

DOT 1159

REPORT NO. TRC-88-02

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

NISSAN MOTOR COMPANY, LTD.

1988 NISSAN SENTRA
4-DOOR STATION WAGON
NHTSA NO. MJ5204
TRC TEST NO. 880413

TRANSPORTATION RESEARCH CENTER OF OHIO
ST. RT. 33 LOGAN COUNTY
EAST LIBERTY, OHIO 43319

APRIL, 1988
FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF MARKET INCENTIVES
400 SEVENTH STREET, S.W.
ROOM NO. 5313 (NRM-20)
WASHINGTON, DC 20590

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16. Abstract A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1988 Nissan Sentra 4-door station wagon at the Transportation Research Center of Ohio in East Liberty, Ohio on April 13, 1988. The barrier impact velocity was 35.2 mph, and the ambient temperature at the barrier face at the time of impact was 70°F. The post-test maximum vehicle crush was 22.6 inches, and intrusion of the firewall into the compartment was 3.2 inches. Driver HIC: 1047 Passenger HIC: 526					
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures		
Symbol	When You Know Multiply by	To Find Symbol
LENGTH		
in	2.5	centimeters cm
ft	30	centimeters cm
yd	0.9	meters m
mi	1.6	kilometers km
AREA		
in ²	6.5	square centimeters cm ²
ft ²	0.09	square meters m ²
yd ²	0.8	square meters m ²
mi ²	2.6	square kilometers km ²
acres	0.4	hectares ha
MASS (weight)		
oz	28	grams g
lb	0.45	kilograms kg
short tons (2000 lb)	0.9	metric ton t
VOLUME		
tsp	5	milliliters ml.
Tbsp	15	milliliters ml.
in ³	16	milliliters ml.
fl oz	30	milliliters ml.
c	0.24	liters L
pt	0.47	liters L
qt	0.95	liters L
gal	3.8	liters L
ft ³	0.03	cubic meters m ³
yd ³	0.76	cubic meters m ³
TEMPERATURE (exact)		
°F	5/9 (after subtracting 32)	degrees Celsius °C

Approximate Conversions From Metric Measures		
Symbol	When You Know Multiply by	To Find Symbol
LENGTH		
mm	0.04	inches in
cm	0.4	inches in
m	3.3	feet ft
m	1.1	yards yd
km	0.6	miles mi
AREA		
cm ²	0.16	square inches in ²
m ²	1.2	square yards yd ²
km ²	0.4	square miles mi ²
ha (10 000 m ²)	2.5	acres
MASS (weight)		
g	0.035	ounces oz
kg	2.2	pounds lb
t (1000 kg)	1.1	short tons
VOLUME		
ml	0.03	fluid ounces fl oz
ml	0.06	cubic inches in ³
L	2.1	pints pt
L	1.06	quarts qt
L	0.26	gallons gal
m ³	35	cubic feet ft ³
m ³	1.3	cubic yards yd ³
TEMPERATURE (exact)		
°C	9/5 (then add 32)	degrees Fahrenheit °F

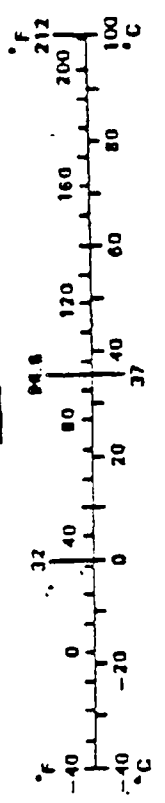


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SECTION 1.0

PURPOSE AND TEST SUMMARY

This 35 mph frontal barrier impact test is part of the Composite FY'87 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-87-R-02012. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data.

The 35 mph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test Procedure. Occupant performance data are provided herein.

SECTION 2.0

SUMMARY OF TEST NUMBER MJ5204

A load cell barrier consisting of 36 load cells was impacted by a 1988 Nissan Sentra 4-door station wagon at a velocity of 35.2 mph. The test was performed at the Transportation Research Center of Ohio on April 13, 1988. Pre-test and post-test photographs of the vehicle and occupants are presented in Appendix A.

Two Part 572B, 50th percentile adult male Anthropomorphic Test Devices (ATDs) were placed in the driver and right-front passenger designated seating positions, according to dummy placement procedures specified in Laboratory Indicant Test Procedure dated September 1, 1986.

Both ATDs were instrumented with longitudinal, lateral, and vertical accelerometers in the head and chest and load cells in the left and right femurs. In addition, load cells were placed on the driver's and passenger's lap and shoulder belts to measure dummy upper torso and pelvic section loading. A summary of the dummy performance verification test data is presented in Appendix C.

The crash event was recorded by one real-time camera and 14 high-speed cameras. At the instruction of the COTR the two onboard cameras specified in the Laboratory Procedure were omitted to achieve the vehicle's target test weight. Camera locations and other pertinent camera information are found in Section 3.0 of this report.

The 67 channels of data were recorded on two 14-track tape drives. Appendix B contains the vehicle, load cell barrier and dummy response data plots.

TABLE 1

CRASH TEST SUMMARY

NHTSA NO.: MJ5204 PROJECT: New Car Assessment
DATE: 4/13/88 TIME: 1423 TEMP: 70°F
VEHICLE: 1988 Nissan Sentra 4-door Station Wagon
TEST WEIGHT (LBS): 2675
IMPACT ANGLE (DEG)*: 0
IMPACT VELOCITY (MPH**): PRIMARY = 35.2 SECONDARY = 35.2
MAXIMUM STATIC CRUSH (IN): 22.6
VEHICLE REBOUND (IN): 28.2
DUMMIES: Driver #826 Passenger #759
TYPE: Part 572B Part 572B
LOCATION: Left front Right front
RESTRAINT: 3-point Production Unibelt 3-point Production Unibelt
NUMBER OF DATA CHANNELS: 67
NUMBER OF HIGH SPEED CAMREAS: 14 and 1 real-time camera

*With respect to tow track centerline.

**Speed trap measurement (\pm .05 mph accuracy)

GENERAL COMMENTS

The 1988 Nissan Sentra 4-door Station Wagon was equipped with a 1.6 liter, 4-cylinder transverse engine, 5-speed manual transmission, and power brakes. The total test weight with two 50th percentile male dummies and instrumentation was 2675 pounds. The test vehicle impacted the frontal load cell barrier at a velocity of 35.2 mph.

The vehicle sustained 22.6 inches of static crush. Maximum load cell barrier force measured by the 36 load cells was 91,146 pounds at 27.2 milliseconds.

The driver's "Head Injury Criteria" was 1047; the maximum chest deceleration over 3 milliseconds was 53 g's. The right and left femur loads were 686 and 880 pounds, respectively.

The passenger's "Head Injury Criteria" was 526; the maximum chest deceleration over 3 milliseconds was 42 g's. The right and left femur loads were 853 and 1030 pounds, respectively.

The belt-related data for each occupant are presented in Section 3.0 of this report.

DATA ACQUISITION EXPLANATIONS

At the instruction of the COTR, the two onboard cameras, #13 and #14, were removed to achieve the vehicle's target test weight. Since these cameras were removed, the belt spool-off data could not be determined by film analysis.

TABLE 2 TEST VEHICLE INFORMATION, CONT'D.

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVEBOX, ETC.

VEHICLE LOAD (UP TO CAPACITY): FRONT 29 psi; REAR 29 psi

RECOMMENDED TIRE SIZE: P155/80R13 LOAD RANGE X B. C. D

TIRES ON VEHICLE (MFR., LINE, SIZE): Dunlop, SP RS All Season, P155/80R13

IS SPARE TIRE A "SPACE SAVER": Yes

IS SPARE TIRE STANDARD EQUIPMENT: No

VEHICLE CAPACITY: TYPES OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manual adjustable

NUMBER OF OCCUPANTS 2 FRONT 3 REAR 5 TOTAL

CARGO LOAD 0 LBS. TOTAL 750 LBS.

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

RIGHT FRONT 675 lbs. RIGHT REAR 486 lbs.

LEFT FRONT 693 lbs. LEFT REAR 474 lbs.

TOTAL FRONT WEIGHT 1368 lbs. (58.8% OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 960 lbs. (41.2% OF TOTAL VEHICLE WEIGHT)

TOTAL DELIVERED WEIGHT 2328 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT

UDW = UNLOADED DELIVERED WEIGHT (2328 LBS)

VCW = VEHICLE CAPACITY WEIGHT (750 LBS)

DSC = DESIGNATED SEATING CAPACITY (5)

RCLW = VCW - 150 (DCS) = 750 - 150 (5) = 0 LBS

TARGET TEST WEIGHT = UDW + RCLW + (2 DUMMIES X 164 LBS/DUMMY)

= 2328 + 0 + 328 LBS

TARGET TEST WEIGHT = 2656 LBS

TABLE 2 TEST VEHICLE INFORMATION, CONT'D.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 19 LBS. CARGO

RIGHT FRONT	738 lbs.	RIGHT REAR	604 lbs.
LEFT FRONT	730 lbs.	LEFT REAR	603 lbs.
TOTAL FRONT WEIGHT	1468 lbs.	(54.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1207 lbs.	(45.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	2675 lbs.	(0.7% OVER TARGET WEIGHT)	
WEIGHT OF BALLAST SECURED IN VEHICLE TRUNK AREA:			0 LBS.
COMPONENTS REMOVED TO MEET TARGET WEIGHT: Onboard cameras, rear bumper, and tail lights.			

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	LF	26.2	;RF	26.2	;LR	24.9	;RR	24.8
PRE-TEST ATTITUDE:	LF	25.2	;RF	25.0	;LR	23.4	;RR	23.4
POST-TEST ATTITUDE:	LF	25.1	;RF	23.9	;LR	22.8	;RR	22.8
WHEELBASE:	95.6	INCHES						
CG =	43.1	INCHES REARWARD OF FRONT WHEEL CENTERLINE						

TABLE 3 TEST CONDITIONS

TEST NUMBER: 880413

DATE OF TEST: 4/13/88

TYPE OF TEST: Frontal Load Cell Barrier

AMBIENT TEMPERATURE AT IMPACT AREA: 70°F

TEMPERATURE IN OCCUPANT COMPARTMENT: 71°F

IMPACT VELOCITY: PRIMARY = 35.2 MPH

SECONDARY = 35.2 MPH

(SPECIFIED RANGE = 34.5 TO 35.5 MPH)

VEHICLE REBOUND AND CRUSH (ALL DIMENSIONS IN INCHES):

OVERALL LENGTH OF TEST VEHICLE:	PRE-TEST:	L	171.1	;C	172.1	;R	171.2
	POST-TEST:	L	149.5	;C	149.8	;R	149.4
	TOTAL CRUSH:	L	21.6	;C	22.3	;R	21.8

FOR FRONTAL IMPACTS, DISTANCE FROM FRONT OF TEST VEHICLE TO BARRIER AFTER IMPACT: L: 30.3 ;C: 27.3 ;R: 26.9 ;AVG: 28.2

TABLE 4

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #826	PASSENGER #759
Head	<u>Steering wheel</u>	<u>Chest</u>
Chest	<u>None</u>	<u>None</u>
Abdomen	<u>None</u>	<u>None</u>
Left knee	<u>Instrument panel</u>	<u>Instrument panel</u>
Right knee	<u>Instrument panel</u>	<u>Instrument panel</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Difficult, no tools required</u>	<u>Difficult, no tools required</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:

Windshield was shattered upon impact.

OTHER NOTABLE IMPACT EFFECTS:

None

SECTION 3.0

OCCUPANT, VEHICLE AND LOAD CELL BARRIER INFORMATION

TABLE 5 DUMMY INJURY CRITERIA

MAXIMUM ACCELERATION ('G')

	HEAD				CHEST			R*
	X	Y	Z	R	X	Y	Z	
DRIVER	-121.5	22.4	-82.0	146.9	-54.3	-13.2	-16.8	52.7
PASSENGER	-34.8	10.8	-58.0	58.6	-43.4	13.0	17.1	41.8

MAXIMUM FORCE-FEMUR LOAD (LBS)

	RIGHT FEMUR	LEFT FEMUR
DRIVER	686	880
PASSENGER	853	1030

MAXIMUM FORCE-SEAT BELT LOADS (LBS)

	SHOULDER STRAP	LAP STRAP	LAP STRAP
	UPPER BELT LOAD	RIGHT BELT LOAD	LEFT BELT LOAD
DRIVER	1753	---	1325
PASSENGER	1802	1429	---

HEAD INJURY CRITERIA**

	HIC	TIME t ₁	TIME t ₂
		(MSEC)	(MSEC)
DRIVER	1047	71.1	107.1
PASSENGER	526	73.1	109.1

*Defined as exceeding 0.003 sec. duration

**As defined in FMVSS No. 208

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

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

FIGURE 1 DUMMY POSITIONING DATA FOR 35 MPH FRONTAL BARRIER IMPACT TEST

PRE-IMPACT DATA:

Make/Model: Nissan Sentra
 Body Style: 4-door station wagon Model Year: 1988
 NHTSA No.: MJ5204 Color: Red

DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: Nissan Motor Company, LTD
 Date of Manufacture: 2/88 VIN: JN1PB25S1JU020589
 GVWR: 3250 lb; GAWR: Front = 1764 lb; Rear = 1786 lb

POST-IMPACT DATA:

Date of Test: 4/13/88 Time: 1423 Temperature: 70 ° F
 Required Impact Velocity Range: 34.5 to 35.5 mph
 Impact Velocity: Primary = 35.2 mph Secondary = 35.2 mph
 Seat Type: Bucket Adjuster Type: Manual
 Bucket Seat Back Type: Manual adjustable
 Technicians: R. Branham, N. Kinney

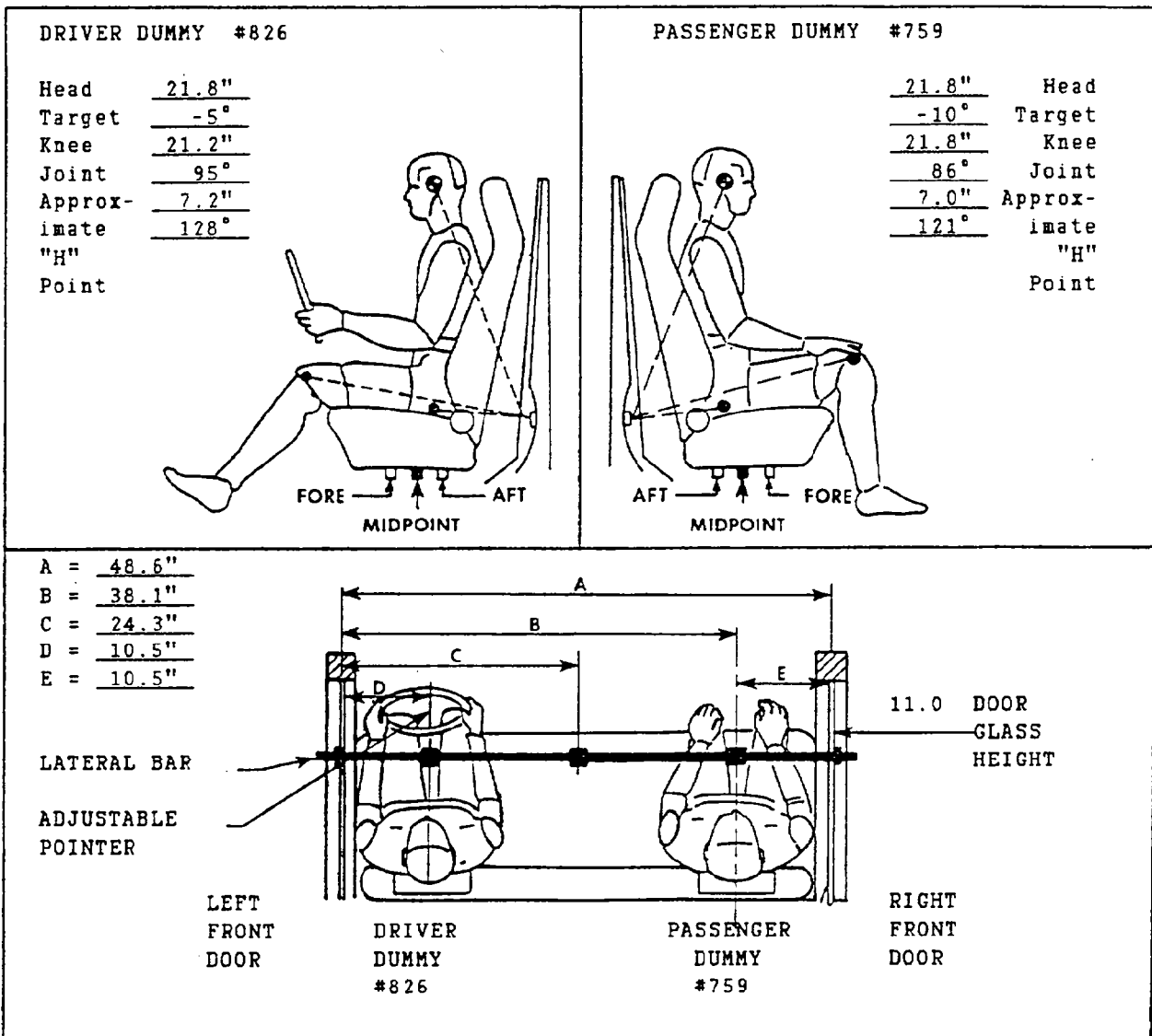
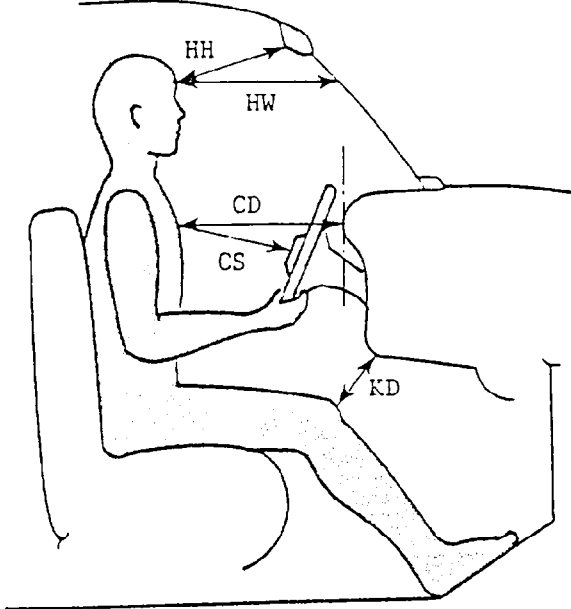
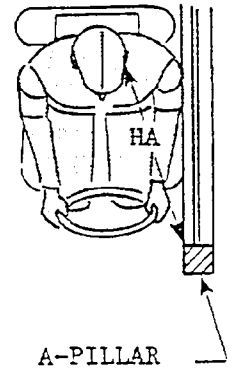
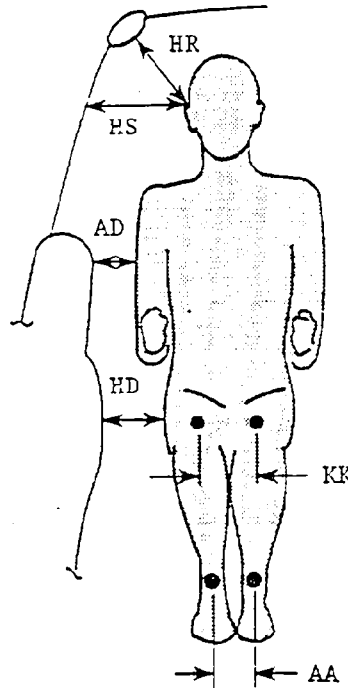


FIGURE 1, CONT'D DUMMY IN-VEHICLE POSITION RECORDING SHEET

	DRIVER	PASSENGER
HH	14.8	16.1
HW	19.4	21.9
CD	23.6	23.8
CS	15.0	NA
KDL	6.0	5.4
KDR	6.1	5.1
TA	24°	27°
SA	25°	25°
HA	14.4	16.1



	DRIVER	PASSENGER
HR	5.8	6.0
HS	7.6	8.1
AD	2.9	4.1
HD	6.4	6.9
KK	10.8	7.8
AA	11.5	8.5



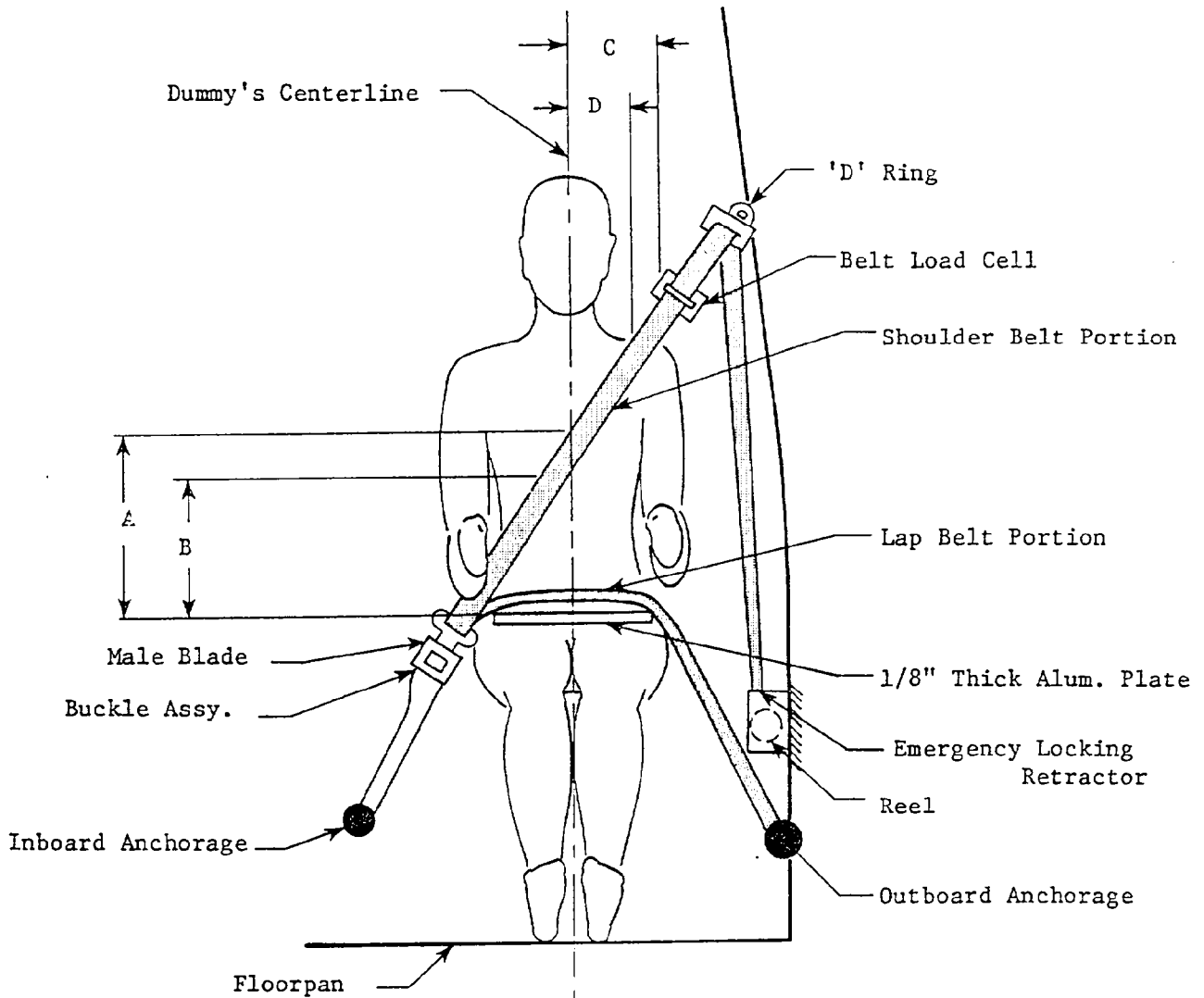
Knee outer bolt head to outer bolt head spacing:
 Driver = 14.5
 Passenger = 11.8

- | | |
|--------------------------------|--------------------------|
| HH = Head to Windshield Header | HR = Head to Side Roof |
| HW = Head to Windshield | HS = Head to Side Window |
| CD = Chest to Dash | AD = Arm to Door |
| CS = Chest to Steering Wheel | HD = Hip to Door |
| KD = Knee to Dash | KK = Knee to Knee |
| TA = Torso Angle | AA = Ankle to Ankle |
| SA = Seat Back Angle | HA = Head to A-Pillar |

Torso and seat back angles are relative to vertical.

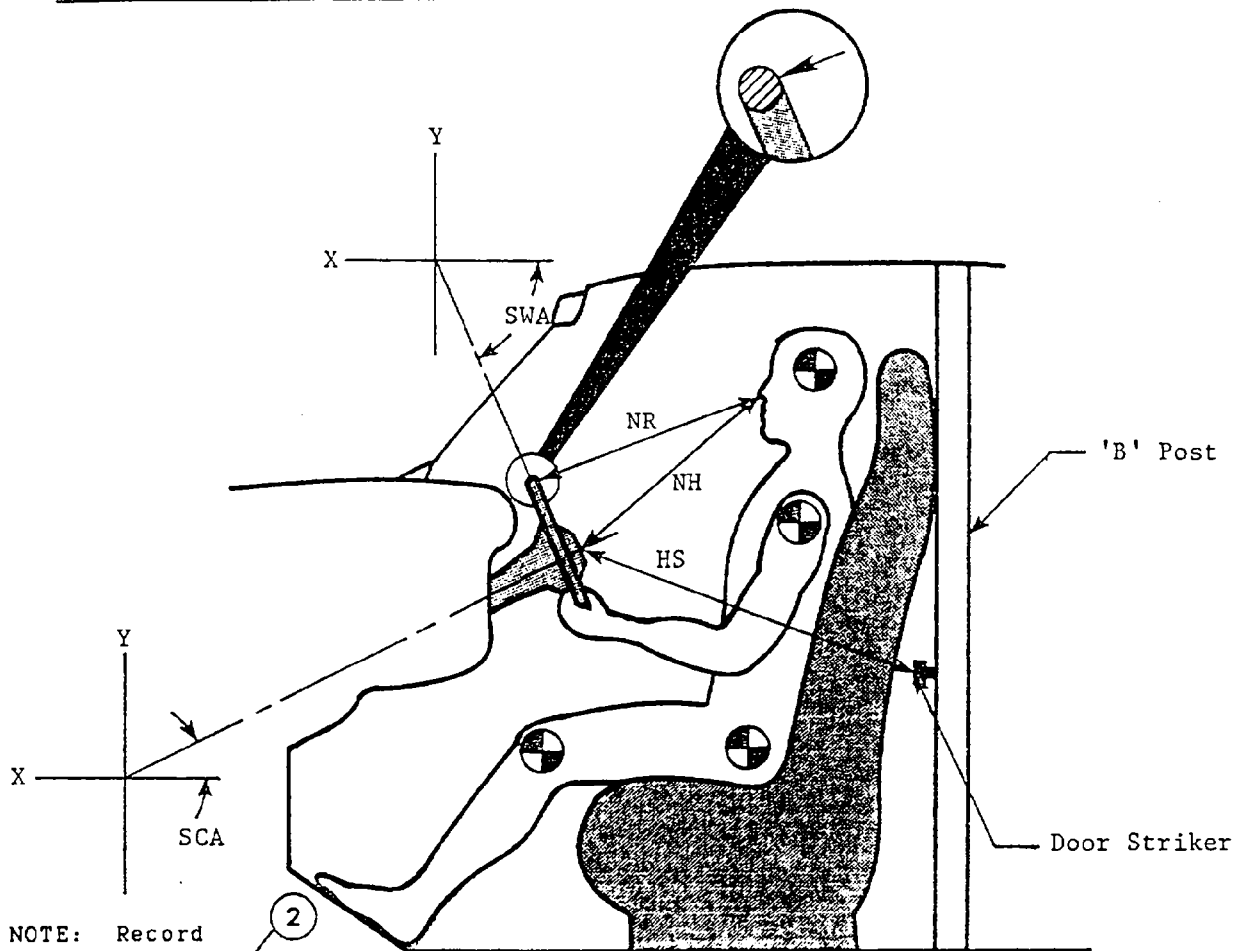
ALL DISTANCE MEASUREMENTS ARE IN INCHES.

FIGURE 2 SEAT BELT POSITIONING DATA

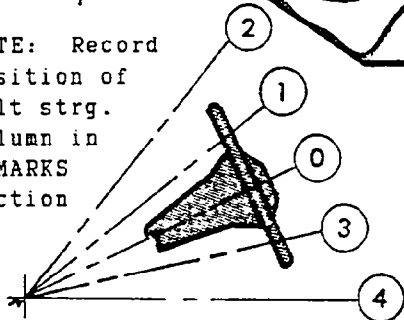


	DRIVER DUMMY	PASSENGER DUMMY
A - Top surface of alum. plate to belt upper edge (in)	14.2	14.5
B - Top surface of alum. plate to belt lower edge (in)	10.9	11.0
C - Dummy centerline to outer edge of belt at chest flesh top (in)	7.2	3.4
D - Dummy centerline to inner edge of belt at chest flesh top (in)	5.0	1.0
LAP BELT TENSION (lbs)	4	4
SHOULDER BELT TENSION (lbs)	4	4

FIGURE 3 DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



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



REMARKS: Driver's and passenger's seats were latched in the 11th notch of the seat tracks. The seat tracks had 20 notches. The driver's and passenger's seat backs were positioned in the 7th adjustment notch rearward of the forward-most notch. The steering column was a non-tilt column.

MEASUREMENTS

NR	- Distance from tip of dummy's nose to top rear surface of steering wheel rim.	18.6
NH	- Distance from tip of dummy's nose to center of steering column hub.	19.4
HS	- Distance from center of steering column hub to the forward surface of the door lock striker pin.	21.8
SCA	- Angle of steering column relative to the horizontal X axis	25°
SWA	- Angle of steering wheel relative to the horizontal X axis	65°

FIGURE 4 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	DRIVER SIDE		PASSENGER SIDE	
	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
Total belt length from retractor reel to bolt hole anchor point for continuous webbing systems.	95.7	102.2	97.7	103.0
Retractor reel to 'D' ring as measured on Part 572 dummy.	10.8	10.5	14.8	14.0
Shoulder belt length as measured on Part 572 dummy.	28.8	29.6	30.8	29.6
Lap belt length as measured on Part 572 dummy.	23.8	25.2	28.5	25.2
Remainder of belt webbing left on retractor reel.	32.3	36.9	23.6	34.2

BELT SPOOL-OFF DATA:

As determined by film analysis	DNA	--- Y	DNA	--- Y
As determined electronically	DNA	5.2	DNA	2.9

BELT STRAIN DATA:

Measured between retractor reel and 'D' ring.	DNA	1.7 in/ft	DNA	1.2 in/ft
---	-----	-----------	-----	-----------

Y See DATA ACQUISITION EXPLANATIONS

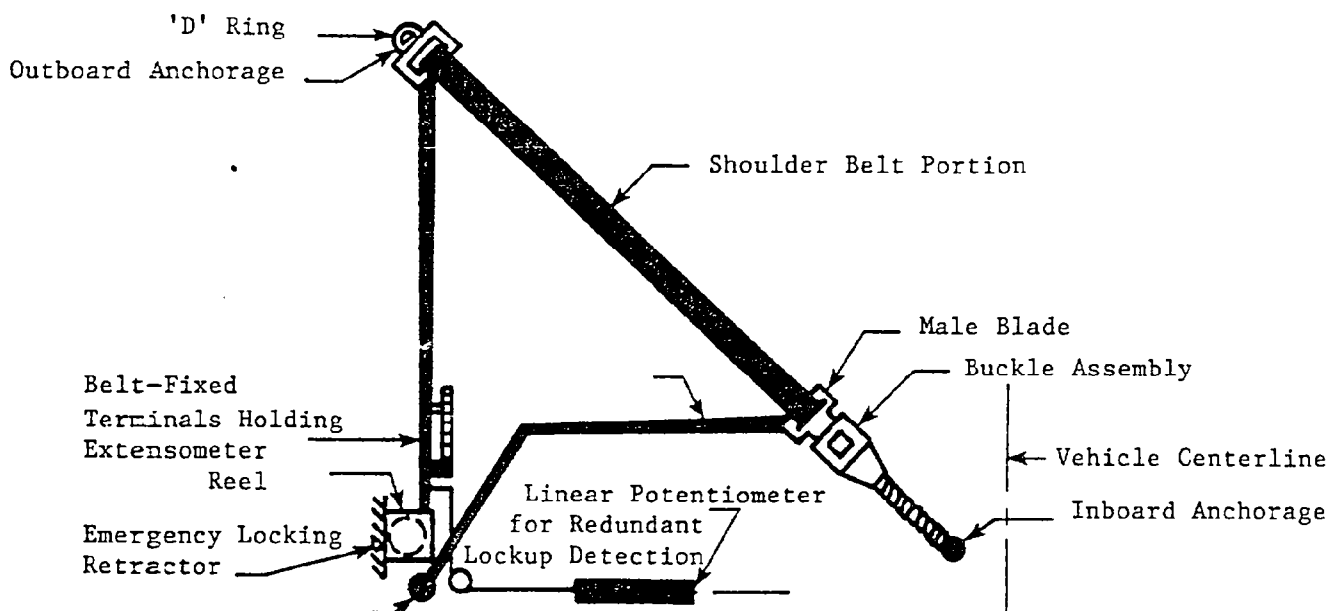


TABLE 6 TEST INFORMATION

PRE-IMPACT DATA

MAKE/MODEL: Nissan/Sentra

BODY STYLE: 4-door Station Wagon

MODEL YEAR: 1988

NHTSA NO.: MJ5204

COLOR: Red

DATA FROM CERTIFICATION LABEL

VEHICLE MANUFACTURER: Nissan Motor Company, LTD

DATE OF MANUFACTURE: 2/88

VIN: JN1PB25S1JU020589

GVWR: 3250 LBS., GAWR: FRONT 1764 LBS., REAR 1786 LBS.

POST-IMPACT DATA

TYPE OF TEST: Frontal Load Cell Barrier Impact

DATE OF TEST: 4/13/88

TIME: 1423

TEMP:

70°F

REQUIRED IMPACT VELOCITY RANGE: 34.5 MPH TO 35.5 MPH

IMPACT VELOCITY: PRIMARY = 35.2 MPH, SECONDARY = 35.2 MPH

TEST WEIGHT = 2675 LBS., STATIC CRUSH MAX. = 22.6 IN., REBOUND = 28.2 IN.

FUEL SYSTEM DATA

TEST FLUID TYPE: PURPLE SOLVENT #2; SPEC. GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTORES

"USEABLE" CAPACITY*: 12.2 GALLONS (FURNISHED BY COTR)

TEST VOLUME: 11.4 GALLONS (92-94% OF USEABLE)

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 13.1 GALLONS

DETAILS OF FUEL SYSTEM: Fuel tank is located in front of rear axle.

Fuel filler neck is located on left side and enters the left rear

corner of the fuel tank.

ELECTRIC FUEL PUMP: Yes

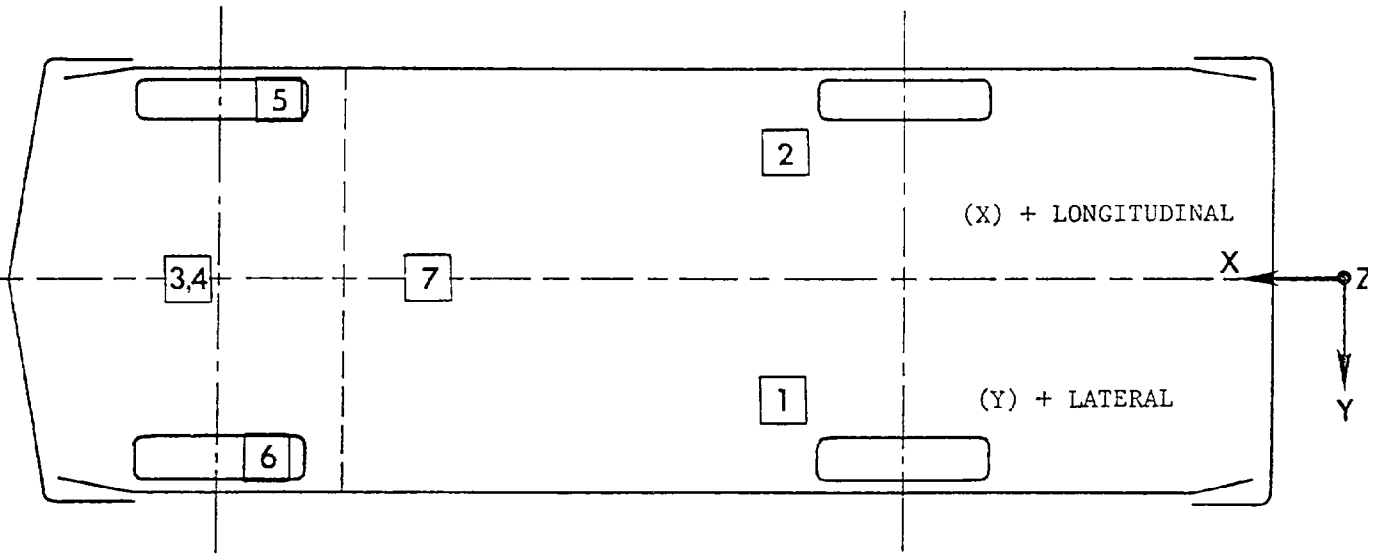
FUEL INJECTON: Yes

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

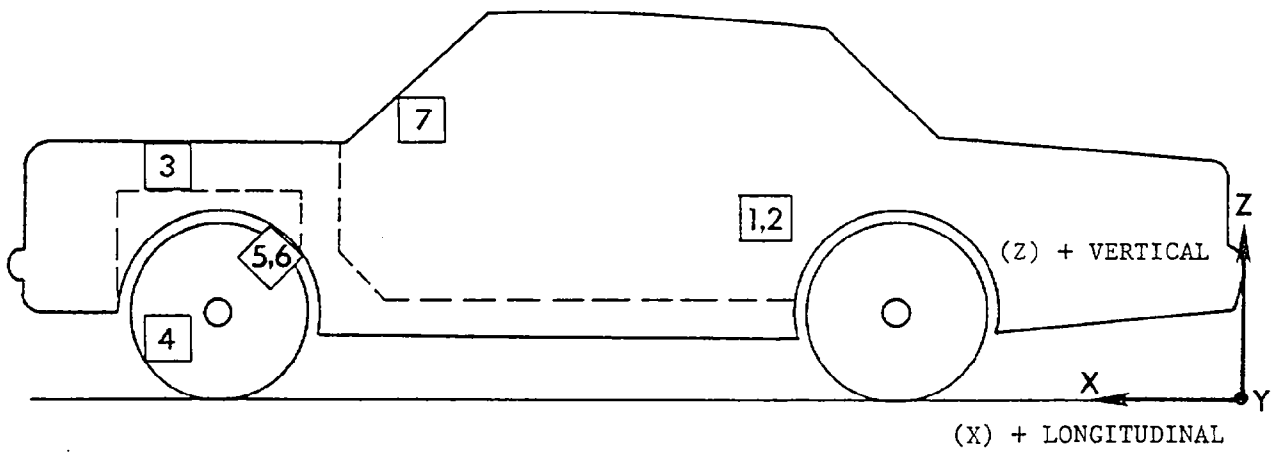
*WITH ENTIRE FUEL SYSTEM FILLED.

FIGURE 5

VEHICLE ACCELEROMETER LOCATIONS



TOP VIEW



SIDE VIEW

TABLE 7
TEST NUMBER 880413

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	REAR SEAT X-MEMBER AT LEFT SIDE LONGITUDINAL	69.1	18.5	13.5	1.7	135.0	35.8	36.6
2	REAR SEAT X-MEMBER AT RIGHT SIDE LONGITUDINAL	69.1	-19.0	13.5	2.1	157.6	38.0	36.1
3	TOP OF ENGINE BLOCK LONGITUDINAL	148.5	-7.6	29.6	62.3	39.5	142.7	28.5
4	BOTTOM OF ENGINE BLOCK LONGITUDINAL	146.5	-10.0	6.7	77.8	35.9	176.5	25.1
5	BRAKE CALIPER AT RIGHT SIDE LONGITUDINAL	142.6	-25.2	10.6	51.2	60.1	111.7	41.9
6	BRAKE CALIPER AT LEFT SIDE LONGITUDINAL	142.6	24.2	10.4	22.0	65.3	81.4	44.8
7	DASH PANEL LONGITUDINAL	115.4	-2.0	34.8	22.7	27.9	59.6	44.0

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: FORWARD FROM REAR BUMPER
Y: LEFT FROM VEHICLE CENTERLINE
Z: UP FROM GROUND LEVEL

FIGURE 6
PRE-TEST AND POST-TEST MEASUREMENT POINTS

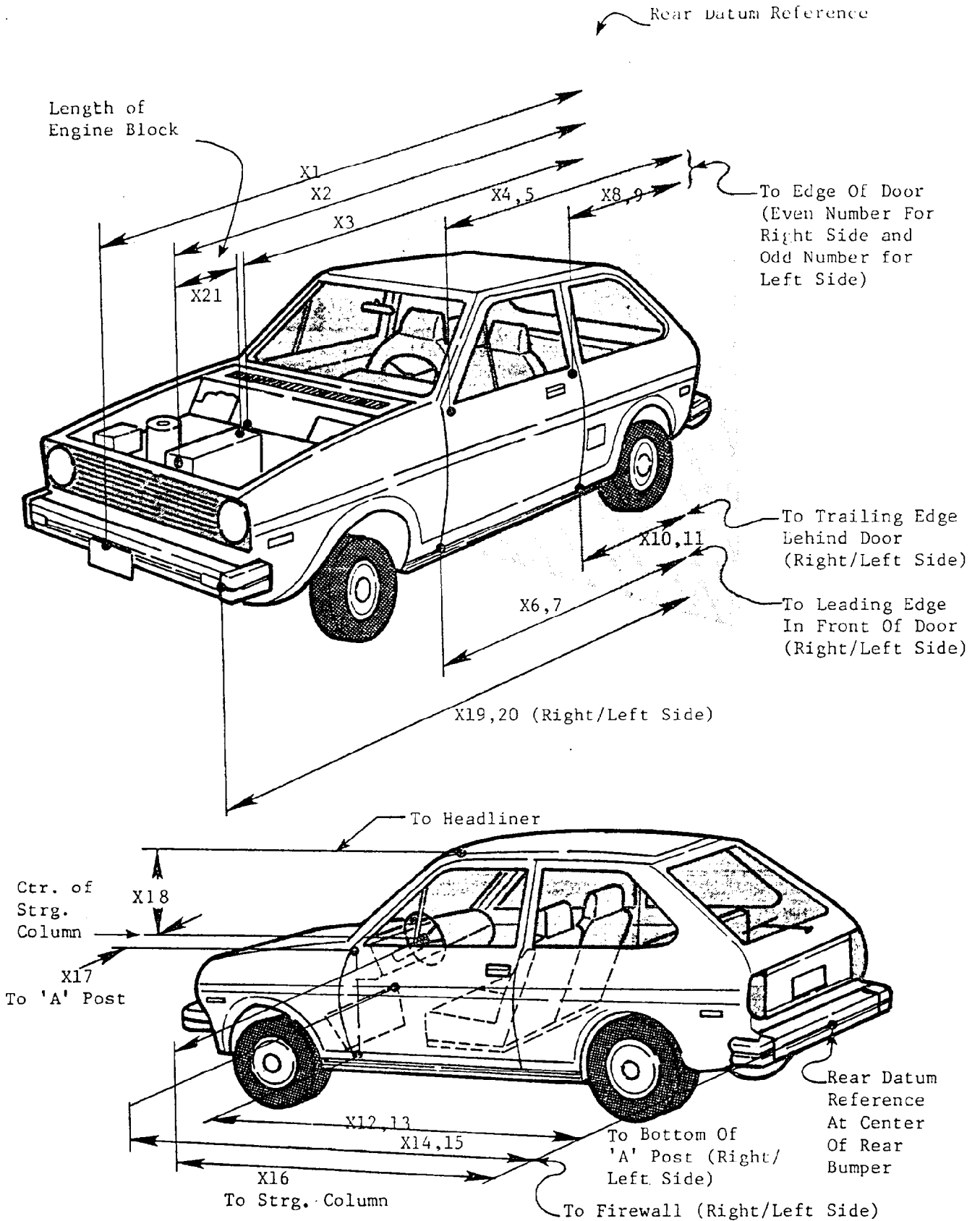


TABLE 8 IMPACTED VEHICLE MEASUREMENTS

NO.	TYPE OF MEASUREMENT	DIMENSIONS IN INCHES		
		PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	172.1	149.8	22.3
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	150.9	138.8	12.1
X3	REAR SURFACE OF VEHICLE TO FIREWALL	131.1	126.8	4.3
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	119.4	118.8	0.6
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	119.5	118.9	0.6
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	120.4	119.1	1.3
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	120.3	119.2	1.1
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	81.1	80.8	0.3
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	81.4	81.1	0.3
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	81.5	81.1	0.4
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	81.6	80.9	0.7
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	120.2	119.6	0.6
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	120.2	119.6	0.6
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	129.4	126.2	3.2
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	129.8	127.8	2.0
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	101.6	99.8	1.8
X17	CENTER OF STEERING COLUMN TO "A" POST	15.9	16.4	-0.5
X18	CENTER OF STEERING COLUMN TO HEADLINING	17.9	15.9	2.0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	171.2	149.4	21.8
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	171.1	149.5	21.6
X21	LENGTH OF ENGINE BLOCK	15.0	15.0	0.0

FIGURE 7
VEHICLE TARGET LOCATION

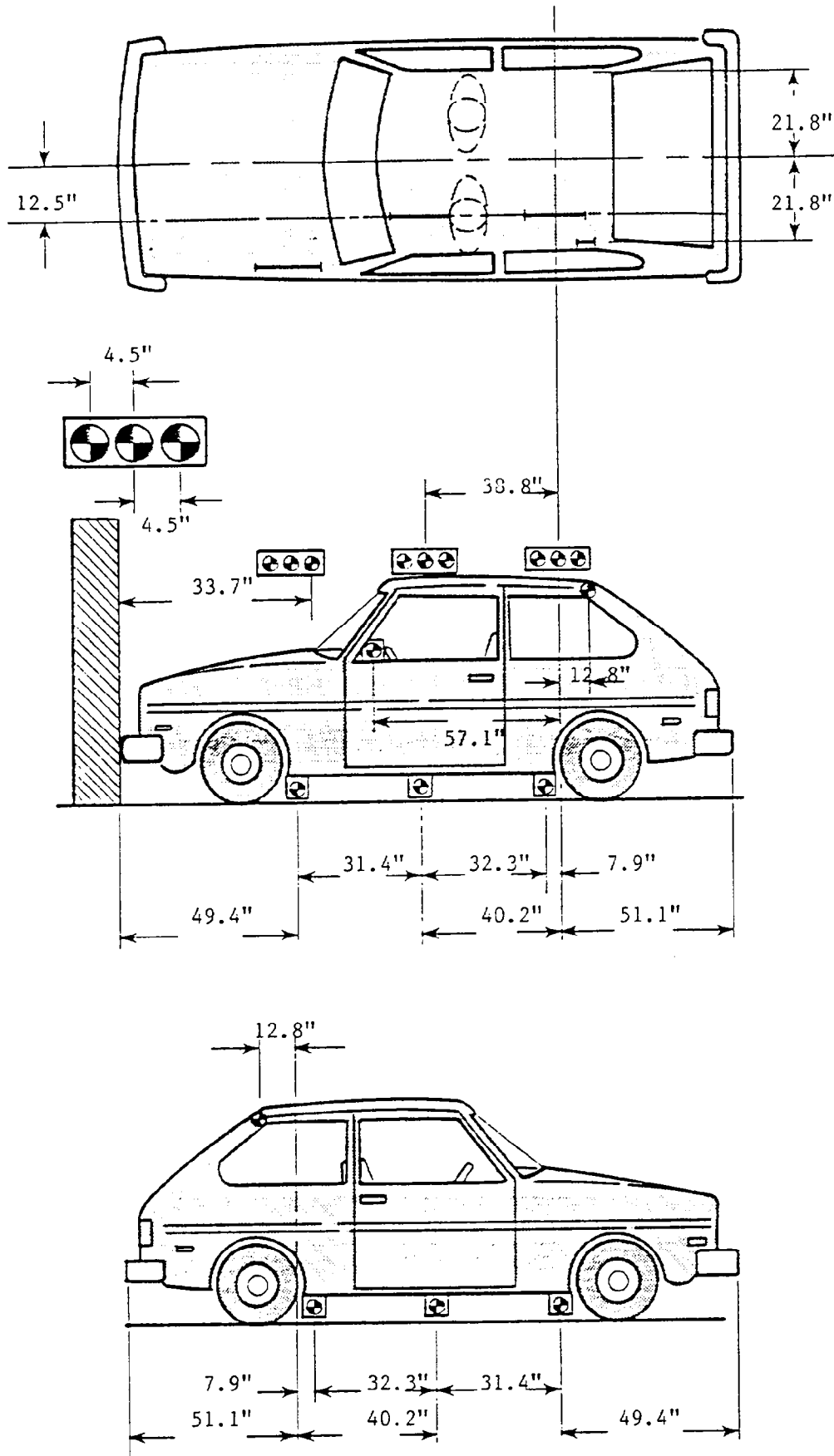


FIGURE 8 ACCIDENT INVESTIGATION DIVISION DATA
FOR 35 MPH FRONTAL BARRIER IMPACT

VEHICLE MAKE/MODEL/BODY STYLE: Nissan Sentra 4-door station wagon
 VEH. NHTSA NO.: MJ5204; VIN: JN1PB25S1JU020589
 MODEL YEAR: 1988; BUILD DATE: 2/88; TEST DATE: 4/13/88
 VEH. SIZE CATEGORY: Small Station Wagon; TEST WEIGHT: 2675
 VEH. WHEELBASE: 95.6
 MAX. WIDTH: 64.6
 FRONT OVERHANG: 33.4

COLLISION DEFORMATION
 CLASSIFICATION (CDC) CODE: 12FDEW3

F (Frontal)
 CRUSH DEPTH
 DIMENSIONS:

C1 =	<u>21.6</u>	inches
C2 =	<u>22.2</u>	inches
C3 =	<u>22.6</u>	inches
C4 =	<u>22.1</u>	inches
C5 =	<u>21.8</u>	inches
C6 =	<u>21.8</u>	inches

MIDPOINT OF DAMAGE: D = Vehicle Centerline (Longitudinal)

LENGTH OF DAMAGED REGION: L = 56.0 inches

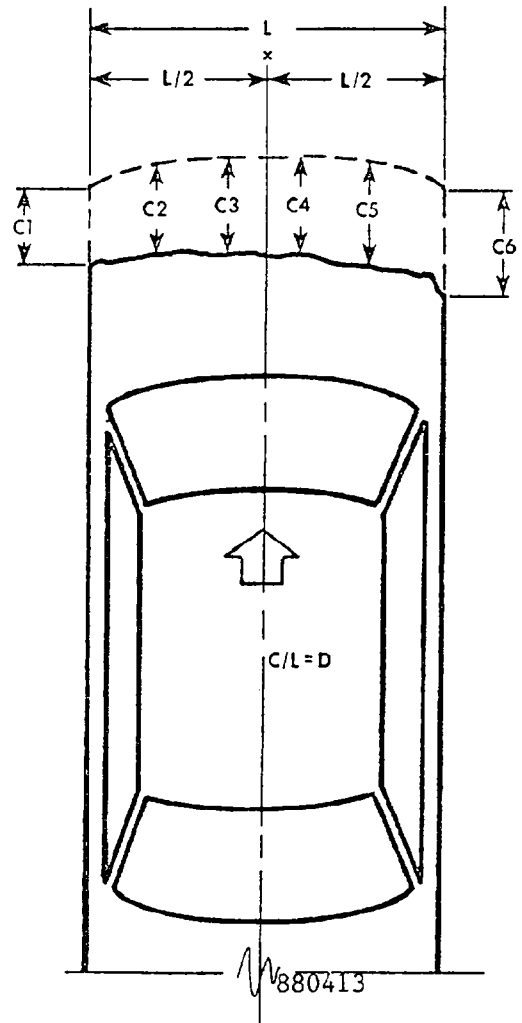
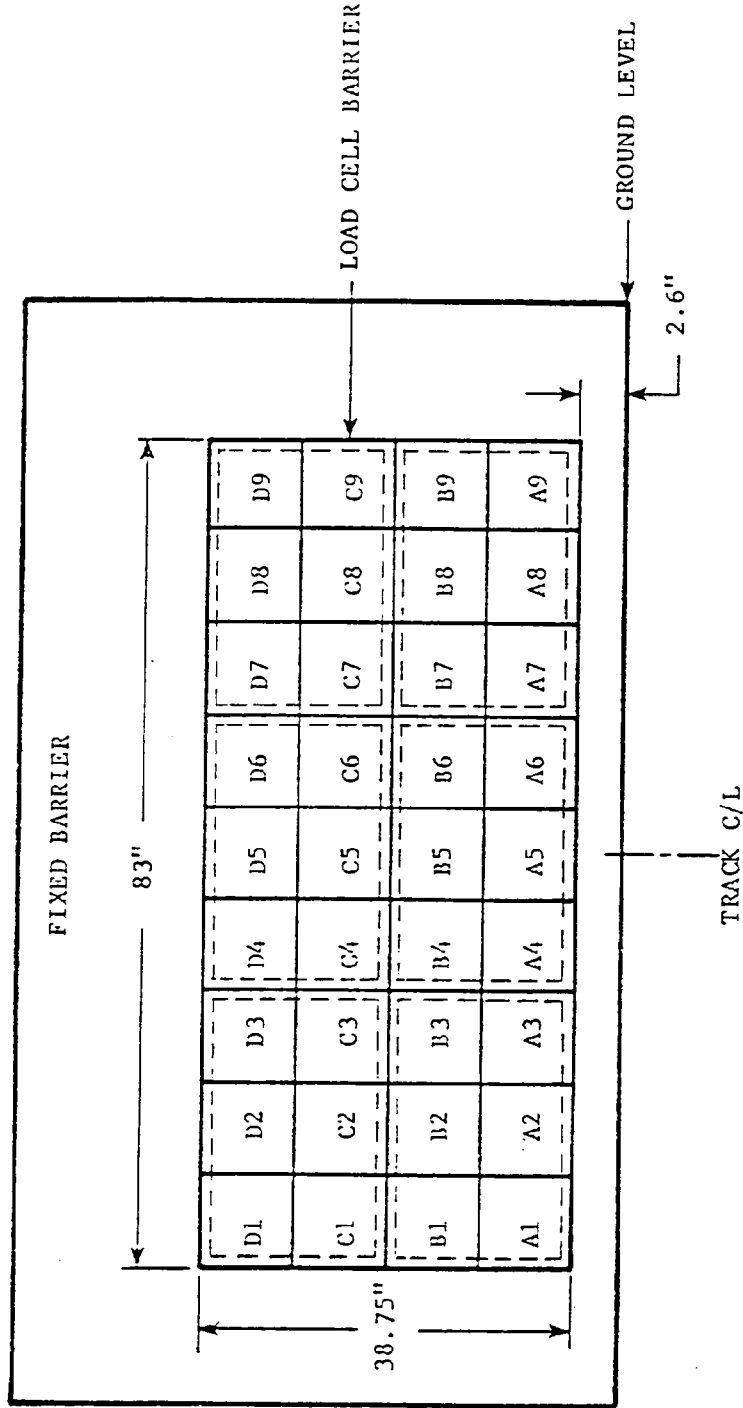


FIGURE 9

36 LOAD CELLS
 4 ROWS
 9 COLUMNS
 FRONT VIEW



BARRIER LOAD CELL CONFIGURATION

- GROUP 1: D1 thru C3
- GROUP 2: D4 thru C6
- GROUP 3: D7 thru C9
- GROUP 4: B1 thru A3
- GROUP 5: B4 thru A6
- GROUP 6: B7 thru A9

TABLE 9
LOAD CELL BARRIER SUMMARY

<u>POSITION</u>	<u>POSITIVE DIRECTON*</u>		<u>NEGATIVE DIRECTON*</u>	
	<u>MAX</u> <u>(lb)</u>	<u>TIME</u> <u>(msec)</u>	<u>MIN</u> <u>(lb)</u>	<u>TIME</u> <u>(msec)</u>
TOTAL GROUP 1	268.1	2.8	7899.8	27.9
TOTAL GROUP 2	290.1	2.2	8717.2	28.6
TOTAL GROUP 3	280.3	1.9	5021.9	16.4
TOTAL GROUP 4	192.8	259.2	21169.4	14.1
TOTAL GROUP 5	277.0	237.4	46131.0	46.2
TOTAL GROUP 6	194.8	246.4	21874.2	14.6
TOTAL LOAD CELL FORCE	1103.6	259.6	91145.6	27.2

*REFERENCE: TENSION IS POSITIVE
COMPRESSION IS NEGATIVE

FIGURE 10

CAMERA POSITIONS

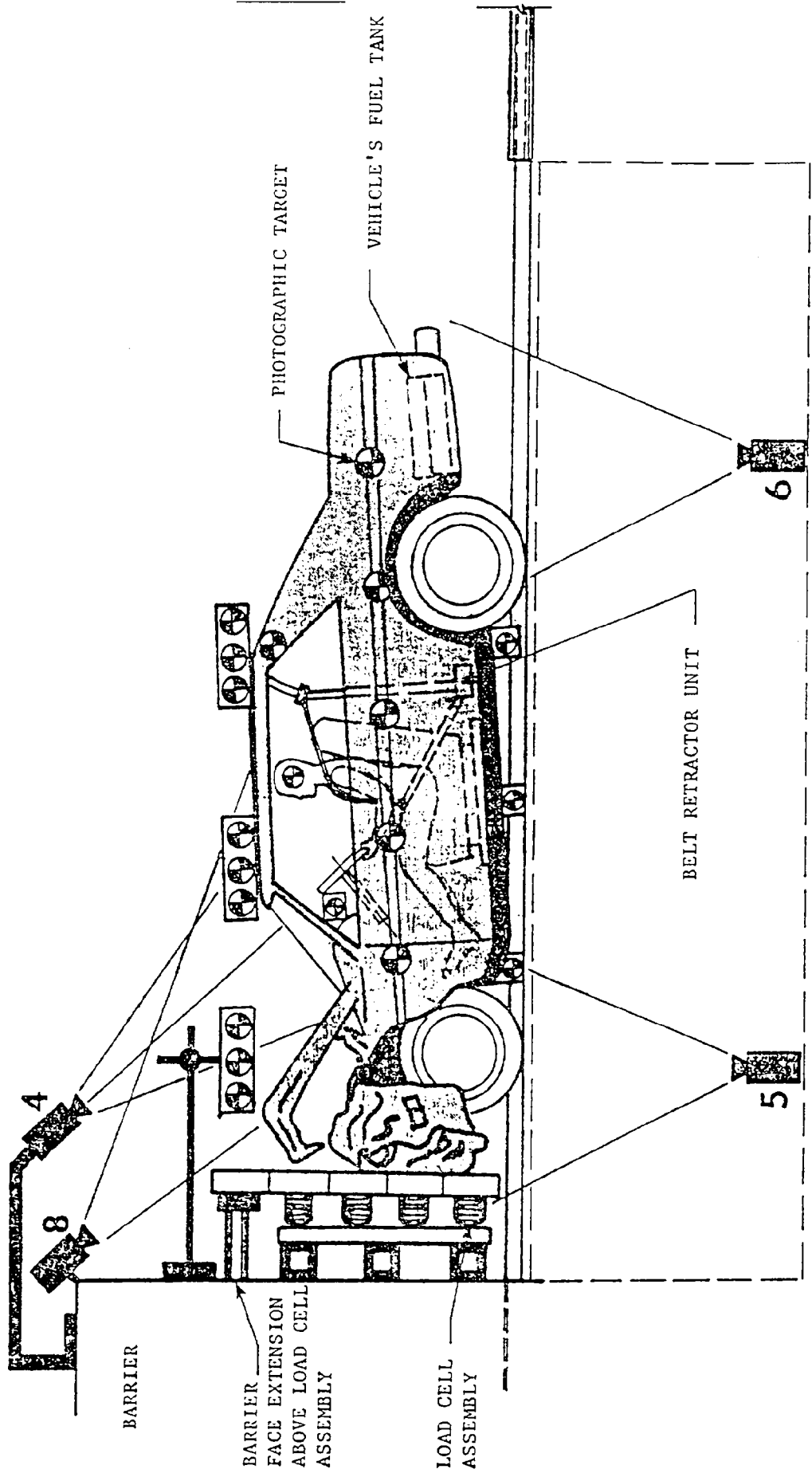
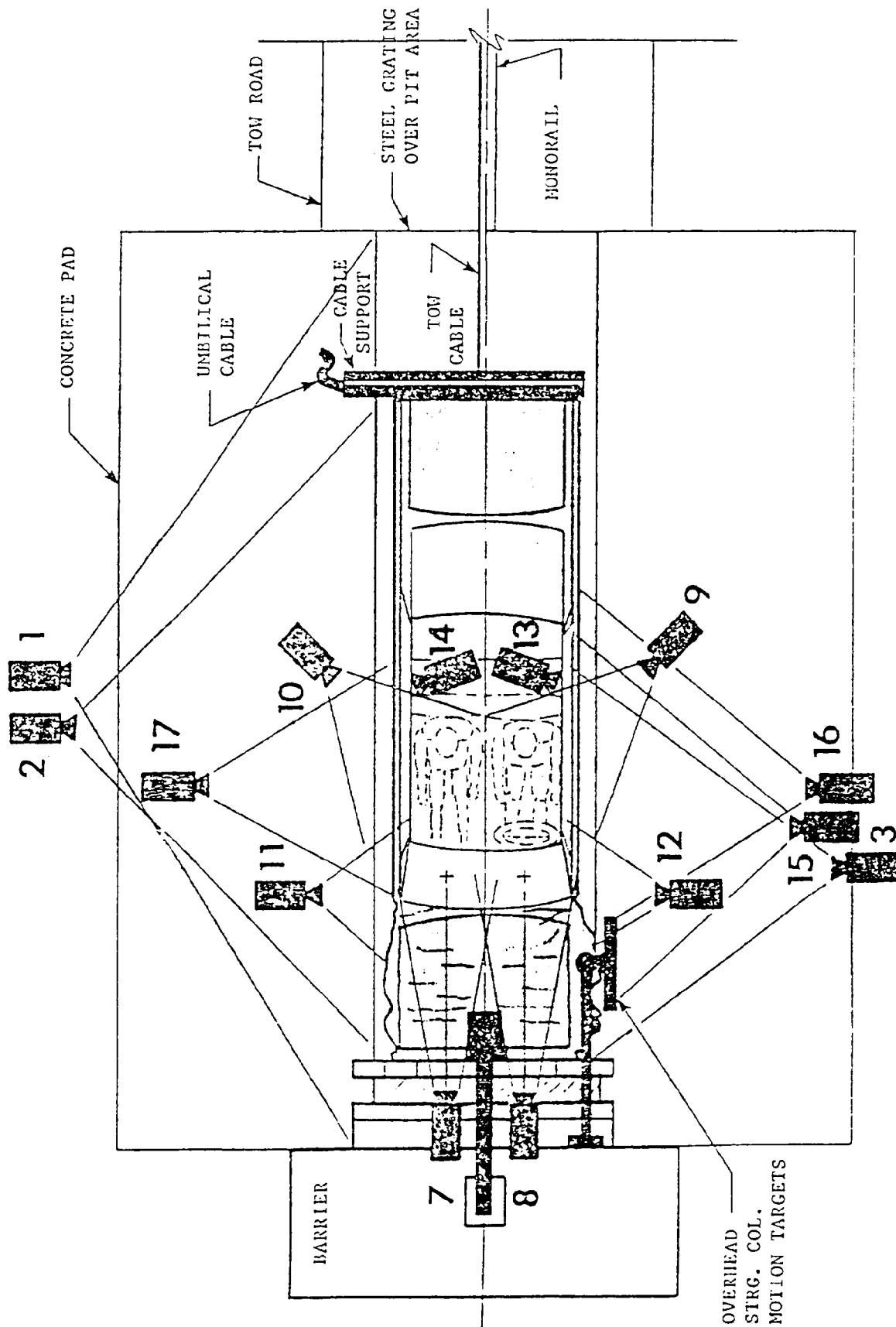


FIGURE 10, CONT'D



CAMERA POSITIONS

TABLE 10 HIGH SPEED CAMERA LOCATIONS

CAMERA NO.	VIEW	CAMERA POSITIONS (IN)*			ANGLE** (DEG)	FILM PLANE TO HEAD TARGET		LENS (MM)	SPEED (FPS)
		X	Y	Z		TO HEAD TARGET			
1	Real time panning	-142.0	504.0	61.0	NA	NA	NA	16	24
2	Vehicle crush	-81.3	266.4	37.1	-2	NA	NA	13	500
3	Dummy kinematics	-41.5	-295.0	44.0	-12	298.0	NA	25	495
4	Windshield damage	-36.4	0.0	98.0	-40	NA	NA	13	500
5	Crush & fluid spillage	-50.5	0.0	-92.4	90	NA	NA	13	1000
6	Fluid spillage	-99.3	0.0	-99.0	90	NA	NA	13	1000
7	Passenger kinematics	4.5	13.8	85.0	-40	NA	NA	17	505
8	Driver kinematics	6.8	-14.5	85.0	-41	NA	NA	17	500
9	Driver kinematics	-180.0	-73.0	102.0	-27	118.0	NA	25	500
10	Passenger kinematics	-184.0	74.0	100.0	-26	110.5	NA	25	500
11	Windshield intrusion	-38.1	306.1	44.0	0	NA	NA	50	495
12	Windshield intrusion	-53.0	-309.4	42.3	0	NA	NA	50	497
13	Driver seatbelt movement	---	---	---	---	NA	NA	---	---
14	Passenger seatbelt movement	---	---	---	---	NA	NA	---	---
15	Column movement	-78.0	-286.0	103.0	-14	NA	NA	25	497
16	Column movement	-78.0	-286.0	75.1	-9	NA	NA	25	500
17	Passenger kinematics	-38.8	210.8	45.3	7	287.5	NA	25	500

*X = Film plane to plane of barrier face

Y = Film plane to monorail centerline

Z = Film plane to ground

**Referenced to horizontal plane

Y See DATA ACQUISITION EXPLANATIONS

APPENDIX A

PHOTOGRAPHS

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

APPENDIX A CONT'D

PHOTOGRAPHS

34. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW 2 (DOOR OPEN)
35. POST-TEST DRIVER DUMMY HEAD CONTACT
36. POST-TEST DRIVER DUMMY KNEE CONTACT
37. POST-TEST PASSENGER DUMMY KNEE CONTACT



Figure A-1. PRE-TEST FRONT VIEW

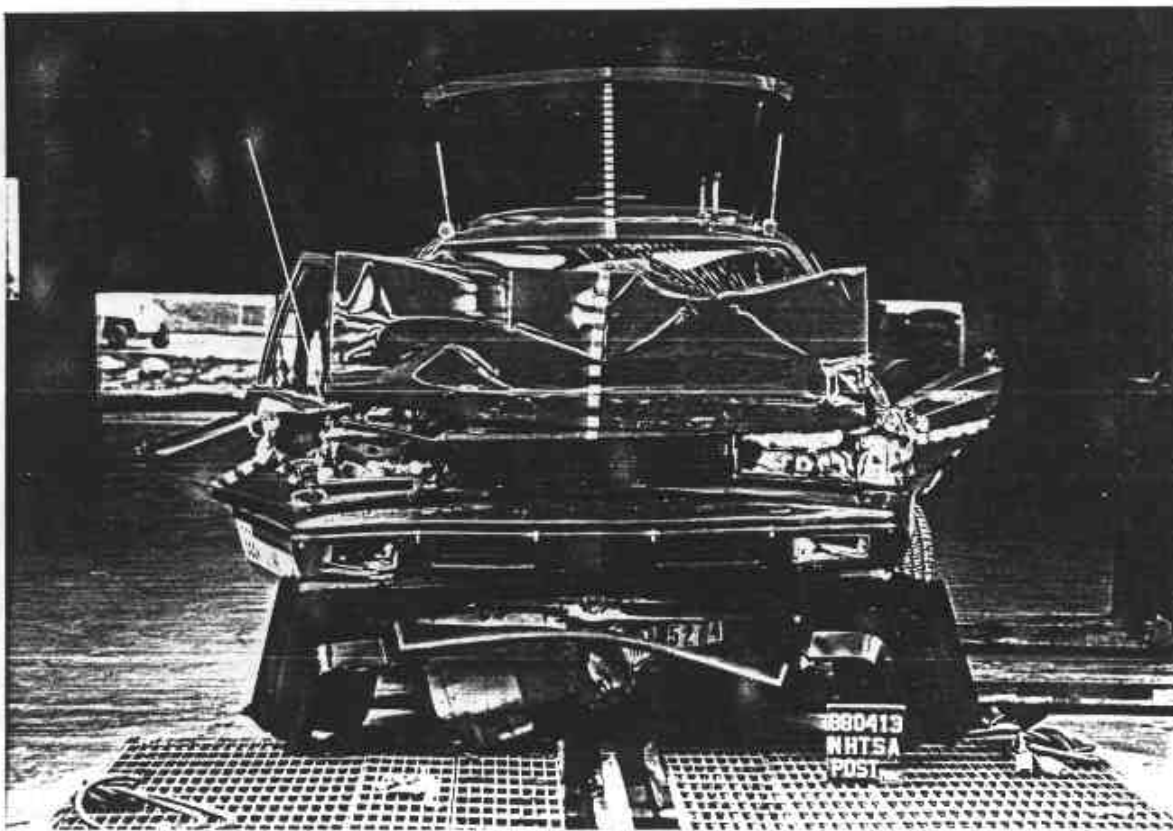


Figure A-2. POST-TEST FRONT VIEW

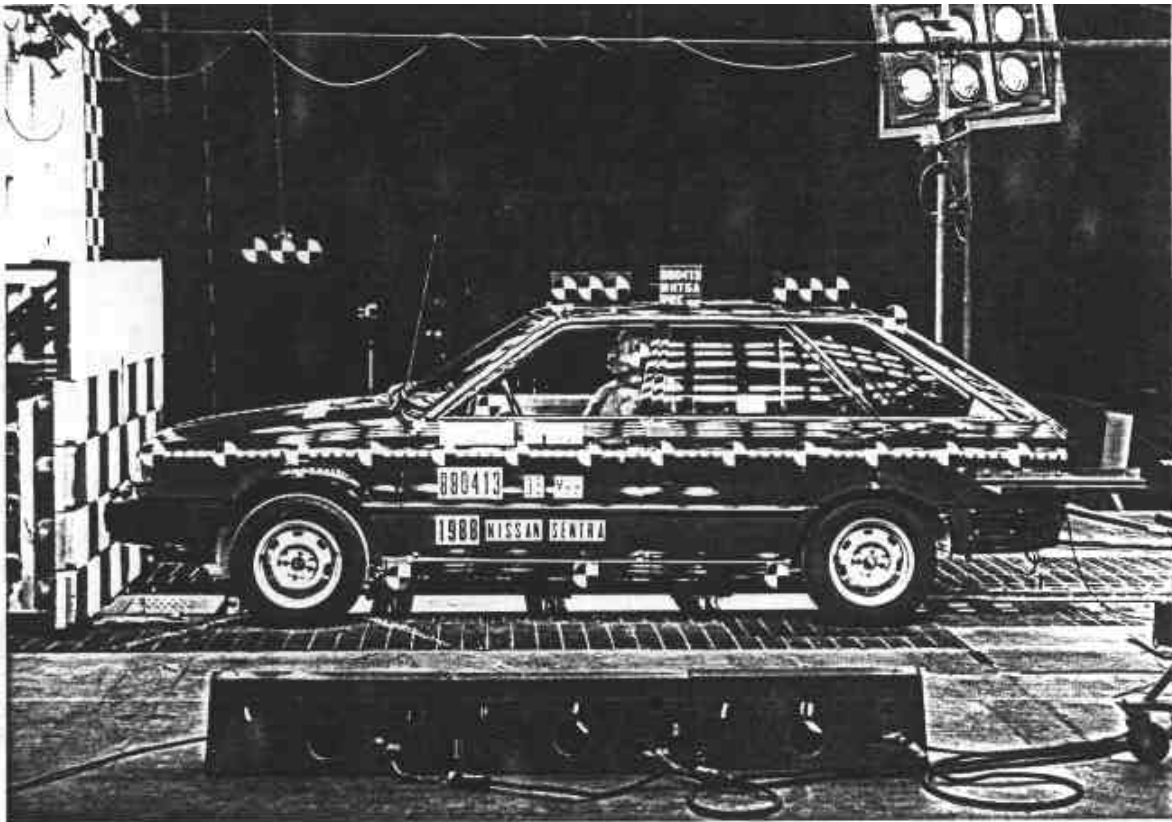


Figure A-3. PRE-TEST LEFT SIDE VIEW

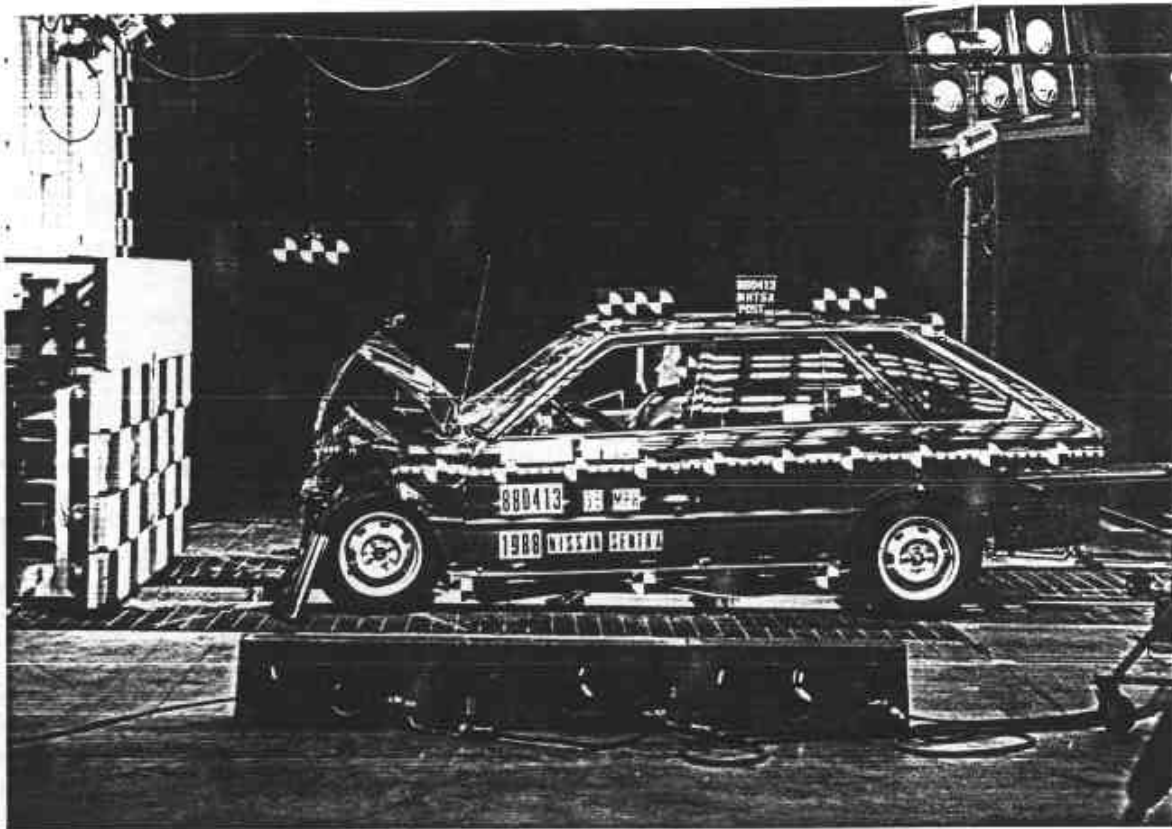


Figure A-4. POST-TEST LEFT SIDE VIEW

A-4

880413

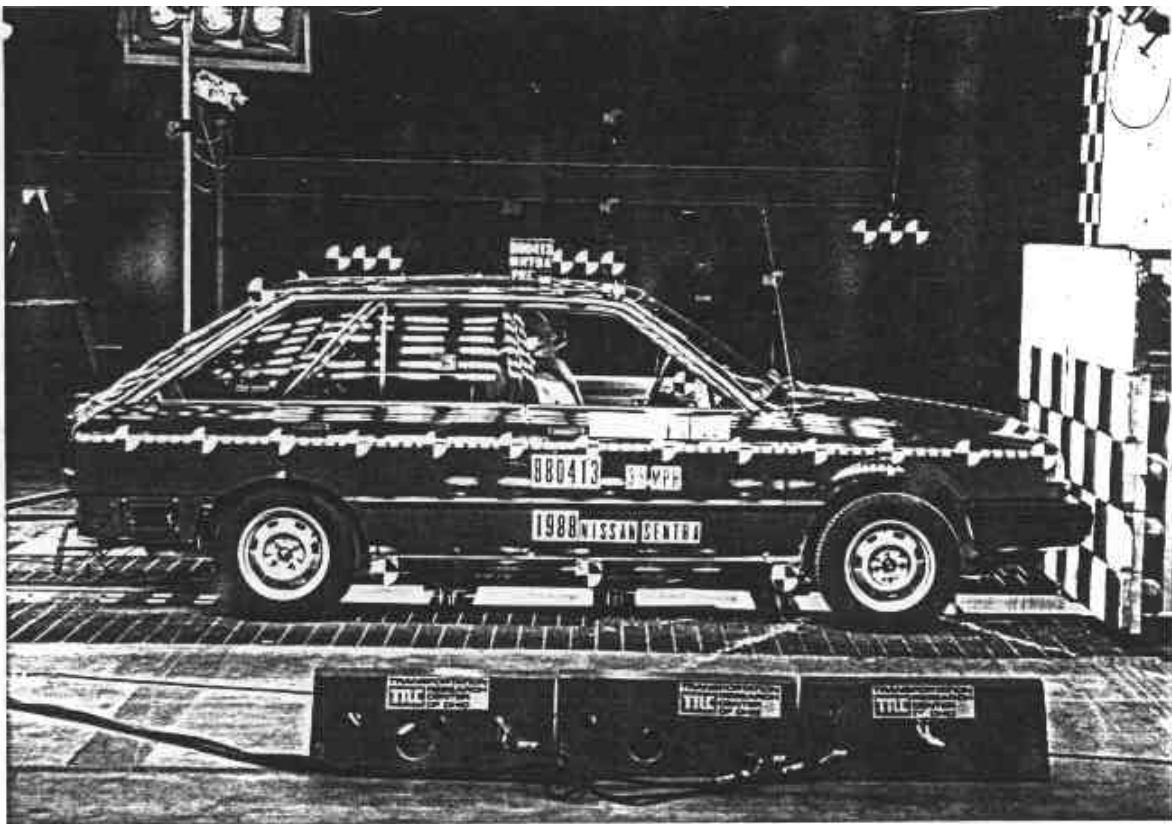


Figure A-5. PRE-TEST RIGHT SIDE VIEW

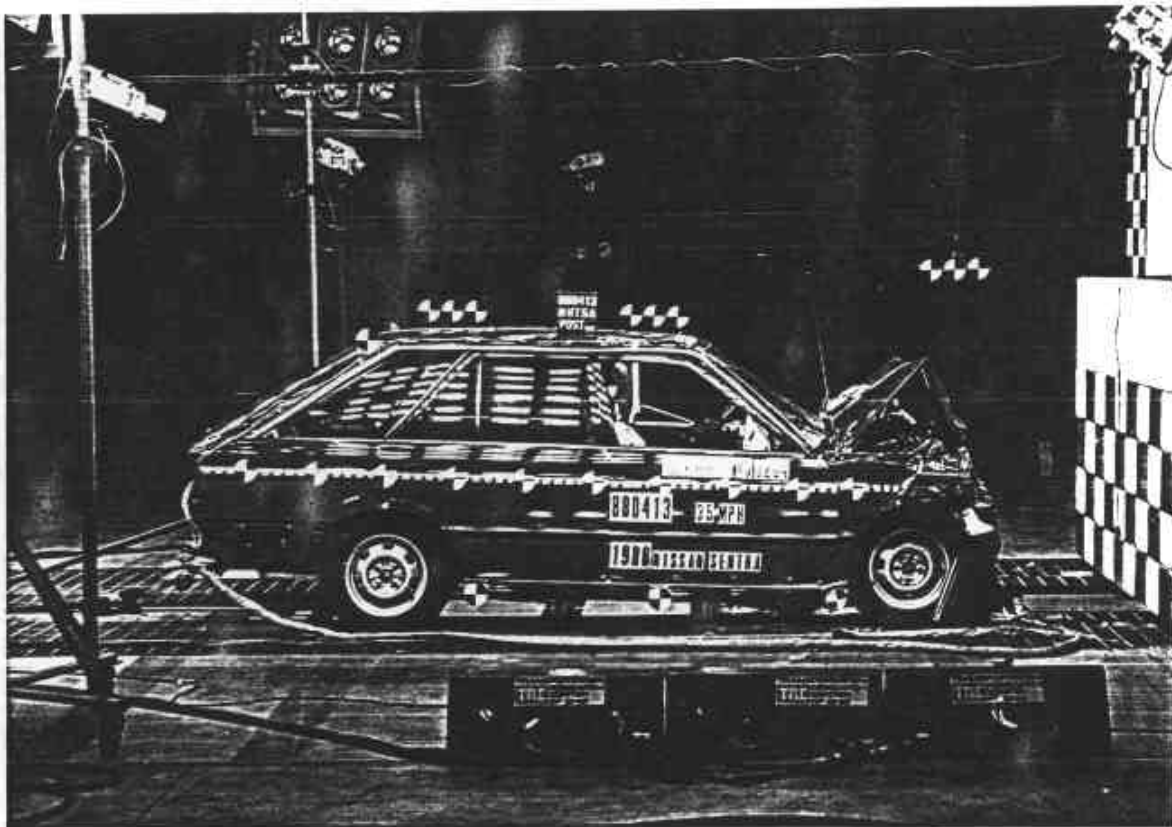


Figure A-6. POST-TEST RIGHT SIDE VIEW
A-5

880413



Figure A-7. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-8. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-6

880413

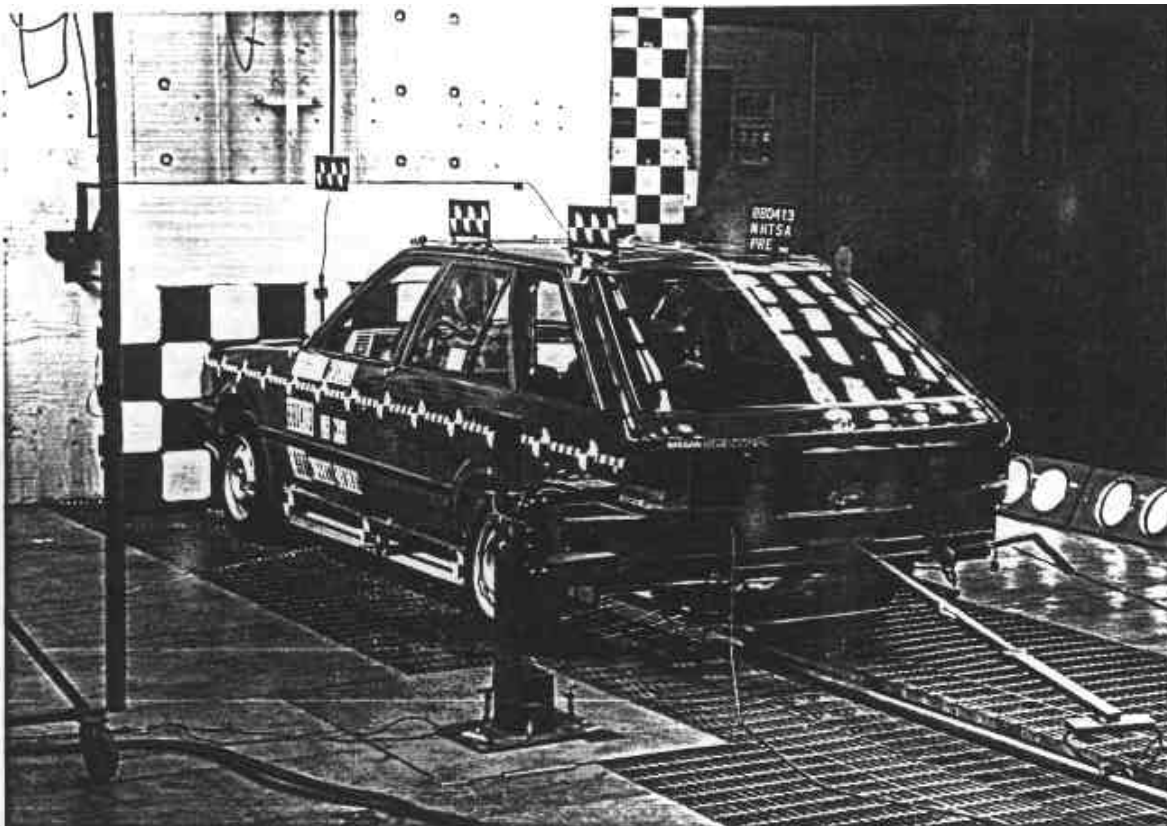


Figure A-9. PRE-TEST LEFT REAR THREE-QUARTER VIEW

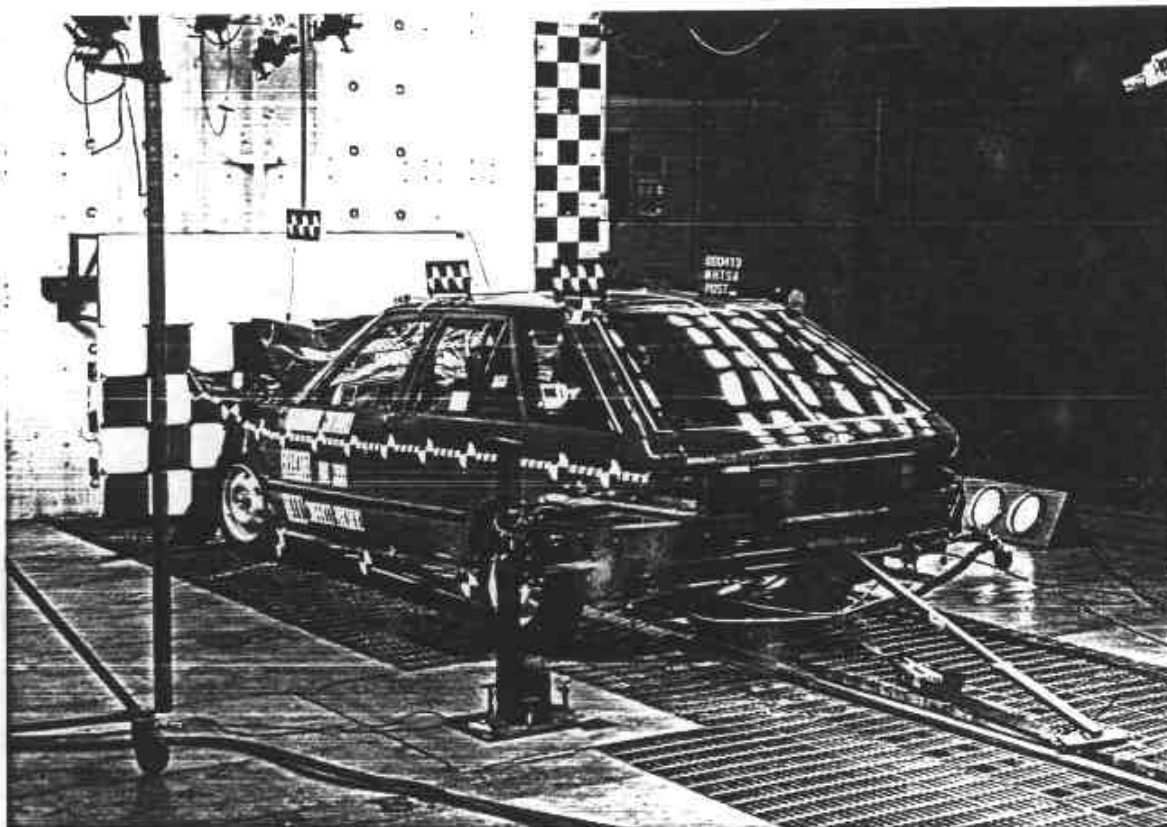


Figure A-10. POST-TEST LEFT REAR THREE-QUARTER VIEW
A-7

880413

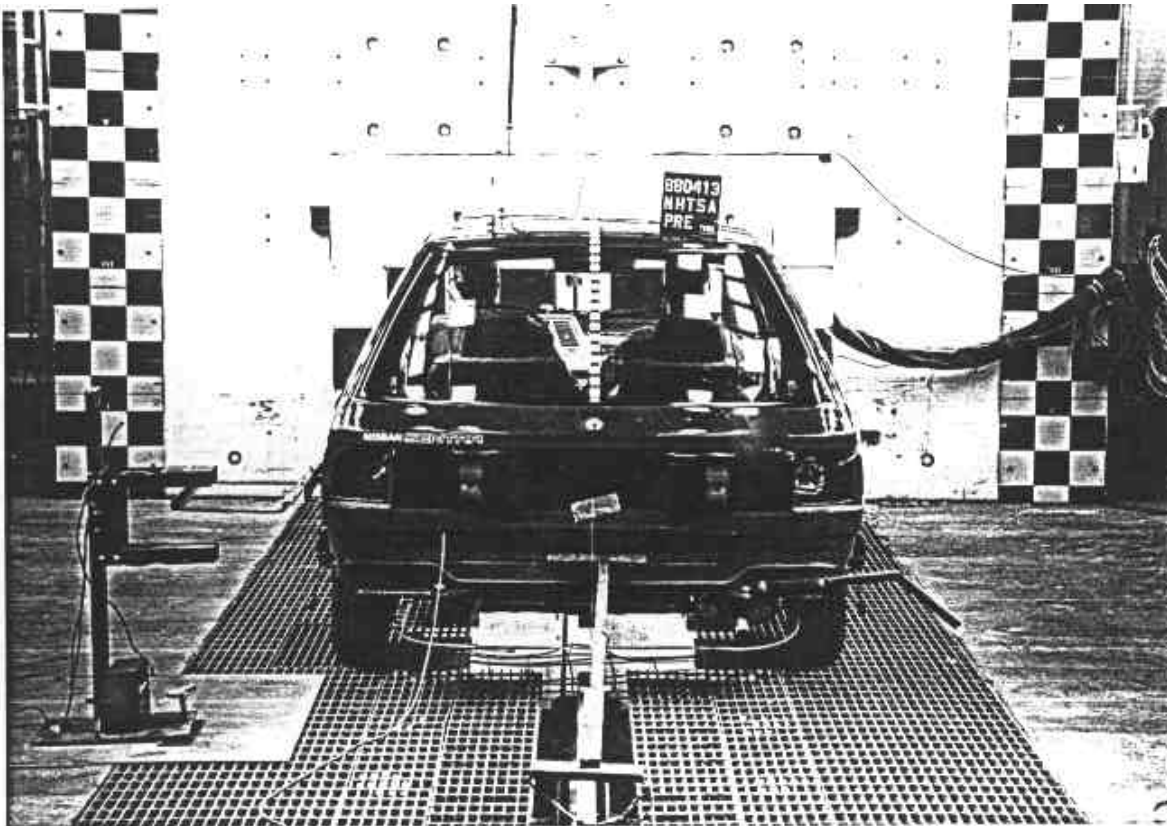


Figure A-11. PRE-TEST REAR VIEW

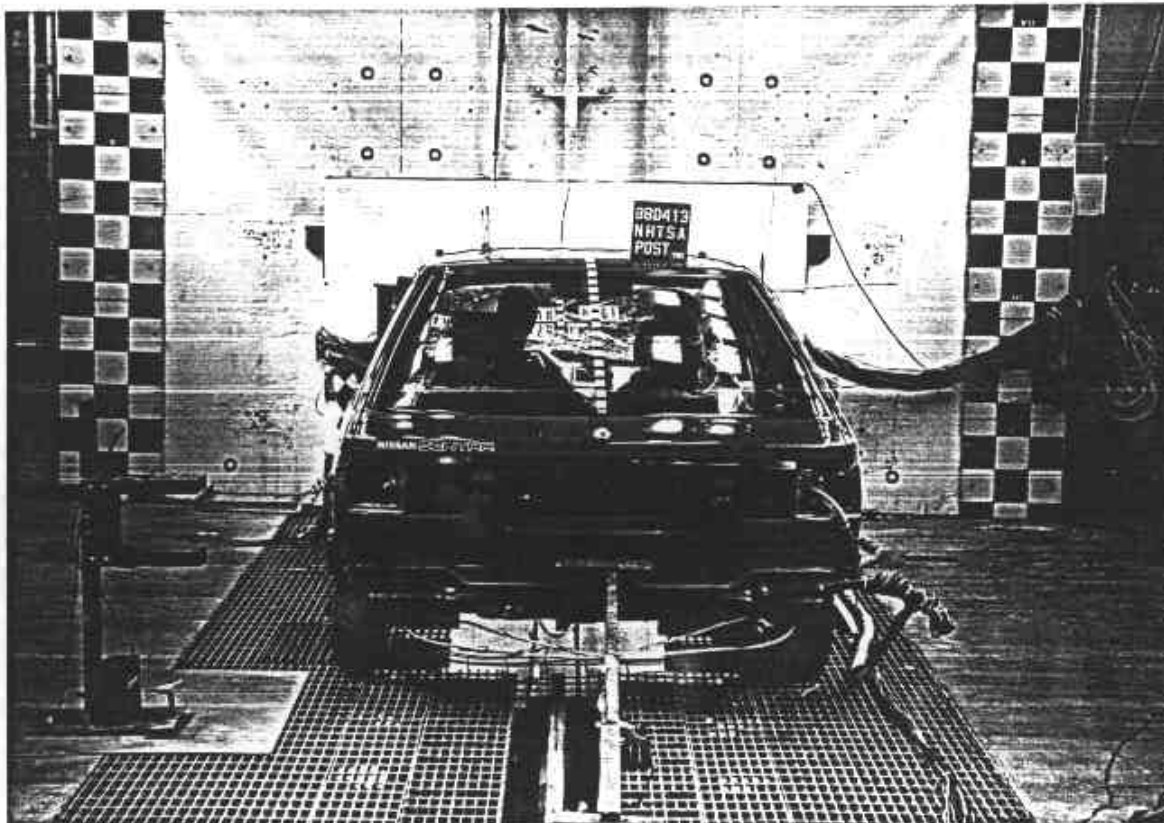


Figure A-12. POST-TEST REAR VIEW

A-8

880413

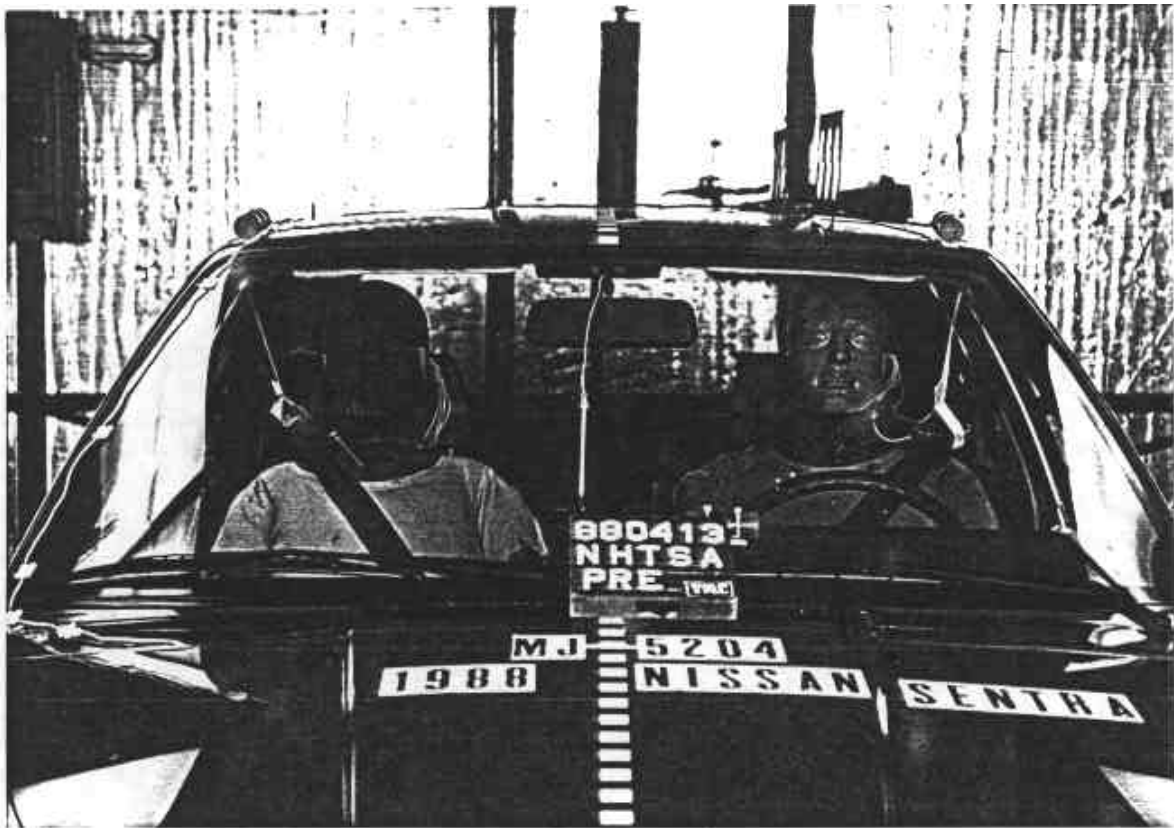


Figure A-13. PRE-TEST WINDSHIELD VIEW

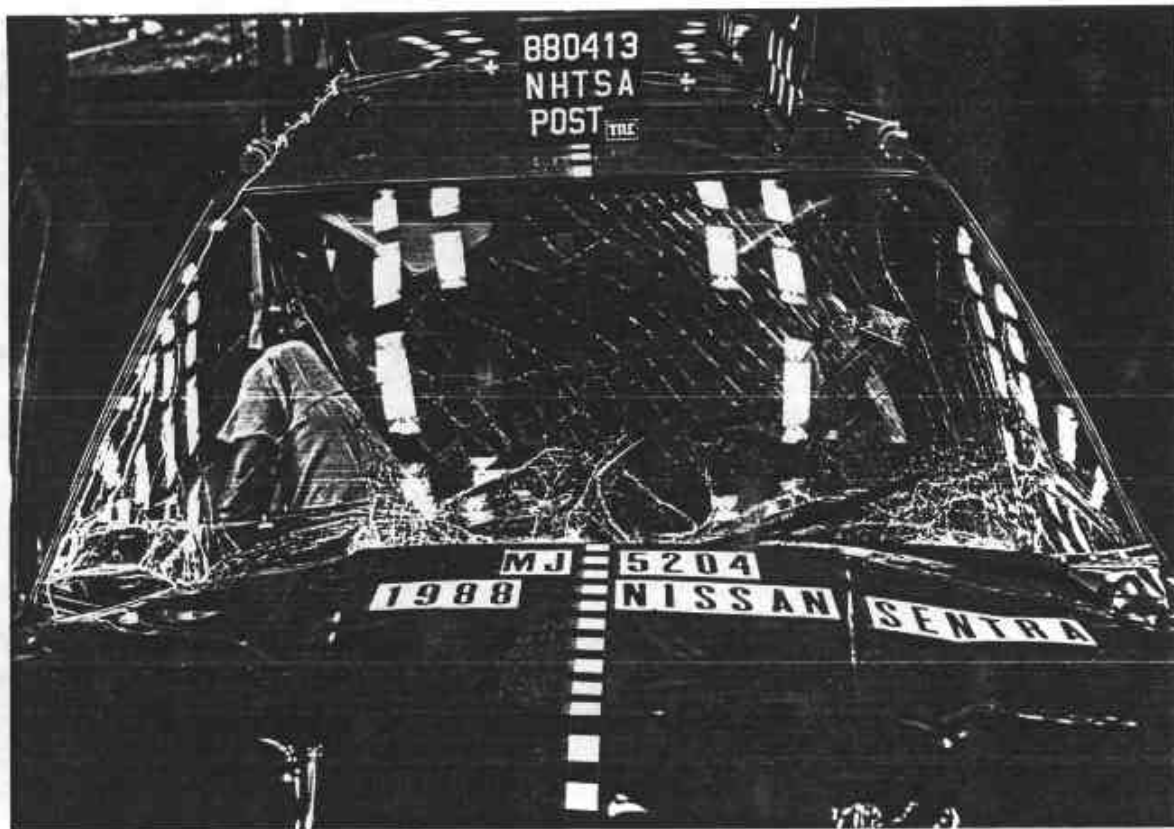


Figure A-14. POST-TEST WINDSHIELD VIEW

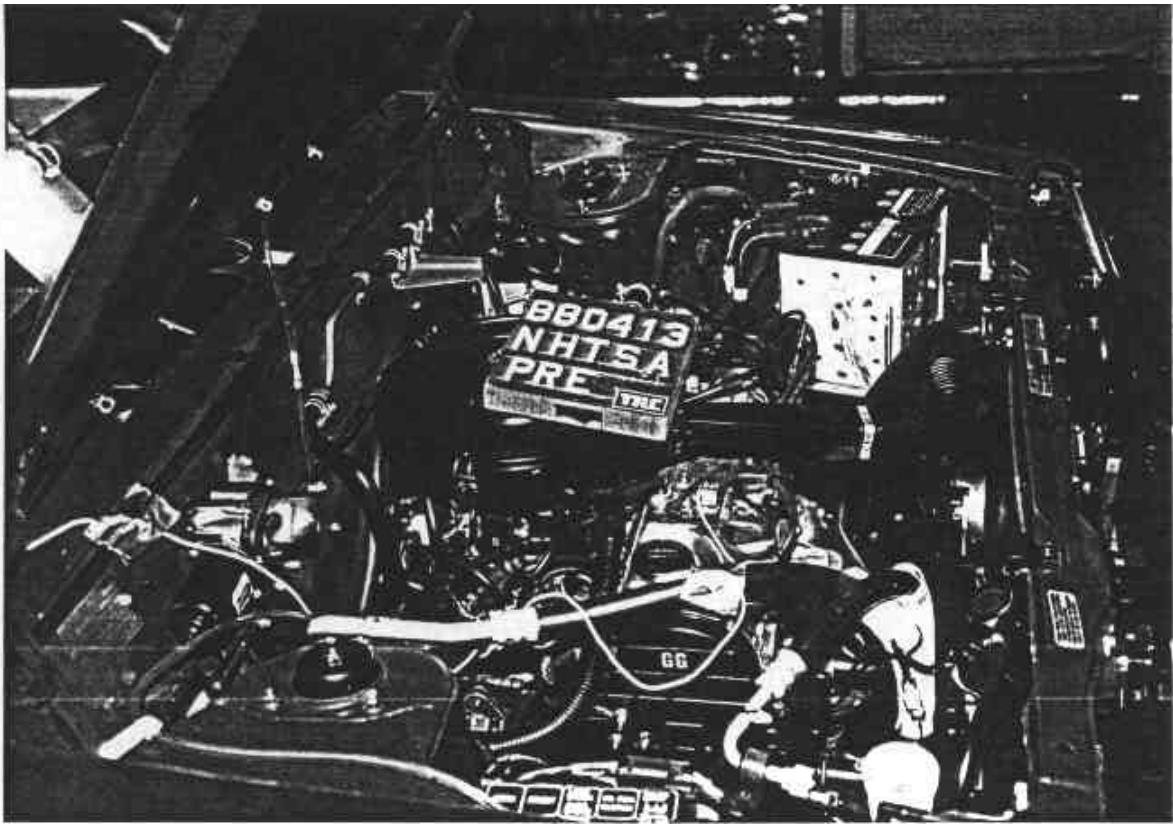


Figure A-15. PRE-TEST ENGINE COMPARTMENT VIEW

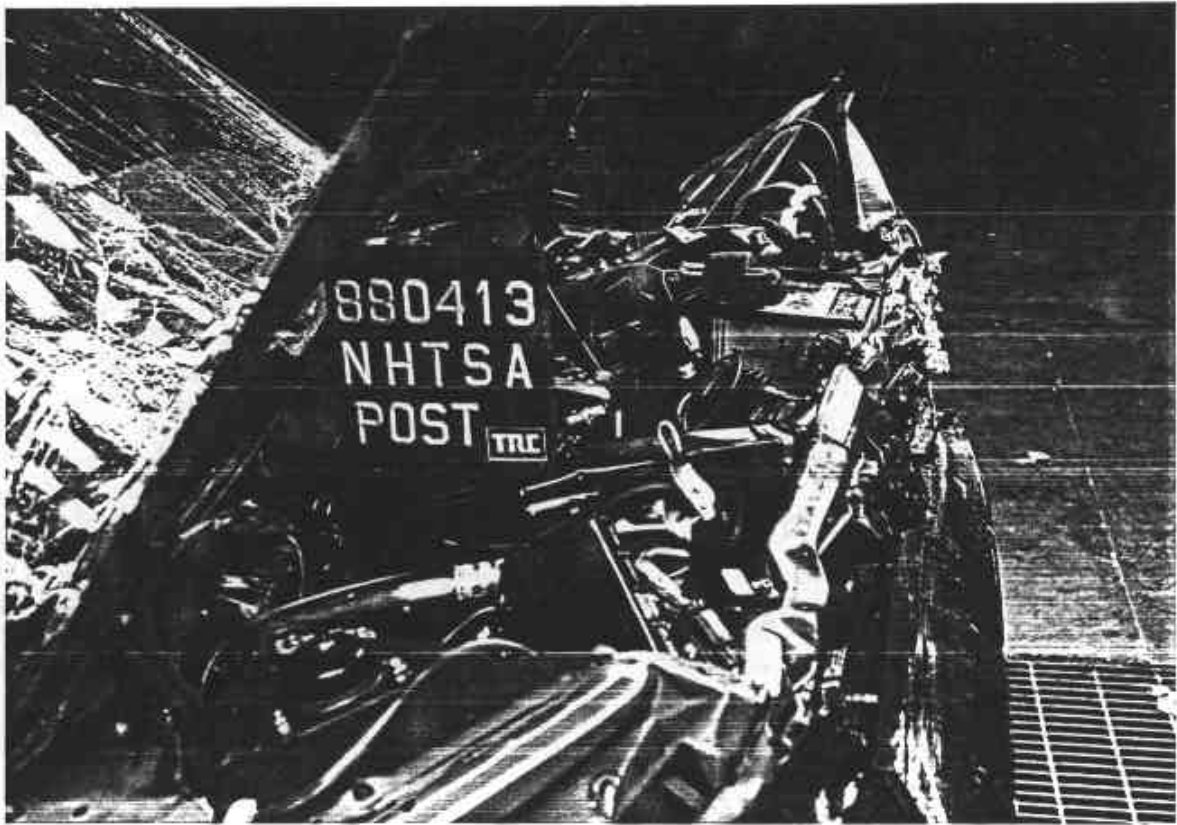


Figure A-16. POST-TEST ENGINE COMPARTMENT VIEW
A-10

880413



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

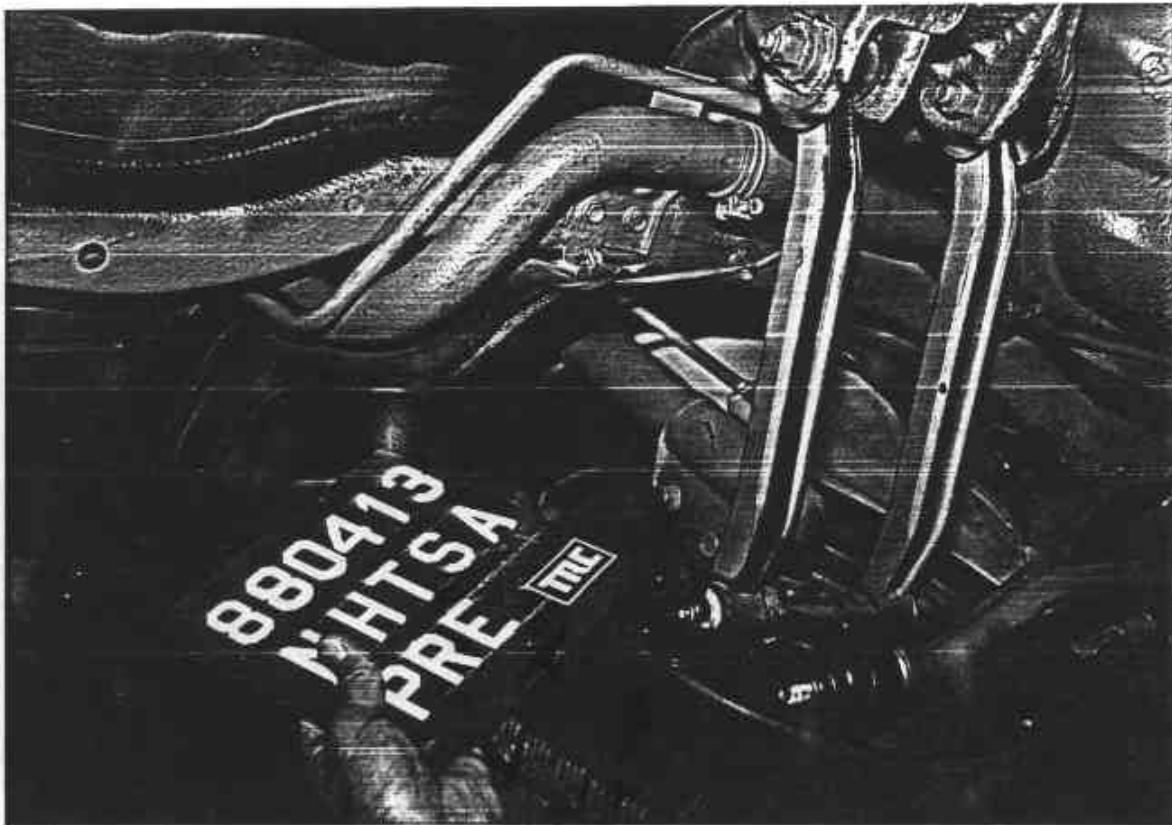


Figure A-18. PRE-TEST FUEL FILLER NECK VIEW
A-11

880413

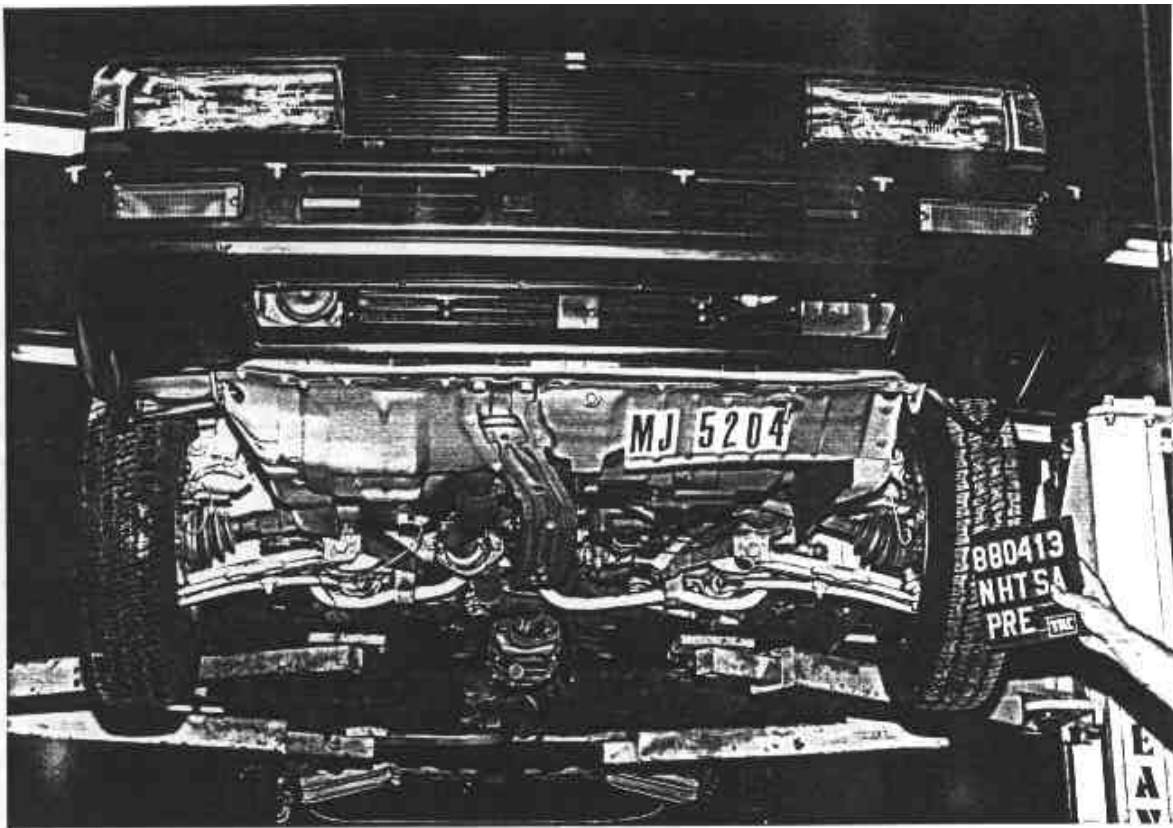


Figure A-19. PRE-TEST FRONT UNDERBODY VIEW

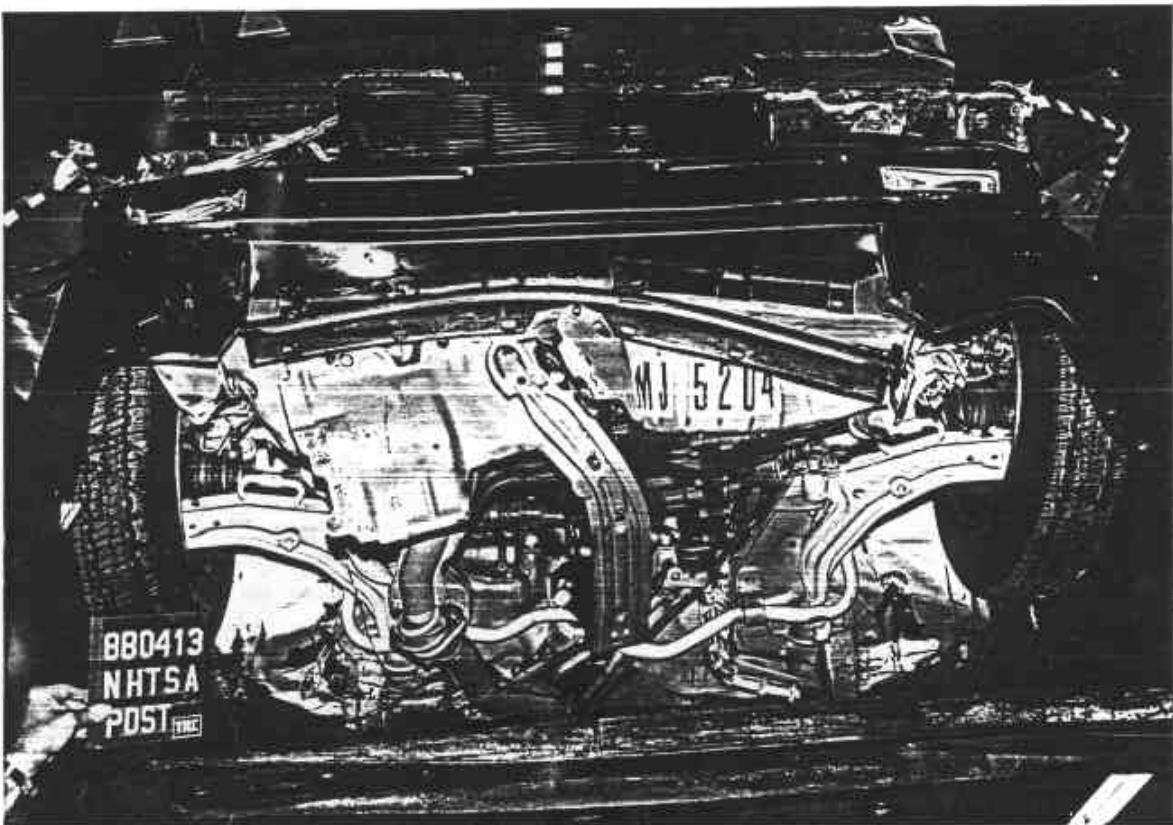


Figure A-20. POST-TEST FRONT UNDERBODY VIEW

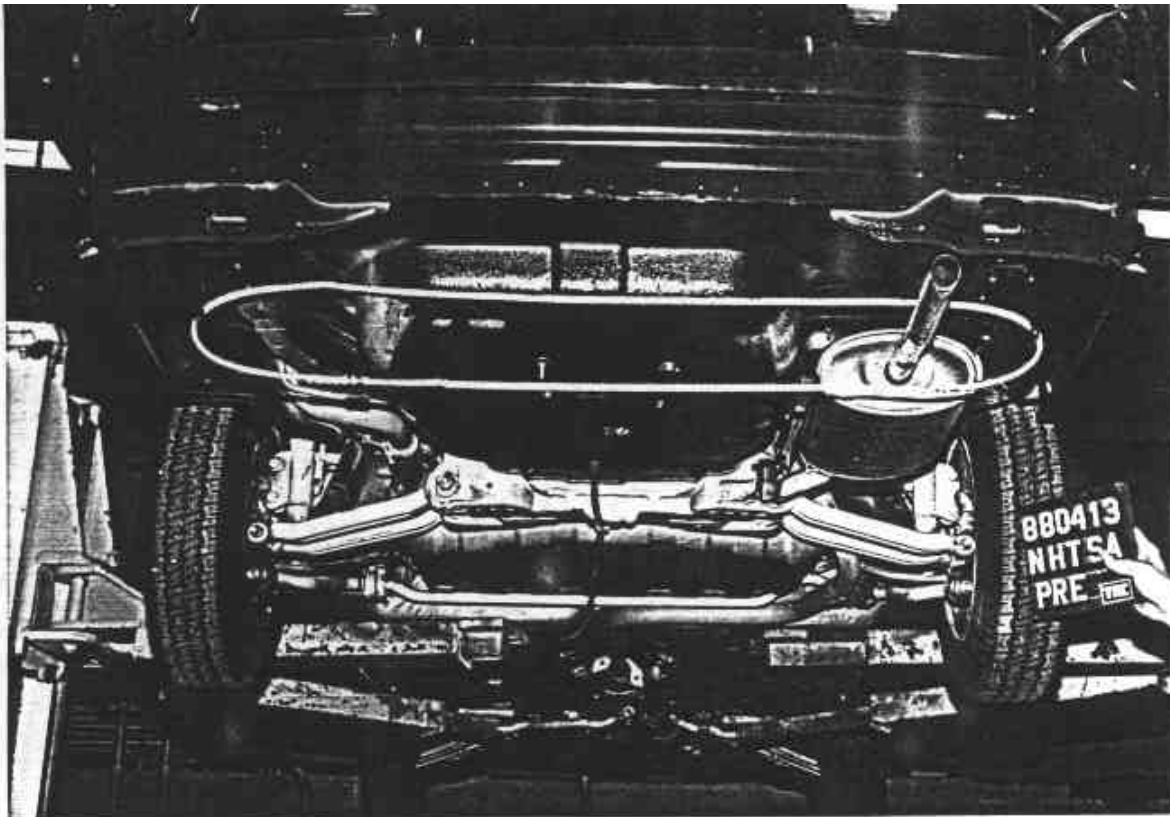


Figure A-21. PRE-TEST REAR UNDERBODY VIEW

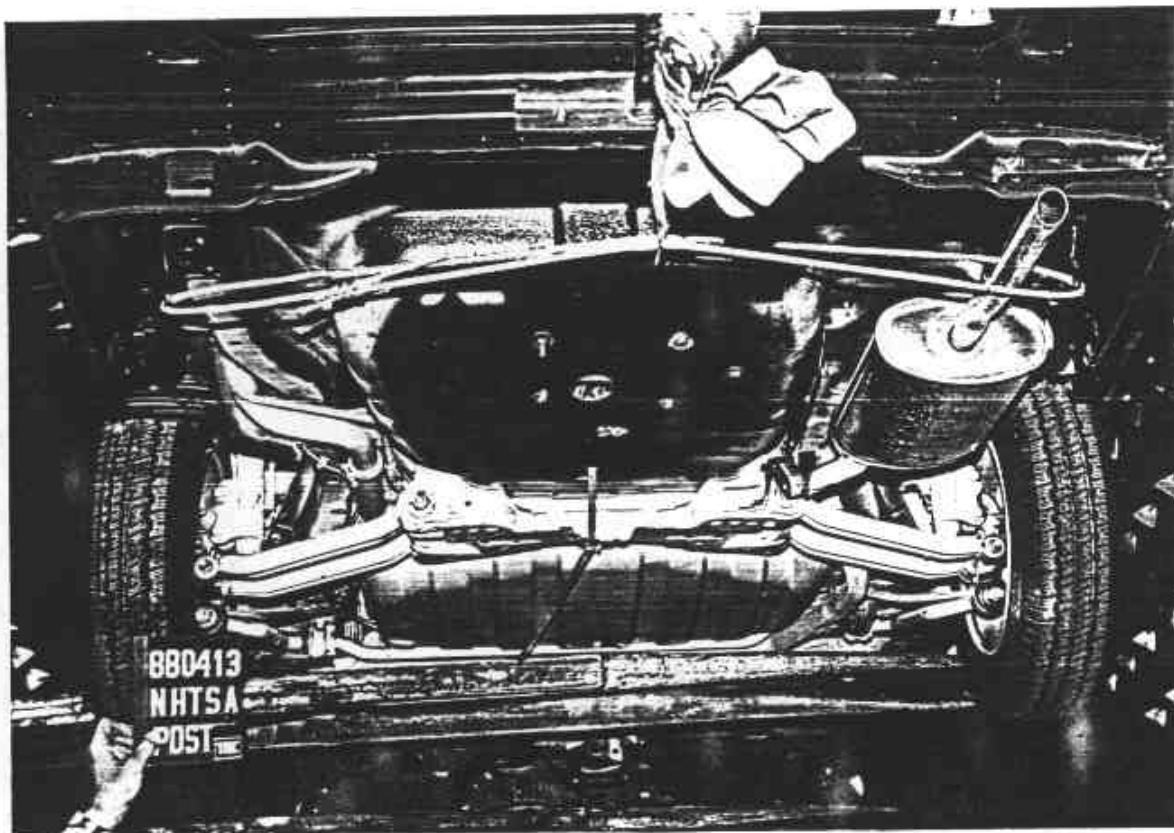


Figure A-22. POST-TEST REAR UNDERBODY VIEW



Figure A-23. PRE-TEST DRIVER DUMMY POSITION VIEW



Figure A-24. POST-TEST DRIVER DUMMY POSITION VIEW

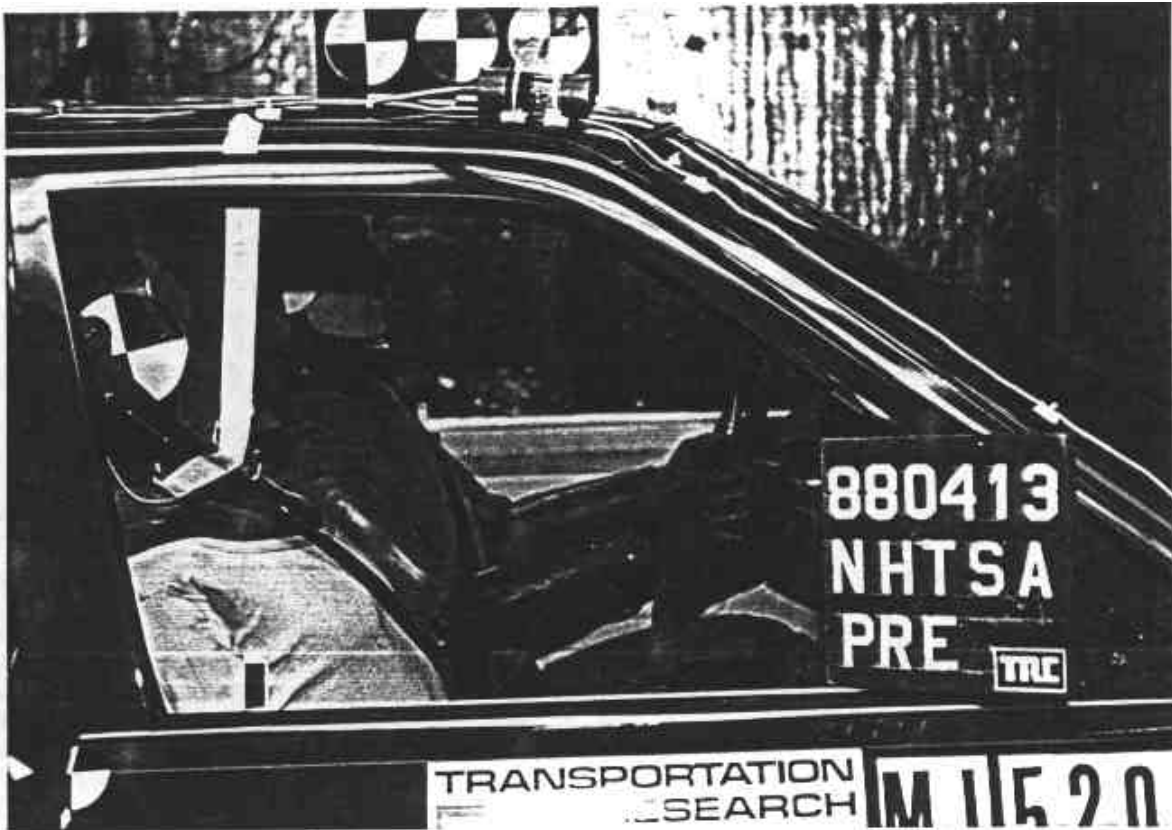


Figure A-25. PRE-TEST PASSENGER DUMMY POSITION VIEW



Figure A-26. POST-TEST PASSENGER DUMMY POSITION VIEW

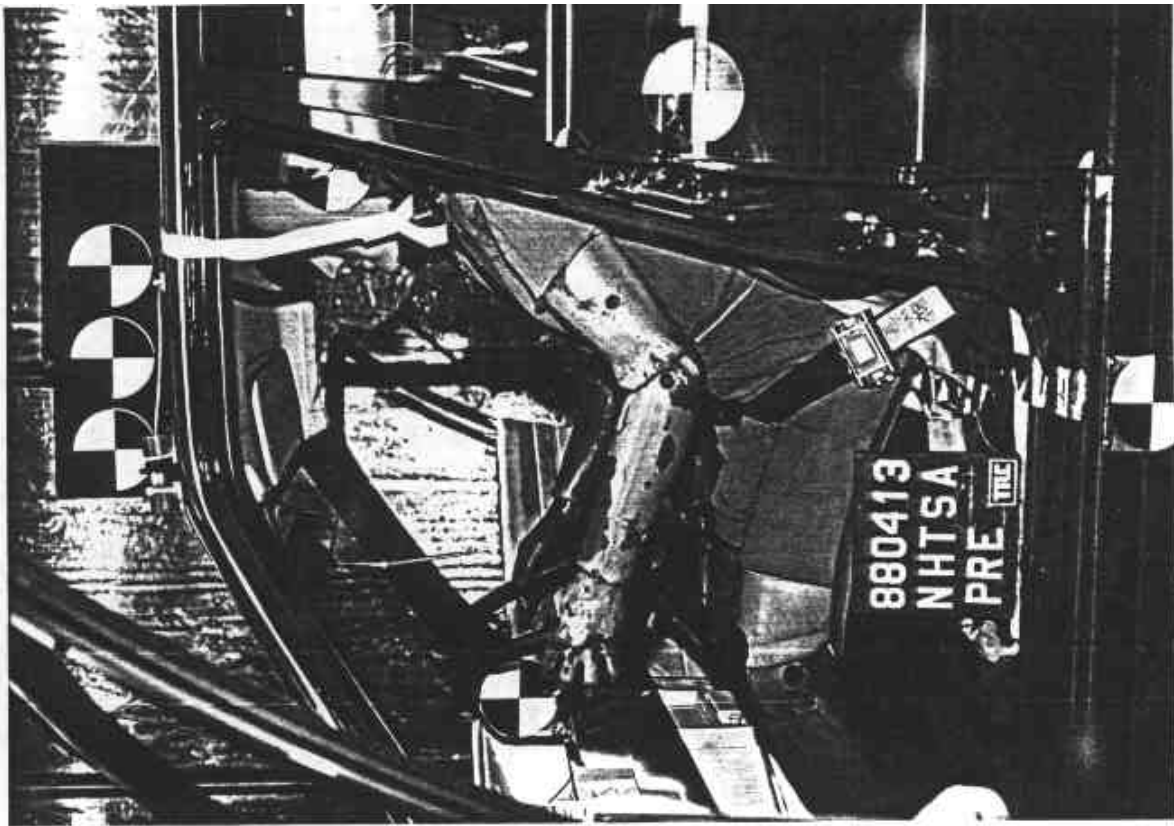


Figure A-27. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW 1 (DOOR OPEN)

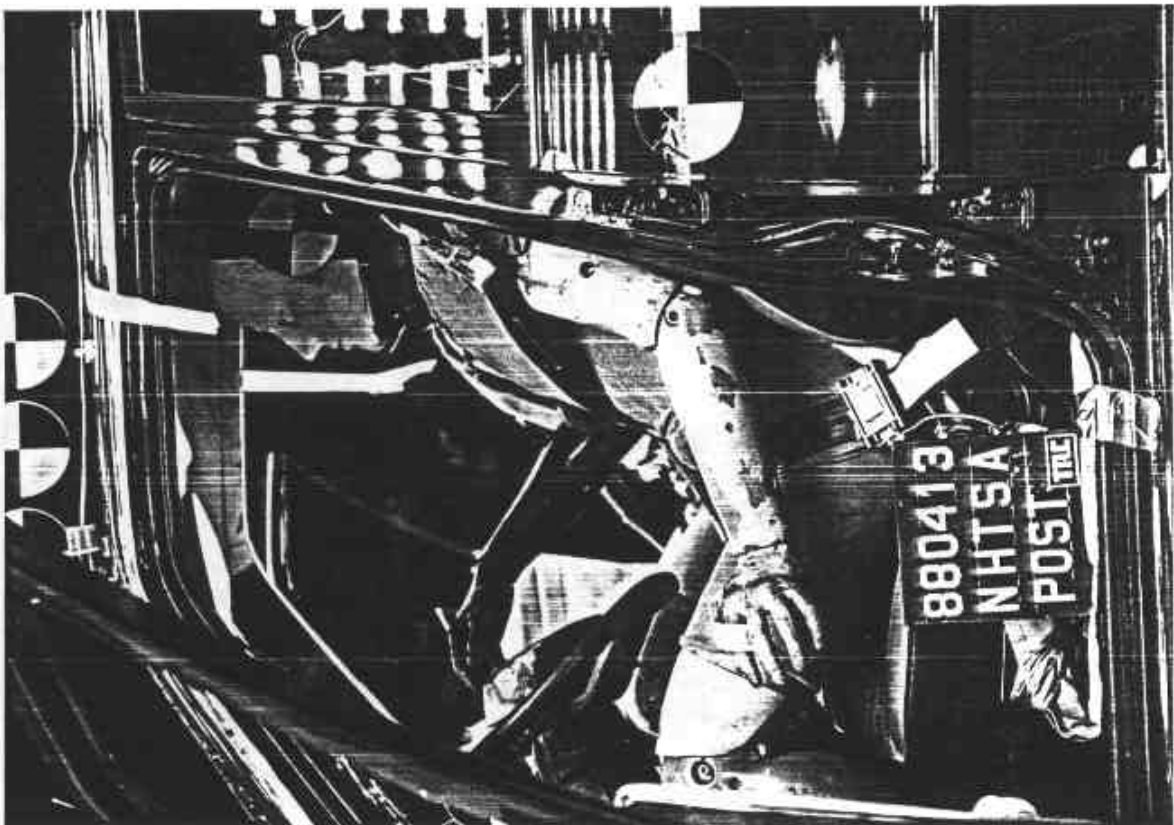


Figure A-28. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW 1 (DOOR OPEN)

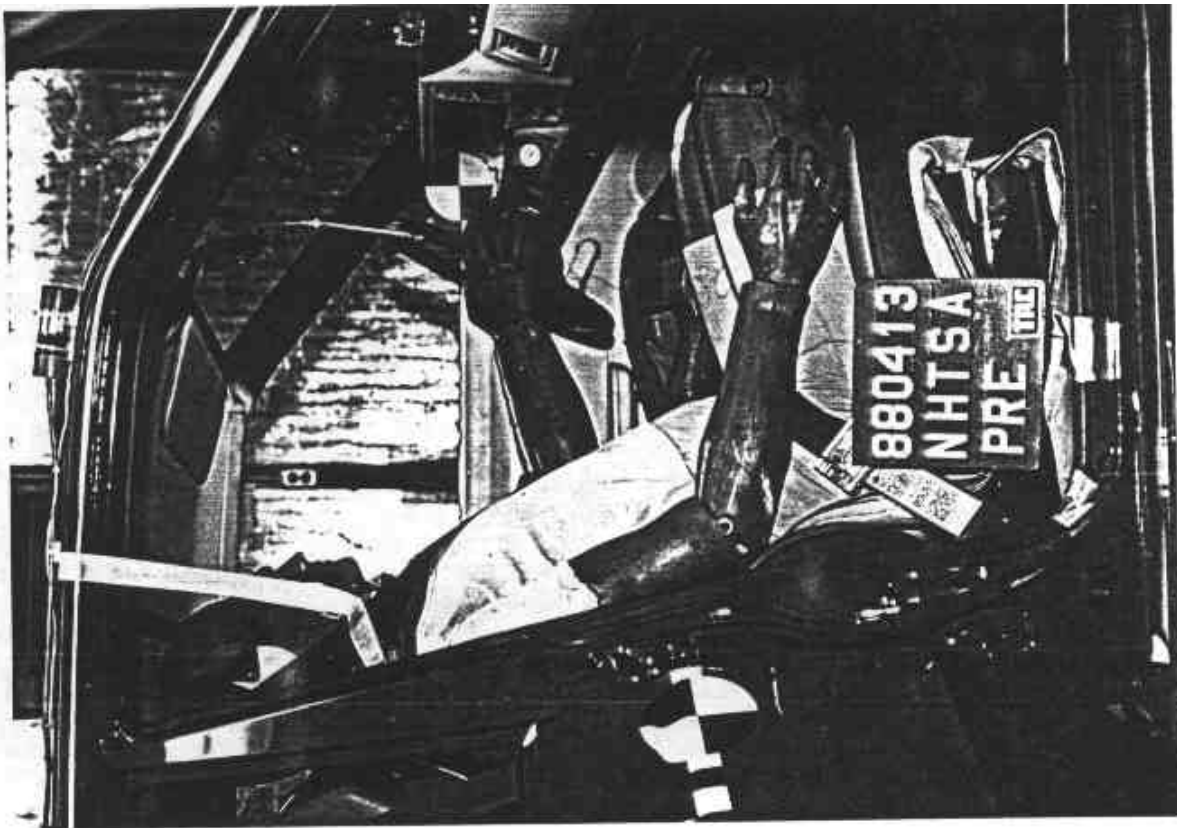


Figure A-29. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW 1 (DOOR OPEN)

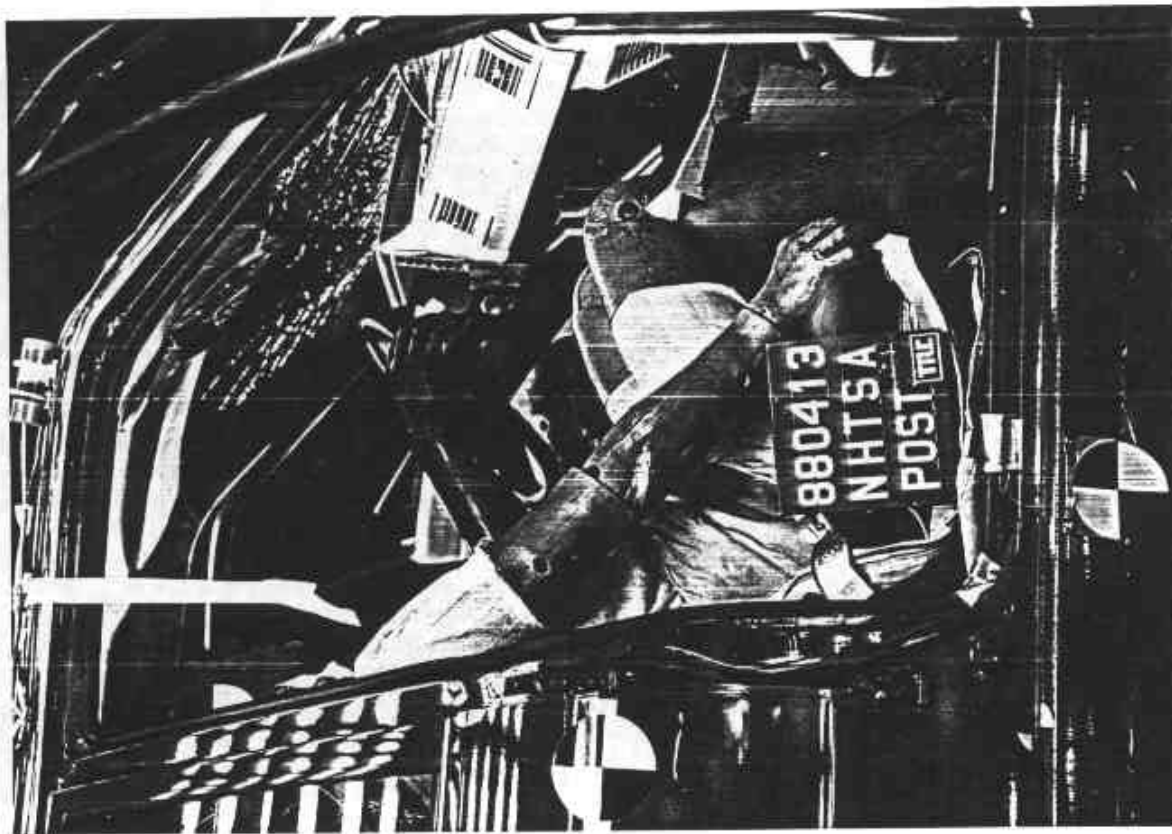


Figure A-30. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW 1 (DOOR OPEN)

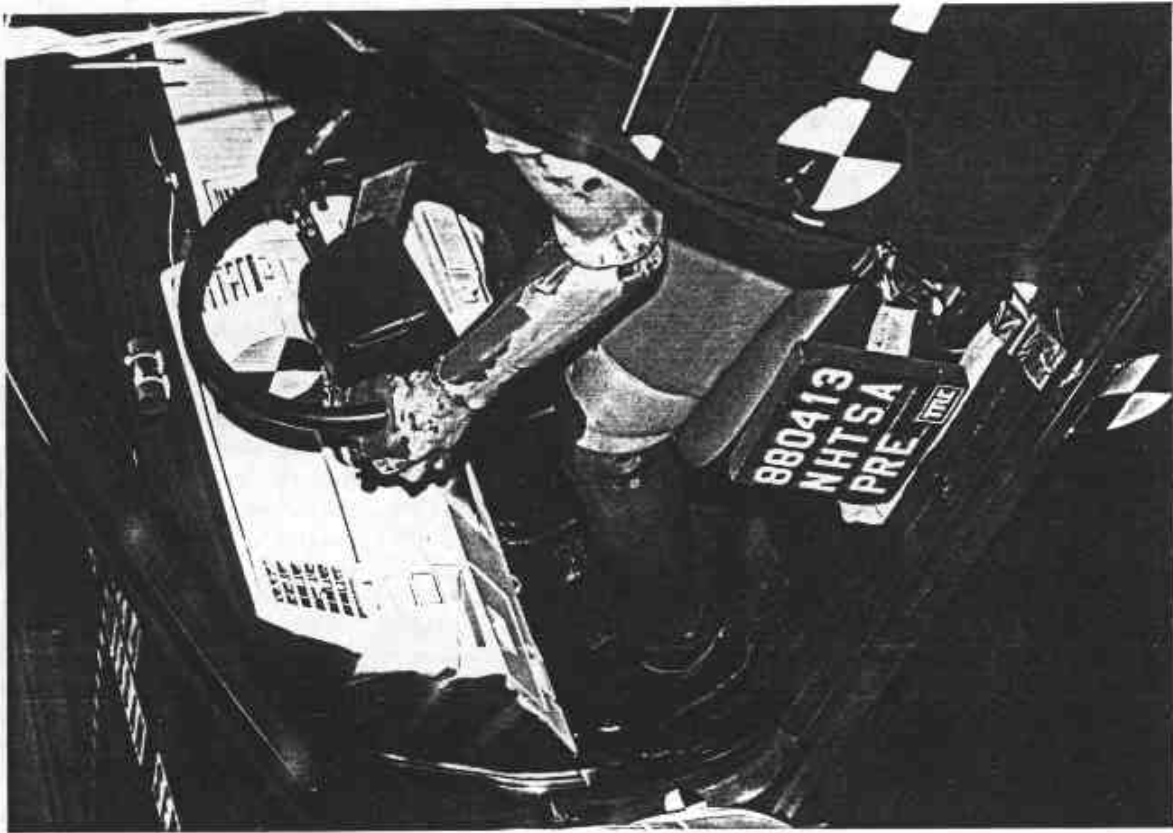


Figure A-31. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW 2 (DOOR OPEN)

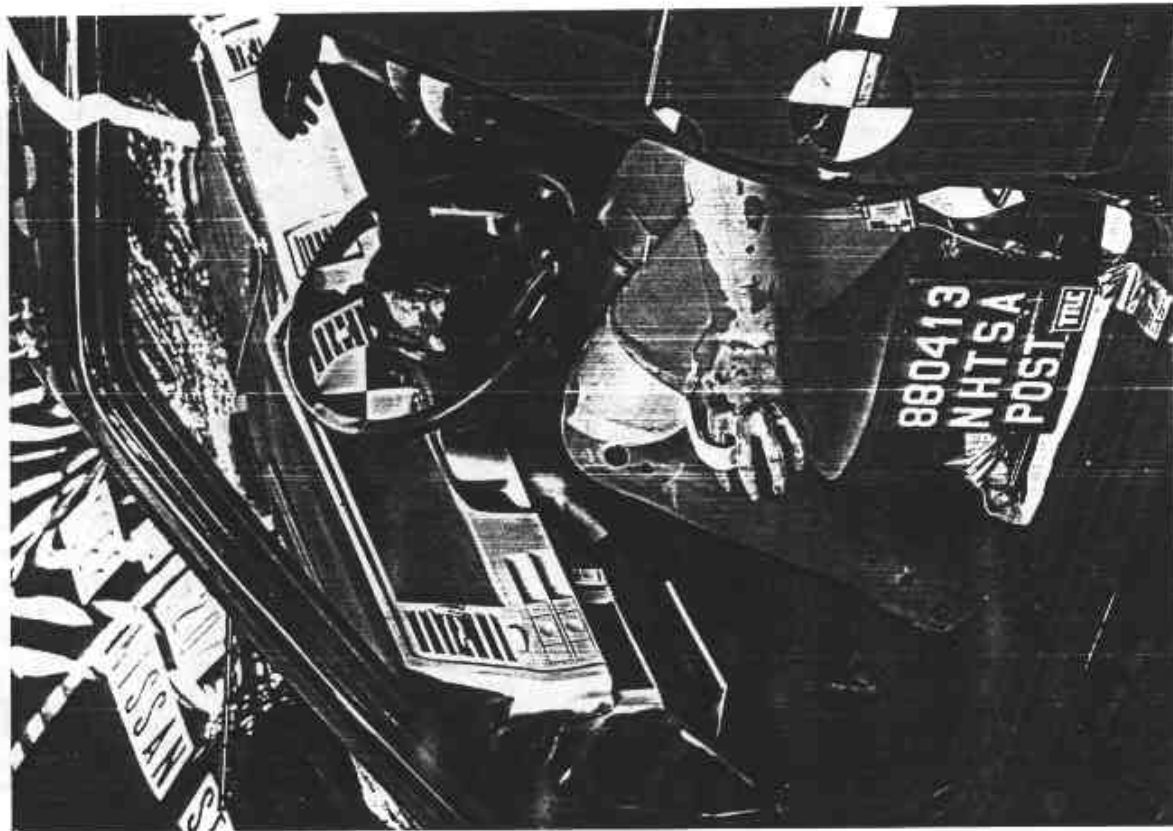


Figure A-32. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW 2 (DOOR OPEN)

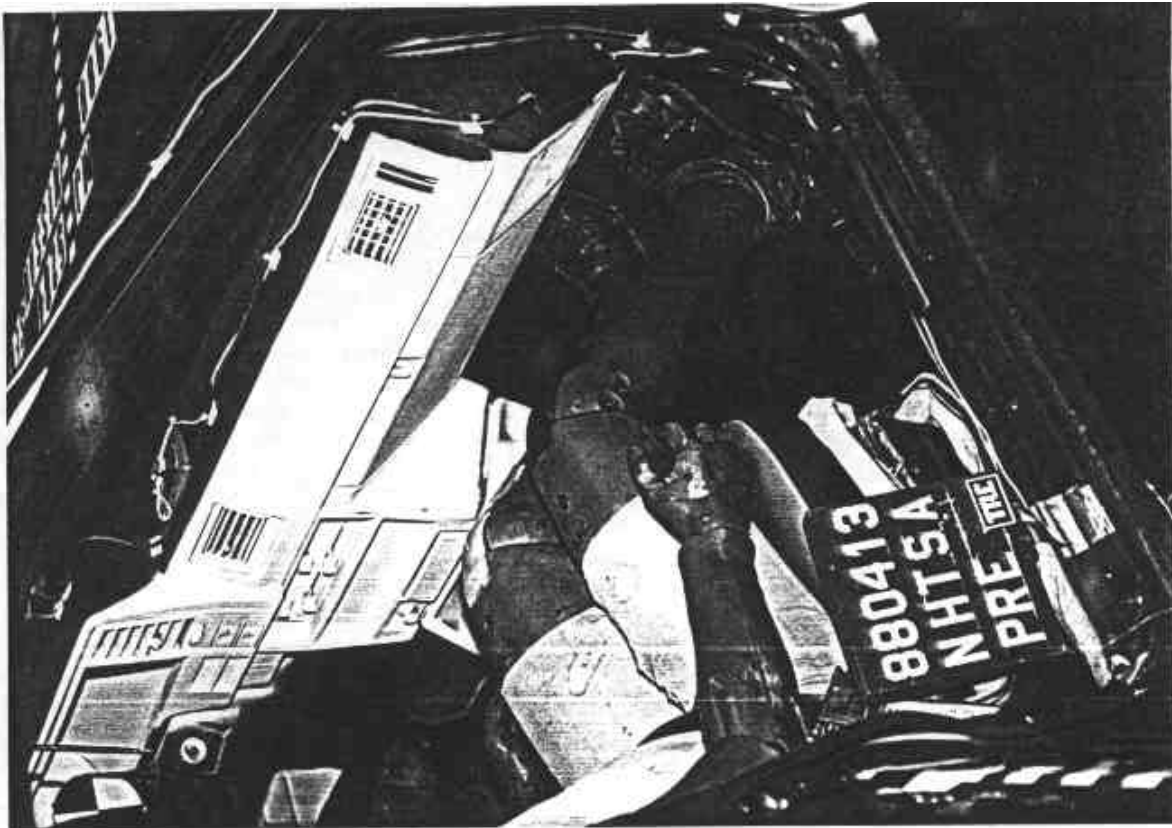


Figure A-33. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW 2 (DOOR OPEN)



Figure A-34. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW 2 (DOOR OPEN)



Figure A-35. POST-TEST DRIVER DUMMY HEAD CONTACT

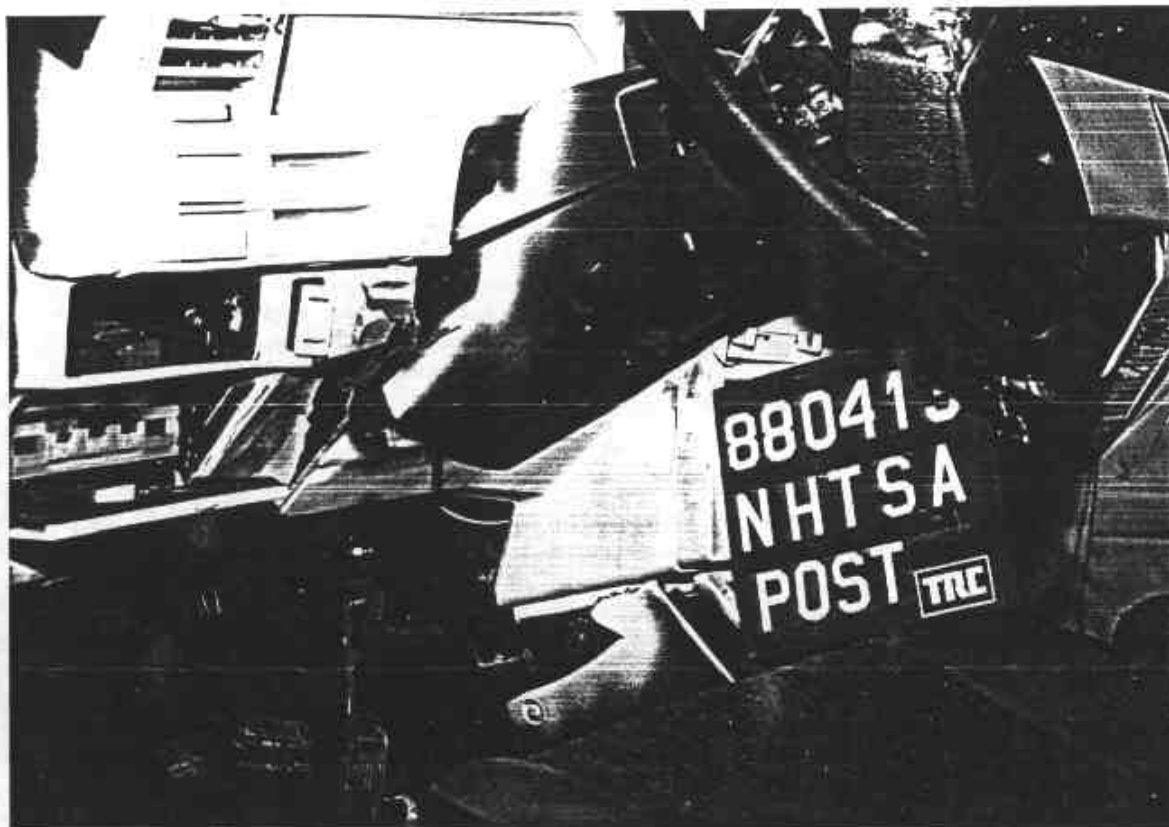


Figure A-36. POST-TEST DRIVER DUMMY KNEE CONTACT



Figure A-37. POST-TEST PASSENGER DUMMY KNEE CONTACT

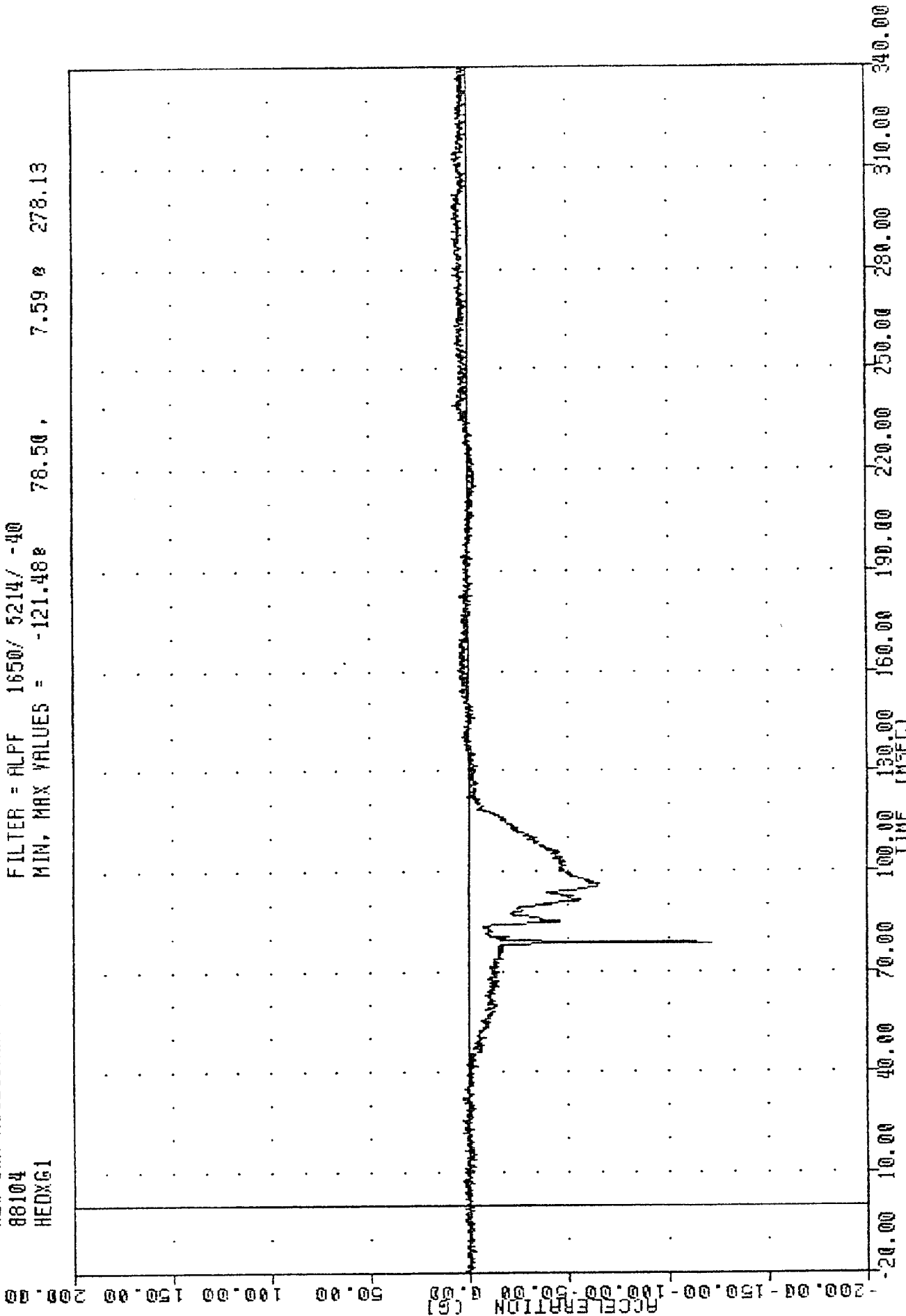
APPENDIX B

DATA PLOTS

TRC
NEW CAR ASSESSMENT PROGRAM
88104
HEDXG1

880413

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -121.48e 78.50, 7.59 e 278.13



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER HEAD ACCELERATION X AXIS

TRC 880413

NEW CAR ASSESSMENT PROGRAM

88104

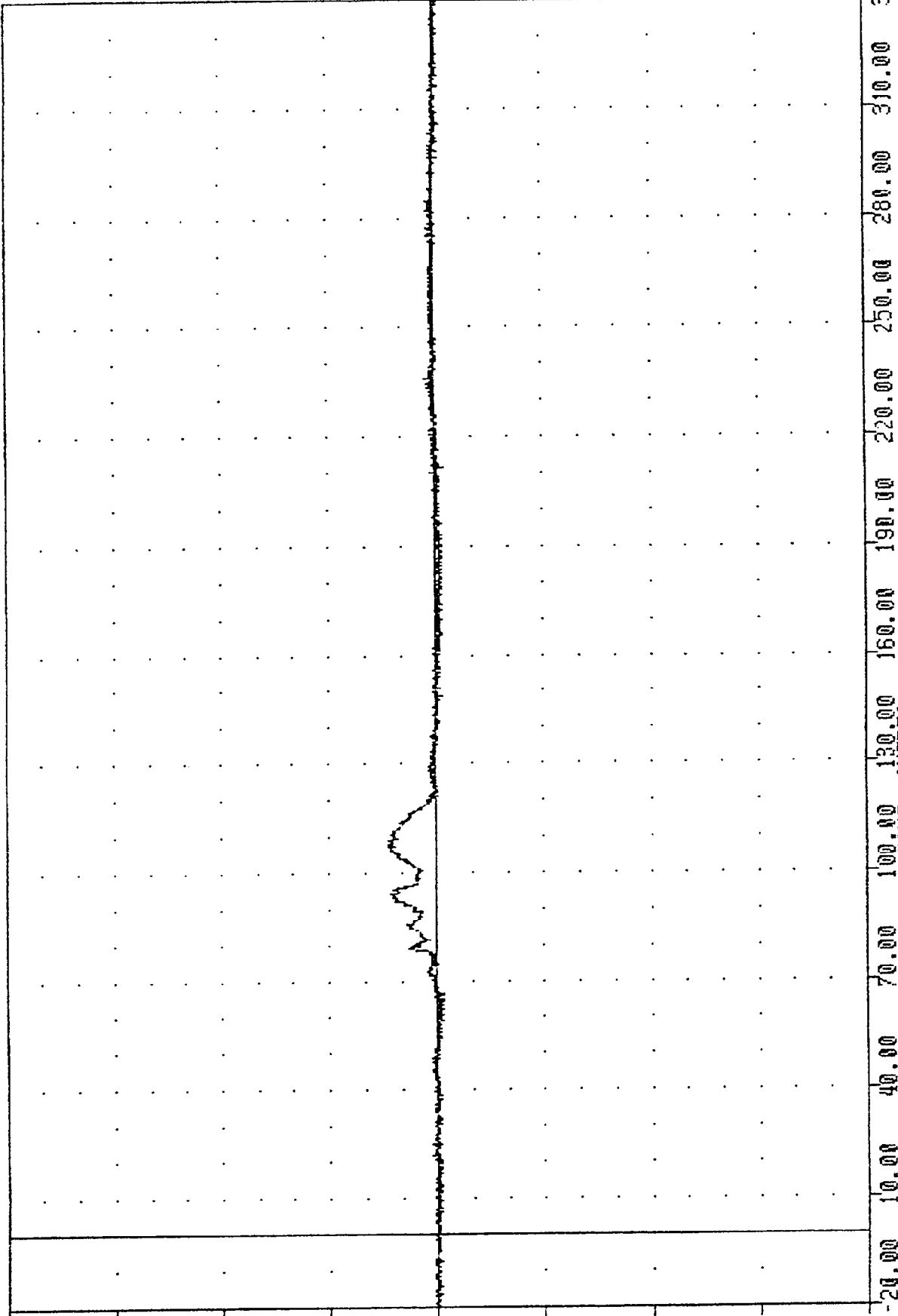
HEDYG1

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -4.358 211.88

22.44 e 107.50

ACCELERATION (G) TIME (MSEC)



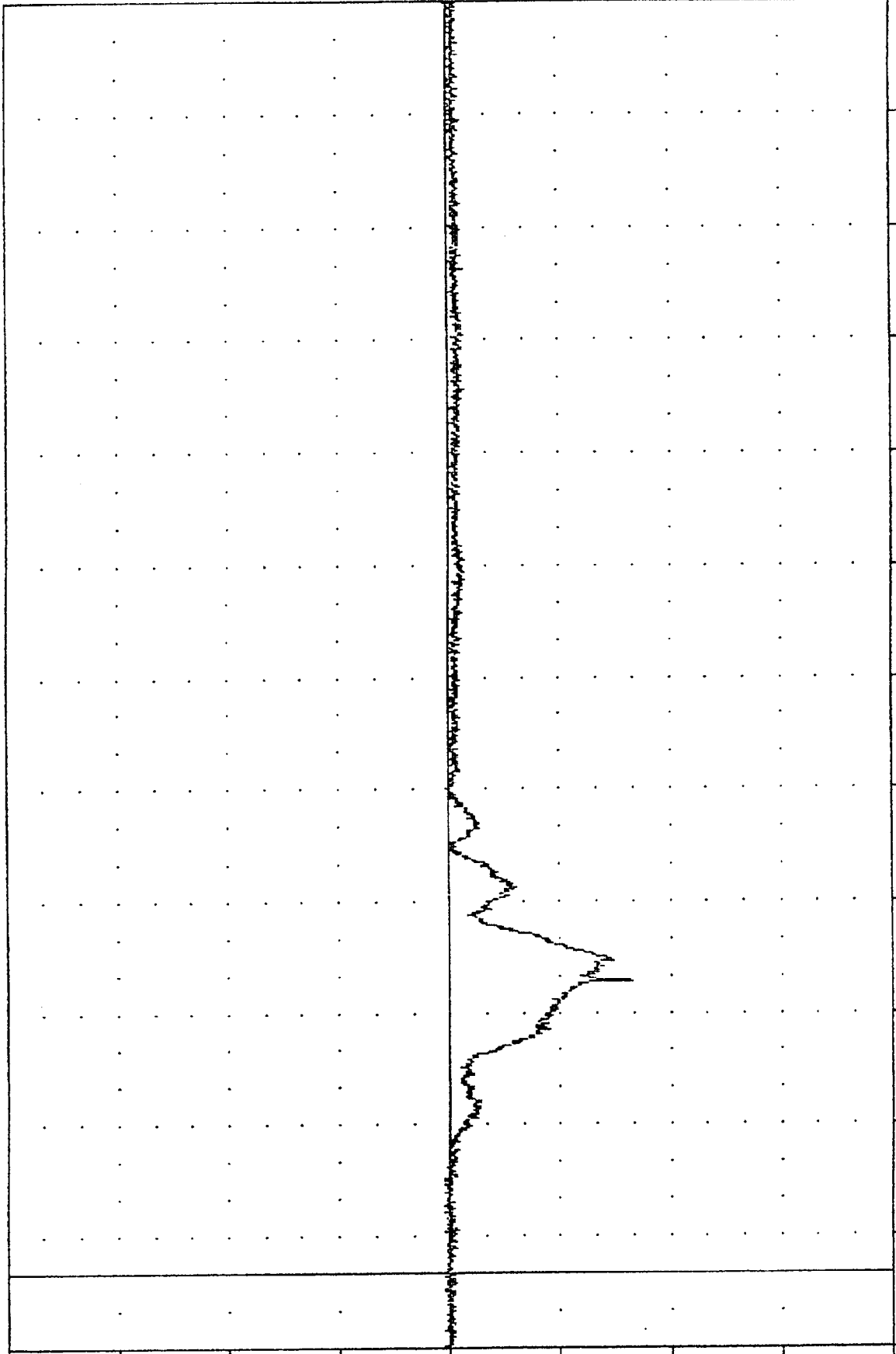
NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER HEAD ACCELERATION Y AXIS

TRC
NEW CAR ASSESSMENT PROGRAM
88104
HE02G1

880413

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -81.95% 78.50, 2.87 % 18.38

ACCELERATION (G)



200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00

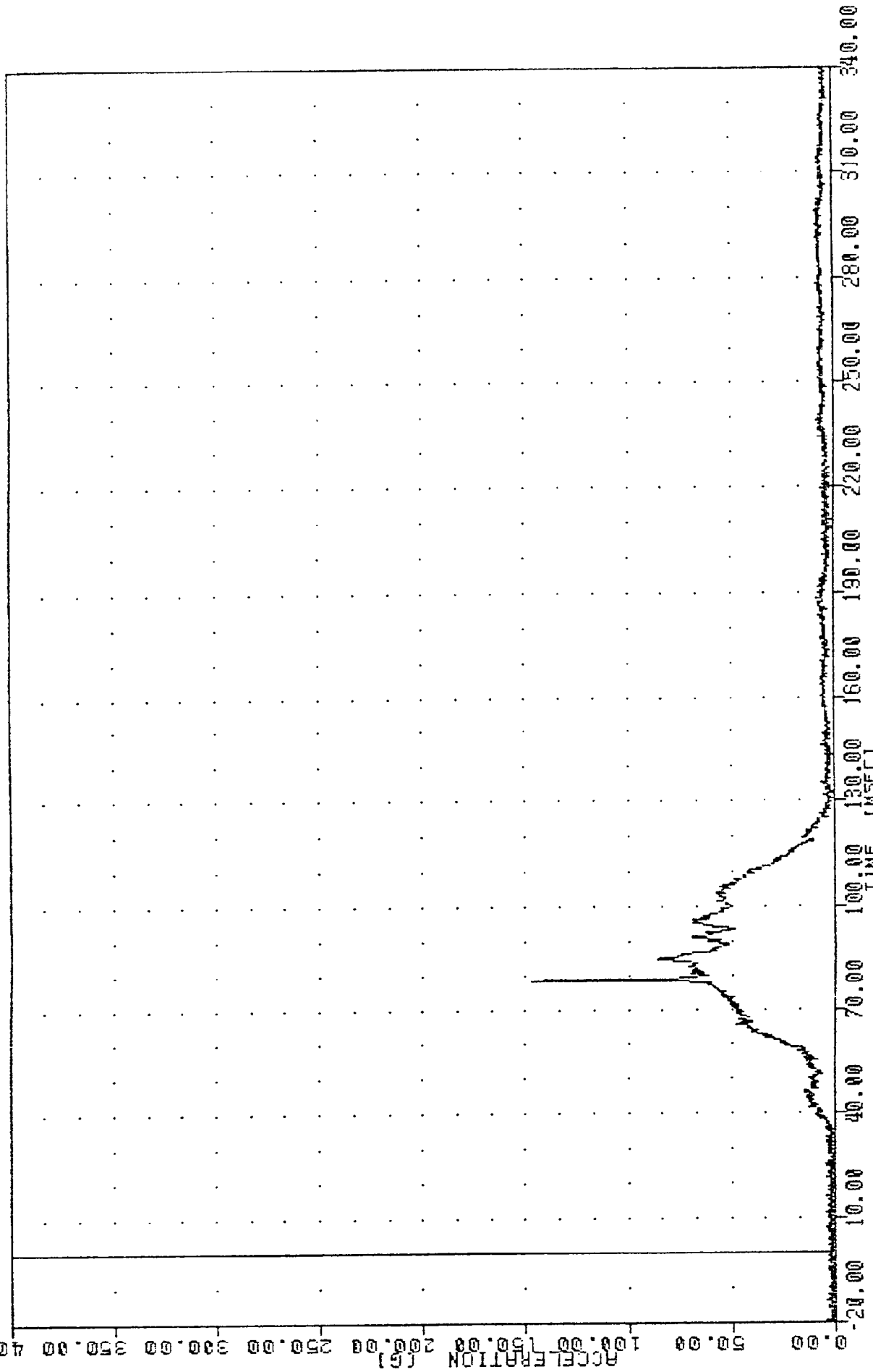
-20.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00

TIME (MSEC)

NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER HEAD ACCELERATION Z AXIS

TRC
880413
NEW CAR ASSESSMENT PROGRAM
88104
HEDRG1

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.24e 5.25, 146.90 e 78.50



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION

TRC

880413

NEW CAR ASSESSMENT PROGRAM

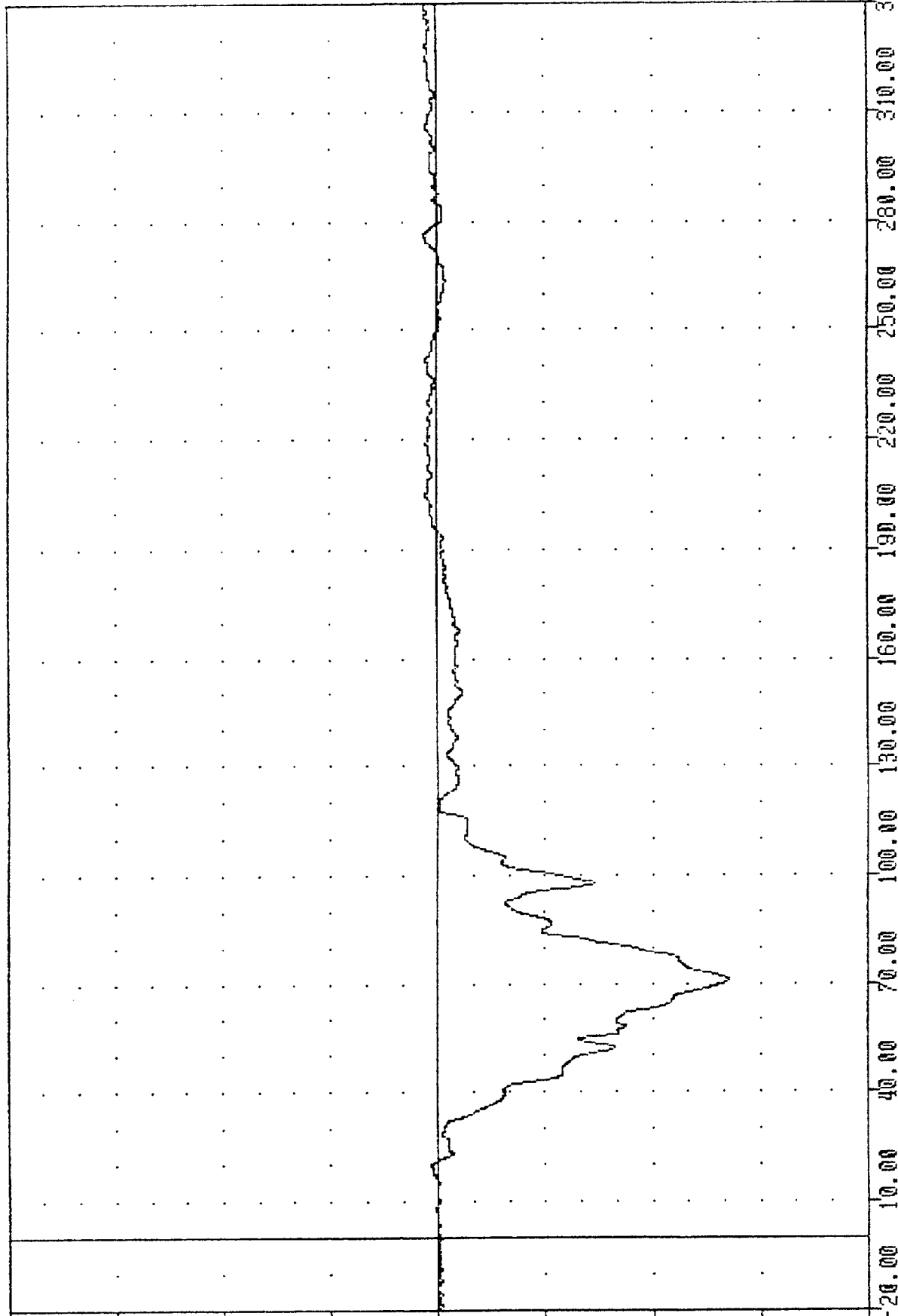
88104

CSTXG1

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -54.29g 71.00 , 2.66 g 276.25

ACCELERATION (g)



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER CHEST ACCELERATION X AXIS

TRC , 880413

NEW CAR ASSESSMENT PROGRAM

88104
CSTYG1

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -13.24g 89.13 , 11.31 g 69.00

80.00

60.00

40.00

20.00

0.00

-20.00

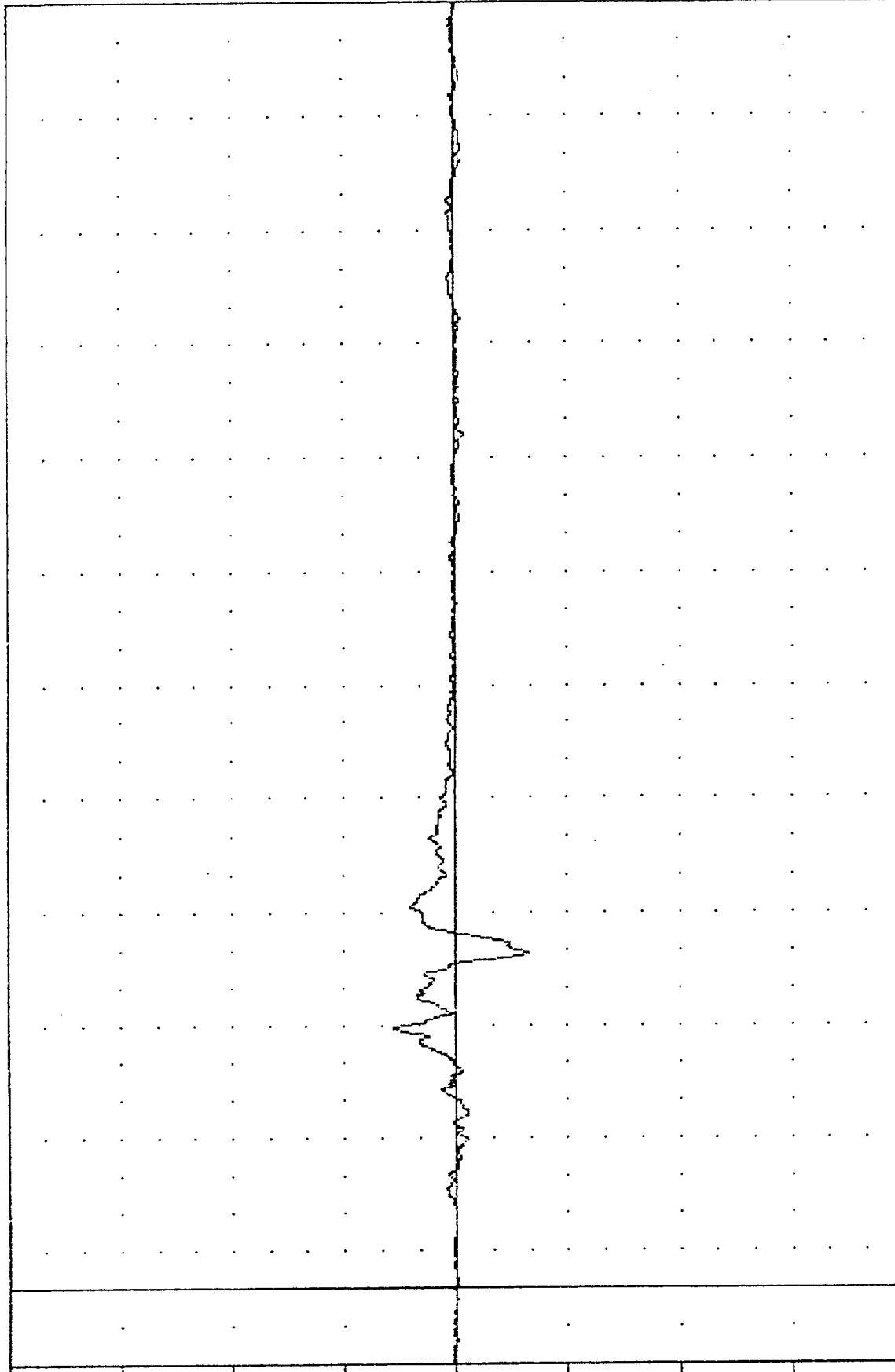
-40.00

-60.00

-80.00

880413

B-7

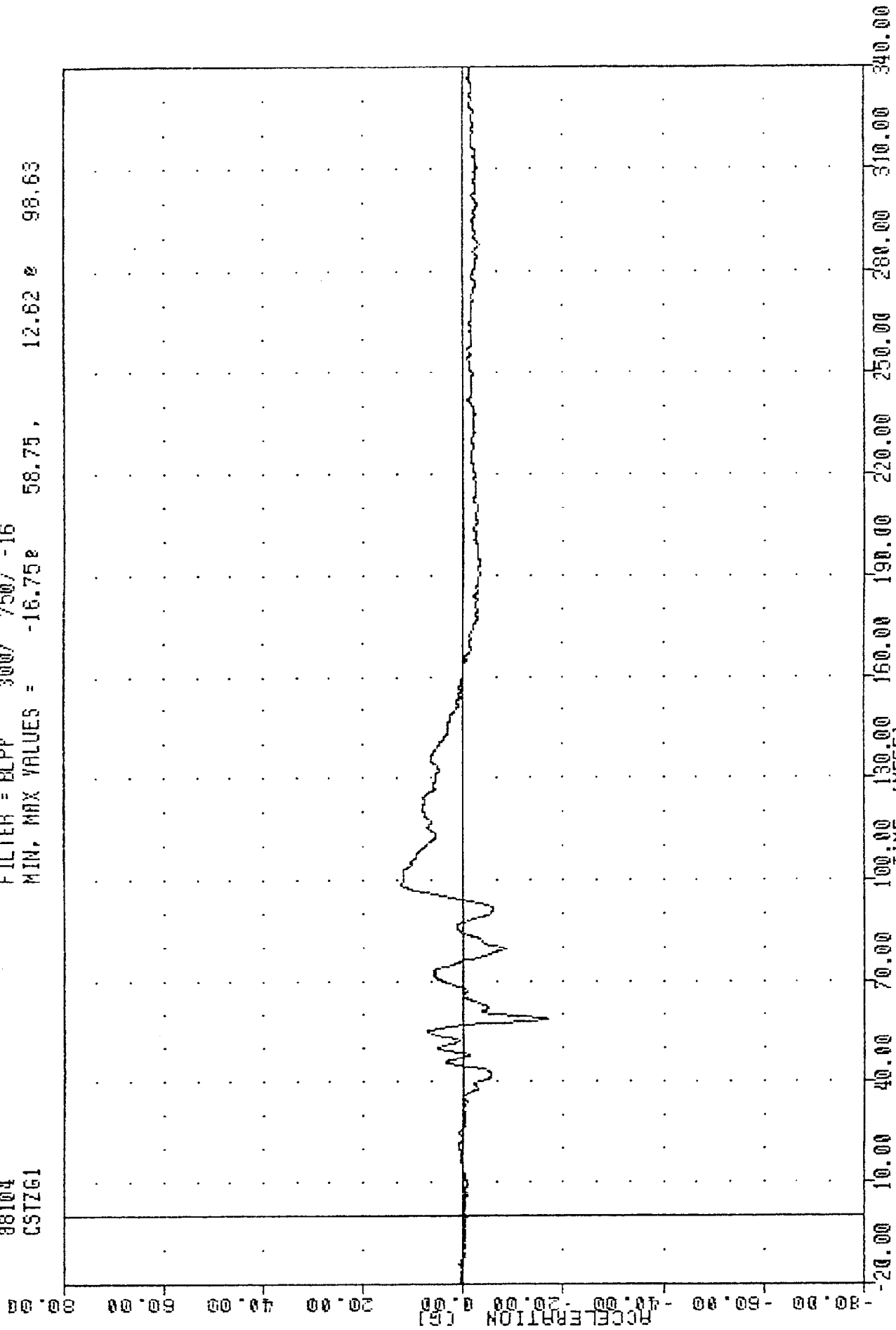


20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER CHEST ACCELERATION Y AXIS

TRC
880413
NEW CAR ASSESSMENT PROGRAM
88104
CSTZG1

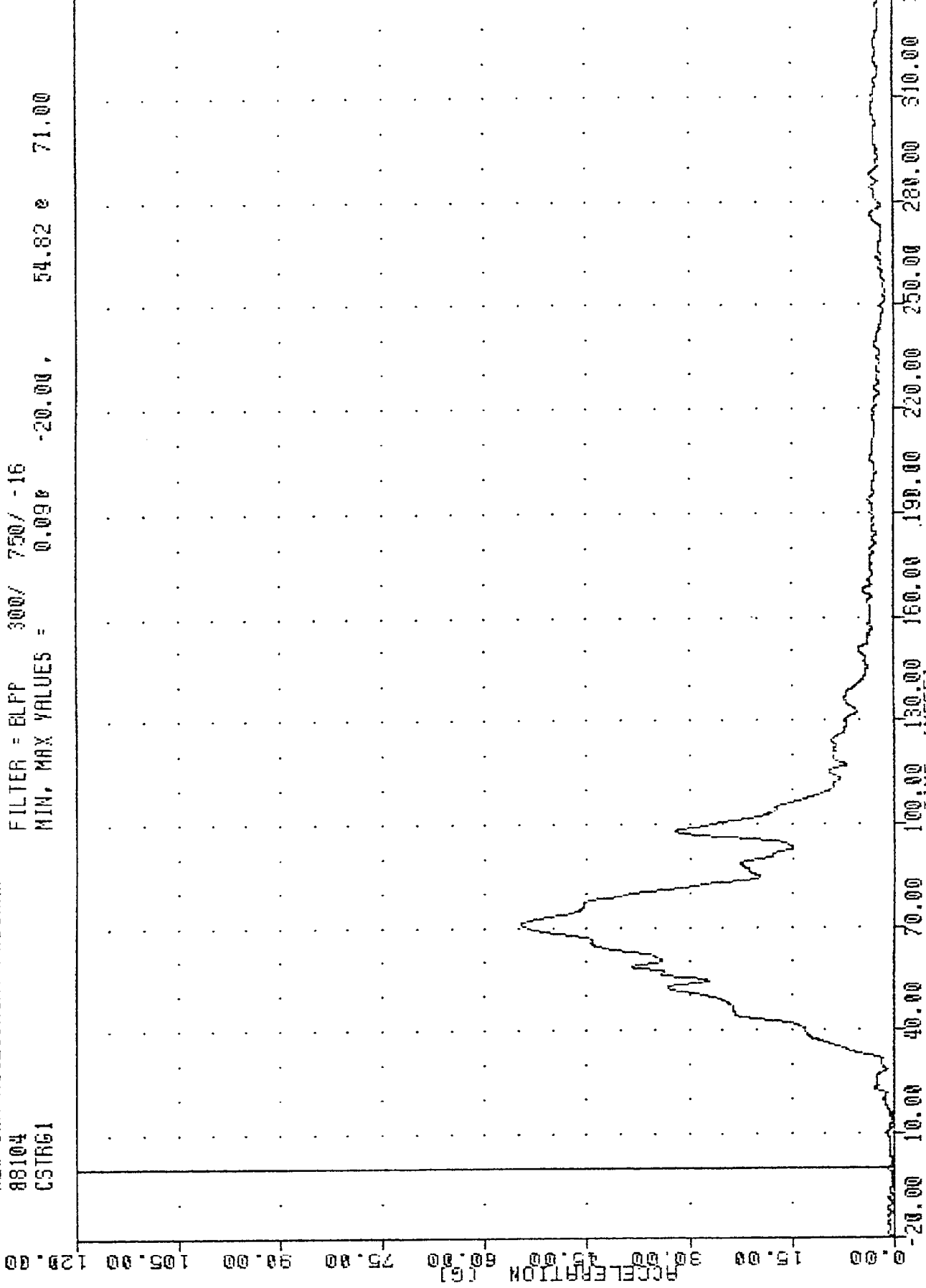
FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -16.75e 58.75, 12.62 e 98.63



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER CHEST ACCELERATION Z AXIS

TRC, 880413
NEW CAR ASSESSMENT PROGRAM
88104
CSTRG1

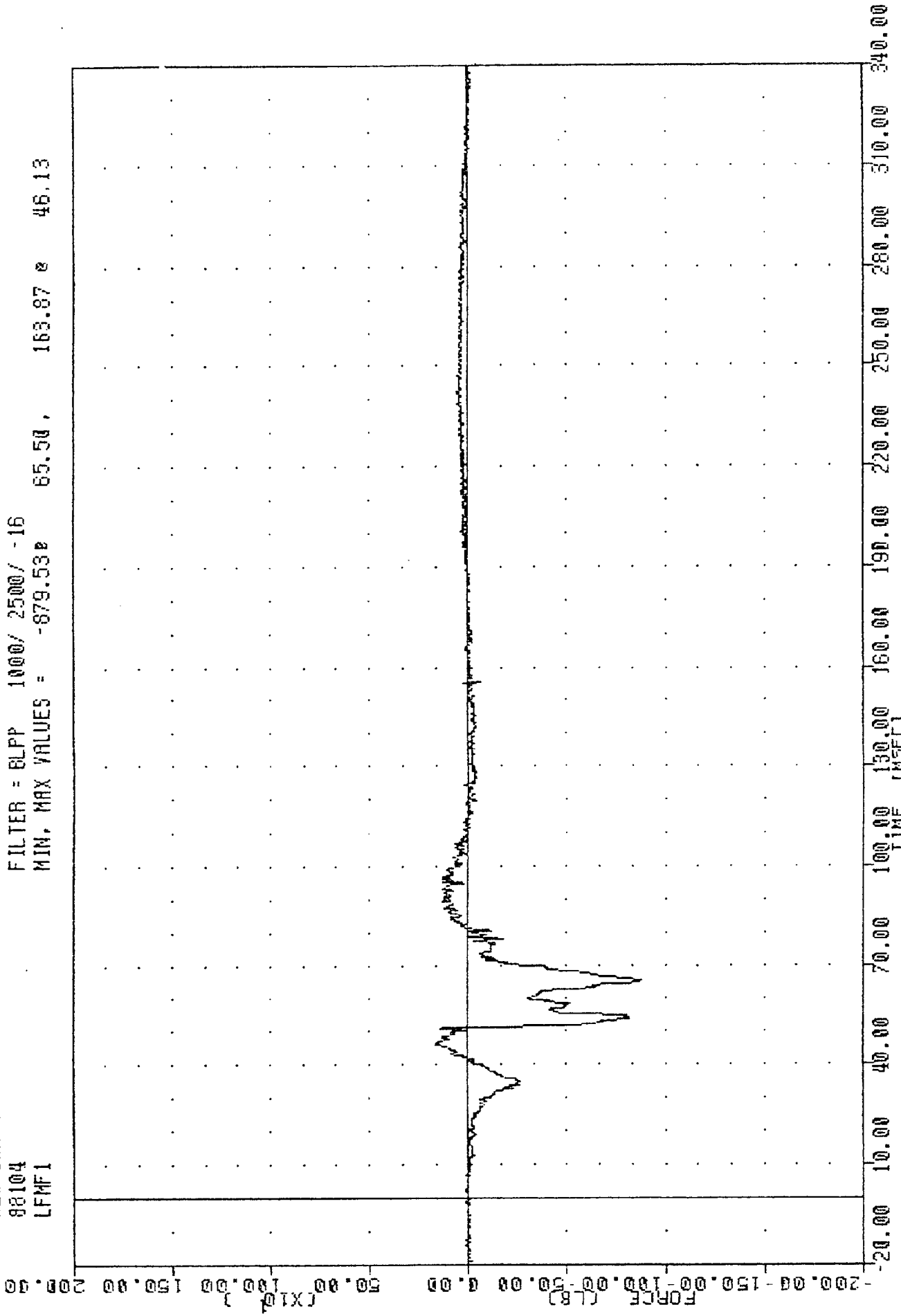
FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = 0.098 -20.00, 54.82 e 71.00



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION

TRC 880413
NEW CAR ASSESSMENT PROGRAM
88104
LFMF1

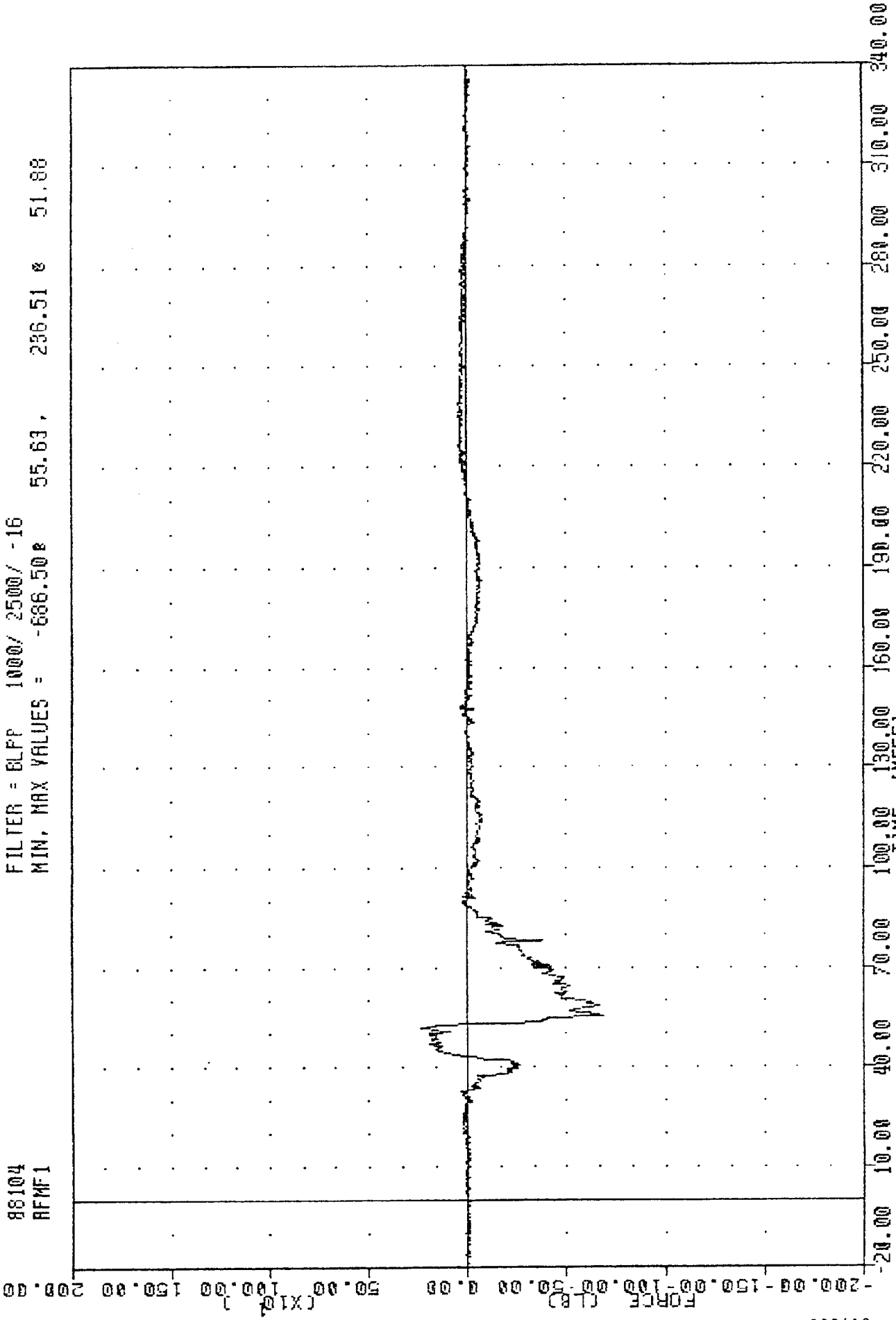
FILTER = BLPP 1000/ 2500/ -16
MIN, MAX VALUES = -879.530 65.50, 163.87 e 46.13



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE

TRC
880413
NEW CAR ASSESSMENT PROGRAM
88104
RFMF1

FILTER = BLPP 1000/ 2500/ -16
MIN, MAX VALUES = -686.508 55.63, 286.51 e 51.88



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE

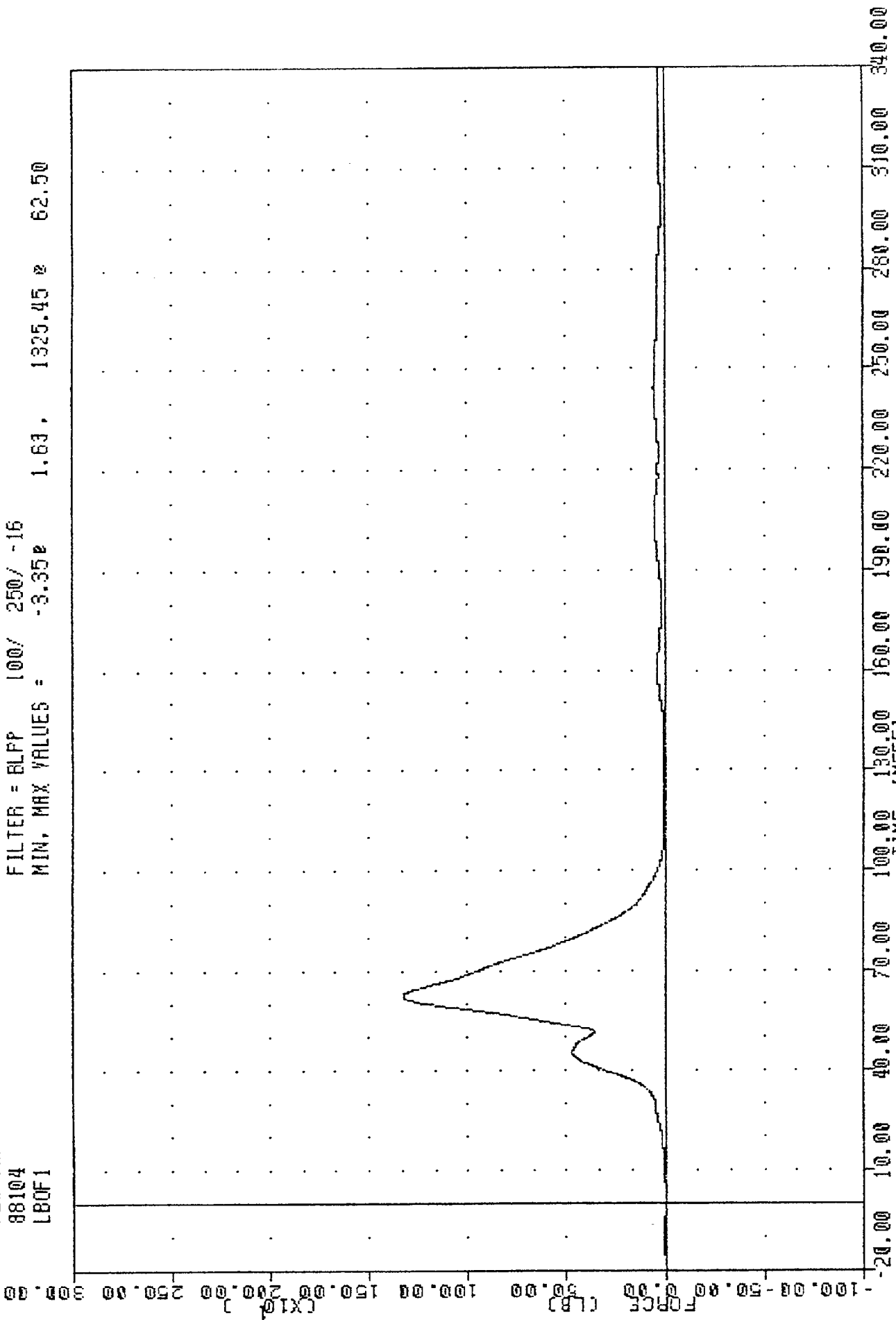
TRC

880413

NEW CAR ASSESSMENT PROGRAM

88104
LBOF1

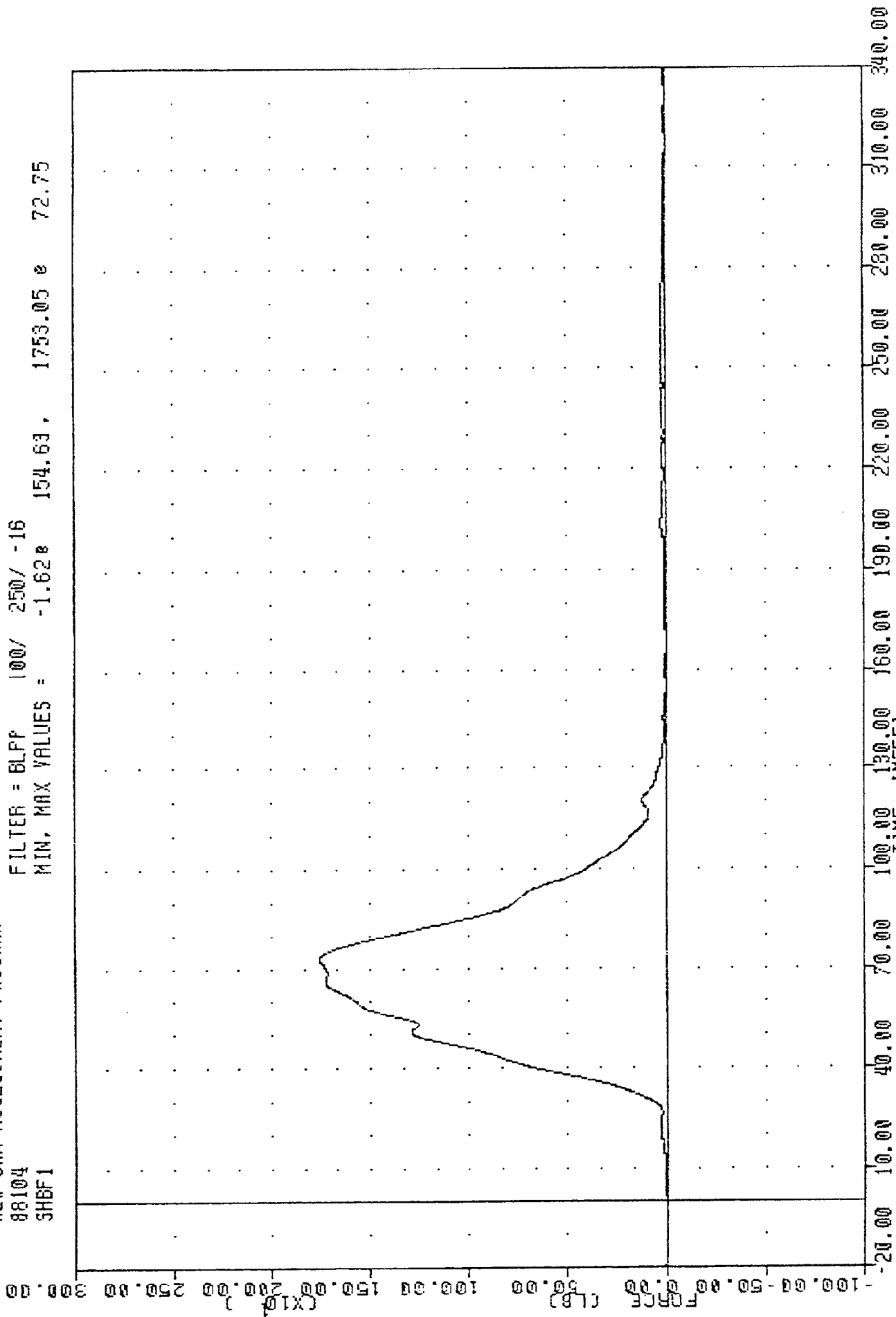
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -3.35E 1.63, 1325.45 E 62.50



NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER LAP BELT OUTBOARD FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 SHBF1

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -1.62e 154.63, 1753.05 e 72.75



NISSAN SENTRA INTO LOAD CELL BARRIER
 DRIVER SHOULDER BELT FORCE

TRC 880413

NEW CAR ASSESSMENT PROGRAM

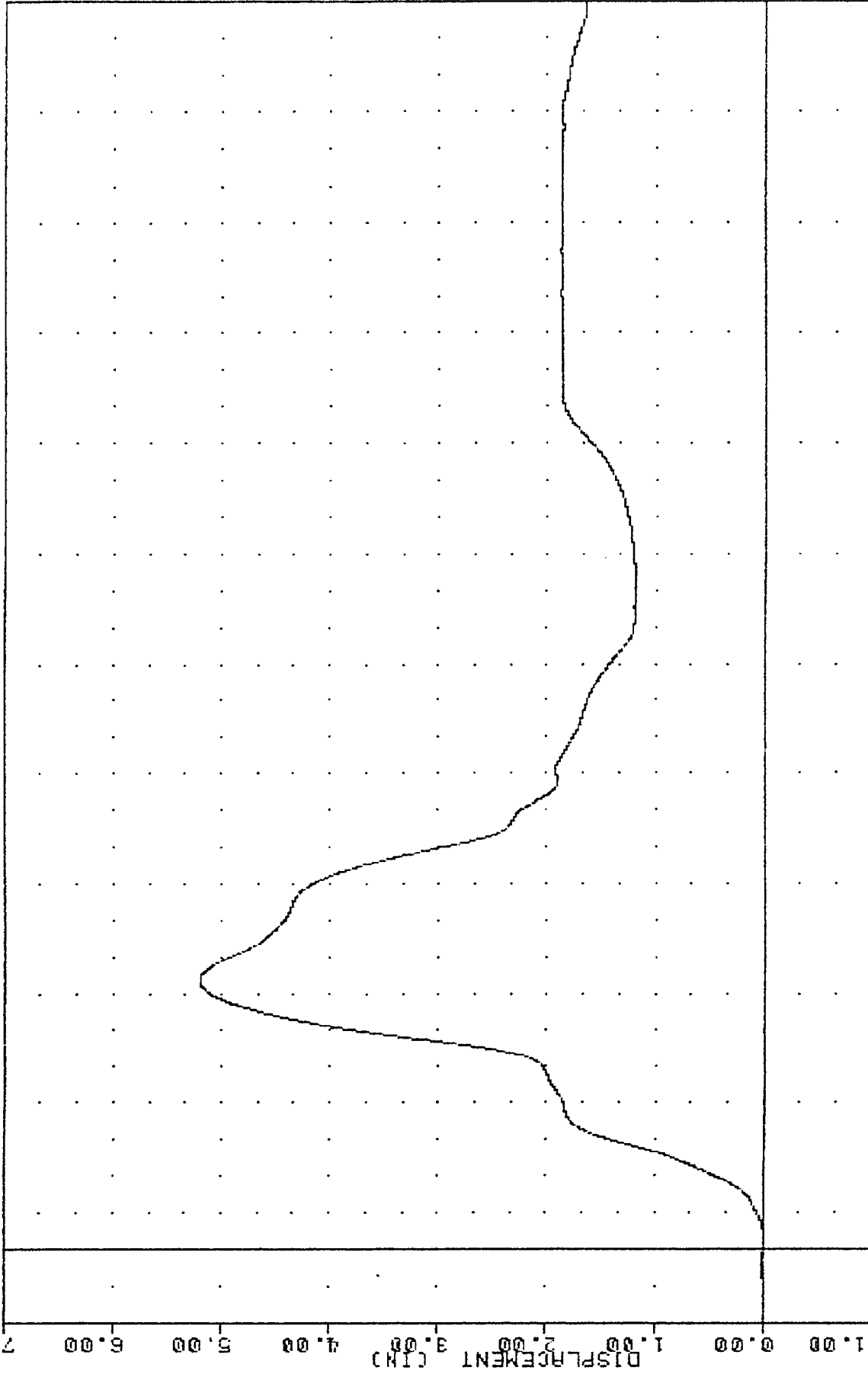
88104

SHB01

FILTER = BLPP 100/ 250/ -16

MIN. MAX VALUES = -0.01e -16.25, 5.20 e 73.38

7.20



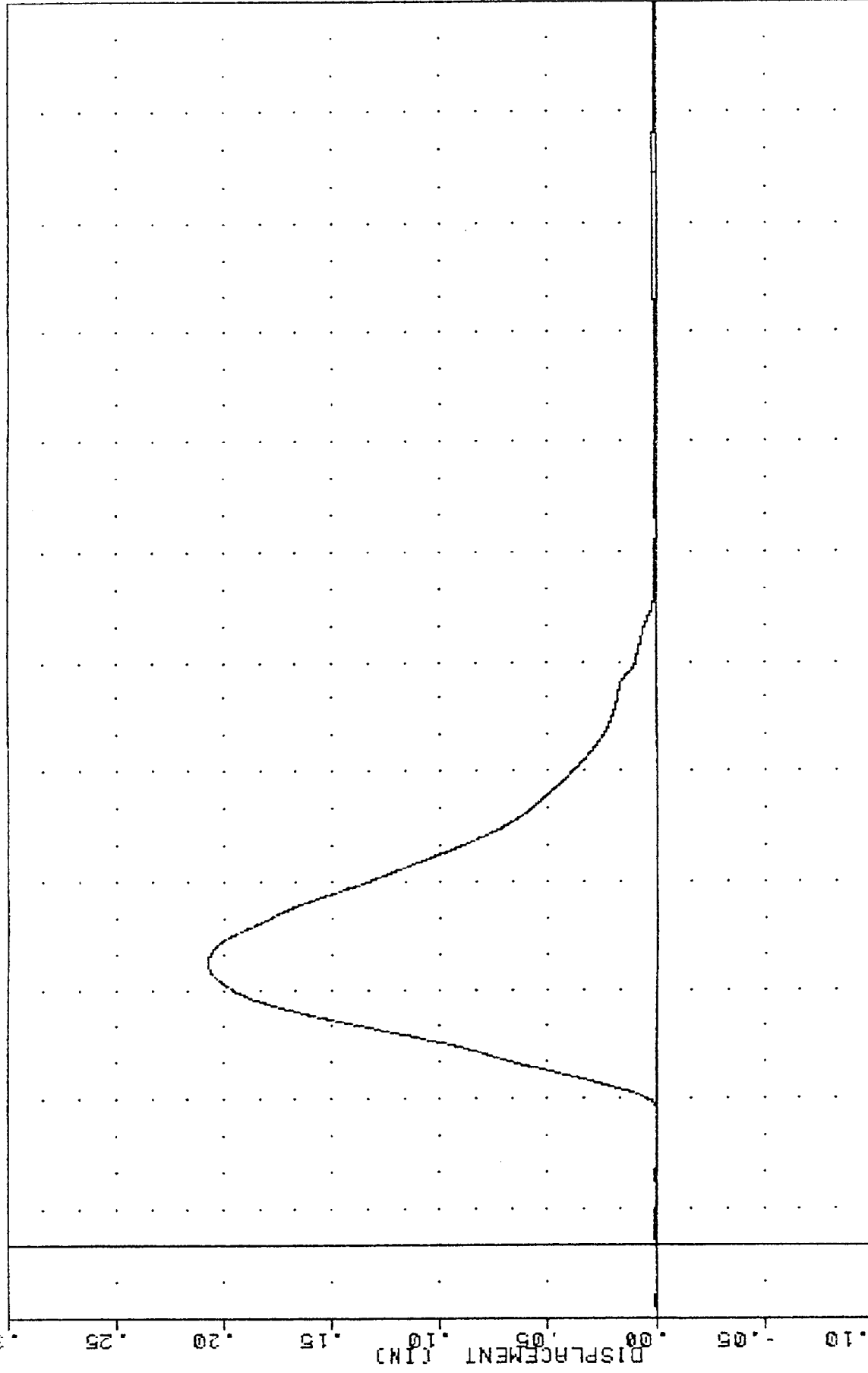
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

NISSAN SENTRA INTO LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT

TRC
880413

NEW CAR ASSESSMENT PROGRAM
88104
SBED1

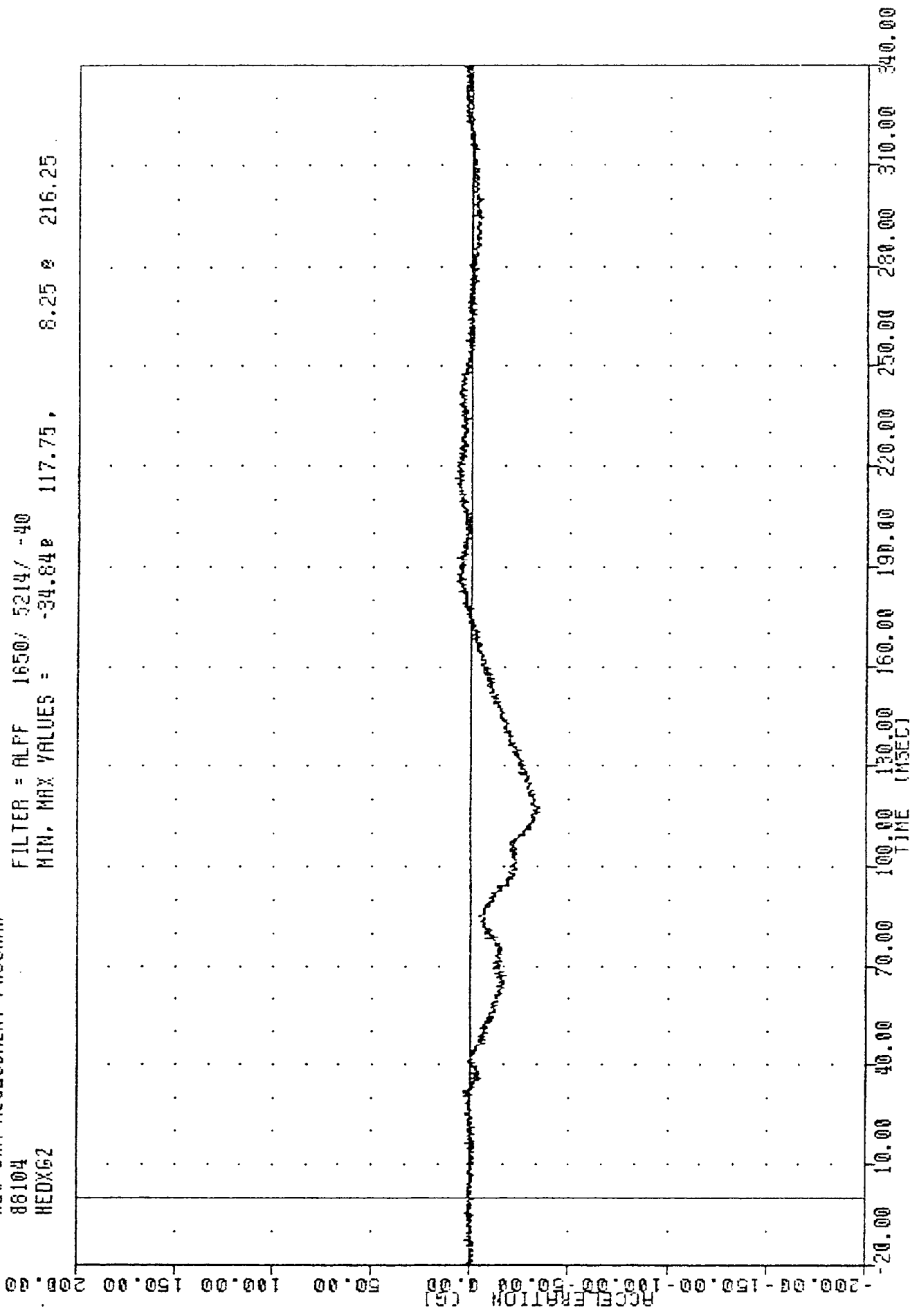
FILTER = BLPF 100/ 250/ -16
MIN, MAX VALUES = 0.008 36.50, 0.21 77.63



880413
Nissan Sentra into Load Cell Barrier
Driver Seat Belt Extension

TRC [REDACTED], 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 HEDX62

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -34.84e 117.75, 8.25 e 216.25



NISSAN SENTRA INTO LOAD CELL BARRIER
 PASSENGER HEAD ACCELERATION X AXIS

TAC 880413

NEW CAR ASSESSMENT PROGRAM

82104

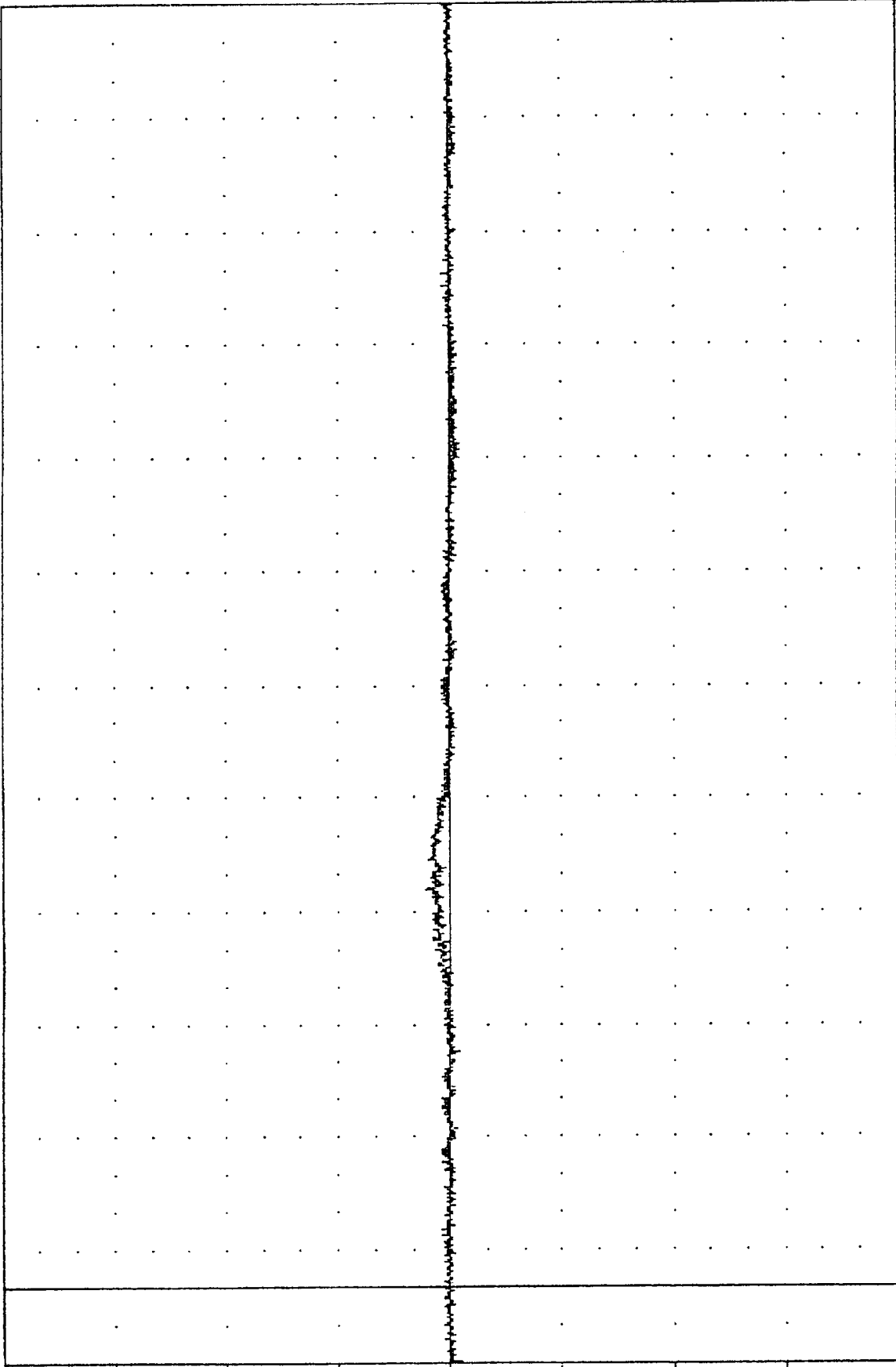
HEDYG2

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -4.51e 10.79 e 106.00

-19.63 , 10.79 e 106.00

ACCELERATION (G) 200.00 150.00 100.00 50.00 0.00 -50.00 -100.00 -150.00 -200.00



-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

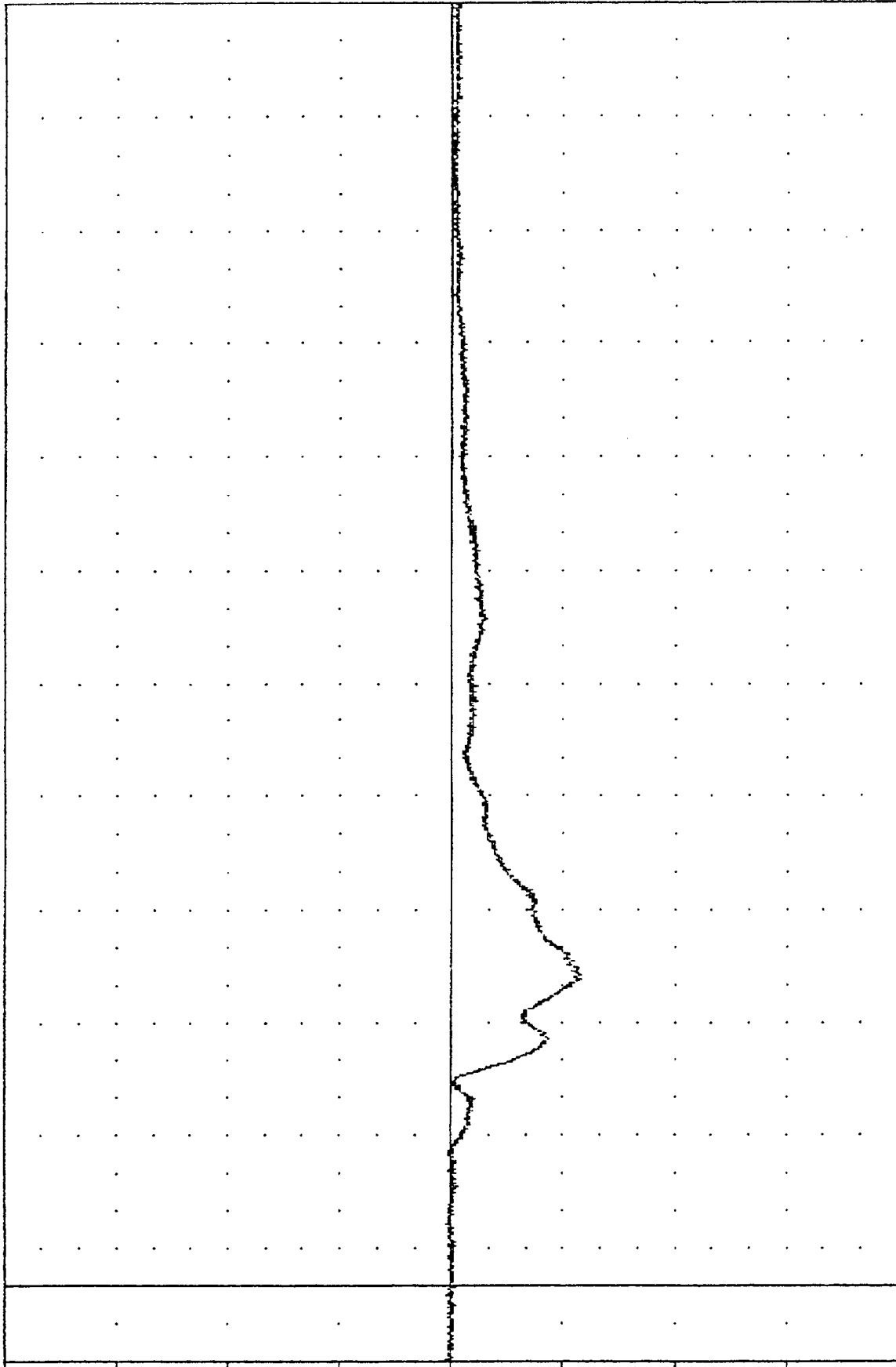
NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER HEAD ACCELERATION Y AXIS

TRC
NEW CAR ASSESSMENT PROGRAM
88104
HEDZ62

880413

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -58.04e 82.50, 2.81e 16.38

200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00



81-18

880413

-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

NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER HEAD ACCELERATION Z AXIS

TRC 880413

NEW CAR ASSESSMENT PROGRAM

88104

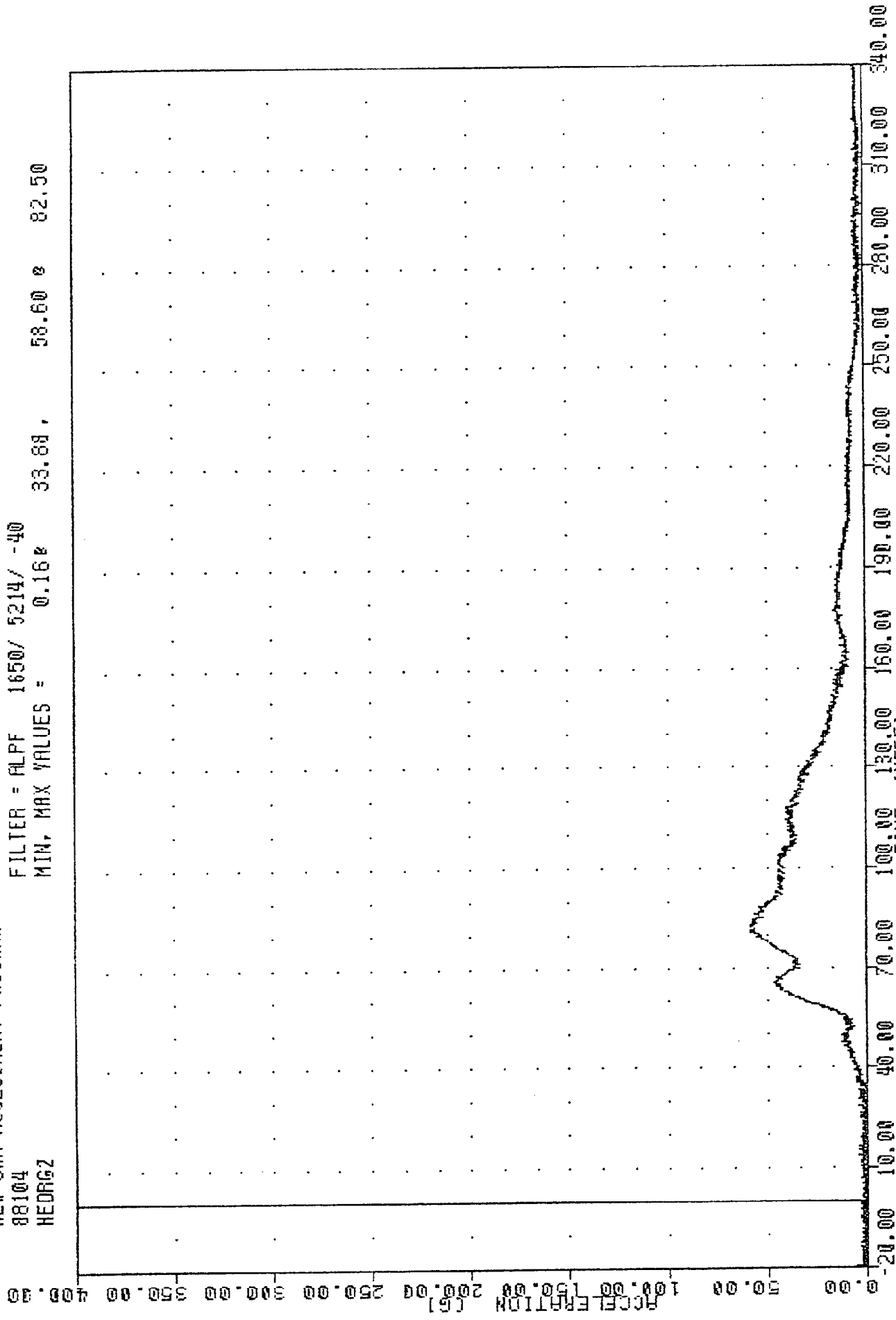
HEDRG2

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = 0.16g

58.60 g

82.50



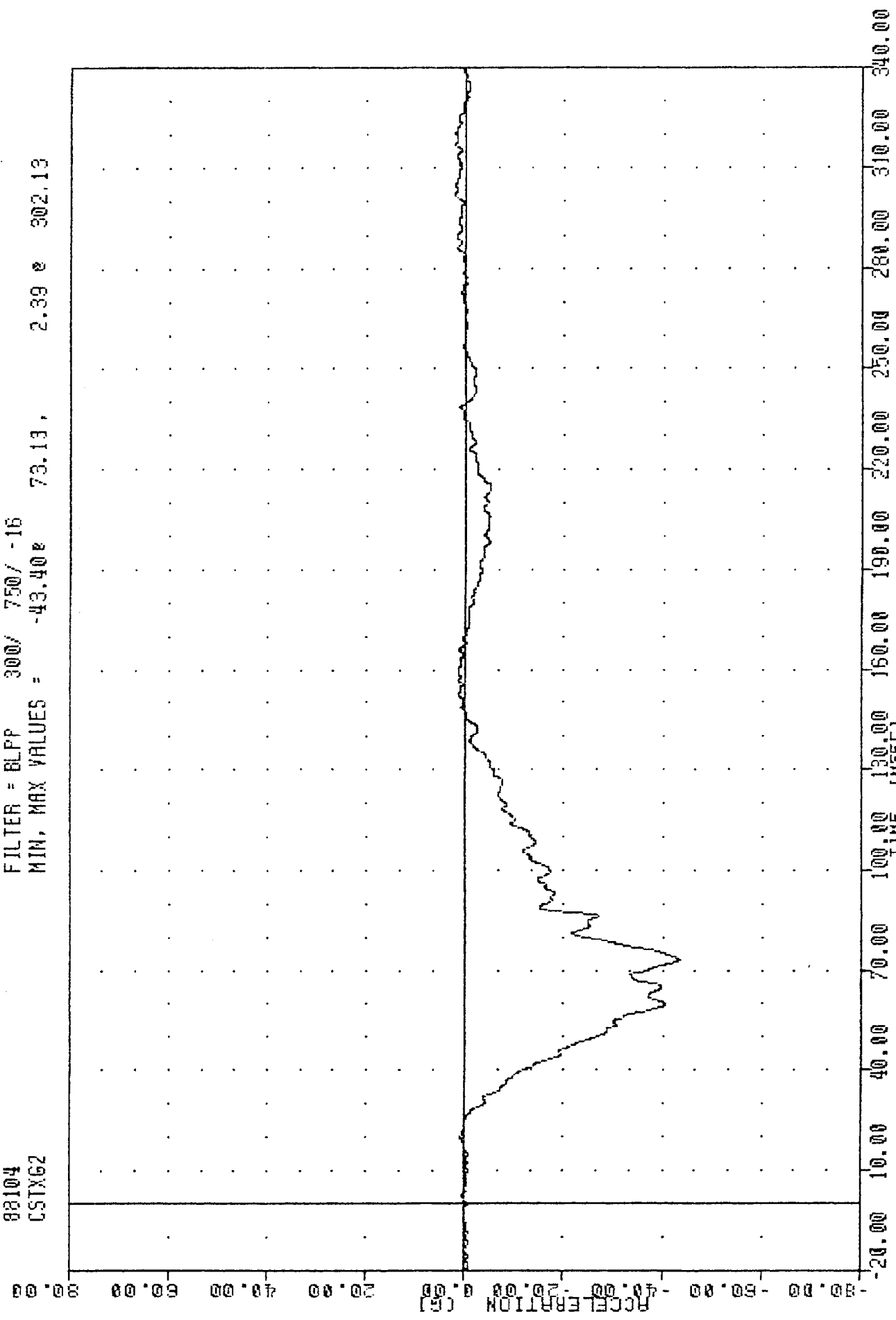
NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION

TRE 880413

NEW CAR ASSESSMENT PROGRAM

88104
CSTX62

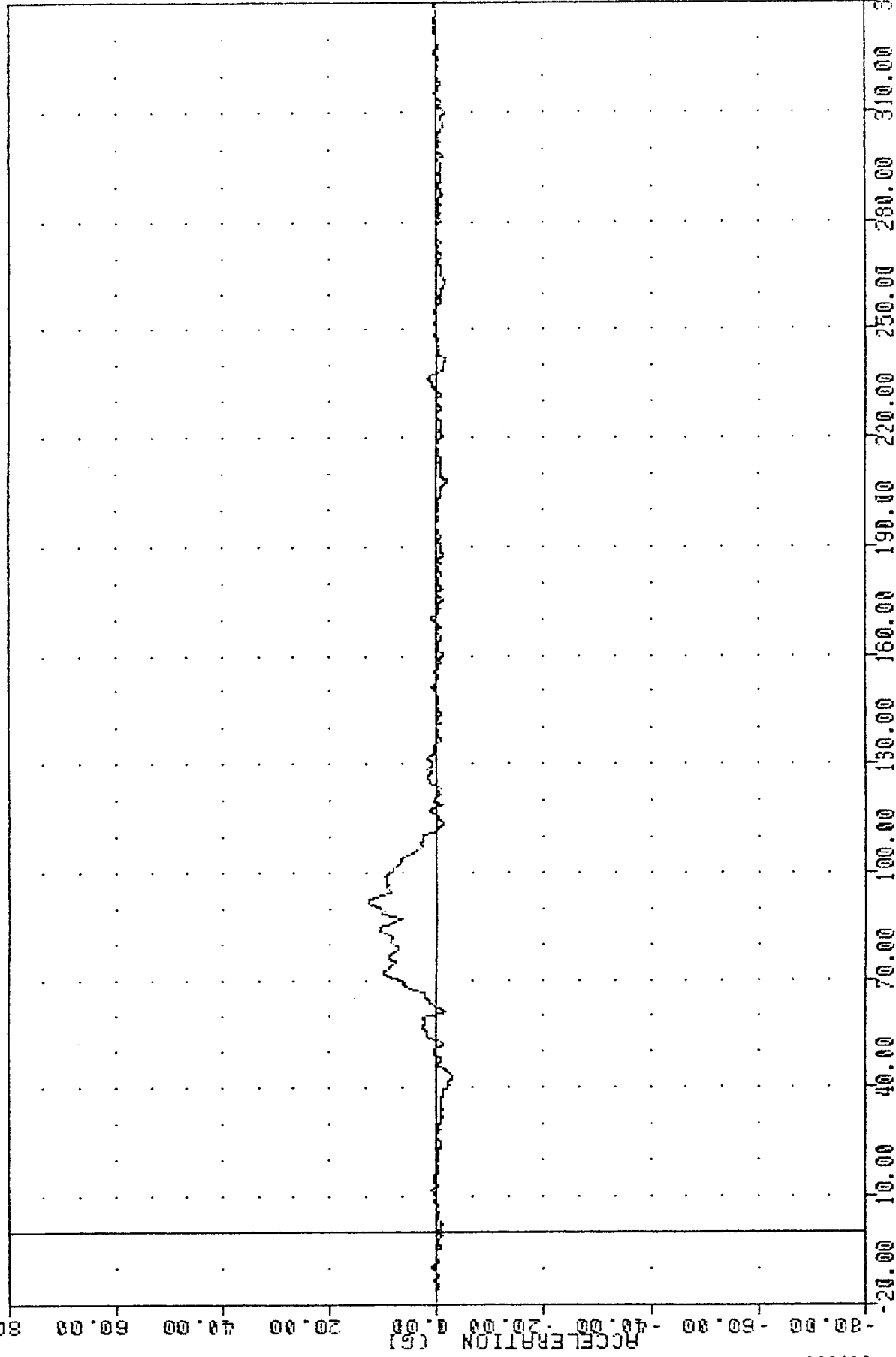
FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -43.40e 73.13, 2.39 e 302.13



NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER CHEST ACCELERATION X AXIS

TRC
 NEW CAR ASSESSMENT PROGRAM
 88104
 CSTY62

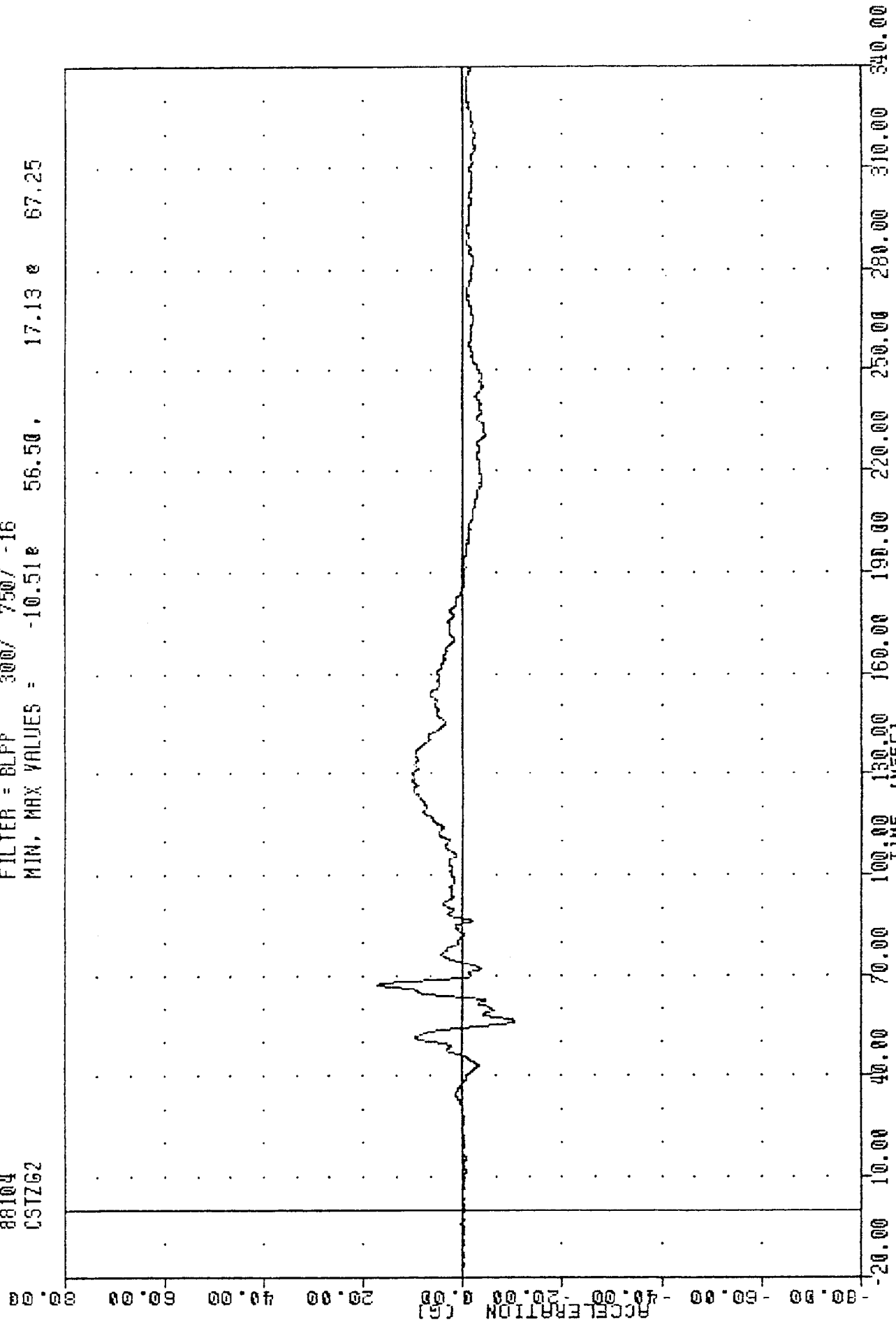
FILTER = BLFP 300/ 750/ -16
 MIN. MAX VALUES = -2.73% 42.88, 13.04 & 91.75



NISSAN SENTRA INTO LOAD CELL BARRIER
 PASSENGER CHEST ACCELERATION Y AXIS

TRC 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 CSTZ62

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -10.51e 56.50, 17.13 e 67.25



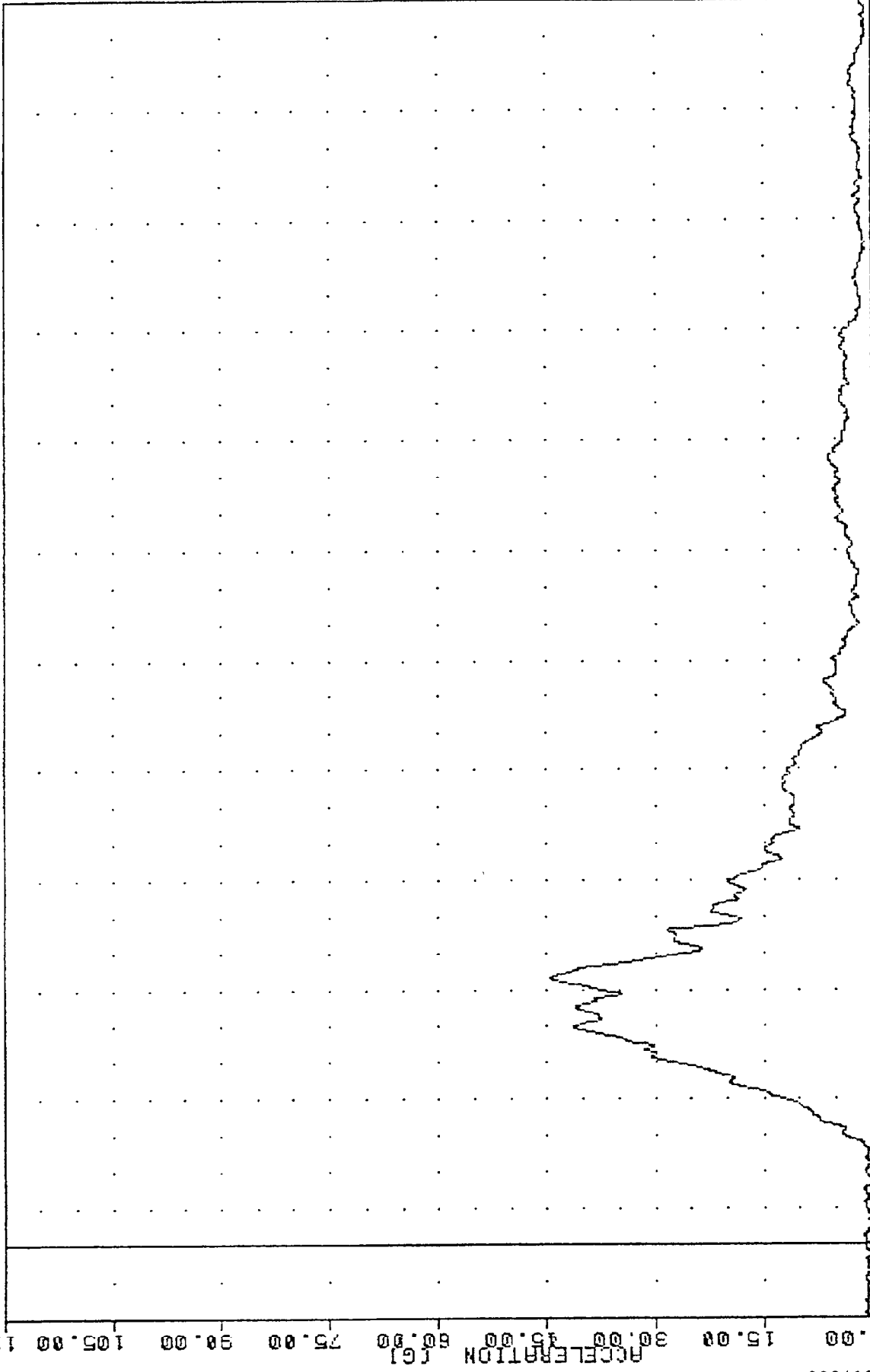
NISSAN SENTRA INTO LOAD CELL BARRIER
 PASSENGER CHEST ACCELERATION Z AXIS

TRC
NEW CAR ASSESSMENT PROGRAM
88104
CSTRG2

880413

FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = 0.09g -20.00 , 44.35 g 73.00

120.00
115.00
110.00
105.00
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
55.00
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00



880413

NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION

TRC

, 880413

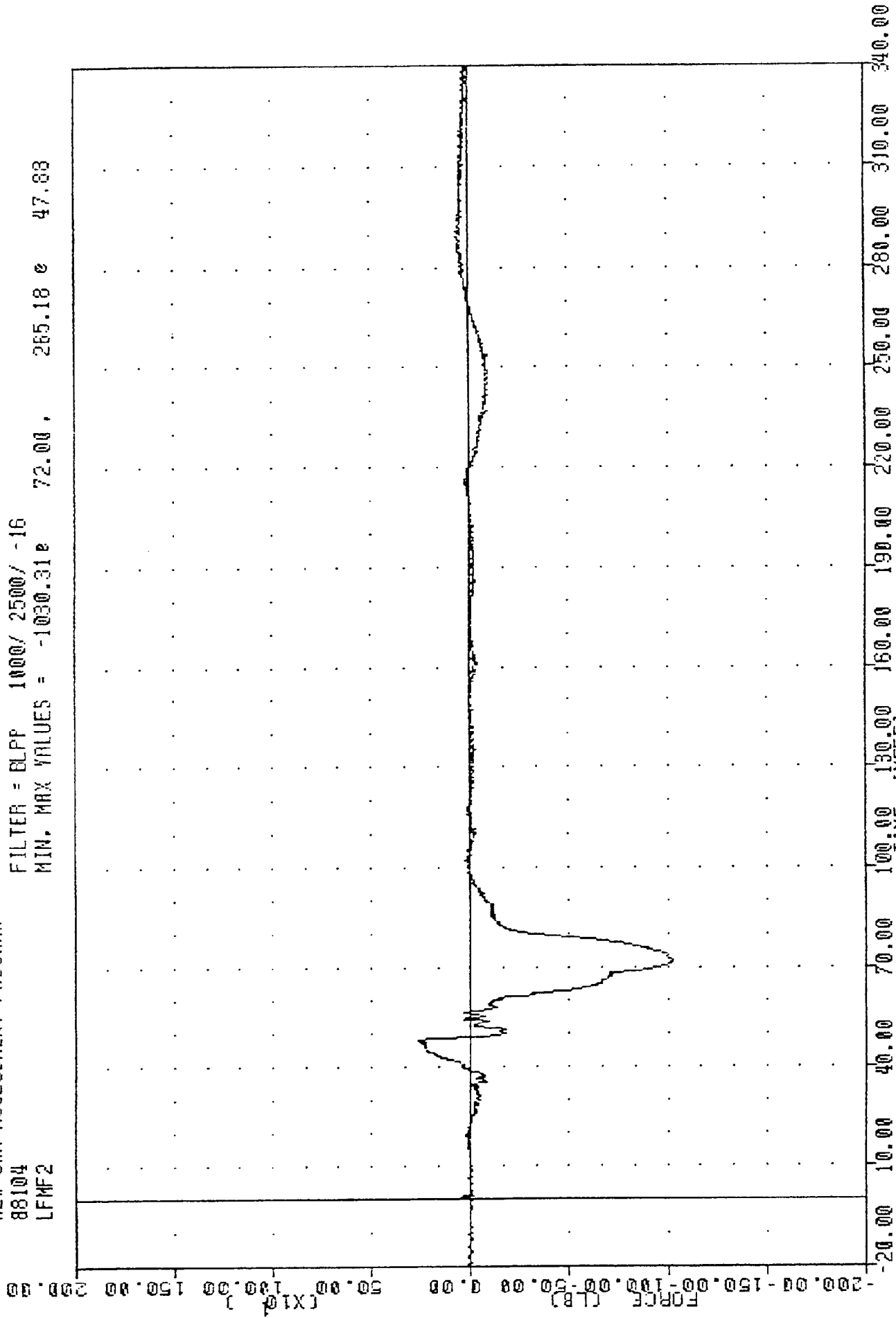
NEW CAR ASSESSMENT PROGRAM

88104

LFMF2

FILTER = BLPP 1000/ 2500/ -16

MIN. MAX VALUES = -1030.31e 72.00 , 265.18 e 47.88

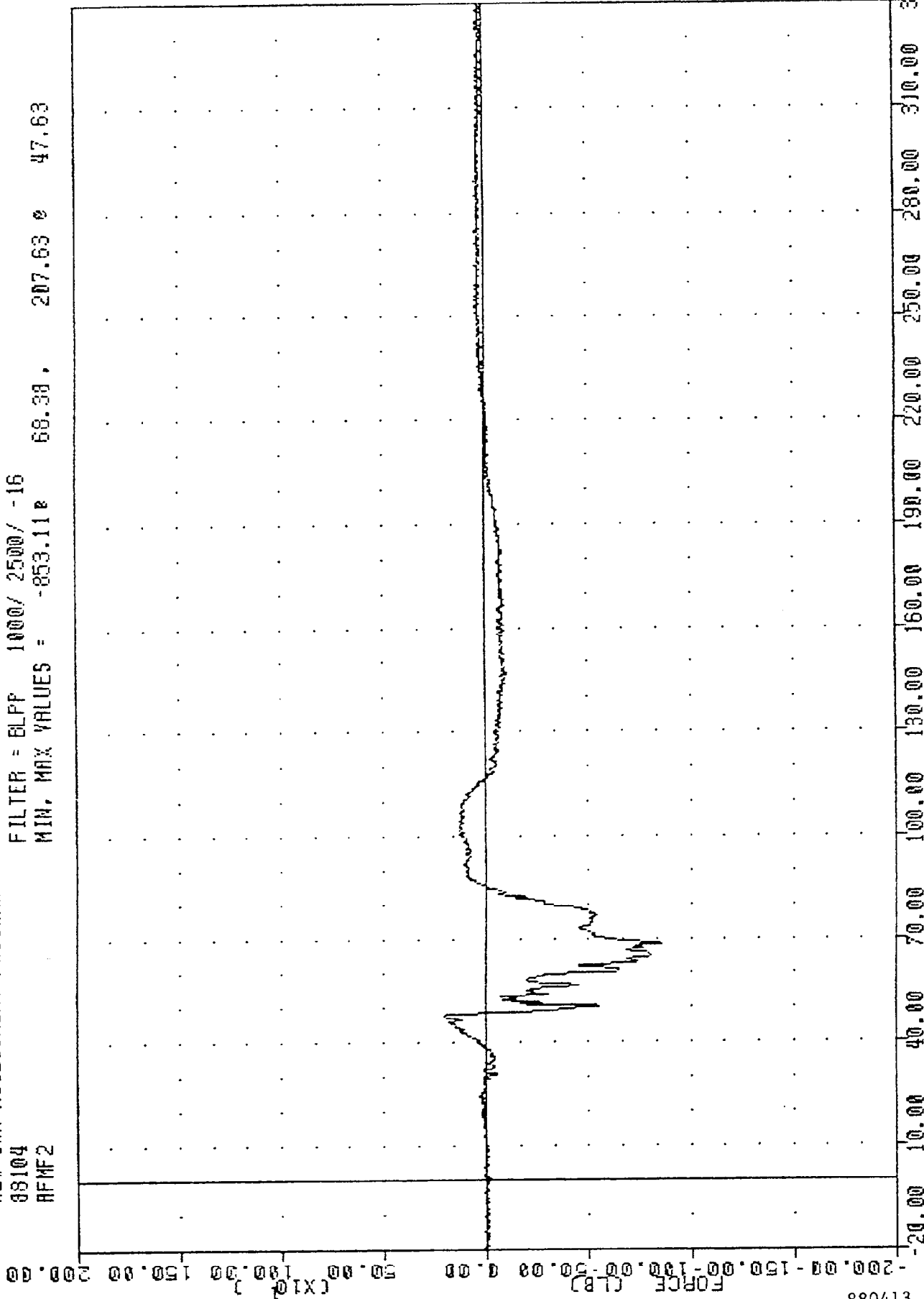


NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE

TRC
NEW CAR ASSESSMENT PROGRAM
88104
AFMF2

880413

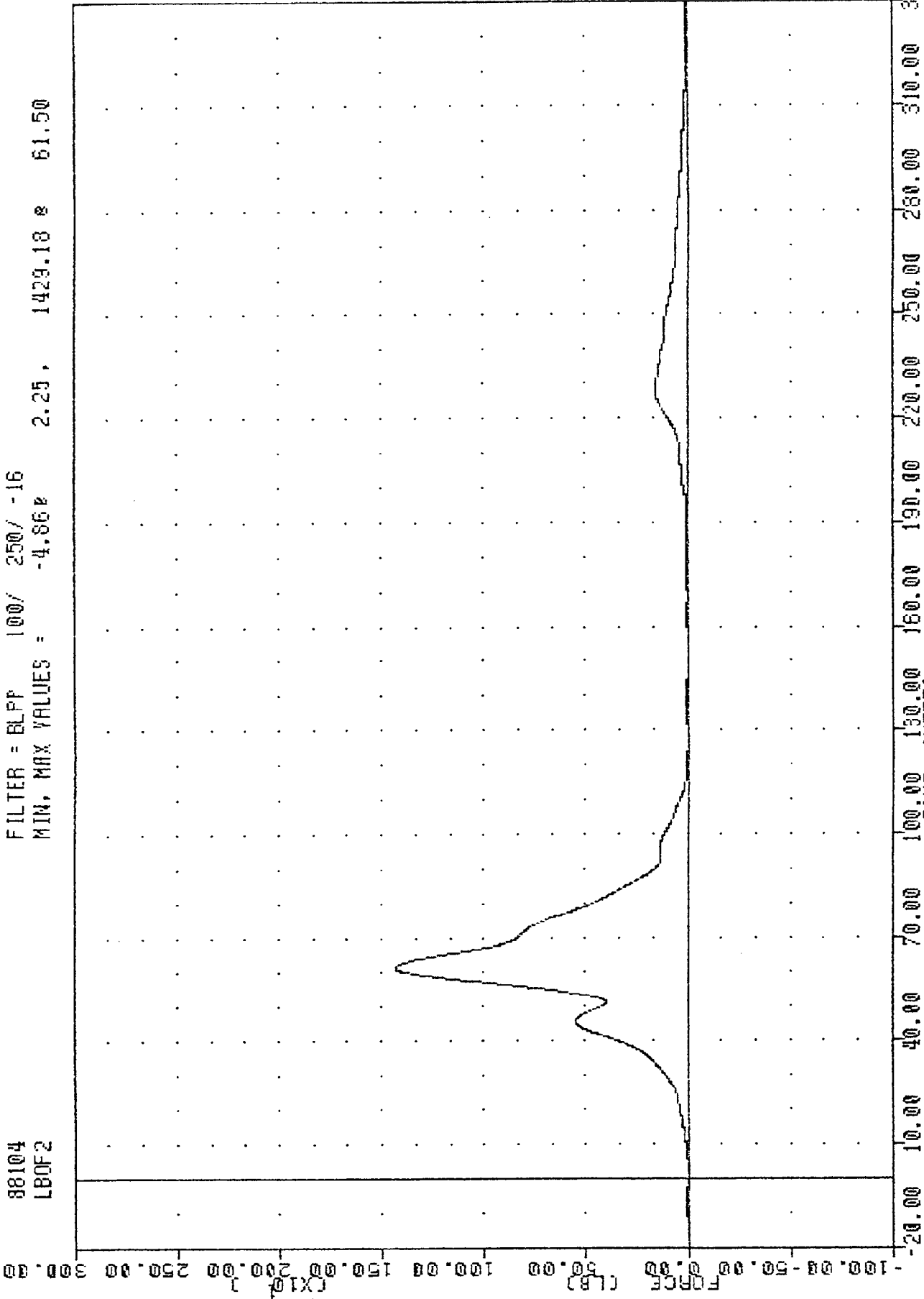
FILTER = BLPP 1000/ 2500/ -16
MIN, MAX VALUES = -853.11# 68.3# 207.63 # 47.63



NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE

TRC
880413
NEW CAR ASSESSMENT PROGRAM
88104
LBOF2

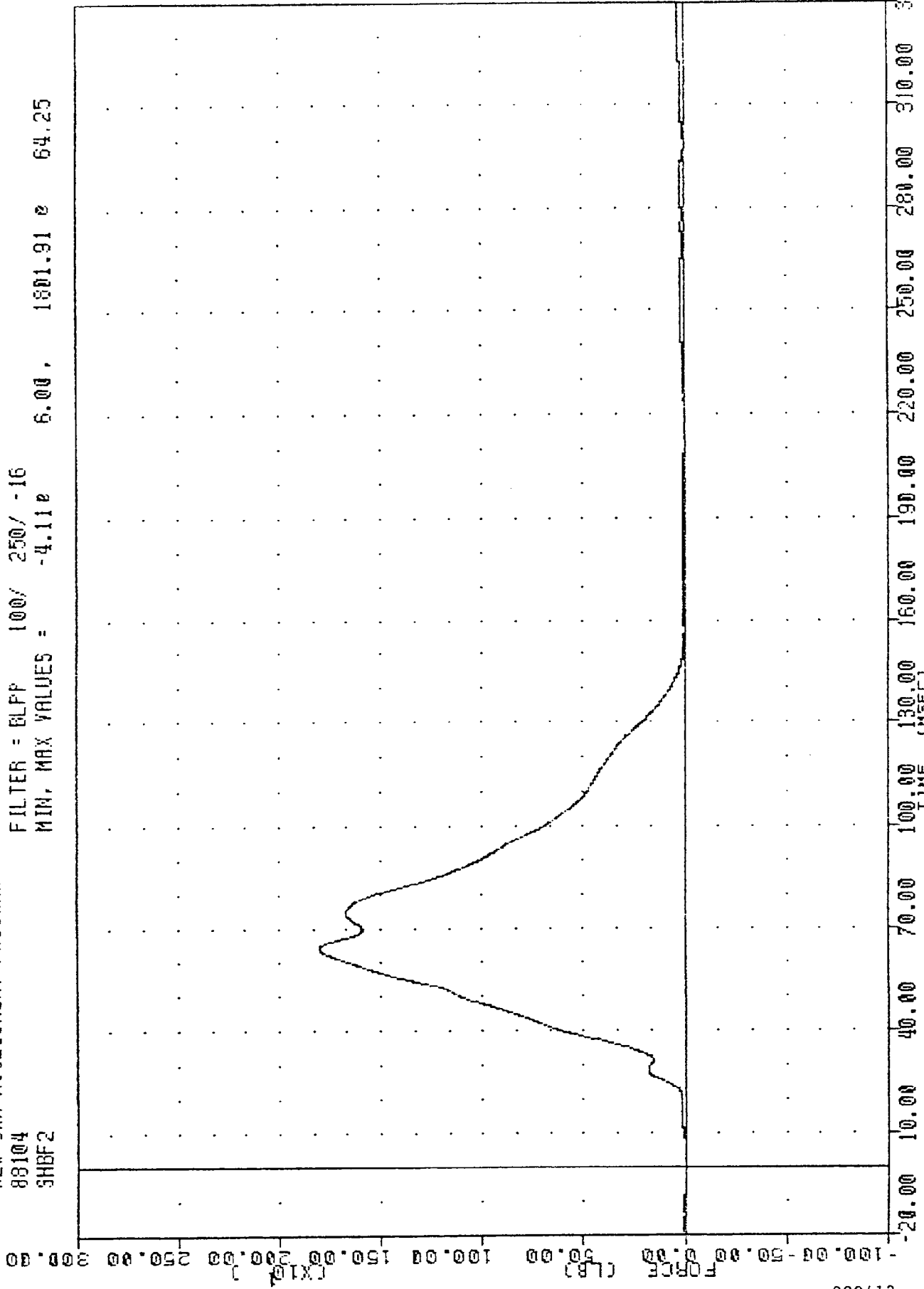
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -4.86% 2.25, 1429.18 & 61.50



NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE

TRC 880413
NEW CAR ASSESSMENT PROGRAM
89104
SHBF2

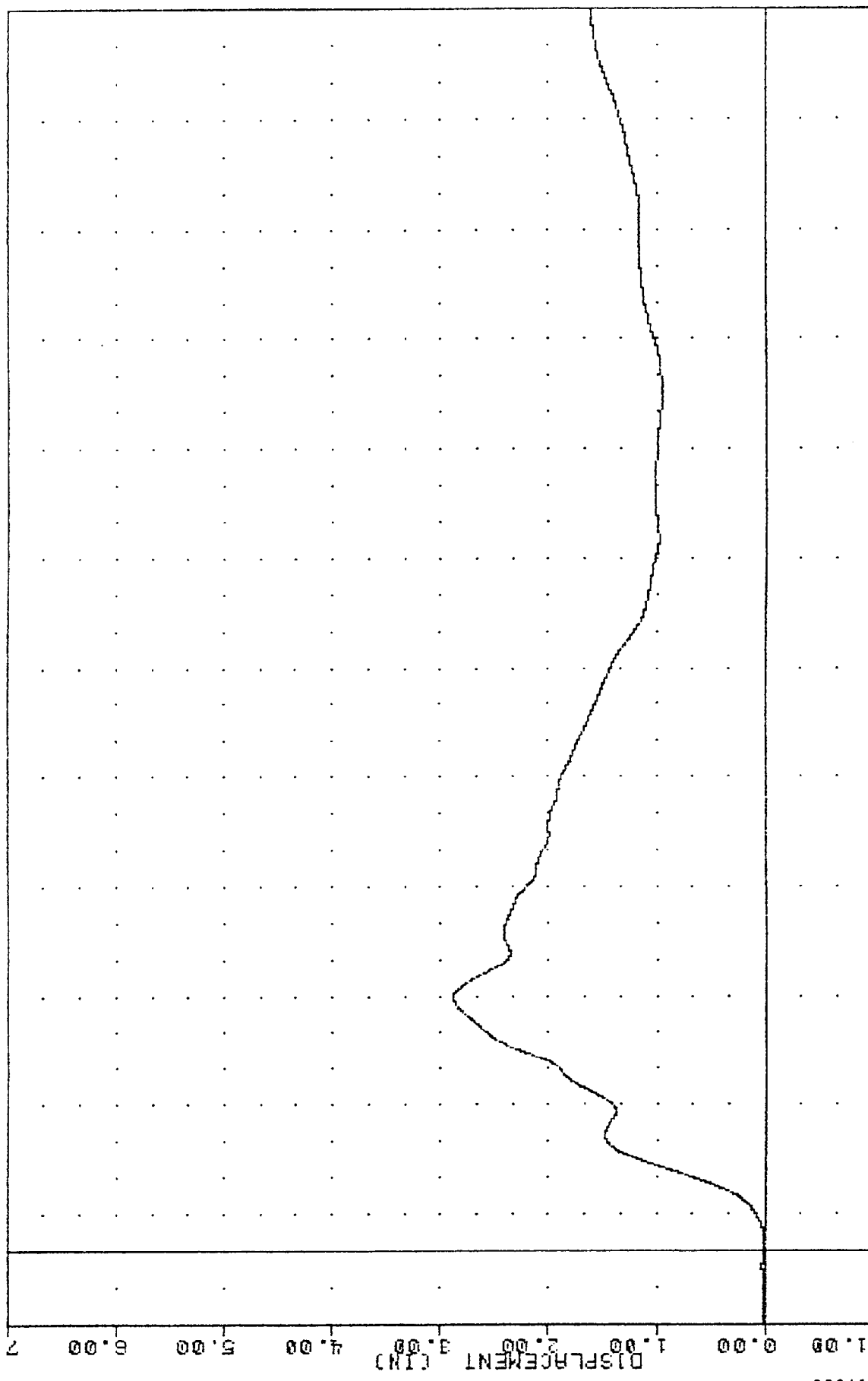
FILTER = ELFP 100/ 250/ -16
MIN, MAX VALUES = -4.11e 6.00, 1801.91 e 64.25



NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 SHDD2

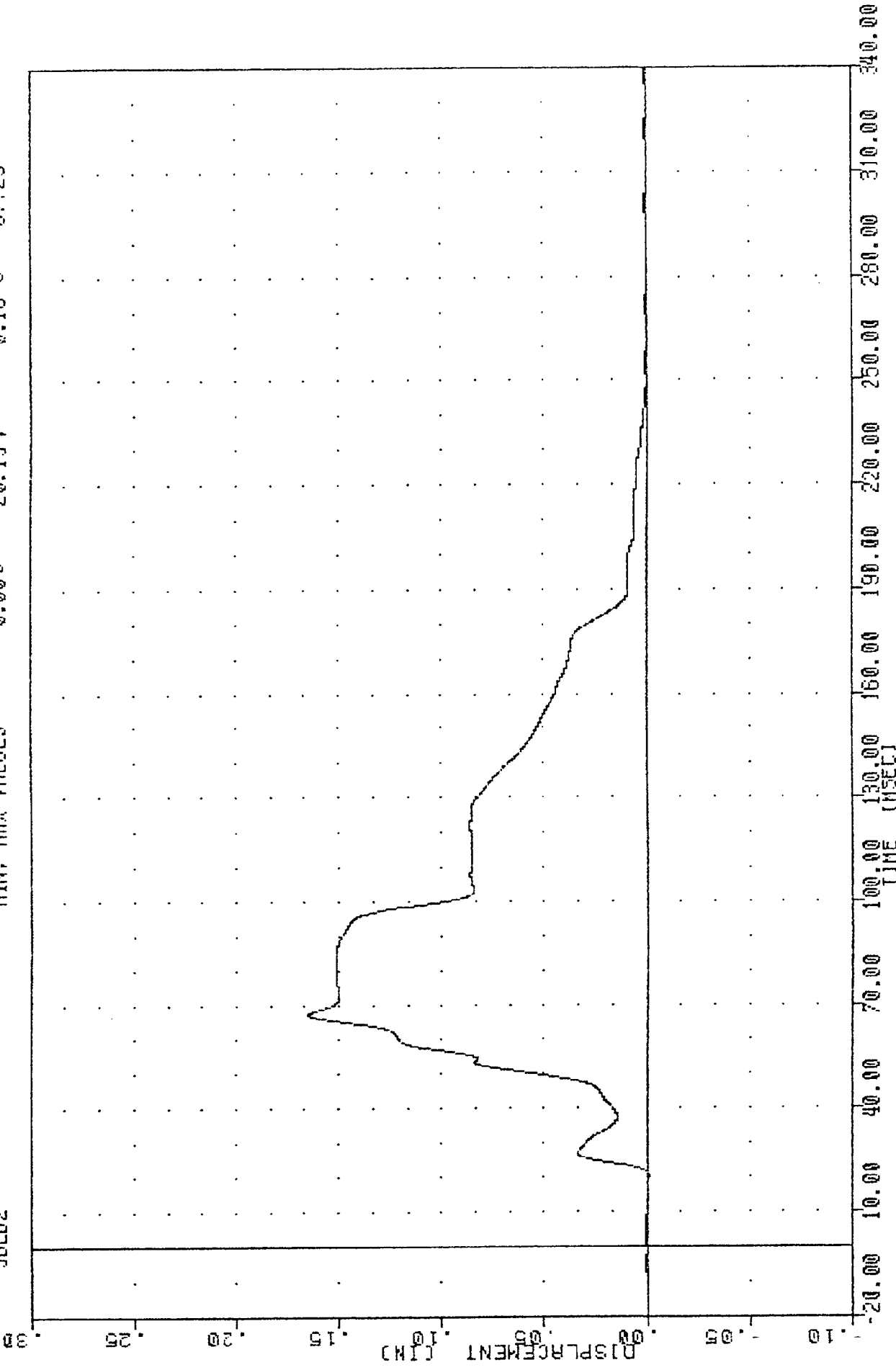
FILTER = BLFF 100/ 250/ -16
 MIN. MAX VALUES = 0.00e -20.00. 2.88 e 69.63



-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)
 NISSAN SENTRA INTO LOAD CELL BARRIER
 PASSENGER SHOULDER BELT DISPLACEMENT

TRC , 880413
NEW CAR ASSESSMENT PROGRAM
88104
SBED2

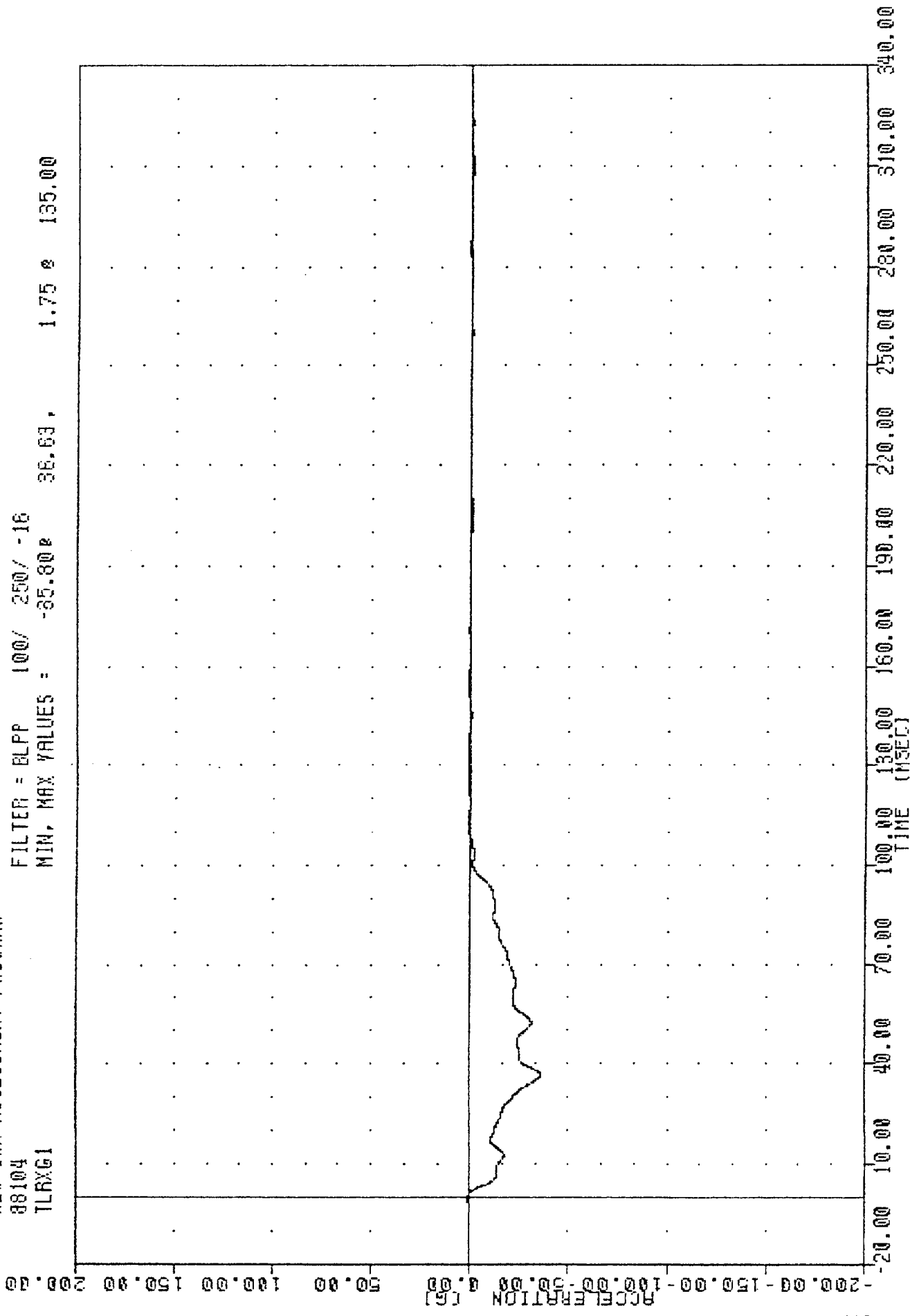
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = 0.00e 20.13, 0.16 e 67.25



NISSAN SENTRA INTO LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION

TRC
 NEW CAR ASSESSMENT PROGRAM
 88104
 TLRXG1

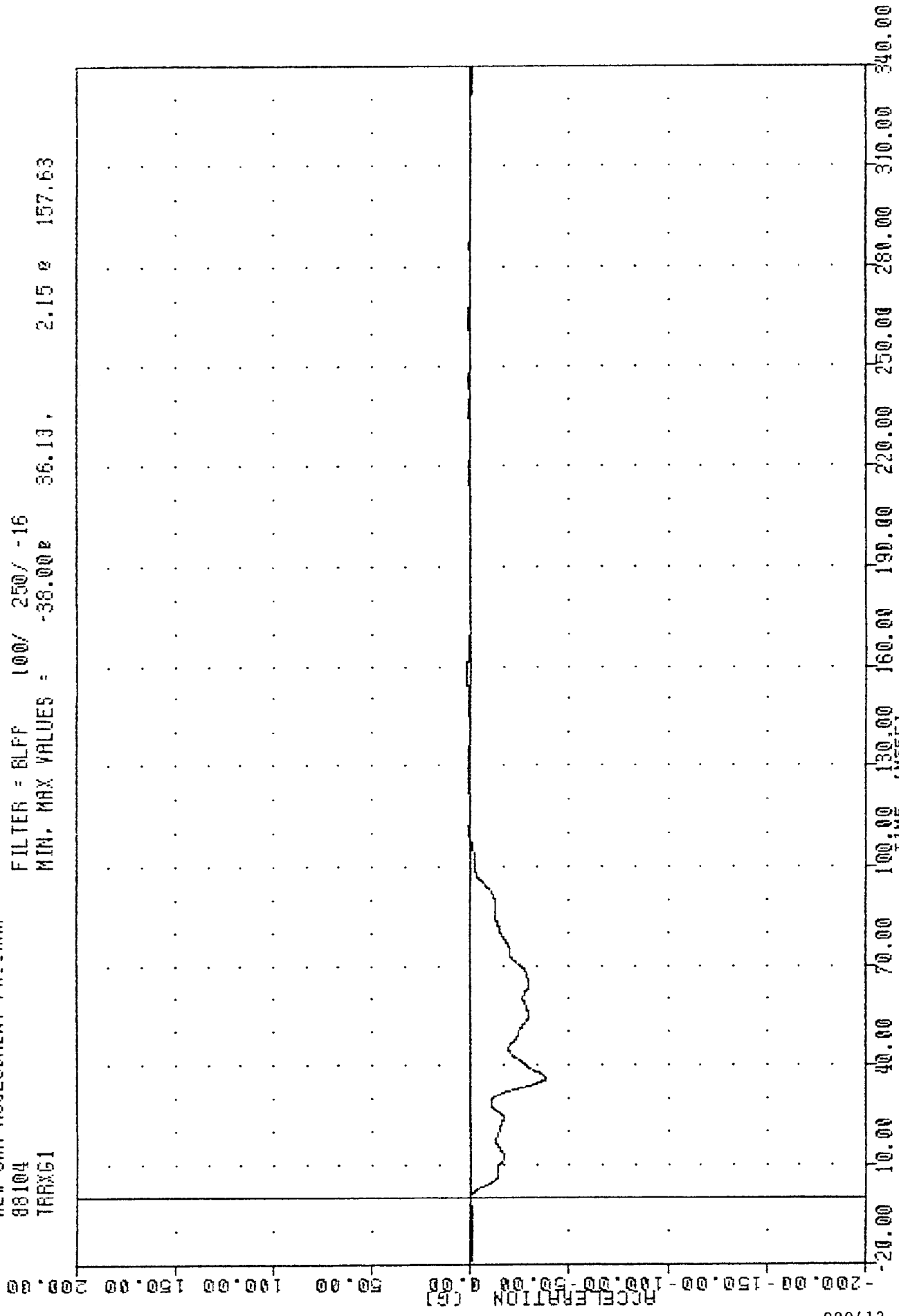
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -85.80 36.63 1.75 135.00



NISSAN SENTRA INTO LOAD CELL BARRIER
 LEFT REAR SEAT ACCELERATION X AXIS

TRC 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 TRRX61

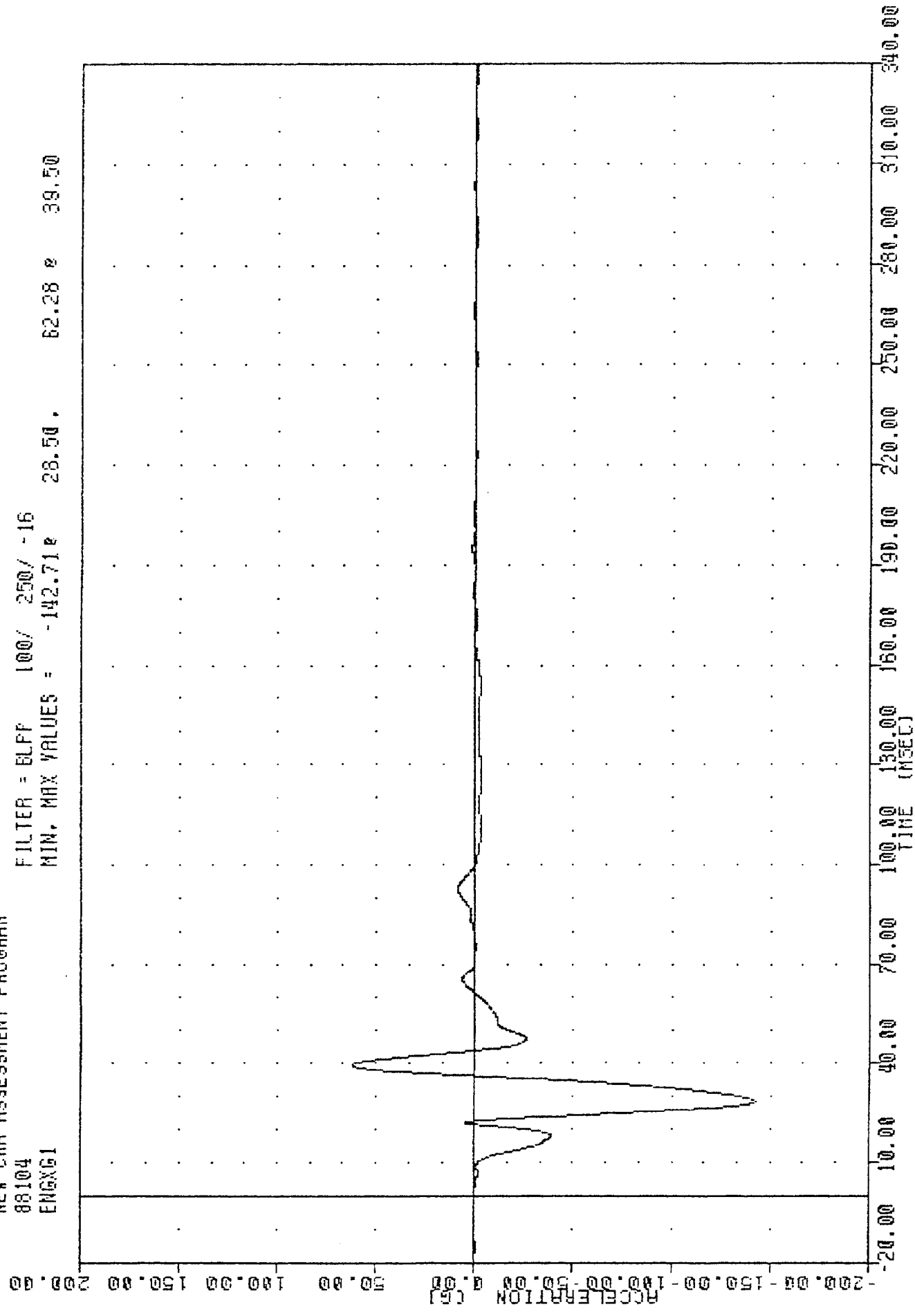
FILTER = BLPF 100/ 250/ -16
 MIN. MAX VALUES = -38.00e 36.13, 2.15 e 157.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 RIGHT REAR SEAT ACCELERATION X AXIS

TRC 880413
NEW CAR ASSESSMENT PROGRAM
88104
ENGXG1

FILTER = BLFF 100/ 250/ -16
MIN. MAX VALUES = -142.71e 28.50, 62.28 e 39.50



NISSAN SENTRA INTO LOAD CELL BARRIER
ENGINE UPPER BLOCK ACCELERATION X AXIS

TRC 880413

NEW CAR ASSESSMENT PROGRAM

88104

ENGXG2

FILTER = BLFF 100/ 250/ -16

MIN. MAX VALUES = -176.51g 25.13, 77.84 g 35.88

200.00

150.00

100.00

50.00

0.00

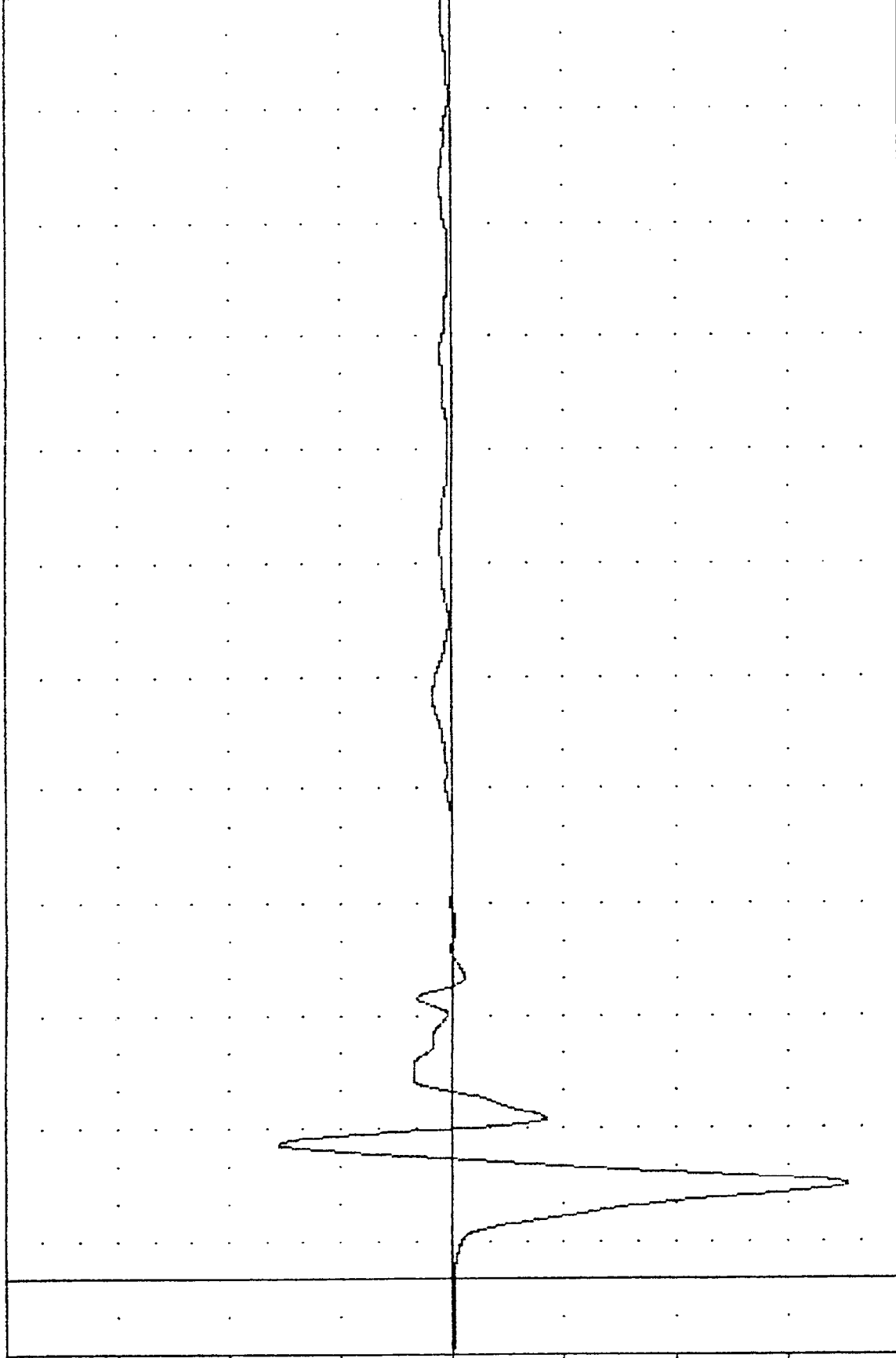
-50.00

-100.00

-150.00

-200.00

ACCELERATION (G)

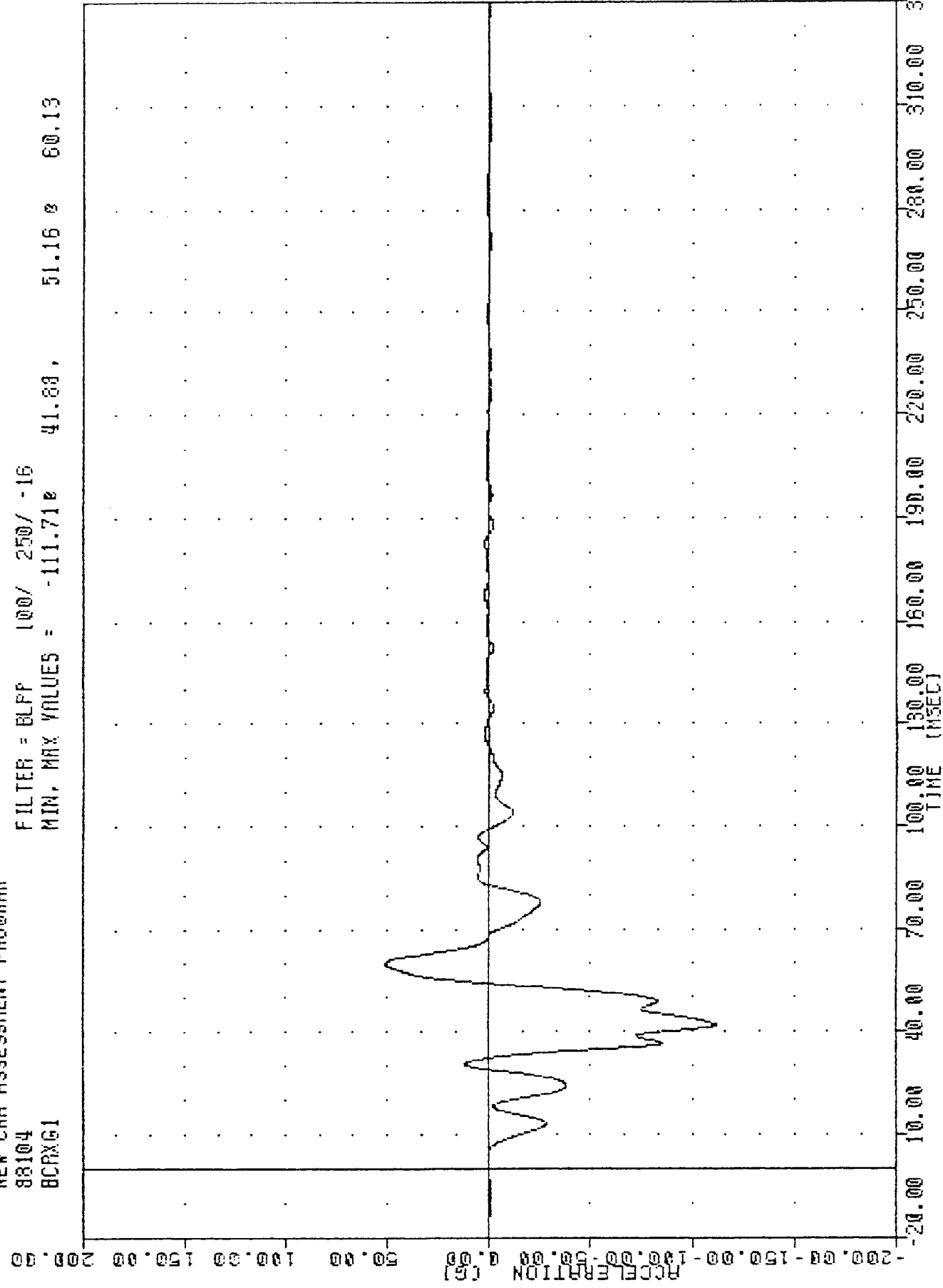


20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

NISSAN SENTRA INTO LOAD CELL BARRIER
ENGINE LOWER BLOCK ACCELERATION X AXIS

TRC 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BCRXG1

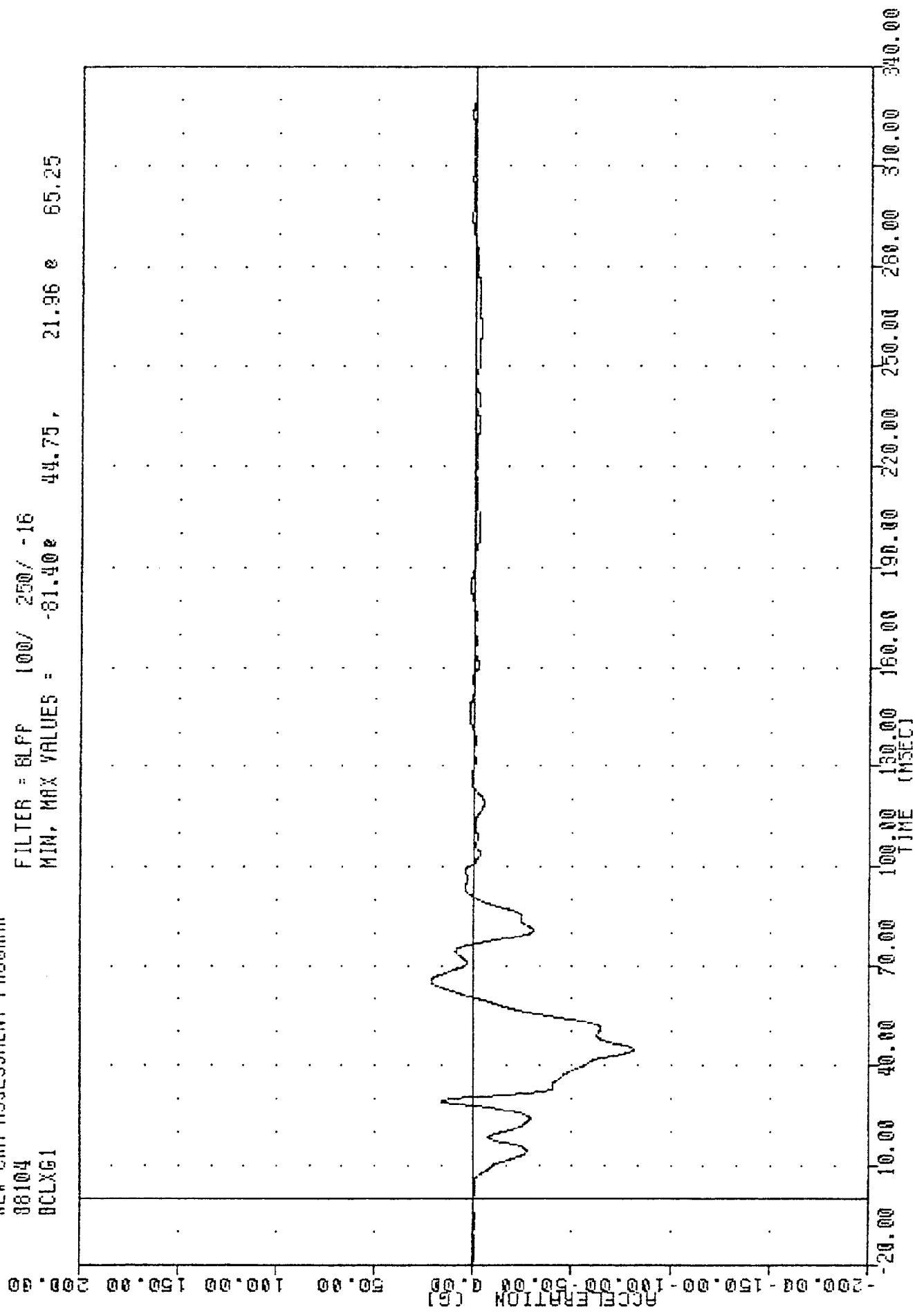
FILTER = BLFF 100/ 250/ -16
 MIN, MAX VALUES = -111.71e 41.88, 51.16 e 60.13



NISSAN SENTRA INTO LOAD CELL BARRIER
 RIGHT BRAKE CALIPER ACCELERATION X AXIS

TRC 880413
 NEW CAR ASSESSMENT PROGRAM
 08104
 BCLXG1

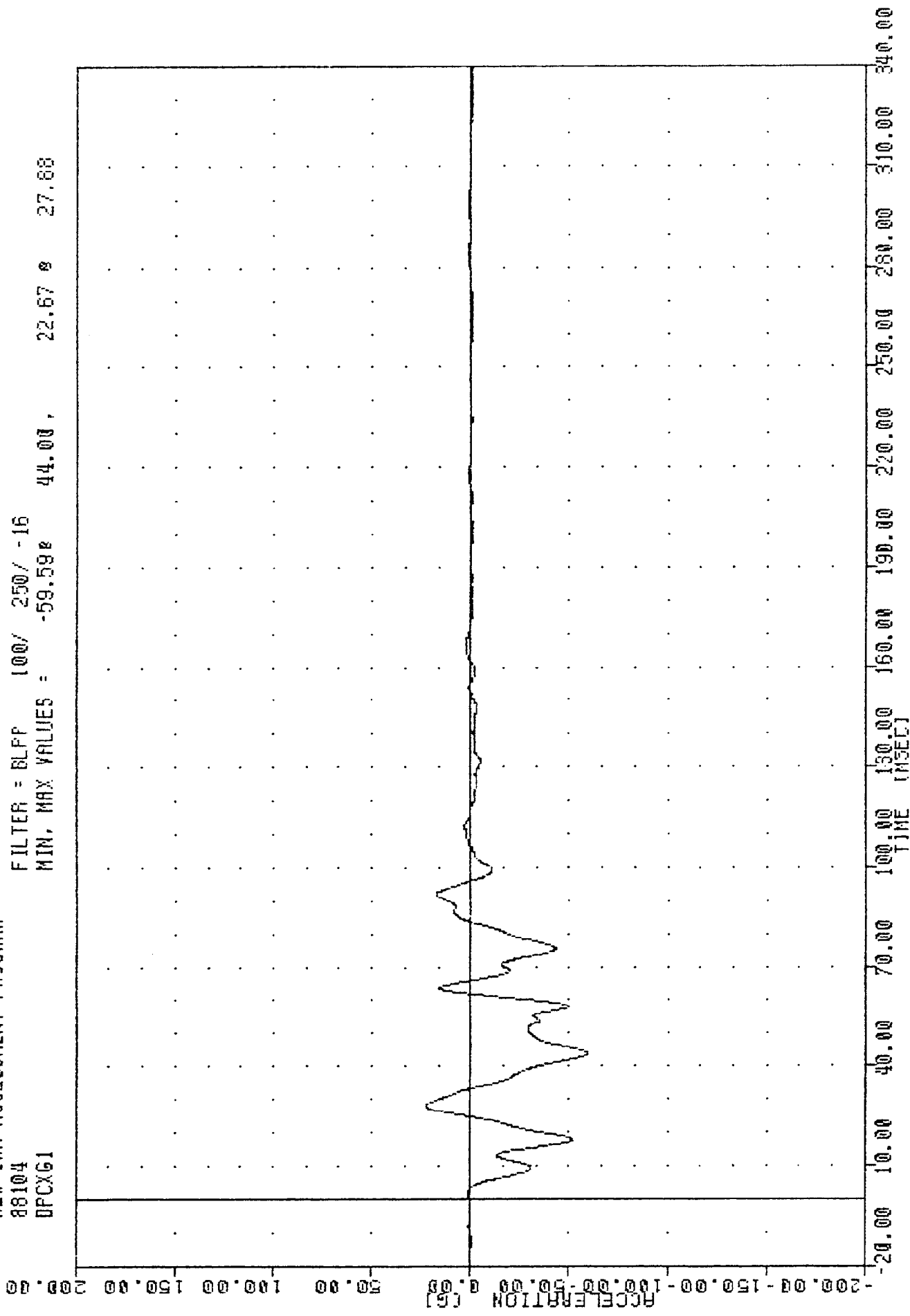
FILTER = BLFF 100/ 250/ -16
 MIN, MAX VALUES = -81.40e 44.75, 21.96 e 65.25



NISSAN SENTRA INTO LOAD CELL BARRIER
 LEFT BRAKE CALIPER ACCELERATION X AXIS

TRC 88104
 NEW CAR ASSESSMENT PROGRAM
 88104
 DPCXG1

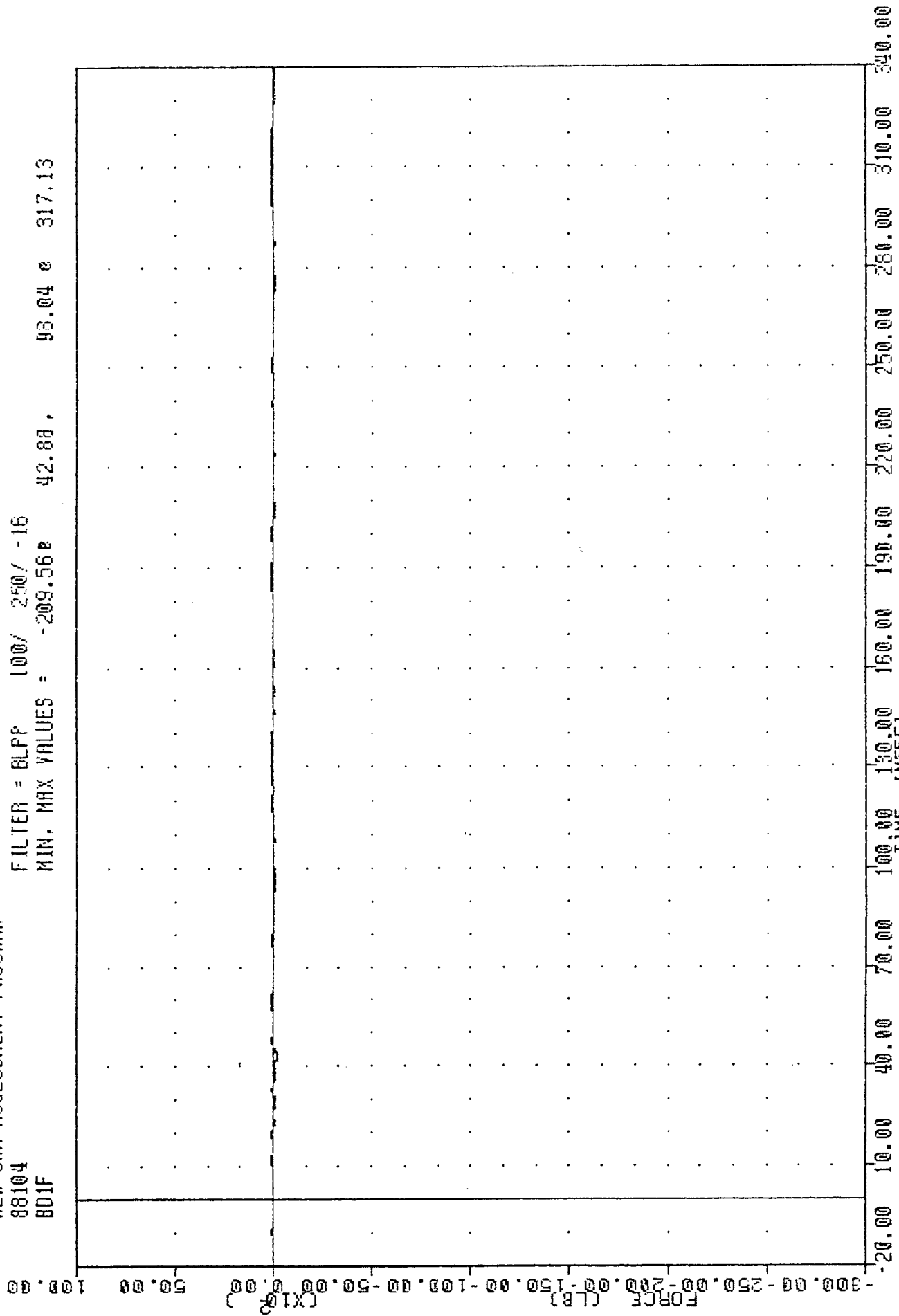
FILTER = BLFF 100/ 250/ -16
 MIN, MAX VALUES = -59.59g 44.00, 22.67 g 27.88



NISSAN SENTRA INTO LOAD CELL BARRIER
 DASH PANEL CENTER ACCELERATION X AXIS

TRC 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 801F

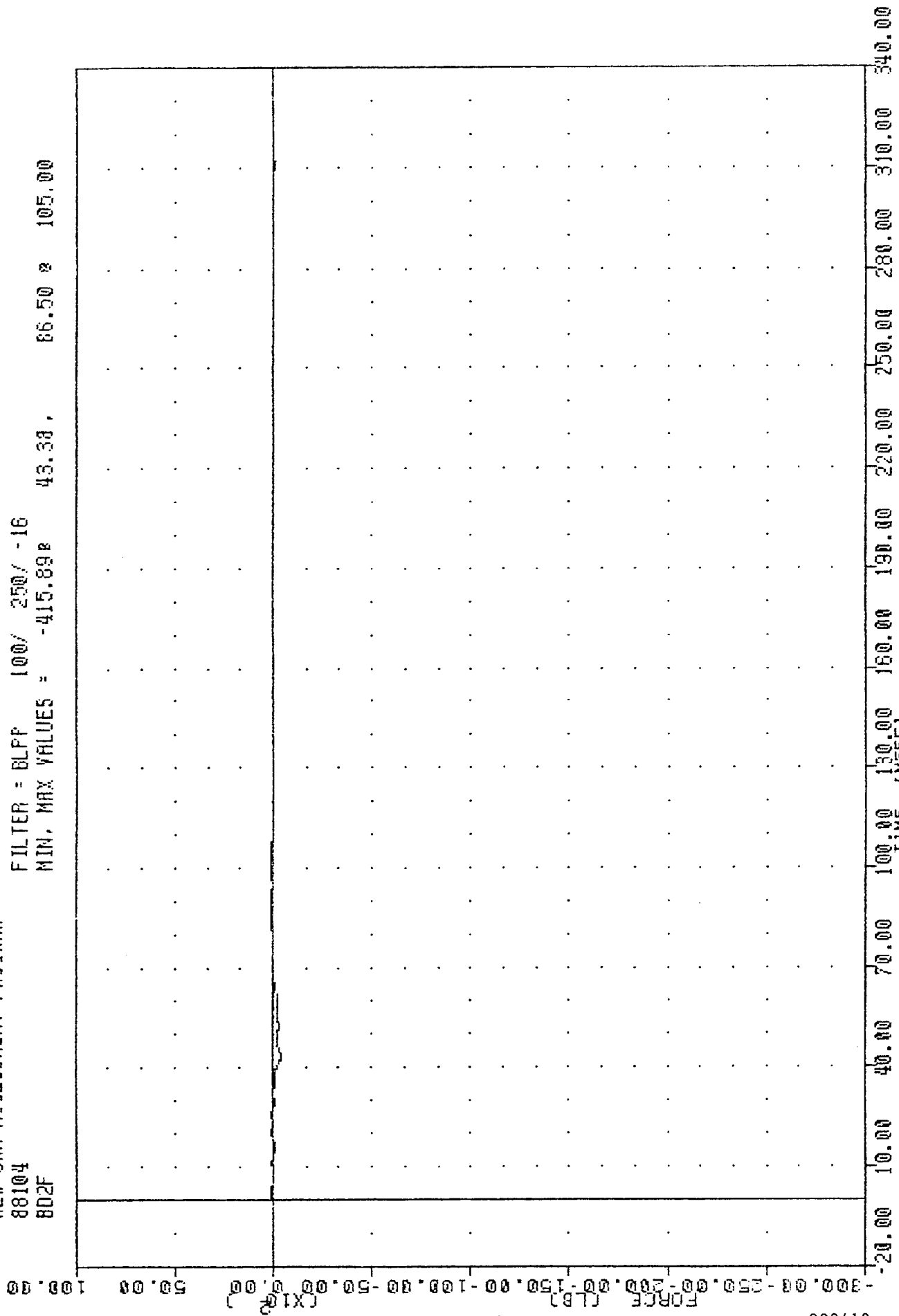
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -209.56e 42.88 , 98.04 e 317.13



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D1 FORCE

TRC 88104
 NEW CAR ASSESSMENT PROGRAM
 88104
 802F

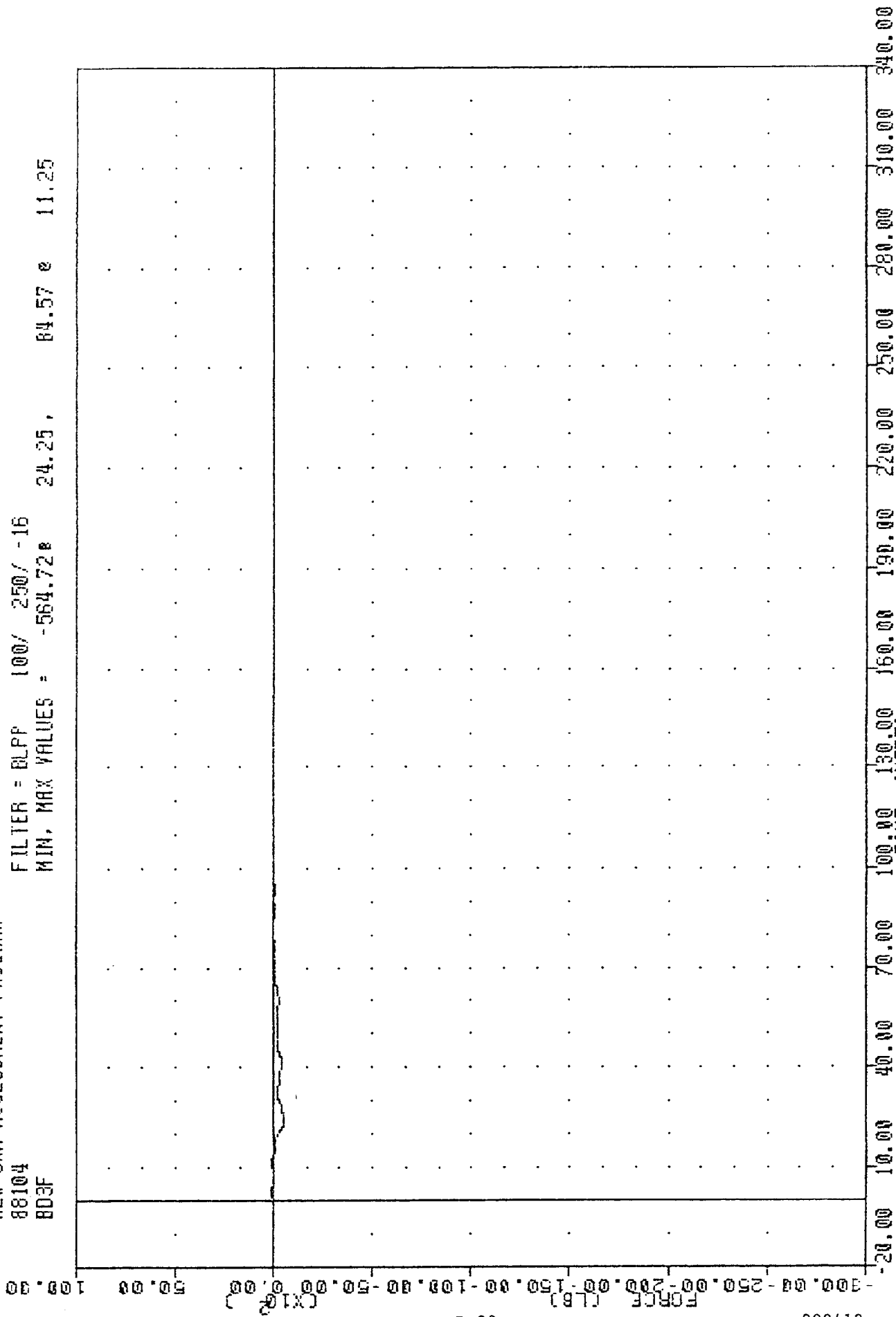
FILTER = BLPF 100/ 250/ -16
 MIN, MAX VALUES = -415.89B 43.3B 66.50 2 105.00



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D2 FORCE

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 B03F

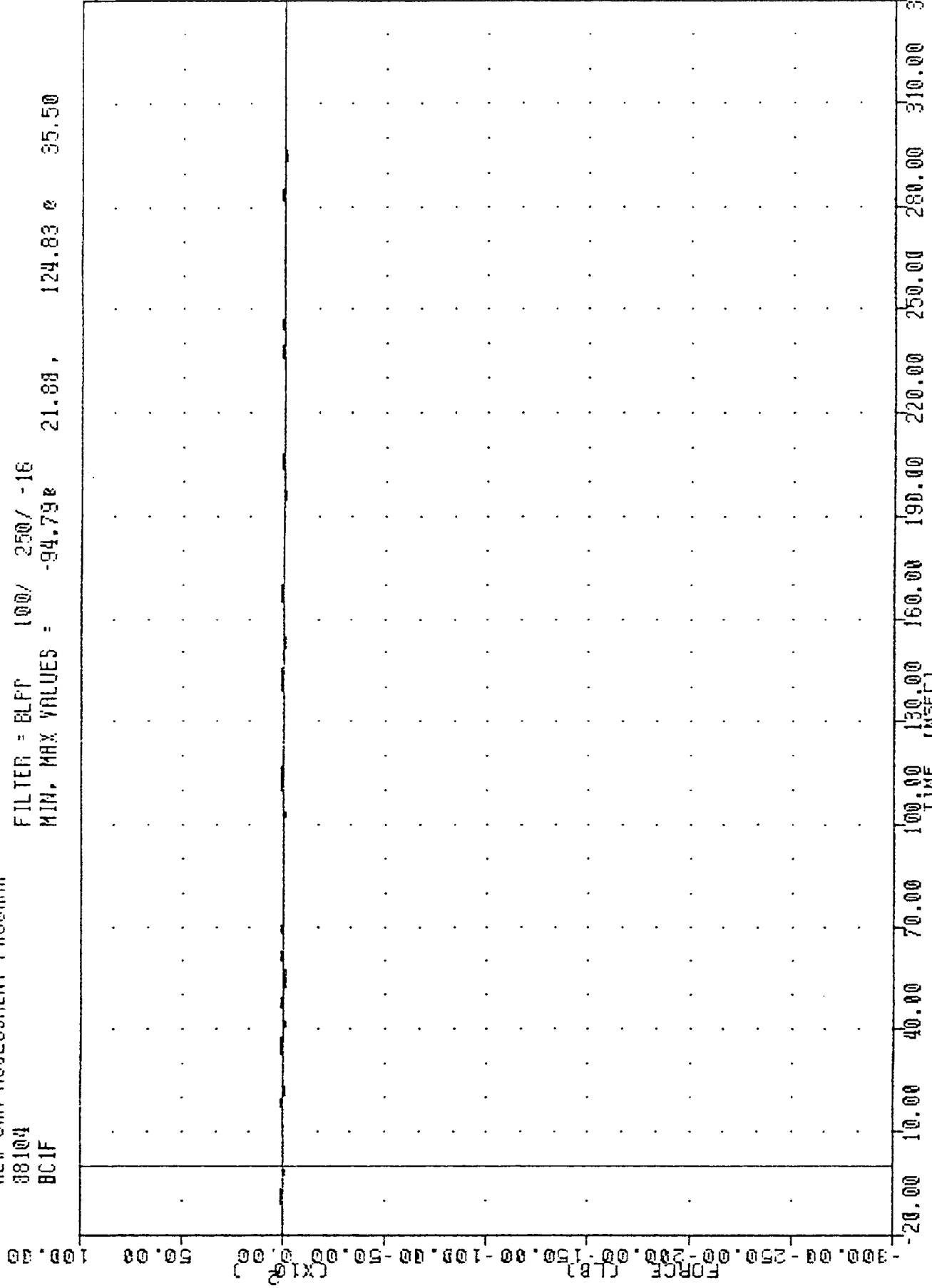
FILTER = BLFF 100/ 250/ -16
 MIN, MAX VALUES = -564.728 24.25, 84.57 e 11.25



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D3 FORCE

TRC 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BCIF

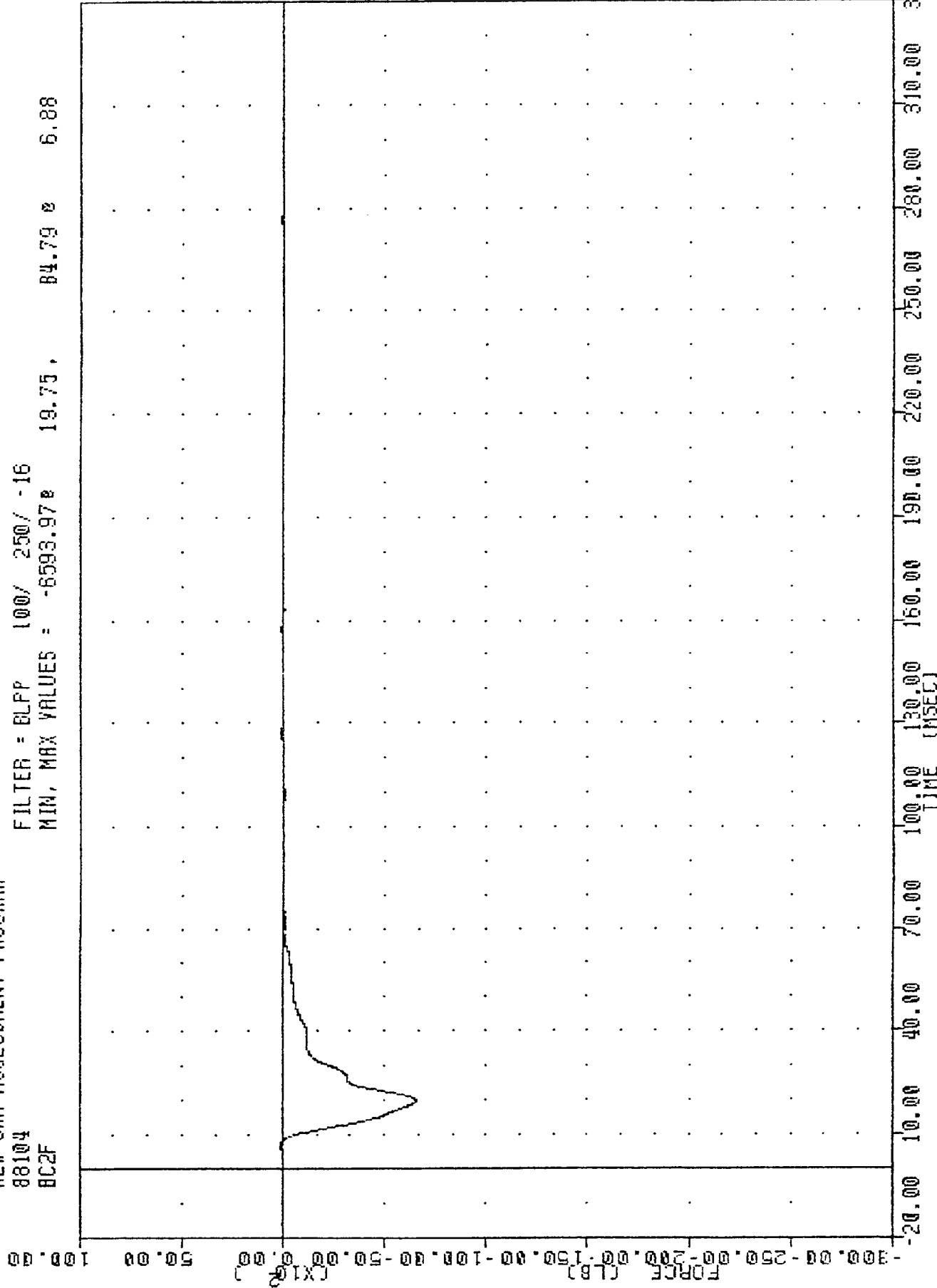
FILTER = BLFF 100/ 250/ -16
 MIN. MAX VALUES = -94.798 21.88 124.83 35.50



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 FORCE

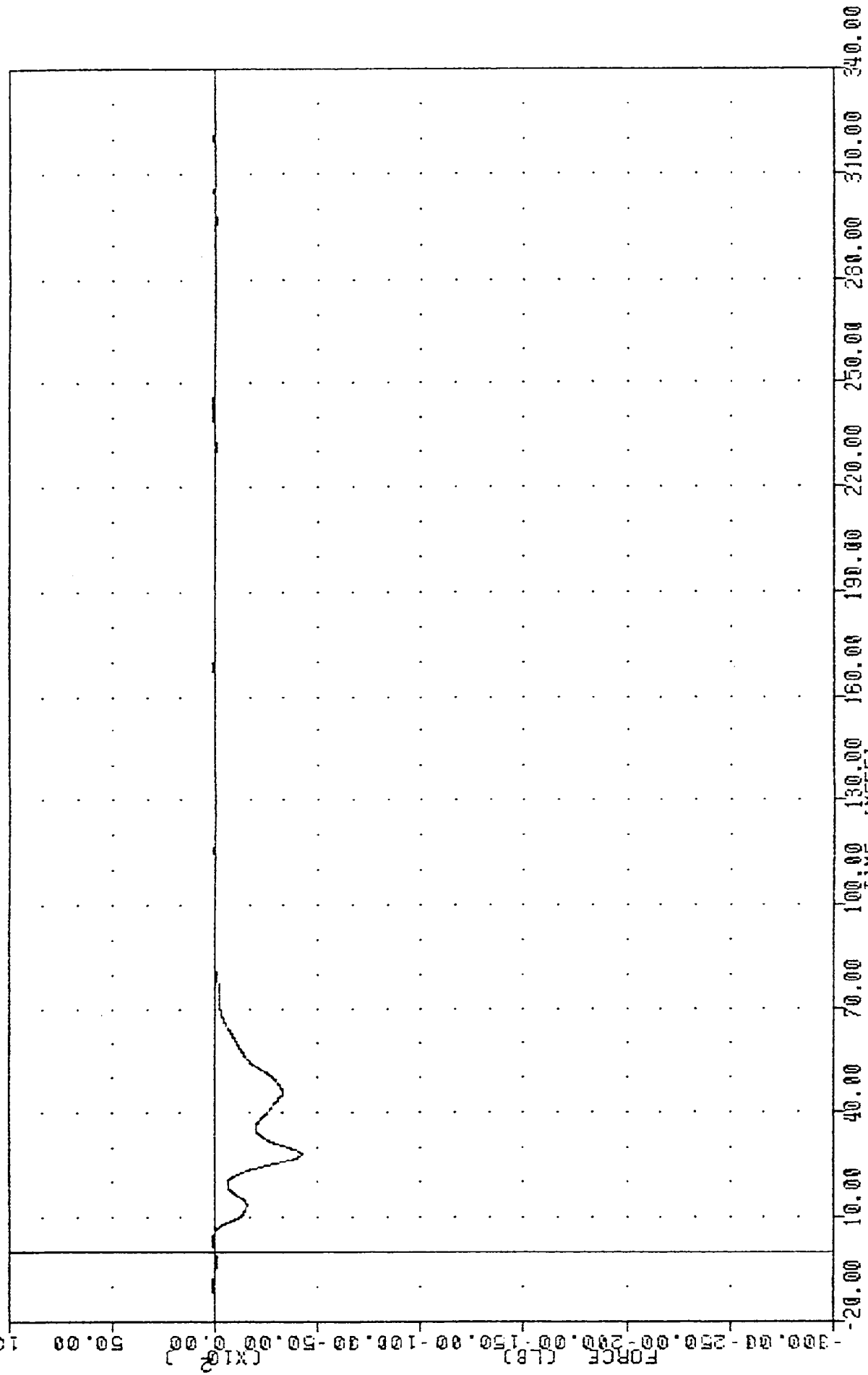
TRC
 NEW CAR ASSESSMENT PROGRAM
 88104
 BC2F

FILTER = BLFP 100/ 250/ -16
 MIN, MAX VALUES = -6593.97e 19.75, 84.79 e 6.88



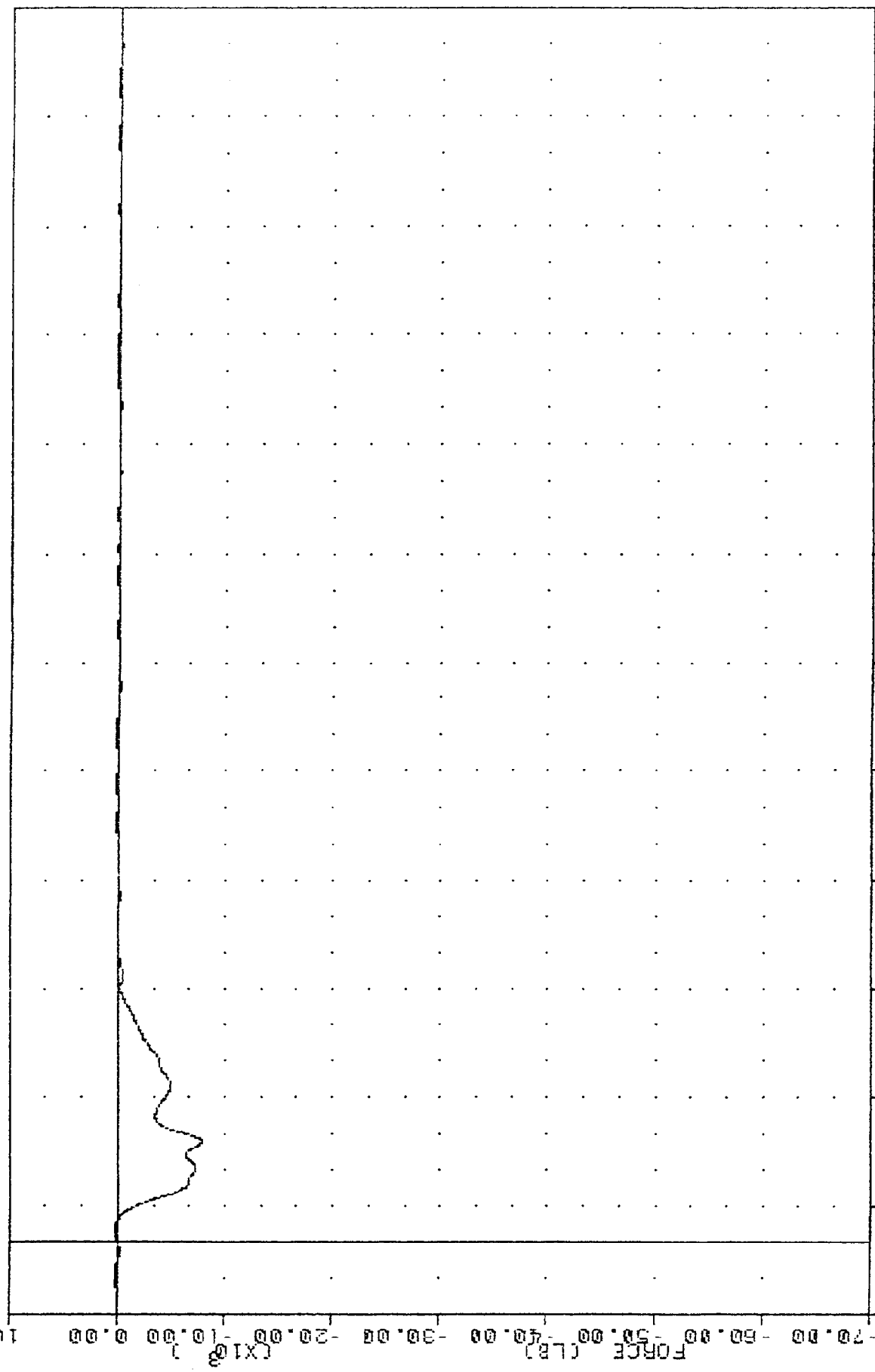
NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C2 FORCE

TRC
 88104
 BC3F
 NEW CAR ASSESSMENT PROGRAM
 880413
 FILTER = BLFF 100/ 250/ -16
 MIN. MAX VALUES = -4232.24e 28.13, 76.84 e 2.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 FORCE

TRC 88104
 NEW CAR ASSESSMENT PROGRAM
 FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -7899.84e 27.88 , 268.11 e 2.75



880413
 HONDA CIVIC INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 1 FORCE TOTAL

TRC
880413

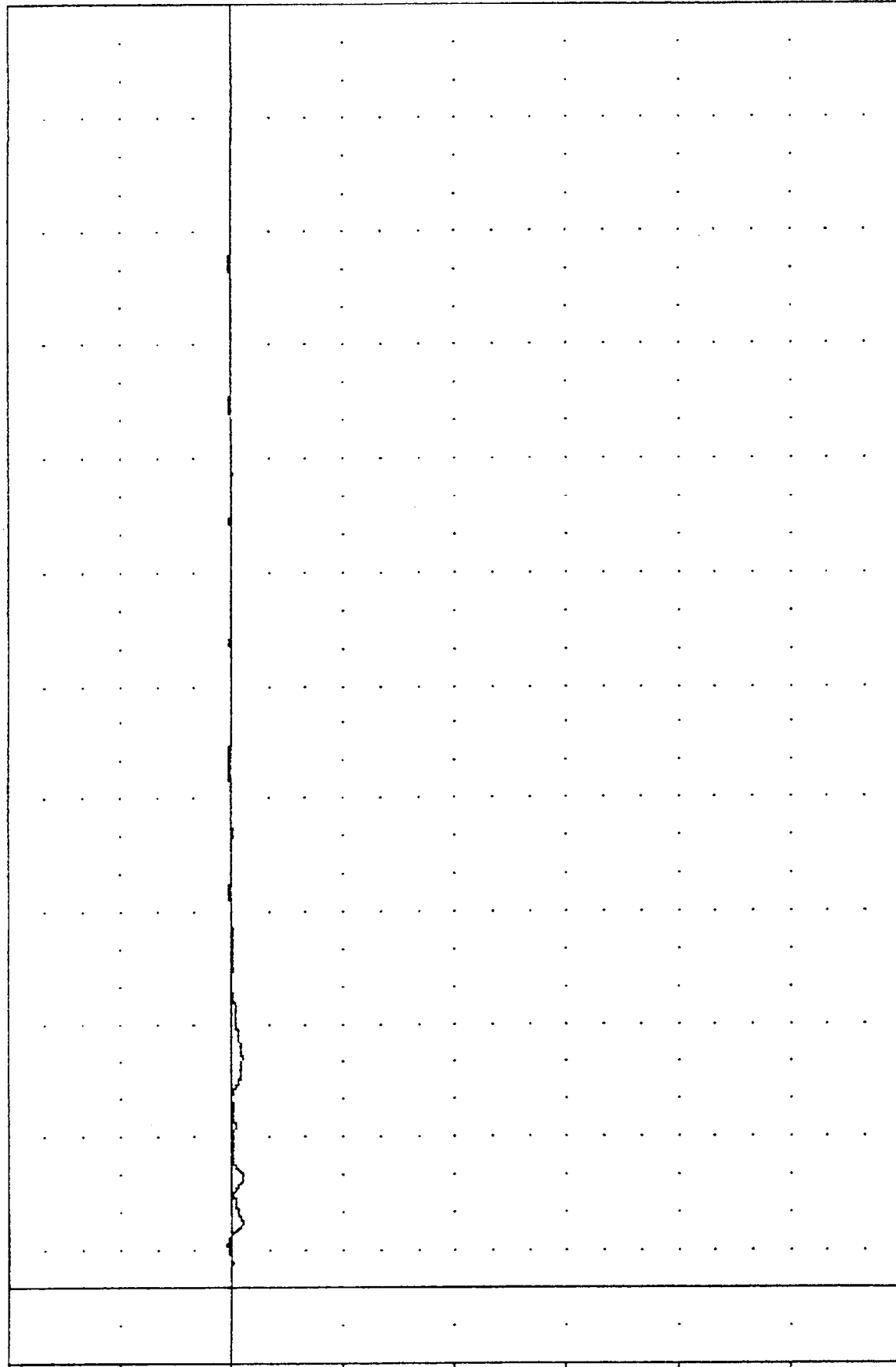
NEW CAR ASSESSMENT PROGRAM

98104
8D4F

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -588.19 29.38 , 156.94 2 11.38

100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00

(X10³)
FORCE (LB)

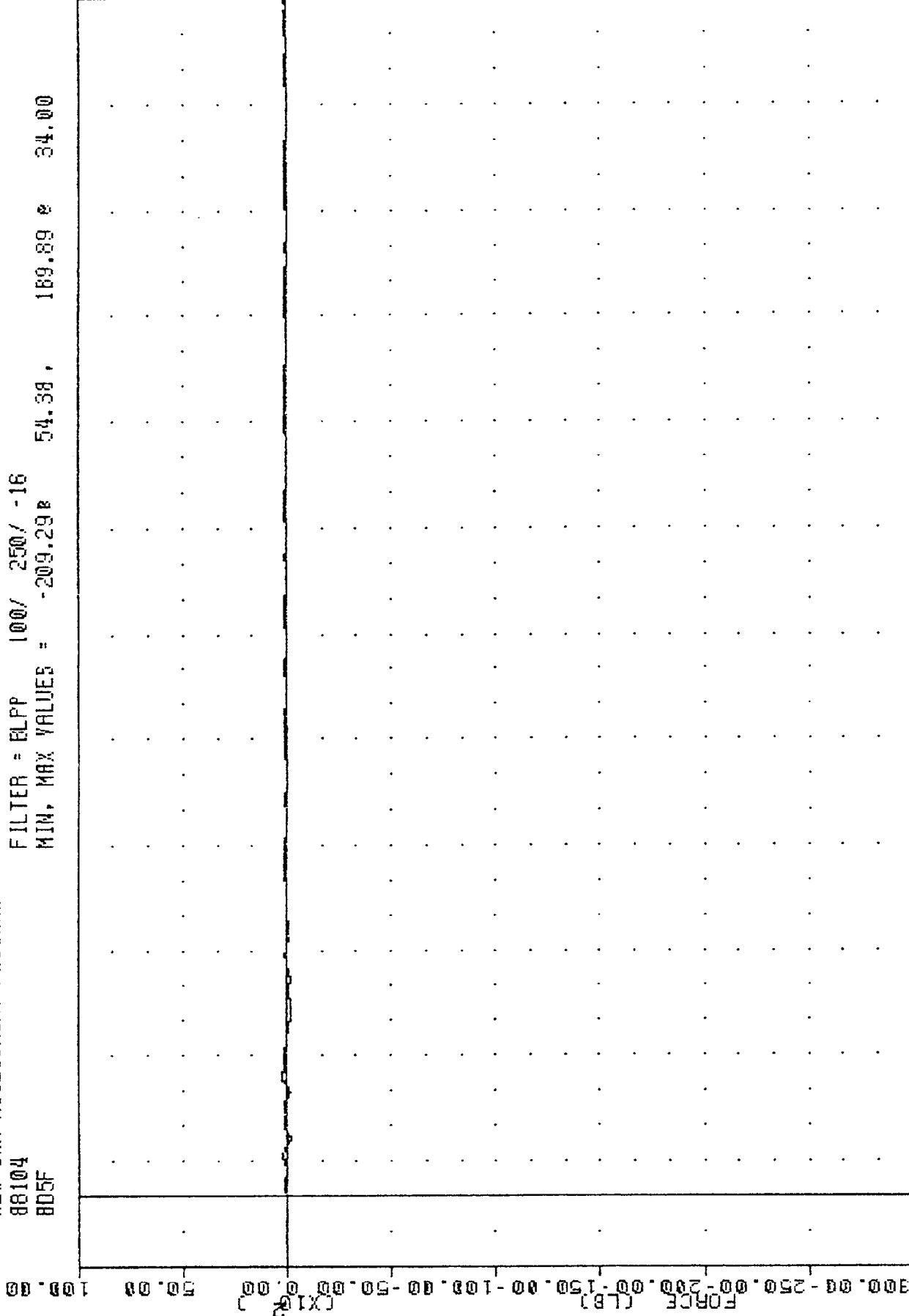


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE

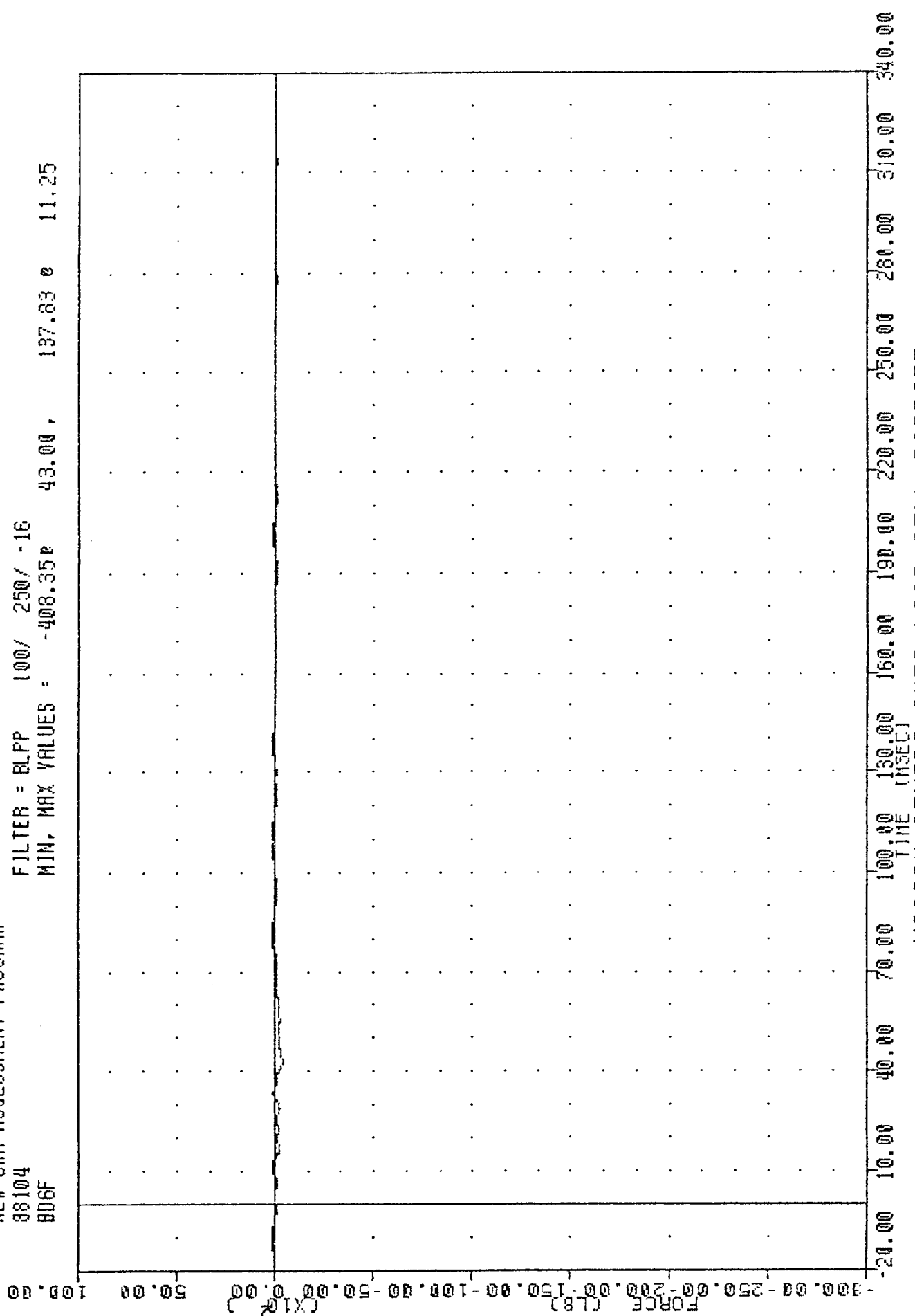
TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 805F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -209.298 54.38 189.89 34.00



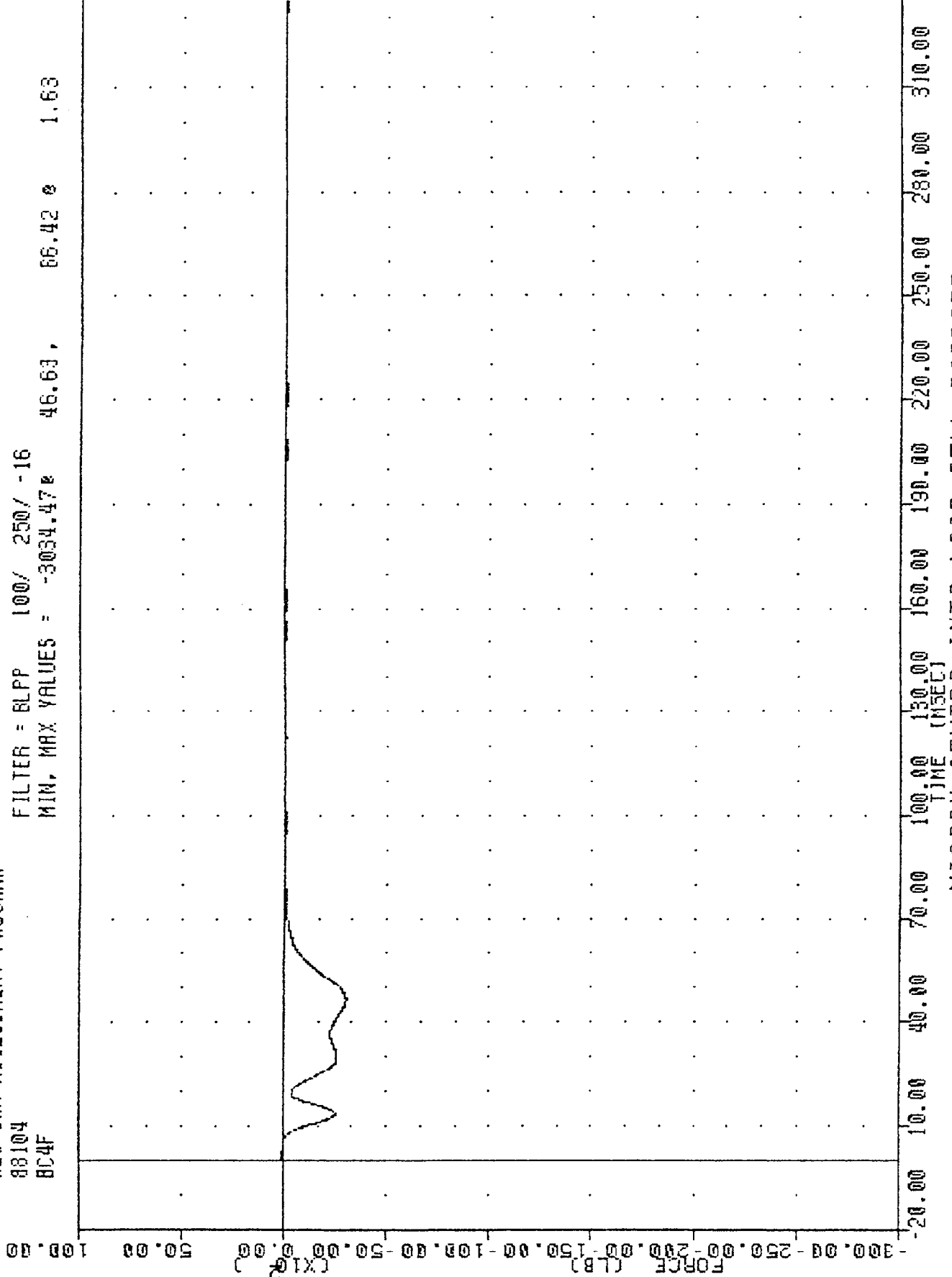
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 FORCE (LB)
 CX100 (J)
 NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 05 FORCE

TRC
 88104
 BDCG
 NEW CAR ASSESSMENT PROGRAM
 880413
 FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -408.35e 43.00, 137.83 e 11.25



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 06 FORCE

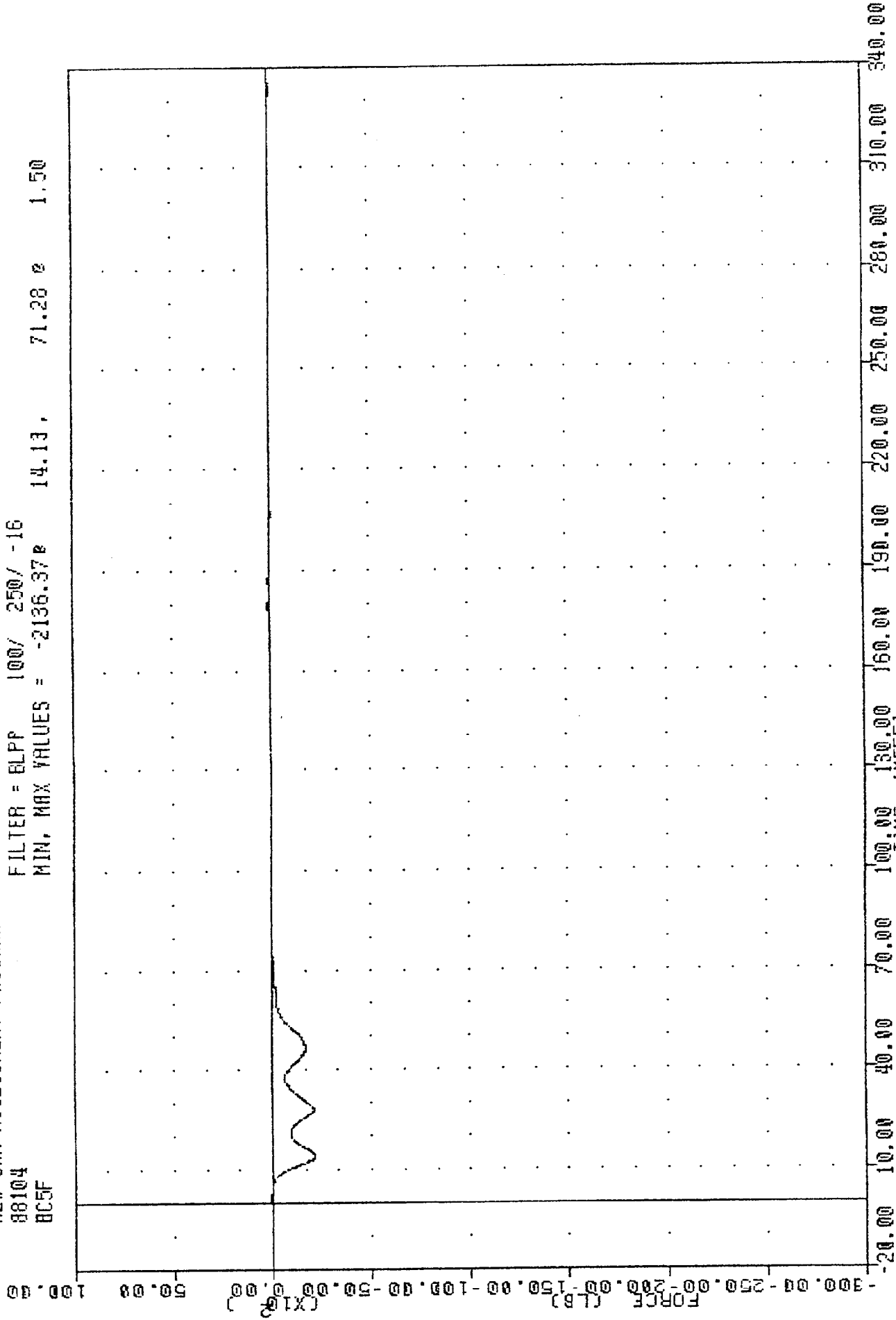
TRC 88104 BC4F
 NEW CAR ASSESSMENT PROGRAM
 88104 BC4F
 FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -3034.47e 46.63, 66.42 e 1.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C4 FORCE

TRC
 NEW CAR ASSESSMENT PROGRAM
 88104
 BC5F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -2136.37 14.13, 71.28 1.50

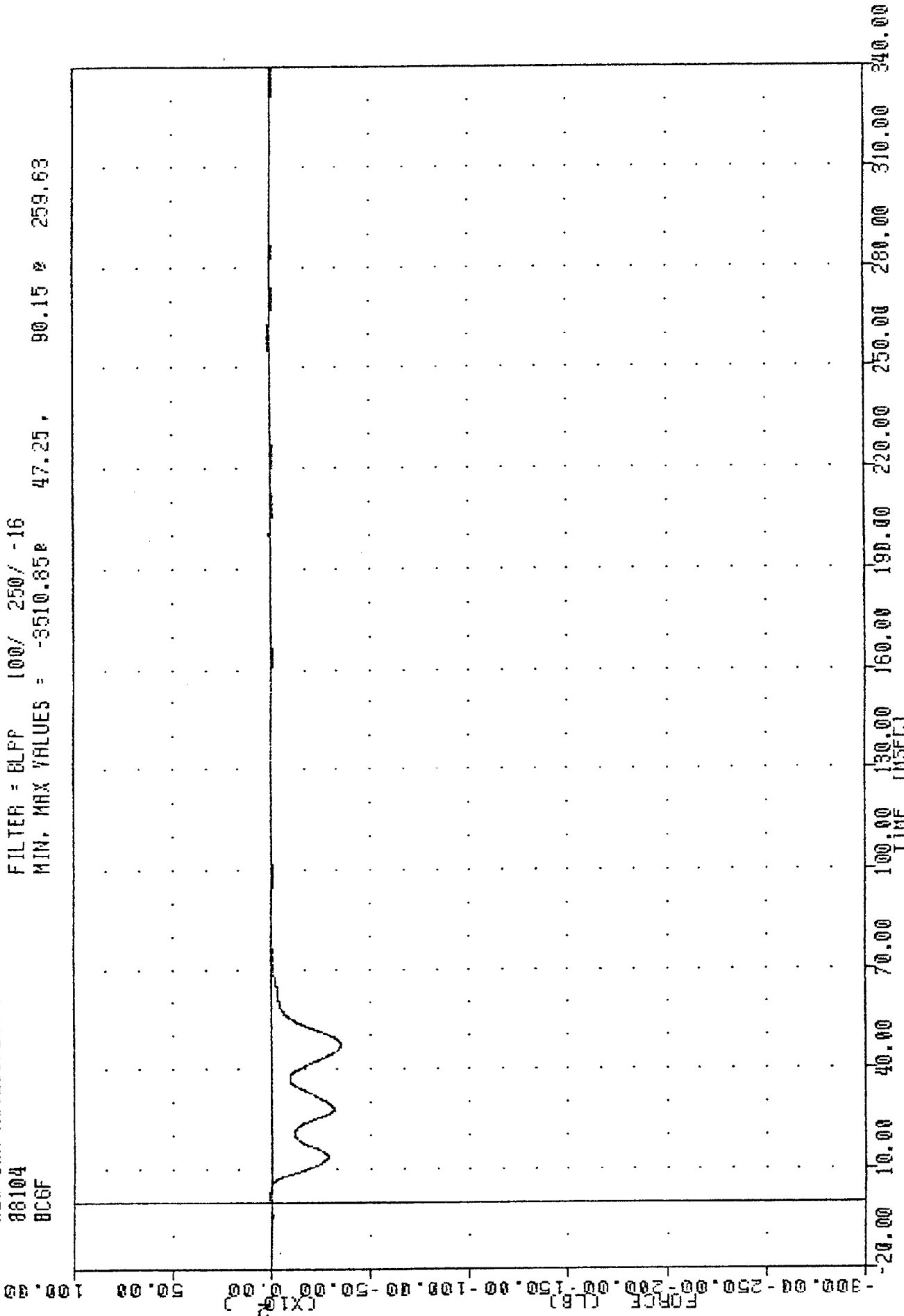


NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C5 FORCE

TRC
NEW CAR ASSESSMENT PROGRAM
88104
BCGF

880413

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -3510.85E 47.25 , 90.15 E 259.63



NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE

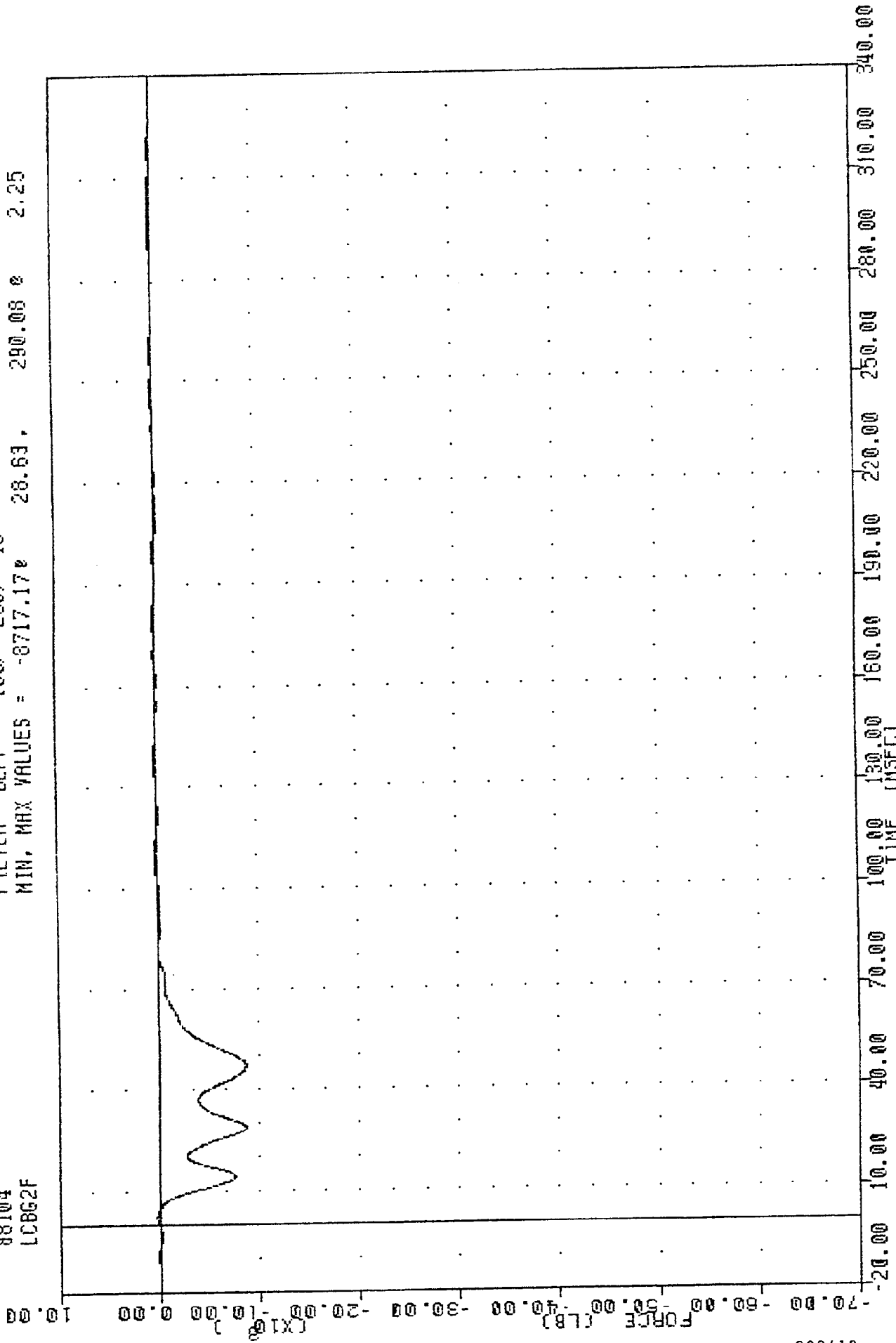
TRC
 88104
 LCBG2F

NEW CAR ASSESSMENT PROGRAM

, 880413

FILTER = BLFF 100/ 250/ -16

MIN, MAX VALUES = -8717.17% 28.63, 290.08 & 2.25



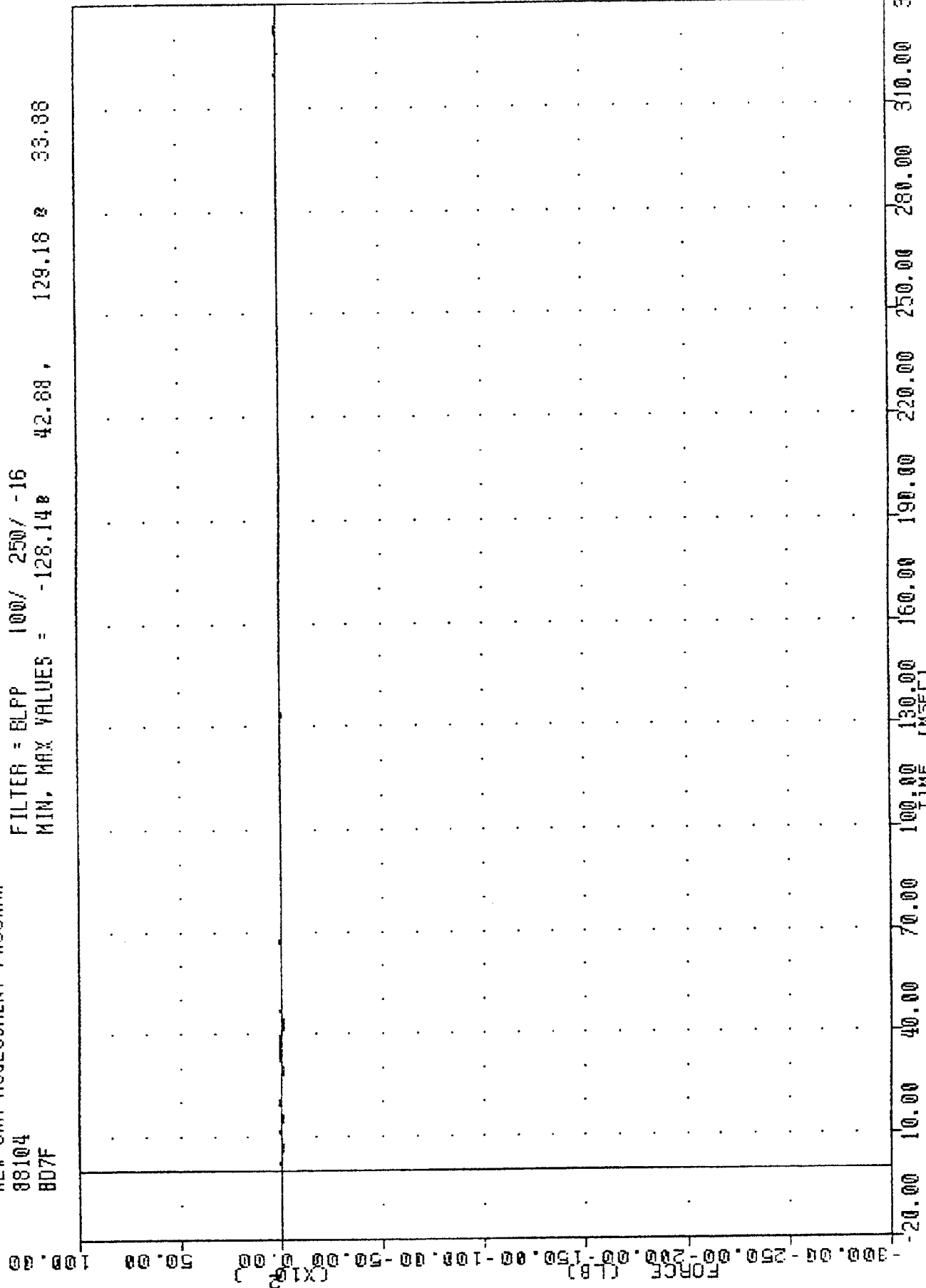
HONDA CIVIC INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 2 FORCE TOTAL

TRC
88104
807F

, 880413

NEW CAR ASSESSMENT PROGRAM

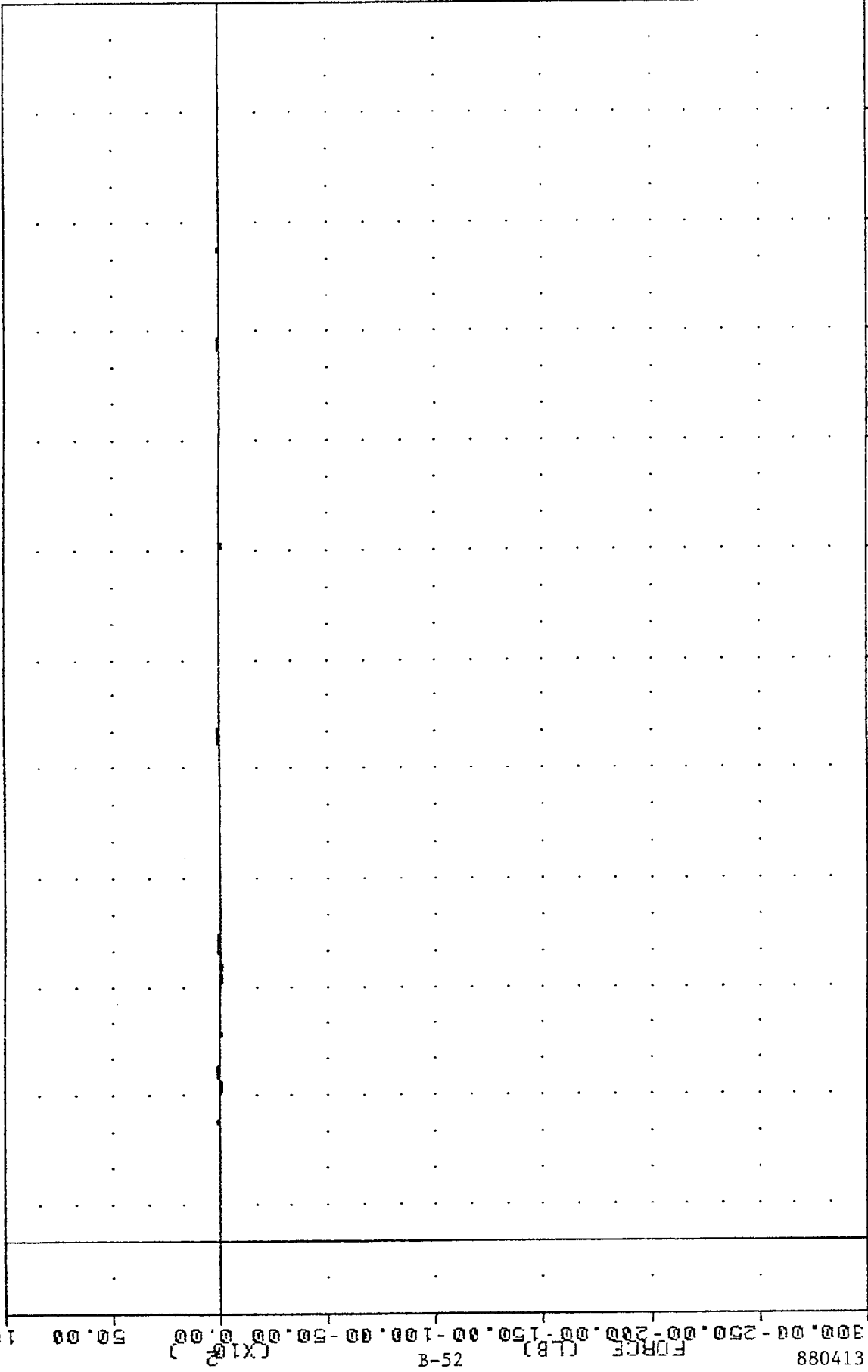
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -128.14 42.88 , 129.18 33.88



NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 07 FORCE

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 808F

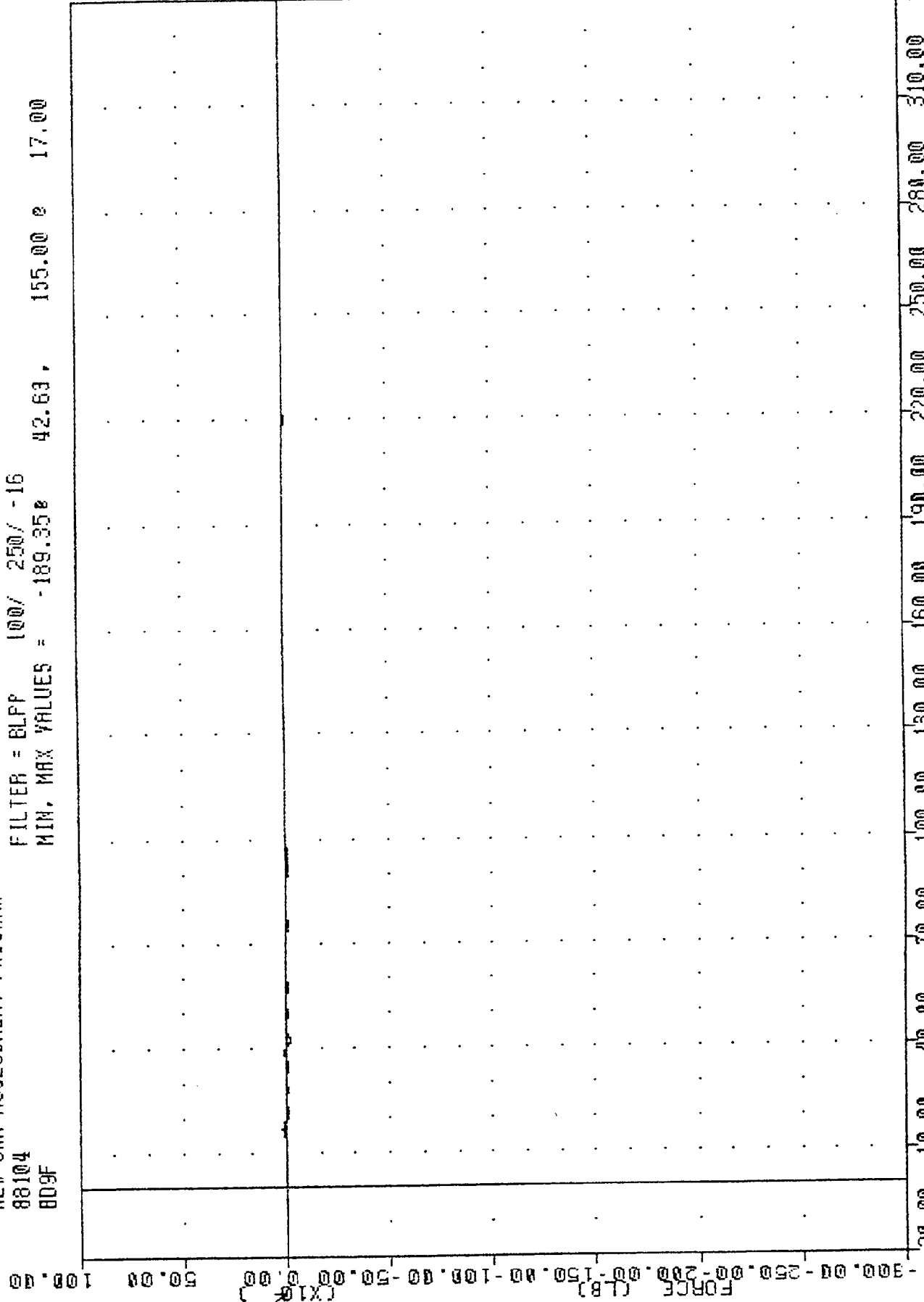
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -122.46 42.38 , 109.71 e 46.50



880413
 -300.00 -250.00 -200.00 -150.00 -100.00 -50.00 0.00 50.00 100.00
 FORCE (LB)
 B-52
 (X10)
 0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00
 TIME (MSEC)
 NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 08 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 809F

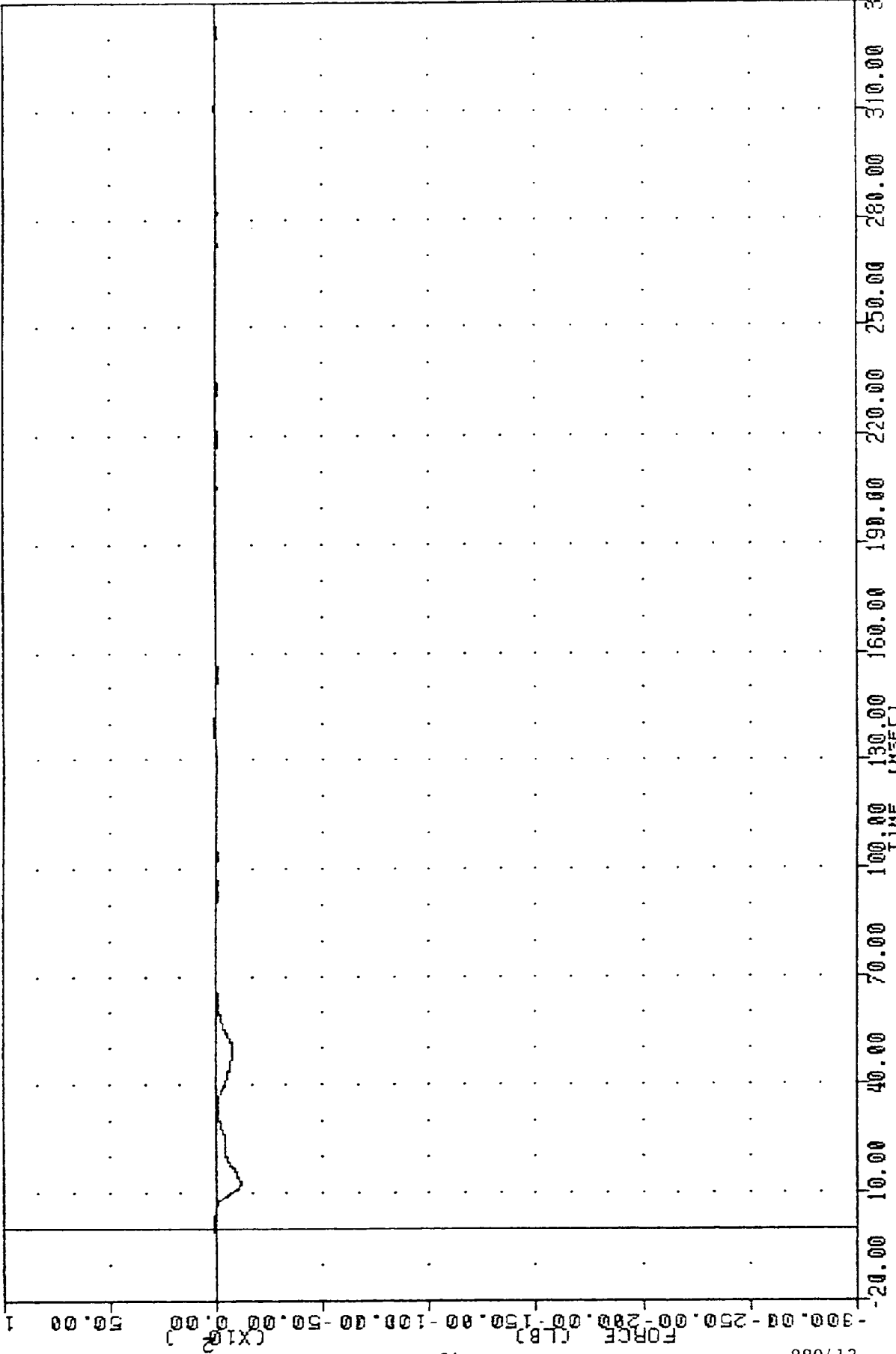
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -189.35e 42.63 , 155.00 e 17.00



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 09 FORCE

TAC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BC7F

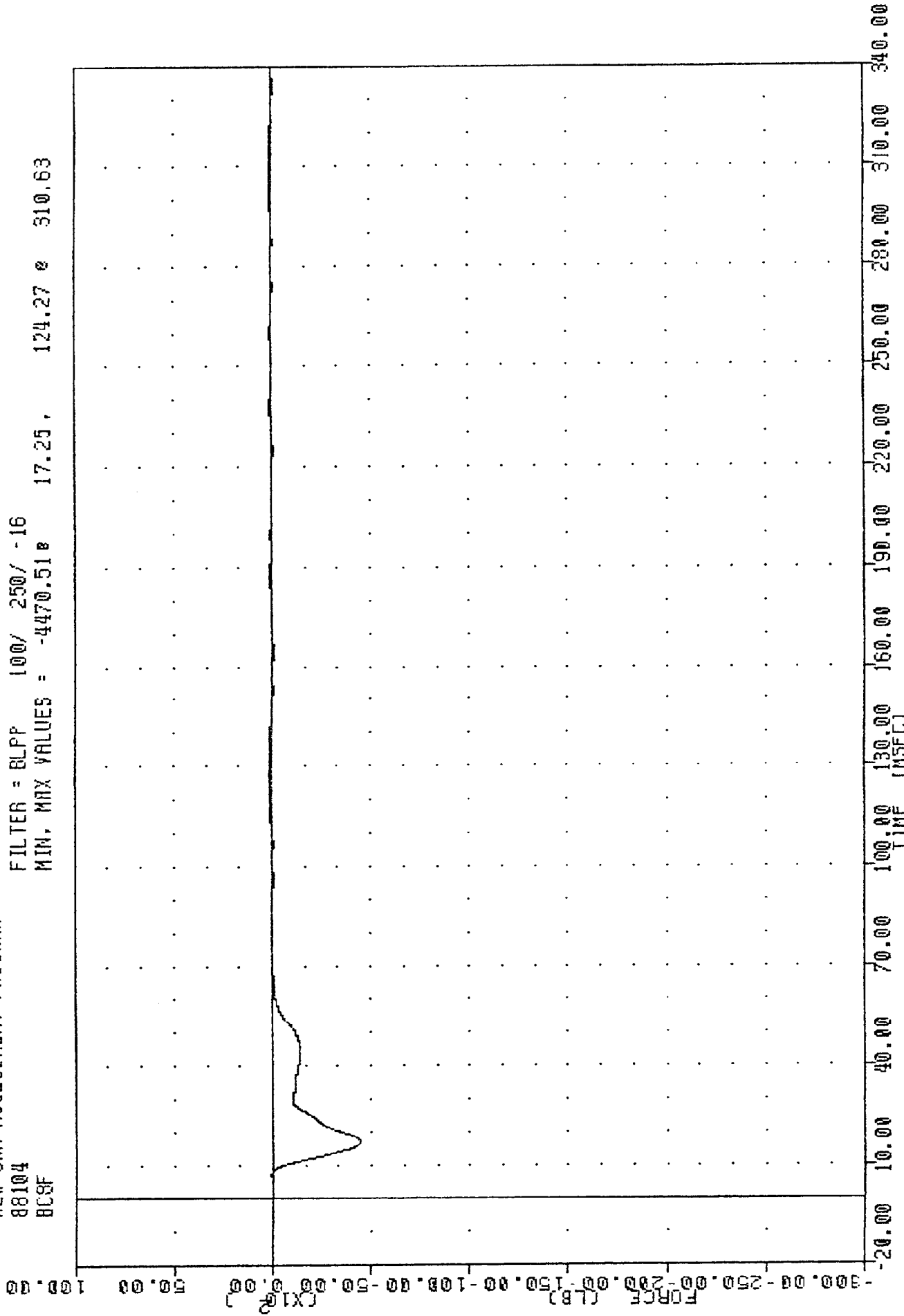
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -1139.25e 12.50 , 95.13 e 1.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C7 FORCE

TAC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BCSF

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -4470.51e 17.25, 124.27 e 510.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C8 FORCE

TRC

880413

NEW CAR ASSESSMENT PROGRAM

88104

BC9F

FILTER = BLPP 100/ 250/ -16

MIN, MAX VALUES = -127.72 22.00

106.30 17.00

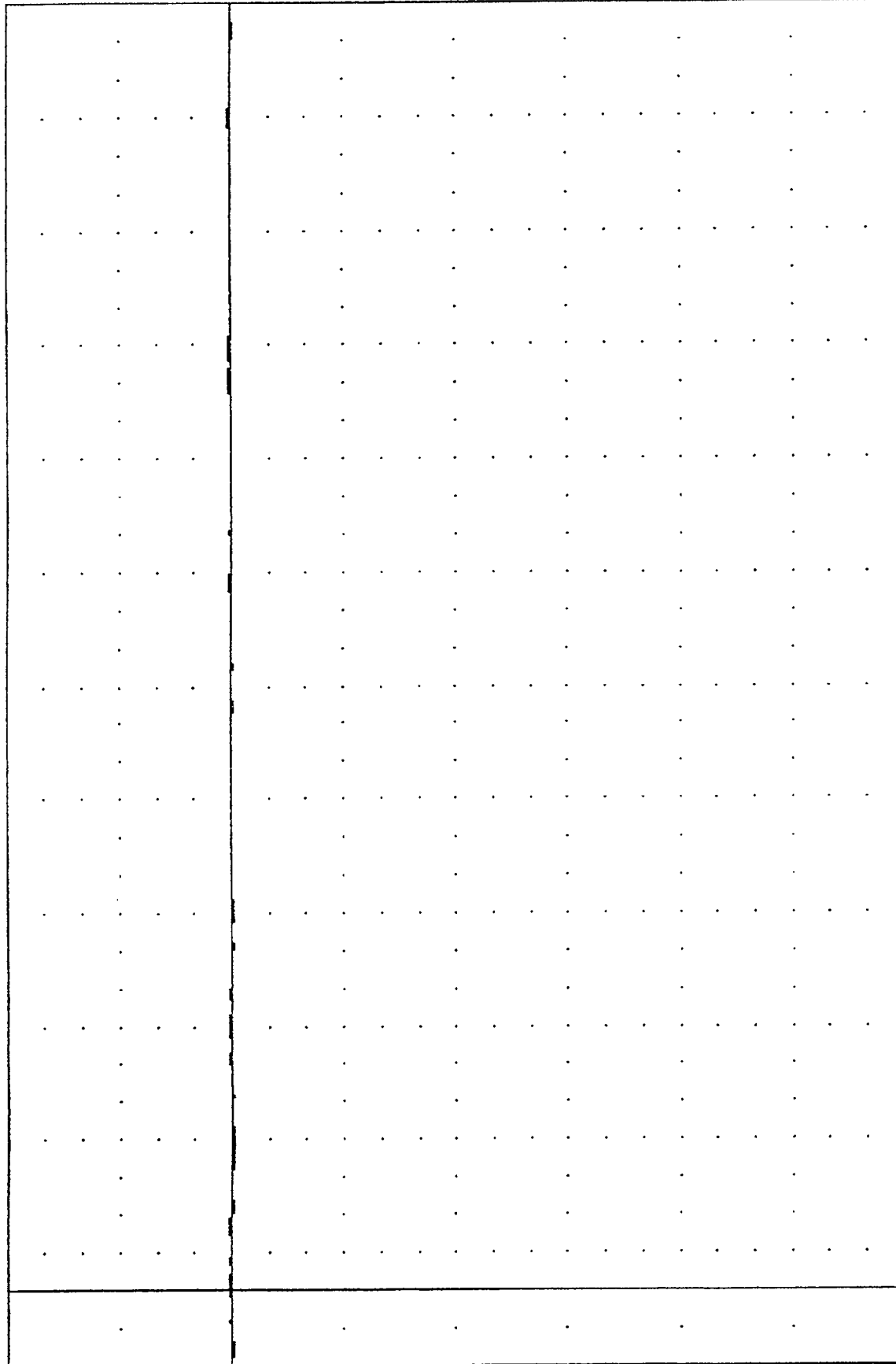
100.00

50.00

(X10²)

B-56

880413



-300.00

-250.00

-200.00

-150.00

-100.00

-50.00

0.00

50.00

100.00

150.00

200.00

250.00

300.00

350.00

400.00

450.00

500.00

550.00

600.00

650.00

700.00

750.00

800.00

850.00

900.00

950.00

1000.00

1050.00

1100.00

1150.00

1200.00

1250.00

1300.00

1350.00

1400.00

1450.00

1500.00

1550.00

1600.00

1650.00

1700.00

1750.00

1800.00

1850.00

1900.00

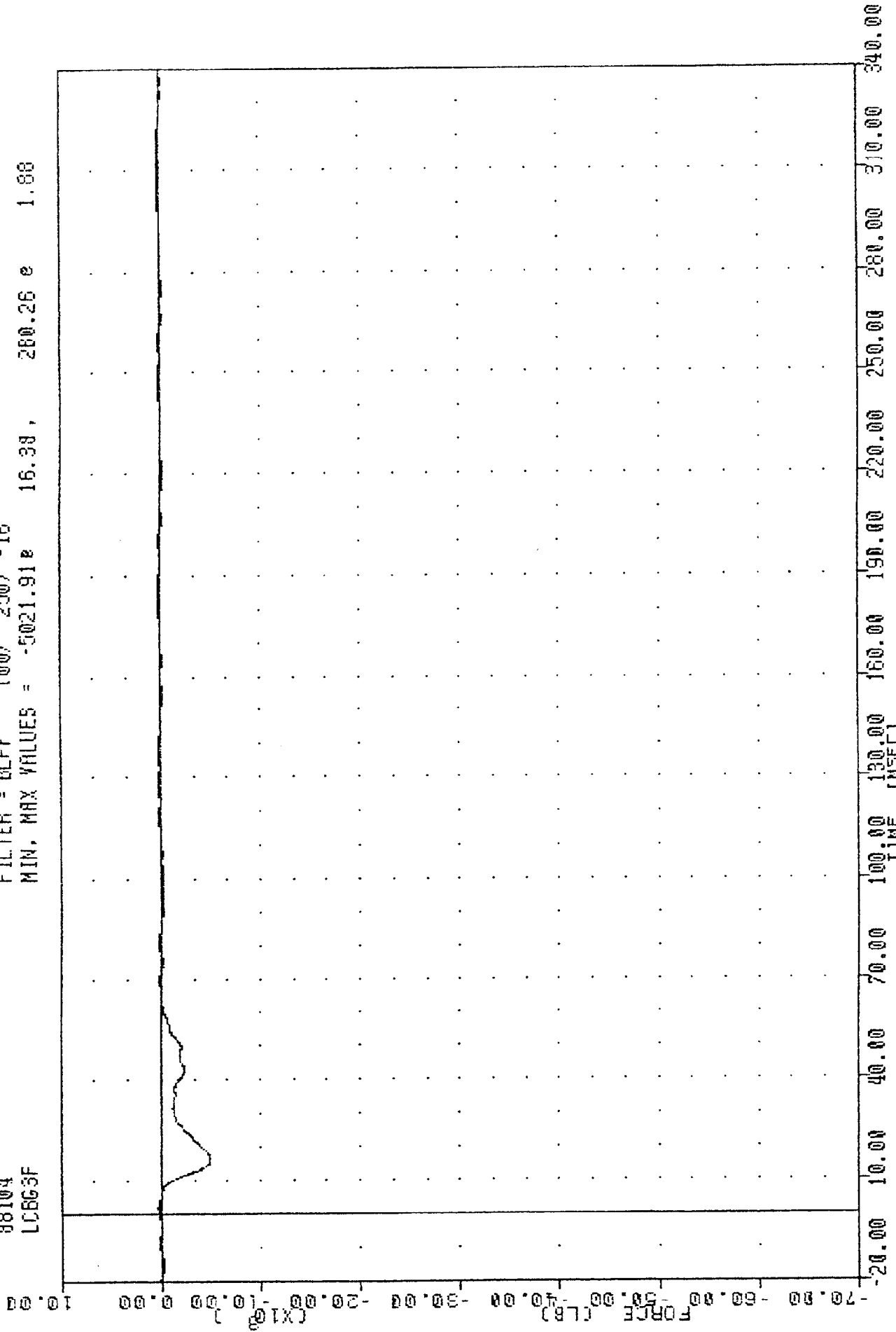
1950.00

2000.00

NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 LC563F

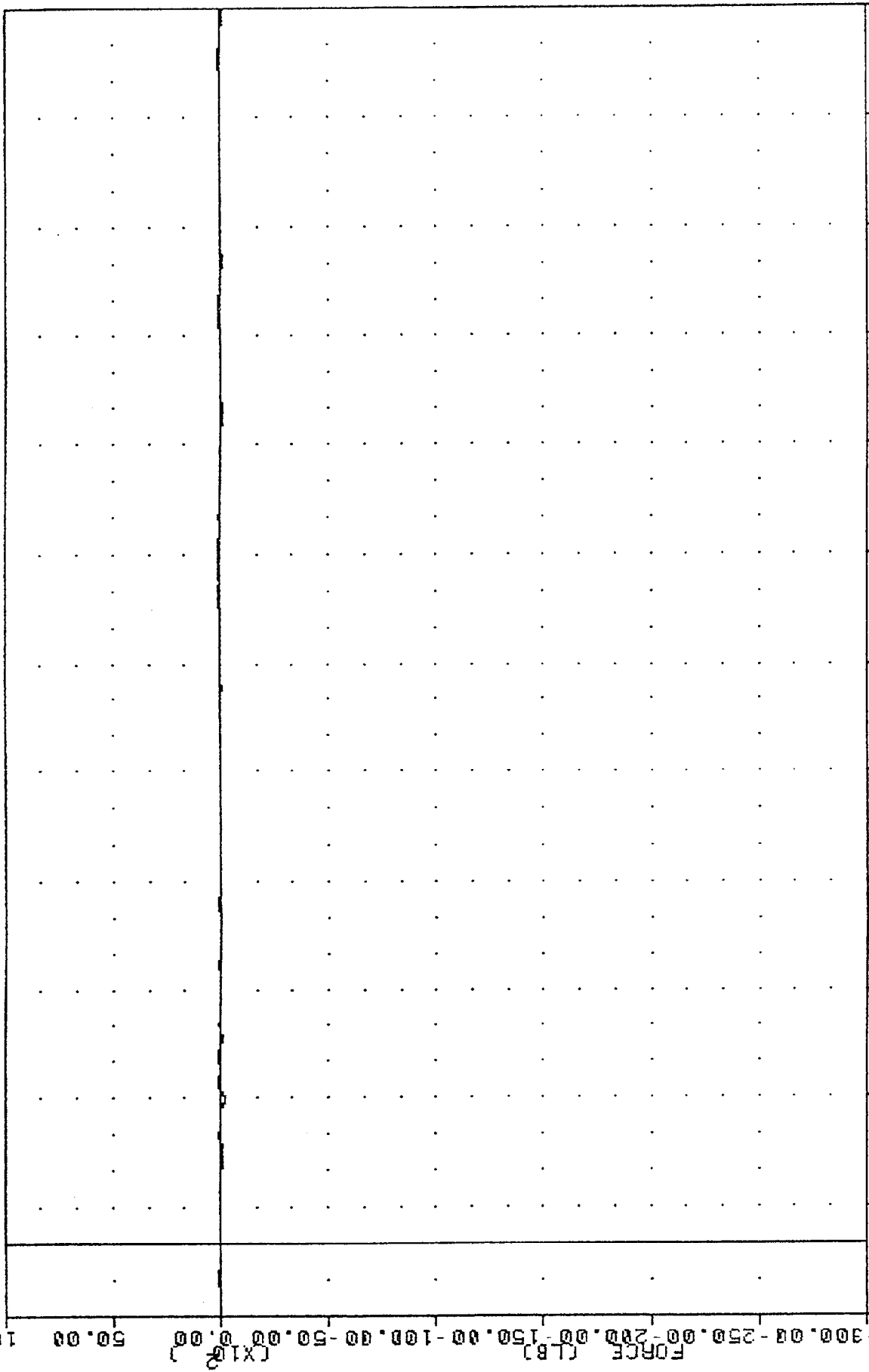
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -5021.91 e 16.38 , 280.26 e 1.88



HONDA CIVIC INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 3 FORCE TOTAL

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 881F

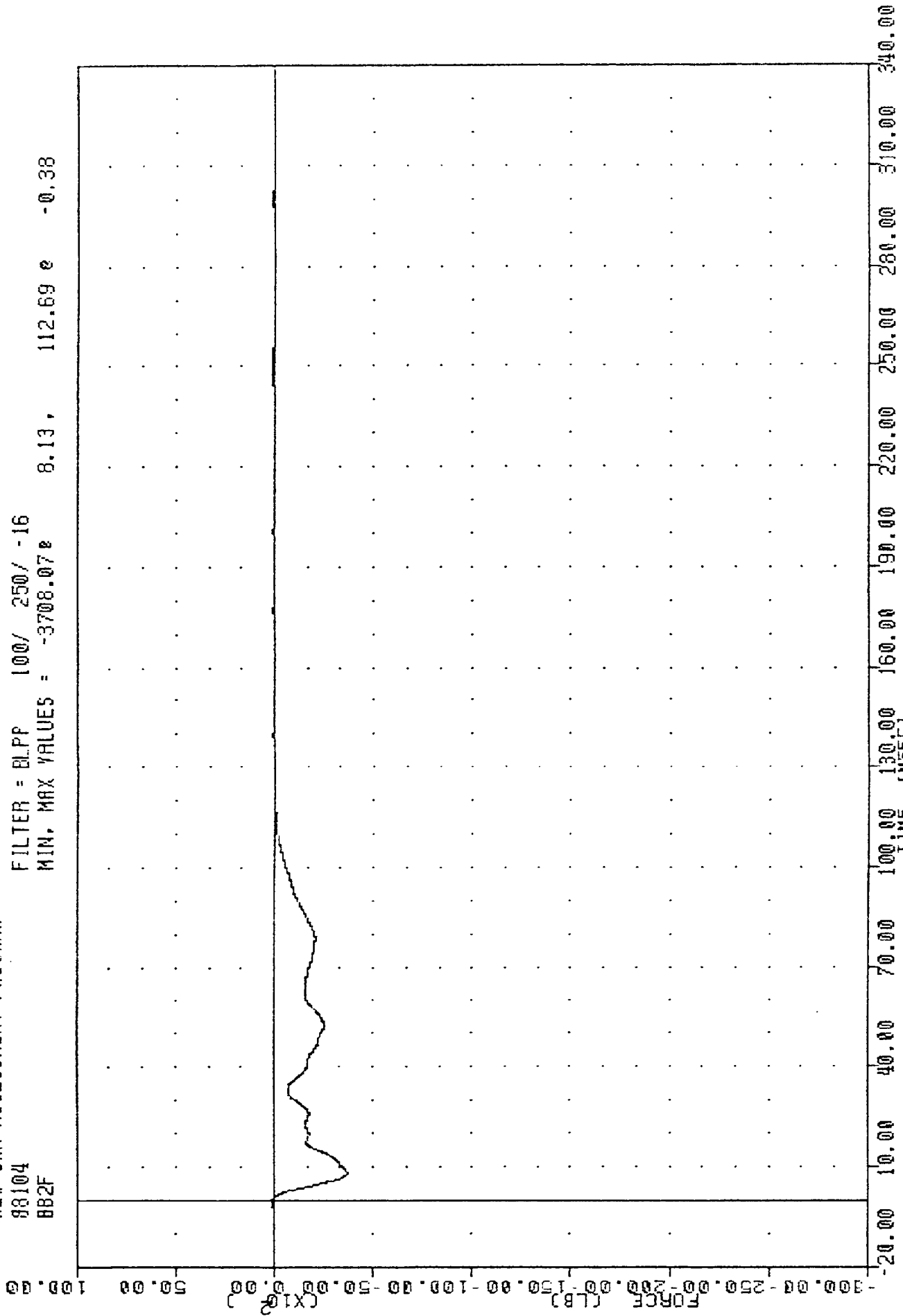
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -210.23e 39.75 , 92.75 e 44.25



-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)
 FORCE (LB)
 NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B1 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BB2F

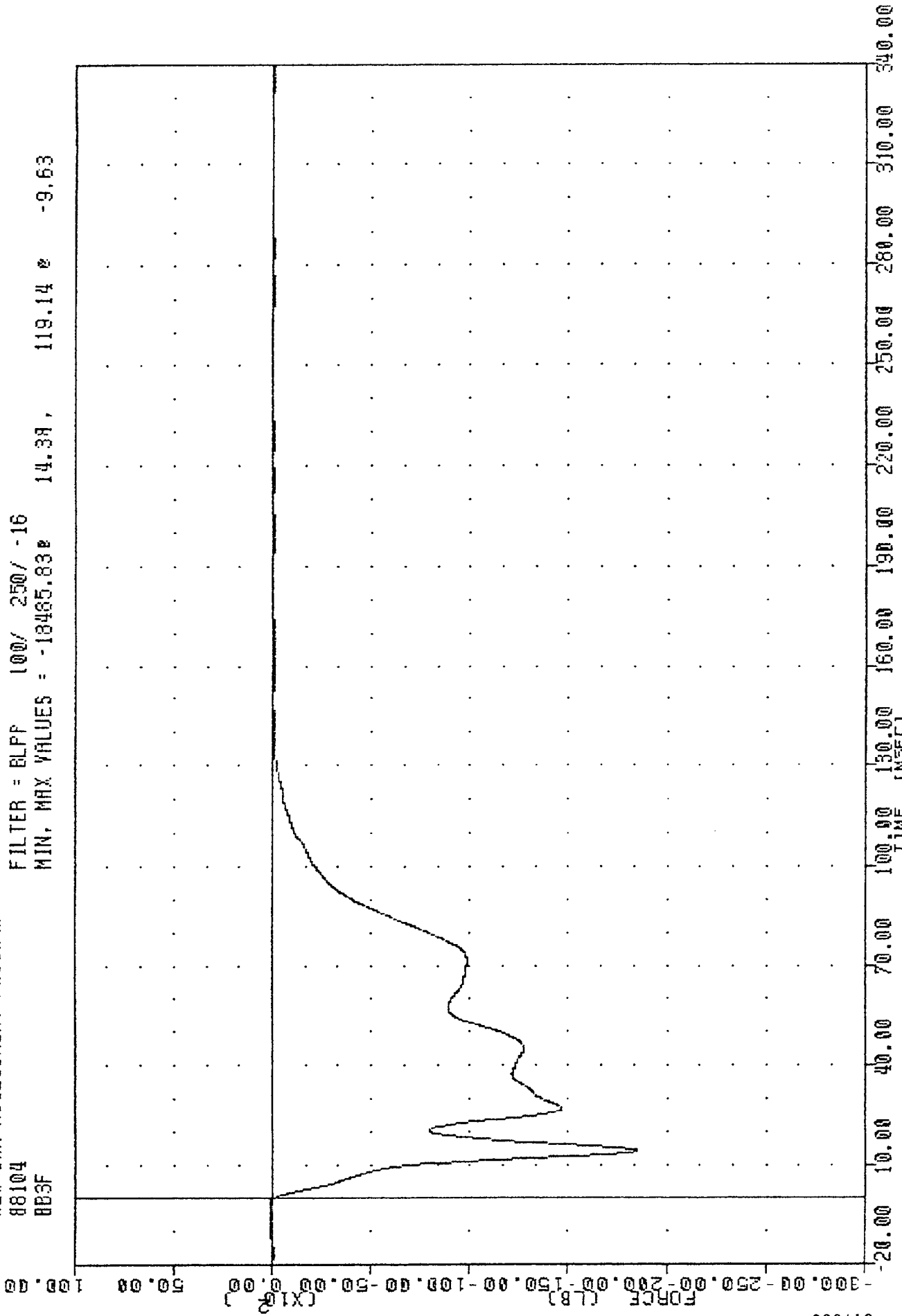
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -3708.07 e 8.13, 112.69 e -0.38



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B2 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 883F

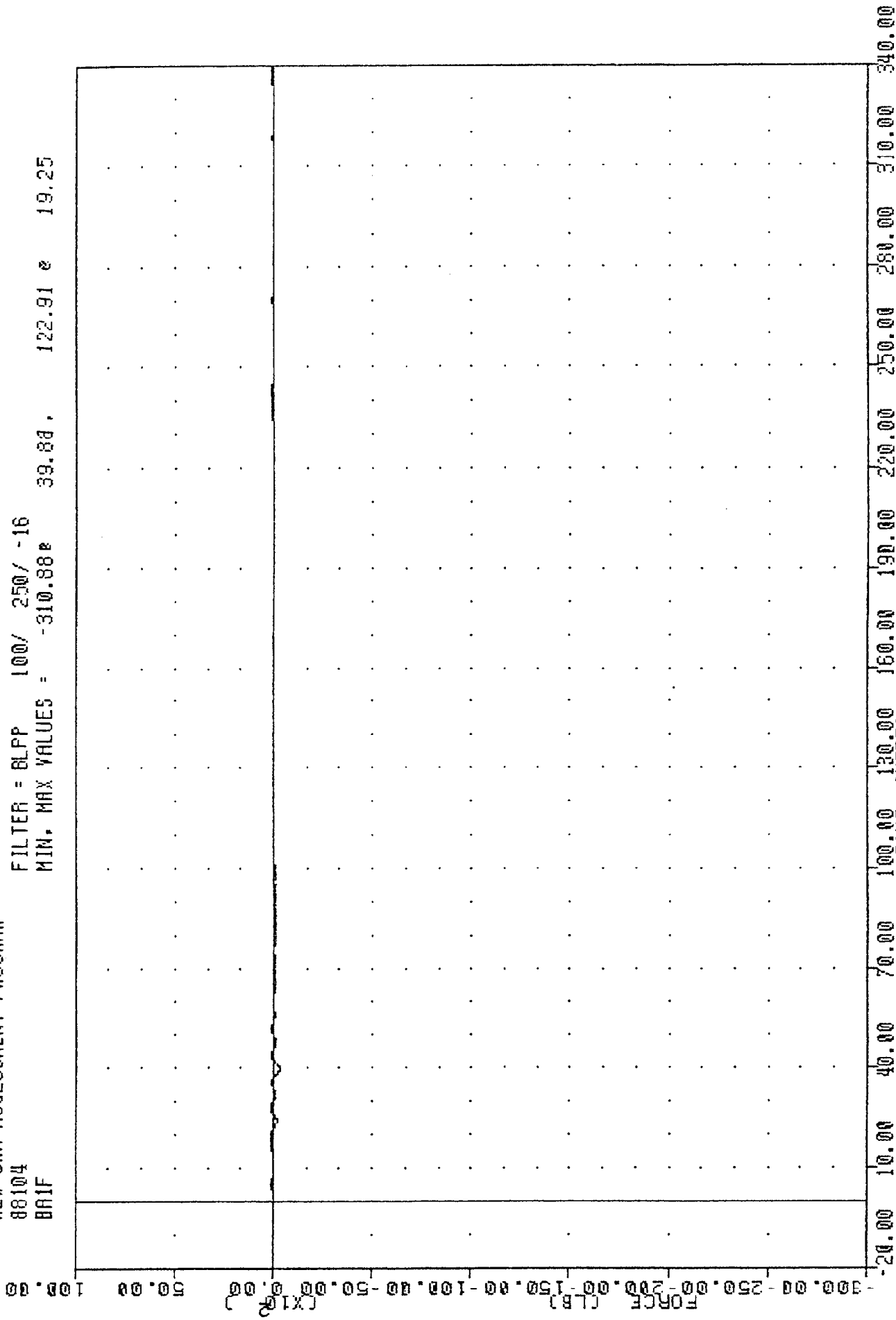
FILTER = BLPF 100/ 250/ -16
 MIN, MAX VALUES = -18465.83 14.38, 119.14 8 -9.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B3 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BRIF

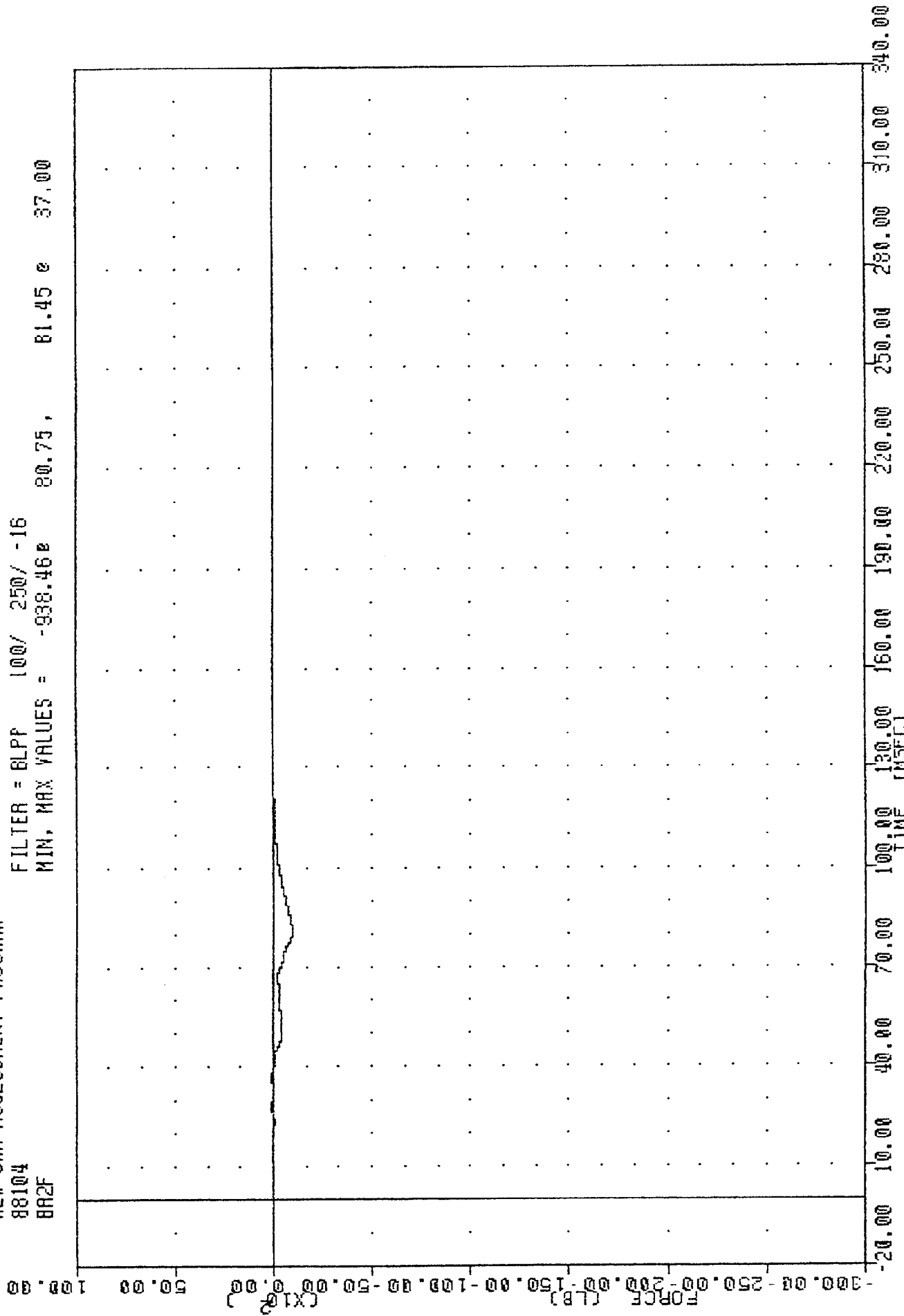
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -310.88 39.88 , 122.91 e 19.25



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION AT FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 8A2F

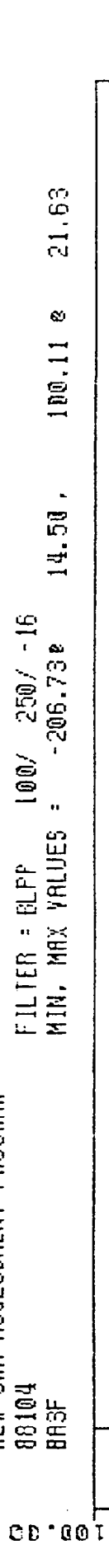
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -938.46 80.75, 81.45 e 37.00



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A2 FORCE

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BASF

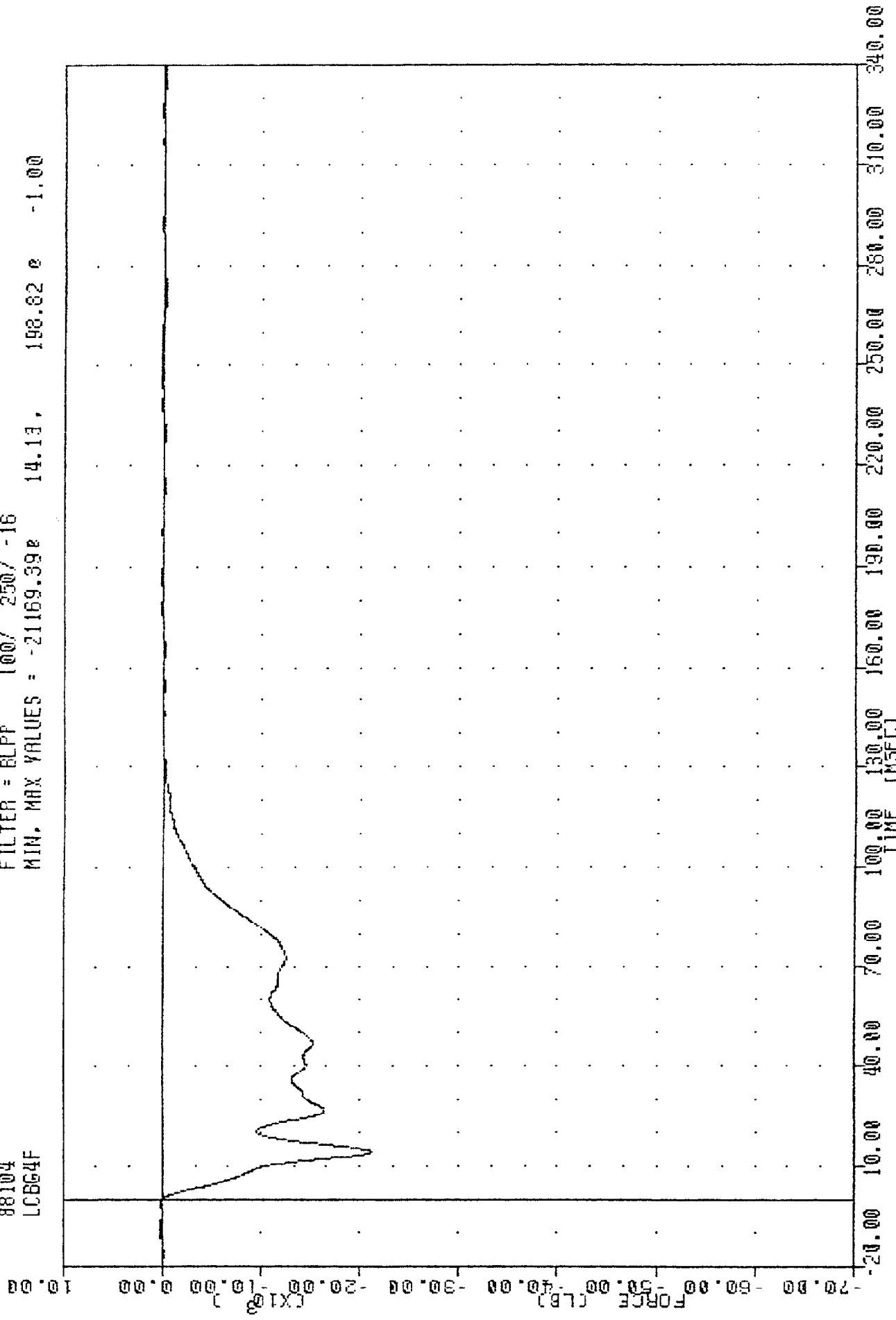
FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -206.73e 14.50, 100.11 e 21.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION #3 FORCE

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 LC664F

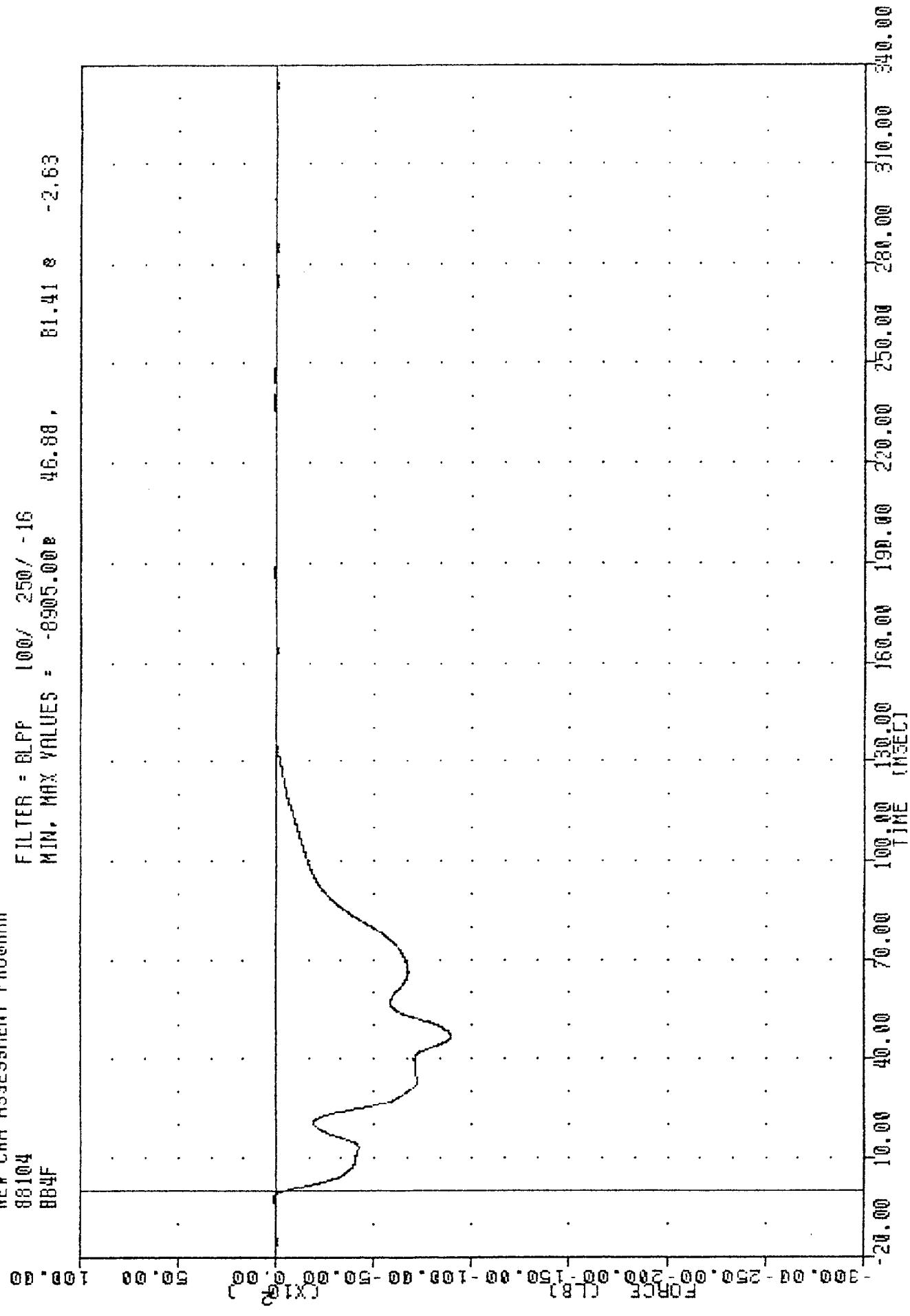
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -21169.39e 14.13, 192.62 e -1.00



HONDA CIVIC INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 4 FORCE TOTAL

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BB4F

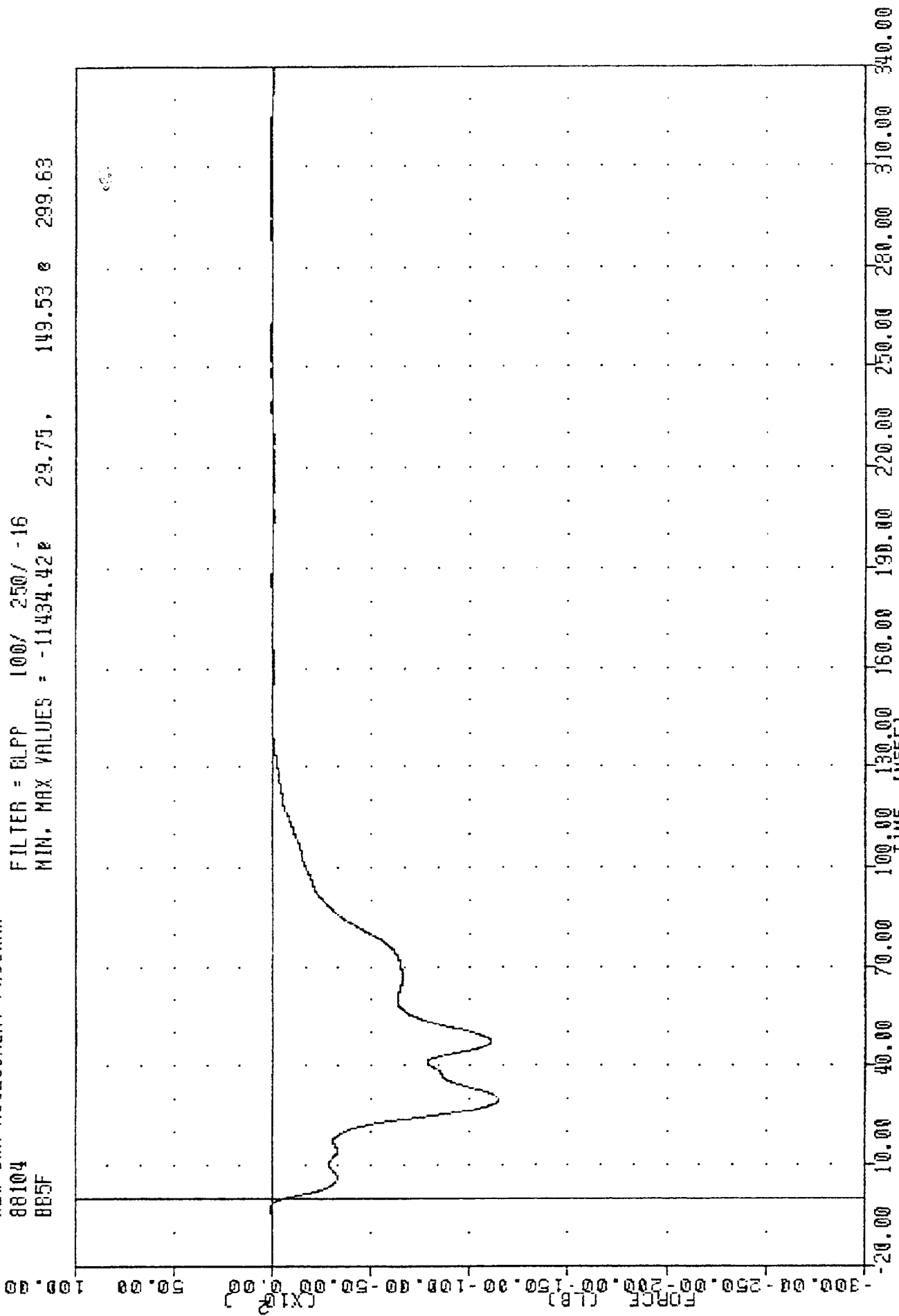
FILTER = BLPF 100/ 250/ -16
 MIN. MAX VALUES = -8905.00e 46.88, 81.41 e -2.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B4 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 885F

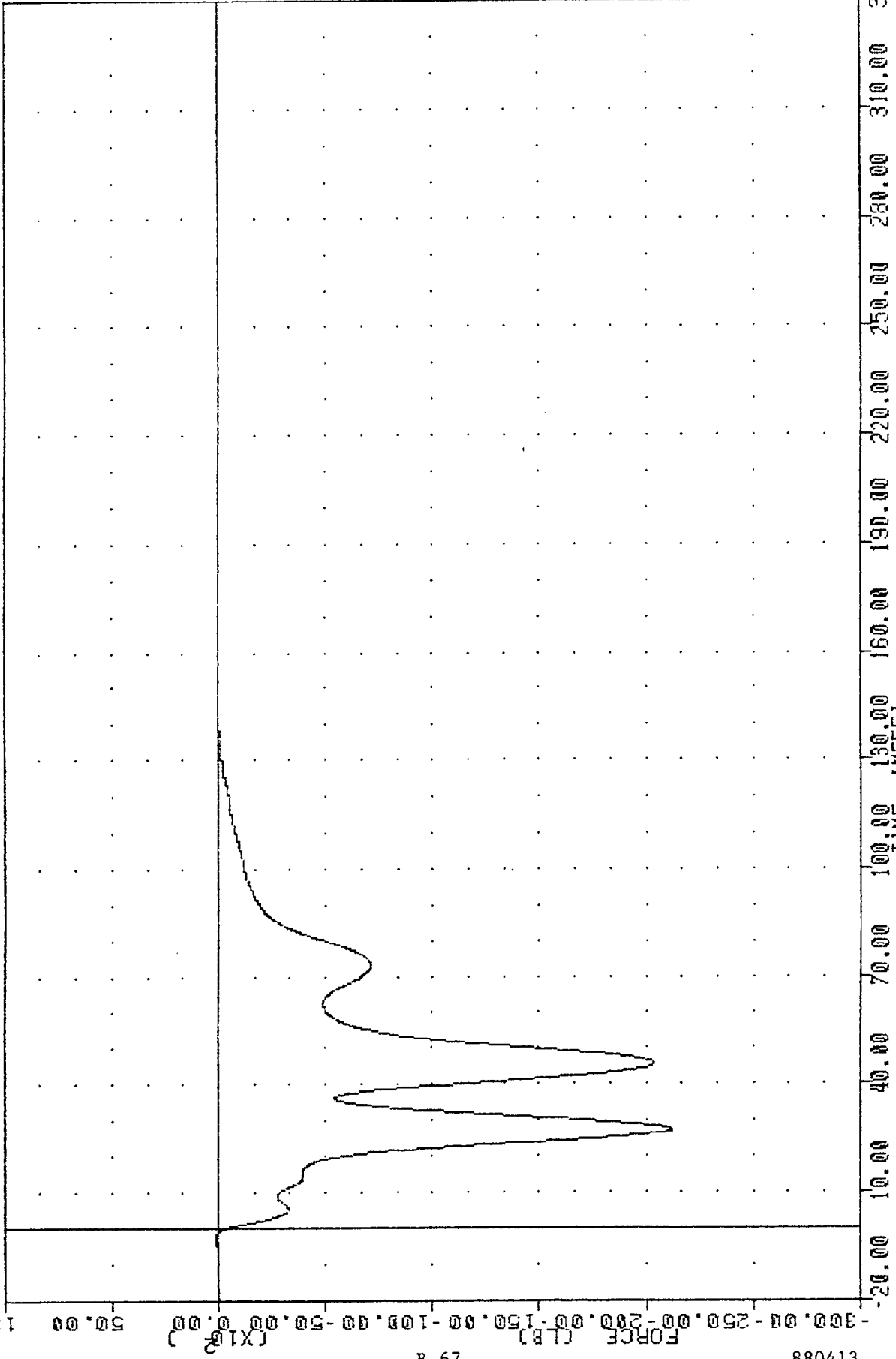
FILTER = GLPP 100/ 250/ -16
 MIN. MAX VALUES = -11434.42# 29.75 , 149.53 e 299.63



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B5 FORCE

TRC
NEW CAR ASSESSMENT PROGRAM
88104
880413
BB5F

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -21208.17e 27.25, 112.47 e -2.75



B-67

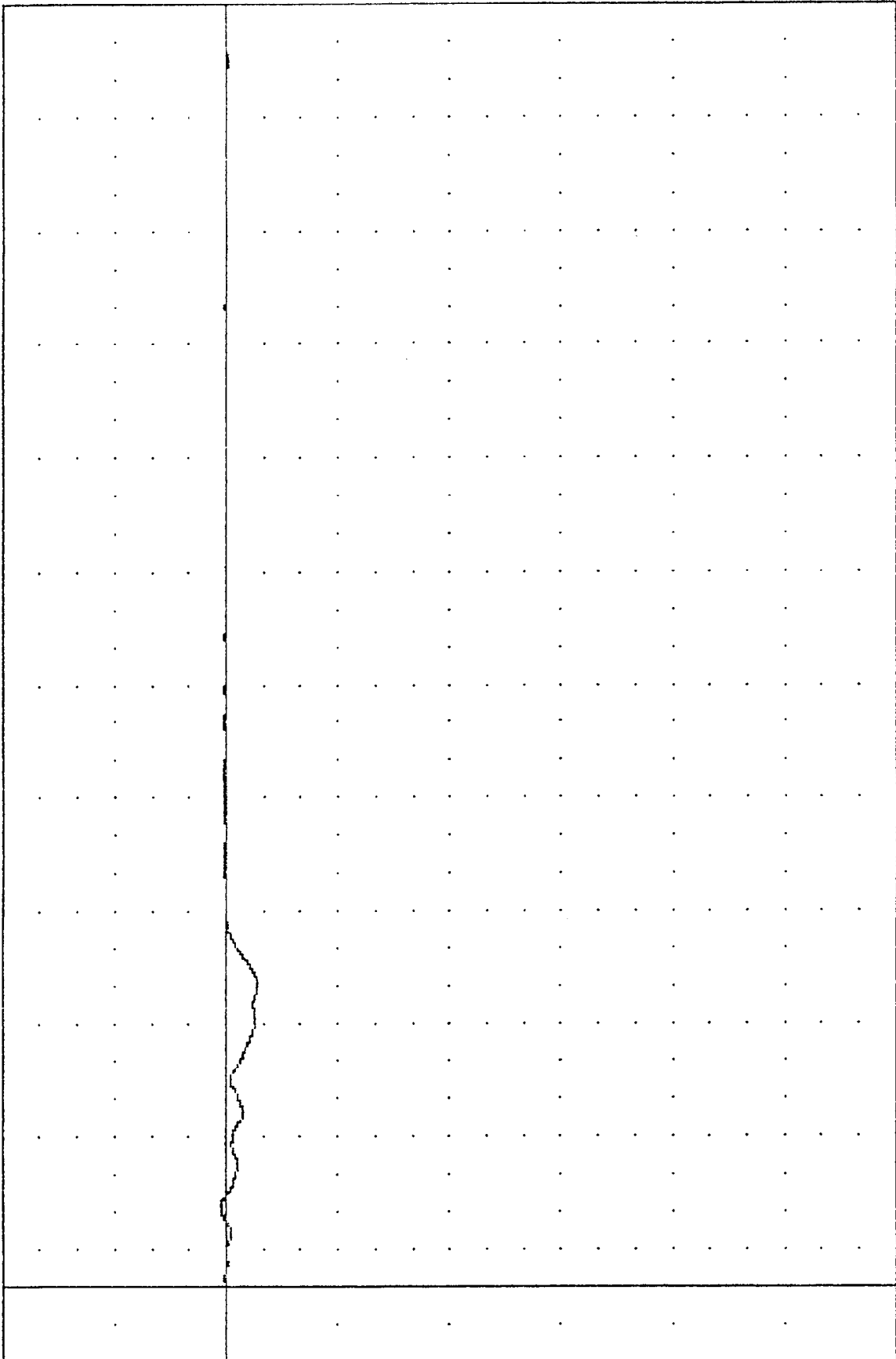
880413

NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BR4F

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -1399.02R 79.88, 252.20 e 21.75

100.00
 50.00
 0.00
 -50.00
 -100.00
 -150.00
 -200.00
 -250.00
 -300.00



-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

NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION R4 FORCE

TRC
880413
NEW CAR ASSESSMENT PROGRAM
88104
BR5F

FILTER = 6LPP 100/ 250/ -16
MIN. MAX VALUES = -6875.91e 73.68 , 164.92 e 10.13

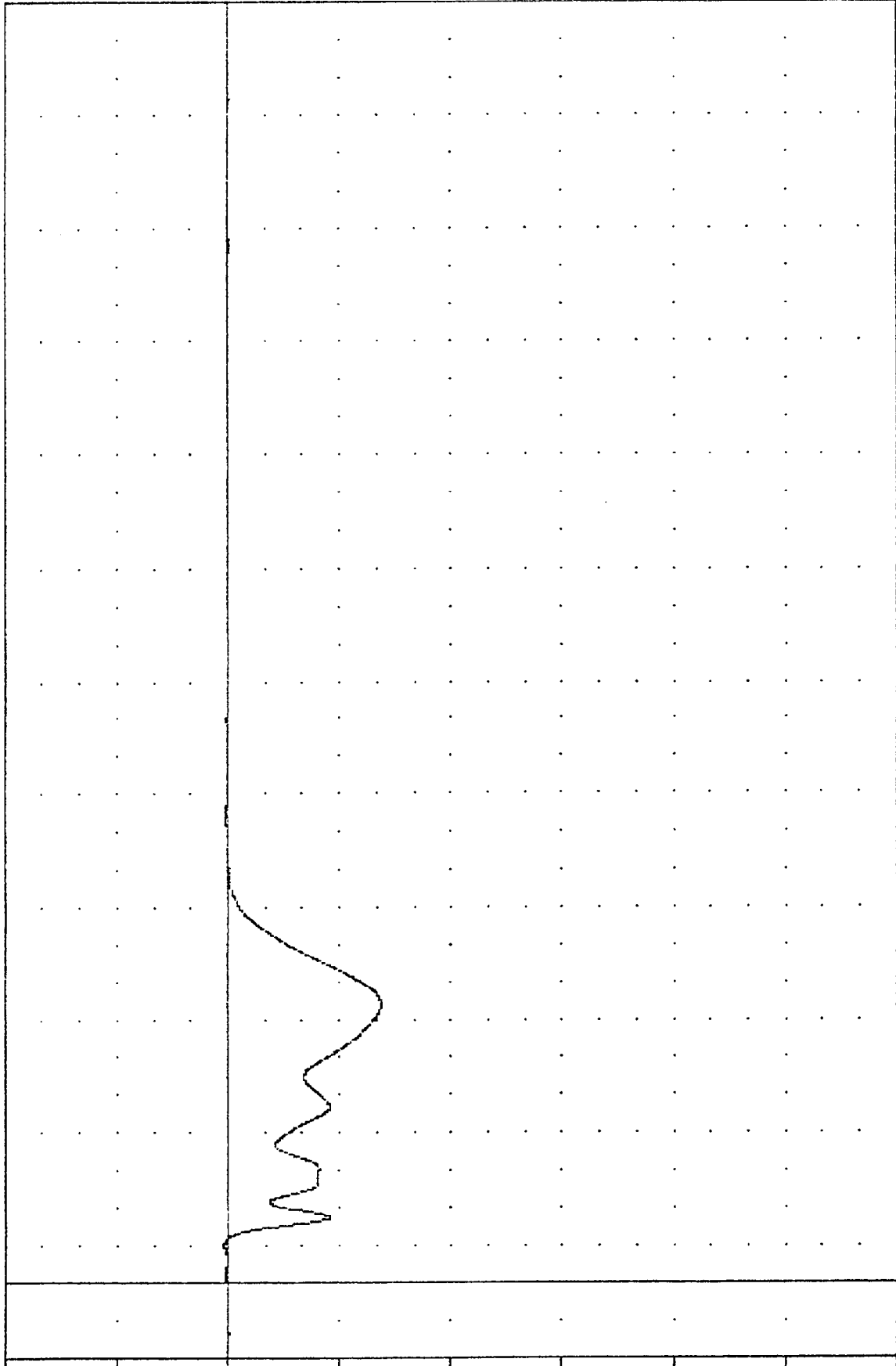
100.00

50.00

0.00
(X10³)

B-69

880413



NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE

TRC 880413

NEW CAR ASSESSMENT PROGRAM

88104

88DF

FILTER = BLFF 100/ 250/ -16

MIN. MAX VALUES = -1874.24e 26.25,

182.64 e 159.63

100.00

50.00

0.00

(X10³)

FORCE (LB)

-300.00

-250.00

-200.00

-150.00

-100.00

-50.00

0.00

50.00

100.00

150.00

200.00

250.00

300.00

340.00

310.00

280.00

250.00

220.00

190.00

160.00

130.00

100.00

70.00

40.00

10.00

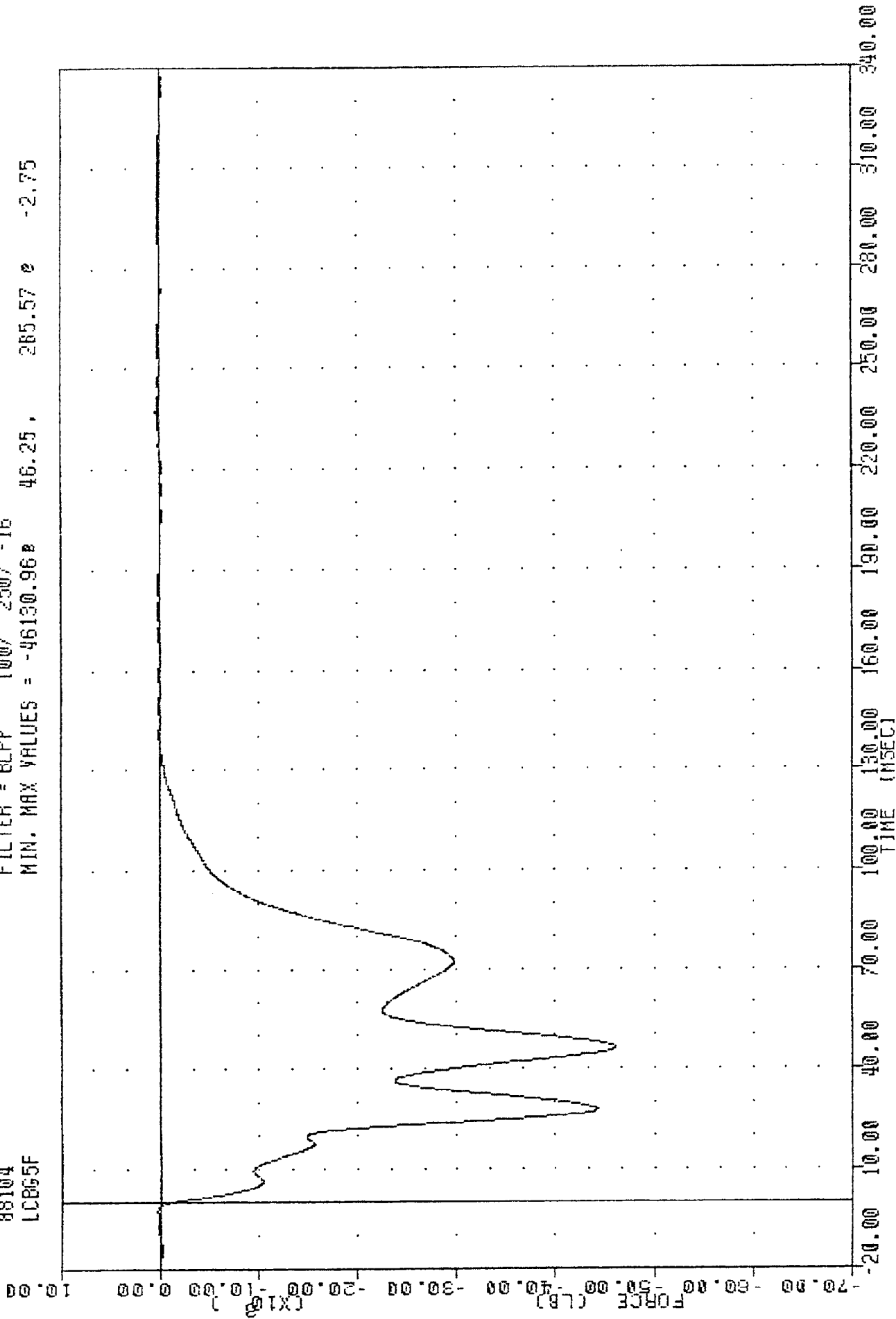
-20.00

TIME (MSEC)

NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 LCB55F

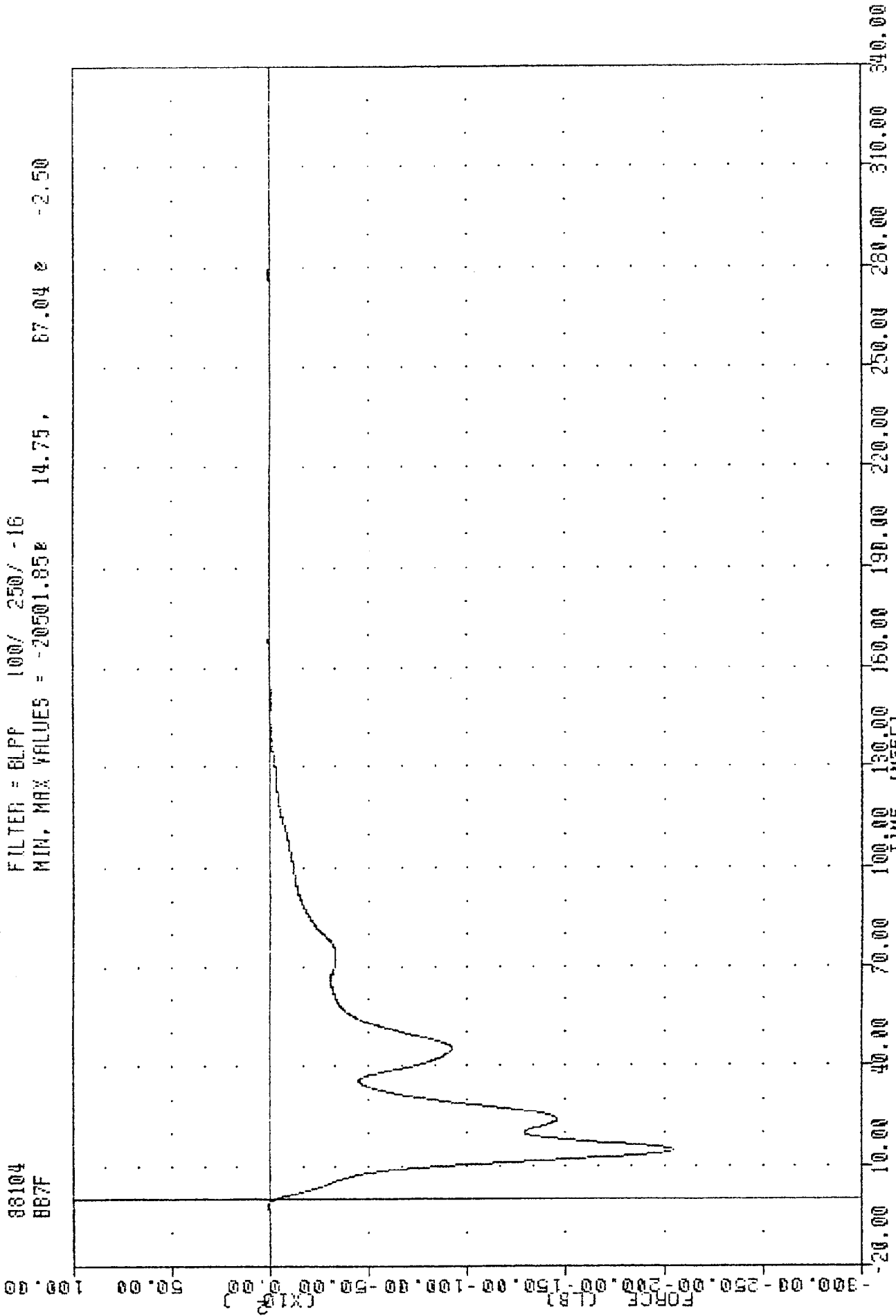
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -46130.96# 46.25 , 265.57 e -2.75



HONDA CIVIC INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 5 FORCE TOTAL

TRC
880413
NEW CAR ASSESSMENT PROGRAM
88104
887F

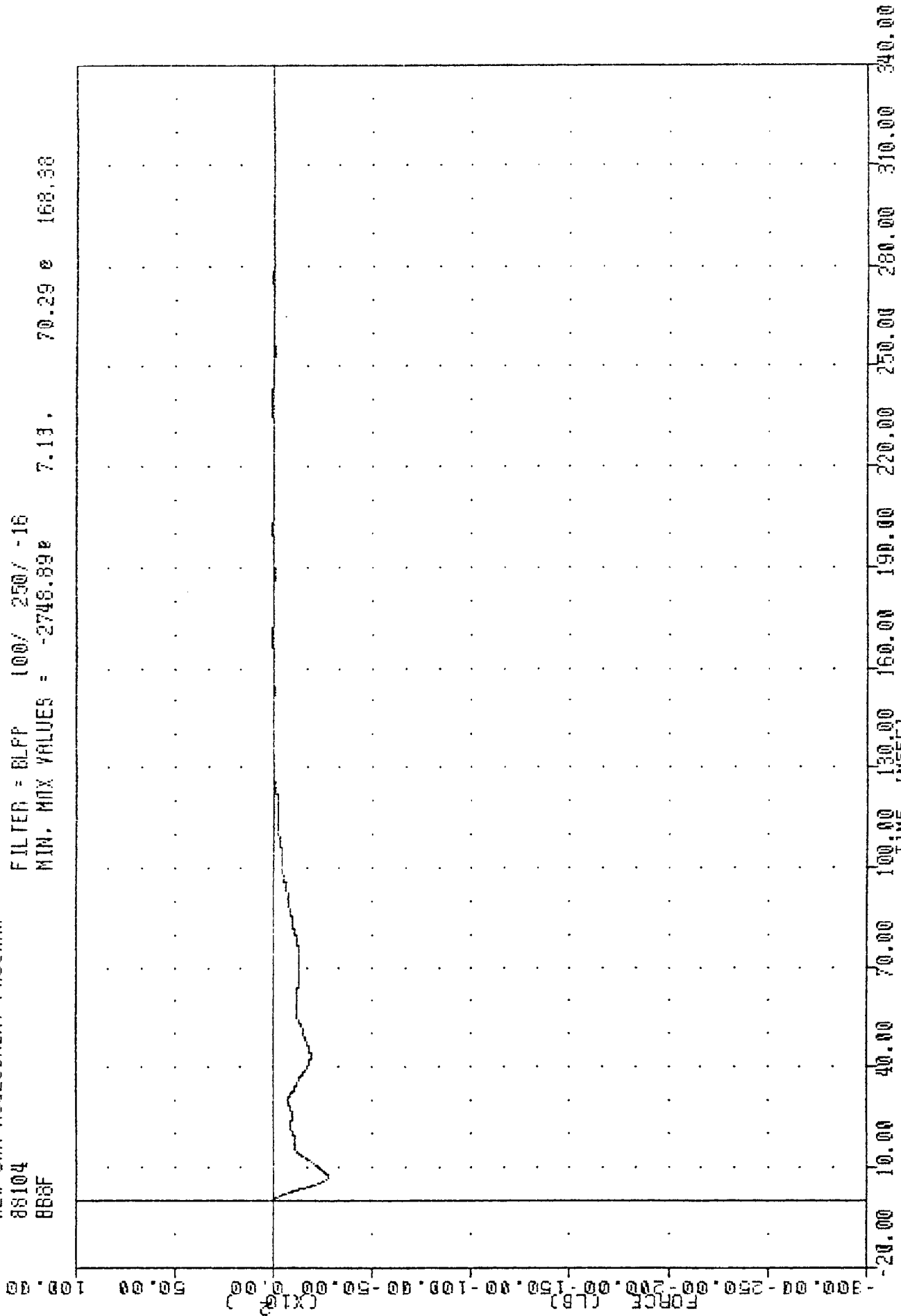
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -20501.85# 14.75, 87.04 e -2.50



NISSAN SENTRA INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 888F

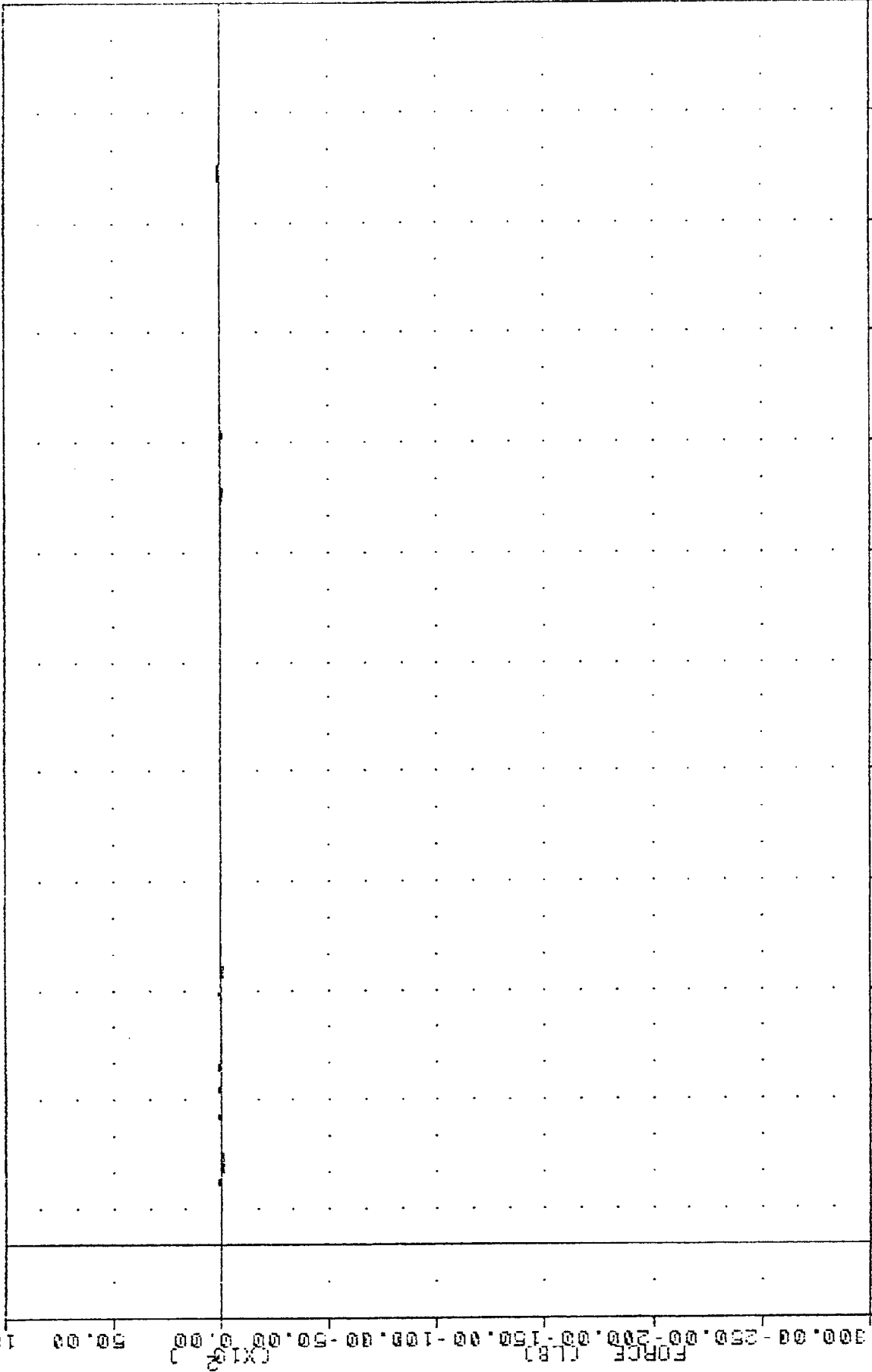
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -2746.89e 7.13, 70.29 e 168.38



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 88 FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 889F

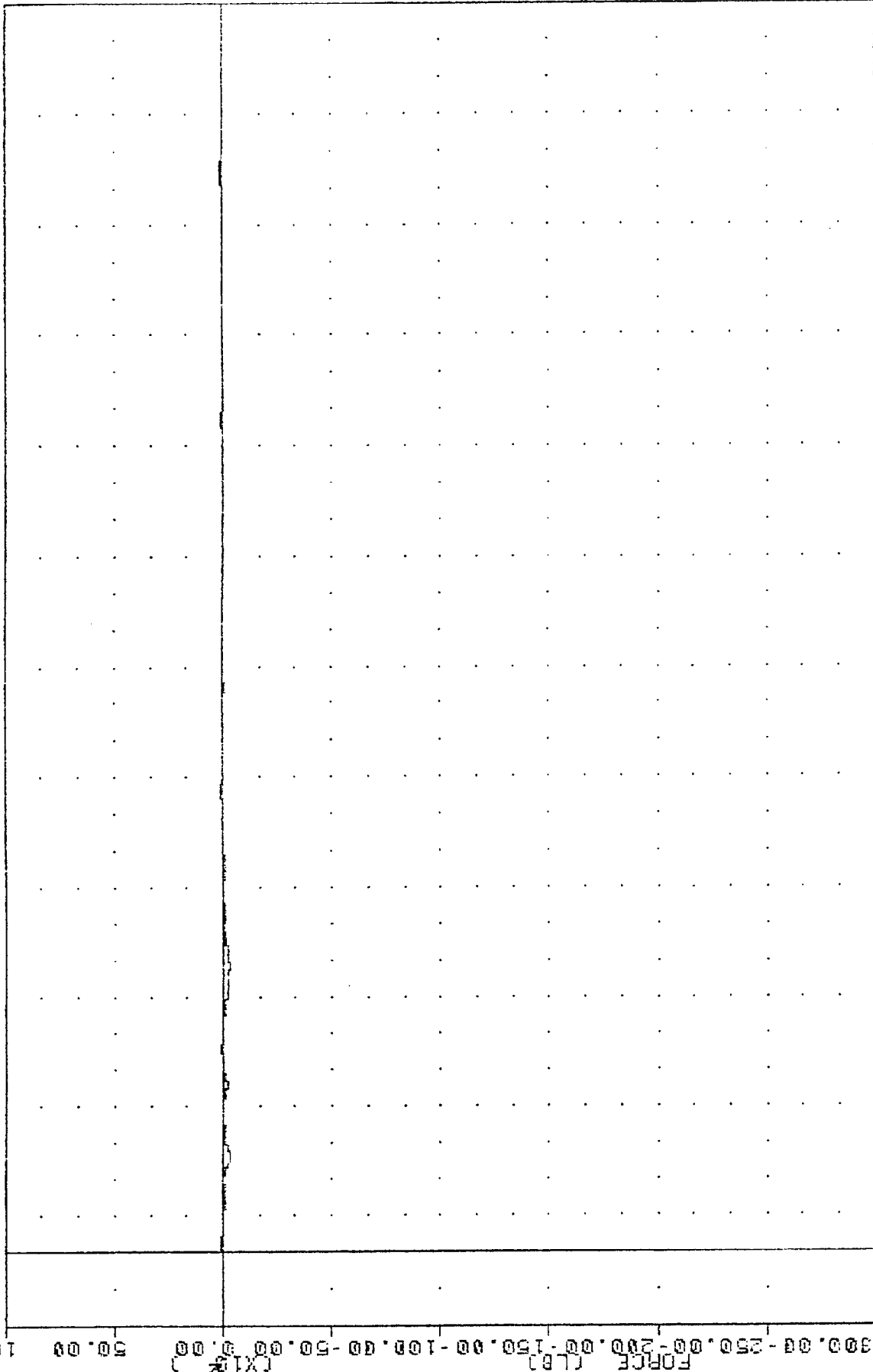
FILTER = BLPF 100/ 250/ -1B
 MIN, MAX VALUES = -135.40 22.00 , 63.76 17.25



-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)
 FORCE (LBS)
 NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B9 FORCE

TAC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 887F

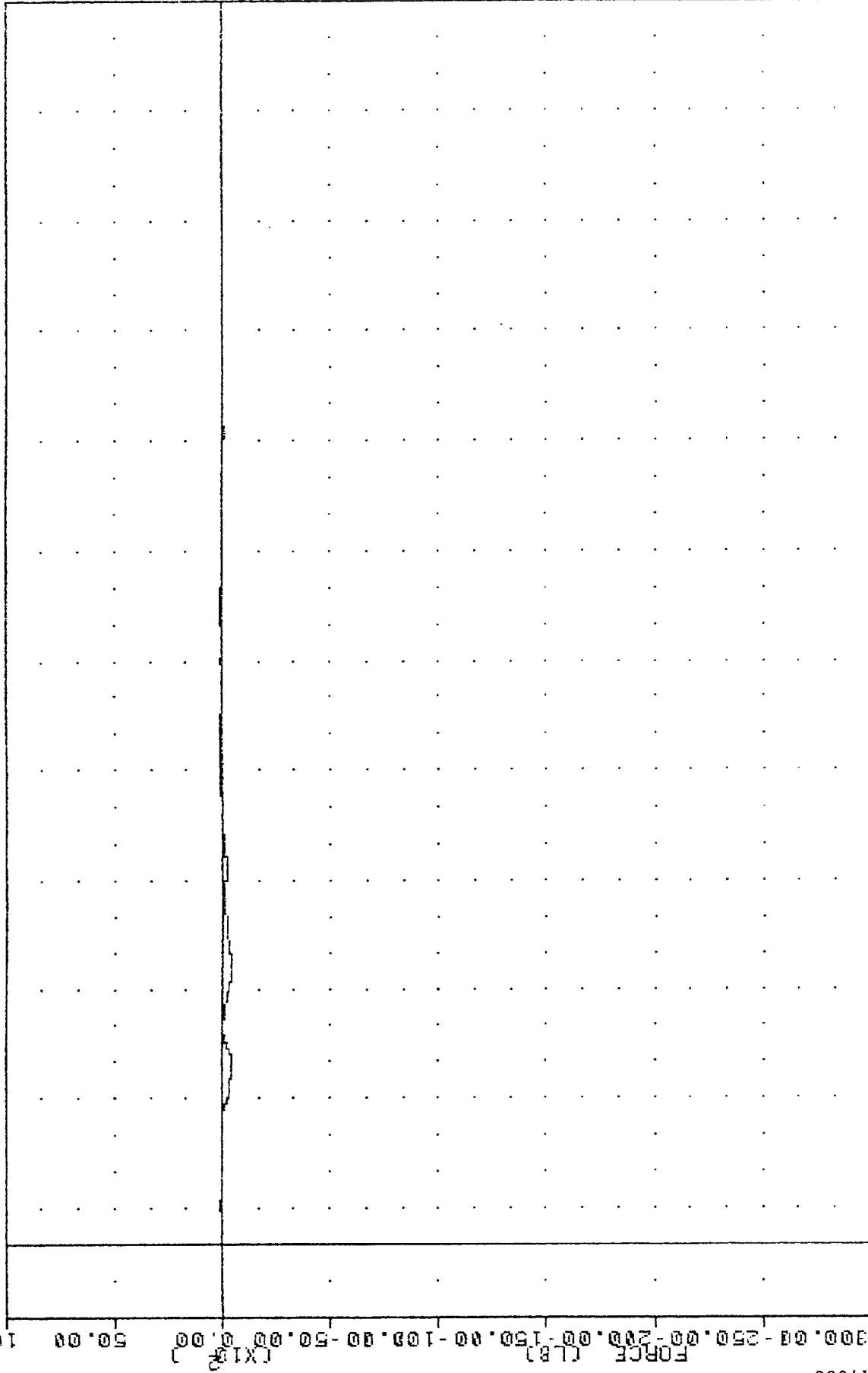
FILTER = BLFP 100/ 250/ -16
 MIN. MAX VALUES = -344.59e 26.25 , 110.96 e 2.50



-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 (MSECT)
 NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A7 FORCE

TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BR8F

FILTER = BLFF 100/ 250/ -16
 MIN, MAX VALUES = -470.95e 47.75, 90.28 e 126.75

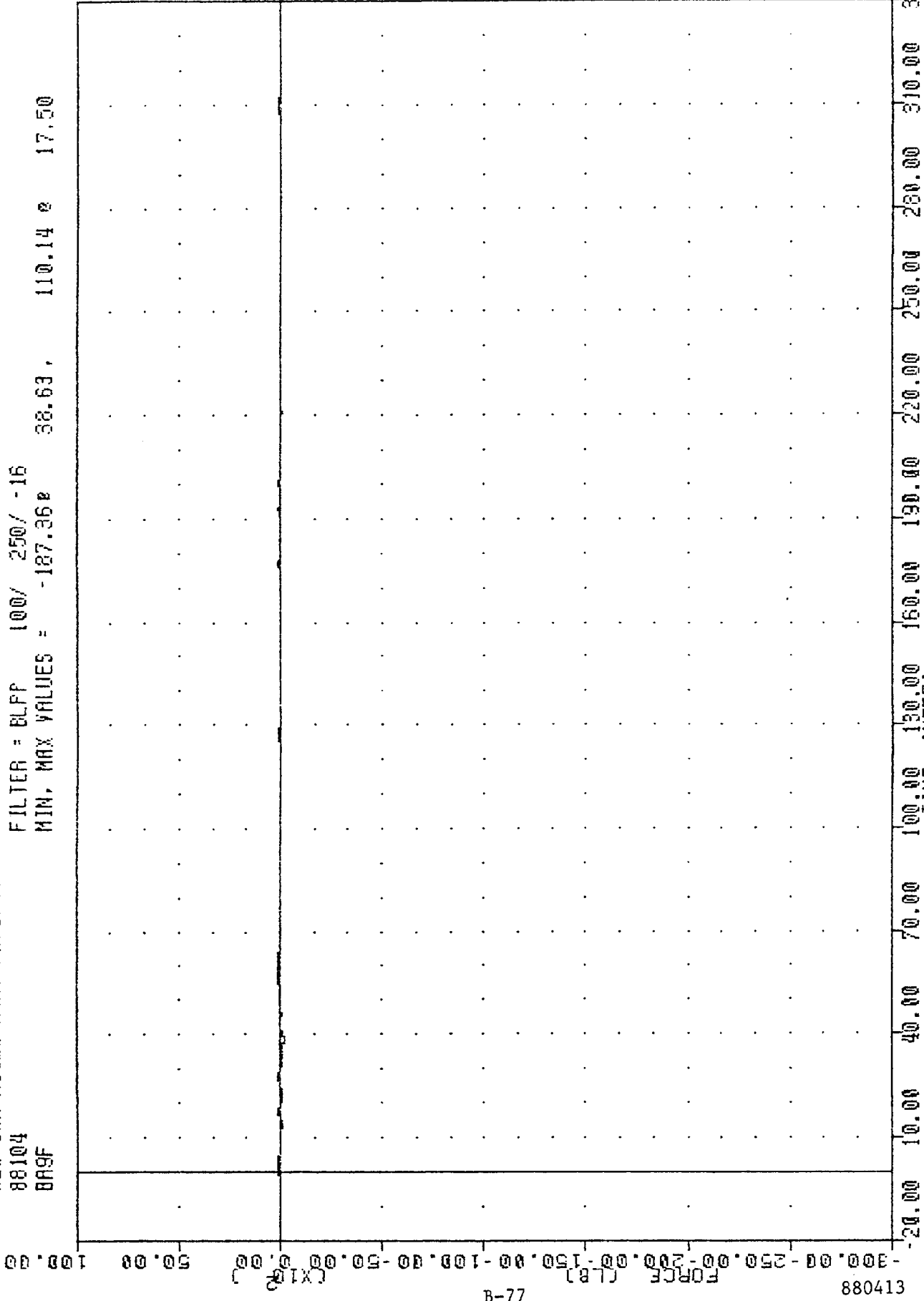


-300.00 -250.00 -200.00 -150.00 -100.00 -50.00 0.00 50.00 100.00
 -20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSECT)

NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION AS FORCE

TRC , 880413
 NEW CAR ASSESSMENT PROGRAM
 88104
 BAGF

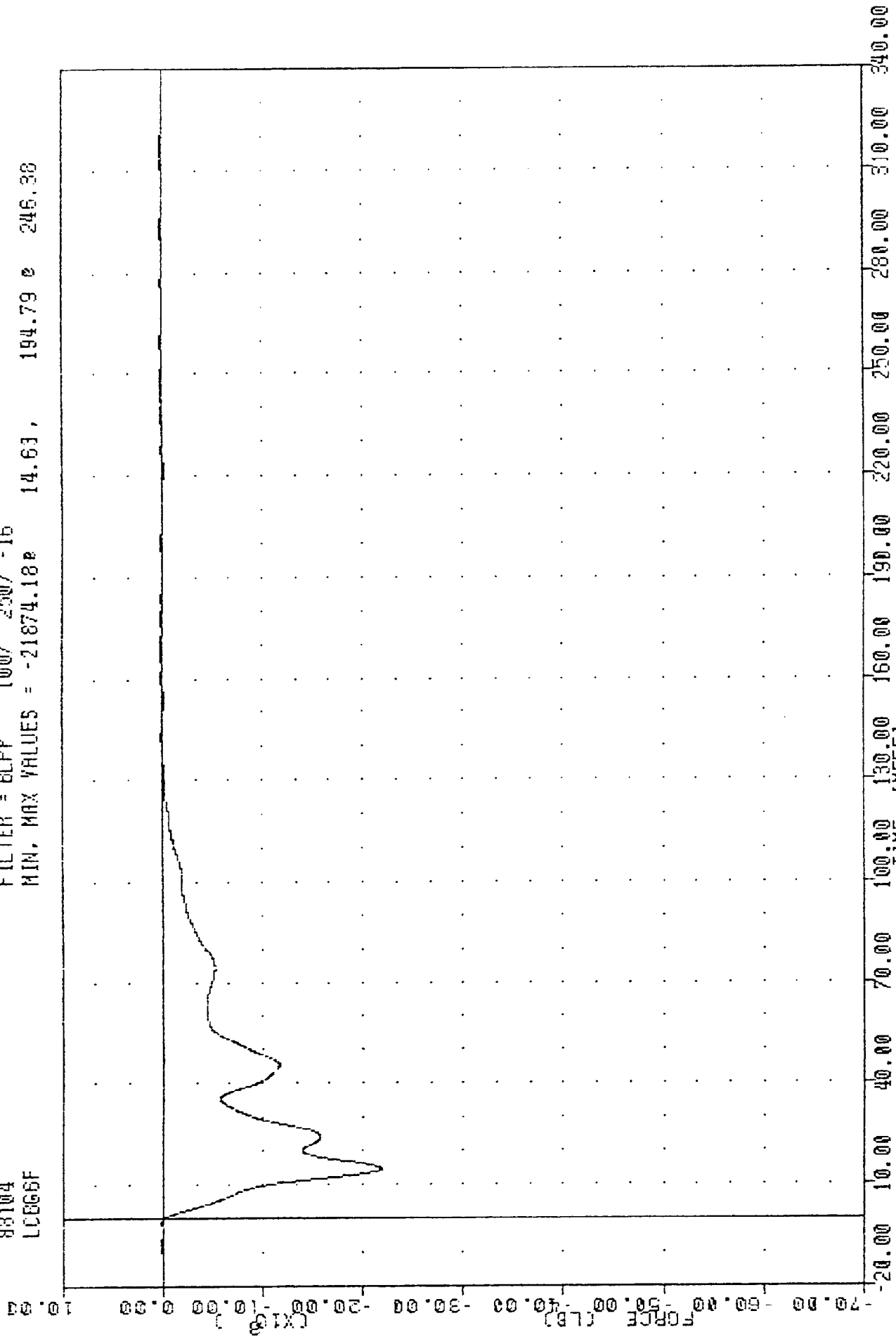
FILTER = BLFP 100/ 250/ -16
 MIN, MAX VALUES = -187.36e 38.63, 110.14 e 17.50



NISSAN SENTRA INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A9 FORCE

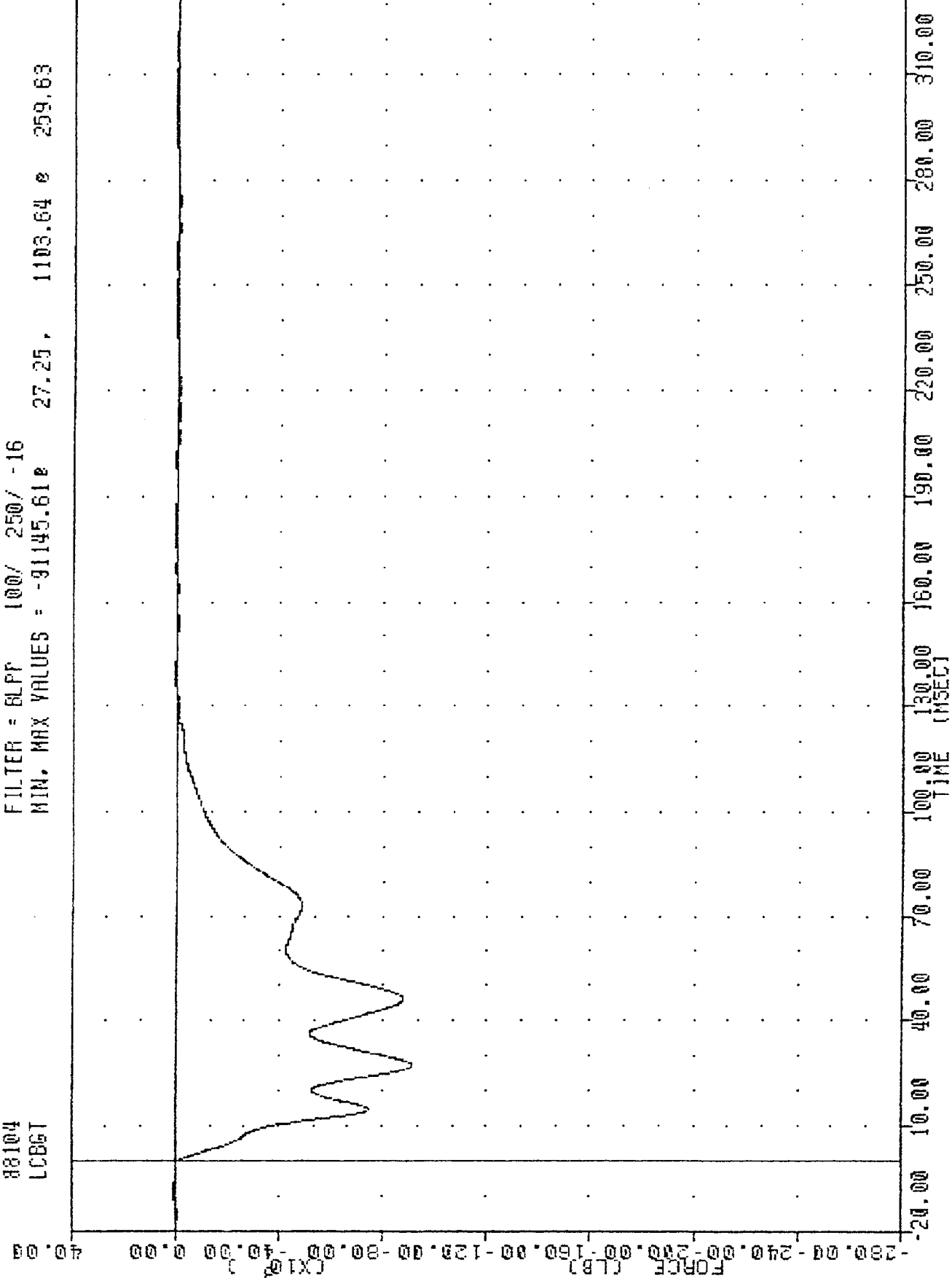
TRC
 880413
 NEW CAR ASSESSMENT PROGRAM
 83104
 LCEG6F

FILTER = BLFP 100/ 250/ -16
 MIN, MAX VALUES = -21874.18e 14.63, 194.79 e 246.38



HONDA CIVIC INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 6 FORCE TOTAL

TRC
 88104
 LCBGT
 880413
 NEW CAR ASSESSMENT PROGRAM
 FILTER = 8LPP 100/ 250/ -16
 MIN. MAX VALUES = -91145.61e 27.25, 1103.64 e 259.63



HONDA CIVIC INTO LOAD CELL BARRIER
 SUM OF LOAD CELL BARRIER FORCES

APPENDIX C

DUMMY CERTIFICATION

TRANSPORTATION RESEARCH CENTER OF OHIO

EXTERNAL DIMENSIONS

PART 572

24-MAR-88

TEMPERATURE 71.00 F
NHTSA ED75902

RELATIVE HUMIDITY 39.00 %
572B SN759 EXT DIMENSION CAL02

DESCRIPTION	SPECIFICATION	TEST RESULTS
SN 759 ALDERSON		
Sitting Height	35.6 - 35.8 IN	35.7 IN
Shoulder Pivot Height	21.8 - 22.4 IN	22.4 IN
Hip Pivot Height	3.9 IN (ref)	3.9 IN
Hip Pivot From Backline	4.8 IN (ref)	4.8 IN
Knee Pivot From Backline	20.1 - 20.7 IN	20.7 IN
Rear of Head From Backline	1.7 IN (ref)	1.7 IN
Chest Depth	9.1 - 9.6 IN	9.5 IN
Shoulder Width	17.8 - 18.4 IN	17.9 IN
Chest Circumference Over Nipples	36.8 - 40.0 IN	37.8 IN
Waist Circumference at Min. Girth	31.4 - 32.6 IN	31.9 IN
Hip Width	14.0 - 15.4 IN	14.5 IN
Knee Pivot From Floor	19.3 - 19.9 IN	19.4 IN

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

PART 572

25-Mar-88

TEMPERATURE 70 F
NHTSA HD75902

RELATIVE HUMIDITY 59 %
572B SN 759 HEAD DROP CAL 02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PEAK RESULTANT ACCELERATION	210 - 260 G	239.31 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MSEC	1.27 MSEC
PEAK LATERAL ACCELERATION	10 G MAX	-1.68 G
IS ACCELERATION CURVE UNIMODAL?		YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572

30-Mar-88

TEMPERATURE 72.00 F
NHTSA HN75902

RELATIVE HUMIDITY 42.00 %
572B SN 759 HEAD/NECK CAL 02

Test Parameter	Specification	Test Results
Pendulum velocity	21.5 to 25.5 ft/sec	23.51 ft/sec
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 msec max	2.53 msec
T2 - T3: 20 - 20 G	25 - 30 msec	27.17 msec
T3 - T4: 20 - 5 G	10 msec max	6.96 msec
Avg. G level T2 - T3	20 - 24 G	22.19 G
Maximum Rotation Angle	63 - 73 deg	64.44 deg
Peak Head Resultant Accel	26 G max	23.88 G

Test Parameter	Specification	Test Results		
Rotation Angle (degrees)	Time (msec)	Chordal Disp. (in)	Time (msec)	Chordal Disp. (in)
0	-2.0 - +2.0	-0.5 - +0.5	1.25	0.00
30	25.6 - 34.4	2.1 - 3.1	31.91	2.48
60	40.3 - 51.7	4.3 - 5.3	50.70	4.85
max	53.2 - 66.8	5.0 - 6.0	61.38	5.17
60	67.0 - 83.0	4.3 - 5.3	71.62	4.76
30	85.4 - 104.6	2.1 - 3.1	92.71	2.24
0	101.0 - 123.0	-0.5 - +0.5	107.19	0.13

* DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

28-Mar-88

TEMPERATURE 71 F
NHTSA TL75902

RELATIVE HUMIDITY 41 %
572B SN 759 L. S. THORAX CAL02

TEST PARAMETER	LOW SPEED TEST	TEST RESULTS
	SPECIFICATION	
PENDULUM VELOCITY	13.86-14.14 FT/SEC	14.03 FT/SEC
PEAK DEFLECTION	1.1 IN max.	1.02 IN
PEAK RESISTIVE FORCE	1,450. LB max.	1287. LB
INTERNAL HYSTERESIS	50% - 70%	59.0%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Maddala

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

28-Mar-88

TEMPERATURE 72 F
NHTSA TH75902

RELATIVE HUMIDITY 42 %
572B SN 759 H.S.THORAX CAL 02

HIGH SPEED TEST		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	21.78-22.22 FT/SEC	21.92 FT/SEC
PEAK DEFLECTION	1.7 IN max.	1.63 IN
PEAK RESISTIVE FORCE	2,250. LB max.	2012. LB
INTERNAL HYSTERESIS	50% - 70%	58.5%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMINAL COMPRESSION TEST

PART 572

24-Mar-88

TEMPERATURE 72.00 F
NHTSA AB75902

RELATIVE HUMIDITY 43.00 %
572B SN 759 ABDOM COMPR CAL24

TEST CORRIDORS		
DISPLACEMENT	FORCE	TEST RESULTS
0.00 IN	10.00 LBS	10.00 LBS
0.50 IN	23.00 - 36.00 LBS	29.09 LBS
0.75 IN	36.00 - 50.00 LBS	41.08 LBS
1.00 IN	50.00 - 63.00 LBS	55.47 LBS
1.30 IN	73.00 - 88.00 LBS	76.39 LBS

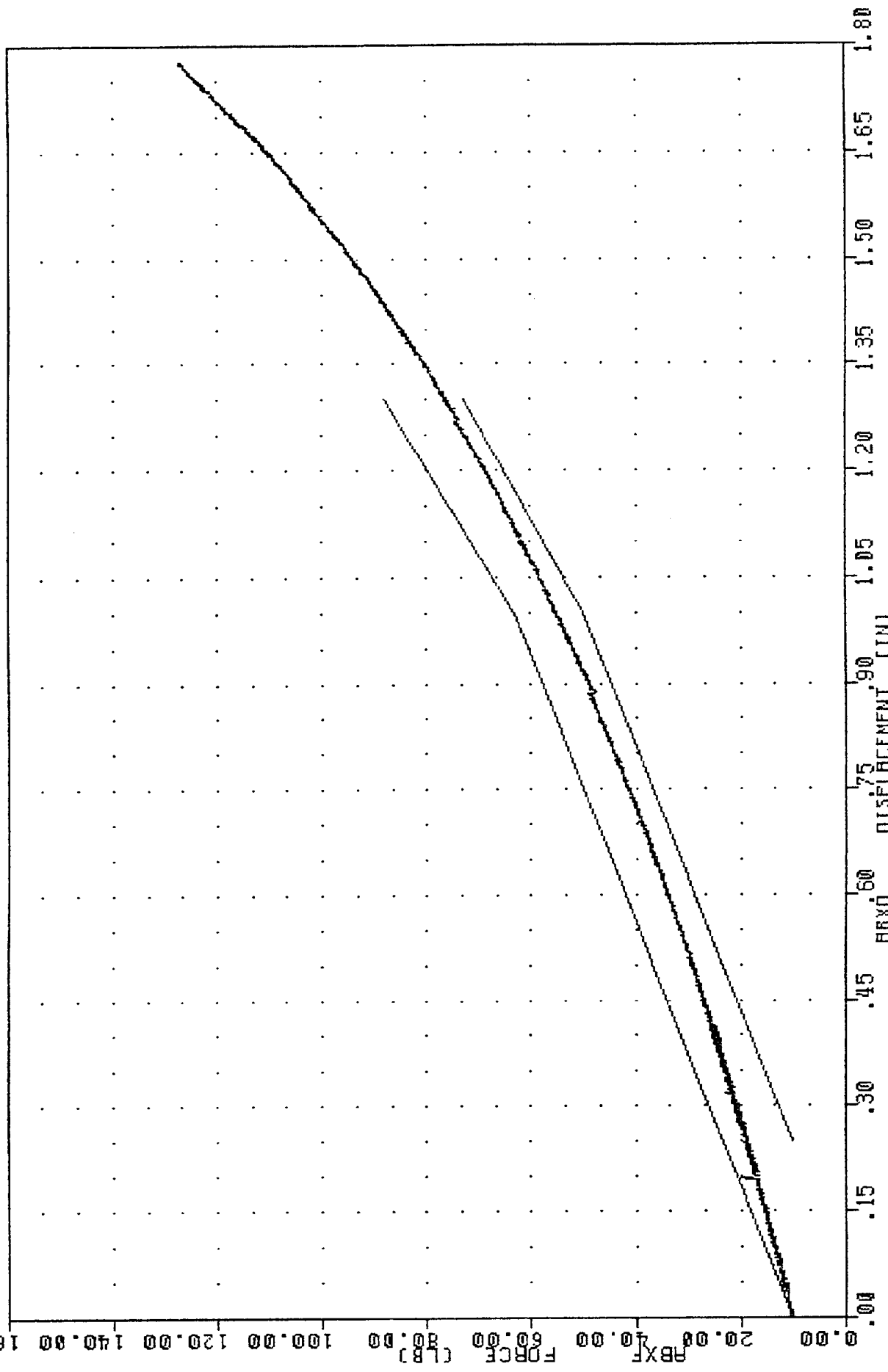
DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Chas. Middleton

NCA 5728 SN 759 ABDOM COMPR CAL24 88084
 ABXD 1650/ 5214/ -40 MIN. MAX = 0.00 B 0.00 ; 1.78 ; 126.88
 ABXF 1650/ 5214/ -40 MIN. MAX = 9.91 B 0.00 ; 127.28 ; 1.77

ABXD
 ABXF



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

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572

24-MAR-88

TEMPERATURE 72.00 F
NHTSA LF75902

RELATIVE HUMIDITY 42.00 %
572B SN759 LUMBAR FLEX CAL02

DEFLECTION	SPECIFICATION	TEST RESULTS
0 DEG	0 LB	0.00 LB
20 DEG	22.00 - 34.00 LB	34.00 LB
30 DEG	34.00 - 46.00 LB	45.00 LB
40 DEG	46.00 - 58.00 LB	52.00 LB
NET RETURN ANGLE	< 12 DEG	5.00 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

30-Mar-88

TEMPERATURE 72 F
LEFT KNEE
NHTSA LK75902

RELATIVE HUMIDITY 42 %
572B SN 759 L.KNEE IMP CAL 2

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.96 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LB	2292.07 LB
DURATION ABOVE 1000 LB	≥ 1.7 MSEC	1.76 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Chas Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

29-Mar-88

TEMPERATURE 71 F
RIGHT KNEE
NHTSA RK75902

RELATIVE HUMIDITY 42 %
572B SN 759 R.KNEE IMP CAL 2

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.90 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LB	2042.84 LB
DURATION ABOVE 1000 LB	≥ 1.7 MSEC	1.81 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

EXTERNAL DIMENSIONS

PART 572

23-MAR-88

TEMPERATURE 72.00 F
NHTSA E082624

RELATIVE HUMIDITY 32.00 %
572B SN826 EXT.DIMENSION CAL24

DESCRIPTION	SPECIFICATION	TEST RESULTS
SN 826 ALBERSON		
Sitting Height	35.6 - 35.8 IN	35.7 IN
Shoulder Pivot Height	21.8 - 22.4 IN	22.3 IN
Hip Pivot Height	3.9 IN (ref)	3.9 IN
Hip Pivot From Backline	4.8 IN (ref)	4.8 IN
Knee Pivot From Backline	20.1 - 20.7 IN	20.4 IN
Rear of Head From Backline	1.7 IN (ref)	1.7 IN
Chest Depth	9.1 - 9.6 IN	9.5 IN
Shoulder Width	17.8 - 18.4 IN	18.1 IN
Chest Circumference Over Nipples	36.8 - 40.0 IN	37.6 IN
Waist Circumference at Min. Girth	31.4 - 32.6 IN	32.0 IN
Hip Width	14.0 - 15.4 IN	14.7 IN
Knee Pivot From Floor	19.3 - 19.9 IN	19.4 IN

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

PART 572

24-Mar-88

TEMPERATURE 70 F
NHTSA HD82624

RELATIVE HUMIDITY 43 %
572B SN B26 HEAD DROP CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PEAK RESULTANT ACCELERATION	210 - 260 G	252.39 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MSEC	1.21 MSEC
PEAK LATERAL ACCELERATION	10 G MAX	-3.31 G
IS ACCELERATION CURVE UNIMODAL?		YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572

25-Mar-88

TEMPERATURE 70.00 F
NHTSA HNB2624

RELATIVE HUMIDITY 53.00 %
572B SN 826 HEAD/NECK CAL 24

Test Parameter	Specification	Test Results
Pendulum velocity	21.5 to 25.5 ft/sec	23.49 ft/sec
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 msec max	2.68 msec
T2 - T3: 20 - 20 G	25 - 30 msec	26.07 msec
T3 - T4: 20 - 5 G	10 msec max	8.74 msec
Avg. G level T2 - T3	20 - 24 G	21.43 G
Maximum Rotation Angle	63 - 73 deg	66.16 deg
Peak Head Resultant Accel	26 G max	23.43 G

Test Parameter:	Specification		Test Results	
Rotation Angle: (degrees)	Time (msec)	Chordal Disp. (in)	Time (msec)	Chordal Disp. (in)
0	-2.0 - +2.0	-0.5 - +0.5	1.13	0.00
30	25.6 - 34.4	2.1 - 3.1	32.53	2.52
60	40.3 - 51.7	4.3 - 5.3	50.83	4.72
max	53.2 - 66.8	5.0 - 6.0	64.00	5.28
60	67.0 - 83.0	4.3 - 5.3	76.29	4.72
30	85.4 - 104.6	2.1 - 3.1	96.37	2.36
0	101.0 - 123.0	-0.5 - +0.5	111.02	0.13

* DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

25-Mar-88

TEMPERATURE 72 F
NHTSA TL82624

RELATIVE HUMIDITY 43 %
572B SN 826 L. S. THORAX CAL24

TEST PARAMETER	LOW SPEED TEST	TEST RESULTS
	SPECIFICATION	
PENDULUM VELOCITY	13.86-14.14 FT/SEC	14.03 FT/SEC
PEAK DEFLECTION	1.1 IN max.	1.08 IN
PEAK RESISTIVE FORCE	1,450. LB max.	1316. LB
INTERNAL HYSTERESIS	50% - 70%	65.4%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

25-Mar-88

TEMPERATURE 71 F
NHTSA TH82624

RELATIVE HUMIDITY 53 %
572B SN 826 H.S.THORAX CAL 24

HIGH SPEED TEST		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	21.78-22.22 FT/SEC	22.22 FT/SEC
PEAK DEFLECTION	1.7 IN max.	1.60 IN
PEAK RESISTIVE FORCE	2,250. LB max.	2009. LB
INTERNAL HYSTERESIS	50% - 70%	63.4%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Chris Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMINAL COMPRESSION TEST

PART 572

23-Mar-88

TEMPERATURE 72.00 F
NHTSA AB82624

RELATIVE HUMIDITY 34.00 %
5728 SN 826 ABDOM COMPR CAL24

TEST CORRIDORS		
DISPLACEMENT	FORCE	TEST RESULTS
0.00 IN	10.00 LBS	10.00 LBS
0.50 IN	23.00 - 36.00 LBS	28.55 LBS
0.75 IN	36.00 - 50.00 LBS	40.00 LBS
1.00 IN	50.00 - 63.00 LBS	54.78 LBS
1.30 IN	73.00 - 88.00 LBS	78.21 LBS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572

23-MAR-88

TEMPERATURE 71.00 F
NHTSA LFS2624

RELATIVE HUMIDITY 32.00 %
572B SN926 LUMBAR FLEX. CAL24

DEFLECTION	SPECIFICATION	TEST RESULTS
0 DEG	0 LB	0.00 LB
20 DEG	22.00 - 34.00 LB	26.00 LB
30 DEG	34.00 - 46.00 LB	35.00 LB
40 DEG	46.00 - 58.00 LB	46.00 LB
NET RETURN ANGLE	< 12 DEG	8.00 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleit

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

29-Mar-88

TEMPERATURE 71 F
LEFT KNEE
NHTSA LK82624

RELATIVE HUMIDITY 42 %
572B SN 826 L.KNEE IMP CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.90 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LB	2068.83 LB
DURATION ABOVE 1000 LB	≥ 1.7 MSEC	1.83 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

29-Mar-88

TEMPERATURE 71 F
RIGHT KNEE
NHTSA RK82624

RELATIVE HUMIDITY 42 %
572B SN 826 R.KNEE IMP CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.90 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LB	2375.44 LB
DURATION ABOVE 1000 LB	>=1.7 MSEC	1.73 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

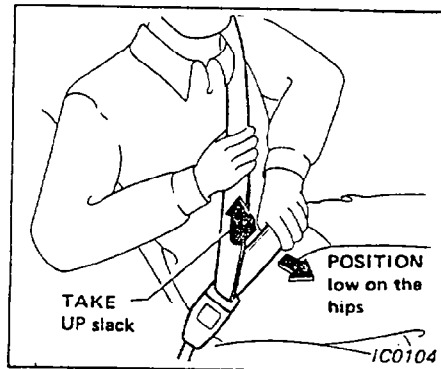
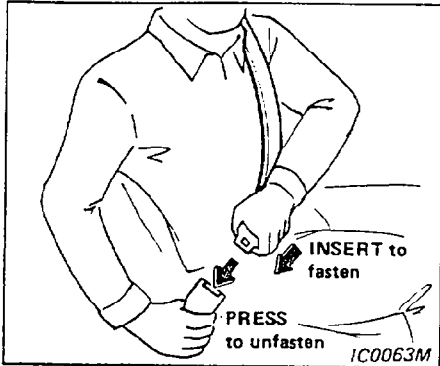
Chas. Middleton

APPENDIX D

RESTRAINT INSTRUCTIONS FROM OWNER'S MANUAL

SEAT BELTS

3-POINT TYPE WITH RETRACTOR



Every person who drives or rides in this vehicle should wear a seat belt at all times.

Fastening the belts

1. Adjust the seat.

The seatback should not be in a reclining position any more than needed for comfort. Seat belts are most effective when the passenger sits well back and straight up in the seat.

2. Slowly pull the seat belt out of the retractor and insert the tongue into the buckle until it snaps.

The retractor is designed to lock during a sudden stop or on impact. A slow pulling motion will permit the belt to move, and

allow you some freedom of movement in the seat.

3. Position the lap belt portion **low on the hips** as shown.
4. Pull the shoulder belt portion toward the retractor to take up extra slack.

Unfastening the belts

To unfasten the belt, press the button on the buckle. The seat belt will automatically retract.

Checking seat belt operation

Your seat belt retractors are designed to lock belt movement by two separate methods:

- 1) When the belt is pulled quickly from the retractor.
- 2) When the vehicle slows down rapidly.

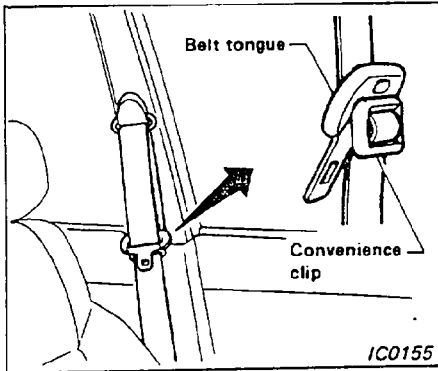
To increase your confidence in the belts, check the operation as follows:

- Grasp the shoulder belt and pull quickly forward. The retractor should lock and restrict further belt movement.

If the retractor does not lock during this check or if you have any question about belt operation see your NISSAN dealer.

Replacing front seat belts

The front seat belts are shock absorber type. Replace the belt when the loop has been pulled out and "REPLACE BELT" is visible as this indicator means the seat belt has been overstressed.



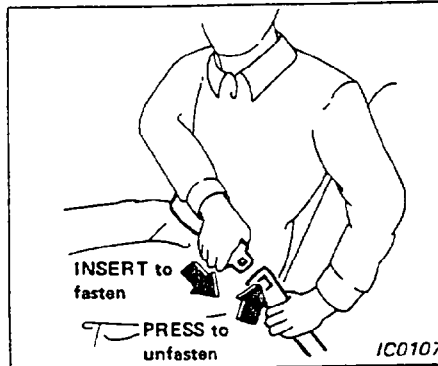
Convenience clip

The convenience clip is provided to keep the belt tongue in an accessible position when not being used.

Slide the convenience clip down if the clip prevents the belt from being retracted into the retractor.

Slide it away from the buckle if the convenience clip contacts the belt tongue when the belt is worn.

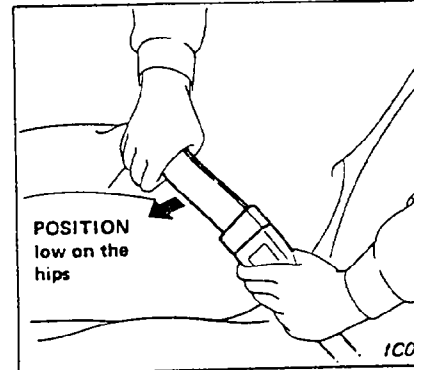
2-POINT TYPE WITH RETRACTOR



Fastening the belts

1. Slowly pull the seat belt out of the retractor and insert the tongue into the buckle until it snaps.

If the retractor locks and restricts further movement, let the belt rewind into the retractor, then slowly pull the belt out.



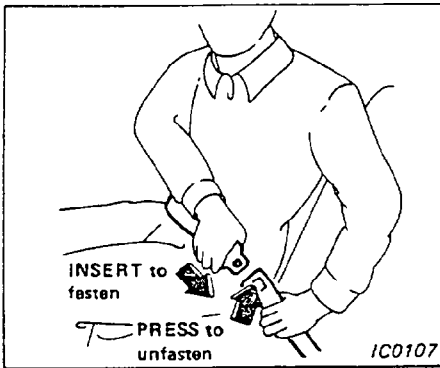
2. Position the lap belt low on the hip shown.

3. Pull the belt toward the retractor to up extra slack.

Unfastening the belts

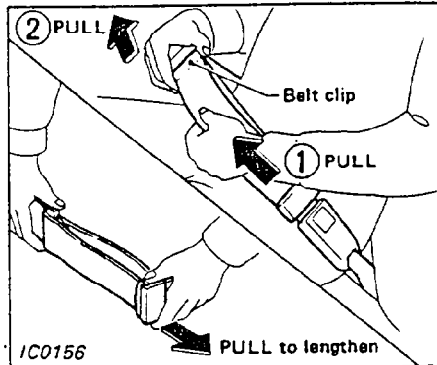
To unfasten the belt, press the button on the buckle. The seat belt will automatically retract.

**2-POINT TYPE WITHOUT
RETRACTOR**

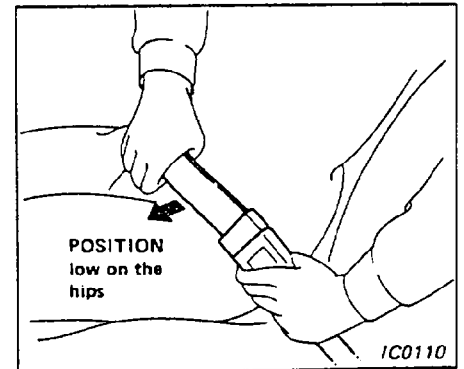


Fastening the belts

1. Insert the tongue into the buckle until it snaps.



2. To lengthen, hold the tongue at a right angle to the belt and pull on the belt. To shorten, pull the free end of the belt away from the tongue, then pull the belt clip to take up the slack.

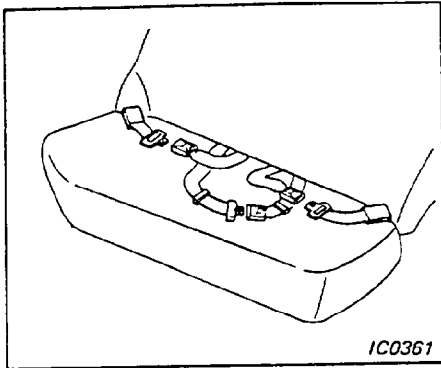


3. Position the lap belt **low on the hips** as illustrated.

Unfastening the belts

To unfasten the belt, press the button on the buckle.

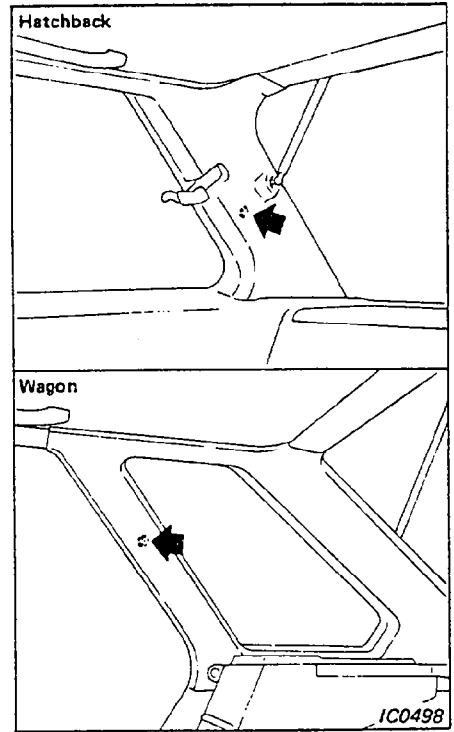
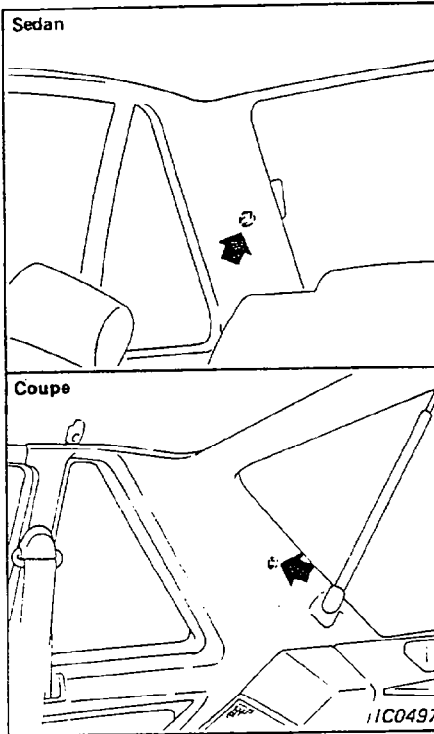
Fasten the seat belts when not in use to prevent them from being caught in the door.



Selecting correct set of belts

The center seat belt buckle and tongue are identified by the "CENTER" marks. The center belt tongue can be fastened only into the center seat belt buckle.

SHOULDER BELT ANCHORAGE



Shoulder belt anchorages for the rear outboard seat belts are located as shown in the illustration.

Rear seat shoulder/lap belt assemblies may be purchased from and installed in your vehicle by your NISSAN dealer.

SEAT BELT EXTENDERS

If, because of body size or driving position, it is not possible to properly fit the lap-shoulder belt and fasten it, an extender compatible with the installed seat belts is available. The extender may be used for either front seating position. See your NISSAN dealer for assistance if the extender is required.

- Only NISSAN belt extenders, made by the same company which made the original equipment belts, should be used with NISSAN belts.
- Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of an accident.

PRECAUTIONS ON SEAT BELT USAGE

NISSAN strongly encourages you and all of your passengers to buckle up every time you drive.

Your chances of being injured in an accident and/or the severity of injury may be greatly reduced if you are wearing your seat belt and it is properly adjusted.

Some states, provinces or territories require by law that seat belts be worn at all times when a vehicle is being driven.

- The belt should be adjusted to a snug fit. Slack in the lap-shoulder belt will reduce the effectiveness of the entire restraint system.
- Never wear the belt inside out or twisted.
- Do not allow more than one person to use the same belt.
- All seat belt assemblies including retractors and attaching hardware should be inspected after any collision at your NISSAN dealer. NISSAN recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Seat belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

Infant or small child

Nissan recommends that infants or small children be seated in a child restraint system. You should choose a child restraint system which fits your vehicle and always follow the manufacturer's instructions for installation and use.

Children

Children who are too large for child restraint systems should be seated and restrained by the seat belts which are provided. Children seated in the front seat should wear both the lap and shoulder belts. If the shoulder belt contacts the neck or face due to the child's size, the child should sit in the rear seat and wear a lap belt.

Never let a child stand or kneel on any seat or allow a child in the cargo areas while the vehicle is moving.

Pregnant women

Nissan recommends that pregnant women use seat belts. Contact your doctor for specific recommendations. The lap belt should be worn snug and positioned as low as possible around the hips, not the waist.

Injured persons

Nissan recommends that injured persons use seat belts, depending on the injury. Check with your doctor for specific recommendations.

SEAT BELT MAINTENANCE

- To clean the belt webbings, apply a mild soap solution or any solution recommended for cleaning upholstery or carpets. Then brush it, wipe with a cloth and allow it to dry in the shade. Do not allow the belts to retract until they are completely dry.
- Periodically check to see that the belt and the metal components such as buckles, tongues, retractors, flexible wires and anchors work properly. If loose parts, deterioration, cuts or other damage on the webbing is found, the entire belt assembly should be replaced.

CHILD RESTRAINT SYSTEMS FOR INFANTS AND SMALL CHILDREN

It is very important that infants and small children riding in a vehicle be placed in a restraint system.

Children and infants should never be carried on your lap; it is not possible for even the strongest adult to resist the forces of an accident. The child could be crushed between the adult and parts of the vehicle. Also, do not put the same seat belt around both your child and yourself. In general, child restraint systems are designed to be installed with a lap belt or the lap portion of a three-point type seat belt.

According to traffic accident statistics, the rear seat is safer than the front seat for installation of a child restraint. An improperly installed child restraint could lead to serious injury in an accident.

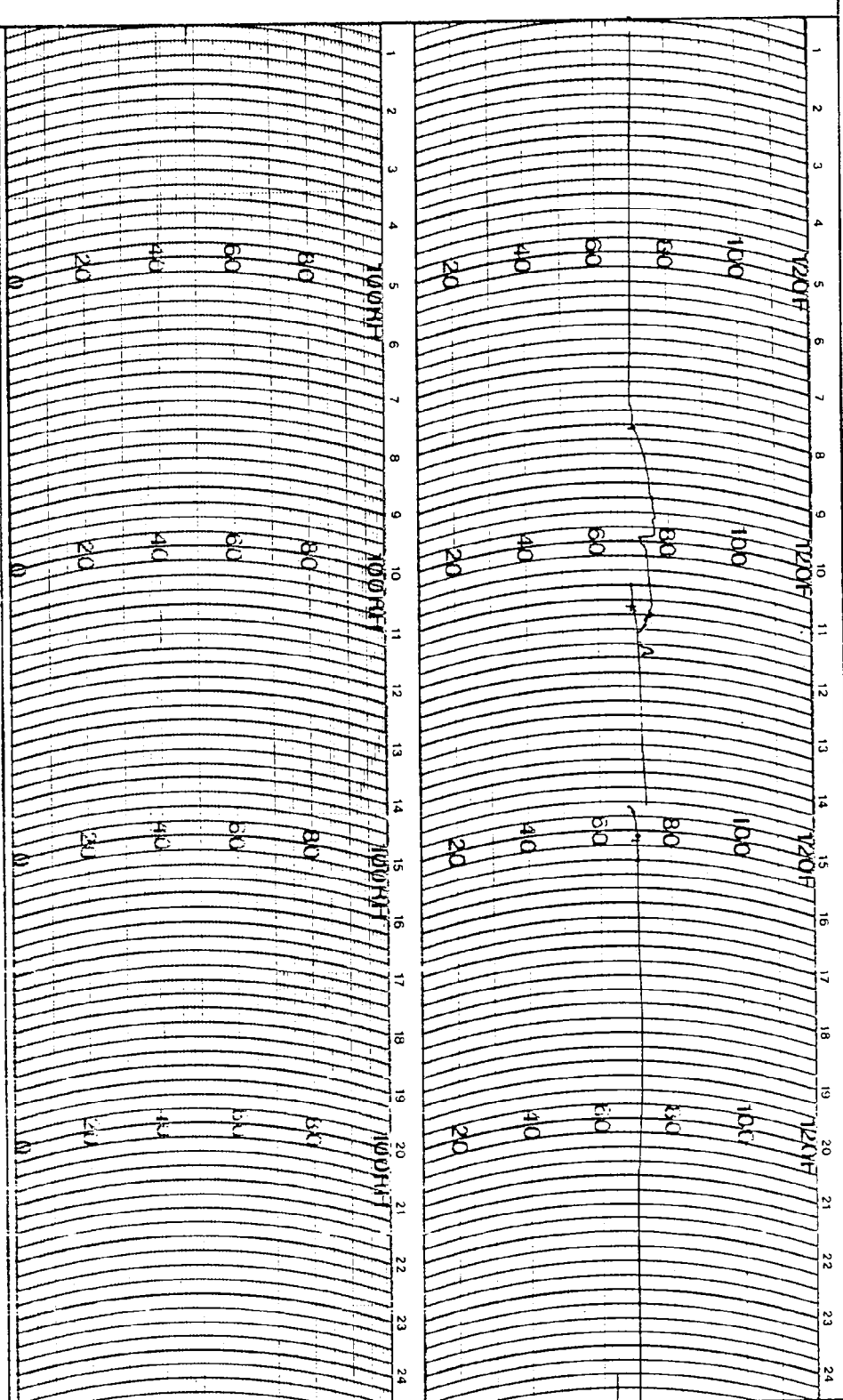
Child restraint systems specially designed for infants and small children are offered by several manufacturers. Some systems may be used for both infants and small children. When selecting any child restraint system, keep the following points in mind:

- 1) Choose only a system with a label certifying that it complies with Federal Motor Vehicle Safety Standard 213 or Canadian Motor Vehicle Safety Standard 213.

- 2) Place your child in the child restraint and check the various adjustments to be sure the child restraint is compatible with your child. Always follow all of the recommended procedures.

- 3) Check the child restraint in your vehicle to be sure it is compatible with the vehicle's seat belt system.

- Follow all of the child restraint manufacturer's instructions for installation and use. When purchasing a child restraint, be sure to select one which will fit your child and vehicle as it may not be possible to properly install some types of child restraints in your vehicle.
- When your child restraint system is not in use, store it in the luggage room or keep it secured with a seat belt to prevent it from being thrown forward in case of a sudden stop or accident.
- Remember that a child restraint left in a closed vehicle can become very hot. Check the seating surface and buckles before placing your child back in the child restraint.
- All U.S. states and some provinces or territories require that infants and small children be restrained in approved child restraint systems at all times while the vehicle is being operated.

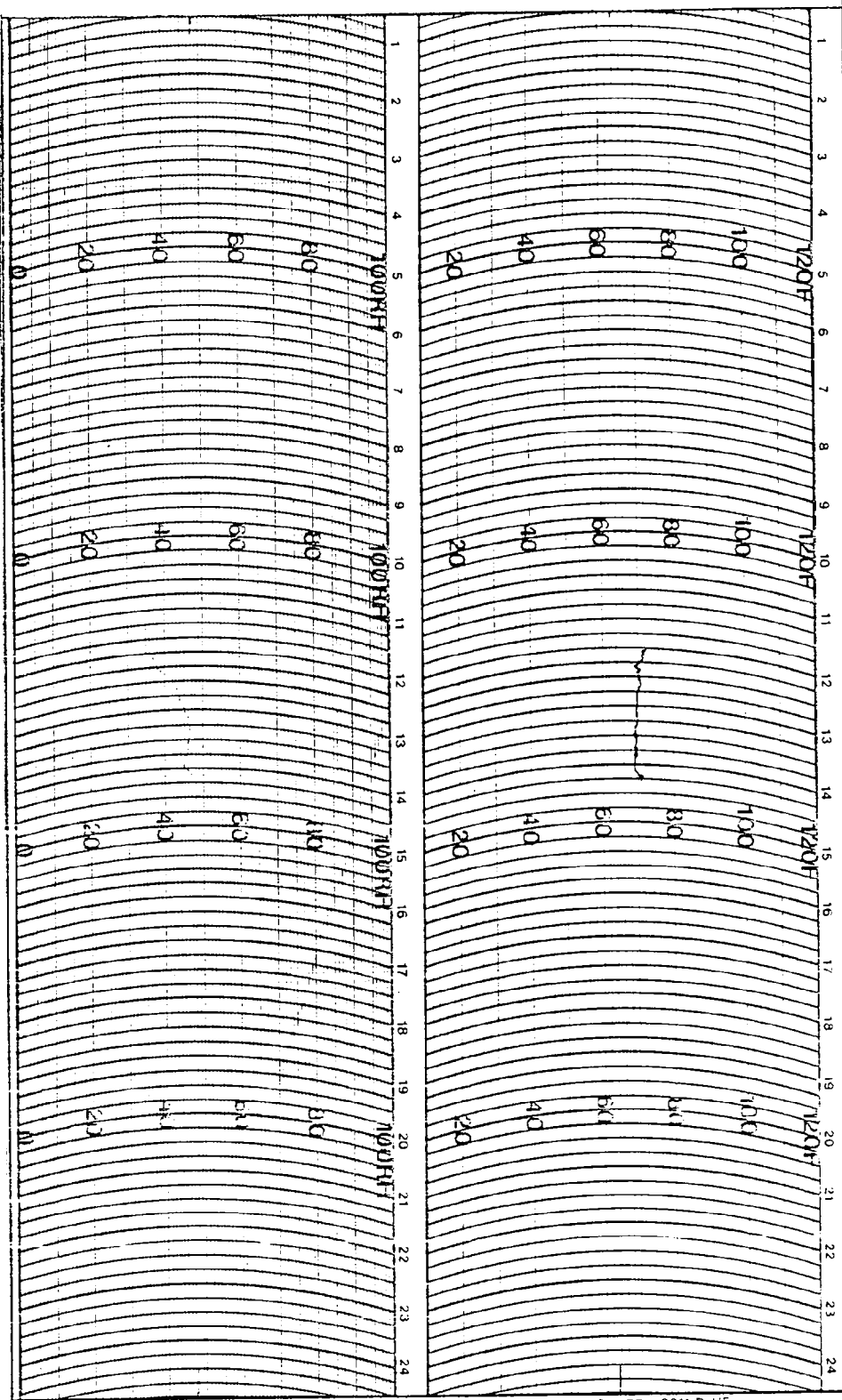


WEATHER MEASURE
 PO BOX 41257
 SACRAMENTO, CA. 95841
 PHONE (916) 481-7562

HYGROTHERMOGRAPH
 1 DAY

CHART = C311 D HF
 PART = 699123

STATION NISSAN SENTRA DATE ON 4/12/88 DATE OFF 4/13/88



WEATHER MEASURE
 PO BOX 41257
 SACRAMENTO CA 95841
 PHONE (916) 461-7565

HYGROTHERMOGRAPH
 1 DAY

CHART # C311 D HF
 PART # 699123

STATION NISSAN SEWTRP DATE ON 4/13/88 DATE OFF 4/13/88