V1742

REPORT NO. TRC-91-N15

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

MAZDA MOTOR MANUFACTURING (USA) COMPANY

1993 MAZDA 626

4-DOOR SEDAN

NHTSA NO. MP5401

TRC TEST NO. 920818

PREPARED BY:

TRANSPORTATION RESEARCH CENTER INC.

10820 STATE ROUTE 347

EAST LIBERTY, OHIO 43319

SEPTEMBER 10, 1992

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

OFFICE OF MARKET INCENTIVES

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16. Abstract

A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1993 Mazda 626 4-door sedan, NHTSA No. MP5401, at the Transportation Research Center Inc. on August 18, 1992. This test was conducted to obtain new car assessment and research data indicant of FMVSS No. 208 performance. The barrier impact velocity was 56.3 kph. The vehicle's maximum crush was 554 millimeters. The ambient temperature was 26° C.

The driver's head injury criteria (HIC) was 589. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47.9 g. The driver's left and right femur maximum axial force were 5412 N and 6932 N, respectively.

The passenger's head injury criteria (HIC) was 694. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 46.7 g. The passenger's left and right femur maximum axial forces were 5801 N and 4947 N, respectively.

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REPORT PREPARED BY:

Craig A. Markusic Date 9/11/92

Craig A. Markusic, Project Engineer
Transportation Research Center Inc.

REPORT APPROVED BY:

C. Kay Latimer Date 9/11/92

C. Kay Latimer, Project Manager
Transportation Research Center Inc.

FINAL REPORT ACCEPTED BY:

Date NOV 3 1992

Manager, New Car Assessment Program
NHTSA, Office of Market Incentives

Date NOV 3 1992

Contracting Officer's Technical Representative (COTR),
NHTSA, Office of Market Incentives

METRIC CONVERSION FACTORS

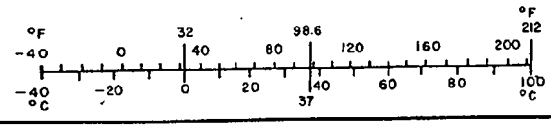
Approximate Conversions to Metric Measures

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	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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

Approximate Conversions from Metric Measures

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



1.

920818

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SECTION 1.0

PURPOSE AND TEST PROCEDURE

PURPOSE

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

The purpose of this test was to obtain new car assessment and research data for vehicle crashworthiness and occupant restraint system performance for the subject vehicle, a 1993 Mazda 626 4-door sedan, NHTSA No. MP5401, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208 requirements.

TEST PROCEDURE

This test was conducted in accordance with NHTSA's Laboratory Indicant Test Procedure, New Car Assessment Program, dated January 1, 1990. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection" performance.

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

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

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

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

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

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

SECTION 2.0

FRONTAL BARRIER IMPACT TEST SUMMARY

TEST RESULTS SUMMARY

This frontal load cell barrier test was conducted at TRC on August 18, 1992.

The test vehicle, a 1993 Mazda 626 4-door sedan, NHTSA No. MP5401, was equipped with a 2.0 liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1441 KG. The vehicle's impact speed was 56.3 kph. The vehicle sustained 554 mm of static crush during the impact.

The driver's head injury criteria (HIC) was 589. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47.9 g. The driver's left and right femur maximum axial forces were 5412 N and 6932 N, respectively.

The passenger's HIC was 694. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 46.7 g. The passenger's left and right femur maximum axial forces were 5801 N and 4947 N, respectively.

DATA ACQUISITION EXPLANATIONS

The driver's chest X-axis accelerometer, CSTXG1, recorded a questionable data spike at 133 milliseconds. This data spike affected the driver's chest resultant acceleration calculation after the maximum resultant acceleration with three milliseconds minimum duration.

The right brake caliper X-axis accelerometer, BCRXG1, recorded questionable data from 16 to 29, 52 to 63, and 69 to 80 milliseconds due to the accelerometer cable being pinched by the vehicle's crush on impact.

TABLE 1 CRASH TEST SUMMARY

NHTSA NO.: MP5401 TEST TYPE: Frontal Load Cell Barrier

TEST DATE: 08/18/92 TEST TIME: 1457 AMBIENT TEMP.: 26° C

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1993/Mazda/626/4-door sedan

VEHICLE TEST WEIGHT (KG): 1441

IMPACT ANGLE (DEG)*: 0

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

MAXIMUM STATIC CRUSH (MM): 554

AVERAGE REBOUND (MM): 424

DUMMIES:	Driver #713	Passenger #826
TYPE:	Part 572 B	Part 572 B
LOCATION:	Left front	Right front
RESTRAINT:	Airbag & 3-point Unibelt	3-point Unibelt

NUMBER OF DATA CHANNELS: 69

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

*With respect to tow track centerline.
**Speed trap measurement (± .08 kph accuracy)

TABLE 2 TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Mazda Motor Manufacturing (USA) Co.

MAKE/MODEL: Mazda/626 VIN: 1YVGE22A7P5115395

BODY STYLE: 4-door sedan MODEL YEAR: 1993

NHTSA NO.: MP5401 COLOR: White

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

TRANSMISSION DATA: _3_ SPEED, ___MANUAL, _X_ AUTOMATIC, _X_ FWD, ___RWD, ___4WD

DATE VEHICLE RECEIVED: 08/06/92 ODOMETER READING: 387.0

DEALER'S NAME AND ADDRESS: McGee Mazda
2690 W. Liberty Ave.
Pittsburgh, PA 15216

ACCESSORIES:

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

REMARKS:

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

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Mazda Motor Manufacturing (USA) Co.

DATE OF MANUFACTURE: 05/92 VIN: 1YVGE22A7P5115395

GVWR: 1646 KG

GAWR: FRONT: 898 KG, REAR: 749 KG

TABLE 2 TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Bridgestone, SP408, P195/65R14

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 241 kPa
REAR: 241 kPa

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

TYPE OF SEATS: FRONT: Buckets
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually adjustable

MAXIMUM WIDTH: 1753 MM

WHEELBASE: 2616 MM

LOCATION OF LABEL STATING TIRE DATA:

The label was located on the passenger's door frame.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P195/65R14

RECOMMENDED COLD TIRE PRESSURE: FRONT: 2.2 kgf/CM2; REAR: 1.8 kgf/CM2

DESIGNATED SEATING CAPACITY: 2 FRONT 3 REAR 5 TOTAL

VEHICLE CAPACITY WEIGHT: 385 KG

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN MILLIMETERS):

DELIVERED ATTITUDE:	LF	682;	RF	686;	LR	668;	RR 667
PRE-TEST ATTITUDE:	LF	668;	RF	667;	LR	628;	RR 624
POST-TEST ATTITUDE:	LF	656;	RF	685;	LR	620;	RR 603

TABLE 2 TEST VEHICLE INFORMATION CONT'D

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

RIGHT FRONT	394 KG	RIGHT REAR	220 KG
LEFT FRONT	396 KG	LEFT REAR	238 KG
TOTAL FRONT WEIGHT	790 KG	(63.3% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	458 KG	(36.7% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	1248 KG		

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT*

UDW = UNLOADED DELIVERED WEIGHT (1248 KG)

VCW = VEHICLE CAPACITY WEIGHT (385 KG)

DSC = DESIGNATED SEATING CAPACITY (5)

RCLW*= VCW - 68 (DSC) = 45 KG

TARGET TEST WEIGHT=UDW + RCLW* + (NO. OF HYBRID II DUMMIES X 74 KG/DUMMY)

TARGET TEST WEIGHT = 1248 + 45 + 148

TARGET TEST WEIGHT = 1441 KG

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 45 KG OF CARGO WEIGHT:

RIGHT FRONT	425 KG	RIGHT REAR	292 KG
LEFT FRONT	423 KG	LEFT REAR	301 KG
TOTAL FRONT WEIGHT	848 KG	(58.8% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	593 KG	(41.2% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	1441 KG	(0.0% UNDER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 0 KG

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: Rear bumper, trunk lid, rear seat belts, rear door trim panels, rear door glass, muffler

CG = 1077 MM REARWARD OF FRONT WHEEL CENTERLINE

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

TABLE 3 POST-IMPACT DATA

TEST NUMBER: 920818 NHTSA NO.: MP5401

TEST DATE: 08/18/92 TEST TIME: 1457

TEST TYPE: Frontal load cell barrier IMPACT ANGLE: 0°

AMBIENT TEMPERATURE AT IMPACT AREA: 26° C

TEMPERATURE IN OCCUPANT COMPARTMENT: 21° C

IMPACT VELOCITY: PRIMARY = 56.3 KPH SECONDARY = 56.3 KPH

(SPECIFIED RANGE = 55.5 TO 57.1 KPH)

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

EXITING VELOCITY TRAP = 51 MM

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

OVERALL LENGTH OF TEST VEHICLE:	PRE-TEST:	L	4315;	C	4522;	R 4335
	POST-TEST:	L	3880;	C	3995;	R 3875
	TOTAL CRUSH:	L	435;	C	527;	R 460

AVERAGE CRUSH: 474

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

DISTANCE FROM TEST VEHICLE TO BARRIER: L 457; C 375; R 441; AVG. 424

TABLE 4 FUEL SYSTEM DATA

MAKE/MODEL: Mazda/626

NHTSA NO.: MP5401

FUEL SYSTEM CAPACITY: 58.7 LITERS (FROM OWNER'S MANUAL)

USABLE CAPACITY: 54.9 LITERS (FURNISHED BY COTR)

TEST VOLUME RANGE: 50.5 LITERS TO 51.6 LITERS (92-94% OF USABLE)

ACTUAL TEST VOLUME: 51.1 LITERS (WITH ENTIRE FUEL SYSTEM FILLED)

TEST FLUID TYPE: STODDARD SOLVENT

SPECIFIC GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

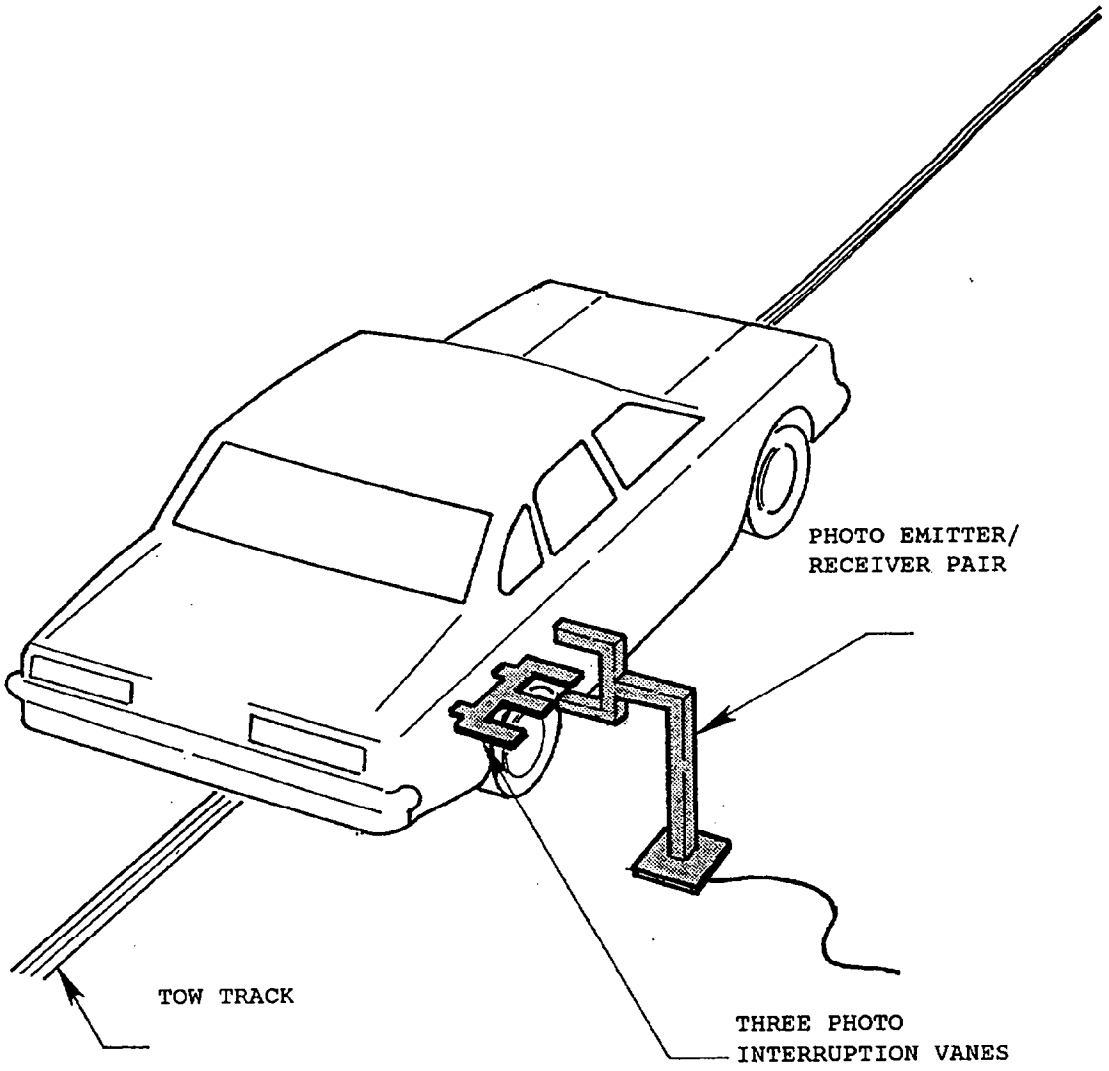
TEST FLUID COLOR: PURPLE

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

ELECTRIC FUEL PUMP: Yes FUEL INJECTION: Yes

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

FIGURE 1 IMPACT VELOCITY MEASUREMENT SYSTEM



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

The vanes have 305 millimeter spacing.

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

VEHICLE MAKE/MODEL/BODY STYLE: Mazda/626/4-door sedan

VEHICLE NHTSA NO.: MP5401 ; VIN: 1YVGE22A7P5115395

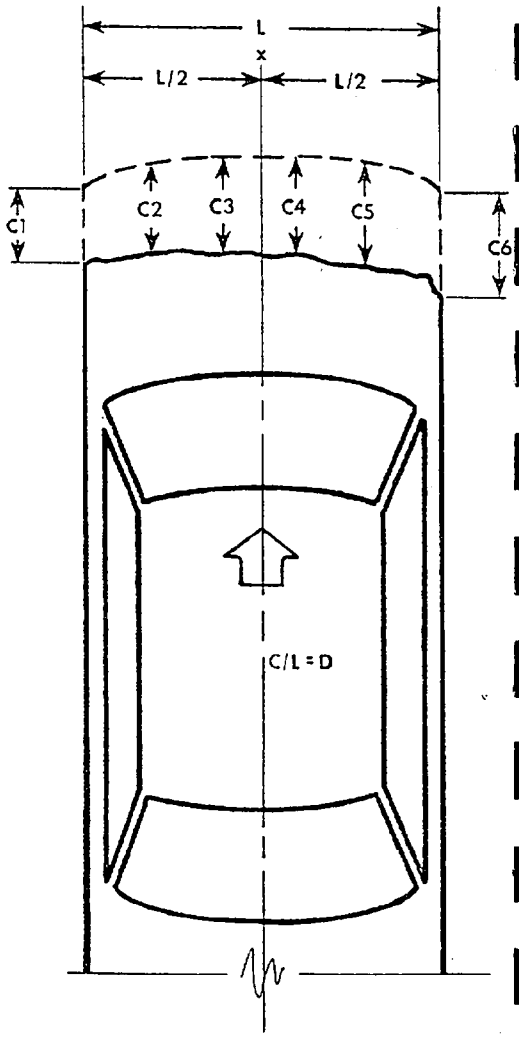
MODEL YEAR: 1993 ; BUILD DATE: 05/92 ; TEST DATE: 08/18/92

VEHICLE SIZE CATEGORY: Mid-size ; TEST WEIGHT: 1441 KG

VEHICLE WHEELBASE: 2616 MM

MAXIMUM WIDTH: 1753 MM

FRONT OVERHANG: 983 MM



COLLISION DEFORMATION
CLASSIFICATION (CDC) CODE: 12FDEW3

CRUSH DEPTH
MEASUREMENTS:

C1 = 435 MM

C2 = 554 MM

C3 = 528 MM

C4 = 529 MM

C5 = 482 MM

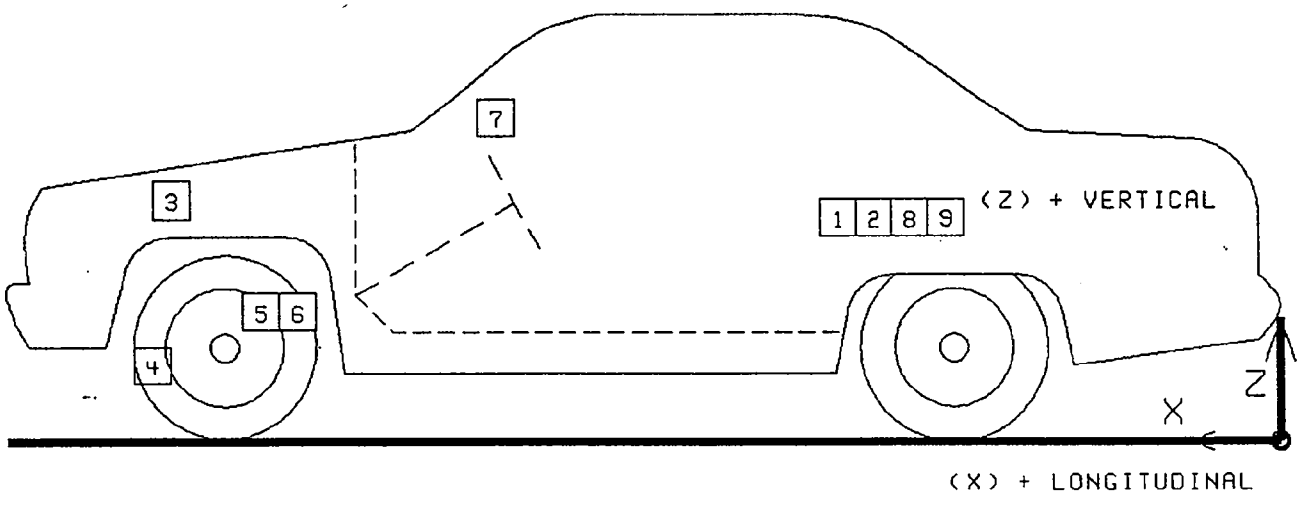
C6 = 460 MM

MIDPOINT OF DAMAGE: D = VEHICLE CENTERLINE (LONGITUDINAL)

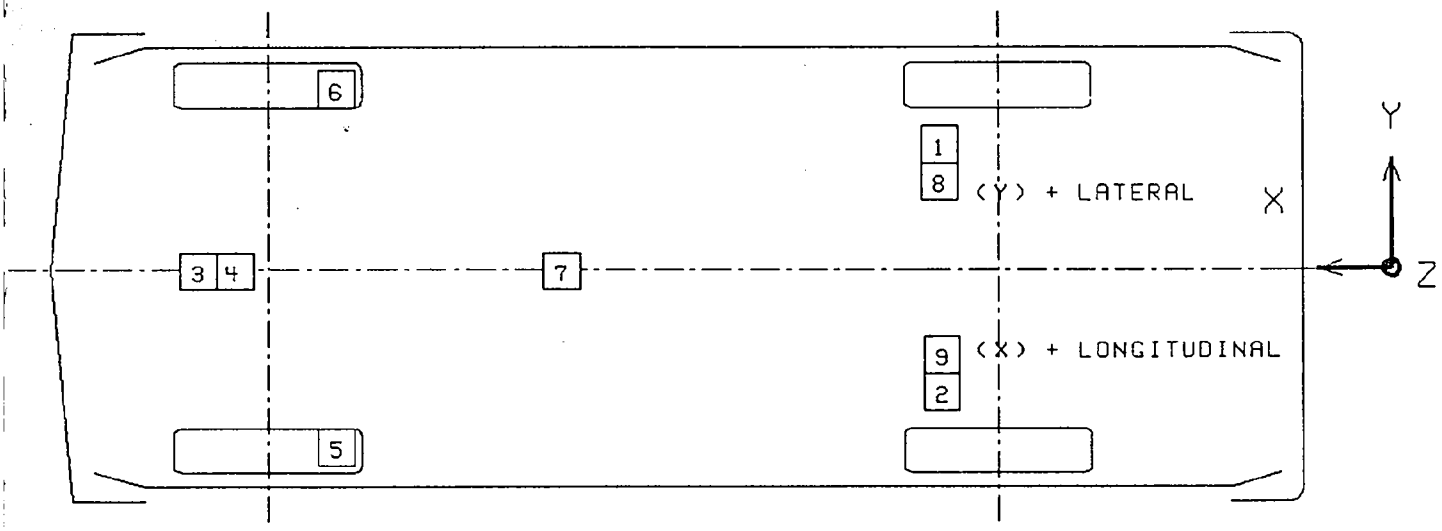
LENGTH OF DAMAGED
REGION: L = 1510 MM

FIGURE 3

VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 5

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 920818

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G	POSITIVE DIRECTION MSEC	NEGATIVE DIRECTION MAX G	NEGATIVE DIRECTION MSEC
1	LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	1629	608	333	1.6	134.4	39.7	38.4
2	RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	1642	-608	348	2.3	131.6	36.4	38.0
3	ENGINE TOP LONGITUDINAL	3702	18	798	13.3	70.0	101.8	28.5
4	ENGINE BOTTOM LONGITUDINAL	3647	-202	281	13.2	44.4	82.3	26.6
5	RIGHT BRAKE CALIPER LONGITUDINAL	3656	-662	312	43.1	68.0Y	82.5	47.2Y
6	LEFT BRAKE CALIPER LONGITUDINAL	3660	662	314	43.6	60.1	112.4	41.5
7	INSTRUMENT PANEL CENTER LONGITUDINAL	3102	0	901	33.5	56.9	61.1	73.1
8	LEFT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	1589	608	333	1.5	134.5	35.0	38.4
9	RIGHT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	1600	-608	348	2.3	131.9	35.8	38.0

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN MILLIMETERS.

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

Y See DATA ACQUISITION EXPLANATIONS

TABLE 6 POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #713	PASSENGER #826
HEAD	Airbag, B-pillar and D-ring	Chest and right thigh
CHEST	Airbag	None
ABDOMEN	None	None
LEFT KNEE	Instrument panel	Instrument panel
RIGHT KNEE	Instrument panel	Instrument panel

DOOR OPENING:

	LEFT	RIGHT
FRONT	Easy	Easy
REAR	Easy	Easy

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
FRONT	None	None
REAR	NA	NA

GLAZING DAMAGE:

The entire windshield cracked upon impact.

OTHER NOTABLE IMPACT EFFECTS:

None

TABLE 7 FMVSS 208 DATA SUMMARY

VEH. YR./MAKE/MODEL/BODY STYLE: 1993/Mazda/626/4-door sedan

VEH. NHTSA NO.: MP5401 ; TEST DATE: 08/18/92

MAXIMUM ACCELERATIONS (G):	DRIVER DUMMY #713	PASSENGER DUMMY #826
HEAD X-AXIS	-56.8	-49.8
HEAD Y-AXIS	17.7	-33.2
HEAD Z-AXIS	-25.4	-90.4
HEAD RESULTANT	57.2	107.7
CHEST X-AXIS	-48.8	-46.9
CHEST Y-AXIS	9.0	-24.5
CHEST Z-AXIS	-12.3	-17.4
CHEST RESULTANT*	47.9	46.7
CHEST RESULTANT TIME INTERVAL (SEC.)*	.003	.004
HEAD INJURY CRITERIA (HIC) VALUES:		
HIC**	589	694
HIC STARTING TIME (SEC.)	.065	.070
HIC ENDING TIME (SEC.)	.101	.103
AVG. HEAD RESULTANT ACCEL. DURING HIC TIME INTERVAL (G)	48.4	53.8
MAXIMUM COMPRESSIVE FEMUR FORCES (N):		
LEFT FEMUR	5412	5801
RIGHT FEMUR	6932	4947
MAXIMUM SEAT BELT FORCES (N):		
LAP BELT	5235	3778
SHOULDER BELT	7205	9129

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

*0.003 SEC. MINIMUM DURATION.

**THE MAXIMUM HIC TIME INTERVAL IS 36 MILLISECONDS.

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

Upon impact, the driver dummy translated forward on the seat with the dummy's head and chest impacting the airbag. The dummy's knees impacted the instrument panel as the dummy's neck rotated downward slightly into the airbag. The driver dummy was restrained by the airbag and three-point unibelt. The dummy then rebounded rearward into the seat back as the dummy's head rotated rearward contacting the left B-pillar, shoulder belt D-ring, and head restraint. The driver dummy came to rest in the driver's seat restrained by the three-point unibelt.

RIGHT FRONT PASSENGER DUMMY

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

TABLE 8 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

	DRIVER	PASSENGER
BELT LENGTH DATA:		
BELT LENGTH FROM TRIM PANEL EXIT TO BOLT HOLE ANCHOR POINT FOR CONTINUOUS WEBBING SYSTEMS.	2476	2438
SHOULDER BELT LENGTH AS MEASURED ON PART 572 DUMMY.	808	775
LAP BELT LENGTH AS MEASURED ON PART 572 DUMMY.	749	737
SHOULDER BELT SPOOL-OFF LENGTH:		
AS DETERMINED BY FILM ANALYSIS	86	61
AS DETERMINED MECHANICALLY	79	51
AS DETERMINED ELECTRONICALLY	85	52
BELT STRETCH LENGTH (MM/M):		
AS MEASURED MECHANICALLY	0	7
AS MEASURED ELECTRONICALLY	0	25
RETRACTOR LOCK-UP TIME (MS):		
AS DETERMINED BY SHOULDER BELT SPOOL-OFF	66	64

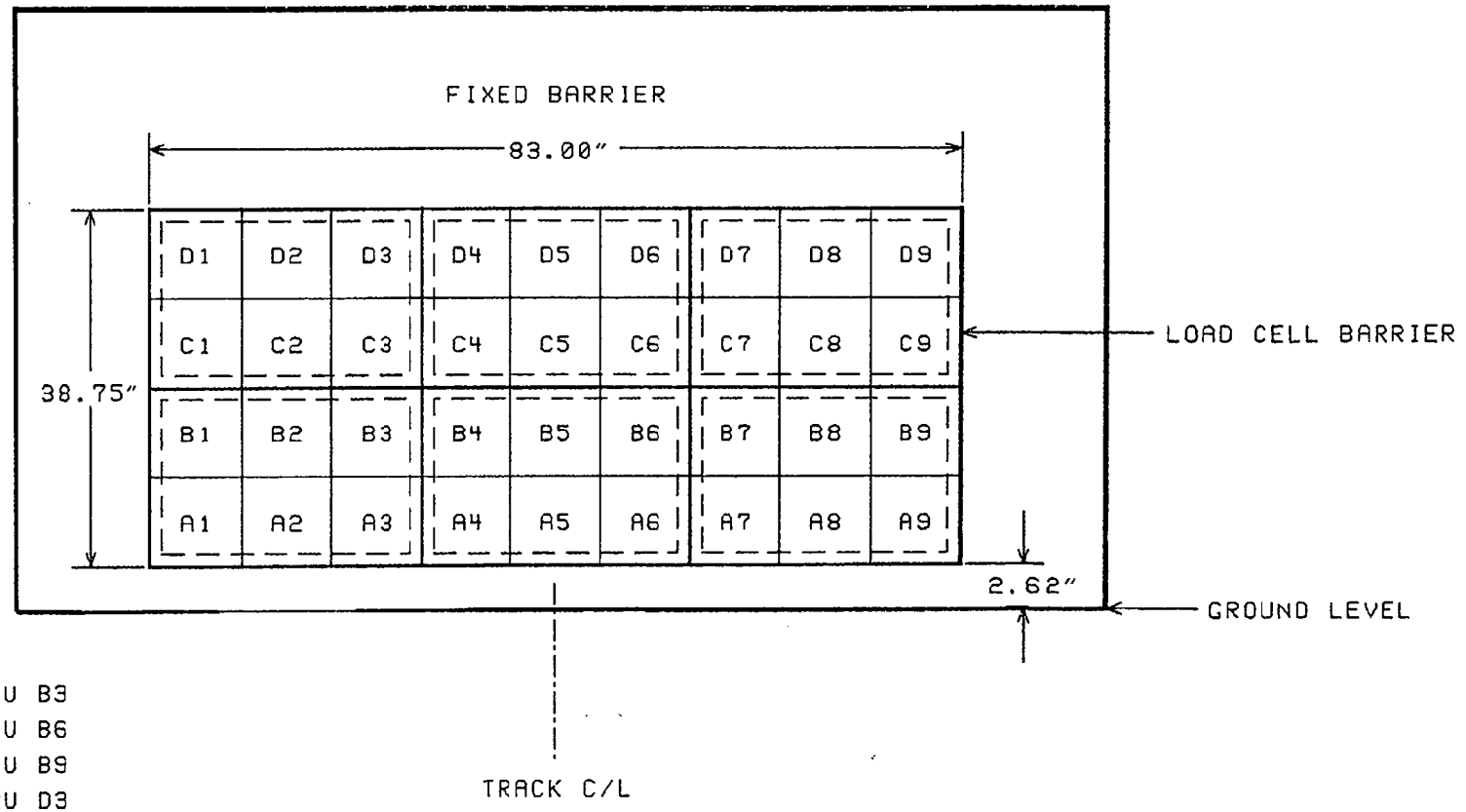
ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

FIGURE 4

LOAD CELL BARRIER CONFIGURATION

FRONT VIEW

36 LOAD CELLS
4 ROWS
9 COLUMNS



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

TABLE 9

LOAD CELL BARRIER DATA SUMMARY

TEST NUMBER 920818

LOCATION	POSITIVE DIRECTION KN	POSITIVE DIRECTION MSEC	NEGATIVE DIRECTION KN	NEGATIVE DIRECTION MSEC
TOTAL GROUP 1	2	5.4	94	42.6
TOTAL GROUP 2	2	290.3	205	28.3
TOTAL GROUP 3	2	5.6	94	13.8
TOTAL GROUP 4	1	316.1	36	38.5
TOTAL GROUP 5	1	333.0	81	40.3
TOTAL GROUP 6	2	195.1	20	42.1
TOTAL LOAD CELL FORCE	4	195.0	501	39.8

TENSION IS POSITIVE
COMPRESSION IS NEGATIVE

SECTION 3.0

OCCUPANT, CAMERA, & VEHICLE MEASUREMENTS

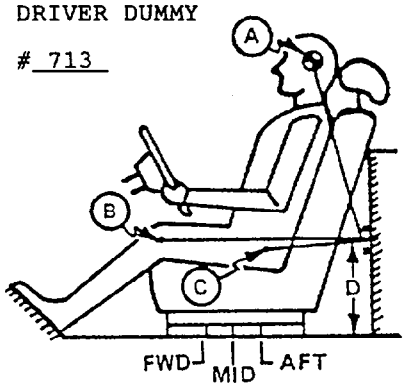
FIGURE 5 DUMMY AND SEAT POSITIONING DATA

TEST NO.: 920818 ; VEHICLE: Mazda 626

SEAT TYPE:	ADJUSTER TYPE:	FRONT SEAT BACK TYPE:
_____ BENCH	__X__ MANUAL	_____ NON-ADJUSTABLE
__X__ BUCKET	_____ POWER	__X__ ADJUSTABLE RECLINING
_____ SPLIT BENCH		

DRIVER DUMMY

713

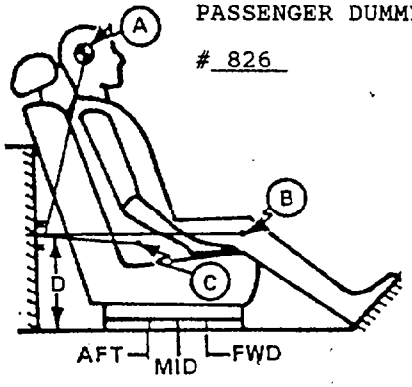


MEASUREMENT LOCATION

A - HEAD TARGET
B - KNEE JOINT
C - APPROXIMATE 'H' POINT
D - SILL TO DOOR STRIKER REFERENCE POINT

PASSENGER DUMMY

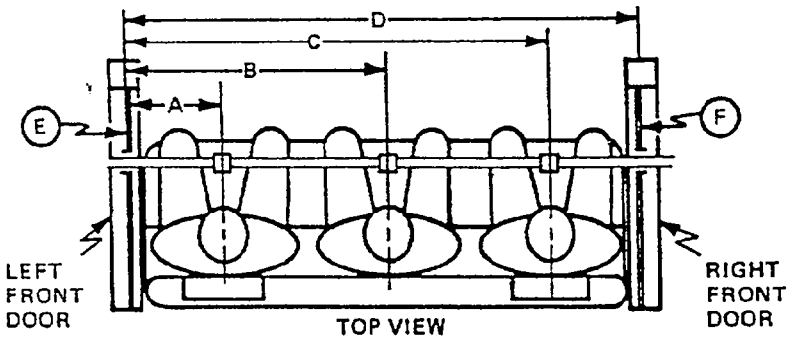
826



A =	495 MM	2 DEGREES	A =	495 MM	2 DEGREES
B =	564 MM	95 DEGREES	B =	570 MM	92 DEGREES
C =	223 MM	123 DEGREES	C =	245 MM	122 DEGREES
D =	323 MM		D =	323 MM	

SEAT TRACK REARWARD: 13 NOTCHES

SEAT TRACK REARWARD: 13 NOTCHES



A = LEFT DOOR TO DRIVER CENTERLINE	358	MM
B = LEFT DOOR TO CENTER PASSENGER CENTERLINE	---	MM
C = LEFT DOOR TO RIGHT PASSENGER CENTERLINE	1035	MM
D = LEFT DOOR TO RIGHT DOOR	1360	MM
E,F = WINDOW GLASS HEIGHT (RIGHT AND LEFT MUST BE EQUAL)	215	MM

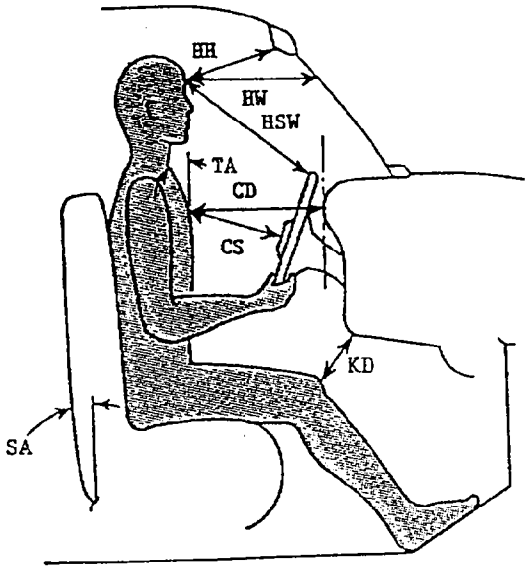
ALL ANGLES ARE RELATIVE TO VERTICAL PLANE THROUGH DOOR STRIKER.

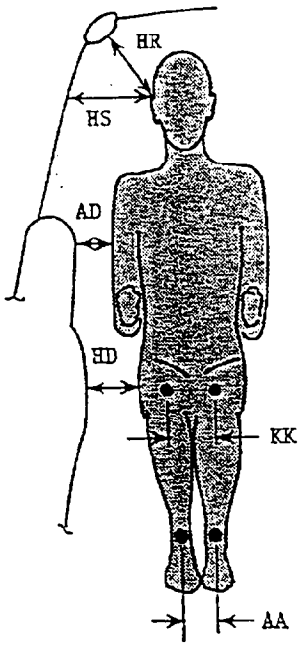
FIGURE 6 DUMMY IN-VEHICLE POSITIONING DATA

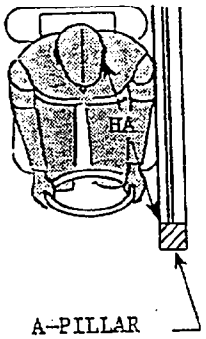
	DRIVER	PASSENGER
HH	447	415
HW	580	556
CD	622	530
CS	329	---
KDL	133	128
KDR	130	129
TA	26°	19°
SA	21°	21°
HSW	512	---

	DRIVER	PASSENGER
HR	193	174
HS	270	245
AD	120	120
HD	158	179
KK	275	204
AA	358	203
HA	581	557

KNEE OUTER BOLT HEAD TO OUTER BOLT HEAD SPACING:
PASSENGER = 400
DRIVER = 300





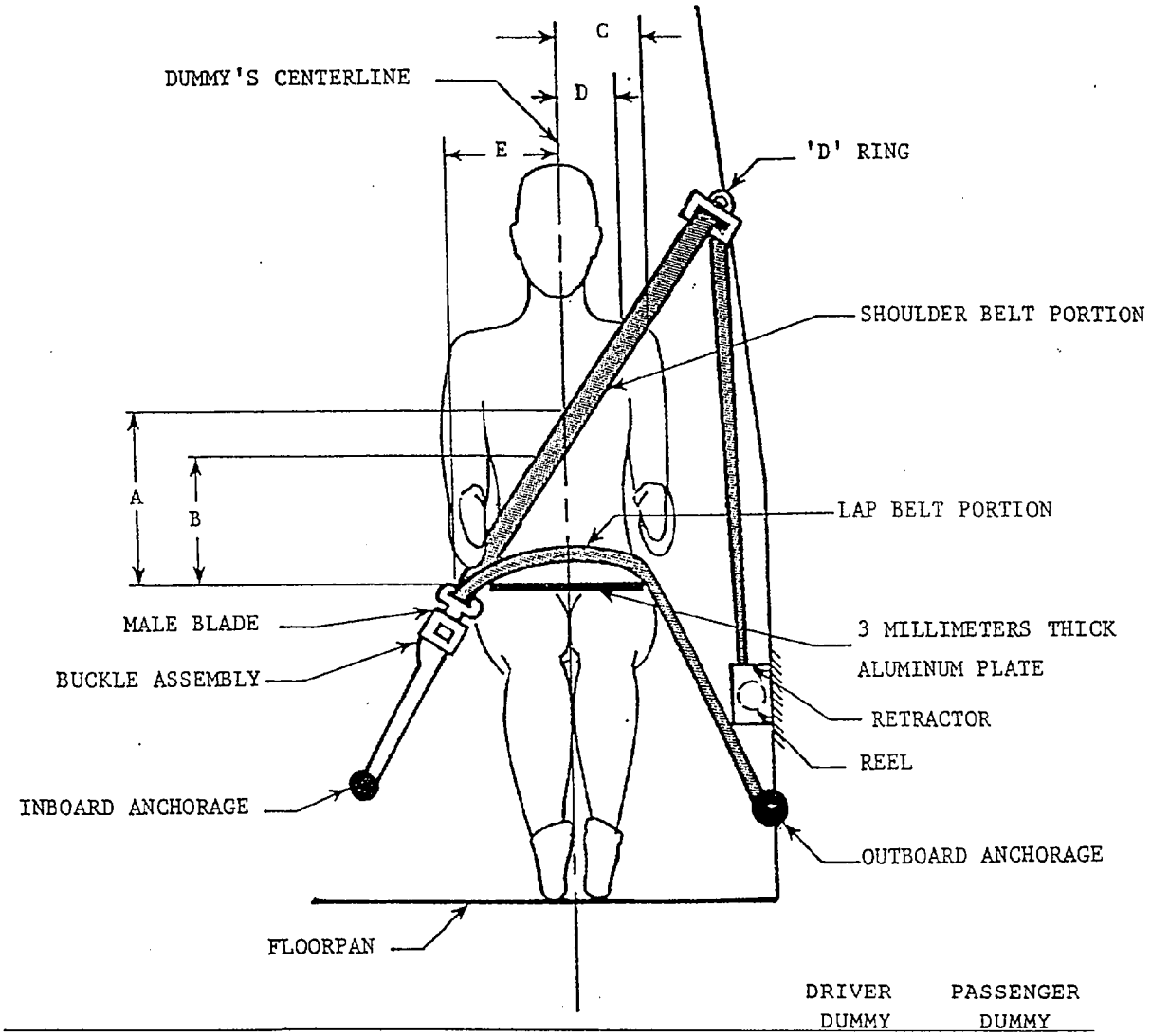


HH = HEAD TO WINDSHIELD HEADER
HW = HEAD TO WINDSHIELD
CD = CHEST TO DASH
CS = CHEST TO STEERING WHEEL
KD = KNEE TO DASH
TA = TORSO ANGLE
SA = SEAT BACK ANGLE
HSW= HEAD TO STEERING WHEEL

HR = HEAD C.G. TARGET TO SIDE ROOF HEADER
HS = HEAD C.G. TARGET TO SIDE WINDOW
AD = ARM TO DOOR
HD = HIP TO DOOR
KK = KNEE TO KNEE
AA = ANKLE TO ANKLE
HA = HEAD C.G. TARGET TO A-PILLAR

TORSO AND SEAT BACK ANGLES ARE RELATIVE TO VERTICAL.
ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

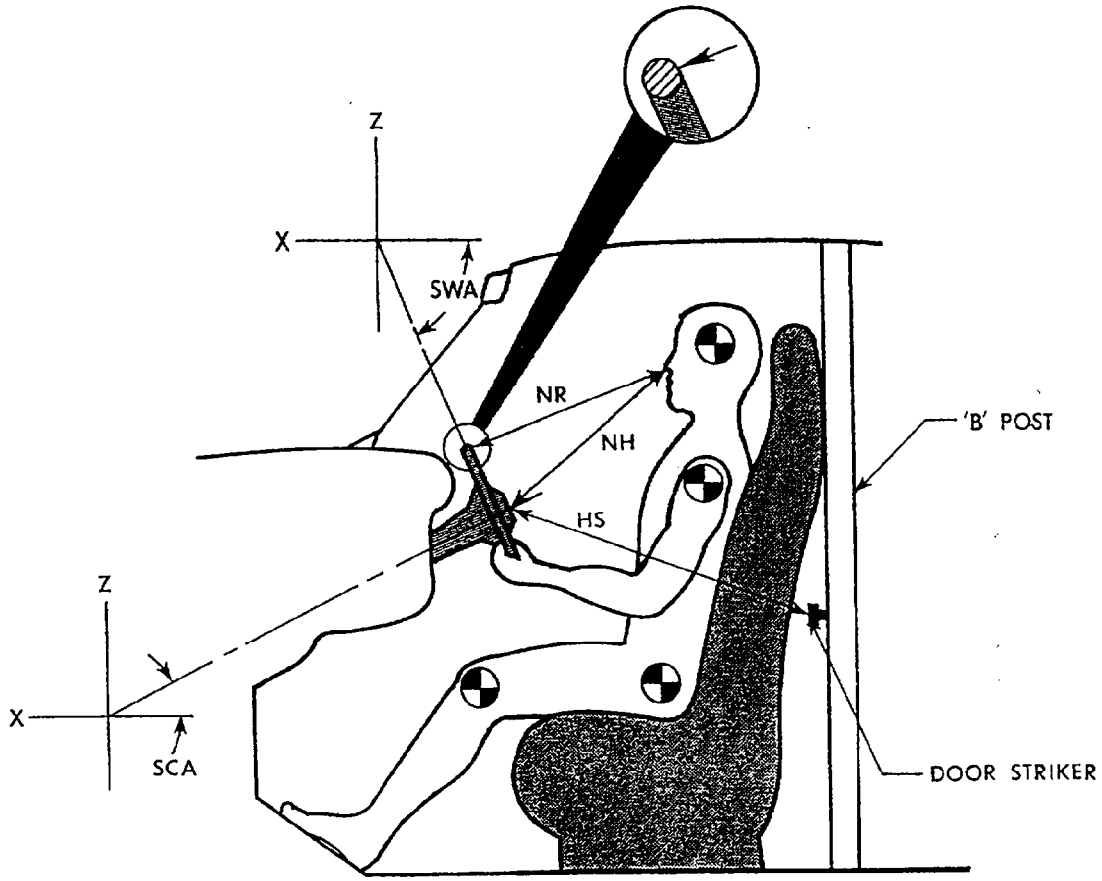
FIGURE 7 SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
A - TOP SURFACE OF ALUMINUM PLATE TO BELT UPPER EDGE	347	362
B - TOP SURFACE OF ALUMINUM PLATE TO BELT LOWER EDGE	260	280
C - DUMMY CENTERLINE TO OUTER EDGE OF BELT AT CHEST FLESH TOP	153	145
D - DUMMY CENTERLINE TO INNER EDGE OF BELT AT CHEST FLESH TOP	94	85
LAP BELT TENSION (N)	13	13
SHOULDER BELT TENSION (N)	18	18

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 8 DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSEMBLY DATA



POSITION OF STEERING COLUMN TILTING AND TELESCOPING ADJUSTMENTS, IF ANY: The steering column was set in the mid position.

	MEASUREMENTS
NR - DISTANCE FROM TIP OF DUMMY'S NOSE TO TOP REAR SURFACE OF STEERING WHEEL RIM.	445
NH - DISTANCE FROM TIP OF DUMMY'S NOSE TO CENTER OF STEERING COLUMN HUB.	472
HS - DISTANCE FROM CENTER OF STEERING COLUMN HUB TO THE FORWARD SURFACE OF THE DOOR LOCK STRIKER PIN.	539
SCA - ANGLE OF STEERING COLUMN RELATIVE TO THE HORIZONTAL X AXIS	22°
SWA - ANGLE OF STEERING WHEEL RELATIVE TO THE HORIZONTAL X AXIS	68°

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 9

CAMERA POSITIONS

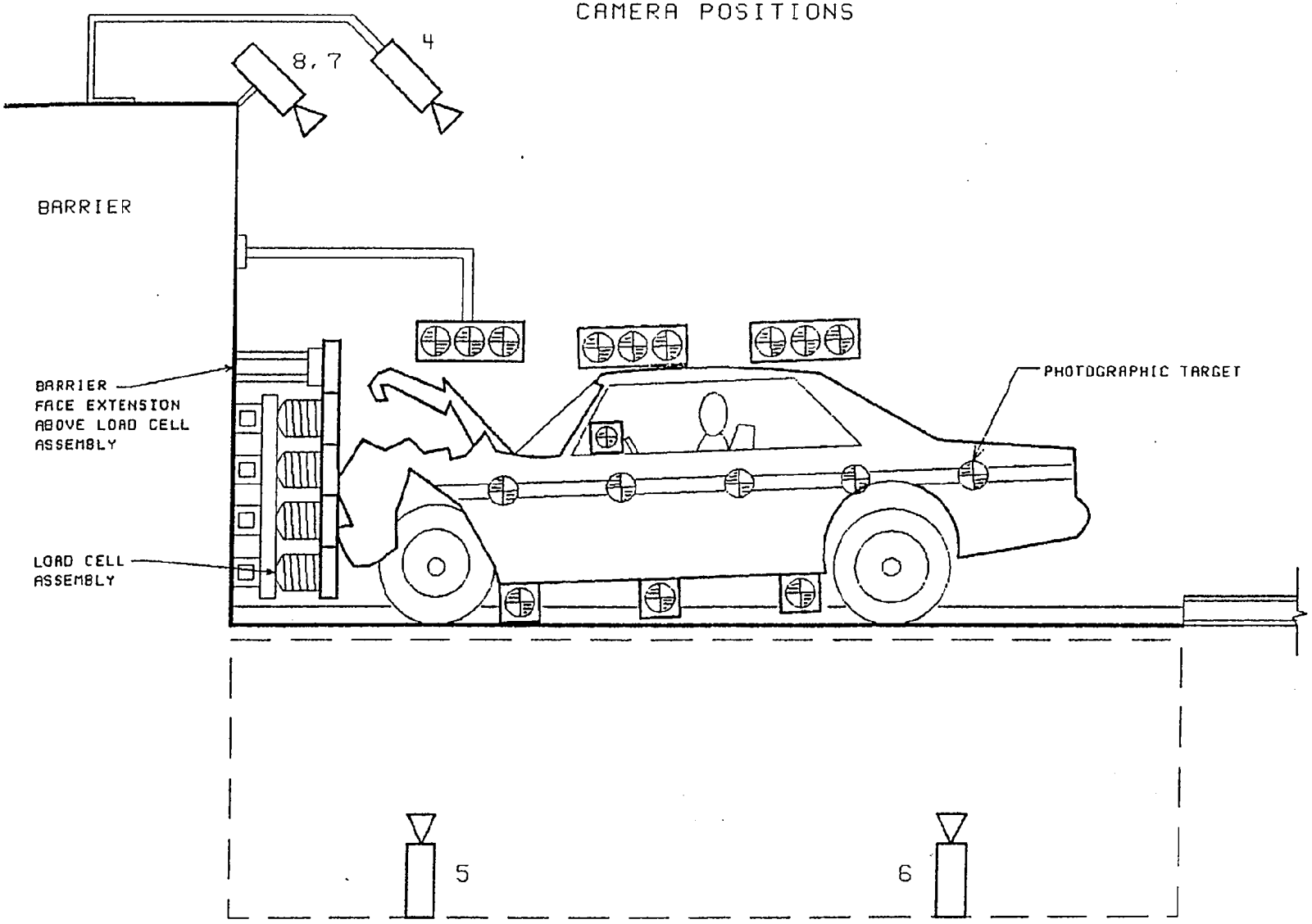


FIGURE 9

CAMERA POSITIONS, CONTINUED

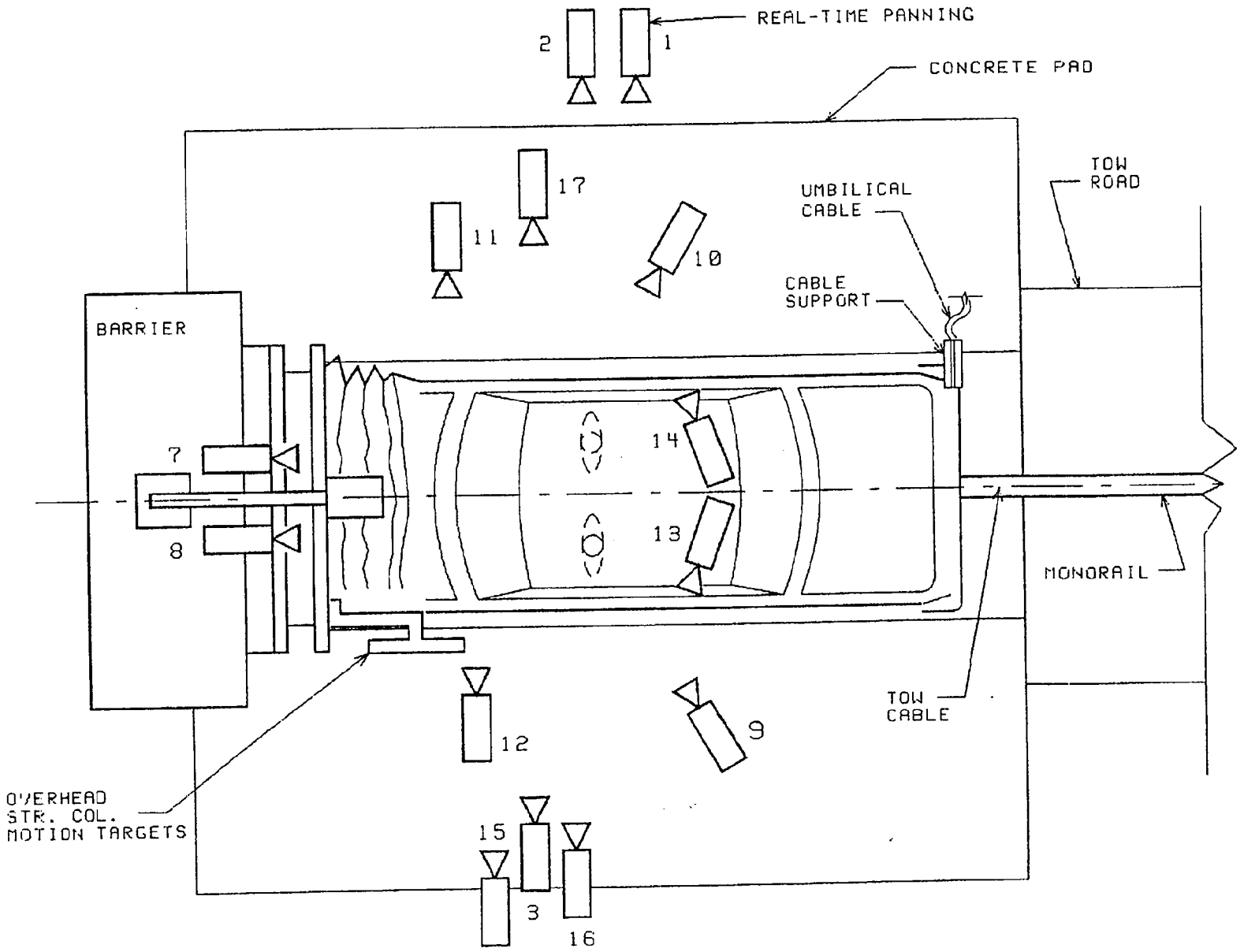


TABLE 10 MOTION PICTURE CAMERA LOCATIONS

TEST NO.: 920818 VEHICLE: 1993 Mazda 626 4-door sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (MM)* X	Y	Z	ANGLE** (DEG)	FILM PLANE TO HEAD TARGET	LENS (MM)	FILM SPEED (FPS)
1	Real-time panning	-3607	-12802	1549	NA	NA	16	24
2	Vehicle crush	-2065	-6767	942	-2	NA	13	488
3	Dummy kinematics	-1054	7493	1118	-12	5664	25	1005
4	Windshield damage	-925	0	2489	-40	NA	13	500
5	Crush & fluid spillage	-1283	0	-2347	90	NA	13	1005
6	Fluid spillage	-2522	0	-2515	90	NA	13	995
7	Passenger kinematics	-114	-351	2159	-40	NA	17	495
8	Driver kinematics	-173	368	2159	-41	NA	17	500
9	Driver kinematics	-4572	1854	2591	-27	2565	25	505
10	Passenger kinematics	-4674	-1880	2540	-26	2413	25	508
11	Windshield intrusion	-968	-7775	1118	0	NA	50	500
12	Windshield intrusion	-1346	7859	1074	0	NA	50	492
13	Driver seatbelt movement	NA	NA	NA	NA	NA	13	498
14	Passenger seatbelt movement	NA	NA	NA	NA	NA	13	500
15	Column movement	-2743	7264	2616	-14	NA	25	508
16	Column movement	-2743	7264	1908	-9	NA	25	1000
17	Passenger kinematics	-986	-5354	1151	7	5893	25	1012

*+X = Film plane forward of barrier face

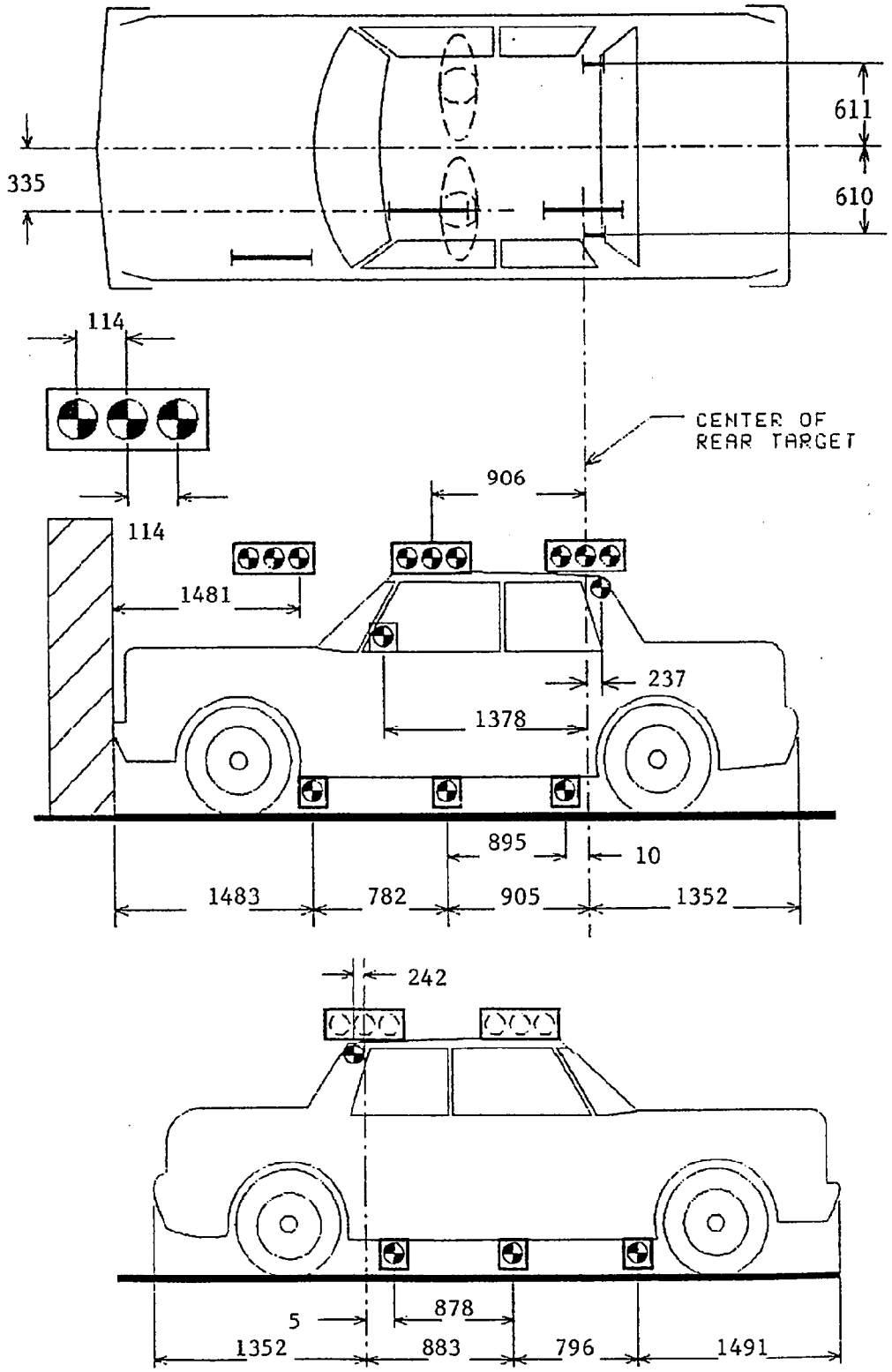
+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

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

FIGURE 10

VEHICLE TARGET LOCATIONS



920818

FIGURE 11

PRE-TEST AND POST-TEST MEASUREMENT POINTS

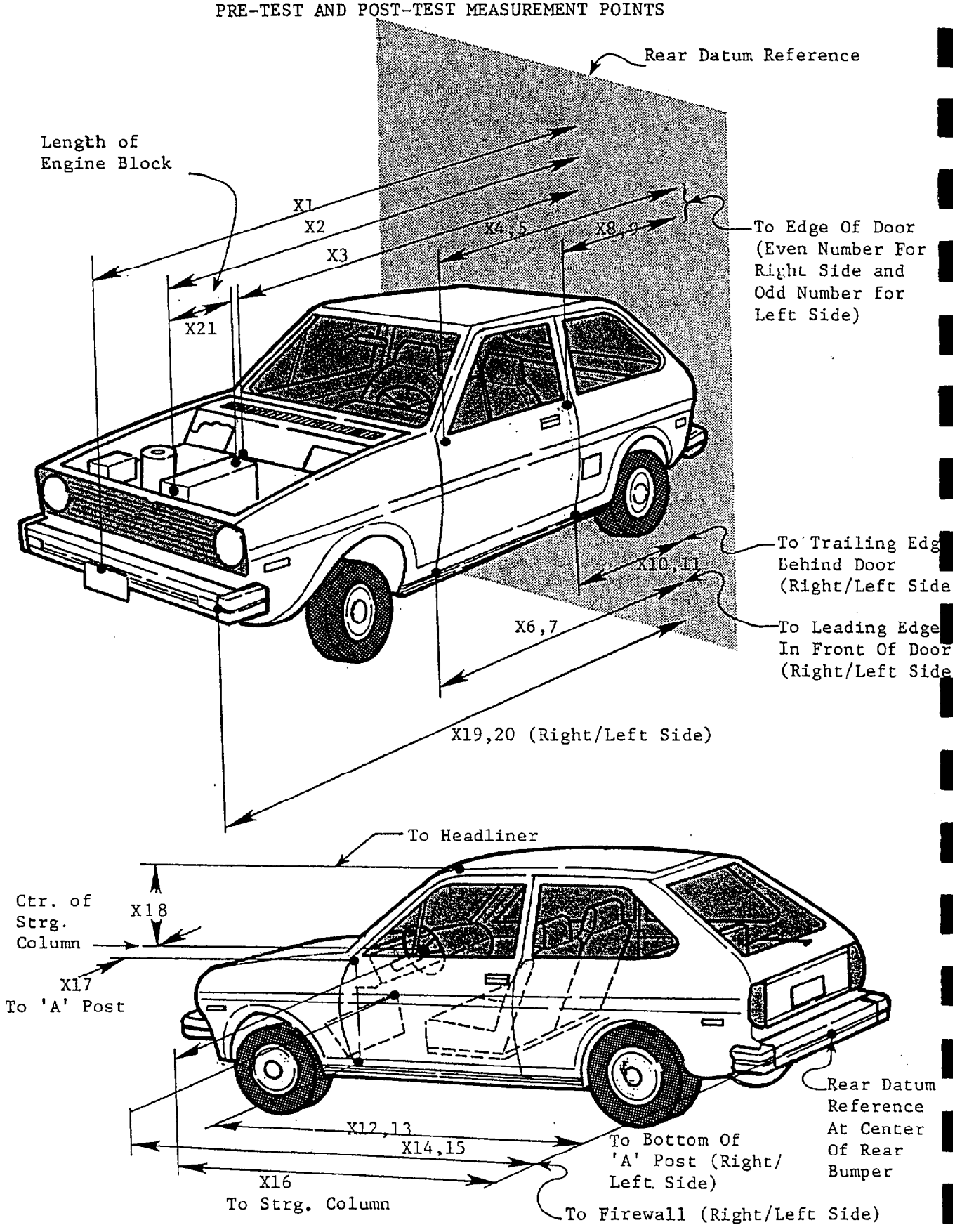


TABLE 11 IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Mazda/626 TEST NUMBER: 920818

ALL MEASUREMENTS ARE IN MM

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4522	3995	527
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	3856	3555	301
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3367	3225	142
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	2960	2964	-4
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	2965	2966	-1
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	2975	2957	18
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	2995	2969	26
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	1975	1974	1
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	1976	1981	-5
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	1972	1951	21
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	1989	1966	23
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	2974	2938	36
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	2974	2949	25
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	3260	3315	-55
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	3240	3205	35
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2544	2578	-34
X17	CENTER OF STEERING COLUMN TO "A" POST	295	340	-45
X18	CENTER OF STEERING COLUMN TO HEADLINER	446	365	81
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4335	3875	460
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4315	3880	435
X21	LENGTH OF ENGINE BLOCK	425	425	0

APPENDIX A

PHOTOGRAPHS

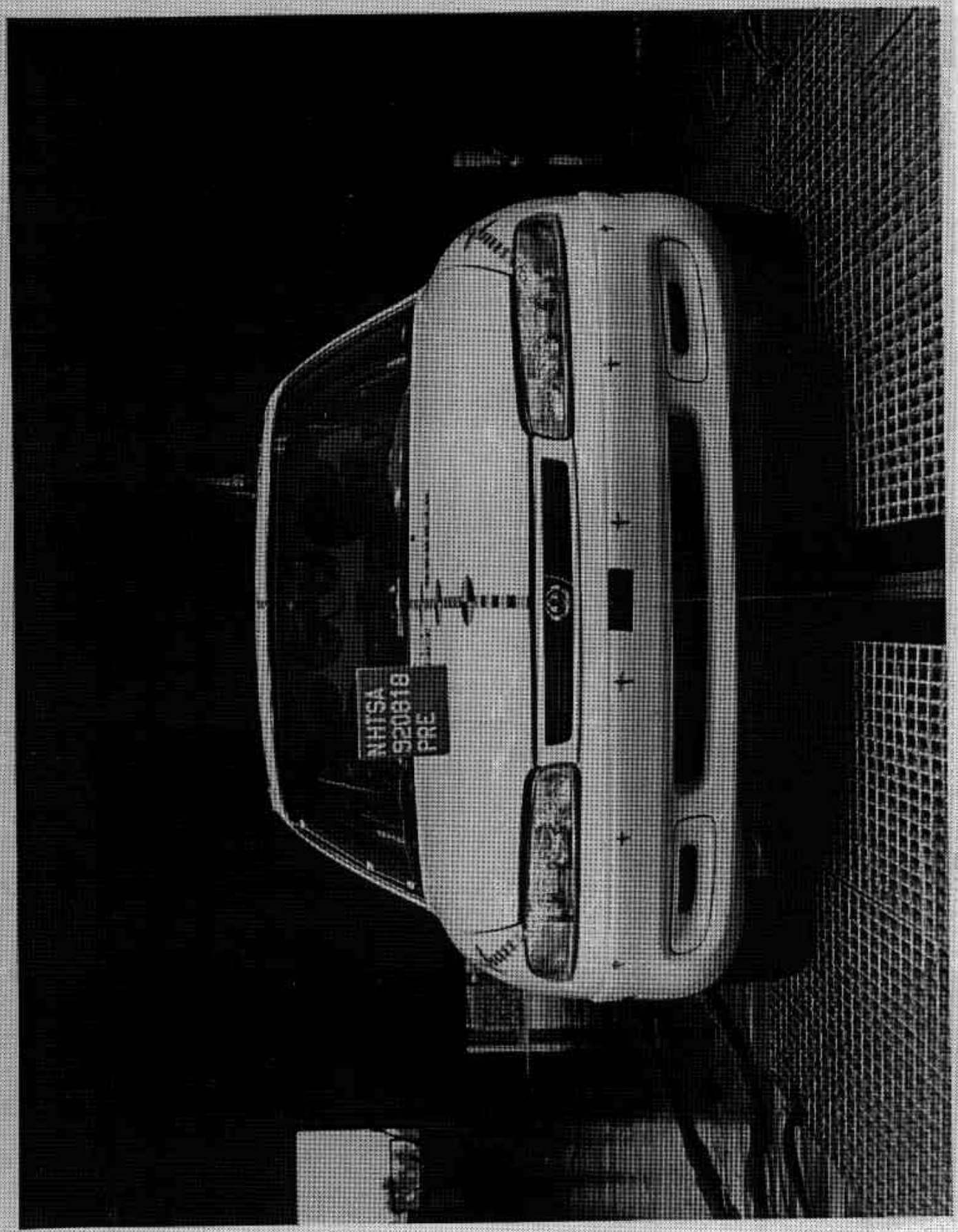


FIGURE A-1. PRE-TEST FRONT VIEW

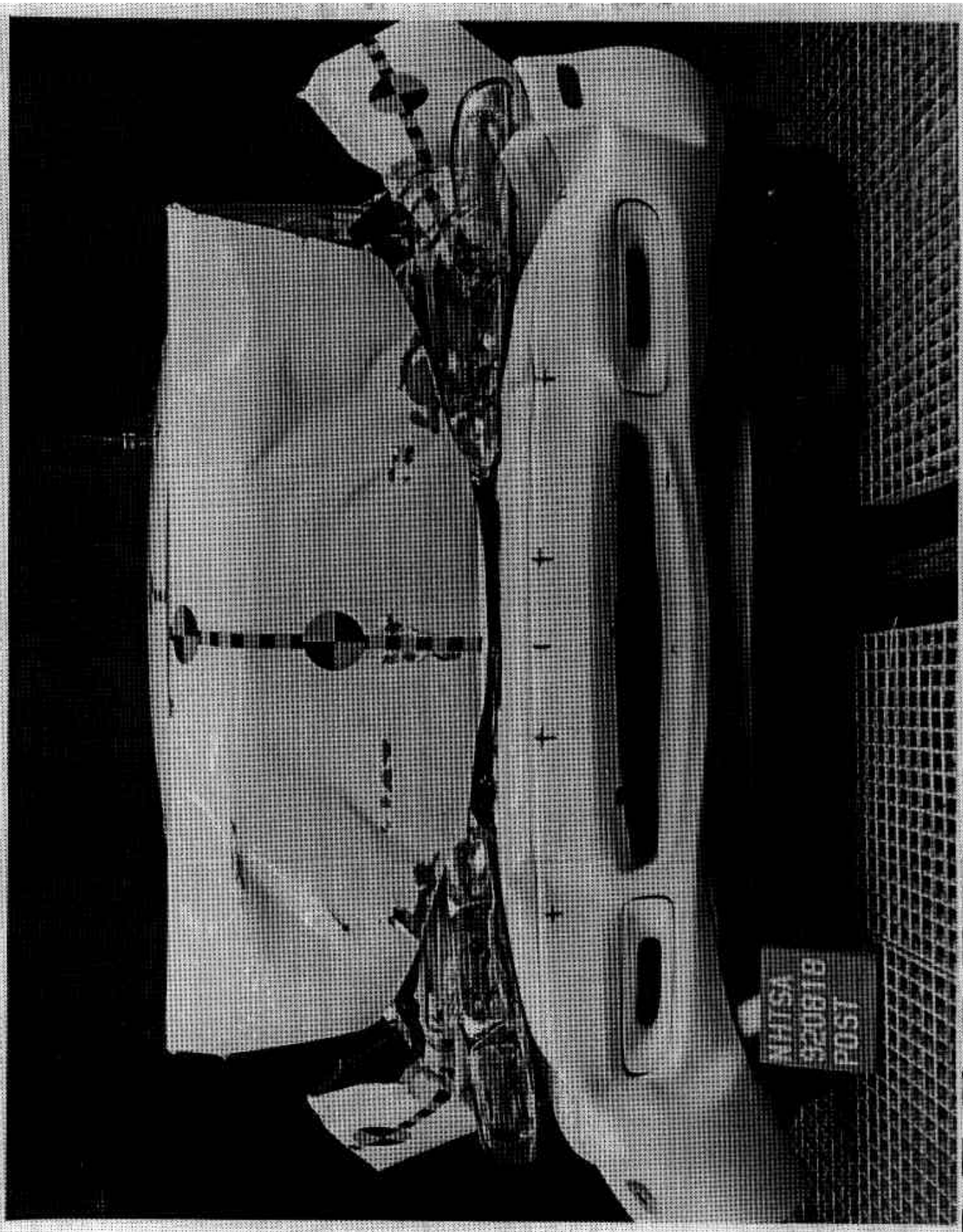


FIGURE A-2. POST-TEST FRONT VIEW

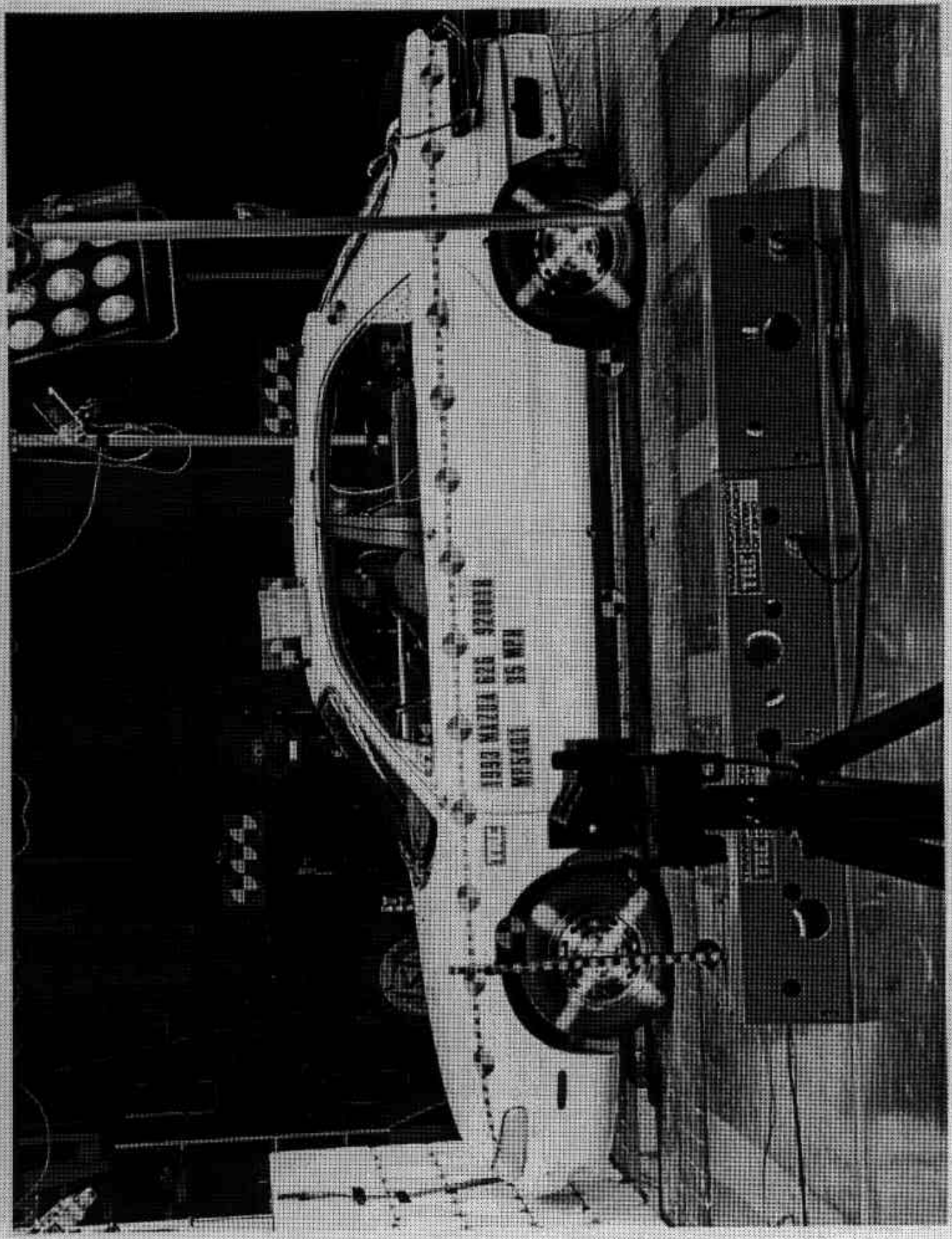


FIGURE A-3. PRE-TEST LEFT SIDE VIEW

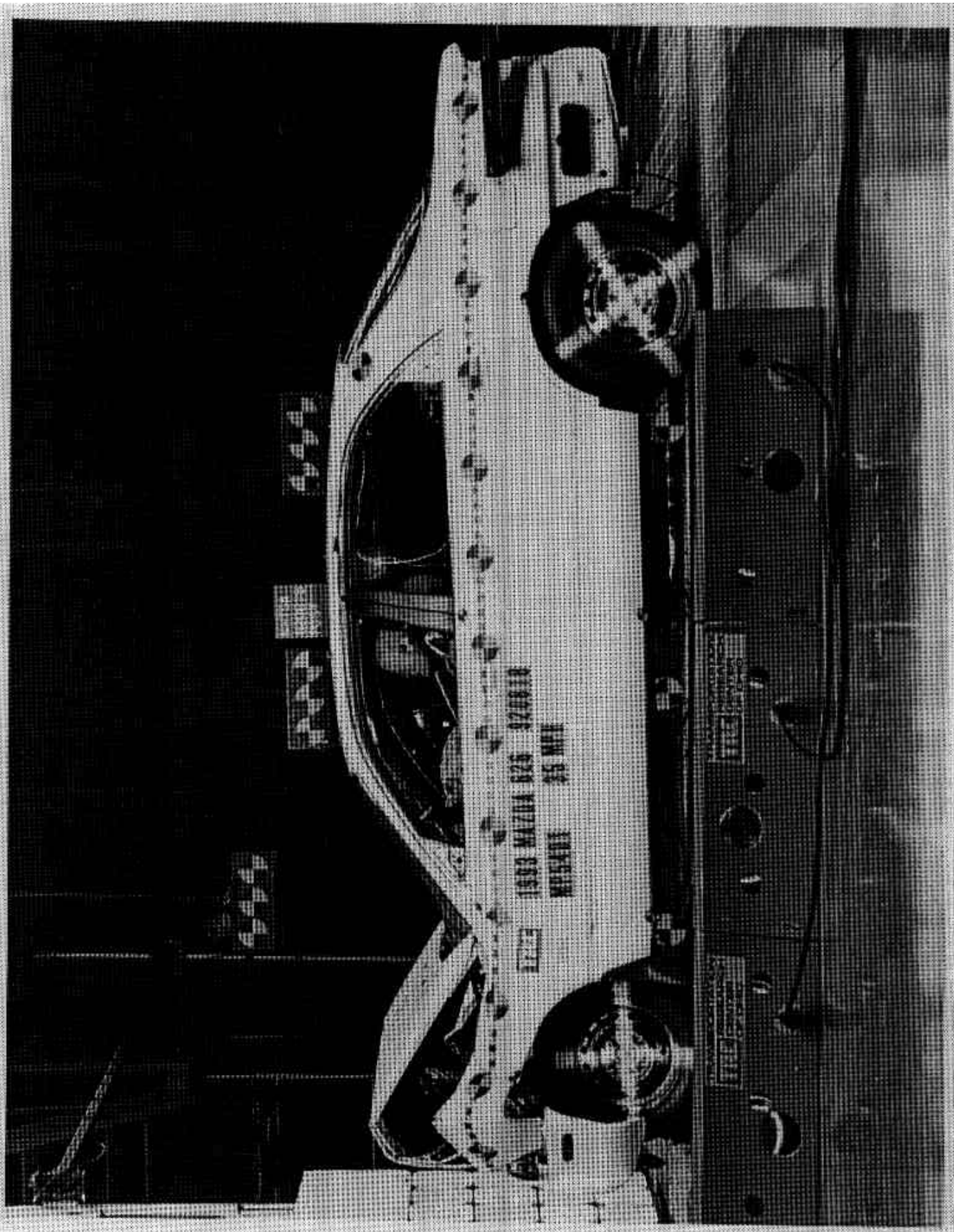


FIGURE A-4. POST-TEST LEFT SIDE VIEW

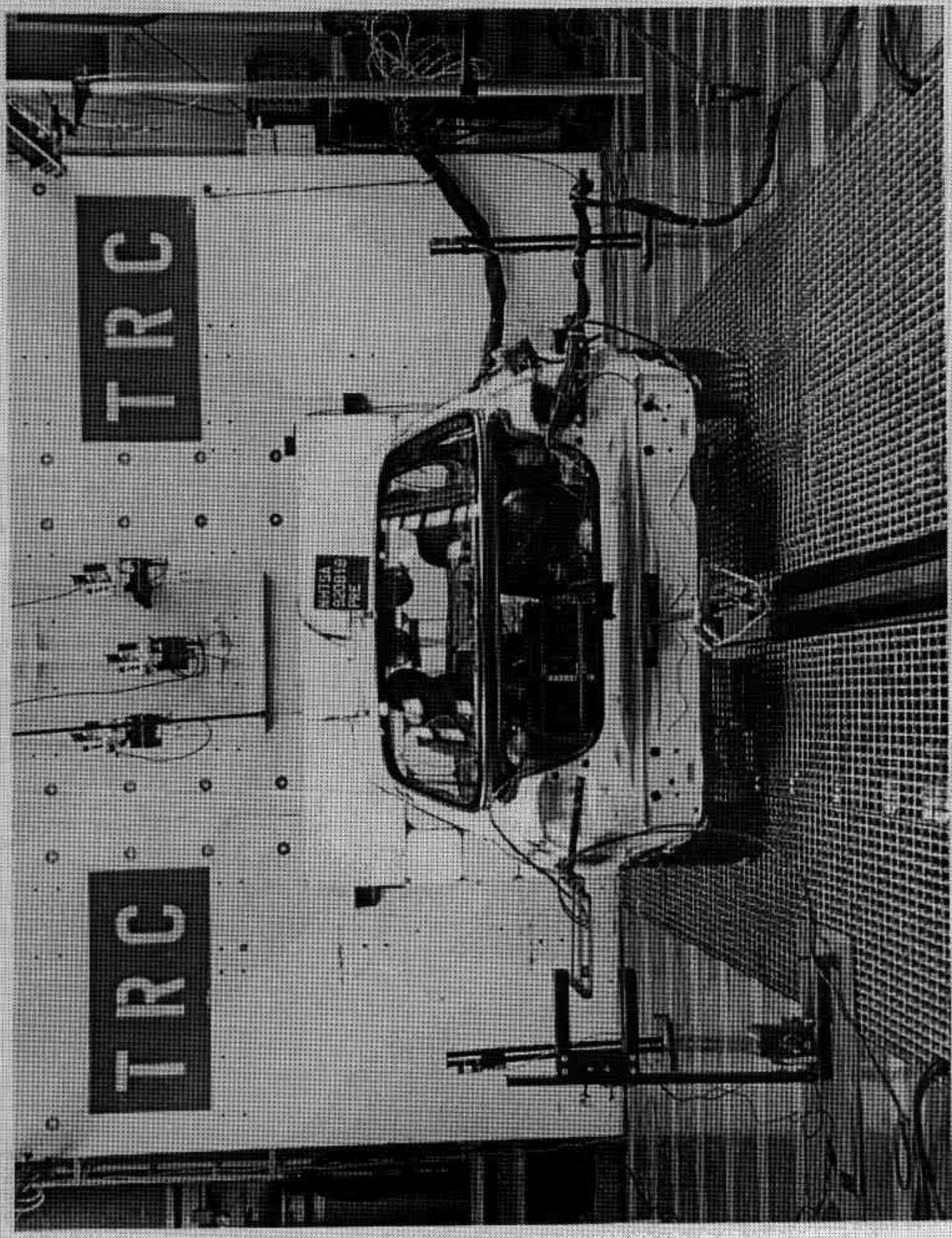


FIGURE A-5. PRE-TEST REAR VIEW

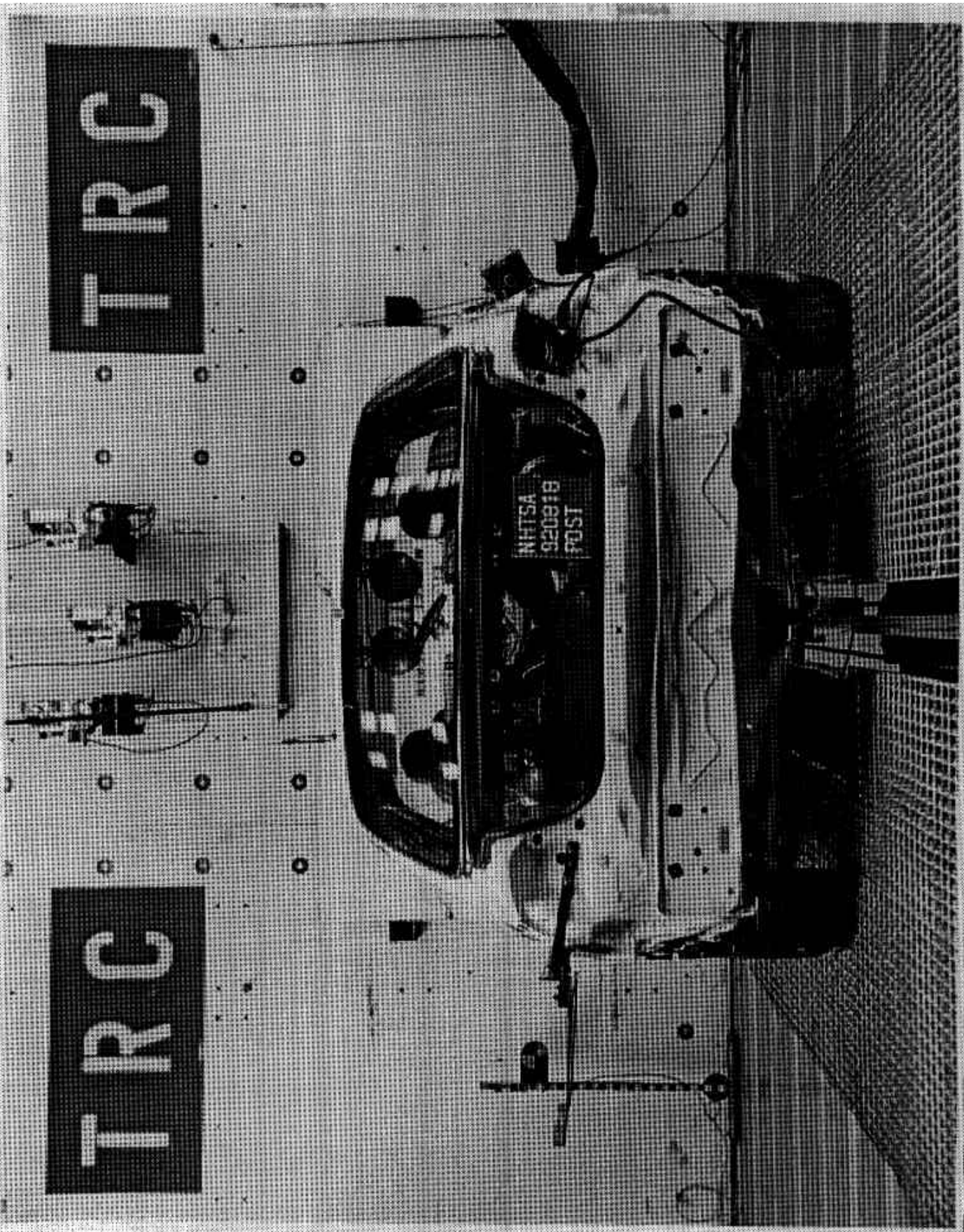


FIGURE A-6. POST-TEST REAR VIEW

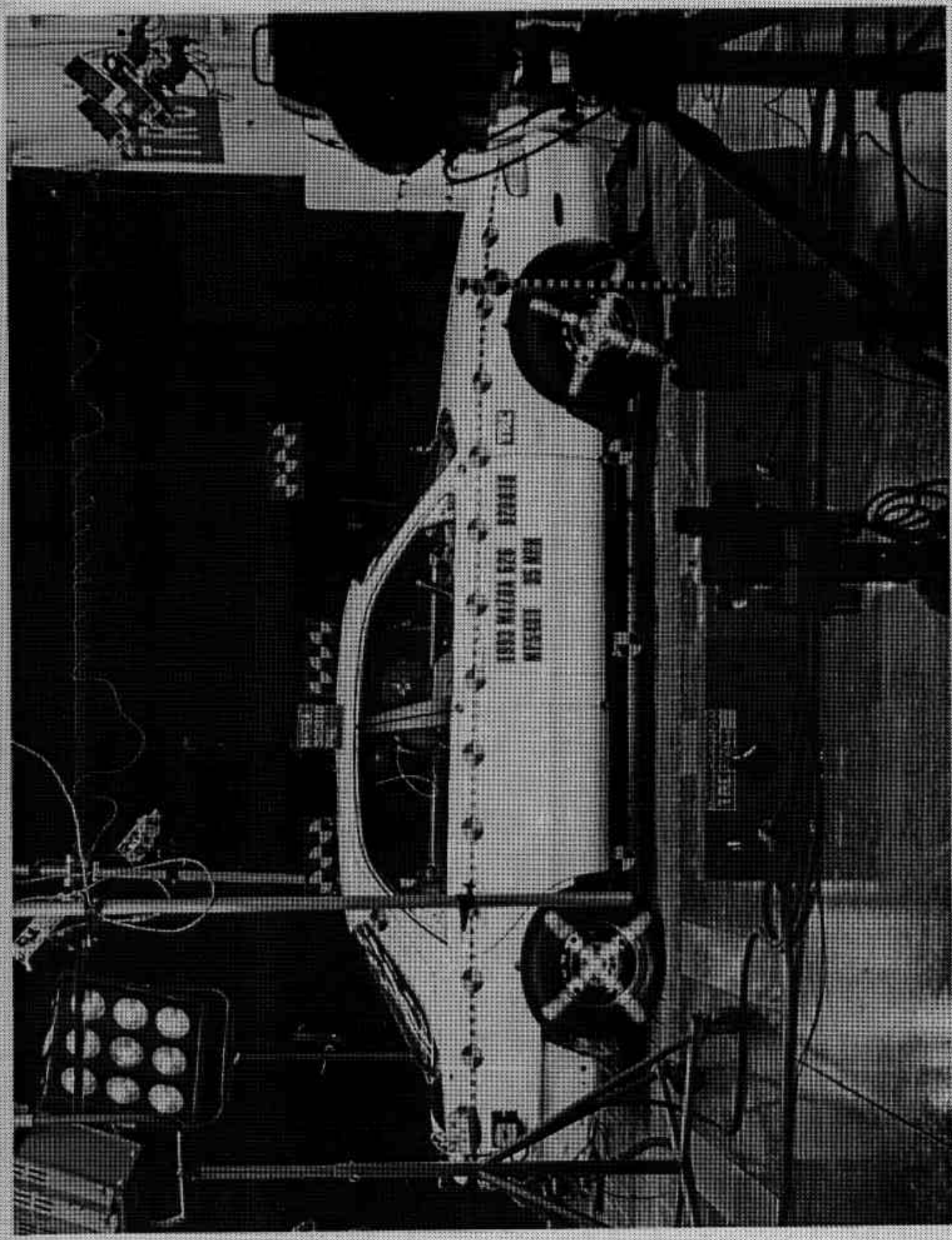


FIGURE A-7. PRE-TEST RIGHT SIDE VIEW

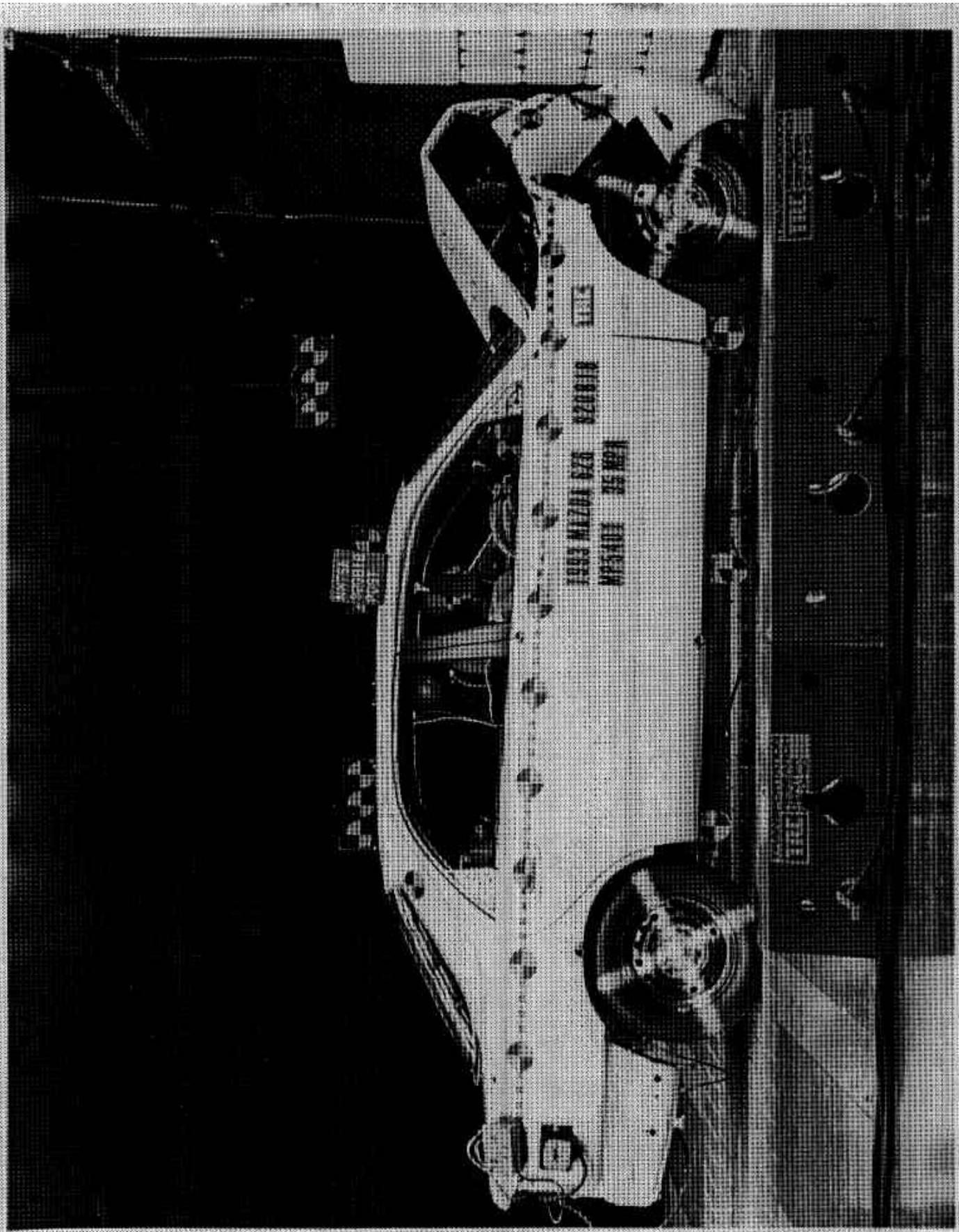


FIGURE A-8. POST-TEST RIGHT SIDE VIEW

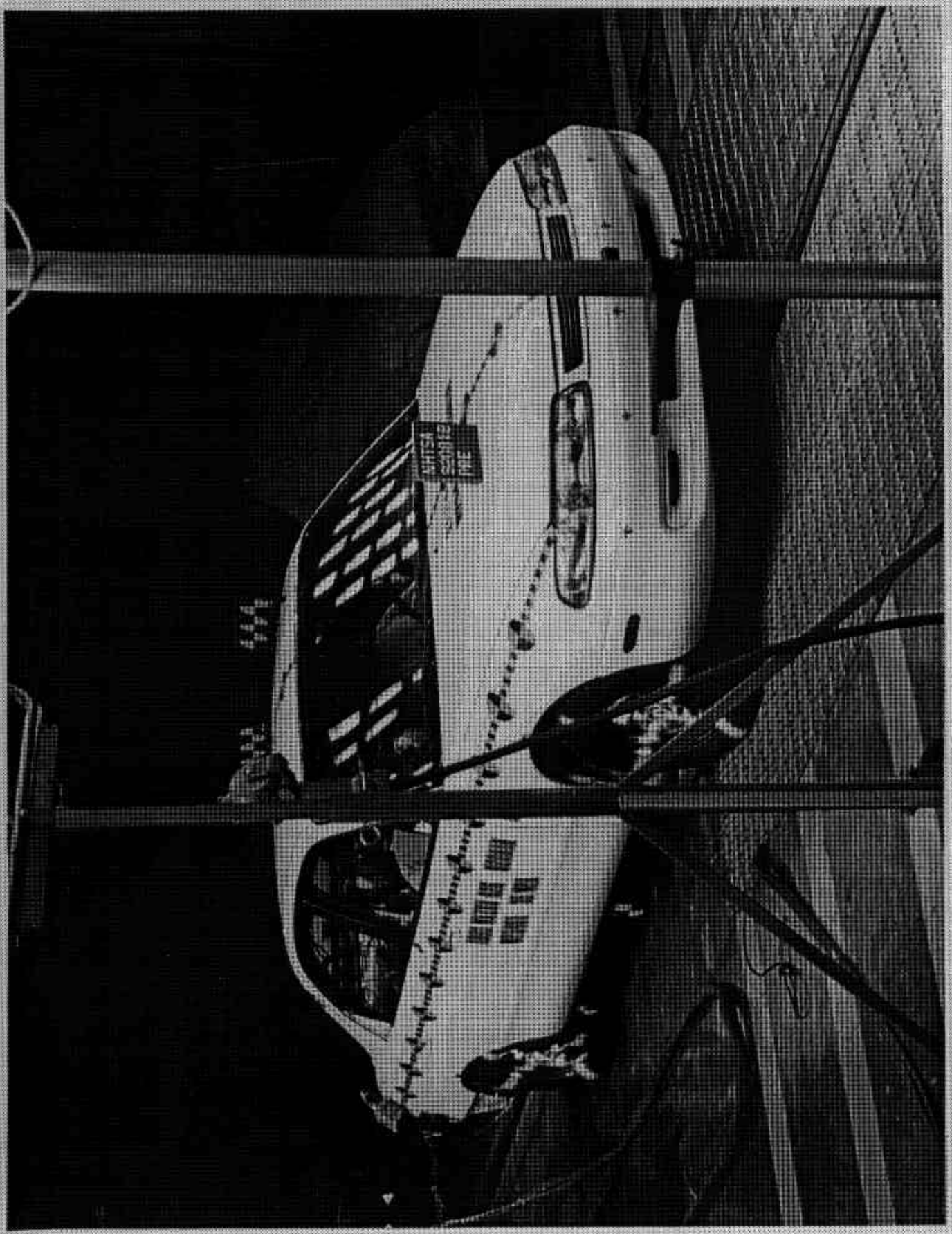


FIGURE A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

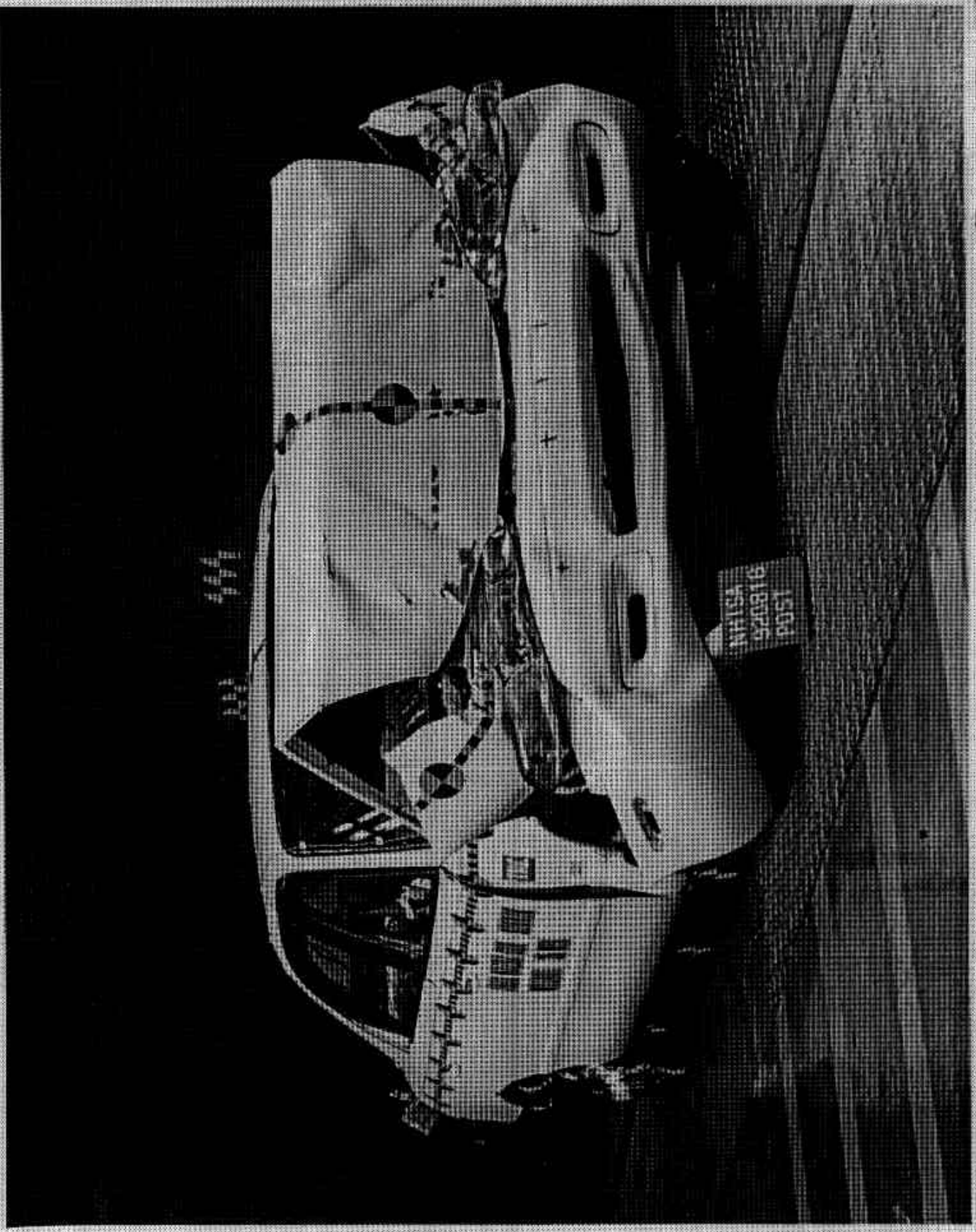


FIGURE A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

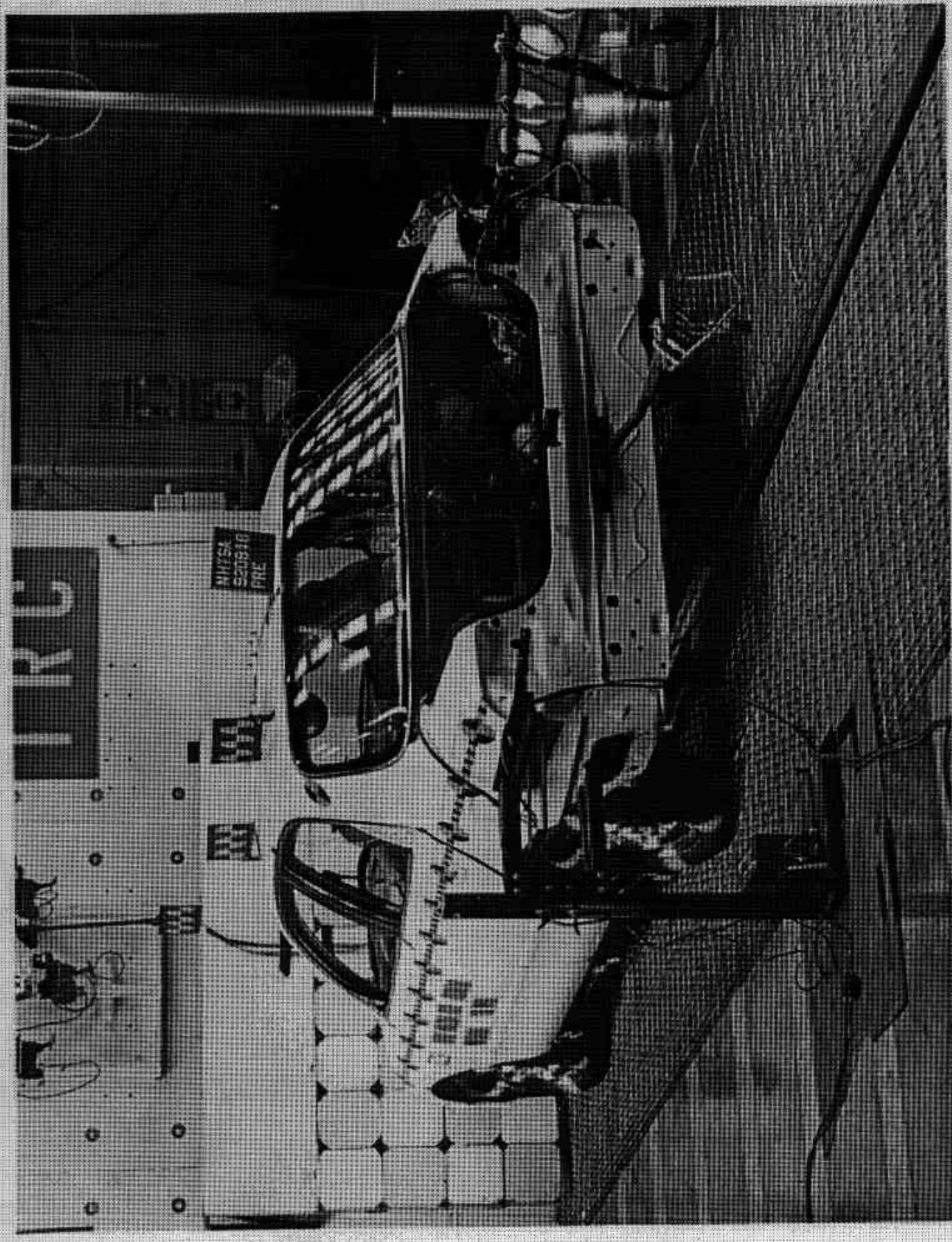


FIGURE A-11. PRE-TEST LEFT REAR THREE-QUARTER VIEW

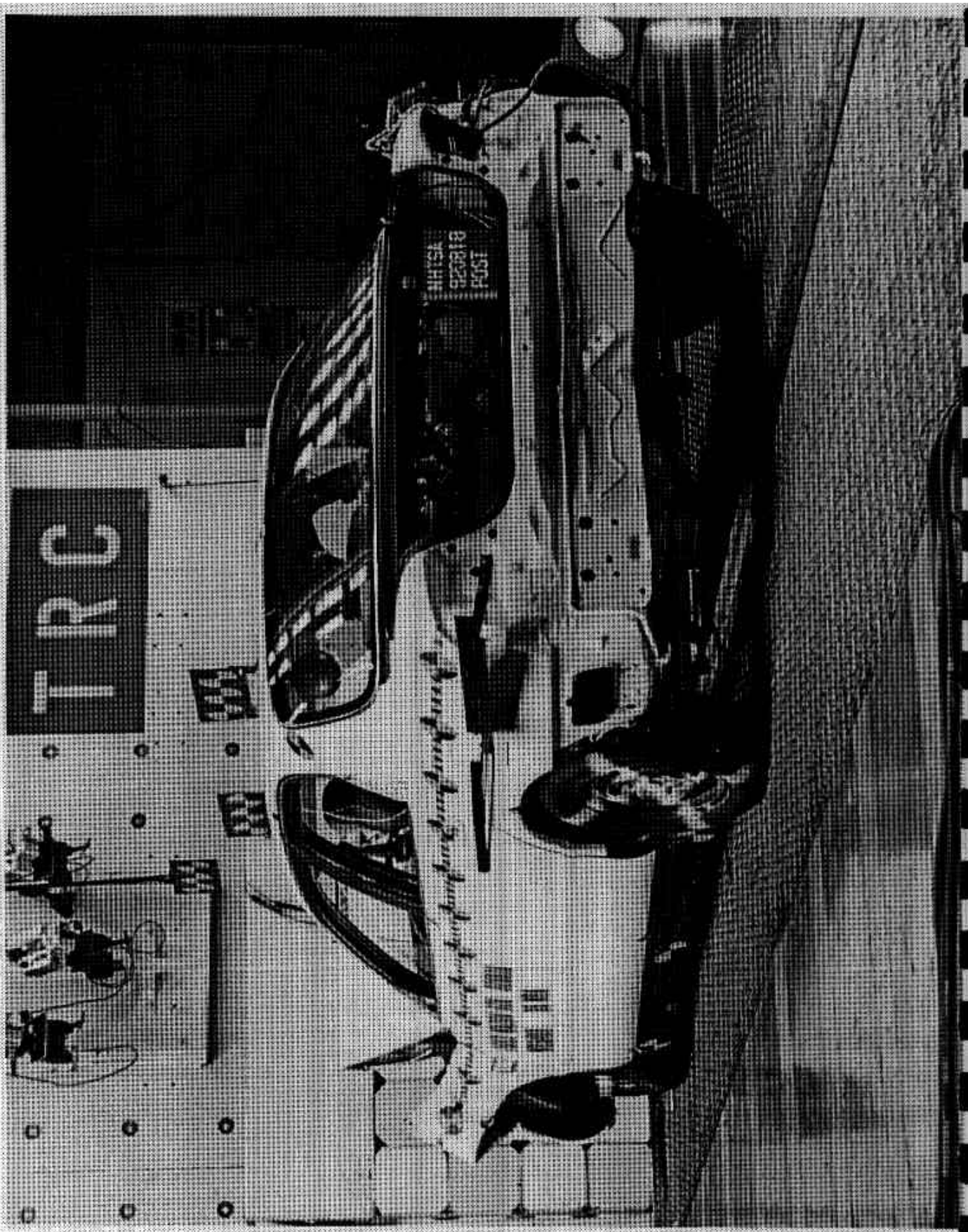


FIGURE A-12. POST-TEST LEFT REAR THREE-QUARTER VIEW

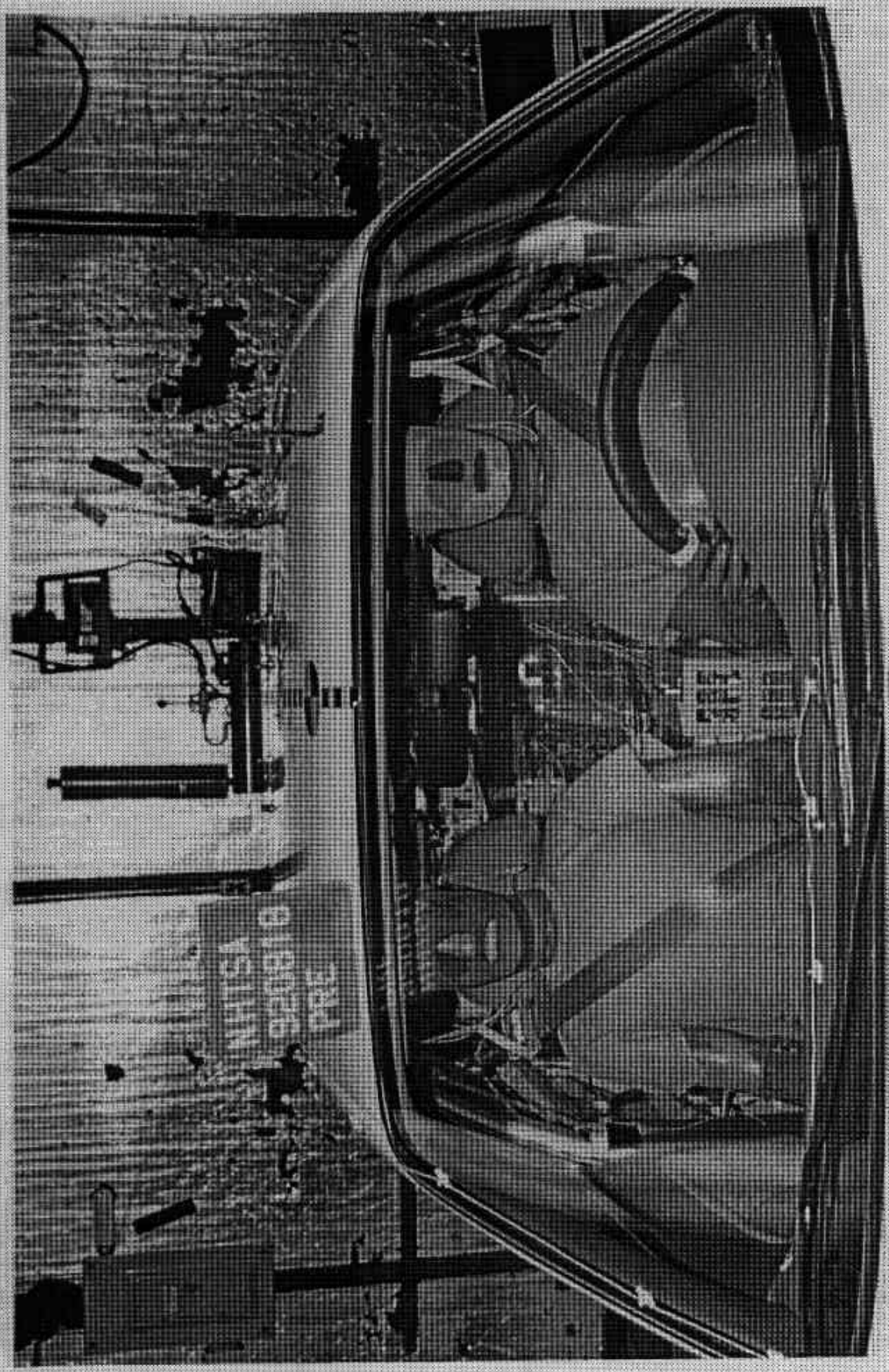


FIGURE A-13. PRE-TEST WINDSHIELD VIEW

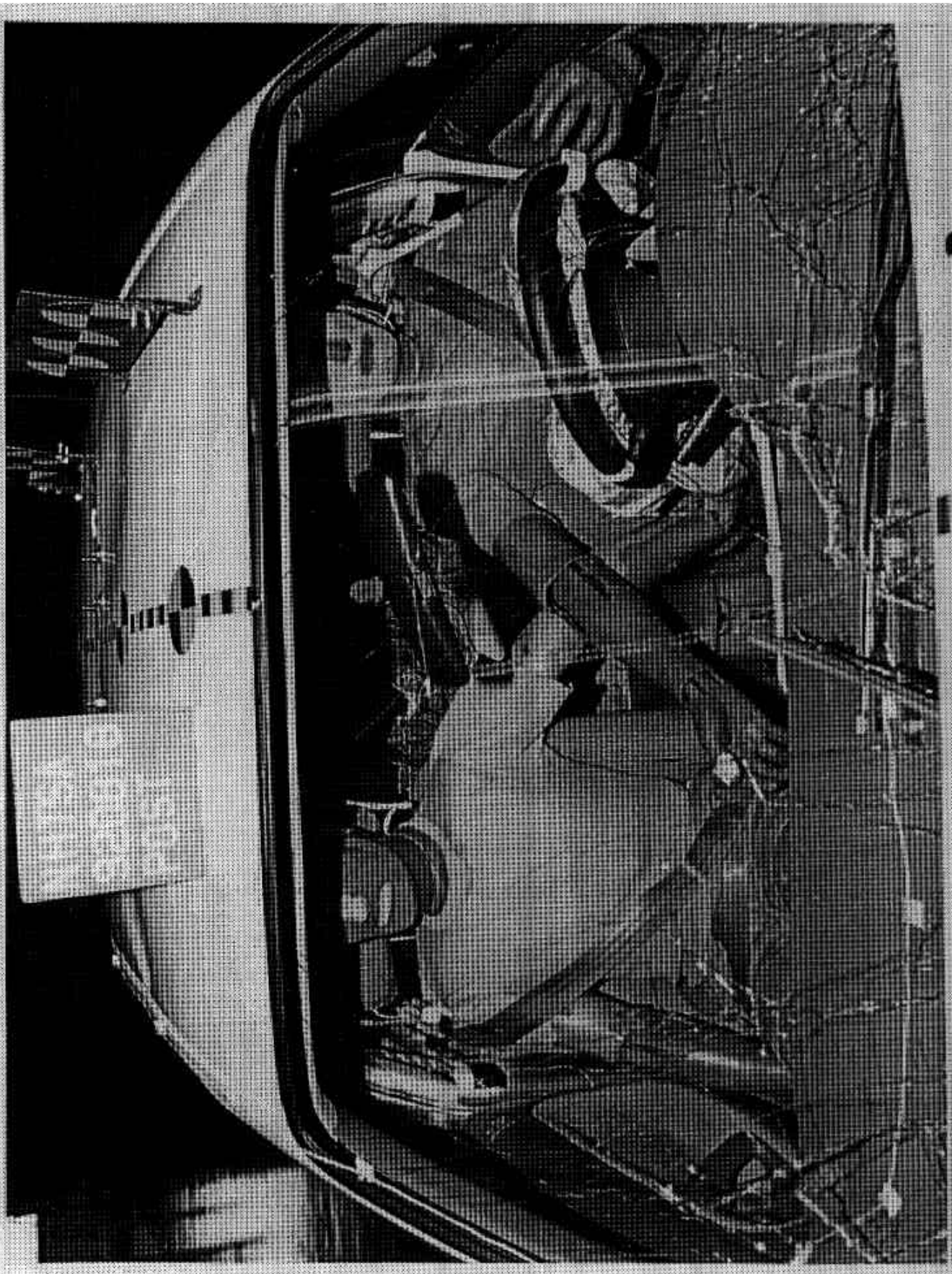


FIGURE A-14. POST-TEST WINDSHIELD VIEW

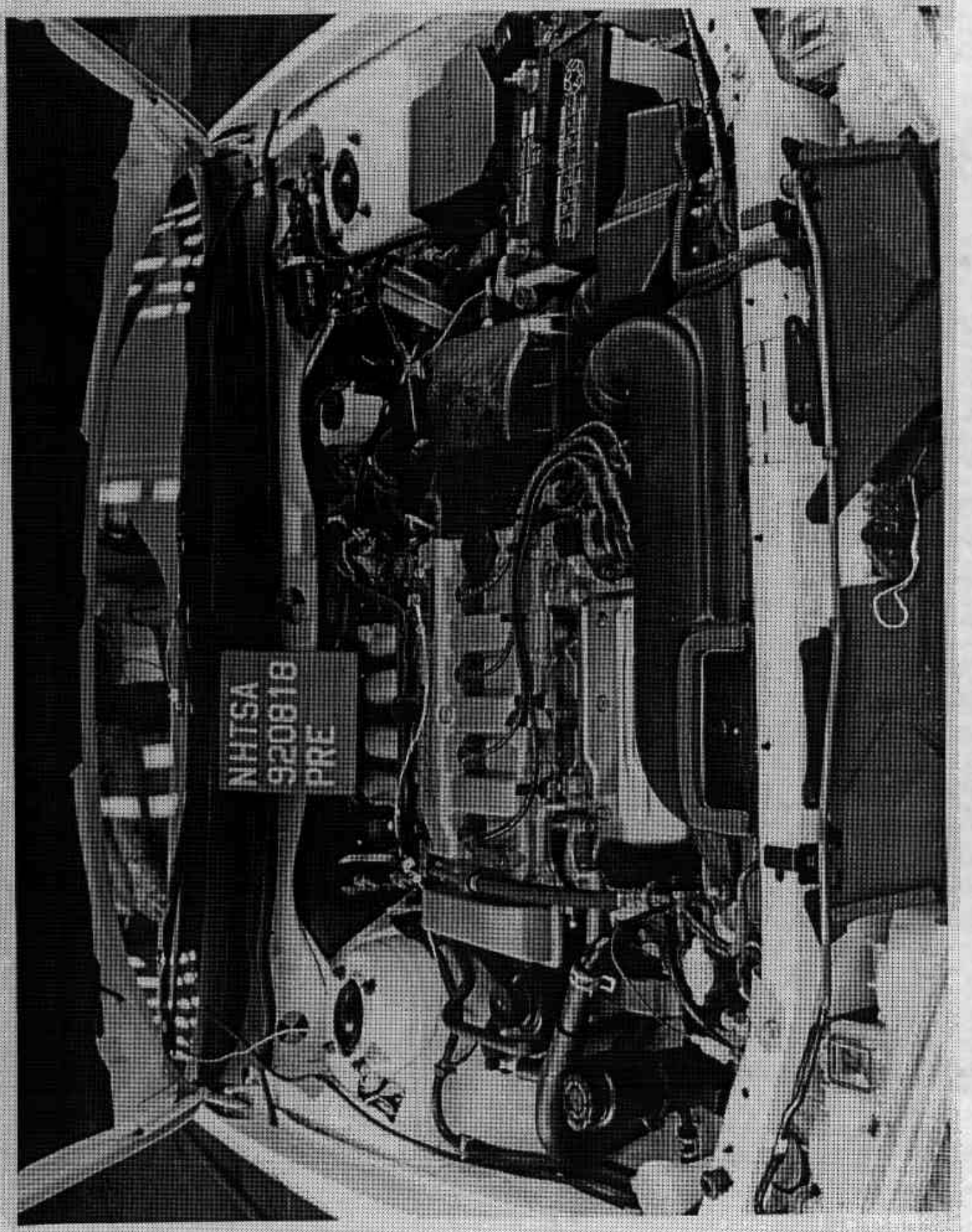


FIGURE A-15. PRE-TEST ENGINE COMPARTMENT VIEW

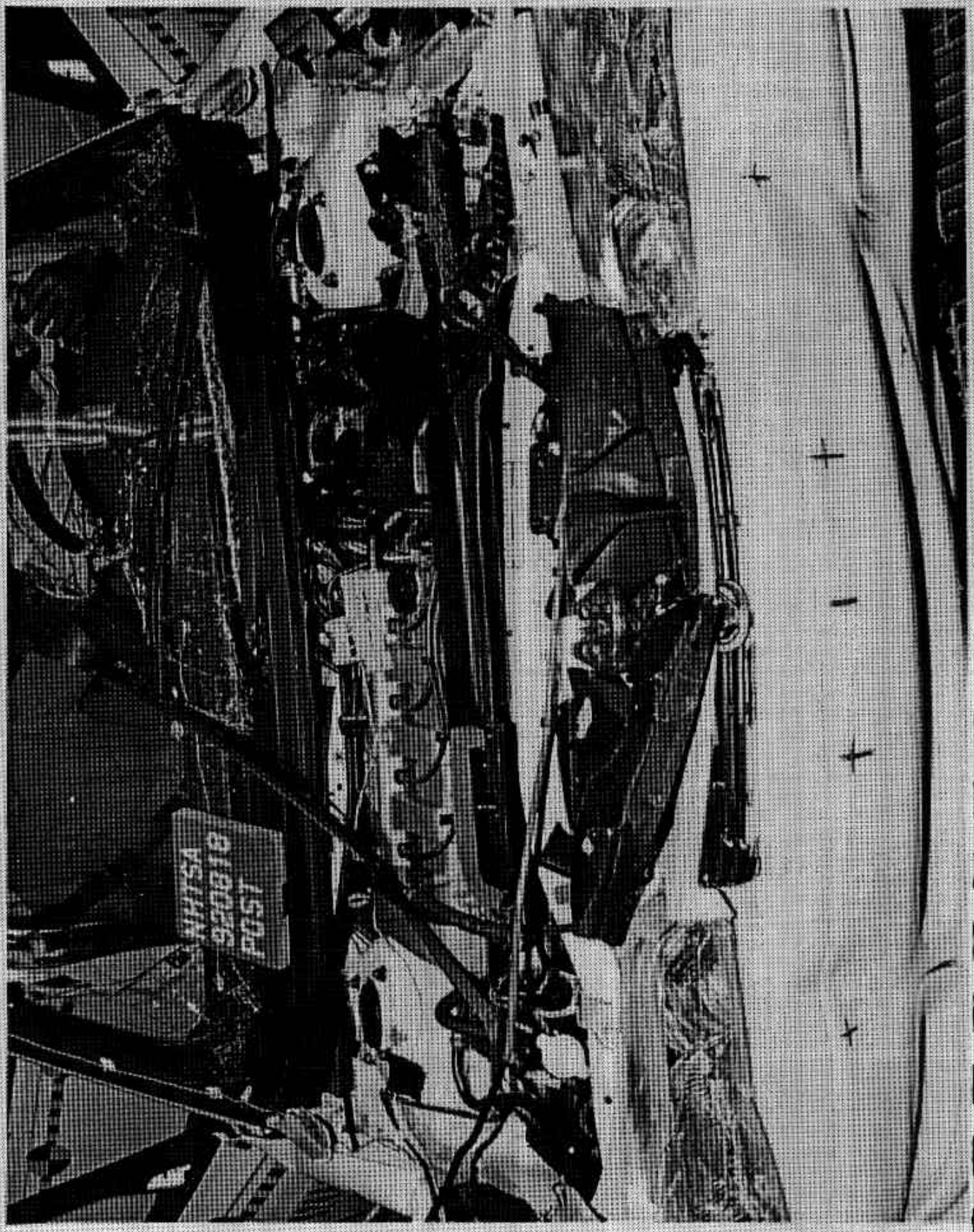


FIGURE A-16. POST-TEST ENGINE COMPARTMENT VIEW

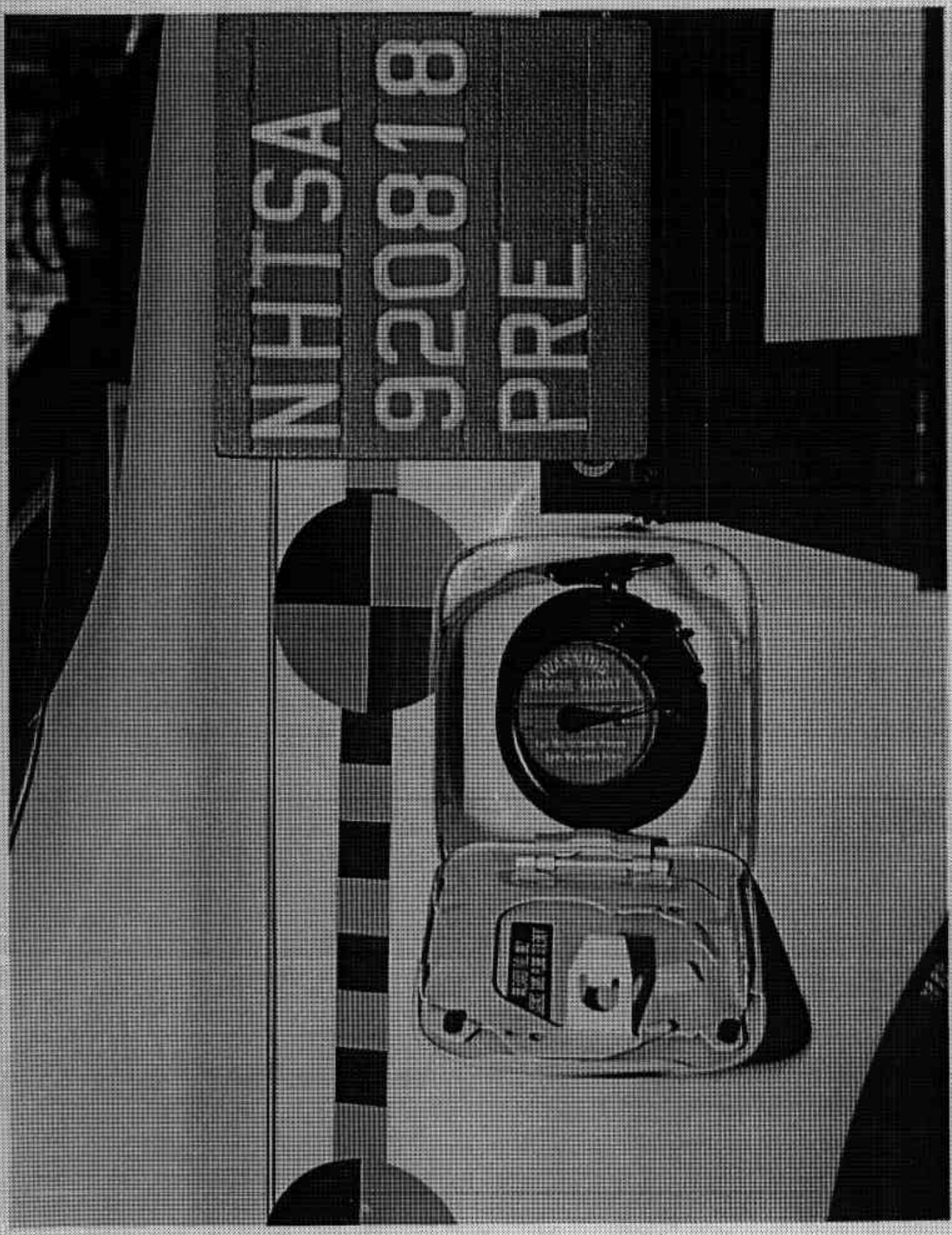


FIGURE A-17. PRE-TEST FUEL FILLER CAP VIEW

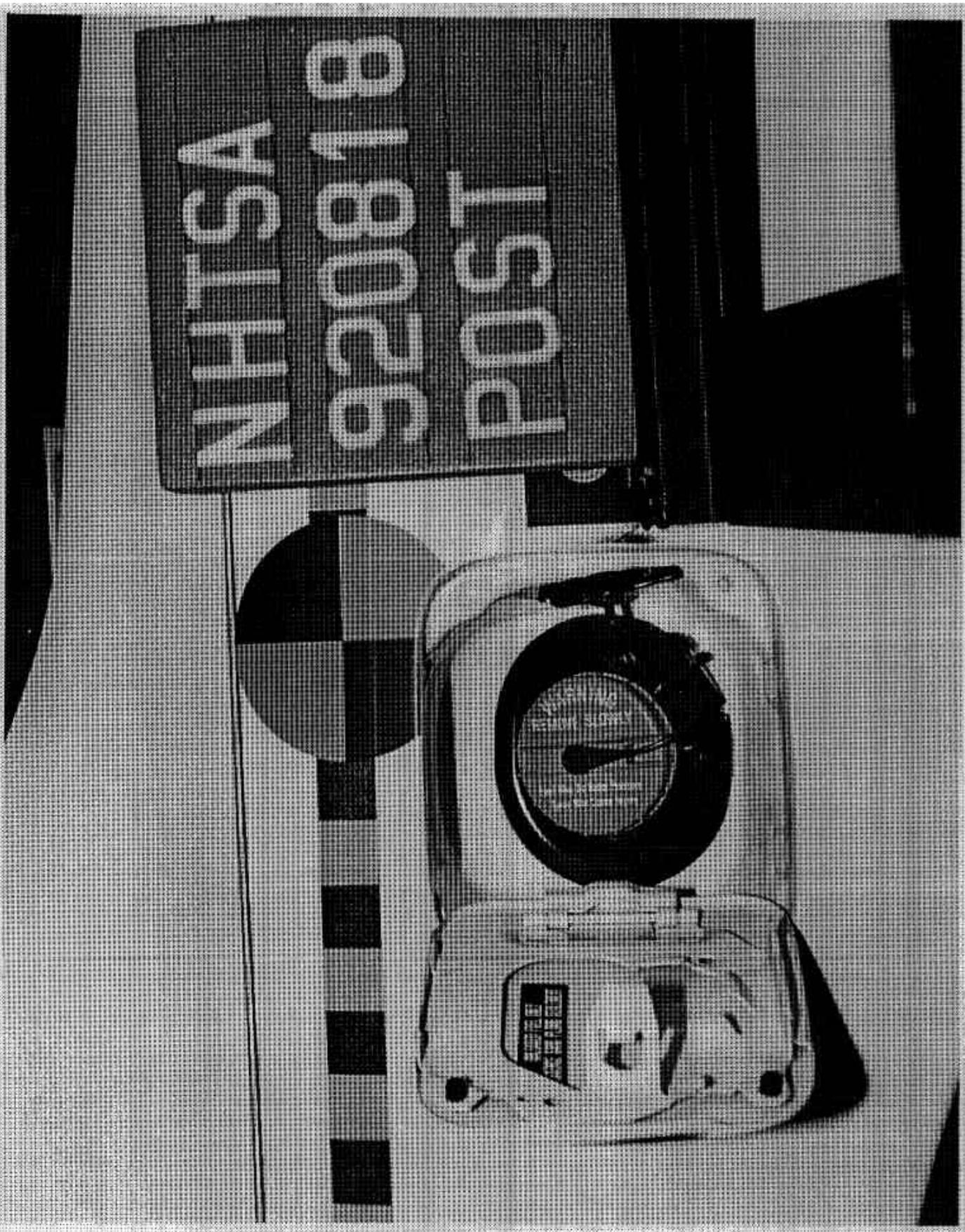


FIGURE A-18. POST-TEST FUEL FILLER CAP VIEW

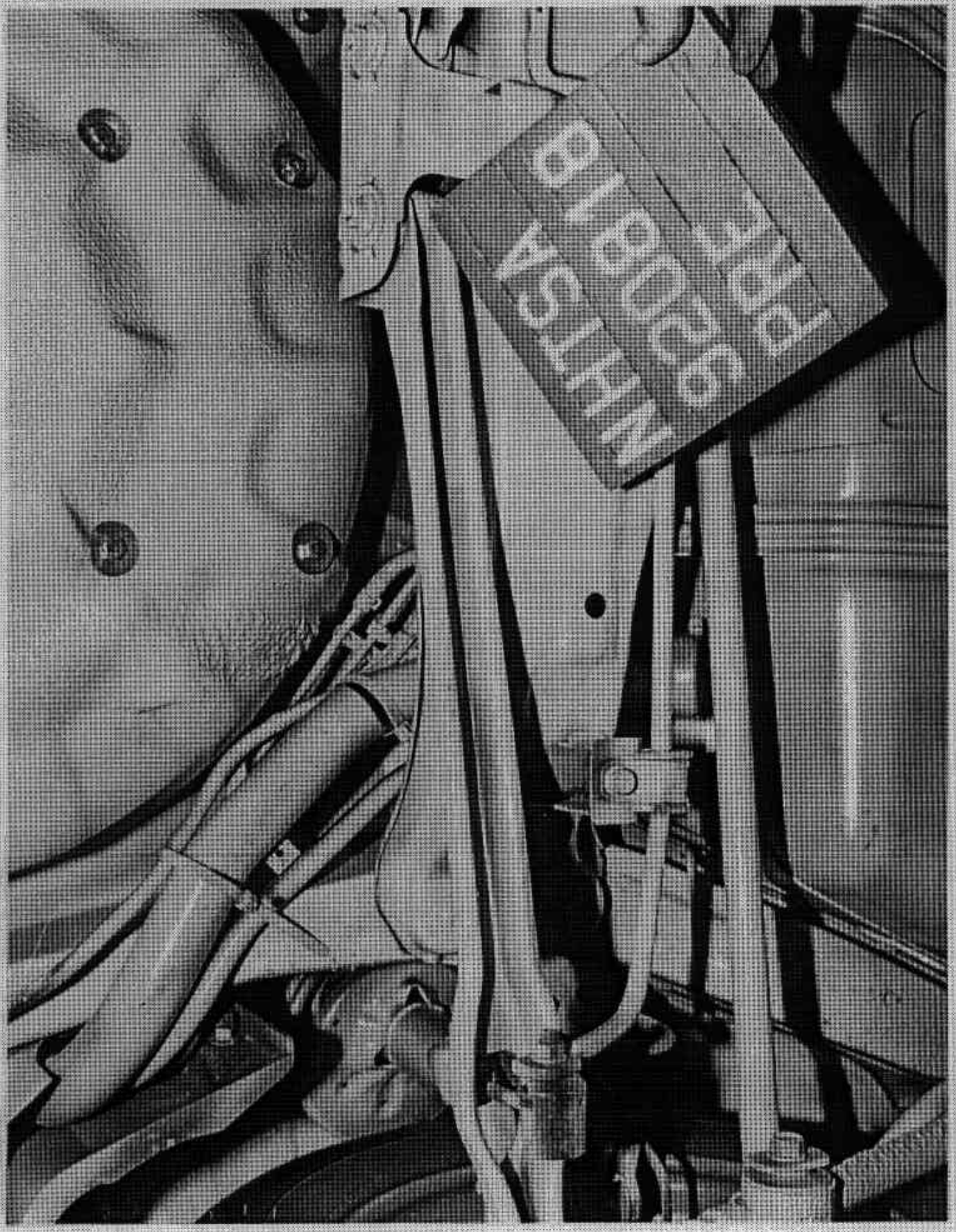


FIGURE A-19. PRE-TEST FUEL FILLER NECK VIEW

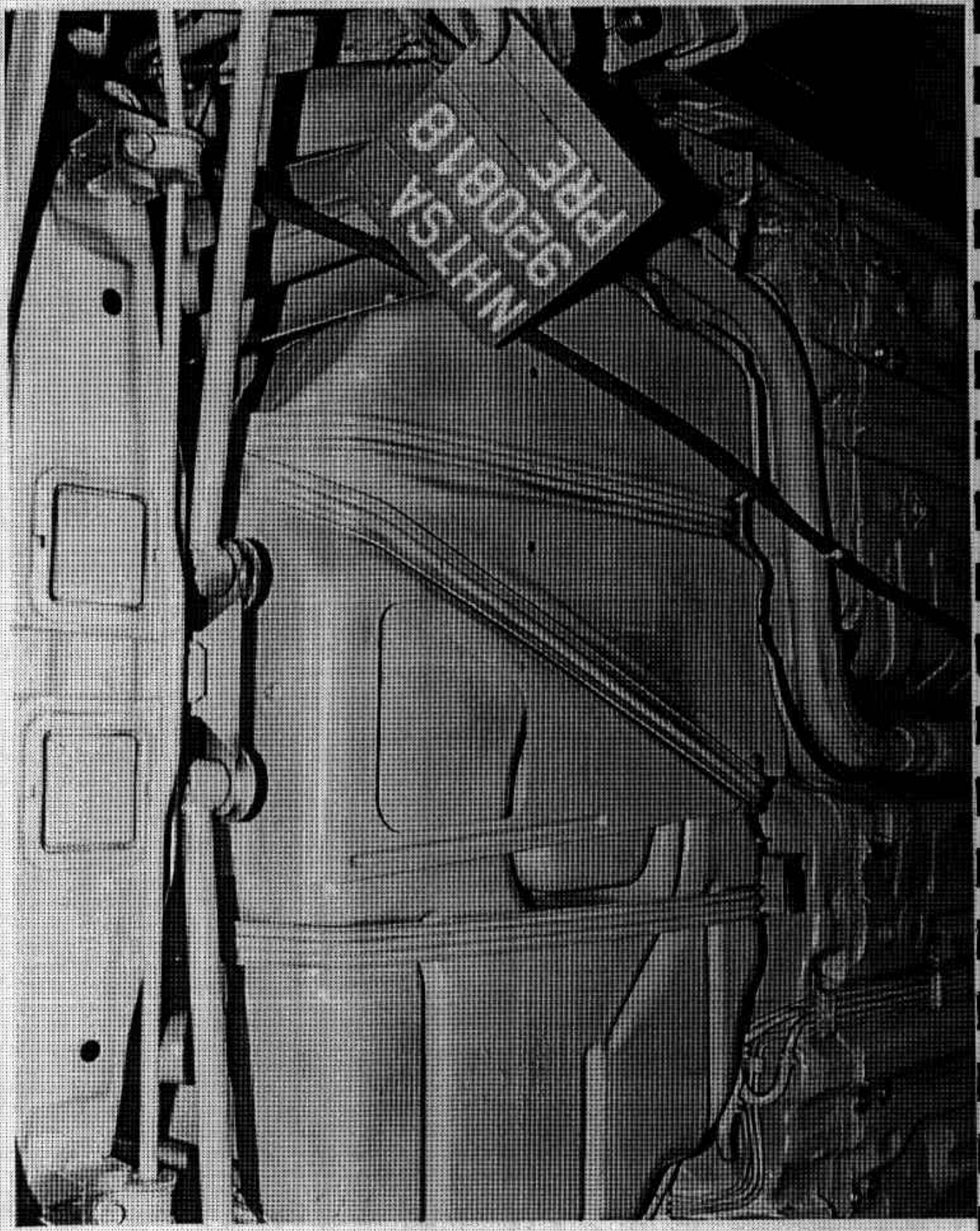


FIGURE A-20. PRE-TEST FUEL TANK VIEW

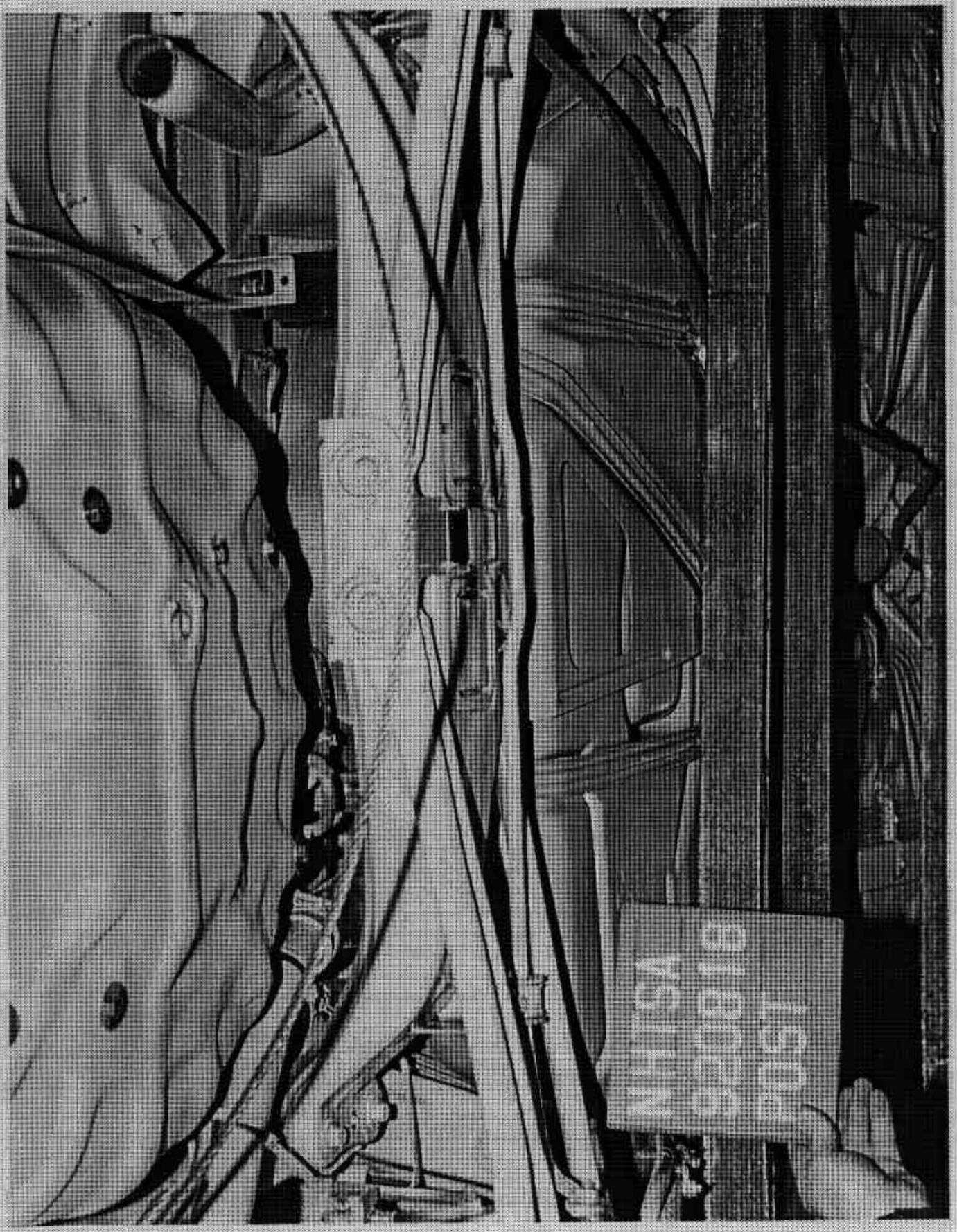


FIGURE A-21. POST-TEST FUEL TANK VIEW

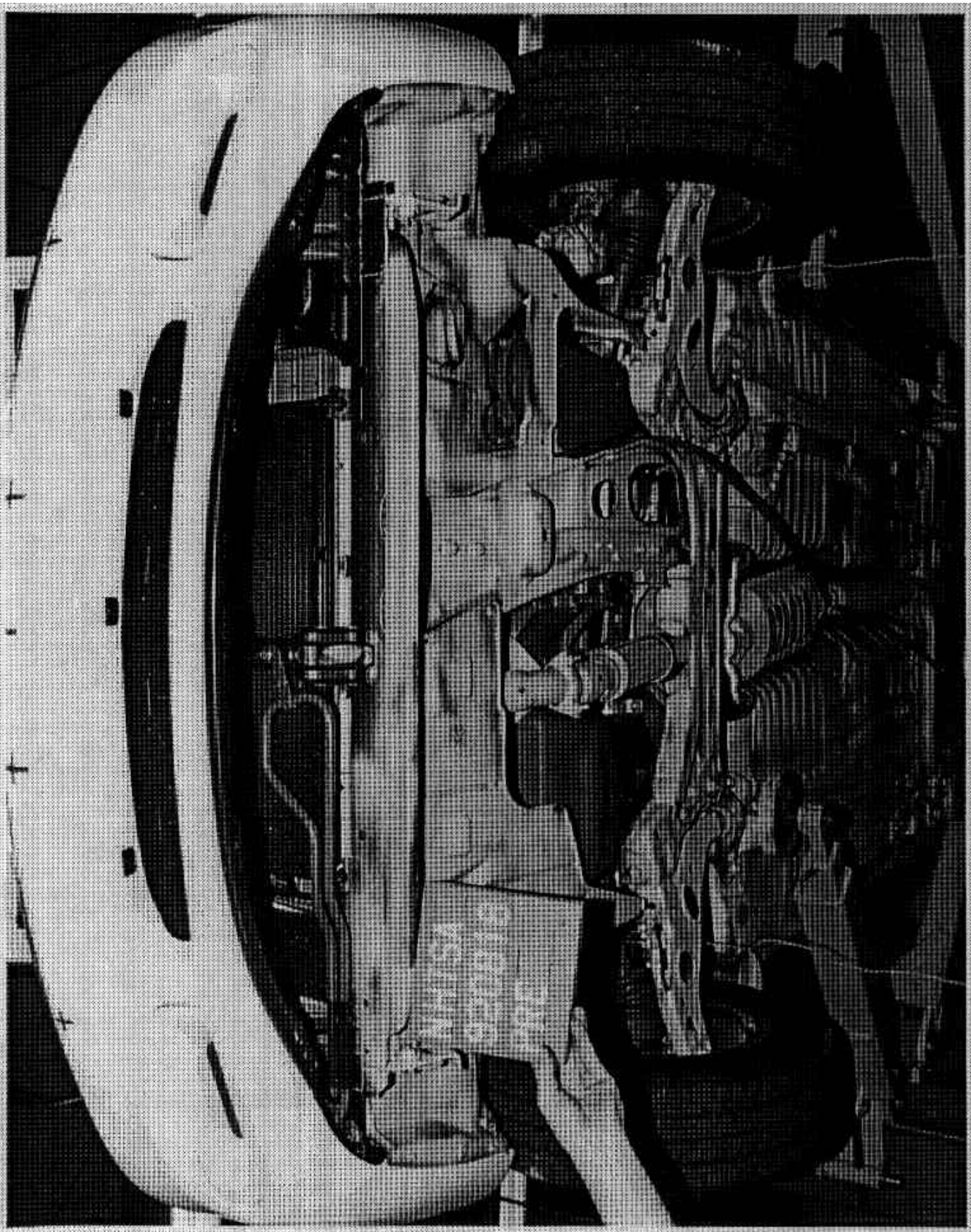


FIGURE A-22. PRE-TEST FRONT UNDERBODY VIEW

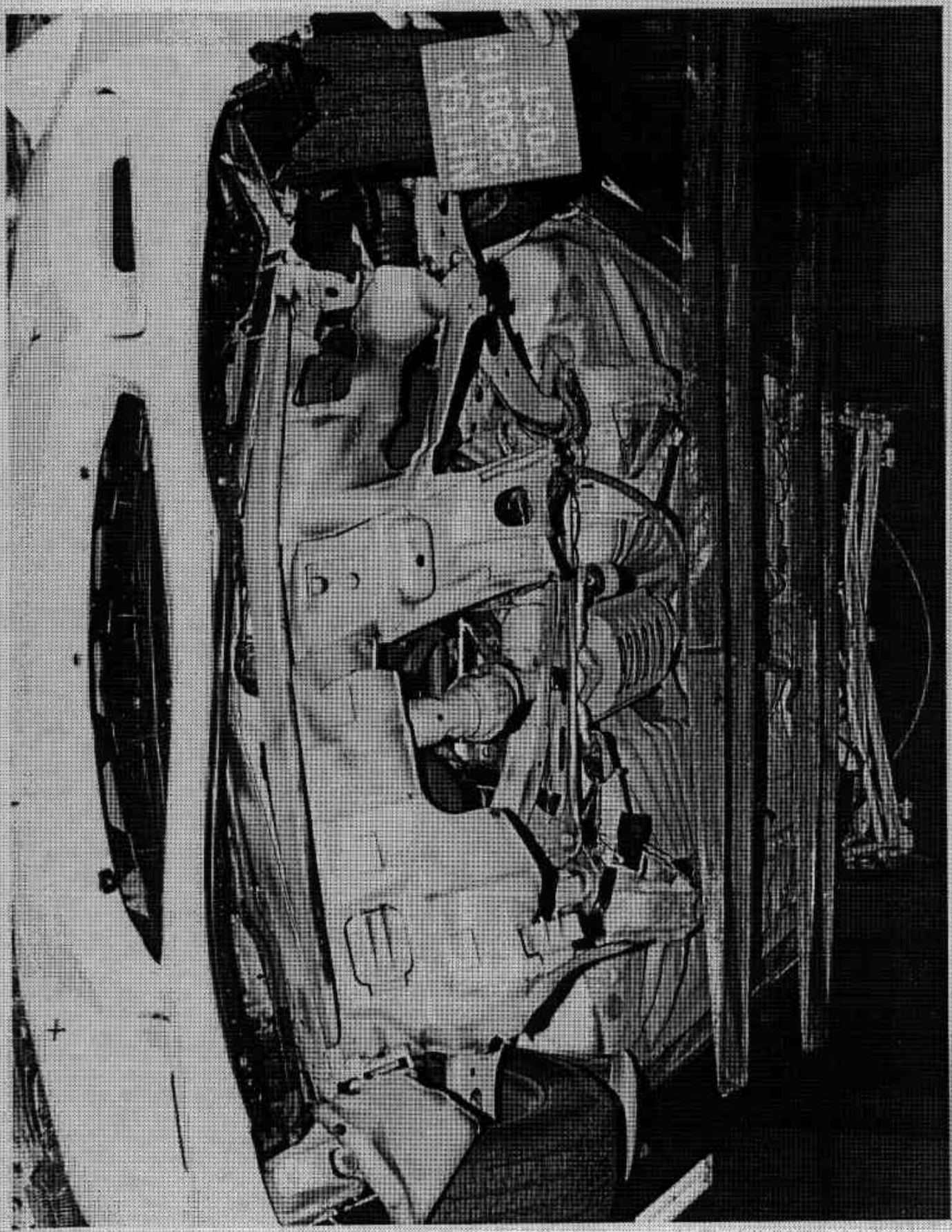


FIGURE A-23. POST-TEST FRONT UNDERBODY VIEW

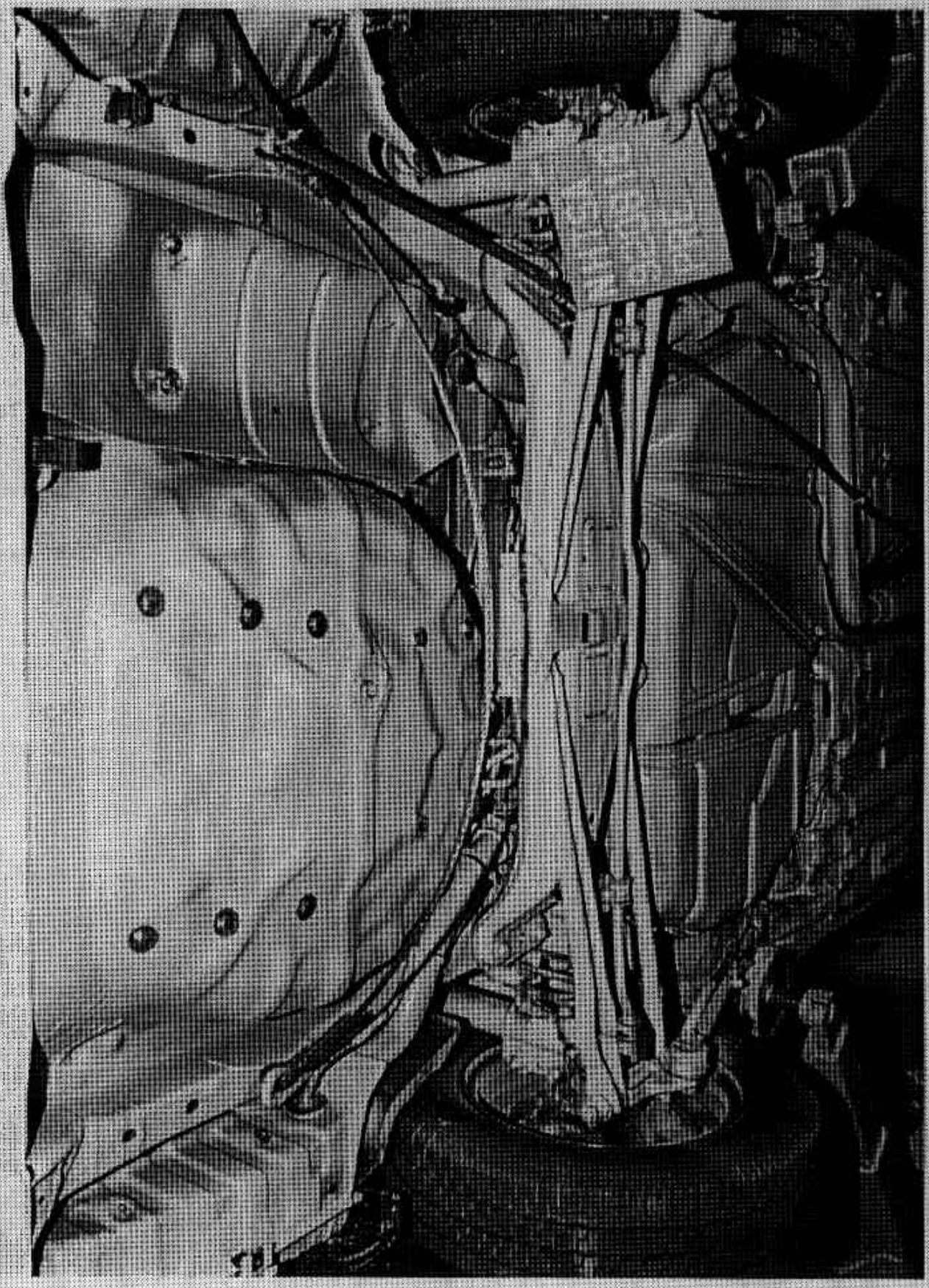


FIGURE A-24. PRE-TEST REAR UNDERBODY VIEW

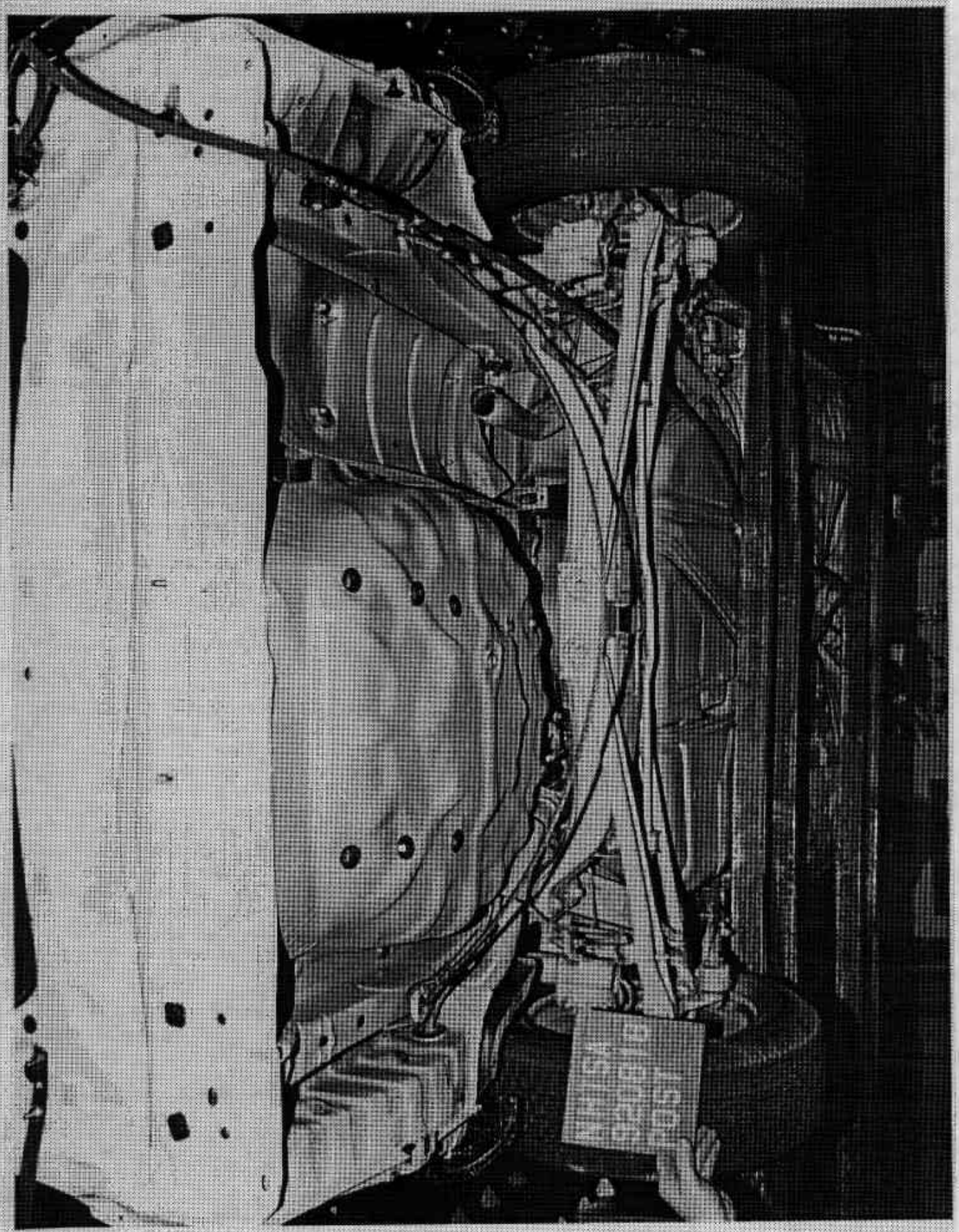


FIGURE A-25. POST-TEST REAR UNDERBODY VIEW

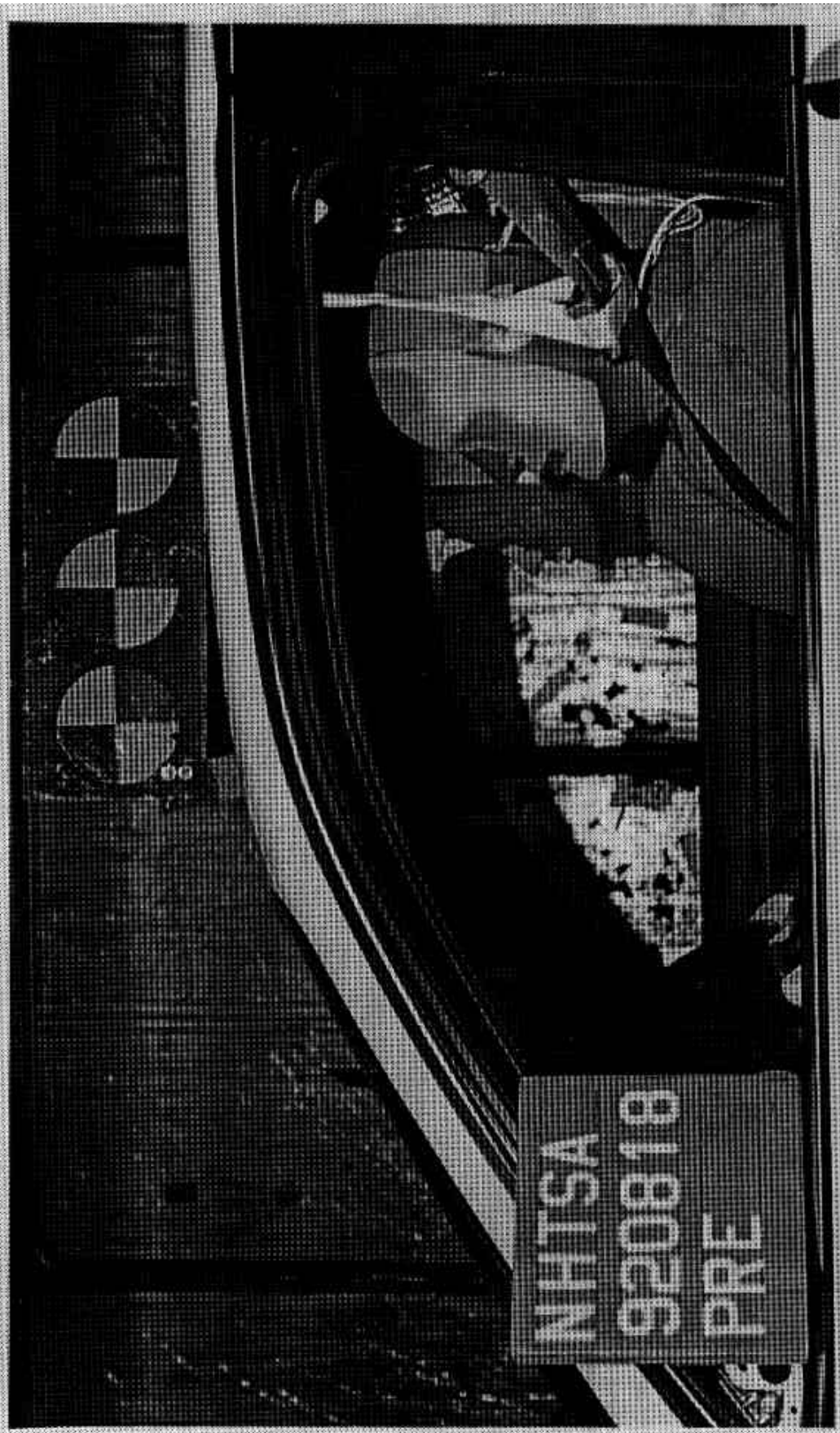


FIGURE A-26. PRE-TEST DRIVER DUMMY POSITION VIEW

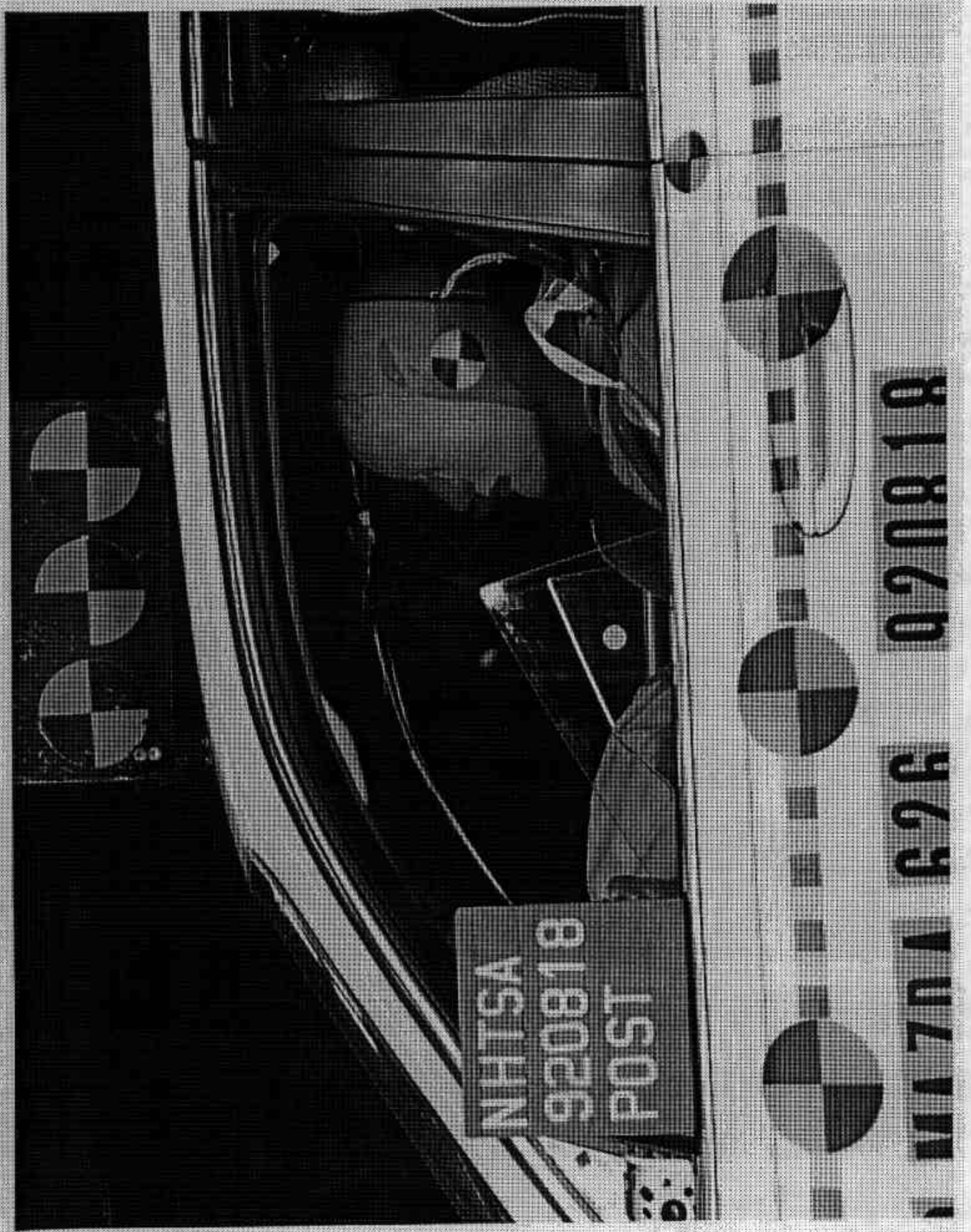


FIGURE A-27. POST-TEST DRIVER DUMMY POSITION VIEW

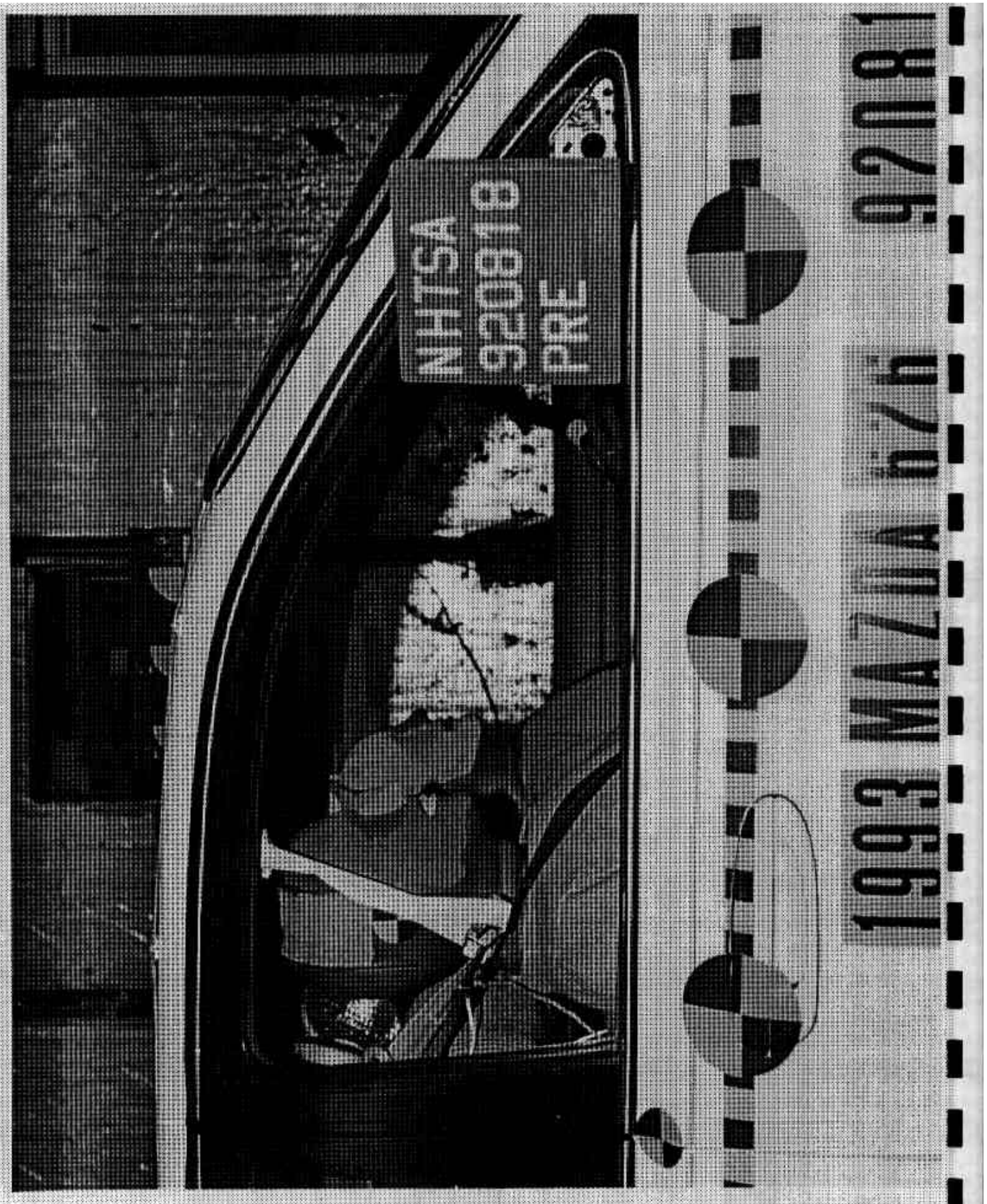


FIGURE A-28. PRE-TEST PASSENGER DUMMY POSITION VIEW

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

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

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

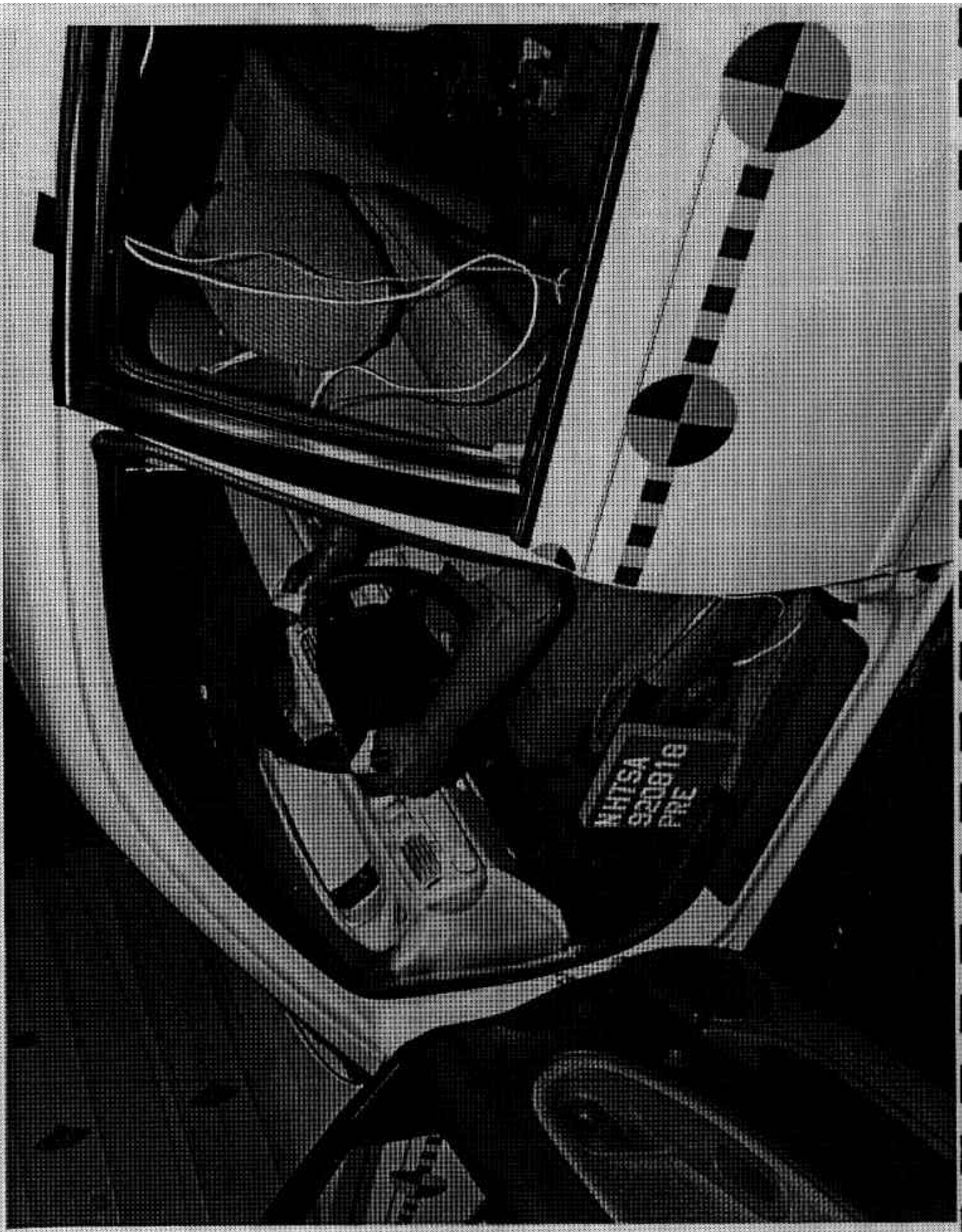


FIGURE A-32. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

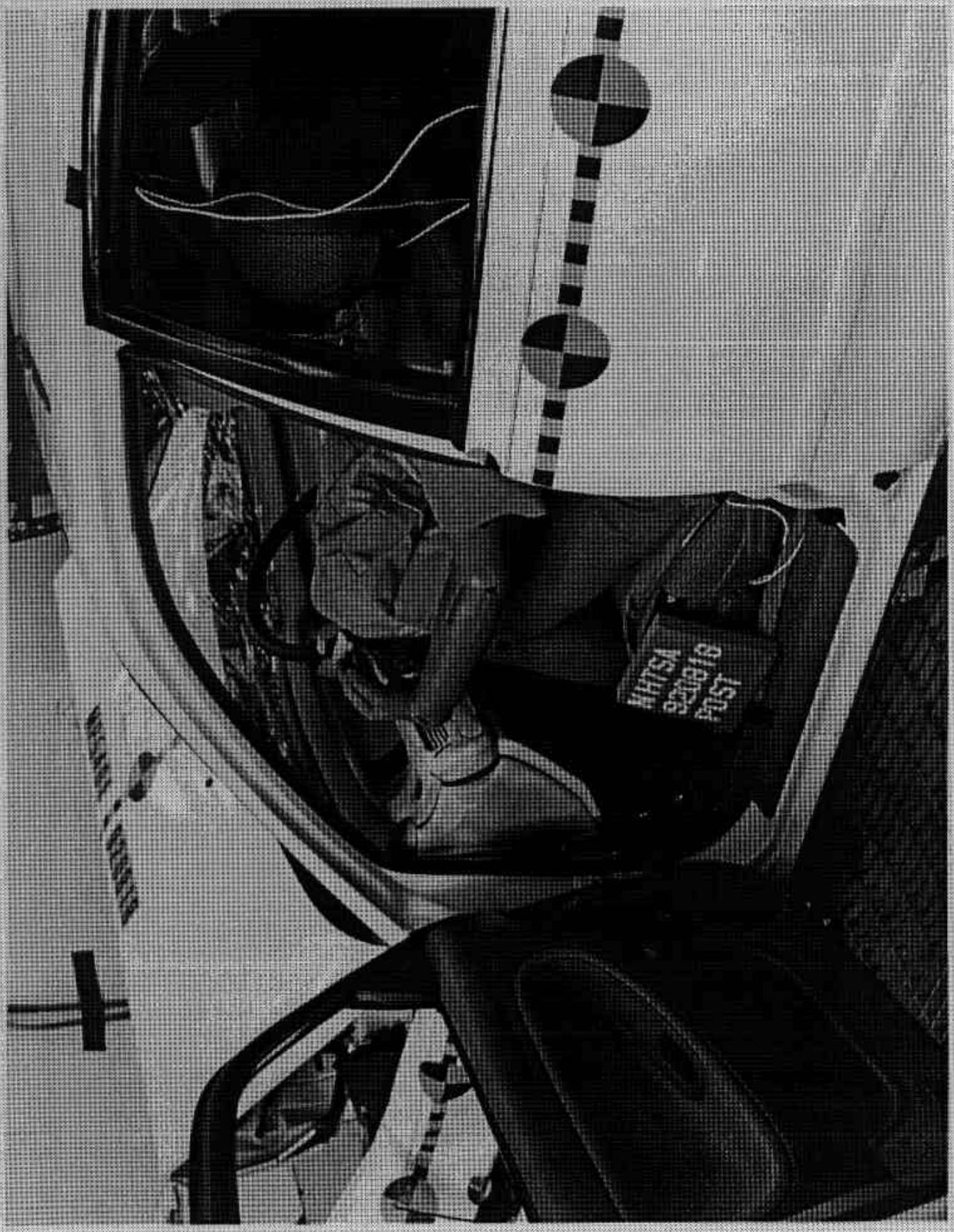


FIGURE A-33. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

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

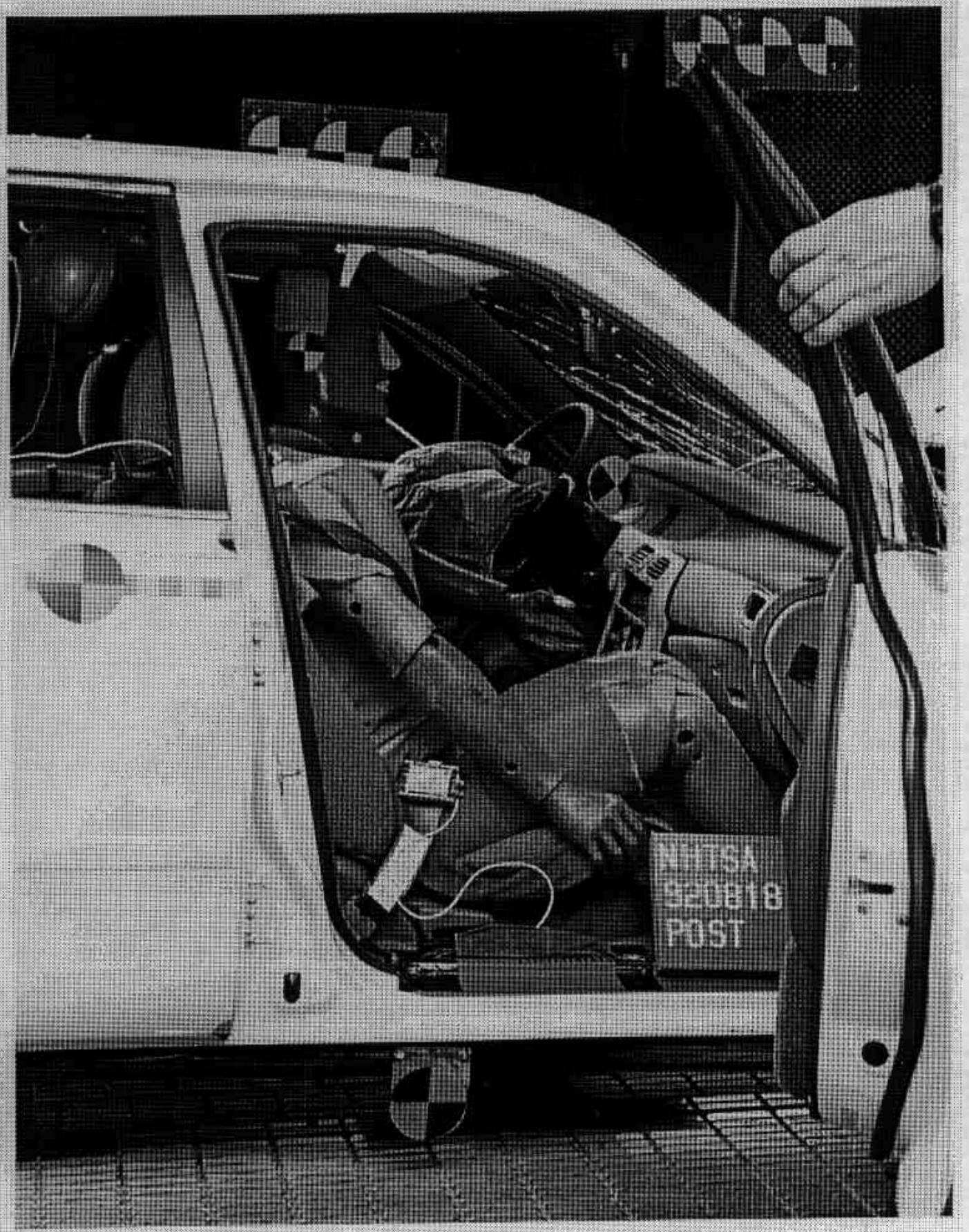


FIGURE A-35. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

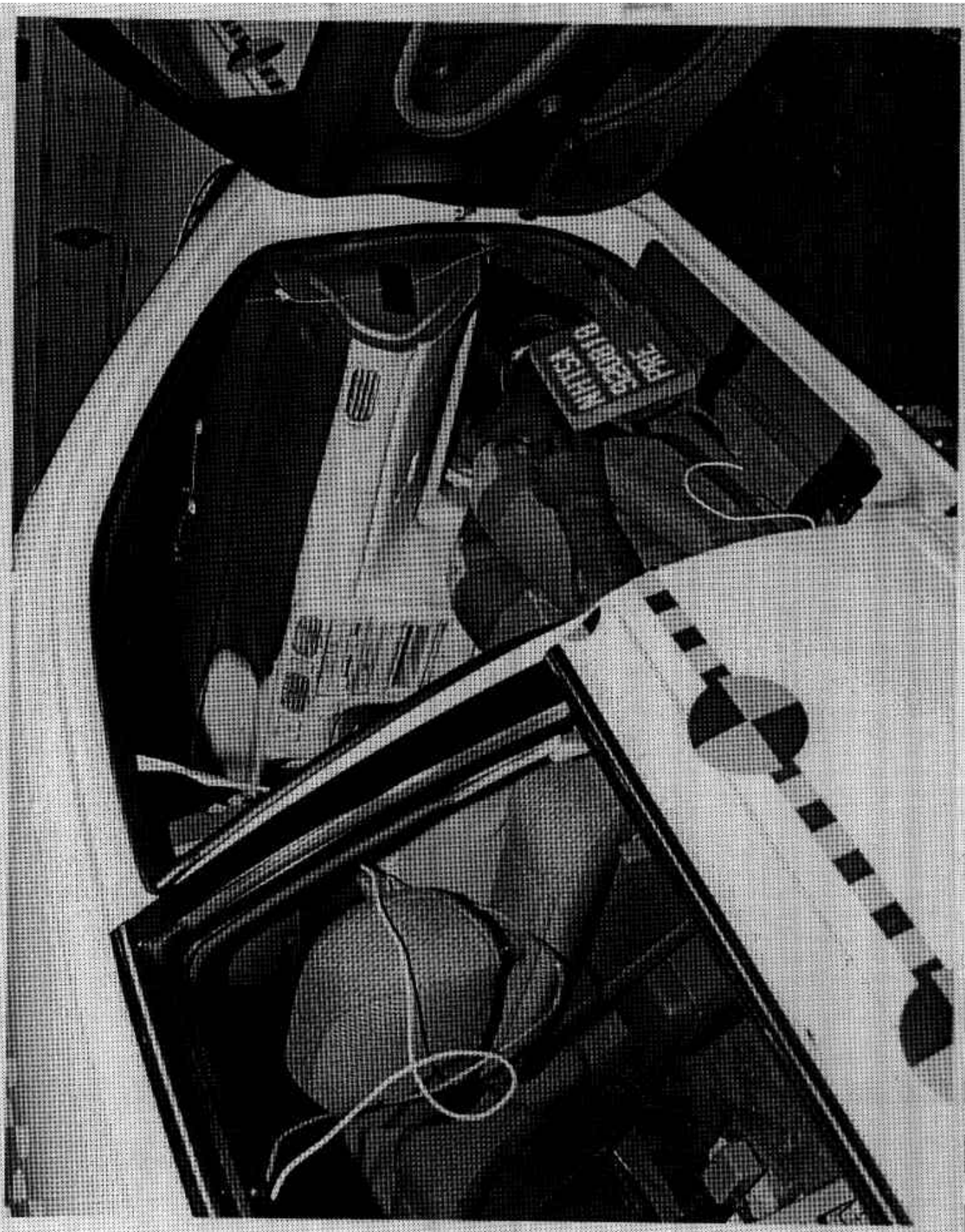


FIGURE A-36. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

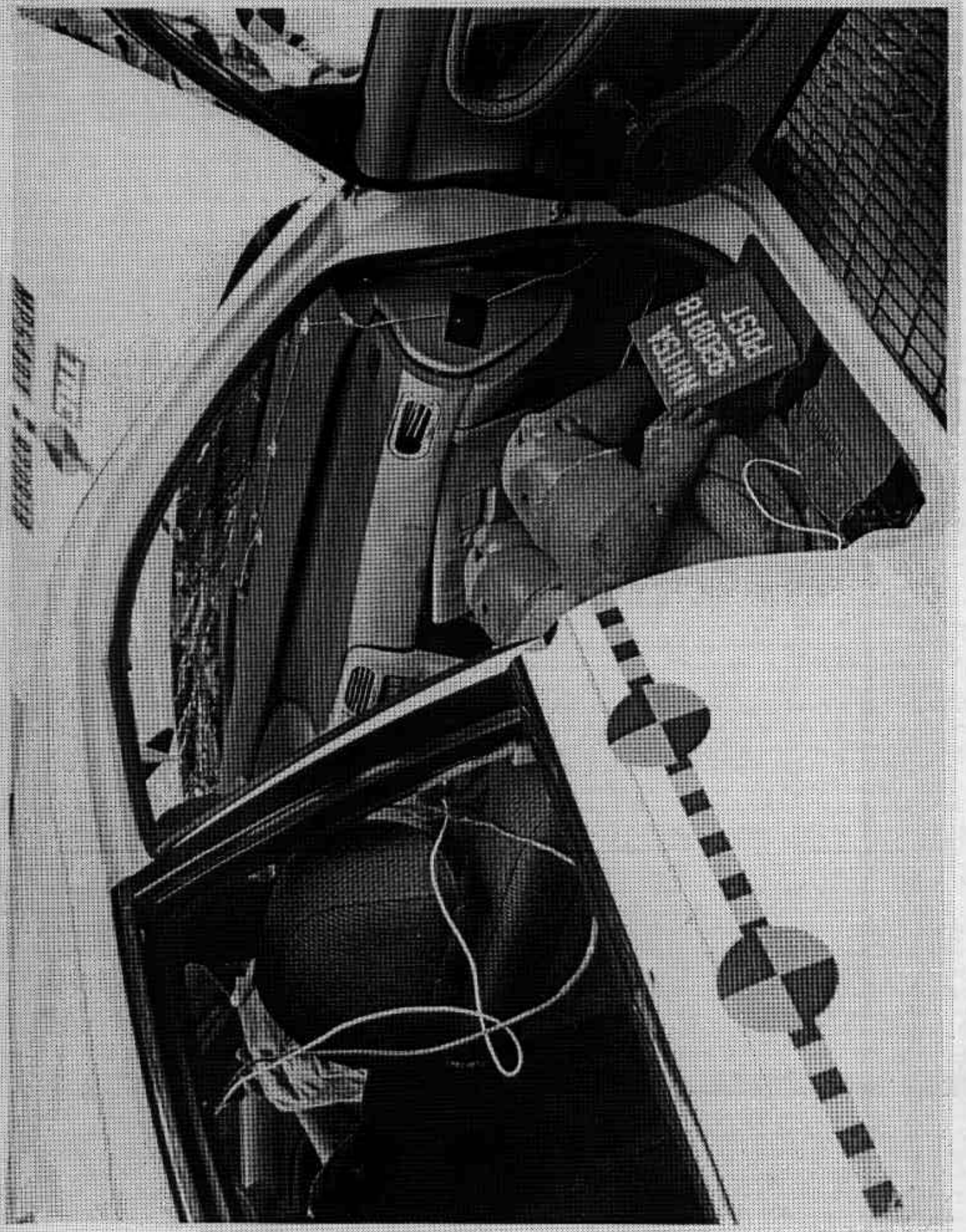


FIGURE A-37. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

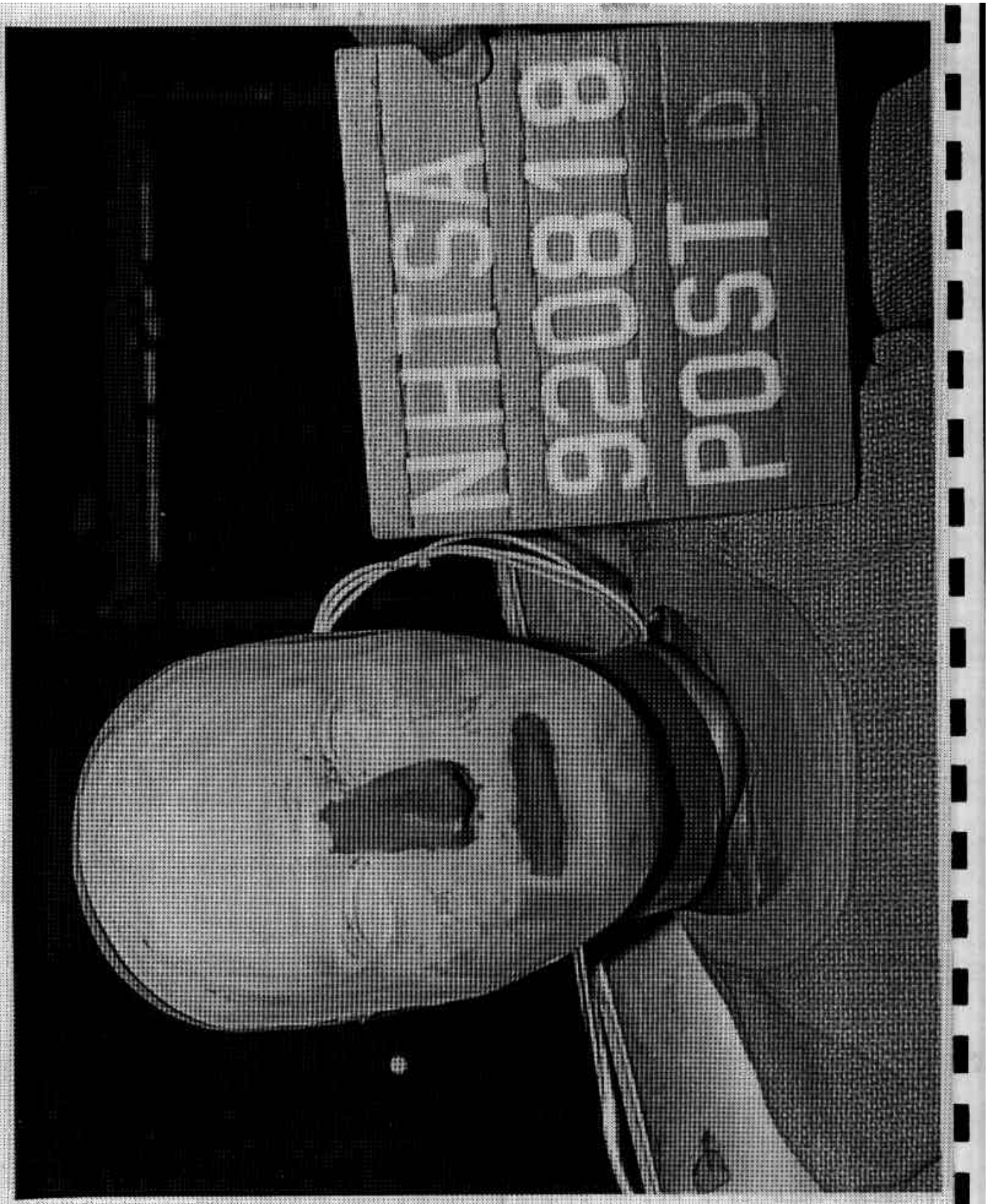


FIGURE A-38. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1

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

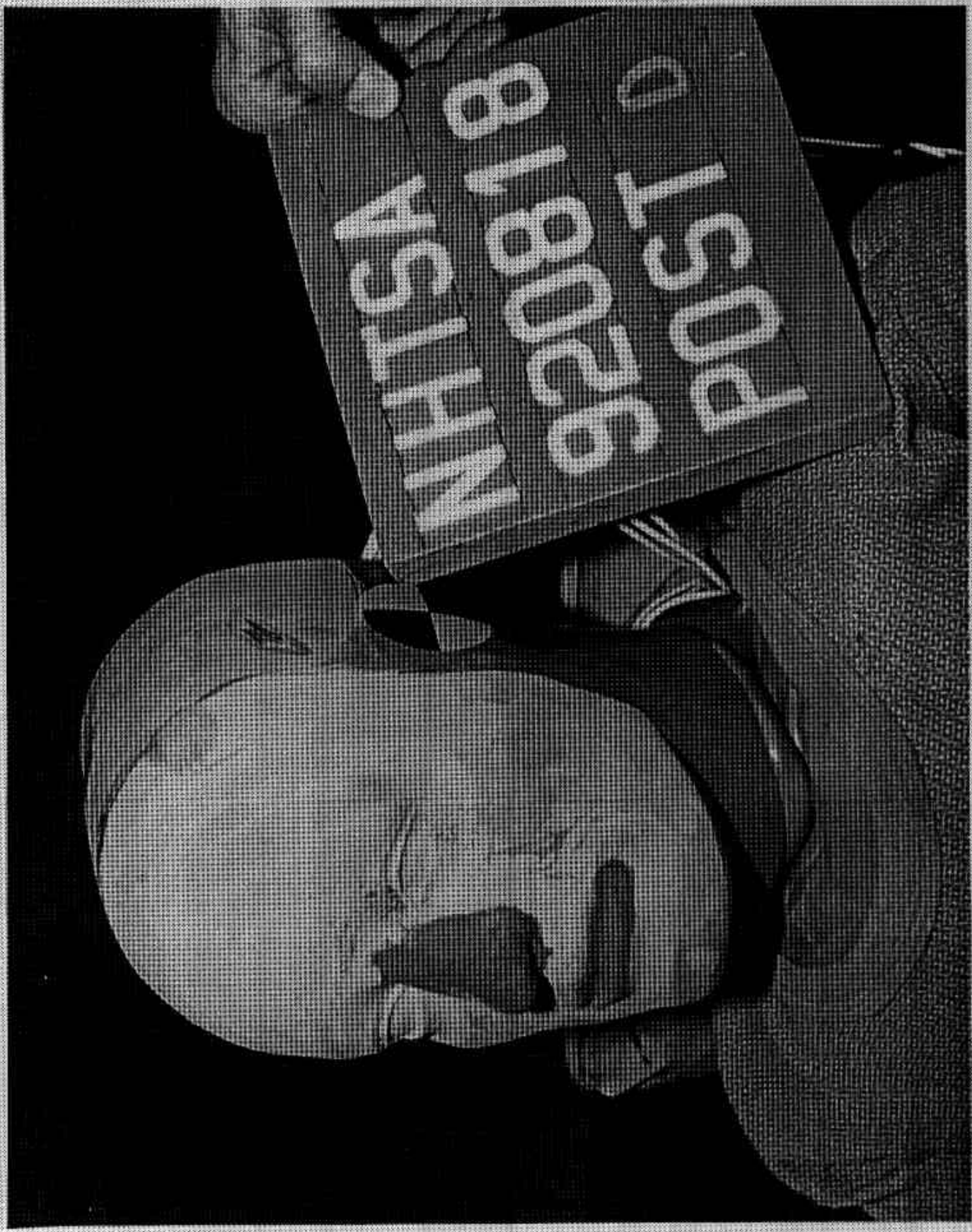


FIGURE A-40. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 3

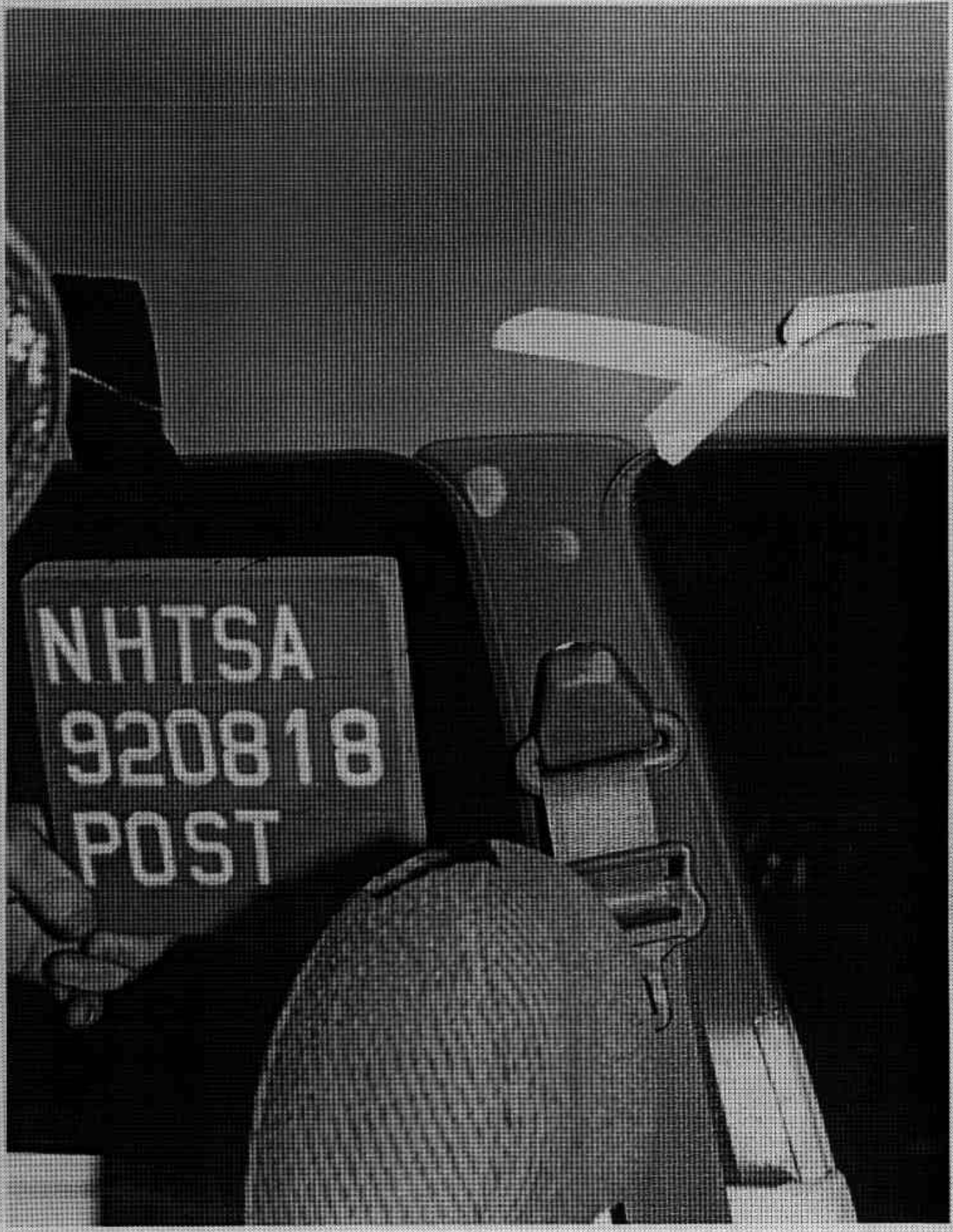


FIGURE A-41. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 4

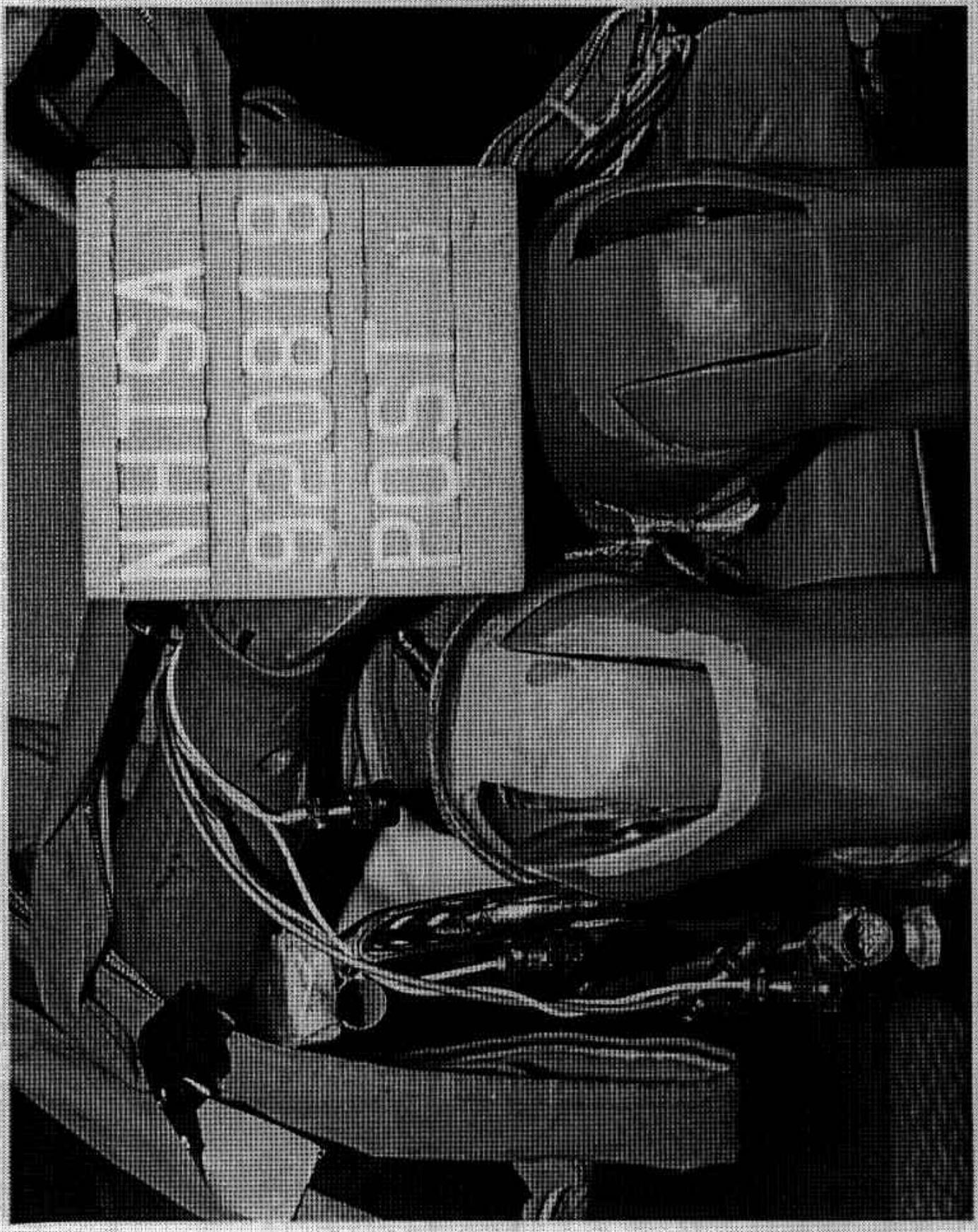


FIGURE A-42. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1

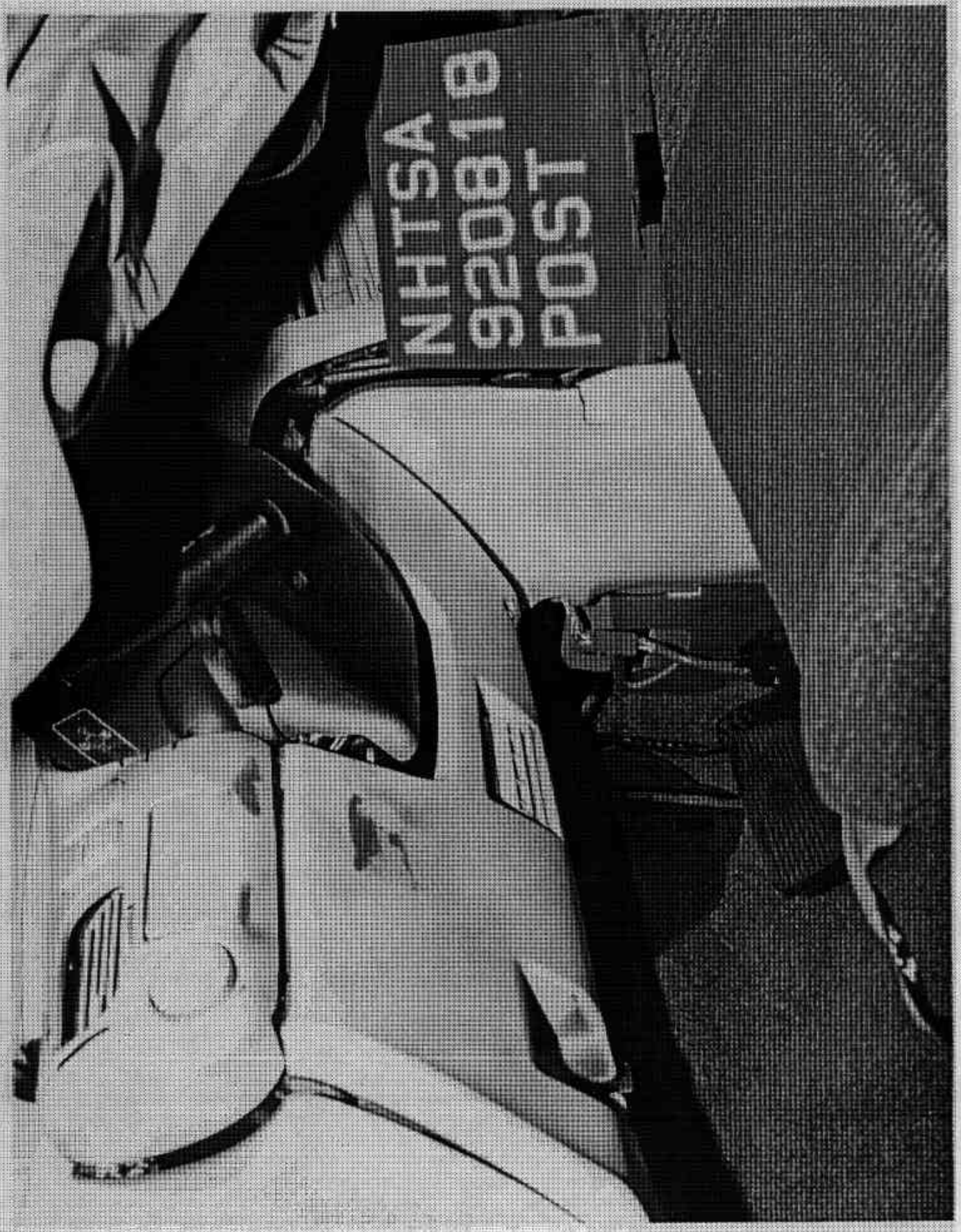


FIGURE A-43. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2

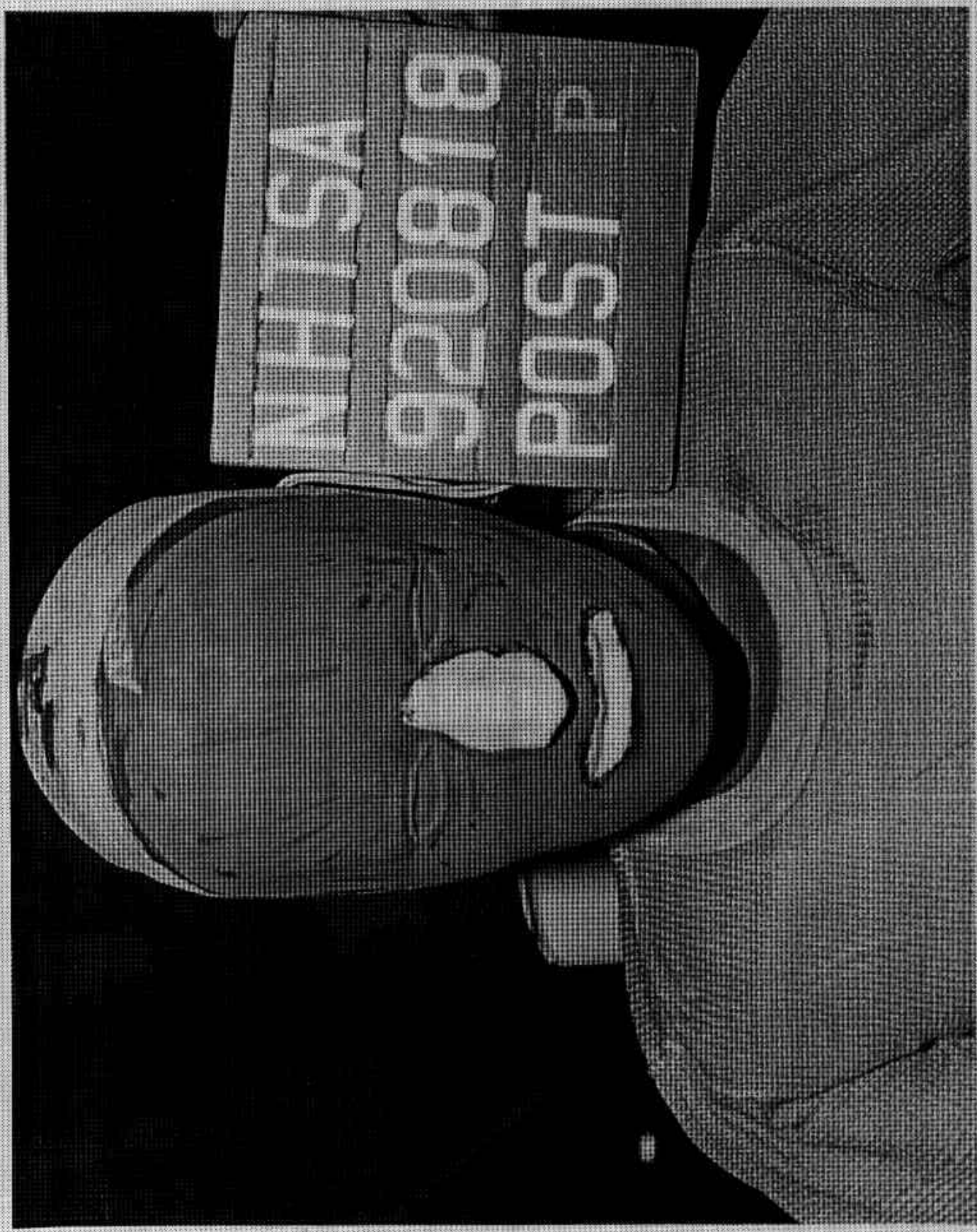


FIGURE A-44. POST-TEST PASSENGER DUMMY HEAD CONTACT VIEW

FIGURE A-45. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1

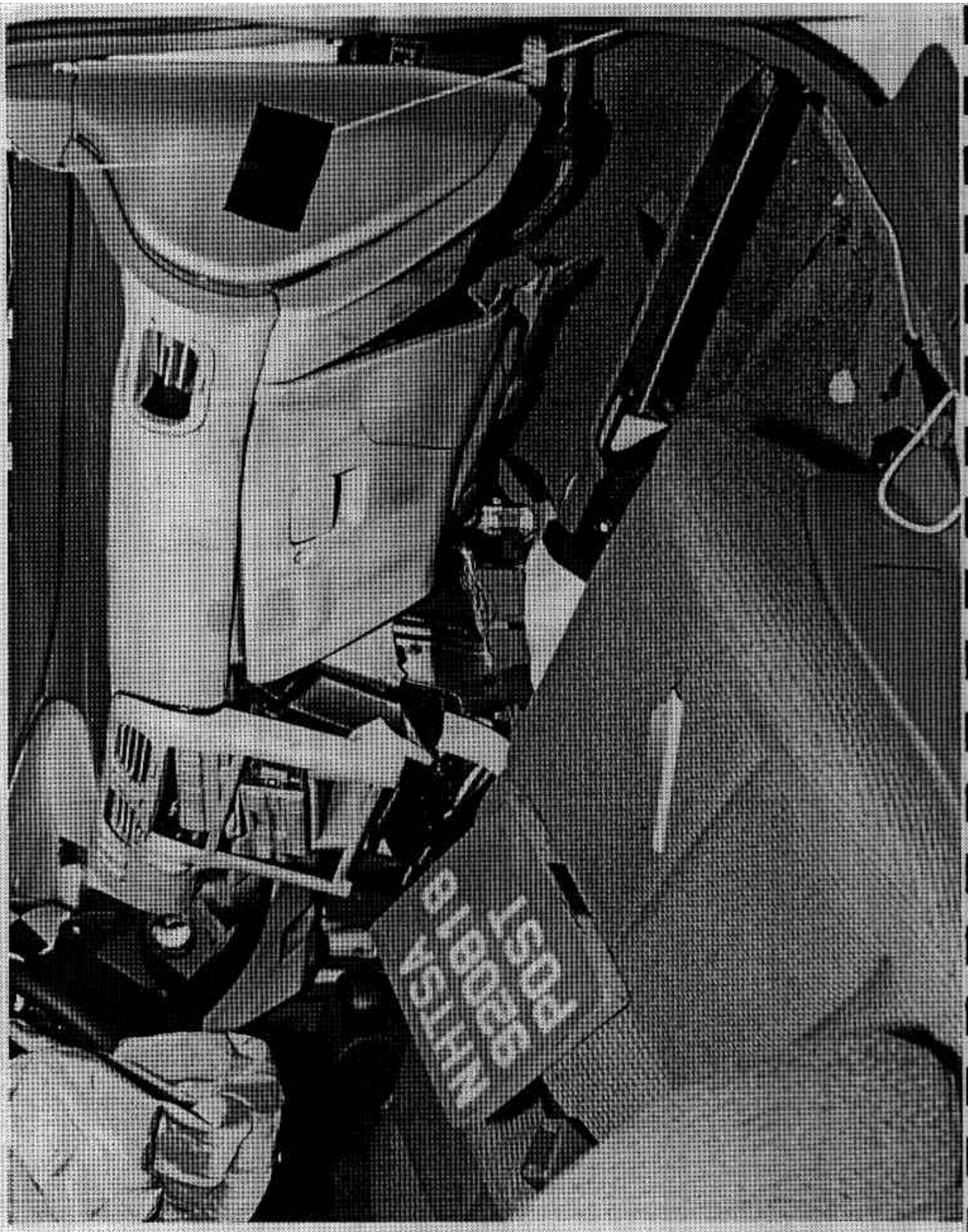


FIGURE A-46. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2

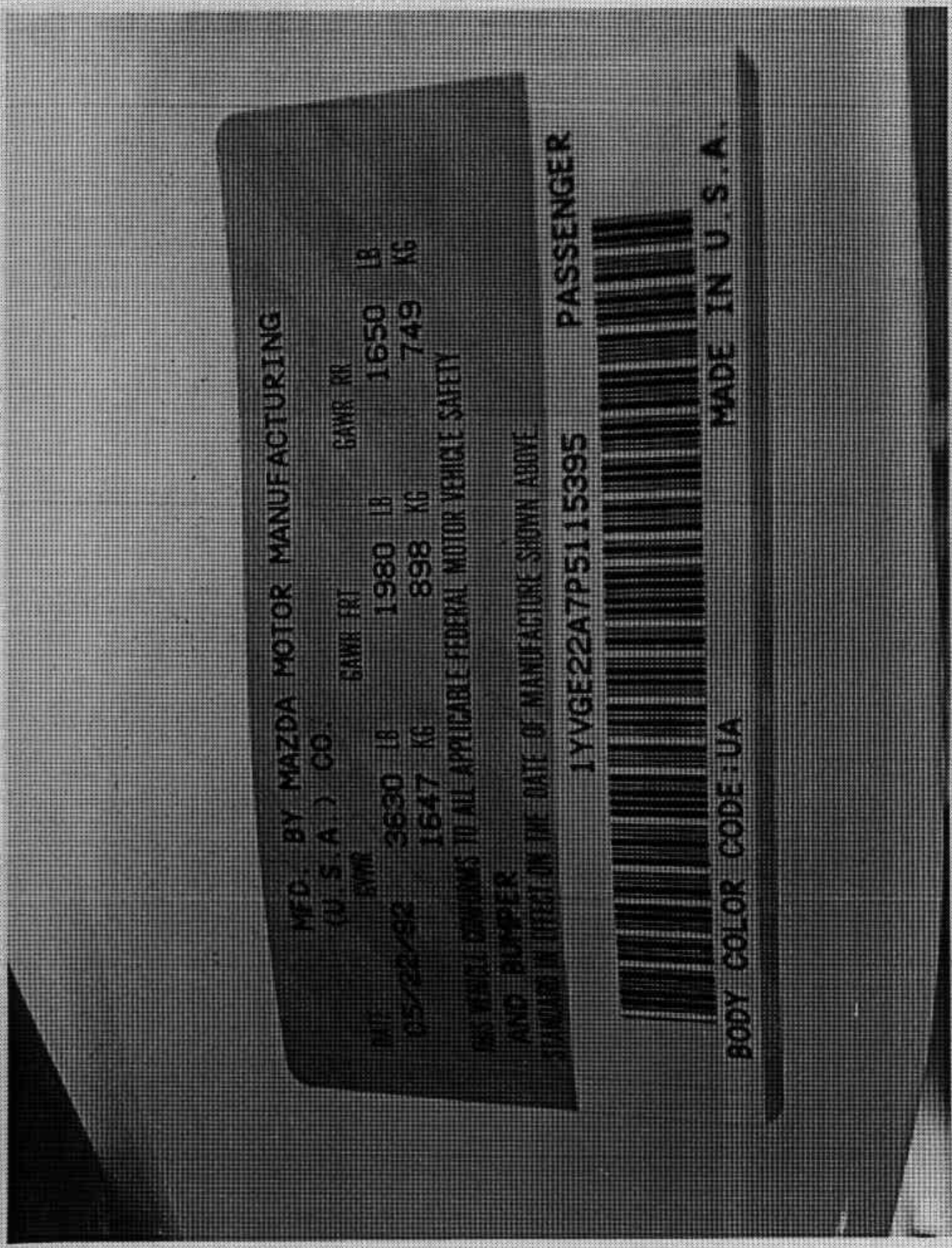


FIGURE A-47. PRE-TEST VEHICLE CERTIFICATION LABEL VIEW

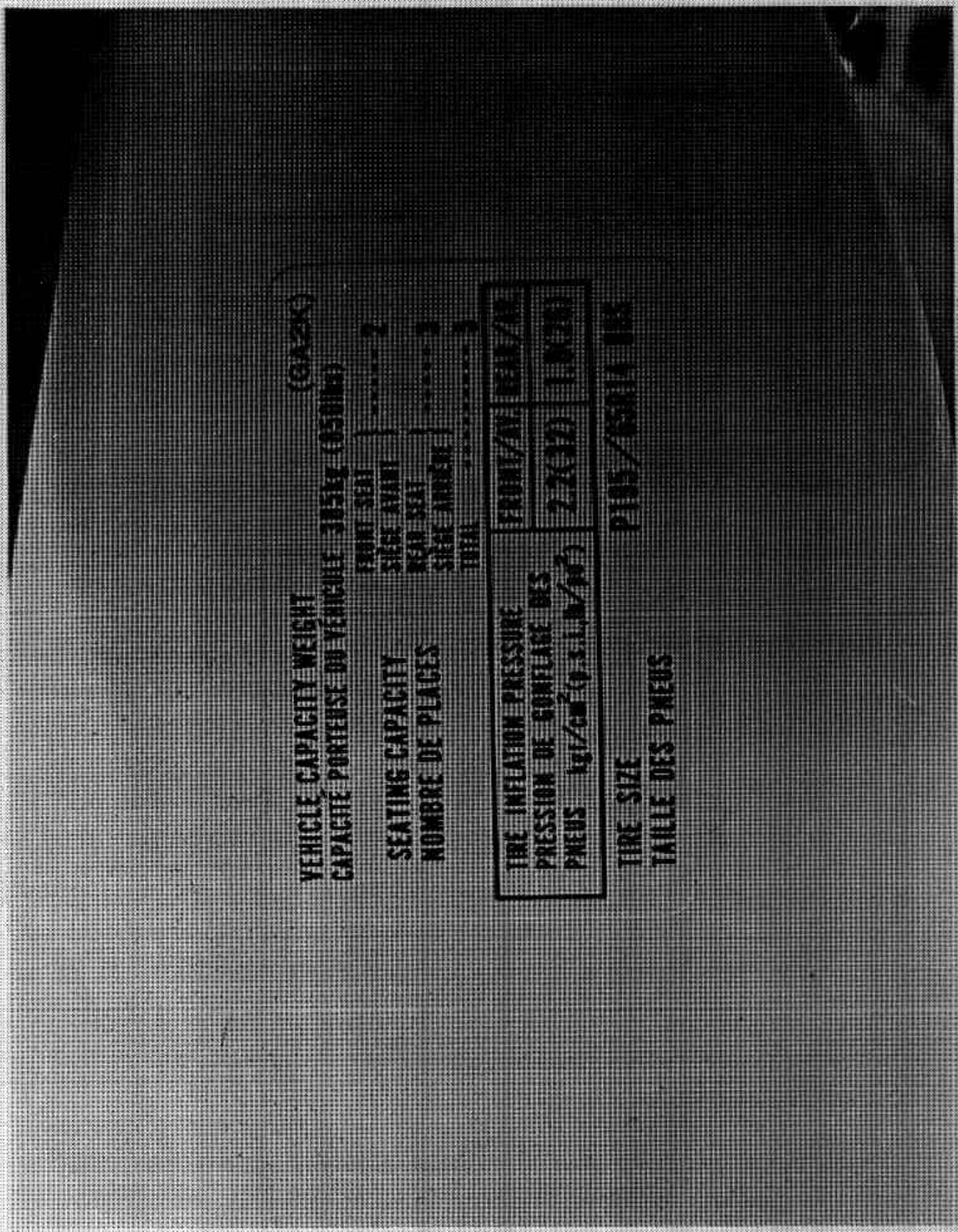
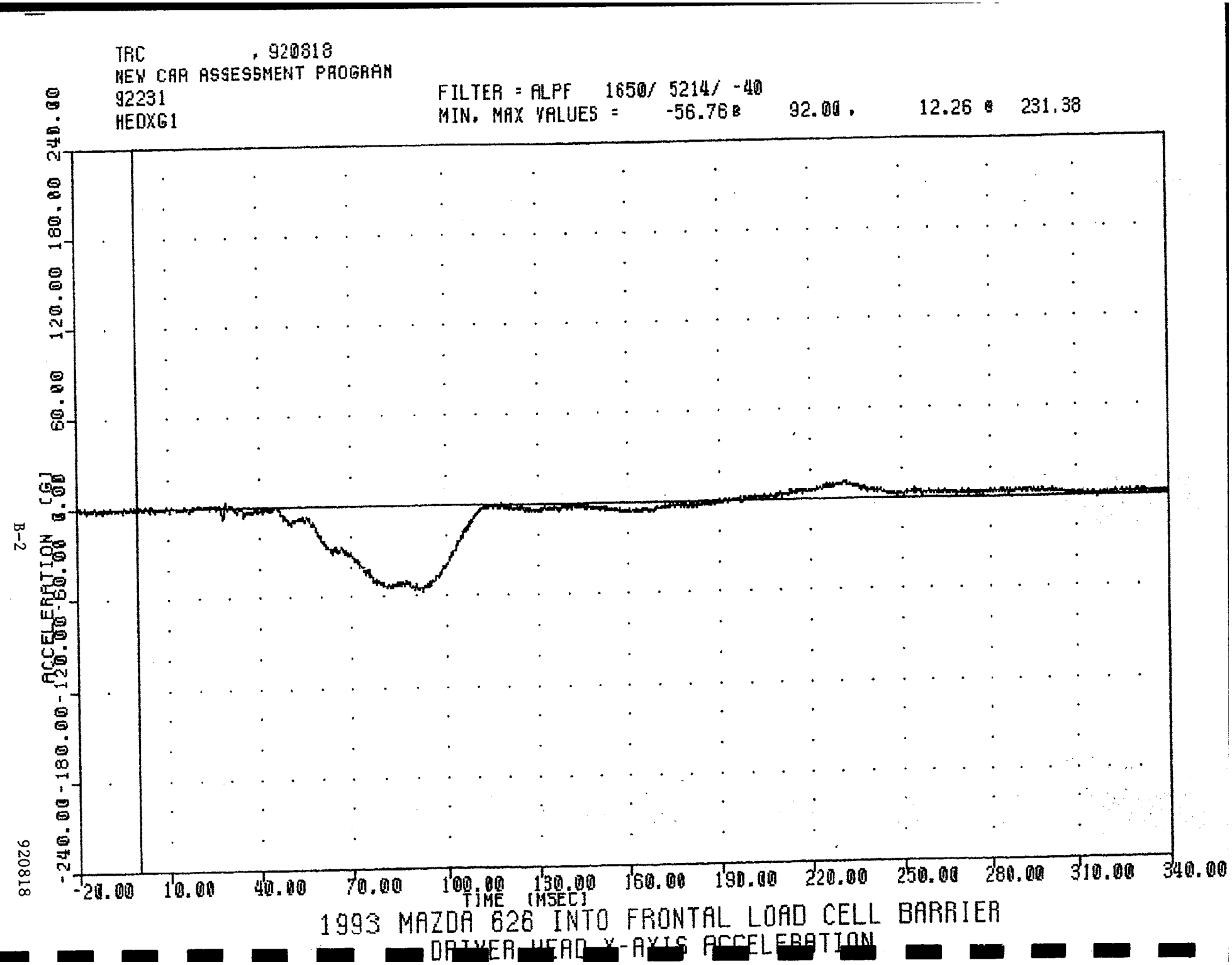
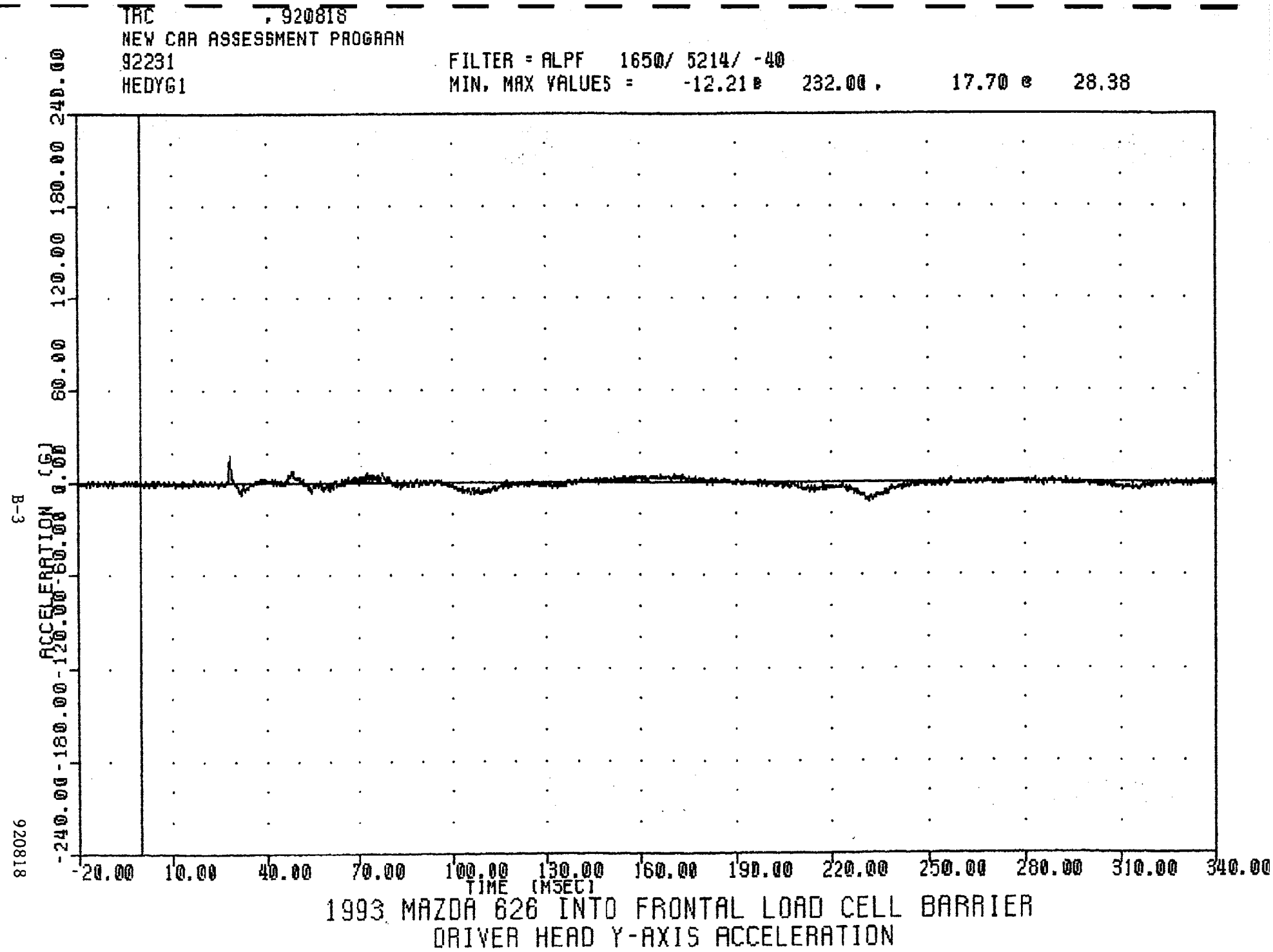


FIGURE A-48. PRE-TEST VEHICLE RECOMMENDED TIRE PRESSURE LABEL VIEW

APPENDIX B

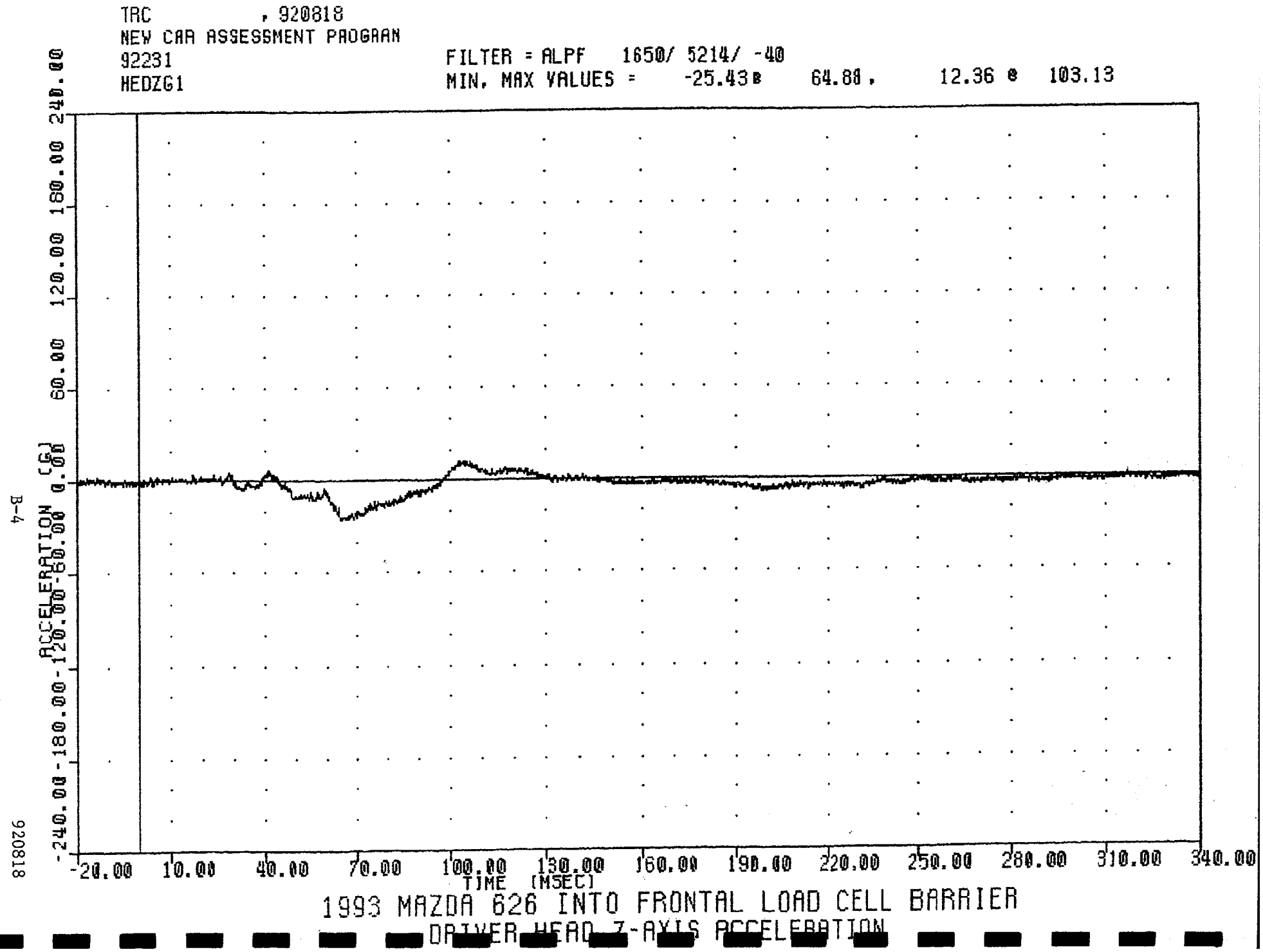
DATA PLOTS

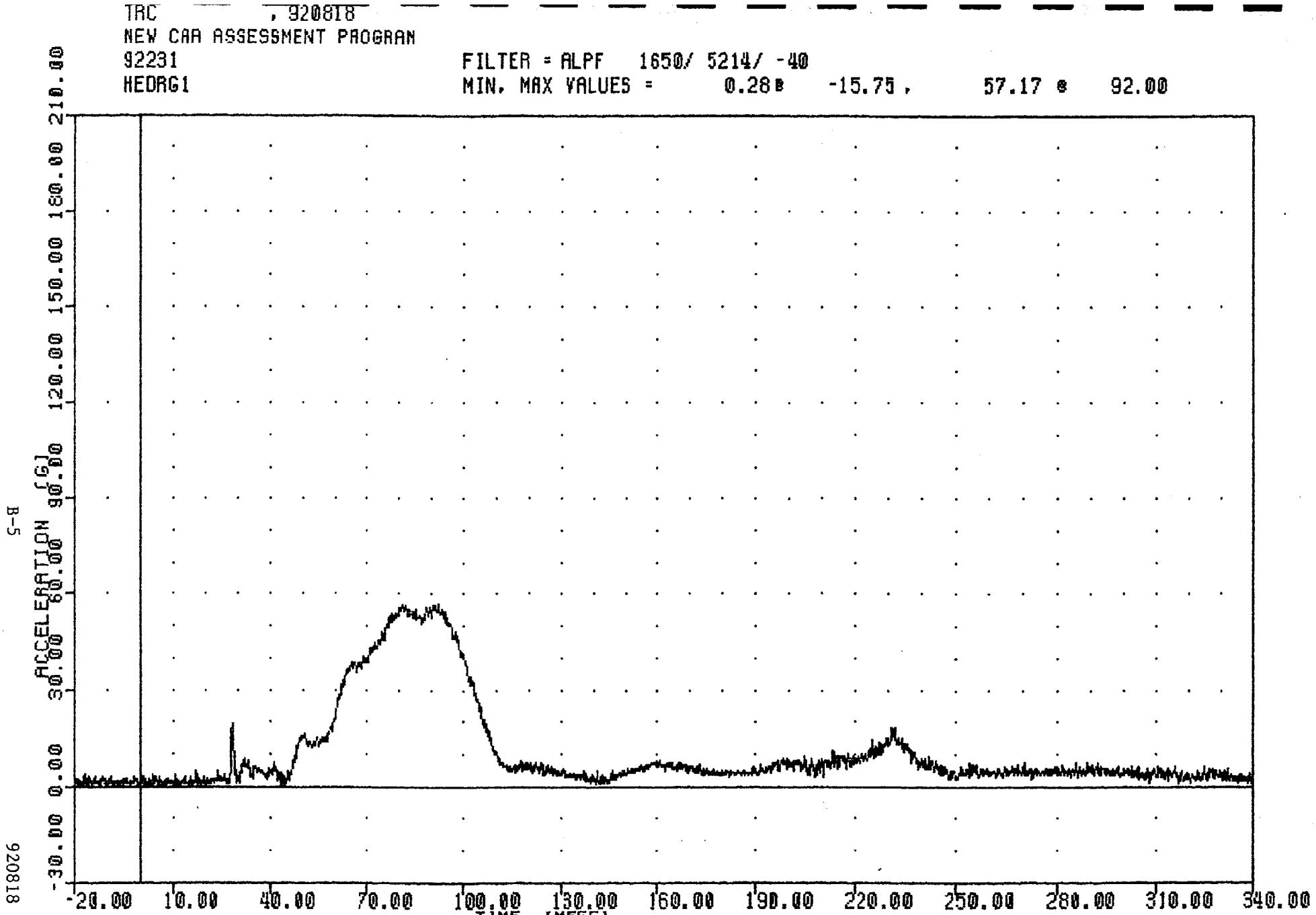

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
HEDXG1
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -56.76 @ 92.00 , 12.26 @ 231.38
240.00
180.00
120.00
60.00
0.00
-60.00
-120.00
-180.00
-240.00
ACCELERATION [G]
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION



1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION

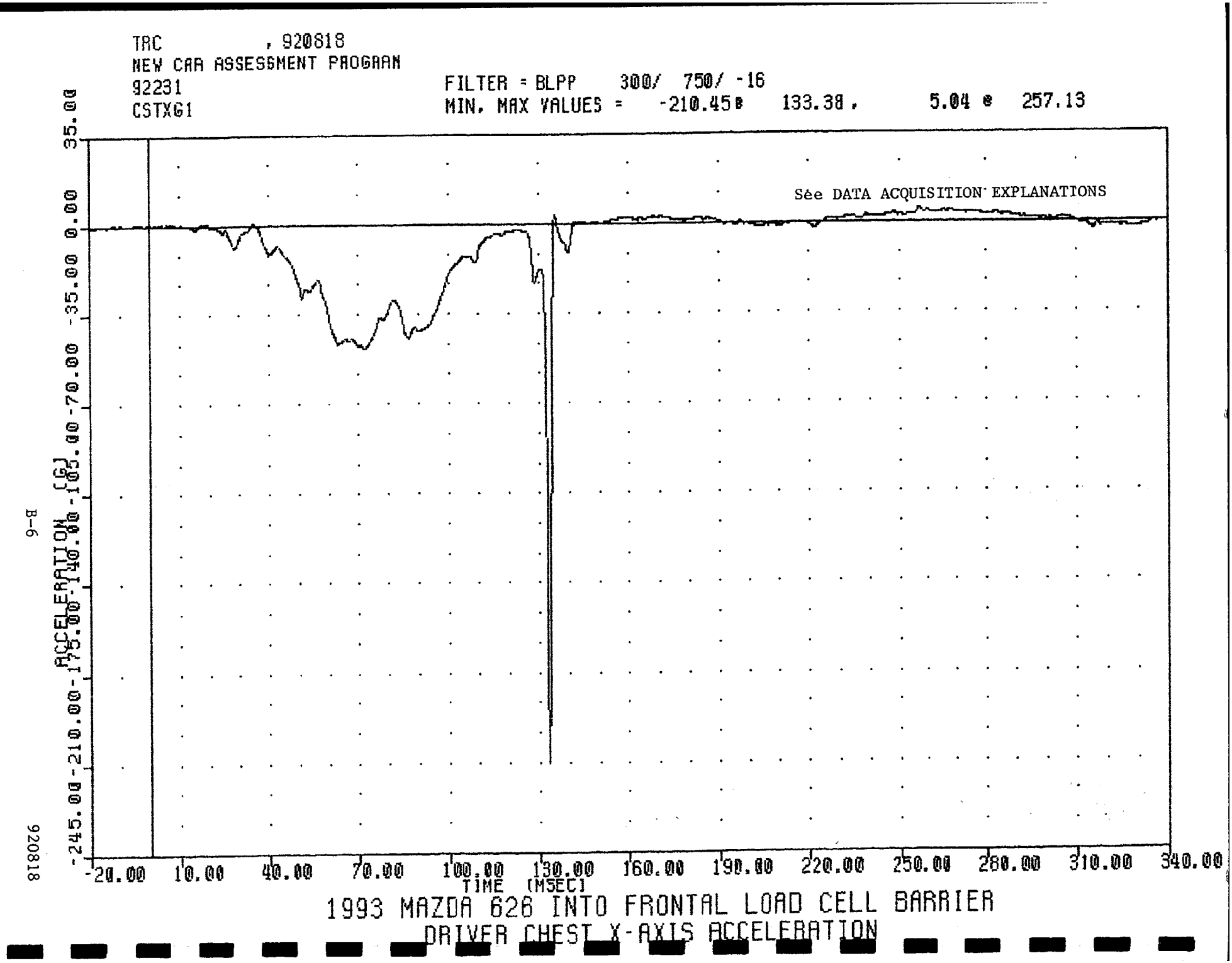
920818


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
HEDZG1
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -25.43 @ 64.88 , 12.36 @ 103.13
240.00
180.00
120.00
60.00
0.00
-60.00
-120.00
-180.00
-240.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION

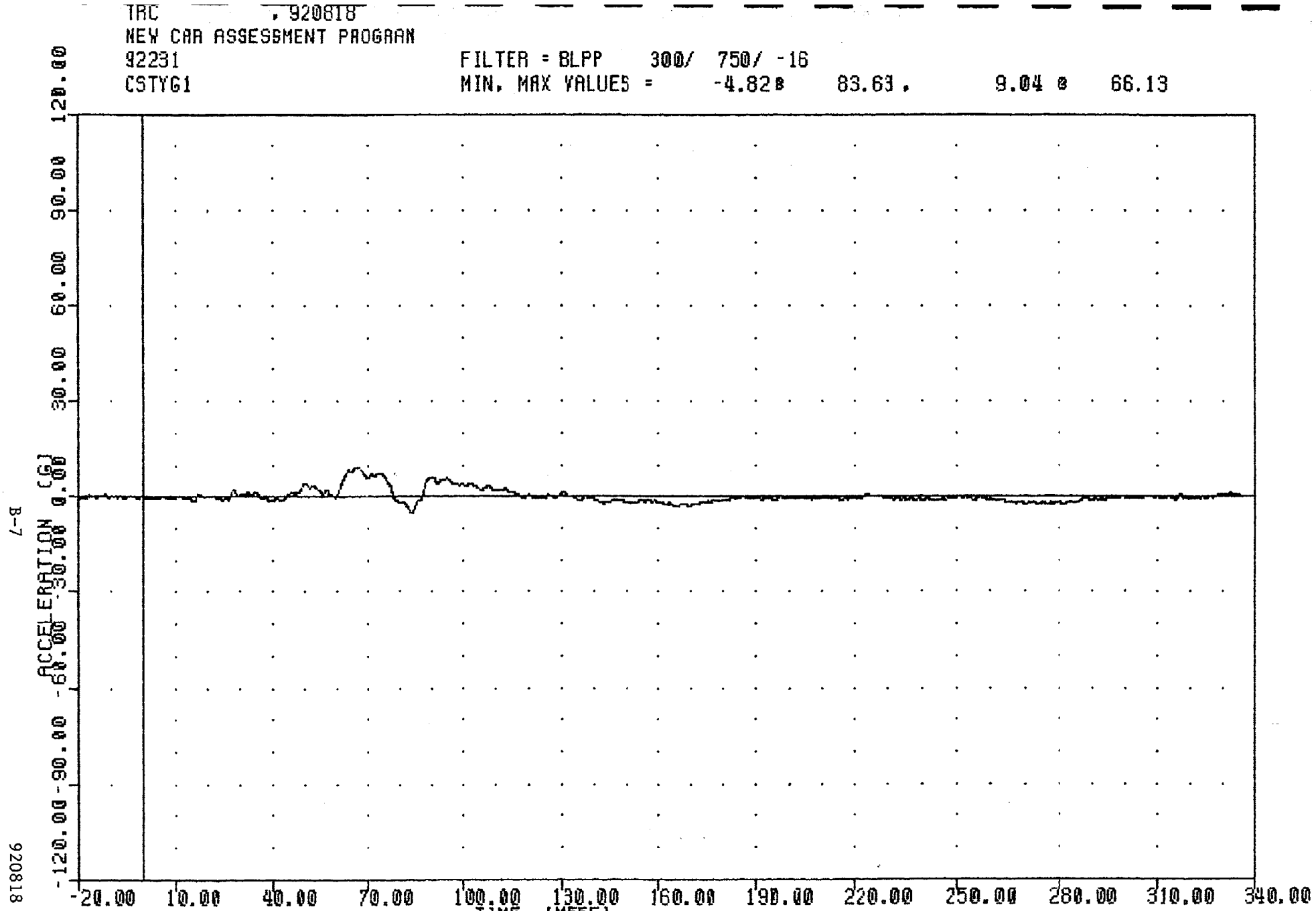


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION

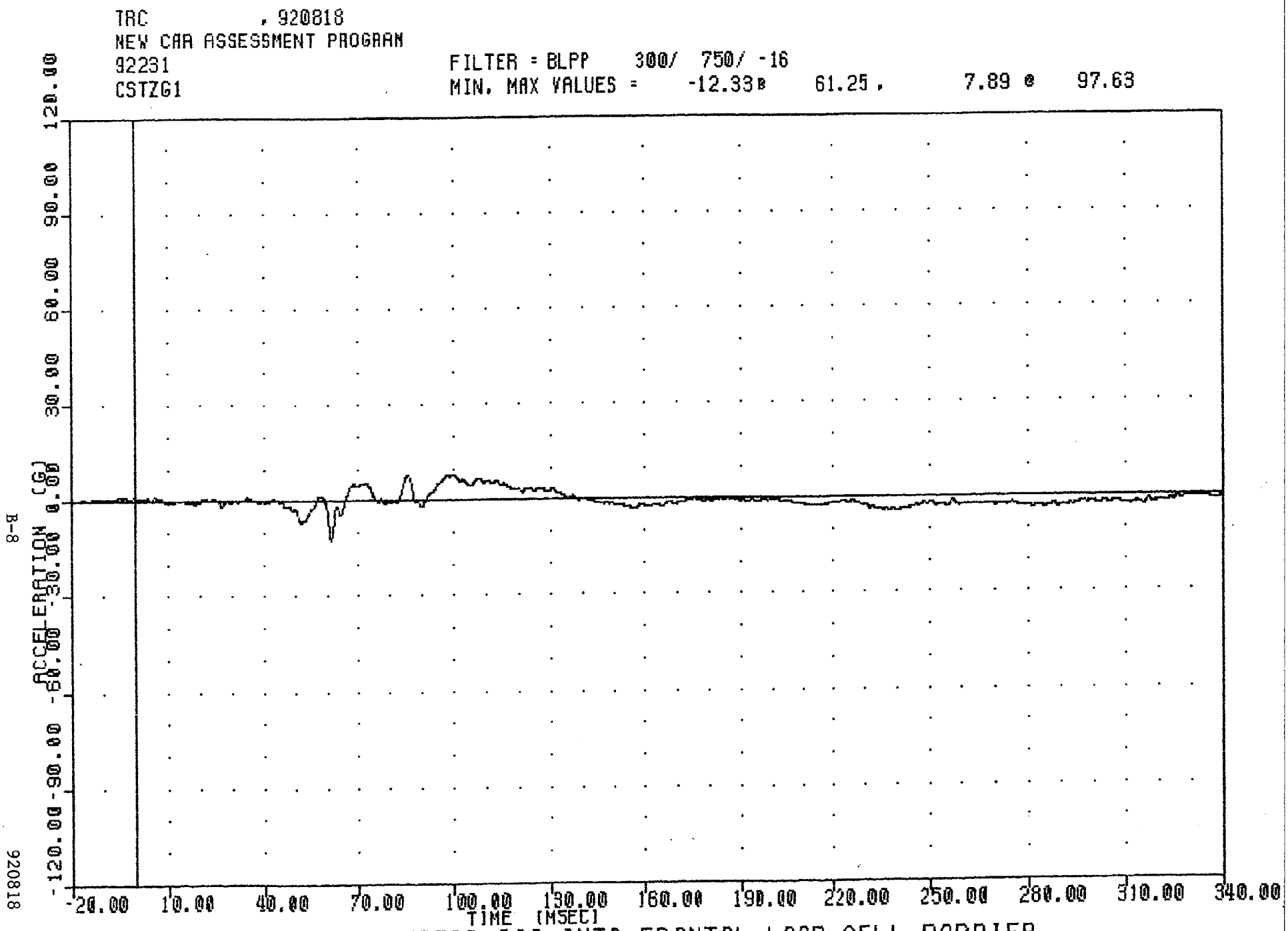
920818


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
CSTXG1
FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = -210.45 @ 133.38 , 5.04 @ 257.13
See DATA ACQUISITION EXPLANATIONS
35.00
0.00
-35.00
-70.00
-105.00
-140.00
-175.00
-210.00
-245.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION

920818

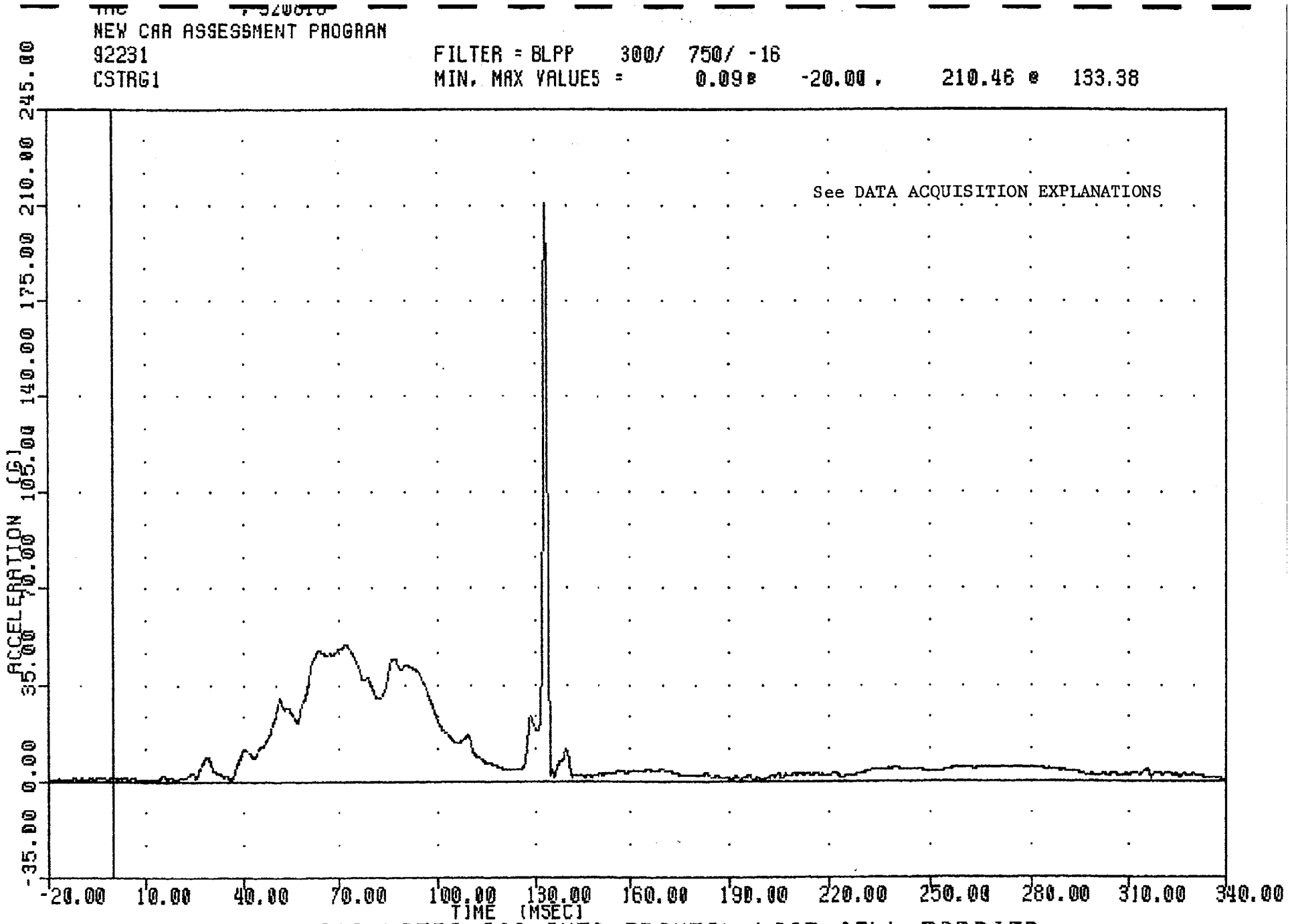


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION

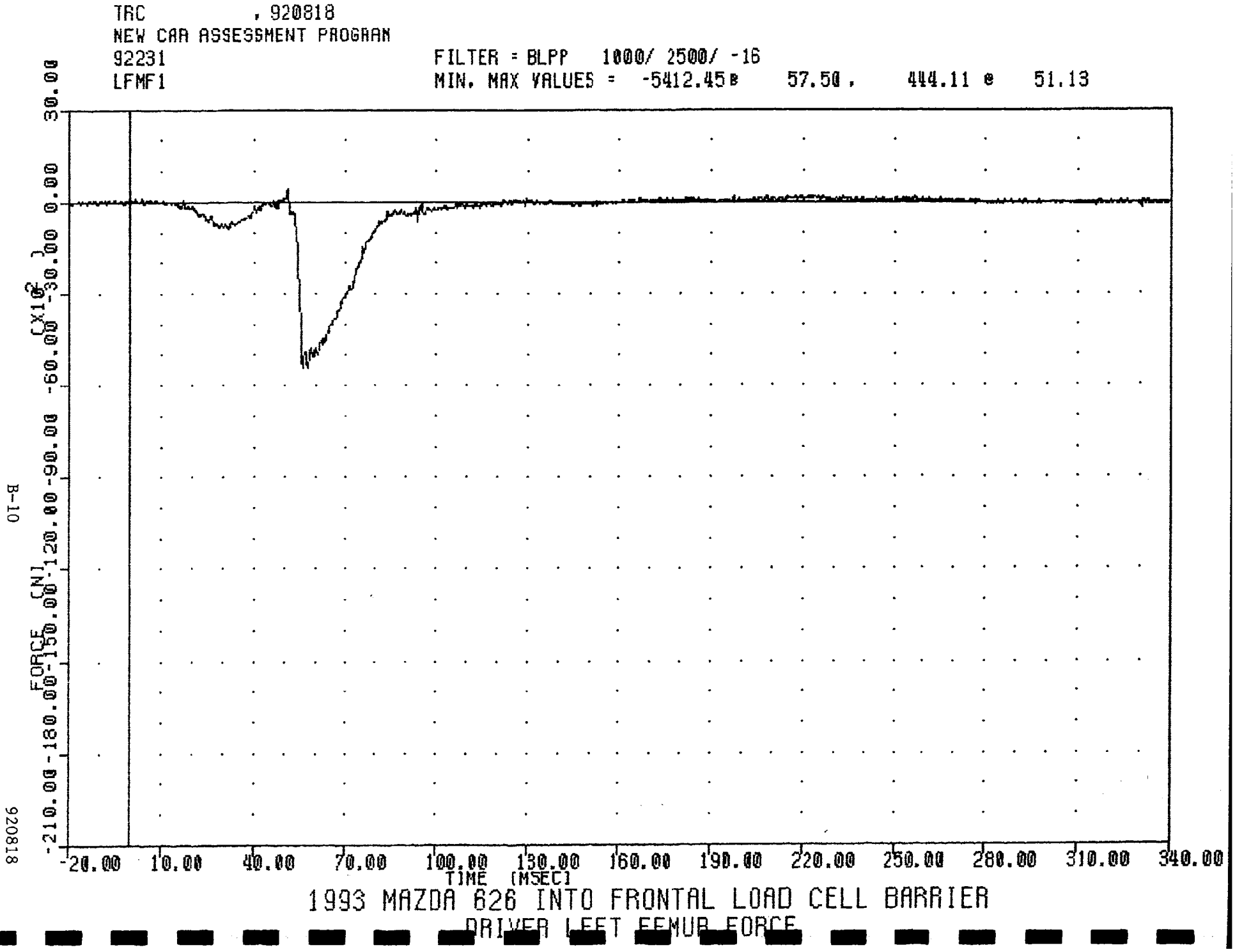


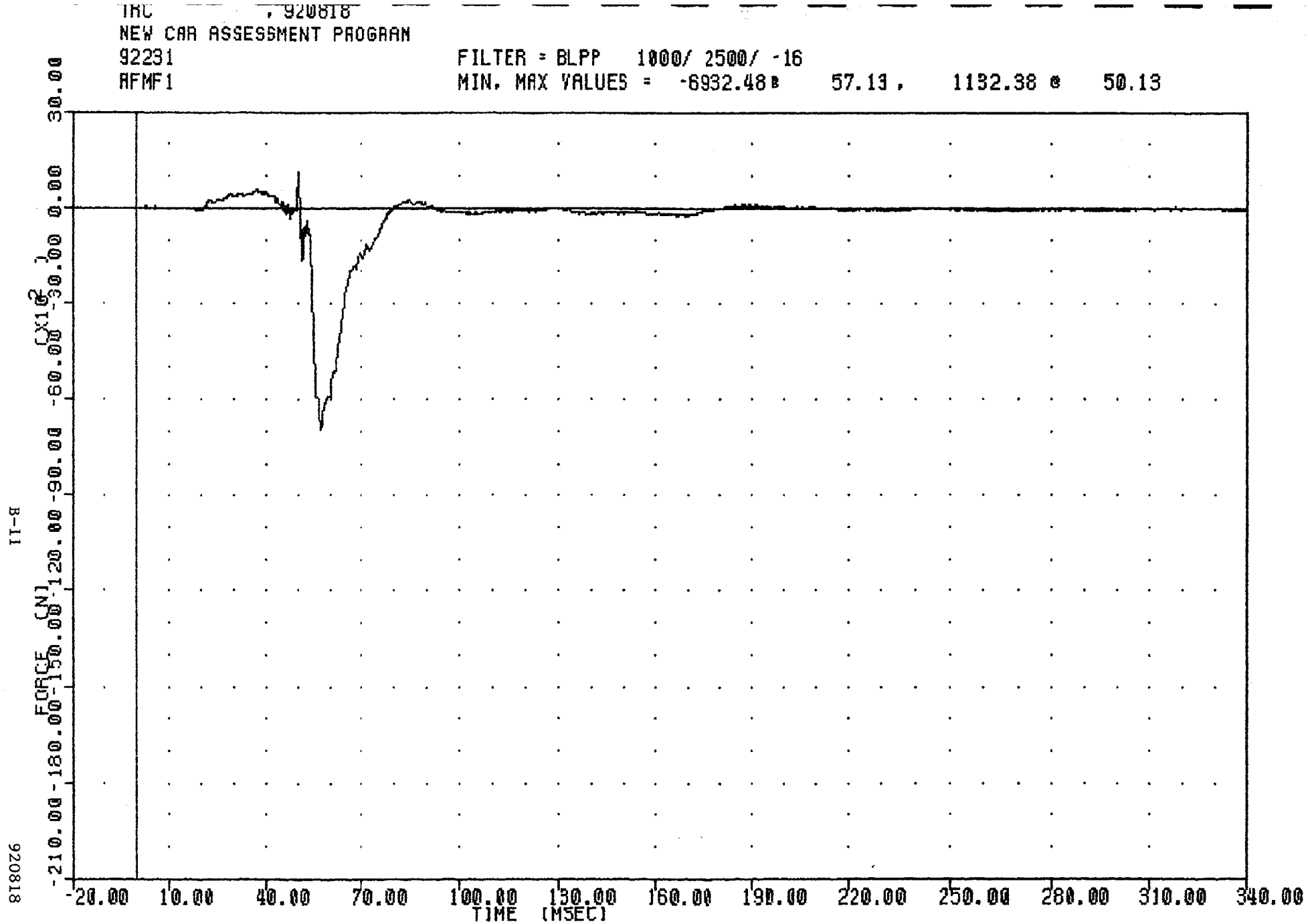
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION

920818



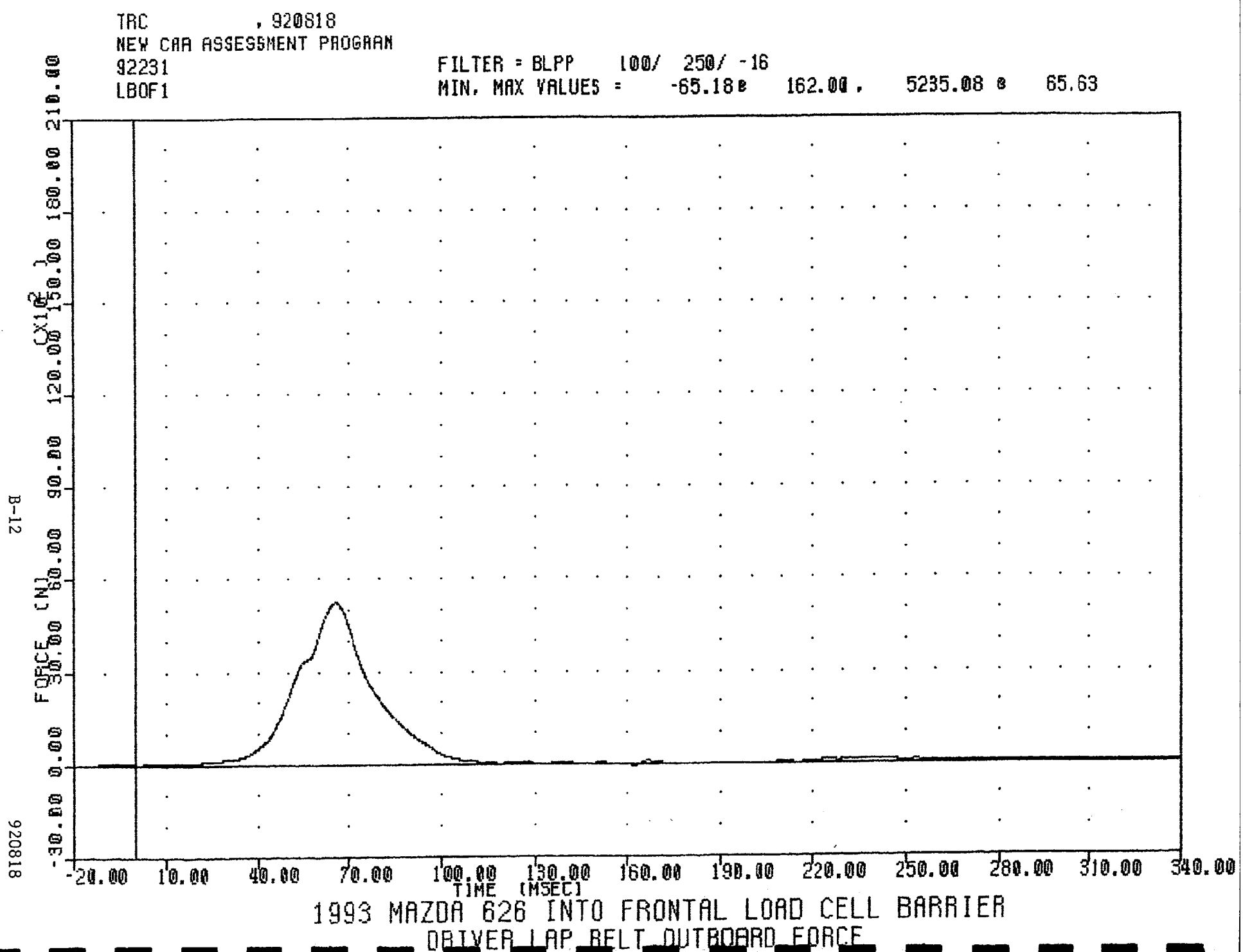
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LFMF1
FILTER = BLPP 1000/ 2500/ -16
MIN. MAX VALUES = -5412.45 @ 57.50 , 444.11 @ 51.13
30.00
0.00
-30.00
-60.00
-90.00
-120.00
-150.00
-180.00
-210.00
FORCE [N] (X10^2)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME [MSEC]
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE

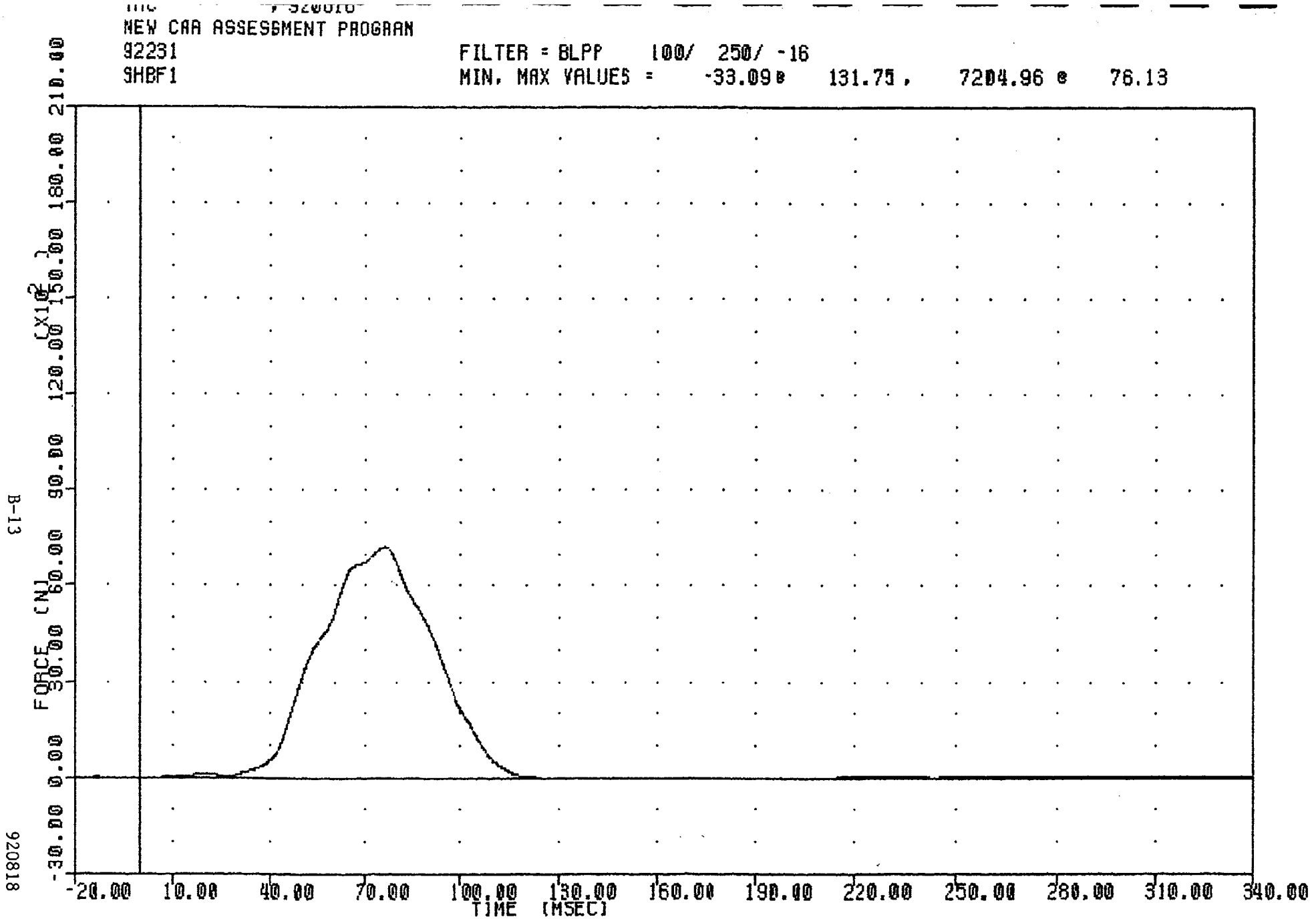


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE

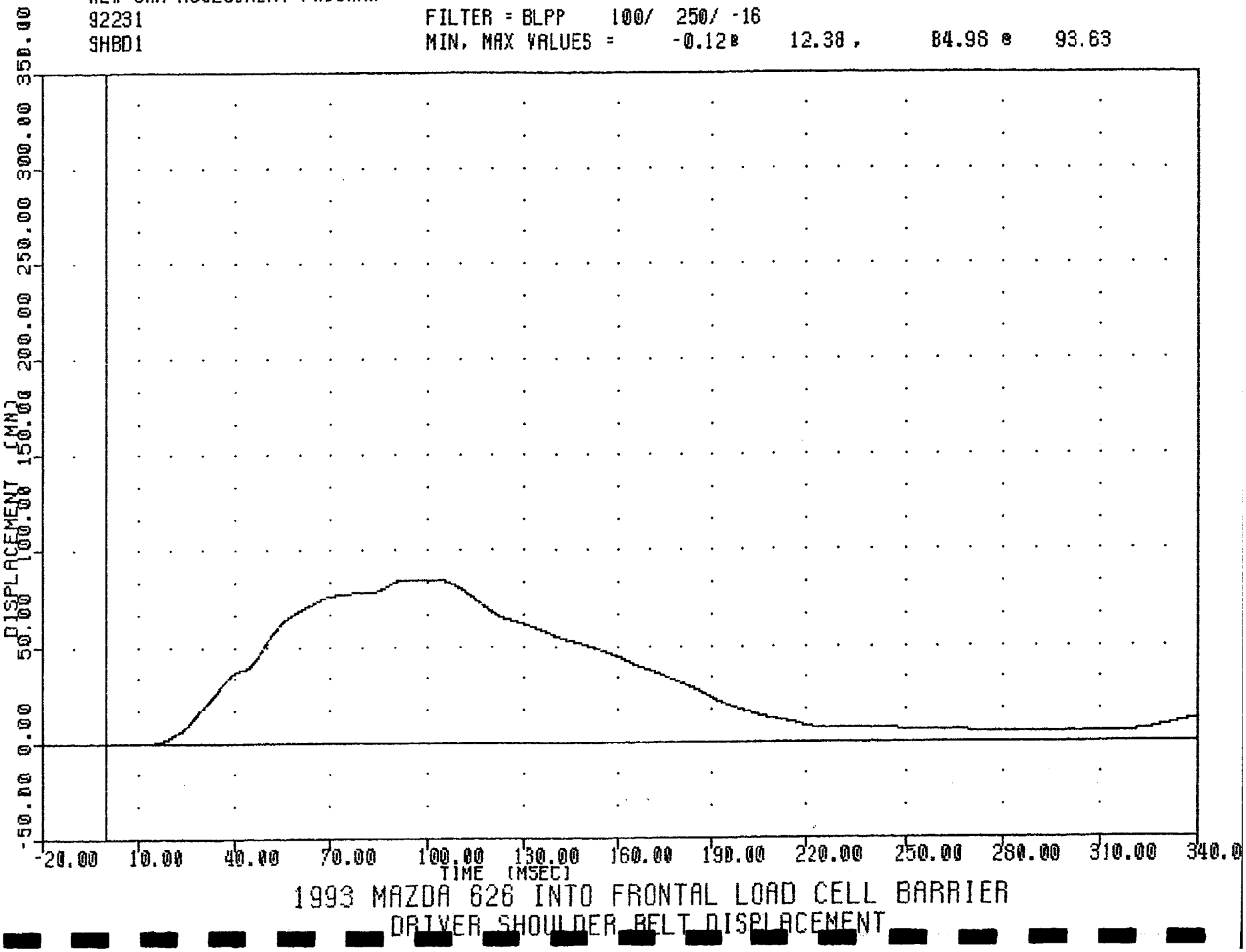
920818

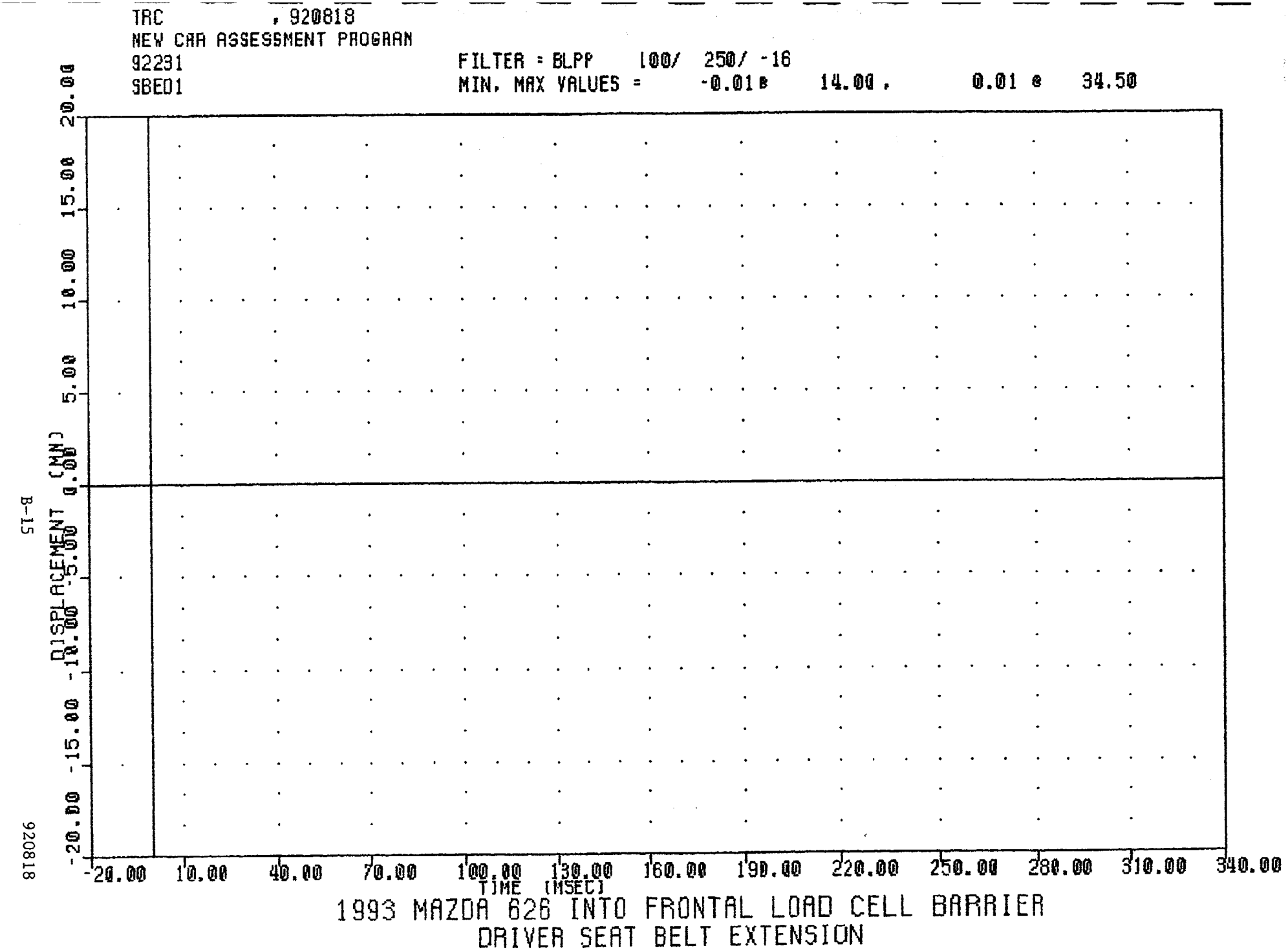

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LBOF1
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -65.18 @ 162.00 , 5235.08 @ 65.63
FORCE (N) (X10^2)
210.00
180.00
150.00
120.00
90.00
60.00
30.00
0.00
-30.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER LAP BELT OUTBOARD FORCE

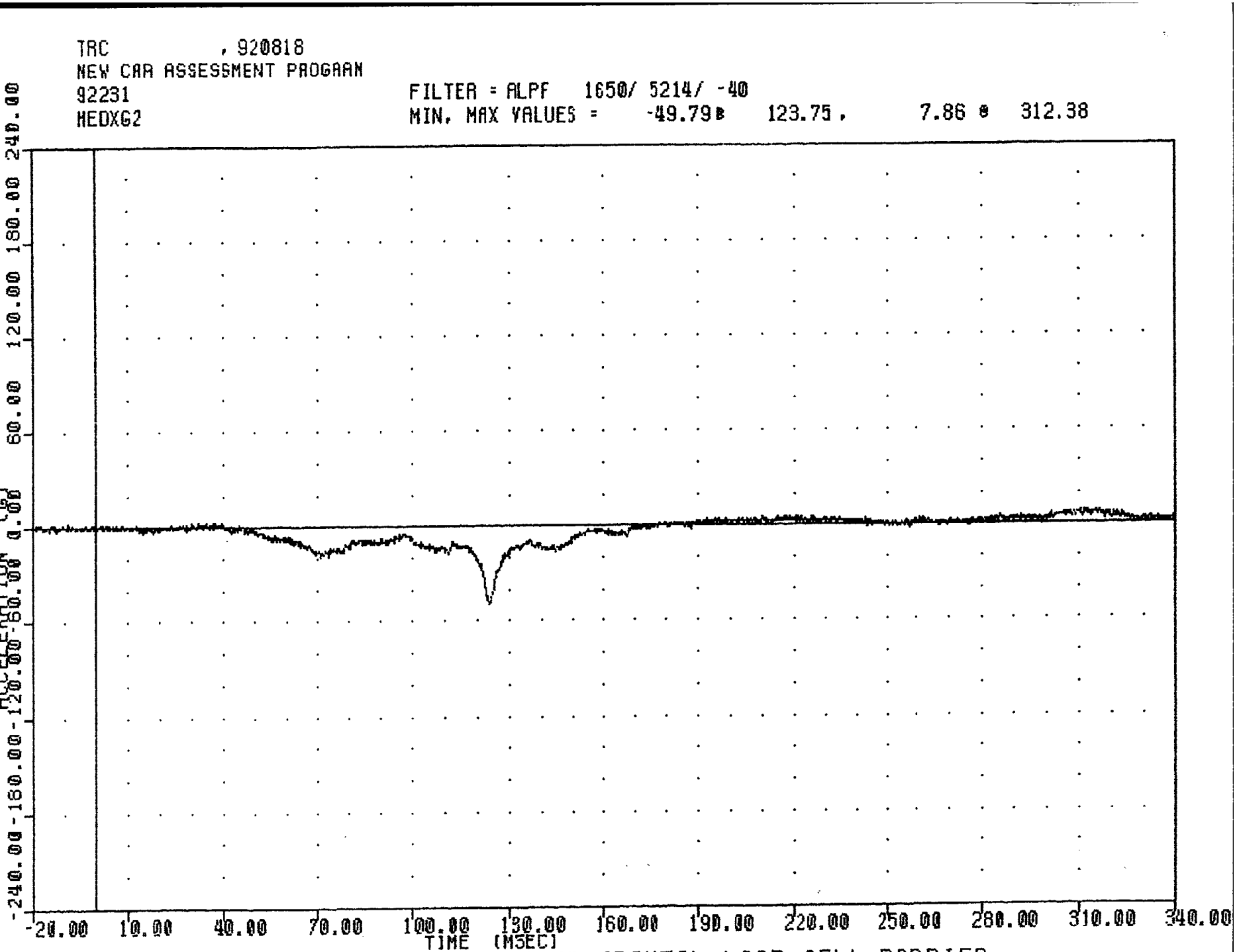
920818



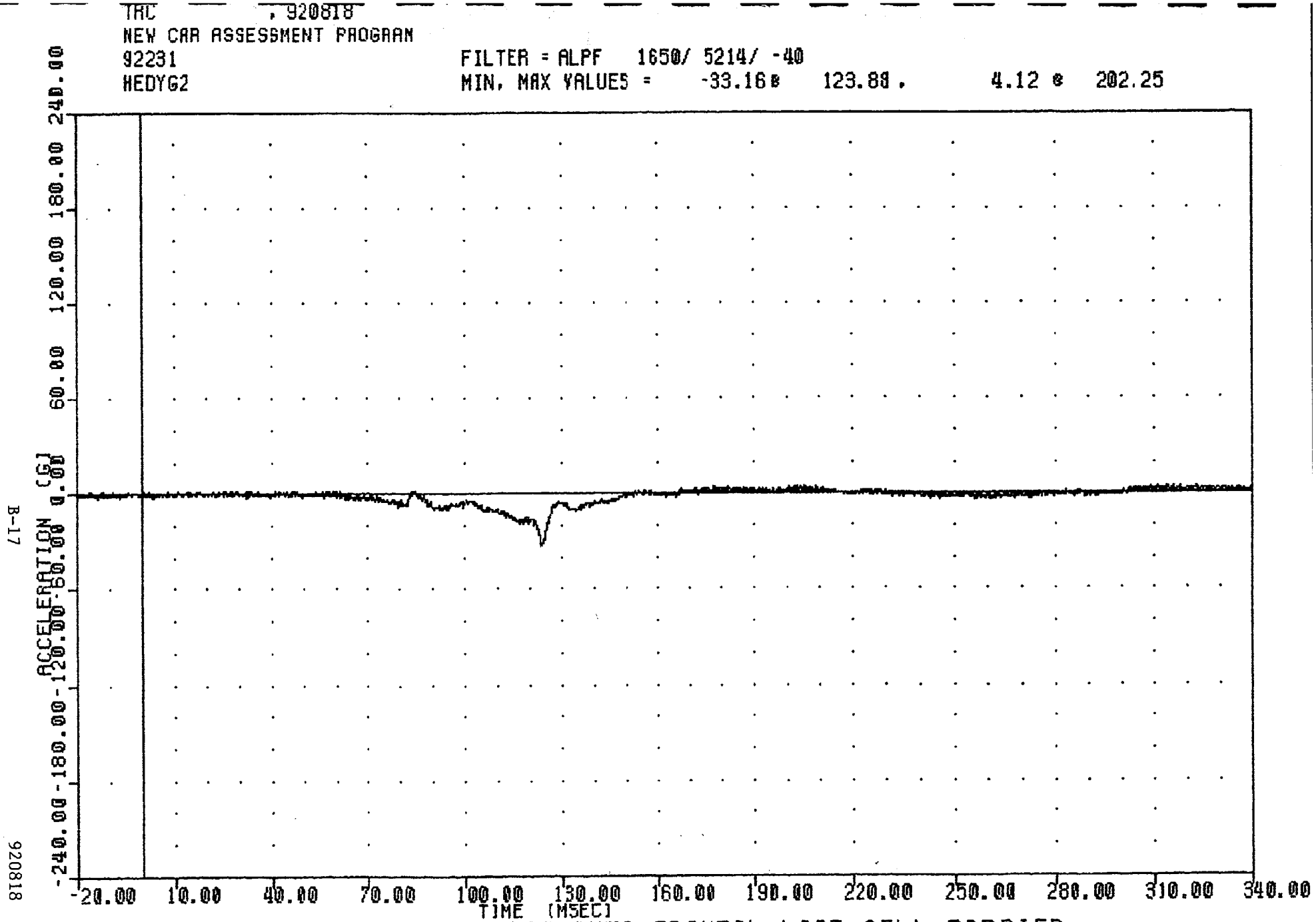
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT FORCE


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
SHBD1
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -0.12 @ 12.38 , 84.98 @ 93.63
DISPLACEMENT [MM]
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.0
TIME [MSEC]
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
SBE01
FILTER = BLPF [00/ 250/ -16
MIN, MAX VALUES = -0.01 @ 14.00 , 0.01 @ 34.50
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
DISPLACEMENT (MM)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
DRIVER SEAT BELT EXTENSION

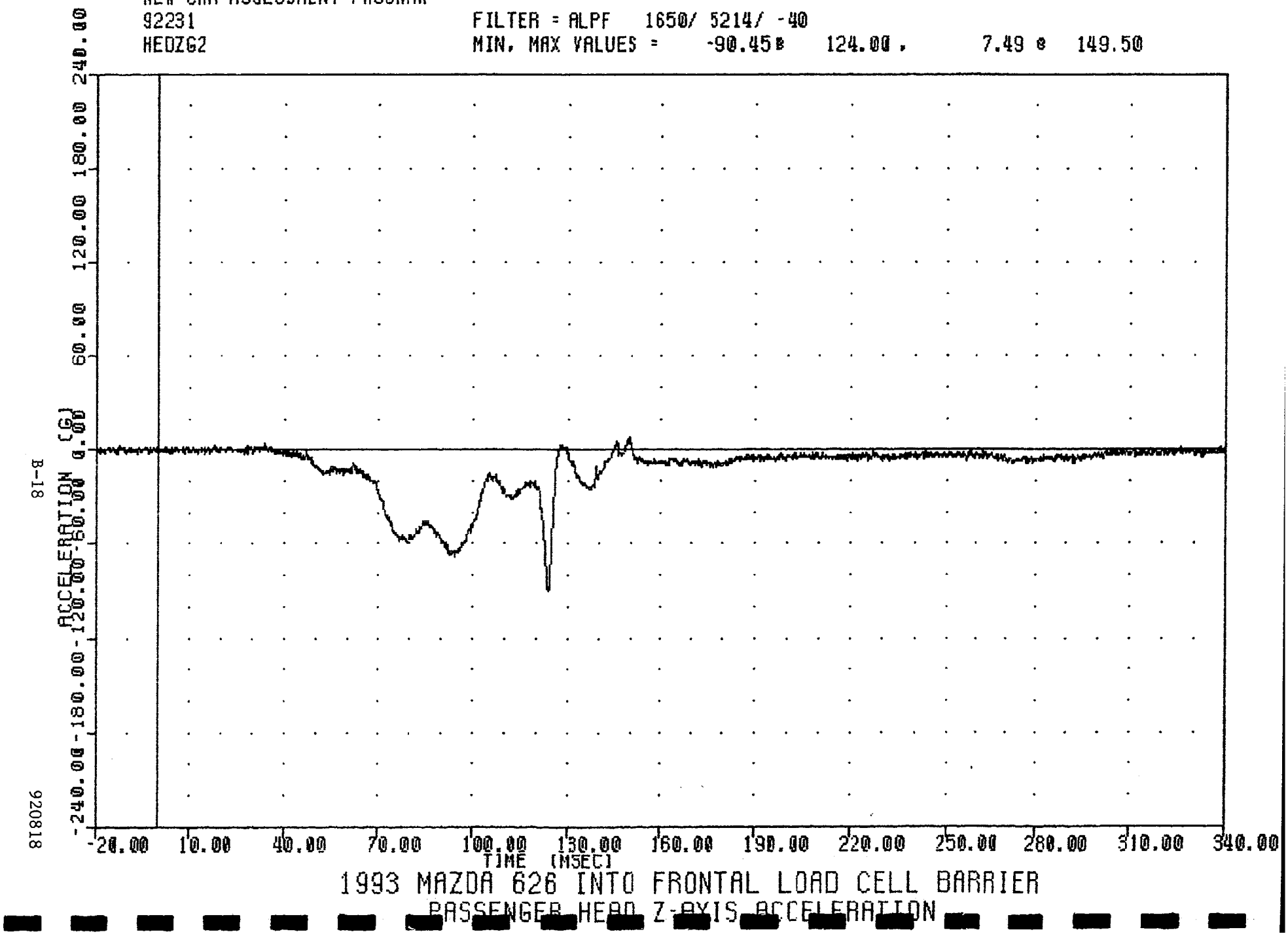


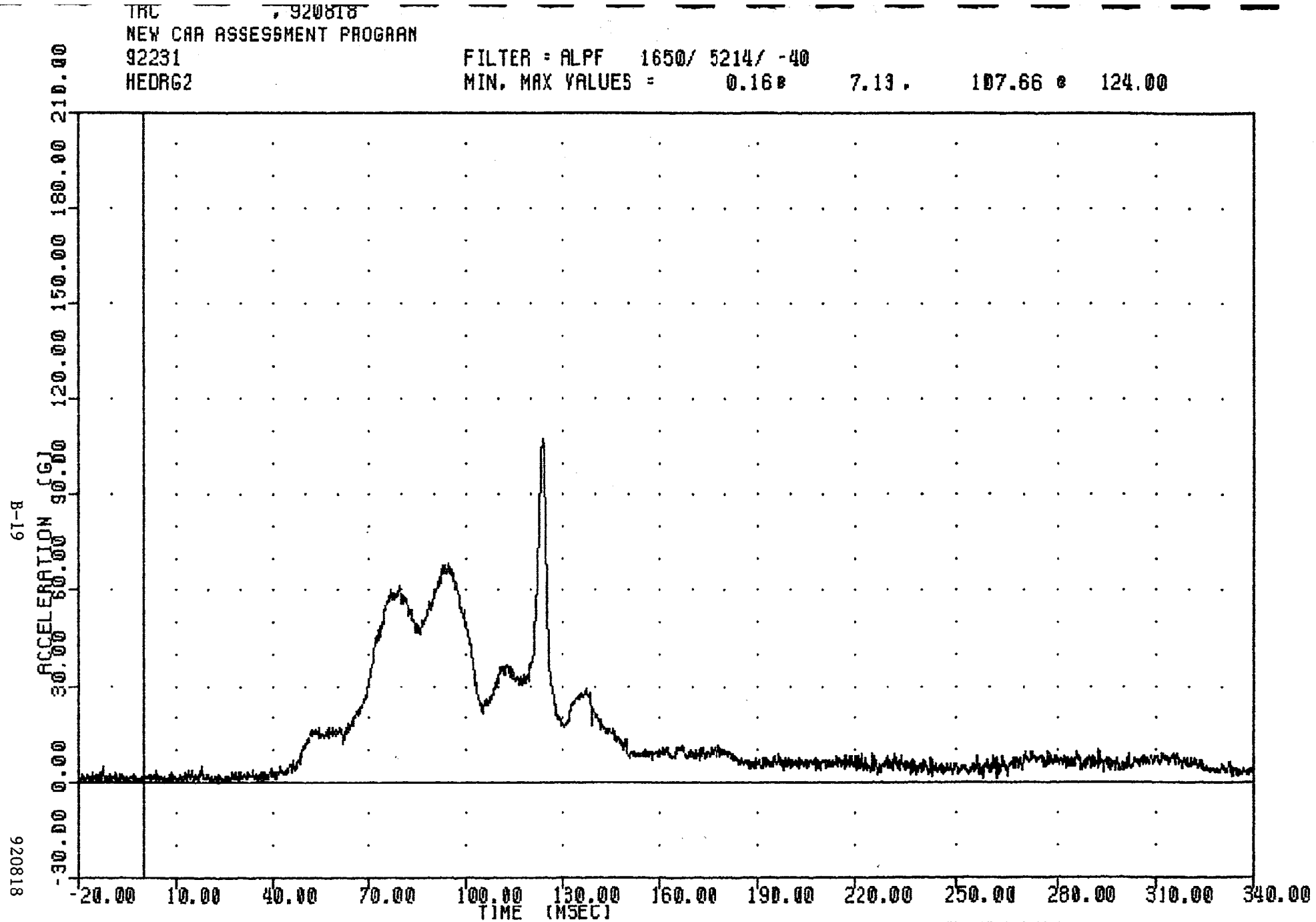
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION



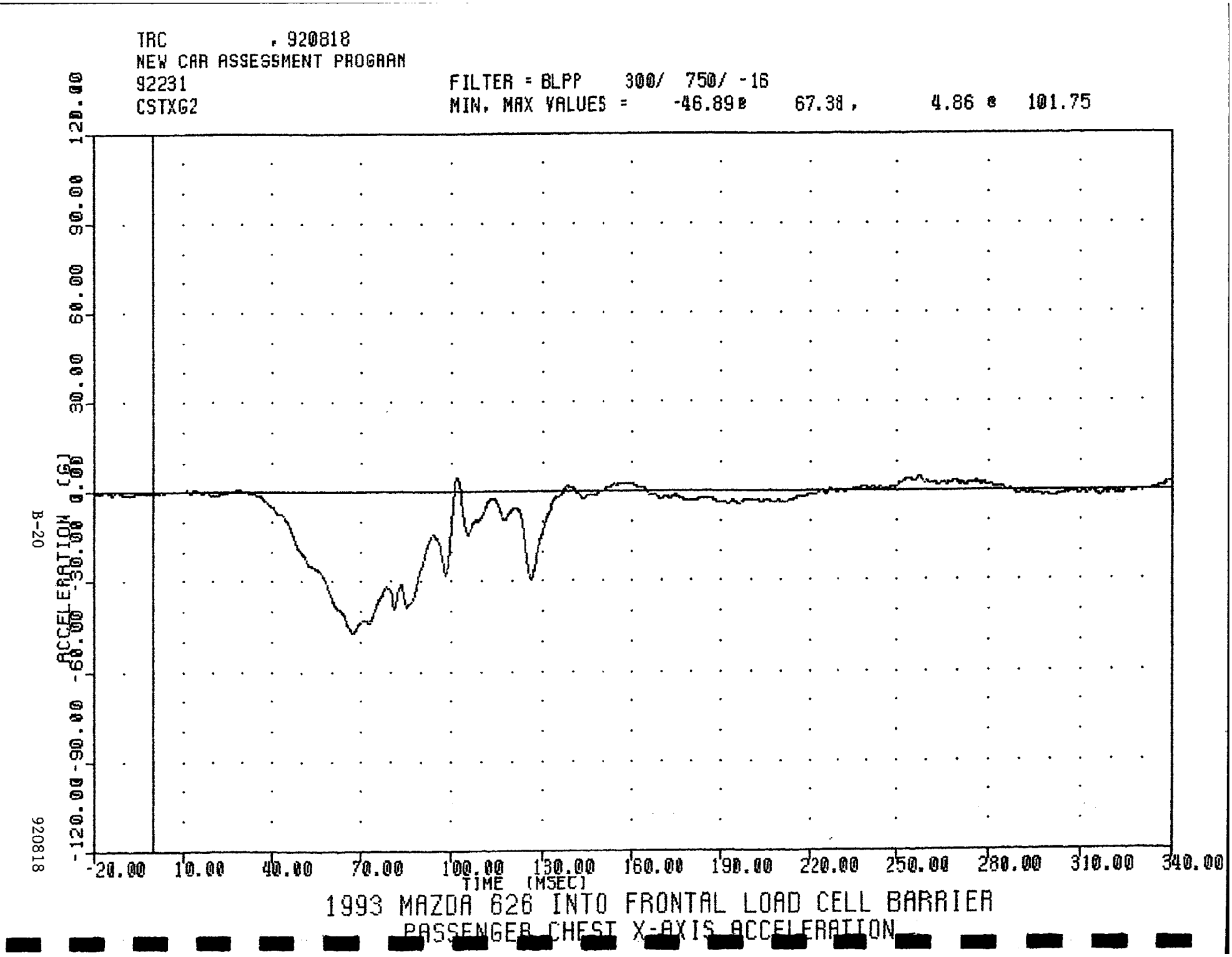
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION

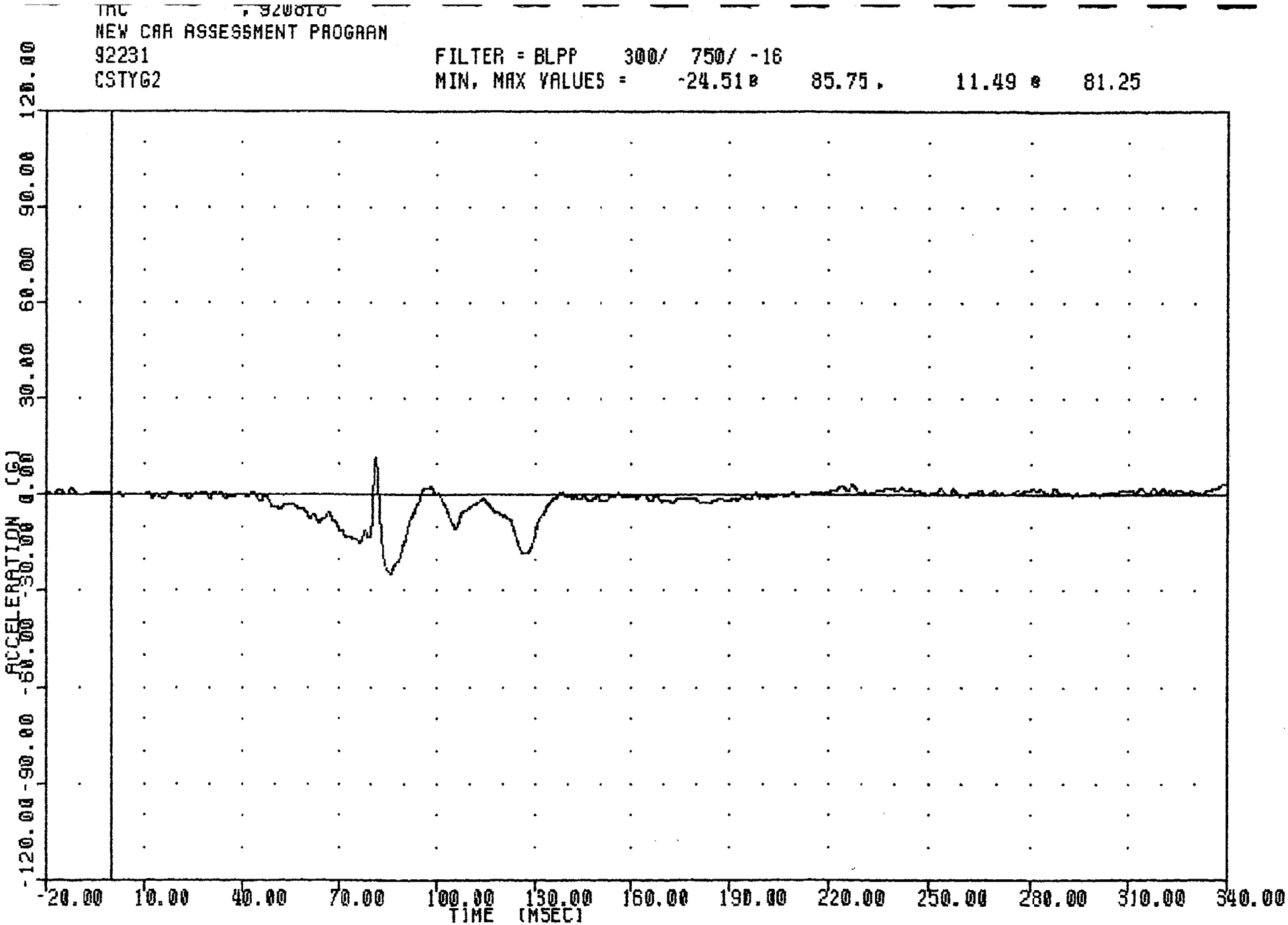
920818


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
HEDZG2
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -90.45 @ 124.00 , 7.49 @ 149.50
240.00
180.00
120.00
60.00
0.00
-60.00
-120.00
-180.00
-240.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION

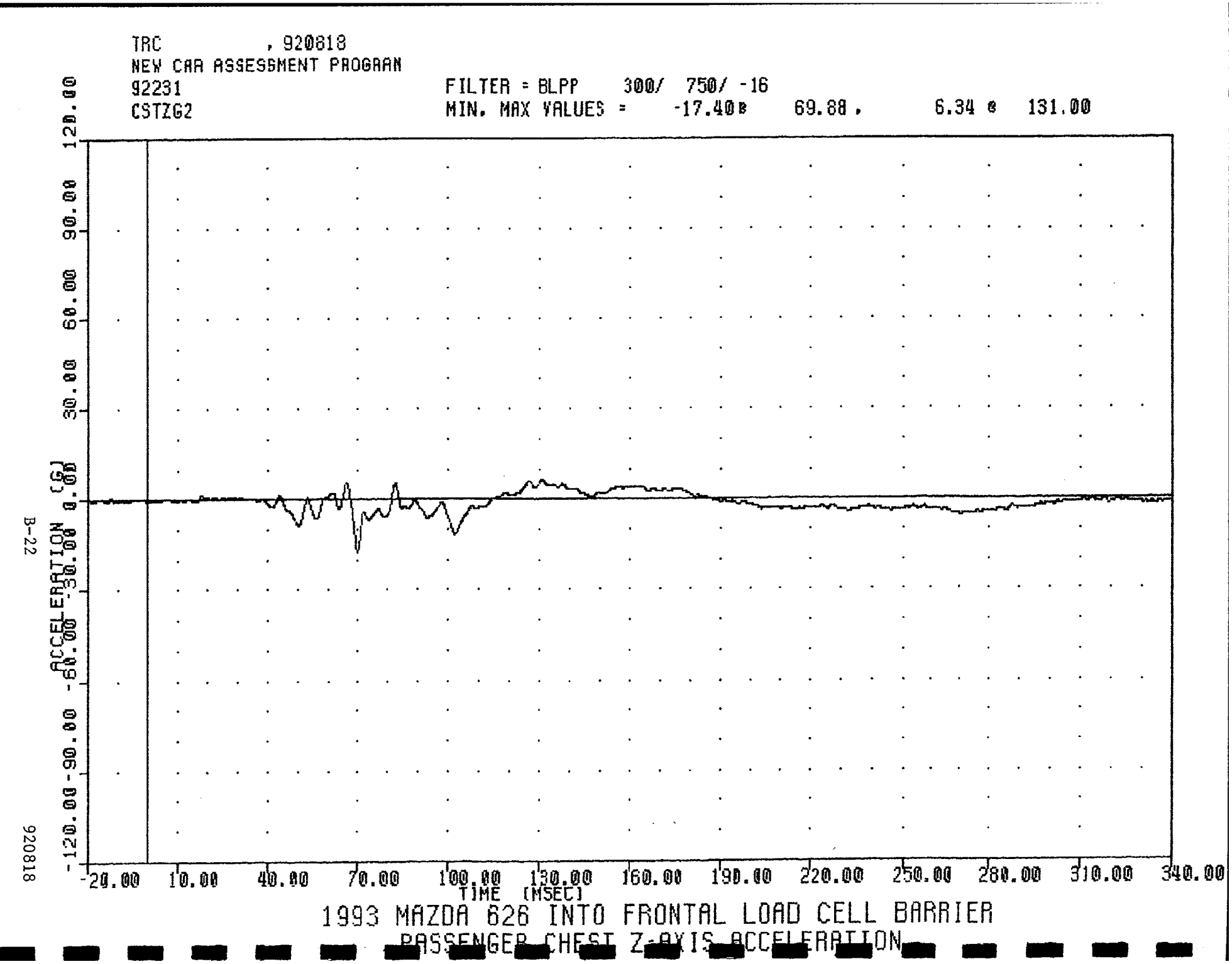


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION

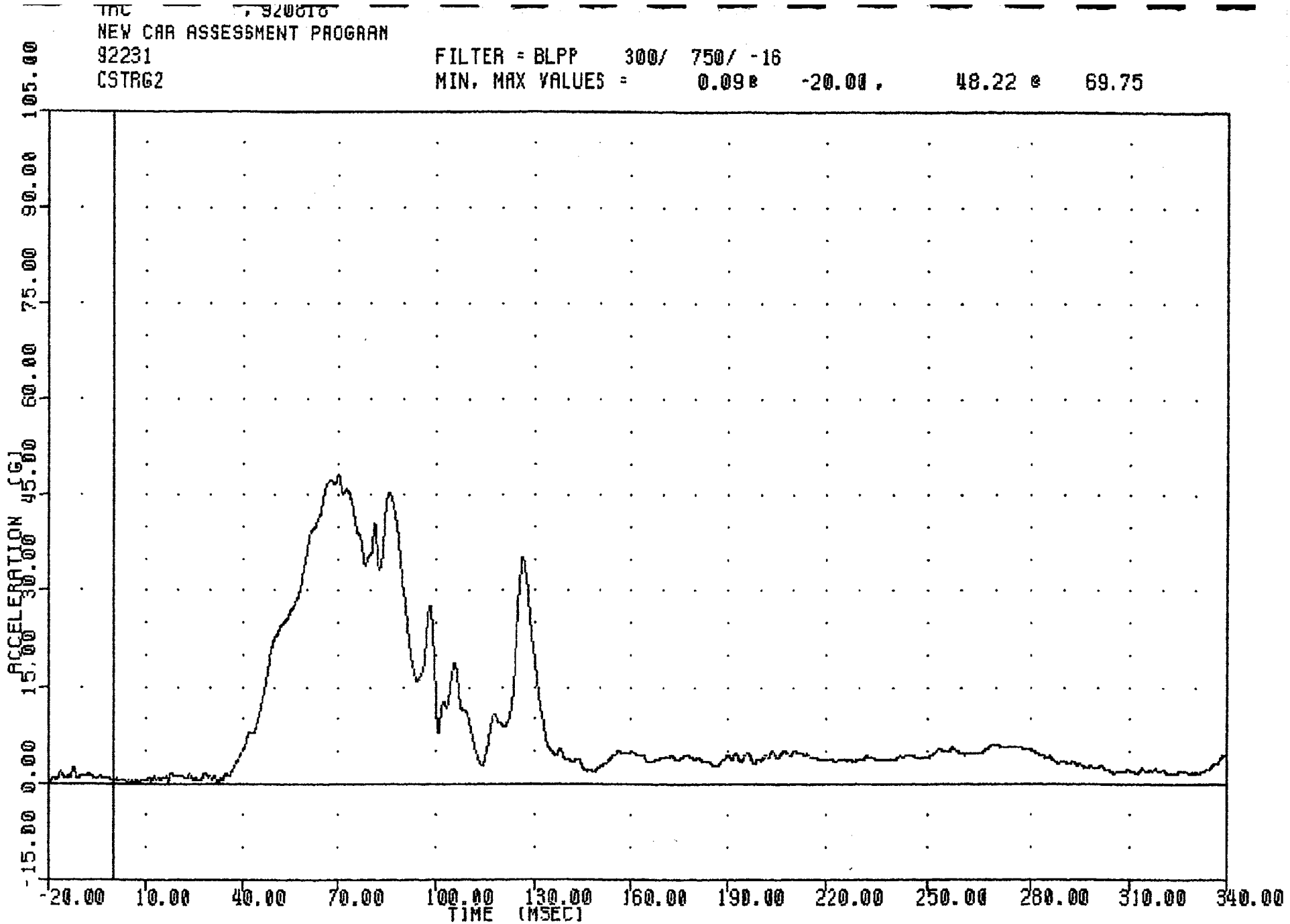

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
CSTXG2
FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -46.89 @ 67.38 , 4.86 @ 101.75
120.00
90.00
60.00
30.00
0.00
-30.00
-60.00
-90.00
-120.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
B-20
920818



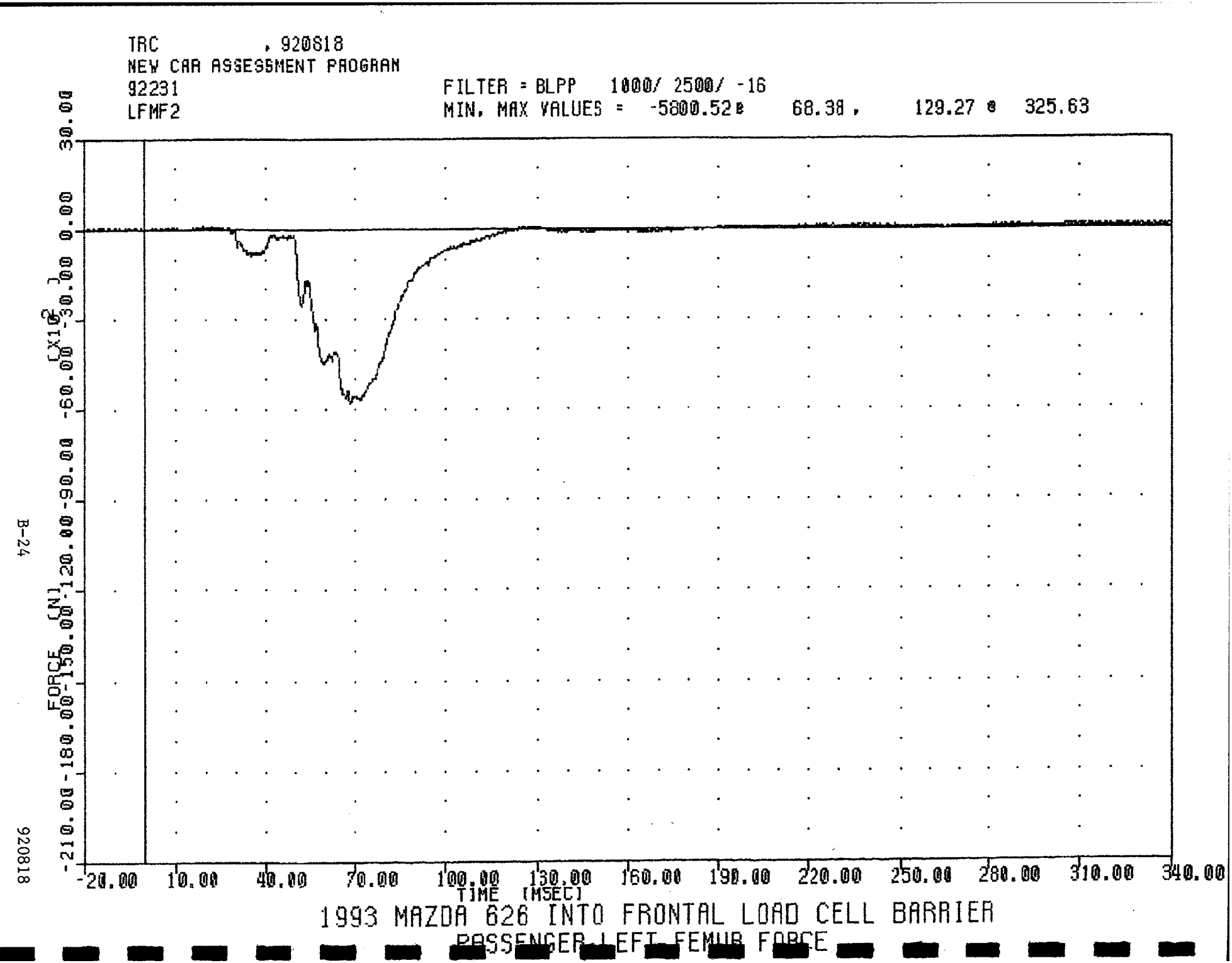
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
CSTZG2
FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = -17.40 @ 69.88 , 6.34 @ 131.00
120.00
90.00
60.00
30.00
0.00
-30.00
-60.00
-90.00
-120.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION

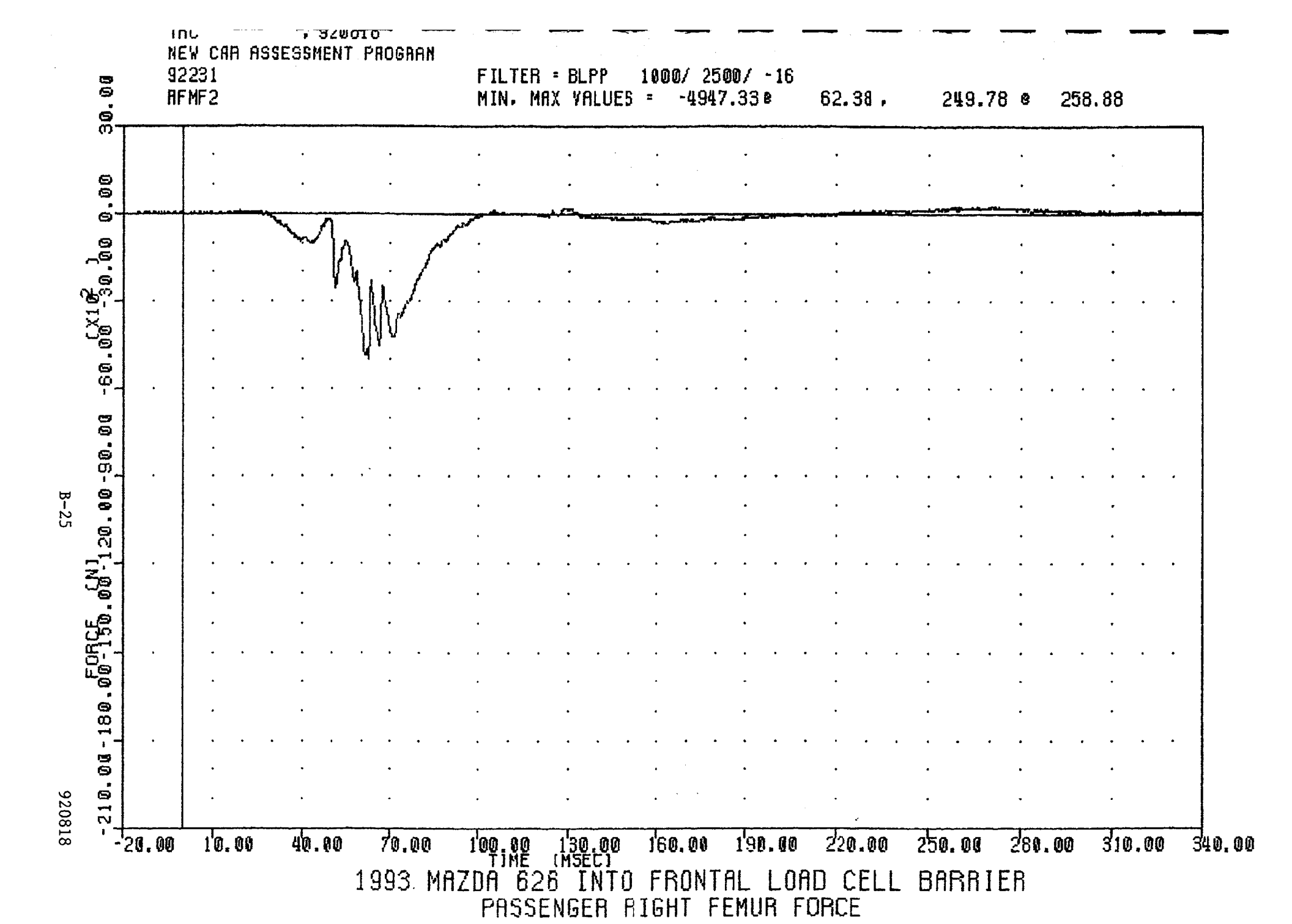
920818



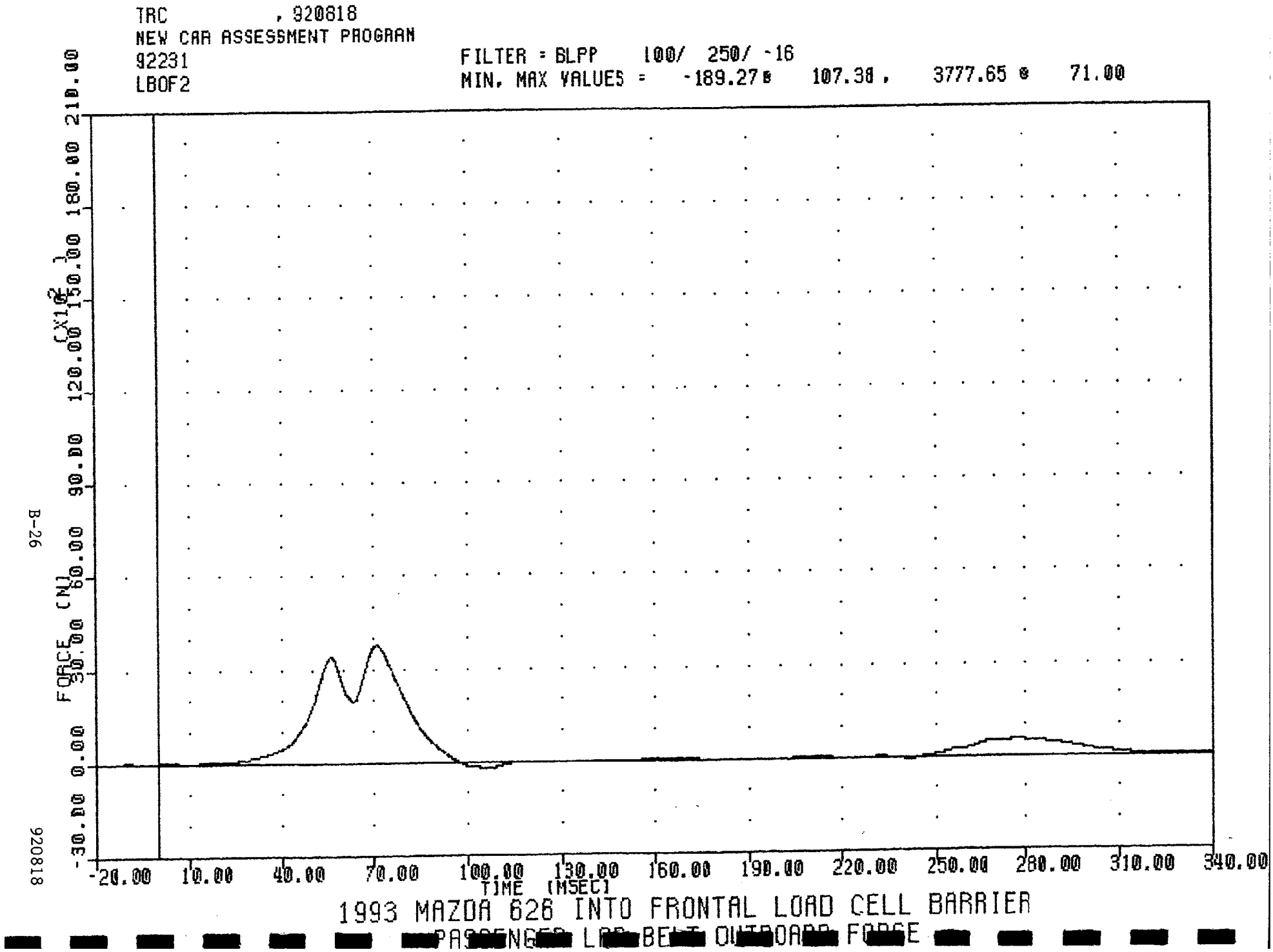
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LFMF2
FILTER = BLPP 1000/ 2500/ -16
MIN, MAX VALUES = -5800.52 @ 68.38 , 129.27 @ 325.63
30.00
0.00
-30.00
-60.00
-90.00
-120.00
-150.00
-180.00
-210.00
FORCE (N) (X10^2)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE

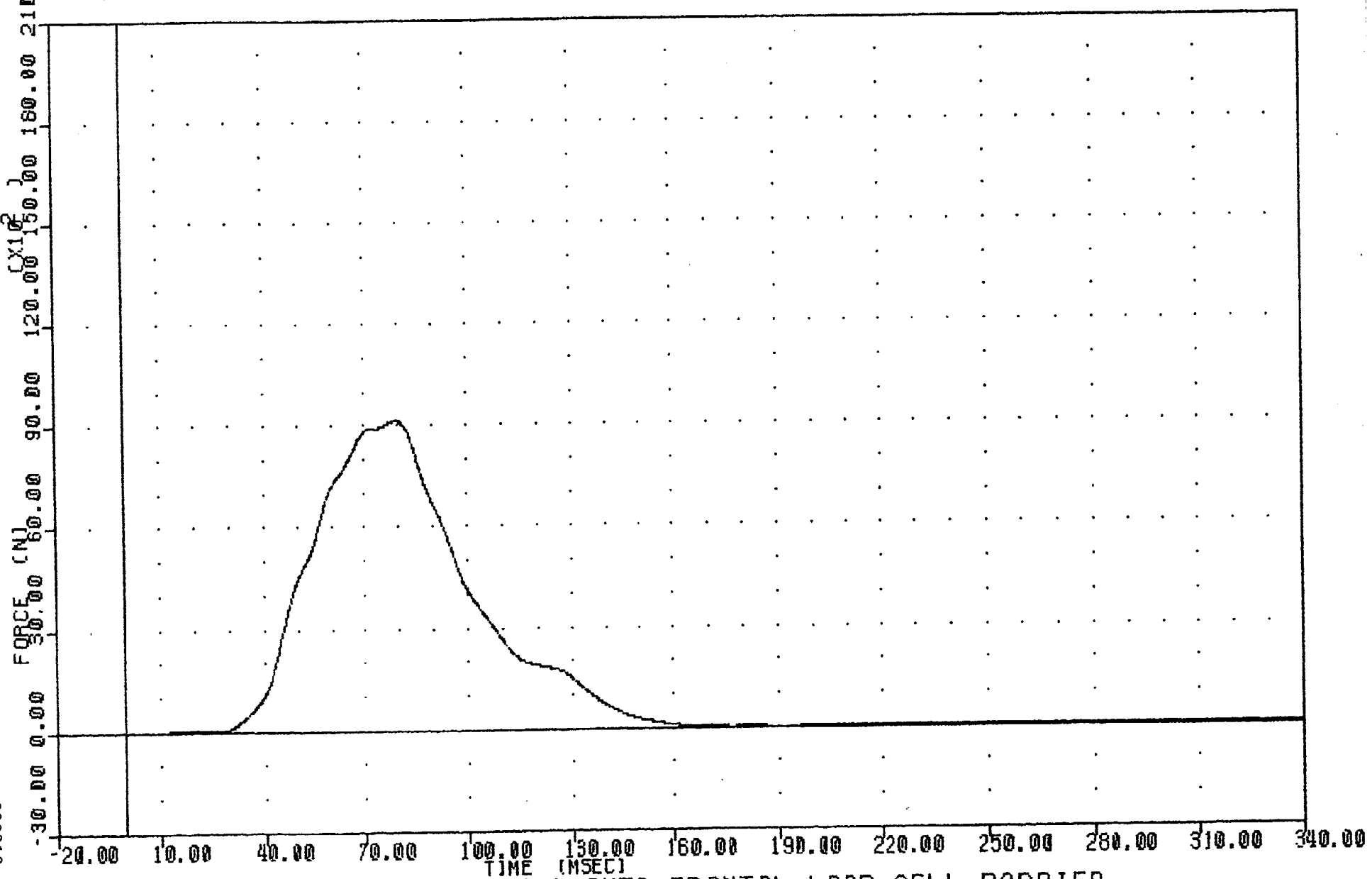
920818



1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE

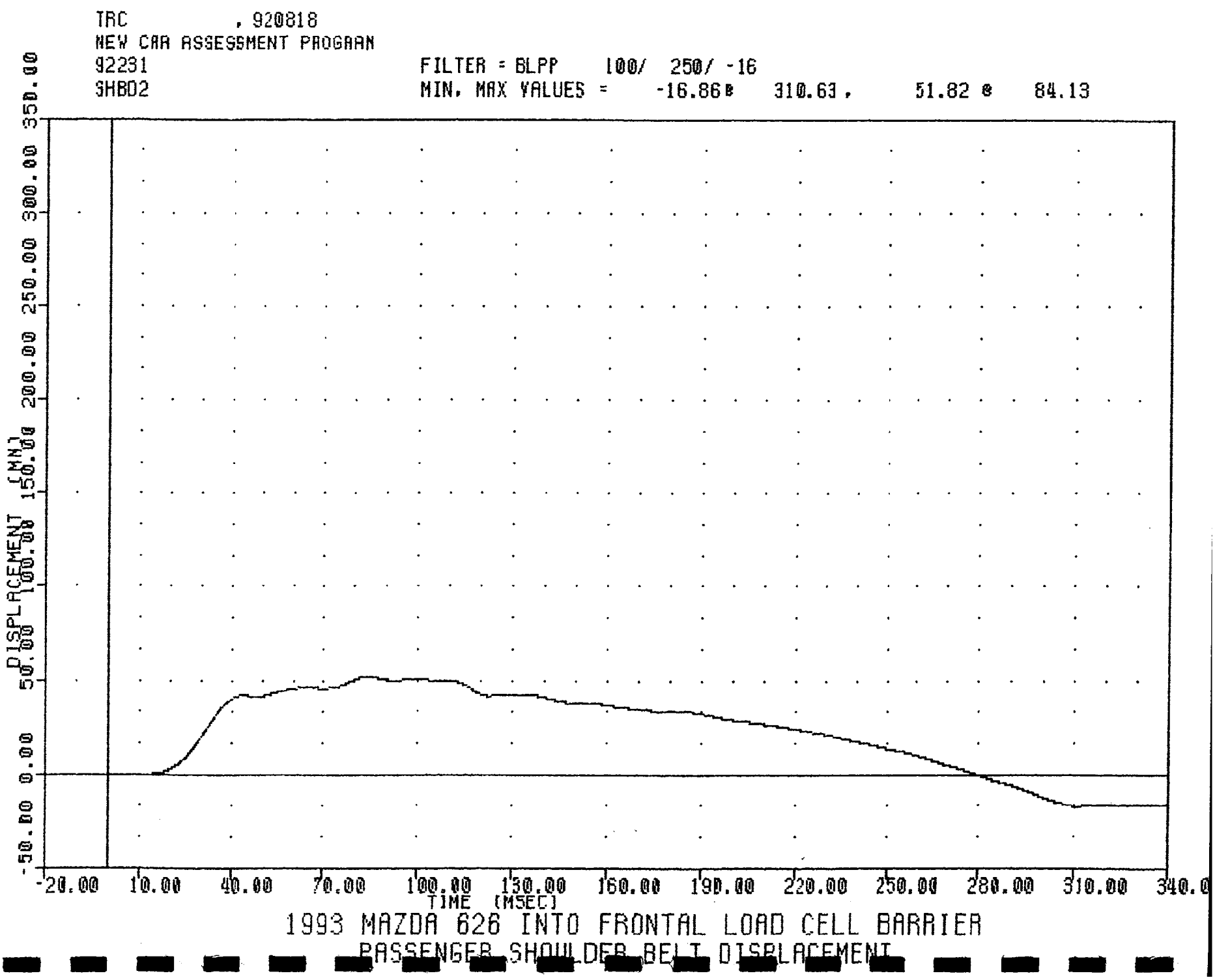

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LBOF2
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -189.27 @ 107.38 , 3777.65 @ 71.00
FORCE (N) (X10^2)
-30.00 0.00 30.00 60.00 90.00 120.00 150.00 180.00 210.00
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE

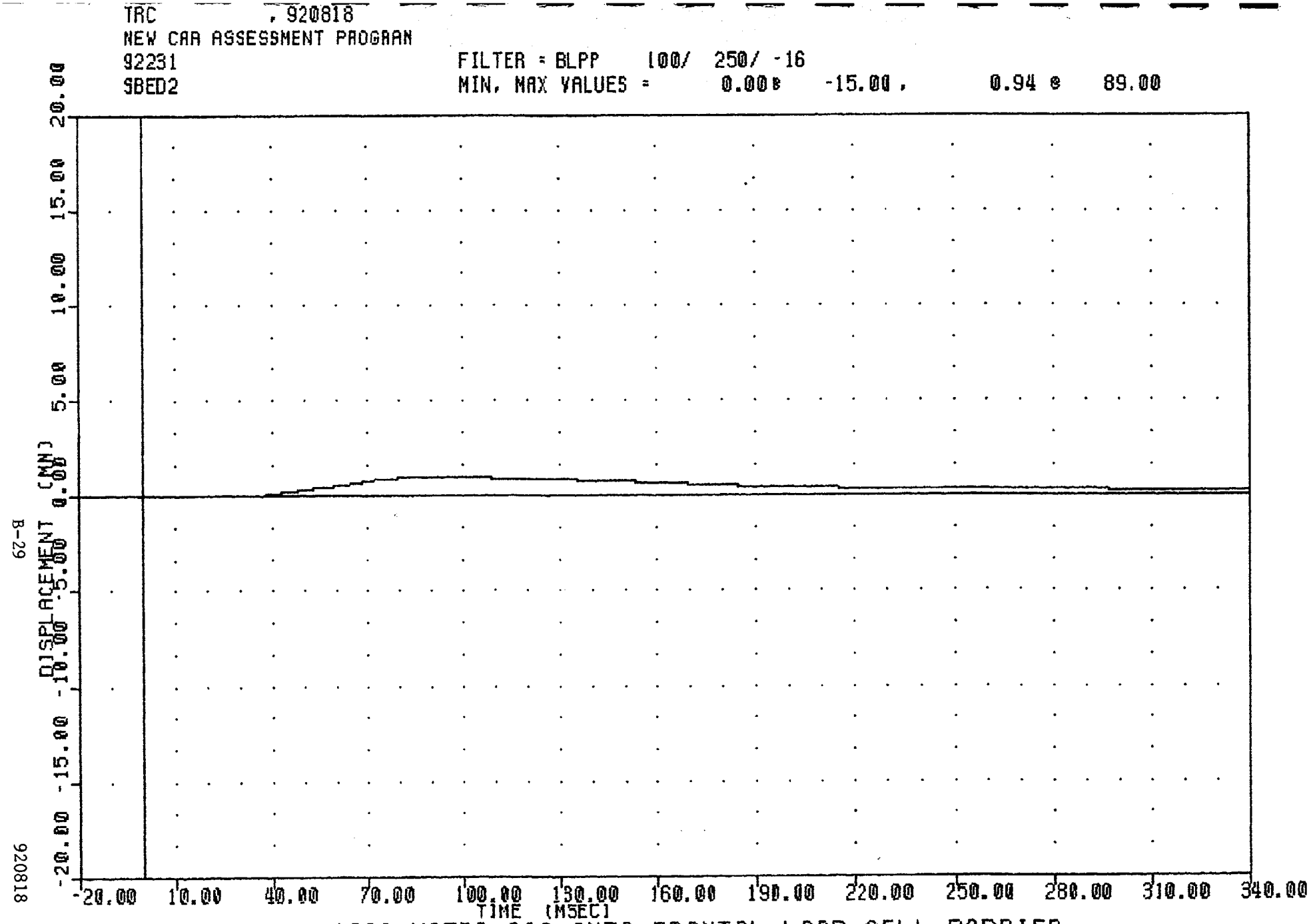
TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
SHBF2
FILTER = BLPF 100/ 250/ -16
MIN, MAX VALUES = -15.46 @ -16.00 , 9129.27 @ 79.25



1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE

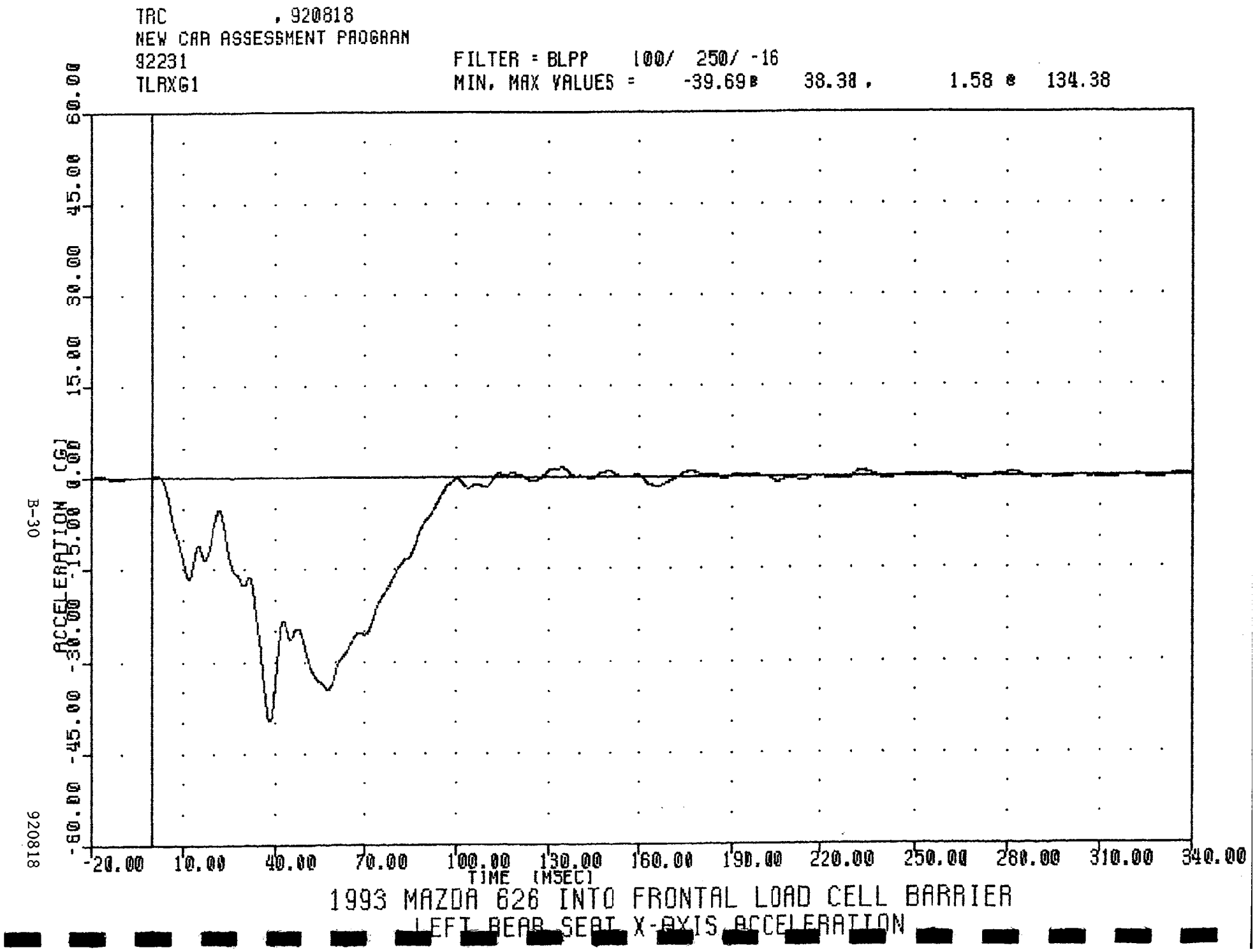
920818

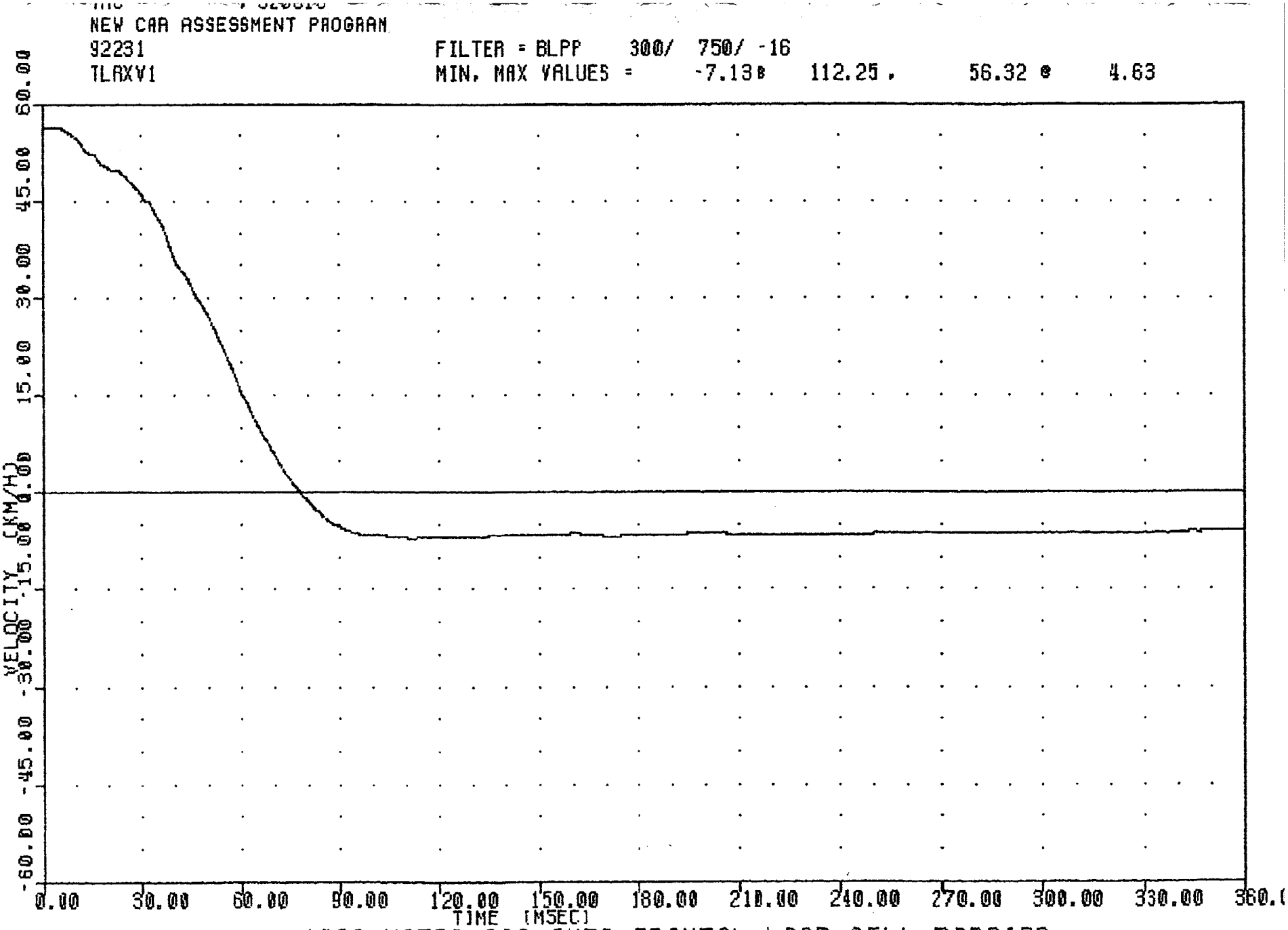

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
SHB02
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -16.86 @ 310.63 , 51.82 @ 84.13
DISPLACEMENT (MM)
-50.00
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.0
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT



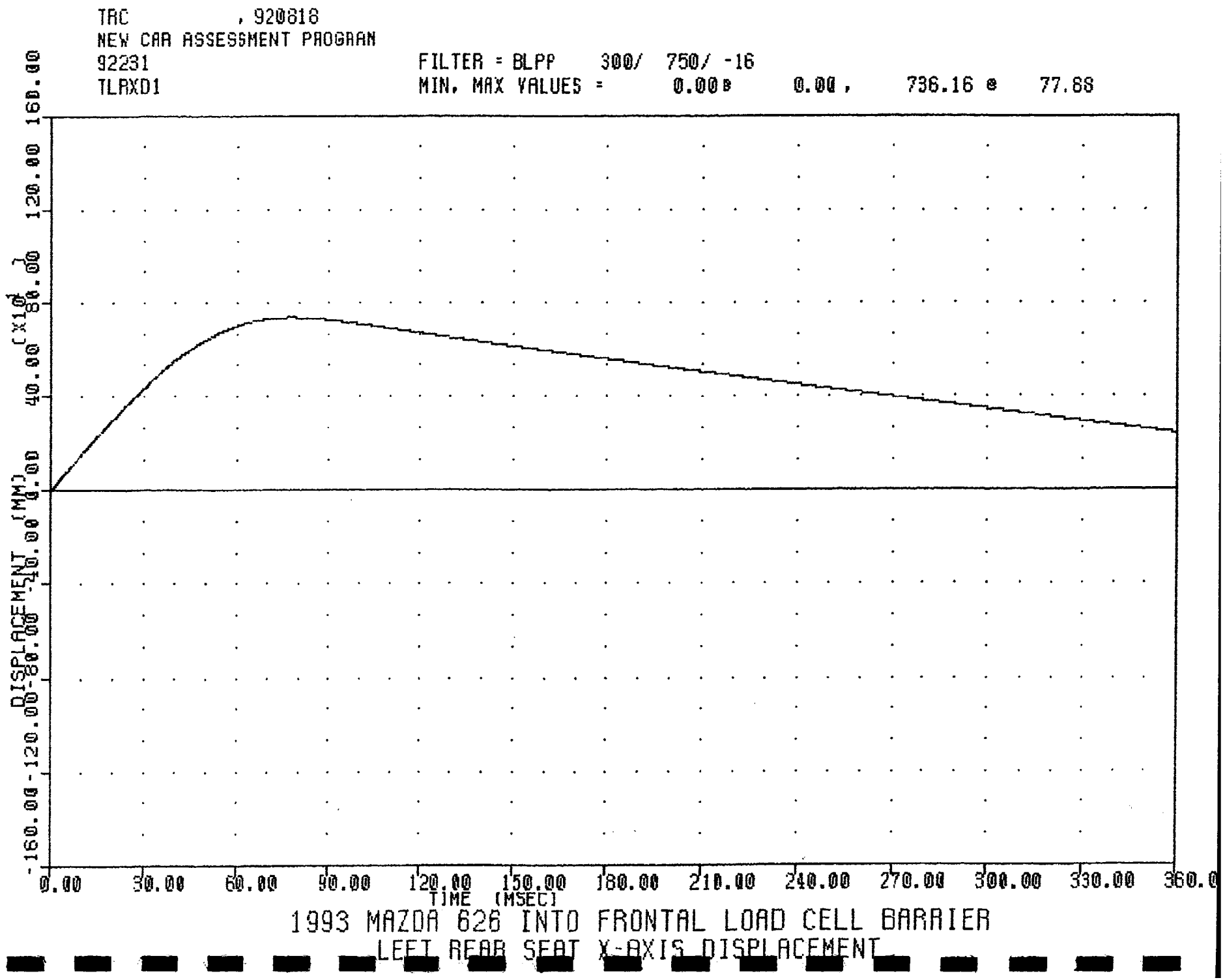
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION

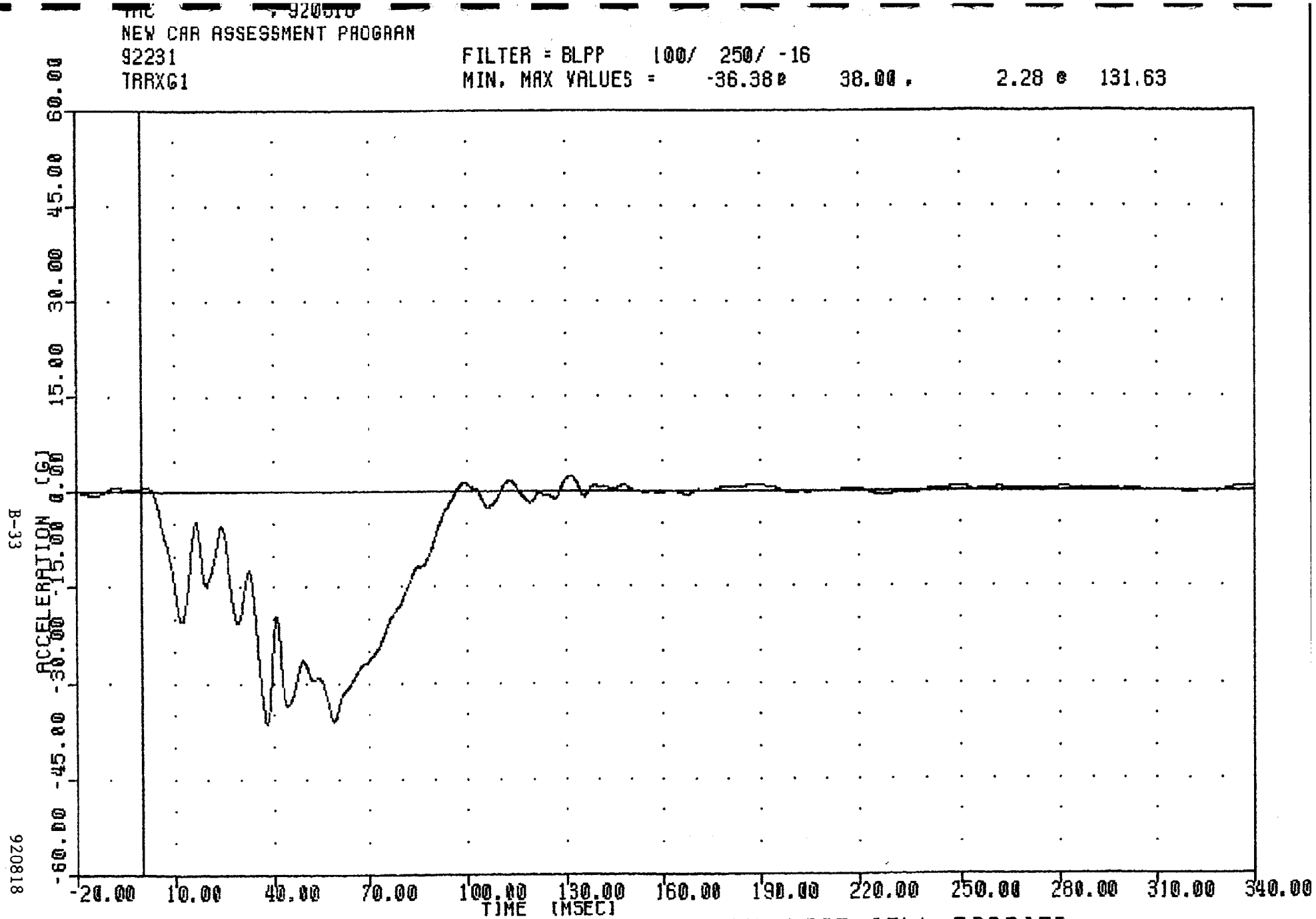
920818


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
TLRXG1
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -39.69 @ 38.38 , 1.58 @ 134.38
60.00
45.00
30.00
15.00
0.00
-15.00
-30.00
-45.00
-60.00
ACCELERATION [G]
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME [MSEC]
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION



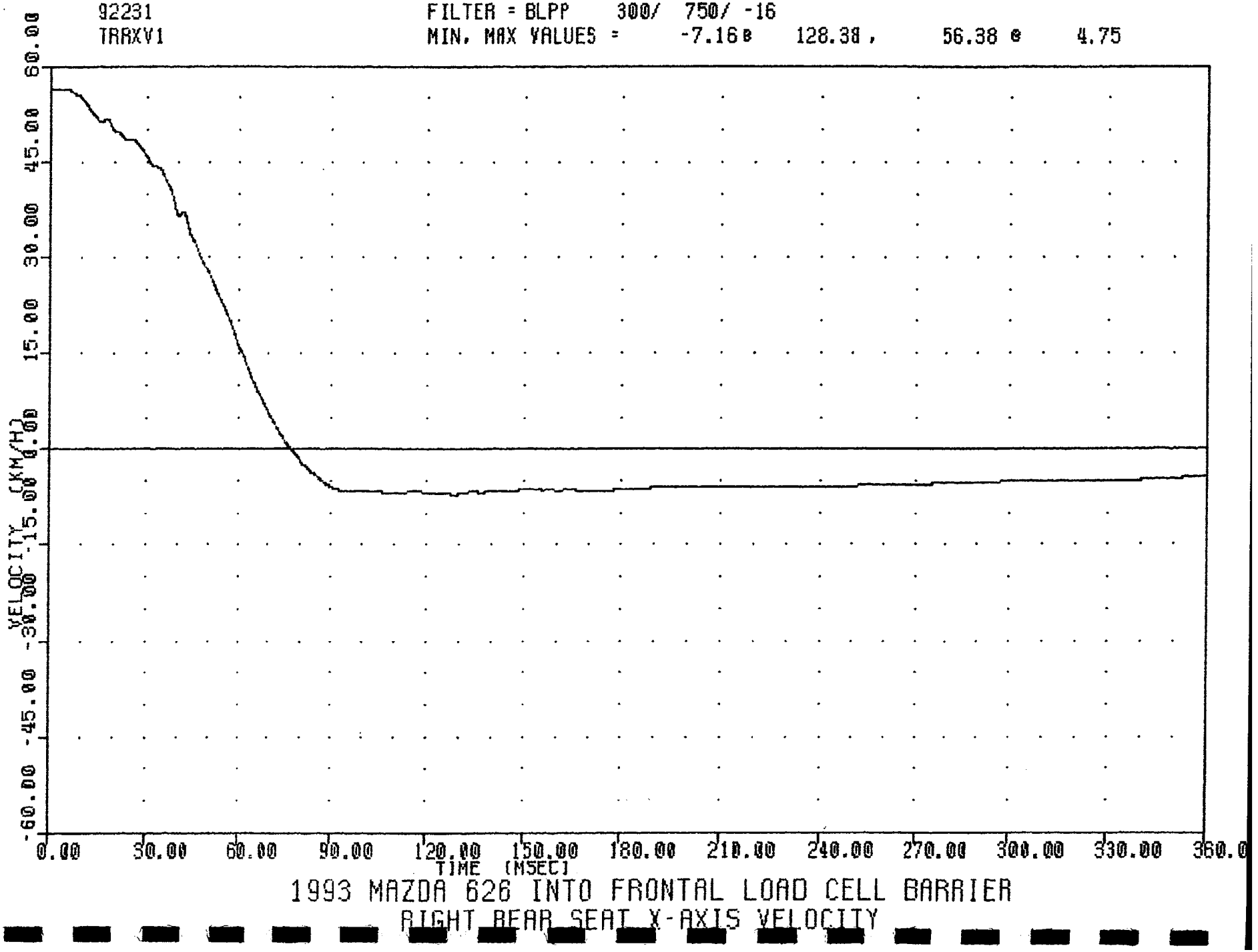
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS VELOCITY


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
TLRXD1
FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = 0.00 @ 0.00 , 736.16 @ 77.88
160.00
120.00
80.00
40.00
0.00
-40.00
-80.00
-120.00
-160.00
DISPLACEMENT (MM) (X10)
0.00
30.00
60.00
90.00
120.00
150.00
180.00
210.00
240.00
270.00
300.00
330.00
360.0
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT

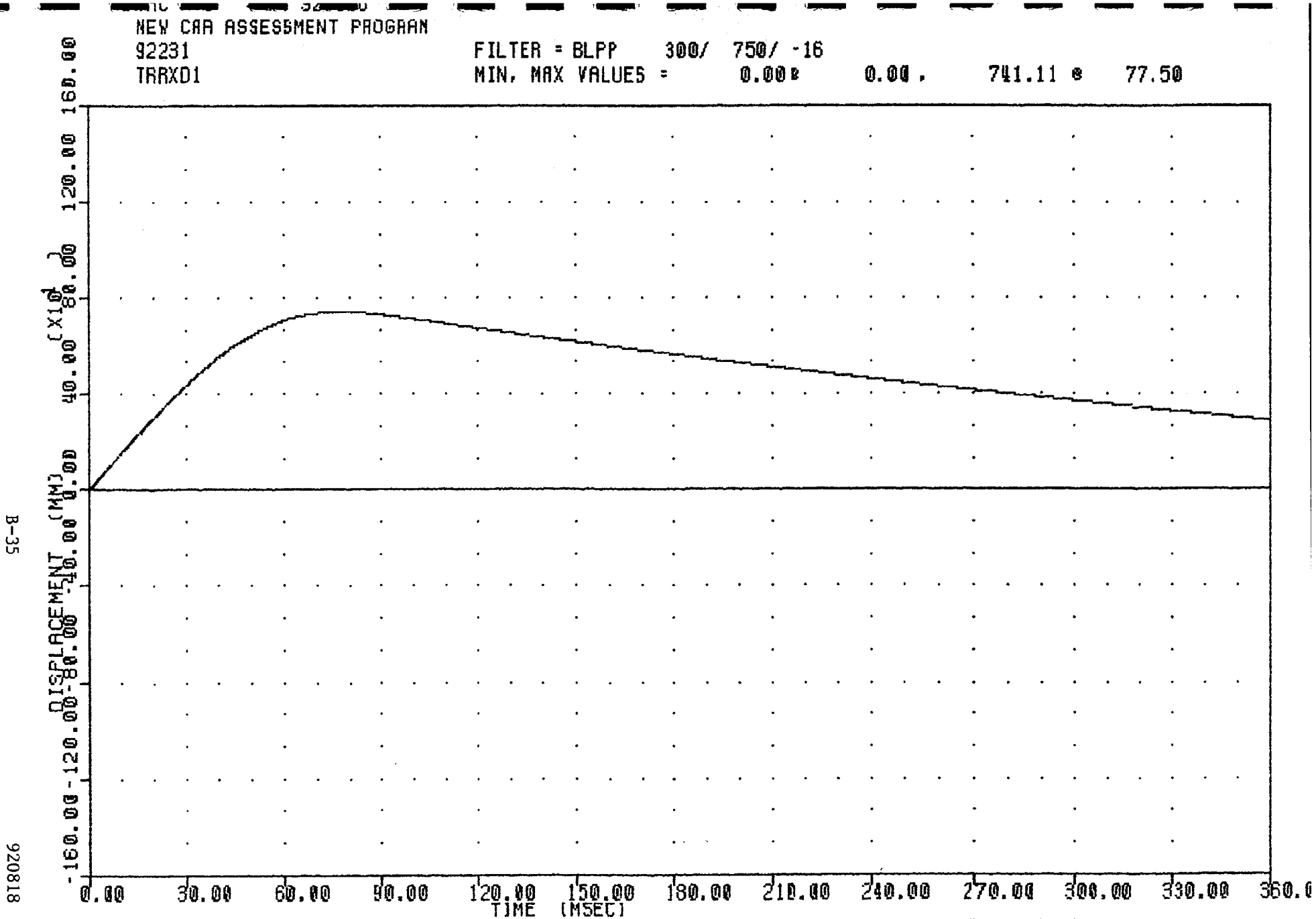


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION

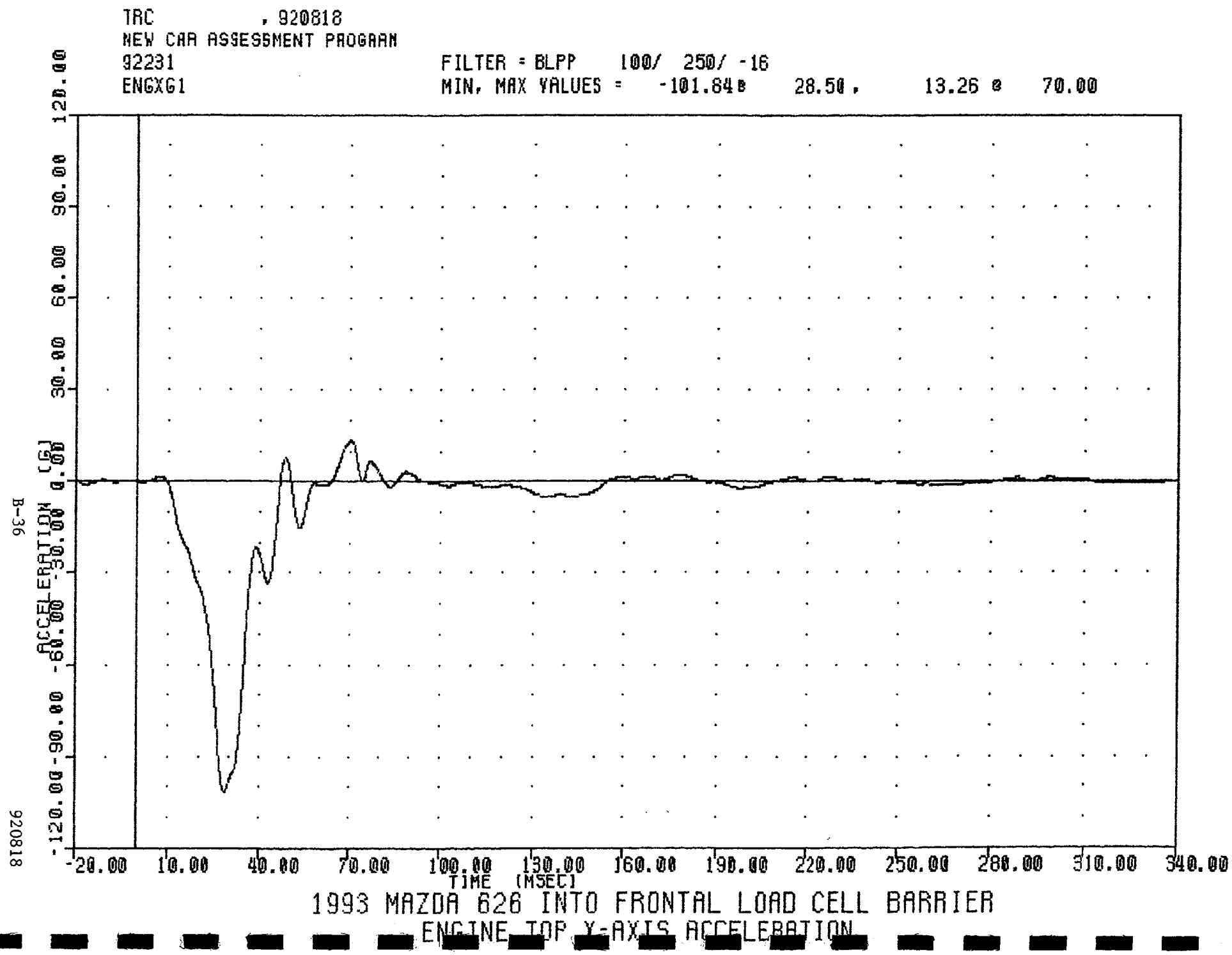
920818

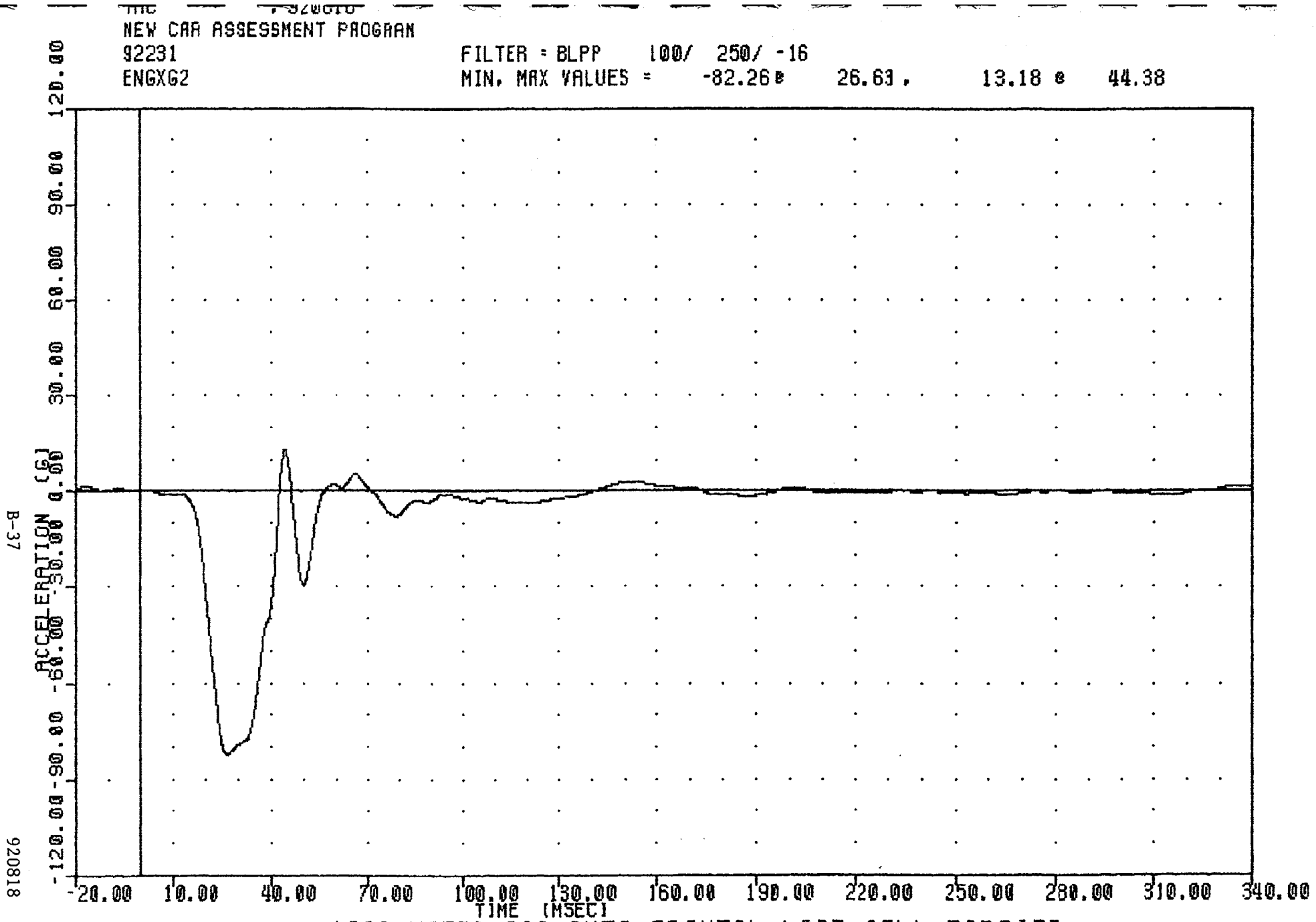


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS VELOCITY



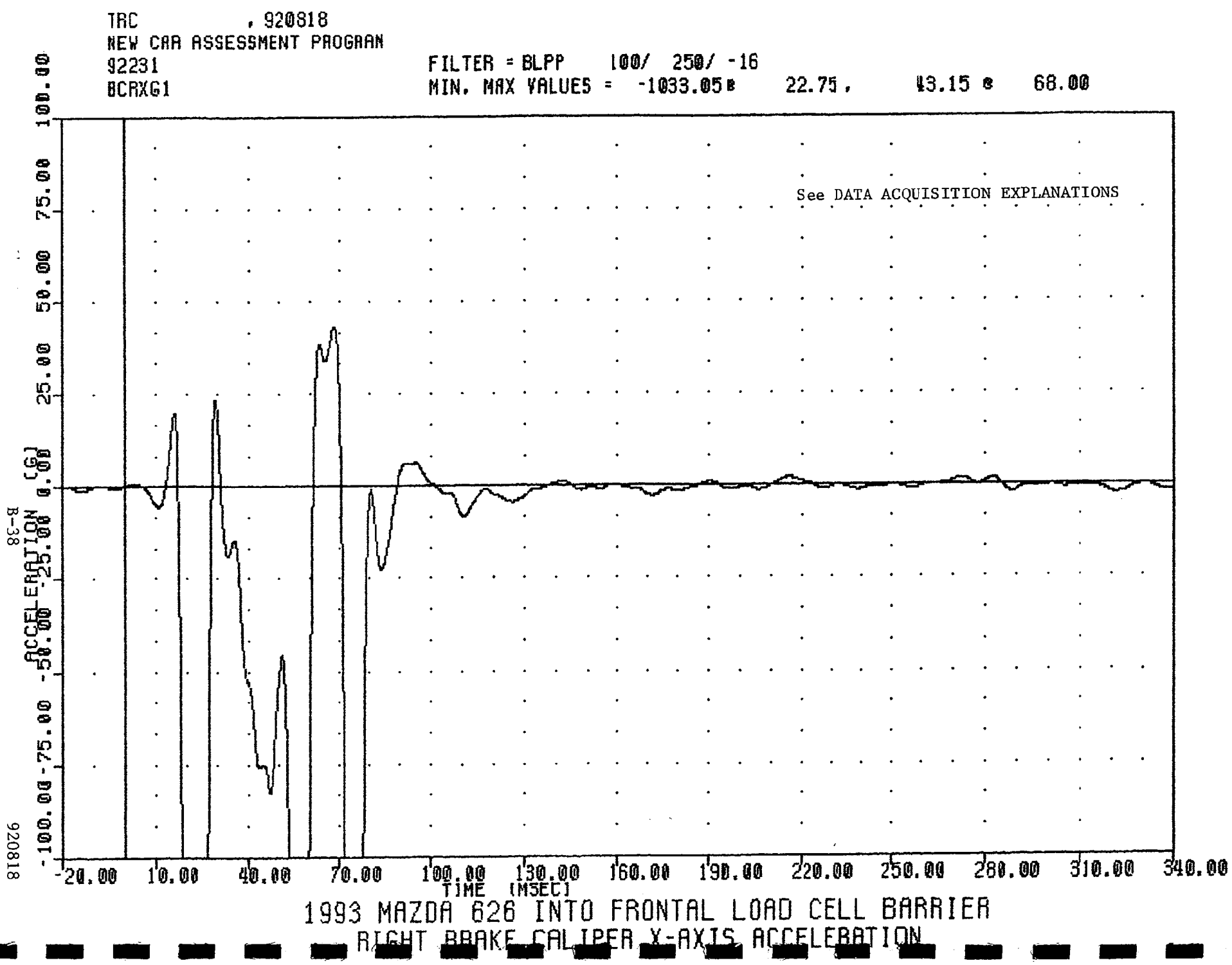
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
ENGXG1
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -101.84 @ 28.50 , 13.26 @ 70.00
120.00
90.00
60.00
30.00
0.00
-30.00
-60.00
-90.00
-120.00
ACCELERATION [G]
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION



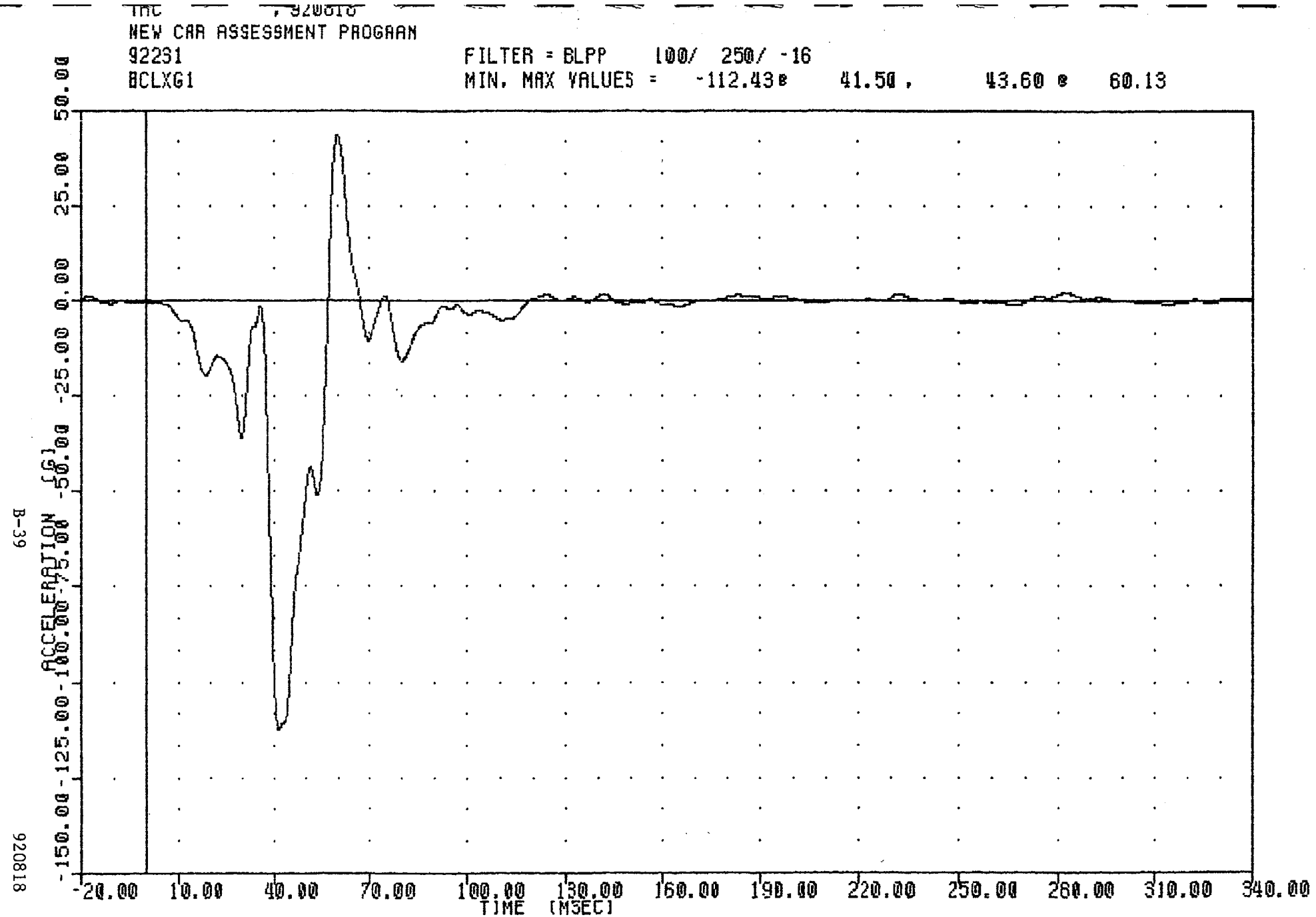
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION

920818

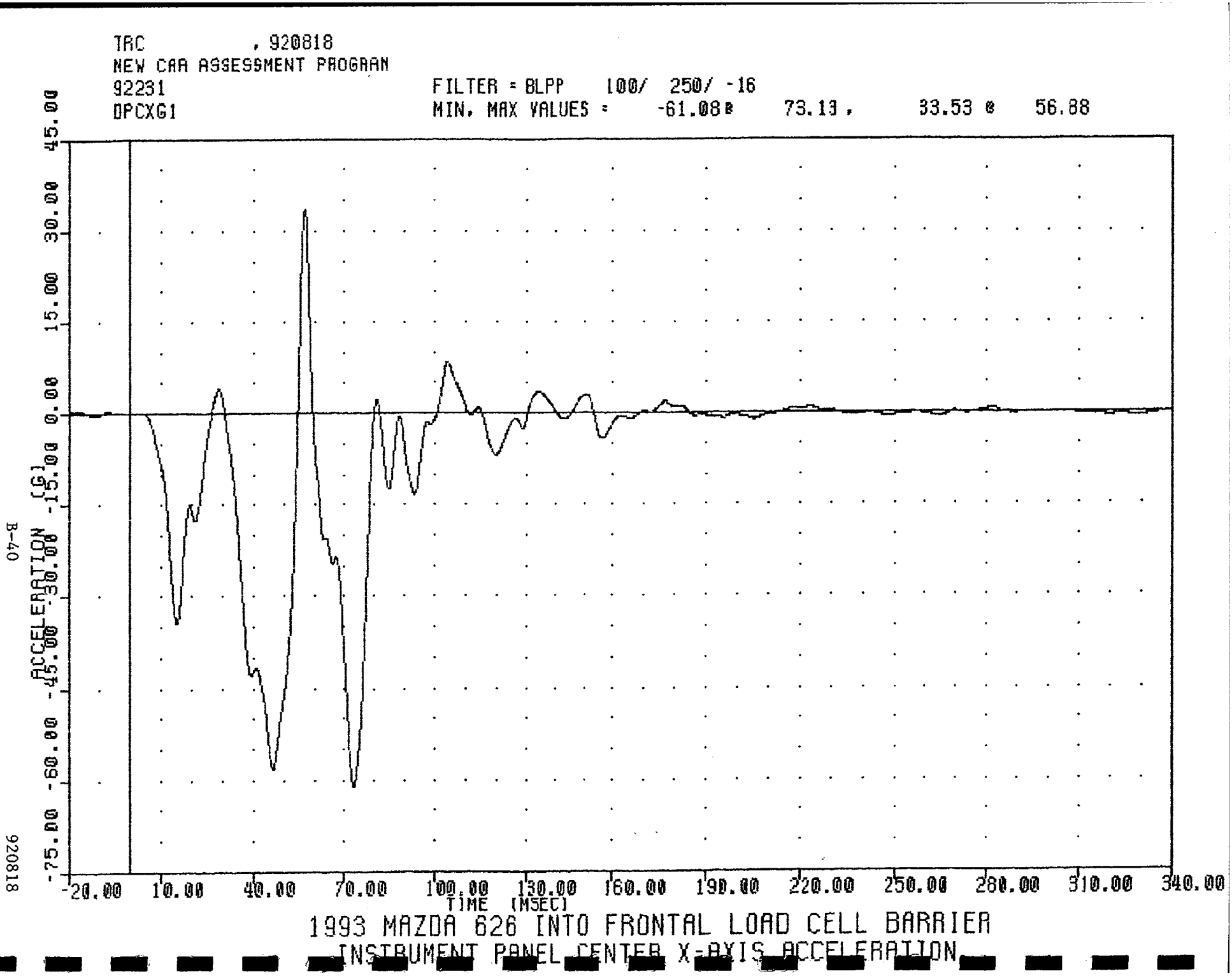


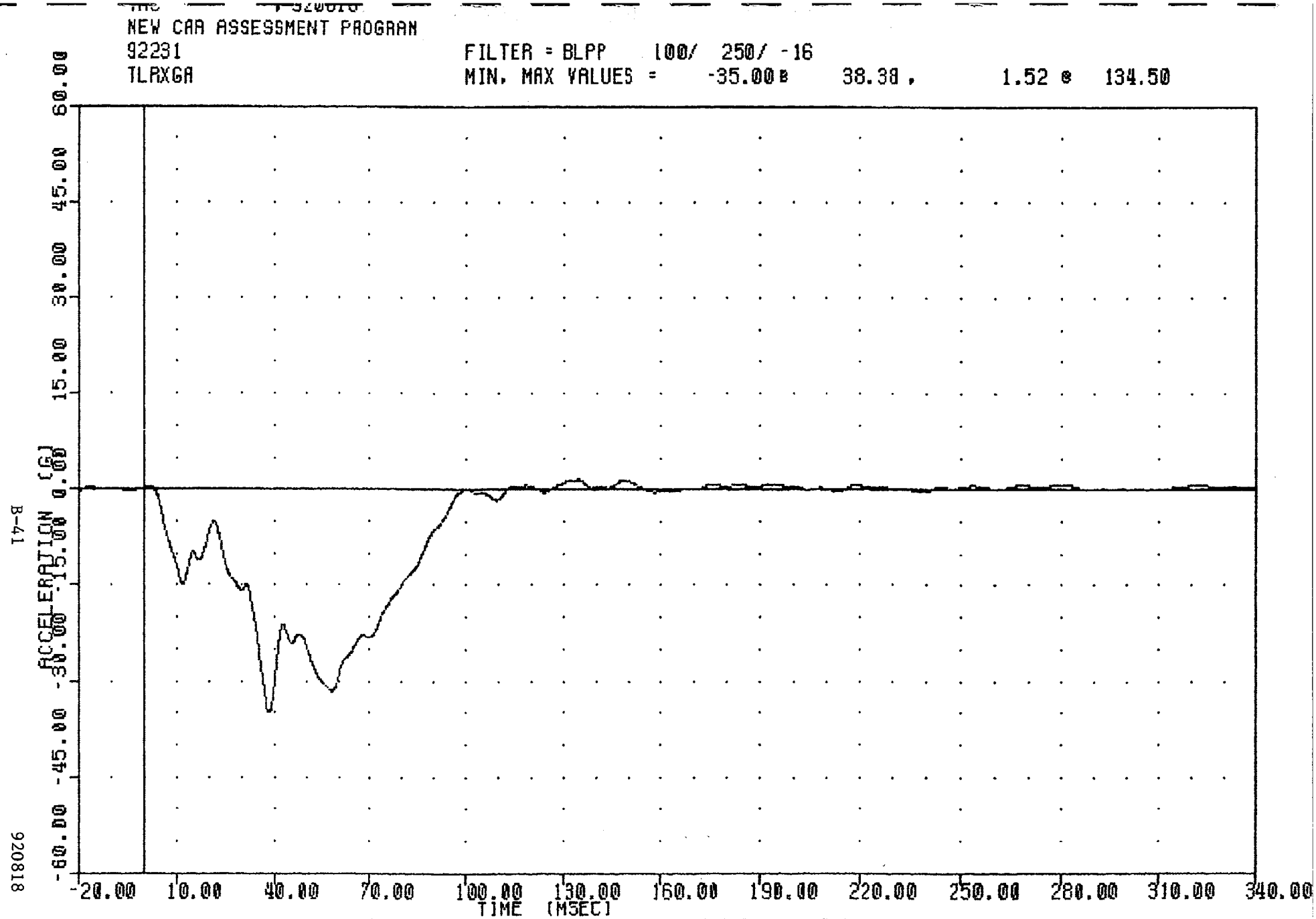
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER

RIGHT BRAKE CALIPER X-AXIS ACCELERATION



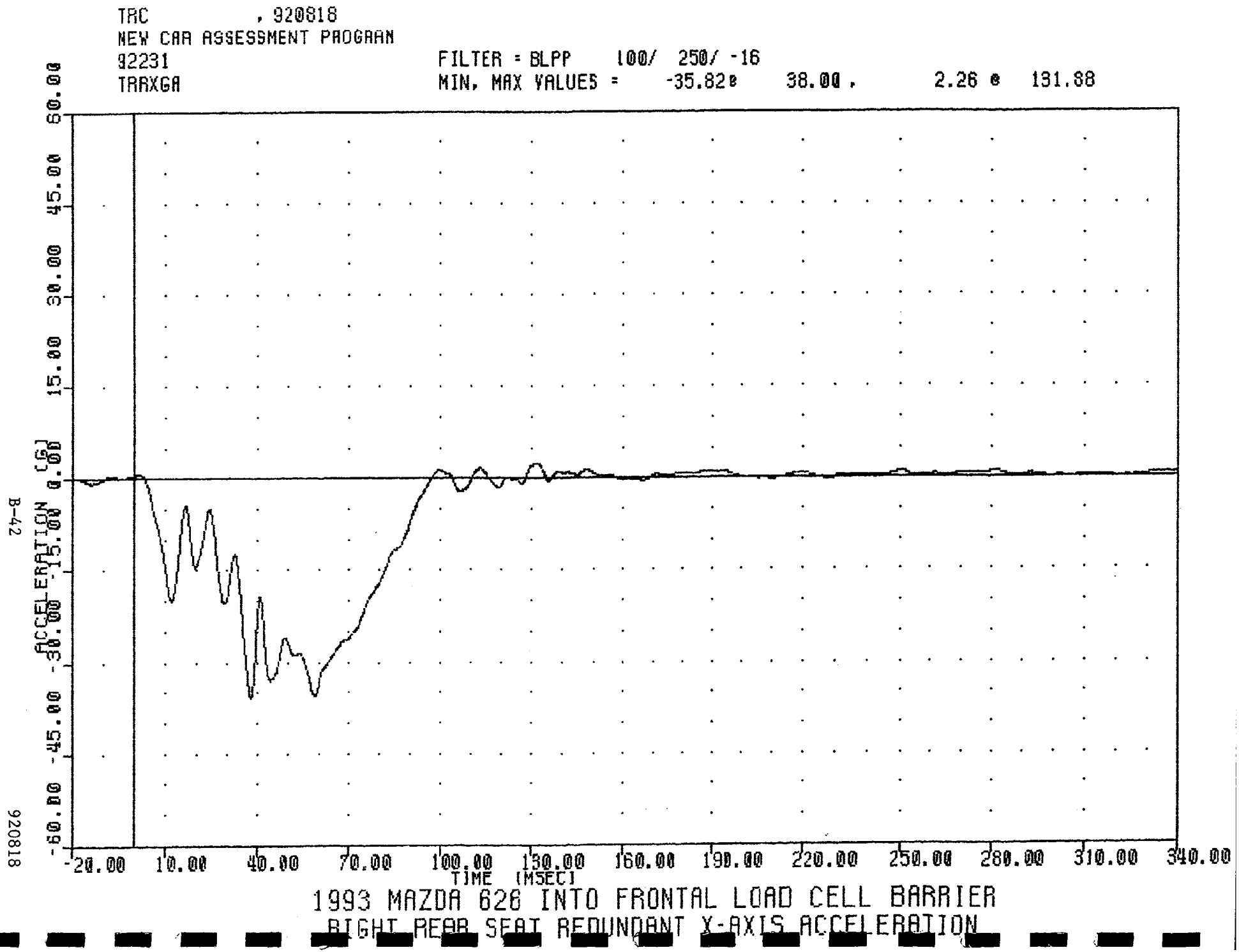
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
DPCXG1
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -61.08 @ 73.13 , 33.53 @ 56.88
45.00
30.00
15.00
0.00
-15.00
-30.00
-45.00
-60.00
-75.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION



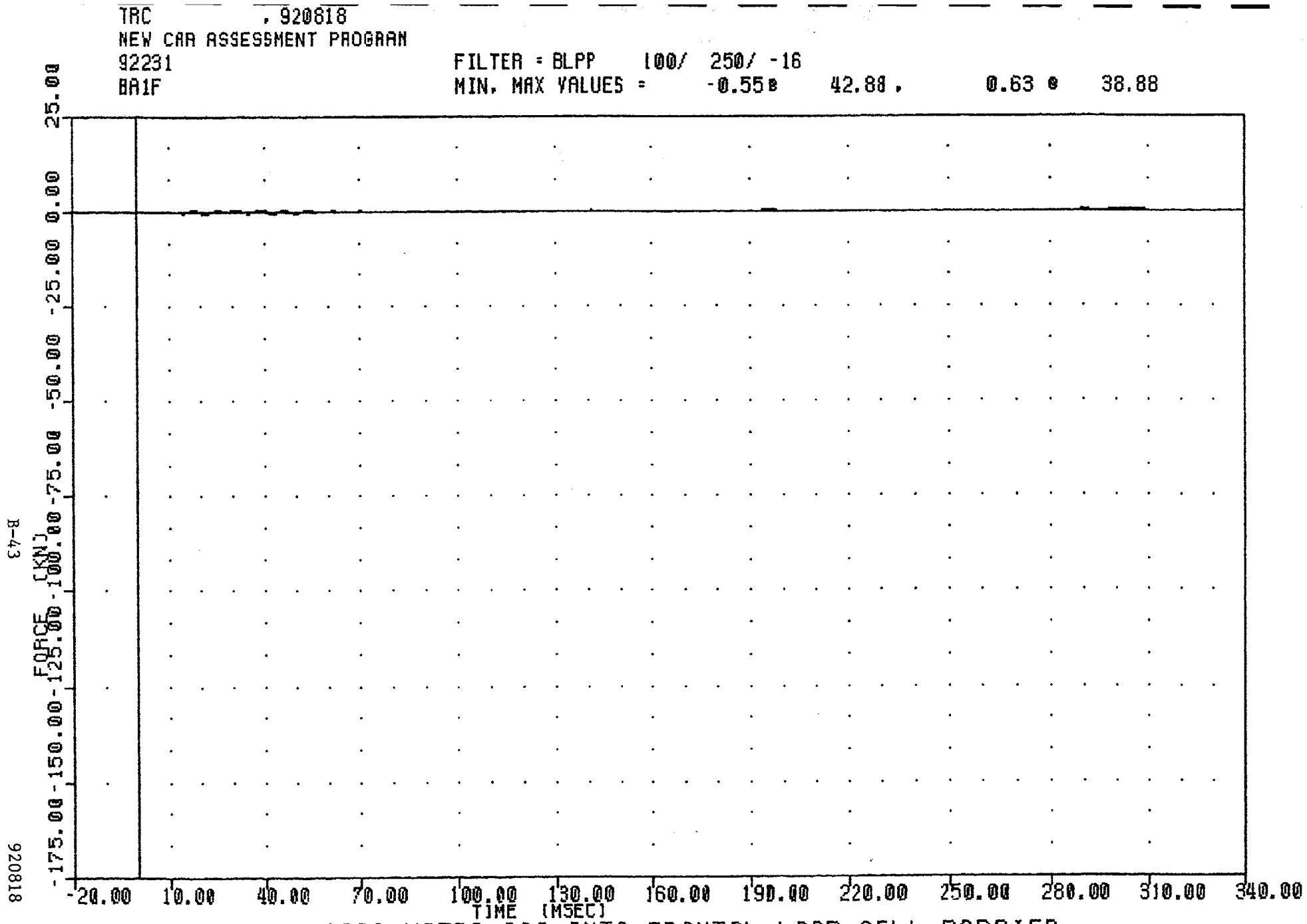
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

920818



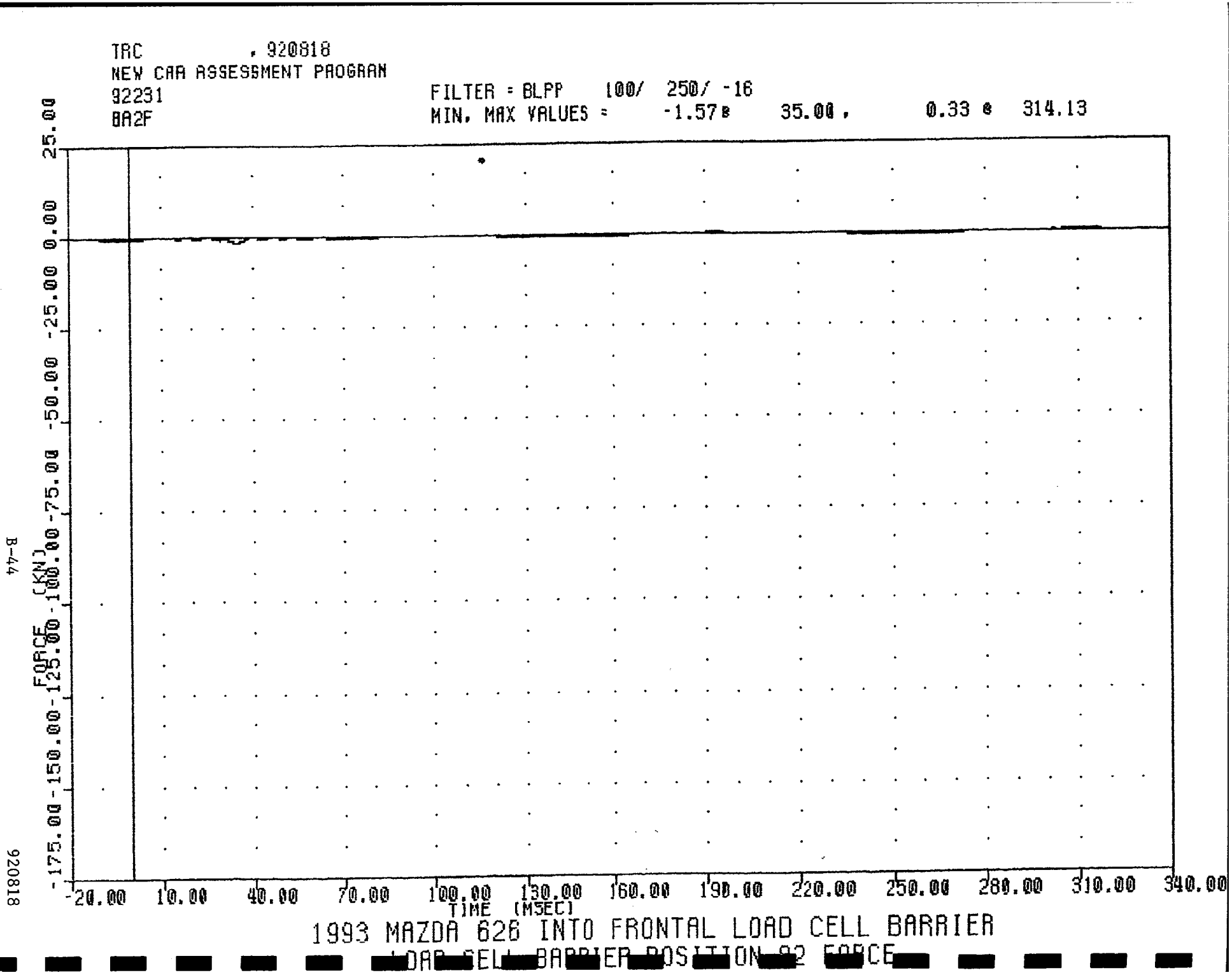
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

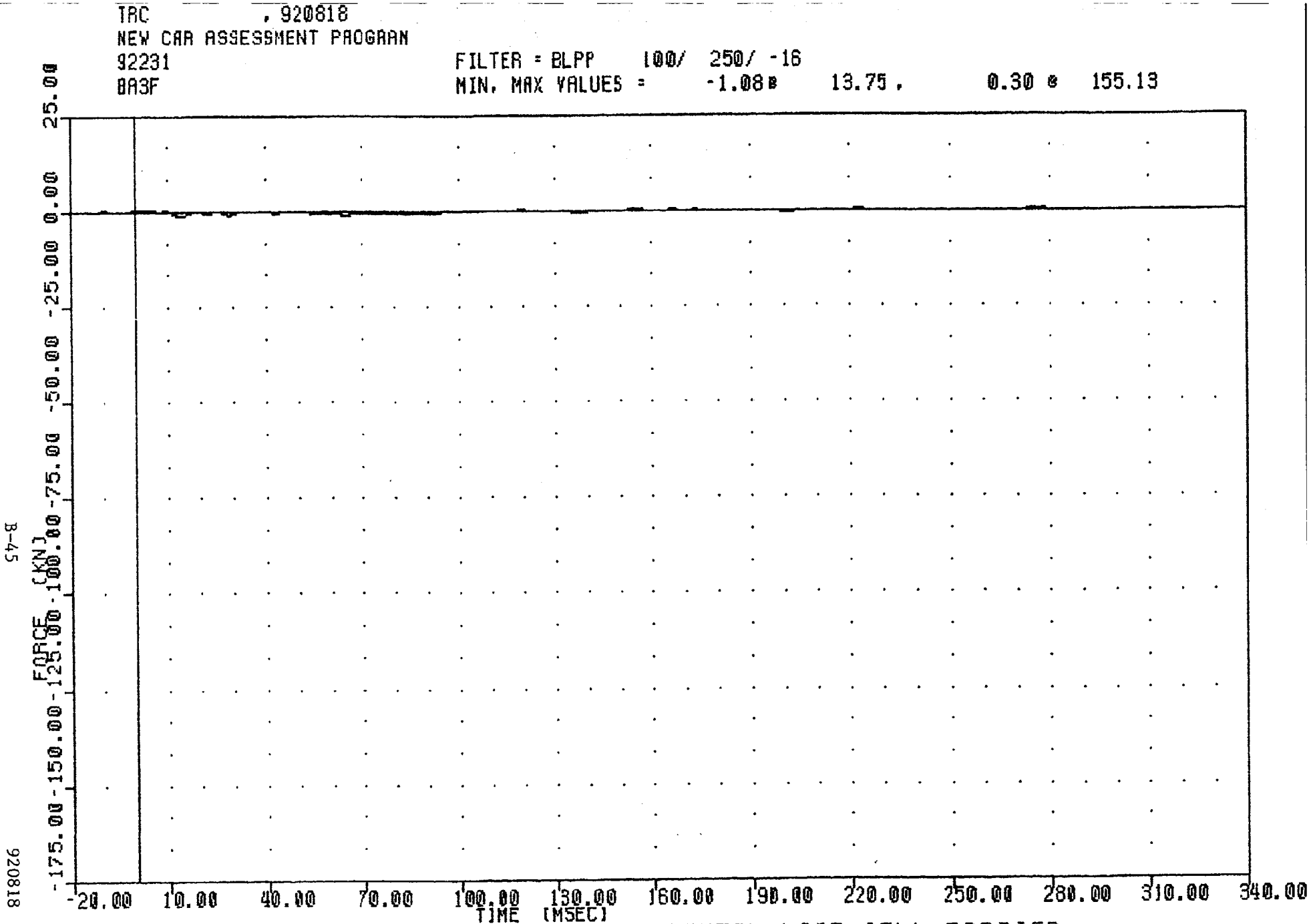
920818



1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE

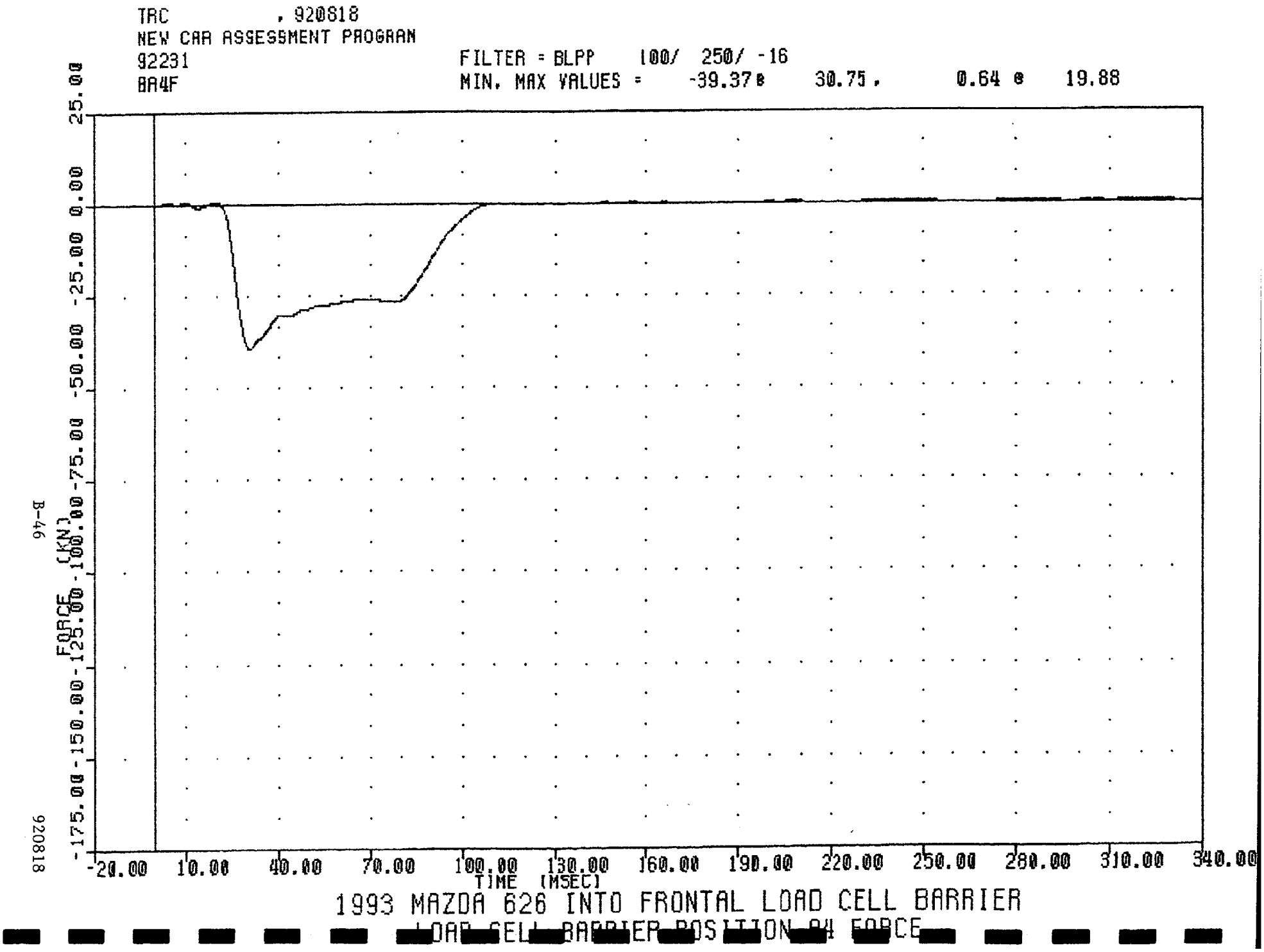
920818


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
8A2F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -1.57 @ 35.00 , 0.33 @ 314.13
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION #2 FORCE
B-44
920818

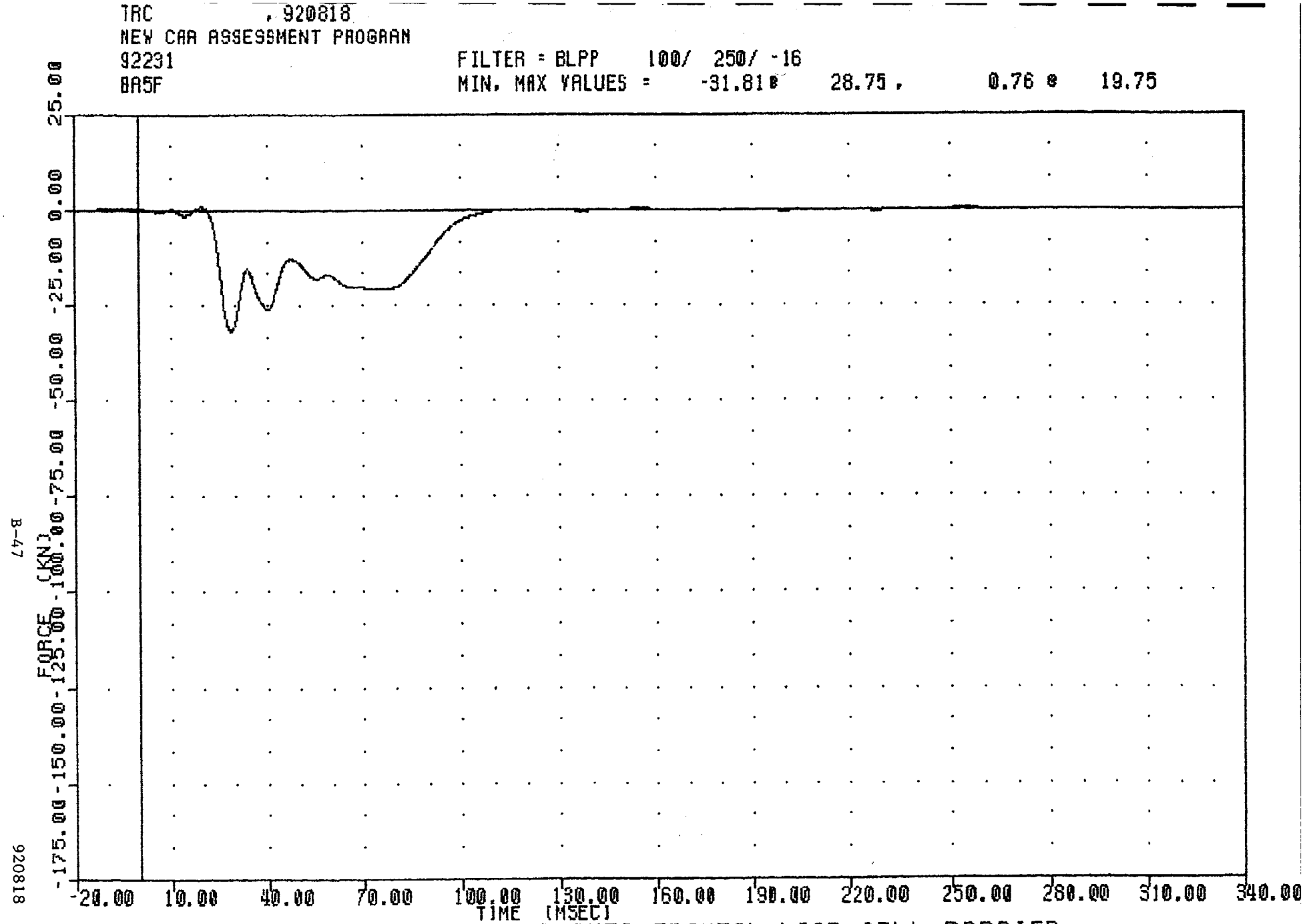


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE

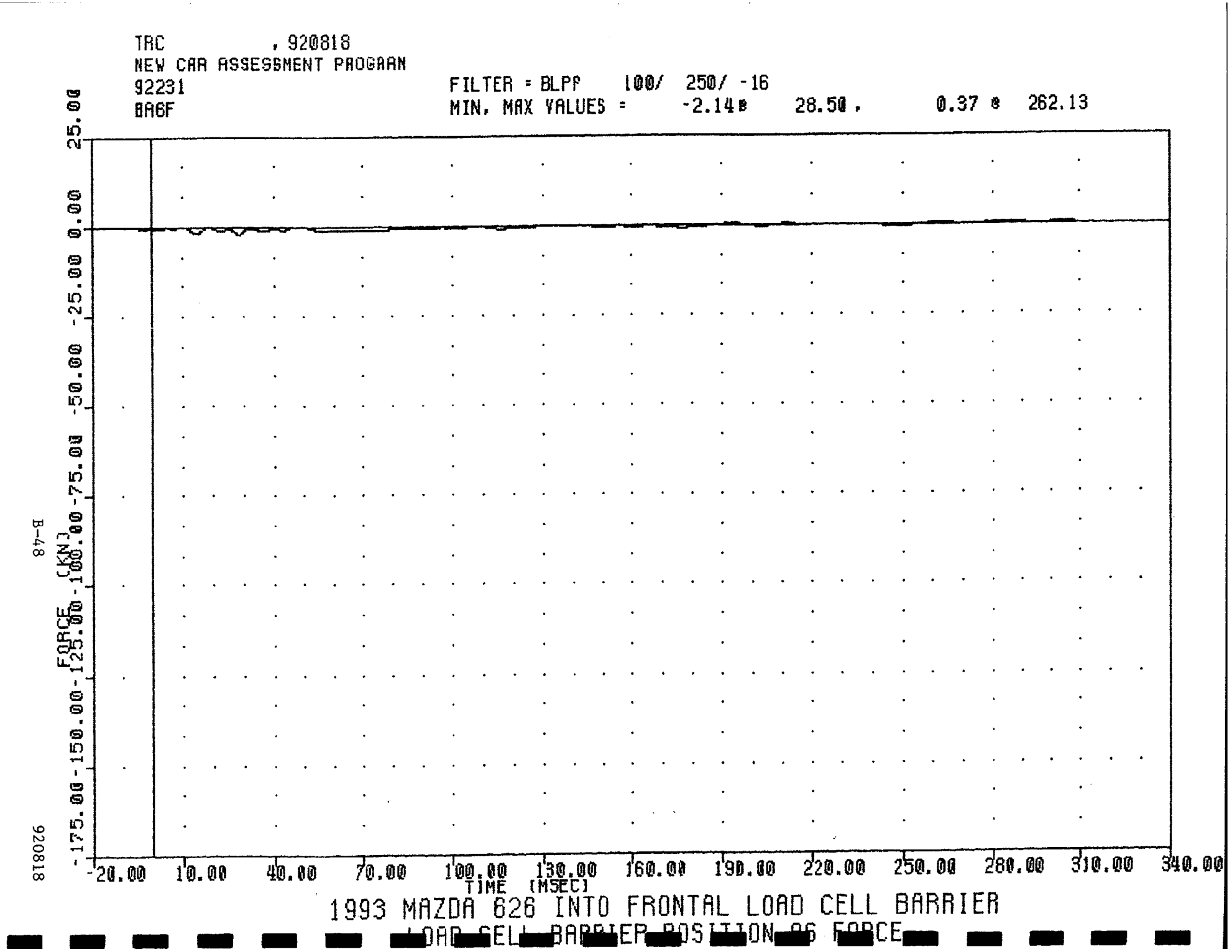
920818


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BA4F
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -39.37 @ 30.75 , 0.64 @ 19.88
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 04 FORCE

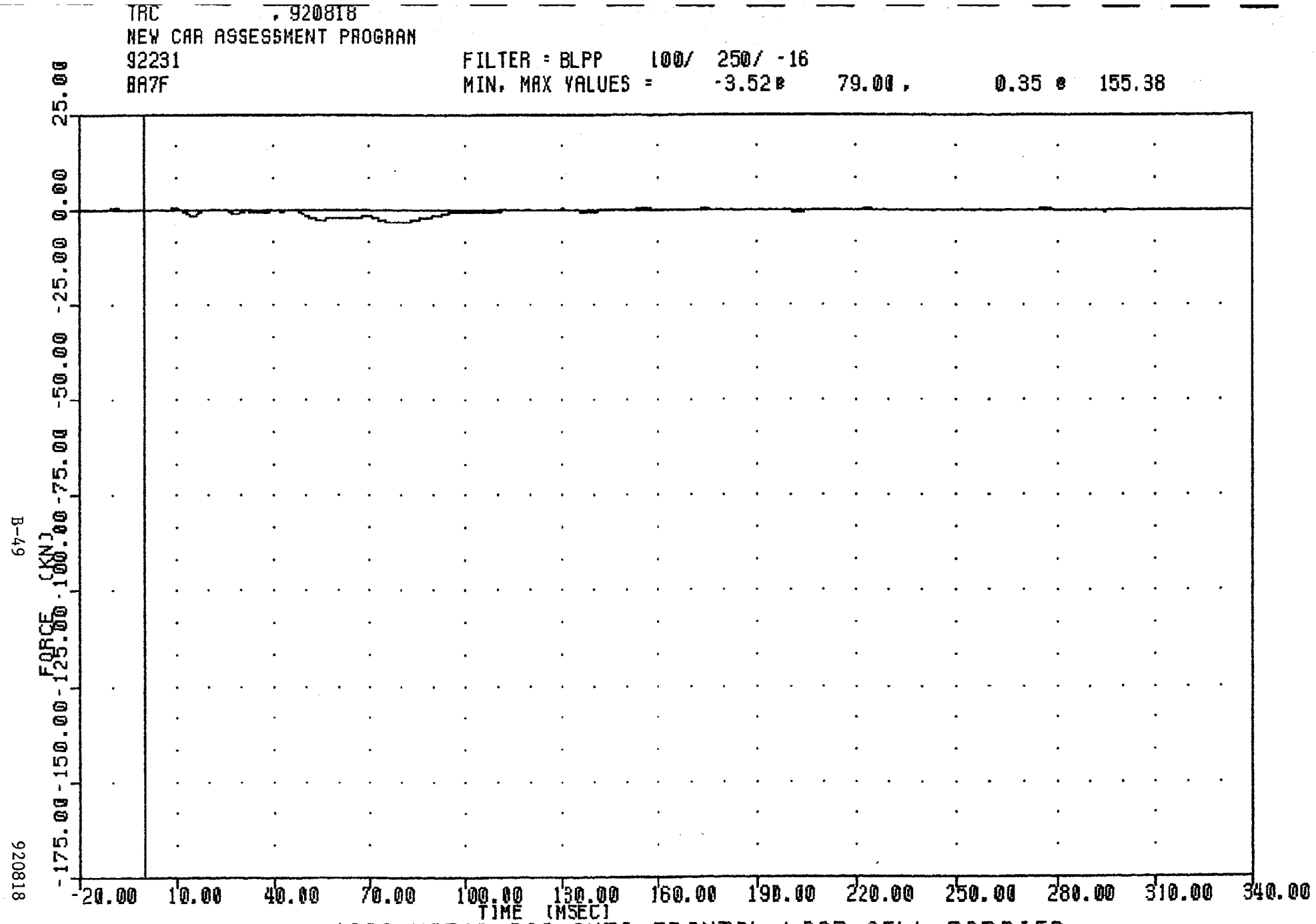
920818



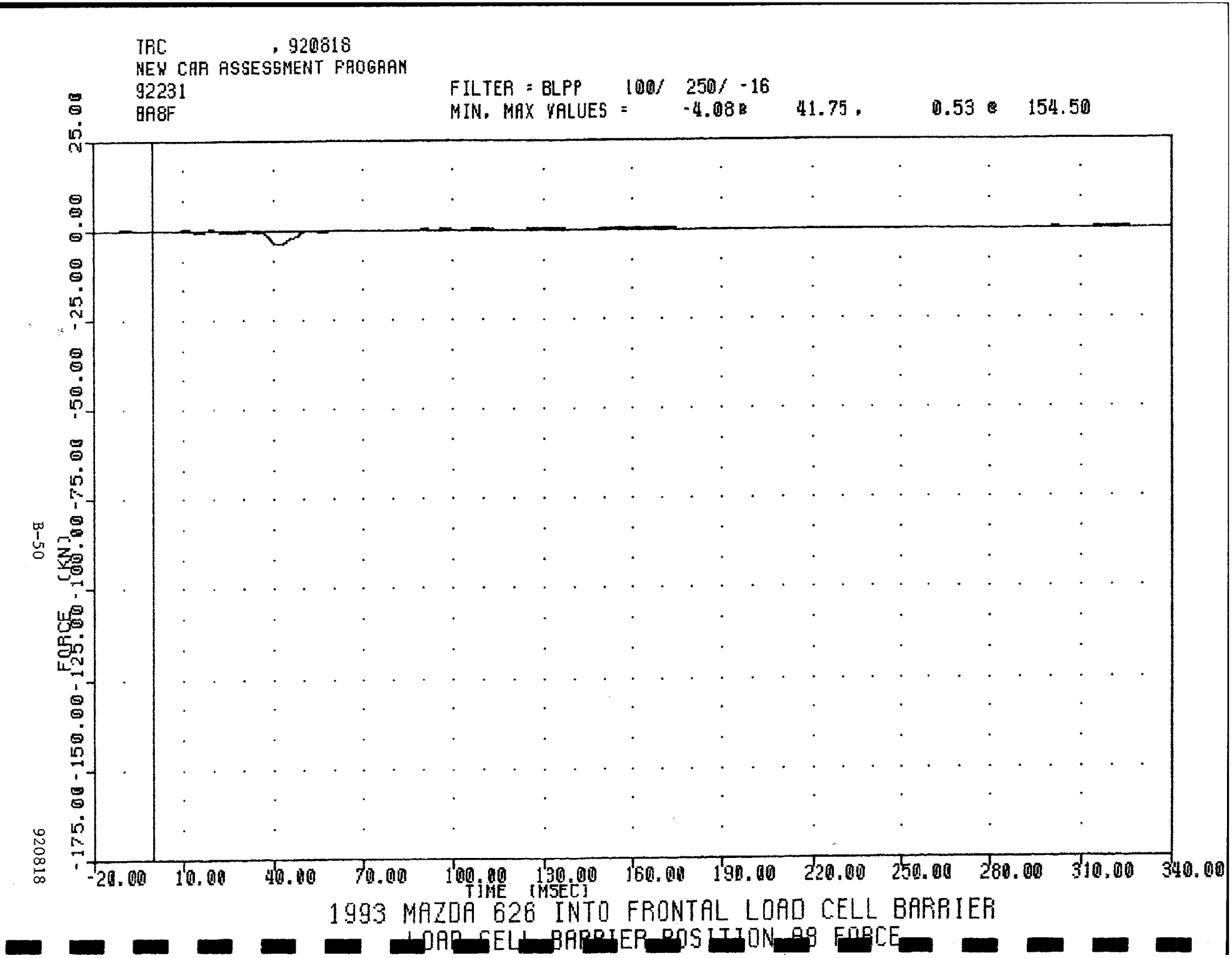
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BA6F
FILTER = BLPF 100/ 250/ -16
MIN, MAX VALUES = -2.14 @ 28.50 , 0.37 @ 262.13
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 06 FORCE

920818



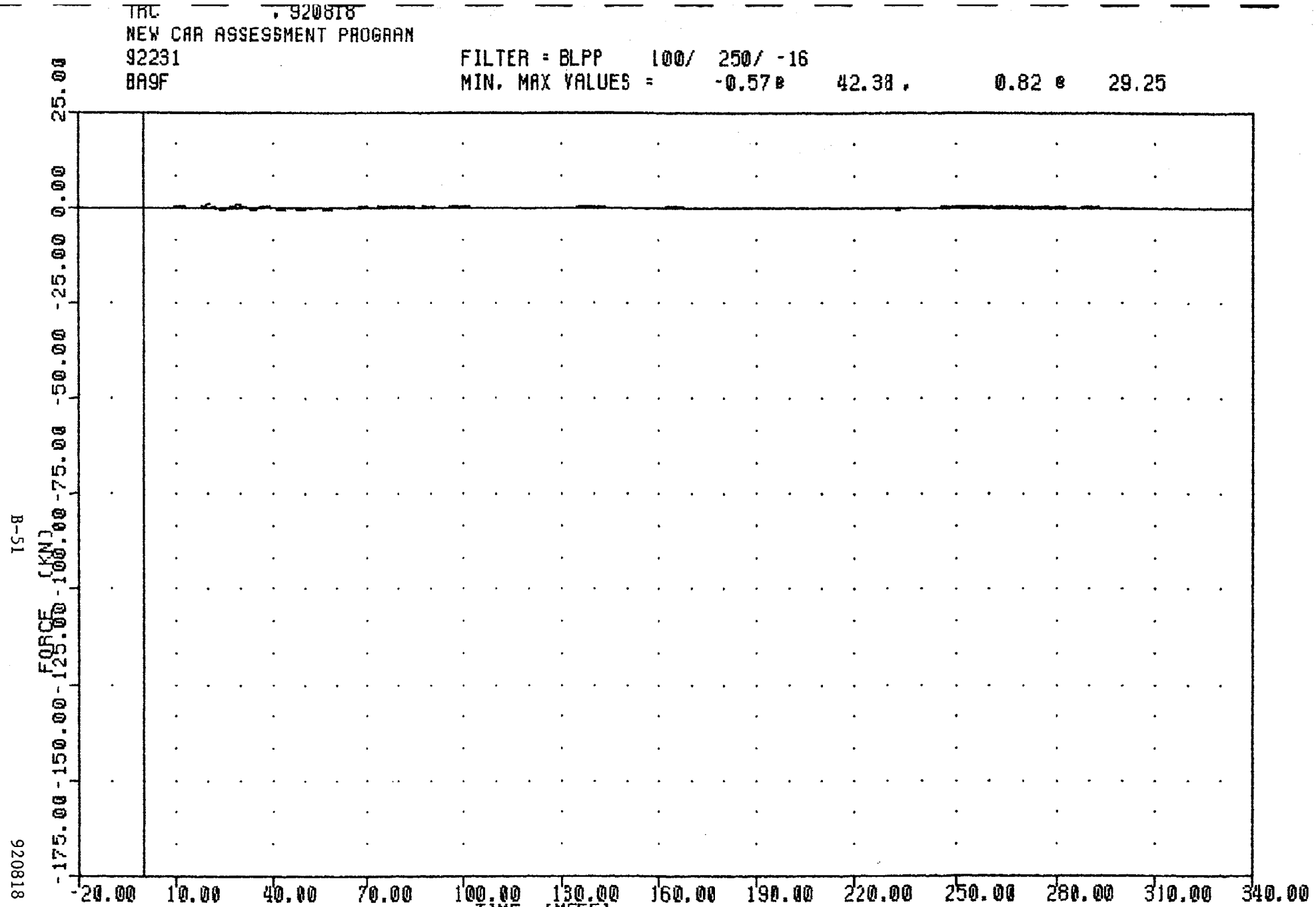
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE



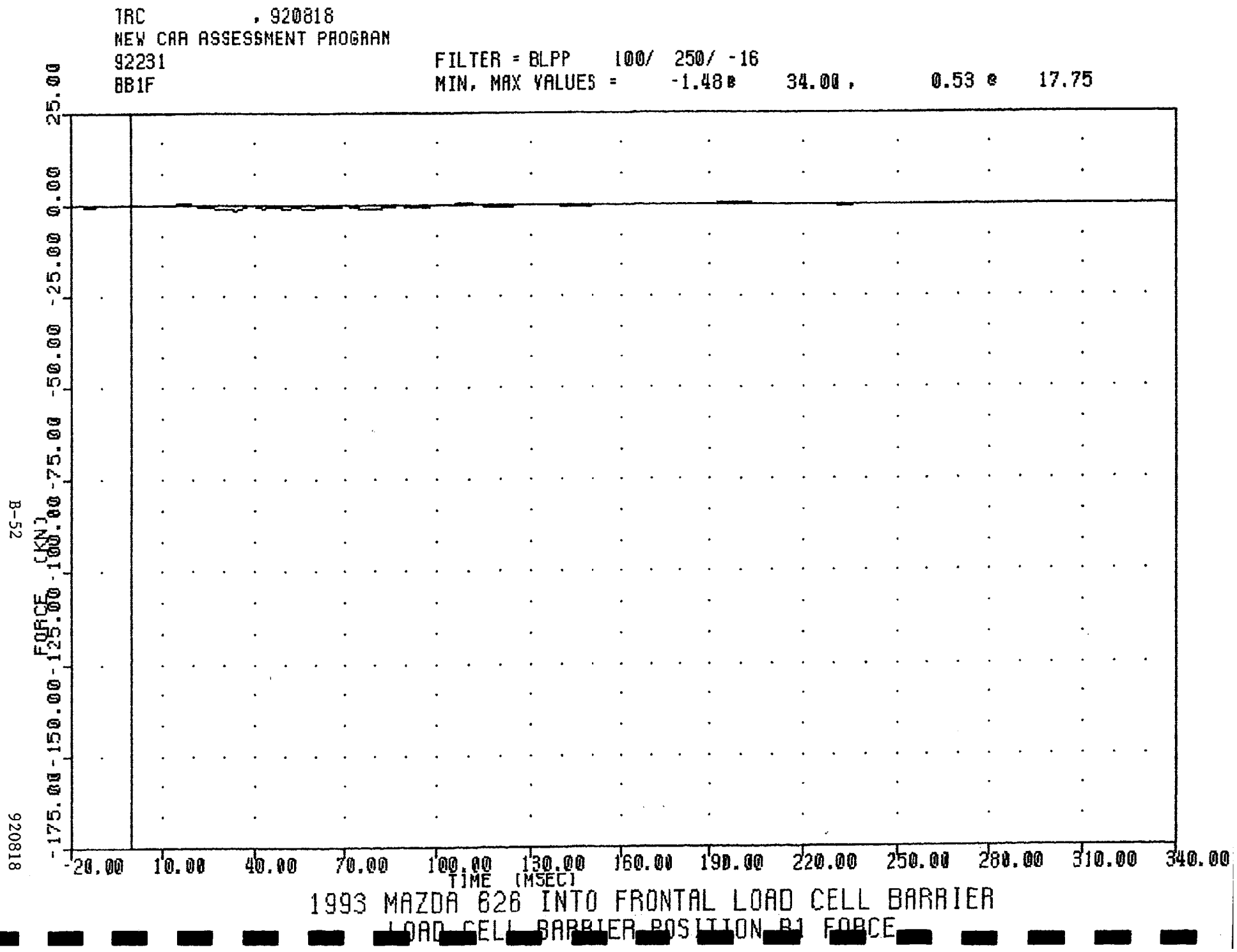
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER

LOAD CELL BARRIER POSITION AS FORCE

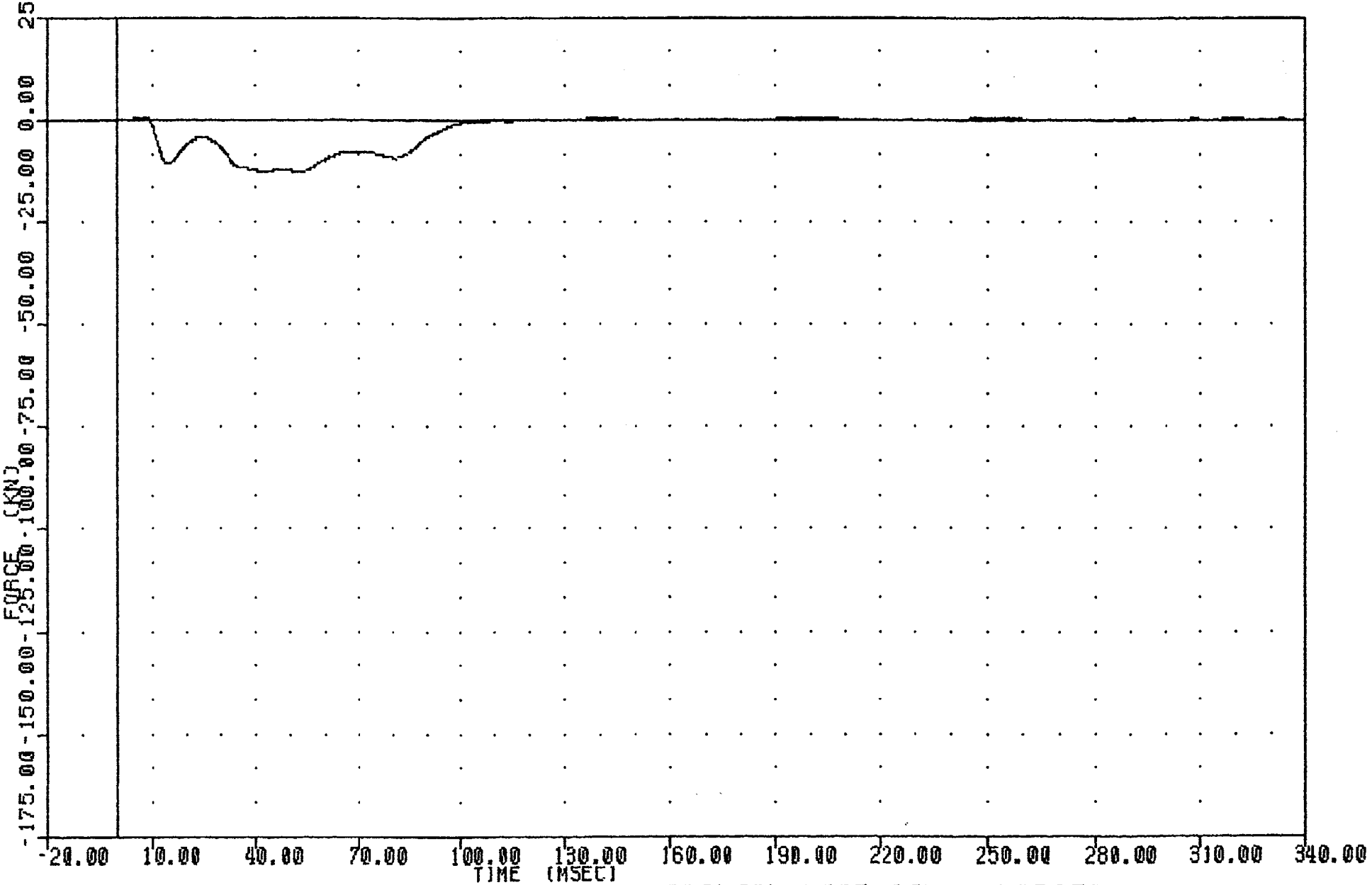
920818



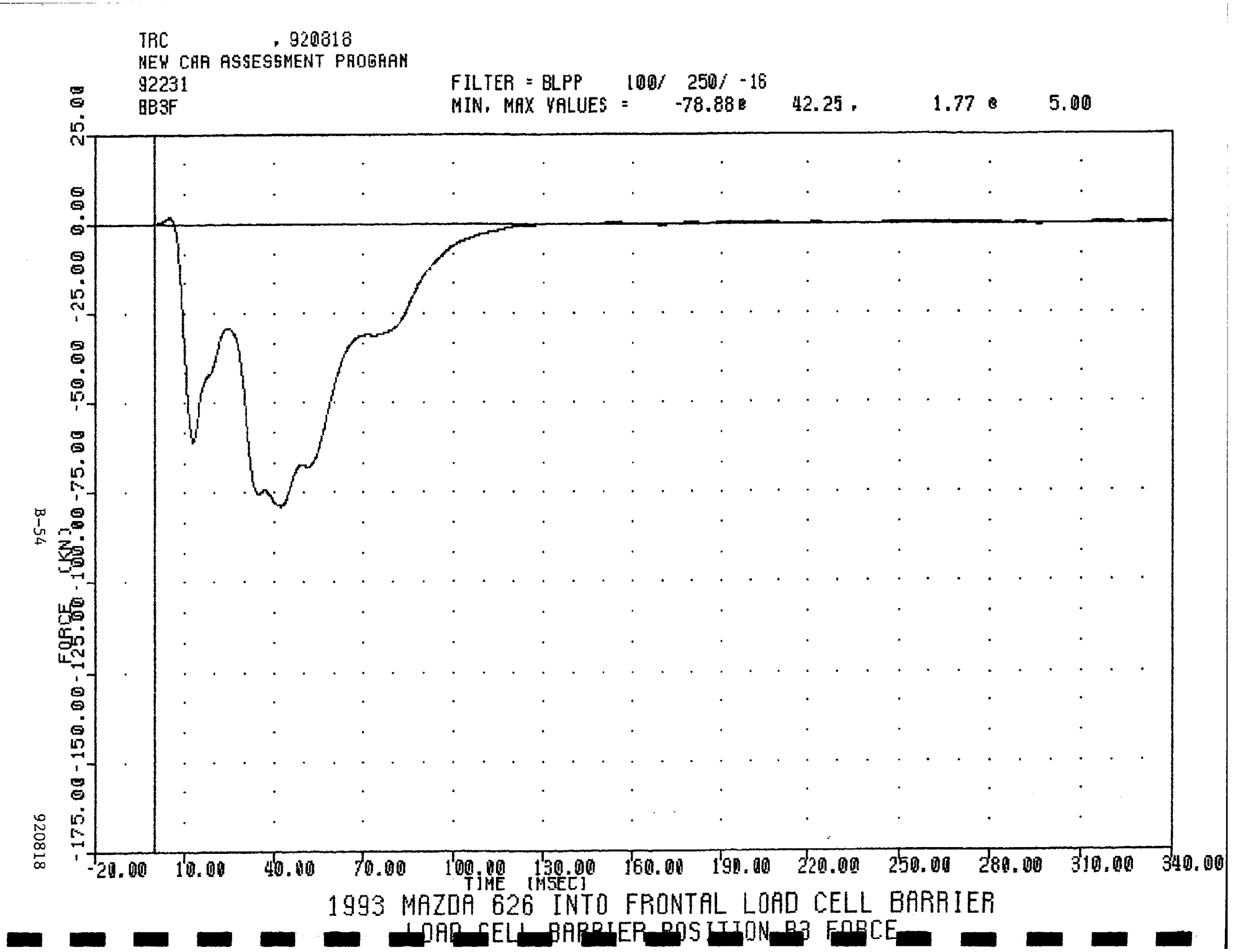
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE

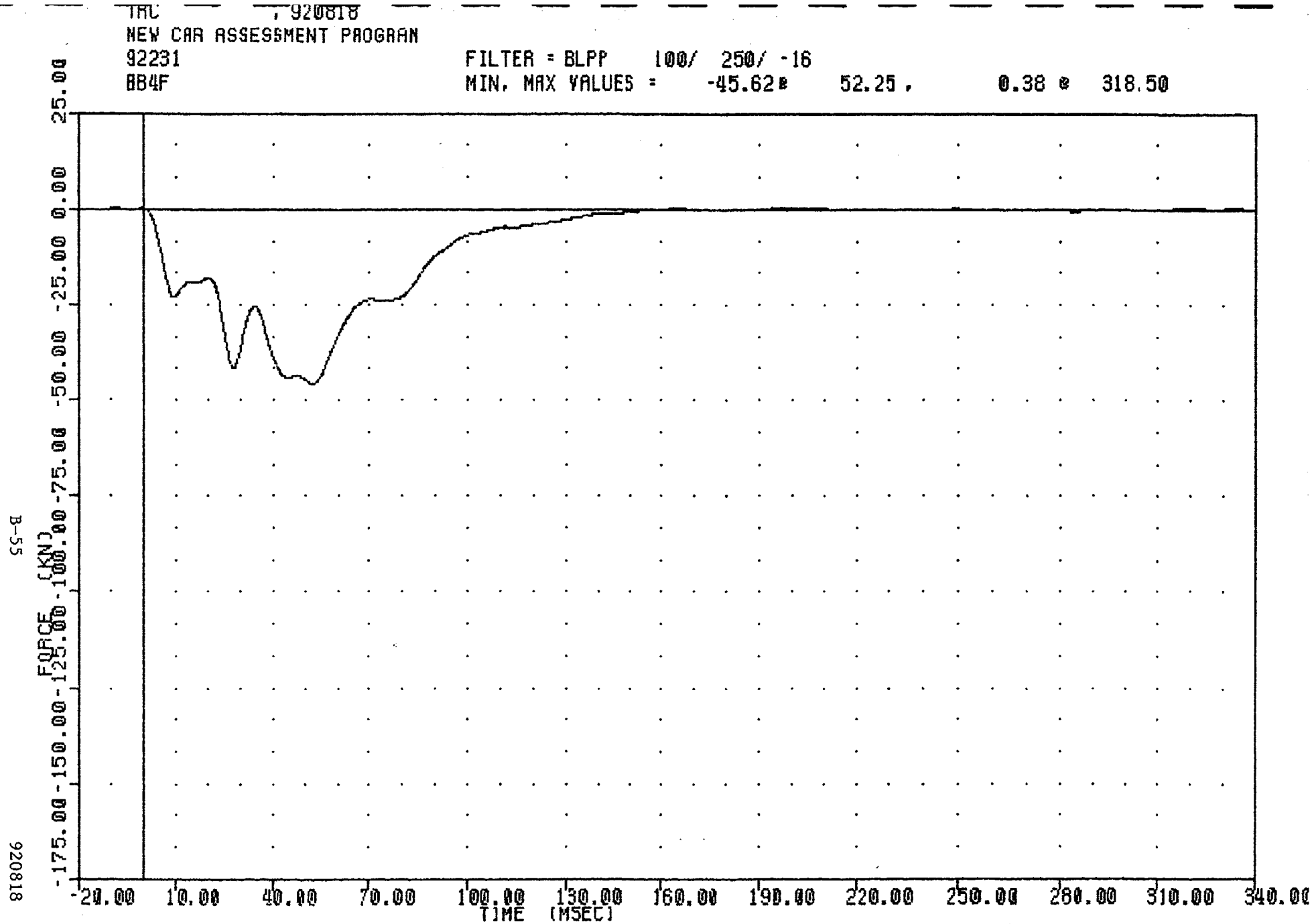

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
8B1F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -1.48 @ 34.00 , 0.53 @ 17.75
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231 FILTER = BLPP 100/ 250/ -16
BB2F MIN, MAX VALUES = -13.08 @ 42.88 , 0.49 @ 7.50

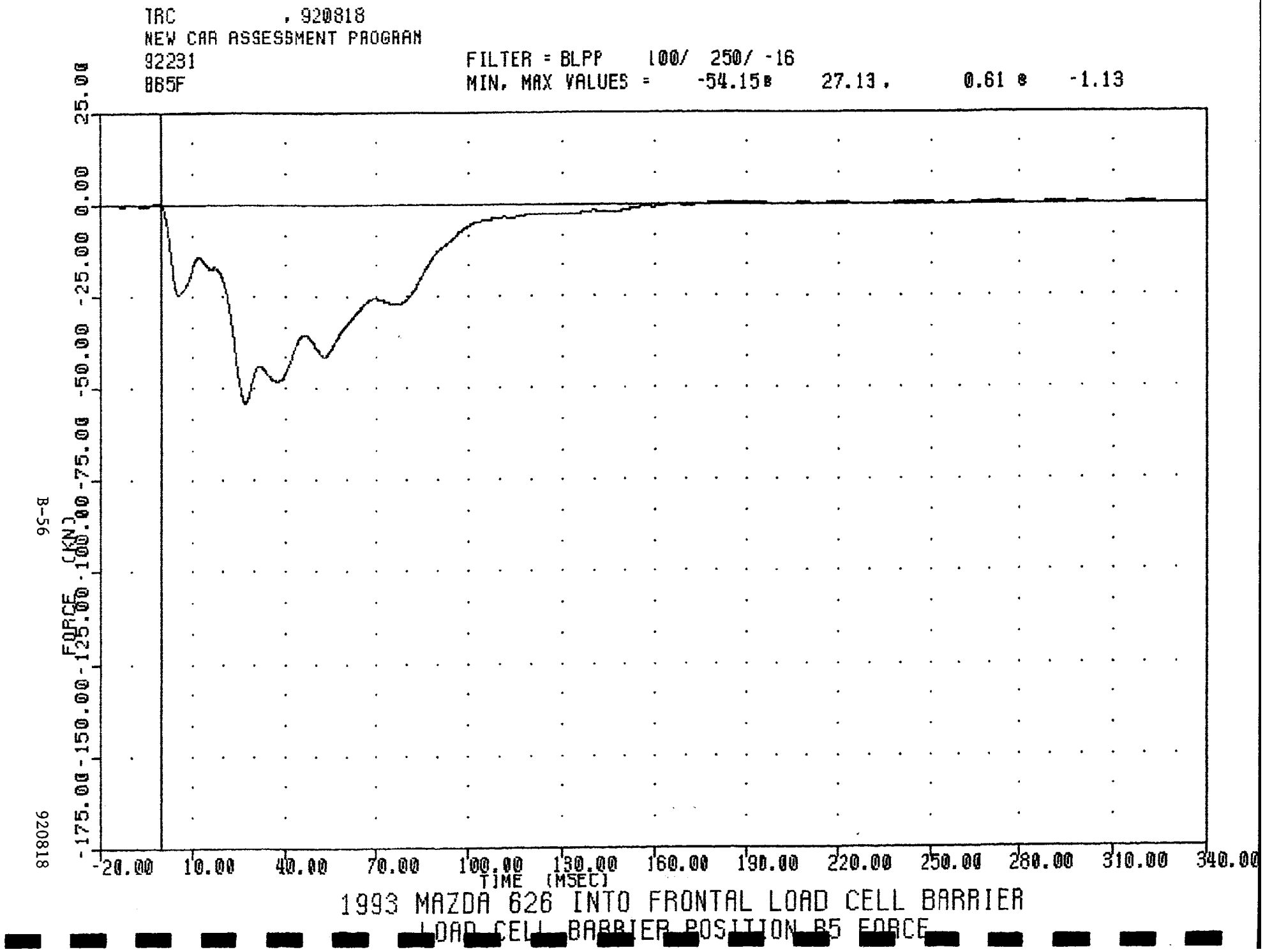


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE

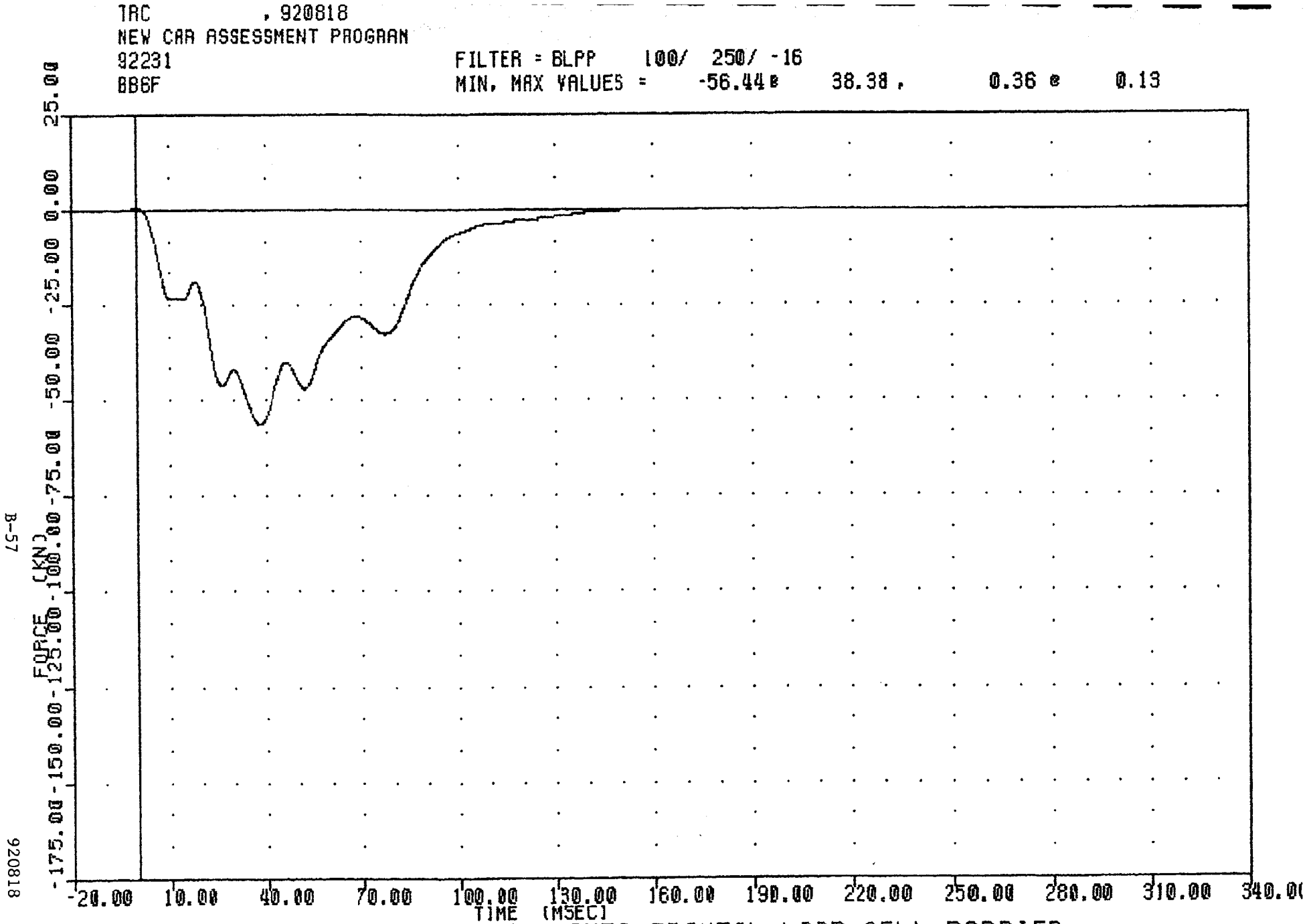

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BB3F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -78.88 @ 42.25 , 1.77 @ 5.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE



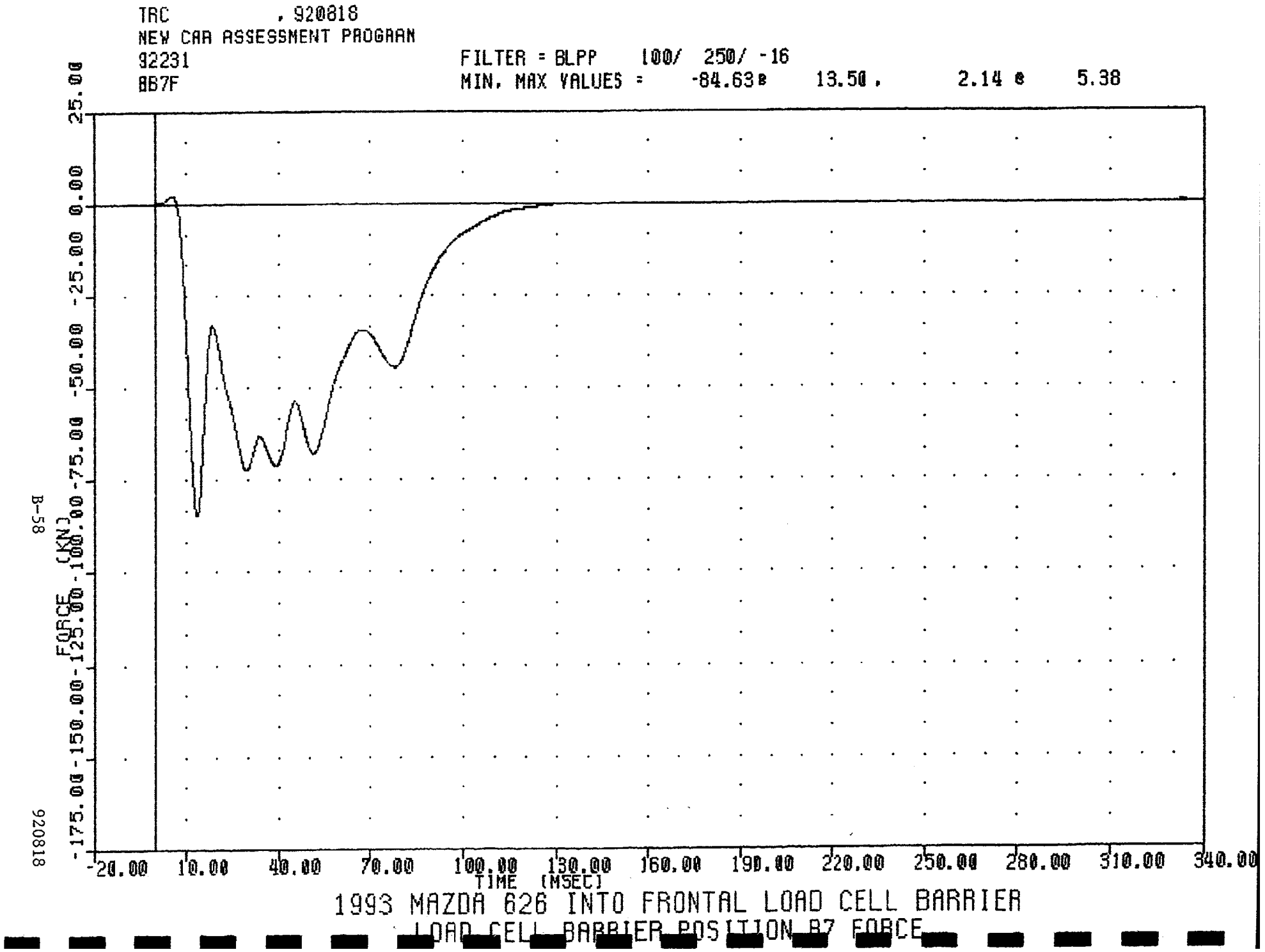
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE

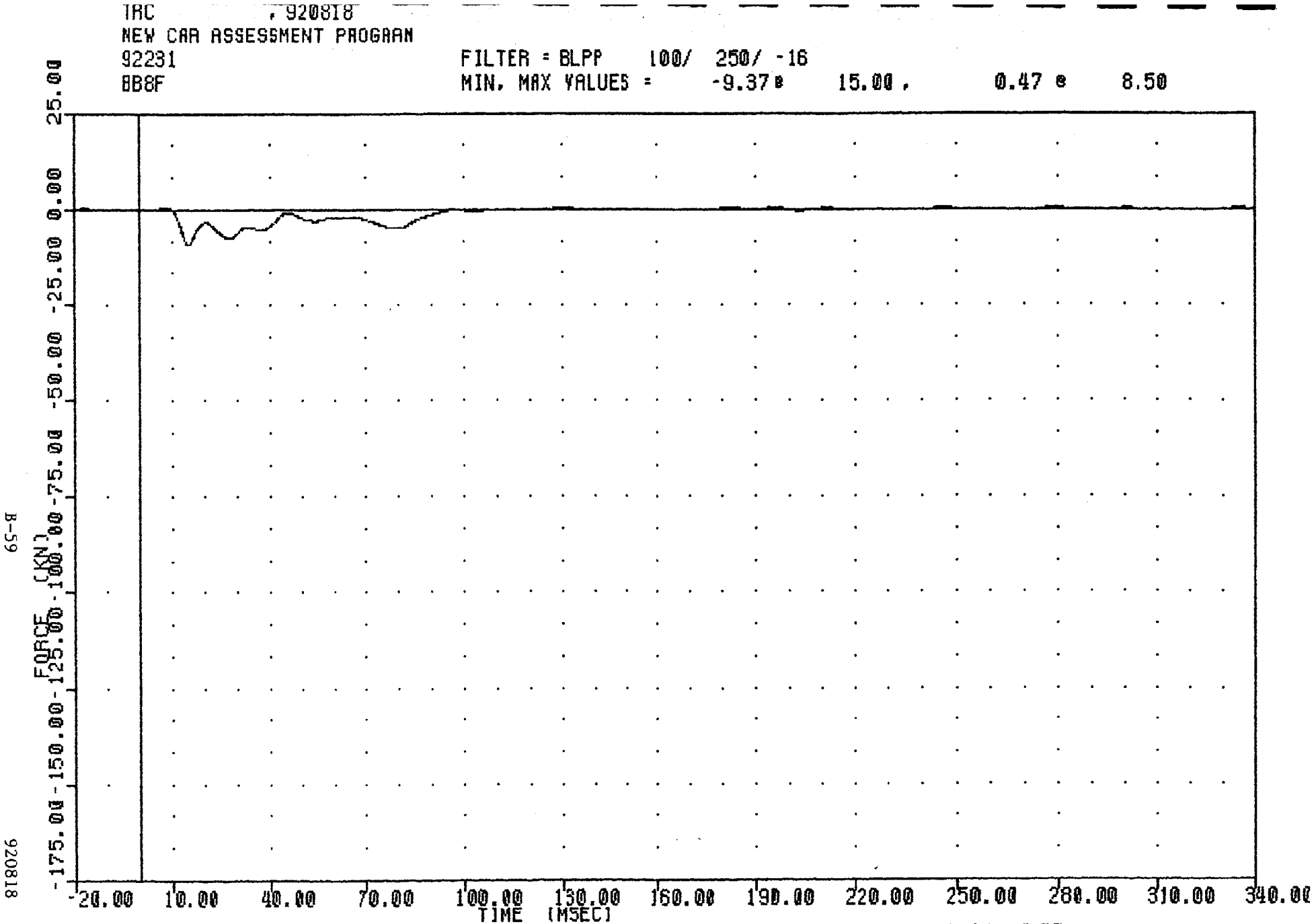

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
B65F
FILTER = BLPF 100/ 250/ -16
MIN, MAX VALUES = -54.15 @ 27.13 , 0.61 @ -1.13
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE

920818



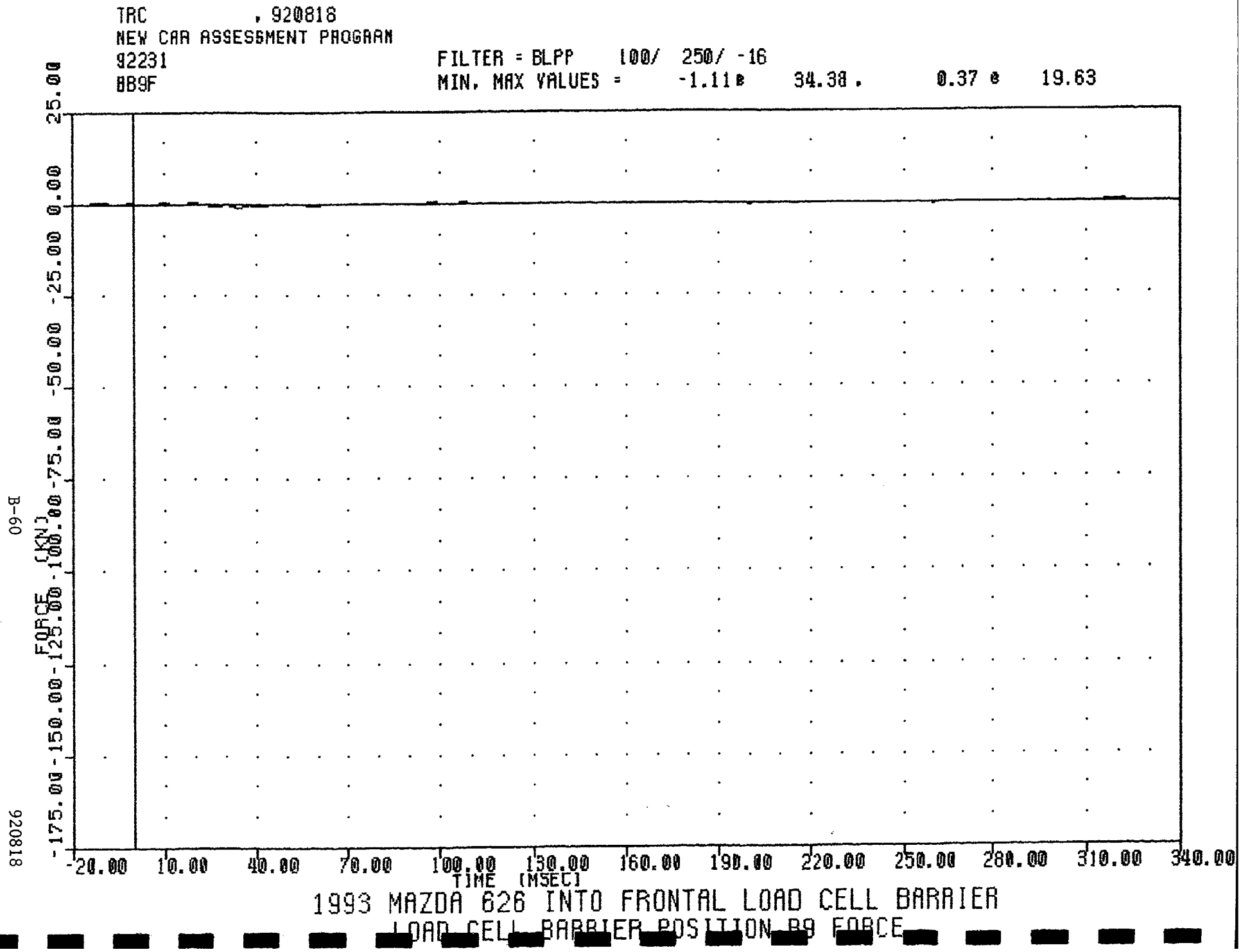
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BB7F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -84.63 @ 13.50 , 2.14 @ 5.38
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE

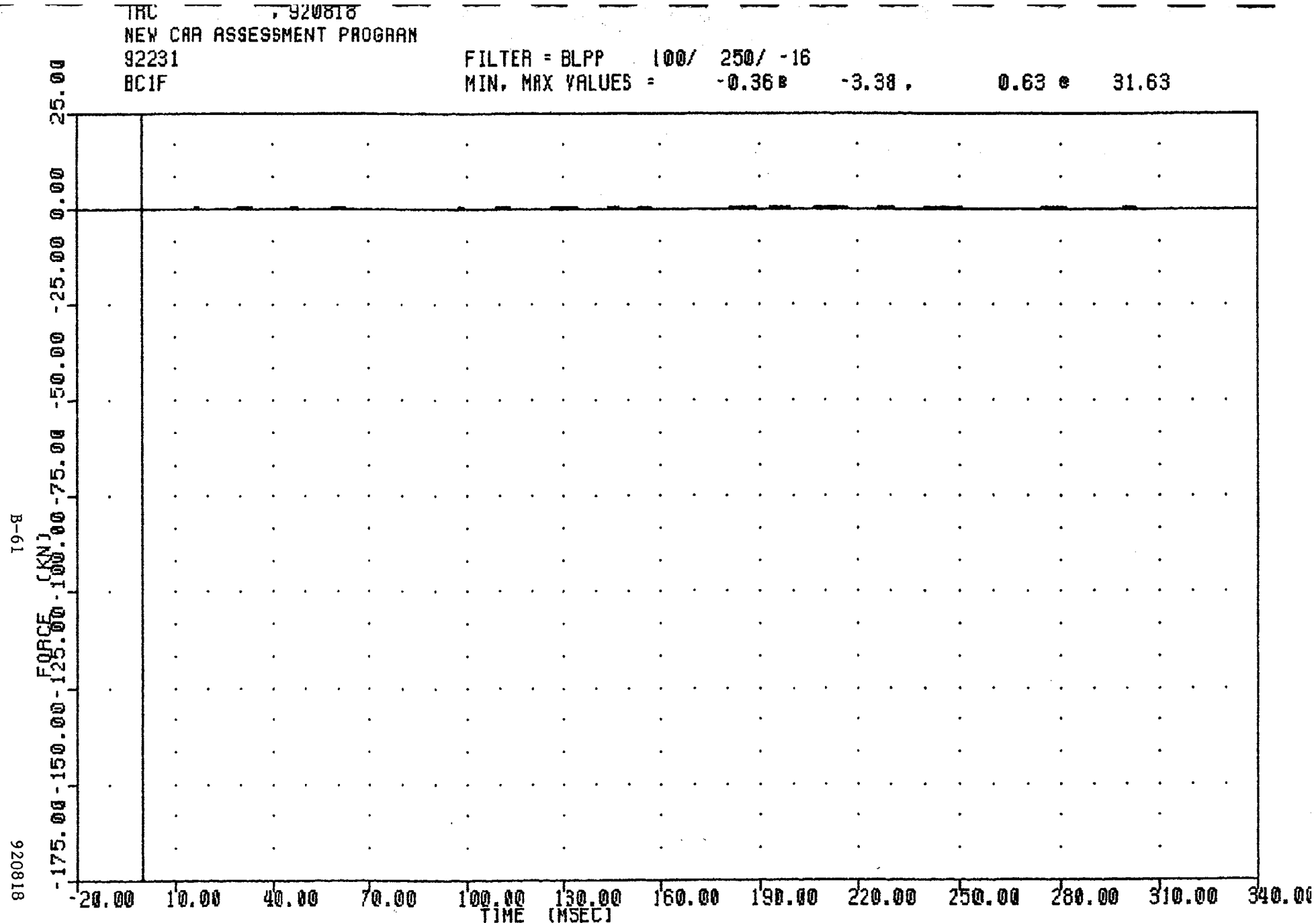


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE

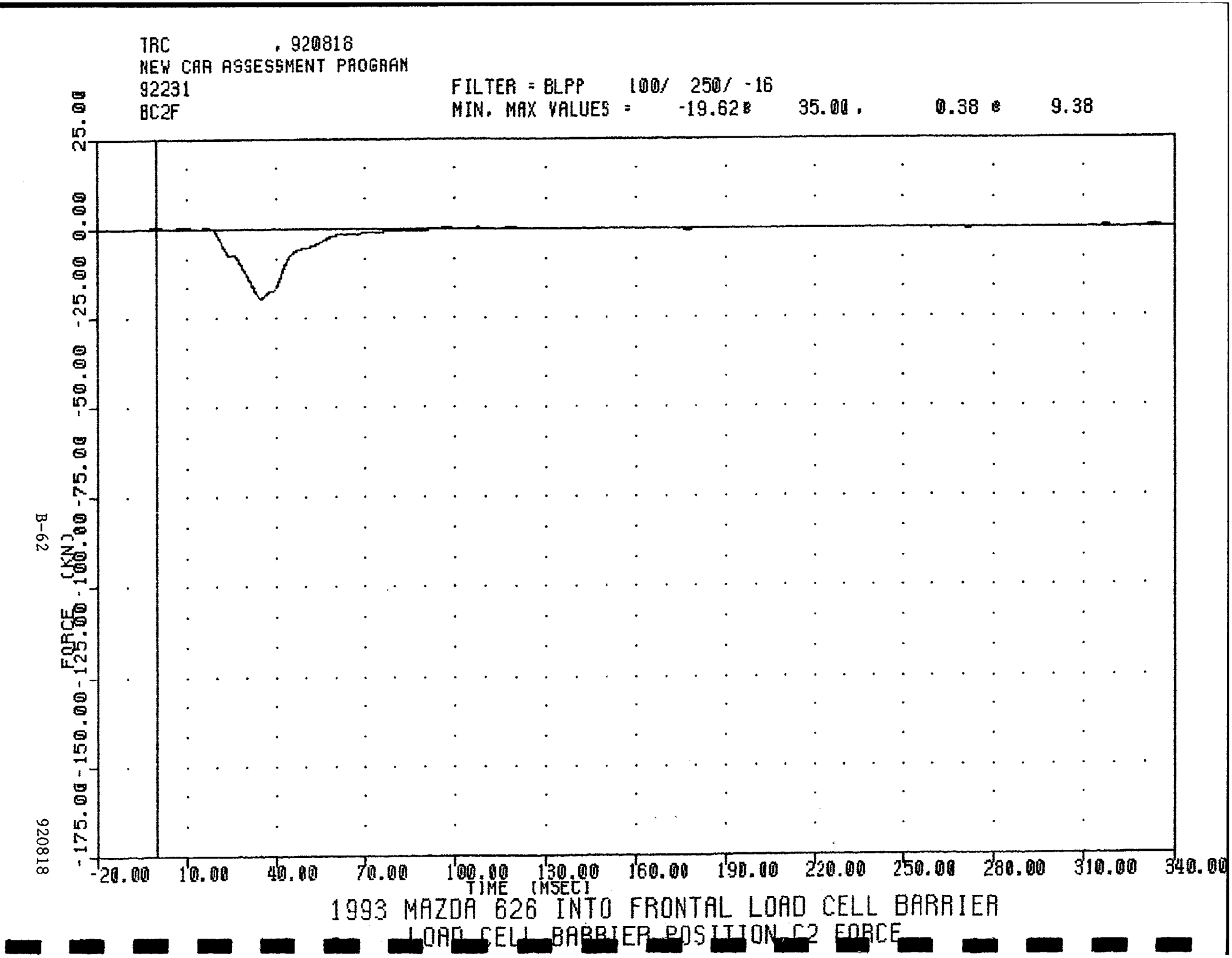
920818

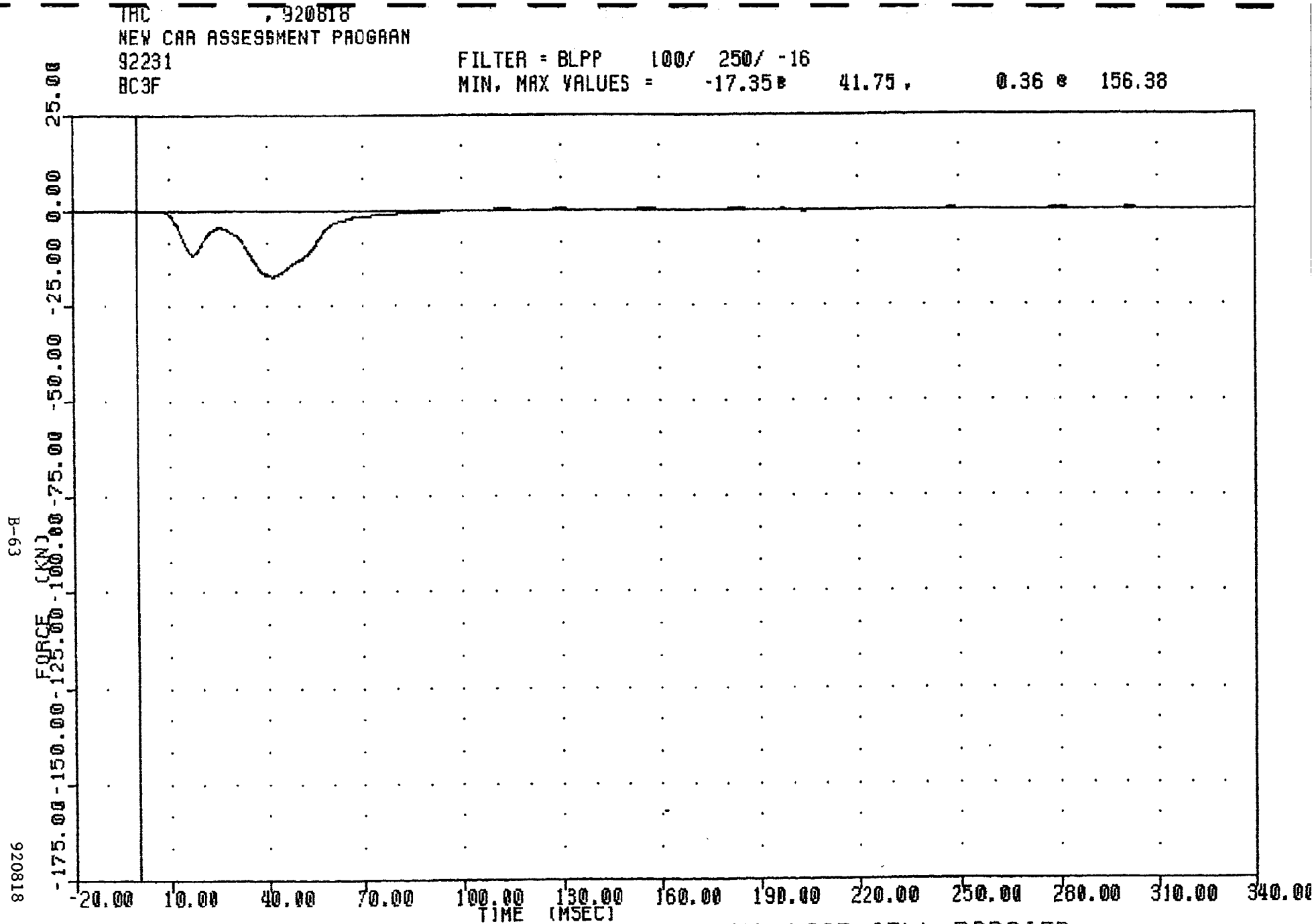

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
8B9F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -1.11 @ 34.38 , 0.37 @ 19.63
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION RR FORCE

920818

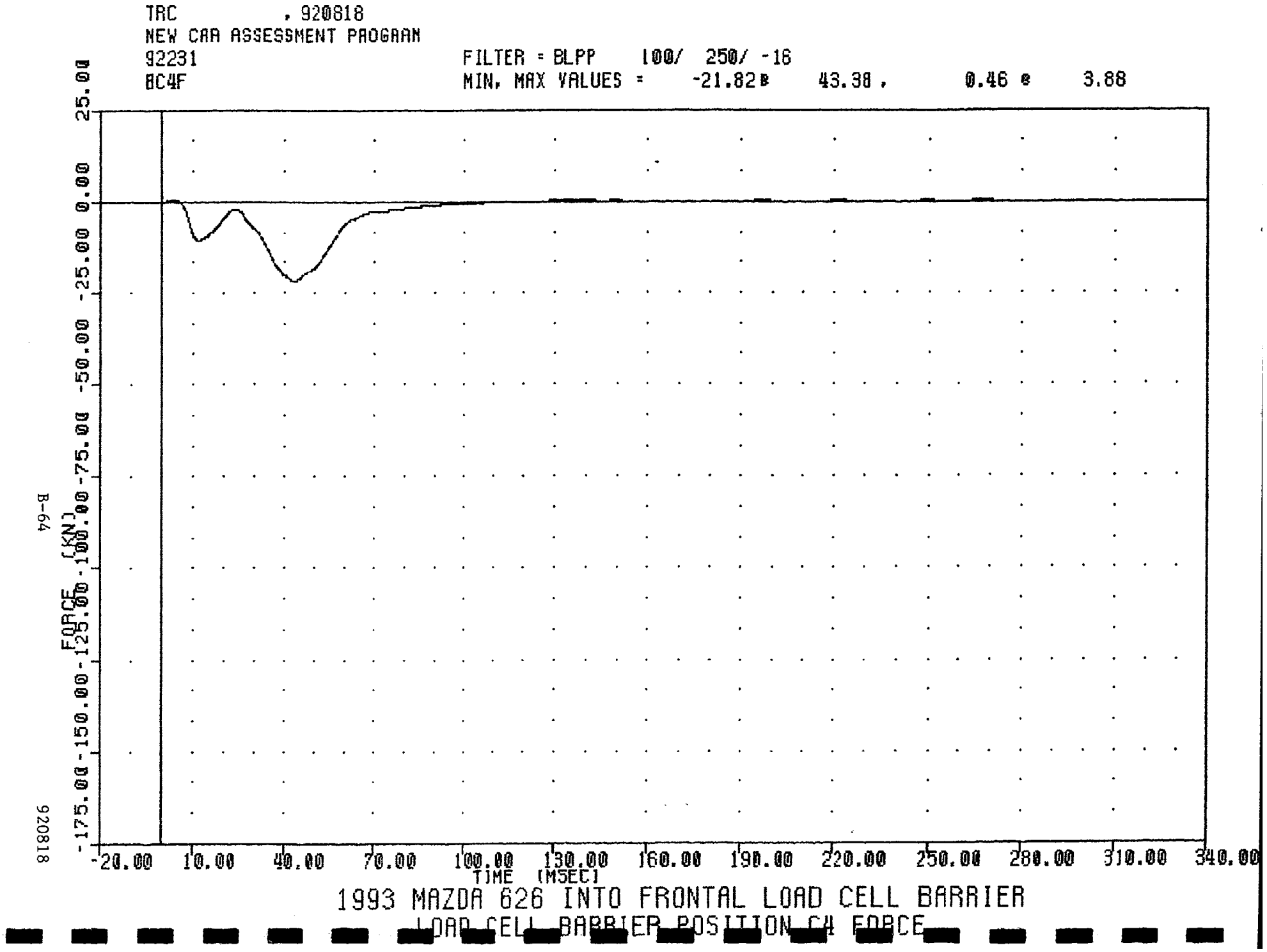


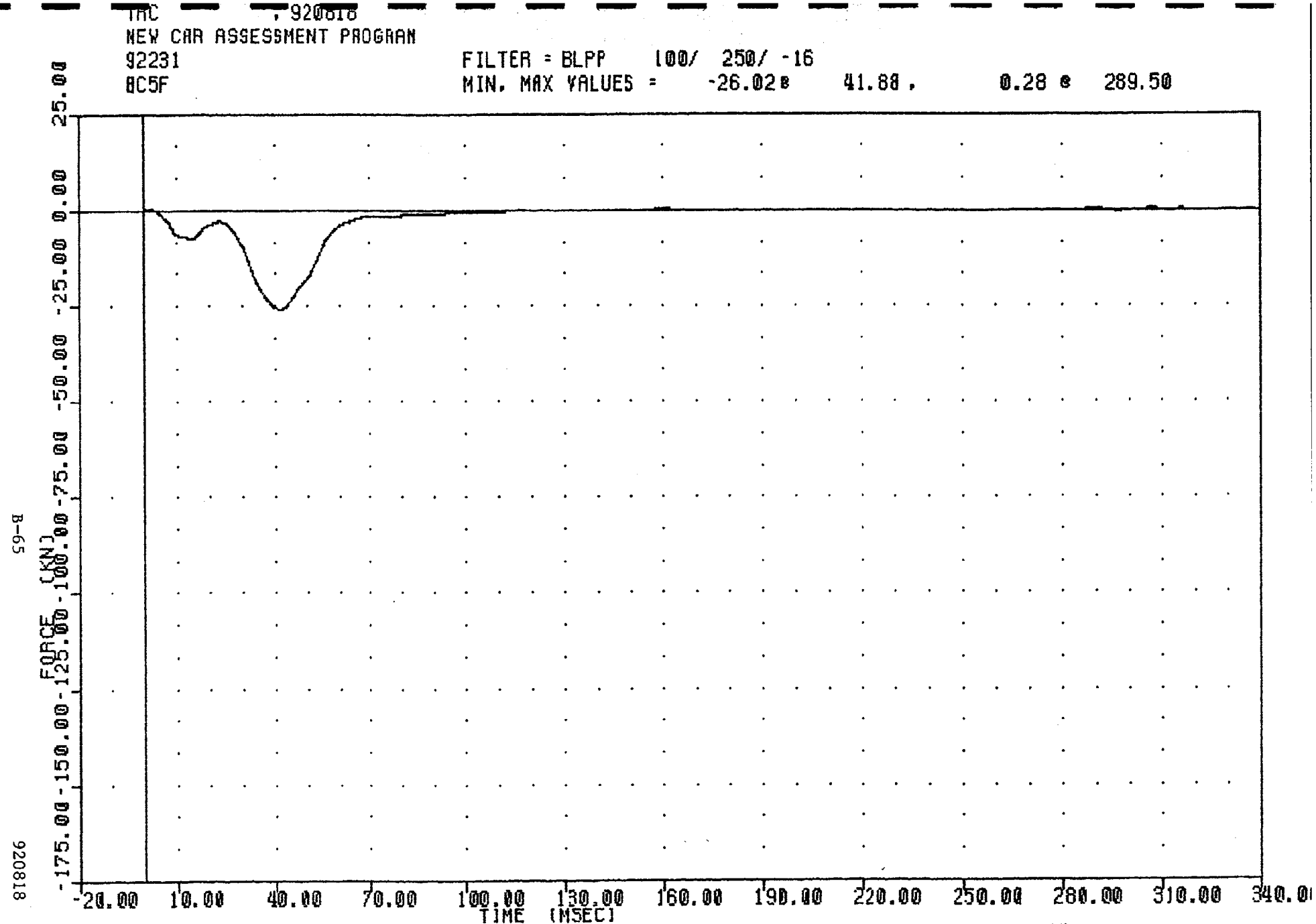
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BC2F
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -19.62 @ 35.00 , 0.38 @ 9.38
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE

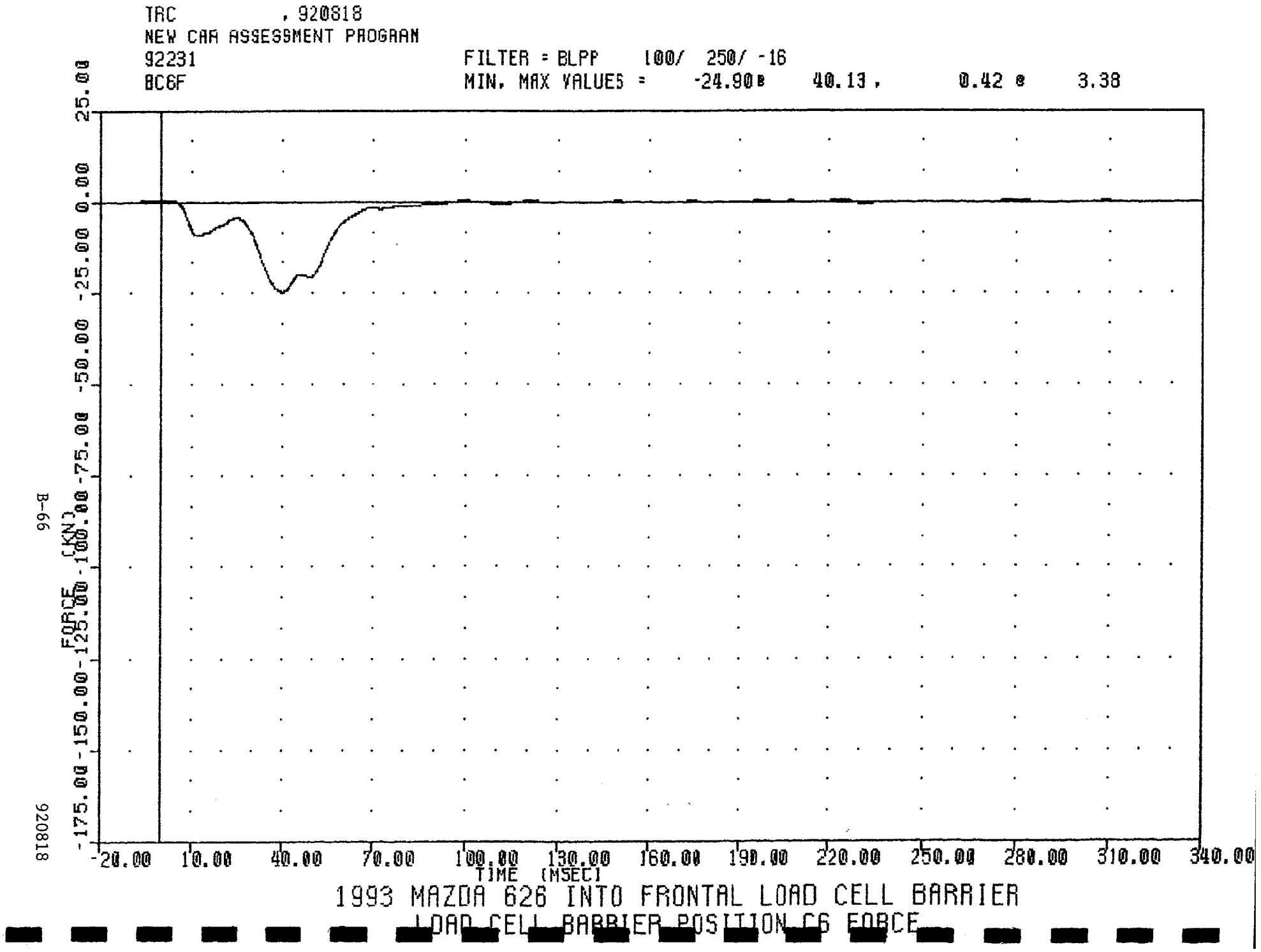


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
8C4F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -21.82 @ 43.38 , 0.46 @ 3.88
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE

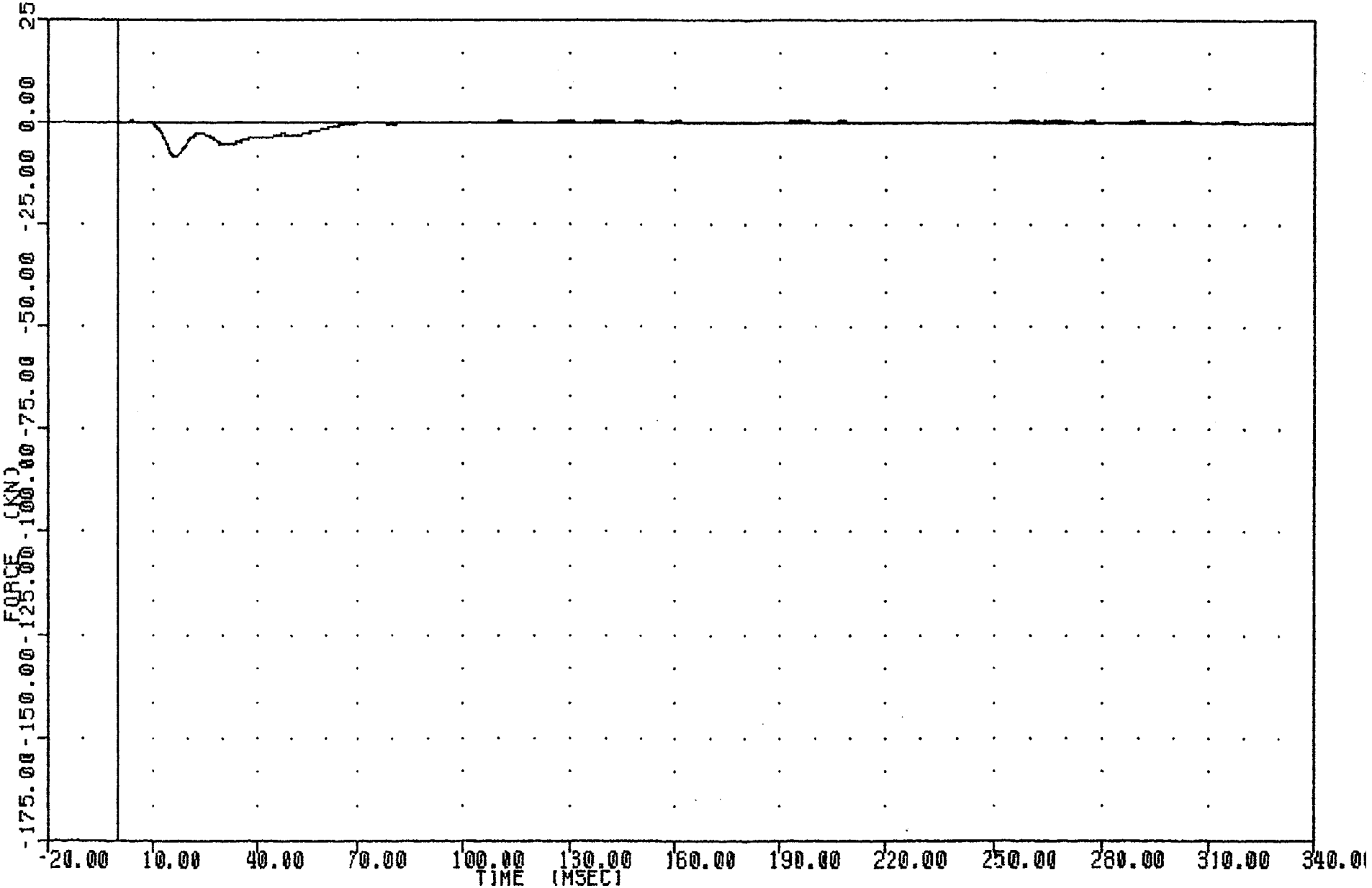


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE

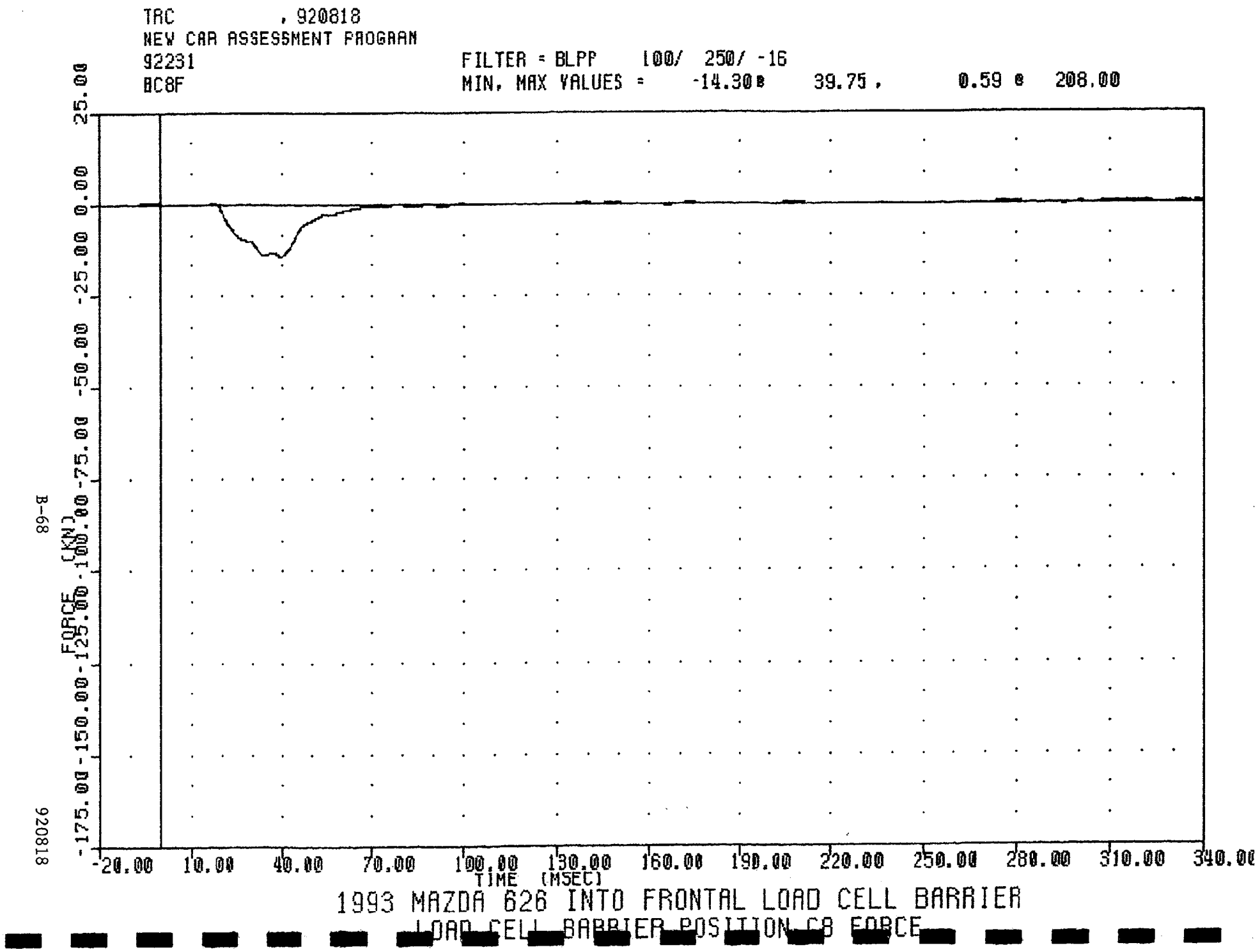

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BC6F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -24.90 @ 40.13 , 0.42 @ 3.38
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BC7F

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -8.65 @ 16.50 , 0.34 @ 139.75

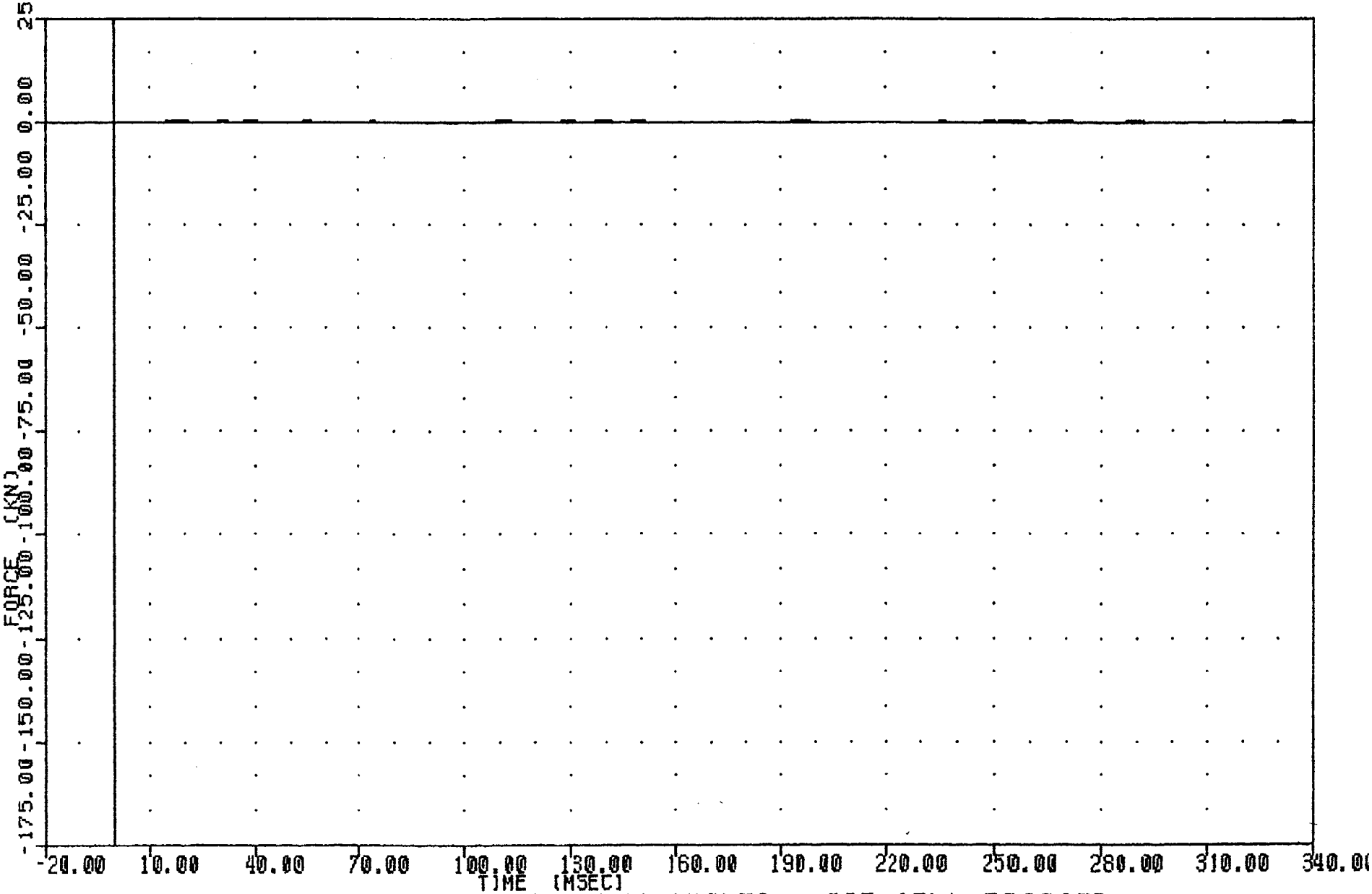


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE

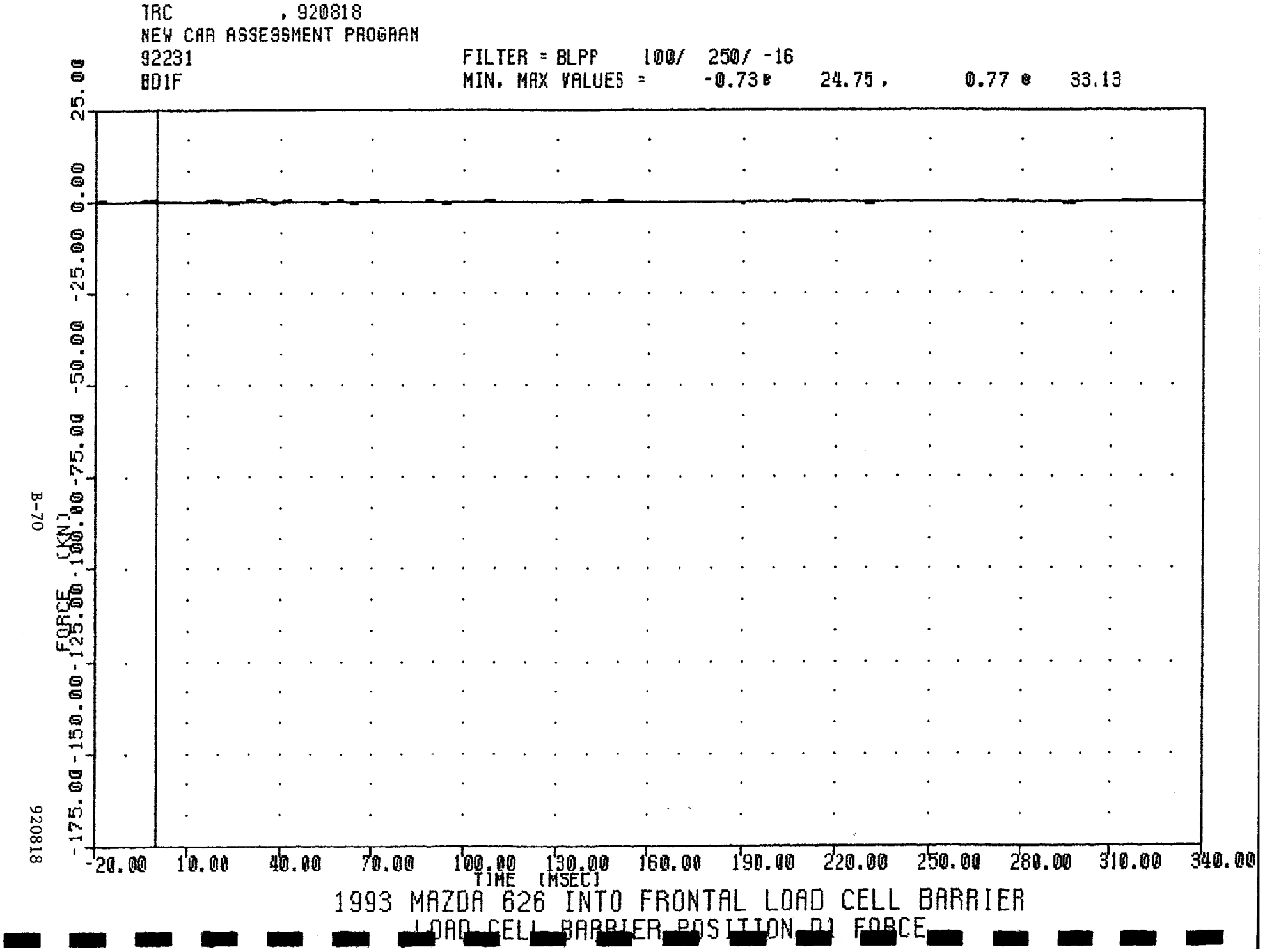

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BC8F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -14.30 @ 39.75 , 0.59 @ 208.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C8 FORCE

TRL , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BC9F

FILTER = BLPP [00/ 250/ -16
MIN. MAX VALUES = -0.37 @ 59.75 . 0.55 @ 18.75

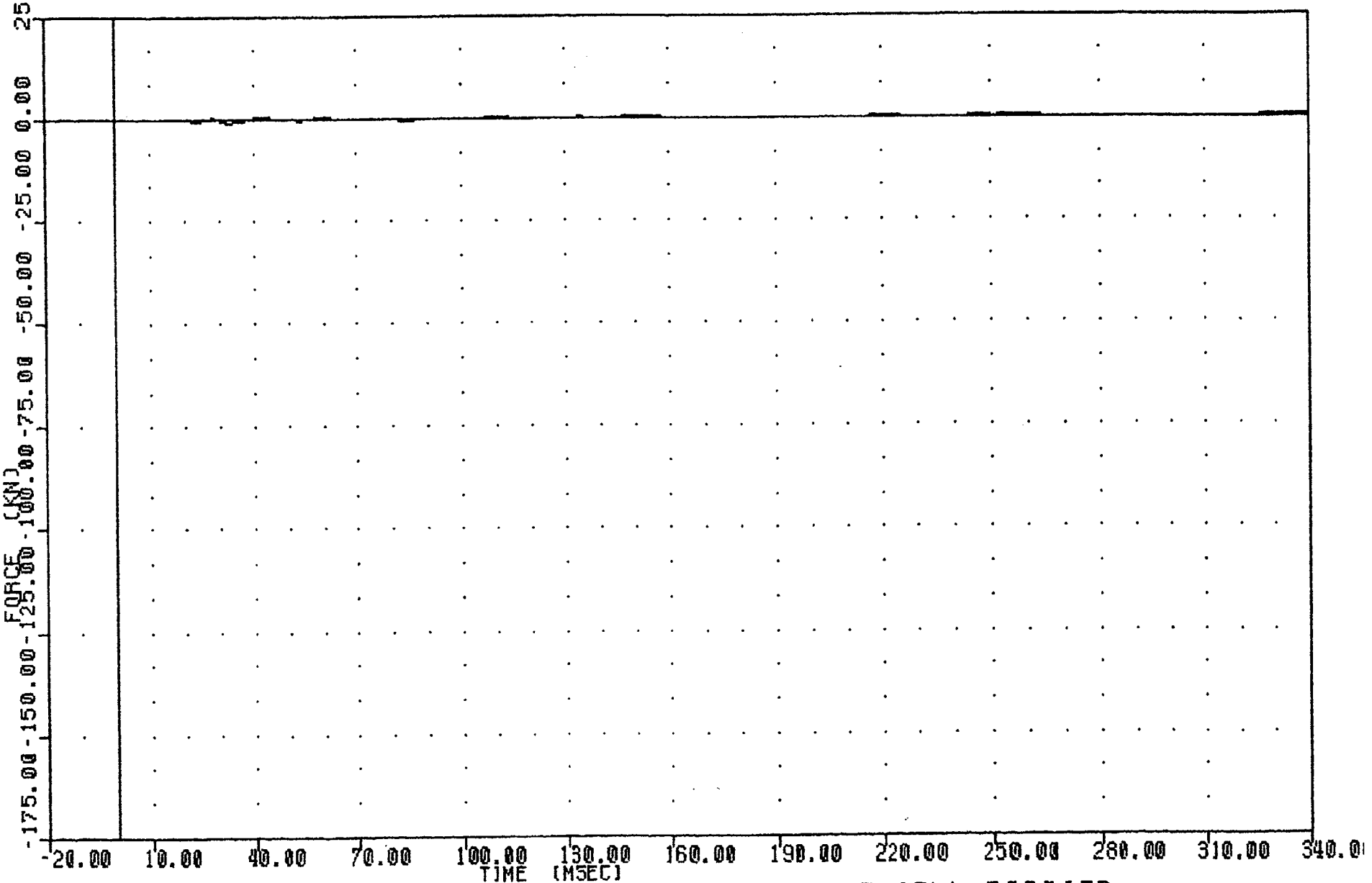


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE

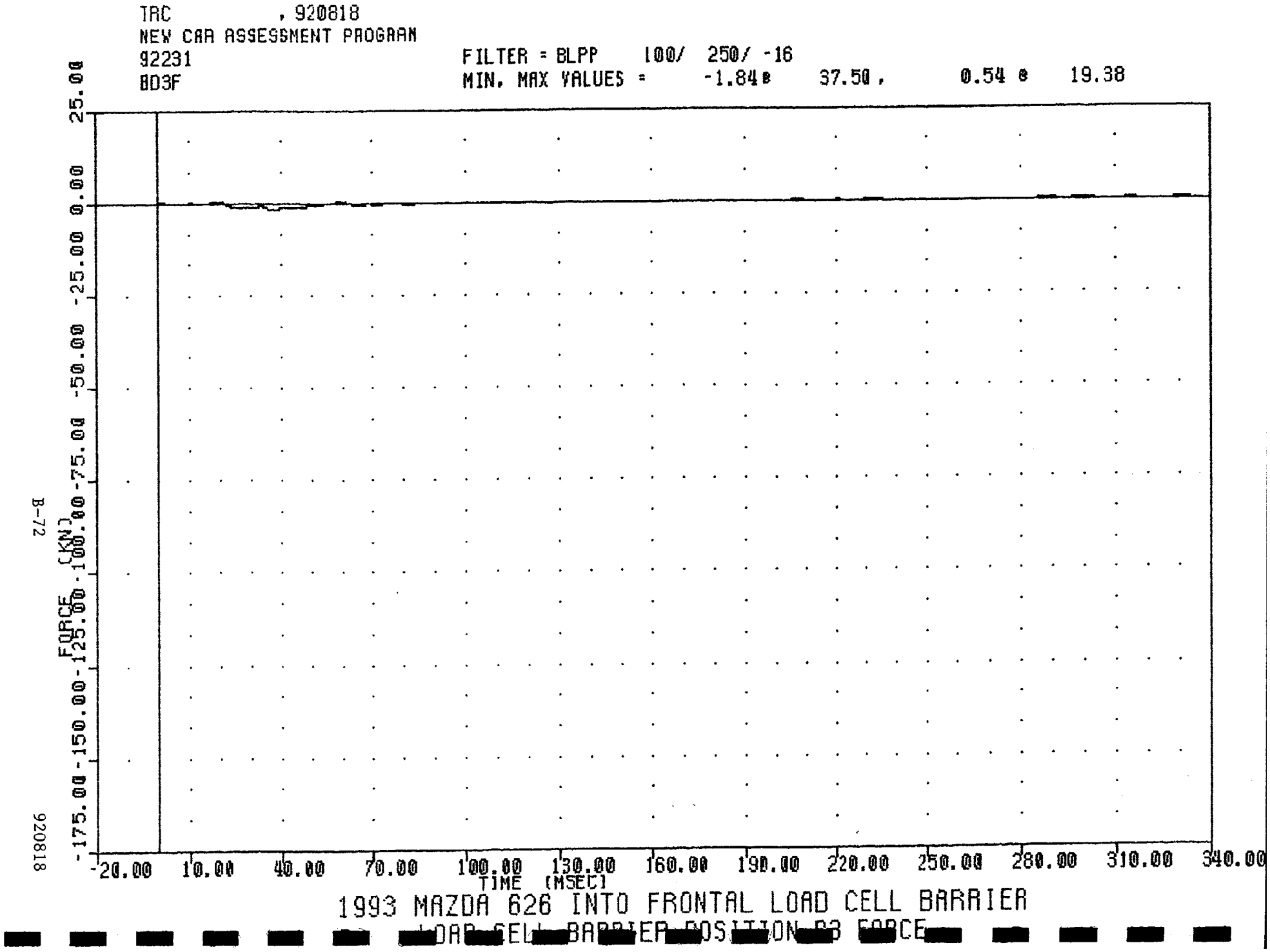

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BD1F
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -0.73 @ 24.75 , 0.77 @ 33.13
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION DJ FORCE

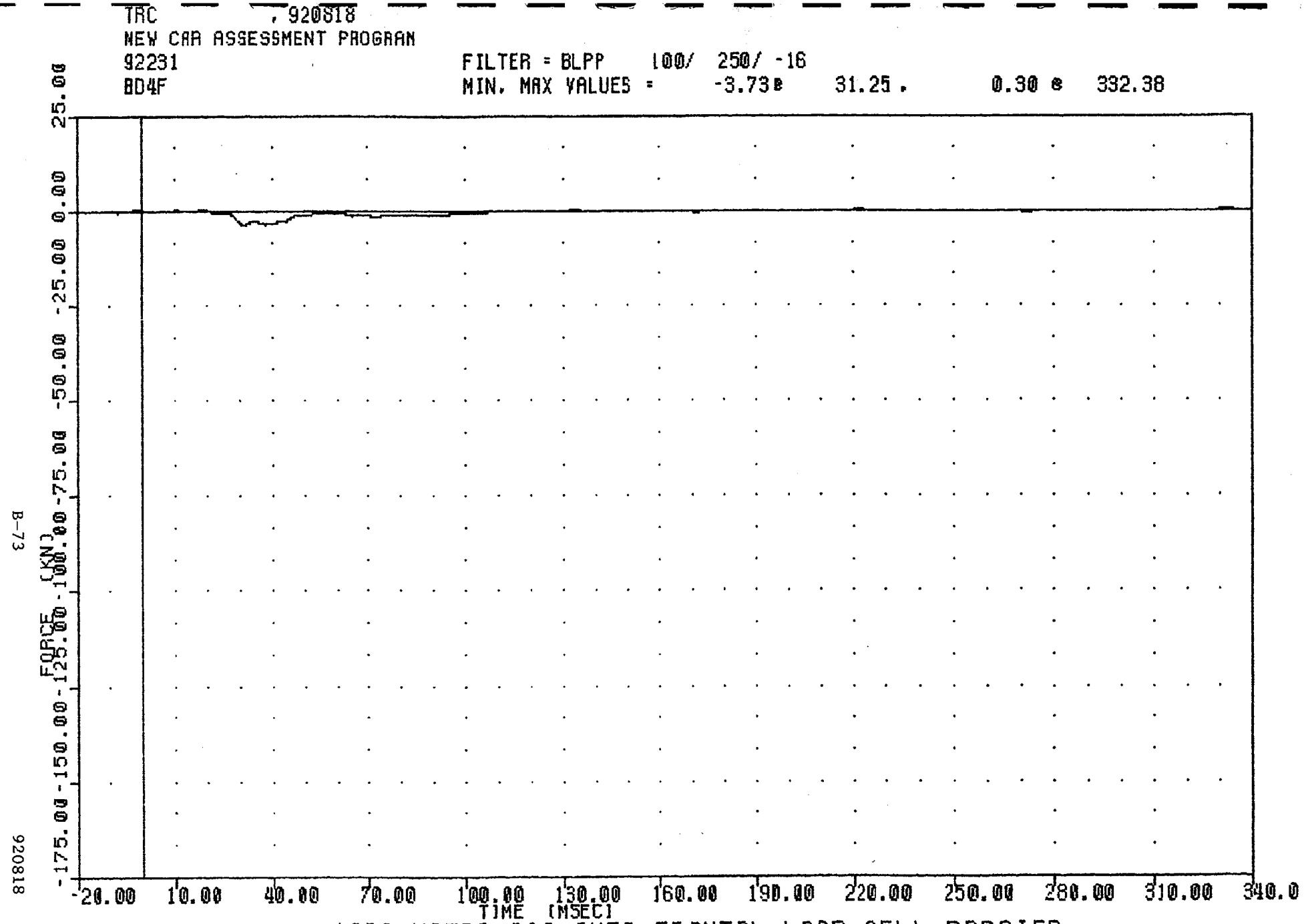
TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BD2F

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -1.06 @ 32.88 , 0.38 @ 41.50

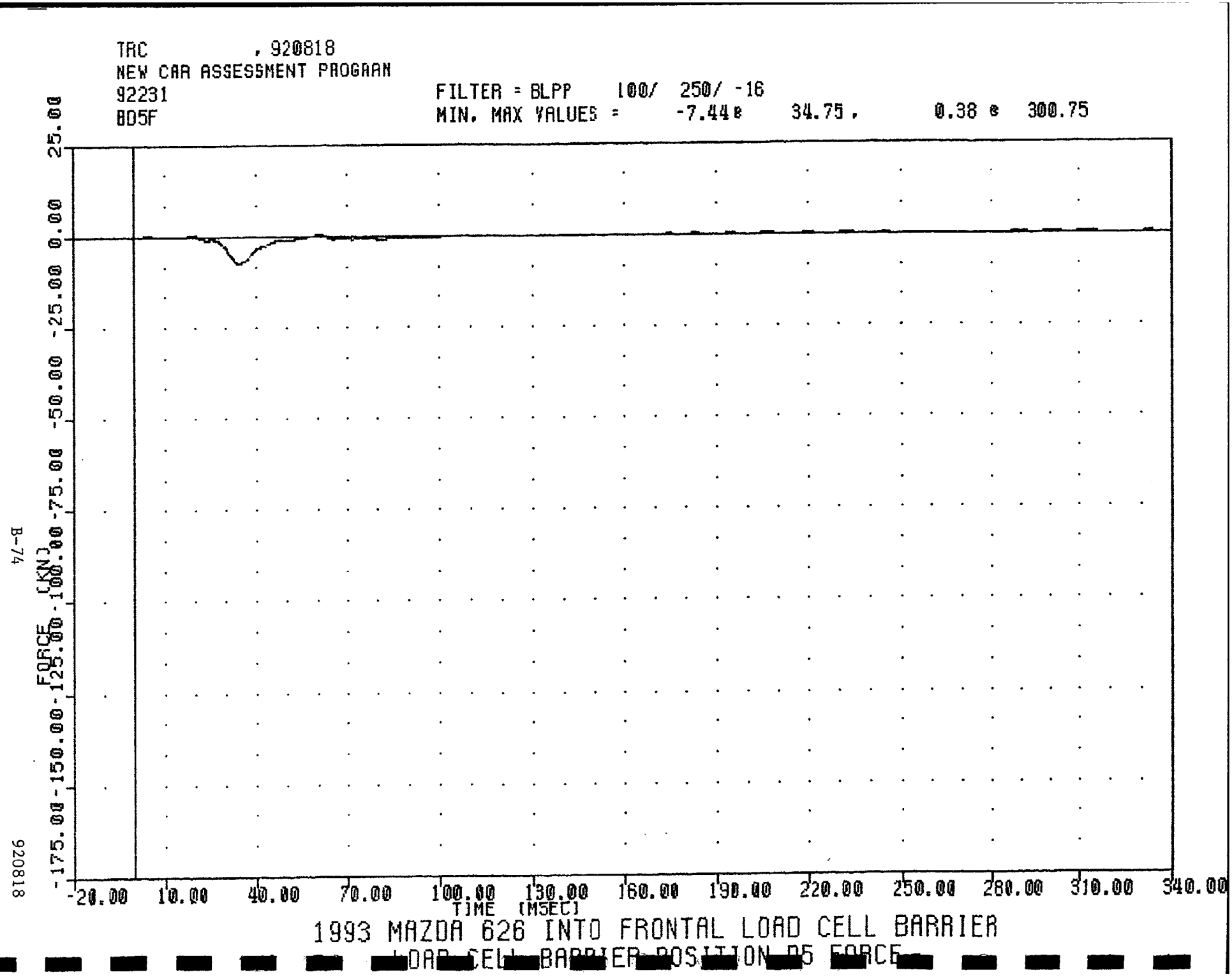


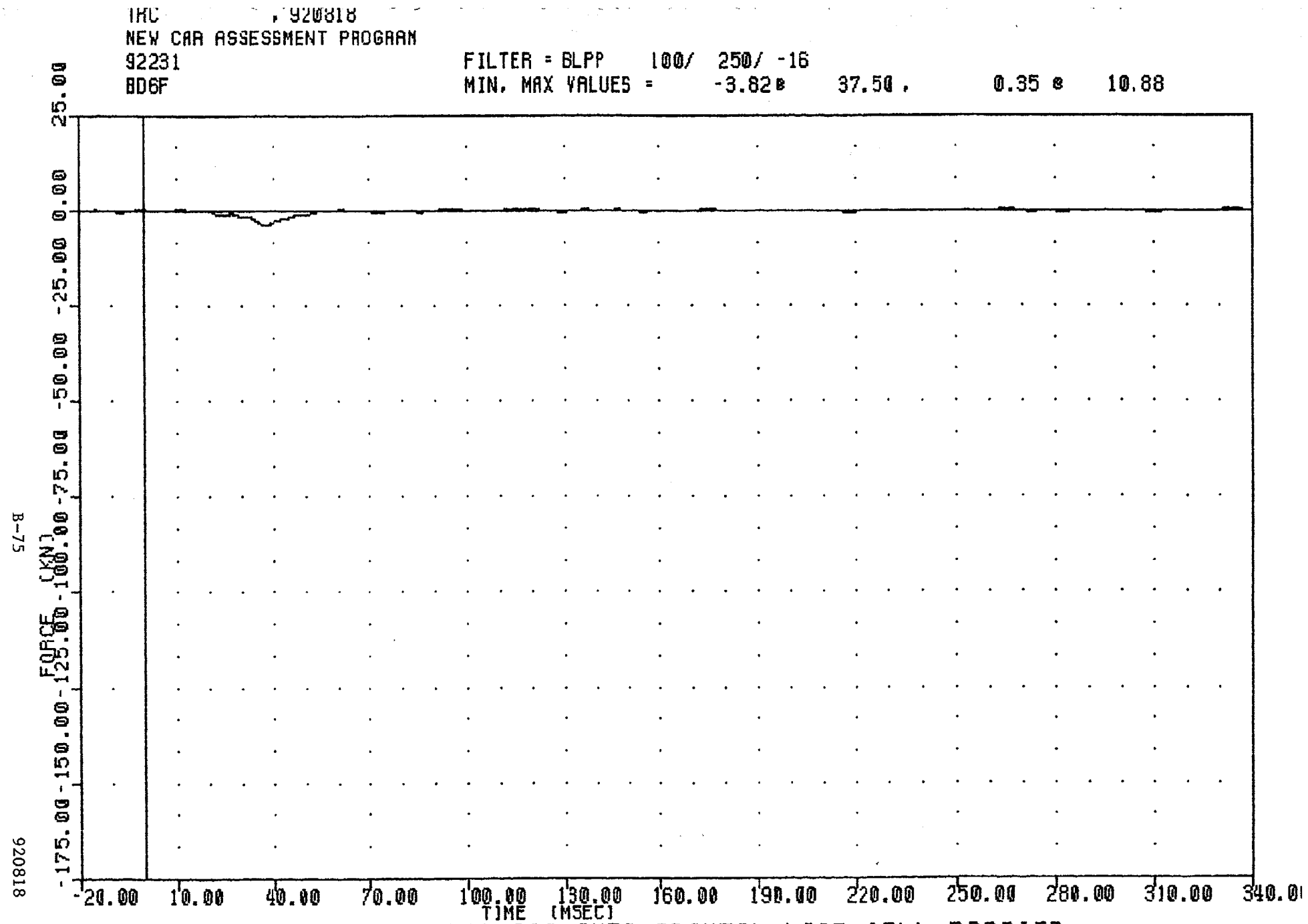
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
8D3F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -1.84 @ 37.50 , 0.54 @ 19.38
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION X3 FORCE



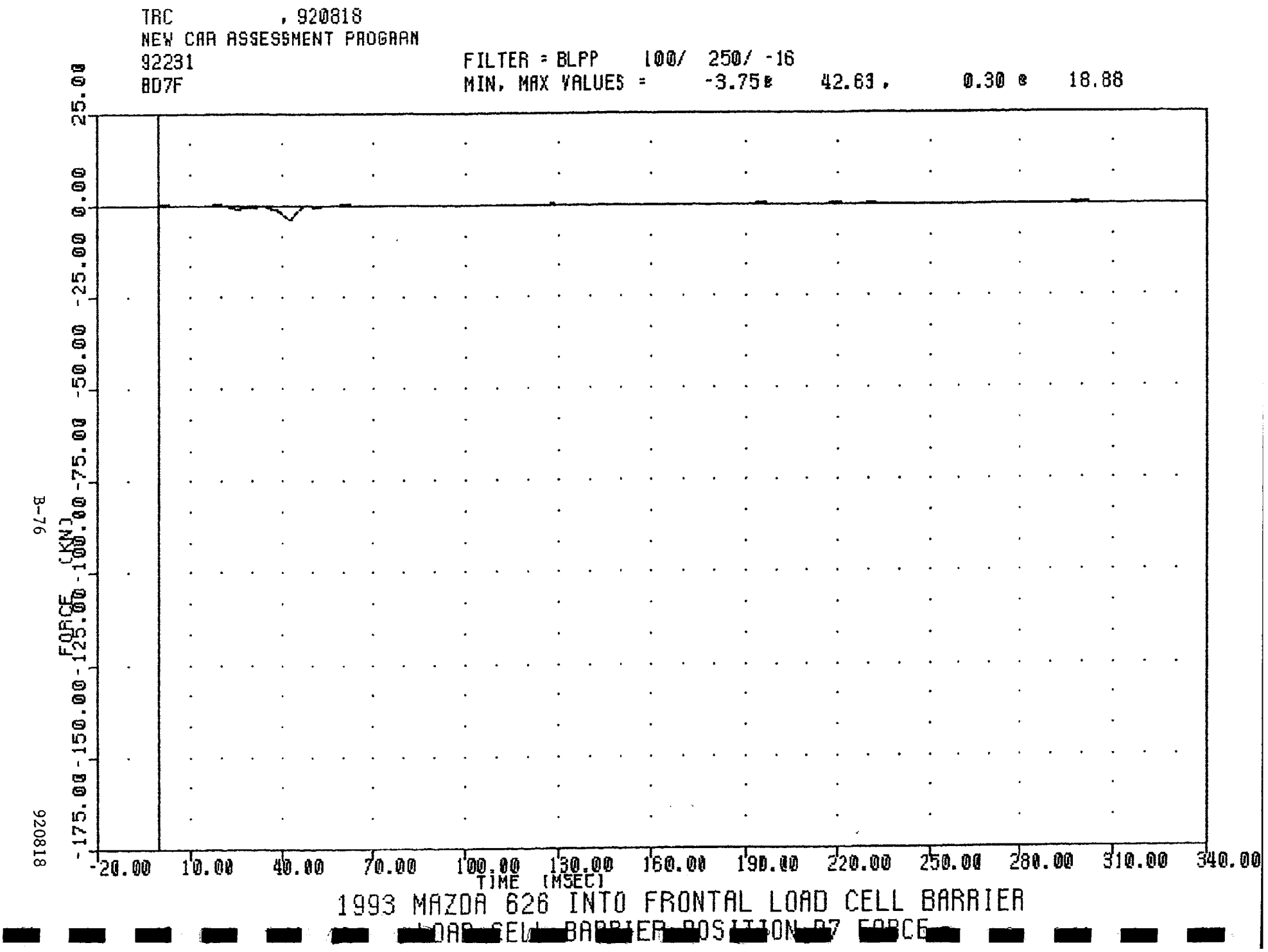
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE

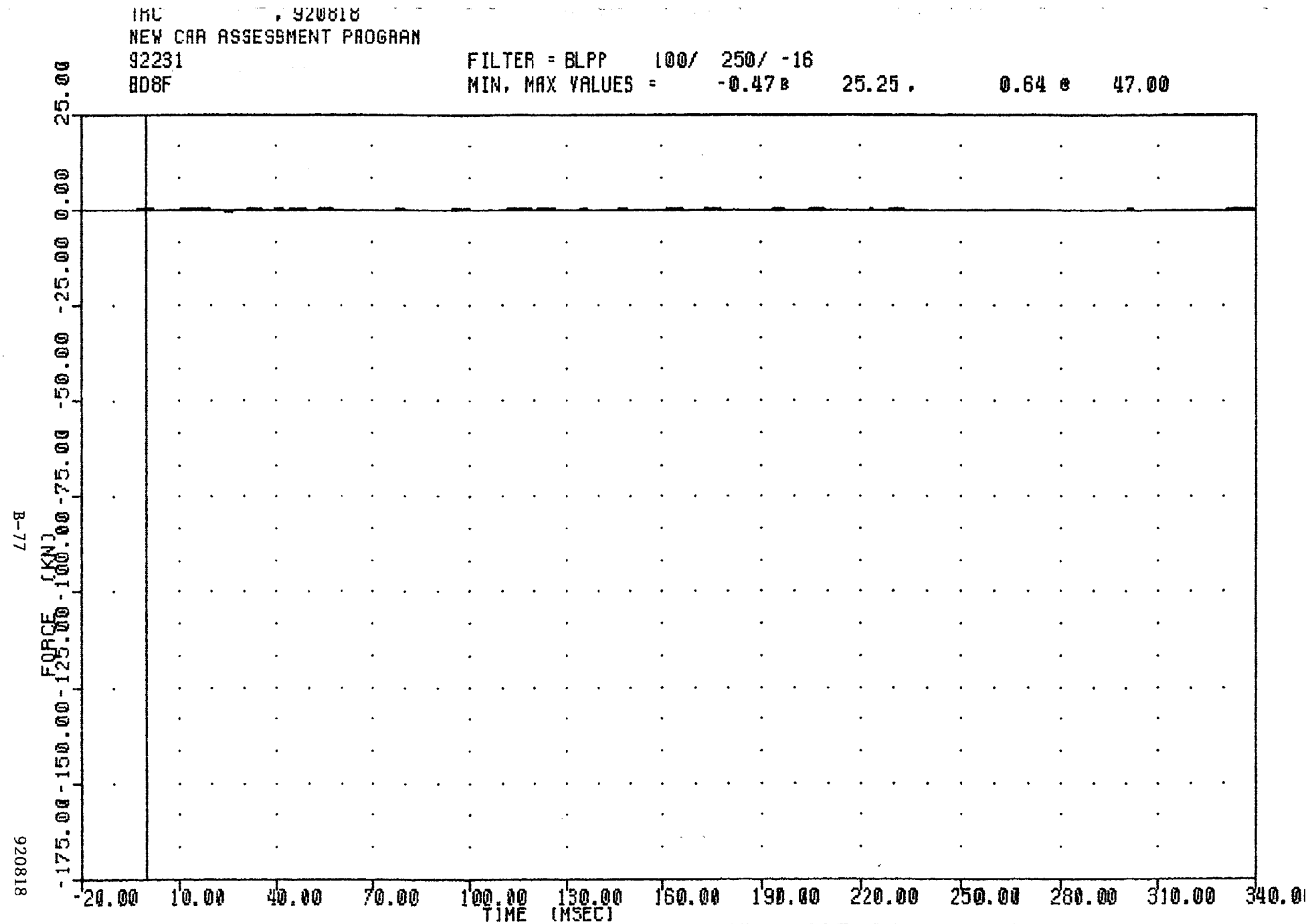

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BD5F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -7.44 @ 34.75 , 0.38 @ 300.75
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE



1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE

920818

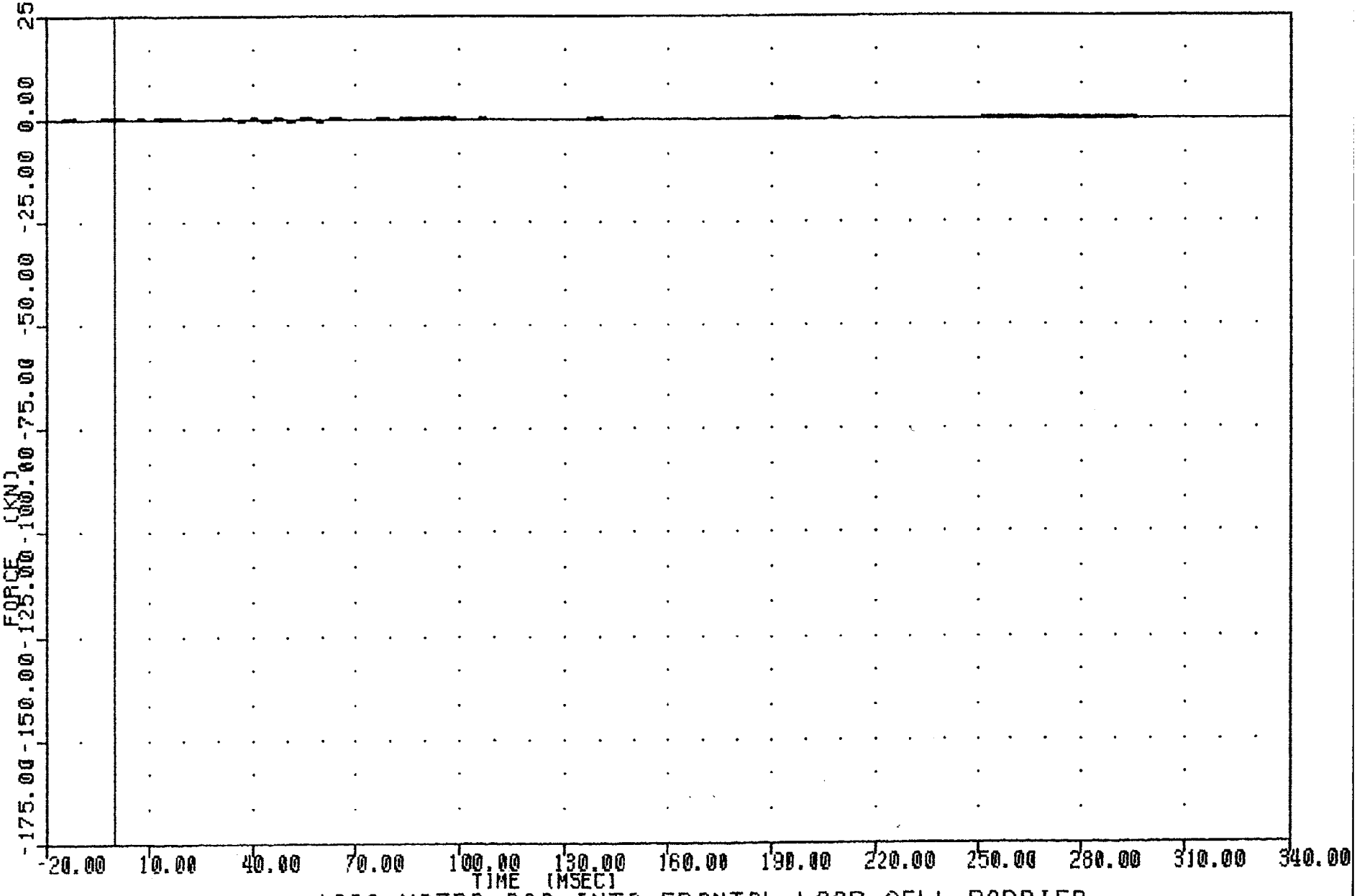

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
BD7F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -3.75 @ 42.63 , 0.30 @ 18.88
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-150.00
-175.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION BD7 FORCE



1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
8D9F

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -0.66 @ 51.25 , 0.51 @ 55.25

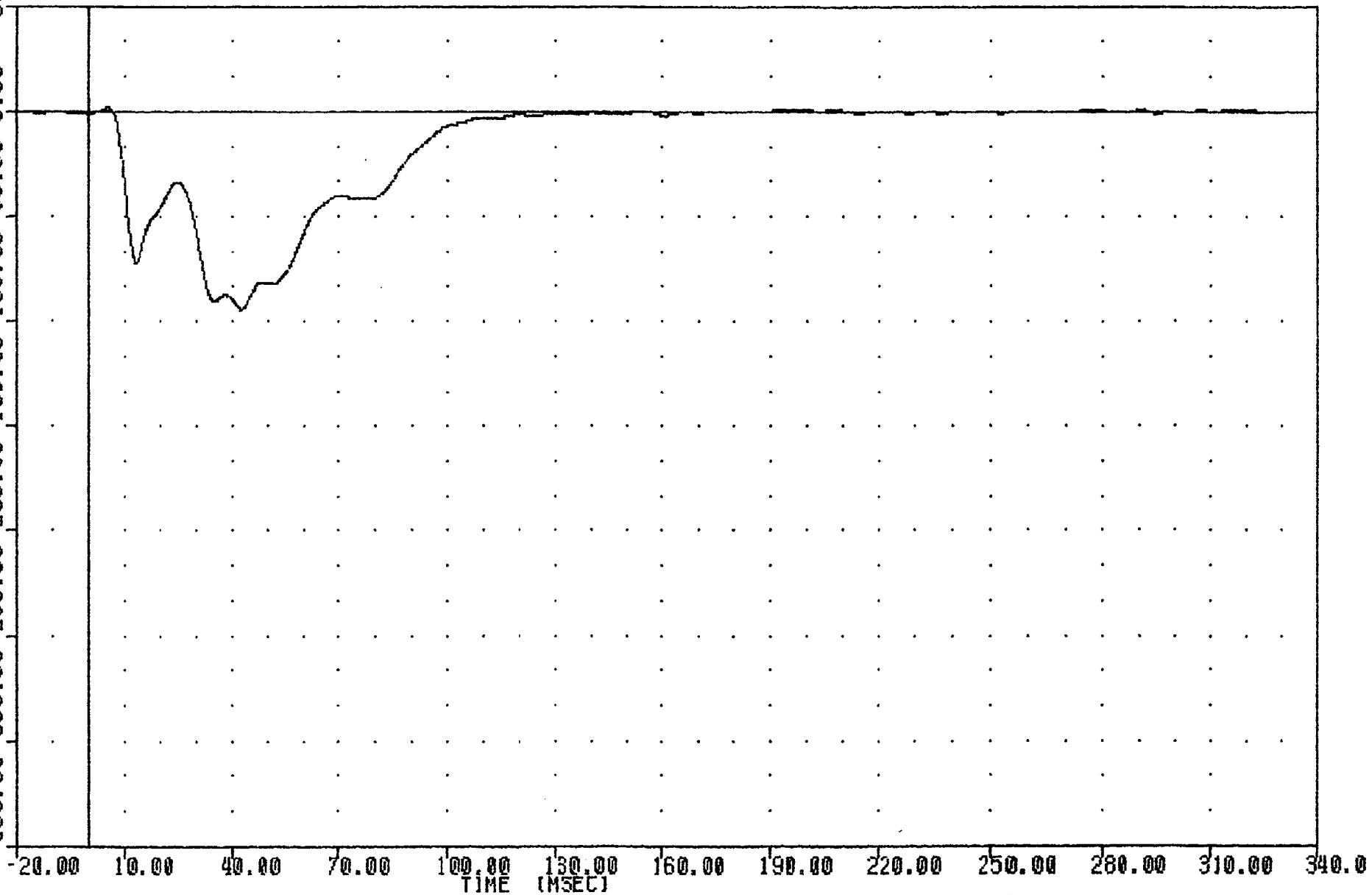


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 99 FORCE

B-78

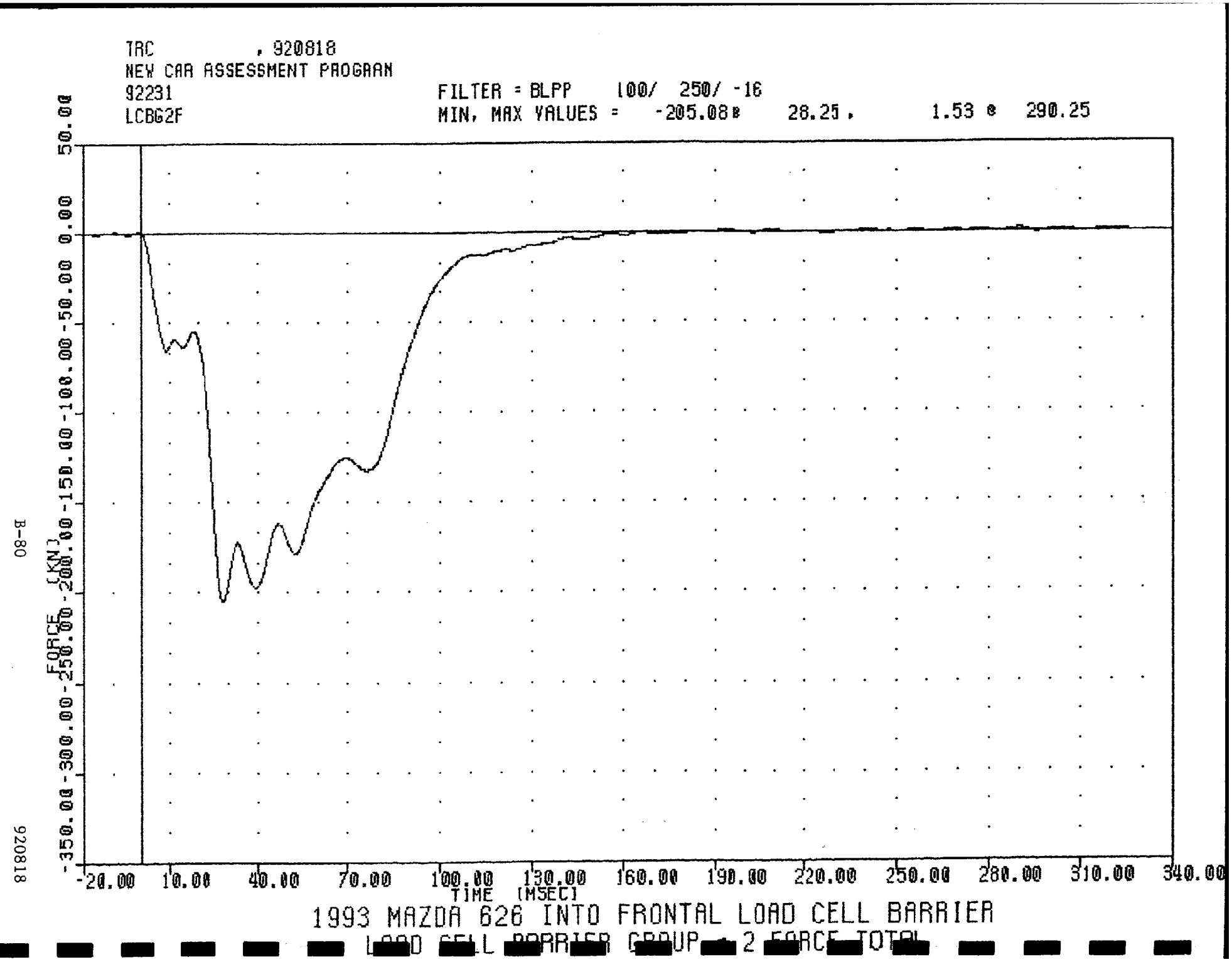
920818

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LCBG1F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -94.29 @ 42.63 , 1.64 @ 5.38

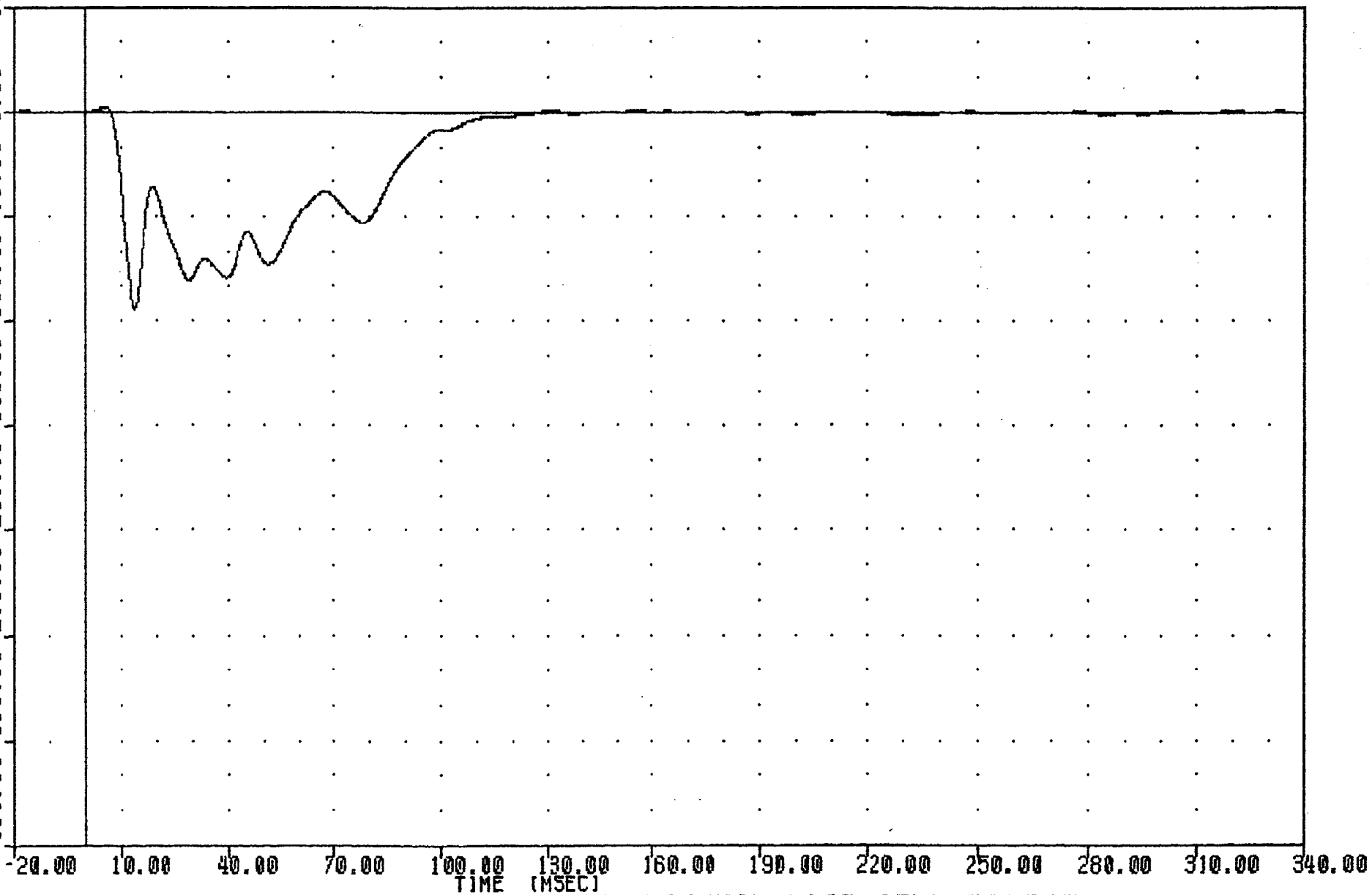


1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP - 1 FORCE TOTAL

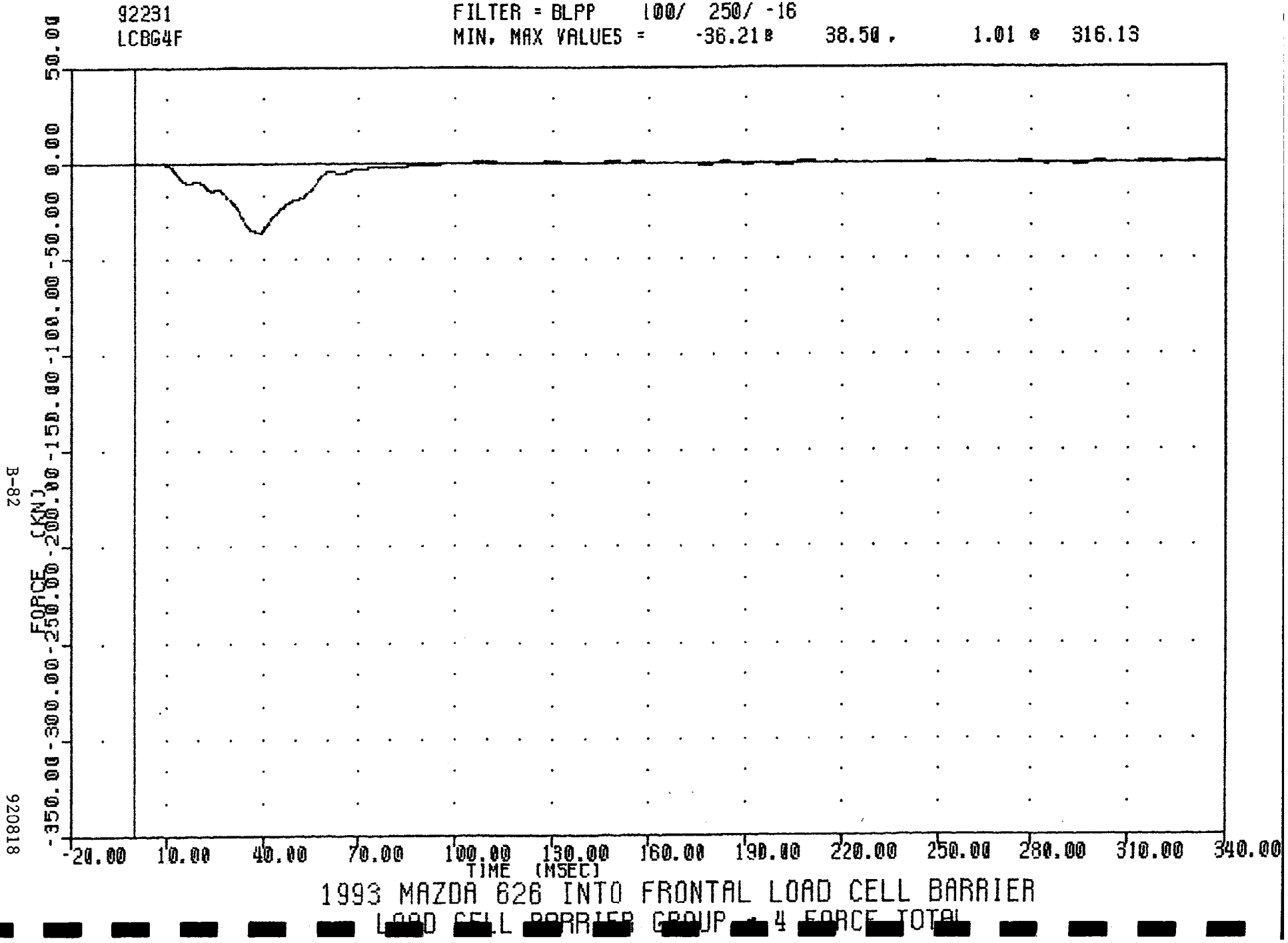
920818


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LCBG2F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -205.08 @ 28.25 , 1.53 @ 290.25
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00
-350.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP 2 FORCE TOTAL

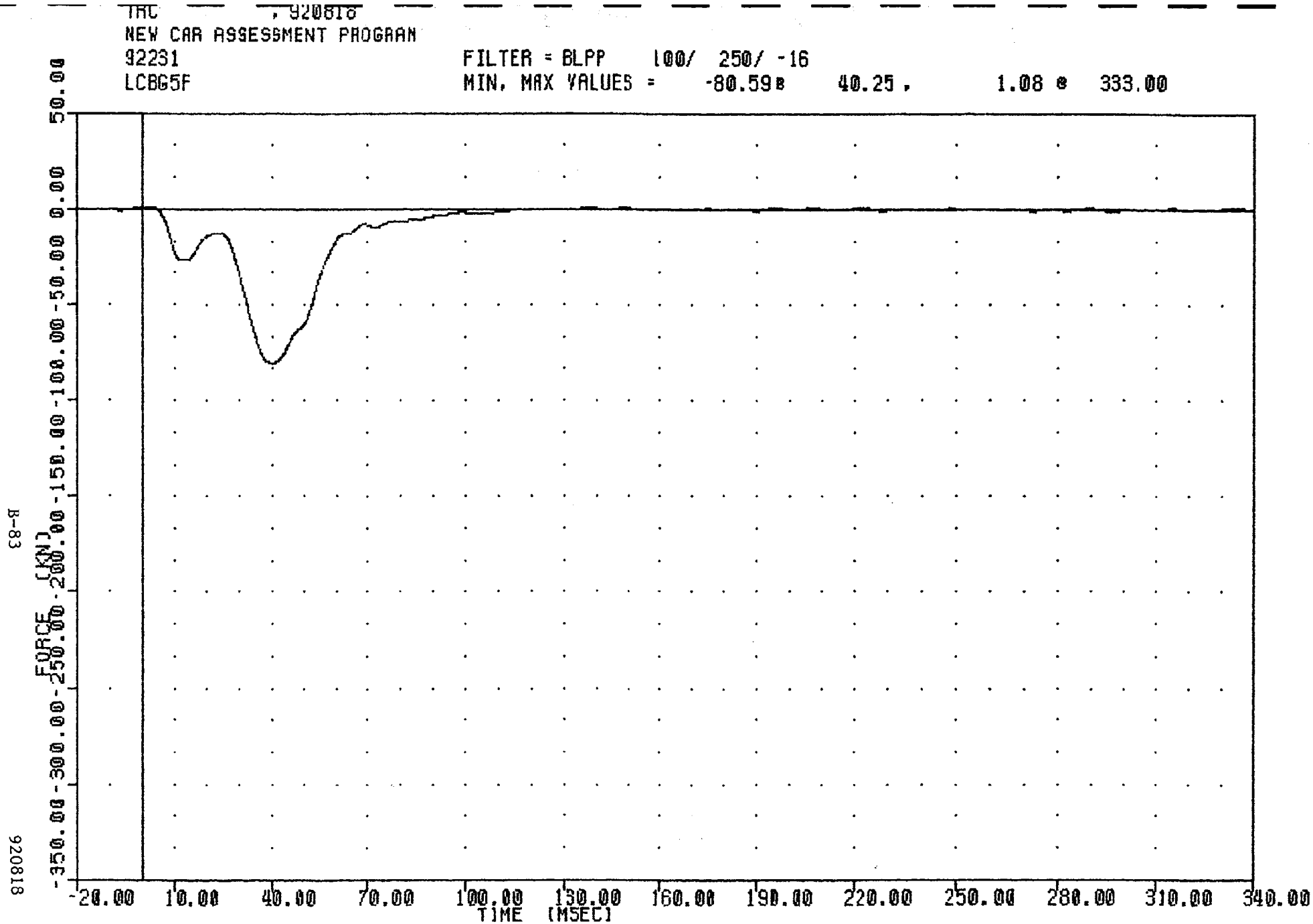
IRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231 FILTER = BLPP 100/ 250/ -16
LCBG3F MIN. MAX VALUES = -94.33 @ 13.75 , 2.22 @ 5.63



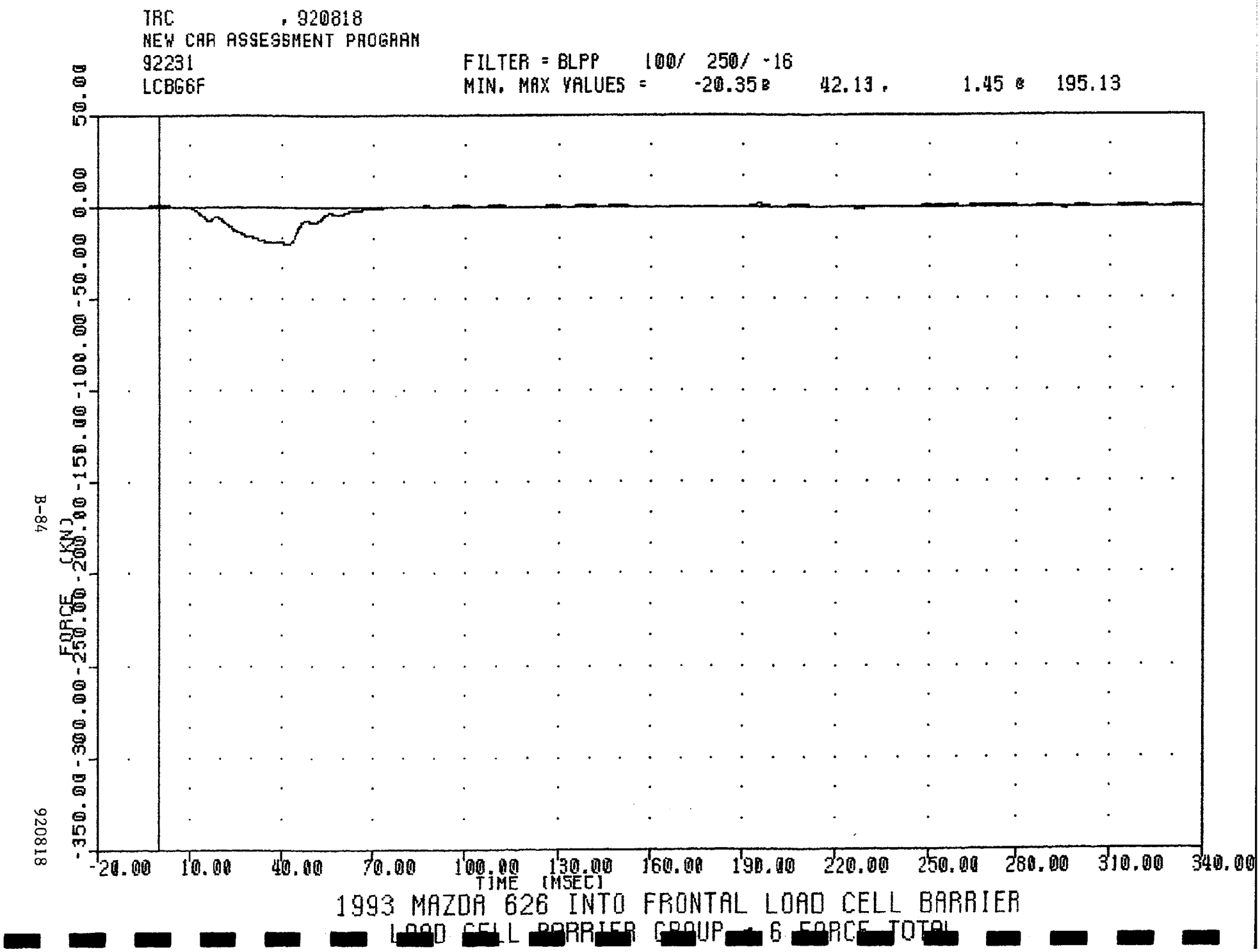
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP - 3 FORCE TOTAL

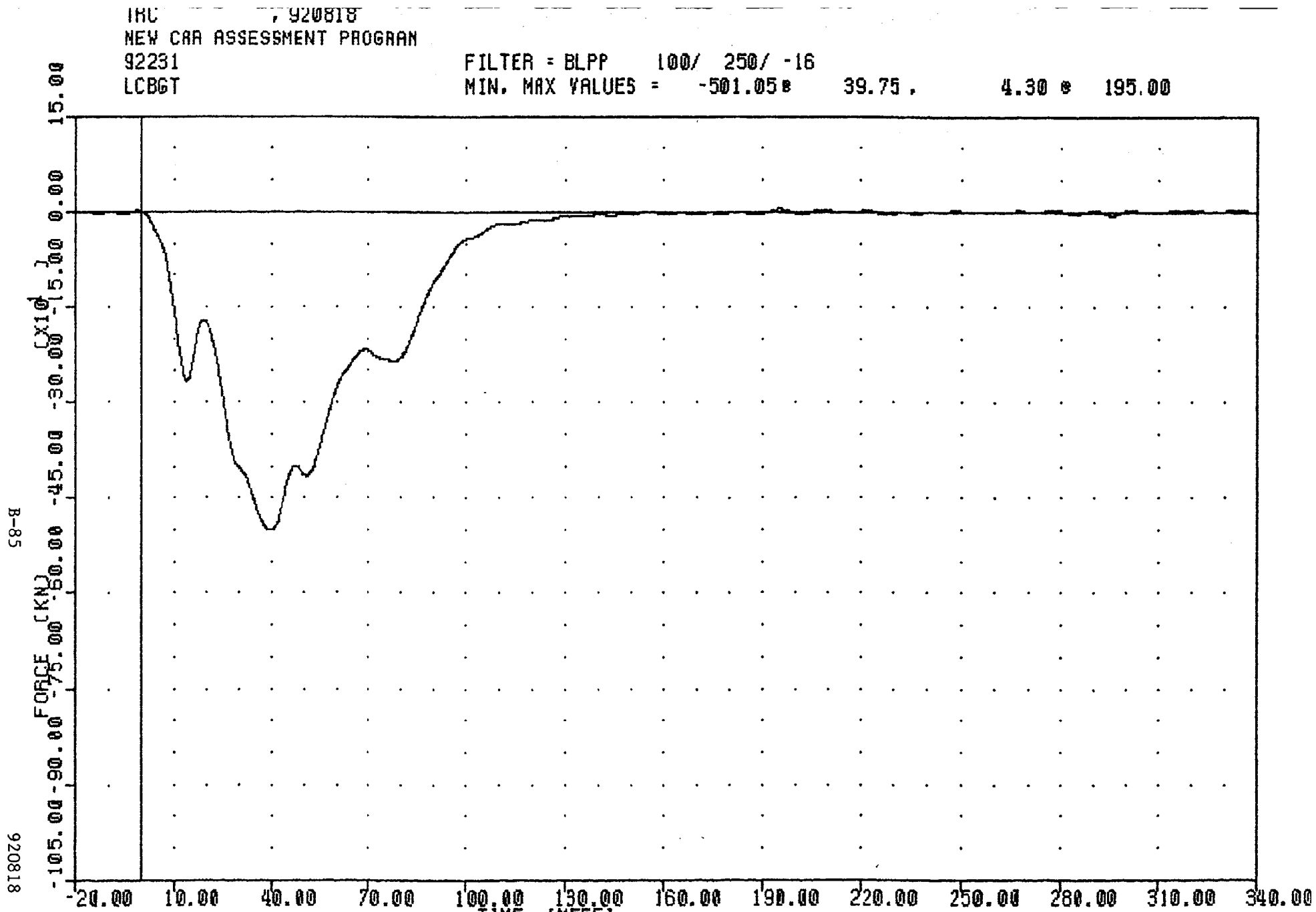

TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LCBG4F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -36.21 @ 38.50 , 1.01 @ 316.13
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00
-350.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP - 4 FORCE TOTAL

920818



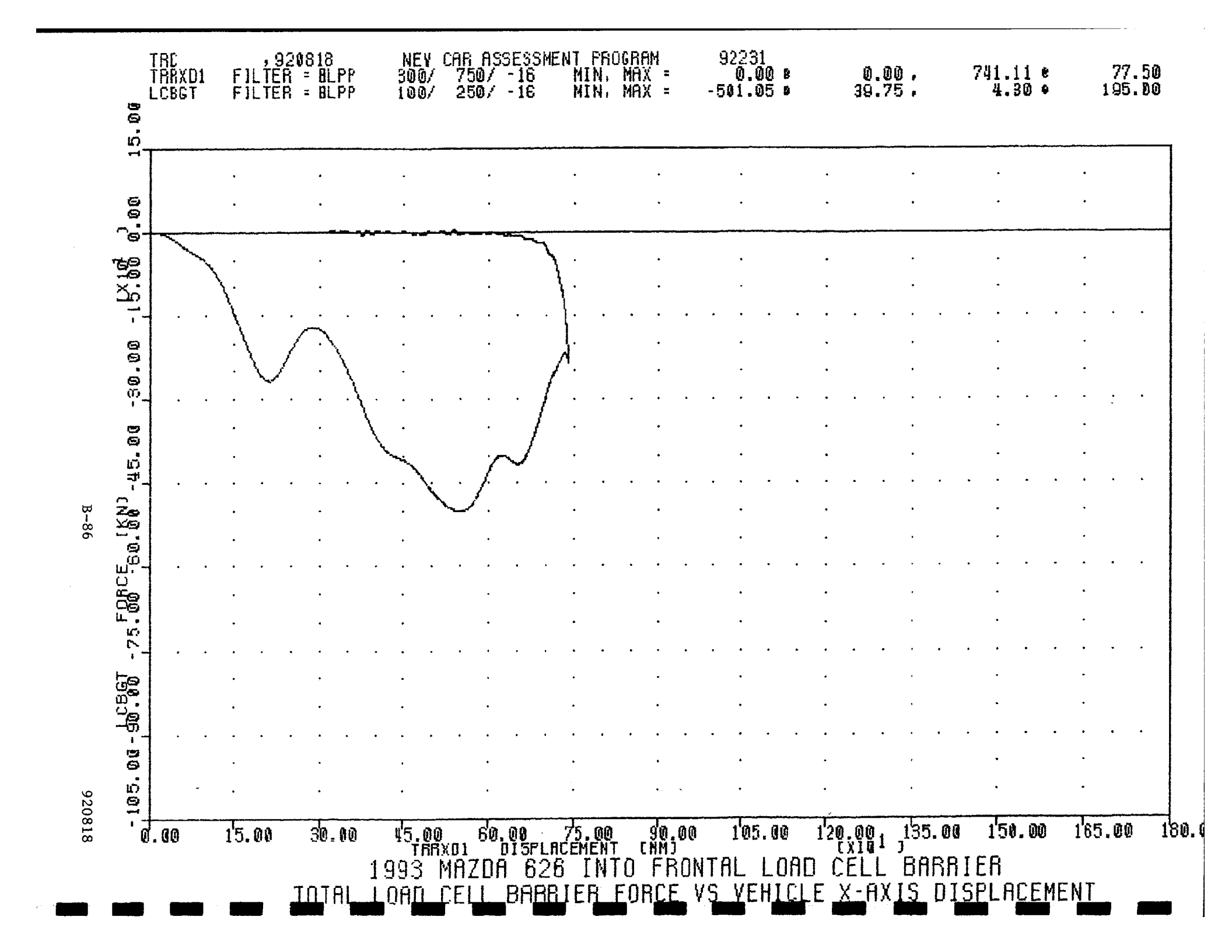
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP - 5 FORCE TOTAL


TRC , 920818
NEW CAR ASSESSMENT PROGRAM
92231
LCBG6F
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -20.35 @ 42.13 , 1.45 @ 195.13
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00
-350.00
FORCE (KN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP - 6 FORCE TOTAL
B-84
920818



1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE

920818


TRC ,920818 NEW CAR ASSESSMENT PROGRAM 92231
TRRXD1 FILTER = BLPP 300/ 750/ -16 MIN, MAX = 0.00 , 0.00 , 741.11 , 77.50
LCBGT FILTER = BLPP 100/ 250/ -16 MIN, MAX = -501.05 , 39.75 , 4.30 , 195.00
15.00
0.00
-15.00
-30.00
-45.00
-60.00
-75.00
-90.00
-105.00
LCBGT FORCE [KN] (X10^1)
0.00
15.00
30.00
45.00
60.00
75.00
90.00
105.00
120.00
135.00
150.00
165.00
180.0
TRRXD1 DISPLACEMENT [MM] (X10^1)
1993 MAZDA 626 INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE VS VEHICLE X-AXIS DISPLACEMENT

APPENDIX C

DUMMY CERTIFICATION DATA

PRE-TEST CERTIFICATION DATA

DRIVER DUMMY S/N: 713

TRANSPORTATION RESEARCH CENTER OF OHIO

EXTERNAL DIMENSIONS

PART 572 29-JUL-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC ED71305 572B SN713 EXT. DIMENSION CAL05

DESCRIPTION SN 713 HUMANOID	SPECIFICATION	TEST RESULTS
Sitting Height	904 - 909 MM	904. MM
Shoulder Pivot Height	553 - 569 MM	561. MM
Hip Pivot Height	99 MM	REFERENCE
Hip Pivot From Backline	122 MM	REFERENCE
Knee Pivot From Backline	511 - 526 MM	521. MM
Rear of Head From Backline	43 MM	REFERENCE
Chest Depth	231 - 244 MM	239. MM
Shoulder Width	452 - 467 MM	455. MM
Chest Circumference Over Nipples	935 - 1016 MM	958. MM
Waist Circumference at Min. Girth	798 - 828 MM	818. MM
Hip Width	356 - 391 MM	378. MM
Knee Pivot From Floor	490 - 506 MM	498. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Peter Foust

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

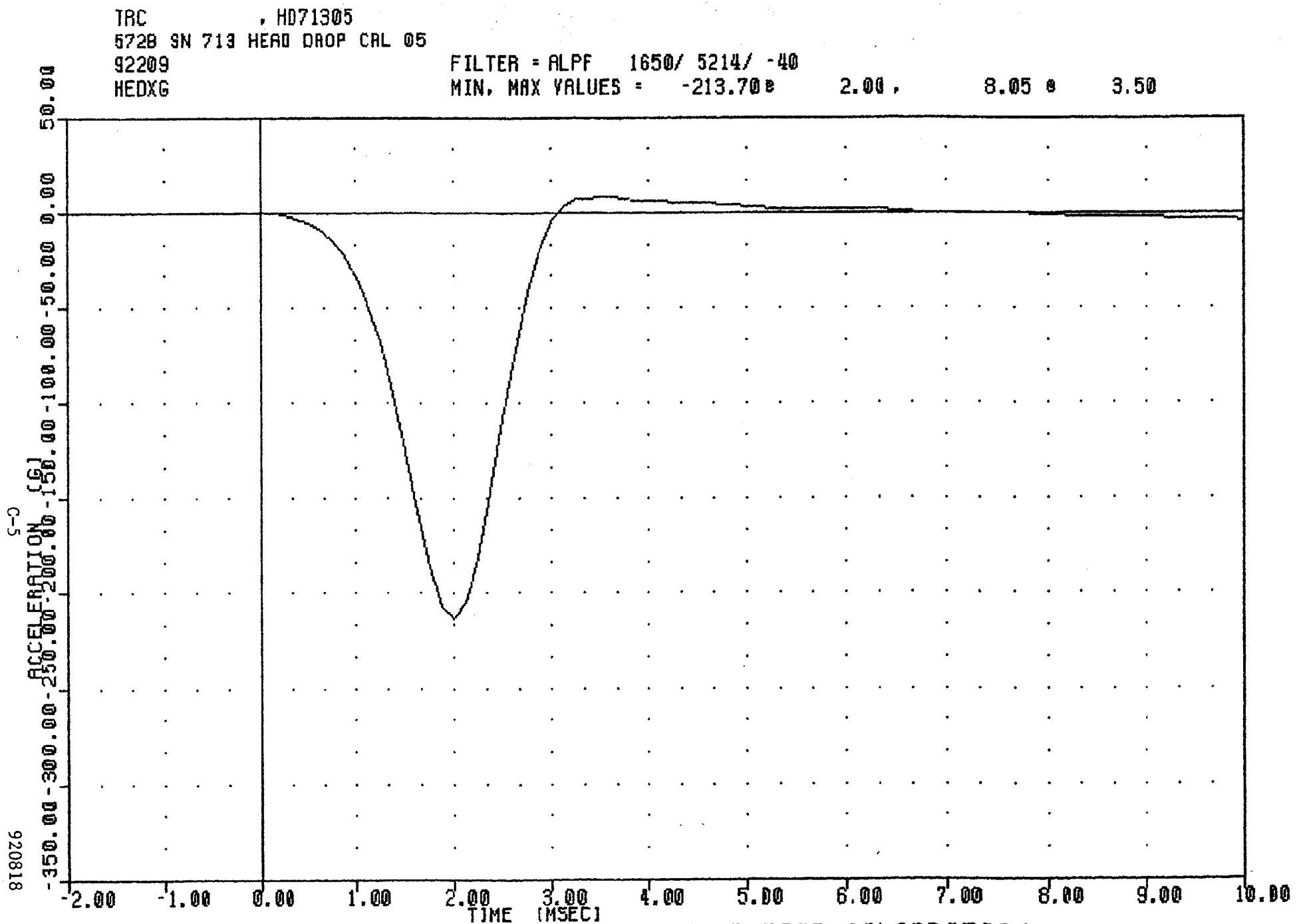
PART 572 27-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC HD71305 572B SN 713 HEAD DROP CAL 05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PEAK RESULTANT ACCELERATION	210 - 260 G	252.84 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MSEC	1.26 MSEC
PEAK LATERAL ACCELERATION	10 G MAX	-3.96 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

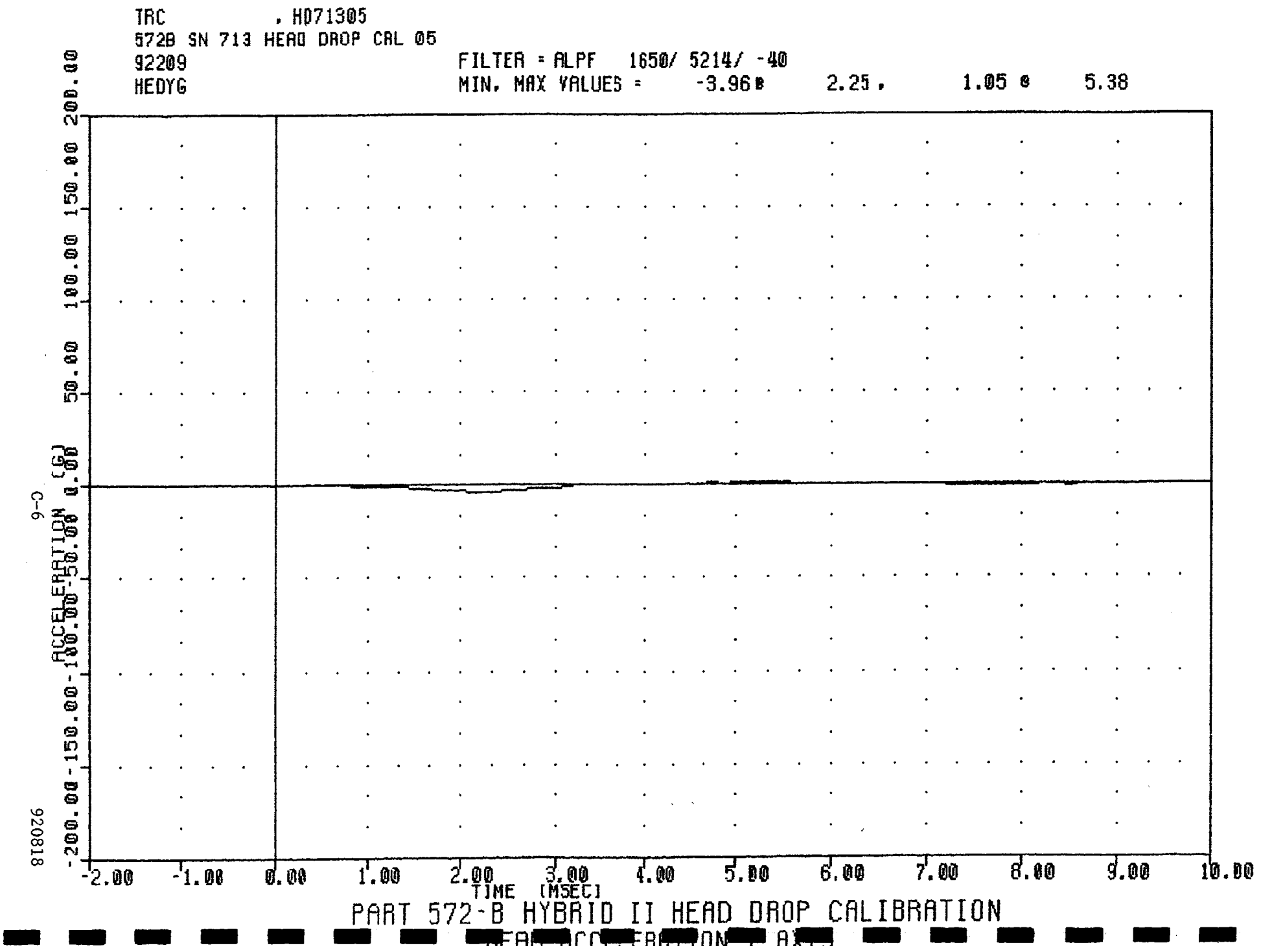
DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

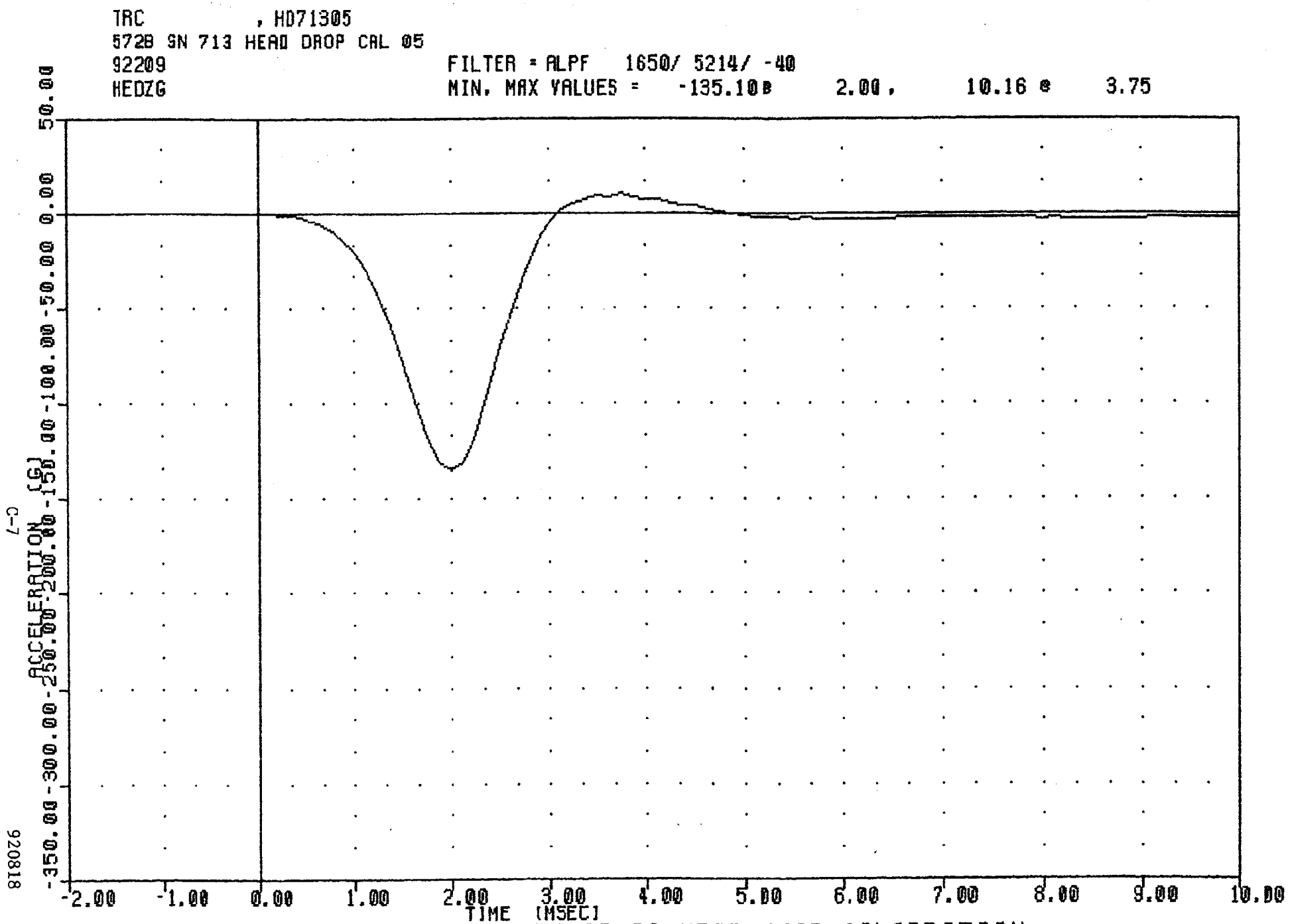


PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD ACCELERATION X AXIS

920818

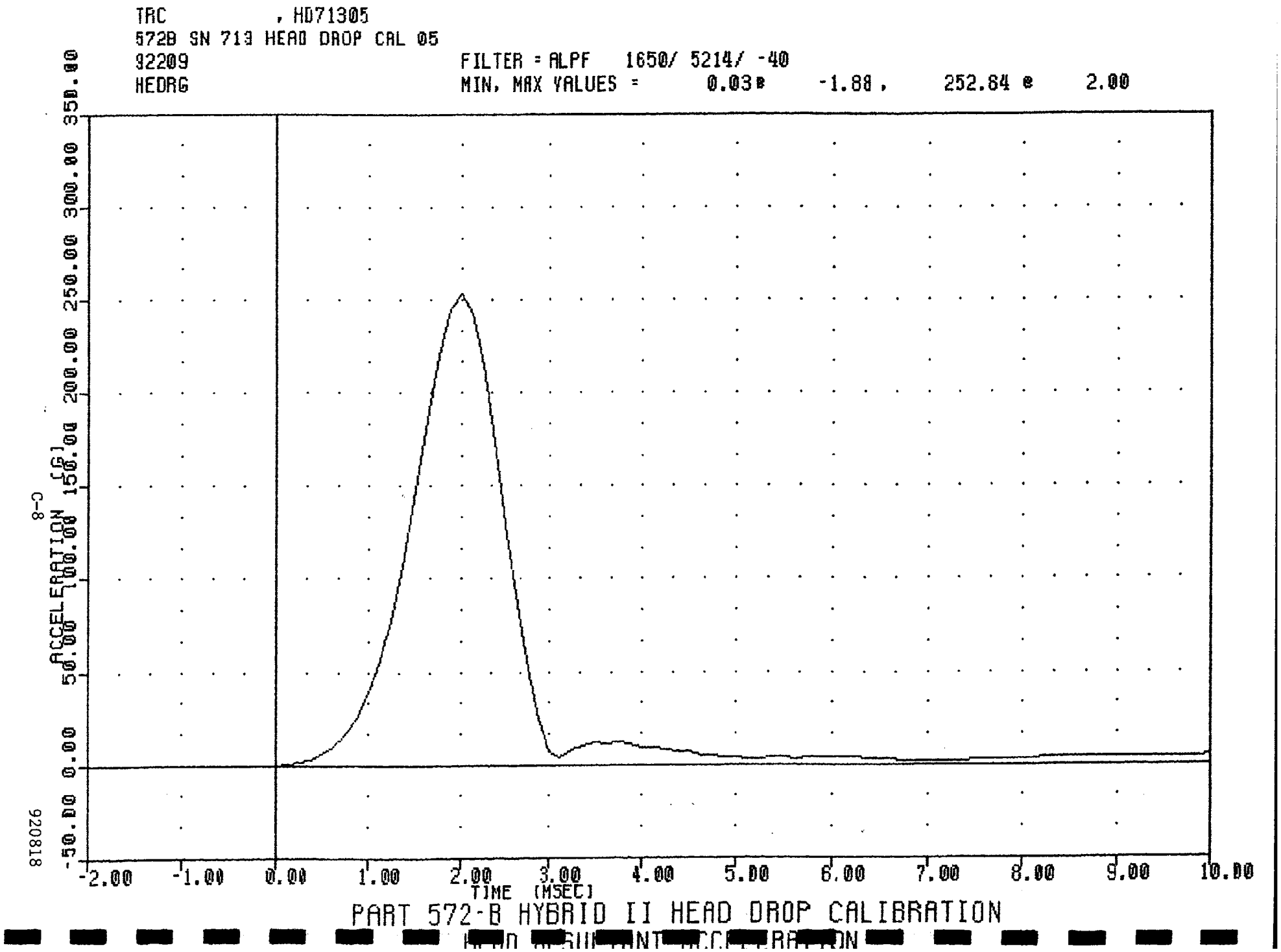


PART 572-B HYBRID II HEAD DROP CALIBRATION



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

920818



PART 572-B HYBRID II HEAD DROP CALIBRATION

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572 27-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC HN71305 572B SN 713 HEAD/NECK CAL 05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Pendulum velocity	6.55 to 7.77 m/sec	7.24 m/sec
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 msec max	2.51 msec
T2 - T3: 20 - 20 G	25 - 30 msec	27.39 msec
T3 - T4: 20 - 5 G	10 msec max	4.94 msec
Avg. G level T2 - T3	20 - 24 G	23.19 G
Maximum Rotation Angle	63 - 73 deg	69.38 deg
Peak Head Resultant Accel	26 G max	23.39 G

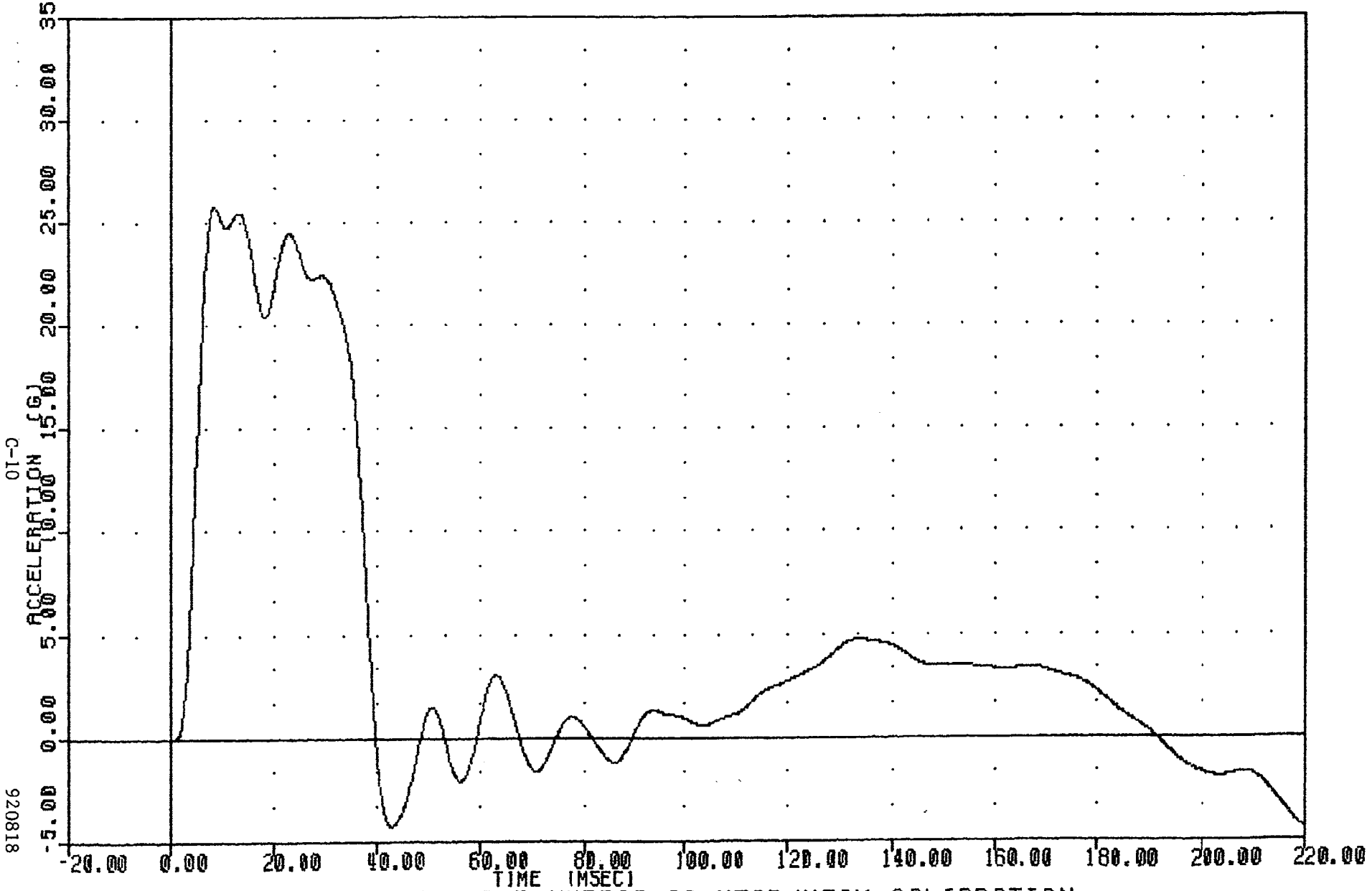
Test Parameter	Specification			Test Results	
Rotation Angle (degrees)	Time (msec)		Chordal Disp. (mm)	Time (msec)	Chordal Disp. (mm)
0	-2.0 - +2.0		-12.7 - +12.7	1.25	0.06
30	25.6 - 34.4		53.3 - 78.7	31.30	64.28
60	40.3 - 51.7		109.2 - 134.6	47.10	119.91
max	53.2 - 66.8		127.0 - 152.4	64.38	137.68
60	67.0 - 83.0		109.2 - 134.6	78.57	118.27
30	85.4 - 104.6		53.3 - 78.7	97.96	56.47
0	101.0 - 123.0		-12.7 - +12.7	112.14	2.21

SND: 151.13 mm

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

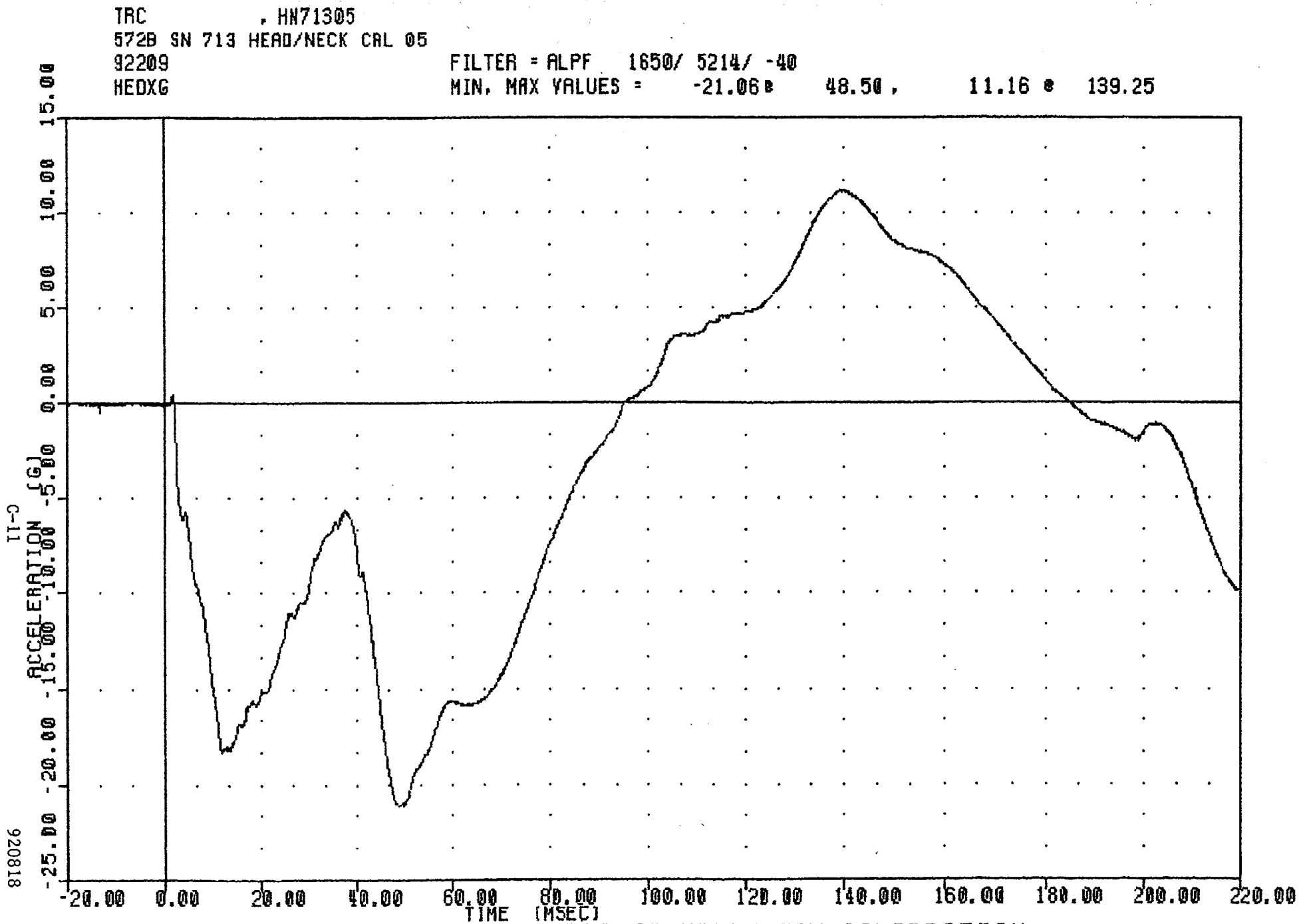
TRC , HN71305
572B SN 713 HEAD/NECK CAL 05
92209 FILTER = BLPF 100/ 317/ -40
PENXG MIN, MAX VALUES = -4.39 @ 220.00 , 25.76 @ 8.38



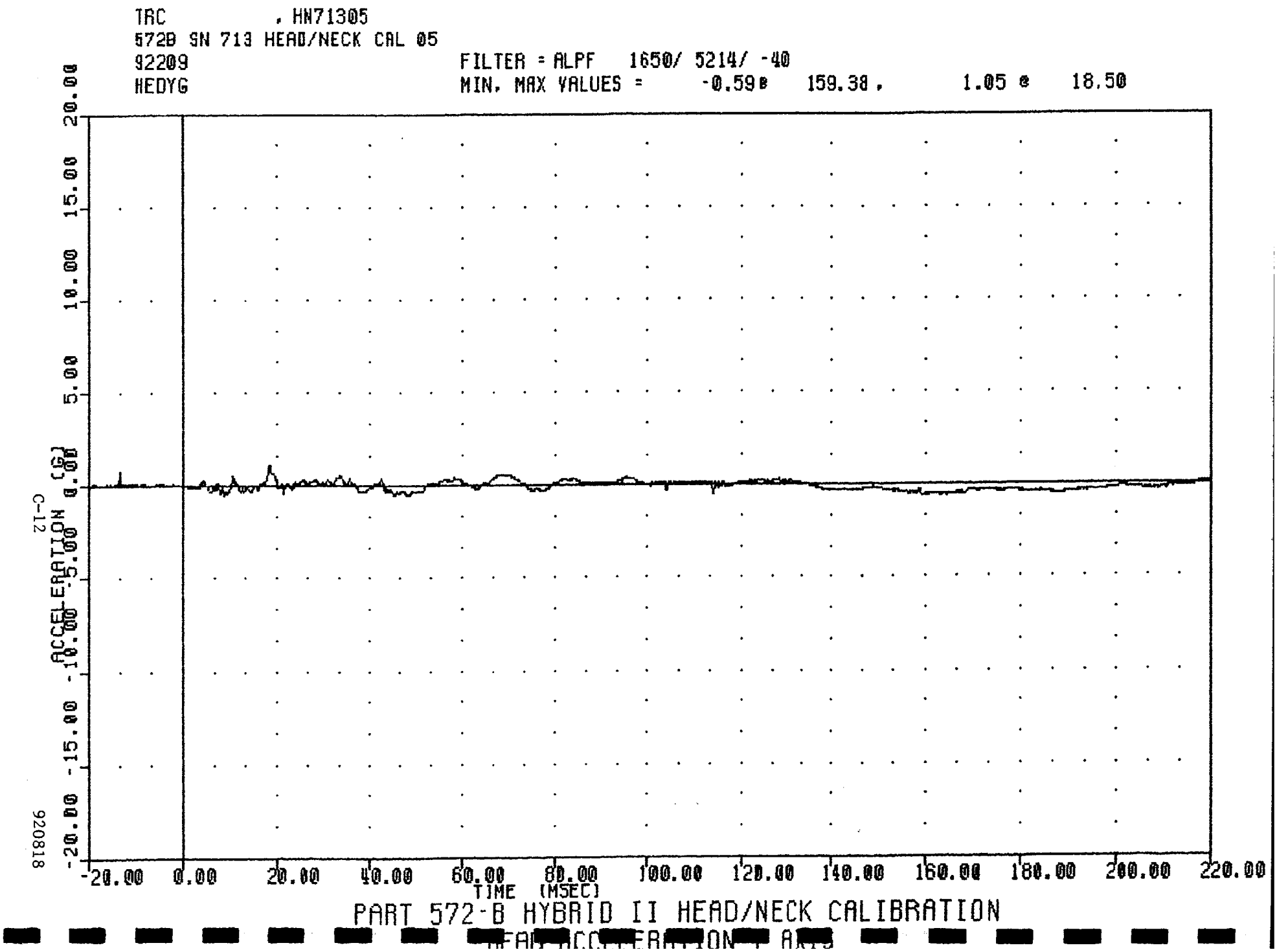
PART 572-B HYBRID II HEAD/NECK CALIBRATION

C-10

920818

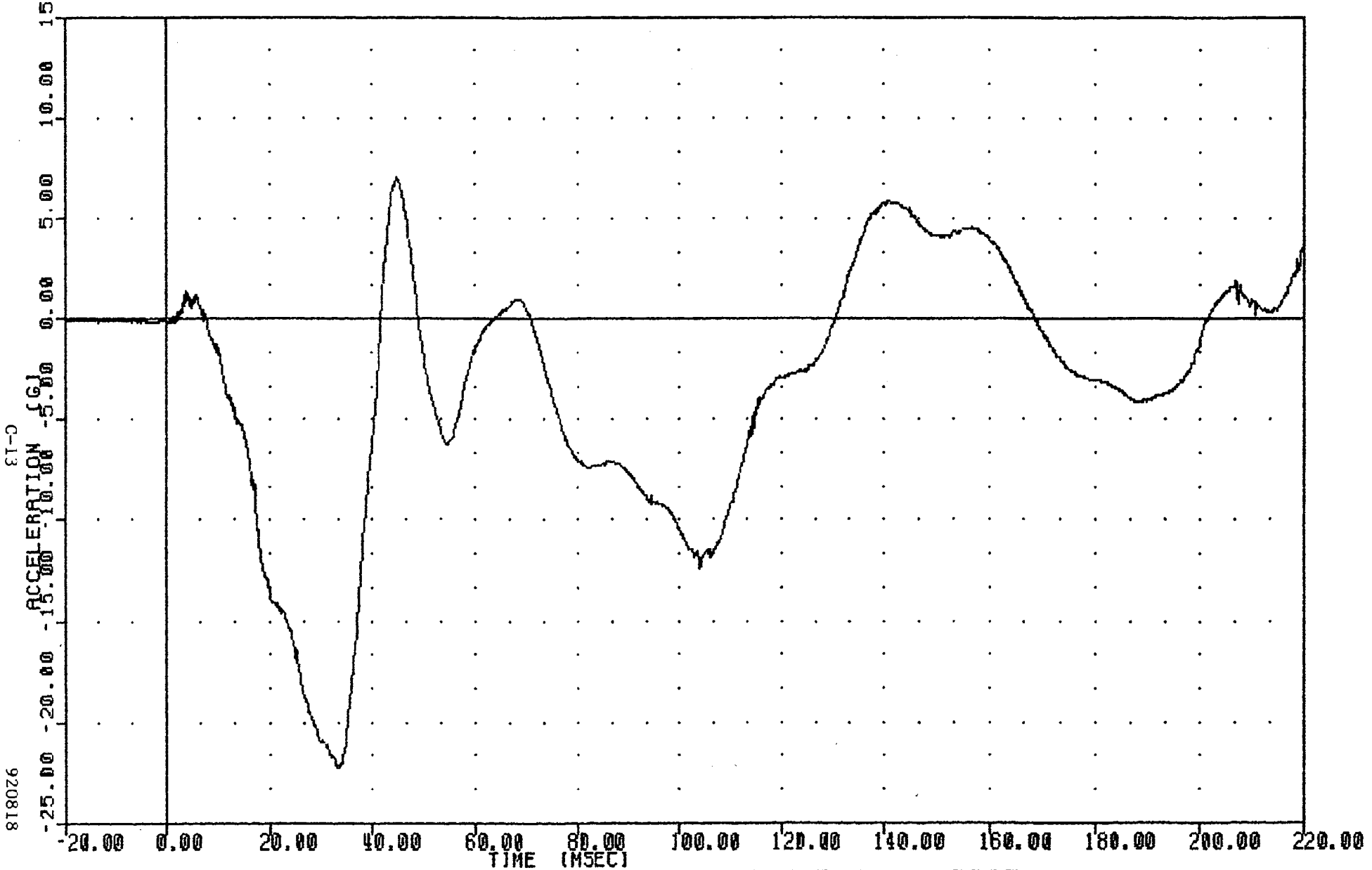


PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION X AXIS



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC . HN71305
572B SN 713 HEAD/NECK CAL 05
92209
HEDZG
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -22.23 @ 33.13 , 7.01 @ 44.88



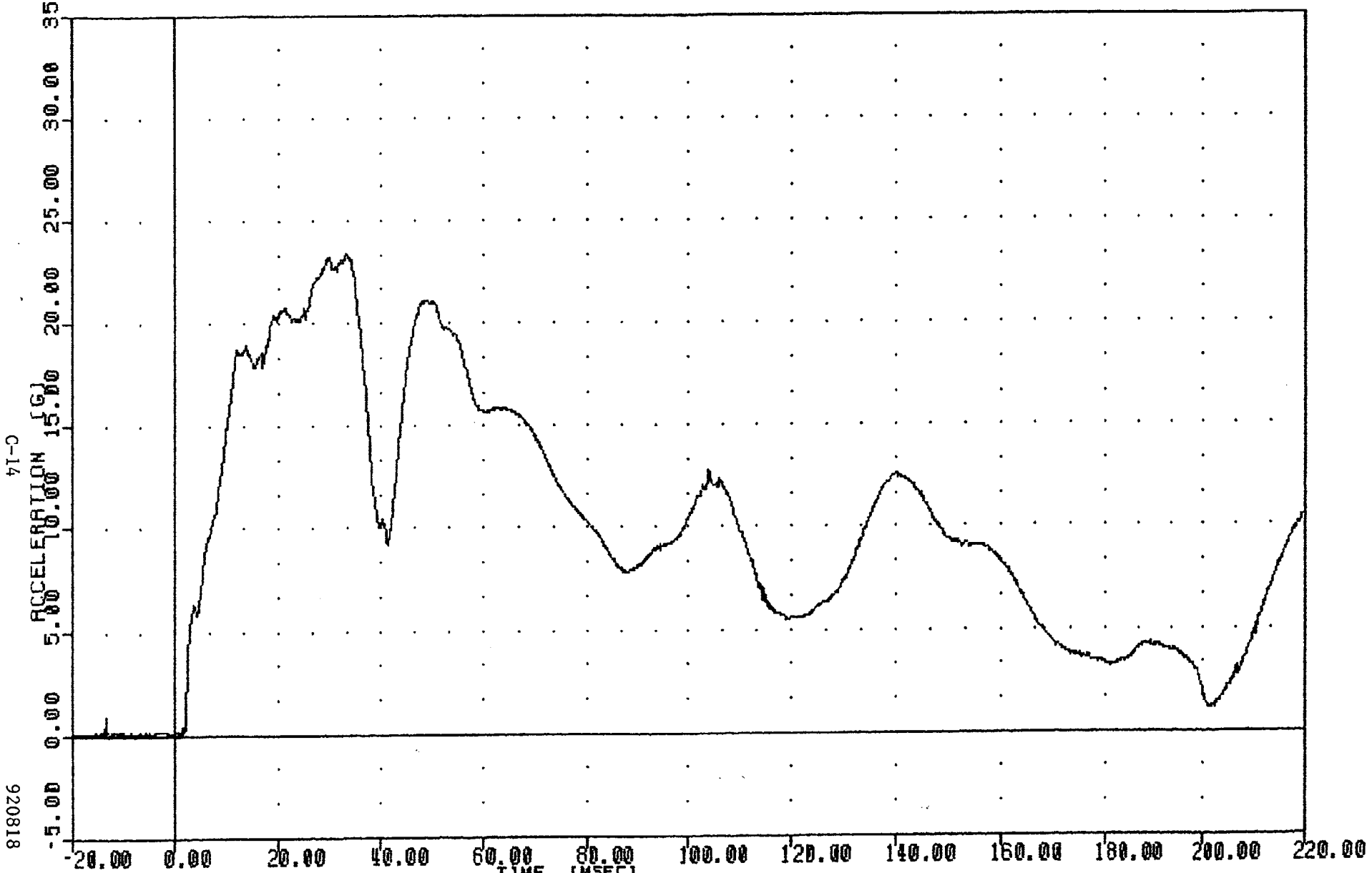
C-13

920818

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

TRC , HN71305
572B SN 713 HEAD/NECK CAL 05
92209
HEDRG

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.06 @ -20.00 , 23.39 @ 33.13

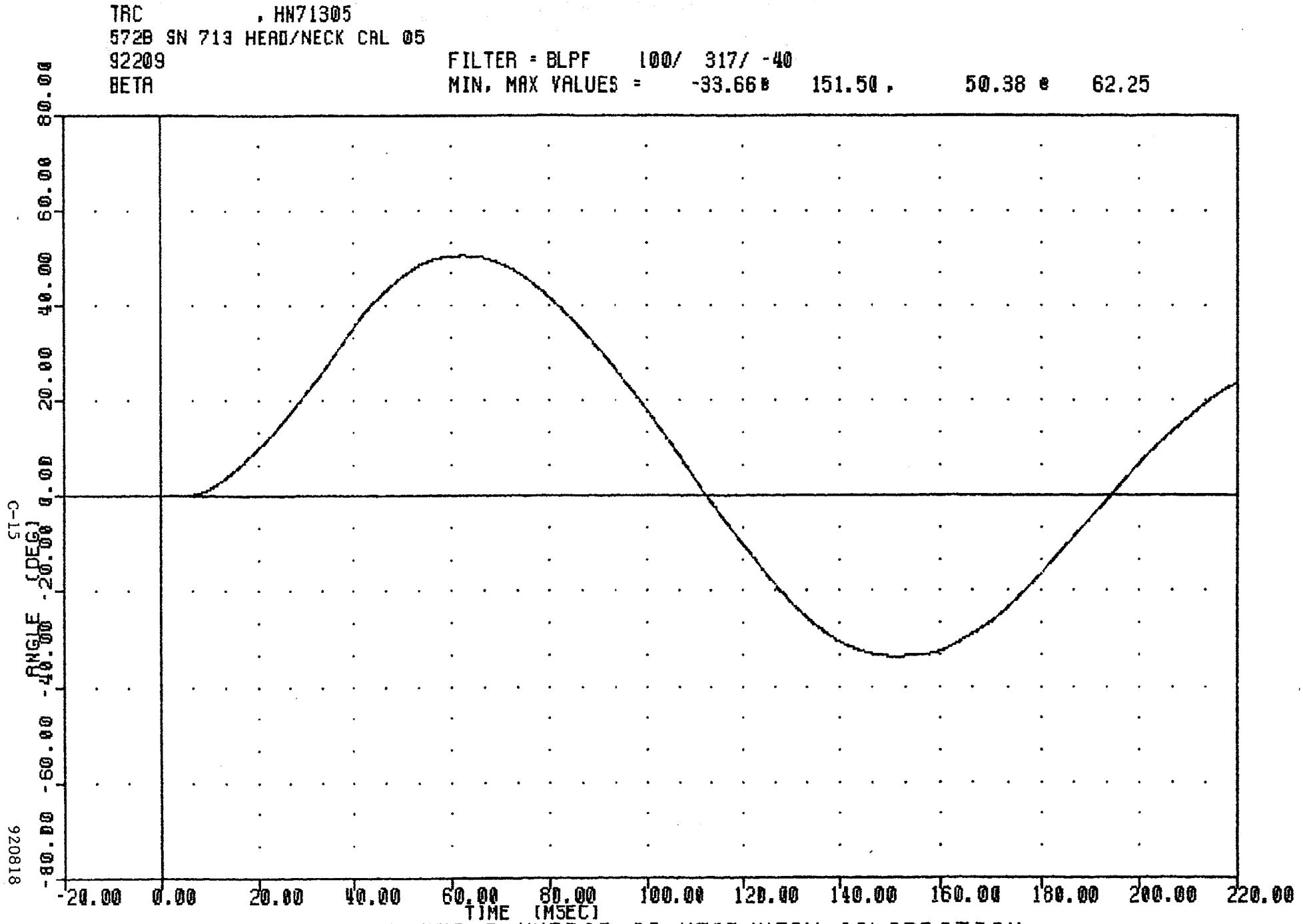


PART 572-B HYBRID II HEAD/NECK CALIBRATION

HEAD RESULTANT ACCELERATION

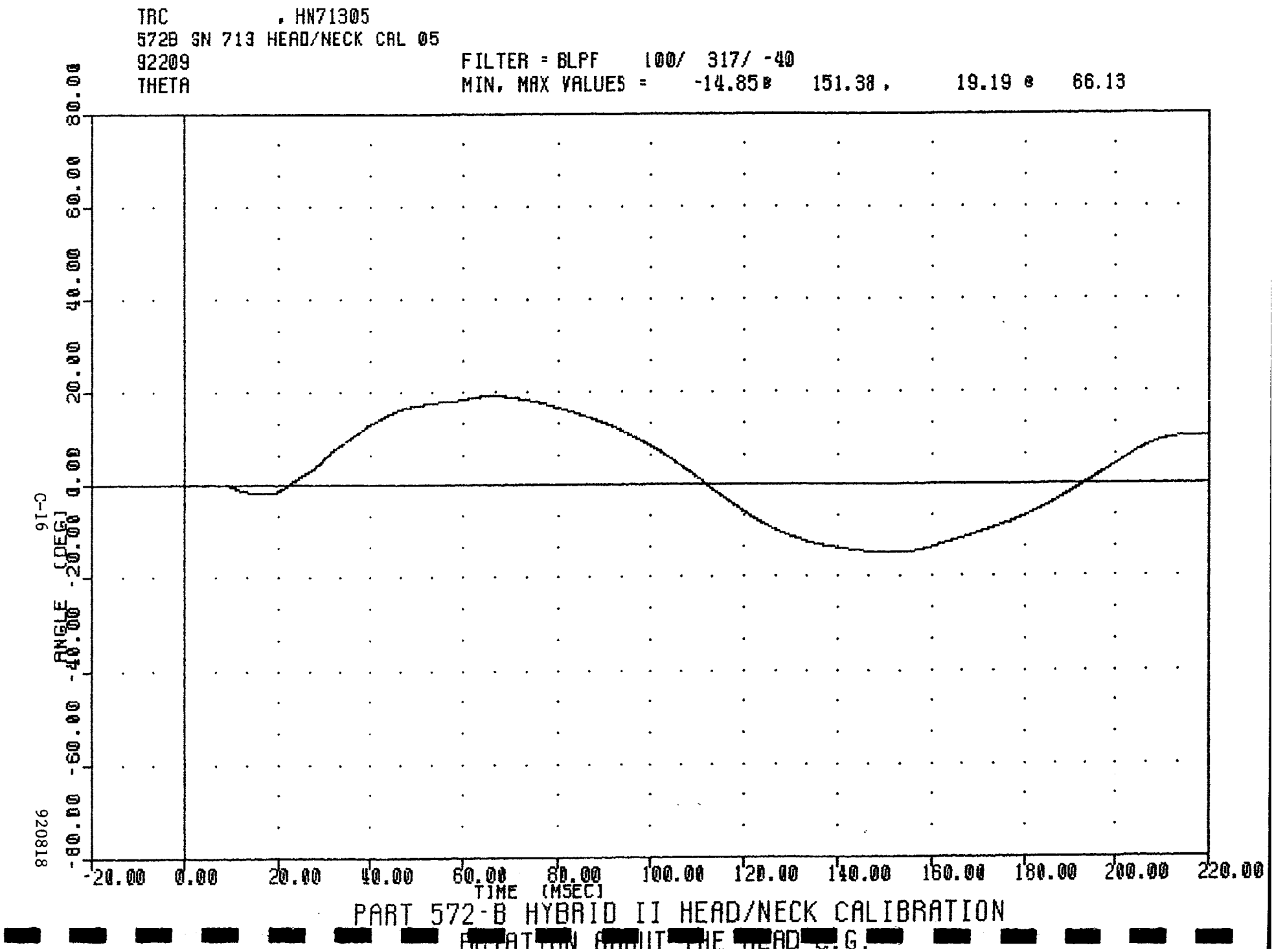
C-14

920818



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

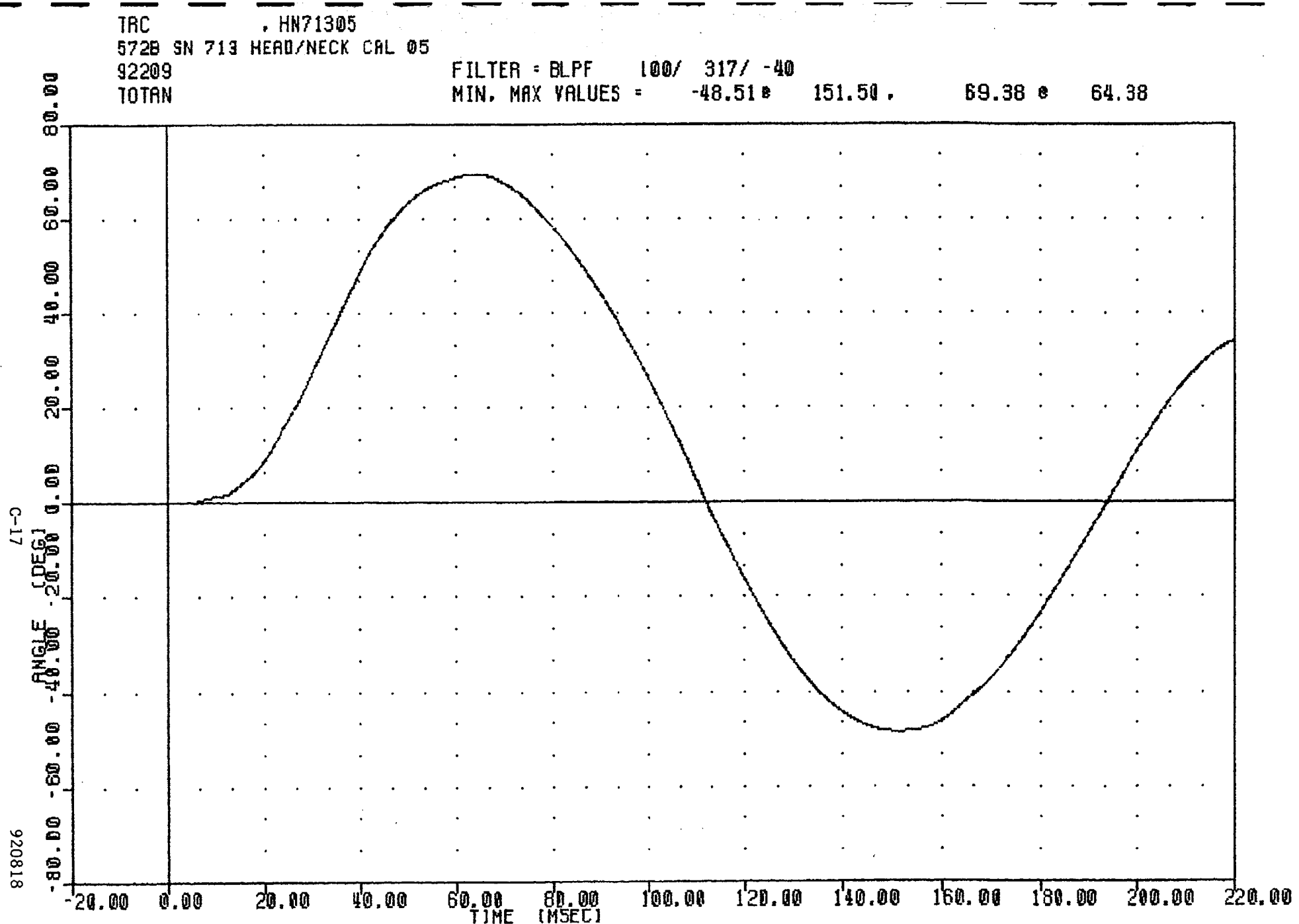
920818



PART 572-B HYBRID II HEAD/NECK CALIBRATION

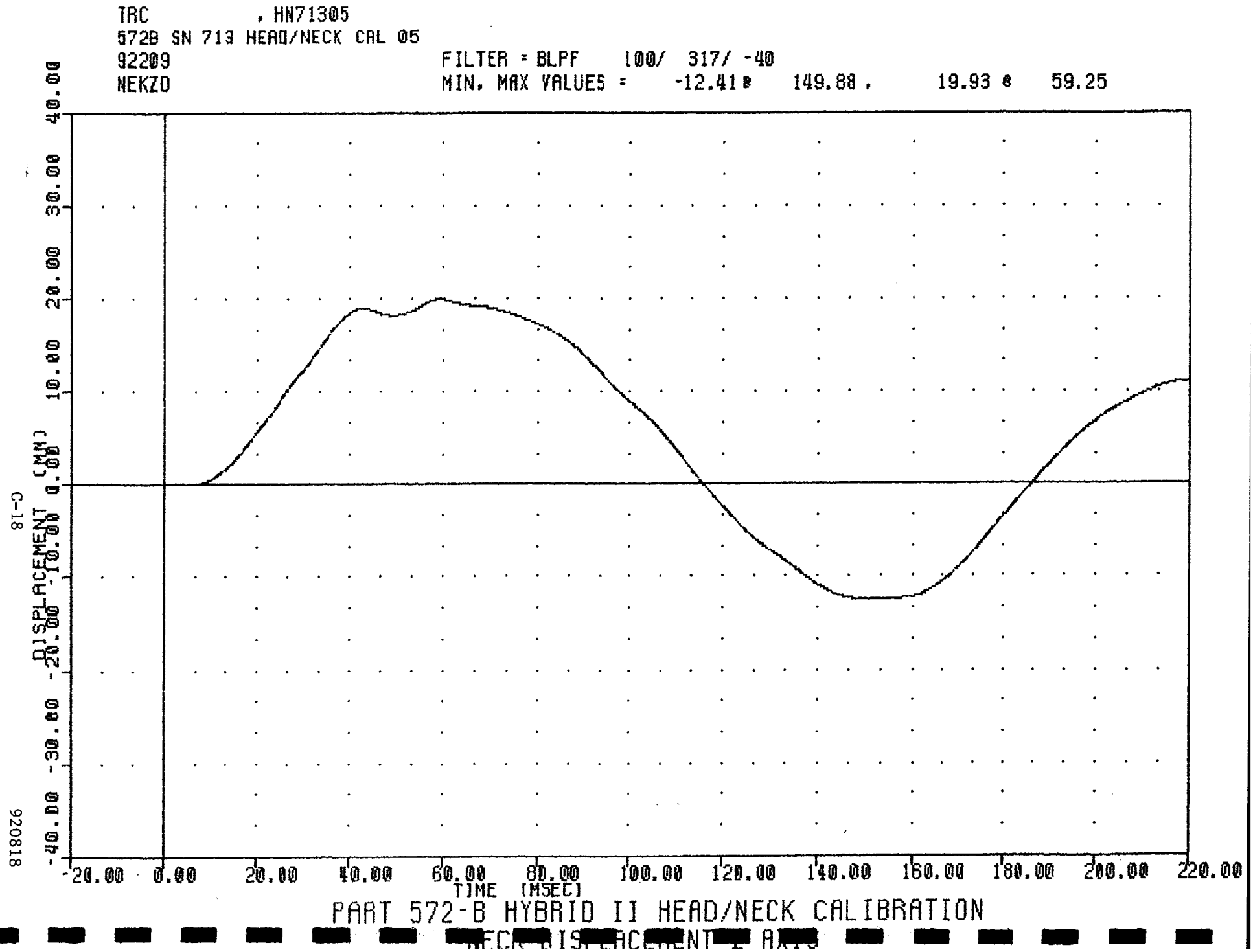
ROTATION ABOUT THE HEAD C.G.

920818



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

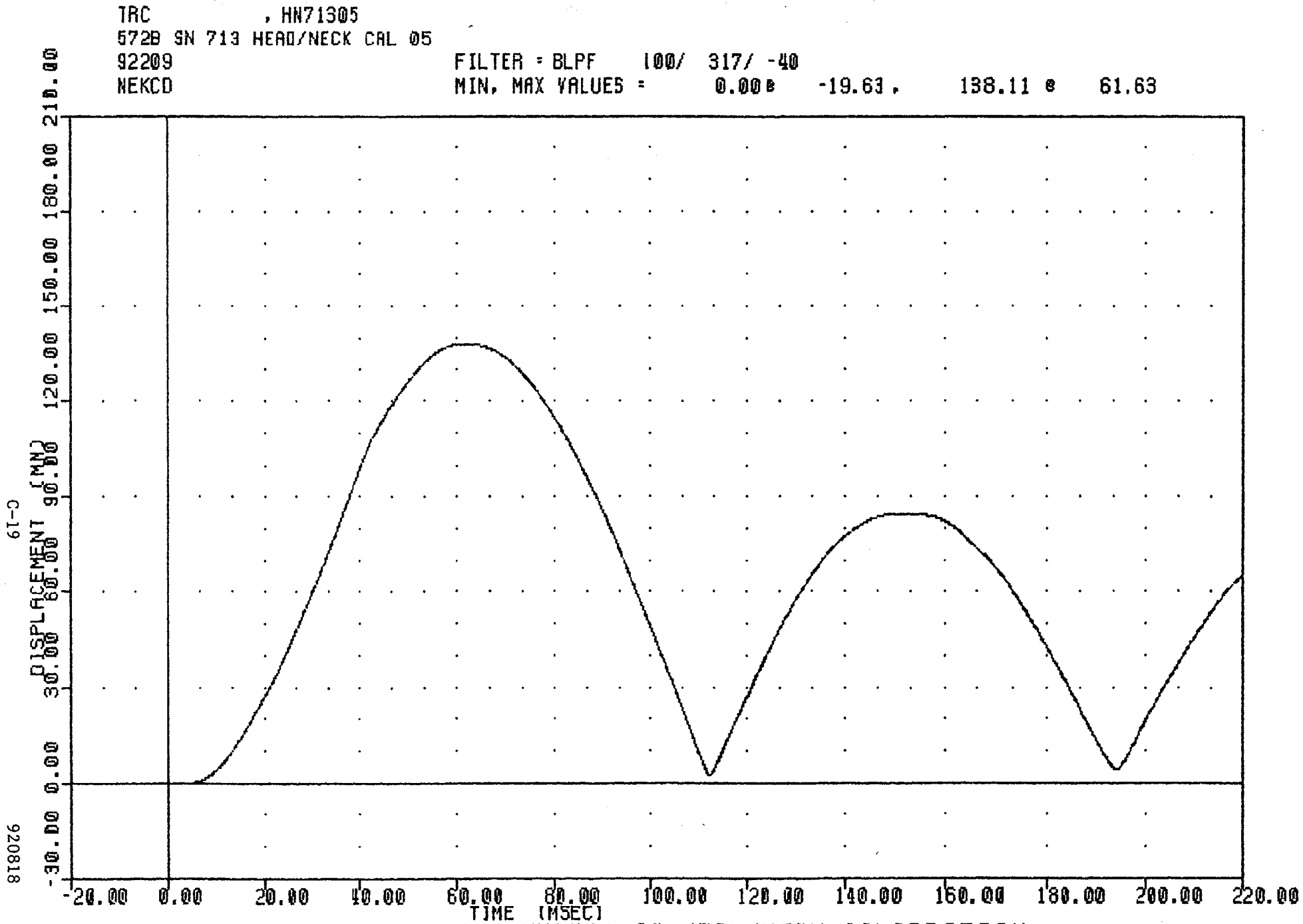
920818



PART 572-B HYBRID II HEAD/NECK CALIBRATION

NECK DISPLACEMENT X AXIS

920818



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

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572 28-Jul-92

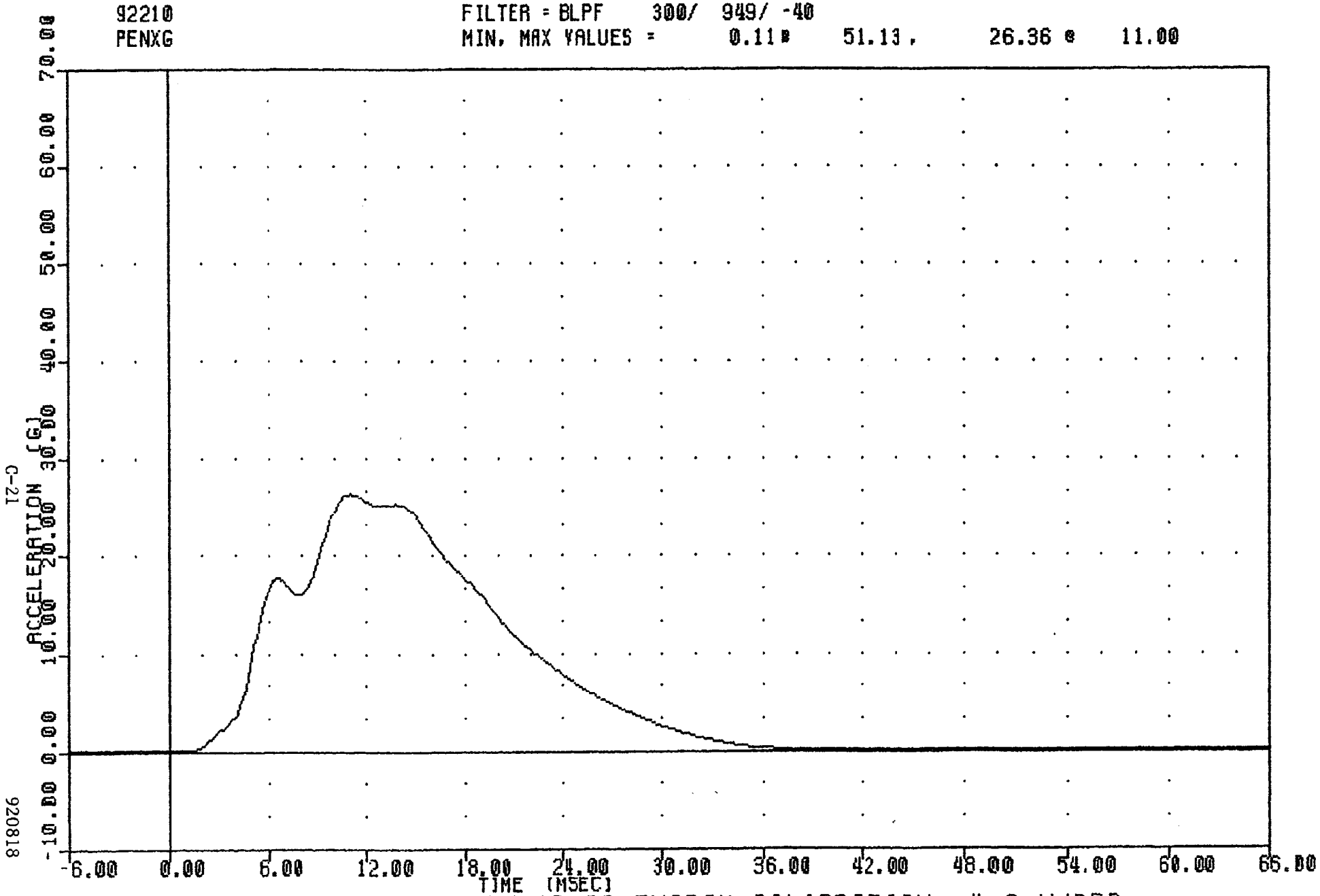
TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC TL71305 572B SN 713 L.S. THORAX CAL 05

TEST PARAMETER	LOW SPEED TEST SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	4.22-4.31 M/SEC	4.28 M/SEC
PEAK DEFLECTION	28 MM max.	23.68 MM
PEAK RESISTIVE FORCE	6,450. N max.	6038. N
INTERNAL HYSTERESIS	50% - 70%	64.1%

SCD: 54.61 MM

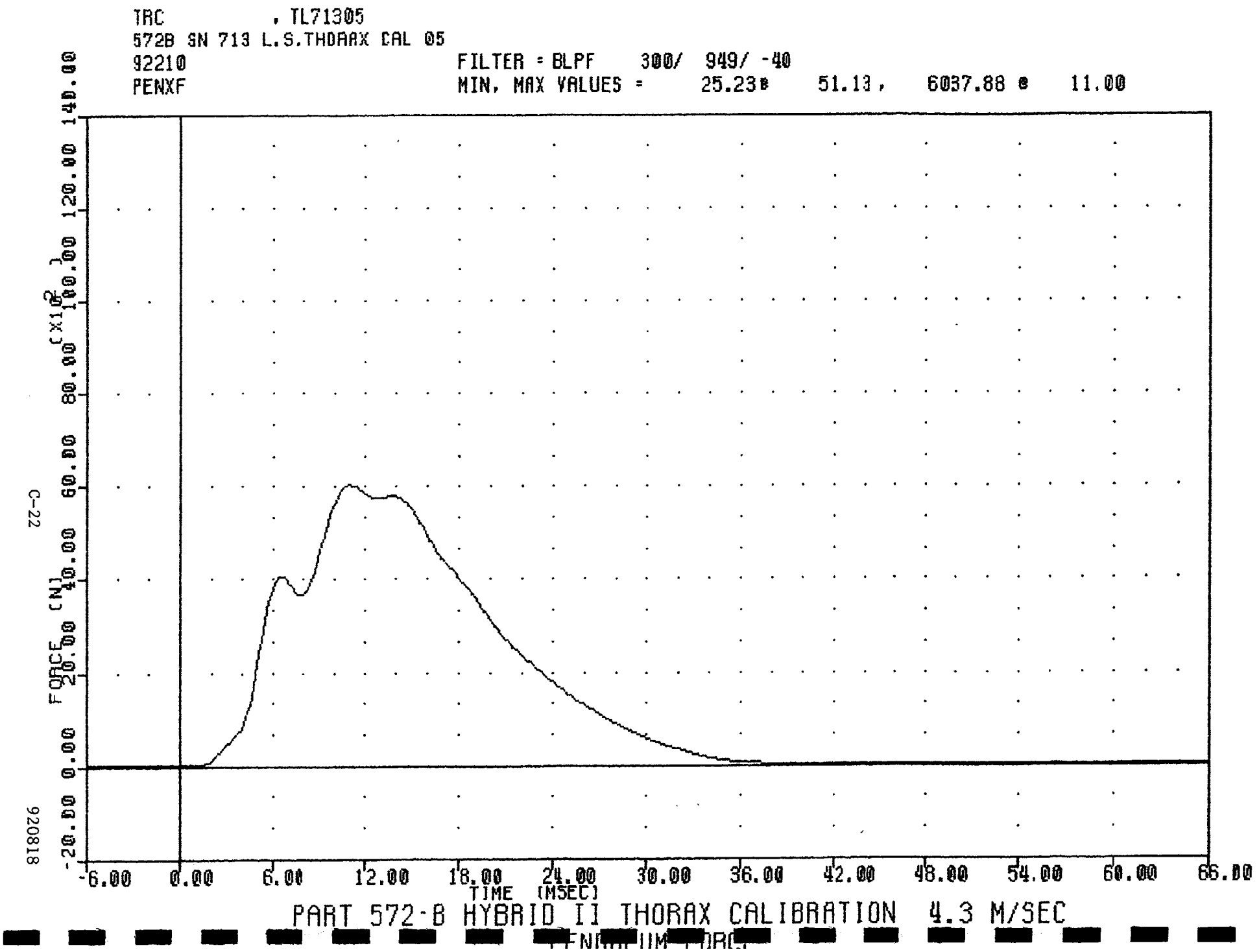
DUMMY MEETS SPECIFICATIONS

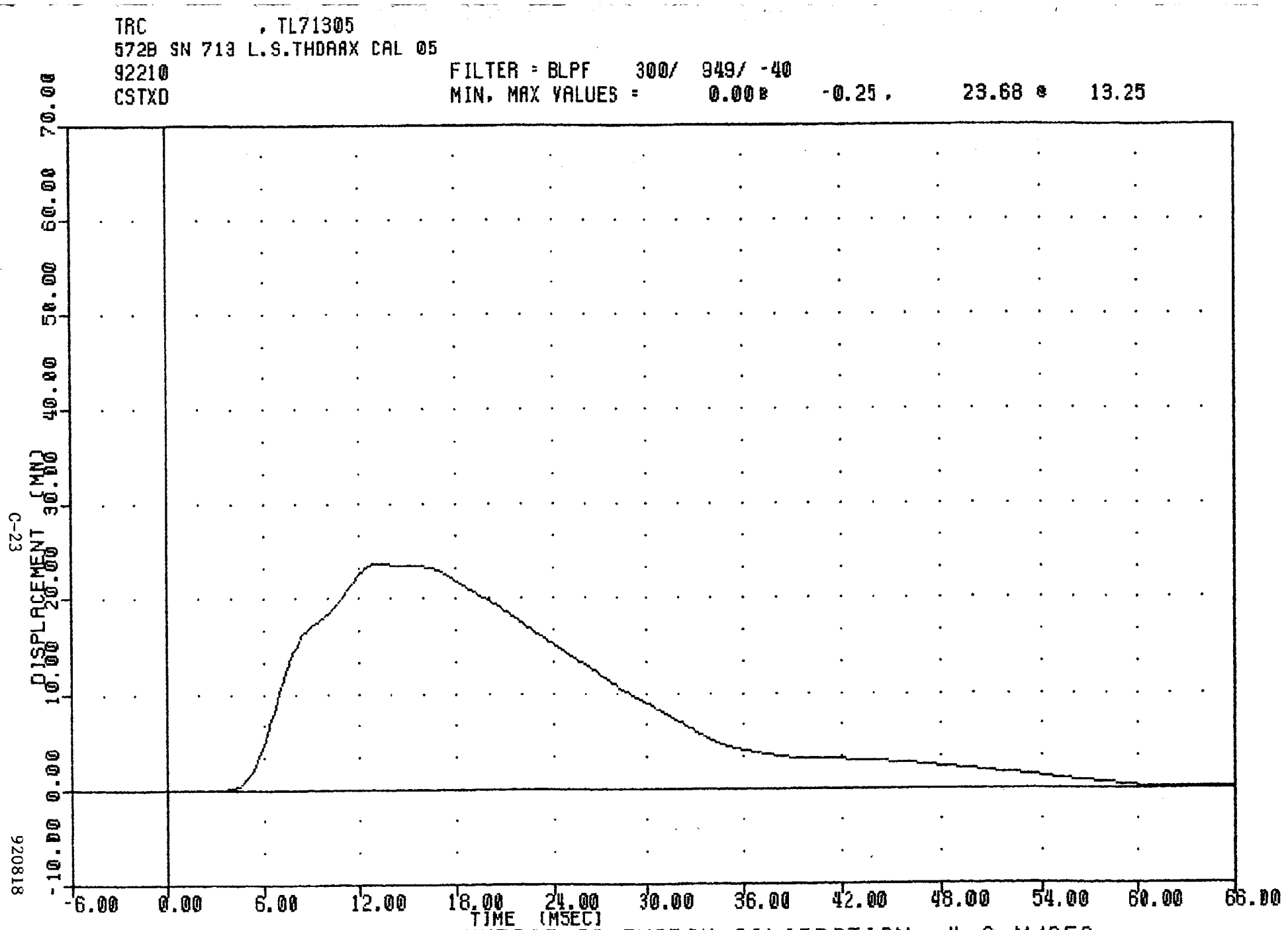
TECHNICIAN Pete Fant



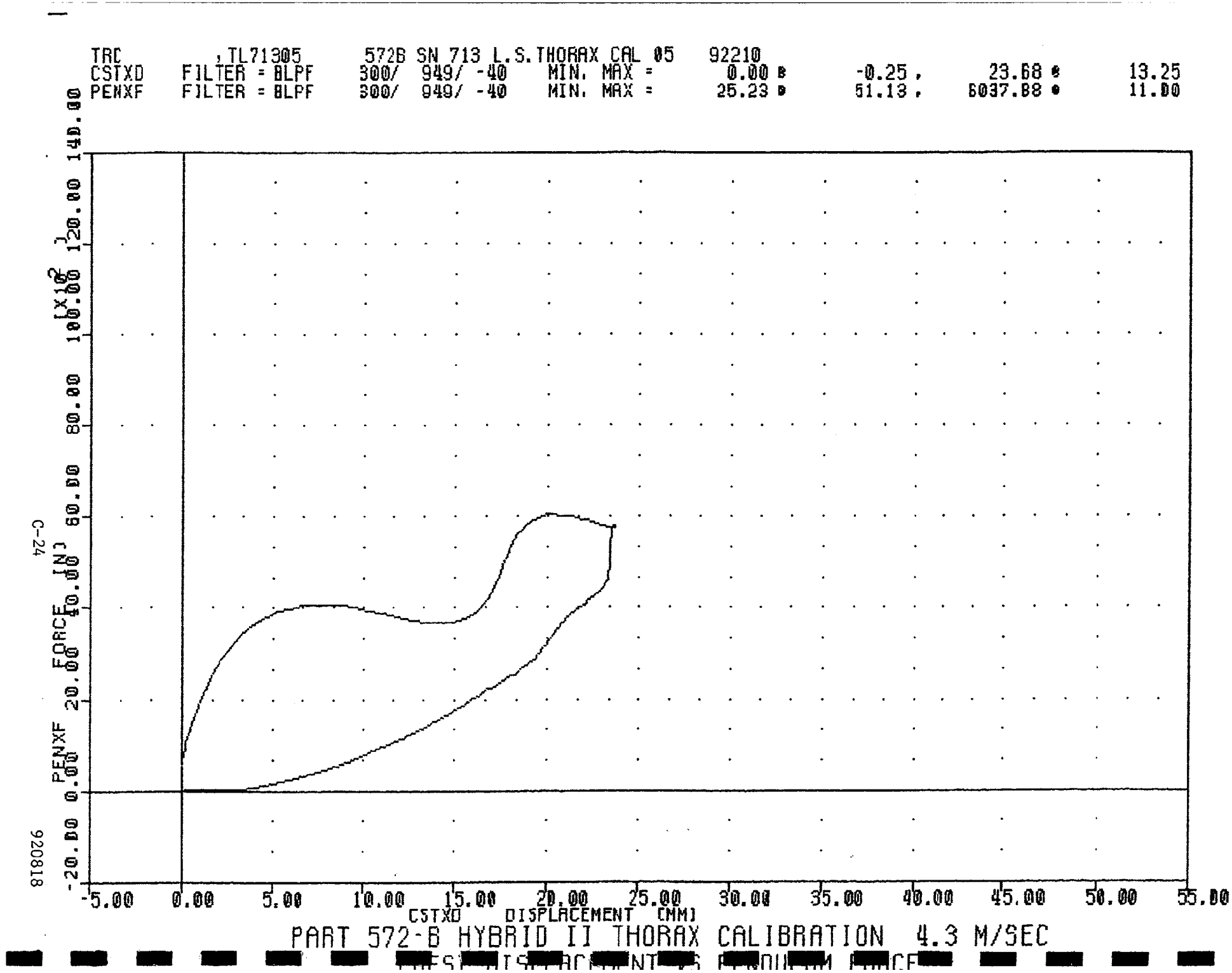
PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
PENDULUM DECELERATION

920818


TRC , TL71305
572B SN 713 L.S.THORAX CAL 05
92210
PENXF
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 25.23 @ 51.13 , 6037.88 @ 11.00
FORCE (N) (X10^2)
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-6.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
54.00
60.00
66.00
TIME (MSEC)
PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC



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


TRC ,TL71305 572B SN 713 L.S.THORAX CAL 05 92210
CSTXD FILTER = BLPF 300/ 949/ -40 MIN, MAX = 0.00 @ -0.25 , 23.68 @ 13.25
PENXF FILTER = BLPF 300/ 949/ -40 MIN, MAX = 25.23 @ 51.13 , 6037.88 @ 11.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
PENXF FORCE (LB) [X10^2]
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00
55.00
CSTXD DISPLACEMENT (MM)
PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
C-24
920818

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572 28-Jul-92

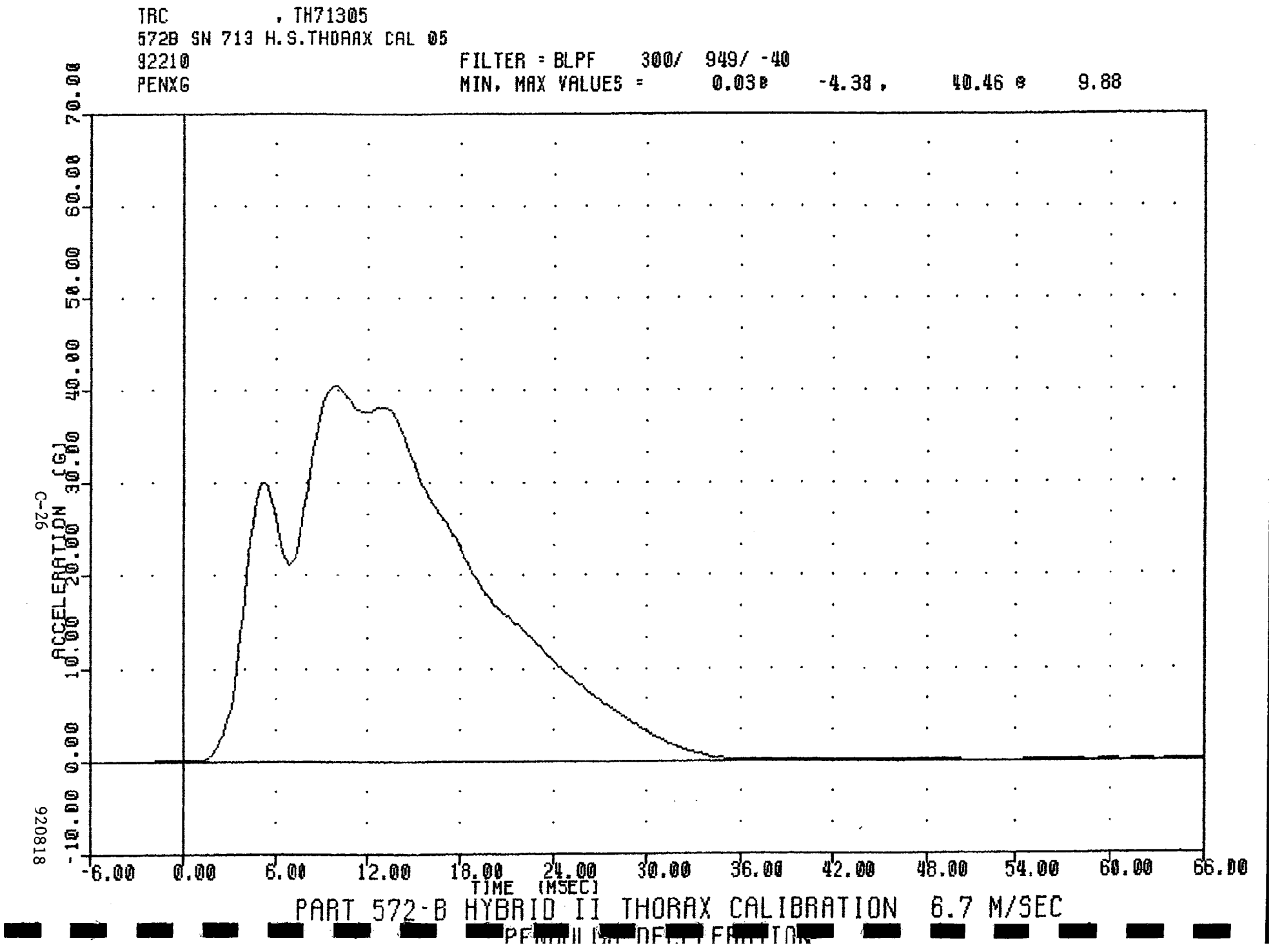
TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC TH71305 572B SN 713 H.S. THORAX CAL 05

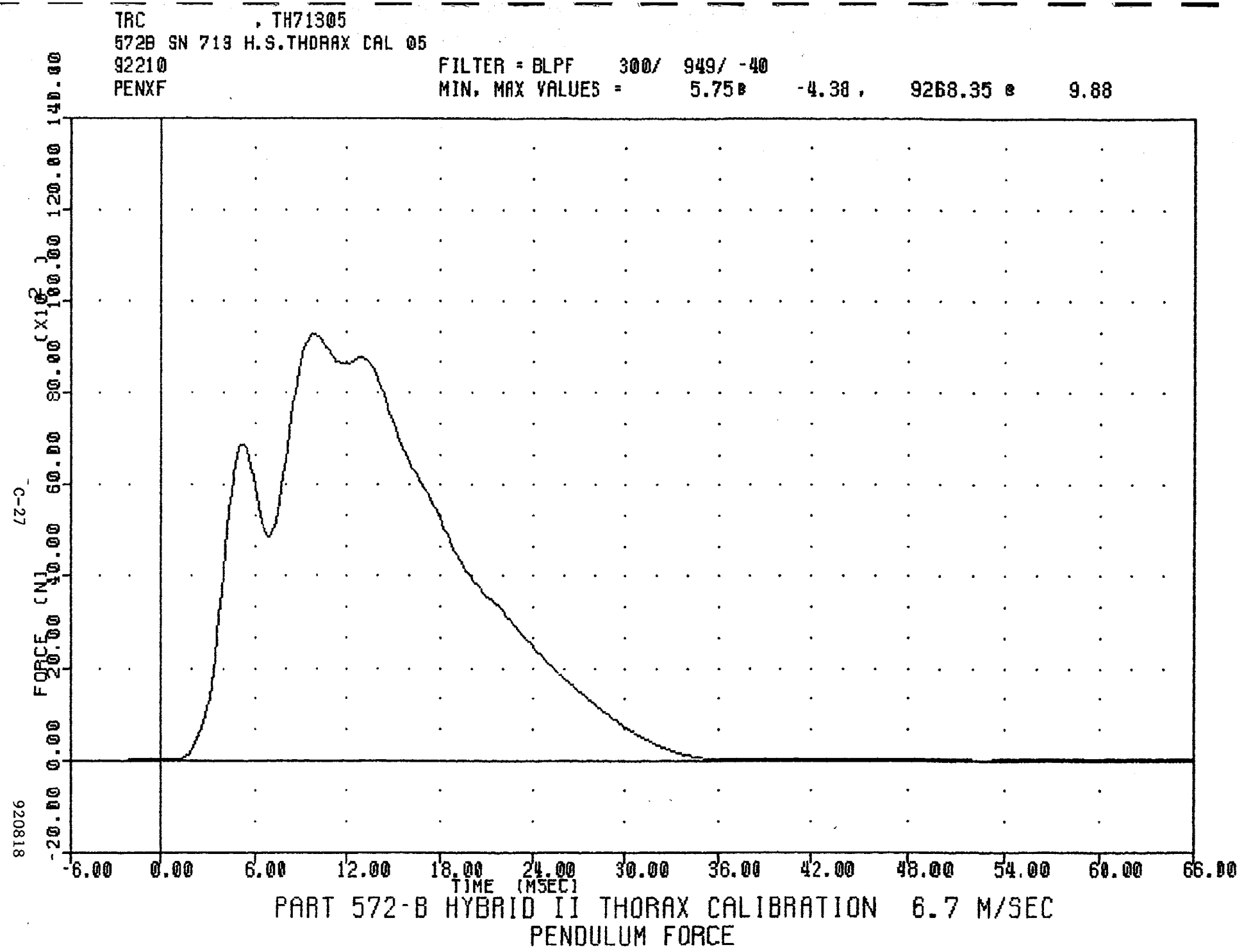
TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	6.64-6.77 M/SEC	6.73 M/SEC
PEAK DEFLECTION	43 MM max.	37.68 MM
PEAK RESISTIVE FORCE	10,009. N max.	9268. N
INTERNAL HYSTERESIS	50% - 70%	66.4%

SCD: 54.61 MM

DUMMY MEETS SPECIFICATIONS

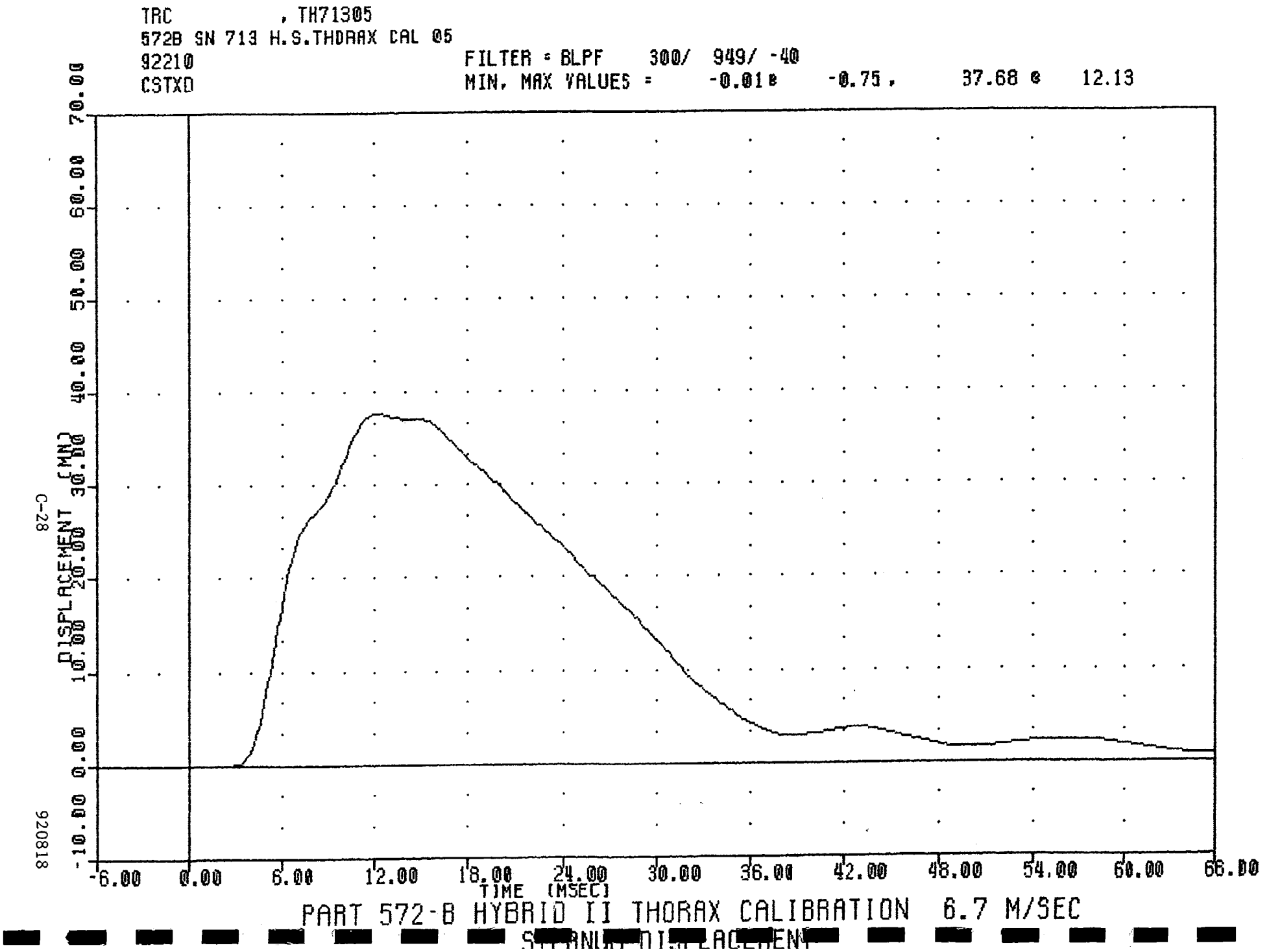
TECHNICIAN Pete Foust


TRC , TH71305
572B SN 713 H.S.THORAX CAL 05
92210
PENXG
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 0.03@ -4.38 , 40.46 @ 9.88
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
ACCELERATION (G)
-6.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
54.00
60.00
66.00
TIME (MSEC)
920818
C-26
PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC



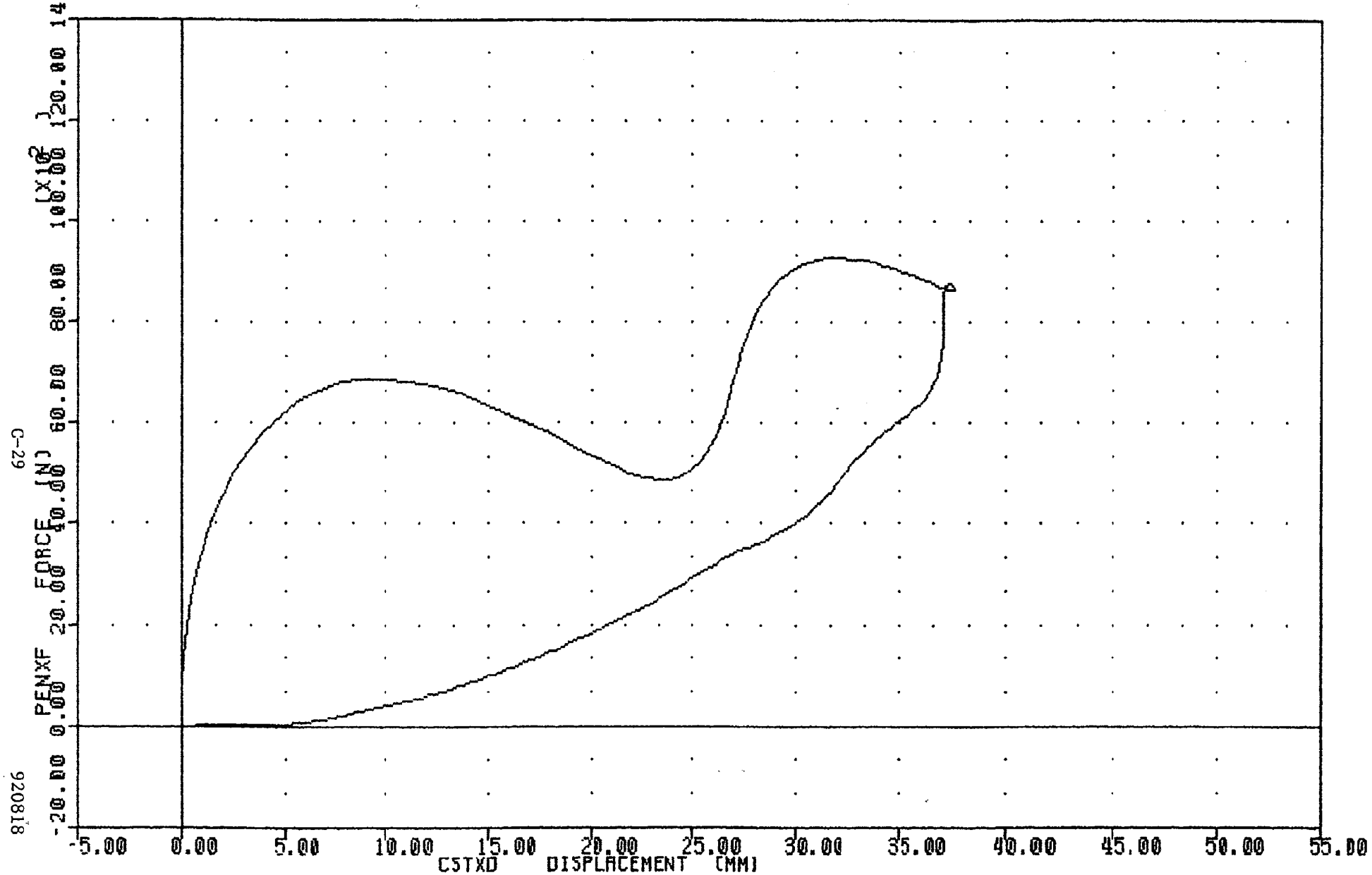
PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
PENDULUM FORCE

920818


TRC , TH71305
572B SN 713 H.S.THORAX CAL 05
92210
CSTXD
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.01 @ -0.75 , 37.68 @ 12.13
DISPLACEMENT (MM)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-6.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
54.00
60.00
66.00
TIME (MSEC)
PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
STERNUM DISPLACEMENT

920818

TRC	,TH71305	572B SN 713 H.S.THORAX CAL 05	92210				
CSTXD	FILTER = BLPF	300/ 949/ -40	MIN, MAX =	-0.01 @	-0.75 ,	37.68 @	12.13
PENXF	FILTER = BLPF	300/ 949/ -40	MIN, MAX =	5.75 @	-4.38 ,	9268.35 @	9.88



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

920818

TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMEN COMPRESSION TEST

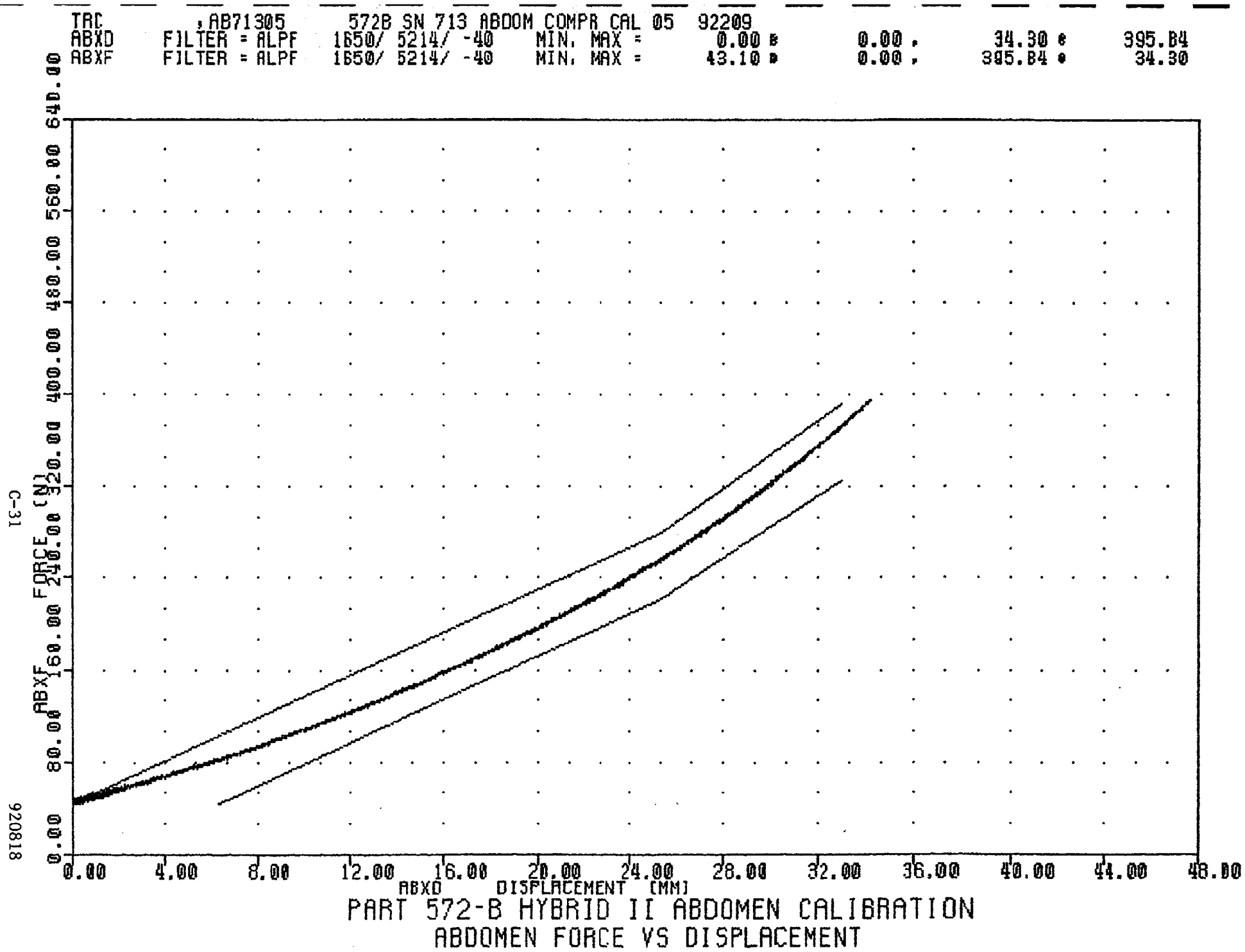
PART 572 27-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC AB71305 572B SN 713 ABDOM COMPR CAL 05

TEST CORRIDORS		
DISPLACEMENT	FORCE	TEST RESULTS
0.0 MM	44.48 N	44.48 N
12.7 MM	102.30 - 160.13 N	129.04 N
19.1 MM	160.13 - 222.40 N	187.29 N
25.4 MM	222.40 - 280.22 N	255.66 N
33.0 MM	324.70 - 391.42 N	372.73 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Rita Fout



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

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572 27-JUL-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC LF71305 572B SN713 LUMBAR FLEX CAL05

DEFLECTION	SPECIFICATION	TEST RESULTS
0 DEG	0 N	0.00 N
20 DEG	97.86 - 151.24 N	115.65 N
30 DEG	151.24 - 204.62 N	173.47 N
40 DEG	204.62 - 258.00 N	217.95 N
NET RETURN ANGLE	< 12 DEG	10.50 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

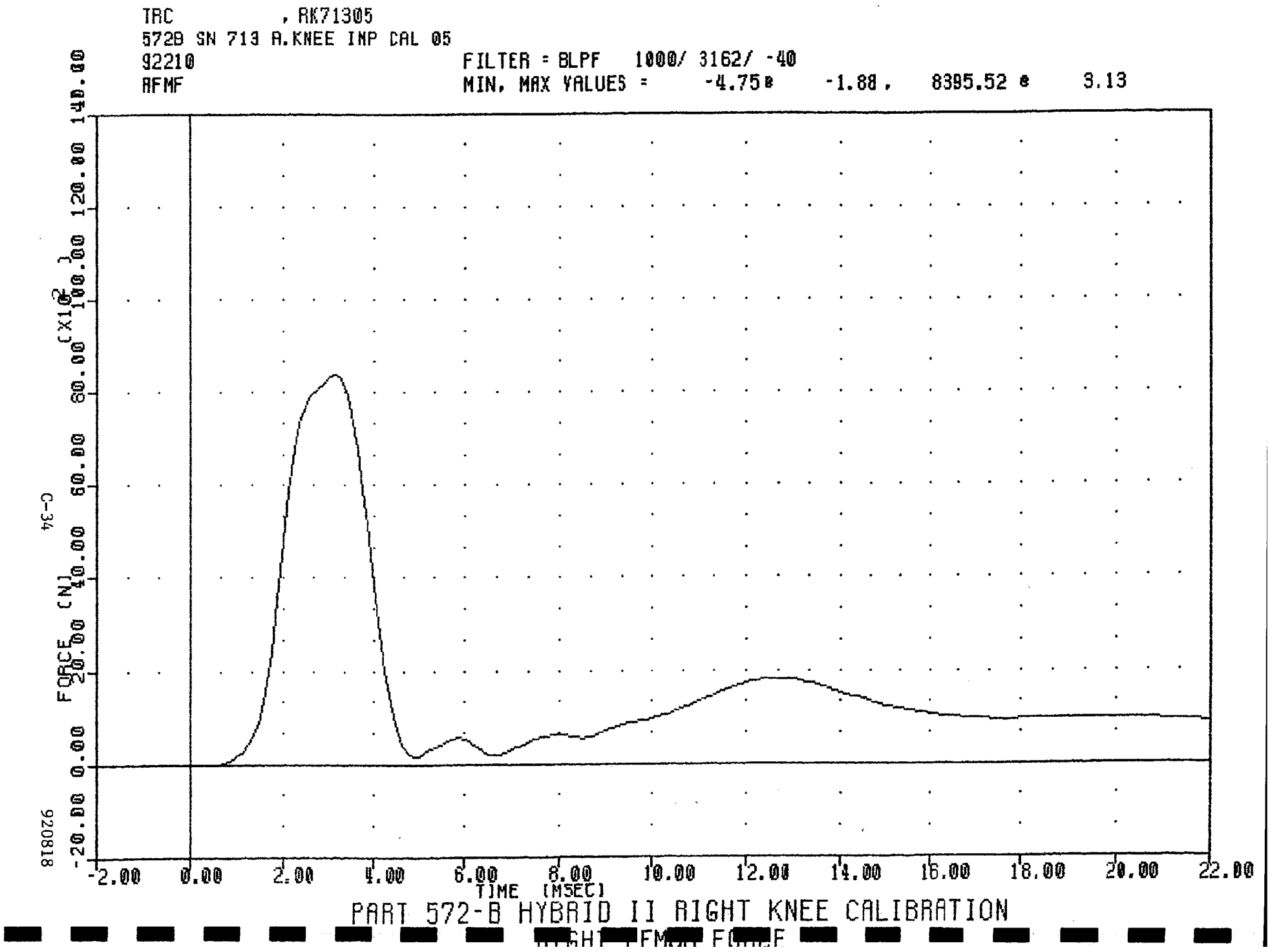
PART 572 28-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
RIGHT KNEE
TRC RK71305 572B SN 713 R. KNEE IMP CAL 05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	2.06 - 2.15 M/SEC	2.12 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	8395.52 N
DURATION ABOVE 4448 N	>=1.7 MSEC	1.96 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Fonti


TRC , RK71305
572B SN 713 A.KNEE IMP CAL 05
92210
RFMF
FILTER = BLPF 1000/ 3162/ -40
MIN, MAX VALUES = -4.75 @ -1.88 , 8395.52 @ 3.13
FORCE (N) (X10^2)
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
-2.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
TIME (MSEC)
920818
C-34
PART 572-B HYBRID II RIGHT KNEE CALIBRATION

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

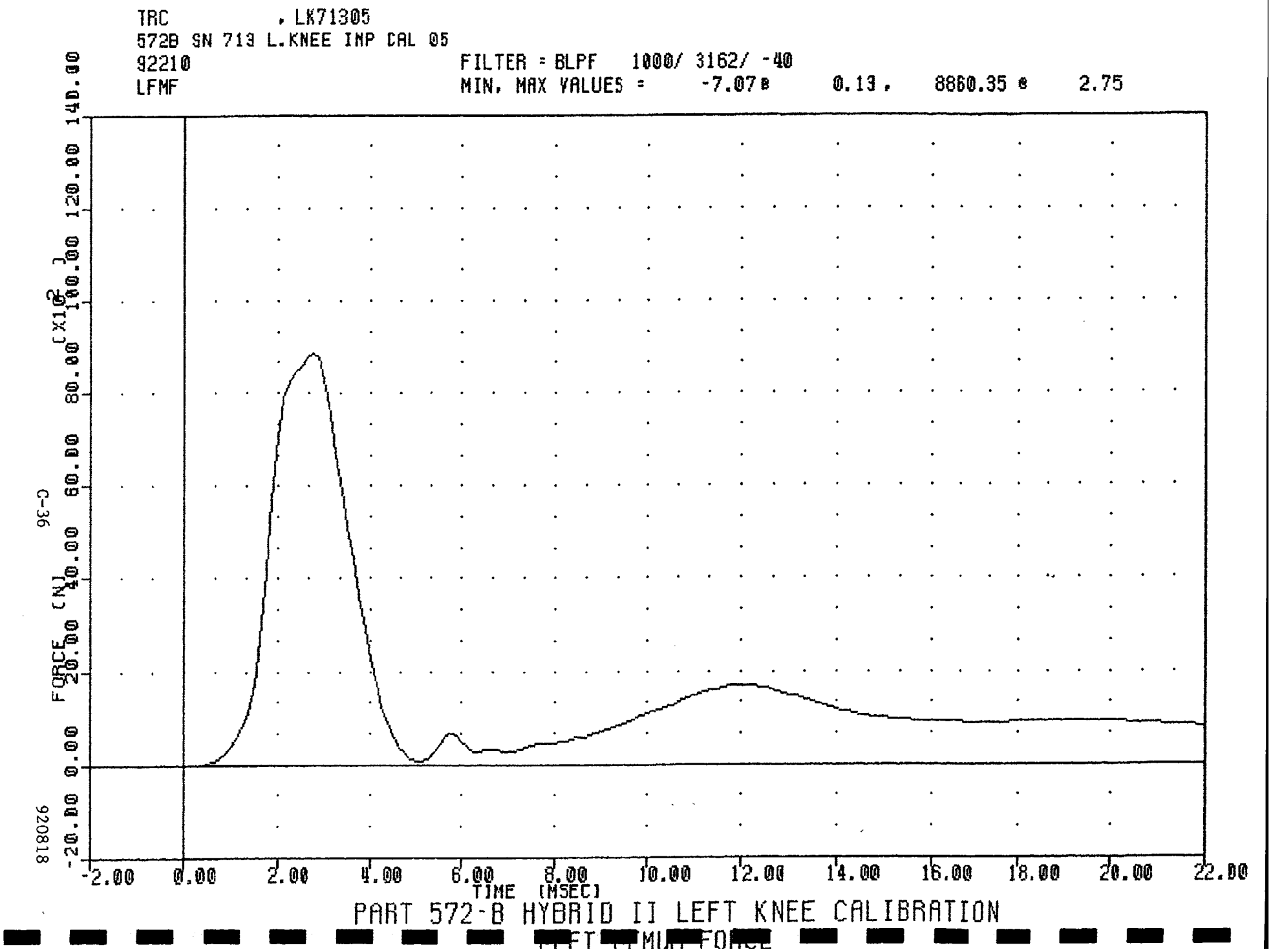
PART 572 28-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
LEFT KNEE
TRC LK71305 572B SN 713 L.KNEE IMP CAL 05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	2.06 - 2.15 M/SEC	2.13 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	8860.35 N
DURATION ABOVE 4448 N	>=1.7 MSEC	1.84 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN _____



PART 572-B HYBRID II LEFT KNEE CALIBRATION

PRE-TEST CERTIFICATION DATA

PASSENGER DUMMY S/N: 826

TRANSPORTATION RESEARCH CENTER OF OHIO

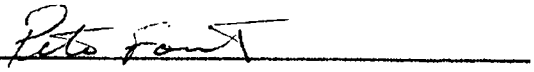
EXTERNAL DIMENSIONS

PART 572 29-JUL-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC ED82631 572B SN826 EXT. DIMENSION CAL31

DESCRIPTION SN 826	SPECIFICATION	TEST RESULTS
Sitting Height	904 - 909 MM	904. MM
Shoulder Pivot Height	553 - 569 MM	564. MM
Hip Pivot Height	99 MM	REFERENCE
Hip Pivot From Backline	122 MM	REFERENCE
Knee Pivot From Backline	511 - 526 MM	518. MM
Rear of Head From Backline	43 MM	REFERENCE
Chest Depth	231 - 244 MM	239. MM
Shoulder Width	452 - 467 MM	455. MM
Chest Circumference Over Nipples	935 - 1016 MM	958. MM
Waist Circumference at Min. Girth	798 - 828 MM	826. MM
Hip Width	356 - 391 MM	376. MM
Knee Pivot From Floor	490 - 506 MM	495. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN 

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

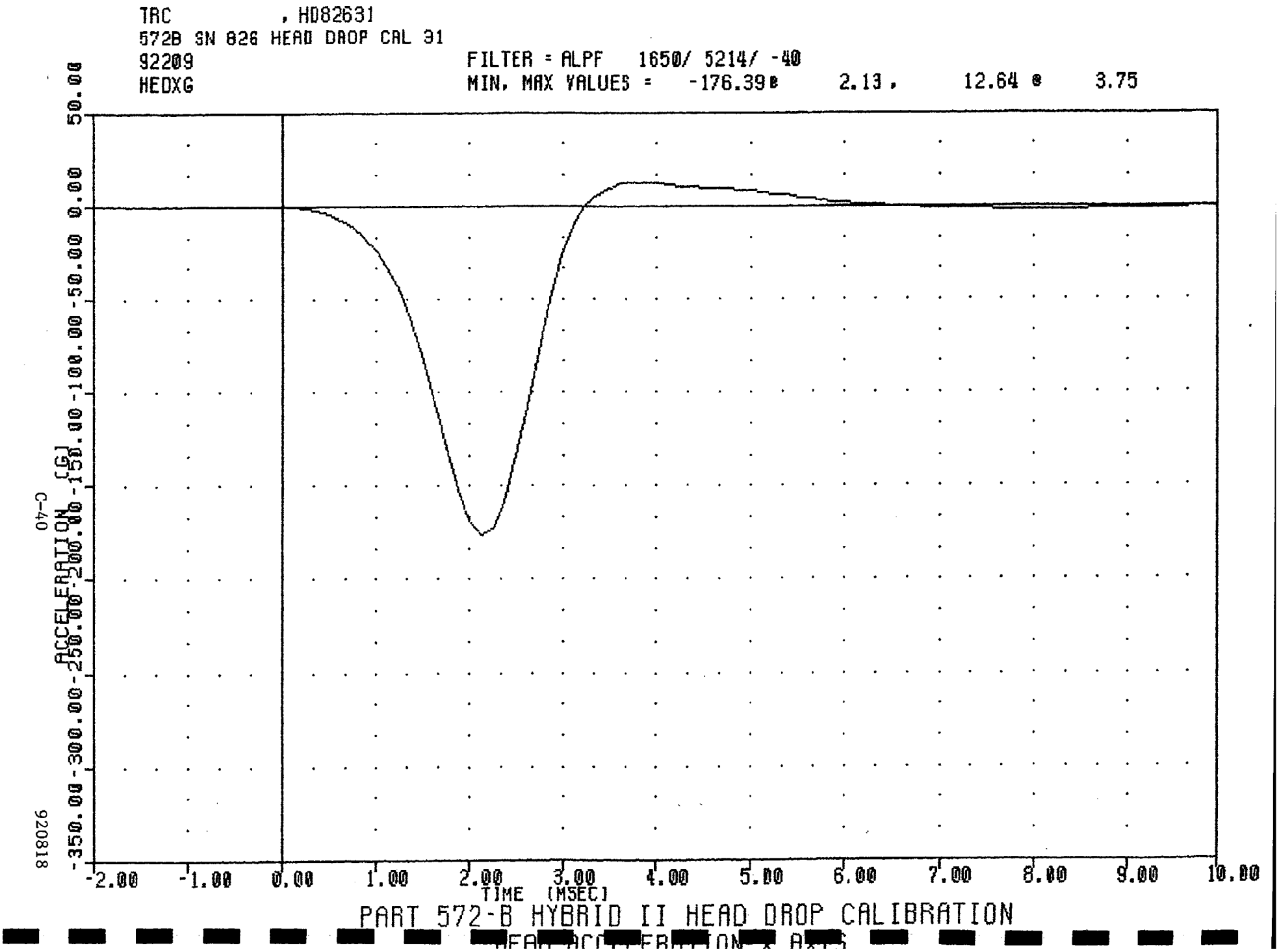
PART 572 27-Jul-92

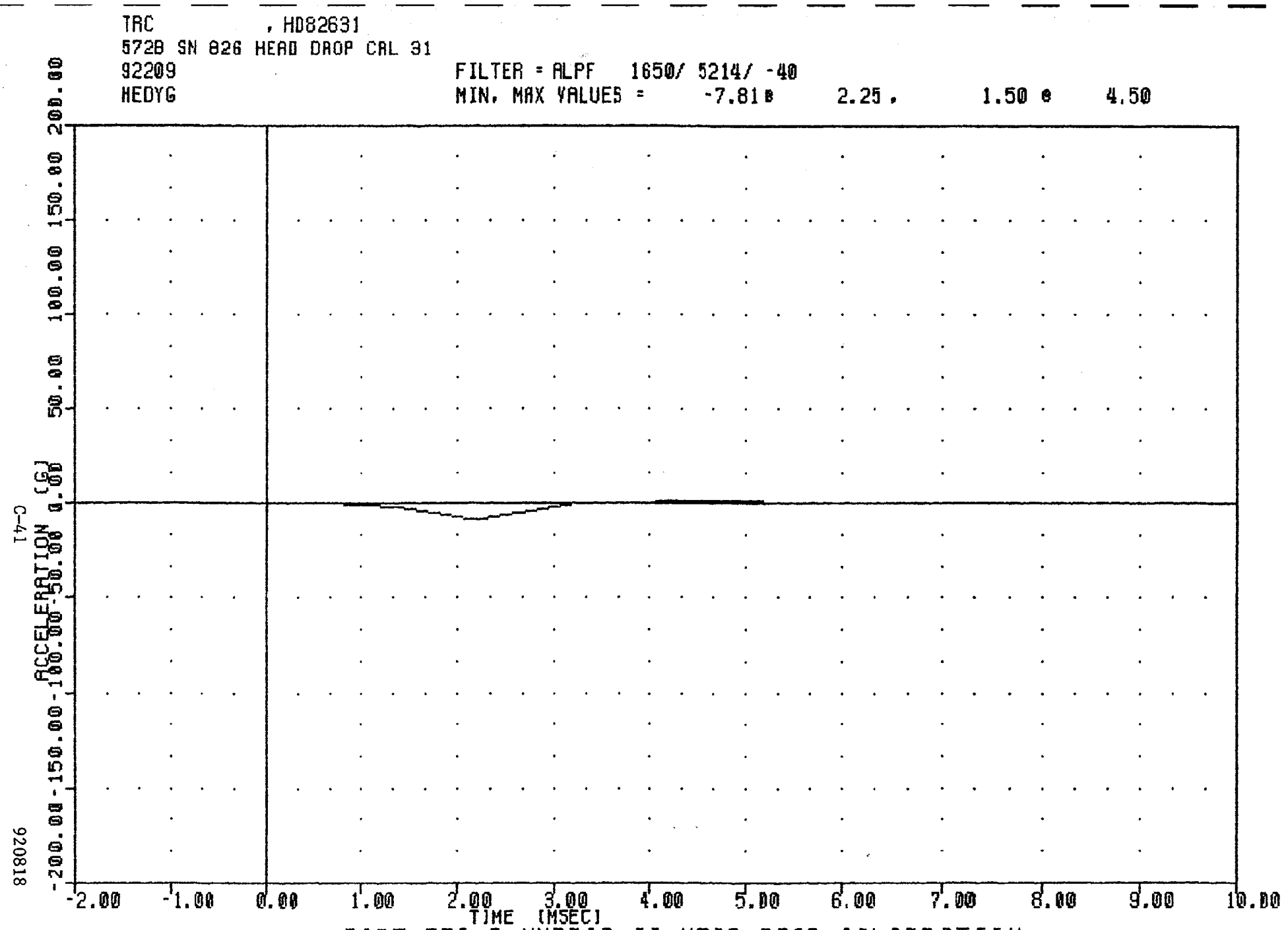
TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC HD82631 572B SN 826 HEAD DROP CAL 31

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PEAK RESULTANT ACCELERATION	210 - 260 G	218.52 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MSEC	1.23 MSEC
PEAK LATERAL ACCELERATION	10 G MAX	-7.81 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY MEETS SPECIFICATIONS

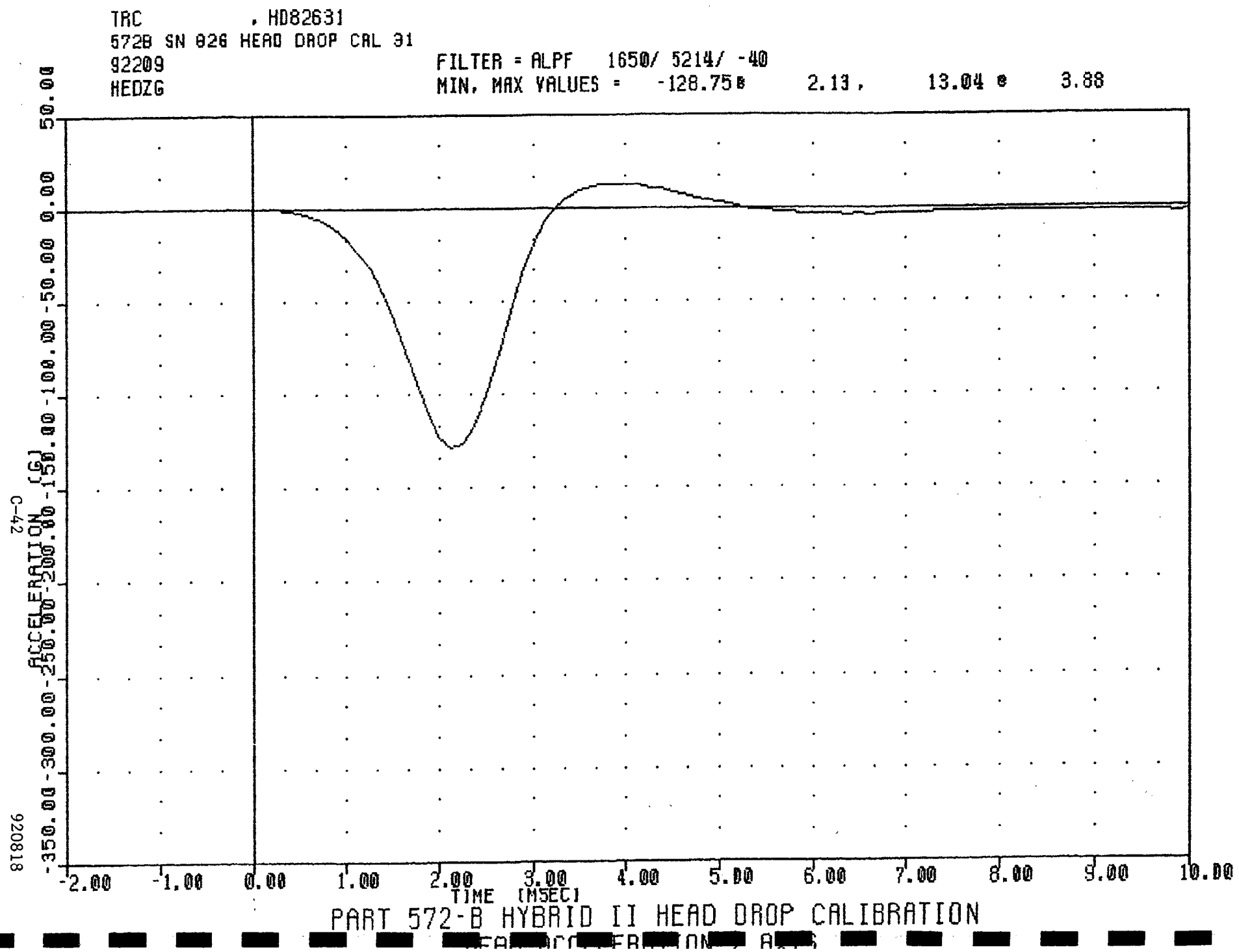
TECHNICIAN Pete Fonti


TRC , HD82631
572B SN 826 HEAD DROP CAL 31
92209
HEDXG
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -176.39 @ 2.13 , 12.64 @ 3.75
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00
-350.00
ACCELERATION (G)
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
TIME (MSEC)
C-40
920818
PART 572-B HYBRID II HEAD DROP CALIBRATION

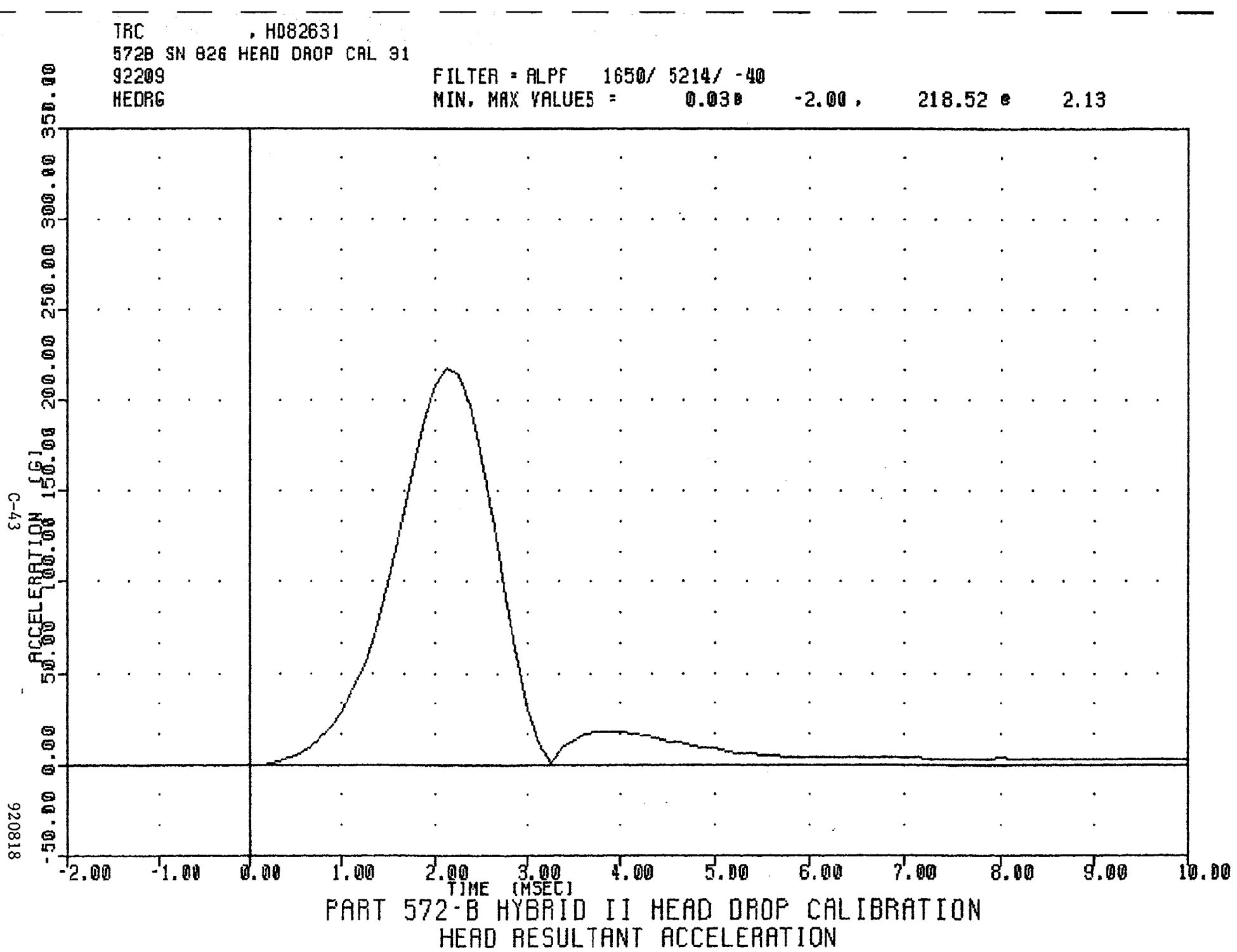


PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD ACCELERATION Y AXIS

920818



PART 572-B HYBRID II HEAD DROP CALIBRATION



PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD RESULTANT ACCELERATION

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK PENDULUM TEST

PART 572 27-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC HN82631 572B SN 826 HEAD/NECK CAL 31

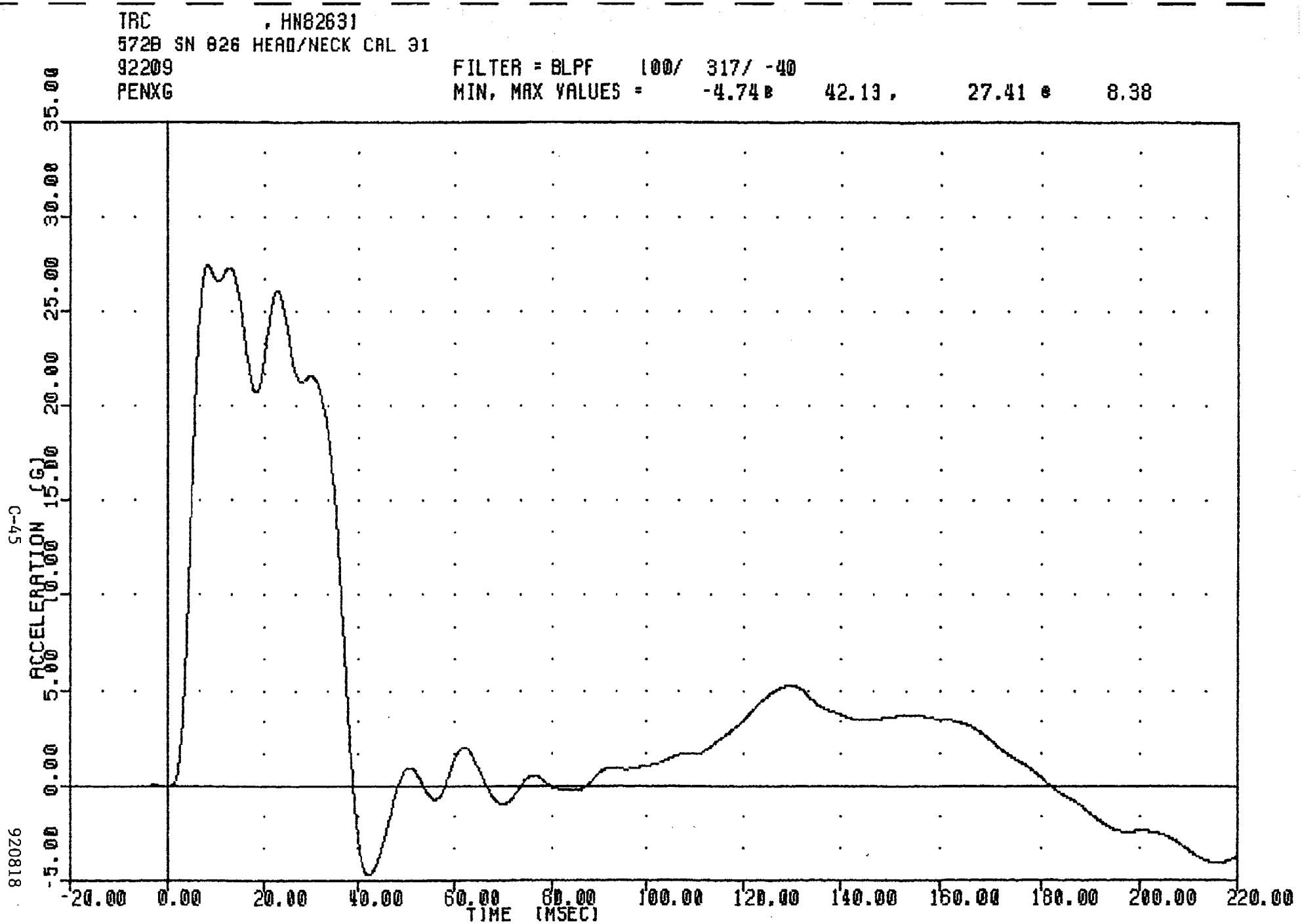
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Pendulum velocity	6.55 to 7.77 m/sec	7.24 m/sec
Pendulum Deceleration:		
T1 - T2: 5 - 20 G	3 msec max	2.33 msec
T2 - T3: 20 - 20 G	25 - 30 msec	26.73 msec
T3 - T4: 20 - 5 G	10 msec max	5.05 msec
Avg. G level T2 - T3	20 - 24 G	23.99 G
Maximum Rotation Angle	63 - 73 deg	66.23 deg
Peak Head Resultant Accel	26 G max	24.11 G

Test Parameter	Specification		Test Results	
Rotation Angle (degrees)	Time (msec)	Chordal Disp. (mm)	Time (msec)	Chordal Disp. (mm)
0	-2.0 - +2.0	-12.7 - +12.7	1.25	0.11
30	25.6 - 34.4	53.3 - 78.7	30.68	61.04
60	40.3 - 51.7	109.2 - 134.6	46.62	115.66
max	53.2 - 66.8	127.0 - 152.4	60.88	130.86
60	67.0 - 83.0	109.2 - 134.6	72.53	117.35
30	85.4 - 104.6	53.3 - 78.7	92.42	56.04
0	101.0 - 123.0	-12.7 - +12.7	106.66	2.63

SND: 151.13 mm

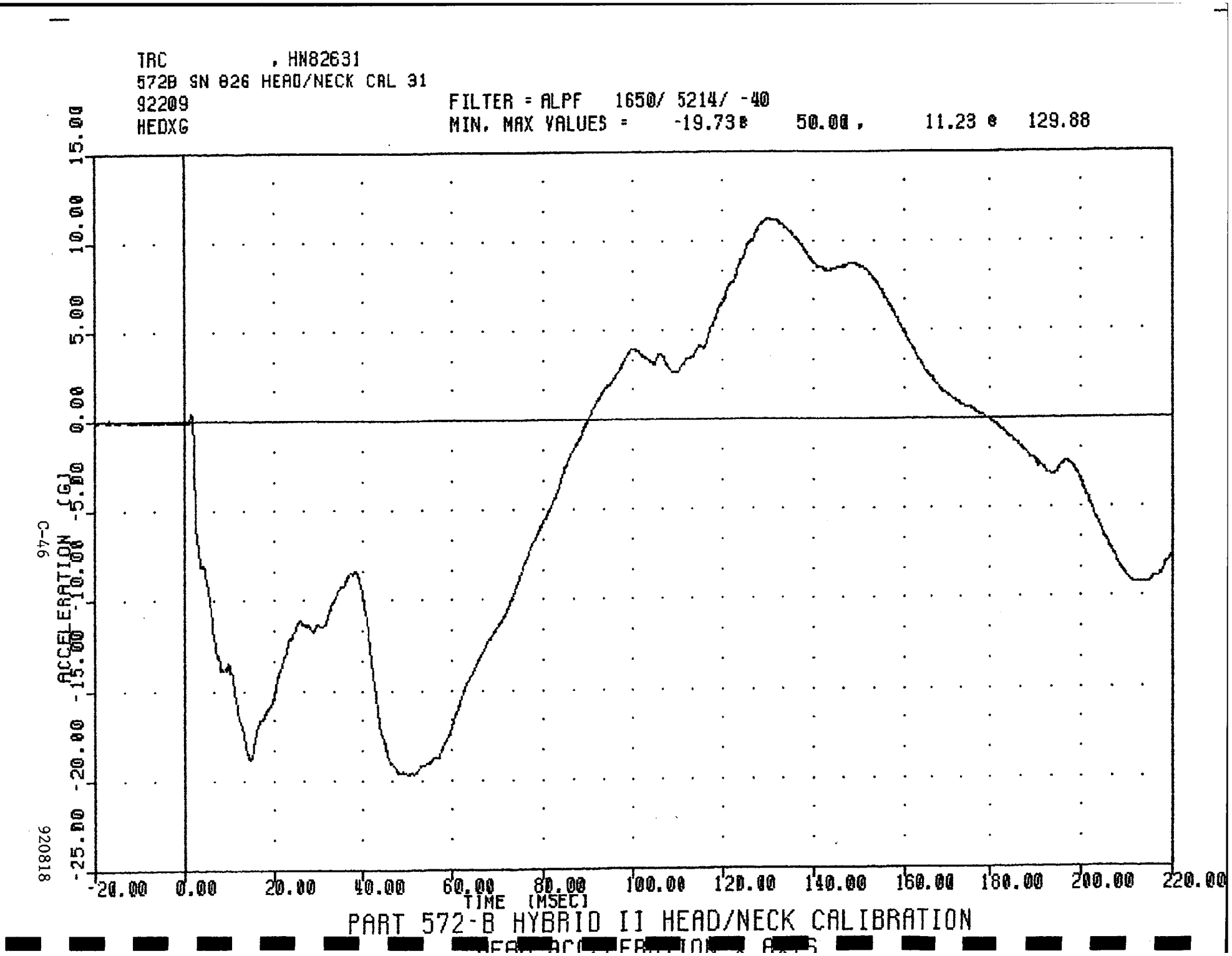
DUMMY MEETS SPECIFICATIONS

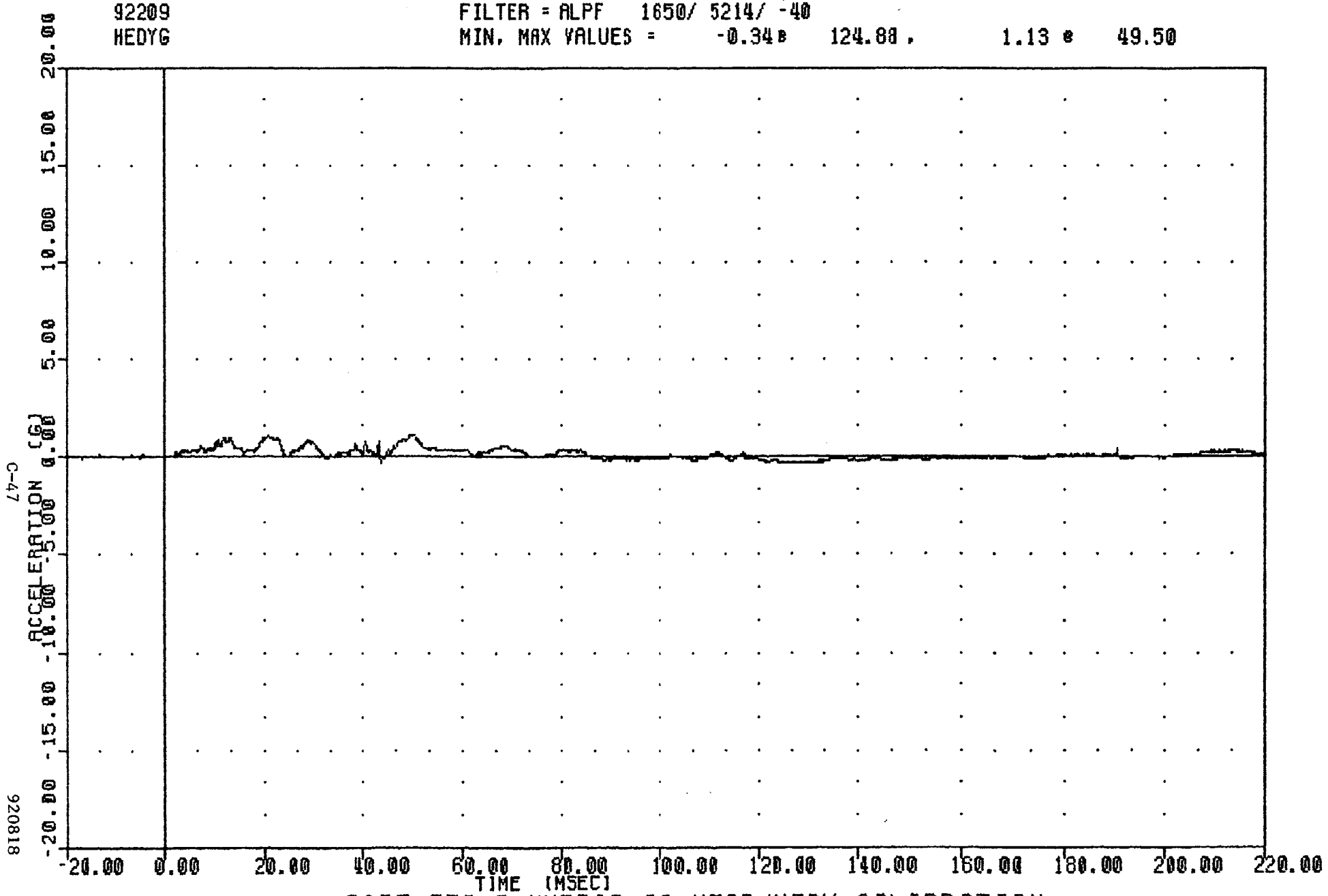
TECHNICIAN _____



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

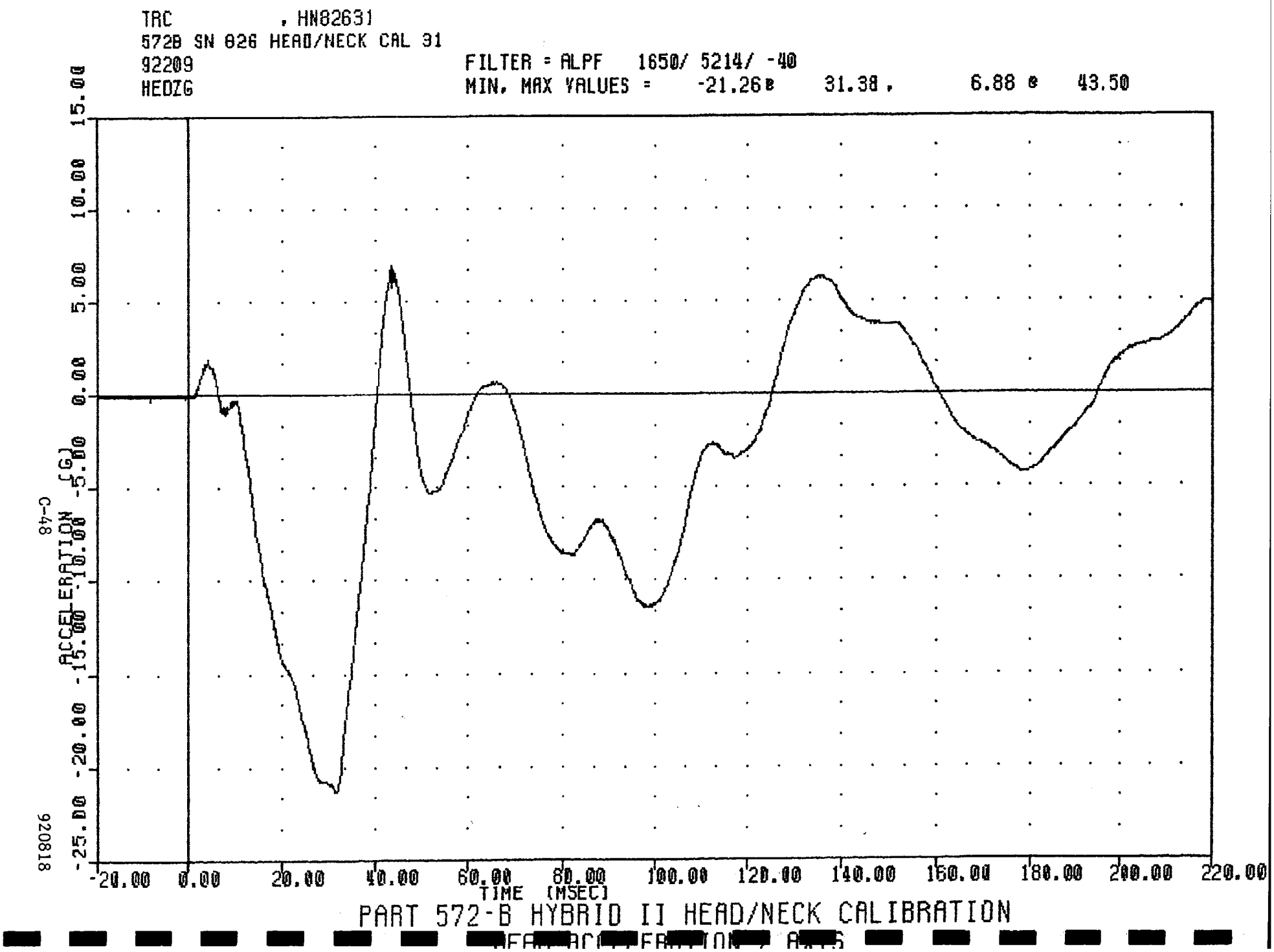
920818

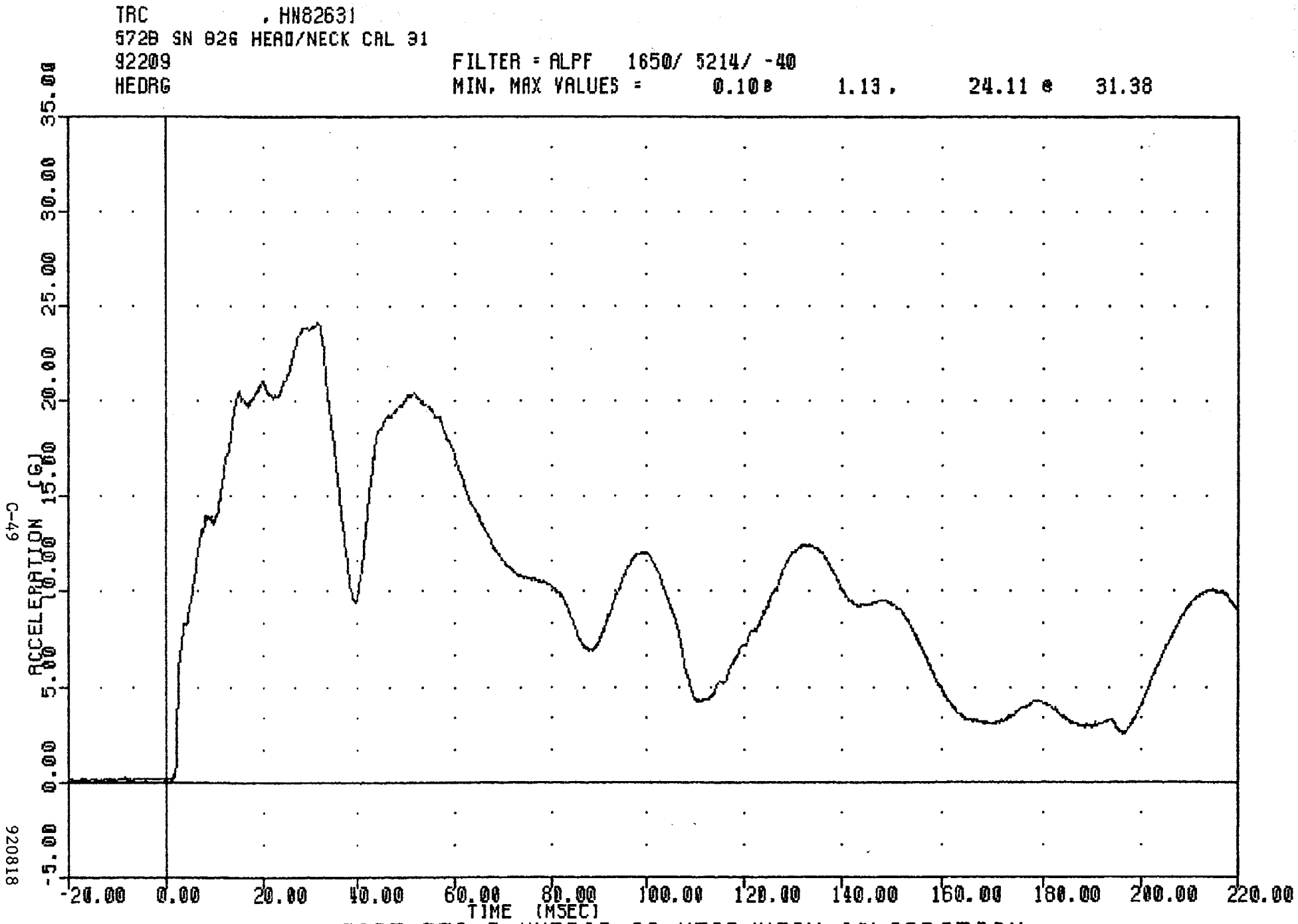

TRC , HN82631
572B SN 826 HEAD/NECK CAL 31
92209
HEDXG
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -19.73 @ 50.00 , 11.23 @ 129.88
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
ACCELERATION (G)
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
TIME (MSEC)
PART 572-B HYBRID II HEAD/NECK CALIBRATION
C-46
920818



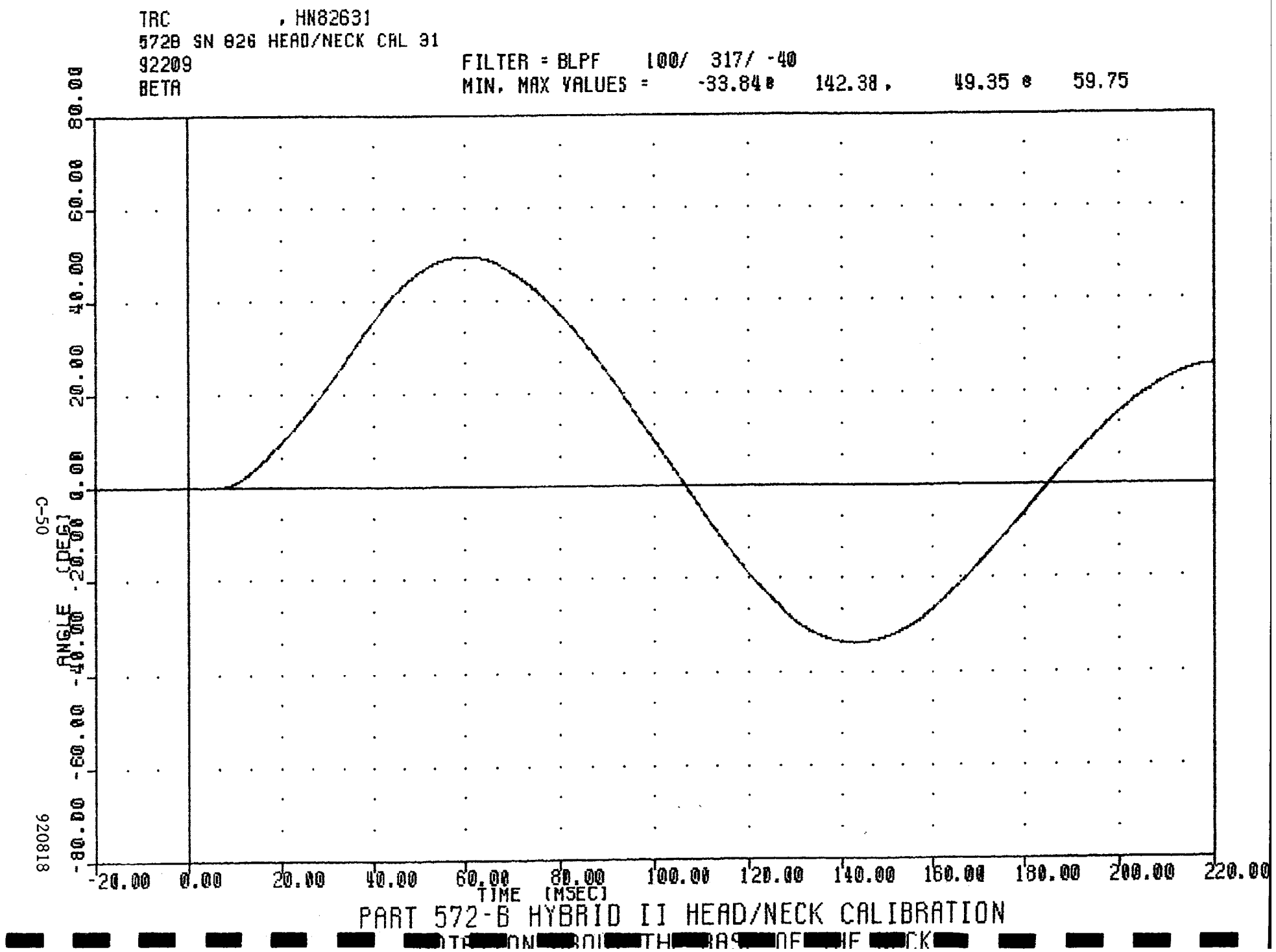
PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION Y AXIS

920818


TRC , HN82631
572B SN 826 HEAD/NECK CAL 31
92209
HEDZG
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -21.26 @ 31.38 , 6.88 @ 43.50
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
ACCELERATION (G)
C-48
920818
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
TIME (MSEC)
PART 572-B HYBRID II HEAD/NECK CALIBRATION



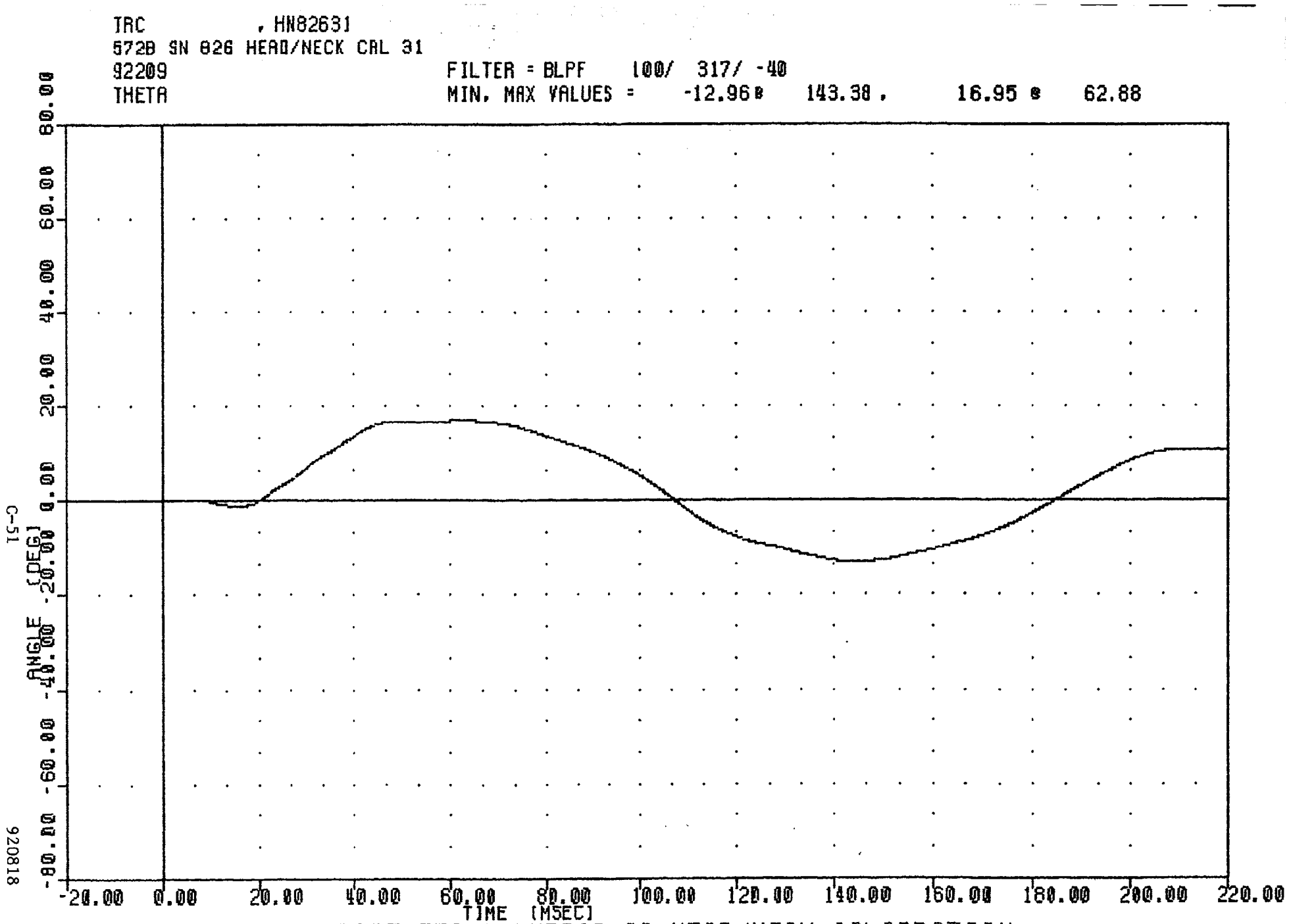
PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD RESULTANT ACCELERATION



PART 572-B HYBRID II HEAD/NECK CALIBRATION

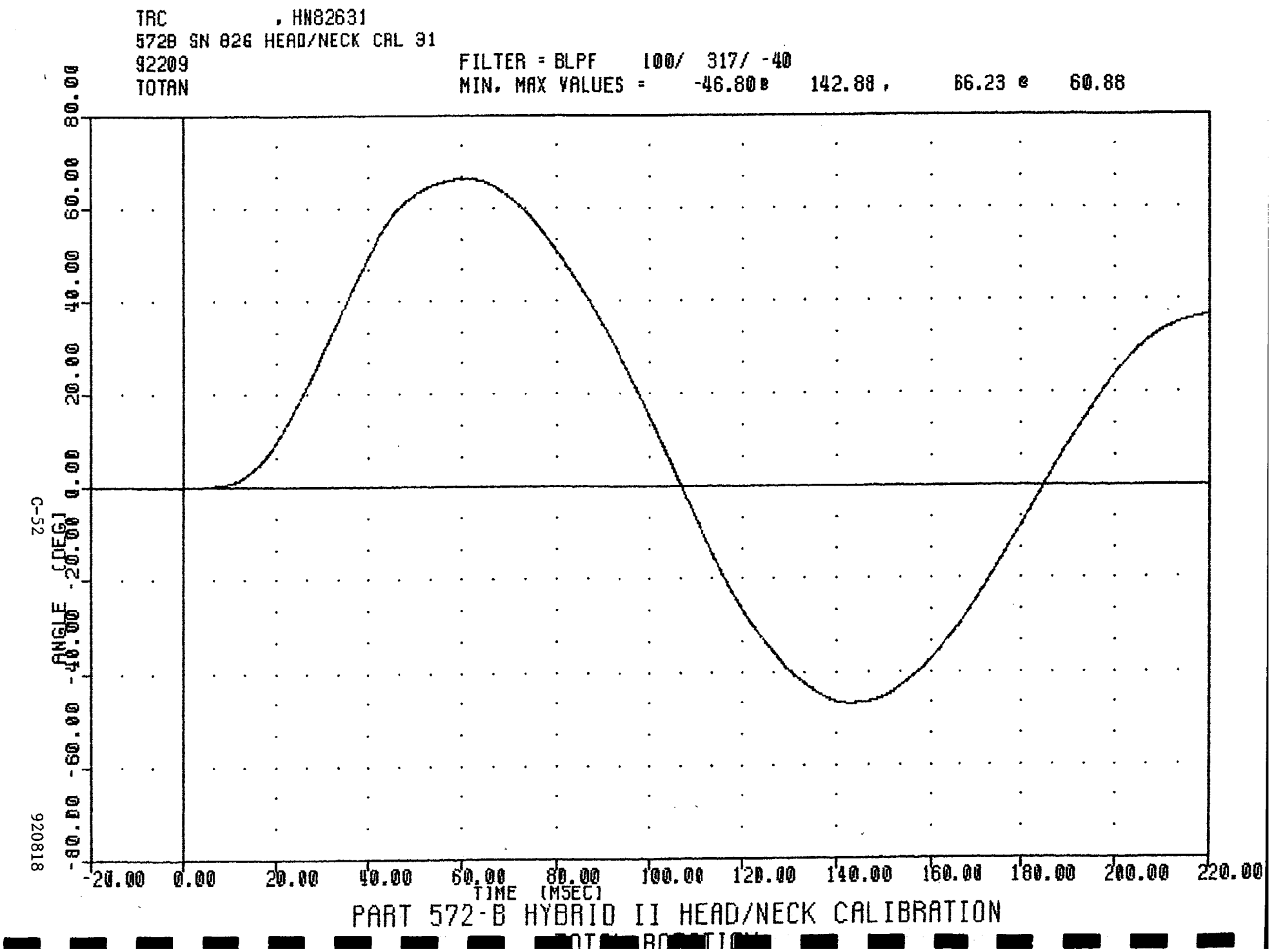
C-50

920818

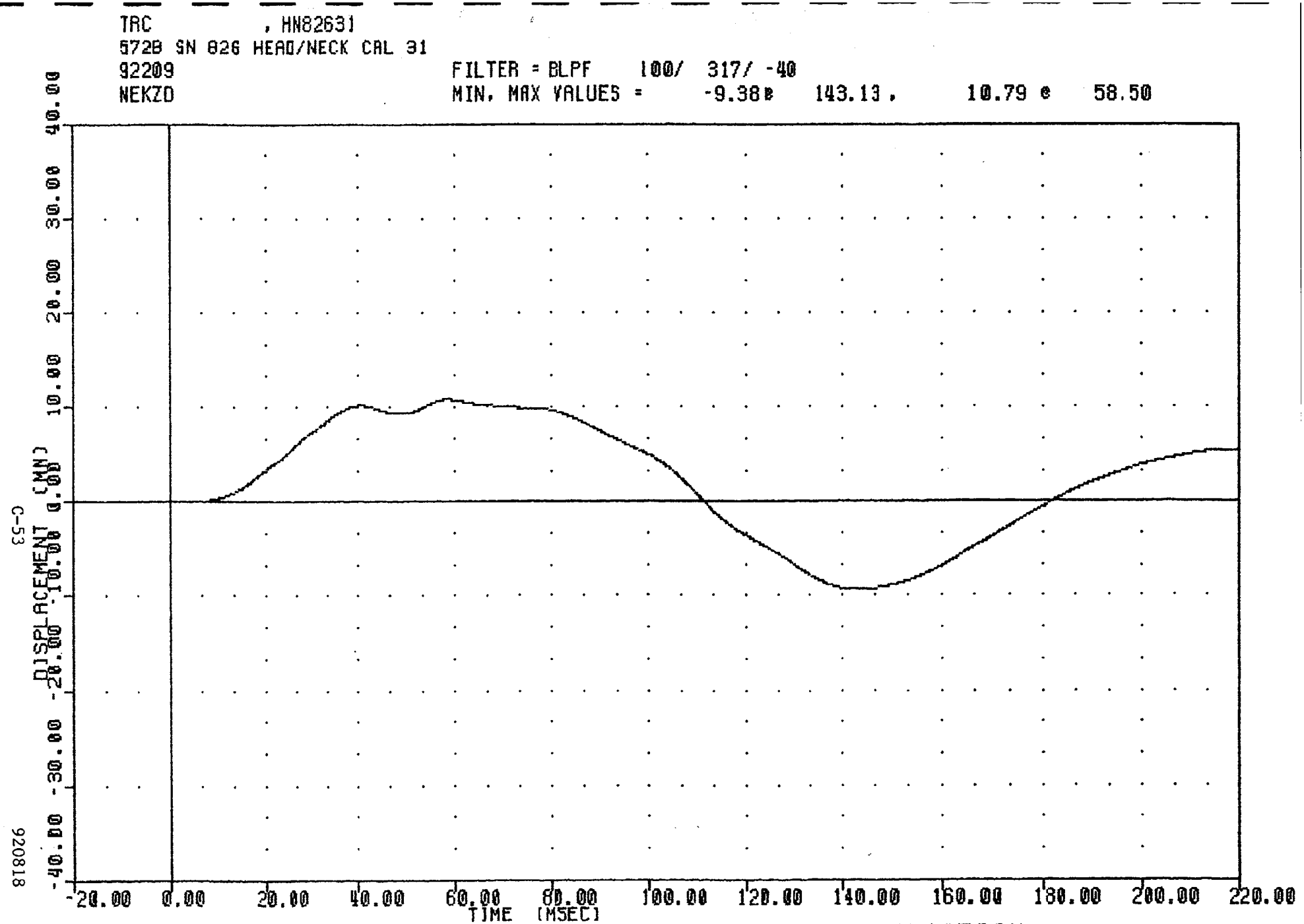


PART 572-B HYBRID II HEAD/NECK CALIBRATION
ROTATION ABOUT THE HEAD C.G.

920818

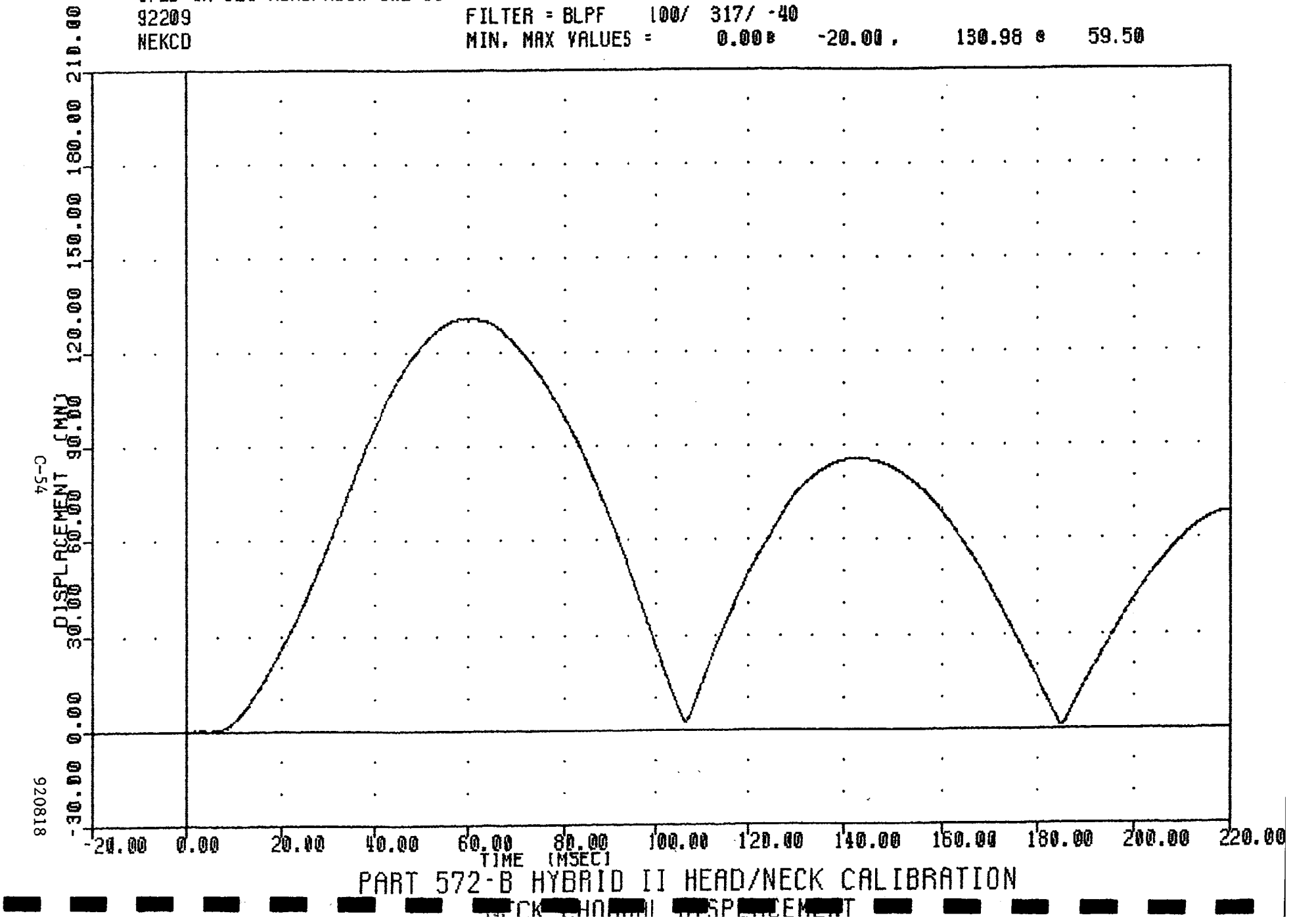

TRC , HN82631
572B SN 026 HEAD/NECK CAL 91
92209
TOTAN
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -46.80 @ 142.88 , 66.23 @ 60.88
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
ANGLE [DEG]
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
TIME (MSEC)
PART 572-B HYBRID II HEAD/NECK CALIBRATION

920818



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

920818


TRC , HN82631
572B SN 026 HEAD/NECK CAL 31
92209
NEKCD
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = 0.00 @ -20.00 , 130.98 @ 59.50
210.00
180.00
150.00
120.00
90.00
60.00
30.00
0.00
-30.00
DISPLACEMENT (MM)
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
TIME (MSEC)
PART 572-B HYBRID II HEAD/NECK CALIBRATION
920818

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572 28-Jul-92

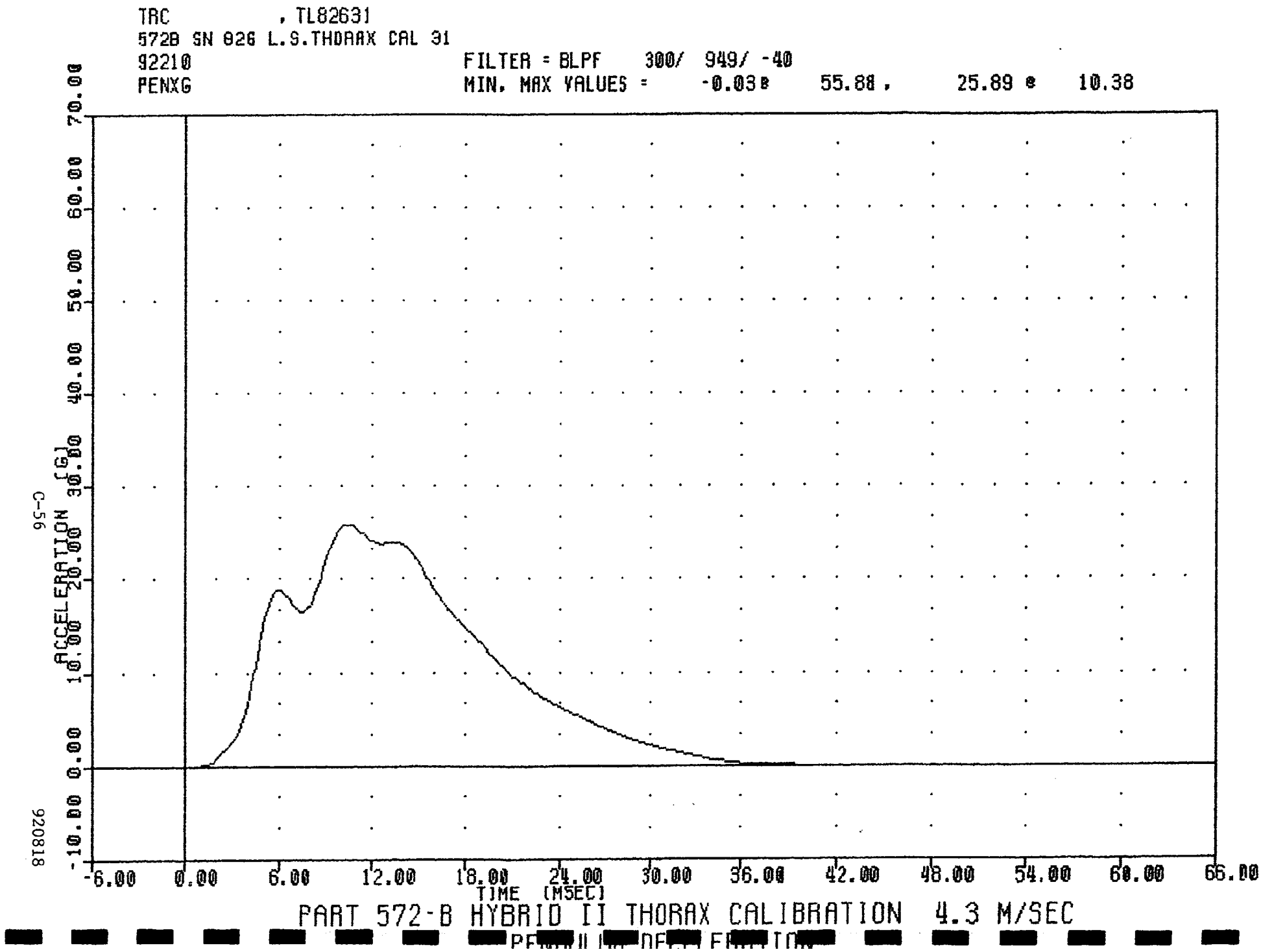
TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC TL82631 572B SN 826 L.S. THORAX CAL 31

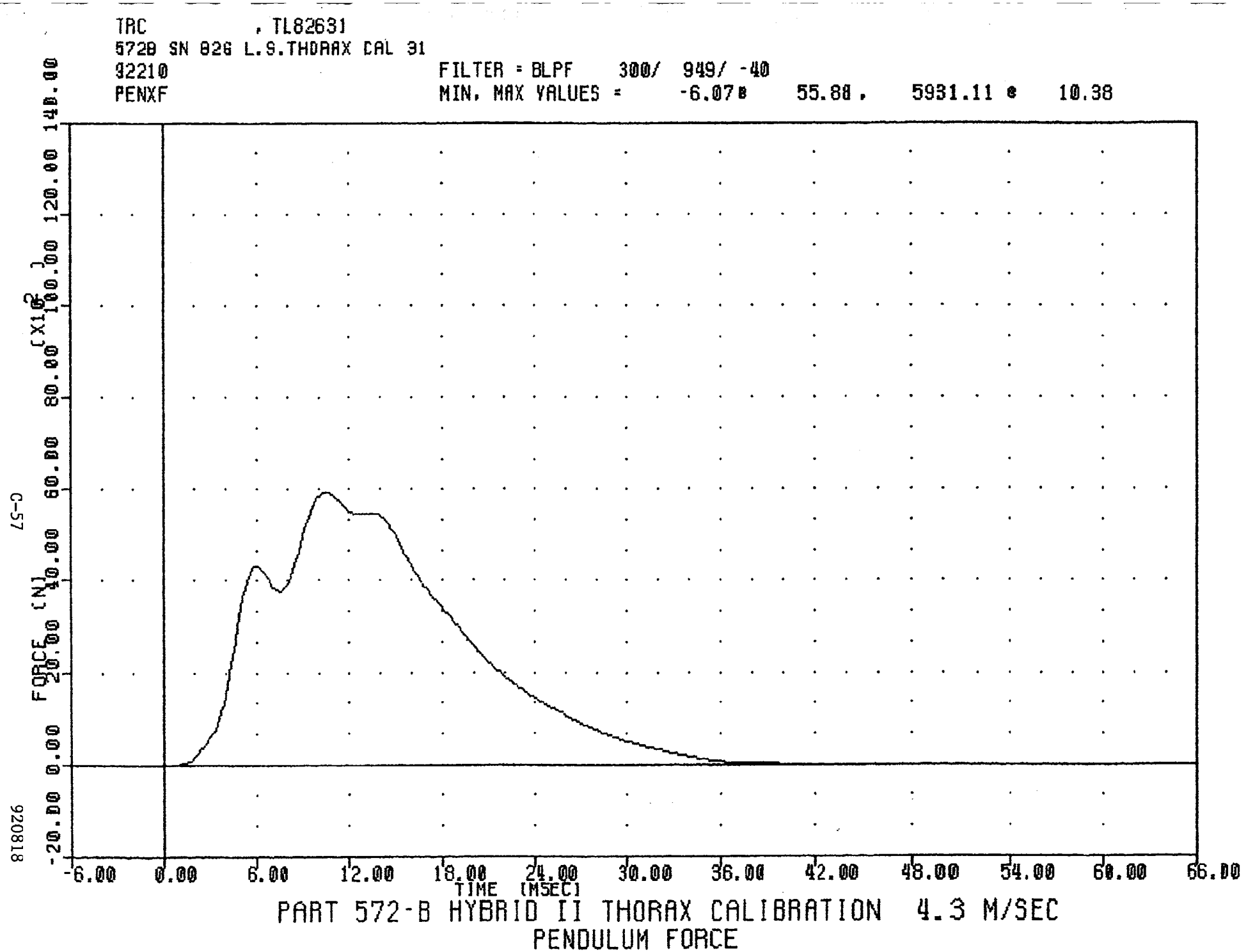
TEST PARAMETER	LOW SPEED TEST SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	4.22-4.31 M/SEC	4.28 M/SEC
PEAK DEFLECTION	28 MM max.	23.87 MM
PEAK RESISTIVE FORCE	6,450. N max.	5931. N
INTERNAL HYSTERESIS	50% - 70%	66.8%

SCD: 54.61 MM

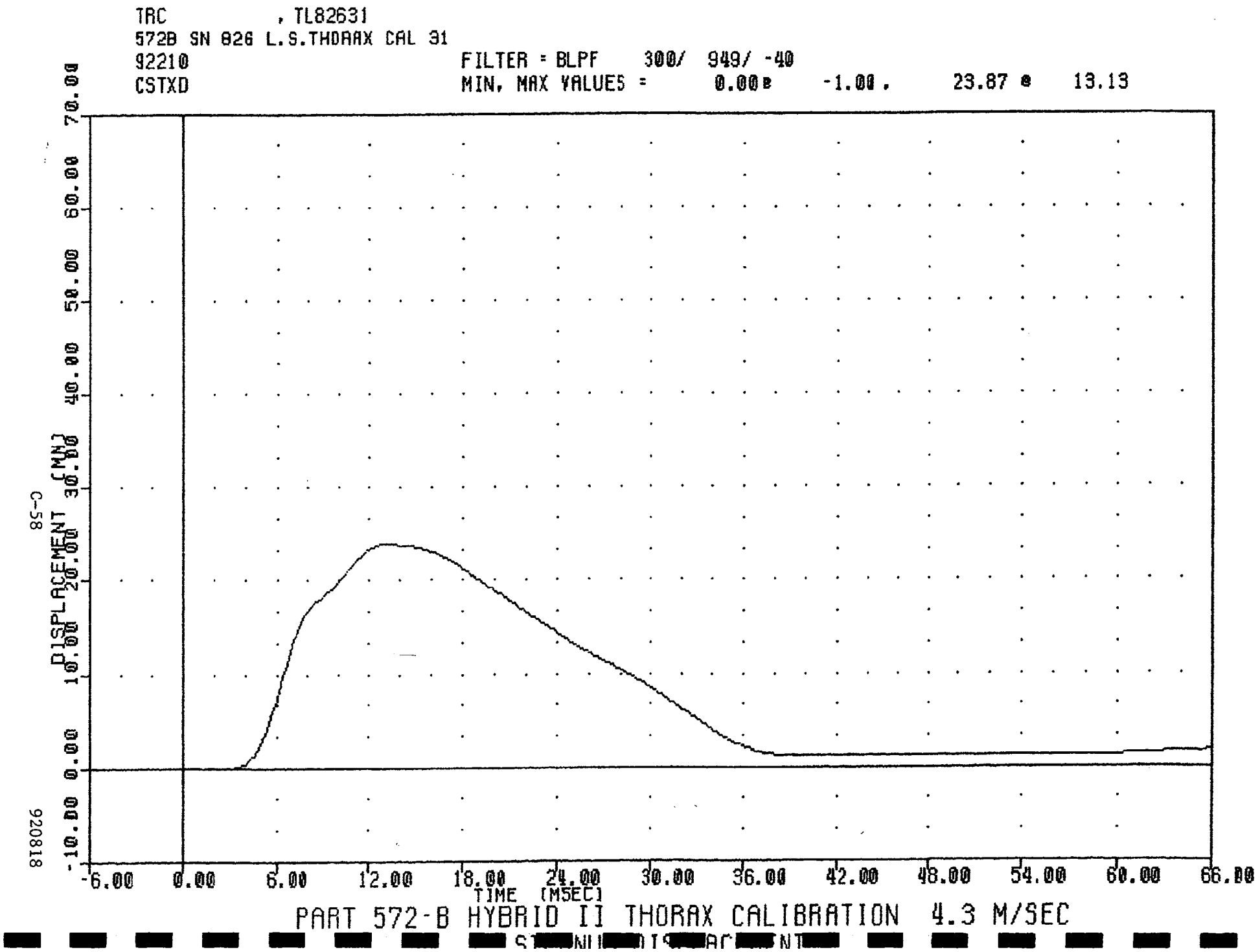
DUMMY MEETS SPECIFICATIONS

TECHNICIAN


TRC , TL82631
572B SN 026 L.S.THORAX CAL 31
92210
PENXG
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.03 @ 55.88 , 25.89 @ 10.38
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
ACCELERATION (G)
-6.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
54.00
60.00
66.00
TIME (MSEC)
PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
C-56
920818



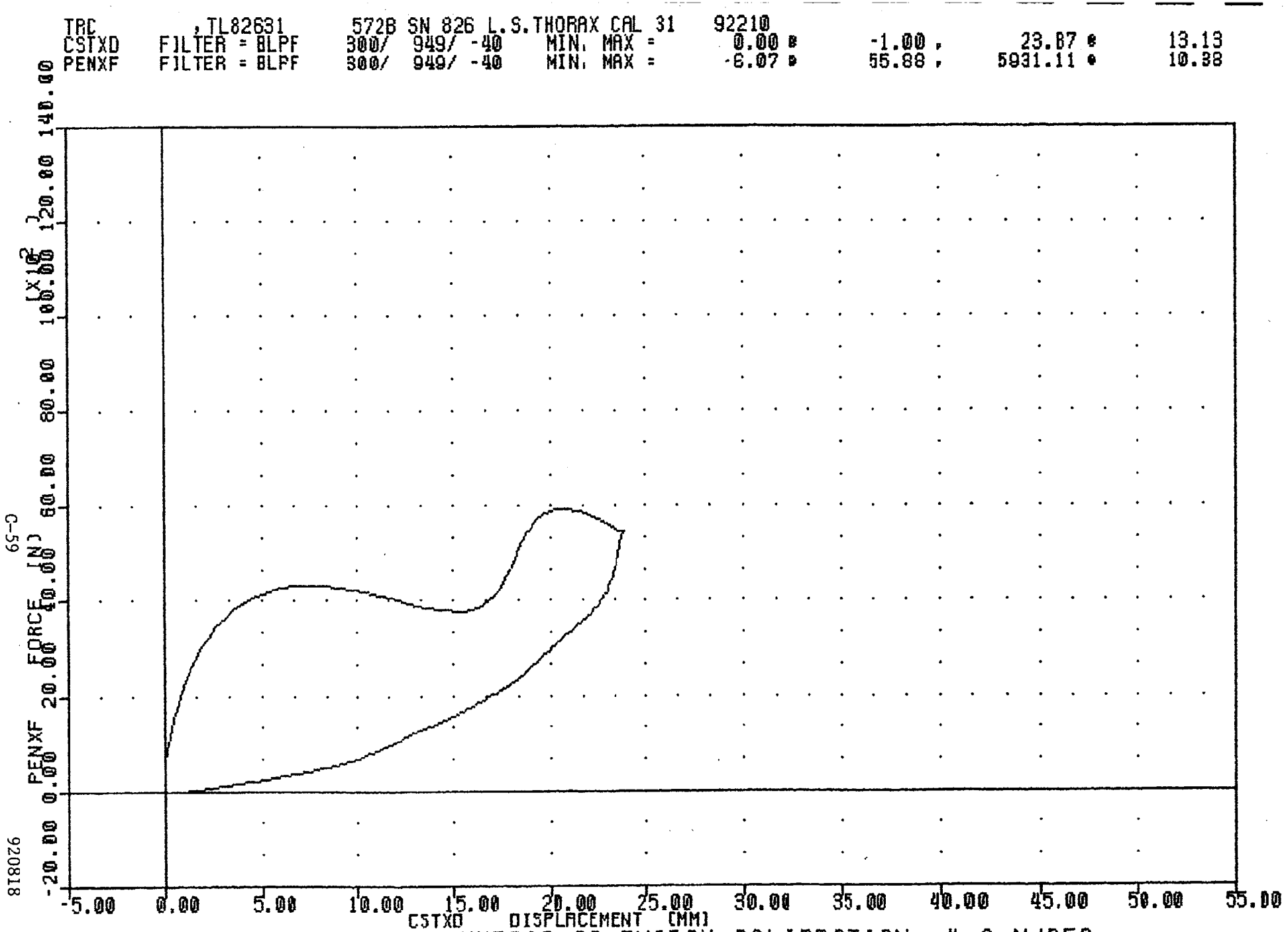
PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
PENDULUM FORCE



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

SINUSOIDAL

920818



C-59

PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
CHEST DISPLACEMENT VS PENDULUM FORCE

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

PART 572 28-Jul-92

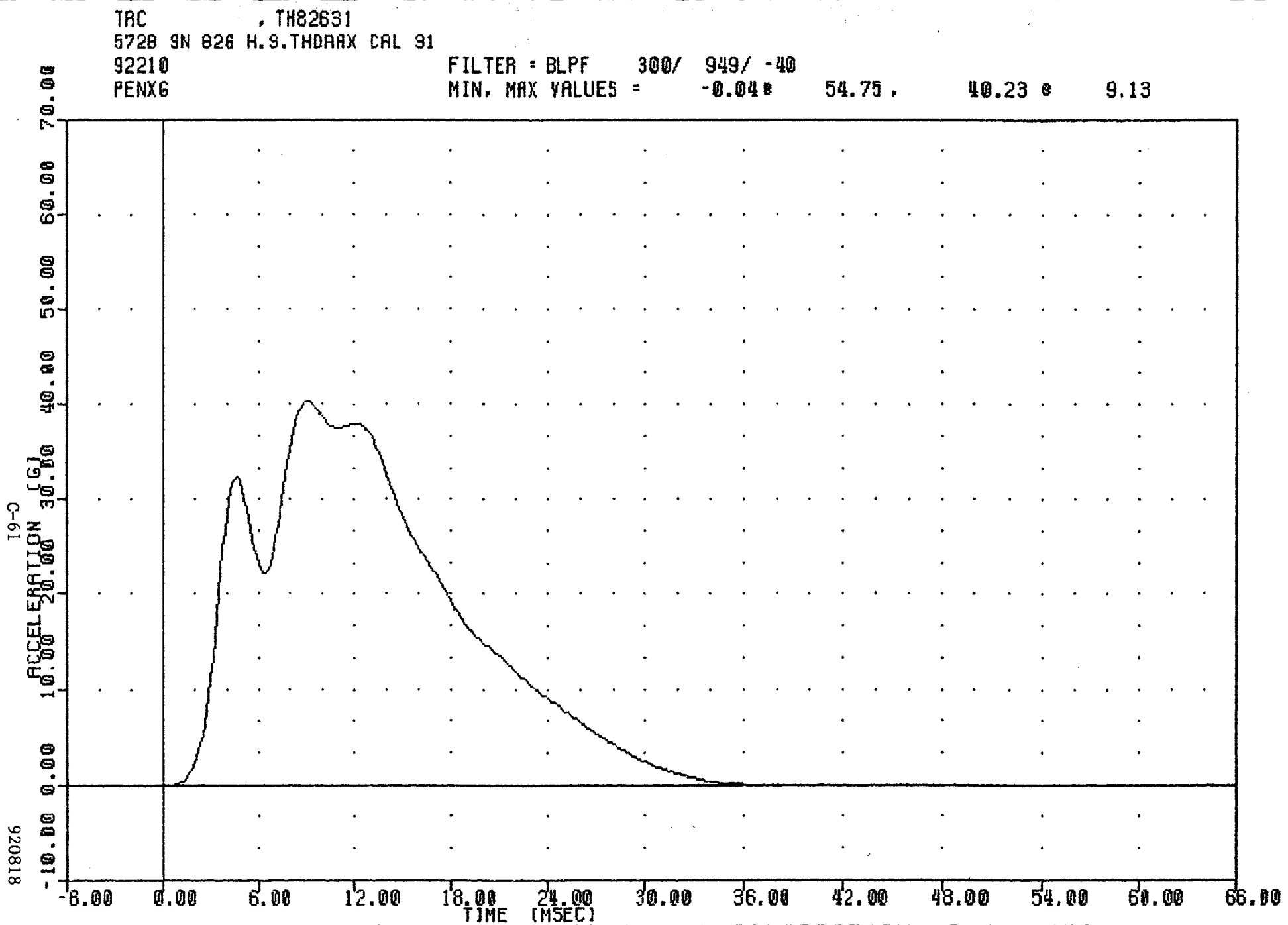
TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC TH82631 572B SN 826 H.S. THORAX CAL 31

TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
PENDULUM VELOCITY	6.64-6.77 M/SEC	6.68 M/SEC
PEAK DEFLECTION	43 MM max.	36.52 MM
PEAK RESISTIVE FORCE	10,009. N max.	9217. N
INTERNAL HYSTERESIS	50% - 70%	67.5%

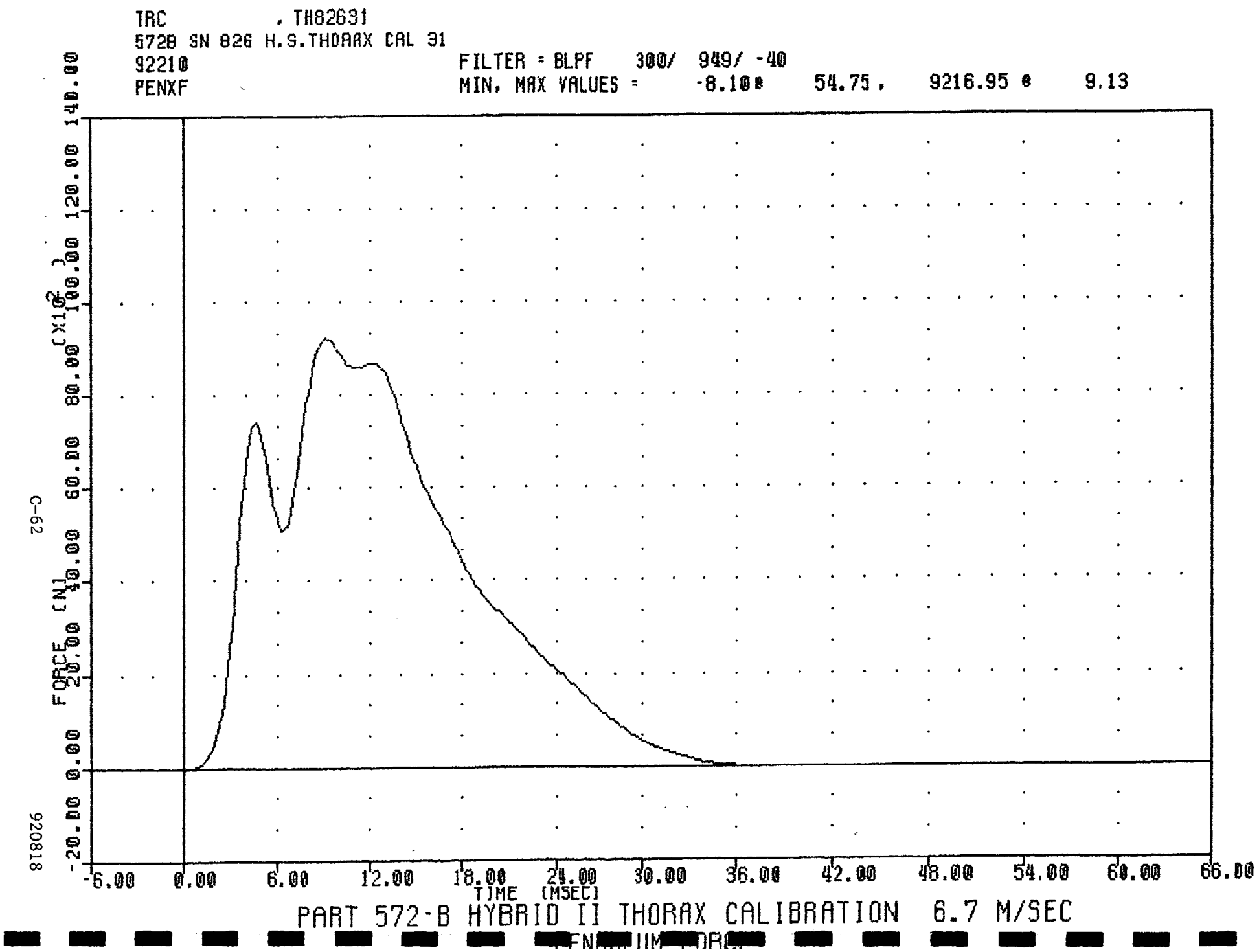
SCD: 54.61 MM

DUMMY MEETS SPECIFICATIONS

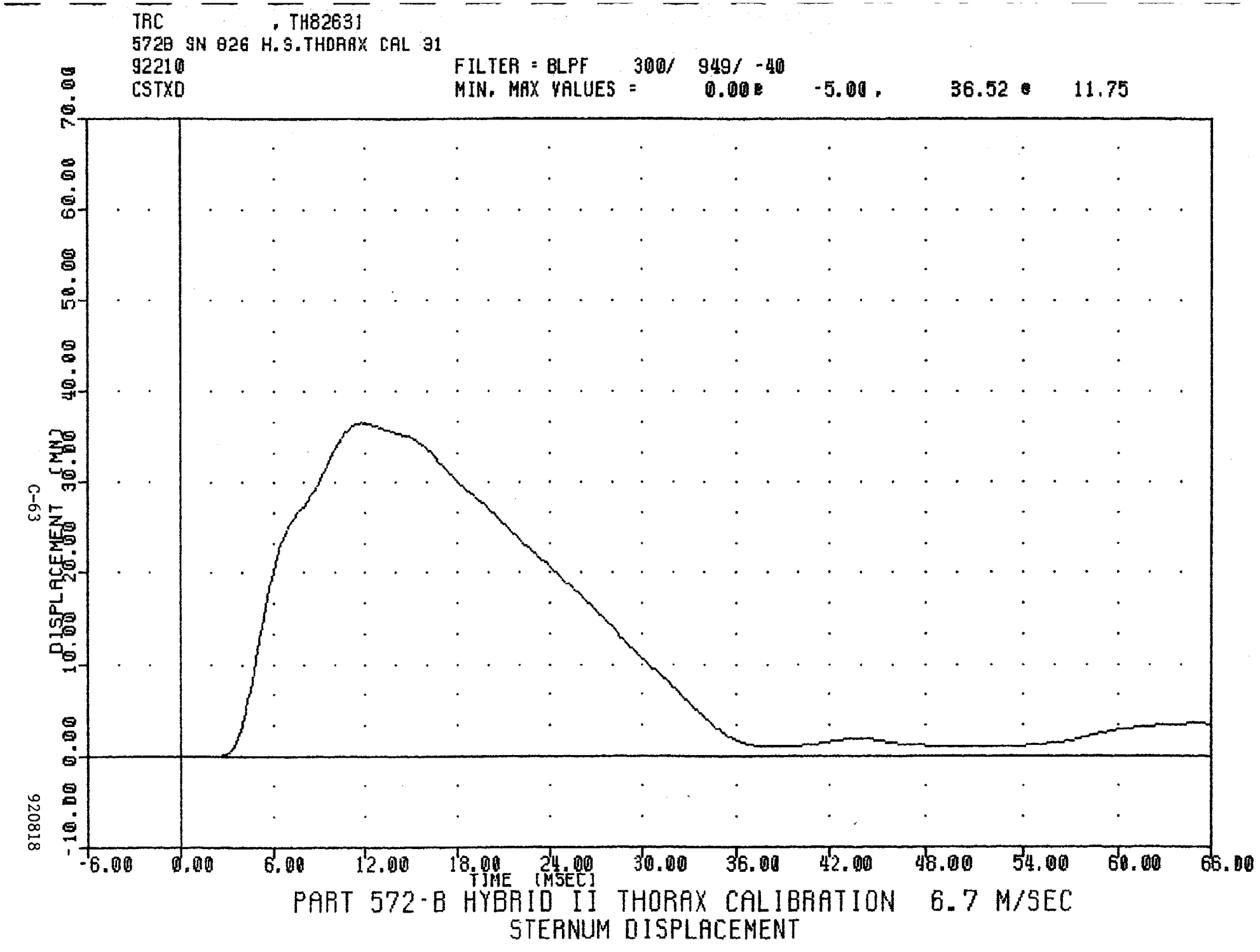
TECHNICIAN



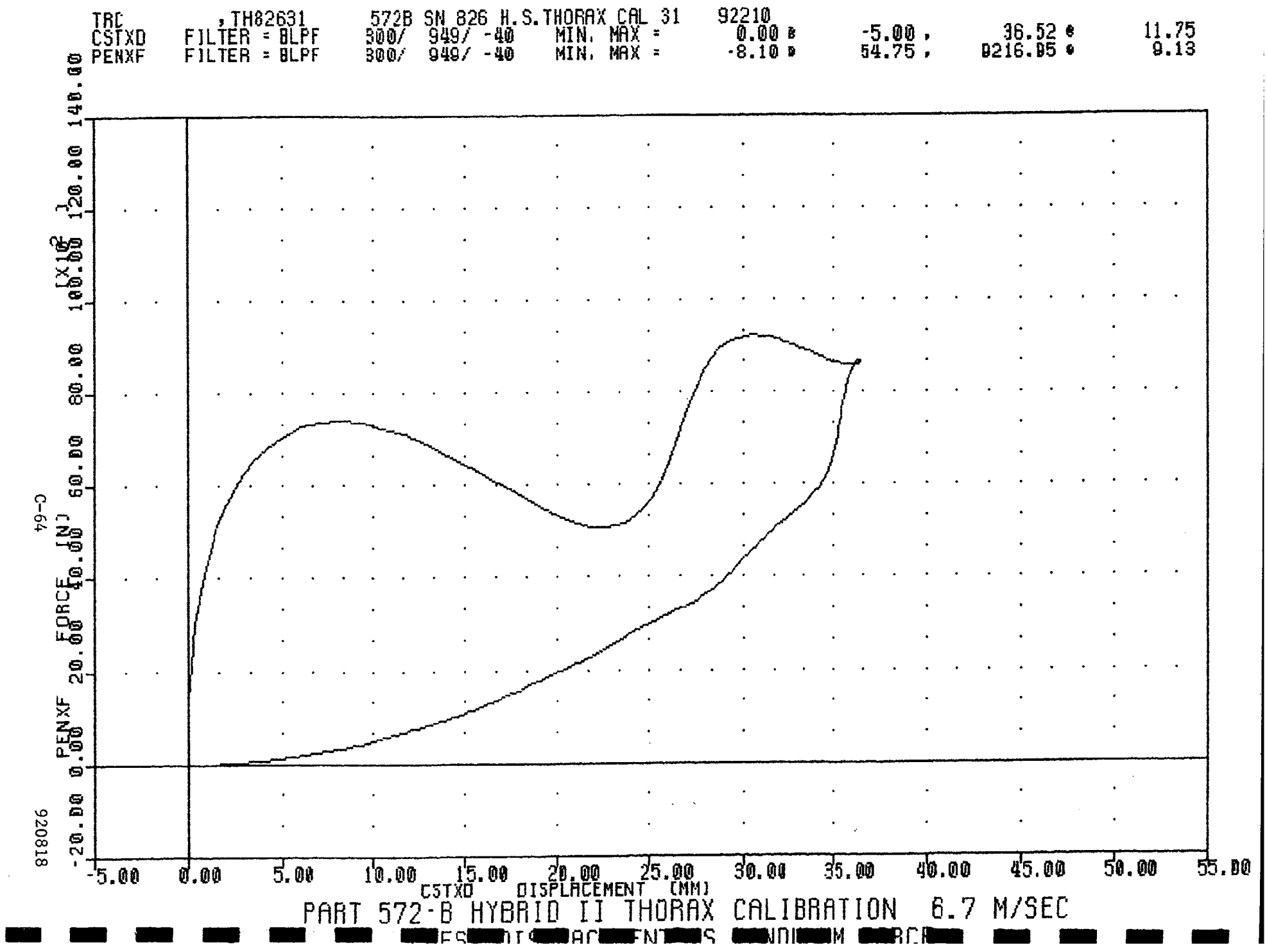
PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
PENDULUM DECELERATION


TRC . TH82631
572B SN 826 H.S.THORAX CAL 31
92210
PENXF
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -8.10 @ 54.75 , 9216.95 @ 9.13
FORCE (N) (X10^2)
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-6.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
54.00
60.00
66.00
TIME (MSEC)
PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC

920818



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


TRC ,TH82631 572B SN 826 H.S.THORAX CAL 31 92210
CSTXD FILTER = BLPF 300/ 949/ -40 MIN, MAX = 0.00 , -5.00 , 36.52 , 11.75
PENXF FILTER = BLPF 300/ 949/ -40 MIN, MAX = -8.10 , 54.75 , 9216.05 , 9.13
FORCE (N) X10^2
PENXF
-20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00
-5.00 0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00
CSTXD DISPLACEMENT (MM)
PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
C-64
92018

TRANSPORTATION RESEARCH CENTER OF OHIO

ABDOMEN COMPRESSION TEST

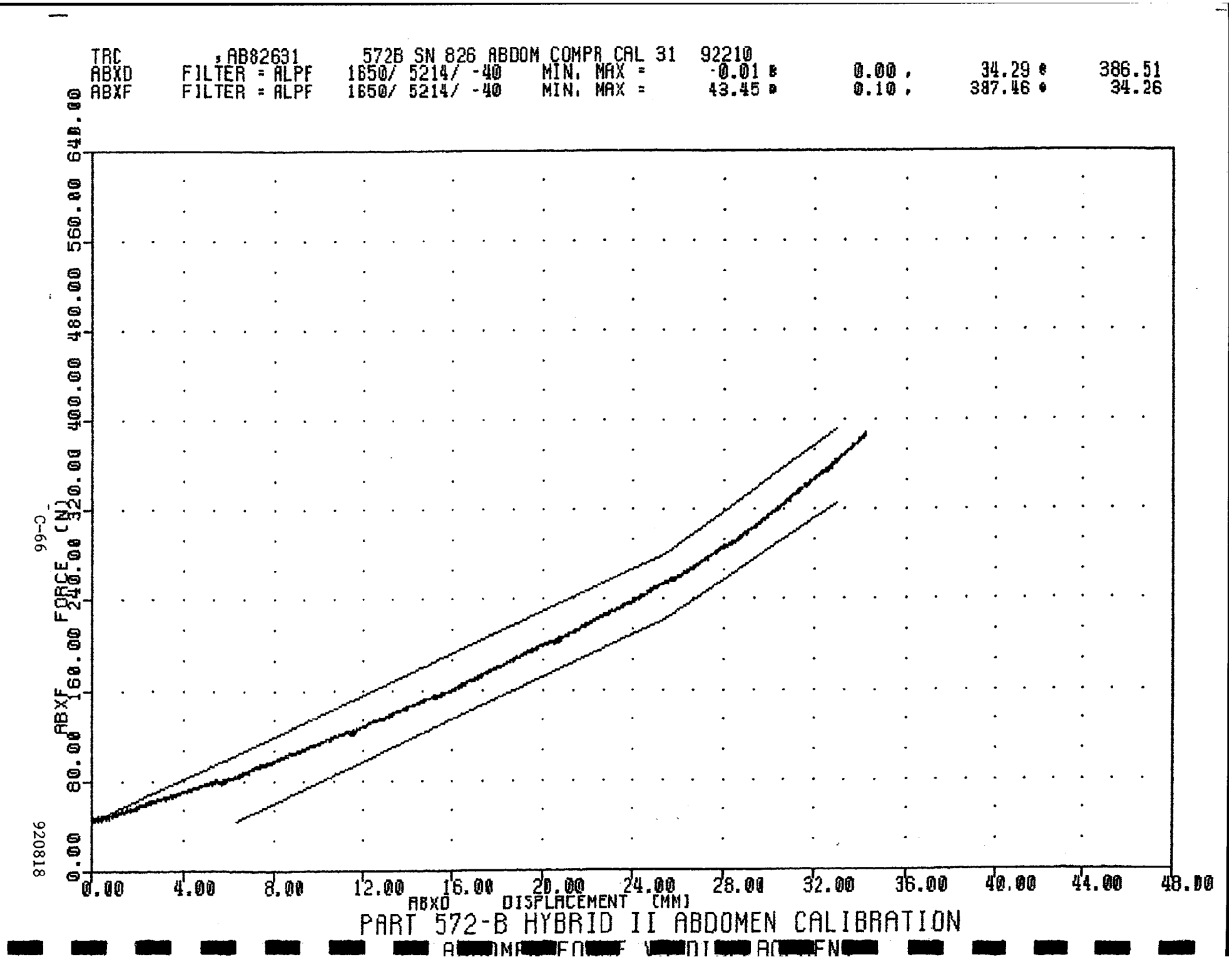
PART 572 28-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC AB82631 572B SN 826 ABDOM COMPR CAL 31

TEST CORRIDORS DISPLACEMENT	FORCE	TEST RESULTS
0.0 MM	44.48 N	44.48 N
12.7 MM	102.30 - 160.13 N	133.18 N
19.1 MM	160.13 - 222.40 N	190.64 N
25.4 MM	222.40 - 280.22 N	255.74 N
33.0 MM	324.70 - 391.42 N	363.79 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust


TRC ,AB82631 572B SN 826 ABDOM COMPR CAL 31 92210
ABXD FILTER = ALPF 1650/ 5214/ -40 MIN, MAX = -0.01 @ 0.00 , 34.29 @ 386.51
ABXF FILTER = ALPF 1650/ 5214/ -40 MIN, MAX = 43.45 @ 0.10 , 387.46 @ 34.26
ABXF FORCE (N)
0.00
80.00
160.00
240.00
320.00
400.00
480.00
560.00
640.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00
28.00
32.00
36.00
40.00
44.00
48.00
ABXD DISPLACEMENT (MM)
PART 572-B HYBRID II ABDOMEN CALIBRATION
C-66
920818

TRANSPORTATION RESEARCH CENTER OF OHIO

LUMBAR FLEXION TEST

PART 572 27-JUL-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
TRC LF82631 572B SN826 LUMBAR FLEX CAL31

DEFLECTION	SPECIFICATION	TEST RESULTS
0 DEG	0 N	0.00 N
20 DEG	97.86 - 151.24 N	111.20 N
30 DEG	151.24 - 204.62 N	164.58 N
40 DEG	204.62 - 258.00 N	222.40 N
NET RETURN ANGLE	< 12 DEG	1.80 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

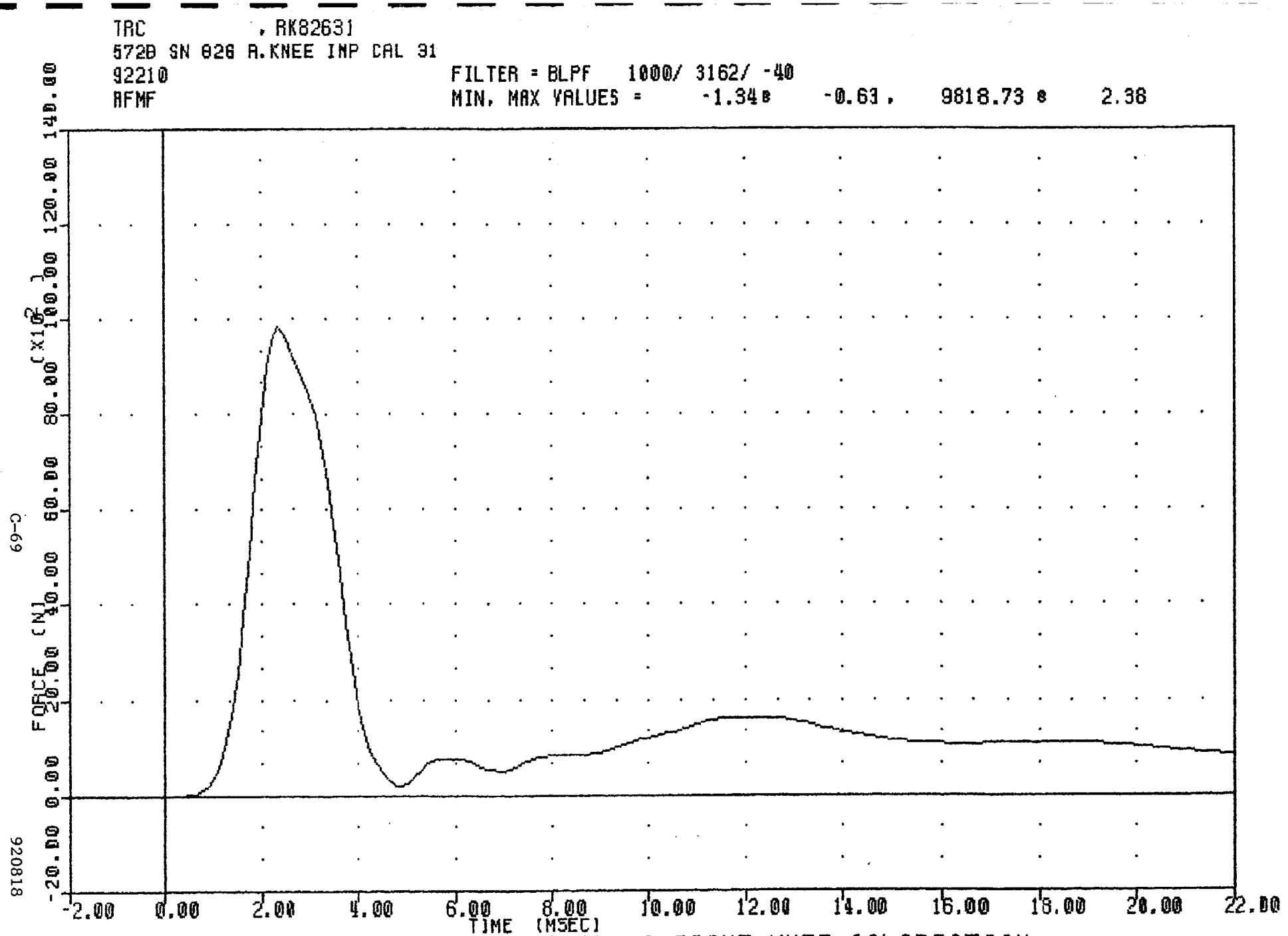
PART 572 28-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
RIGHT KNEE
TRC RK82631 5728 SN 826 R. KNEE IMP CAL 31

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	2.06 - 2.15 M/SEC	2.12 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	9818.73 N
DURATION ABOVE 4448 N	>=1.7 MSEC	1.96 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN _____



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

920818

TRANSPORTATION RESEARCH CENTER OF OHIO

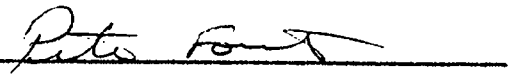
KNEE IMPACT TEST

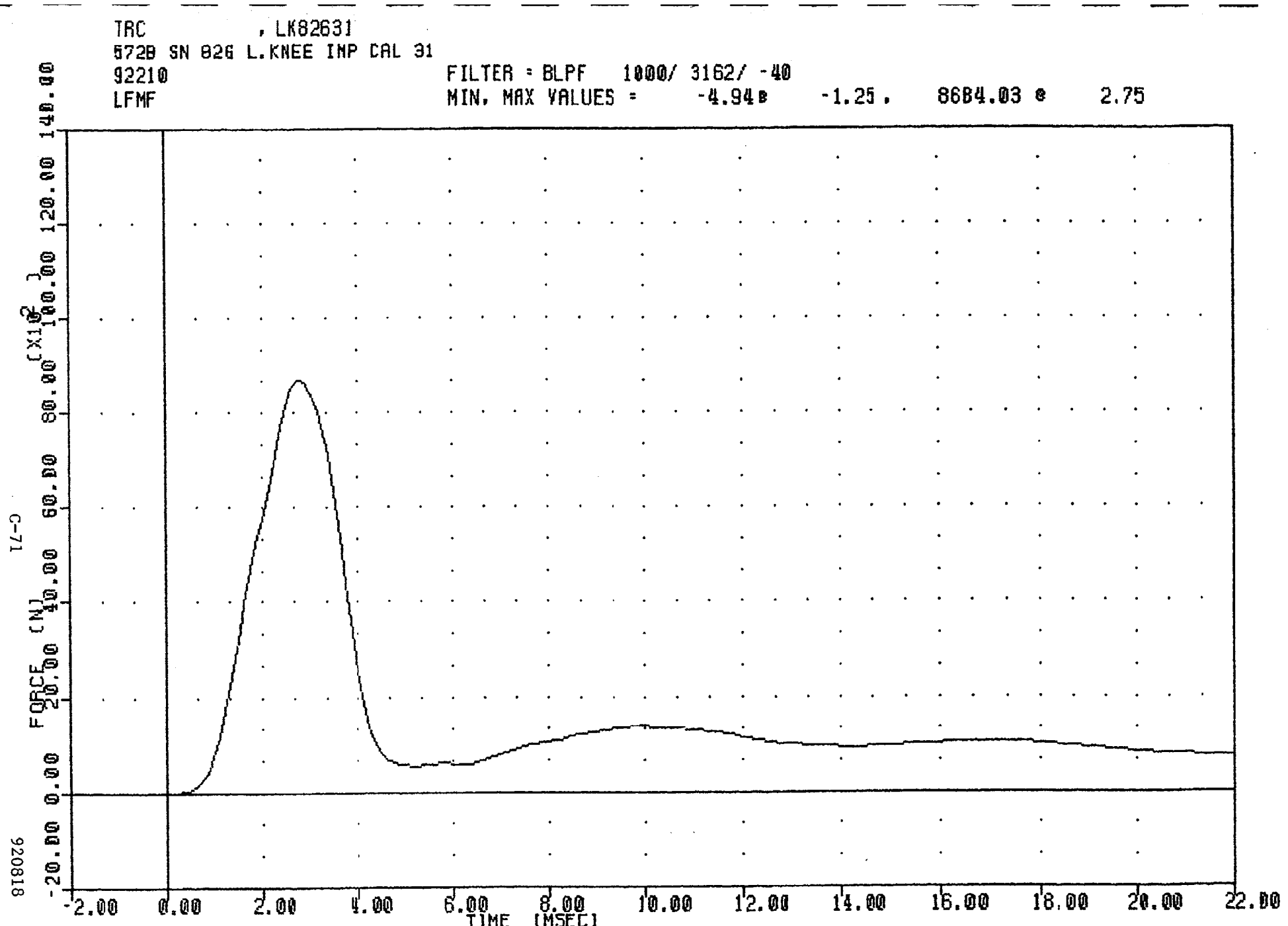
PART 572 28-Jul-92

TEMPERATURE 21 C RELATIVE HUMIDITY 56 %
LEFT KNEE
TRC LK82631 572B SN 826 L. KNEE IMP CAL 31

TEST PARAMETER	SPECIFICATION	TEST RESULTS
PROBE VELOCITY	2.06 - 2.15 M/SEC	2.12 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	8684.03 N
DURATION ABOVE 4448 N	>=1.7 MSEC	2.03 MSEC

DUMMY MEETS SPECIFICATIONS

TECHNICIAN 



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

APPENDIX D

MISCELLANEOUS TEST INFORMATION

DUMMY INSTRUMENT CALIBRATIONS

DRIVER DUMMY #713

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE LAST	DUE
HEAD X-AXIS ACCEL.	CW96H	7264	ENDEVCO	07/21/92	01/21/93
Y-AXIS ACCEL.	A62FJ	7264	ENDEVCO	07/22/92	01/22/93
Z-AXIS ACCEL.	CR78H	7264	ENDEVCO	07/20/92	01/20/93
CHEST X-AXIS ACCEL.	CC71H	7264	ENDEVCO	07/21/92	01/21/93
Y-AXIS ACCEL.	CY32H	7264	ENDEVCO	07/21/92	01/21/93
Z-AXIS ACCEL.	CG13H	7264	ENDEVCO	07/21/92	01/21/93
LEFT FEMUR FORCE LOAD CELL	901	2430	GSE	07/24/92	01/24/93
RIGHT FEMUR FORCE LOAD CELL	902	2430	GSE	07/24/92	01/24/93
*NECK X-AXIS FORCE LOAD CELL	NA				
Y-AXIS FORCE LOAD CELL	NA				
Z-AXIS FORCE LOAD CELL	NA				
*NECK MOMENT ABOUT X-AXIS LOAD CELL	NA				
MOMENT ABOUT Y-AXIS LOAD CELL	NA				
MOMENT ABOUT Z-AXIS LOAD CELL	NA				
*CHEST DEFLECTION POTENTIOMETER	NA				
LAP BELT FORCE LOAD CELL	616	3419	LEBOW	04/10/92	10/10/92
SHOULDER BELT FORCE LOAD CELL	615	3419	LEBOW	04/10/92	10/10/92
SHOULDER BELT SPOOL-OUT POTENTIOMETER	A12889	PT-101-40A	CELESCO	07/30/92	01/30/93
SHOULDER BELT STRETCH POTENTIOMETER	2087	2051414101	BOURNES	07/30/92	01/30/93

*HYBRID III USE ONLY.

DUMMY INSTRUMENT CALIBRATIONS

PASSENGER DUMMY #826

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE LAST	DUE
HEAD X-AXIS ACCEL.	CL95H	7264	ENDEVCO	07/20/92	01/20/93
Y-AXIS ACCEL.	DW12JC	7264	ENDEVCO	07/20/92	01/20/93
Z-AXIS ACCEL.	CC11H	7264	ENDEVCO	07/20/92	01/20/93
CHEST X-AXIS ACCEL.	DB74H	7264	ENDEVCO	07/20/92	01/20/93
Y-AXIS ACCEL.	CY31H	7264	ENDEVCO	07/20/92	01/20/93
Z-AXIS ACCEL.	CH67H	7264	ENDEVCO	07/20/92	01/20/93
LEFT FEMUR FORCE LOAD CELL	880	2430	GSE	07/24/92	01/24/93
RIGHT FEMUR FORCE LOAD CELL	898	2430	GSE	07/24/92	01/24/93
*NECK X-AXIS FORCE LOAD CELL	NA				
Y-AXIS FORCE LOAD CELL	NA				
X-AXIS FORCE LOAD CELL	NA				
*NECK MOMENT ABOUT X-AXIS LOAD CELL	NA				
MOMENT ABOUT Y-AXIS LOAD CELL	NA				
MOMENT ABOUT Z-AXIS LOAD CELL	NA				
*CHEST DEFLECTION POTENTIOMETER	NA				
LAP BELT FORCE LOAD CELL	127	3419	LEBOW	04/10/92	10/10/92
SHOULDER BELT FORCE LOAD CELL	571	3419	LEBOW	04/10/92	10/10/92
SHOULDER BELT SPOOL-OUT POTENTIOMETER	0586135	PT-101-40A	CELESCO	07/30/92	01/30/93
SHOULDER BELT STRETCH POTENTIOMETER	1291	2051414101	BOURNES	07/30/92	01/30/93

*HYBRID III USE ONLY.

VEHICLE AND CALIBRATION LABORATORY INSTRUMENT CALIBRATIONS

VEHICLE ACCELEROMETERS

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE LAST	DUE
LEFT REAR SEAT CROSSMEMBER X-AXIS	CW83H	7264	ENDEVCO	05/21/92	11/21/92
LEFT REAR SEAT CROSSMEMBER X-AXIS REDUN	CG67H	7264	ENDEVCO	07/22/92	01/22/93
RIGHT REAR SEAT CROSSMEMBER X-AXIS	DA06H	7264	ENDEVCO	05/21/92	11/21/92
RIGHT REAR SEAT CROSSMEMBER X-AXIS REDUN	CR83H	7264	ENDEVCO	06/24/92	12/24/92
ENGINE TOP X-AXIS	CL02H	7264	ENDEVCO	04/04/92	10/04/92
ENGINE BOTTOM X-AXIS	CJ39H	7264	ENDEVCO	07/14/92	01/14/93
RIGHT BRAKE CALIPER X-AXIS	CH81H	7264	ENDEVCO	07/14/92	01/14/93
LEFT BRAKE CALIPER X-AXIS	BP34H	7264	ENDEVCO	03/27/92	09/27/92
INSTRUMENT PANEL CENTER X-AXIS	CK56H	7264	ENDEVCO	03/08/92	09/08/92

CALIBRATION LABORATORY INSTRUMENTS

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

SIGN CONVENTION

NHTSA DATA TAPE REFERENCE GUIDE

ACCELEROMETERS:

+X: FORWARD

+Y: LEFTWARD

+Z: UPWARD

POTENTIOMETERS:

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

LOAD CELLS:

+FEMUR FORCE: TENSION

+SEAT BELT FORCE: TENSION

+BARRIER FORCE: TENSION

NECK LOAD CELLS:

+X FORCE: HEAD PUSHED FORWARD

+Y FORCE: HEAD PUSHED LEFTWARD

+Z FORCE: HEAD PULLED UPWARD (TENSION ON NECK)

+X MOMENT: RIGHT EAR ROTATING TOWARD RIGHT SHOULDER

+Y MOMENT: CHIN ROTATING TOWARD CHEST

+Z MOMENT: CHIN ROTATING TOWARD LEFT SHOULDER

TIBIA LOAD CELLS:

+X FORCE: TENSION

+Y FORCE: TENSION

+Z FORCE: TENSION

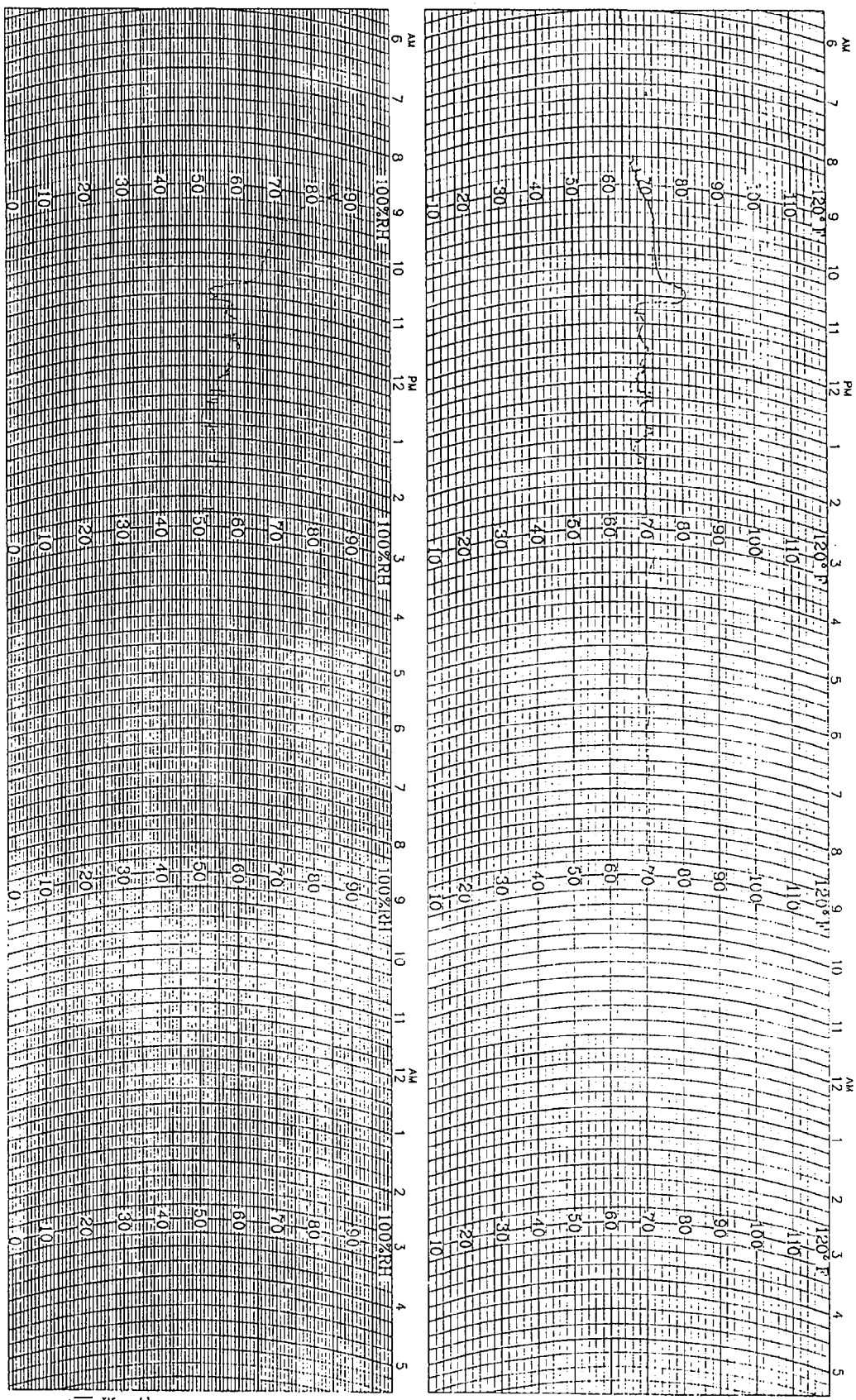
+X MOMENT: BOTTOM OF TIBIA MOVING LEFTWARD

+Y MOMENT: BOTTOM OF TIBIA MOVING REARWARD

FREQUENCY RESPONSE CLASSES

SAE J211 OCT88

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



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

HYGROTHERMOGRAPH
1 DAY

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

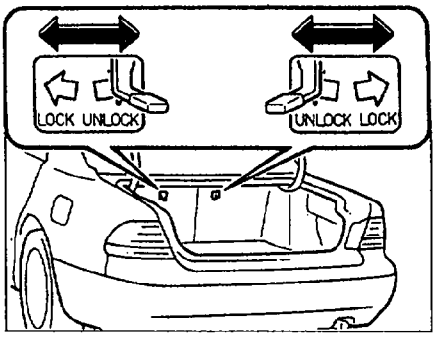
STATION_____DATE ON_____DATE OFF_____

920818

APPENDIX E

RESTRAINT SYSTEM INSTRUCTIONS FROM OWNER'S MANUAL

Seat Belt System



■ **Rear Seat Back Lock**

To lock or unlock a seat back, move the lever.

If you must leave your Mazda with another person, such as a parking attendant, protect valuables in the trunk by locking the rear seat backs and trunk. Give the other person only the secondary key, which does not open the trunk.

Seat belts help decrease the possibility or severity of injury during accidents and sudden stops. Mazda recommends that the driver and passengers wear seat belts at all times. The front seats have a lap/shoulder belt. These belts have retractors with inertia locks that keep them out of the way when not in use. The locks allow the belts to remain comfortable on users, but they'll lock in position during a collision.

The rear seat has lap/shoulder belts that have retractors with inertia locks for the door-side seats and a lap belt with manual adjustment for the center seat.

⚠WARNING

Seat Belts:
Passengers not wearing seat belts during a collision can be injured much worse than those wearing seat belts. They can hit things inside the vehicle or even be thrown from it. They can be seriously injured or killed. In the same collision, passengers wearing seat belts might be much safer.

⚠WARNING

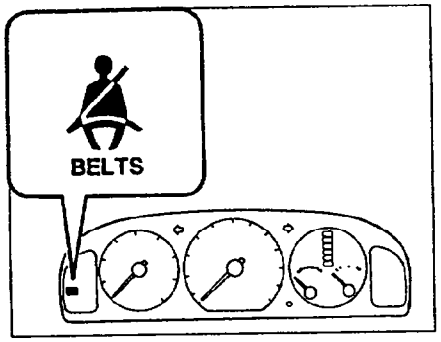
Damaged Seat Belts:
An accident can damage a seat belt in use. The belt webbing can be weakened and retractors and anchors can be bent or broken. Therefore a damaged seat belt may not provide adequate protection in a collision. Have a professional inspect all seat belt systems in use during an accident before they are used again.

⚠WARNING

Twisted Seat Belts:
Twisted seat belts can cause injury. In a collision, the full width of the belt isn't available to absorb the impact. This puts more force on the bones beneath the belt, which could break them or cause other serious injury. Don't wear twisted seat belts.

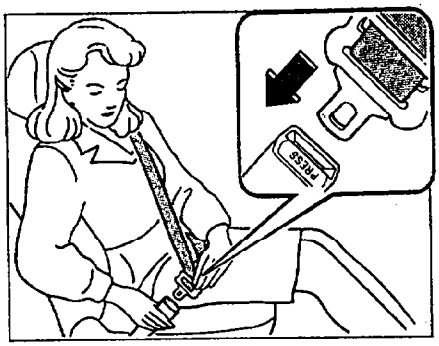
⚠WARNING

One Belt, One Passenger:
Using one seat belt for more than one person at a time is dangerous. A seat belt used in this way can't spread the impact forces properly and the two passengers could be crushed together and seriously injured. Never use one belt for more than one person at a time.



■ Seat Belt Warning Light/Beep

When you turn on the ignition before fastening your seat belt, a warning light will come on and a beep will sound (warning lights/beeps, page 4-25).



■ Front Seat Belts

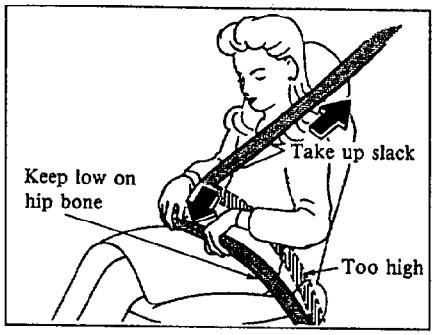
To fasten:

1. Grasp the buckle and tongue plate.
2. Slowly pull out the lap/shoulder belt.
3. Insert the plate into the buckle until you hear a click.

⚠WARNING

Wearing the Shoulder Belt:

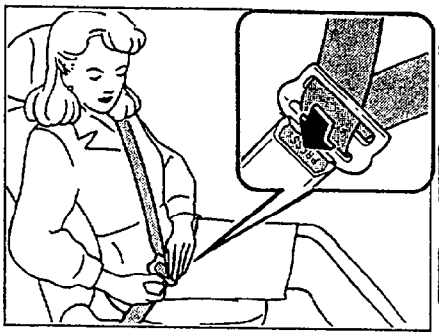
An improperly worn shoulder belt can be dangerous. In a collision, a shoulder belt worn under the arm will transfer the full force of impact to the ribs and cause serious injury. A shoulder belt worn behind the neck and over the inside shoulder provides no protection. Never wear a shoulder belt under the arm or place it behind the neck and over the inside shoulder.



⚠WARNING

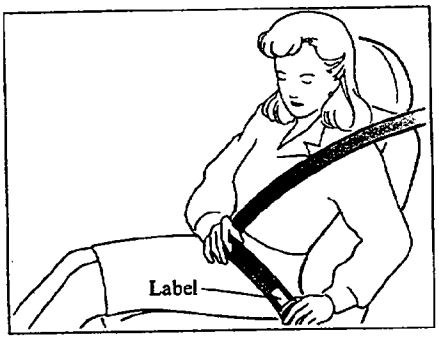
Wearing the Lap Belt:

A lap belt worn too high can be dangerous. In a collision, this would concentrate the impact force directly on the abdominal area, causing serious injury. Wear the lap belt snugly and as low as possible.



To unfasten:

Depress the buckle release.

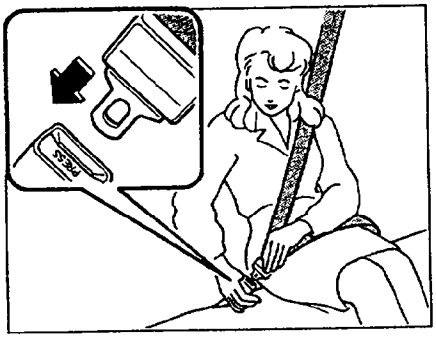


■ Seat Belt Caution Label

A caution label is inside the sleeve of each lap belt. If a belt is used in an accident, the stress will cause this label to be pulled from the sleeve.

This indicates that **the seat belt must be replaced.**

Also, if the seat belt undergoes excessive stress at any time, the belt's webbing, metal fittings, and anchor bolt may be damaged. The damage may not be apparent, so the seat belt should be replaced after this kind of stress, even if the label is not exposed.



■ Rear Seat Belts

▼ Lap/shoulder belt

To fasten:

1. Grasp the tongue plate and pull it to the desired length.
2. Insert this plate into the buckle until you hear a click.

The retractor will take up excess belt and maintain tension.

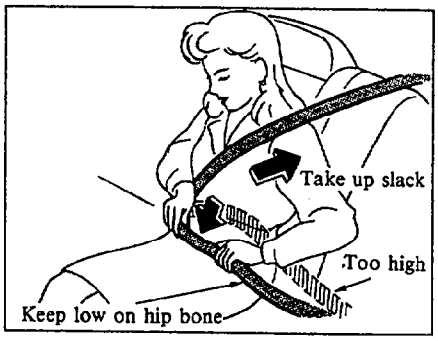
To unfasten:

Depress the button on the buckle.

NOTE
If a belt does not fully retract, inspect it for kinks and twists.

⚠ *WARNING*

Wearing the Shoulder Belt:
An improperly worn shoulder belt can be dangerous. In a collision, a shoulder belt worn under the arm will transfer the full force of impact to the ribs and cause serious injury. A shoulder belt worn behind the neck and over the inside shoulder provides no protection. Never wear a shoulder belt under the arm or place it behind the neck and over the inside shoulder.



⚠WARNING

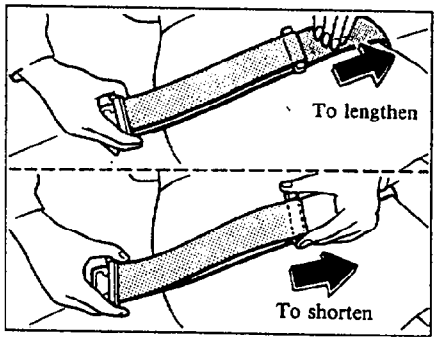
Wearing the Lap Belt:

A lap belt worn too high can be dangerous. In a collision, this would concentrate the impact force directly on the abdominal area, causing serious injury. Wear the lap belt snugly and as low as possible.

▼ **Lap belt**

To fasten:

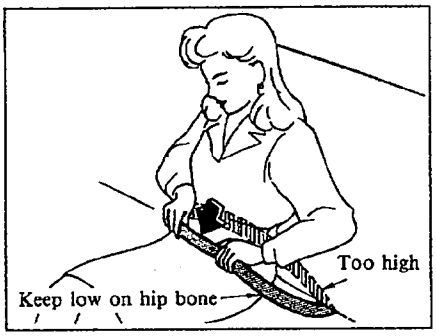
1. Pull the tongue to the desired length.
2. Insert it into the buckle until you hear a click.



3. To lengthen the belt, hold the tongue at a right angle to the webbing and pull; to shorten, pull the loose end of the webbing.

To unfasten:

Depress the button on the buckle.



⚠WARNING

Wearing the Lap Belt:
A lap belt worn too high can be dangerous. In a collision, this would concentrate the impact force directly on the abdominal area, causing serious injury. Wear the lap belt snugly and as low as possible.

■ Pregnant Women

Pregnant women should wear seat belt assemblies as recommended by their doctors. The lap belt should be worn SNUGLY AND AS LOW AS POSSIBLE.

■ Child-Restraint System

Small children should be protected by a child-restraint system that meets the Federal Motor Vehicle Safety Standard (FMVSS).

It should fit the seat and the child.

NOTE

Every child-restraint system is designed for use with a lap belt or the lap-belt portion of a lap/shoulder belt.

Follow all instructions when installing a child-restraint system, which should be in the center of the rear seat and secured with a lap belt. Accident statistics indicate that children are safer in rear-seat restraint systems.

⚠WARNING

Unsecured Restraint System:
A child restraint system that is not securely fastened down can be dangerous. In a sudden stop or collision, it can become a projectile and hit someone, causing serious injury. When not in use, remove it from the vehicle or fasten it with a seat belt.

⚠WARNING

Holding a Child:
A child should never be held on the lap or in the arms of a passenger in a moving vehicle. No matter how strong a person may be, he or she cannot hold a child during an accident. The child may thus be injured by hitting parts of the vehicle or by being crushed by an unrestrained passenger.

⚠WARNING

Unattended Children:
Leaving children unattended in a vehicle can be dangerous. In hot weather, temperatures inside a parked vehicle can become hot enough to cause brain damage or even death. Never leave children or animals unattended in the vehicle.

⚠WARNING

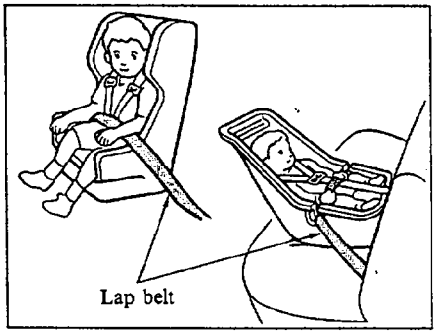
Child-Restraint Anchor:
Your Mazda has no child-restraint anchor. Therefore, using a child-restraint system that requires an anchor can be dangerous. In a collision, it would not be properly secured; thus it could move around in the cabin and seriously injure someone. Use only a system designed for use without an anchor.

■ Installing a Child-Restraint System

We recommend that the child-restraint system always be installed in the center of the rear seat and secured with the lap belt.

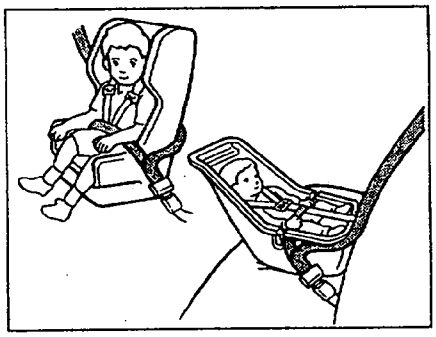
⚠WARNING

Improperly Secured System:
An improperly secured child restraint may move in a sudden stop or collision and injure the child or someone else. You can properly secure it by following the child-restraint installation instructions in this manual.



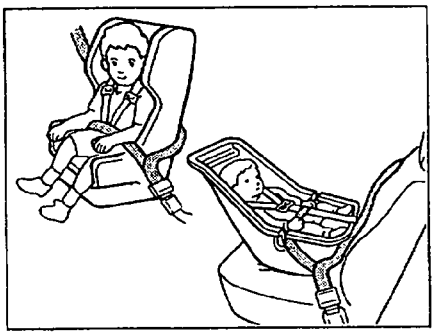
▼ **Rear center position**

Secure the system with a lap belt. Adjust for a snug fit by pulling on the loose end of the belt webbing.



▼ Rear door-side positions

1. Secure the system with the lap portion of the lap/shoulder belts.
2. Tighten the lap belt by pulling on the shoulder belt.
3. Tuck the shoulder portion of the belt between the system's seat and the rear seat back.



▼ Front seat passenger position

1. Slide the seat as far back as possible.
2. Secure the system with the lap portion of the lap/shoulder belt.
3. Tighten the lap belt by pulling on the shoulder belt.
4. Tuck the shoulder portion of the belt between the system's seat and the back.

■ Older Children

A child who has outgrown child-restraint systems should sit in the rear and use seat belts, both lap and shoulder. If the shoulder belt crosses the neck or face, move the child closer to the center.

Accident statistics reveal that a child is safer in the rear seat.

⚠CAUTION

A seat belt or child restraint can become very hot in a closed vehicle during warm weather. To avoid burning yourself or a child, inspect either before using.

Supplemental Driver's Air Bag Restraint System

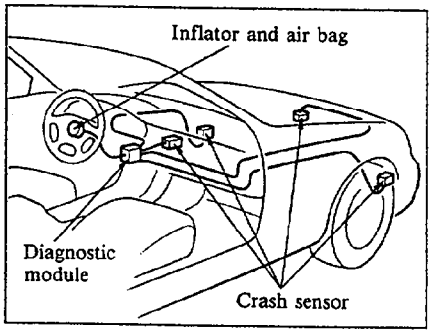
In a front-end accident, the Driver's Air Bag Restraint System is designed to provide protection for the driver **in addition to** the three-point seat belt system.

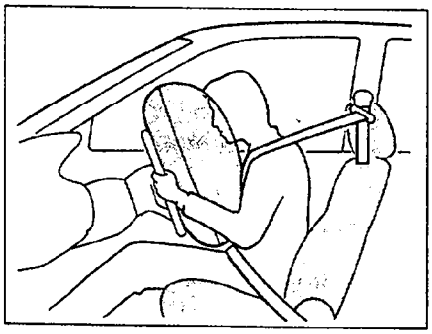
But the air bag system usually deploys only when the accident is at least moderate. So it will be of no help if the vehicle rolls over or is hit in the side or the rear.

Seat belts must be used if occupants are to obtain the best protection.

We recommend that all occupants use seat belts to reduce their risk of injury in an accident.

The driver especially must wear a seat belt to remain in proper position for maximum air bag protection.





■ System Description

The air bag system has two basic subsystems:

1) Driver air bag system with inflator and air bag

2) Electric system with crash sensors and diagnostic module

The air bag is mounted in the center of the steering wheel, but it is out of sight until activated.

⚠WARNING

Modification of the Air Bag System:
Modifying the components or wiring of the Air Bag System is dangerous. You could accidentally activate it or make it inoperable. Don't make any modifications to the Air Bag System. This includes installing trim, badges, and anything else over the steering wheel hub and extra electrical/electronics equipment on or near system components and wiring.

NOTE

- During a severe front-end impact, you will hear a loud inflation noise and some smoke will be released.

  Neither will cause injury, and the smoke doesn't indicate a fire.

- The air bag will function only once. After that, **the air bag will not work again and must be replaced.**

  Only an Authorized Mazda Dealer can replace the system.

⚠WARNING

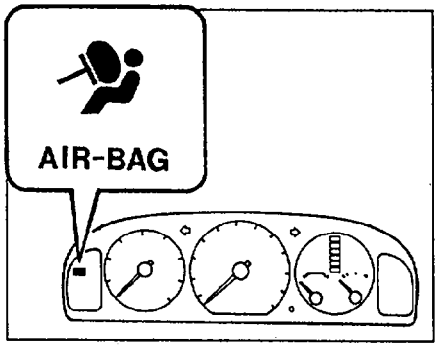
Air Bag Inspection after a Collision:
If your Mazda was in a collision not strong enough to inflate the air bag, parts on which the sensors are mounted may be distorted, and without repairs the system may not operate when necessary. Have an Authorized Mazda Dealer make a very careful inspection of the system.

■ Constant Monitoring

These components are monitored by the air bag system warning light or beeper:

- Crash sensors
- Backup battery
- Air bag module
- Diagnostic module
- Related wiring
- Warning light

A diagnostic module continuously monitors the system's readiness. This begins when the ignition is turned on and continues while the vehicle is being driven.



▼ **Warning light**

If the air bag system is OK, the warning light comes on when the ignition is turned on or after the engine is cranked. After about 6 seconds it goes out.

A system malfunction is indicated when this light constantly flashes or stays on or if it doesn't come on at all. If one of these happens, consult an Authorized Mazda Dealer as soon as possible. The system may not work in an accident.

▼ **Warning beeper**

A warning light is the basic method of reporting the system's condition.

But if the light is out **and** a malfunction occurs, a series of beeps will be heard.

This also signals need for servicing. Consult an Authorized Mazda Dealer at your first opportunity.

These beeps will continue until the reason for the light being out is taken care of.

Again: **if this happens, the system may not work in an accident.**

⚠WARNING

Air Bag Service:
Don't try to self-service the air bag system. Tampering with it could cause it to activate, and this could result in injury. For servicing and repairs, have an Authorized Mazda Dealer do the work.