#1890

REPORT NO. TRC-92-N11

TW = 3781 lbs.

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY

1993 FORD TAURUS

4-DOOR SEDAN

NHTSA NO. MP0204

TRC TEST NO. 930317

PREPARED BY:

TRANSPORTATION RESEARCH CENTER INC.

10820 STATE ROUTE 347

EAST LIBERTY, OHIO 43319

APRIL 9, 1993

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

OFFICE OF MARKET INCENTIVES

ROOM NO. 5313 (NRM-22)

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15. Supplemental Notes

16. Abstract

A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1993 Ford Taurus 4-door sedan, NHTSA No. MP0204, at Transportation Research Center Inc. on March 17, 1993. This test was conducted to obtain new car assessment and research data indicant of FMVSS 208, 212, 219 (partial), and 301 performance. The barrier impact velocity was 56.3 kph. The vehicle's maximum static crush was 490 millimeters. The ambient temperature was 22° C.

The driver's head injury criteria (HIC) was 647. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 54.4 g. The driver's left and right femur maximum axial forces were 7122 N and 4260 N, respectively.

The passenger's head injury criteria (HIC) was 431. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 43.9 g. The passenger's left and right femur maximum axial forces were 6097 N and 4047 N, respectively.

17. Key Words	18. Distribution Statement
56.3 KPH (35 MPH) Frontal Barrier Impact Test: New Car Assessment Program (NCAP) FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Retention" FMVSS 219 (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"	Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division Nassif Building, Room 5108 400 Seventh Street, S.W. Washington, DC 20590

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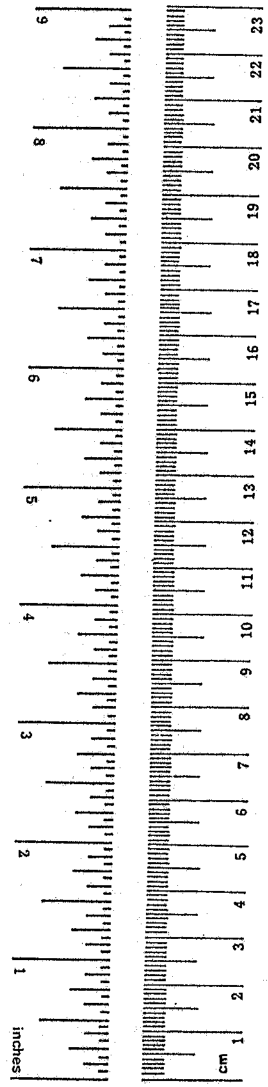
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

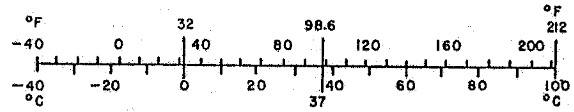
Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	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



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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 Transportation Research Center Inc. (TRC) under Contract No. DTNH22-90-D-22121.

The purpose of this test was to obtain new car assessment and research data for vehicle crashworthiness and occupant restraint system performance for the subject vehicle, a 1993 Ford Taurus, NHTSA No. MP0204, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208 requirements.

TEST PROCEDURE

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

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

The test vehicle contained two (2) Part 572 B 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 March 17, 1993.

The test vehicle, a 1993 Ford Taurus, NHTSA No. MP0204, was equipped with a 3.8-liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1711 KG. The vehicle's impact speed was 56.3 kph. The vehicle sustained 490 mm of static crush during the impact.

The driver's head injury criteria (HIC) was 647. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 54.4 g. The driver's left and right femur maximum axial forces were 7122 N and 4260 N, respectively.

The passenger's HIC was 431. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 43.9 g. The passenger's left and right femur maximum axial forces were 6097 N and 4047 N, respectively.

The was no loss of windshield periphery retention.

There was no penetration through the windshield.

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

DATA ACQUISITION EXPLANATIONS

The driver's lap belt outboard force load cell, LBOF1, recorded questionable data from 72 to 112 milliseconds. The data acquisition circuit was checked after the test and appeared normal. No cause for the lost data could be found.

TABLE 1 CRASH TEST SUMMARY

NHTSA NO.:	MP0204	TEST TYPE:	Frontal Load Cell Barrier
TEST DATE:	03/17/93	TEST TIME: 1409	AMBIENT TEMP.: 22° C
VEHICLE YEAR/MAKE/MODEL/BODY STYLE:	1993/Ford/Taurus/4-door sedan		
VEHICLE TEST WEIGHT (KG):	1711		
IMPACT ANGLE (DEG)*:	0		
IMPACT VELOCITY (KPH)**:	PRIMARY = 56.3	SECONDARY = 56.3	
MAXIMUM STATIC CRUSH (MM):	490		
AVERAGE REBOUND (MM):	691		
DUMMIES:	Driver #713	Passenger #826	
TYPE:	Part 572 B	Part 572 B	
LOCATION:	Left front	Right front	
RESTRAINT:	Airbag & 3-point unibelt	Airbag & 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: Ford Motor Company

MAKE/MODEL: Ford/Taurus VIN: 1FALP5246PA198518

BODY STYLE: 4-door sedan MODEL YEAR: 1993

NHTSA NO.: MP0204 COLOR: Red

ENGINE DATA: TYPE: transverse CYLINDERS: 6 DISPLACEMENT: 3.8-liter

TRANSMISSION DATA: _4_ SPEED, ___ MANUAL, _X_ AUTOMATIC, _X_ FWD, ___ RWD, ___ 4WD

DATE VEHICLE RECEIVED: 01/06/93 ODOMETER READING: 131.0

DEALER'S NAME AND ADDRESS: Graham Ford Inc.
707 West Broad St.
Columbus, OH 43216

ACCESSORIES:

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

REMARKS:

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

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Ford Motor Company

DATE OF MANUFACTURE: 12/92 VIN: 1FALP5246PA198518

GVWR: 2129 KG

GAWR: FRONT: 1134 KG, REAR: 1009 KG

TABLE 2 TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Michelin, XW4, P205/65R15

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

SPARE TIRE (MFR., LINE, SIZE): Michelin, Tex, T135/80R14

TYPE OF SEATS: FRONT: Split bench
REAR: Bench

TYPE OF FRONT SEAT BACKS:
Driver - Electronically-adjustable
Passenger - Manually-adjustable

MAXIMUM WIDTH: 1790 MM

WHEELBASE: 2666 MM

LOCATION OF LABEL STATING TIRE DATA:

The label was located on the right C-pillar.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P205/65R15

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

DESIGNATED SEATING CAPACITY: 3 FRONT 3 REAR 6 TOTAL

VEHICLE CAPACITY WEIGHT: 499 KG LUGGAGE 91 KG

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN MILLIMETERS):

DELIVERED ATTITUDE:	LF 718;	RF 725;	LR 696;	RR 696
PRE-TEST ATTITUDE:	LF 710;	RF 716;	LR 641;	RR 643
POST-TEST ATTITUDE:	LF 820;	RF 745;	LR 627;	RR 646

TABLE 2 TEST VEHICLE INFORMATION CONT'D

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

RIGHT FRONT	471 KG	RIGHT REAR	255 KG
LEFT FRONT	495 KG	LEFT REAR	256 KG
TOTAL FRONT WEIGHT	966 KG	(65.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	511 KG	(34.6% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	1477 KG		

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT*

UDW = UNLOADED DELIVERED WEIGHT (1477 KG)

VCW = VEHICLE CAPACITY WEIGHT (499 KG)

DSC = DESIGNATED SEATING CAPACITY (6)

RCLW*= VCW - 68 (DSC) = 91 KG

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

TARGET TEST WEIGHT = 1477 + 91 + 148

TARGET TEST WEIGHT = 1716 KG

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 86 KG OF CARGO WEIGHT:

RIGHT FRONT	493 KG	RIGHT REAR	355 KG
LEFT FRONT	515 KG	LEFT REAR	348 KG
TOTAL FRONT WEIGHT	1008 KG	(58.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	703 KG	(41.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	1711 KG	(0.3 KG UNDER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE: 0 KG

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: Rear bumper

CG = 1095 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: 930317

NHTSA NO.: MP0204

TEST DATE: 03/17/93

TEST TIME: 1409

TEST TYPE: Frontal load cell barrier

IMPACT ANGLE: 0°

AMBIENT TEMPERATURE AT IMPACT AREA: 22° C

TEMPERATURE IN OCCUPANT COMPARTMENT: 22° C

IMPACT VELOCITY: PRIMARY = 56.3 KPH SECONDARY = 56.3 KPH

(SPECIFIED RANGE = 55.5 TO 57.1 KPH)

DISTANCE FROM VEHICLE TO BARRIER: ENTERING VELOCITY TRAP = 356 MM

EXITING VELOCITY TRAP = 51 MM

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

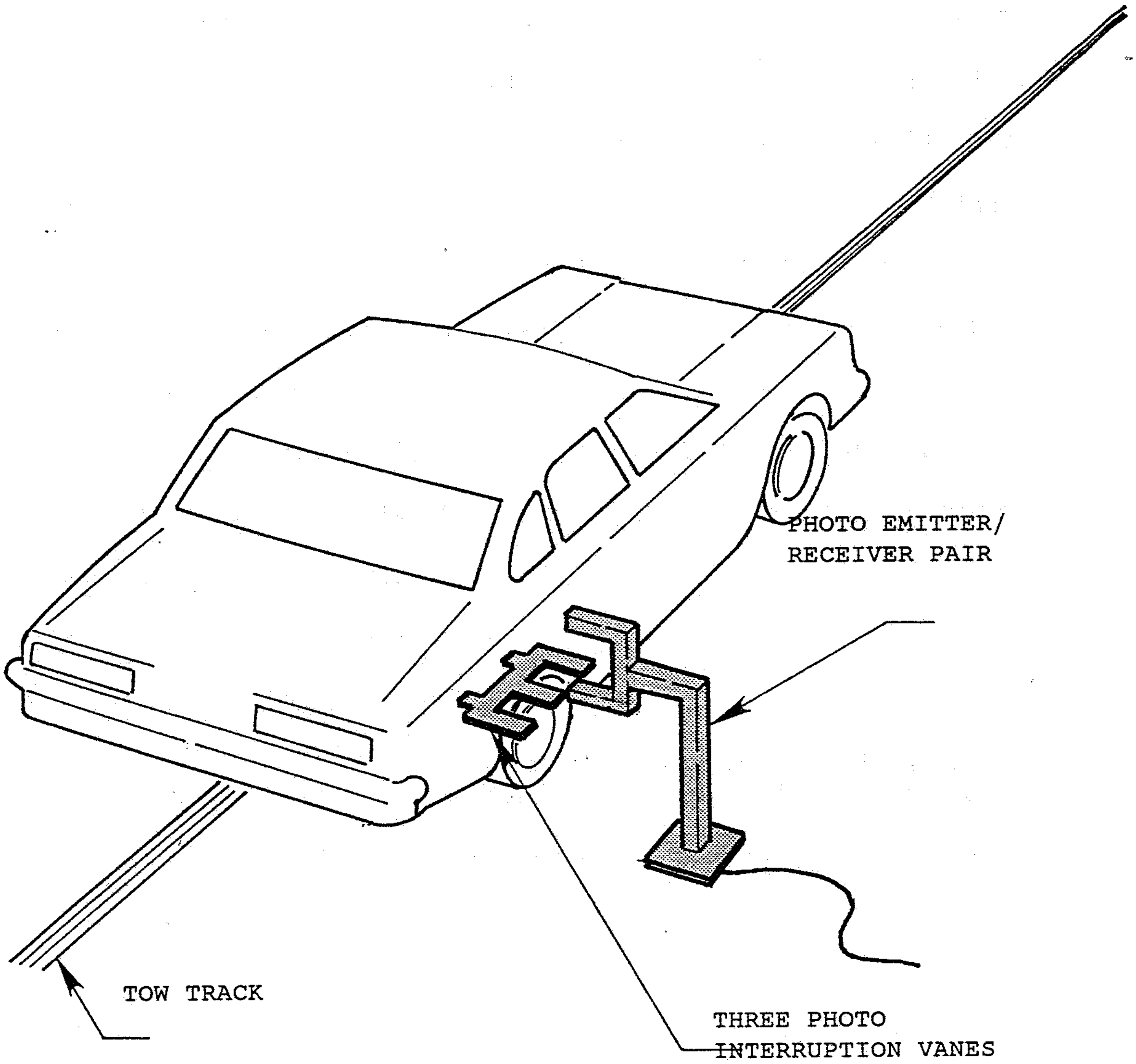
OVERALL LENGTH OF TEST VEHICLE:

PRE-TEST:	L	4710;	C	4875;	R	4720
POST-TEST:	L	4300;	C	4391;	R	4277
TOTAL CRUSH:	L	410;	C	484;	R	443
AVERAGE CRUSH:	446					

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

DISTANCE FROM TEST VEHICLE TO BARRIER: L 668; C 663; R 741; AVG. 691

FIGURE 1 IMPACT VELOCITY MEASUREMENT SYSTEM



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

The vanes have 305-millimeter spacing.

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

VEHICLE MAKE/MODEL/BODY STYLE: Ford/Taurus/4-door sedan

VEHICLE NHTSA NO.: MP0204 ; VIN: 1FALP5246PA198518

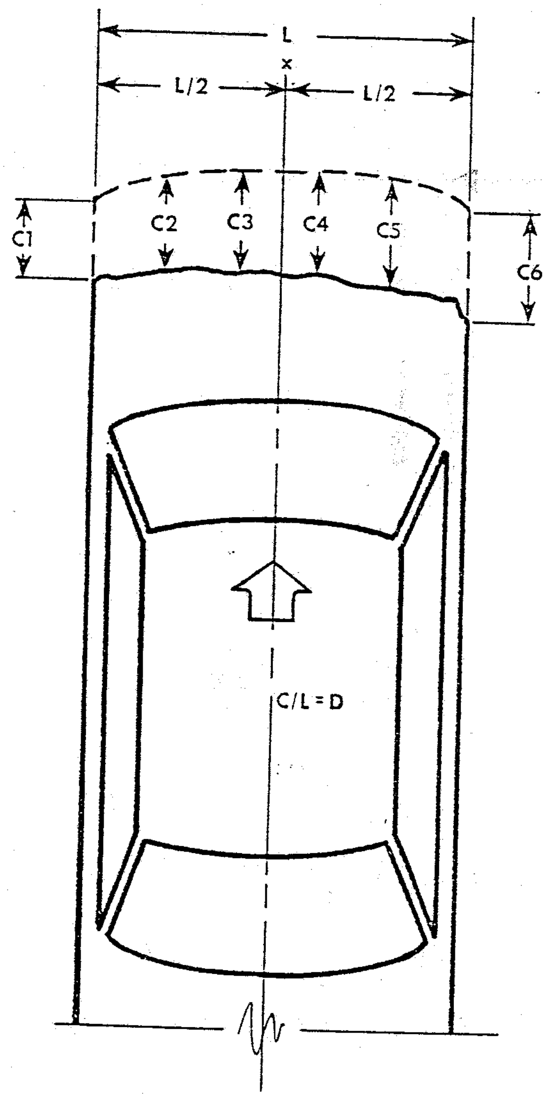
MODEL YEAR: 1993 ; BUILD DATE: 12/92 ; TEST DATE: 03/17/93

VEHICLE SIZE CATEGORY: Mid-size ; TEST WEIGHT: 1711 KG

VEHICLE WHEELBASE: 2666 MM

MAXIMUM WIDTH: 1790 MM

FRONT OVERHANG: 1029 MM



COLLISION DEFORMATION
CLASSIFICATION (CDC) CODE: 12FDEW2

CRUSH DEPTH
MEASUREMENTS:

C1 = 410 MM

C2 = 460 MM

C3 = 474 MM

C4 = 490 MM

C5 = 468 MM

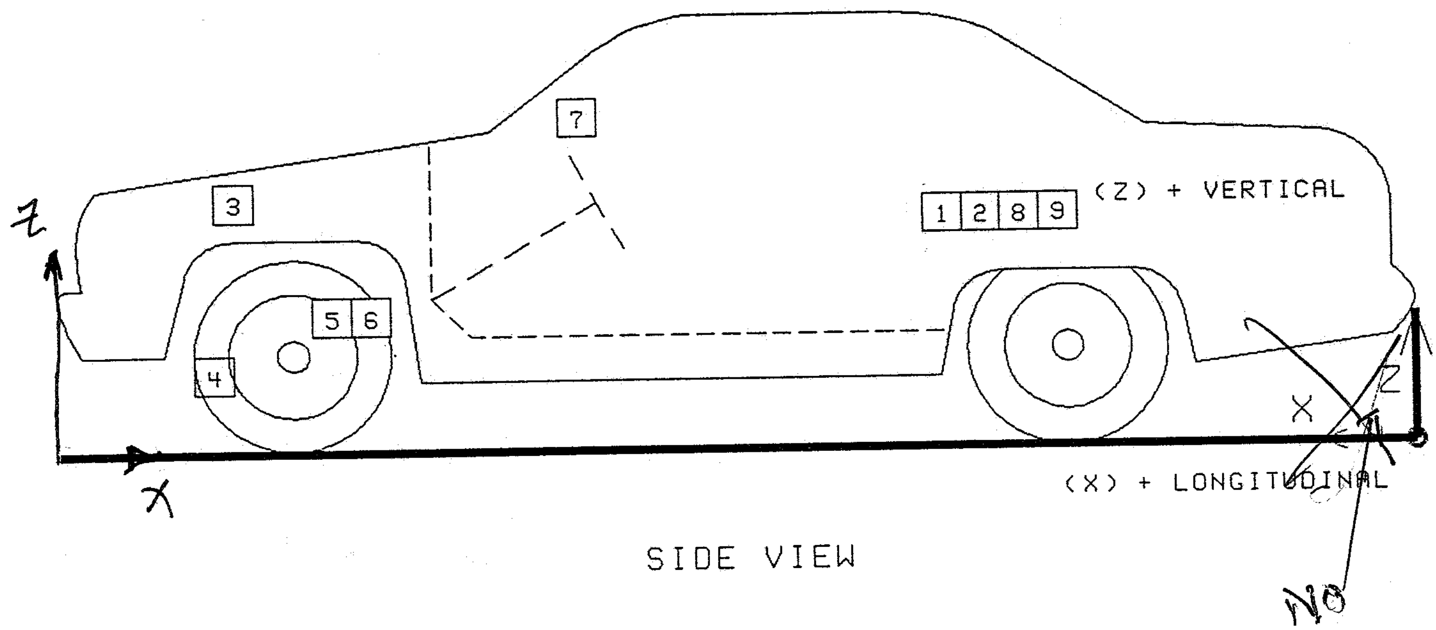
C6 = 443 MM

MIDPOINT OF DAMAGE: D = VEHICLE CENTERLINE (LONGITUDINAL)

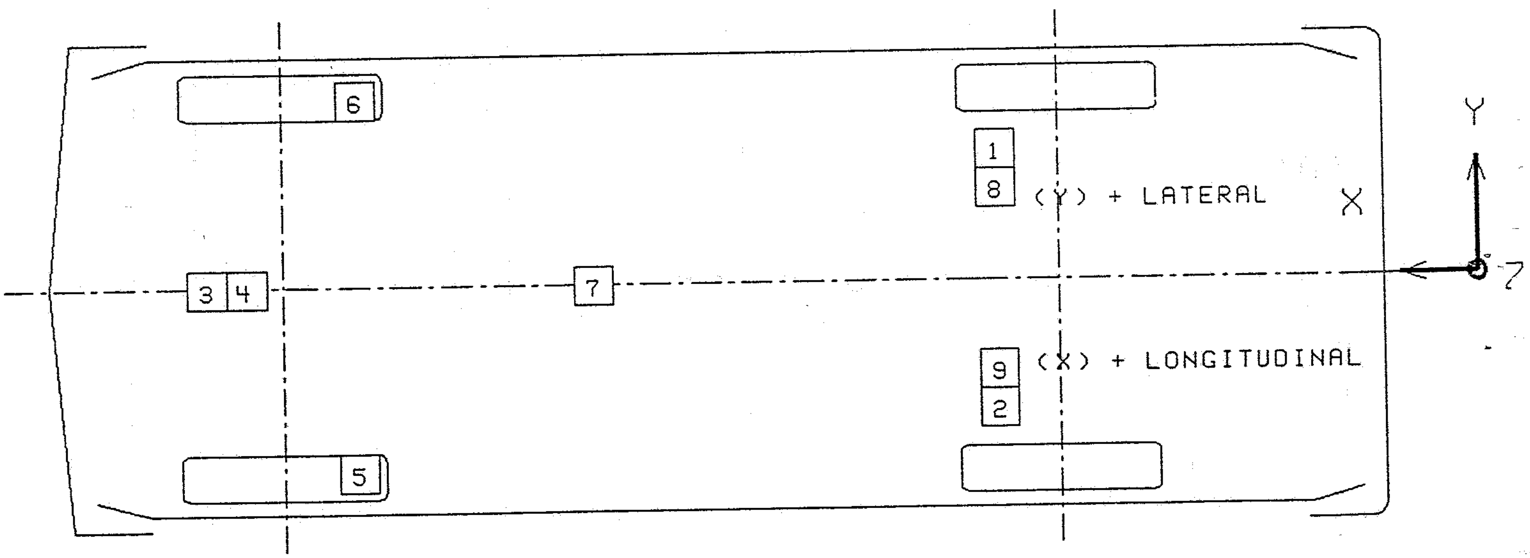
LENGTH OF DAMAGED REGION: L = 1525 MM

FIGURE 3

VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 4

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930317

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	2925	630	348	2.1	137.3	29.8	42.5
2	RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	2925	-629	344	2.0	143.8	27.4	44.9
3	ENGINE TOP LONGITUDINAL	590	-41	820	30.2	47.0	144.4	32.1
4	ENGINE BOTTOM LONGITUDINAL	810	84	185	25.0	44.8	137.8	31.5
5	RIGHT BRAKE CALIPER LONGITUDINAL	913	-682	320	40.4	60.0	85.8	30.9
6	LEFT BRAKE CALIPER LONGITUDINAL	913	682	316	53.7	65.5	94.6	44.9
7	INSTRUMENT PANEL CENTER LONGITUDINAL	1610	-5	1001	77.5	61.8	89.4	37.5
8	LEFT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	2925	592	348	2.4	137.0	29.8	42.5
9	RIGHT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	2925	-592	344	2.1	143.6	27.5	45.0

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

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

TABLE 5 POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #713	PASSENGER #826
HEAD	Airbag	Airbag
CHEST	Airbag	Airbag
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 was cracked upon impact.

OTHER NOTABLE IMPACT EFFECTS:

None

TABLE 6 FMVSS 208 DATA SUMMARY

VEH. YR./MAKE/MODEL/BODY STYLE: 1993/Ford/Taurus/4-door sedan

VEH. NHTSA NO.: MP0204 ; TEST DATE: 03/17/93

MAXIMUM ACCELERATIONS (G):	DRIVER DUMMY #713	PASSENGER DUMMY #826
HEAD X-AXIS	-68.7	-56.4
HEAD Y-AXIS	11.3	-19.6
HEAD Z-AXIS	-25.8	-38.1
HEAD RESULTANT	70.7	67.1
CHEST X-AXIS	-54.7	-46.9
CHEST Y-AXIS	18.2	-14.9
CHEST Z-AXIS	14.6	10.1
CHEST RESULTANT*	54.4	43.9
CHEST RESULTANT TIME INTERVAL (SEC.)*	.003	.003
HEAD INJURY CRITERIA (HIC) VALUES:		
HIC**	647	431
HIC STARTING TIME (SEC.)	.054	.057
HIC ENDING TIME (SEC.)	.090	.088
AVG. HEAD RESULTANT ACCEL. DURING HIC TIME INTERVAL (G)	48.6	56.5
MAXIMUM COMPRESSIVE FEMUR FORCES (N):		
LEFT FEMUR	7122	6097
RIGHT FEMUR	4260	4047
MAXIMUM SEAT BELT FORCES (N):		
LAP BELT	---- γ	4274
SHOULDER BELT	6249	7178

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.

γ See DATA ACQUISITION EXPLANATIONS

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head chest impacted the airbag. The driver dummy was restrained by the airbag and the three-point unibelt. The dummy rebounded rearward into the seat back as the dummy's head rotated slightly rearward impacting the 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 head and chest impacted the airbag as the dummy's head rotated slightly forward. The right front passenger dummy was restrained by the airbag and the three-point unibelt. The dummy 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 7 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.	2360	2370
SHOULDER BELT LENGTH AS MEASURED ON PART 572 DUMMY.	840	810
LAP BELT LENGTH AS MEASURED ON PART 572 DUMMY.	675	685
SHOULDER BELT SPOOL-OFF LENGTH:		
AS DETERMINED BY FILM ANALYSIS	51	58
AS DETERMINED MECHANICALLY	43	31
AS DETERMINED ELECTRONICALLY	60	49
BELT STRETCH LENGTH (MM/M):		
AS MEASURED MECHANICALLY	7	7
AS MEASURED ELECTRONICALLY	33	11
RETRACTOR LOCK-UP TIME (MS):		
AS DETERMINED BY SHOULDER BELT SPOOL-OFF	54	52

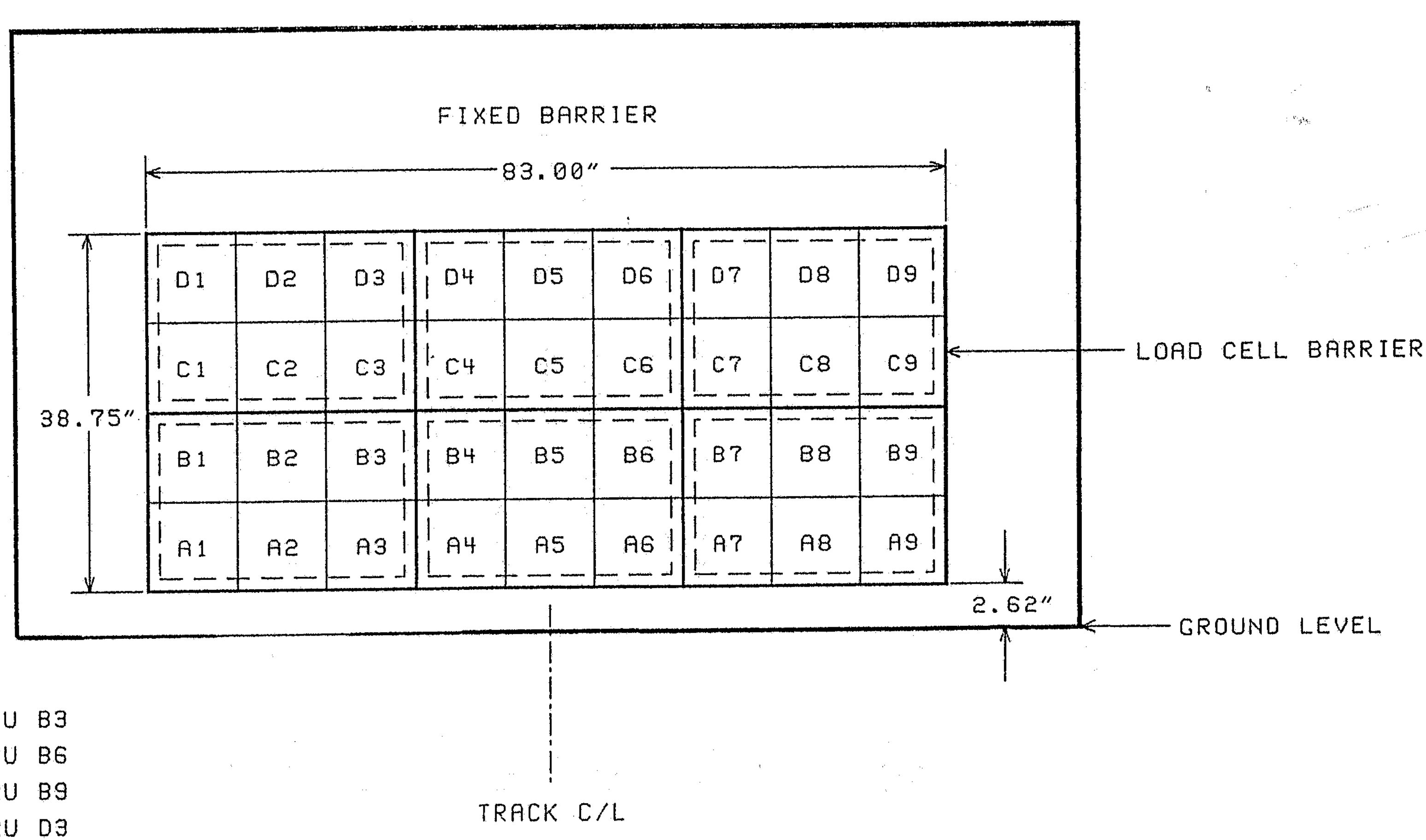
ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

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 8

LOAD CELL BARRIER DATA SUMMARY

TEST NUMBER 930317

LOCATION	POSITIVE DIRECTION KN	POSITIVE DIRECTION MSEC	NEGATIVE DIRECTION KN	NEGATIVE DIRECTION MSEC
TOTAL GROUP 1	1.5	261.1	131.7	27.9
TOTAL GROUP 2	1.6	292.8	150.4	32.6
TOTAL GROUP 3	1.4	1.3	189.1	31.5
TOTAL GROUP 4	1.0	248.5	121.8	35.0
TOTAL GROUP 5	1.2	167.0	130.1	33.0
TOTAL GROUP 6	1.0	155.9	150.4	32.4
TOTAL LOAD CELL FORCE	4.7	194.3	828.9	32.6

TENSION IS POSITIVE
COMPRESSION IS NEGATIVE

SECTION 3.0

FMVSS 212, 219 (PARTIAL), AND 301 DATA

FIGURE 5 FMVSS 212 TEST DATA

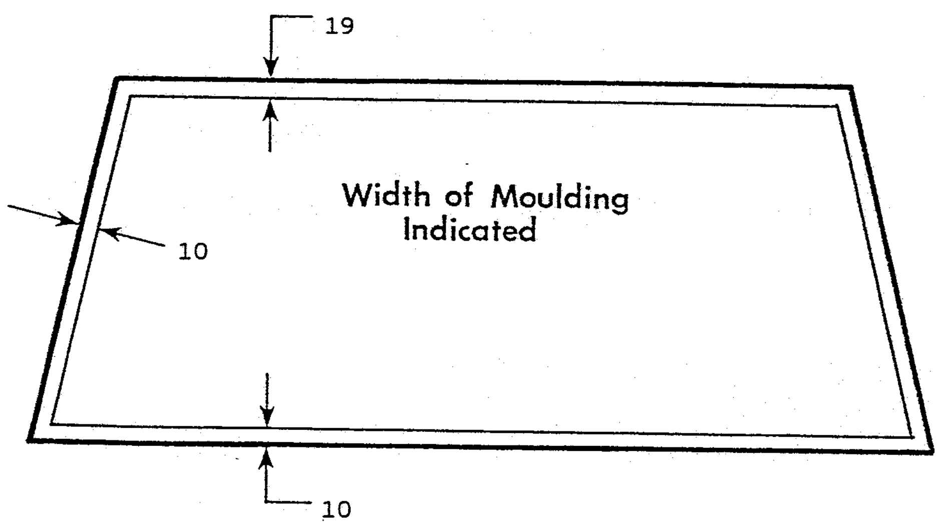
DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:
Plastic trim around outer perimeter, adhesive around inner perimeter.

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

WINDSHIELD PERIPHERY MEASUREMENTS:

	PRE-TEST	POST-TEST	PERCENT RETENTION
RIGHT SIDE	2042	2042	100
LEFT SIDE	2042	2042	100
TOTAL	4084	4084	100

PRE-TEST WINDSHIELD MOUNTING MATERIAL TEMPERATURE: 22° C



FRONT VIEW OF WINDSHIELD*

LOSS OF WINDSHIELD RETENTION LENGTHS: None
ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.
*INDICATE AREAS OF LOSS OF RETENTION, IF ANY, ON WINDSHIELD DIAGRAM.

FIGURE 6 FMVSS 219 TEST DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 13 millimeters from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection onto the outer surface of the windshield of this line.

WINDSHIELD MEASUREMENTS:

A = 1171

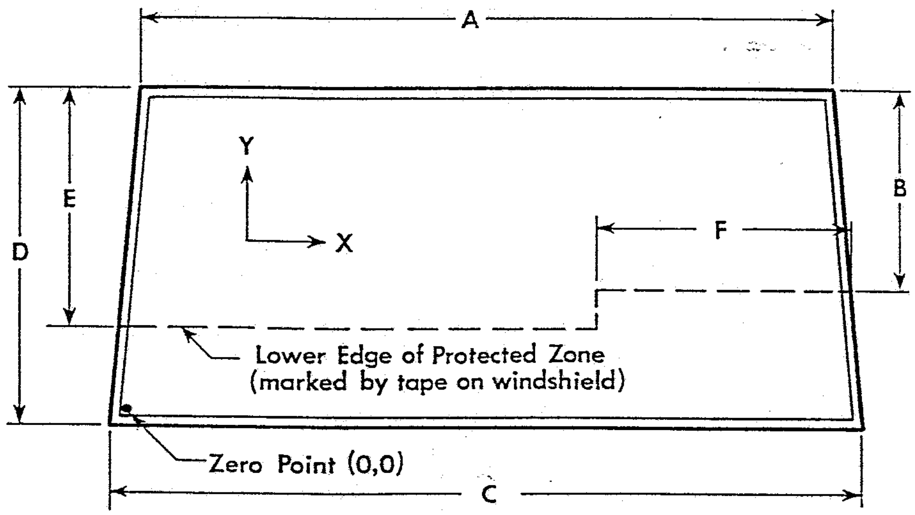
B = 382

C = 1549

D = 772

E = 406

F = 635



FRONT VIEW

METHOD OF ADHERING PROTECTED ZONE TEMPLATE TO WINDSHIELD: NA

AREAS OF WINDSHIELD TEMPLATE PENETRATION GREATER THAN 6.0 MM: NA

	COORDINATES X	Y
1.		
2.		
3.		

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

1.
2.
3.

ALL MEASUREMENTS ARE IN MILLIMETERS.

TABLE 9 FUEL SYSTEM DATA

MAKE/MODEL:	Ford/Taurus
NHTSA NO.:	MP0204
FUEL SYSTEM CAPACITY:	60.6 LITERS (FROM OWNER'S MANUAL)
USABLE CAPACITY:	60.6 LITERS (FURNISHED BY COTR)
TEST VOLUME RANGE:	55.8 LITERS TO 57.0 LITERS (92-94% OF USABLE)
ACTUAL TEST VOLUME:	56.0 LITERS (WITH ENTIRE FUEL SYSTEM FILLED)
TEST FLUID TYPE:	STODDARD SOLVENT
SPECIFIC GRAVITY:	0.764
KINEMATIC VISCOSITY:	0.99 CENTISTOKES
TEST FLUID COLOR:	PURPLE

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

ELECTRIC FUEL PUMP: Yes

FUEL INJECTION: Yes

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

TABLE 10 FMVSS 301 POST-IMPACT TEST DATA

TEST VEHICLE NHTSA NO.: MP0204 ; TEST DATE: 03/17/93

VEHICLE MAKE/MODEL/BODY STYLE: Ford/Taurus/4-door sedan

TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE:

X FRONTAL (56 KPH)

____ OBLIQUE (48 KPH) WITH ___ ° BARRIER FACE
FIRST CONTACTING ____ (DRIVER/PASS.) SIDE.

____ REAR MOVING BARRIER (48 KPH)

____ LATERAL MOVING BARRIER (32 KPH)

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

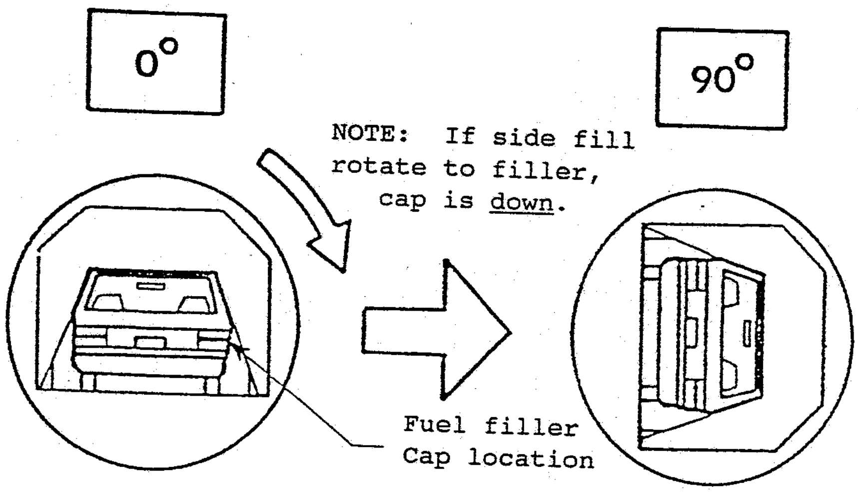
		TEST RESULTS	MAXIMUM ALLOWABLE
1.	FROM IMPACT UNTIL VEHICLE MOTION CEASES - - -	0 G	28 G
2.	5 MINUTE PERIOD AFTER VEHICLE MOTION CEASES -	0 G	142 G
3.	NEXT 25 MINUTES AFTER 5 MINUTE PERIOD - - - -	0 G	28 G/MN

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA

NHTSA NO.: MP0204
TEST PHASE



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

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

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

NEXT WHOLE MINUTE INTERVAL - - - - - = 7 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

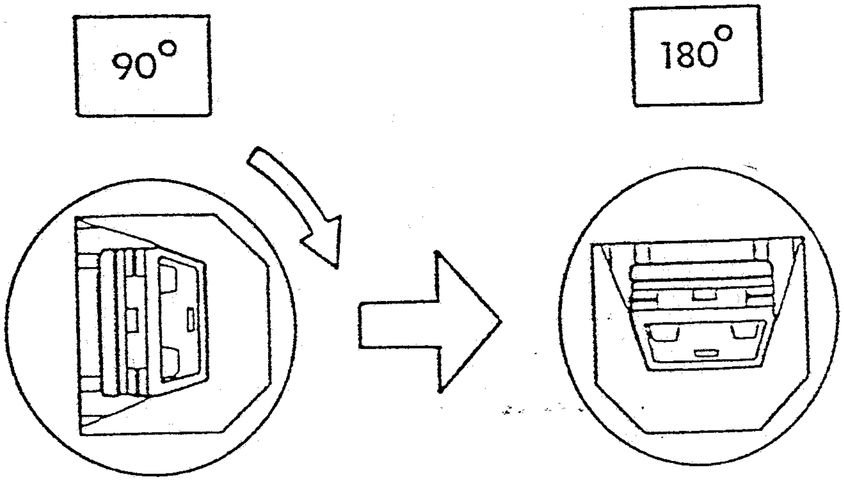
0° TO 90° ROTATION (FUEL FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

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

NHTSA NO.: MP0204
TEST PHASE



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

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

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

NEXT WHOLE MINUTE INTERVAL - - - - - = 14 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

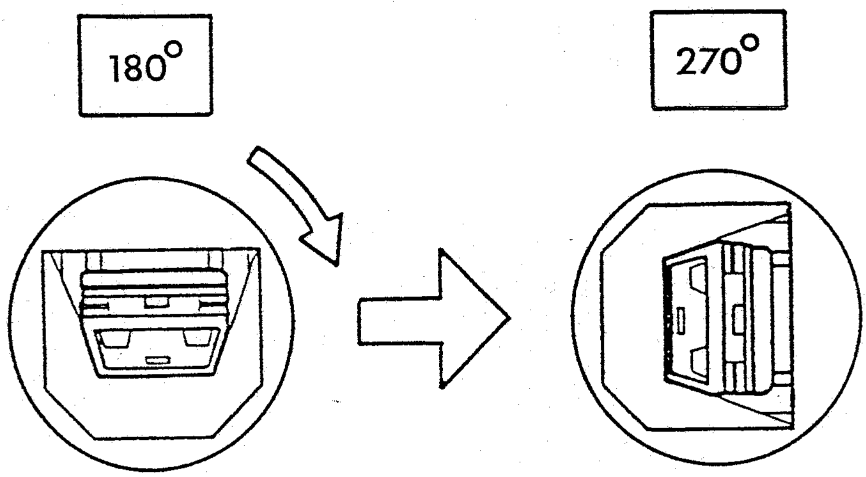
90° TO 180° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

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

NHTSA NO.: MP0204
TEST PHASE



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

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

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

NEXT WHOLE MINUTE INTERVAL - - - - - = 21 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

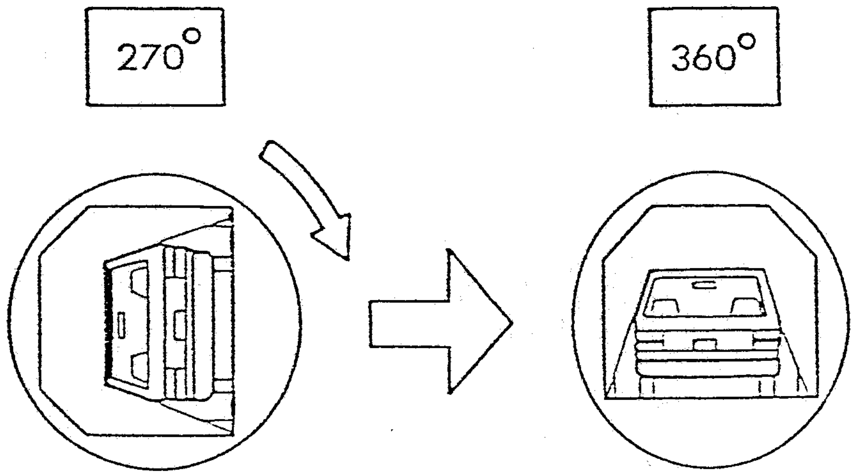
180° TO 270° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

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

NHTSA NO.: MP0204
TEST PHASE



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

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

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

NEXT WHOLE MINUTE INTERVAL - - - - - = 28 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

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

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

SECTION 4.0

VEHICLE, OCCUPANT, AND CAMERA INFORMATION

FIGURE 8

DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS

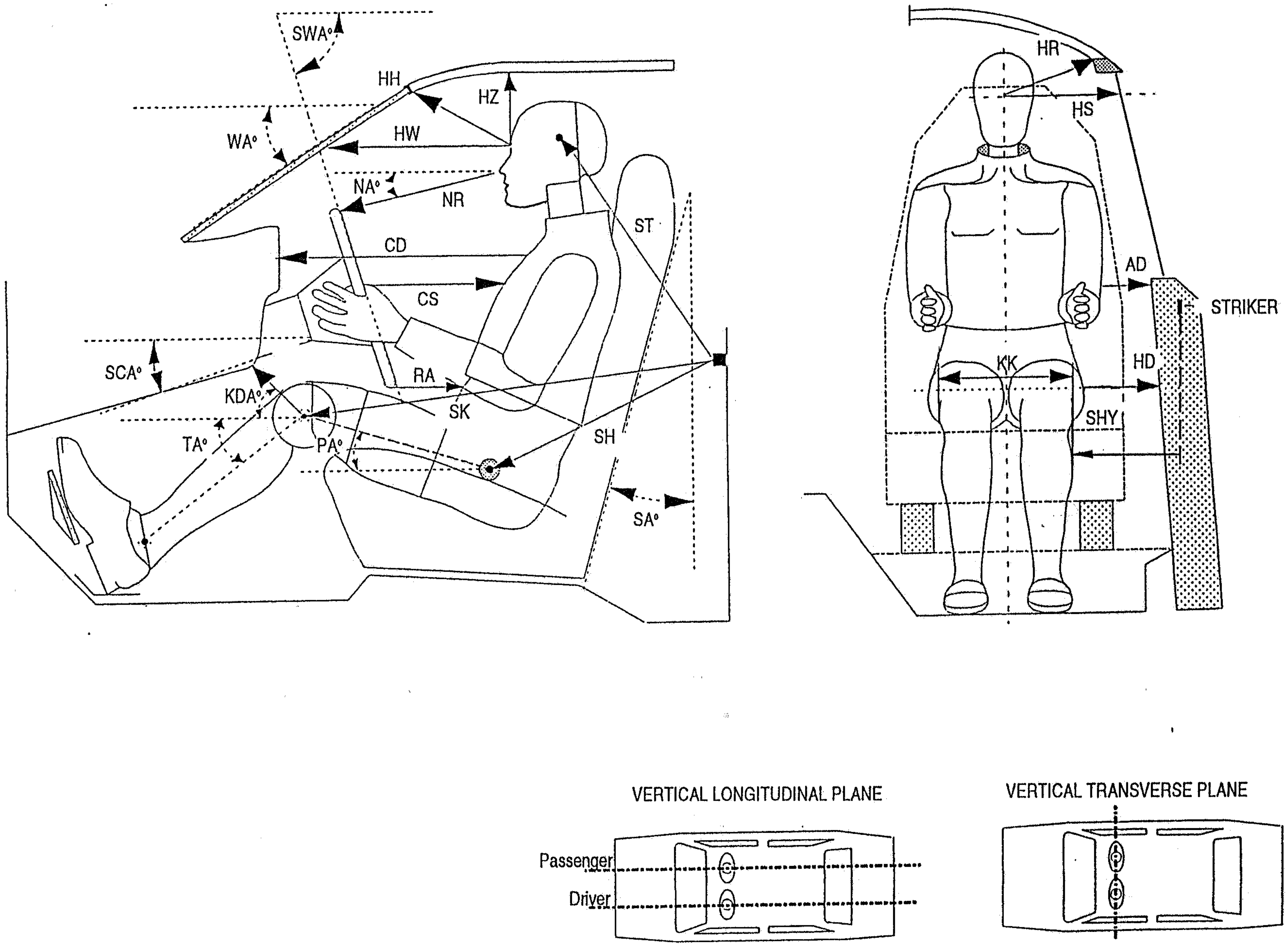
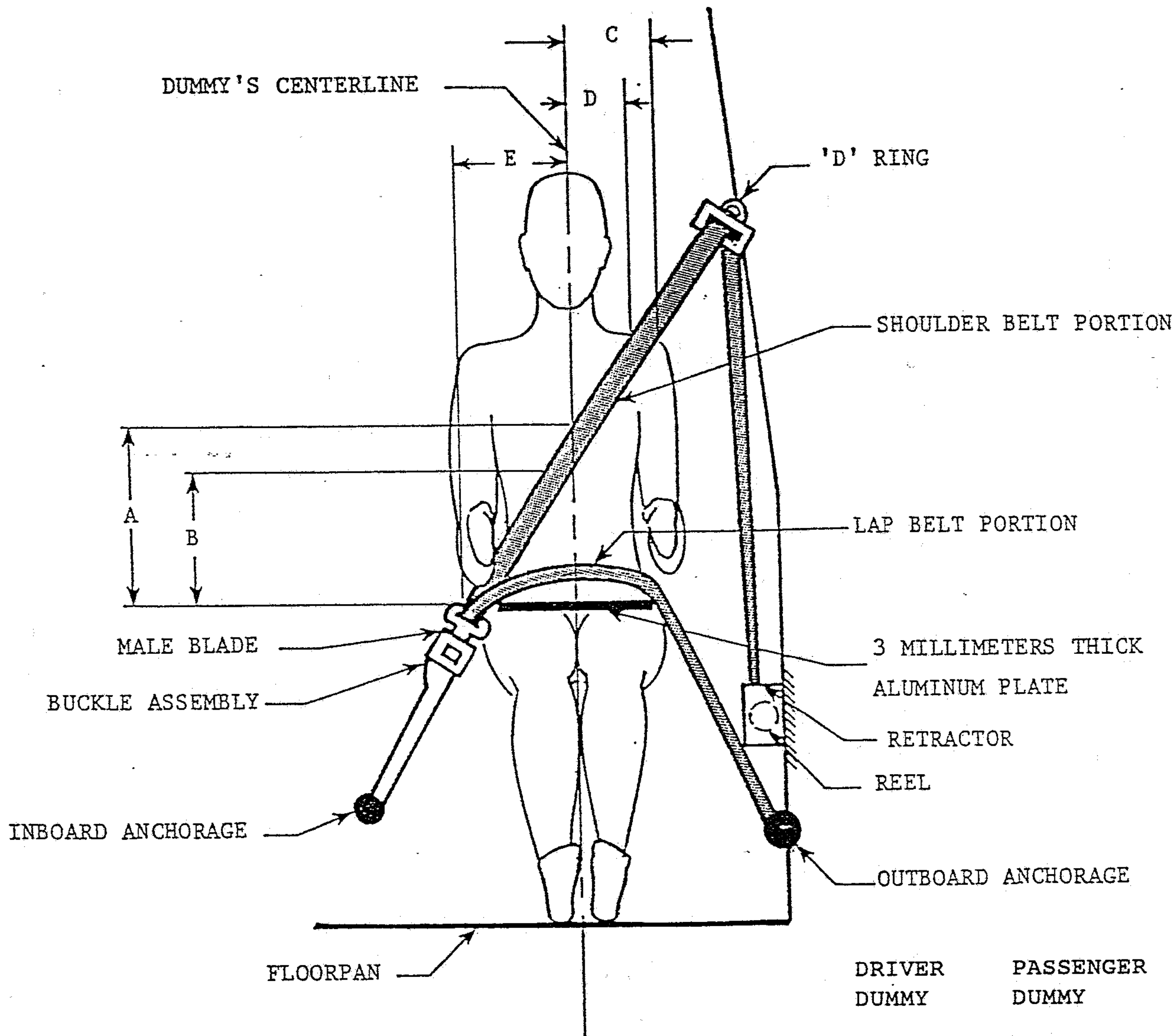


TABLE 11 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

DESIGNATION	TYPE OF MEASUREMENT	DRIVER (SERIAL #713)	PASSENGER (SERIAL #826)	
WA	WINDSHIELD ANGLE	29	NA	
SWA	STEERING WHEEL ANGLE	23	NA	
SCA	STEERING COLUMN ANGLE	67	NA	
SA	SEAT BACK ANGLE	21	21	
HZ	HEAD TO ROOF	163	150	
HH	HEAD TO HEADER	355	378	
HW	HEAD TO WINDSHIELD	546	552	21.73"
HR	HEAD TO SIDE HEADER	185	177	
NR	NOSE TO RIM	416	NA	
NA	NOSE TO RIM ANGLE	11	NA	
CD	CHEST TO DASH	564	543	21.38"
CS	STEERING WHEEL TO CHEST	337	NA	
RA	RIM TO ABDOMEN	173	NA	
KDL	LEFT KNEE TO DASH	204	176	6.93"
KDR	RIGHT KNEE TO DASH	195	168	6.61"
KDA	OUTBOARD KNEE TO DASH ANGLE	28	23	
PA	PELVIC ANGLE ✓	15	15	
TA	TIBIAL ANGLE ✓	35	42	
KK	KNEE TO KNEE	388	310	
ST	STRIKER TO HEAD	476	481	
	STRIKER TO HEAD ANGLE	-92	-91	
SK	STRIKER TO KNEE	590	630	
	STRIKER TO KNEE ANGLE	7	4	
SH	STRIKER TO H-POINT	279	274	
	STRIKER TO H-POINT ANGLE	44	56	
SHY	STRIKER TO H-POINT (Y DIR.)	280	242	
HS	HEAD TO SIDE WINDOW	280	265	
HD	H-POINT TO DOOR	173	159	
AD	ARM TO DOOR	95	123	

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

FIGURE 9 SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
A - TOP SURFACE OF ALUMINUM PLATE TO BELT UPPER EDGE	340	384
B - TOP SURFACE OF ALUMINUM PLATE TO BELT LOWER EDGE	257	305
C - DUMMY CENTERLINE TO OUTER EDGE OF BELT AT CHEST FLESH TOP	134	133
D - DUMMY CENTERLINE TO INNER EDGE OF BELT AT CHEST FLESH TOP	71	65
LAPBELT TENSION (N)	18	18
SHOULDER BELT TENSION (N)	13	18

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 10 CAMERA POSITIONS

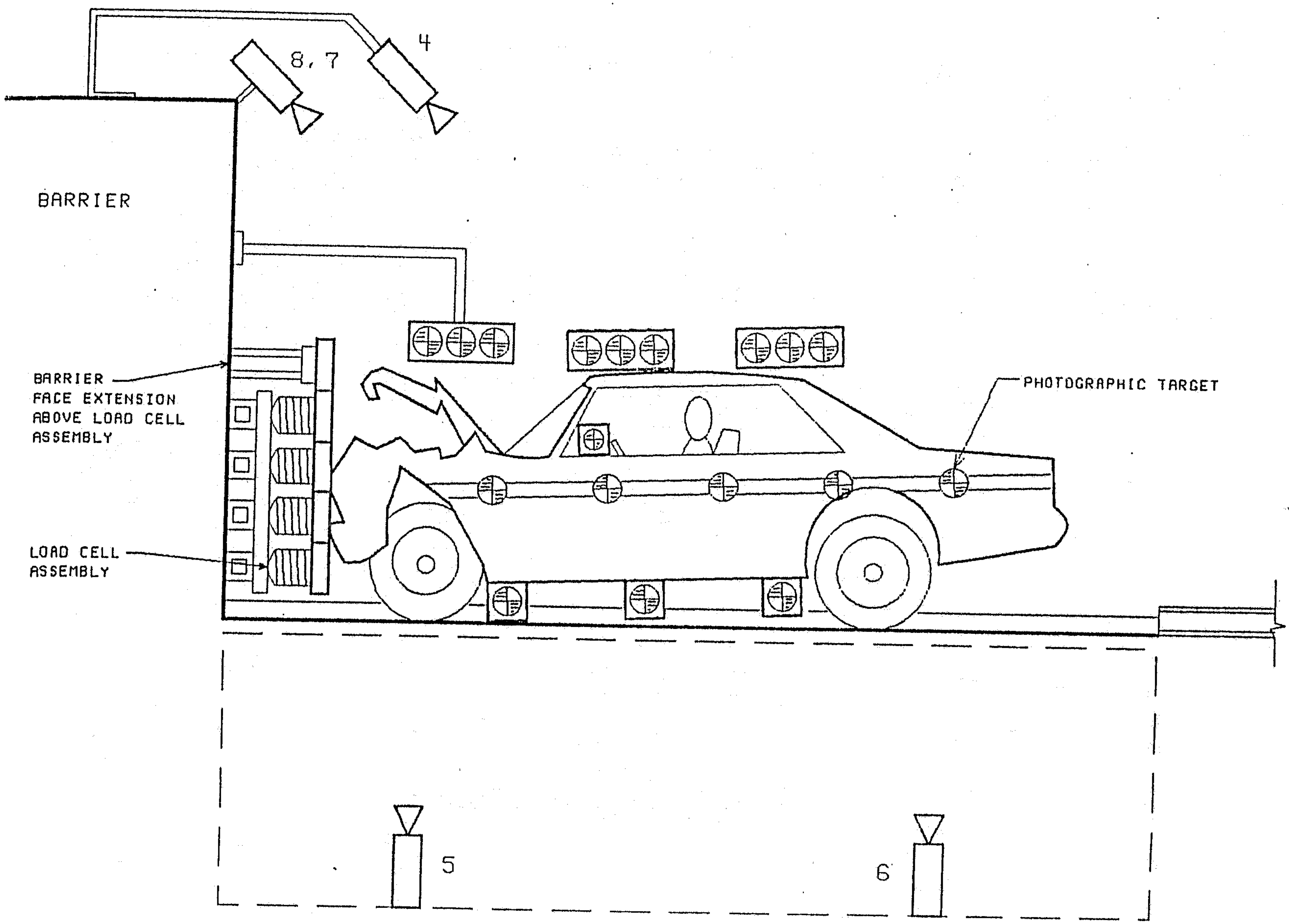


FIGURE 10 CAMERA POSITIONS, CONT'D.

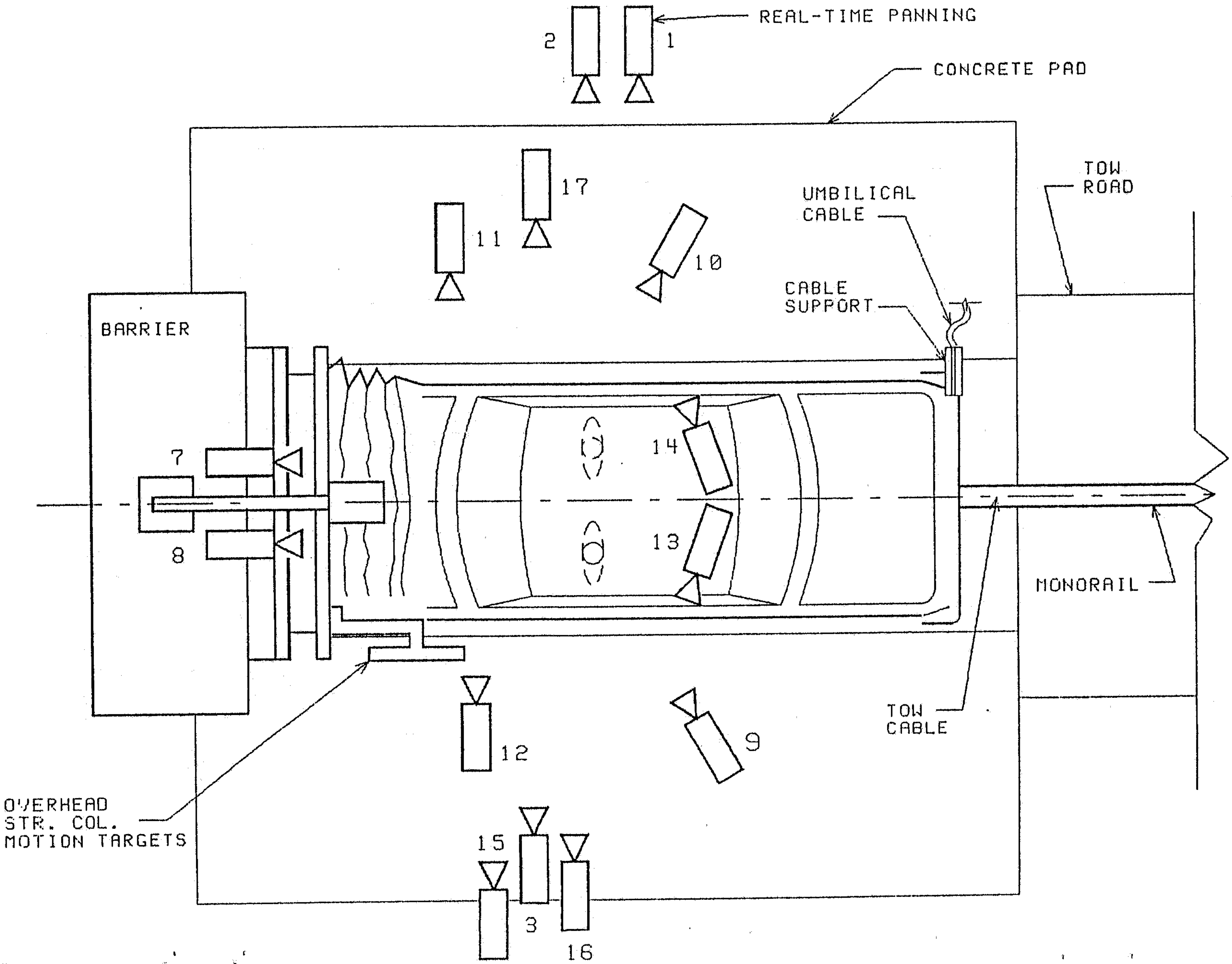


TABLE 12 MOTION PICTURE CAMERA LOCATIONS

TEST NO.: 930317 VEHICLE: 1993 Ford Taurus 4-door sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (MM)* X	Y	Z	ANGLE** (DEG)	FILM PLANE TO HEAD TARGET (MM)	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	495
3	Dummy kinematics	-1054	7493	1118	-12	5664	25	1000
4	Windshield damage	-925	0	2489	-40	NA	13	495
5	Crush & fluid spillage	-1283	0	-2347	90	NA	13	1000
6	Fluid spillage	-2522	0	-2515	90	NA	13	995
7	Passenger kinematics	-114	-351	2159	-40	NA	17	505
8	Driver kinematics	-173	368	2159	-41	NA	17	502
9	Driver kinematics	-4572	1854	2591	-27	2413	25	500
10	Passenger kinematics	-4674	-1880	2540	-26	2210	25	510
11	Windshield intrusion	-968	-7775	1118	0	NA	50	498
12	Windshield intrusion	-1346	7859	1074	0	NA	50	505
13	Driver seatbelt movement	NA	NA	NA	NA	NA	13	498
14	Passenger seatbelt movement	NA	NA	NA	NA	NA	13	498
15	Column movement	-3708	7264	2616	-14	NA	25	508
16	Column movement	-3708	7264	1908	-9	NA	25	498
17	Passenger kinematics	-986	-5354	1151	7	5639	25	1000

*+X = Film plane forward of barrier face

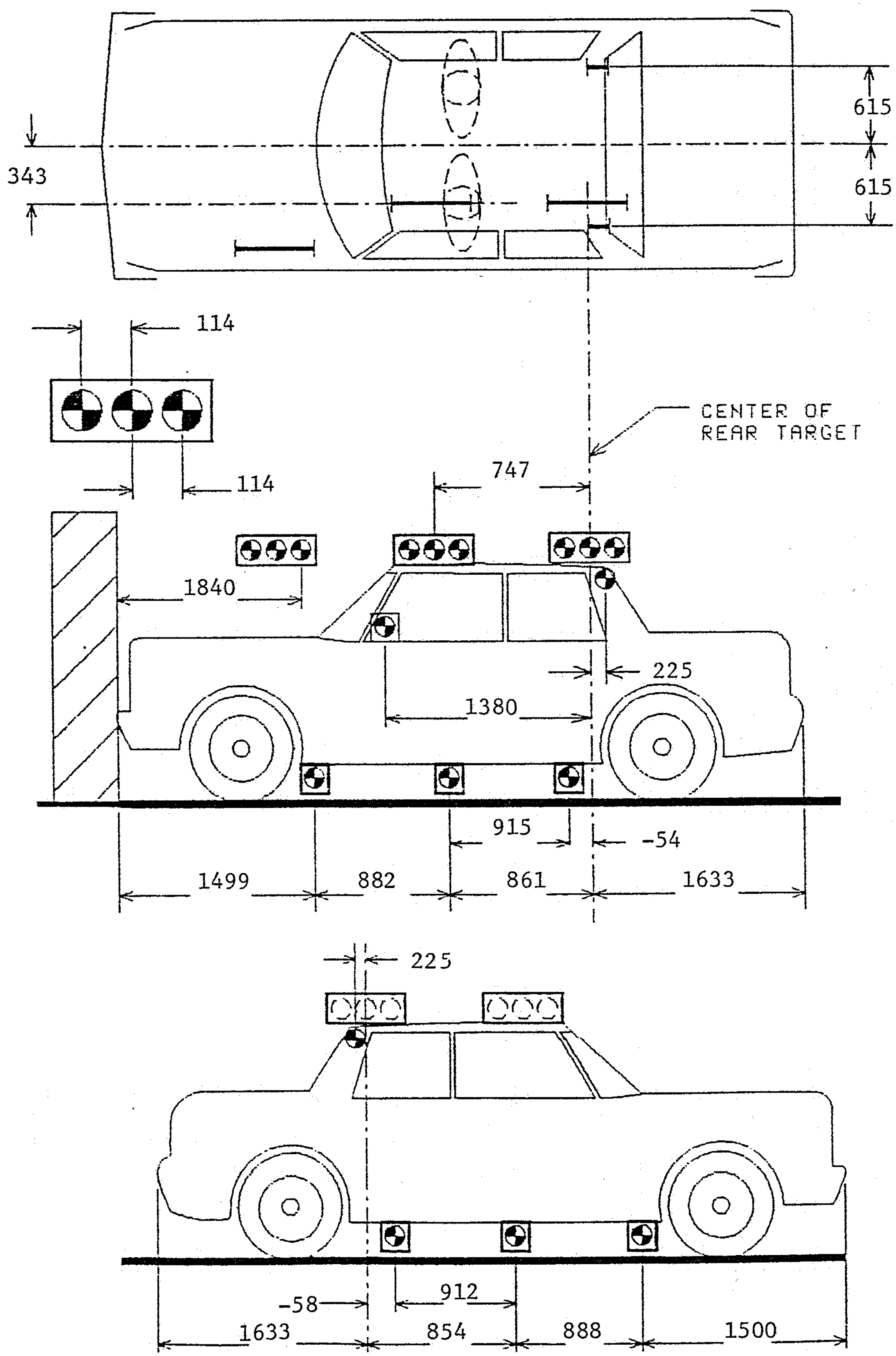
+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

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

FIGURE 11

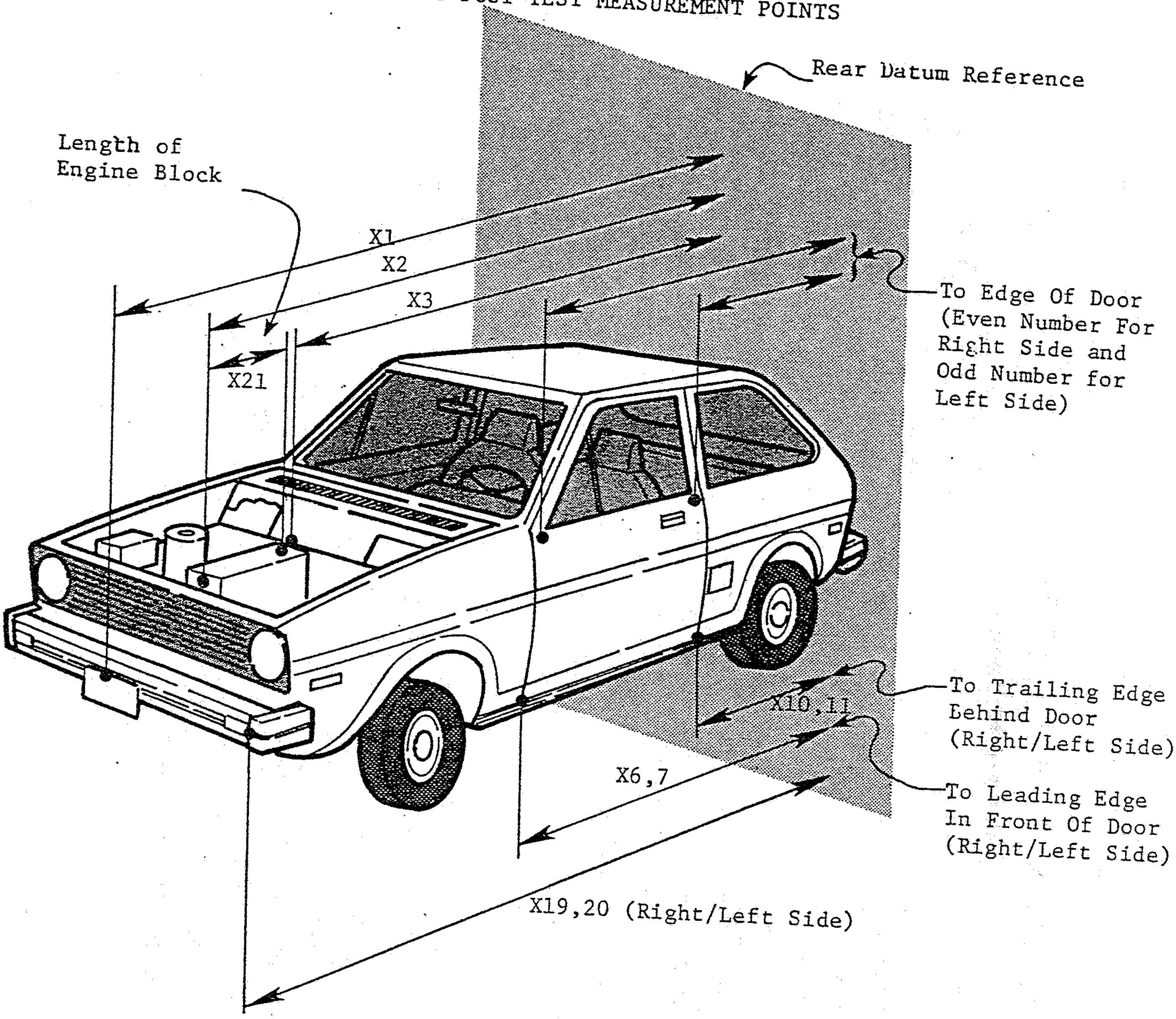
VEHICLE TARGET LOCATIONS

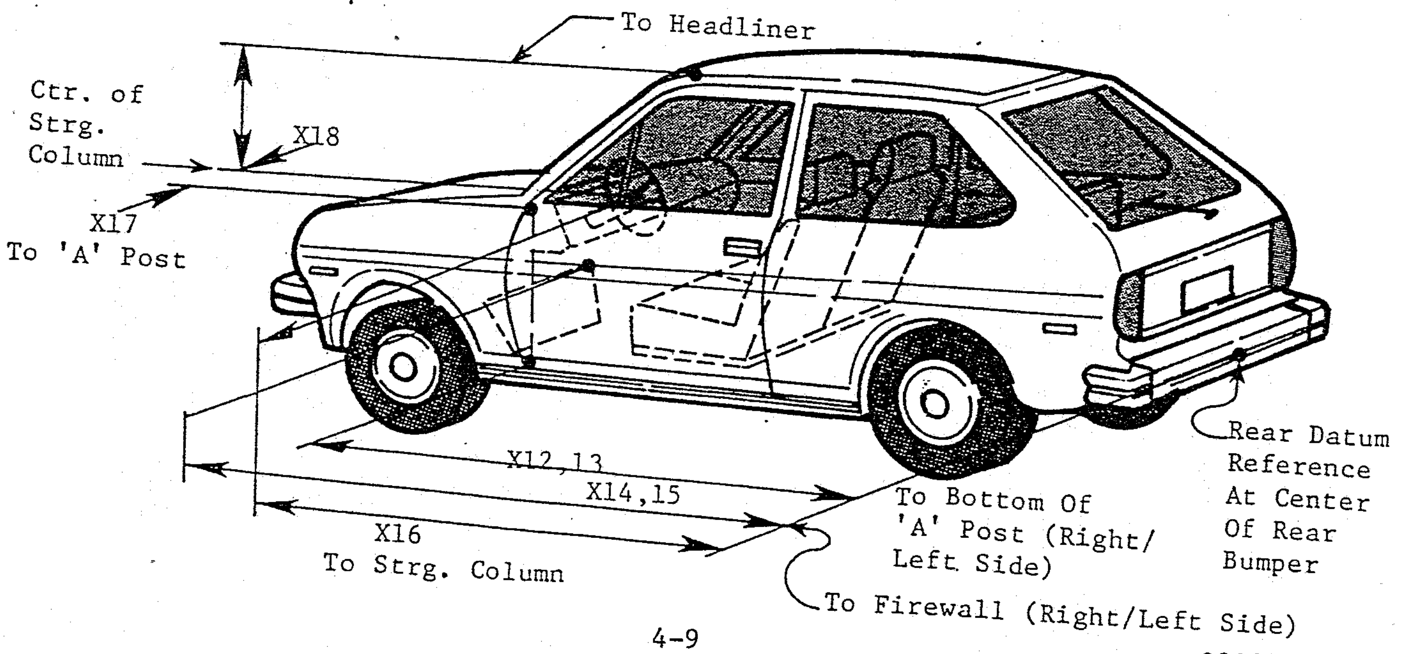


ALL MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 12

PRE-TEST AND POST-TEST MEASUREMENT POINTS





930317

TABLE 13 IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Taurus

TEST NUMBER: 930317

ALL MEASUREMENTS ARE IN MM

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4875	4391	484
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	4305	4058	247
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3645	3552	93 = 3.7"
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	3355	3382	-27
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	3359	3375	-16
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3320	3313	7
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3325	3315	10
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2270	2298	-28
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2270	2291	-21
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2265	2263	2
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2280	2265	15
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	3280	3284	-4 .16"
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	3290	3277	13 .50"
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	3610	3585	25 ≈ 1.0"
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	3610	3490	120 ≈ 4.74"
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2872	2821	51 ≈ 2"
X17	CENTER OF STEERING COLUMN TO "A" POST	285	205	80 = 3.16"
X18	CENTER OF STEERING COLUMN TO HEADLINER	451	402	49 ≃ 1.94"
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4720	4277	443
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4710	4300	410
X21	LENGTH OF ENGINE BLOCK	381	381	0

APPENDIX A

PHOTOGRAPHS

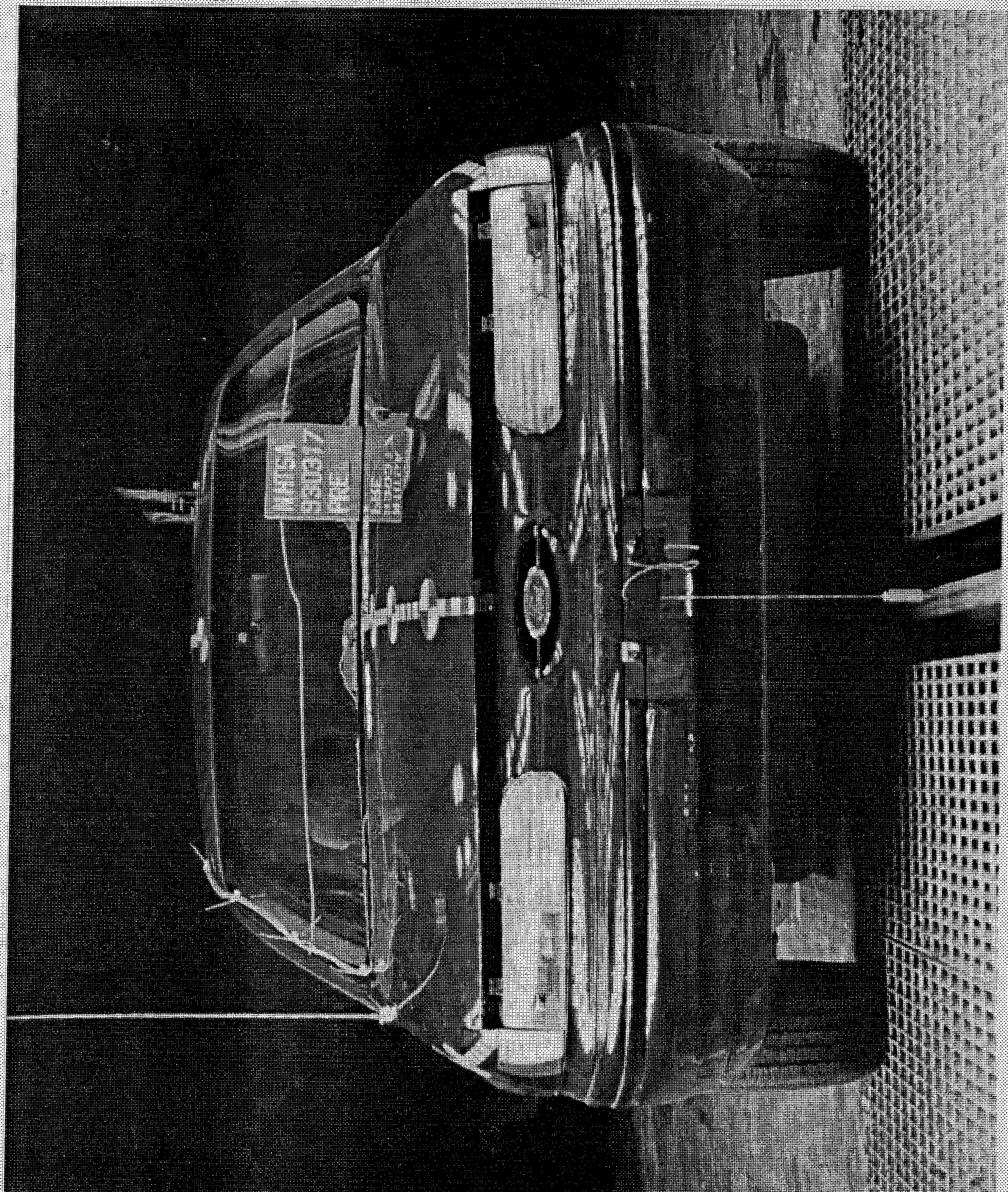


Figure A-1. PRE-TEST FRONT VIEW

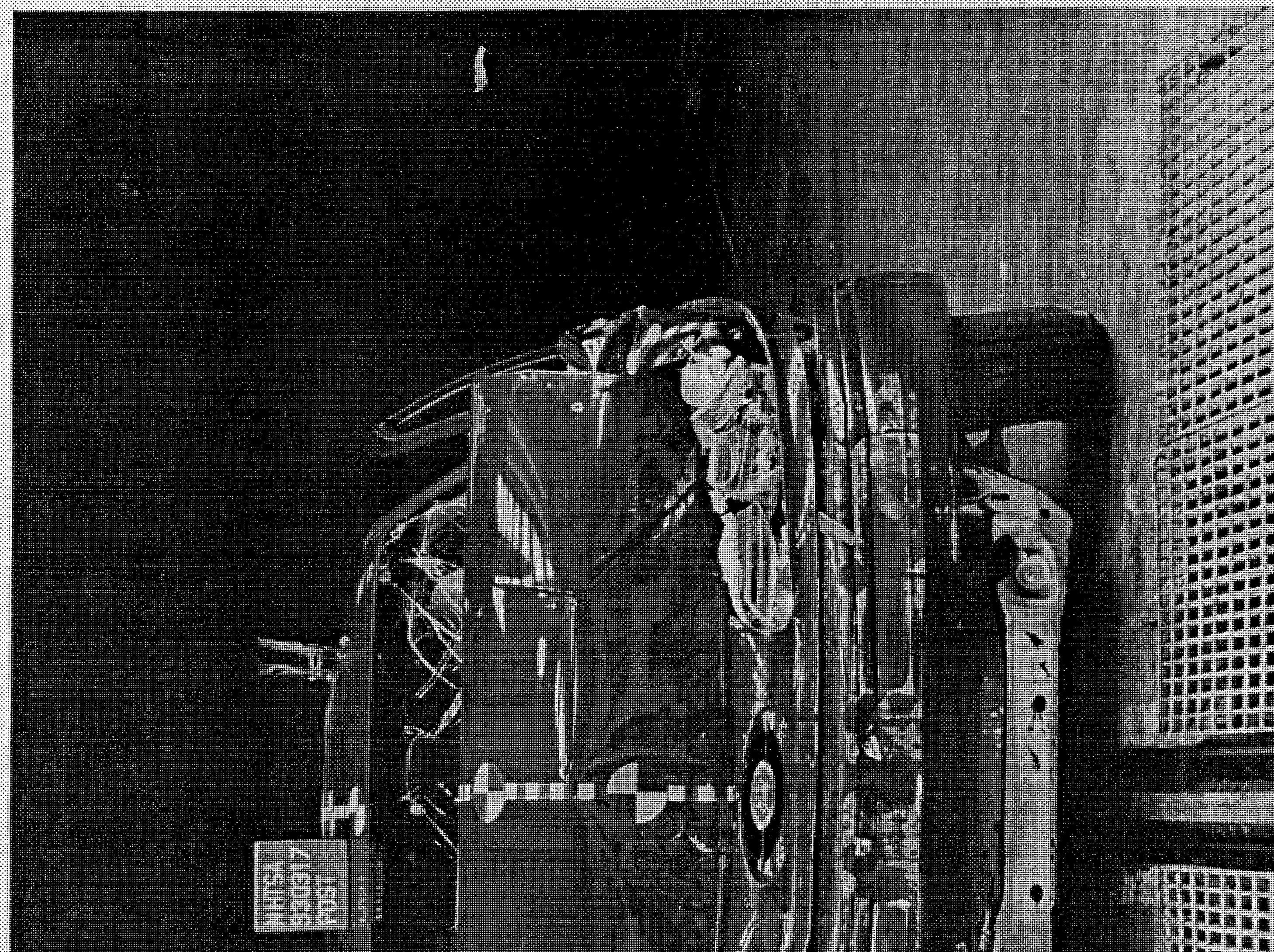


Figure A-2. POST-TEST FRONT VIEW

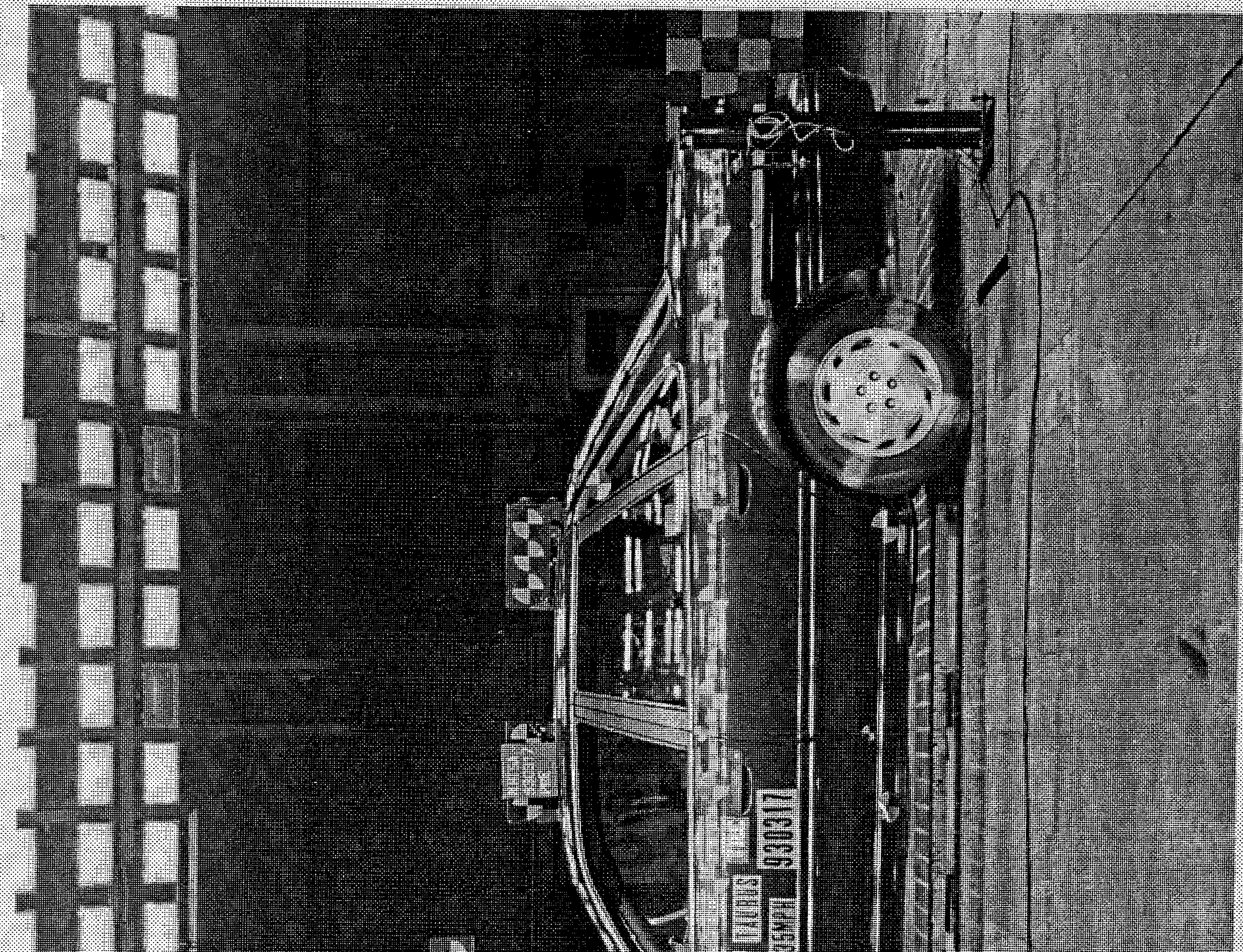


Figure A-3. PRE-TEST LEFT SIDE VIEW

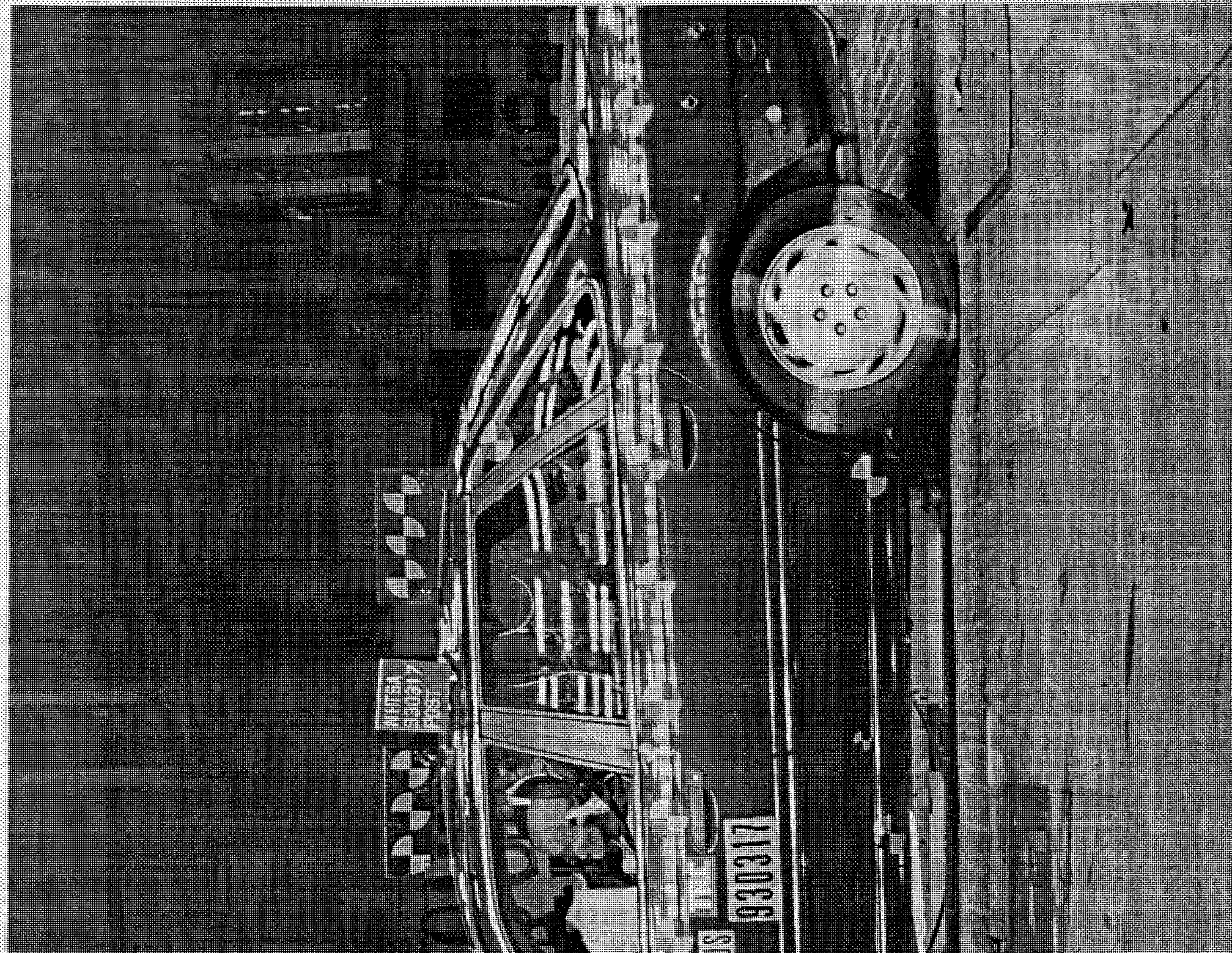


Figure A-4. POST-TEST LEFT SIDE VIEW

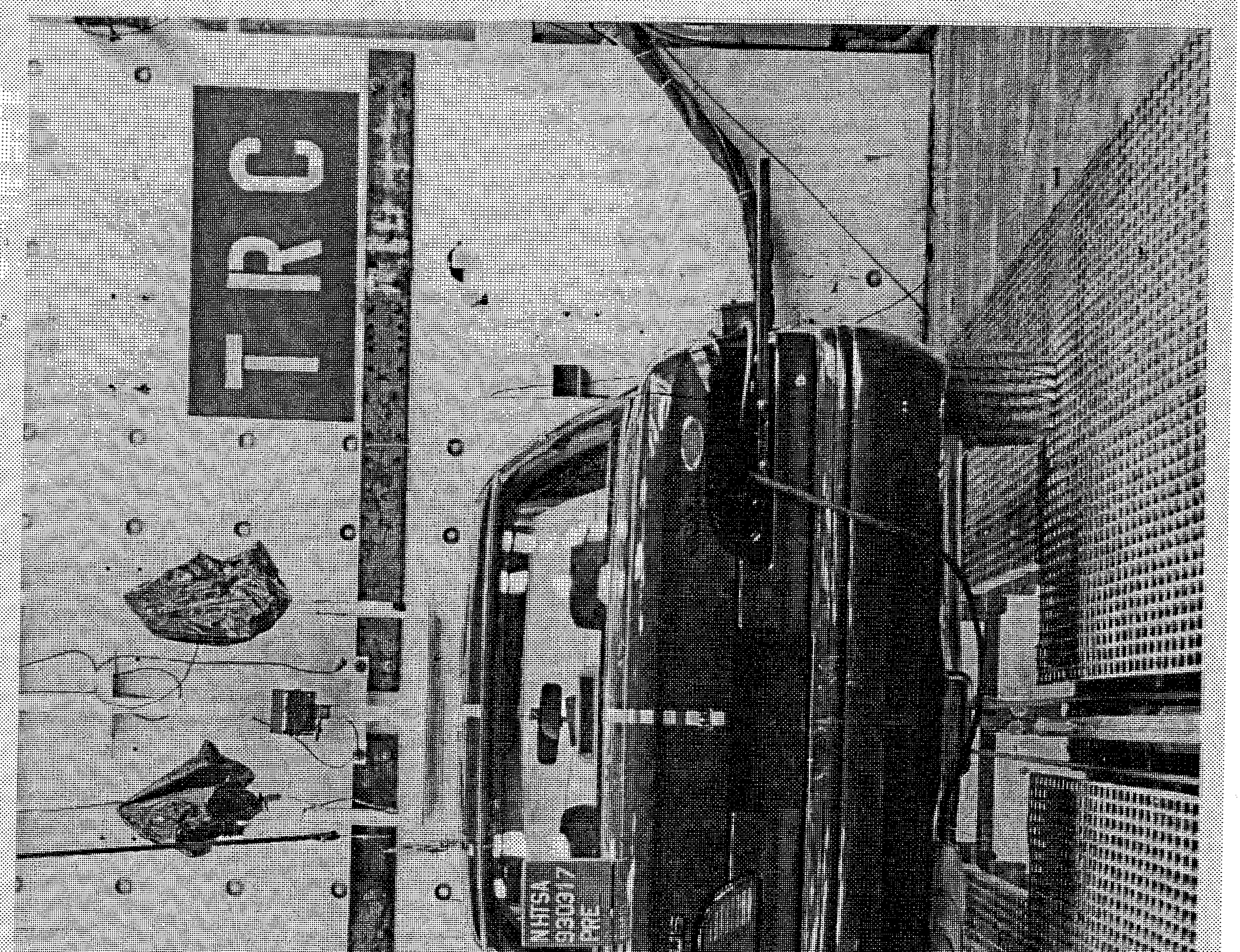


Figure A-5. PRE-TEST REAR VIEW

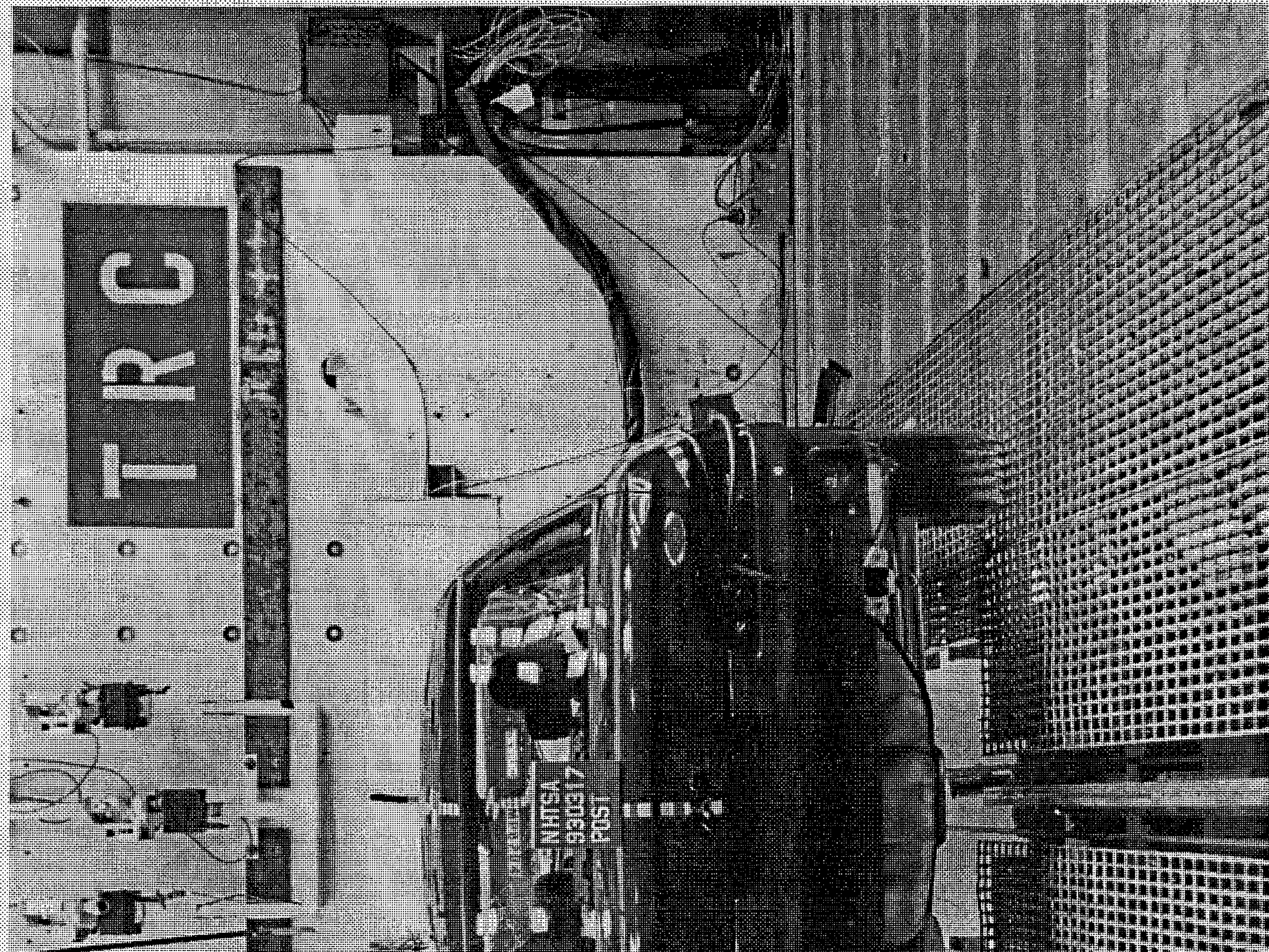


Figure A-6. POST-TEST REAR VIEW

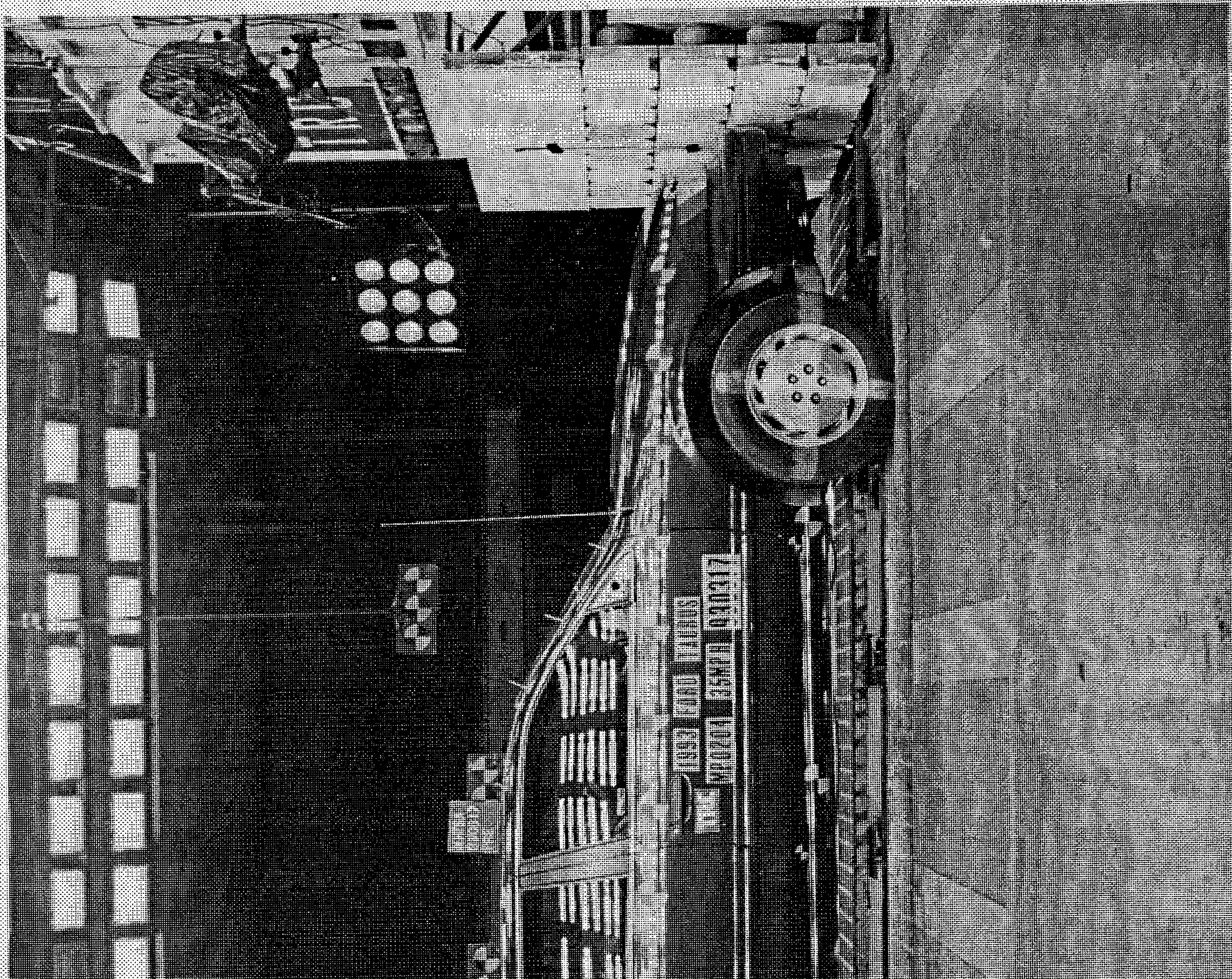


Figure A-7. PRE-TEST RIGHT SIDE VIEW

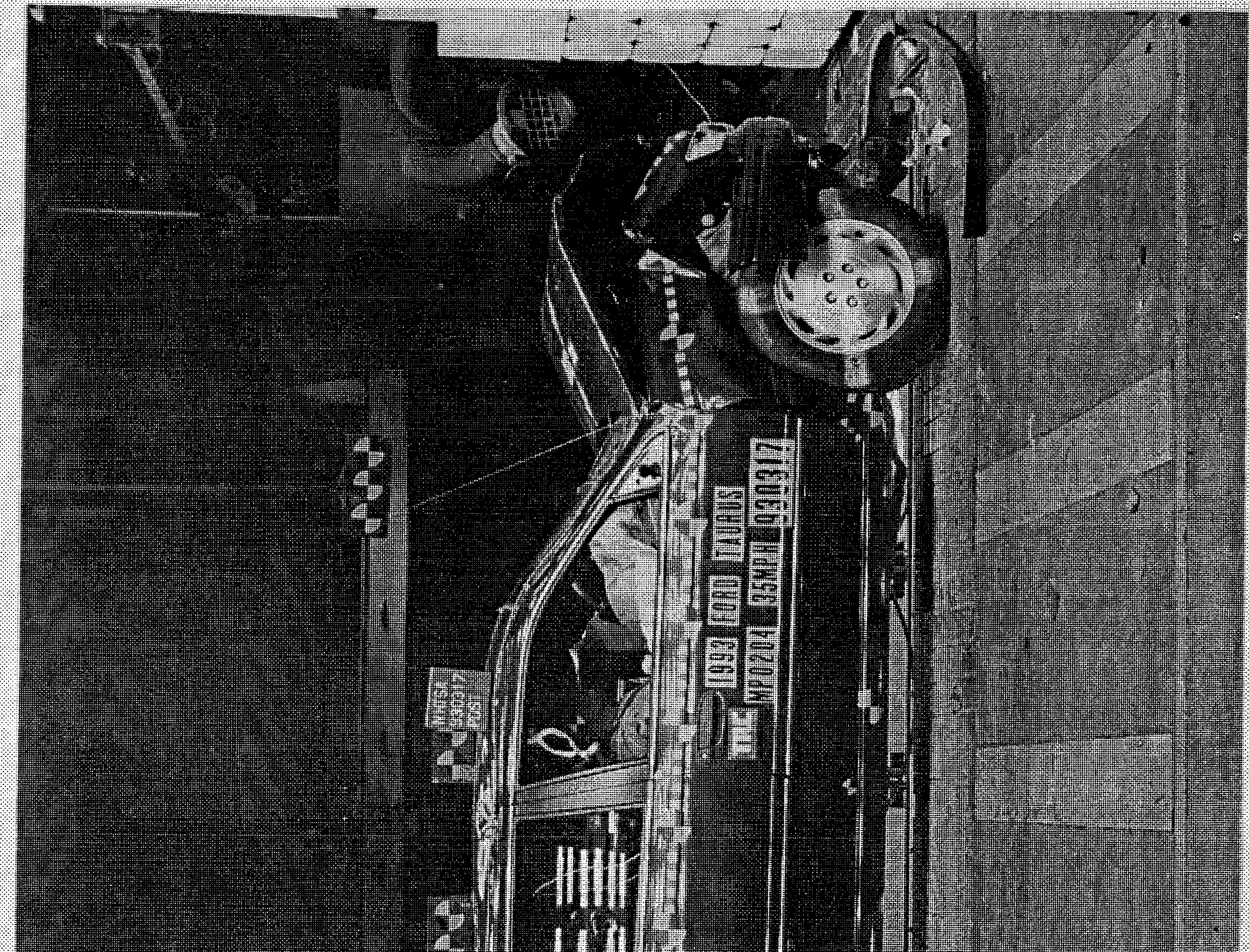


Figure A-8. POST-TEST RIGHT SIDE VIEW

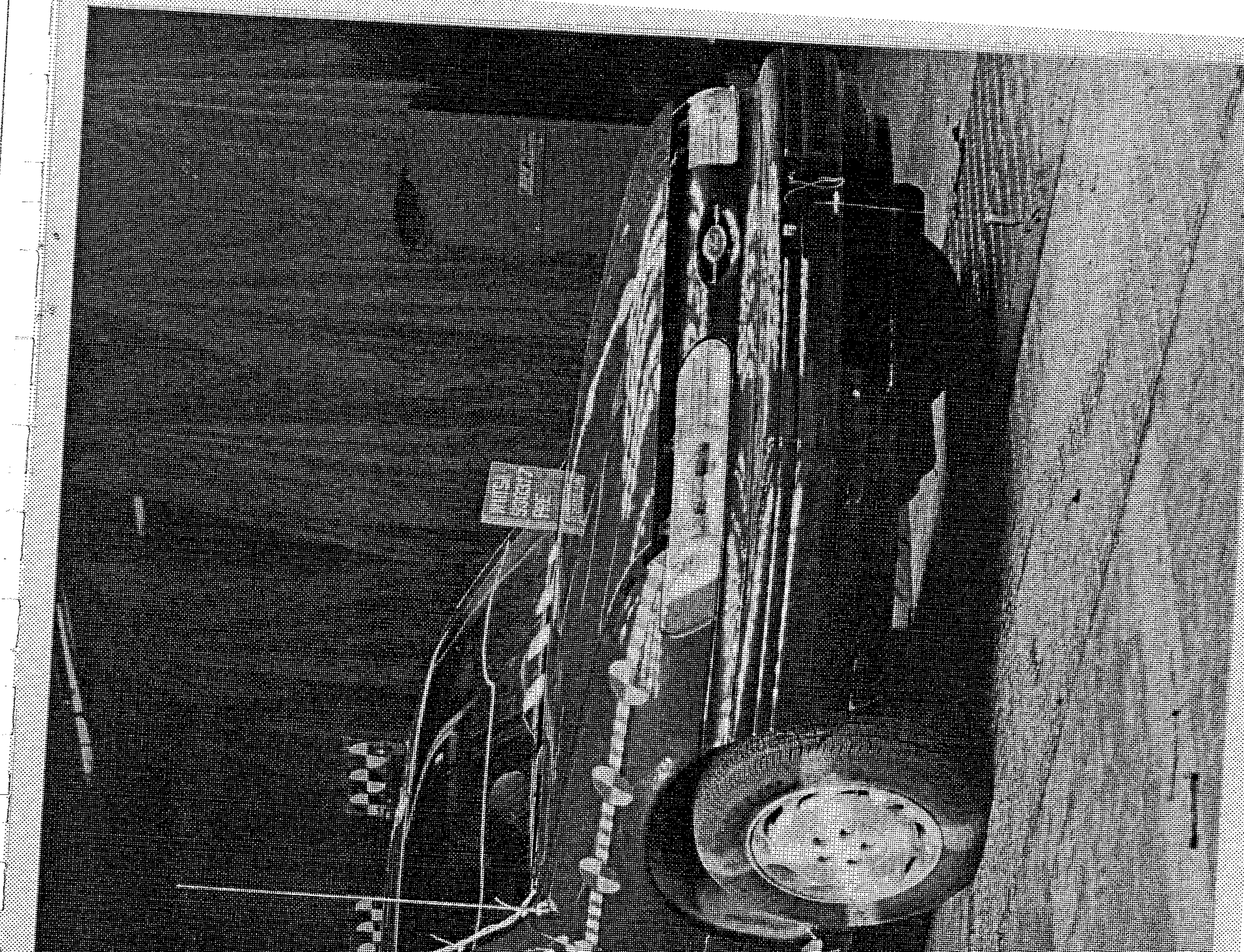


Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

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

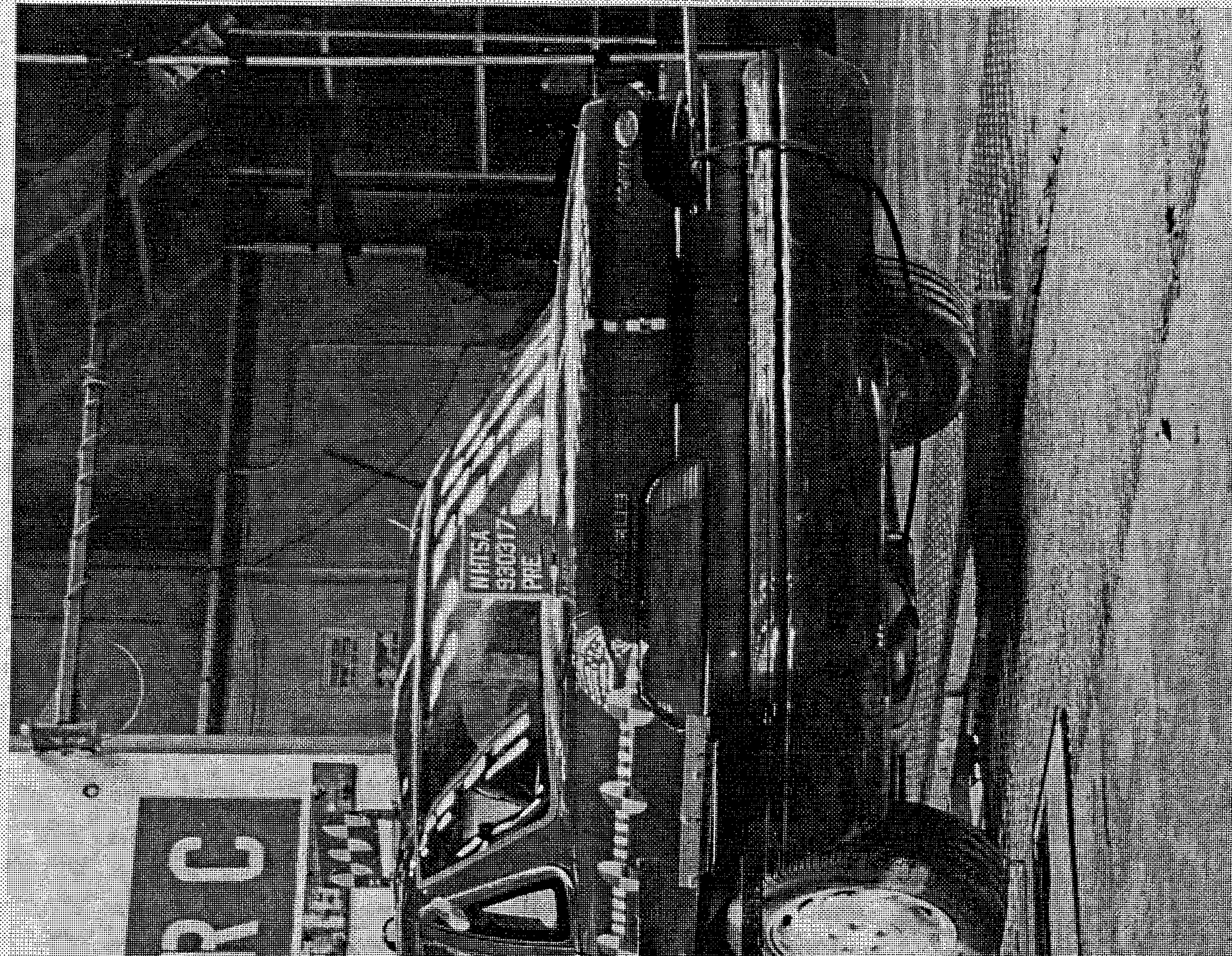


Figure A-11. PRE-TEST LEFT REAR THREE-QUARTER VIEW

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

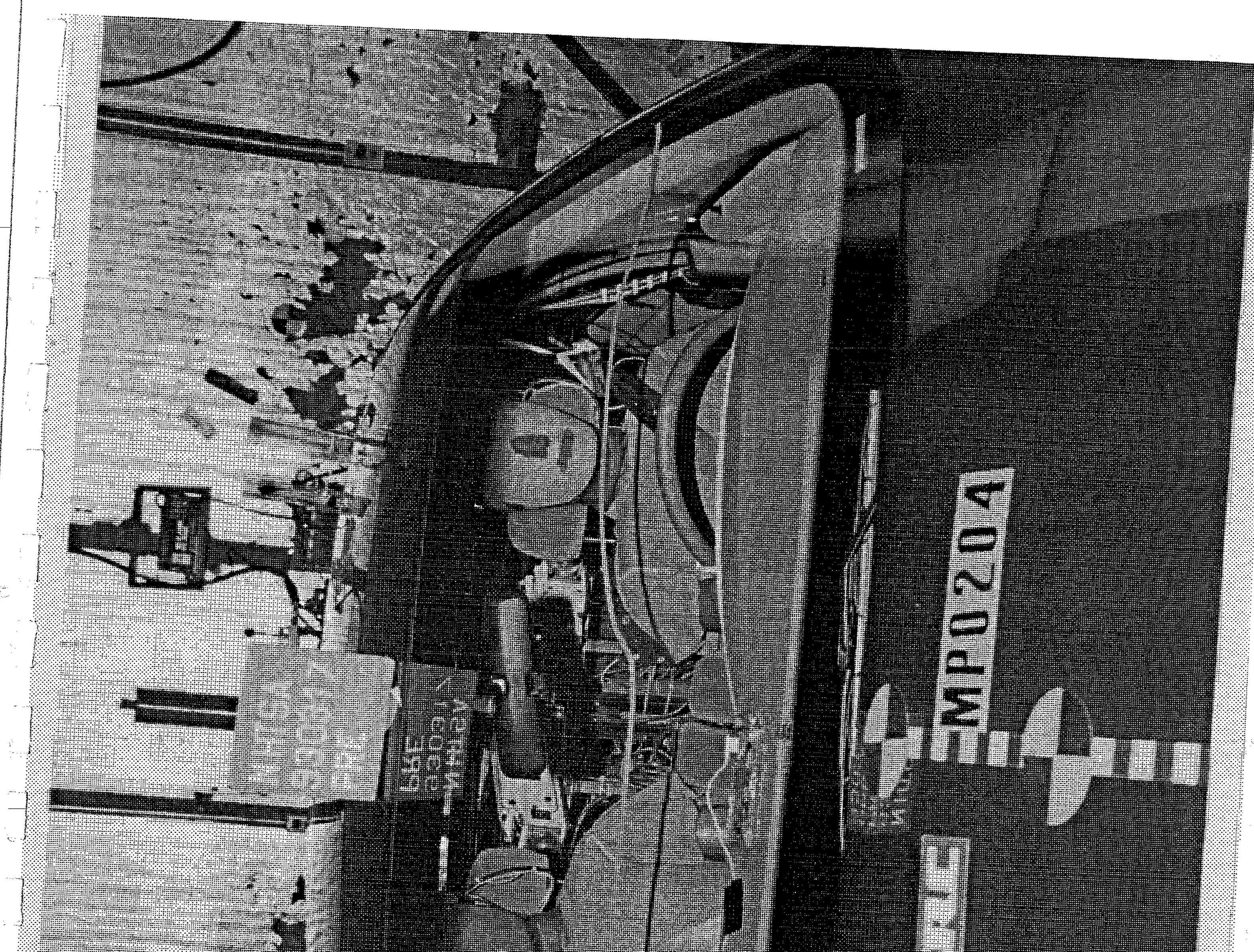


Figure A-13. PRE-TEST WINDSHIELD VIEW

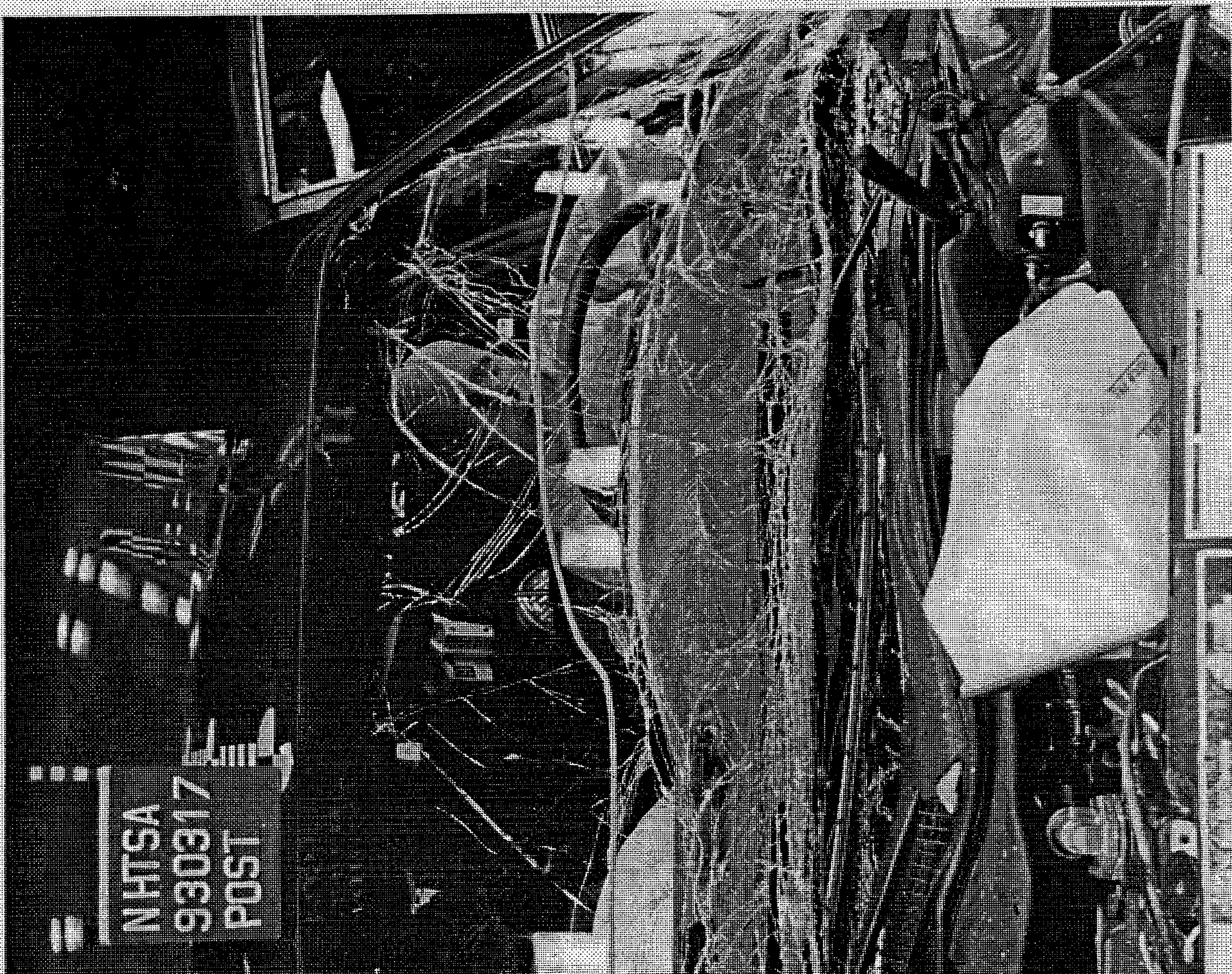


Figure A-14. POST-TEST WINDSHIELD VIEW

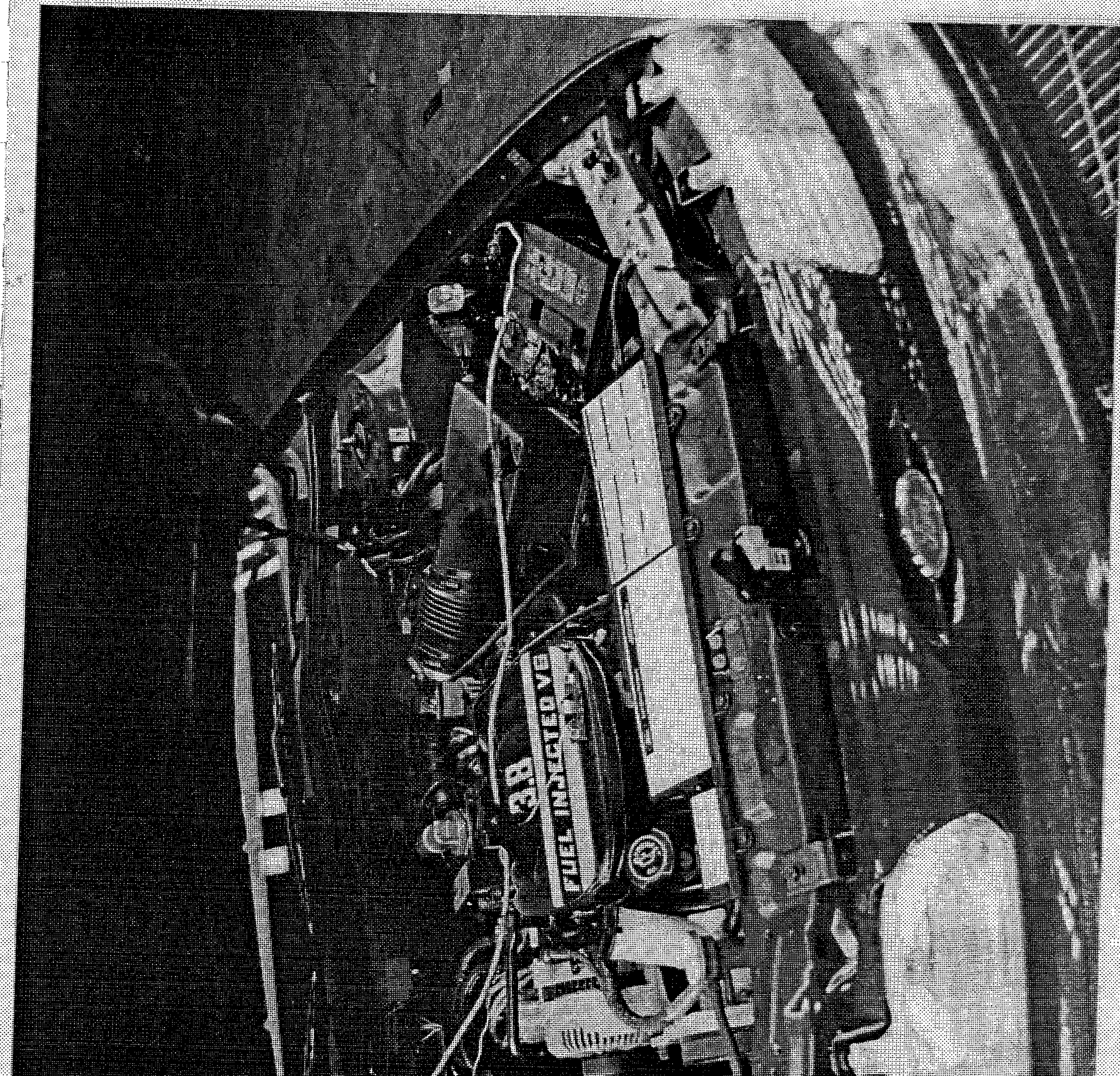


Figure A-15. PRE-TEST ENGINE COMPARTMENT VIEW

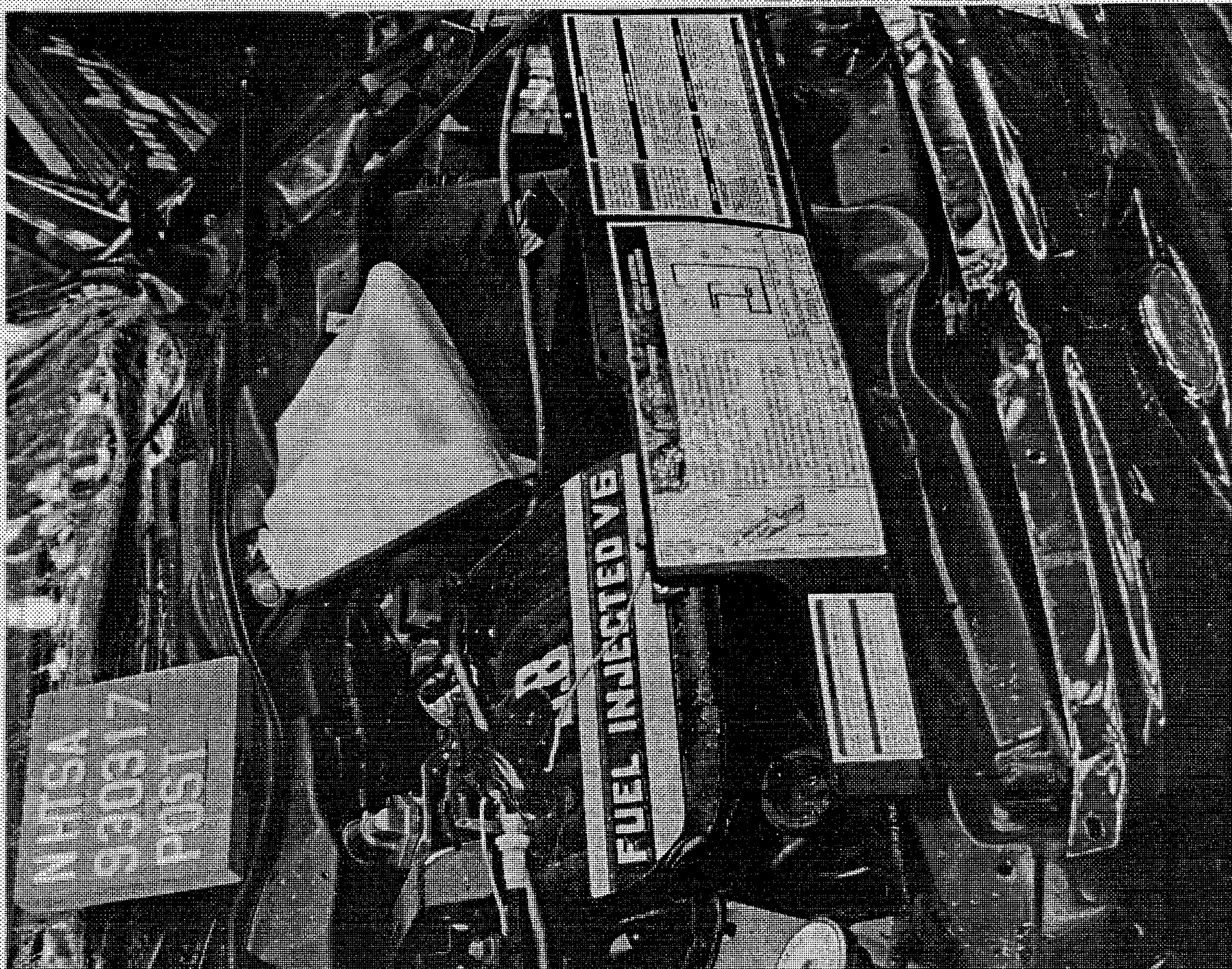


Figure A-16. POST-TEST ENGINE COMPARTMENT VIEW

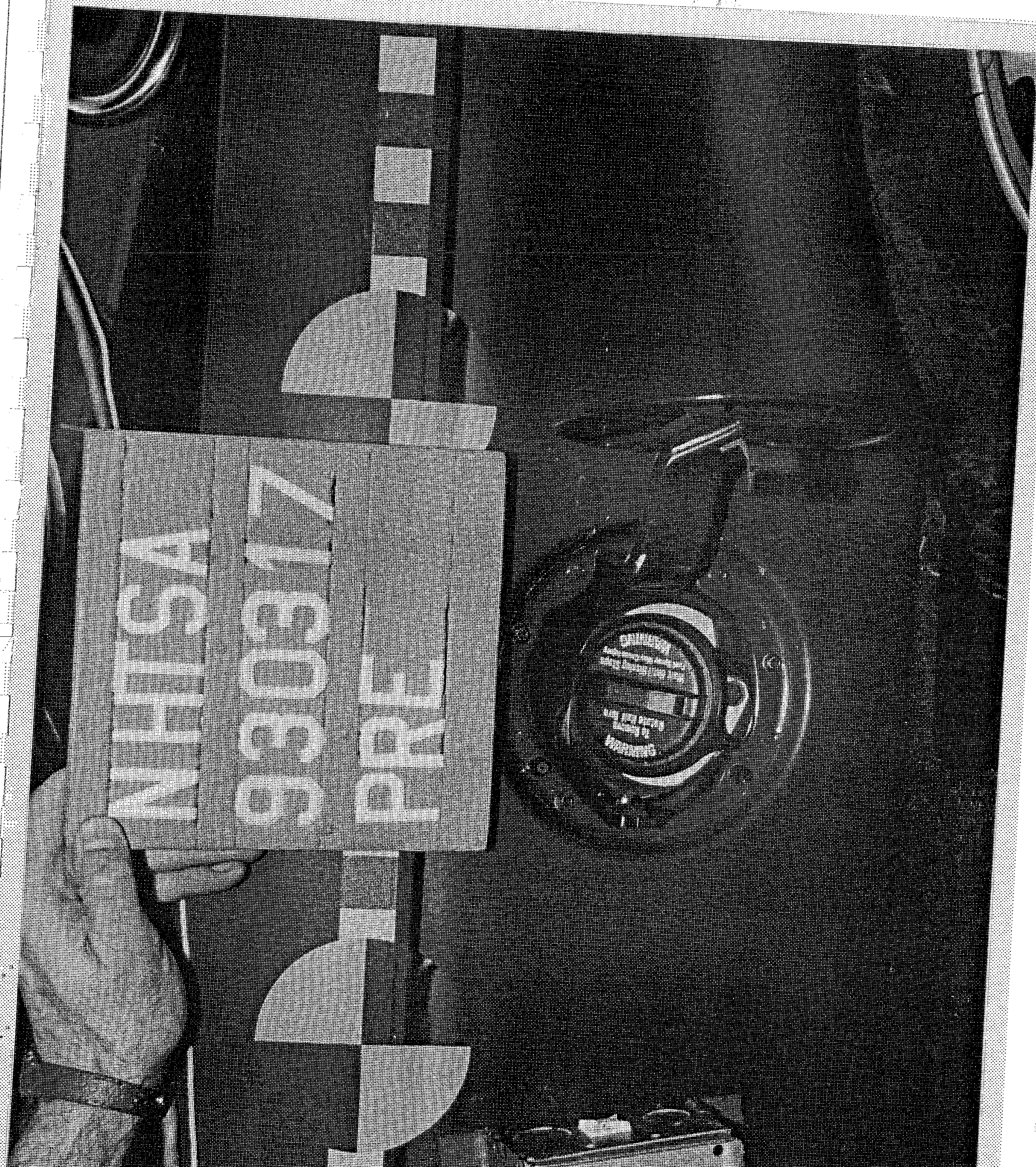


Figure A-17. PRE-TEST FUEL FILLER CAP VIEW

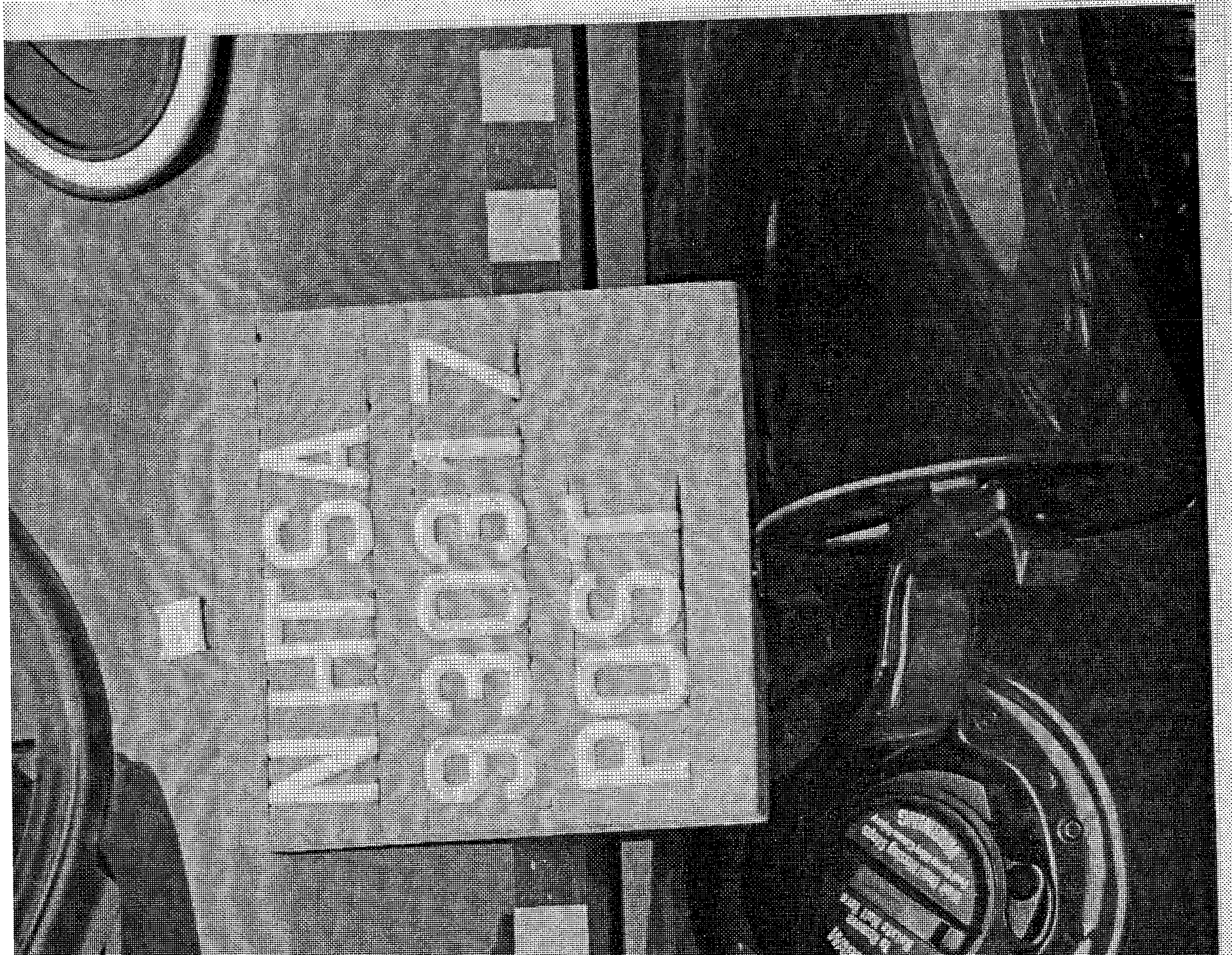


Figure A-18. POST-TEST FUEL FILLER CAP VIEW

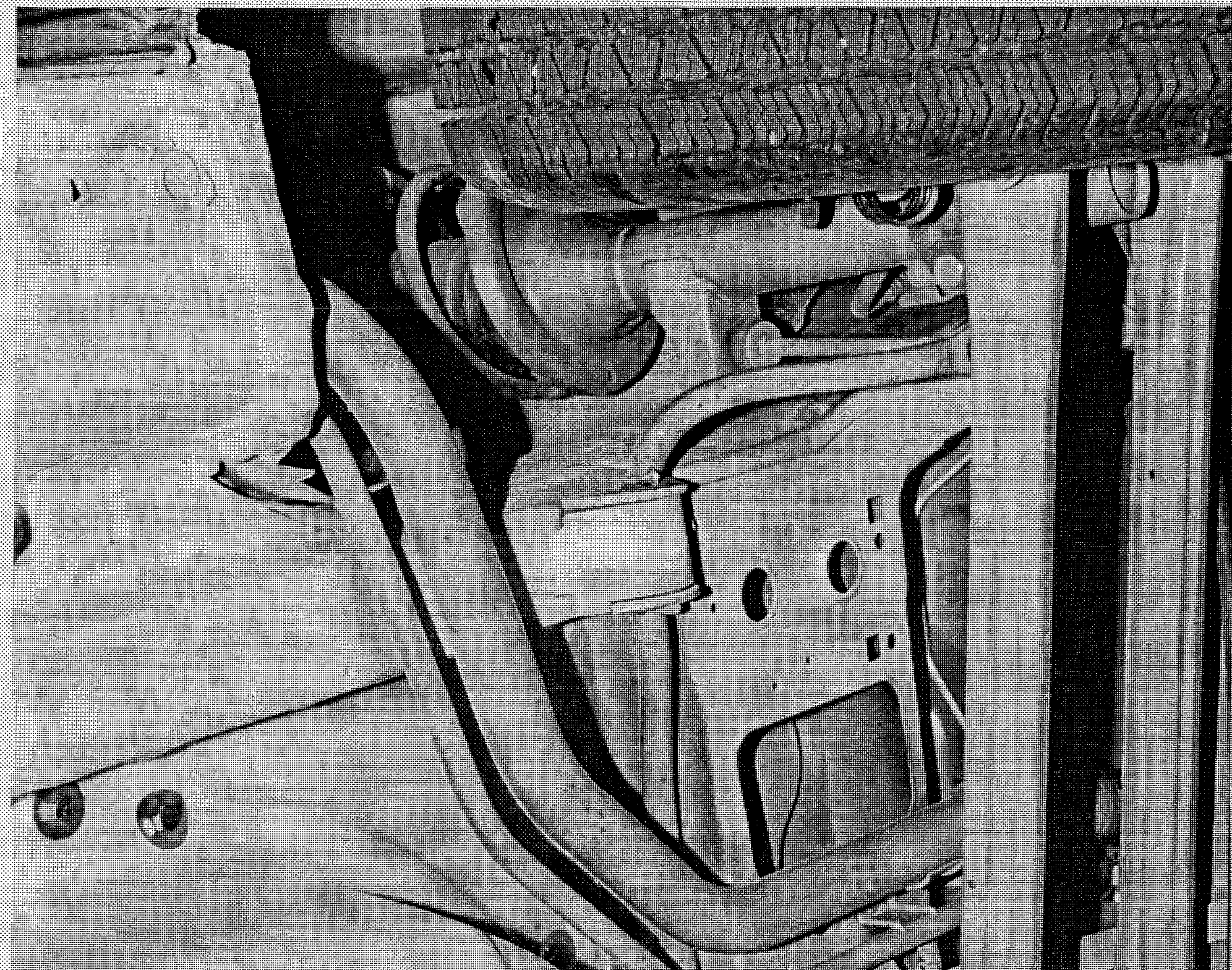


Figure A-19. PRE-TEST FUEL FILLER NECK VIEW

Figure A-20. PRE-TEST FUEL TANK VIEW

Figure A-21. POST-TEST FUEL TANK VIEW

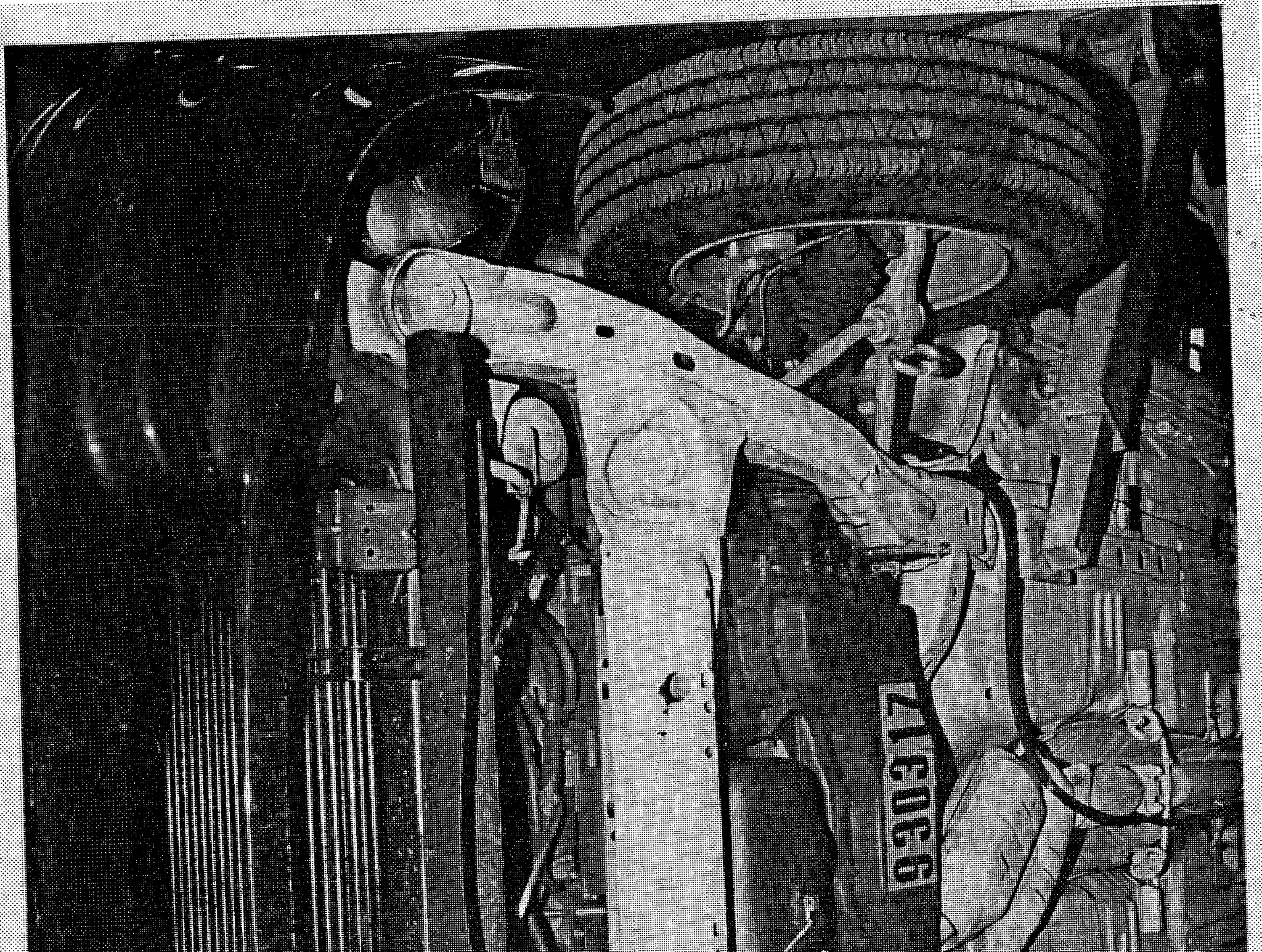


Figure A-22. PRE-TEST FRONT UNDERBODY VIEW

Figure A-23. POST-TEST FRONT UNDERBODY VIEW

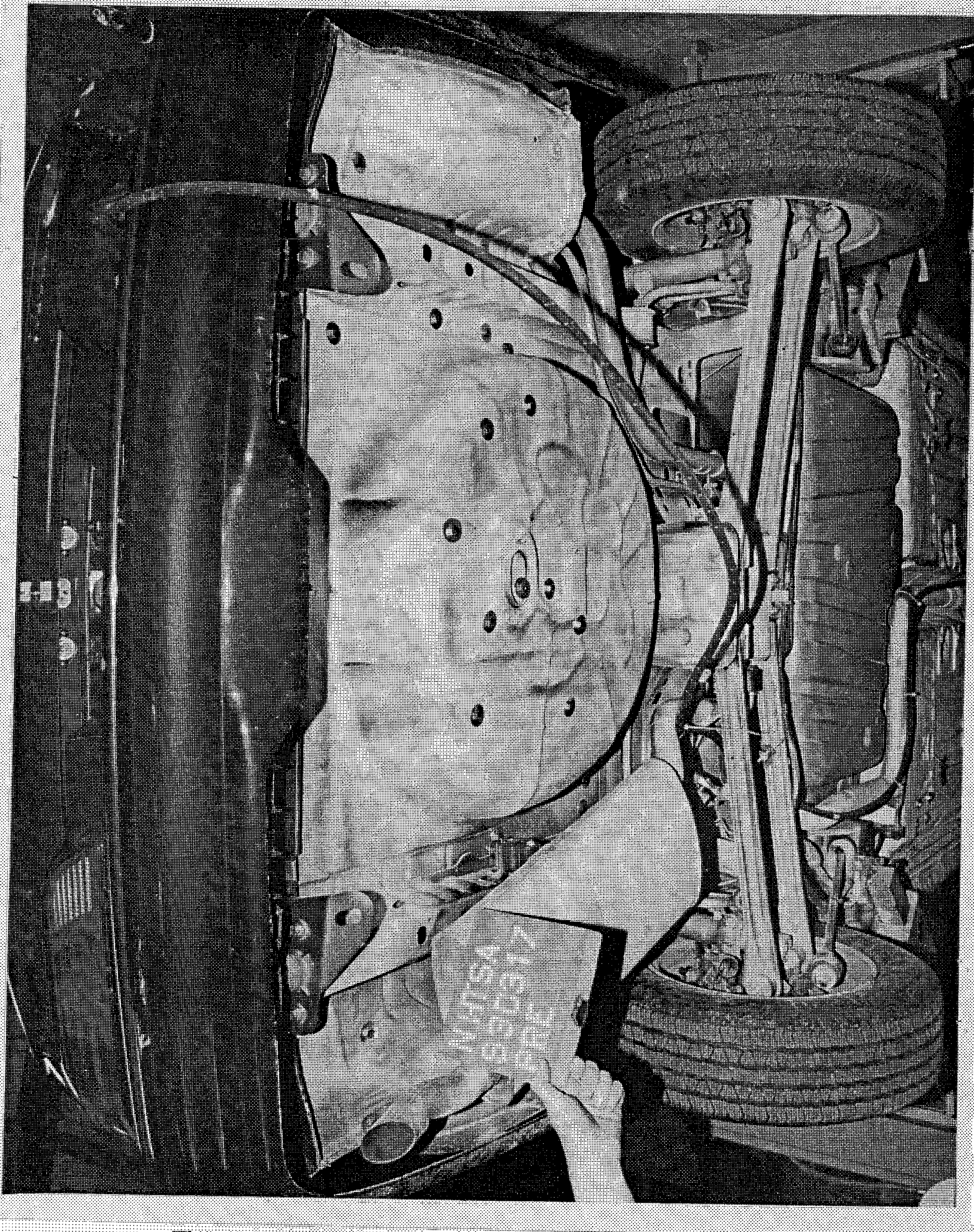


Figure A-24. PRE-TEST REAR UNDERBODY VIEW

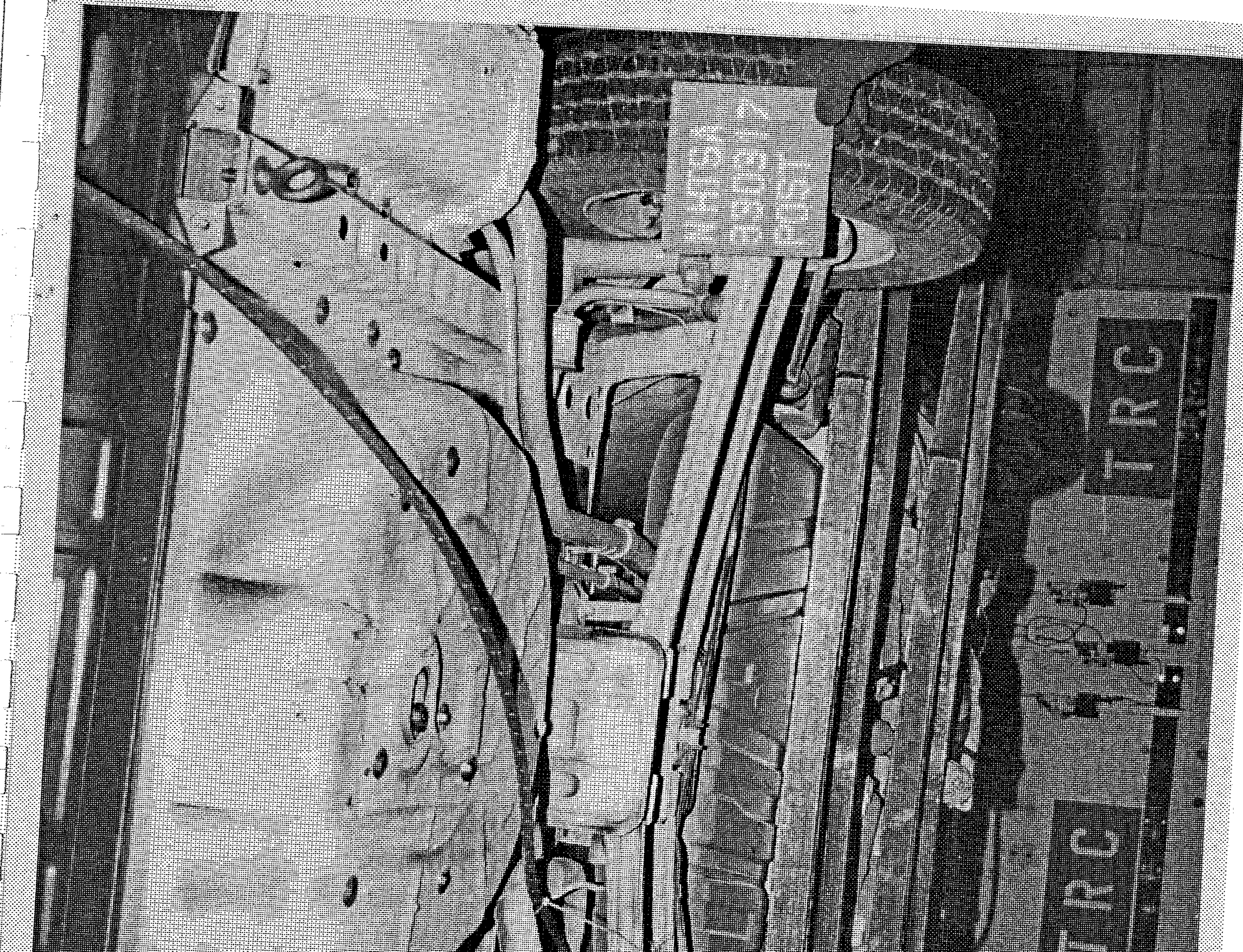


Figure A-25. POST-TEST REAR UNDERBODY VIEW

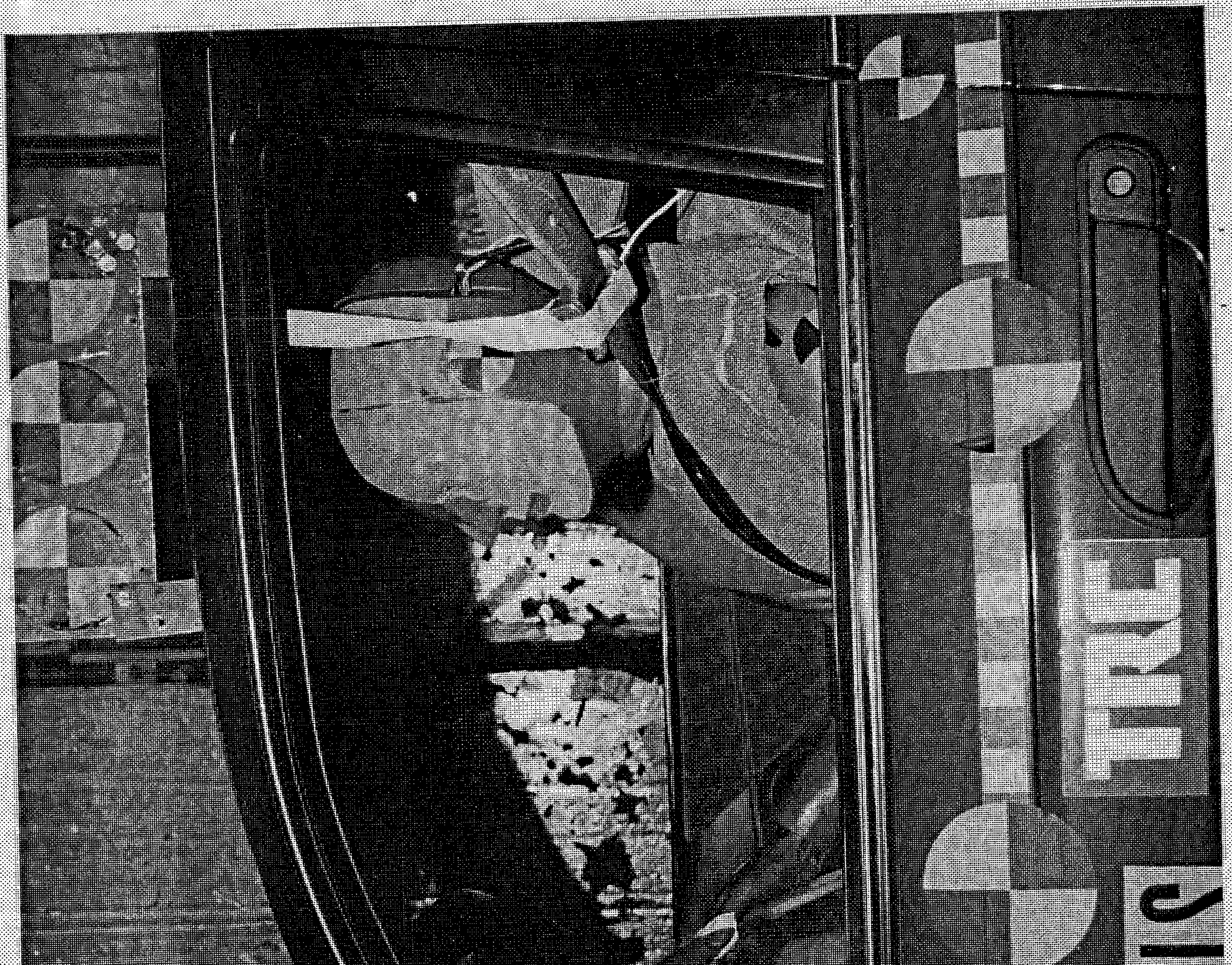


Figure A-26. PRE-TEST DRIVER DUMMY POSITION VIEW

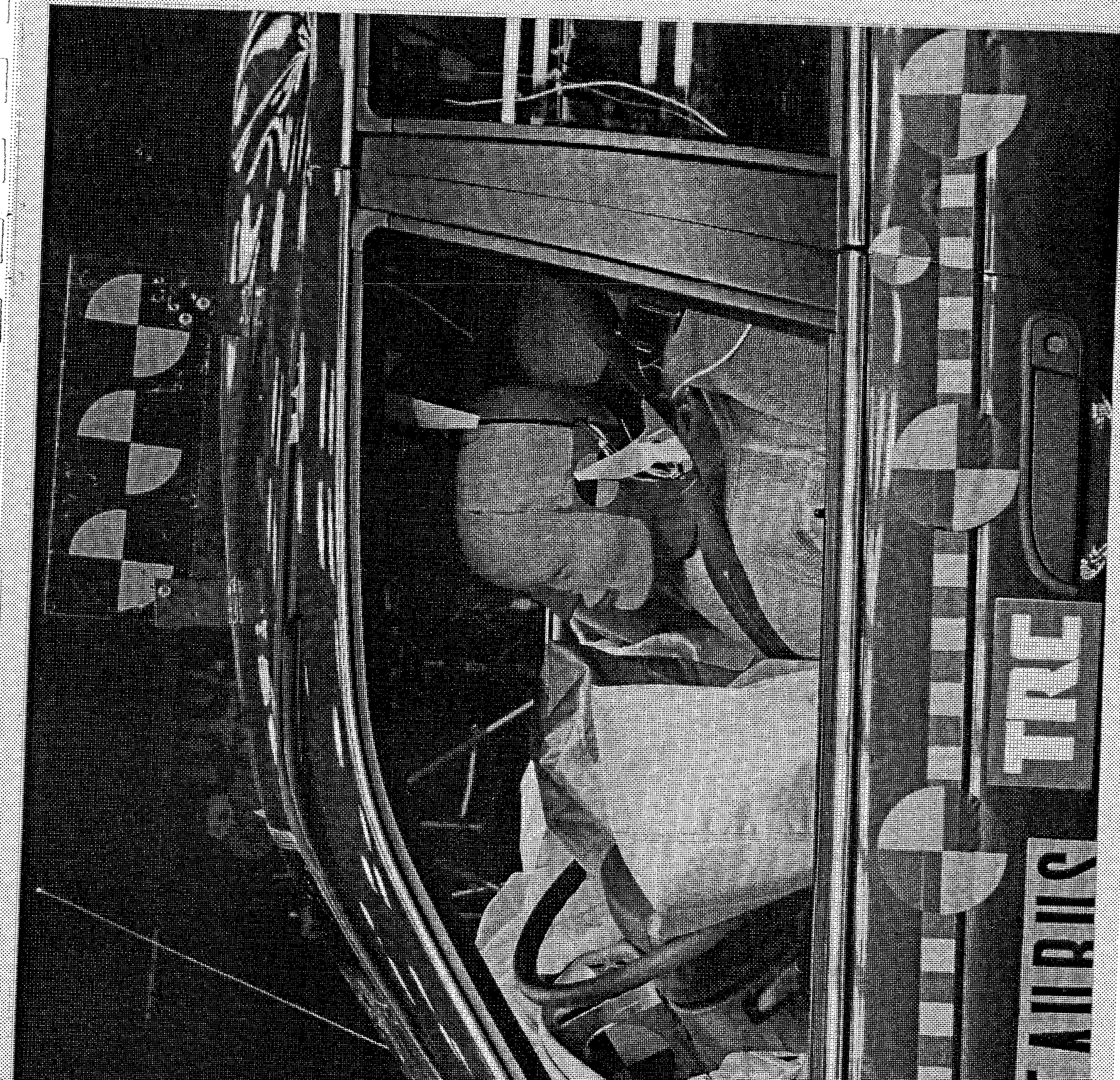


Figure A-27. POST-TEST DRIVER DUMMY POSITION VIEW

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
930317

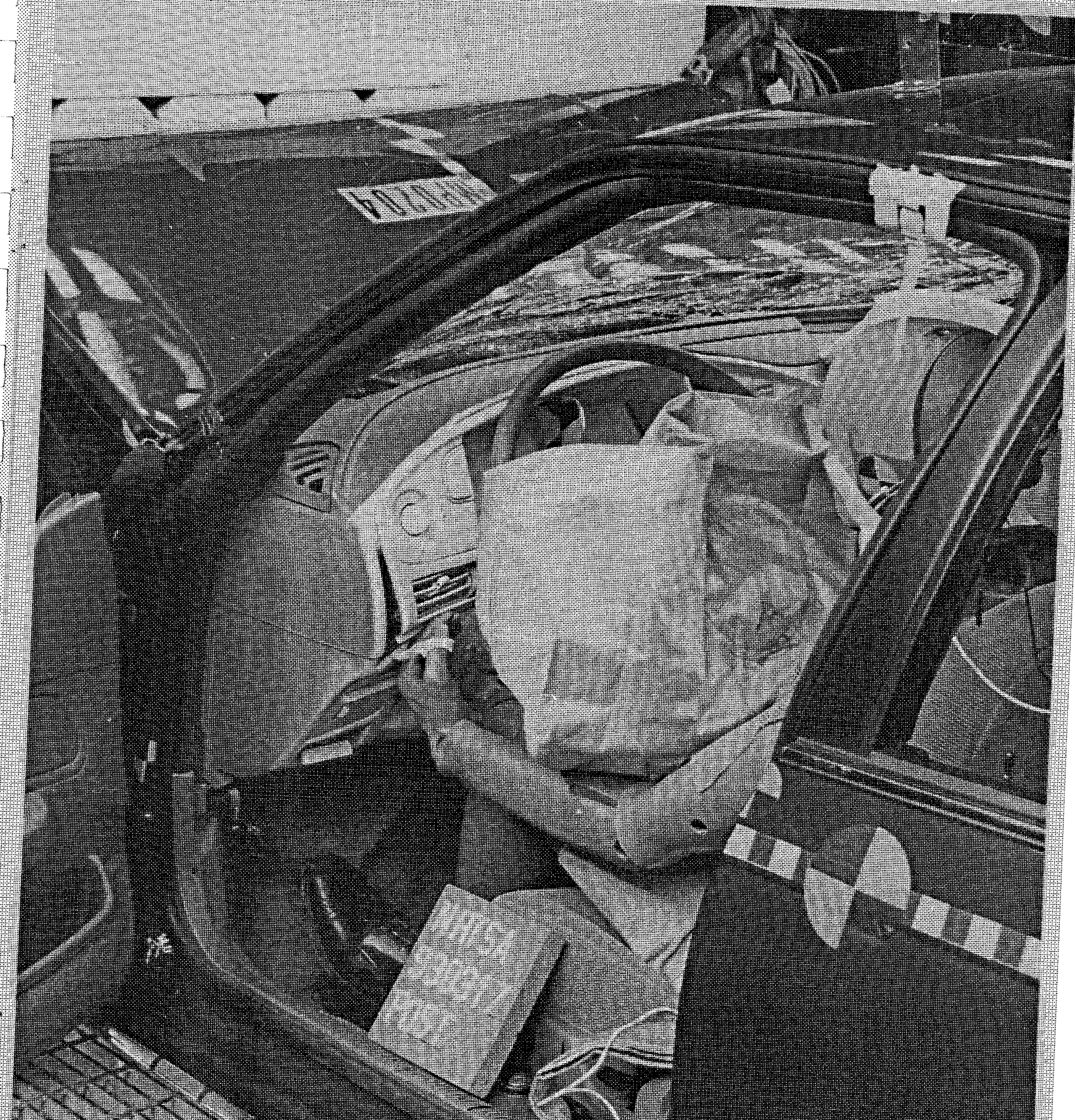


Figure A-31. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

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

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

930317

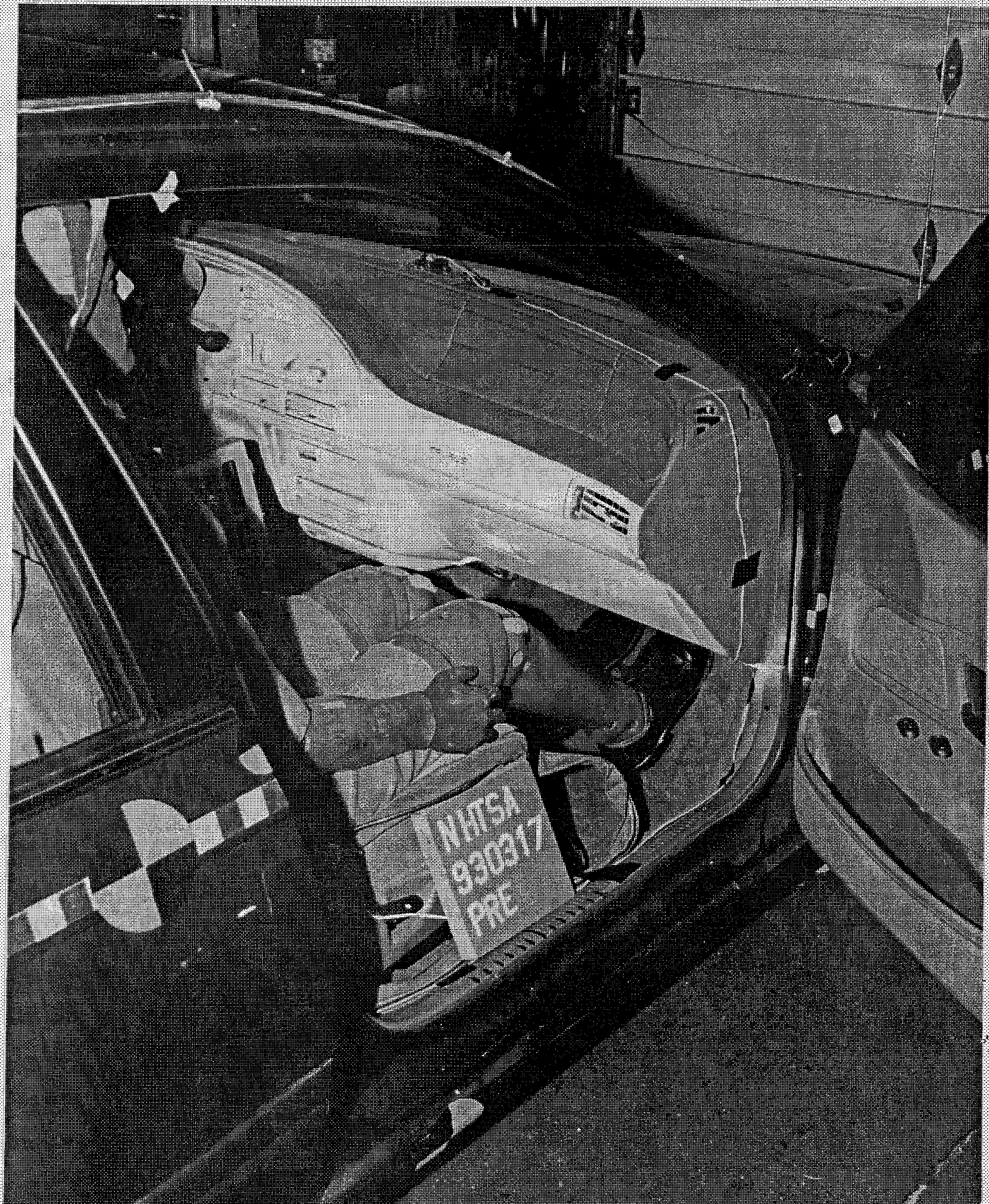


Figure A-34. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

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

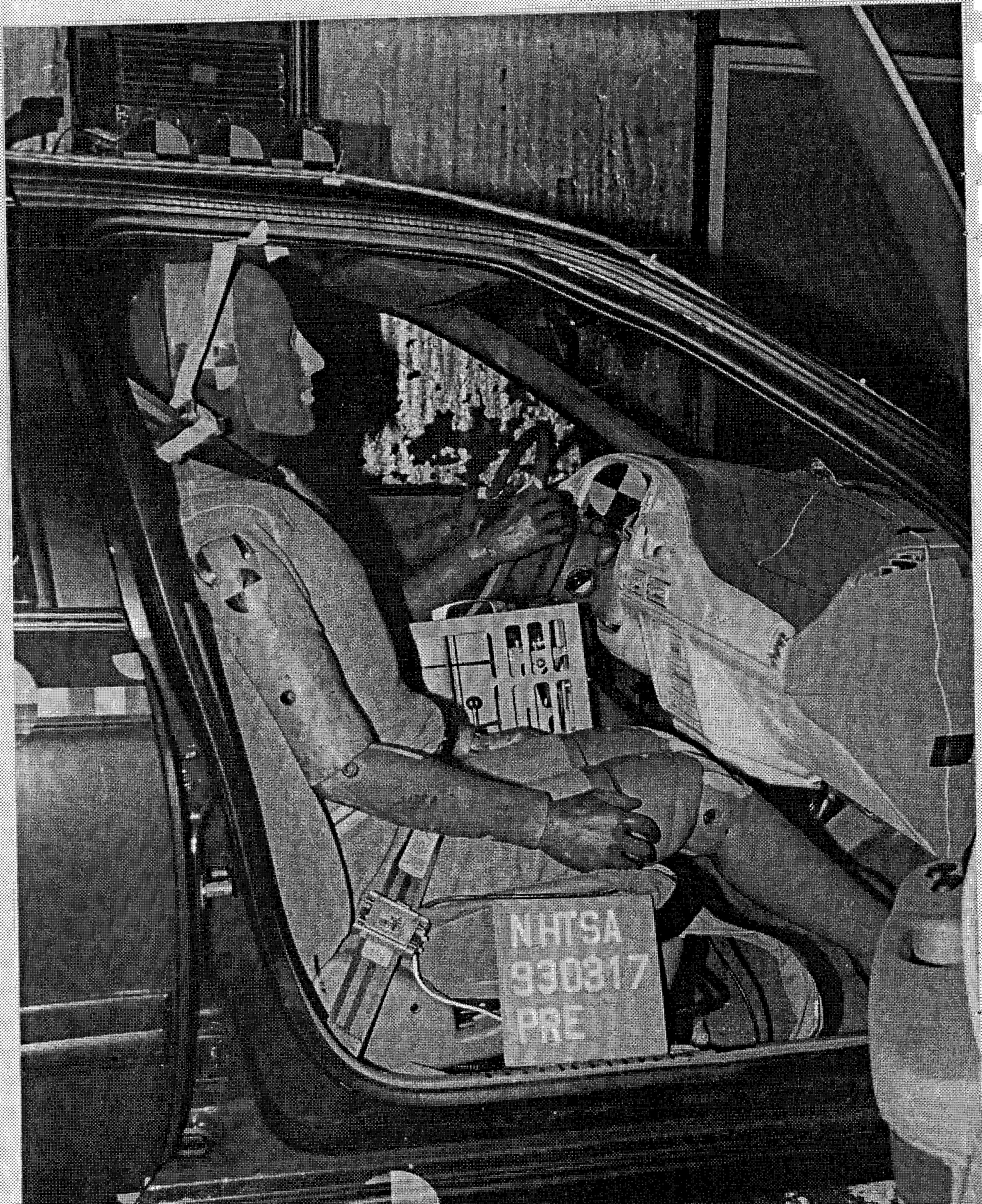


Figure A-36. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

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

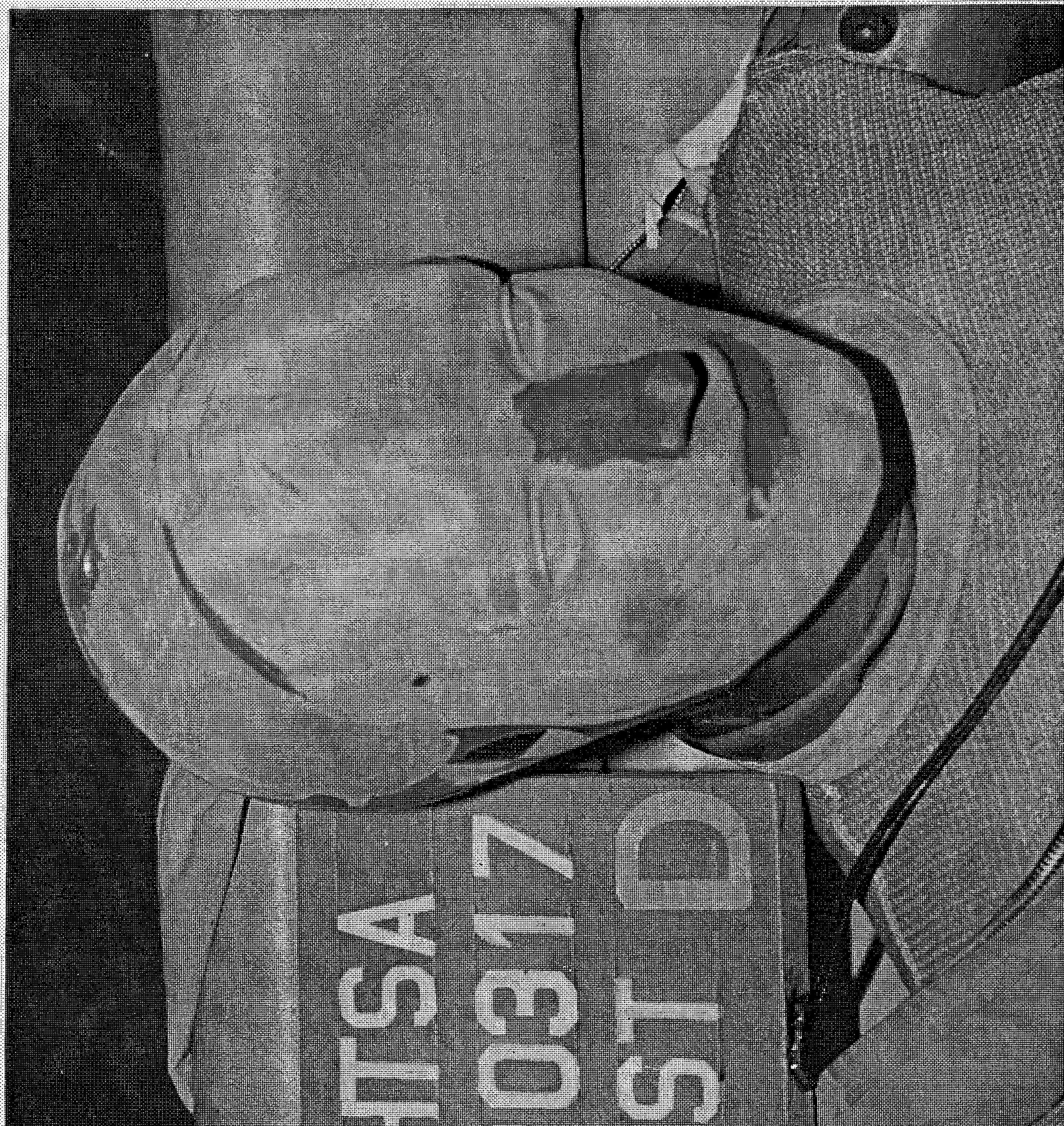


Figure A-38. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1

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

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

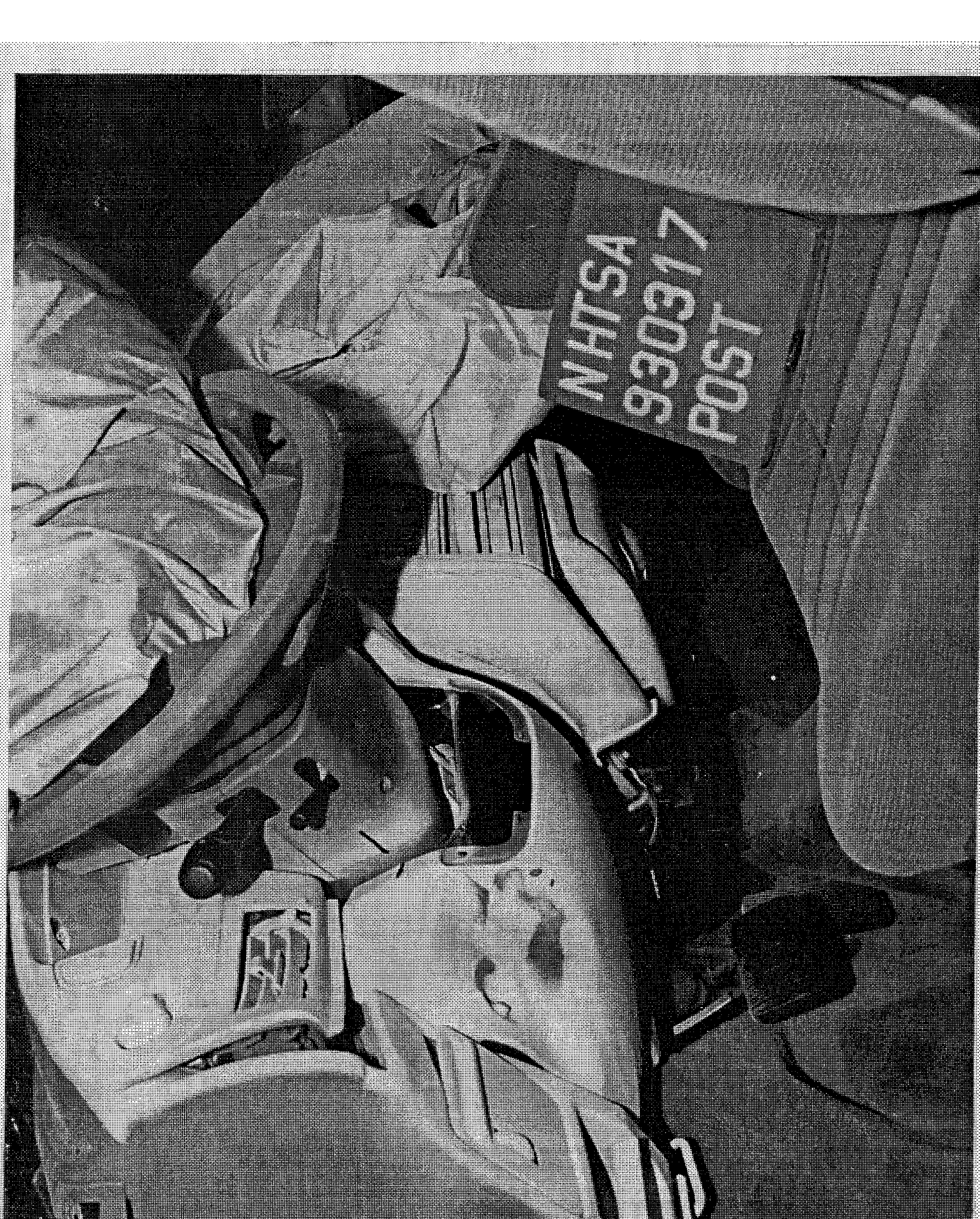


Figure A-41. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2

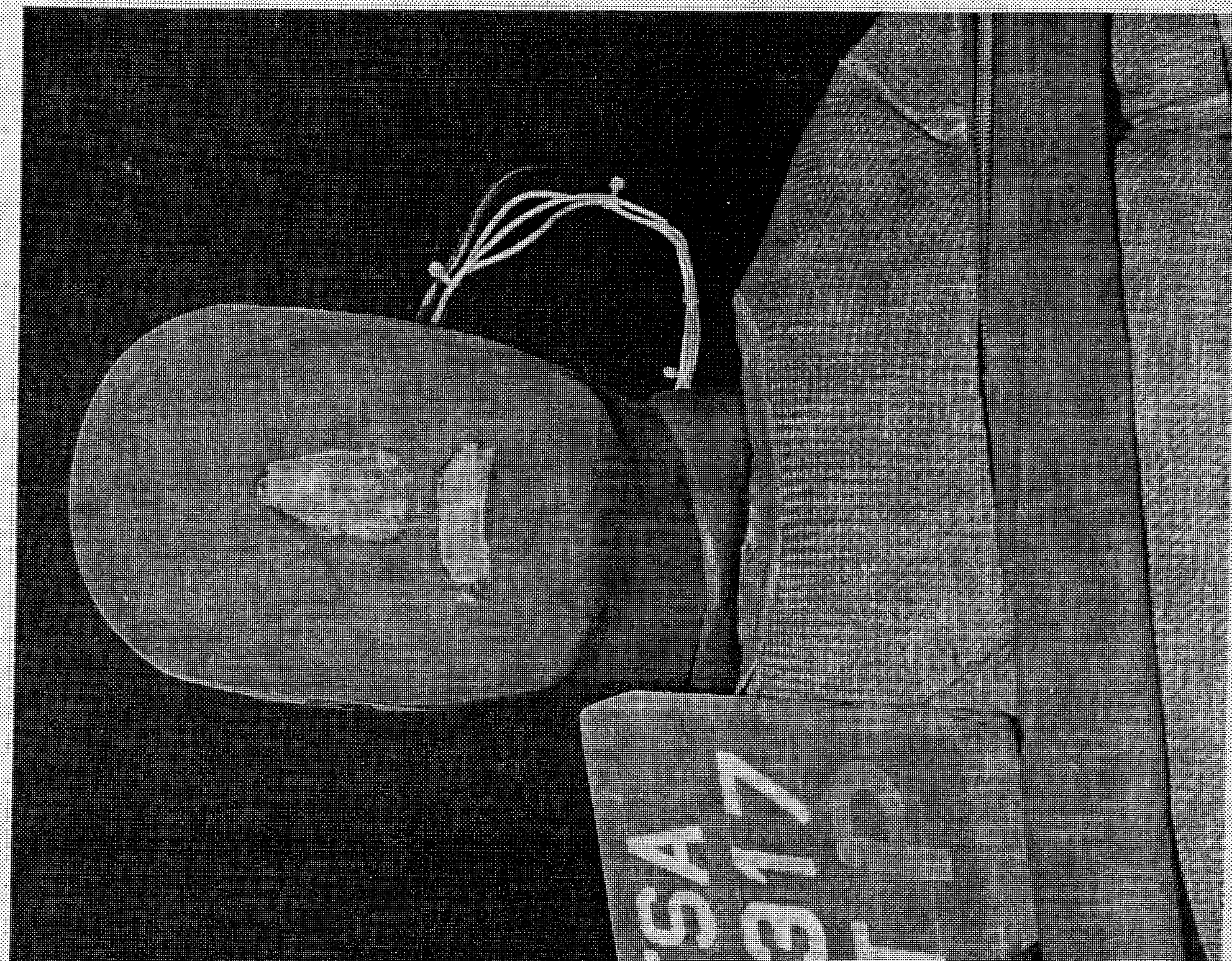


Figure A-42. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 1

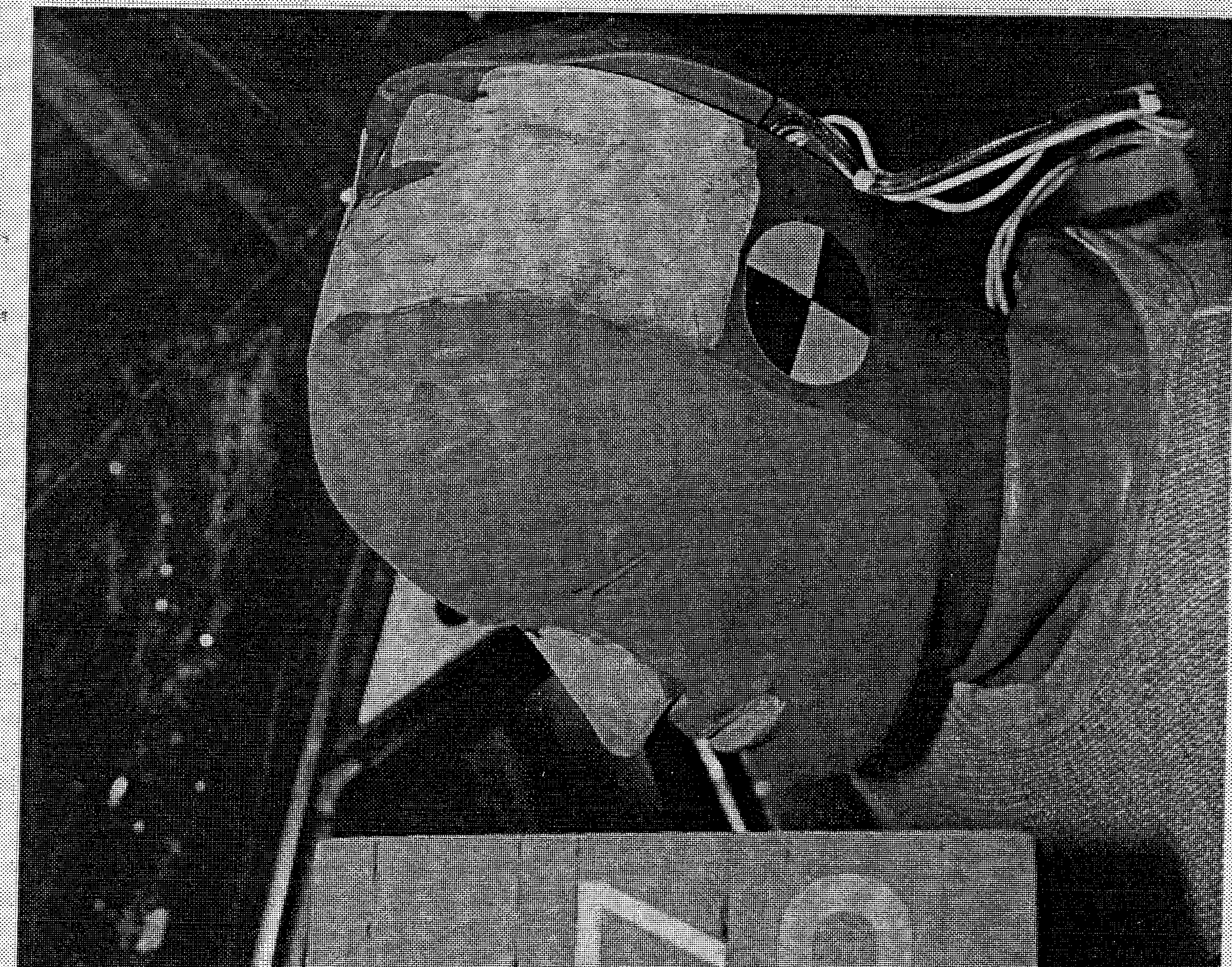


Figure A-43. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 2

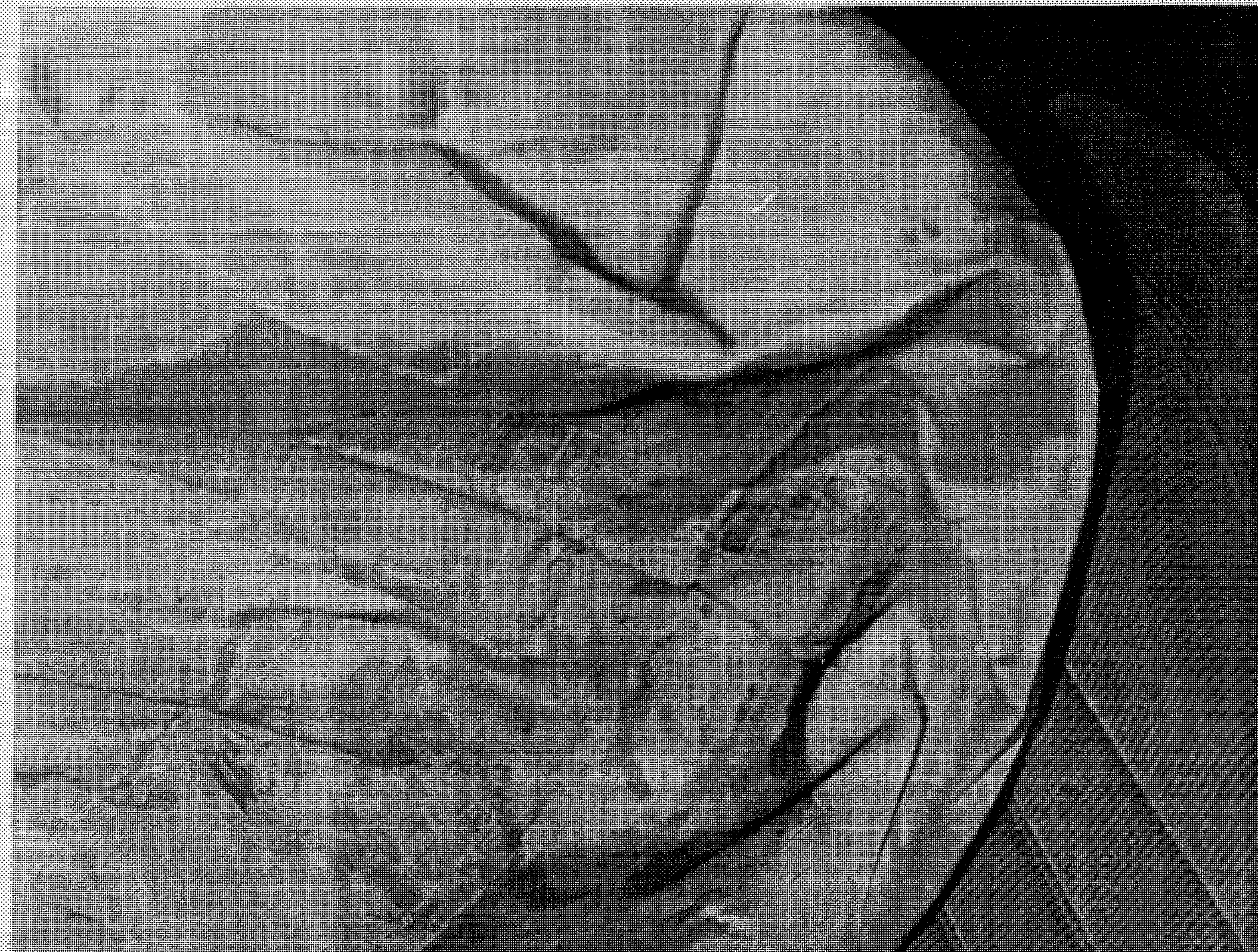


Figure A-44. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 3

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

930317

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

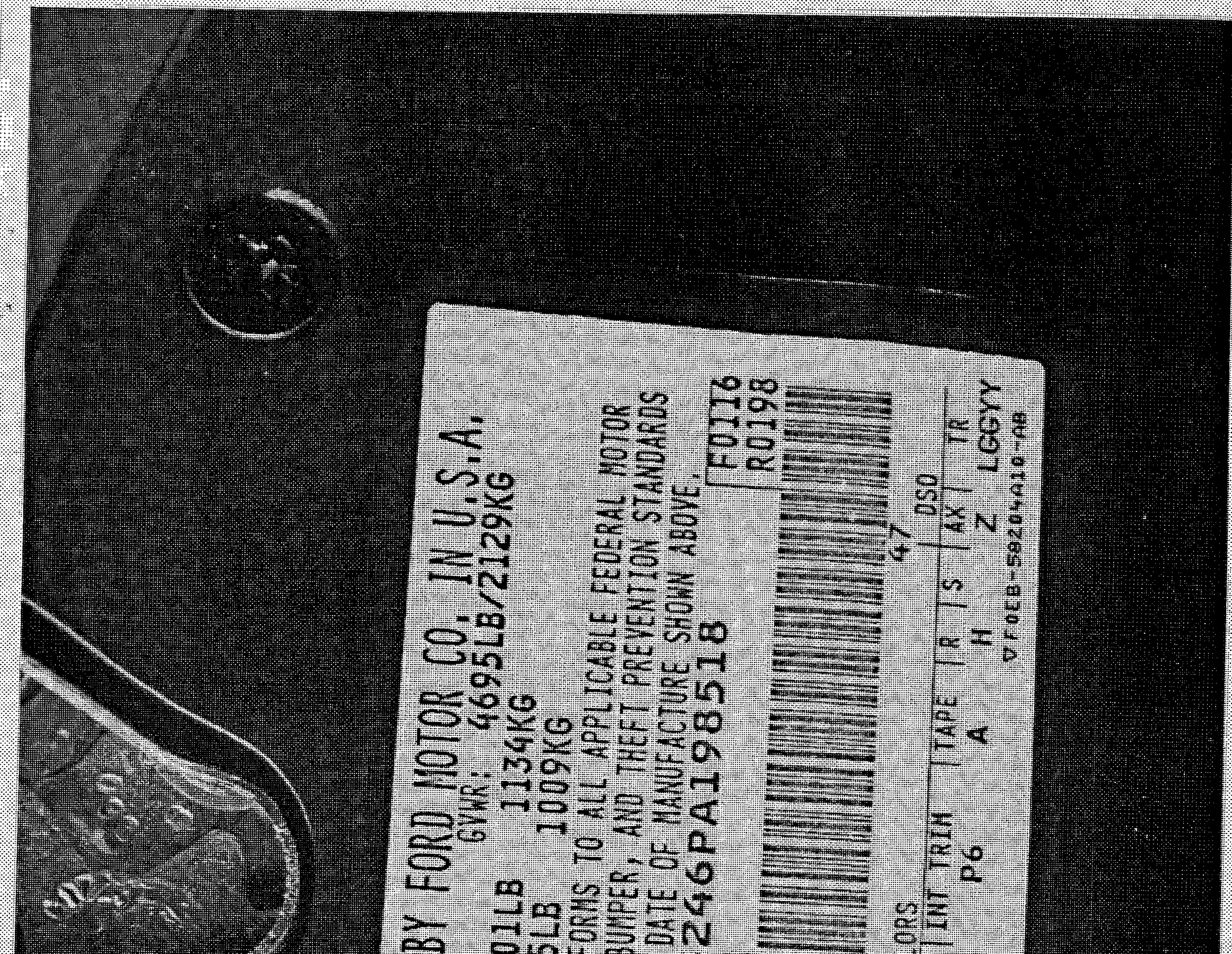


Figure A-47. PRE-TEST VEHICLE CERTIFICATION LABEL VIEW

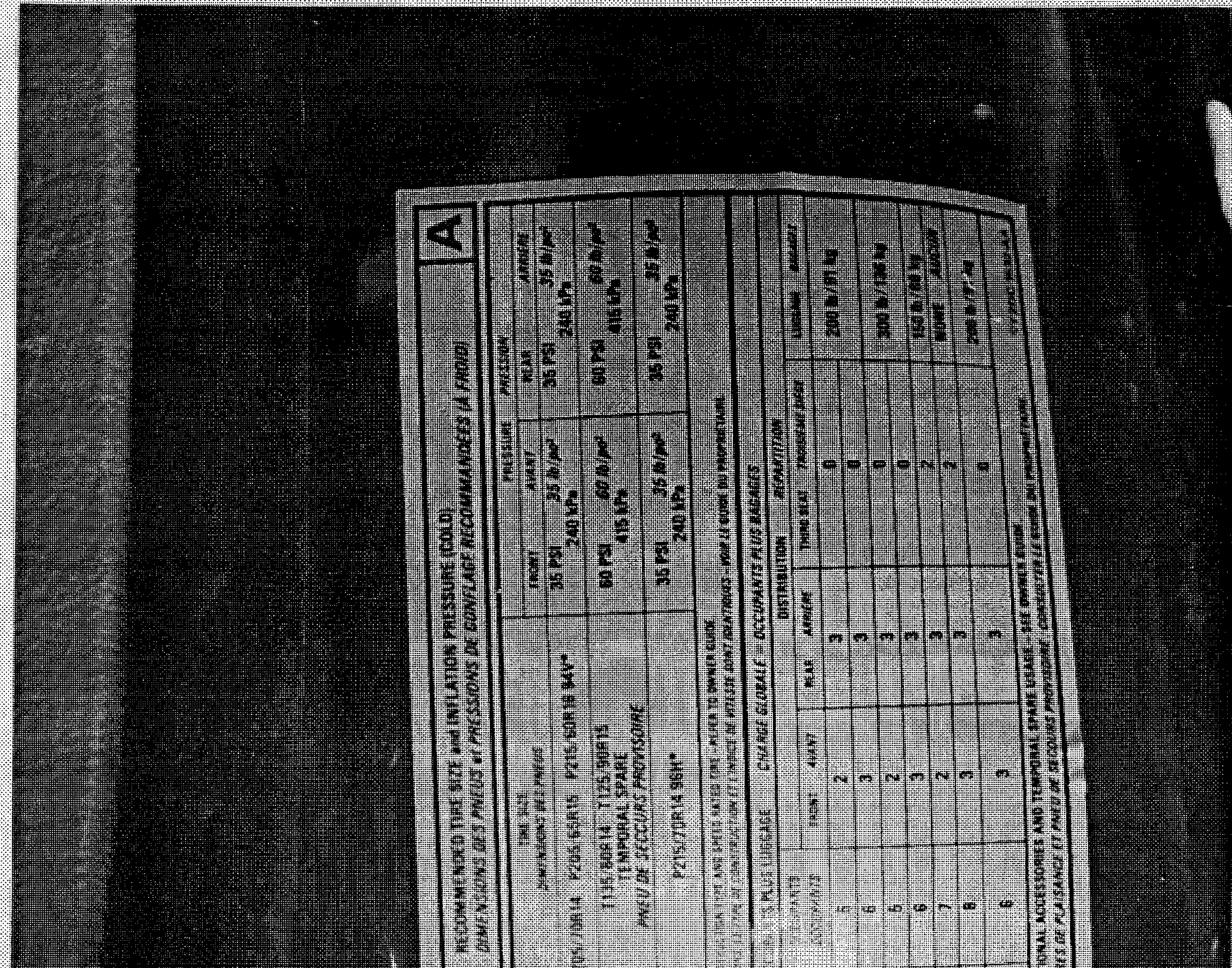


Fig. A-48. PRE-TEST VEHICLE RECOMMENDED TIRE PRESSURE LABEL VIEW

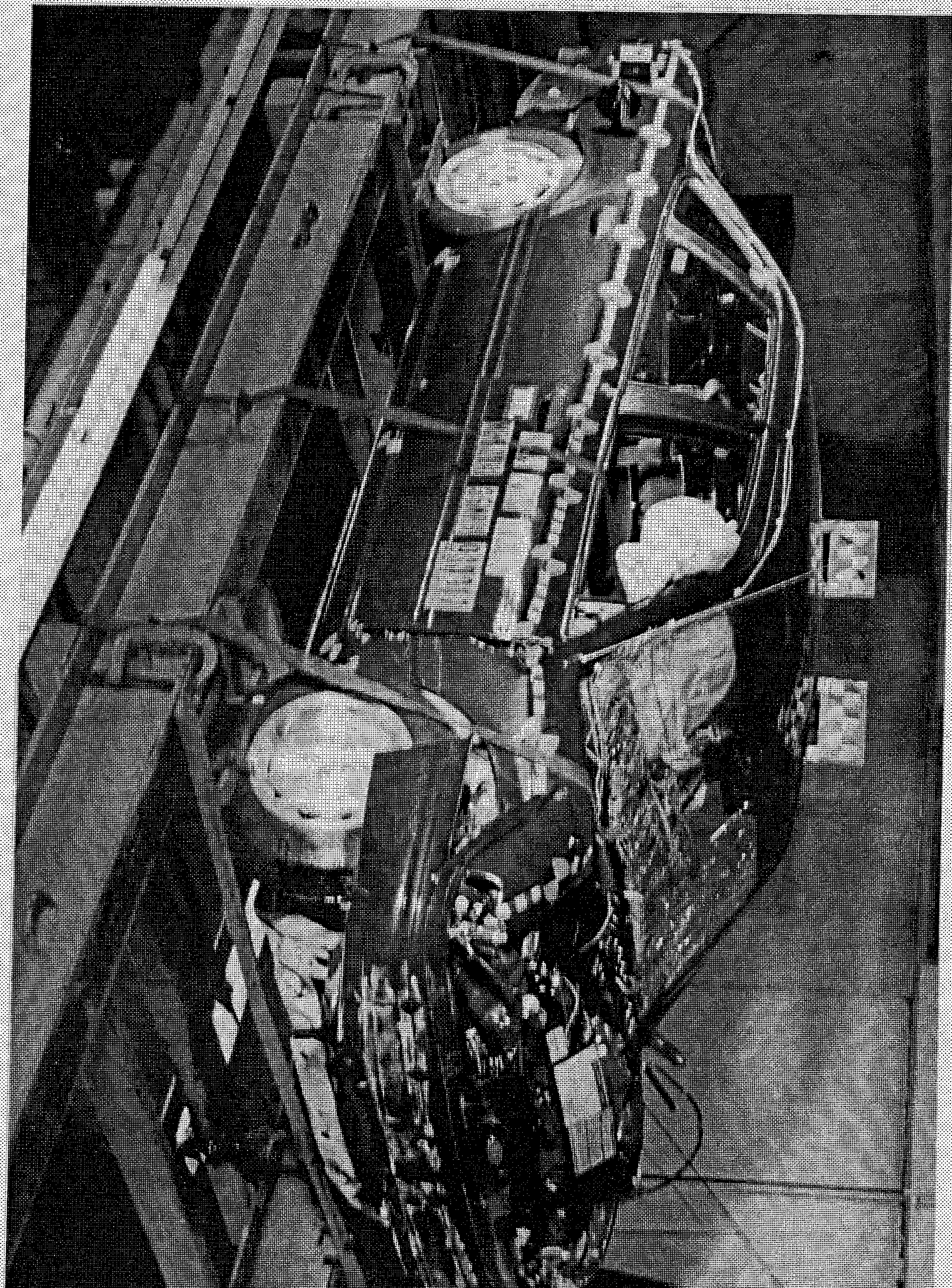
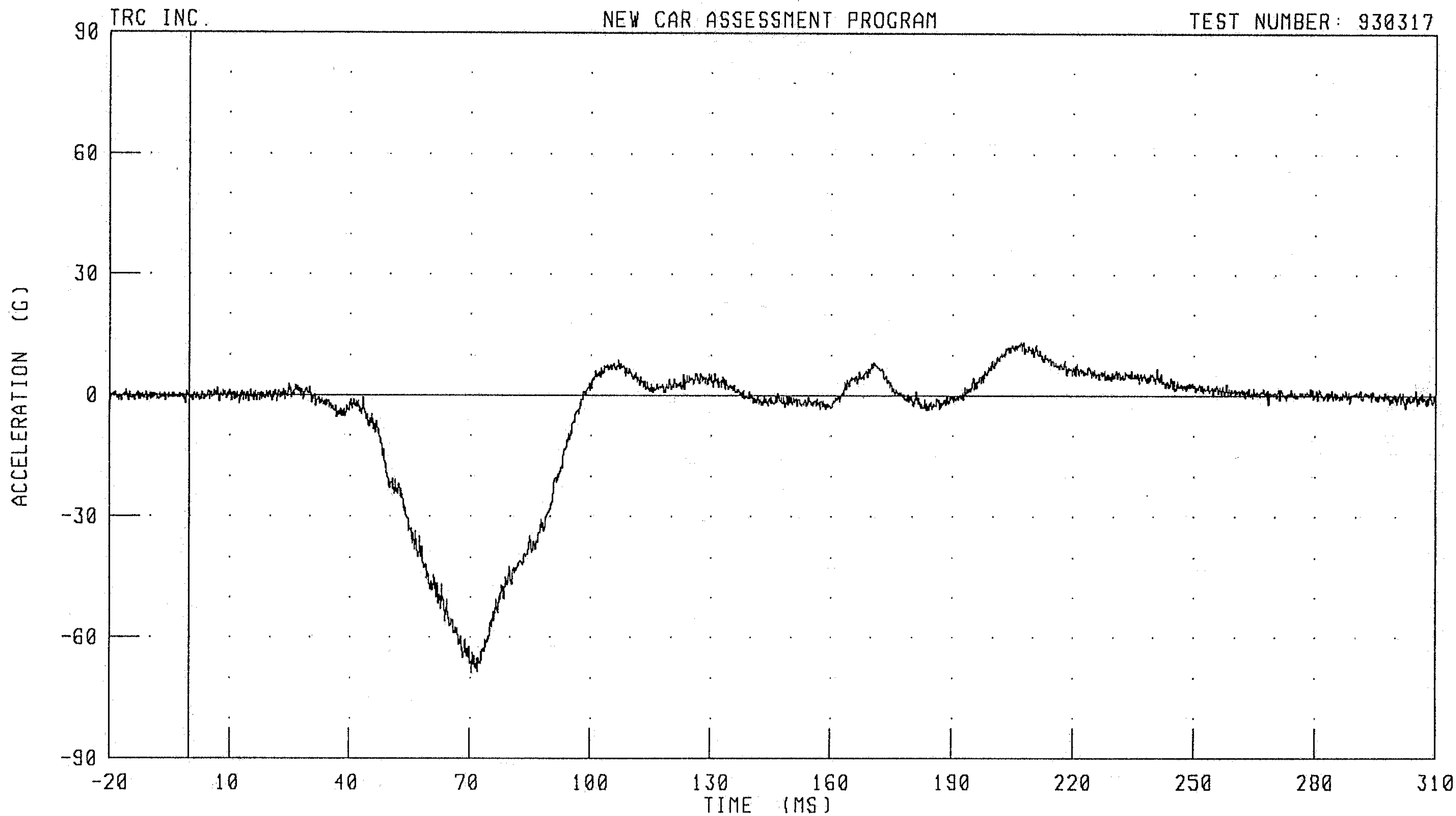


Figure A-49. POST-TEST VEHICLE ON STATIC ROLLOVER MACHINE VIEW

APPENDIX B

DATA PLOTS

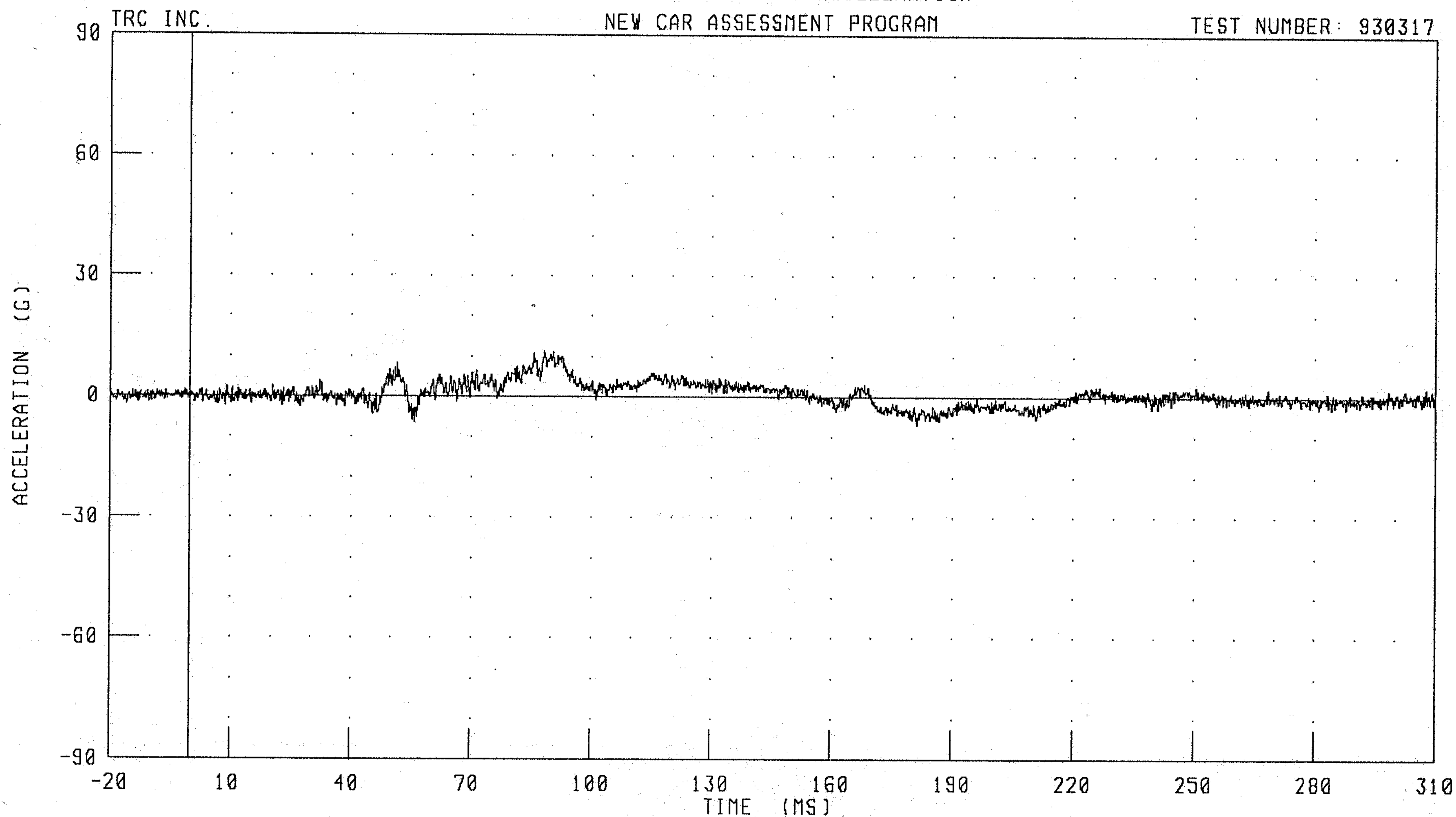
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000 PEAK DATA: 13.12 G @ 207.13 MS; -68.73 G @ 70.50 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

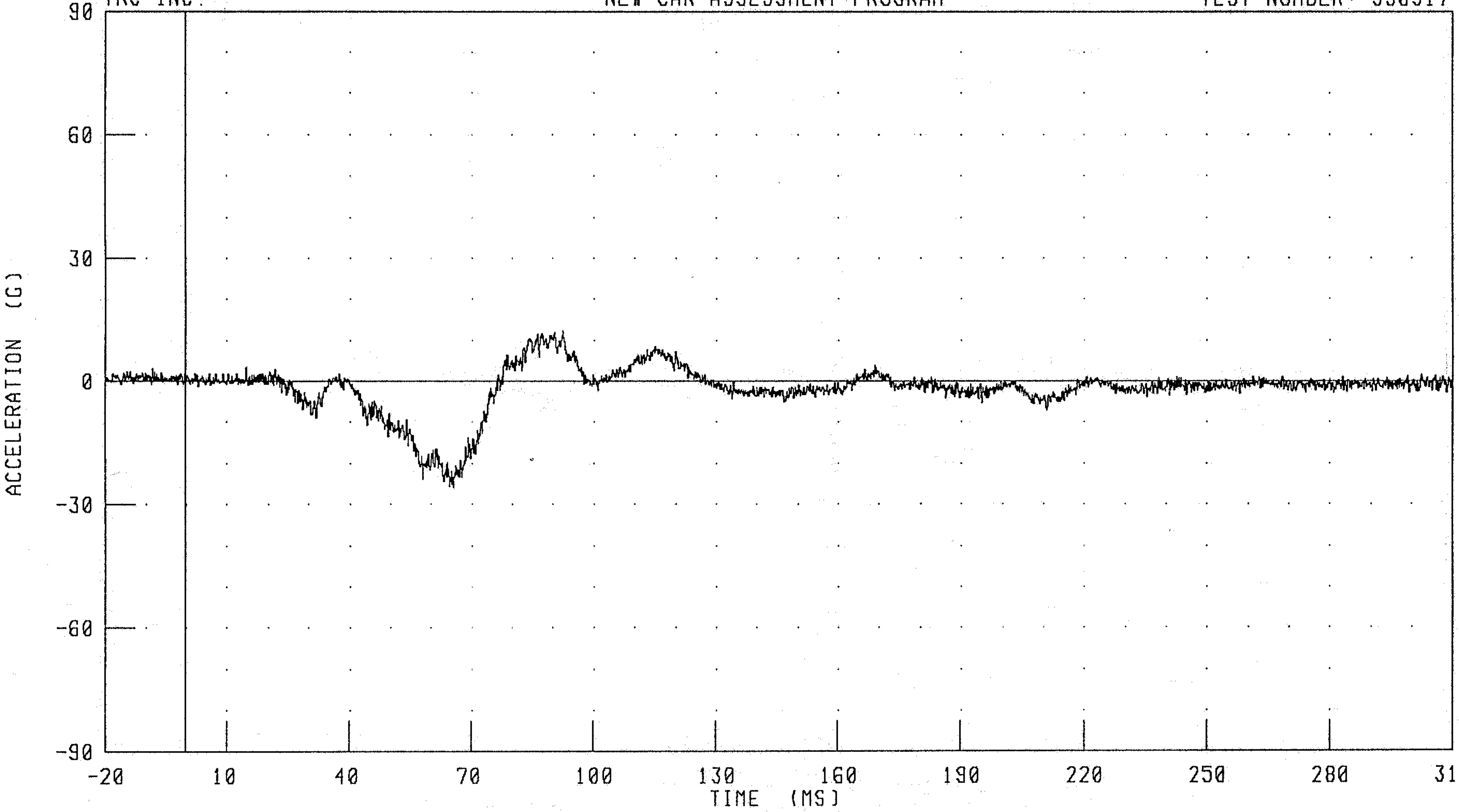
TEST NUMBER: 930317



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000 PEAK DATA: 11.29 G @ 90.50 MS; -6.93 G @ 181.13 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317



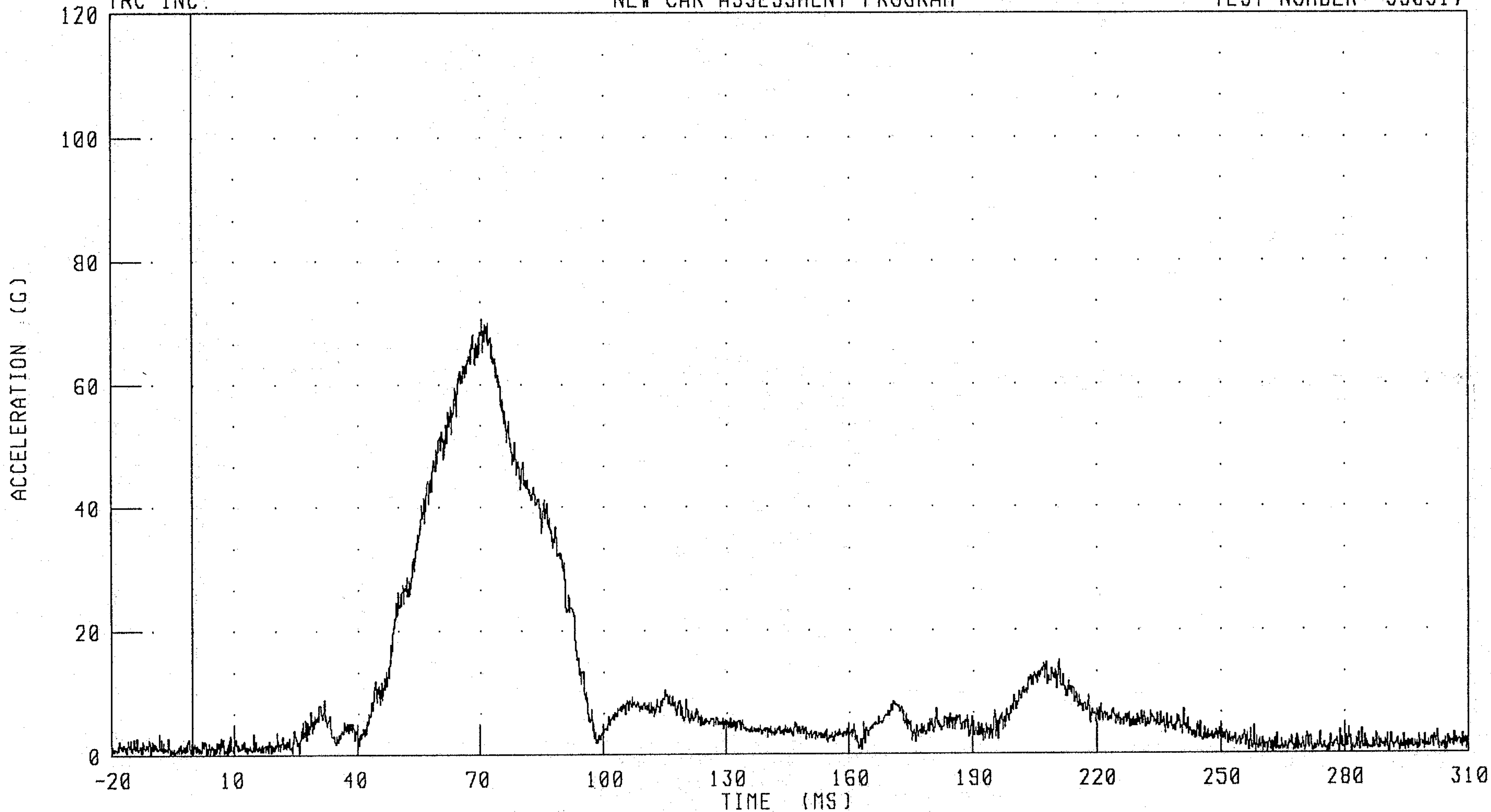
CHANNEL: HEDZG1 FILTER: CH. CLASS 1000 PEAK DATA: 12.18 G @ 92.50 MS; -25.78 G @ 65.63 MS

930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

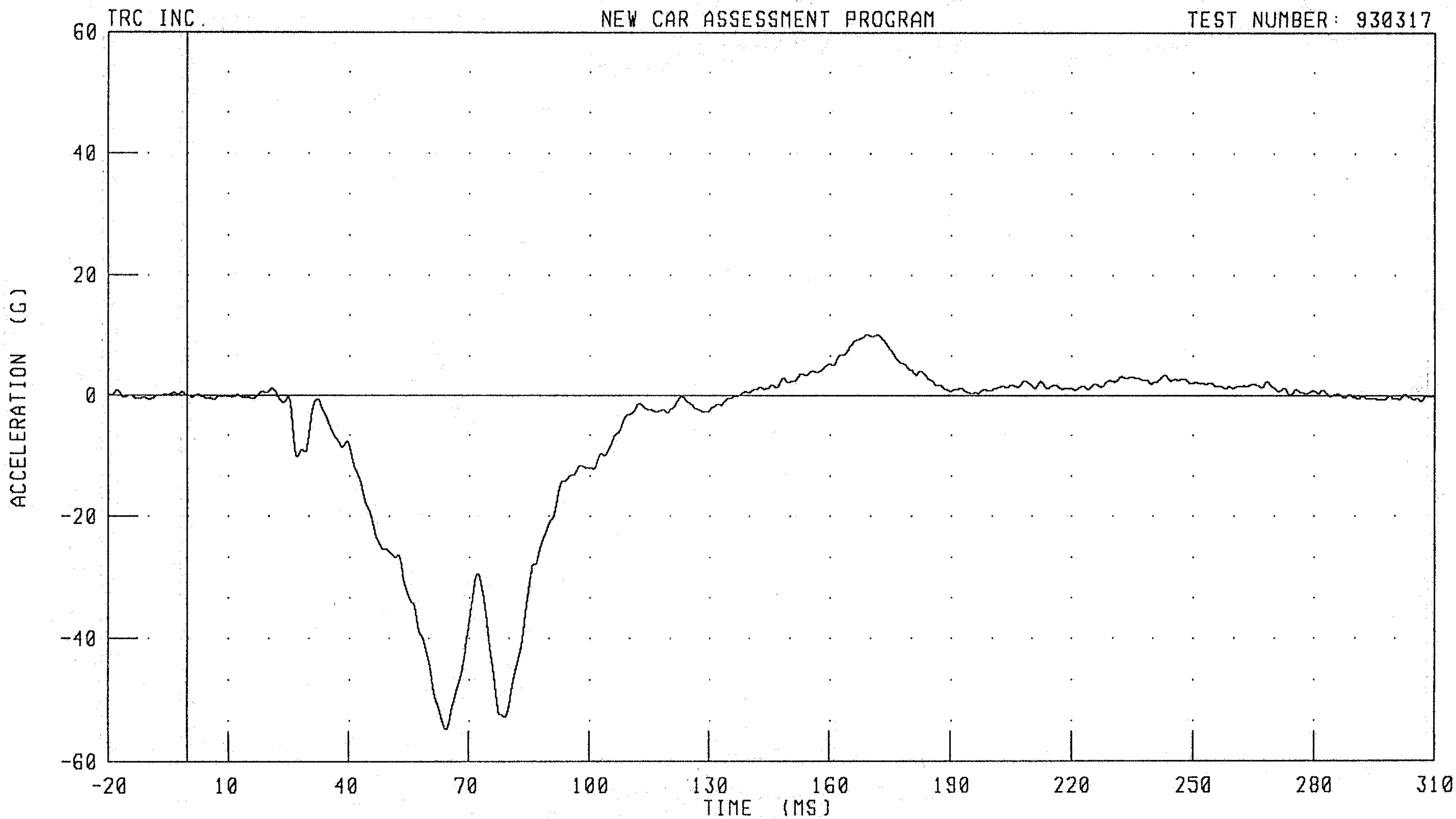
TRC INC.

TEST NUMBER: 930317



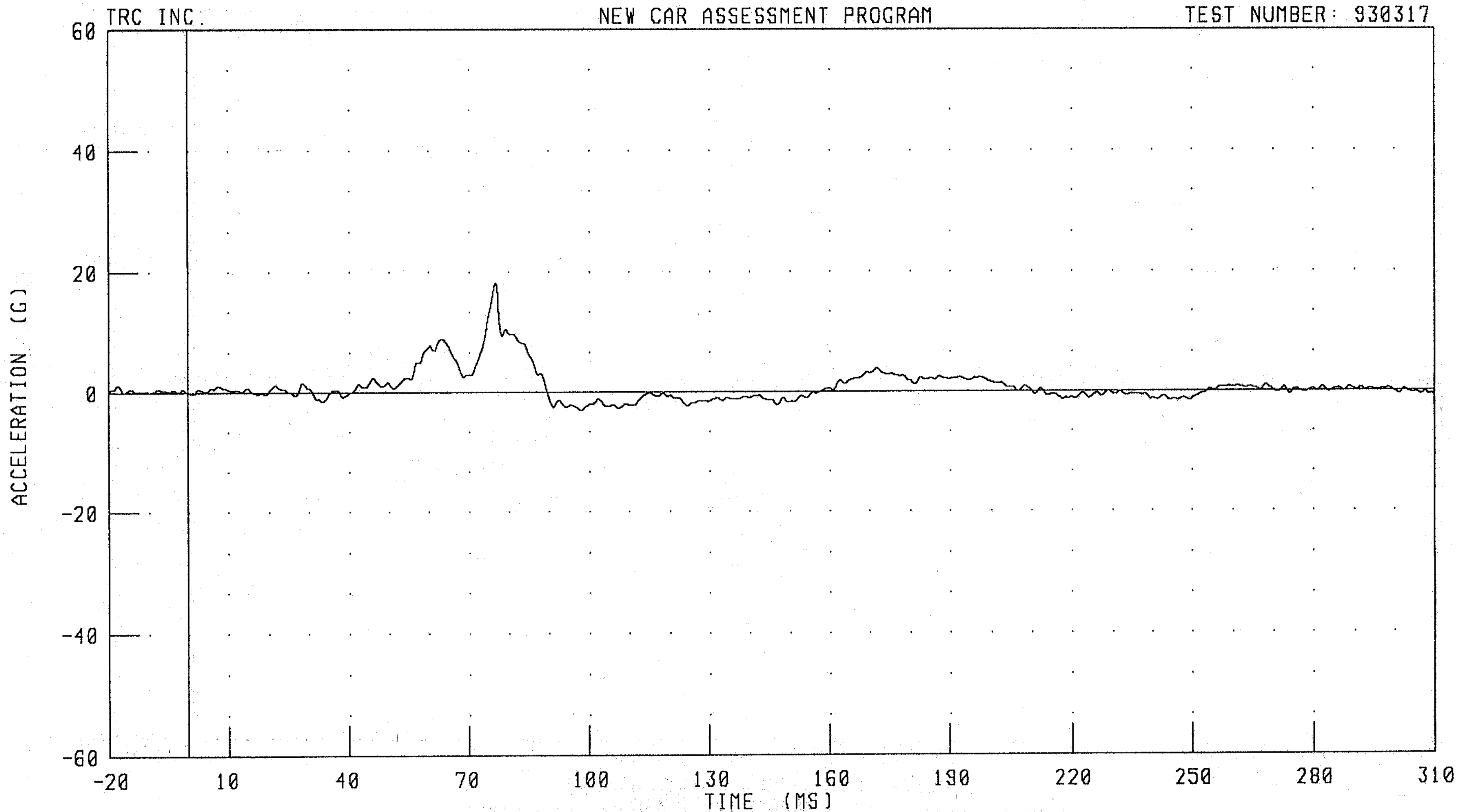
CHANNEL: HEDRG1   FILTER: CH. CLASS 1000   PEAK DATA: 70.68 G @ 70.50 MS; 0.14 G @ 261.25 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



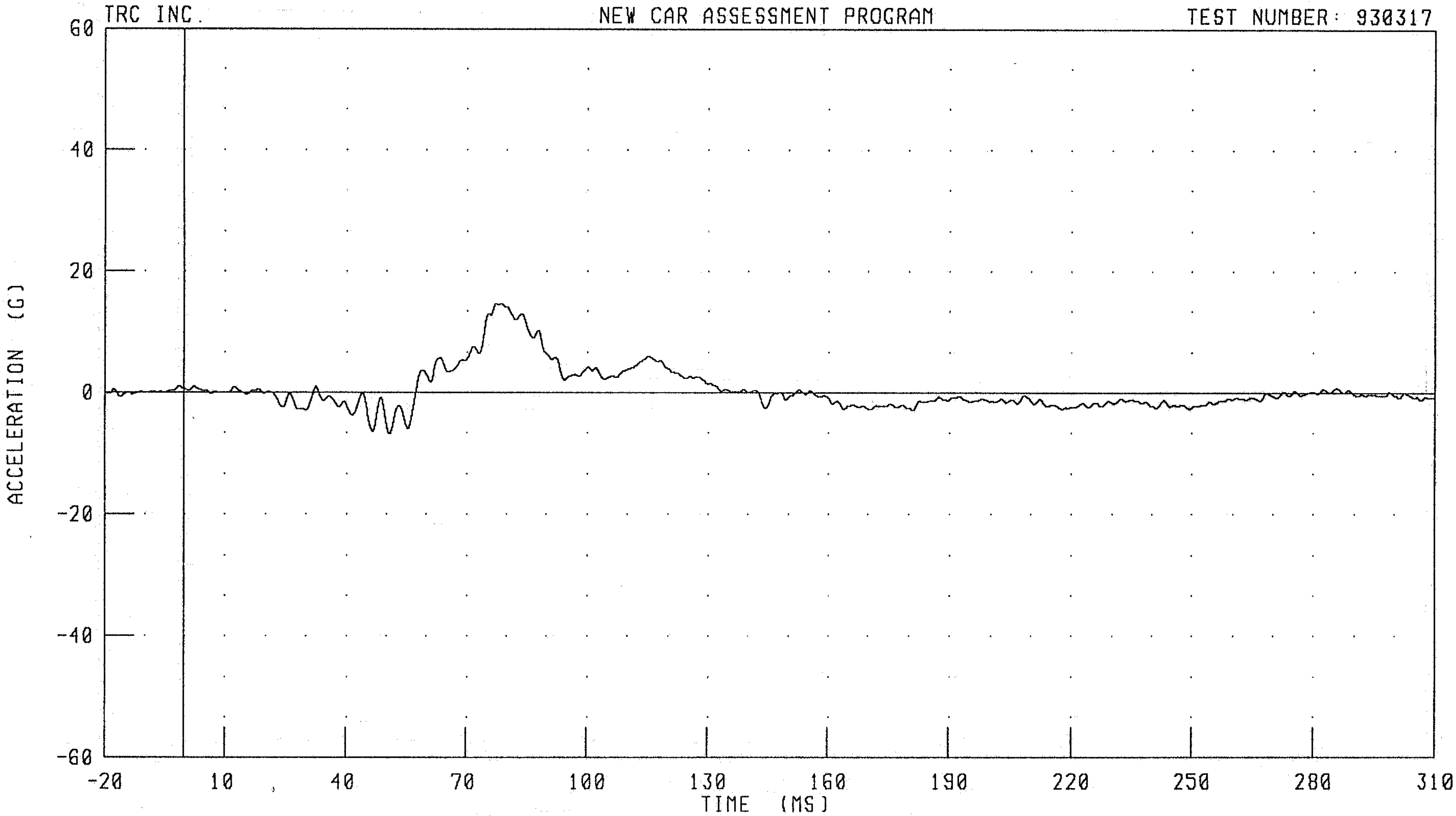
CHANNEL: CSTXG1   FILTER: CH. CLASS 180   PEAK DATA: 10.17 G @ 169.13 MS; -54.75 G @ 64.38 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: CSTYG1 FILTER: CH. CLASS 180 PEAK DATA: 18.19 G @ 76.63 MS; -3.09 G @ 98.00 MS

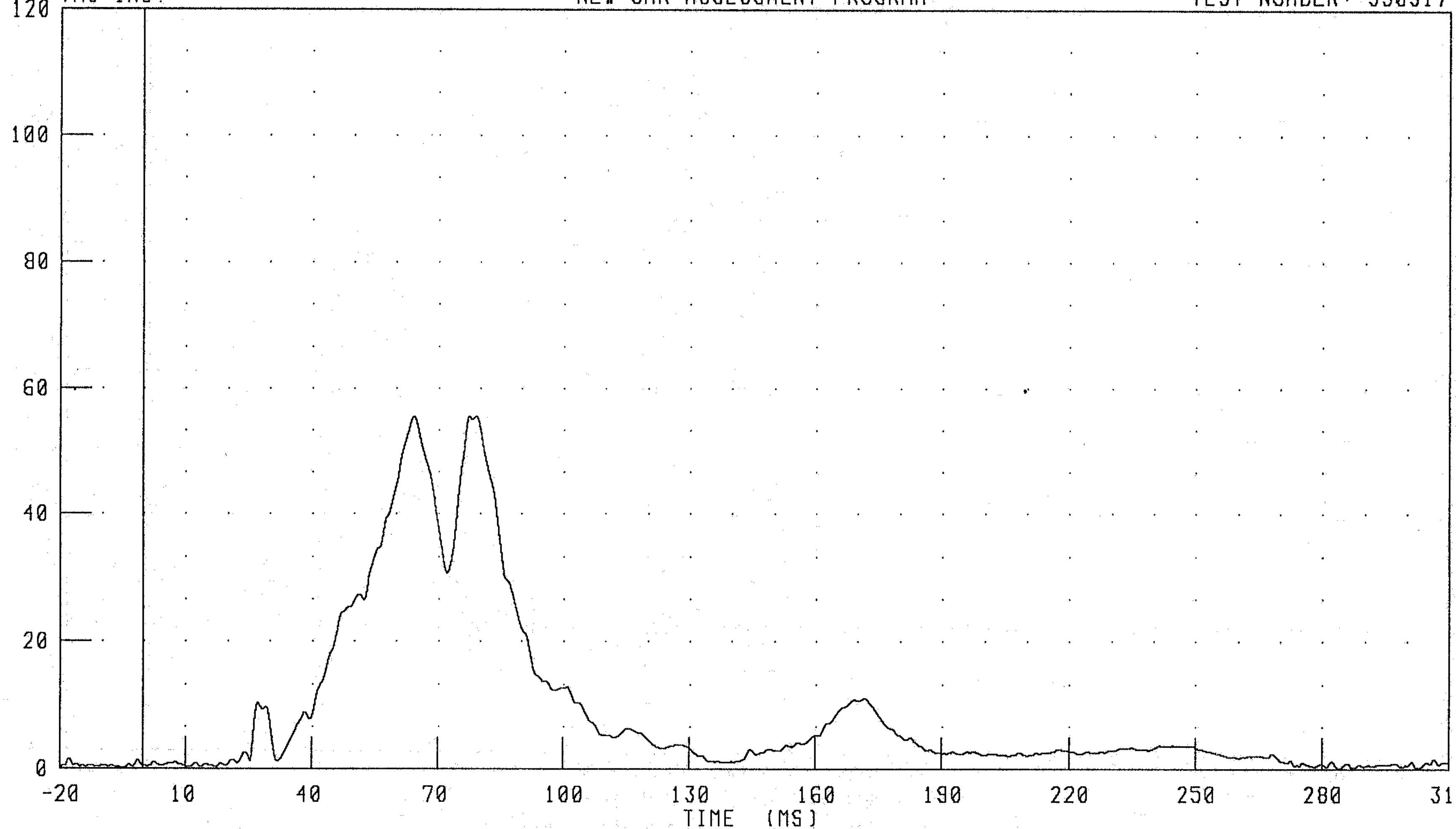
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



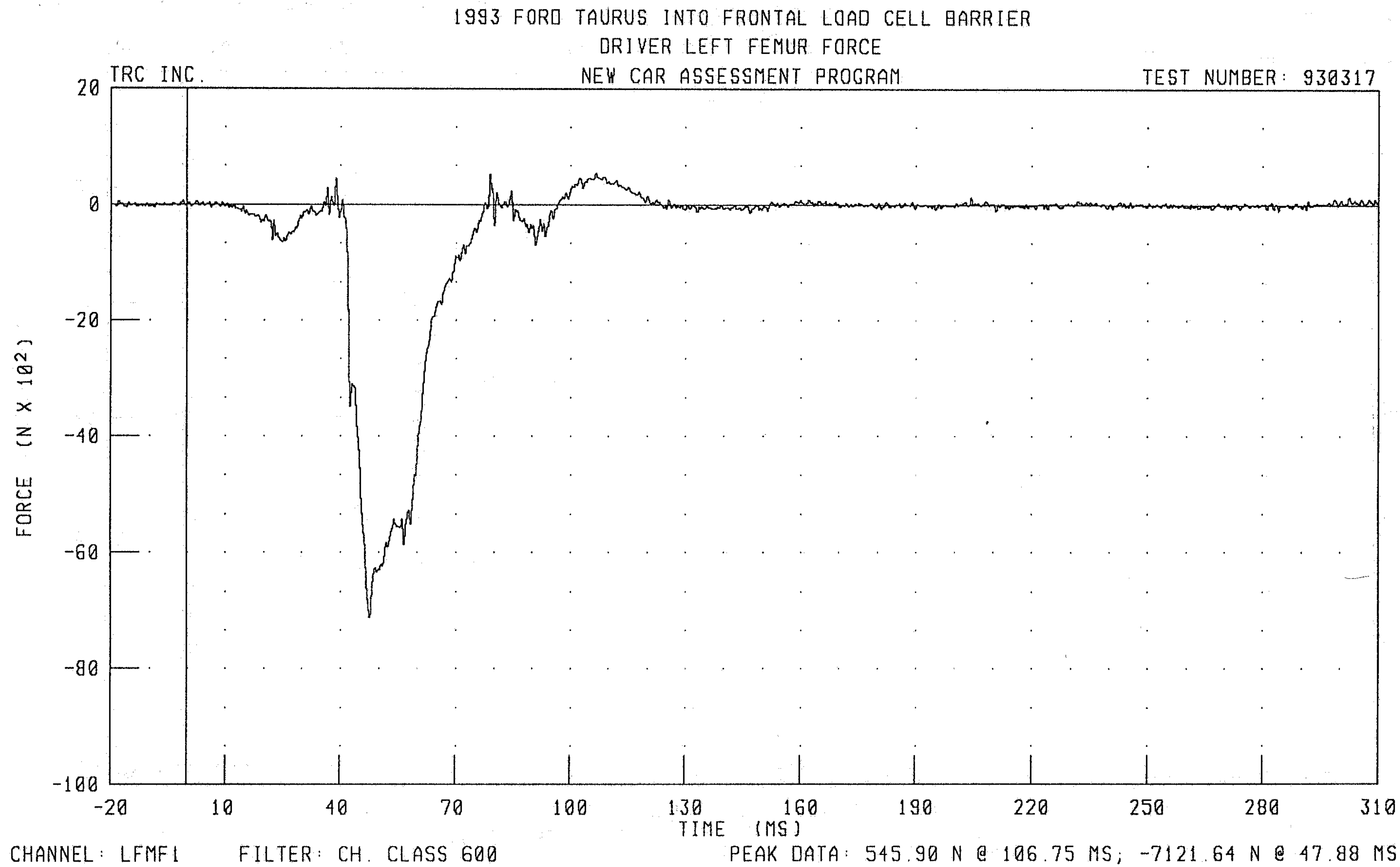
CHANNEL: CSTZG1 FILTER: CH. CLASS 180 PEAK DATA: 14.64 G @ 77.38 MS; -6.84 G @ 50.75 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC.　　　　TEST NUMBER: 930317

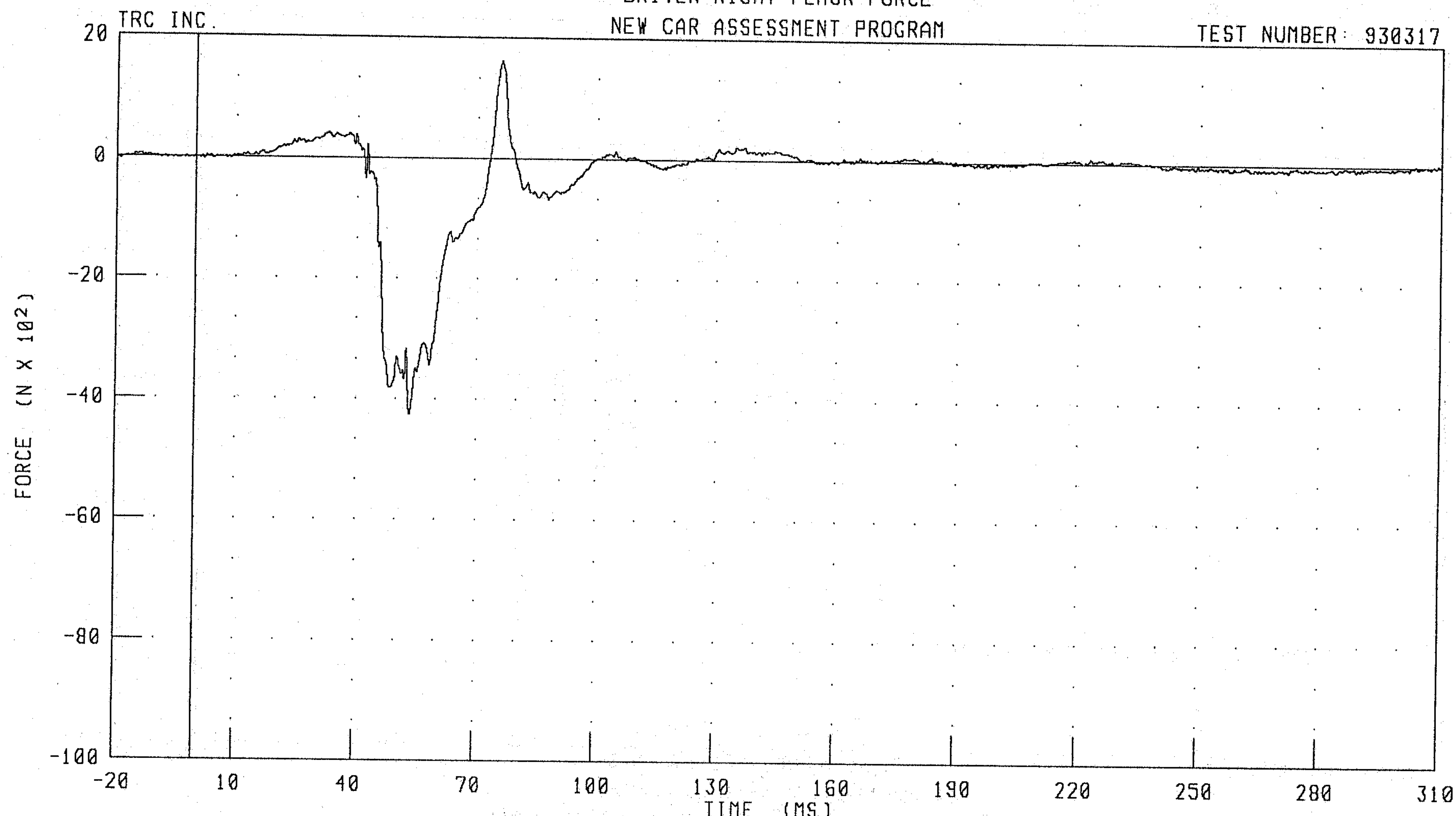


CHANNEL: CSTRG1　　FILTER: CH. CLASS 180　　PEAK DATA: 55.65 G @ 77.38 MS; 0.06 G @ -20.00 MS

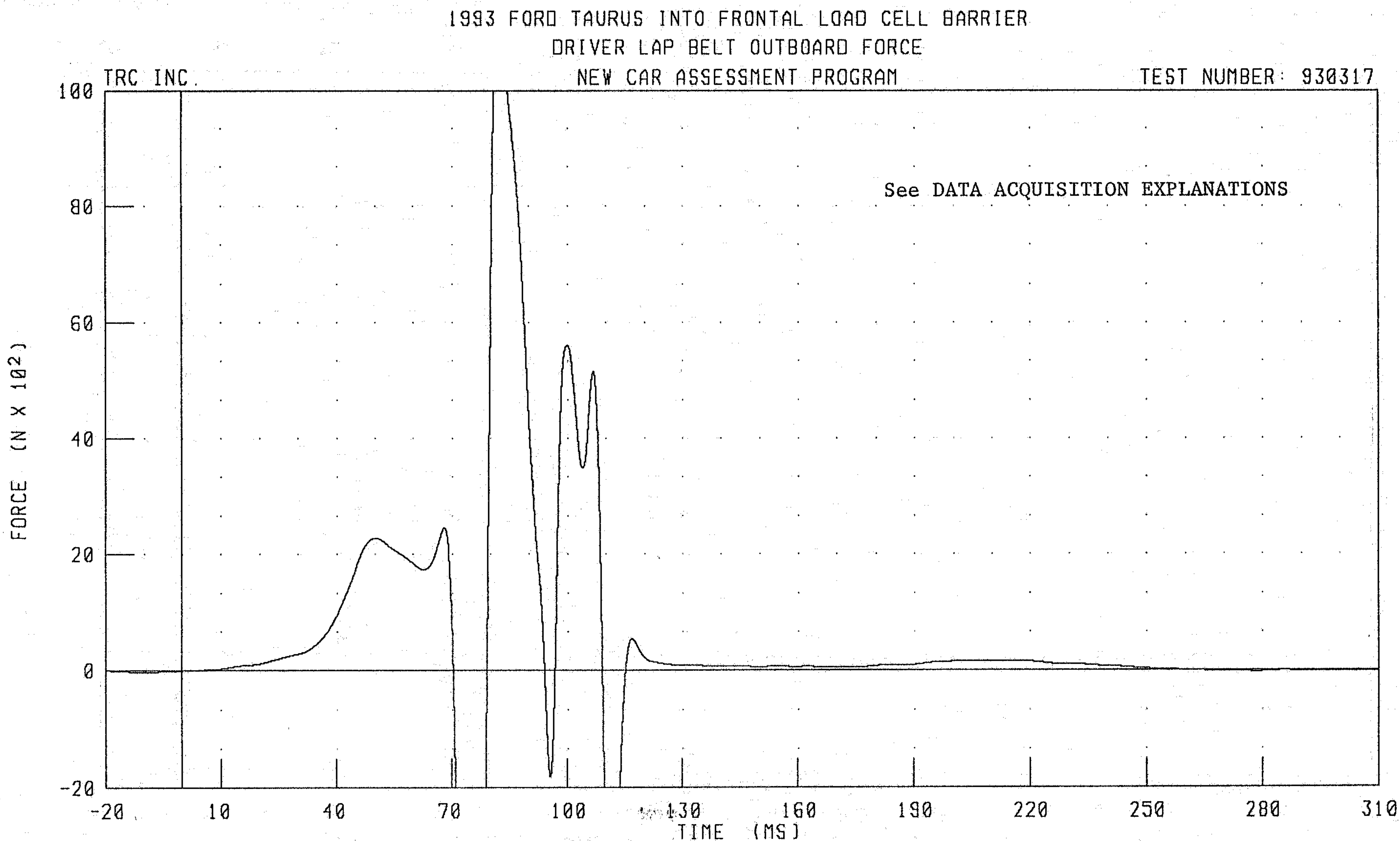

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
20
0
-20
-40
-60
-80
-100
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFMF1
FILTER: CH. CLASS 600
PEAK DATA: 545.90 N @ 106.75 MS; -7121.64 N @ 47.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317

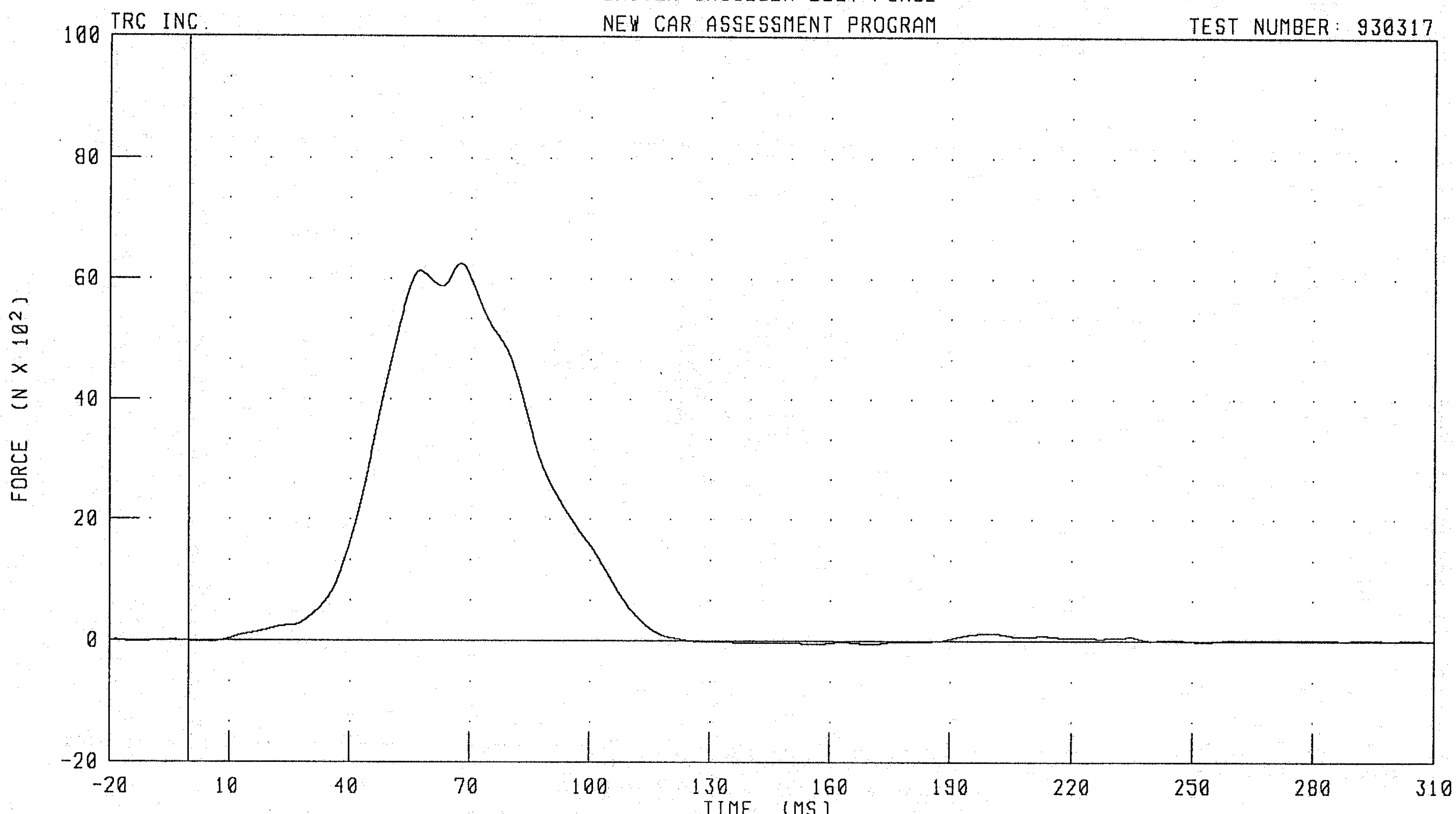


CHANNEL: RFMF1 FILTER: CH. CLASS 600 PEAK DATA: 1616.48 N @ 75.88 MS; -4259.63 N @ 53.50 MS

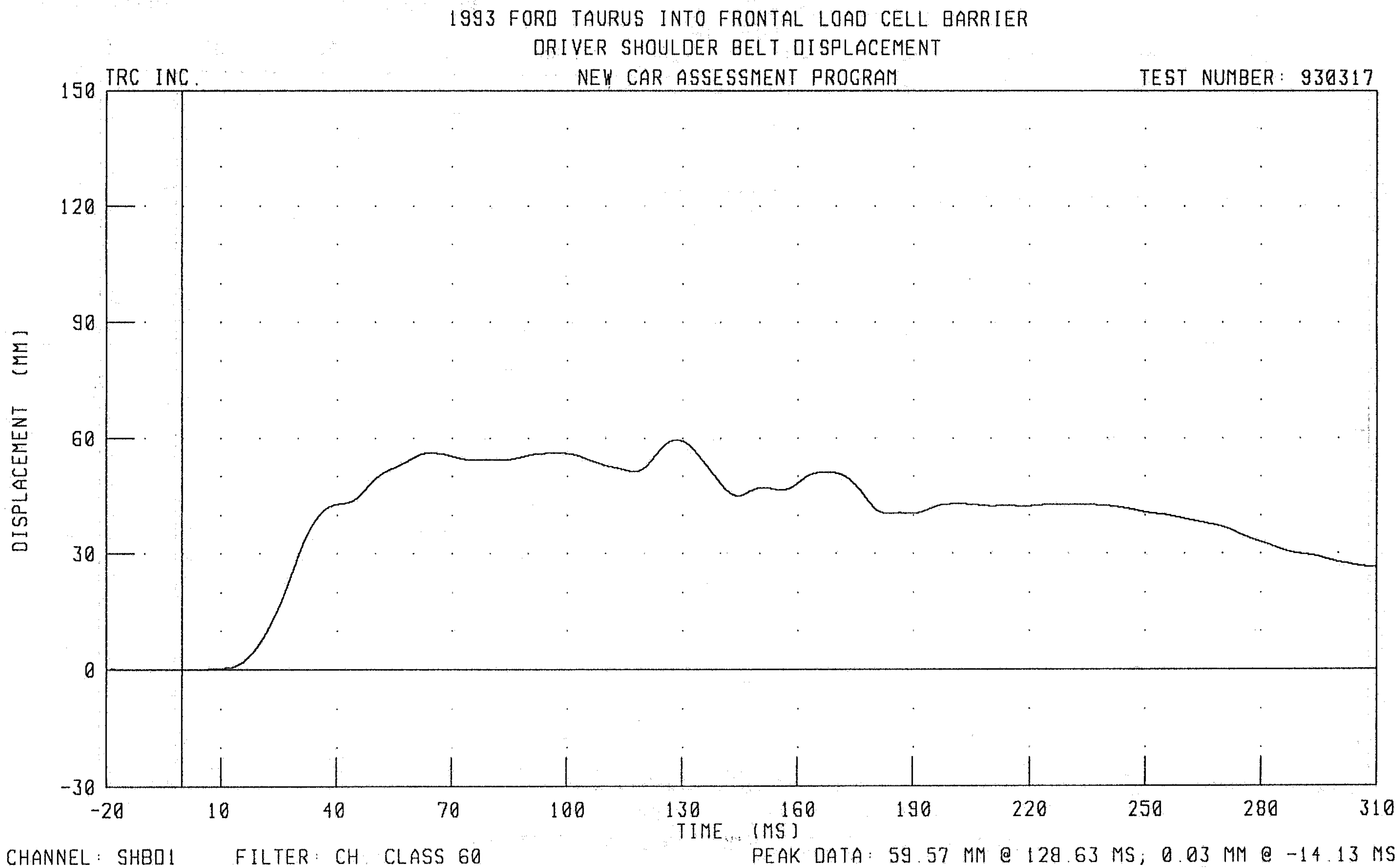


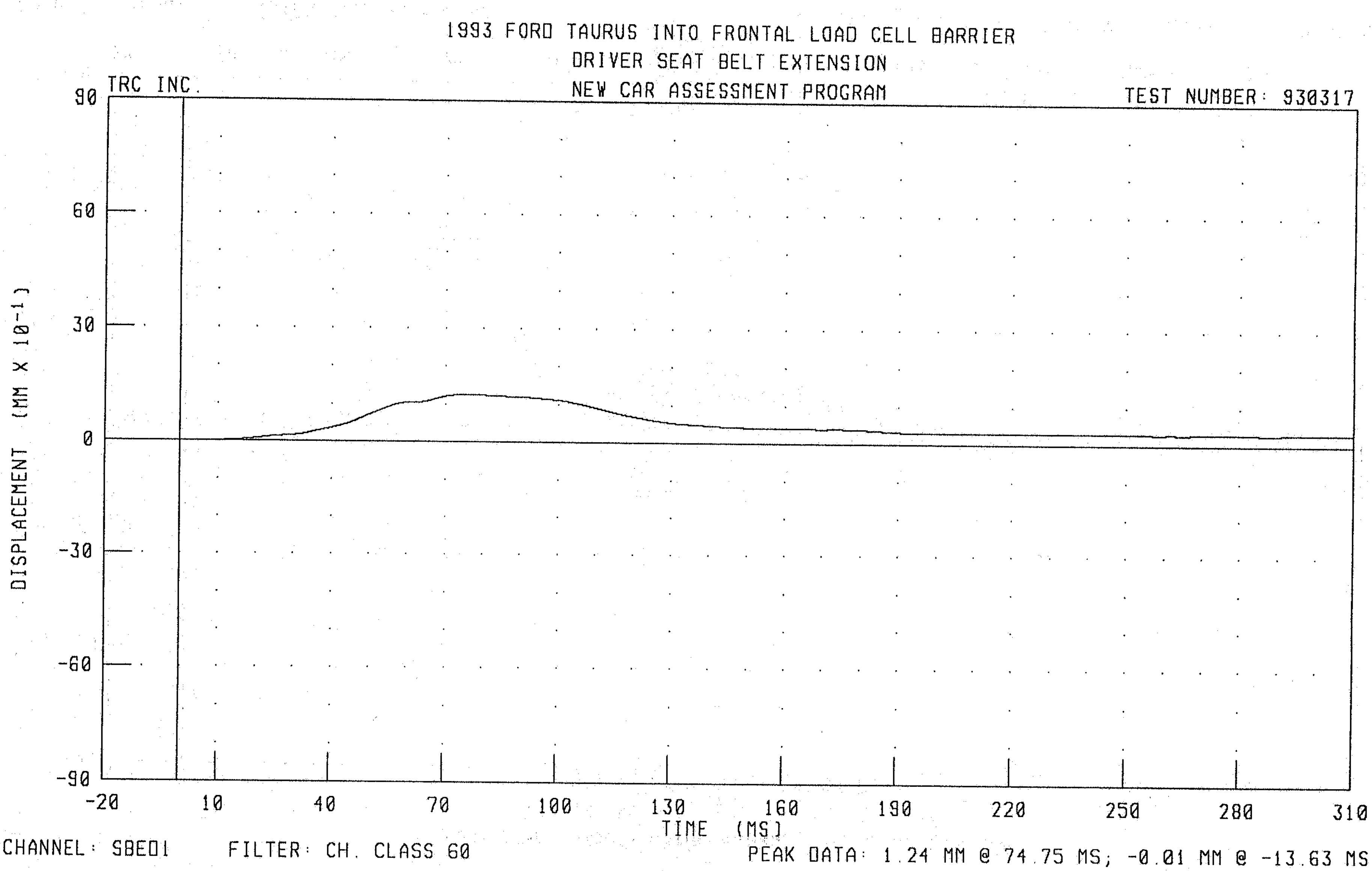
CHANNEL: LBOFI FILTER: CH. CLASS 60 PEAK DATA: 12140.30 N @ 82.38 MS; -17805.45 N @ 75.13 MS

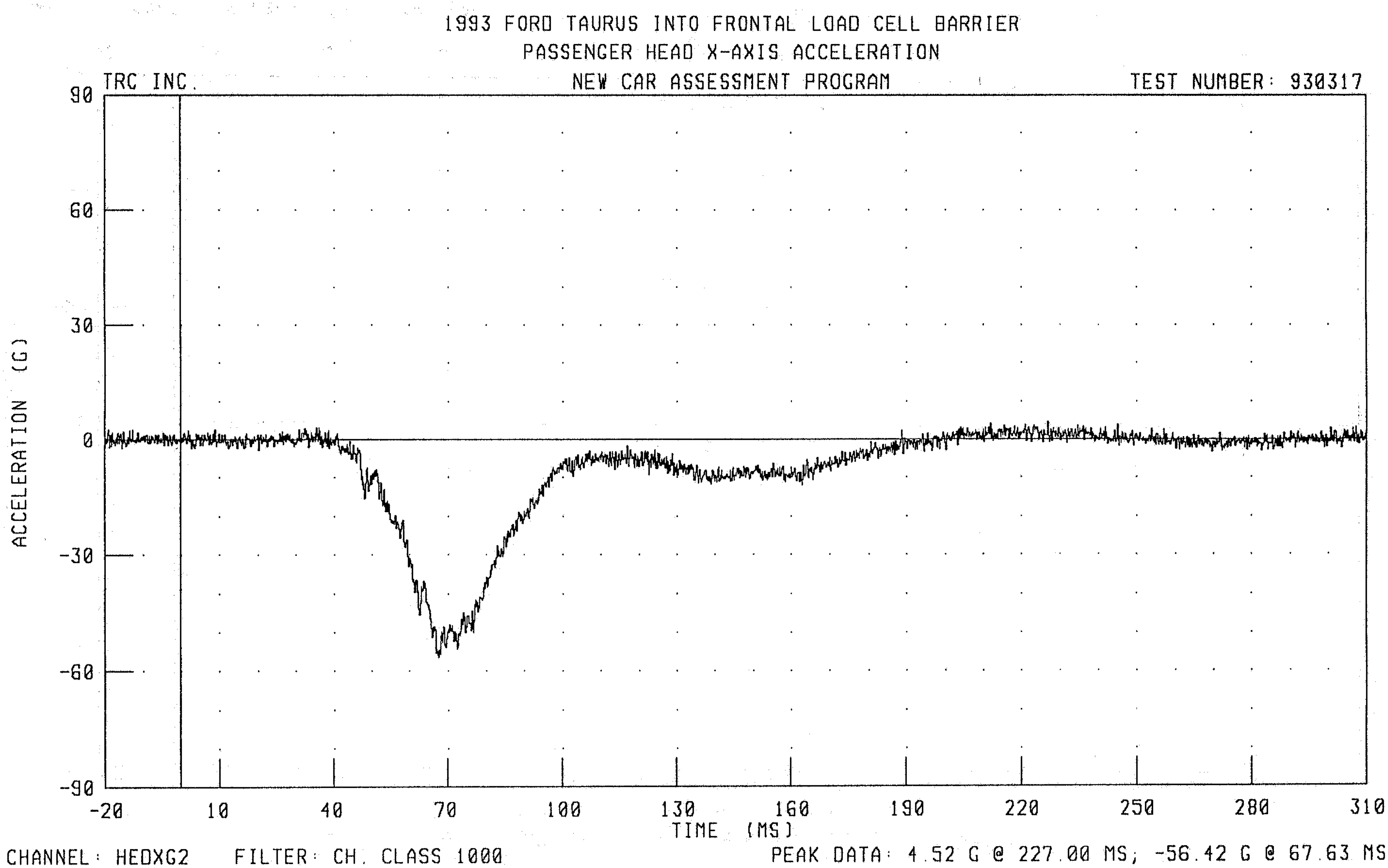
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: SHBF1 FILTER: CH. CLASS 60 PEAK DATA: 6249.13 N @ 67.63 MS; -48.12 N @ 170.38 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
DISPLACEMENT (MM)
150
120
90
60
30
0
-30
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SHBD1
FILTER: CH CLASS 60
PEAK DATA: 59.57 MM @ 128.63 MS; 0.03 MM @ -14.13 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
DRIVER SEAT BELT EXTENSION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
90
60
30
0
-30
-60
-90
DISPLACEMENT (MM X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SBE01
FILTER: CH. CLASS 60
PEAK DATA: 1.24 MM @ 74.75 MS; -0.01 MM @ -13.63 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
ACCELERATION (G)
90
60
30
0
-30
-60
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDXG2
FILTER: CH. CLASS 1000
PEAK DATA: 4.52 G @ 227.00 MS; -56.42 G @ 67.63 MS

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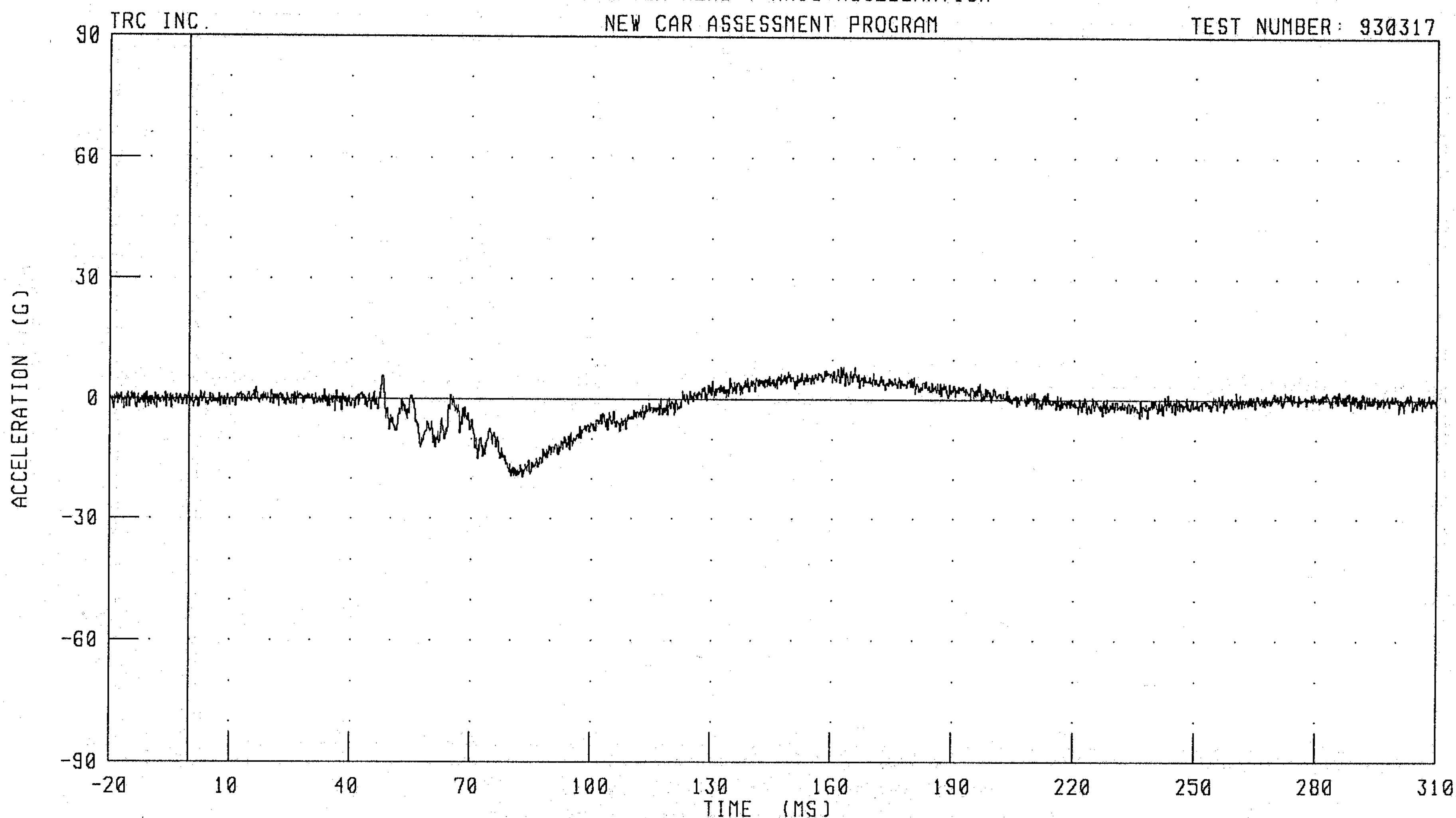
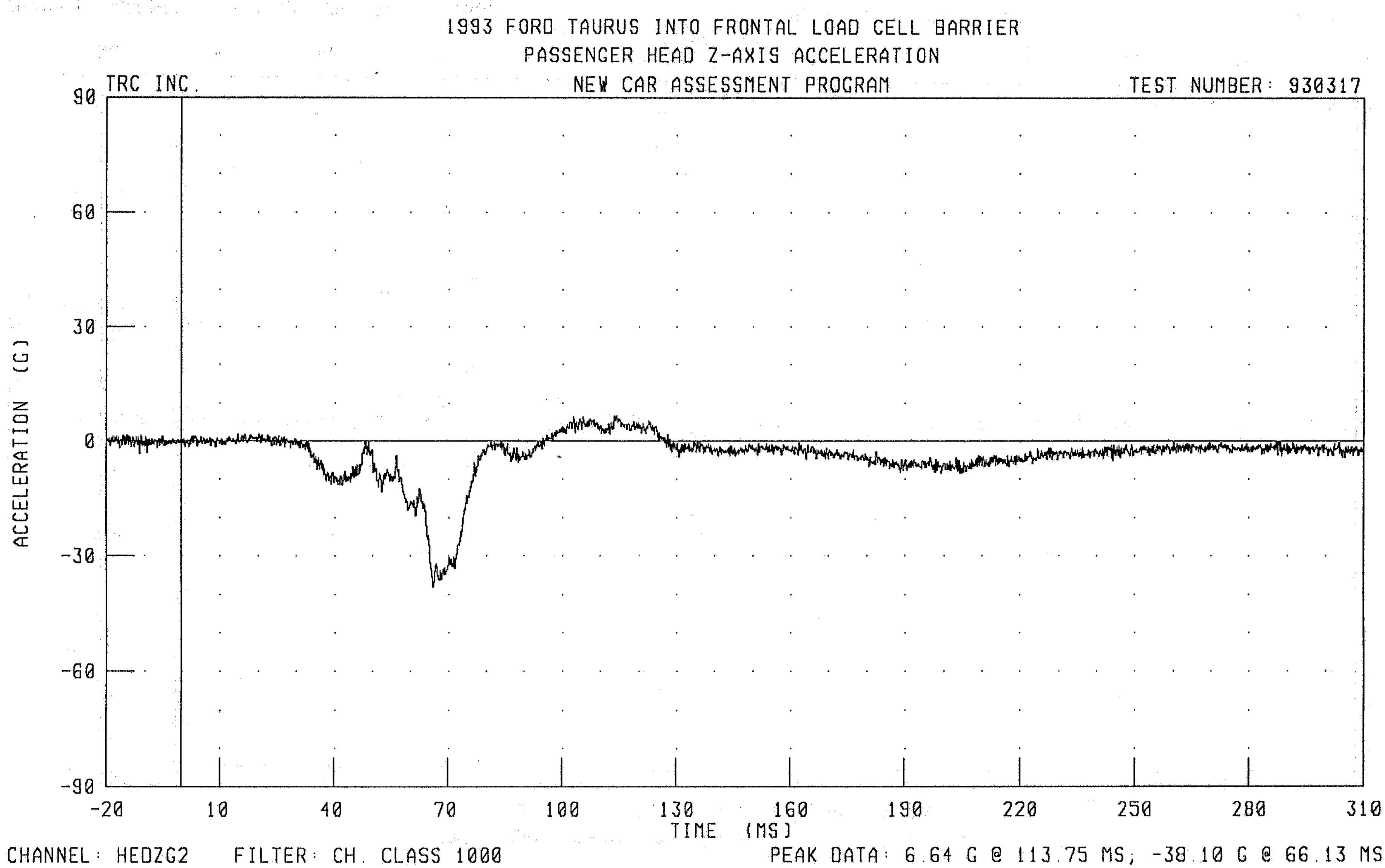
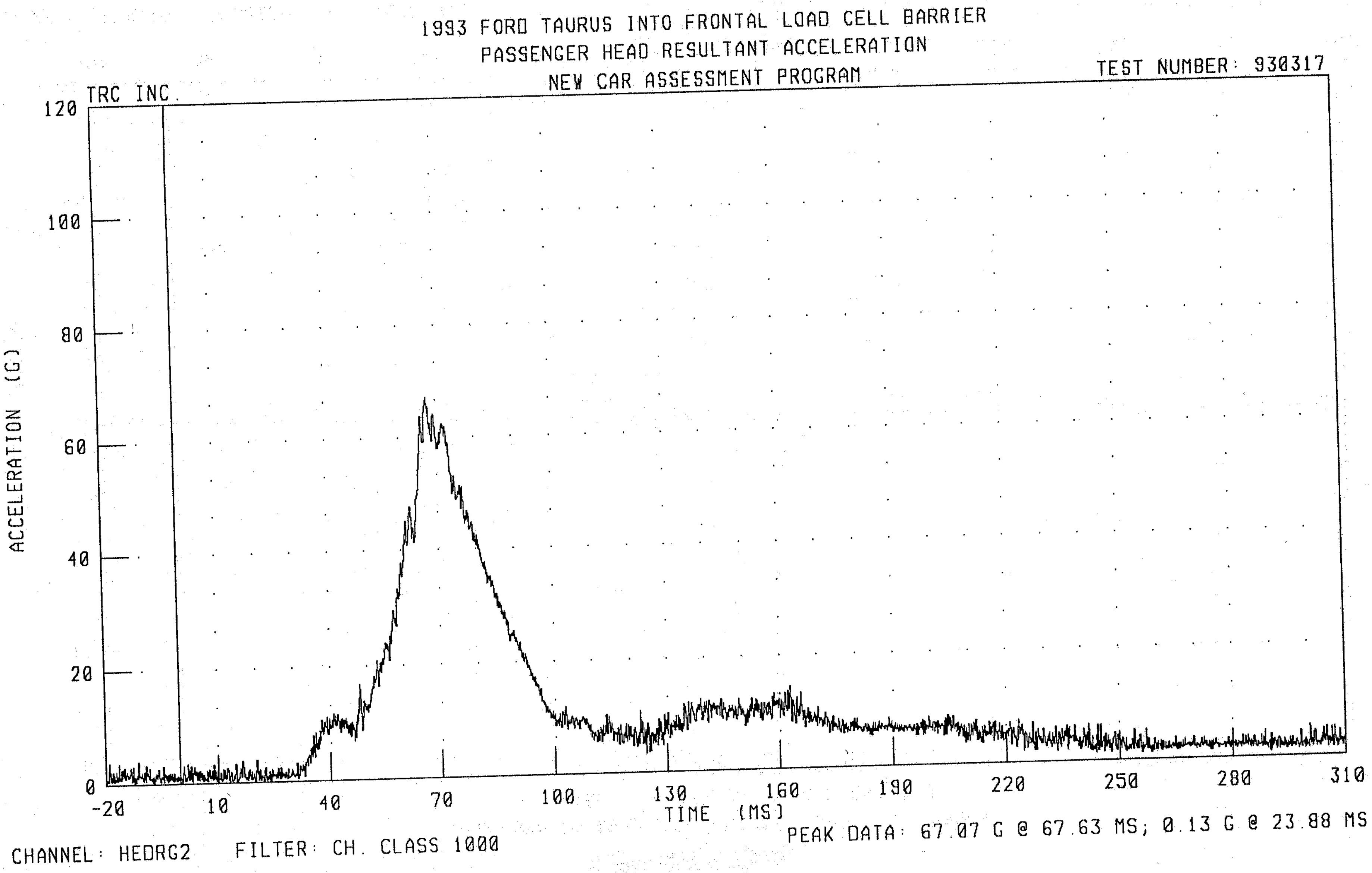
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



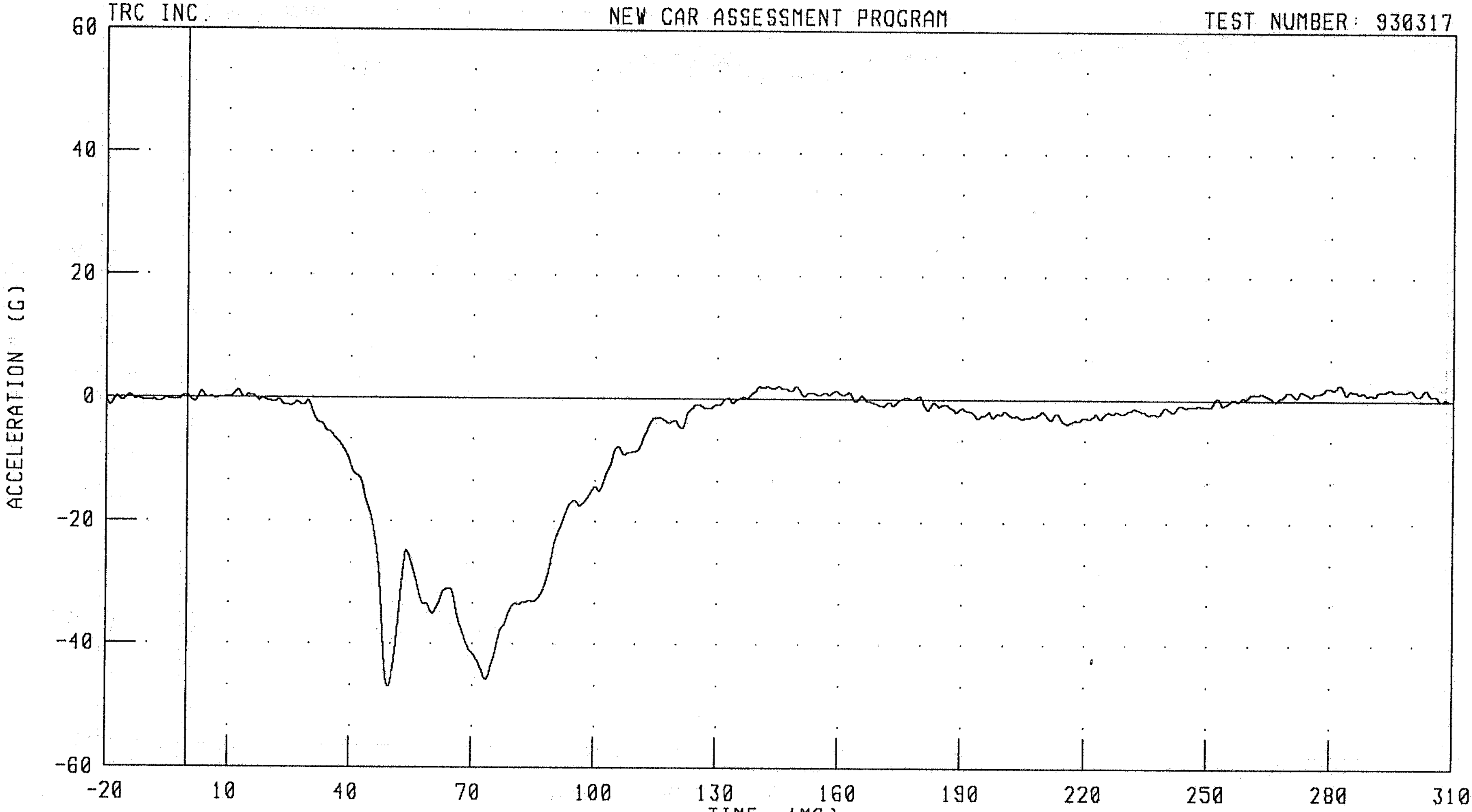
CHANNEL: HEDYG2   FILTER: CH. CLASS 1000   PEAK DATA: 8.27 G @ 165.75 MS; -19.59 G @ 83.00 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
ACCELERATION (G)
90
60
30
0
-30
-60
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZG2
FILTER: CH. CLASS 1000
PEAK DATA: 6.64 G @ 113.75 MS; -38.10 G @ 66.13 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 930317
TRC INC.
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
PEAK DATA: 67.07 G @ 67.63 MS; 0.13 G @ 23.88 MS
CHANNEL: HEDRG2
FILTER: CH. CLASS 1000

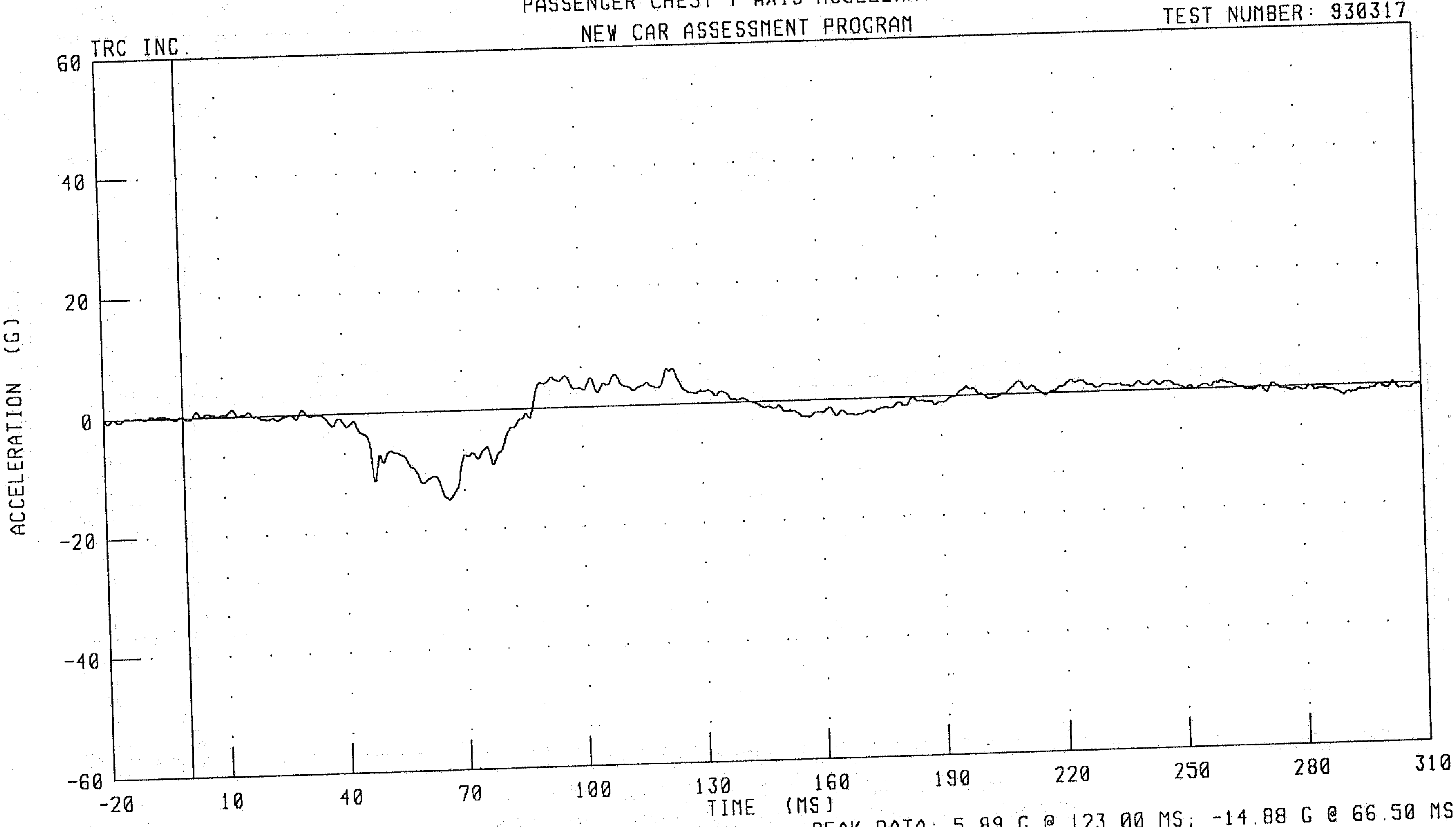
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



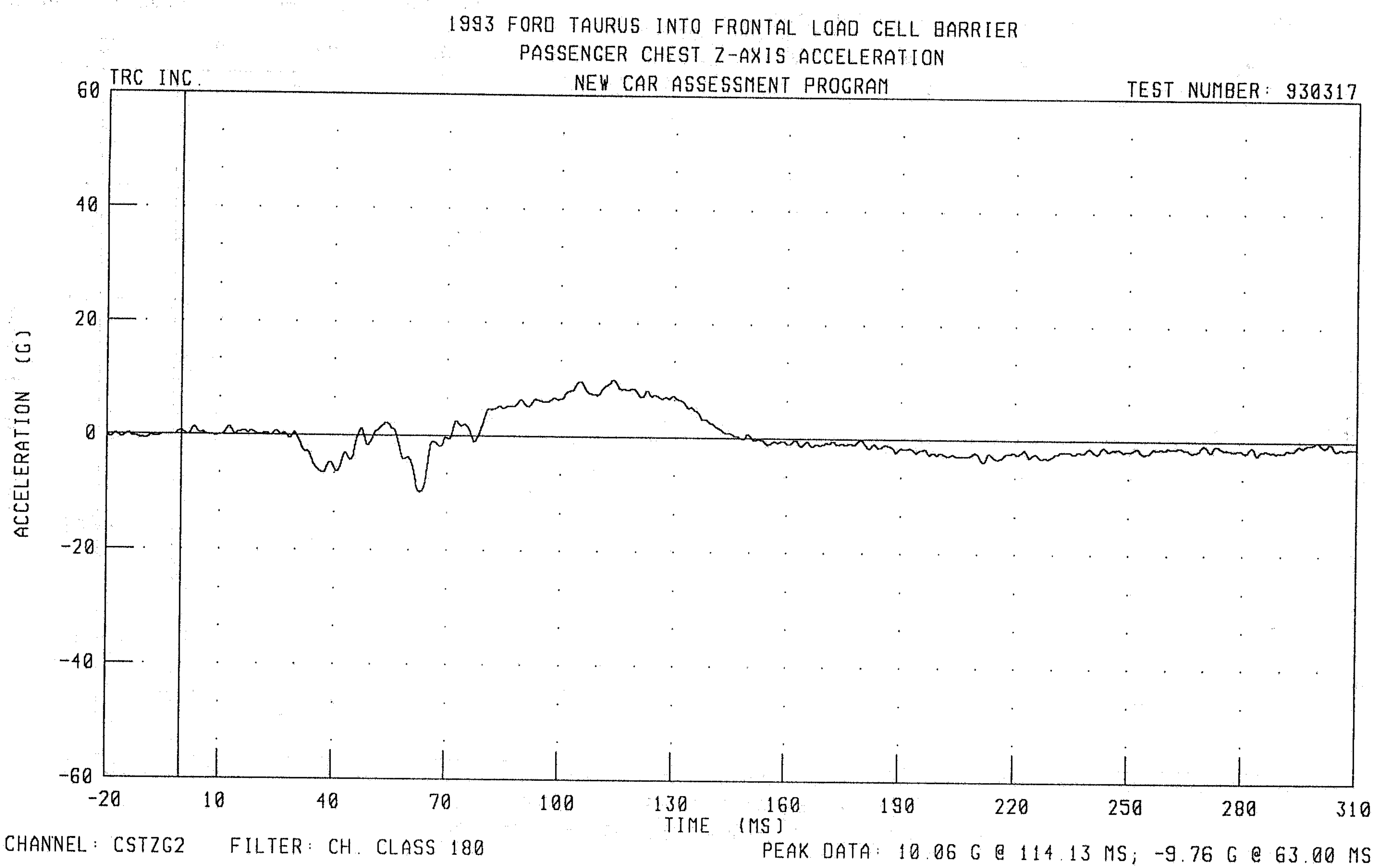
CHANNEL: CSTXG2 FILTER: CH. CLASS 180 PEAK DATA: 2.62 G @ 282.25 MS; -46.87 G @ 49.63 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

930317


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
ACCELERATION (G)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTZG2
FILTER: CH. CLASS 180
PEAK DATA: 10.06 G @ 114.13 MS; -9.76 G @ 63.00 MS

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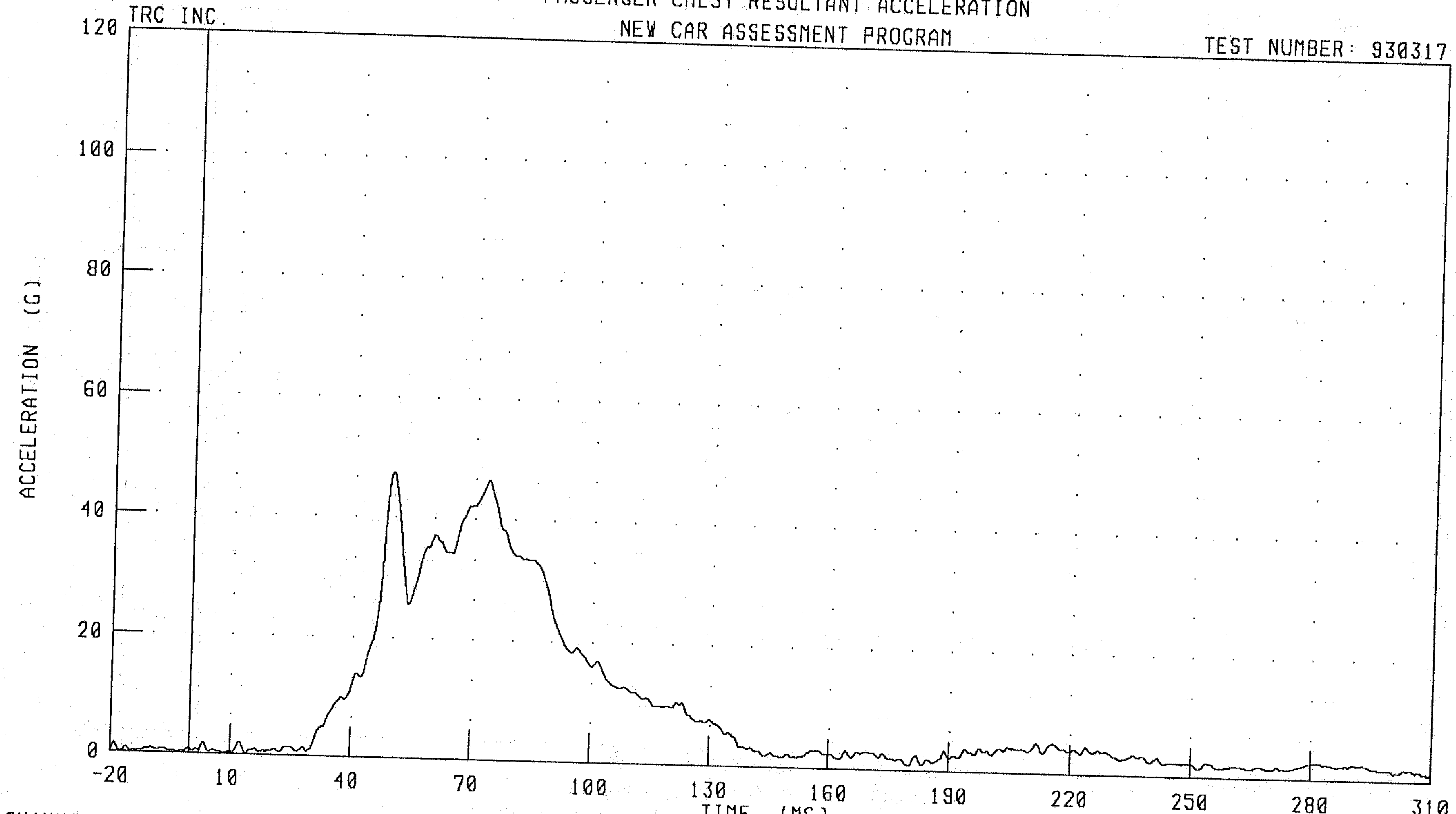
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

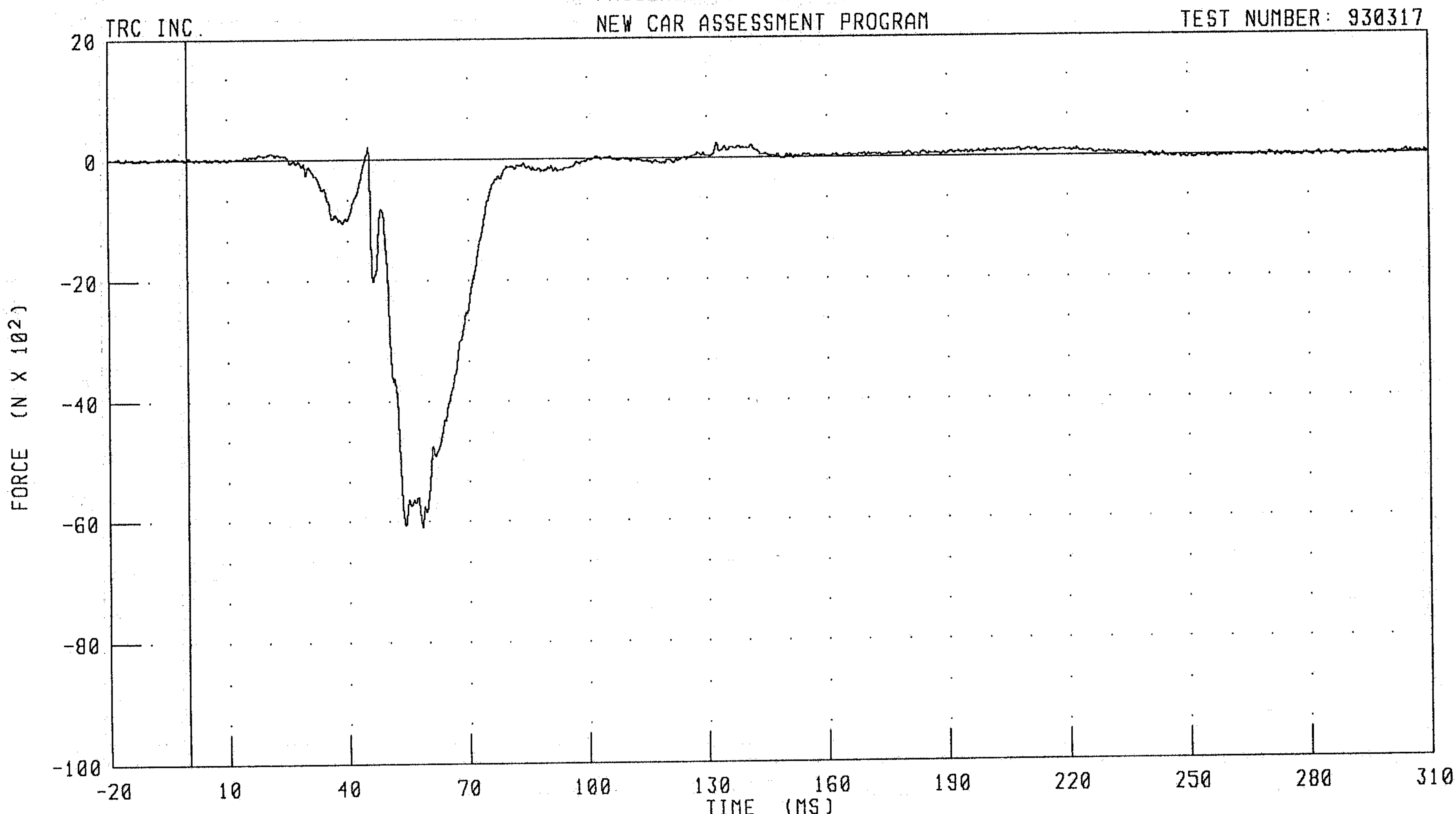
TEST NUMBER: 930317



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

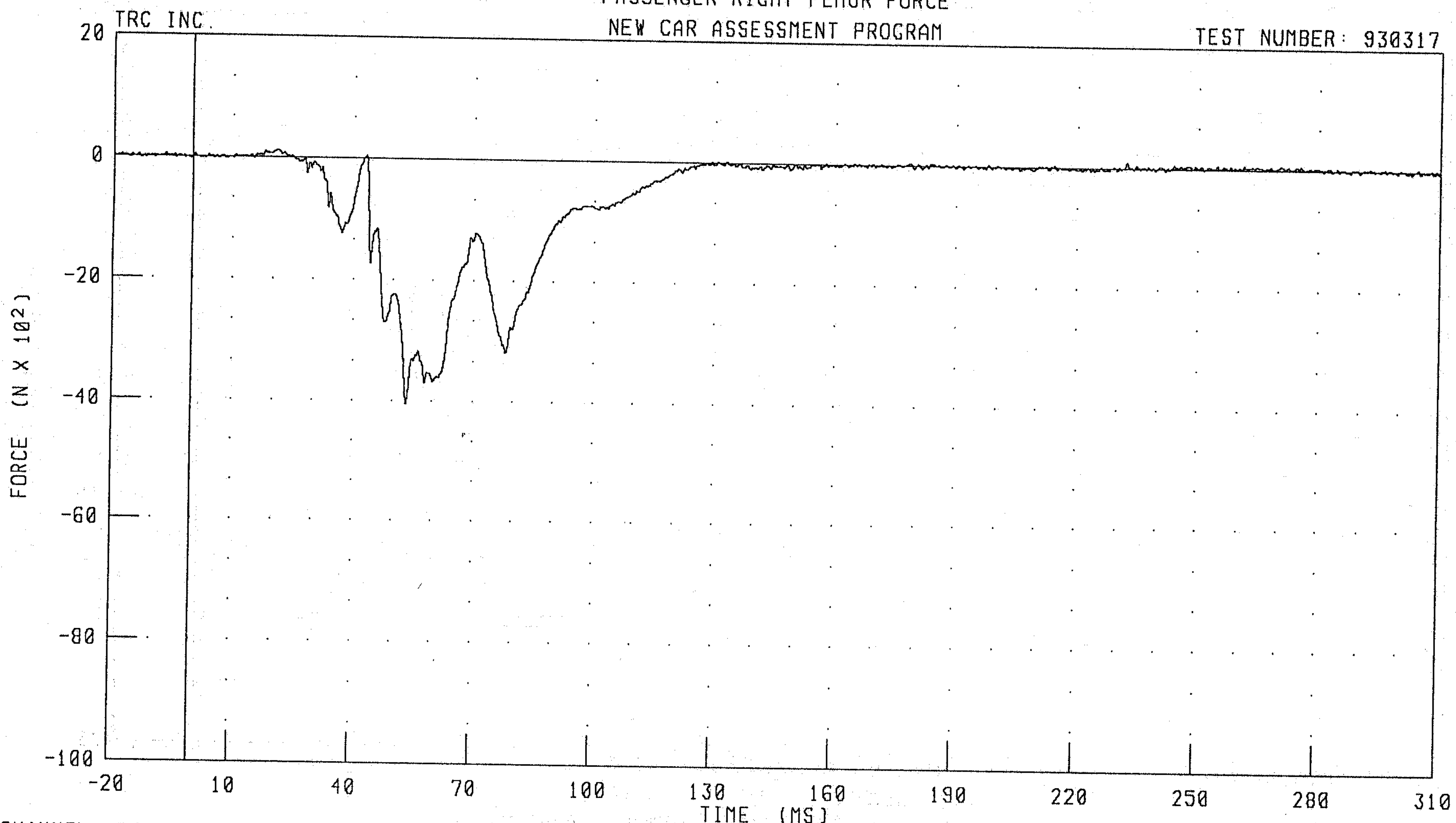
PEAK DATA: 47.56 G @ 49.63 MS; 0.08 G @ -14.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM



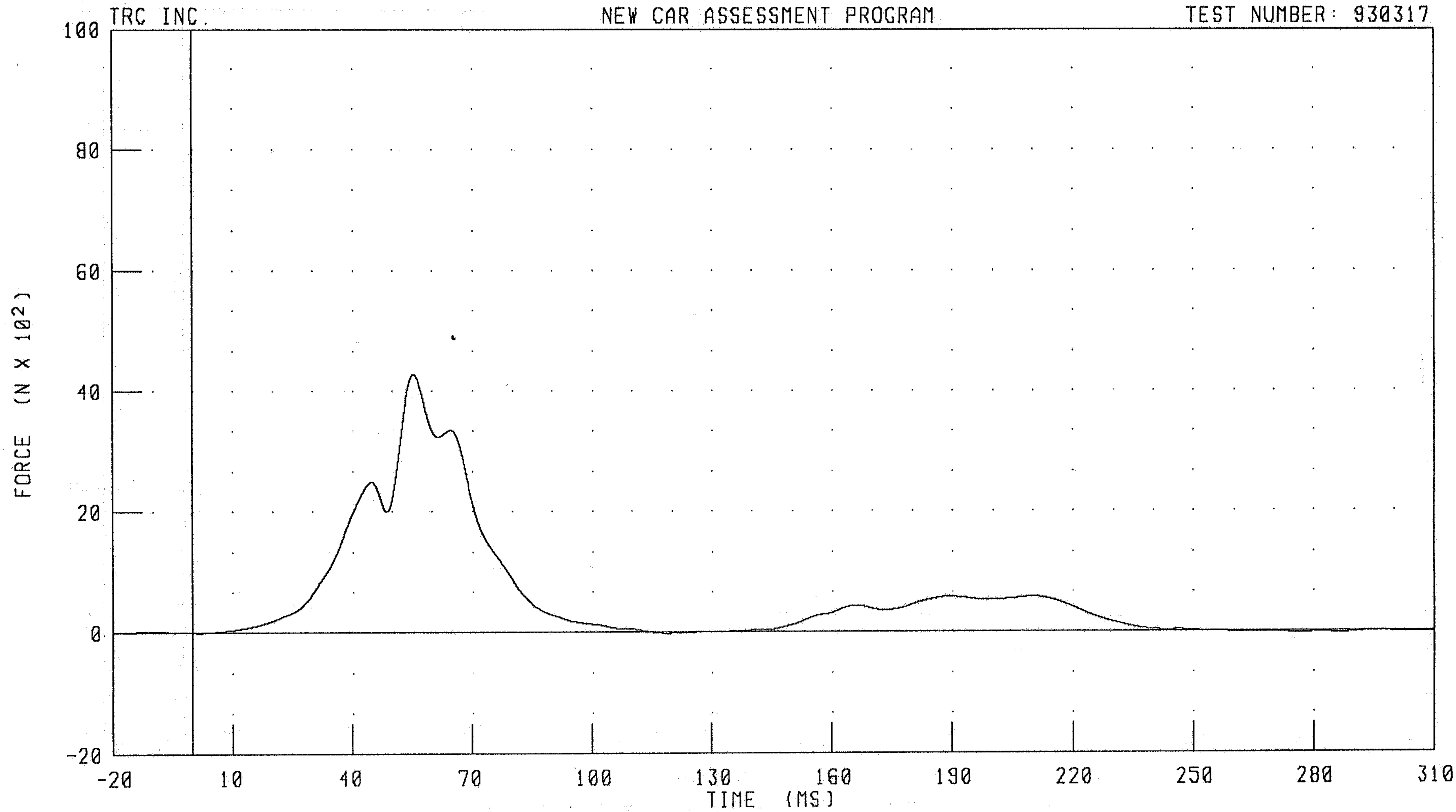
CHANNEL: LFMF2 FILTER: CH. CLASS 600 PEAK DATA: 235.32 N @ 132.50 MS, -6097.34 N @ 58.38 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: RFMF2 FILTER: CH. CLASS 600 PEAK DATA: 117.24 N @ 21.25 MS; -4046.58 N @ 53.50 MS

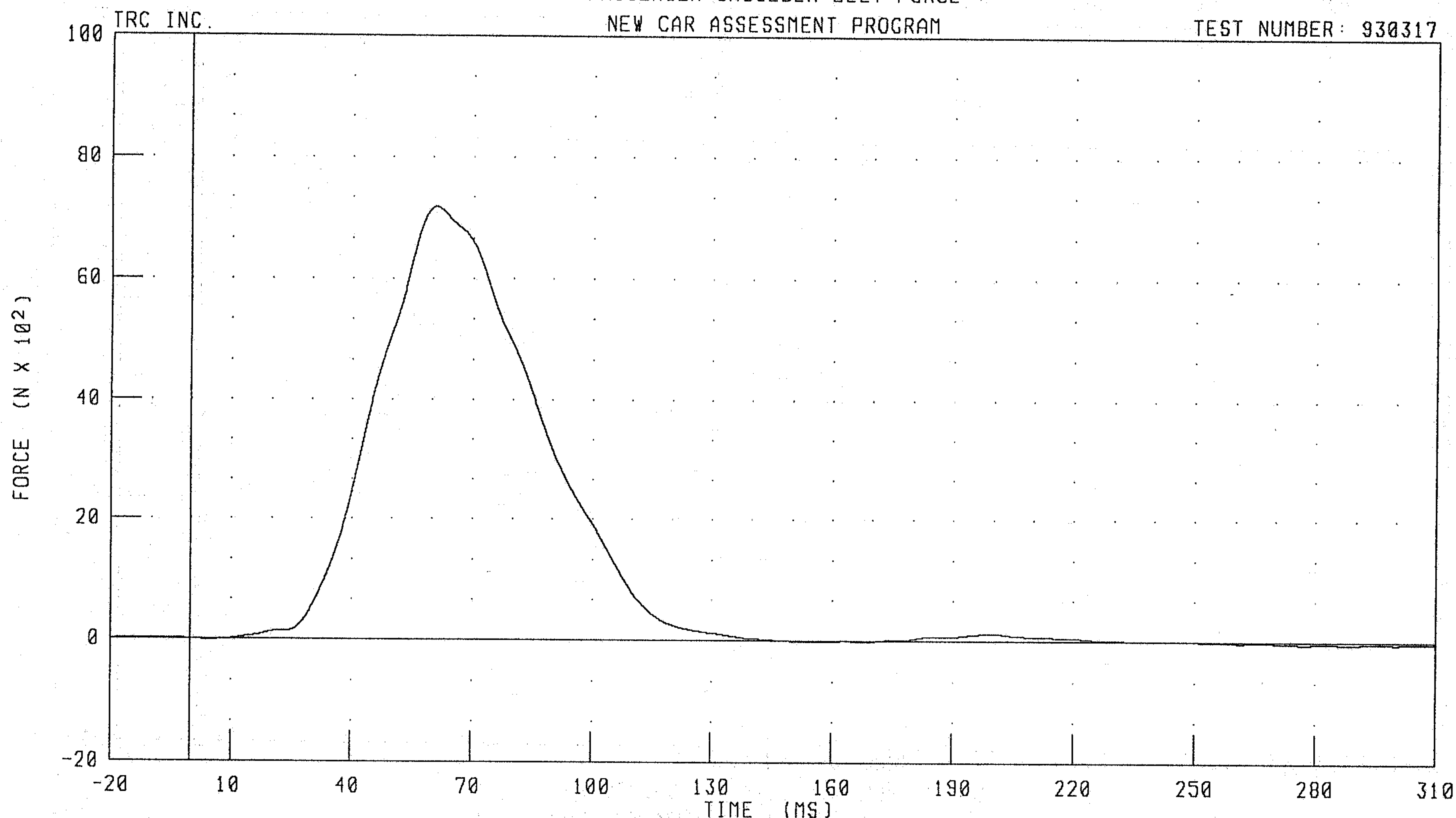
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LBOF2 FILTER: CH. CLASS 60 PEAK DATA: 4274.03 N @ 55.38 MS; -27.14 N @ 276.25 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
NEW CAR ASSESSMENT PROGRAM

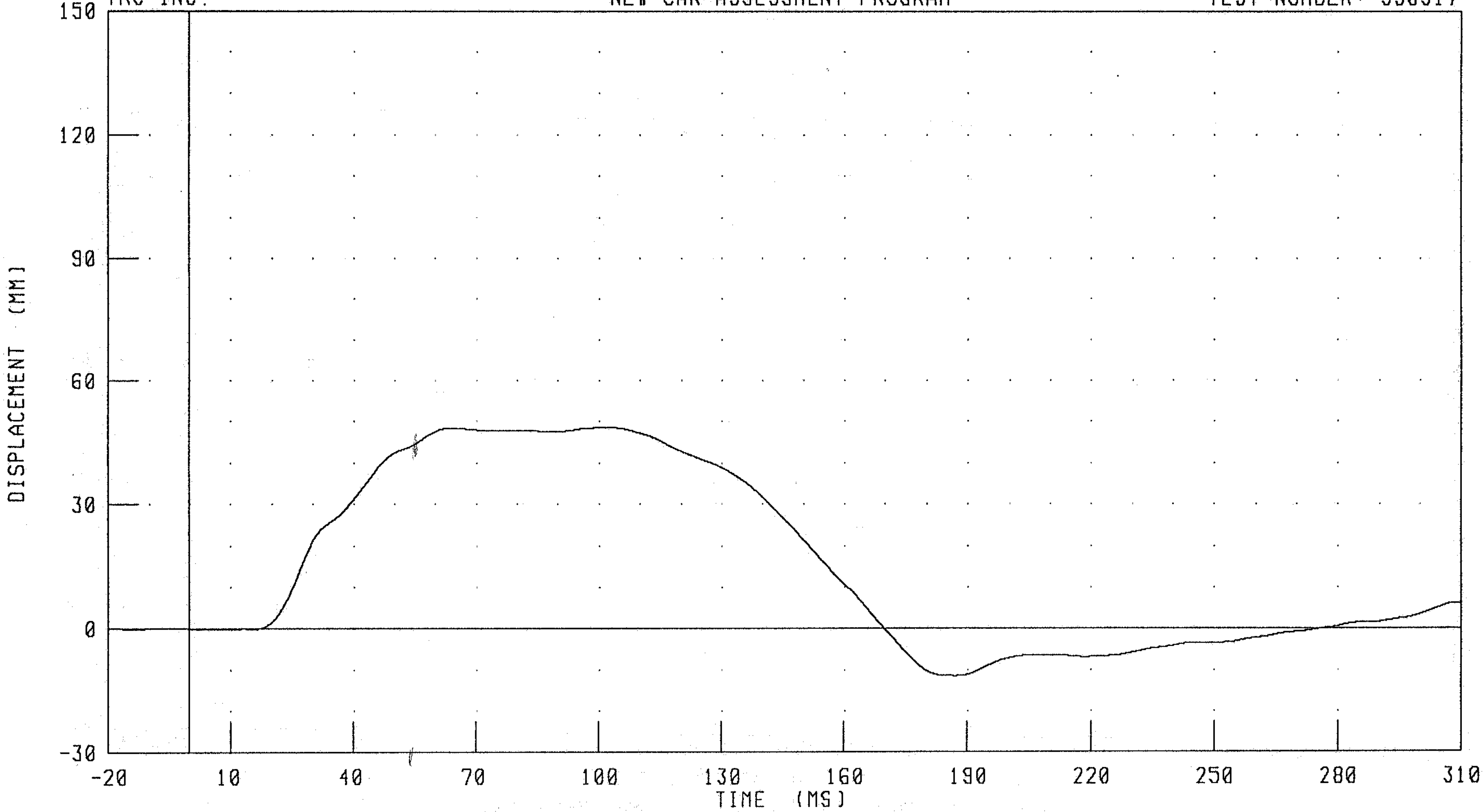
TEST NUMBER: 930317



CHANNEL: SHBF2 FILTER: CH. CLASS 60 PEAK DATA: 7177.89 N @ 60.88 MS; -43.90 N @ 287.75 MS

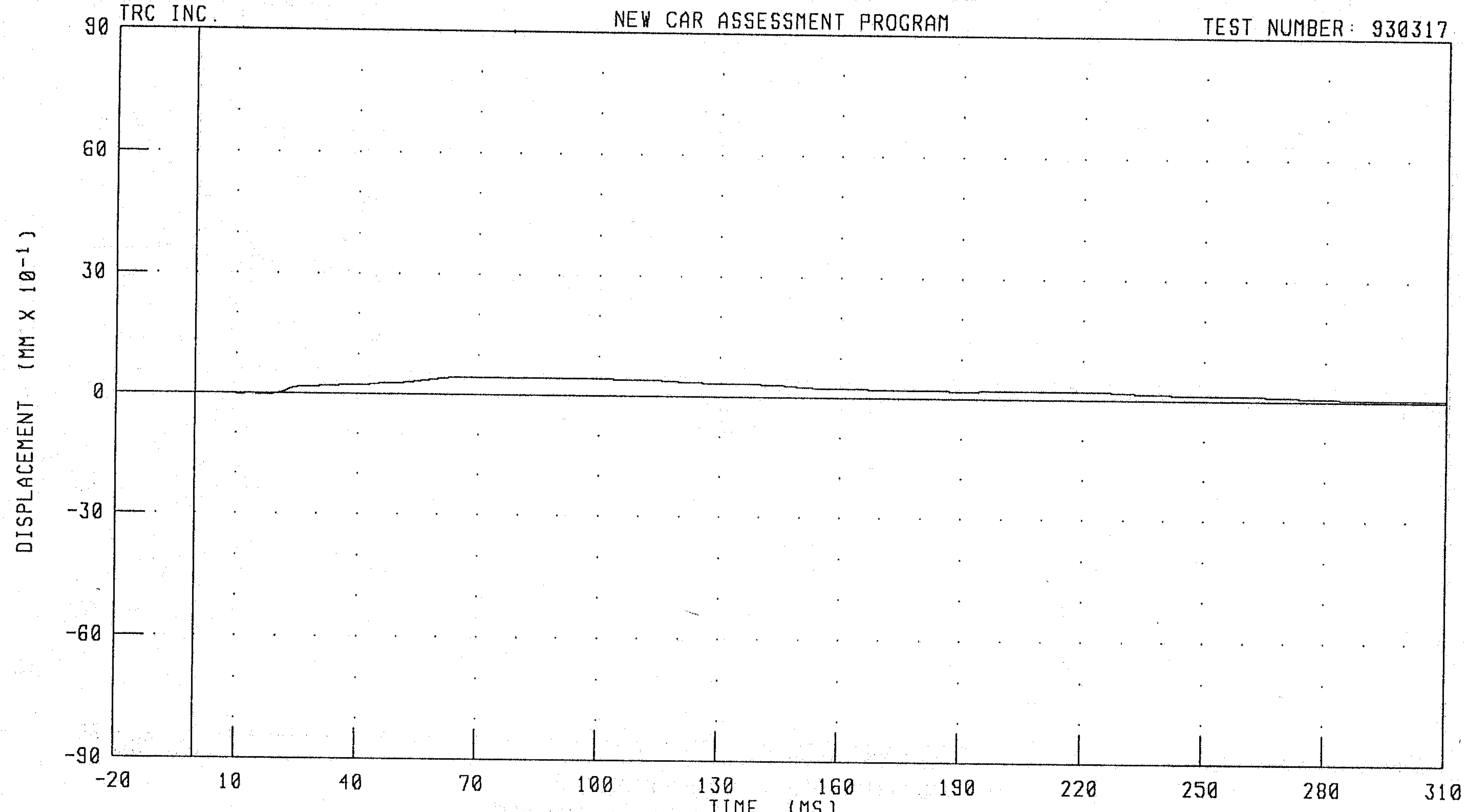
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317



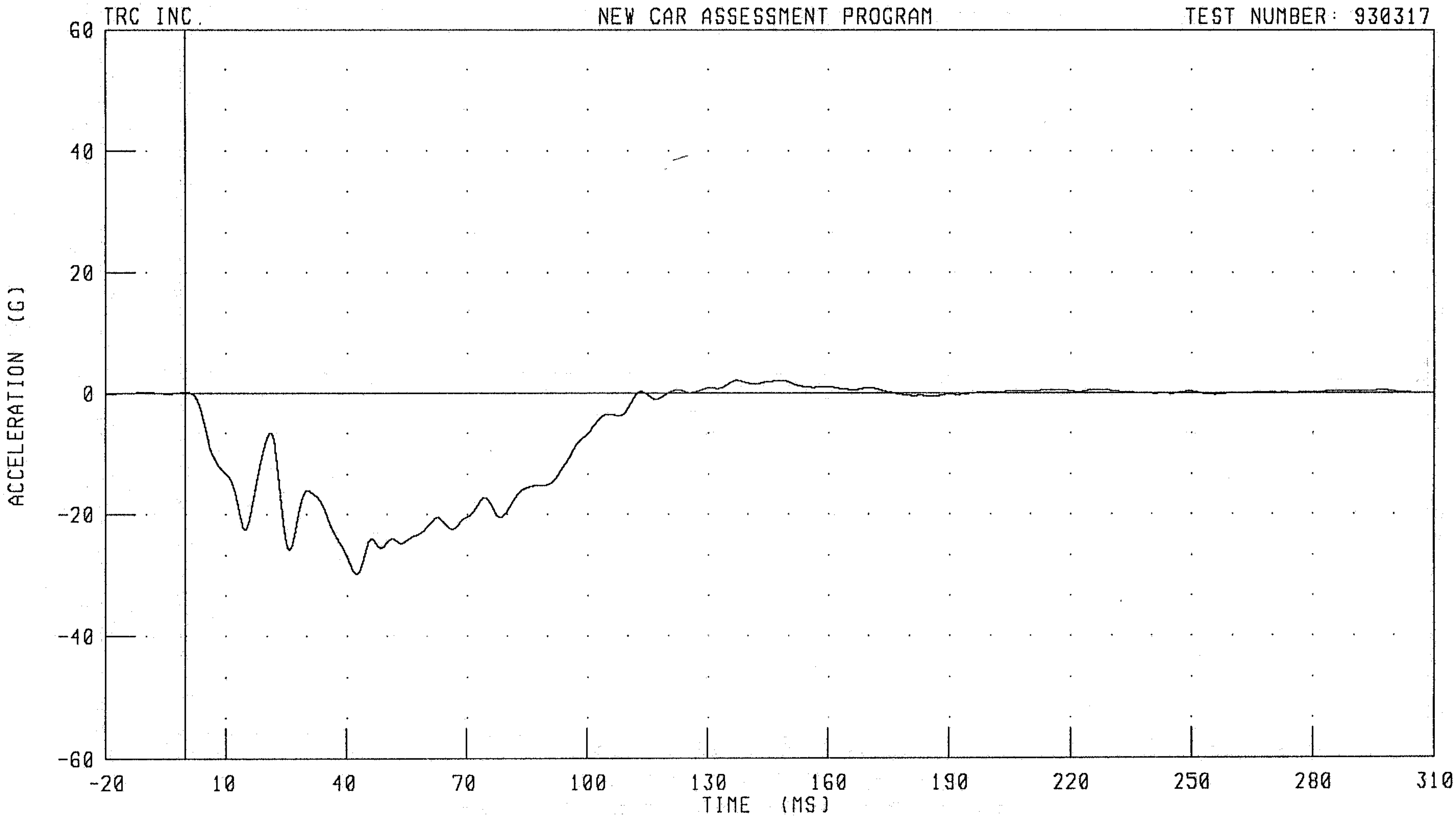
CHANNEL: SHBD2 FILTER: CH. CLASS 60 PEAK DATA: 48.64 MM @ 101.63 MS; -11.48 MM @ 187.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT PROGRAM



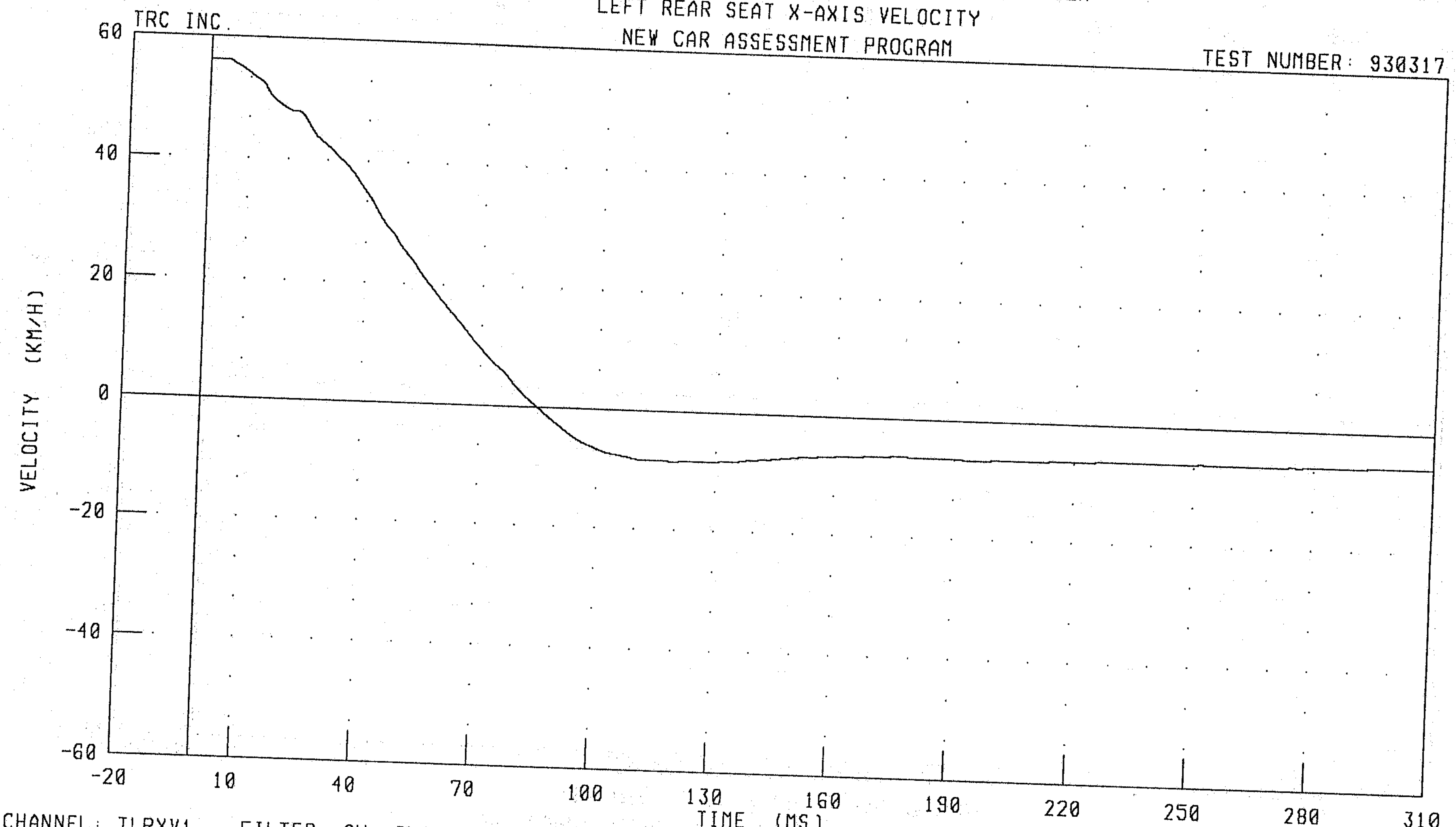
CHANNEL: SBE02 FILTER: CH. CLASS 60 PEAK DATA: 0.44 MM @ 79.75 MS; -0.01 MM @ 17.63 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: TLRXG1 FILTER: CH. CLASS 60 PEAK DATA: 2.14 G @ 137.25 MS; -29.80 G @ 42.50 MS

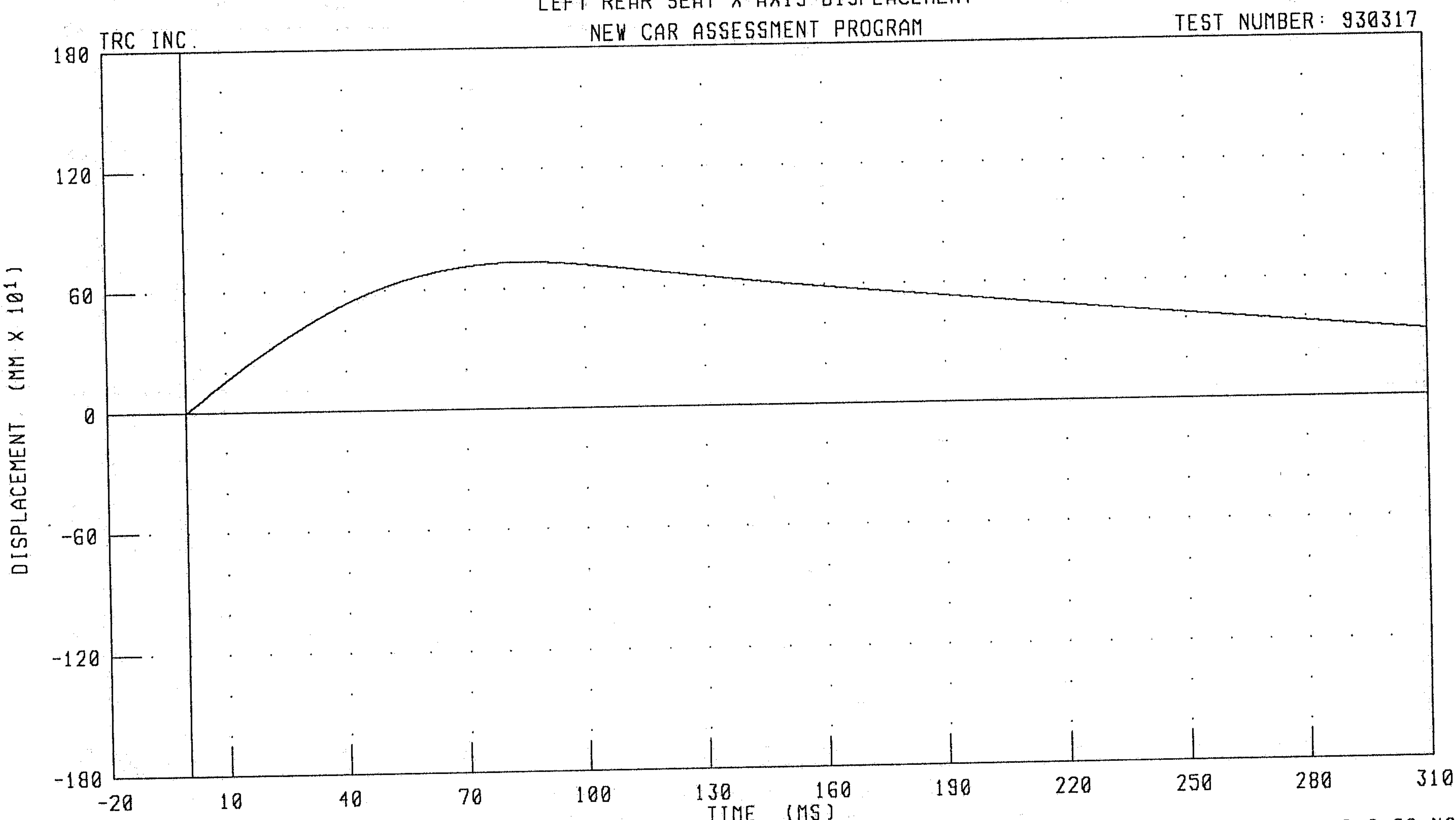
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS VELOCITY
NEW CAR ASSESSMENT PROGRAM



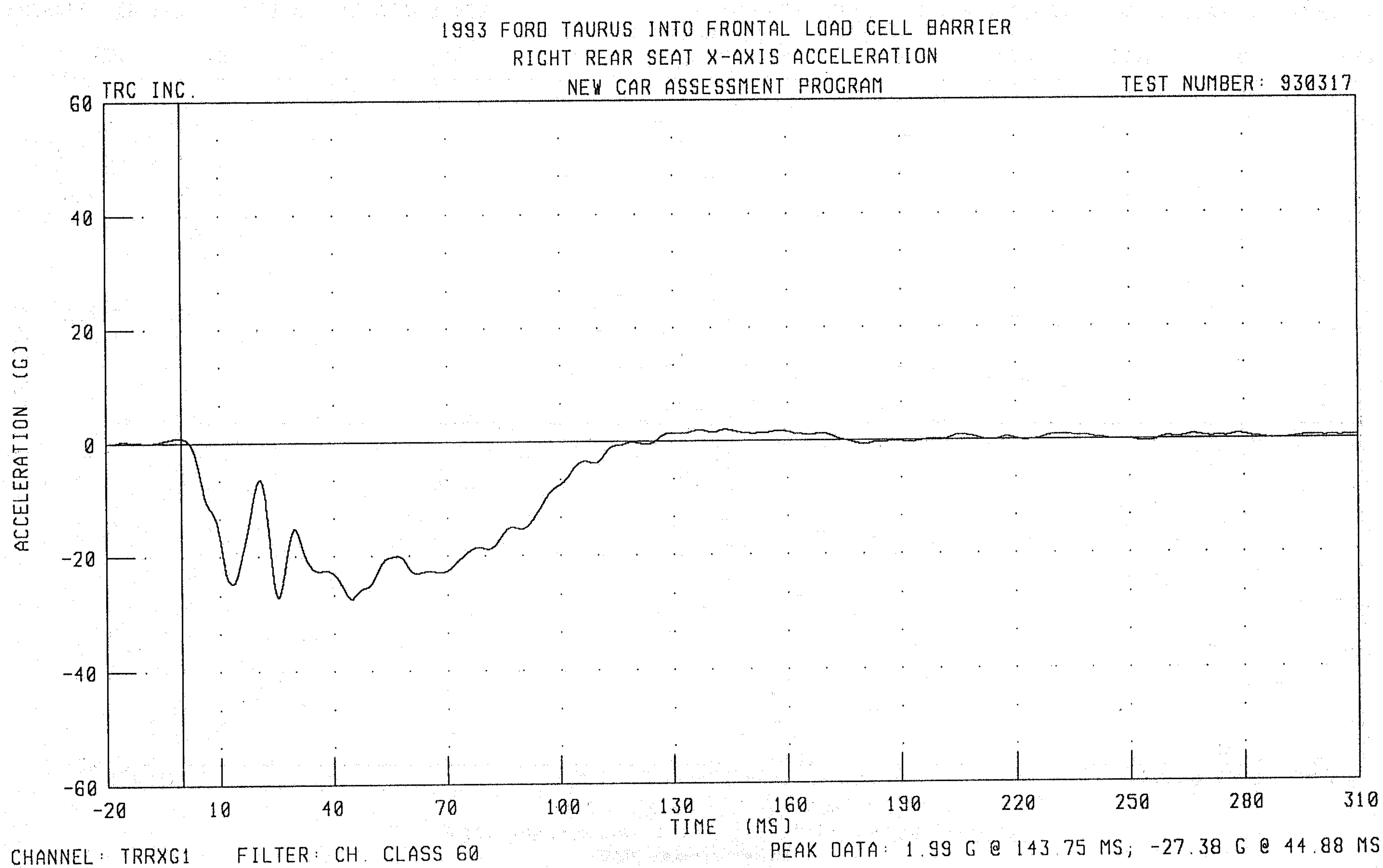
CHANNEL: TLRXV1 FILTER: CH. CLASS 180

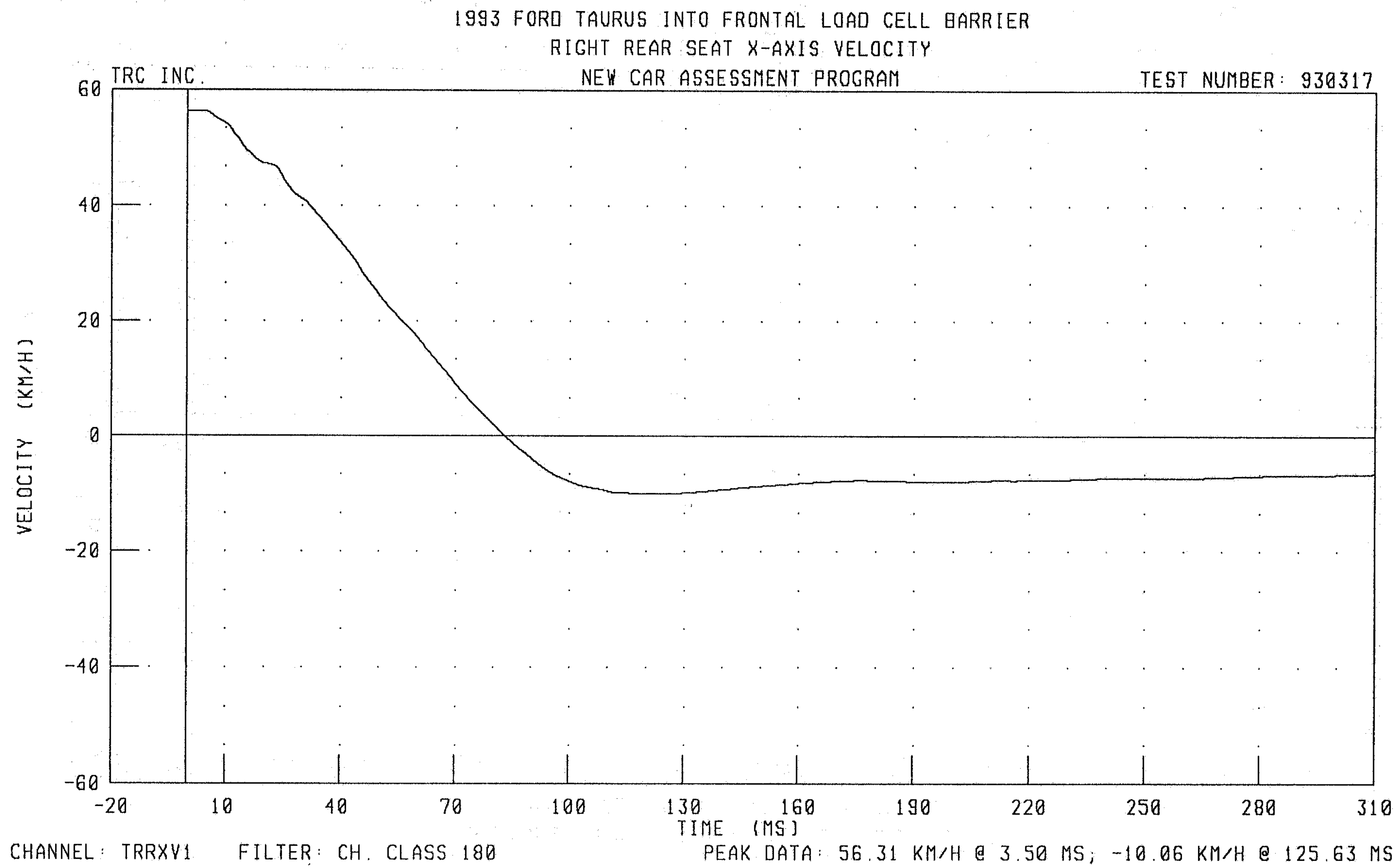
PEAK DATA: 56.30 KM/H @ 0.00 MS; -8.39 KM/H @ 119.13 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

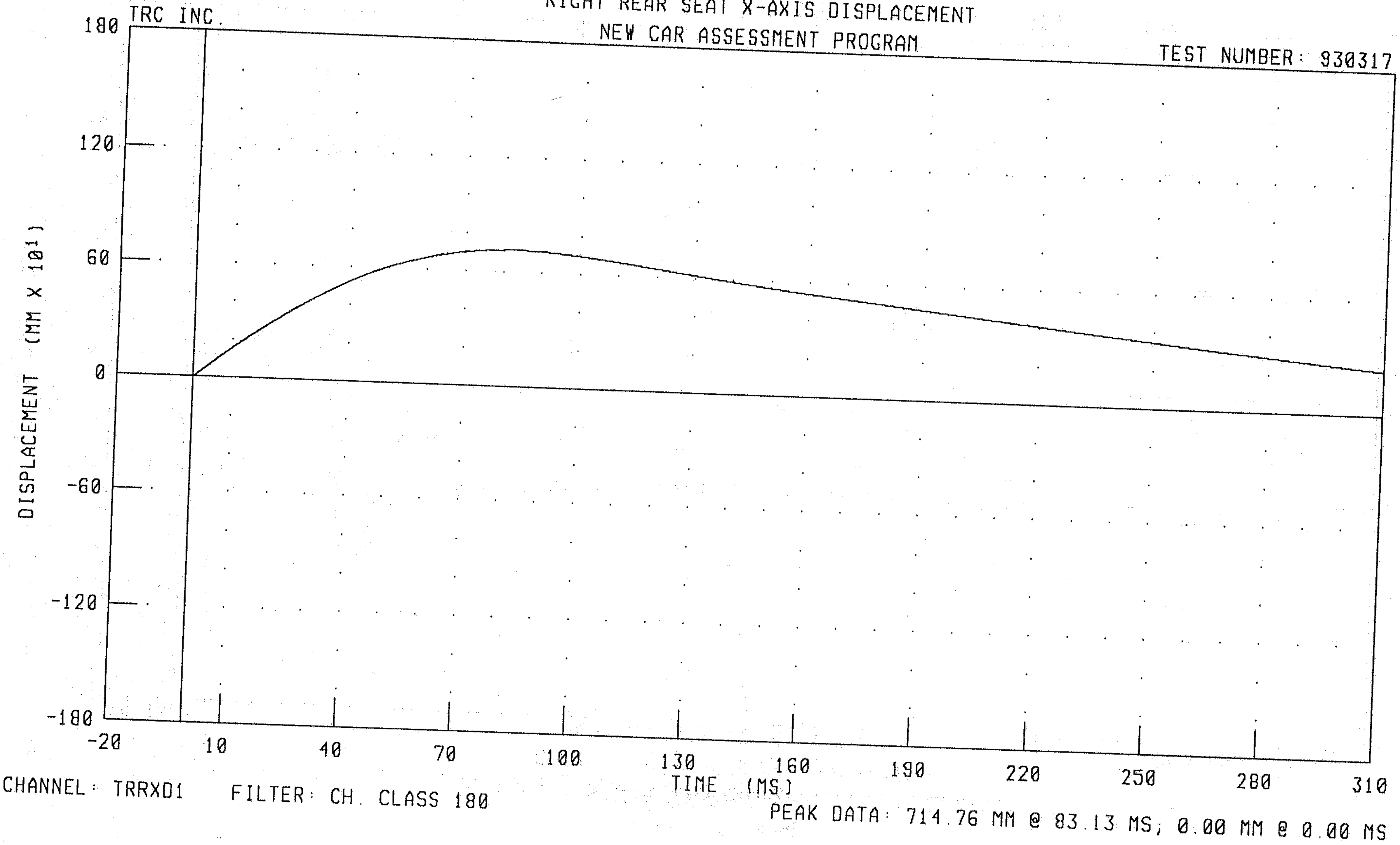


CHANNEL: TLRXD1 FILTER: CH. CLASS 180 PEAK DATA: 732.33 MM @ 84.88 MS; 0.00 MM @ 0.00 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
ACCELERATION (G)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TRRXG1
FILTER: CH. CLASS 60
PEAK DATA: 1.99 G @ 143.75 MS; -27.38 G @ 44.88 MS

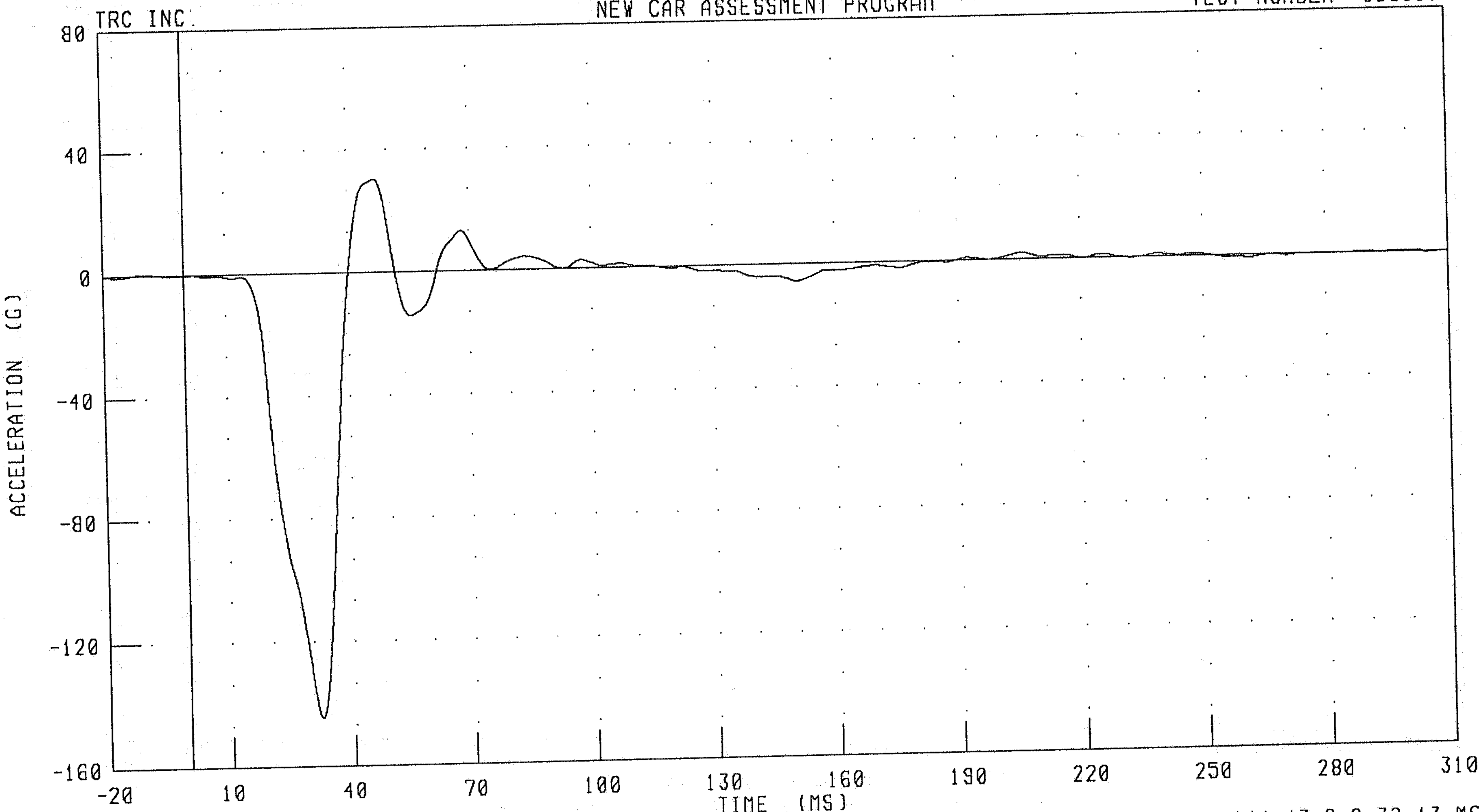

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS VELOCITY
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
VELOCITY (KM/H)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TRRXV1
FILTER: CH. CLASS 180
PEAK DATA: 56.31 KM/H @ 3.50 MS; -10.06 KM/H @ 125.63 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM



1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317

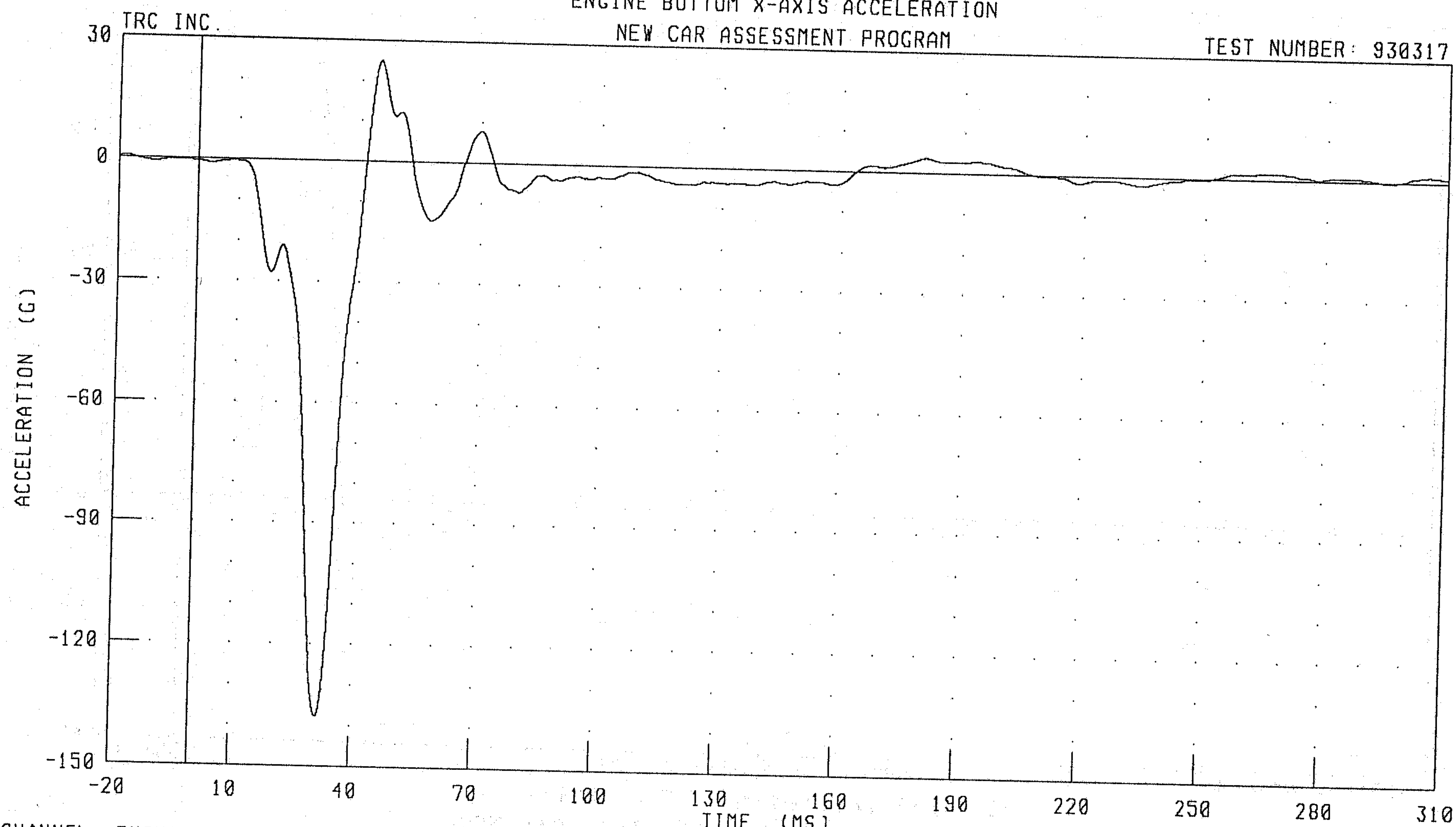


PEAK DATA: 30.24 G @ 47.00 MS; -144.43 G @ 32.13 MS

CHANNEL: ENGXG1   FILTER: CH. CLASS 60

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



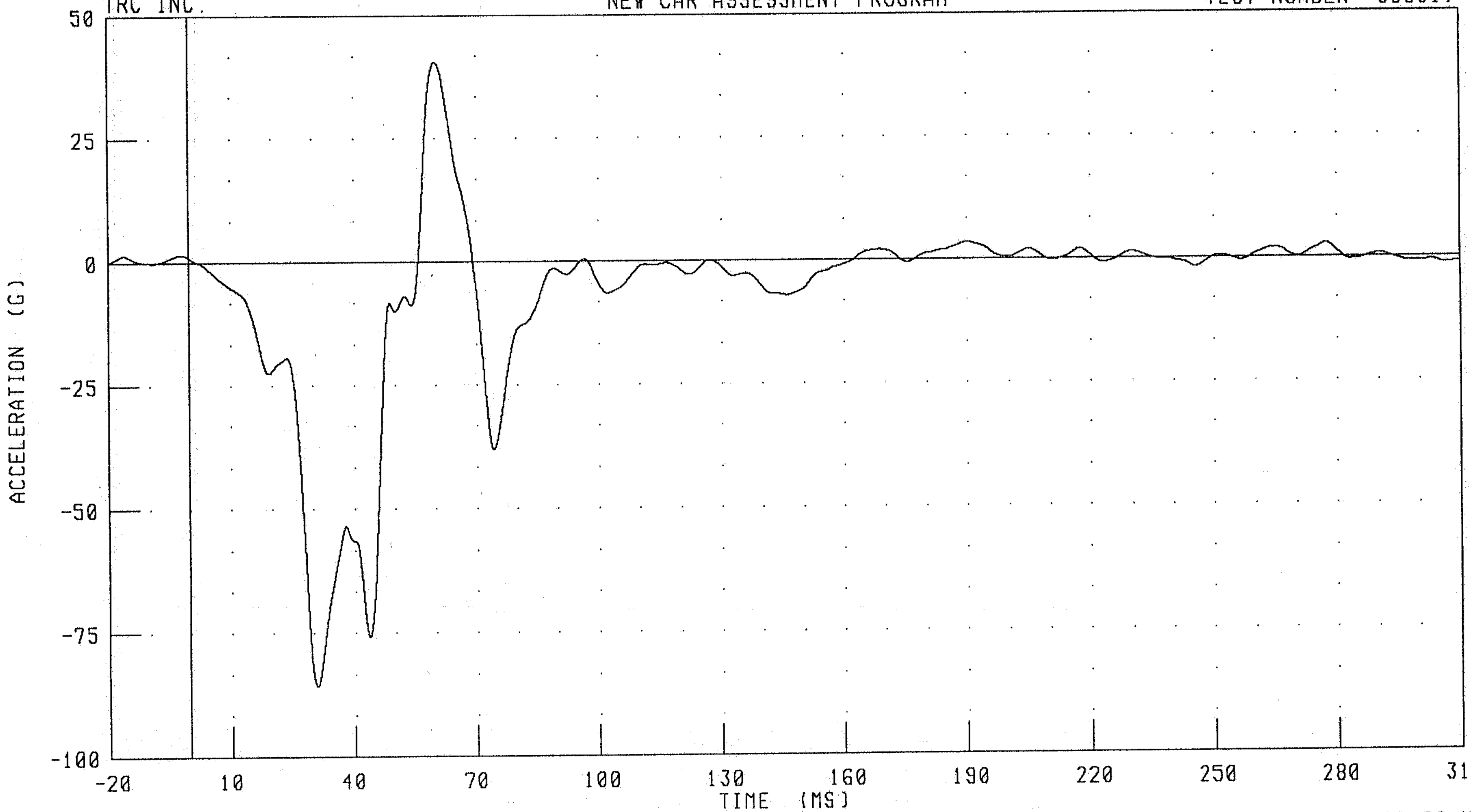
CHANNEL: ENGXG2 FILTER: CH. CLASS 60

PEAK DATA: 25.01 G @ 44.75 MS; -137.75 G @ 31.50 MS

930317

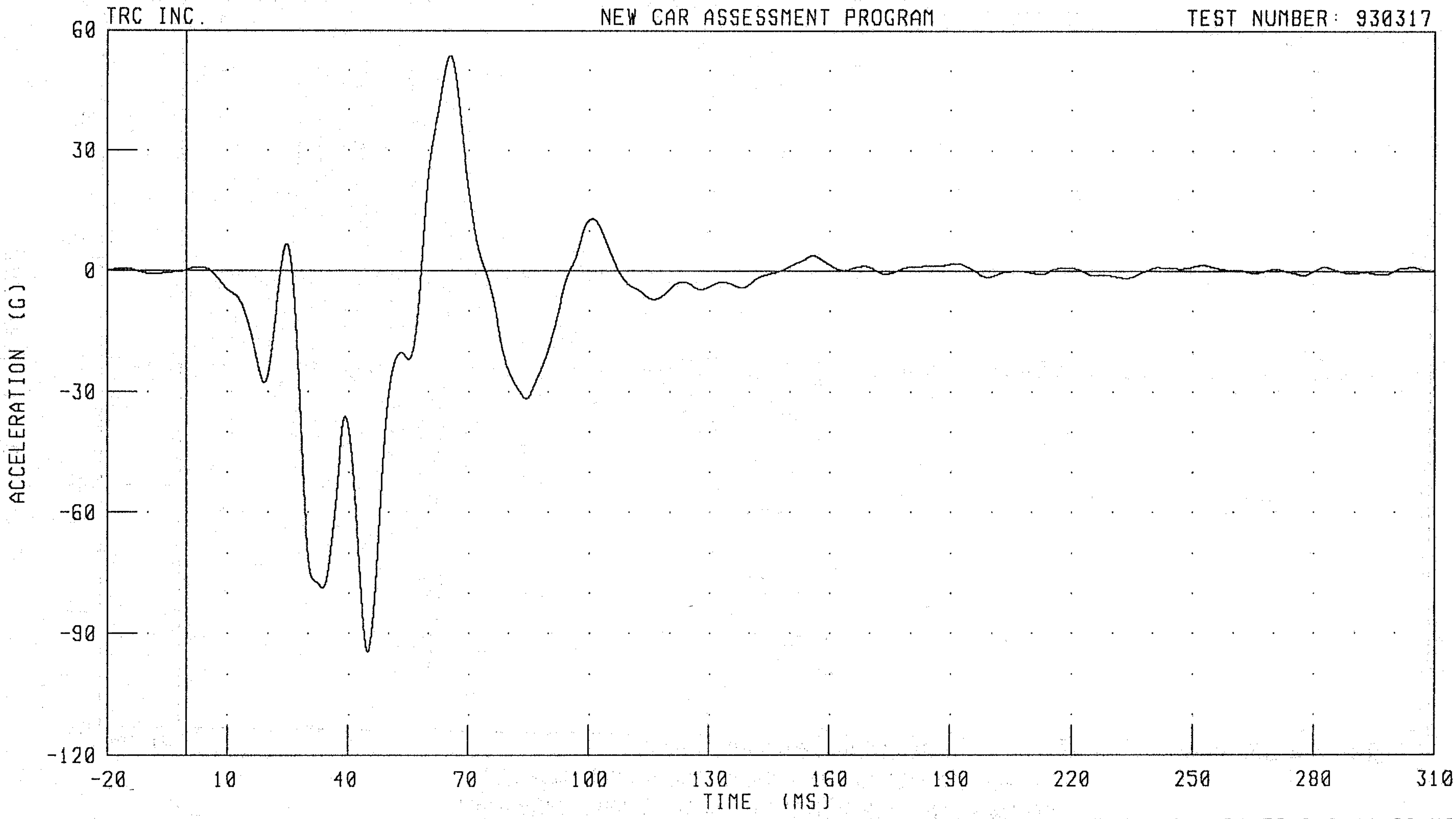
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317



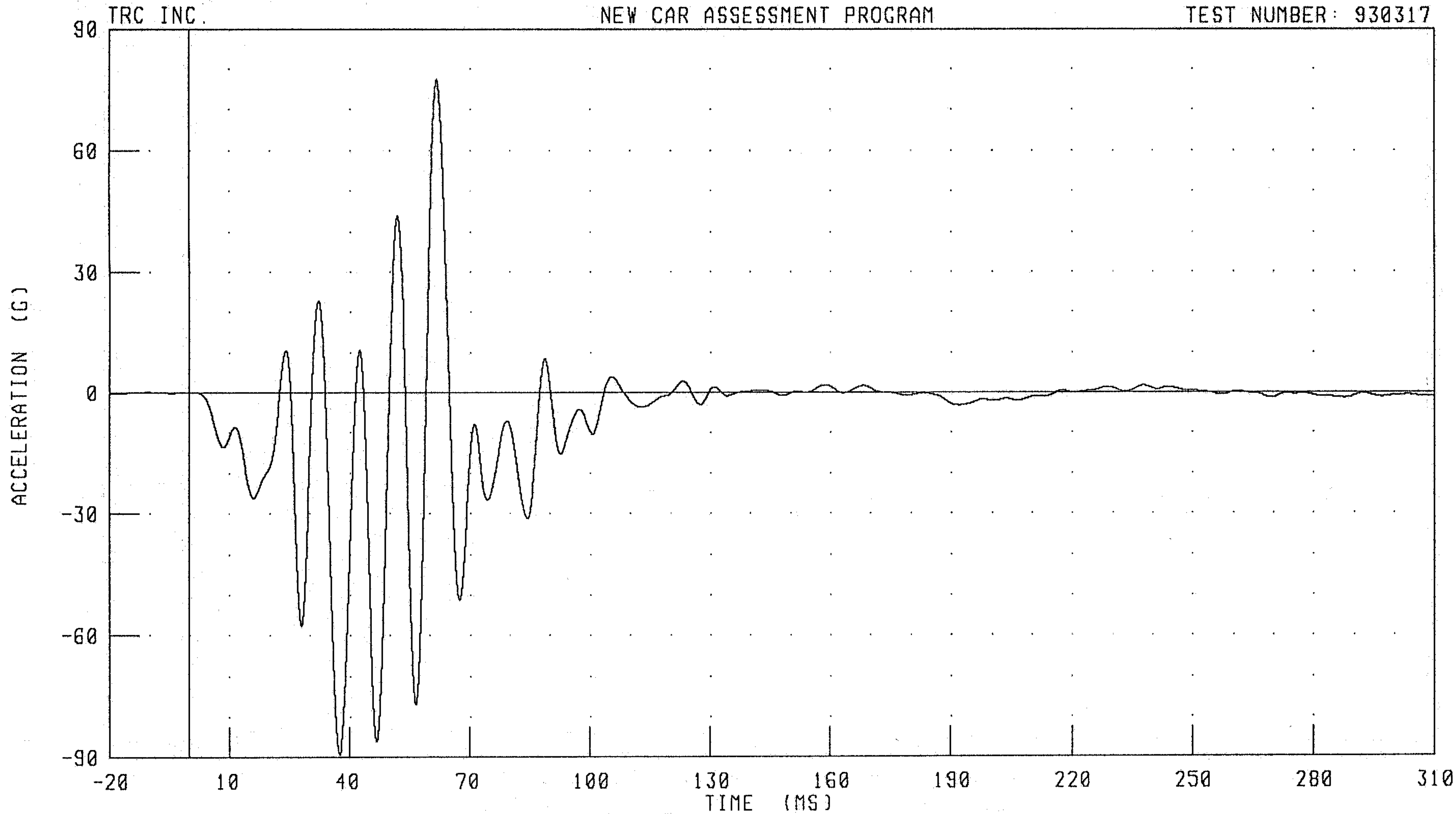
CHANNEL: BCRXG1 FILTER: CH. CLASS 60 PEAK DATA: 40.40 G @ 60.00 MS; -85.78 G @ 30.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



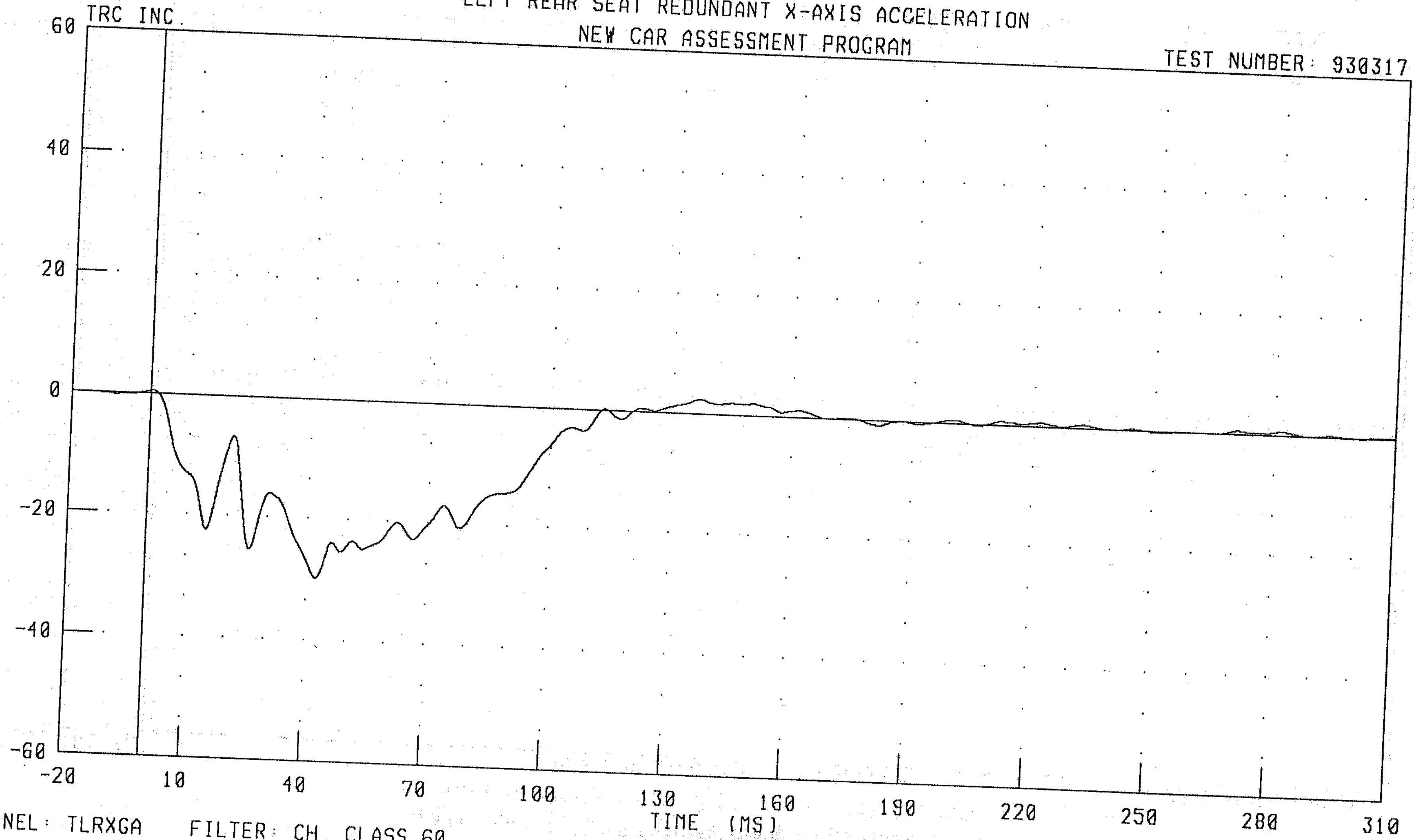
CHANNEL: BCLXG1 FILTER: CH. CLASS 60 PEAK DATA: 53.67 G @ 65.50 MS; -94.58 G @ 44.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: DPCXG1 FILTER: CH. CLASS 60 PEAK DATA: 77.46 G @ 61.75 MS; -89.41 G @ 37.50 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



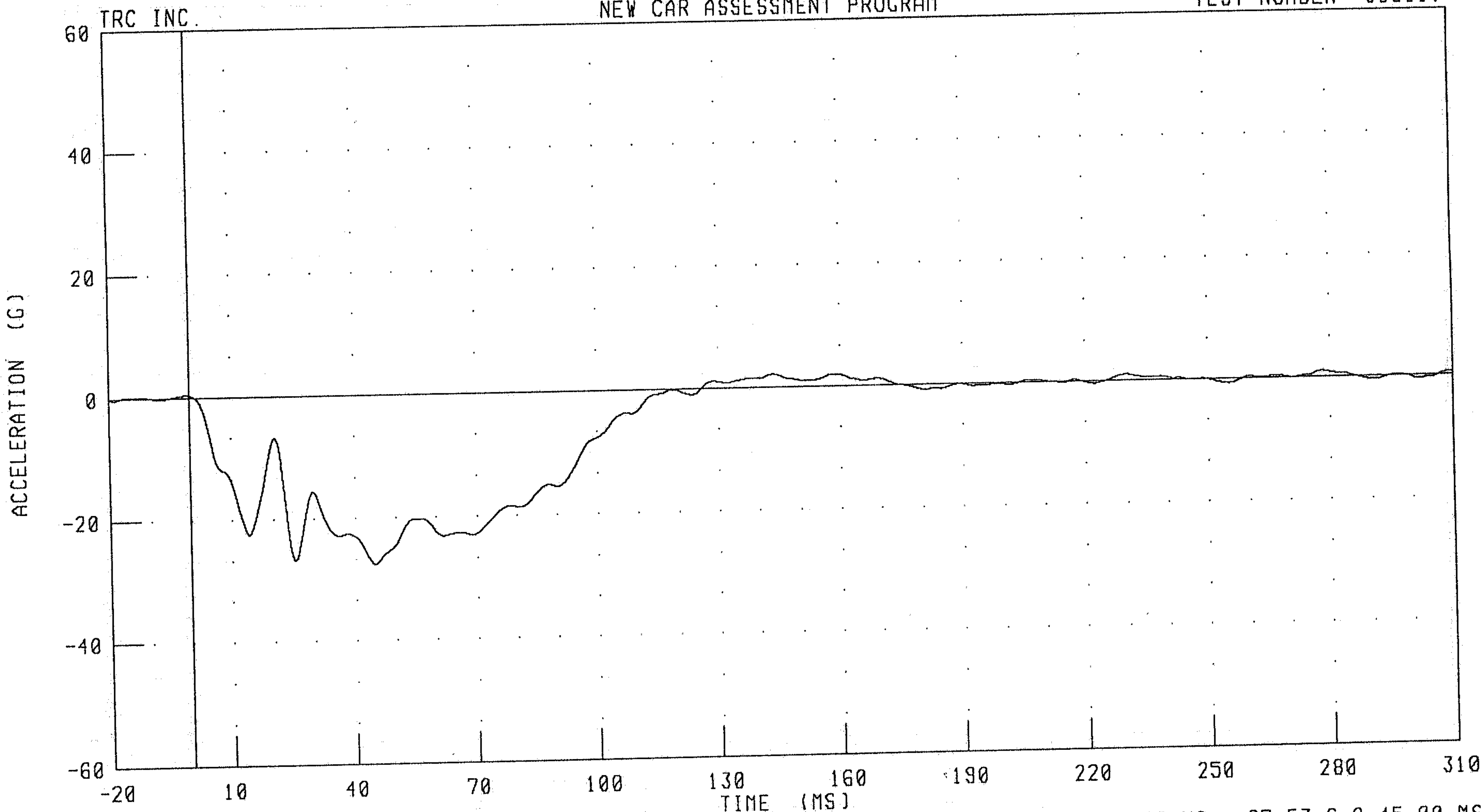
CHANNEL: TLRXGA FILTER: CH. CLASS 60

PEAK DATA: 2.44 G @ 137.00 MS; -29.76 G @ 42.50 MS

930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317

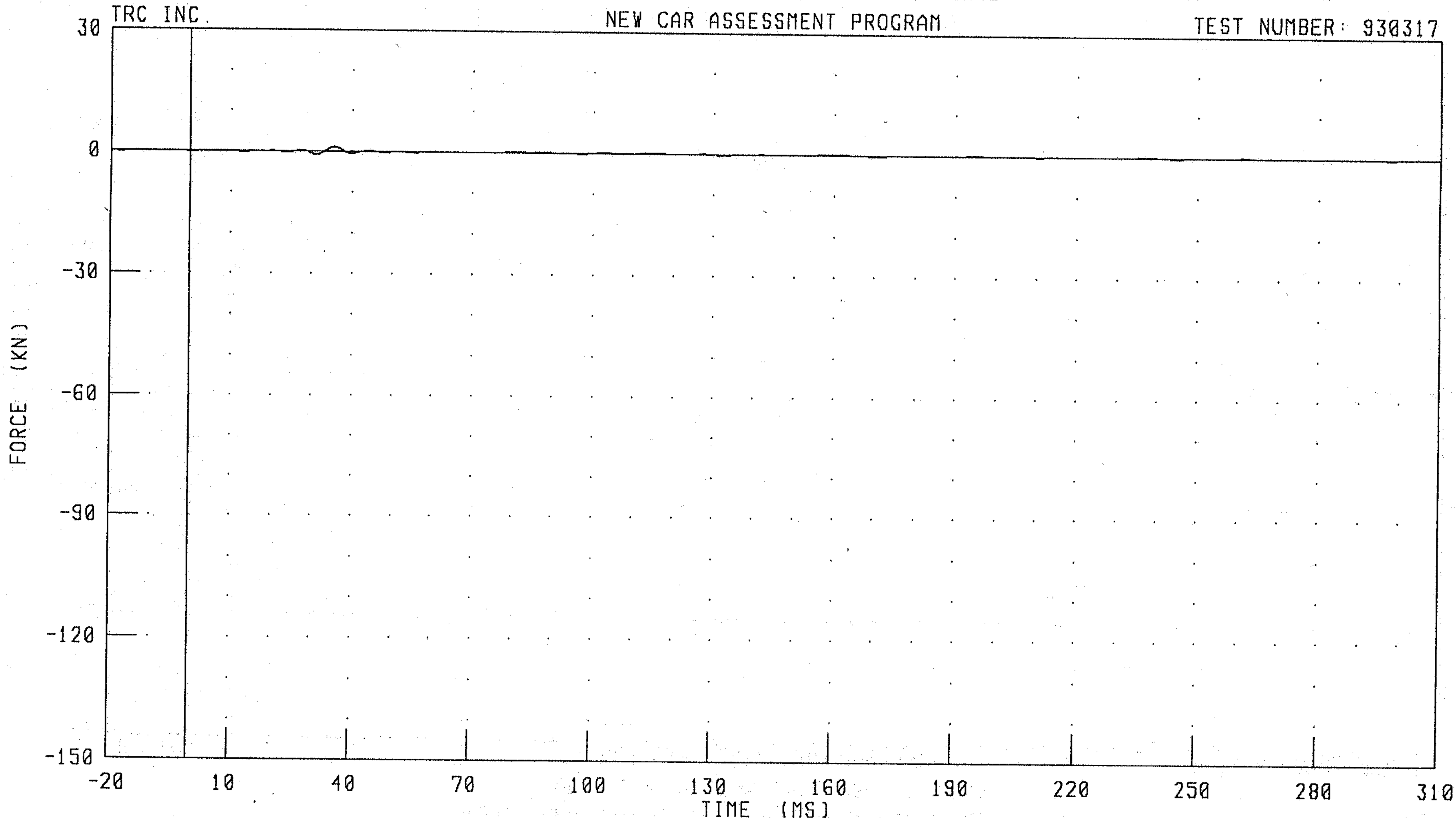


CHANNEL: TRRXGA FILTER: CH. CLASS 60

PEAK DATA: 2.15 G @ 143.63 MS; -27.53 G @ 45.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE
NEW CAR ASSESSMENT PROGRAM

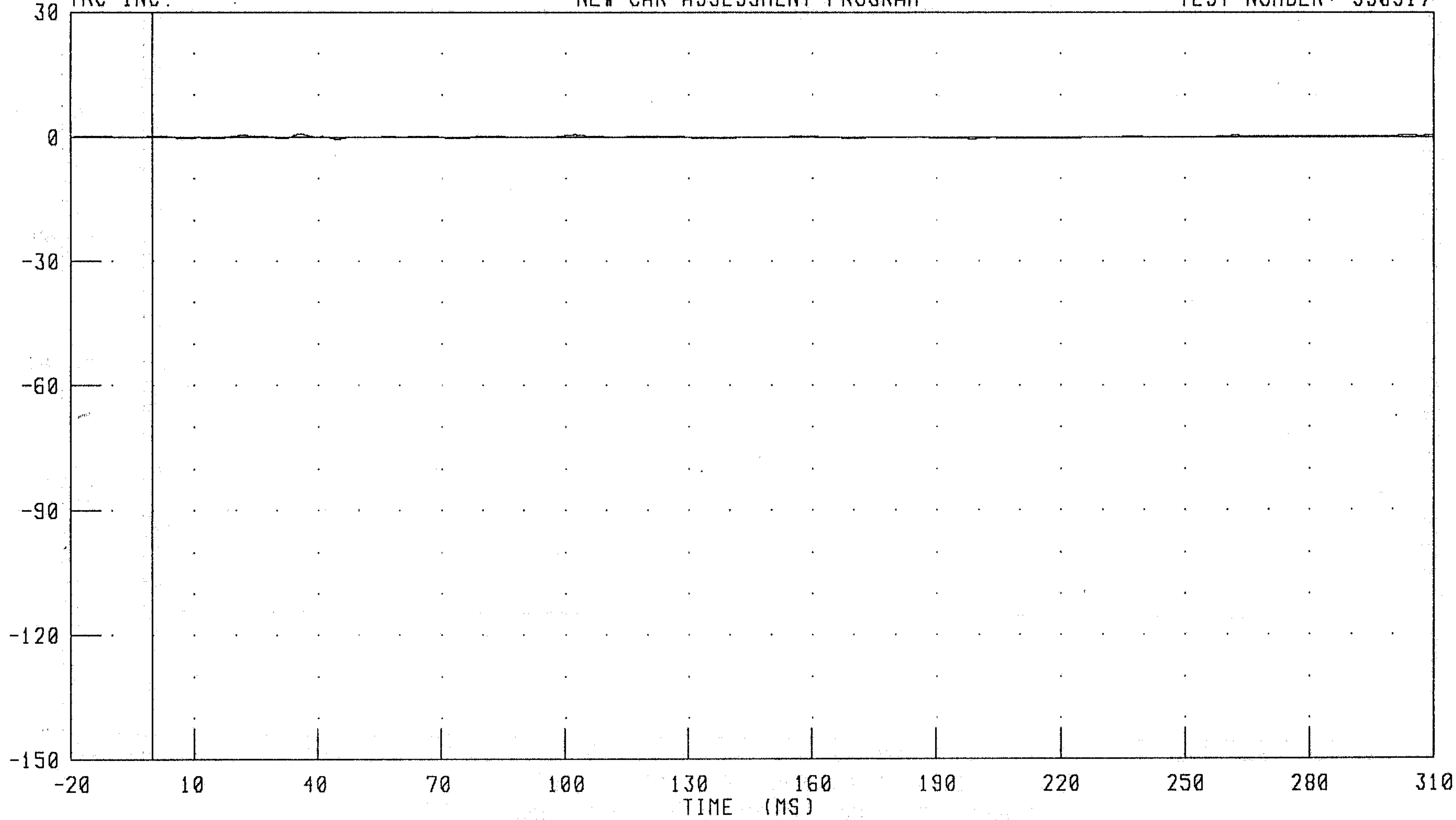
TEST NUMBER: 930317



CHANNEL: BA1F FILTER: CH. CLASS 60 PEAK DATA: 1.10 KN @ 35.63 MS; -0.87 KN @ 31.25 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE
NEW CAR ASSESSMENT PROGRAM

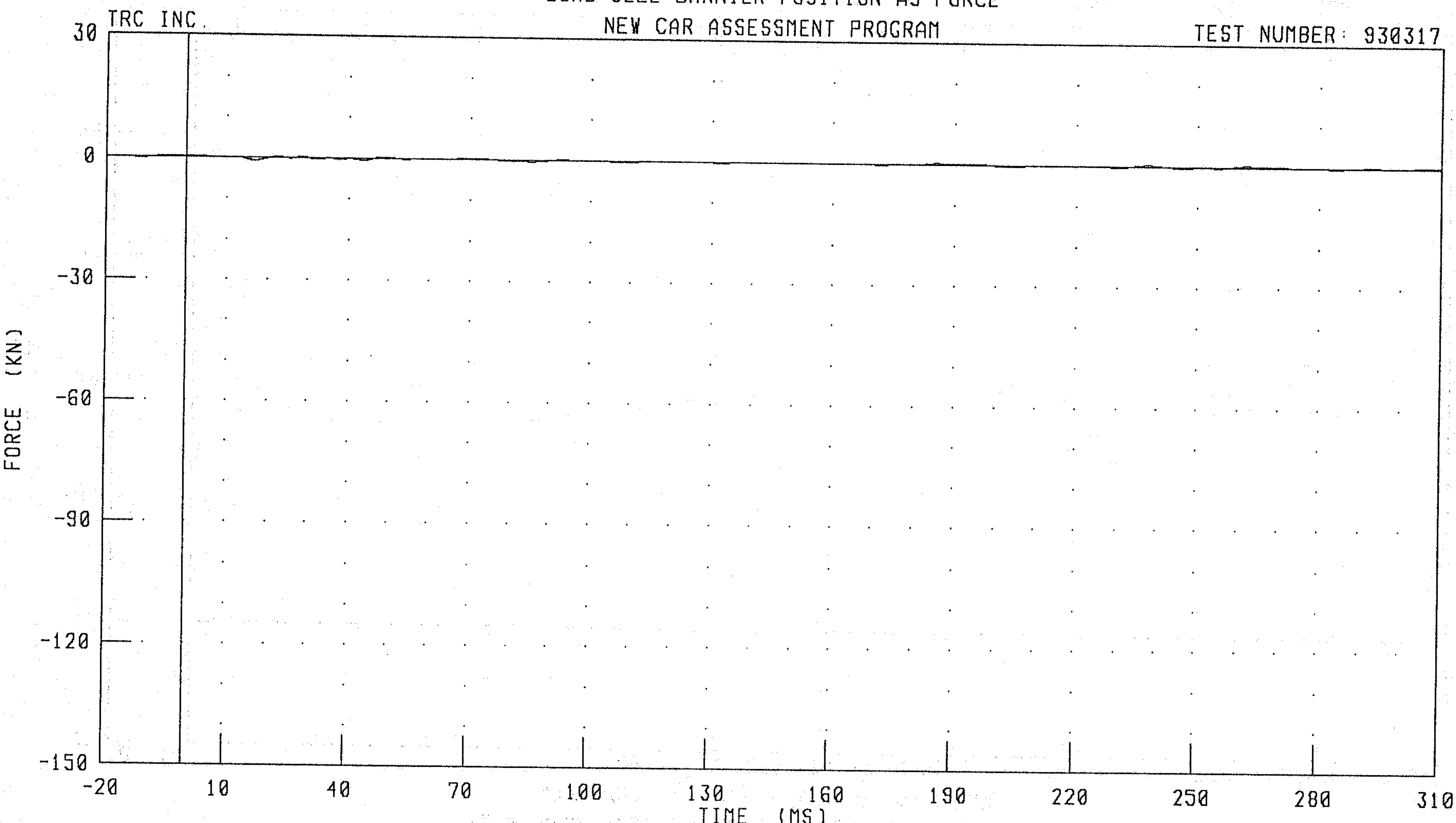
TRC INC.　　TEST NUMBER: 930317



CHANNEL: 8A2F　　FILTER: CH. CLASS 60　　PEAK DATA: 0.70 KN @ 35.75 MS; -0.49 KN @ 44.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE
NEW CAR ASSESSMENT PROGRAM

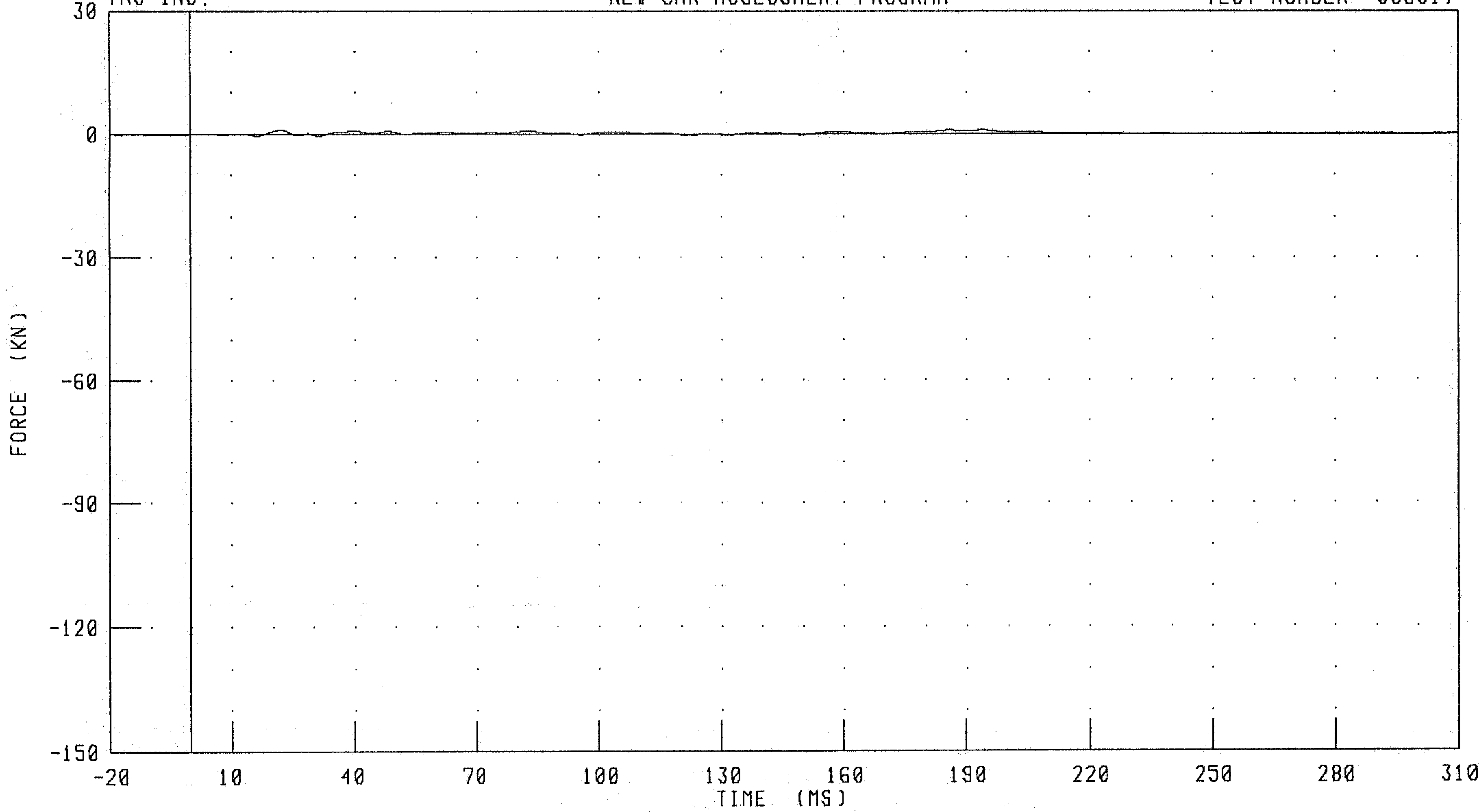
TEST NUMBER: 930317



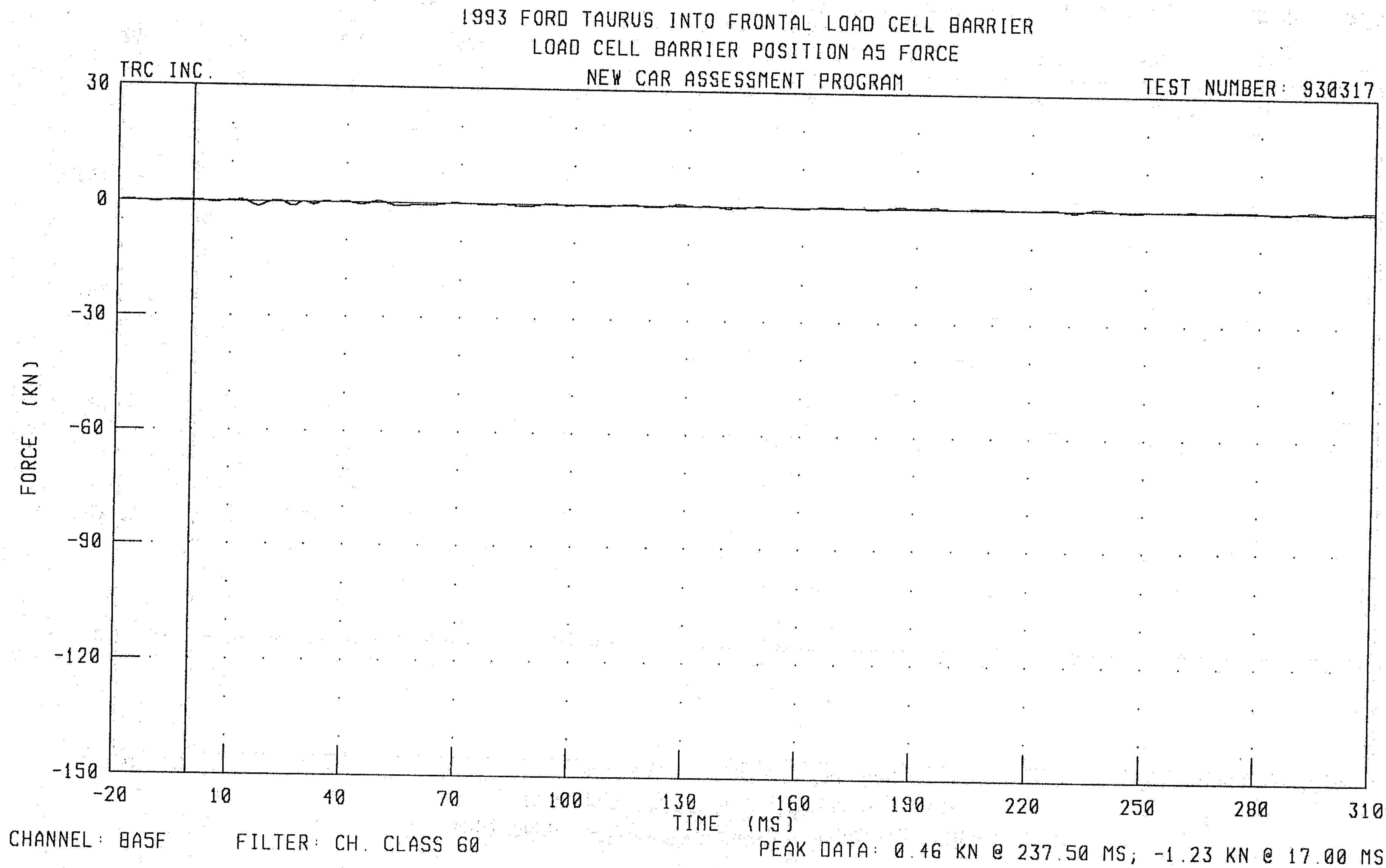
CHANNEL: BA3F FILTER: CH. CLASS 60 PEAK DATA: 0.37 KN @ 237.50 MS; -0.79 KN @ 16.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317



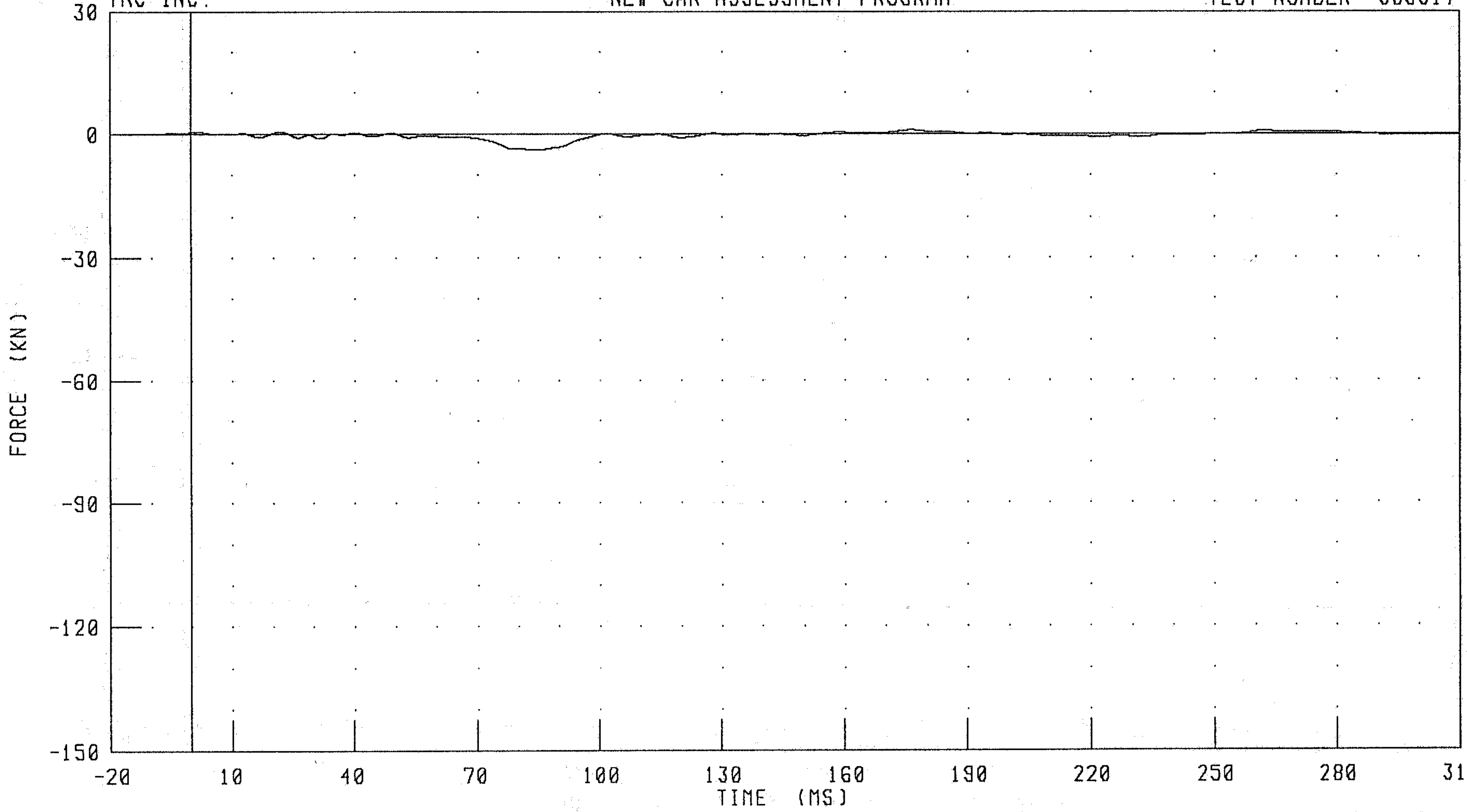
CHANNEL: BA4F FILTER: CH. CLASS 60 PEAK DATA: 0.94 KN @ 22.13 MS; -0.53 KN @ 31.38 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: 8A5F
FILTER: CH. CLASS 60
PEAK DATA: 0.46 KN @ 237.50 MS; -1.23 KN @ 17.00 MS

930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE
NEW CAR ASSESSMENT PROGRAM

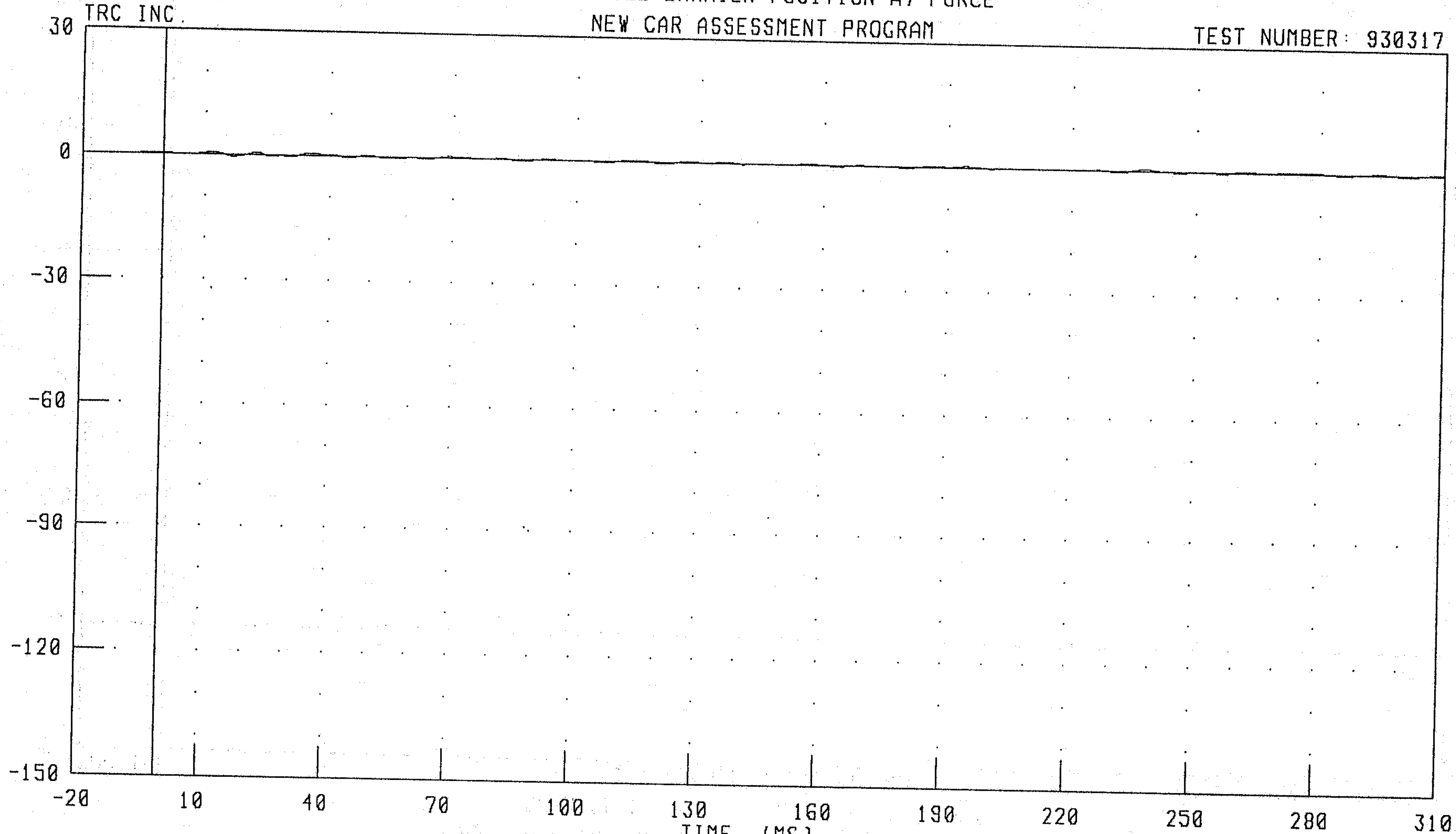
TRC INC. TEST NUMBER: 930317



CHANNEL: BA6F FILTER: CH. CLASS 60 PEAK DATA: 0.86 KN @ 176.38 MS; -3.86 KN @ 84.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE
NEW CAR ASSESSMENT PROGRAM

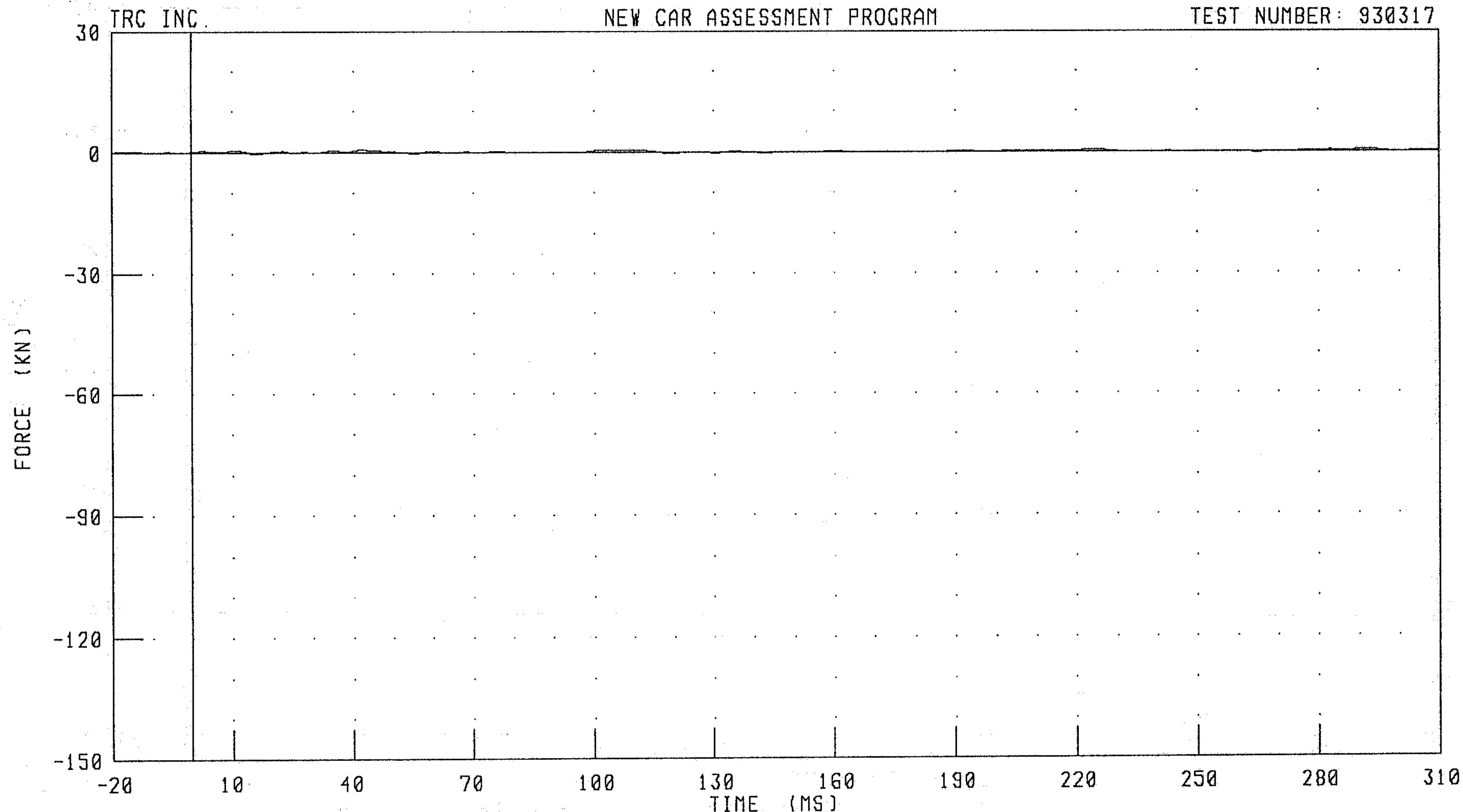
TEST NUMBER: 930317



CHANNEL: BA7F FILTER: CH. CLASS 60

PEAK DATA: 0.52 KN @ 22.50 MS; -0.46 KN @ 16.75 MS

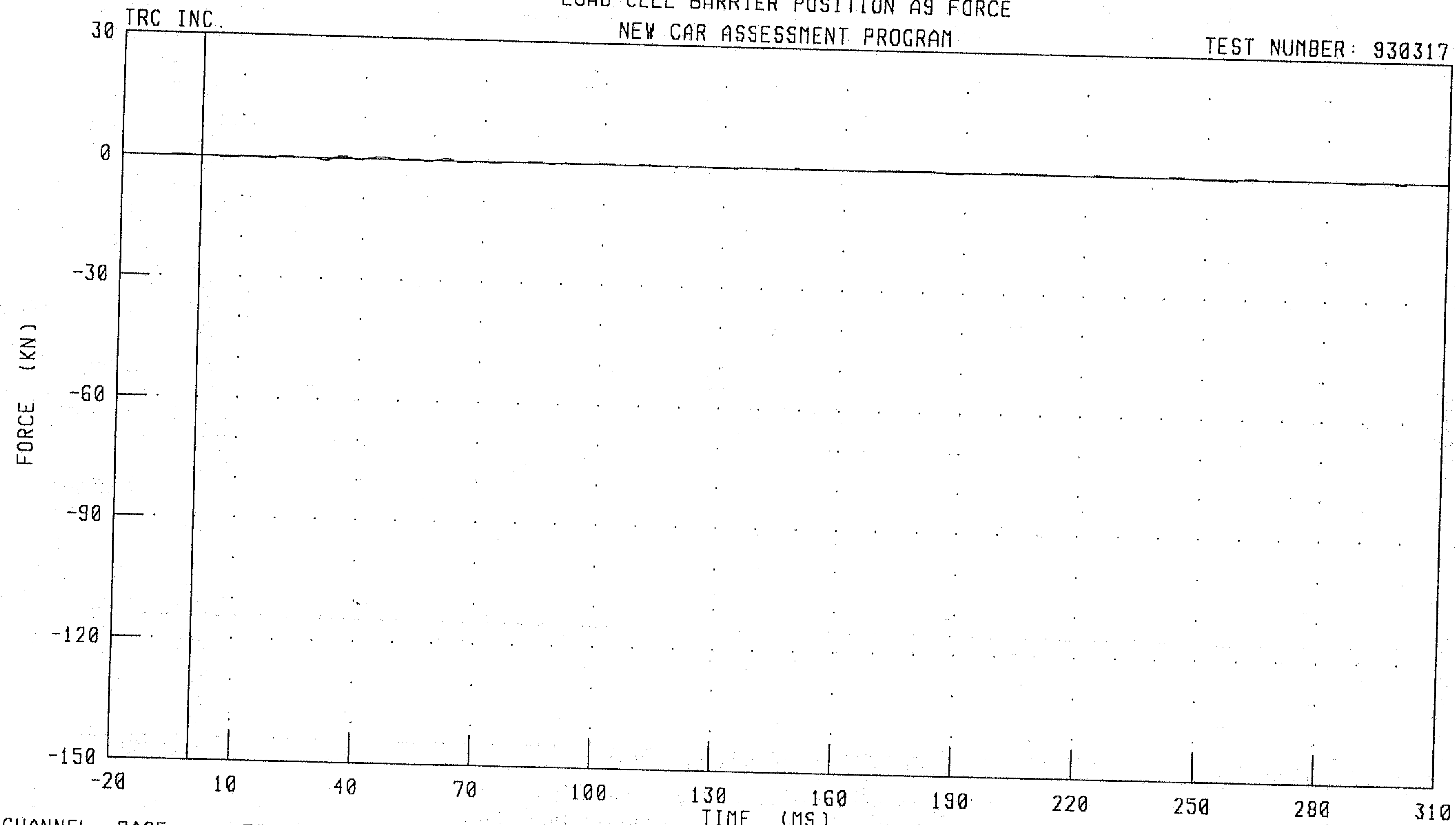
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A8 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BA8F FILTER: CH. CLASS 60 PEAK DATA: 0.66 KN @ 42.50 MS; -0.39 KN @ 16.13 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317

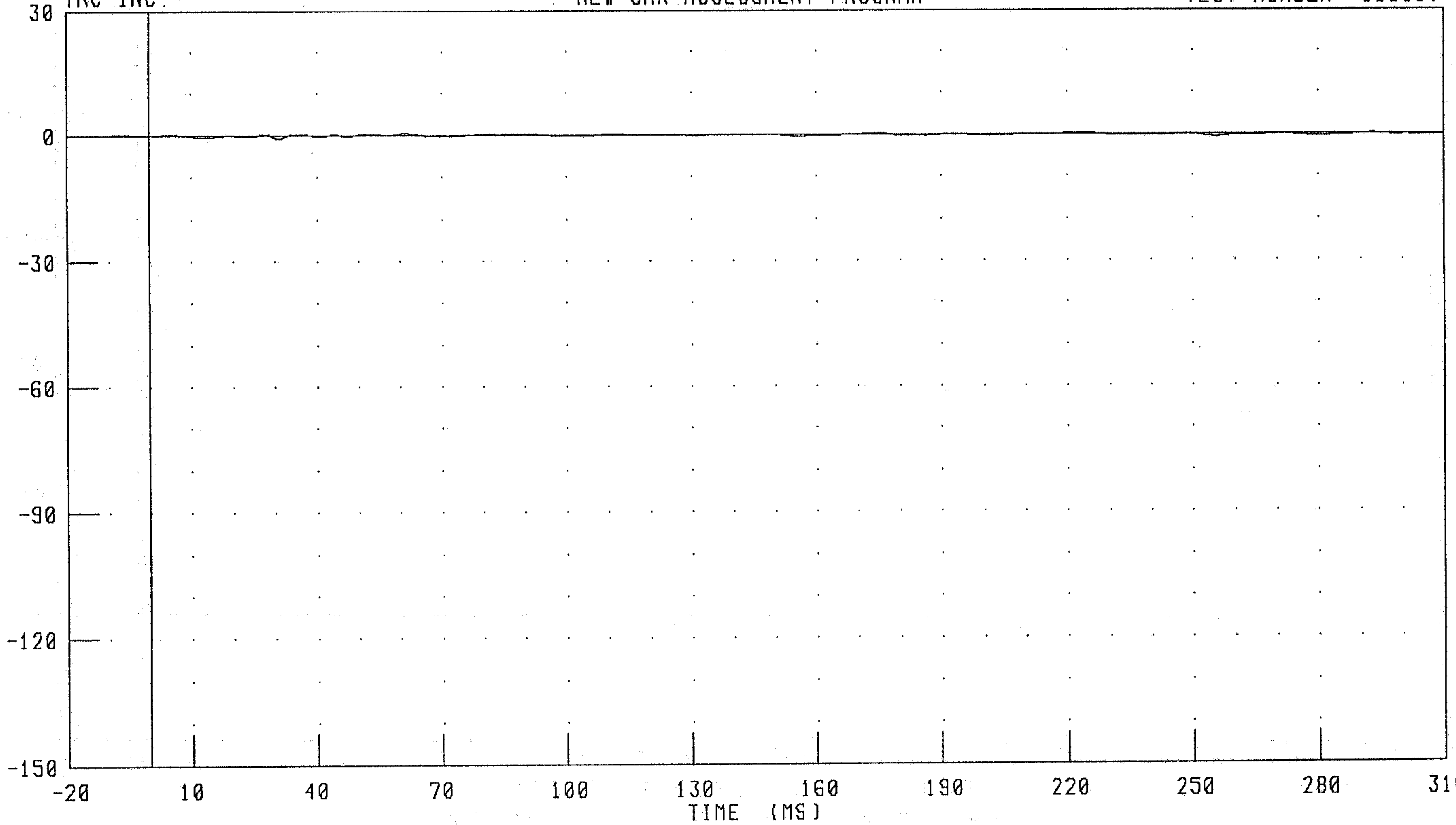


CHANNEL: BA9F FILTER: CH. CLASS 60

PEAK DATA: 0.52 KN @ 34.75 MS; -0.56 KN @ 30.25 MS

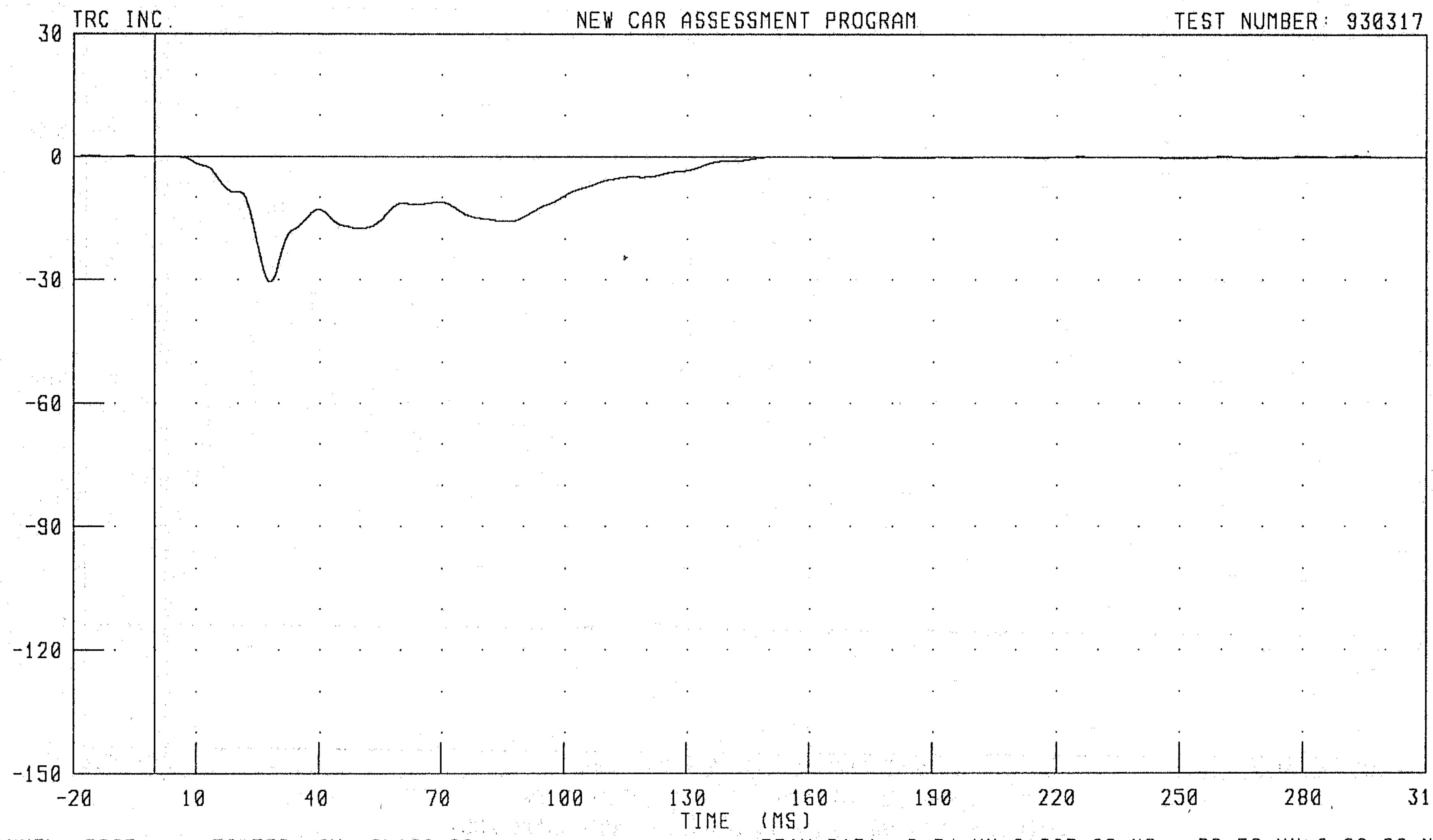
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317



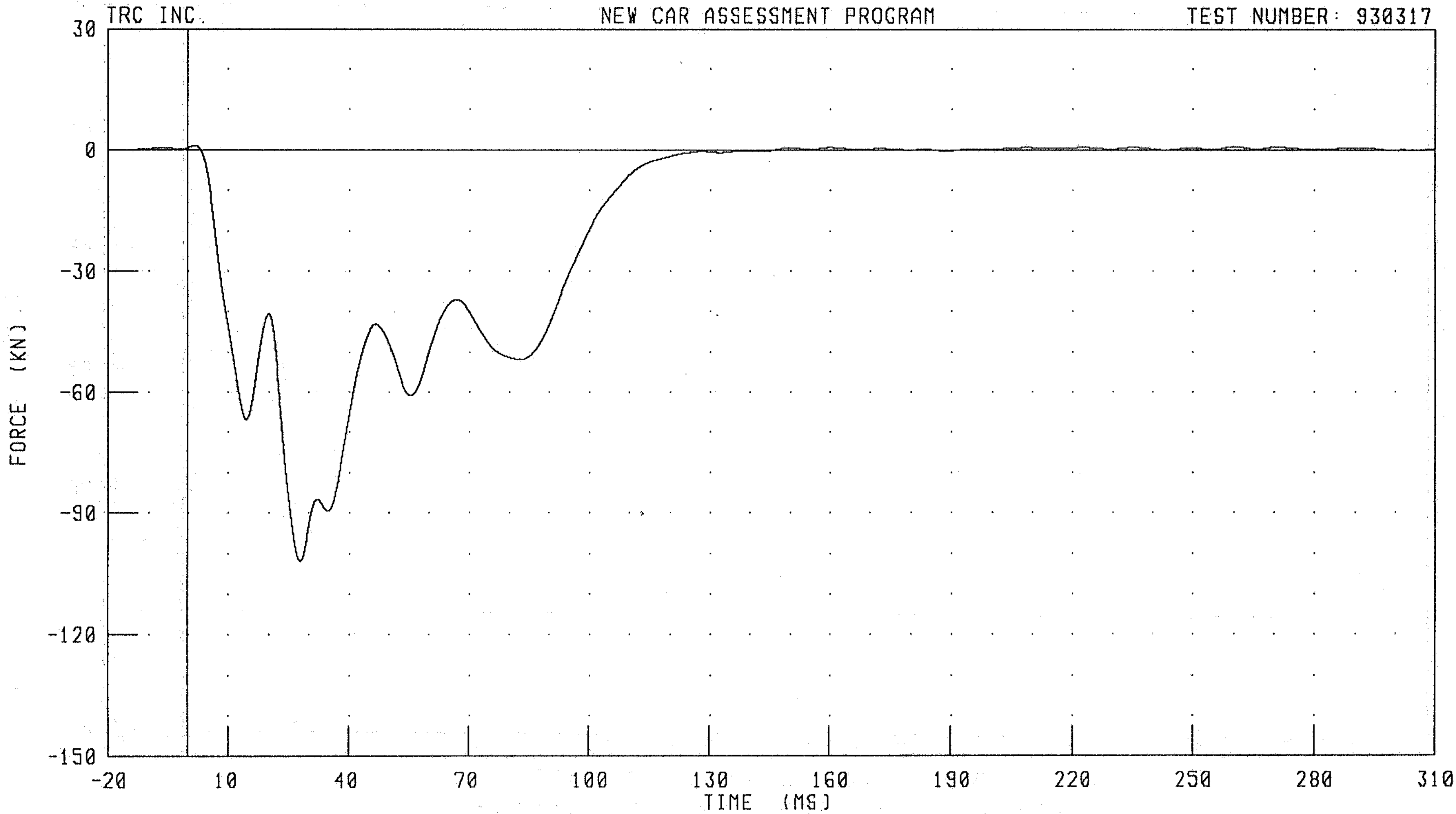
CHANNEL: BB1F FILTER: CH. CLASS 60 PEAK DATA: 0.39 KN @ 61.25 MS; -0.80 KN @ 31.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE
NEW CAR ASSESSMENT PROGRAM

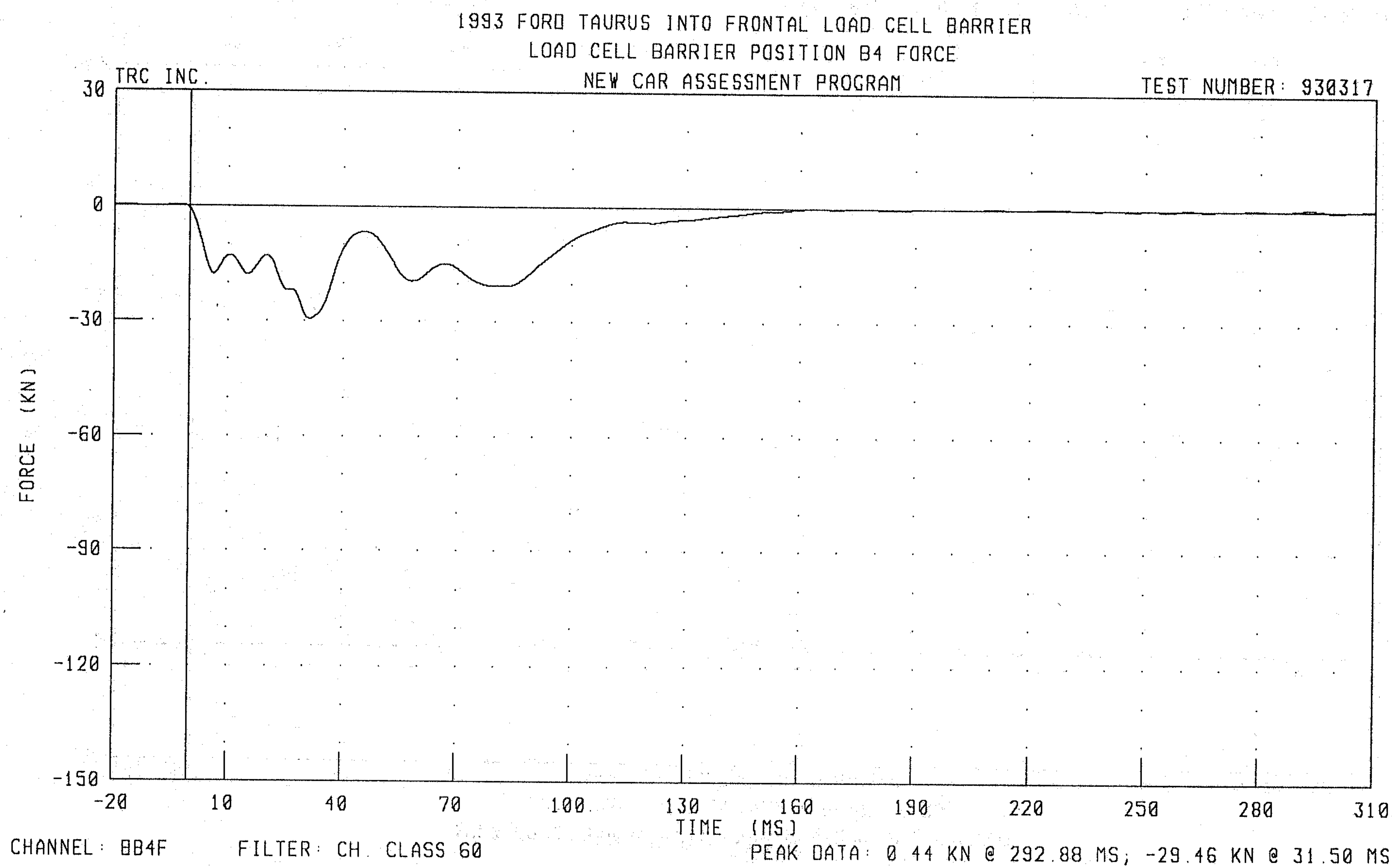


CHANNEL: BB2F FILTER: CH. CLASS 60 PEAK DATA: 0.34 KN @ 293.00 MS; -30.59 KN @ 28.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE
NEW CAR ASSESSMENT PROGRAM



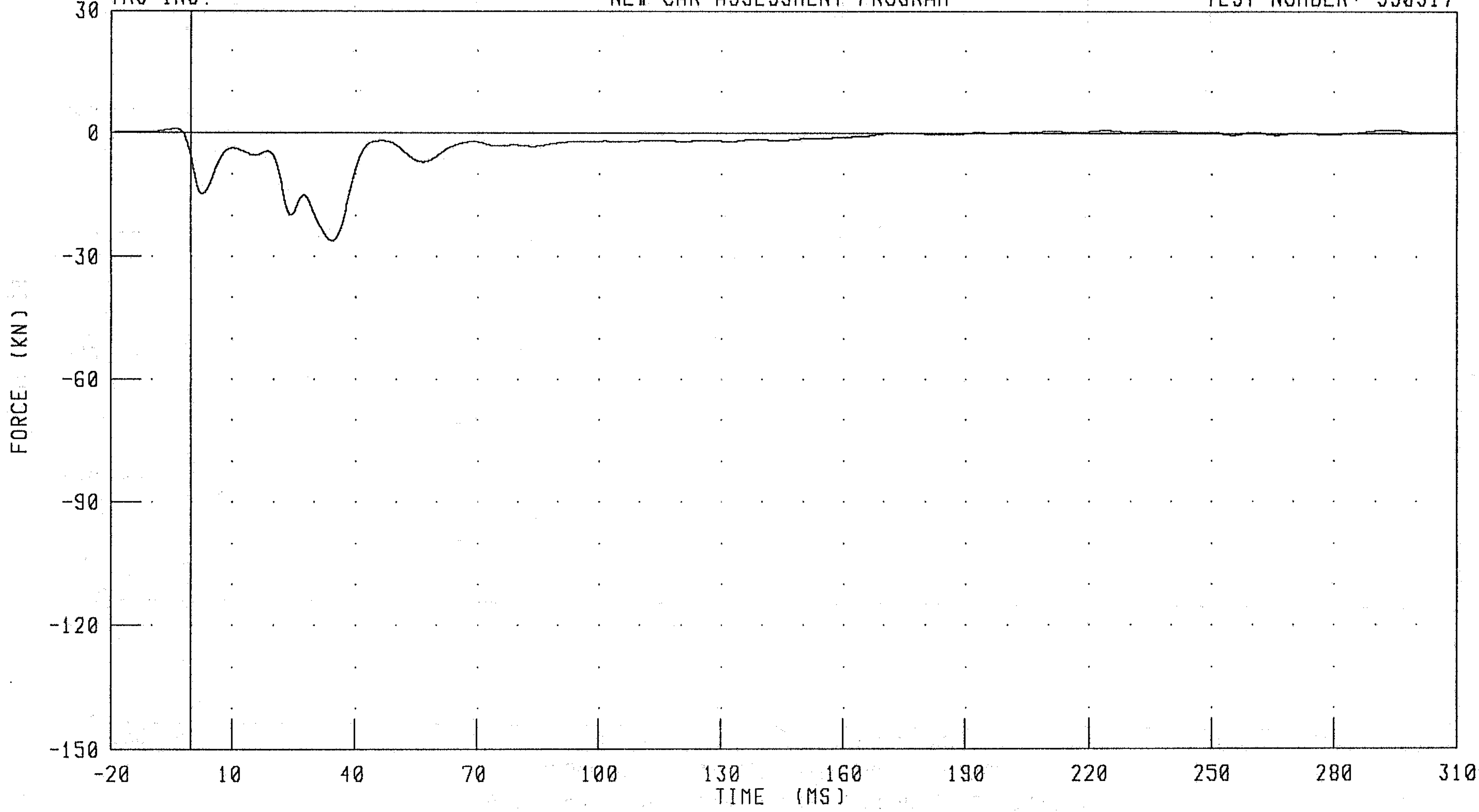
CHANNEL: BB3F FILTER: CH. CLASS 60 PEAK DATA: 1.00 KN @ 1.63 MS; -101.87 KN @ 27.88 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
FORCE (KN)
30
0
-30
-60
-90
-120
-150
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BB4F
FILTER: CH. CLASS 60
PEAK DATA: 0.44 KN @ 292.88 MS; -29.46 KN @ 31.50 MS

930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE
NEW CAR ASSESSMENT PROGRAM

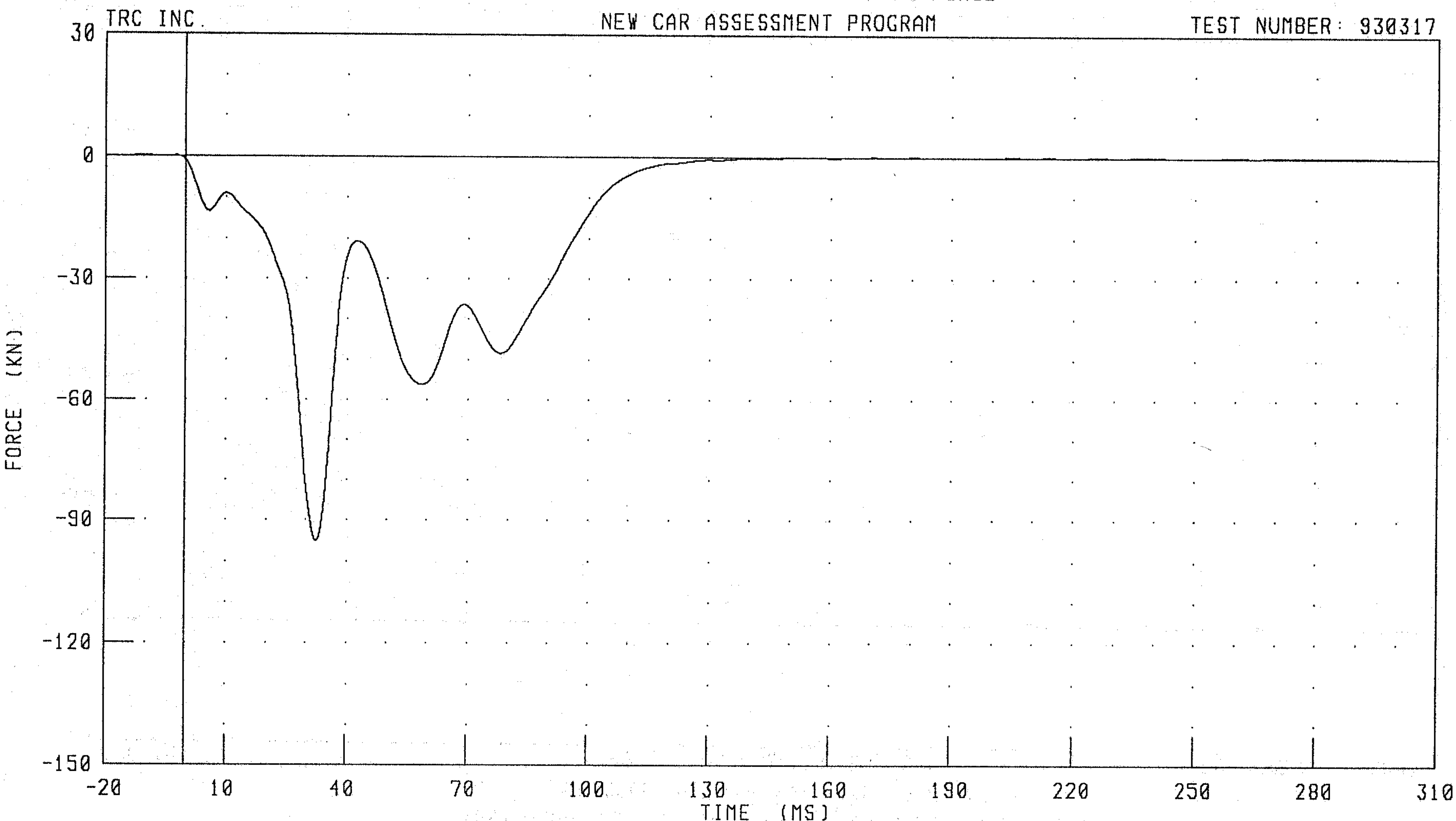
TRC INC. TEST NUMBER: 930317



CHANNEL: BB5F FILTER: CH. CLASS 60 PEAK DATA: 0.96 KN @ -3.88 MS; -26.15 KN @ 34.38 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE
NEW CAR ASSESSMENT PROGRAM

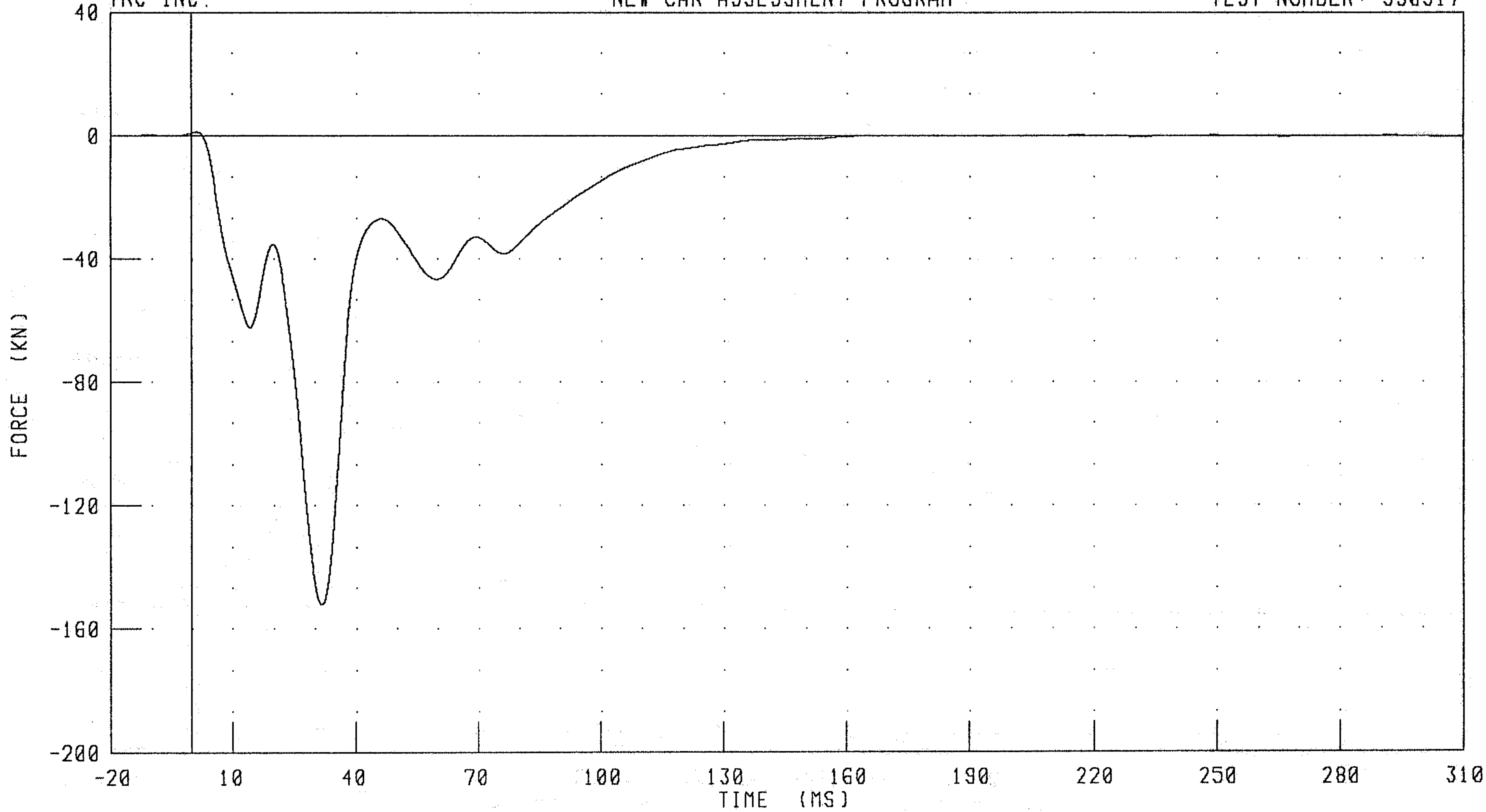
TEST NUMBER: 930317



CHANNEL: BB6F FILTER: CH. CLASS 60 PEAK DATA: 0.30 KN @ 238.00 MS; -95.17 KN @ 32.63 MS

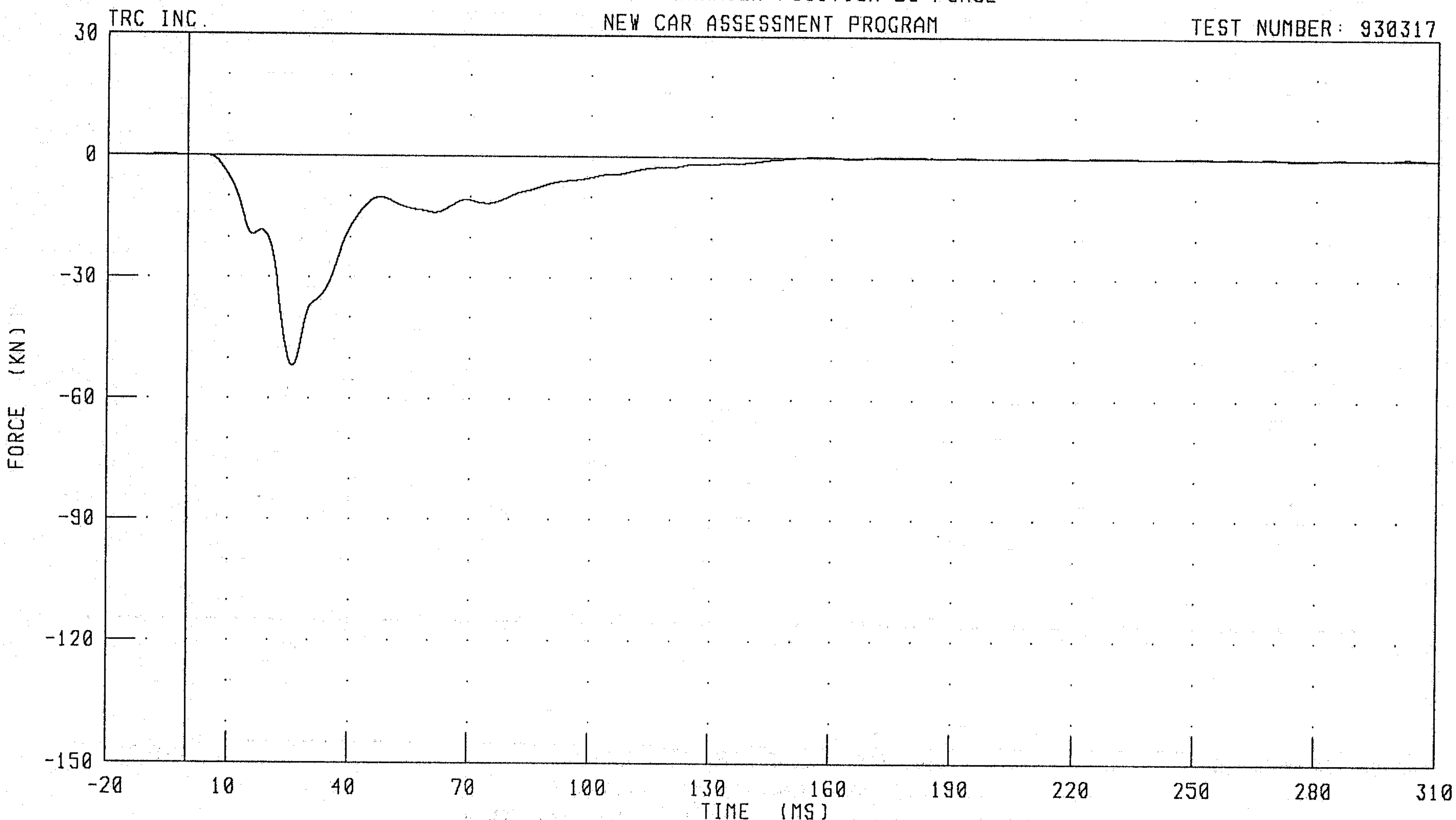
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317



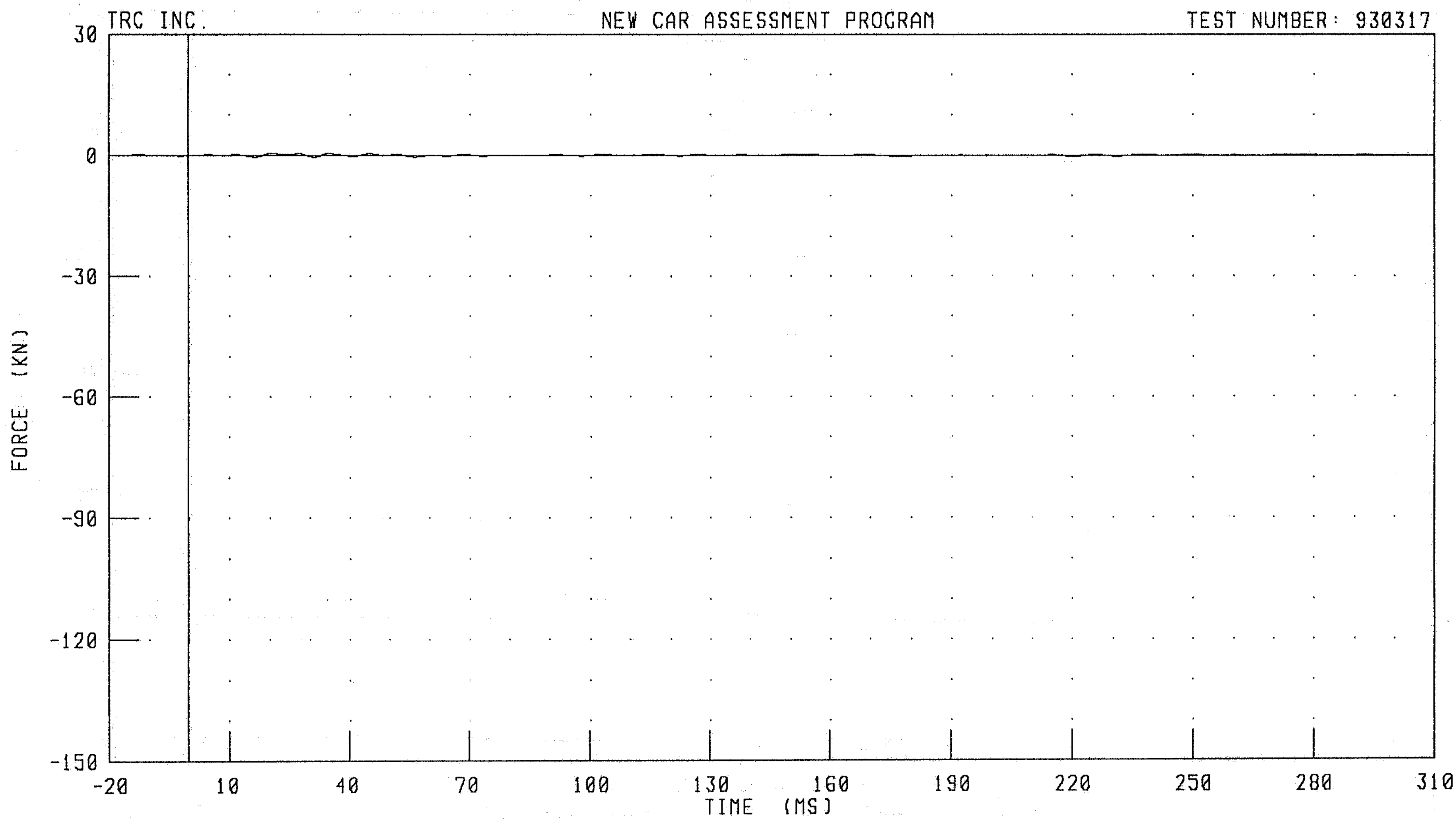
CHANNEL: BB7F FILTER: CH. CLASS 60 PEAK DATA: 1.17 KN @ 1.13 MS; -152.12 KN @ 31.75 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: B8F FILTER: CH. CLASS 60 PEAK DATA: 0.34 KN @ 302.25 MS; -51.95 KN @ 26.00 MS

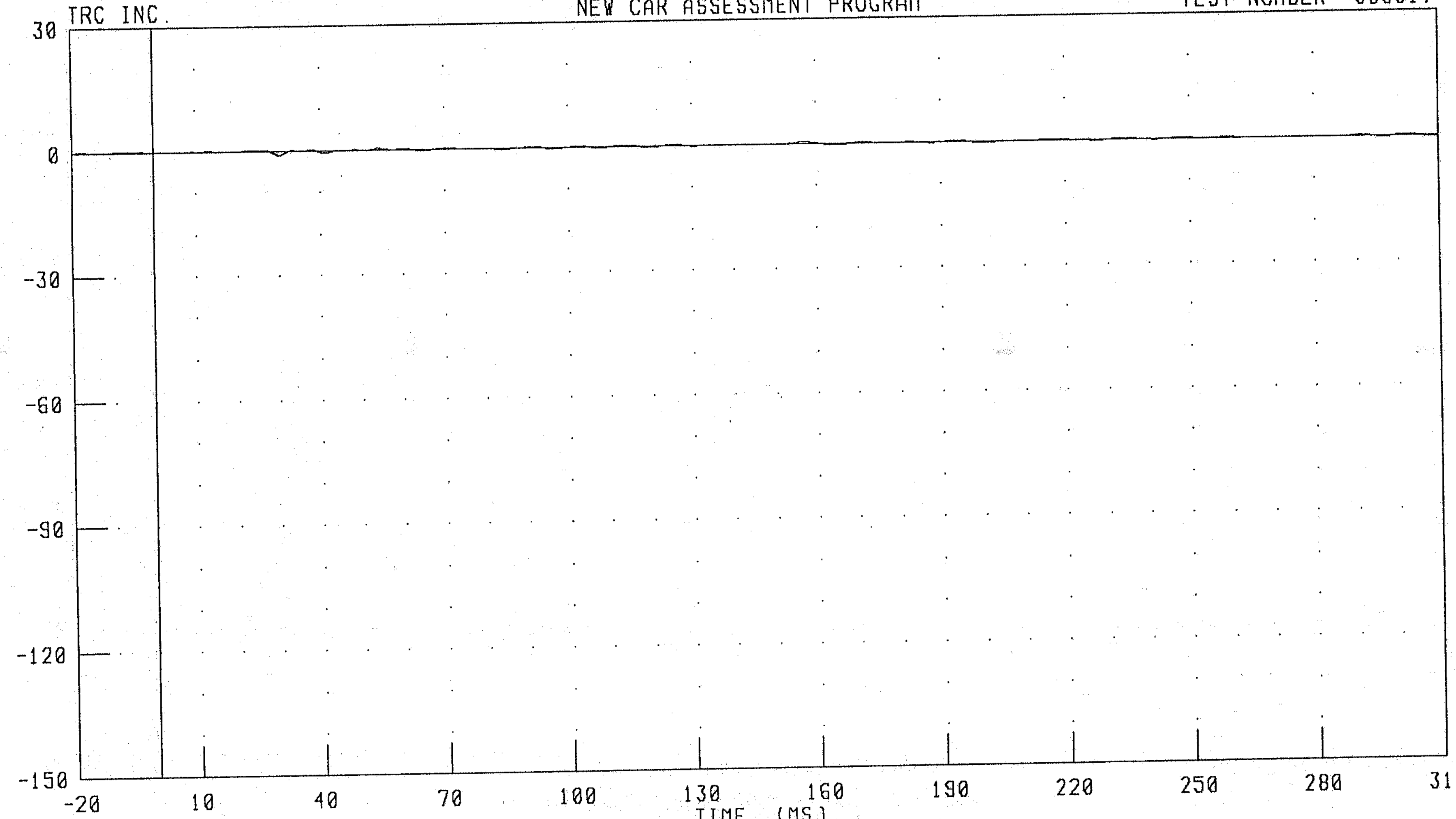
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BB9F FILTER: CH. CLASS 60 PEAK DATA: 0.43 KN @ 27.13 MS; -0.46 KN @ 31.13 MS

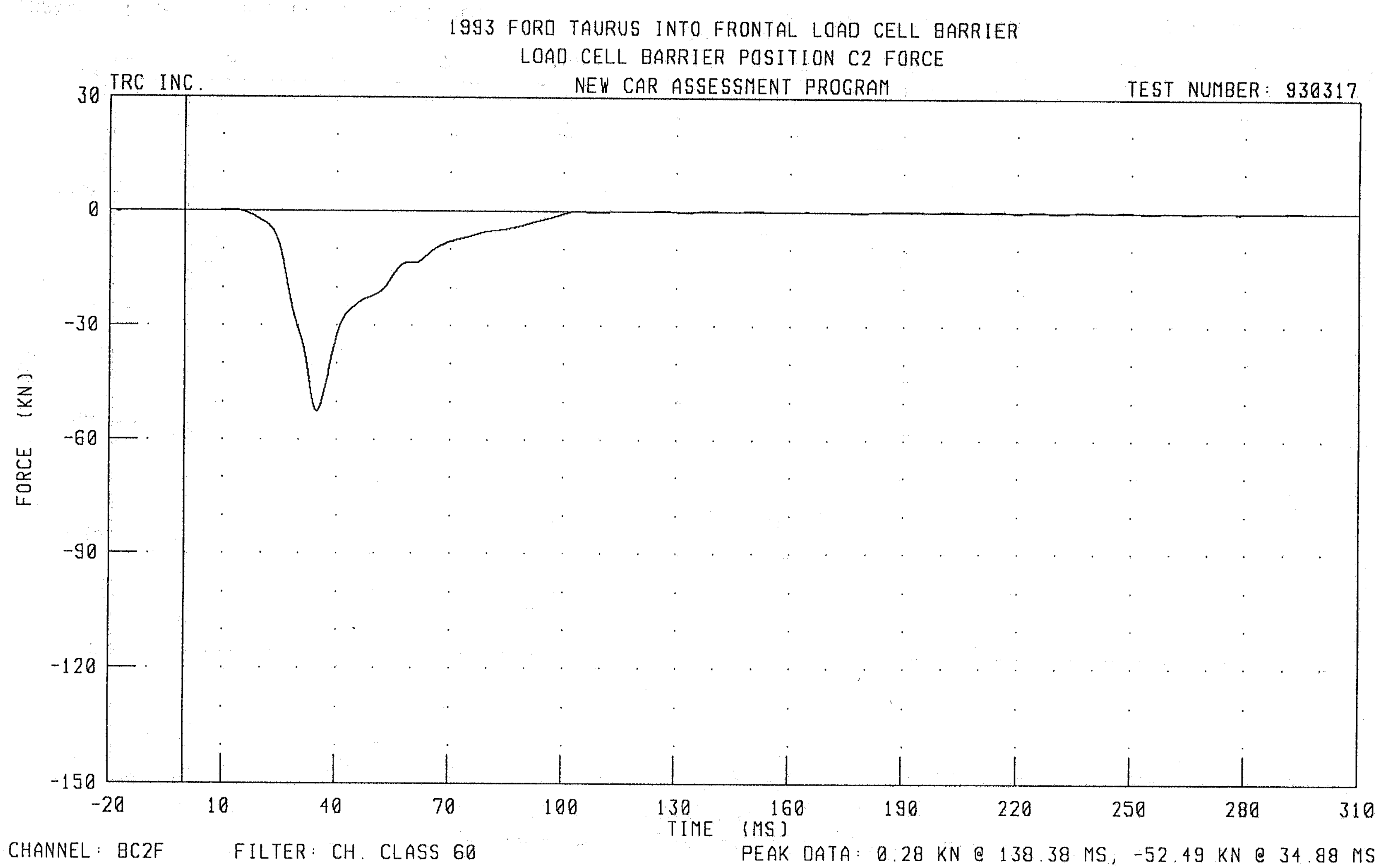
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



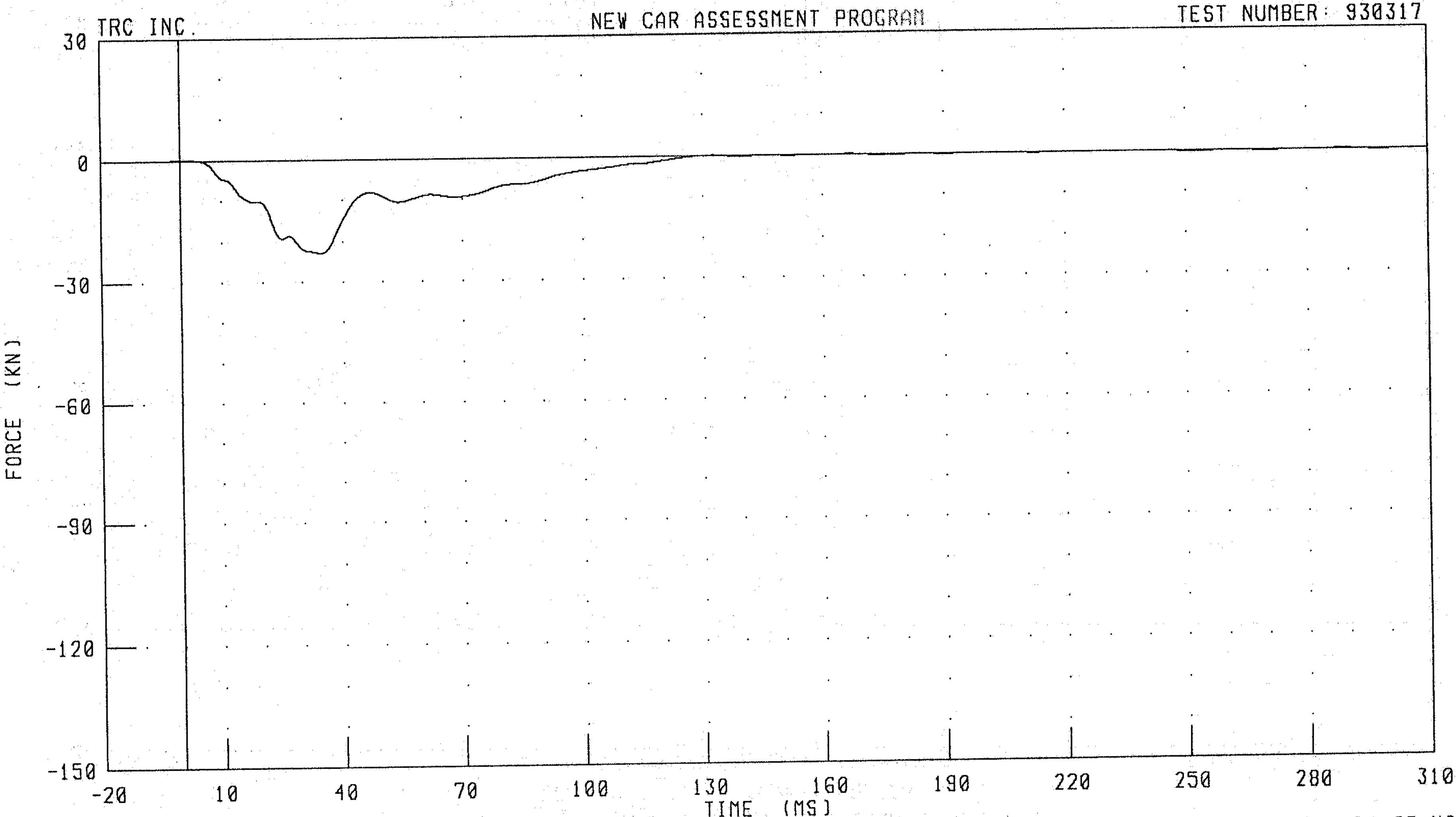
CHANNEL: BC1F FILTER: CH. CLASS 60 PEAK DATA: 0.37 KN @ 157.00 MS; -0.99 KN @ 30.25 MS

930317


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC2F
FILTER: CH. CLASS 60
PEAK DATA: 0.28 KN @ 138.38 MS, -52.49 KN @ 34.88 MS

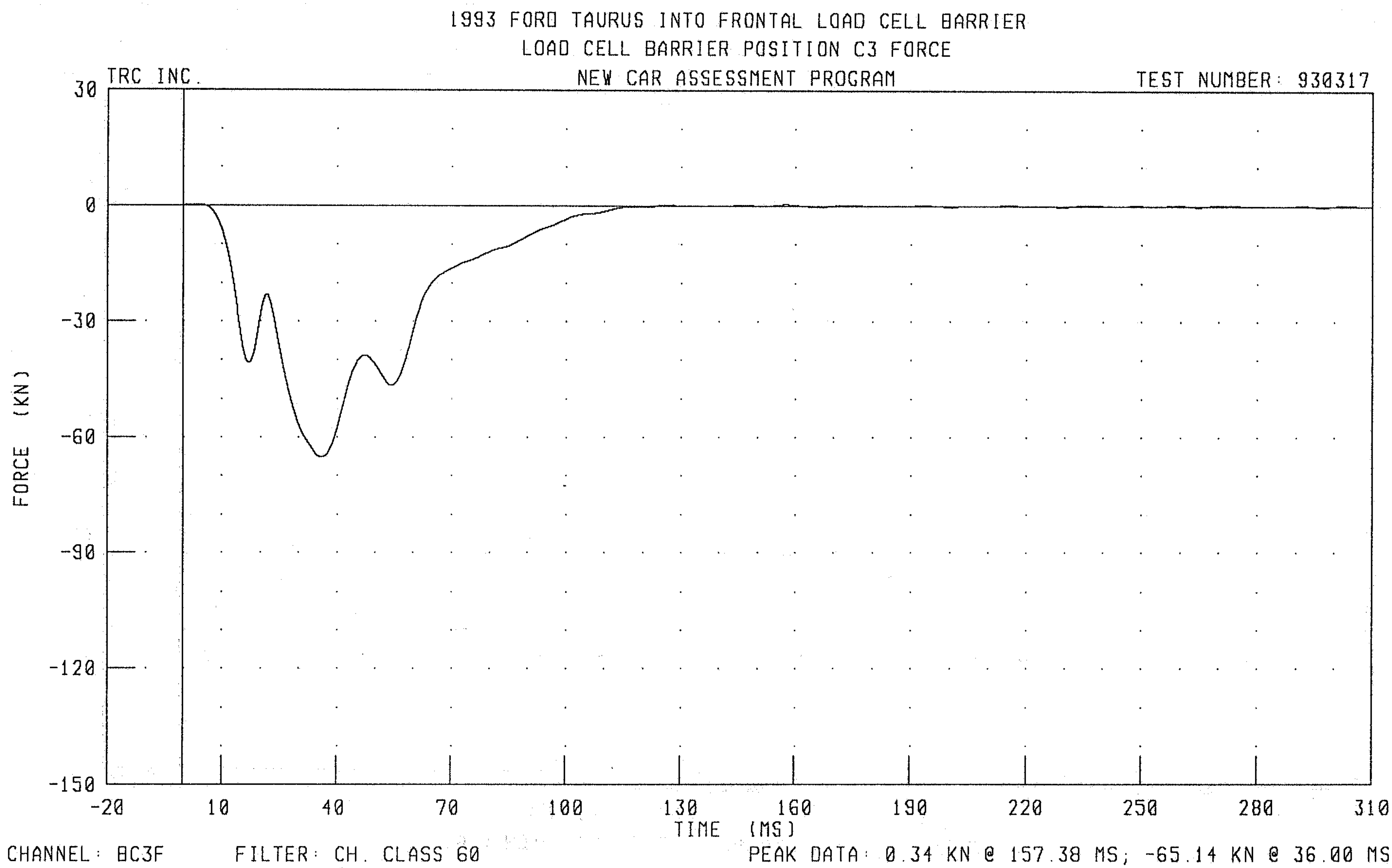
930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE
NEW CAR ASSESSMENT PROGRAM



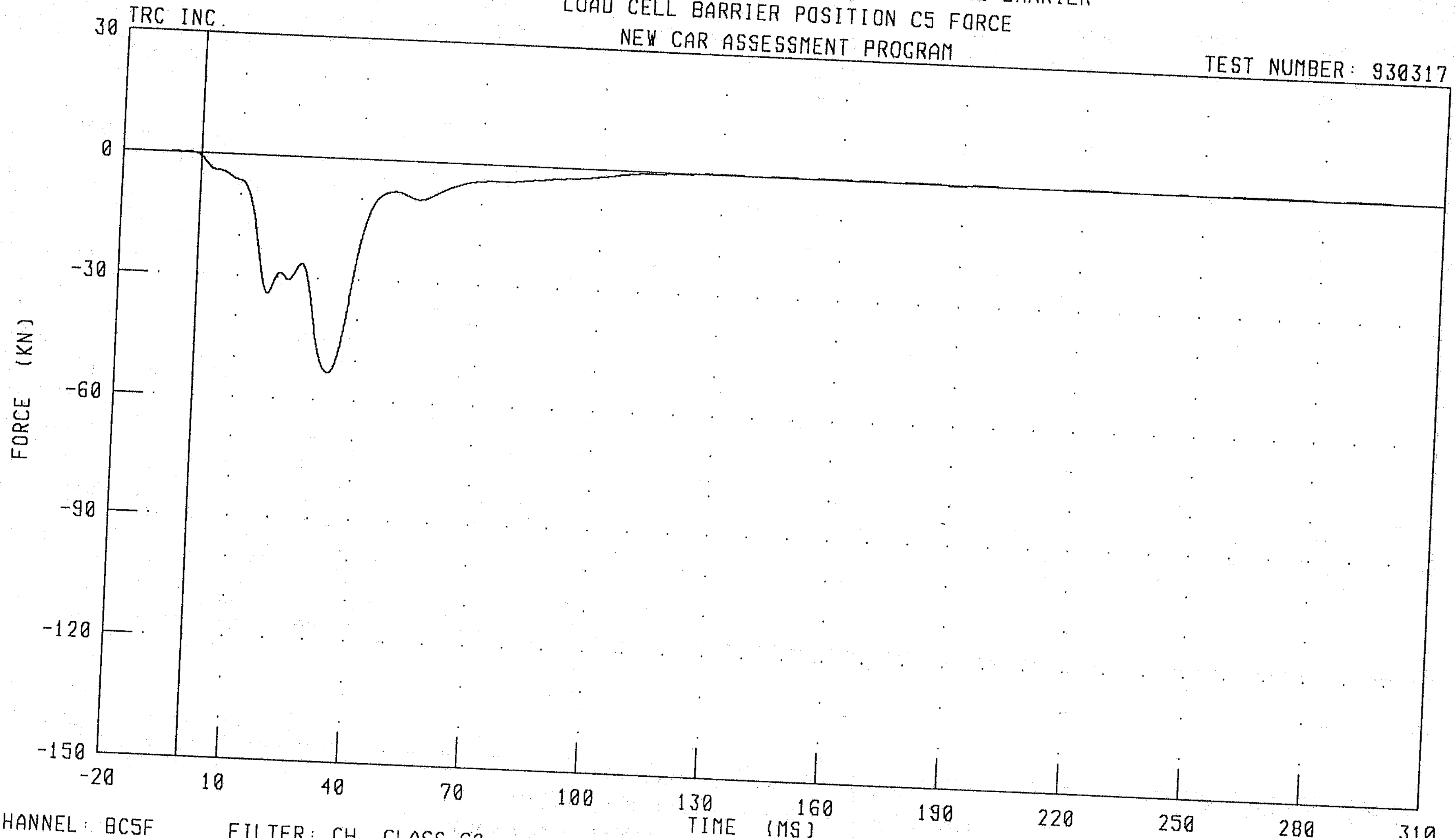
CHANNEL: BC4F FILTER: CH. CLASS 60 PEAK DATA: 0.28 KN @ 1.38 MS; -22.90 KN @ 34.63 MS

930317


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC3F
FILTER: CH. CLASS 60
PEAK DATA: 0.34 KN @ 157.38 MS; -65.14 KN @ 36.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



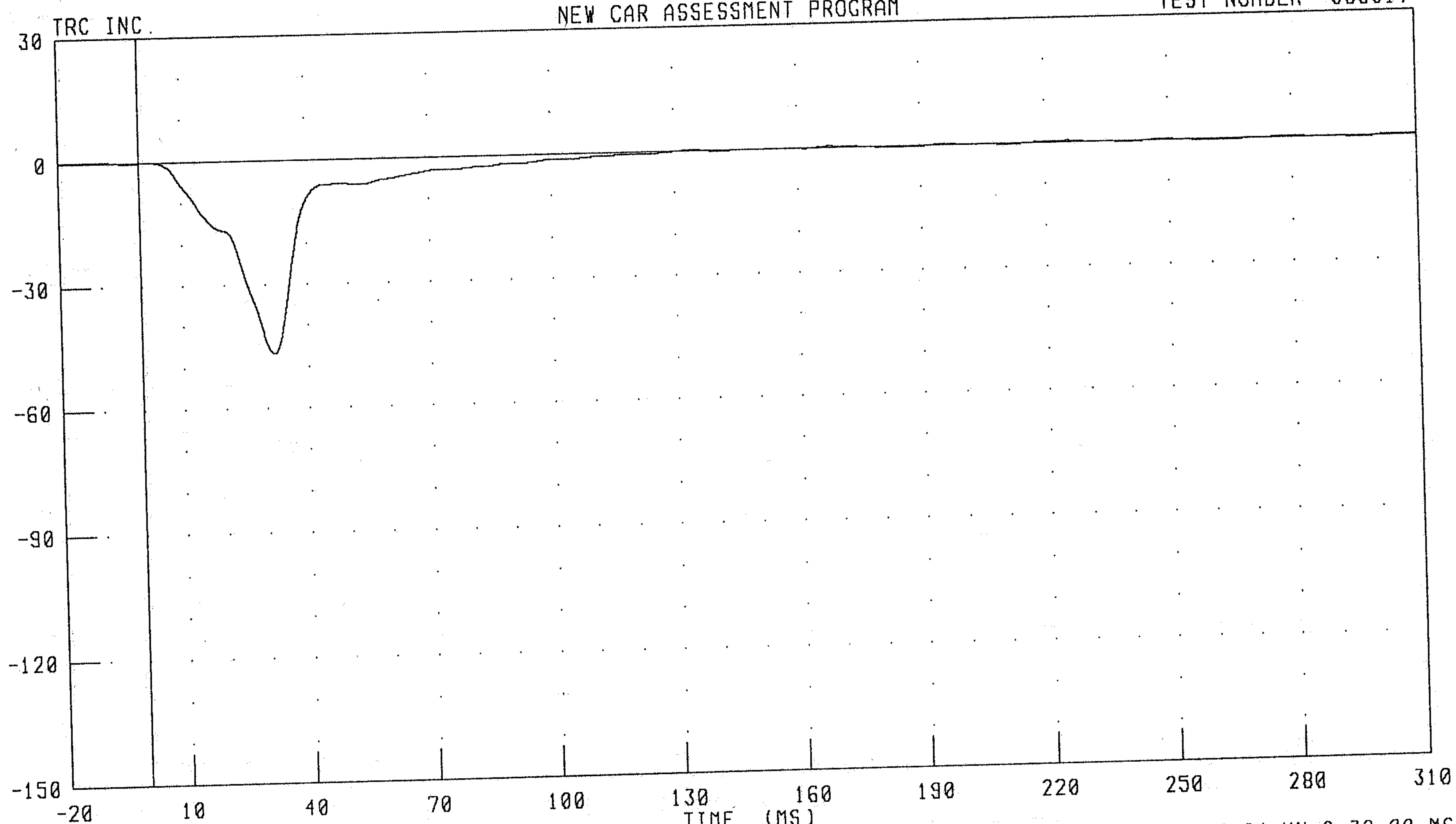
CHANNEL: BC5F FILTER: CH. CLASS 60

PEAK DATA: 0.29 KN @ 179.75 MS; -53.22 KN @ 33.25 MS

930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



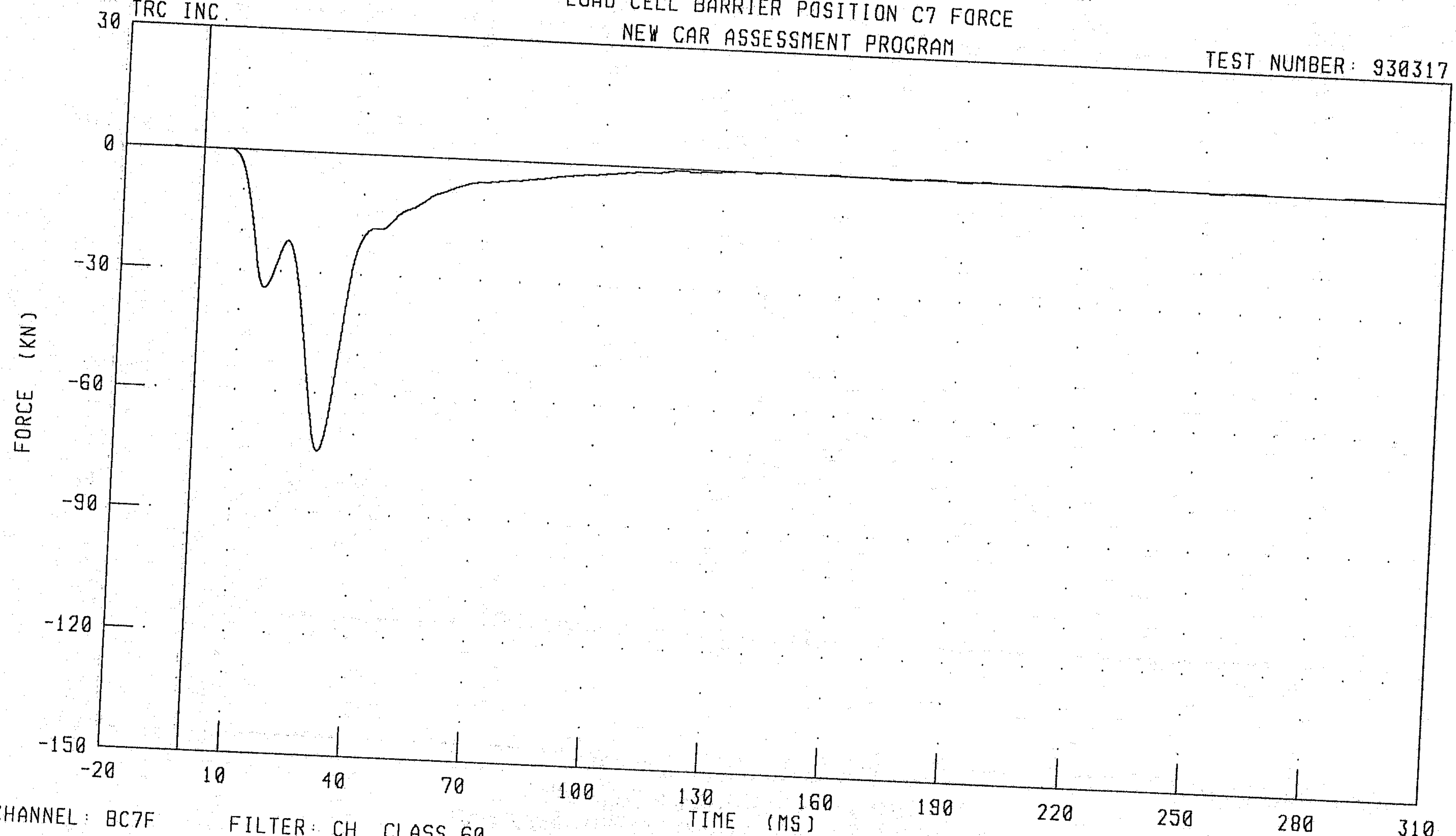
PEAK DATA: 0.35 KN @ 168.00 MS; -46.84 KN @ 32.00 MS

CHANNEL: BC6F FILTER: CH. CLASS 60

930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE
NEW CAR ASSESSMENT PROGRAM

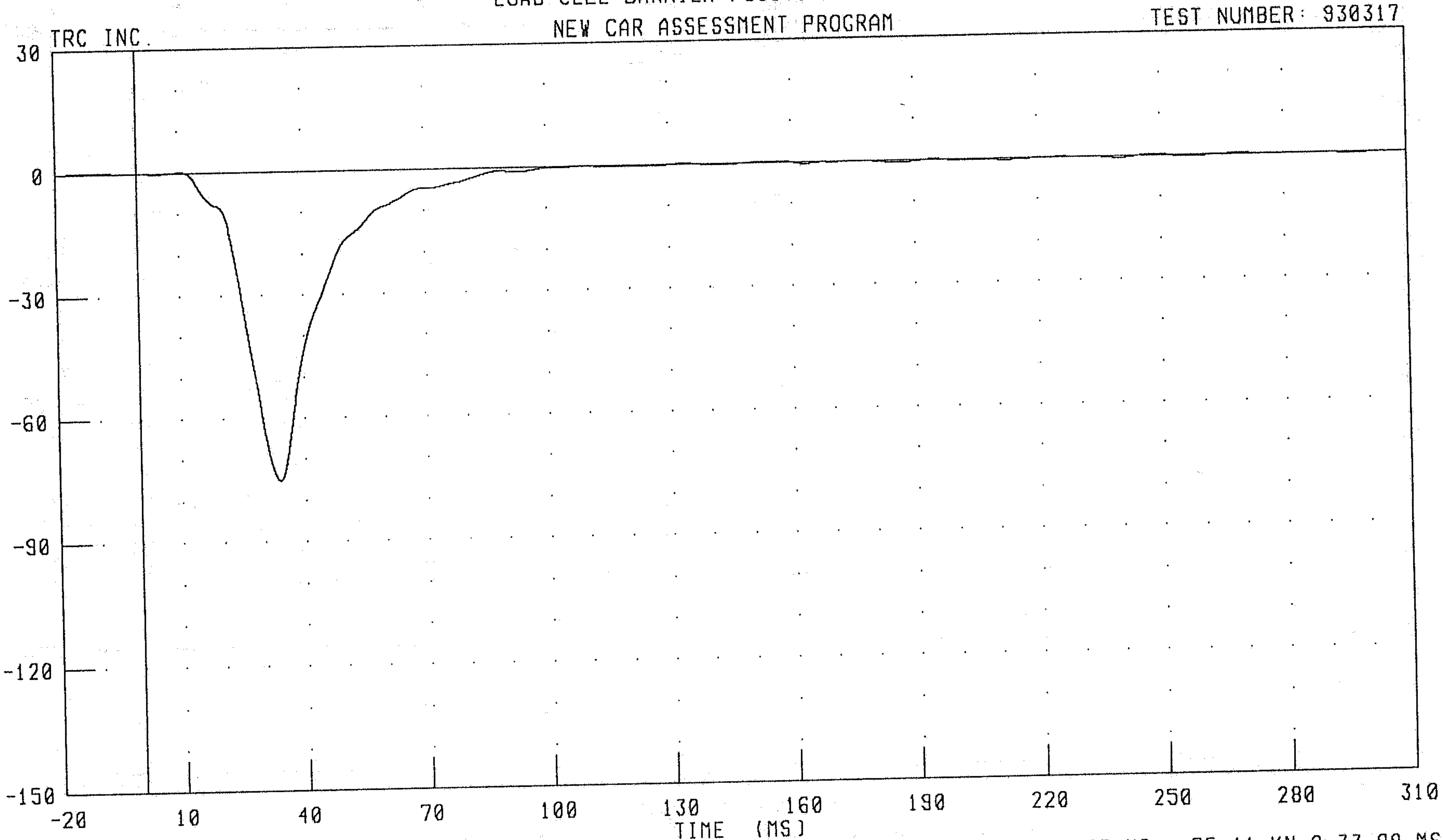
TEST NUMBER: 930317



CHANNEL: BC7F FILTER: CH. CLASS 60

PEAK DATA: 0.27 KN @ 290.38 MS; -74.37 KN @ 31.25 MS

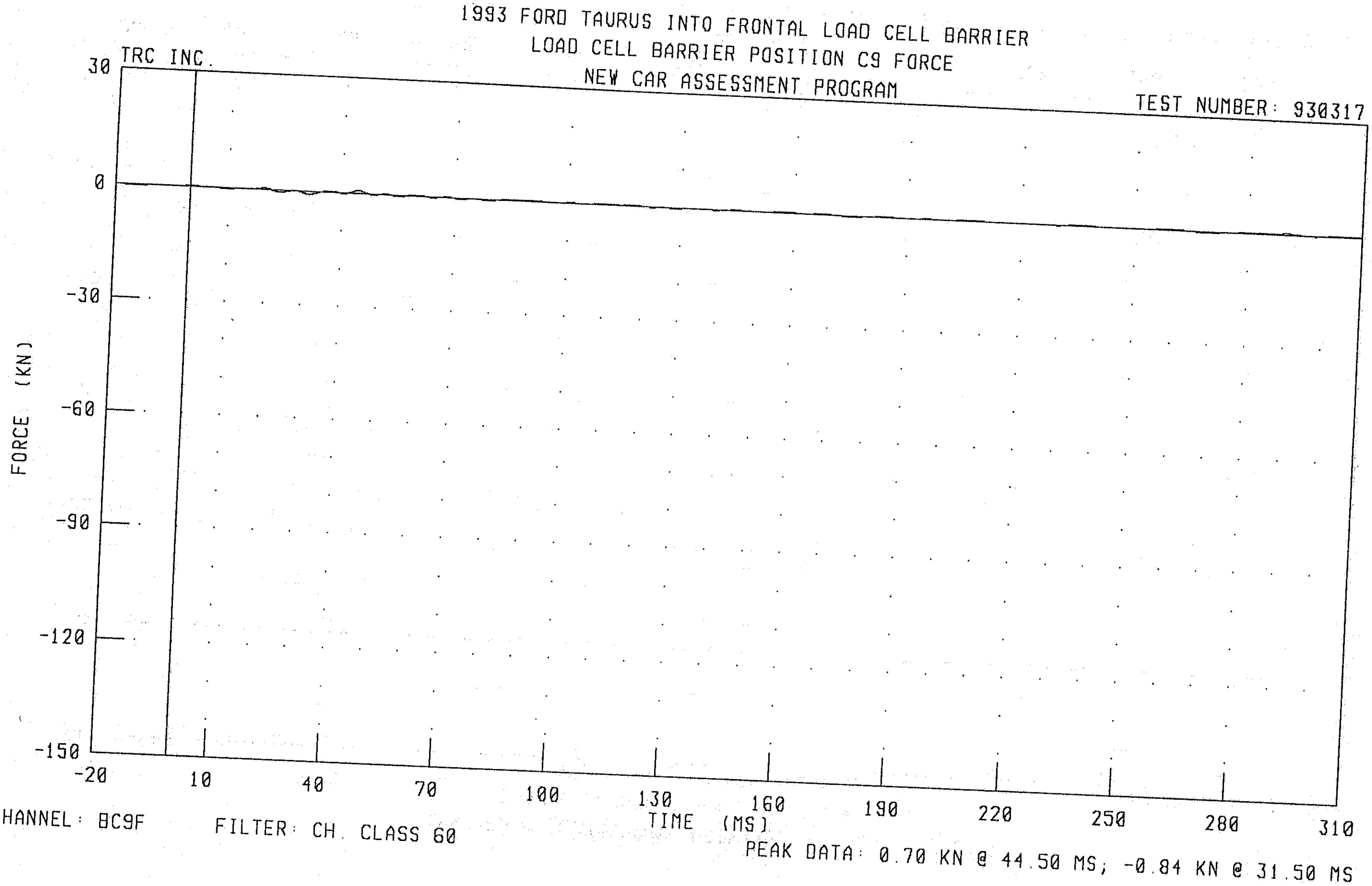
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C8 FORCE
NEW CAR ASSESSMENT PROGRAM



PEAK DATA: 0.33 KN @ 155.63 MS; -75.11 KN @ 33.88 MS

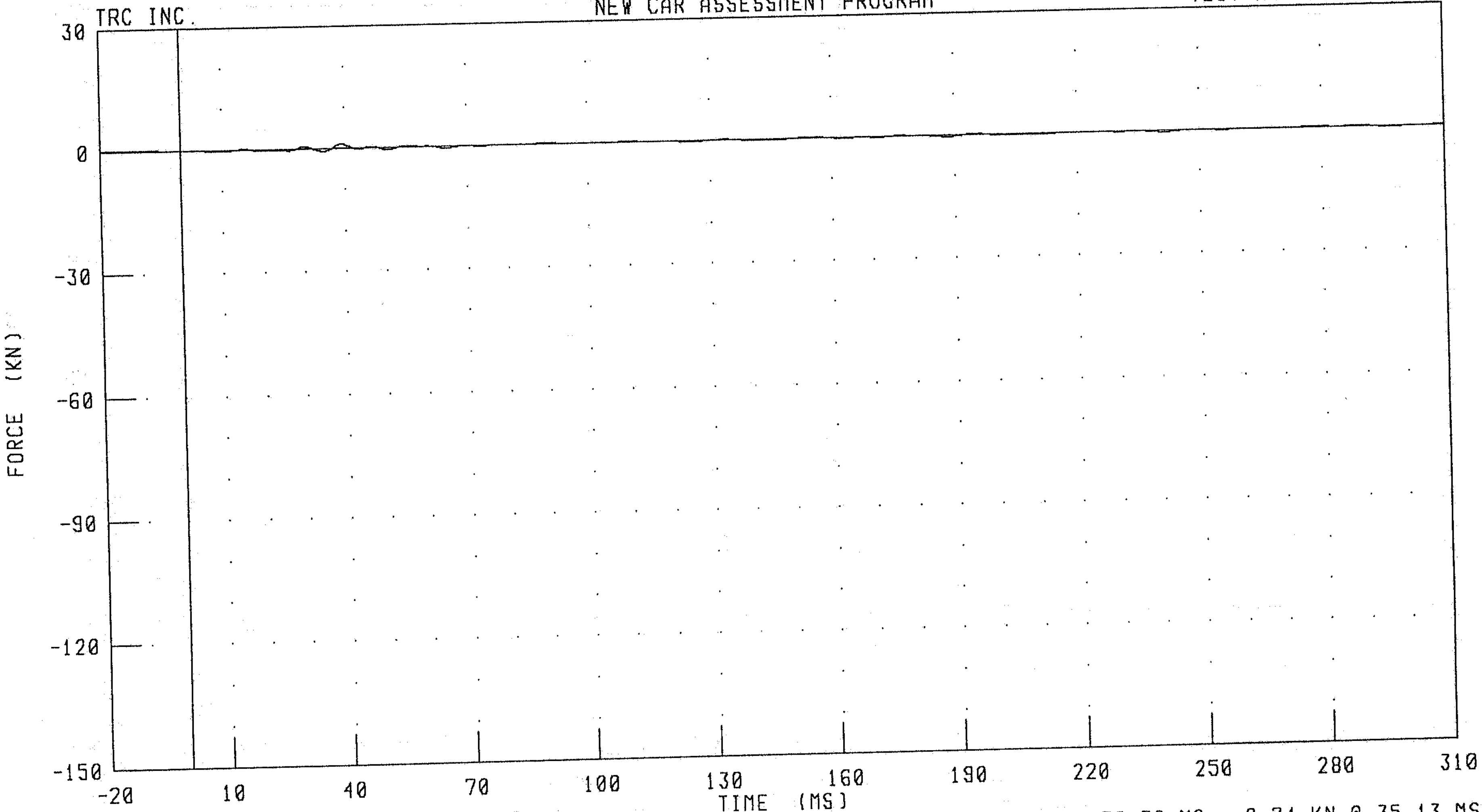
CHANNEL: BC8F FILTER: CH. CLASS 60

930317


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC9F
FILTER: CH. CLASS 60
PEAK DATA: 0.70 KN @ 44.50 MS; -0.84 KN @ 31.50 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317

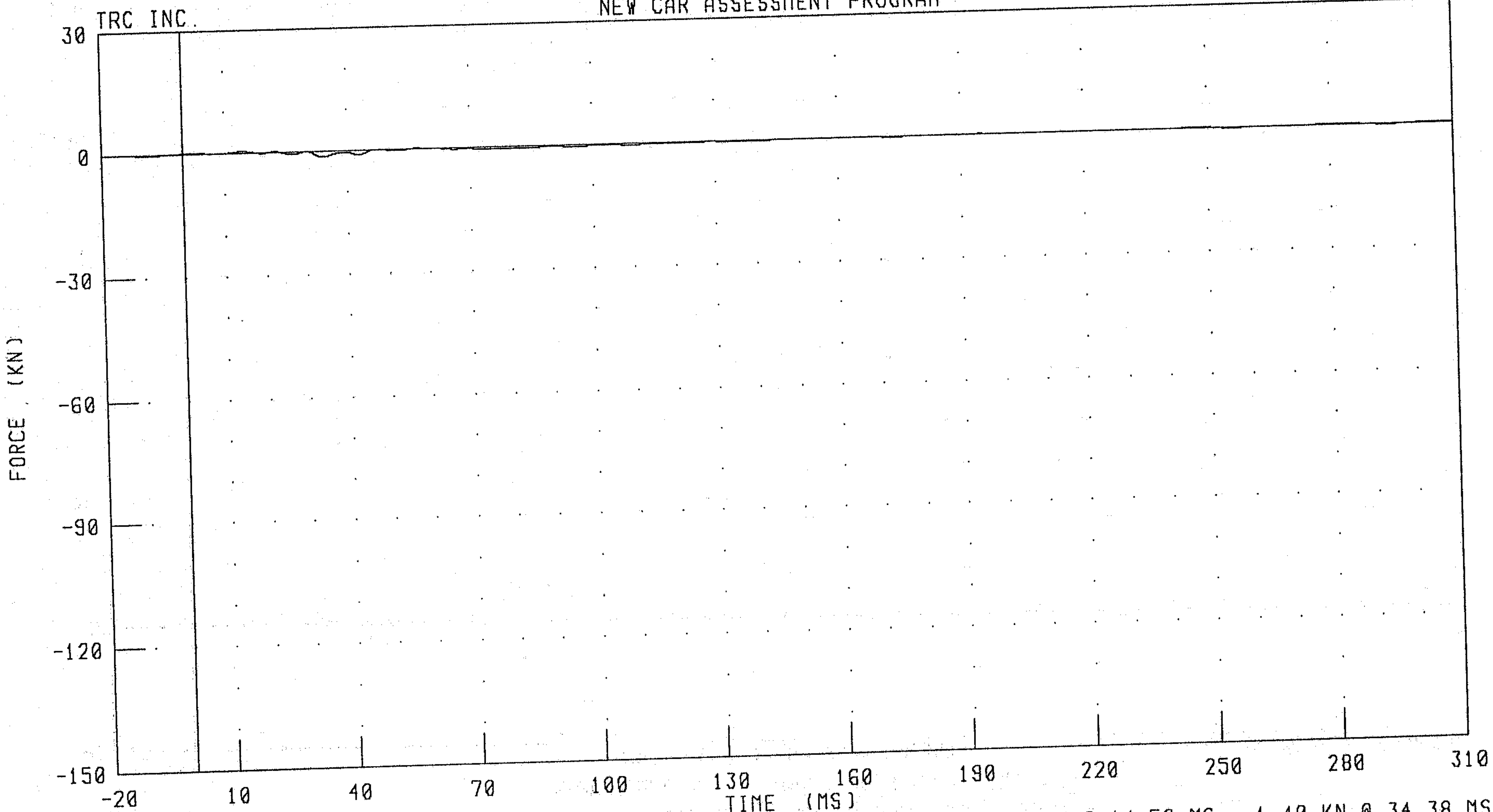


PEAK DATA: 0.98 KN @ 39.38 MS; -0.74 KN @ 35.13 MS

CHANNEL: BD1F FILTER: CH. CLASS 60

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



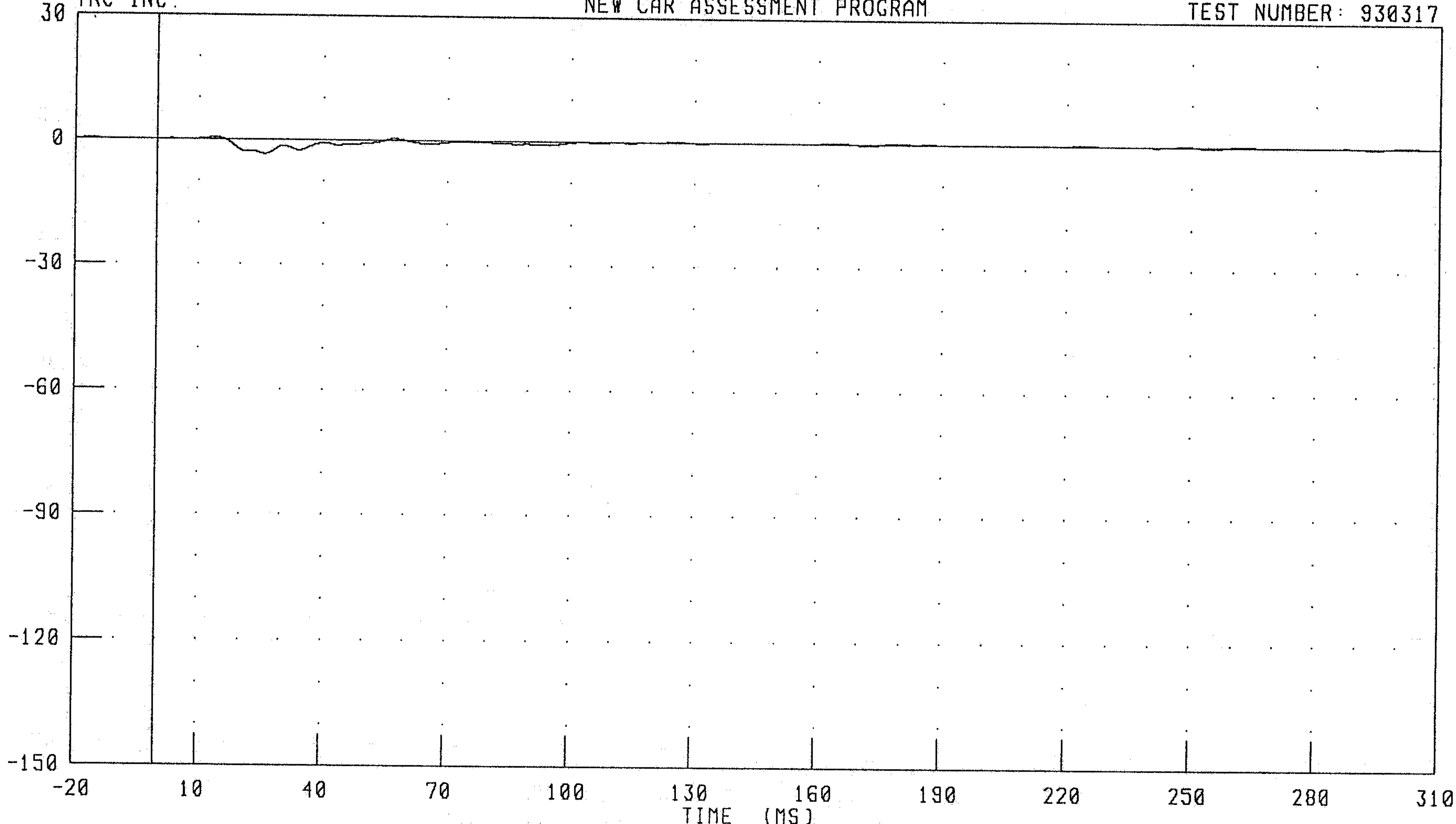
PEAK DATA: 0.42 KN @ 14.50 MS; -1.40 KN @ 34.38 MS

CHANNEL: BD2F FILTER: CH. CLASS 60

930317

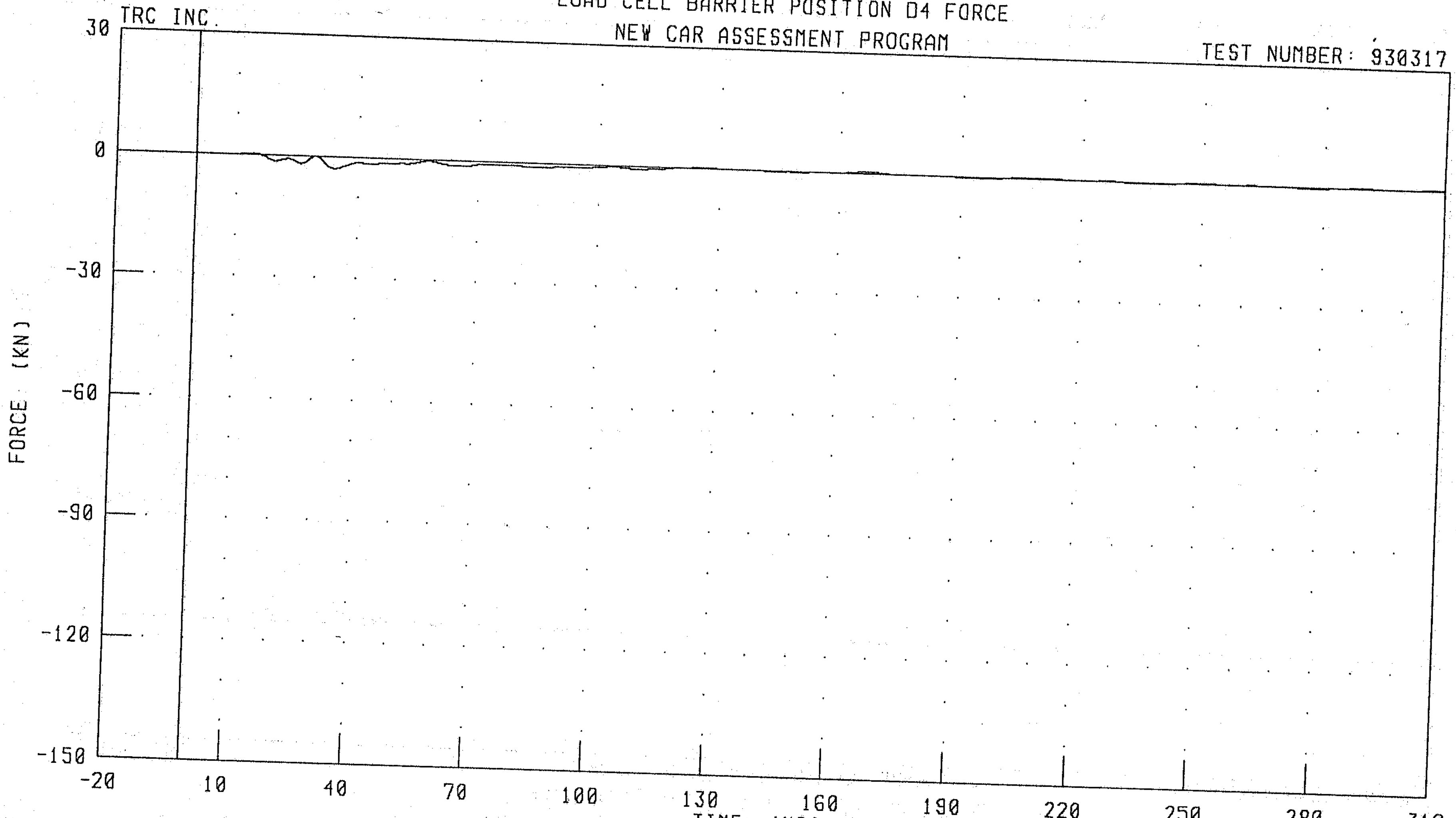
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317



CHANNEL: BD3F FILTER: CH. CLASS 60 PEAK DATA: 0.45 KN @ 14.00 MS; -3.49 KN @ 26.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE
NEW CAR ASSESSMENT PROGRAM

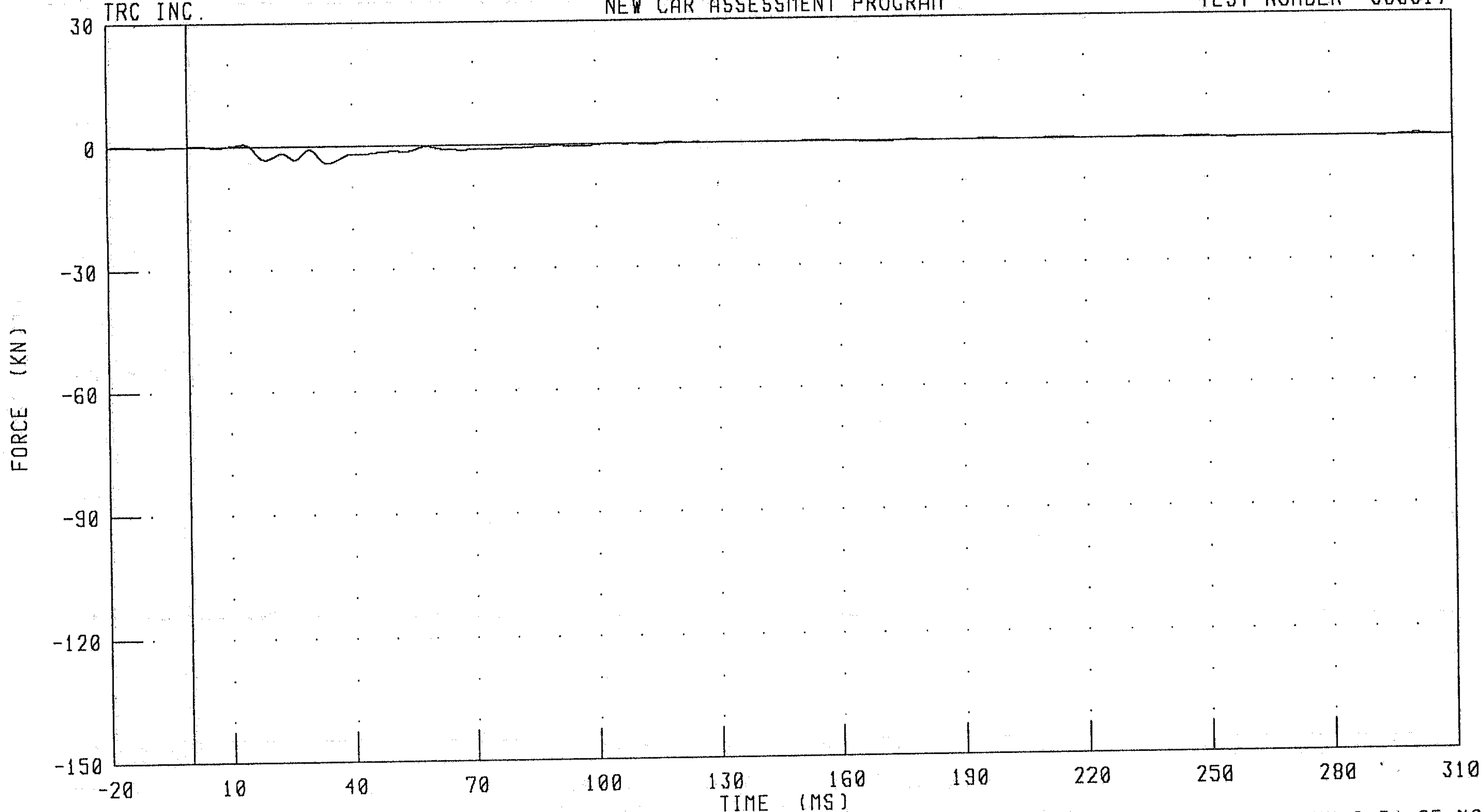


CHANNEL: BD4F FILTER: CH. CLASS 60

PEAK DATA: 0.45 KN @ 167.13 MS; -2.99 KN @ 34.25 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317

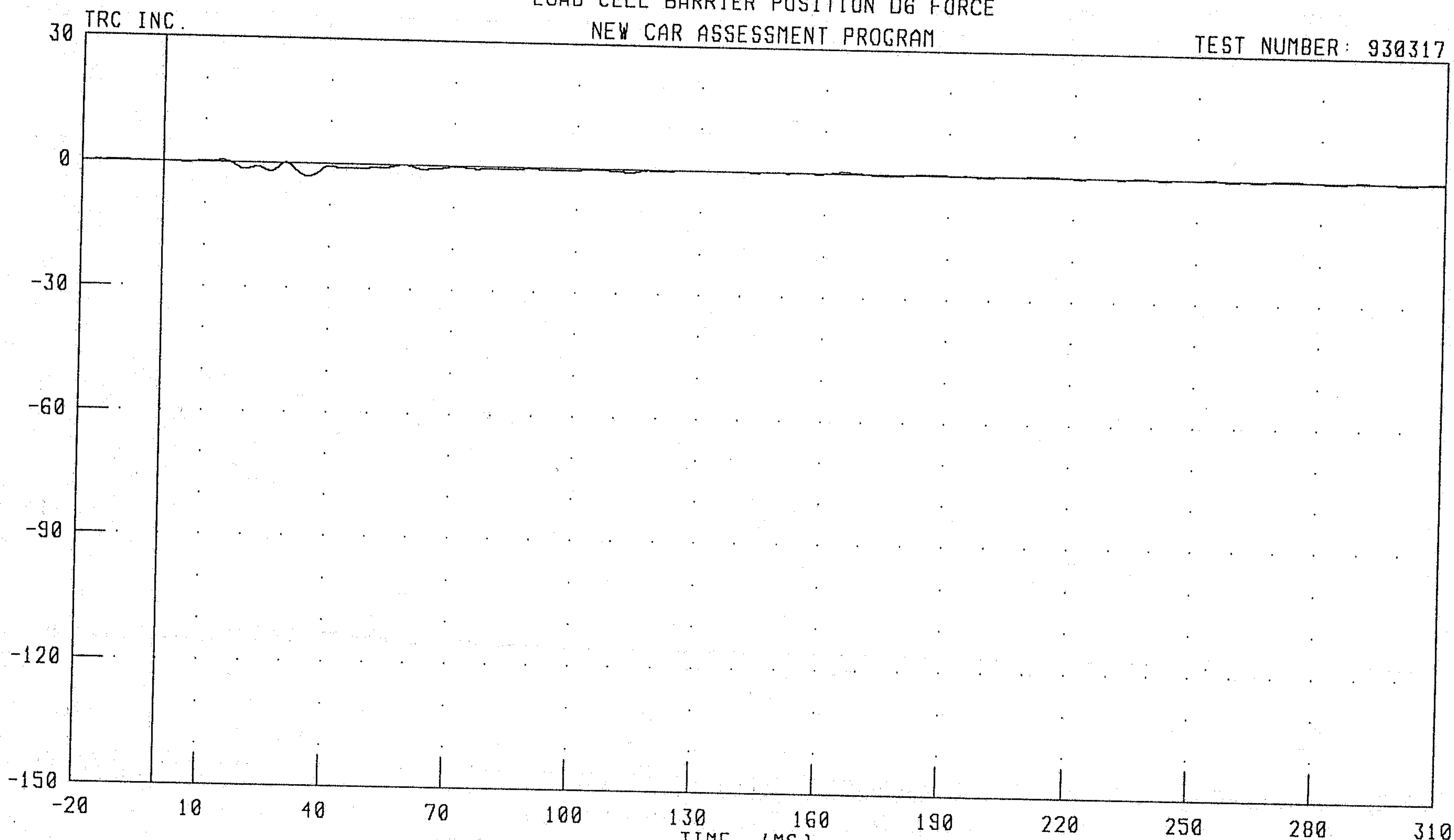


CHANNEL: BD5F FILTER: CH. CLASS 60 PEAK DATA: 0.62 KN @ 13.50 MS; -4.14 KN @ 34.25 MS

930317

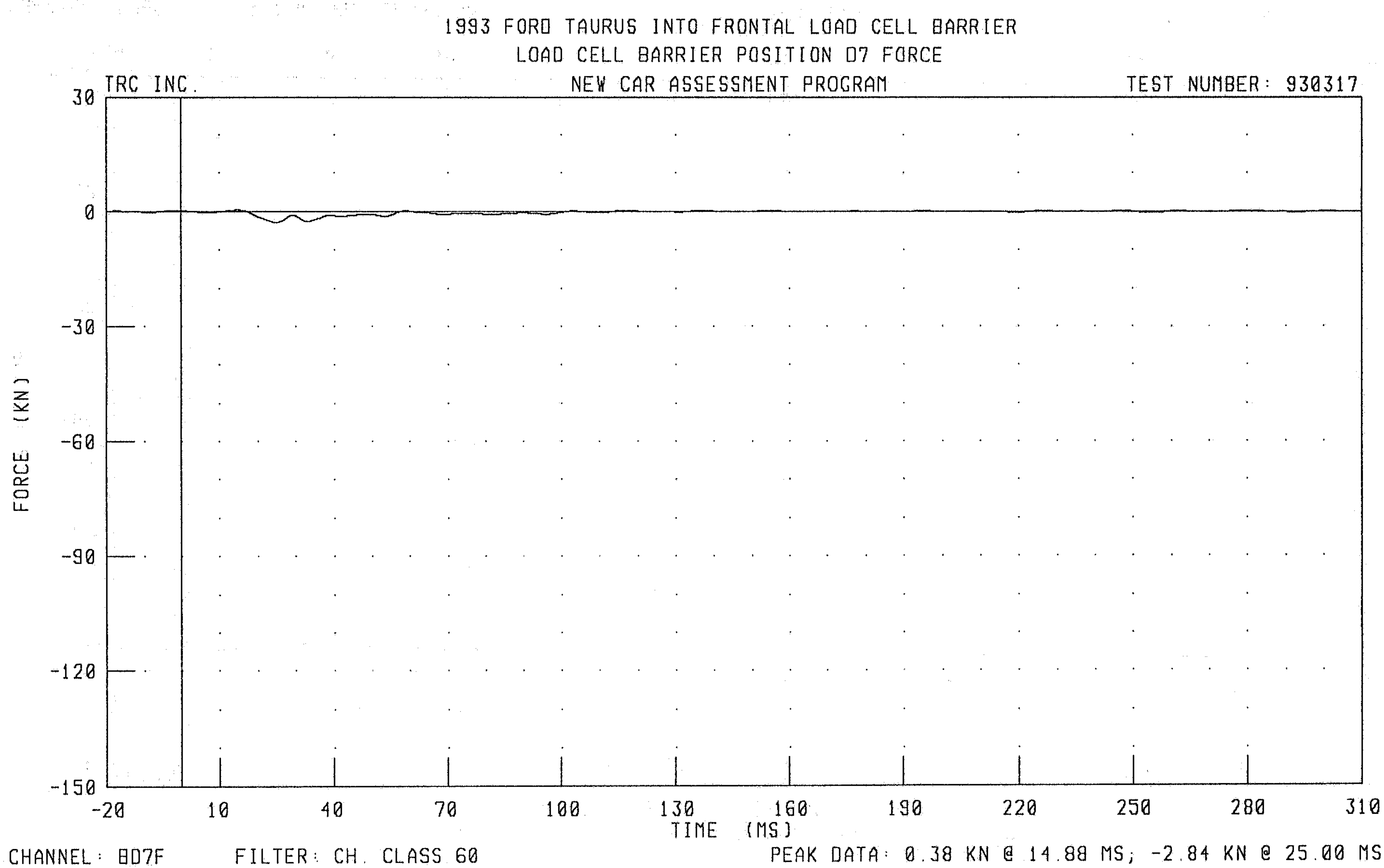
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



CHANNEL: BD6F FILTER: CH. CLASS 60

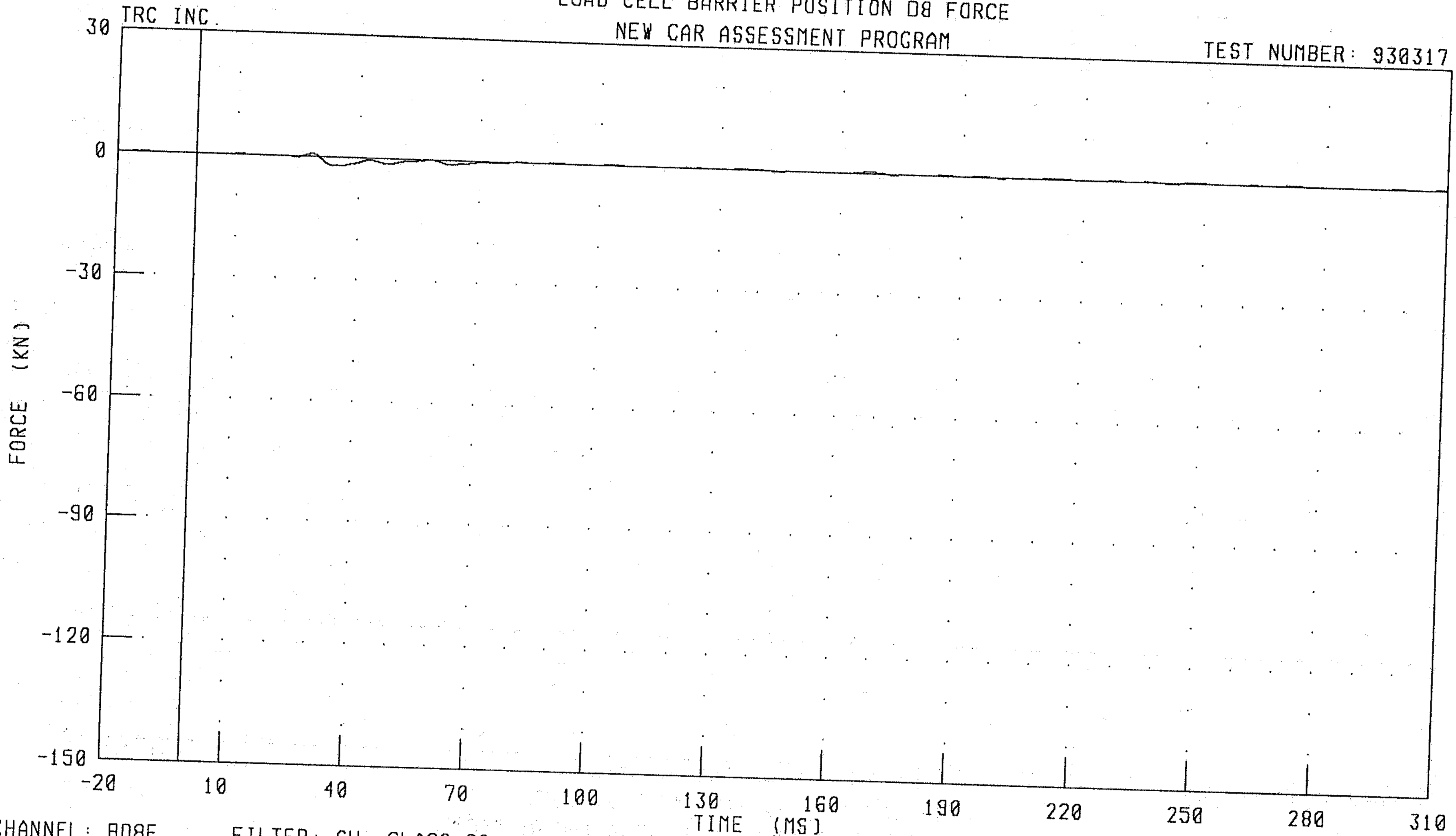
PEAK DATA: 0.40 KN @ 14.00 MS; -3.09 KN @ 34.63 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D7 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
FORCE (KN)
30
0
-30
-60
-90
-120
-150
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD7F
FILTER: CH. CLASS 60
PEAK DATA: 0.38 KN @ 14.88 MS; -2.84 KN @ 25.00 MS

930317

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE
NEW CAR ASSESSMENT PROGRAM

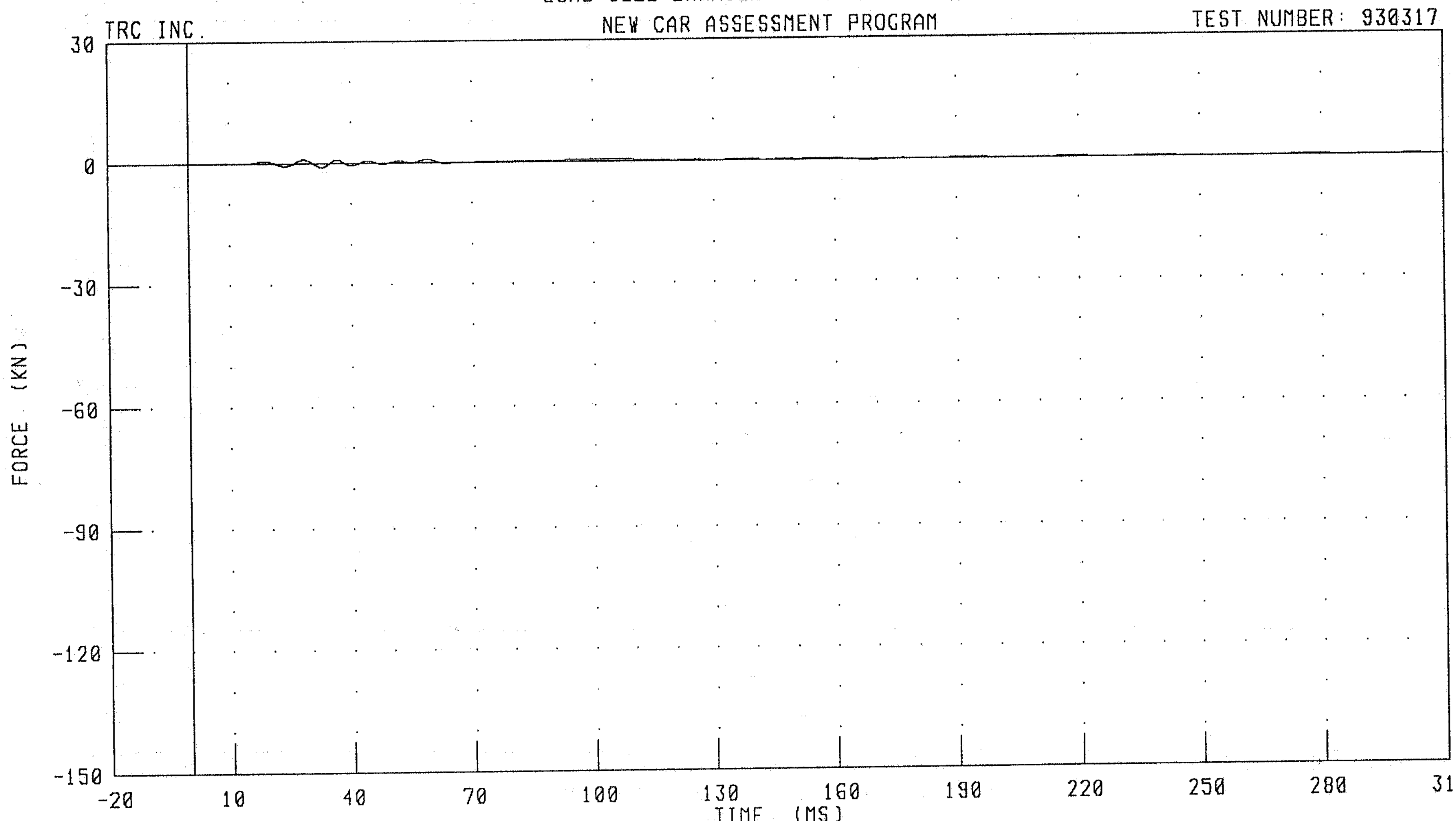
TEST NUMBER: 930317



CHANNEL: B08F FILTER: CH. CLASS 60

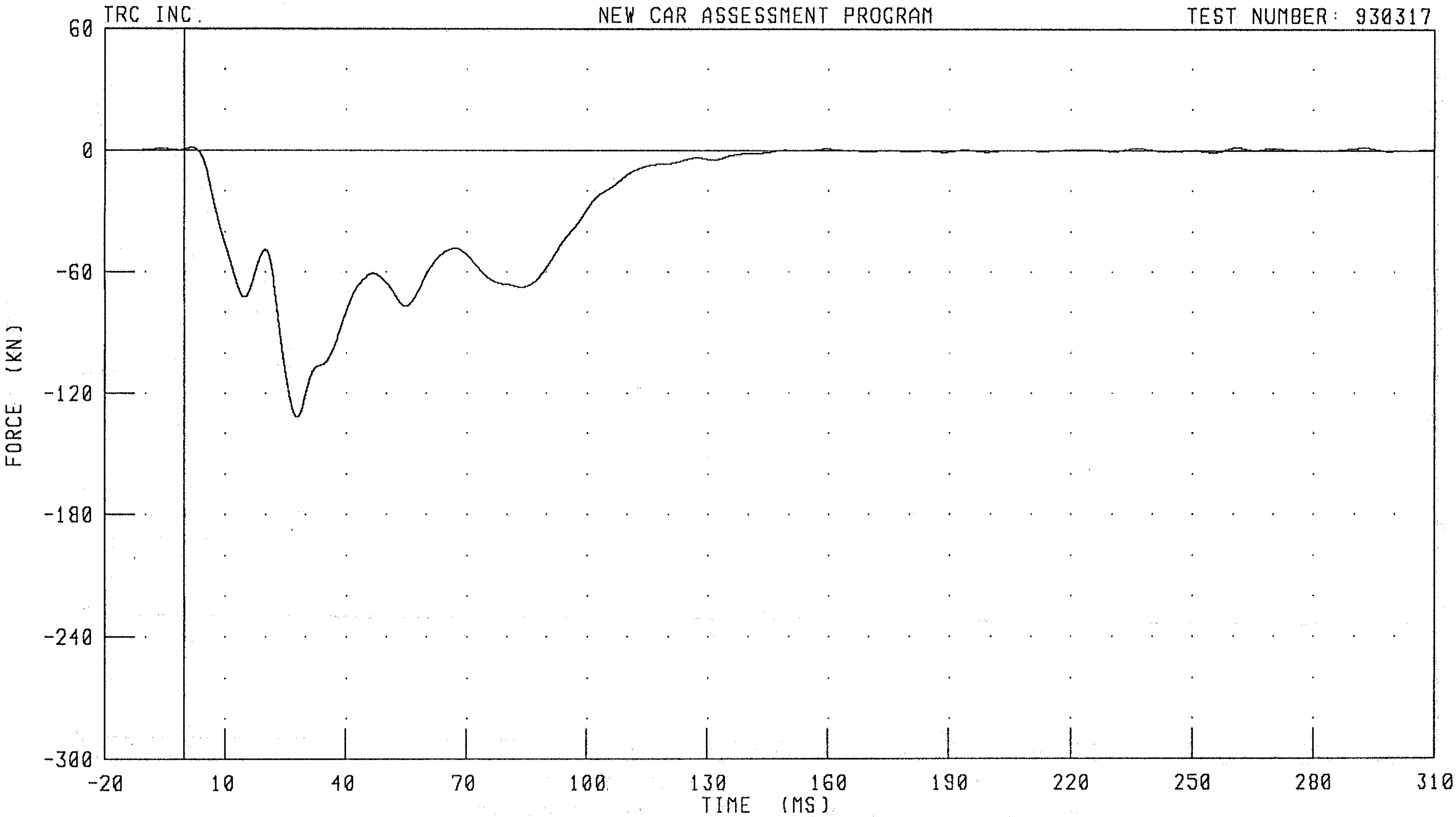
PEAK DATA: 0.65 KN @ 28.63 MS; -2.16 KN @ 35.13 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE
NEW CAR ASSESSMENT PROGRAM



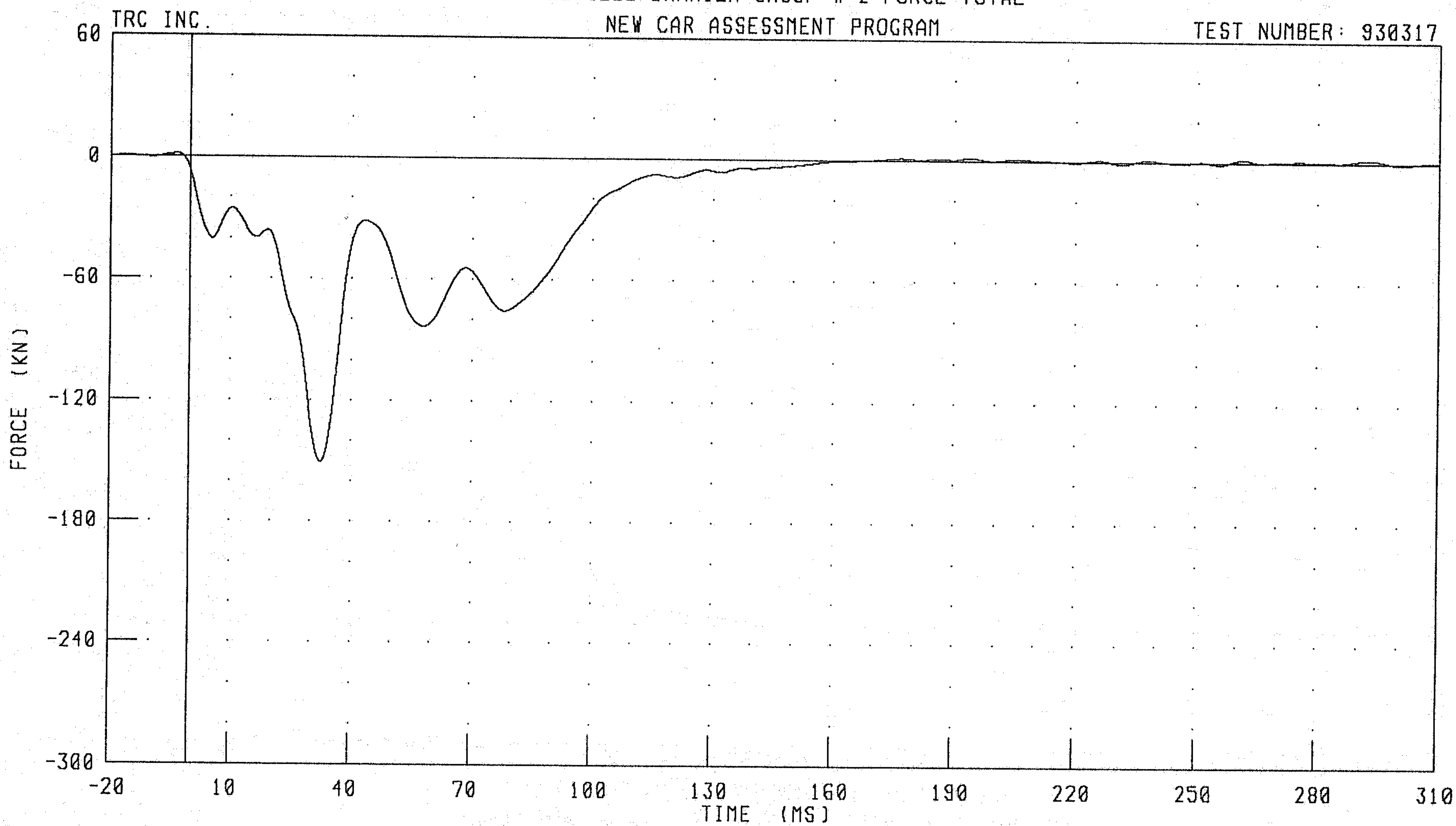
CHANNEL: BD9F FILTER: CH. CLASS 60 PEAK DATA: 0.92 KN @ 28.50 MS; -1.05 KN @ 33.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBG1F FILTER: CH. CLASS 60 PEAK DATA: 1.45 KN @ 261.13 MS; -131.70 KN @ 27.88 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM

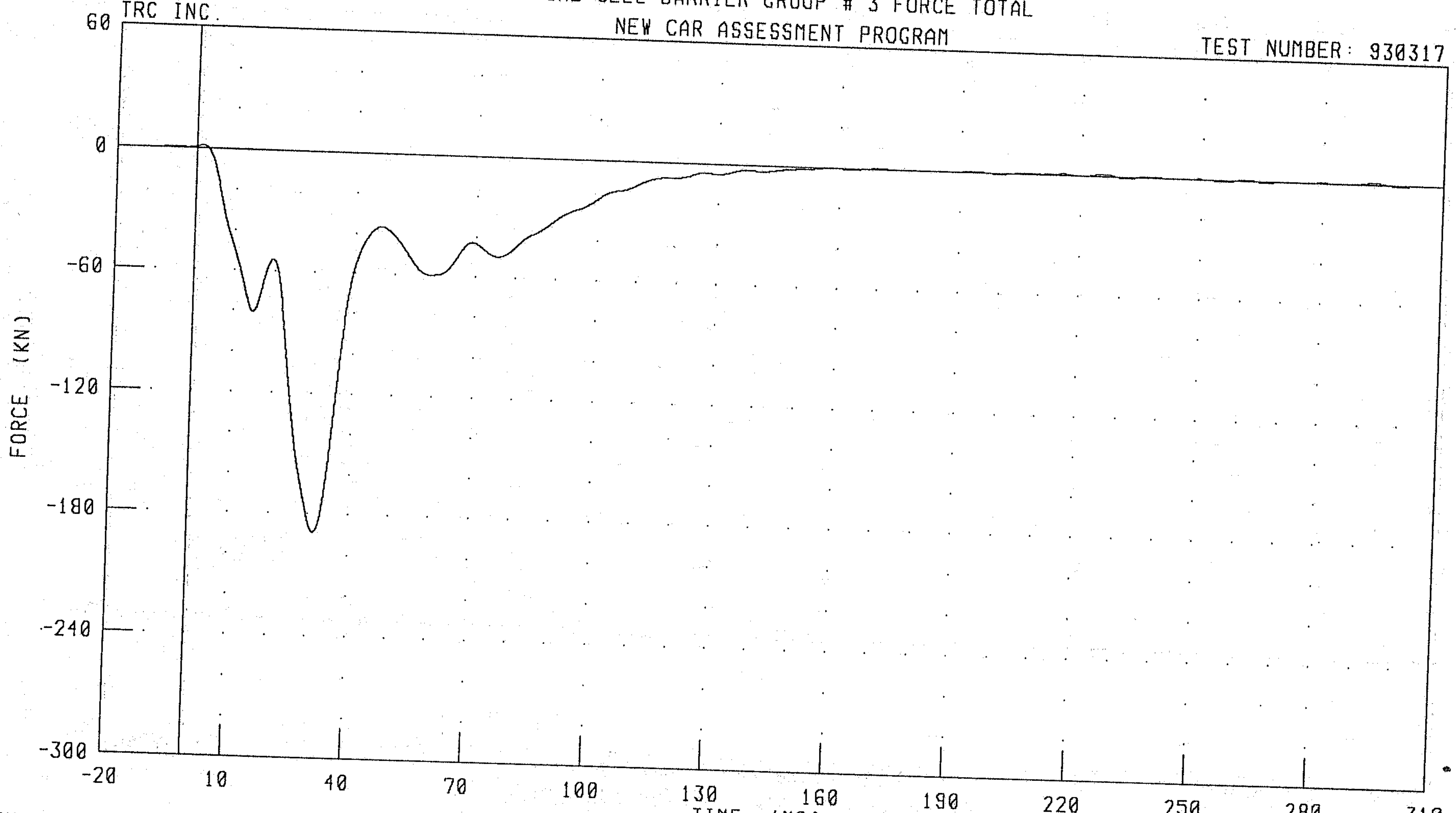


CHANNEL: LCBG2F FILTER: CH. CLASS 60 PEAK DATA: 1.61 KN @ 292.75 MS; -150.36 KN @ 32.63 MS

930317

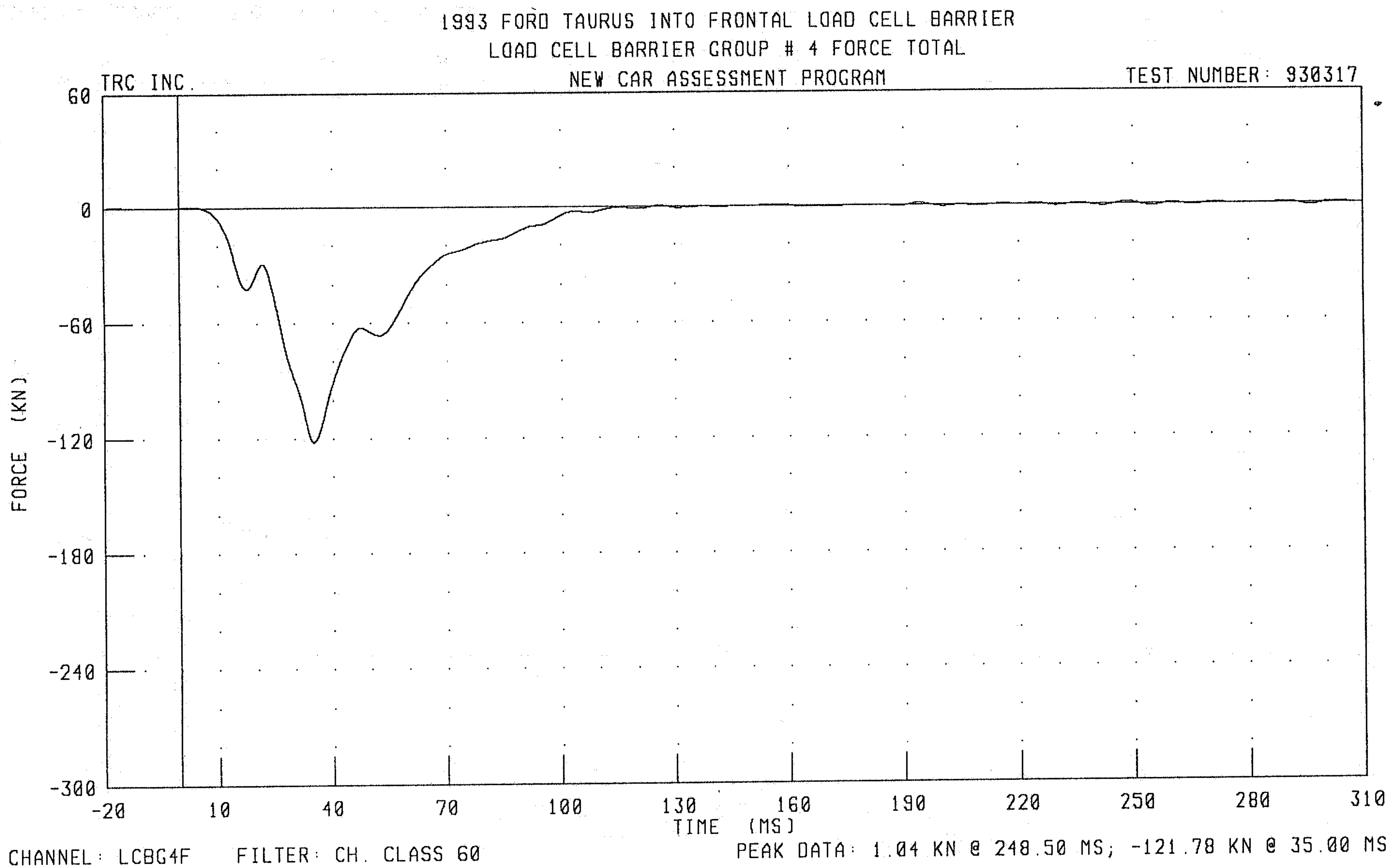
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 930317



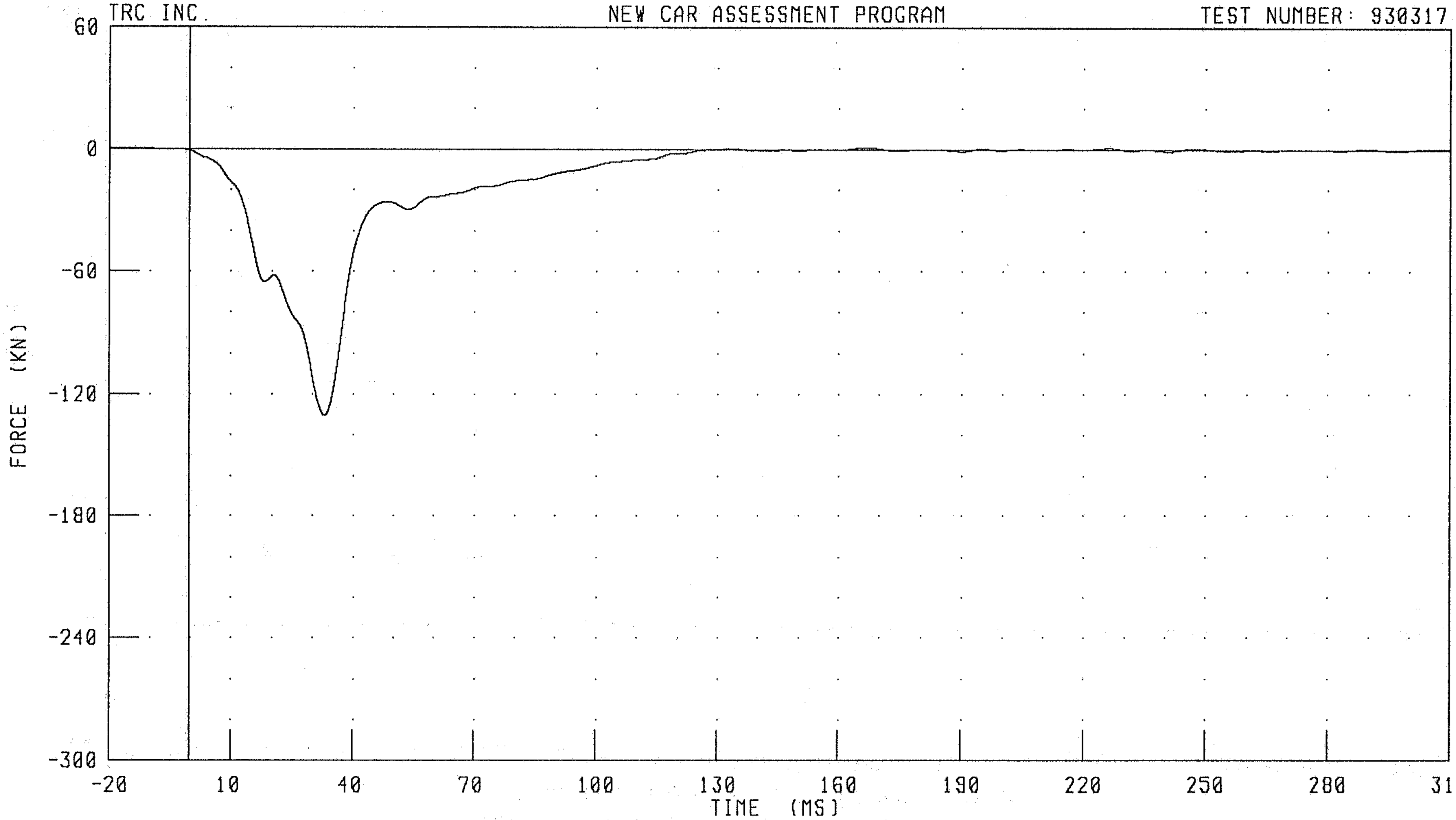
CHANNEL: LCBG3F FILTER: CH. CLASS 60

PEAK DATA: 1.39 KN @ 1.25 MS; -189.05 KN @ 31.50 MS


1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 930317
FORCE (KN)
60
0
-60
-120
-180
-240
-300
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBG4F
FILTER: CH. CLASS 60
PEAK DATA: 1.04 KN @ 248.50 MS; -121.78 KN @ 35.00 MS

930317

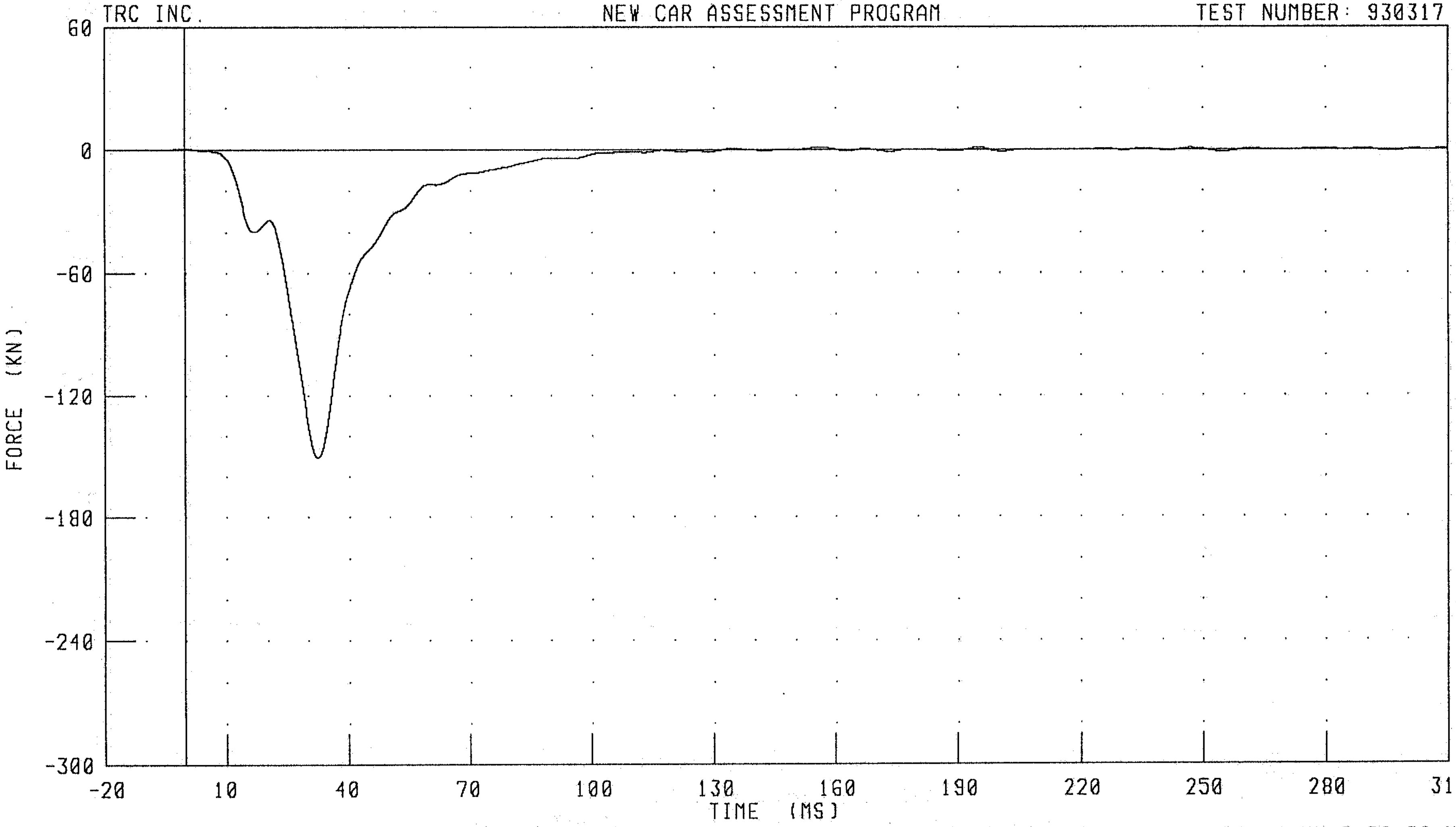
1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBG5F   FILTER: CH. CLASS 60   PEAK DATA: 1.19 KN @ 167.00 MS; -130.14 KN @ 33.00 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 930317

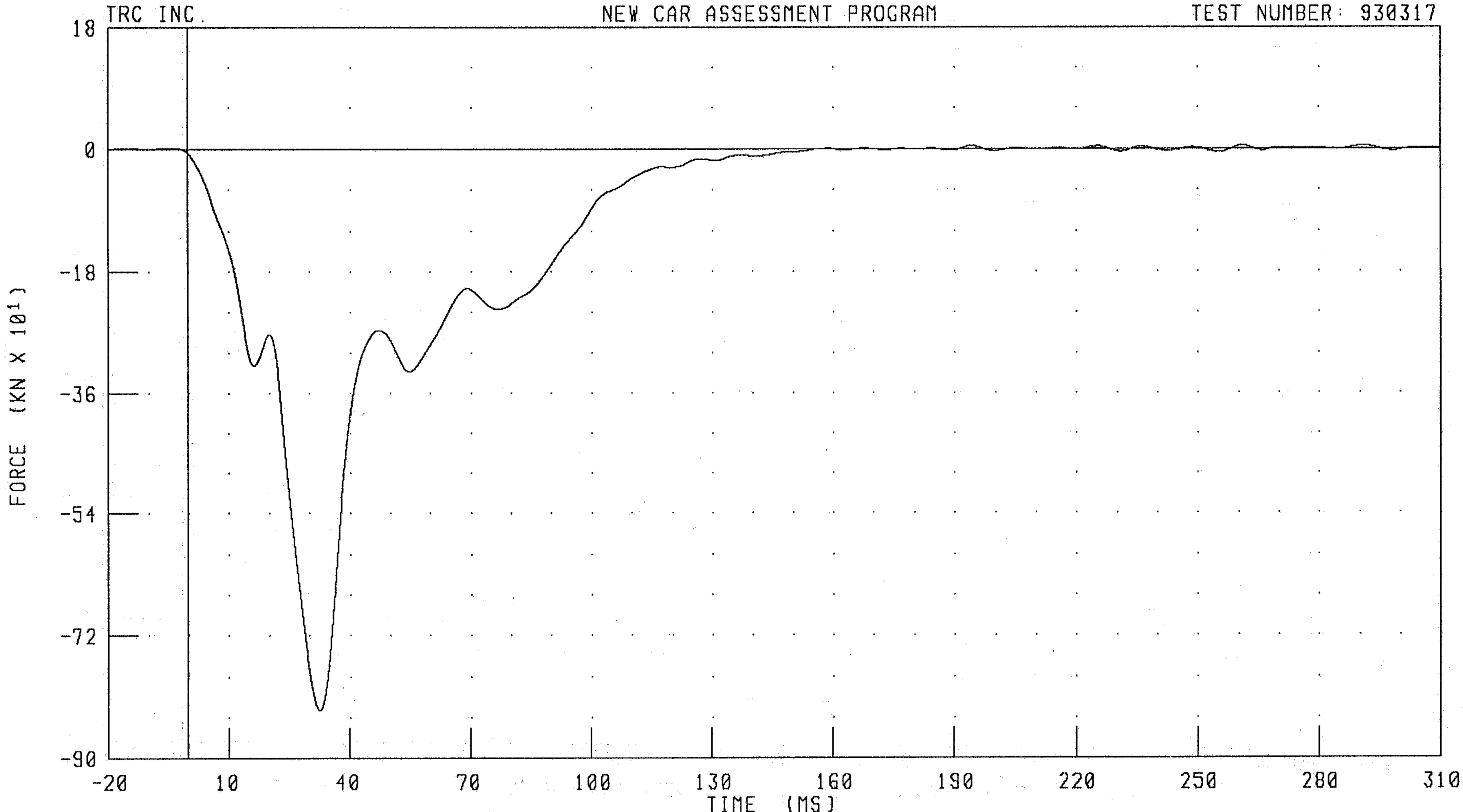


CHANNEL: LCBG6F FILTER: CH. CLASS 60 PEAK DATA: 1.01 KN @ 155.88 MS, -150.44 KN @ 32.38 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER

LOAD CELL BARRIER TOTAL

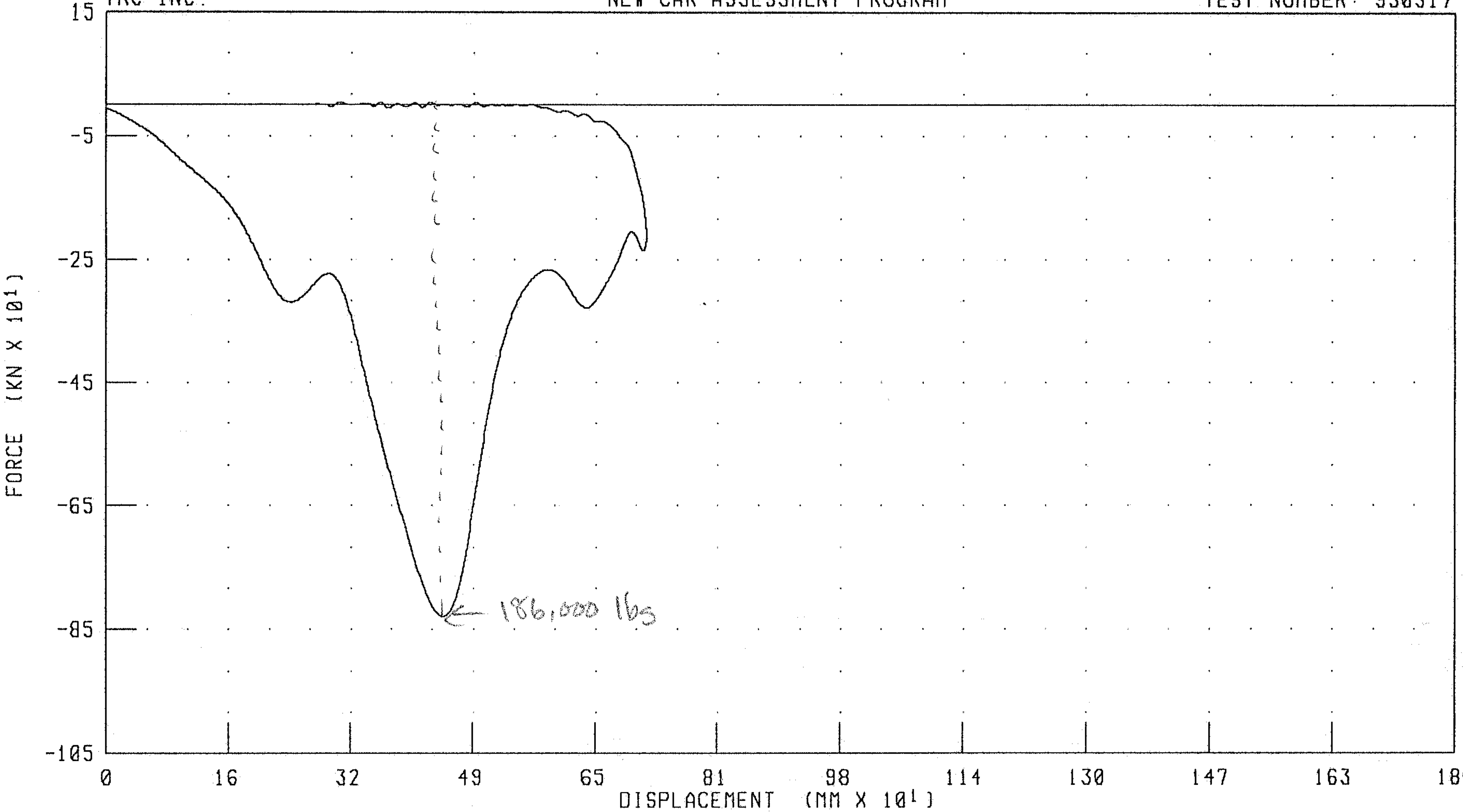
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBGT FILTER: CH. CLASS 60 PEAK DATA: 4.68 KN @ 194.25 MS; -828.93 KN @ 32.63 MS

1993 FORD TAURUS INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT

TRC INC. NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 930317



CHANNEL: OTHXD FILTER: CH. CLASS 180
LCBGT CH. CLASS 60

PEAK DATA: 723.48 MM @ 83.88 MS; 0.00 MM @ 0.00 MS
4.68 KN @ 194.25 MS; -828.93 KN @ 32.63 MS

APPENDIX C

DUMMY CERTIFICATION DATA

PRE-TEST CERTIFICATION DATA

DRIVER DUMMY S/N: 713

TRANSPORTATION RESEARCH CENTER INC.

EXTERNAL DIMENSIONS

PART 572B 12-JAN-93

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

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

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Fo[illegible]

930317

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

PART 572B   02-FEB-93

TRC   HD71307   572B SN 713 HEAD DROP CAL 07

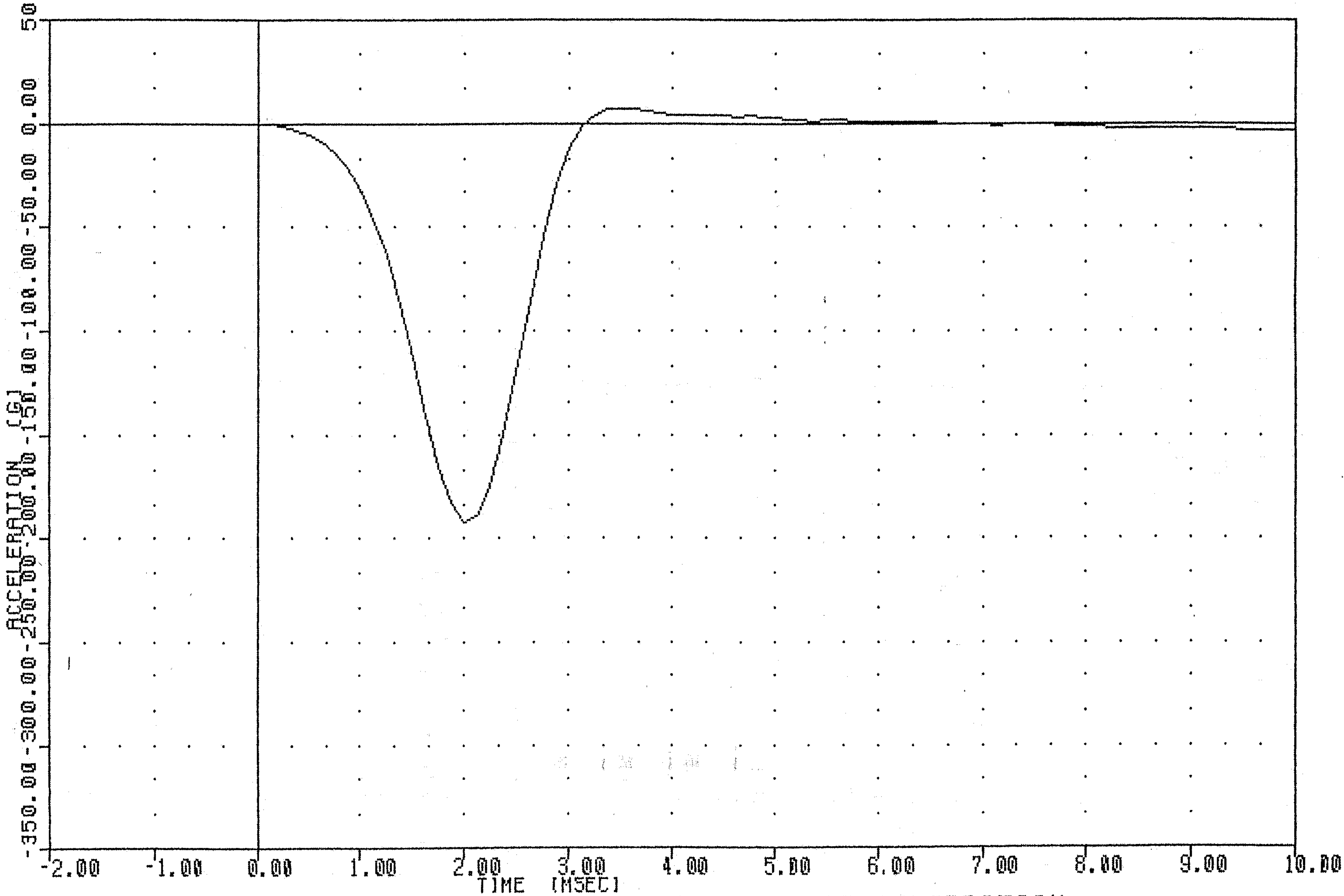
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
PEAK RESULTANT ACCELERATION	210 - 260 G	231.52 G
TIME ABOVE 100 G LEVEL	0.9 - 1.5 MS	1.29 MS
PEAK LATERAL ACCELERATION	10 G MAX	-8.57 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

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

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

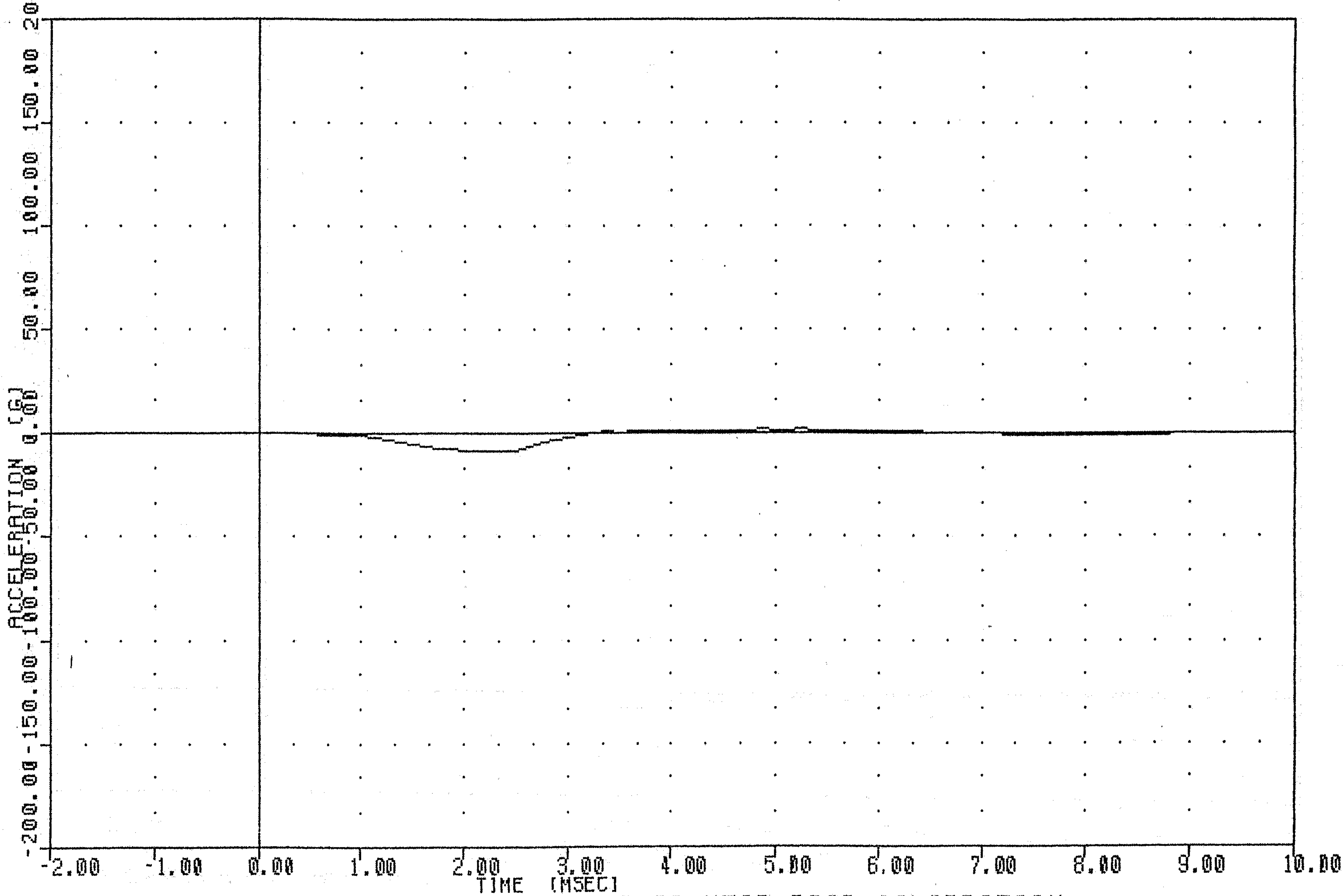


PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD ACCELERATION X AXIS

930317

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

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -8.57 @ 2.25 , 2.20 @ 4.88

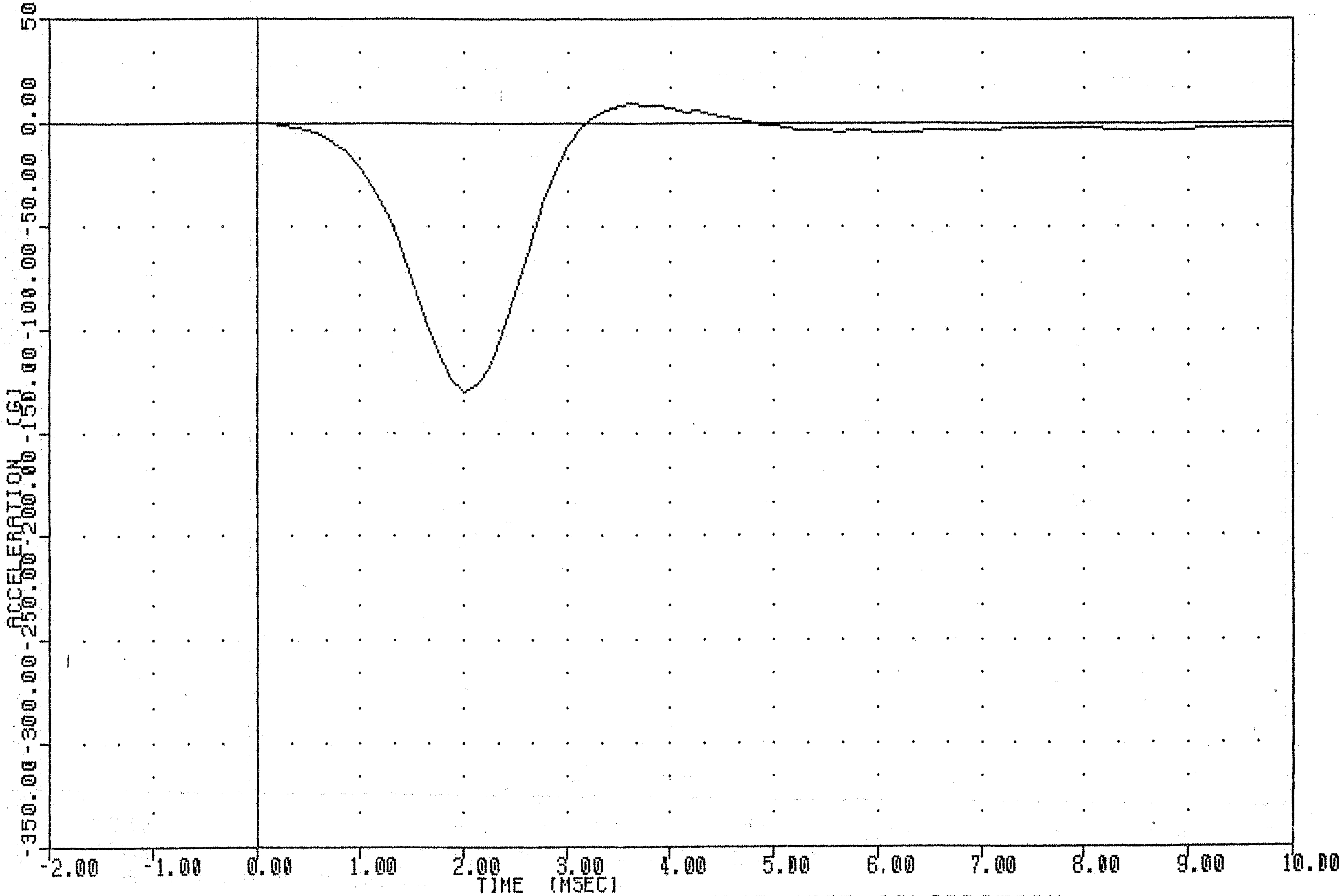


PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD ACCELERATION X AXIS

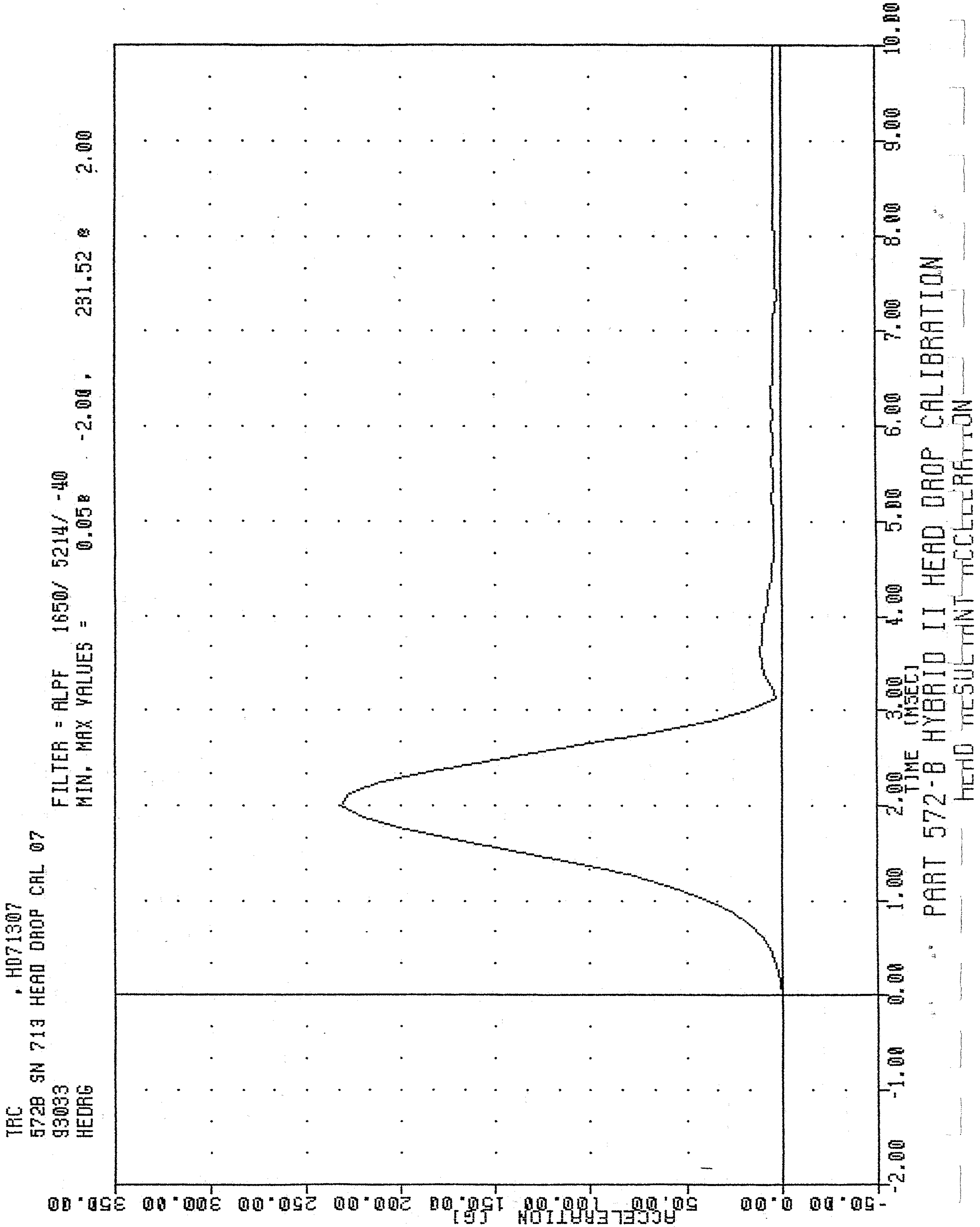
930317

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

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -129.07 @ 2.00 , 8.82 @ 3.63



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


TRC , HD71307
572B SN 713 HEAD DROP CAL 07
93033
HEDRG
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.05 @ -2.00 , 231.52 @ 2.00
PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD RESULTANT ACCELERATION
TIME (MSEC)
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
-50.00
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00

TRANSPORTATION RESEARCH CENTER INC.

NECK PENDULUM TEST

PART 572B 02-FEB-93

TRC HN71307 572B SN 713 HEAD/NECK CAL 07

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

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

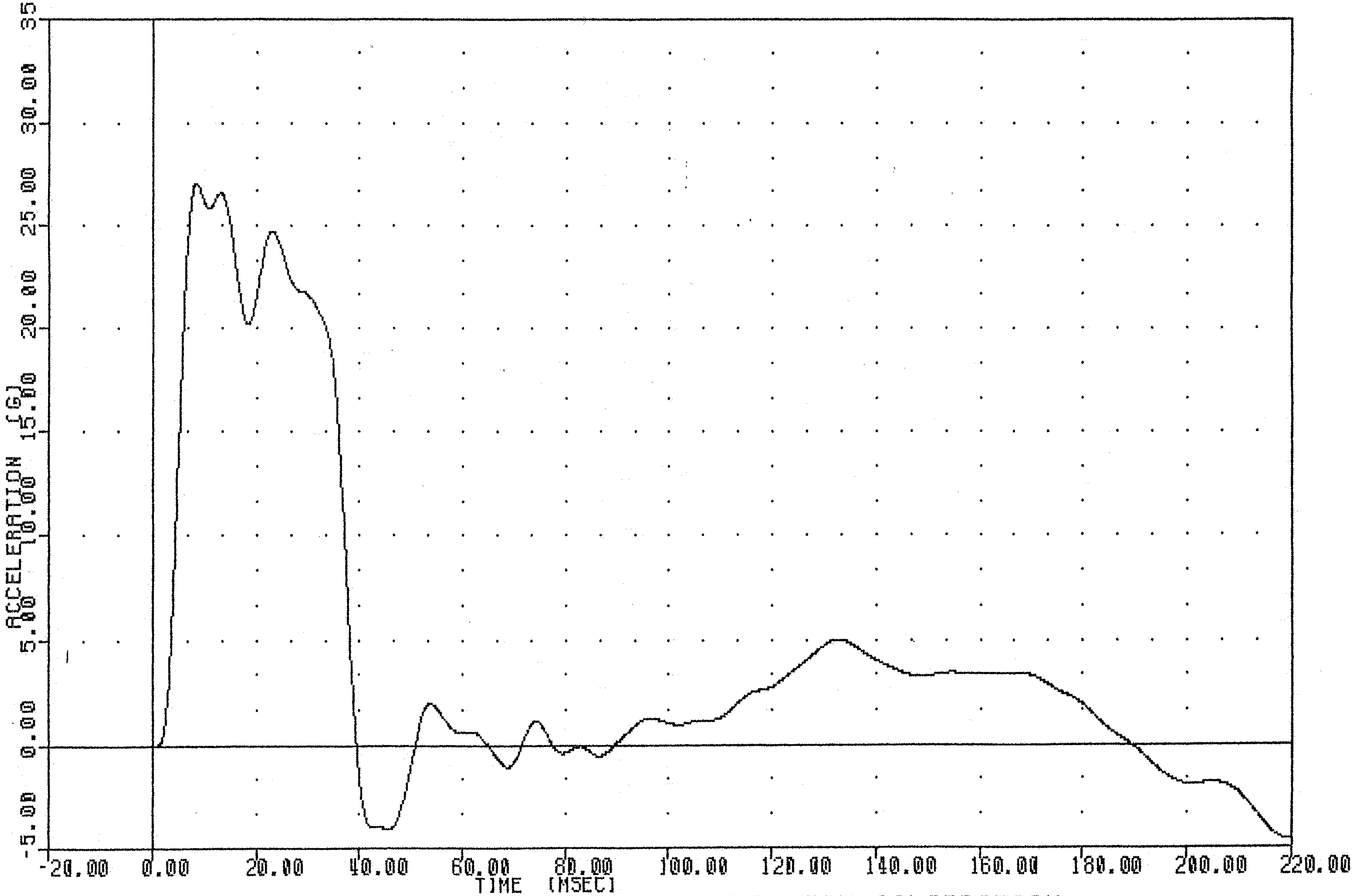
SND: 151.13 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

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

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

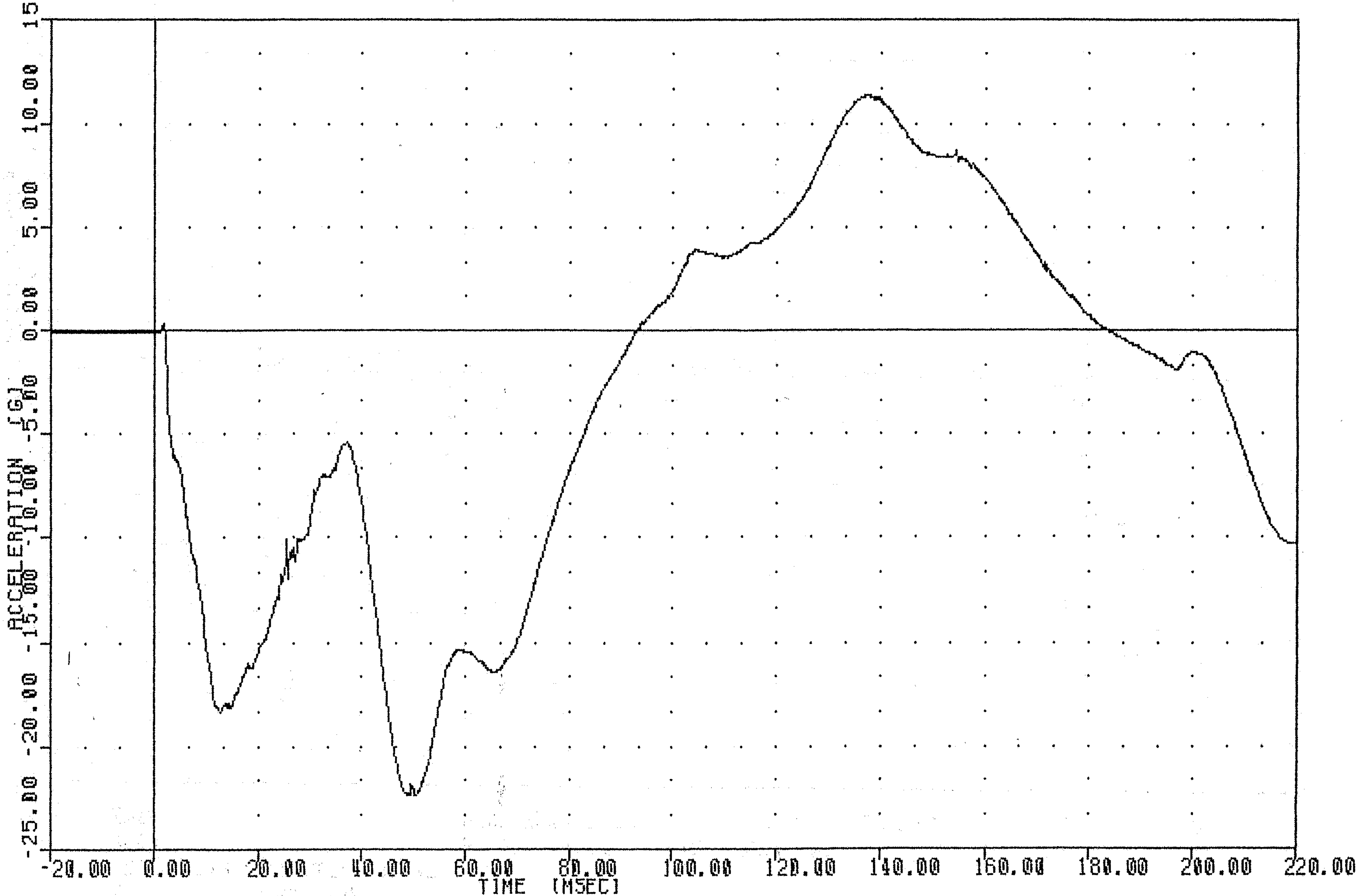


PART 572-R HYBRID II HEAD/NECK CALIBRATION
PENDULUM DECELERATION

930317

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

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

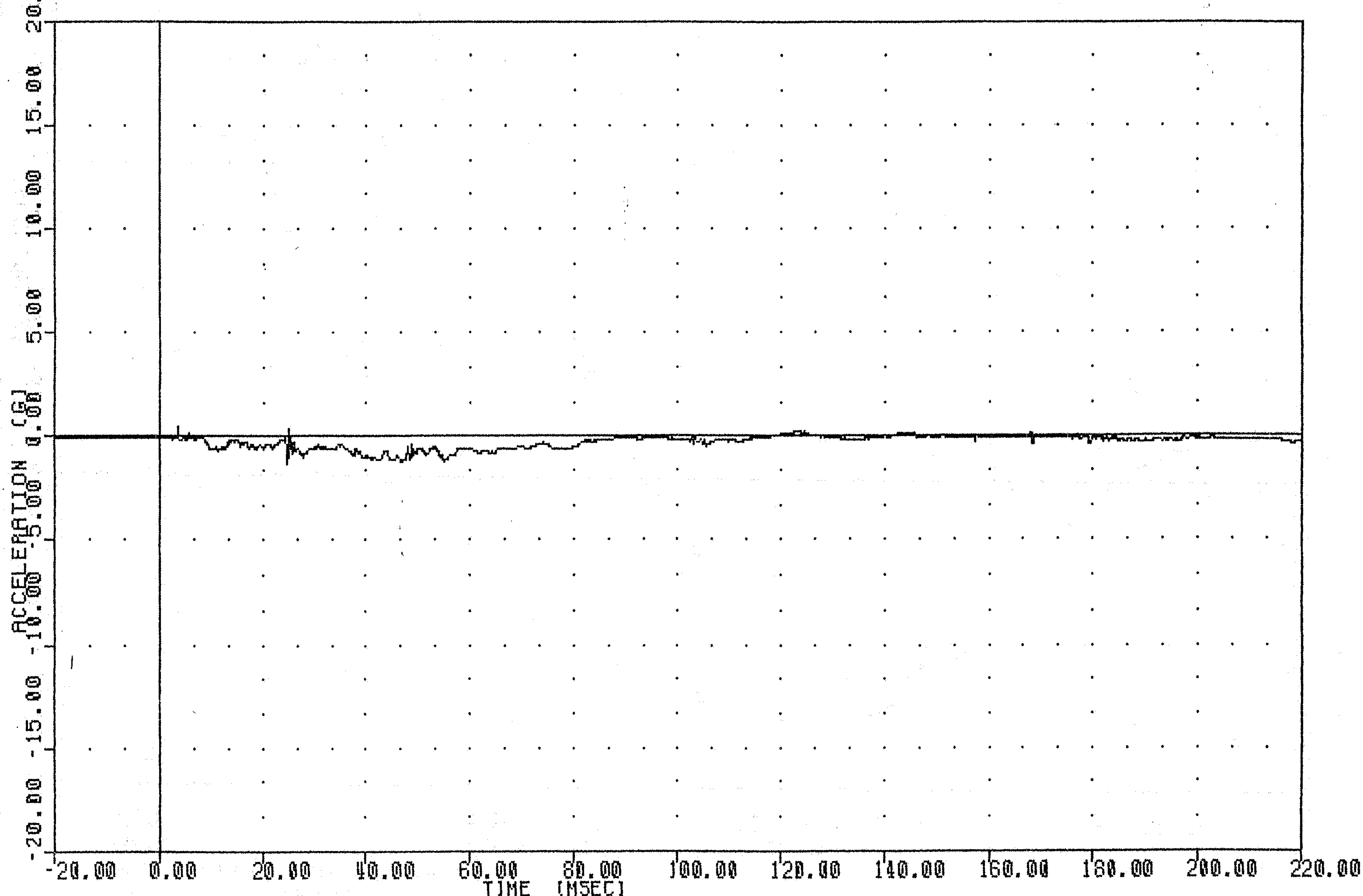


PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION X AXIS

930317

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

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

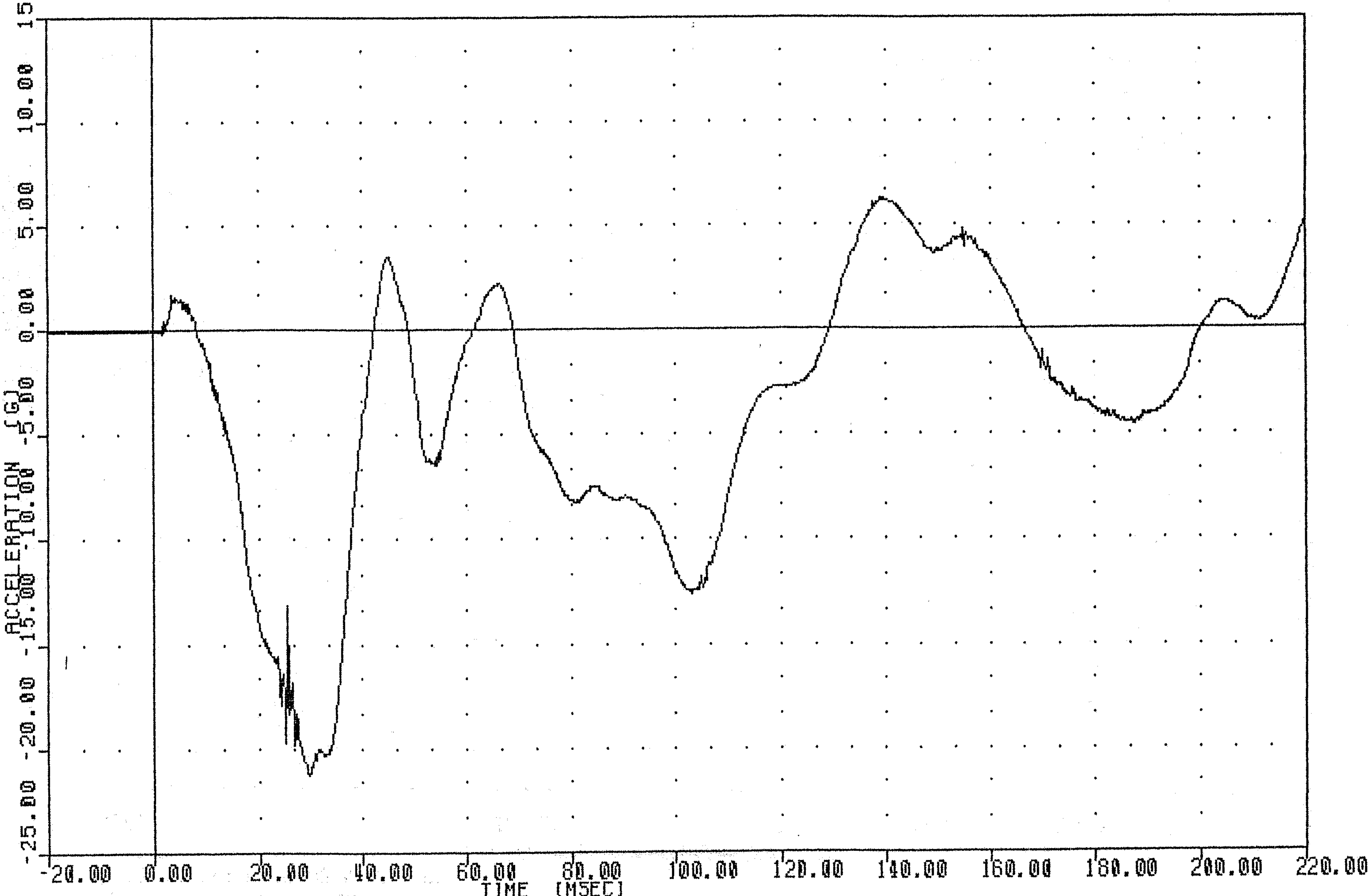


PART 572-B HYBRID II HEAD/NECK CALIBRATION

HEAD ACCELERATION Y AXIS

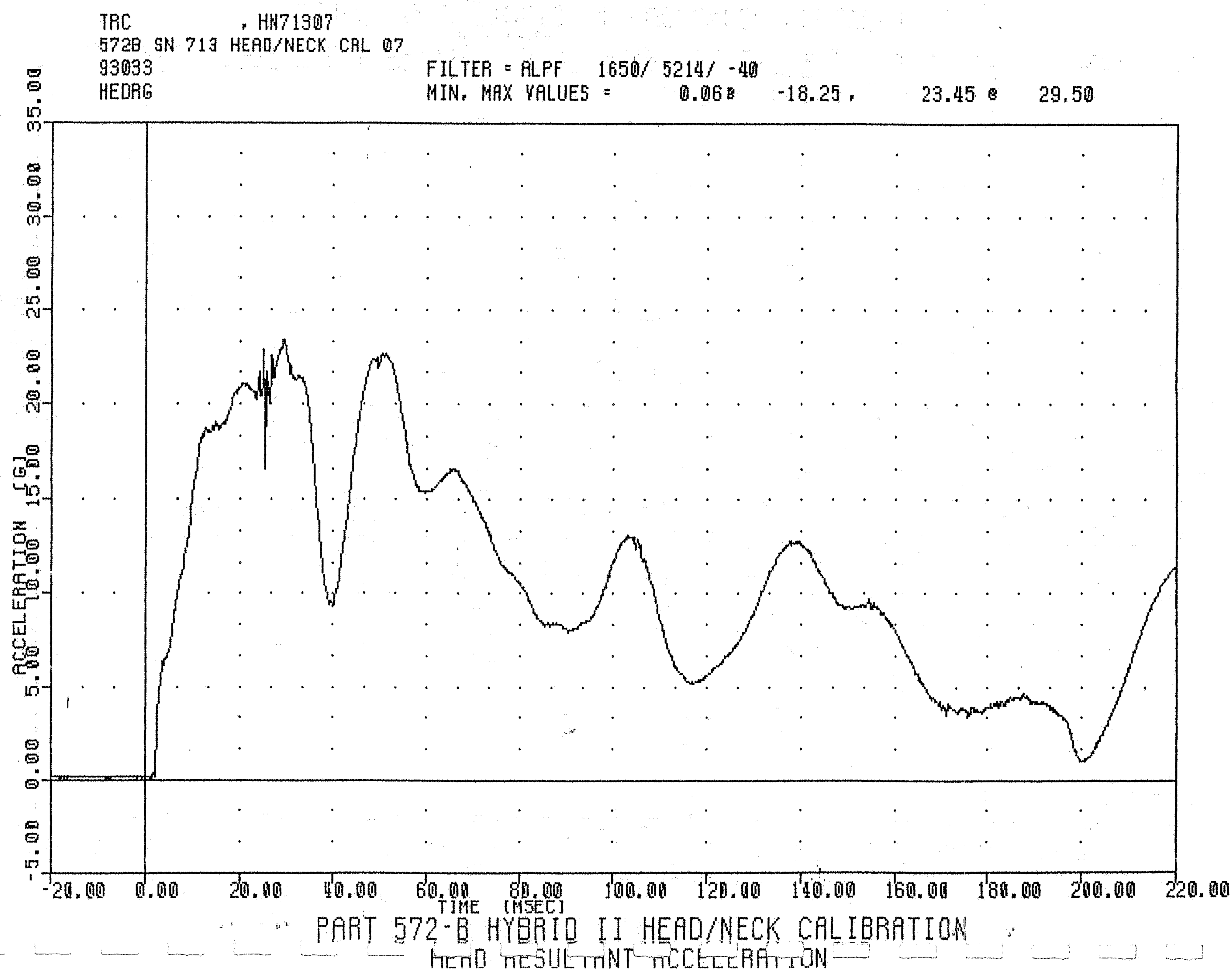
TRC , HN71307
572B SN 713 HEAD/NECK CAL 07
93033
HEDZG

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



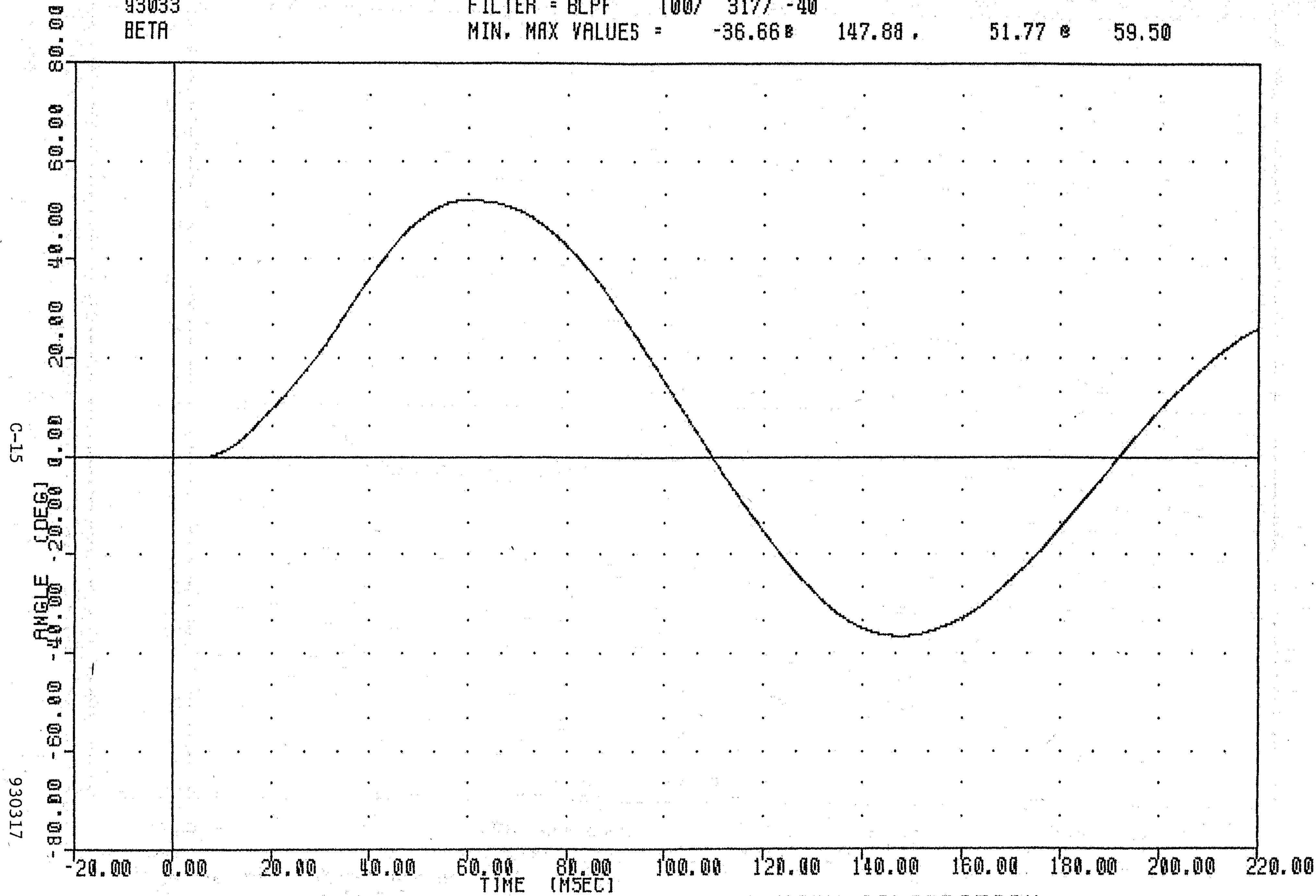
PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD ACCELERATION Z AXIS

930317


TRC , HN71307
572B SN 713 HEAD/NECK CAL 07
93033
HEDRG
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.06 @ -18.25 , 23.45 @ 29.50
ACCELERATION [G]
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
-5.00
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
TIME [MSEC]
PART 572-B HYBRID II HEAD/NECK CALIBRATION
HEAD RESULTANT ACCELERATION

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

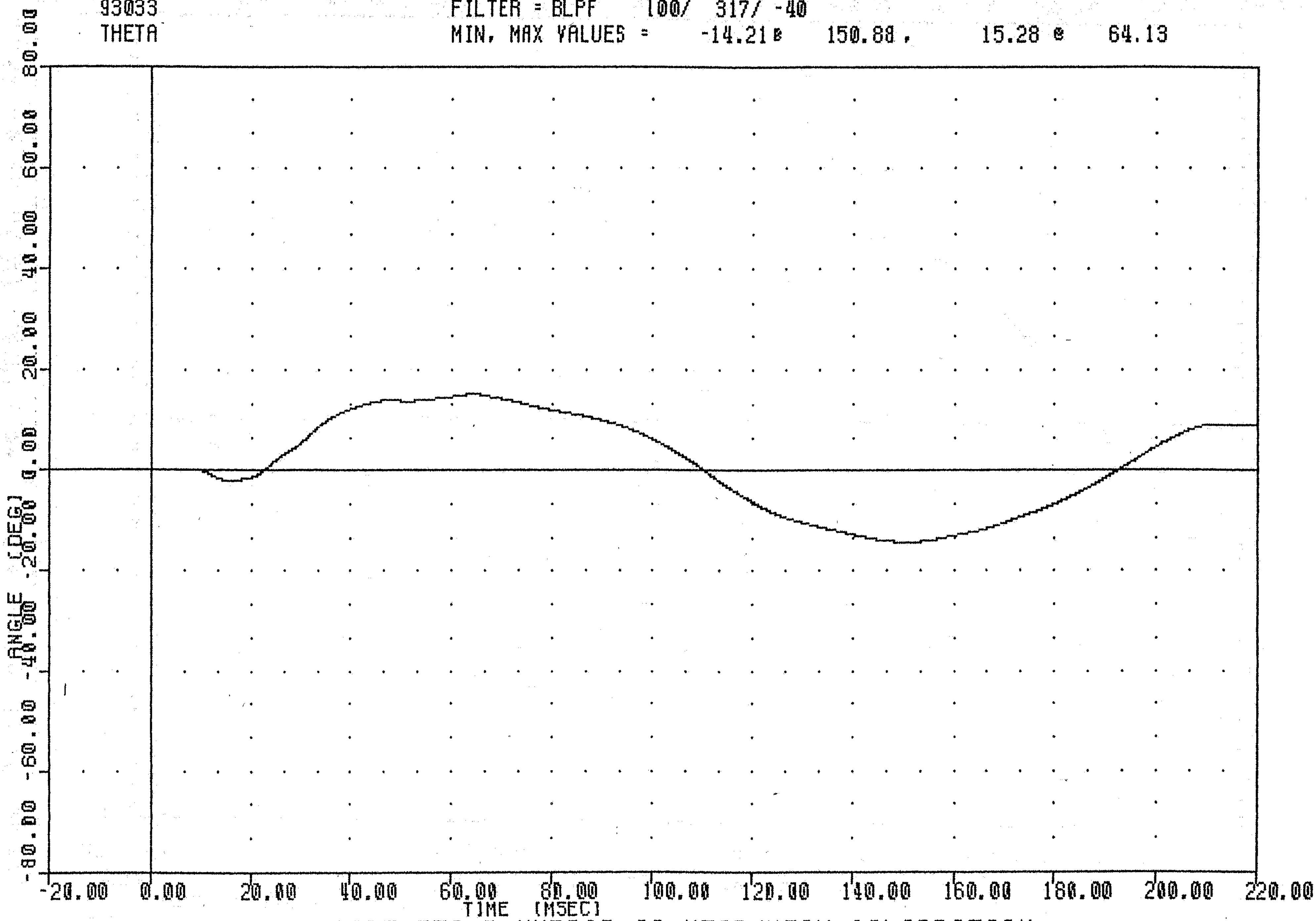
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -36.66 @ 147.88 , 51.77 @ 59.50



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

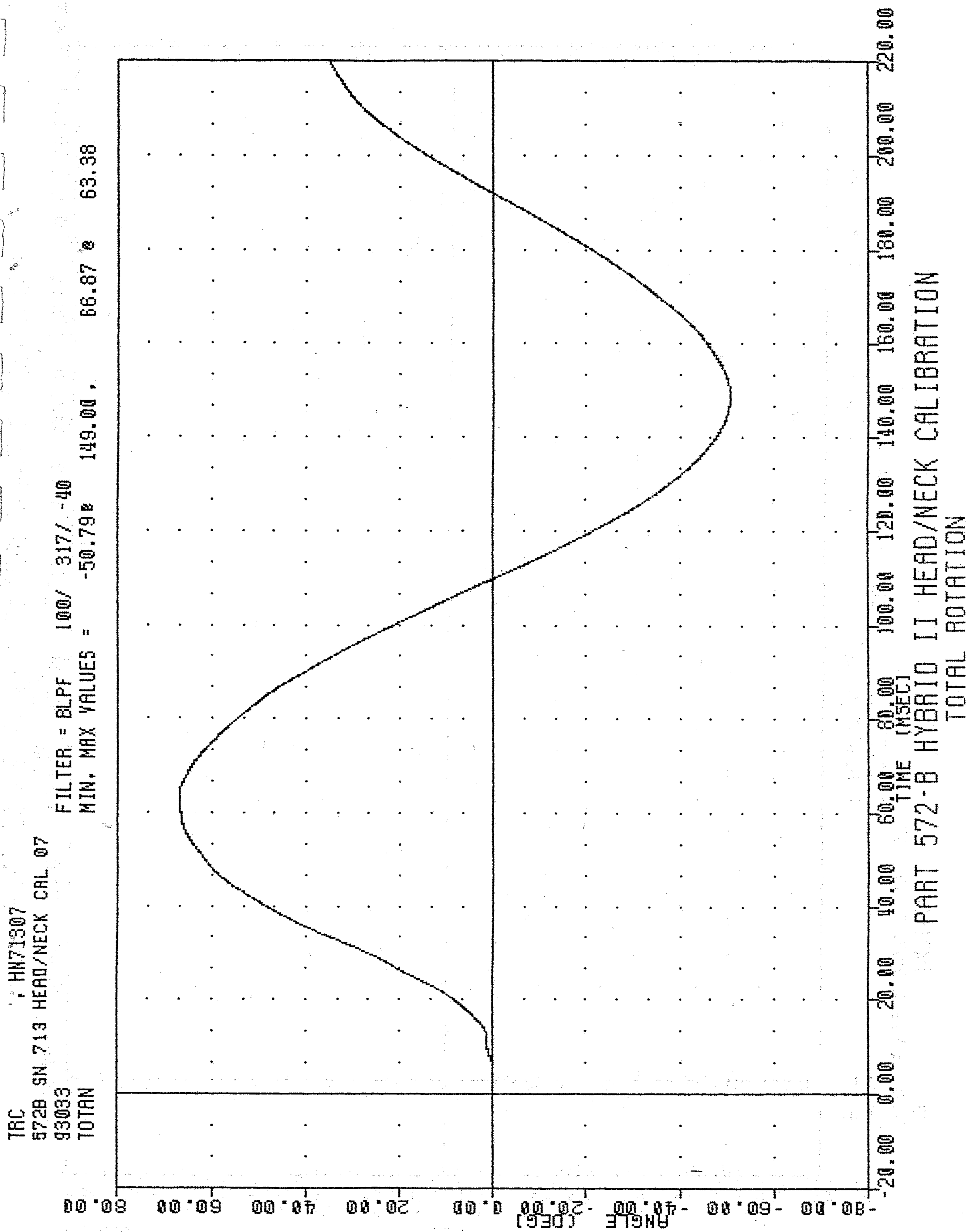
TRC , HN71307
572B SN 713 HEAD/NECK CAL 07
93033
THETA

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



PART 572-B HYBRID II HEAD/NECK CALIBRATION

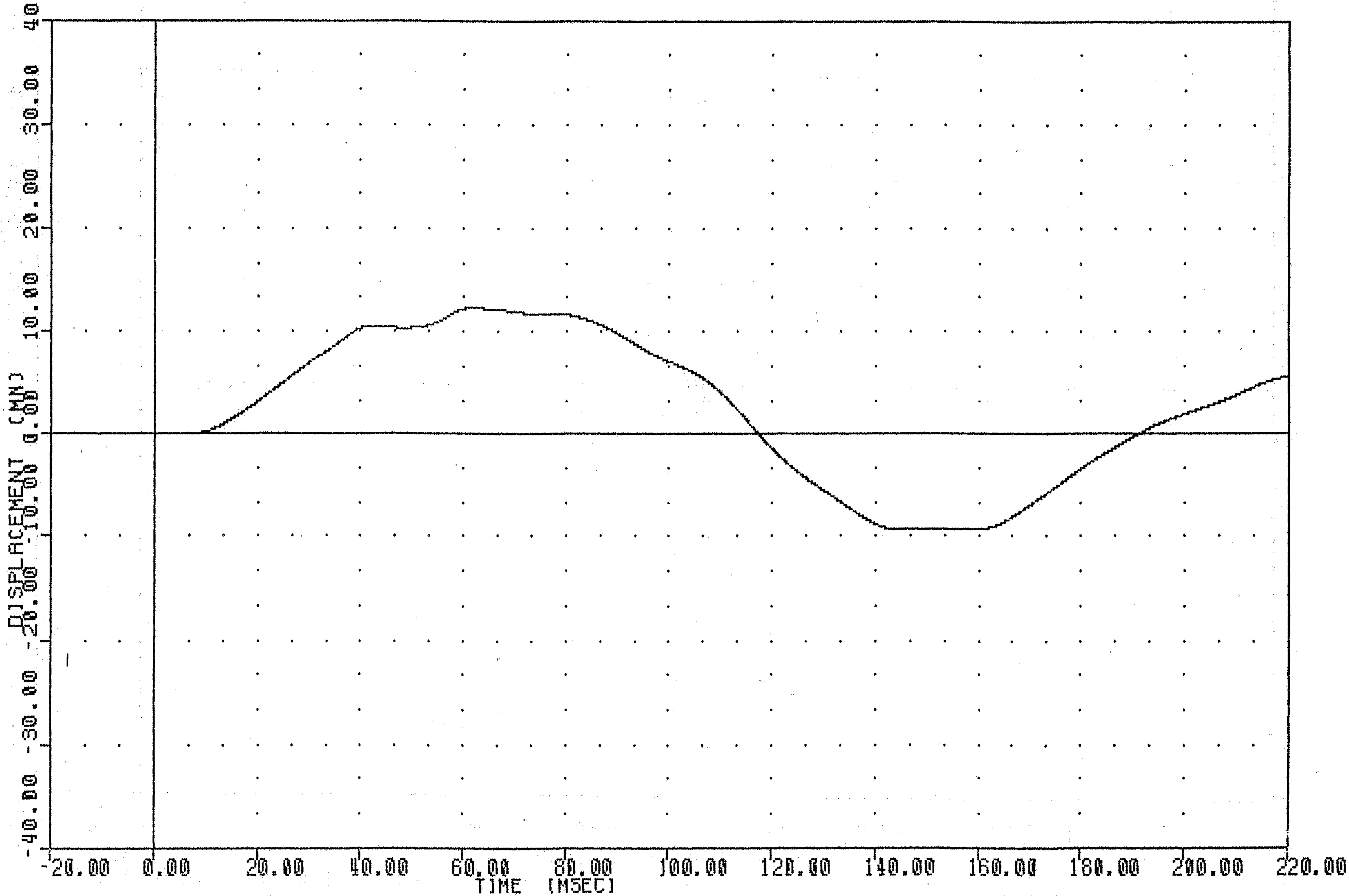
ROTATION ABOUT THE HEAD C.G.



TRC
, HN71307
572B SN 713 HEAD/NECK CAL 07
93033
TOTAN
FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -50.79 @ 149.00 , 66.87 @ 63.38
ANGLE (DEG)
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
TIME (MSEC)
-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
PART 572-B HYBRID II HEAD/NECK CALIBRATION
TOTAL ROTATION

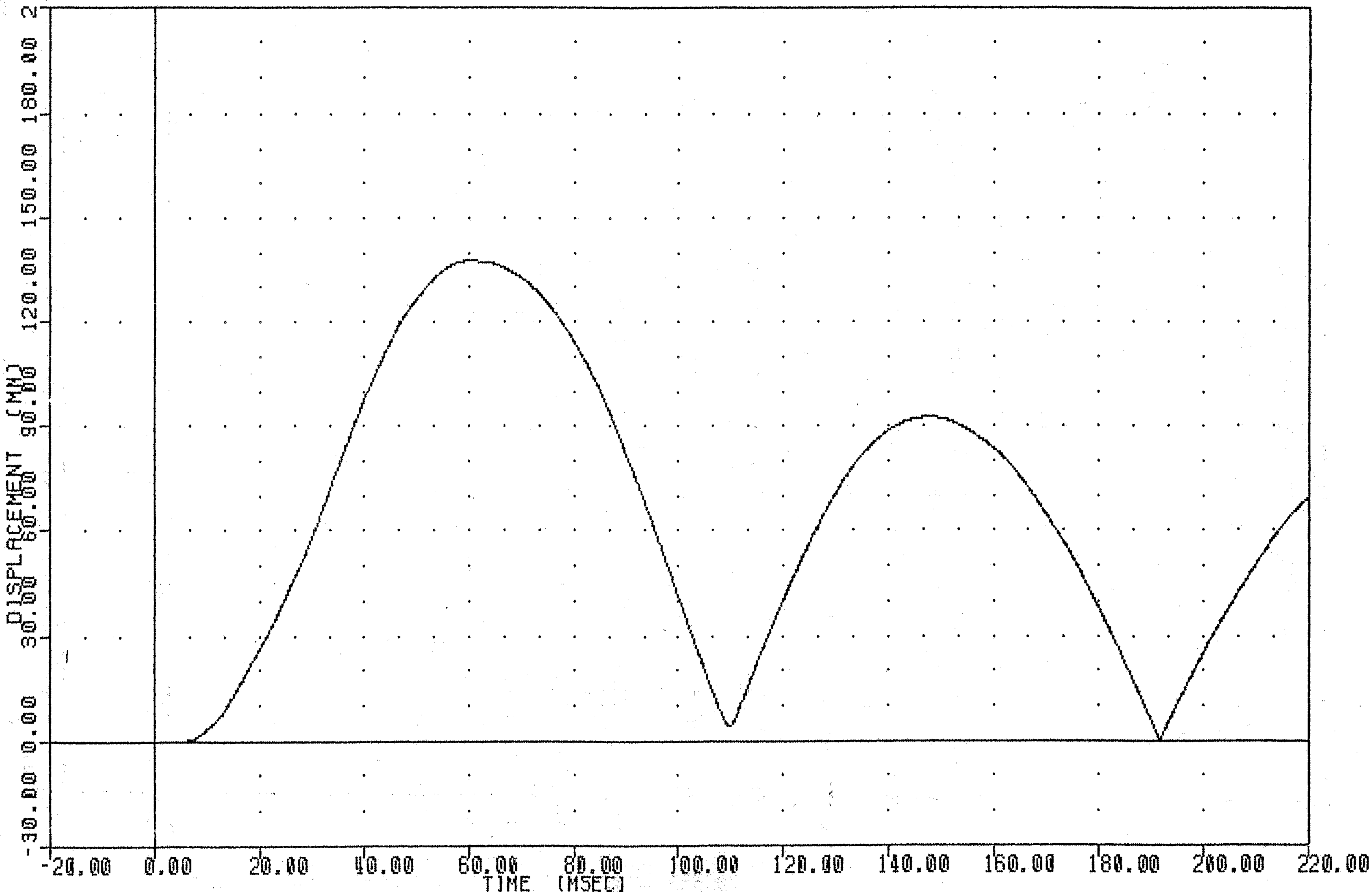
TRC , HN71307
572B SN 713 HEAD/NECK CAL 07
93033
NEKZD

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



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

TRC , HN71307
572B SN 713 HEAD/NECK CAL 07
93033 FILTER = BLPF 100/ 317/ -40
NEKCD MIN, MAX VALUES = 0.00 @ -20.00 , 137.64 @ 60.13



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

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B 03-FEB-93

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

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

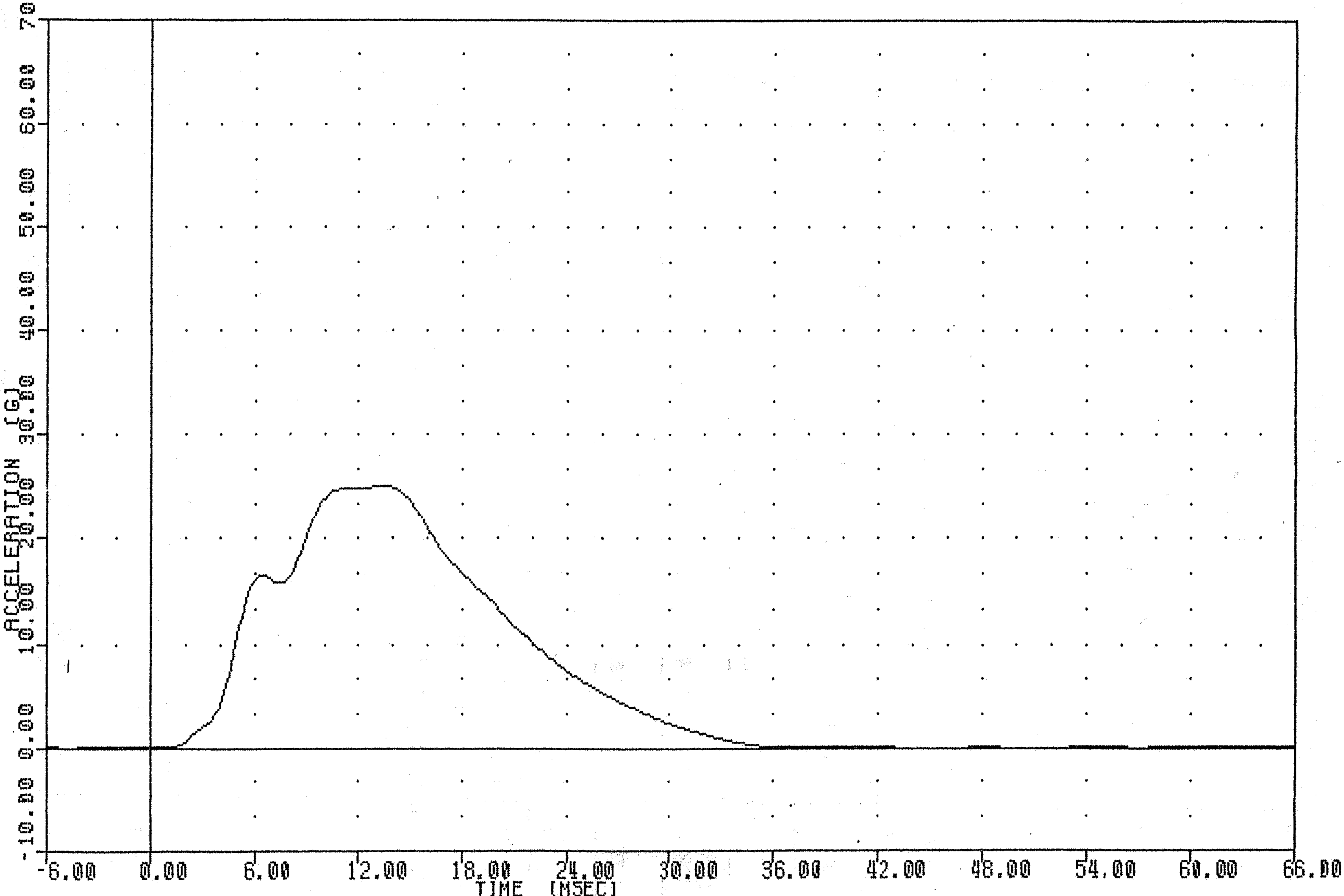
SCD: 54.61 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Peter Fant

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

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 0.02 @ 45.00 , 25.00 @ 13.50

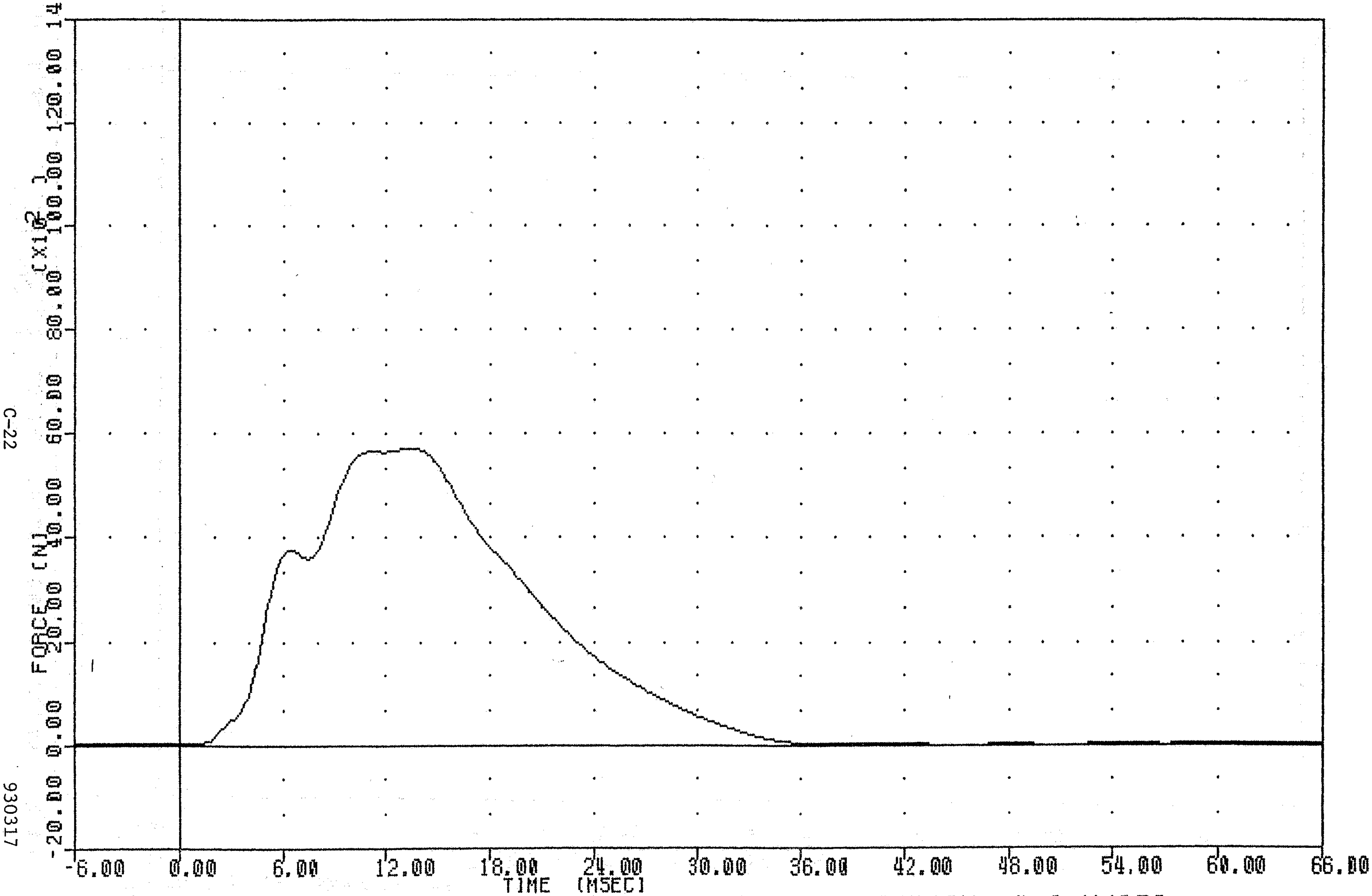


PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
PENDULUM DECELERATION

930317

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

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



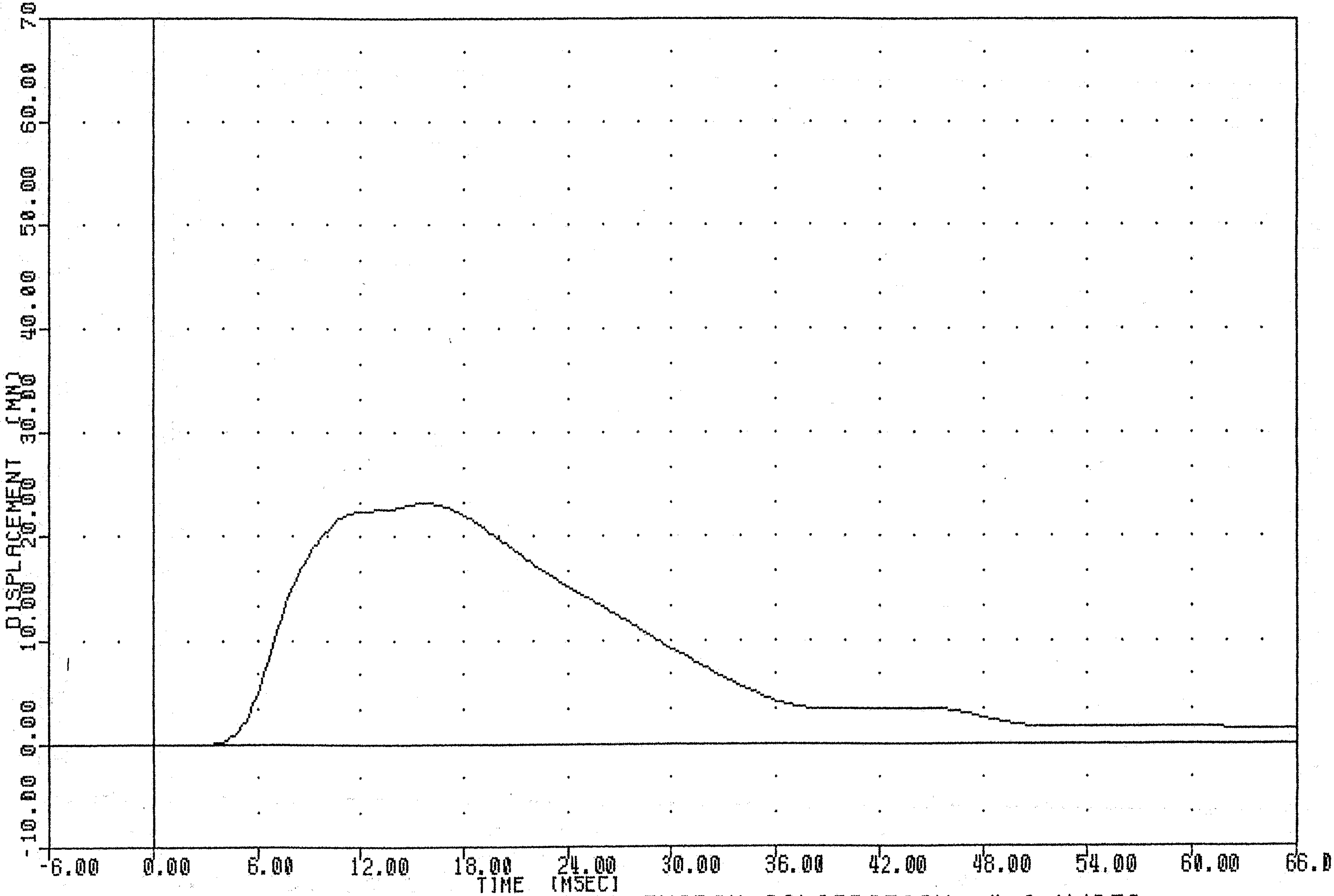
PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC

PENDULUM FORCE

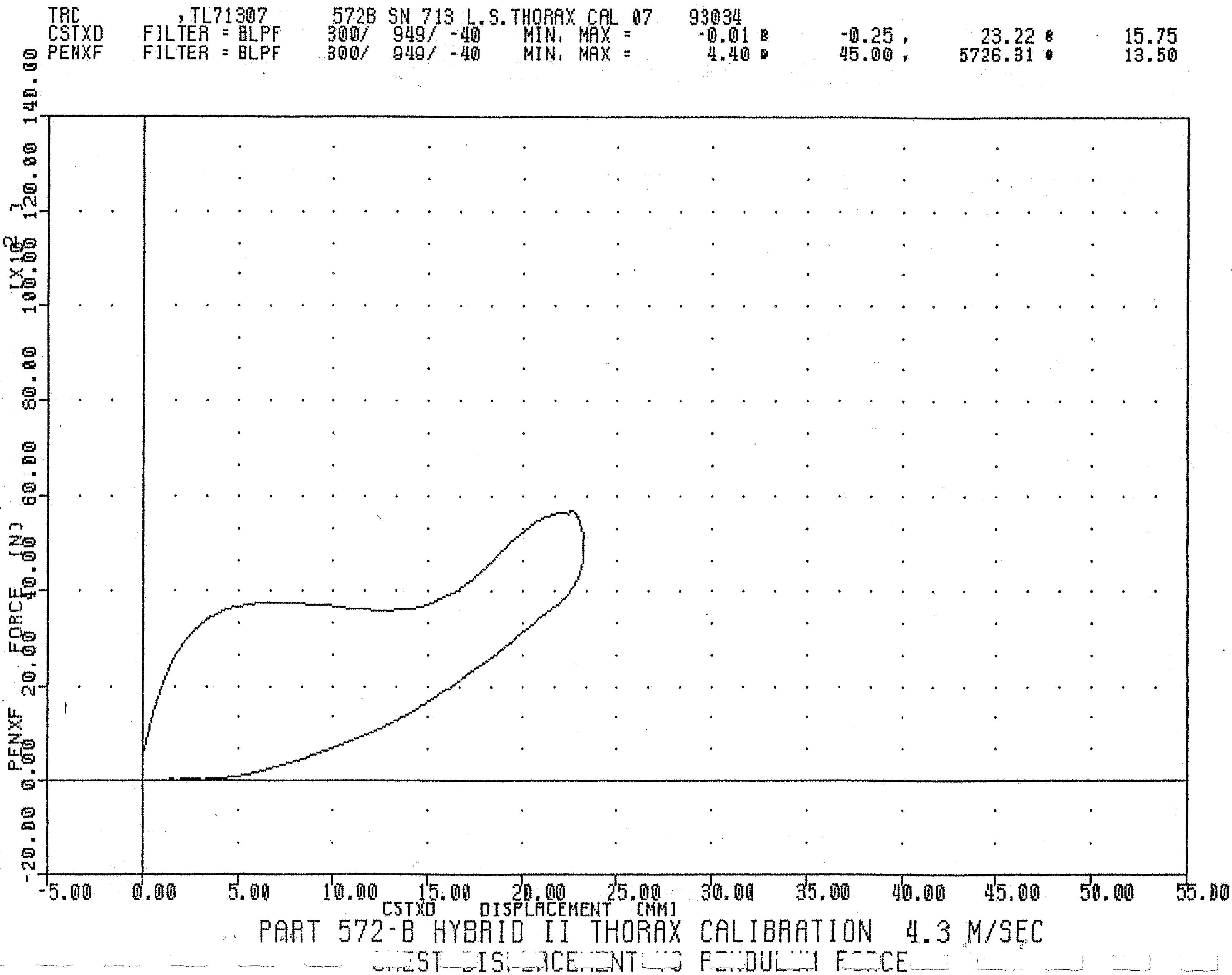
930317

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

FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.01 @ -0.25 , 23.22 @ 15.75



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


TRC ,TL71307 572B SN 713 L.S.THORAX CAL 07 93034
CSTXD FILTER = BLPF 300/ 949/ -40 MIN. MAX = -0.01 @ -0.25 , 23.22 @ 15.75
PENXF FILTER = BLPF 300/ 949/ -40 MIN. MAX = 4.40 @ 45.00 , 5726.31 @ 13.50
PENXF FORCE [N] [X10^2]
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-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 4.3 M/SEC

930317

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B 03-FEB-93

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

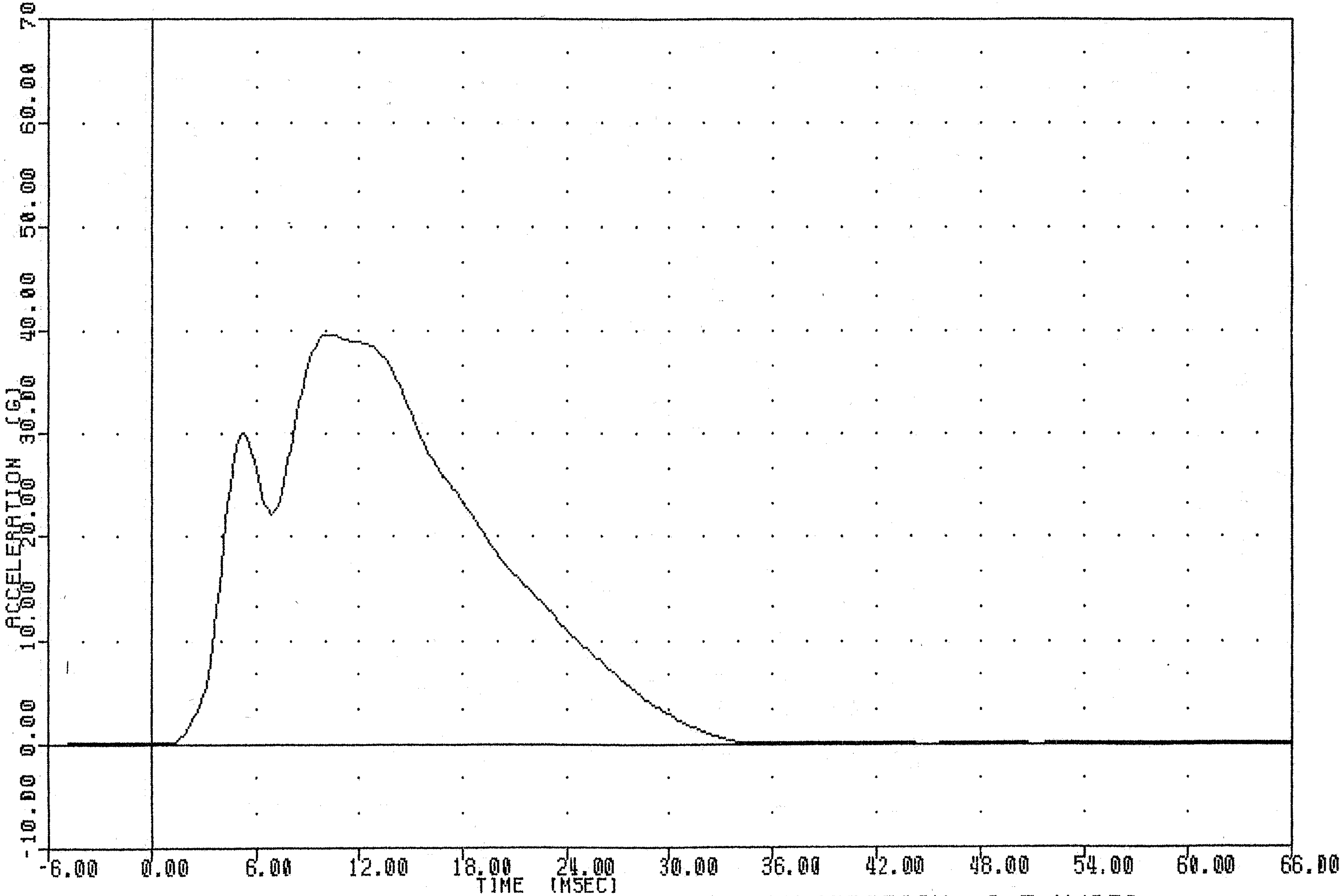
TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	53 %
PENDULUM VELOCITY	6.64 - 6.77 M/SEC	6.68 M/SEC
PEAK STERNUM DEFLECTION	43 MM MAX.	37.40 MM
PEAK RESISTIVE FORCE	10009. N MAX.	9088. N
INTERNAL HYSTERESIS	50 - 70 %	65.0 %

SCD: 54.61 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

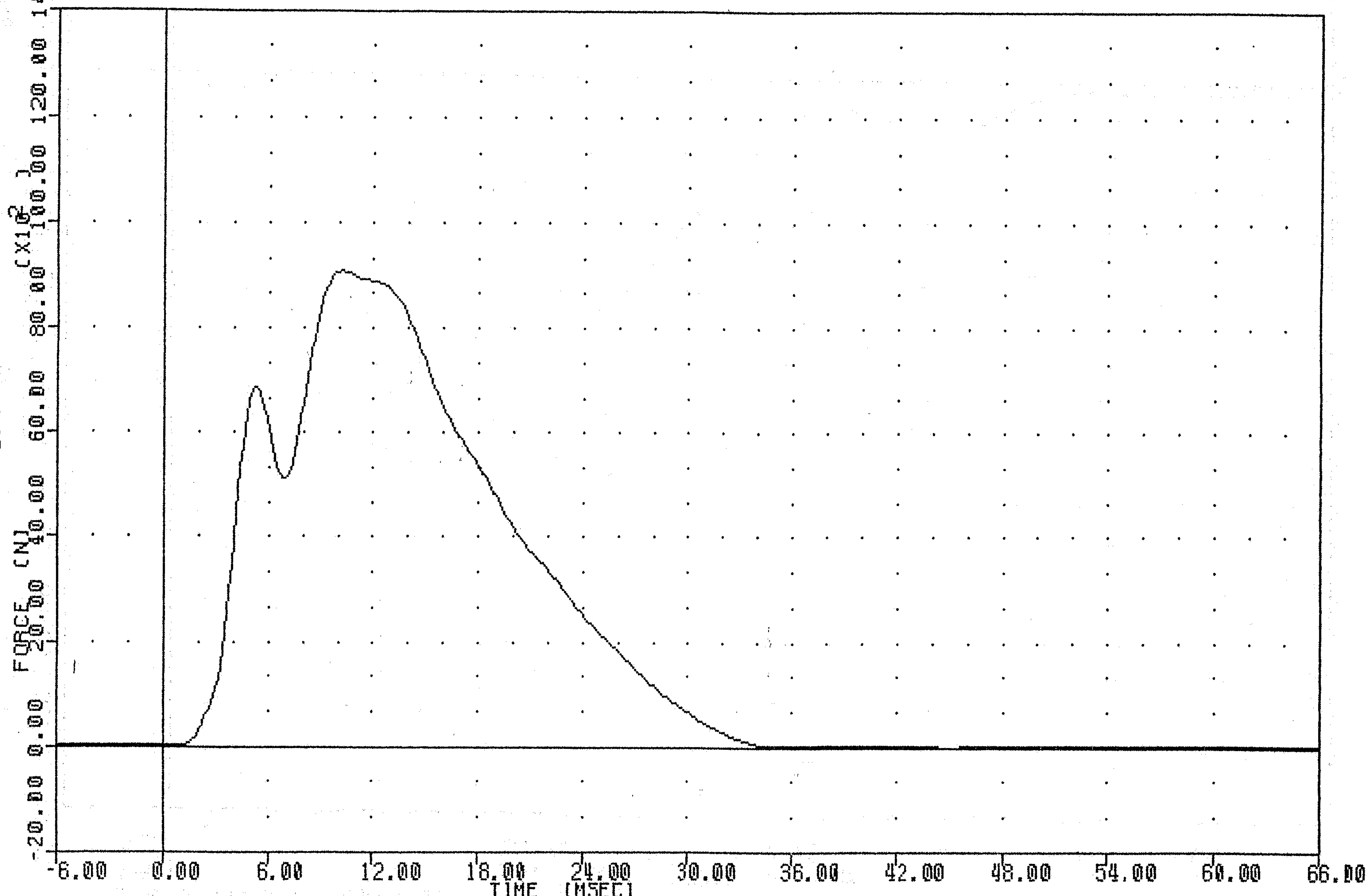
TRC , TH71307
572B SN 713 H.S.THORAX CAL 07
93034 FILTER = BLPF 300/ 949/ -40
PENXG MIN, MAX VALUES = 0.03 @ 45.00 , 39.67 @ 10.25



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

TRC , TH71307
572B SN 713 H.S.THORAX CAL 07
93034
PENXF

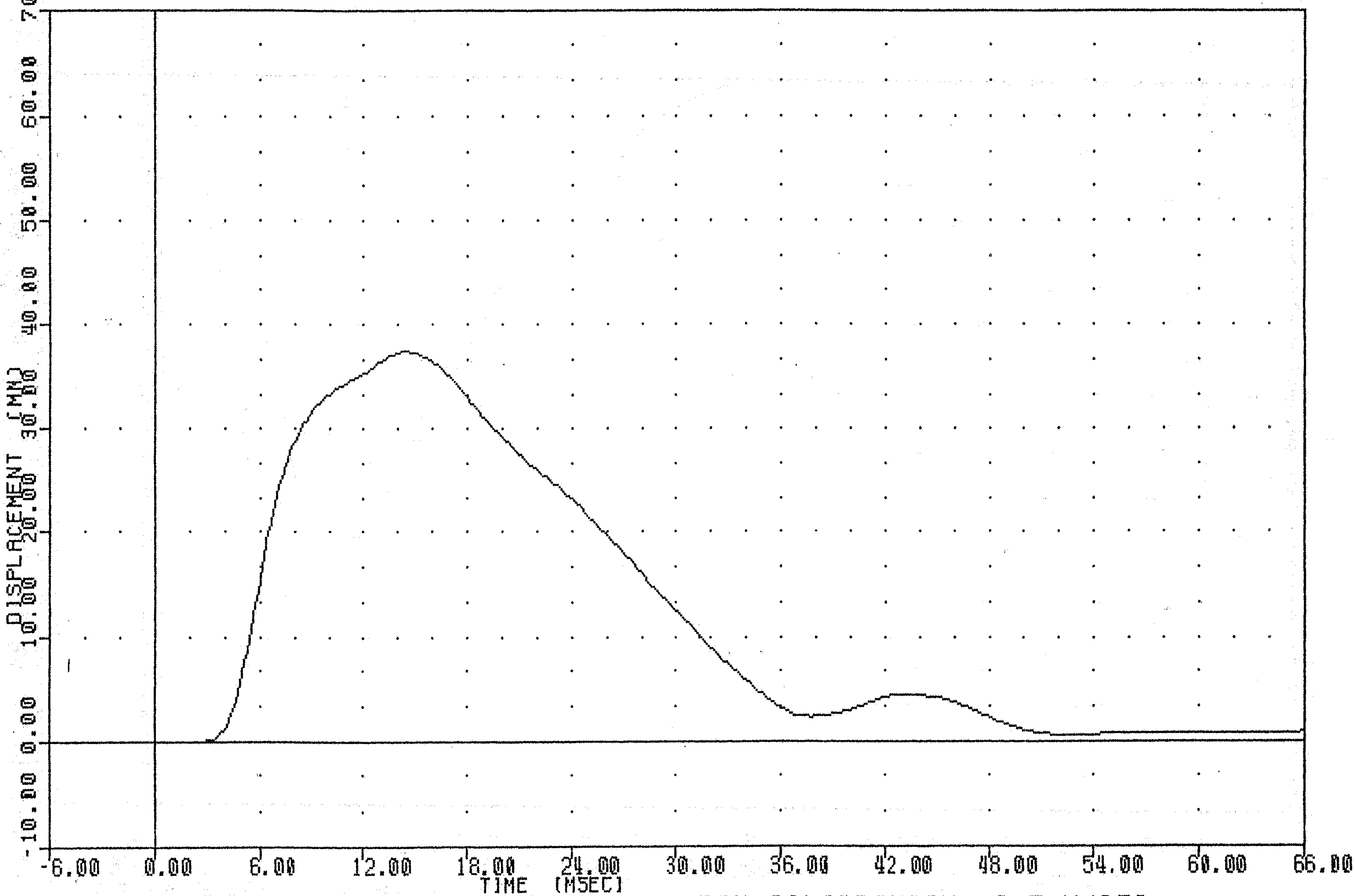
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = 6.47 @ 45.00 , 9088.31 @ 10.25



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

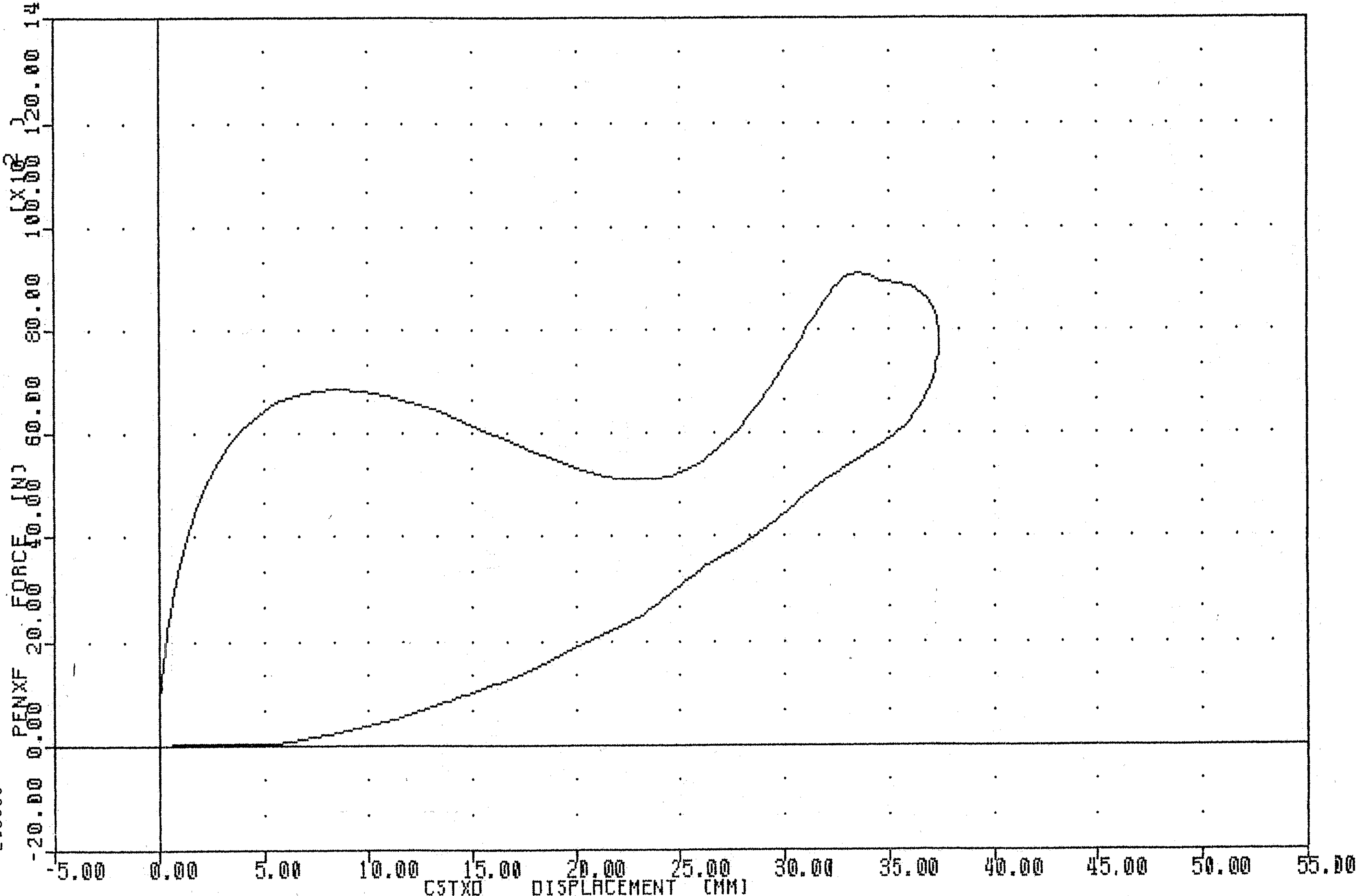
930317

TRC , TH71307
572B SN 713 H.S.THORAX CAL 07
93034 FILTER = BLPF 300/ 949/ -40
CSTXD MIN. MAX VALUES = 0.00 -4.50 , 37.40 14.50



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

TRC	,TH71307	572B SN 713 H.S.THORAX CAL 07		93034			
CSTXD	FILTER = BLPF	300/ 949/ -40	MIN, MAX =	0.00	-4.50 ,	37.40	14.50
PENXF	FILTER = BLPF	300/ 949/ -40	MIN, MAX =	6.47	45.00 ,	8088.31	10.25



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

930317

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B 02-FEB-93

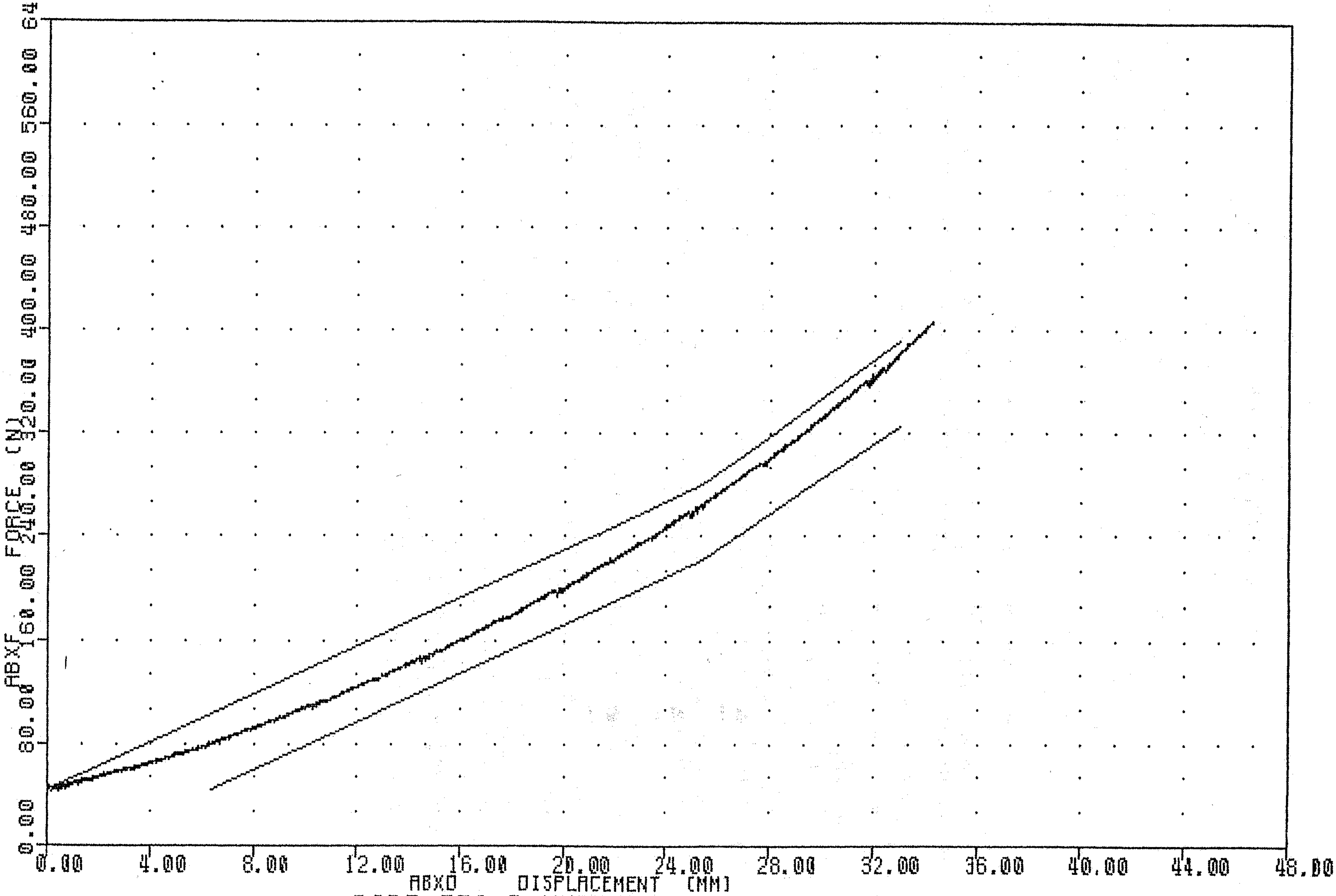
TRC AB71307 572B SN 713 ABDOM COMPR CAL 07

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

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Ford

TRC ,AB71307 572B SN 713 ABDOM COMPR CAL 07 93033
ABXD FILTER = ALPF 1650/ 5214/ -40 MIN, MAX = 0.00 @ 0.00 , 34.30 @ 406.19
ABXF FILTER = ALPF 1650/ 5214/ -40 MIN, MAX = 42.22 @ 0.10 , 406.03 @ 34.27



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

930317

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B 02-FEB-93

TRC LF71307 572B SN713 LUMBAR FLEX CAL07

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

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

930317

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

PART 572B 03-FEB-93

TRC RK71307 572B SN 713 R.KNEE IMP CAL 07

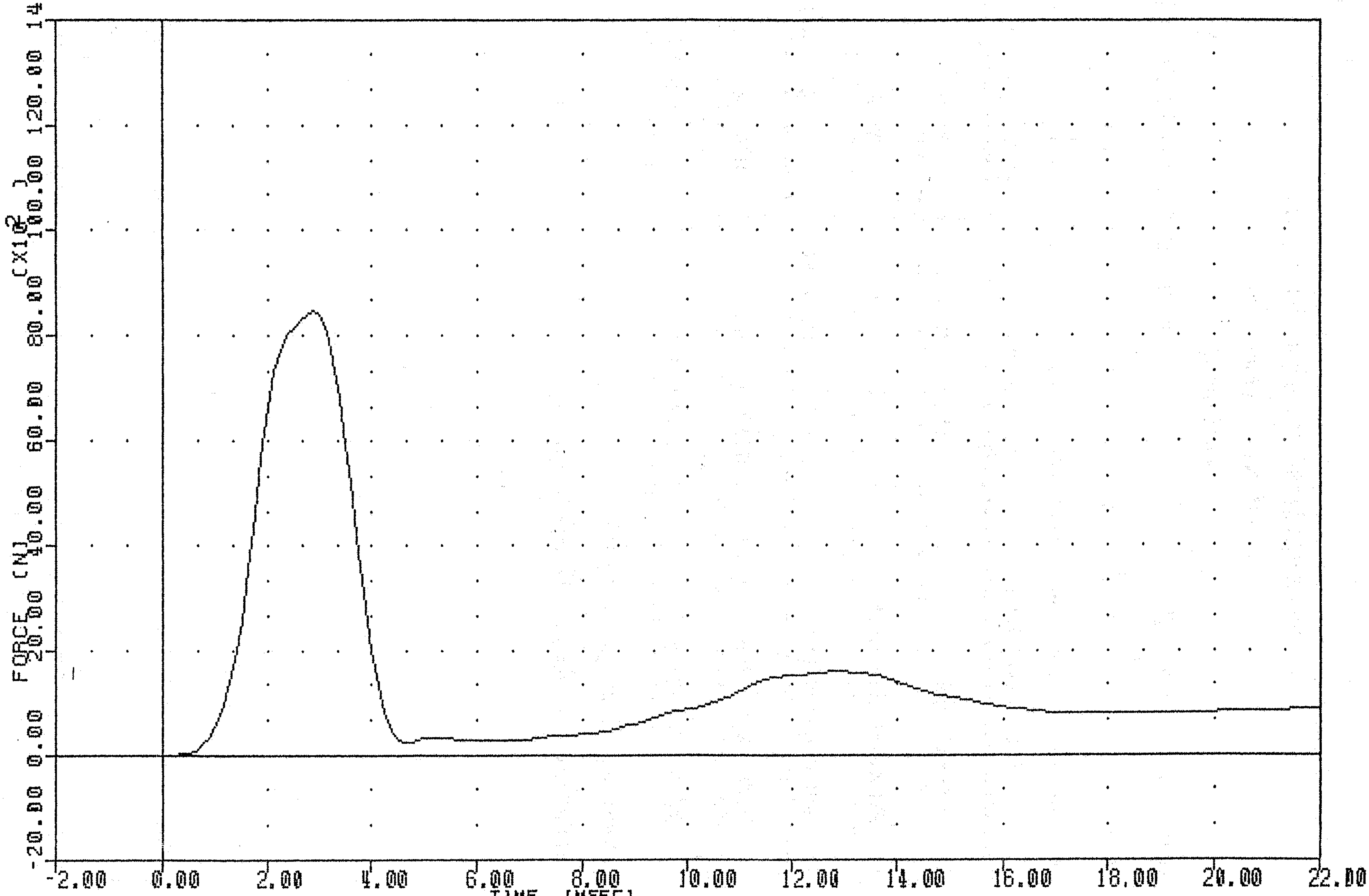
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	53 %
PENDULUM VELOCITY	2.06 - 2.15 M/SEC	2.12 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	8466.53 N
DURATION ABOVE 4448 N	>=1.7 MS	1.95 MS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

TRC , RK71307
572B SN 713 R.KNEE INP CAL 07
93034
RFMF

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



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

930317

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

PART 572B 03-FEB-93

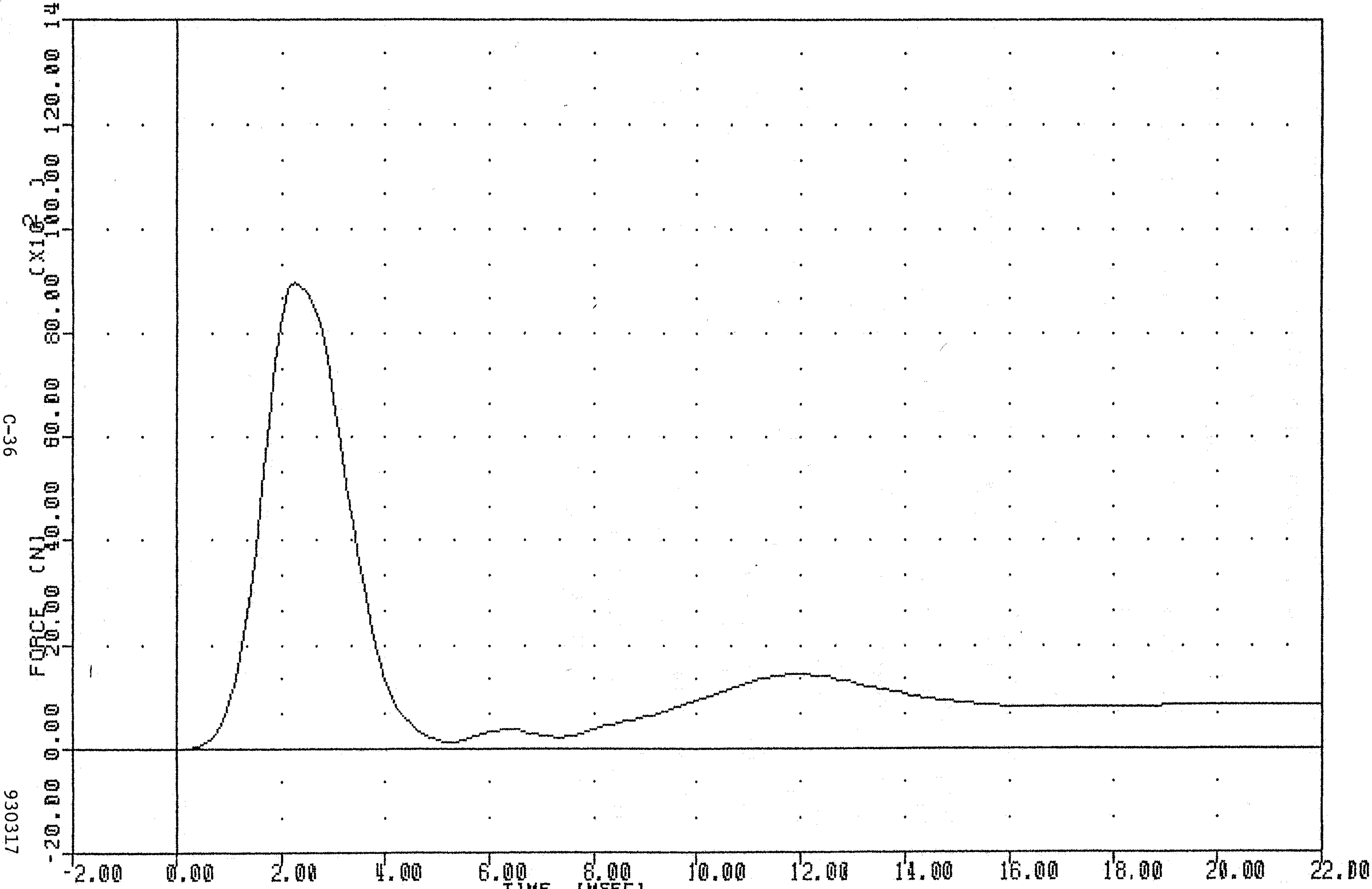
TRC LK71307 572B SN 713 L.KNEE IMP CAL 07

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

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

TRC , LK71307
572B SN 713 L.KNEE IMP CAL 07
93034 FILTER = BLPF 1000/ 3162/ -40
LFMF MIN, MAX VALUES = -2.30 @ -2.00 , 8976.88 @ 2.25



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

930317

PRE-TEST CERTIFICATION DATA

PASSENGER DUMMY S/N: 826

TRANSPORTATION RESEARCH CENTER INC.

EXTERNAL DIMENSIONS

PART 572B 12-JAN-93

TRC ED82632 572B SN826 EXT. DIMENSION CAL32
SN HUMANOID 826

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

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

930317

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

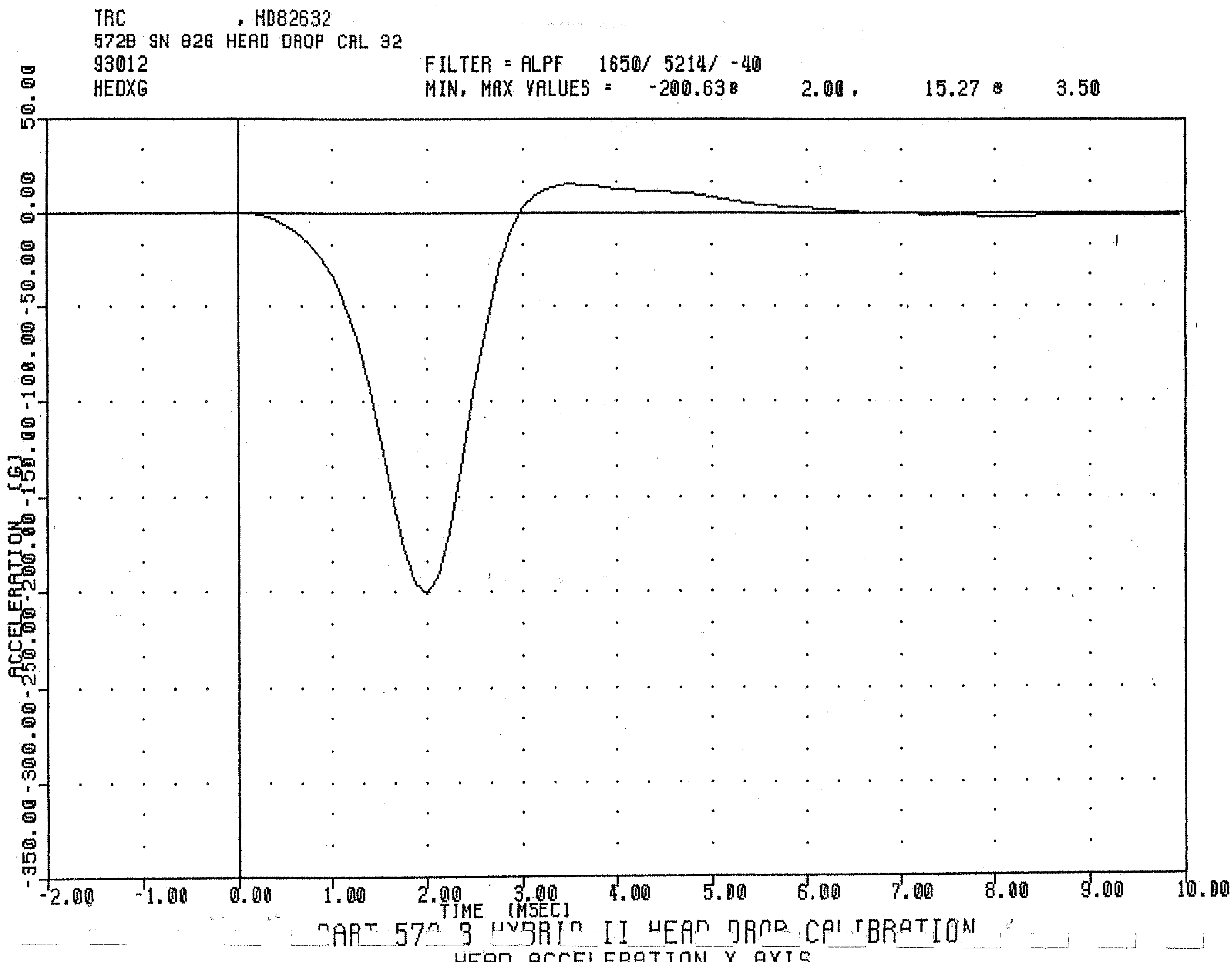
PART 572B 12-JAN-93

TRC HD82632 572B SN 826 HEAD DROP CAL 32

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

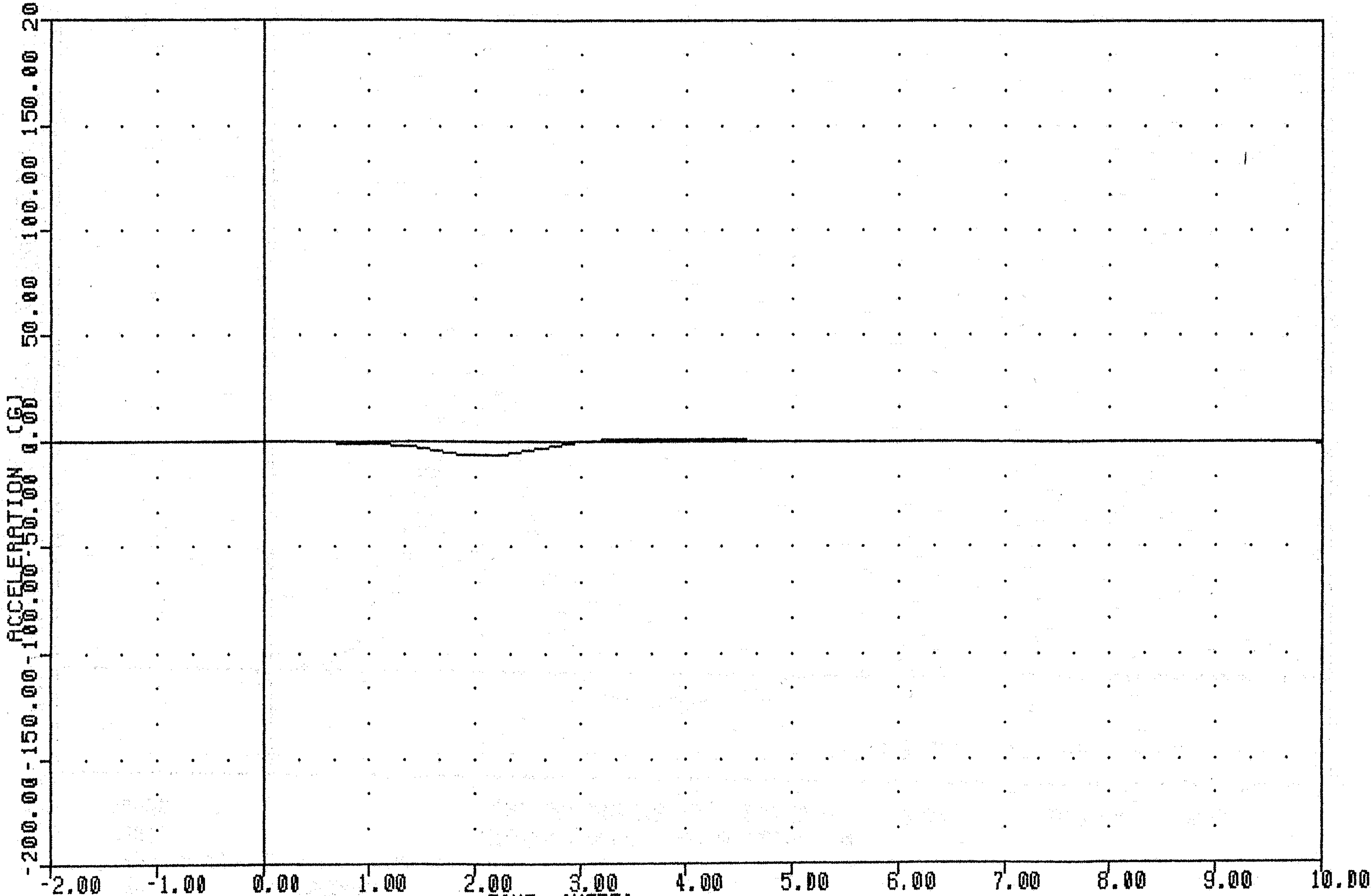
DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust


TRC , H082632
572B SN 826 HEAD DROP CAL 92
93012
HEDXG
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -200.63 @ 2.00 , 15.27 @ 3.50
ACCELERATION [G]
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00
-350.00
-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]

TRC . HD82632
572B SN 026 HEAD DROP CAL 92
93012
HEDYG

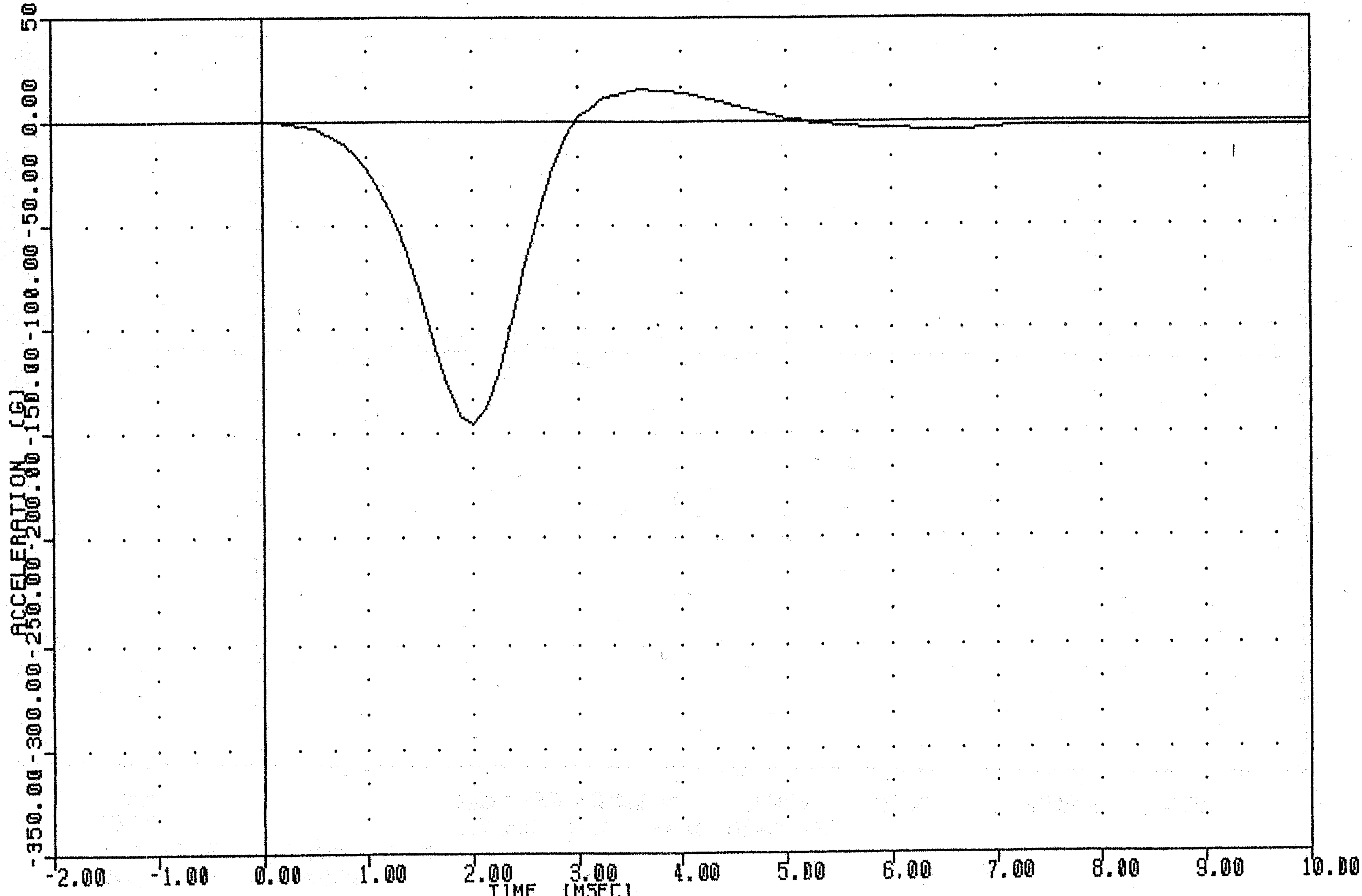
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -6.34 @ 2.00 , 1.44 @ 4.13



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

TRC , HD82632
572B SN 826 HEAD DROP CAL 32
93012
HEDZG

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

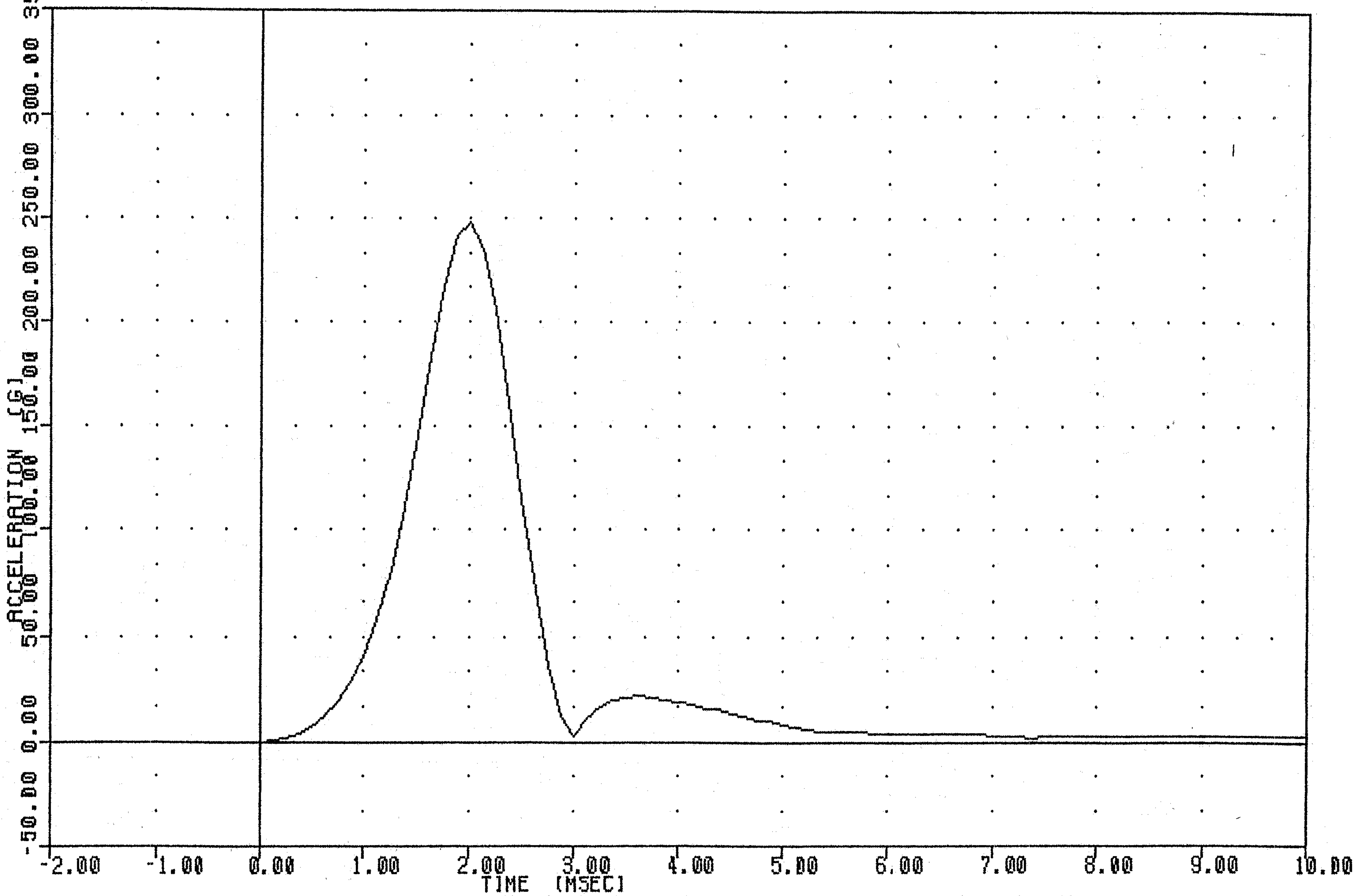


PART 572-B HYBRID II HEAD DROP CALIBRATION
HEAD ACCELERATION Z AXIS

930317

TRC , HD82632
572B SN 026 HEAD DROP CAL 32
93012
HEDRG

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



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

TRANSPORTATION RESEARCH CENTER INC.

NECK PENDULUM TEST

PART 572B 12-JAN-93

TRC HN82632 572B SN 826 HEAD/NECK CAL 32

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

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

SND: 151.13 MM

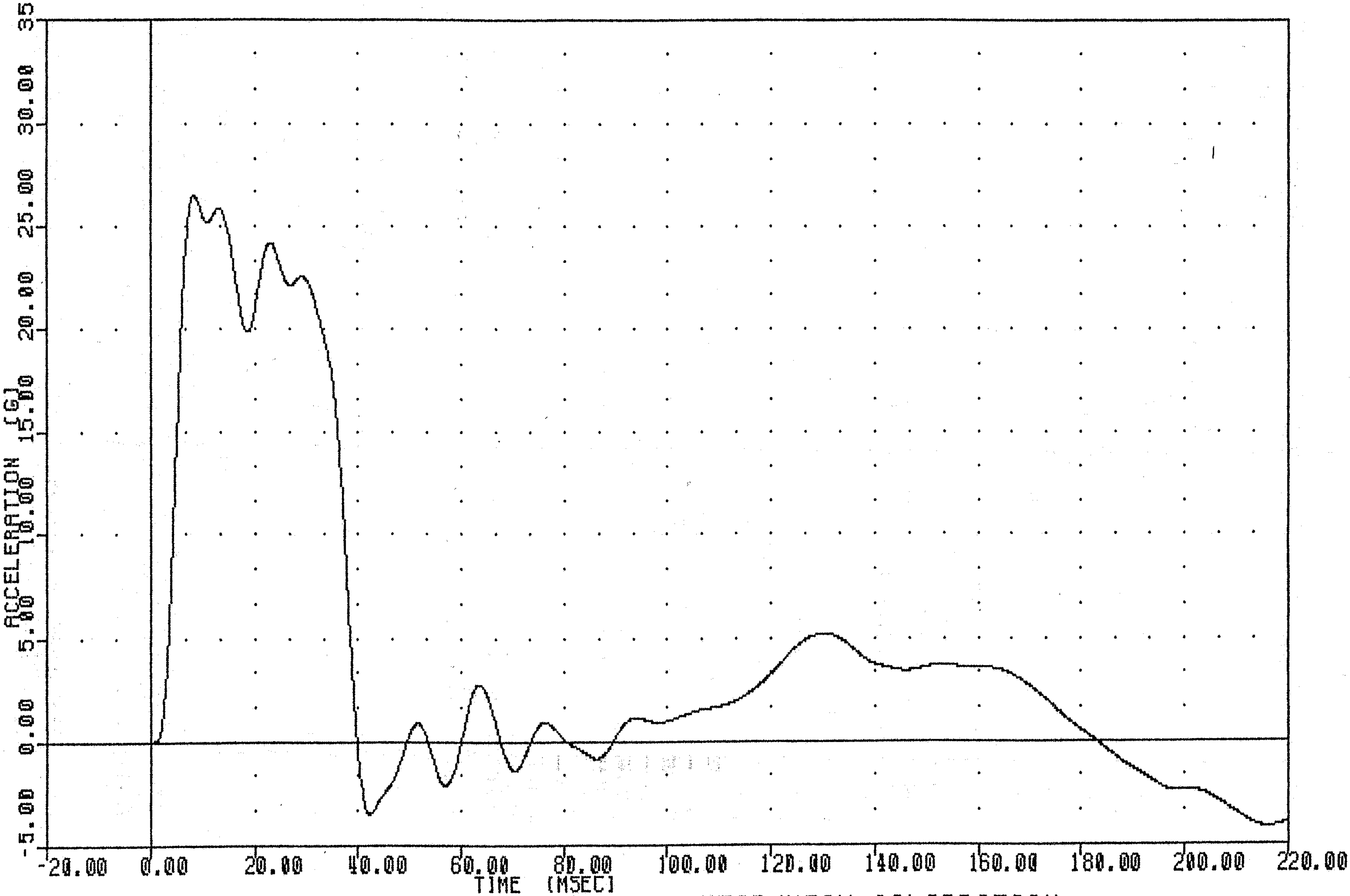
DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

930317

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

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

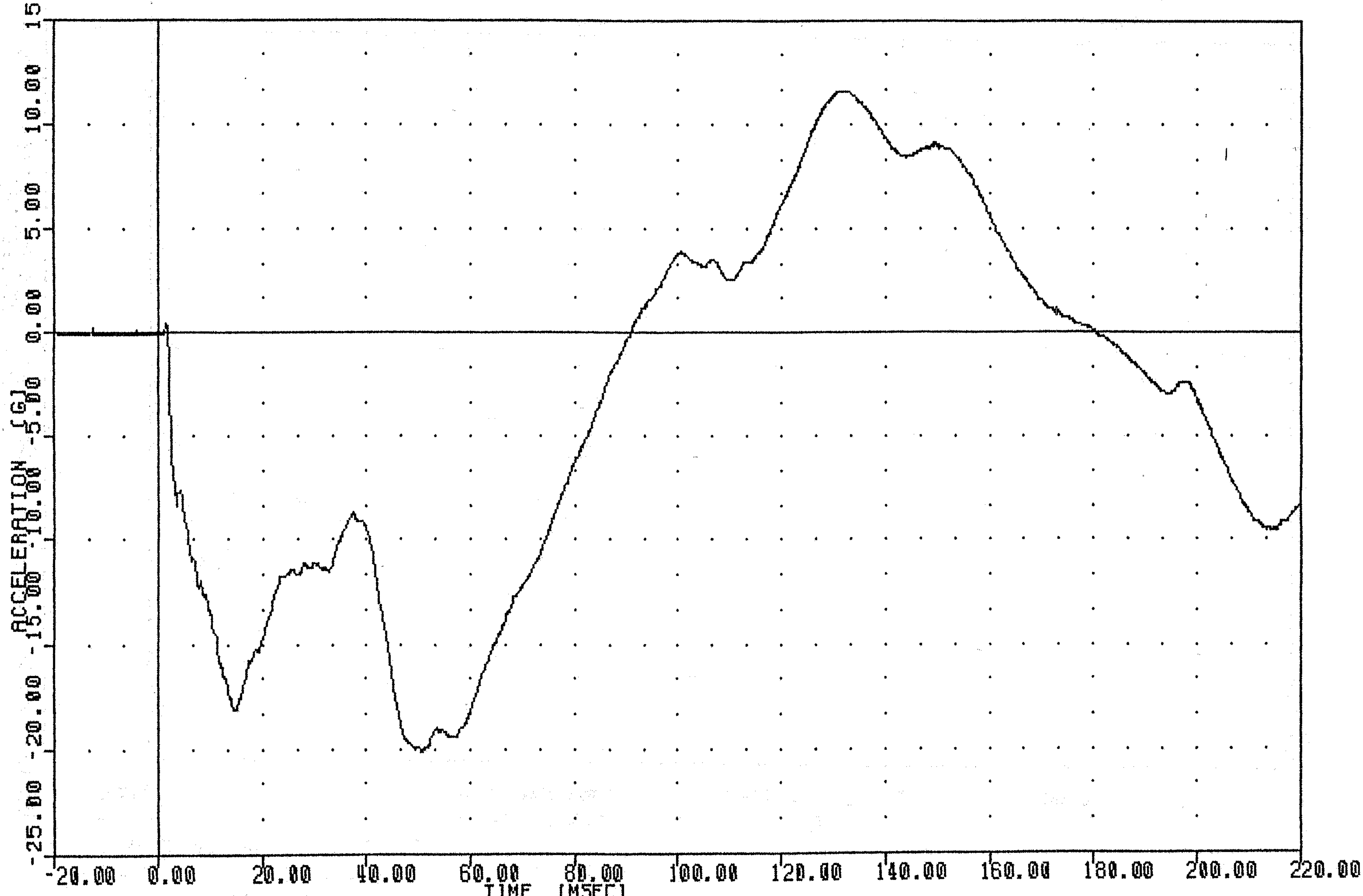


PART 572-B HYBRID II HEAD/NECK CALIBRATION
PENDULUM DECELERATION

930317

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

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

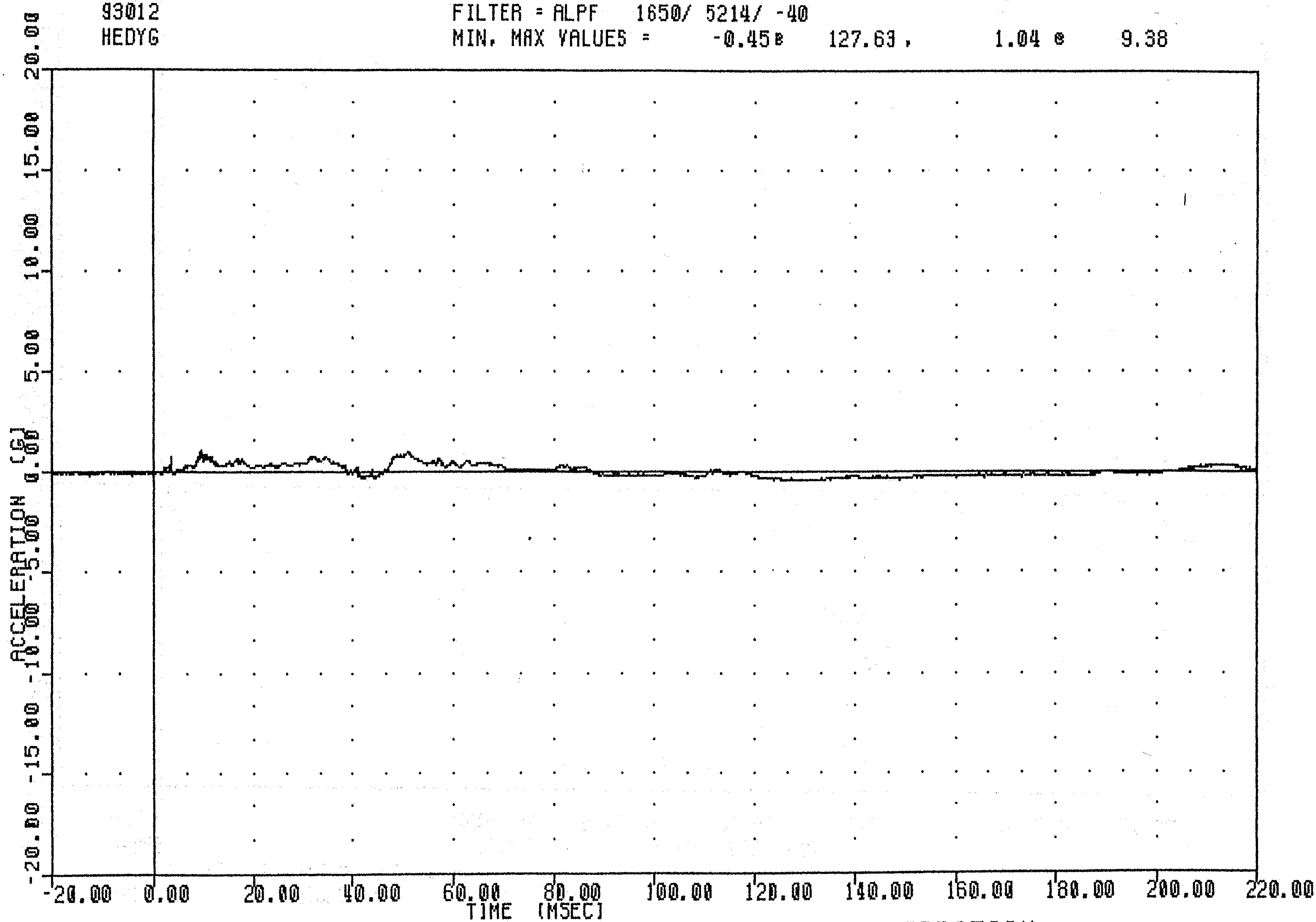


PART 572 B HYBRID II HEAD/NECK CALIBRATION

930317

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

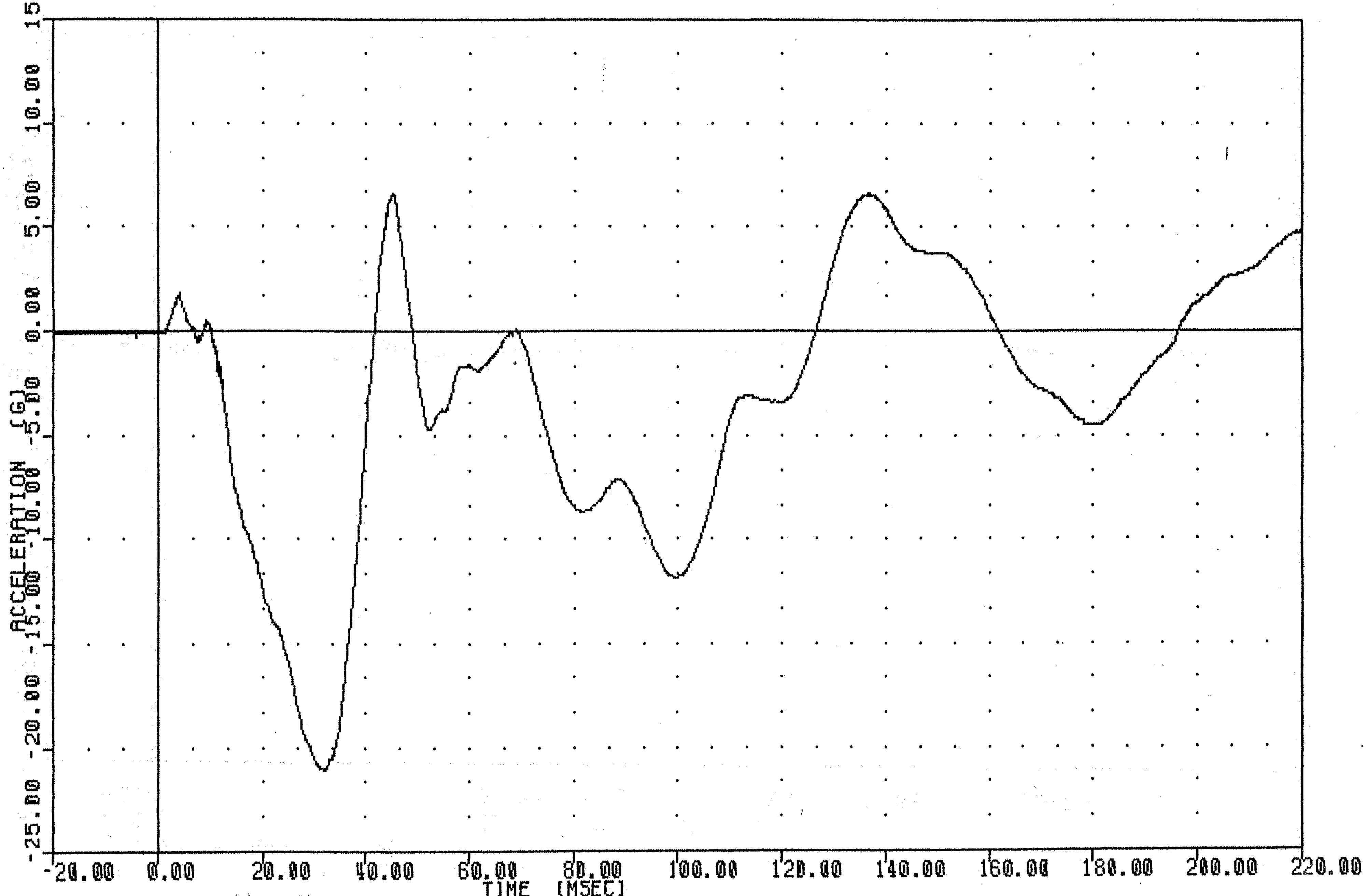
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -0.45 @ 127.63 , 1.04 @ 9.38



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

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

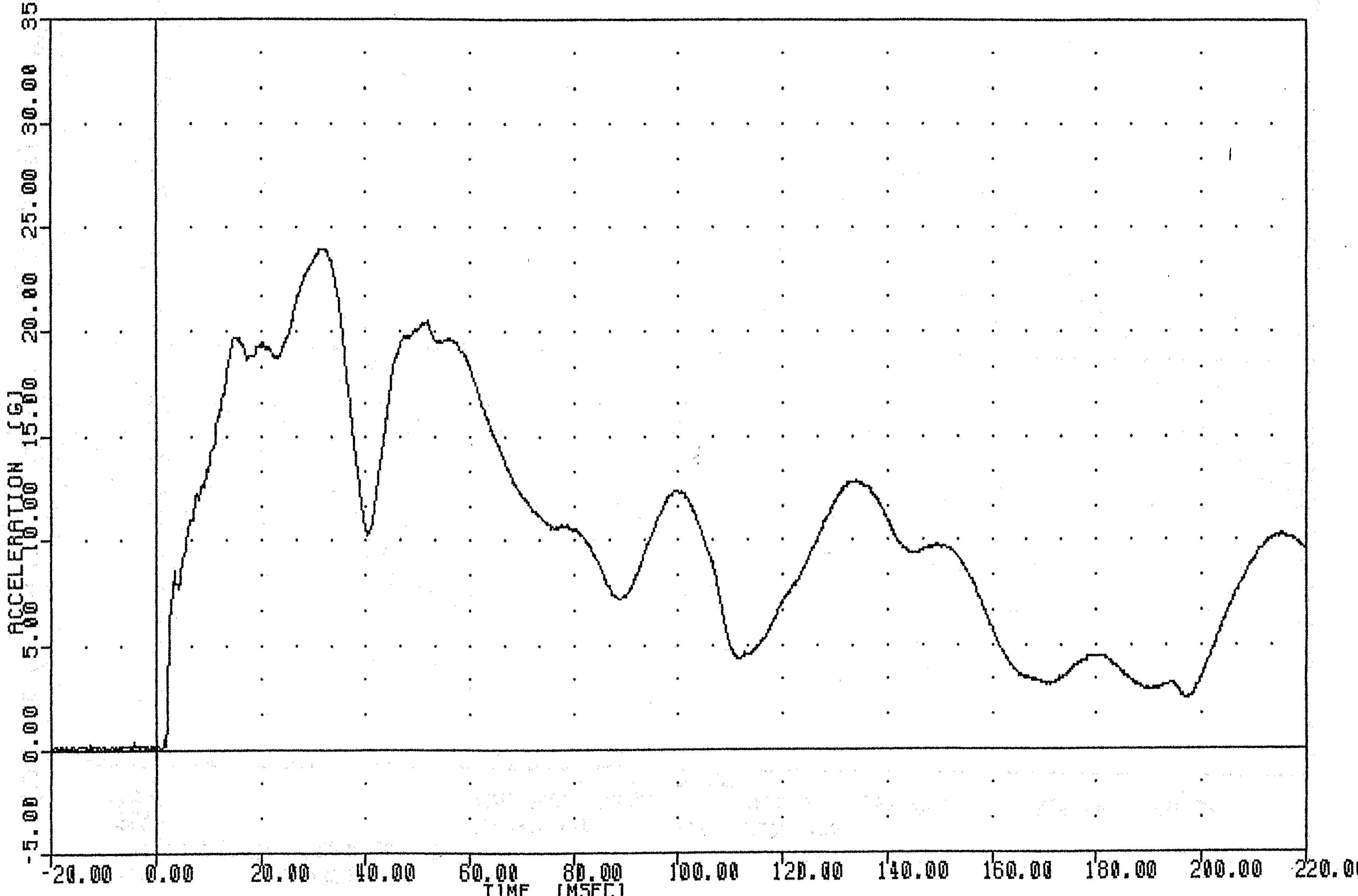
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -21.10 @ 31.75 , 6.54 @ 45.00



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

930317

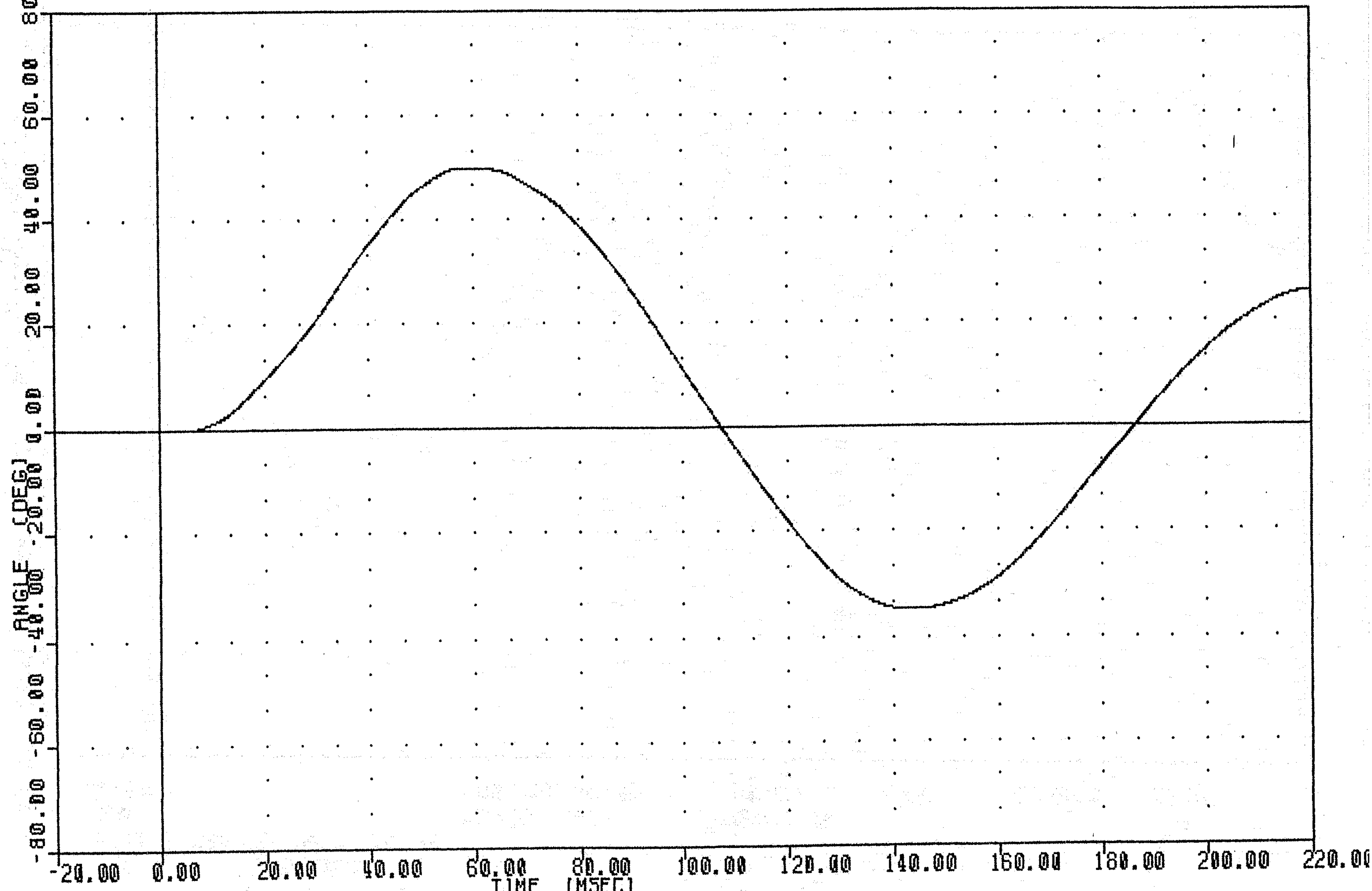
TRC , HN82632
572B SN 026 HEAD/NECK CAL 32
93012 FILTER = ALPF 1650/ 5214/ -40
HEDRG MIN, MAX VALUES = 0.03 @ 1.00 , 23.98 @ 31.75



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

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

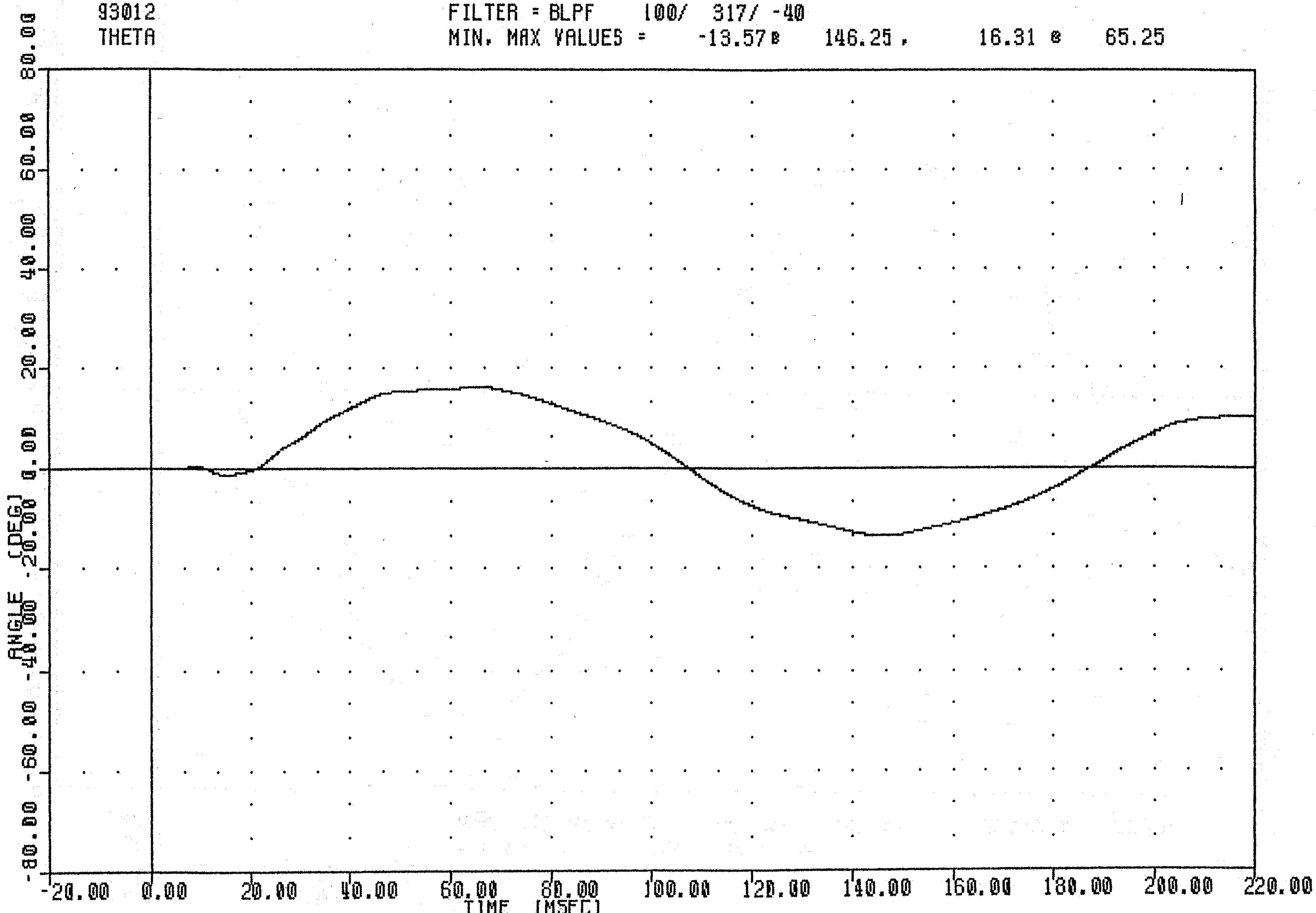
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -34.87 @ 143.75 , 49.84 @ 58.13



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

TRC , HN82632
572B SN 826 HEAD/NECK CAL 32
93012
THETA

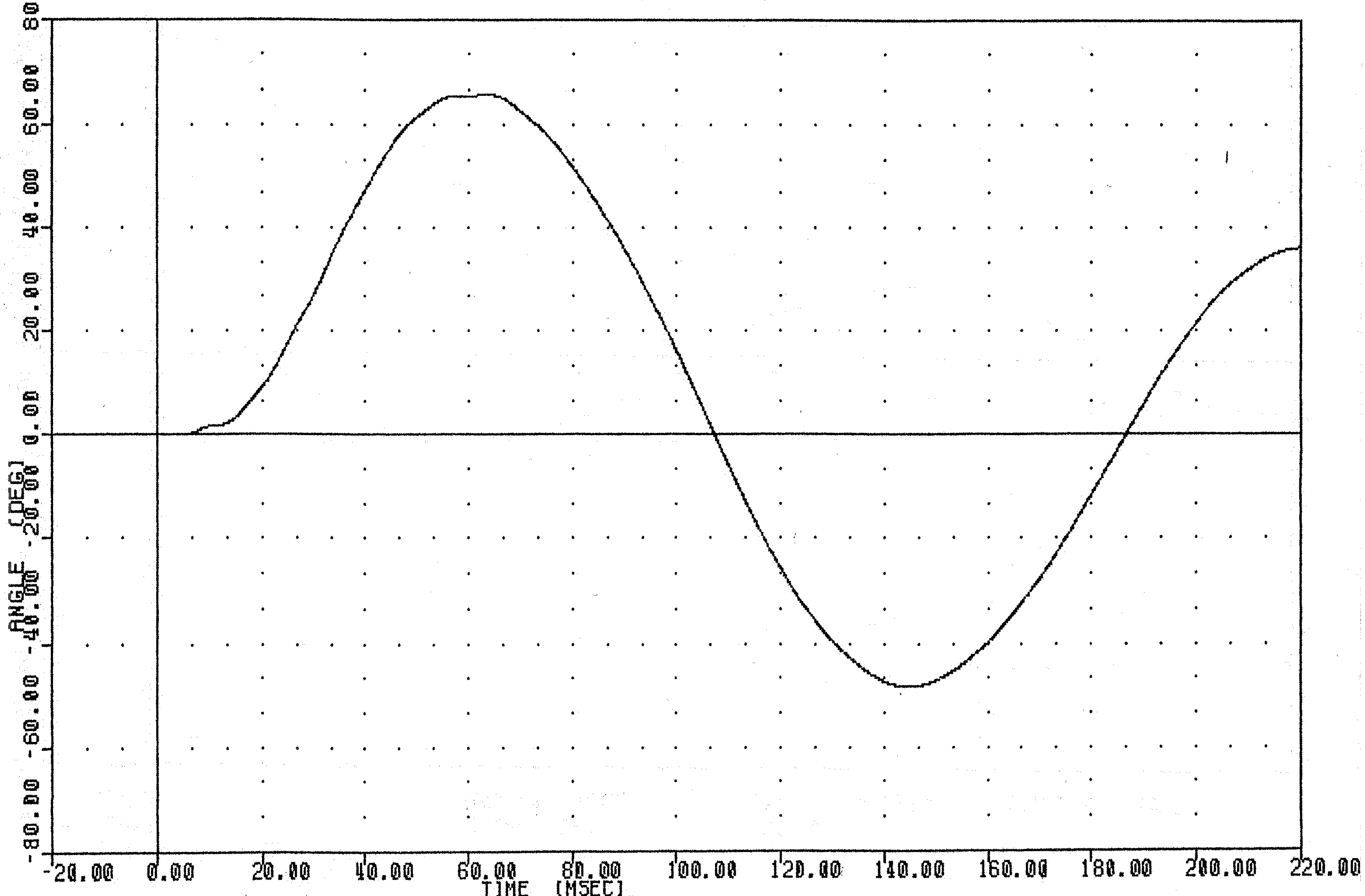
FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -13.57 @ 146.25 , 16.31 @ 65.25



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

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

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

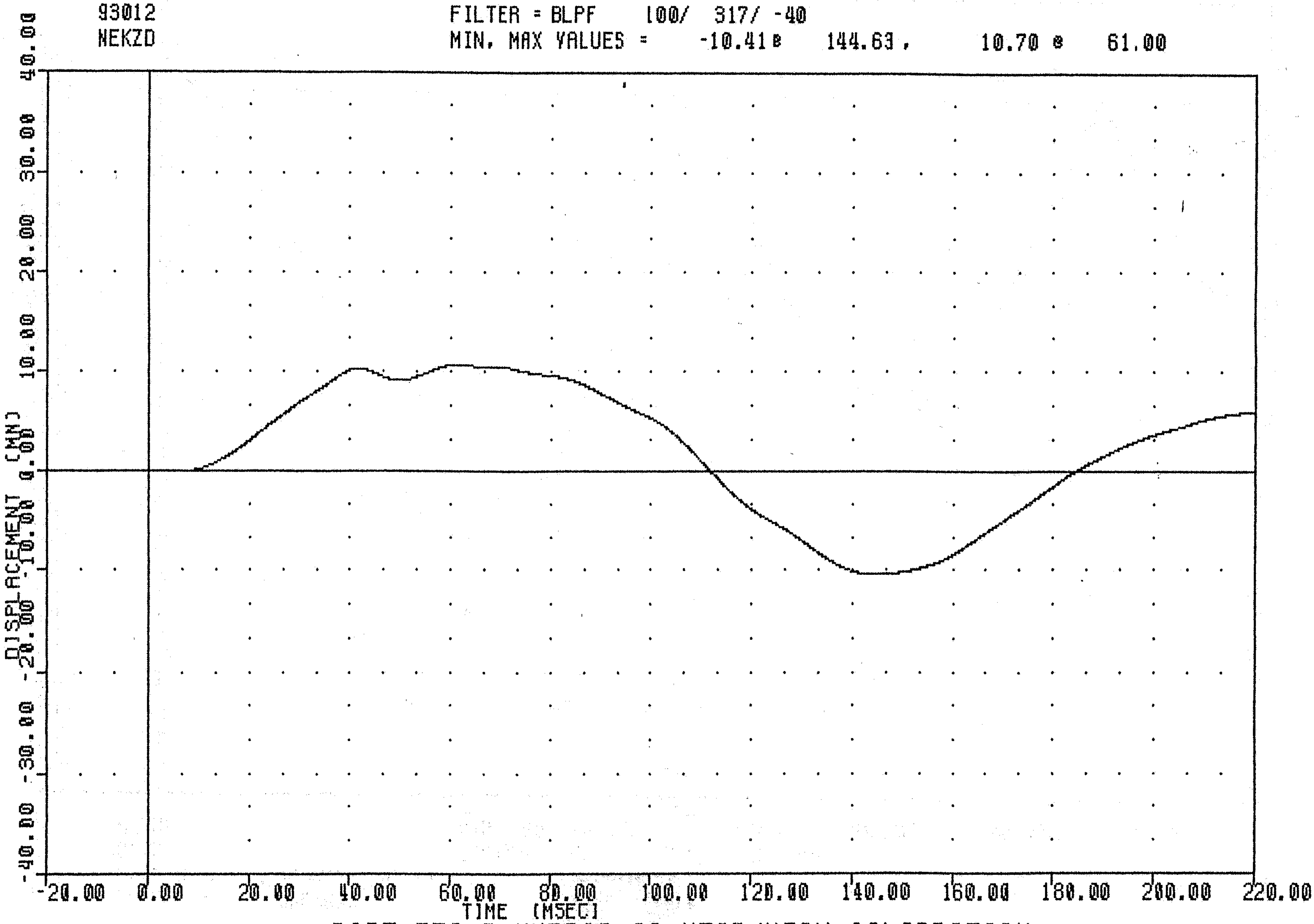


PART 572-B HYBRID II HEAD/NECK CALIBRATION
TOTAL ROTATION

930317

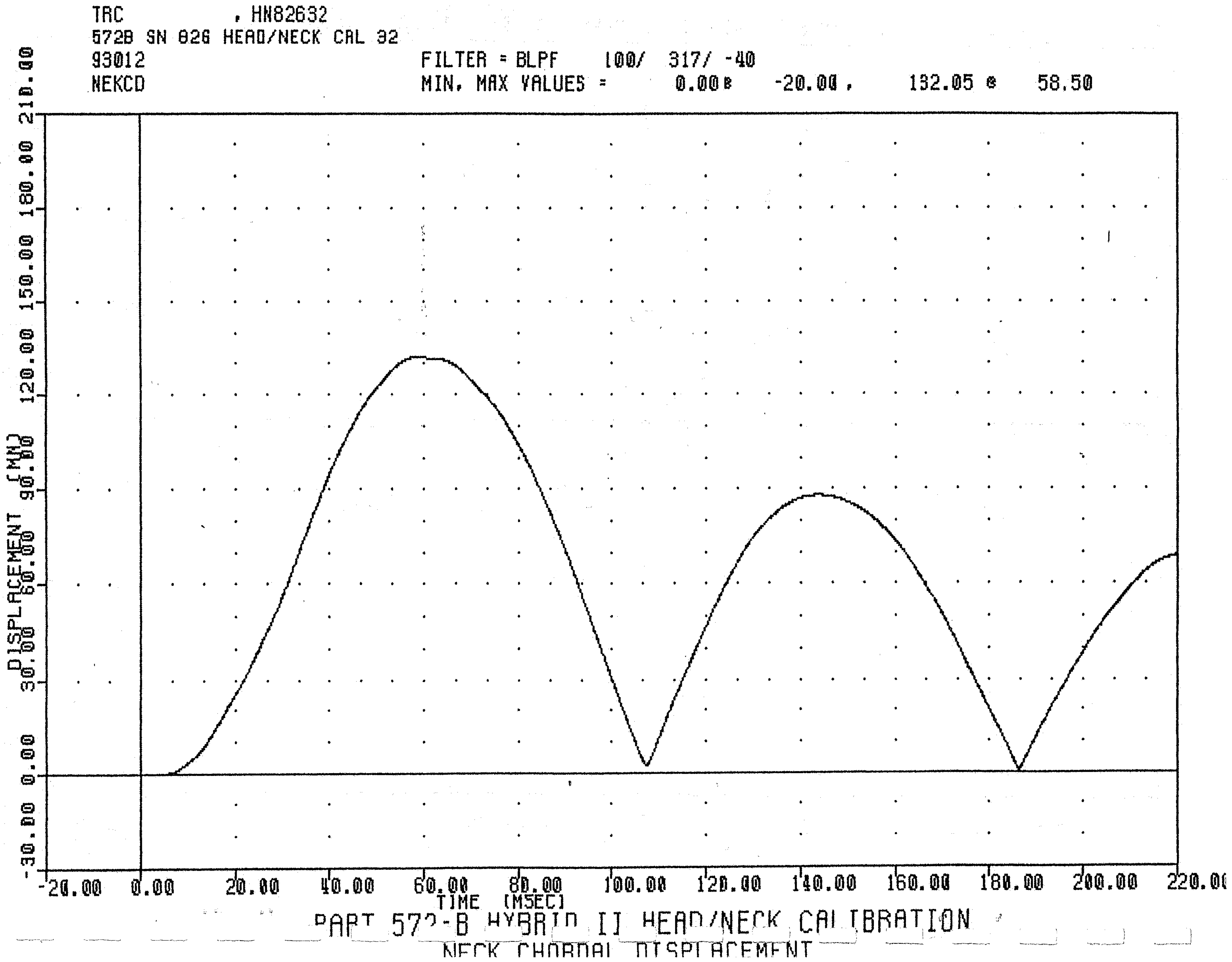
TRC , HN82632
572B SN 026 HEAD/NECK CAL 92
93012
NEKZD

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



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

930317


TRC , HN82632
572B SN 026 HEAD/NECK CAL 32
93012
NEKCD
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = 0.00 @ -20.00 , 132.05 @ 58.50
DISPLACEMENT (MM)
210.00
180.00
150.00
120.00
90.00
60.00
30.00
0.00
-30.00
-20.00
0.00
20.00
40.00
60.00
80.00
100.00
120.00
140.00
160.00
180.00
200.00
220.00
TIME (MSEC)
PART 572-B HYBRID II HEAD/NECK CALIBRATION
NECK CHORDAL DISPLACEMENT

930317

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B 13-JAN-93

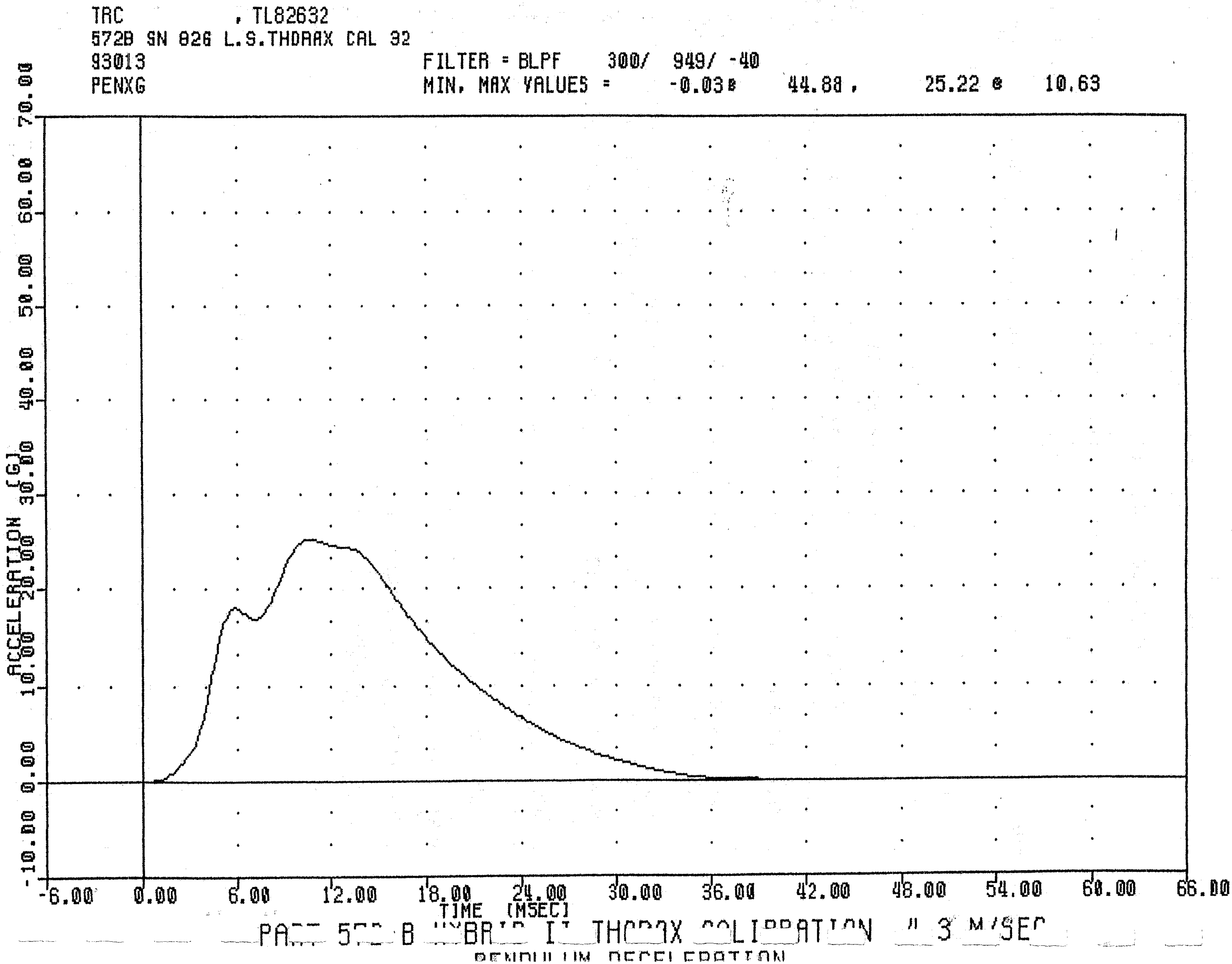
TRC TL82632 572B SN 826 L.S.THORAX CAL 32

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

SCD: 53.34 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Peter Foust

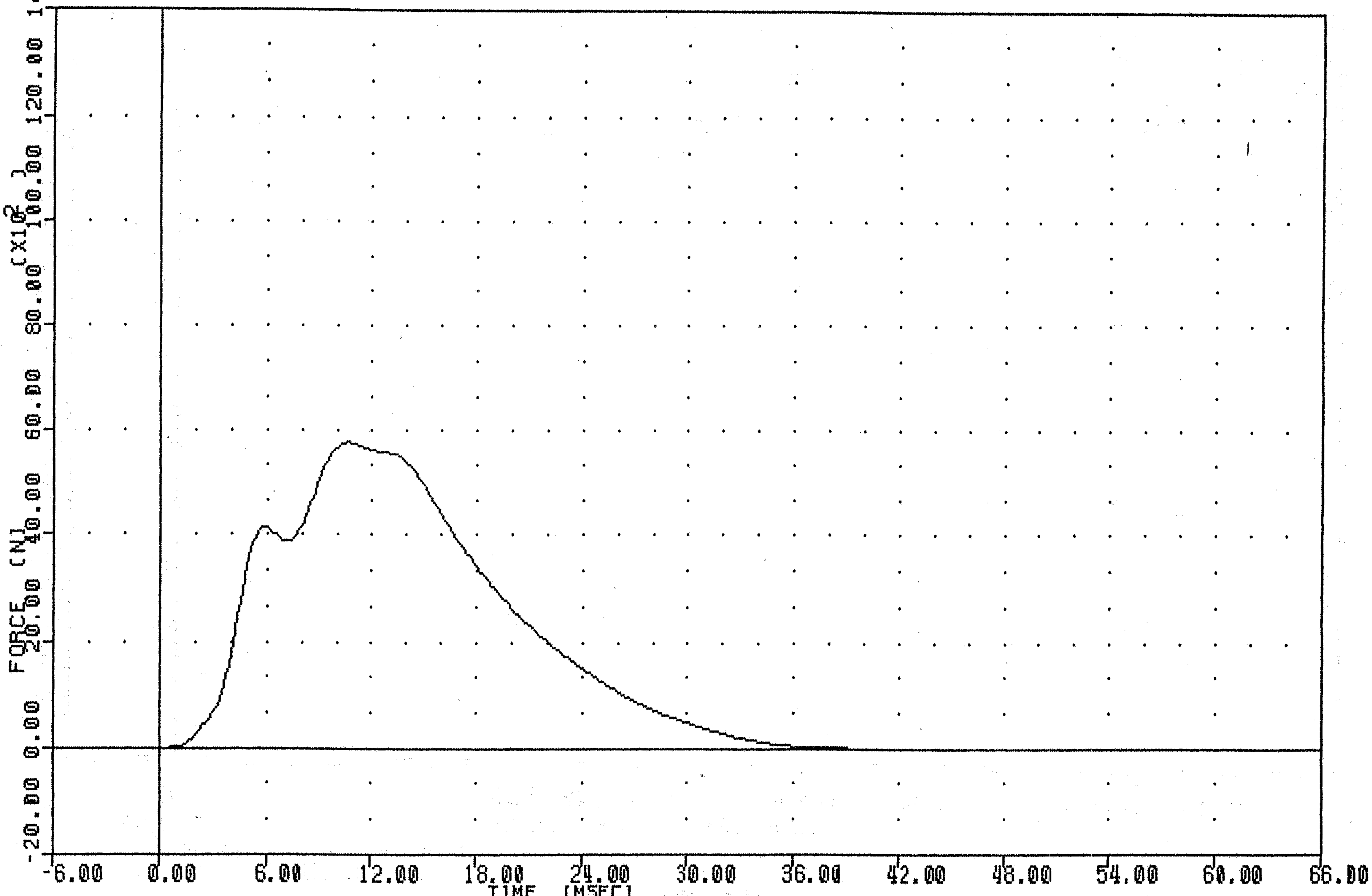

TRC , TL82632
572B SN 826 L.S.THORAX CAL 32
93013
PENXG
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.03 @ 44.88 , 25.22 @ 10.63
ACCELERATION [G]
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-6.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
54.00
60.00
66.00
TIME (MSEC)

C-56

930317

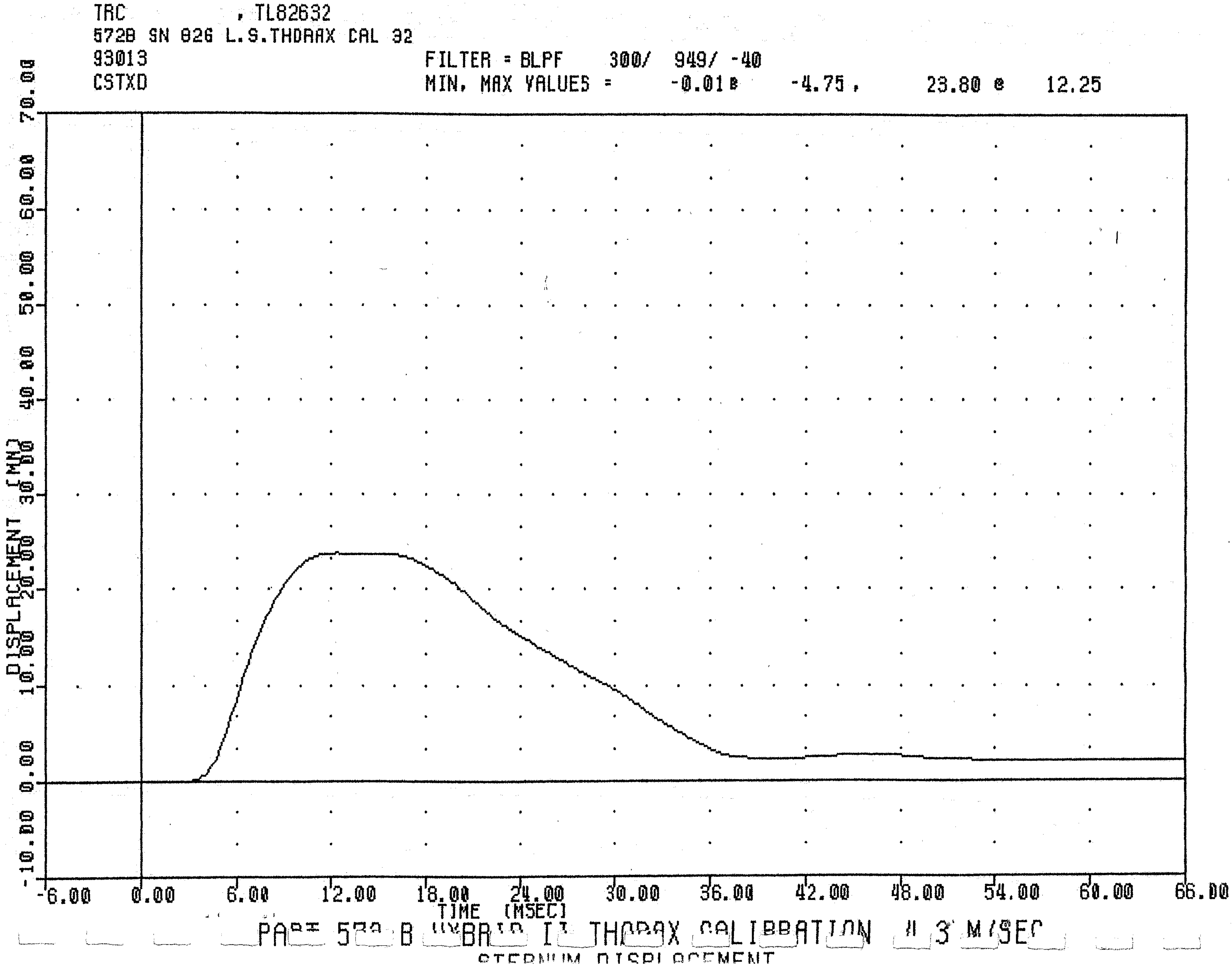
TRC , TL82632
572B SN 826 L.S.THORAX CAL 32
93013
PENXF

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

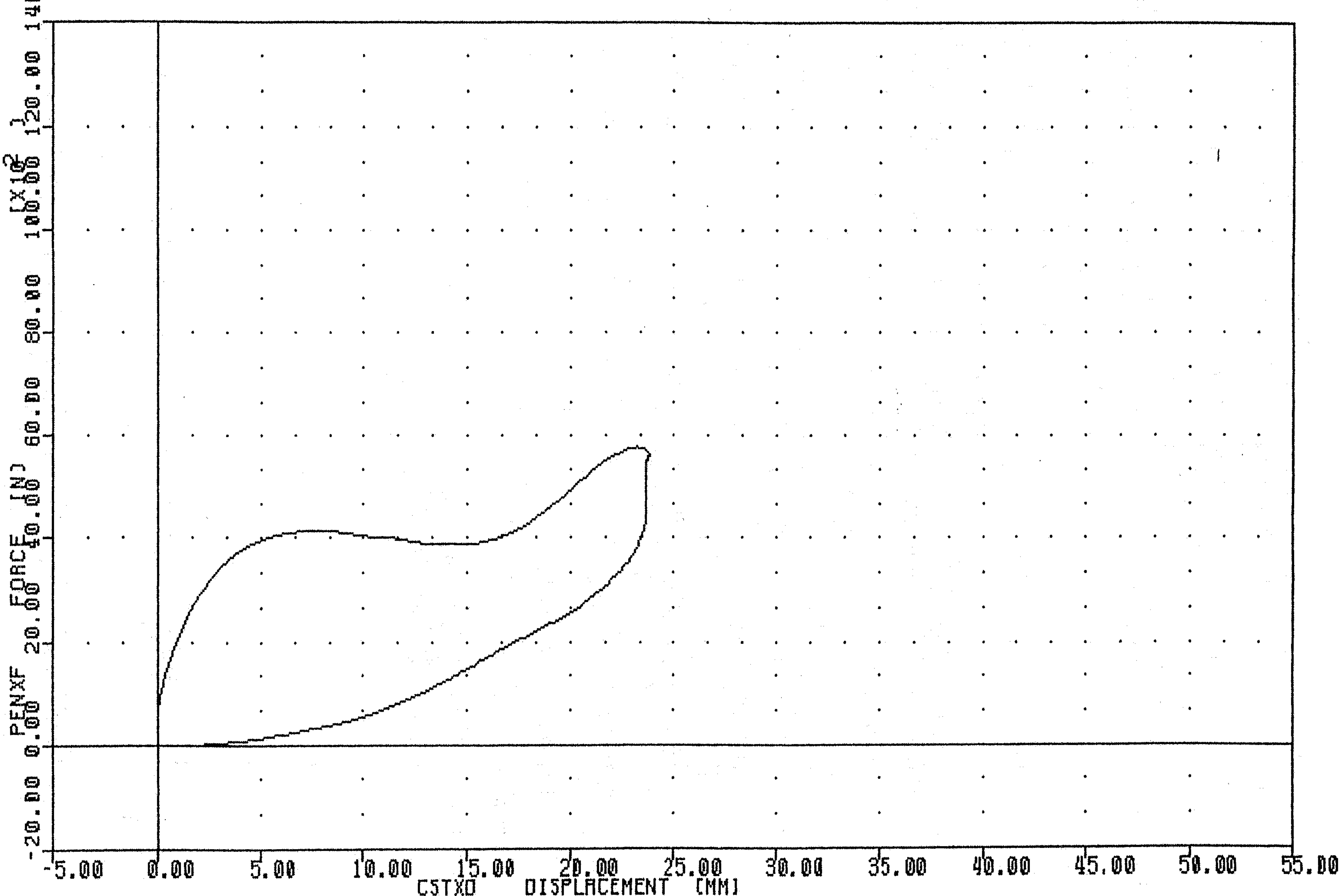


PART 572-B HYBRID II THORAX CALIBRATION 4.3 M/SEC
PENDULUM FORCE

930317


TRC , TL82632
572B SN 026 L.S.THORAX CAL 32
93013
CSTXD
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.01 @ -4.75 , 23.80 @ 12.25
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)

TRC ,TL82632 572B SN 826 L.S.THORAX CAL 32 93013
CSTXD FILTER = BLPF 300/ 949/ -40 MIN, MAX = -0.01 @ -4.75 , 23.80 @ 12.25
PENXF FILTER = BLPF 300/ 949/ -40 MIN, MAX = -6.29 @ 44.88 , 5778.20 @ 10.63



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

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

PART 572B

13-JAN-93

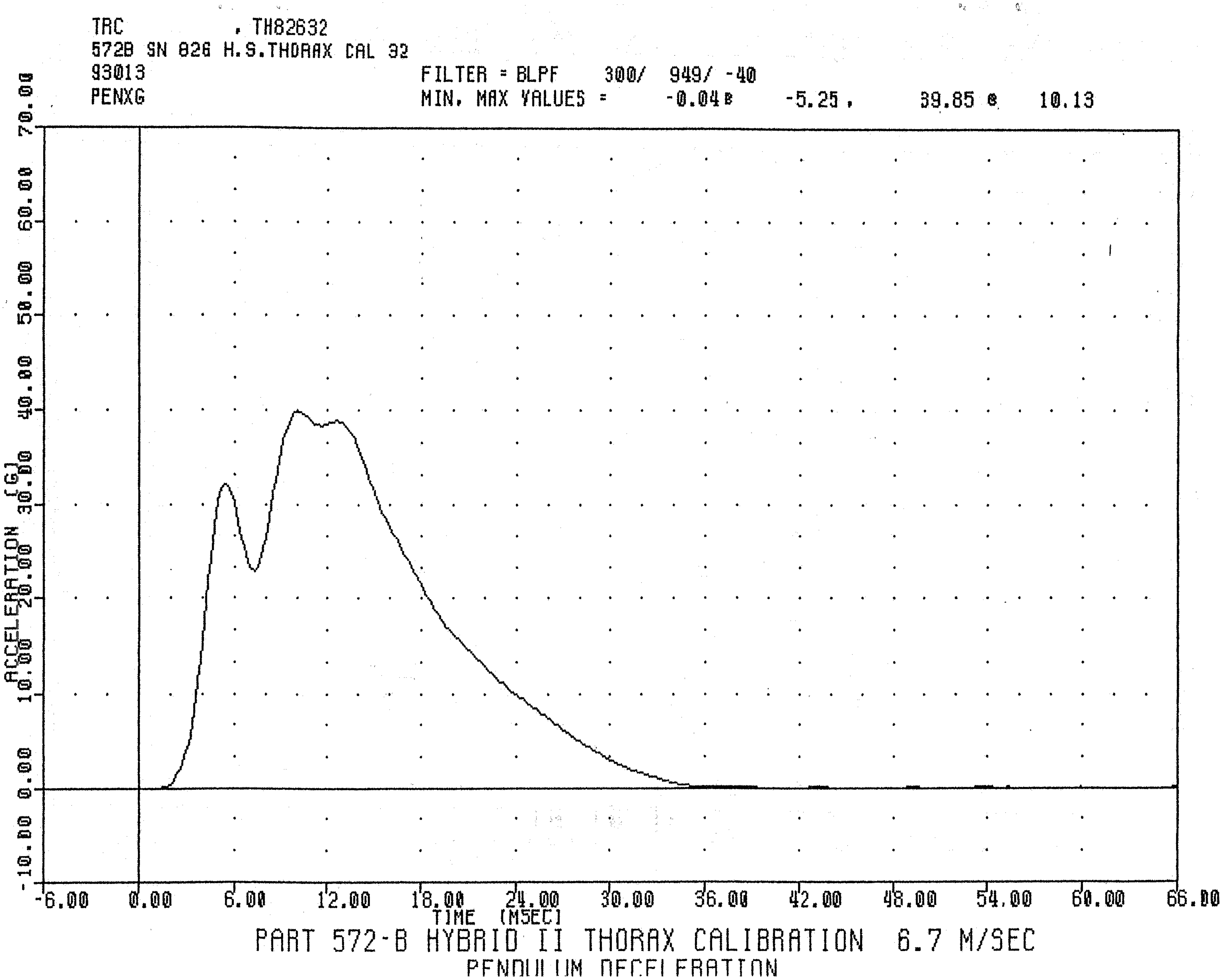
TRC TH82632 572B SN 826 H.S.THORAX CAL 32

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

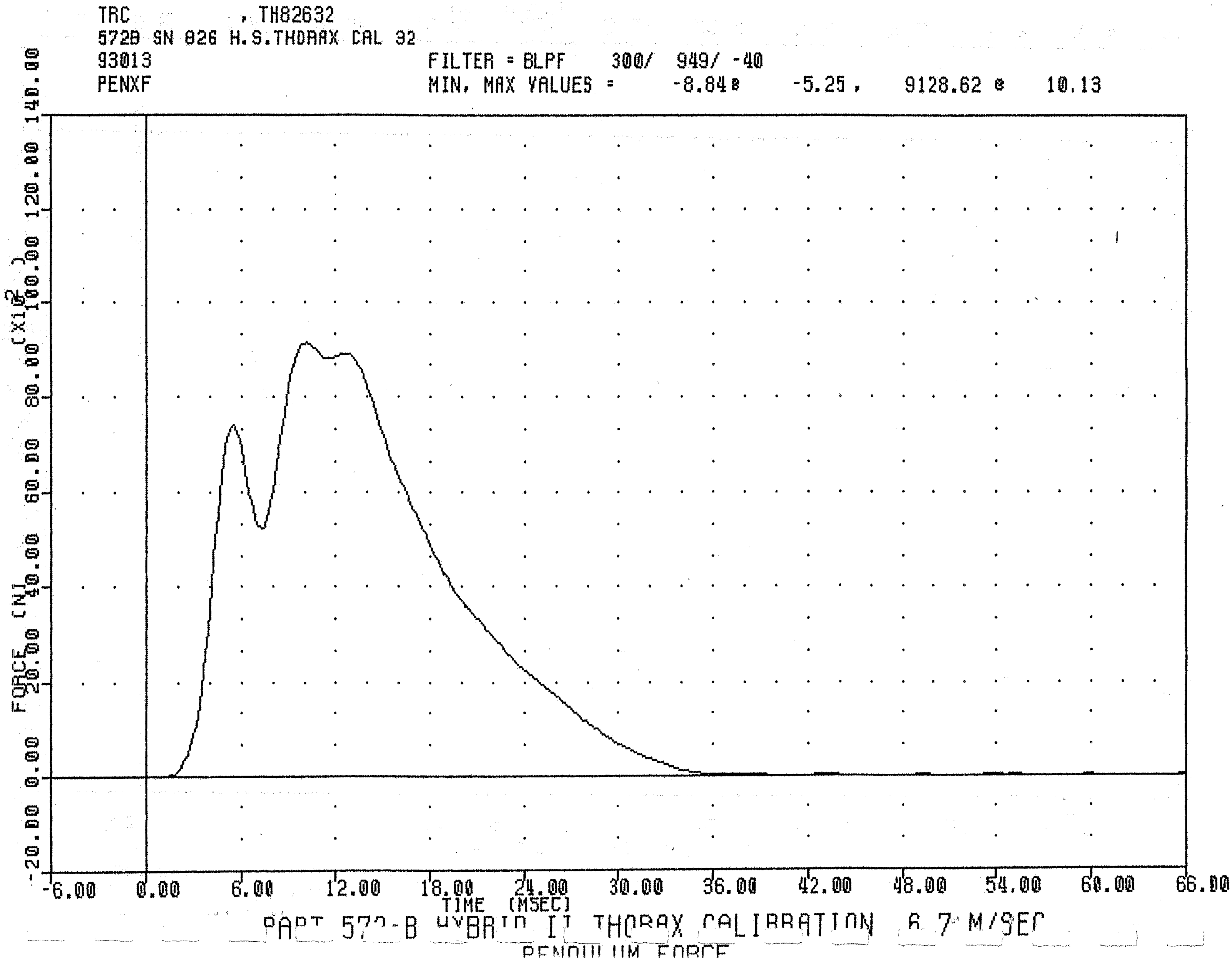
SCD: 53.34 MM

DUMMY MEETS SPECIFICATIONS

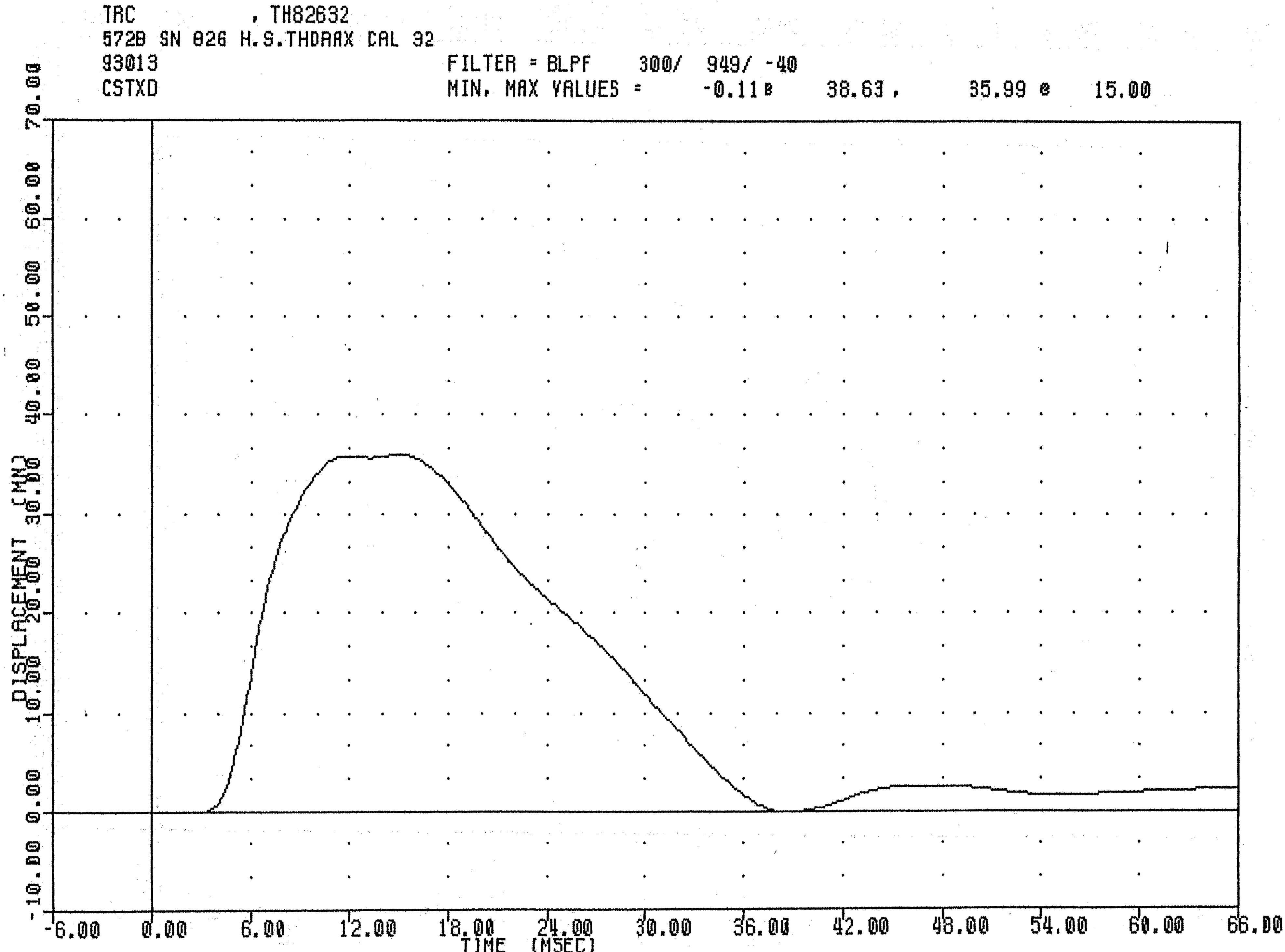
TECHNICIAN Pete Fomt


TRC , TH82632
572B SN 826 H.S.THORAX CAL 32
93013
PENXG
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.04 @ -5.25 , 39.85 @ 10.13
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 6.7 M/SEC
PENDULUM DECELERATION

930317

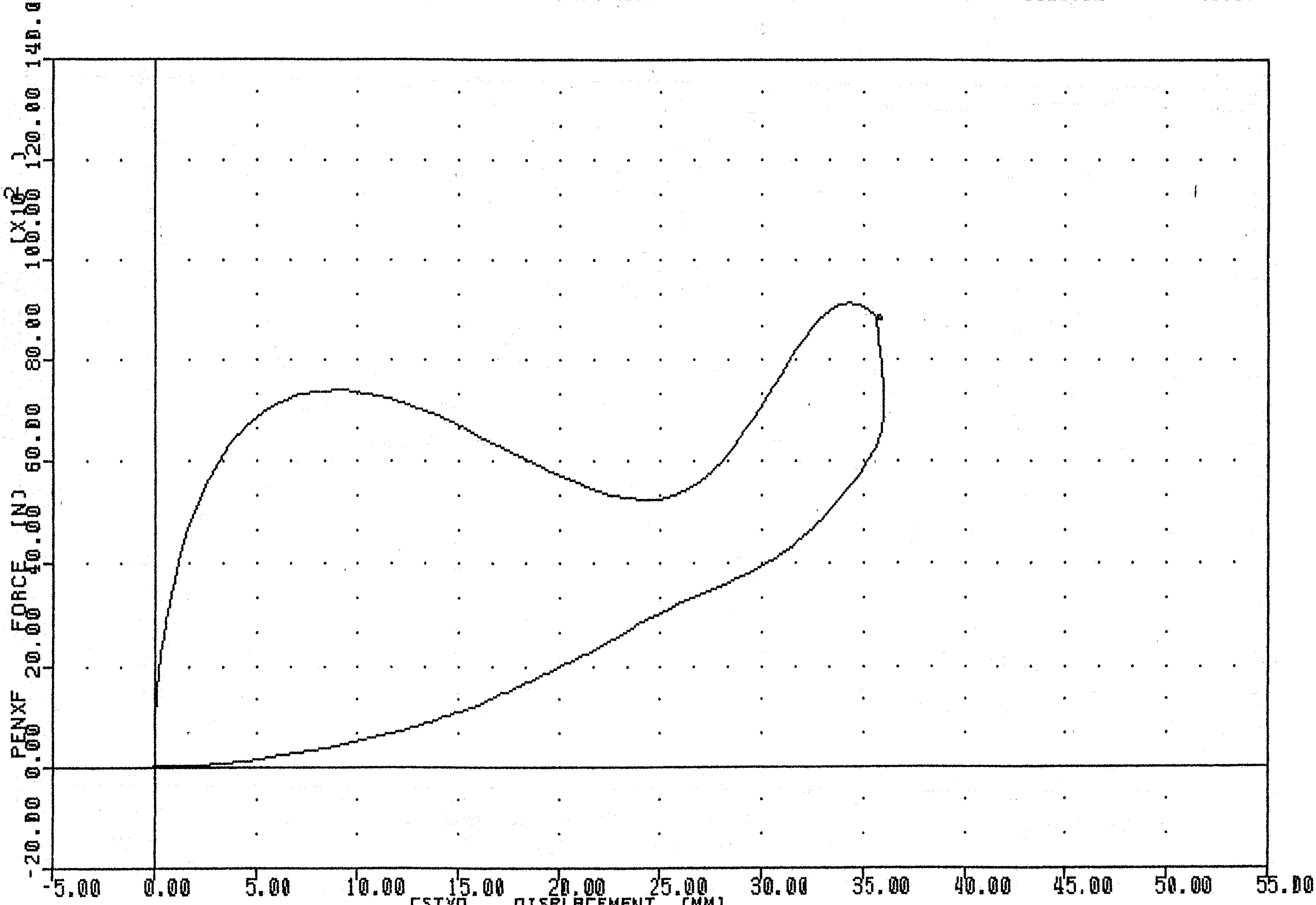

TRC , TH82632
572B SN 826 H.S.THORAX CAL 32
93013
PENXF
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -8.84 @ -5.25 , 9128.62 @ 10.13
FORCE (N) (X10^2)
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-6.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
48.00
54.00
60.00
66.00
TIME (MSEC)
PART 572-B HYBRID II THORAX CALIBRATION 6.7 M/SEC
PENDULUM FORCE

930317



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

TRC	, TH82632	572B SN 826 H.S.THORAX CAL 32		93013			
CSTXD	FILTER = BLPF	300/ 949/ -40	MIN, MAX =	-0.11 @	38.63 ,	35.99 @	15.00
PENXF	FILTER = BLPF	300/ 949/ -40	MIN, MAX =	-8.84 @	-5.25 ,	0128.62 @	10.13



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

CHEST DISPLACEMENT VS PENDULUM FORCE

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

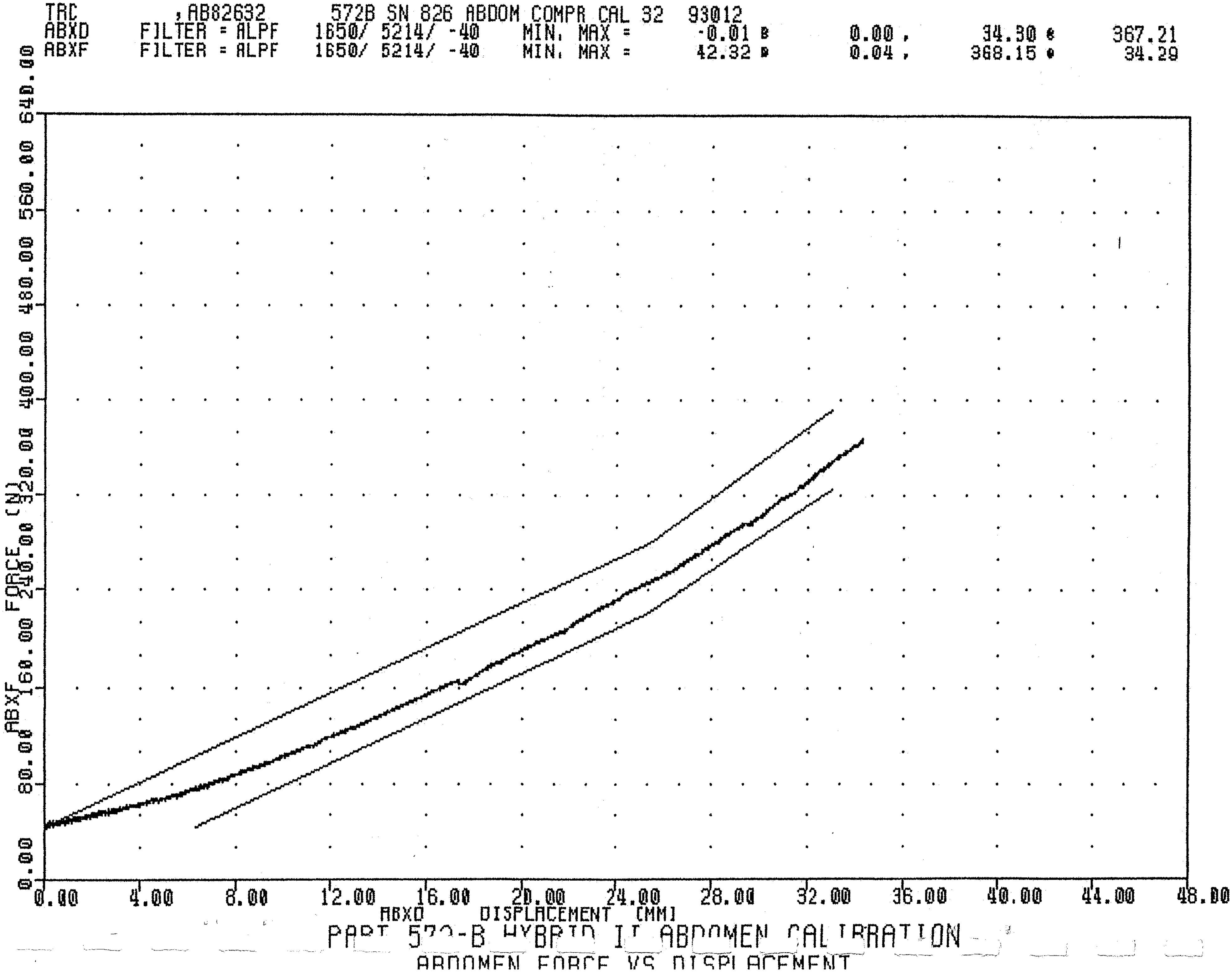
PART 572B 12-JAN-93

TRC AB82632 572B SN 826 ABDOM COMPR CAL 32

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

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust


TRC ,AB82632 572B SN 826 ABDOM COMPR CAL 32 93012
ABXD FILTER = ALPF 1650/ 5214/ -40 MIN, MAX = -0.01 @ 0.00 , 34.30 @ 367.21
ABXF FILTER = ALPF 1650/ 5214/ -40 MIN, MAX = 42.32 @ 0.04 , 368.15 @ 34.29
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
ABDOMEN FORCE VS DISPLACEMENT

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B 12-JAN-93

TRC LF82632 572B SN826 LUMBAR FLEX CAL32

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

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Foust

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

PART 572B 21-JAN-93

TRC RK82632 572B SN 826 R.KNEE IMP CAL 32

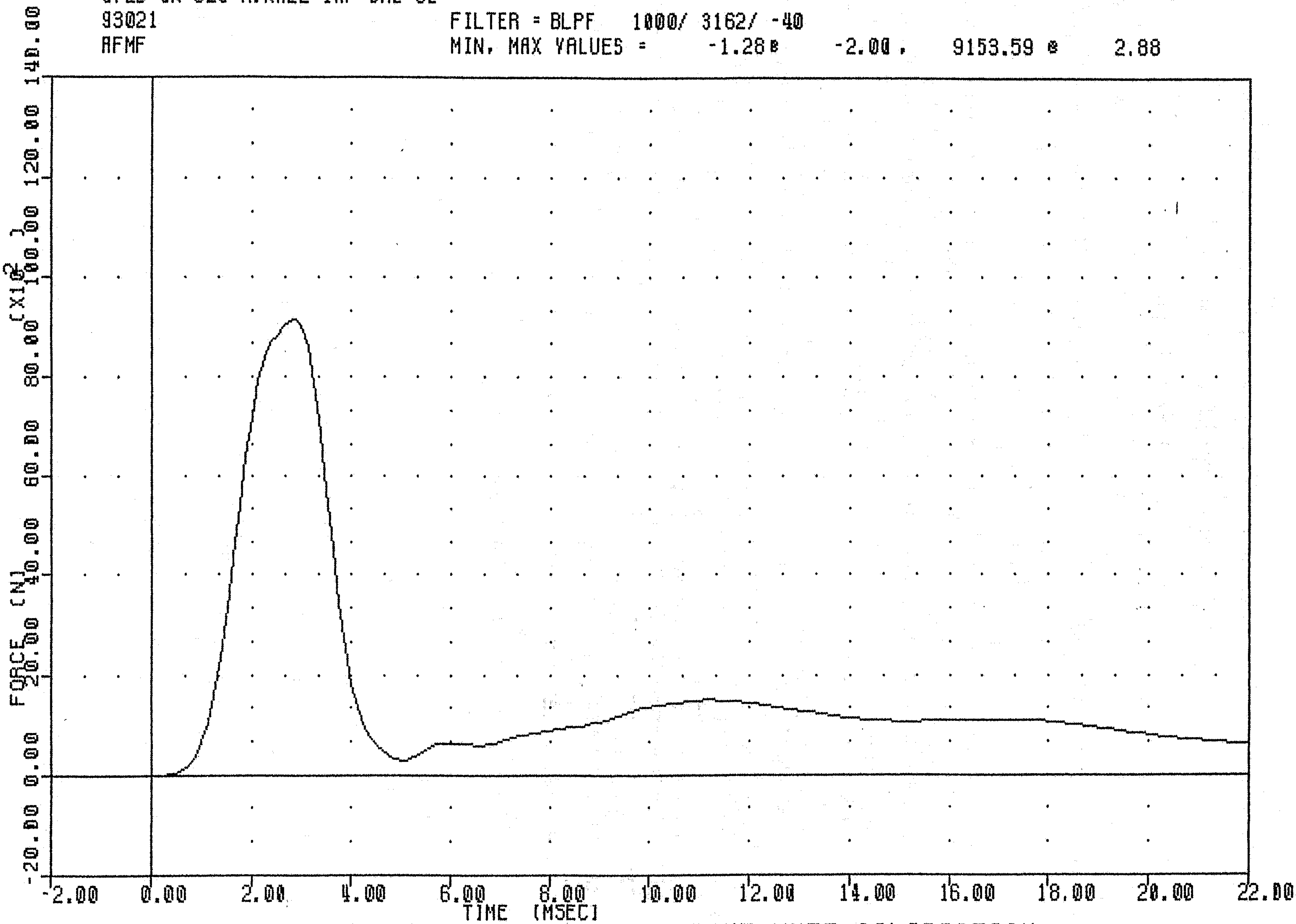
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
PENDULUM VELOCITY	2.06 - 2.15 M/SEC	2.12 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	9153.59 N
DURATION ABOVE 4448 N	>=1.7 MS	2.00 MS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas Middlet

TRC , RK82632
572B SN 026 R.KNEE INP CAL 32
93021
RFMF

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



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

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

PART 572B 21-JAN-93

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

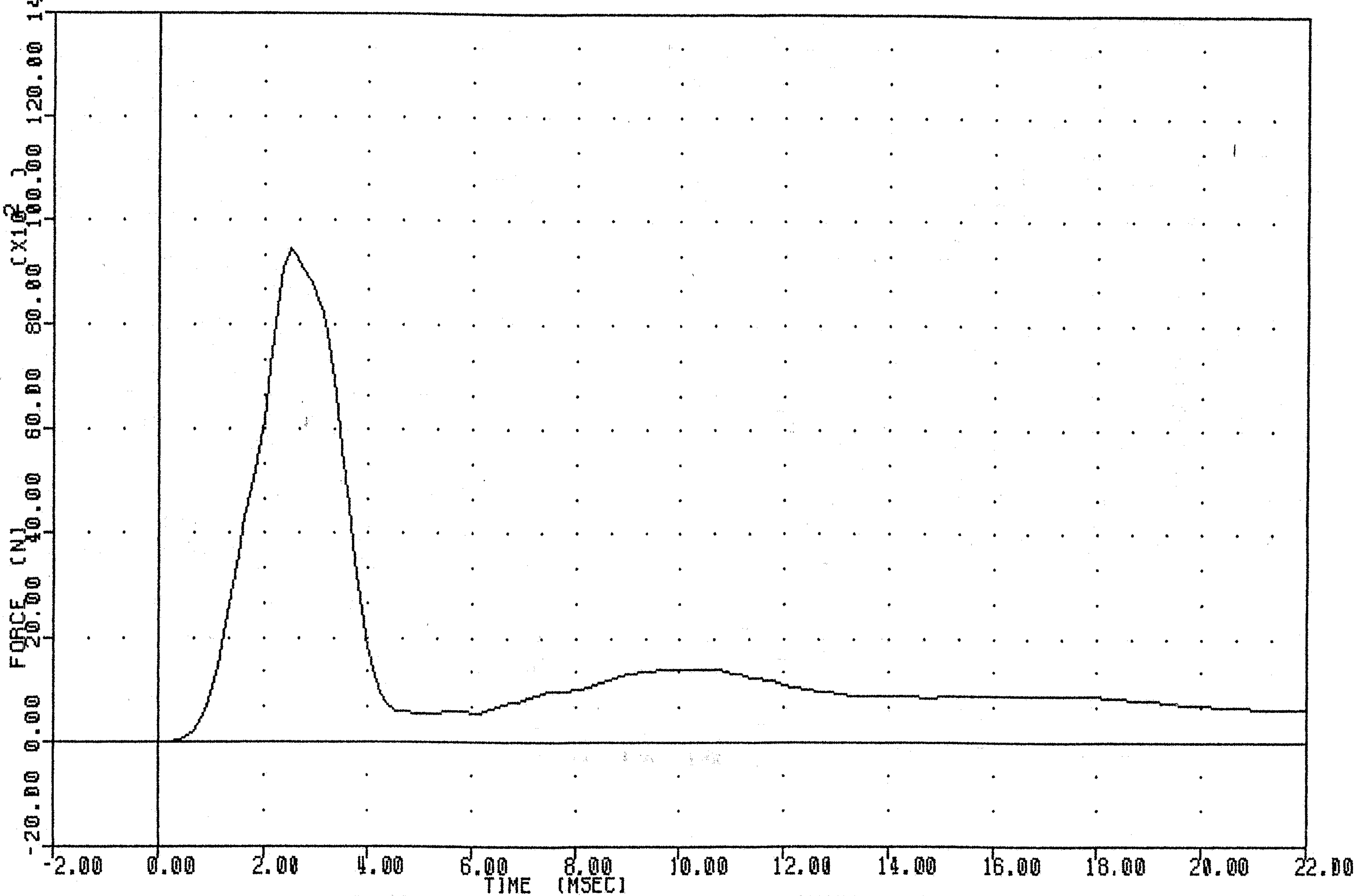
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.0 C
RELATIVE HUMIDITY	10 - 70 %	52 %
PENDULUM VELOCITY	2.06 - 2.15 M/SEC	2.13 M/SEC
PEAK KNEE IMPACT FORCE	8229 - 11121 N	9433.53 N
DURATION ABOVE 4448 N	>=1.7 MS	1.97 MS

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

TRC , LK82632
572B SN 026 L.KNEE INP CAL 32
93021
LFMF

FILTER = BLPF 1000/ 3162/ -40
MIN, MAX VALUES = -6.25 @ -1.63 , 9433.53 @ 2.50



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	CALIBRATION DATE DUE
HEAD X-AXIS ACCEL.	CW96H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	DK71J	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CR78H	7264	ENDEVCO	01/11/93	07/11/93
CHEST X-AXIS ACCEL.	CC71H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	CY32H	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CG13H	7264	ENDEVCO	01/11/93	07/11/93
LEFT FEMUR FORCE LOAD CELL	901	2430	GSE	01/11/93	07/11/93
RIGHT FEMUR FORCE LOAD CELL	902	2430	GSE	01/11/93	07/11/93
*NECK X-AXIS FORCE LOAD CELL	NA				
Y-AXIS FORCE LOAD CELL	NA				
Z-AXIS FORCE LOAD CELL	NA				
*NECK MOMENT ABOUT X-AXIS LOAD CELL	NA				
MOMENT ABOUT Y-AXIS LOAD CELL	NA				
MOMENT ABOUT Z-AXIS LOAD CELL	NA				
*CHEST DEFLECTION POTENTIOMETER	NA				
LAP BELT FORCE LOAD CELL	127	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT FORCE LOAD CELL	571	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT SPOOL-OUT POTENTIOMETER	A12889	PT-101-40A	CELESCO	10/28/92	04/28/93
SHOULDER BELT STRETCH POTENTIOMETER	1291	2051414101	BOURNES	10/28/92	04/28/93

*HYBRID III USE ONLY.

DUMMY INSTRUMENT CALIBRATIONS

PASSENGER DUMMY #826

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE LAST	CALIBRATION DATE DUE
HEAD X-AXIS ACCEL.	CL95H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	DW12JC	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CC11H	7264	ENDEVCO	01/11/93	07/11/93
CHEST X-AXIS ACCEL.	DB74H	7264	ENDEVCO	01/11/93	07/11/93
Y-AXIS ACCEL.	CY31H	7264	ENDEVCO	01/11/93	07/11/93
Z-AXIS ACCEL.	CH67H	7264	ENDEVCO	01/11/93	07/11/93
LEFT FEMUR FORCE LOAD CELL	880	2430	GSE	01/11/93	07/11/93
RIGHT FEMUR FORCE LOAD CELL	898	2430	GSE	01111/93	07/11/93
*NECK X-AXIS FORCE LOAD CELL	NA				
Y-AXIS FORCE LOAD CELL	NA				
X-AXIS FORCE LOAD CELL	NA				
*NECK MOMENT ABOUT X-AXIS LOAD CELL	NA				
MOMENT ABOUT Y-AXIS LOAD CELL	NA				
MOMENT ABOUT Z-AXIS LOAD CELL	NA				
*CHEST DEFLECTION POTENTIOMETER	NA				
LAP BELT FORCE LOAD CELL	616	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT FORCE LOAD CELL	615	3419	LEBOW	10/06/92	04/06/93
SHOULDER BELT SPOOL-OUT POTENTIOMETER	0586136	PT-101-40A	CELESCO	10/28/92	04/28/93
SHOULDER BELT STRETCH POTENTIOMETER	2690	2051414101	BOURNES	10/28/92	04/28/93

*HYBRID III USE ONLY.

930317

VEHICLE AND CALIBRATION LABORATORY INSTRUMENT CALIBRATIONS

VEHICLE ACCELEROMETERS

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE LAST	CALIBRATION DATE DUE
LEFT REAR SEAT CROSSMEMBER X-AXIS	CW79H	7264	ENDEVCO	01/20/93	07/20/93
LEFT REAR SEAT CROSSMEMBER X-AXIS REDUN	DG40J	7264	ENDEVCO	01/20/93	07/20/93
RIGHT REAR SEAT CROSSMEMBER X-AXIS	BK96J	7264	ENDEVCO	03/04/93	09/04/93
RIGHT REAR SEAT CROSSMEMBER X-AXIS REDUN	CY97H	7264	ENDEVCO	02/19/93	08/19/93
ENGINE TOP X-AXIS	BW77J	7264	ENDEVCO	11/23/92	05/23/93
ENGINE BOTTOM X-AXIS	CE16H	7264	ENDEVCO	01/20/93	07/20/93
RIGHT BRAKE CALIPER X-AXIS	BY03H	7264	ENDEVCO	11/20/92	05/20/93
LEFT BRAKE CALIPER X-AXIS	CN83H	7264	ENDEVCO	11/20/92	05/20/93
INSTRUMENT PANEL CENTER X-AXIS	CH35H	7264	ENDEVCO	10/16/92	04/16/93

CALIBRATION LABORATORY INSTRUMENTS

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE LAST	CALIBRATION DATE DUE
NECK BENDING PENDULUM ACCEL.	CC44	7232	ENDEVCO	10/06/92	04/06/93
NECK BENDING ROTARY POTENTIOMETER	NA	35435-1-102	BOURNES	MFR. SPECIFICATION	
NECK BENDING LINEAR POTENTIOMETER	NA	5184-2051846003	BOURNES	10/06/92	04/06/93
THORAX/HYBRID II FEMUR PEND. ACCEL.	CC64	7232	ENDEVCO	10/06/92	04/06/93
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	10/06/92	04/06/93
ABDOMEN COMPRESSION FORCE GAUGE	1261	3167	LEBOW	10/06/92	04/06/93
HYBRID III FEMUR PEND. ACCEL.	CG83	7232	ENDEVCO	10/06/92	04/06/93

SIGN CONVENTION

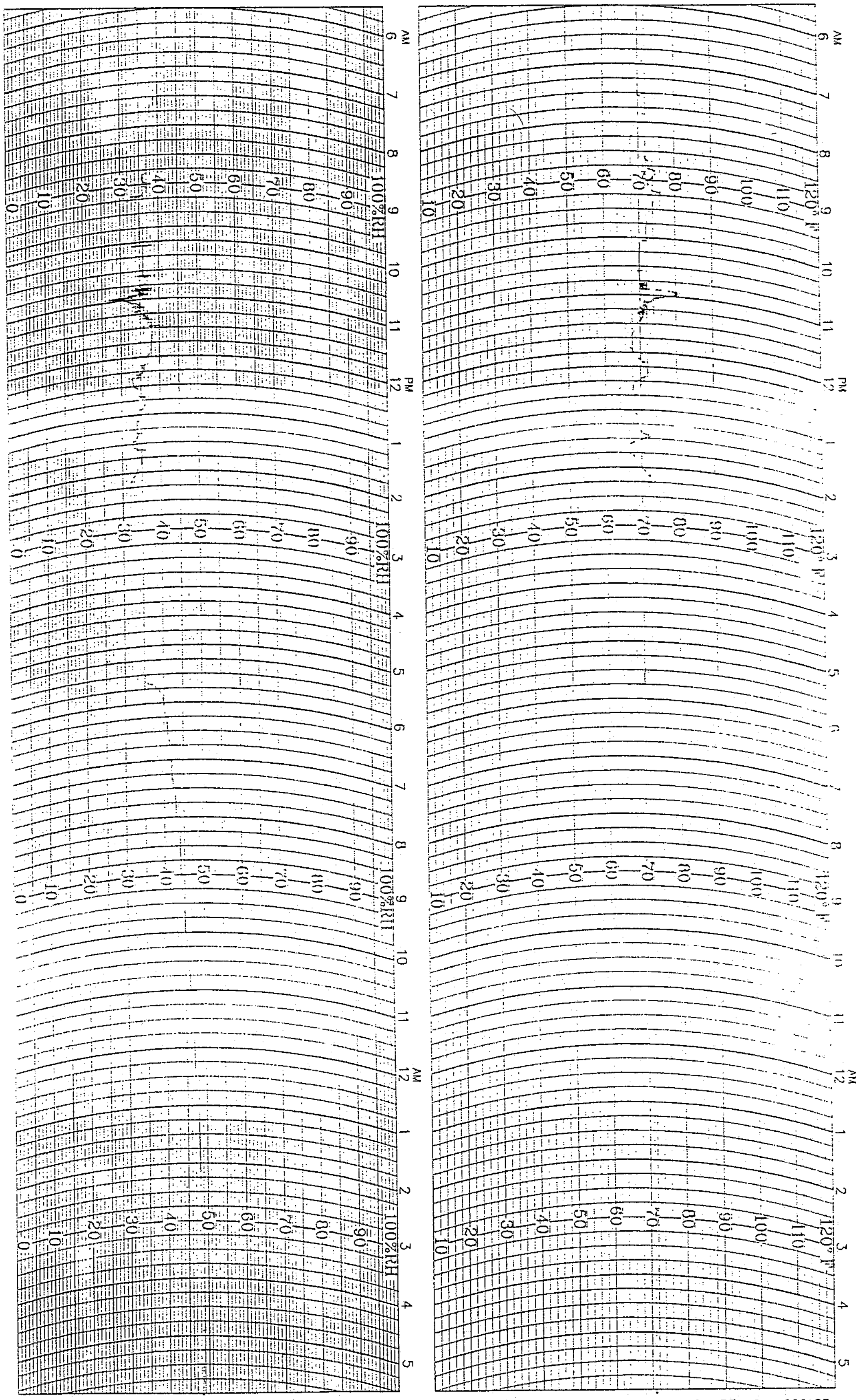
NHTSA DATA TAPE REFERENCE GUIDE

ACCELEROMETERS:	+X:	FORWARD
	+Y:	LEFTWARD
	+Z:	UPWARD
POTENTIOMETERS:	+CHEST LONGITUDINAL DEFLECTION:	OUTWARD
	+CHEST LATERAL DEFLECTION:	LEFTWARD
	+SEAT BELT DISPLACEMENT:	OUTWARD
	+SEAT BELT EXTENSION:	ELONGATION
	+KNEE SLIDER DISPLACEMENT:	DISTANCE BETWEEN FEMUR AND TIBIA INCREASED (IN RELATION TO A SEATED DUMMY)
LOAD CELLS:	+FEMUR FORCE:	TENSION
	+SEAT BELT FORCE:	TENSION
	+BARRIER FORCE:	TENSION
NECK LOAD CELLS:	+X FORCE:	HEAD PUSHED FORWARD
	+Y FORCE:	HEAD PUSHED LEFTWARD
	+Z FORCE:	HEAD PULLED UPWARD (TENSION ON NECK)
	+X MOMENT:	RIGHT EAR ROTATING TOWARD RIGHT SHOULDER
	+Y MOMENT:	CHIN ROTATING TOWARD CHEST
	+Z MOMENT:	CHIN ROTATING TOWARD LEFT SHOULDER
TIBIA LOAD CELLS:	+X FORCE:	TENSION
	+Y FORCE:	TENSION
	+Z FORCE:	TENSION
	+X MOMENT:	BOTTOM OF TIBIA MOVING LEFTWARD
	+Y MOMENT:	BOTTOM OF TIBIA MOVING REARWARD

FREQUENCY RESPONSE CLASSES

SAE J211 OCT88

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________________

APPENDIX E

RESTRAINT SYSTEM INSTRUCTIONS FROM OWNER'S MANUAL

Safety Restraints