

— 14147
REPORT NO. TRC-86-NO4

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

JEEP CORPORATION
1986 JEEP COMANCHE
LONGBOX PICKUP
NHTSA NO. CG0618
TRCO TEST NO. 860306

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



MARCH 1986
TEST 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-22)
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 1986 Jeep Comanche longbox pickup at the Transportation Research Center of Ohio in East Liberty, Ohio on March 6, 1986. The barrier impact velocity was 35.2 mph, and the ambient temperature at the barrier face at the time of impact was 69°F. The post-test vehicle crush maximum was 24.0 inches and intrusion of the firewall into the compartment was 1.4 inches. The test vehicle appeared to comply with the indicant requirements of the following Federal Motor Vehicle Safety Standards: 1. FMVSS No. 212, "Windshield Mounting" 2. FMVSS No. 219 (Partial), "Windshield Zone Intrusion" 3. FMVSS No. 301-75, "Fuel System Integrity" Driver HIC: 1147.2 Passenger HIC: 1635.8					
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

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

Approximate Conversions from Metric Measures

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

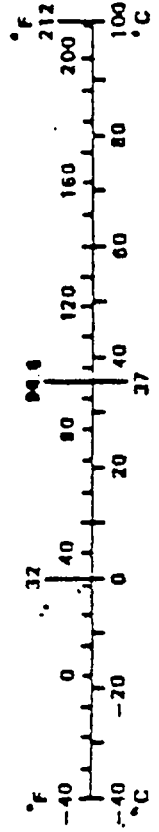


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SECTION 1.0
PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY'86 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-84-D-11149. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph FMVSS 212/219/301-75 requirements.

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

SECTION 2.0

SUMMARY OF TEST NUMBER CG0618

A load cell barrier consisting of 36 load cells was impacted by a 1986 Jeep Comanche longbox pickup at a velocity of 35.2 mph. The test was performed at the Transportation Research Center of Ohio on March 6, 1986. Pre- and post-test photographs of the vehicle and occupants can be found in Appendix A.

Two Part 572, 50th percentile 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 April 1, 1985.

Both ATDs were instrumented with head and chest triaxial accelerometers and right/left femur load cells. In addition, load cells were placed on the driver's and passenger's lap and shoulder belts to measure dummy upper torso and pelvic section loading. A summary of dummy calibration test data can be found in Appendix C.

The crash event was recorded by one real-time camera and 16 high-speed cameras. Camera locations and other pertinent camera information are found in Section 4 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.

CRASH TEST SUMMARY

TEST NO. 860306

PROJECT: CG0618

DATE: March 6, 1986

TIME: 13:19

TEMP: 69°F

VEHICLE: Jeep Comanche Longbox Pickup

TEST WEIGHT (LBS): 3555

IMPACT ANGLE (DEG)*: 0

IMPACT VELOCITY (MPH)**: 35.2

MAX CRUSH (IN) STATIC: 24.0

DUMMIES

TYPE: Part 572

Part 572

LOCATION: Front Left

Front Right

RESTRAINT: 3-pt. Production Seat Belt

3-pt. Production Seat Belt

NUMBER OF DATA CHANNELS: 67

NUMBER OF HIGH SPEED CAMERAS: 16 and 1 real-time camera

*With respect to tow track centerline.

**Speed trap measurement (± .05% accuracy).

GENERAL COMMENTS

The 1986 Jeep Comanche longbox pickup was equipped with a 2500 cubic centimeter, 4-cylinder inline engine and manual 4-speed transmission. The total test weight with two 50th percentile male dummies, instrumentation and two on-board cameras was 3555 pounds.

The test vehicle impacted the frontal load cell barrier at a velocity of 35.2 mph and appeared to comply with FMVSS No. 301-75, "Fuel System Integrity". There was 100.0 percent windshield retention and no fuel leakage after impact or any phase of the rollover test.

The vehicle sustained 24.0 inches of static crush. Maximum load cell barrier force measured by the 36 load cells was 143602.3 pounds at 38.8 milliseconds.

The driver's "Head Injury Criteria" was 1147.2. The maximum chest deceleration over 3 milliseconds was 50.2 g's, and right and left femur loads were 837.1 and 505.5 pounds respectively.

The right-front passenger's HIC was 1635.8, and the right and left femur loads were 249.1 and 750.8 pounds respectively.

The belt-related data for each occupant are presented in Section 4.0 of this report.

TEST DATA ACQUISITION EXPLANATION

The passenger chest X-axis accelerometer, CSTXG2, lost data after 30 msec due to shifting of the zeroing potentiometer.

The passenger chest resultant acceleration, CSTRG2, and 3 msec clip calculations were invalid due to the above data loss.

The following data channels did not return to zero following the crash event pulse.

TLRXG1, left rear seat x-axis acceleration

TRRXG1, right rear seat x-axis acceleration

BC5F, load cell barrier position C5 force

LCBG2F, load cell barrier group #2 force total

LCBGT, load cell barrier force total

PRINTED AT GOVERNMENT EXPENSE

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Jeep Corporation

MAKE/MODEL: Jeep Comanche

VIN: 1JTHS661XGT129368

BODY STYLE: Longbox Pickup

MODEL YEAR: 1986

NHTSA NO.: CG0618

COLOR: Charcoal

ENGINE DATA: TYPE: Inline CYLINDERS: 4 DISPLACEMENT: 2500 cc

X GAS, DIESEL, TURBOCHARGE

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

DATE VEHICLE RECEIVED: 2-25-86

ODOMETER READING: 24.1

DEALER'S NAME AND ADDRESS: Parkside L/M-A/J, Inc.
1801 Washington St.
Jamestown, New York 14701

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	No
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	No	AIR CONDITIONING	No
RADIO	Yes	ANTI-SKID BRAKE	No
CLOCK	No	REAR WINDOW DEFROSTER	No
OTHER			

DATA FROM CERTIFICATION LABEL ON LEFT DOOR FACE OR "B" POST:

VEHICLE MANUFACTURED BY: Jeep Corporation

DATE OF MANUFACTURE: 1/86

GVWR: 4179 LBS.,

GAWR: FRONT 2500 LBS., REAR 2700 LBS.

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

VEHICLE LOAD (UP TO CAPACITY): FRONT 30 psi; REAR 30 psi

RECOMMENDED TIRE SIZE: P205/75R15 LOAD RANGE X B, C, D

TIRES ON VEHICLE (MFGR., LINE, SIZE): Goodyear Vector P205/75R15

IS SPARE TIRE A "SPACE SAVER": Yes

IS SPARE TIRE STANDARD EQUIPMENT: Yes

VEHICLE CAPACITY: TYPES OF SEATS Bench

TYPE OF FRONT SEAT BACKS Non-adjustable

NUMBER OF OCCUPANTS 2 FRONT 0 REAR 2 TOTAL

CARGO LOAD 1200 LBS. TOTAL 1500 LBS.

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

RIGHT FRONT 825 LBS. RIGHT REAR 664 LBS.

LEFT FRONT 856 LBS. LEFT REAR 679 LBS.

TOTAL FRONT WEIGHT 1681 LBS. (55.6 % OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 1343 LBS. (44.4 % OF TOTAL VEHICLE WEIGHT)

TOTAL DELIVERED WEIGHT 3024 LBS.

CALCULATION FOR TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT

UDW = UNLOADED DELIVERED WEIGHT (3024 LBS)

VCW = VEHICLE CAPACITY WEIGHT (1500 LBS)

DSC = DESIGNATED SEATING CAPACITY (2)

RCLW = VCW - 150 (DCS) = NA

= 1500 - 300 = 1200 LBS*

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

= 3024 + 300 + 328 LBS

TARGET TEST WEIGHT = 3652 LBS

* A cargo capacity of 300 lbs. was used for this test.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 203 LBS. CARGO:

RIGHT FRONT	888	LBS.	RIGHT REAR	853	LBS.
LEFT FRONT	938	LBS.	LEFT REAR	876	LBS.
TOTAL FRONT WEIGHT	1826		LBS. (51.4 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1729		LBS. (48.6 % OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	3555		LBS. (2.7 % UNDER TARGET WEIGHT)		

WEIGHT OF BALLAST SECURED IN VEHICLE TRUNK AREA: 0 LBS.

COMPONENTS REMOVED TO MEET TARGET WEIGHT: None

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 29.8	;LF 29.8	;RR 32.4	;LR 32.3
PRE-TEST ATTITUDE:	RF 30.1	;LF 29.9	;RR 30.6	;LR 30.4
POST-TEST ATTITUDE:	RF 27.9	;LF 31.6	;RR 28.4	;LR 30.4
WHEELBASE:	119.5	INCHES		
CG =	58.1	INCHES REARWARD OF FRONT WHEEL CENTERLINE		

TEST CONDITIONS

TEST NUMBER: 860306

DATE OF TEST: March 6, 1986

TIME OF TEST: 13:19

TYPE OF TEST: Frontal Load Cell Barrier Impact IMPACT ANGLE: 0 °

AMBIENT TEMPERATURE AT IMPACT AREA: 69°F

TEMPERATURE IN OCCUPANT COMPARTMENT: 69°F

IMPACT VELOCITY: PRIMARY = 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:	R 194.5	;C 196.8	;L 194.5
	POST-TEST:	R 176.0	;C 173.1	;L 173.5
	TOTAL CRUSH:	R 18.9	;C 23.7	;L 21.0

FOR FRONTAL IMPACTS, DISTANCE FROM FRONT OF TEST VEHICLE TO BARRIER AFTER IMPACT: R: 42.8 ;C: 46.0 ;L: 47.6

VISIBLE DUMMY CONTACT POINTS:

	DRIVER 880	PASSENGER 411
Head	<u>Upper steering wheel rim</u>	<u>Instrument panel</u>
Chest	<u>Lower steering wheel rim</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>No tools required</u>	<u>No tools required</u>
Rear	<u>DNA</u>	<u>DNA</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	<u>No</u>	<u>No</u>
Rear	<u>DNA</u>	<u>DNA</u>

GLAZING DAMAGE:

Entire windshield cracked. No other glazing damage.

OTHER NOTABLE IMPACT EFFECTS:

SECTION 3.0

SUMMARY OF RESULTS FOR - - -

FMVSS 212, "Windshield Mounting"

FMVSS 219 (Partial), "Windshield Zone Intrusion"

FMVSS 301-75, "Fuel System Integrity"

SUMMARY OF FMVSS 212 AND 301 DATA

PRE-IMPACT DATA

MAKE/MODEL: Jeep Comanche

BODY STYLE: Longbox Pickup

MODEL YEAR: 1986

NHTSA NO.: CG0618

COLOR: Charcoal

DATA FROM CERTIFICATION LABEL

VEHICLE MANUFACTURER: Jeep Corporation

DATE OF MANUFACTURE: 1/86

VIN: 1JTHS661XGT129368

GVWR: 4179 LBS., GAWR: FRONT 2500 LBS., REAR 2700 LBS.

POST-IMPACT DATA

TYPE OF TEST: Frontal Load Cell Barrier Impact

DATE OF TEST: 3/6/86 TIME: 13:19 TEMP: 69°F

REQUIRED IMPACT VELOCITY RANGE: 34.5 MPH TO 35.5 MPH

IMPACT VELOCITY: PRIMARY = 35.2 MPH

TEST WEIGHT = 3555 LBS., STATIC CRUSH MAX. = 24.0 IN., REBOUND = 42.8 IN.

FUEL SYSTEM DATA

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

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY*: 16.0 GALLONS (FURNISHED BY CTM)

TEST VOLUME: 14.9 GALLONS (92-94% OF USEABLE)

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 16.0 GALLONS

DETAILS OF FUEL SYSTEM: Fuel tank located on left side beneath cargo area.

Fuel filler cap located forward of left rear axle. Fuel filler neck enters tank on top left side.

ELECTRIC FUEL: Yes

FUEL INJECTION: Yes

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

*WITH ENTIRE FUEL SYSTEM FILLED FROM FUEL TANK THROUGH CARBURETOR BOWL.

FMVSS NO. 212, "WINDSHIELD MOUNTING", DATA SHEET

Details of windshield mounting such as retention method, trim type, etc.:

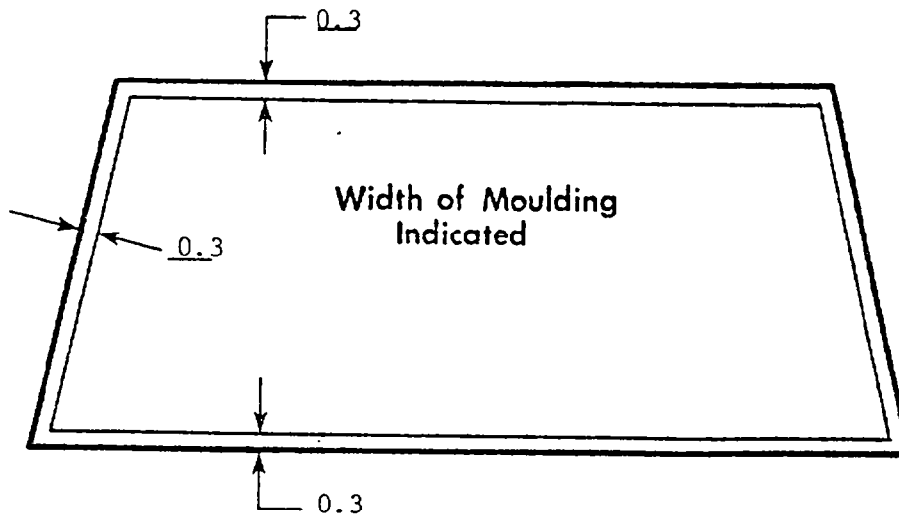
FMVSS 212 REQUIREMENTS: The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

WINDSHIELD PERIPHERY

	PRE-TEST (in.)	POST-TEST (in.)	PERCENT RETENTION
RIGHT SIDE	77.5	77.5	100.0%
LEFT SIDE	77.5	77.5	100.0%
TOTAL	155.0	155.0	100.0%

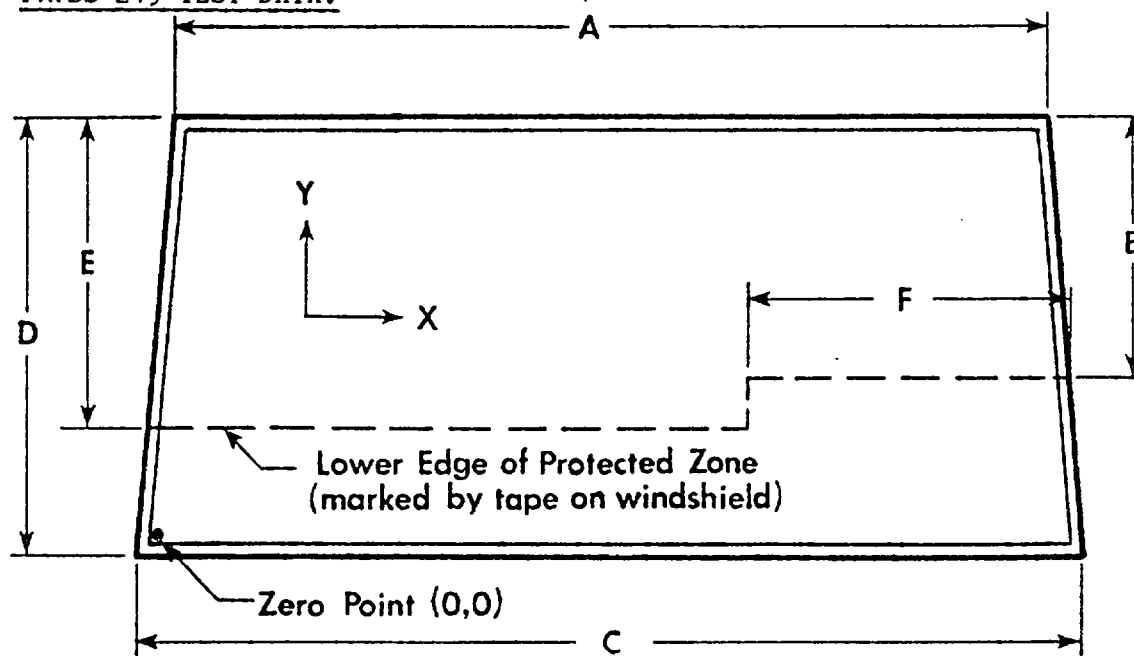
AREA OF RETENTION FAILURE:



FAILURE DETAILS:

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:**FRONT VIEW**A = 52.8"C = 60.6"E = 17.6"B = 13.1"D = 23.6"F = 38.8"

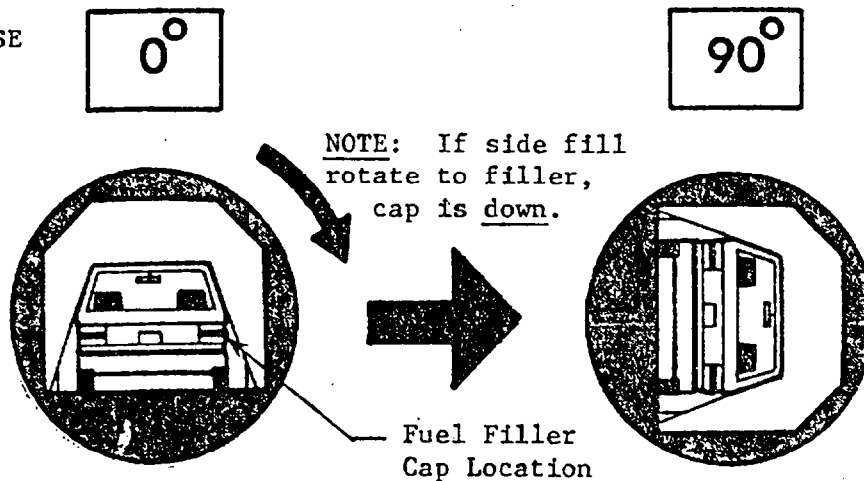
DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":
 (Show location of penetration on above sketch)

COORDINATES

	X	Y
1.		
2.		
3.		
4.		

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



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

Time req. for machine to rotate 90° = 2 minutes, 00 seconds

FMVSS 301-75 Position Hold Time = 5 minutes, 00 seconds

TOTAL - - - - - = 7 minutes, 00 seconds

Next Whole Minute Interval - - - - = 7 minutes

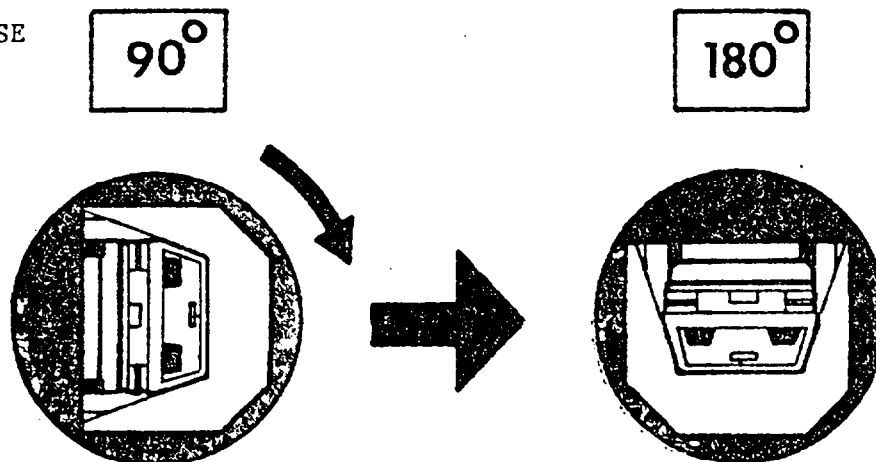
FMVSS 301-75 REQUIREMENTS

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

SOLVENT SPILLAGE LOCATION(S)

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



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

Time req. for machine to rotate 90° = 2 minutes, 00 seconds

FMVSS 301-75 Position Hold Time = 5 minutes, 00 seconds

TOTAL - - - - - = 7 minutes, 00 seconds

Next Whole Minute Interval - - - - = 14 minutes

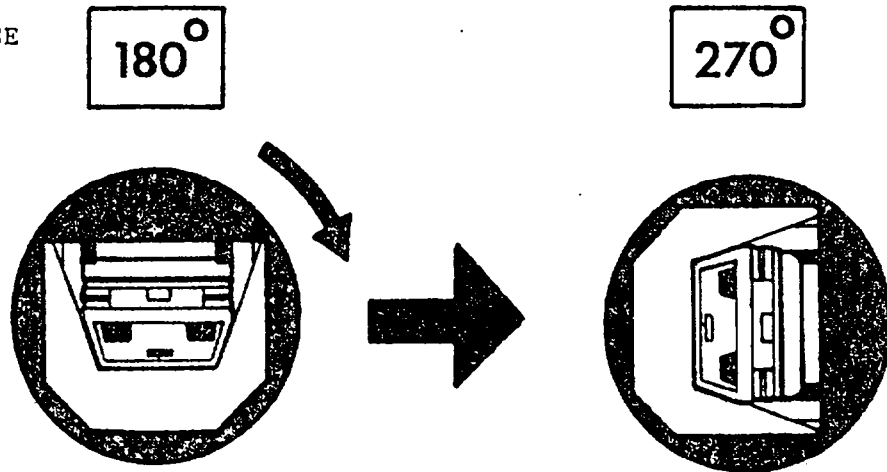
FMVSS 301-75 REQUIREMENTS

	First 5 Minutes FROM ONSET OF ROTATION	6th Minute	7th Minute
Maximum Allowable Solvent Spillage -	5 oz.	1 oz.	1 oz.
90° to 180° - - - - -	0	0	0

SOLVENT SPILLAGE LOCATION(S)

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



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

Time req. for machine to rotate 90° = 2 minutes, 00 seconds

FMVSS 301-75 Position Hold Time = 5 minutes, 00 seconds

TOTAL - - - - - = 7 minutes, 00 seconds

Next Whole Minute Interval - - - - = 21 minutes

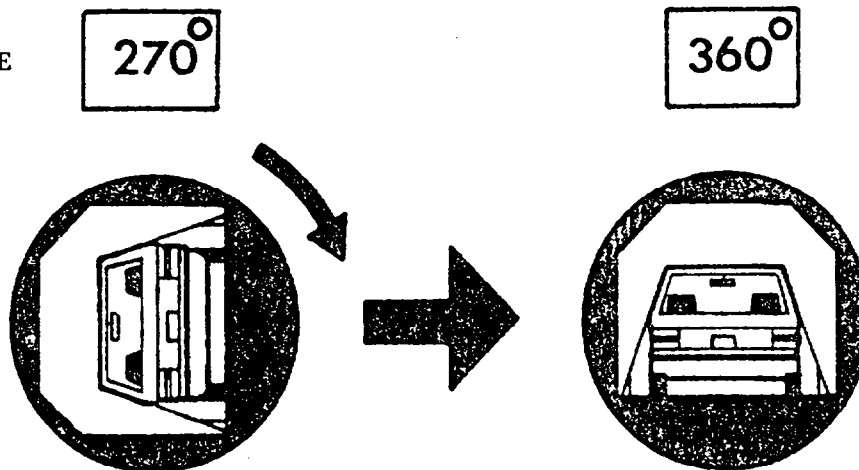
FMVSS 301-75 REQUIREMENTS

	First 5 Minutes FROM ONSET OF ROTATION	6th Minute	7th Minute
Maximum Allowable Solvent Spillage - -	5 oz.	1 oz.	1 oz.
180° to 270° - - - - -	0	0	0

SOLVENT SPILLAGE LOCATION(S)

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



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

Time req. for machine to rotate 90° = 2 minutes, 00 seconds

FMVSS 301-75 Position Hold Time = 5 minutes, 00 seconds

TOTAL - - - - - = 7 minutes, 00 seconds

Next Whole Minute Interval - - - - = 28 minutes

FMVSS 301-75 REQUIREMENTS

	First 5 Minutes FROM ONSET OF ROTATION	6th Minute	7th Minute
Maximum Allowable Solvent Spillage - -	5 oz.	1 oz.	1 oz.
270° to 360° - - - - -	0	0	0

SOLVENT SPILLAGE LOCATION(S)

VEHICLE STATIC ROLLOVER DATA SUMMARY:

MAXIMUM ALLOWABLE SOLVENT SPILLAGE	FIRST 5 MINUTES FROM ONSET OF ROTATION	6TH MIN.	7TH MIN.
	5 OZ	1 OZ	1 OZ
0 TO 90° (FILLER CAP DOWN) - - - - -	0	0	0
90 TO 180° - - - - -	0	0	0
180 to 270° - - - - -	0	0	0
270 to 360° - - - - -	0	0	0

SECTION 4.0
OCCUPANT, VEHICLE AND LOAD CELL BARRIER INFORMATION

DUMMY INJURY CRITERIA

	MAXIMUM ACCELERATION ('G')							
	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R*
DRIVER	-209.5	52.9	-50.5	221.8	-46.0	55.1	-18.9	50.2
PASSENGER	-68.3	-77.5	-140.3	160.8	N.D.	-38.3	-21.2	N.D.

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DRIVER	837.1	505.5
PASSENGER	249.1	750.8

	MAXIMUM FORCE-SEAT BELT LOADS (LBS)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
DRIVER	1639.2	---	1486.2
PASSENGER	1639.8	1515.8	---

	HEAD INJURY CRITERIA**		
	HIC	t ₁ (MSEC)	t ₂ (MSEC)
DRIVER	1147.2	57.5	103.0
PASSENGER	1635.8	76.1	111.1

*Defined as exceeding 0.003 sec. duration

**As defined in FMVSS No. 208

N.D. = No Data. See page 2-4.

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DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the knees translated forward and struck the instrument panel. The dummy's head and upper torso rotated forward until the dummy's head struck the steering wheel rim and upper thorax struck the steering wheel lower rim. The dummy rebounded rearward into the right side of the seatback. The dummy came to rest seated leaning to the right and facing forward.

PASSENGER

During impact, the knees translated forward and struck the instrument panel. The head and upper torso rotated forward until the head struck the instrument panel. During forward motion the dummy rotated toward the passenger side. The dummy rebounded rearward into the seatback. The dummy came to rest seated upright and facing forward.

RECORDING SHEET

MFR./MAKE/MODEL: Jeep Commanche Longbox Pickup

ADJUSTER TYPE: X Manual
 Power

TECHNICIANS :

1. R. Benavides

2. K. Watkins

3. P. Clay

POSITIONING DATE: March 6, 1986

AMBIENT TEMP.: 74° F. TIME: 11:00 AM

4.

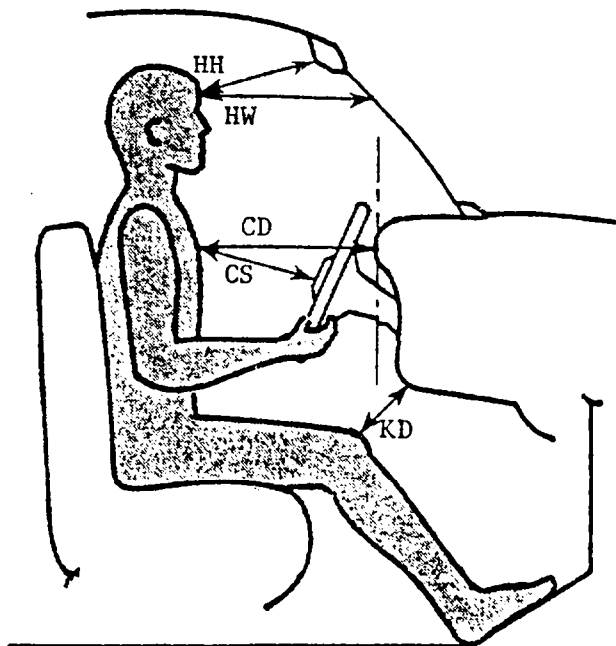
DRIVER DUMMY # 880	TYPE P572	PASSENGER DUMMY # 411	TYPE P572
Head <u>22.5"</u>		Head <u>21.1"</u>	
Target <u>1°</u>		Target <u>-2°</u>	
Knee <u>23.0"</u>		Knee <u>23.3"</u>	
Joint <u>95°</u>		Joint <u>92°</u>	
Approx. "H" <u>8.2"</u>		Approx. "H" <u>9.0"</u>	
Point <u>114°</u>		Point <u>120°</u>	

Diagram illustrating the seating positions and dimensions for Driver Dummy # 880 and Passenger Dummy # 411. The Driver Dummy is seated on the left, and the Passenger Dummy is seated on the right. The diagram shows the relative positions of the dummies, the seat, and the vehicle structure. Key dimensions are labeled: A (Total width), B (Width between dummies), C (Width from left door to dummy), and D (Width from dummy to right door). The door glass height is marked as 9.5".

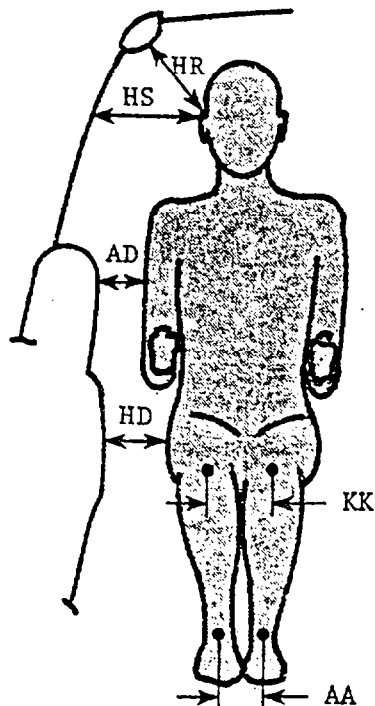
* Door glass height is equal on the right and left side of vehicle.

DUMMY IN-VEHICLE POSITION RECORDING SHEET

	DRIVER	PASSENGER
	880	411
HH	17.0	16.4
HW	20.2	20.0
CD	21.9	25.4
CS	11.2	NA
KDL	5.6	5.0
KDR	5.2	5.6
TA	20°	22°
SA	16°	16°



	DRIVER	PASSENGER
	880	411
HR	7.4	8.0
HS	10.2	10.4
AD	3.5	3.5
HD	6.0	4.8
KK	9.5	9.5
AA	10.0	9.6



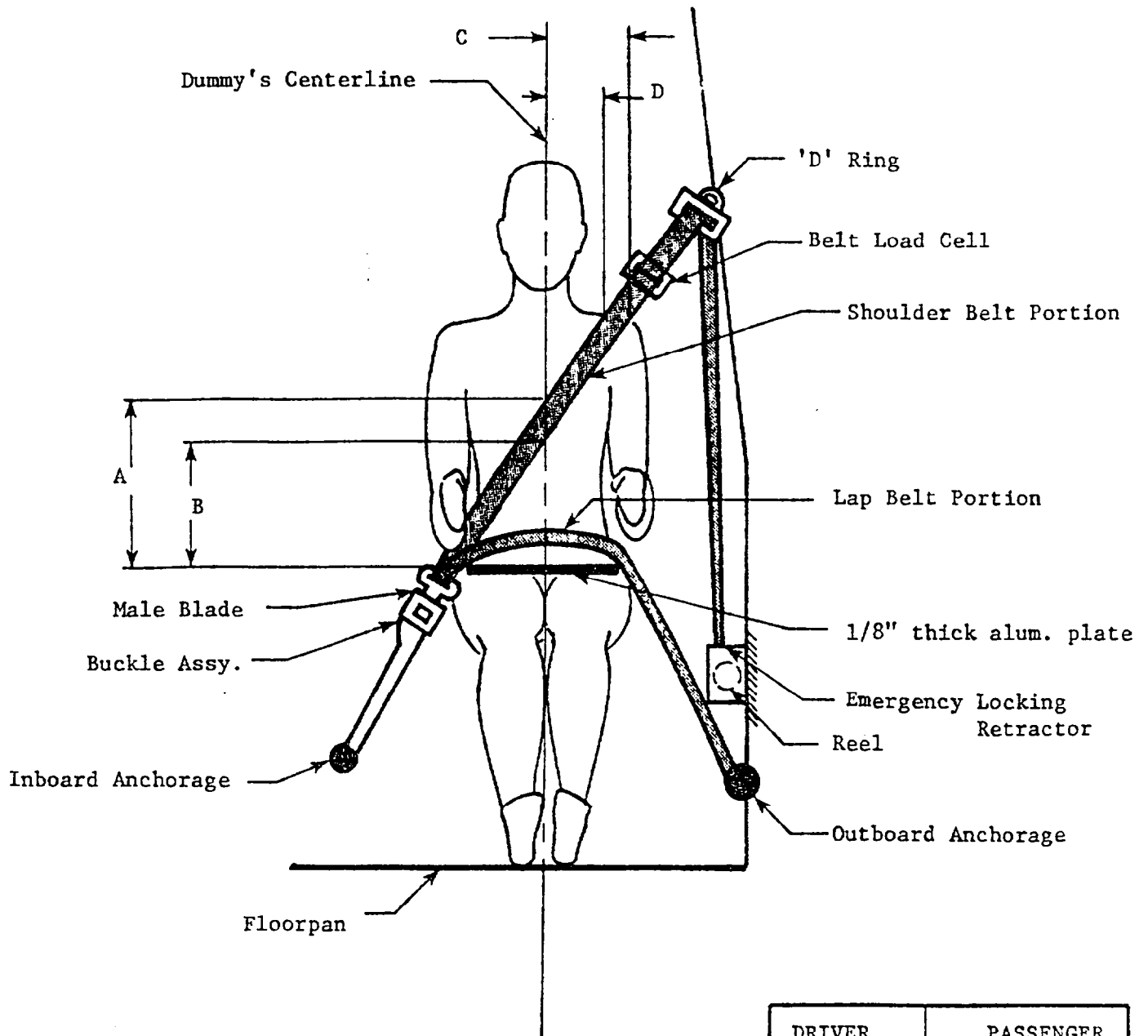
HH = Head to Windshield Header
 HW = Head to Windshield
 CD = Chest to Dash
 CS = Chest to Steering Wheel
 KD = Knees to Dash
 TA = Torso Angle
 SA = Seat Back Angle

HR = Head to Side Roof
 HS = Head to Side Window
 AD = Arm to Door
 HD = Hip to Door
 KK = Knee to Knee
 AA = Ankle to Ankle

Torso and seat back angles are relative to vertical.

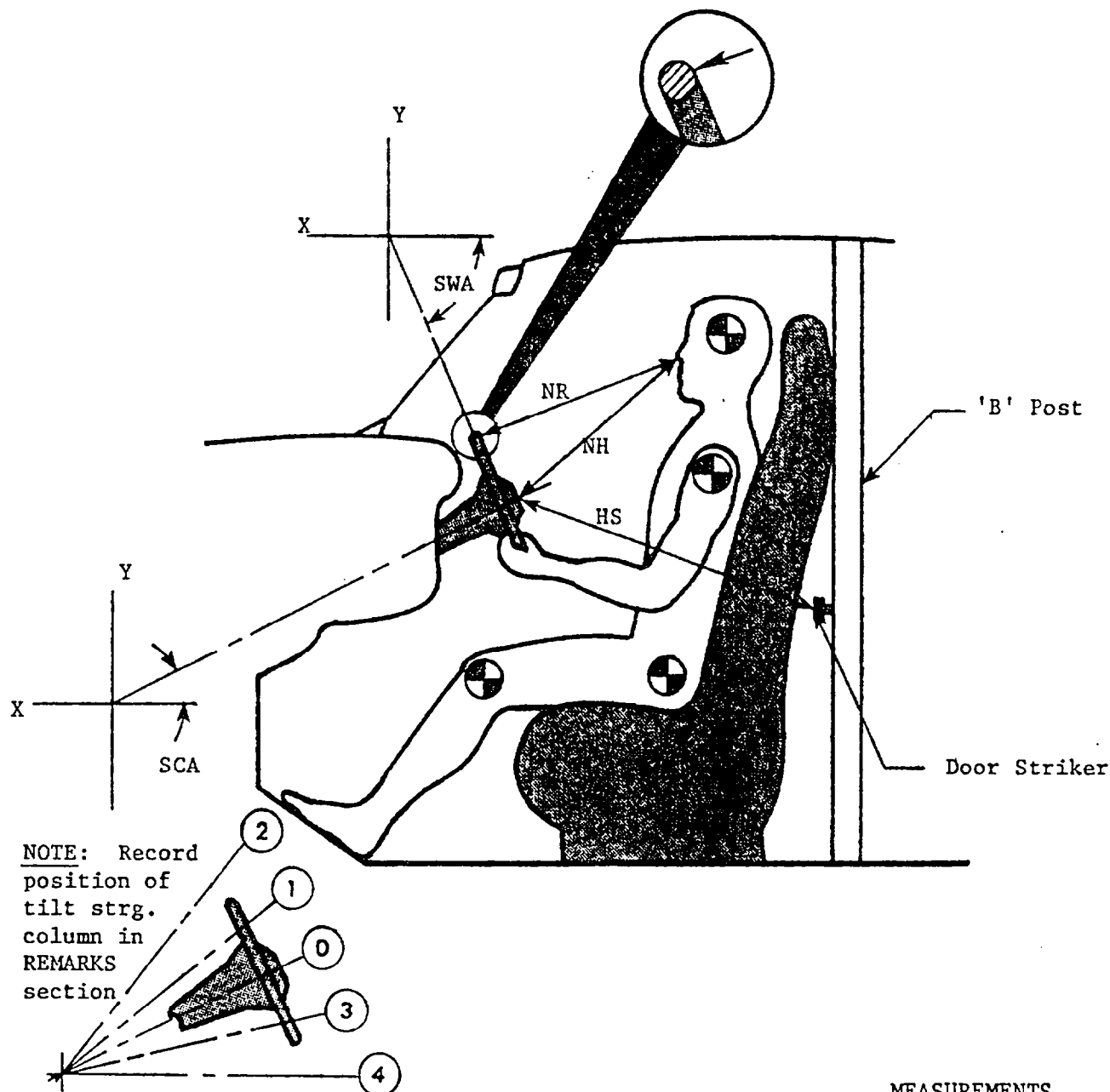
ALL MEASUREMENTS IN INCHES

SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
A - Top surface of alum. plate to belt upper edge (in)	12.5"	11.0"
B - Top surface of alum. plate to belt lower edge (in)	9.1"	8.0"
C - Dummy centerline to outer edge of belt at chest flesh top (in)	7.2"	8.5"
D - Dummy centerline to inner edge of belt at chest flesh top (in)	5.0"	6.0"
LAP BELT TENSION (lbs)	4	4
SHOULDER BELT TENSION (lbs)	4	4

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



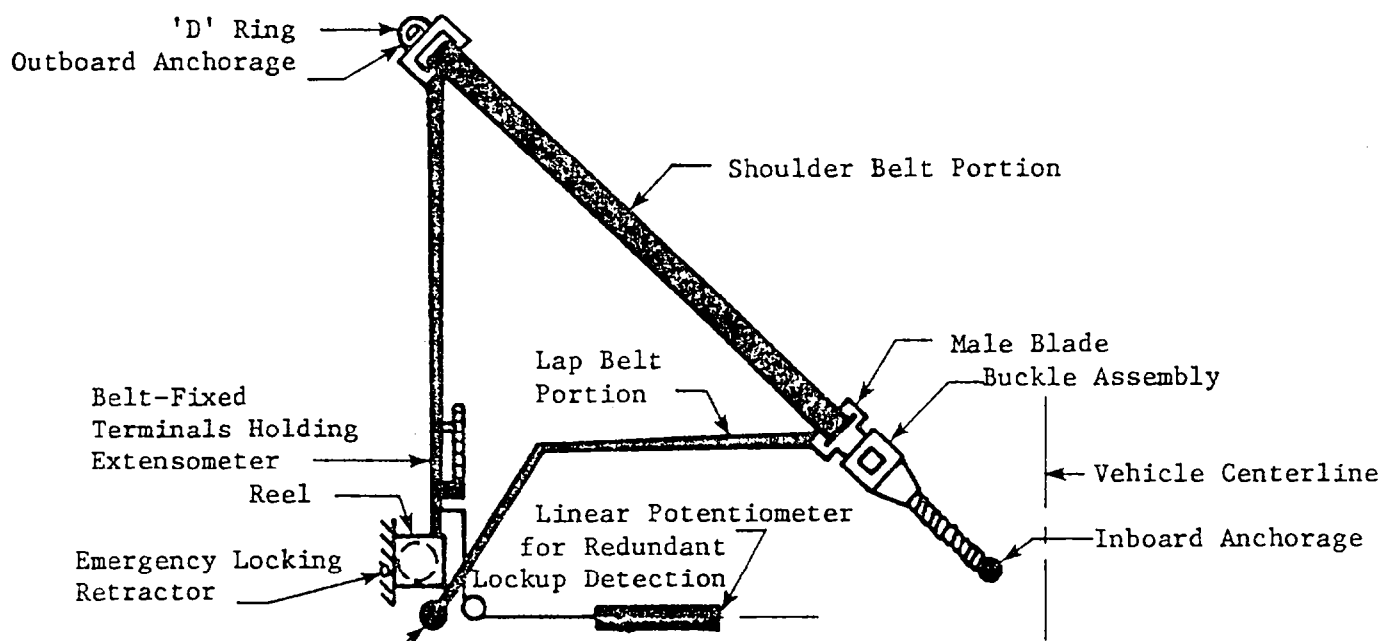
MEASUREMENTS

NR - Distance from tip of dummy's nose to top rear surface of steering wheel rim.	15.9"
NH - Distance from tip of dummy's nose to center of steering column hub.	16.5"
HS - Distance from center of steering column hub to the forward surface of the door lock striker pin.	21.1"
SCA - Angle of steering column relative to the horizontal X axis.	25°
SWA - Angle of steering wheel relative to the horizontal X axis.	65°

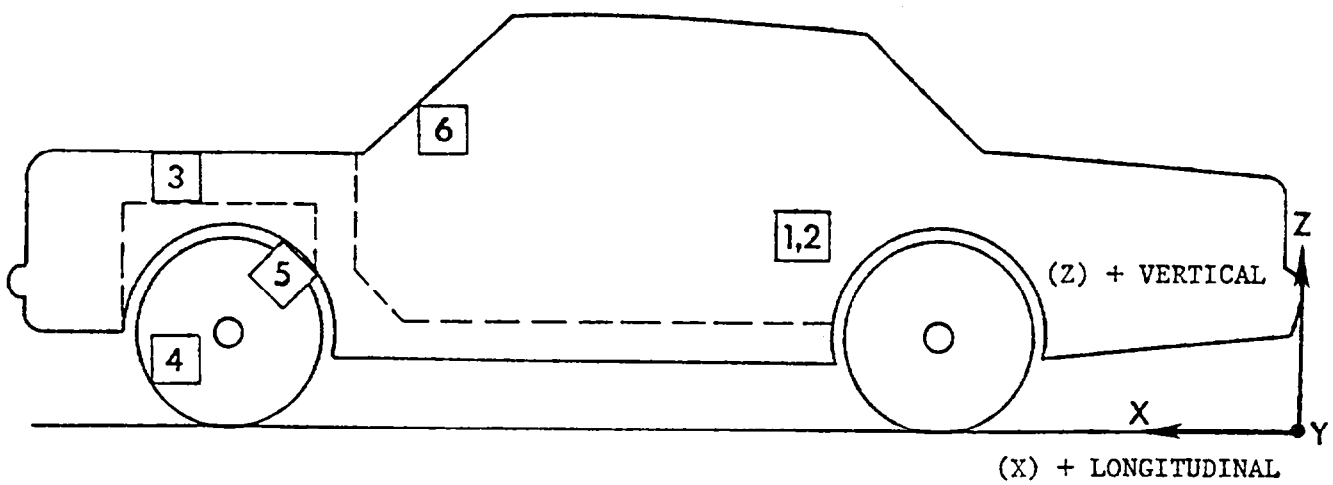
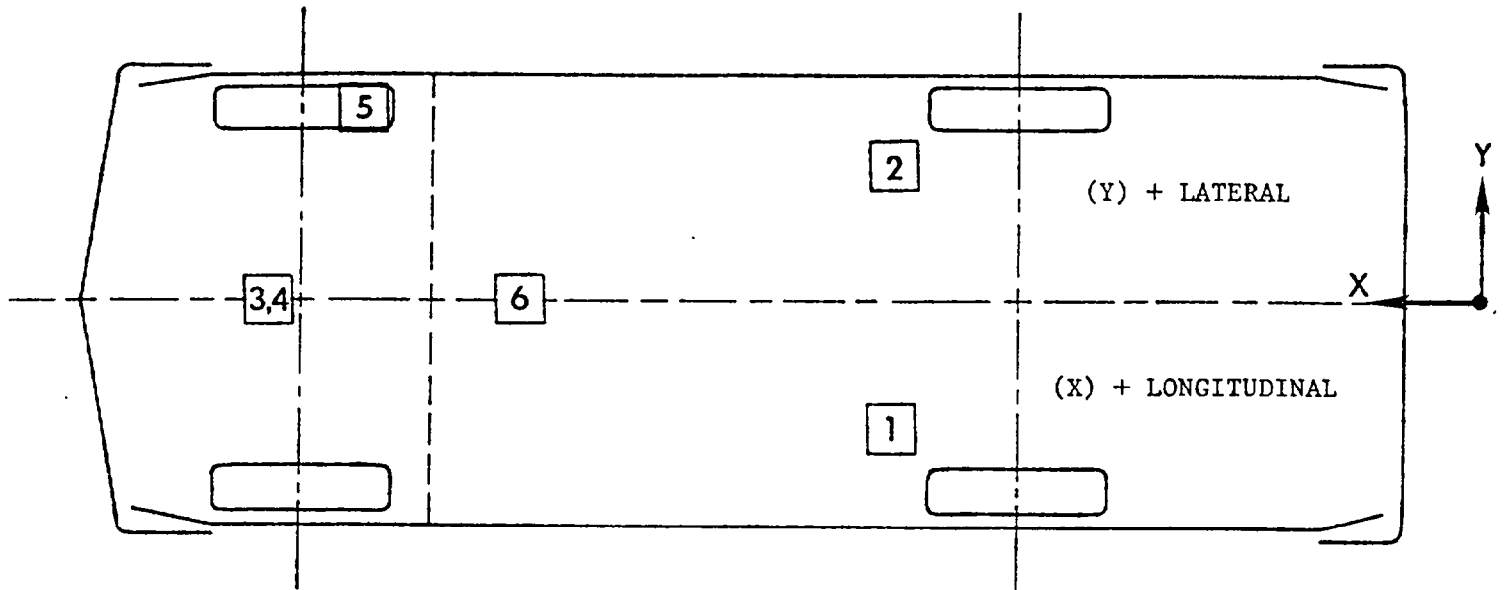
SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

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.	97.7	99.0	95.8	96.8
Retractor reel to 'D' ring as measured on Part 572 dummy.	8.5	8.5	8.1	8.4
Shoulder belt length as measured on Part 572 dummy.	34.0	34.5	33.5	38.0
Lap belt length as measured on Part 572 dummy.	30.2	31.0	31.2	30.2
Remainder of belt webbing left on retractor reel.	25.0	25.0	23.0	20.2
<u>BELT SPOOL-OFF DATA:</u>				
As determined by film analysis	DNA	3.6	DNA	4.0
As determined electronically	DNA	3.9	DNA	4.4
<u>BELT STRAIN DATA:</u>				
Measured between retractor reel and 'D' ring.	DNA	0.4	DNA	0.4



VEHICLE ACCELEROMETER LOCATIONS



VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION**		NEGATIVE DIRECTION**	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	REAR SEAT X-MEMBER AT LEFT SIDE LONGITUDINAL	98.5	24.5	18.5	16.0	320.9 Y	39.2	14.4 Y
2	REAR SEAT X-MEMBER AT RIGHT SIDE LONGITUDINAL	98.6	-23.5	18.5	27.0	130.0 Y	30.6	13.8 Y
3	TOP OF ENGINE BLOCK LONGITUDINAL	173.8	-1.5	35.8	29.6	47.1	144.9	37.4
4	BOTTOM OF ENGINE BLOCK LONGITUDINAL	163.0	-0.8	12.0	8.5	49.0	127.1	39.0
5	BRAKE CALIPER AT RIGHT SIDE LONGITUDINAL	161.8	-24.5	13.6	55.7	62.1	89.5	36.9
6	DASH PANEL LONGITUDINAL	140.0	0.0	45.8	28.1	34.6	96.3	20.2

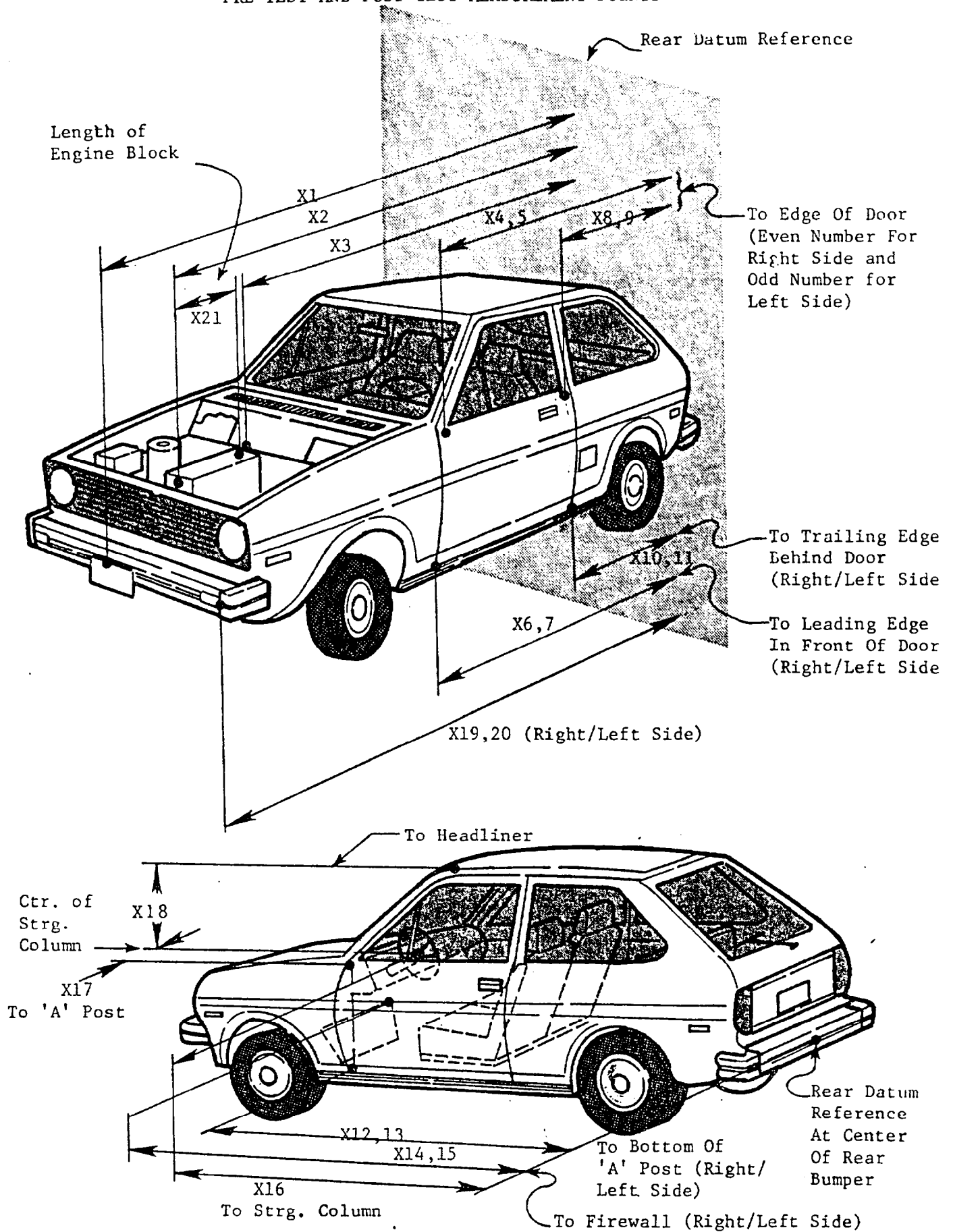
* X + Forward from rear bumper
Y + Left vehicle centerline
Z + Up from ground

** LONGITUDINAL: FORWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

MEASUREMENTS IN INCHES

Y See notes, page 2-4.

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IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL Jeep Comanche Longbox Pickup TEST NUMBER 860306

DIMENSIONS IN INCHES

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X 1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	196.3	176.1	20.7
X 2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	174.0	163.8	10.2
X 3	REAR SURFACE OF VEHICLE TO FIREWALL	152.0	146.5	5.5
X 4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	143.1	143.1	0.0
X 5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	143.3	142.8	0.5
X 6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	143.6	143.1	0.5
X 7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	143.8	143.0	0.8
X 8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	105.5	105.5	0.0
X 9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	105.6	105.1	0.5
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	105.8	105.1	0.7
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE ON LEFT DOOR	105.5	104.8	0.7
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	143.8	143.4	0.4
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	144.2	143.4	0.8
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	155.2	153.9	1.3
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	155.1	154.1	1.0
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	126.2	125.4	0.8
X17	CENTER OF STEERING COLUMN TO "A" POST	15.5	13.1	2.4

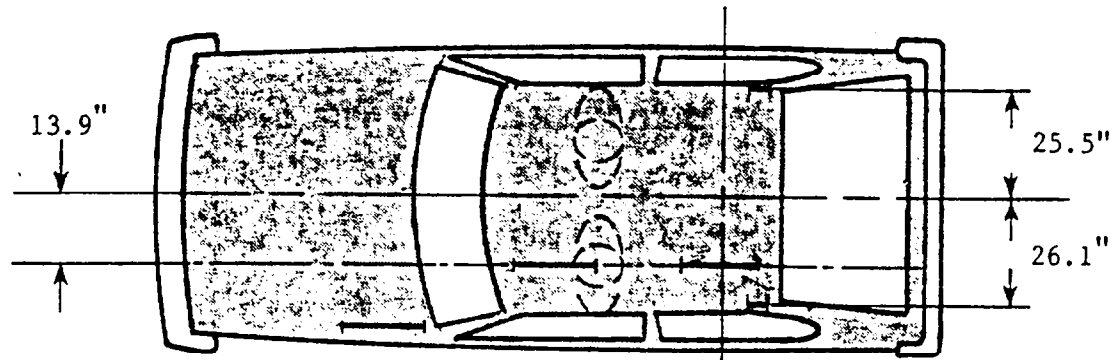
IMPACTED VEHICLE MEASUREMENTS CONTD

VEHICLE MAKE/MODEL Jeep Comanche Longbox Pickup TEST NUMBER 860306

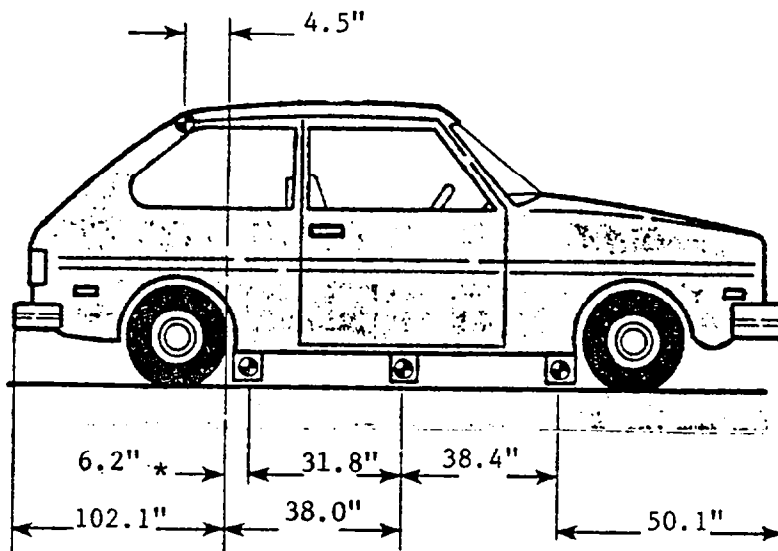
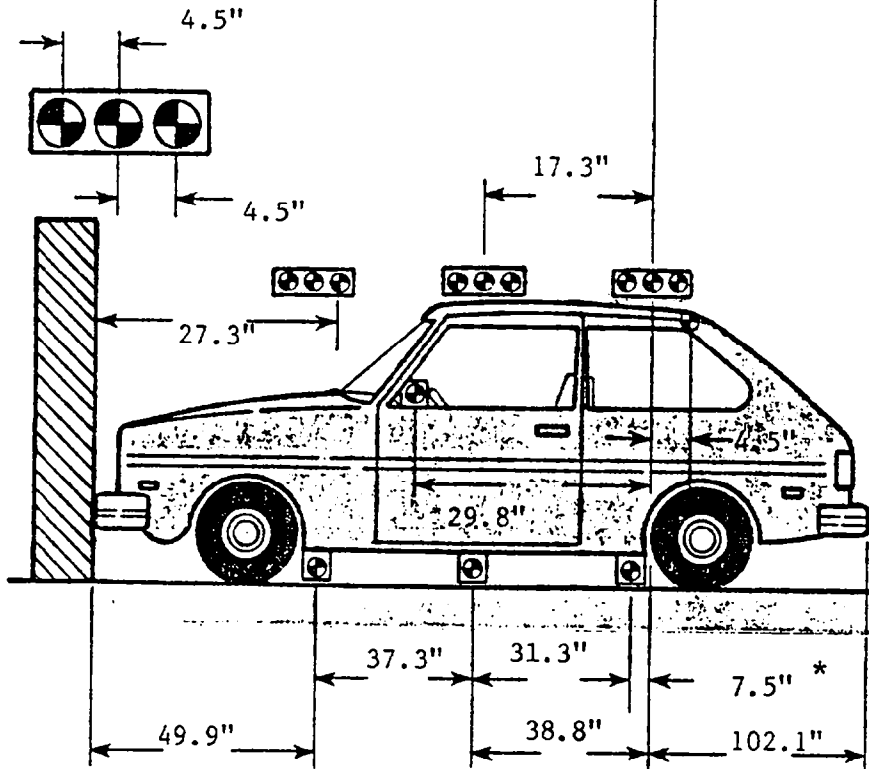
NO.	TYPE OF MEASUREMENT	DIMENSIONS IN INCHES		
		PRE-TEST	POST-TEST	DIFF.
X18	CENTER OF STEERING COLUMN TO HEADLINING	16.6	16.9	-0.3
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	194.5	176.0	18.5
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	194.5	173.5	21.0
X21	LENGTH OF ENGINE BLOCK	18.8	18.8	0.0

NOTE: Measurements are not done in the same location as the Accident Investigation measurements. Therefore, measurements may not be equal.

VEHICLE TARGET LOCATIONS



Target Diameter = 4.0"



* Lower rear target to rear of upper rear panel center

ACCIDENT INVESTIGATION DIVISION DATA
FOR 35 MPH FRONTAL BARRIER IMPACT

VEHICLE MAKE/MODEL/BODY STYLE: Jeep Comanche Longbox Pickup

VEH. NHTSA NO.: CG0618; VIN: 1JTHS661XGT129368

MODEL YEAR: 1986; BUILD DATE: 1/86; TEST DATE 3/6/86

VEH. SIZE CATEGORY: Standard pickup; TEST WEIGHT: 3555

VEH. WHEELBASE: 119.5

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:
12FDEW3

F (Frontal)

CRUSH DEPTH
DIMENSIONS:

C1 = 21.0 inches

C2 = 24.0 inches

C3 = 24.0 inches

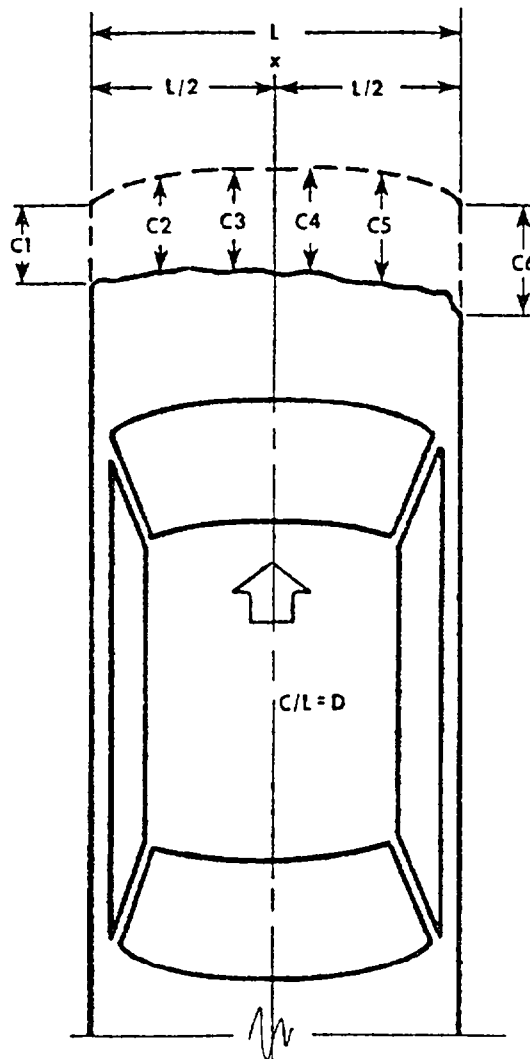
C4 = 23.2 inches

C5 = 21.7 inches

C6 = 18.5 inches

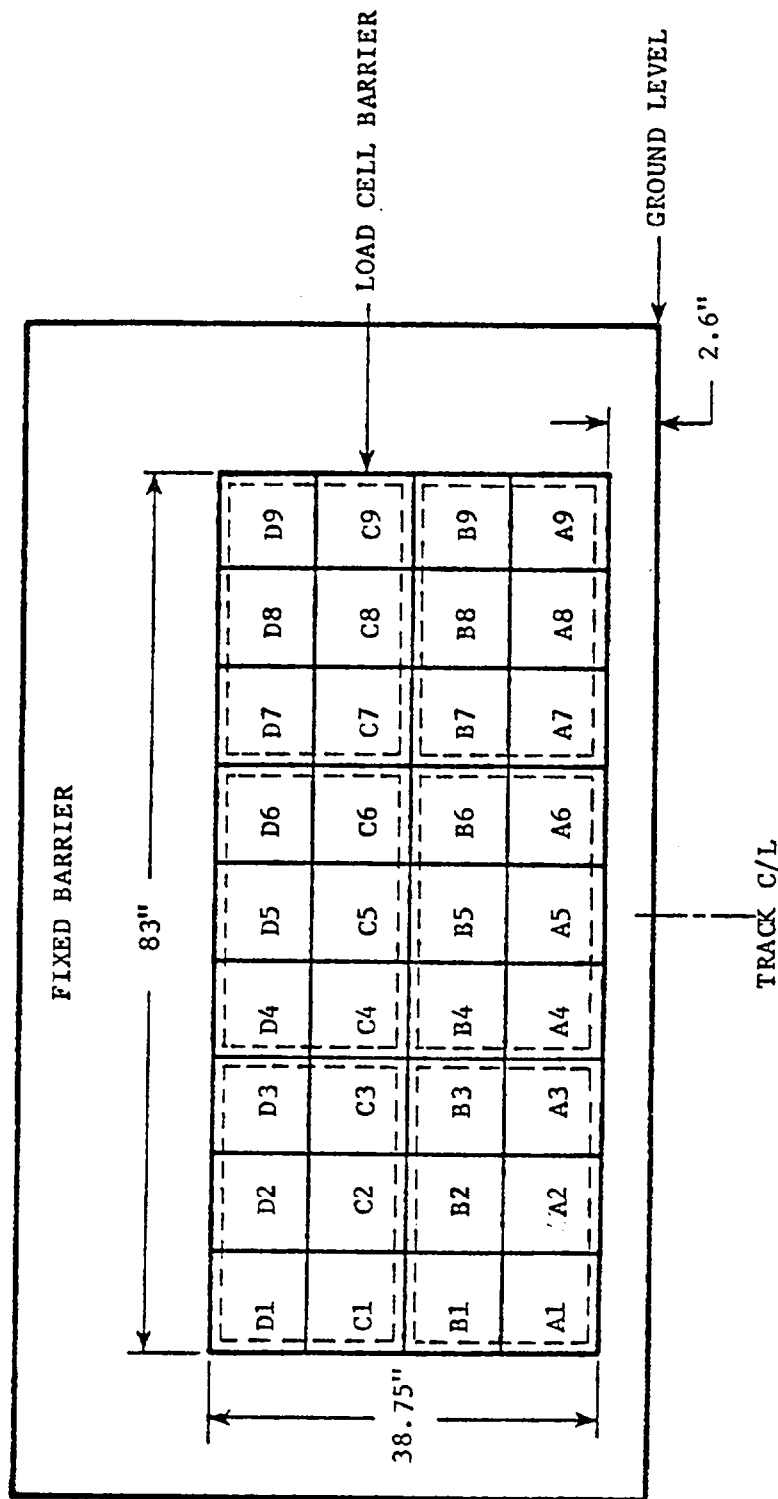
MIDPOINT OF DAMAGE: D = Vehicle Centerline
(Longitudinal)

LENGTH OF DAMAGED
REGION: L = 61.5 inches



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

LOAD CELL BARRIER SUMMARY

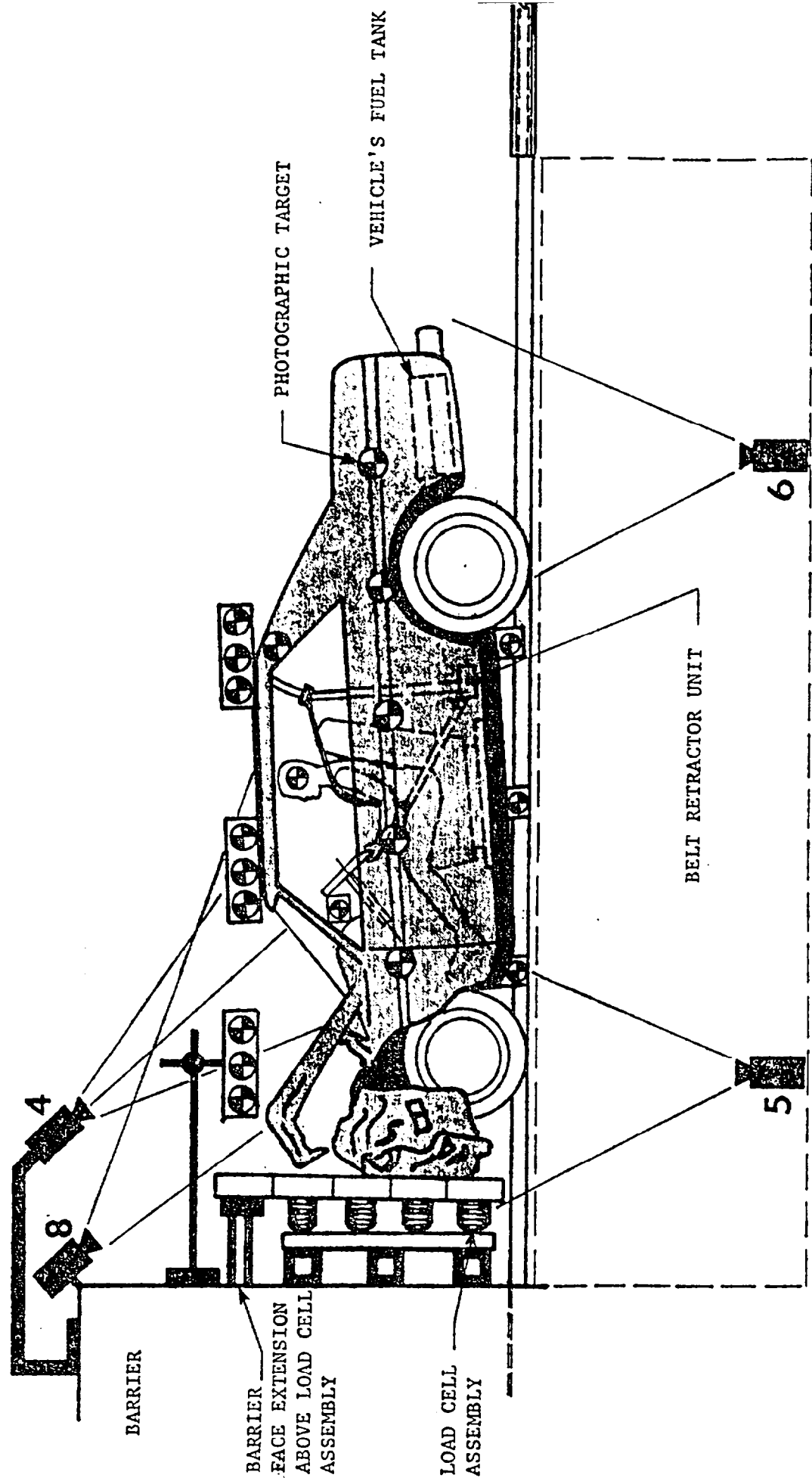
POSITION	POSITIVE DIRECTION*		NEGATIVE DIRECTION*	
	MAX (lb)	TIME (msec)	MIN (lb)	TIME (msec)
TOTAL GROUP 1	17897.7	16.4	436.7	211.9
TOTAL GROUP 2	77692.1	39.4 Y	72.2	0.4 Y
TOTAL GROUP 3	27430.3	22.9	299.1	163.1
TOTAL GROUP 4	8115.7	77.4	381.8	163.1
TOTAL GROUP 5	31620.1	16.5	445.3	132.4
TOTAL GROUP 6	19152.9	37.8	368.5	250.4
TOTAL LOAD CELL FORCE	143602.4	38.8 Y	341.4	-0.5 Y

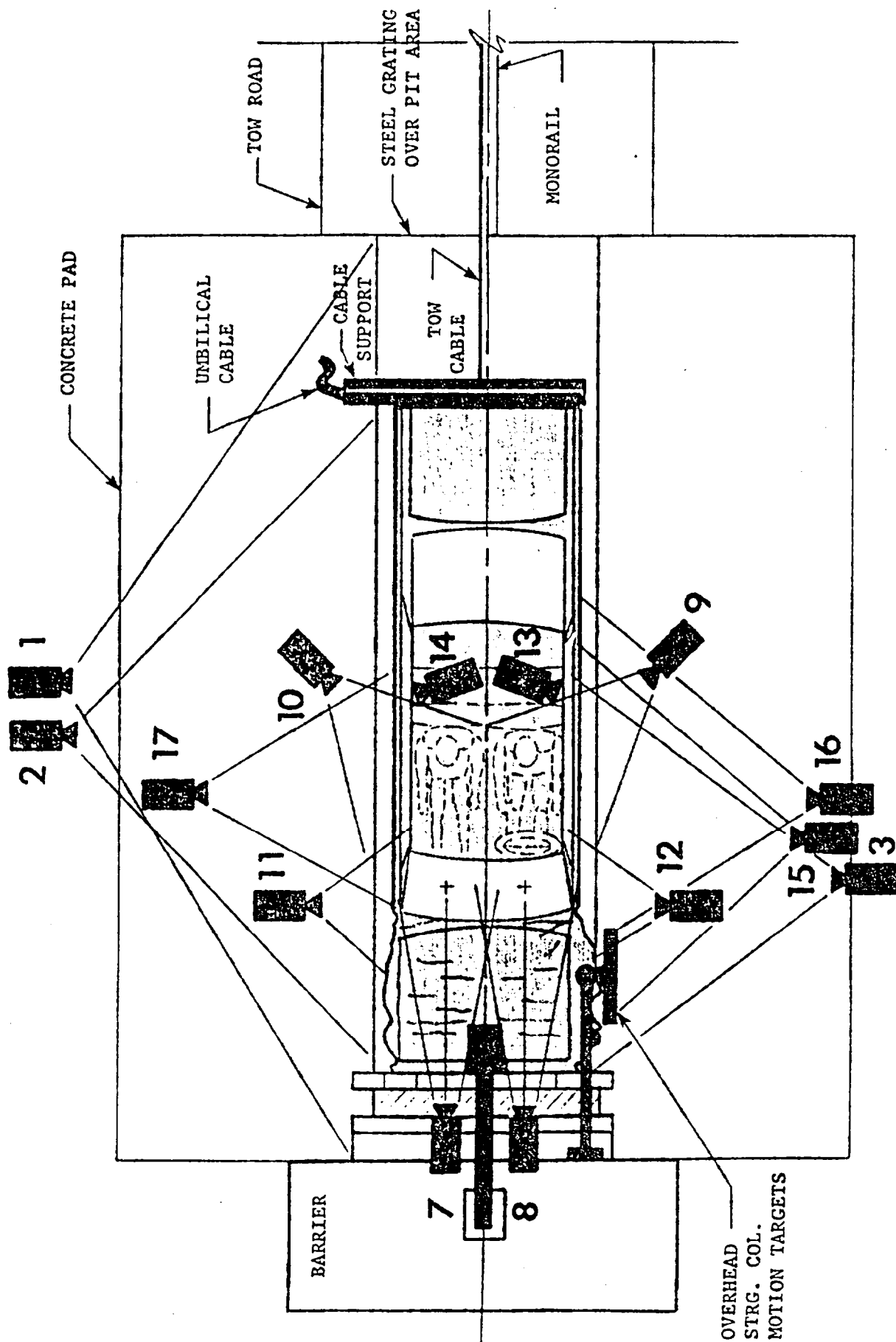
*REFERENCE: COMPRESSION IS POSITIVE
TENSION IS NEGATIVE

Y See note, page 2-4.

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CAMERA POSITIONS





CAMERA POSITIONS

HIGH SPEED CAMERA LOCATIONS

TEST NO.: 860306 VEHICLE: Jeep Comanche Longbox Pickup

CAMERA NO.	VIEW	CAMERA POSITIONS (IN)*			ANGLE ** (DEG)	FILM PLANE TO HEAD TARGET	LENS (MM)	SPEED (FPS)
		X	Y	Z				
1	Real time panning	-142	504	61	NA	NA	16	24
2	Vehicle crush	-81.3	266.4	37.1	-2	NA	13	502
3	Dummy kinematics	-41.5	-295	44	-12	266	25	510
4	Windshield damage	-36.4	0	120	-83	NA	13	500
5	Crush & fluid spillage	-50.5	0	-92.4	90	NA	13	500
6	Fluid spillage	-99.3	0	-99	90	NA	13	493
7	Passenger kinematics	4.5	13.8	115	-60	NA	17	493
8	Driver kinematics	6.8	-14.5	113.3	-60	NA	17	493
9	Driver kinematics	-157.3	-166.9	74.1	-10	165.5	25	495
10	Passenger kinematics	-152.1	167.9	76	-13	167	25	502
11	Windshield intrusion	-38.1	306.1	44	0	NA	50	498
12	Windshield intrusion	-53	-309.4	42.3	0	NA	50	498
13	Driver seatbelt movement	NA	NA	NA	NA	NA	13	495
14	Passenger seatbelt movement	NA	NA	NA	NA	NA	13	490
15	Column movement	136.5	-286	103.0	-14	NA	25	490
16	Column movement	136.5	-286	75.1	-9	NA	25	490
17	Passenger kinematics	-38.8	210.8	45.3	7	179	13	500

* X = Film plane to plane of barrier face
Y = Film plane to monorail centerline
Z = Film plane to ground
** Referenced to horizontal plane

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. POST-TEST TOP VIEW (VEHICLE ON ROLLOVER MACHINE)
12. PRE-TEST WINDSHIELD VIEW
13. PRE-TEST ENGINE COMPARTMENT VIEW
14. POST-TEST ENGINE COMPARTMENT VIEW
15. PRE-TEST FUEL FILLER CAP VIEW
16. PRE-TEST FRONT UNDERBODY VIEW
17. POST-TEST FRONT UNDERBODY VIEW
18. PRE-TEST REAR UNDERBODY VIEW
19. POST-TEST REAR UNDERBODY VIEW
20. PRE-TEST DRIVER DUMMY POSITION VIEW
21. POST-TEST DRIVER DUMMY POSITION VIEW
22. PRE-TEST PASSENGER DUMMY POSITION VIEW
23. POST-TEST PASSENGER DUMMY POSITION VIEW
24. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)
25. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)
26. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)
27. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)
28. POST-TEST DRIVER DUMMY HEAD CONTACT AREA
29. POST-TEST PASSENGER DUMMY HEAD/KNEE CONTACT



Figure 1. PRE-TEST FRONT VIEW



Figure 2. POST-TEST FRONT VIEW
A-2

860306

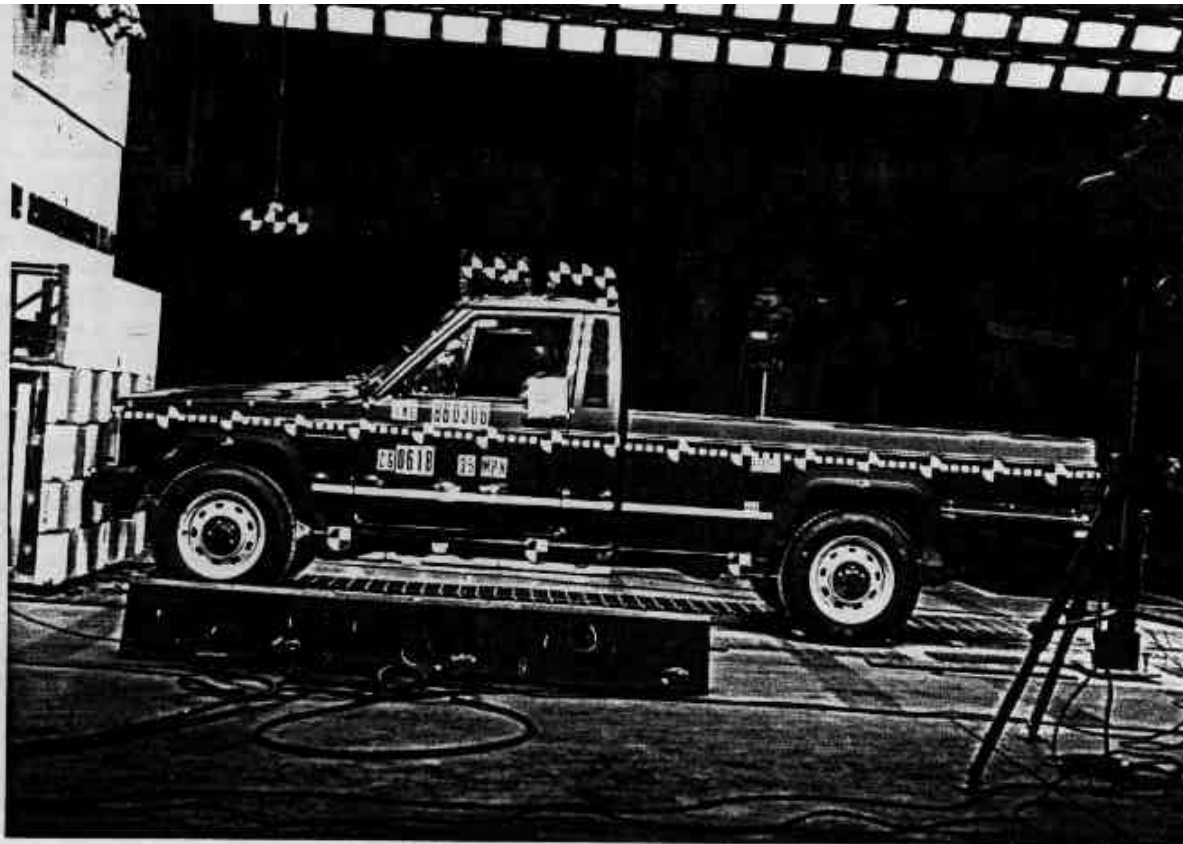


Figure 3. PRE-TEST LEFT SIDE VIEW

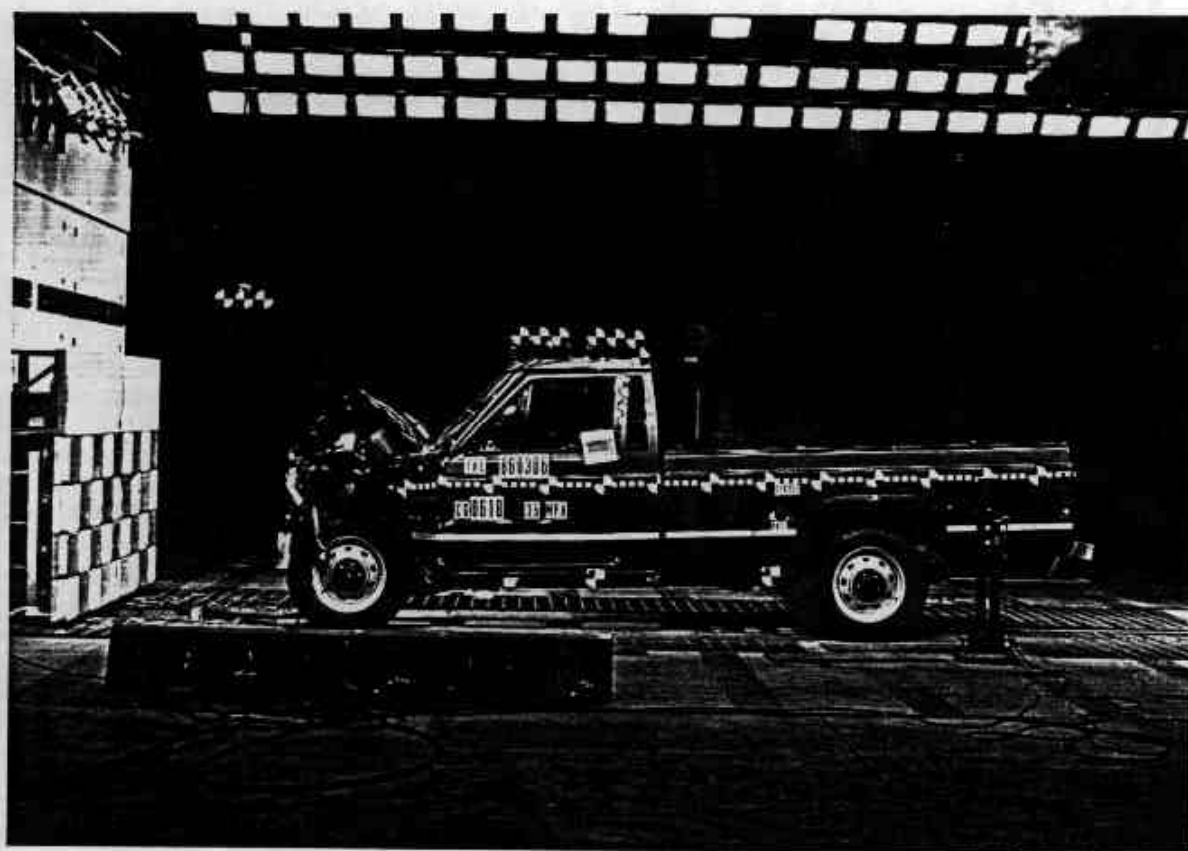


Figure 4. POST-TEST LEFT SIDE VIEW
A-3

860306



Figure 5. PRE-TEST RIGHT SIDE VIEW



Figure 6. POST-TEST RIGHT SIDE VIEW
A-4

860306

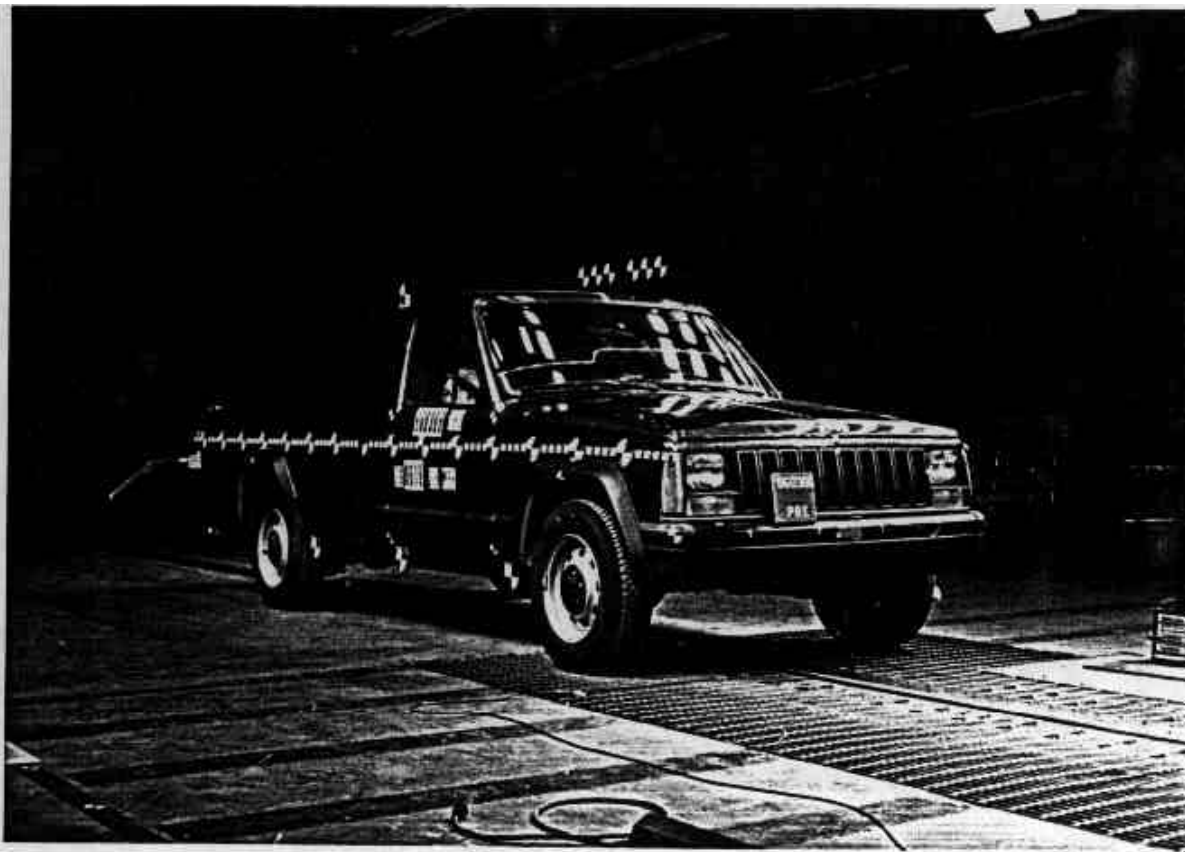


Figure 7. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure 8. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
A-5

860306

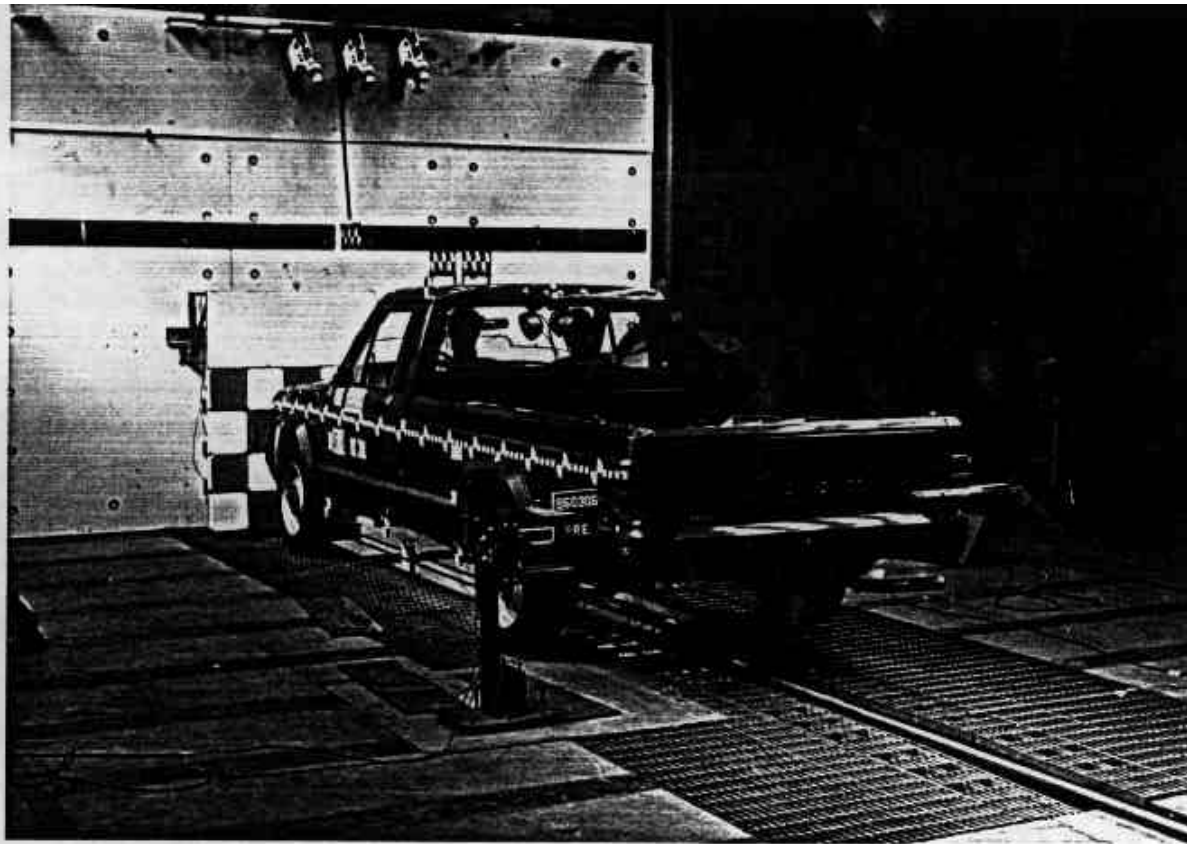


Figure 9. PRE-TEST LEFT REAR THREE-QUARTER VIEW

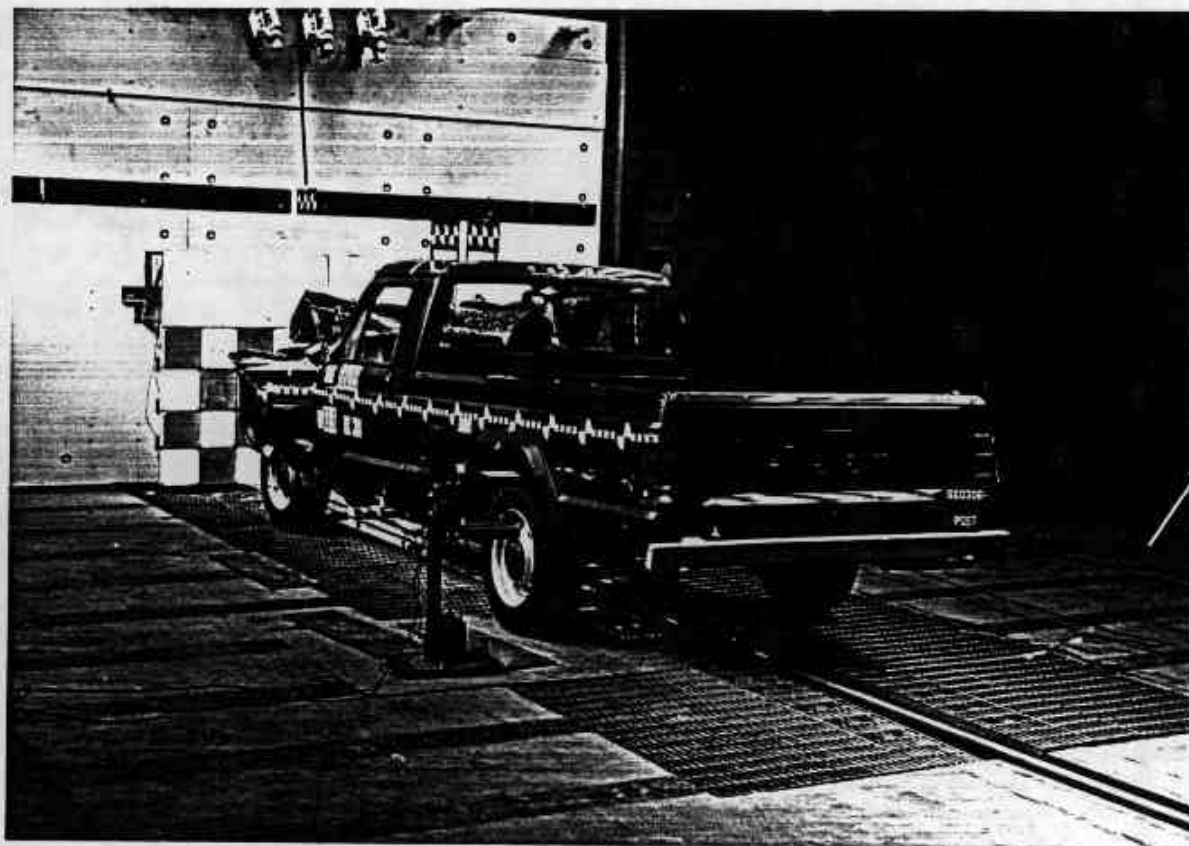


Figure 10. POST-TEST LEFT REAR THREE-QUARTER VIEW
A-6

860306

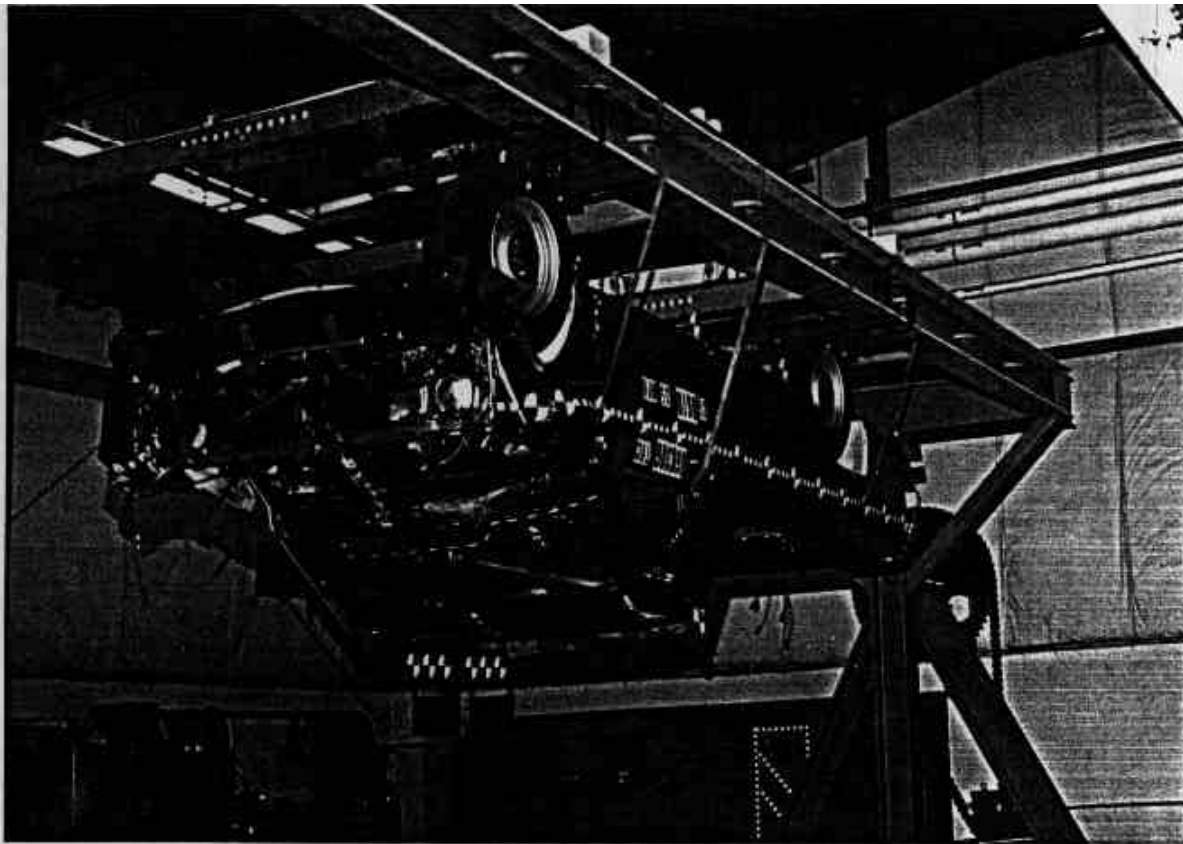


Figure 11. POST-TEST TOP VIEW (VEHICLE ON ROLLOVER MACHINE)

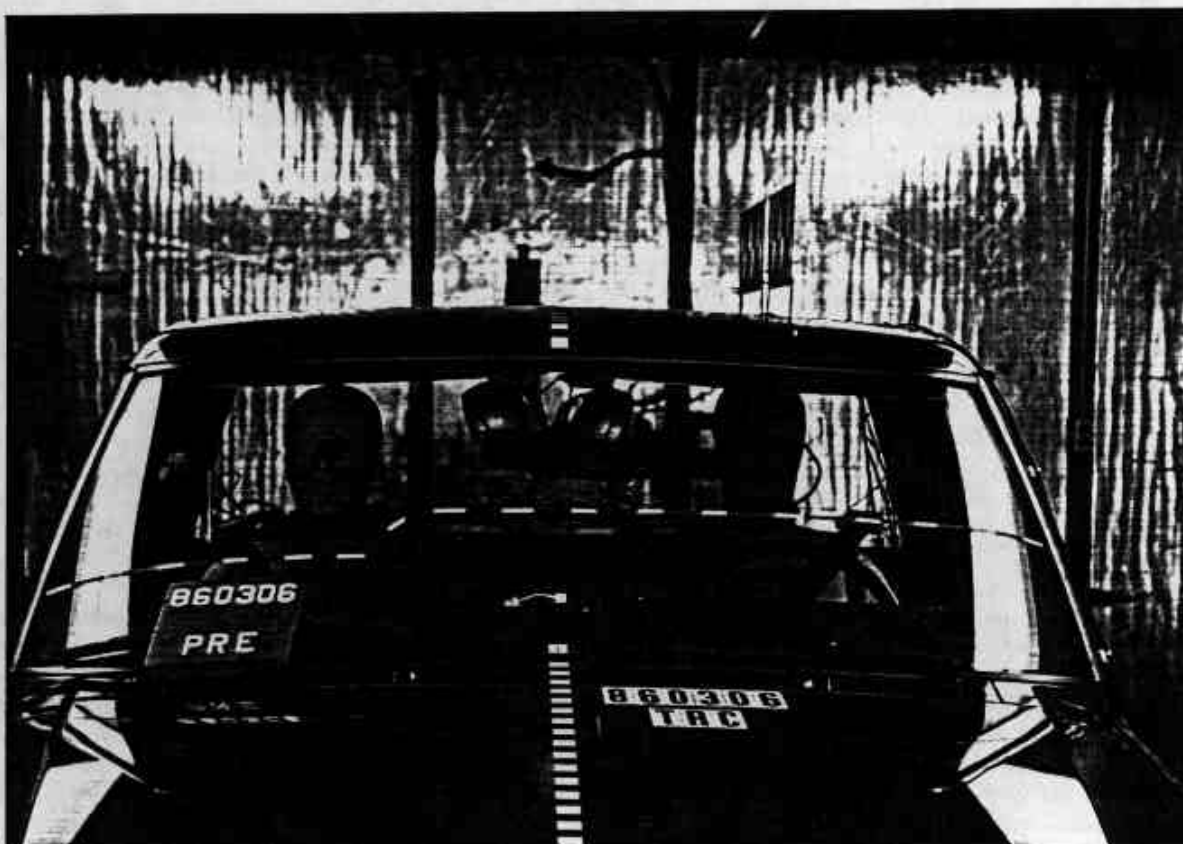


Figure 12. PRE-TEST WINDSHIELD VIEW
A-7

860306



Figure 13. PRE-TEST ENGINE COMPARTMENT VIEW

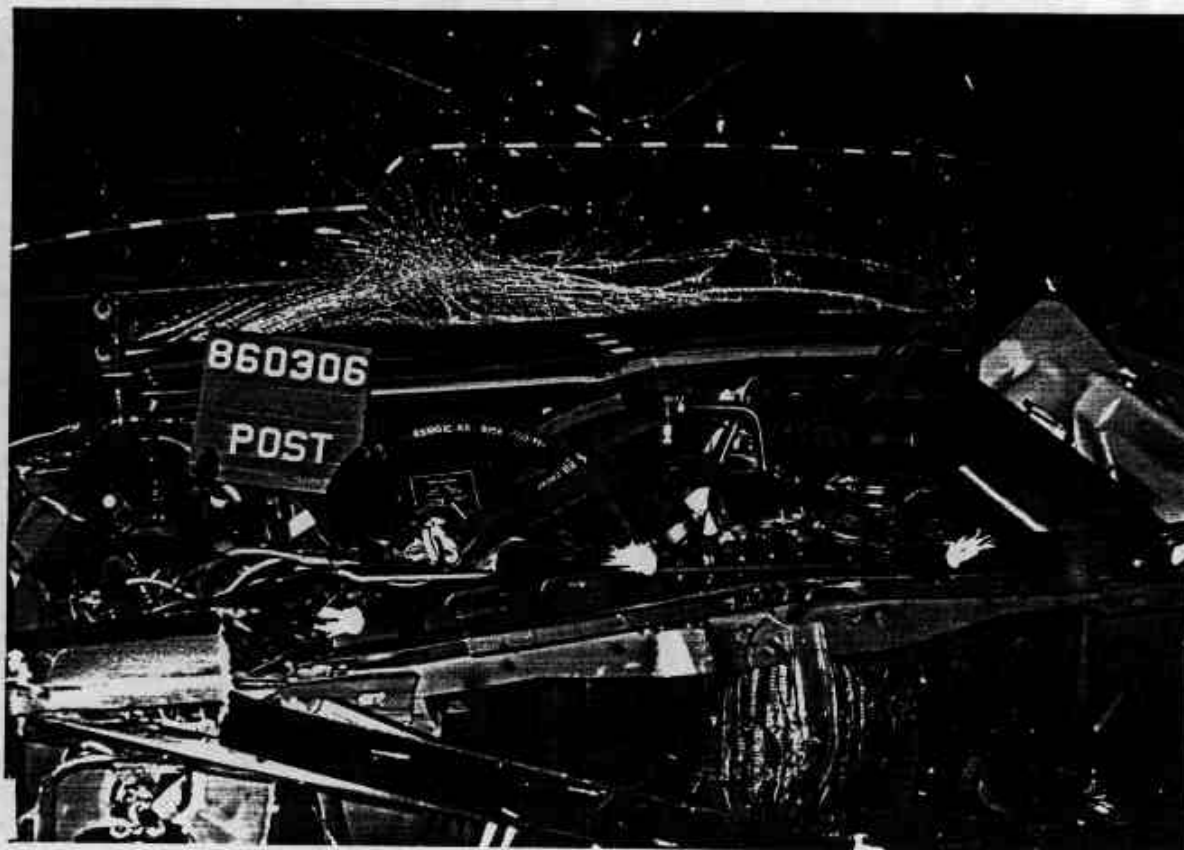


Figure 14. POST-TEST ENGINE COMPARTMENT VIEW
A-8

860306

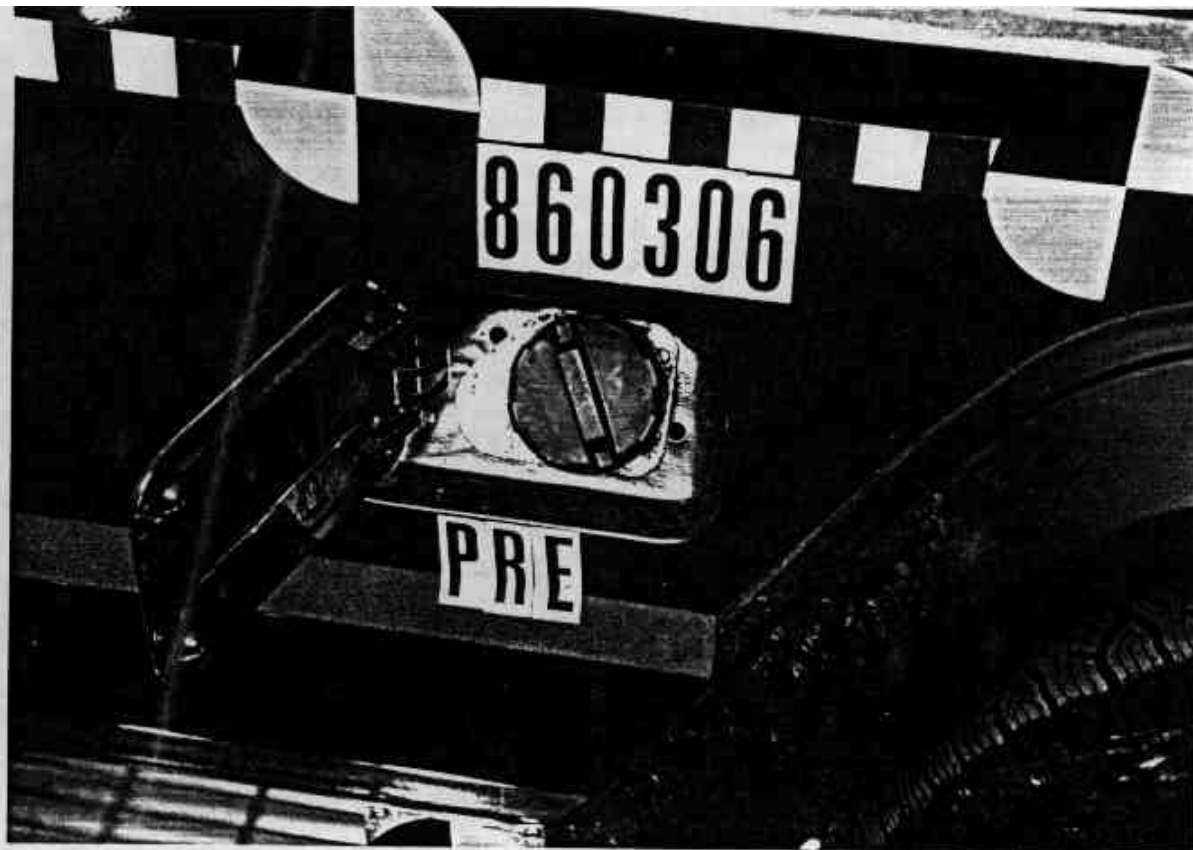


Figure 15. PRE-TEST FUEL FILLER CAP VIEW

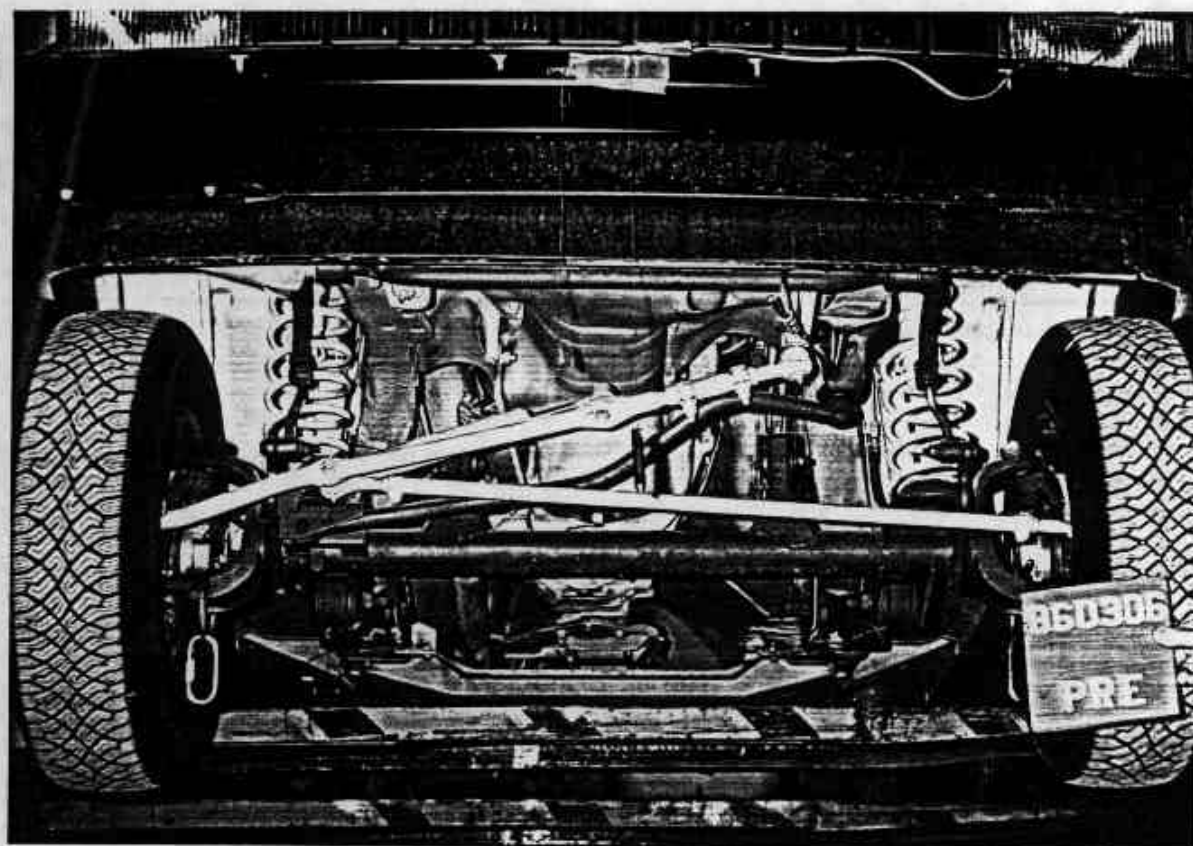


Figure 16. PRE-TEST FRONT UNDERBODY VIEW
A-9

860306

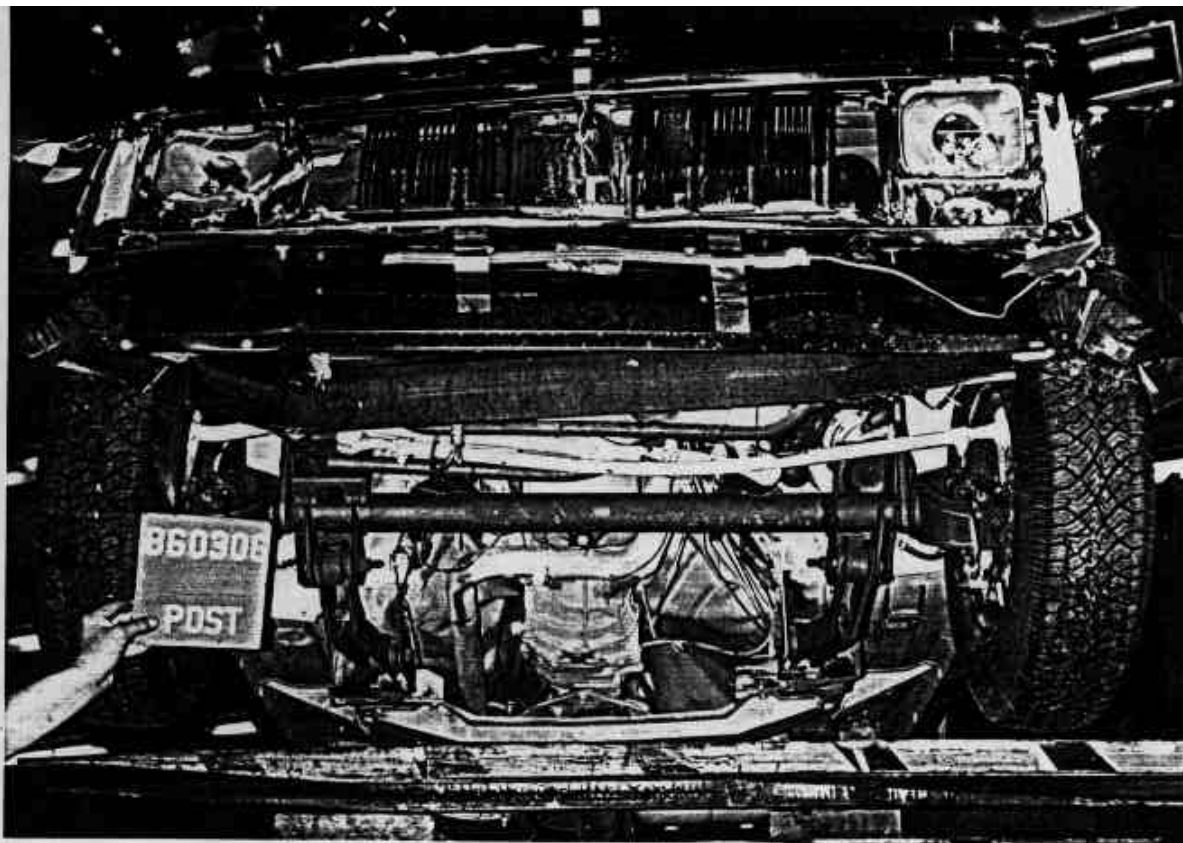


Figure 17. POST-TEST FRONT UNDERBODY VIEW

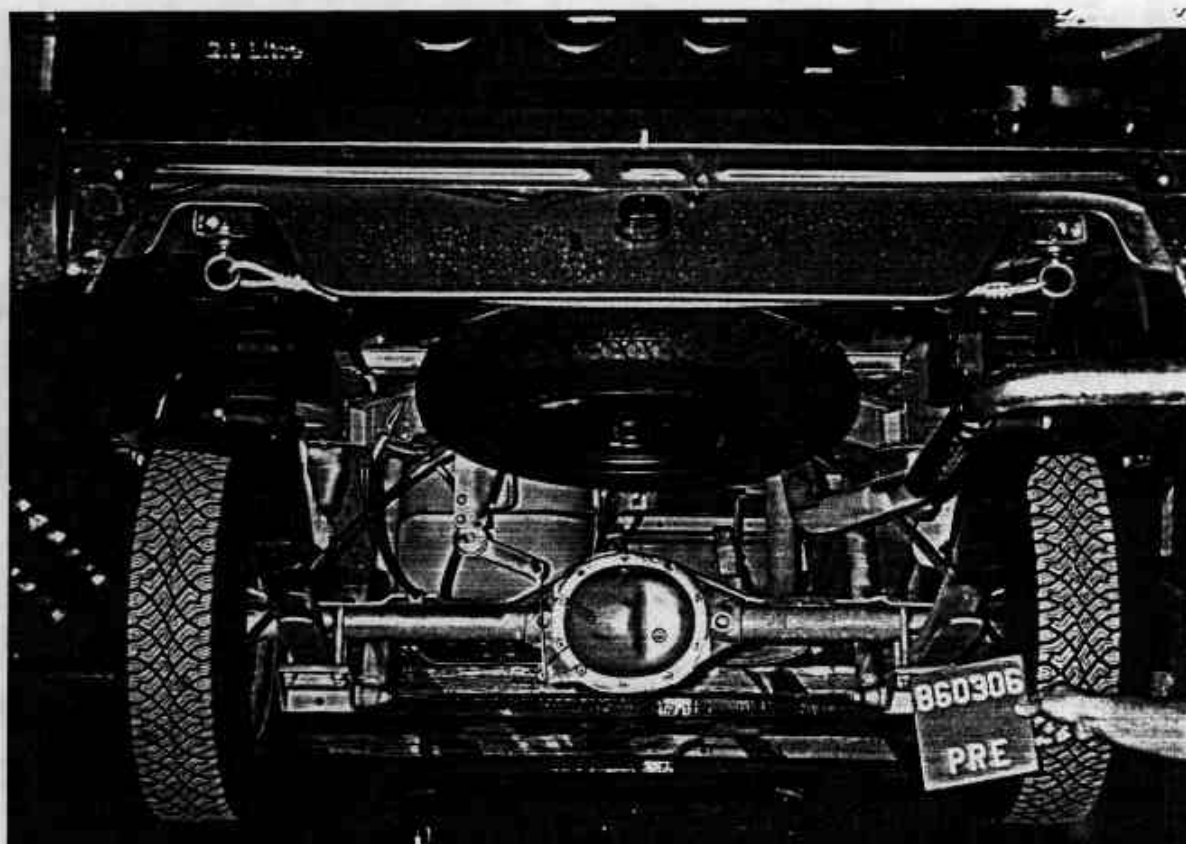


Figure 18. PRE-TEST REAR UNDERBODY VIEW
A-10

860306

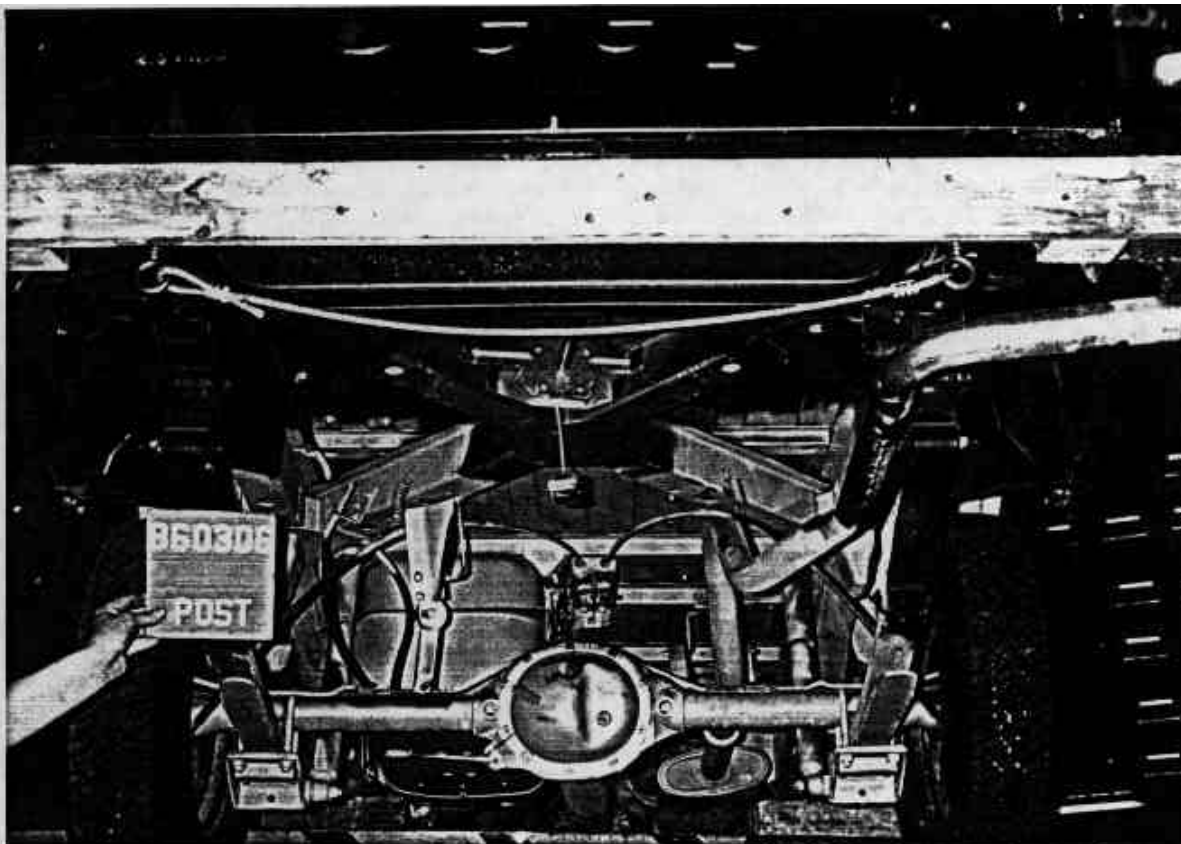


Figure 19. POST-TEST REAR UNDERBODY VIEW



Figure 20. PRE-TEST DRIVER DUMMY POSITION VIEW
A-11

860306



Figure 21. POST-TEST DRIVER DUMMY POSITION VIEW



Figure 22. PRE-TEST PASSENGER DUMMY POSITION VIEW
A-12

860306



Figure 23. POST-TEST PASSENGER DUMMY POSITION VIEW

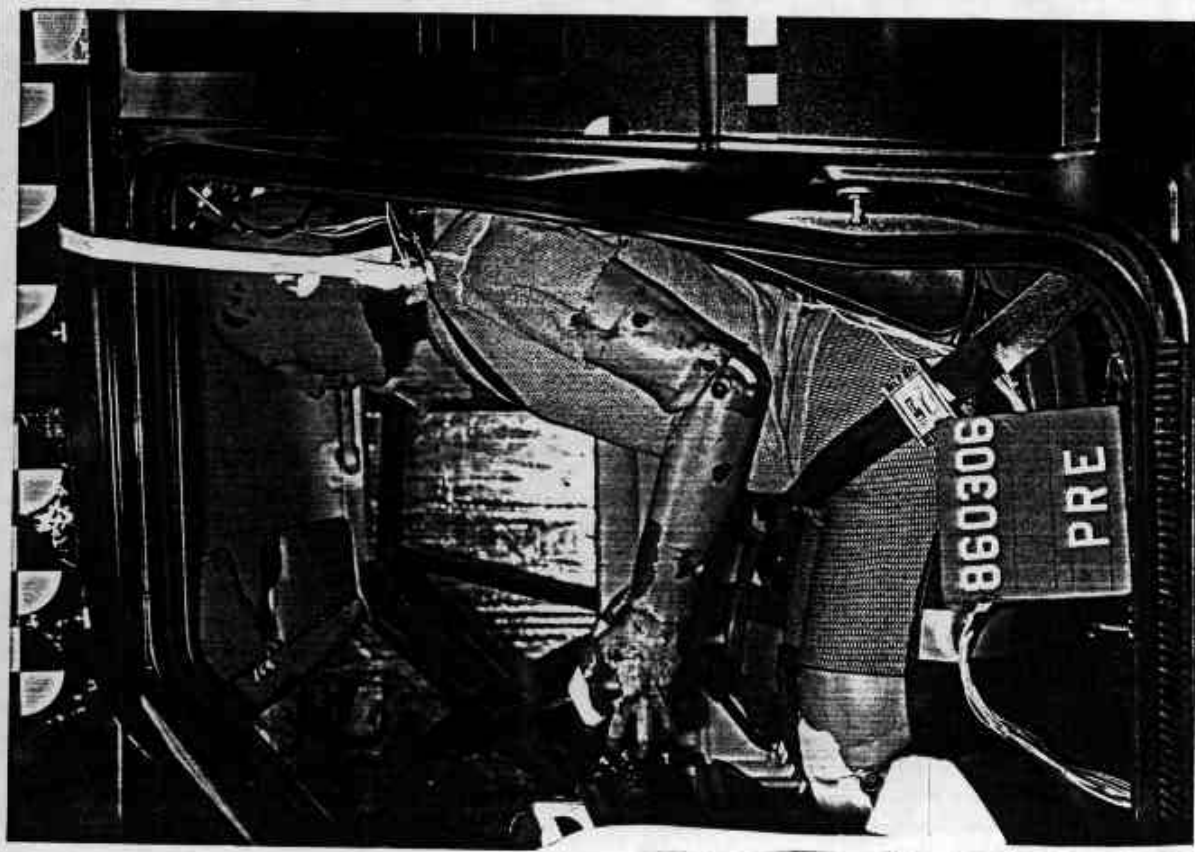


Figure 24. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)

A-13

860306

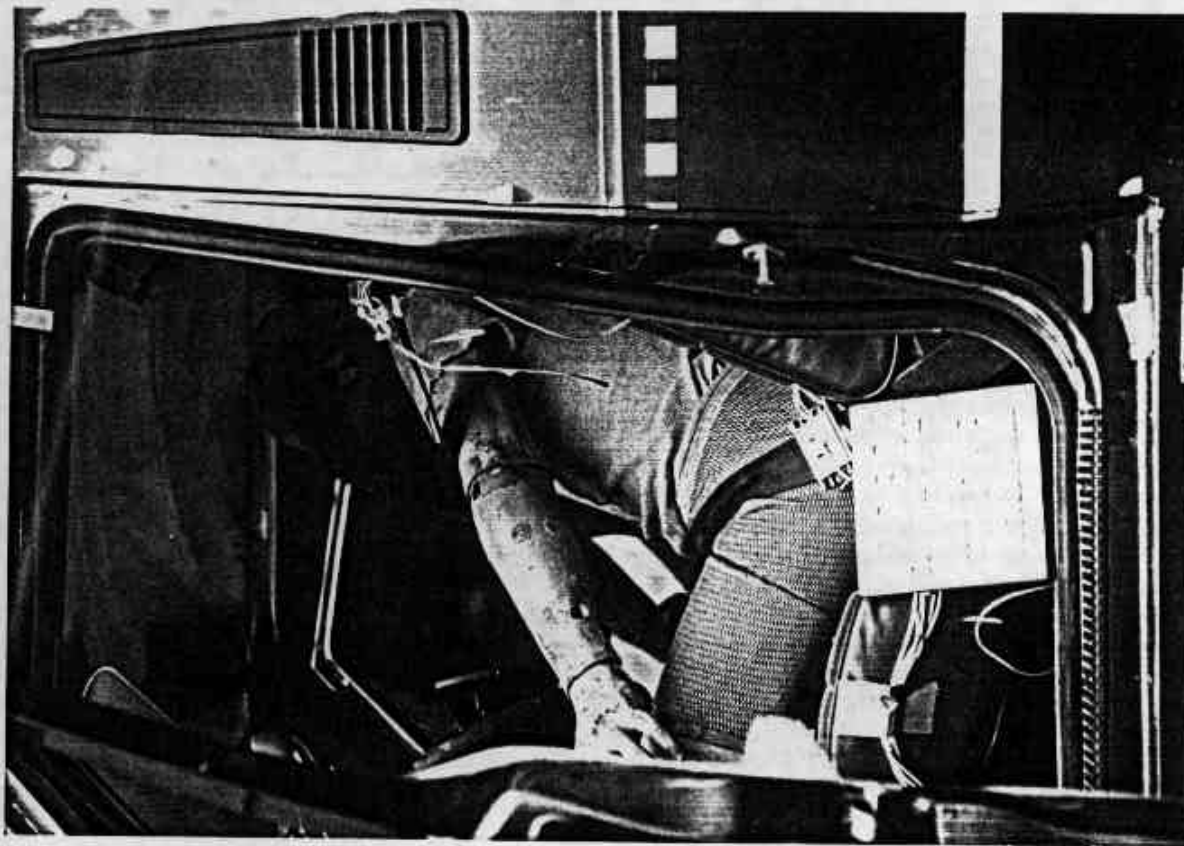


Figure 25. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)

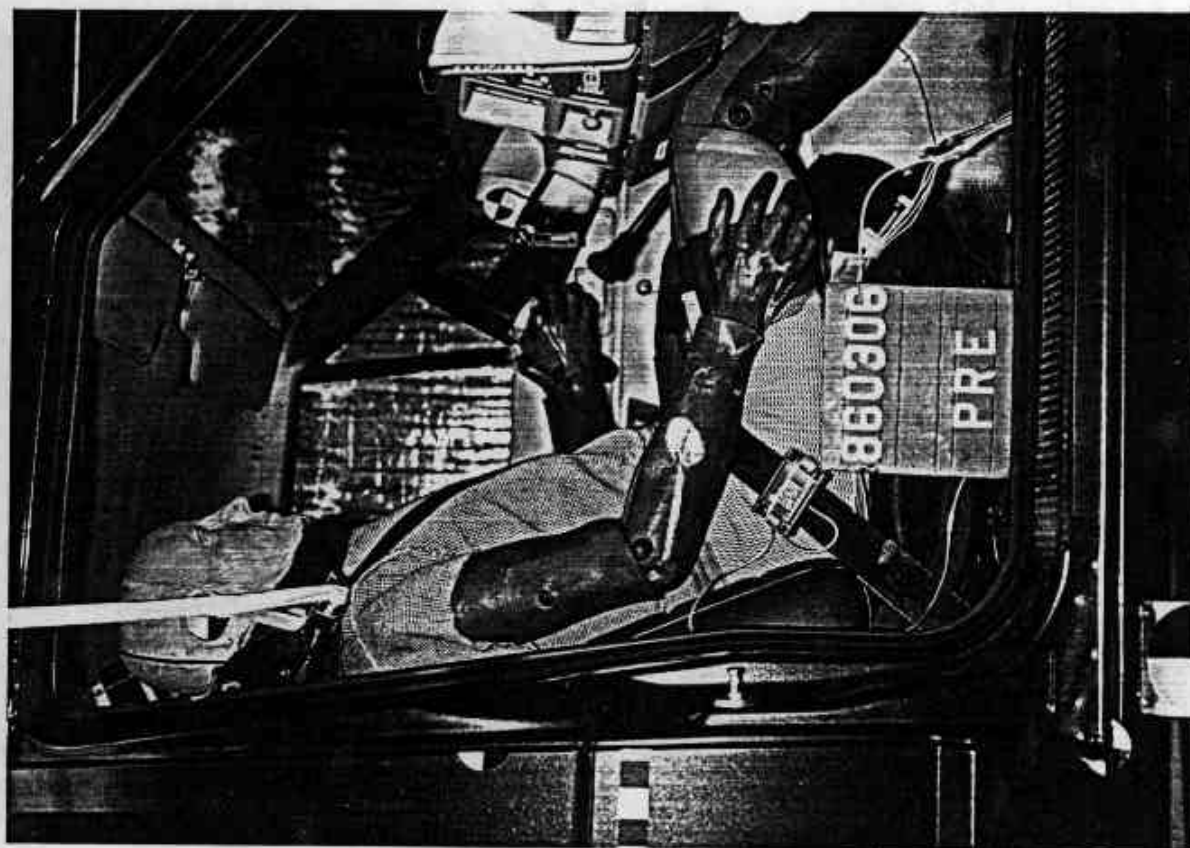


Figure 26. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)

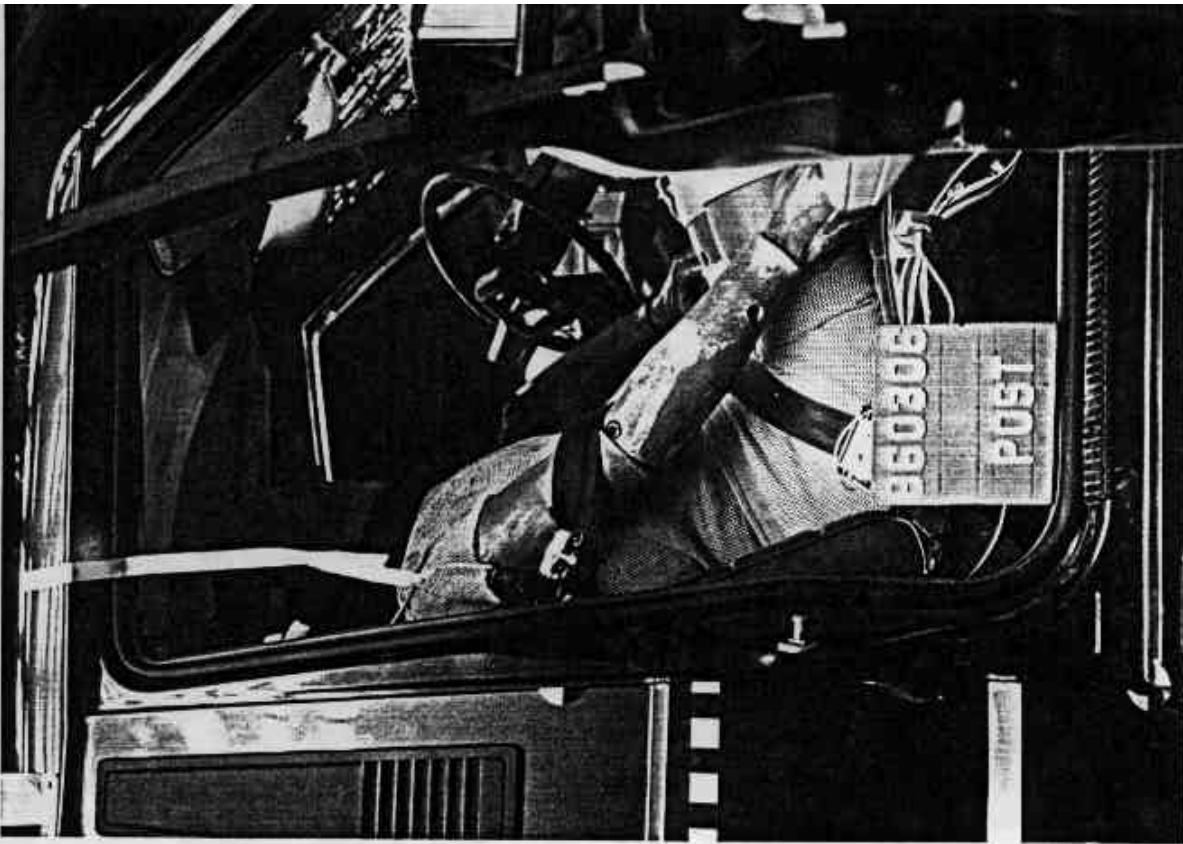


Figure 27. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (DOOR OPEN)

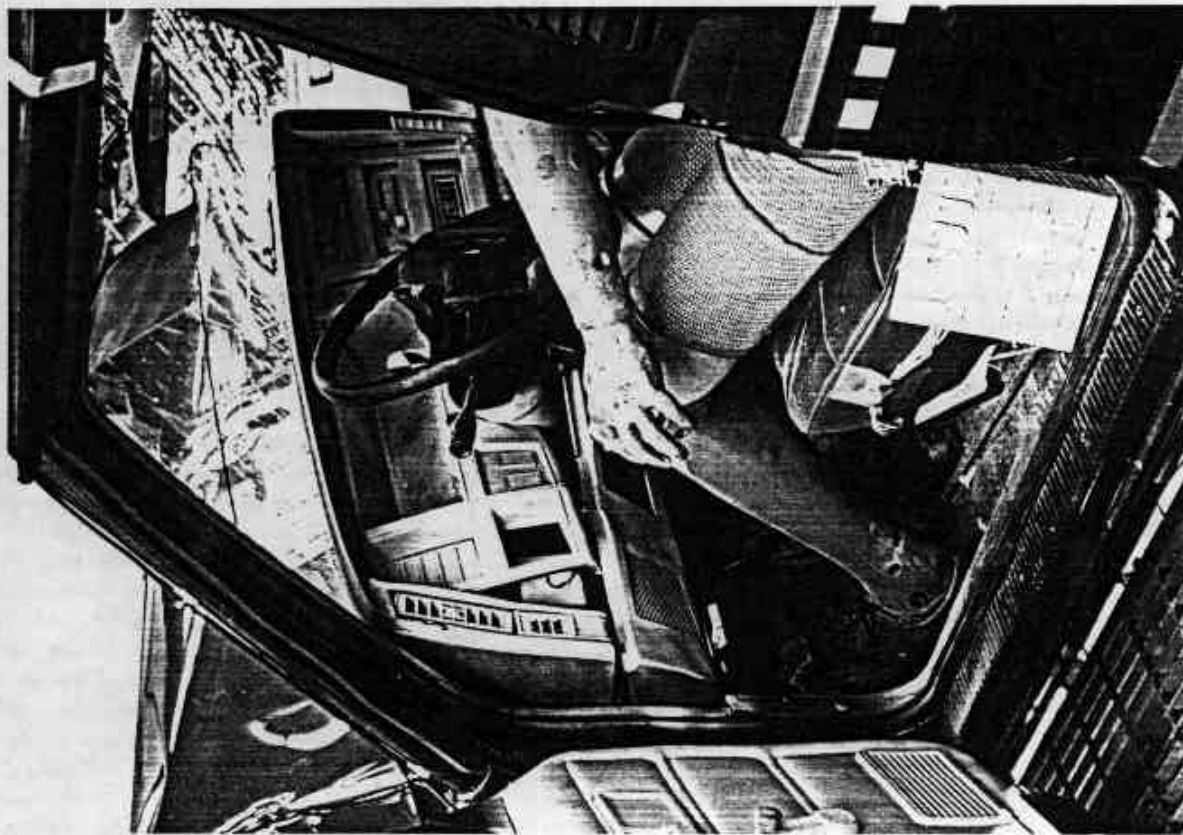


Figure 28. POST-TEST DRIVER DUMMY HEAD CONTACT AREA
A-15

860306

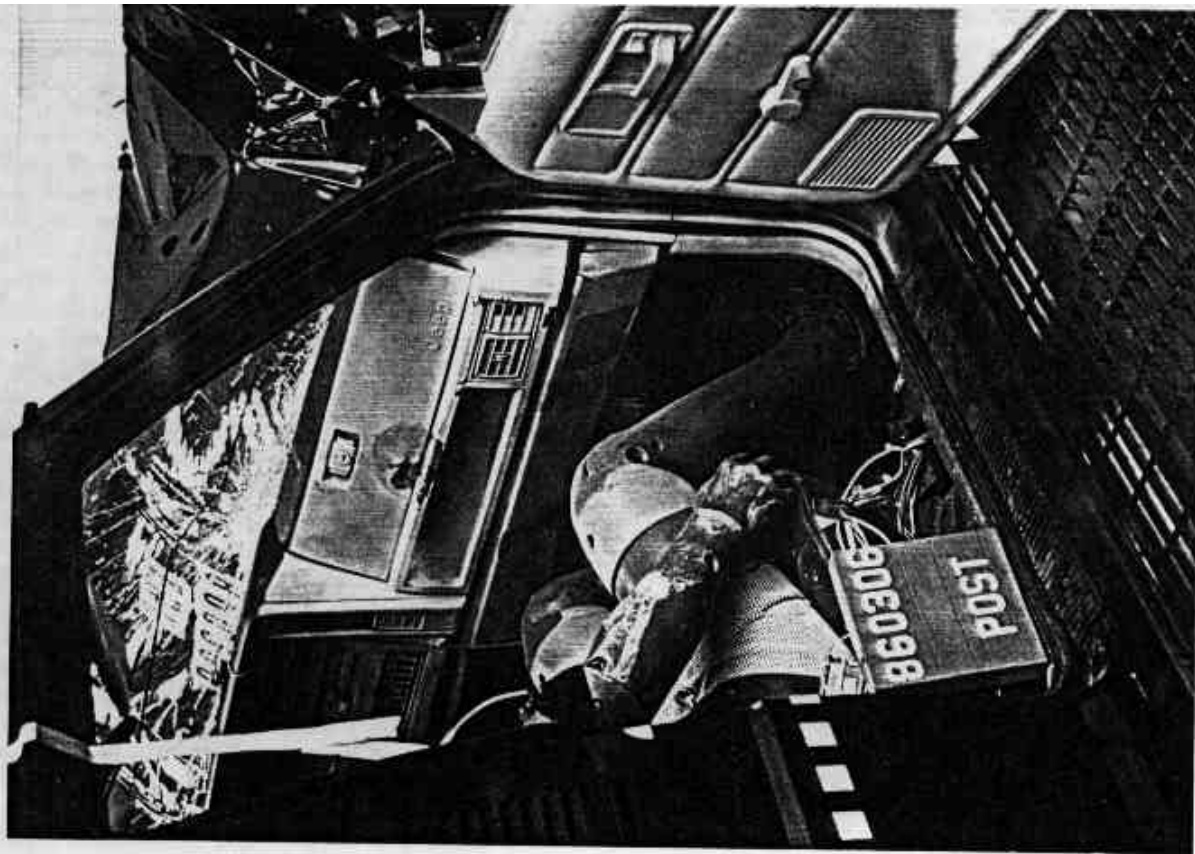


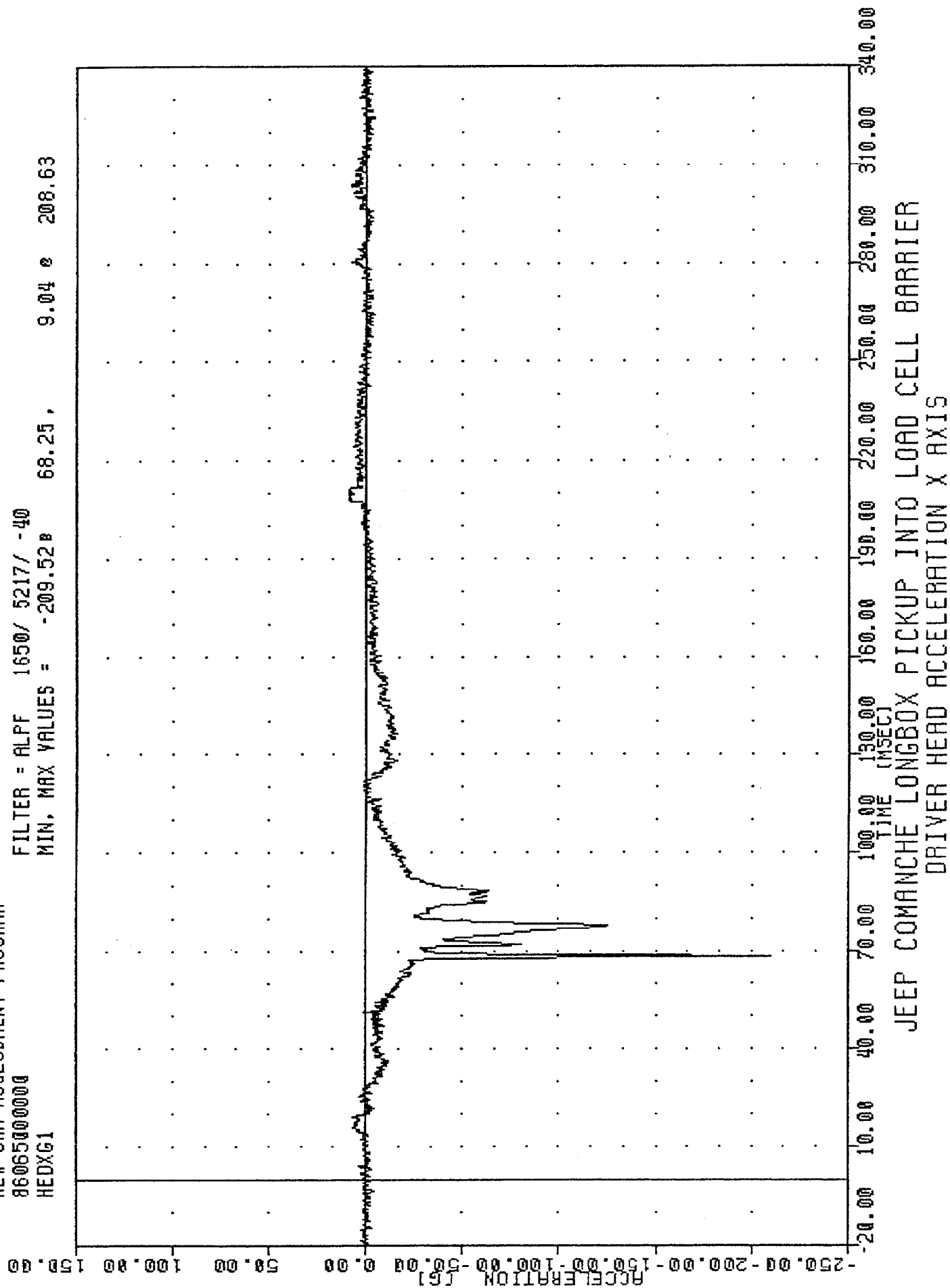
Figure 29. POST-TEST PASSENGER DUMMY HEAD/KNEE CONTACT

APPENDIX B

DATA PLOTS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDXG1

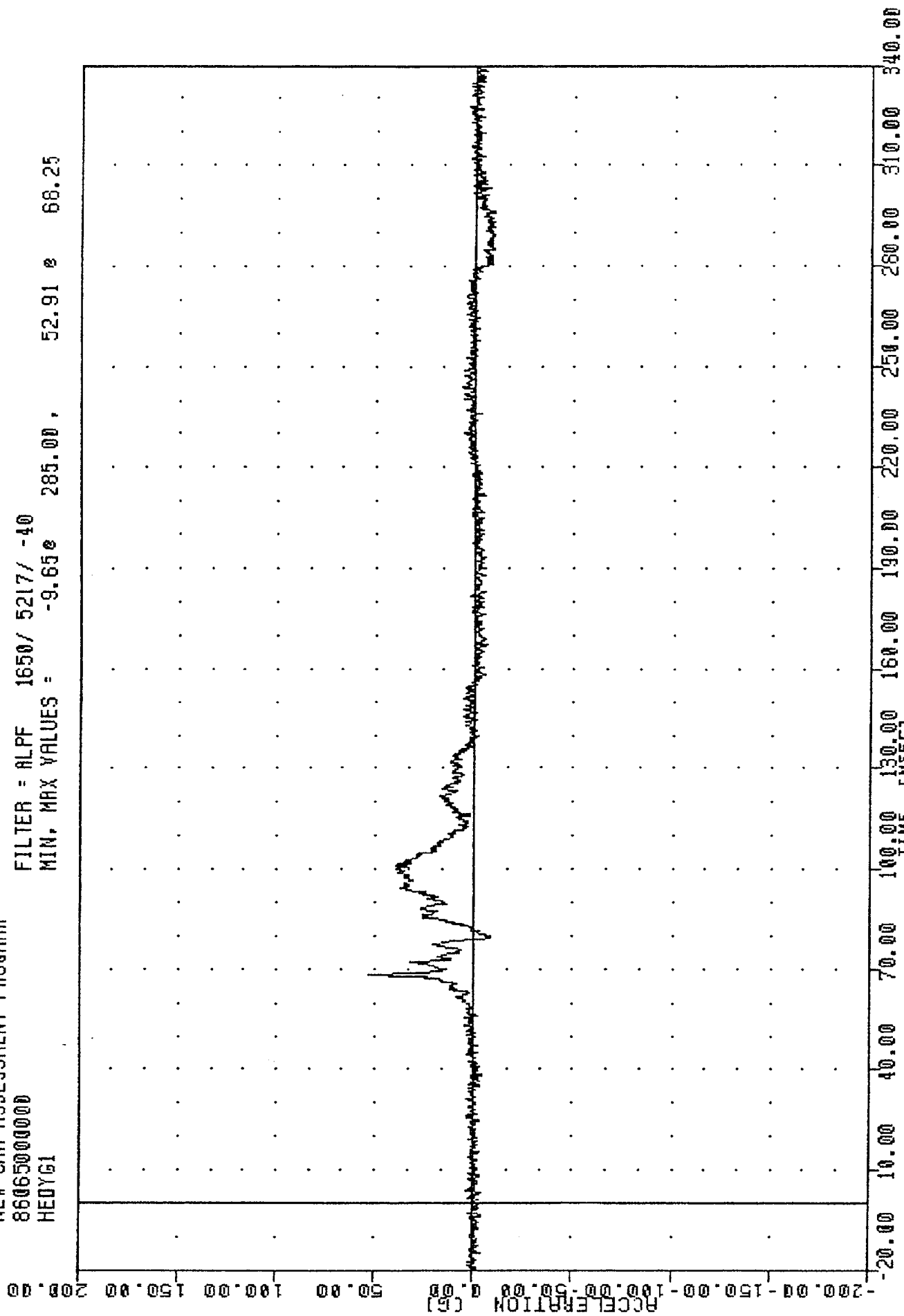
FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -209.52 68.25, 9.04 208.63



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER HEAD ACCELERATION X AXIS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDYG1

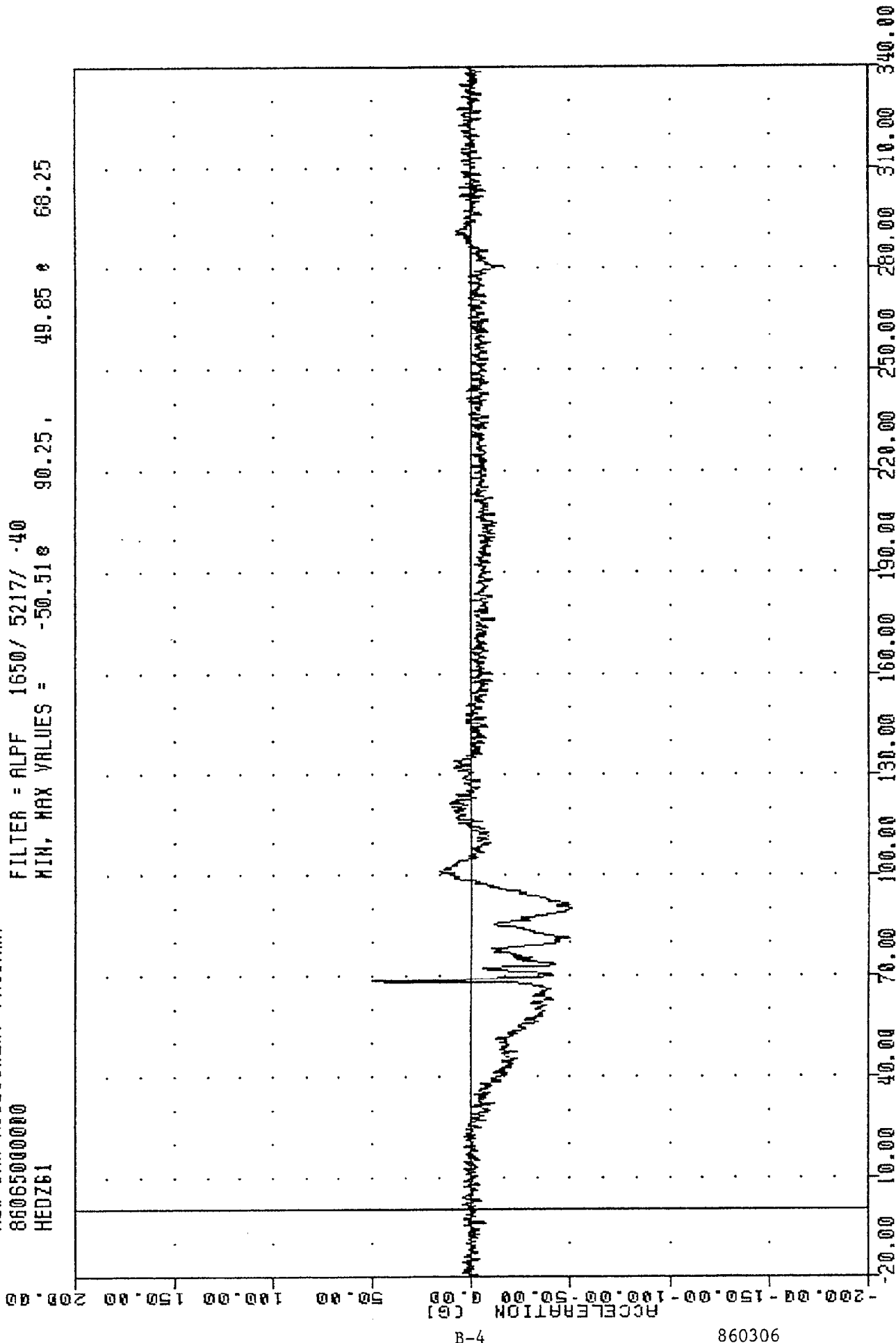
FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -9.65e 285.00, 52.91 e 68.25



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER HEAD ACCELERATION Y AXIS

TRC 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDZ61

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -50.518 90.25, 49.85 68.25

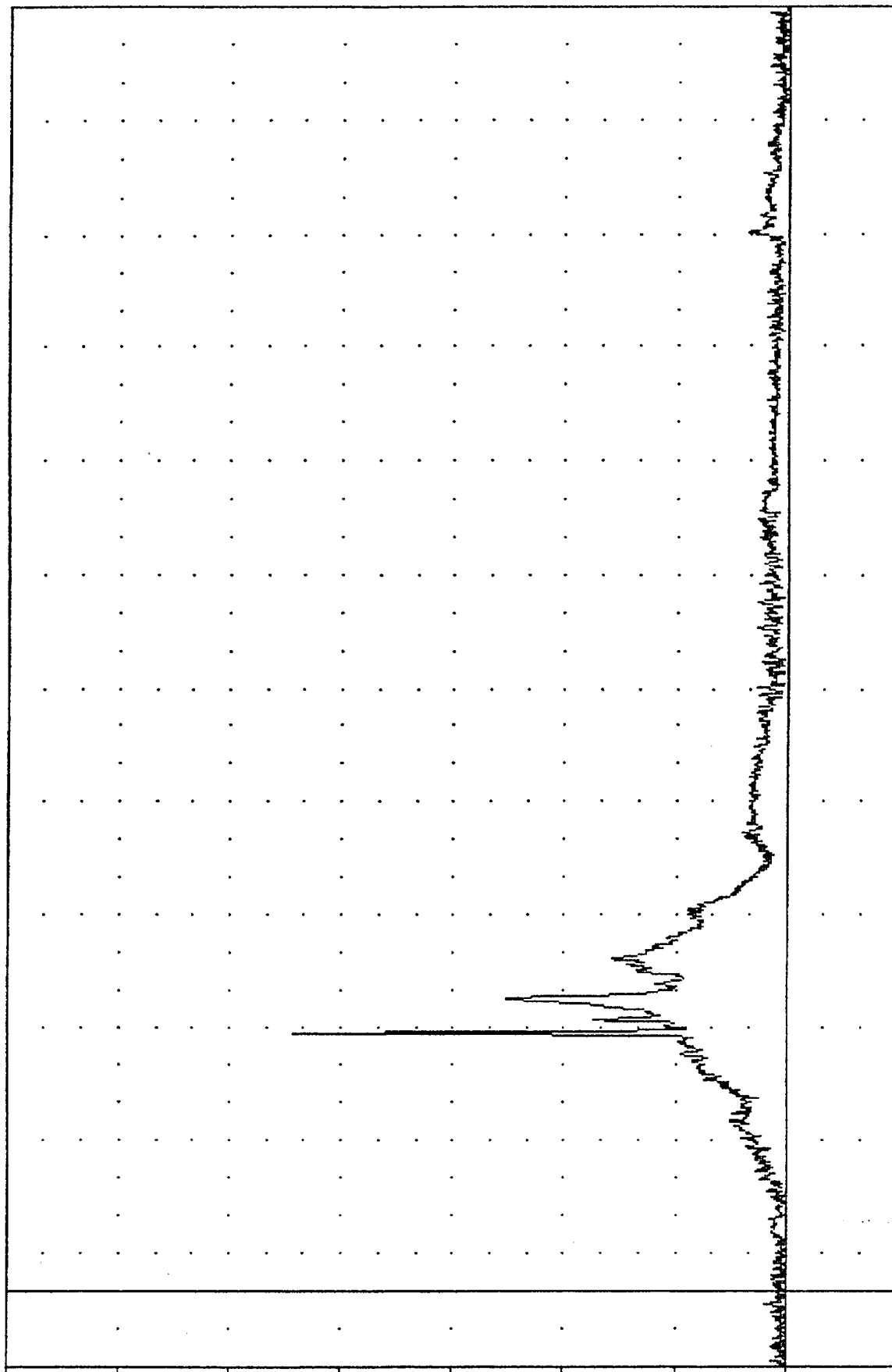


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER HEAD ACCELERATION Z AXIS

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDRG1

FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = 0.13 9.13, 221.77 68.25

ACCELERATION (G)



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER HEAD RESULTANT ACCELERATION

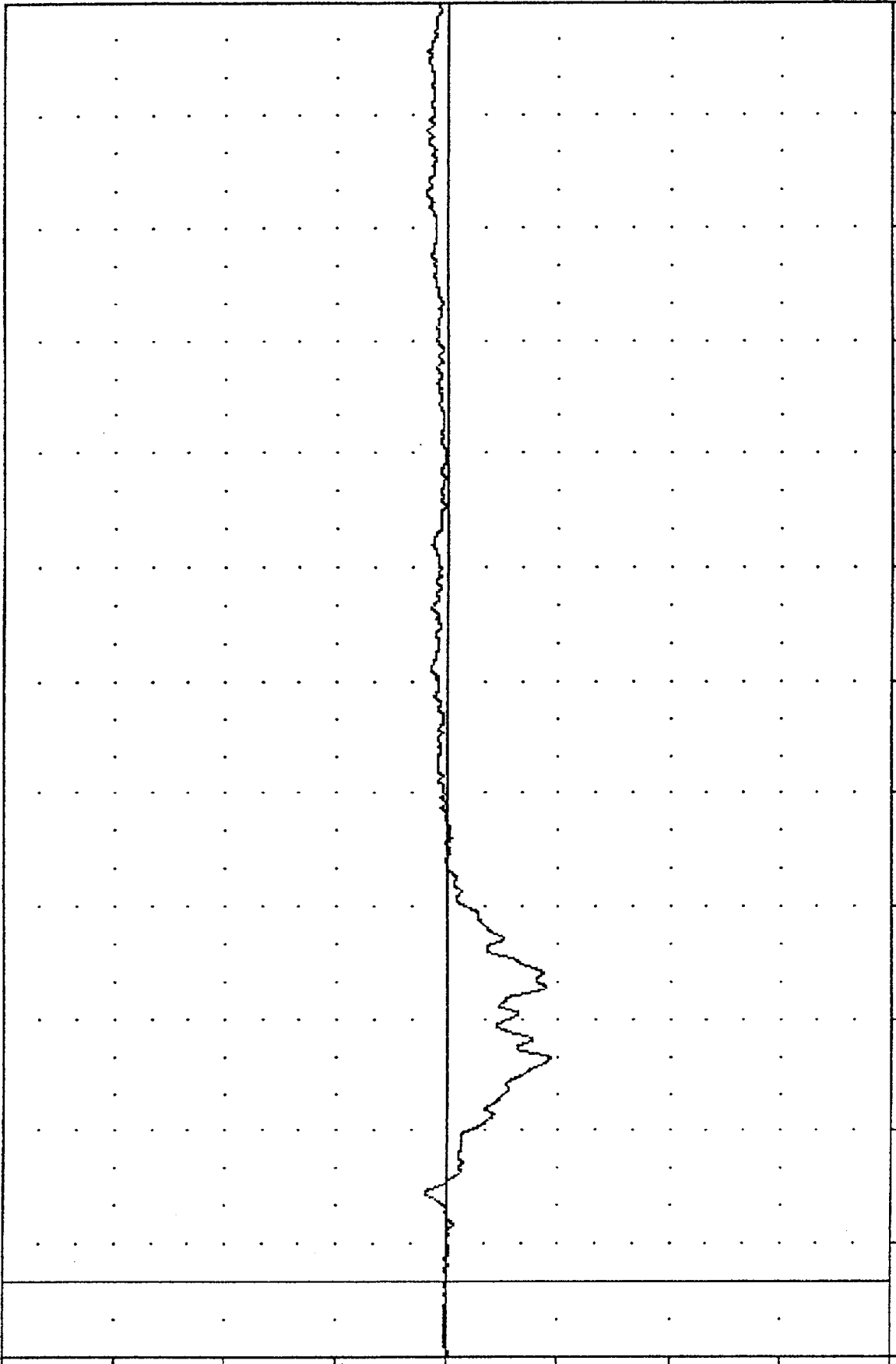
TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 CSTXG1

FILTER = 8LPF 300/ 949/ -40
 MIN, MAX VALUES = -45.99 59.50, 10.08 23.50

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

B-6

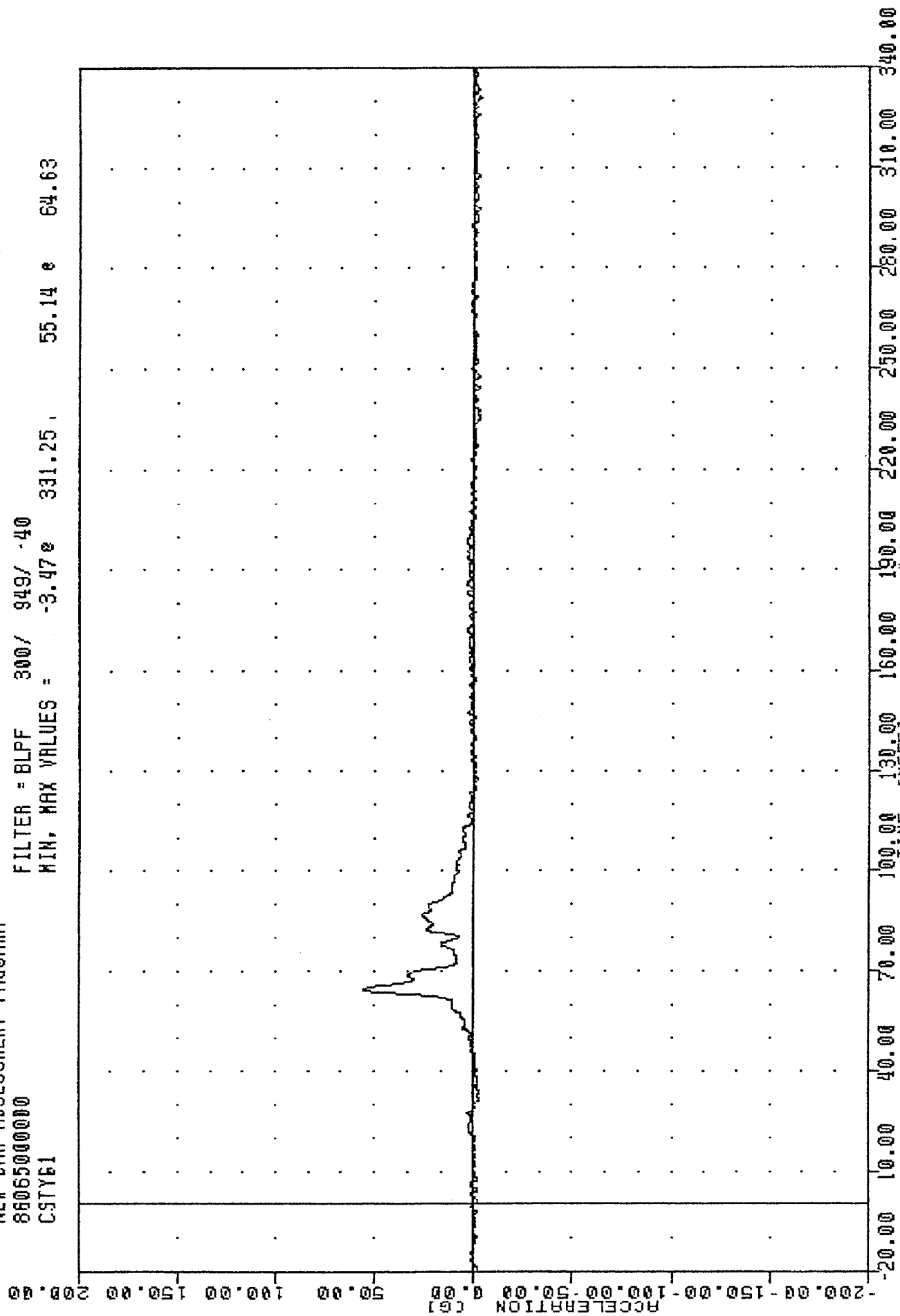
860306



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER CHEST ACCELERATION X AXIS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 CSTY61

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -3.470 331.25 , 55.14 64.63

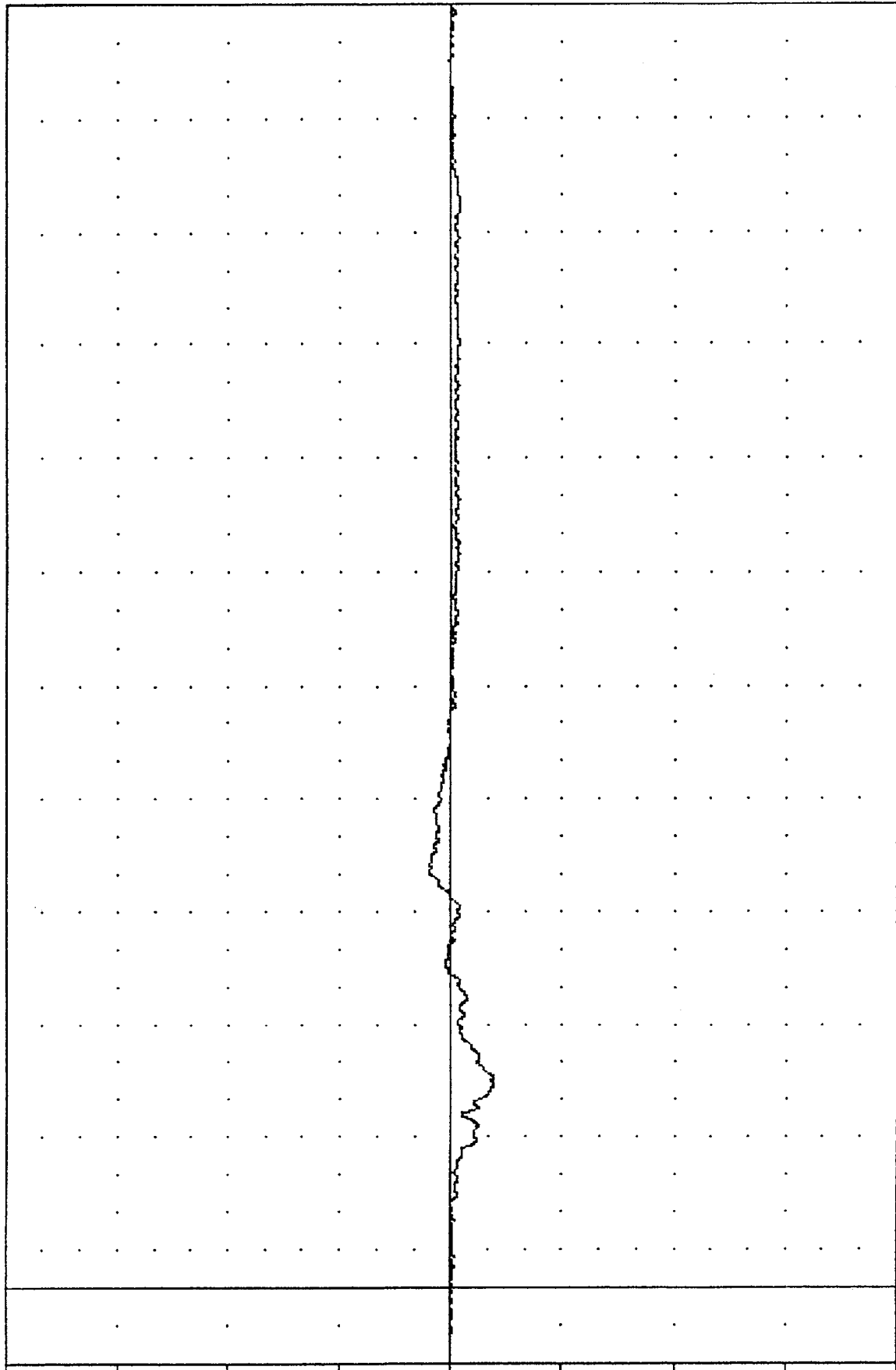


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER CHEST ACCELERATION Y AXIS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 CSTZG1

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -18.89 54.13, 9.73 110.50

ACCELERATION (G)

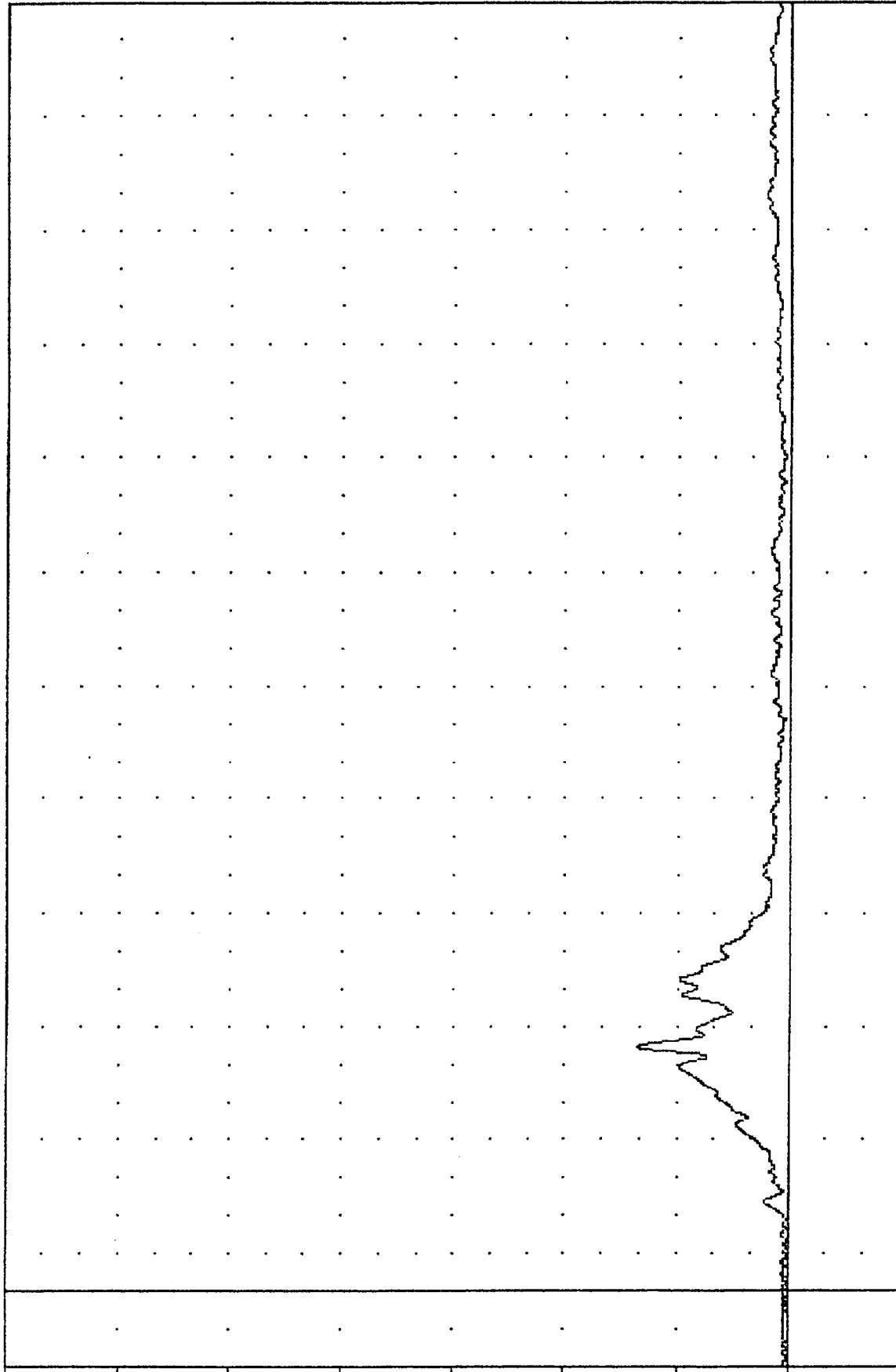


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER CHEST ACCELERATION 7 AXIS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 CSTAG1

FILTER = 8LPF 300/ 949/ -10
 MIN. MAX VALUES = 0.56g -17.63, 67.45 g 64.63

ACCELERATION (g)

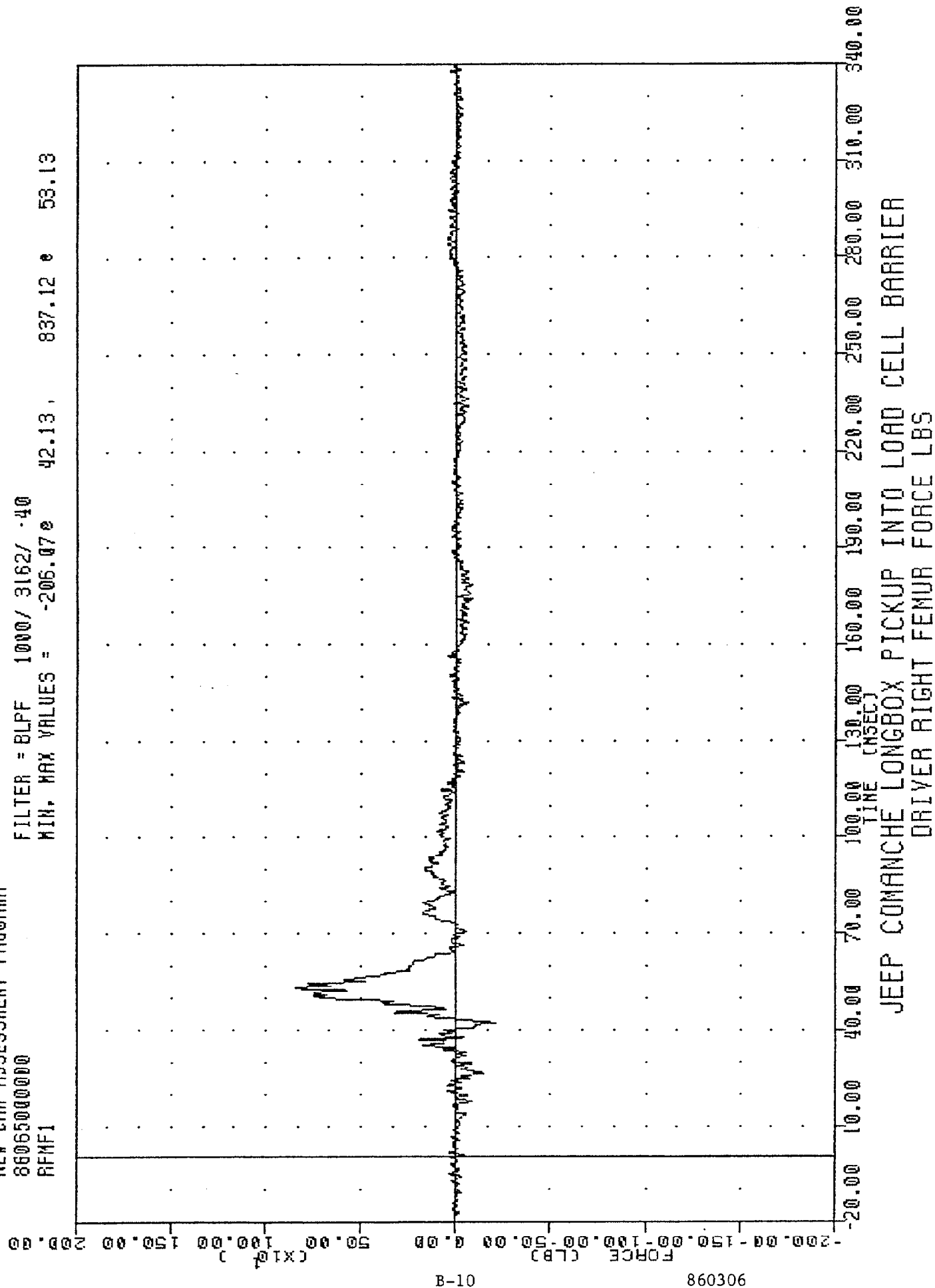


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER CHEST RESULTANT ACCELERATION

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 RFMF1

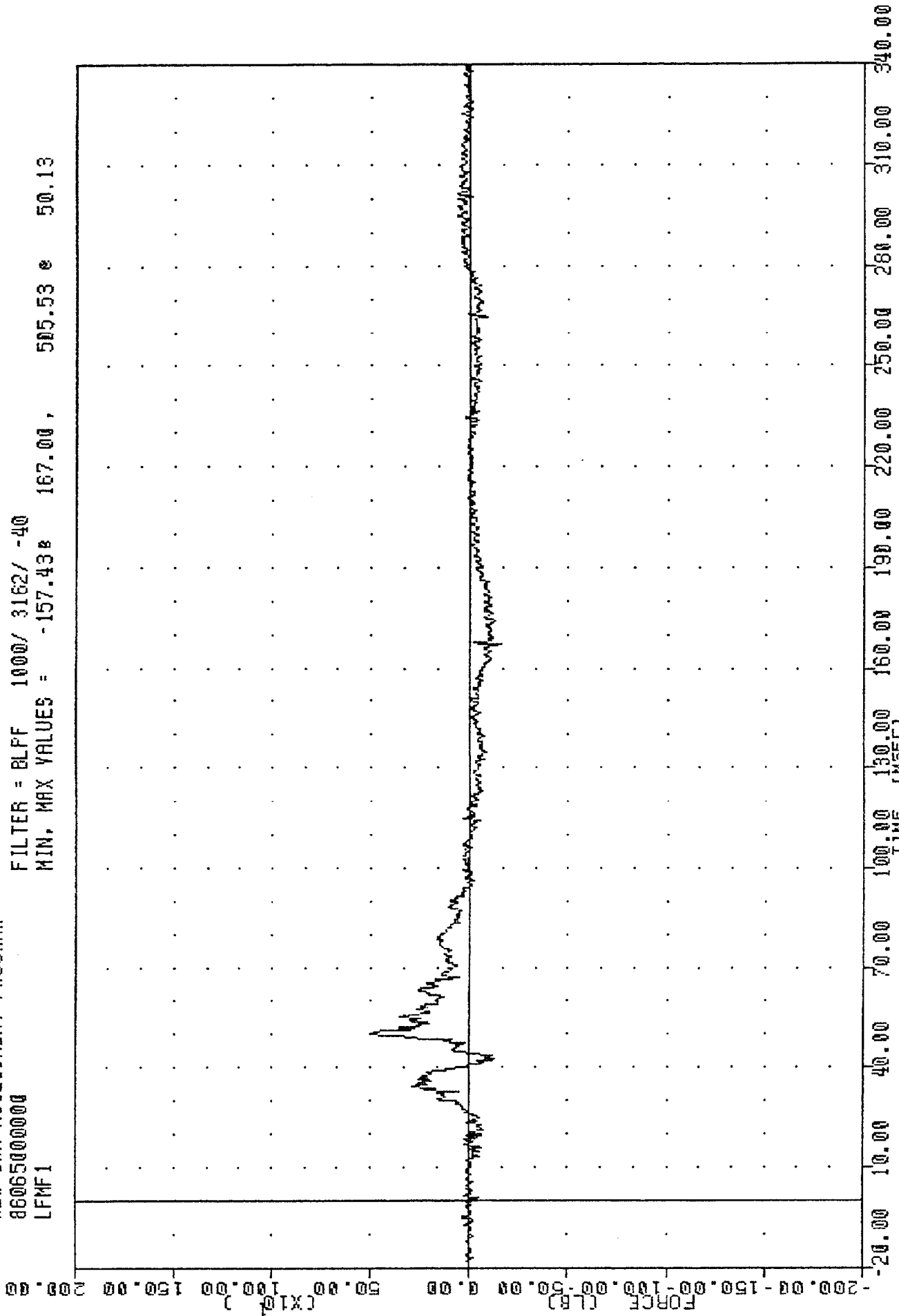
FILTER = BLPF 1000/ 3162/ .40
 MIN, MAX VALUES = -206.070 42.13 , 837.12 0 53.13



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER RIGHT FEMUR FORCE LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LFMF1

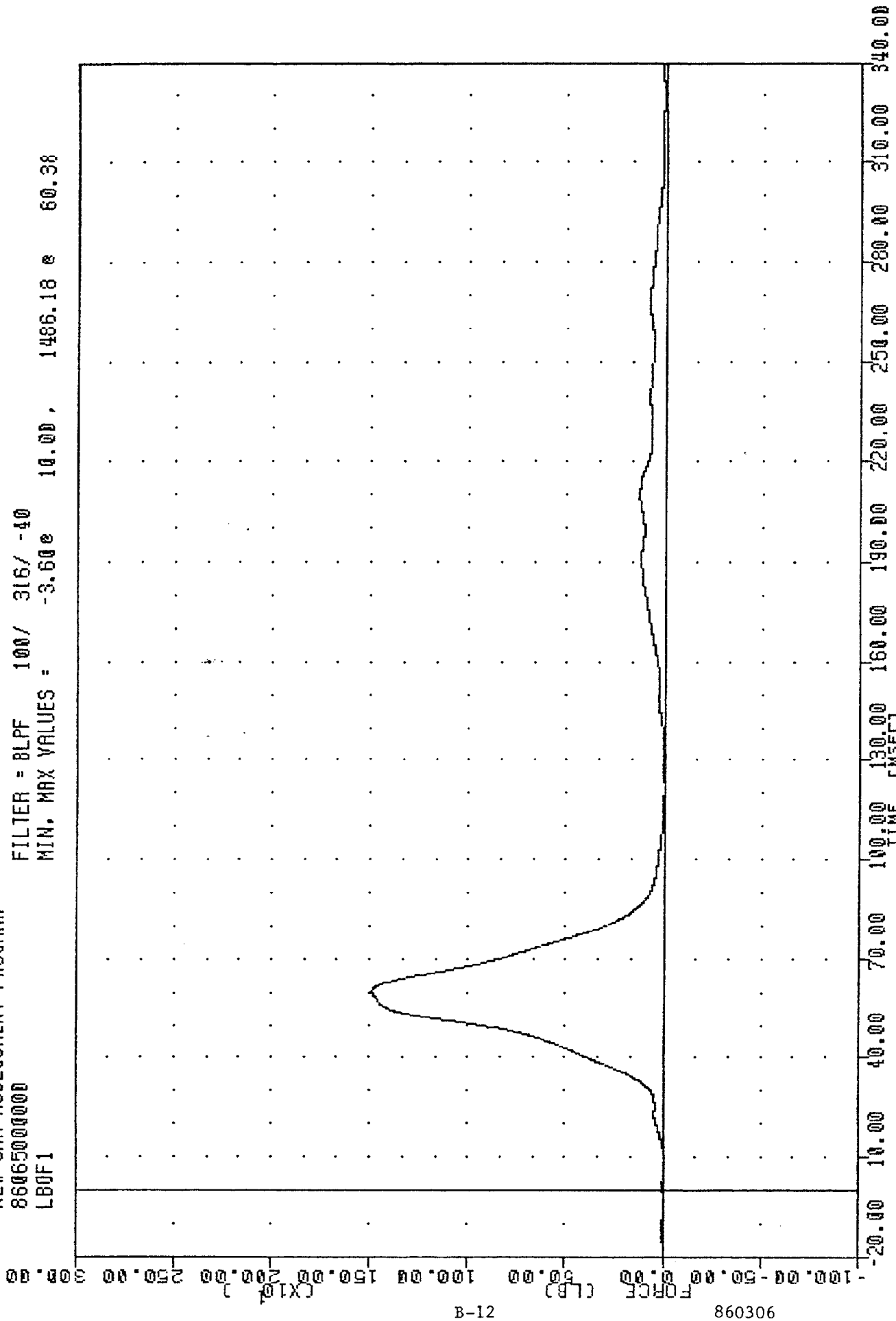
FILTER = BLFF 1000/ 3162/ -40
 MIN. MAX VALUES = -157.438 167.00 , 505.53 50.13



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER LEFT FEMUR FORCE LBS

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LB0F1

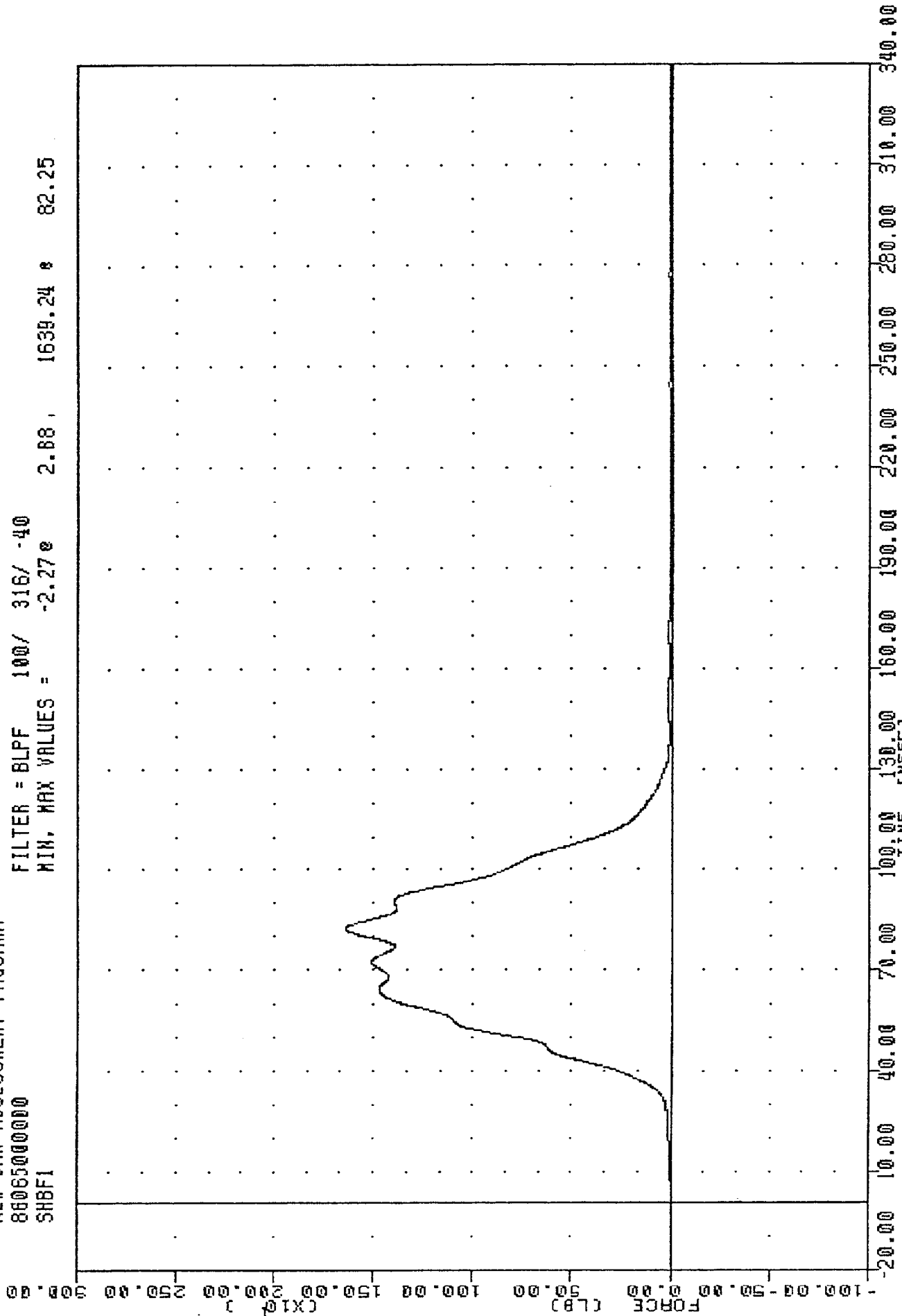
FILTER = 8LPF 100/ 316/ -40
 MIN. MAX VALUES = -3.60e 10.00, 1486.18 e 60.38



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER LAP BELT OUTBOARD FORCE LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 SHBF1

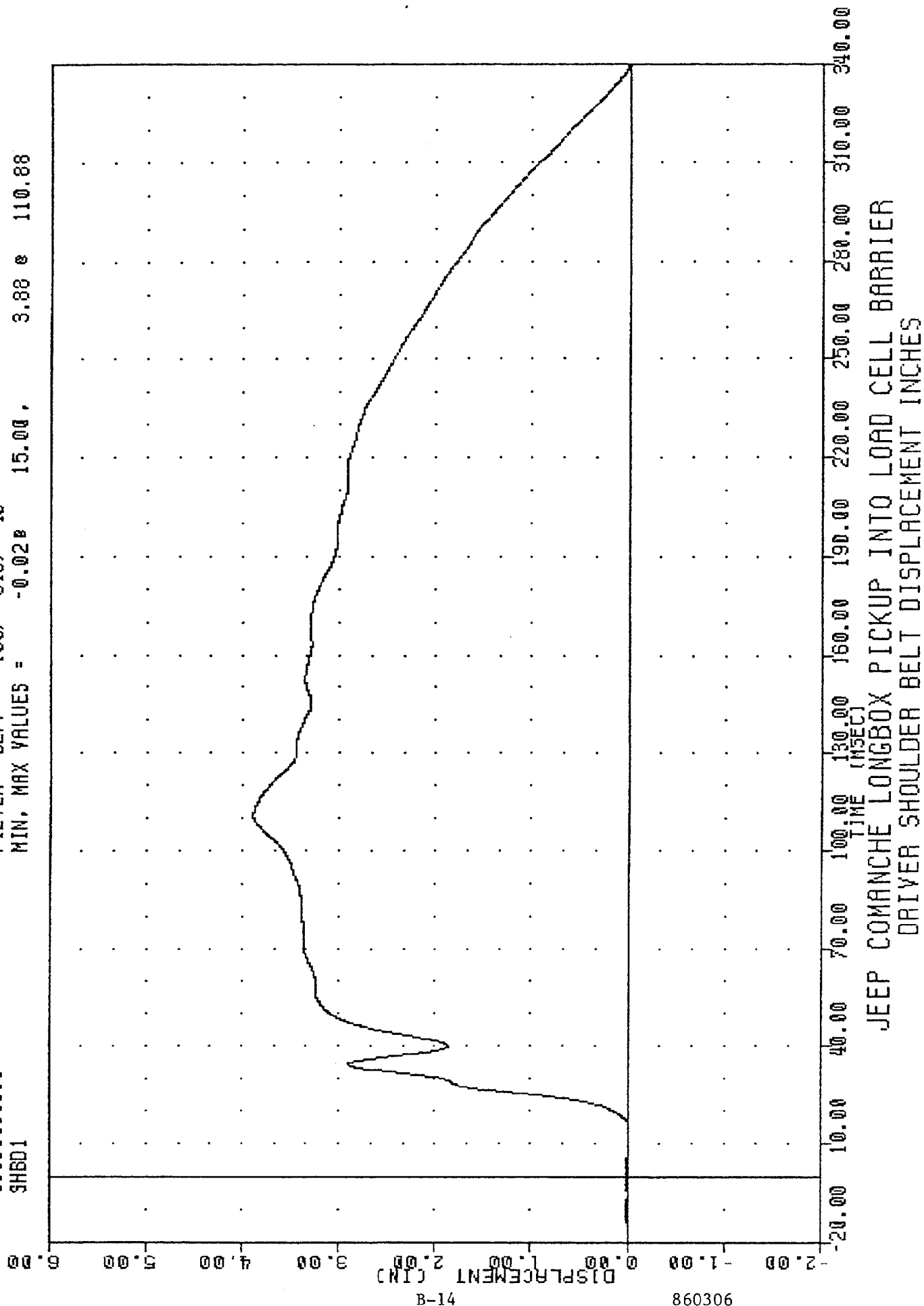
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -2.27e 2.88 , 1639.24 e 82.25



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER SHOULDER BELT FORCE LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 SHBD1

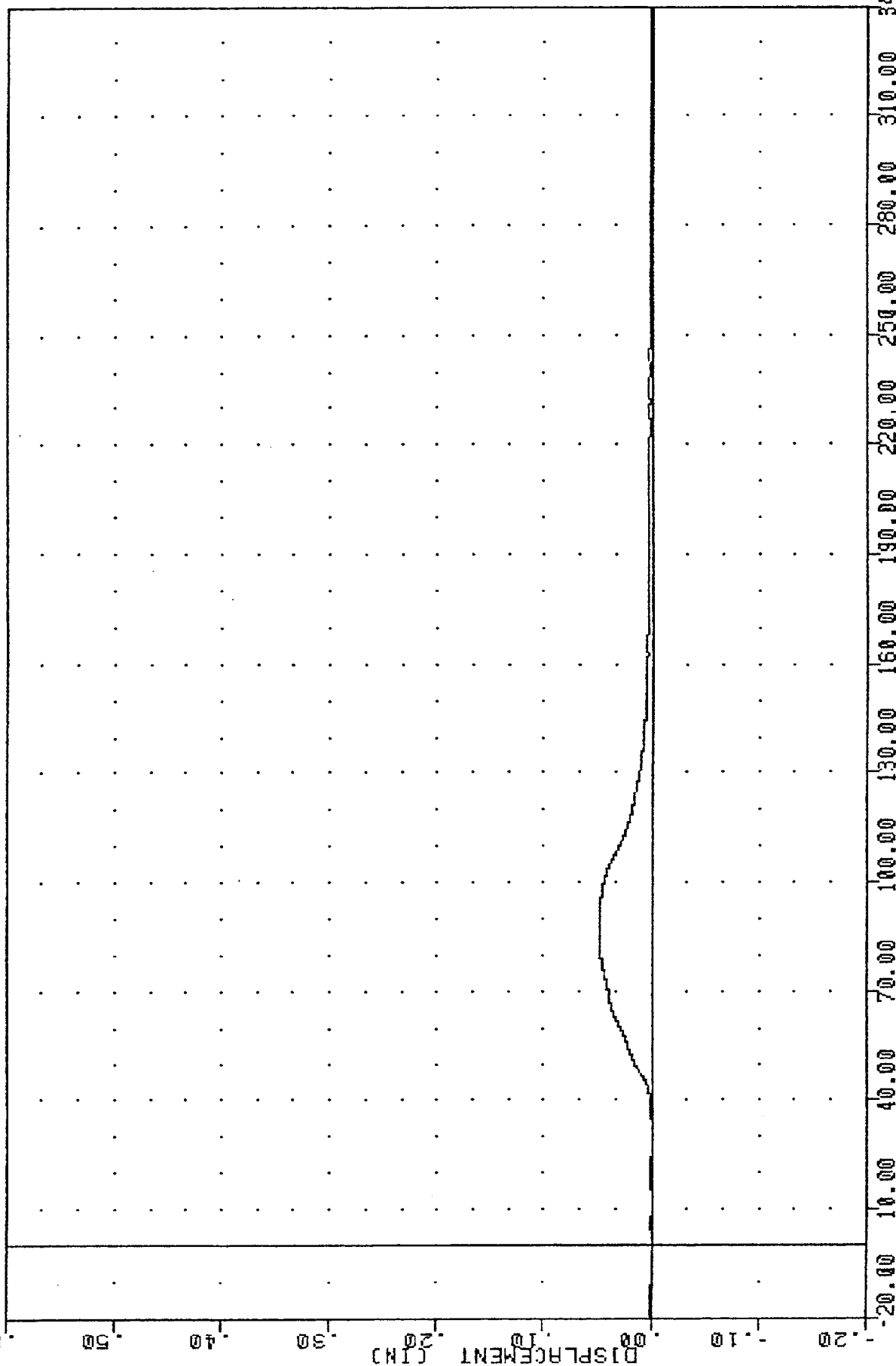
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -0.028 15.00, 3.88 @ 110.88



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER SHOULDER BELT DISPLACEMENT INCHES

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 SBED1

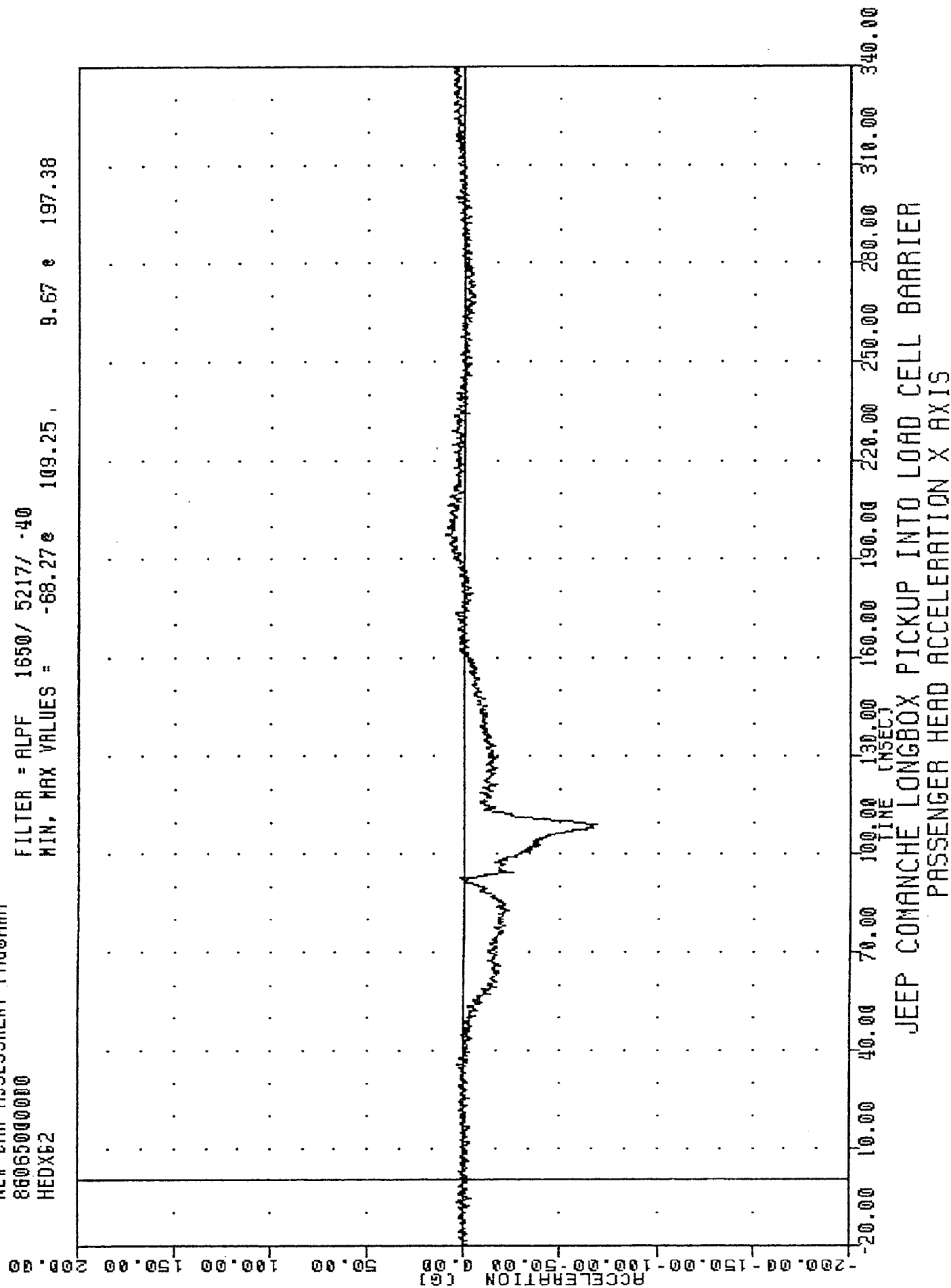
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.000 29.13 , 0.05 85.38



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DRIVER SEAT BELT EXTENSION INCHES

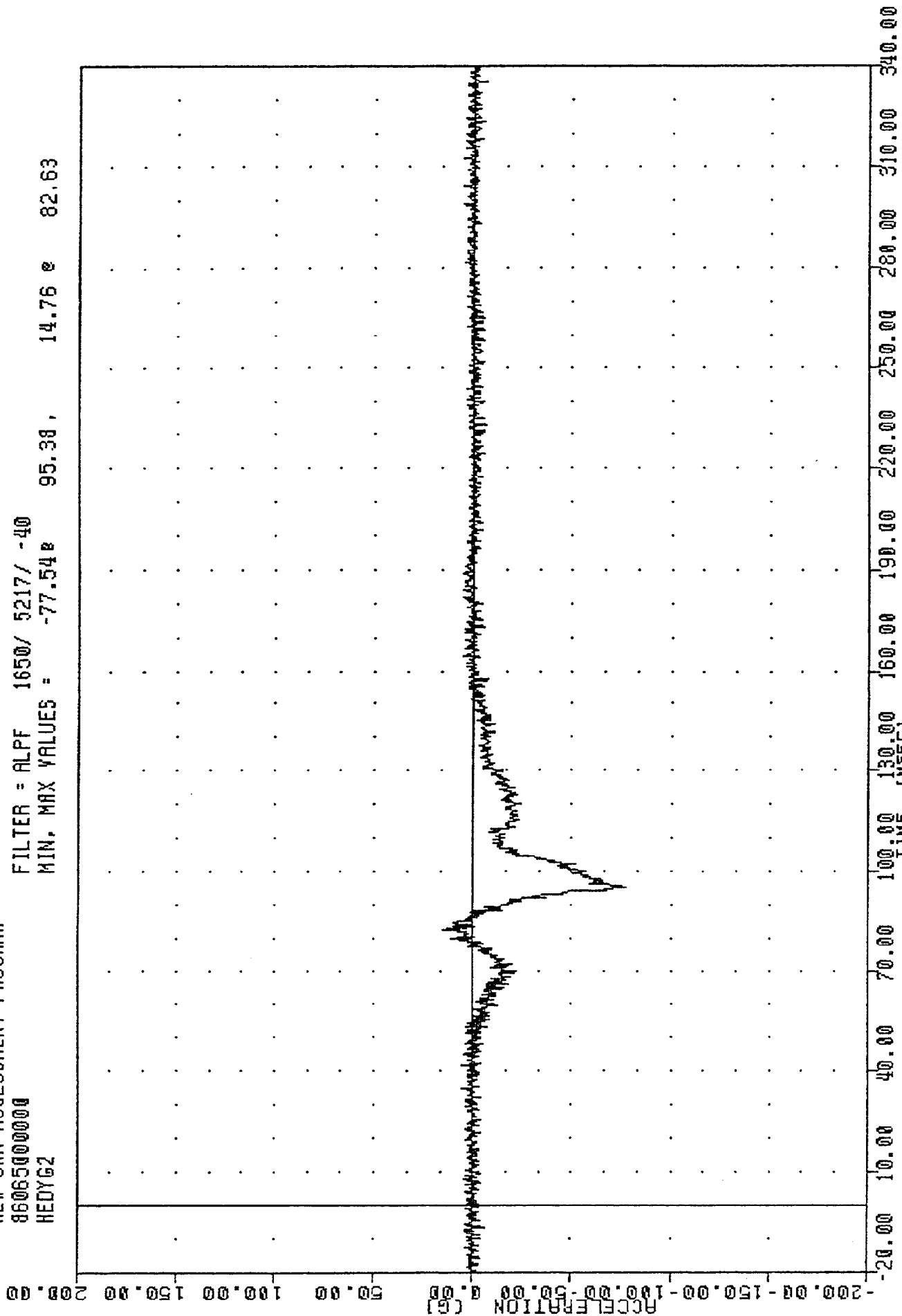
TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDX62

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = -68.27 e 109.25 , 9.67 e 197.38



TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDYG2

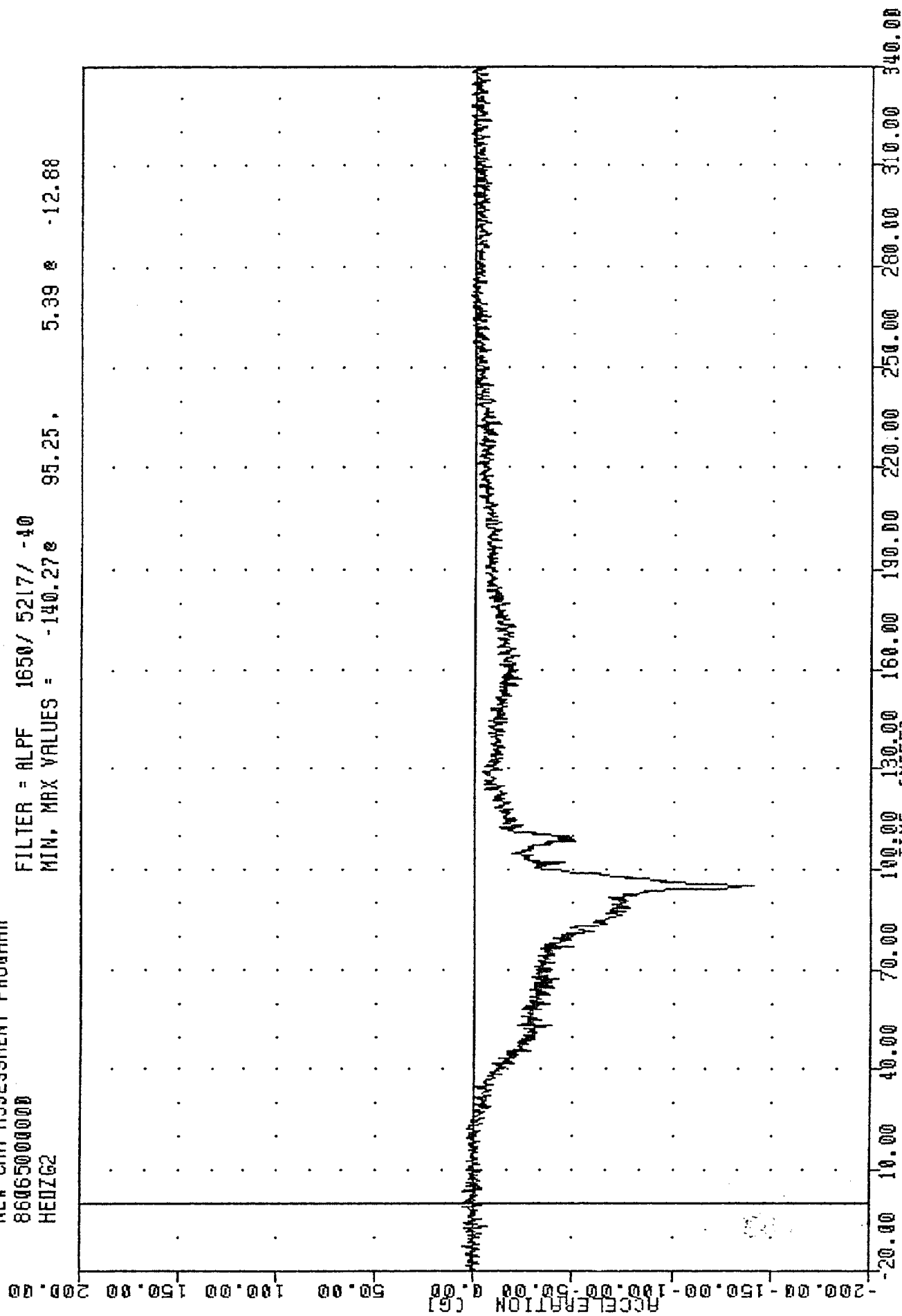
FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -77.54 95.38 , 14.76 82.63



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER HEAD ACCELERATION Y AXIS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDZG2

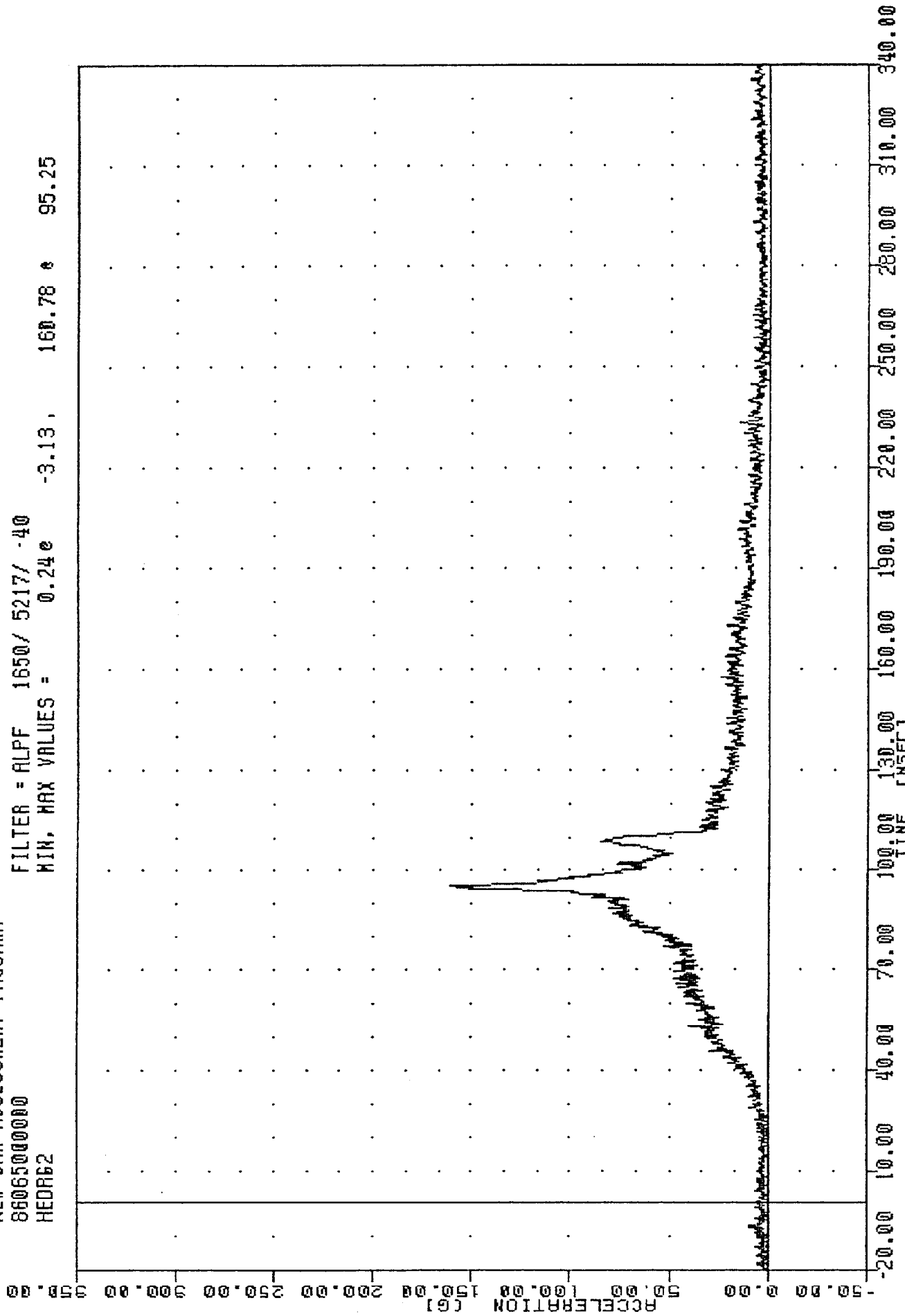
FILTER = ALPF 1650/ 5217/ -40
 MIN. MAX VALUES = -140.27 95.25, 5.39 12.88



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER HEAD ACCELERATION Z AXIS

TRC 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 HEDR62

FILTER = ALPF 1650/ 5217/ -40
 MIN, MAX VALUES = 0.24e -3.13, 160.78 e 95.25



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER HEAD RESULTANT ACCELERATION

NEW CAR ASSESSMENT PROGRAM

860650000000

CSTXG2

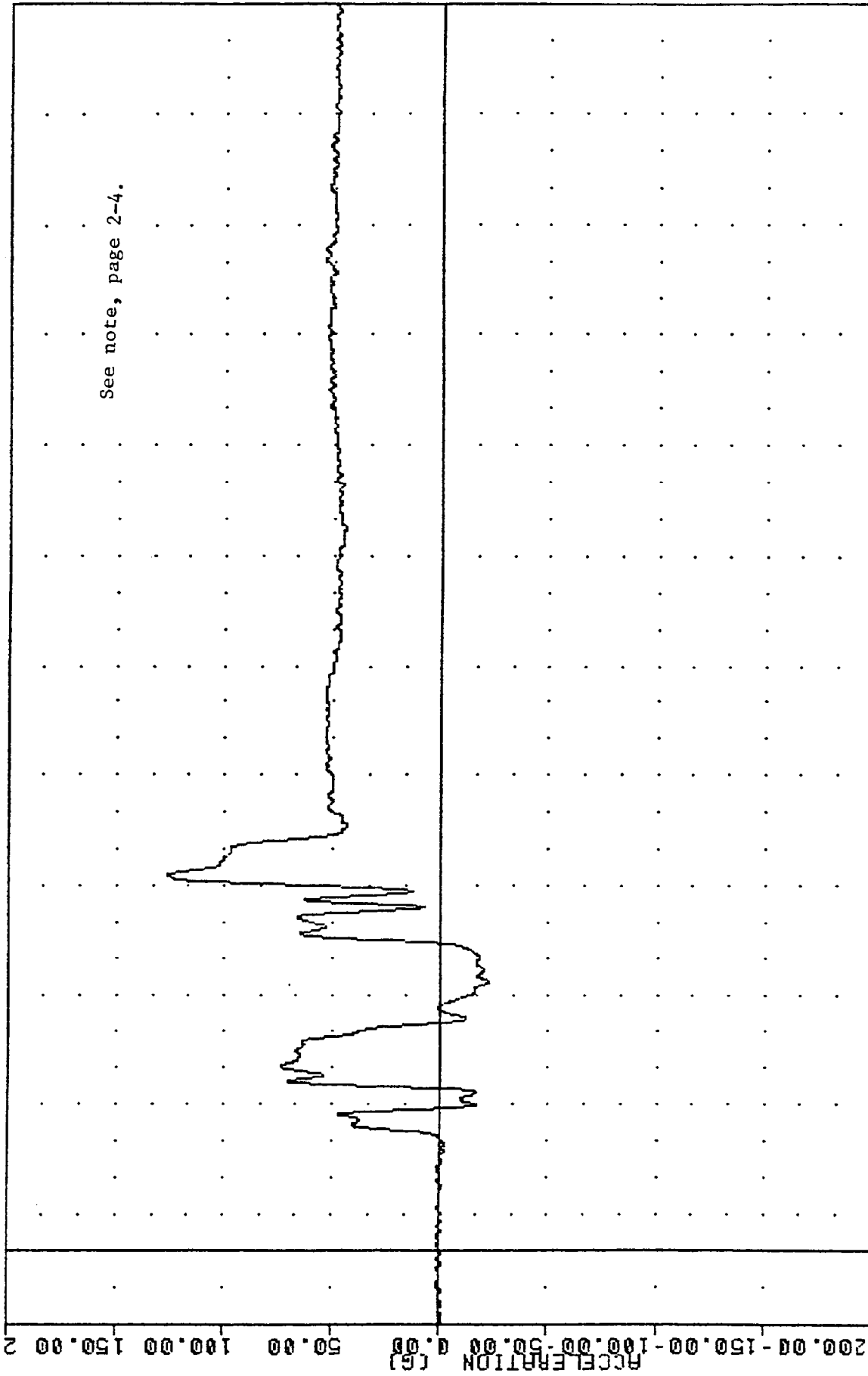
FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -22.39 73.38 , 126.33 102.75

ACCELERATION (G)

B-20

860306



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

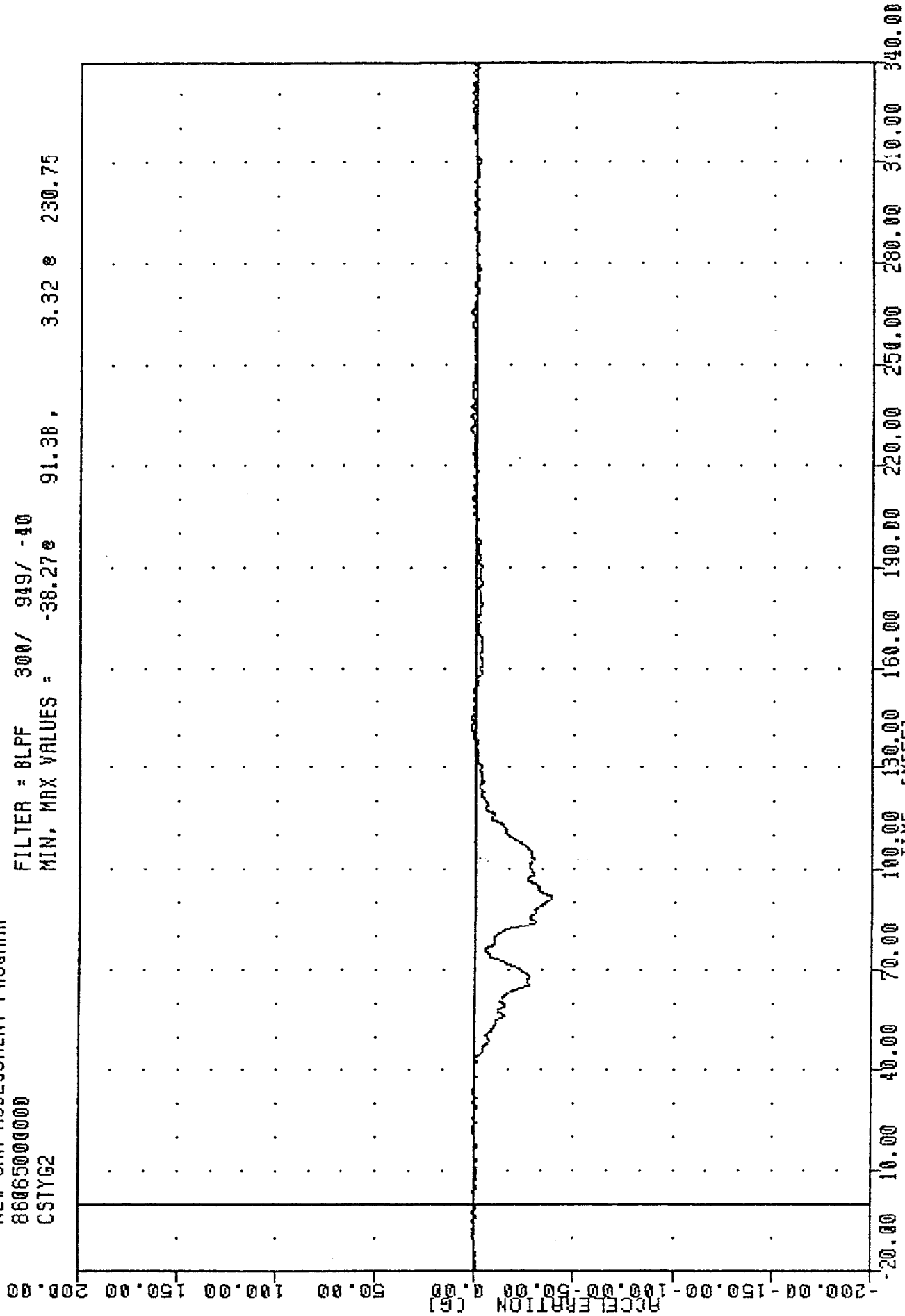
JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER

PASSENGER CHEST ACCELERATION X AXIS

PRINTED AT GOVERNMENT EXPENSE

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 CSTYG2

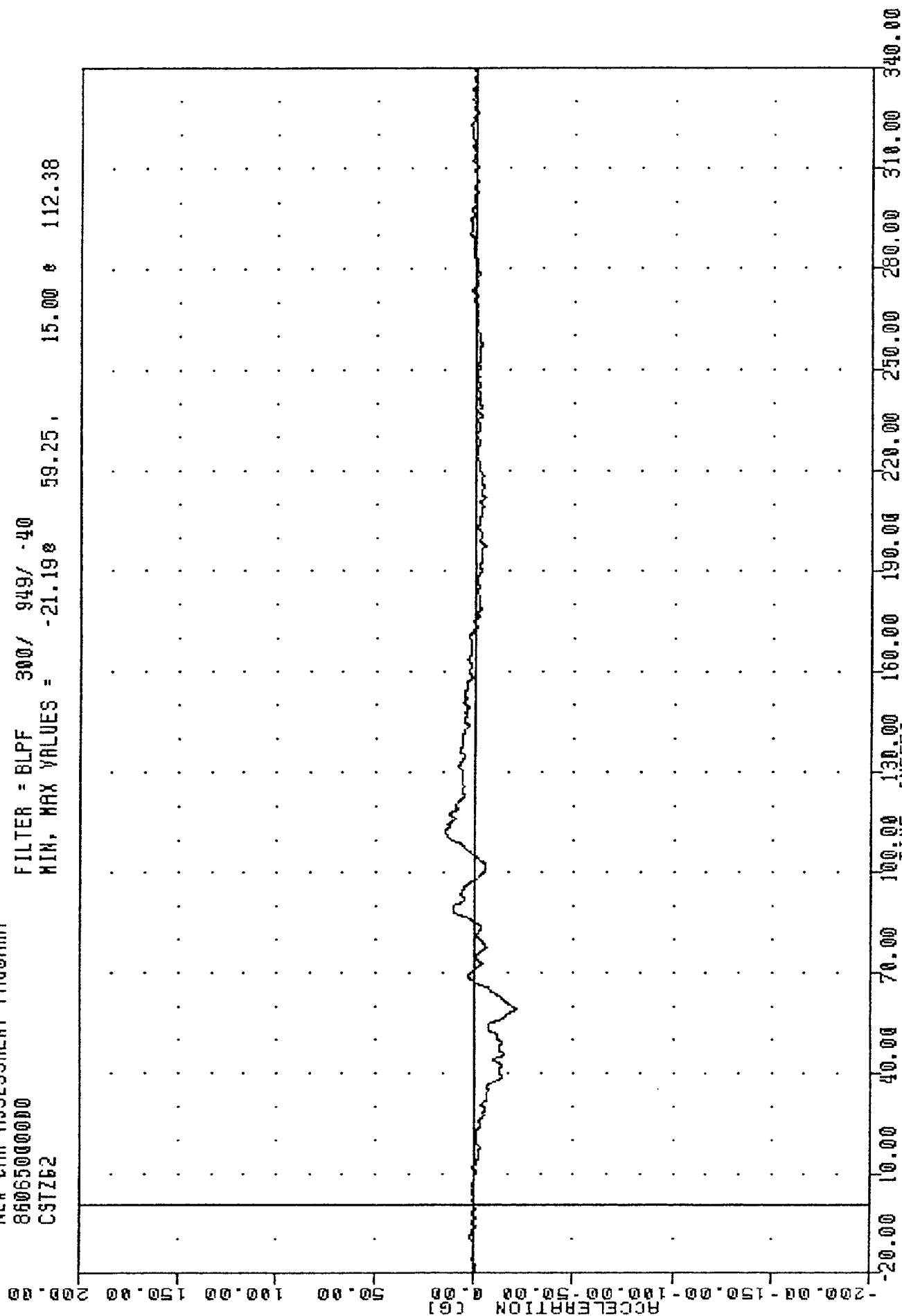
FILTER = 8LPF 300/ 949/ -40
 MIN. MAX VALUES = -38.27e 91.38, 3.32 e 230.75



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER CHEST ACCELERATION Y AXIS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 CSTZ62

FILTER = BLPF 300/ 949/ -40
 MIN, MAX VALUES = -21.190 59.25, 15.00 112.38



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER CHEST ACCELERATION Z AXIS

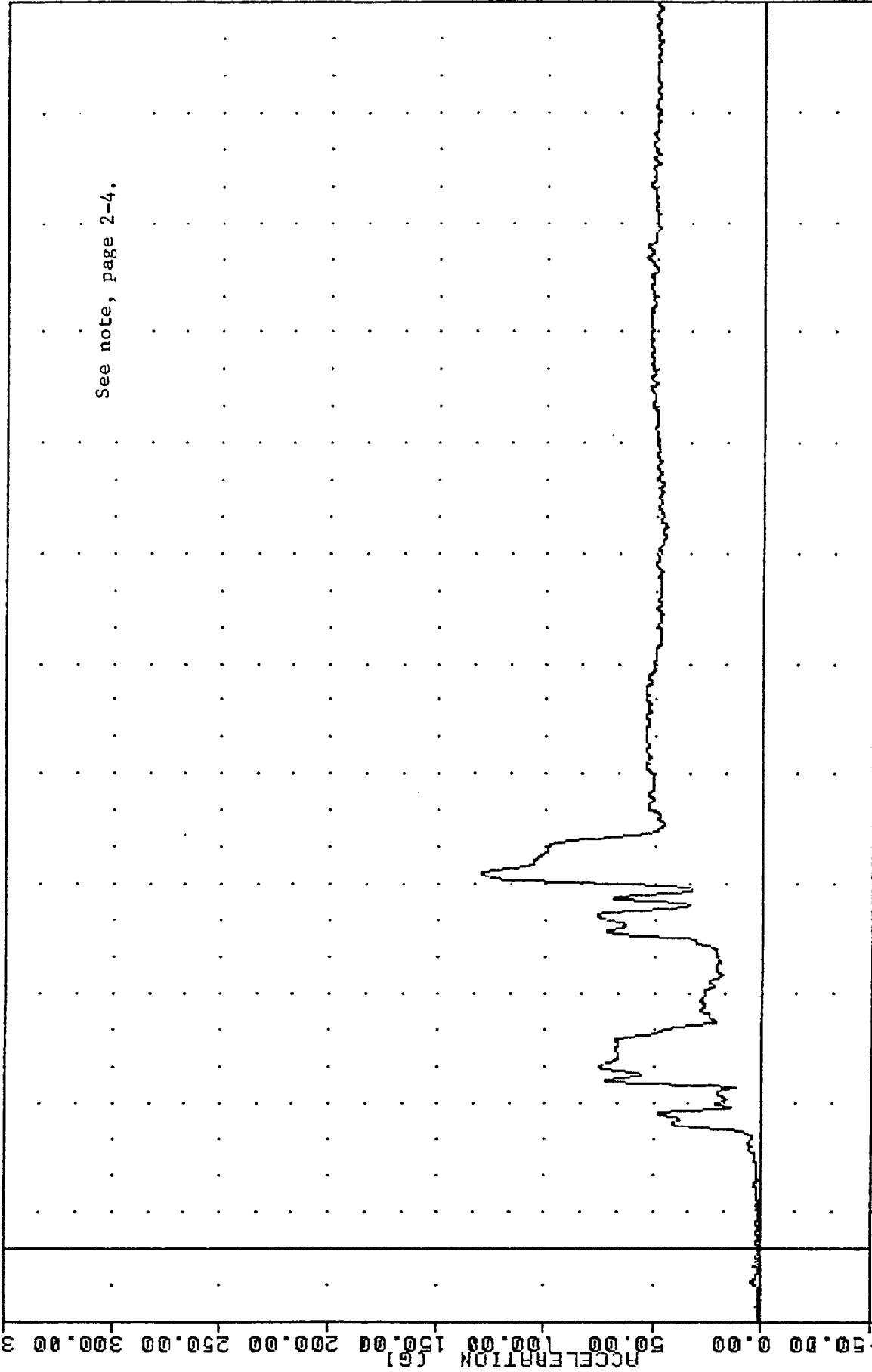
NEW CAR ASSESSMENT PROGRAM

86065000000

CSTRG2

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = 0.088 -6.63 . 129.73 102.75



-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

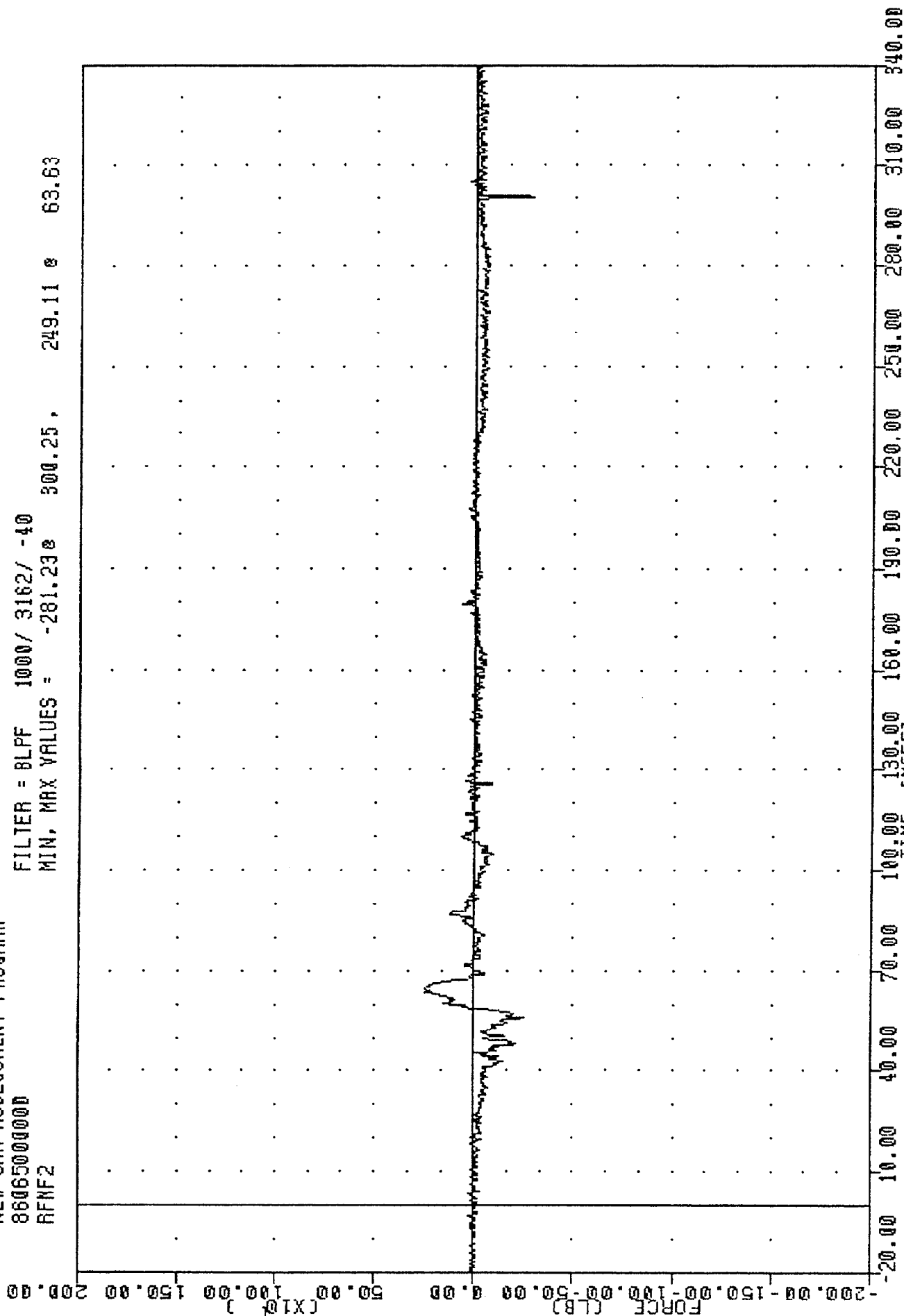
JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER

PASSENGER CHEST RESILIENT ACCELERATION

PRINTED AT GOVERNMENT EXPENSE

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 RKNF2

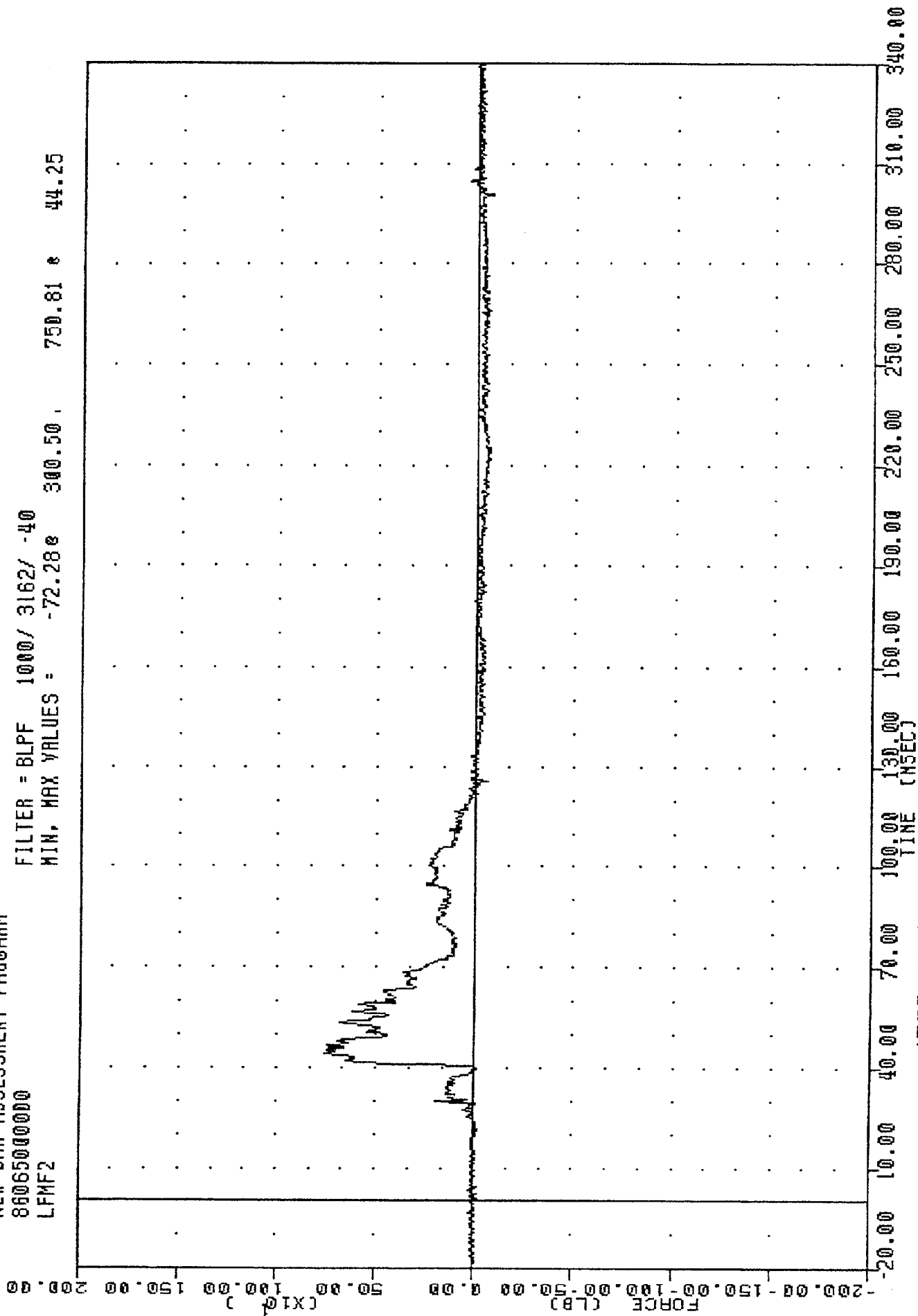
FILTER = 8LPF 1000/ 3162/ -40
 MIN, MAX VALUES = -281.238 300.25, 249.11 8 63.63



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER RIGHT FEMUR FORCE LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LFMF2

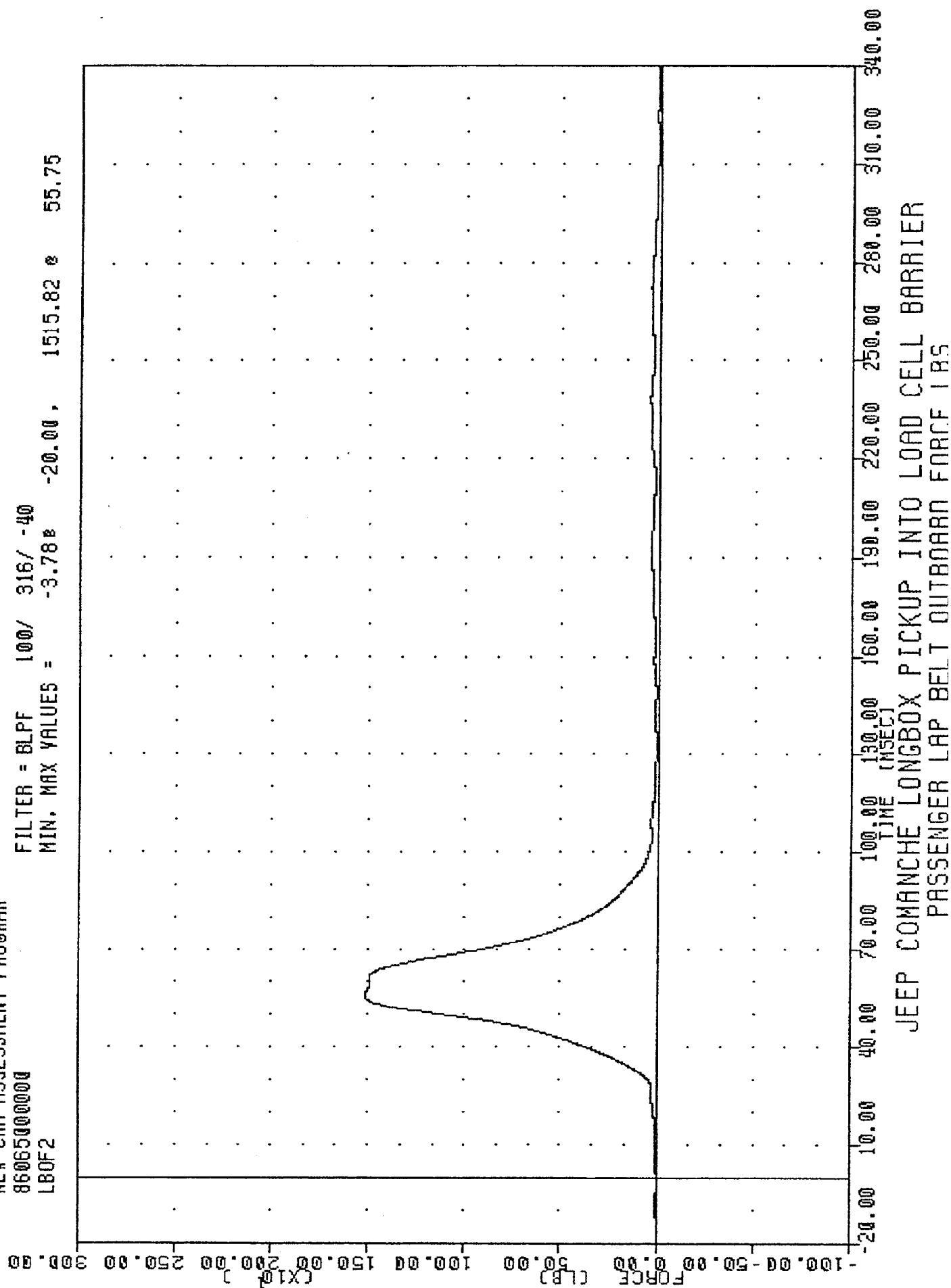
FILTER = BLPF 1000/ 3162/ -40
 MIN, MAX VALUES = -72.28e 300.50 , 750.81 e 44.25



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER LEFT FEMUR FORCE LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LB0F2

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -3.78 1515.82 2 55.75

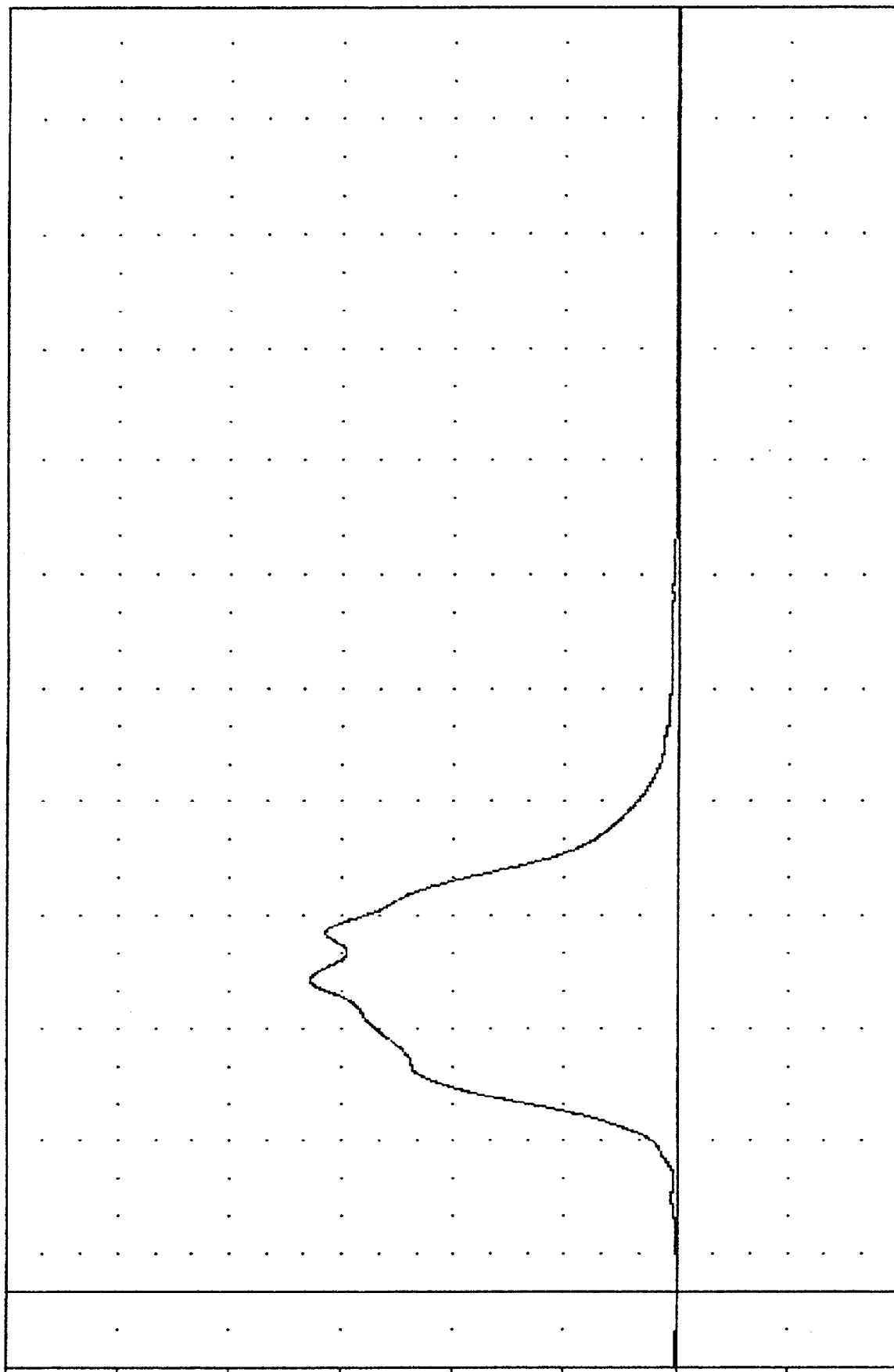


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER LAP BELT OUTBOARD FORCE IRS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 SHBF2

FILTER = 8LFF 100/ 316/ -40
 MIN, MAX VALUES = -3.070 -4.63, 1639.81 0 83.00

FORCE (LB)
 (X10³)



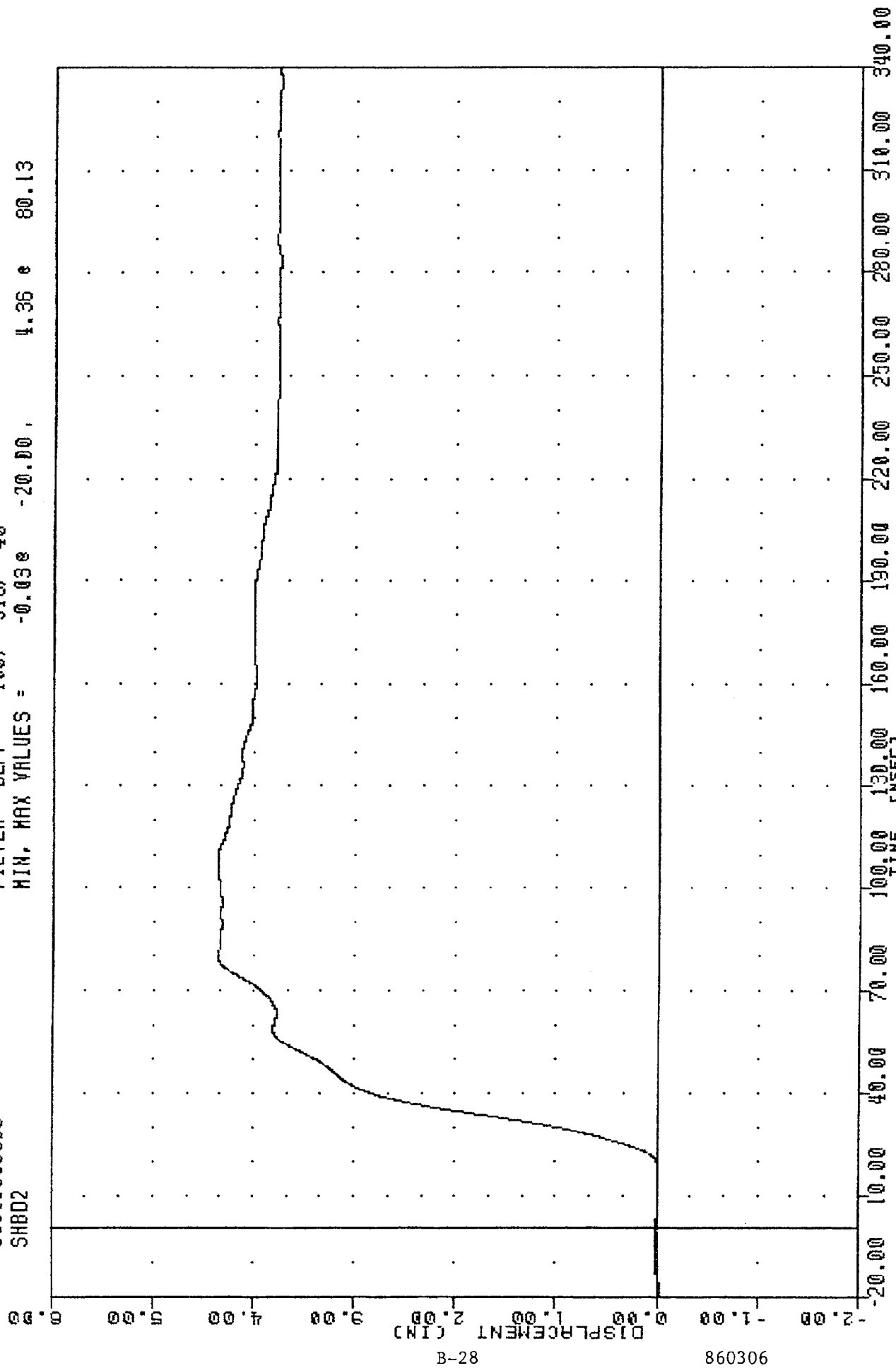
B-27

860306

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER SHOULDER BELT FORCE LBS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 SHBD2

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -0.03e -20.00 , 4.36 e 80.13

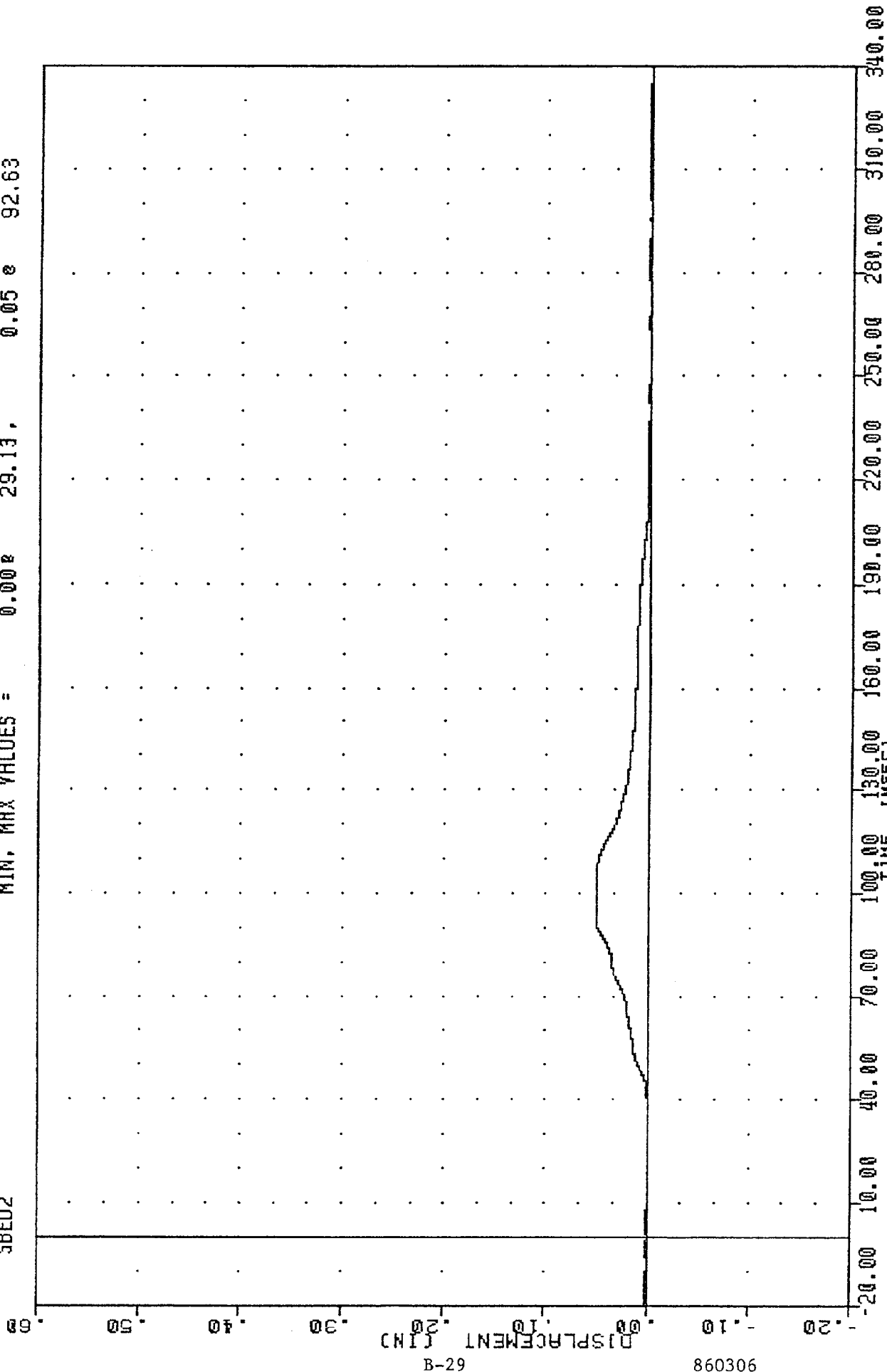


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER SHOULDER BELT DISPLACEMENT INCHES

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 SBED2

860306

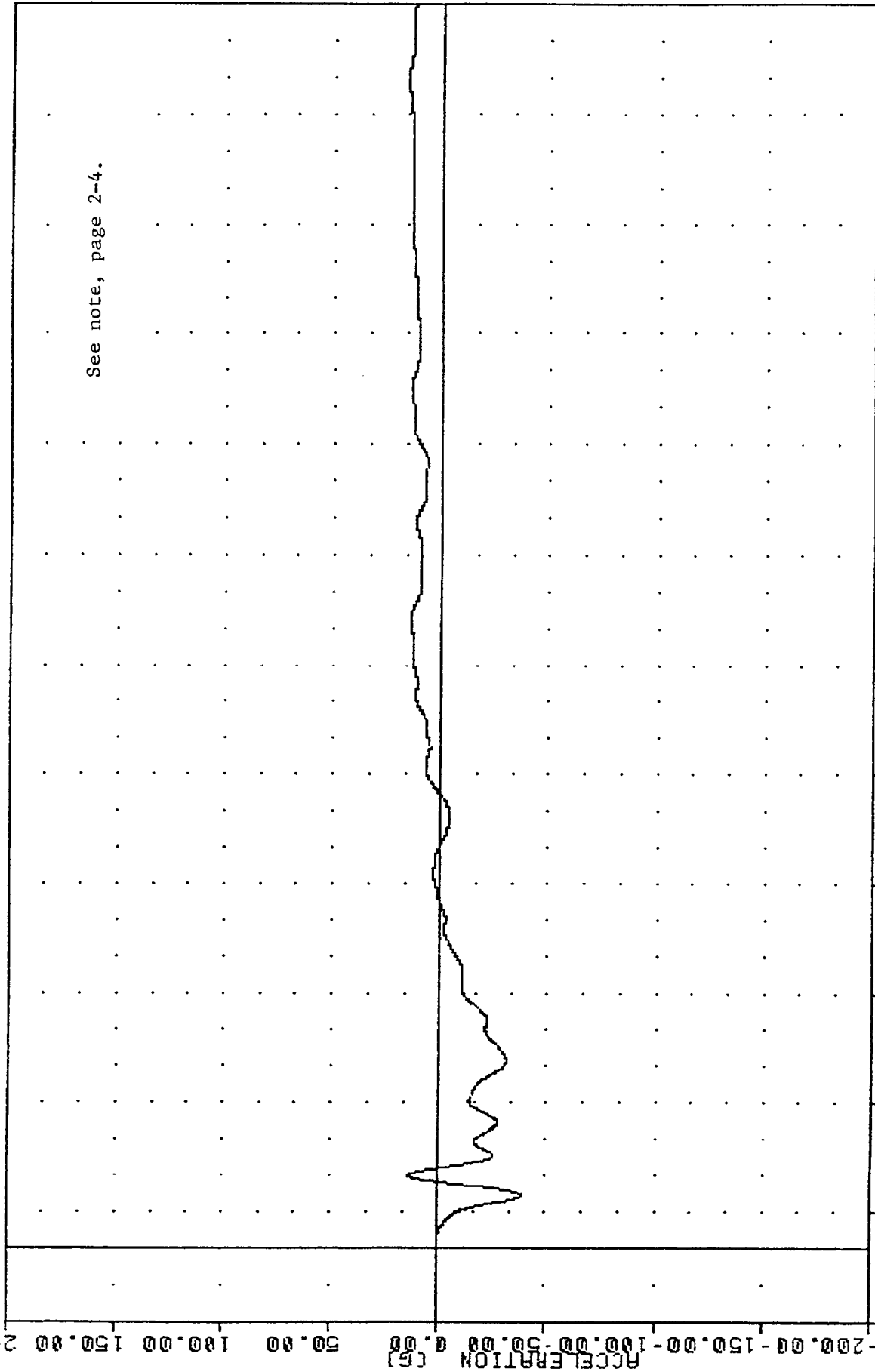
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = 0.00 29.13, 0.05 92.63



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 PASSENGER SEAT BELT EXTENSION INCHES

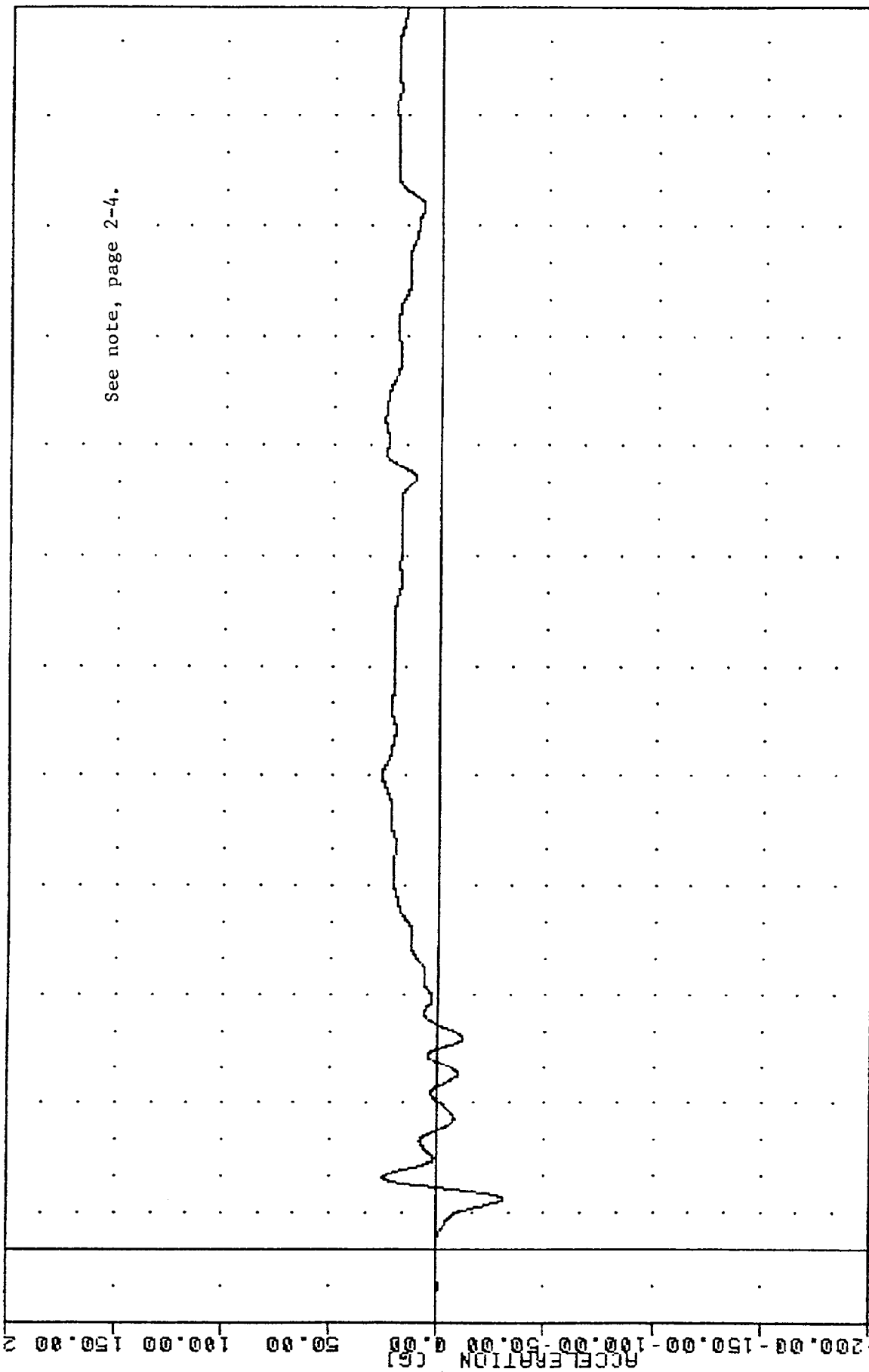
TRC 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 TLRXG1

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -39.18e 14.38, 15.99 e 320.88



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LEFT RFAR SEAT ACCELERATION X AXIS
 PRINTED AT GOVERNMENT EXPENSE

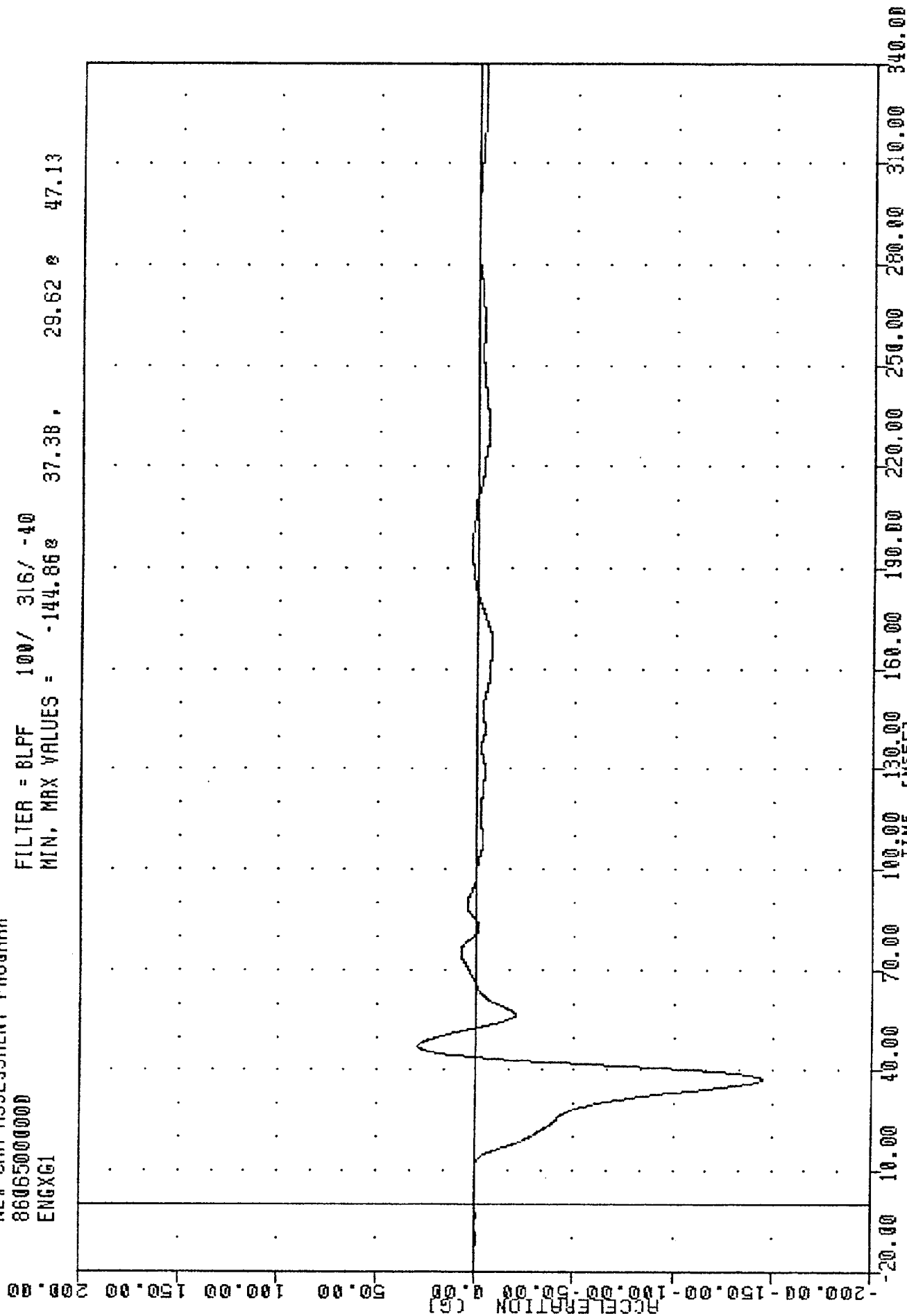
860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 TRAXG1
 FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -30.63e 13.75. 26.97 e 130.00



-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)
 JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 RIGHT REAR SEAT ACCELERATION X AXIS
 PRINTED AT GOVERNMENT EXPENSE

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 ENGXC1

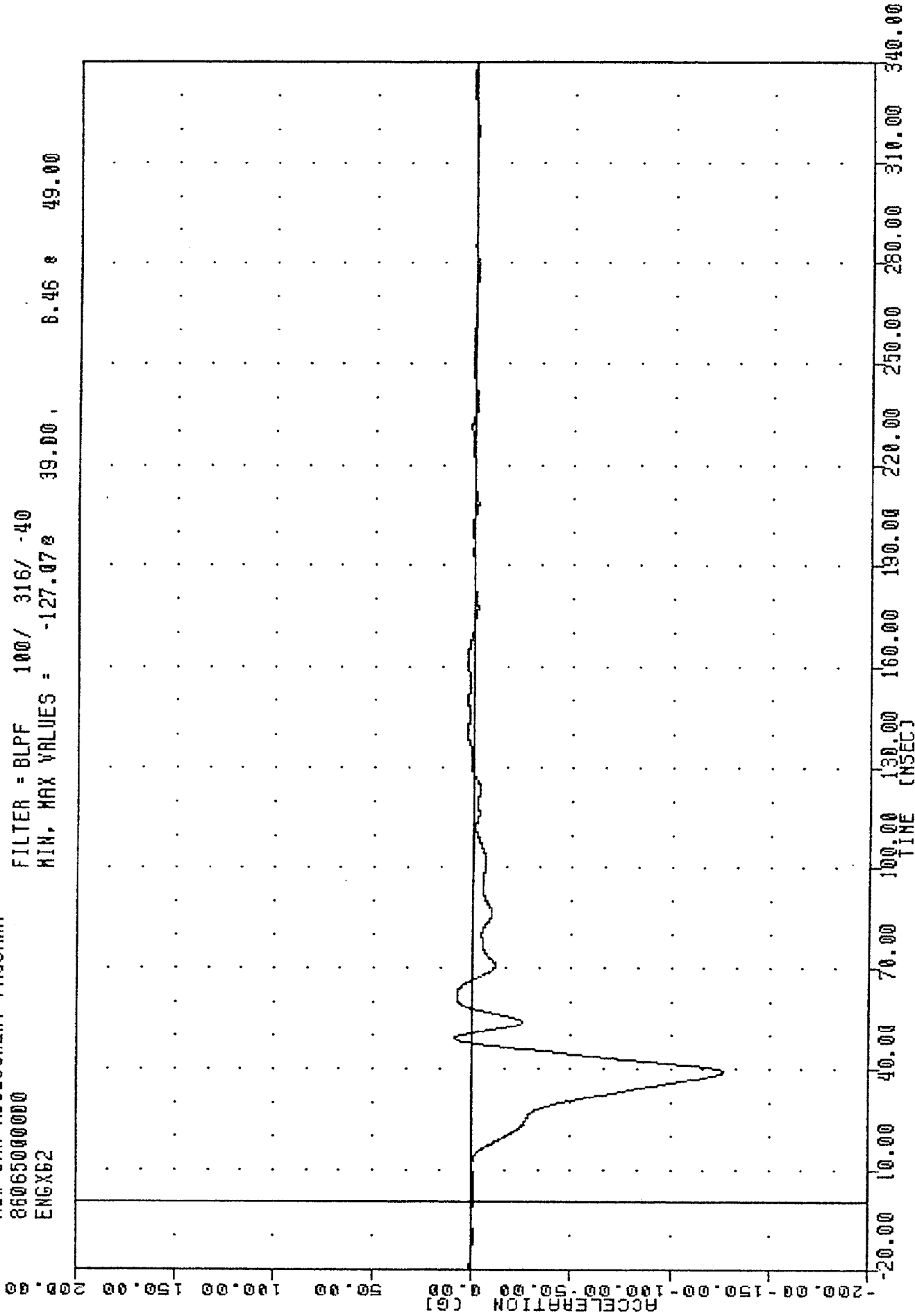
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -144.868 37.38, 29.62 8 47.13



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 ENGINE UPPER BLOCK ACCELERATION X AXIS

TAC
NEW CAR ASSESSMENT PROGRAM
86065000000
ENGX62

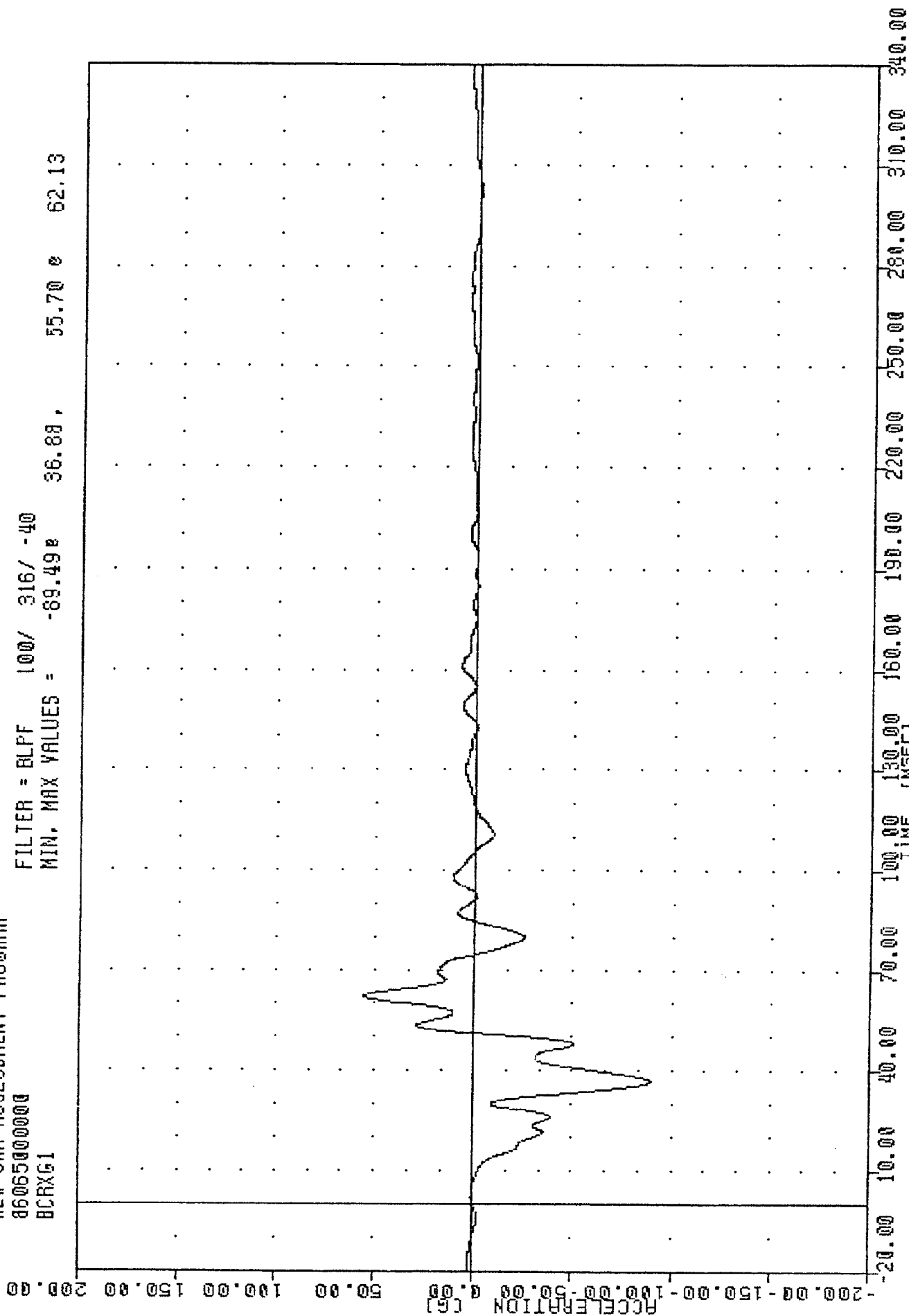
FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -127.07g 39.00, 8.46 s 49.00



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
ENGINE LOWER BLOCK ACCELERATION X AXIS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BCRXG1

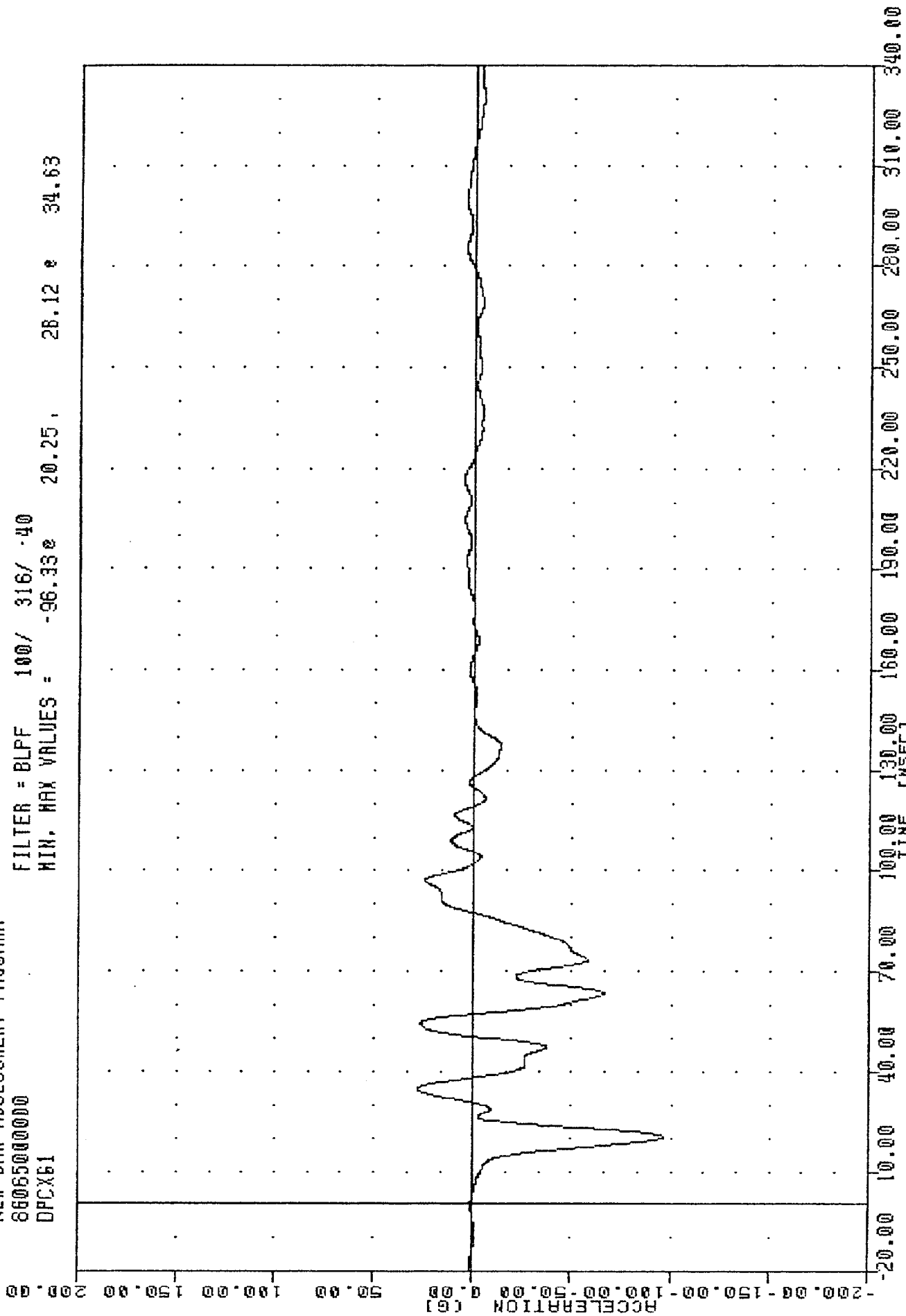
FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -89.49 36.88 , 55.70 62.13



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 RIGHT BRAKE CALIPER ACCELERATION X AXIS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860850000000
 DPCX61

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -96.33e 20.25, 28.12 e 34.63

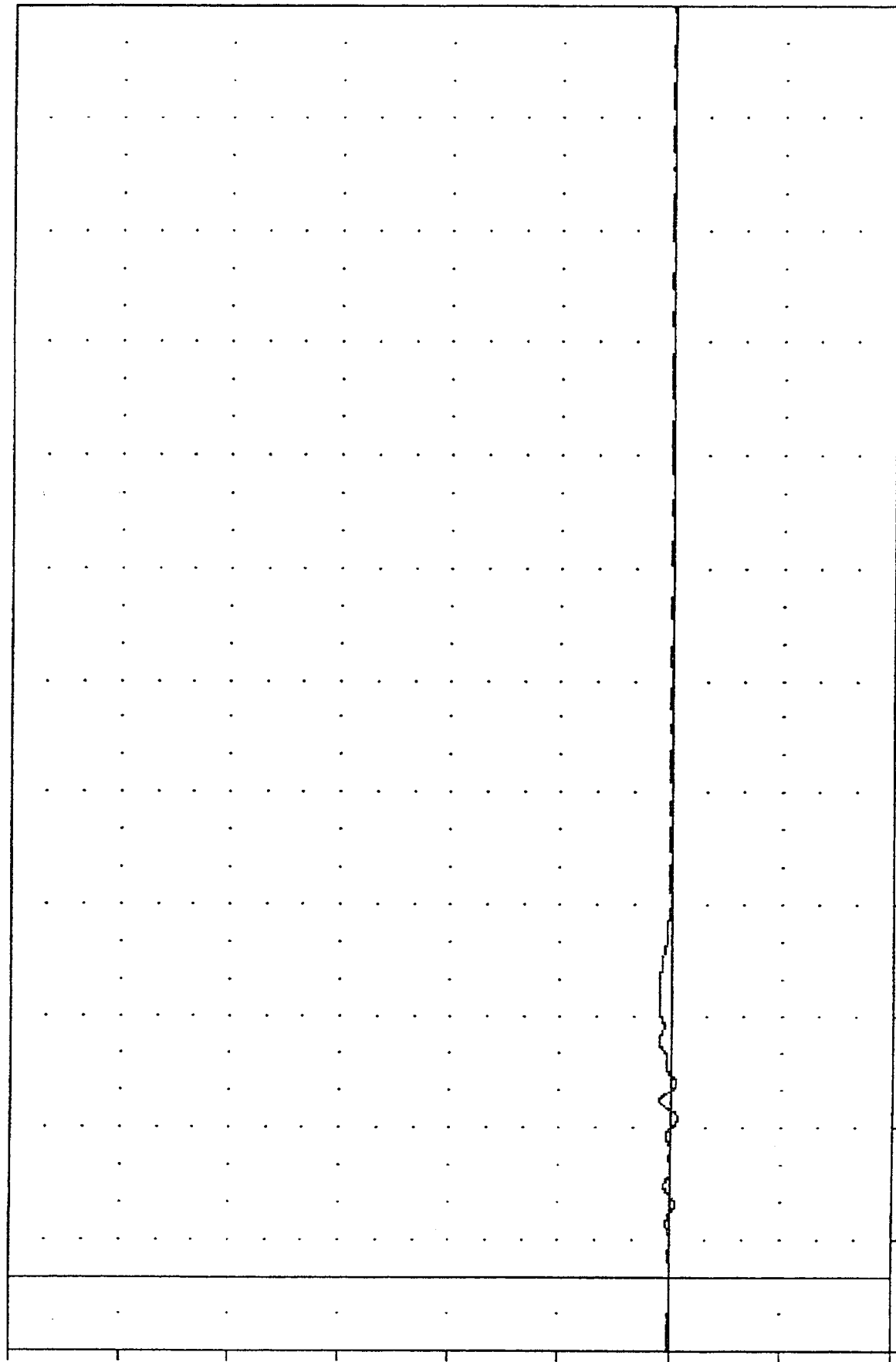


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 DASH PANEL CENTER ACCELERATION X AXIS

TRC
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 BD1F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -384.01 42.63, 531.30 e 78.25

FORCE (LB)
 (X10³)



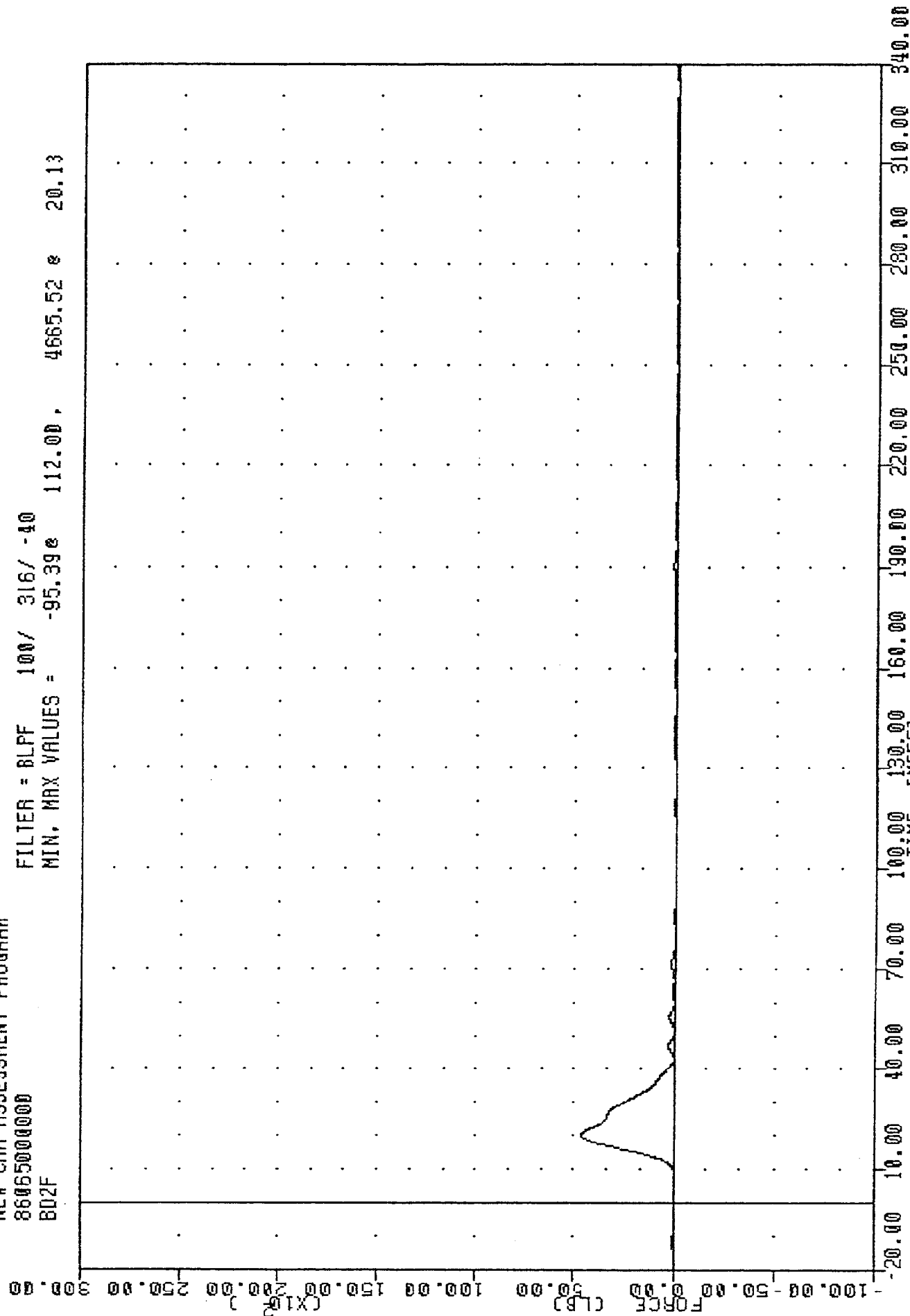
B-36

860306

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 01 LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BD2F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -95.39e 112.00, 4665.52 e 20.13

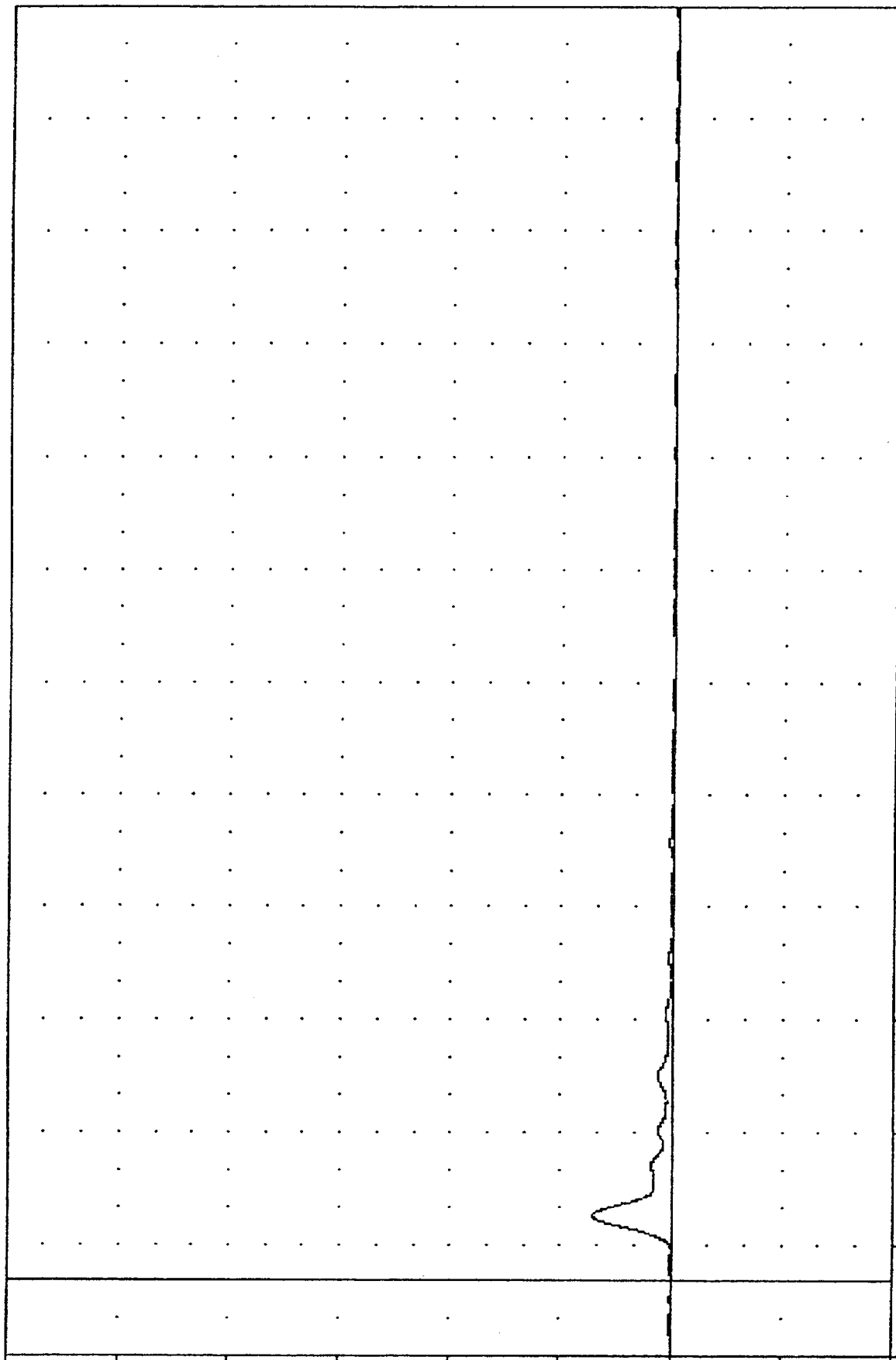


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 INAD CELL BARRIER POSITION NO 1 RS

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 B03F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -87.12e 229.88, 3529.25 e 17.50

FORCE (LB)
 (X10³)



B-38

860306

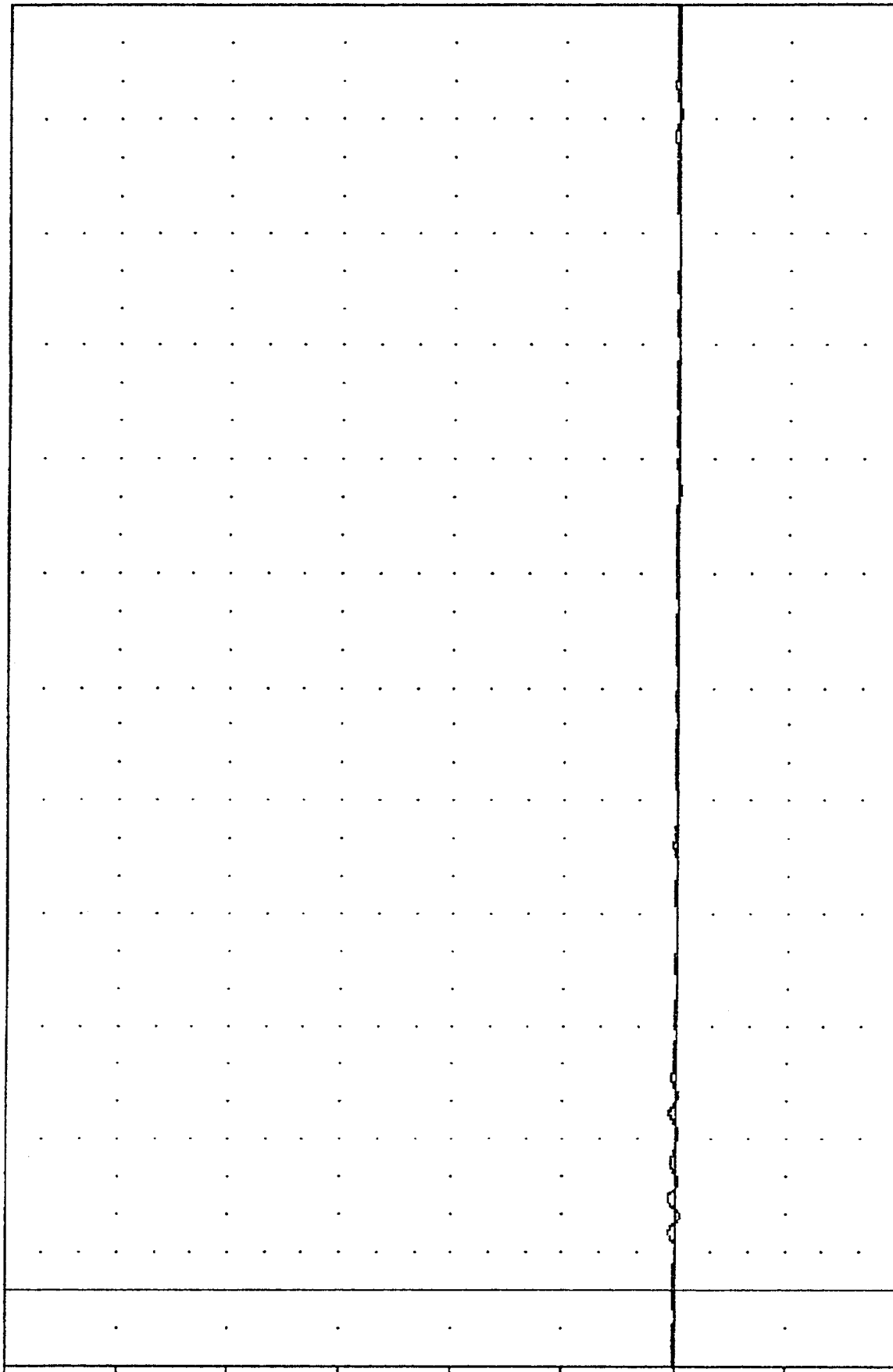
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 03 IRS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BCIF

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -243.94 19.50, 288.75 24.00

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



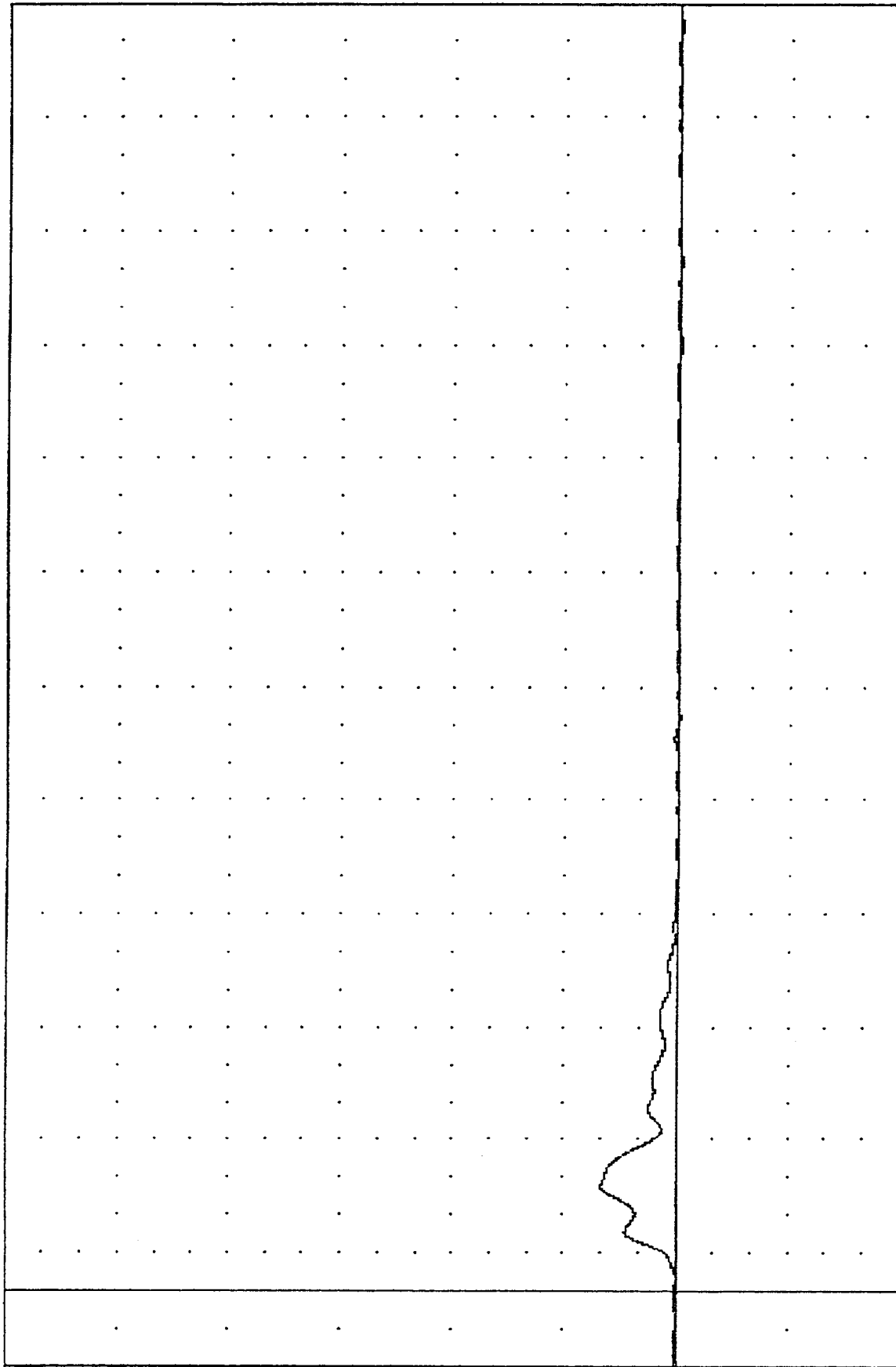
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 LBS

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BC2F

FILTER = 8LPF 100/ 316/ -40
 MIN, MAX VALUES = -148.500 250.25, 3310.18 27.63

FORCE (LB)
 (X10³)
 -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
 TIME (msec)
 JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C2 LBS

TAC

860306

NEW CAR ASSESSMENT PROGRAM

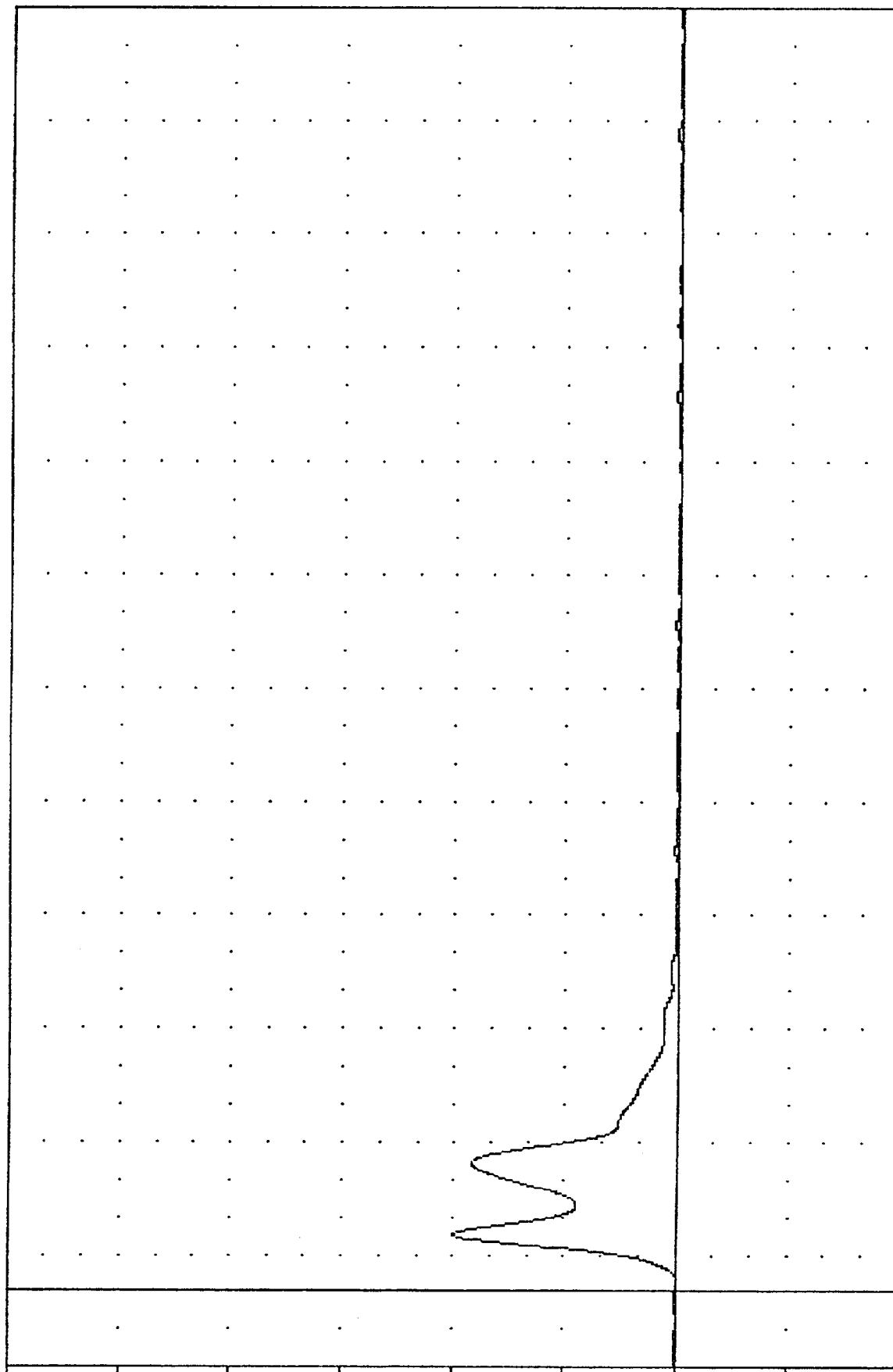
86063000000

BC3F

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -99.12 e 151.25 , 9989.32 e 15.25

FORCE (LBS)
(X10³)



TIME (msec)

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER

LOAD CELL BARRIER POSITION C3 LBS

TRC 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LCBG1F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -436.71 211.88 17897.69 16.38

105.00

90.00

75.00

60.00

45.00

30.00

15.00

0.00

-15.00

-30.00

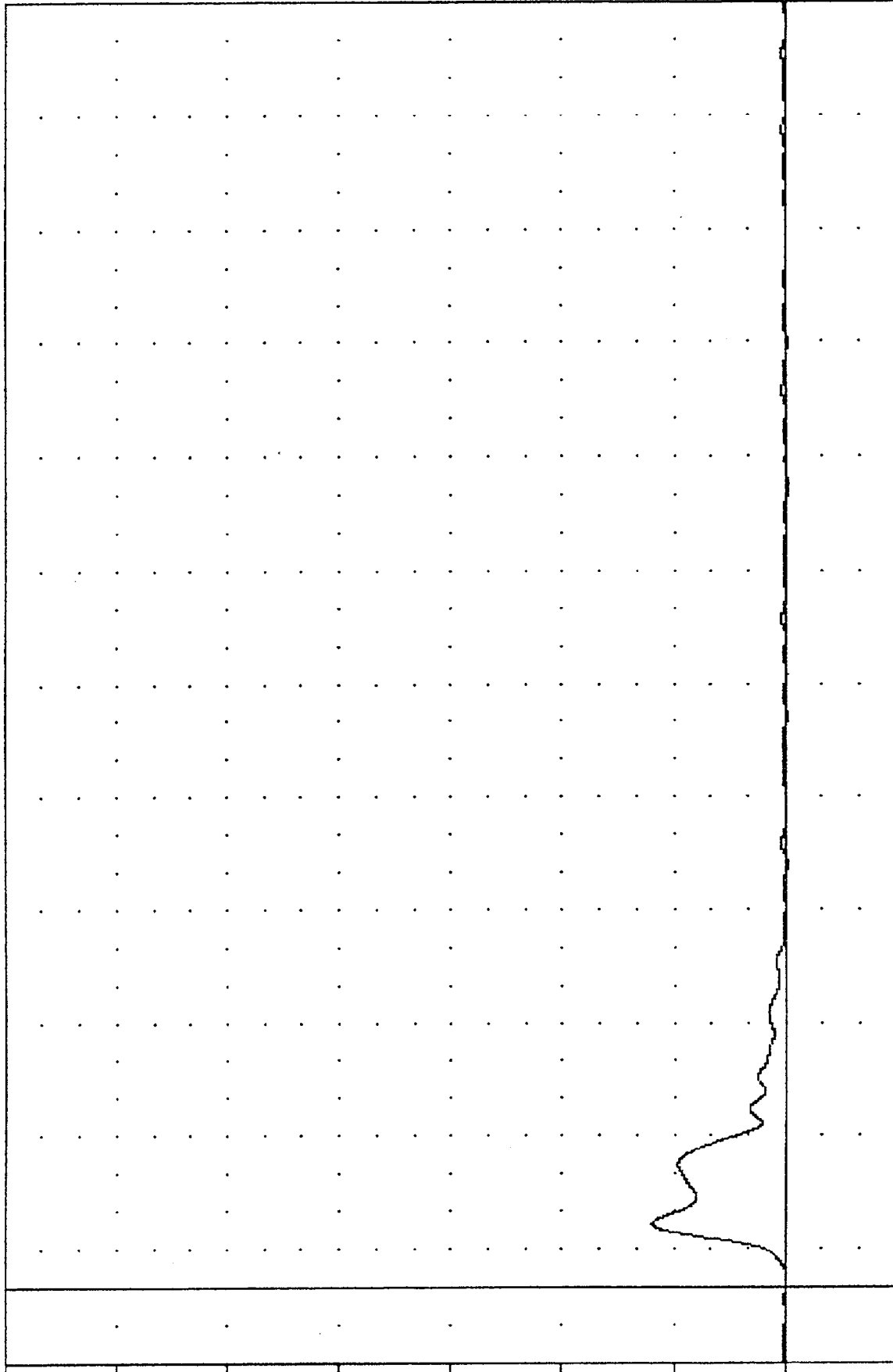
-45.00

-60.00

-75.00

-90.00

-105.00

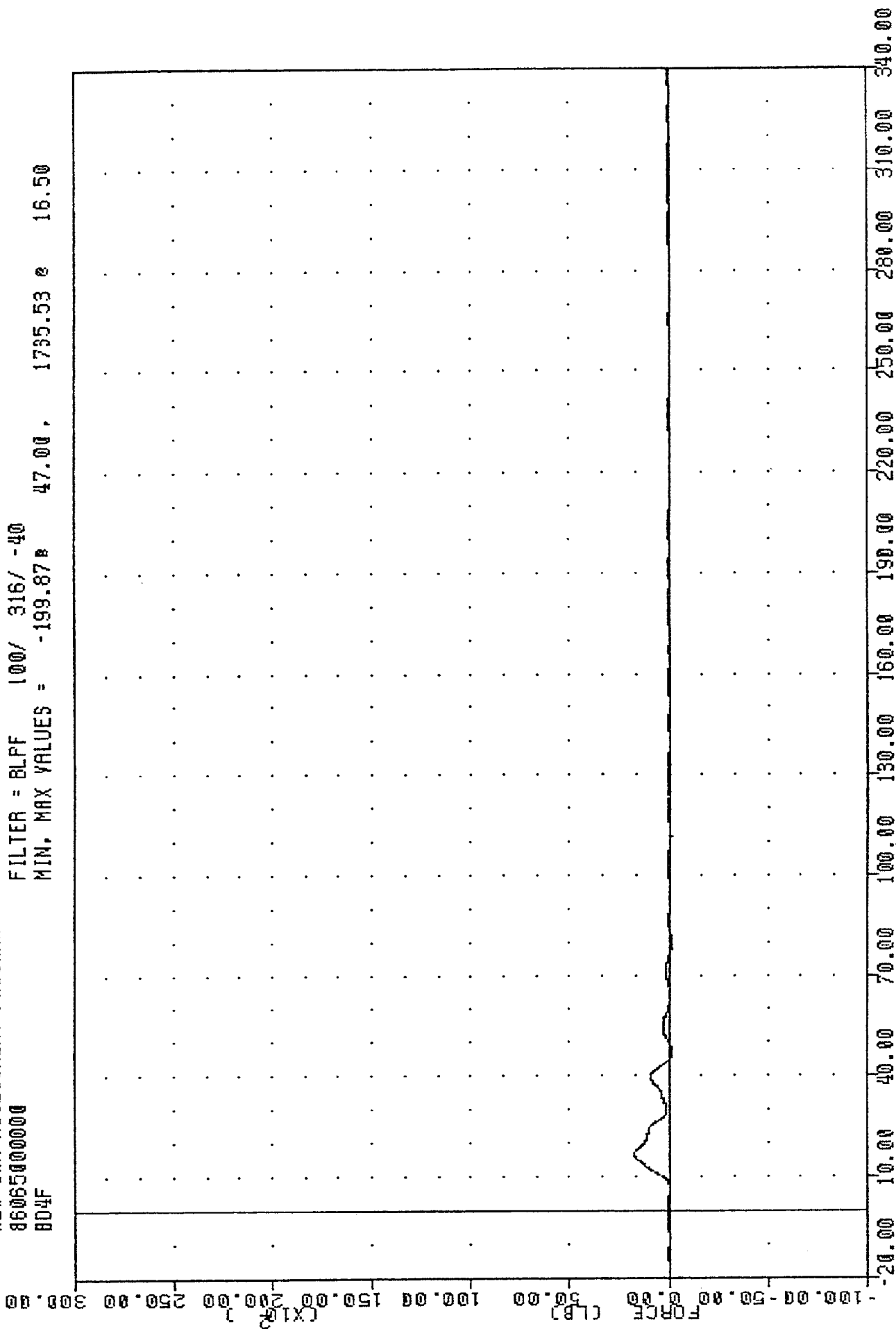


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 1 FORCE TOTAL

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 804F

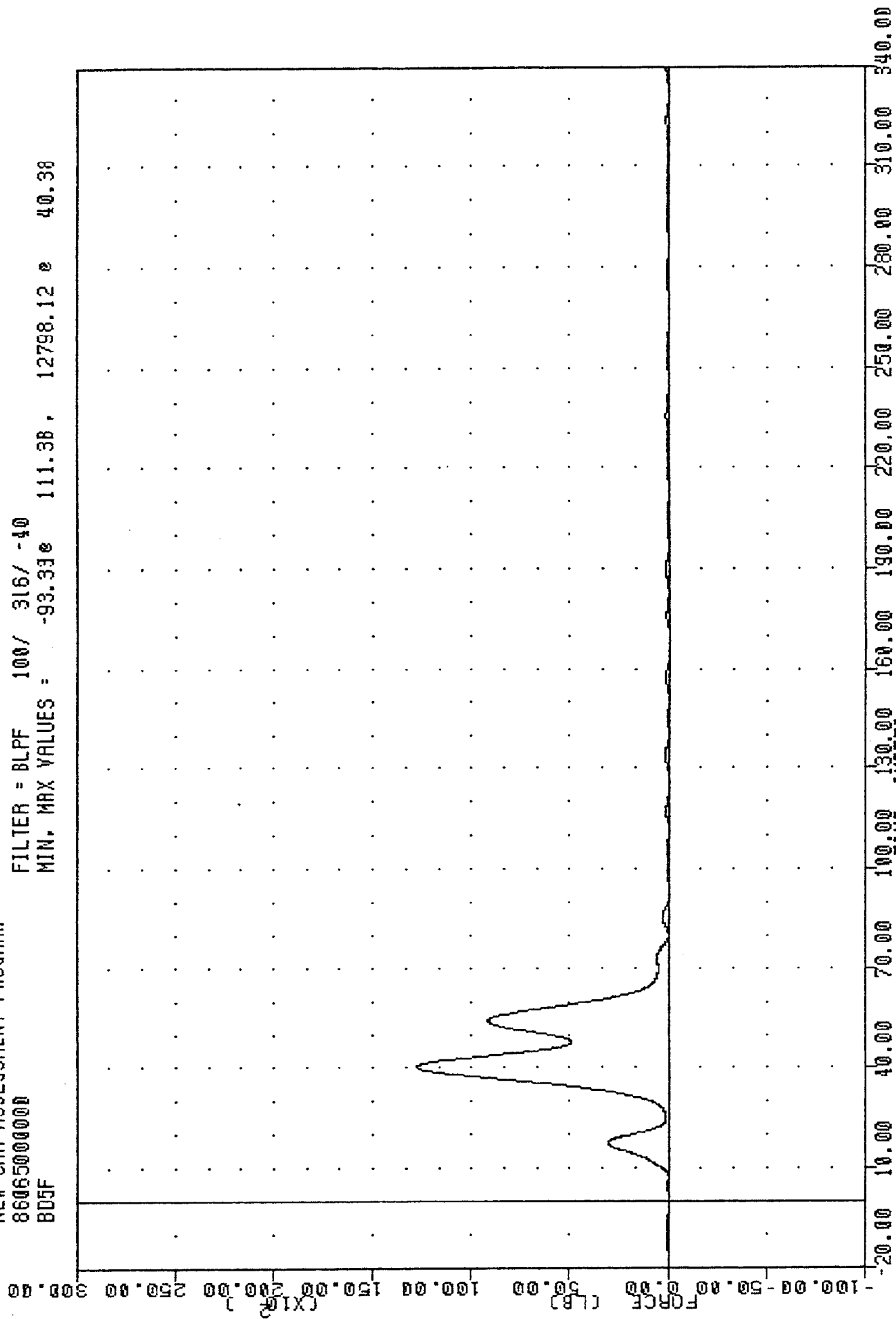
FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -199.87 47.00, 1735.53 16.50



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 INAD CELL BARRIER POSITION 04 1RS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BD5F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -93.33e 111.38, 12798.12 e 40.38



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 1 INAD CFI BARRIER POSITION 05 1 RS

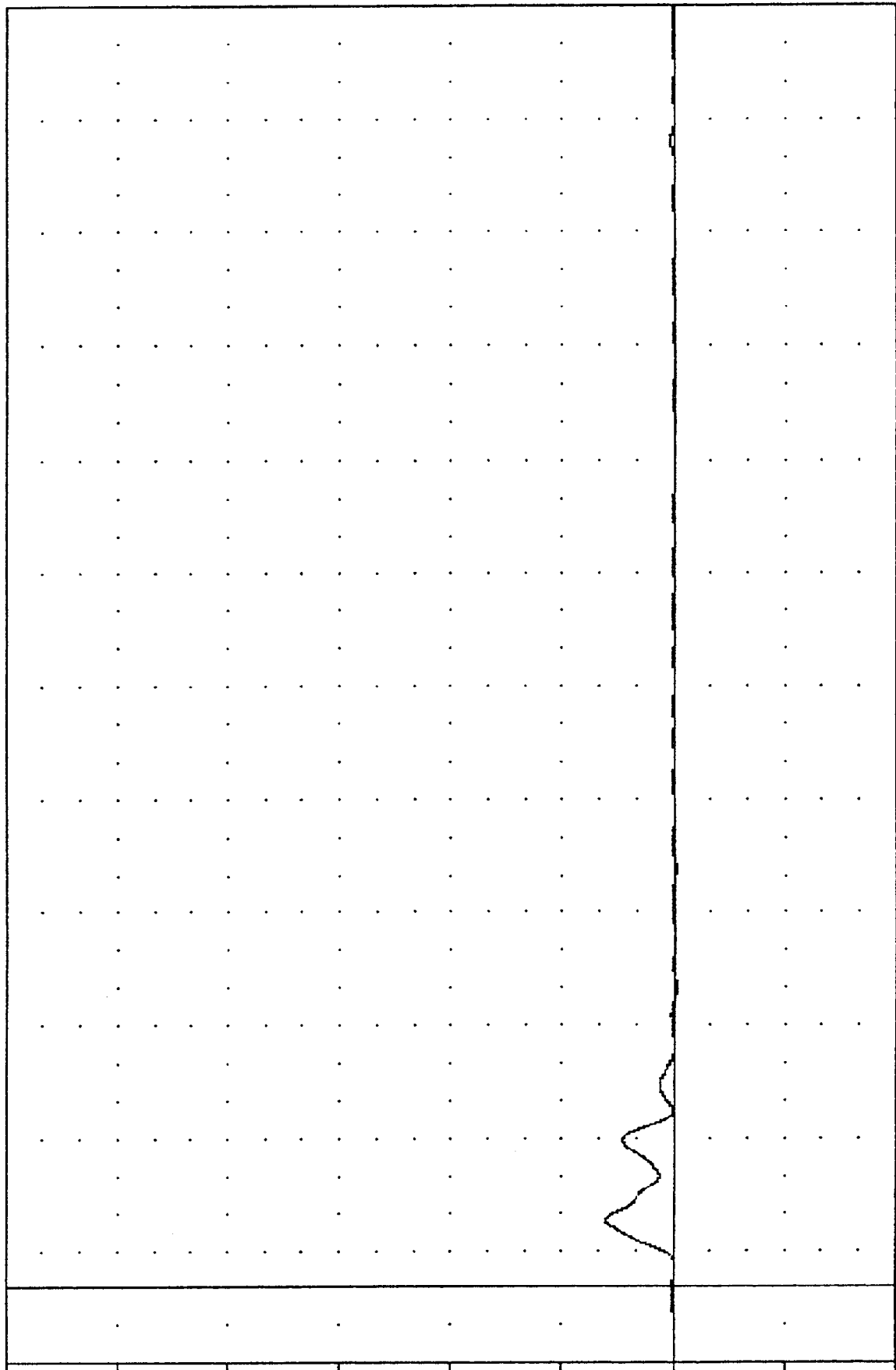
TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 B06F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -132.80e 79.25, 3003.51 e 17.88

FORCE (LB)
 (X10³)

B-45

860306

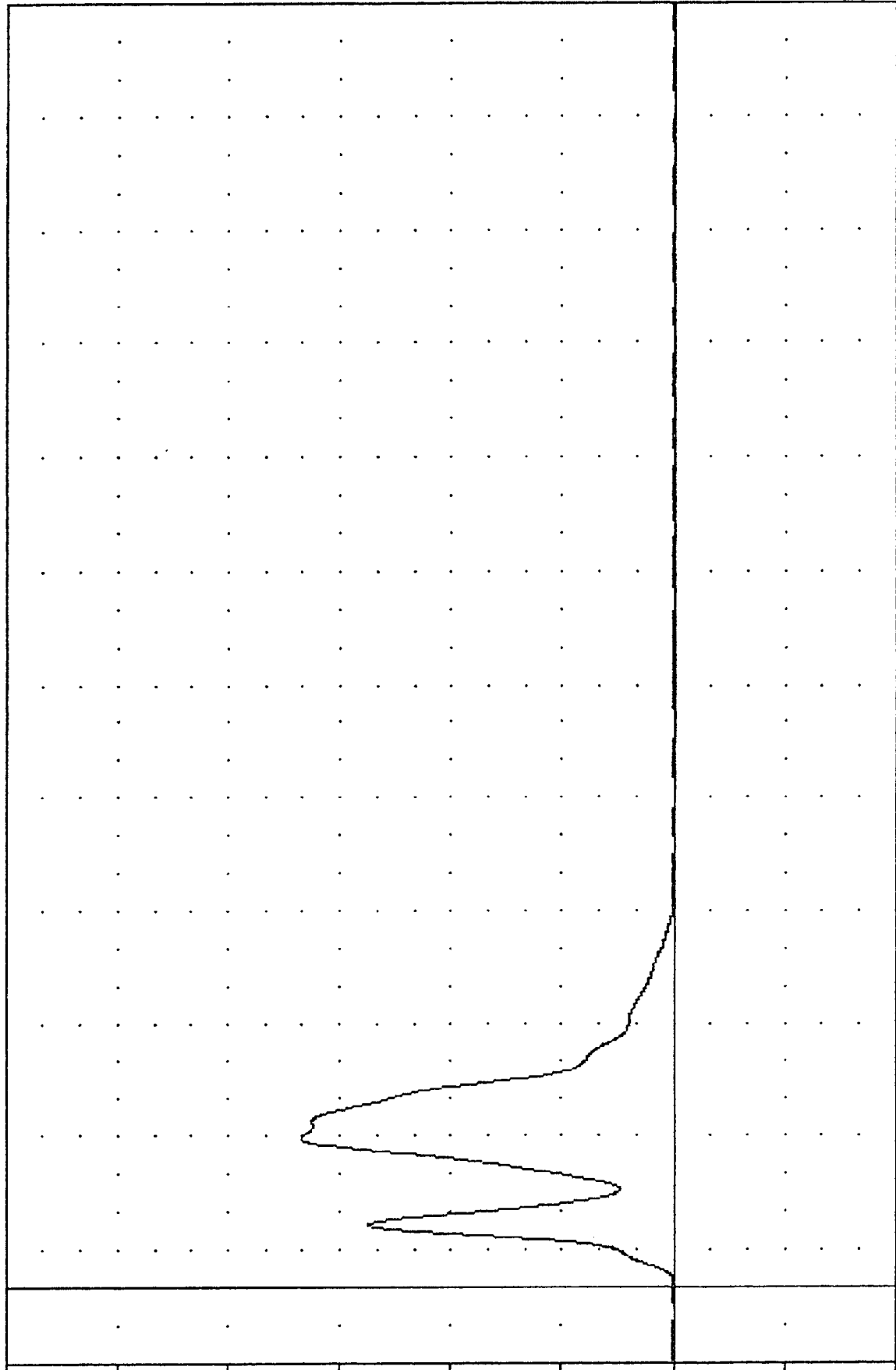


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D6 LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BC4F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -52.94e 131.13, 16728.42 e 39.38

FORCE (LB)
 (X10²)



-20.00 10.00 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

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C4 LBS

TRC 860306

NEW CAR ASSESSMENT PROGRAM

86065000000

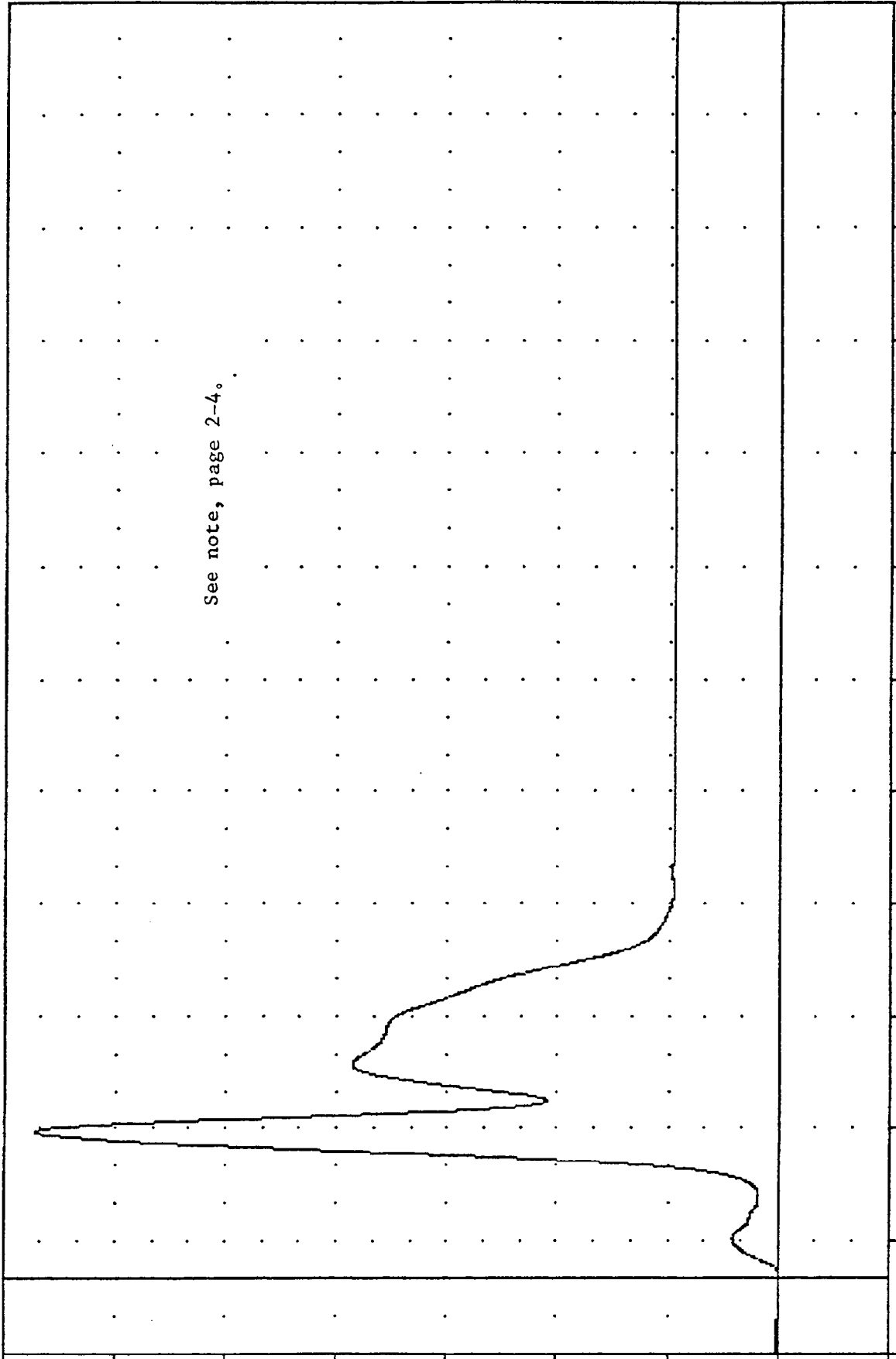
BC5F

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -30.402

-0.75, 40304.13 39.00

FORCE (LB)
(X10³)



-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)

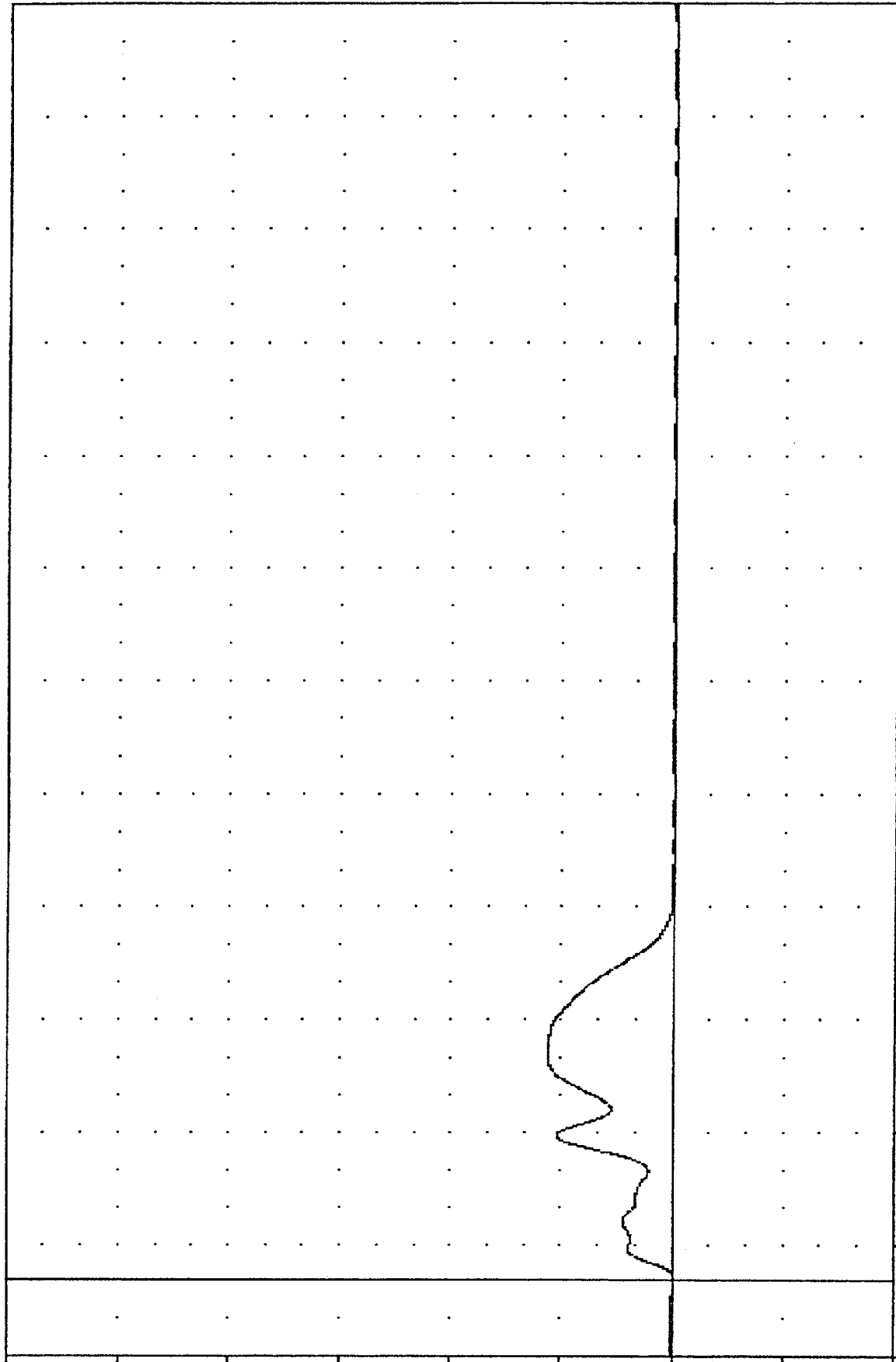
JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER

LOAD CELL CAPACITY 25 LBS
PRINTED AT GOVERNMENT EXPENSE

TAC 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BC6F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -55.81e 310.63, 5598.82 e 60.13

FORCE (LBS)
 (X10²)



-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

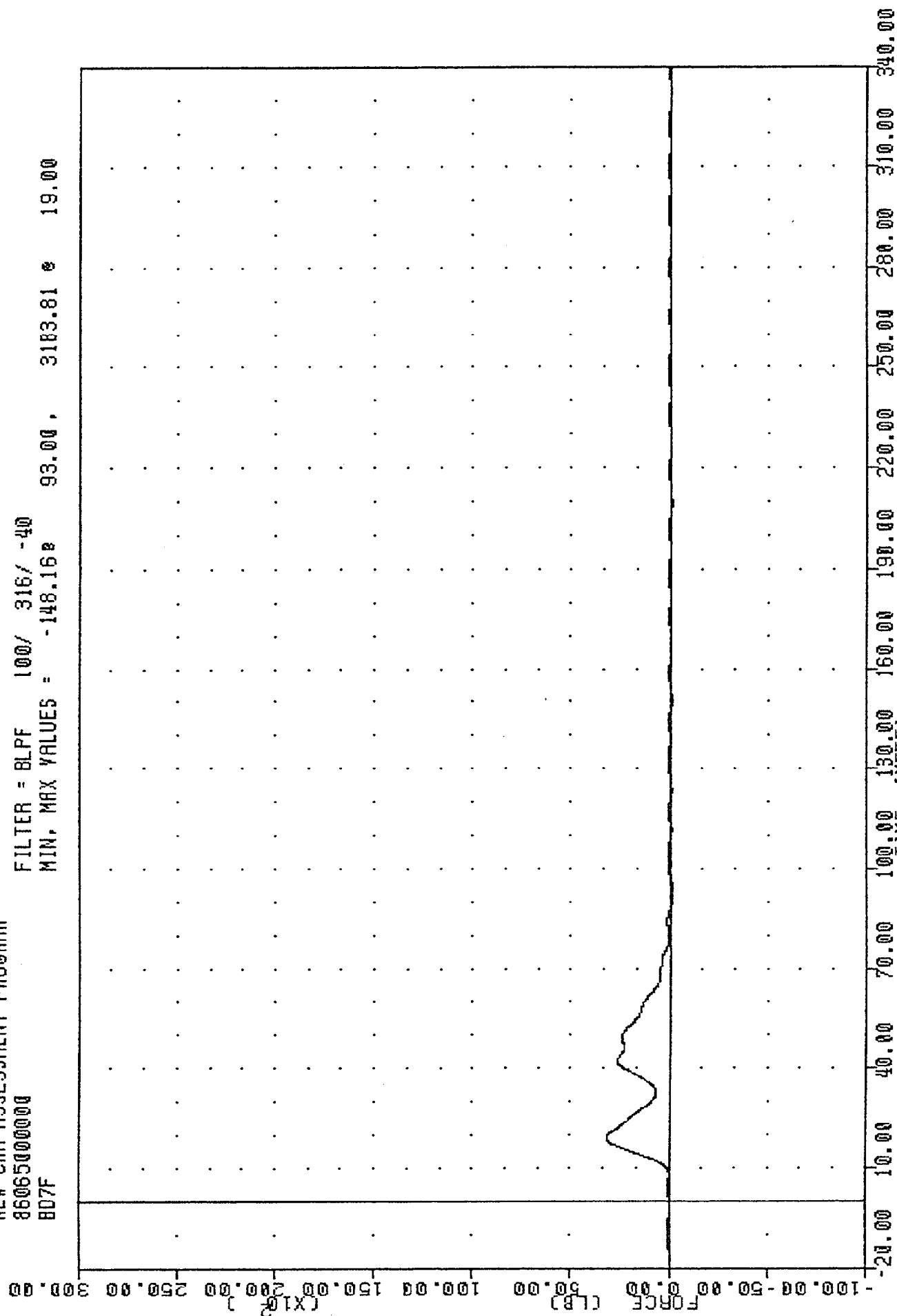
JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C6 LBS

1

PRINTED AT GOVERNMENT EXPENSE

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BD7F

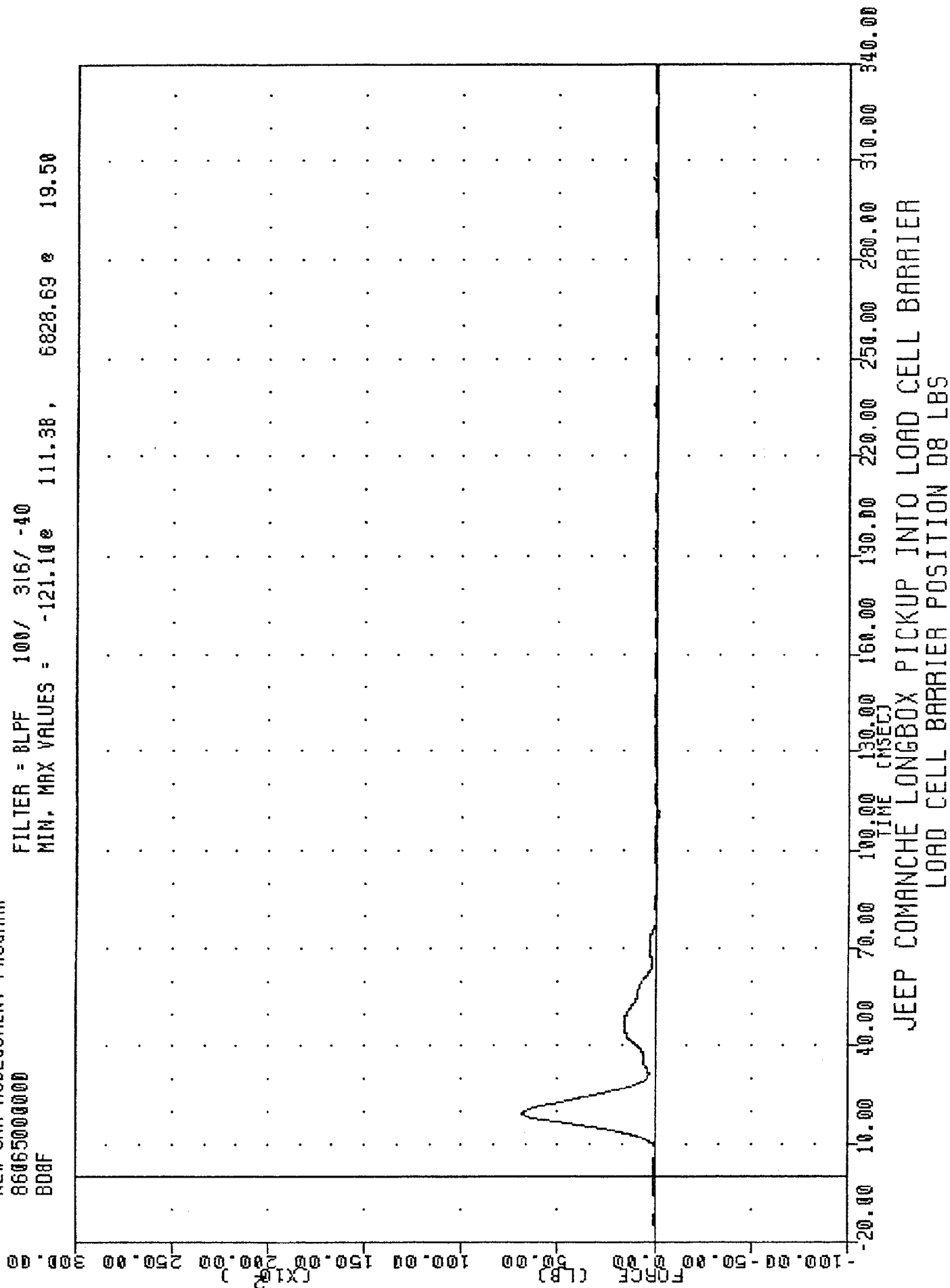
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -148.168 93.00, 3183.81 @ 19.00



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D7 LBS

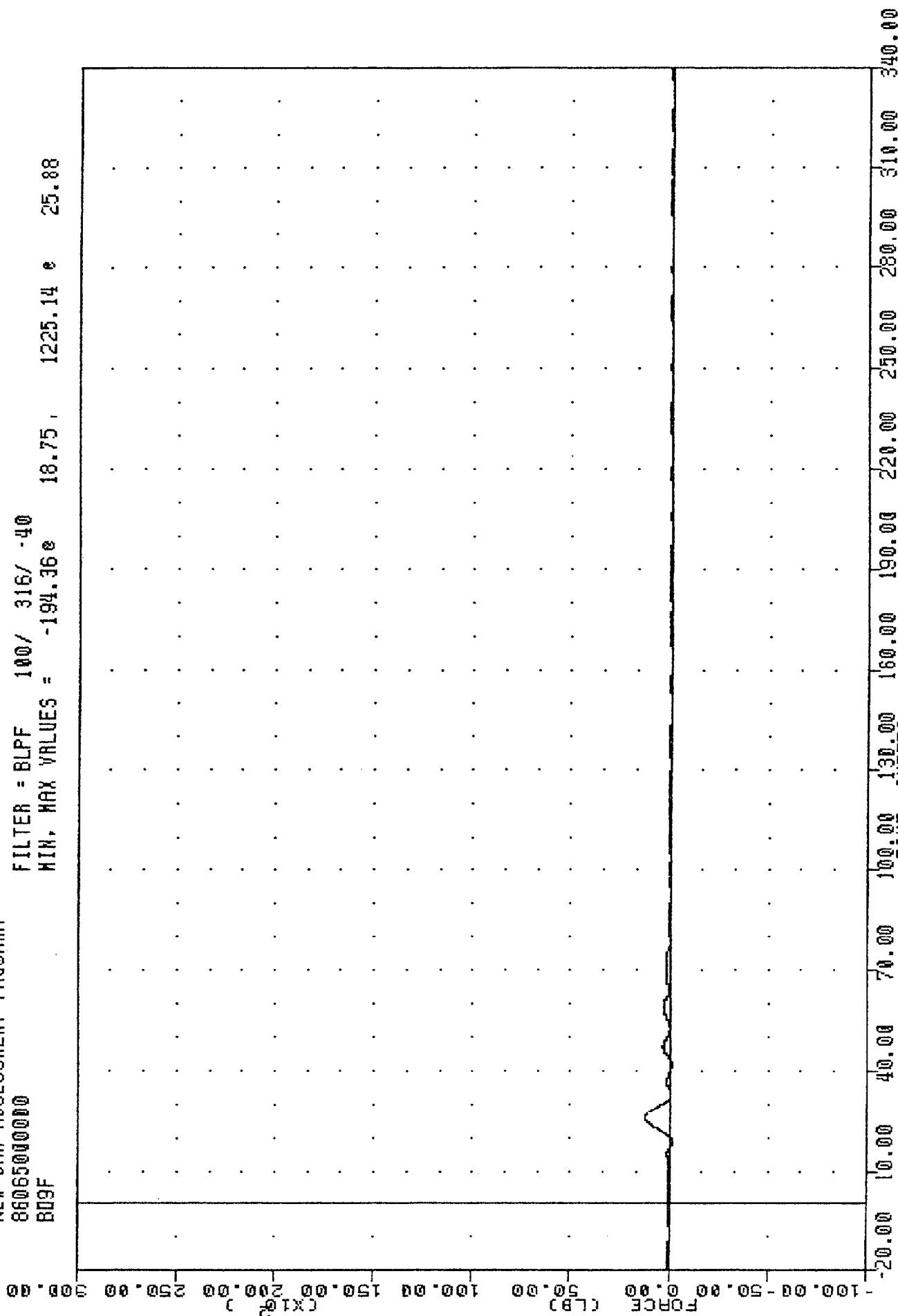
TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 B08F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -121.10e 111.38, 6828.69 e 19.50



TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 B09F

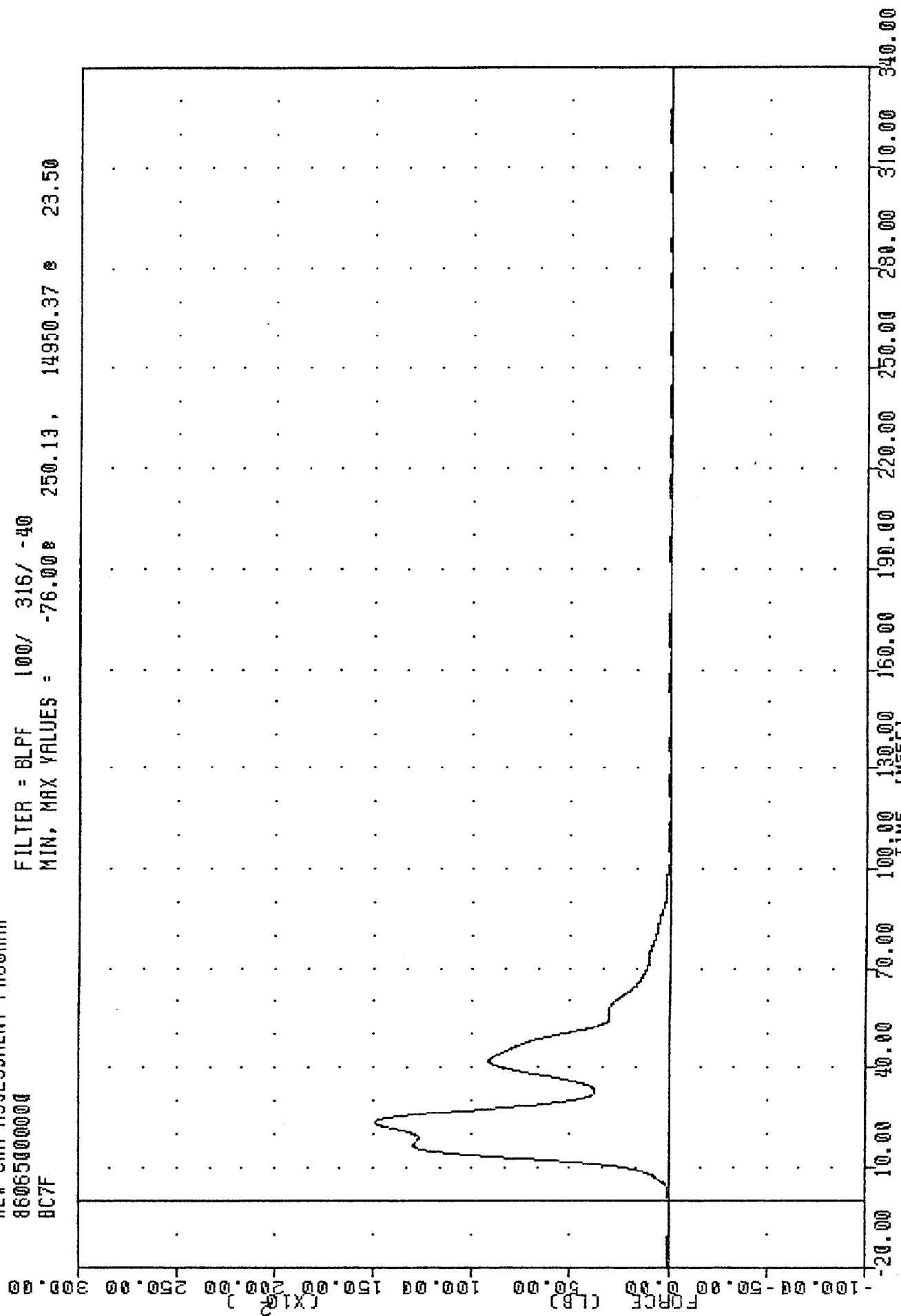
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -194.36 18.75 , 1225.14 25.88



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D9 LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BC7F

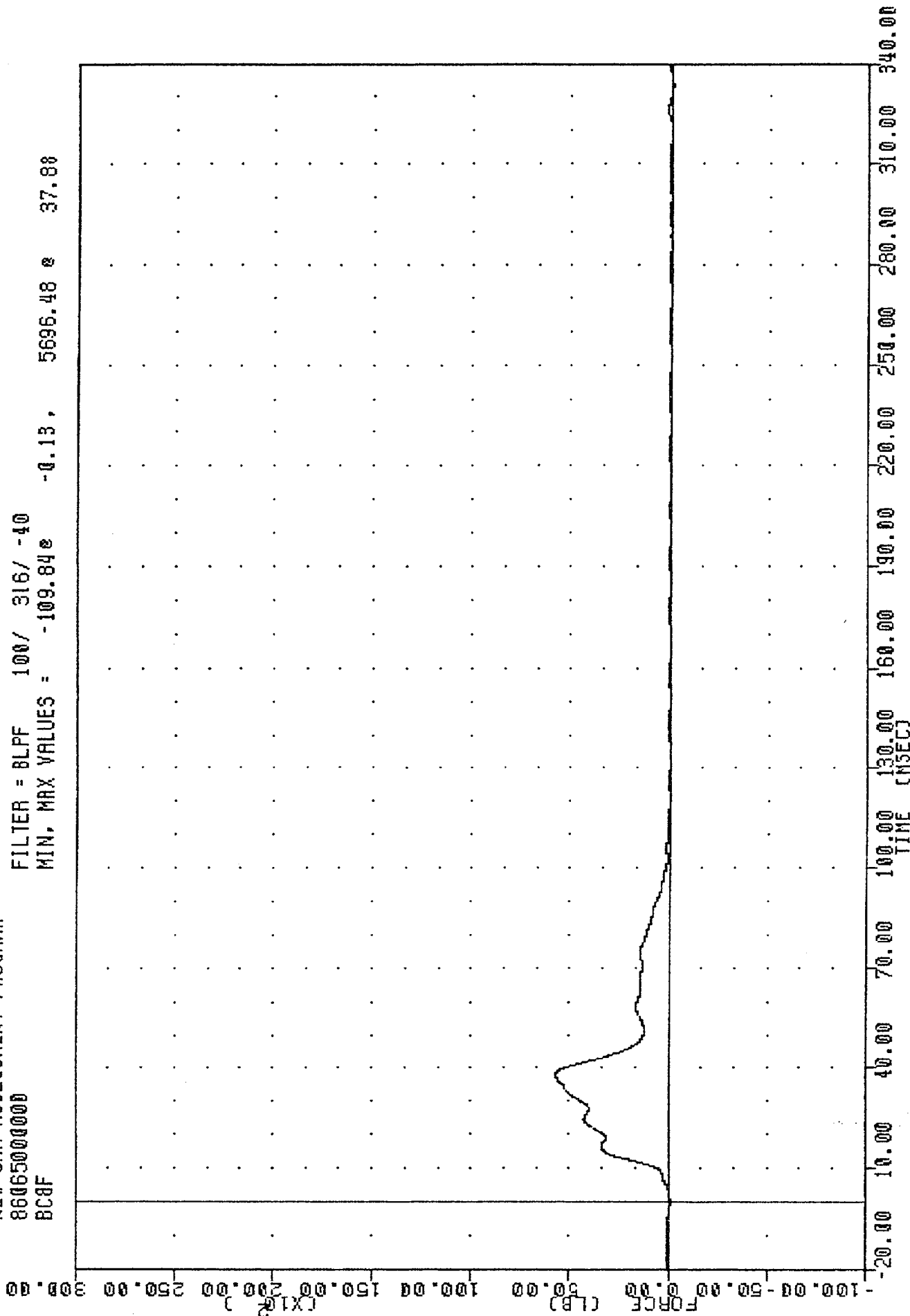
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -76.00 250.13, 14950.37 23.50



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C7 LBS

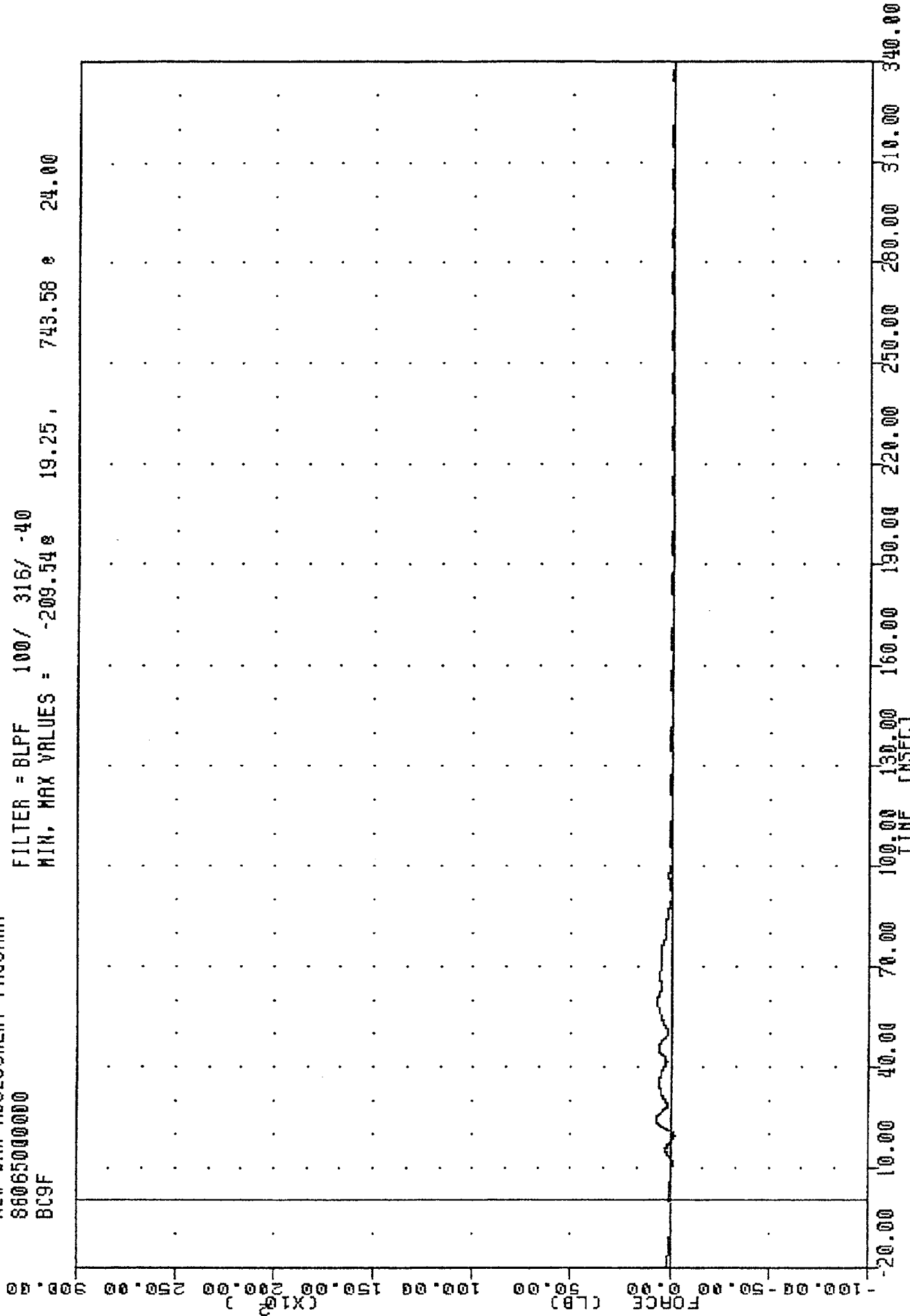
TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BC8F

FILTER = 8LFF 100/ 316/ -40
 MIN, MAX VALUES = -109.84e -0.13, 5695.48 e 37.88



TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BC9F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -209.548 19.25, 743.58 24.00

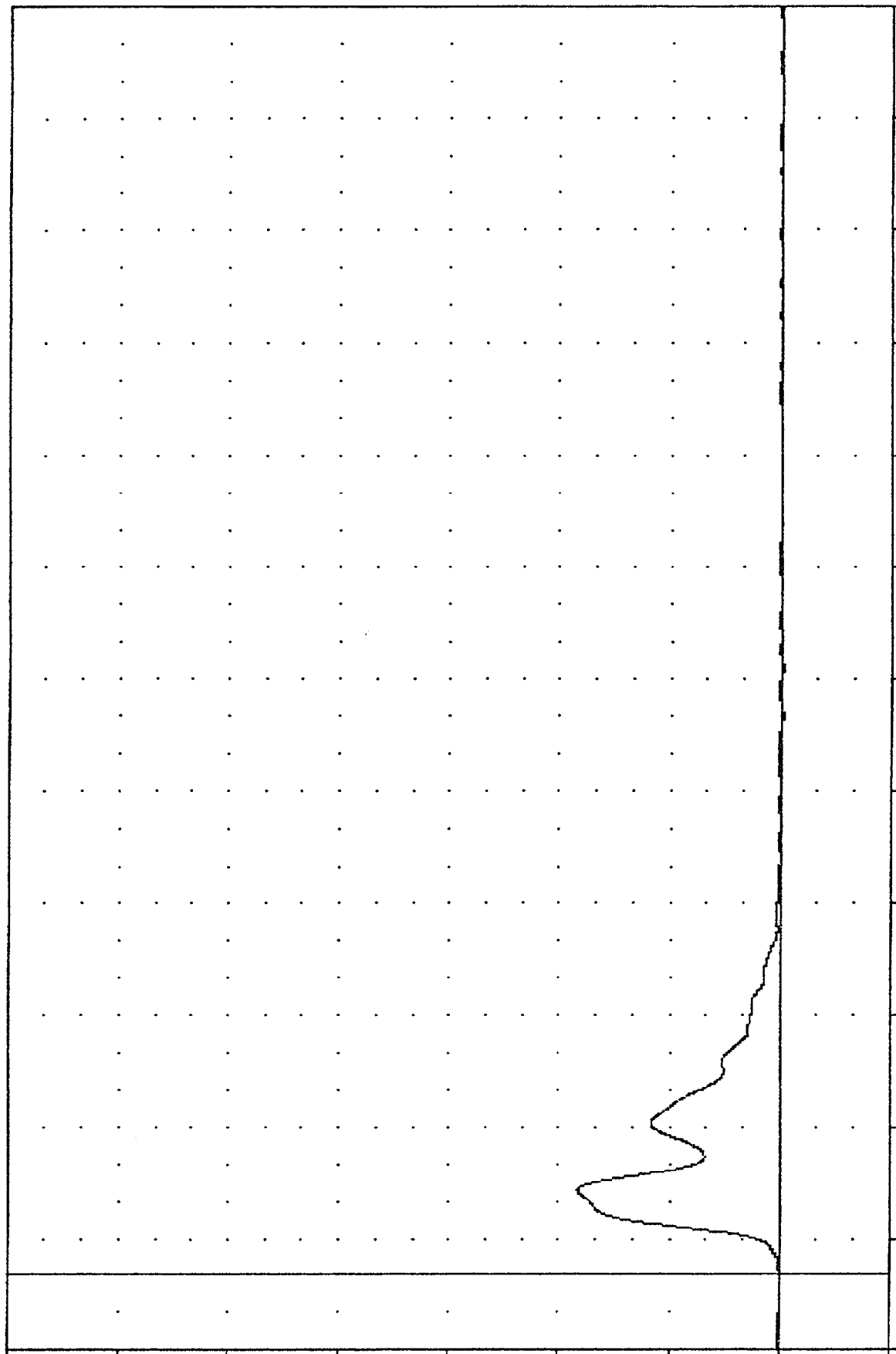


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C9 LBS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 LCBG3F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -299.13 163.13 27430.30 22.88

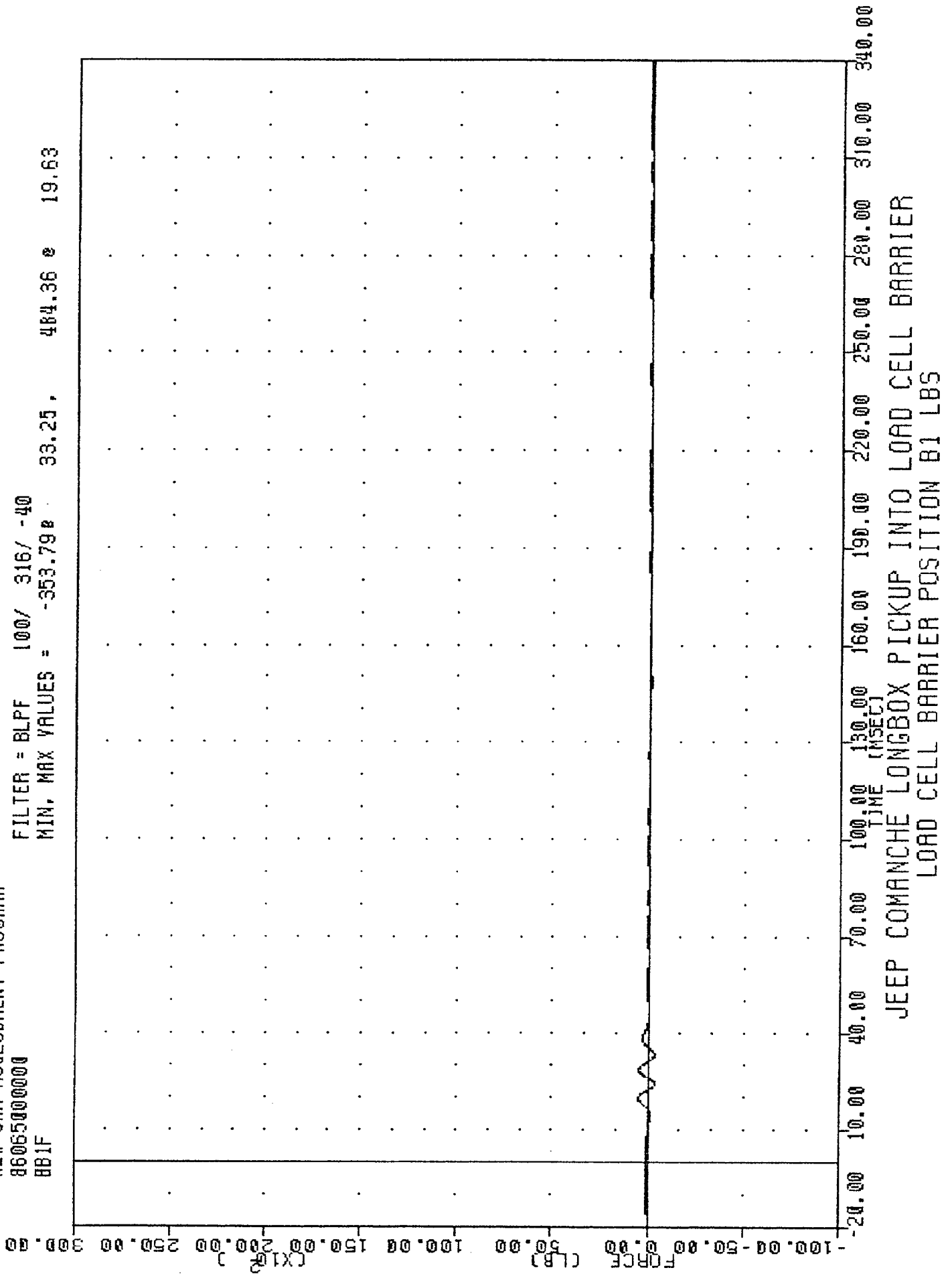
105.00
 90.00
 75.00
 60.00
 45.00
 30.00
 15.00
 0.00
 -15.00
 FORCE (LBS)
 (X10³)



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 3 FORCE TOTAL

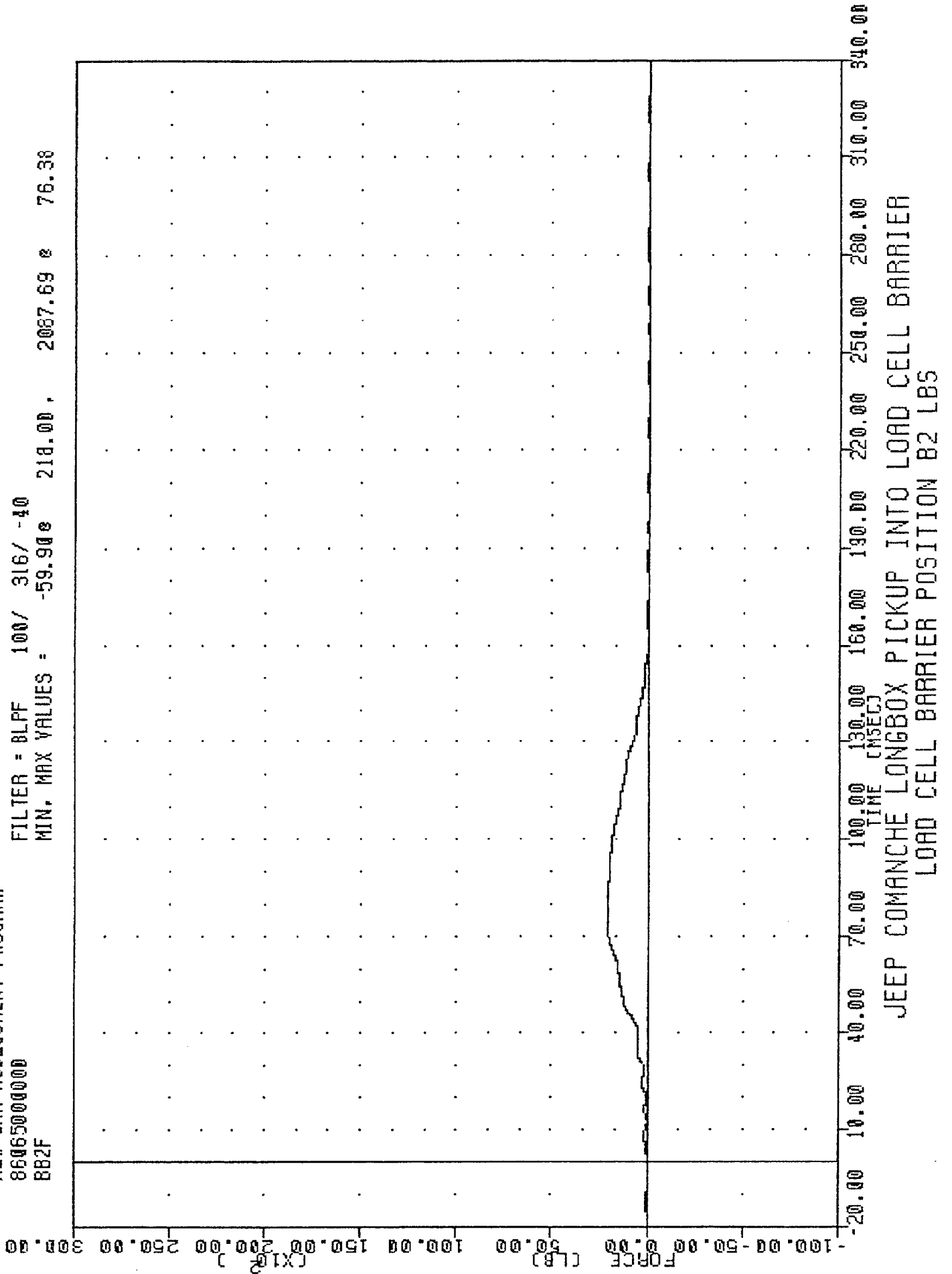
INC 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BB1F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -353.79 33.25, 484.36 19.63



TNC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BB2F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -59.900 218.00, 2087.69 76.38



THC

860306

NEW CAR ASSESSMENT PROGRAM

86065000000

B83F

FILTER = BLPF 100/ 316/ .40

MIN, MAX VALUES = -122.42e -1.50, 6497.10 e 31.38

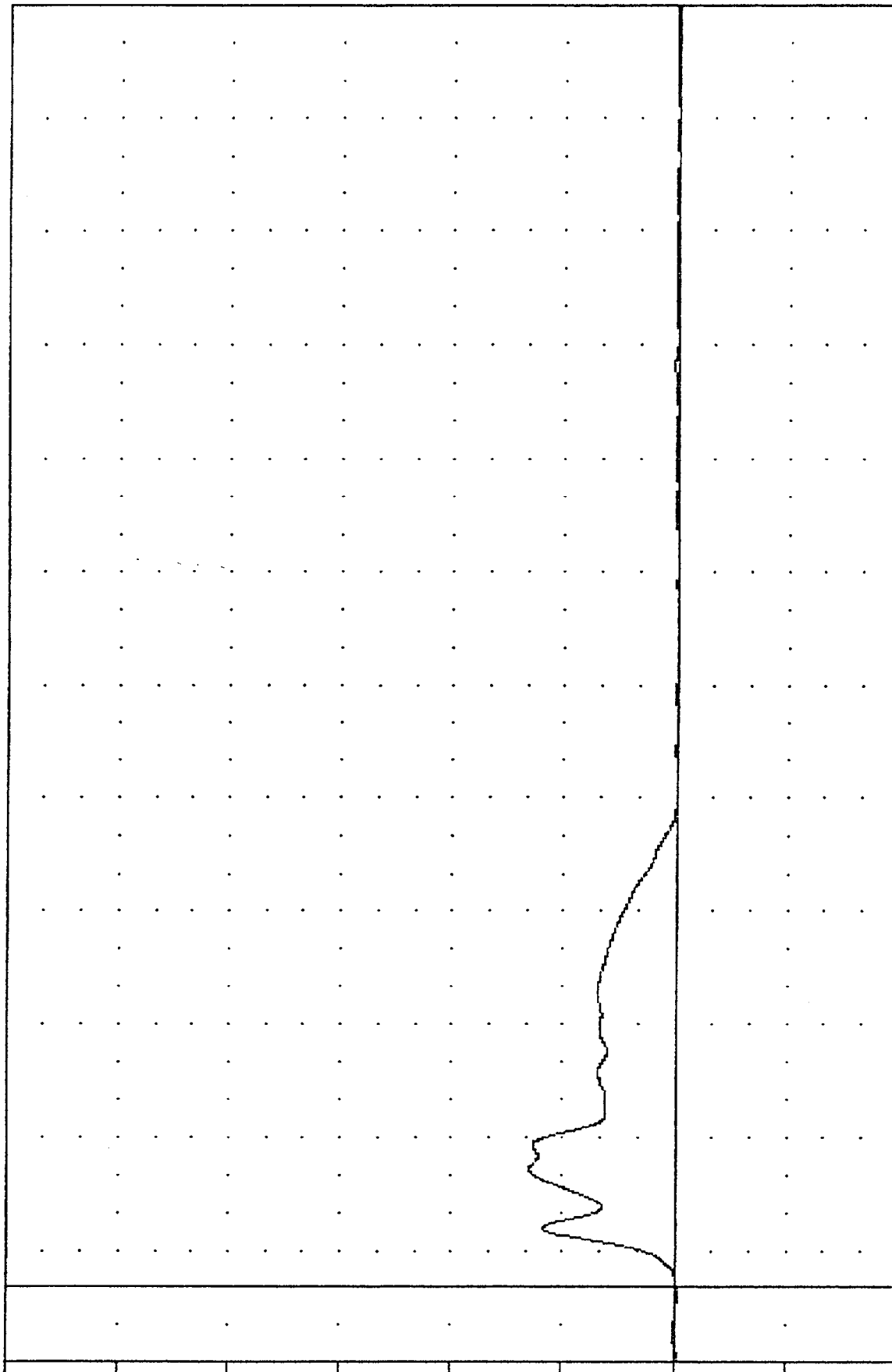
900.00
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00

(X10³)

B-59

FORCE (LBS)

860306



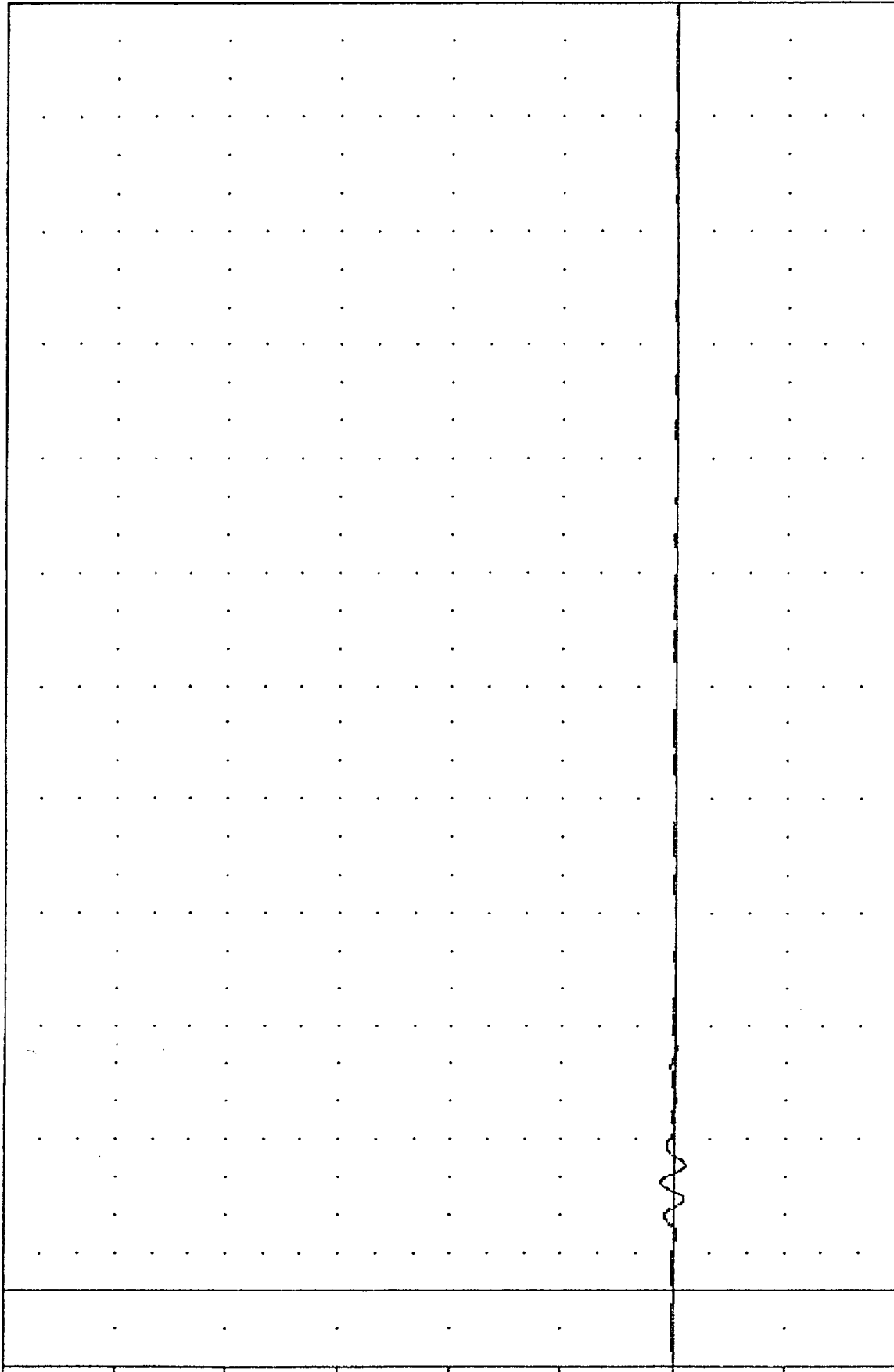
TIME (msec)

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BR1F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -544.898 33.13, 563.28 & 28.63

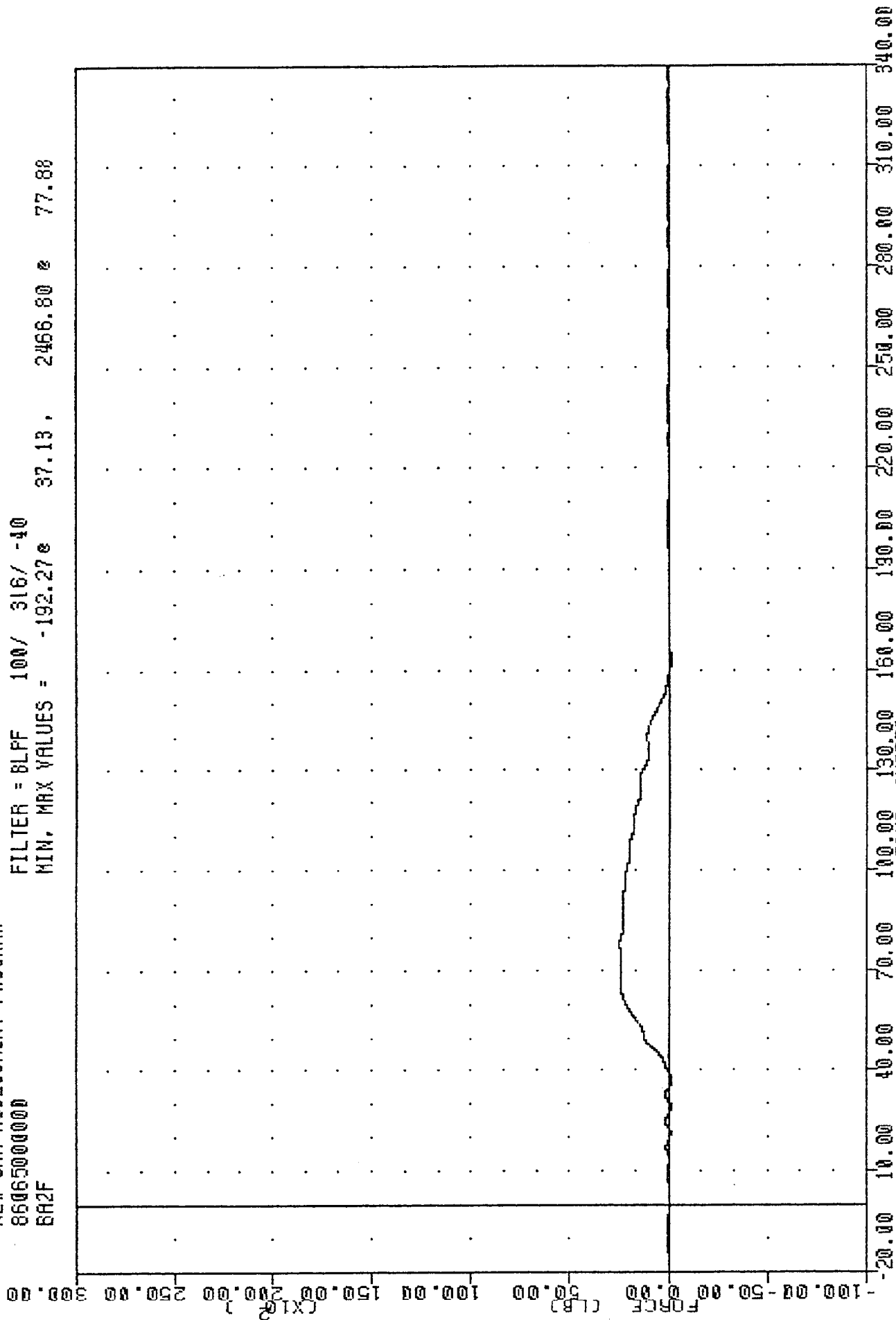
300.00
 250.00
 200.00
 150.00
 100.00
 50.00
 0.00
 -50.00
 -100.00
 -150.00
 -200.00
 -250.00
 -300.00



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)
 JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A1 LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 BR2F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -192.27e 37.13, 2466.80 e 77.88

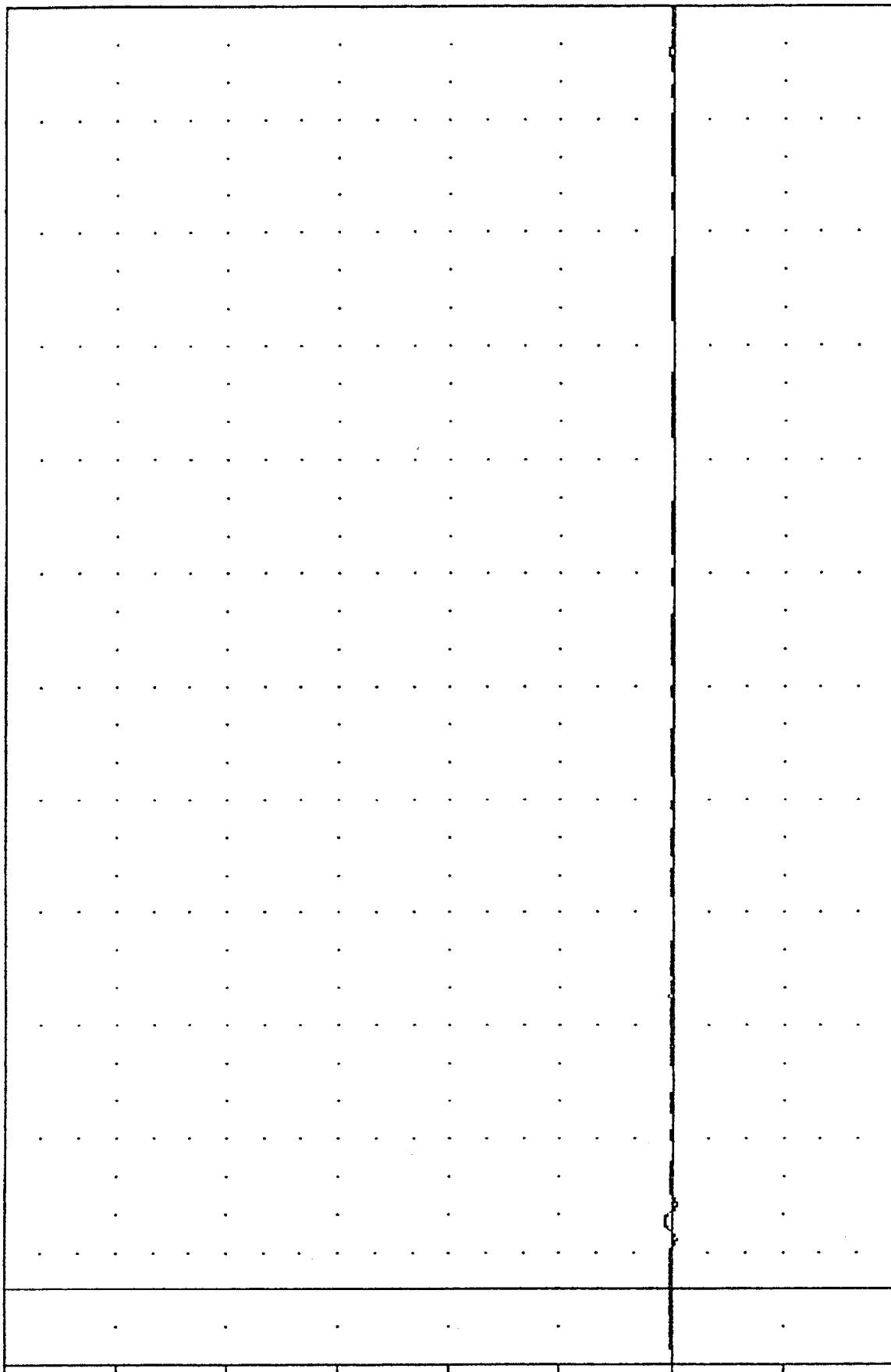


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A2 IRS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BR3F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -220.850 22.50 , 322.44 0 18.00

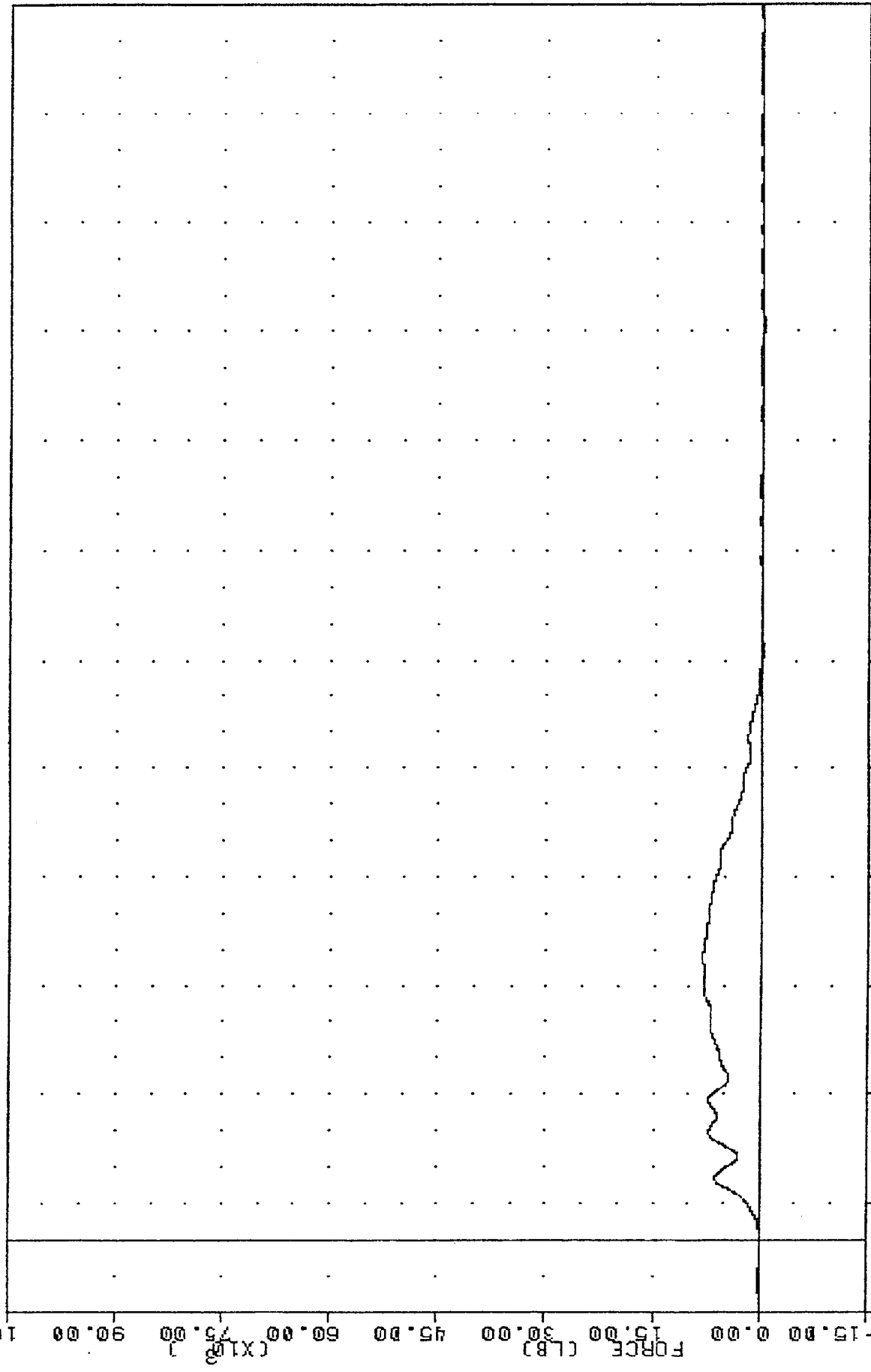
900.00
 750.00
 500.00
 250.00
 0.00
 -250.00
 -500.00
 -750.00
 -900.00



-20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00 240.00 260.00 280.00 300.00 320.00 340.00
 JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LCBG4F

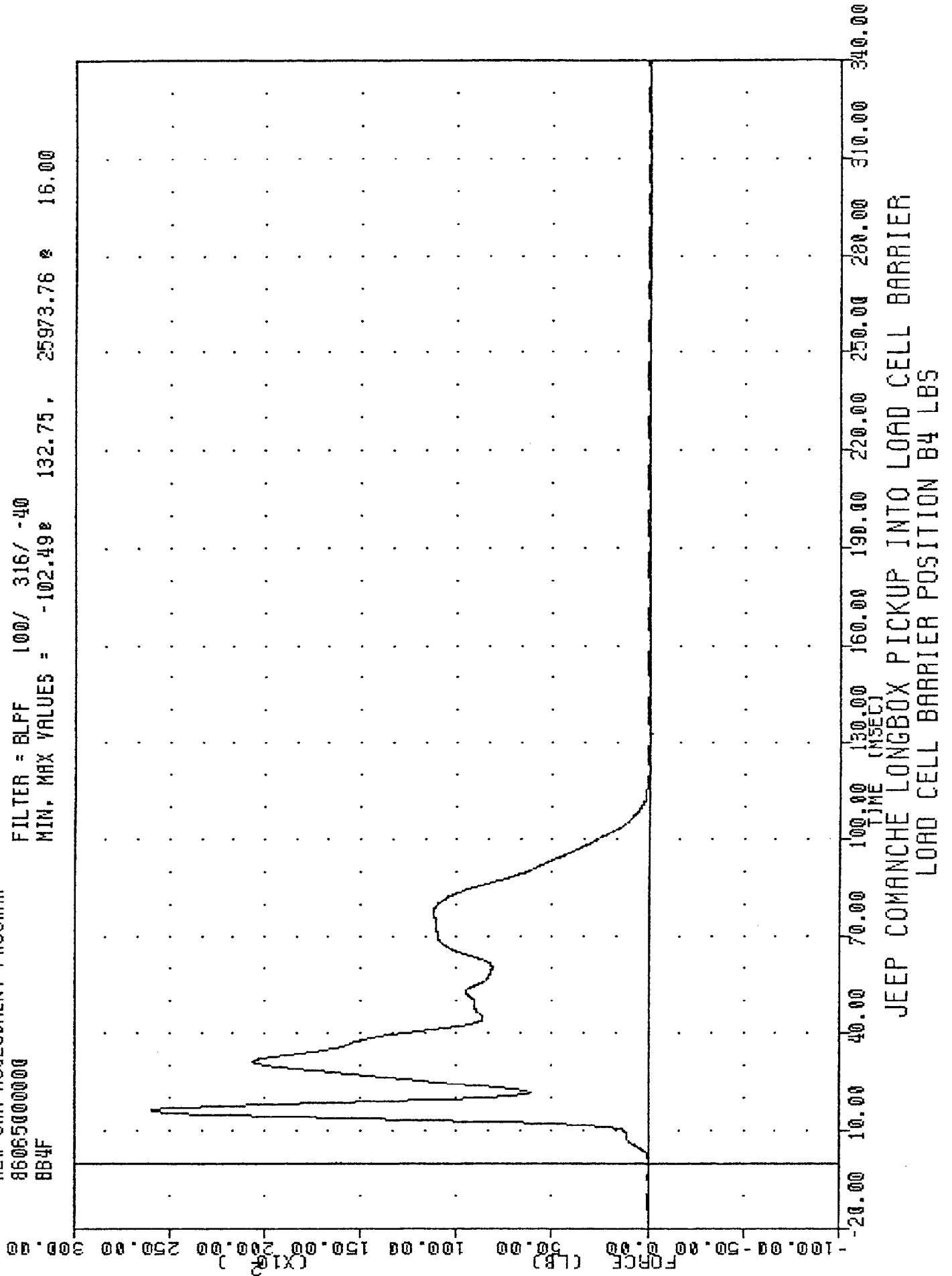
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -381.84 163.13, 8115.71 77.38



-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)
 JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 4 FORCE TOTAL

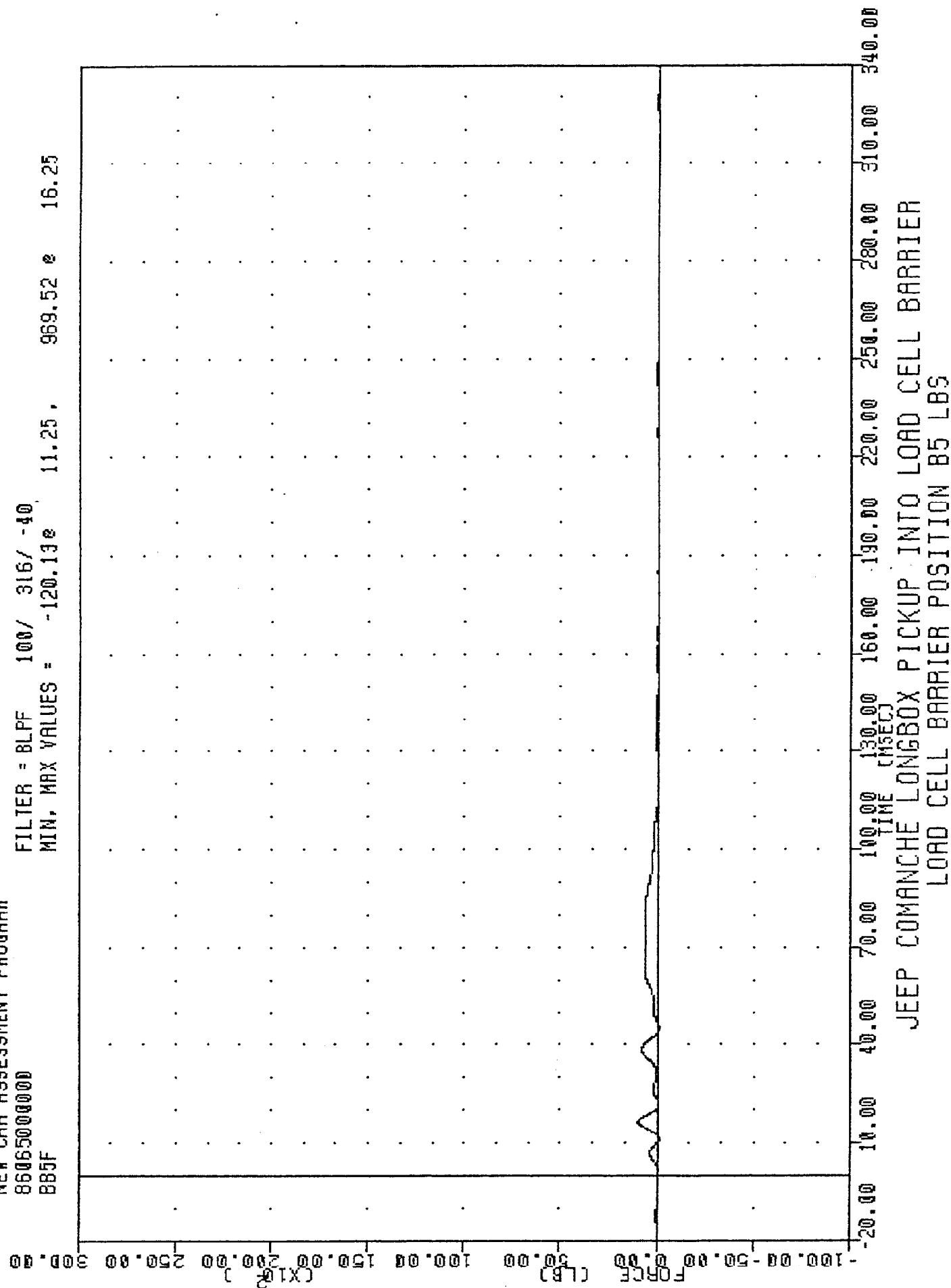
TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 884F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -102.49 132.75, 25973.76 16.00



TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BB5F

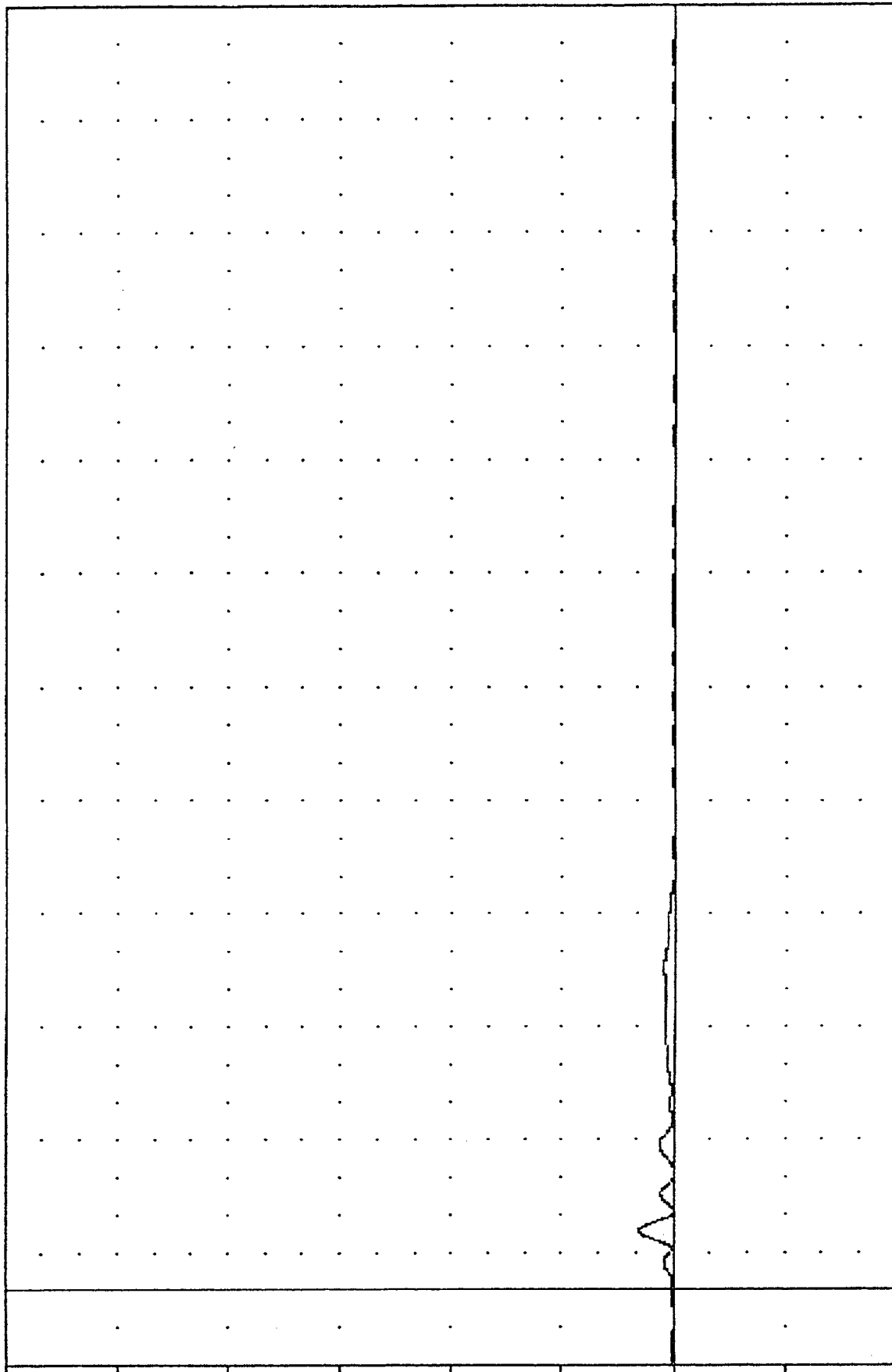
FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -120.13e 11.25, 969.52 e 16.25



TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 886F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -82.75 211.88, 1522.50 * 15.50

FORCE (LB)
 (X10²)

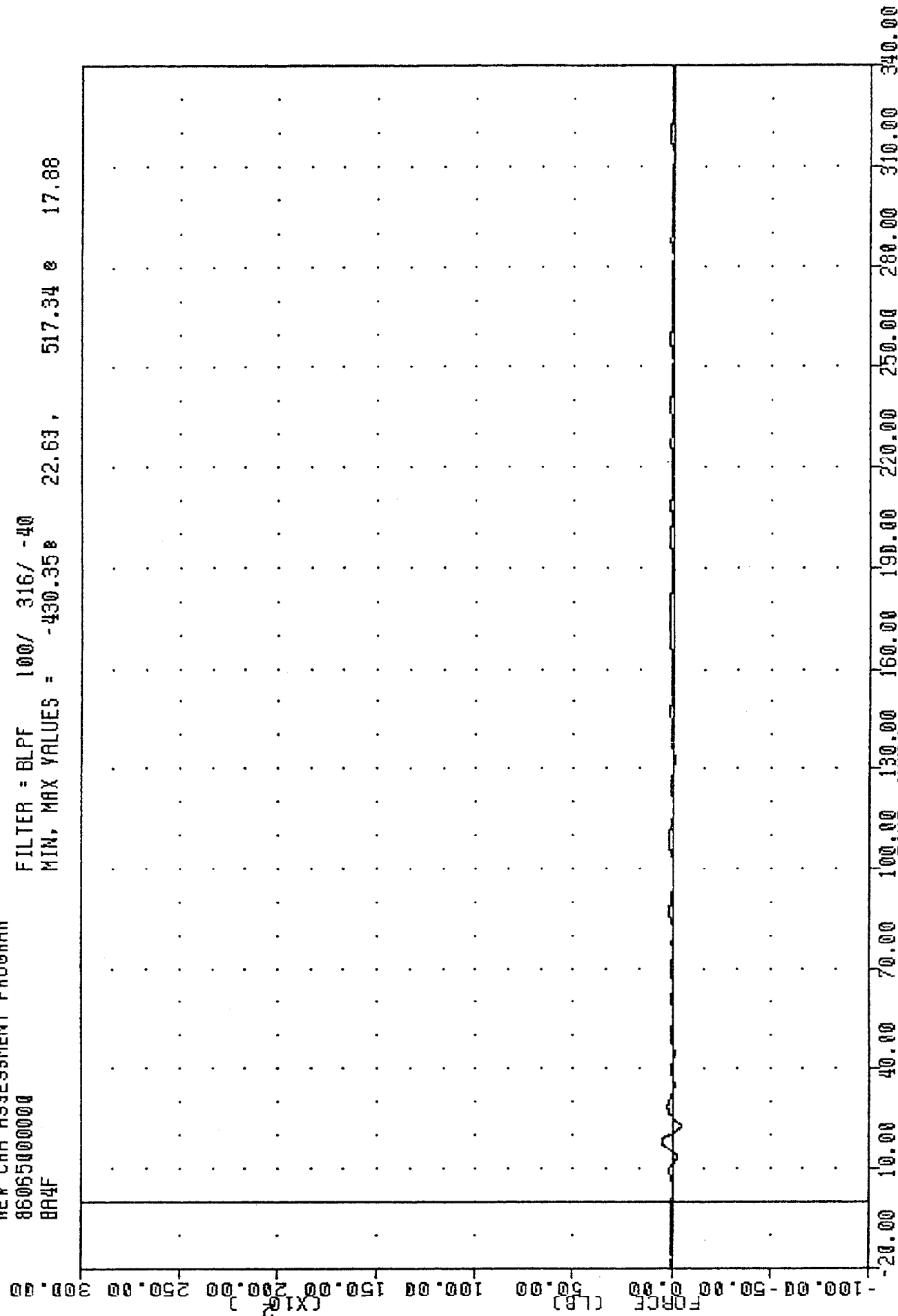


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B6 LBS

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BR4F

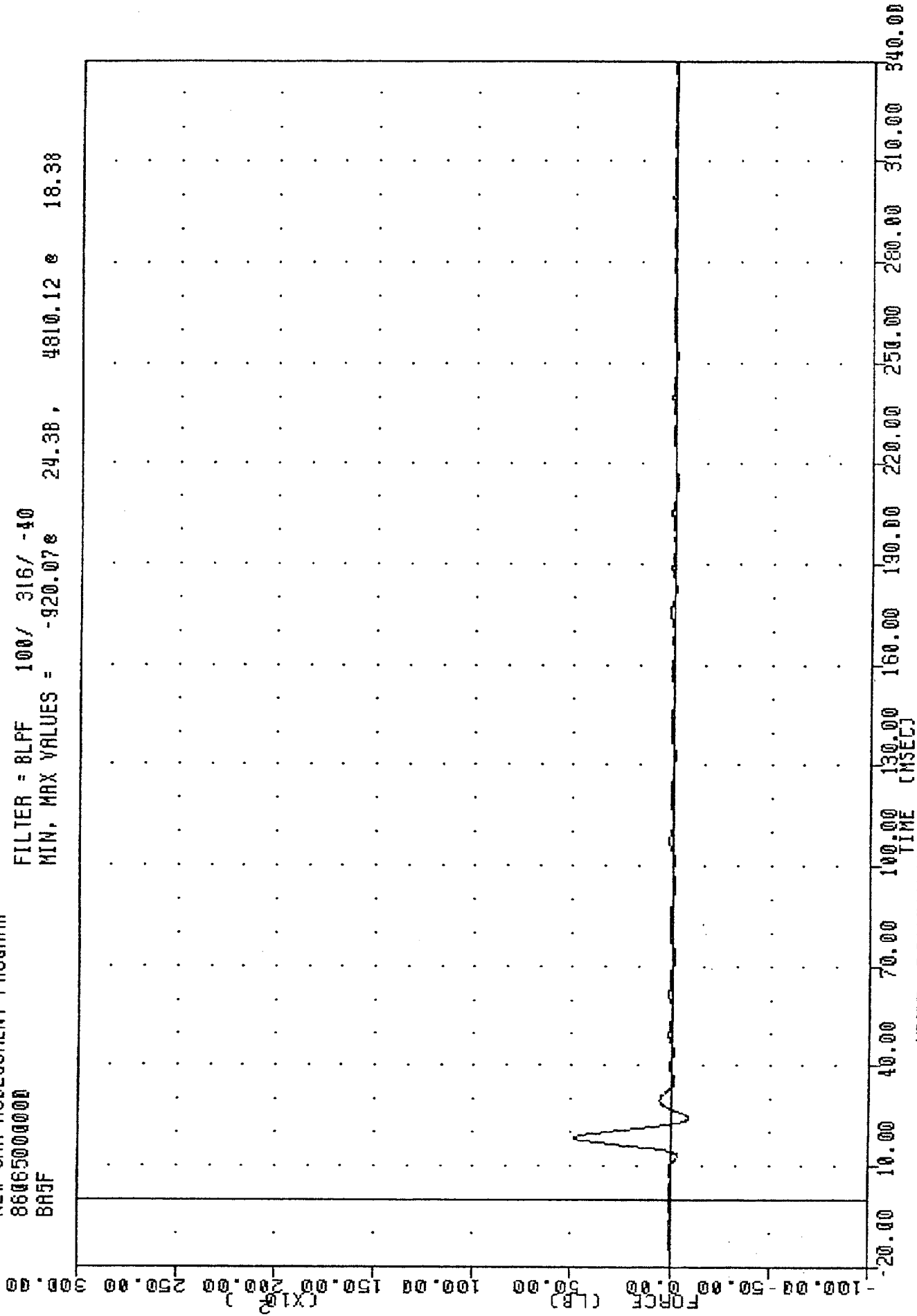
, 860306

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -430.35 22.63, 517.34 17.88



TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 BA5F

FILTER = 8LFF 100/ 316/ -40
 MIN, MAX VALUES = -920.078 24.38, 4810.12 18.38



TAC

, 860306

NEW CAR ASSESSMENT PROGRAM

860650000000

BM6F

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -390.33 22.63, 556.06 17.88

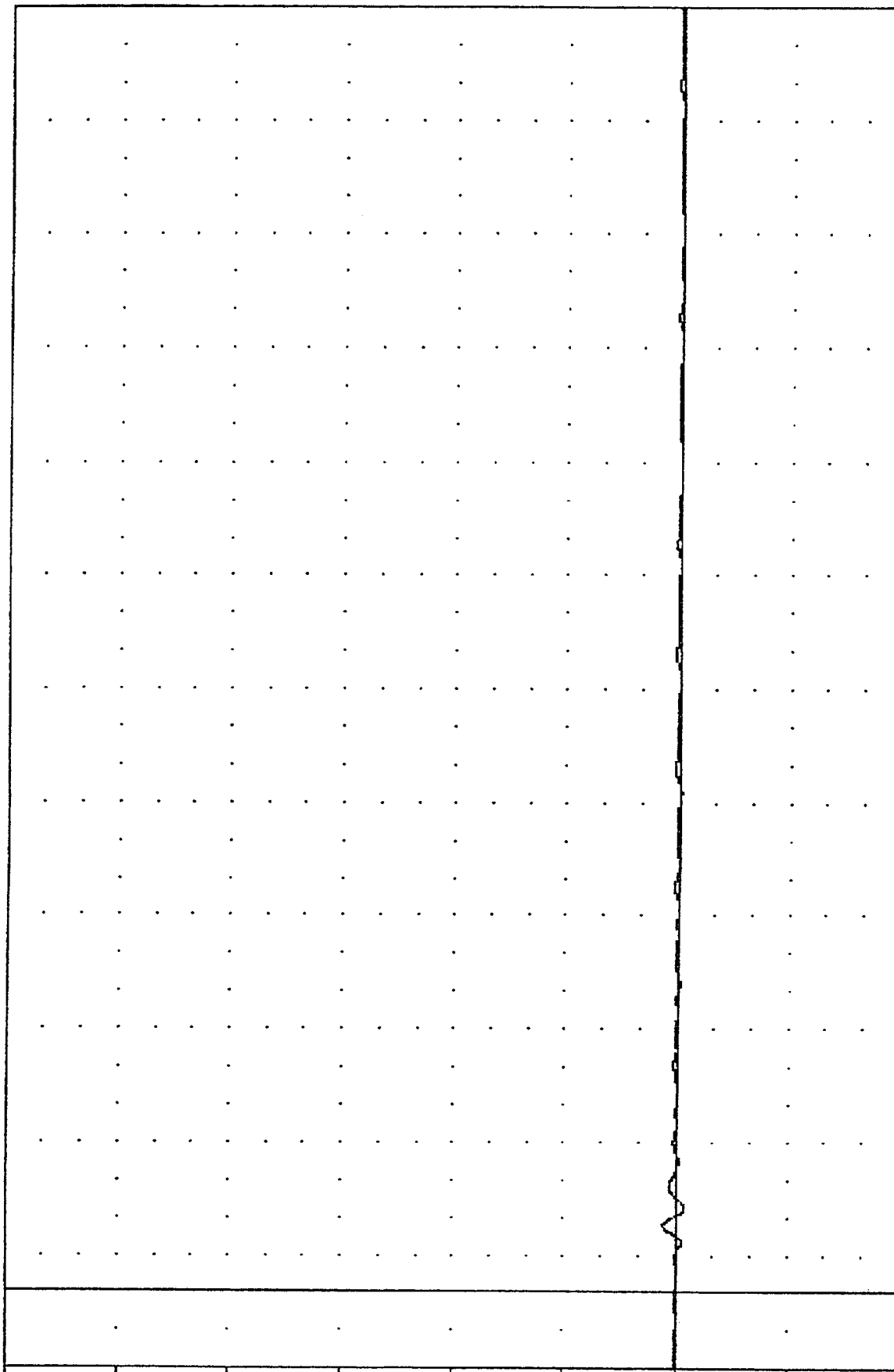
900.00
250.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00
-350.00
-400.00
-450.00
-500.00
-550.00
-600.00
-650.00
-700.00
-750.00
-800.00
-850.00
-900.00

(X10³)

FORCE (LB)

B-69

860306

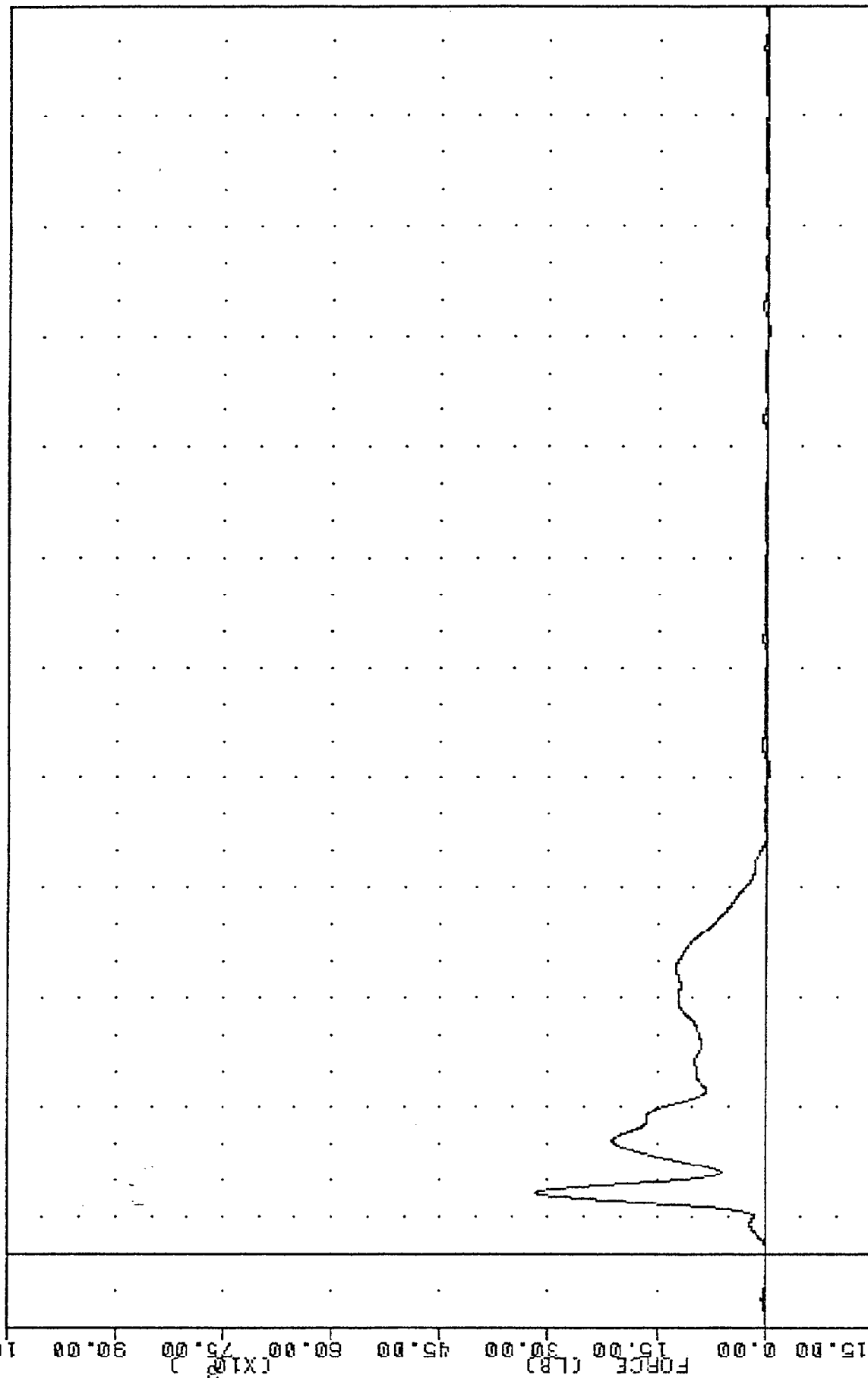


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (msec)

JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 LBS

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LCB05F

FILTER = BLFF 100/ 316/ -40
 MIN. MAX VALUES = -445.27 132.38, 31620.15 16.50

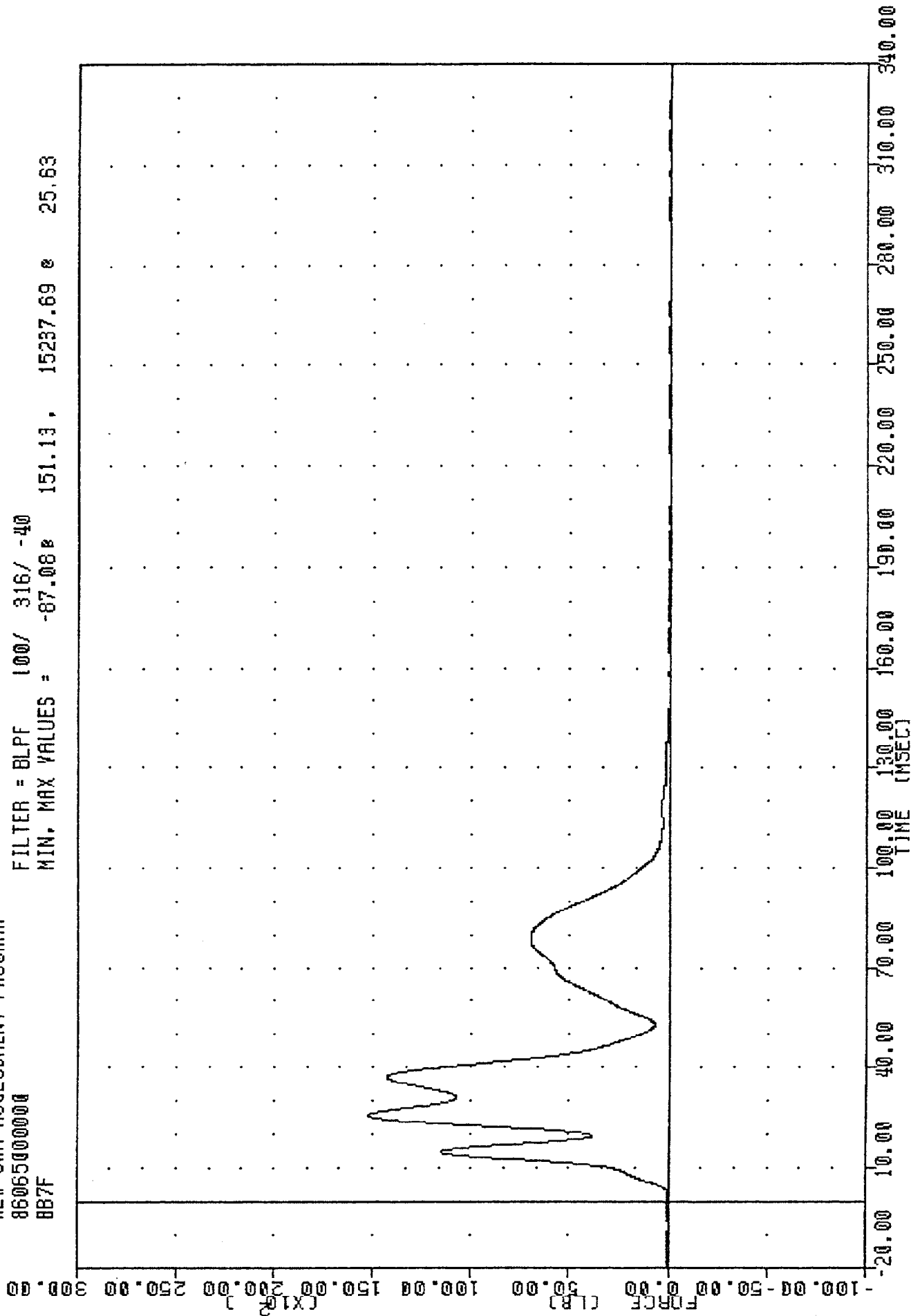


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP - 5 FORCE TOTAL

TRC
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BB7F

860306

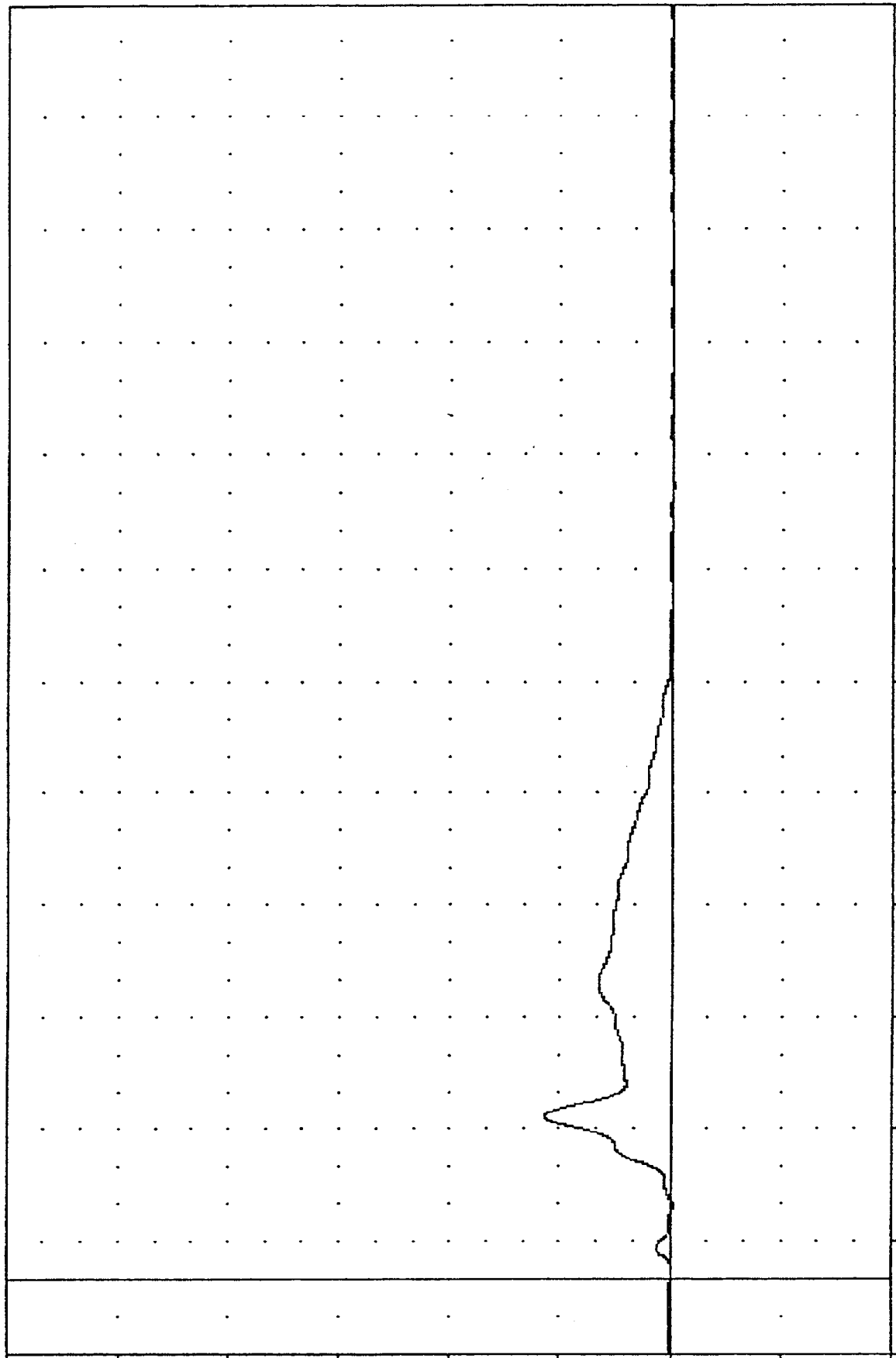
FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -87.08 151.13 15237.69 25.63



TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 B68F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -118.050 19.38, 5693.08 & 43.38

FORCE (LB)
 (X10³)

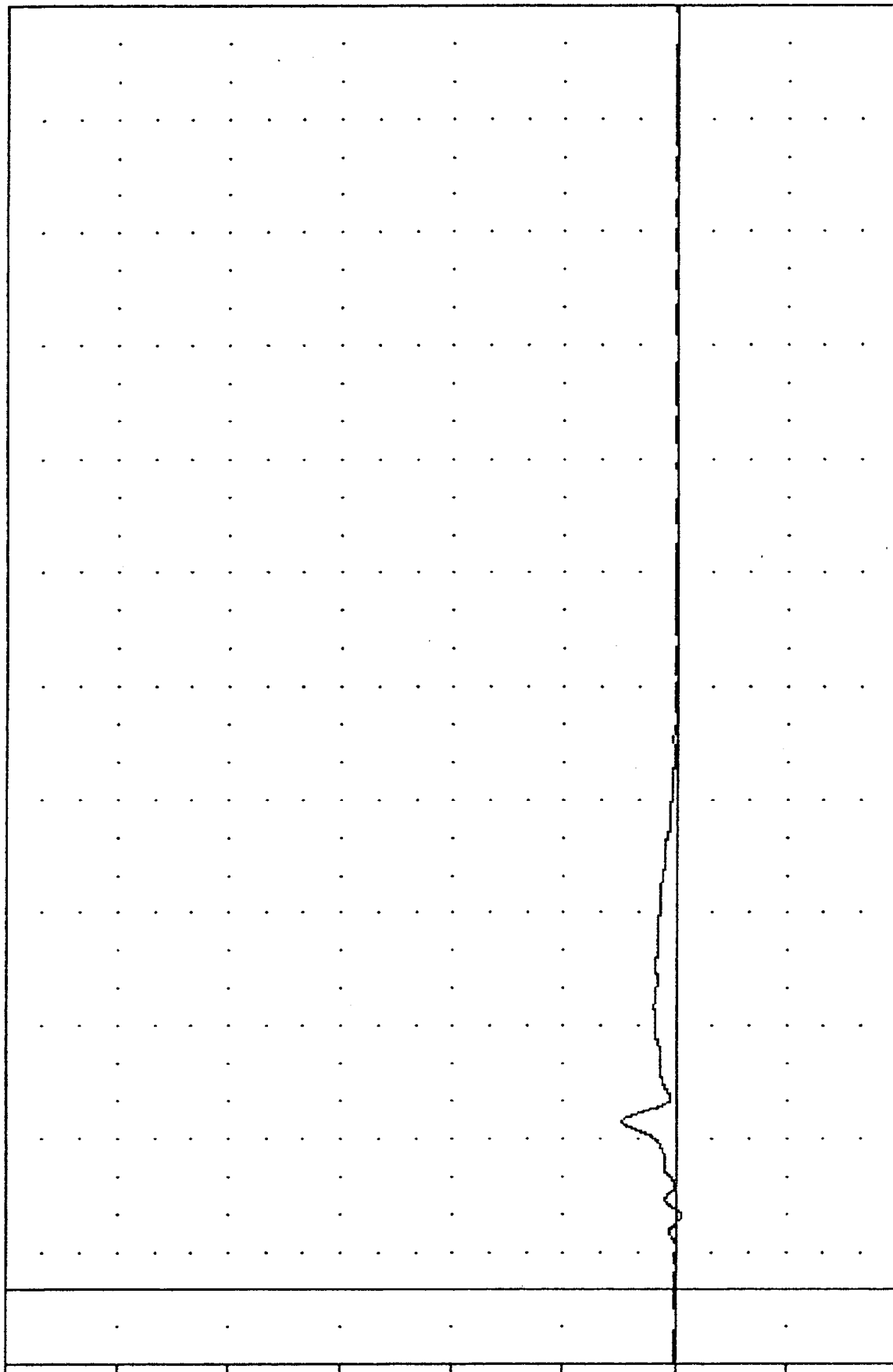


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B8 LBS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 860650000000
 B89F

FILTER = BLPF 100/ 316/ -40
 MIN. MAX VALUES = -276.62 19.38, 2387.23 44.50

FORCE (LB) (X10³)



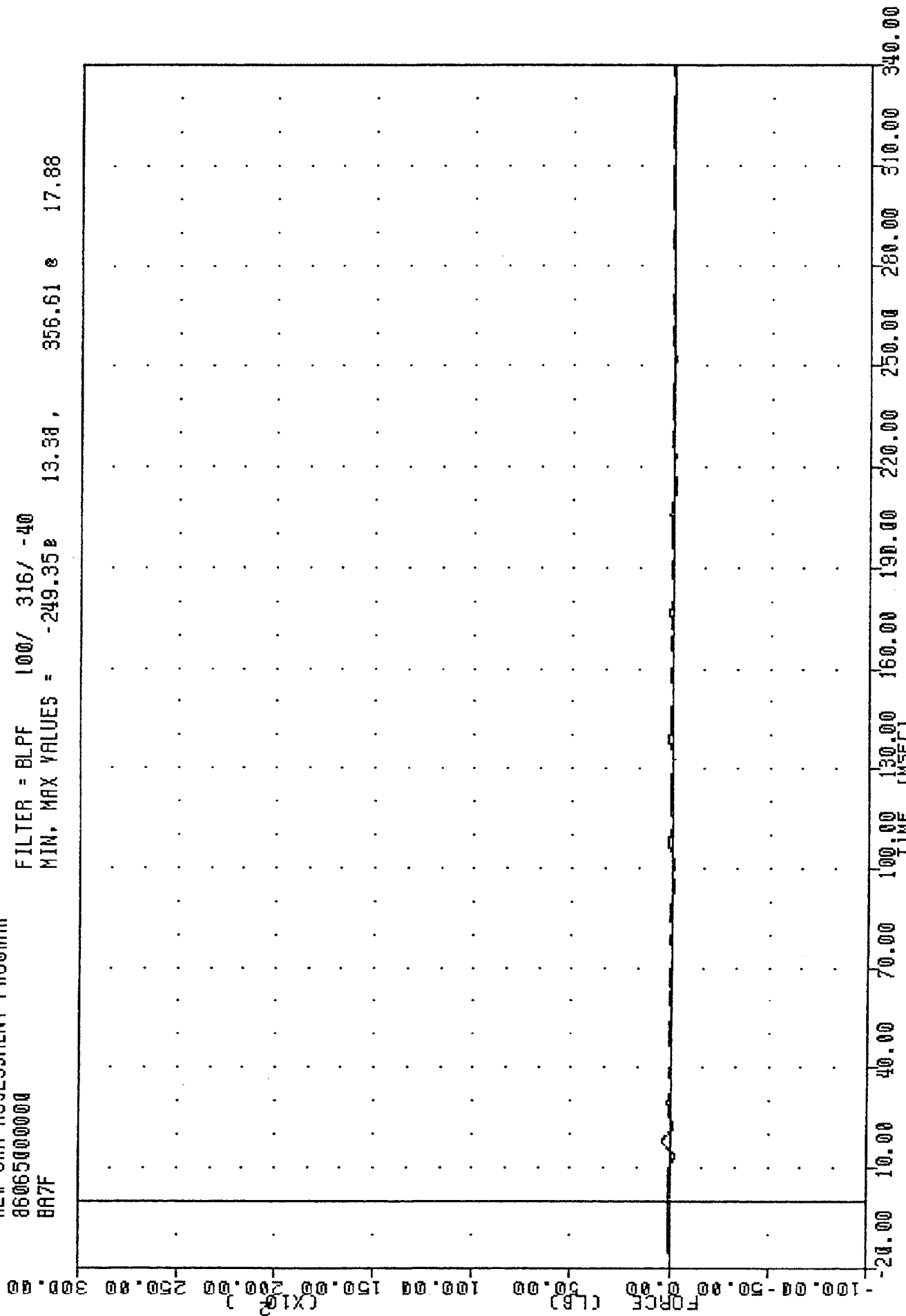
B-73

860306

-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 (NSEC)
 JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B9 LBS

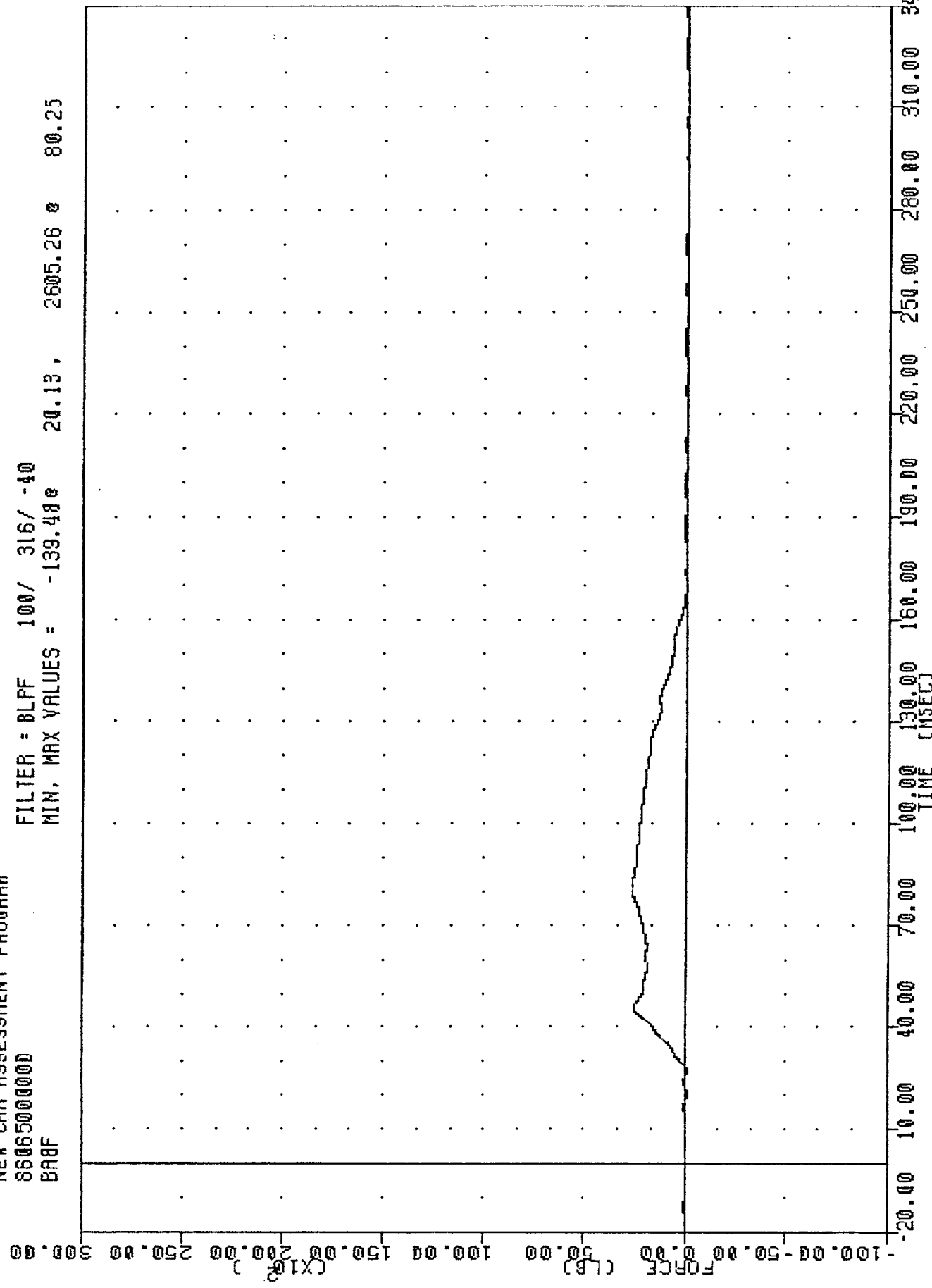
TRC
NEW CAR ASSESSMENT PROGRAM
86065000000
8A7F

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -249.35 13.38 , 356.61 17.88



TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 BRBF

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -139.48 20.13, 2605.26 80.25

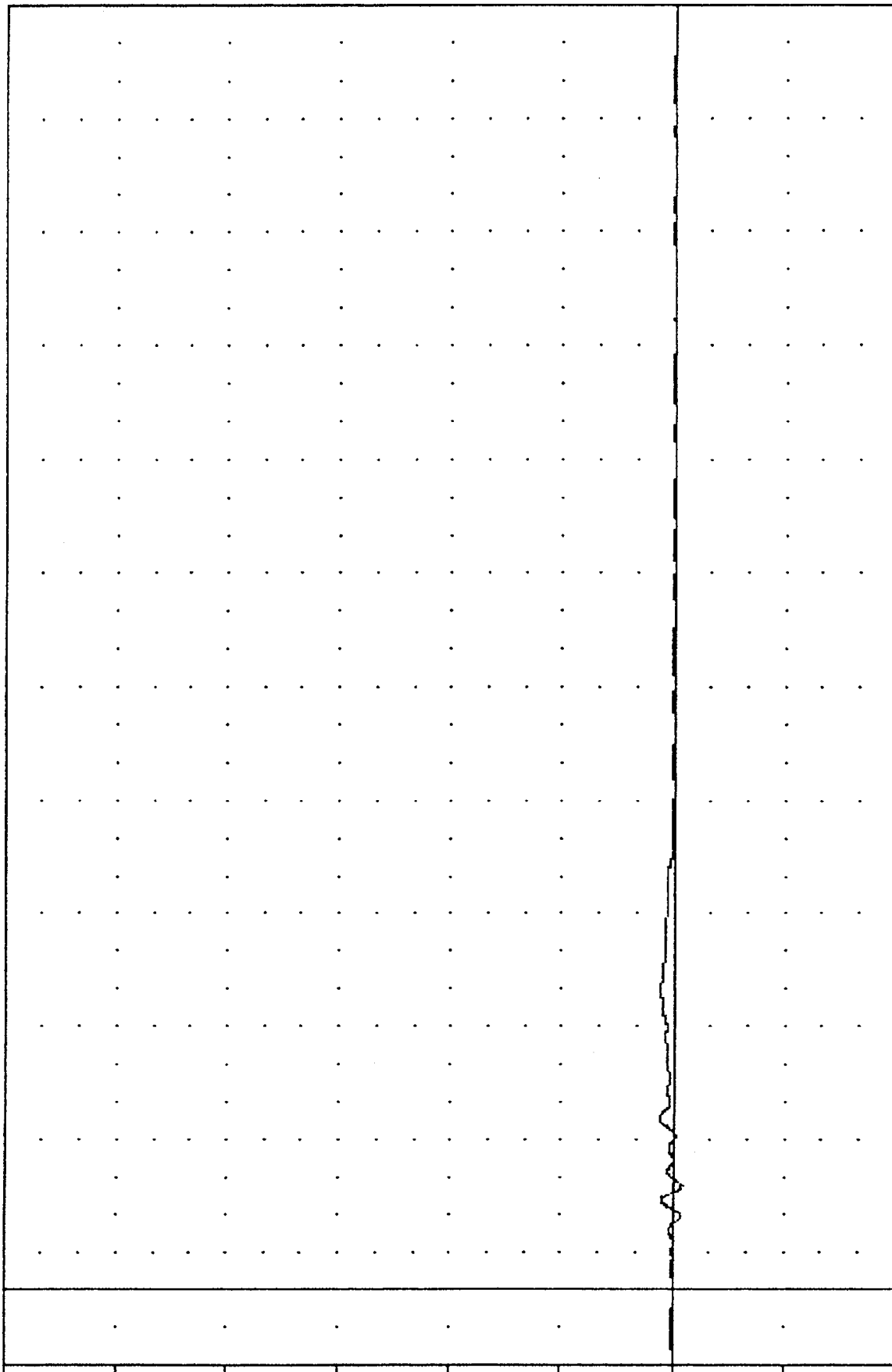


JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A8 LBS

TAC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 B99F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -427.77 27.63, 625.97 45.50

900.00
 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



JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A9 LBS

TRC , 860306
 NEW CAR ASSESSMENT PROGRAM
 86065000000
 LCB66F

FILTER = BLPF 100/ 316/ -40
 MIN, MAX VALUES = -368.53 250.38 19152.88 37.75

105.00

90.00

75.00

60.00

45.00

30.00

15.00

0.00

-15.00

-30.00

-45.00

-60.00

-75.00

-90.00

-105.00

-120.00

-135.00

-150.00

-165.00

-180.00

-195.00

105.00

90.00

75.00

60.00

45.00

30.00

15.00

0.00

-15.00

-30.00

-45.00

-60.00

-75.00

-90.00

-105.00

-120.00

-135.00

-150.00

-165.00

-180.00

-195.00

-210.00

-225.00

-240.00

105.00

90.00

75.00

60.00

45.00

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-150.00

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-225.00

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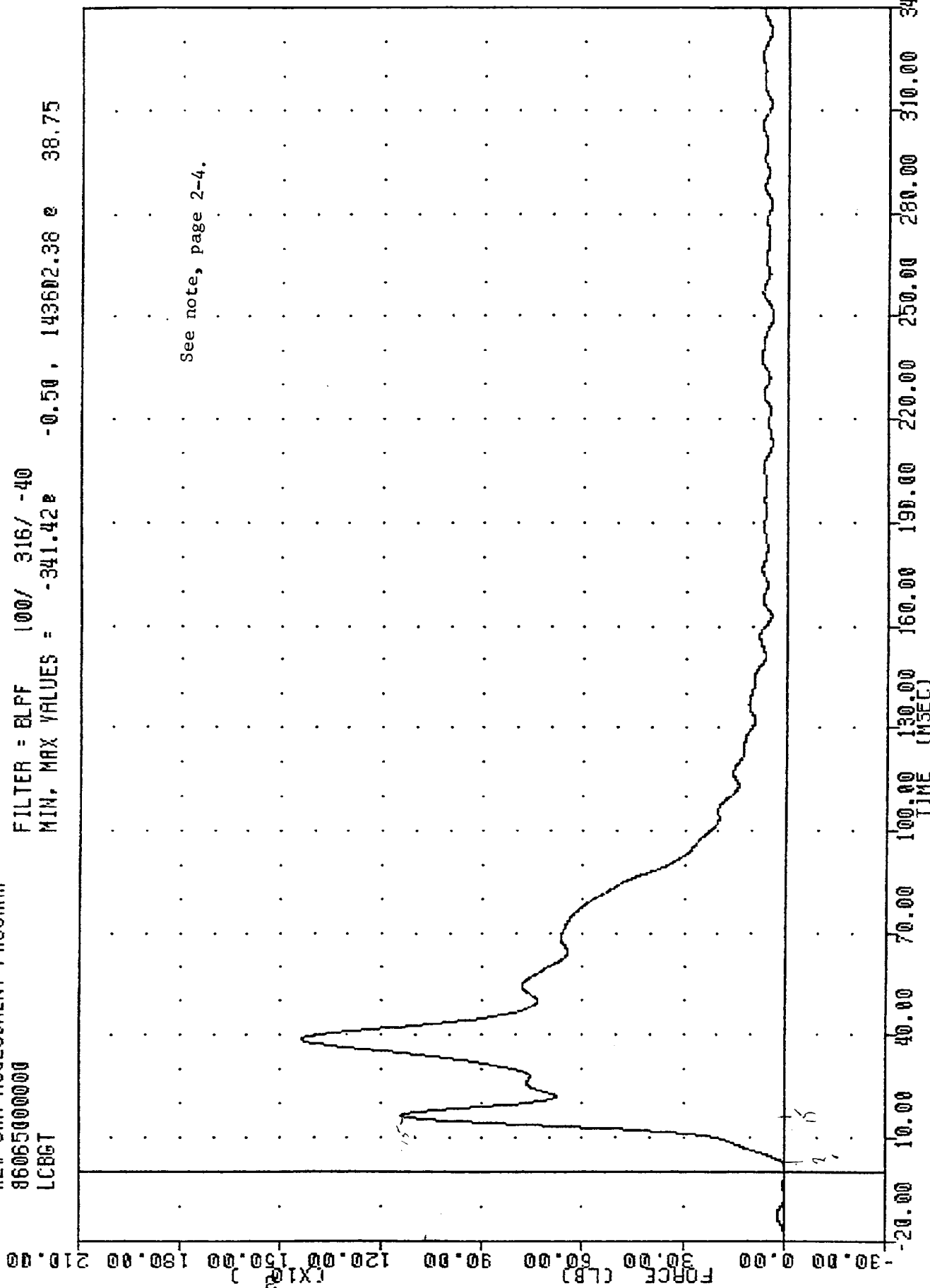
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1987

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES =	-341.42	-0.50,	143602.38	38.75
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JEEP COMANCHE LONGBOX PICKUP INTO LOAD CELL BARRIER
 TIME (MSEC)
 SUM OF LOAD CELL BARRIER FORCES
 PRINTED AT GOVERNMENT EXPENSE

SUN OF MAN RELL RABTER ENRCS
PRINTED AT COVER

APPENDIX C
DUMMY CERTIFICATION

TRANSPORTATION RESEARCH CENTER OF OHIO

EXTERNAL DIMENSIONS

PART 572

10-FEB-86

TEMPERATURE 71.00 F
NCA EDB8003RELATIVE HUMIDITY 43.00 %
572 SN 880EXT.DIMENSION 03

DESCRIPTION	SPECIFICATION	TEST RESULTS
SN ALDERSON RESEARCH LAB 880		
Sitting Height	35.6 - 35.8IN	35.6 INS
Shoulder Pivot Height	21.8 - 22.4IN	22.1 INS
Hip Pivot Height	3.9 IN (ref.)	3.9 INS
Hip Pivot From Backline	4.8 IN (ref.)	4.8 INS
Knee Pivot From Backline	20.1 - 20.7IN	20.6 INS
Rear of Head From Backline	1.7 IN (ref)	1.7 INS
Chest Depth	9.1 - 9.6IN	9.2 INS
Shoulder Width	17.8 - 18.4IN	17.8 INS
Chest Circumference Over Nipples	36.8 - 40.0IN	37.8 INS
Waist Circumference at Min. Girth	31.4 - 32.6IN	32.2 INS
Hip Width	14.0 - 15.4IN	14.8 INS
Knee Pivot From Floor	19.3 - 19.9IN	19.3 INS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Bob Lantieri

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572

11-FEB-86

TEMPERATURE 70.00 F
NCA LF88003RELATIVE HUMIDITY 42.00 %
572 SN 880 LUMBAR FLEXION CAL3

DEFLECTION	SPECIFICATION	TEST RESULTS
0 Deg.	0 LBS	0.00 LBS
20 Deg	22.00 - 34.00 LBS	33.00 LBS
30 Deg	34.00 - 46.00 LBS	46.00 LBS
40 Deg	46.00 - 58.00 LBS	57.00 LBS
NET RETURN ANGLE	< 12 DEG	5.02 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Robert Tomlin

TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMINAL COMPRESSION TEST

PART 572

11-FEB-86

TEMPERATURE 71.00 F
NCA AB88003RELATIVE HUMIDITY 42.00 %
572 SN 880 ABDOM COMPR CAL 03

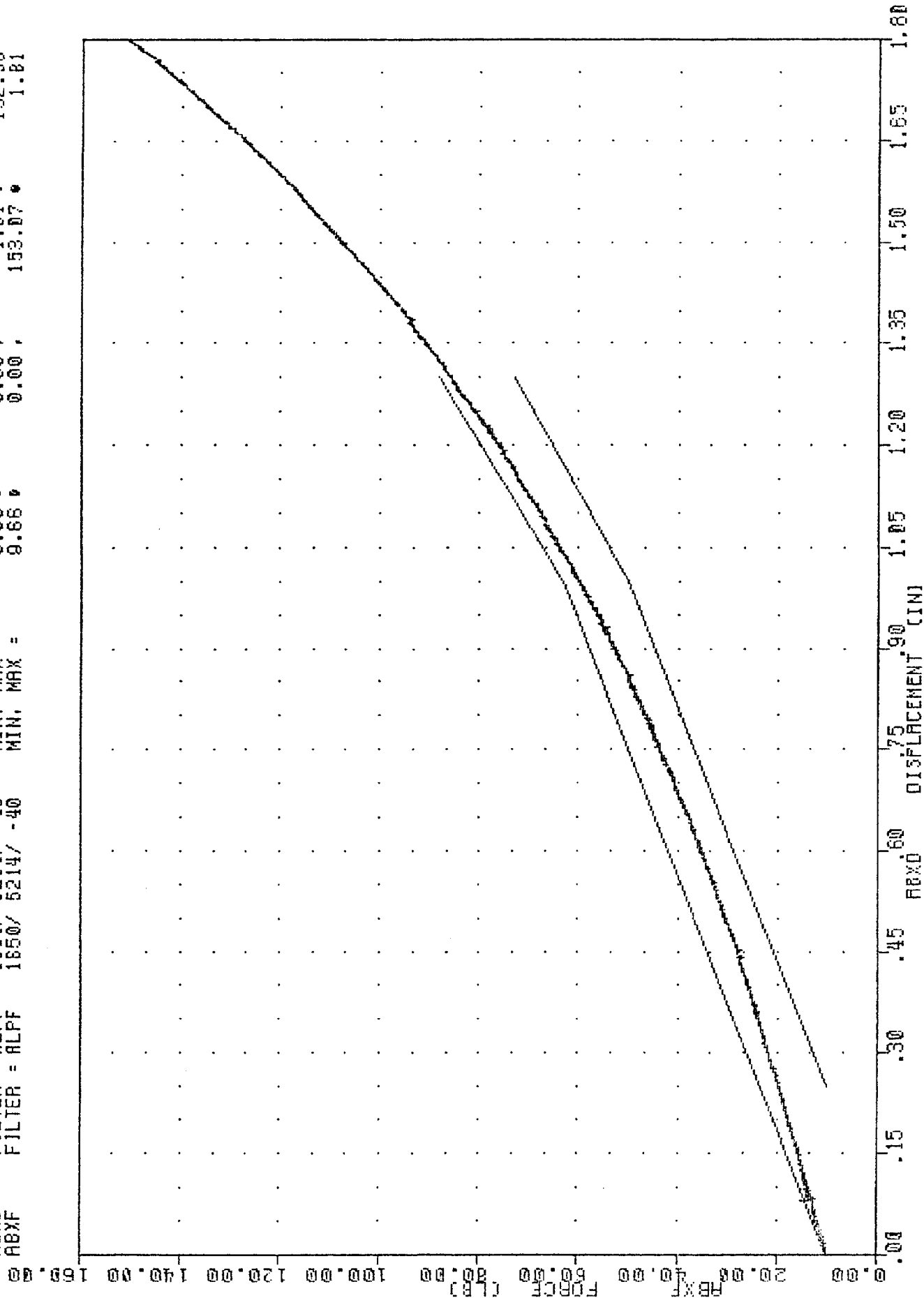
TEST CORRIDORS		
DISPLACEMENT	FORCE	TEST RESULTS
0 IN.	10 LBS	10 LBS
.50 IN.	23.00 - 36.00 LBS	30.20 LBS
.75 IN.	36.00 - 50.00 LBS	43.68 LBS
1.00 IN.	50.00 - 63.00 LBS	60.07 LBS
1.30 IN.	73.00 - 88.00 LBS	85.65 LBS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN



NCR
 ABXD
 ABXF
 572 SN 880 ABXDM COMP CAL 03 86042
 1650/ 5214/ -40 MIN, MAX = 0.00 152.56
 1650/ 5214/ -40 MIN, MAX = 0.00 153.07 1.81



ABXDMTMDI COMPRESSION VS DISPLACEMENT

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

PART 572

11-FEB-86

TEMPERATURE 70 F
NCA HDB8003

RELATIVE HUMIDITY 22 %
572 SN 880 HEAD DROP CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PEAK RESULTANT ACCELERATION	210 - 260 G	255.10 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MS	1.14 MS
PEAK LATERAL ACCELERATION	10 G MAX	3.24 G
IS ACCELERATION CURVE UNIMODAL?		YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Todd Tomlin

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572

11-FEB-86

TEMPERATURE 71.00 F
NCA HN88003

RELATIVE HUMIDITY 20.00 %
572 SN 880 HEAD/NECK CAL 03

Test Parameter	Specification	Test Results
Pendulum velocity	21.5 to 25.5 fps	22.86 fps
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 ms. max	2.35 ms.
T2 - T3: 20 - 20 G	25 - 30 ms.	25.86 ms.
T3 - T4: 20 - 5 G	10 ms. max	9.35 ms.
Avg. G level T2 - T3	20 - 24 G	21.73 G
Maximum Rotation Angle	63 - 73 deg.	67.95 deg.
Peak Head Resultant Accel	26 G max	24.80 G

Test Parameter	Specification	Test Results
Rotation Angle	Time Chordal Disp.	Time Chordal Disp.
(degrees)	(ms.) (in.)	(ms.) (in.)
0	-2.0 - +2.0 -0.5 - +0.5	-0.13 0.00
30	25.6 - 34.4 2.1 - 3.1	31.00 2.51
60	40.3 - 51.7 4.3 - 5.3	48.52 4.62
max	53.2 - 66.8 5.0 - 6.0	61.88 5.33
60	67.0 - 83.0 4.3 - 5.3	77.28 4.65
30	85.4 - 104.6 2.1 - 3.1	97.04 2.21
0	101.0 - 123.0 -0.5 - +0.5	111.88 0.16

* DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Robert Tomlinson*

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

11-FEB-86

TEMPERATURE 70 F
NCA TL88003

RELATIVE HUMIDITY 20 %
572 SN 880 L.S.THORAX CAL 03

TEST PARAMETER	LOW SPEED TEST	
	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	13.86-14.14 FT/SEC	14.05 FT/SEC
PEAK DEFLECTION	1.1 INCHES MAX.	0.99 INCHES
PEAK RESISTIVE FORCE	1,450. POUNDS MAX.	1328. POUNDS
INTERNAL HYSTERESIS	50% - 70%	60.8%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Ladd Taulin

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

11-FEB-86

TEMPERATURE 70 F
NCA TH88003

RELATIVE HUMIDITY 20 %
572 SN 880 H.S.THORAX CAL 03

TEST PARAMETER	HIGH SPEED TEST	
	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	21.78-22.22 FT/SEC	22.16 FT/SEC
PEAK DEFLECTION	1.7 INCHES MAX.	1.46 INCHES
PEAK RESISTIVE FORCE	2,250. POUNDS MAX.	2099. POUNDS
INTERNAL HYSTERESIS	50% - 70%	60.0%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Ed L. Lumber*

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

11-FEB-86

TEMPERATURE 70 F
RIGHT KNEE
NCA RKB8003

RELATIVE HUMIDITY 20 %
572 SN 880 R.KNEE IMP CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.76 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	2072.74 LBS.
DURATION ABOVE 1000 LBS.	>=1.7 MS.	1.86 MS.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Todd Towlin

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

11-FEB-86

TEMPERATURE 70 F
LEFT KNEE
NCA LKB8003

RELATIVE HUMIDITY 20 %
572 SN 880 L.KNEE IMP CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.86 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	2004.47 LBS.
DURATION ABOVE 1000 LBS.	≥ 1.7 MS.	1.78 MS.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Todd Tomlin

TRANSPORTATION RESEARCH CENTER OF OHIO

EXTERNAL DIMENSIONS

PART 572

03-MAR-86

TEMPERATURE 70.00 F
NCA ED41108RELATIVE HUMIDITY 45.00 %
572 SN 411 EXT.DIMENSION CAL08

DESCRIPTION	SPECIFICATION	TEST RESULTS
SN HUMANOID 411		
Sittins Height	35.6 - 35.8IN	35.6 INS
Shoulder Pivot Height	21.8 - 22.4IN	22.3 INS
Hip Pivot Height	3.9 IN (ref.)	3.9 INS
Hip Pivot From Backline	4.8 IN (ref.)	4.8 INS
Knee Pivot From Backline	20.1 - 20.7IN	20.4 INS
Rear of Head From Backline	1.7 IN (ref)	1.7 INS
Chest Depth	9.1 - 9.6IN	9.4 INS
Shoulder Width	17.8 - 18.4IN	17.9 INS
Chest Circumference Over Nipples	36.8 - 40.0IN	37.2 INS
Waist Circumference at Min. Girth	31.4 - 32.6IN	32.4 INS
Hip Width	14.0 - 15.4IN	15.0 INS
Knee Pivot From Floor	19.3 - 19.9IN	19.4 INS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry J. Repps

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572

03-MAR-86

TEMPERATURE 71.00 F
NCA LF41108

RELATIVE HUMIDITY 45.00 %
572 SN 411 LUMBAR FLEX CAL08

DEFLECTION	SPECIFICATION	TEST RESULTS
0 Deg.	0 LBS	0.00 LBS
20 Deg	22.00 - 34.00 LBS	27.00 LBS
30 Deg	34.00 - 46.00 LBS	36.00 LBS
40 Deg	46.00 - 58.00 LBS	47.00 LBS
NET RETURN ANGLE	< 12 DEG	9.92 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Gary L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMINAL COMPRESSION TEST

PART 572

03-MAR-86

TEMPERATURE 70.00 F
NCA AB41108RELATIVE HUMIDITY 45.00 %
572 SN411 ABDOM COMPR CAL 08

TEST CORRIDORS		
DISPLACEMENT	FORCE	TEST RESULTS
0 IN.	10 LBS	10 LBS
.50 IN.	23.00 - 36.00 LBS	29.19 LBS
.75 IN.	36.00 - 50.00 LBS	41.90 LBS
1.00 IN.	50.00 - 63.00 LBS	58.51 LBS
1.30 IN.	73.00 - 88.00 LBS	84.06 LBS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

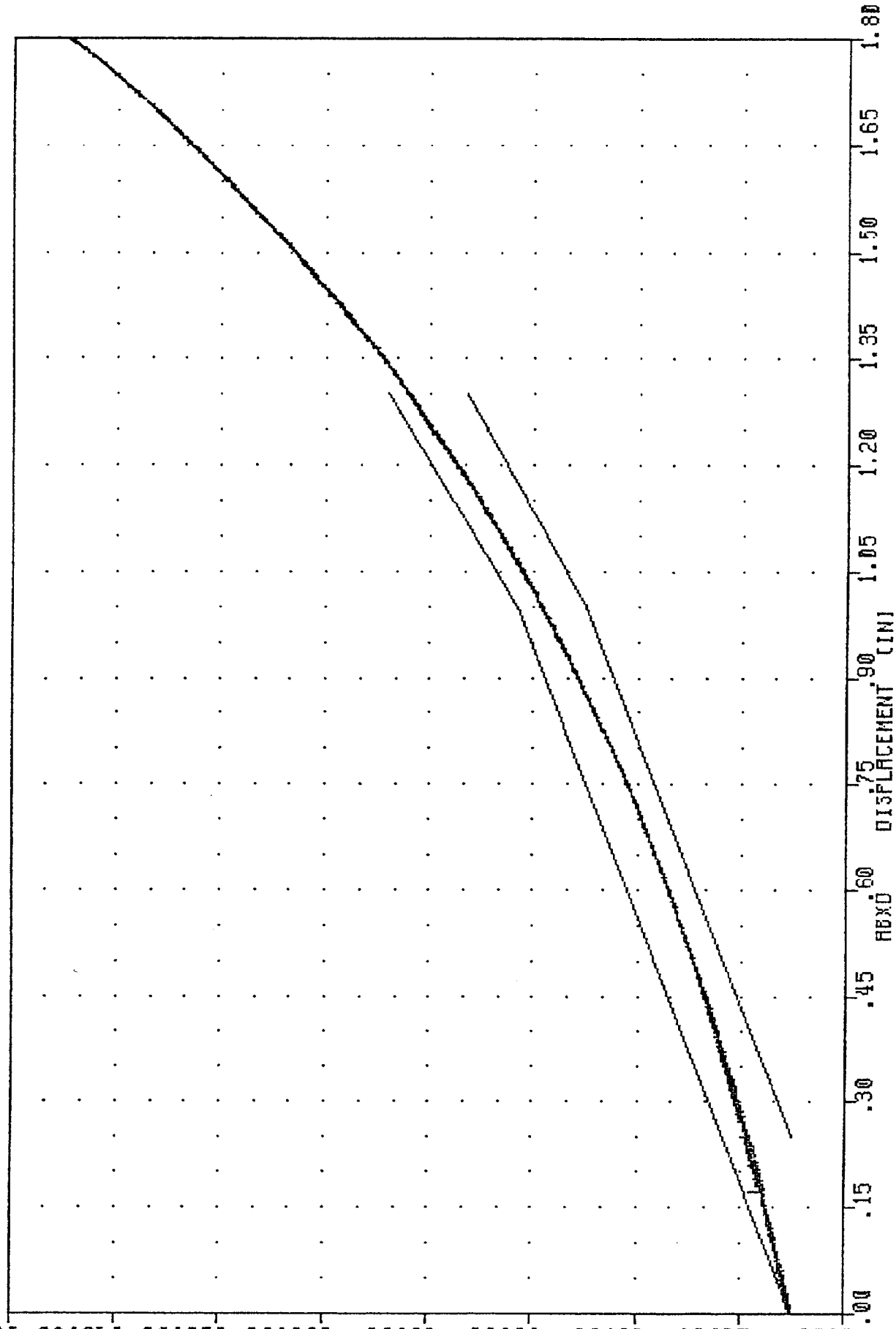
NCA
ABXD
ABXF

572 SN411 ABDOM COMP CAL 08
1650/ 5214/ -40 MIN. MAX =
1650/ 5214/ -40 MIN. MAX =

86062
0.00 %
8.84 %

0.00 ; 0.00 ;
1.82 % 151.51
151.63 % 1.81

ABXF
FORCE (LBS)
0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00



ABDOMINAL COMPRESSION VS DISPLACEMENT

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

PART 572

03-MAR-86

TEMPERATURE 70 F
NCA HD41108

RELATIVE HUMIDITY 45 %
572 SN 411 HEAD DROP CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
IPEAK RESULTANT ACCELERATION	210 - 260 G	223.27 G
ITIME ABOVE 100 G LEVEL	0.9 - 1.5 MS	1.27 MS
IPEAK LATERAL ACCELERATION	10 G MAX	-5.72 G
IIS ACCELERATION CURVE IUNIMODAL?		YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572

03-MAR-86

TEMPERATURE 71.00 F
NCA HN41108

RELATIVE HUMIDITY 45.00 %
572 SN 411 HEAD/NECK CAL 08

Test Parameter	Specification	Test Results
Pendulum velocity	21.5 to 25.5 fps	23.40 fps
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 ms. max	1.99 ms.
T2 - T3: 20 - 20 G	25 - 30 ms.	26.03 ms.
T3 - T4: 20 - 5 G	10 ms. max	9.30 ms.
Avg. G level T2 - T3	20 - 24 G	23.02 G
Maximum Rotation Angle	63 - 73 deg.	67.14 deg.
Peak Head Resultant Accel	26 G max	22.36 G

Test Parameter	Specification	Test Results
Rotation Angle	Time Chordal Disp.	Time Chordal Disp.
(degrees)	(ms.) (in.)	(ms.) (in.)
0	-2.0 - +2.0 -0.5 - +0.5	0.13 0.00
30	25.6 - 34.4 2.1 - 3.1	29.62 2.35
60	40.3 - 51.7 4.3 - 5.3	50.10 4.65
max	53.2 - 66.8 5.0 - 6.0	60.63 5.24
60	67.0 - 83.0 4.3 - 5.3	74.64 4.72
30	85.4 - 104.6 2.1 - 3.1	95.56 2.30
0	101.0 - 123.0 -0.5 - +0.5	109.74 0.18

* DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

03-MAR-86

TEMPERATURE 71 F
NCA TL41108

RELATIVE HUMIDITY 45 %
572 SN 411 L.S.THORAX CAL 08

	LOW SPEED TEST	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
=====		
PENDULUM VELOCITY	13.86-14.14 FT/SEC	14.09 FT/SEC
PEAK DEFLECTION	1.1 INCHES MAX.	1.00 INCHES
PEAK RESISTIVE FORCE	1,450. POUNDS MAX.	1302. POUNDS
INTERNAL HYSTERESIS	50% - 70%	56.1%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

03-MAR-86

TEMPERATURE 71 F
NCA TH41108RELATIVE HUMIDITY 45 %
572 SN 411 H.S.THORAX CAL 08

TEST PARAMETER	HIGH SPEED TEST	
	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	21.78-22.22 FT/SEC	22.22 FT/SEC
PEAK DEFLECTION	1.7 INCHES MAX.	1.41 INCHES
PEAK RESISTIVE FORCE	2,250. POUNDS MAX.	2047. POUNDS
INTERNAL HYSTERESIS	50% - 70%	58.3%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

03-MAR-86

TEMPERATURE 71 F
RIGHT KNEE
NCA RK41108

RELATIVE HUMIDITY 45 %
572 SN 411 R.KNEE IMP CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.93 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	2042.93 LBS.
DURATION ABOVE 1000 LBS.	>=1.7 MS.	1.76 MS.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

03-MAR-86

TEMPERATURE 71 F
LEFT KNEE
NCA LK41108

RELATIVE HUMIDITY 45 %
572 SN 411 L.KNEE IMP CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.88 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	2074.72 LBS.
DURATION ABOVE 1000 LBS.	>=1.7 MS.	1.72 MS.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Gay L. Phelps

POST-TEST CALIBRATIONS

TRANSPORTATION RESEARCH CENTER OF OHIO

EXTERNAL DIMENSIONS

PART 572

10-MAR-86

TEMPERATURE 72.00 F
NCA EDB8004RELATIVE HUMIDITY 52.00 %
572 SN 880 EXT.DIMENSION CAL04

DESCRIPTION	SPECIFICATION	TEST RESULTS
SN ALDERSON RESEARCH LAB 880		
Sitting Height	35.6 - 35.8IN	35.6 INS
Shoulder Pivot Height	21.8 - 22.4IN	22.1 INS
Hip Pivot Height	3.9 IN (ref.)	3.9 INS
Hip Pivot From Backline	4.8 IN (ref.)	4.8 INS
Knee Pivot From Backline	20.1 - 20.7IN	20.6 INS
Rear of Head From Backline	1.7 IN (ref)	1.7 INS
Chest Depth	9.1 - 9.6IN	9.5 INS
Shoulder Width	17.8 - 18.4IN	18.2 INS
Chest Circumference Over Nipples	36.8 - 40.0IN	37.5 INS
Waist Circumference at Min. Girth	31.4 - 32.6IN	32.5 INS
Hip Width	14.0 - 15.4IN	14.6 INS
Knee Pivot From Floor	19.3 - 19.9IN	19.4 INS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Mary L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572

10-MAR-86

TEMPERATURE 73.00 F
NCA LF88004

RELATIVE HUMIDITY 52.00 %
572 SN 880 LUMBAR FLEX CAL04

DEFLECTION	SPECIFICATION	TEST RESULTS
0 Deg.	0 LBS	0.00 LBS
20 Deg	22.00 - 34.00 LBS	27.00 LBS
30 Deg	34.00 - 46.00 LBS	38.00 LBS
40 Deg	46.00 - 58.00 LBS	52.00 LBS
NET RETURN ANGLE	< 12 DEG	10.19 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Gay L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMINAL COMPRESSION TEST

PART 572

10-MAR-86

TEMPERATURE 73.00 F
NCA ABB8004

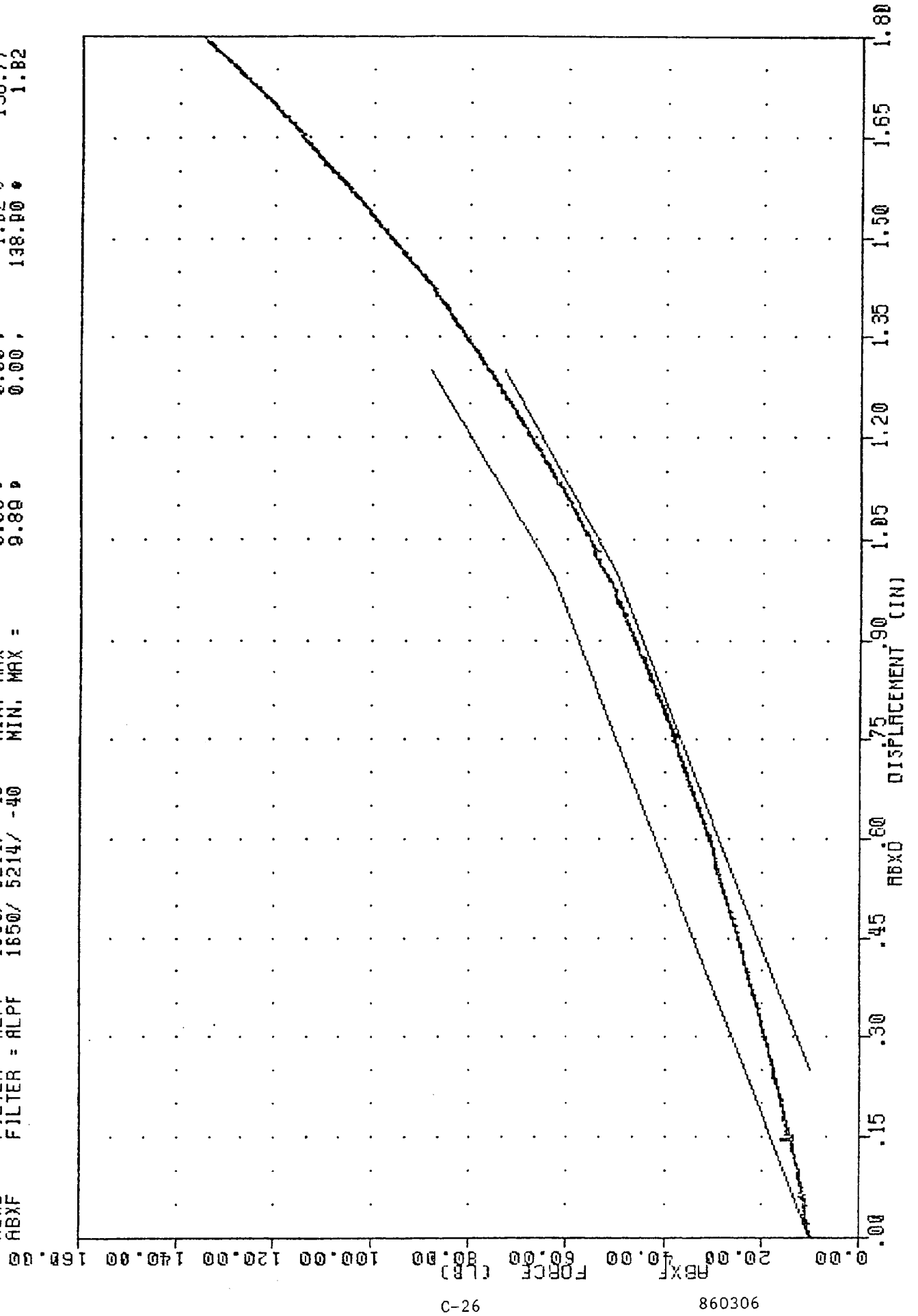
RELATIVE HUMIDITY 55.00 %
572 SN 880 ABDOM COMPR CAL 04

TEST CORRIDORS		
DISPLACEMENT	FORCE	TEST RESULTS
0 IN.	10 LBS	10 LBS
.50 IN.	23.00 - 36.00 LBS	27.01 LBS
.75 IN.	36.00 - 50.00 LBS	37.96 LBS
1.00 IN.	50.00 - 63.00 LBS	52.31 LBS
1.30 IN.	73.00 - 88.00 LBS	75.97 LBS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Harry L. Phelps

NCR 572 SN 880 ABDOM COMP CAL 04 86069 1.82 138.77
 ABXD 1650/ 5214/ -40 MIN, MAX = 0.00 0.00
 ABXF 1650/ 5214/ -40 MIN, MAX = 0.00 0.00



ABDOMINAL COMPRESSION VS DISPLACEMENT

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

PART 572

10-MAR-86

TEMPERATURE 73 F
NCA HD88004RELATIVE HUMIDITY 55 %
572 SN 880 HEAD DROP CAL 04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PEAK RESULTANT ACCELERATION	210 - 260 G	244.72 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MS	1.15 MS
PEAK LATERAL ACCELERATION	10 G MAX	7.32 G
IS ACCELERATION CURVE UNIMODAL?		YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572

10-MAR-86

TEMPERATURE 73.00 F
NCA HN88004

RELATIVE HUMIDITY 55.00 %
572 SN 880 HEAD/NECK CAL 04

Test Parameter	Specification	Test Results
Pendulum velocity	21.5 to 25.5 fps	22.86 fps
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 ms. max	1.90 ms.
T2 - T3: 20 - 20 G	25 - 30 ms.	26.27 ms.
T3 - T4: 20 - 5 G	10 ms. max	8.84 ms.
Avg. G level T2 - T3	20 - 24 G	23.19 G
Maximum Rotation Angle	63 - 73 deg.	68.25 deg.
Peak Head Resultant Accel	26 G max	23.40 G

Test Parameter	Specification	Test Results
Rotation Angle	Time Chordal Disp.	Time Chordal Disp.
(degrees)	(ms.) (in.)	(ms.) (in.)
0	-2.0 - +2.0 -0.5 - +0.5	0.13 0.01
30	25.6 - 34.4 2.1 - 3.1	30.18 2.41
60	40.3 - 51.7 4.3 - 5.3	47.66 4.45
max	53.2 - 66.8 5.0 - 6.0	61.38 5.17
60	67.0 - 83.0 4.3 - 5.3	77.64 4.52
30	85.4 - 104.6 2.1 - 3.1	98.07 2.24
0	101.0 - 123.0 -0.5 - +0.5	111.89 0.17

* DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Harry L. Phelps*

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
NCA TL88004

RELATIVE HUMIDITY 49 %
572 SN 880 L.S.THORAX CAL 04

TEST PARAMETER	LOW SPEED TEST	
	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	13.86-14.14 FT/SEC	14.01 FT/SEC
PEAK DEFLECTION	1.1 INCHES MAX.	1.05 INCHES
PEAK RESISTIVE FORCE	1,450. POUNDS MAX.	1345. POUNDS
INTERNAL HYSTERESIS	50% - 70%	62.0%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Ray L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
NCA TH88004

RELATIVE HUMIDITY 49 %
572 SN 880 H.S.THORAX CAL 04

TEST PARAMETER	HIGH SPEED TEST	
	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	21.78-22.22 FT/SEC	22.22 FT/SEC
PEAK DEFLECTION	1.7 INCHES MAX.	1.57 INCHES
PEAK RESISTIVE FORCE	2,250. POUNDS MAX.	2136. POUNDS
INTERNAL HYSTERESIS	50% - 70%	61.7%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Gay L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
LEFT KNEE
NCA LK88004

RELATIVE HUMIDITY 49 %
572 SN 880 L.KNEE IMP CAL 04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.96 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	1880.56 LBS.
DURATION ABOVE 1000 LBS.	>=1.7 MS.	1.79 MS.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
RIGHT KNEE
NCA RK88004

RELATIVE HUMIDITY 49 %
572 SN 880 R.KNEE IMP CAL 04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.93 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	2069.85 LBS.
DURATION ABOVE 1000 LBS.	>=1.7 MS.	1.85 MS.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

EXTERNAL DIMENSIONS

PART 572

10-MAR-86

TEMPERATURE 72.00 F
NCA ED41109RELATIVE HUMIDITY 52.00 %
572 SN 411 EXT.DIMENSION CAL09

DESCRIPTION	SPECIFICATION	TEST RESULTS
SN HUMANIOD 411		
Sitting Height	35.6 - 35.8IN	35.6 INS
Shoulder Pivot Height	21.8 - 22.4IN	22.3 INS
Hip Pivot Height	3.9 IN (ref.)	3.9 INS
Hip Pivot From Backline	4.8 IN (ref.)	4.8 INS
Knee Pivot From Backline	20.1 - 20.7IN	20.3 INS
Rear of Head From Backline	1.7 IN (ref)	1.7 INS
Chest Depth	9.1 - 9.6IN	9.5 INS
Shoulder Width	17.8 - 18.4IN	18.1 INS
Chest Circumference Over Nipples	36.8 - 40.0IN	37.4 INS
Waist Circumference at Min. Girth	31.4 - 32.6IN	32.6 INS
Hip Width	14.0 - 15.4IN	14.9 INS
Knee Pivot From Floor	19.3 - 19.9IN	19.6 INS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Larry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572

10-MAR-86

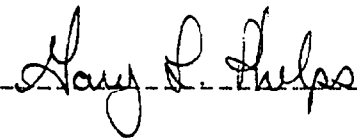
TEMPERATURE 73.00 F
NCA LF41109

RELATIVE HUMIDITY 52.00 %
572 SN 411 LUMBAR FLEX CAL09

DEFLECTION	SPECIFICATION	TEST RESULTS
0 Deg.	0 LBS	0.00 LBS
20 Deg	22.00 - 34.00 LBS	26.00 LBS
30 Deg	34.00 - 46.00 LBS	38.00 LBS
40 Deg	46.00 - 58.00 LBS	49.00 LBS
NET RETURN ANGLE	< 12 DEG	11.20 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN



TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMINAL COMPRESSION TEST

PART 572

10-MAR-86

TEMPERATURE 73.00 F
NCA AB41109

RELATIVE HUMIDITY 55.00 %
572 SN411 ABDOM COMPR CAL 09

TEST CORRIDORS		
DISPLACEMENT	FORCE	TEST RESULTS
0 IN.	10 LBS	10 LBS
.50 IN.	23.00 - 36.00 LBS	27.83 LBS
.75 IN.	36.00 - 50.00 LBS	39.80 LBS
1.00 IN.	50.00 - 63.00 LBS	55.67 LBS
1.30 IN.	73.00 - 88.00 LBS	81.36 LBS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Harry L. Phelps

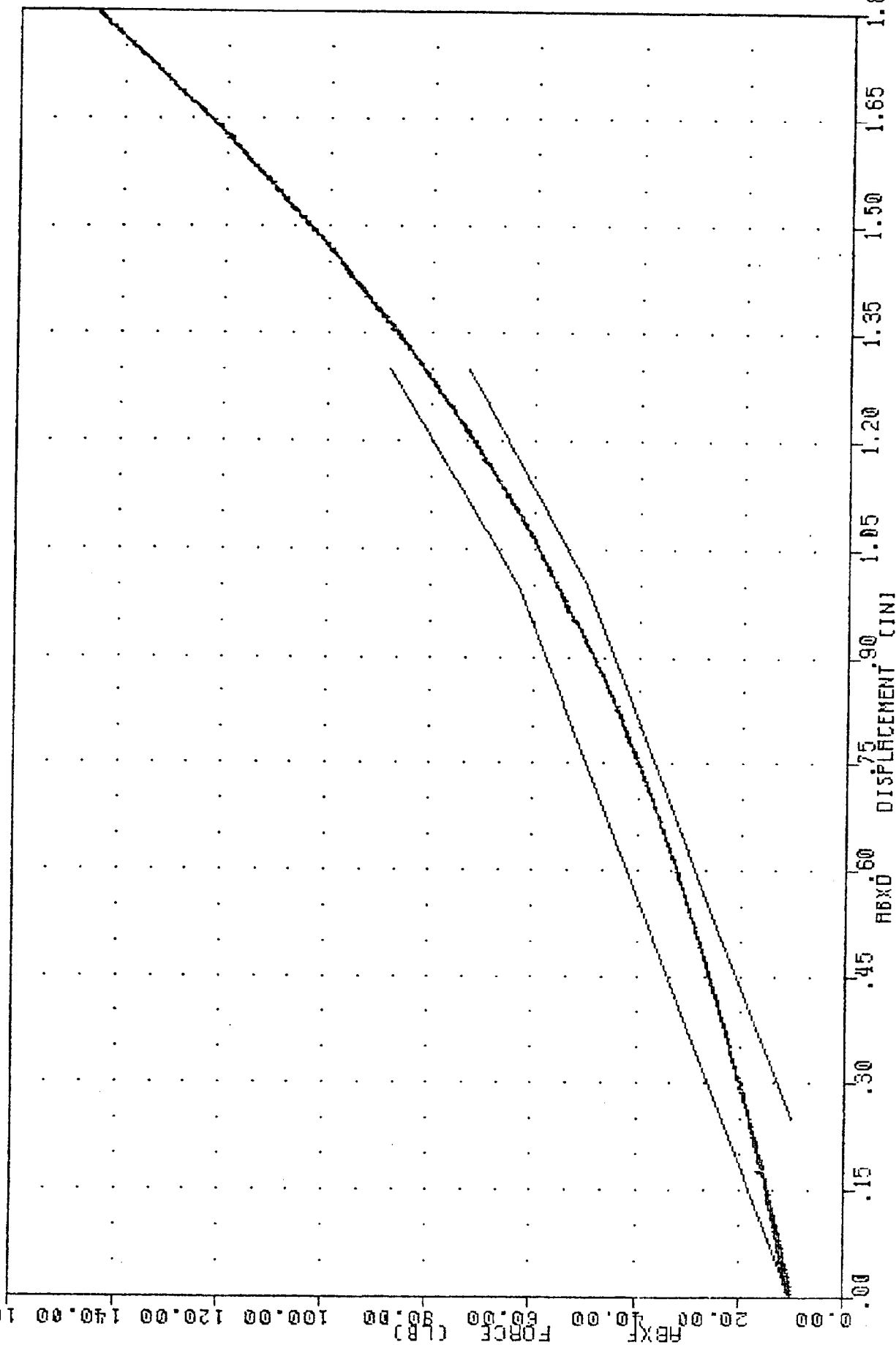
NCA
 ABXD
 ABXF

572 SN411 ABDOM COMP CAL 09
 1650/ 5214/ -40 MIN, MAX =
 1650/ 5214/ -40 MIN, MAX =

86069
 0.00
 9.70

0.00
 0.00
 1.82
 147.47
 1.82

0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00



ABDOMINAL COMPRESSION VS DISPLACEMENT

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

PART 572

10-MAR-86

TEMPERATURE 73 F
NCA HD41109

RELATIVE HUMIDITY 55 %
572 SN 411 HEAD DROP CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PEAK RESULTANT ACCELERATION	210 - 260 G	225.09 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MS	1.27 MS
PEAK LATERAL ACCELERATION	10 G MAX	-5.83 G
IS ACCELERATION CURVE UNIMODAL?		YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Larry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572

11-MAR-86

TEMPERATURE 71.00 F
NCA HN41109

RELATIVE HUMIDITY 49.00 %
572 SN 411 HEAD/NECK CAL 09

Test Parameter	Specification	Test Results
Pendulum velocity	21.5 to 25.5 fps	23.40 fps
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 ms. max	2.12 ms.
T2 - T3: 20 - 20 G	25 - 30 ms.	26.70 ms.
T3 - T4: 20 - 5 G	10 ms. max	8.64 ms.
Avg. G level T2 - T3	20 - 24 G	22.71 G
Maximum Rotation Angle	63 - 73 des.	65.73 des.
Peak Head Resultant Accel	26 G max	21.81 G

Test Parameter	Specification	Test Results
Rotation Angle	Time Chordal Disp.	Time Chordal Disp.
(degrees)	(ms.) (in.)	(ms.) (in.)
0	-2.0 - +2.0	-0.5 - +0.5
30	25.6 - 34.4	2.1 - 3.1
60	40.3 - 51.7	4.3 - 5.3
max	53.2 - 66.8	5.0 - 6.0
60	67.0 - 83.0	4.3 - 5.3
30	85.4 - 104.6	2.1 - 3.1
0	101.0 - 123.0	-0.5 - +0.5

* DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Gay L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
NCA TL41109

RELATIVE HUMIDITY 49 %
572 SN 411 L.S.THORAX CAL 09

LOW SPEED TEST		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	13.86-14.14 FT/SEC	14.02 FT/SEC
PEAK DEFLECTION	1.1 INCHES MAX.	1.02 INCHES
PEAK RESISTIVE FORCE	1,450. POUNDS MAX.	1314. POUNDS
INTERNAL HYSTERESIS	50% - 70%	58.2%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Ray L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
NCA TH41109

RELATIVE HUMIDITY 49 %
572 SN 411 H.S.THORAX CAL 09

HIGH SPEED TEST		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	21.78-22.22 FT/SEC	21.96 FT/SEC
PEAK DEFLECTION	1.7 INCHES MAX.	1.44 INCHES
PEAK RESISTIVE FORCE	2,250. POUNDS MAX.	2010. POUNDS
INTERNAL HYSTERESIS	50% - 70%	54.7%

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Gay L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
LEFT KNEE
NCA LK41109

RELATIVE HUMIDITY 49 %
572 SN 411 L.KNEE IMP' CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.90 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	1880.62 LBS.
DURATION ABOVE 1000 LBS.	≥ 1.7 MS.	1.79 MS.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Larry L. Phelps

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

PART 572

11-MAR-86

TEMPERATURE 70 F
RIGHT KNEE
NCA RK41109

RELATIVE HUMIDITY 49 %
572 SN 411 R.KNEE IMP CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	6.76 - 7.04 FT/SEC	6.94 FT/SEC
PEAK KNEE IMPACT FORCE	1850 - 2500 LBS.	1918.15 LBS.
DURATION ABOVE 1000 LBS.	≥ 1.7 MS.	1.71 MS.

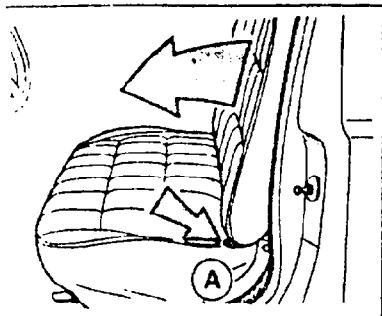
DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Harry L. Phelps

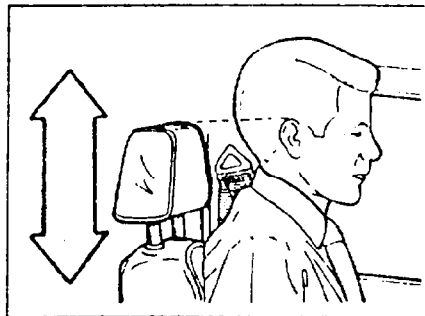
APPENDIX D

APPENDIX D RESTRAINT INSTRUCTIONS FROM OWNER'S MANUAL



Up-Down Seatback

Press down release lever (A) and pull seatback forward. To replace seatback, firmly push forward until seatback is latched. Be sure seat belts are placed so they can be used properly.



Headrests

Pull up or down to adjust headrests to correct height for driver and passenger. The top of the headrest should be level with the top of the seat occupant's ears.

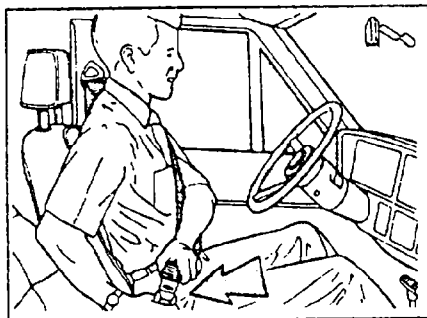


Seat Belts

For your safety, drive with properly adjusted seat belts. Many states and Canadian provinces require belt use. Check the laws of the area in which you drive.

Seat Belt Adjustment: For proper seat belt fit, buckle up after adjusting the front seat.

Seats and Passenger Safety Restraints



- Sit straight and well back in the seat.
- Position the lap belt across the hips as low as possible. Insert the seat belt clip into the buckle until a definite "snap" is heard. Grasp the shoulder portion of the belt under the connector and pull it snug across lap and chest.

Seat Belt Reminder: An indicator light and buzzer or chime alerts you to buckle the seat belts.

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Seat Belt Warnings

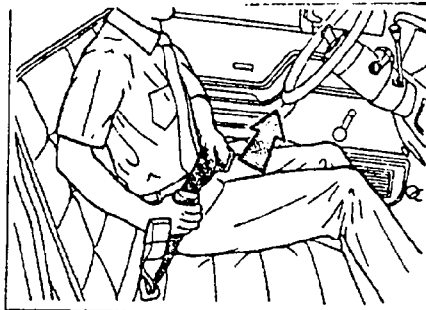
Failure to use seat belts properly may result in added or unnecessary injuries in the event of an accident. Always follow these warnings:

- Do not operate vehicle unless seat belts for driver and all passengers are adjusted low and snug across hips. Never adjust seat belt loosely.
- Never adjust seats while driver or passengers are wearing seat belts, which could cause excessive slack. Always fasten seat belts after seat is adjusted.
- Do not operate the vehicle with a seatback in the reclined position, if equipped. The occupant could slide under the seat belt in event of an abrupt stop or accident.
- Do not position shoulder belts under the arms.
- Do not use the same belt on more than one person, and never attach belt over an infant or child held on your lap. Such use increases the chance and severity of injury in event of an accident.
- Be sure each seat belt connector is inserted in the correct buckle, if possible, especially for children's seats.

Care Warnings

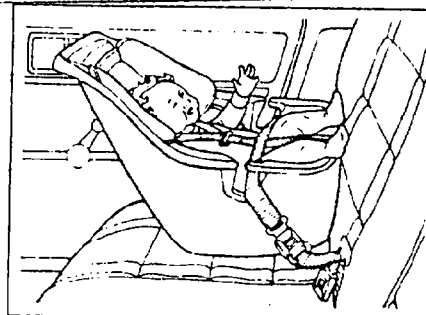
Seat belts, buckles, connectors, and reminder systems, including belts and anchors, should be replaced. Have your dealer replace any belt assembly that has been involved in a major collision or is frayed, cut or damaged.

Clean seat belts with mild soap and water. Rinse thoroughly and dry in the shade. Never dye or bleach the belts. This could weaken the fabric.



Center Seat Belt Adjustment

For center seat belt on bench seat models there is a manually adjustable lap belt.



When Children Are Passengers

Jeep Corporation recommends that children be restrained properly when riding in your vehicle. An infant or child restraint system can help protect a child in a vehicle in the event of an accident or sudden stop. All states and some Canadian provinces require the use of child restraint devices. Check the laws of your state or province. 860306

Seats and Passenger Safety Restraints

Child Seat Warnings

Follow these guidelines when selecting and using a child restraint system:

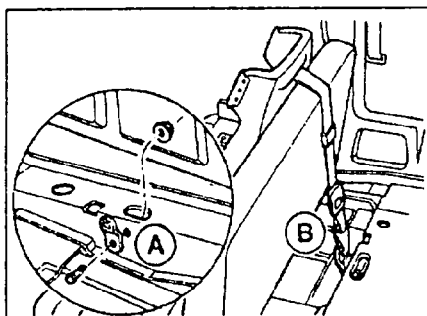
- Read instructions for the restraint system carefully. Be sure you understand the instructions so you can install and operate the restraint system properly in your vehicle.
- Be certain to secure any child or infant seat in strict compliance with the instructions of the seat manufacturer.
- The restraint system should have a label certifying that it meets Federal Motor Vehicle Safety Standard (FMVSS) No. 213. In Canada, restraints must meet the requirements of the Children's Car Seats and Harness Regulations (CCSHR). Infant restraints made before 1981 should have a label on

the restraint system or a statement in the accompanying literature that states that the design was "dynamically" tested.

- Make sure the child restraint system is suited to the child's height, weight and build. A label on the restraint system should supply this information.
- To help lessen the chance and/or severity of injury to a child in an accident, **ALWAYS USE THE CHILD SEAT TETHER STRAPS AND VEHICLE LAP BELT TO SECURE THE CHILD SEAT.** Check seat by pulling top of seat forward to be sure there is no slack in the tether straps, which could reduce the protection of a child during an accident.

- The metal parts of the child seat, just as any metal part in your vehicle, can become hot in both direct and cloud filtered sunlight and might possibly cause a fire or burn. Under such conditions, metal parts should be covered with a cloth. Before placing a child in the child seat, always check the metal parts to ensure they will not cause injury.
- Children should never be left alone in your vehicle. When you leave your vehicle, set the parking brake, turn off the ignition, and remove the keys.
- When not in use, secure the child restraint system using the seat belt or remove it and place it somewhere other than in the vehicle to prevent injury to passengers in the event of a stop or accident.

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Top Tether Strap Anchor Positions

WARNING: When using a child restraint system that requires top tether strap(s) in your vehicle, use only the specified anchor positions for your vehicle.

Child Restraint systems that require a top tether strap are to be used only where the anchor location has been identified. Follow the instructions for locating and installing a top tether

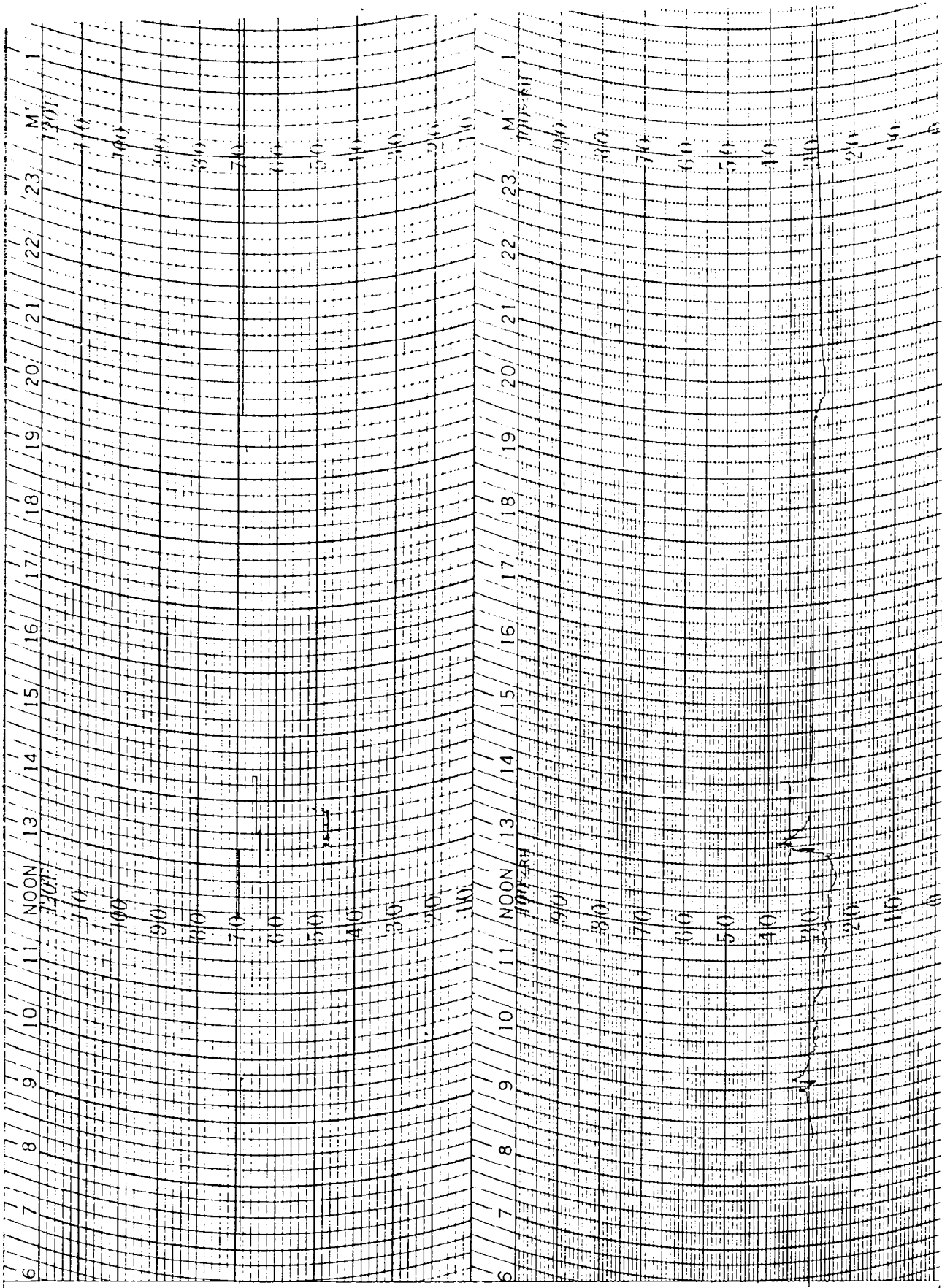
strap anchor bracket in your vehicle. See your dealer for assistance if necessary.

1. Install the anchor bracket (A) to the crossmember behind the passenger seat.
2. Attach top tether strap (B) to anchor bracket. Be sure to also secure the child seat with a seat belt according to child seat instructions.

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Pregnant Women are at Risk

Pregnant women are advised to consult their physicians about the use of seat belts to reduce the chance of injury during pregnancy. When a seat belt is worn, be certain the lap belt is positioned as low as possible across the hips and adjusted for a snug fit.



STATION Barrier/Vch. prep DATE ON March 5, 1986 DATE OFF