FIGURE A-21. POST-TEST FUEL TANK VIEW

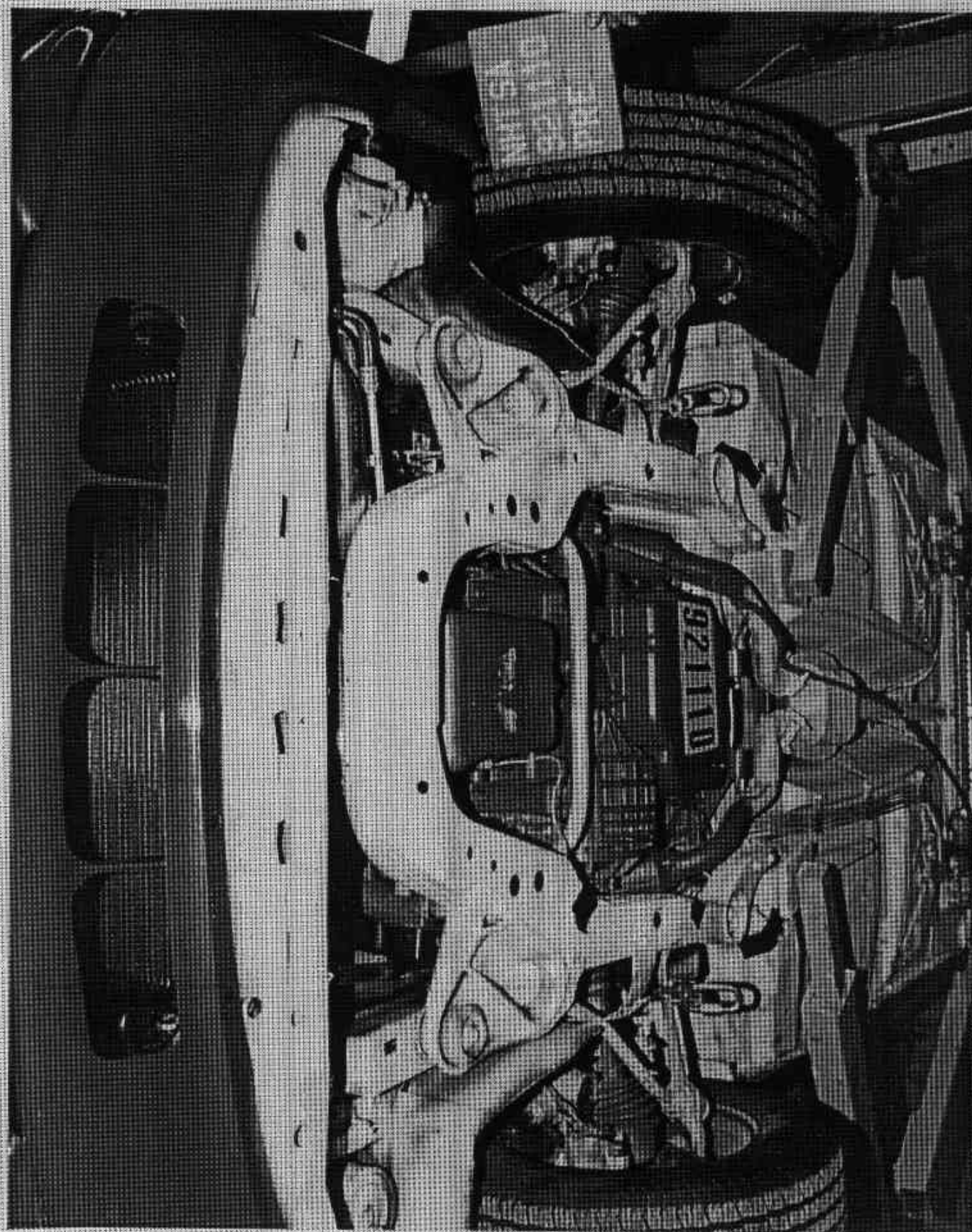


FIGURE A-22. PRE-TEST FRONT UNDERBODY VIEW
A-23

921110



FIGURE A-23. POST-TEST FRONT UNDERBODY VIEW

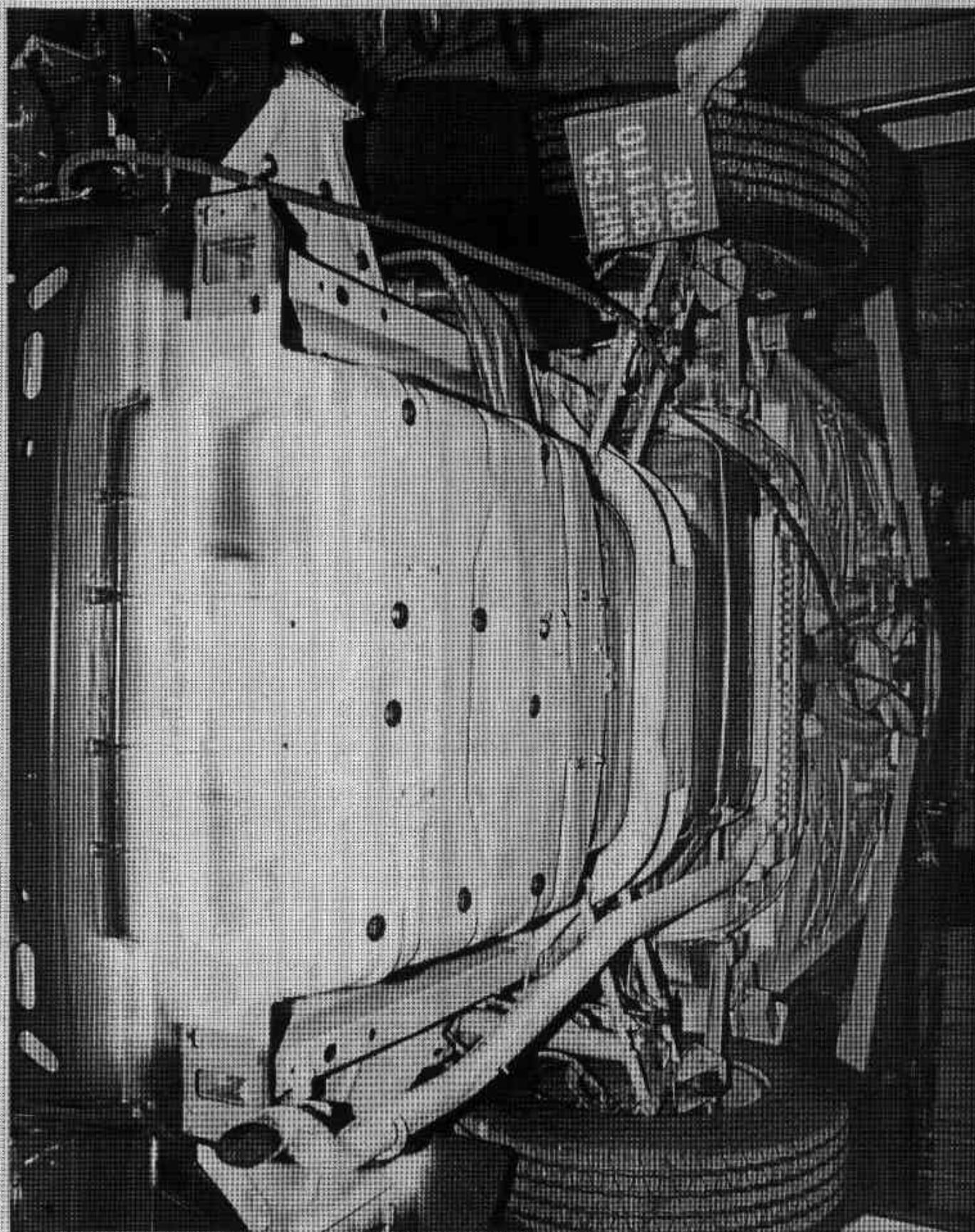


FIGURE A-24. PRE-TEST REAR UNDERBODY VIEW
A-25

921110

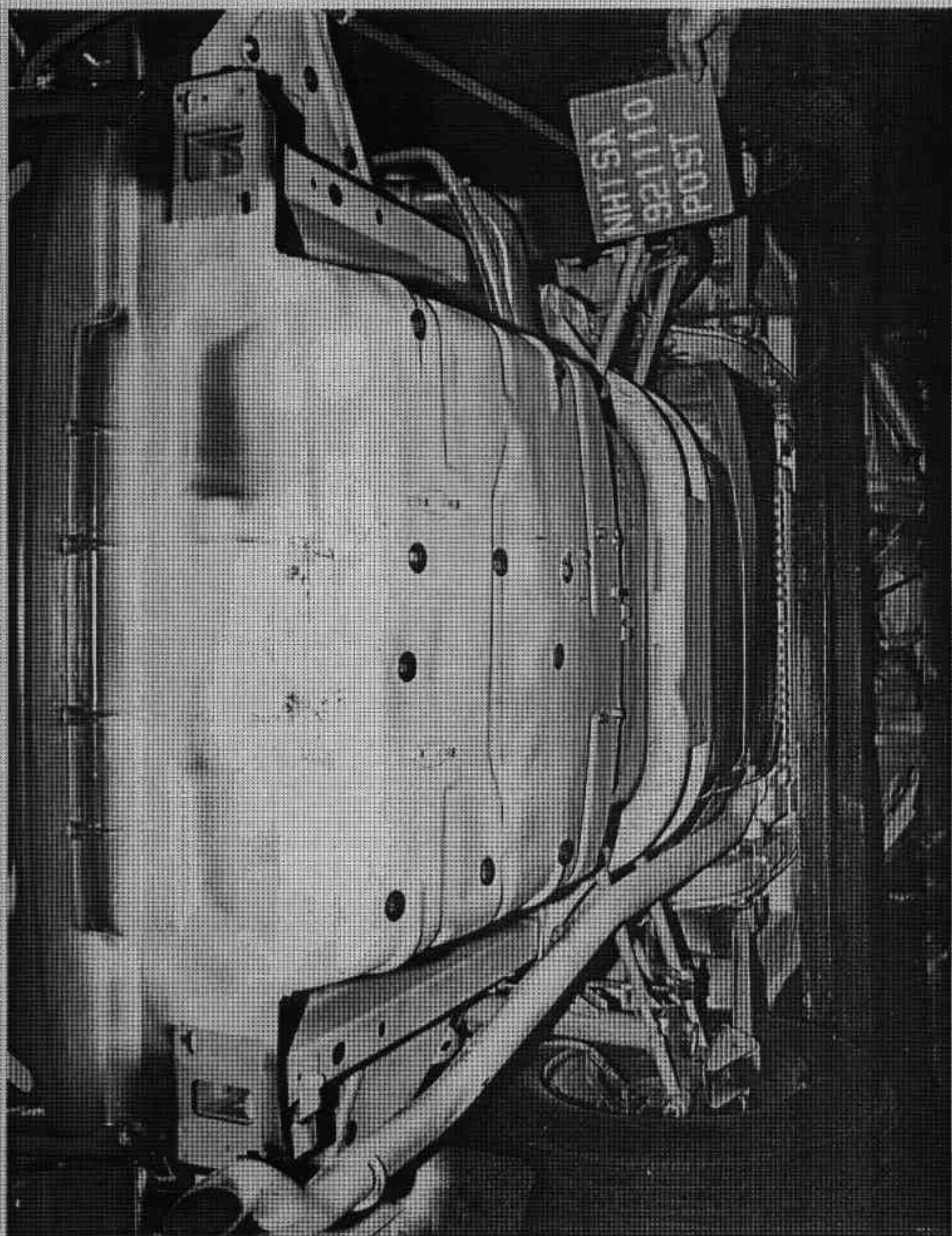


FIGURE A-25. POST-TEST REAR UNDERBODY VIEW
A-26

921110



FIGURE A-26. PRE-TEST DRIVER DUMMY POSITION VIEW

A-27

921110



FIGURE A-27. POST-TEST DRIVER DUMMY POSITION VIEW



FIGURE A-28. PRE-TEST PASSENGER DUMMY POSITION VIEW

A-29

921110

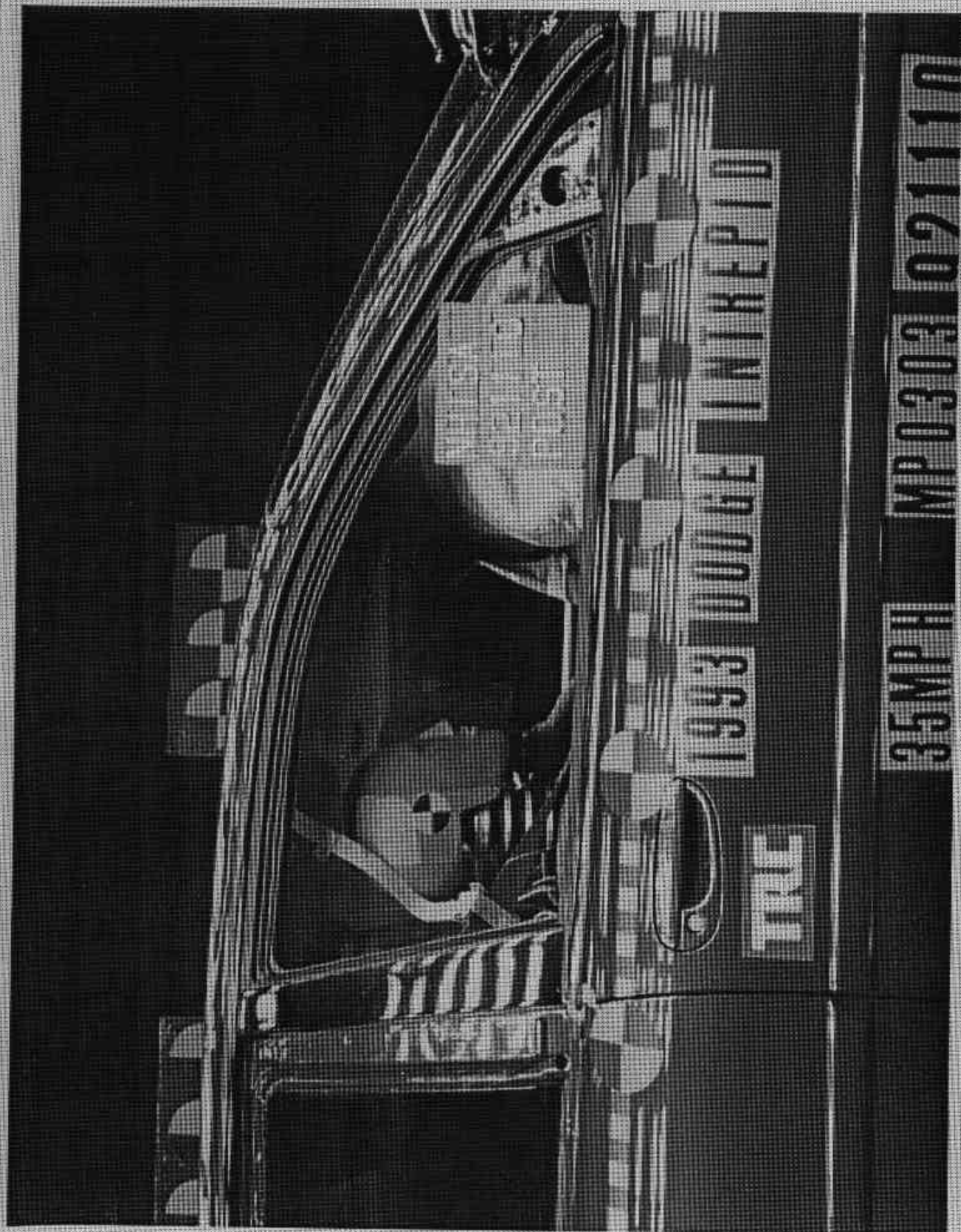


FIGURE A-29. POST-TEST PASSENGER DUMMY POSITION VIEW

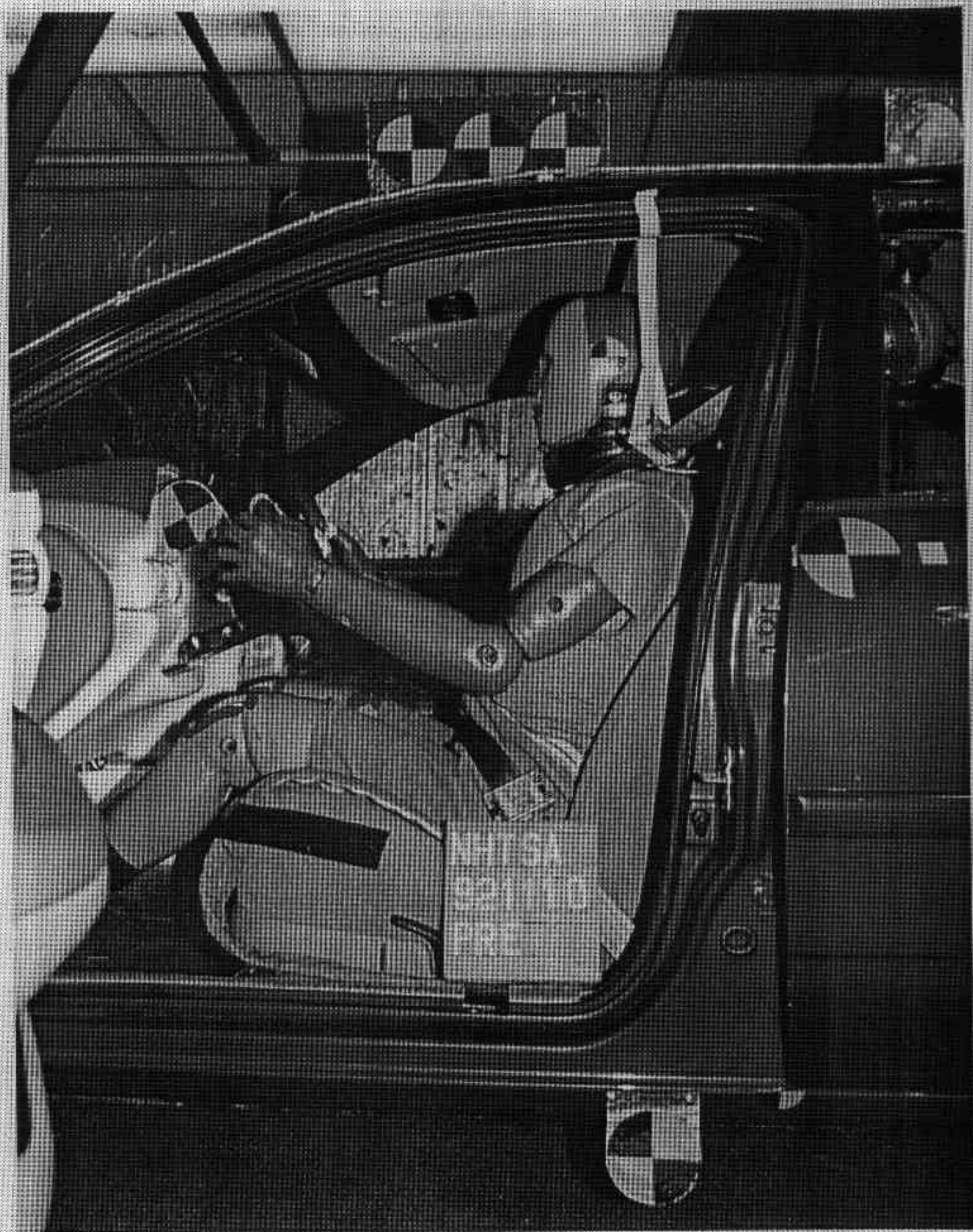


FIGURE A-30. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

A-31

921110



FIGURE A-31. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

A-32

921110

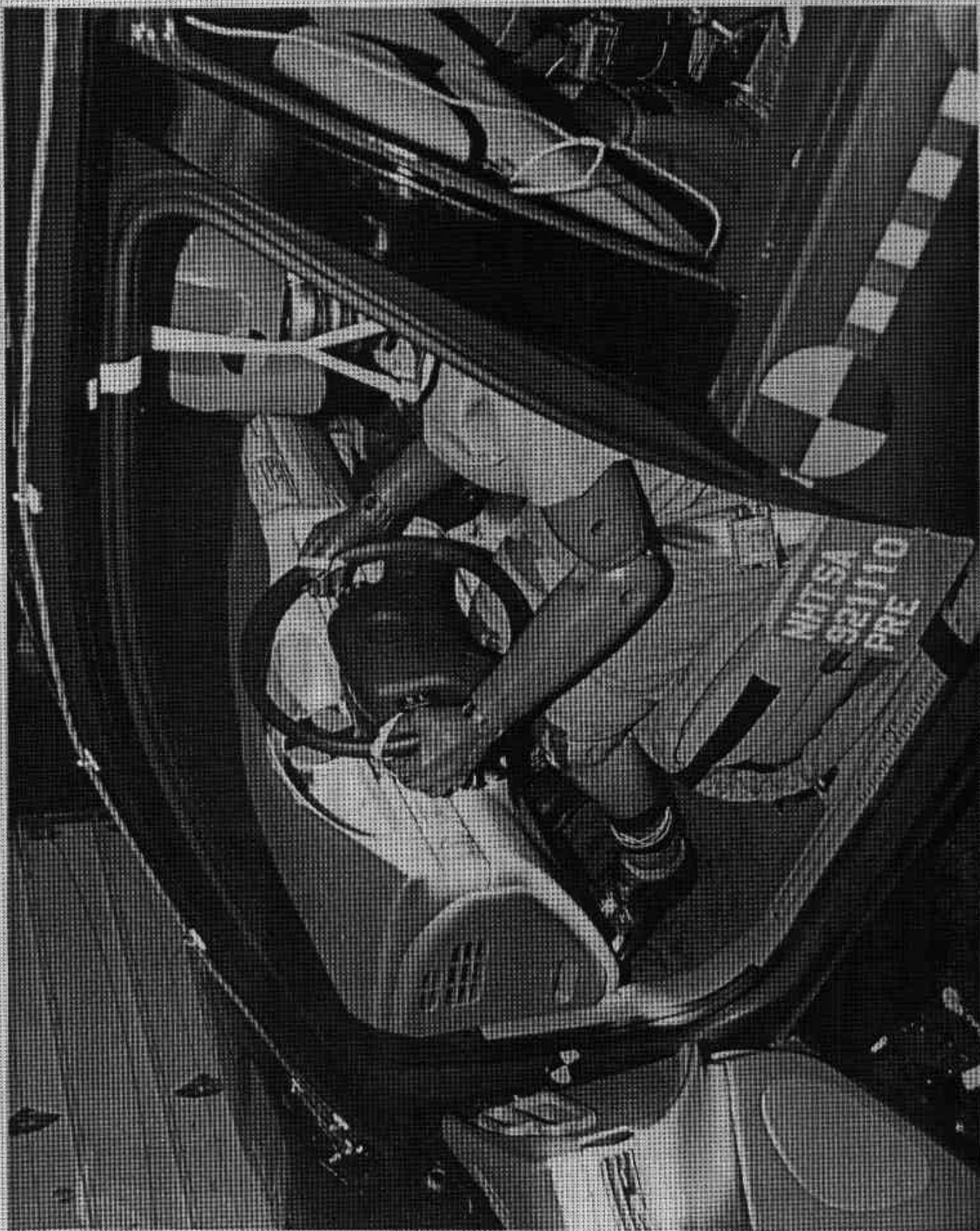


FIGURE A-32, PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

A-33

921110



FIGURE A-33. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

A-34

921110



FIGURE A-34. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1
A-35 921110



FIGURE A-35. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

A-36

921110



FIGURE A-36. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2
A-37 921110



FIGURE A-37. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2
A-38 921110

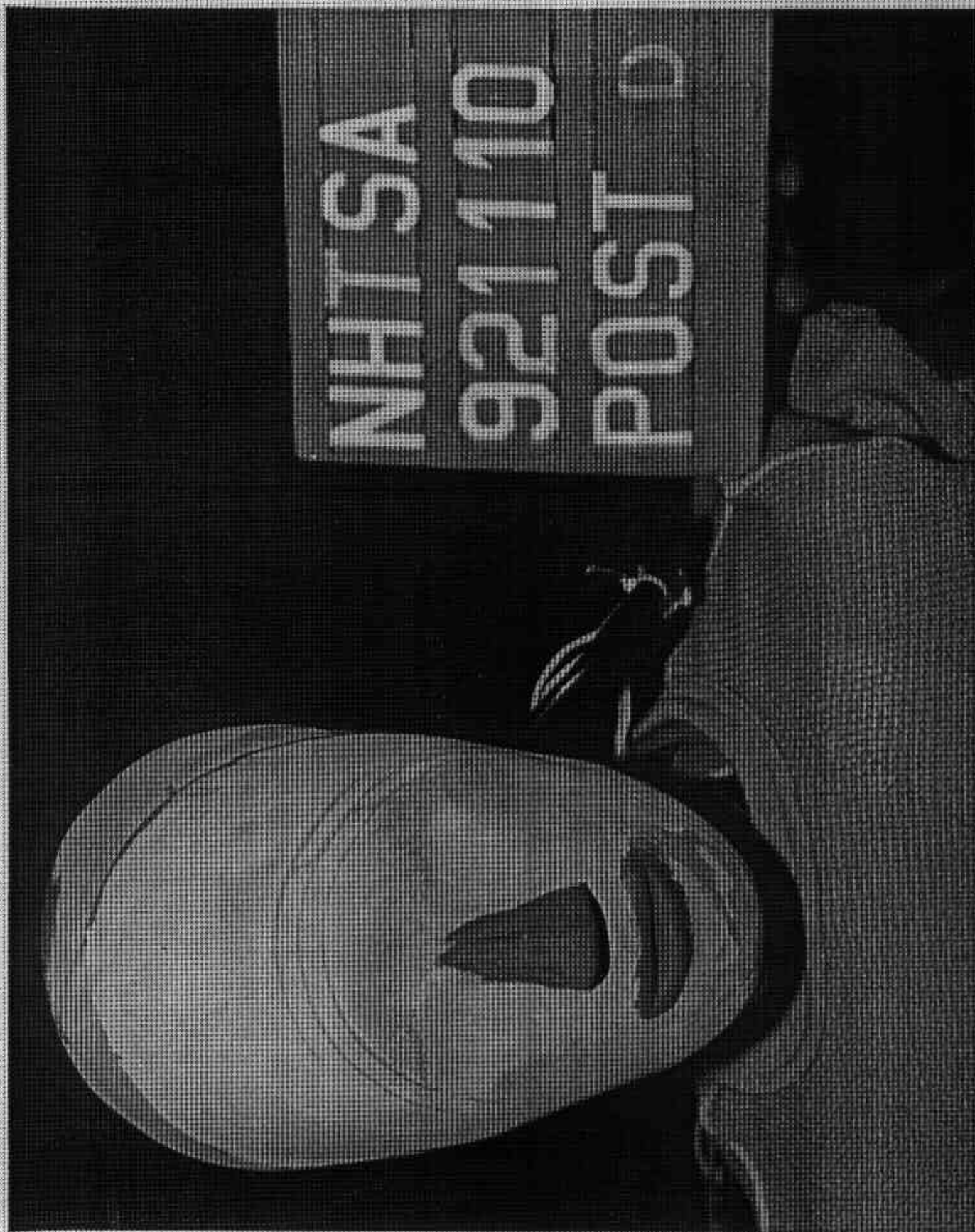


FIGURE A-38. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1

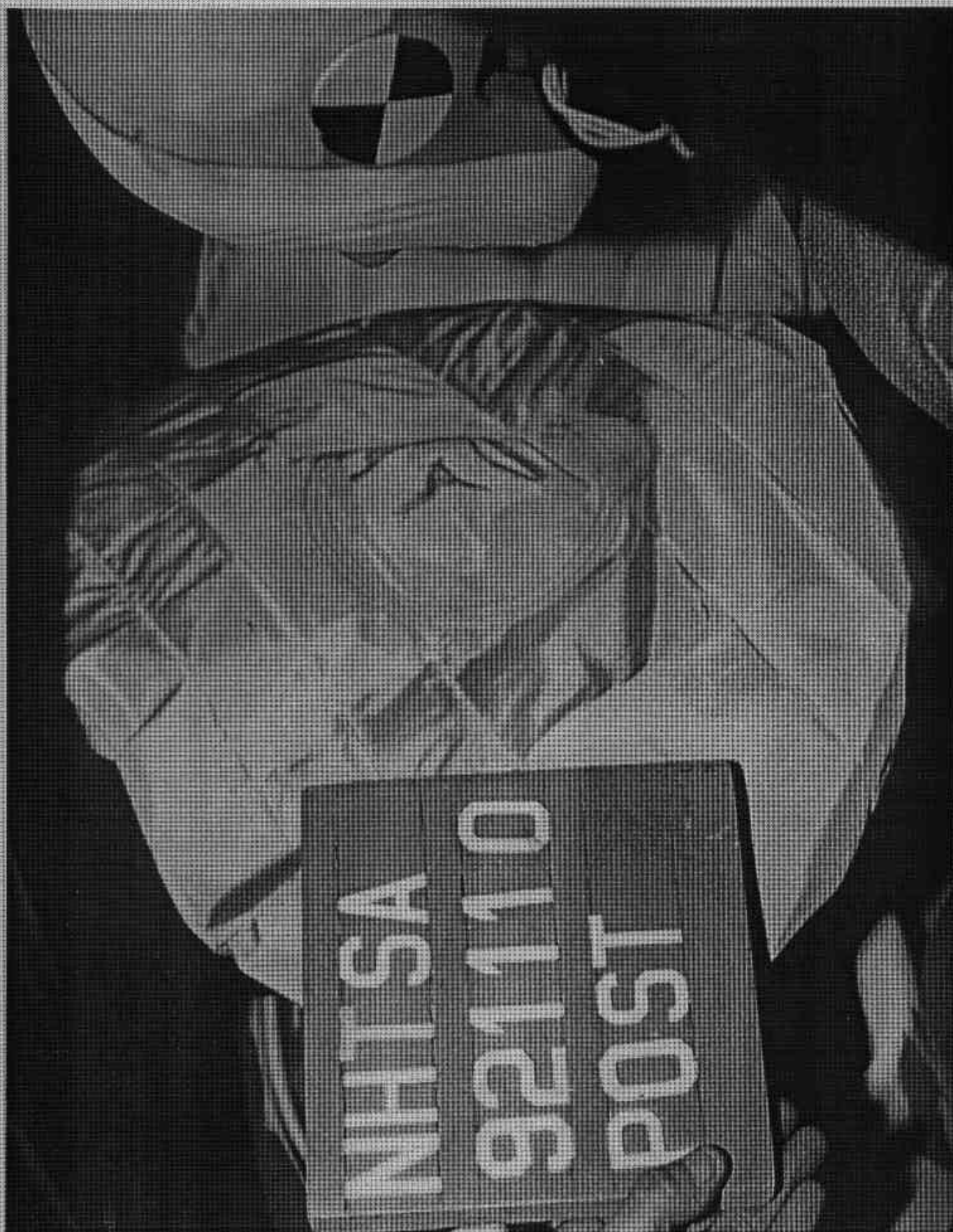


FIGURE A-39. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 2



FIGURE A-40. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1

A-41

921110

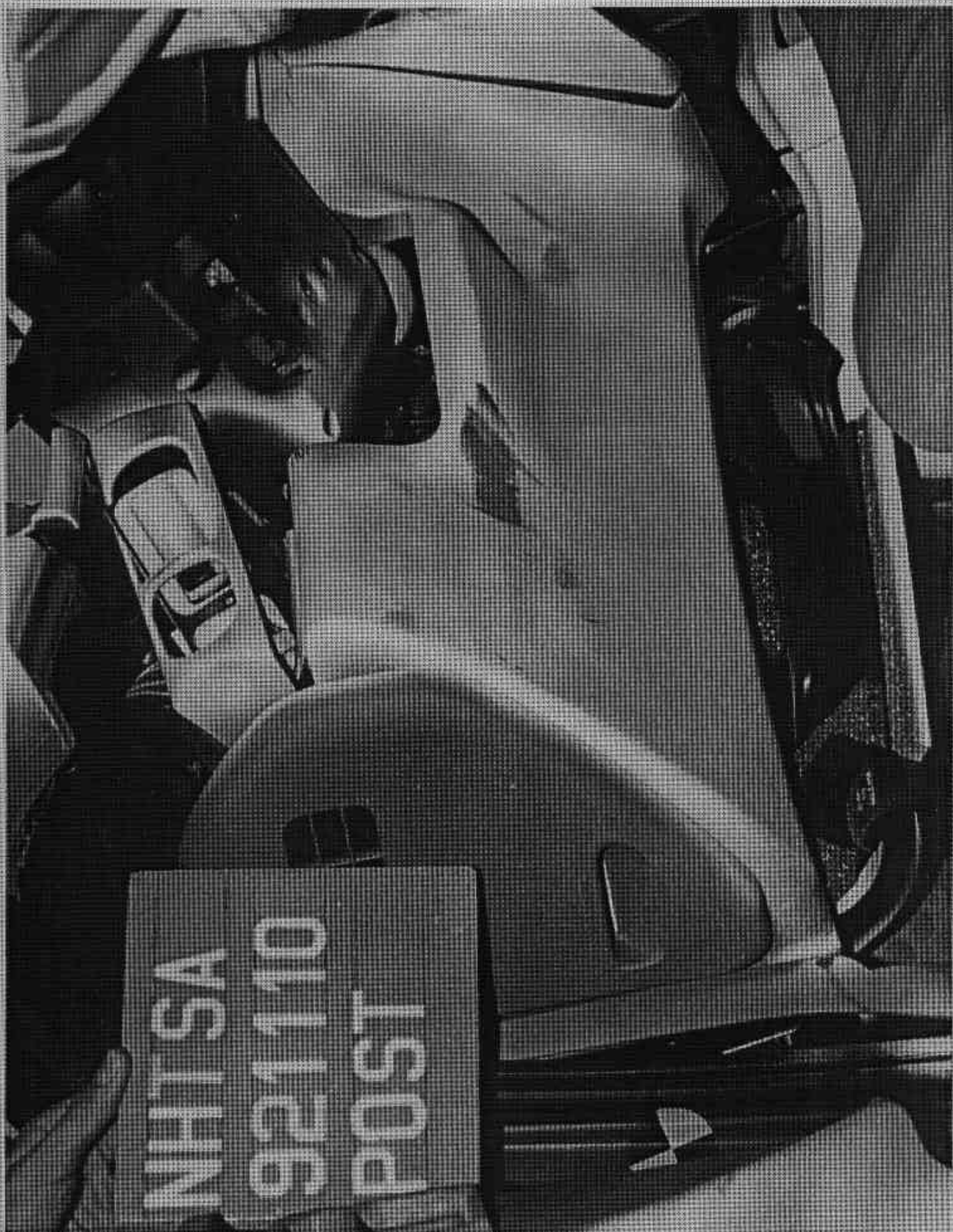


FIGURE A-41. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2

A-42

921110

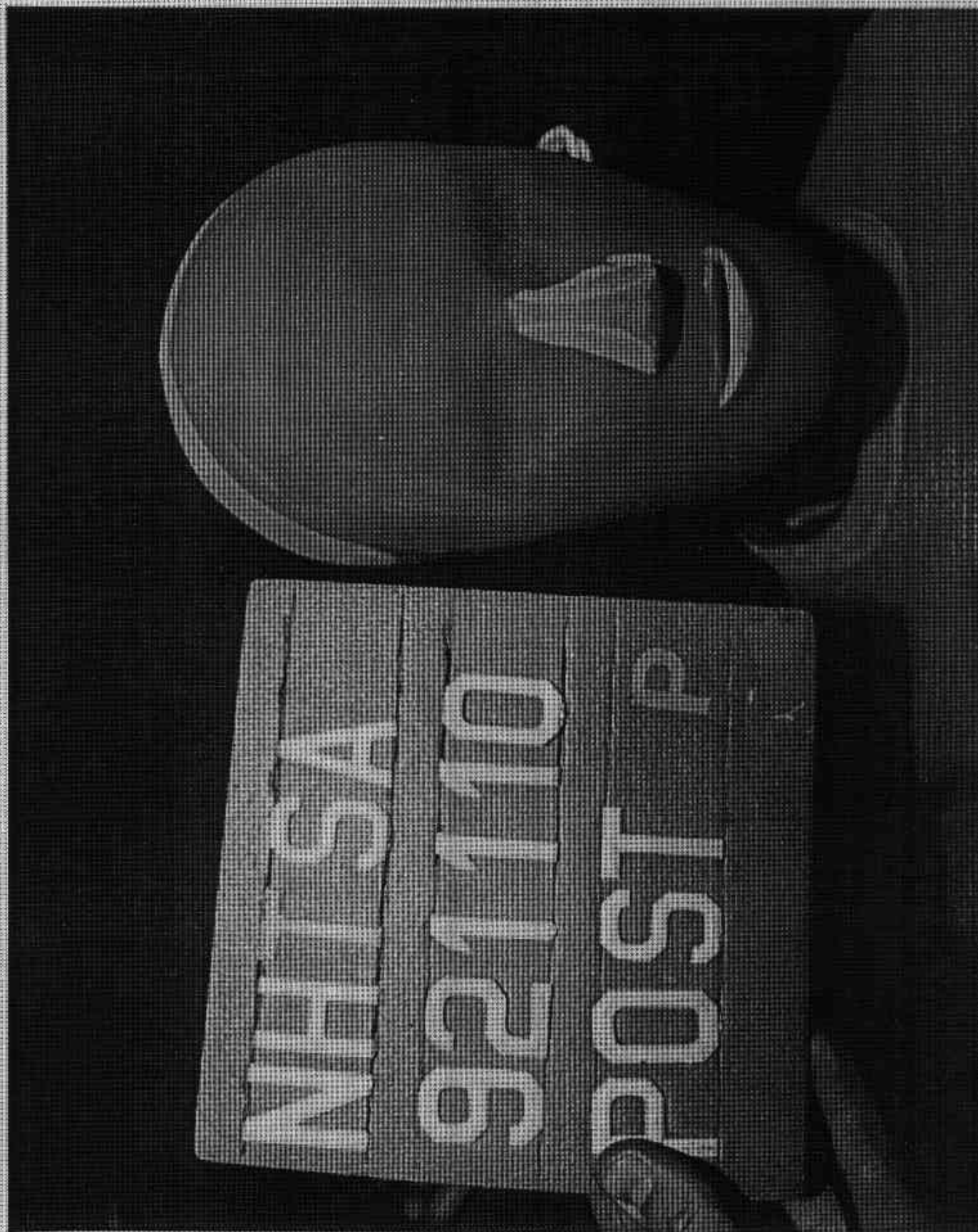


FIGURE A-42. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 1

A-43

921110



FIGURE A-43. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 2

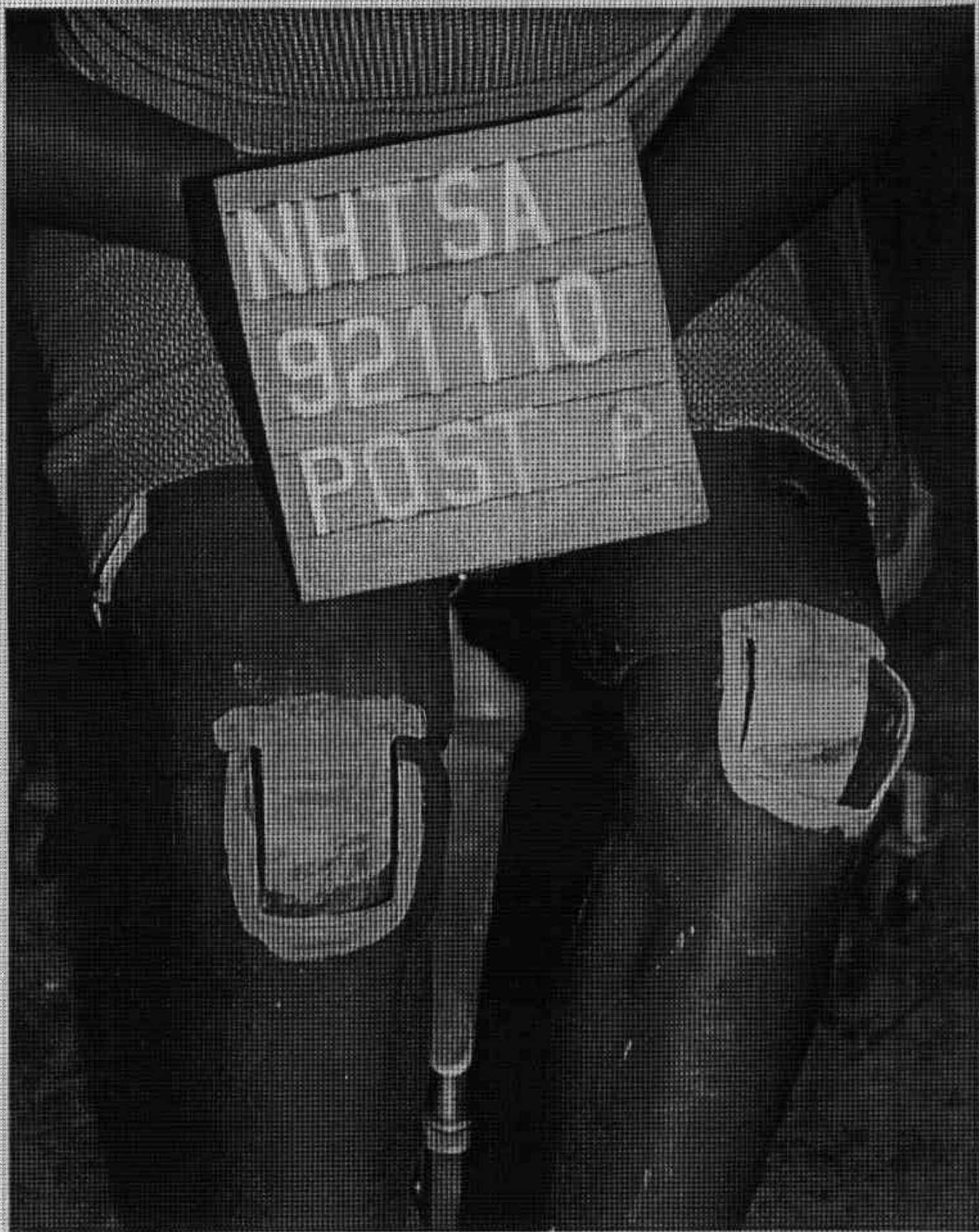


FIGURE A-44. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1

A-45

921110

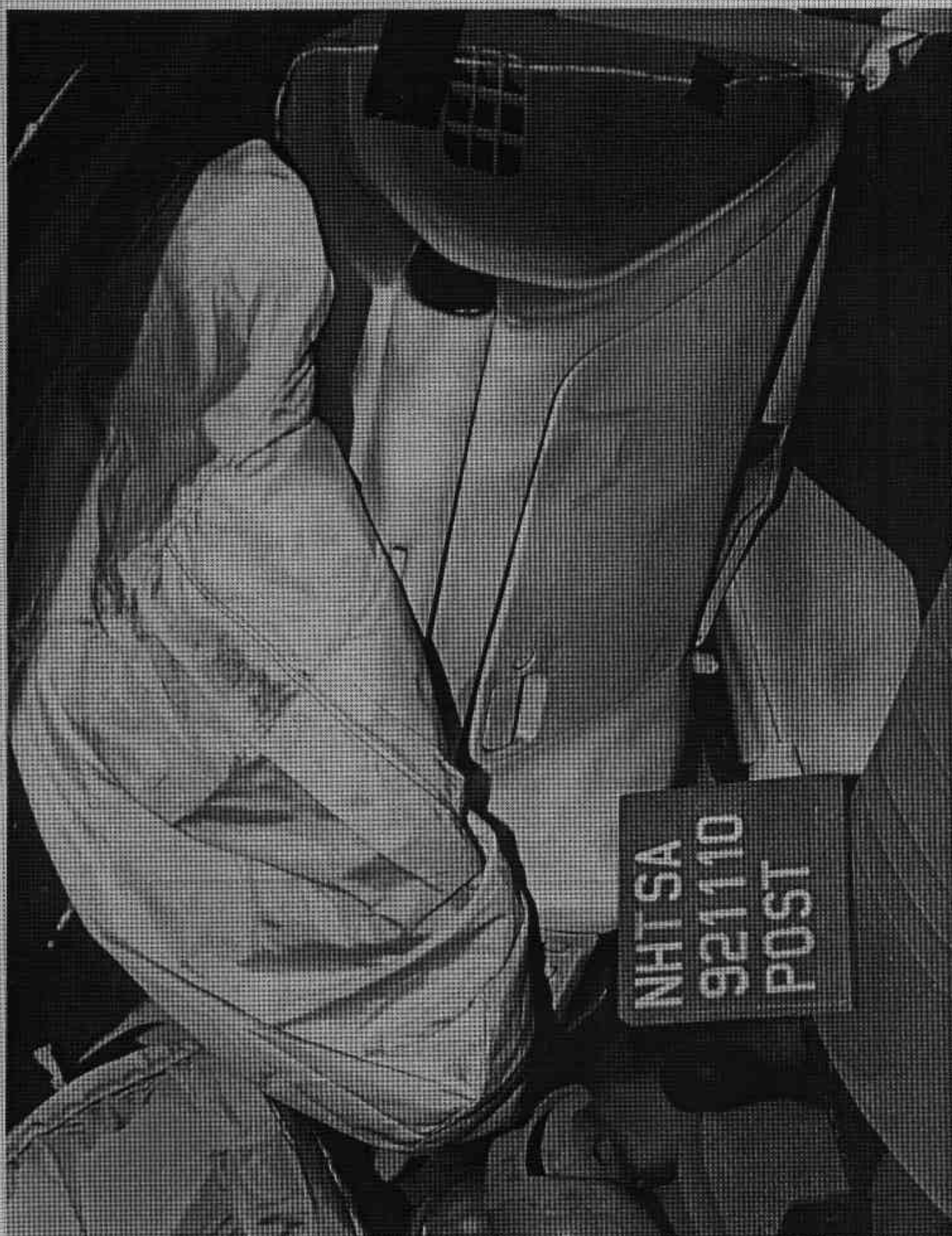


FIGURE A-45. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2

MADE BY CHRYSLER CORPORATION

DATE OF MFG: 08-92

GWR 4459 LB
2022 KG

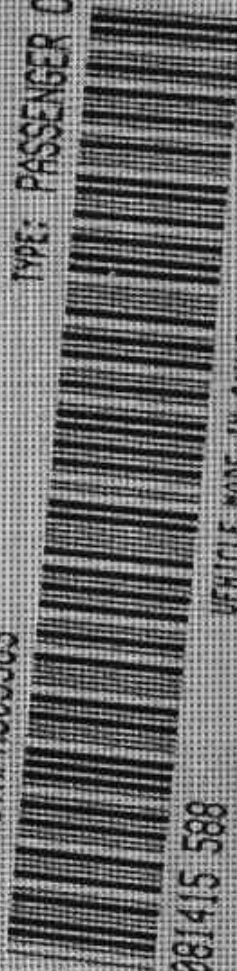
GWR 2561 LB
FRONT 1161 KG

GWR 1973 LB
REAR 894 KG

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

VIN: 2B3ED46TXPH505389

TYPE: PASSENGER CAR



MDN: 08J415 588

VEHICLE MADE IN CANADA

4848124

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

A-47

921110

	VEHICLE CAPACITY OR LESS
1ST SEAT	* 3 PASS
2ND SEAT	3 PASS
LUGGAGE	115 LBS-52kg
TOTAL	* 6 PASS
TOTAL WEIGHT	* 1015 LBS-461 kg
TIRE PRESSURE COLD	35 PSI 240 kPa FRONT AND REAR
* REDUCE VEHICLE CAPACITY TO 2 PASSENGERS IN 1ST SEAT. (865 LBS-392 kg -5 PASS. TOTAL) WHEN EQUIPPED WITH BUCKET SEATS WITHOUT CENTER SEAT	
MINIMUM TIRE SIZE	
P205/70R15 95S	
STANDARD LOAD	
SEE OWNER'S MANUAL FOR ADDITIONAL DATA	
PRINTED IN USA 4582 297	

FIGURE A-47. PRE-TEST VEHICLE RECOMMENDED TIRE PRESSURE LABEL VIEW

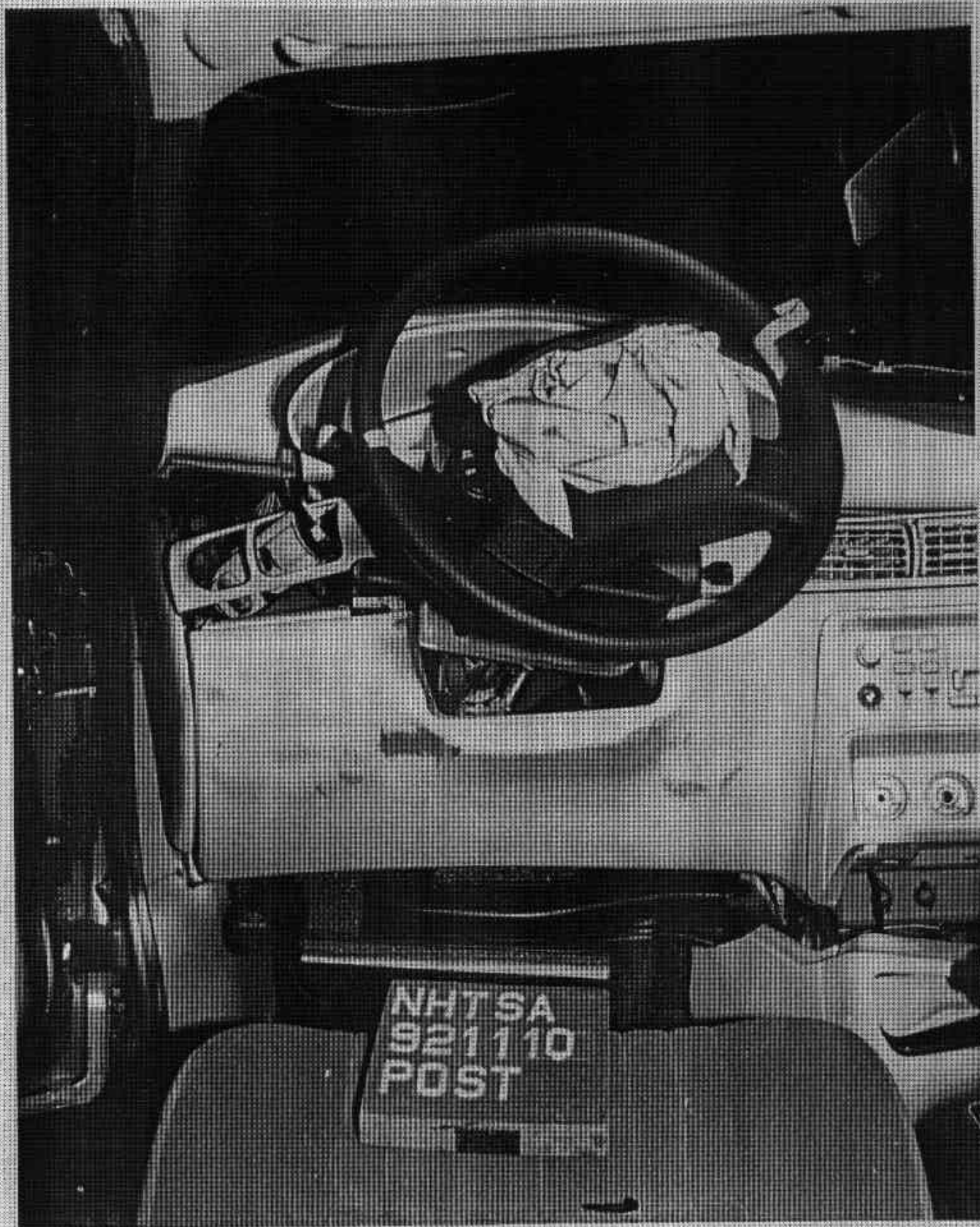


FIGURE A-48. POST-TEST STEERING COLUMN POSITION - VIEW 1
A-49

921110



FIGURE A-49. POST-TEST STEERING COLUMN POSITION - VIEW 2



FIGURE A-50. POST-TEST STEERING COLUMN POSITION - VIEW 3

A-51

921110

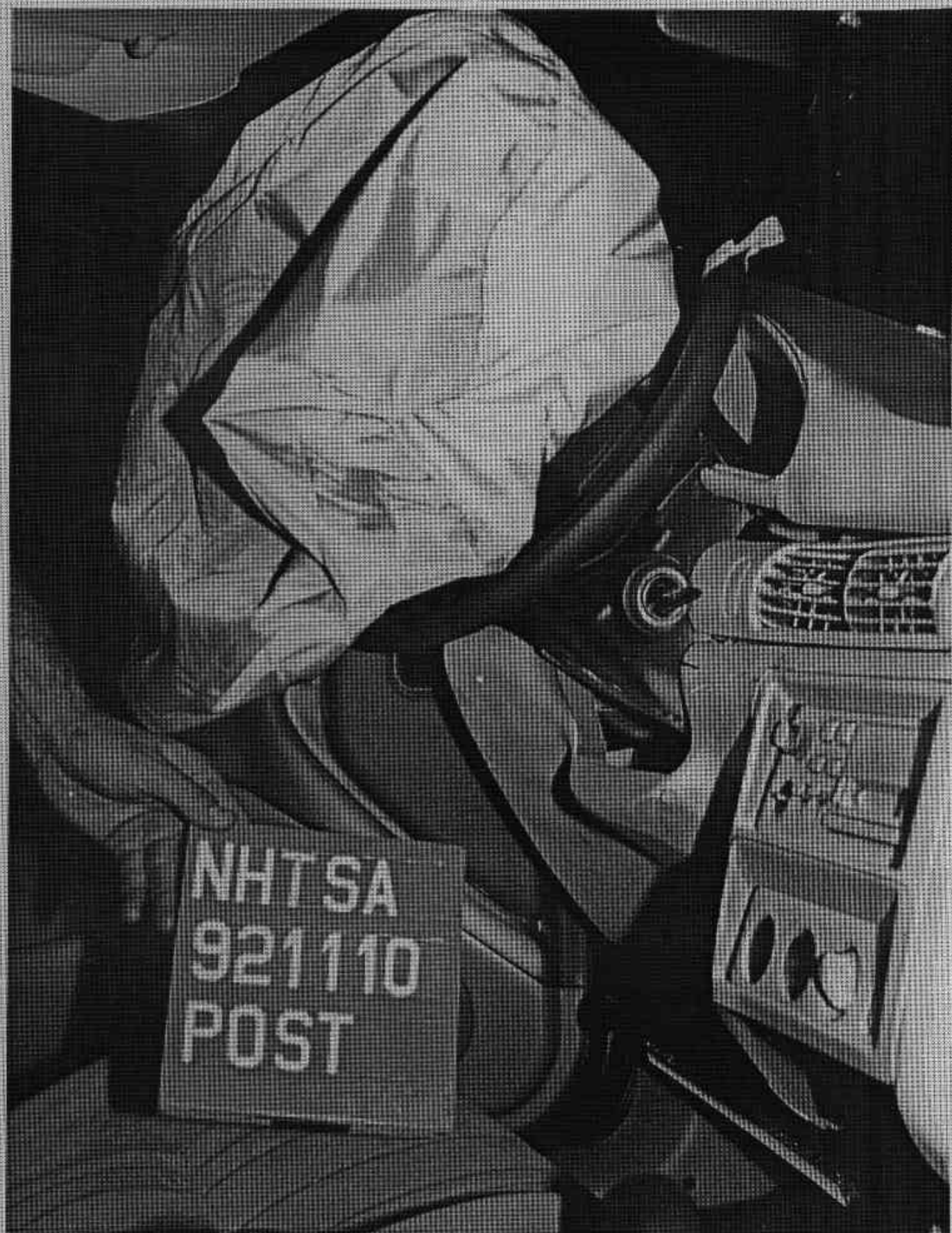


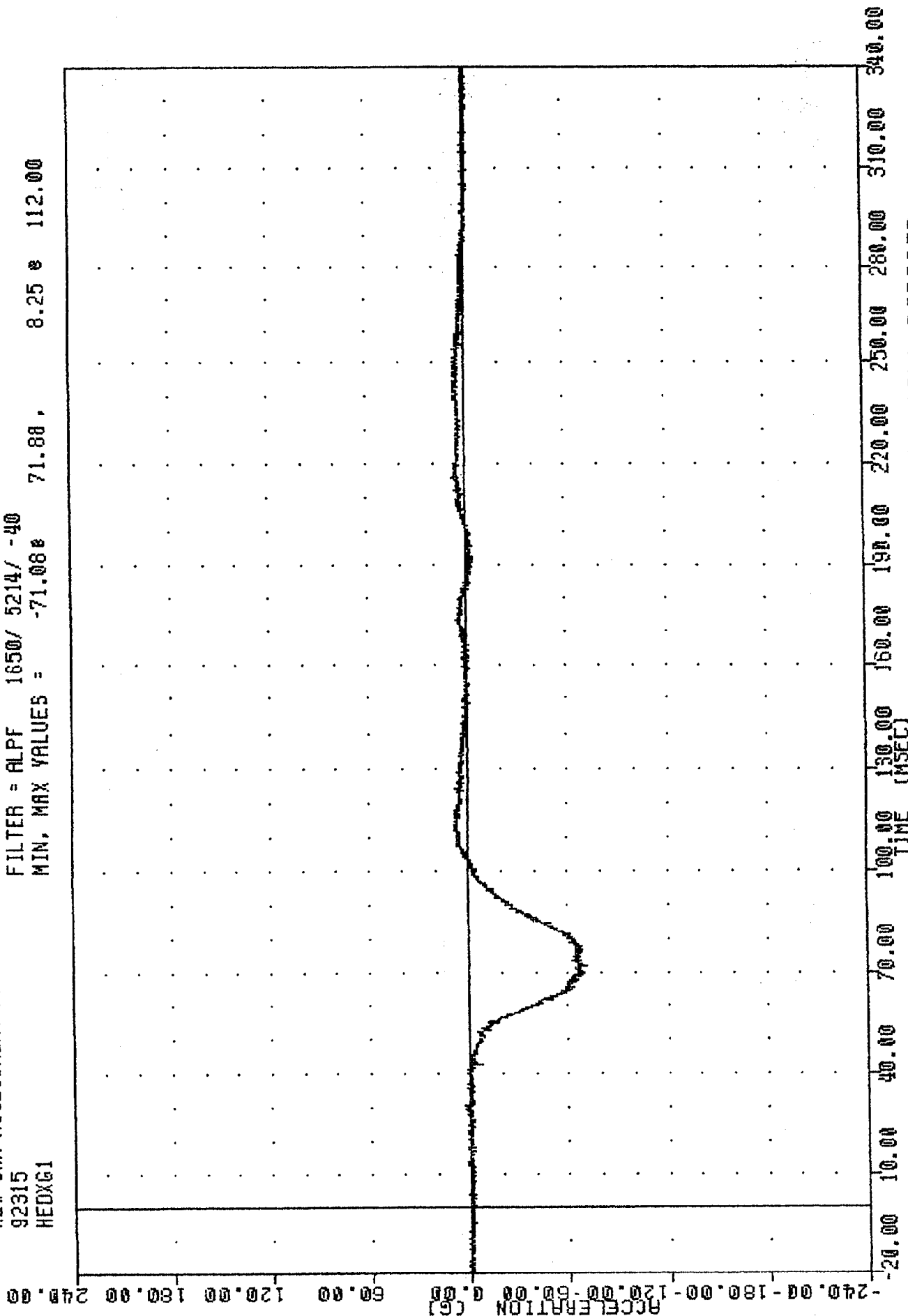
FIGURE A-51. POST-TEST STEERING COLUMN POSITION - VIEW 4

APPENDIX B

DATA PLOTS

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 HEDXG1

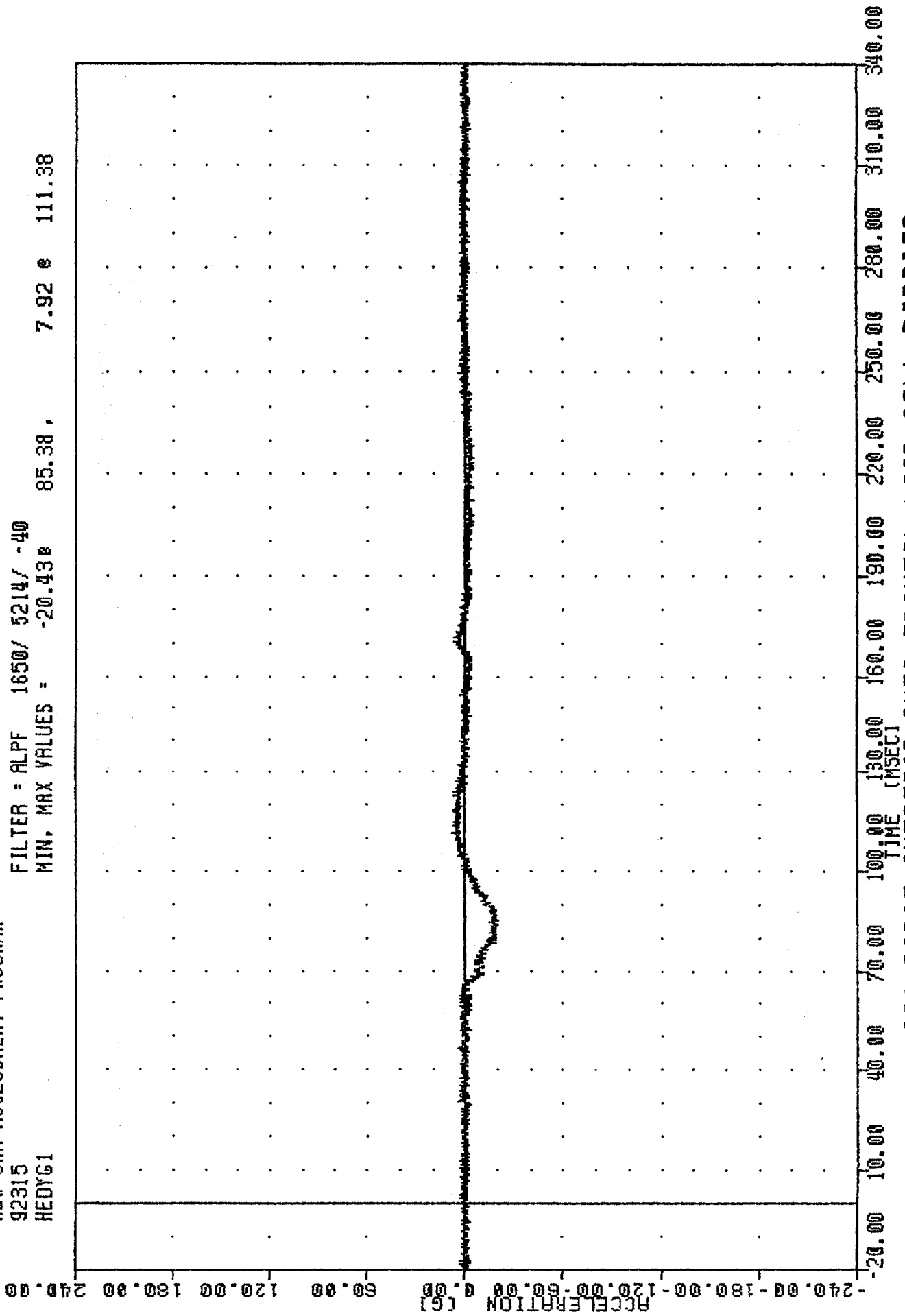
FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = -71.080 71.88 8.25 112.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION

TAC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 HEDYG1

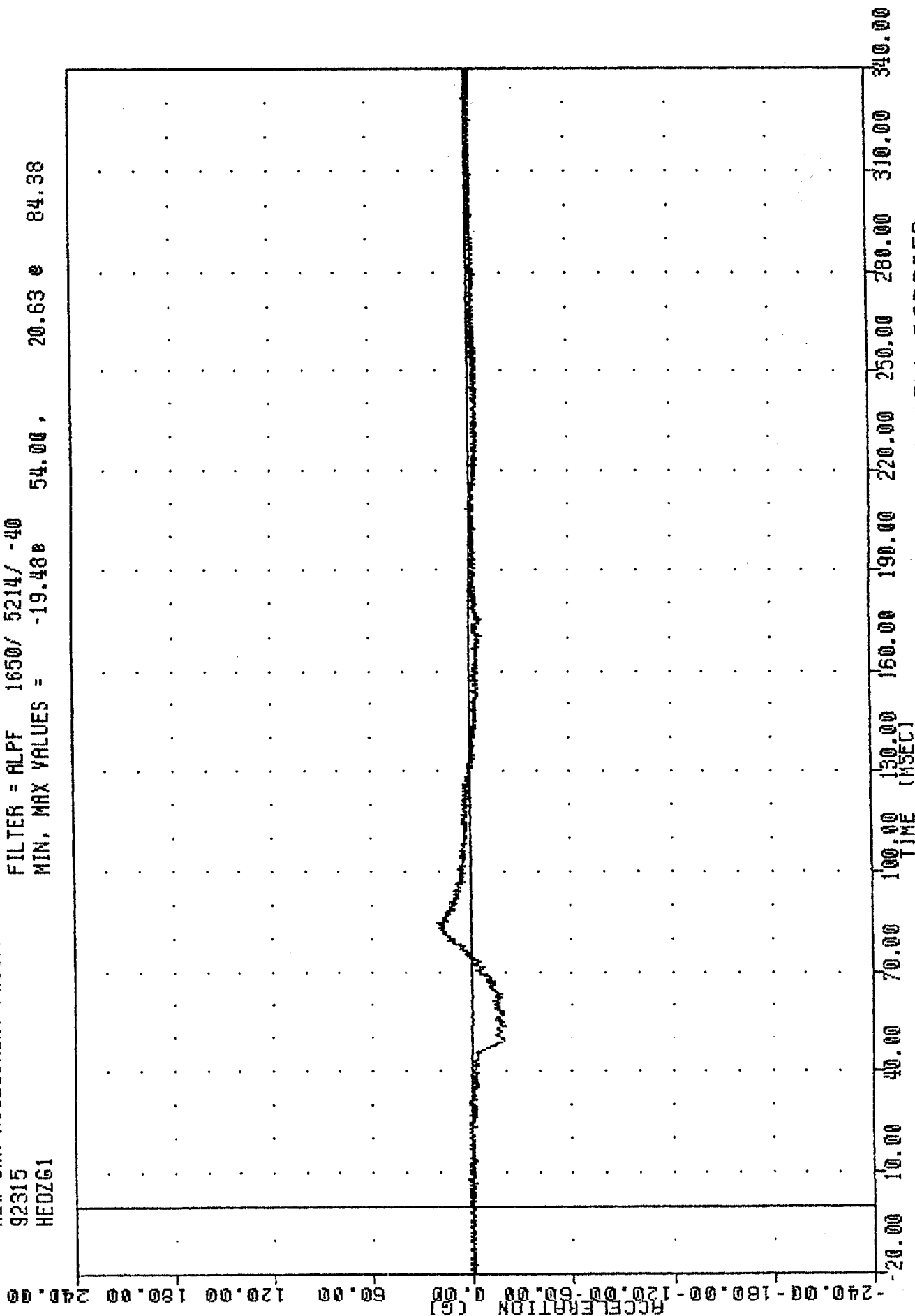
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -20.438 85.38, 7.92 @ 111.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION

TRC . 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 HEDZG1

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -19.48e 54.00, 20.63 e 84.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION

TRC , 921110

NEW CAR ASSESSMENT PROGRAM

92315

HEADG1

FILTER = ALPF 1650/ 5214/ -40

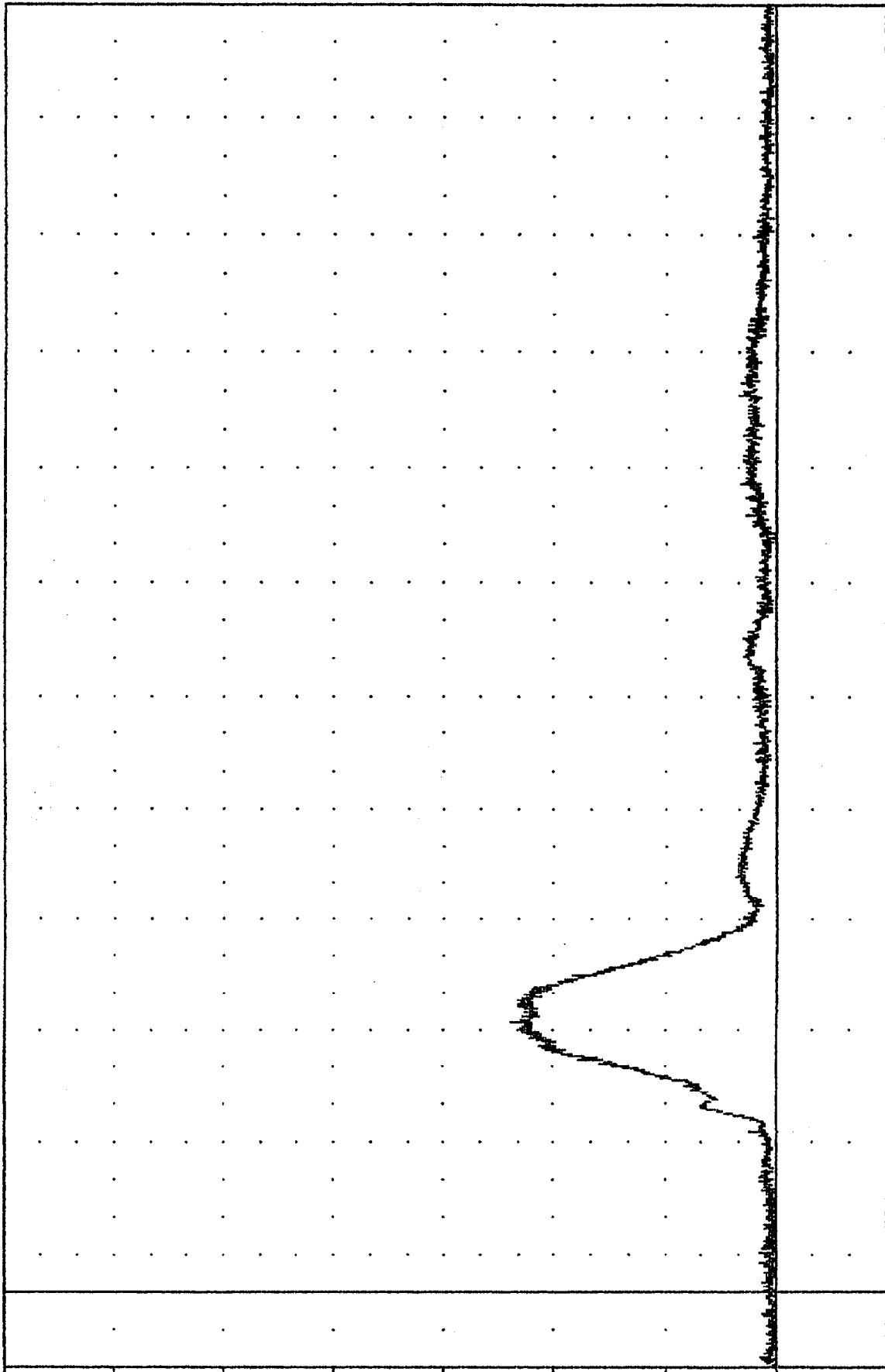
MIN, MAX VALUES = 0.130

-3.63.

71.57 g

71.88

ACCELERATION (G)

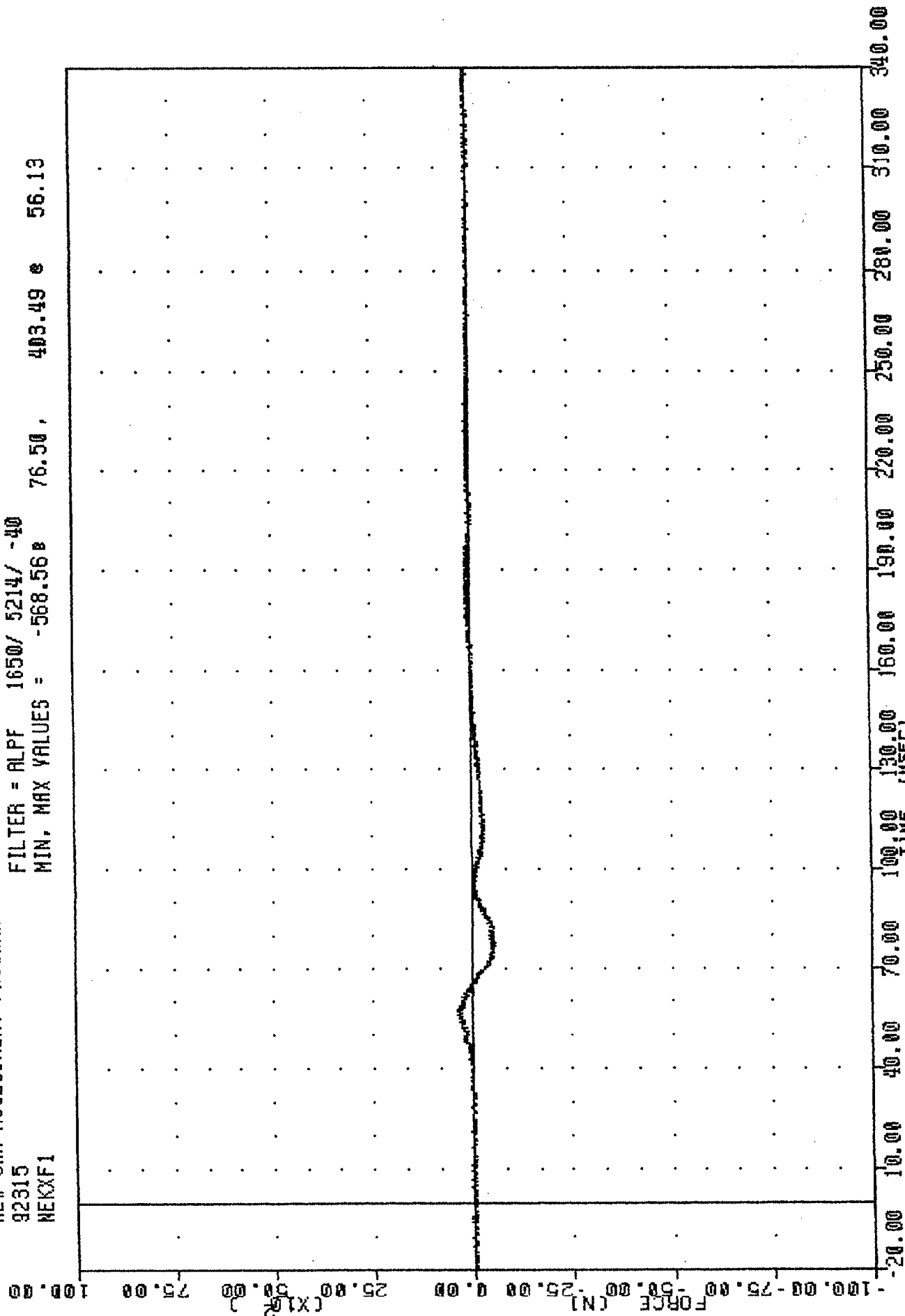


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKXF1

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -568.56 76.50 , 403.49 56.13



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK Y-AXIS SHEAR FORCE

TRC

, 921110

NEW CAR ASSESSMENT PROGRAM

92315

HEKYF1

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -520.98 90.38 , 150.40 180.00

100.00

75.00

50.00

(X10³)

25.00

0.00

-25.00

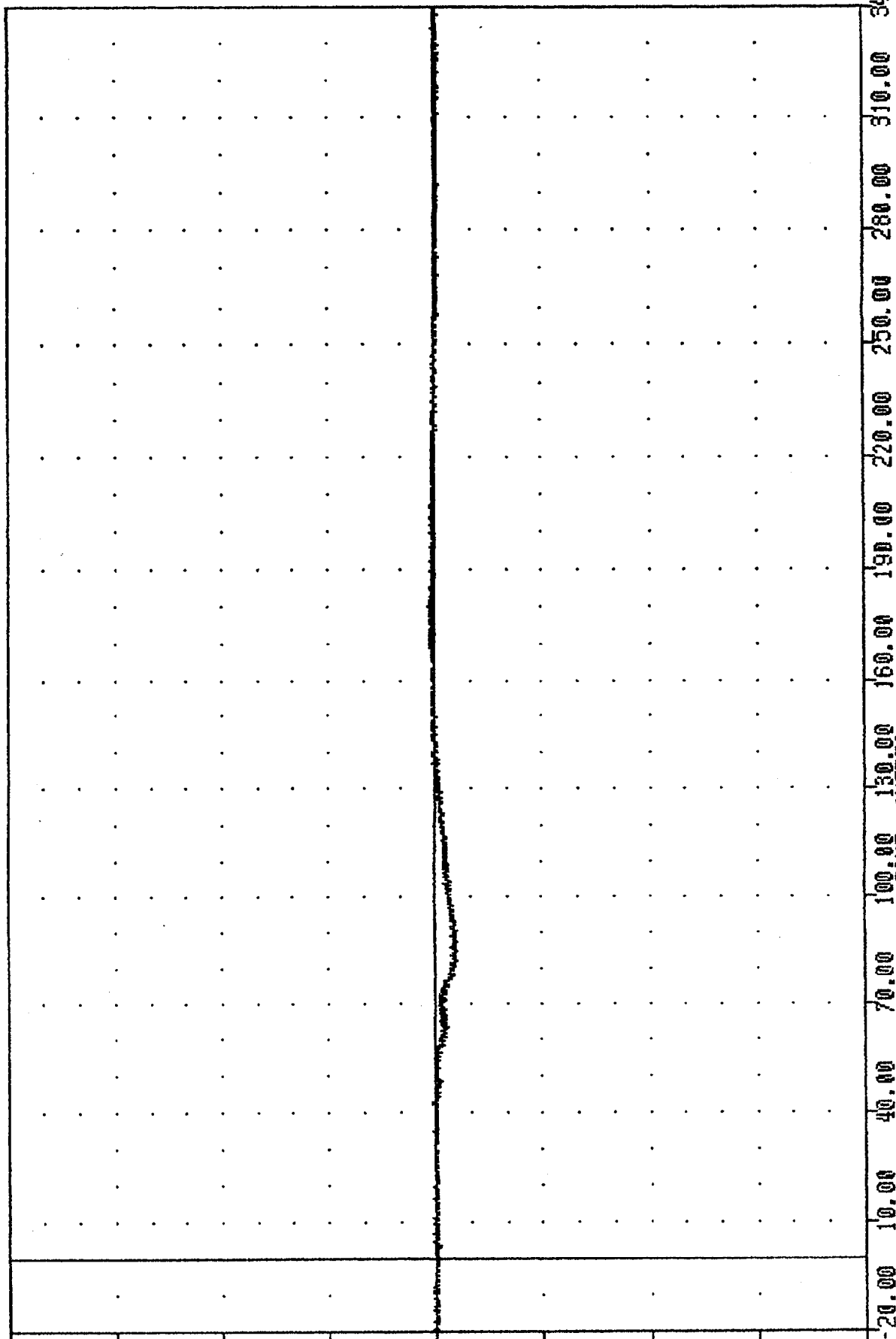
-50.00

-75.00

-100.00

B-7

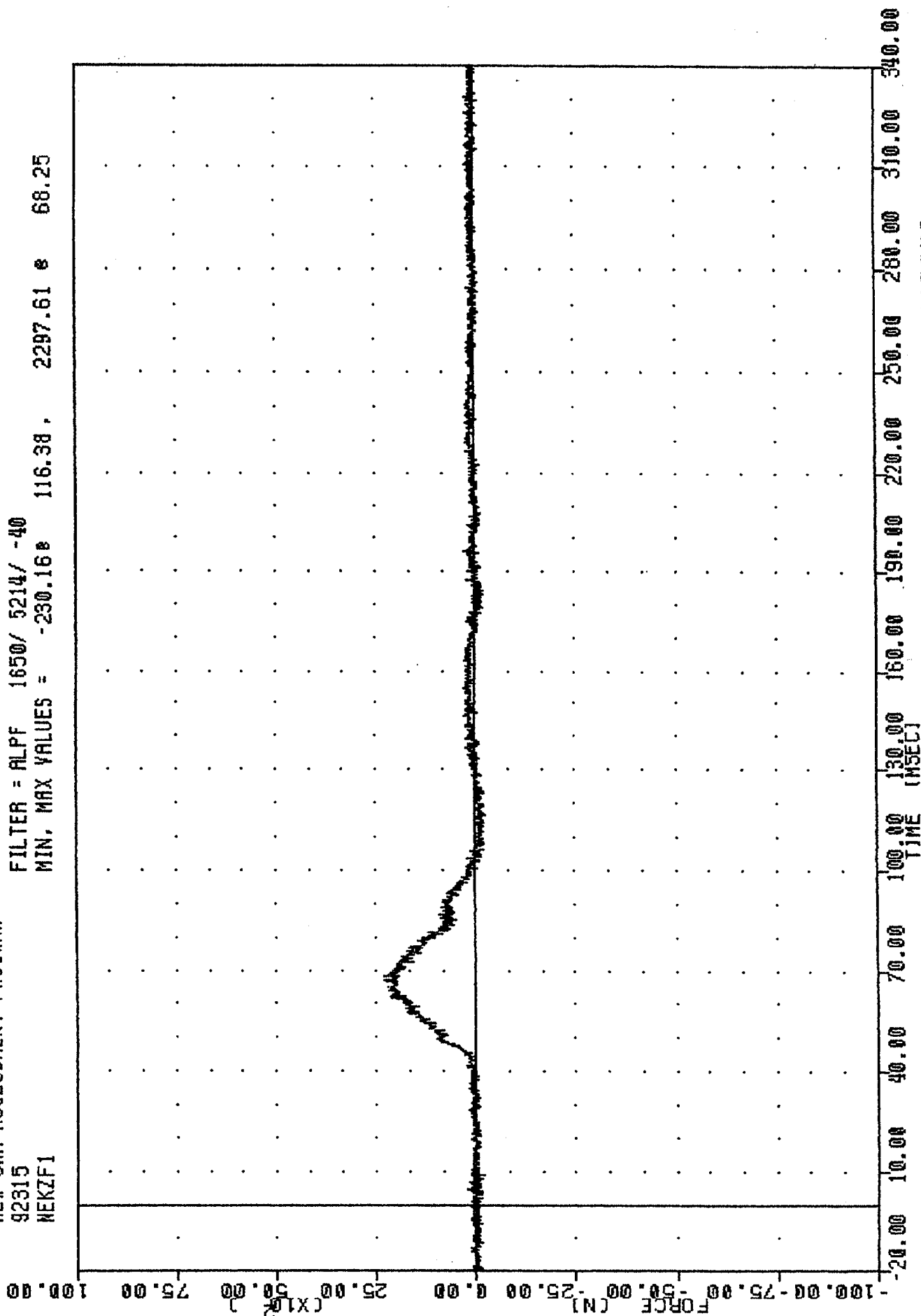
921110



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Y-AXIS SHEAR FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKZF1

FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = -230.168 116.38 , 2297.61 68.25



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Z-AXIS AXIAL FORCE

TRC

, 921110

NEW CAR ASSESSMENT PROGRAM

92315

NEKXMI

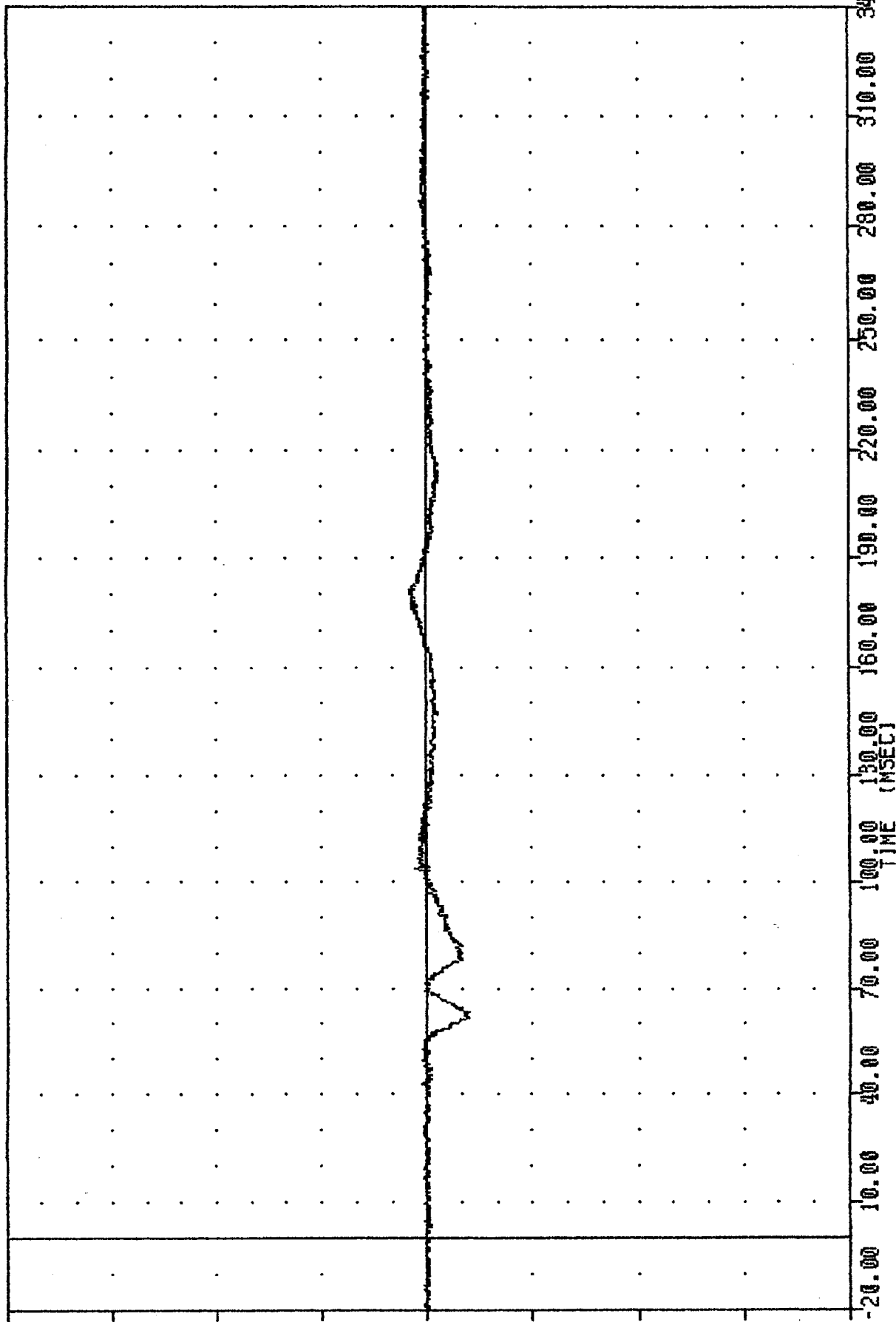
FILTER = BLPP 1000/ 2500/ -16

MIN, MAX VALUES = -20.31e 63.38, 7.75 e 180.63

TORQUE (N-M)

B-9

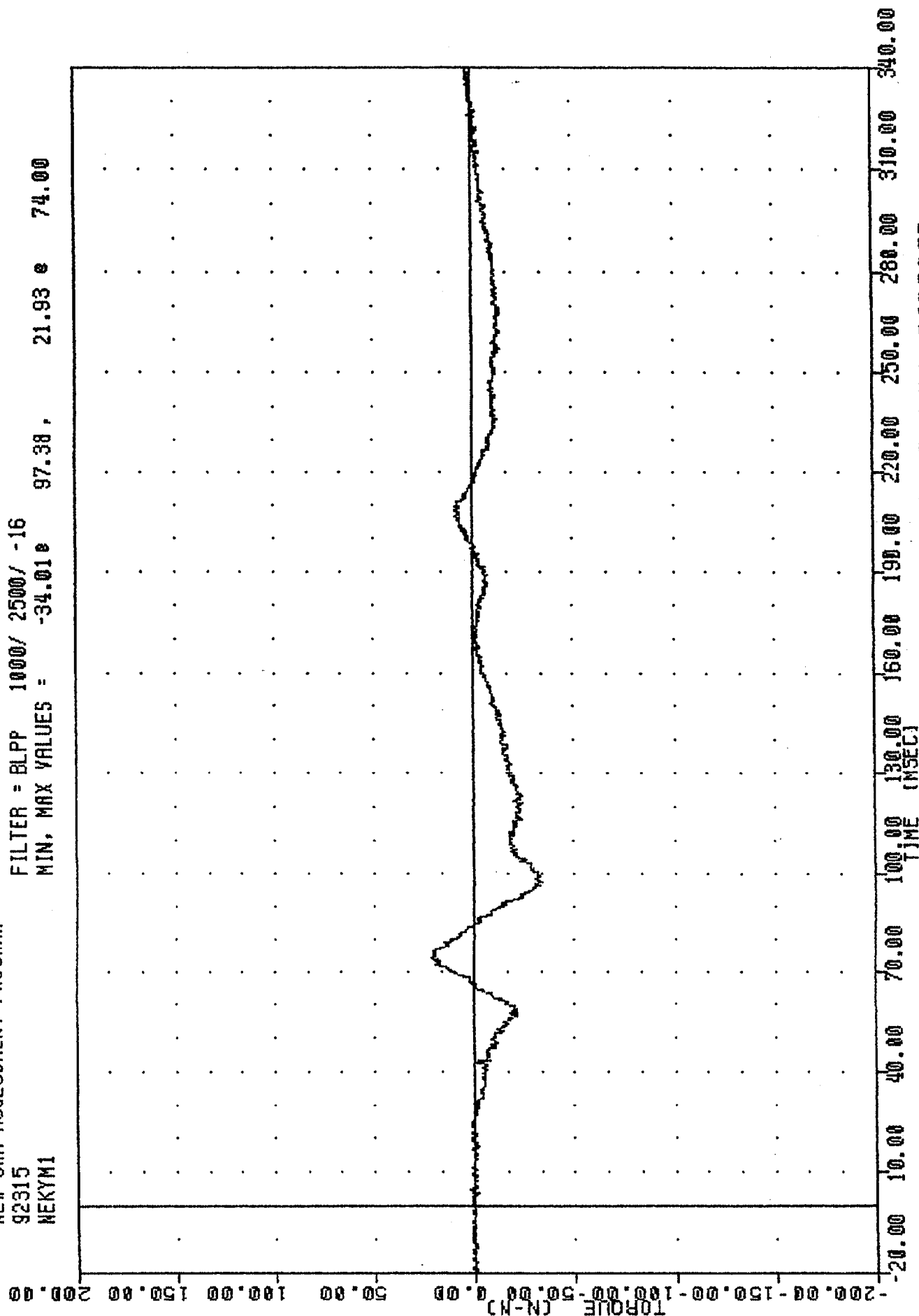
921110



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT X AXIS

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKYM1

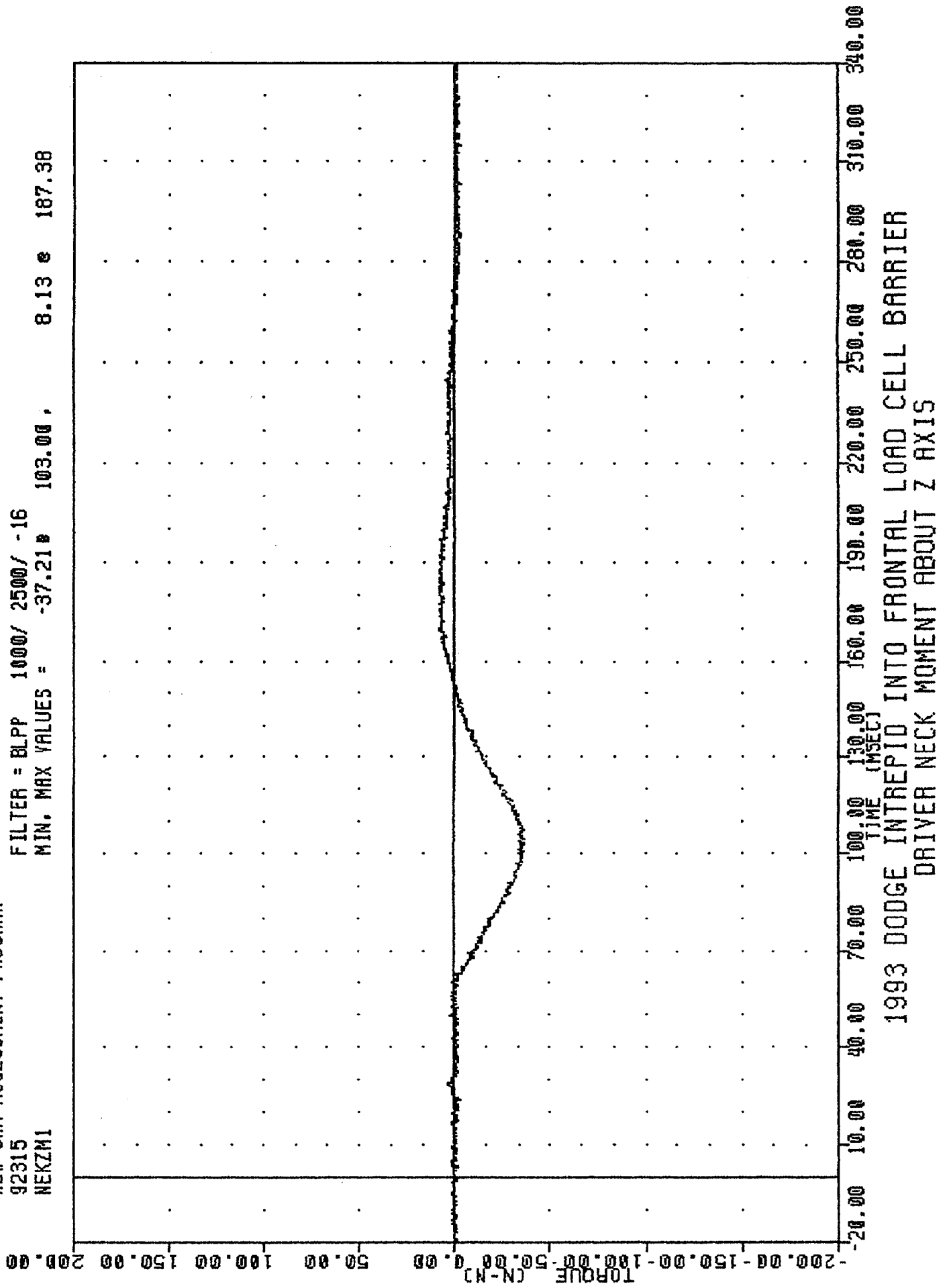
FILTER = BLPP 1000/ 2500/ -16
 MIN, MAX VALUES = -34.01e 97.38, 21.93 e 74.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT Y AXIS

TRC
NEW CAR ASSESSMENT PROGRAM
92315
NEKZM1

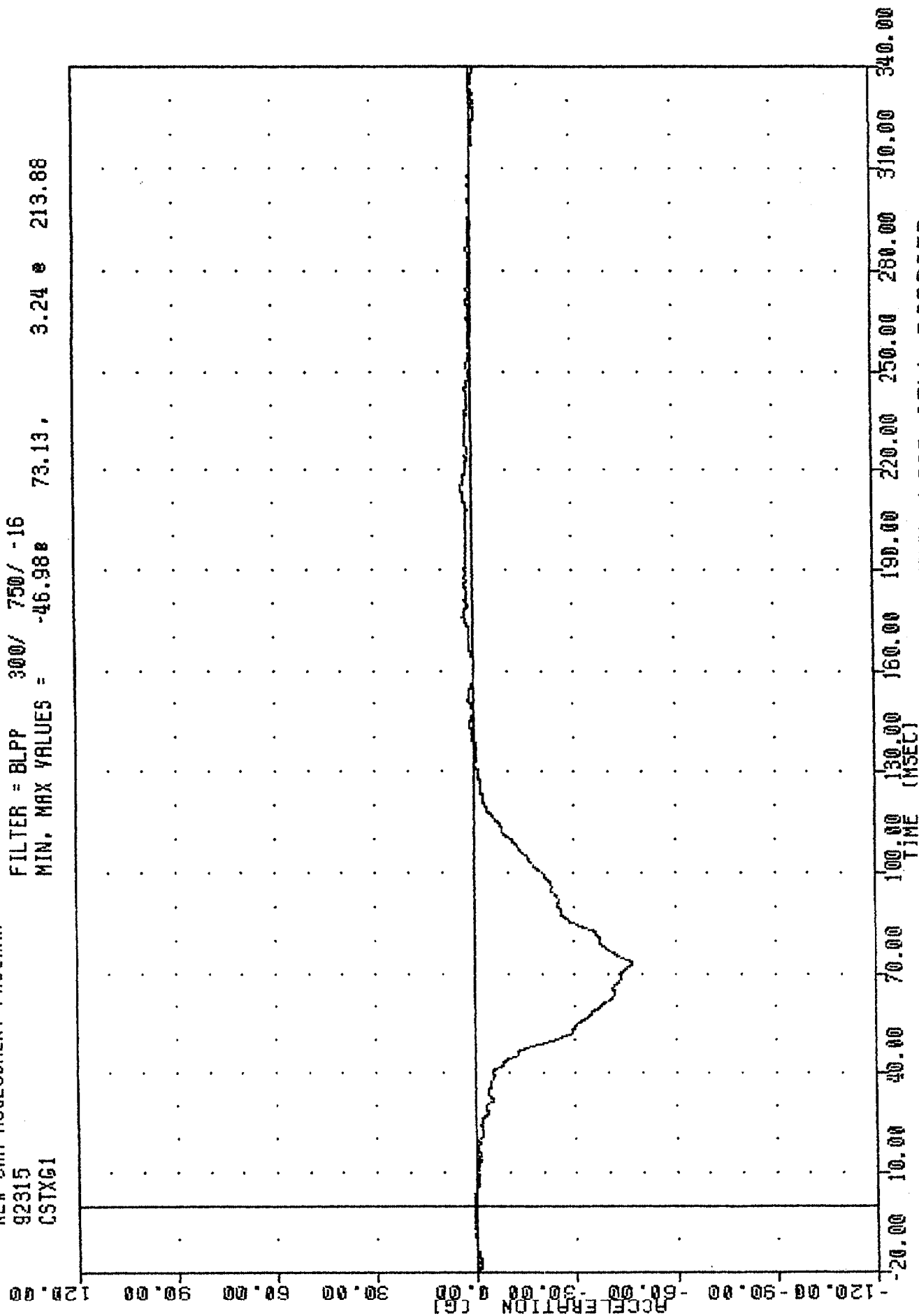
FILTER = BLPP 1000/ 2500/ -16
MIN. MAX VALUES = -37.21 103.00 , 8.13 e 187.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 CSTXG1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -46.98 73.13, 3.24 213.88

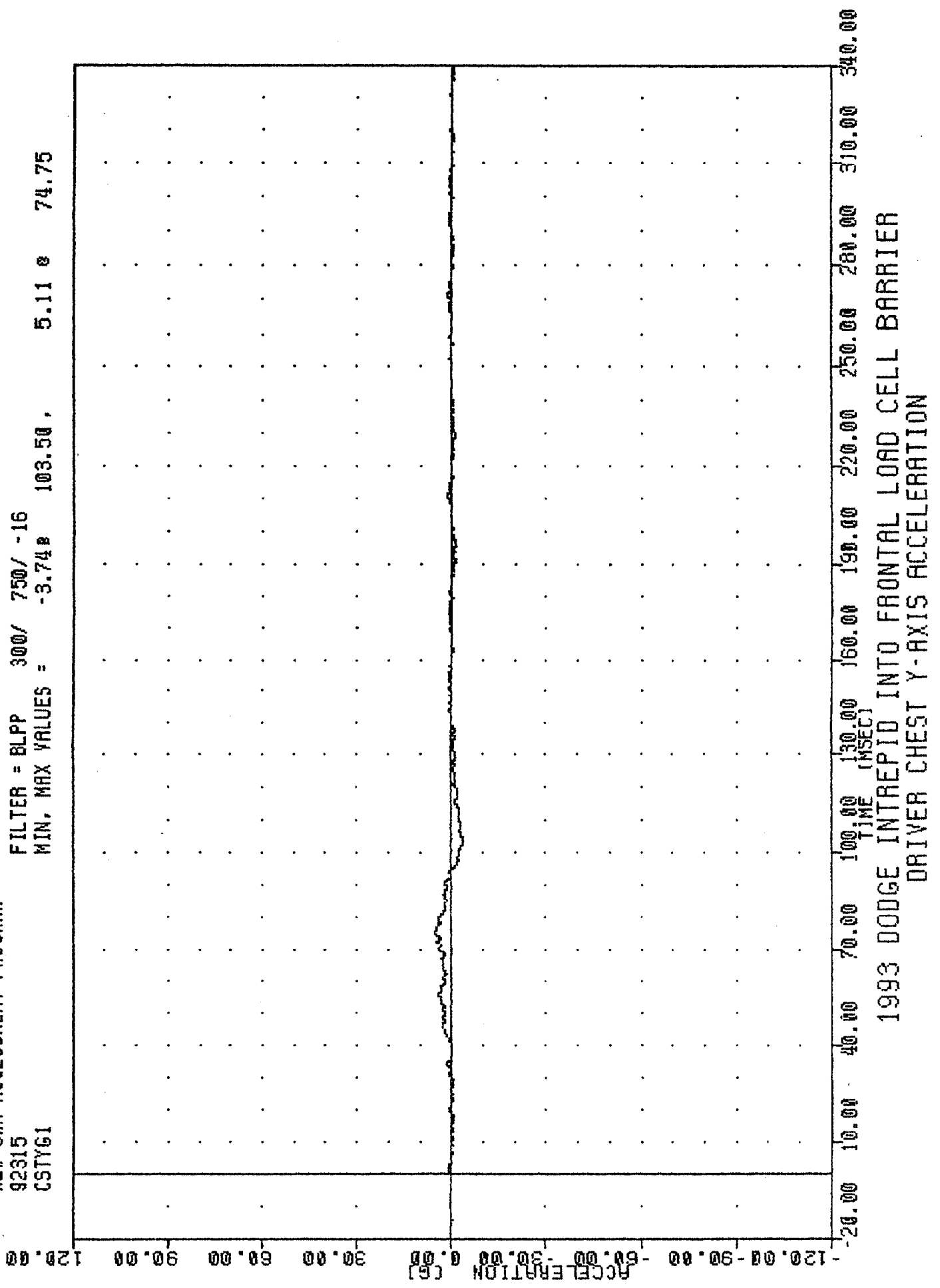


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION

TRC 921110

NEW CAR ASSESSMENT PROGRAM
92315
CSTY61

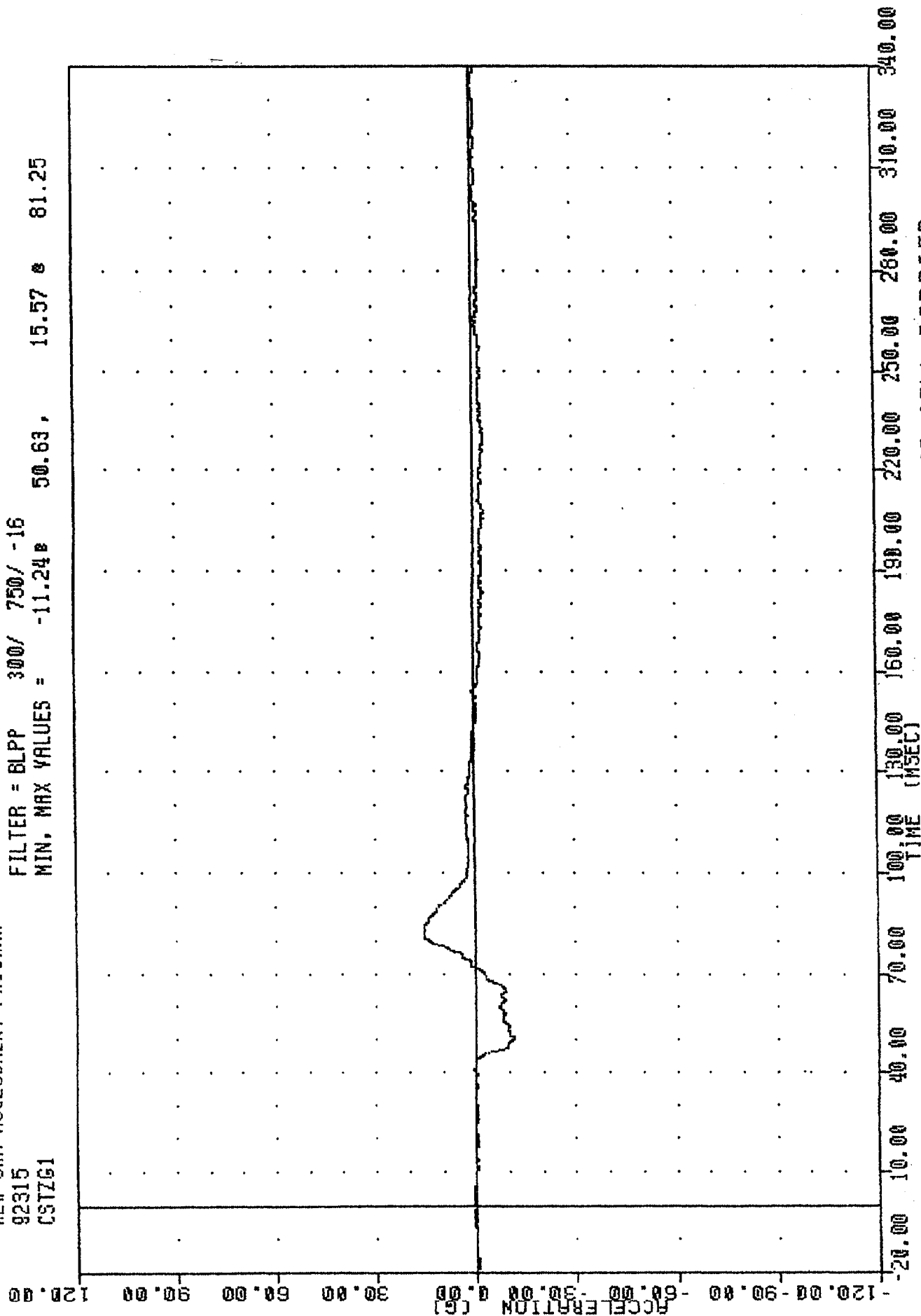
FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -3.748 103.50, 5.118 74.75



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION

TRC , 321110
 NEW CAR ASSESSMENT PROGRAM
 92315
 CSTZG1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -11.24 50.63, 15.57 81.25



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST 2-AXIS ACCELERATION

TRC 921110

NEW CAR ASSESSMENT PROGRAM

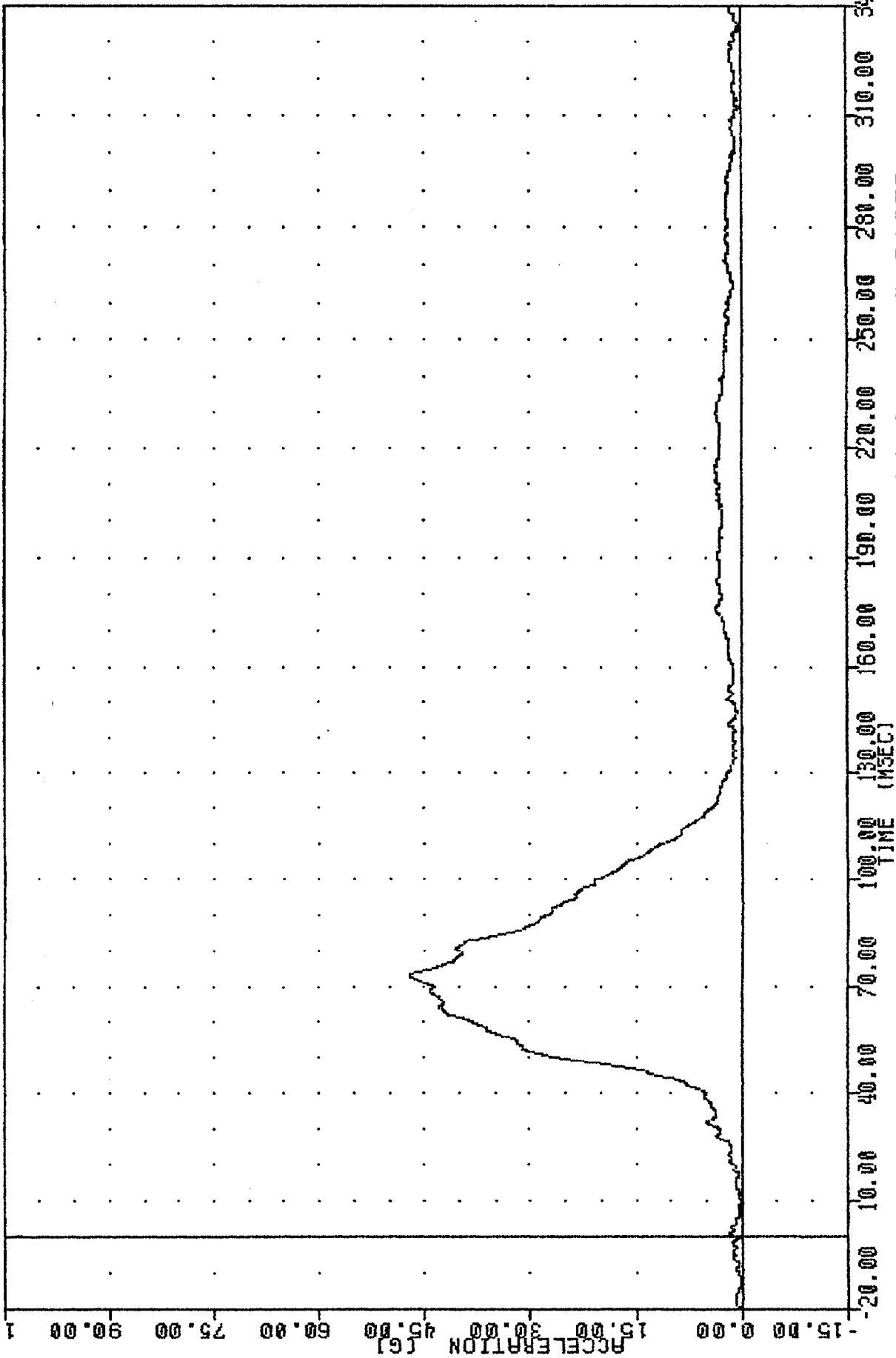
92315

CSTRG1

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = 0.098 -20.00, 47.13 e 73.13

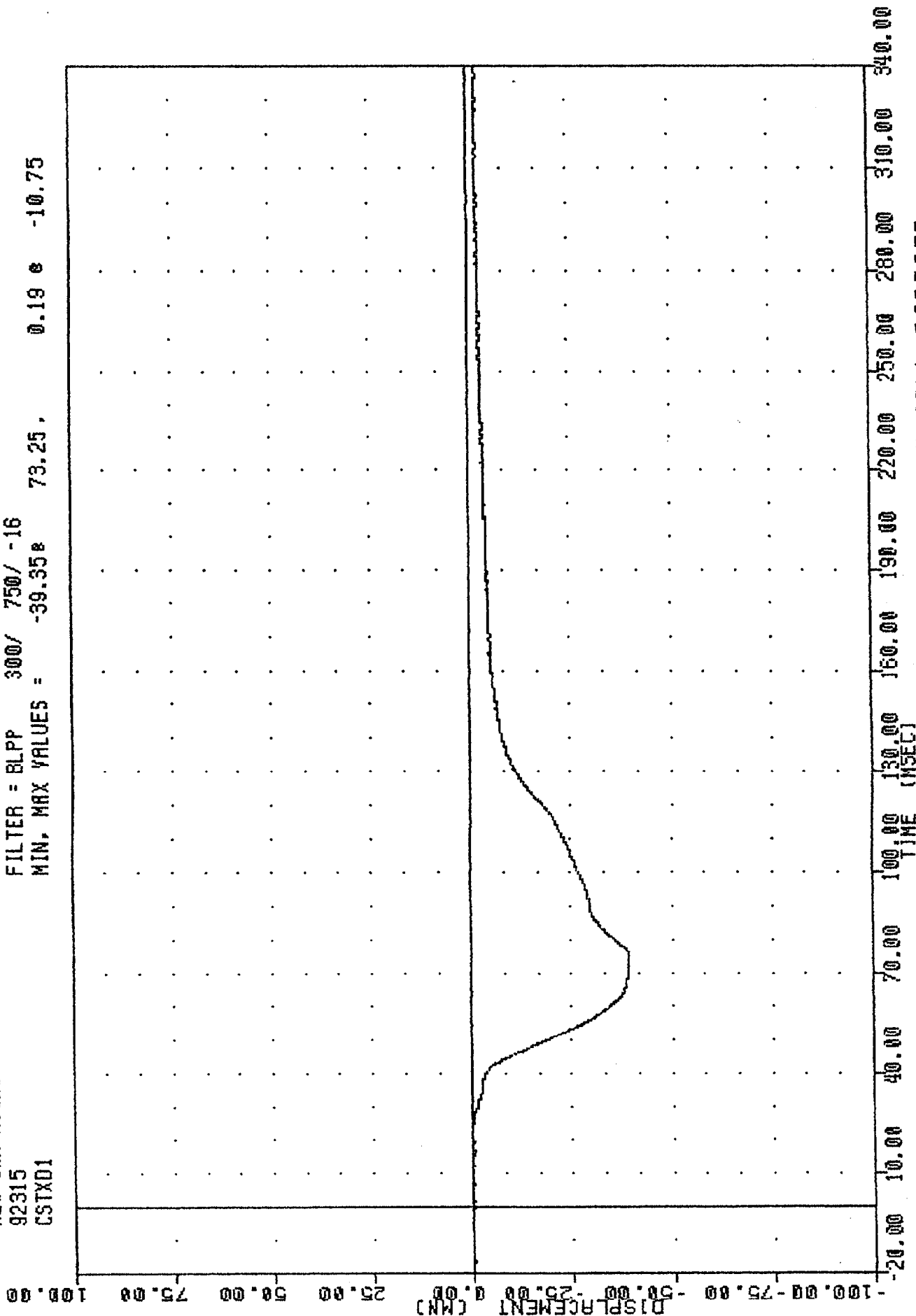
105.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 CSTXD1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -39.35 73.25, 0.19 0 -10.75



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST DEFLECTION

TRC 921110

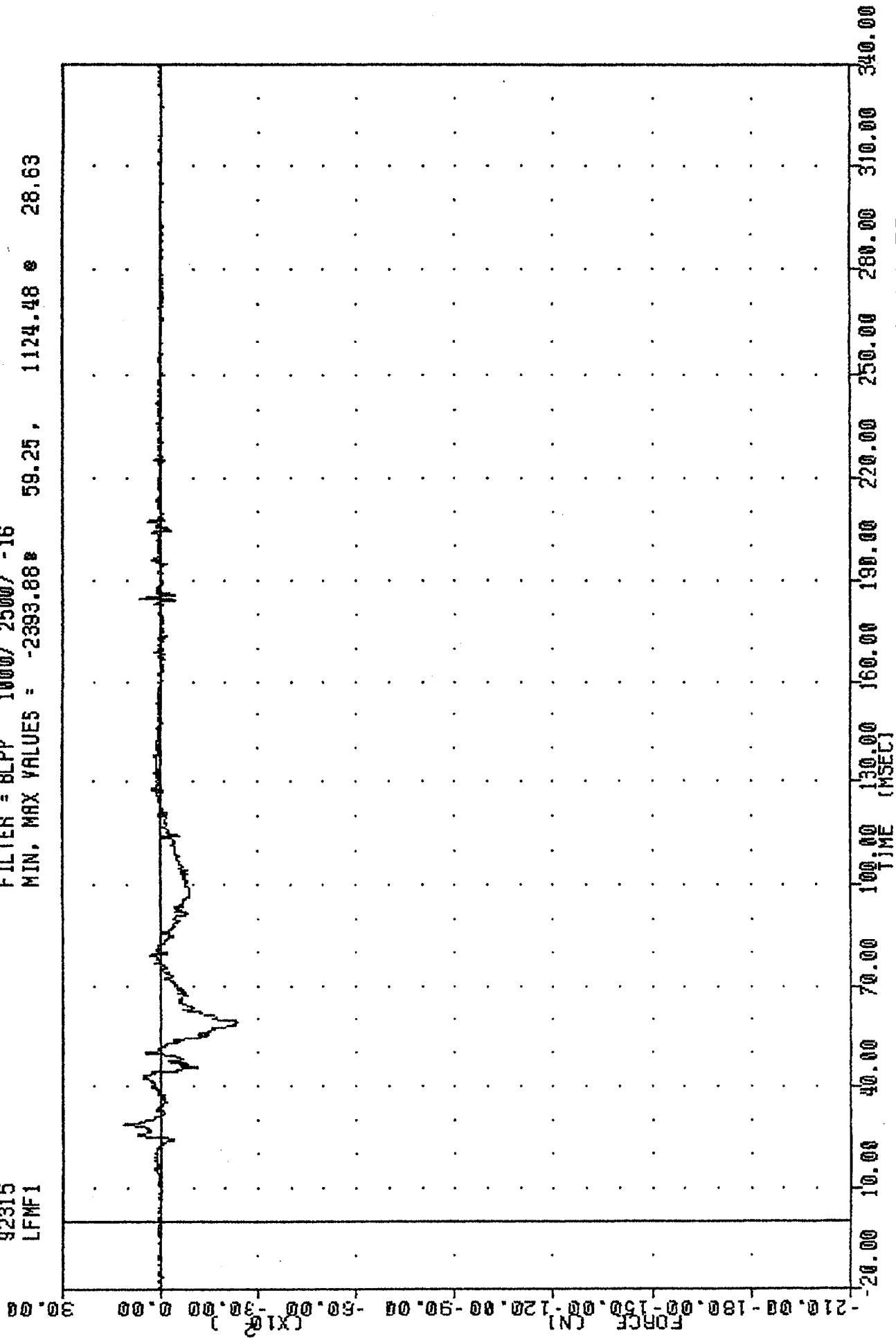
NEW CAR ASSESSMENT PROGRAM

92315

LFMF1

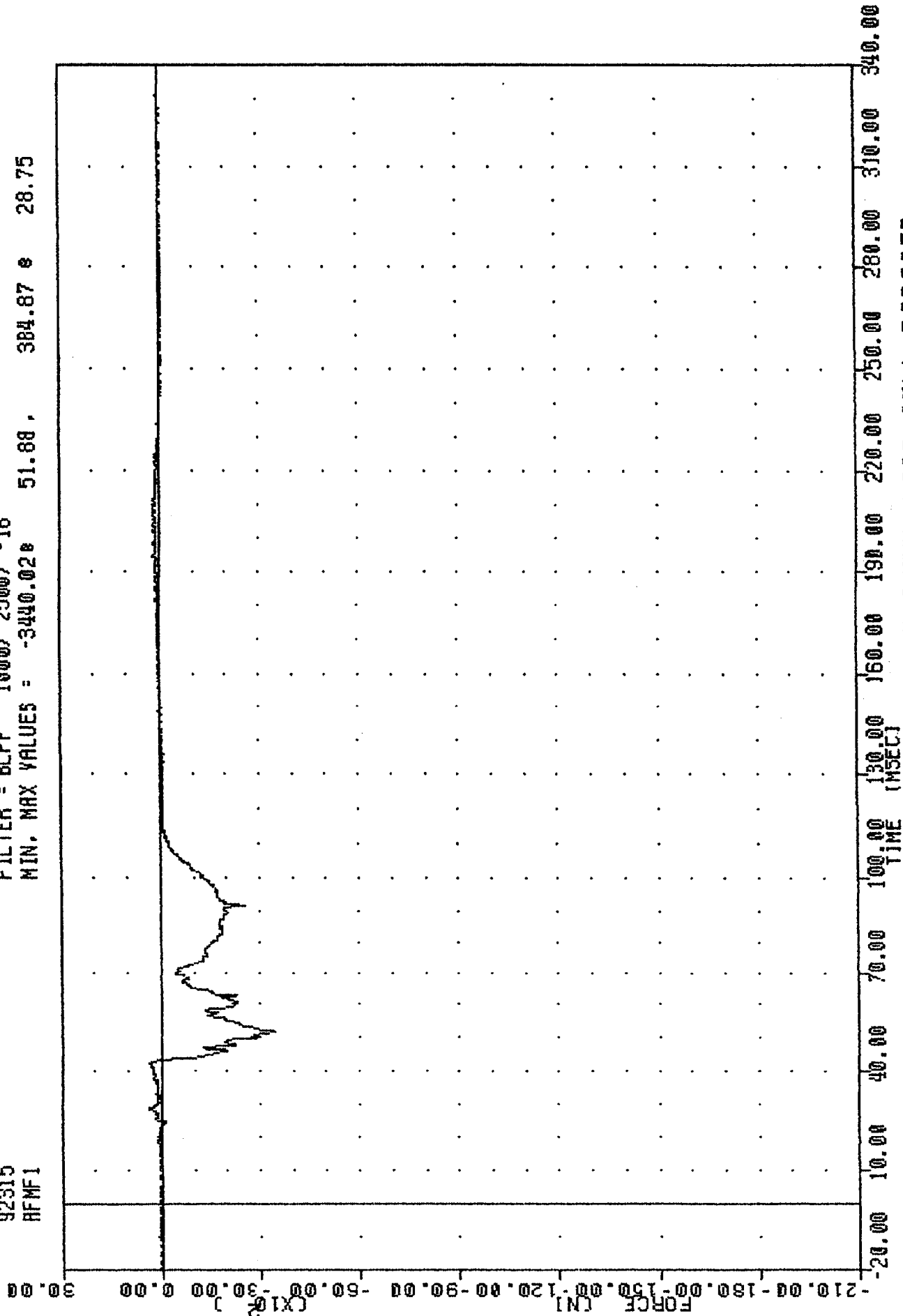
FILTER = BLPP 1000/ 2500/ -16

MIN, MAX VALUES = -2393.88 59.25, 1124.48 28.63



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 RFMF1

FILTER = BLPP 1000/ 2500/ -16
 MIN, MAX VALUES = -3440.028 51.88 , 384.87 e 28.75

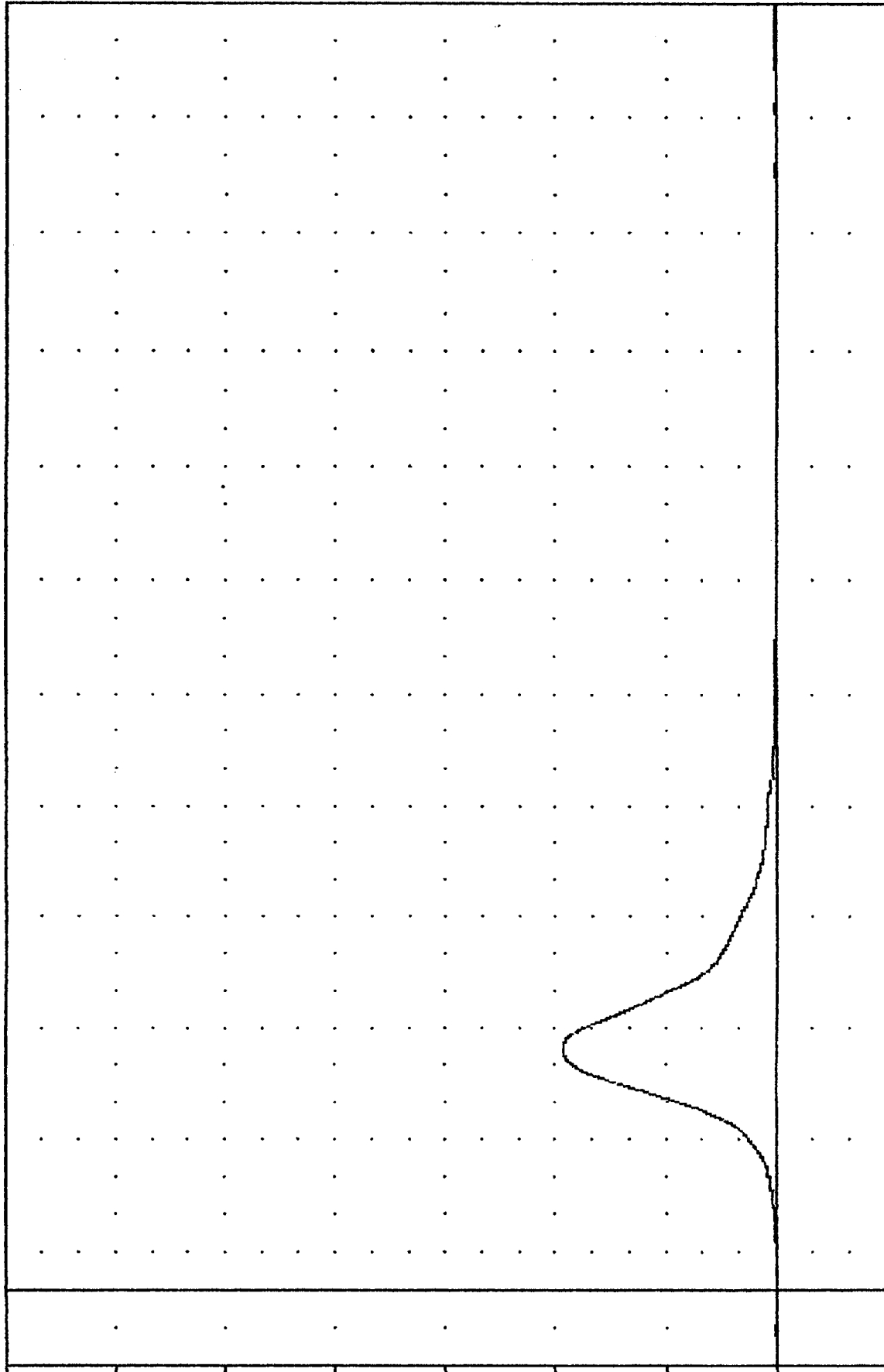


TRC
NEW CAR ASSESSMENT PROGRAM
92315
LBOF1

, 921110

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -19.89 267.63, 5776.95 64.38

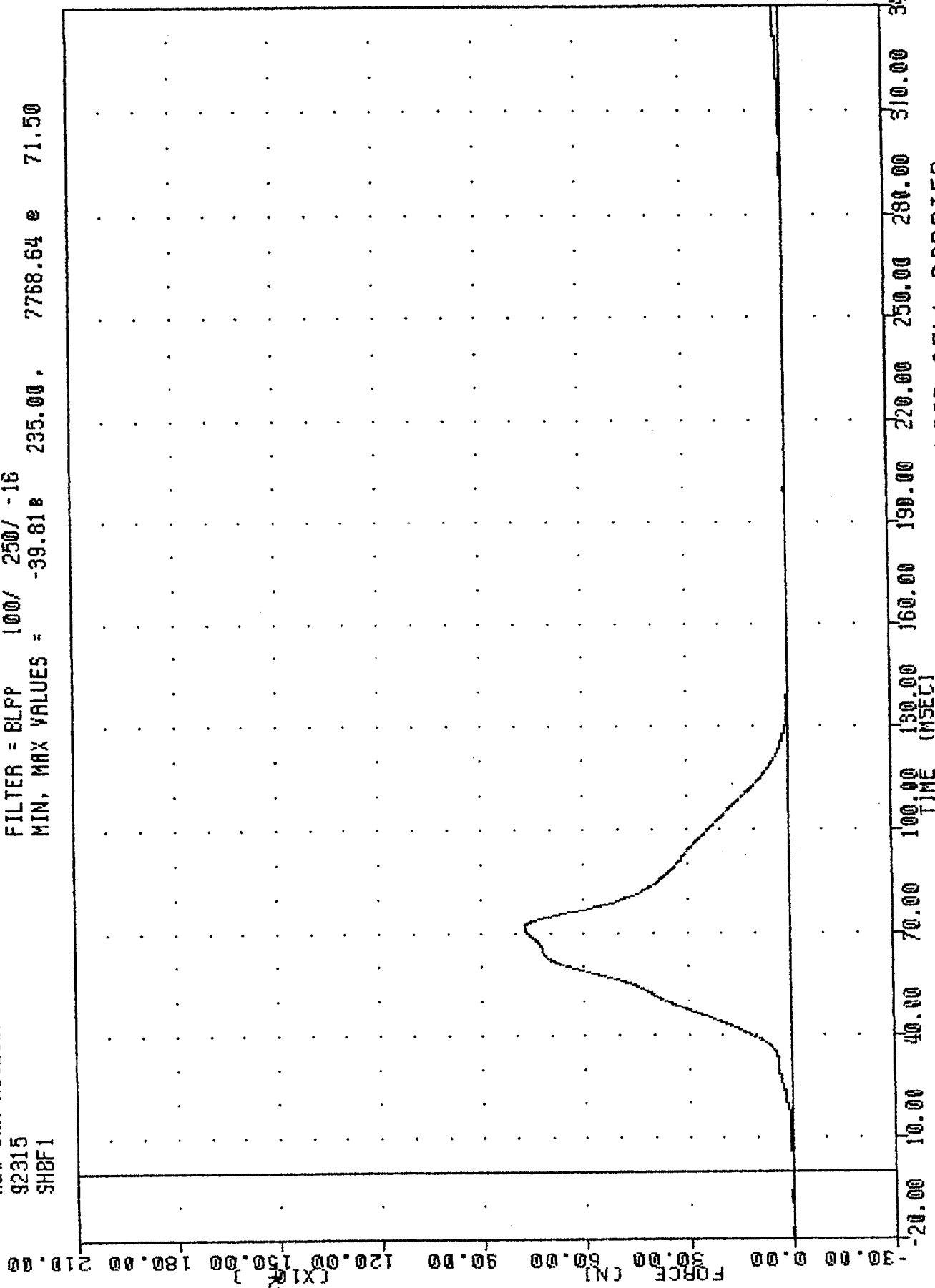
FORCE (N)
(X10³)



1993 DODGE INTRAPID INTO FRONTAL LOAD CELL BARRIER
DRIVER LAP BELT OUTBOARD FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 SHBF1

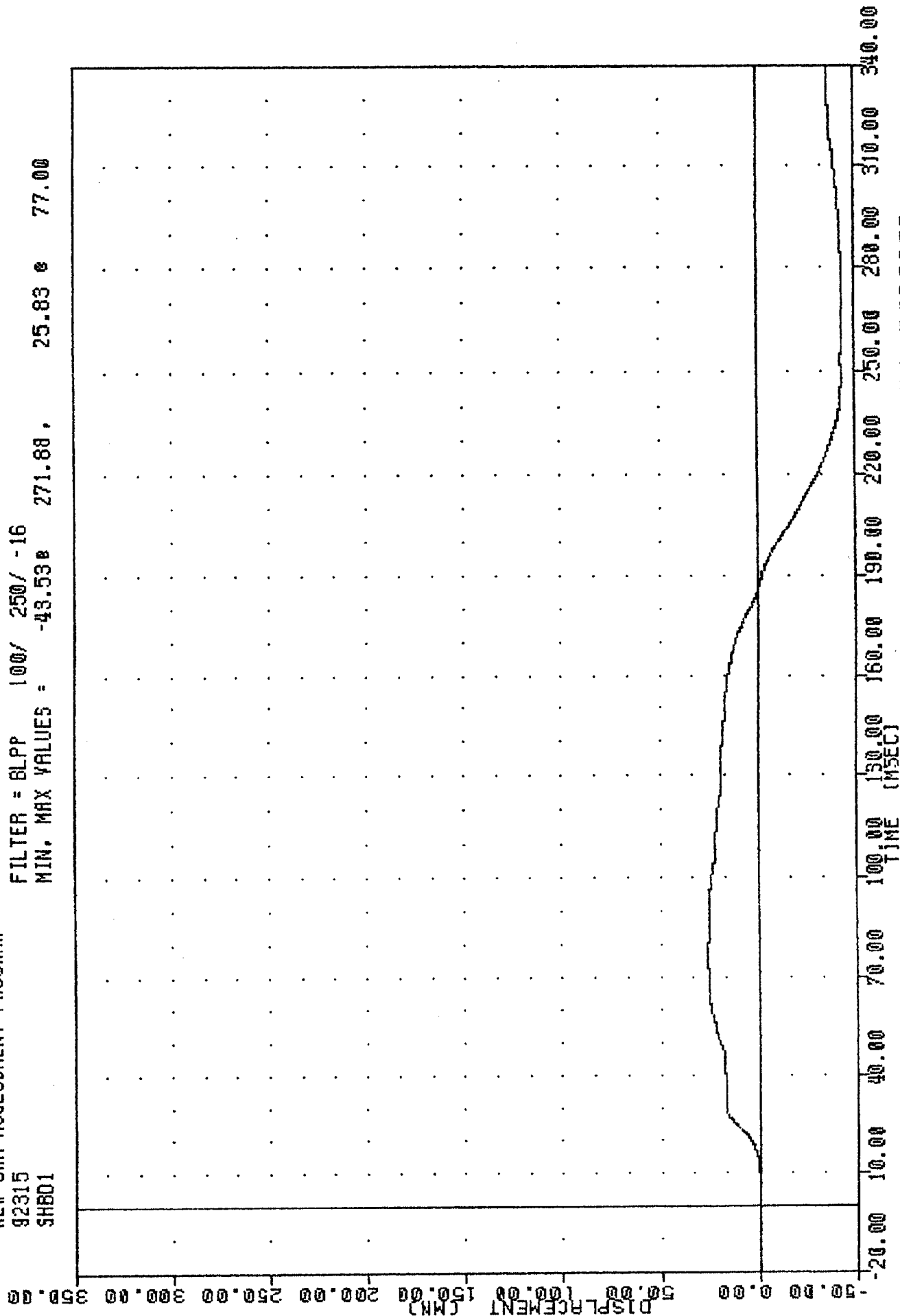
FILTER = BLPP 100/ 250/ -18
 MIN, MAX VALUES = -39.818 235.00, 7768.64 e 71.50



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 VFA SHOWN FOR BELT FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 SHBD1

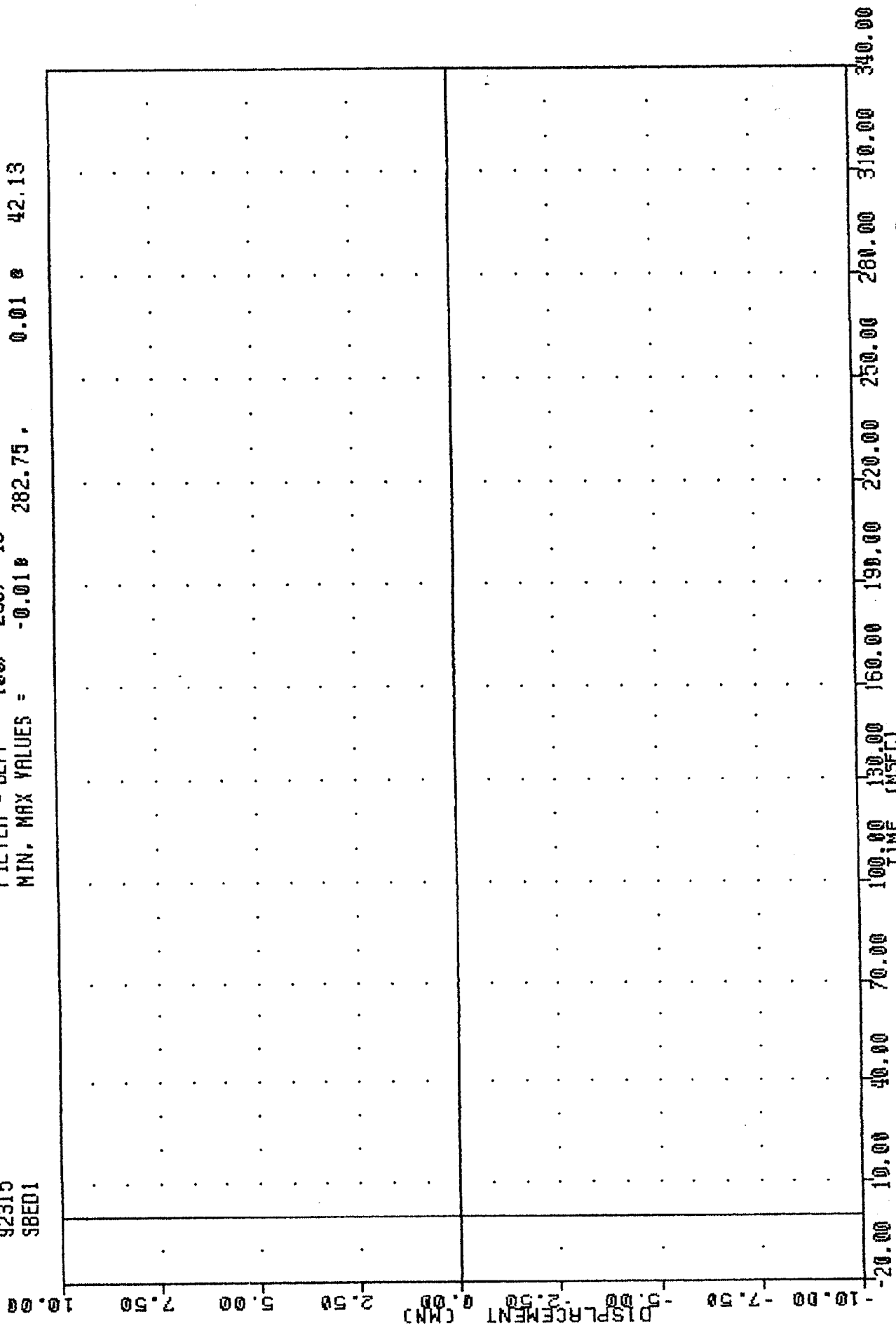
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -43.53 271.88 , 25.83 77.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT DISPLACEMENT

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 SBED1

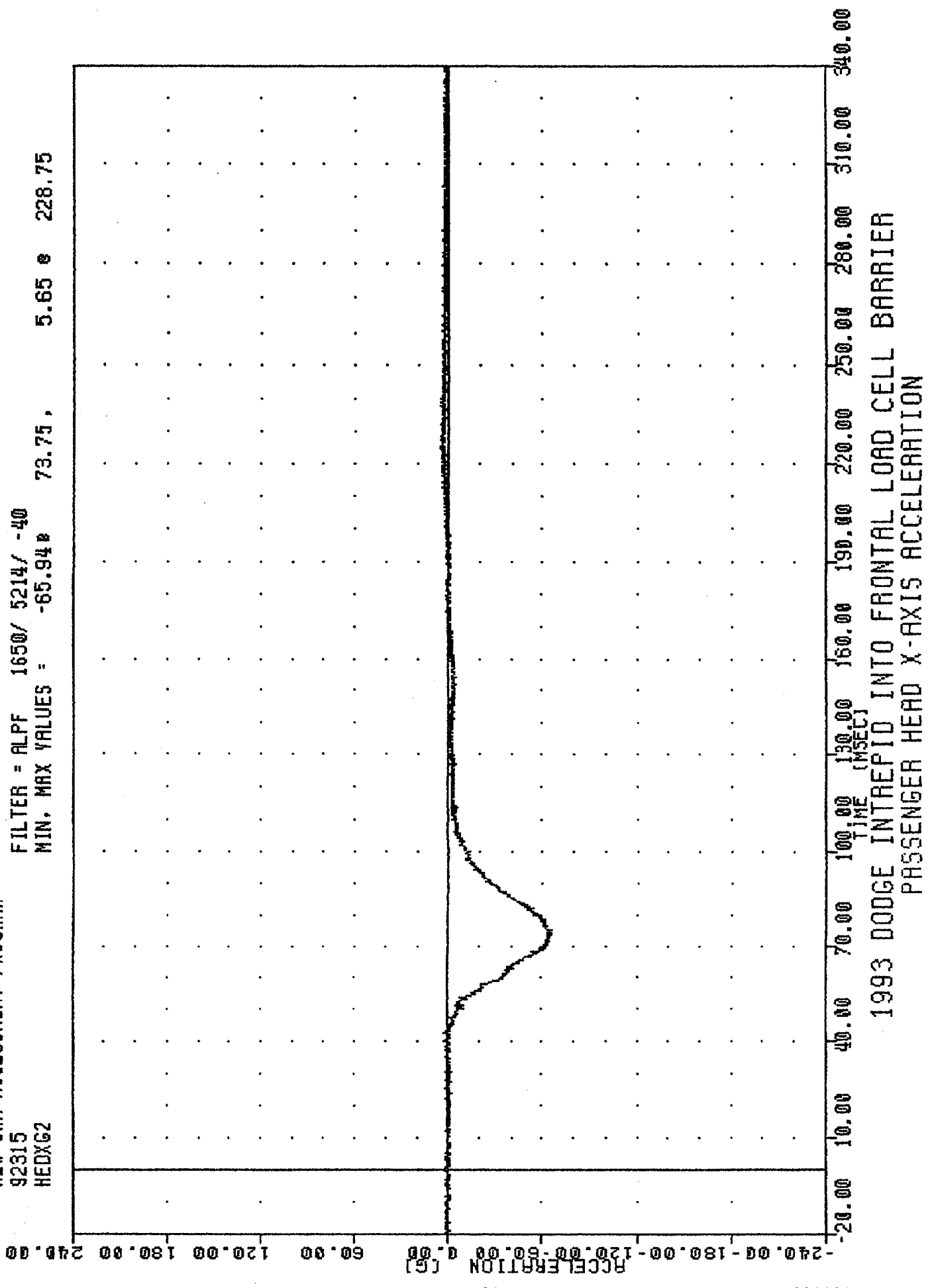
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.018 282.75, 0.018 42.13



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 BELT EXTENSION

TRC 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 HEDXG2

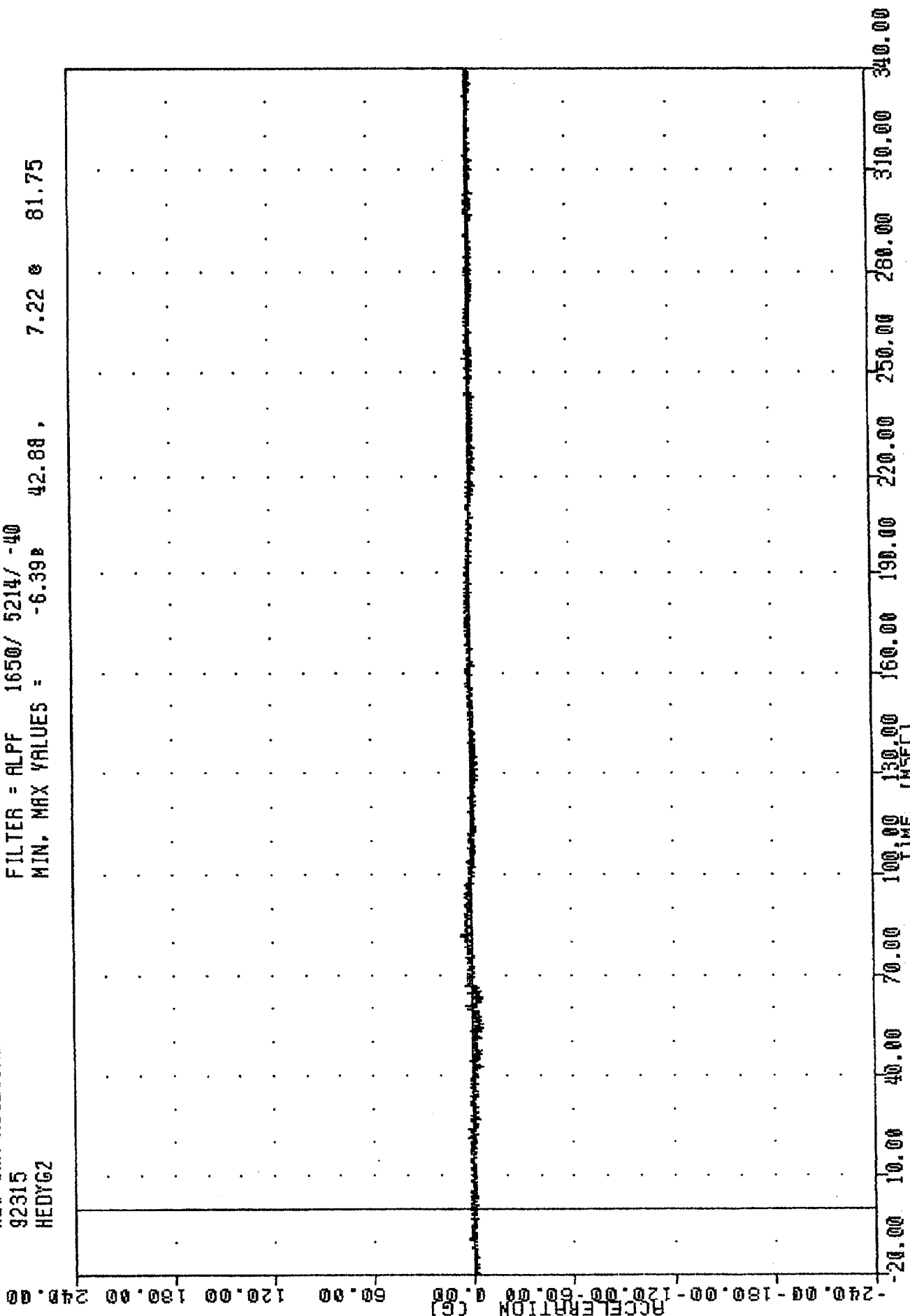
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -65.94 73.75, 5.65 228.75



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER HEAD X-AXIS ACCELERATION

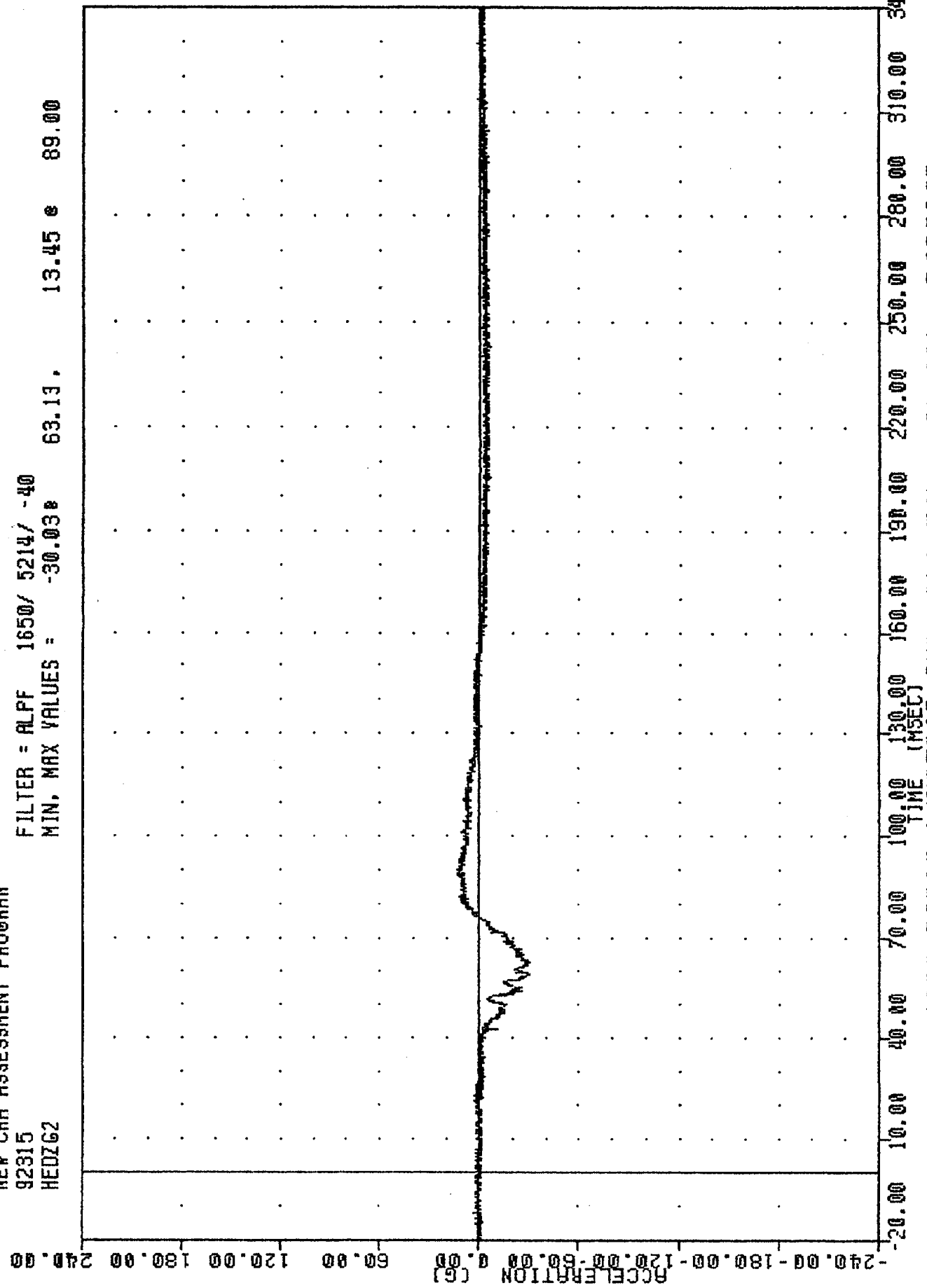
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 HEDYG2

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -6.39 42.88 , 7.22 81.75



TAC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 HEDZG2

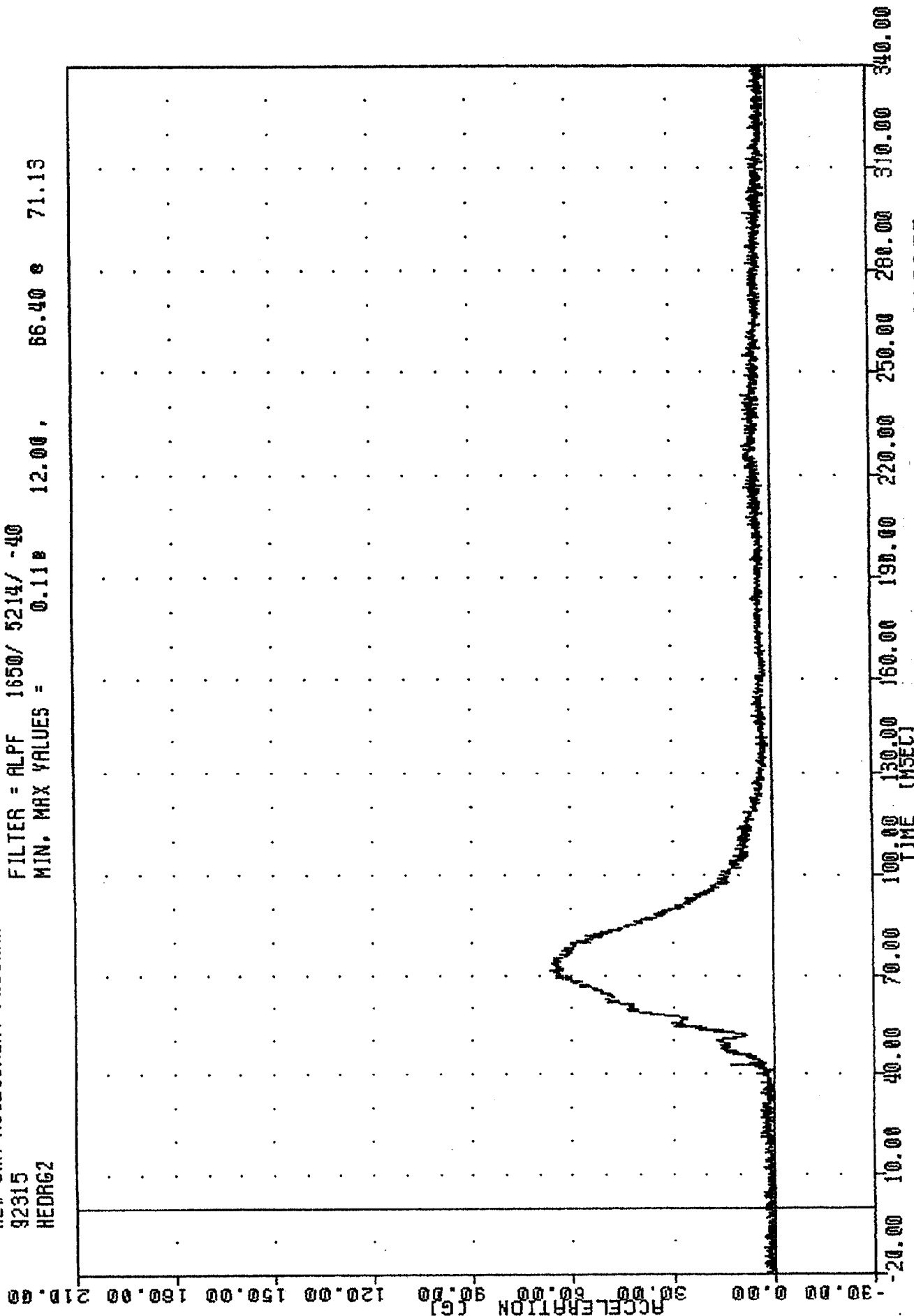
FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = -30.03 63.13, 13.45 89.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER HEAD Z-AXIS ACCELERATION

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 HEDRG2

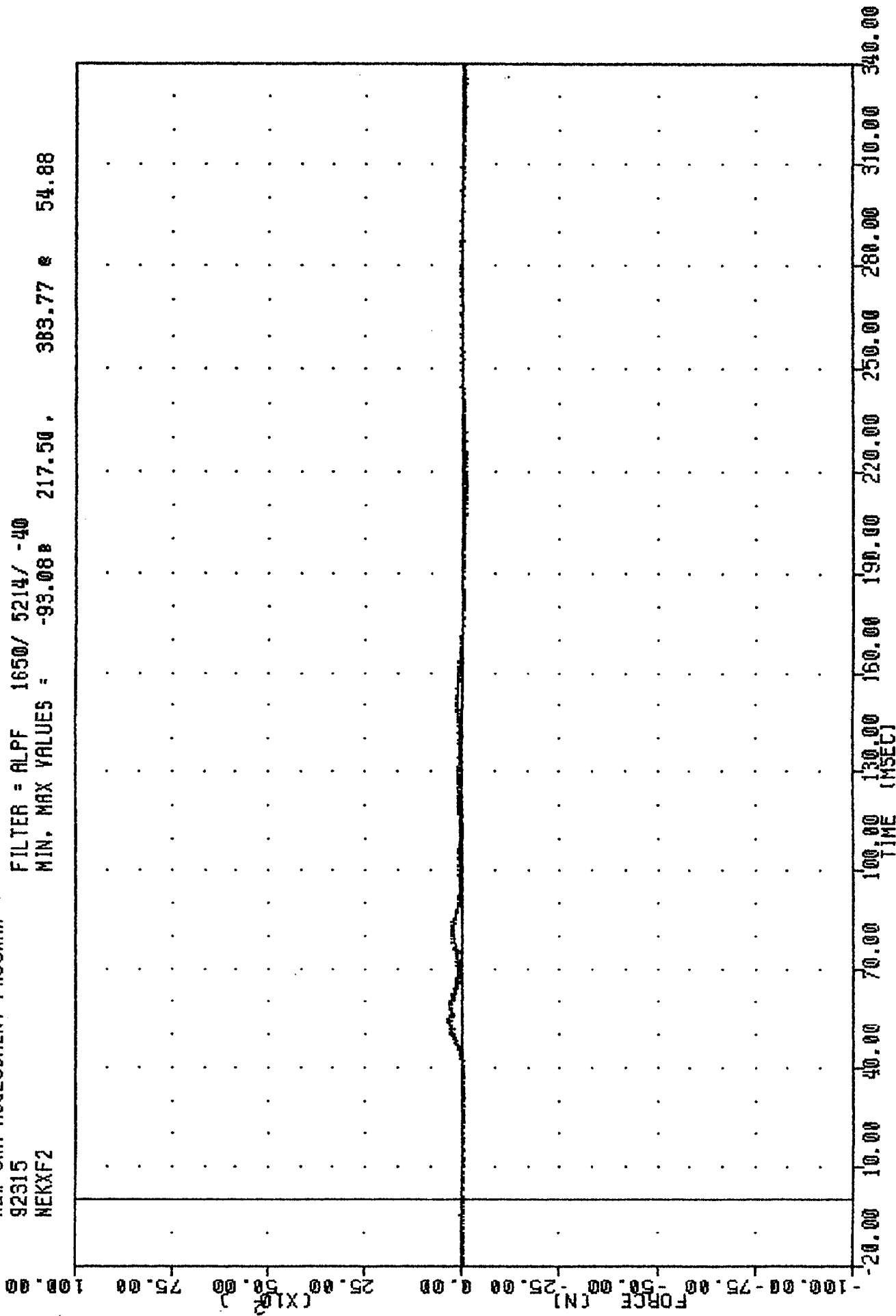
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = 0.118 12.00, 66.40 71.13



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER HEAD RESULTANT ACCELERATION

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKXF2

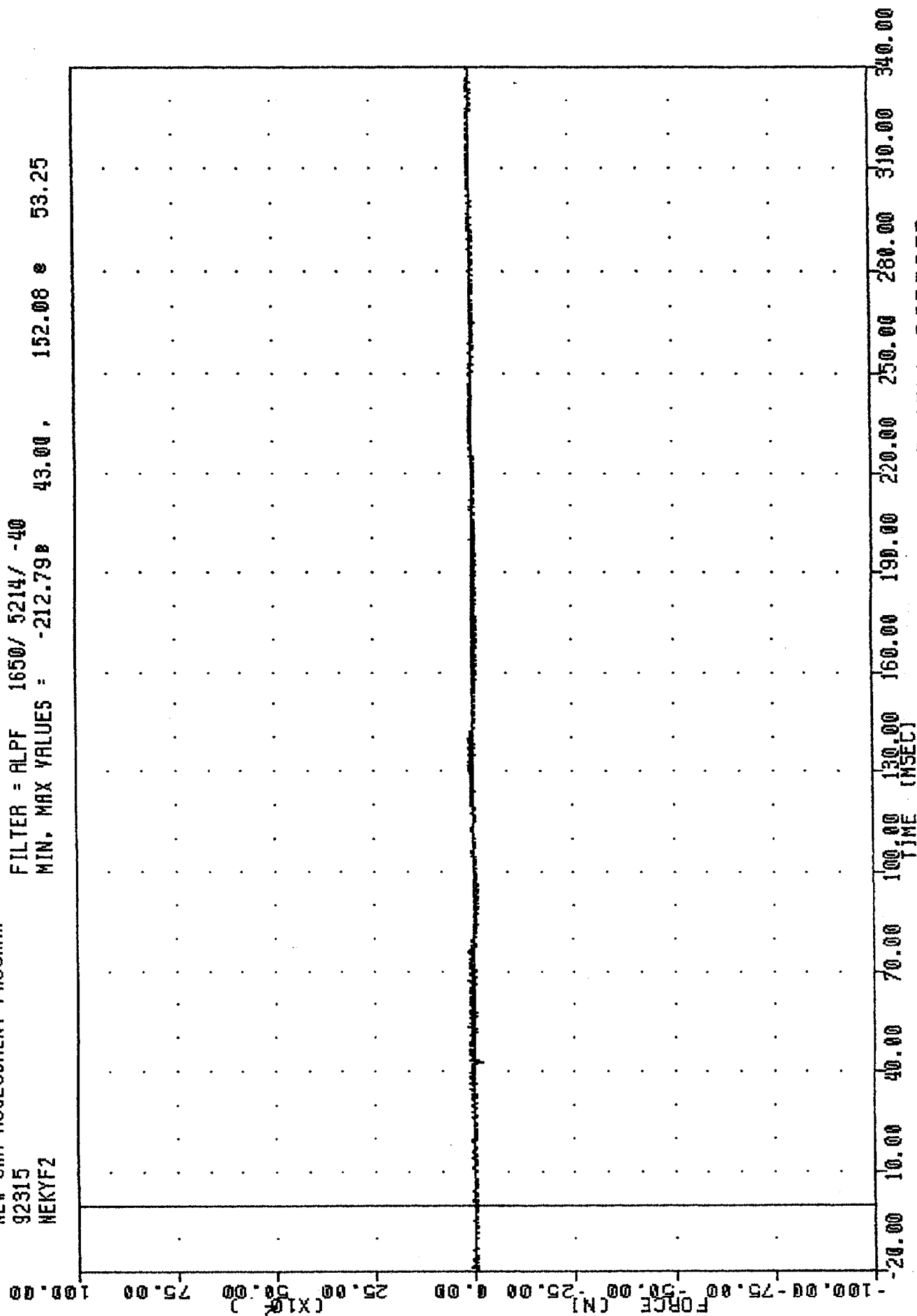
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -93.08 217.50 383.77 54.88



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER NECK X-AXIS SHEAR FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKYF2

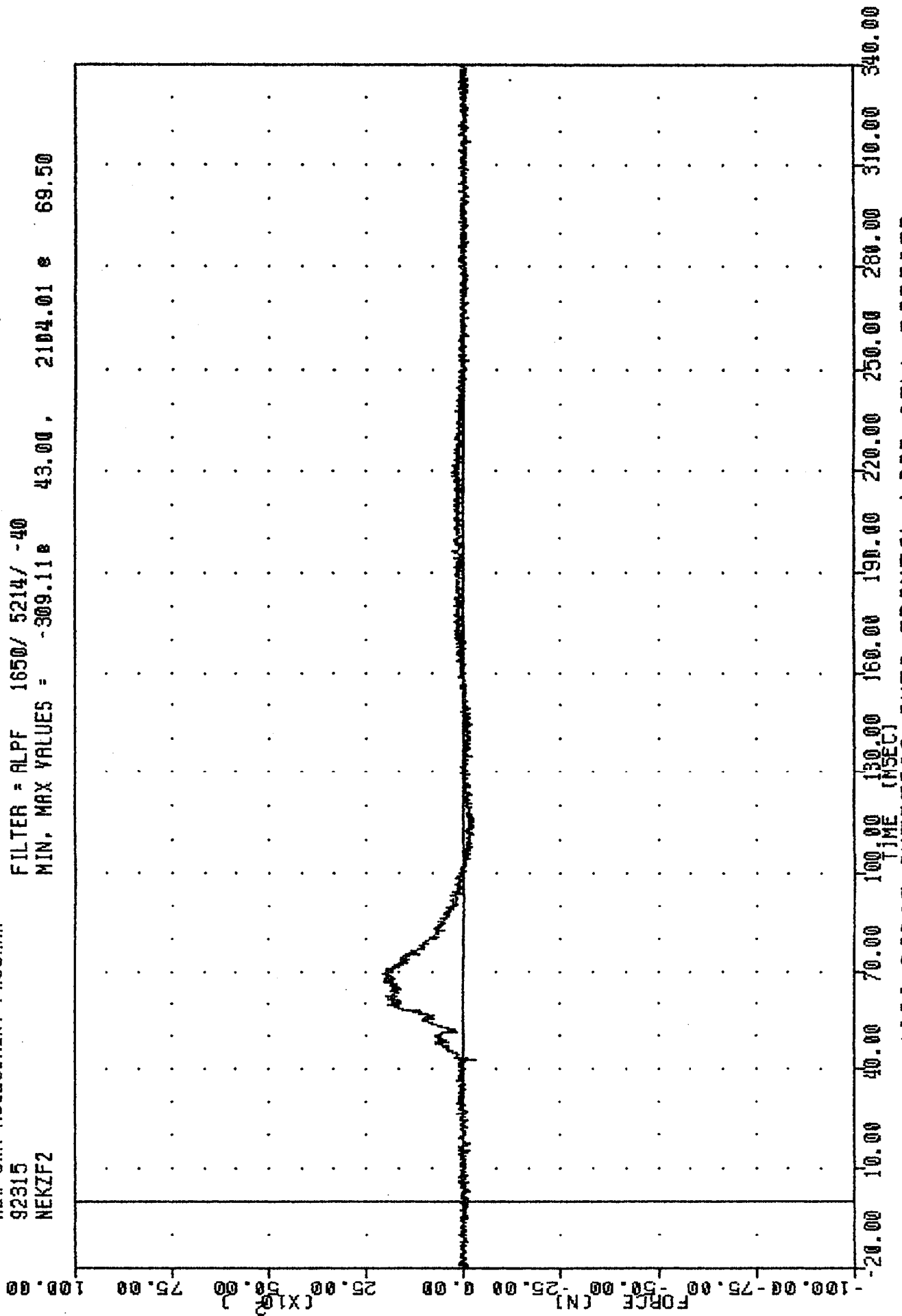
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -212.79 43.00 , 152.08 e 53.25



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER NECK Y-AXIS SHEAR FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKZF2

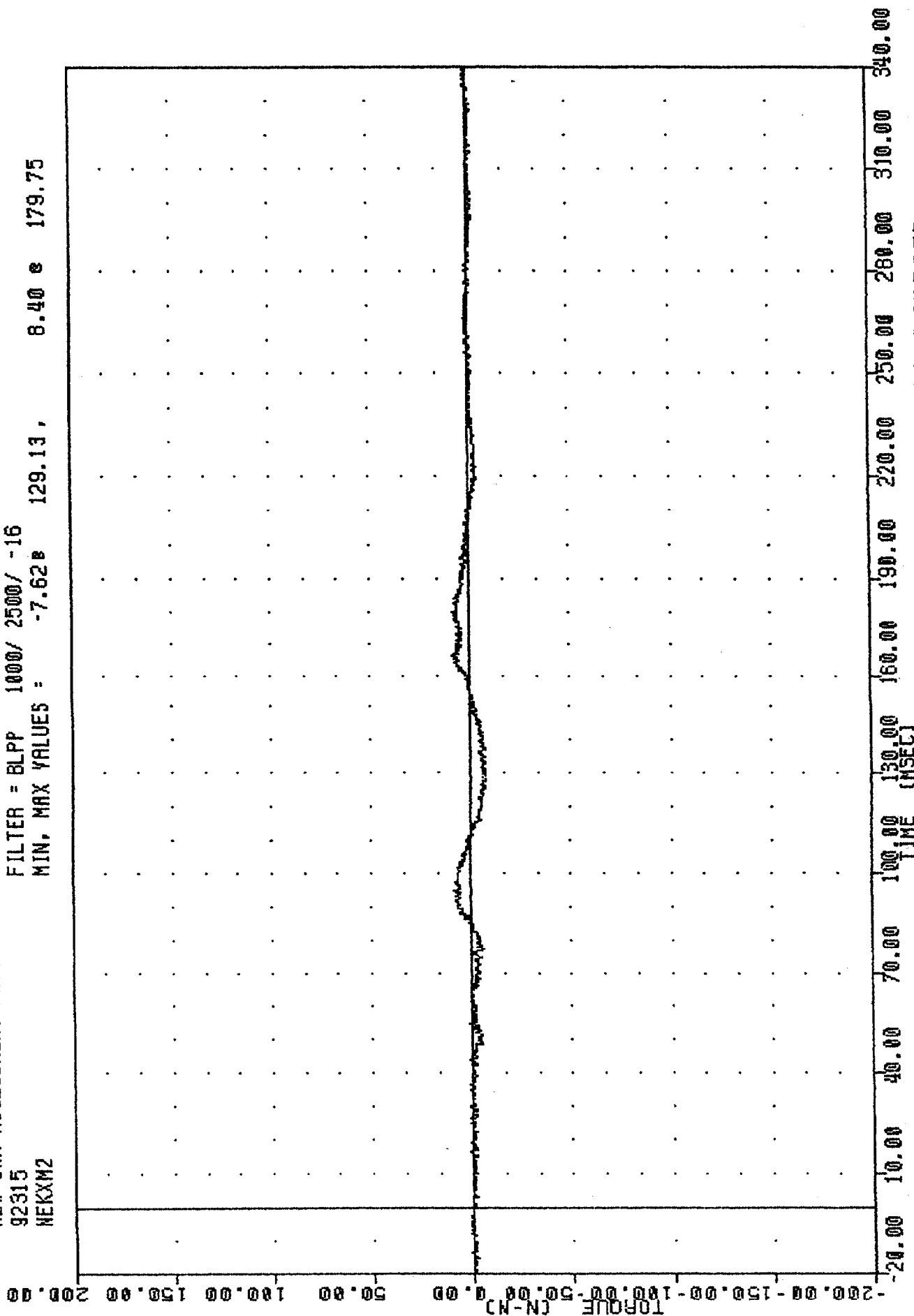
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -309.11e 43.00 , 2104.01 e 69.50



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER NECK Z-AXIS AXIAL FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKXM2

FILTER = BLPP 1000/ 2500/ -16
 MIN, MAX VALUES = -7.62 129.13, 8.40 179.75

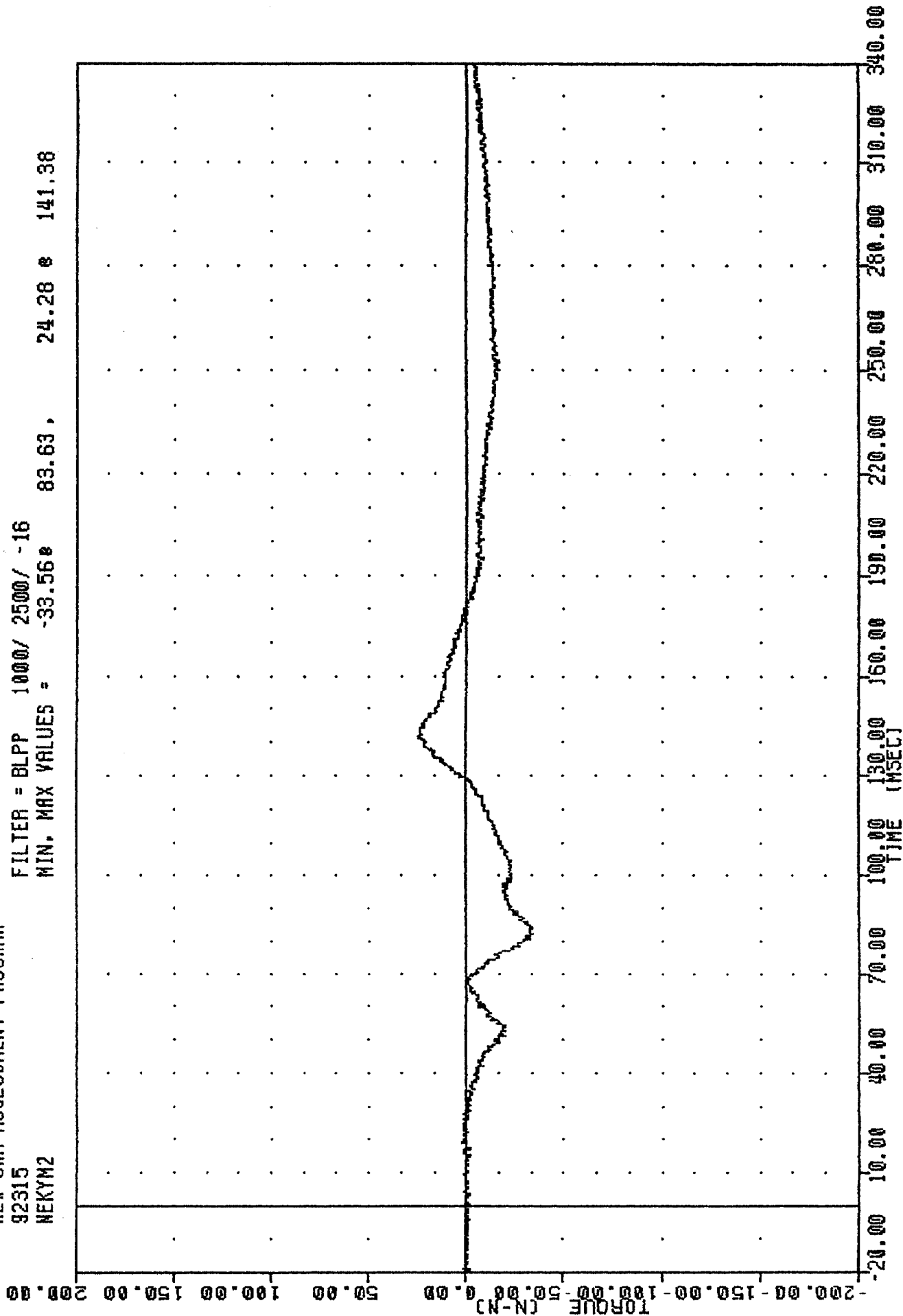


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER NECK MOMENT ABOUT X AXIS

TRC
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKYM2

921110

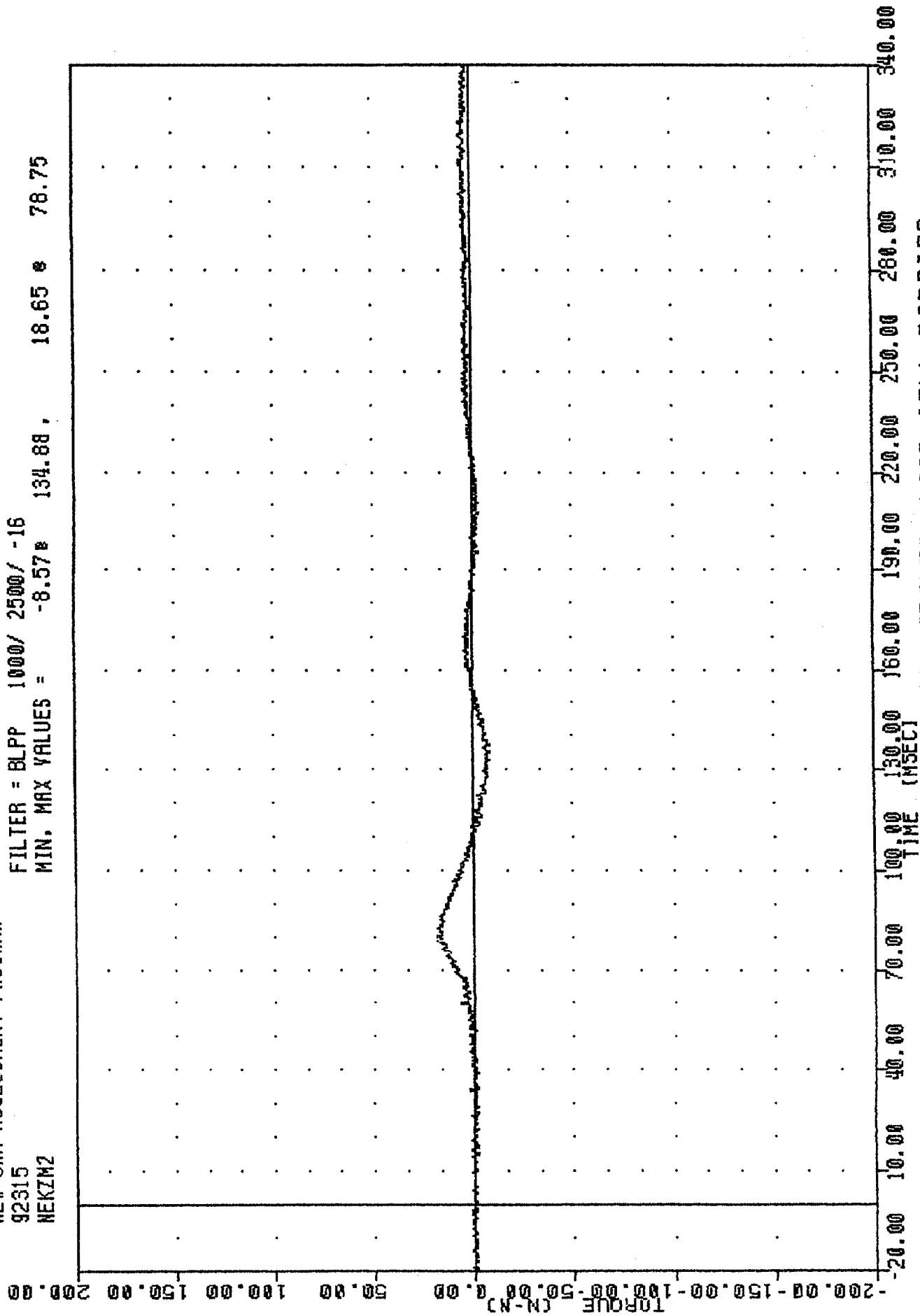
FILTER = BLPP 1000/ 2500/ -16
 MIN. MAX VALUES = -33.56 83.63 24.28 141.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER NECK MOMENT ABOUT Y AXIS

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 NEKZM2

FILTER = BLPP 1000/ 2500/ -16
 MIN. MAX VALUES = -8.57 134.88 , 18.65 78.75



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER NECK MOMENT ABOUT Z AXIS

TRC 921110

NEW CAR ASSESSMENT PROGRAM

92315

CSTXG2

FILTER = BLPP 300/ 750/ -16

MIN, MAX VALUES = -51.55 71.13, 2.58 e 274.88

120.00

90.00

60.00

30.00

0.00

-30.00

-60.00

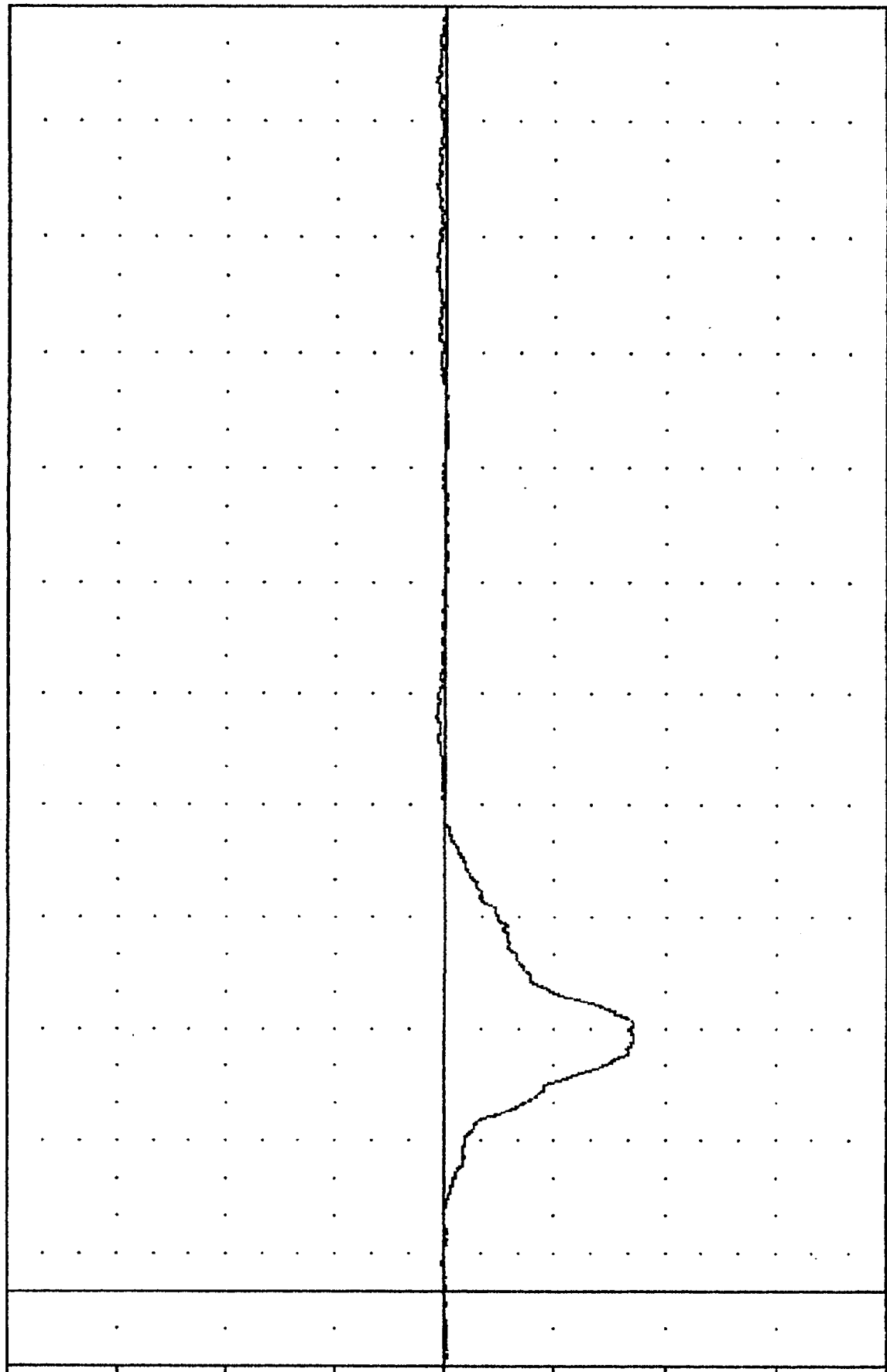
-90.00

-120.00

ACCELERATION (G)

B-33

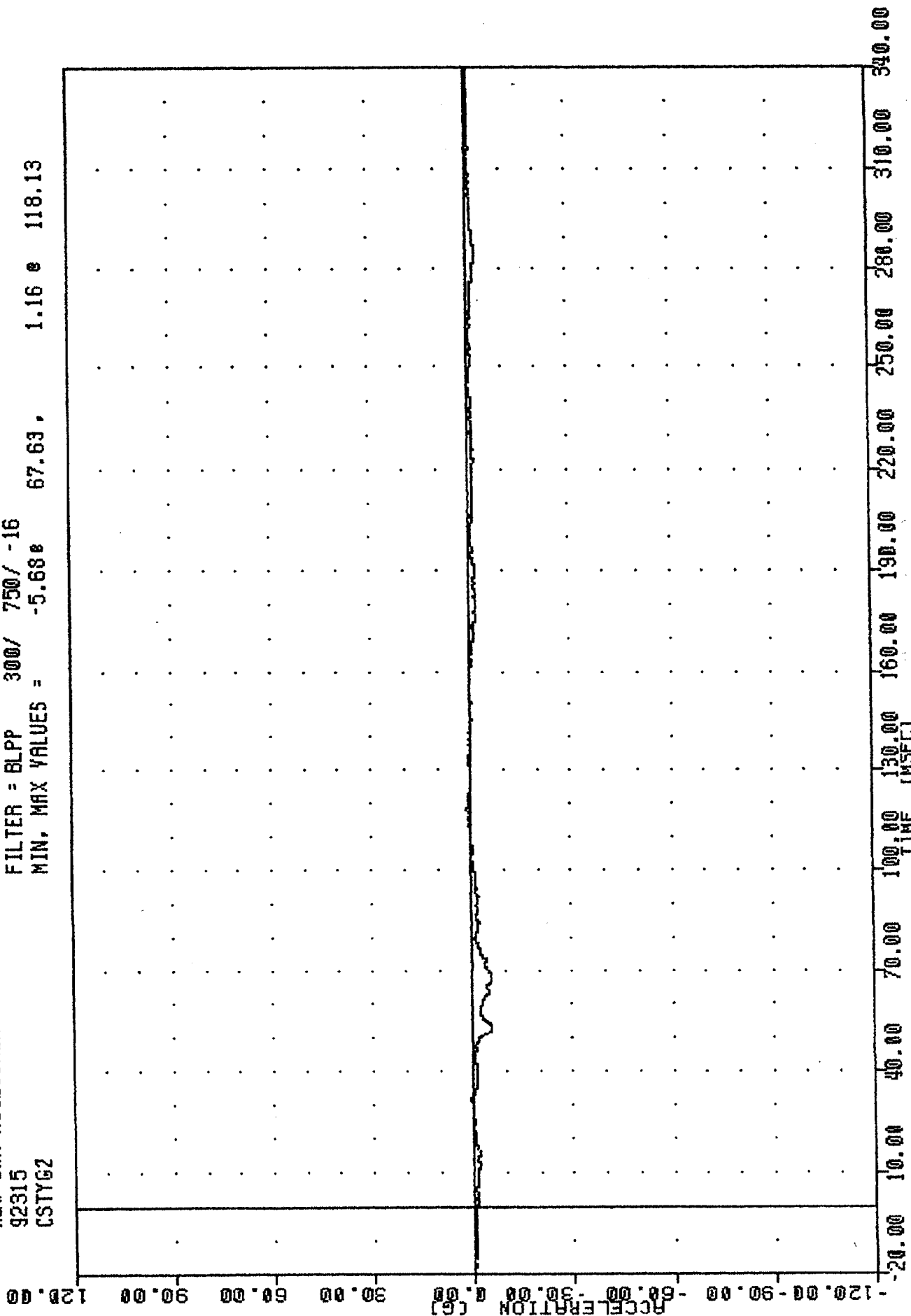
921110



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION

TRC . 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 CSTY62

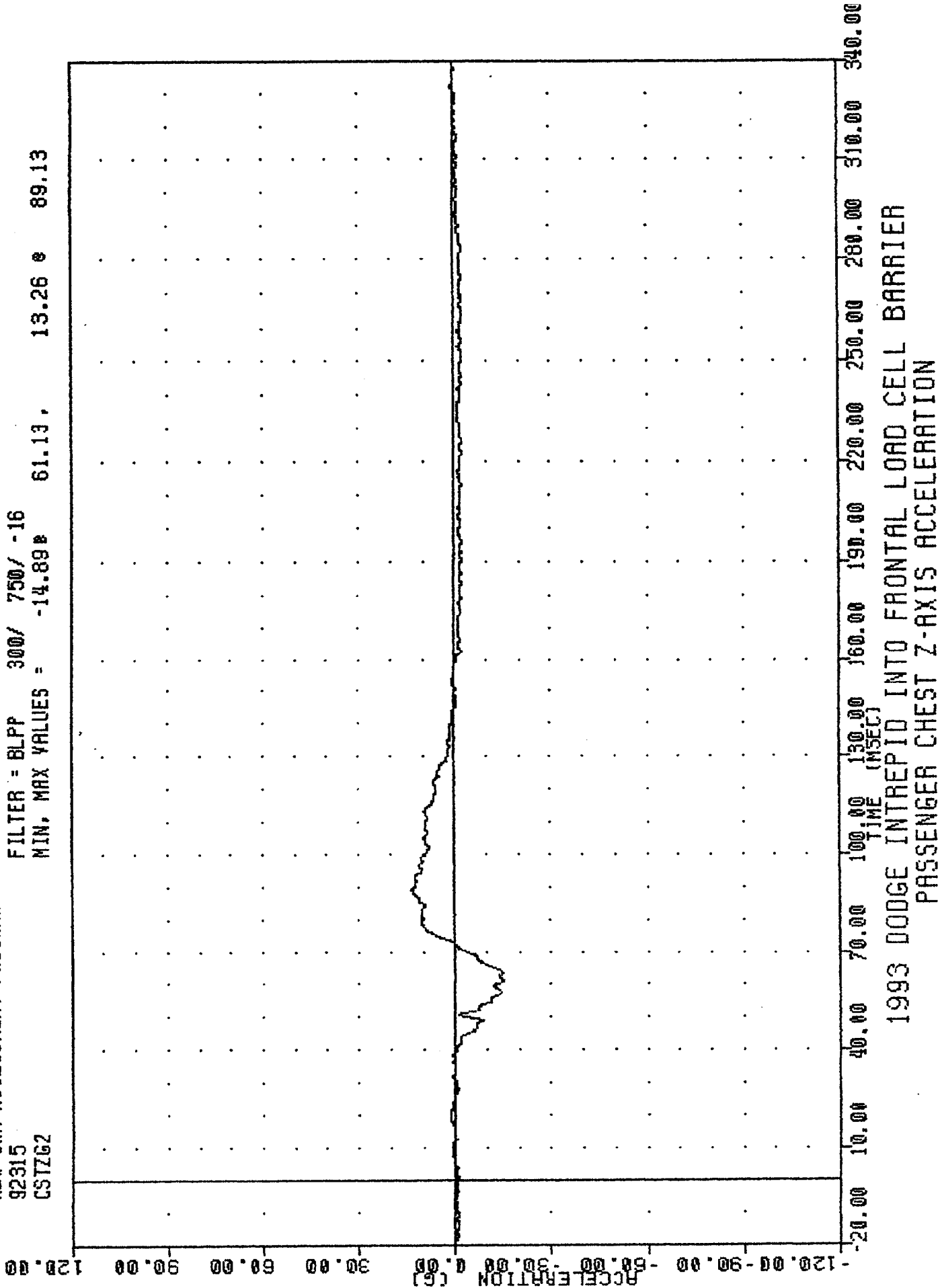
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -5.68 67.63, 1.16 e 118.13



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER CHEST Y-AXIS ACCELERATION

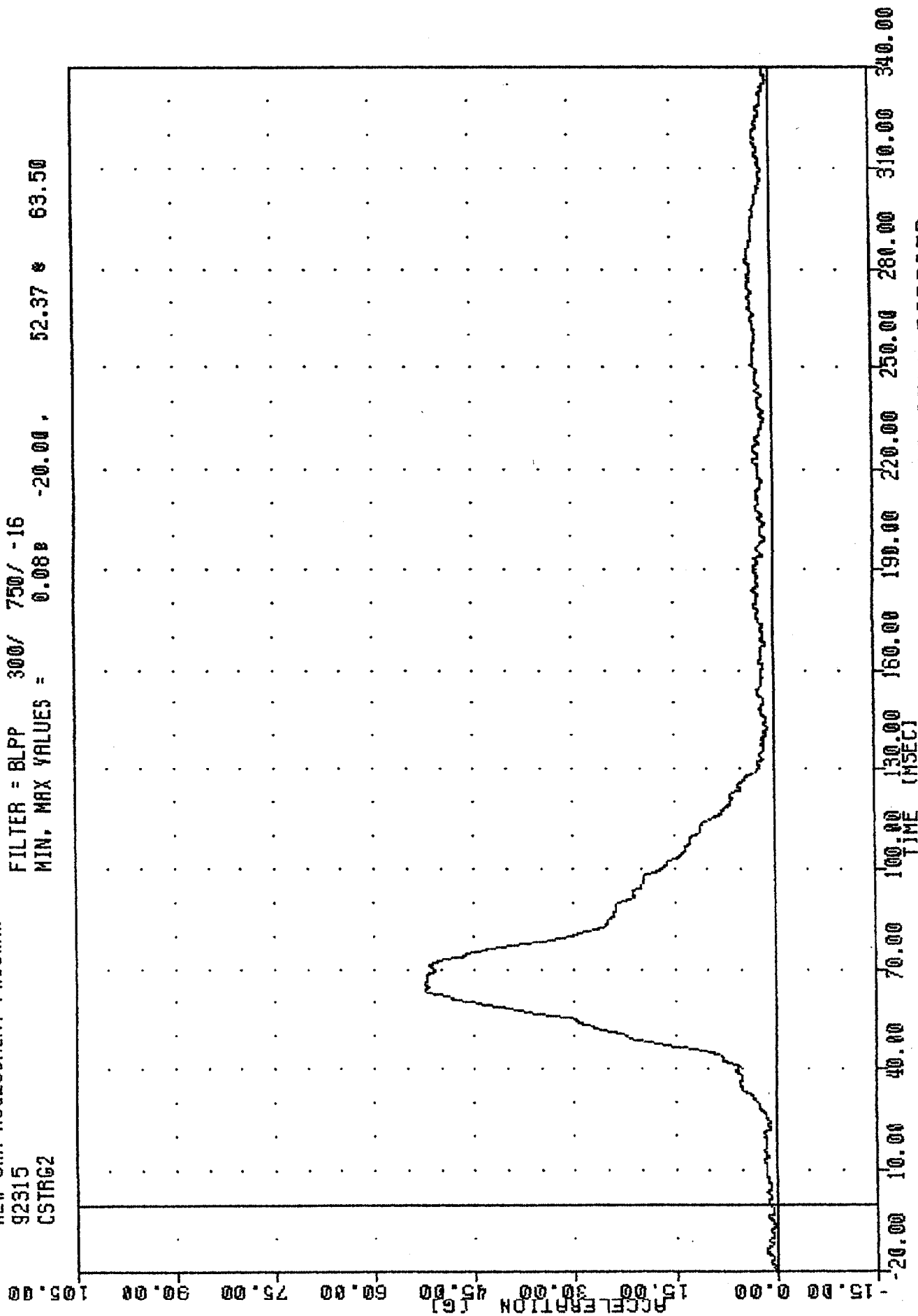
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 CSTZG2

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -14.898 61.13, 13.26 89.13



TRC .921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 CSTRG2

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.088 -20.00, 52.37 * 63.50

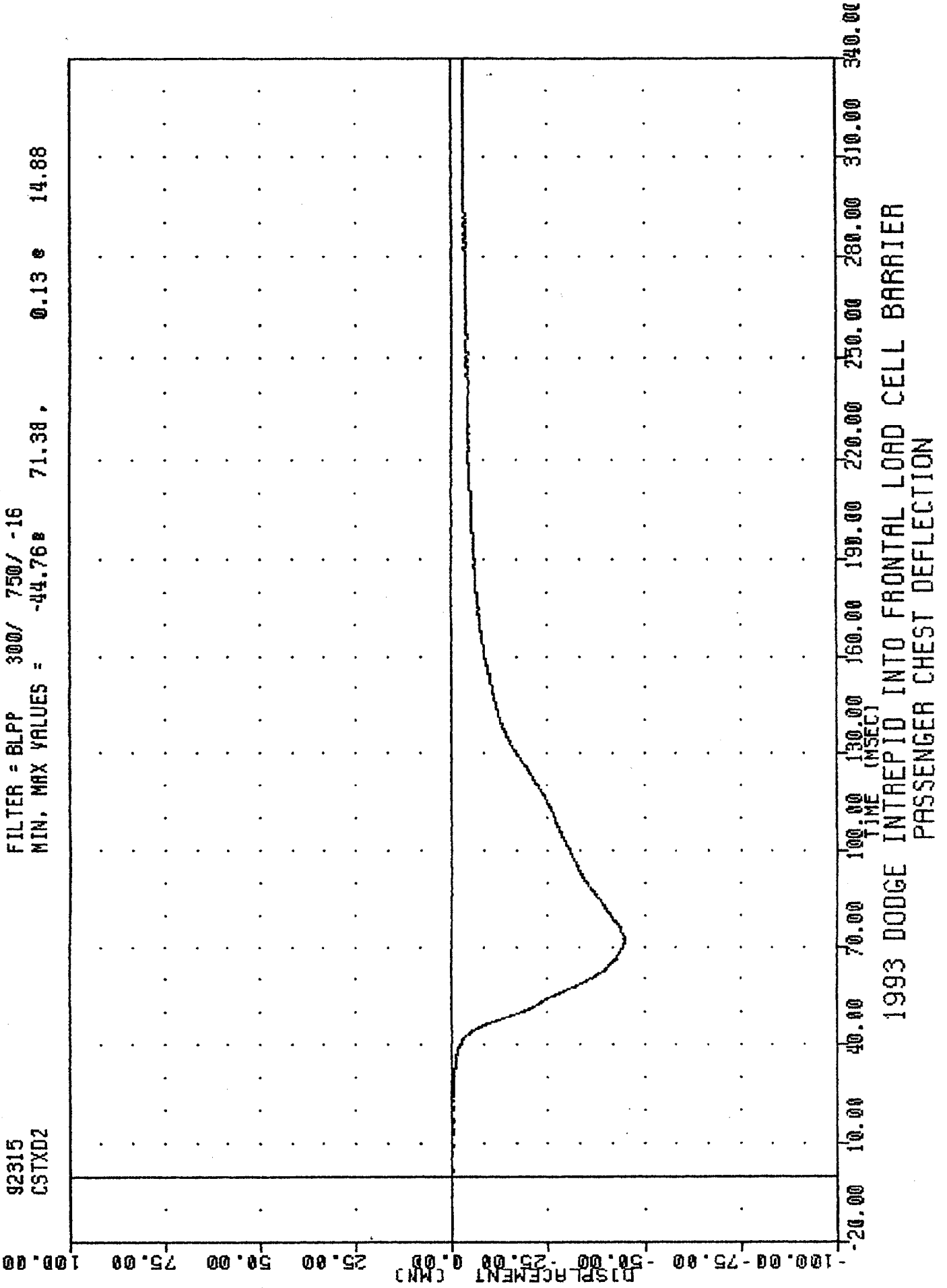


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 POST IMPACT INSTANTANEOUS ACCELERATION

TRC
NEW CAR ASSESSMENT PROGRAM
92315
CSTXD2

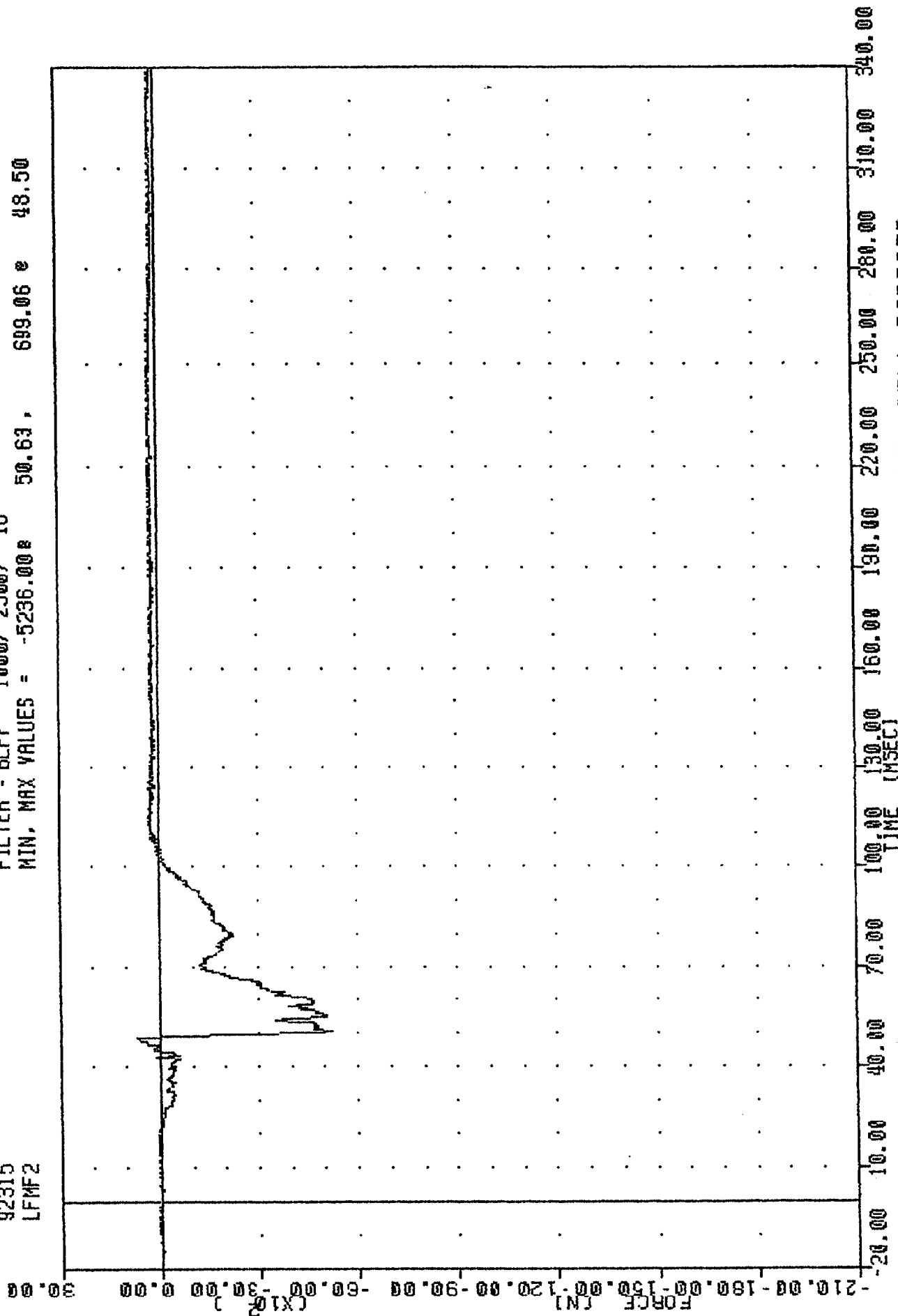
, 921110

FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = -44.76 71.38, 0.13 e 14.88



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 LFMF2

FILTER = BLPP 1000/ 2500/ -16
 MIN. MAX VALUES = -5236.00e 50.63, 699.06 e 48.50

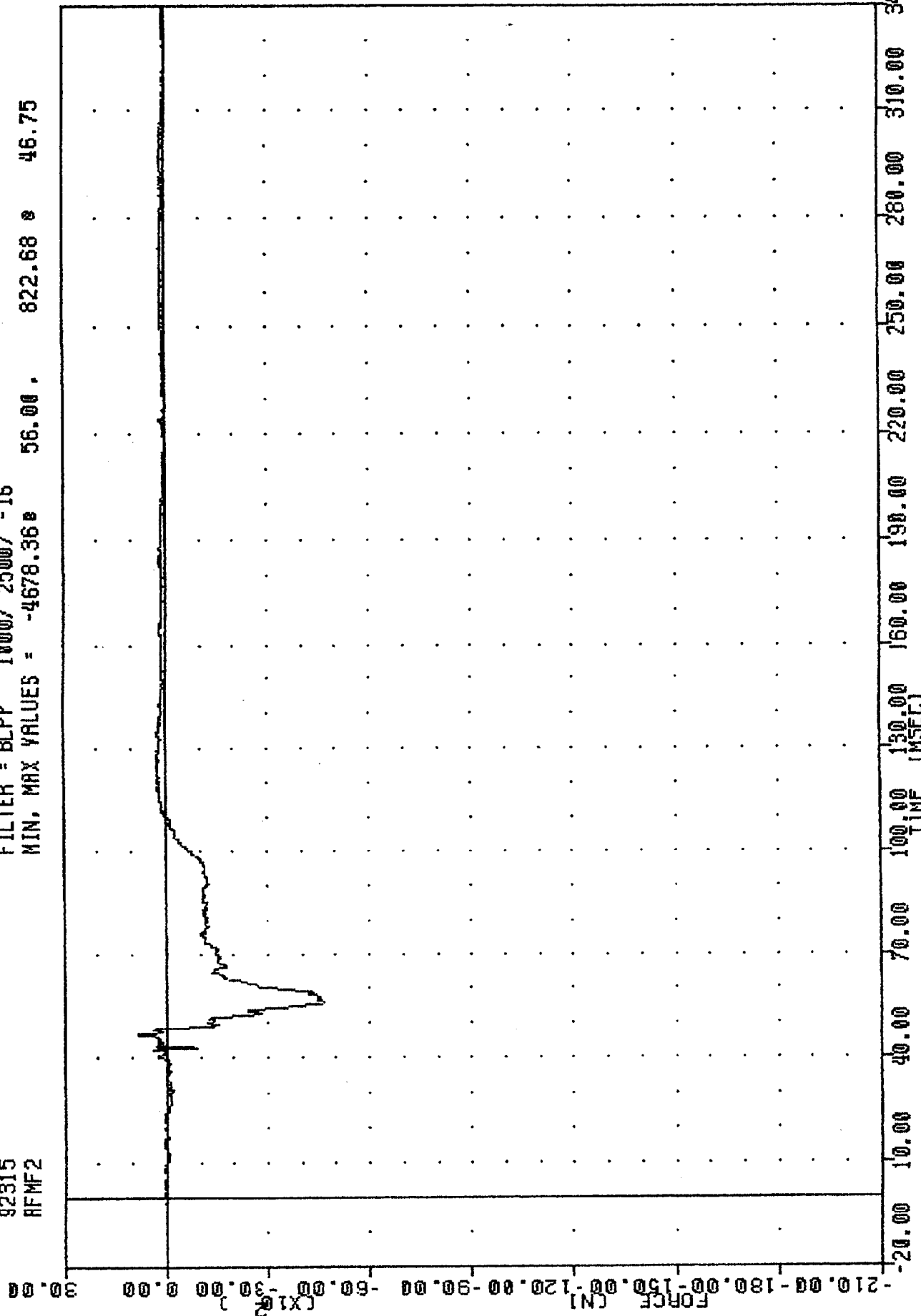


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

SPRINGER FT. MEADOW FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 RFMF2

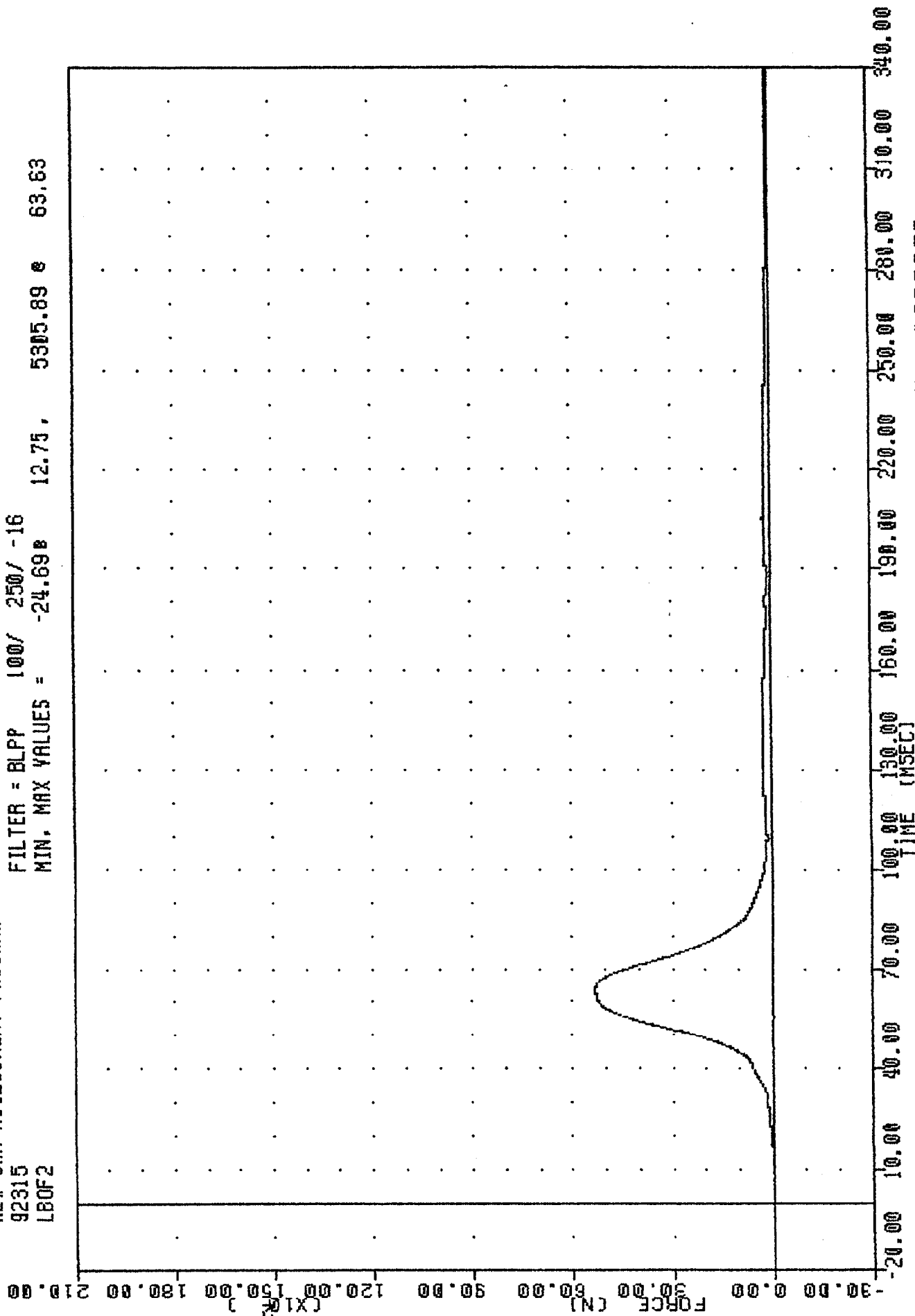
FILTER = BLPP 1000/ 2500/ -16
 MIN, MAX VALUES = -4678.36 822.68 56.00 46.75



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER RIGHT FEMUR FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 LBOF2

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -24.69 12.75, 5305.89 63.63

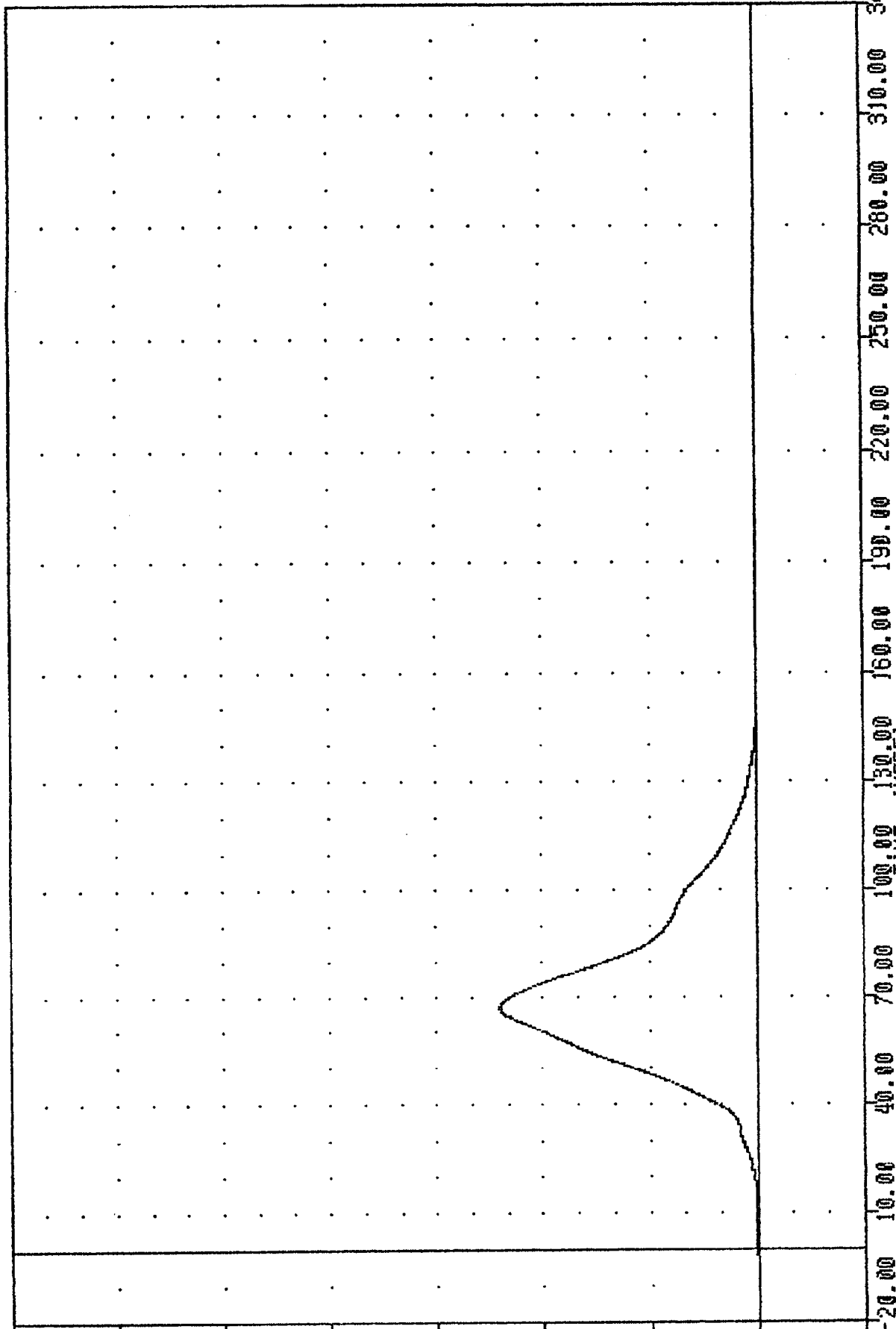


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 SHBF2

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -32.73 306.00 , 7206.66 e 67.00

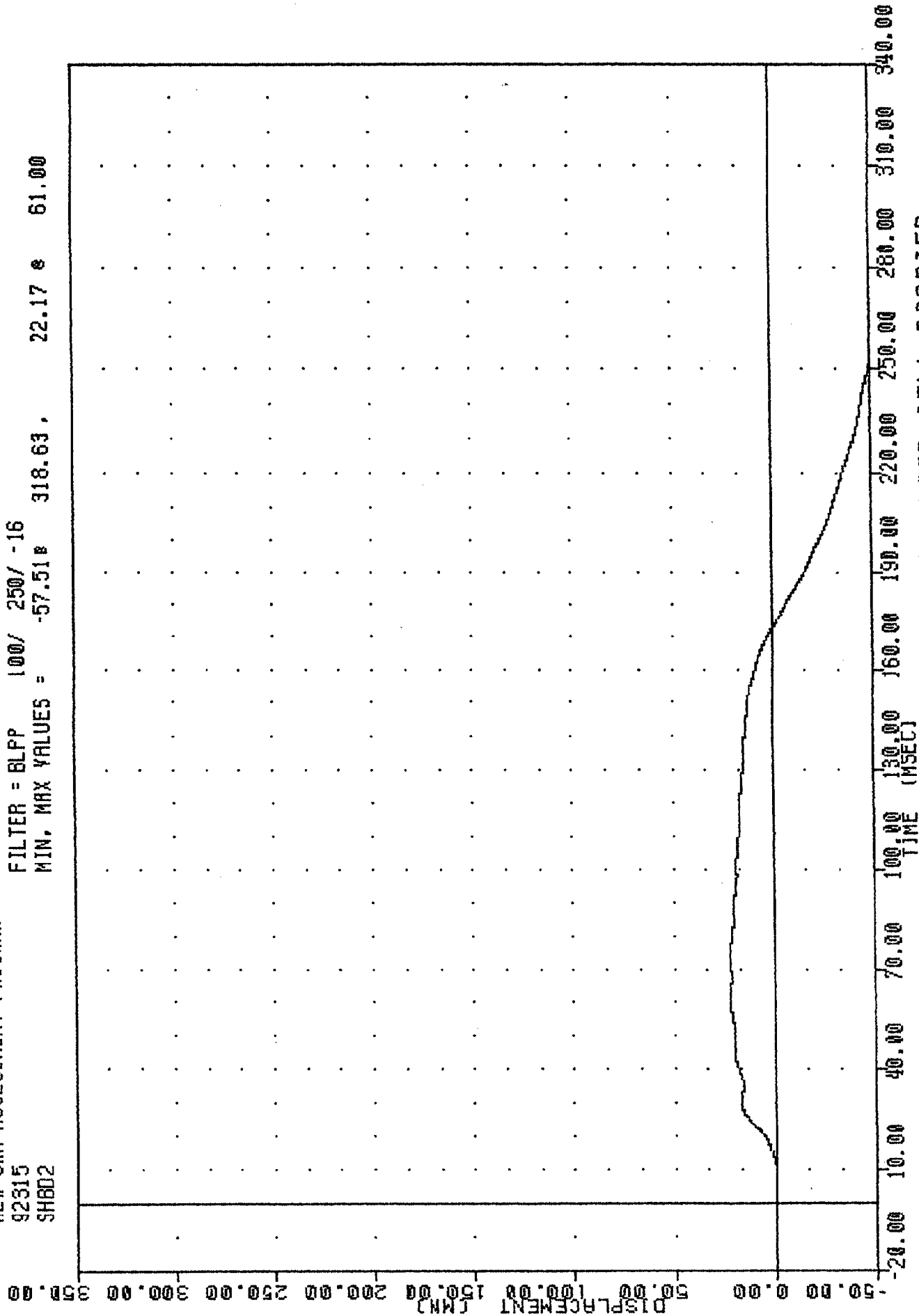
FORCE (N) (X10³)



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 PASSENGER SHOULDER BELT FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 SH802

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -57.518 318.63, 22.17 61.00

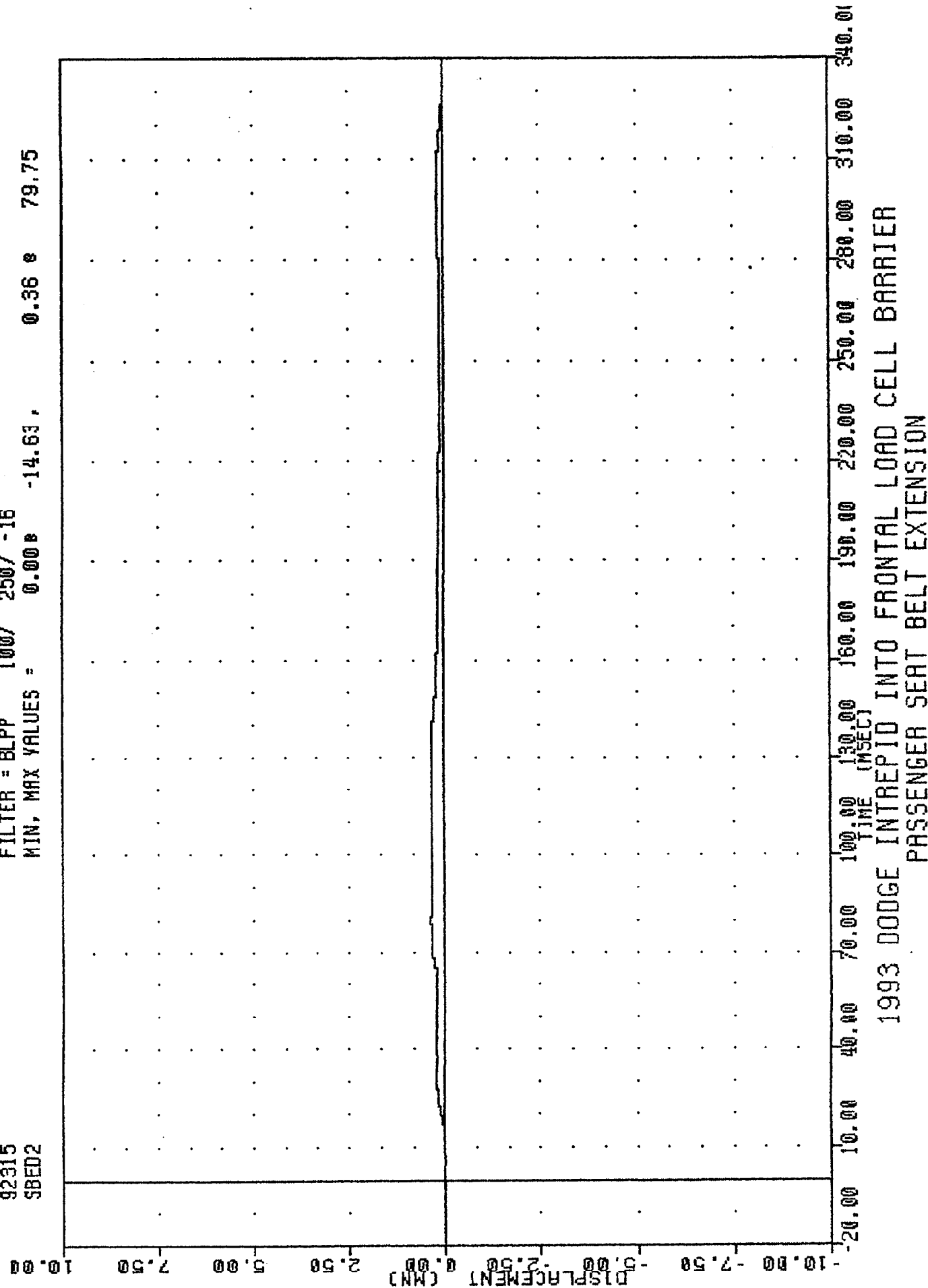


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

FRONTAL IMPACT TEST REPORT

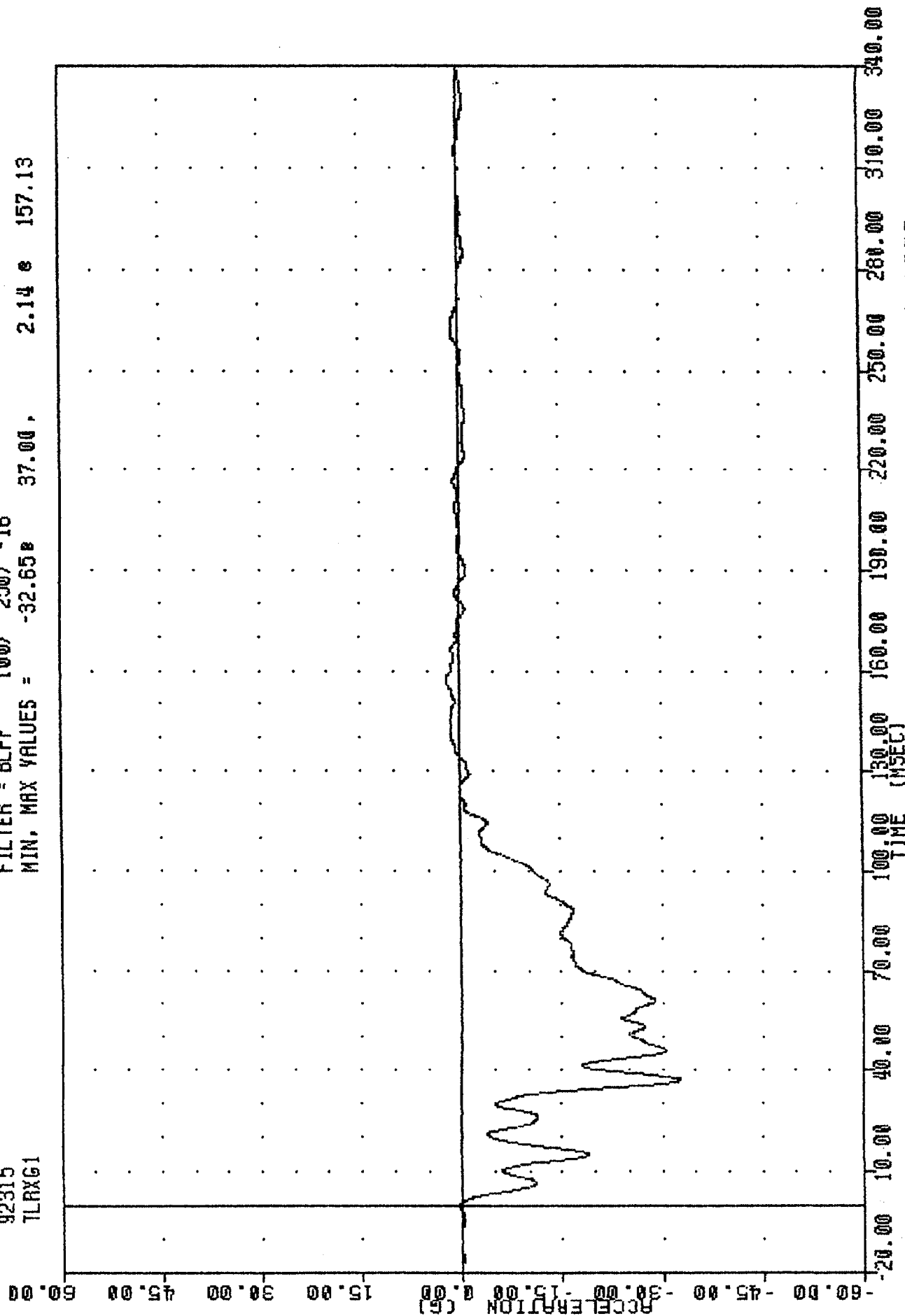
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 SBED2

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = 0.00 0.36 e 79.75
 -14.63 ,



TRC .921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 TLXG1

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -32.65 37.00, 2.14 157.13

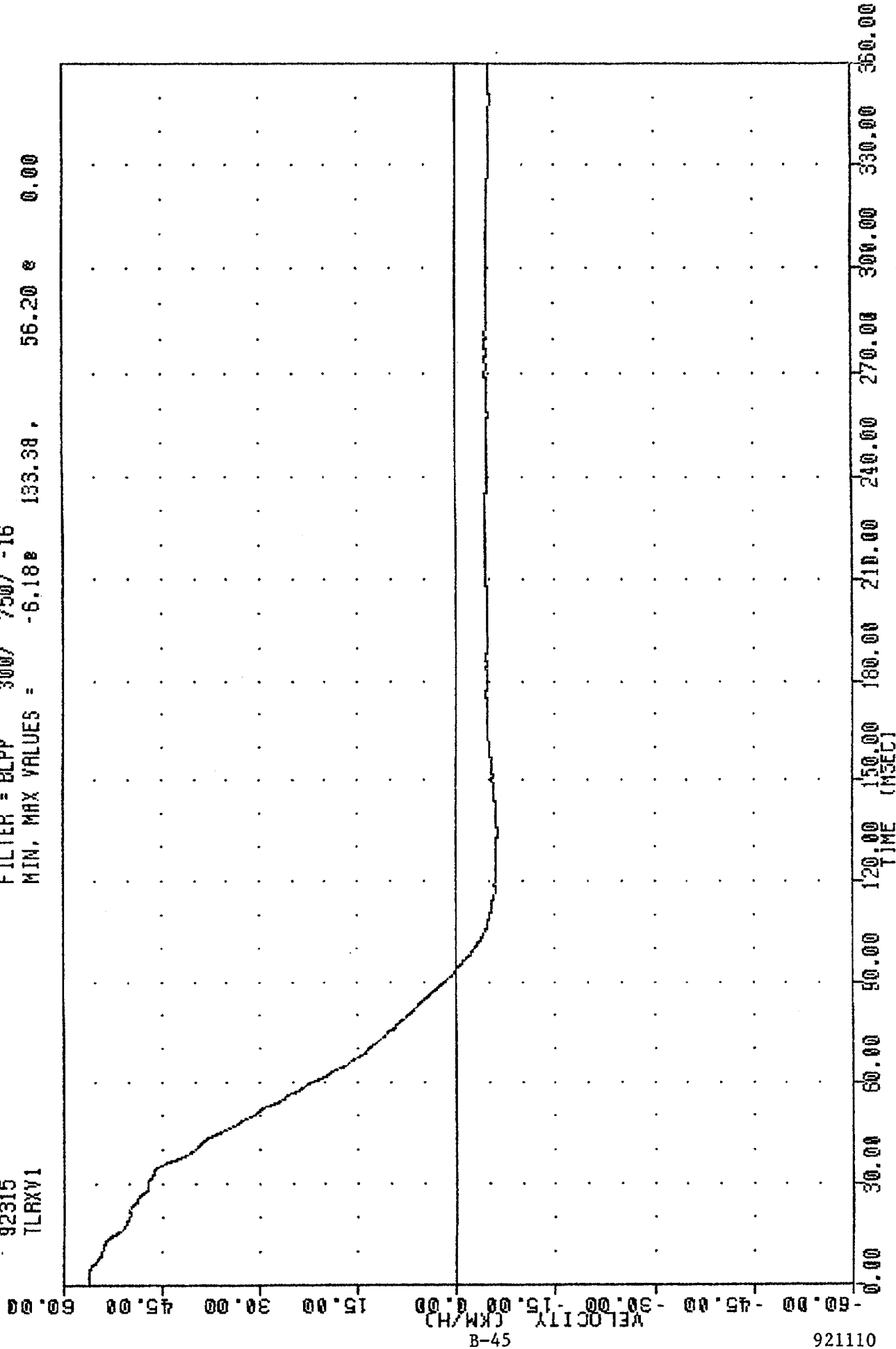


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

LEFT REAR SEAT - P-1015 ACCELERATION

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 TLXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -6.18e 133.38, 56.20 e 0.00



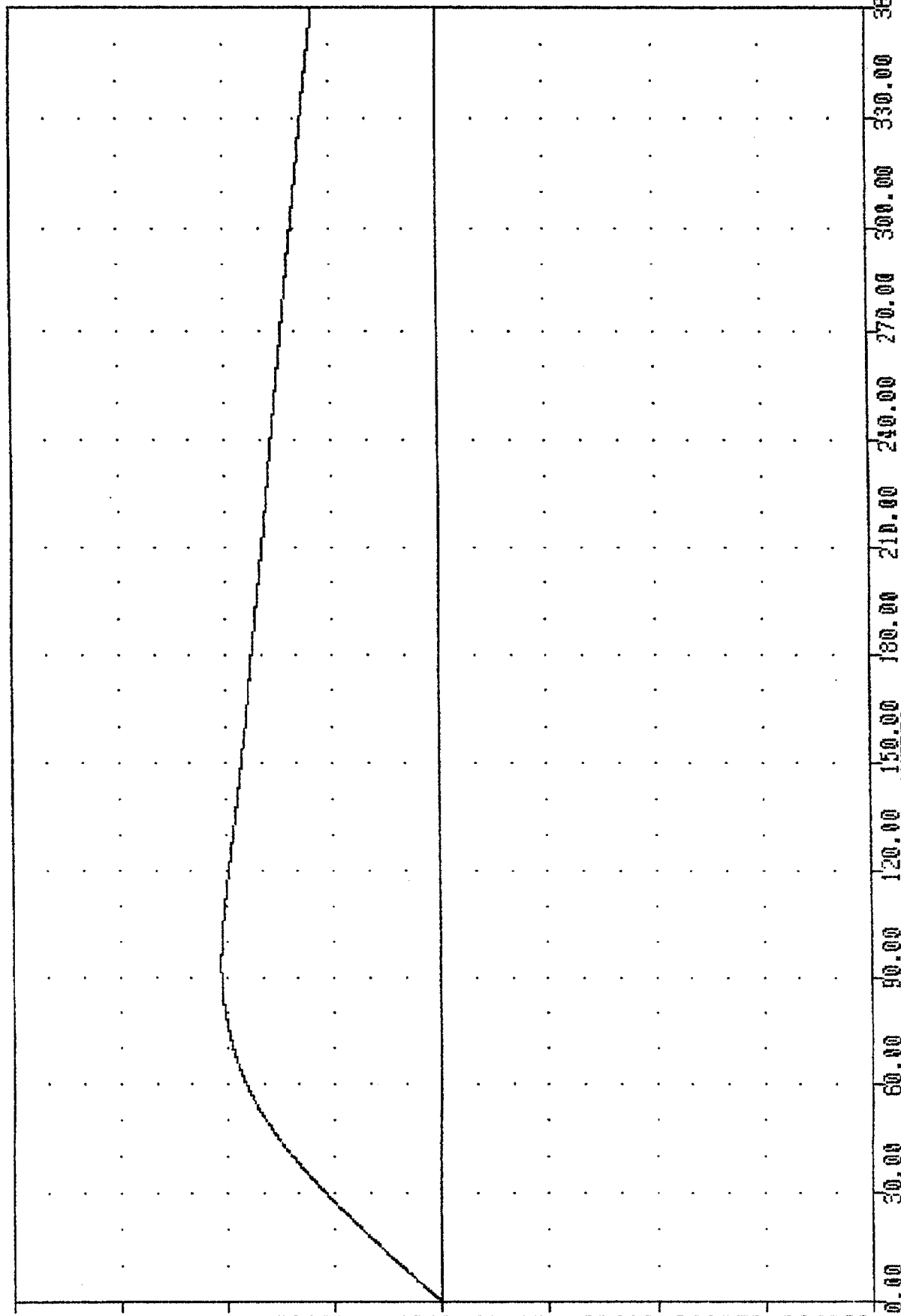
1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT X-AXIS VELOCITY

TRC . 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 TLRXD1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.00 821.18 93.63

DISPLACEMENT (MM)
 (X10³)

B-46



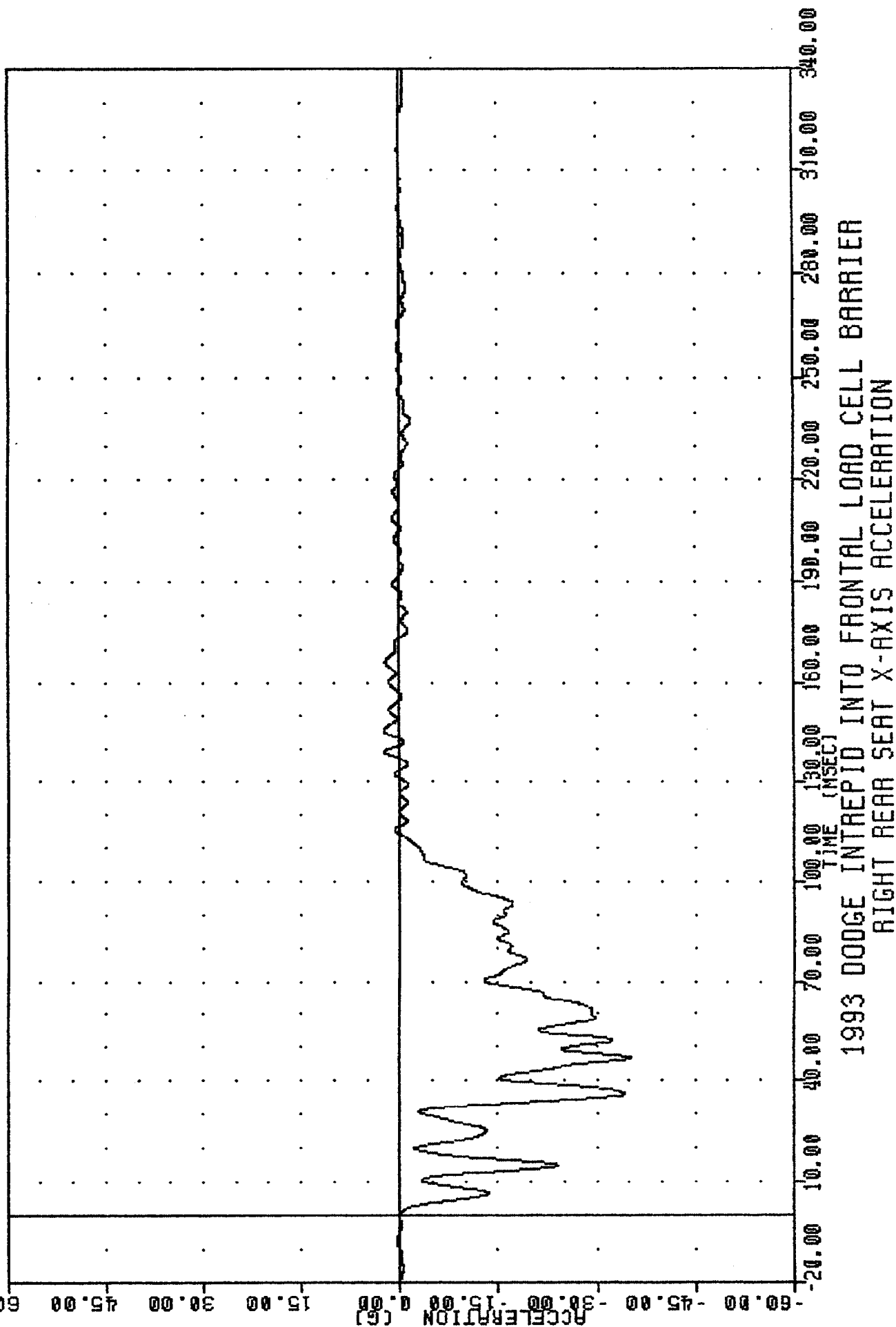
921110

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

TEST MAX DISPLACEMENT

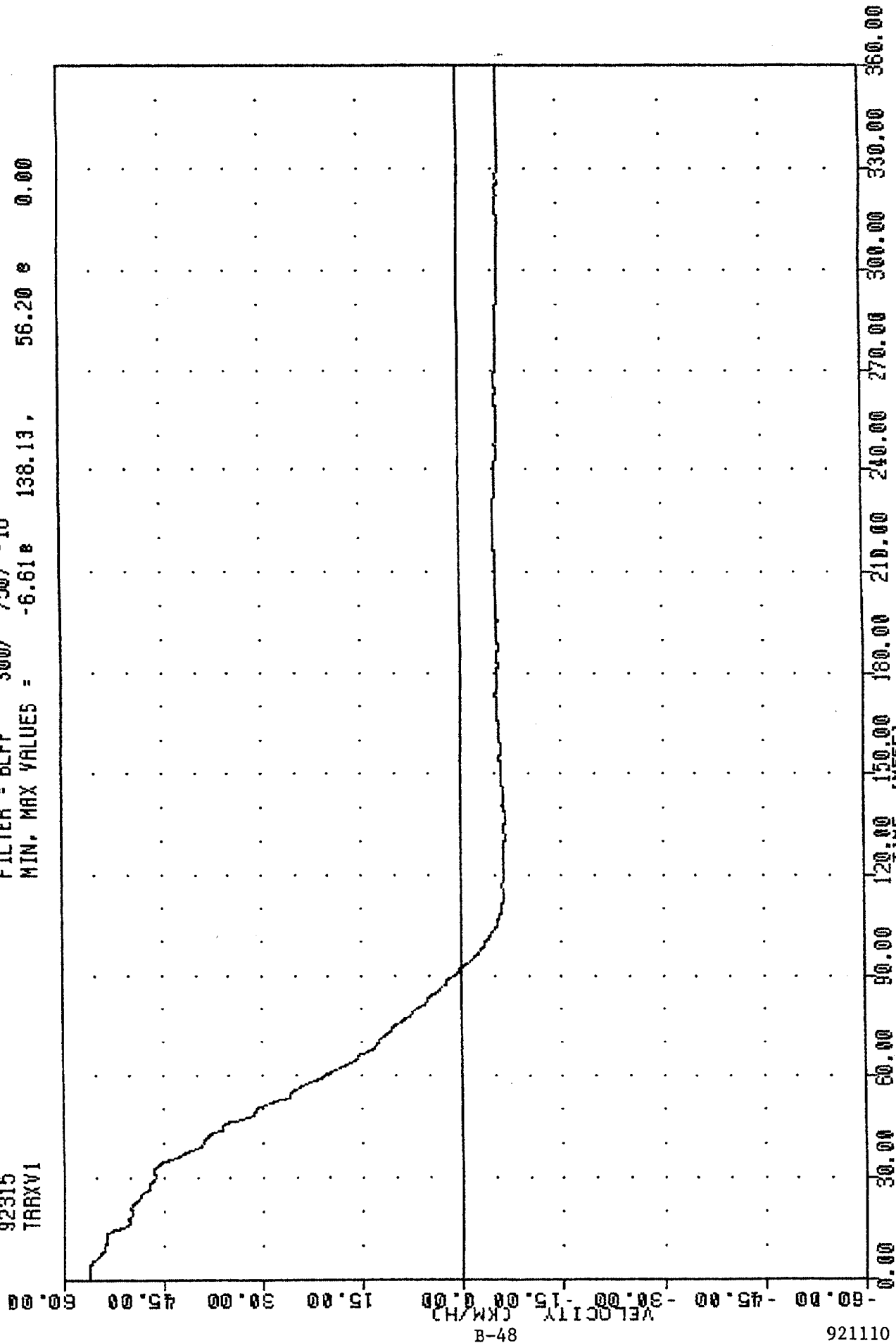
TAC , 921110
NEW CAR ASSESSMENT PROGRAM
92315
TRRXG1

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -35.38 46.63 , 2.45 e 139.25



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 TRAXV1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -6.61e 138.13, 56.20 e 0.00



B-48

921110

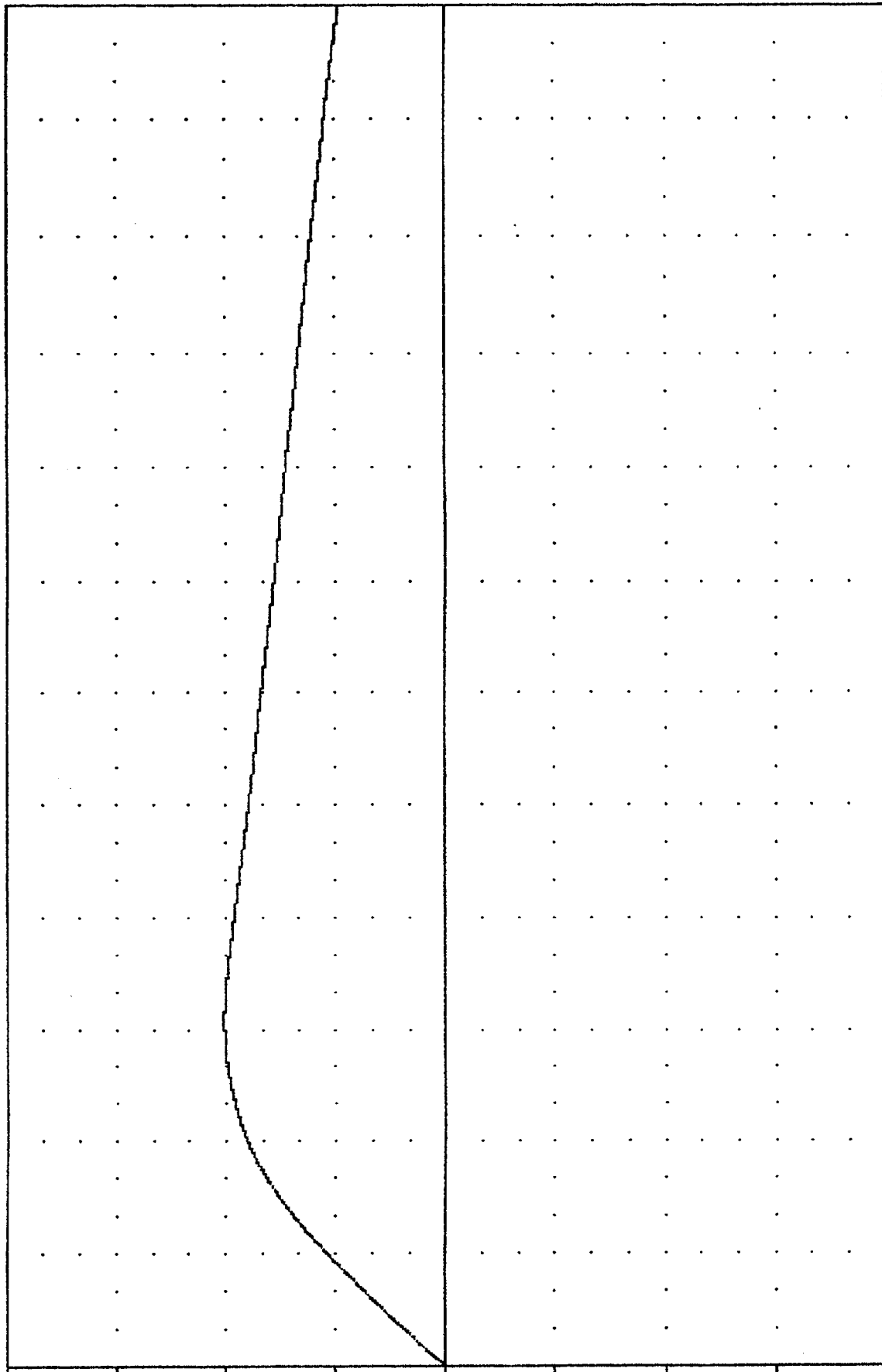
1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

RIGHT REAR SEAT X-OIS VELOCITY

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 TRAXD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 804.34 e 92.38

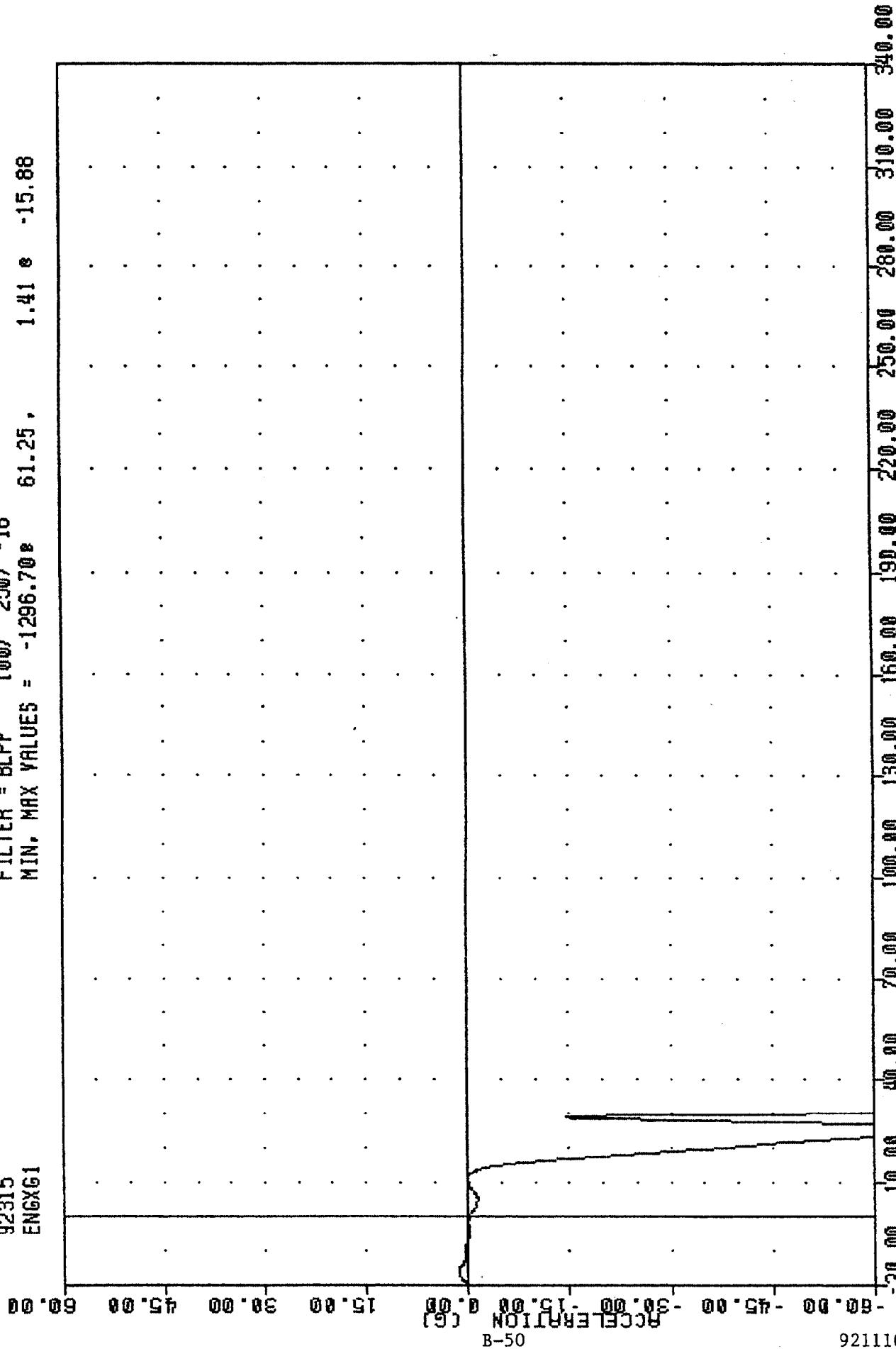
DISPLACEMENT (MM)
 (X10³)



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS DISPLACEMENT

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 ENG61

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -1296.70 61.25, 1.41 e -15.88



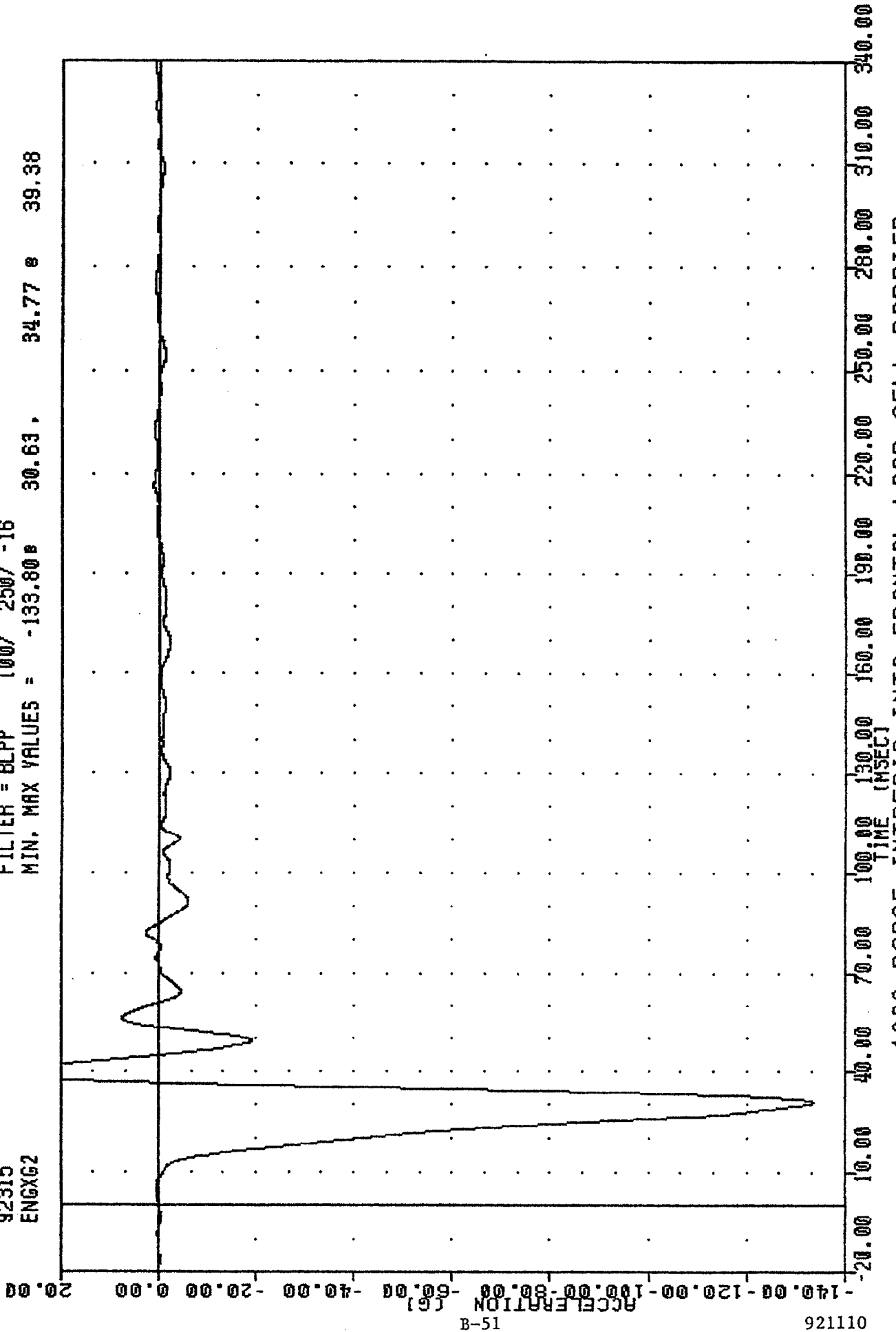
B-50

921110

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

TRC , 921110
NEW CAR ASSESSMENT PROGRAM
92315
ENGX62

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -133.80 30.63 , 34.77 39.38



B-51

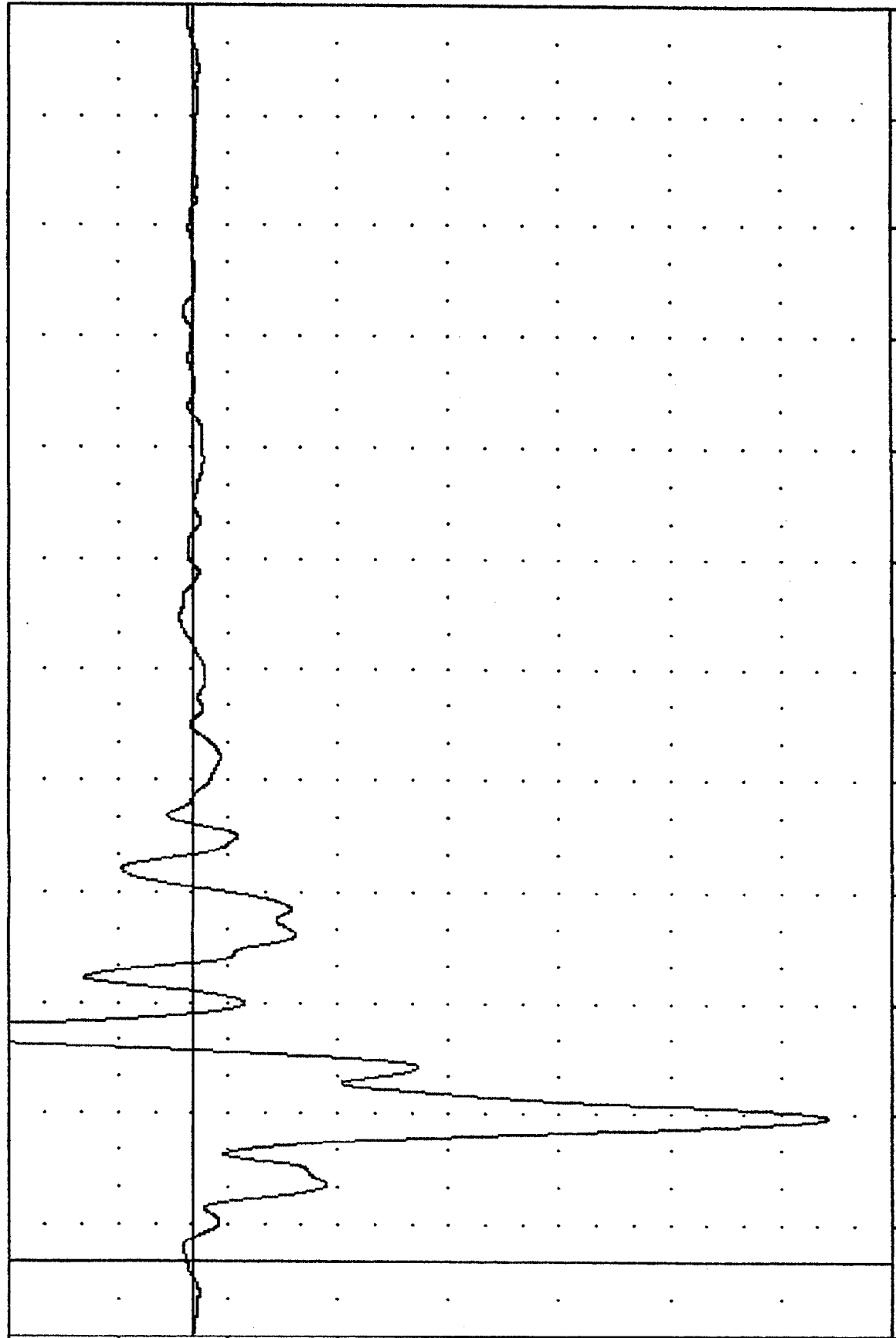
921110

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BCRXG1

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -136.35 39.13, 80.19 61.63

ACCELERATION (G)
 -150.00 -126.25 -102.50 -78.75 -55.00 -31.25 -7.50 16.25 40.00



-20.00 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)

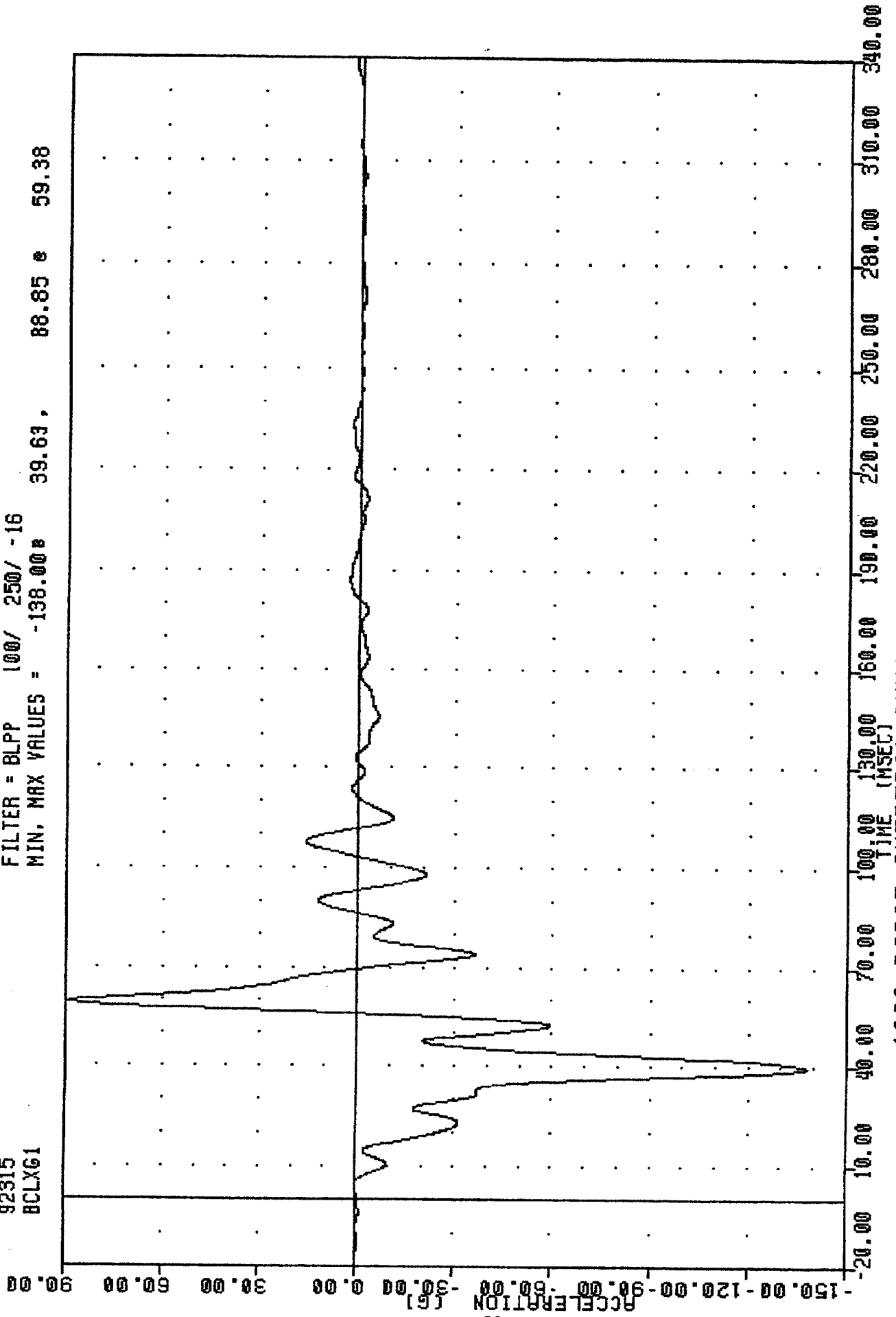
921110

B-52

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BCLX61

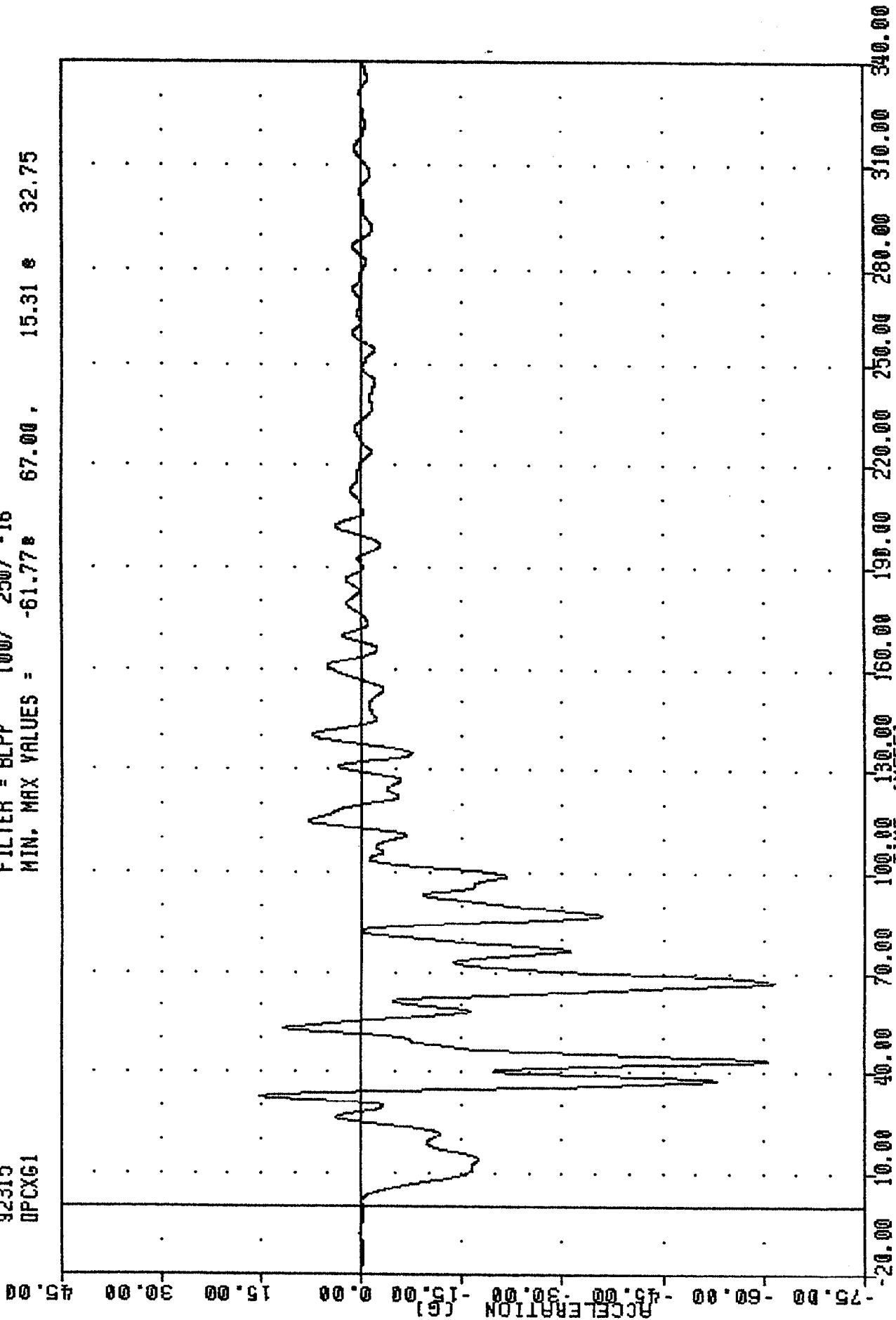
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -138.00 39.63, 88.85 e 59.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LEFT BRAKE CALIPER X-AXIS ACCELERATION

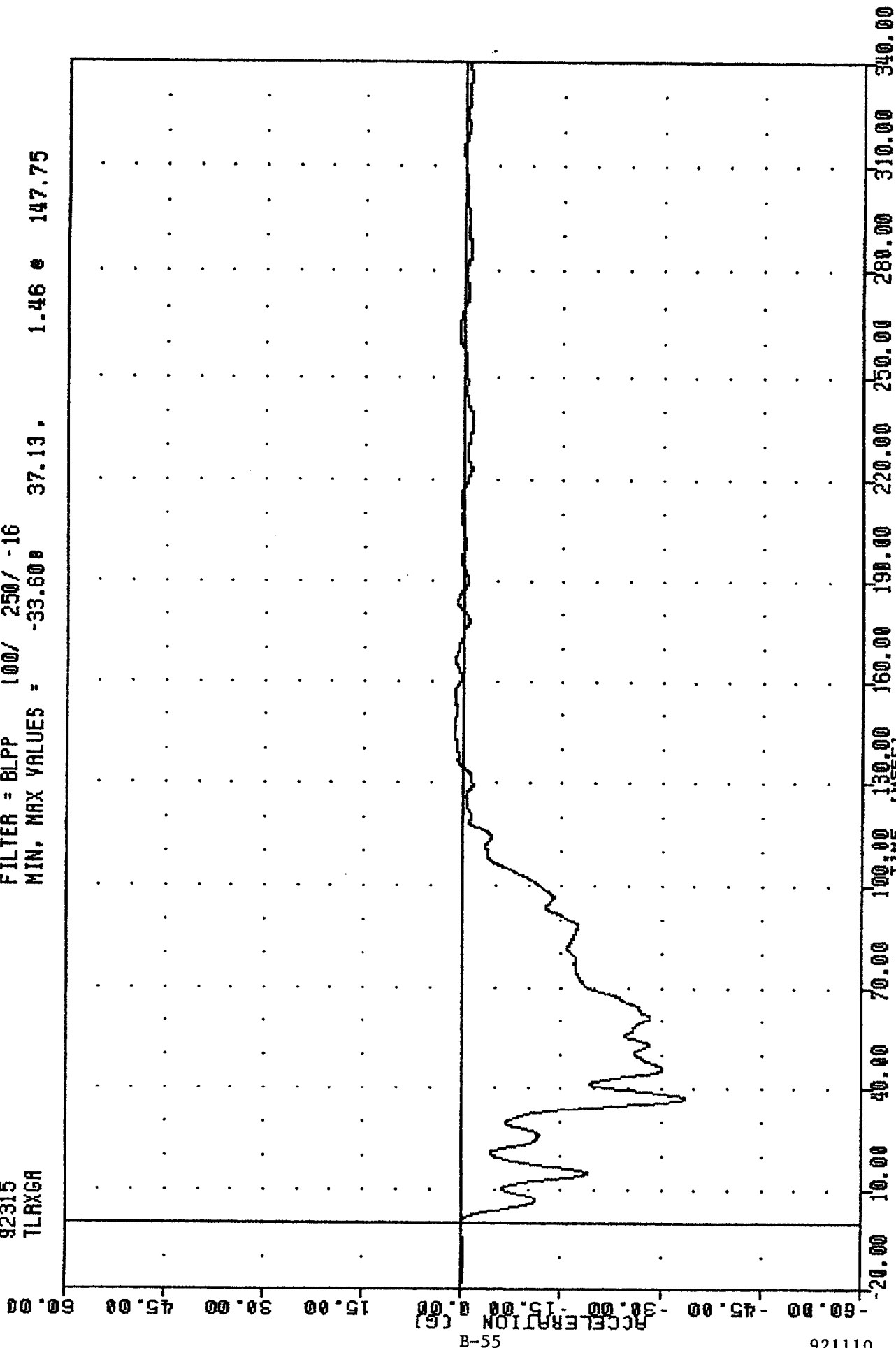
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 OPCXG1

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -61.77 67.00 15.31 32.75



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 TLXGCR

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -33.60 37.13 1.46 147.75



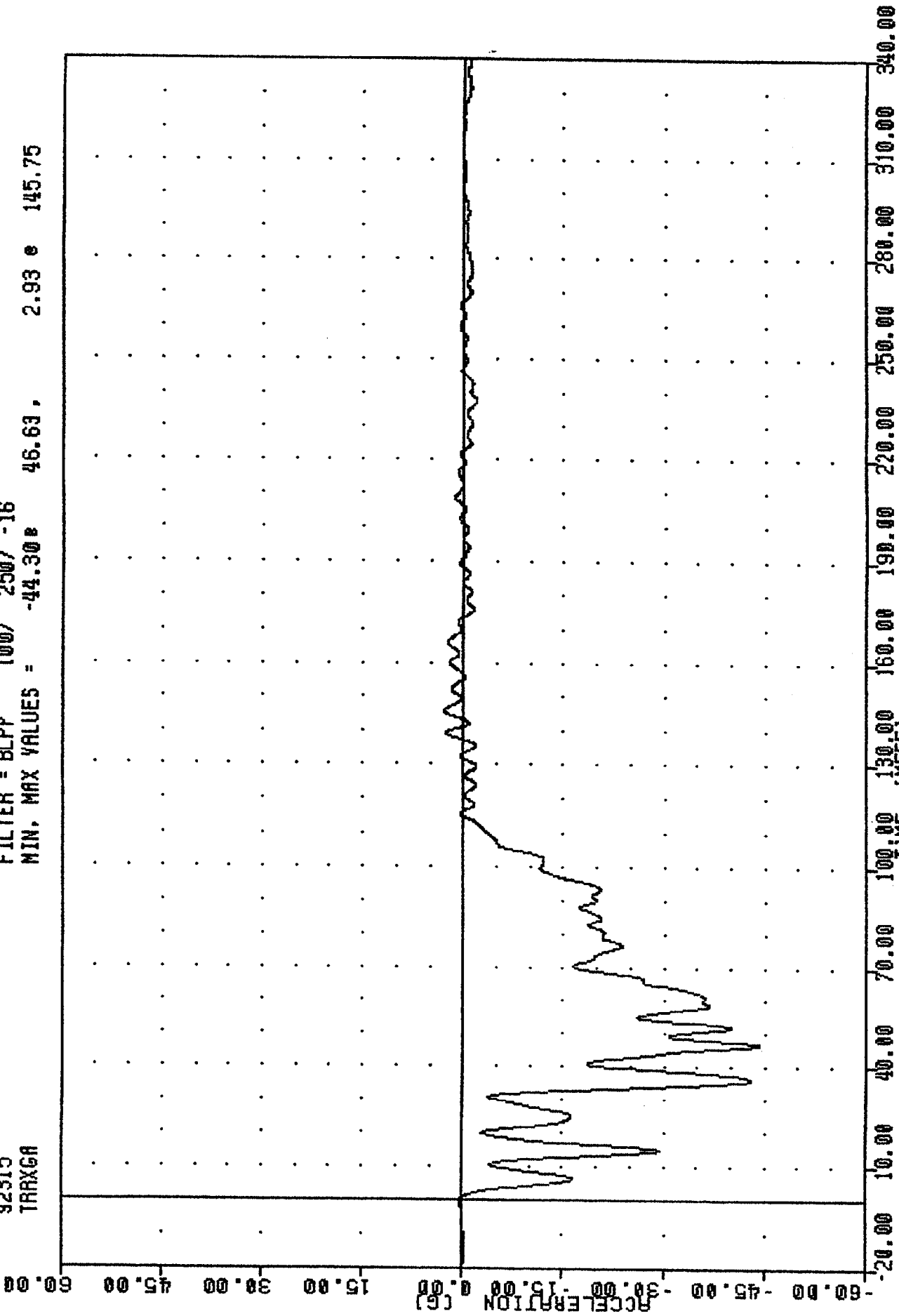
B-55

921110

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

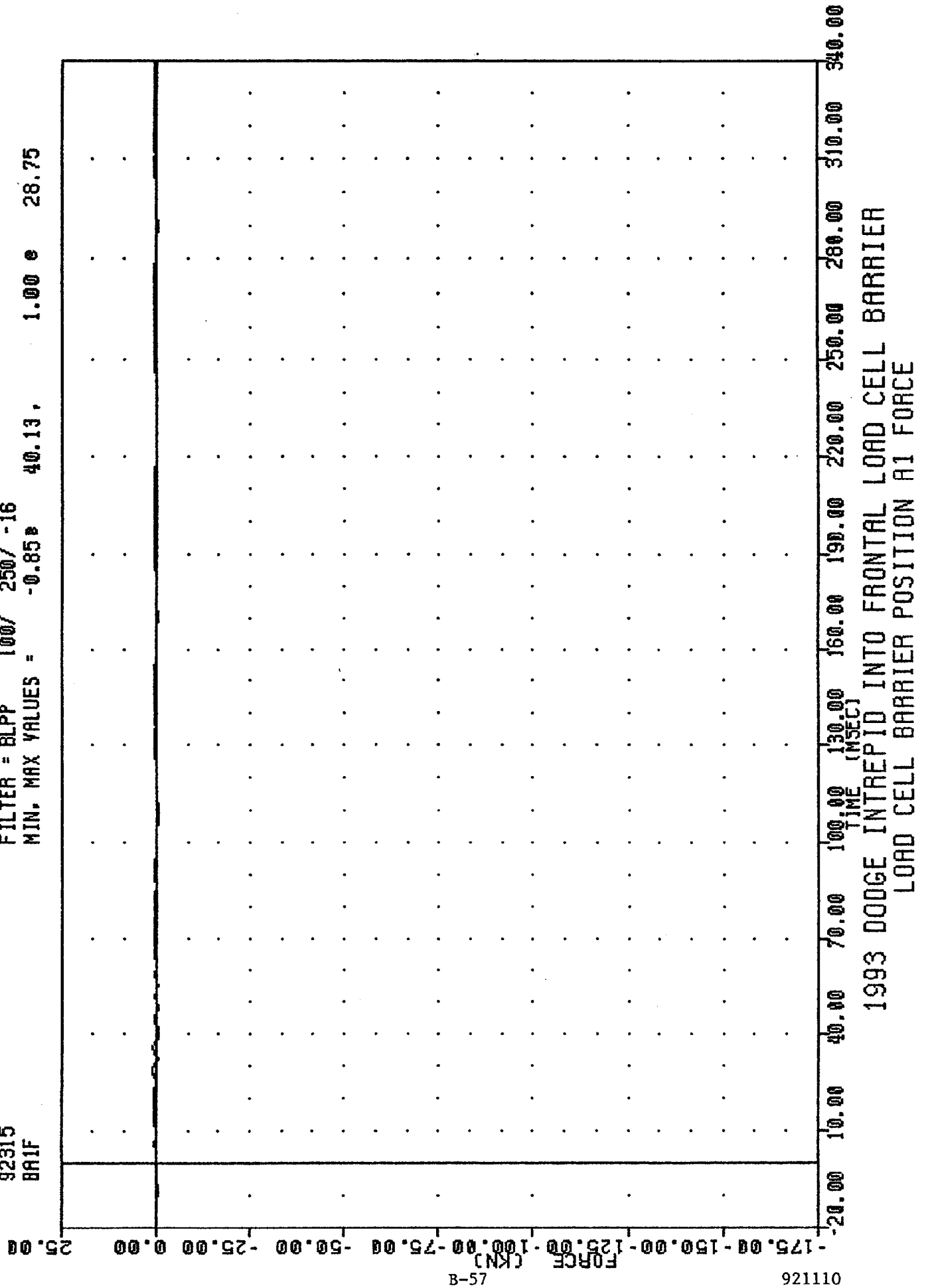
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 TRXCGA

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -44.30 46.63 2.93 145.75



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BR1F

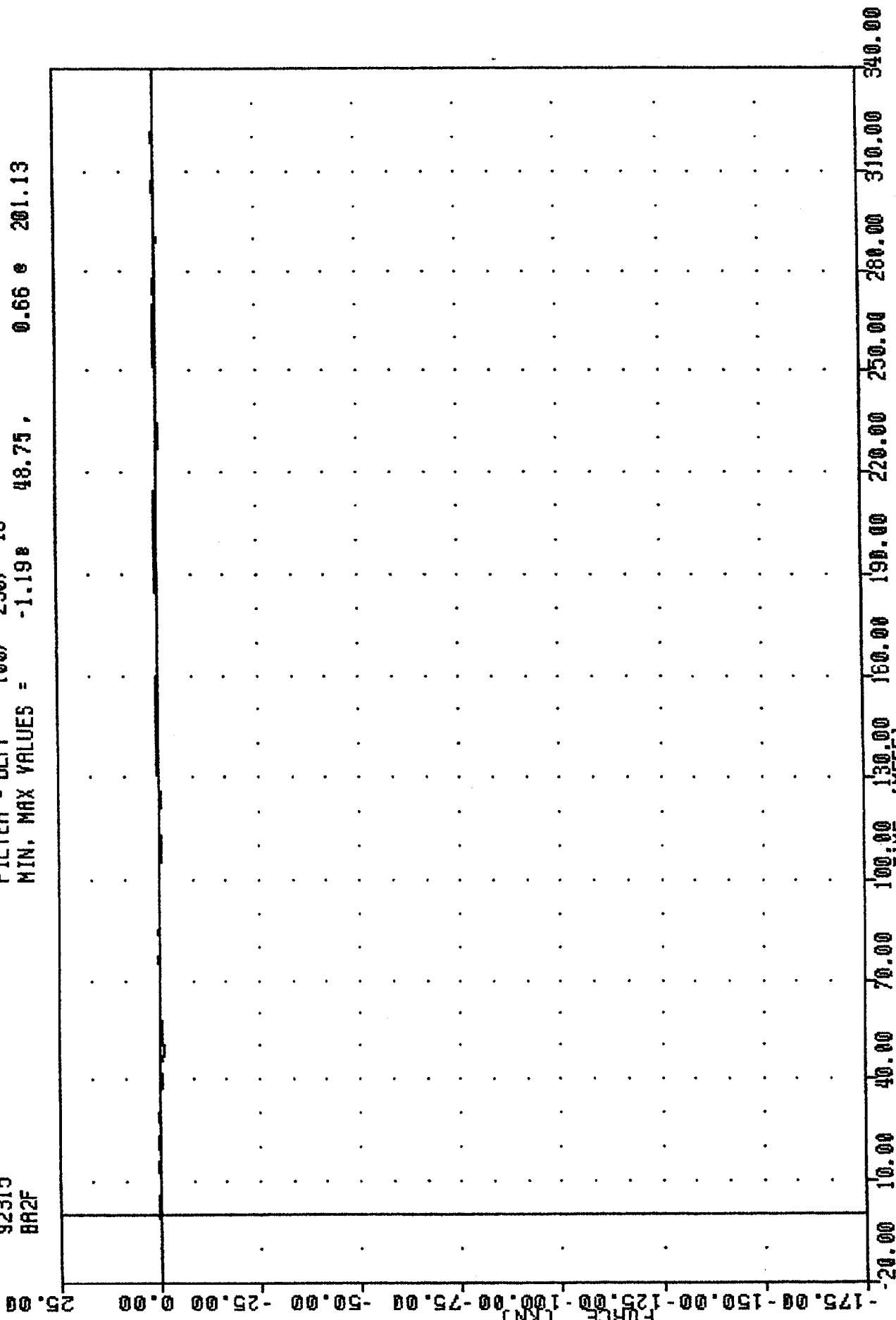
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.85 40.13, 1.00 e 28.75



TRC
 NEW CAR ASSESSMENT PROGRAM
 92315
 BR2F

921110

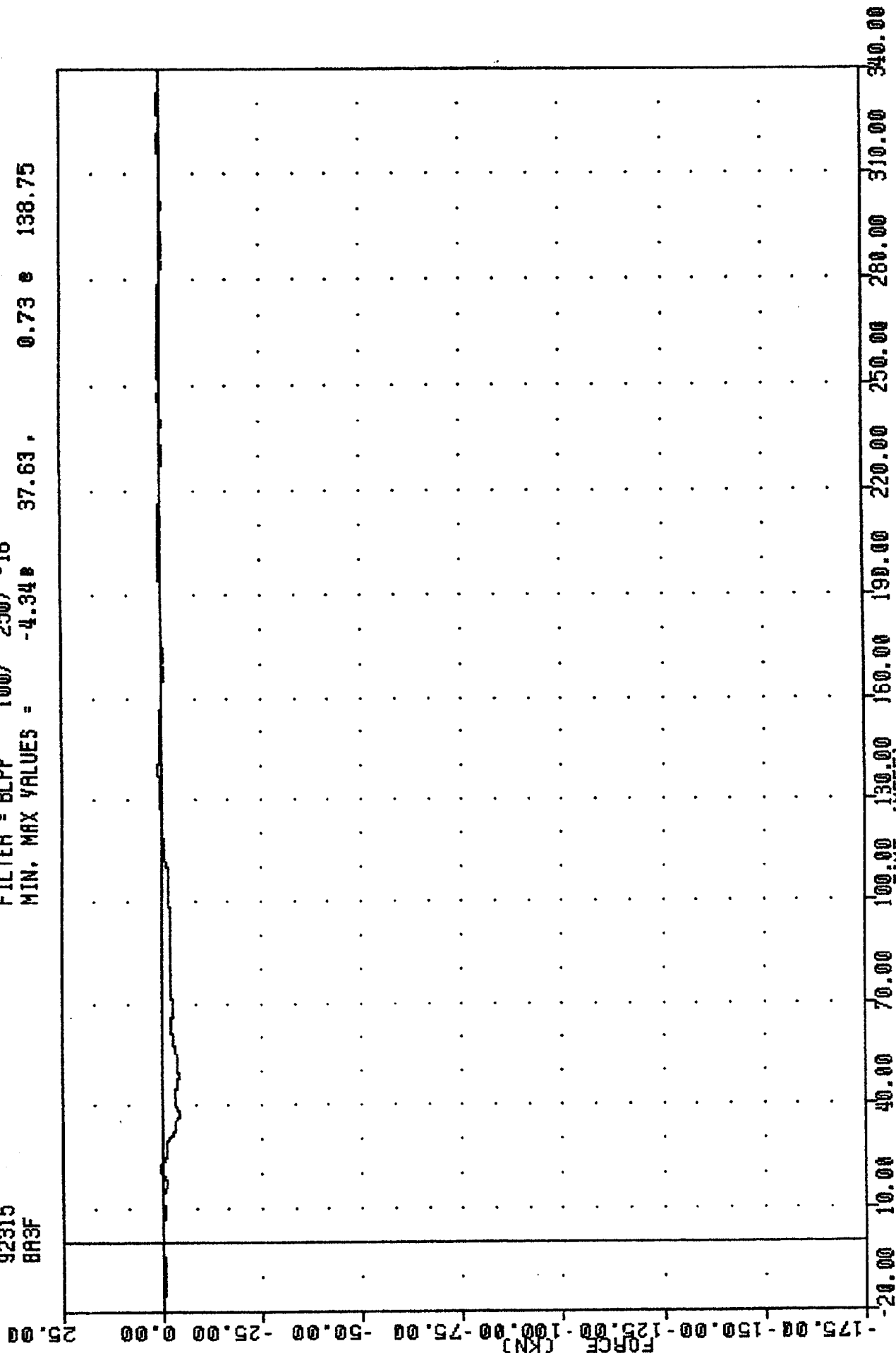
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -1.198 48.75, 0.66 201.13



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 BARRIER POSITION A2 FORCES

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BR3F

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -4.34 37.63, 0.73 e 138.75

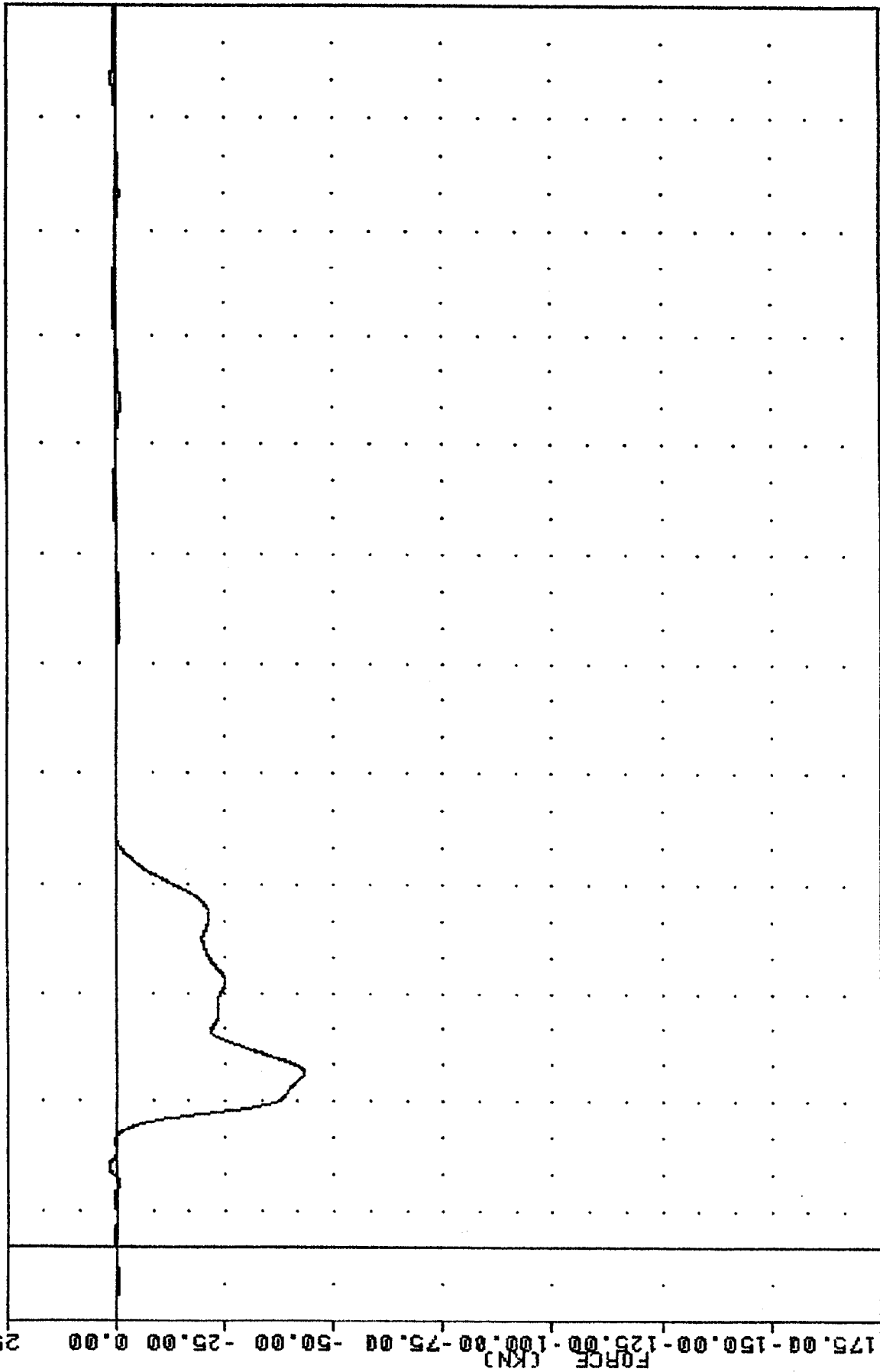


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 FORCE

TRC . 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BR4F

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -43.13 47.88, 1.73 21.75

25.00



B-60

921110

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

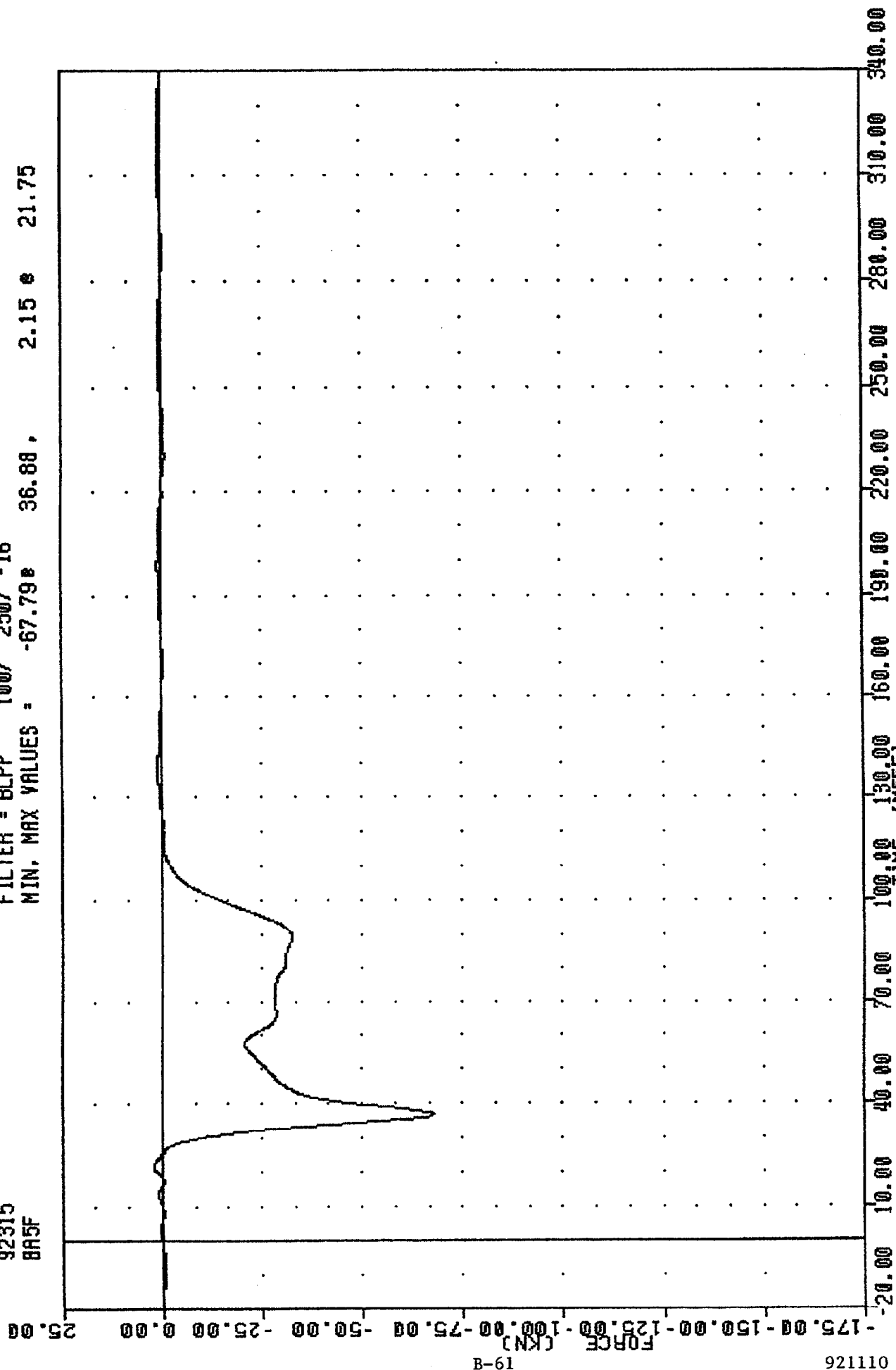
TIME (MSEC)

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

LOAD CELL BARRIER POSITION A4 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BA5F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -67.79e 36.88, 2.15e 21.75



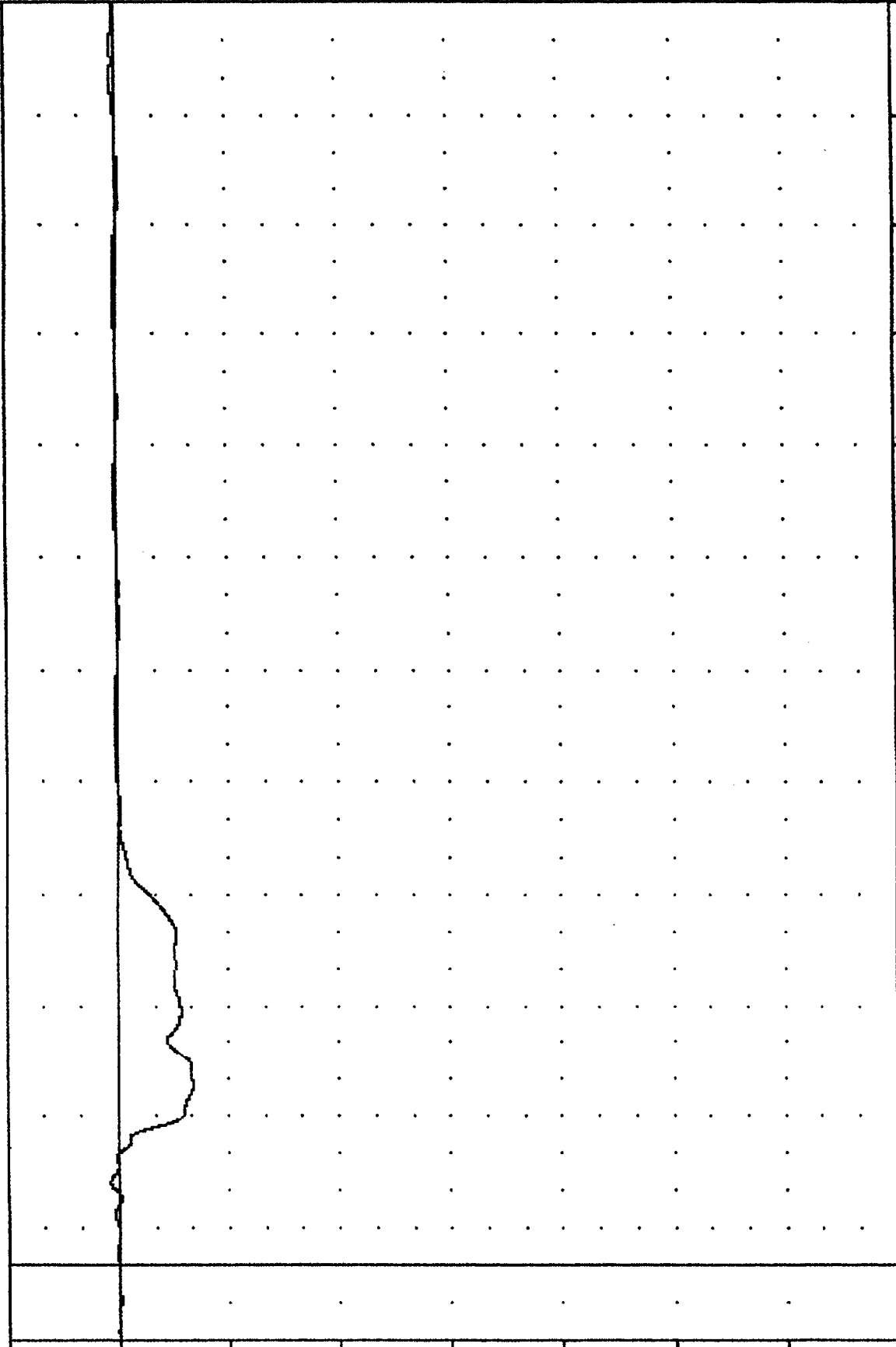
1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A5 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM

92315
 BR6F
 FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -17.02 48.13, 1.80 e 22.00

25.00

FORCE (KN)



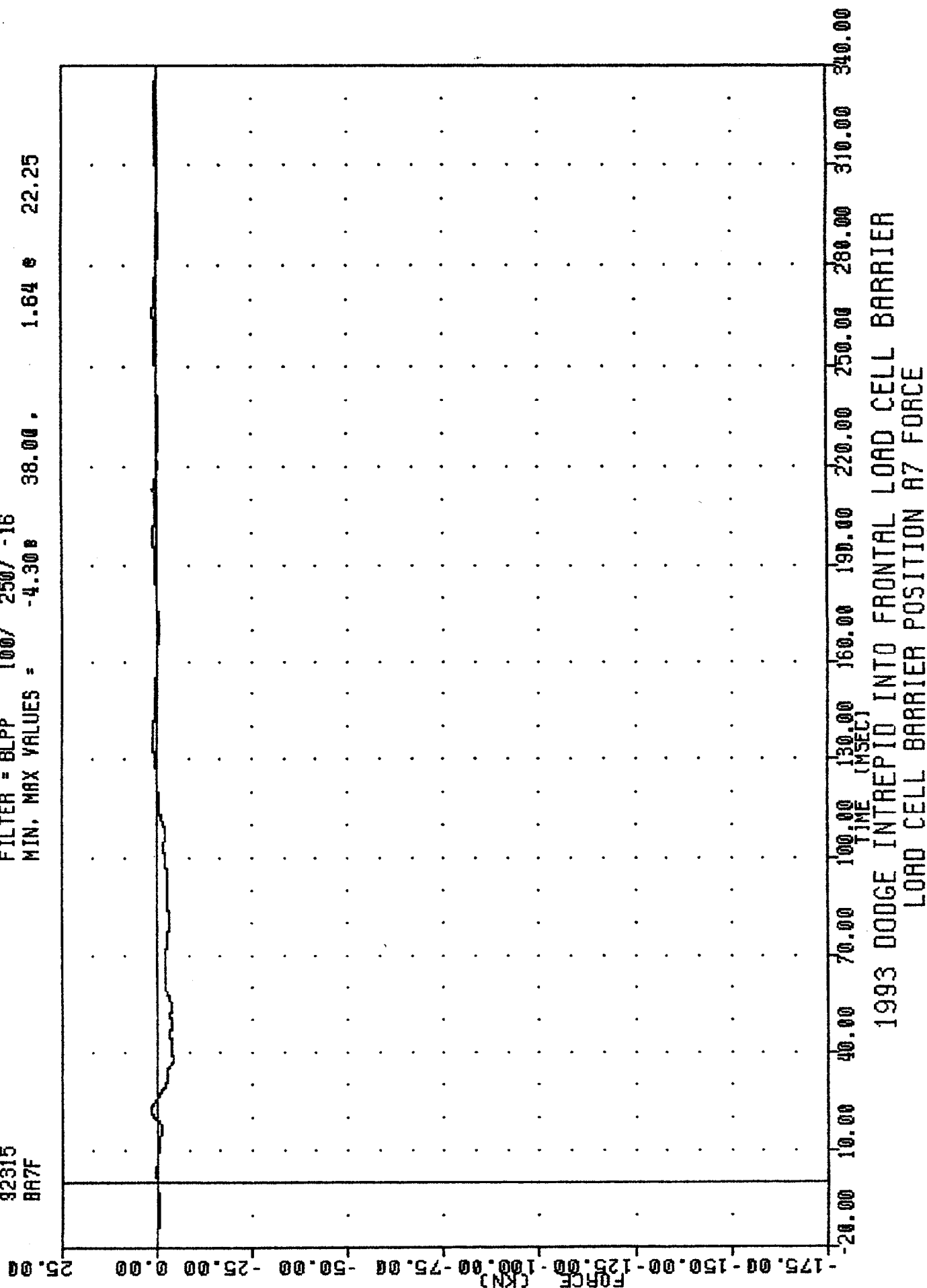
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (msec)

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

1mm CELL BARRIER POSITION RECORD

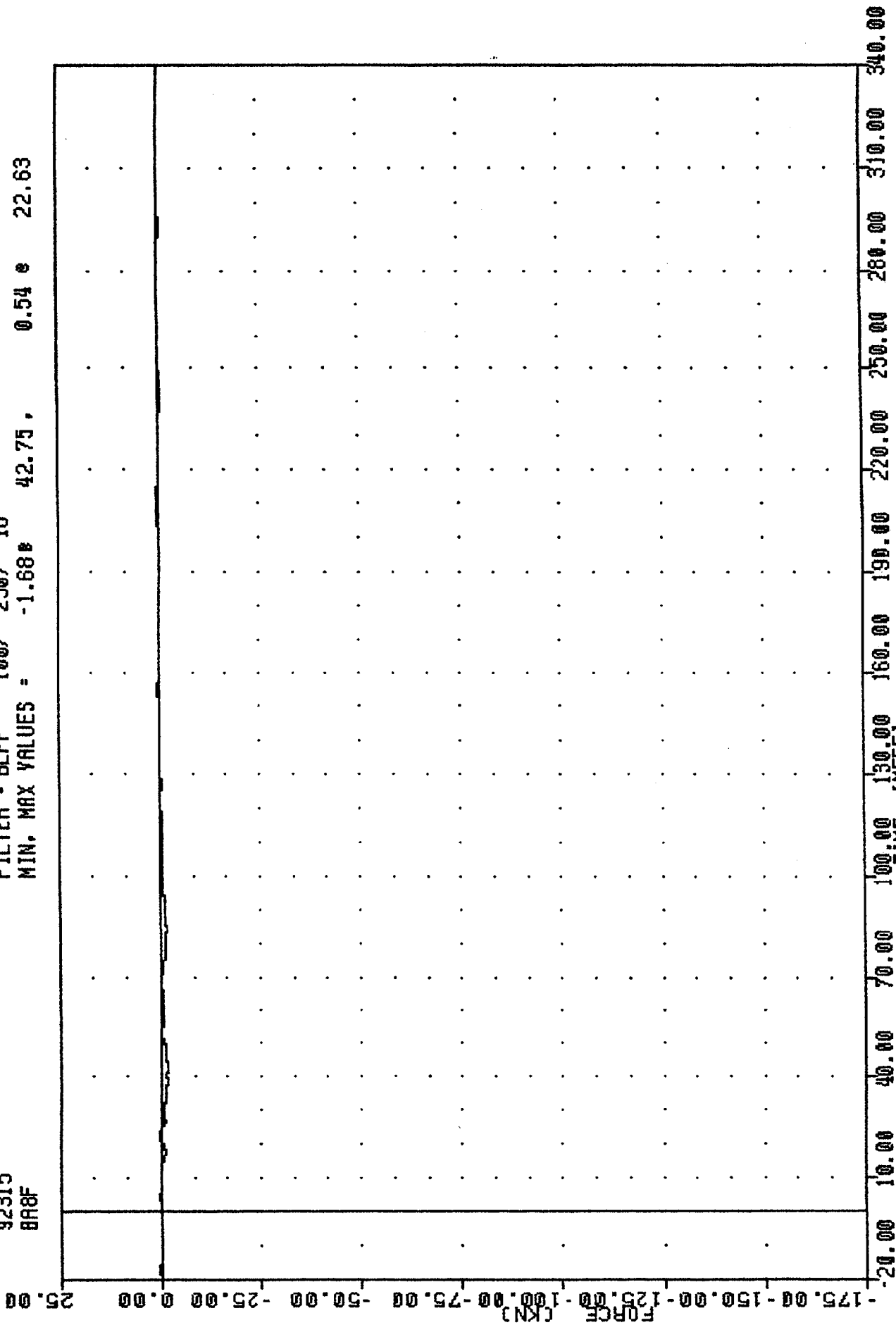
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BA7F

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -4.30 38.00 1.64 22.25



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BR8F

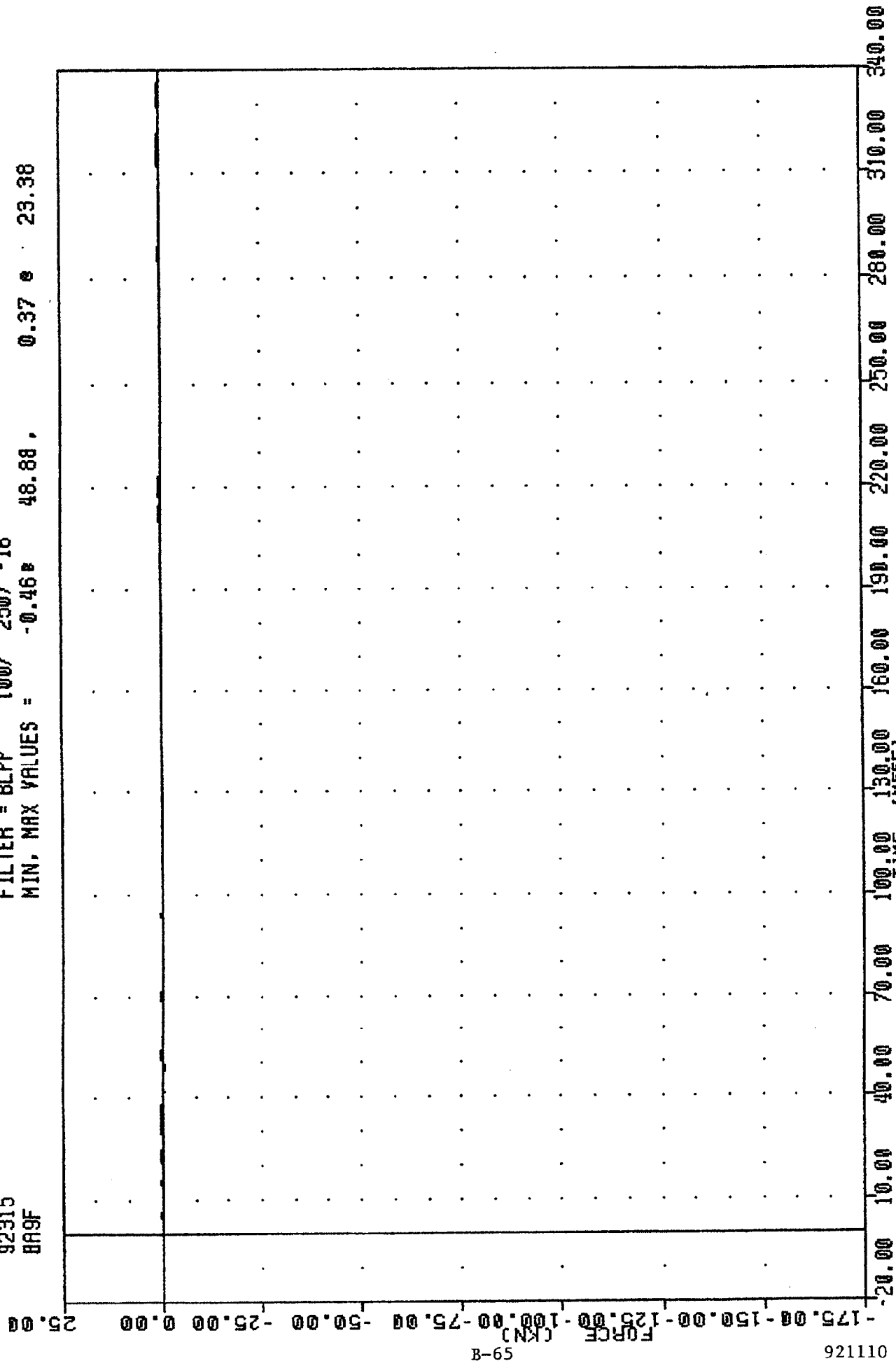
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -1.68# 42.75, 0.54 # 22.63



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 POSITION AS SHOWN

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 899F

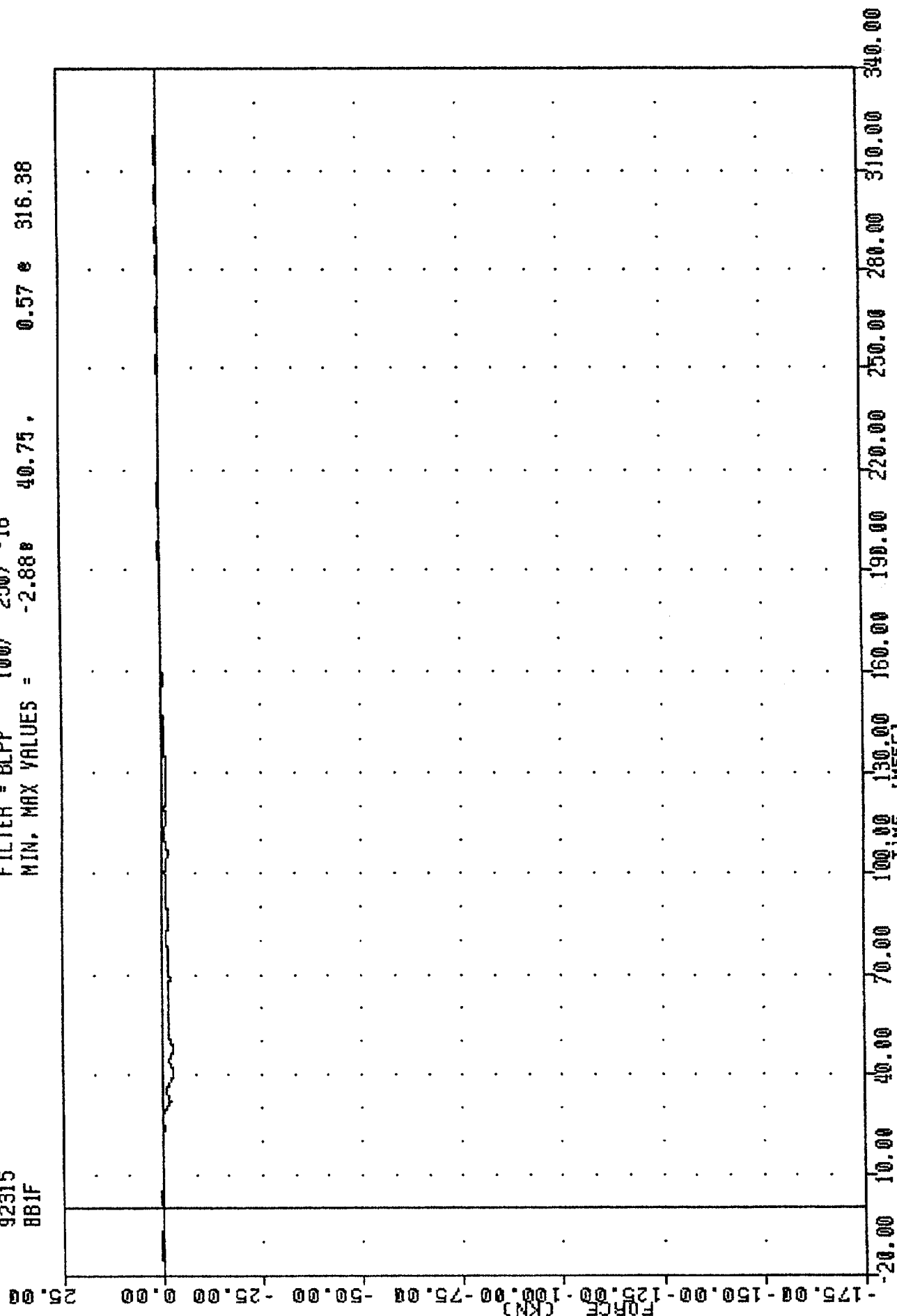
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.46 48.88, 0.37 23.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A9 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB1F

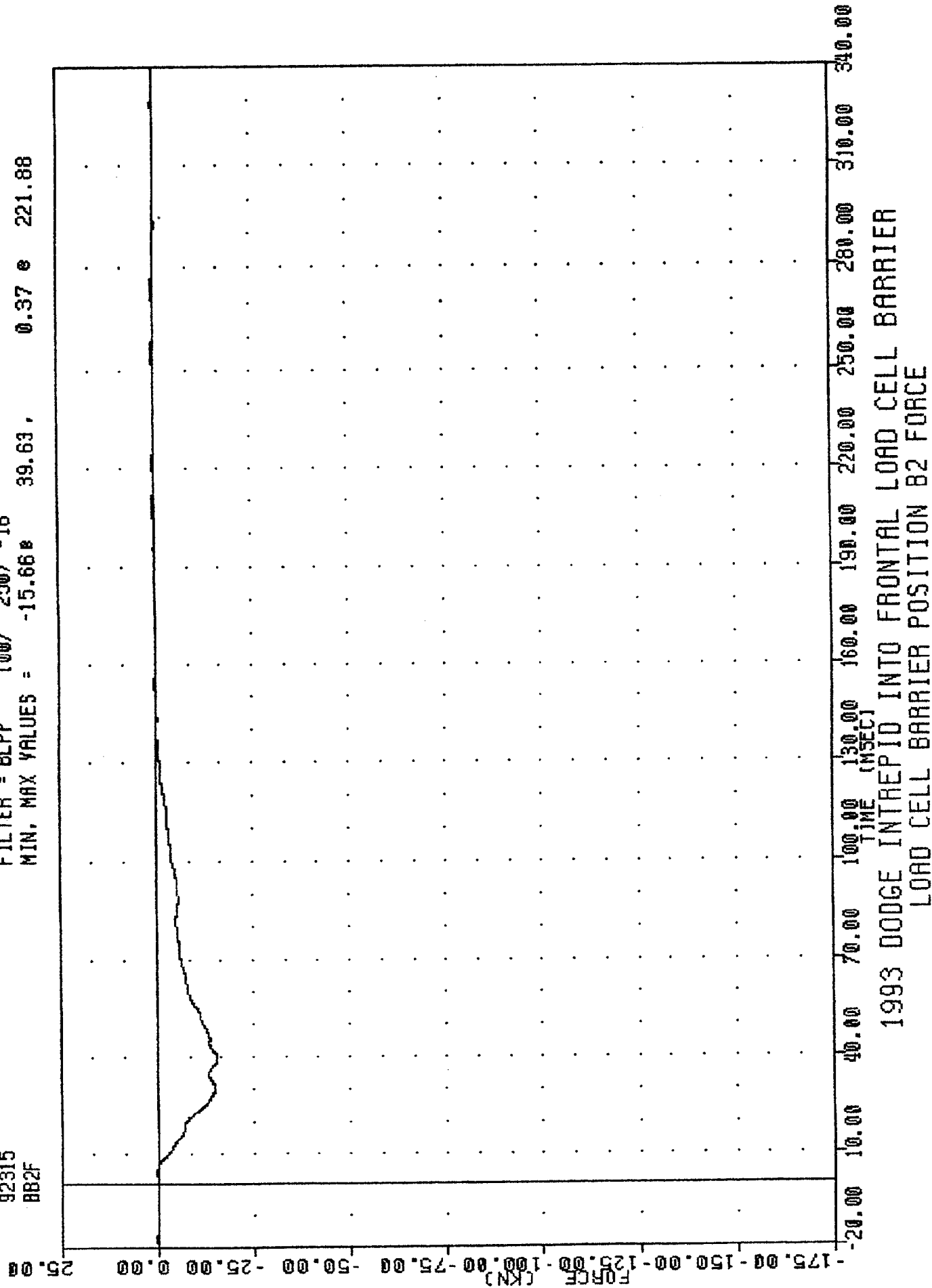
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -2.88 40.75, 0.57 e 316.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 BARRIER POSITION 81-50PCE

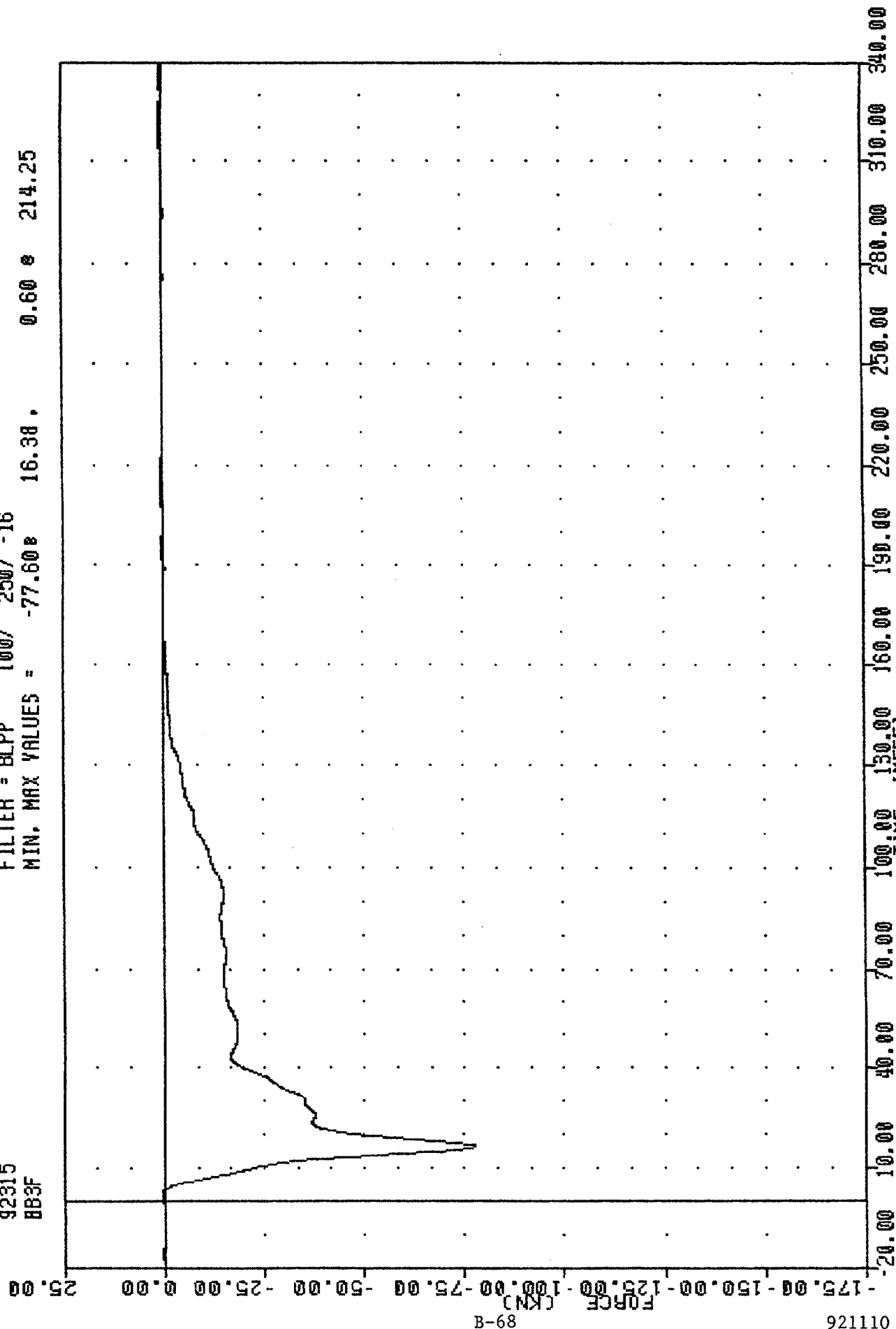
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB2F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -15.66 39.63, 0.37 221.88



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB3F

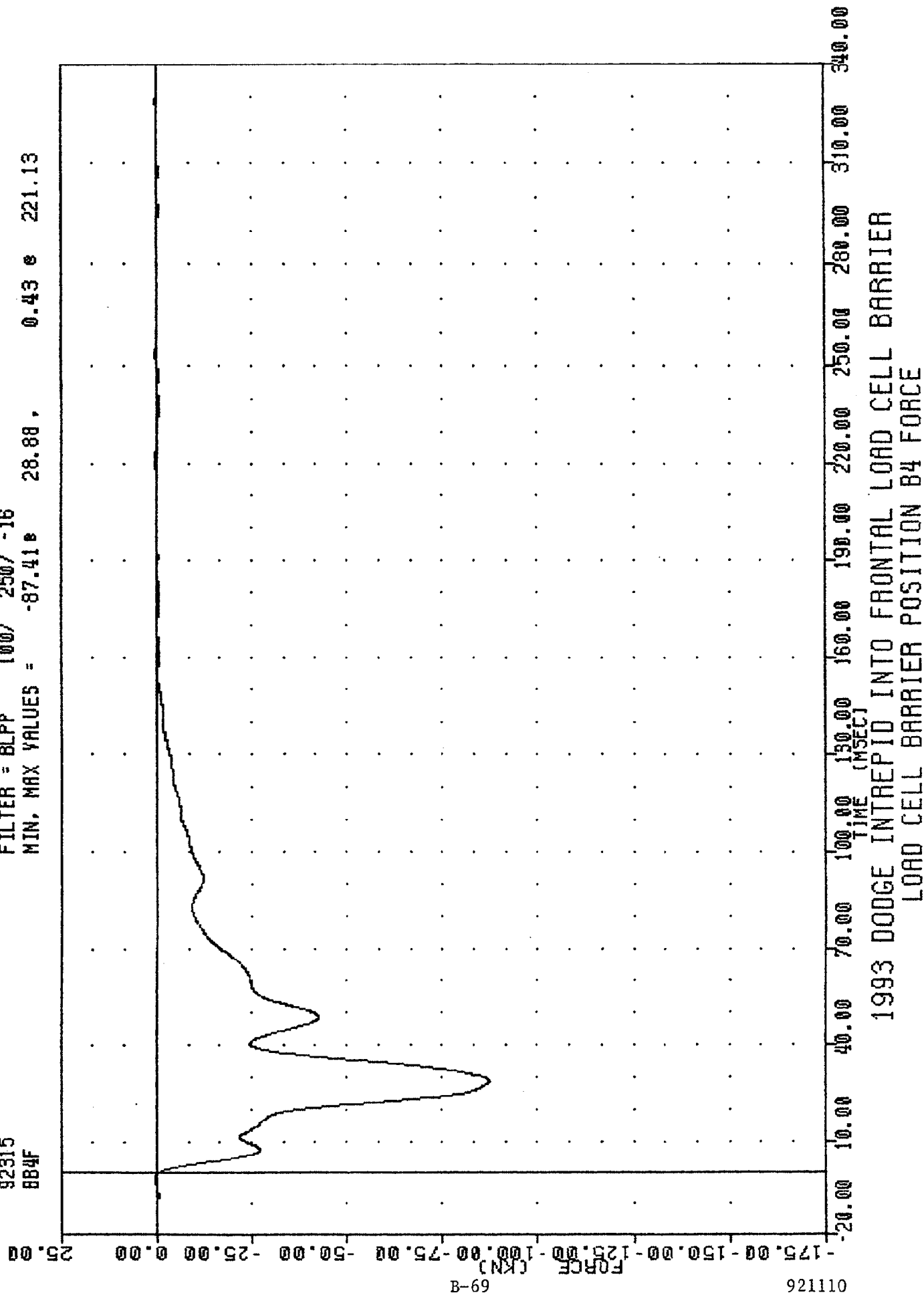
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -77.60 16.38 0.60 214.25



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL POSITION BB3F

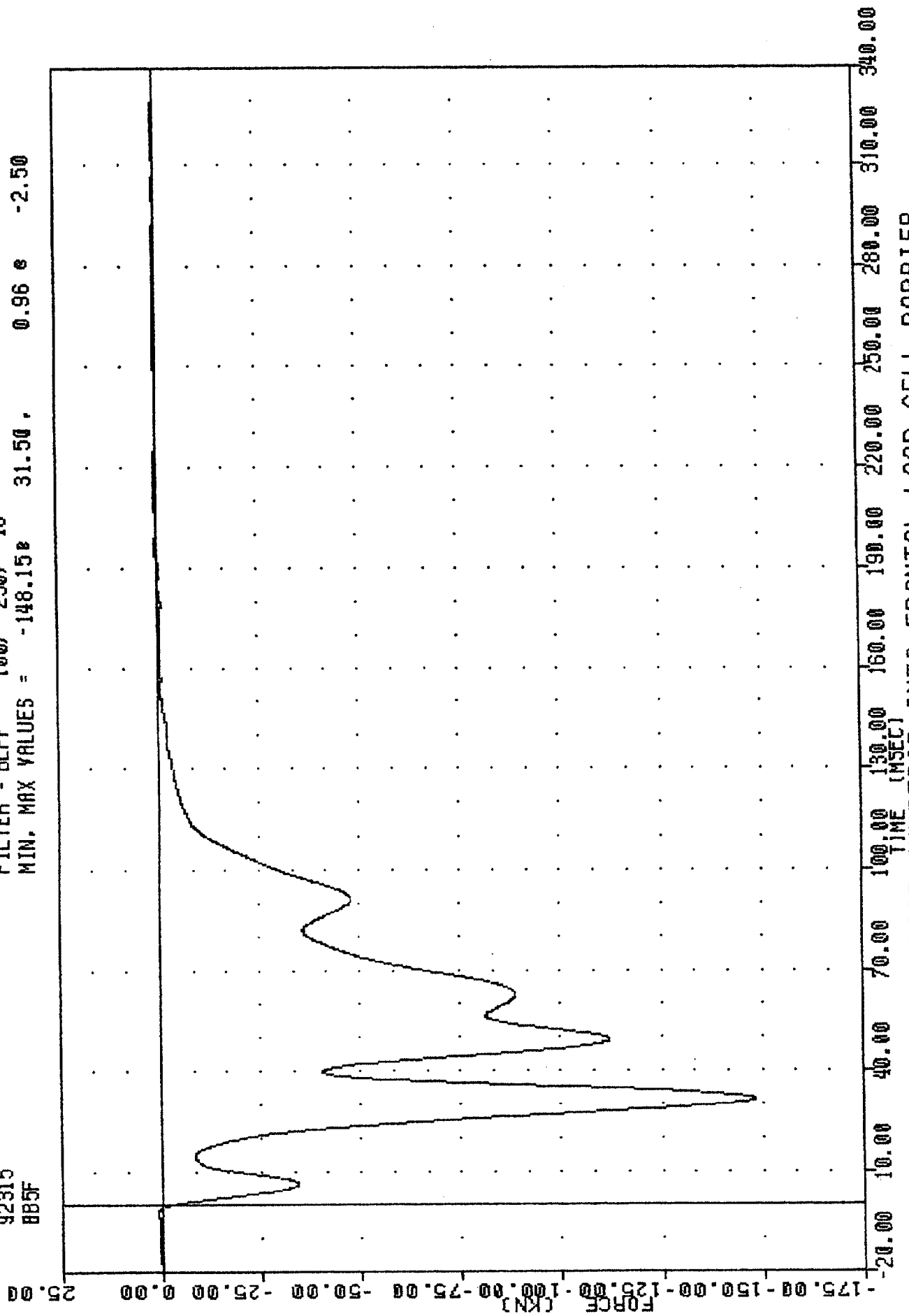
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 884F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -87.41 28.88 , 0.43 221.13



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB5F

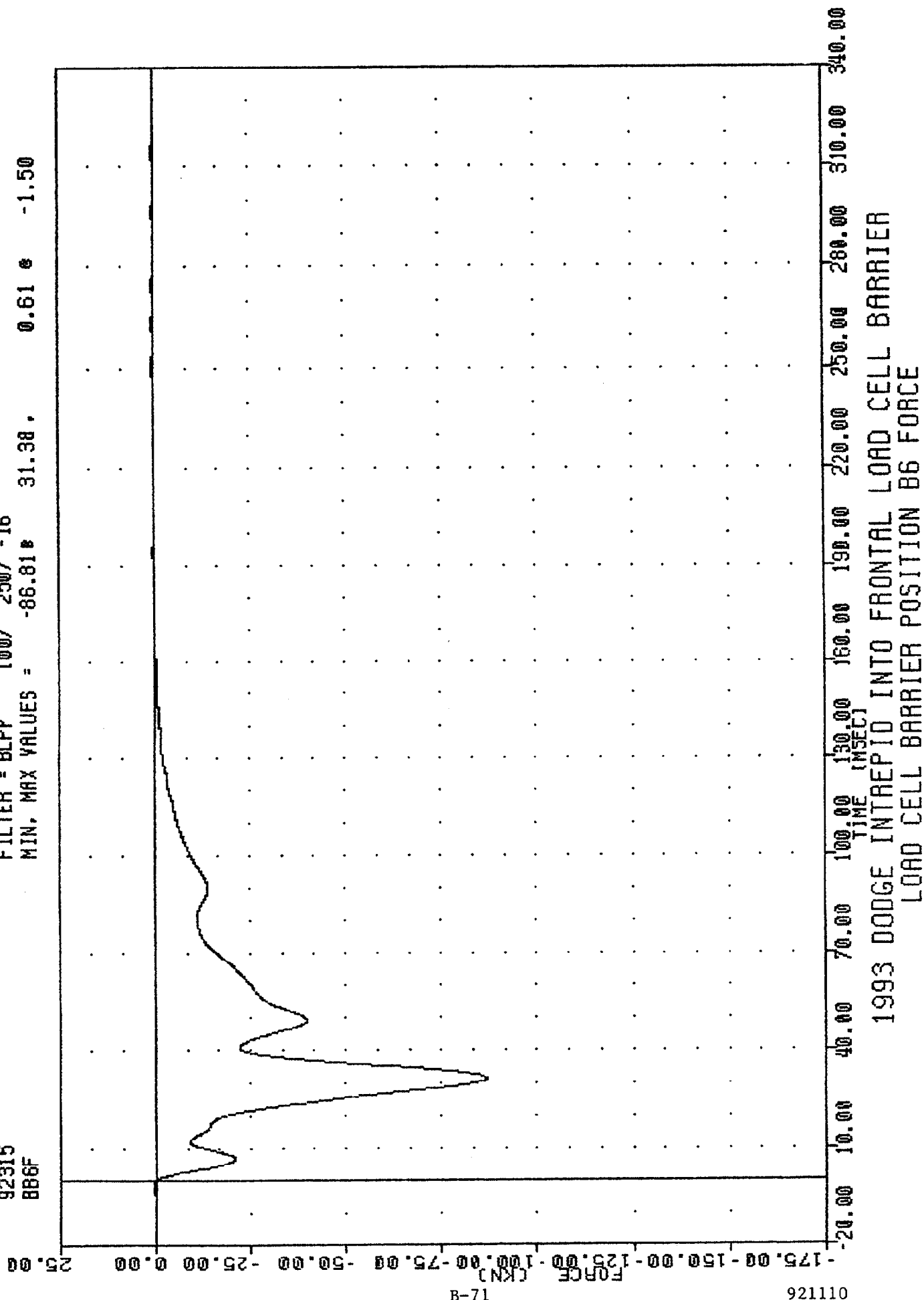
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -148.15 31.50 , 0.96 e -2.50



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 POSITION 85.50 FORCE

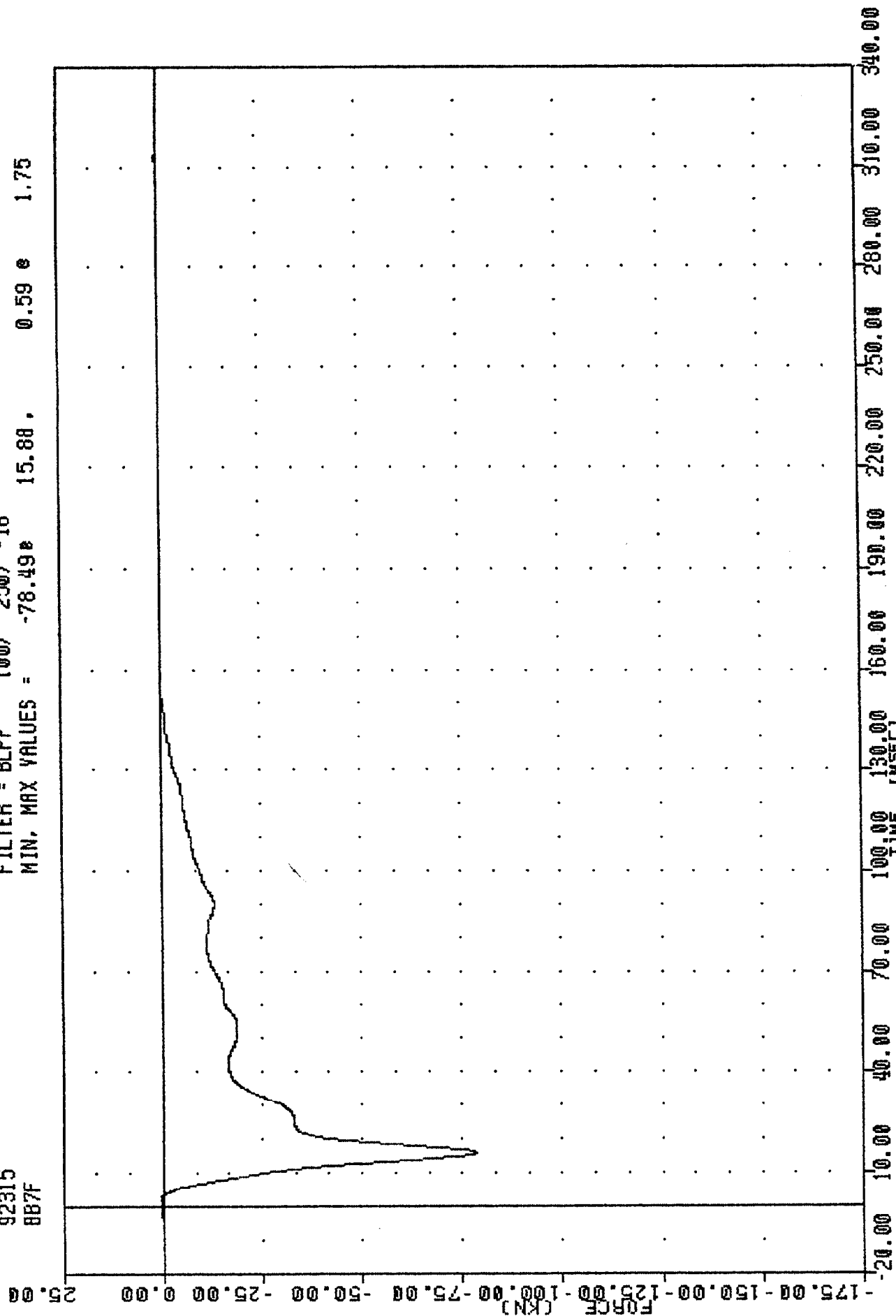
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB6F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -86.81 31.38 0.61 -1.50



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB7F

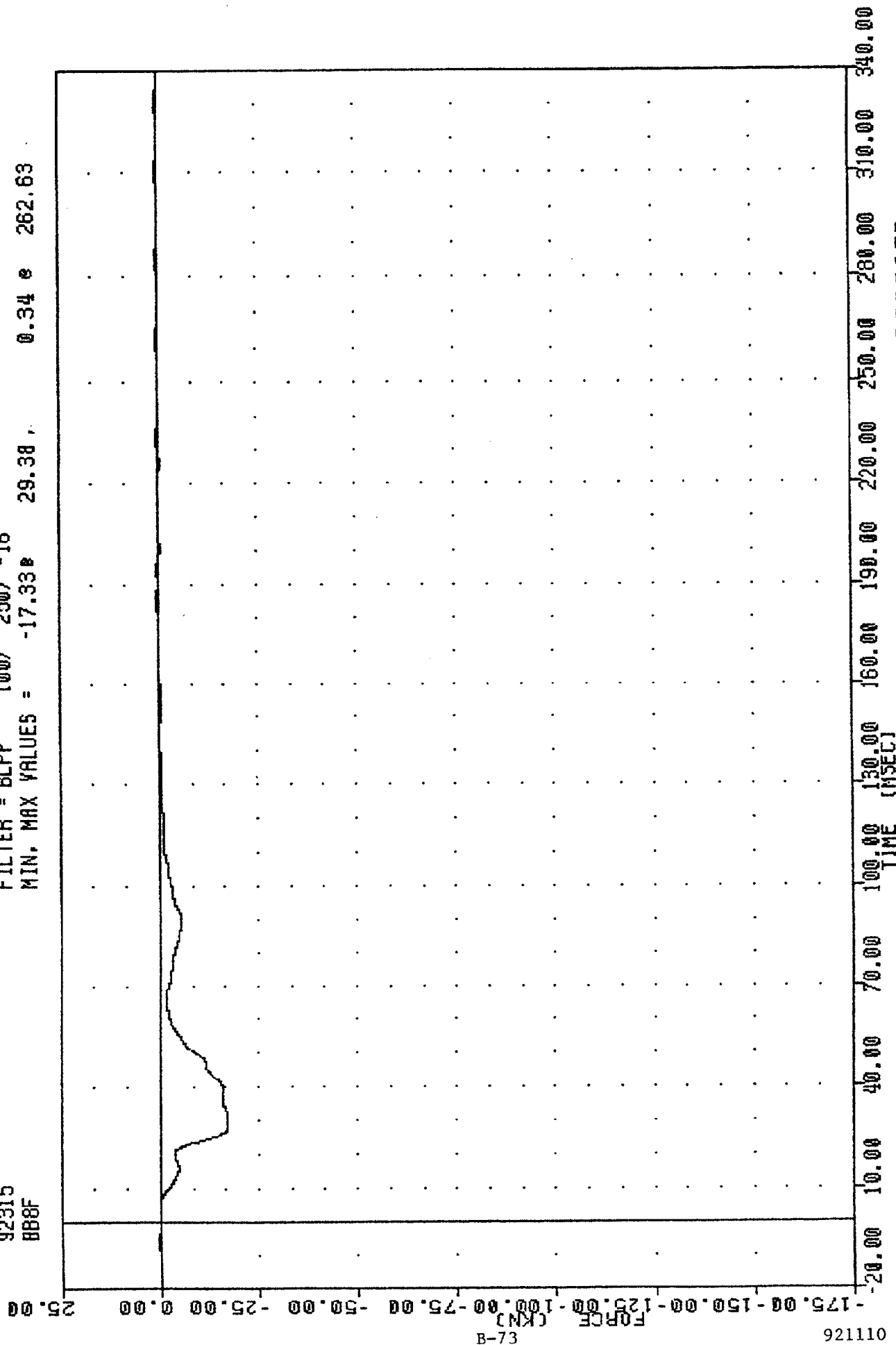
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -78.49 15.88 0.59 1.75



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER POSITION B7 FORGE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB8F

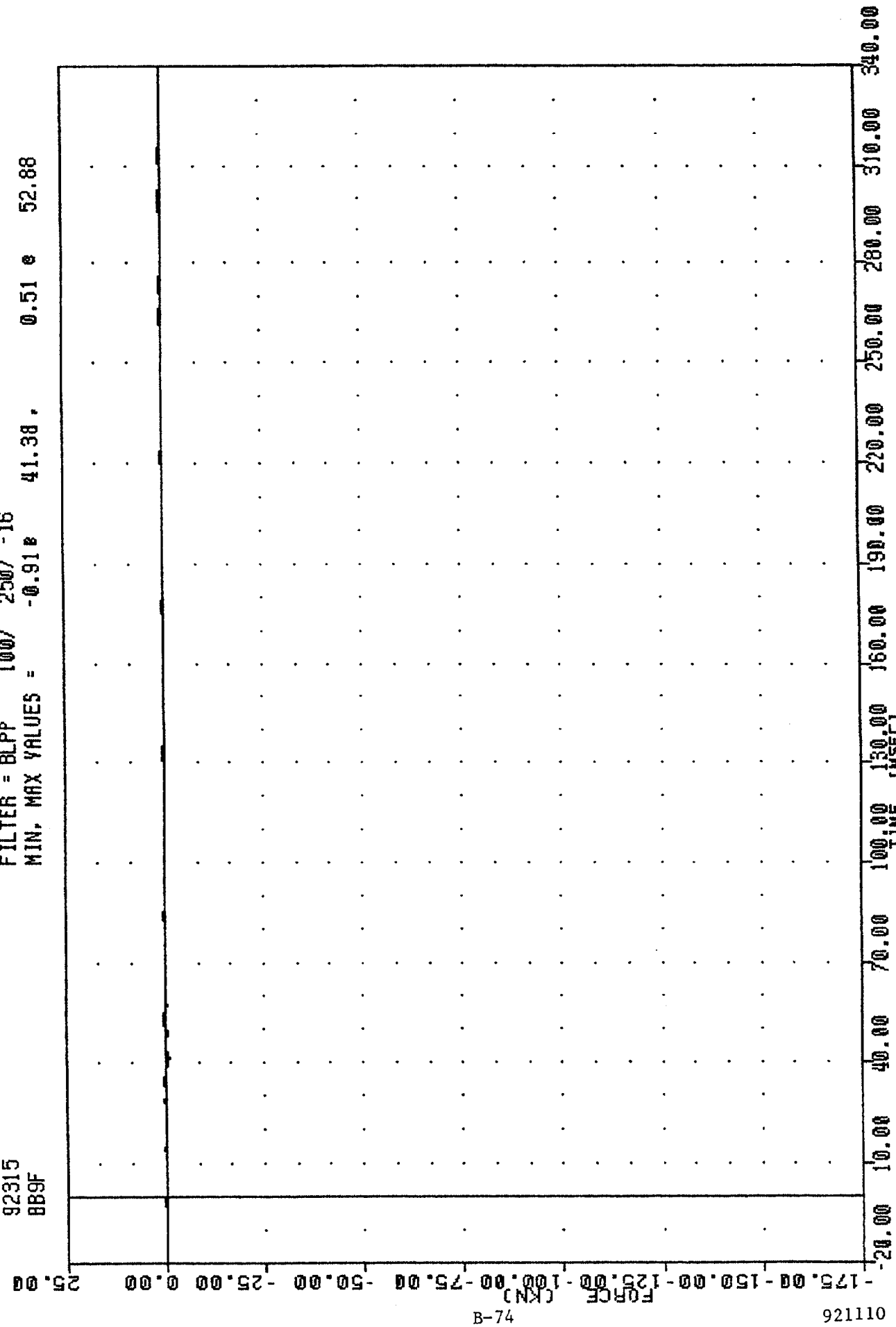
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -17.33e 29.38 , 0.34 e 262.63



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B8 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BB9F

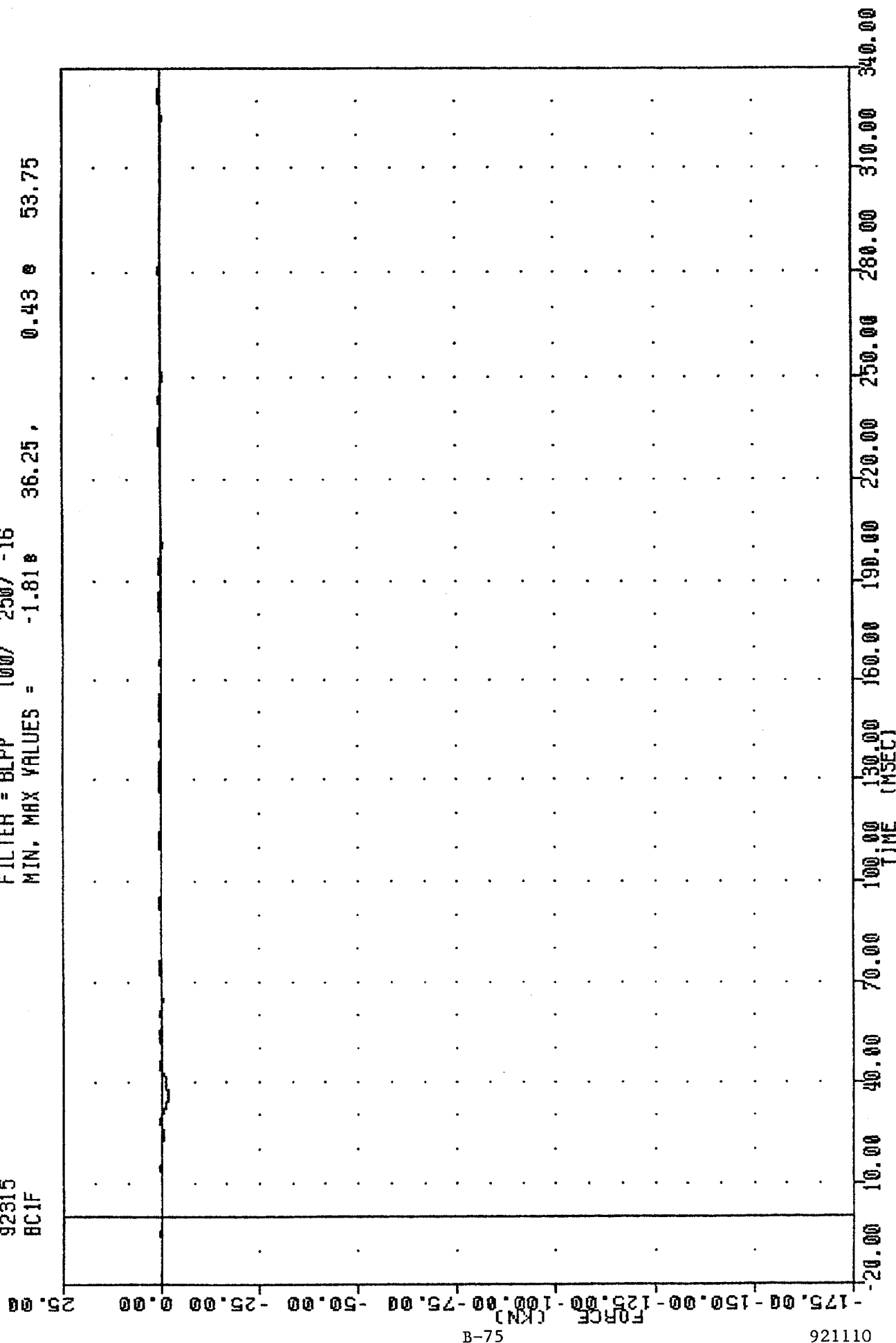
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.91E 41.38, 0.51 e 52.88



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER POSITION

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC1F

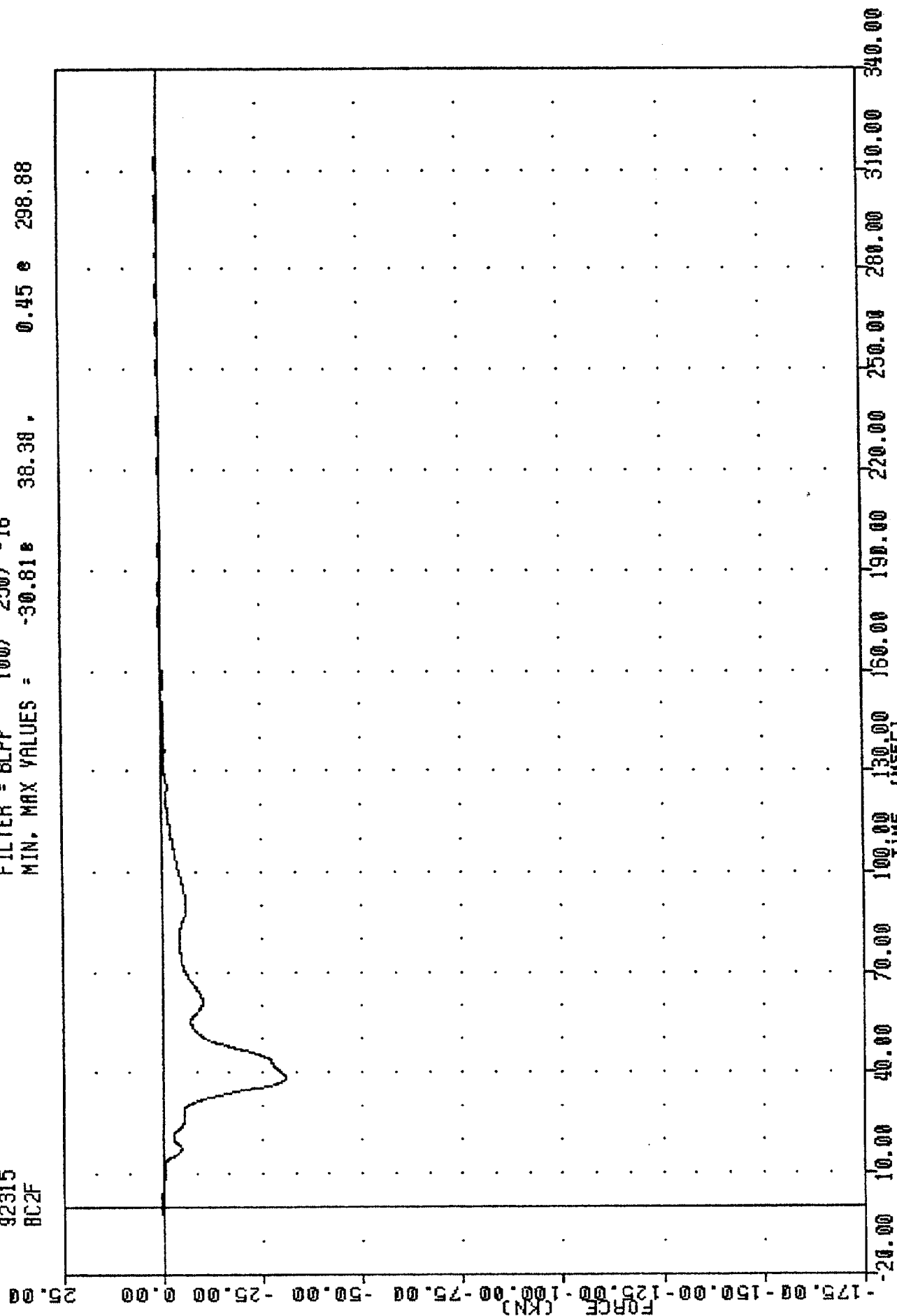
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -1.81e 36.25, 0.43 e 53.75



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC2F

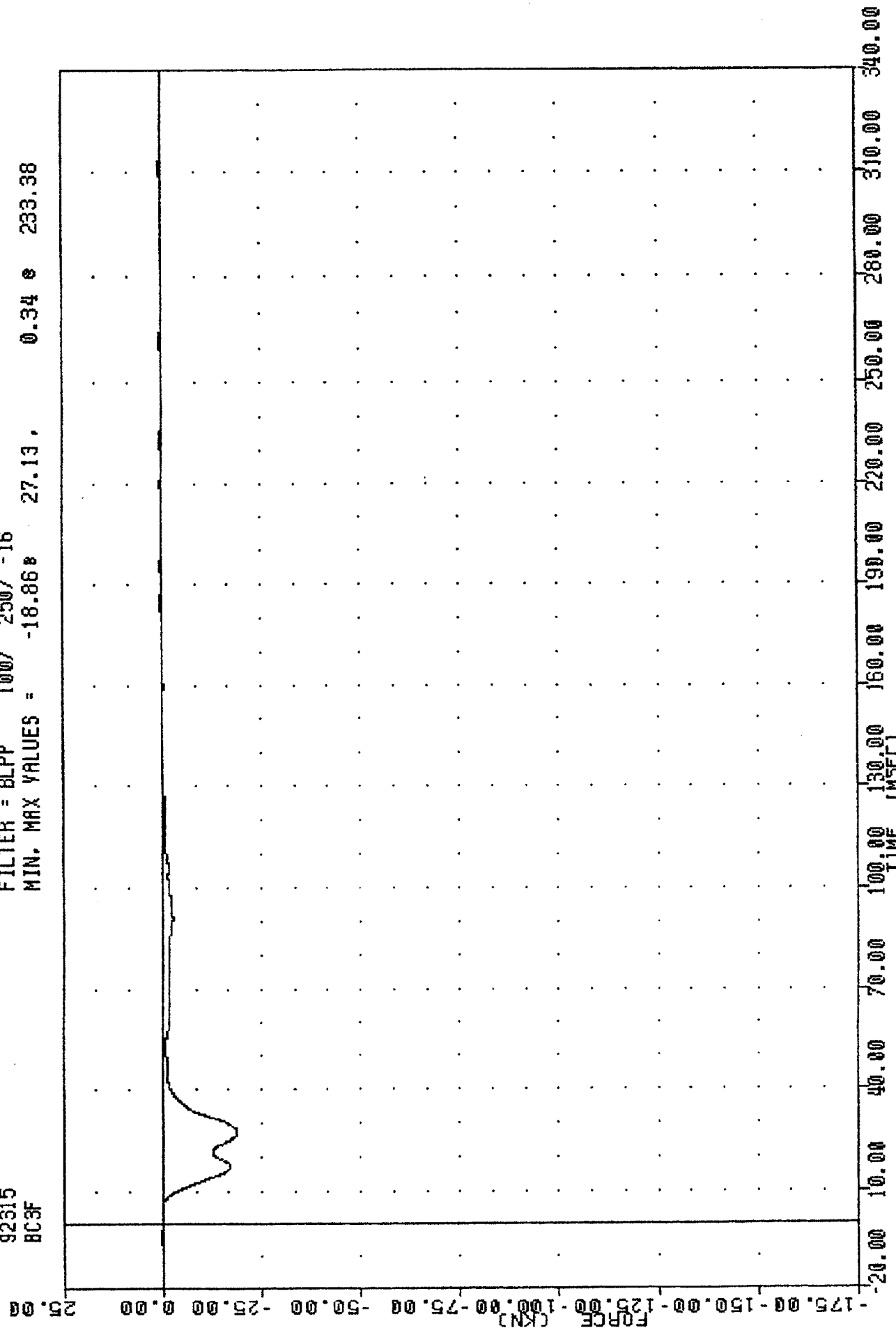
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -30.81 38.38 0.45 298.88



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER POSITION FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC3F

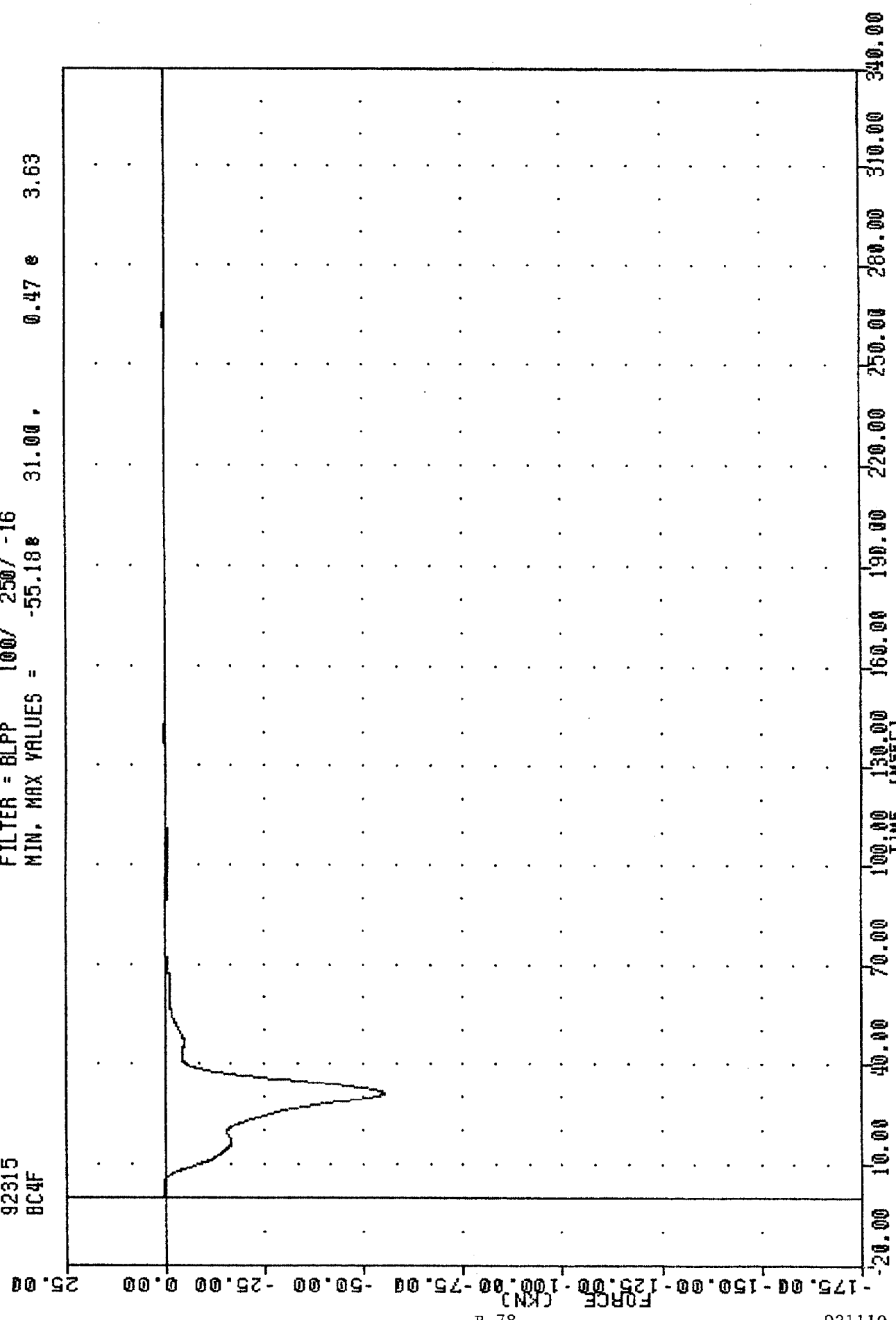
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -18.86 27.13 , 0.34 233.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC4F

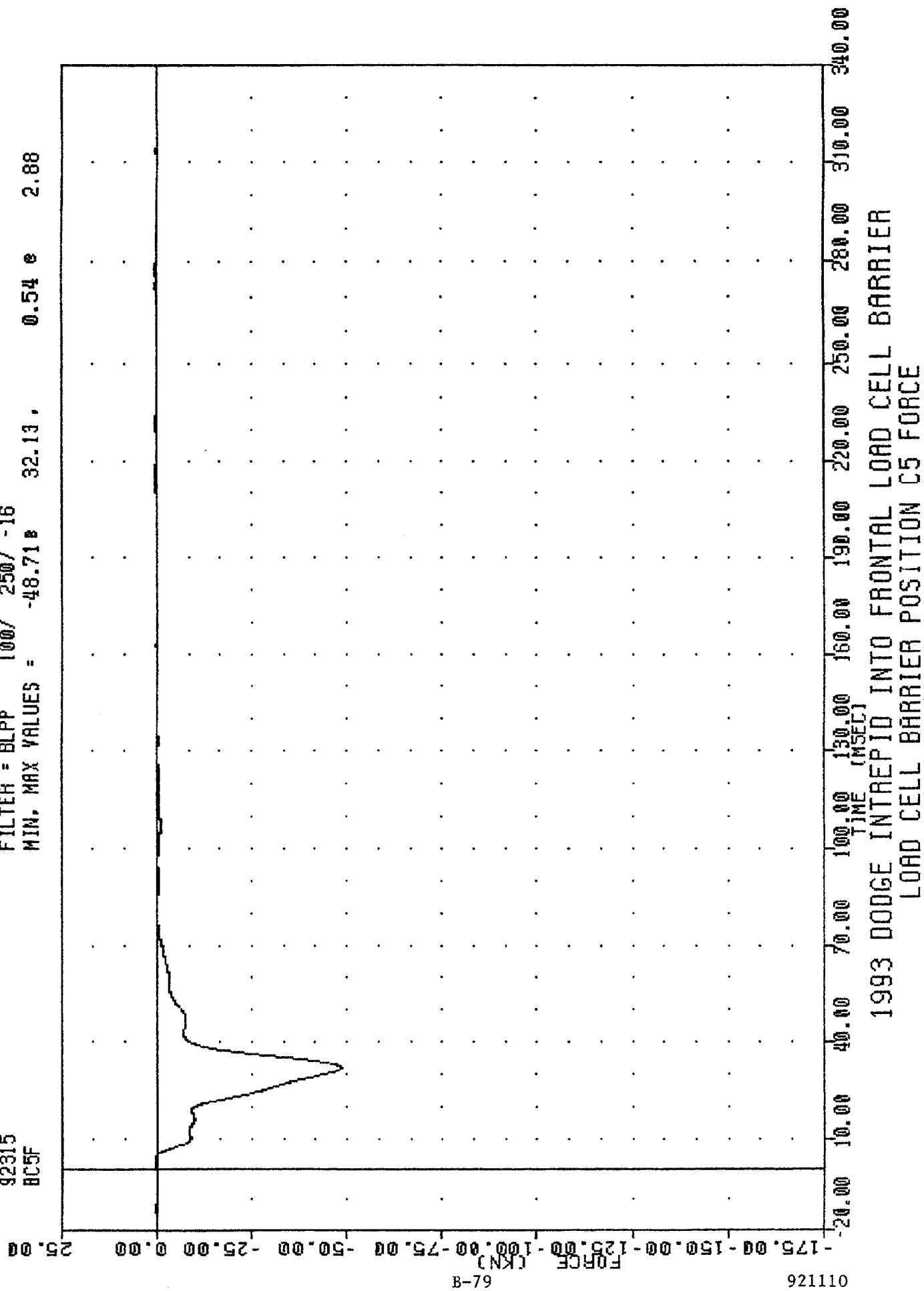
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -55.188 31.00 , 0.47 e 3.63



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 BARRIER POSITION C4-000000

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC5F

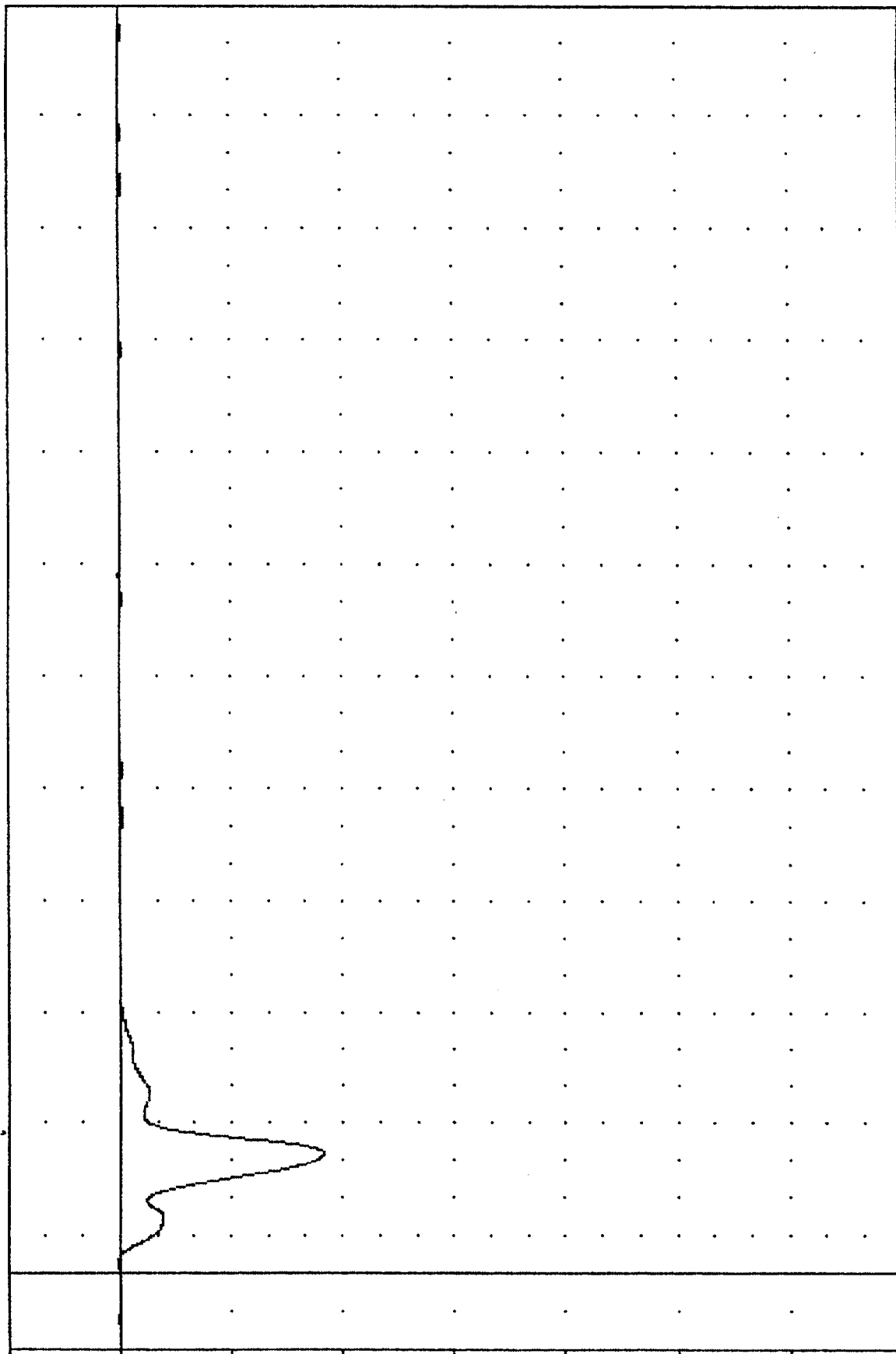
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -48.71 32.13 , 0.54 e 2.88



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC6F

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -45.72 31.75 0.27 2.75

25.00



08-B

921110

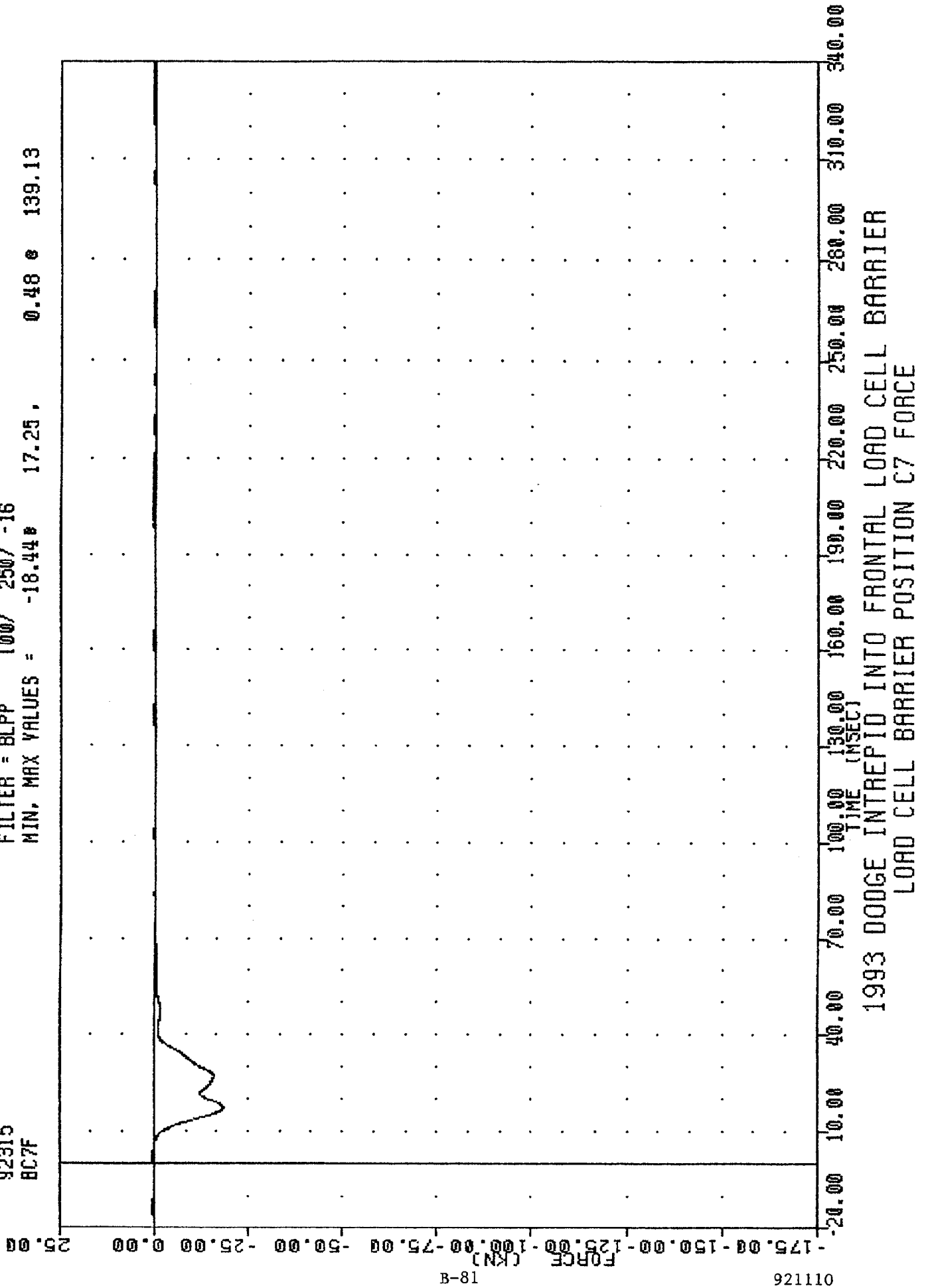
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

1000 PSI BARRIER PROTECTIVE RAILING

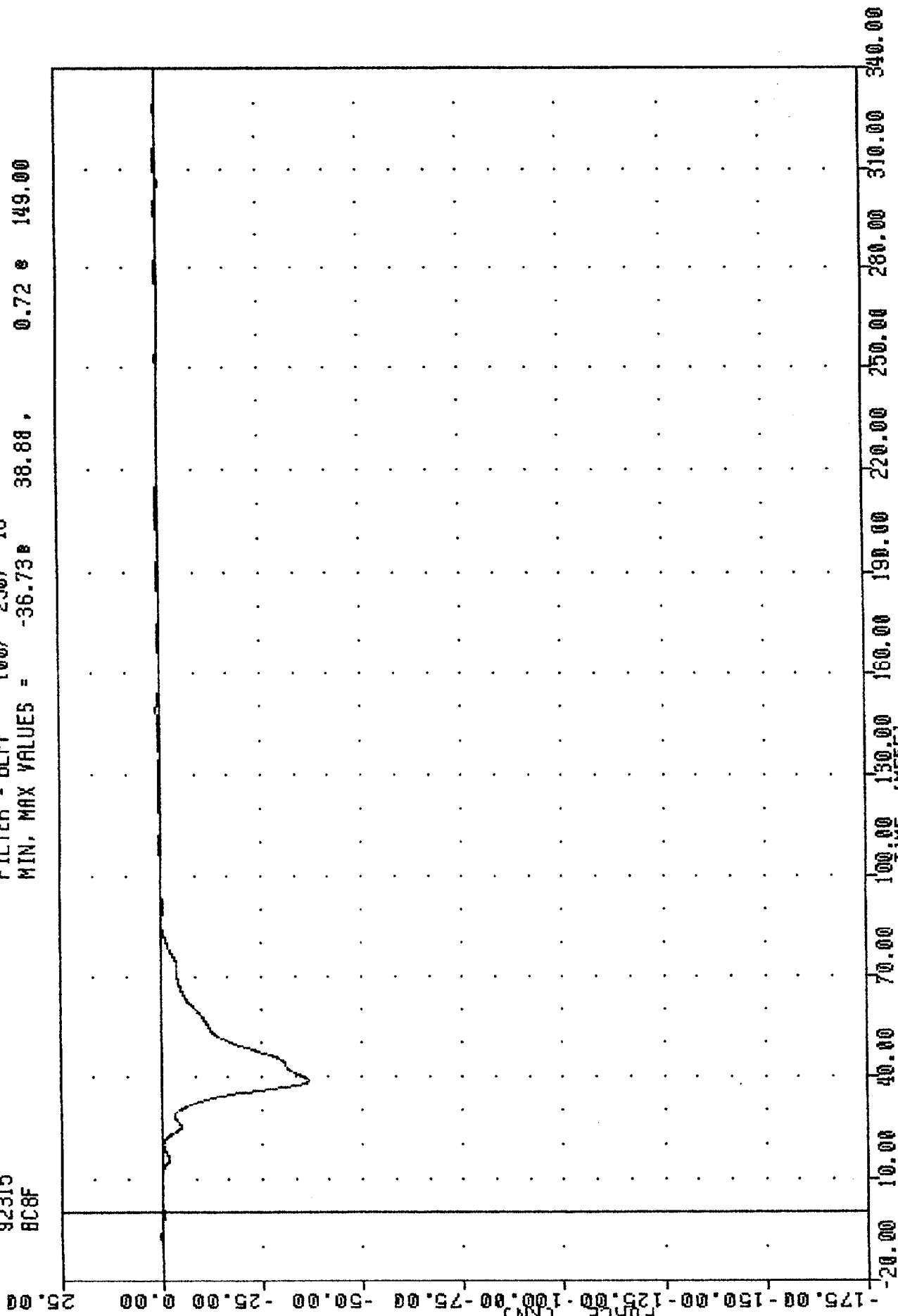
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC7F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -18.44 17.25, 0.48 e 139.13



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC8F

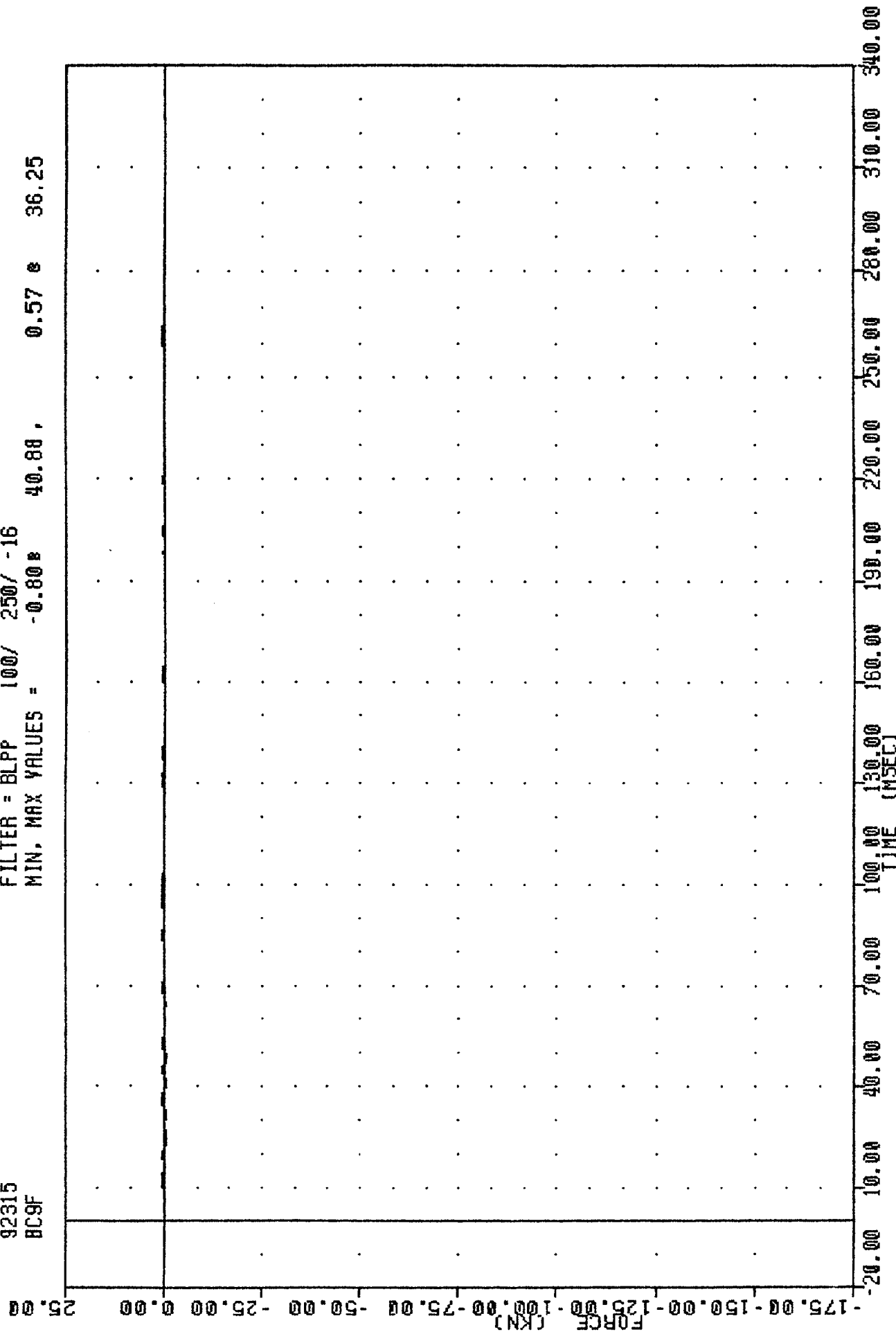
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -36.73 38.88 , 0.72 149.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 BARRIER PENETRATION CORP

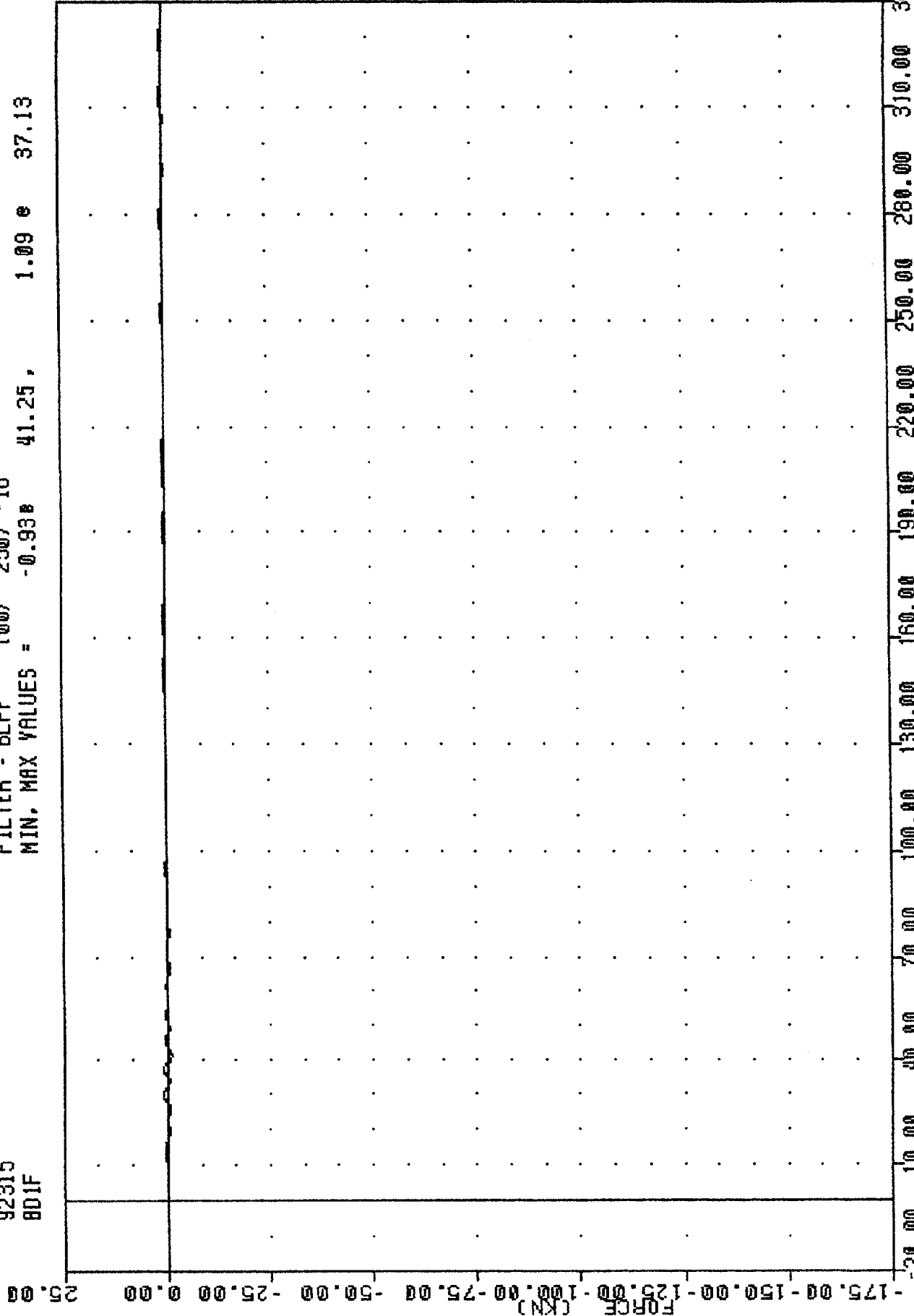
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BC9F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -0.80 40.88, 0.57 36.25



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 801F

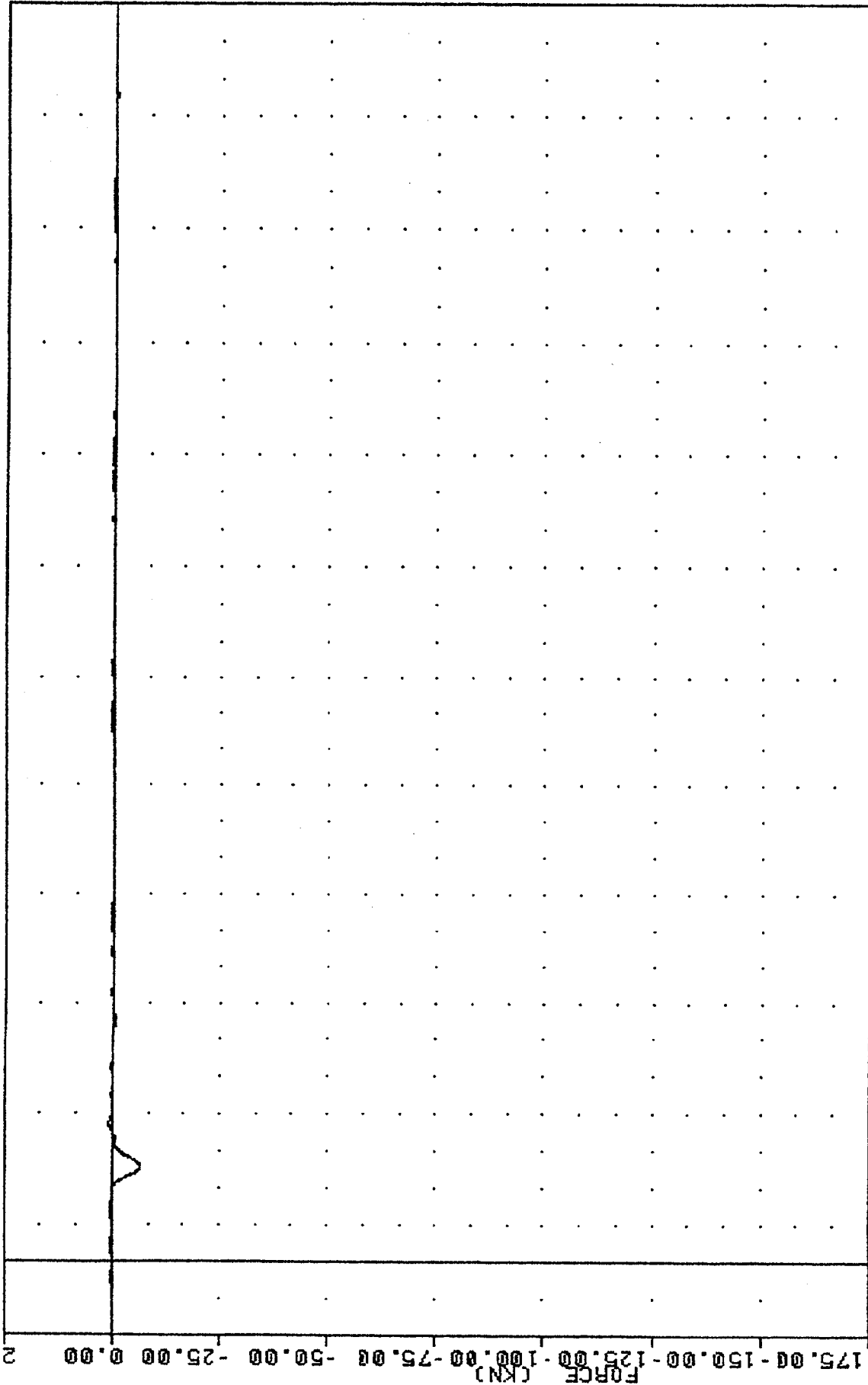
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.938 41.25, 1.09 e 37.13



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BD2F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -6.62 0.77 37.13

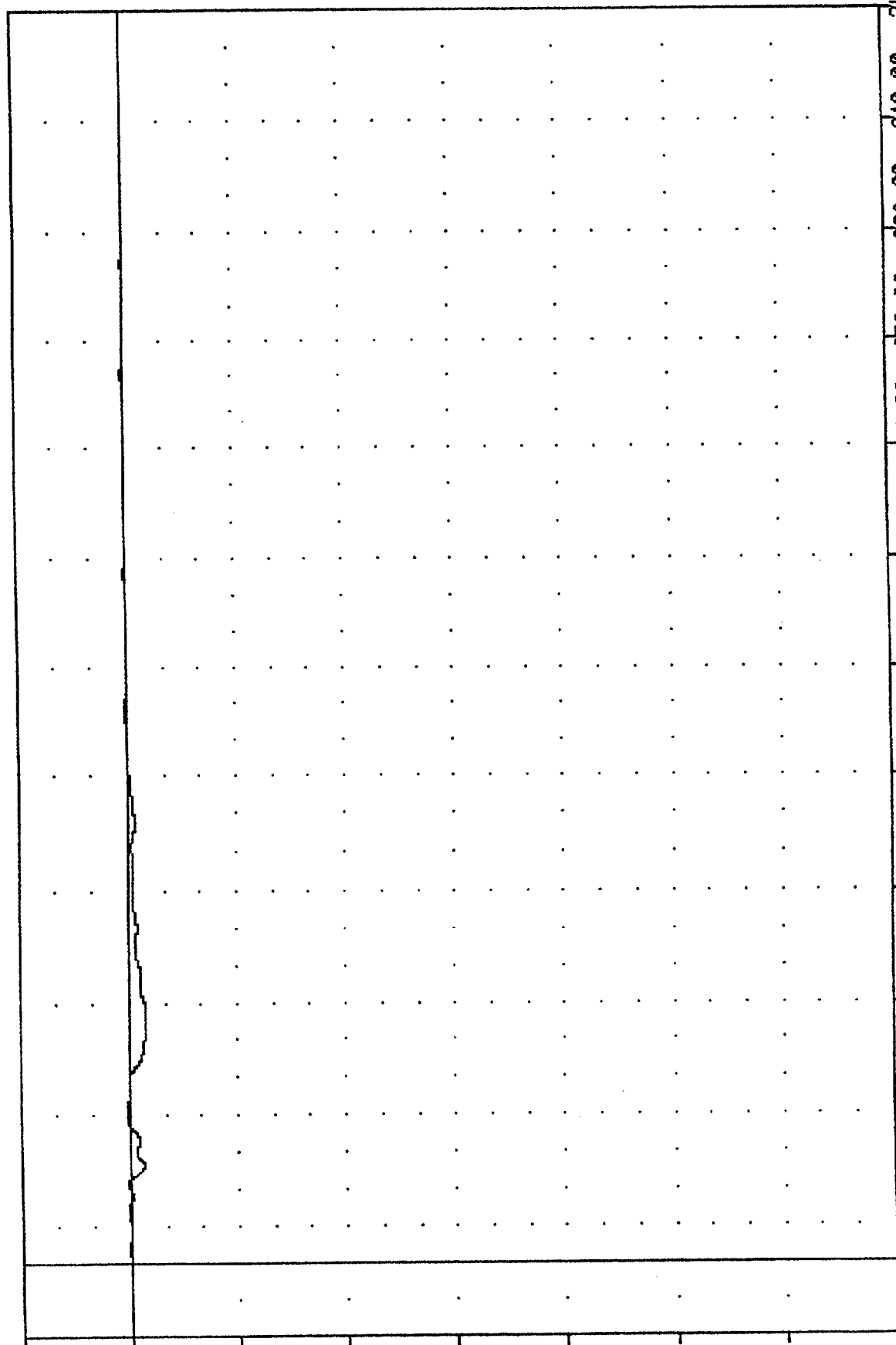


921110
 1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D2 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 803F

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -4.00 68.00, 0.66 14.25

25.00



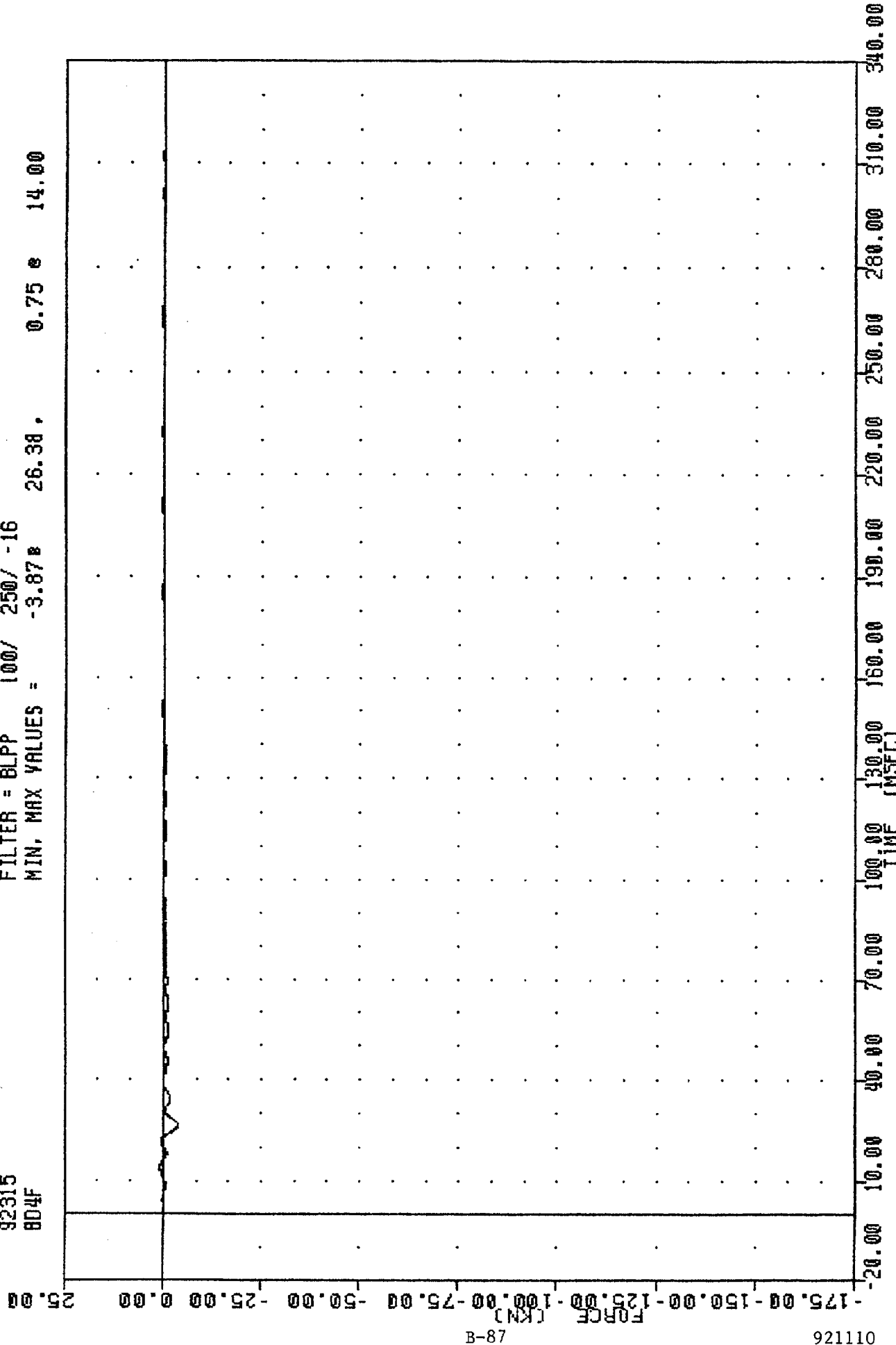
921110

B-86

1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LONG CELL BARRIER POSITION D3 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 804F

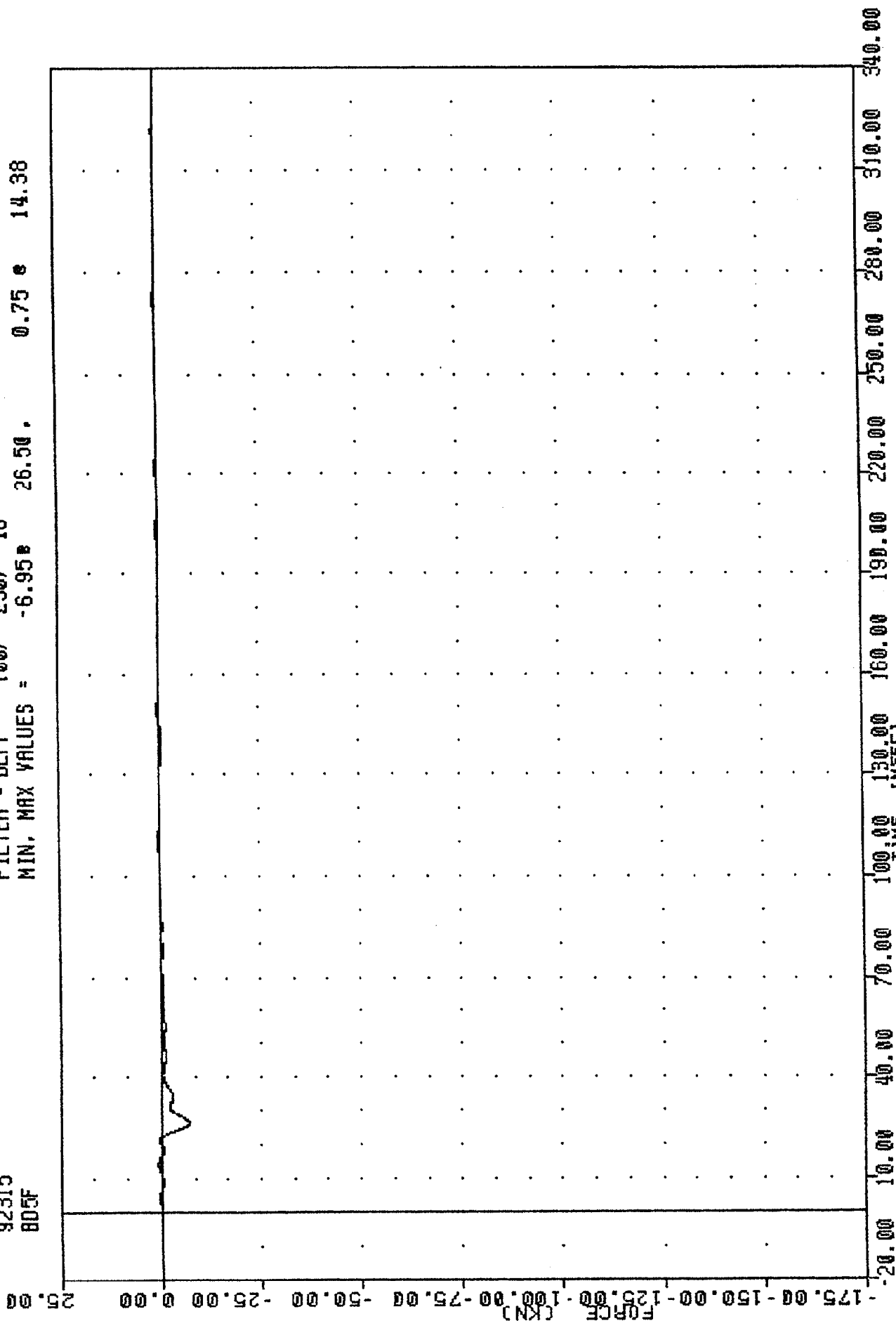
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -3.87 26.38 0.75 14.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 04 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BD5F

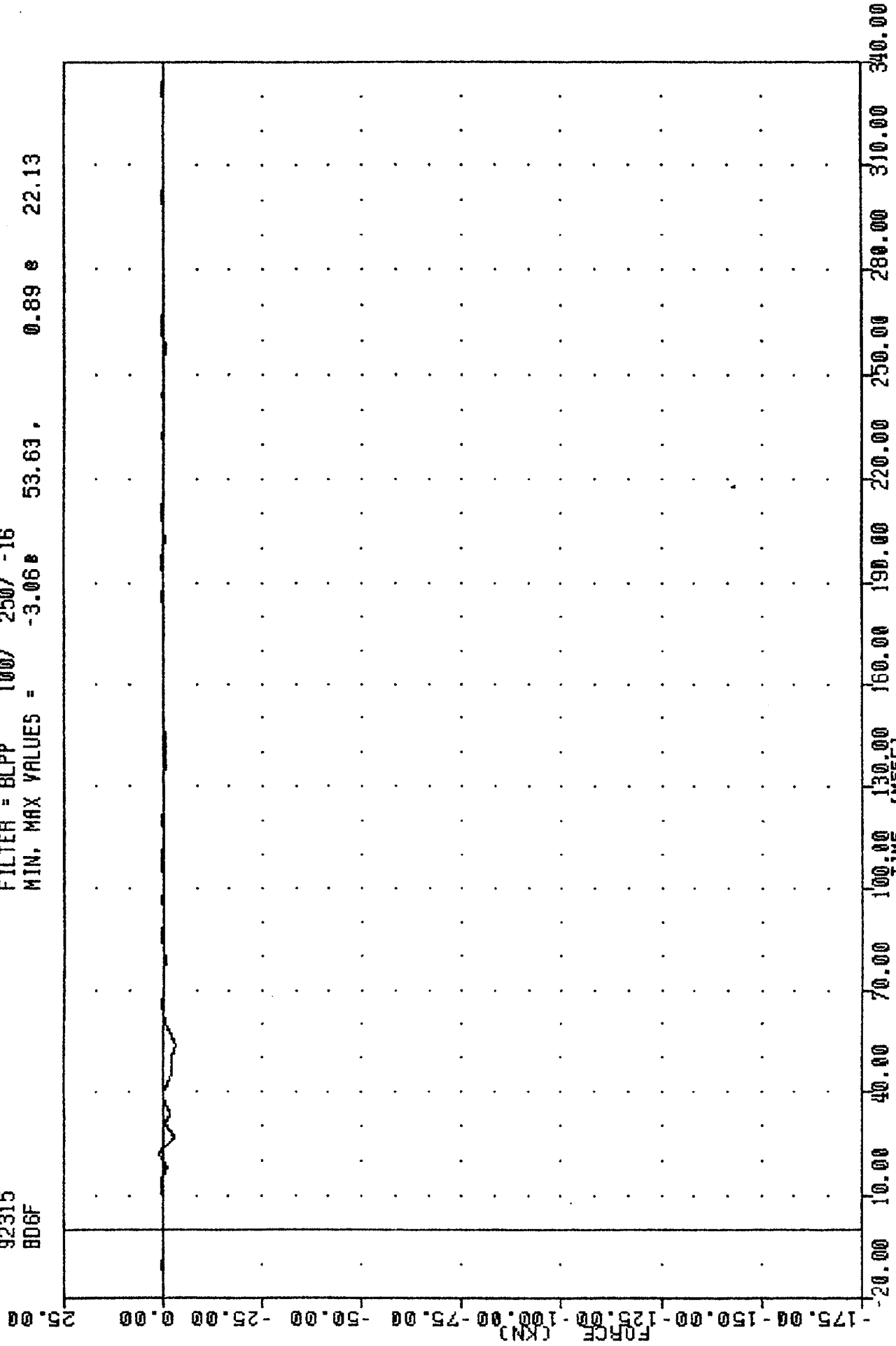
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -6.95 0.75 e 14.38



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER POSITION DEFORMOR

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BDGF

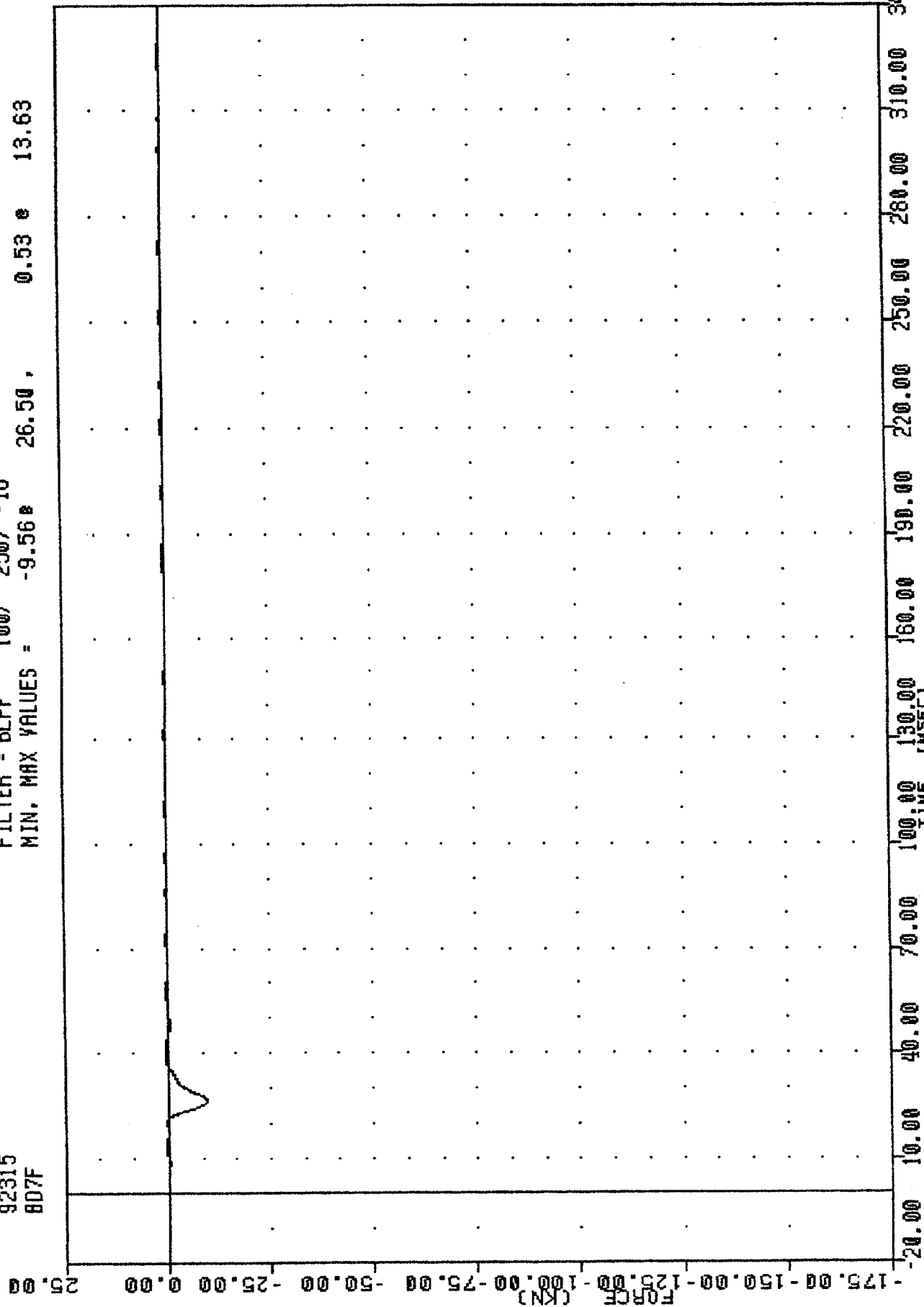
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -3.06 53.63, 0.89 22.13



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D6 FORCE

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 807F

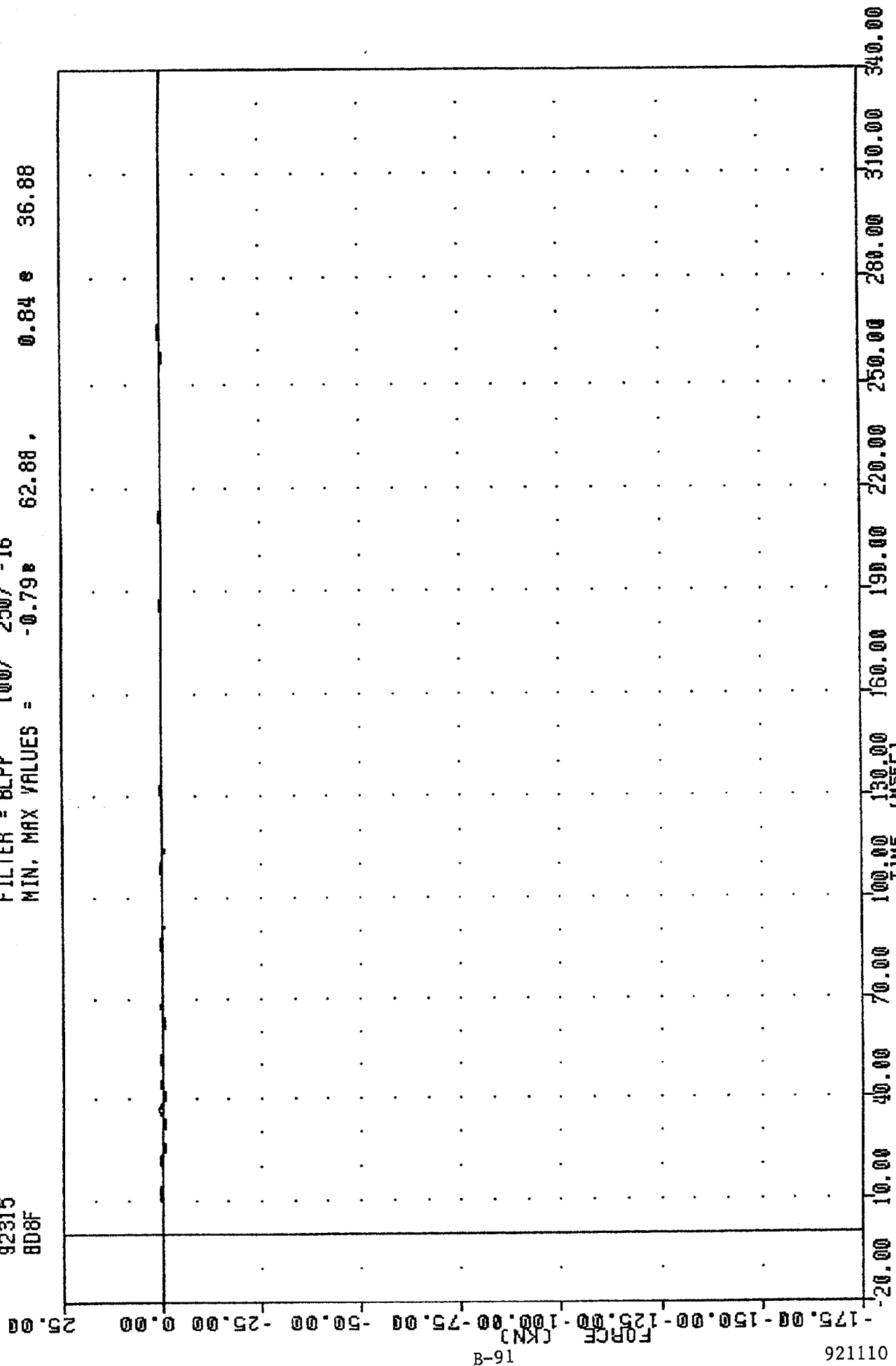
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -9.56 26.50, 0.53 13.63



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LONG CELL BARRIER POSITION D750R05

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BD8F

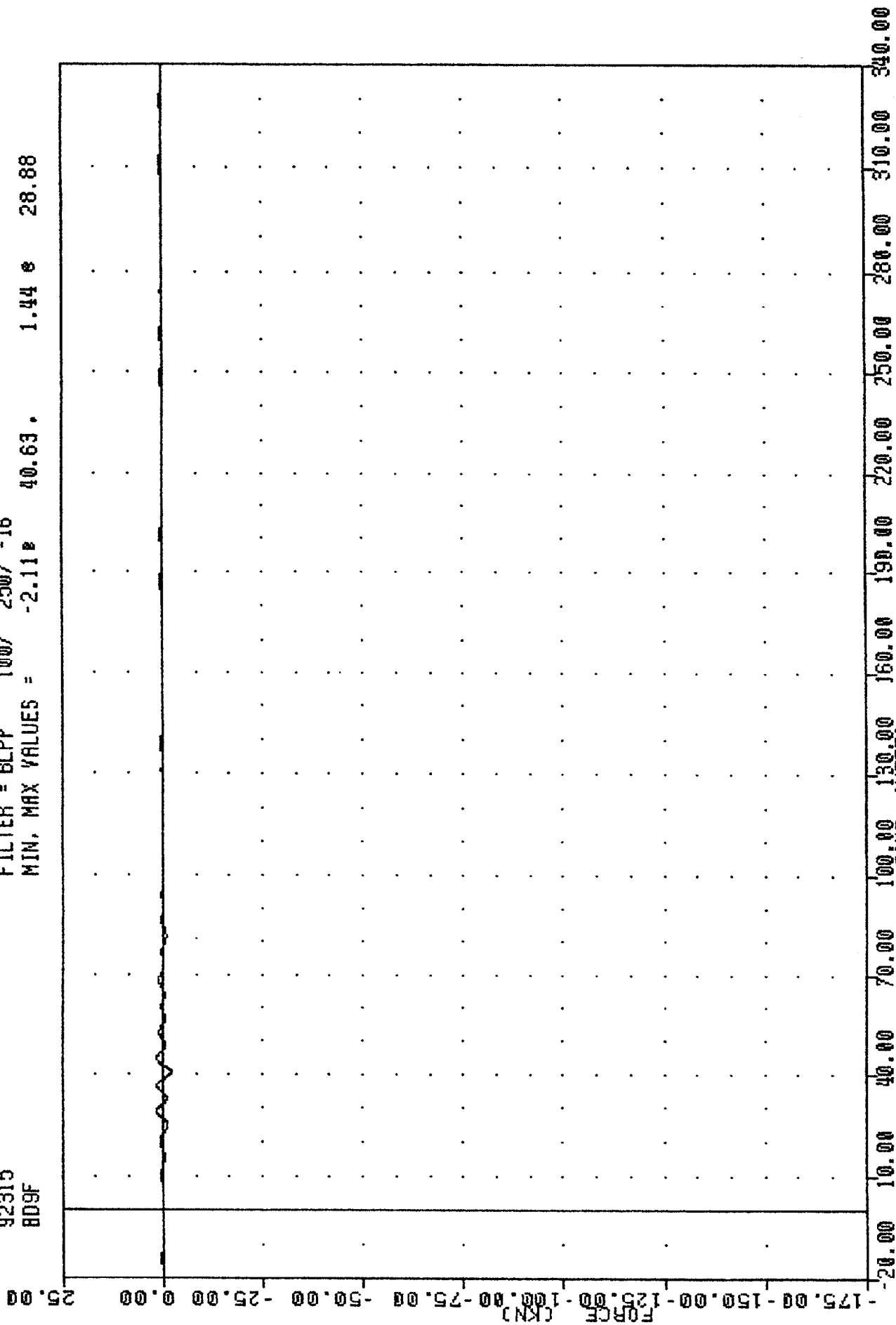
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -0.79 62.88 0.84 36.88



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D8 FORCE

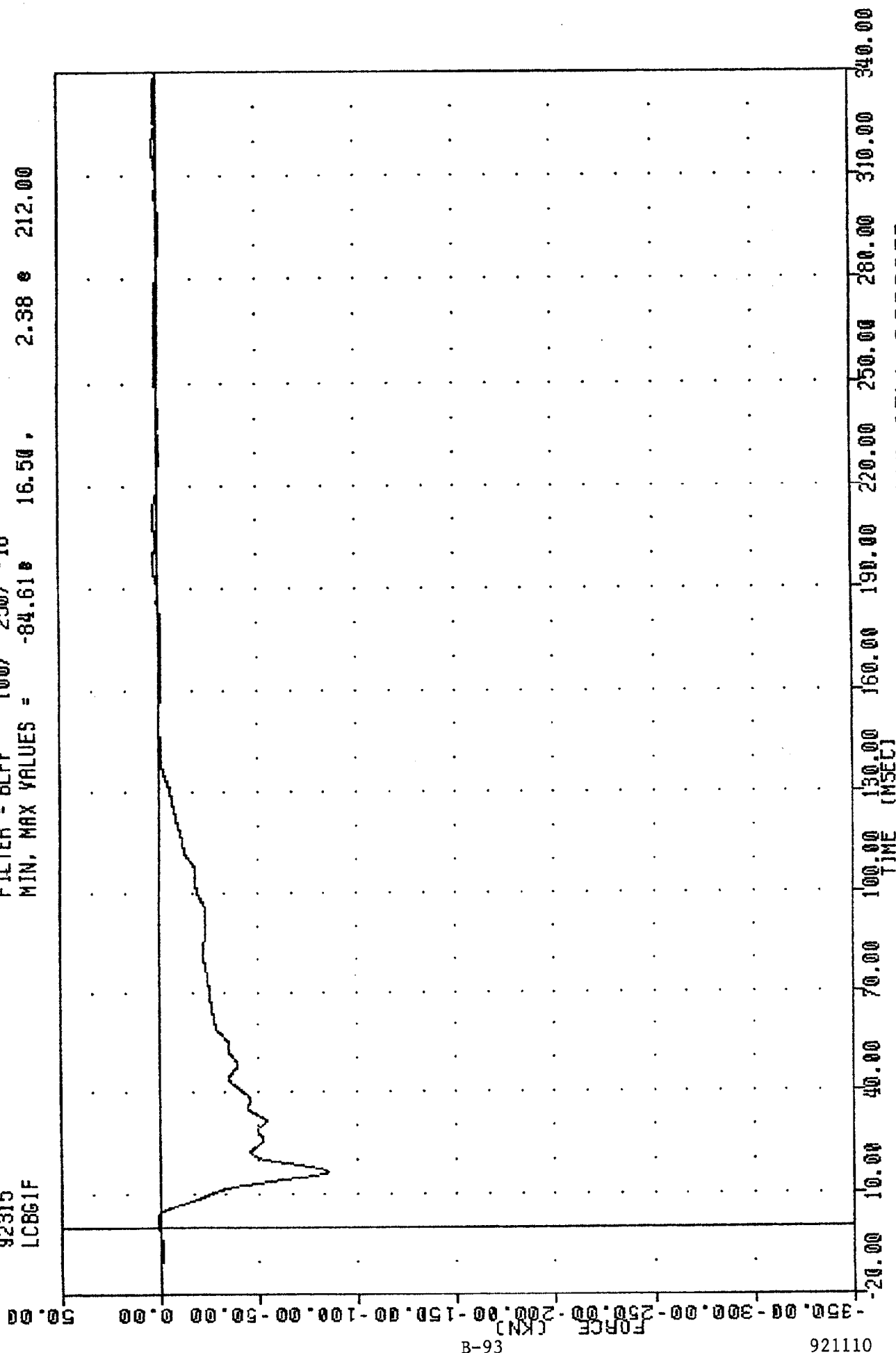
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 BD9F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -2.11 40.63 1.44 28.88



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 LCBG1F

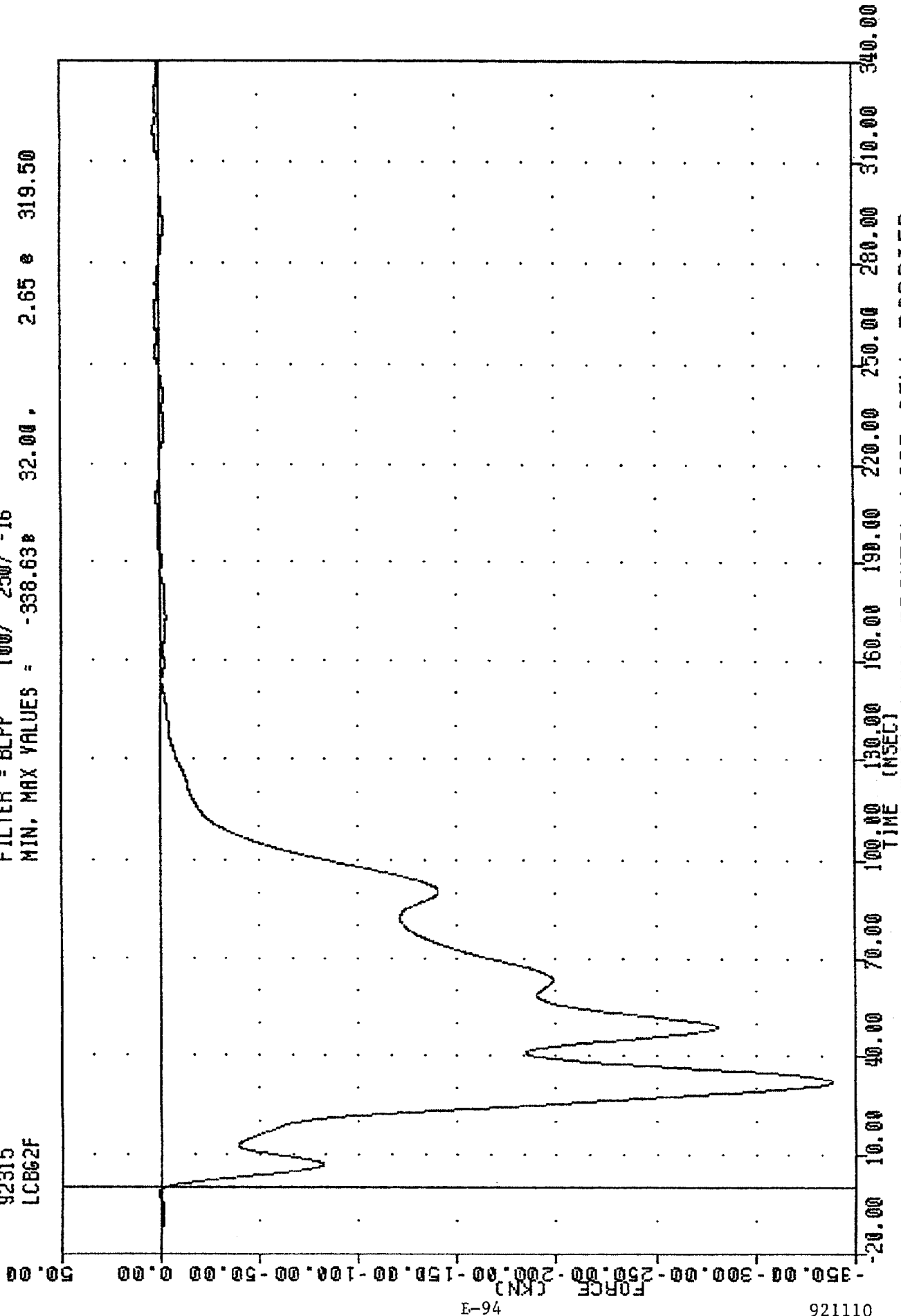
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -84.61 16.50 2.38 212.00



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 1 FORCE TOTAL

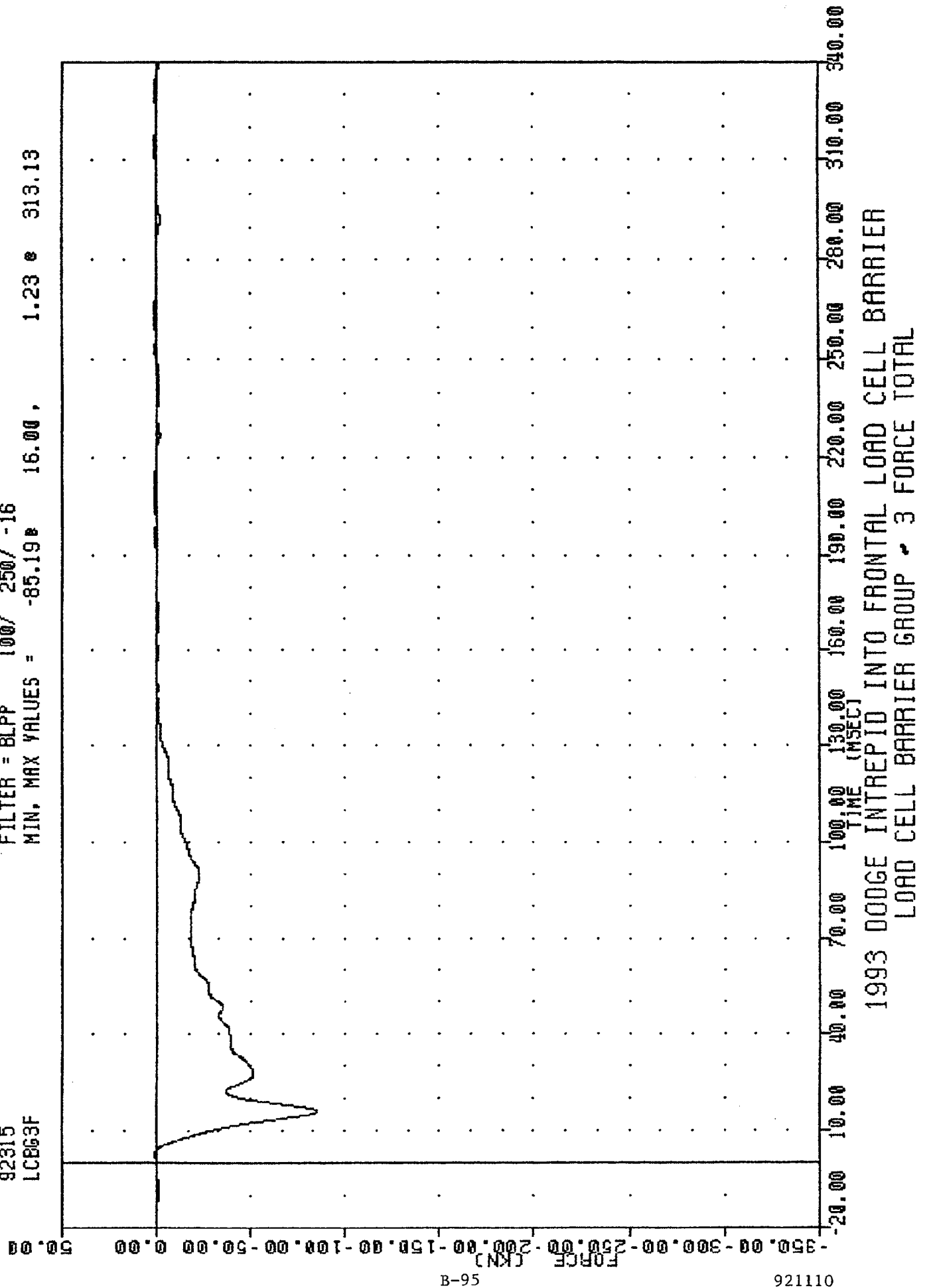
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 LCB62F

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -338.63 32.00 2.65 e 319.50



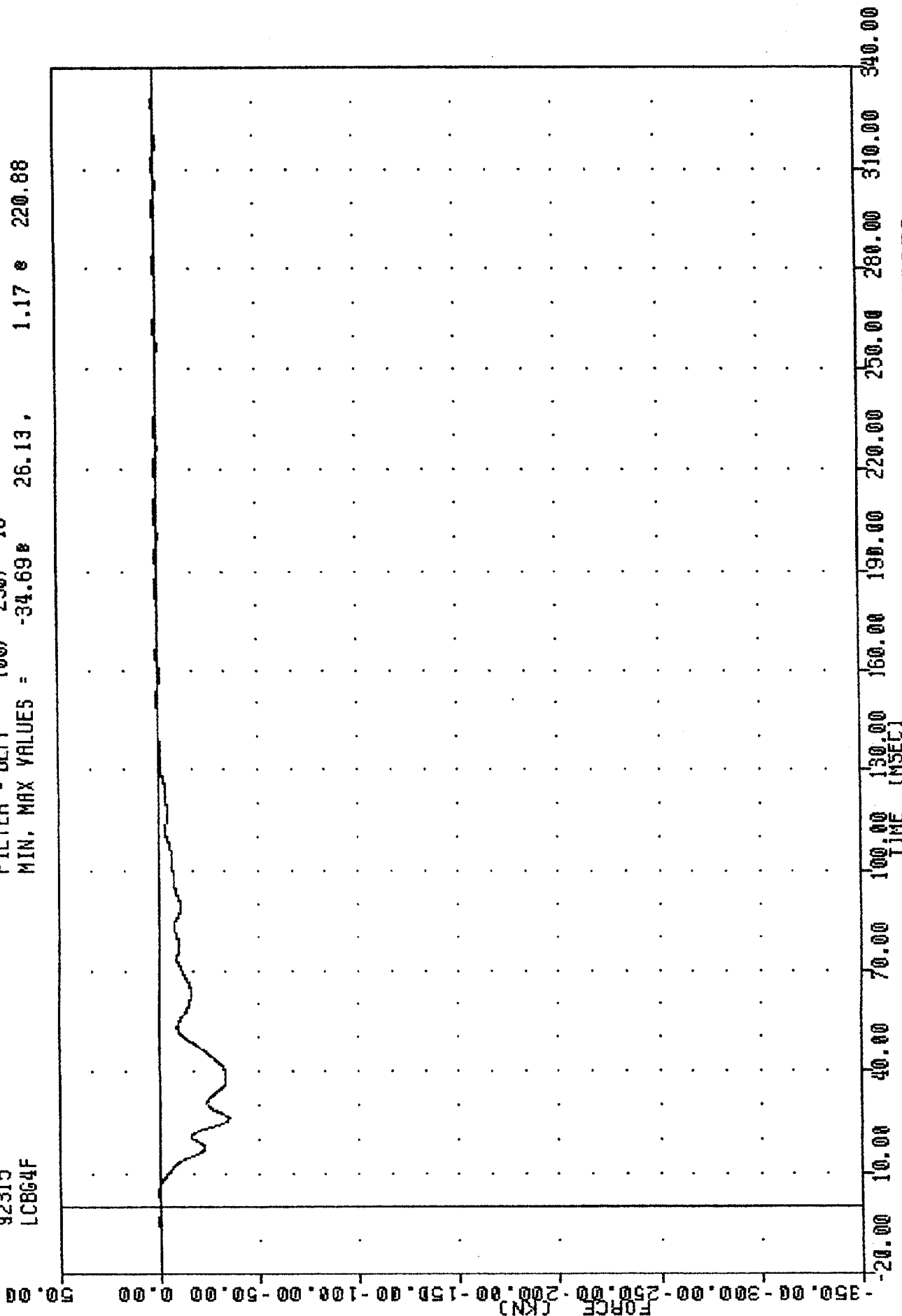
TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 LCBG3F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -85.19e 16.00, 1.23 e 313.13



TRC , 921110
 NEW CAR ASSESSMENT PROGRAM

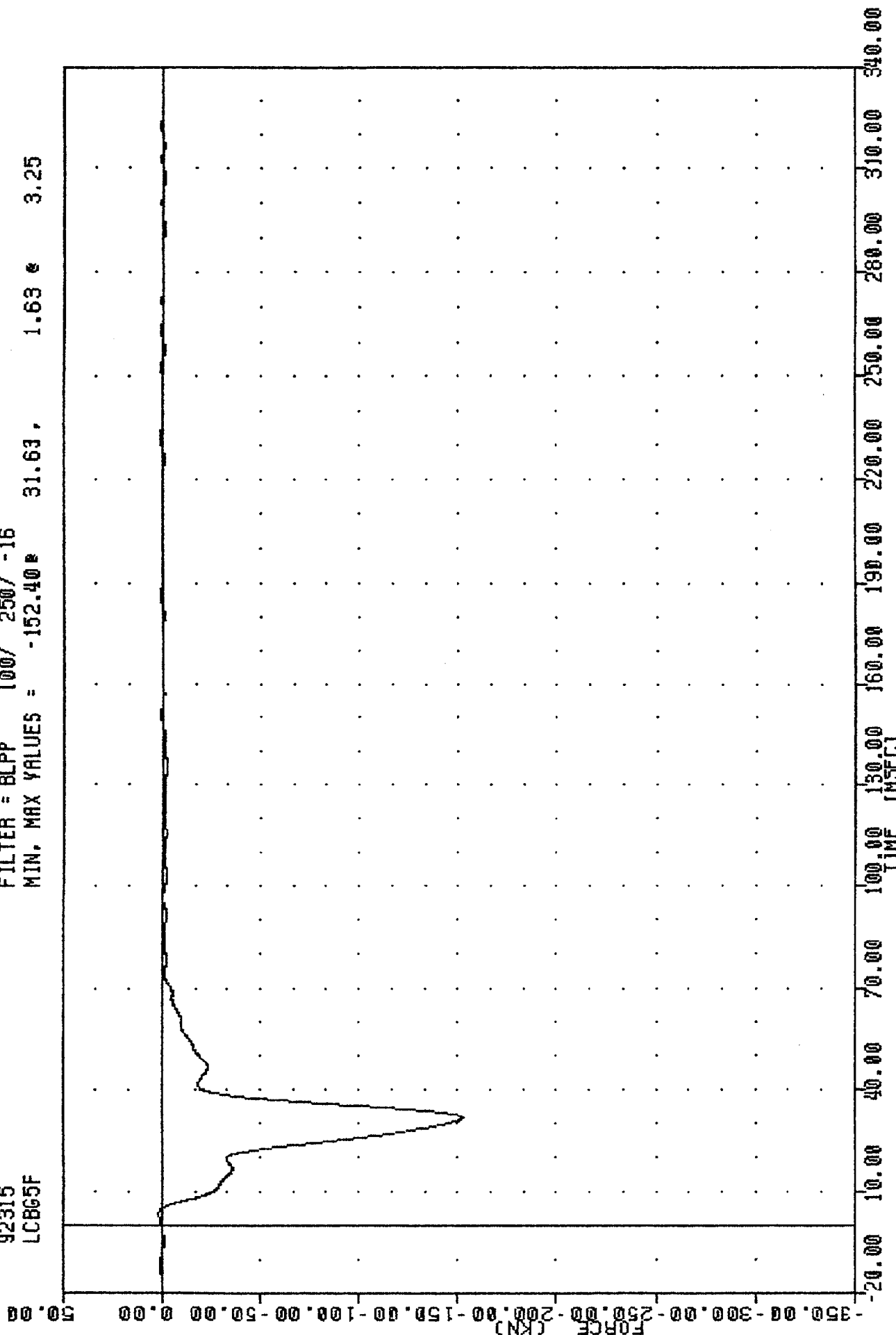
92315
 LC864F
 FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -34.69% 26.13, 1.17 @ 220.88



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 FORCE (KN) TOTAL

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 LCBG5F

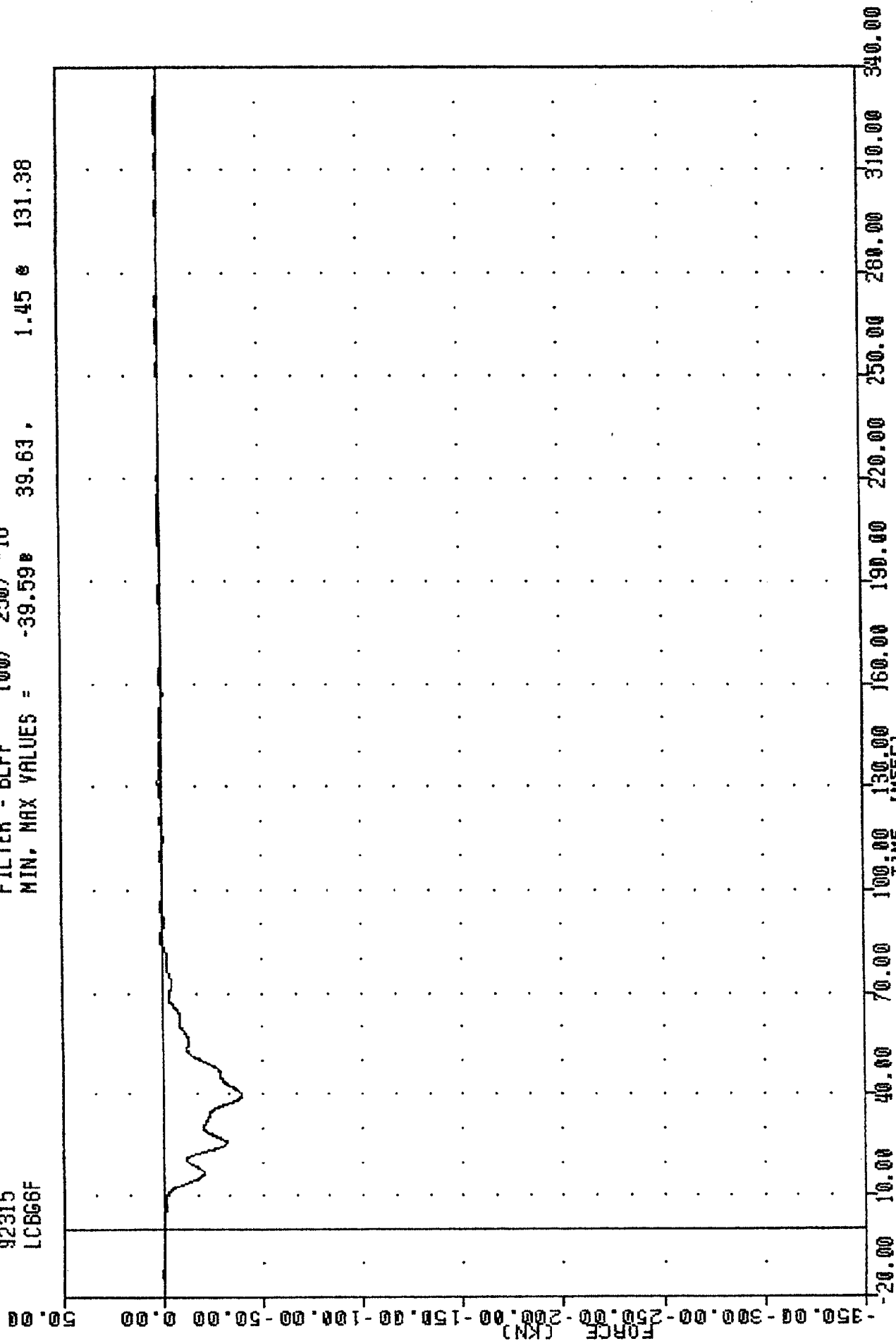
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -152.40 31.63, 1.63 3.25



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 5 FORCE TOTAL

TRC
 NEW CAR ASSESSMENT PROGRAM
 92315
 LCBG6F

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -39.59 39.63 1.45 e 131.38

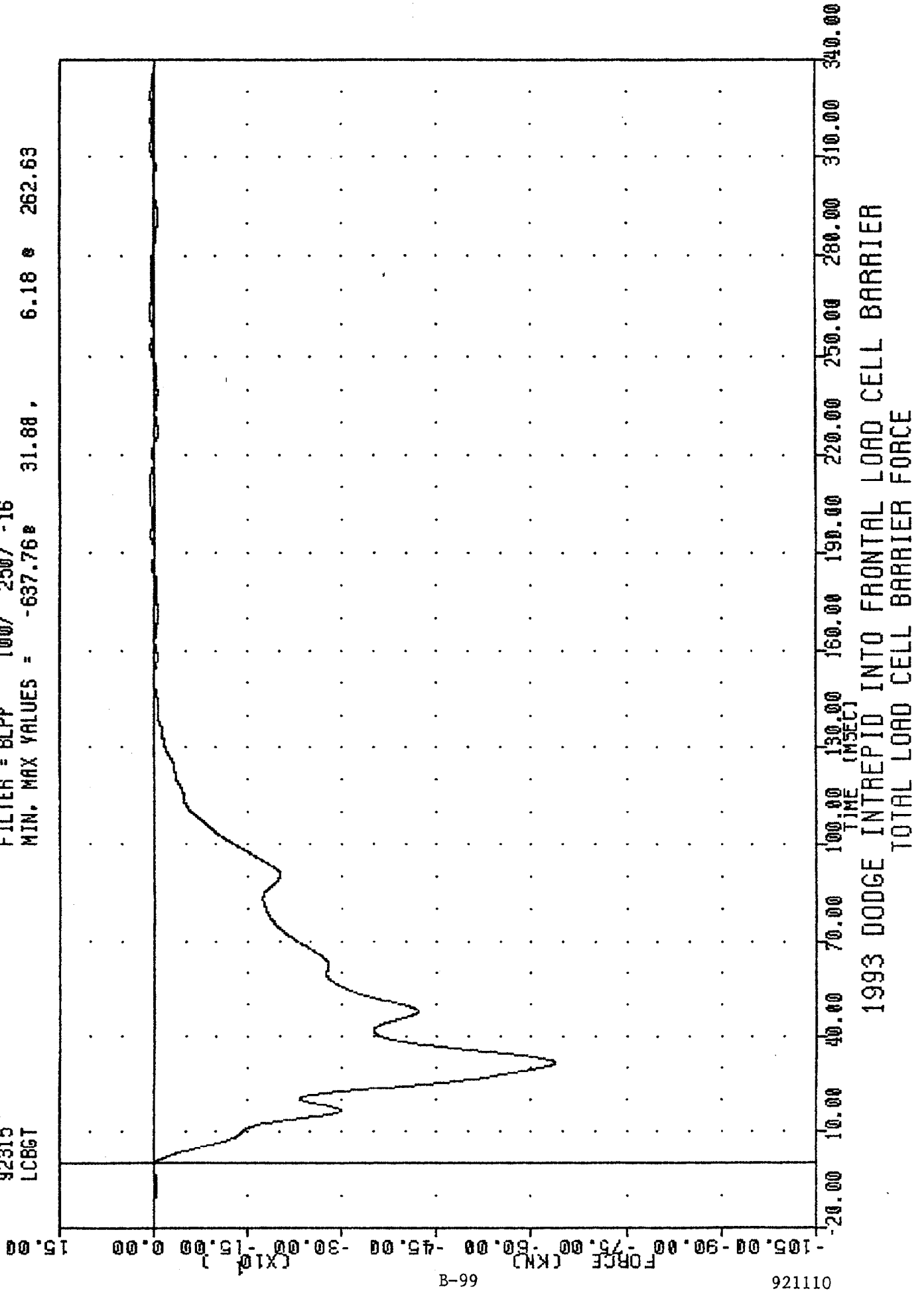


1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER

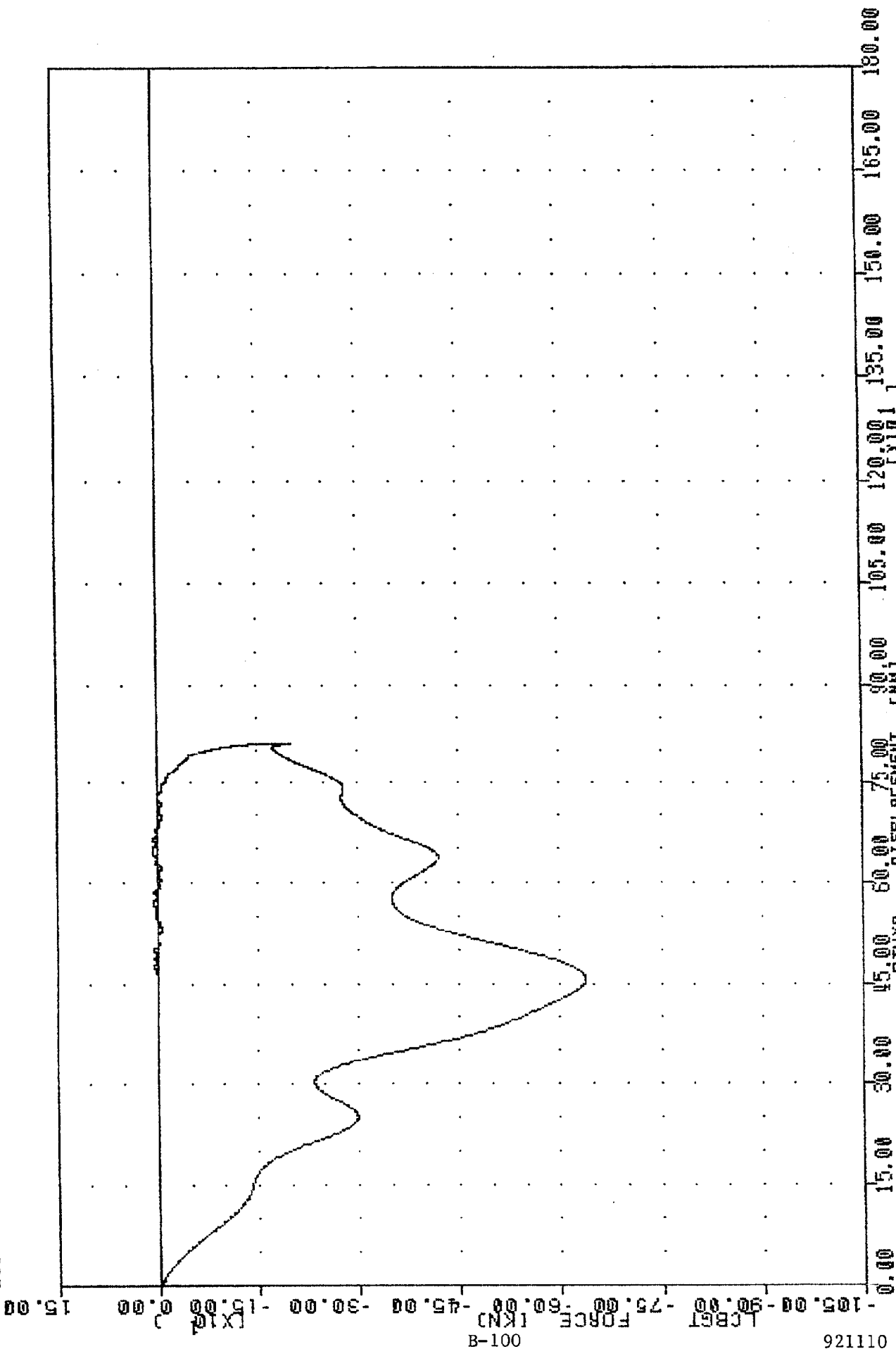
BARREL BARRIER ROUND FOR TOTAL

TRC , 921110
 NEW CAR ASSESSMENT PROGRAM
 92315
 LCBGT

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -637.76 31.88, 6.18 262.63



TRC 921110 NEV CAR ASSESSMENT PROGRAM 92315
 OTHXD FILTER = BLPP 300/ 750/ -16 MIN. MAX = 0.00 812.73 92.75
 LC8GT FILTER = BLPP 100/ 250/ -16 MIN. MAX = -637.76 31.88 262.63



1993 DODGE INTREPID INTO FRONTAL LOAD CELL BARRIER
 AVERAGE VELOCITY AXIS DISPLACEMENT

APPENDIX C

DUMMY CERTIFICATION DATA

PRE-TEST CERTIFICATION DATA

DRIVER DUMMY S/N: 142

TRANSPORTATION RESEARCH CENTER OF OHIO
HYBRID III EXTERNAL DIMENSIONS
142 HUMANOID

29-JUL-92

TRC	142C11ED1	572E SN142 EXT. DIMENSION CAL11	
=====			
	TEST PARAMETER	(DIMEN.)	SPECIFICATION TEST RESULTS
=====			
	TEMPERATURE		21.1 DEG. C
=====			
	RELATIVE HUMIDITY		56.0 %
=====			
	LOCATION FOR CHEST CIRCUMFERENCE (AA)	429- 434 MM	432. MM
=====			
	LOCATION FOR WAIST CIRCUMFERENCE (BB)	226- 231 MM	229. MM
=====			
	CHEST CIRCUMFERENCE	(Y) 970-1001 MM	983. MM
=====			
	WAIST CIRCUMFERENCE	(Z) 836- 866 MM	846. MM
=====			
	CHEST DEPTH	(O) 213- 229 MM	218. MM
=====			
	H-POINT HEIGHT	(C) 84- 89 MM	86. MM
=====			
	H-POINT FROM SEATBACK	(D) 135- 140 MM	137. MM
=====			
	SKULL CAP TO BACKLINE	(H) 41- 46 MM	43. MM
=====			
	TOTAL SITTING HEIGHT	(A) 879- 889 MM	886. MM
=====			
	THIGH CLEARANCE	(F) 140- 155 MM	145. MM
=====			
	BUTTOCK KNEE LENGTH	(K) 579- 605 MM	597. MM
=====			
	BUTTOCK POPLITEAL LENGTH	(N) 452- 478 MM	475. MM
=====			
	POPLITEAL HEIGHT	(L) 429- 455 MM	452. MM
=====			
	KNEE PIVOT HEIGHT	(M) 485- 500 MM	490. MM
=====			
	FOOT LENGTH	(P) 252- 267 MM	257. MM
=====			
	FOOT BREADTH	(W) 91- 107 MM	97. MM
=====			
	SHOULDER PIVOT FROM BACKLINE	(E) 84- 94 MM	86. MM
=====			
	SHOULDER BREADTH	(V) 422- 437 MM	427. MM
=====			
	SHOULDER PIVOT HEIGHT	(B) 506- 521 MM	511. MM
=====			
	ELBOW REST HEIGHT	(J) 191- 211 MM	211. MM
=====			
	SHOULDER-ELBOW LENGTH	(I) 330- 345 MM	345. MM
=====			
	BACK OF ELBOW TO WRIST PIVOT	(G) 290- 305 MM	292. MM

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. Lekan

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

HYBRID III

29-JUL-92

TRC

142C11HD1

572E SN142 HEAD DROP CAL 11

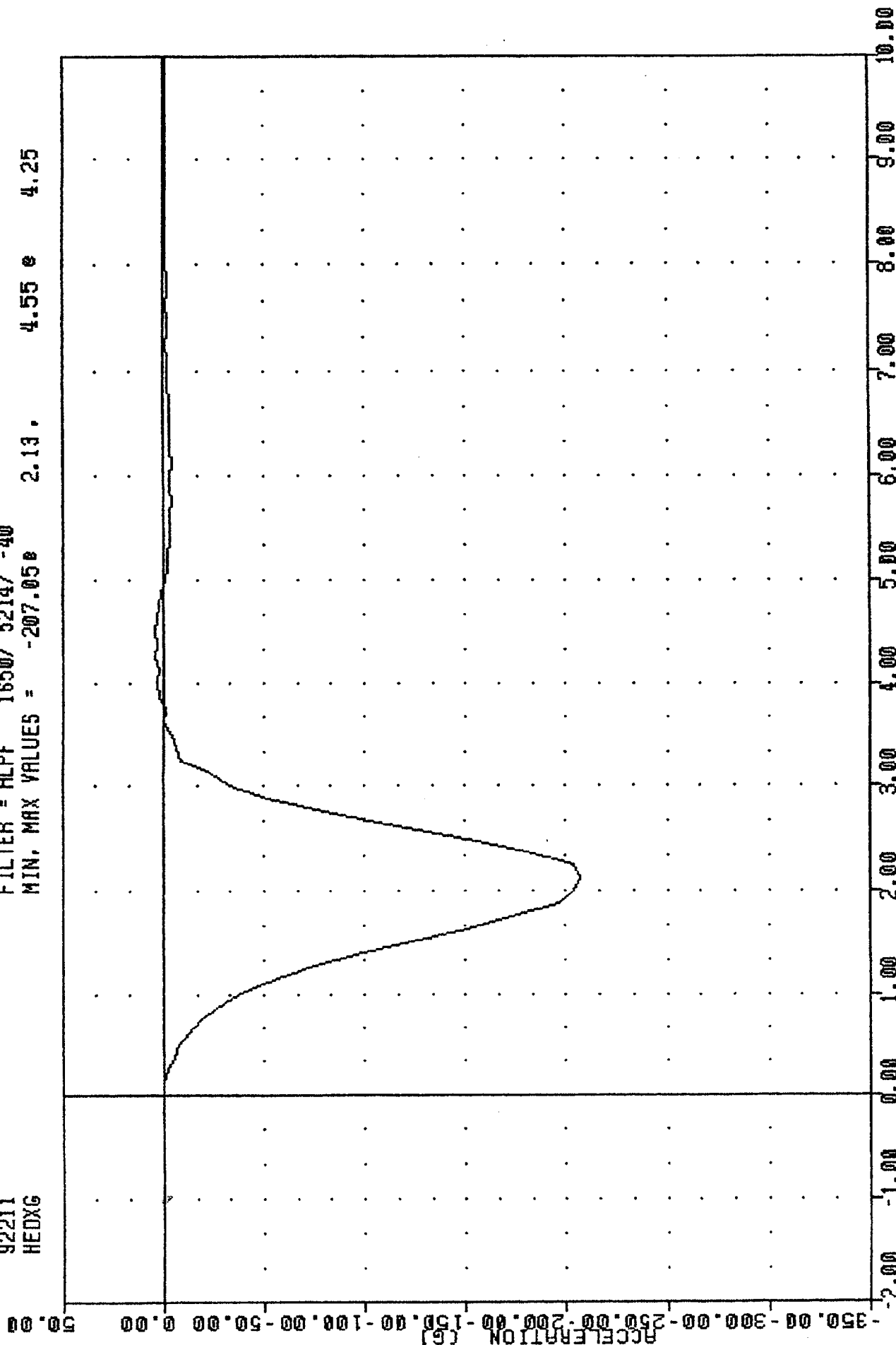
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	246.49 G
PEAK LATERAL ACCELERATION	15 G MAX	8.80 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. LeVan

TRC , 142C11HD1
 572E SN142 HEAD DROP CAL 11
 92211
 HEDXG

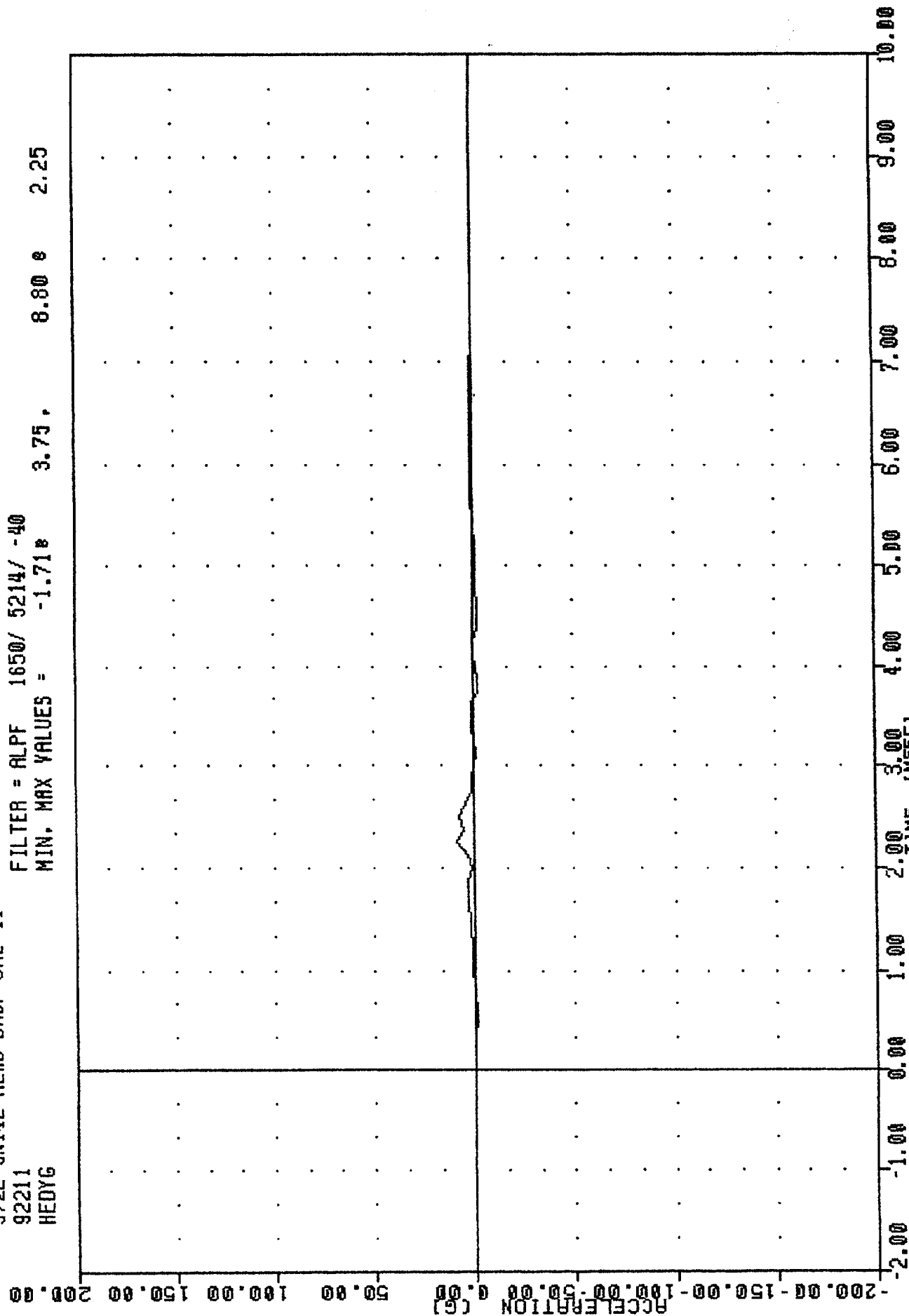
FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = -207.050 2.13. 4.55 4.25



PART 572-E HYBRID III HEAD CALIBRATION
 HEAD ACCELERATION Y AXIS

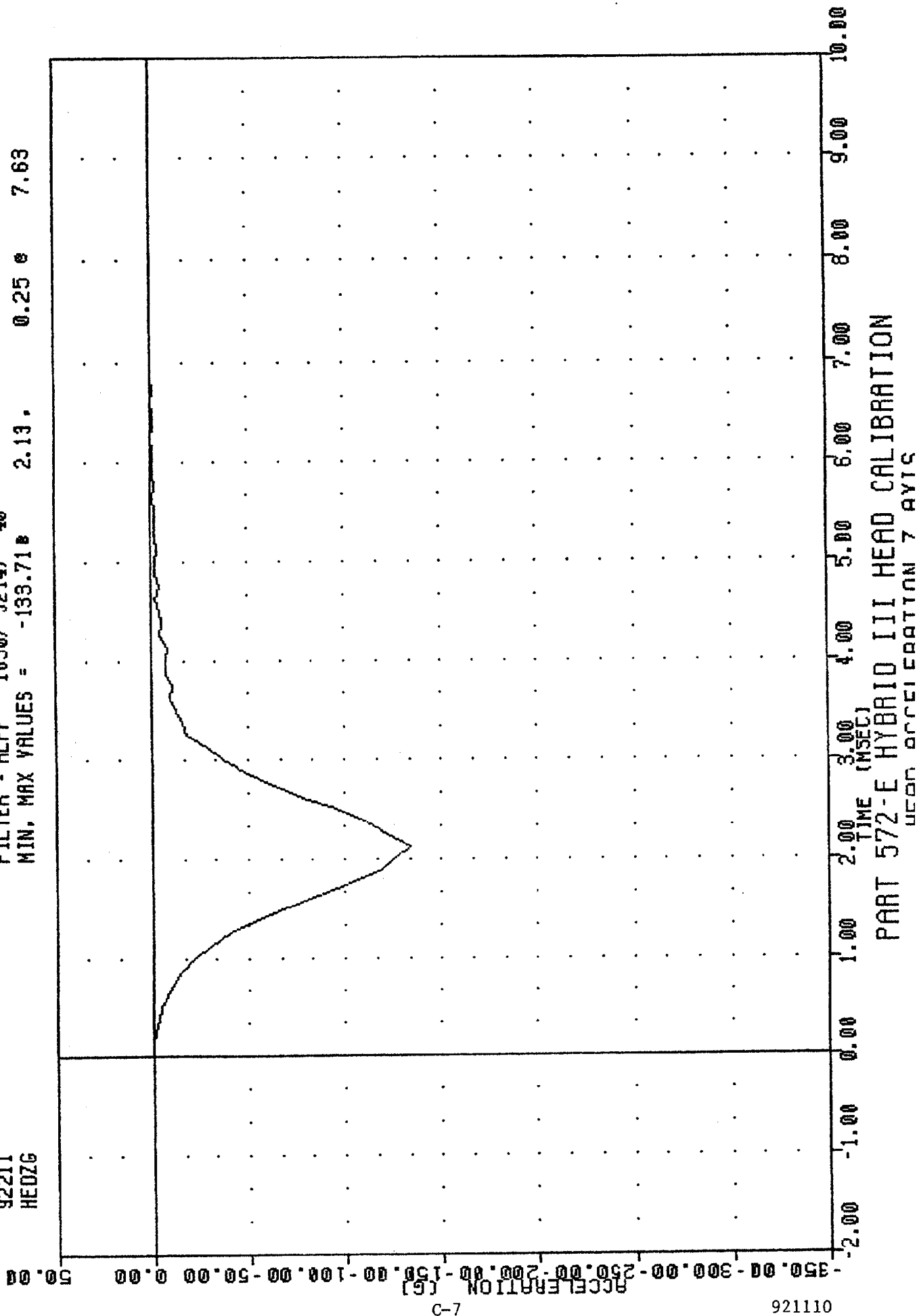
TRC
572E SN142 HEAD DROP CAL 11
92211
HEDYG

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -1.71e 3.75, 8.80 e 2.25



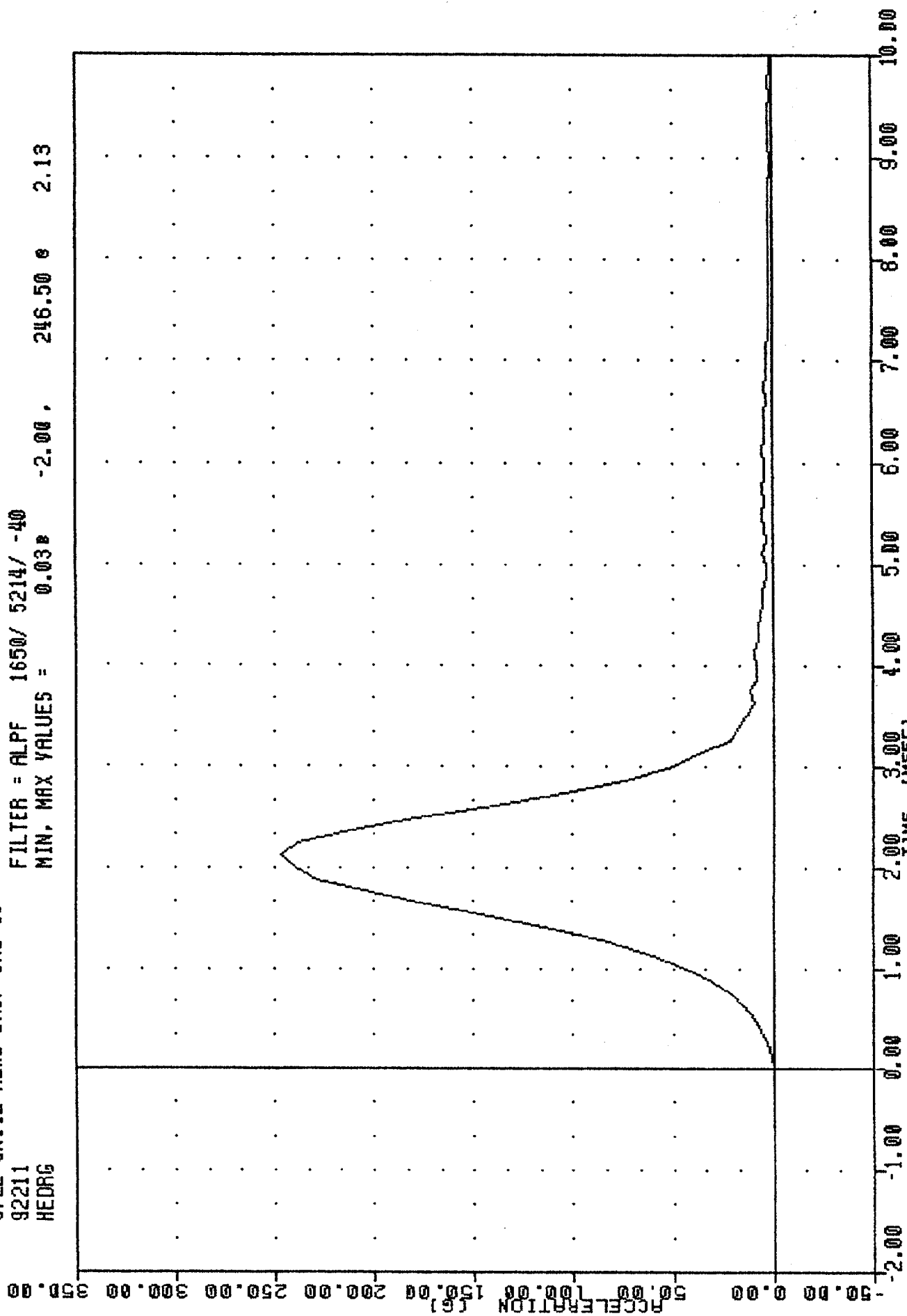
TRC , 142C11HD1
 572E SN142 HEAD DROP CAL 11
 92211
 HEDZG

FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = -133.71 2.13, 0.25 7.63



TRC , 142C11HD1
 572E SN142 HEAD DROP CAL 11
 92211
 HEDRG

FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = 0.038 -2.00, 246.50 e 2.13



TRANSPORTATION RESEARCH CENTER OF OHIO

NECK FLEXION TEST

HYBRID III

04-AUG-92

6 AXIS NECK TRANSDUCER
TRC 142C11NF1

572E SN142 NECK FLEXION CAL11

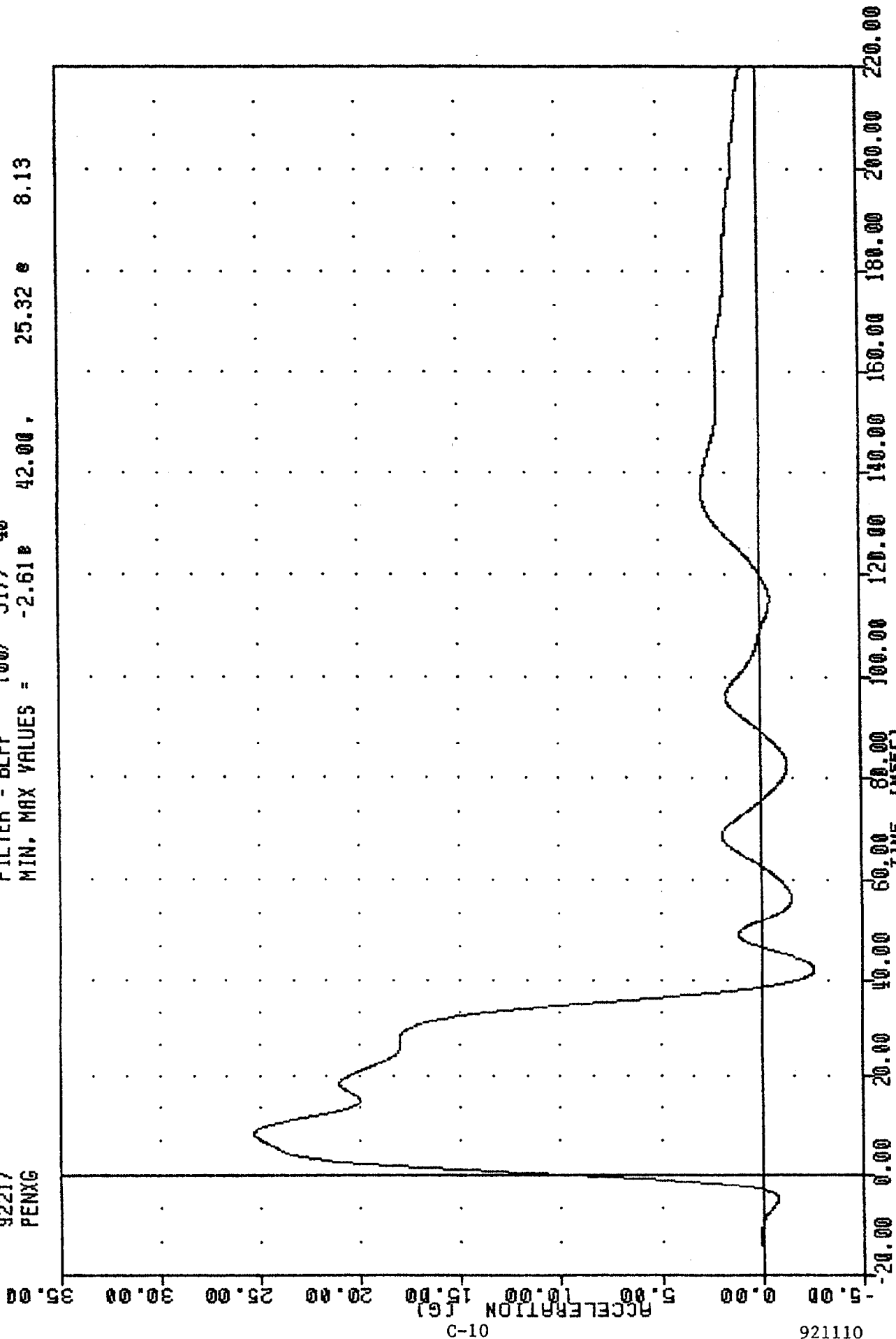
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10% - 70%	56.0 %
IMPACT VELOCITY		6.89 - 7.13 M/SEC	7.03 M/SEC
PENDULUM	10 MS	22.50 - 27.50 G	24.35 G
	20 MS	17.60 - 22.60 G	20.62 G
DECELERATION	30 MS	12.50 - 18.50 G	17.61 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.56 G
DECELERATION-TIME CURVE			
DECAY TIME TO 5 G		34 - 42 MS	36.50 MS
D PLANE	MAX	64 - 78 DEG.	75.01 DEG.
	TIME	57 - 64 MS	60.13 MS
MOMENT ABOUT	MAX	88.2 - 108.5 NM	93.93 NM
	TIME	47 - 58 MS	48.75 MS
ROTATION ANGLE-TIME CURVE			
DECAY TIME TO ZERO		113 - 128 MS	114.75 MS
POSITIVE MOMENT-TIME CURVE			
DECAY TIME TO ZERO		97 - 107 MS	105.13 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. Lavan

TRC , 142C11WF1
572E SN142 NECK FLEXION CAL11
92217
PENXG

FILTER = BLPP 100/ 317/ -40
MIN. MAX VALUES = -2.61 25.32 8.13



PART 572-E HYBRID II NECK FLEXION CALIBRATION

TRC , 142C11NF1
 572E SN142 NECK FLEXION CAL11
 92217
 BETA

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -20.48 171.63, 32.76 60.25

100.00

80.00

60.00

40.00

20.00

0.00

-20.00

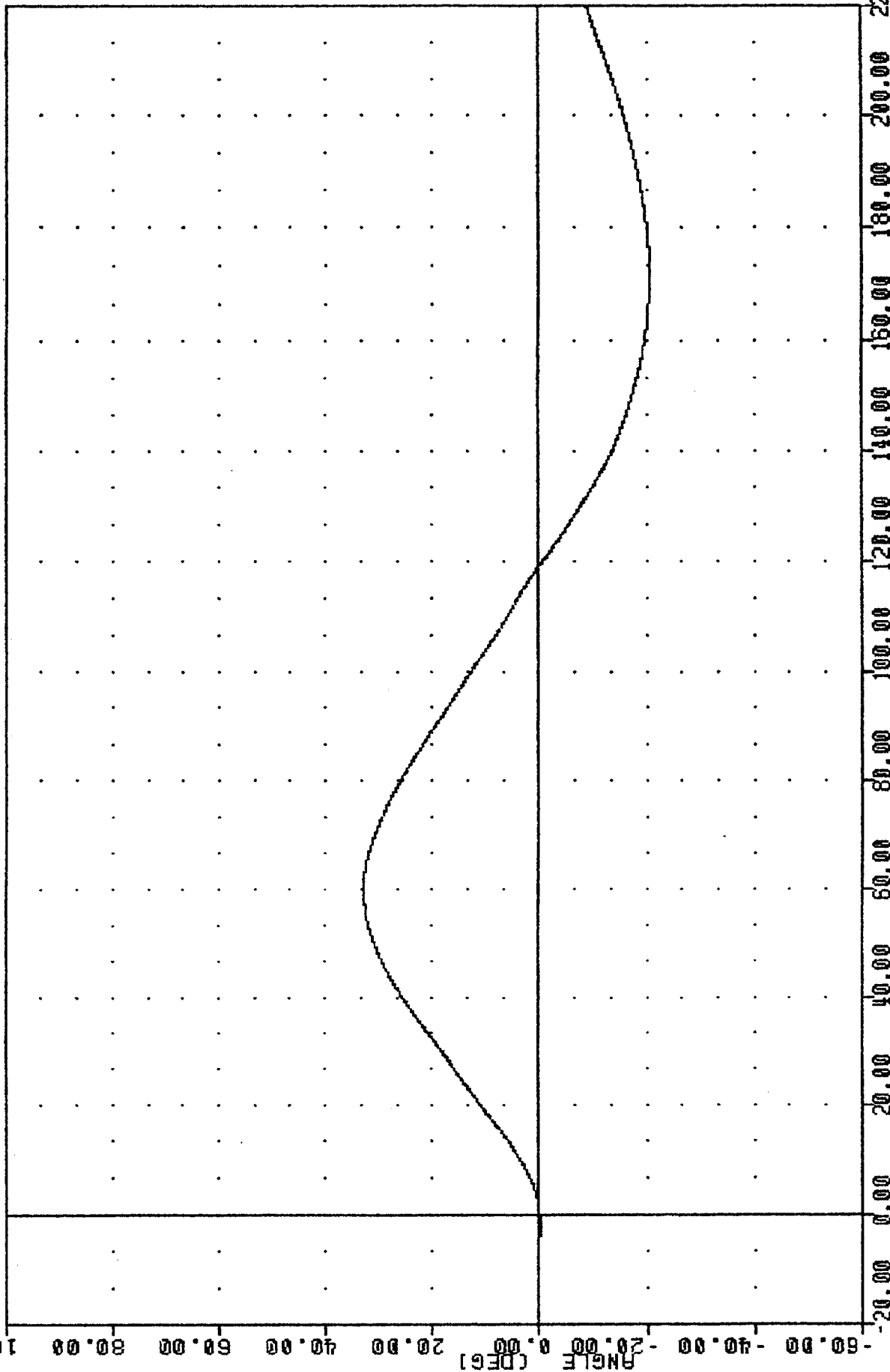
-40.00

-60.00

-80.00

C-11

921110



PART 572-E HYBRID III NECK FLEXION CALIBRATION
 ANNOTATION ABOUT BASE OF NECK

TRC , 142C11NF1
 572E SN142 NECK FLEXION CAL11
 92217
 THETA

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -32.49 174.75, 42.26 60.13

100.00

80.00

60.00

40.00

20.00

0.00

-20.00

-40.00

-60.00

-80.00

-100.00

-120.00

-140.00

-160.00

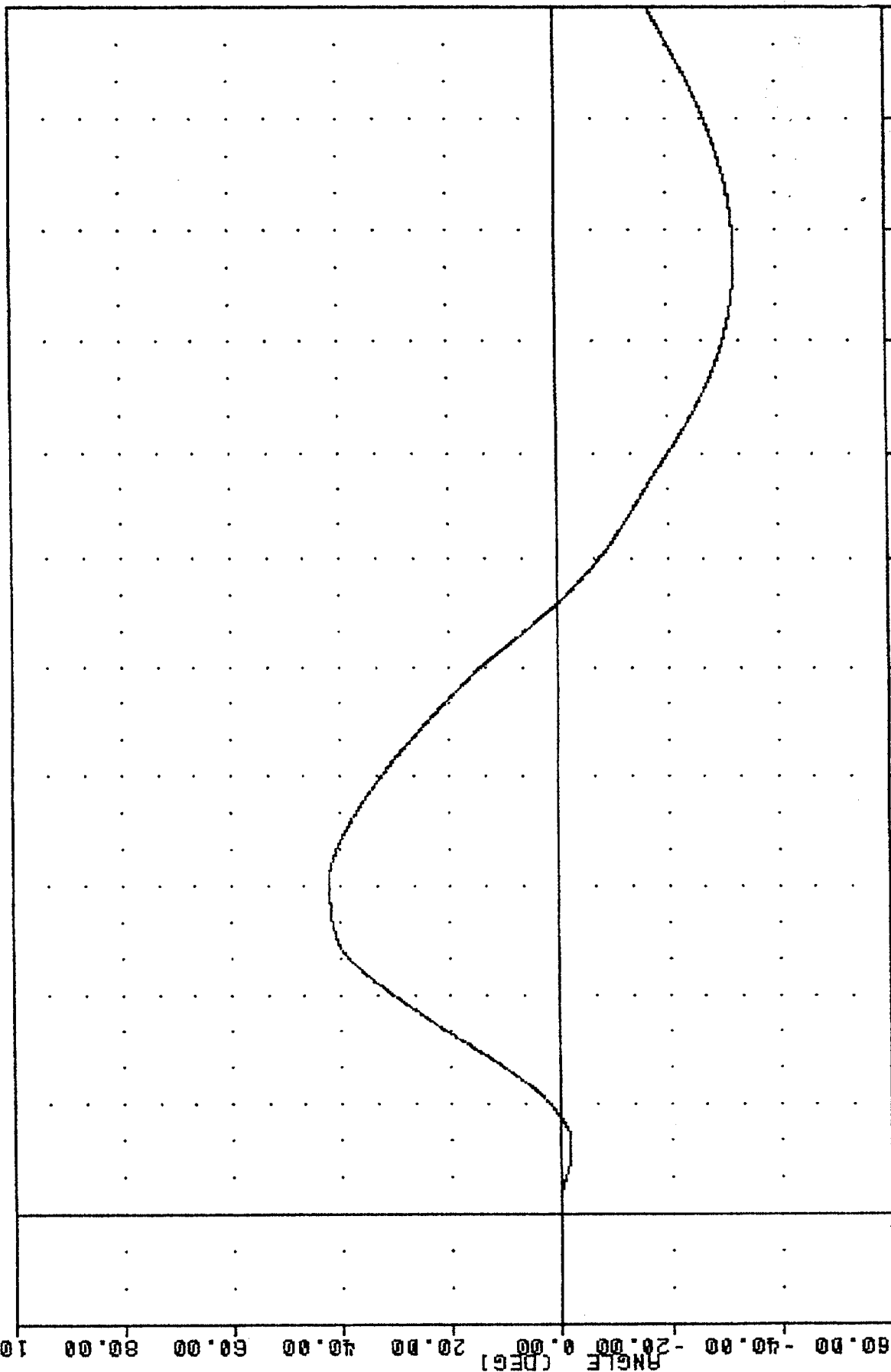
-180.00

-200.00

-220.00

C-12

921110



PART 572-E HYBRID III NECK FLEXION CALIBRATION

TRC , 142C11WF1
 572E SN142 NECK FLEXION CAL11
 92217
 TOTAL

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -52.96 75.02 60.13

100.00

80.00

60.00

40.00

20.00

0.00

-20.00

-40.00

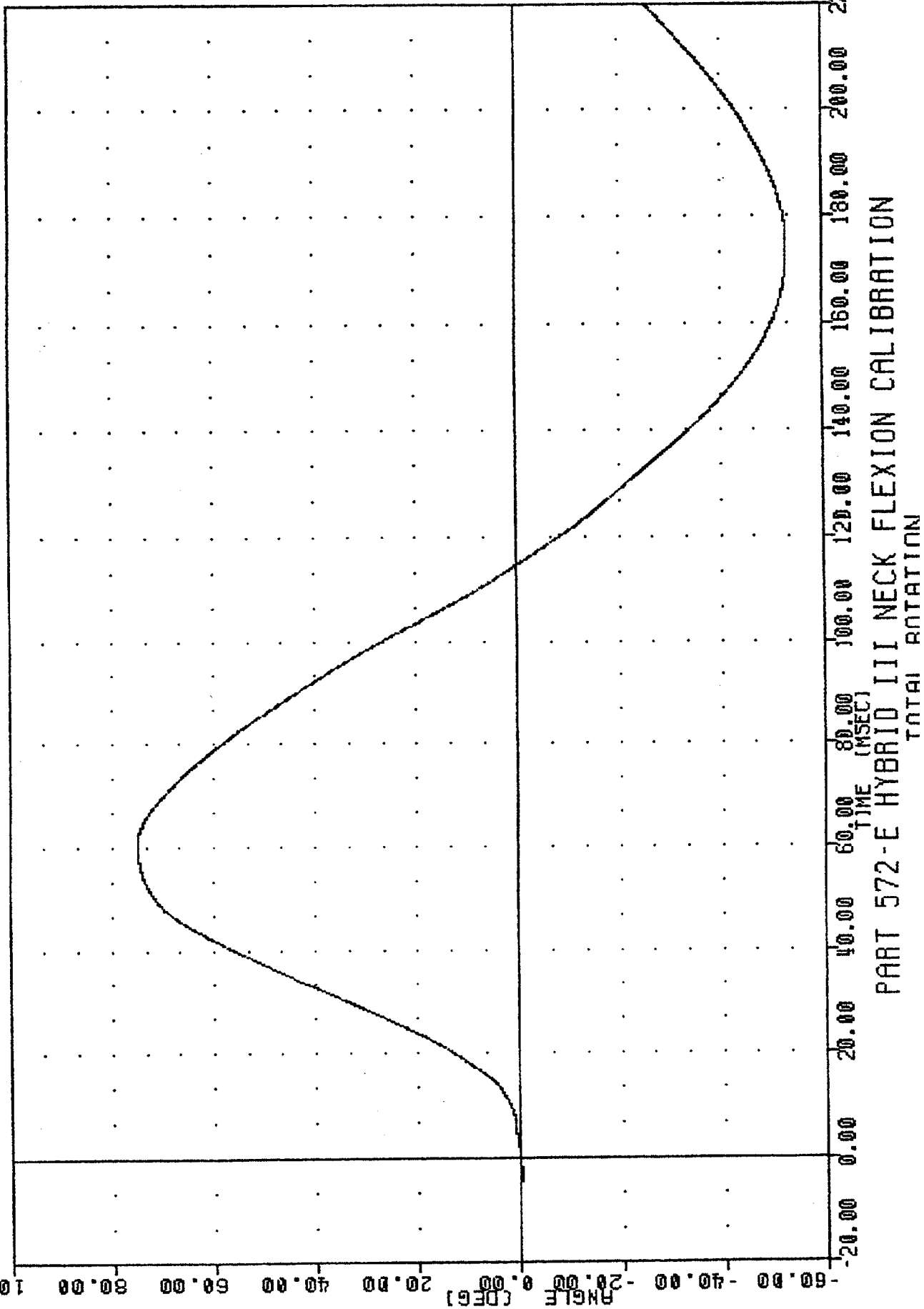
-60.00

-80.00

-100.00

C-13

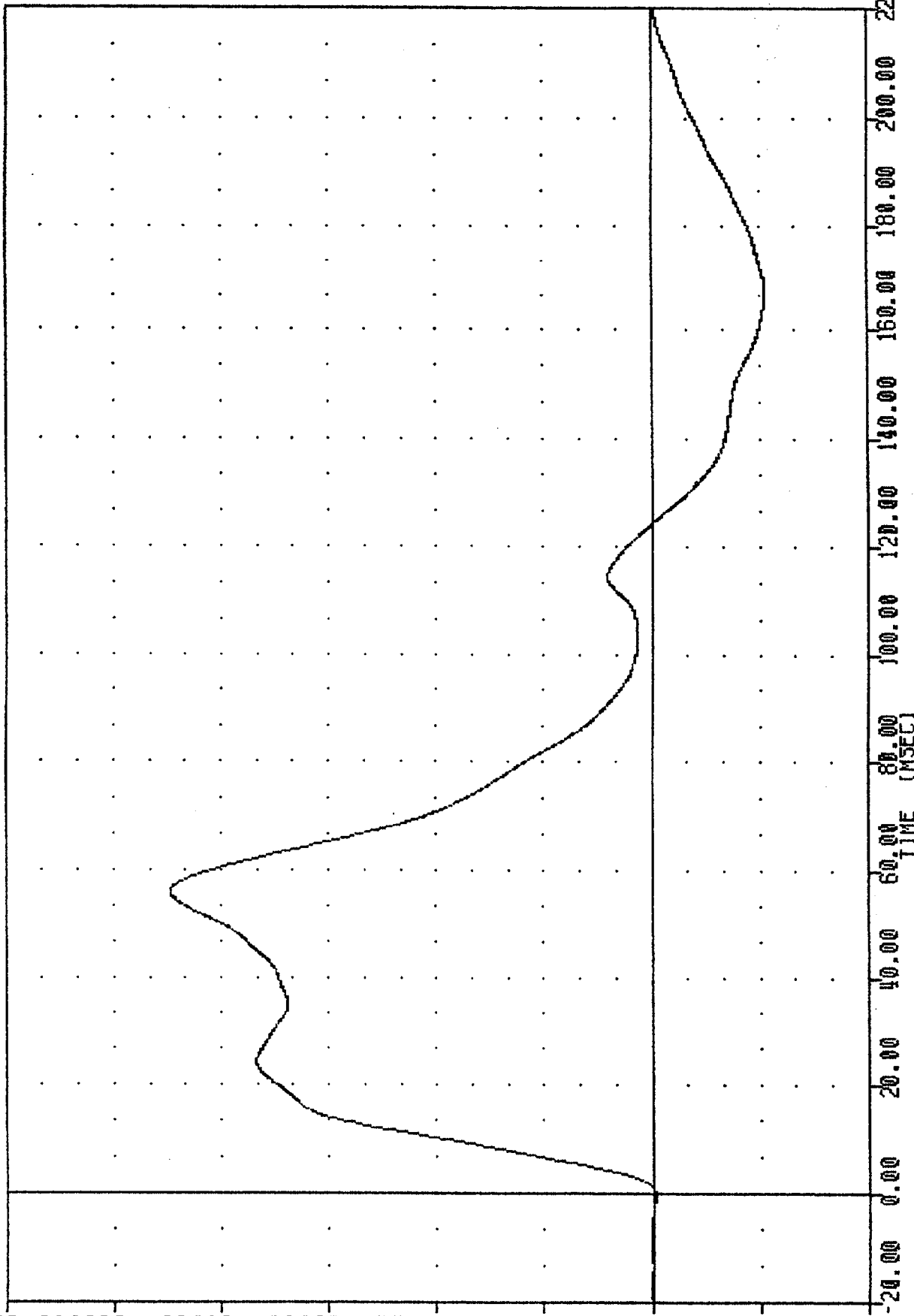
921110



TRC , 142C11NF1
 572E SN142 NECK FLEXION CAL11
 92217
 WEKXF

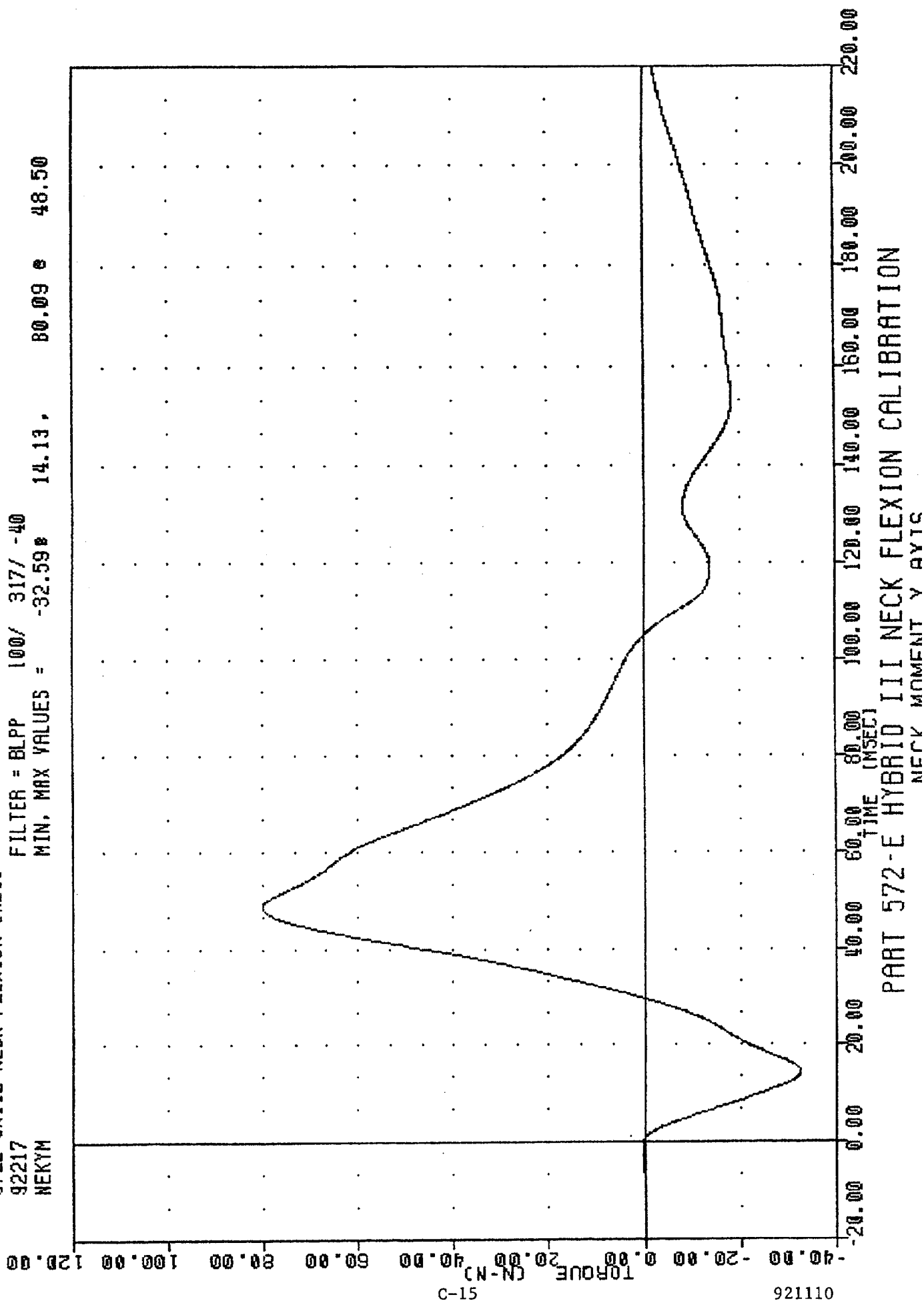
FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -211.69e 167.00 , 893.40 e 55.88

FORCE (N) $\times 10^3$



TRC , 142C11NF1
 572E SN142 NECK FLEXION CAL11
 92217
 NEKYM

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -32.59 14.13, 80.09 48.50

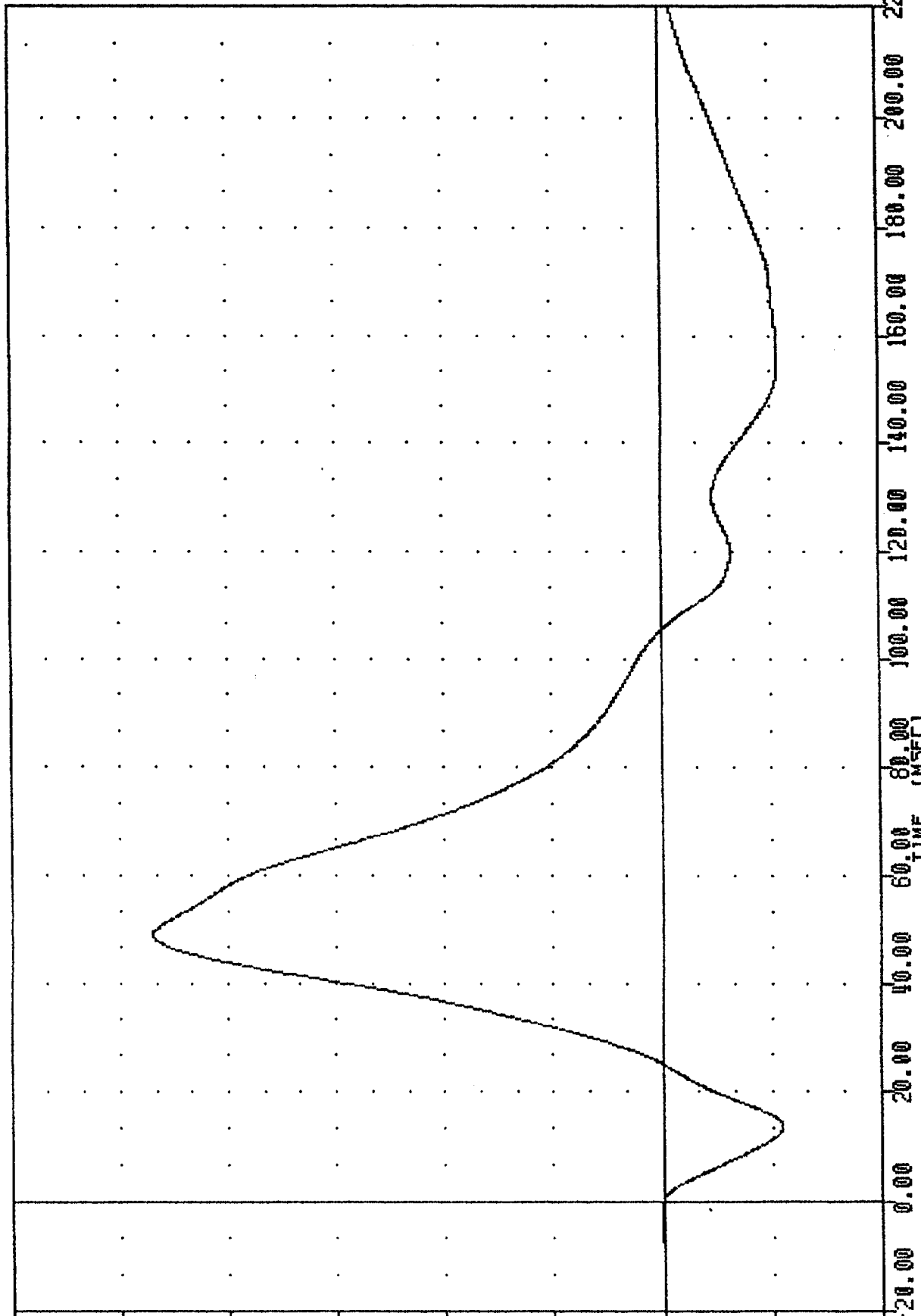


PART 572-E HYBRID III NECK FLEXION CALIBRATION
 NECK MOMENT Y AXIS

TRC , 142C11NF1
 572E SN142 NECK FLEXION CAL11
 92217
 NEKOM

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -21.95 93.93 48.75

TORQUE (N-N)



921110

C-16

PART 572-E HYBRID III NECK FLEXION CALIBRATION

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK EXTENSION TEST

HYBRID III

04-AUG-92

6 AXIS NECK TRANSDUCER
TRC 142C11NE1

572E SN142 NECK EXT. CAL11

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10% - 70%	56.0 %
IMPACT VELOCITY		5.95 - 6.19 M/SEC	6.05 M/SEC
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	19.66 G
	20 MS	14.00 - 19.00 G	17.40 G
	30 MS	11.00 - 16.00 G	13.59 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	13.58 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	38.50 MS
D PLANE	MAX	81 - 106 DEG.	95.10 DEG.
ROTATION	TIME	72 - 82 MS	72.63 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-72.93 NM
	TIME	65 - 79 MS	68.75 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	149.25 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	135.75 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. Lavan

TRC , 142C11NE1
572E SN142 NECK EXT. CAL11
92217
PENXG

FILTER = BLPP 100/ 317/ -40
MIN, MAX VALUES = -2.948 45.50 , 20.54 e 8.25

35.00

30.00

25.00

20.00

15.00

10.00

5.00

0.00

-5.00

-10.00

-15.00

-20.00

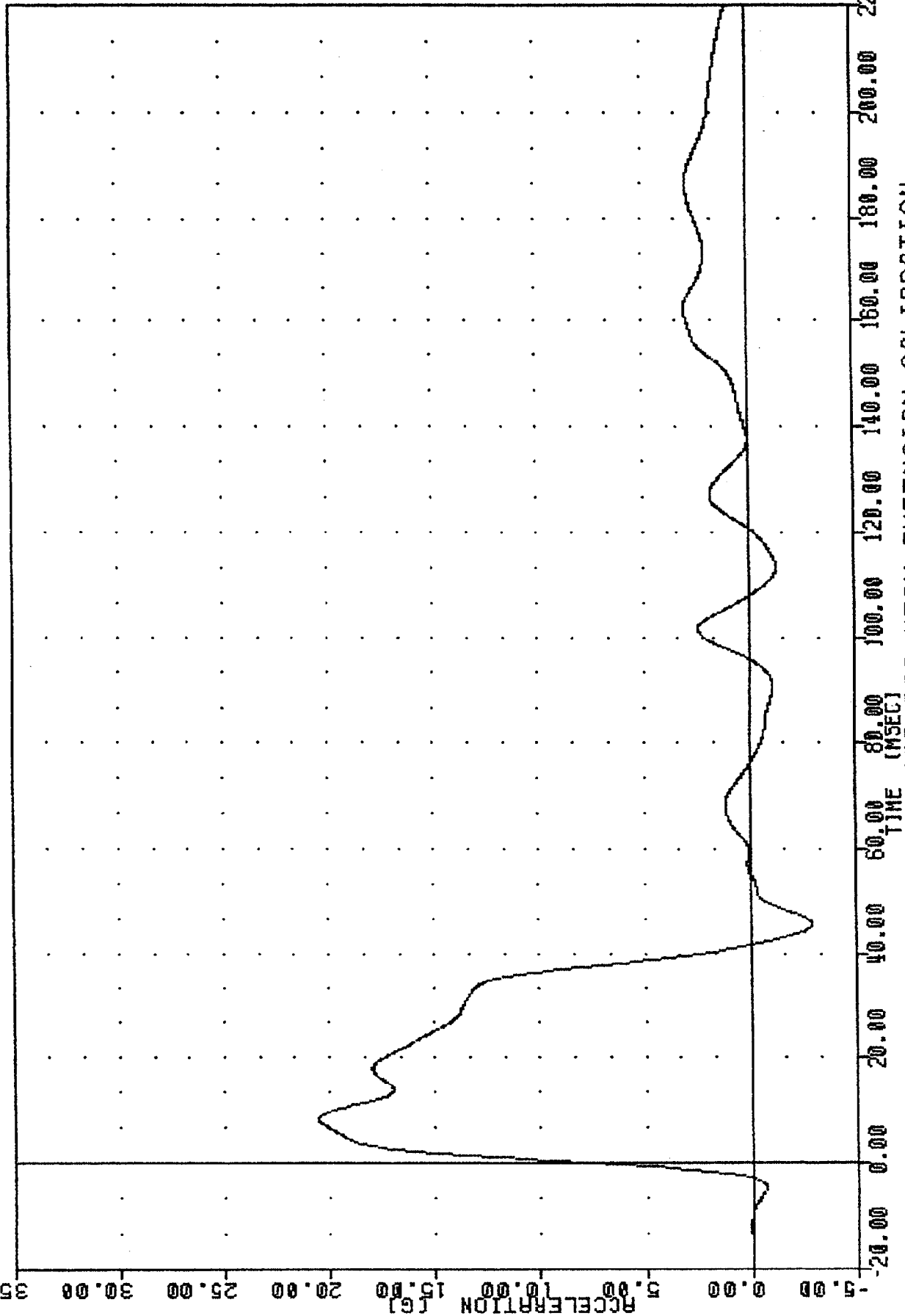
-25.00

-30.00

-35.00

C-18

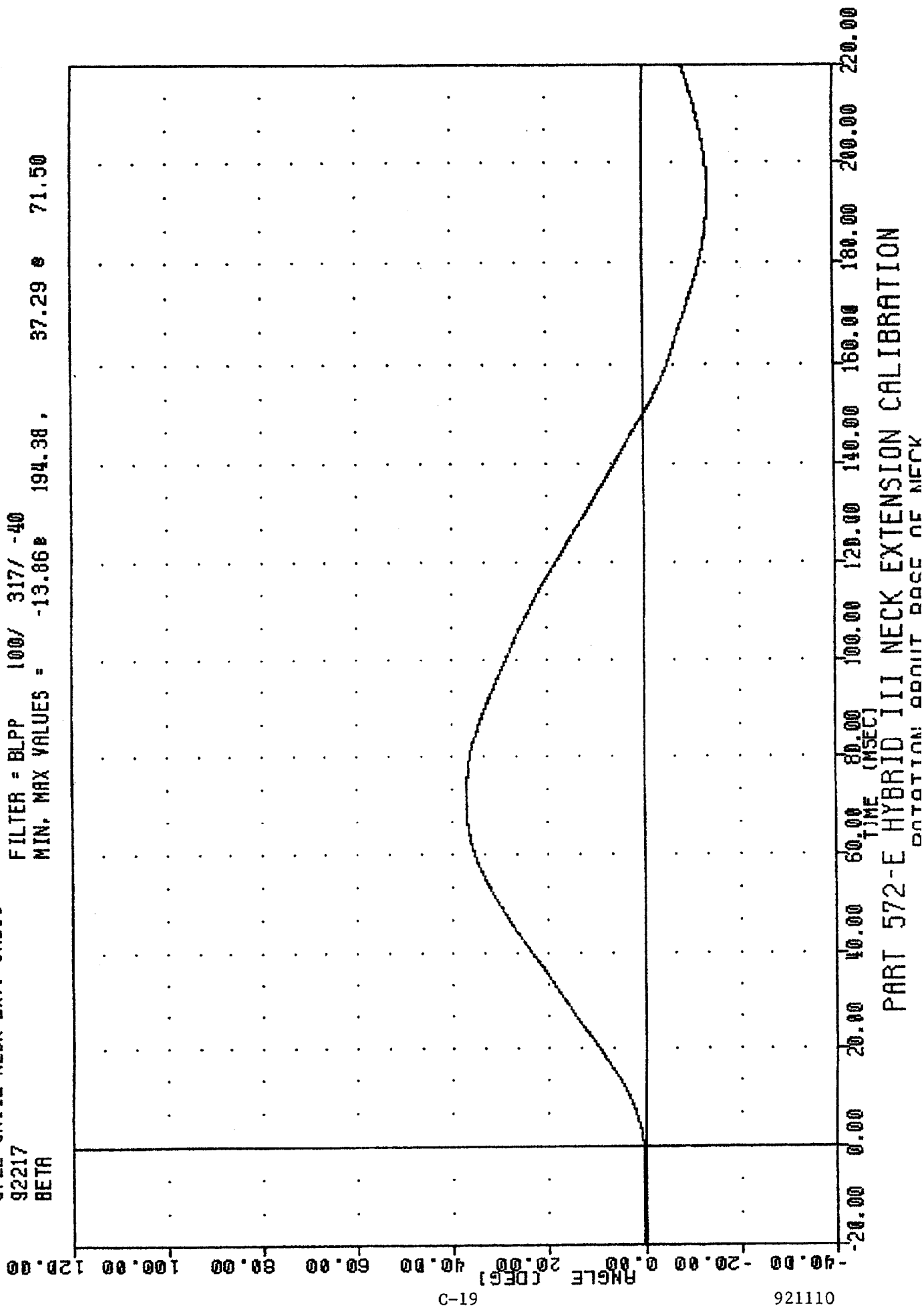
921110



PART 572 E HYPER ID III NECK EXTENSION CALIBRATION

TRC , 142C11NE1
 572E SN142 NECK EXT. CAL11
 92217
 BETA

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -13.86 194.38 , 37.29 71.50



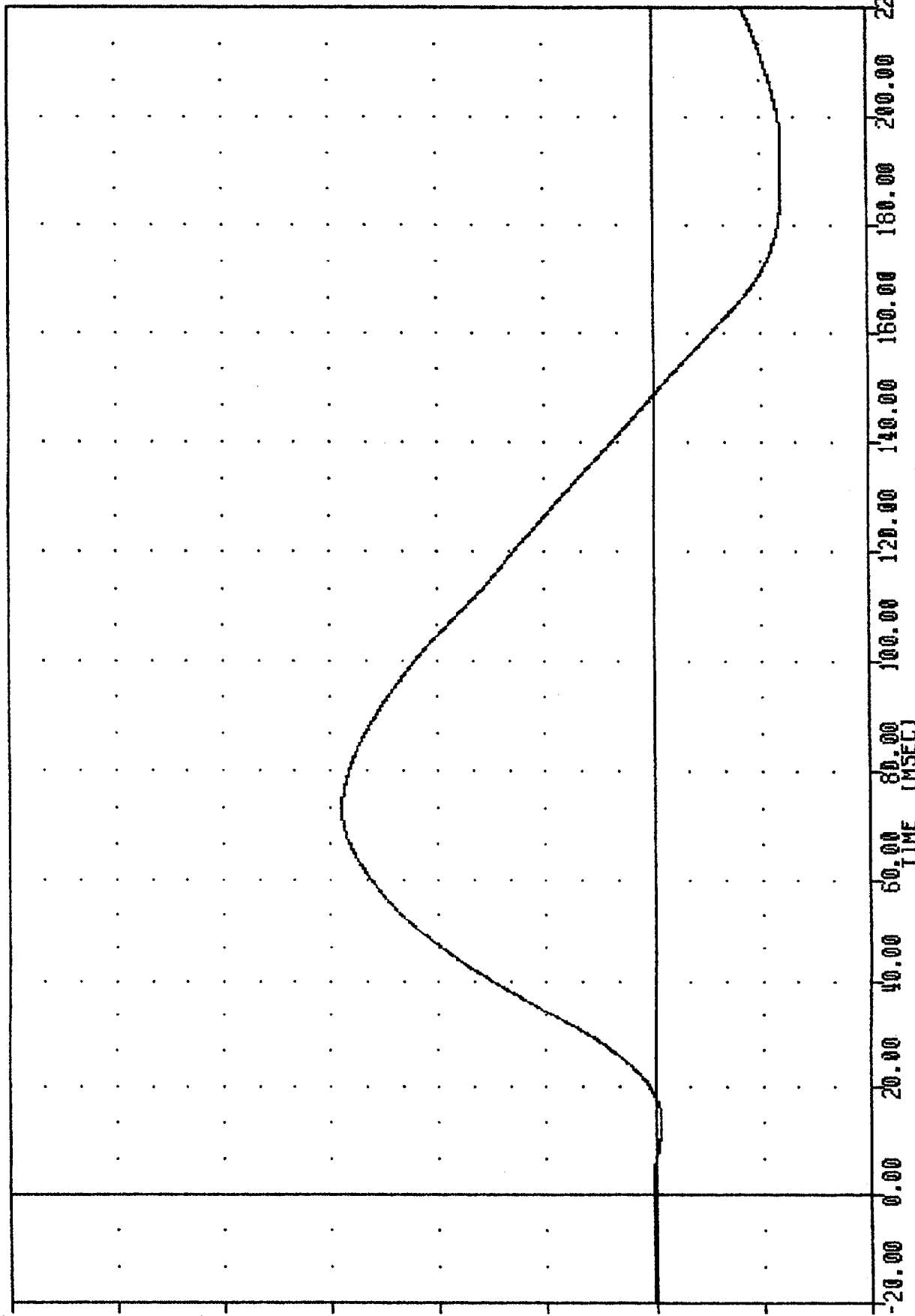
TRC , 142C11NE1
 572E SN142 NECK EXT. CAL11
 92217
 THETA

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -24.09 192.88 , 57.84 e 73.13

ANGLE [DEG] 120.00 100.00 80.00 60.00 40.00 20.00 0.00 -20.00 -40.00

C-20

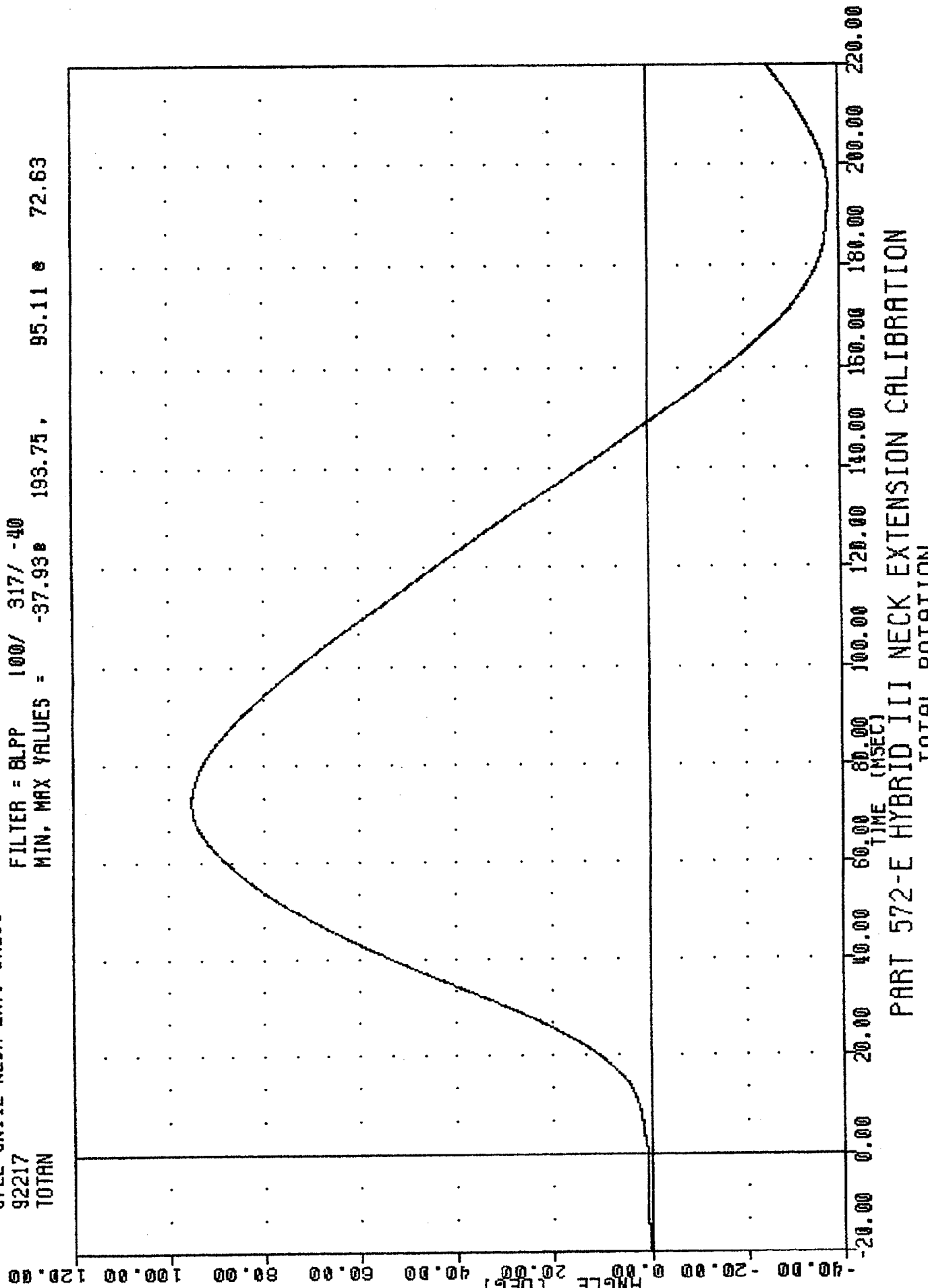
921110



PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TRC , 142C11NE1
 572E SN142 NECK EXT. CAL11
 92217
 TOTAN

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -37.93 193.75, 95.11 72.63



TRC
572E SN142 NECK EXT. CAL11
92217
MEKXF

, 142C11NE1

FILTER = BLPP 100/ 317/ -40
MIN. MAX VALUES = -604.91e 68.25, 262.14 e 186.00

40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-120.00

(X10³)

C-22

FORCE (N)

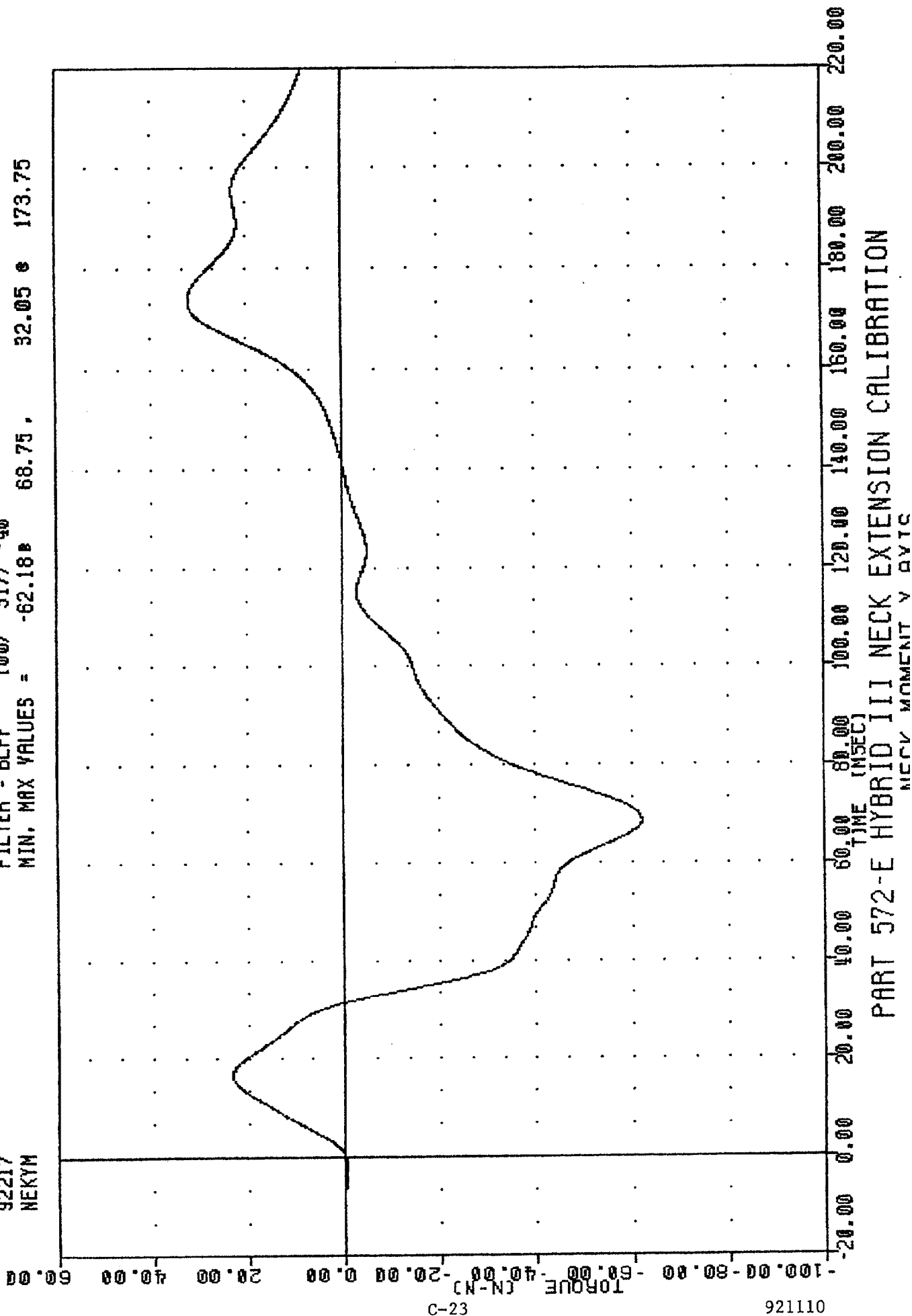


921110

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TRC , 142C11NE1
 572E SN142 NECK EXT. CAL11
 92217
 NEKYM

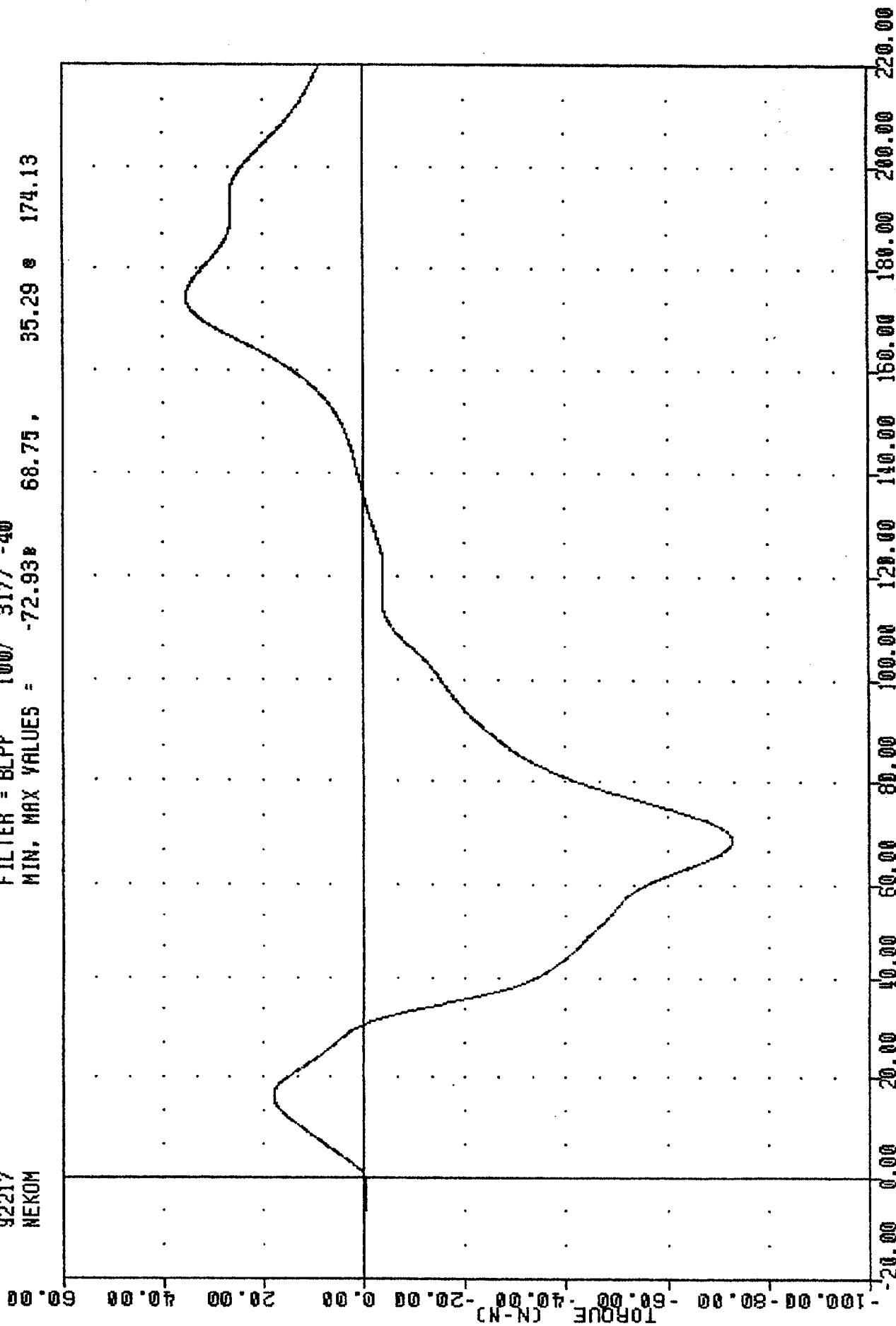
FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -62.18 68.75 , 32.05 173.75



PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 NECK MOMENT V DATA

TRC , 142C11NE1
572E SN142 NECK EXT. CAL11
92217
NEKOM

FILTER = BLPP 100/ 317/ -40
MIN, MAX VALUES = -72.93 68.75 , 35.29 174.13



TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

HYBRID III

04-AUG-92

TRC

142C11TH1

572E SN142 H. S. THORAX CAL11

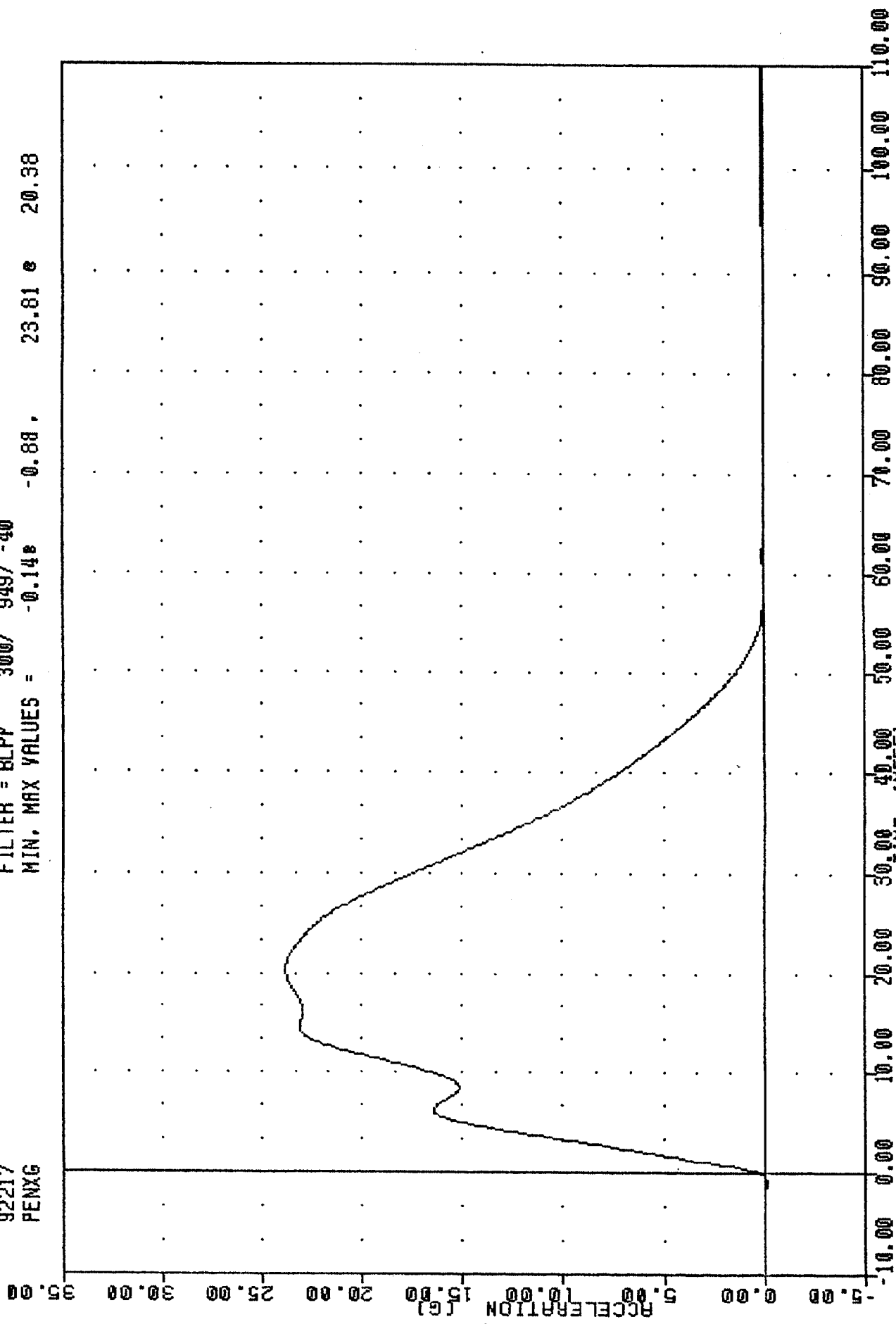
TEST PARAMETER	HIGH SPEED TEST	
	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/SEC	6.68 M/SEC
MAXIMUM DEFLECTION	63.5 - 72.6 MM	69.9 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5454. N
INTERNAL HYSTERESIS	69% - 85%	74.0%

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. LeVan

TRC
 572E SN142 H.S. THORAX CRL11
 92217
 PENXG

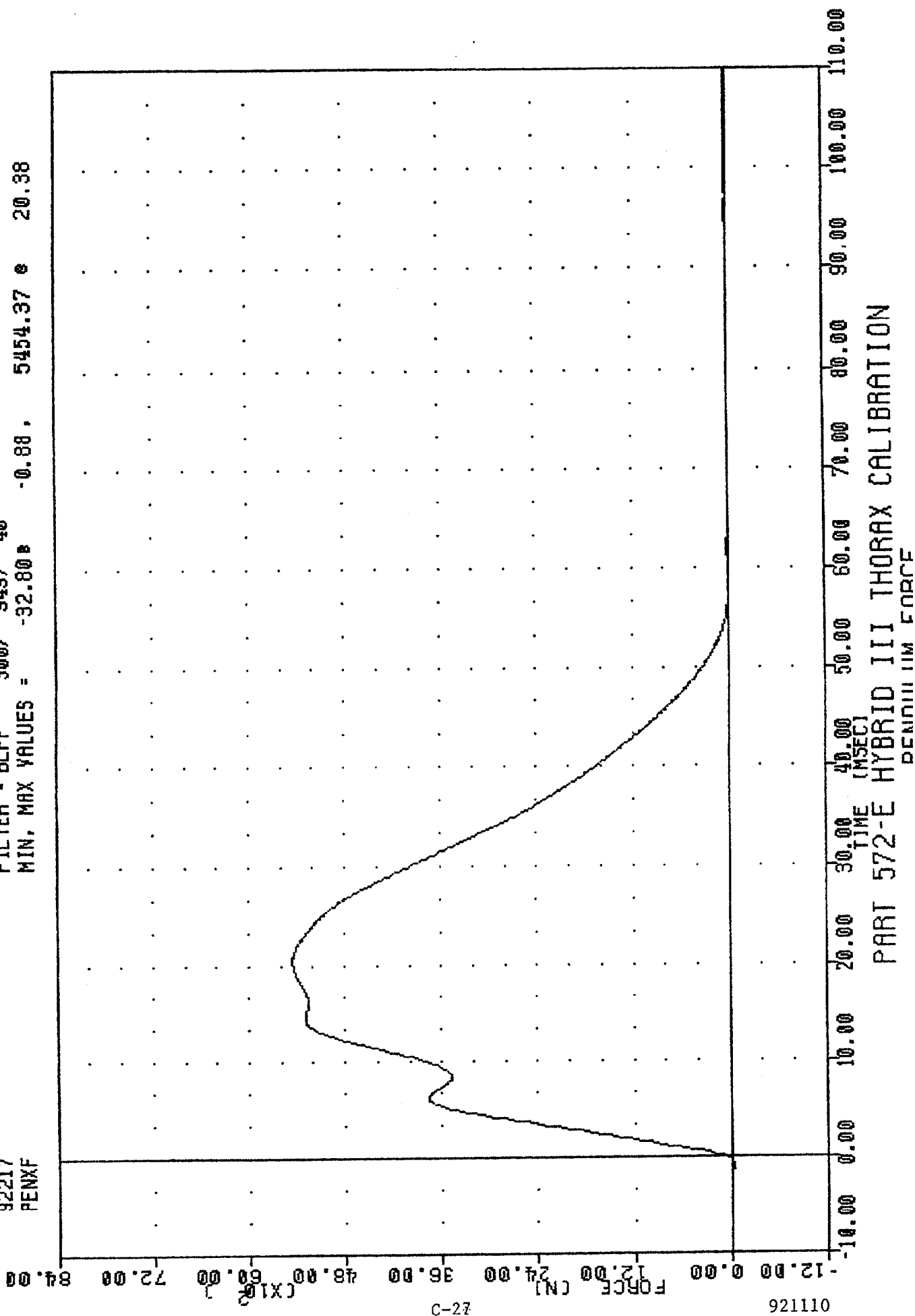
FILTER = BLPP 300/ 949/ -40
 MIN. MAX VALUES = -0.148 23.81 e 20.38



PART 572-E HYBRID III THORAX CALIBRATION

TRC , 142C11TH1
 572E SN142 H.S. THORAX CAL11
 92217
 PENXF

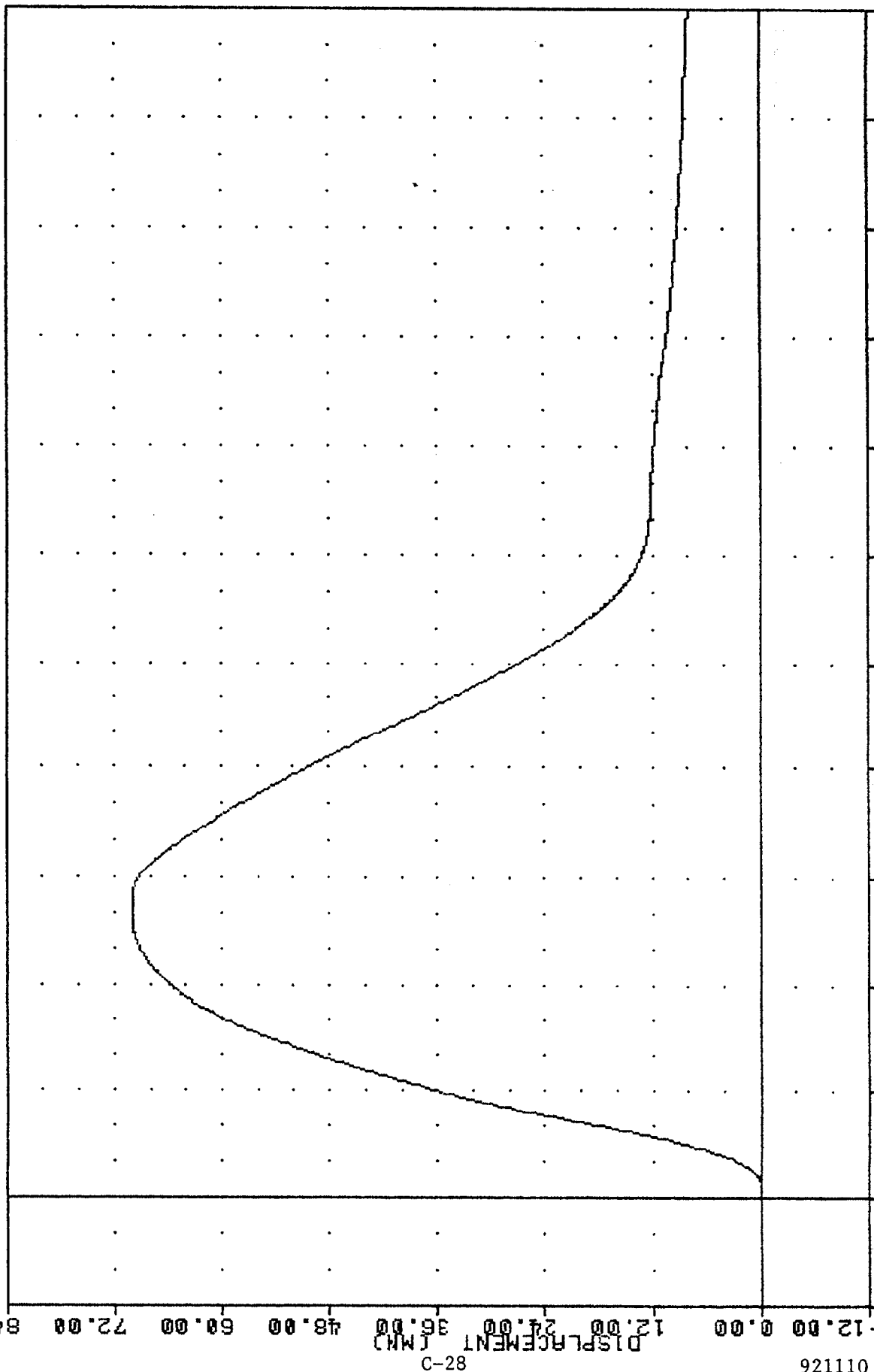
FILTER = BLPP 300/ 949/ -40
 MIN, MAX VALUES = -32.80 5454.37 20.38



TRC , 142C11TH1
572E SN142 H.S.THORAX CRL11
92217
CSTXD

FILTER = BLPP 300/ 949/ -40
MIN, MAX VALUES = -0.08 0.88, 59.90 26.00

84.00



921110

PART 572-E HYBRID III THORAX CALIBRATION

TRC
CSTXD
PENXF

,142C11TH1
FILTER = BLPP
FILTER = BLPP

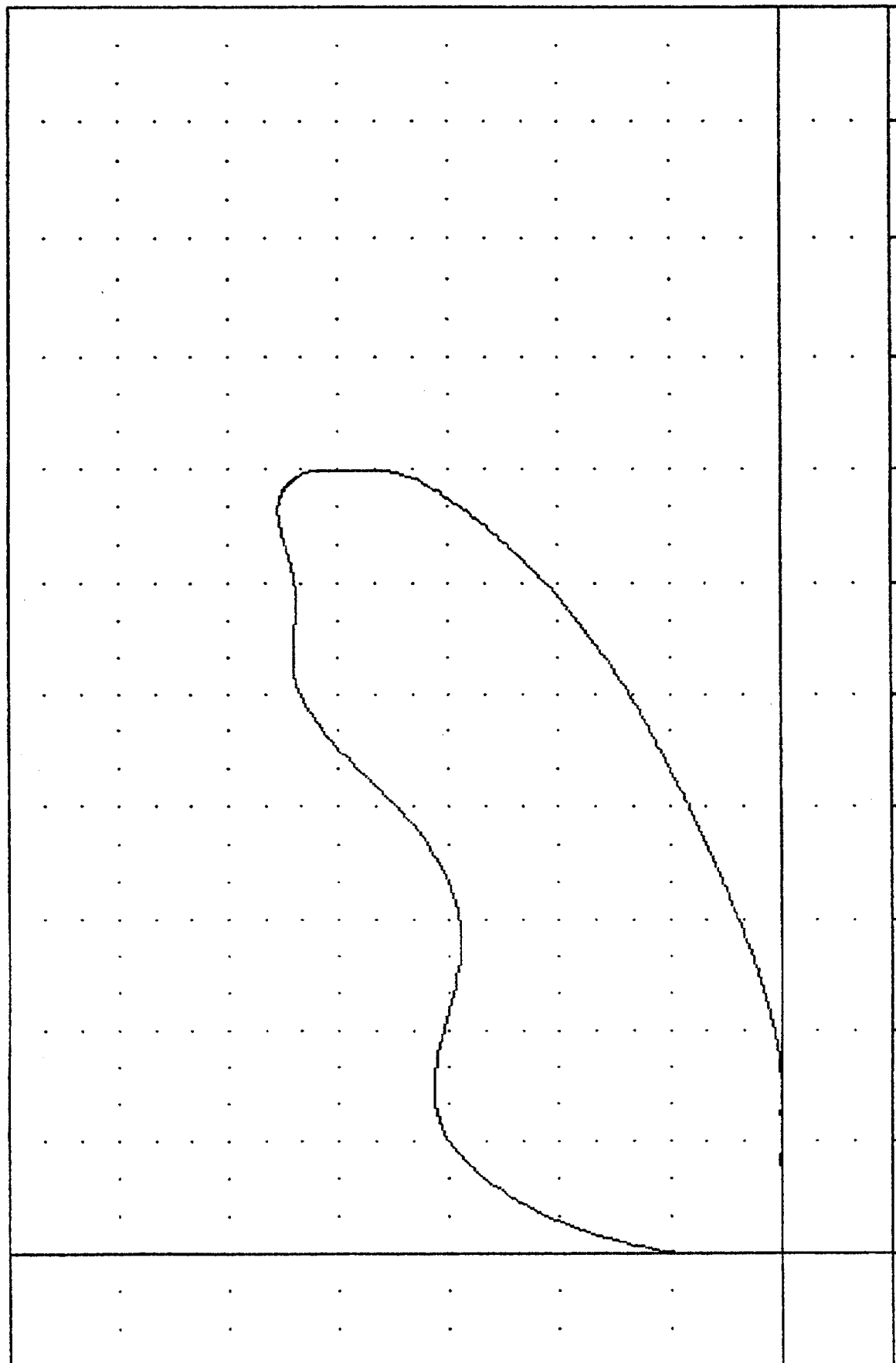
572E SN142 H.S. THORAX CAL11
300/ 949/ -40 MIN. MAX =
500/ 949/ -40 MIN. MAX =

92217
-0.08
-32.80

0.88
-0.88
69.90
5454.37

26.00
20.38

84.00
72.00
60.00
48.00
36.00
24.00
12.00
0.00
-12.00
PENXF
FORCE (N)
1X10³



-10.00 0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00
CSTXD DISPLACEMENT (MM)

PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENNIIUM FORCE

921110

C-29

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

HYBRID III

29-JUL-92

RIGHT KNEE

TRC

142C11RK1

572E SN142 RIGHT KNEE CAL 11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PROBE VELOCITY	2.07 - 2.13 M/SEC	2.07 M/SEC
PEAK KNEE IMPACT FORCE	4714-5783 N	5447.4 N
PROBE WEIGHT	5.0 KG	

TEST MEETS SPECIFICATIONS

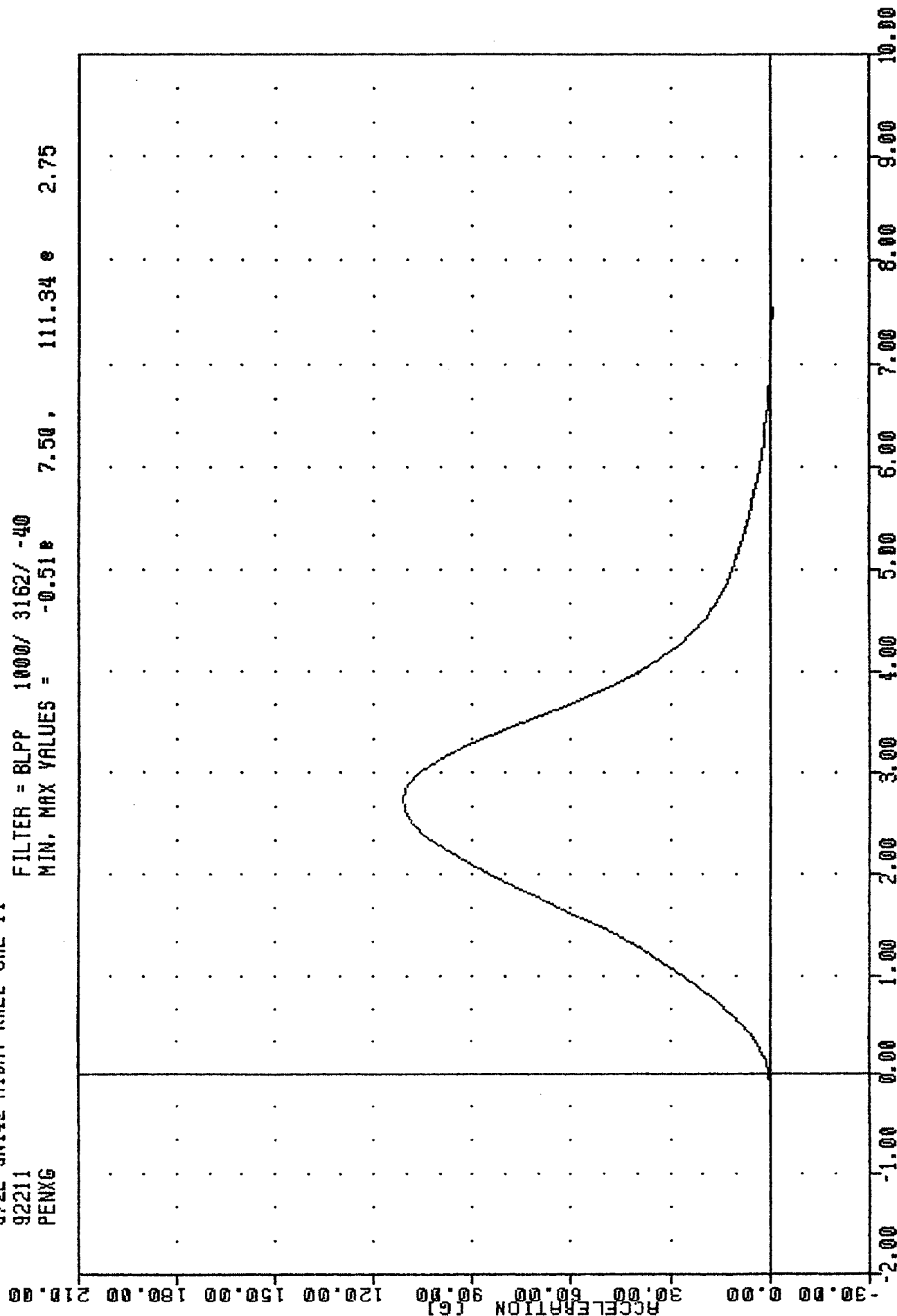
TECHNICIAN

R. E. LeVan

TRC , 142C11RK1
 572E SN142 RIGHT KNEE CAL 11
 92211
 PENXG

FILTER = BLPP 1000/ 3162/ -40
 MIN. MAX VALUES = -0.51e

7.50 . 111.34 e 2.75

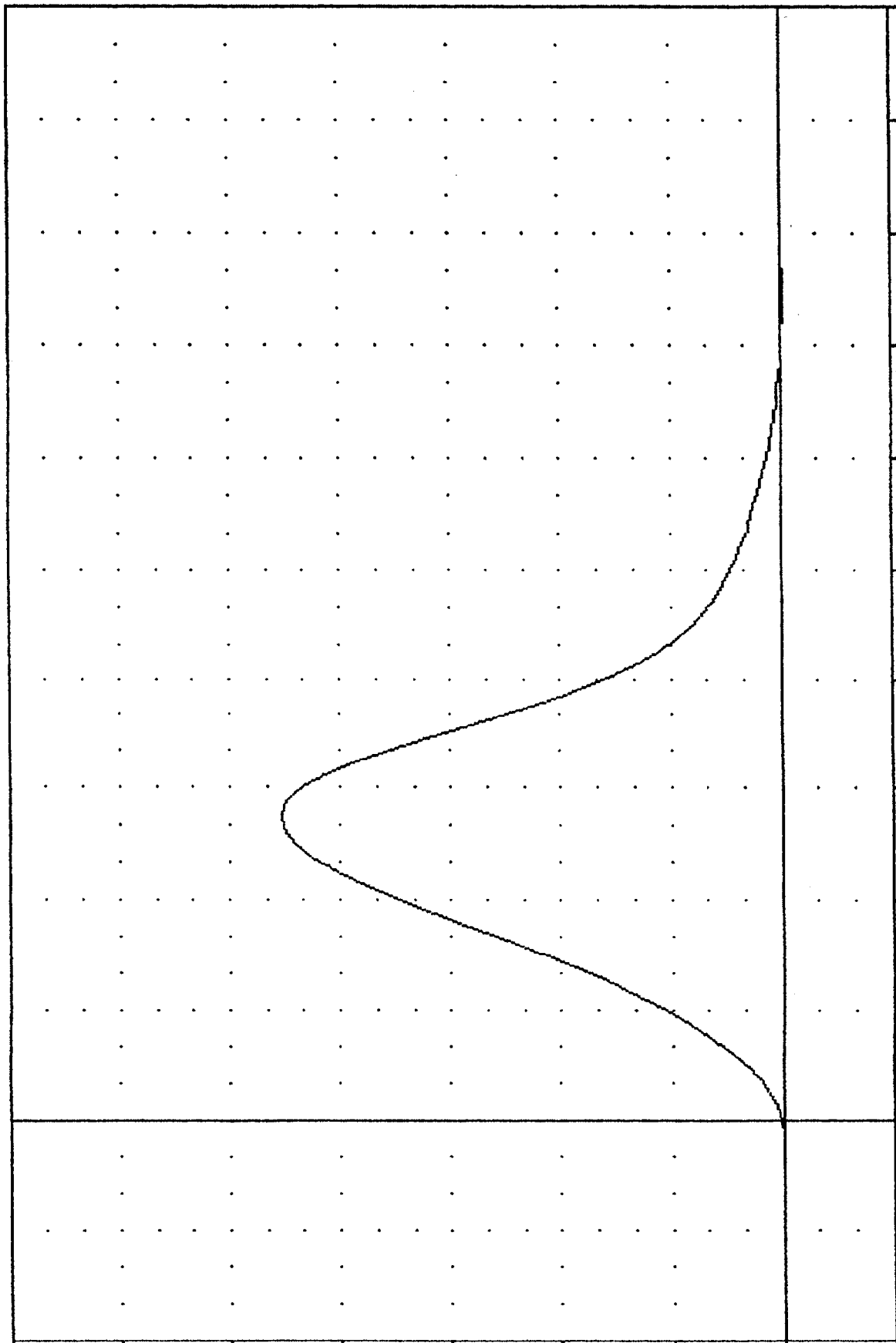


PART 572-E HYBRID III RIGHT KNEE CALIBRATION
 PENNIIIM DEFFI FRATION 15 KG PENN 1

TRC
572E SN142 RIGHT KNEE CAL 11
92211
PENXF

FILTER = BLPP 1000/ 3162/ -40
MIN. MAX VALUES = -24.98 7.50, 5447.41 2.75

84.00
72.00
60.00
48.00
36.00
24.00
12.00
0.00
-12.00



TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

HYBRID III

29-JUL-92

LEFT KNEE

TRC

142C11LK1

572E SN142 LEFT KNEE CAL 11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PROBE VELOCITY	2.07 - 2.13 M/SEC	2.07 M/SEC
PEAK KNEE IMPACT FORCE	4714-5783 N	5016.3 N
PROBE WEIGHT	5.0 KG	

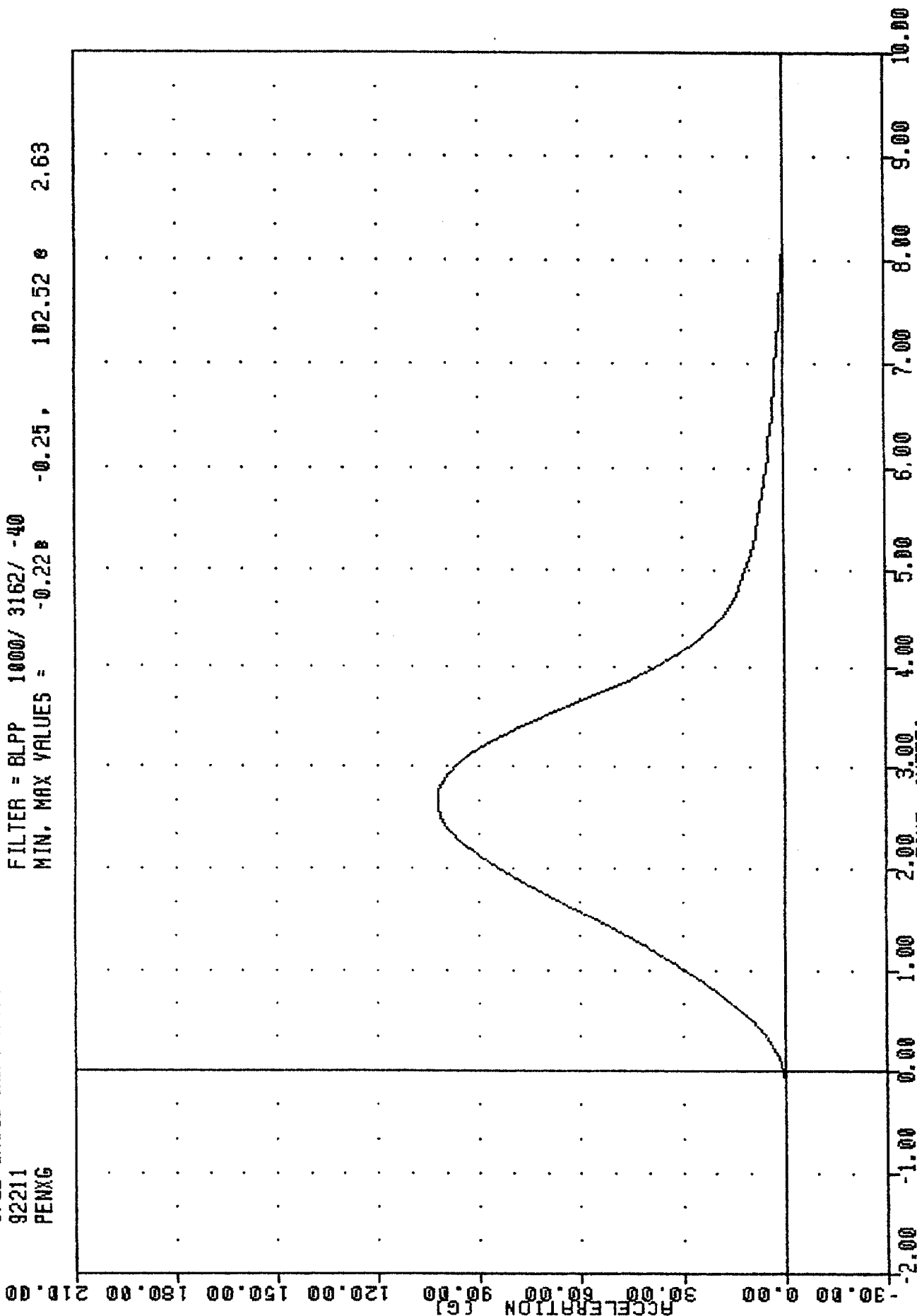
TEST MEETS SPECIFICATIONS

TECHNICIAN

R. E. LeVan

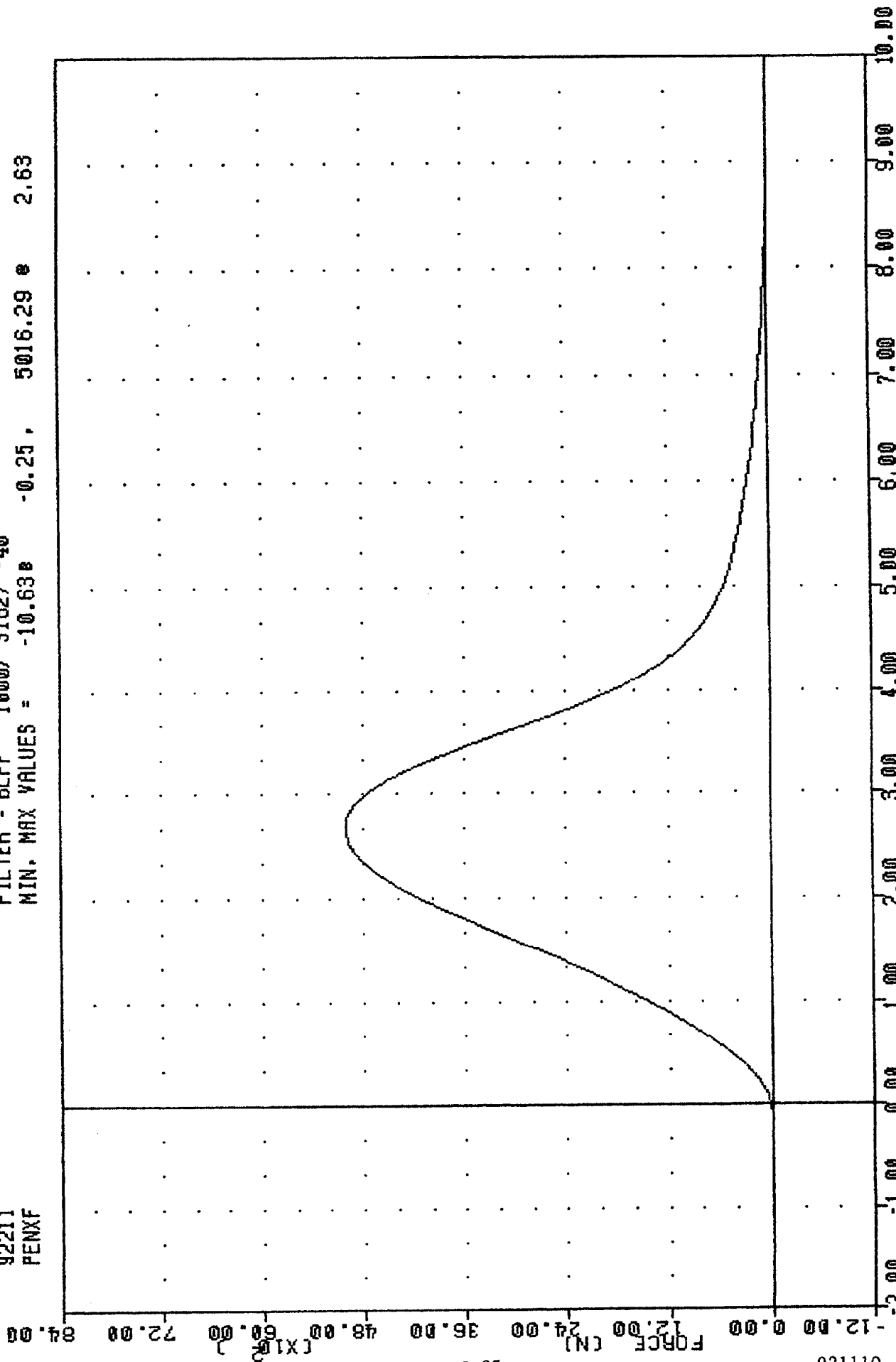
TRC
572E SN142 LEFT KNEE CAL 11
92211
PENXG

FILTER = BLPP 1000/ 3162/ -40
MIN. MAX VALUES = -0.22 102.52 e 2.63



TRC , 142C11LK1
 572E SN142 LEFT KNEE CAL 11
 92211
 PENXF

FILTER = BLPP 1000/ 3162/ -40
 MIN. MAX VALUES = -10.63 5016.29 2.63



C-35

921110

PART 572-E HYBRID III LEFT KNEE CALIBRATION
 DENNIN IIM FORCE 15 KC PENN 1

PRE-TEST CERTIFICATION DATA

PASSENGER DUMMY S/N: 192

TRANSPORTATION RESEARCH CENTER OF OHIO
HYBRID III EXTERNAL DIMENSIONS
192 HUMANOID

29-JUL-92

TRC 192C9ED1 572E SN192 EXT. DIMENSION CAL09

TEST PARAMETER	(DIMEN.)	SPECIFICATION	TEST RESULTS
TEMPERATURE			21.1 DEG. C
RELATIVE HUMIDITY			56.0 %
LOCATION FOR CHEST CIRCUMFERENCE (AA)		429- 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE (BB)		226- 231 MM	229. MM
CHEST CIRCUMFERENCE (Y)		970-1001 MM	983. MM
WAIST CIRCUMFERENCE (Z)		836- 866 MM	848. MM
CHEST DEPTH (D)		213- 229 MM	218. MM
H-POINT HEIGHT (C)		84- 89 MM	86. MM
H-POINT FROM SEATBACK (D)		135- 140 MM	137. MM
SKULL CAP TO BACKLINE (H)		41- 46 MM	43. MM
TOTAL SITTING HEIGHT (A)		879- 889 MM	884. MM
THIGH CLEARANCE (F)		140- 155 MM	147. MM
BUTTOCK KNEE LENGTH (K)		579- 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH (N)		452- 478 MM	472. MM
POPLITEAL HEIGHT (L)		429- 455 MM	450. MM
KNEE PIVOT HEIGHT (M)		485- 500 MM	493. MM
FOOT LENGTH (P)		252- 267 MM	259. MM
FOOT BREADTH (W)		91- 107 MM	102. MM
SHOULDER PIVOT FROM BACKLINE (E)		84- 94 MM	91. MM
SHOULDER BREADTH (V)		422- 437 MM	427. MM
SHOULDER PIVOT HEIGHT (B)		506- 521 MM	513. MM
ELBOW REST HEIGHT (J)		191- 211 MM	206. MM
SHOULDER-ELBOW LENGTH (I)		330- 345 MM	340. MM
BACK OF ELBOW TO WRIST PIVOT (G)		290- 305 MM	295. MM

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. LeVan

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

HYBRID III

29-JUL-92

TRC

192C9HD1

572E SN192 HEAD DROP CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	261.49 G
PEAK LATERAL ACCELERATION	15 G MAX	-6.30 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

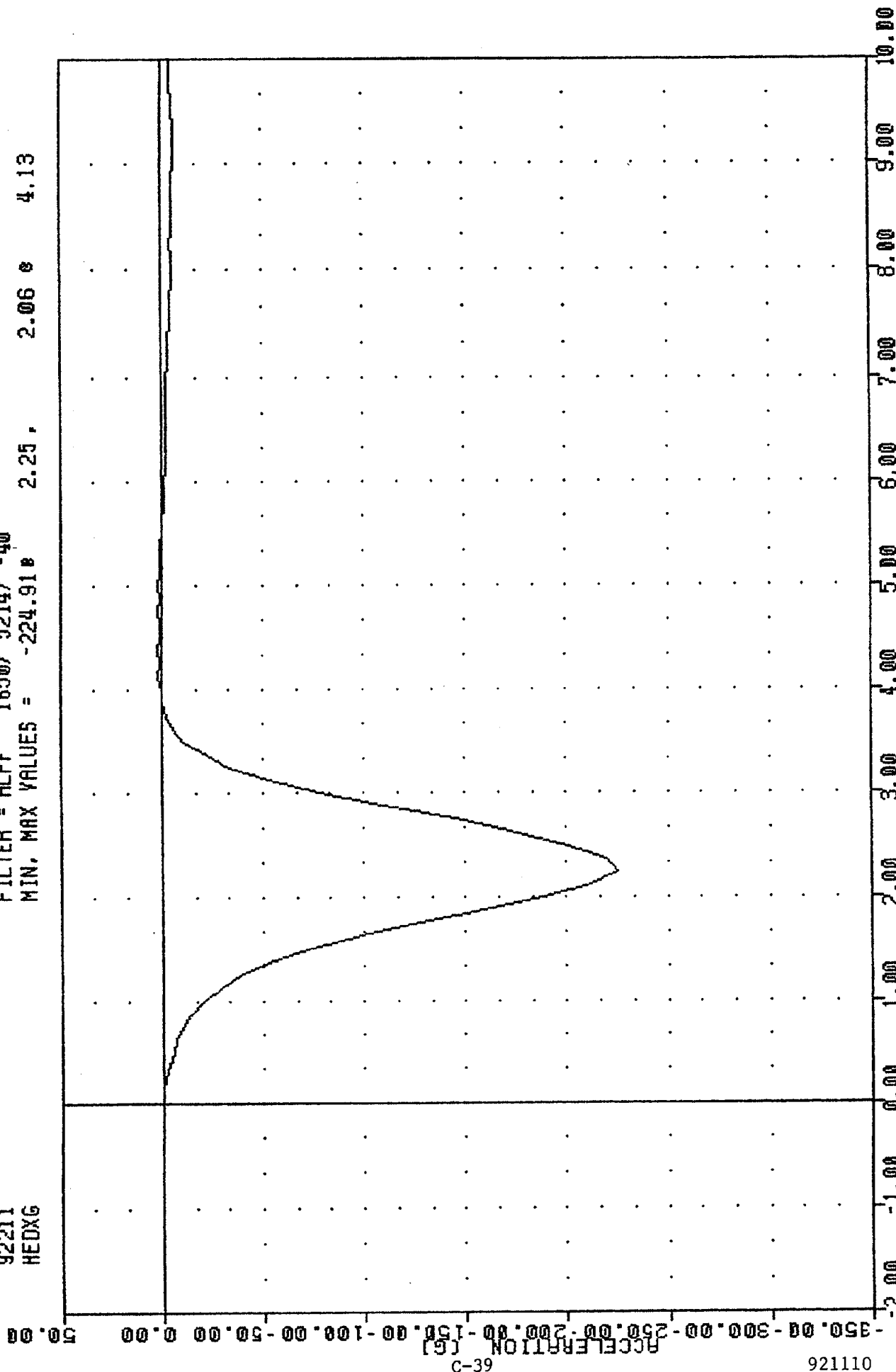
TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. Le Van

TRC
572E SN192 HEAD DROP CAL 09
92211
HEDXG

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -224.91 2.25,

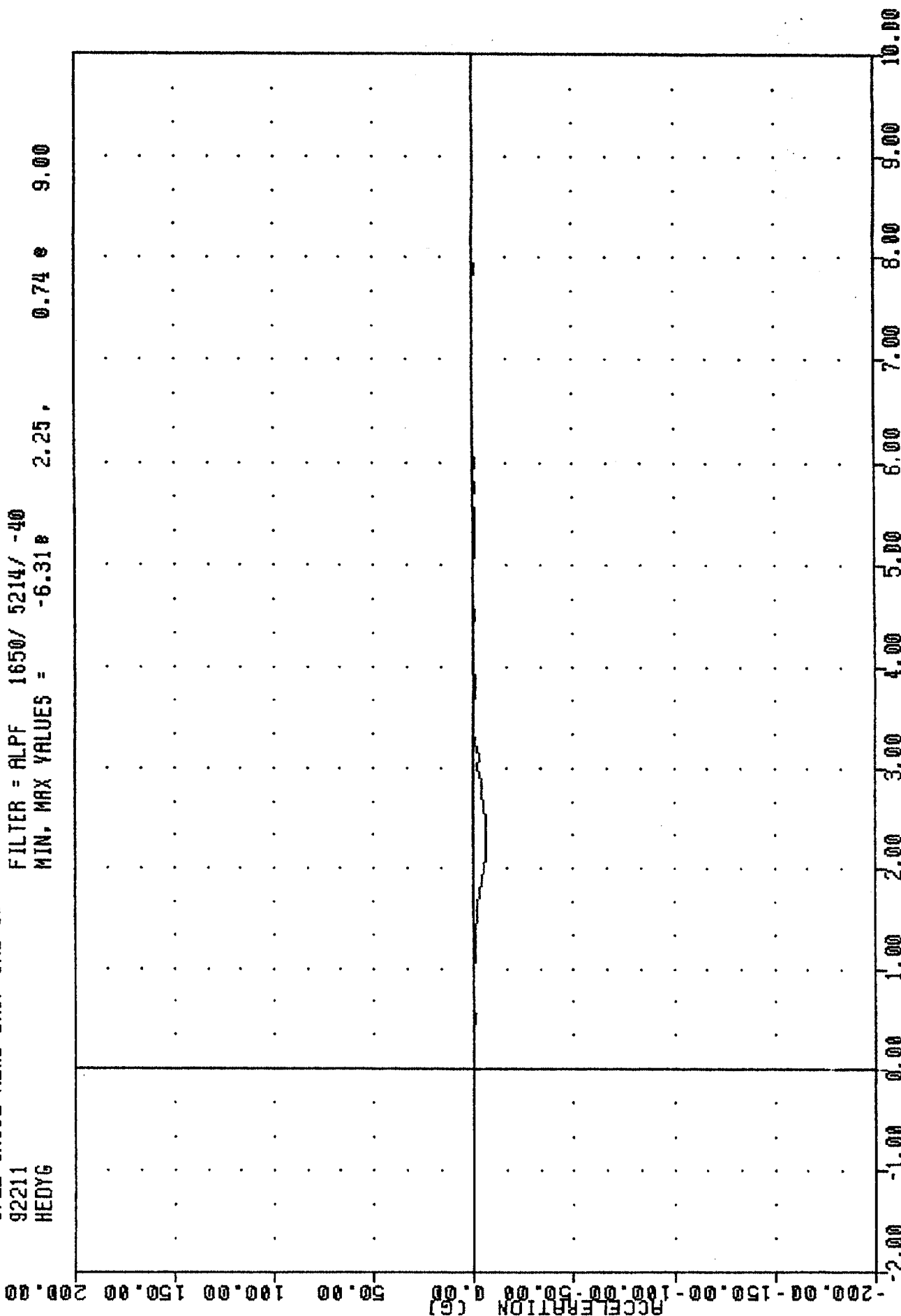
2.06 4.13



PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Y AXIS

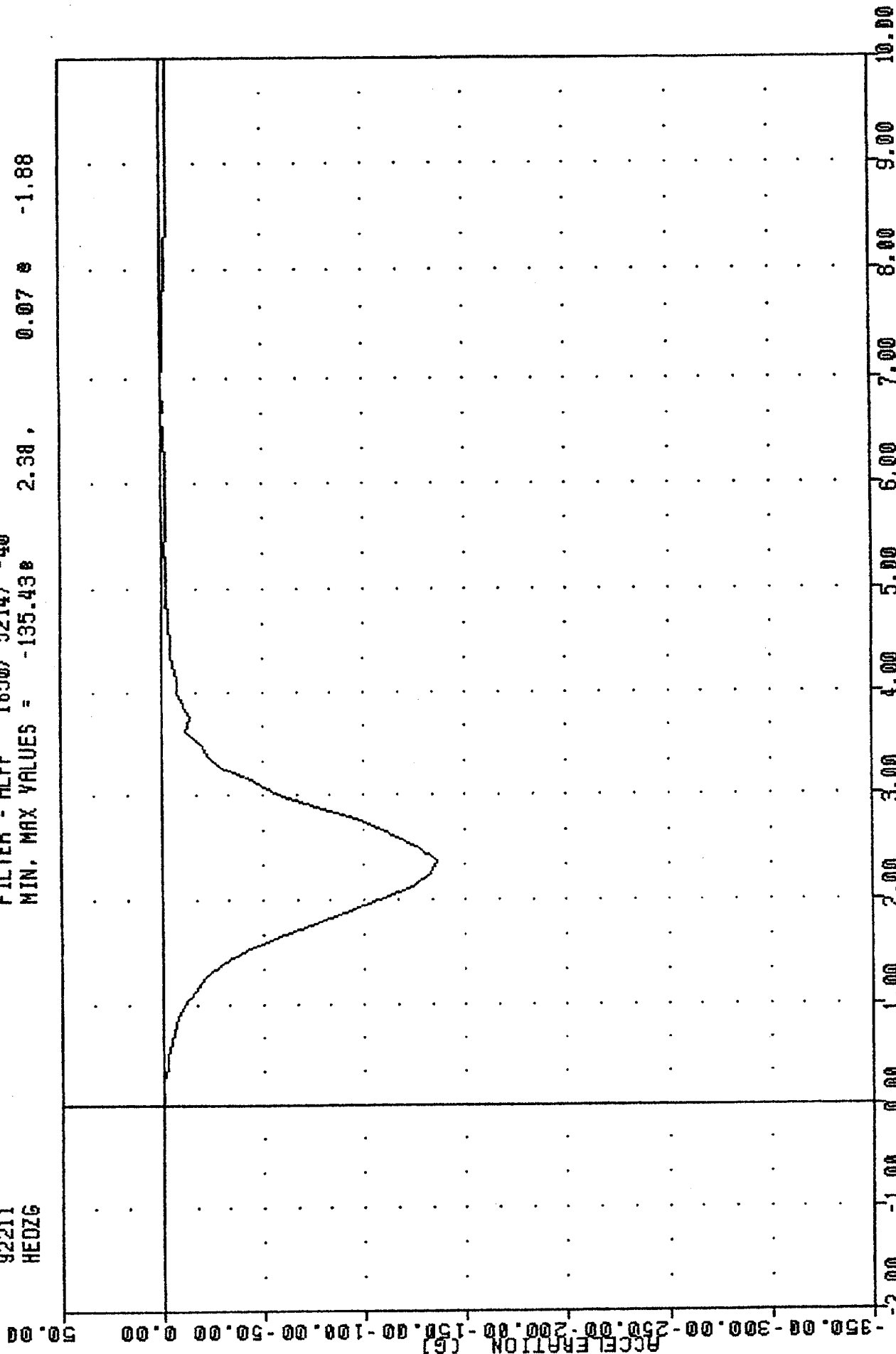
TRC , 192C9H01
 572E SN192 HERD DROP CAL 09
 92211
 HEDYG

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -6.31e 2.25, 0.74 e 9.00



TRC
572E SN182 HEAD DROP CAL 09
92211
HEADZG

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -135.430 2.38, 0.070 -1.88

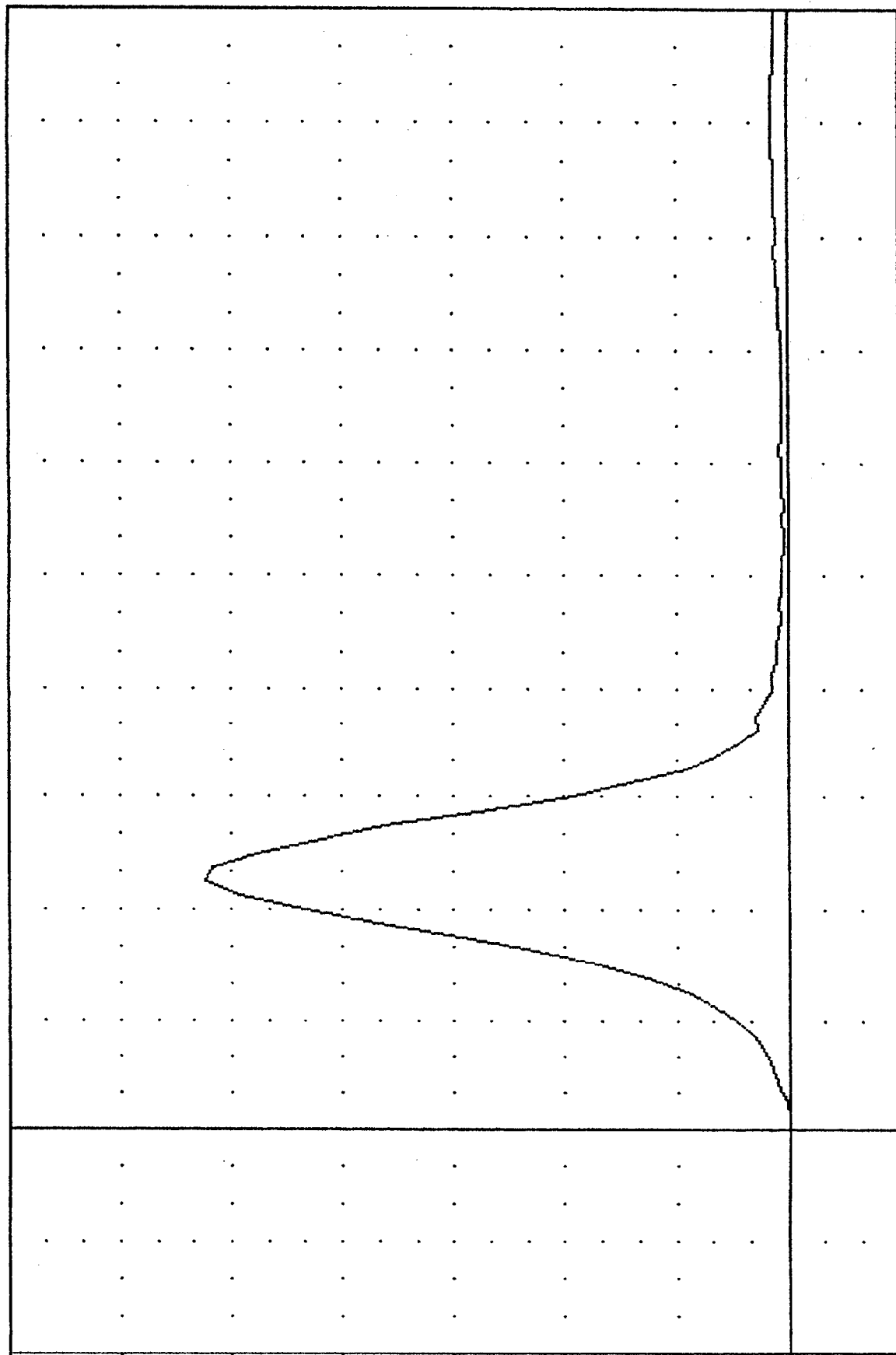


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION 7 AXIS

TRC , 192C9HD1
 572E SN192 HEAD DRDP CAL 08
 92211
 HEDRG

FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = 0.028 -2.00, 261.50 e 2.25

ACCELERATION (G)
 -50.00 0.00 50.00 100.00 150.00 200.00 250.00 300.00 350.00



PART 572-E HYBRID IIL HEAD CALIBRATION

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK FLEXION TEST

HYBRID III

05-AUG-92

6 AXIS NECK TRANSDUCER
TRC 192C9NF2

572E SN192 NECK FLEXION CAL09

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10% - 70%	56.0 %
IMPACT VELOCITY		6.89 - 7.13 M/SEC	7.03 M/SEC
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.23 G
	20 MS	17.60 - 22.60 G	19.97 G
	30 MS	12.50 - 18.50 G	17.97 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.91 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	37.50 MS
D PLANE	MAX	64 - 78 DEG.	66.78 DEG.
ROTATION	TIME	57 - 64 MS	58.25 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	88.23 NM
	TIME	47 - 58 MS	49.75 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	113.00 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	101.38 MS

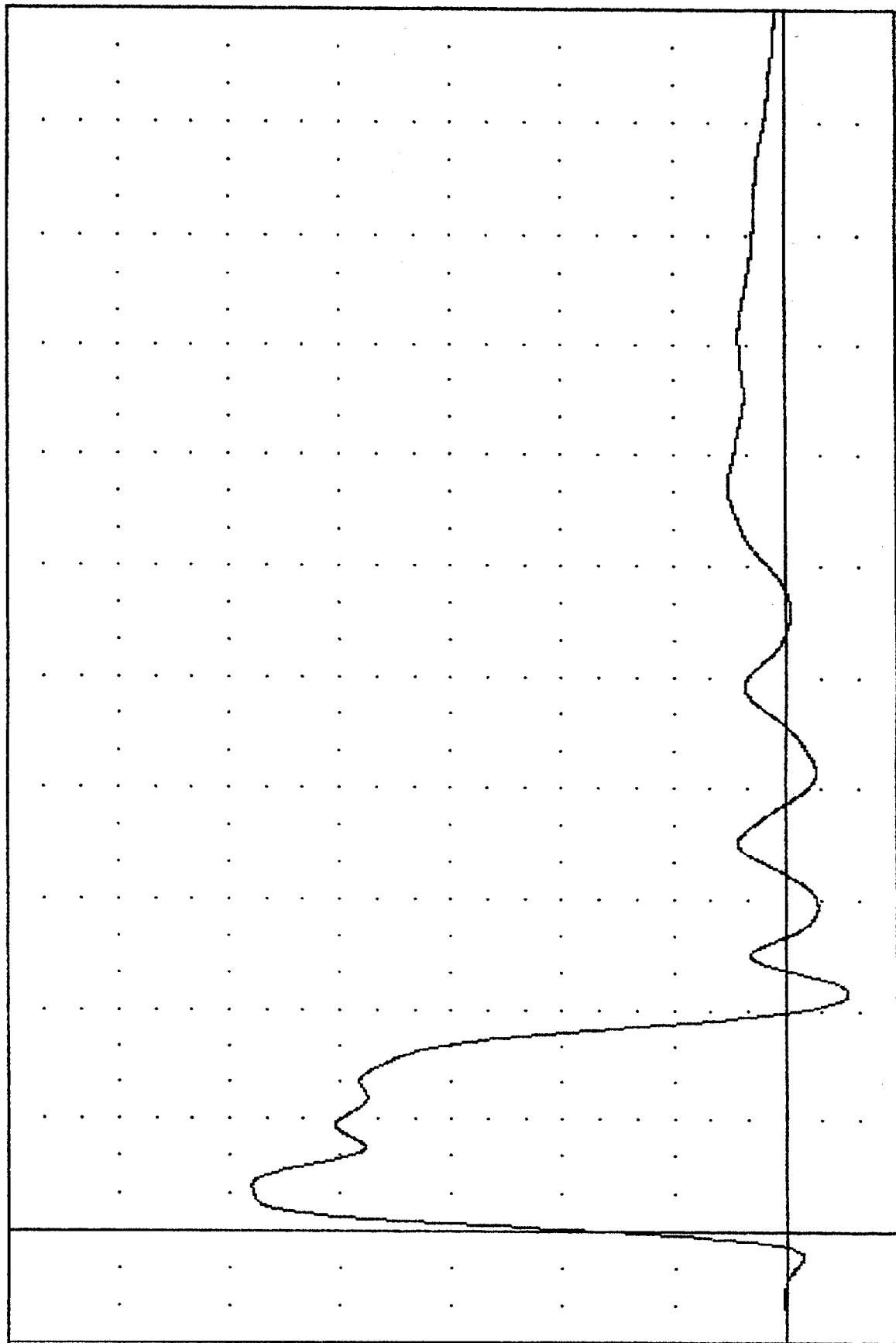
TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. Lavan

TRC , 192C9NF2
572E SN192 NECK FLEXION CAL09
92218
PENXG

FILTER = BLPP 100/ 317/ -40
MIN, MAX VALUES = -2.83 43.25, 24.00 7.88

ACCELERATION (G)
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
-5.00



921110

C-44

PART 5725 HYBRID II NECK FLEXION CALIBRATION

TRC , 192C9NF2
 572E SN192 NECK FLEXION CAL08
 92218
 BETA

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -15.99 168.13, 27.89 57.50

100.00

80.00

60.00

40.00

20.00

0.00

-20.00

-40.00

-60.00

-80.00

-100.00

-120.00

-140.00

-160.00

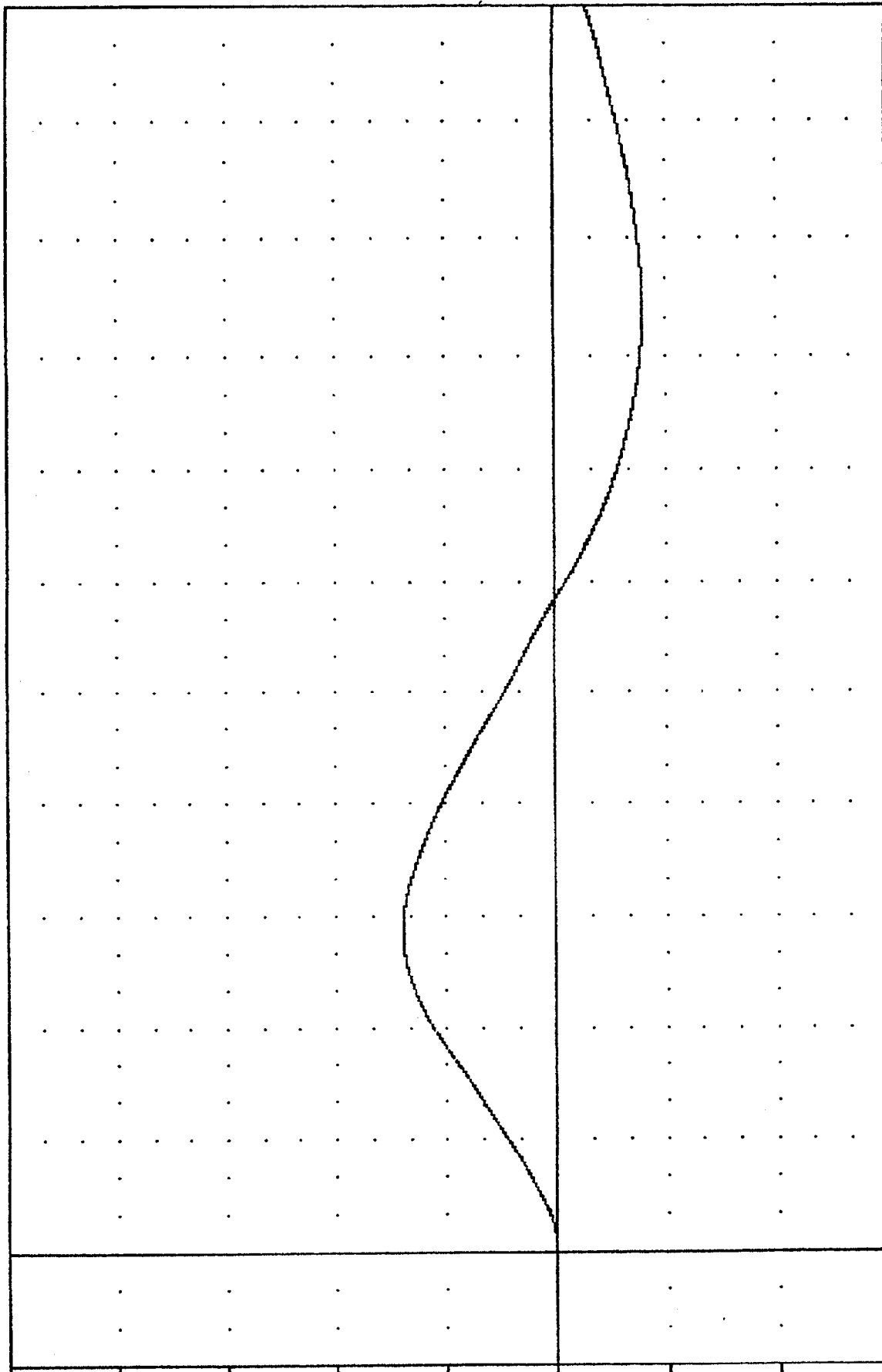
-180.00

-200.00

-220.00

C-45

921110



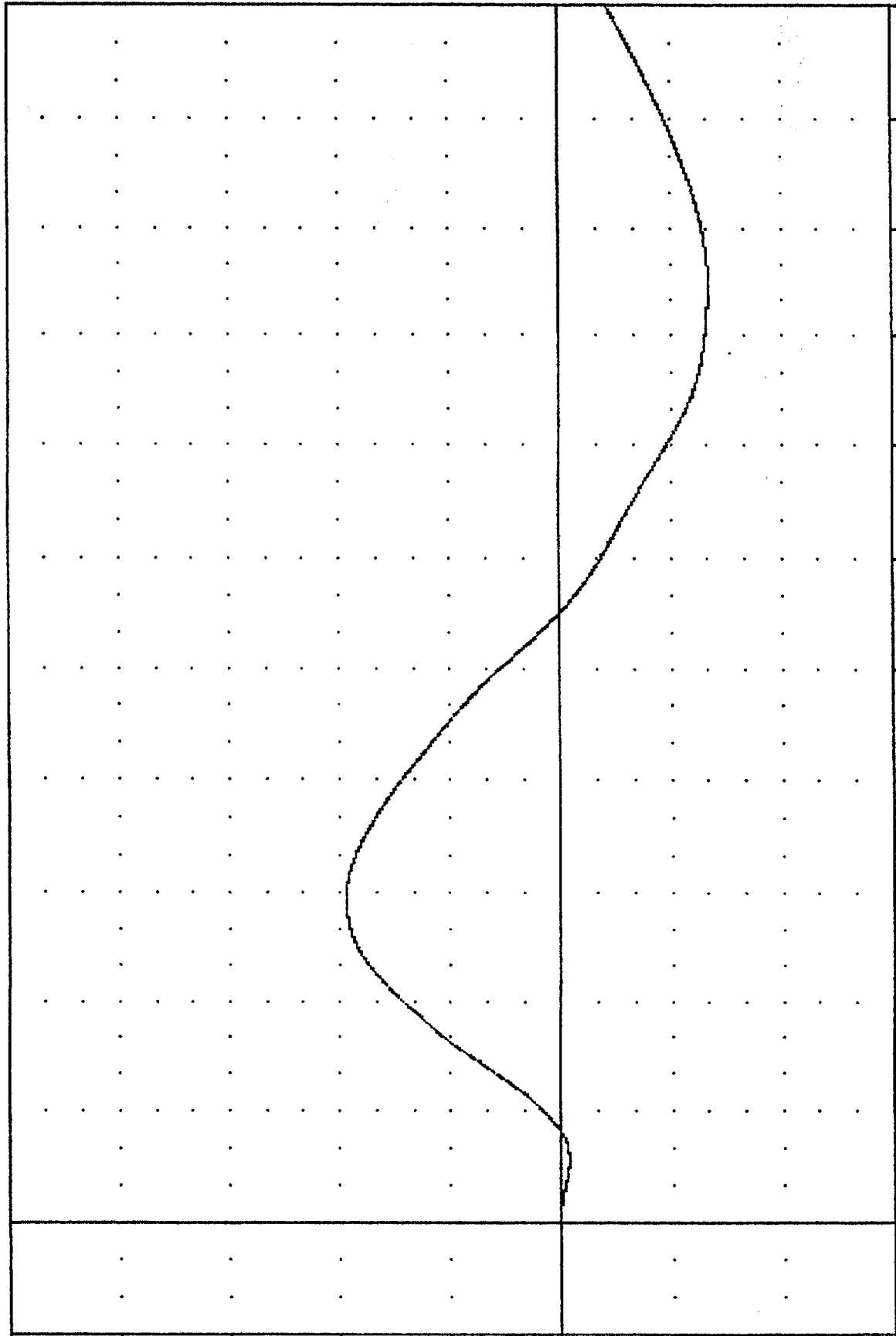
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ADJUST DOCS OF NECK

TRC , 192C9NF2
 572E SN192 NECK FLEXION CAL09
 92218
 THETA

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -27.06 169.13, 38.91 58.63

ANGLE (DEG) 100.00 80.00 60.00 40.00 20.00 0.00 -20.00 -40.00 -60.00



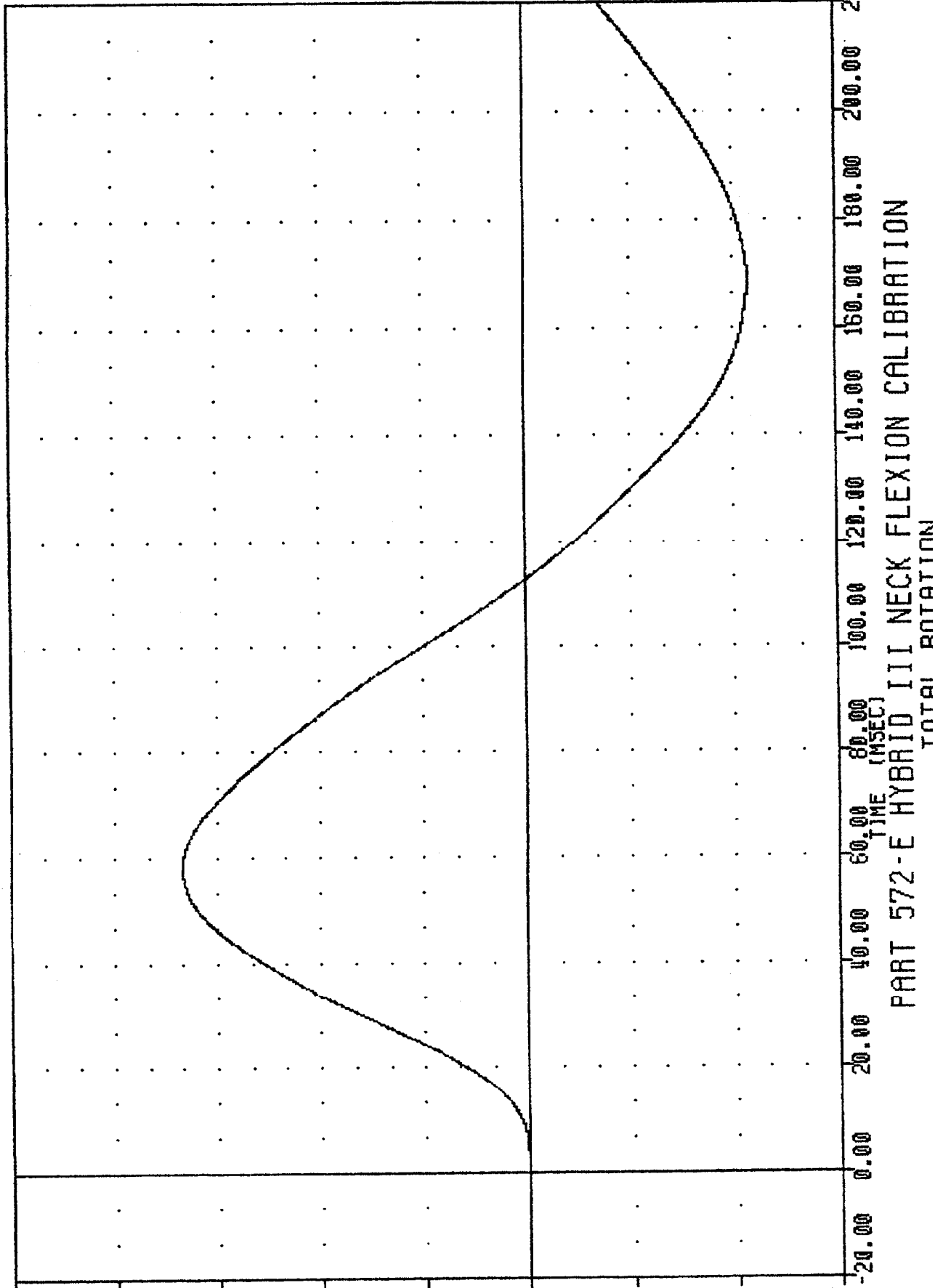
TRC , 192C9NF2
 572E SN192 NECK FLEXION CAL09
 92218
 TOTAL

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -43.04 169.00, 86.79 58.25

ANGLE (DEG)

C-47

921110

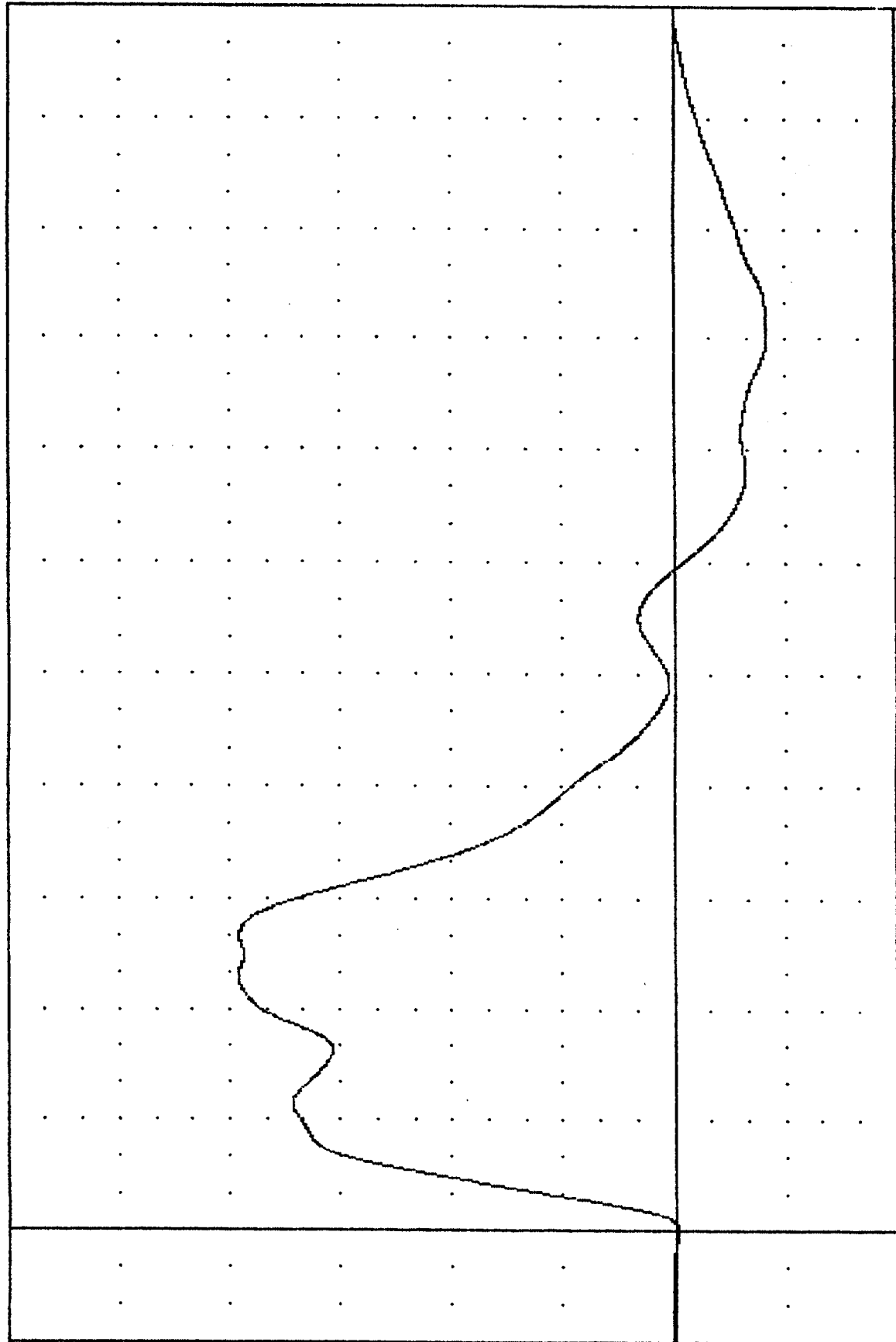


PART 572-E HYBRID III NECK FLEXION CALIBRATION
 TOTAL ROTATION

TRC
572E SN192 NECK FLEXION CAL09
92218
NEKXF

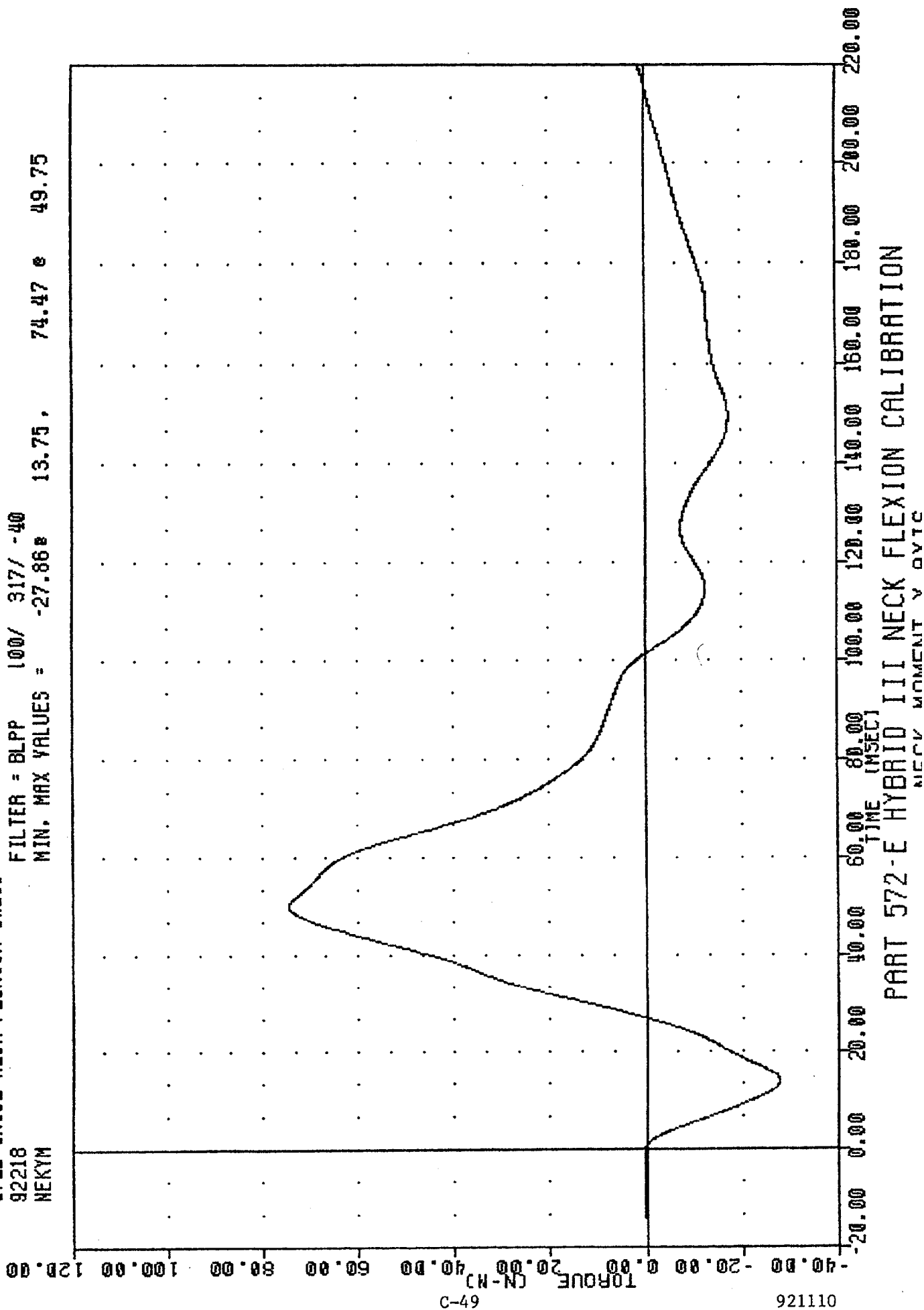
FILTER = BLPP 100/ 317/ -40
MIN, MAX VALUES = -168.16 160.50 , 783.80 45.75

120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00



TRC , 19209NF2
 572E SN182 NECK FLEXION CAL08
 92218
 NEKYM

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -27.86 13.75, 74.47 49.75

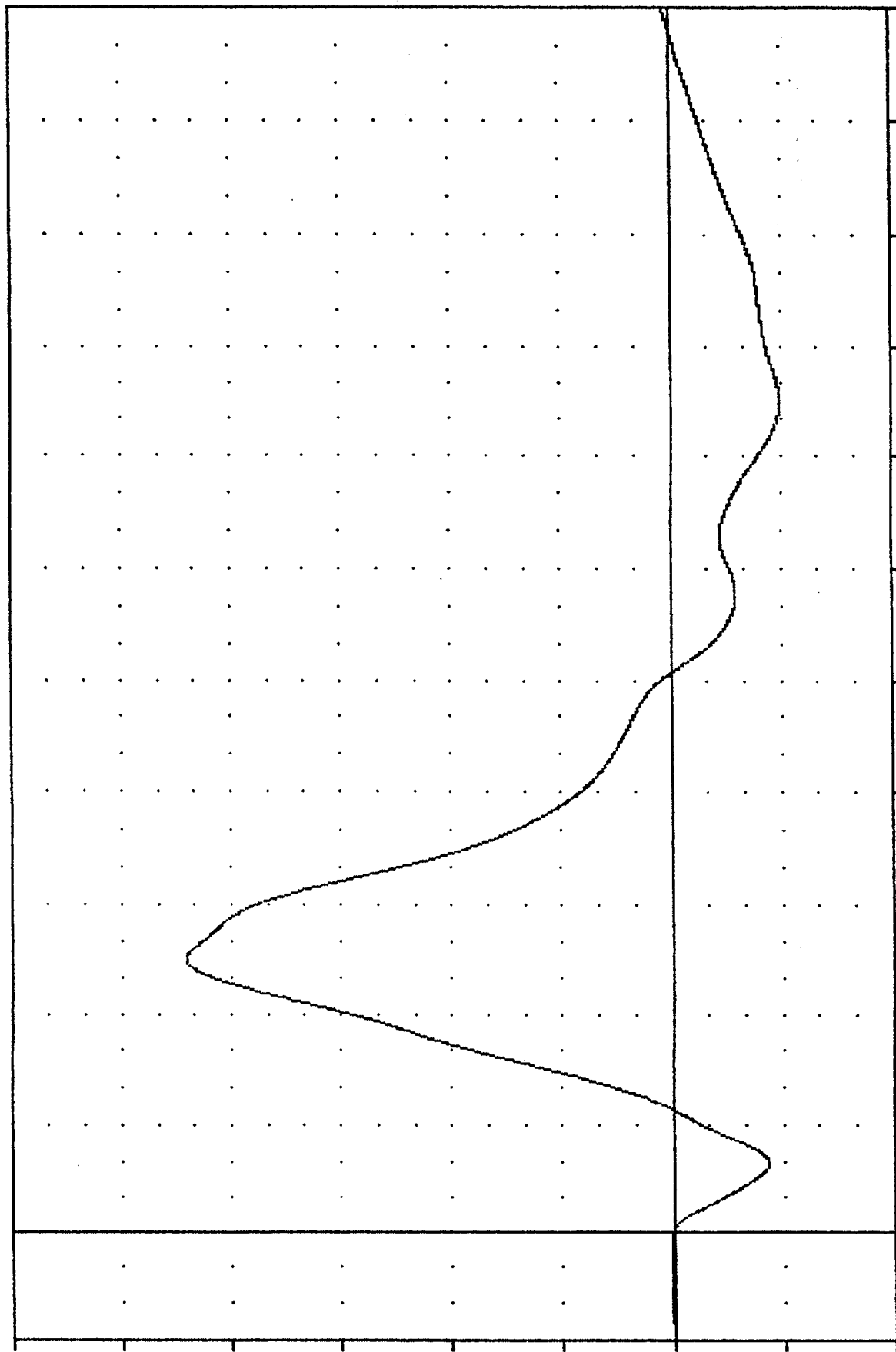


TRC , 192C9NF2
 572E SN192 NECK FLEXION CAL08
 92218
 NEKOM

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -19.77 88.23 49.75

120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00

C-50



921110

PART 572 HYBRID III NECK FLEXION CALIBRATION

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK EXTENSION TEST

HYBRID III

05-AUG-92

6 AXIS NECK TRANSDUCER
TRC 192C9NE2

572E SN192 NECK EXT. CAL09

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10% - 70%	56.0 %
IMPACT VELOCITY		5.95 - 6.19 M/SEC	6.05 M/SEC
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	19.57 G
	20 MS	14.00 - 19.00 G	17.22 G
	30 MS	11.00 - 16.00 G	14.36 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.31 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	38.63 MS
D PLANE	MAX	81 - 106 DEG.	94.40 DEG.
ROTATION	TIME	72 - 82 MS	76.75 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-56.20 NM
	TIME	65 - 79 MS	71.25 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	158.75 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	138.50 MS

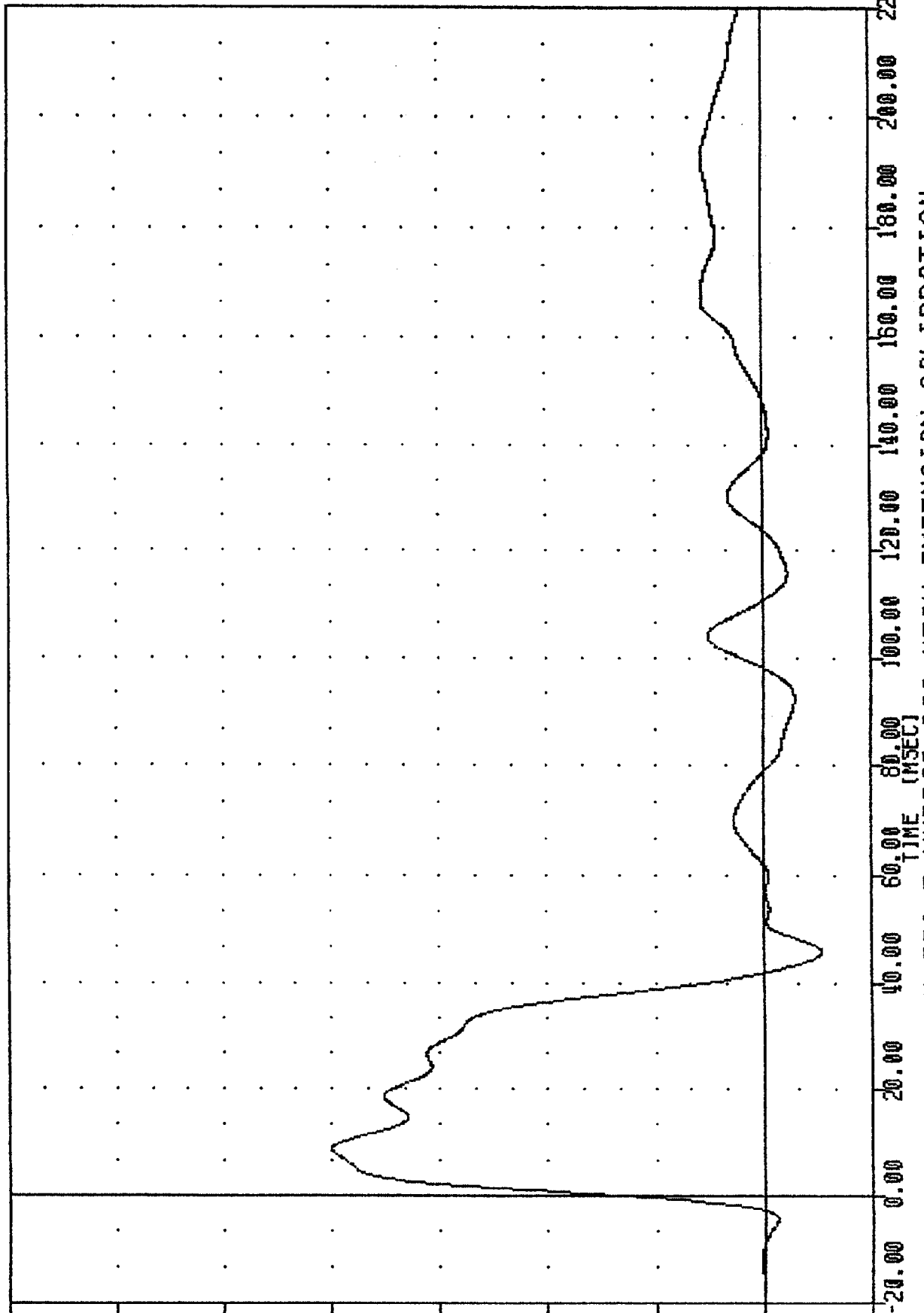
TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. LeVan

TRC , 192C9NE2
572E SN192 NECK EXT. CAL08
92218
PENXG

FILTER = BLPP 100/ 317/ -40
MIN. MAX VALUES = -2.708 45.63 19.98 8.75

ACCELERATION (G)



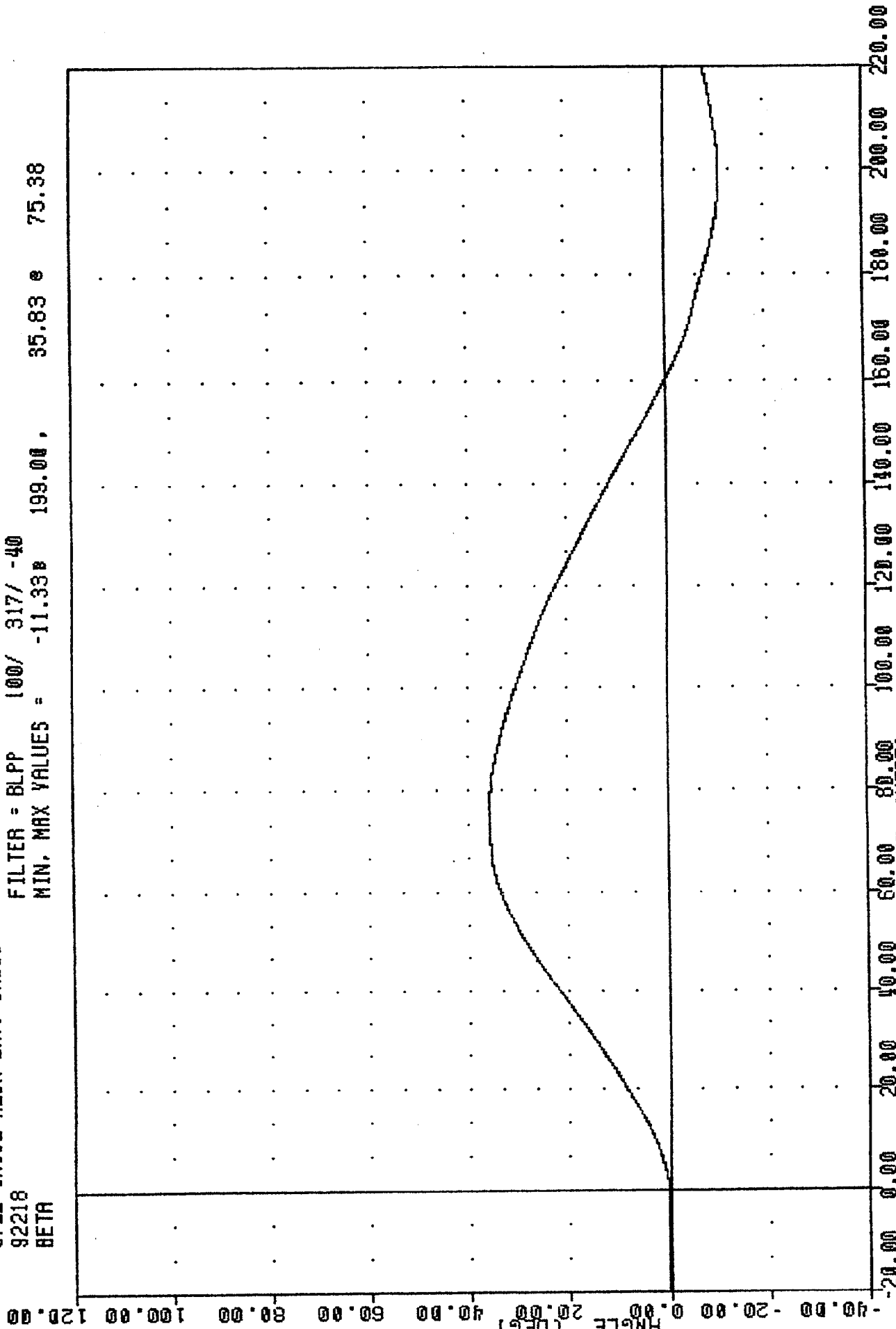
C-52

921110

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TRC , 192C9NE2
 572E SN192 NECK EXT. CAL09
 92218
 BETA

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -11.33 199.00, 35.83 75.38

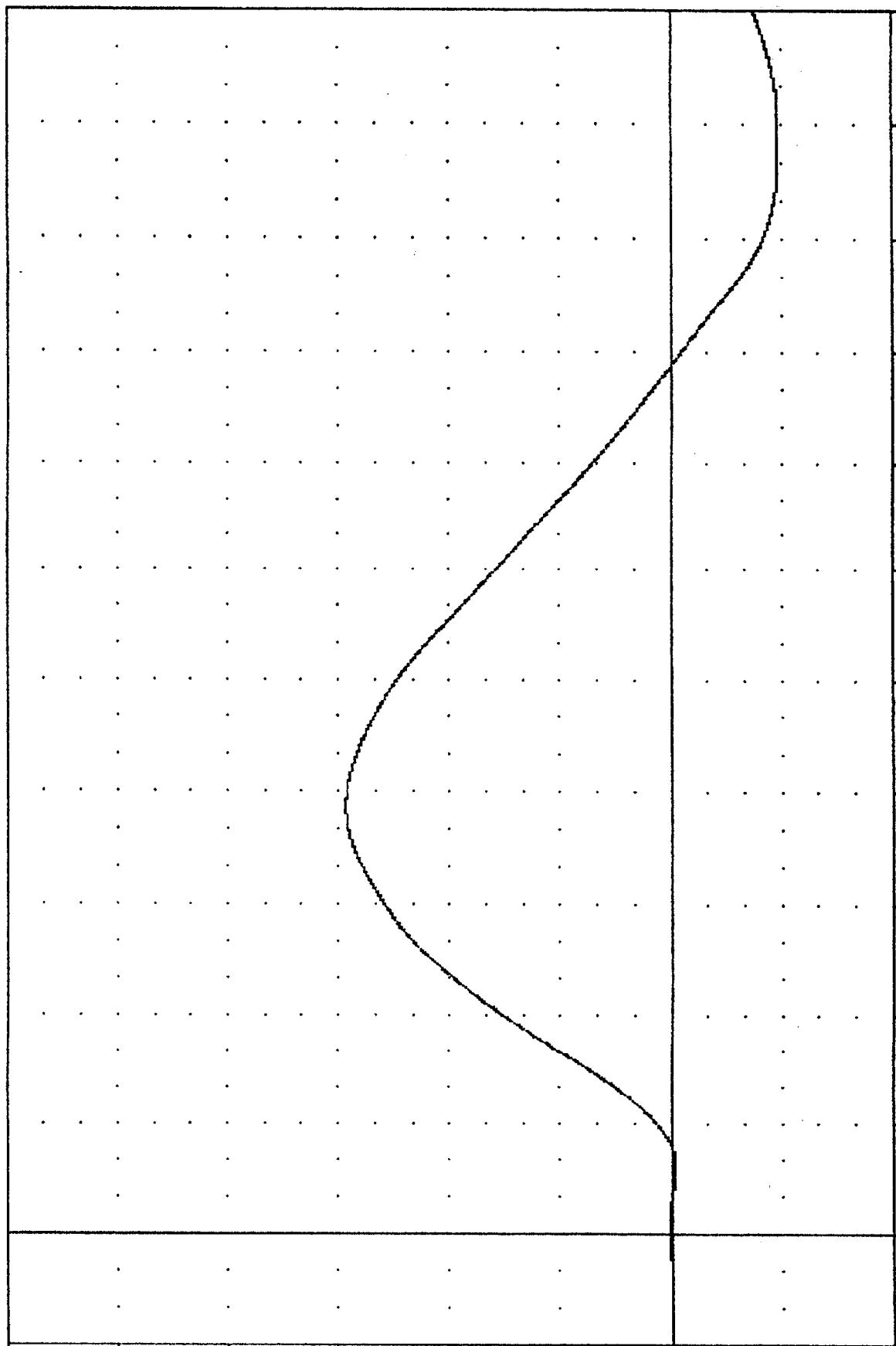


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 ORIENTATION ABOUT BASE OF NECK

TRC , 192C9NE2
 572E SN192 NECK EXT. CAL09
 92218
 THETA

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -19.48 200.13 58.59 77.38

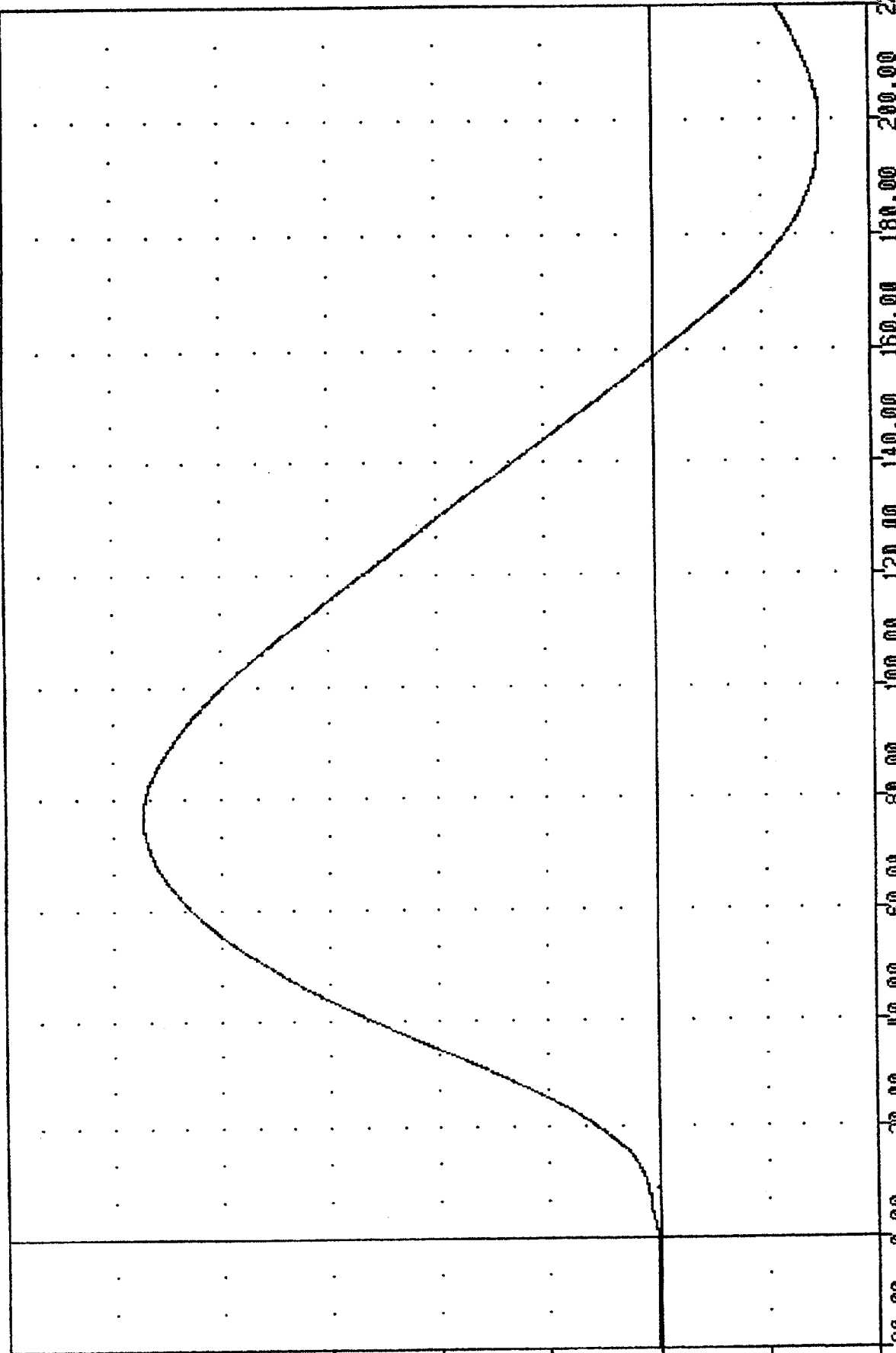
ANGLE (DEG) 120.00 100.00 80.00 60.00 40.00 20.00 0.00



TRC , 192C9NE2
 572E SN192 NECK EXT. CAL09
 92218
 TOTAN

FILTER = BLPP 100/ 317/ -40
 MIN. MAX VALUES = -30.81 199.13, 94.41 76.75

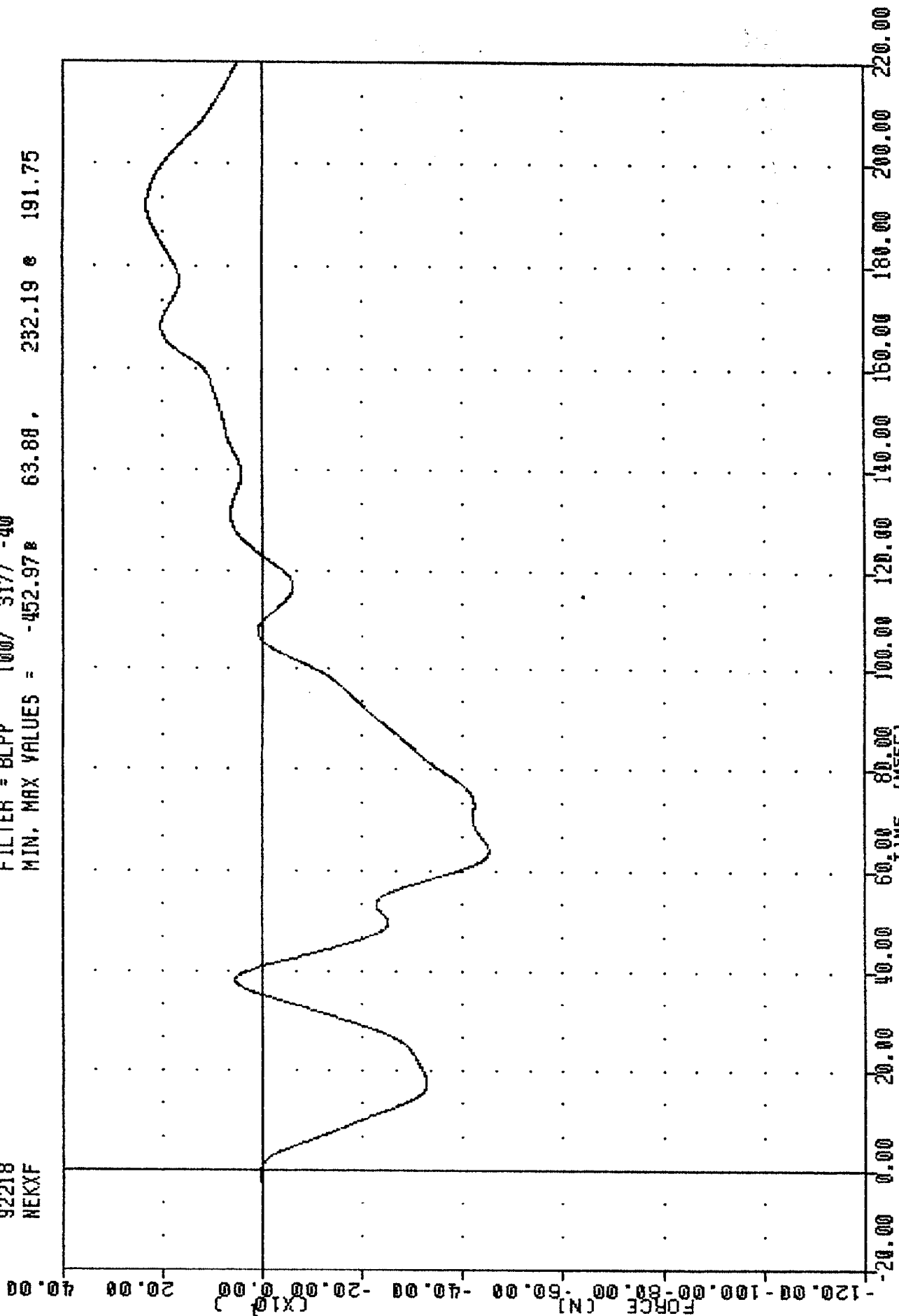
ANGLE (DEG)



PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 TOTAL ROTATION

TRC , 192C9NE2
 572E SN192 NECK EXT. CAL08
 92218
 NEKXF

FILTER = BLPP 100/ 317/ -40
 MIN, MAX VALUES = -452.97 63.88, 232.19 191.75



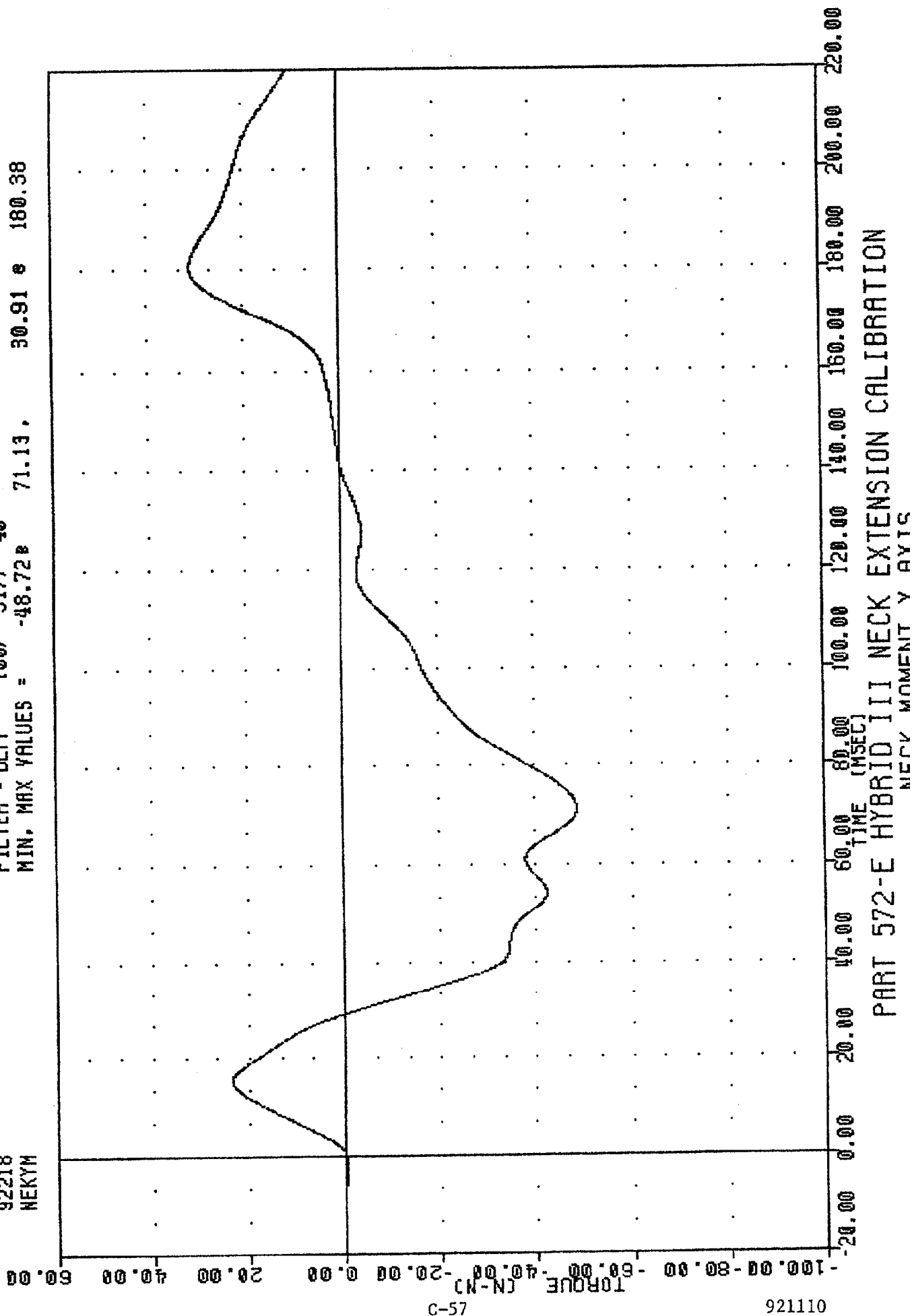
C-56

921110

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TRC
572E SN192 NECK EXT. CAL08
92218
NEKYM

FILTER = BLPP 100/ 317/ -40
MIN. MAX VALUES = -48.72 71.13, 30.91 e 180.38



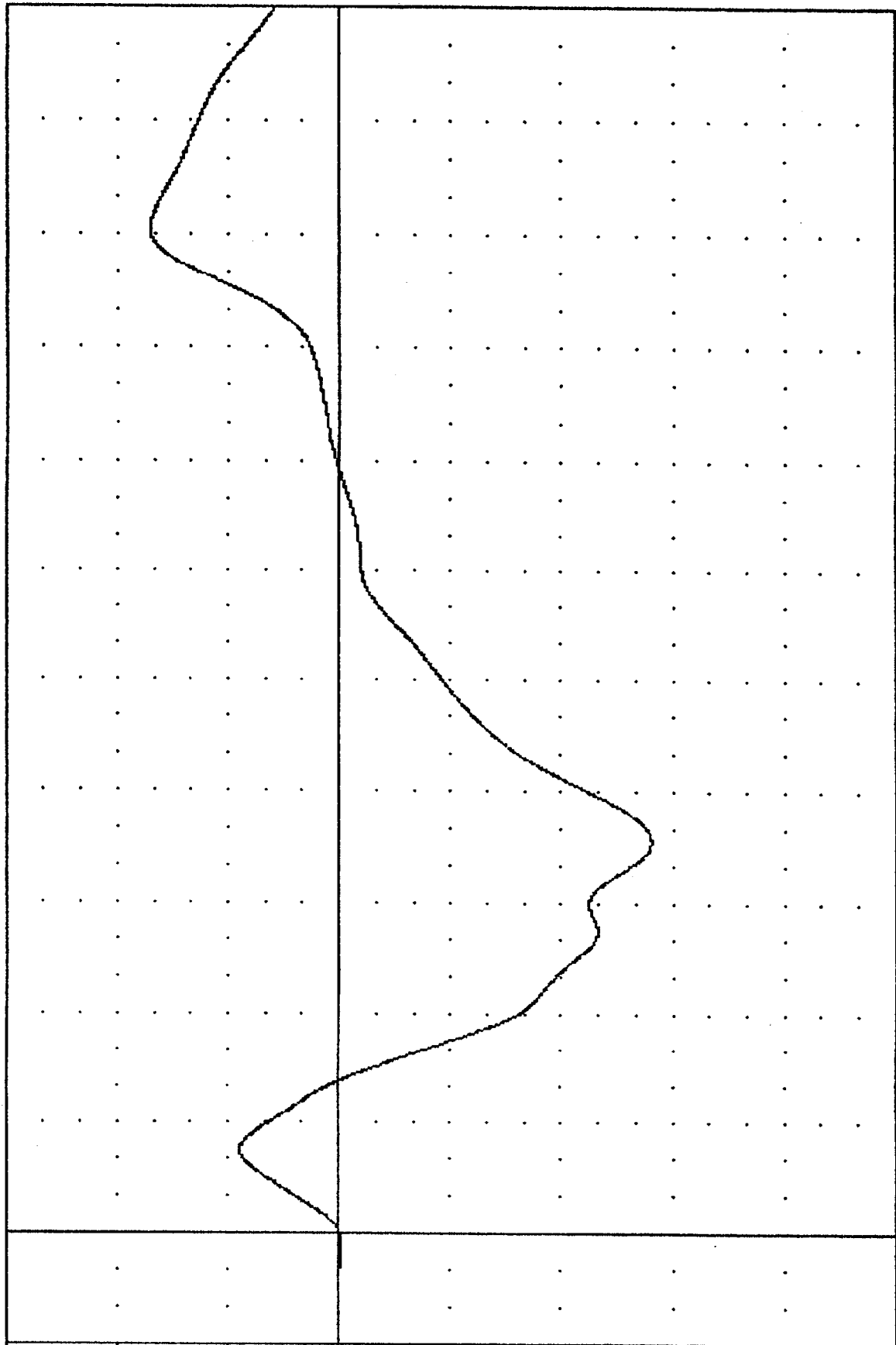
PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK MOMENT Y AXIS

TRC , 192C9NE2
572E SN192 NECK EXT. CAL08
92218
NEKOM

FILTER = BLPP 100/ 317/ -40
MIN, MAX VALUES = -56.20 71.25, 34.07 e 180.88

60.00
40.00
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

C-58



9211110

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

HYBRID III

05-AUG-92

TRC

192C9TH1

572E SN192 H. S. THORAX CAL09

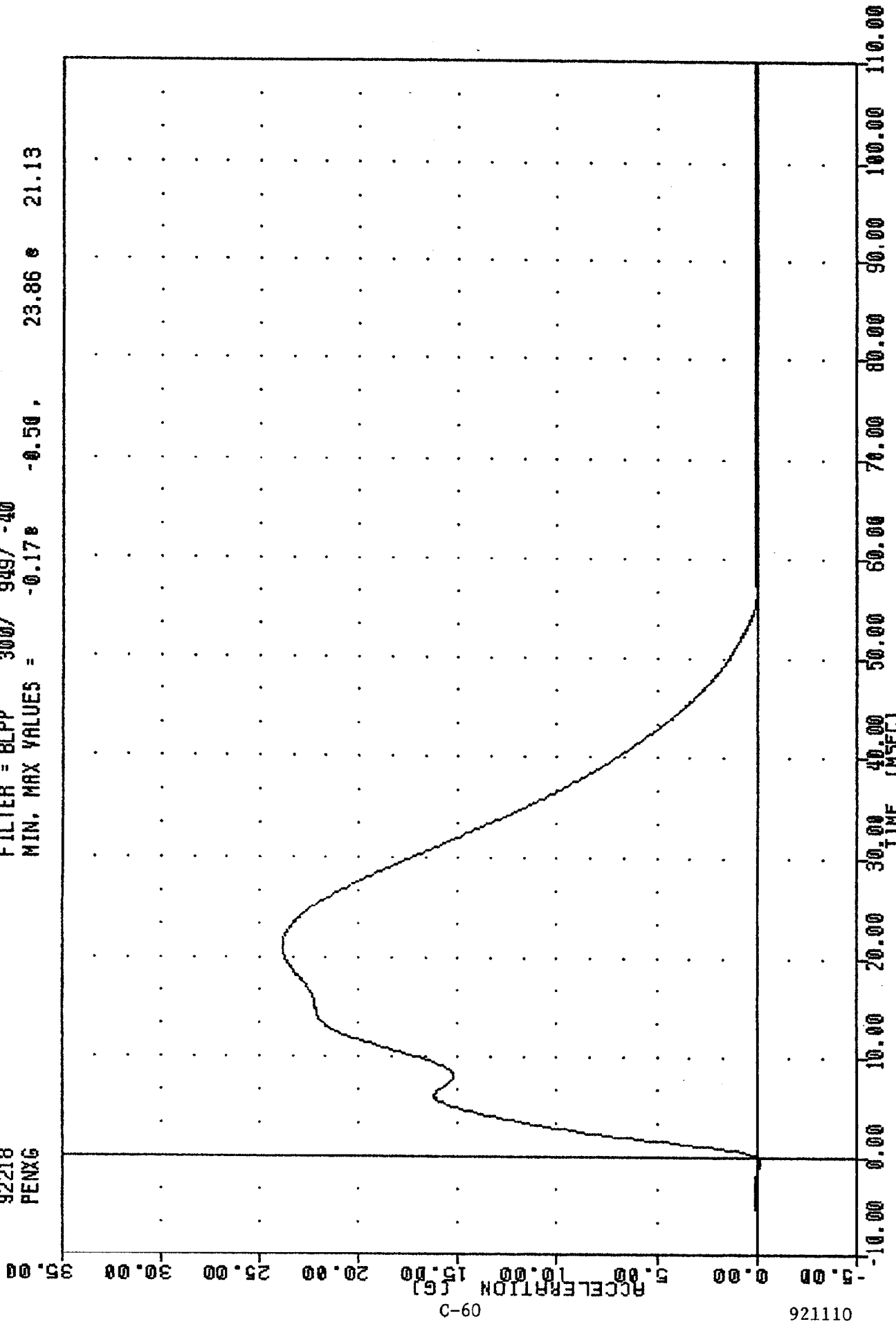
TEST PARAMETER	HIGH SPEED TEST	
	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/SEC	6.68 M/SEC
MAXIMUM DEFLECTION	63.5 - 72.6 MM	70.3 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5465. N
INTERNAL HYSTERESIS	69% - 85%	73.6%

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. LeVan

TRC
572E SN192 H.S. THORAX CAL09
92218
PENXG

FILTER = BLPP 300/ 949/ -40
MIN, MAX VALUES = -0.178 -0.50, 23.86 21.13



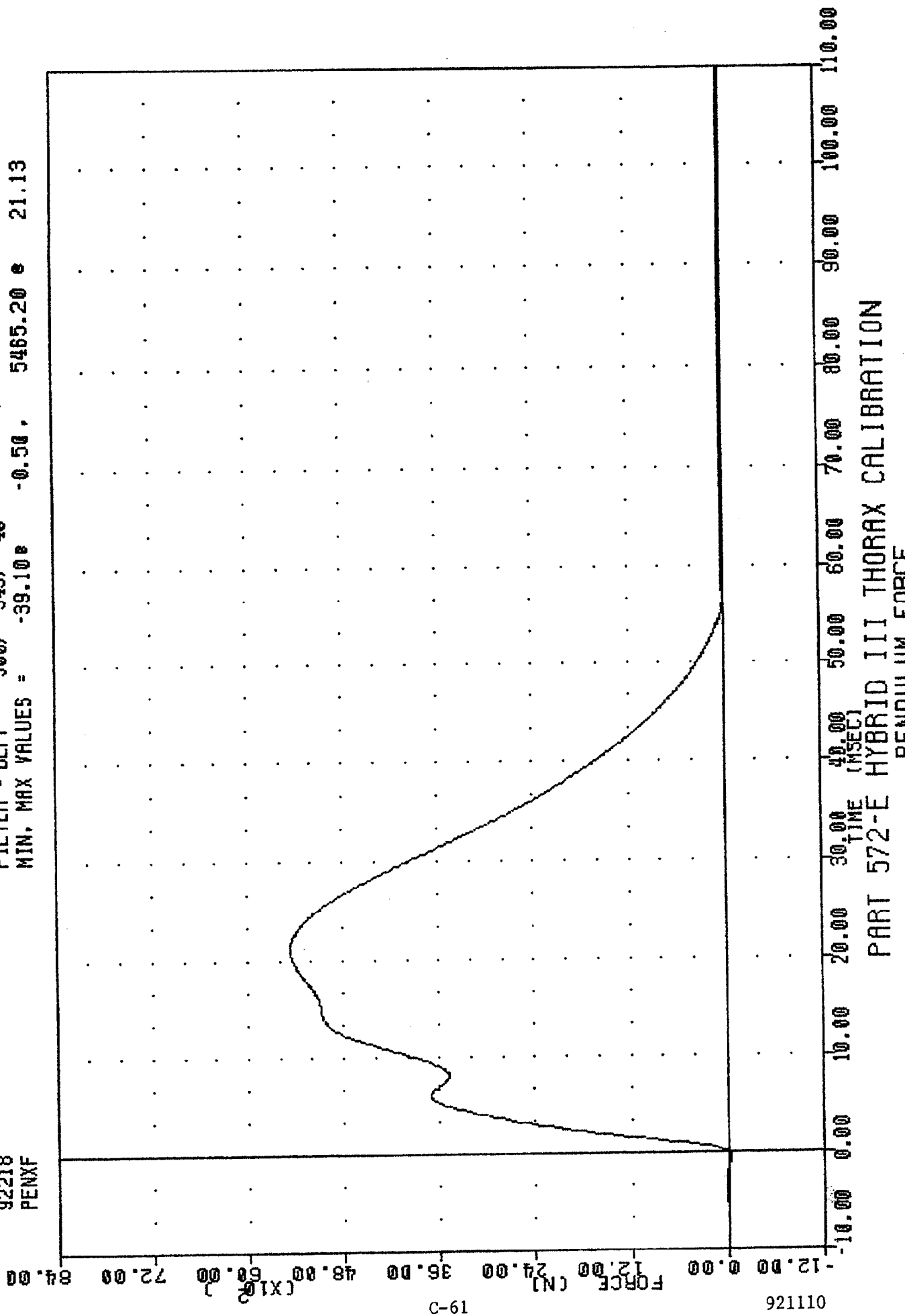
C-60

921110

PART 572-E HYBRID III THORAX CALIBRATION

TRC
572E SN192 H.S. THORAX CAL03
92218
PENXF

FILTER = BLPP 300/ 949/ -40
MIN. MAX VALUES = -39.10e -0.50, 5465.20e 21.13



TRC , 192C9TH1
 572E SN192 H.S. THORAX CAL09
 92218
 CSTXD

FILTER = BLPP 300/ 949/ -40
 MIN. MAX VALUES = -0.078 0.88, 70.31 e 25.38

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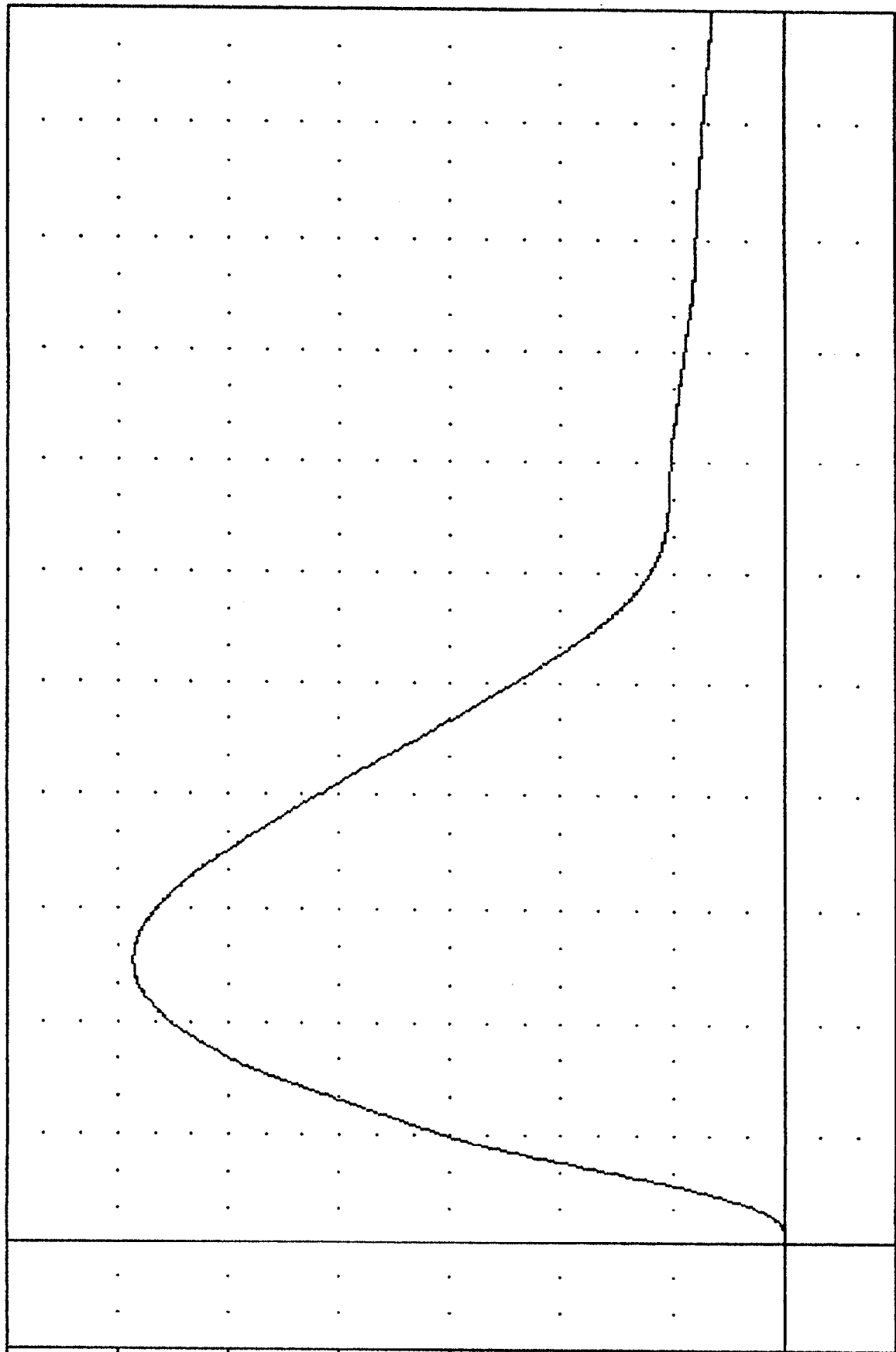
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C-62

PART 572-E HYBRID III THORAX CALIBRATION

TRC
CSTXD
PENXF

192C9THI
FILTER = BLPP
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572E SN192 H.S. THORAX CAL09
300/ 949/ -40 MIN. MAX =
300/ 949/ -40 MIN. MAX =

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TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

HYBRID III

29-JUL-92

RIGHT KNEE

TRC

192C9RK1

572E SN192 RIGHT KNEE CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PROBE VELOCITY	2.07 - 2.13 M/SEC	2.07 M/SEC
PEAK KNEE IMPACT FORCE	4714-5783 N	5321.0 N
PROBE WEIGHT	5.0 KG	

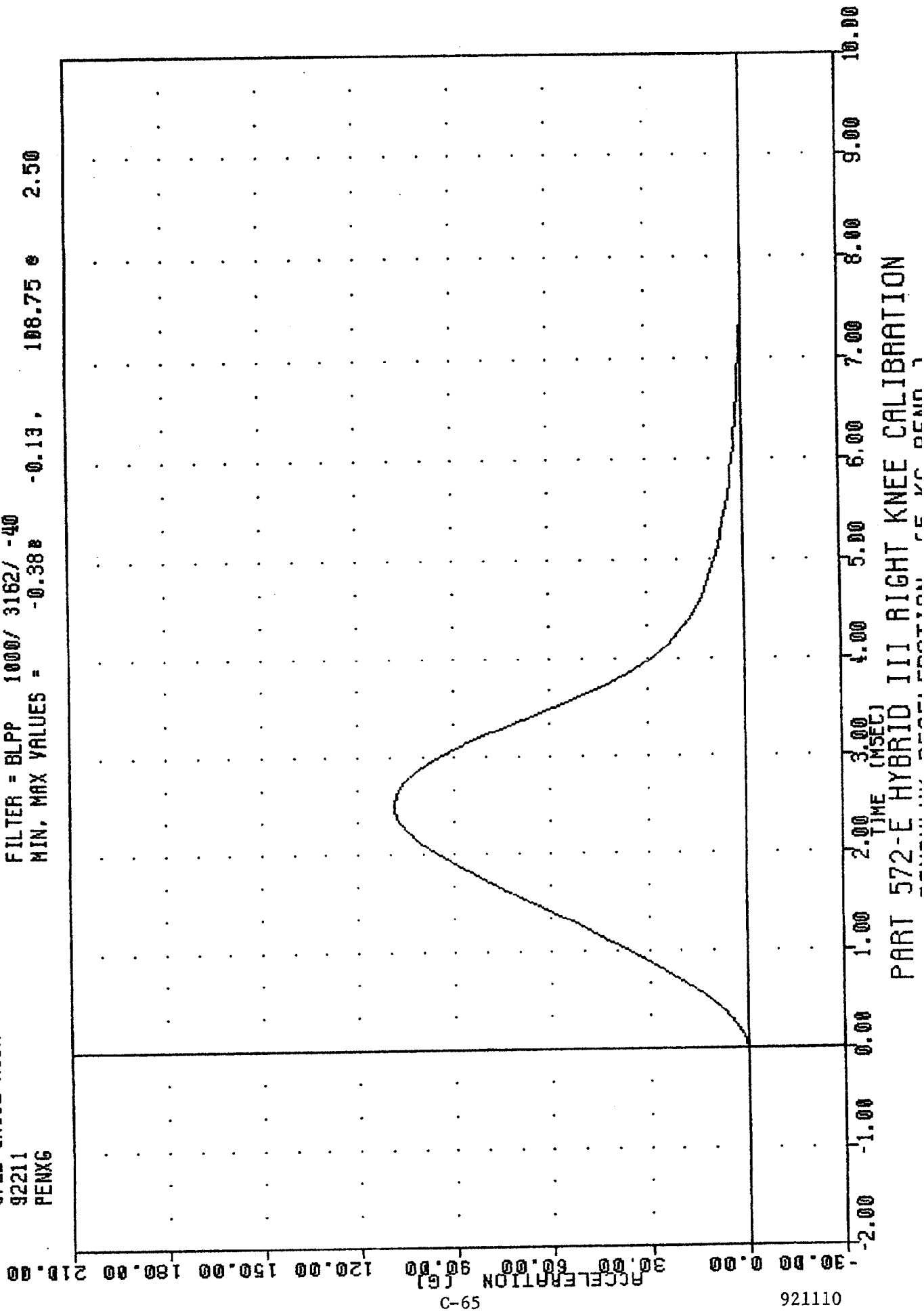
TEST MEETS SPECIFICATIONS

TECHNICIAN

R. E. LeVan

TRC
572E SN192 RIGHT KNEE CAL 09
92211
PENXG

FILTER = BLPP 1000/ 3162/ -40
MIN. MAX VALUES = -0.38 0.13, 108.75 2.50



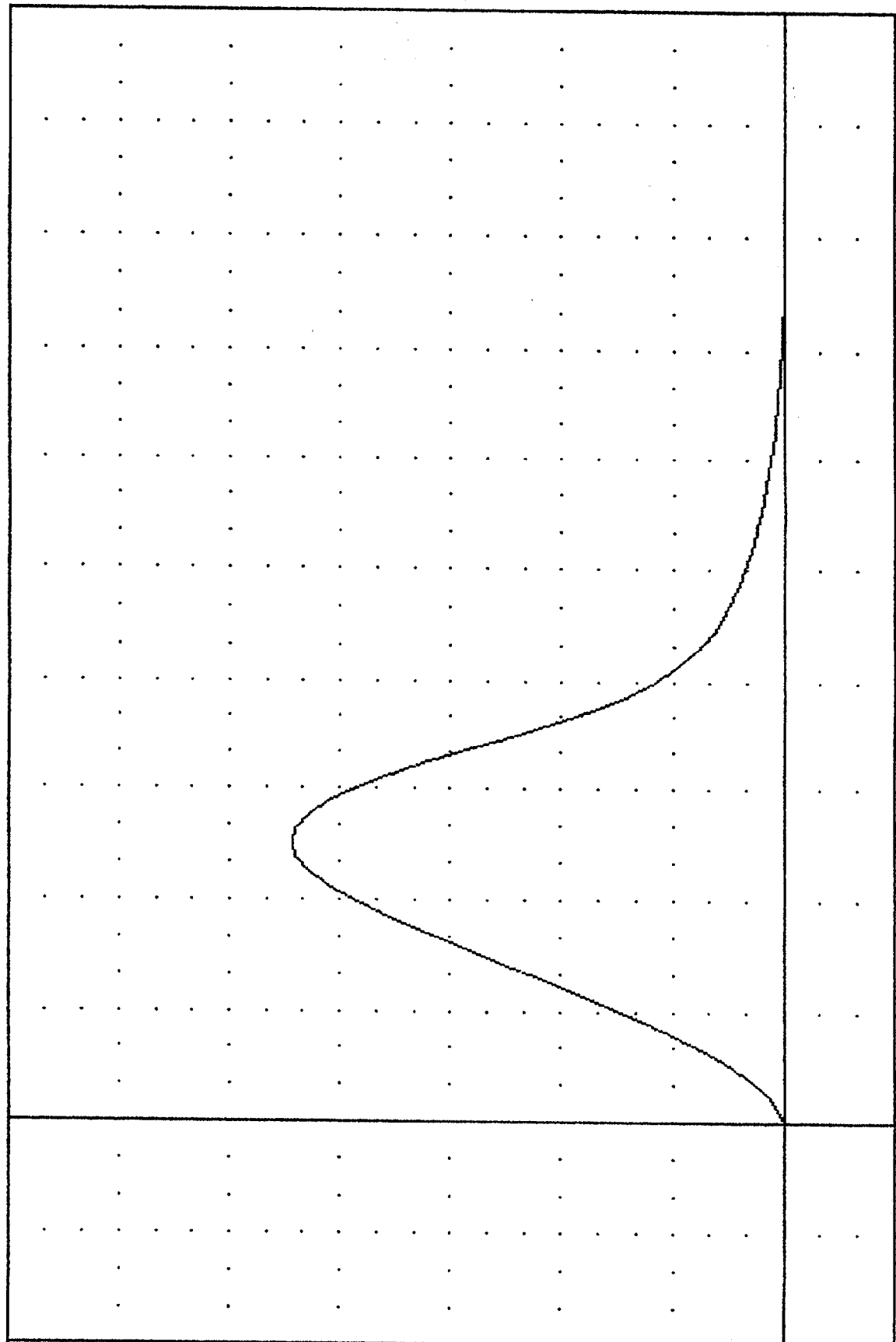
TRC
572E SN192 RIGHT KNEE CAL 09

92211
PENXF

FILTER = BLPP 1000/ 3162/ -40
MIN, MAX VALUES = -18.69 0.13

5321.05 e 2.50

921110
C-66
FORCE (N) (X10²)



PART 572E HYBRID ILL RIGHT KNEE CALIBRATION

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

HYBRID III

29-JUL-92

LEFT KNEE
TRC

192C9LK1

572E SN192 LEFT KNEE CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10% - 70%	56.0 %
PROBE VELOCITY	2.07 - 2.13 M/SEC	2.10 M/SEC
PEAK KNEE IMPACT FORCE	4714-5783 N	5694.0 N
PROBE WEIGHT	5.0 KG	

TEST MEETS SPECIFICATIONS

TECHNICIAN R. E. LaV...

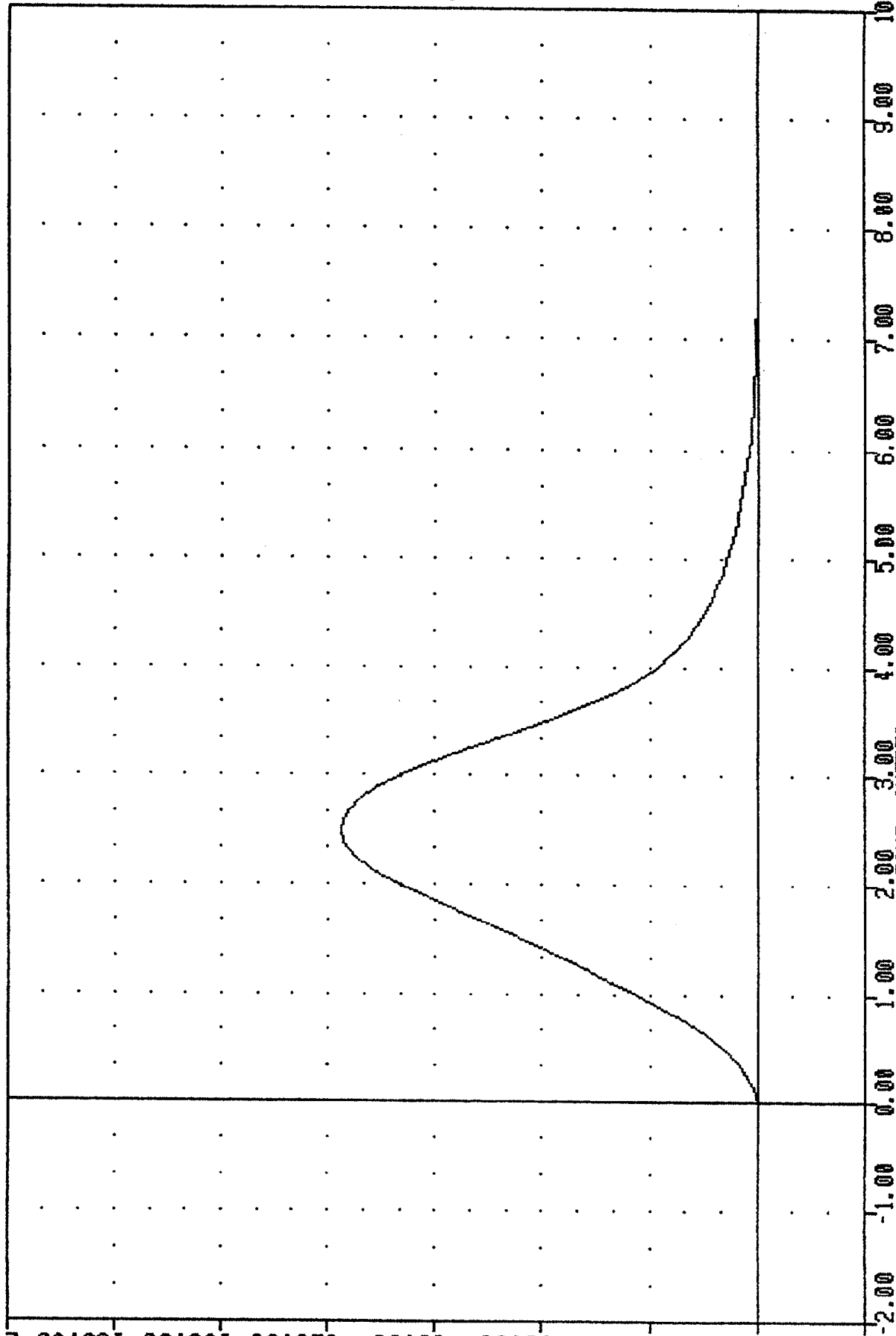
TRC , 192C9LK1
 572E SN192 LEFT KNEE CAL 09
 92211
 PENXG

FILTER = BLPP 1000/ 3162/ -40
 MIN, MAX VALUES = -0.218 7.75, 116.38 e 2.50

ACCELERATION (G)
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 180.00
 150.00
 120.00
 90.00
 60.00
 30.00
 0.00

C-68

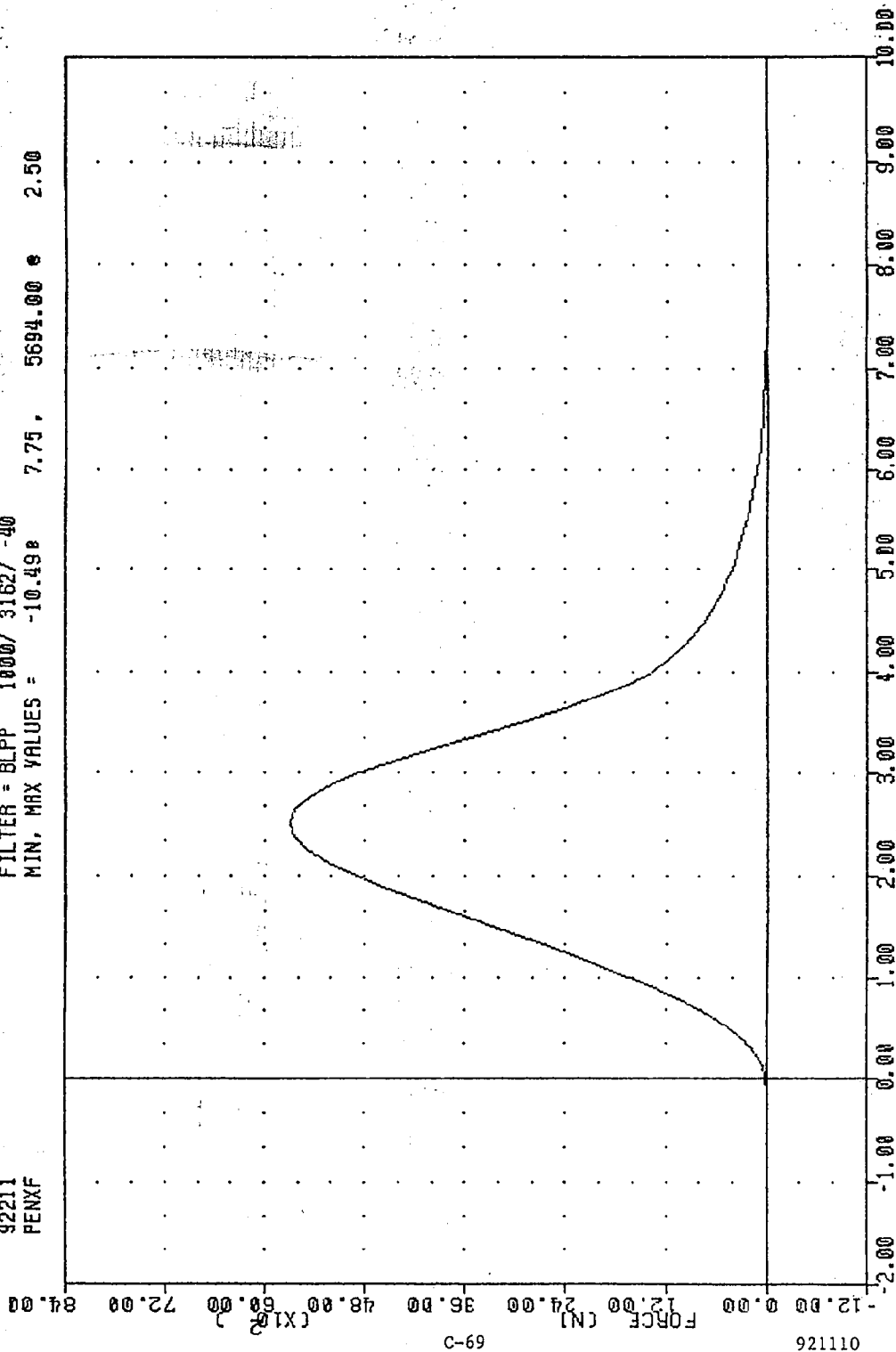
921110



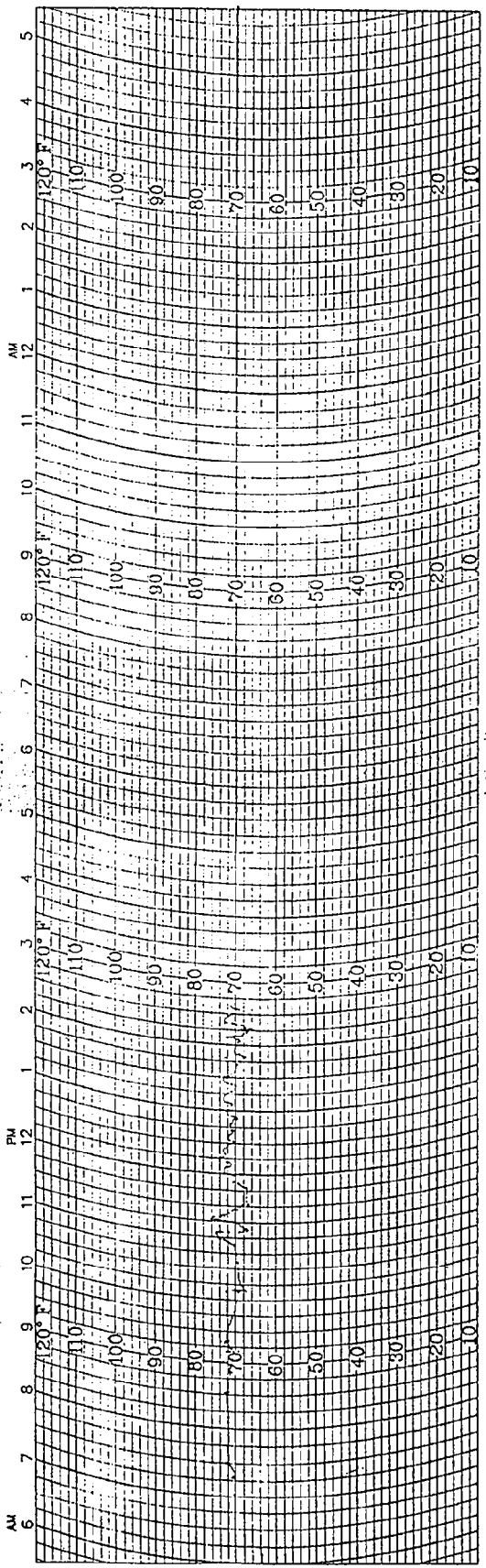
PART 572E-572E LEFT KNEE CALIBRATION

TRC 192C9LK1
 572E SN192 LEFT KNEE CAL 09
 92211
 PENXF

FILTER = BLPP 1000/ 3162/ -40
 MIN, MAX VALUES = -10.498 7.75, 5694.00 2.50



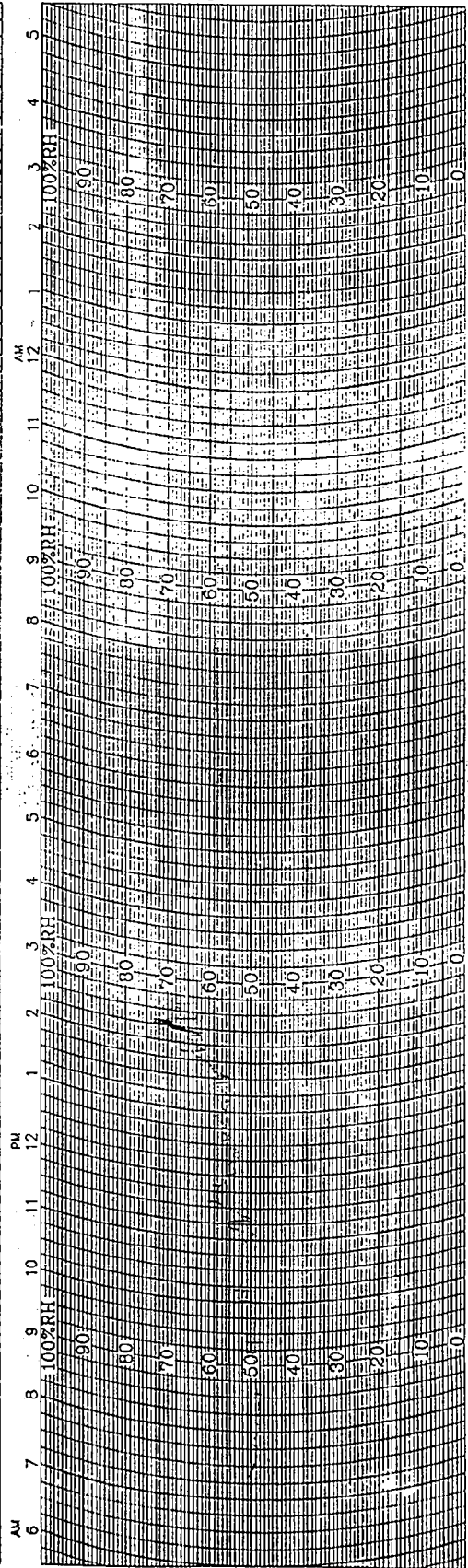
PART 572-E HYBRID III LEFT KNEE CALIBRATION
 PENNIIUM FORCE 15 KG PENN 1



HYGROTHERMOGRAPH 1 DAY
CHART NO. M599123
ECN 2717
CS11-D-HF
6-9-87

WeatherMeasure
WEATHERElectronics
Division of QUALTECH, Inc.
P.O. BOX 41039
SACRAMENTO, CA 95841
PHONE: (916) 923-0055

STATION _____ DATE ON _____ DATE OFF _____



APPENDIX D

MISCELLANEOUS TEST INFORMATION

DUMMY INSTRUMENT CALIBRATIONS

DRIVER DUMMY #142

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
HEAD X-AXIS ACCEL.	CR59H	7264	ENDEVCO	07/28/92	01/28/93
Y-AXIS ACCEL.	CR99H	7264	ENDEVCO	07/28/92	01/28/93
Z-AXIS ACCEL.	CH44H	7264	ENDEVCO	07/28/92	01/28/93
CHEST X-AXIS ACCEL.	DA88H	7264	ENDEVCO	07/30/92	01/30/93
Y-AXIS ACCEL.	DT02JT	7264	ENDEVCO	08/04/92	02/04/93
Z-AXIS ACCEL.	CH74H	7264	ENDEVCO	07/30/92	01/30/93
LEFT FEMUR FORCE LOAD CELL	829	2430	GSE	08/03/92	02/03/93
RIGHT FEMUR FORCE LOAD CELL	610	2430	GSE	08/03/92	02/03/93
*NECK X-AXIS FORCE LOAD CELL	0280	1716	DENTON	07/30/92	01/30/93
Y-AXIS FORCE LOAD CELL	0280	1716	DENTON	07/30/92	01/30/93
Z-AXIS FORCE LOAD CELL	0280	1716	DENTON	07/30/92	01/30/93
*NECK MOMENT ABOUT X-AXIS LOAD CELL	0280	1716	DENTON	07/30/92	01/30/93
MOMENT ABOUT Y-AXIS LOAD CELL	0280	1716	DENTON	07/30/92	01/30/93
MOMENT ABOUT Z-AXIS LOAD CELL	0280	1716	DENTON	07/30/92	01/30/93
*CHEST DEFLECTION POTENTIOMETER	90320B	81422A	VERNITECH	07/29/92	01/29/93
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	A12889	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 #192

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
HEAD X-AXIS ACCEL.	CY19H	7264	ENDEVCO	07/28/92	01/28/93
Y-AXIS ACCEL.	DH74J	7264	ENDEVCO	07/28/92	01/28/93
Z-AXIS ACCEL.	A19FJ	7264	ENDEVCO	07/28/92	01/28/93
CHEST X-AXIS ACCEL.	DW04J	7264	ENDEVCO	07/30/92	01/30/93
Y-AXIS ACCEL.	A91CJ	7264	ENDEVCO	07/30/92	01/30/93
Z-AXIS ACCEL.	DK56J	7264	ENDEVCO	07/30/92	01/30/93
LEFT FEMUR FORCE LOAD CELL	889	2430	GSE	11/09/92	05/09/93
RIGHT FEMUR FORCE LOAD CELL	827	2430	GSE	08/03/92	02/03/93
*NECK X-AXIS FORCE LOAD CELL	085	1716	DENTON	08/03/92	02/03/93
Y-AXIS FORCE LOAD CELL	085	1716	DENTON	08/03/92	02/03/93
X-AXIS FORCE LOAD CELL	085	1716	DENTON	08/03/92	02/03/93
*NECK MOMENT ABOUT X-AXIS LOAD CELL	085	1716	DENTON	08/03/92	02/03/93
MOMENT ABOUT Y-AXIS LOAD CELL	085	1716	DENTON	08/03/92	02/03/93
MOMENT ABOUT Z-AXIS LOAD CELL	085	1716	DENTON	08/03/92	02/03/93
*CHEST DEFLECTION POTENTIOMETER	87313-96	81422A	VERNITECH	07/29/92	01/29/93
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	0586136	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

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
LEFT REAR SEAT CROSSMEMBER X-AXIS	DA06H	7264	ENDEVCO	05/21/92	11/21/92
LEFT REAR SEAT CROSSMEMBER X-AXIS REDUN	BY97H	7264	ENDEVCO	08/11/92	02/11/93
RIGHT REAR SEAT CROSSMEMBER X-AXIS	DG40J	7264	ENDEVCO	07/14/92	01/14/93
RIGHT REAR SEAT CROSSMEMBER X-AXIS REDUN	CH24H	7264	ENDEVCO	10/13/92	04/13/93
ENGINE TOP X-AXIS	BY03J	7264	ENDEVCO	10/13/92	04/13/93
ENGINE BOTTOM X-AXIS	CL84H	7264	ENDEVCO	08/11/92	02/11/93
RIGHT BRAKE CALIPER X-AXIS	CJ37H	7264	ENDEVCO	07/22/92	01/22/93
LEFT BRAKE CALIPER X-AXIS	CH97H	7264	ENDEVCO	08/21/92	02/21/93
INSTRUMENT PANEL CENTER X-AXIS	CC02H	7264	ENDEVCO	10/01/92	04/01/93

CALIBRATION LABORATORY INSTRUMENTS

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
NECK BENDING PENDULUM ACCEL.	CC44	7232	ENDEVCO	04/06/92	10/06/92
NECK BENDING ROTARY POTENTIOMETER	NA	35435-1-102	BOURNES	MFR. SPECIFICATION	
NECK BENDING LINEAR POTENTIOMETER	NA	5184-2051846003	BOURNES	04/06/92	10/06/92
THORAX/HYBRID II FEMUR PEND. ACCEL.	CC64	7232	ENDEVCO	04/06/92	10/06/92
LUMBAR FLEXION FORCE GAUGE	NA	DPFH-50	CHATILLON	05/03/89	REPAIRED
LUMBAR FLEXION ROTATION GAUGE	CP17-0601-1	7020	HUMPHREY	MFR. SPECIFICATION	
ABDOMEN COMPRESSION DISPL. GAUGE	4075-172	80294-2051941504	BOURNES	04/06/92	10/06/92
ABDOMEN COMPRESSION FORCE GAUGE	1261	3167	LEBOW	04/08/92	10/08/92
HYBRID III FEMUR PEND. ACCEL.	CG83	7232	ENDEVCO	04/06/92	10/06/92

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

TYPICAL TEST MEASUREMENTS

CHANNEL CLASS

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

APPENDIX E

RESTRAINT SYSTEM INSTRUCTIONS FROM OWNER'S MANUAL

The window lock switch on the driver's door allows you to disable the window control on the other doors.

Note: A small light in the individual window control turns on and off with the lock switch indicating if the windows are enabled or disabled.

REMOTE TRUNK LID RELEASE (If so equipped)

The trunk lid can be opened from inside the vehicle by pressing the switch located in the glove compartment.

When the ignition key must be left with the vehicle, such as for service or parking lot attendants, be sure that the glove box is locked to prevent unauthorized access into the trunk compartment.

CUP HOLDERS

Console Mounted Cupholders (if so equipped)

These cupholders are mounted in the front face of the center console. Push the release and the cupholder will deploy.

OCCUPANT RESTRAINTS

One of the most important safety features in your vehicle is the restraint system. This system includes the front and

rear seat belts, and airbags for the driver and right front passenger. Your seat belts can also be used to hold infant and child restraint systems if you will be carrying children too small for adult-size belts.

Please pay close attention to the information in this section. It tells you how to use your restraint system properly to keep you and your passengers as safe as possible.

WARNING! In a collision, you and your passengers can suffer much greater injuries if you are not properly buckled up. You can strike parts of the inside of your vehicle or other passengers, or you can be thrown out of the vehicle. Always be sure you and others in your vehicle are buckled up properly.

Buckle up even though you are an excellent driver. Even on short trips. Someone on the road may be a poor driver and cause a collision which includes you. And this can happen far away from home or on your own street.

8

Research has shown that seat belts save lives. And they can reduce the seriousness of injuries in a collision. Some of the worst injuries happen when people are thrown from the vehicle. Seat belts provide protection against that, and they reduce the risk of injury caused by striking the inside of the vehicle. **Everyone** in a motor vehicle needs to be buckled up **all the time**.

UNIBELTS

The seats next to the front and rear doors of your vehicle are equipped with UNIBELTS.

Each unibelt is a combined lap/shoulder belt system. The belt webbing retractor will lock only during very sudden stops or impacts. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and reduce the risk of your striking the inside of the vehicle or being thrown out.

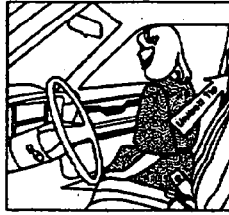
WARNING! Wearing a seat belt incorrectly is dangerous. Seat belts are designed to go around the large bones of your body. These are the strongest parts of your body and can take the forces of a collision the best. Wearing your belt in the wrong place could make your injuries in a collision much worse. You might suffer internal injuries, or you could even slide out of part of the belt. Follow these instructions to wear your seat belt safely and to keep your passengers safe, too.

WARNING! Belting two people into one seat belt can lead to greater injury. People belted together can crash into one another in an accident, hurting one another badly. Never use a unibelt or a lap belt for more than one person, no matter what their size.

9

UNIBELT OPERATING INSTRUCTIONS

1. Enter the vehicle and close the door. Sit back and adjust the seat.



1

2. The seat belt latch plate is above the back of your seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.



2

3. When the belt is long enough to fit, insert the latch plate into the buckle until you hear a "click."



3

10

WARNING! A belt that is buckled into the wrong buckle will not protect you properly. The lap portion could ride too high on your body, possibly causing internal injuries. Always buckle your belt into the buckle nearest you.

A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly.

A belt that is worn under your arm is very dangerous. Your body could fall into the inside surfaces of the vehicle in a collision, increasing head and neck injury. And a belt worn under the arm can cause internal injuries. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

4. Position the lap belt across your thighs, below your abdomen. To remove slack in the lap belt portion, pull up a bit on the shoulder belt, as shown. To loosen the lap belt if it is too tight, tilt the latch plate and pull on the lap belt. A snug belt reduces the risk of sliding under the belt in a collision.

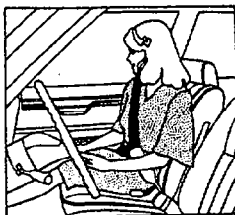


4

WARNING! A lap belt worn too high can increase the risk of internal injury in a collision. The belt forces won't be at the strong hip and pelvic bones, but across your abdomen. Always wear the lap belt as low as possible and keep it snug.

11

5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. The retractor will withdraw any slack in the belt.

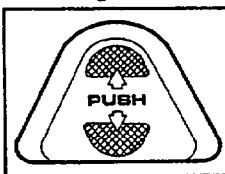


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WARNING! A twisted belt can't do its job as well. In a collision it could even cut into you. Be sure the belt is straight. If you can't straighten a belt in your vehicle, take it to your dealer and have it fixed.

Adjustable Upper Shoulder Belt Anchorage

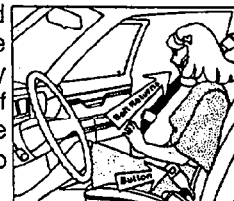
In the front seat, the shoulder belt can be adjusted upward or downward to position the belt away from your neck. Push on the anchorage cover to release the anchorage, and then move it up or down to the position that serves you best.



As a guide, if you are shorter than average, you will prefer a lower position, and if you are taller than average, you'll prefer a higher position. When you release the anchorage, try to move it up or down to make sure that it is locked in position.

In the rear seat, move toward the center of the seat to position the belt away from your neck.

6. To release the belt, push the red button marked PRESS on the buckle. The belt will automatically retract to its stowed position. If necessary, slide the latch plate down the webbing to allow it to retract fully.



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SEAT BELTS AND PREGNANT WOMEN

We recommend that pregnant women use the seat belts throughout their pregnancy. Keeping the mother safe is the best way to keep the baby safe.

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Pregnant women should wear the lap part of the belt across the thighs and as snug across the hips as possible. Keep the belt low so that it does not come across the abdomen. That way the strong bones of the hips will take the force if there is a collision.

FRONT CENTER AND REAR CENTER LAP BELTS

Center seating positions have a lap belt only. To fasten a lap belt, slip the latch plate into the buckle.

To lengthen a lap belt, tilt the latch plate and pull. To remove slack, pull the loose end of the webbing. Wear the belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

WARNING! A lap belt worn too loose or too high is dangerous.

A belt worn too loose can allow you to slip down and under the belt in a collision.

A belt that is too high will apply crash forces to the abdomen, not to the stronger hip bones.

In either case, the risk of internal injuries is greater. Wear the lap belt low and snug.

WARNING! A frayed or torn belt could rip apart in a collision and leave you with no protection. Inspect the belt system periodically, checking for cuts, frays, or loose parts. Damaged parts must be replaced immediately. Do not disassemble or modify the system. Seat belt assemblies must be replaced after an accident if they have been damaged (bent retractor, torn webbing, etc).

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SEAT BELT EXTENDER

If a seat belt is too short, even when fully extended, your dealer can provide you with a seat belt extender. This extender should be used only if the existing belt is not long enough. When it is not required, remove the extender and stow it.

CHRYSLER INTEGRATED CHILD SEAT (If so equipped)

Operating instructions for this seat are included with the seat. If the instructions are not with the seat or in the owner's manual Package, replacement instructions can be obtained.

To obtain replacement instructions:

Use the order form at the rear of this manual and specify publication 81-016-3051.

CHILD RESTRAINT

Everyone in your vehicle needs to be buckled up all the time, babies and children, too.

WARNING! In a collision, an unrestrained child, even a tiny baby, can become a missile inside the vehicle. The force required to hold even an infant on your lap could become so great that you could not hold the child, no matter how strong you are. The child and others could be badly injured. Any child riding in your vehicle should be in a proper restraint for the child's size.

All states and Canadian provinces require small children to ride in proper restraint systems. This is the law, and you can be prosecuted for ignoring it.

Infants and Small Children

There are different sizes and types of restraints for children from newborn size to the bigger child almost large enough for an adult safety belt. Use the restraint that is correct for your child.

Two different child restraint systems are generally available:

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- The infant carrier for babies weighing up to 20 lbs. (9kg.)
- The child seat for small children over 20 lbs.

In addition, some manufacturers make systems that can be first used as an infant carrier, and then converted to a child seat as the child grows.

Here are some tips on getting the most out of your child restraint:

- Before buying any restraint system, make sure that it has a label certifying that it meets Motor Vehicle Safety Standard 213. Chrysler also recommends that before you buy a child restraint, you try it in the vehicle seats where you will use it.
- The restraint must be appropriate for your child's weight and height. Check the label on the restraint for this too.

WARNING! A rearward facing infant restraint should only be used in a rear seat. A rearward facing infant restraint in the front seat may be struck by a deploying passenger airbag which may cause severe or fatal injury to the infant.

- If possible, install the restraint in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seats than in the front.
- Carefully follow the instructions that come with the restraint. If you install the restraint improperly, it may not work when you need it.

WARNING! Improper installation can lead to failure of an infant or child restraint. It could come loose in a collision. The child could be badly injured or killed. Follow the manufacturer's directions exactly when installing an infant or child restraint.

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- Infant and child restraints are secured in the vehicle seats by the lap belt or the lap part of the lap/shoulder belt. In the rear seats, you may have trouble tightening the belt on the child restraint because the buckle or latch plate interferes with the belt path opening on the restraint. Disconnect the latch plate from the buckle and twist the short buckle-end belt several turns to shorten it. Reassemble the latch plate to the buckle with the release button facing out.

In the front seat, move the seat forward to reposition the buckle against the side of the child restraint.

In the center rear seat if the belt still can't be tightened, or if by pulling and pushing on the restraint loosens the belt, you may need to do something more. Disconnect the latch plate from the buckle, turn it over, and reconnect it to the buckle. If you still can't make the child restraint secure, try a different seating position.

- Some child seat manufacturers recommend the use of a top anchorage (tether) strap in addition to the lap belt. Your vehicle has tether strap anchorages behind the rear seating positions for use with these child

seats. Your dealer can provide you with anchorage hardware and installation instructions.

- Buckle the child into the seat exactly as the seat manufacturer's directions tell you. The cinching latch plate will keep the belt tight.
- When your infant carrier or child seat is not in use, secure it with the seat belt or remove it from the vehicle. Don't leave it loose in the vehicle. In a sudden stop or collision, it could strike occupants and injure them.

Children Too Large For Child Seats

Children who are too large for child seats and who can sit upright by themselves should use the available lap/shoulder belts for best protection.

- Make sure that the child is seated upright in the seat.
- The lap belt should be fastened low on the hips and as snug as possible.
- Check belt fit periodically. A child's squirming or slouching can move the belt out of position.

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If the shoulder belt contacts the face or neck, move the child closer to the middle of the vehicle. If this doesn't solve the problem, move the child to the center rear seating position and use the lap belt.

Booster seats that may help overcome this problem are also available for use with lap/shoulder belts. Before buying a booster seat, make sure that it has a label certifying that it meets applicable Motor Vehicle Safety Standards. Make sure that it is satisfactory for use in this vehicle.

DRIVER AND RIGHT FRONT PASSENGER SUPPLEMENTAL RESTRAINT SYSTEM (SRS) - AIRBAG

This vehicle has airbags for the driver and right front passenger as a supplement to the seat belt restraint systems. The driver's airbag is mounted in the steering wheel. The passenger side airbag is mounted in the instrument panel, above the glove compartment, under a cover marked SRS/AIRBAG. These airbags inflate in higher speed impacts. They work with the instrument panel knee bolsters and the seat belts to provide im-

proved protection for the driver and right front passenger.

WARNING! Relying on the airbags alone could lead to more severe injuries in a collision. The airbags work **with** your seat belt to restrain you properly. In some collisions the airbags won't deploy at all. Wear your seat belts even though you have airbags.

The seat belts are designed to protect you in many types of collisions. The airbags deploy only in frontal collisions and will not deploy in collisions at slow speed. But even in collisions where the airbags work, you need the seat belts to keep you in the right position for the airbags to protect you properly.

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WARNING! Ignoring the AIRBAG light in your instrument panel could mean you won't have the airbags to protect you in a collision. If the light does not come on, stays on after you start the vehicle, or if it comes on as you drive, have the airbag system checked right away.

The airbag system consists of the following:

- Crash Sensors
- Diagnostic Unit
- AIRBAG Readiness Light
- Driver and Passenger Airbag/inflator Units
- Unique Steering Wheel and Column
- Unique Instrument Panel
- Interconnecting Wiring
- Knee Impact Bolster

How The Airbag System Works

- **Crash Sensors** in the front of the vehicle and in the occupant compartment determine if a frontal impact is severe enough to require the airbag. The sensors will not detect side, rollover, or rear impacts. Switches in the sensors are connected to the diagnostic unit and to the airbag/inflator unit.
- The **Diagnostic Unit** monitors the readiness of the electronic parts of the system whenever the ignition switch is in the START or RUN positions. These include all of the items listed above except the knee bolster. The Diagnostic Unit also turns on the AIRBAG light in the instrument panel for 6 to 8 seconds when the ignition is first turned on, then turns the light off. If it detects a malfunction in any part of the system, it turns on the light either momentarily or continuously.
- The **Airbag/Inflator Units** are in the center of the steering wheel and in the instrument panel. The words SRS/AIRBAG are embossed on the airbag covers.

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WARNING! Do not put anything on or around the airbag covers or attempt to manually open them. You may damage the airbags and you could be injured because the airbags are not there to protect you. These protective covers for the airbag cushions are designed to open only when the airbags are inflating.

- When the crash sensors detect an impact requiring the airbags, they signal the inflator units. A large quantity of non-toxic nitrogen gas is generated to inflate the airbags. The airbag covers separate and fold out of the way as the airbags inflate to their full size. The airbags fully inflate in about 50 milliseconds. This is only about half of the time it takes you to blink your eyes. The airbags then quickly deflate while helping to restrain the driver and right front passenger. The airbag gas is vented through the airbag material towards the instrument panel. In this way the airbags do not interfere with your control of the vehicle.
- The **Knee Impact Bolsters** help protect the knees and position you for the best interaction with the airbags.

If A Deployment Occurs

The airbag system is designed to deploy when the impact sensors detect a moderate-to-severe frontal collision, to help restrain the driver and right front passenger, and then to immediately deflate.

NOTE: A frontal collision that is not severe enough to need airbag protection will not activate the system. This does not mean something is wrong with the airbag system.

If you do have a collision which deploys the airbags, any or all of the following may occur:

- The nylon airbag material may sometimes cause abrasions and/or skin reddening to the driver and right front passenger as the airbags deploy and unfold.
The abrasions are similar to friction rope burns or those you might get sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals. They are not permanent and normally heal quickly. However, if you haven't healed significantly within a few days, or if you have any blistering, see your doctor immediately.

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- As the airbags deflate you may see some smoke-like particles. The particles are a normal by-product of the process that generates the non-toxic nitrogen gas used for airbag inflation. These airborne particles may irritate the skin, eyes, nose, or throat. If you have skin or eye irritation, rinse the area with cool water. For nose or throat irritation, move to fresh air. If the irritation continues, see your doctor.

If these particles settle on your clothing, follow the garment manufacturer's instructions for cleaning.

- Your vehicle may be safely driveable after the airbags deploy. If so, you can tuck the deployed airbags inside the opening in the steering wheel hub and instrument panel trim covers to make driving somewhat easier.

WARNING! Deployed airbags can't protect you in another collision. Have the airbags replaced by an authorized dealer as soon as possible.

Transporting Pets

Airbags deploying in the front seat could harm your pet. An unrestrained pet will be thrown about and possibly injured, or injure a passenger during panic braking or in a collision.

Pets should be restrained in the rear seat in pet harnesses or pet carriers that are secured by seat belts.

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MAINTAINING YOUR AIRBAG SYSTEM

WARNING!

- Modifications to any part of the airbag system could cause it to fail when you need it. You could be injured because the airbag is not there to protect you. Do not modify the components or wiring, including adding any kind of badges or stickers to the airbag covers. Do not modify the front bumper or vehicle body structure.
- You need proper knee impact protection in a collision. Do not mount or locate any aftermarket equipment on or behind the knee bolsters.
- You can be injured if you are too close to either airbag cover when the airbags inflate. It is dangerous to try to repair any part of the airbag system yourself. Don't try to repair the airbag system. Be sure to tell anyone who works on your vehicle that it has airbags.

You will want to have the airbags ready for your protection in a collision. While the airbag Supplemental Restraint System (SRS) is designed to be maintenance free, if any of the following occurs, have an authorized dealer service the system immediately.

- The AIRBAG light does not come on or flickers during the 6 to 8 seconds when the ignition switch is first turned on.
- The light remains on or flickers after the 6 to 8 second interval.
- The light flickers or comes on and remains on while driving.

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