

2149

Report Number TRC-95-N02

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Ford Motor Co. of Canada Ltd.

1995 Ford Crown Victoria

4-door Sedan

NHTSA Number: MS0203

TRC Test Number: 941102

Prepared By:

Transportation Research Center Inc.

10820 State Route 347

East Liberty, Ohio 43319



November 30, 1994

Final Report

Prepared For:

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National Highway Traffic Safety Administration

Office Of Market Incentives

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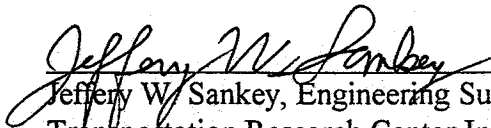
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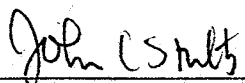
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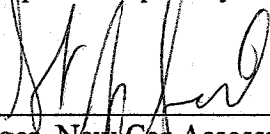
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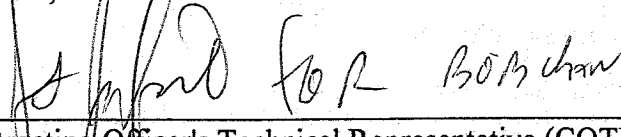

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16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1995 Ford Crown Victoria 4-door sedan, NHTSA No. MS0203, at Transportation Research Center Inc. on November 2, 1994. This test was conducted to obtain new car assessment 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 772 millimeters. The ambient temperature was 23° C. The driver's Head Injury Criteria (HIC) was 633. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 43.8 g. The driver's chest maximum deflection was 33 millimeters. The driver's left and right femur maximum axial forces were 4150 N and 4419 N, respectively. The passenger's HIC was 276. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 42.1 g. The passenger's chest maximum deflection was 31 millimeters. The passenger's left and right femur maximum axial forces were 3196 N and 3683 N, respectively.					
17. Key Words 56 kph (35 mph) Frontal Barrier Impact Test: New Car Assessment Program (NCAP) FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Retention" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"			18. Distribution Statement 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)

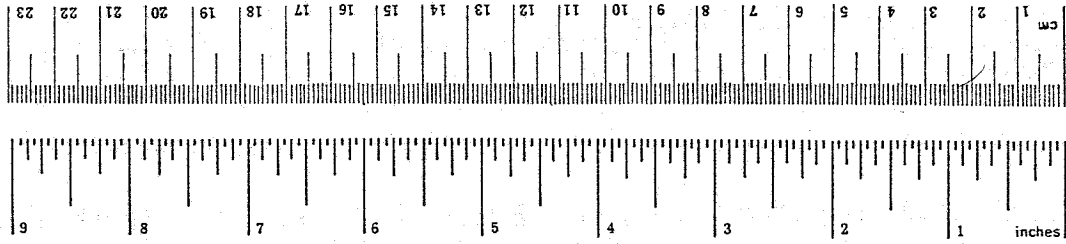
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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Approximate Conversions from Metric Measures

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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* 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. C13.10286.

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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 Number 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 1995 Ford Crown Victoria 4-door sedan, NHTSA Number MS0203, 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 572E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendices VII and VIII of the Laboratory Indicant Test Procedure. This test was the first use of the driver dummy and the passenger dummy.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces. Each Part 572E dummy's instrumentation also included a chest potentiometer to measure longitudinal deflection and a six-axis neck load cell to measure longitudinal, lateral, and vertical forces and moments.

The eighty-three (83) data channels were multiplexed and recorded on two (2) 14-track tape drives. The data was digitally sampled at 12,500 samples per second and processed per section IP11 of the Laboratory Indicant Test Procedure.

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

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

Section 2.0

Frontal Barrier Impact Test Summary

Test Results Summary

This frontal load cell barrier test was conducted at TRC on November 2, 1994.

The test vehicle, a 1995 Ford Crown Victoria 4-door sedan, NHTSA Number MS0203, was equipped with a 4.6-liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1985 kg. The vehicle's impact speed was 56.3 kph. The vehicle sustained 772 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 633. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 43.8 g. The driver's chest maximum deflection was 33 mm. The driver's left and right femur maximum axial forces were 4150 N and 4419 N, respectively.

The passenger's HIC was 276. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 42.1 g. The passenger's chest maximum deflection was 31 mm. The passenger's left and right femur maximum axial forces were 3196 N and 3683 N, respectively.

There 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 engine bottom X-axis accelerometer, ENGXG2, lost data after 54 milliseconds as a result of the vehicle's crush cutting the accelerometer cable.

Table 1 Crash Test Summary

NHTSA number:	MS0203	
Test type:	Frontal Load Cell Barrier	
Test date:	11/02/94	
Test time:	1508	
Ambient temperature:	23° C	
Vehicle year/make/ model/body style:	1995/Ford/Crown Victoria/4-door sedan	
Vehicle test weight:	1985 kg	
Impact angle ¹ :	0°	
Impact velocity ² :	Primary = 56.3 kph Secondary = 56.5 kph	
Maximum static crush:	772 mm	
Average rebound:	644 mm	
Dummies:	Driver #192	Passenger #142
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag and 3-point unbelt	Airbag and 3-point unbelt
Number of data channels:	83	
Number of cameras:	High-speed	16
	Real-time	2

¹ With respect to tow track centerline.

² Speed trap measurement (± .08 kph accuracy)

Table 2 Test Vehicle Information

Vehicle year/make/
model/body style: 1995/Ford/Crown Victoria/4-door sedan

Color: Red

VIN: 2FALP73W3SX113775

NHTSA number: MS0203

Engine data:

 Placement: In-line

 Cylinders: 8

 Displacement: 4.6 liters

Transmission data: 4 speed, __manual, X automatic, __overdrive

 __FWD, XRWD, __4WD

Date vehicle received: 10/24/94

Odometer reading: 77

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	No	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	No
Clock	Yes	Rear window defroster	Yes
Other	Equipment Pkg. 111A		

Certification data from vehicle's label:

Vehicle manufactured by: Ford Motor Co. of Canada Ltd.

Date of manufacture: 09/94

VIN: 2FALP73W3SX113775

GVWR: 2355 kg

GAWR: Front: 1172 kg

 Rear: 1194 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P215/70R15

Tire pressure with maximum capacity vehicle load:

Front: 240 kPa

Rear: 240 kPa

Spare tire: Temporary

Type of front seats: Bench

Tire & capacity data from vehicle's label:

Recommended tire size: P215/70R15 97S

Recommended cold tire pressure:

Front: 220 kPa

Rear: 240 kPa

Designated seating capacity:

Front 3

Rear 3

Total 6

Vehicle capacity weight: 499 kg

Test vehicle attitude:

Delivered attitude: LF 744 mm; RF 737 mm; LR 744 mm; RR 739 mm

Pre-test attitude: LF 727 mm; RF 728 mm; LR 699 mm; RR 697 mm

Post-test attitude: LF 762 mm; RF 761 mm; LR 698 mm; RR 696 mm

Table 2 Test Vehicle Information Cont'd

Weight of test vehicle as received (with maximum fluids):

Right front	502 kg	Right rear	380 kg
Left front	479 kg	Left rear	388 kg
Total front weight	981 kg	(56.1% of total vehicle weight)	
Total rear weight	768 kg	(43.9% of total vehicle weight)	
Total delivered weight	1749 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated cargo and luggage weight

UDW = Unloaded delivered weight (1749 kg)

VCW¹ = Vehicle capacity weight (499 kg)

DSC = Designated seating capacity (6)

RCLW = VCW - 68 (DSC) = 91 kg

Target test weight = UDW + RCLW¹ + (Number of Hybrid III dummies x 76 kg/dummy)

Target test weight = 1749 + 91 + 152

Target test weight = 1992 kg

Weight of test vehicle with required dummies and 85 kg of cargo weight:

Right front	523 kg	Right rear	460 kg
Left front	522 kg	Left rear	480 kg
Total front weight	1045 kg	(52.6% of total vehicle weight)	
Total rear weight	940 kg	(47.4% of total vehicle weight)	
Total test weight	1985 kg	(0.3% under target test weight)	

Weight of ballast secured in vehicle: 0 kg

Components removed to meet target test weight: rear bumper, trunk lid, rear seat belts, rear door trim and glass

CG rearward of front wheel centerline: 1378 mm

Vehicle wheelbase: 2911 mm

¹ From the vehicle's recommended tire pressure label.

Table 3 Post-Impact Data

Test number: 941102
NHTSA number: MS0203
Test date: 11/02/94
Test time: 1508
Test type: Frontal load cell barrier
Impact angle: 0°
Ambient temperature at impact area: 23° C
Temperature in occupant compartment: 21° C
Impact velocity:
 Primary 56.3 kph
 Secondary 56.5 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:

Overall length of test vehicle:

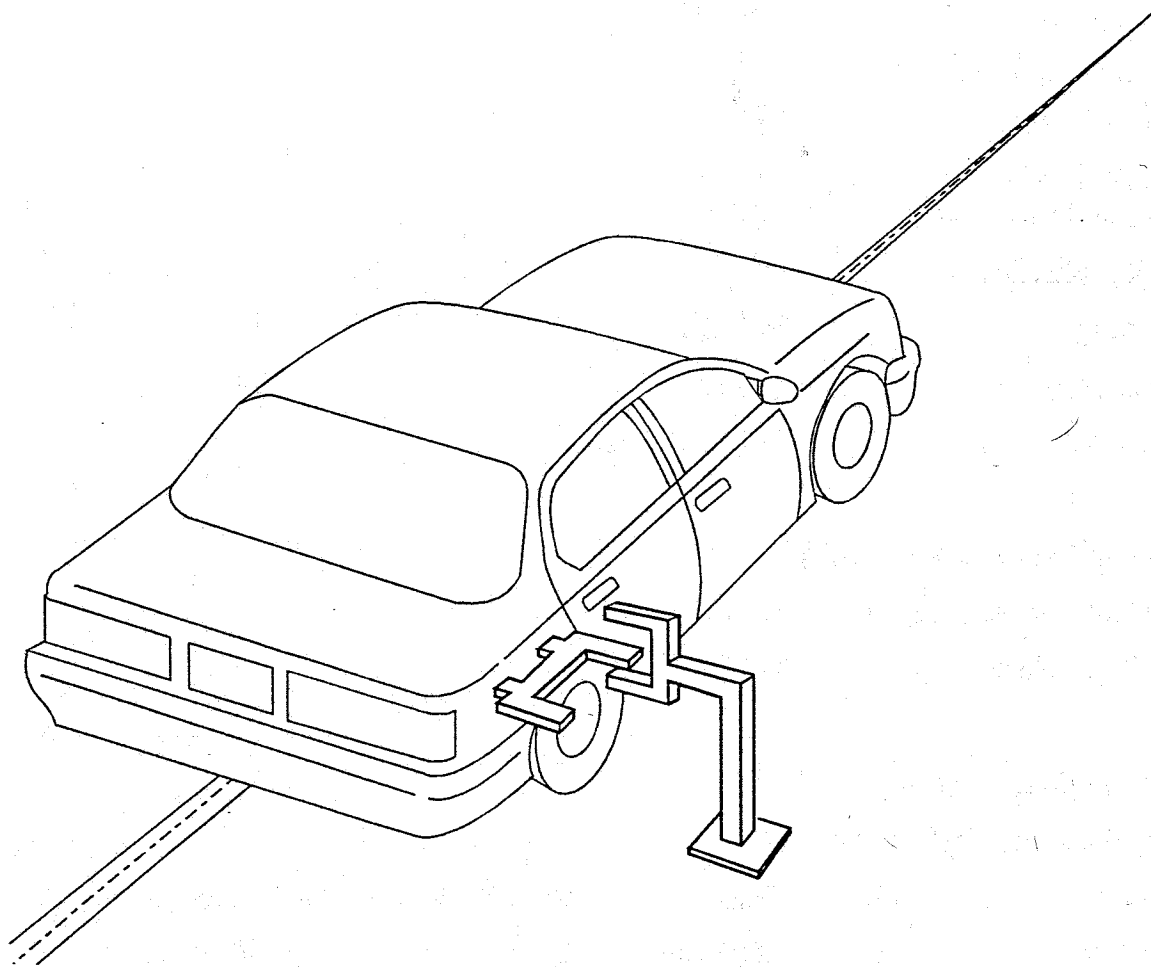
Pre-test: L 5258 mm; C 5363 mm; R 5258 mm
Post-test: L 4507 mm; C 4603 mm; R 4570 mm
Total crush: L 751 mm; C 760 mm; R 688 mm
Average crush: 733 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test: L 603 mm; C 653 mm; R 677 mm
Average rebound 644 mm

Figure 1 Impact Velocity Measurement System



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

The vanes have 305-millimeter spacing.

**Figure 2 Accident Investigation Division Data
for 56 kph (35 mph) Frontal Barrier Impact**

NHTSA number: MS0203
 Test date: 11/02/94
 Vehicle year/make/
 model/body style: 1995/Crown Victoria/4-door sedan
 Vehicle size category: Large
 VIN: 2FALP73W3SX113775
 Build date: 09/94
 Test weight: 1985 kg
 Vehicle wheelbase: 2911 mm
 Maximum width: 1974 mm
 Front overhang: 1056 mm

Collision Deformation
 Classification (CDC) code: 12FDEW3

Crush depth
 measurements:

C1	=	751 mm
C2	=	750 mm
C3	=	772 mm
C4	=	763 mm
C5	=	738 mm
C6	=	688 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1524 mm

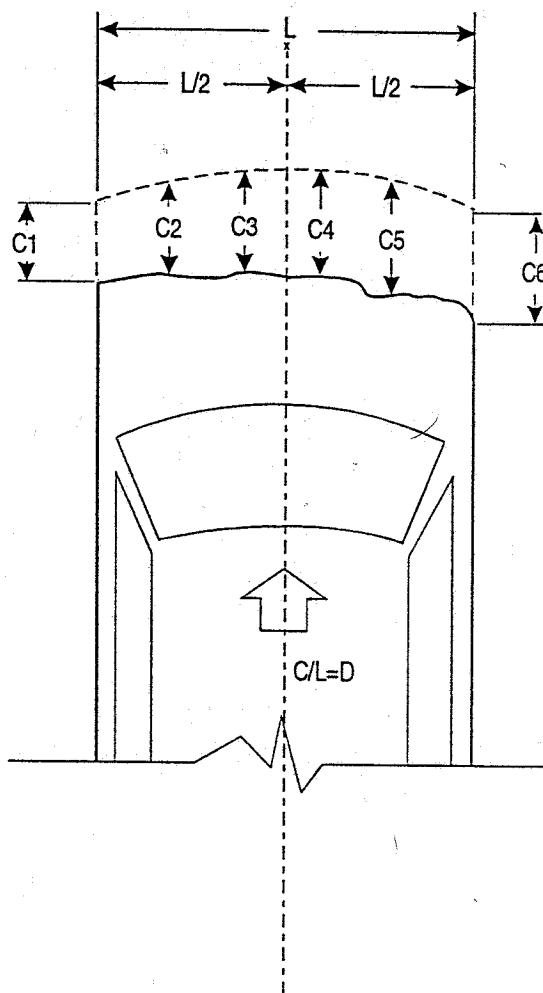
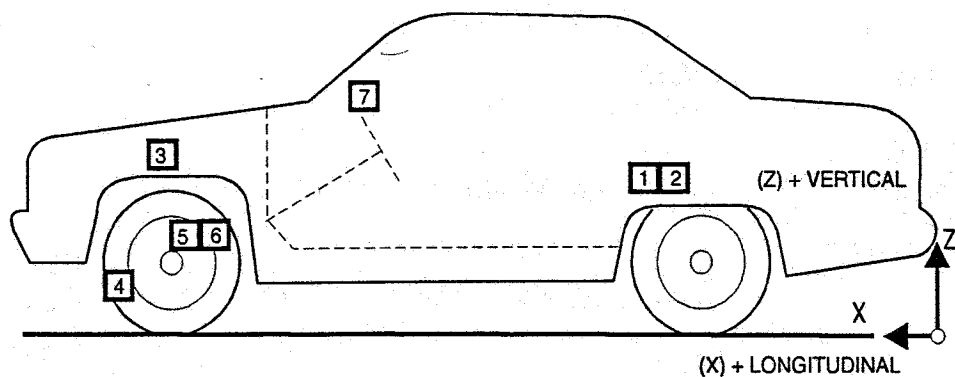
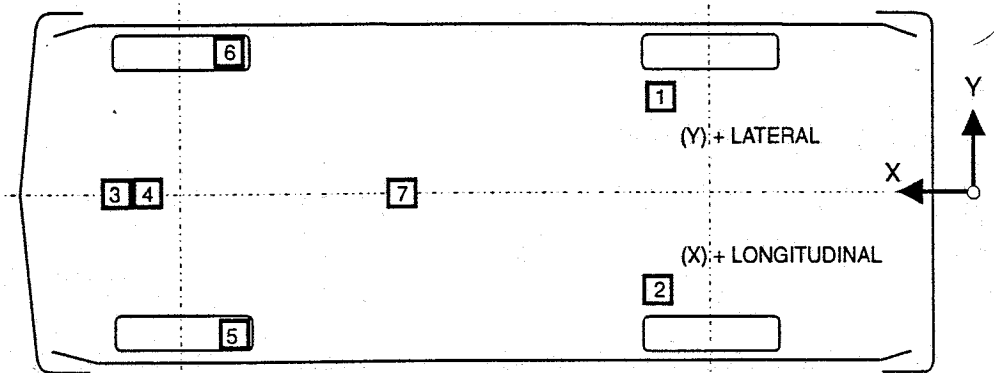


Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 941102 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	2203 mm	606 mm	377 mm	3.1 g @ 158.6 ms 4.9 g @ 175.4 ms	28.9 g @ 88.2 ms 29.5 g @ 88.4 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	2175 mm	-616 mm	377 mm	3.7 g @ 175.1 ms 2.9 g @ 159.0 ms	34.5 g @ 65.3 ms 33.1 g @ 65.3 ms
3 ENGINE TOP LONGITUDINAL	4188 mm	-235 mm	778 mm	16.8 g @ 69.2 ms	64.5 g @ 51.9 ms
4 ENGINE BOTTOM LONGITUDINAL ¹	4070 mm	86 mm	259 mm	---	---
5 RIGHT BRAKE CALIPER LONGITUDINAL	4178 mm	-629 mm	334 mm	24.3 g @ 79.8 ms	78.6 g @ 55.5 ms
6 LEFT BRAKE CALIPER LONGITUDINAL	4185 mm	629 mm	337 mm	48.9 g @ 33.6 ms	87.6 g @ 51.0 ms
7 INSTRUMENT PANEL CENTER LONGITUDINAL	3537 mm	-6 mm	1052 mm	24.4 g @ 61.0 ms	84.8 g @ 76.5 ms

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

¹ See DATA ACQUISITION EXPLANATIONS

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver #192</u>	<u>Passenger #142</u>
Head	Airbag	Airbag
Chest	Airbag	Airbag
Abdomen	Airbag	Airbag
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door Opening:

	<u>Left</u>	<u>Right</u>
Front	Easy	Easy
Rear	Easy	Easy

Seat Movement:

	<u>Seat Back Failure</u>	<u>Seat Shift</u>
Front	None	Driver's seat shifted 6 notches forward; passenger's seat shifted 3 notches forward
Rear	NA	NA

Glazing Damage: The entire windshield cracked on impact.

Other Notable Impact Effects: None

Table 6 FMVSS 208 Data Summary

Vehicle year/make/
model/body style: 1995/Ford/Crown Victoria/4-door sedan
Vehicle NHTSA number: MS0203
Test date: 11/02/94

	Driver Dummy #192		Passenger Dummy #142	
<u>Maximum Accelerations:</u>				
Head X-axis	-60.5	g	-59.9	g
Head Y-axis	7.5	g	40.4	g
Head Z-axis	-40.5	g	-42.6	g
Head resultant	61.2	g	64.5	g
Chest X-axis	-44.4	g	-44.0	g
Chest Y-axis	8.9	g	-7.5	g
Chest Z-axis	32.8	g	22.6	g
Chest resultant ¹	43.8	g	42.1	g
Chest resultant time interval ¹	.003	sec	.003	sec
<u>Head Injury Criteria (HIC) Values:</u>				
HIC ²	633		276	
HIC starting time	.075	sec	.084	sec
HIC ending time	.111	sec	.120	sec
Avg. head resultant accel. during HIC time interval	49.9	g	35.8	g
<u>Maximum Chest Deflections:</u>				
Chest X-axis	33	mm	31	mm
Maximum chest deflection time	.093	sec	.093	sec
<u>Maximum Compressive Femur Forces:</u>				
Left femur	4150	N	3196	N
Right femur	4419	N	3683	N
<u>Maximum Seat Belt Forces:</u>				
Lap belt	4694	N	4386	N
Shoulder belt	7114	N	6064	N

Note: All values listed must be occurring during primary impact event.
(Head accelerations listed must be during hic time interval.)

¹ 0.003 Sec. Minimum duration.

² The maximum hic time interval is 36 milliseconds.

Table 7 Hybrid III Neck Data Summary

Vehicle year/make/
model/body style: 1995/Ford/Crown Victoria/4-door sedan
 Vehicle NHTSA number: MS0203
 Test date: 11/02/94

	Driver Dummy #192	Passenger Dummy #142
<u>Maximum Values:</u>		
Neck X-axis force	-435 N	728 N
Neck Y-axis force	-239 N	-935 N
Neck Z-axis force	2376 N	2213 N
Neck moment about X-axis	13 N-m	57 N-m
Neck moment about Y-axis	-22 N-m	-45 N-m
Neck moment about Z-axis	-8 N-m	40 N-m

Note: All values listed must be occurring during primary impact event.

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest were restrained by the driver's airbag and the dummy's torso was restrained by the three-point unibelt. The dummy's head rotated rearward into the seat back and head restraint as the dummy rebounded into the seat back. The dummy came to rest seated in the driver's seat, restrained by the three-point unibelt.

Right Front Passenger Dummy

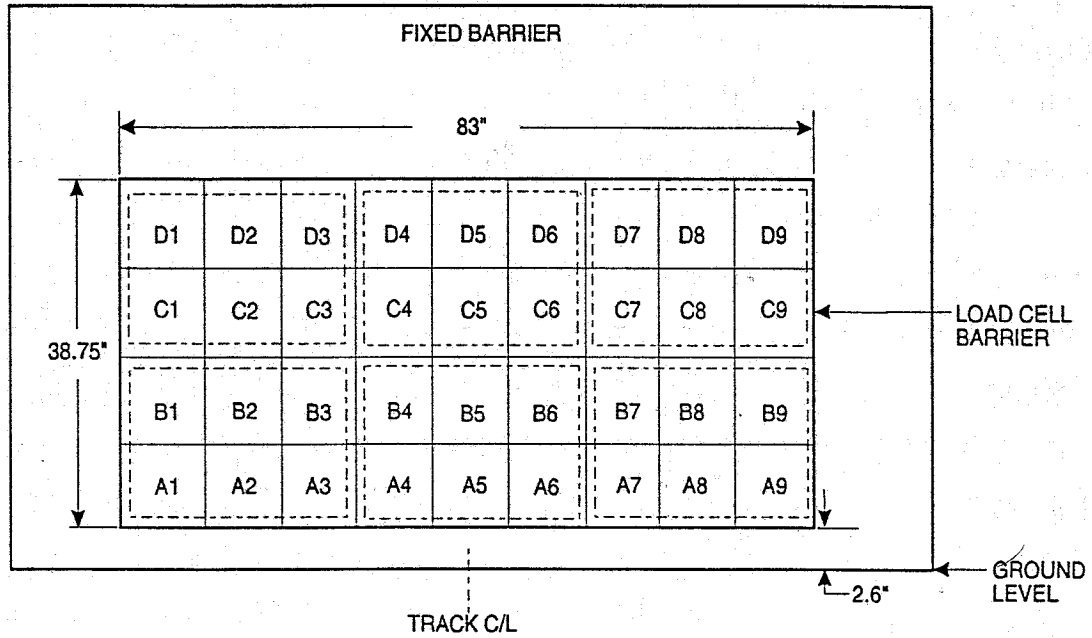
Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest were restrained by the passenger's airbag as the dummy's torso was restrained by the three-point unibelt. The dummy's head rotated rearward into the head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

Table 8 Seat Belt Performance Assessment Test Data

	Driver	Passenger
<u>Belt length data:</u>		
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2608 mm	2586 mm
Shoulder belt length as measured on Part 572 dummy.	1111 mm	1070 mm
Lap belt length as measured on Part 572 dummy.	928 mm	888 mm
<u>Shoulder belt spool-off length:</u>		
As determined by film analysis	50 mm	65 mm
As determined mechanically	45 mm	56 mm
As determined electronically	110 mm	66 mm
<u>Belt stretch length:</u>		
As measured mechanically	31 mm/m	0 mm/m
As measured electronically	0 mm/m	25 mm/m
<u>Retractor lock-up time:</u>		
As determined by shoulder belt spool-off	50 ms	50 ms

Figure 4 Load Cell Barrier Configuration

36 LOAD CELLS
 4 ROWS
 9 COLUMNS
 FRONT VIEW



- Group 1: A1 through B3
- Group 2: A4 through B6
- Group 3: A7 through B9
- Group 4: C1 through D3
- Group 5: C4 through D6
- Group 6: C7 through D9

Table 9 Load Cell Barrier Data Summary

Location	Positive direction	Negative direction
Total group 1	1.8 kN @ 203.6 ms	41.7 kN @ 90.3 ms
Total group 2	2.0 kN @ 203.8 ms	170.4 kN @ 54.0 ms
Total group 3	1.5 kN @ 204.2 ms	56.4 kN @ 91.0 ms
Total group 4	1.1 kN @ 203.8 ms	138.7 kN @ 28.3 ms
Total group 5	0.9 kN @ 256.8 ms	133.9 kN @ 52.2 ms
Total group 6	1.5 kN @ 200.7 ms	104.8 kN @ 31.8 ms
Total load cell force	8.1 kN @ 203.8 ms	556.5 kN @ 53.2 ms

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.:

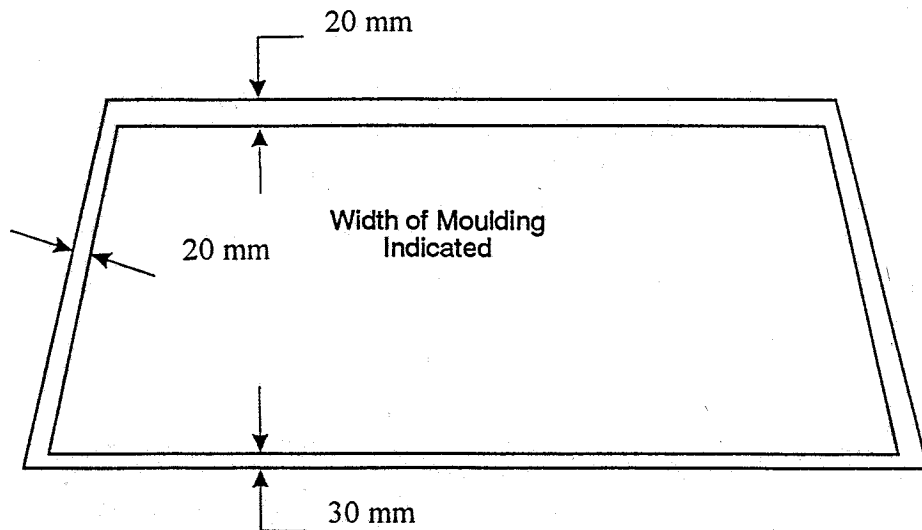
Plastic trim around outer perimeter, adhesive around inner perimeter.

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:

	<u>Pre-test</u>	<u>Post-test</u>	<u>Percent retention</u>
Right side	2175 mm	2175 mm	100
Left side	2175 mm	2175 mm	100
Total	4350 mm	4350 mm	100

Pre-test windshield mounting material temperature: 21° C



Front view of windshield¹

Loss of windshield retention lengths: None

¹ Indicate areas of loss of retention, if any, on windshield diagram.

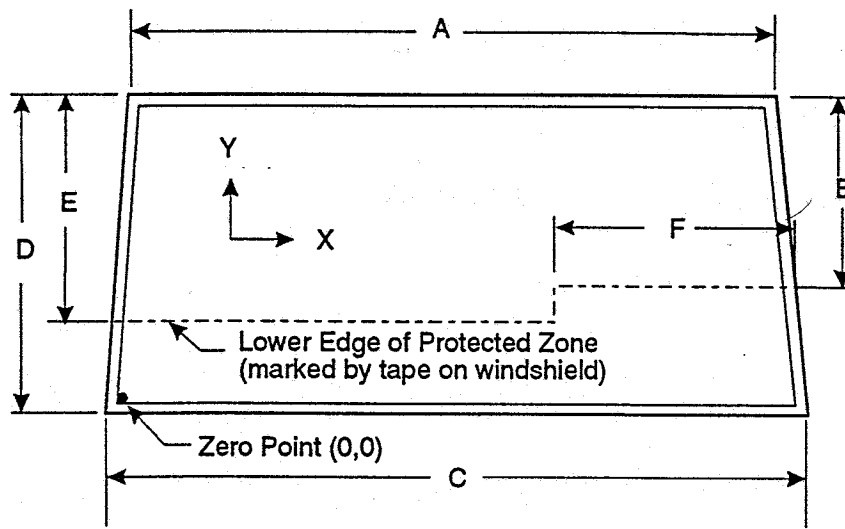
Figure 6 FMVSS 219 Test Data

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 = 1290 mm
- B = 420 mm
- C = 1690 mm
- D = 775 mm
- E = 490 mm
- F = 980 mm



FRONT VIEW

Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 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.

Table 10 Fuel System Data

Vehicle year/make/
model/body style: 1995/Ford/Crown Victoria/4-door sedan

NHTSA number: MS0203

Fuel system capacity: 75.7 liters (from owner's manual)

Usable capacity: 75.7 liters (furnished by COTR)

Test volume range: 69.6 liters to 71.2 liters (92-94% of usable)

Actual test volume: 70.4 liters (with entire fuel system filled)

Test fluid type: Stoddard solvent

Specific gravity: 0.764

Kinematic viscosity: 0.99 centistoke

Test fluid color: Purple

The electric fuel pump does not operate with ignition switch "on" and the engine not operating?

Details of fuel system: The fuel tank is located behind the rear axle.
The fuel filler neck is located on the left side.
The fuel lines run along the left frame rail to the front.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MS0203
Test date: 11/02/94
Vehicle year/make/
model/body style: 1995/Ford/Crown Victoria/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:

- 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:

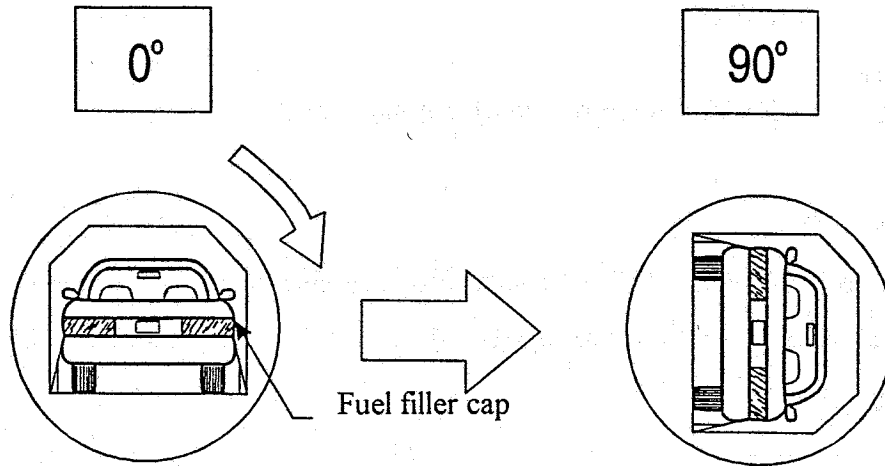
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 g	28 g
2. 5-minute period after vehicle motion ceases	0 g	142 g
3. Next 25 minutes after 5-minute period	0 g	28 g/min

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data

NHTSA number: MS0203

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds
 FMVSS 301 position hold time = 5 minutes, 0 seconds
 Total = 7 minutes, 0 seconds
 Next whole minute interval = 7 minutes

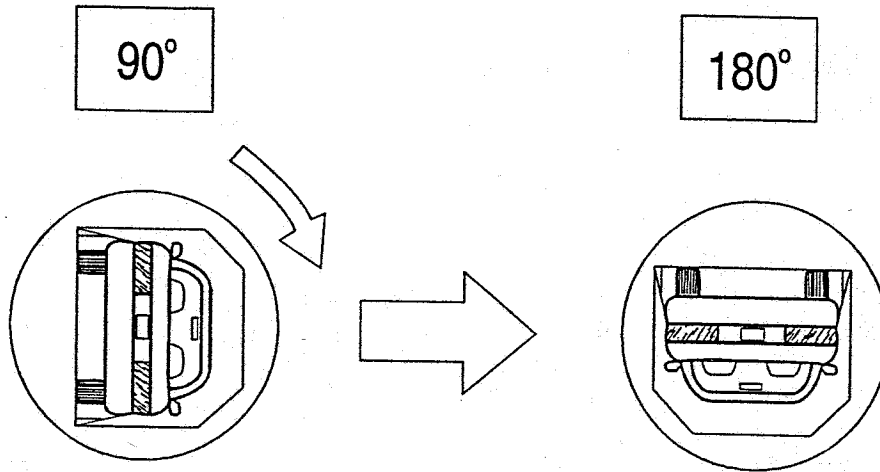
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>0° to 90° rotation (fuel filler cap down)</u>		
1. First 5 minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh 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.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2 minutes,	0 seconds
FMVSS 301 position hold time	=	5 minutes,	0 seconds
Total	=	7 minutes,	0 seconds
Next whole minute interval	=	14 minutes	

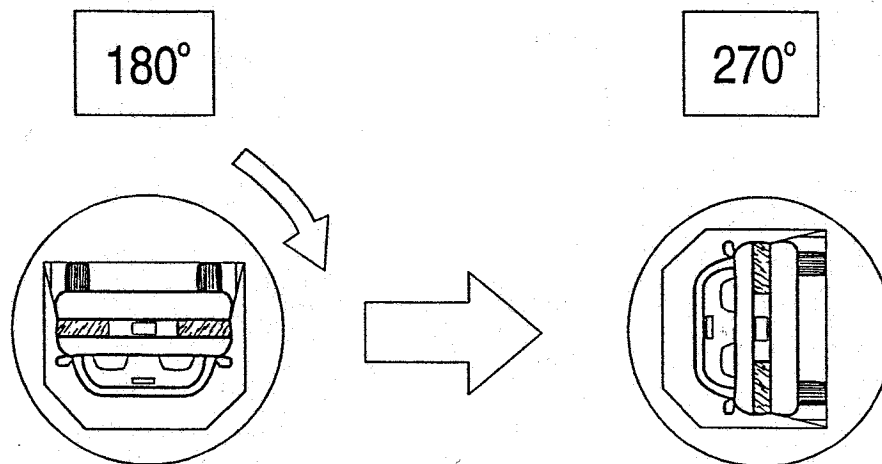
Fuel system fluid spillage measurements:

<u>90° to 180° rotation</u>	<u>Test Results</u>	<u>Maximum Allowable</u>
1. First 5 minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh 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.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds

FMVSS 301 position hold time = 5 minutes, 0 seconds

Total = 7 minutes, 0 seconds

Next whole minute interval = 21 minutes

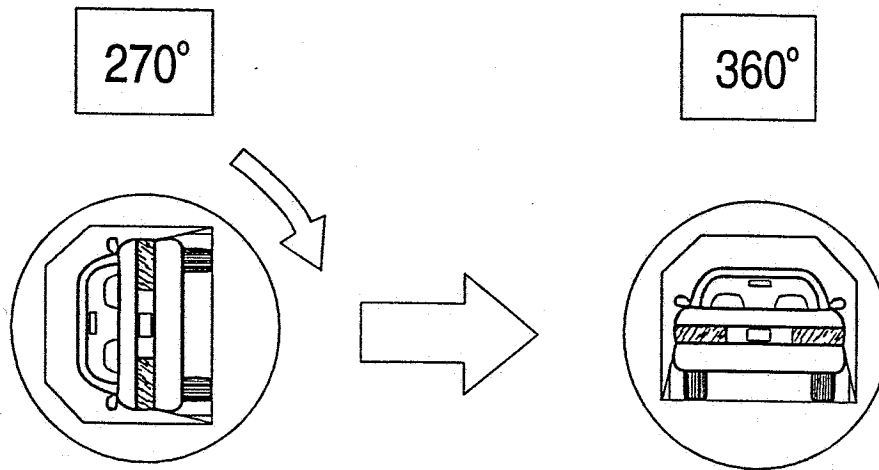
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>180° to 270° rotation</u>		
1. First 5 minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh 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.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds
 FMVSS 301 position hold time = 5 minutes, 0 seconds
 Total = 7 minutes, 0 seconds
 Next whole minute interval = 28 minutes

Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>270° to 360° rotation</u>		
1. First 5 minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh 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

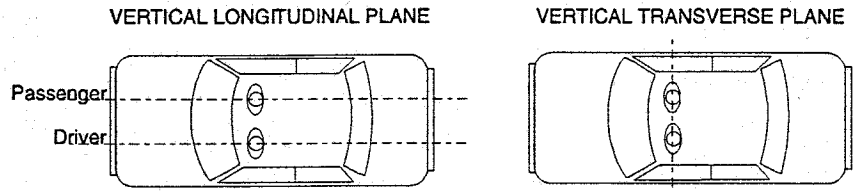
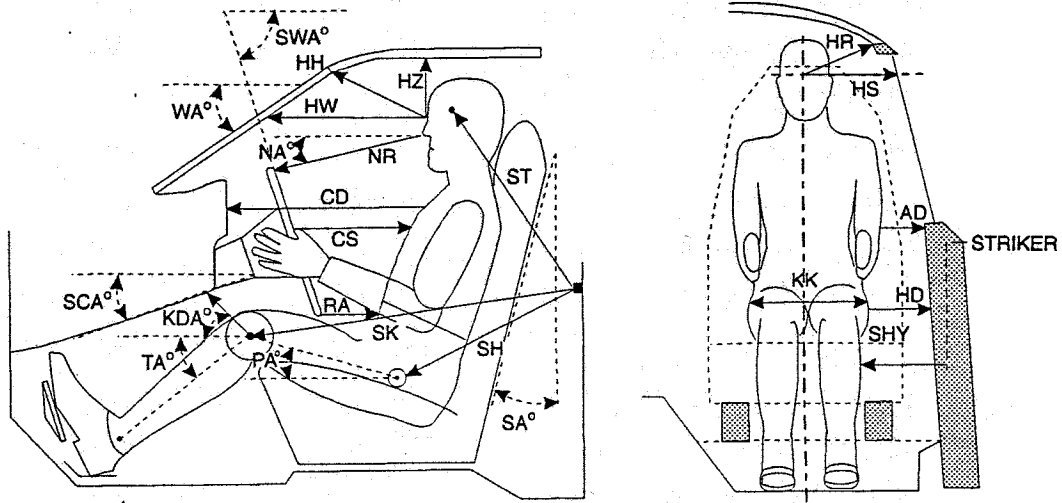


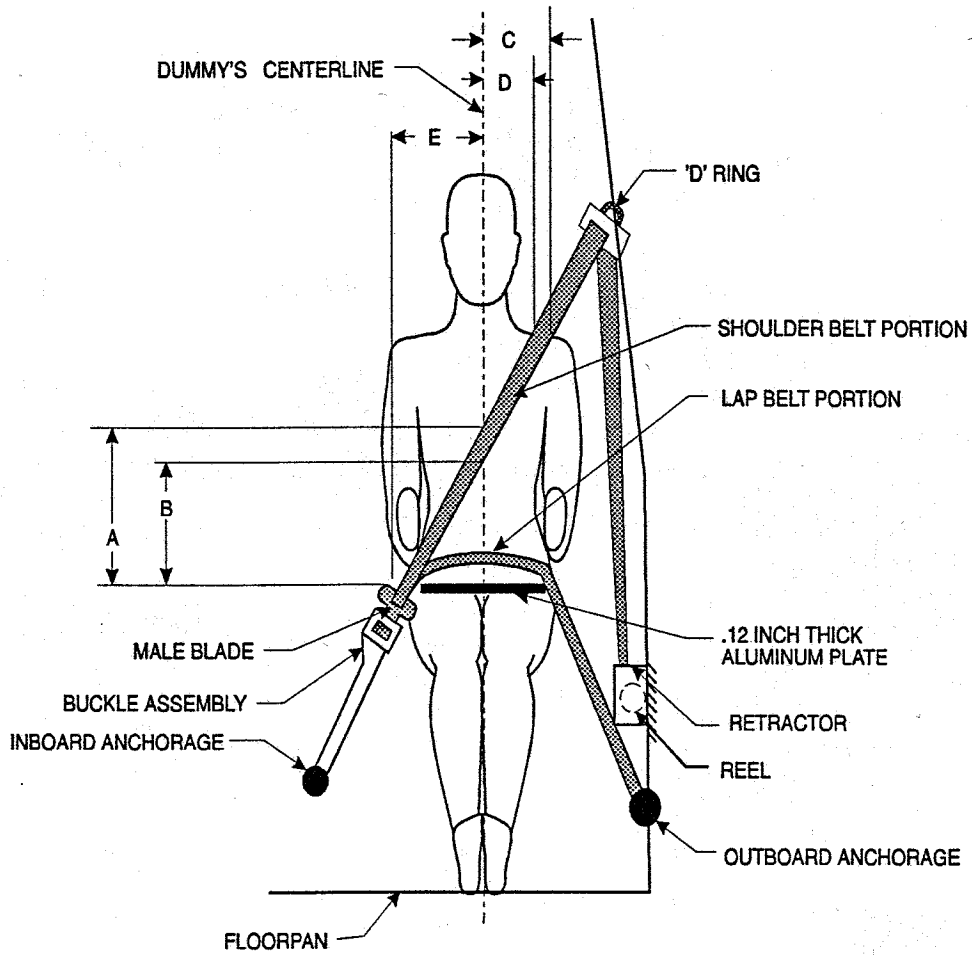
Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #192)	Passenger (Serial #142)
WA	Windshield angle	31°	31°
SWA	Steering wheel angle	67°	NA
SCA	Steering column angle	23°	NA
SA	Seat back angle	21°	21°
HZ	Head to roof	195 mm	192 mm
HH	Head to header	334 mm	329 mm
HW	Head to windshield	529 mm	539 mm
HR	Head to side header	200 mm	202 mm
NR	Nose to rim	352 mm	NA
NA	Nose to rim angle	14°	NA
CD	Chest to dash	529 mm	475 mm
CS	Steering wheel to chest	285 mm	NA
RA	Rim to abdomen	161 mm	NA
KDL	Left knee to dash	157 mm	138 mm
KDR	Right knee to dash	168 mm	135 mm
KDA	Outboard knee to dash angle	39°	39°
PA	Pelvic angle	24°	24°
TA	Tibial angle	28°	35°
KK	Knee to knee	327 mm	285 mm
ST ¹	Striker to head	523 mm	532 mm
	Striker to head angle	-78°	-77°
SK ¹	Striker to knee	607 mm	592 mm
	Striker to knee angle	4°	6°
SH ¹	Striker to H-point	257 mm	268 mm
	Striker to H-point angle	45°	38°
SHY	Striker to H-point (Y dir.)	272 mm	278 mm
HS	Head to side window	355 mm	342 mm
HD	H-point to door	155 mm	169 mm
AD	Arm to door	148 mm	153 mm

The seat back angle (SA°) is measured relative to vertical, all other angles are measured relative to horizontal.

¹ Angle measured from head restraint support.

Figure 9 Seat Belt Positioning Data



	Driver	Passenger
A - Top surface of aluminum plate to belt upper edge	350 mm	370 mm
B - Top surface of aluminum plate to belt lower edge	271 mm	276 mm
C - Dummy centerline to outer edge of belt at chest flesh top	111 mm	119 mm
D - Dummy centerline to inner edge of belt at chest flesh top	45 mm	49 mm
Lap belt tension	16 N	16 N
Shoulder belt tension	16 N	16 N
Adjustable seat belt anchorage position	Third down of 5 positions	Third down of 5 positions

Figure 10 Camera Positions

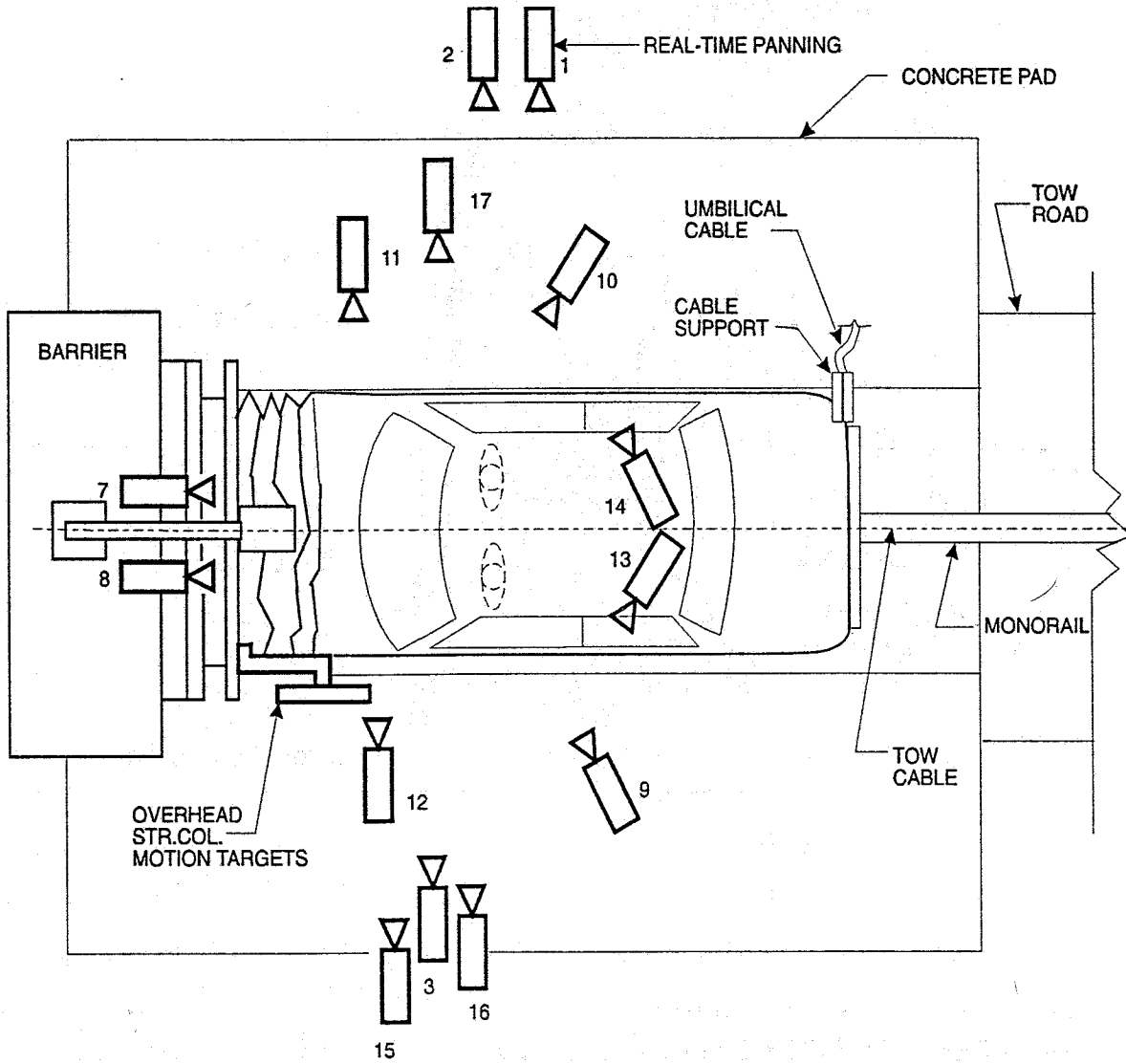


Figure 10 Camera Positions, Cont'd.

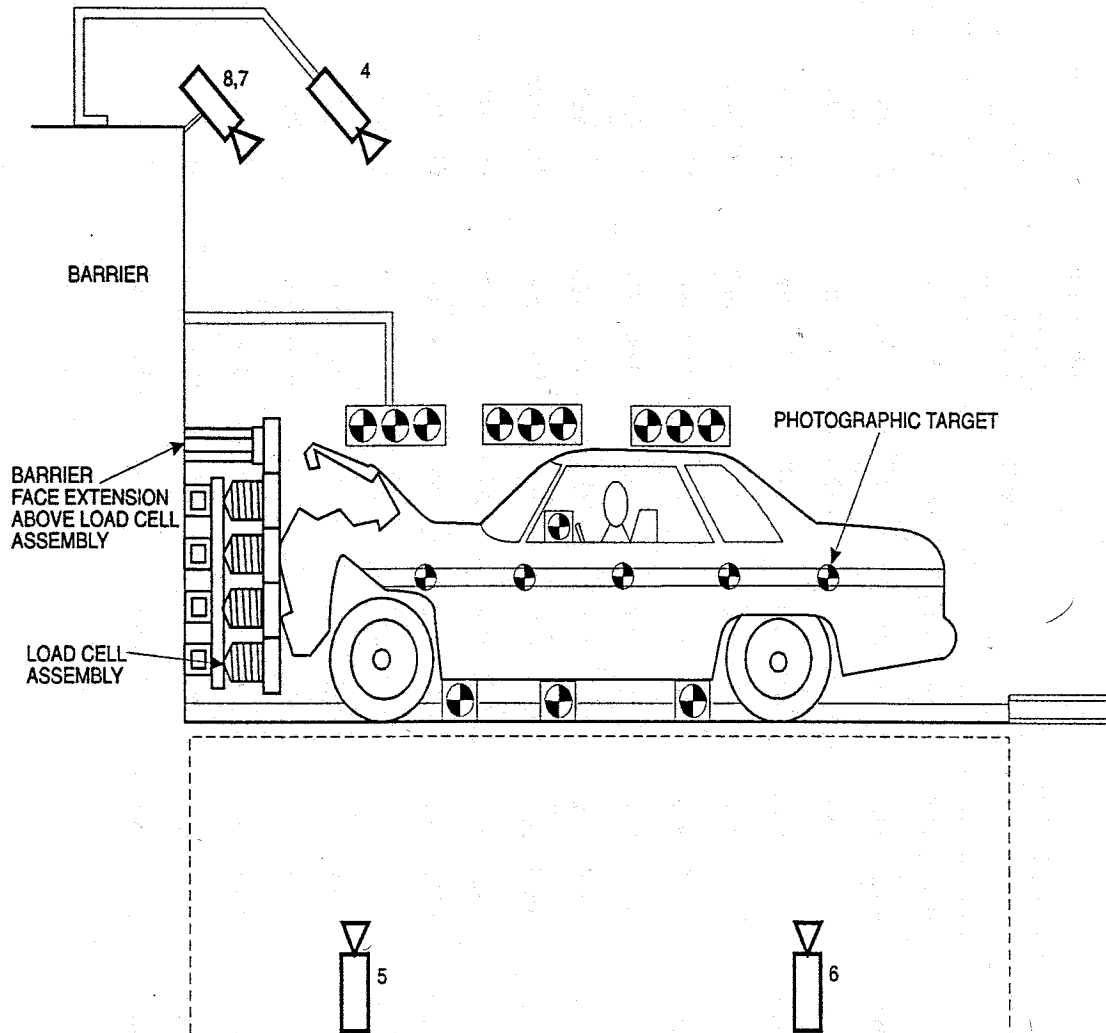


Table 13 Motion Picture Camera Locations

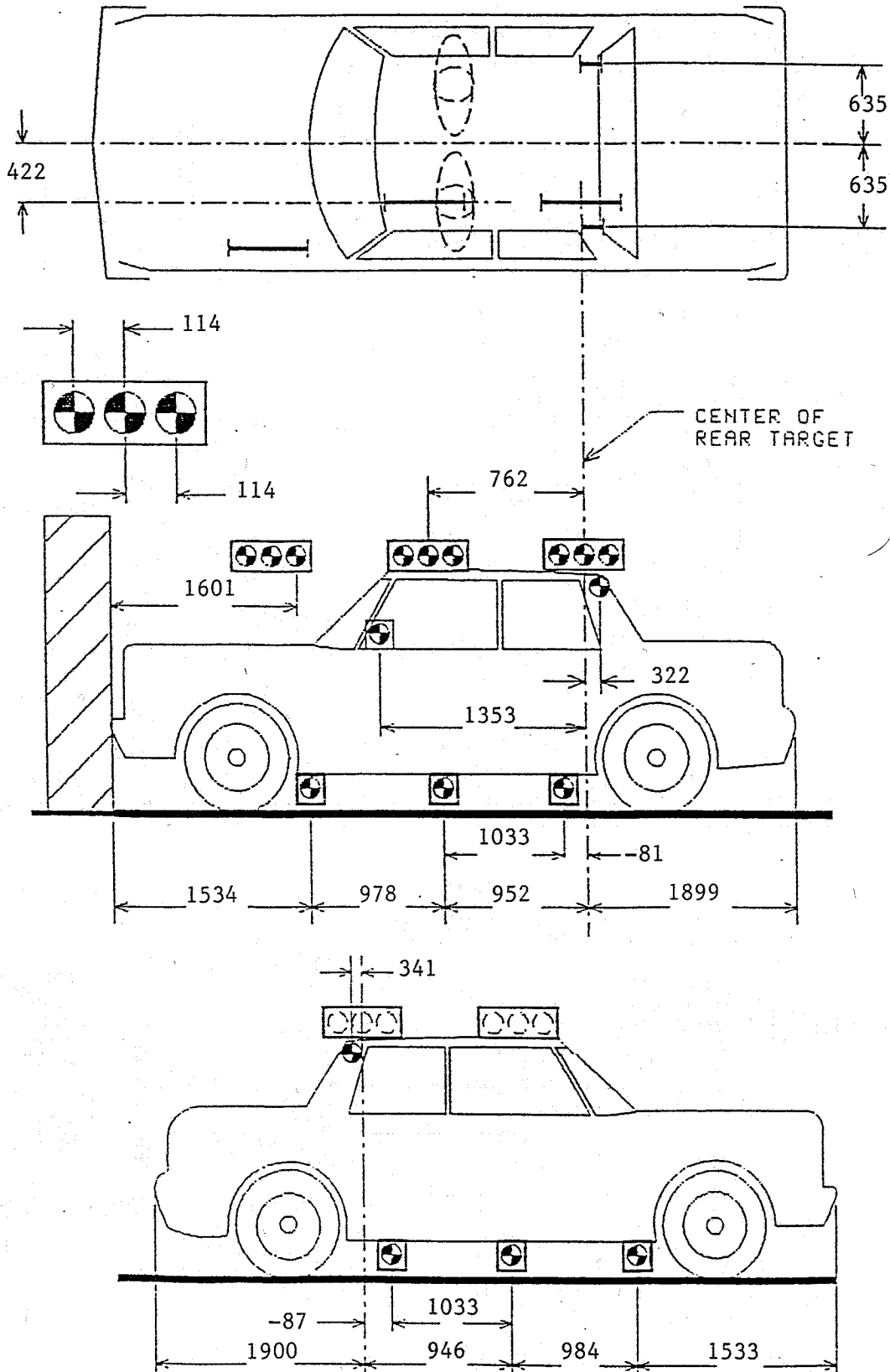
Test Number: 941102

Vehicle year/make/model/body style: 1995/Ford/Crown Victoria/4-door sedan

Camera Number	View	X	Y	Z	Angle ²	Film Plane to Head Target	Lens	Film Speed
1	Real-time panning	-3607 mm	-2802 mm	1549 mm	NA	NA mm	16 mm	24 frames/s
2	Vehicle crush	-2065 mm	-6767 mm	942 mm	-2°	NA mm	13 mm	498 frames/s
3	Dummy kinematics	-1054 mm	7493 mm	1118 mm	-12°	5740 mm	25 mm	1005 frames/s
4	Windshield damage	-925 mm	0 mm	2489 mm	-40°	NA mm	13 mm	503 frames/s
5	Crush & fluid spillage	-1283 mm	0 mm	-2347 mm	90°	NA mm	13 mm	1003 frames/s
6	Fluid spillage	-2522 mm	0 mm	-2515 mm	90°	NA mm	13 mm	1000 frames/s
7	Passenger kinematics	-114 mm	-351 mm	2159 mm	-40°	NA mm	17 mm	500 frames/s
8	Driver kinematics	-173 mm	368 mm	2159 mm	-41°	NA mm	17 mm	500 frames/s
9	Driver kinematics	-4572 mm	1854 mm	2591 mm	-27°	2286 mm	25 mm	500 frames/s
10	Passenger kinematics	-4674 mm	-1880 mm	2540 mm	-26°	1930 mm	25 mm	990 frames/s
11	Windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA mm	50 mm	503 frames/s
12	Windshield intrusion	-1346 mm	7859 mm	1074 mm	0°	NA mm	50 mm	505 frames/s
13	Driver seat belt movement	NA	NA	NA	NA	NA mm	13 mm	500 frames/s
14	Passenger seat belt movement	NA	NA	NA	NA	NA mm	13 mm	500 frames/s
15	Column movement	-2667 mm	7264 mm	2616 mm	-14°	NA mm	25 mm	490 frames/s
16	Column movement	-2667 mm	7264 mm	1908 mm	-9°	NA mm	25 mm	503 frames/s
17	Passenger kinematics	-986 mm	-5354 mm	1151 mm	7°	6071 mm	25 mm	1008 frames/s

1 +X = Film plane forward of barrier face
 +Y = Film plane to left of monorail centerline
 +Z = Film plane above ground level
 2 +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

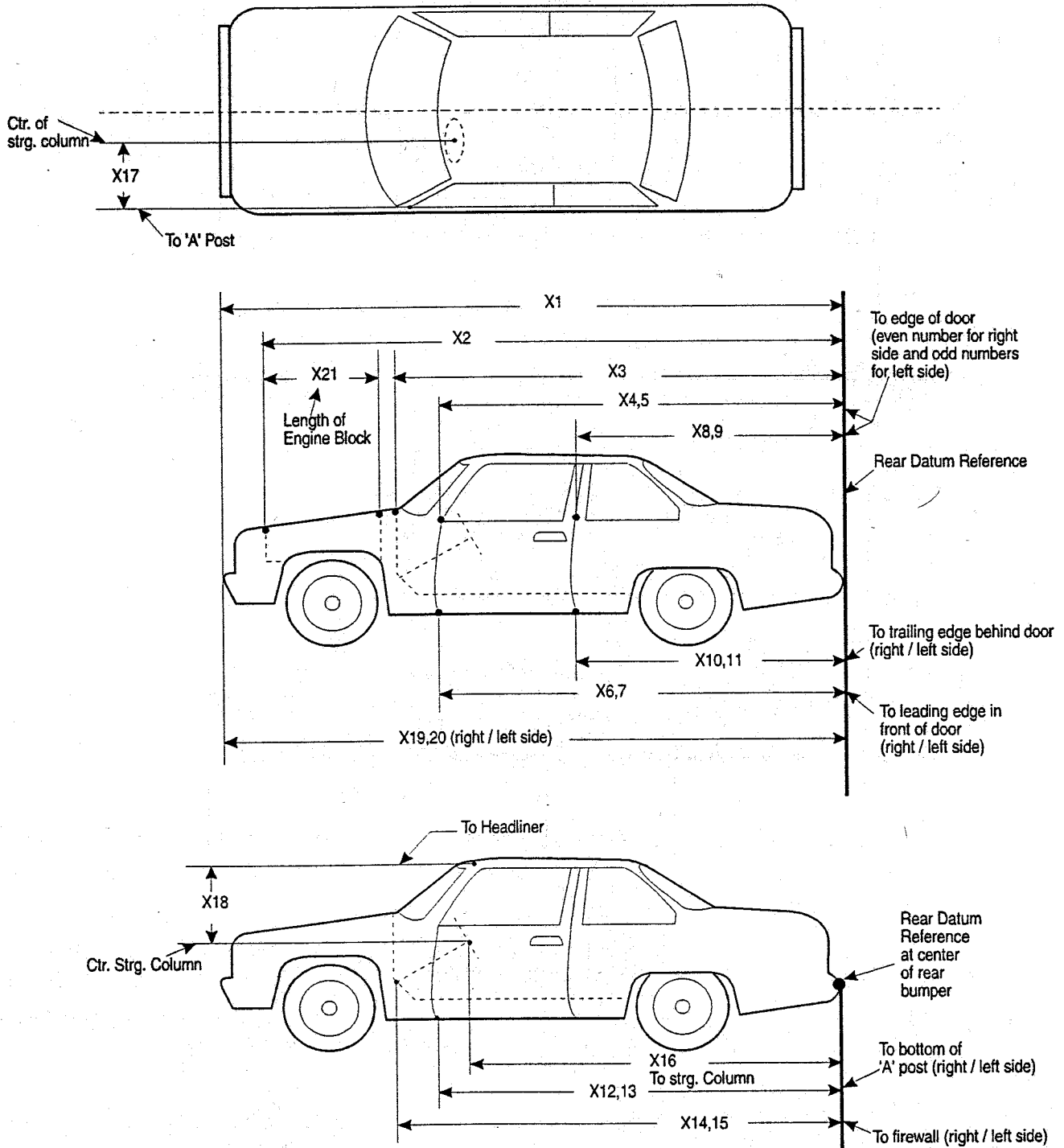


Table 14 Impacted Vehicle Measurements

Vehicle Make/Model: Ford/Crown Victoria

Test Number: 941102

No.	Type of measurement	Pre-test	Post-test	Diff.
X1	Total length of vehicle at centerline	5363 mm	4603 mm	760 mm
X2	Rear surface of vehicle to front of engine block	4480 mm	4220 mm	260 mm
X3	Rear surface of vehicle to firewall	3785 mm	3718 mm	67 mm
X4	Rear surface of vehicle to upper leading edge of right door	3651 mm	3645 mm	6 mm
X5	Rear surface of vehicle to upper leading edge of left door	3650 mm	3640 mm	10 mm
X6	Rear surface of vehicle to lower leading edge of right door	3642 mm	3613 mm	9 mm
X7	Rear surface of vehicle to lower leading edge of left door	3635 mm	3604 mm	31 mm
X8	Rear surface of vehicle to upper trailing edge of right door	2521 mm	2520 mm	1 mm
X9	Rear surface of vehicle to upper trailing edge of left door	2519 mm	2507 mm	12 mm
X10	Rear surface of vehicle to lower trailing edge of right door	2524 mm	2503 mm	21 mm
X11	Rear surface of vehicle to lower trailing edge of left door	2537 mm	2500 mm	37 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	3566 mm	3547 mm	19 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	3575 mm	3552 mm	23 mm
X14	Rear surface of vehicle to firewall - right side	3826 mm	3763 mm	63 mm
X15	Rear surface of vehicle to firewall - left side	3827 mm	3772 mm	5 mm
X16	Rear surface of vehicle to steering wheel center	3169 mm	3132 mm	37 mm
X17	Center of steering column to "A" post	292 mm	292 mm	0 mm
X18	Center of steering column to headliner	419 mm	381 mm	38 mm
X19	Rear surface of vehicle to right side of front bumper	5258 mm	4570 mm	688 mm
X20	Rear surface of vehicle to left side of front bumper	5258 mm	4507 mm	751 mm
X21	Length of engine block	470 mm	470 mm	0 mm

Appendix A

Photographs

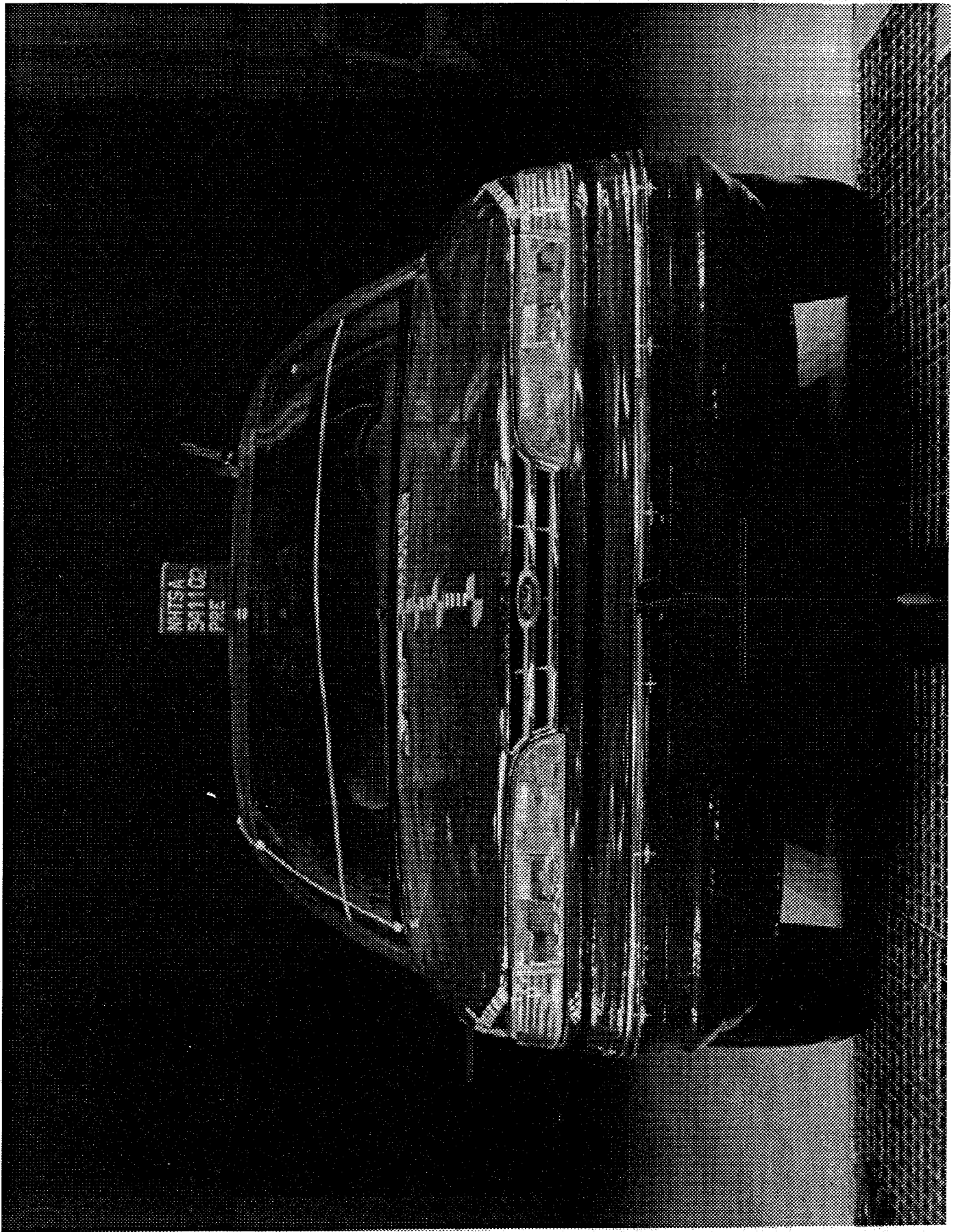


Figure A-1. Pre-Test Front View

A-2

941102

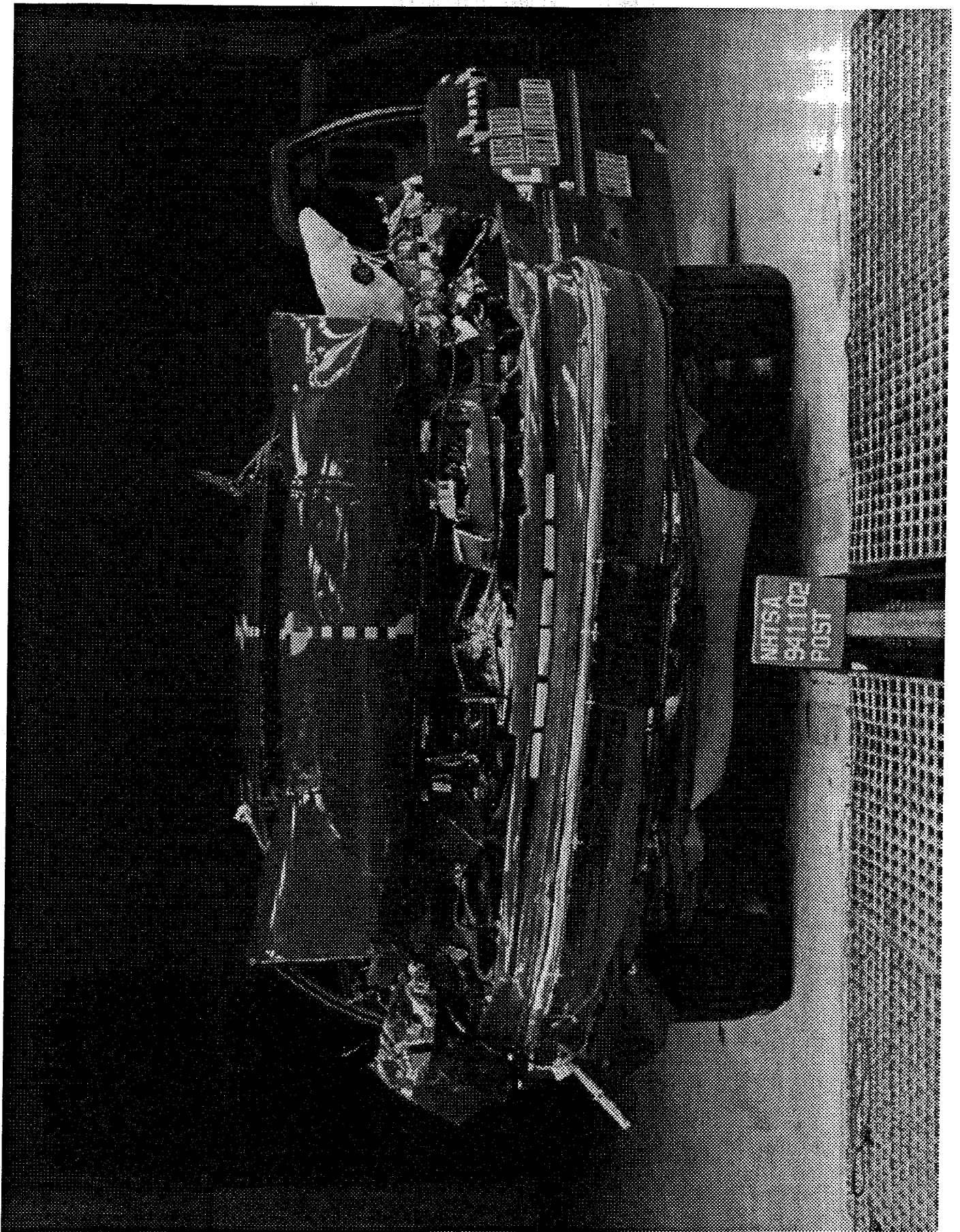


Figure A-2. Post-Test Front View
A-3

941102

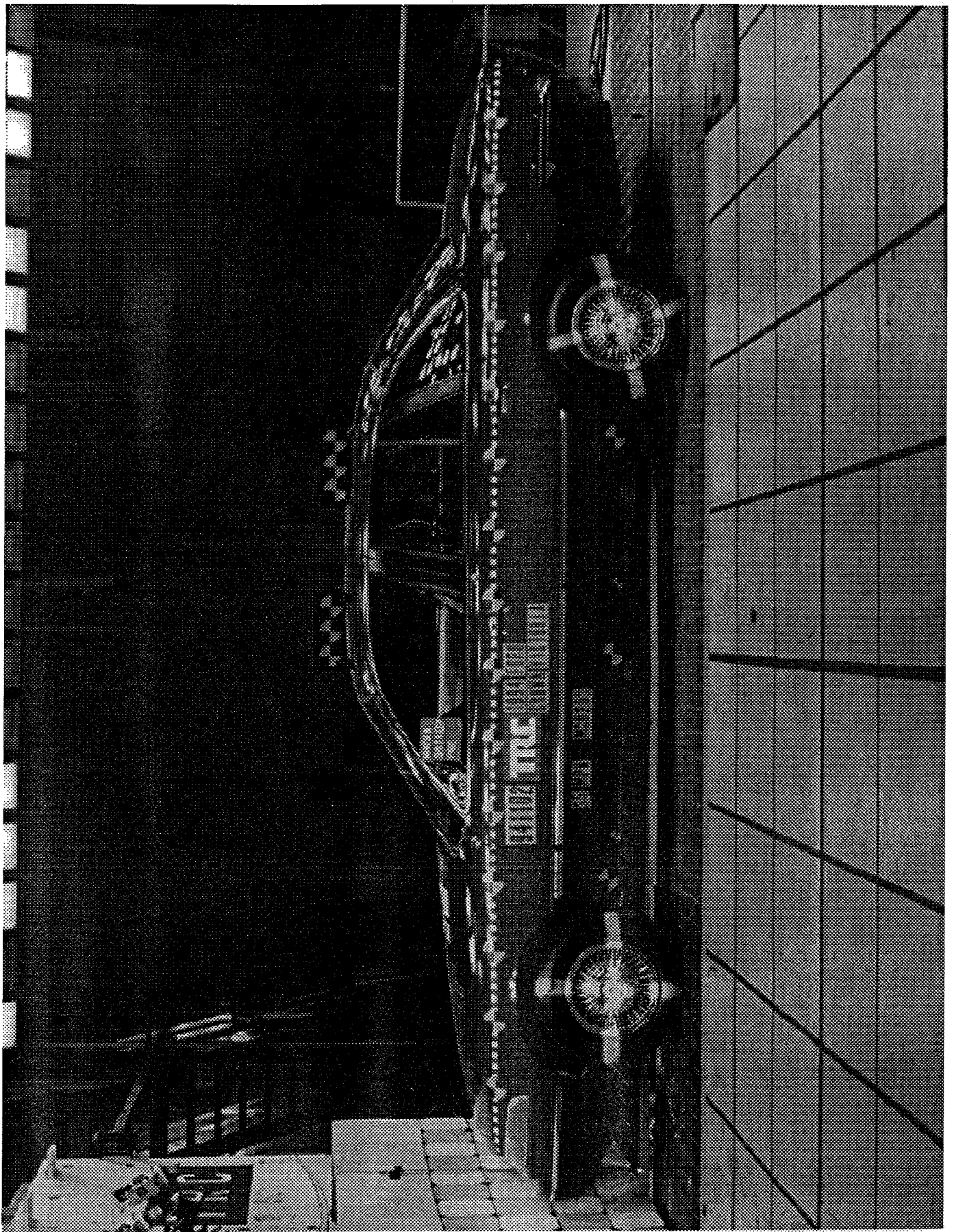


Figure A-3. Pre-Test Left Side View

A-4

941102

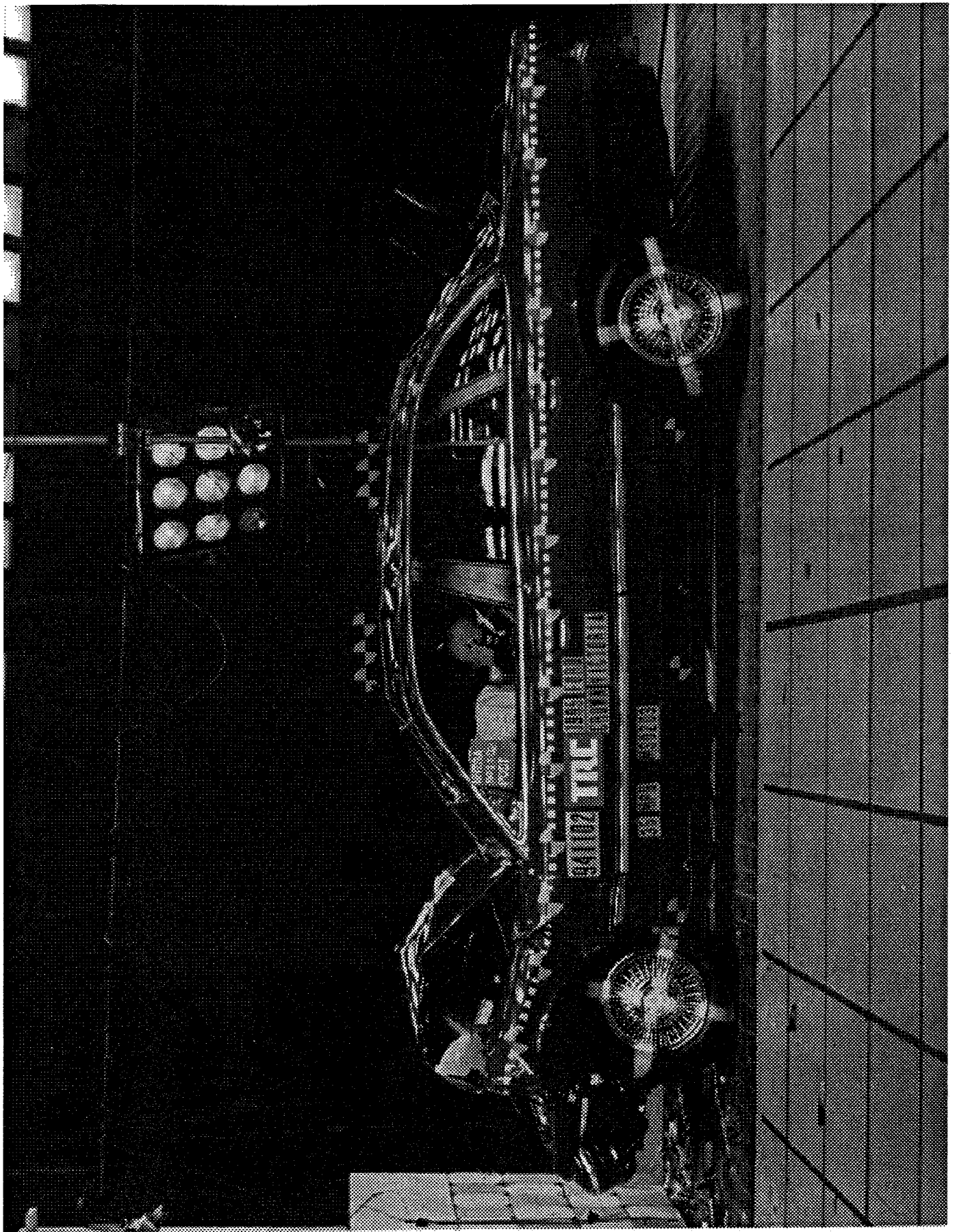


Figure A-4. Post-Test Left Side View

A-5

941102

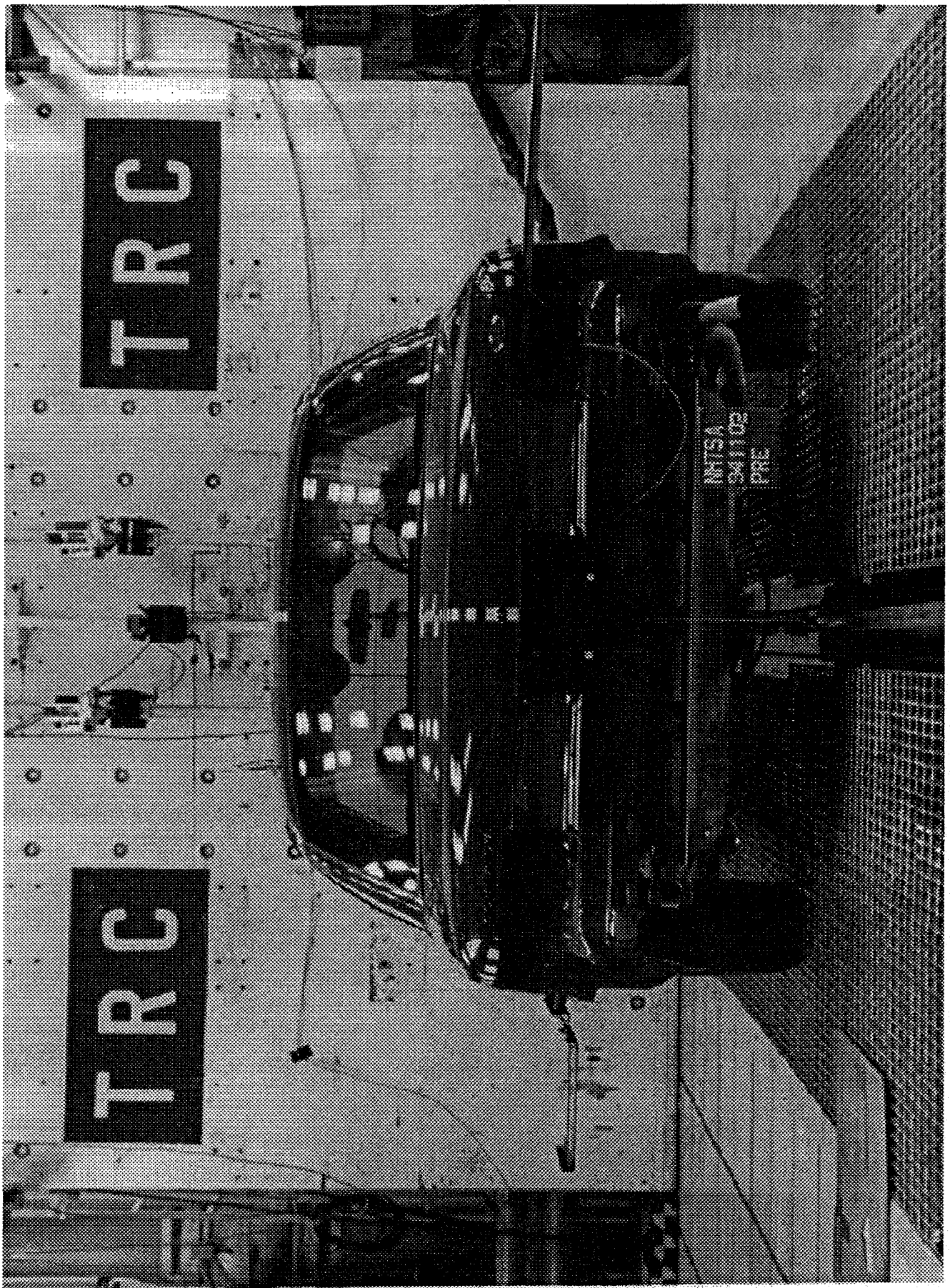


Figure A-5. Pre-Test Rear View

A-6

941102

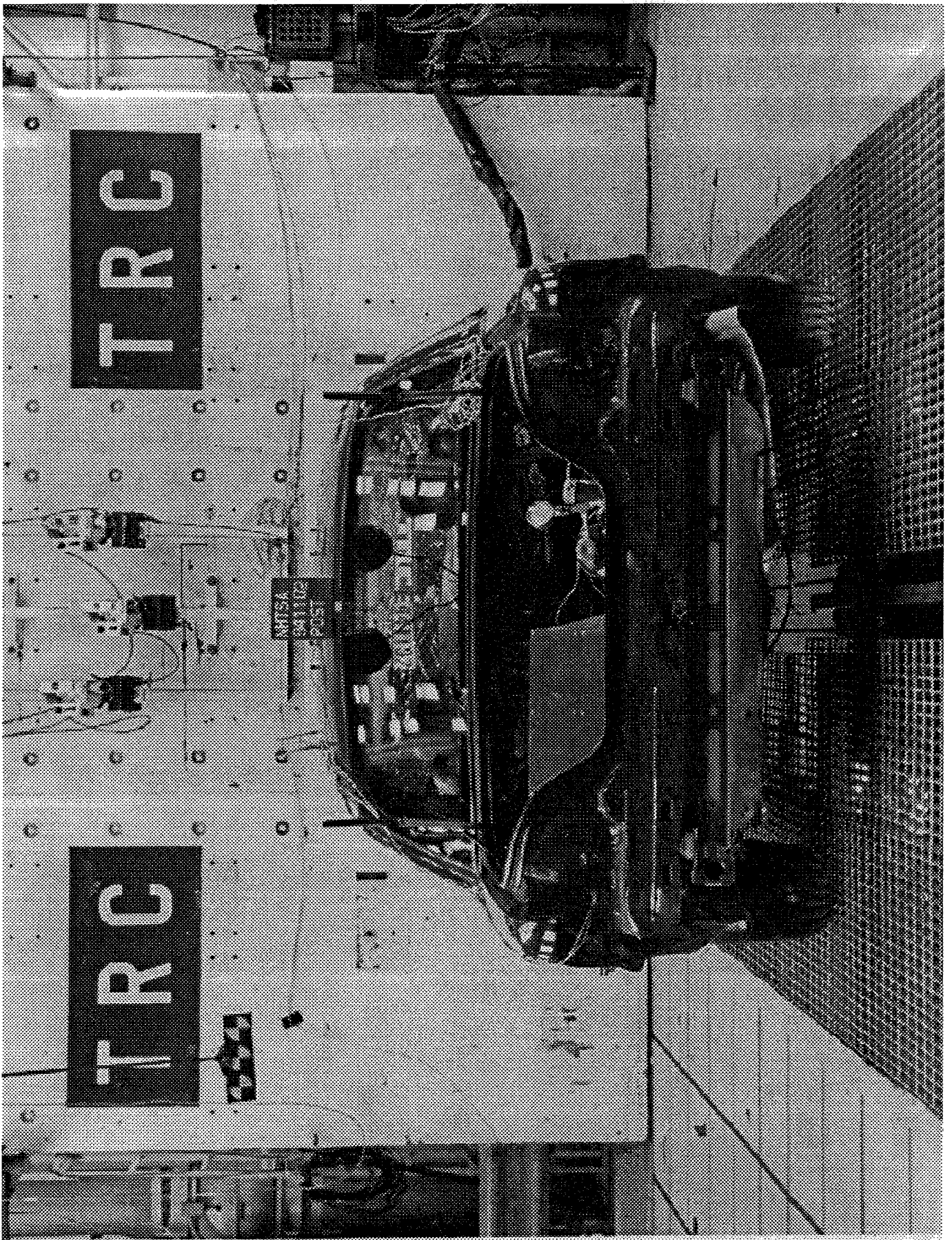


Figure A-6. Post-Test Rear View

A-7

941102

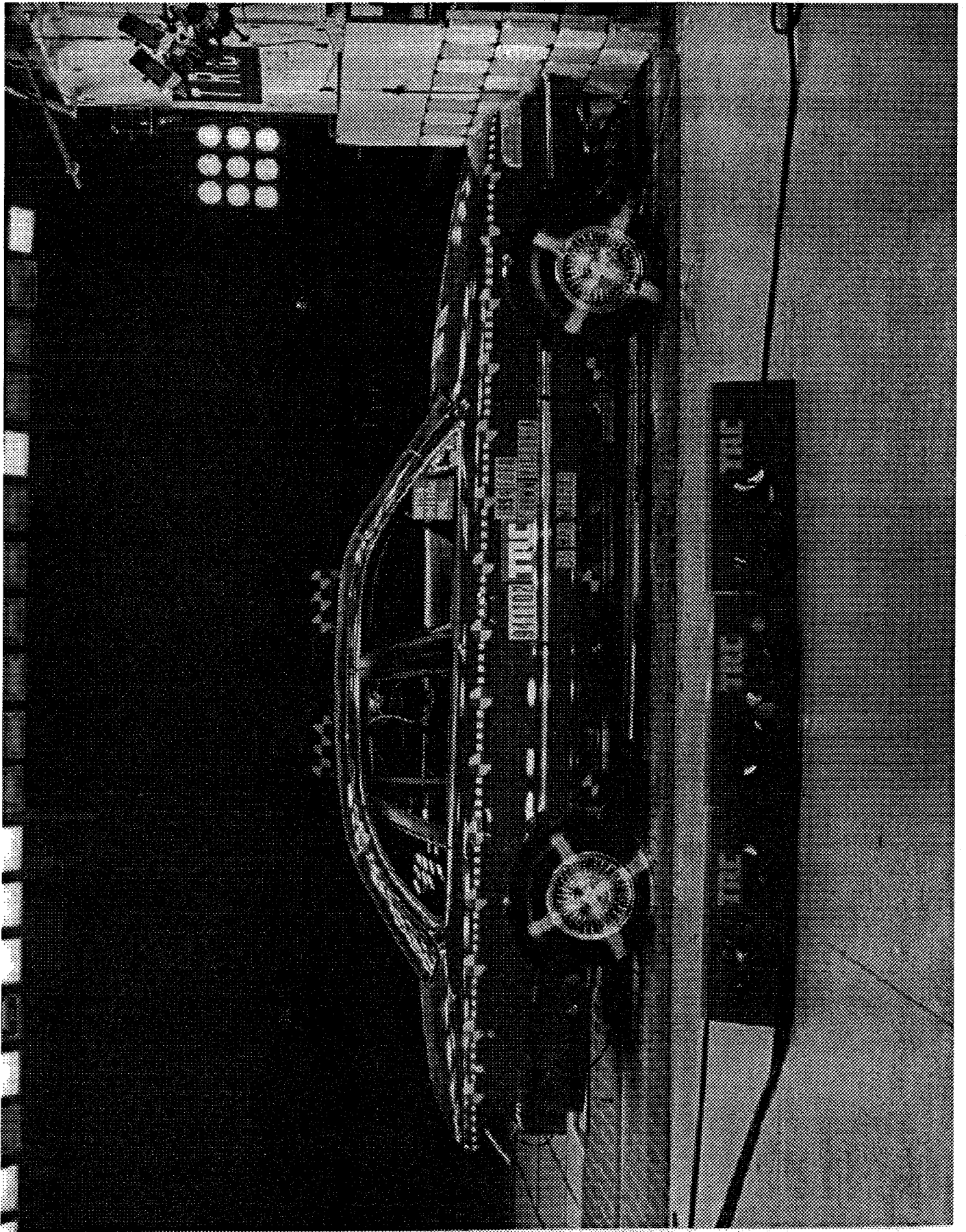


Figure A-7. Pre-Test Right Side View

A-8

941102

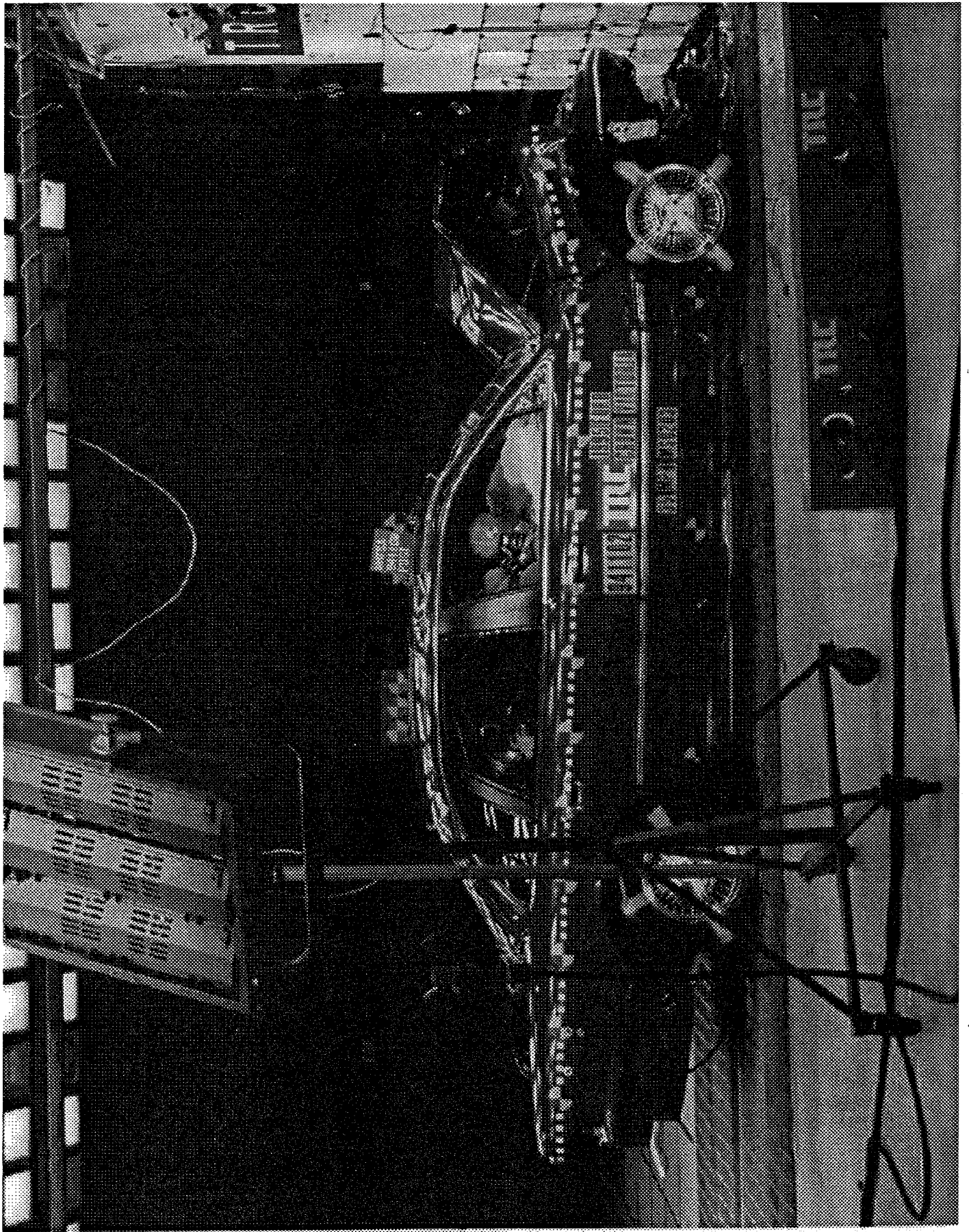


Figure A-8. Post-Test Right Side View

A-9

941102

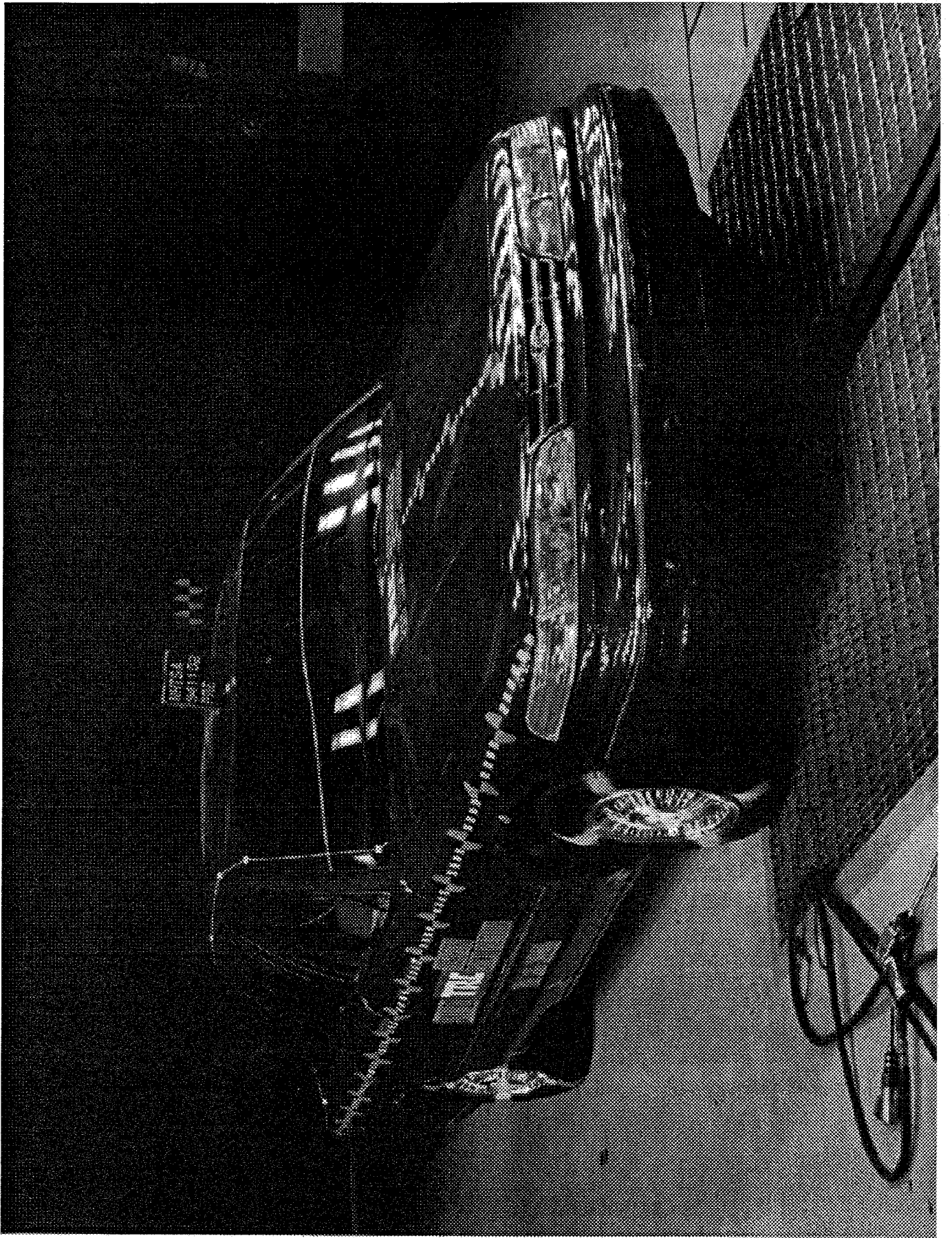


Figure A-9. Pre-Test Right Front Three-Quarter View

A-10

941102

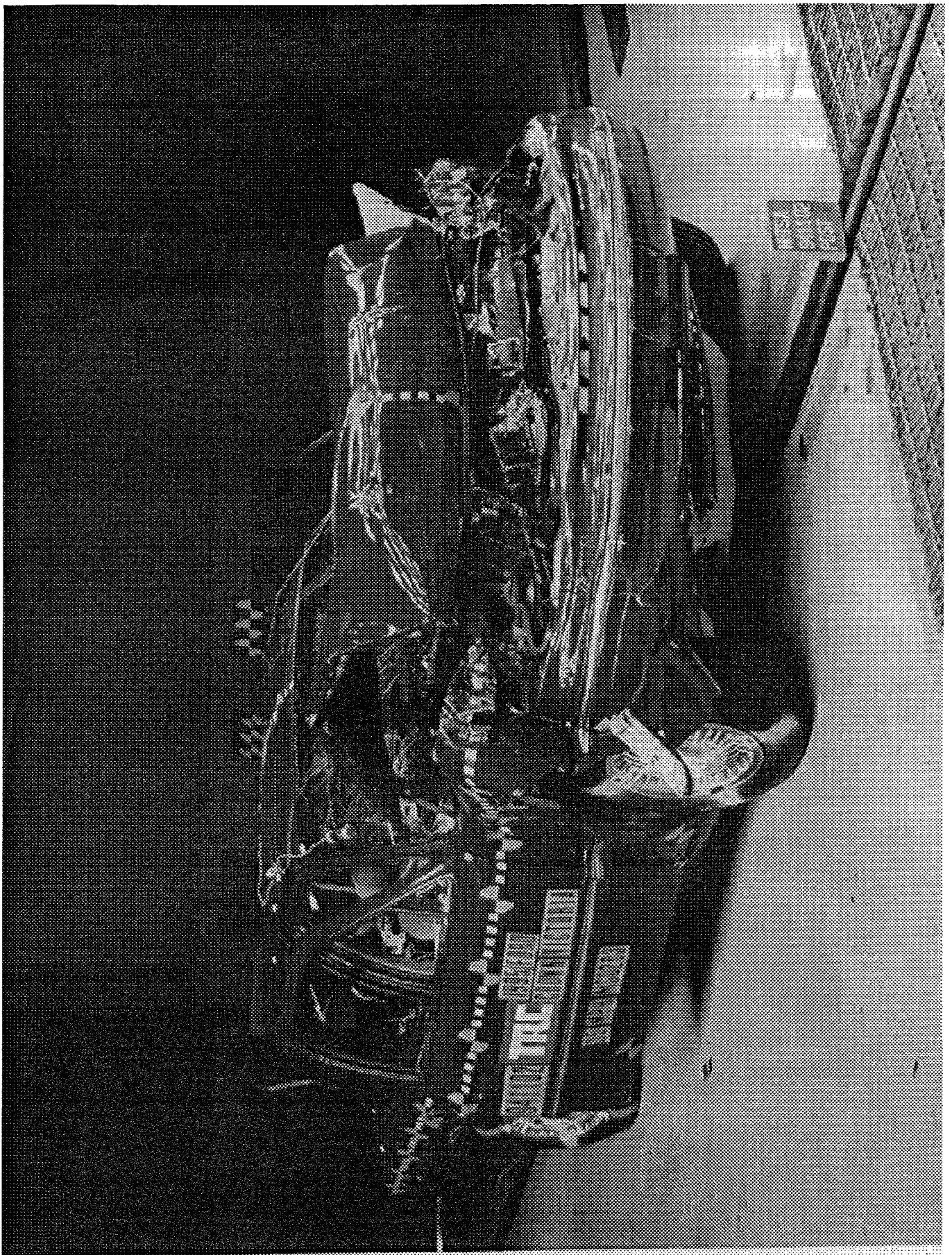


Figure A-10. Post-Test Right Front Three-Quarter View

A-11

941102



Figure A-11. Pre-Test Left Rear Three-Quarter View

A-12

941102

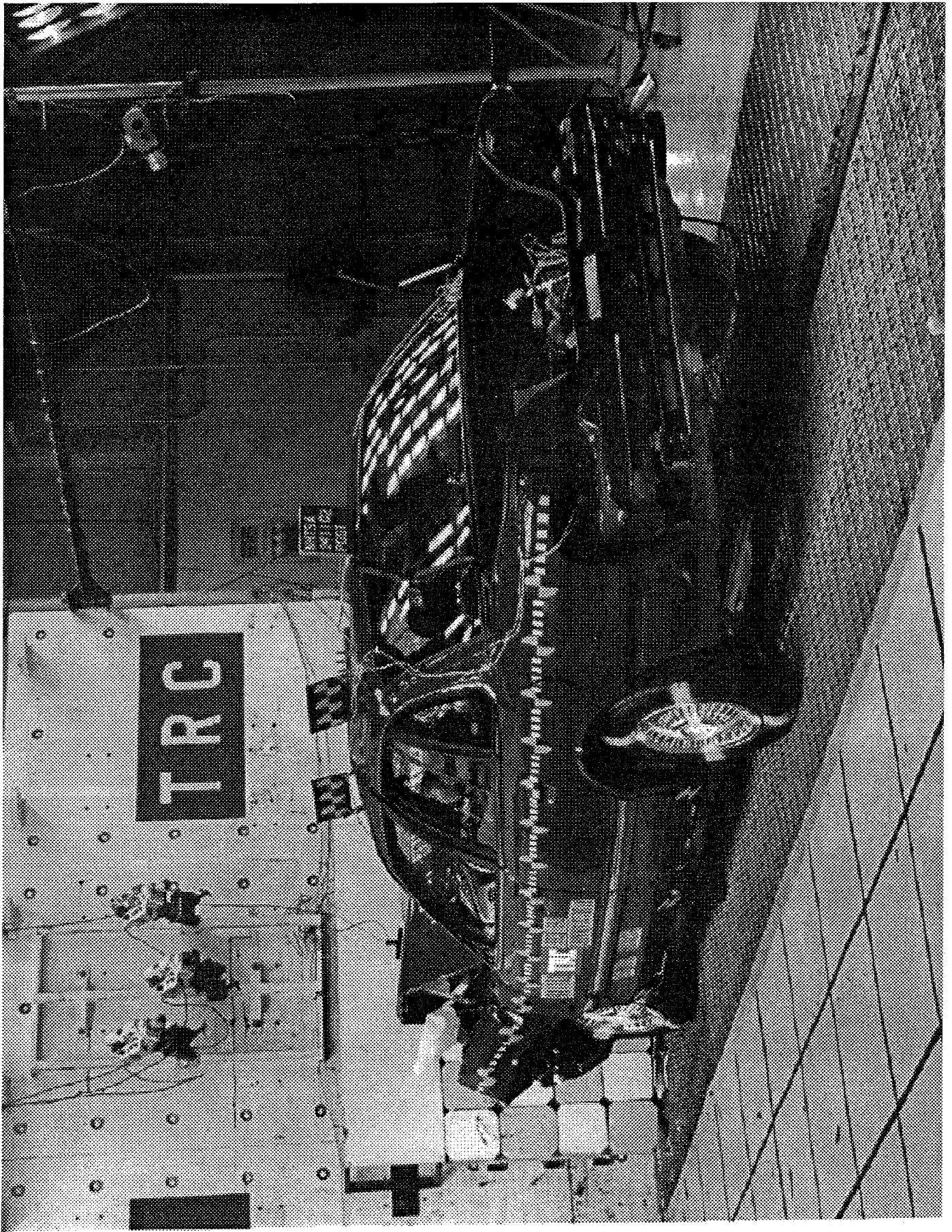


Figure A-12. Post-Test Left Rear Three-Quarter View

A-13

941102

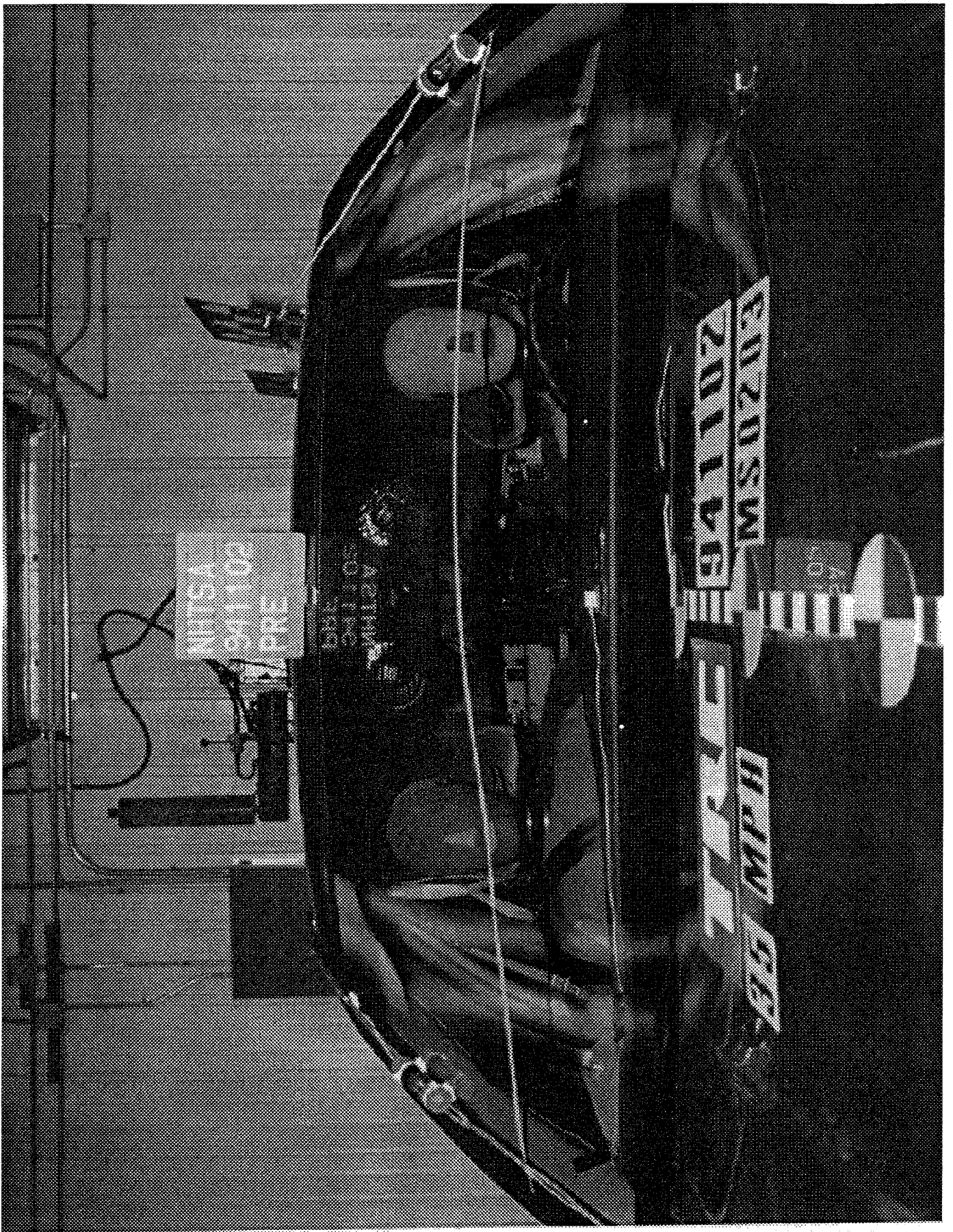


Figure A-13. Pre-Test Windshield View

A-14

941102

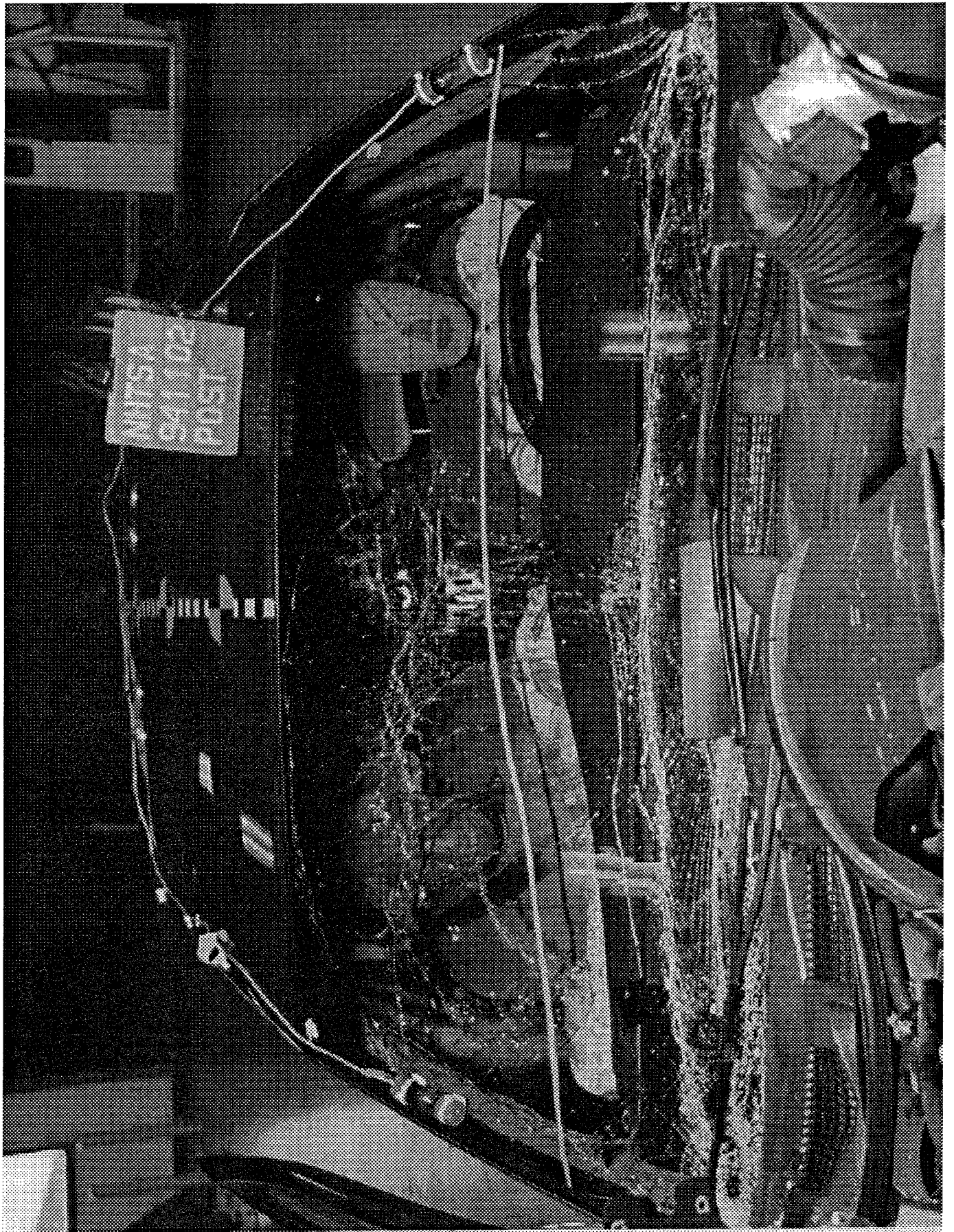


Figure A-14. Post-Test Windshield View
A-15

941102



Figure A-15. Post-Test Engine Compartment View

A-16

941102

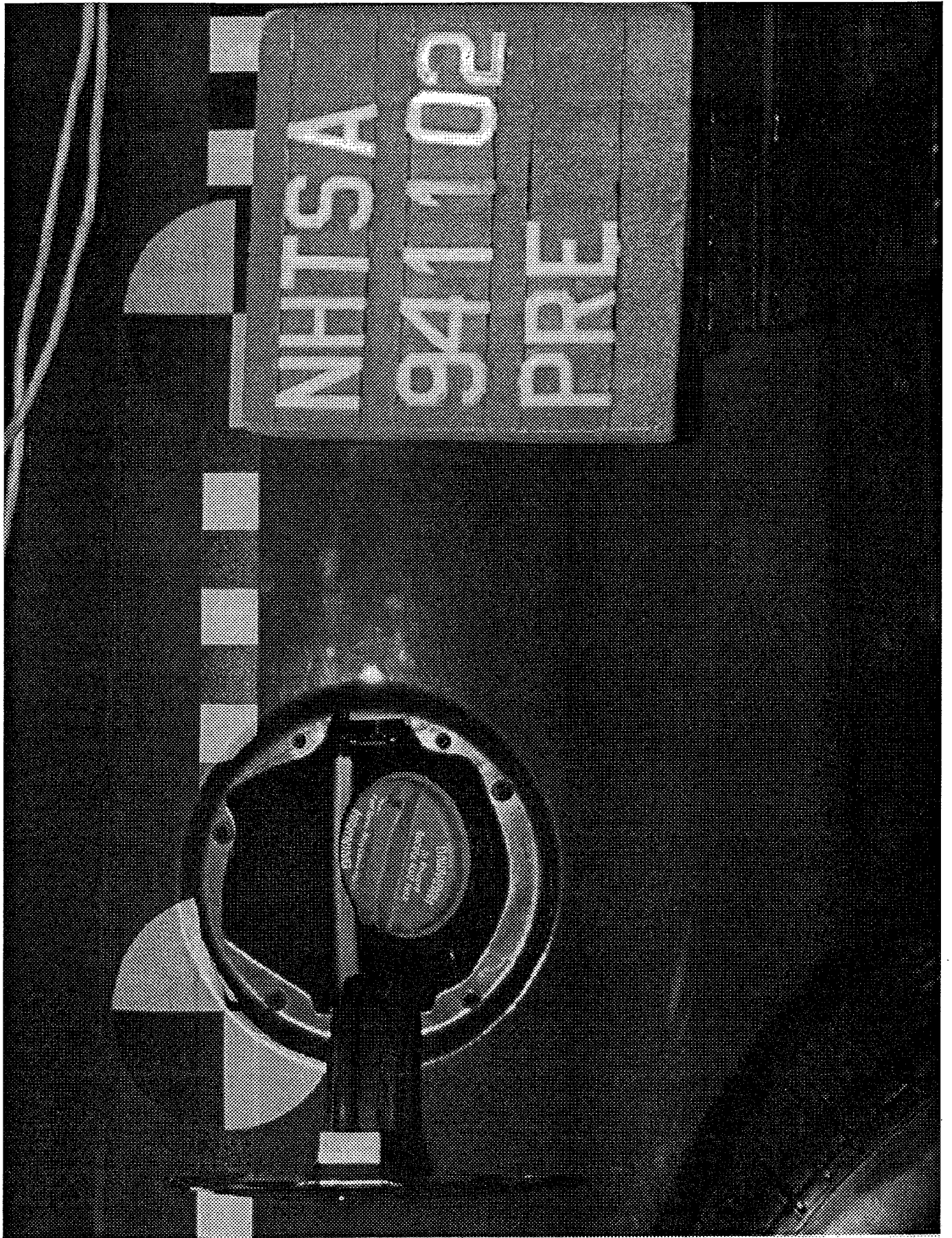


Figure A-16. Pre-Test Fuel Filler Cap View

A-17

941102

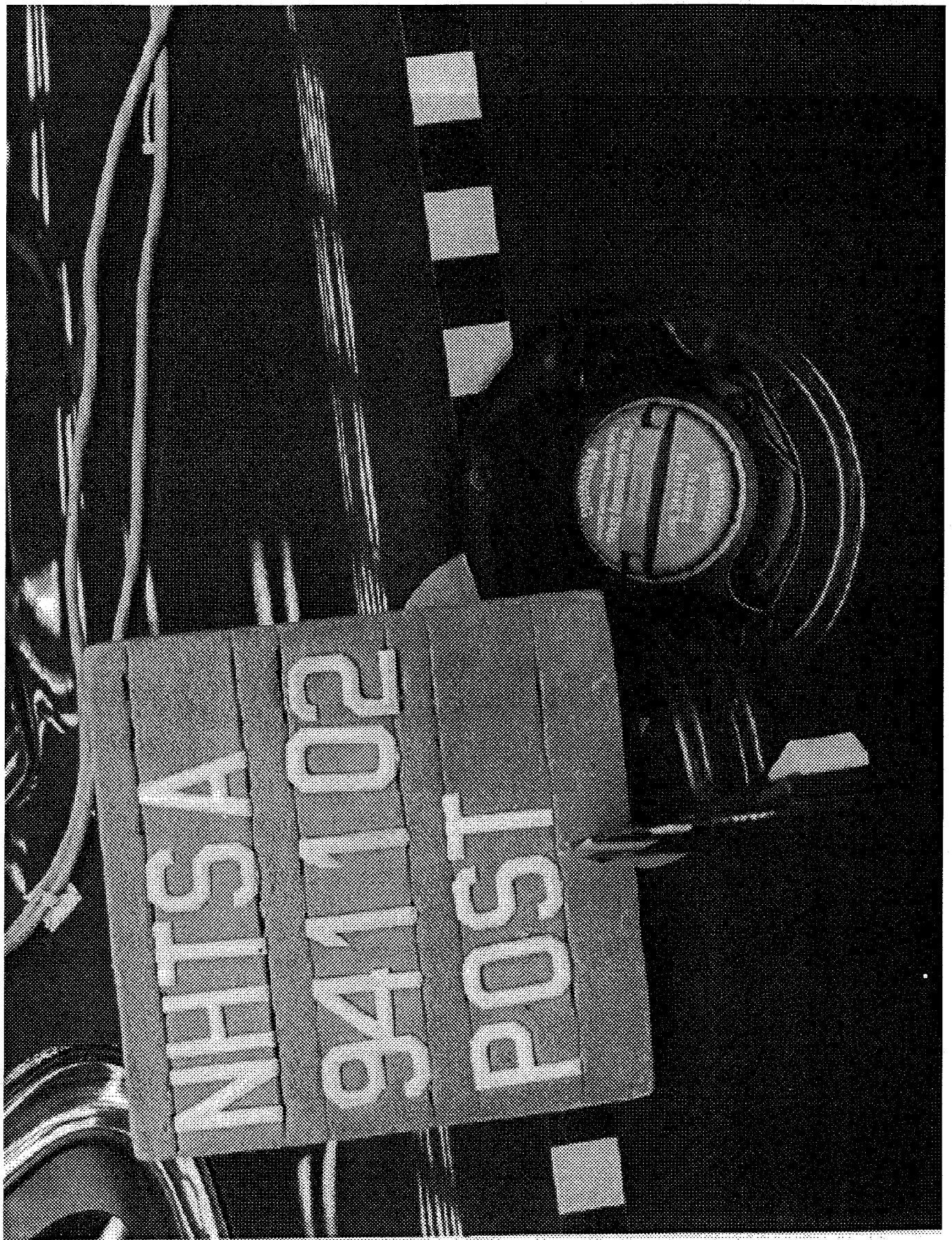


Figure A-17. Post-Test Fuel Filler Cap View

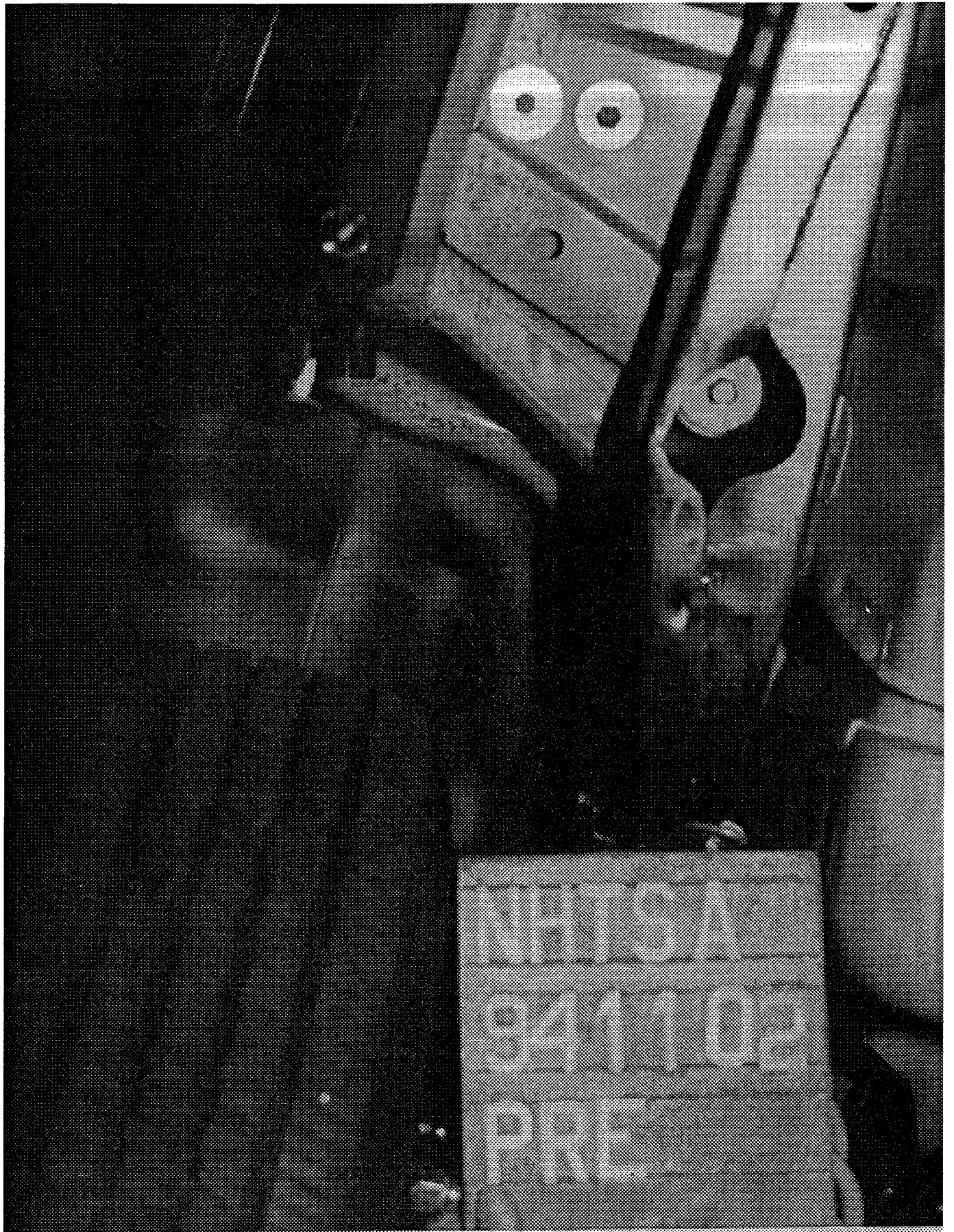


Figure A-18. Pre-Test Fuel Filler Neck View
A-19

941102

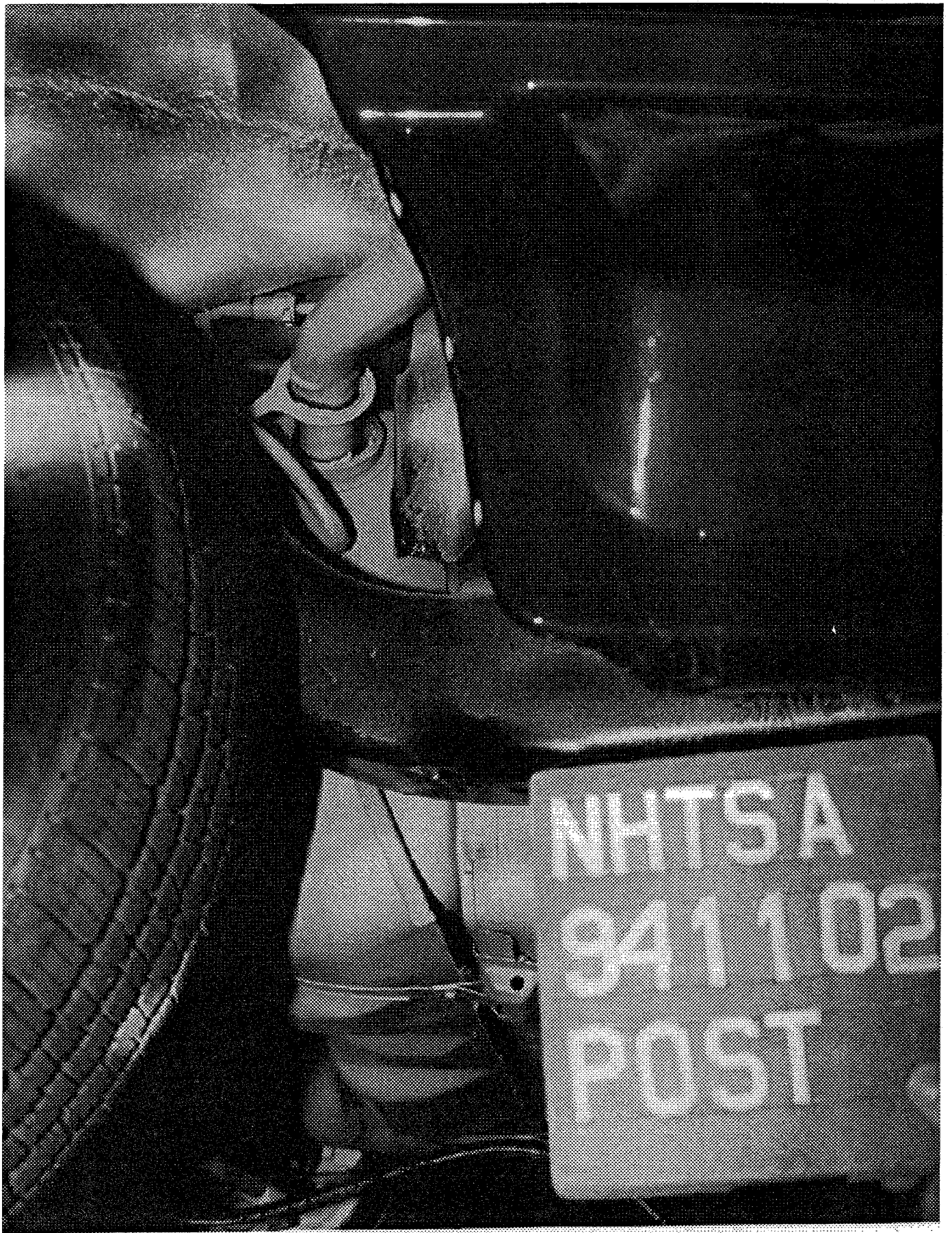


Figure A-19. Post-Test Fuel Filler Neck View

A-20

941102

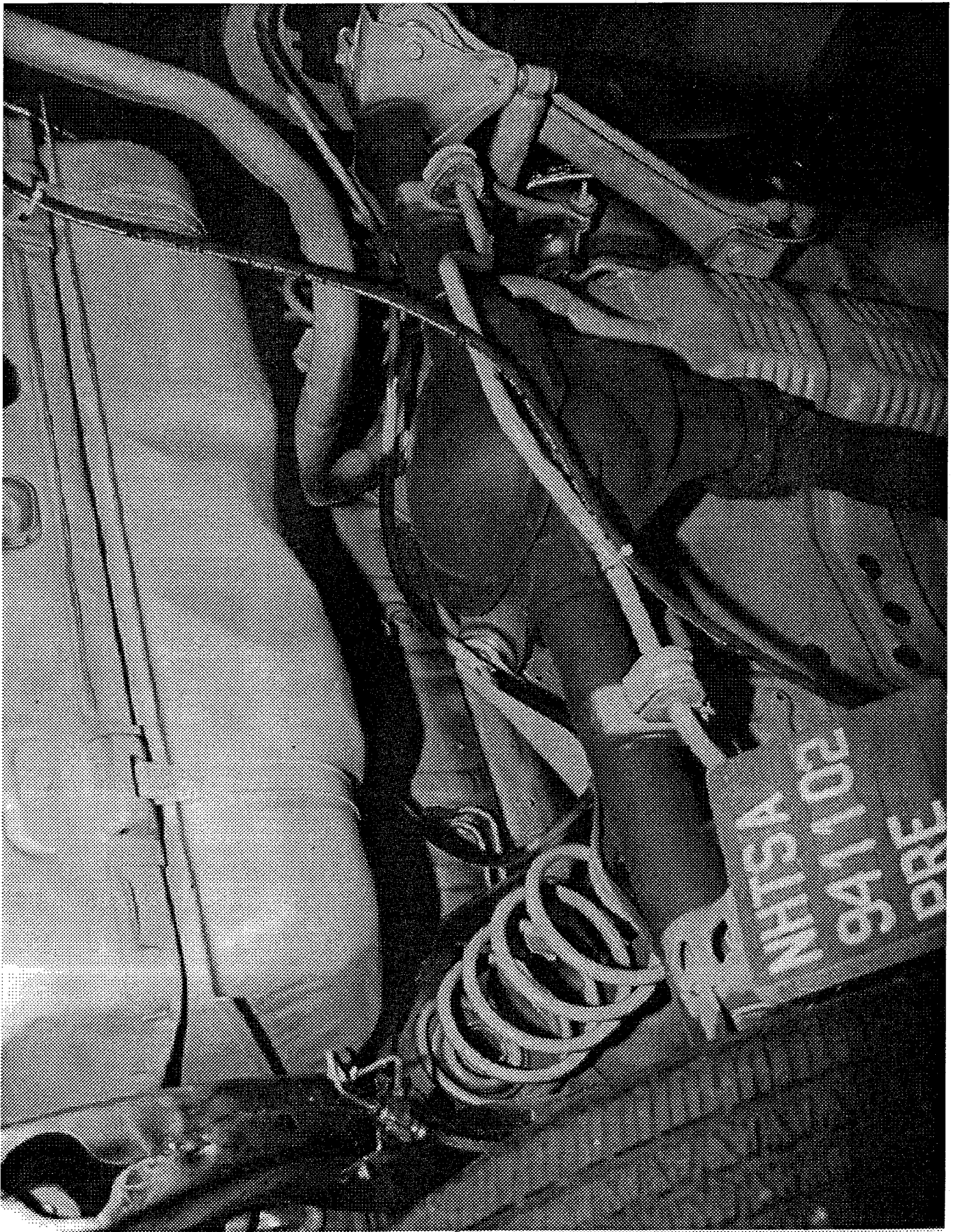


Figure A-20. Pre-Test Fuel Tank View
A-21

941102

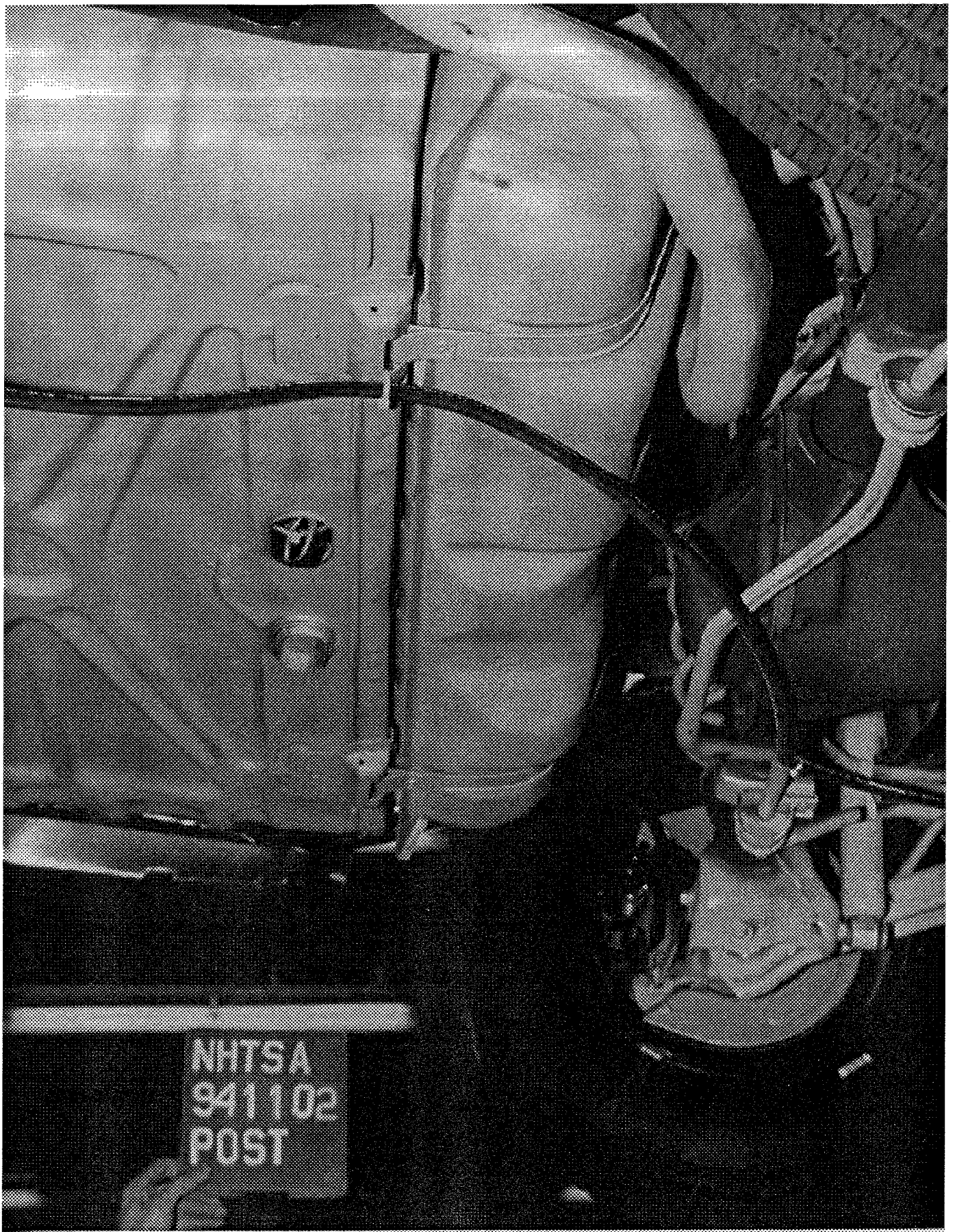


Figure A-21. Post-Test Fuel Tank View

A-22

941102

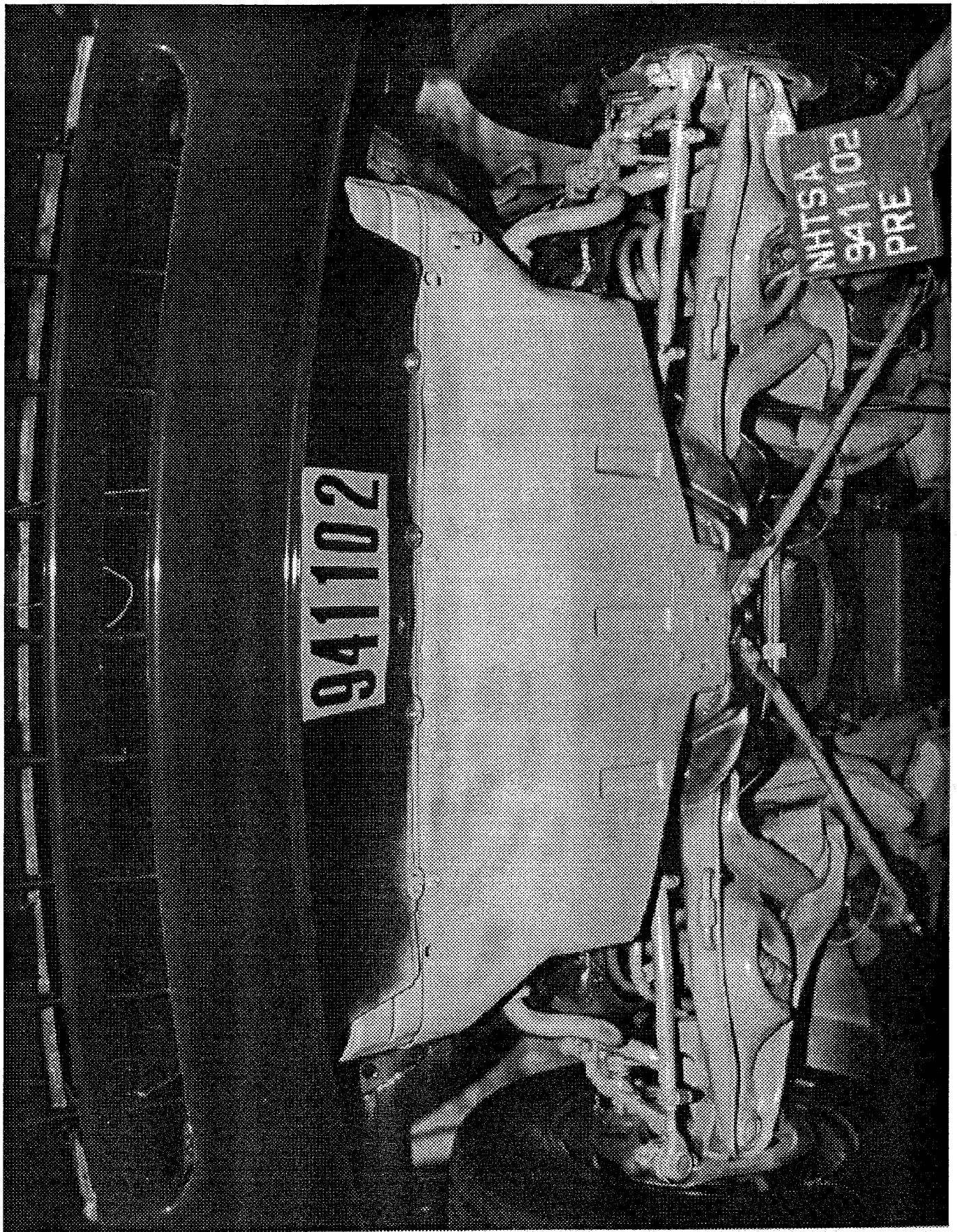


Figure A-22. Pre-Test Front Underbody View

A-23

941102

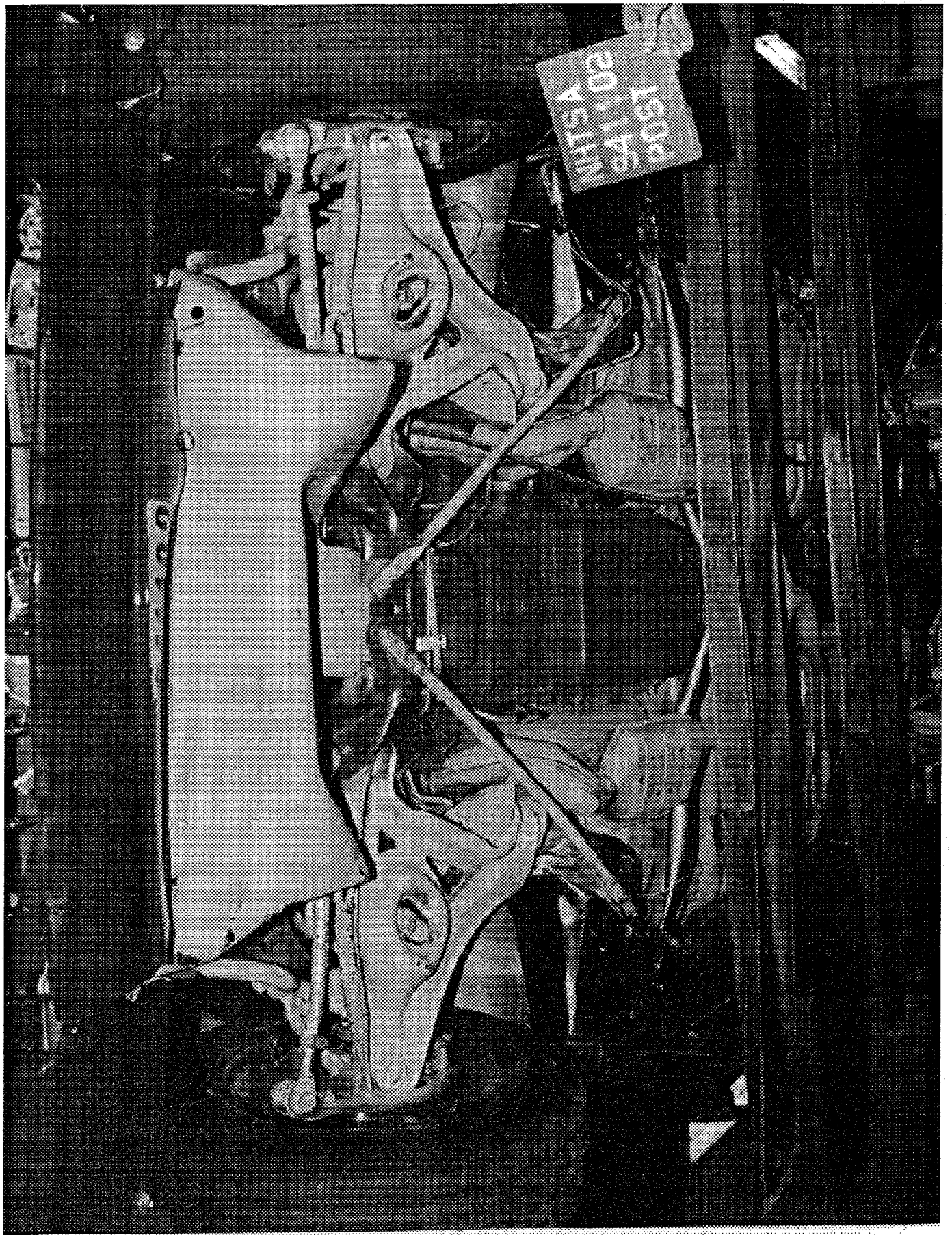


Figure A-23. Post-Test Front Underbody View
A-24

941102

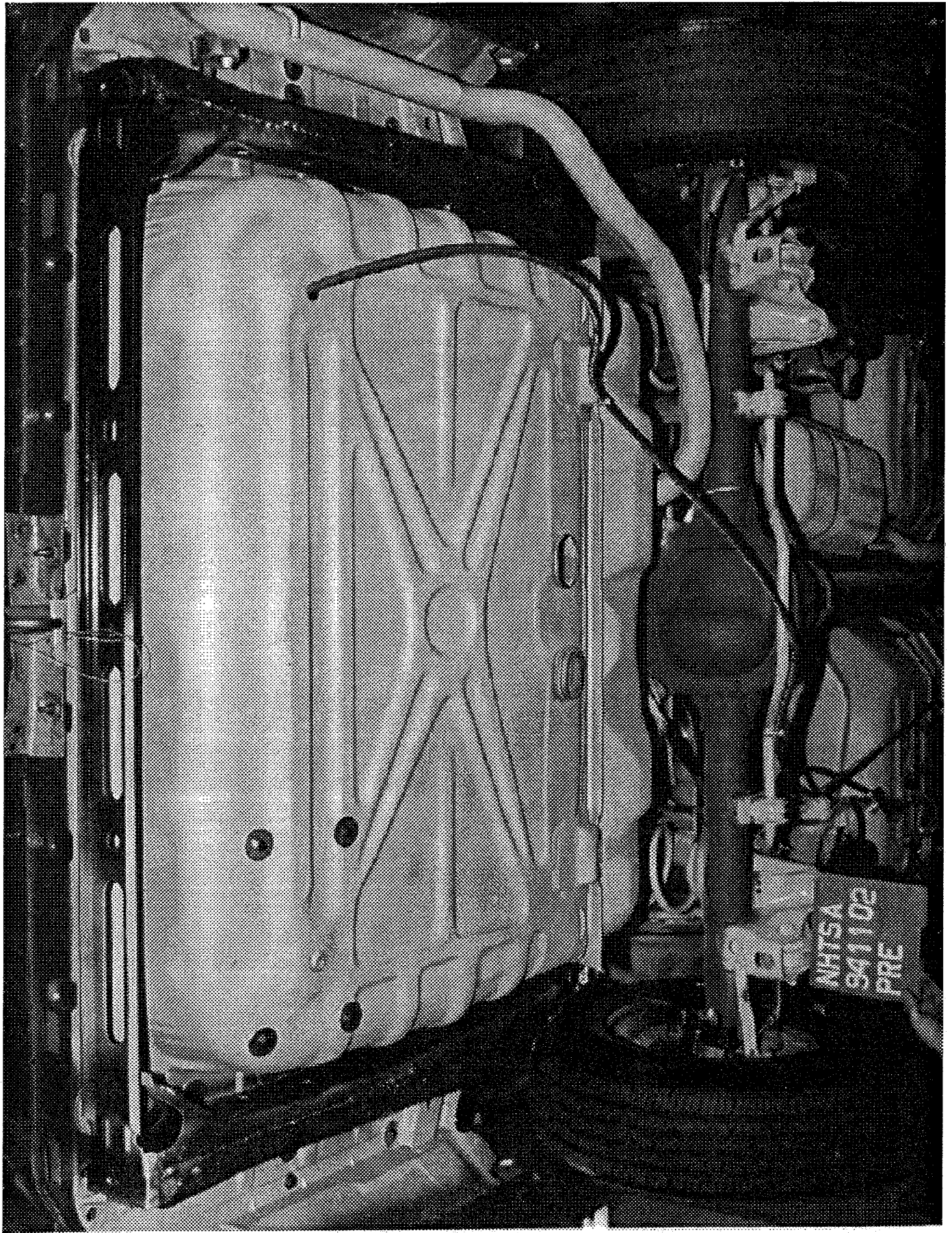


Figure A-24. Pre-Test Rear Underbody View
A-25

941102

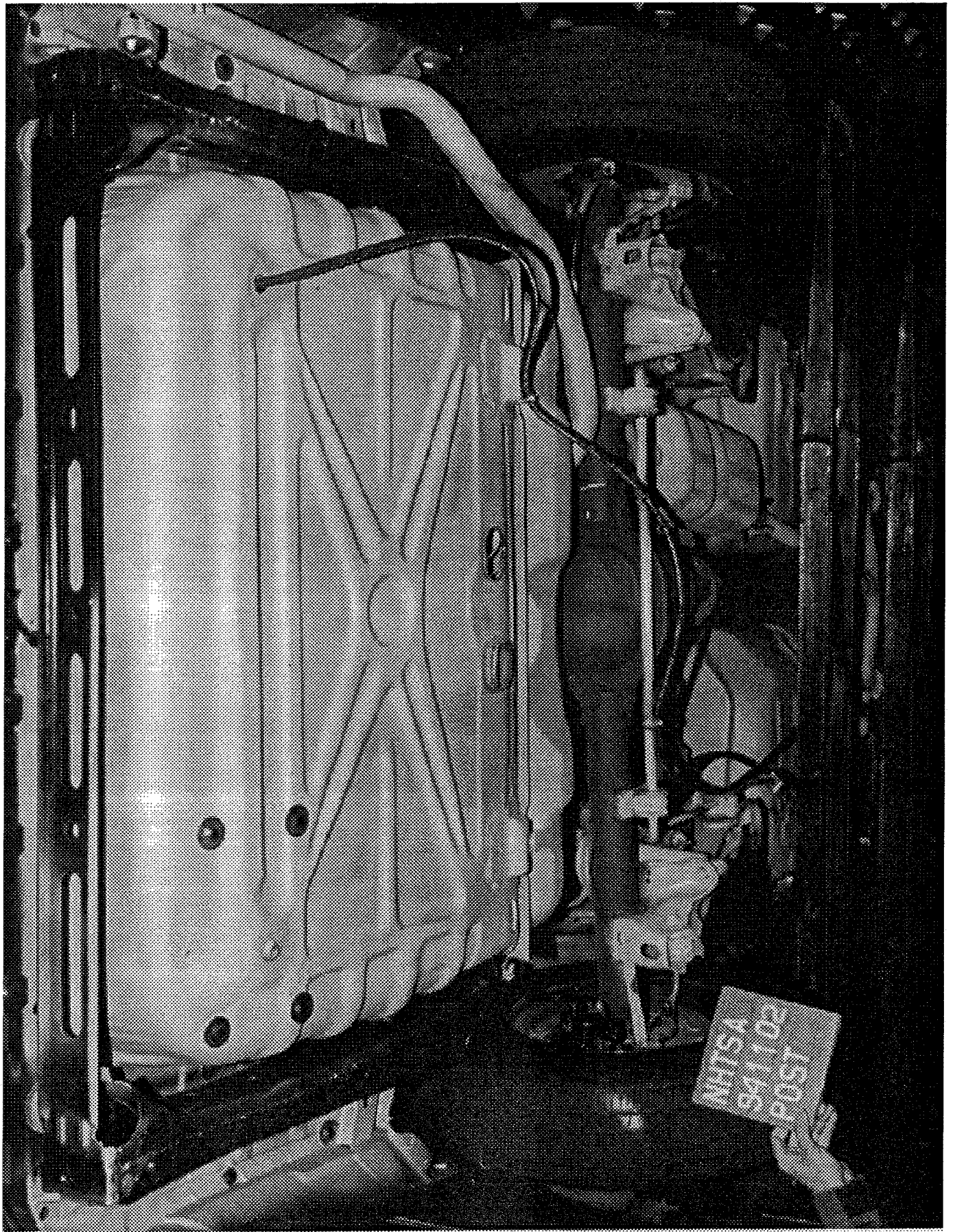


Figure A-25. Post-Test Rear Underbody View
A-26

941102

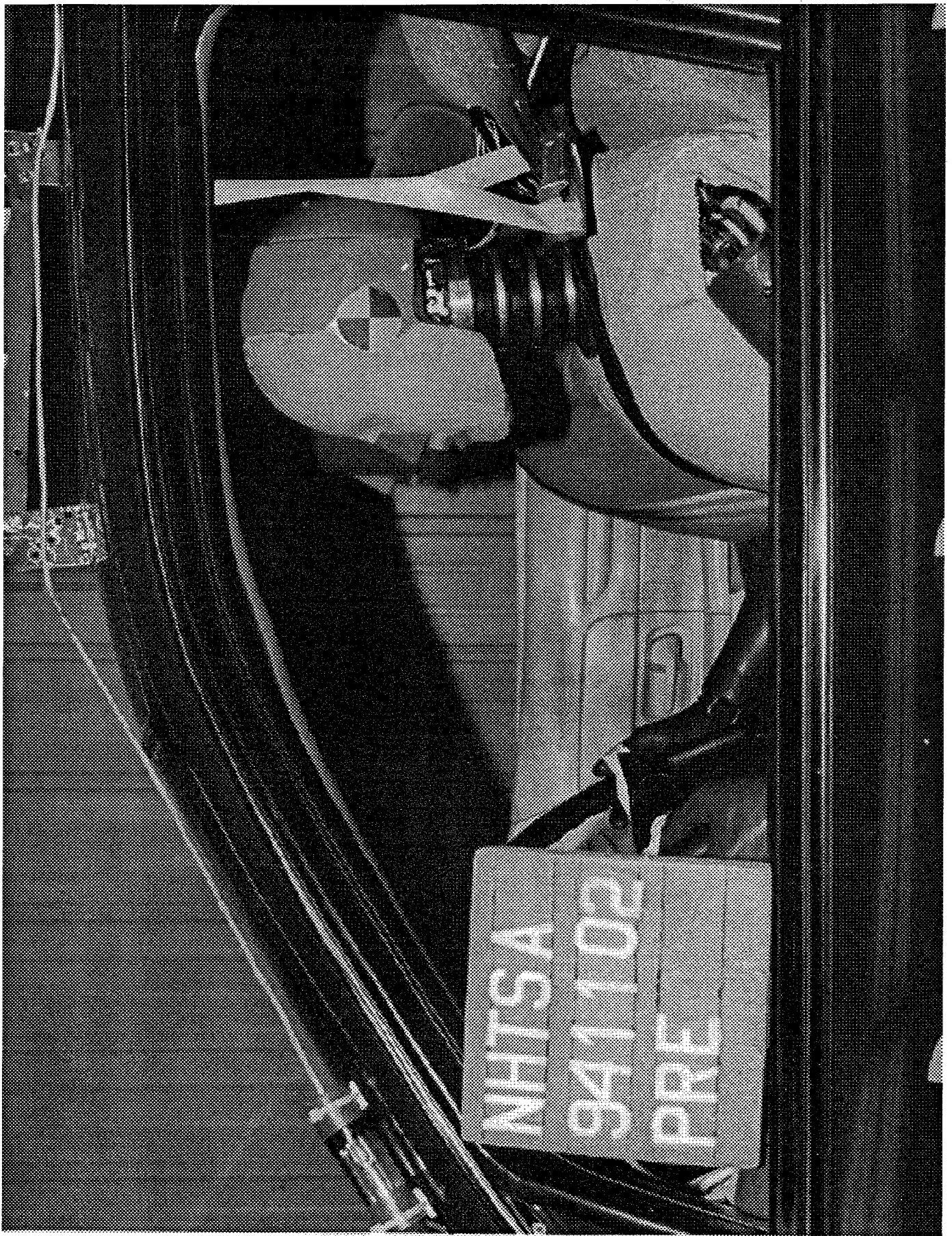


Figure A-26. Pre-Test Driver Dummy Position

A-27

941102

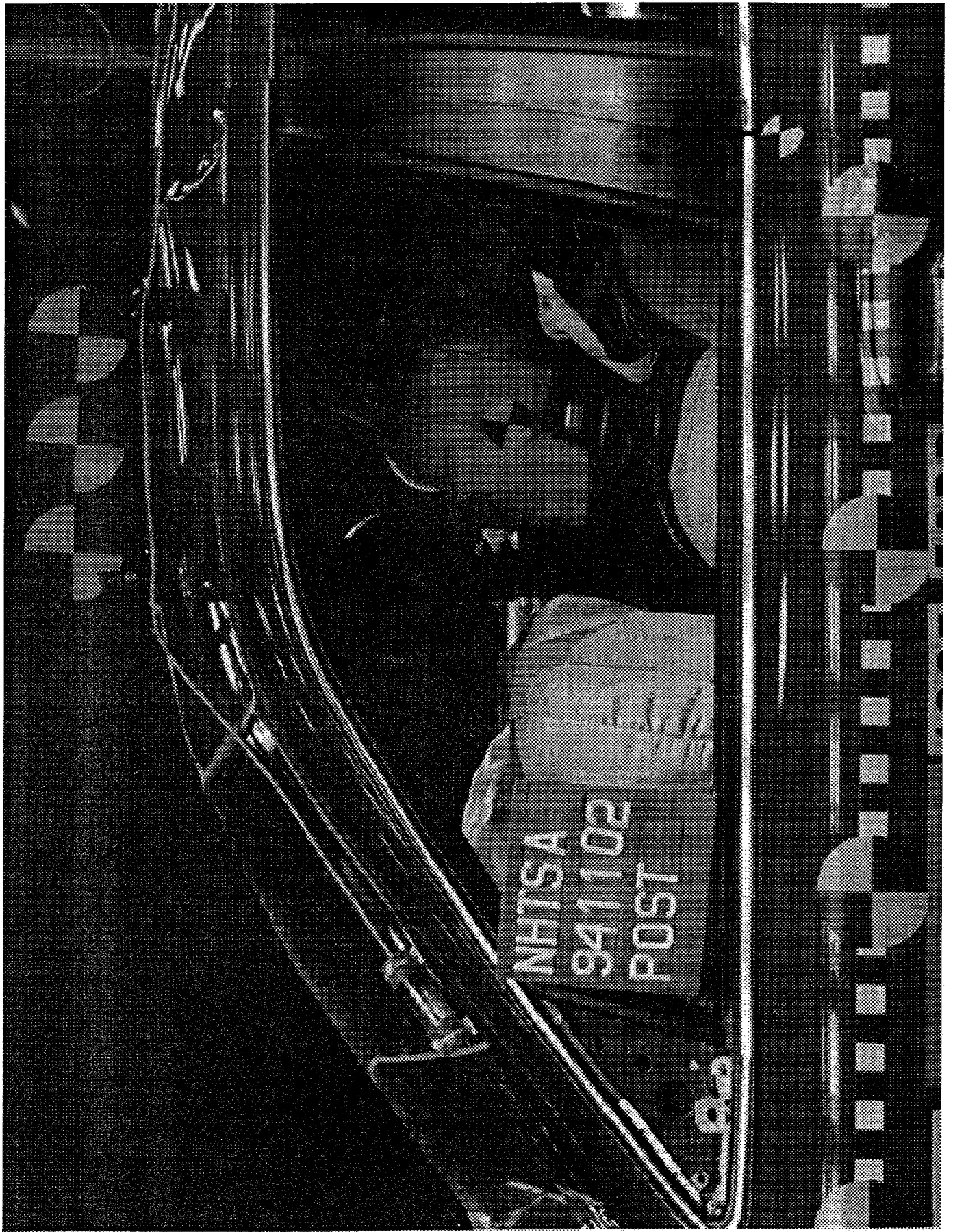


Figure A-27. Post-Test Driver Dummy Position

A-28

941102

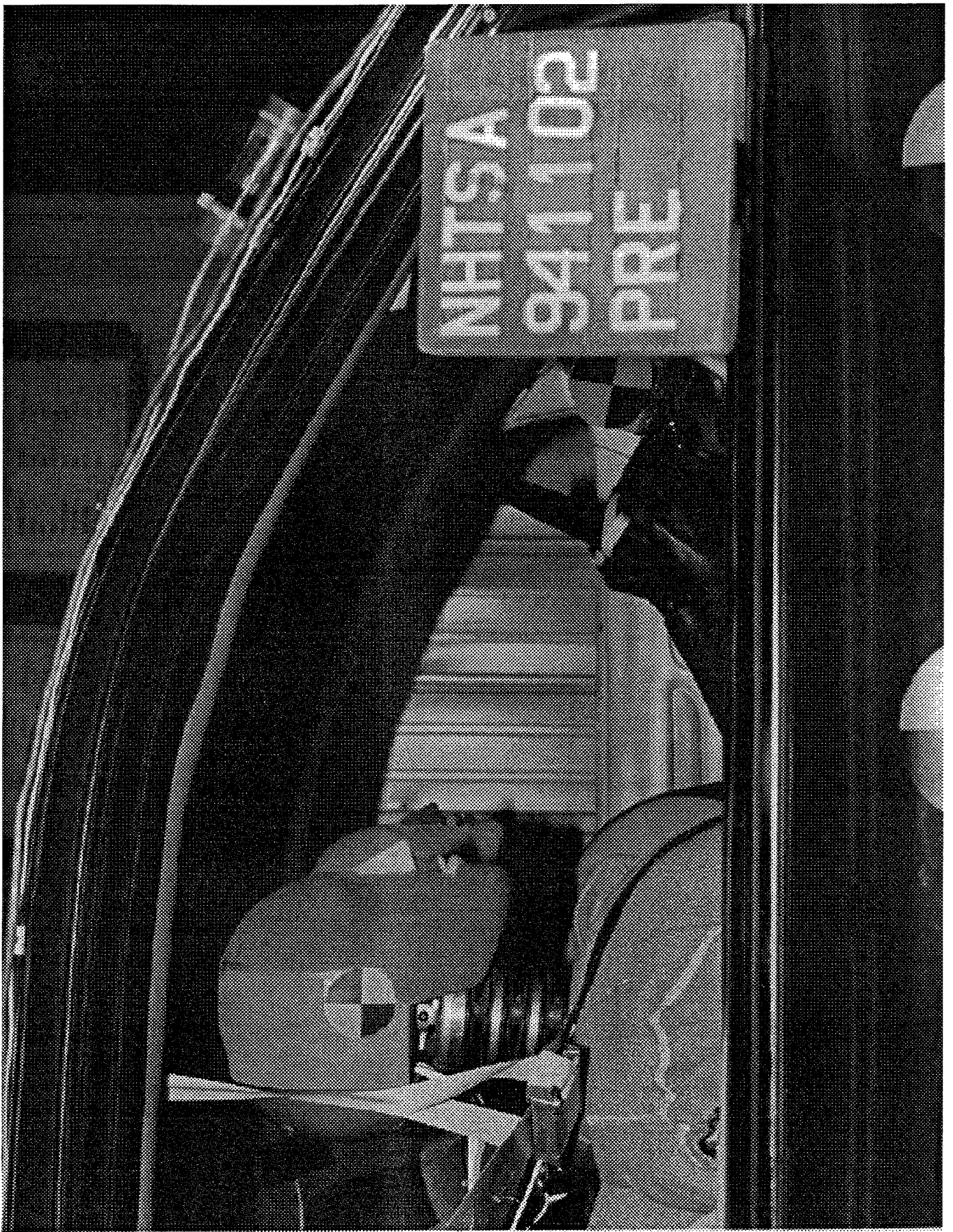


Figure A-28. Pre-Test Passenger Dummy Position

A-29

941102

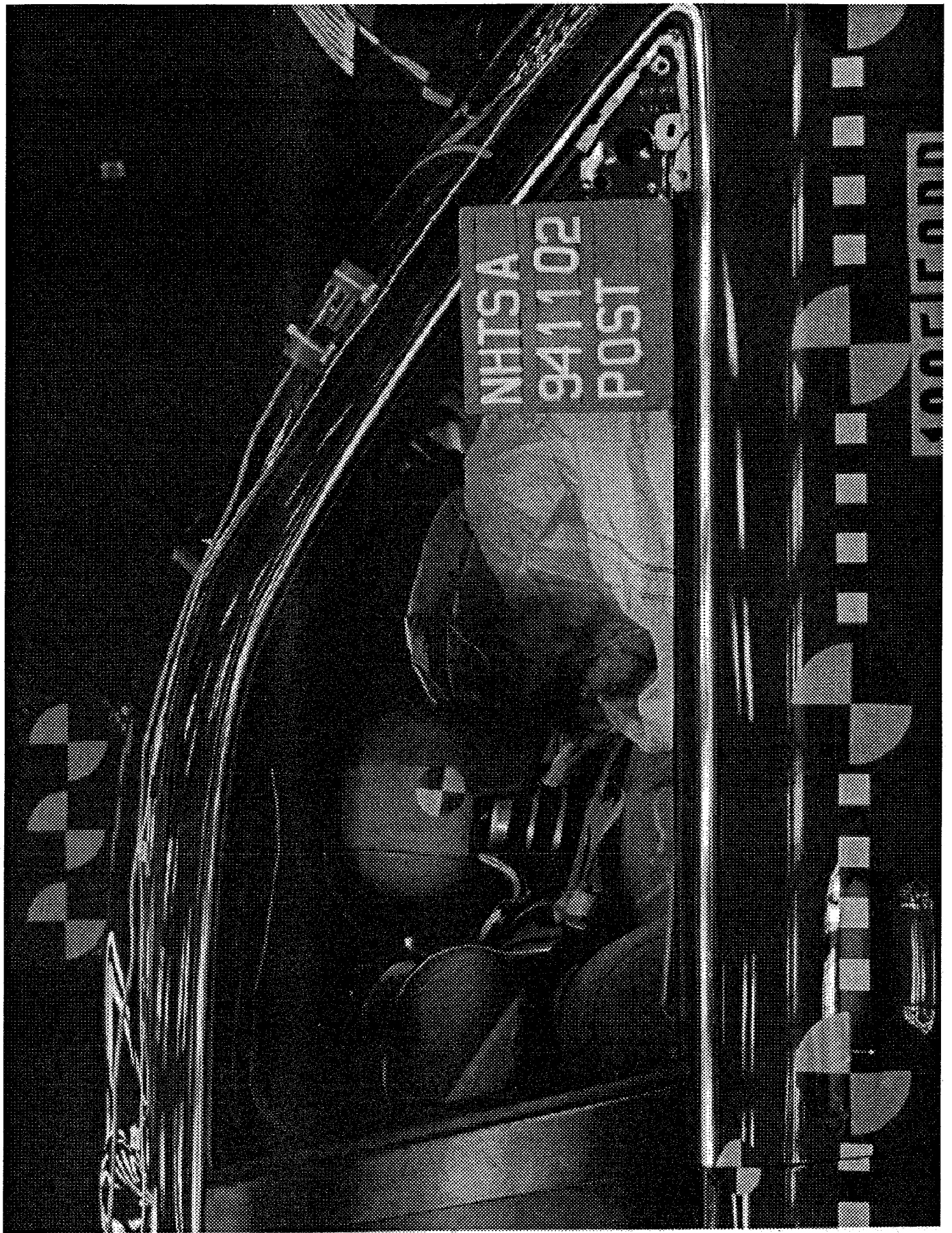


Figure A-29. Post-Test Passenger Dummy Position

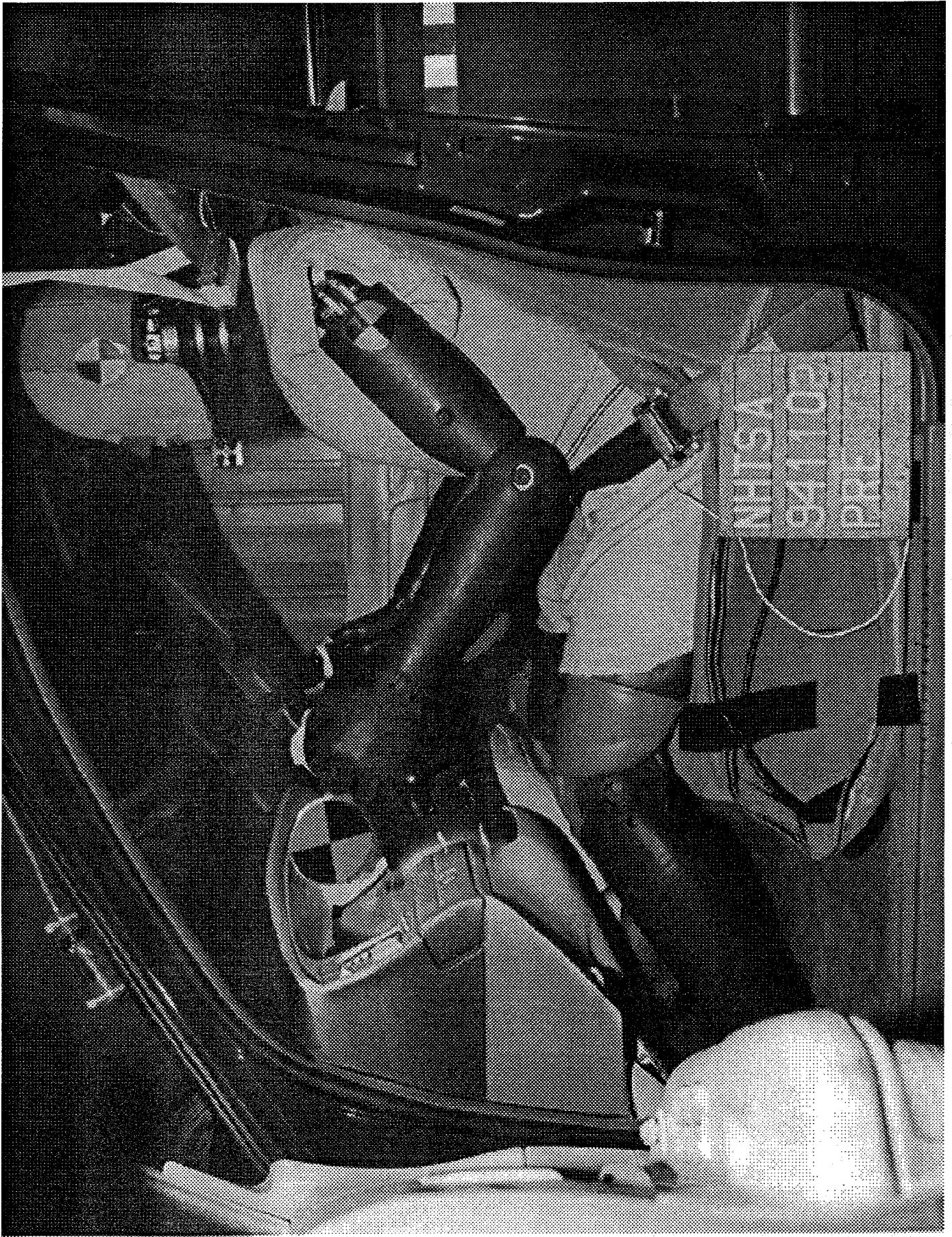


Figure A-30. Pre-Test Driver Dummy & Vehicle Interior - View 1

A-31

941102

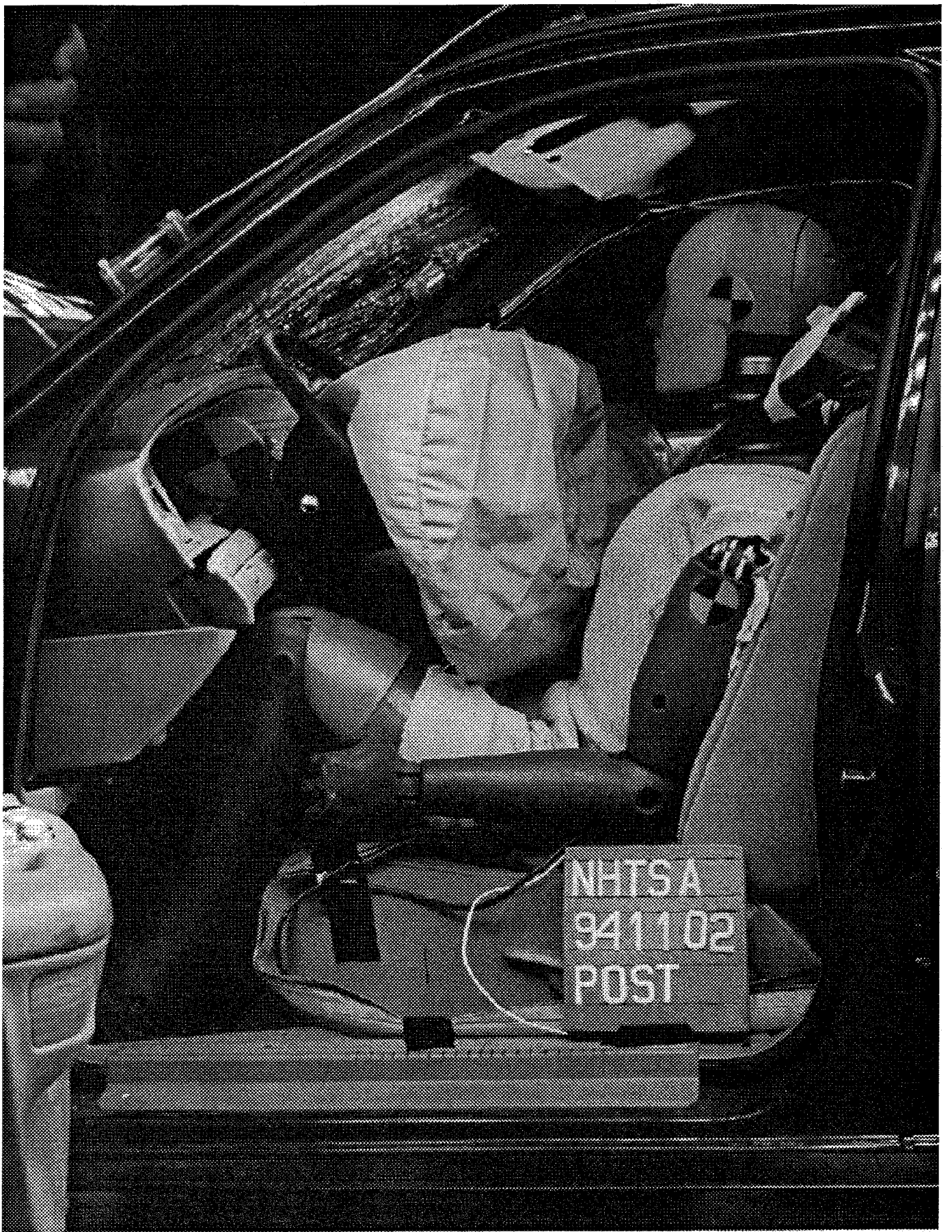


Figure A-31. Post-Test Driver Dummy & Vehicle Interior - View 1

A-32

941102

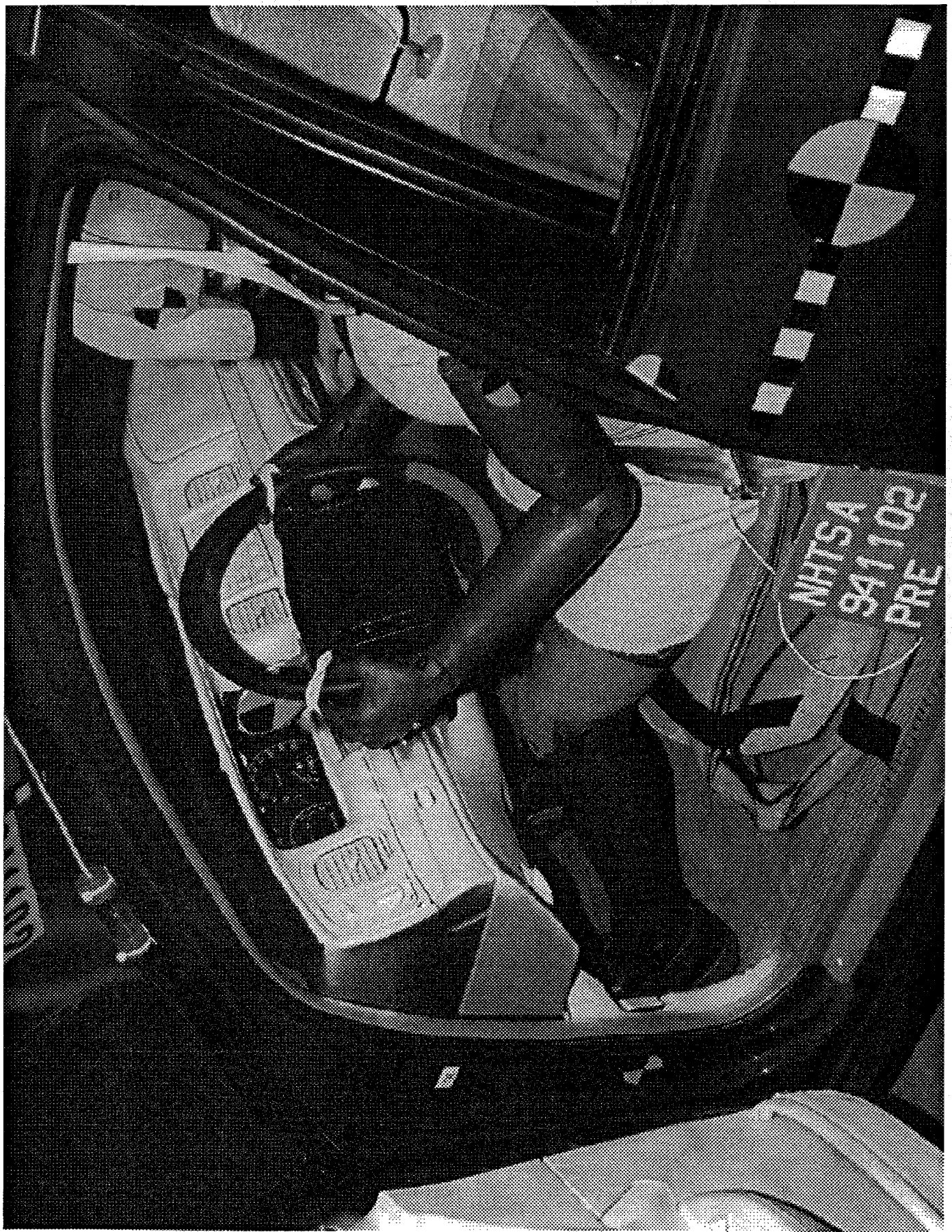


Figure A-32. Pre-Test Driver Dummy & Vehicle Interior - View 2

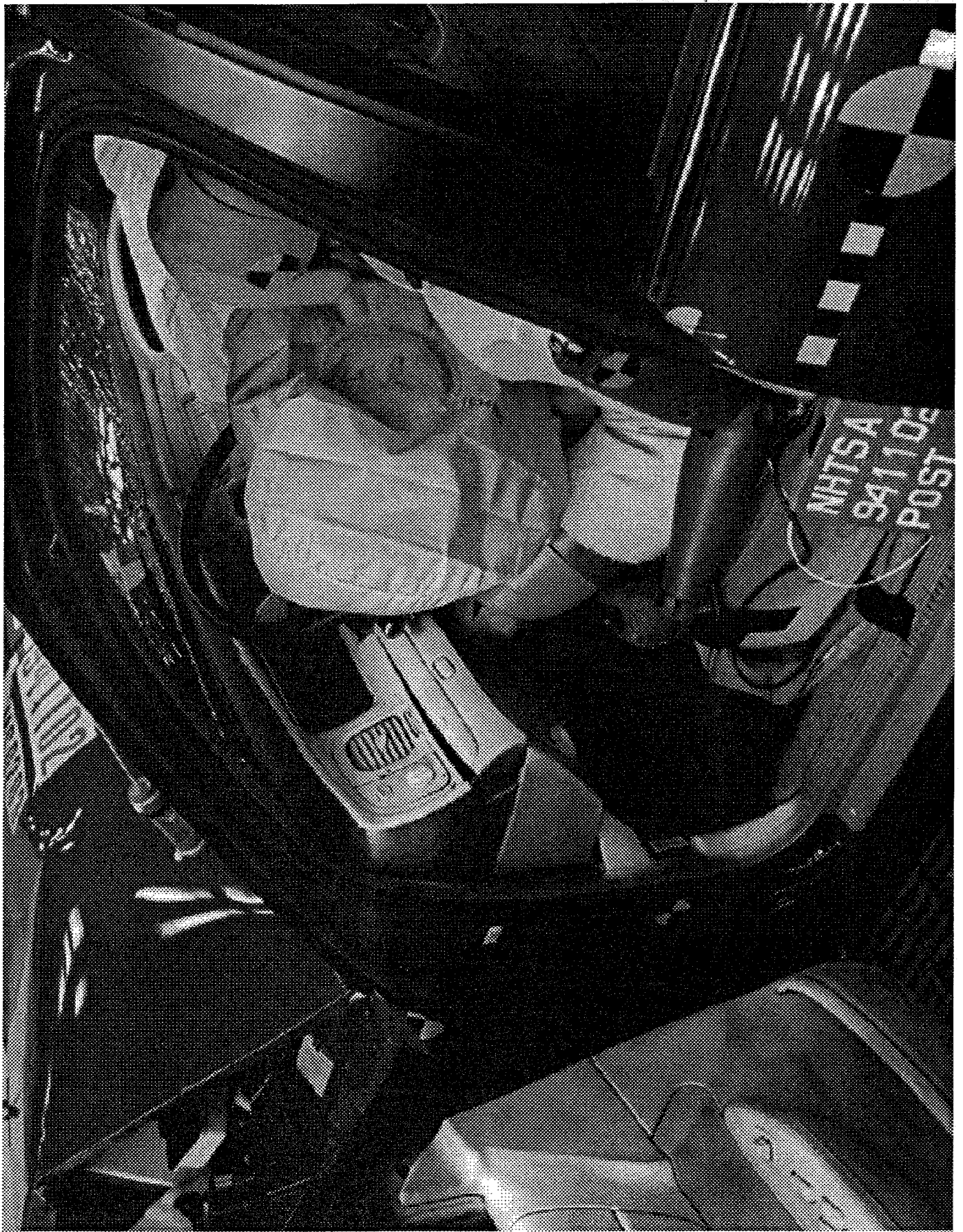


Figure A-33. Post-Test Driver Dummy & Vehicle Interior - View 2

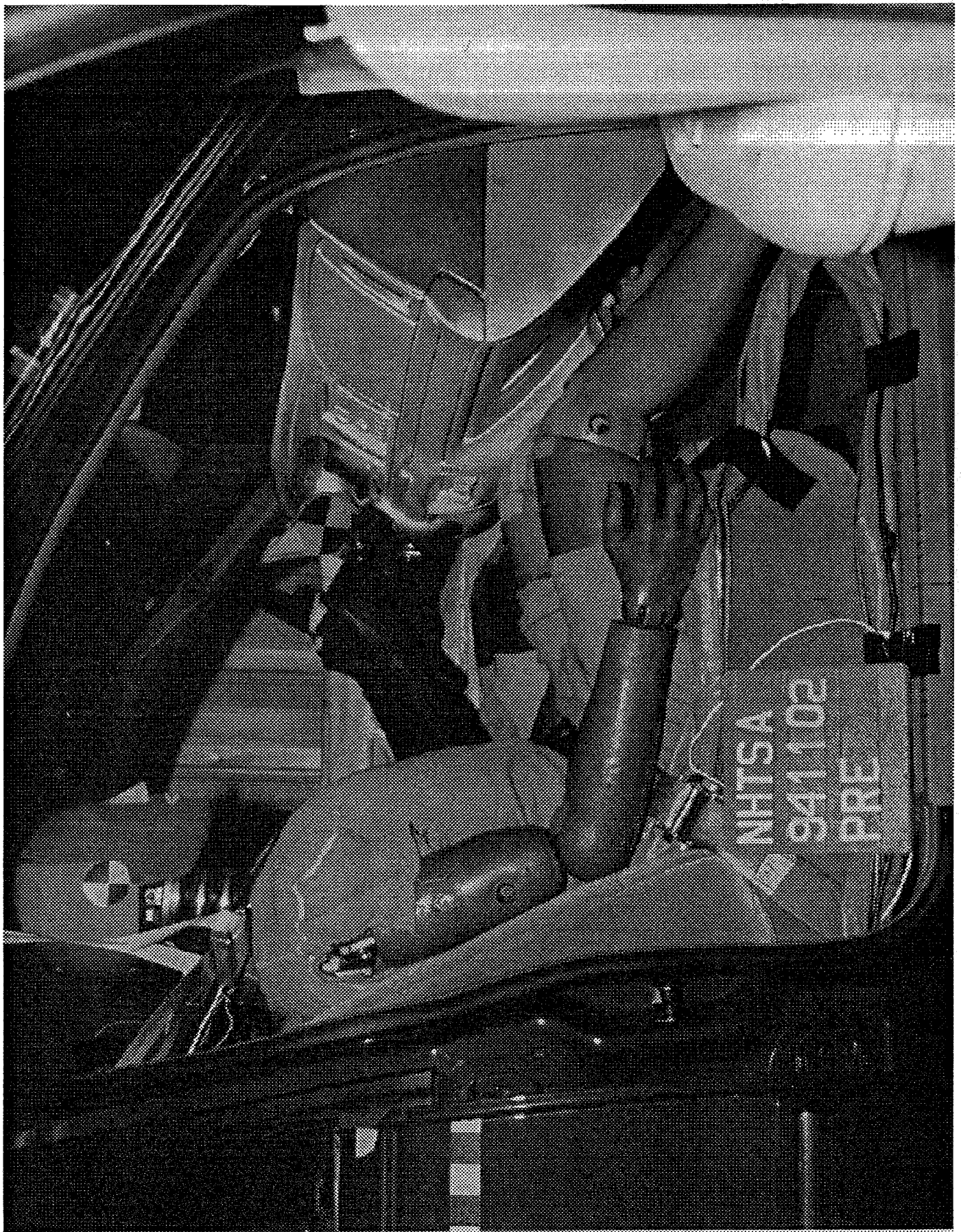


Figure A-34. Pre-Test Passenger Dummy & Vehicle Interior - View 1

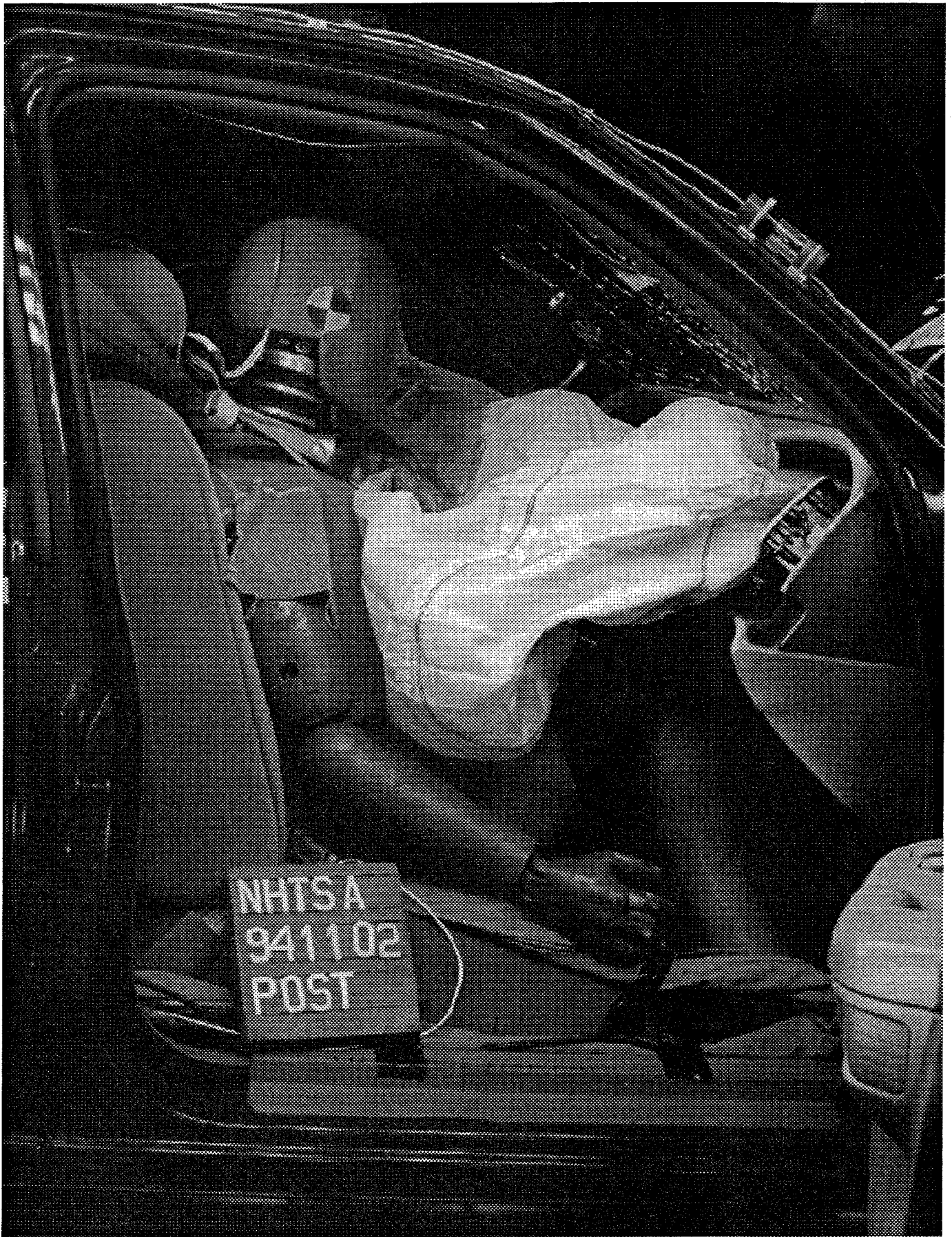


Figure A-35. Post-Test Passenger Dummy & Vehicle Interior - View I

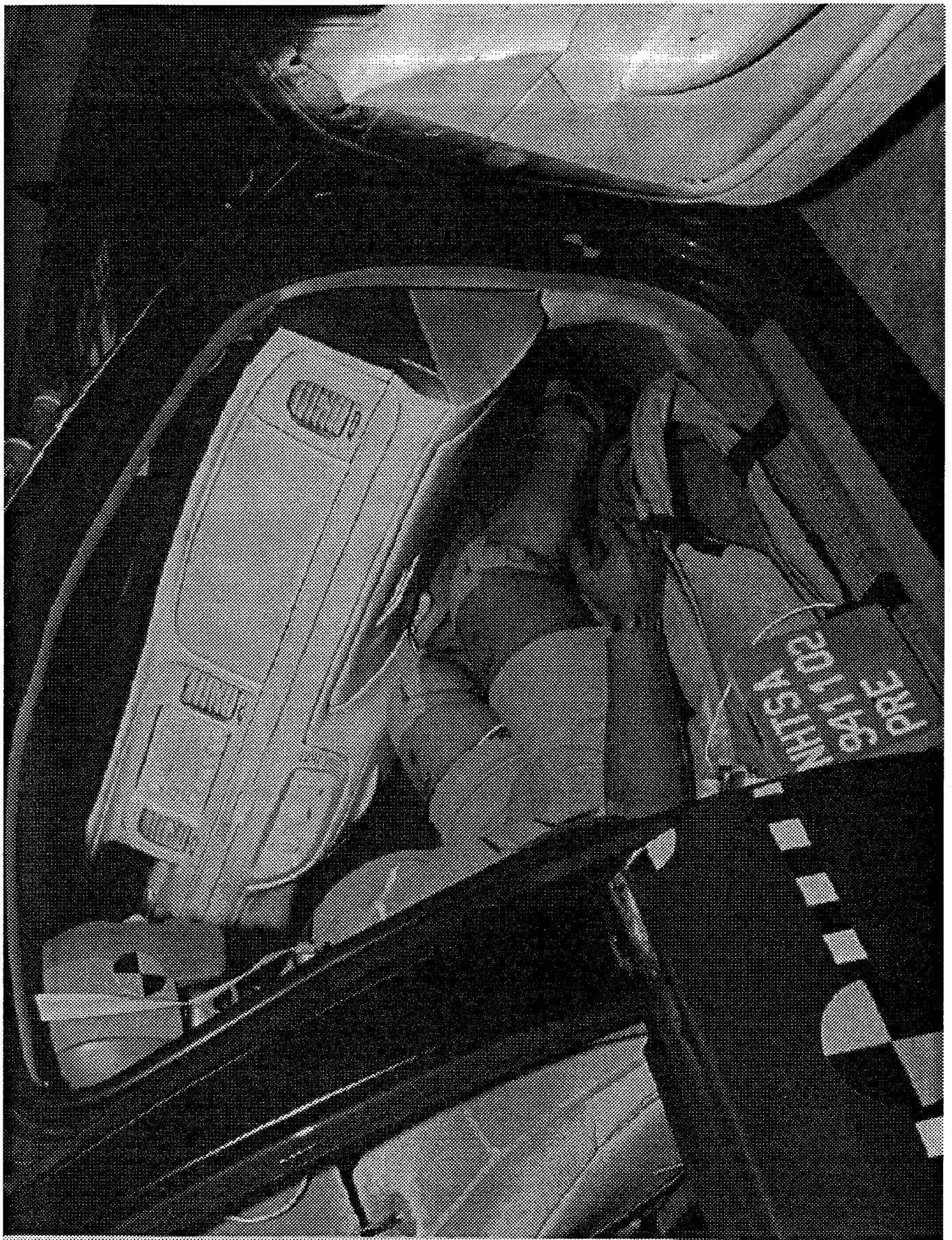


Figure A-36. Pre-Test Passenger Dummy & Vehicle Interior - View 2

A-37

941102

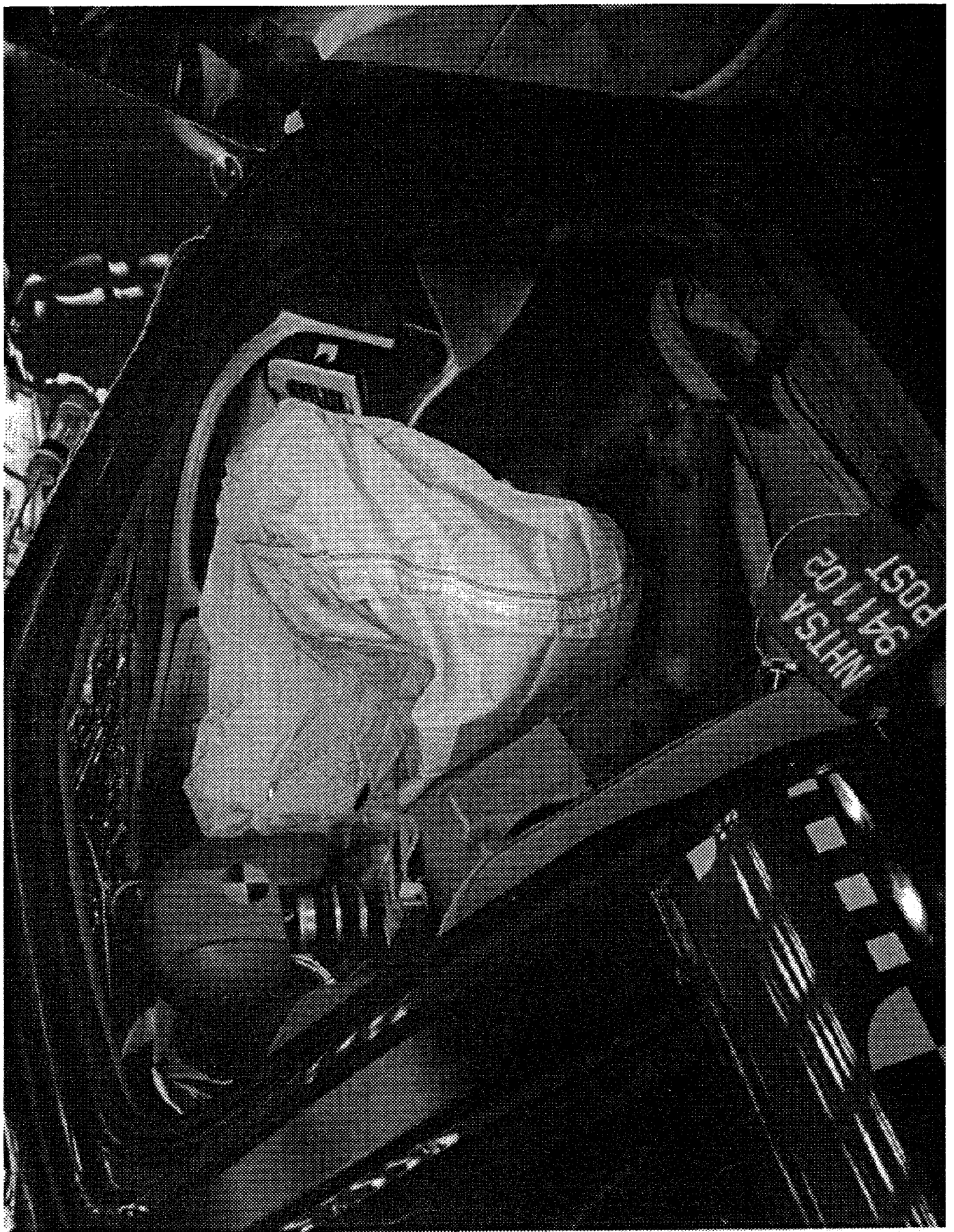


Figure A-37. Post-Test Passenger Dummy & Vehicle Interior - View 2

A-38

941102

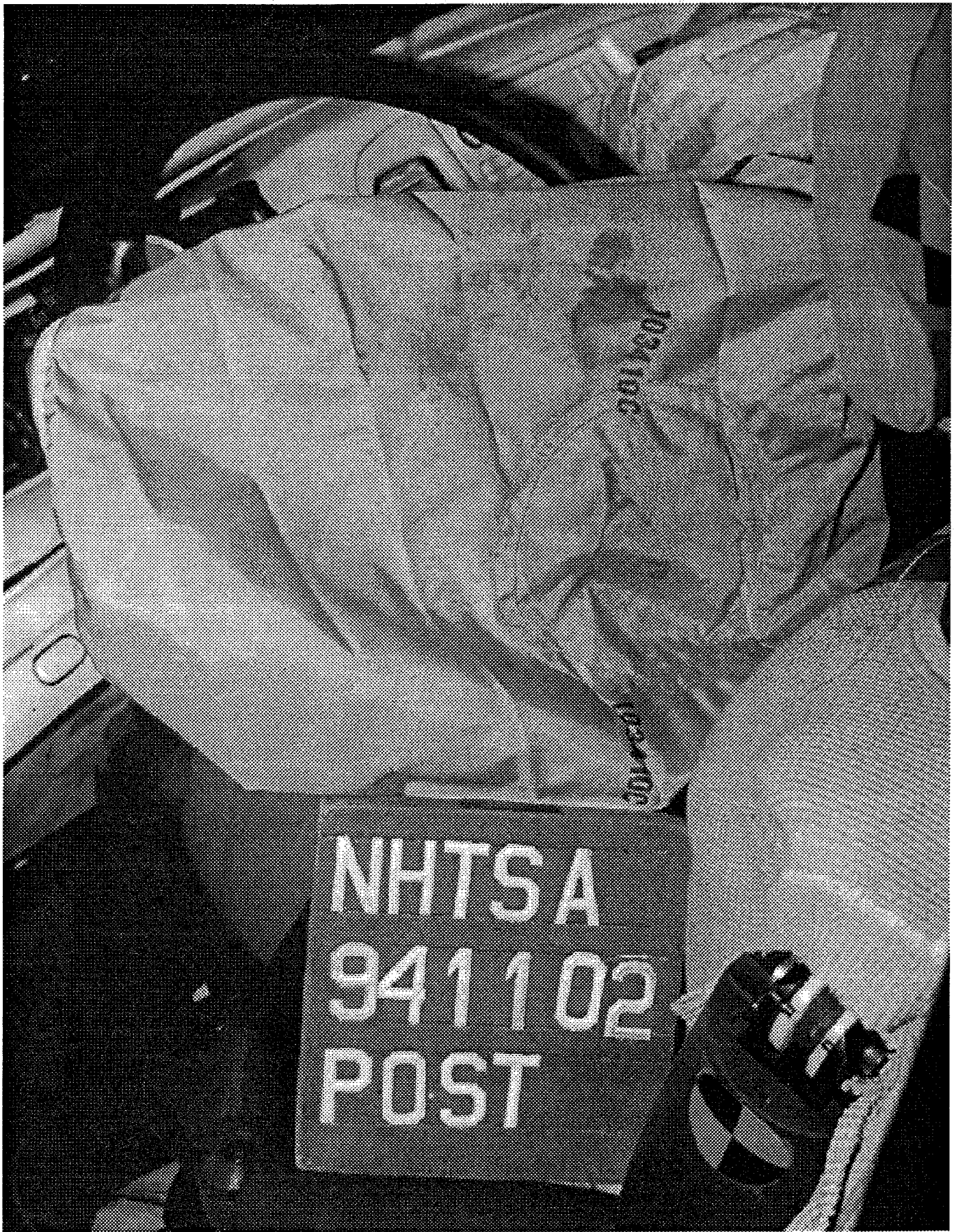


Figure A-38. Post-Test Driver Dummy Head Contact - View 1

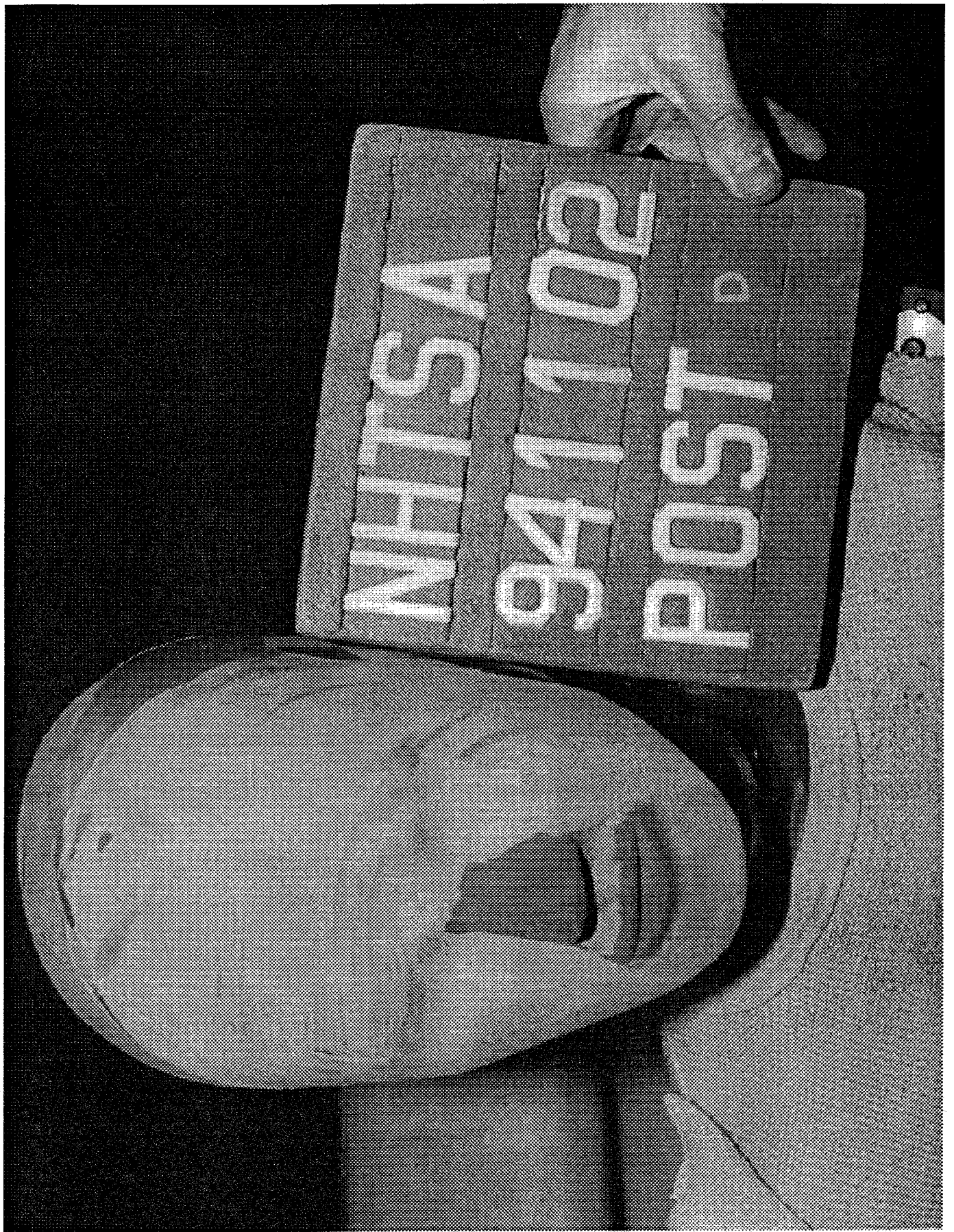


Figure A-39. Post-Test Driver Dummy Head Contact - View 2

A-40

941102

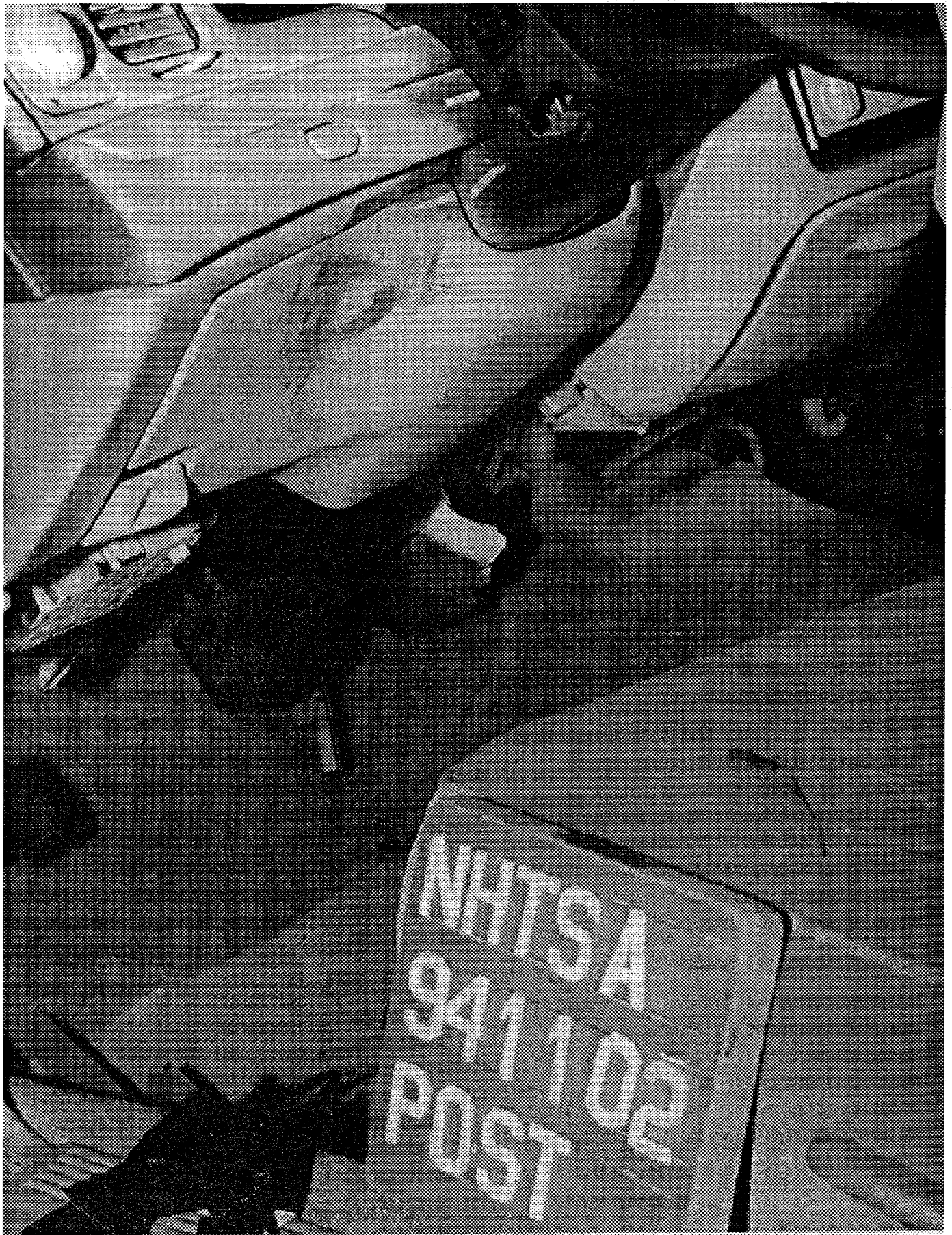


Figure A-40. Post-Test Driver Dummy Knee Contact - View 1

A-41

941102

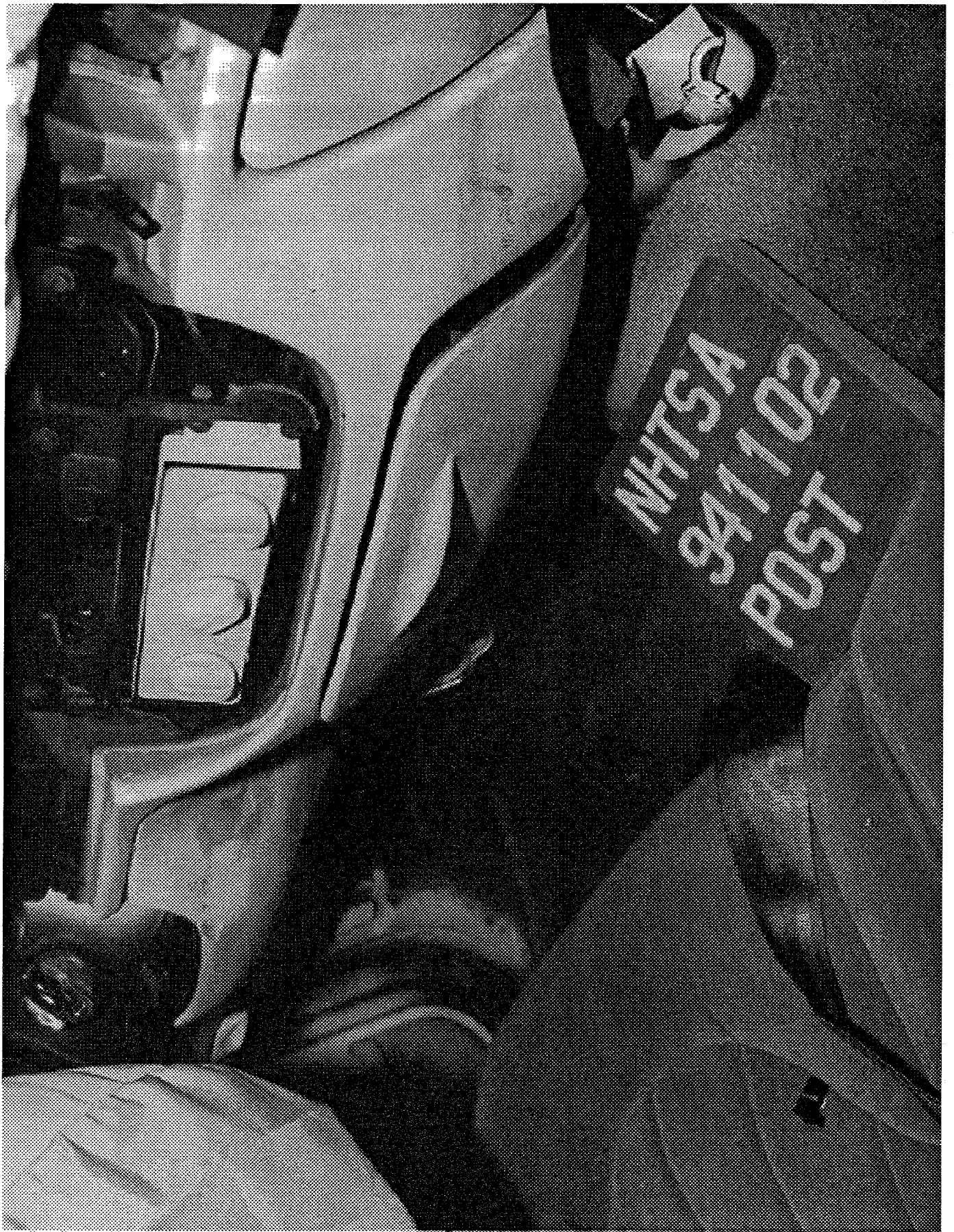


Figure A-41. Post-Test Driver Dummy Knee Contact - View 2

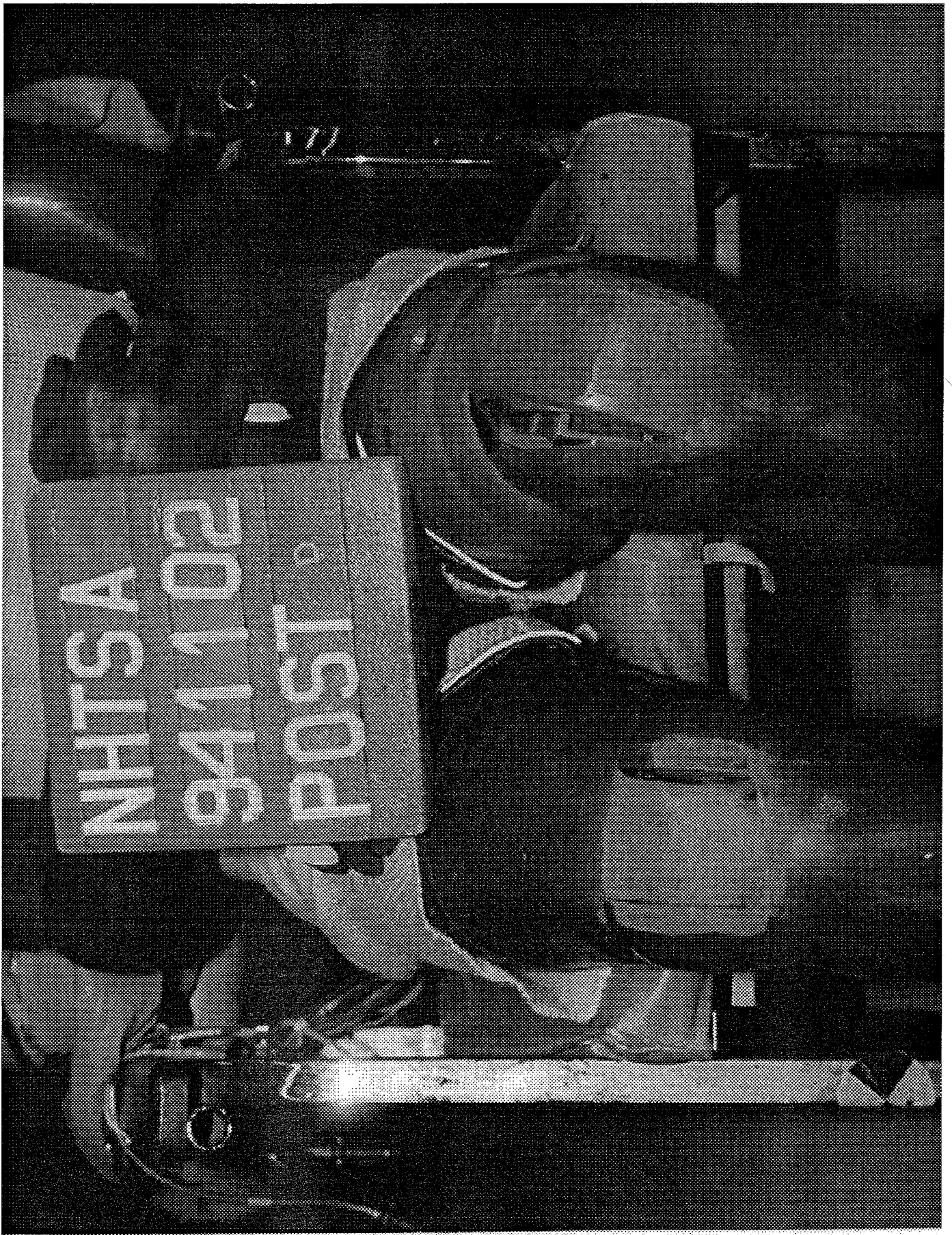


Figure A-42. Post-Test Driver Dummy Knee Contact - View 3

A-43

941102

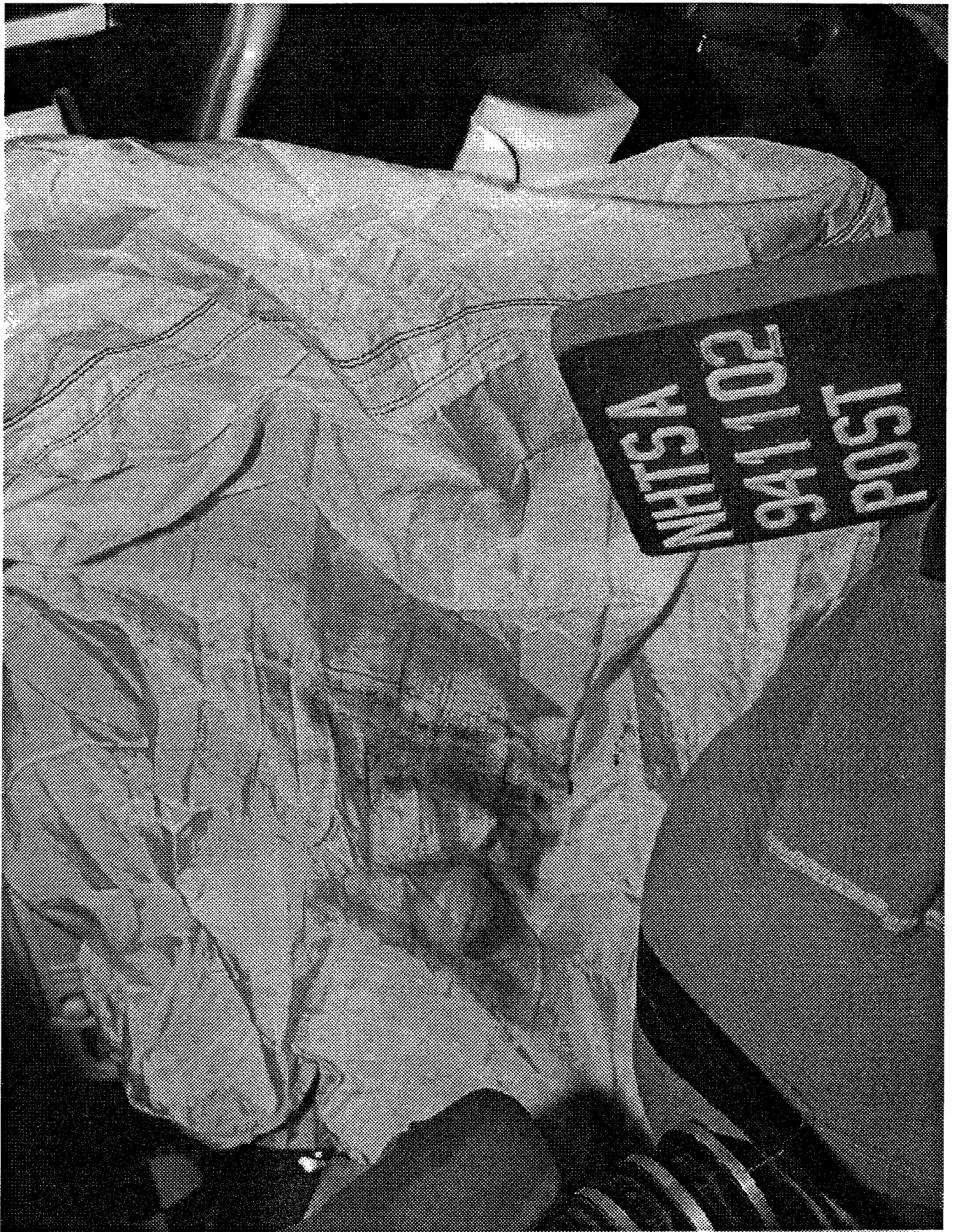


Figure A-43. Post-Test Passenger Dummy Head Contact - View 1

A-44

941102

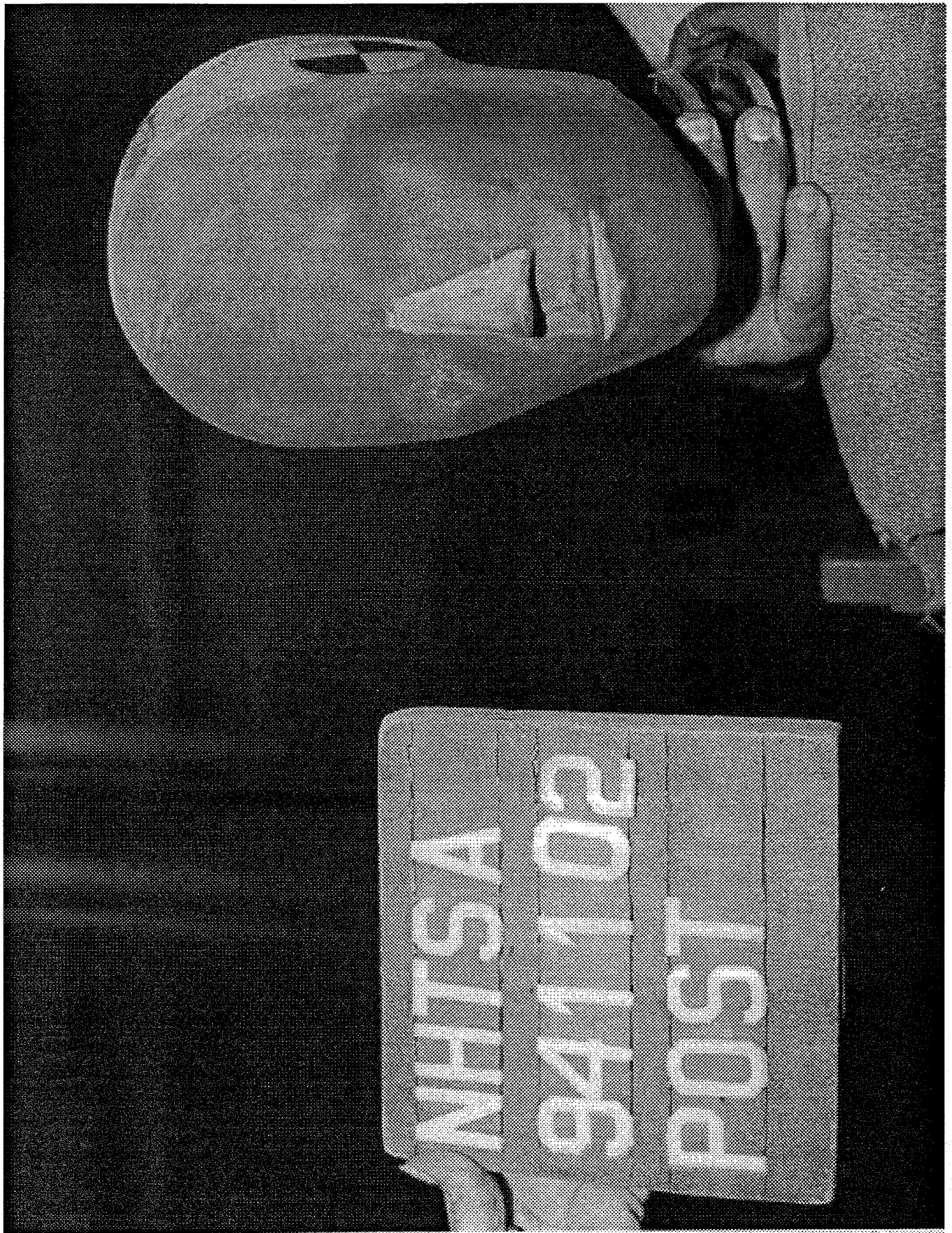


Figure A-44. Post-Test Passenger Dummy Head Contact - View 2

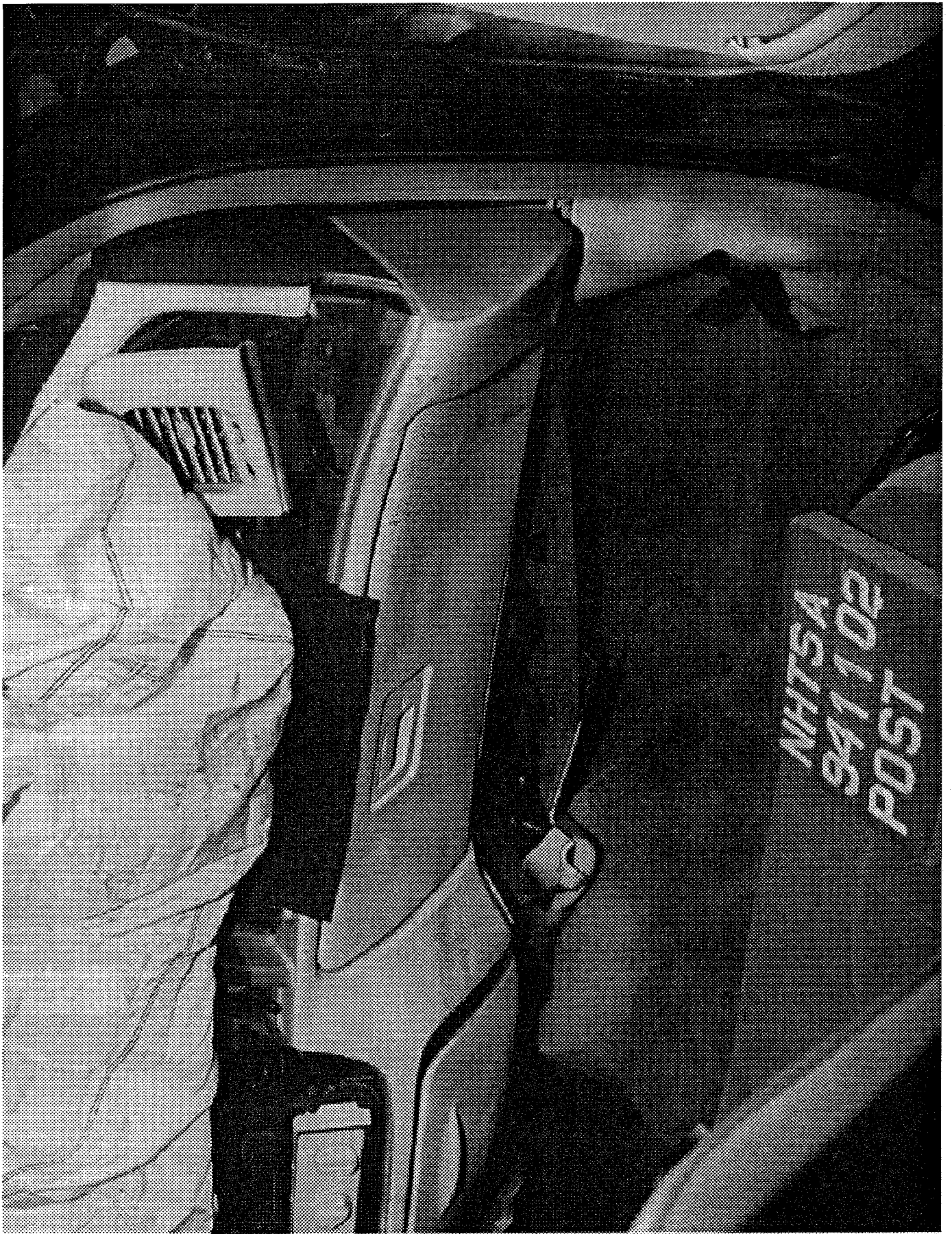


Figure A-45. Post-Test Passenger Dummy Knee Contact - View 1

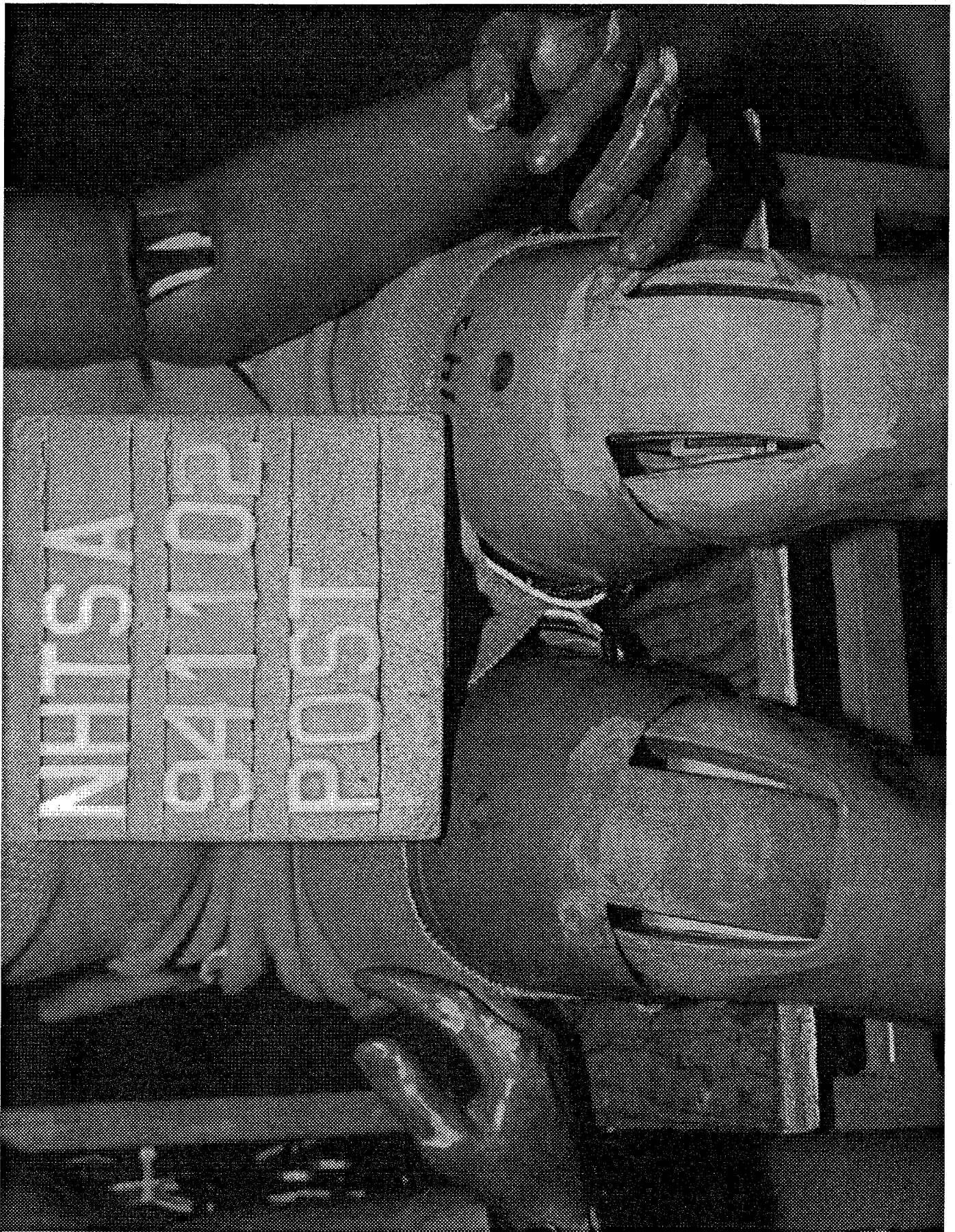


Figure A-46. Post-Test Passenger Dummy Knee Contact - View 2

A-47

941102

RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (LOAD DIMENSIONS DES PNEUS ET PRESSIONS DE L'AIR)

RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (LOAD DIMENSIONS DES PNEUS ET PRESSIONS DE L'AIR)

RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (LOAD DIMENSIONS DES PNEUS ET PRESSIONS DE L'AIR)

TIRE SIZE DIMENSIONS DES PNEUS	TIRE PRESSURE PRESSION DE L'AIR	
	FRONT AVANT	REAR ARRIERE
P215/60R15 97S	32 PSI 220 kPa	35 PSI 240 kPa
P225/70R16 100S P225/65R16 97T	32 PSI 220 kPa	35 PSI 240 kPa
T125/80R16	60 PSI 415 kPa	60 PSI 415 kPa
P225/65R16 100V	35 PSI 240 kPa	35 PSI 240 kPa

MUST BE REPLACED WITH AN EQUIVALENT TIRE SPEED RATED TIRE.
 NE PAS REMPLACER QUE PAR UN PNEU D'UNE CLASSE DE VITESSE EQUIVALENTE.

TOTAL LOAD & OCCUPANTS PLUS SURCHARGE / OCCUPANTS ET CHARGES

MAXIMUM LOAD CHARGE MAXIMALE	OCCUPANTS OCCUPANTS	DISTRIBUTION REPARTITION	
		FRONT AVANT	REAR ARRIERE
1100 kg/2400 lb	5	3	2
950 kg/2100 lb	5	2	3

POLICE ONLY / POLICE SEULEMENT

FOR INSTANT HIGH SPEED TRAILER TOWING, SEE TECHNICAL ASSISTANCE AND TRAILER AND TOWING MANUALS.
 POUR INSTANT HAUTE VITESSE TRAILER TOWING, VOYEZ LES MANUELS D'ASSISTANCE TECHNIQUE ET LES MANUELS D'UTILISATION DES PNEUS ET DES VITESSES. VOYEZ AINSI LES MANUELS D'UTILISATION DES PNEUS ET DES VITESSES.

CONSULT FOR LEASE OR PURCHASE

Figure A-48. Pre-Test Vehicle Recommended Tire Pressure Label View

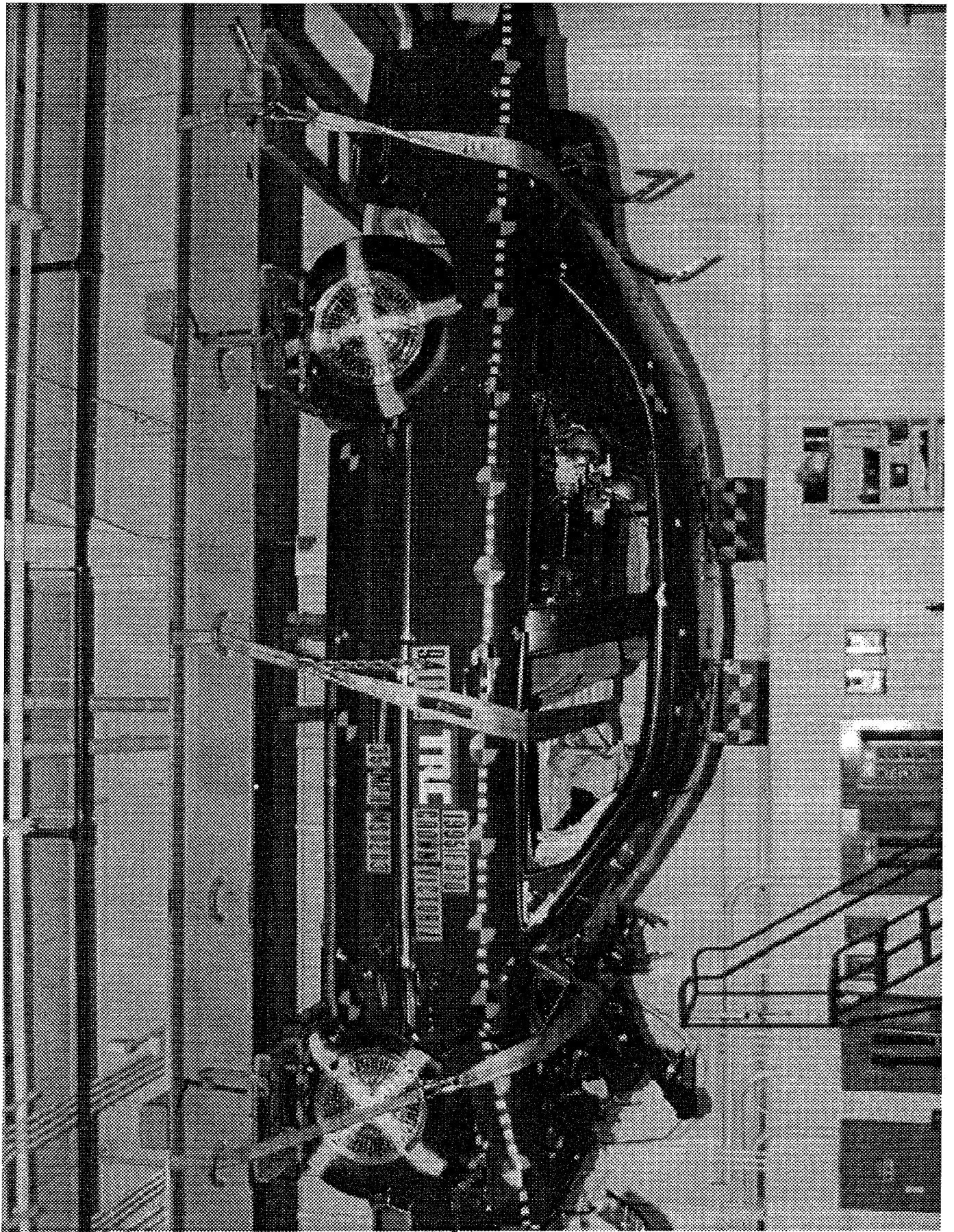


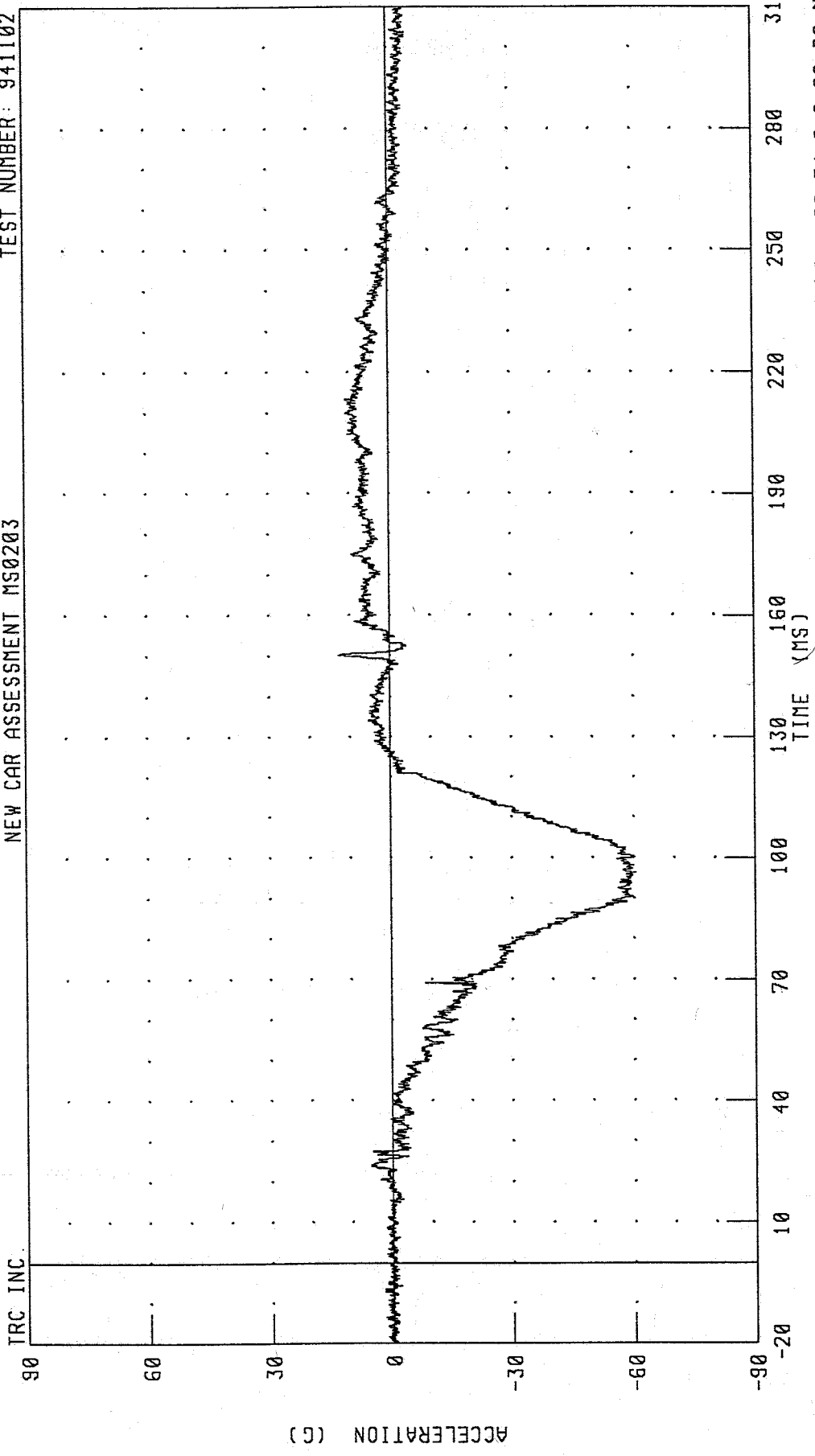
Figure A-49. Post-Test Vehicle on Static Rollover Machine View

Appendix B

Data Plots

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 12.59 G @ 150.24 MS; -60.54 G @ 96.32 MS

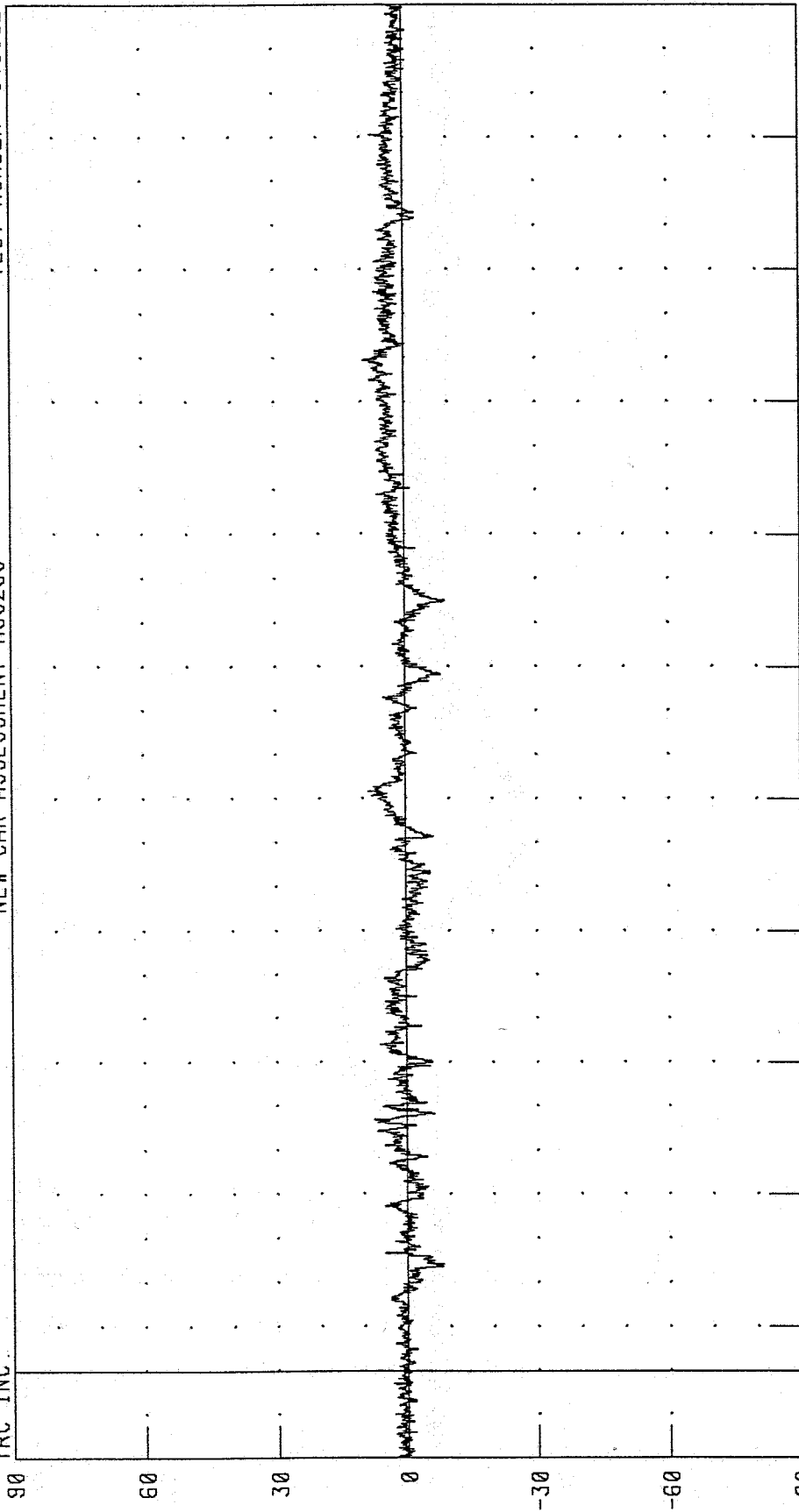
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC



ACCELERATION (G)

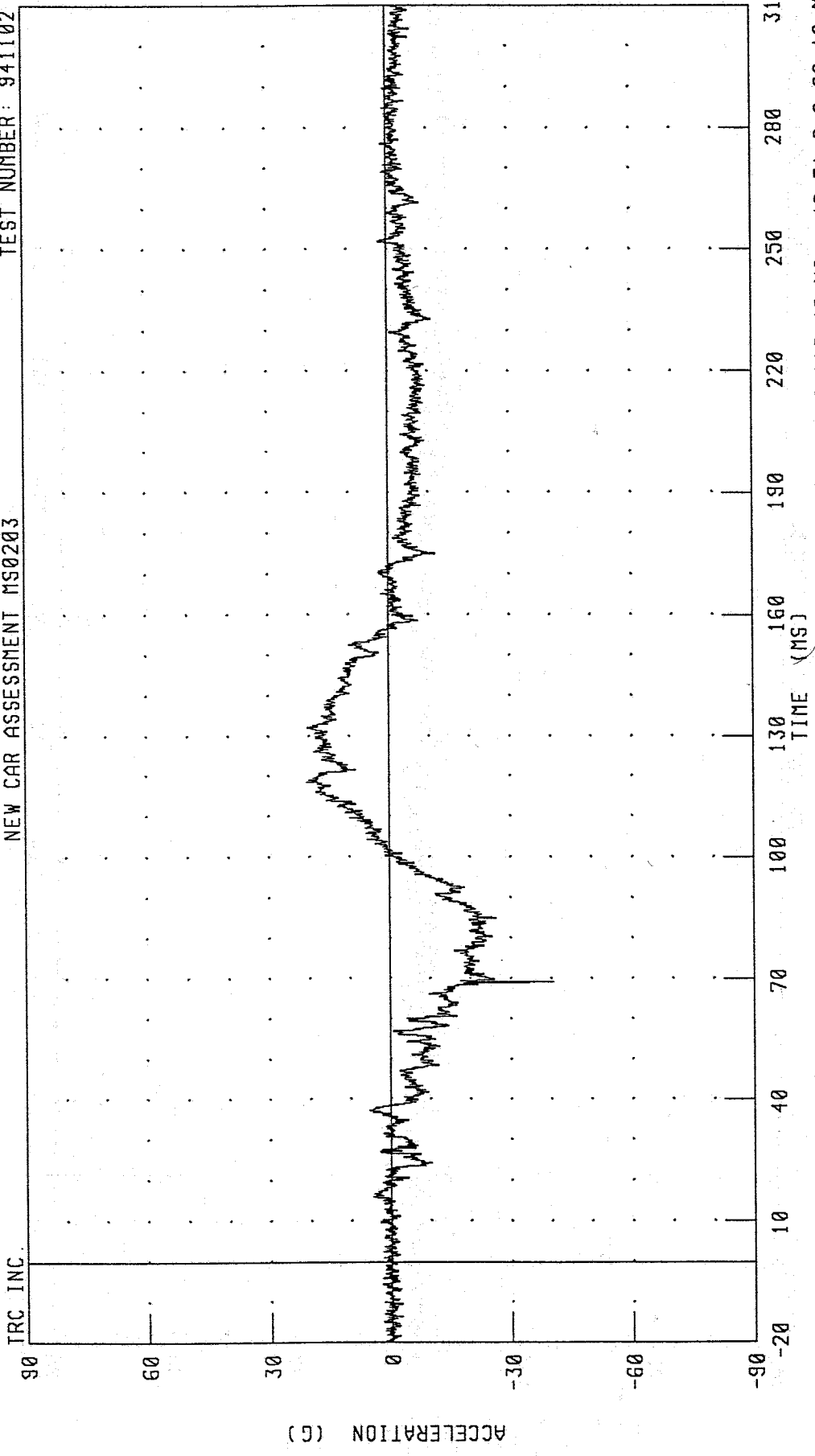
90
60
30
0
-30
-60
-90

-20 10 40 70 100 130 160 190 220 250 280 310
TIME (MS)

CHANNEL: HEDYG1 FILTER: CH. CLASS 1000 PEAK DATA: 9.44 G @ 229.52 MS; -9.18 G @ 174.96 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000
PEAK DATA: 20.53 G @ 118.48 MS; -40.51 G @ 69.12 MS

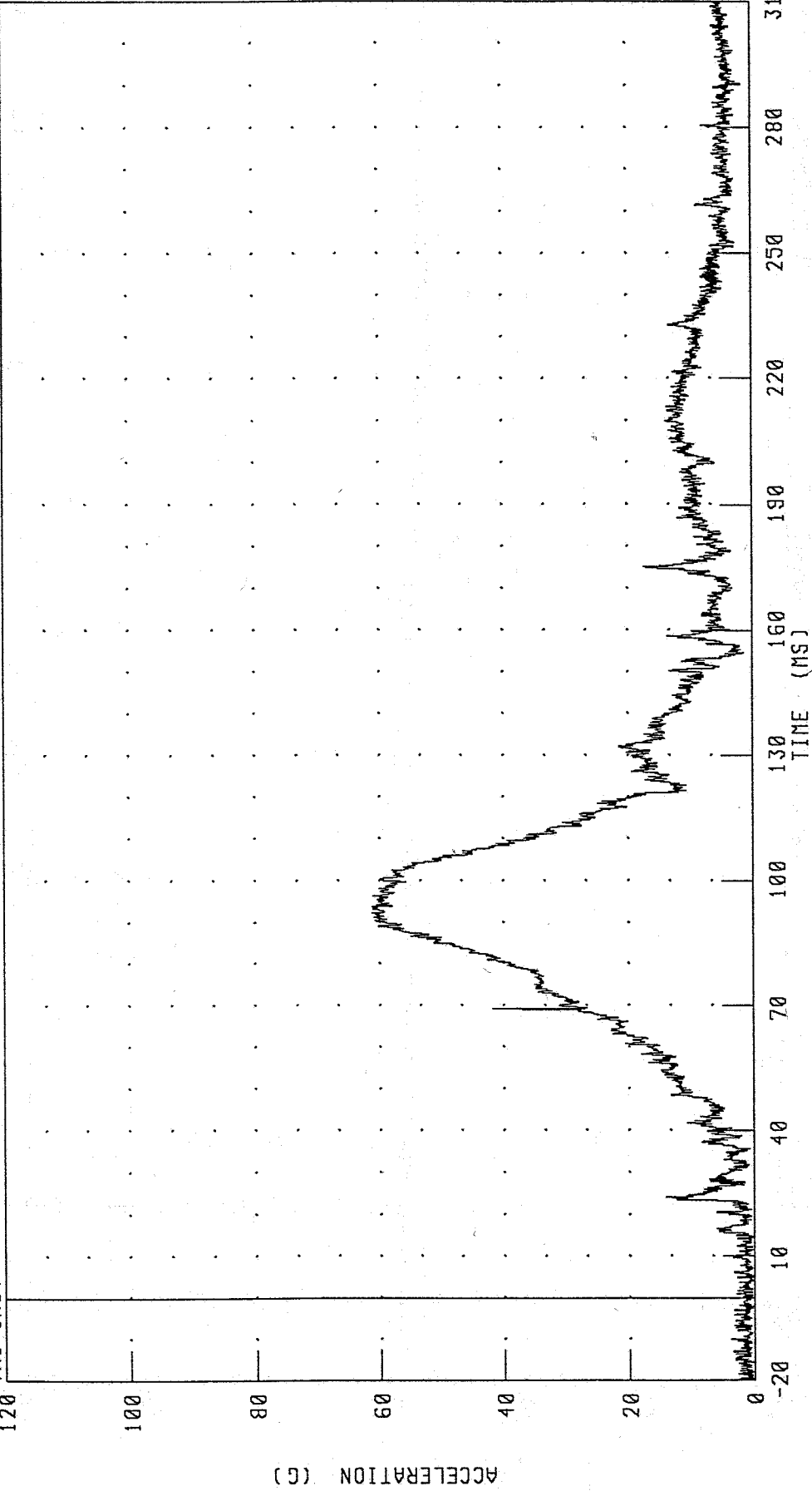
1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER

DRIVER HEAD RESULTANT ACCELERATION

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



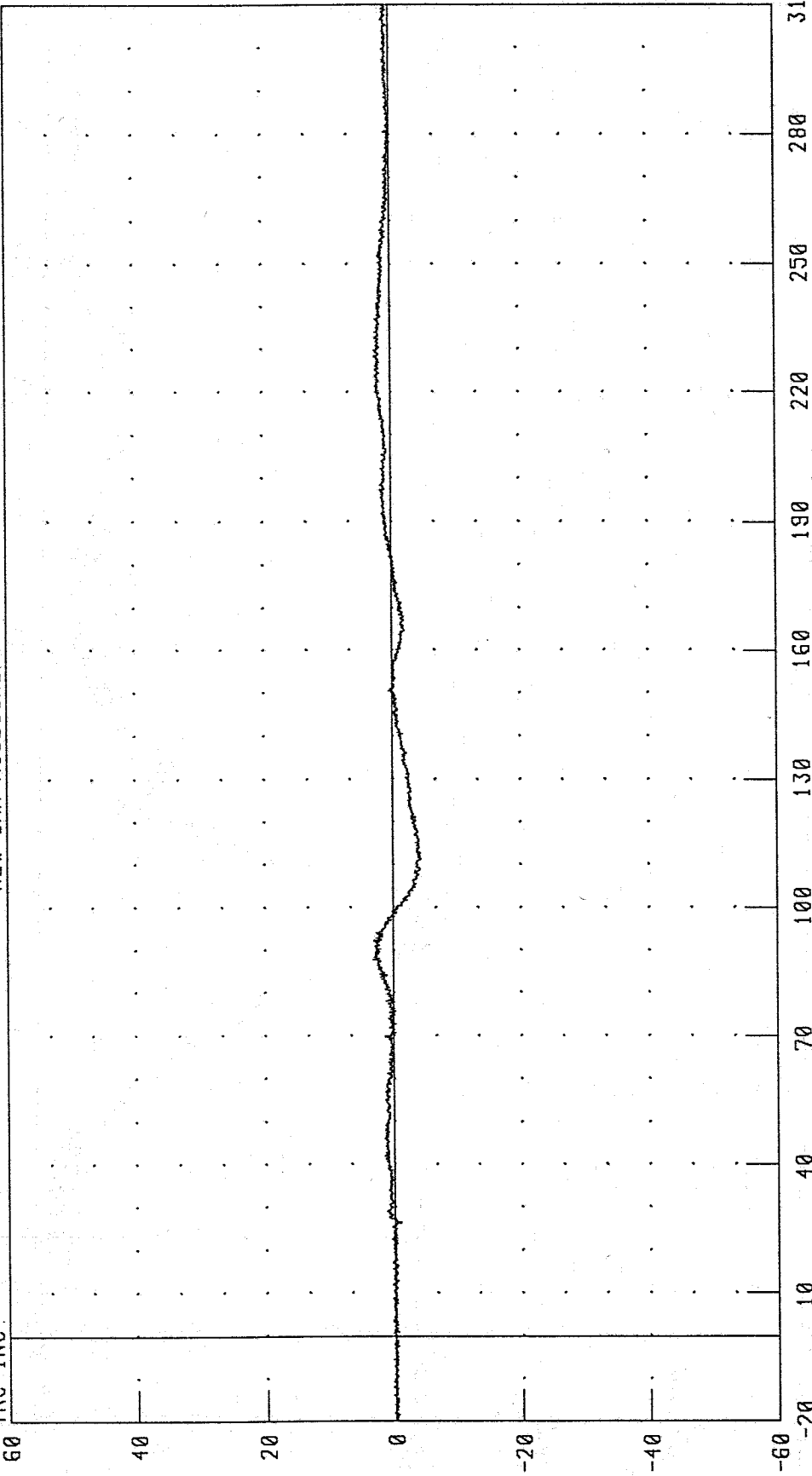
PEAK DATA: 61.23 G @ 93.76 MS; 0.18 G @ -2.24 MS

CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



PEAK DATA: 329.39 N @ 87.76 MS; -435.04 N @ 111.36 MS

CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

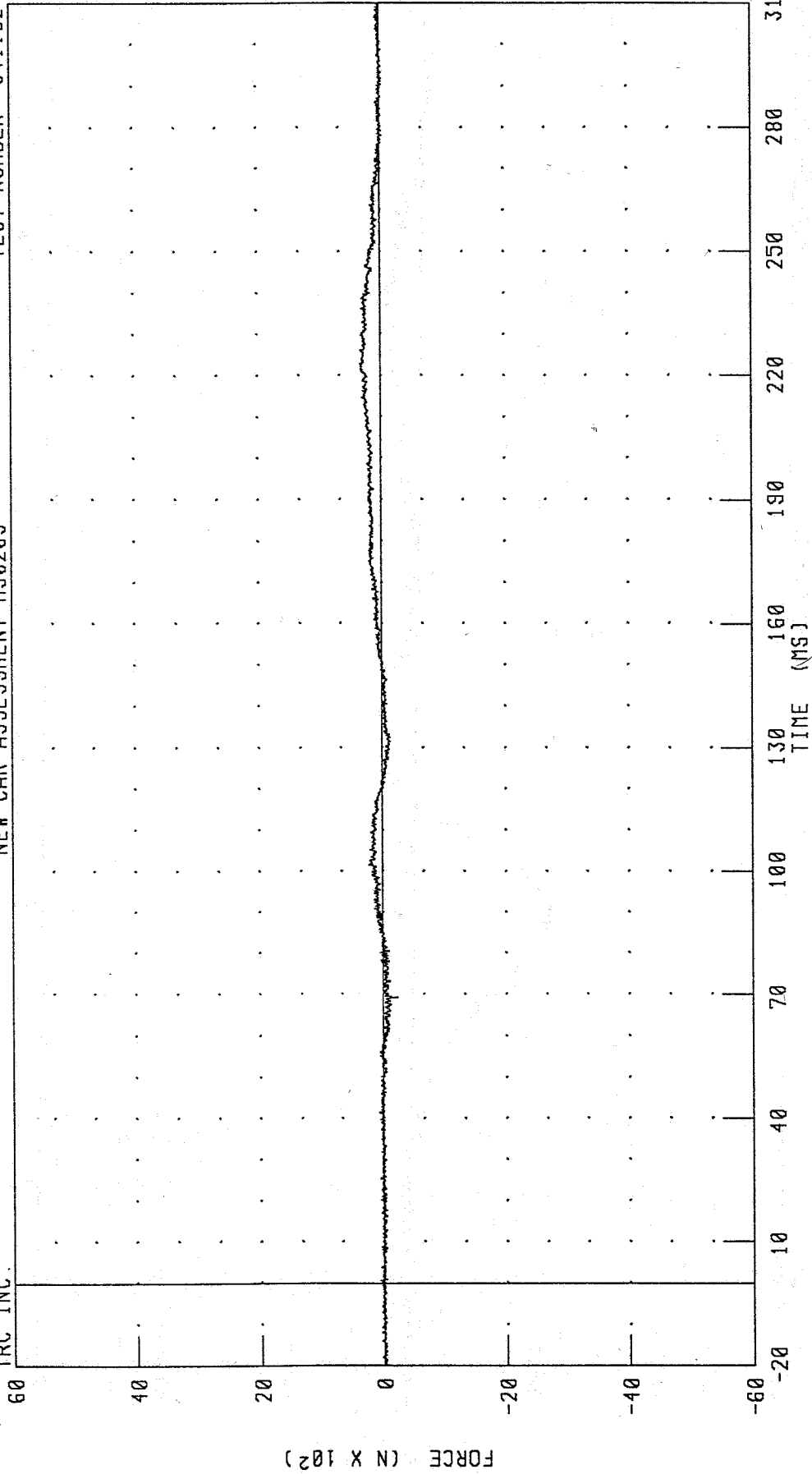
FORCE ($N \times 10^2$)

TIME (MS)

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

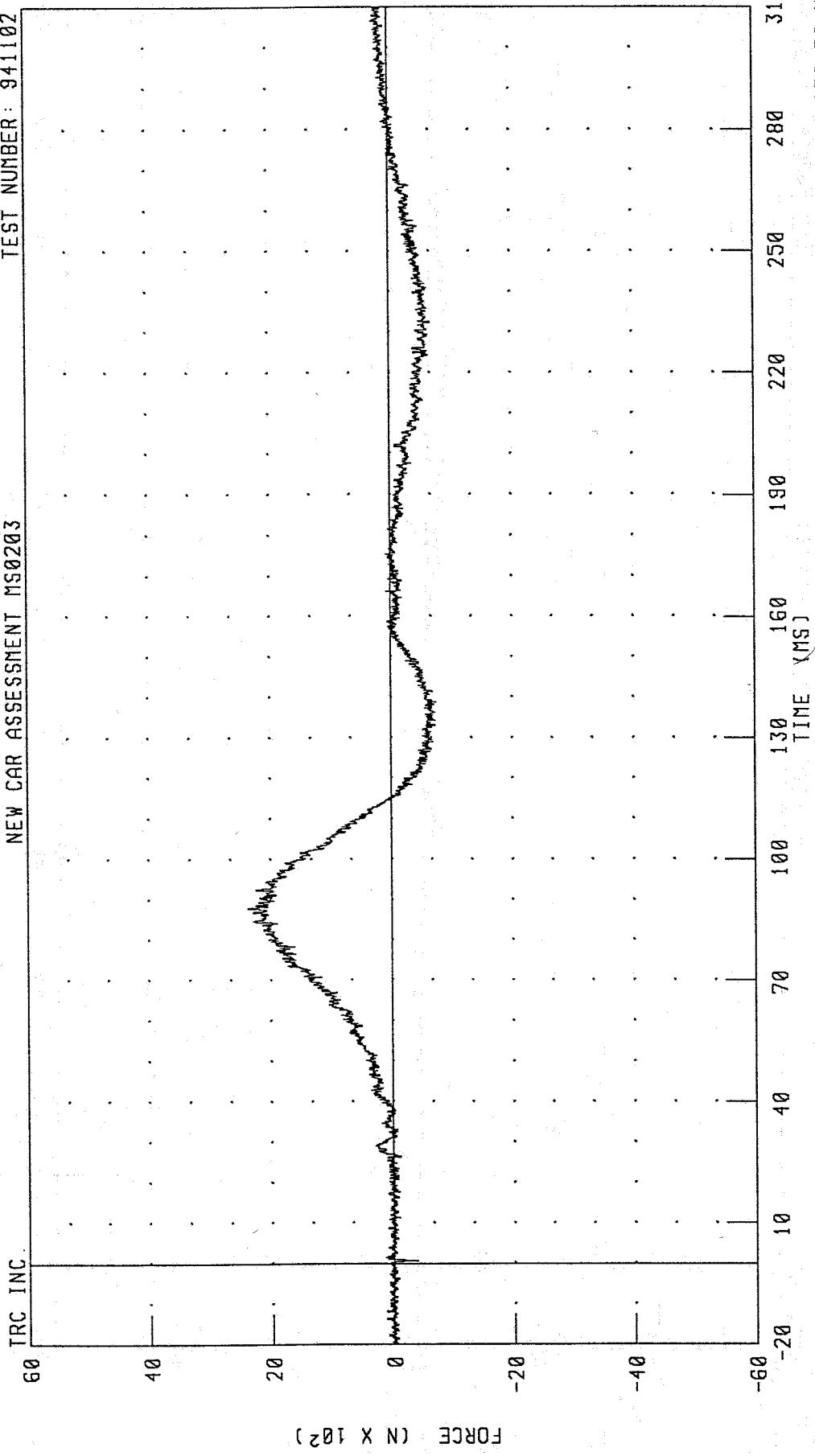


PEAK DATA: 335.74 N @ 222.96 MS; -239.03 N @ 69.20 MS

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT MS0203

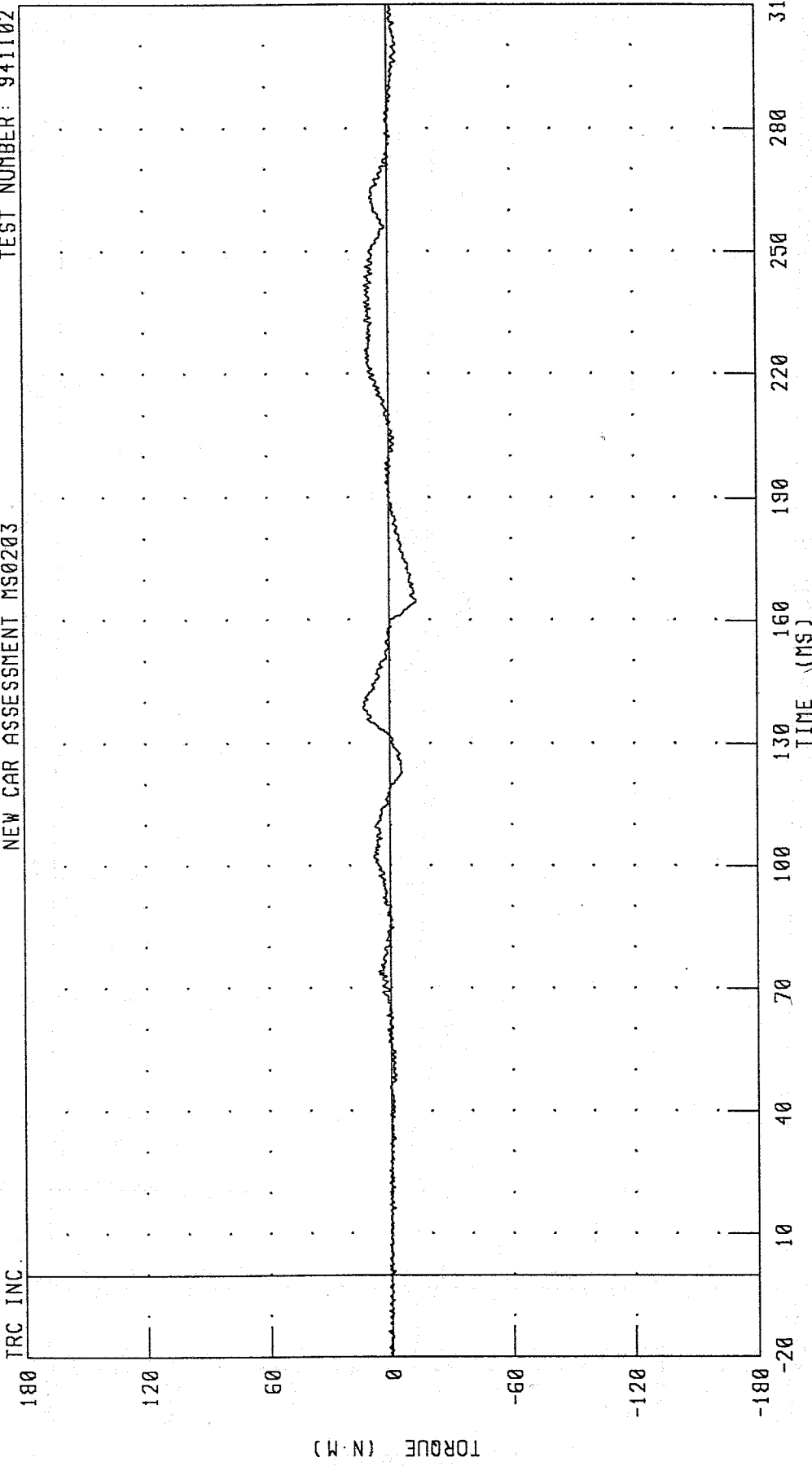
TEST NUMBER: 941102



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000 PEAK DATA: 2375.69 N @ 87.84 MS; -751.02 N @ 138.72 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT MS0203

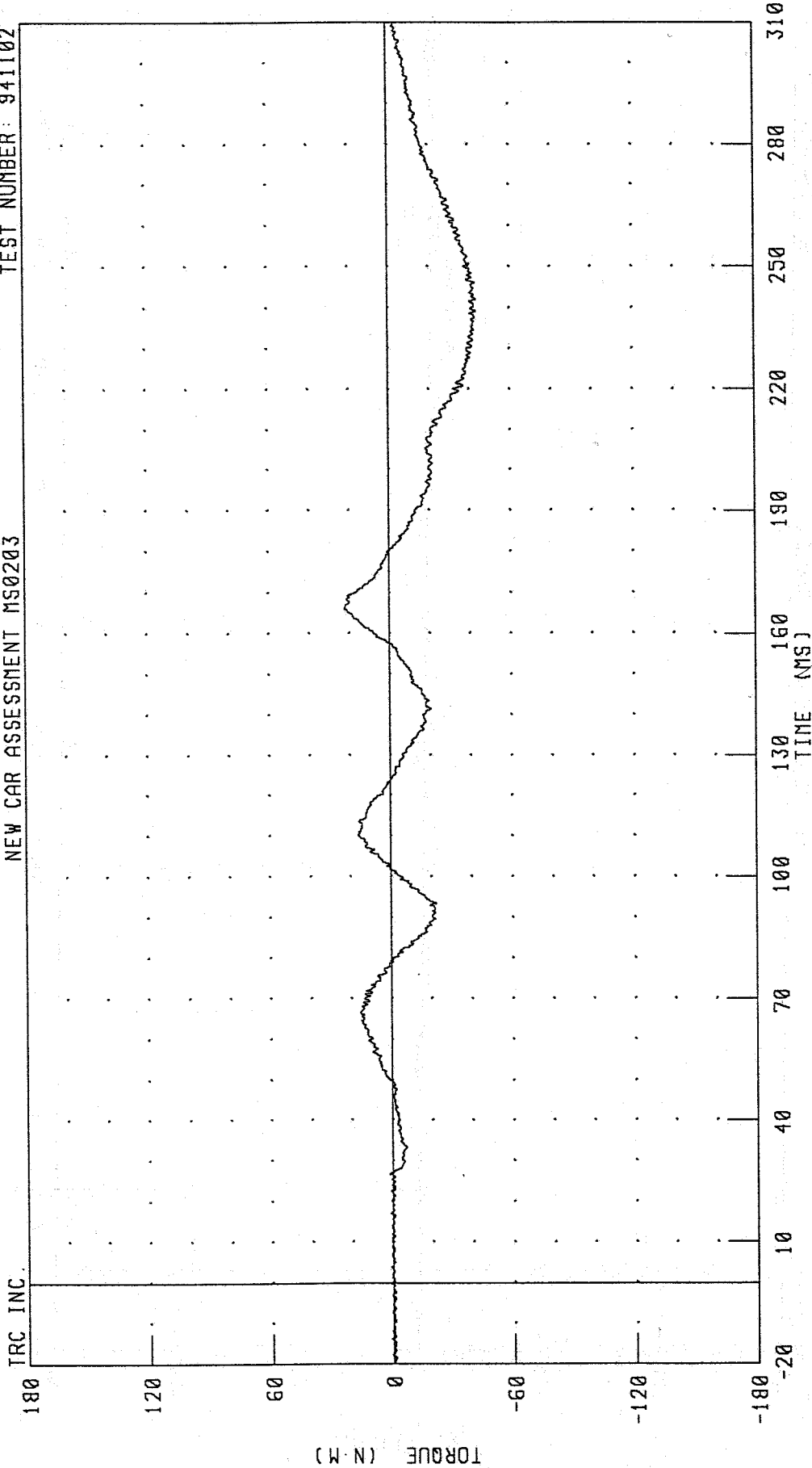
TEST NUMBER: 941102



CHANNEL: NEKXM1 FILTER: CH. CLASS 600
PEAK DATA: 13.45 N.M @ 138.64 MS; -13.34 N.M @ 164.88 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 22.44 N·M @ 166.16 MS; -43.60 N·M @ 239.28 MS

CHANNEL: NEKYM1 FILTER: CH. CLASS 600

TORQUE (N·M)

TIME (MS)

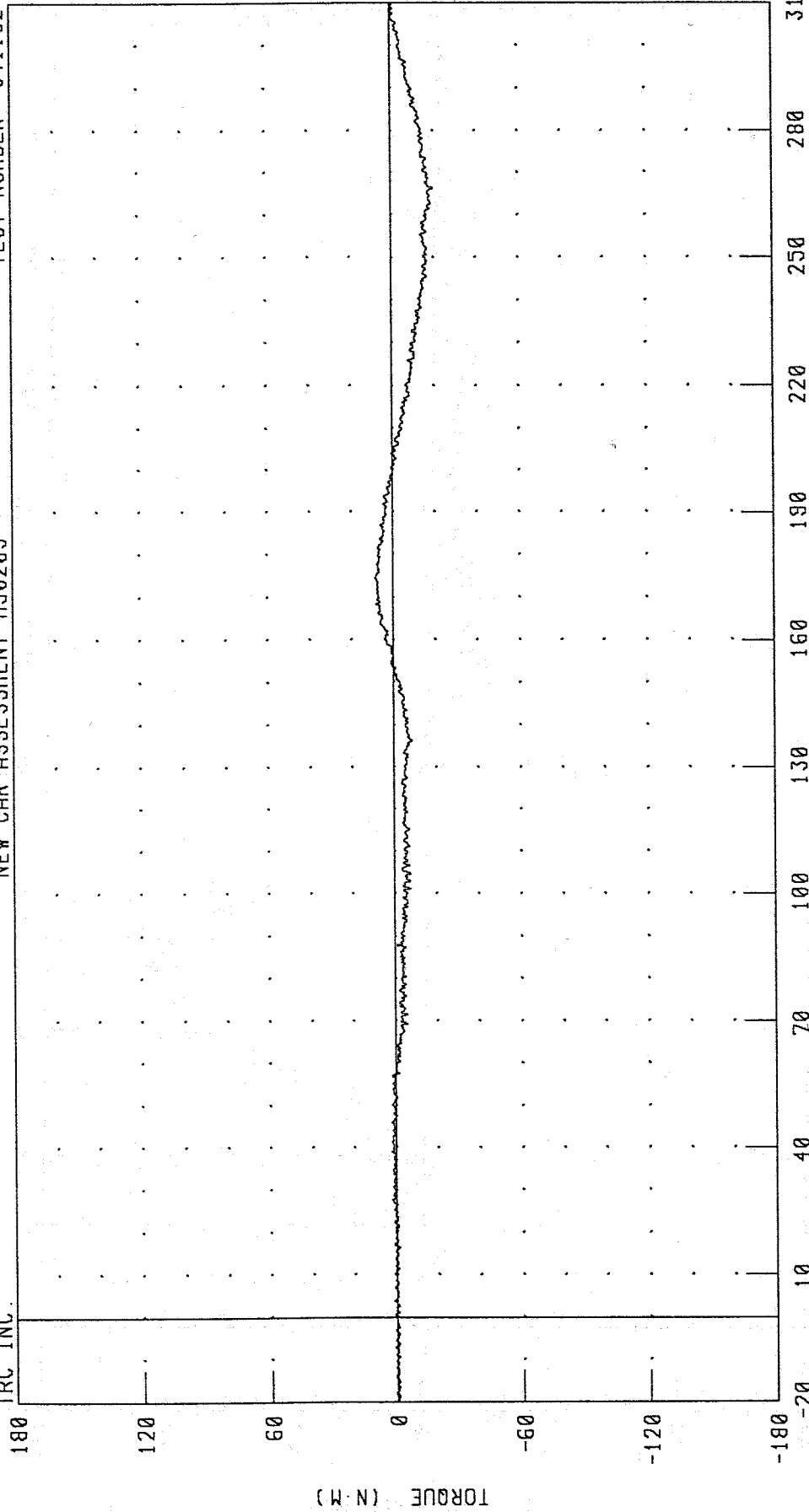
1985 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK MOMENT ABOUT Z AXIS

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



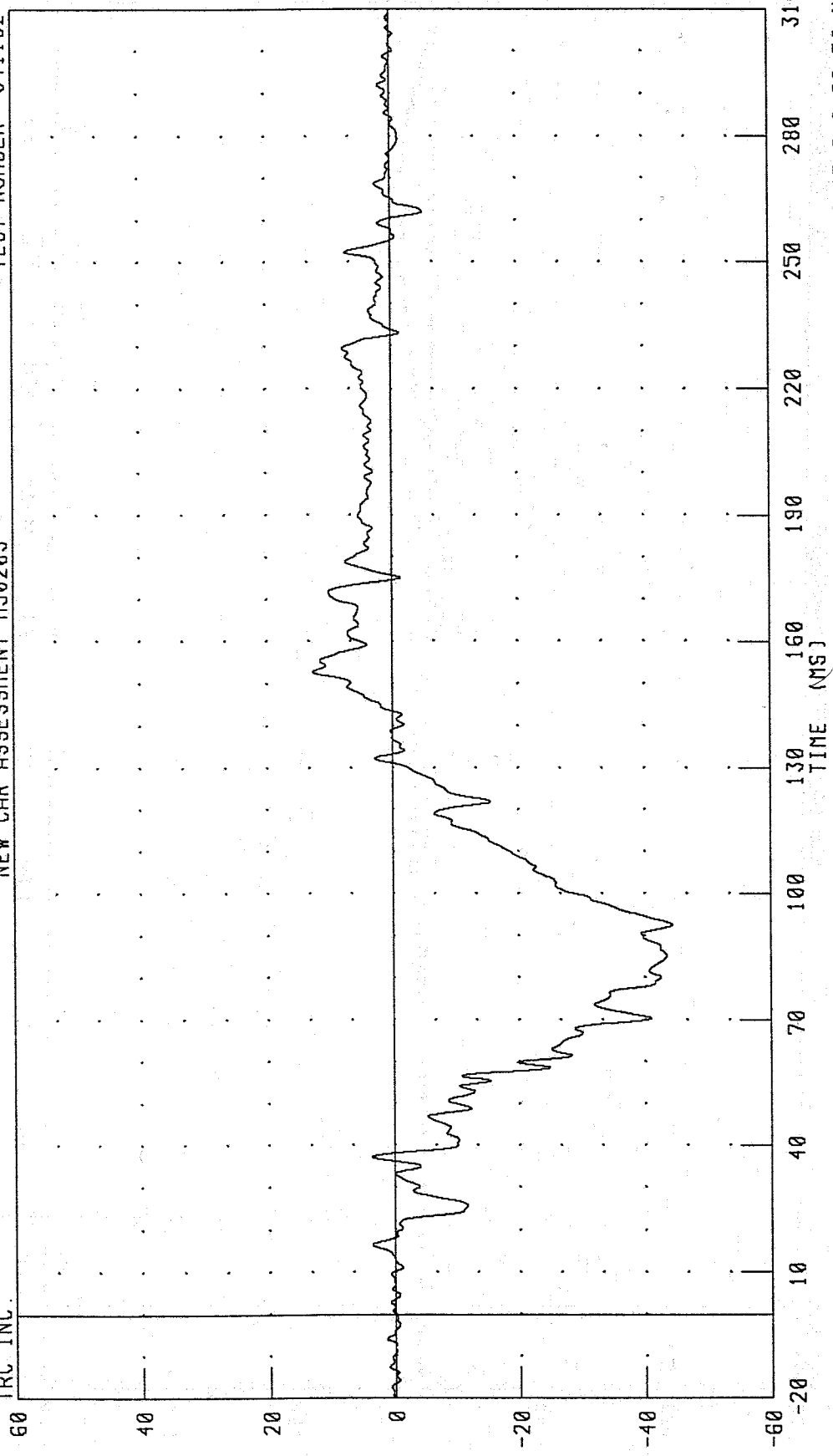
PEAK DATA: 8.44 N·M @ 174.48 MS; -20.03 N·M @ 266.32 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



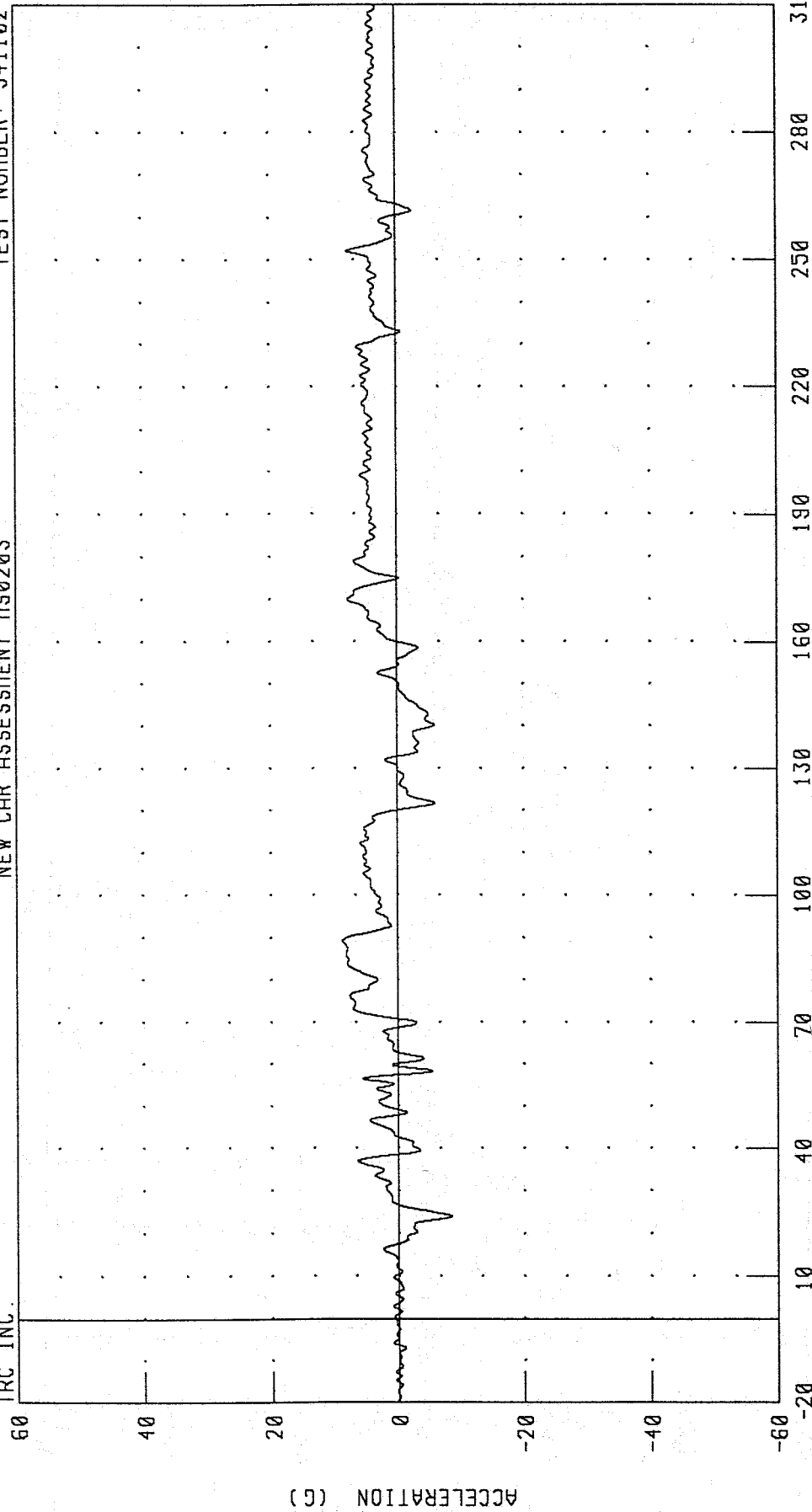
PEAK DATA: 12.74 G @ 152.88 MS; -44.43 G @ 92.56 MS

CHANNEL: CSTXG1 FILTER: CH. CLASS 180

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

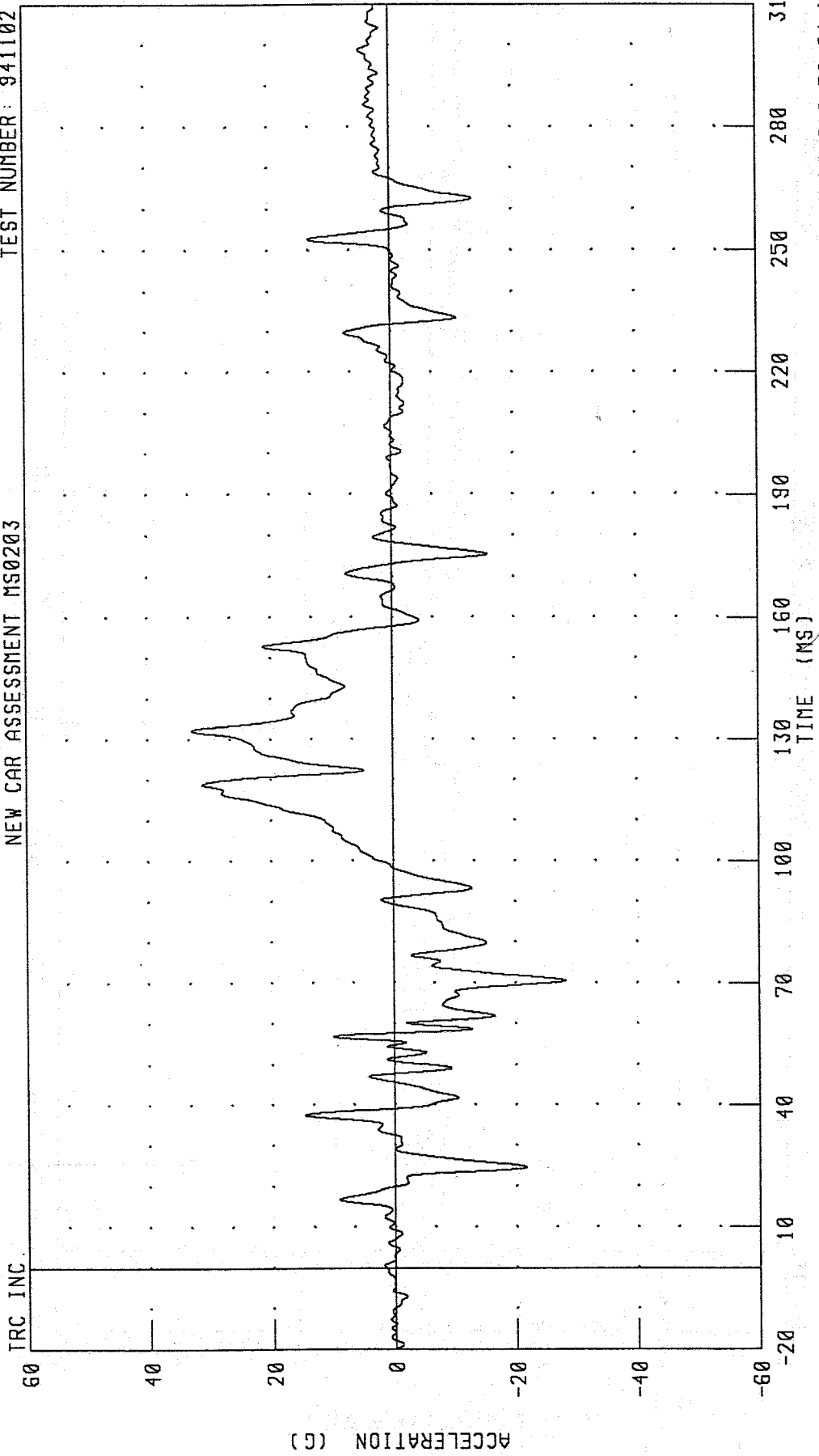
TRC INC.



CHANNEL: CSTYG1 FILTER: CH. CLASS 180 PEAK DATA: 8.86 G @ 89.20 MS; -8.49 G @ 24.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



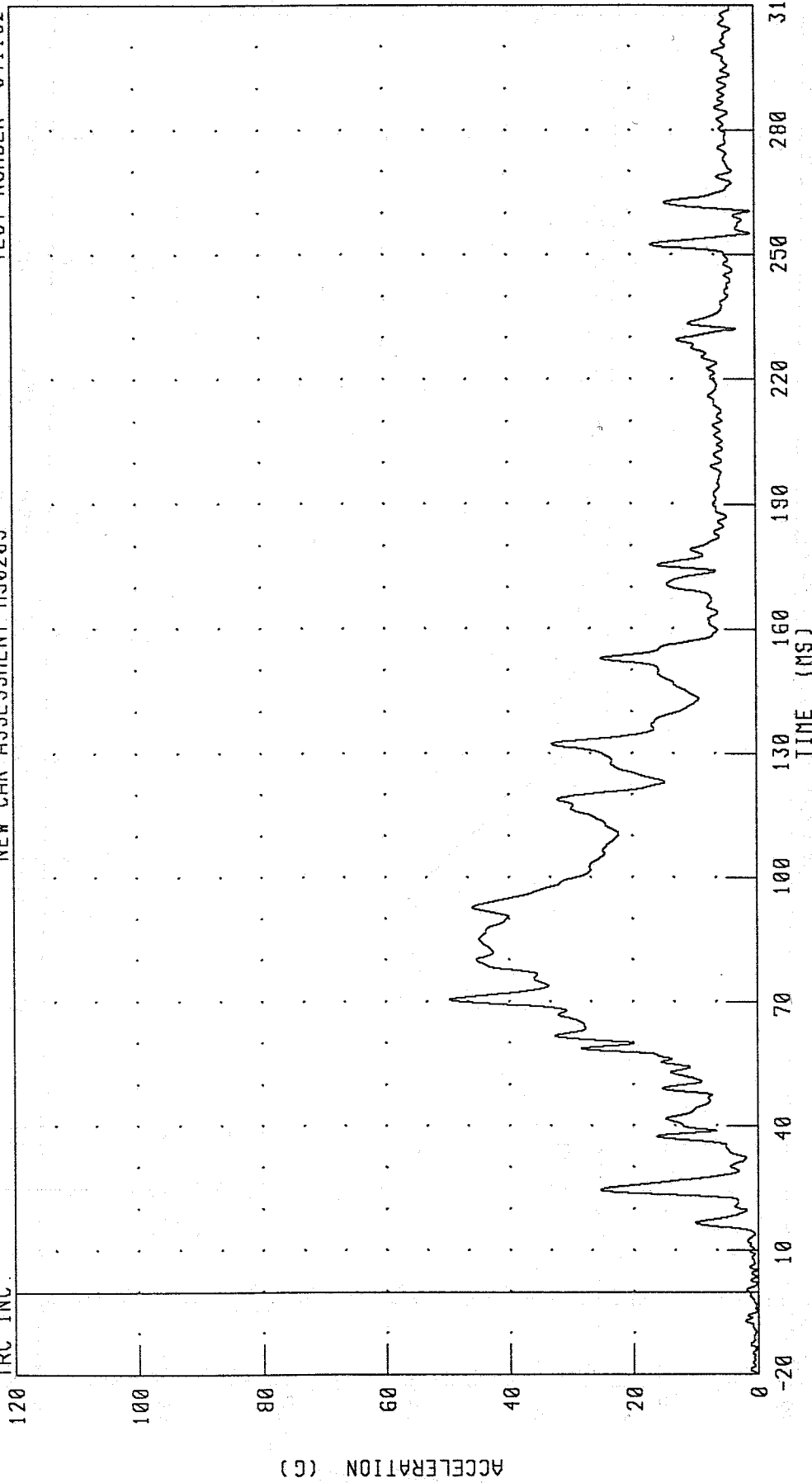
TRC INC.

CHANNEL: CSTZG1 FILTER: CH. CLASS 180 PEAK DATA: 32.79 G @ 132.24 MS; -28.32 G @ 70.64 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



PEAK DATA: 49.65 G @ 70.48 MS; 0.09 G @ -20.00 MS

CHANNEL: CSTRG1 FILTER: CH. CLASS 180

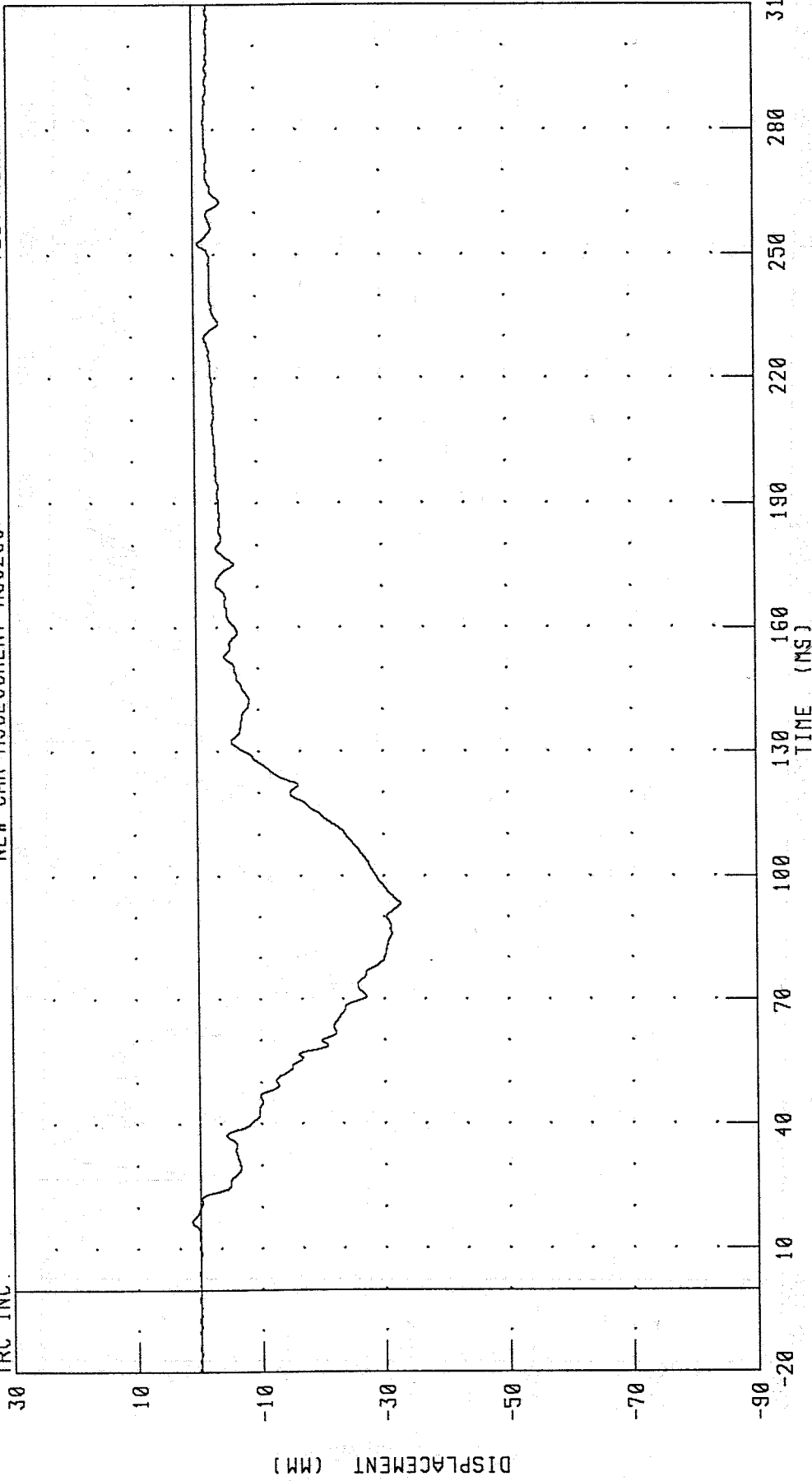
1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER

DRIVER CHEST DEFLECTION

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



PEAK DATA: 1.32 MM @ 16.56 MS; -32.66 MM @ 93.28 MS

CHANNEL: CSTXD1 FILTER: CH. CLASS 180

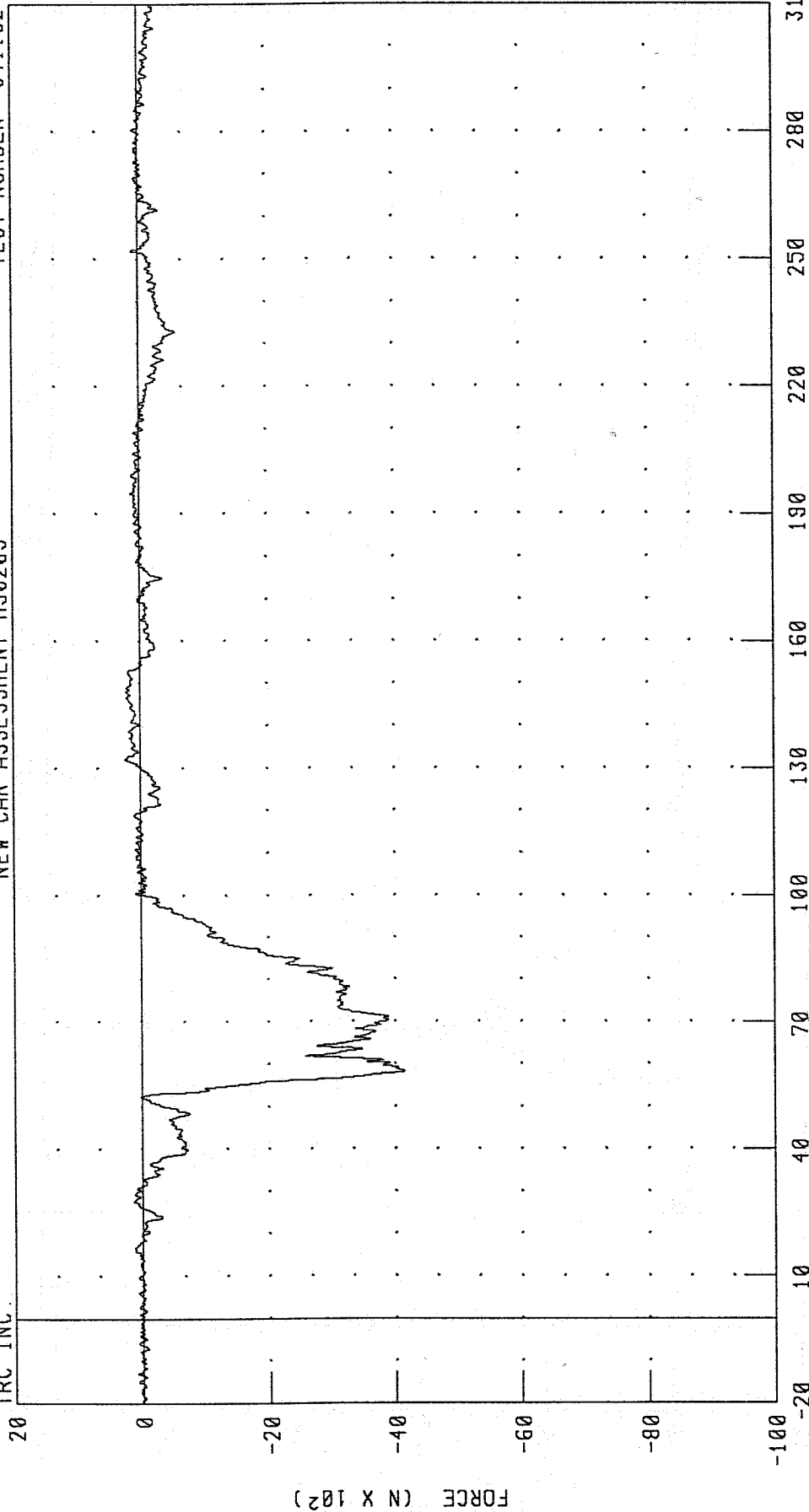
1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER

DRIVER LEFT FEMUR FORCE

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



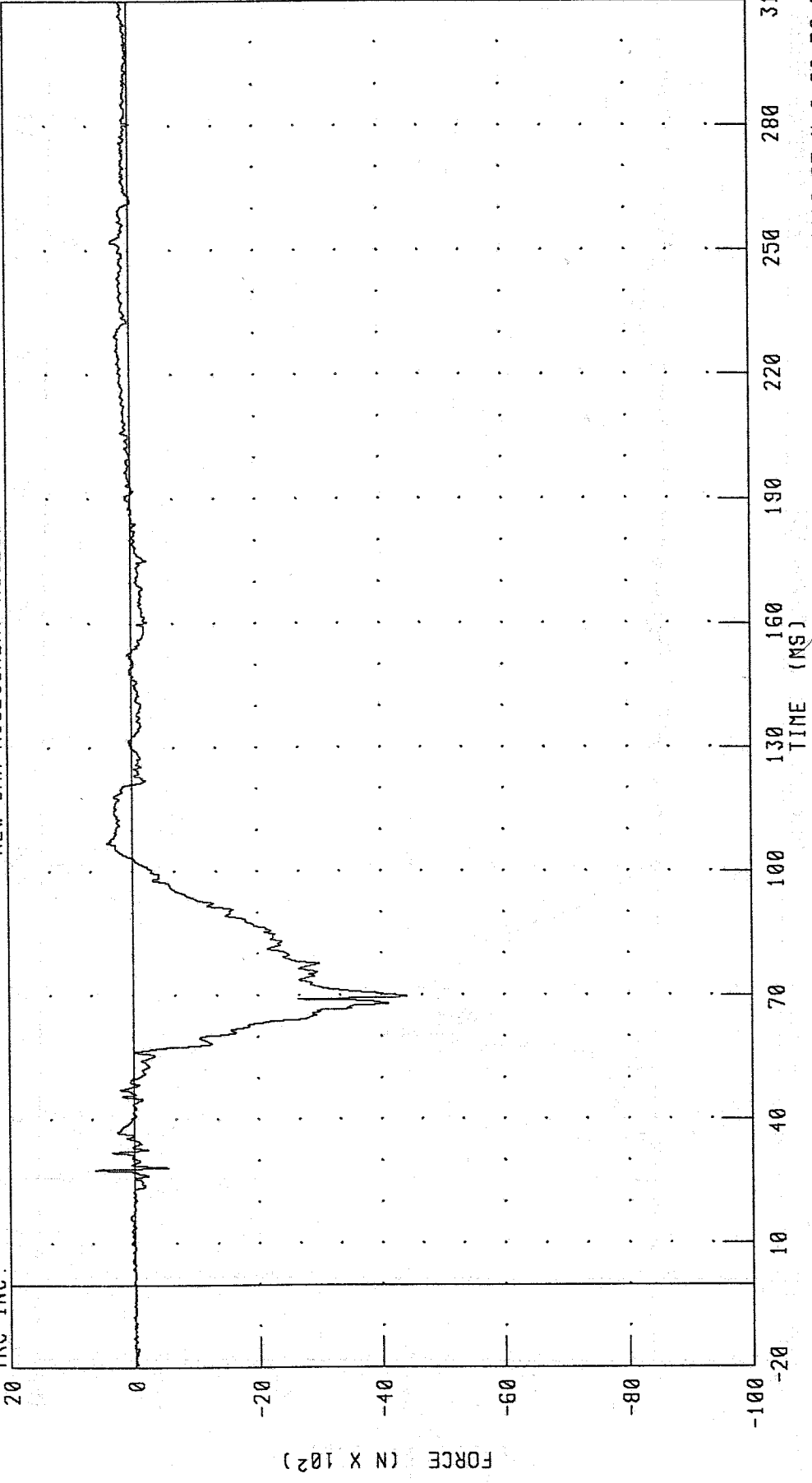
CHANNEL: LFMFI FILTER: CH. CLASS 600

PEAK DATA: 233.52 N @ 132.08 MS; -4149.69 N @ 58.24 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

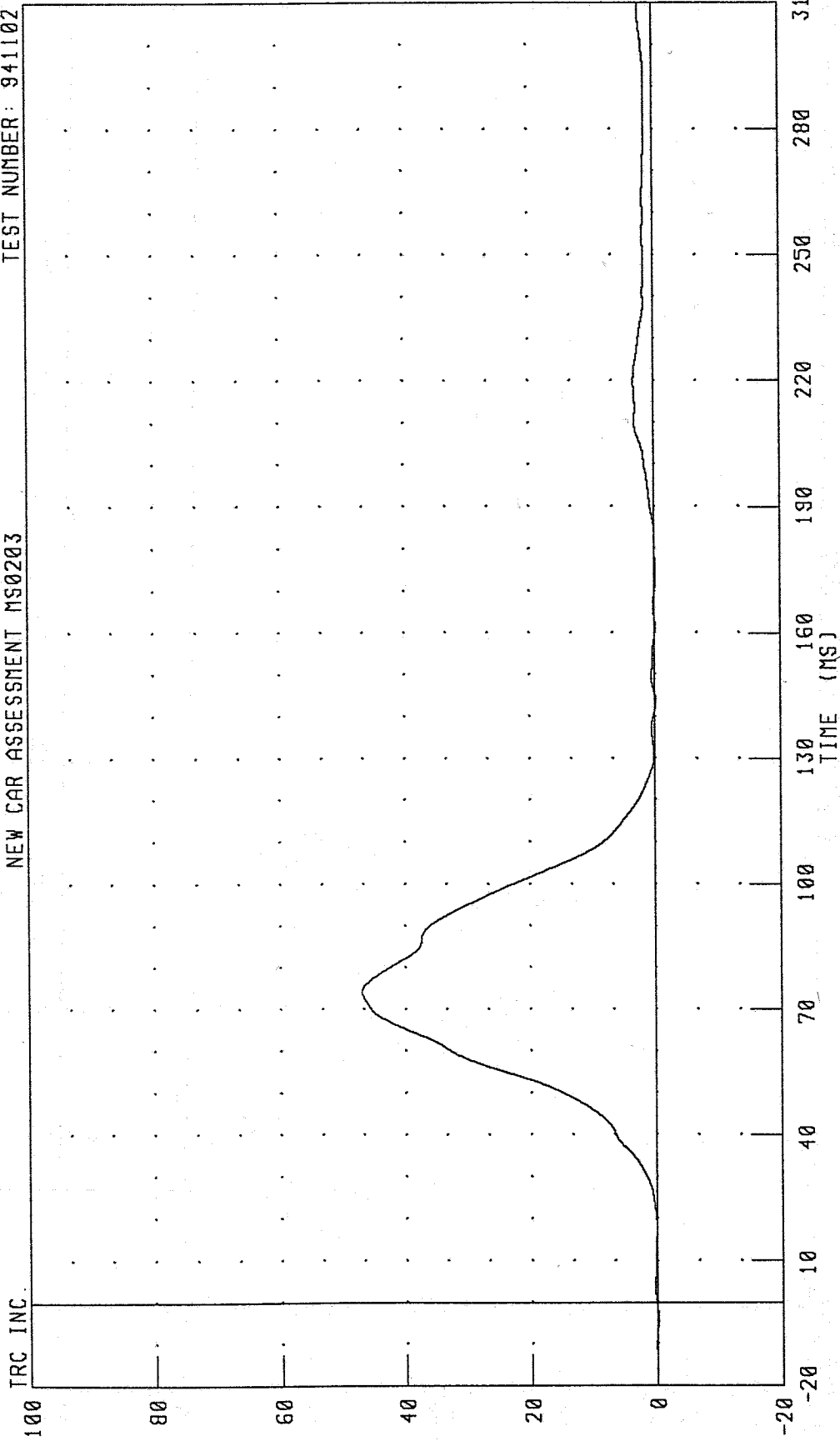
TRC INC.



CHANNEL: RFMFI FILTER: CH. CLASS 600 PEAK DATA: 624.62 N @ 27.84 MS; -4419.25 N @ 69.76 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

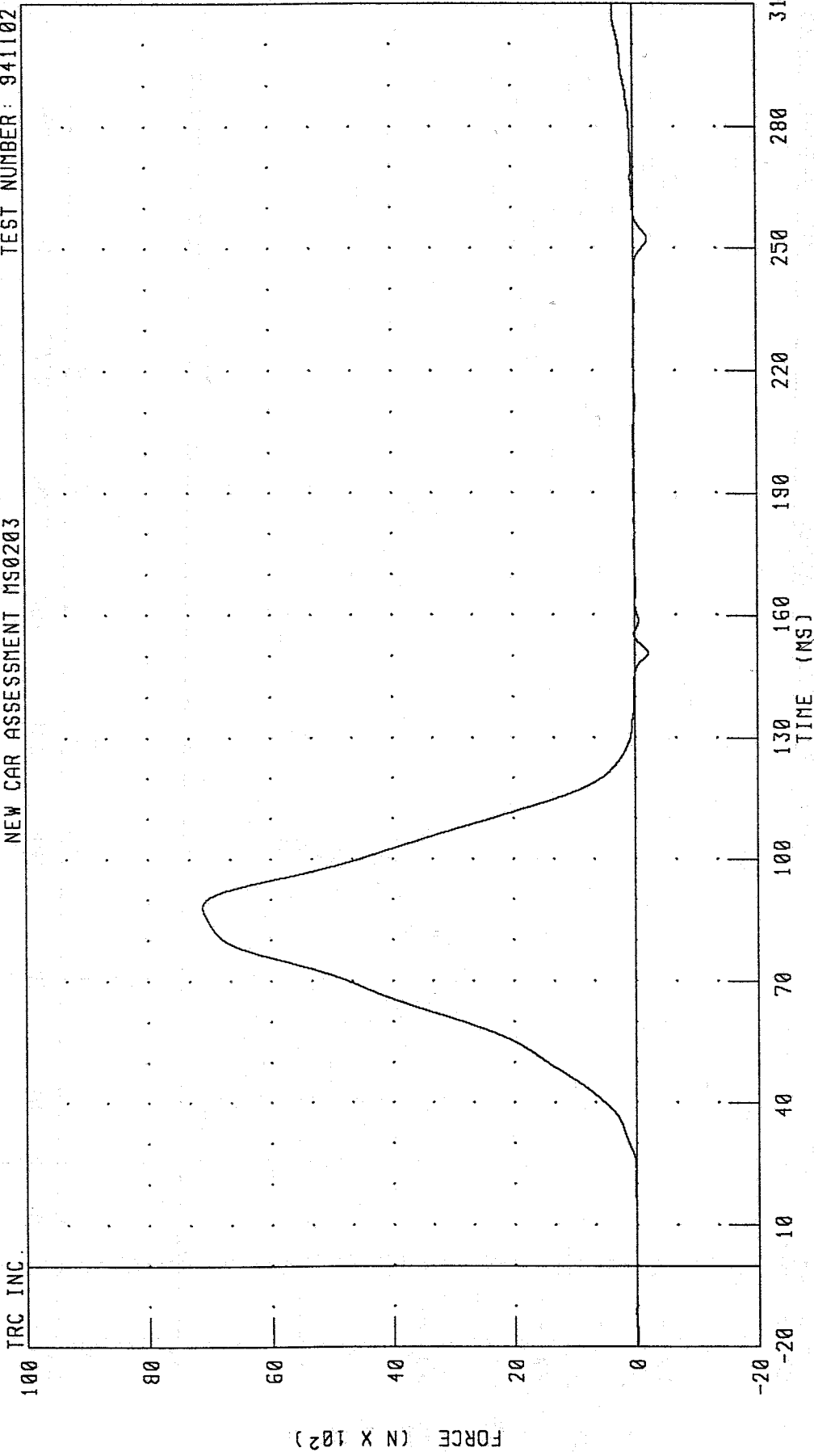


PEAK DATA: 4694.06 N @ 74.24 MS; -20.28 N @ 174.24 MS

CHANNEL: LBOFI FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

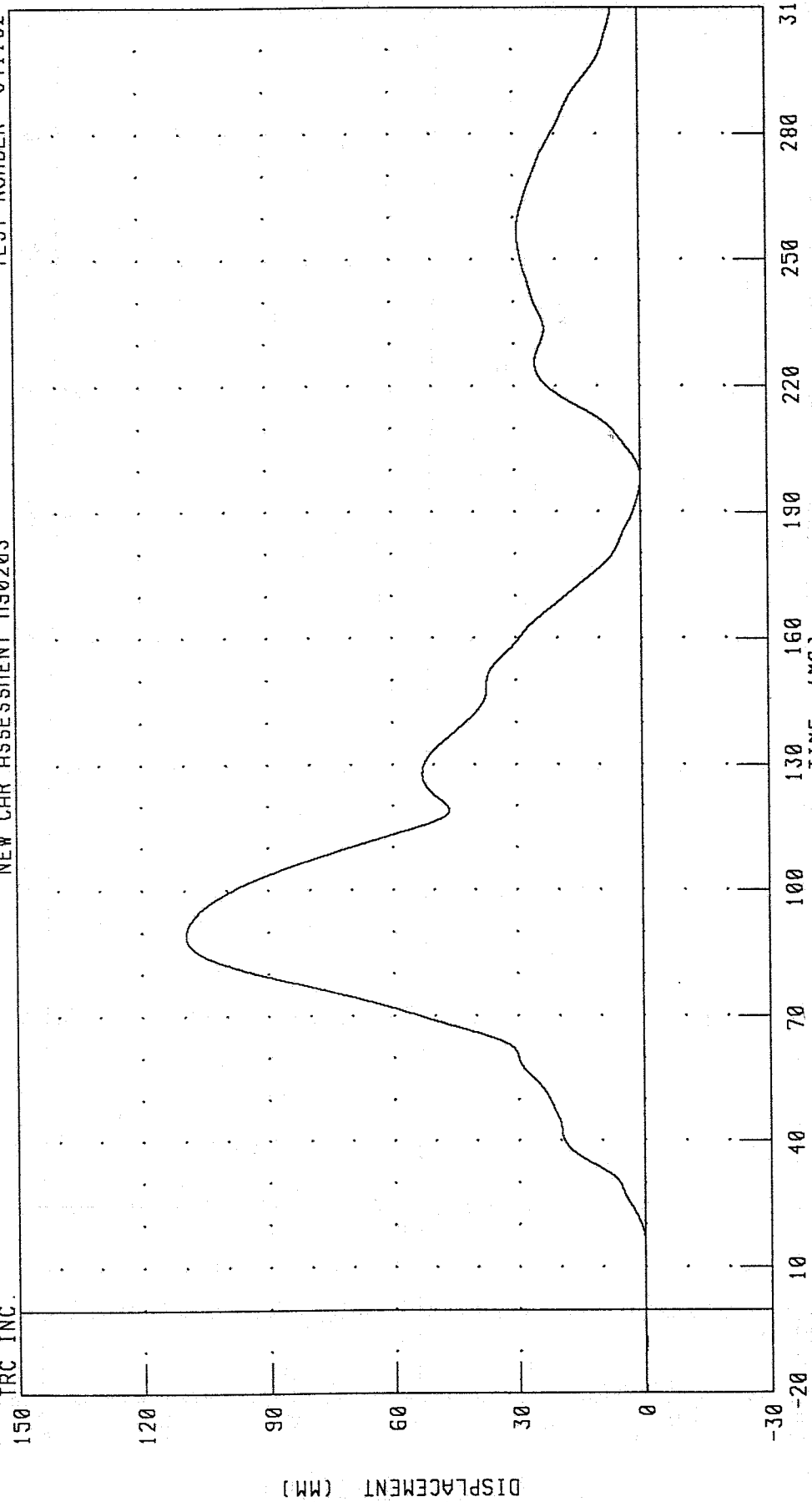


CHANNEL: SHBF1 FILTER: CH. CLASS 60 PEAK DATA: 7114.27 N @ 88.16 MS; -218.70 N @ 252.24 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



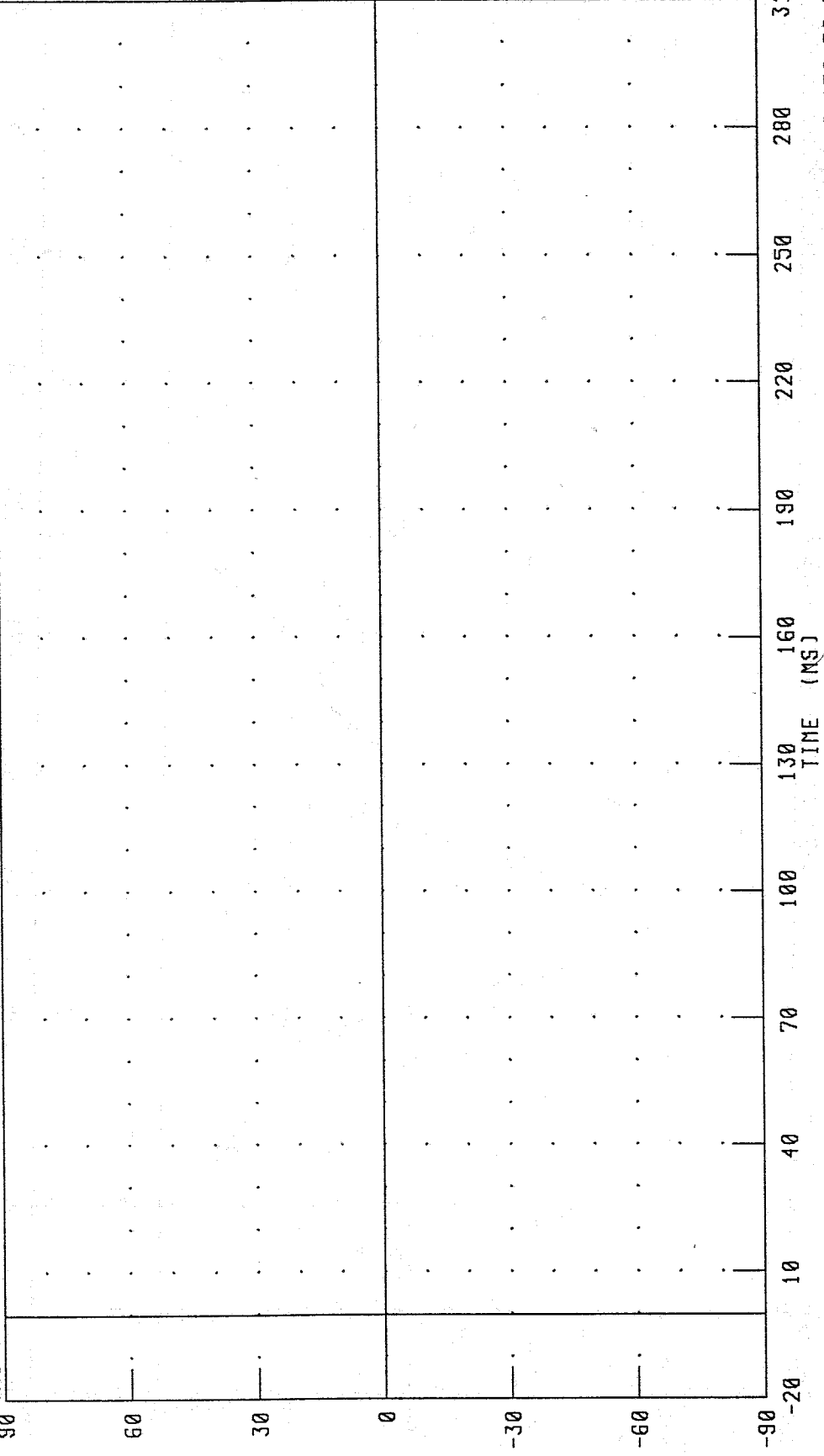
CHANNEL: SHB01 FILTER: CH. CLASS 60

PEAK DATA: 109.63 MM @ 89.12 MS; -0.23 MM @ -20.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
 DRIVER SEAT BELT EXTENSION
 NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

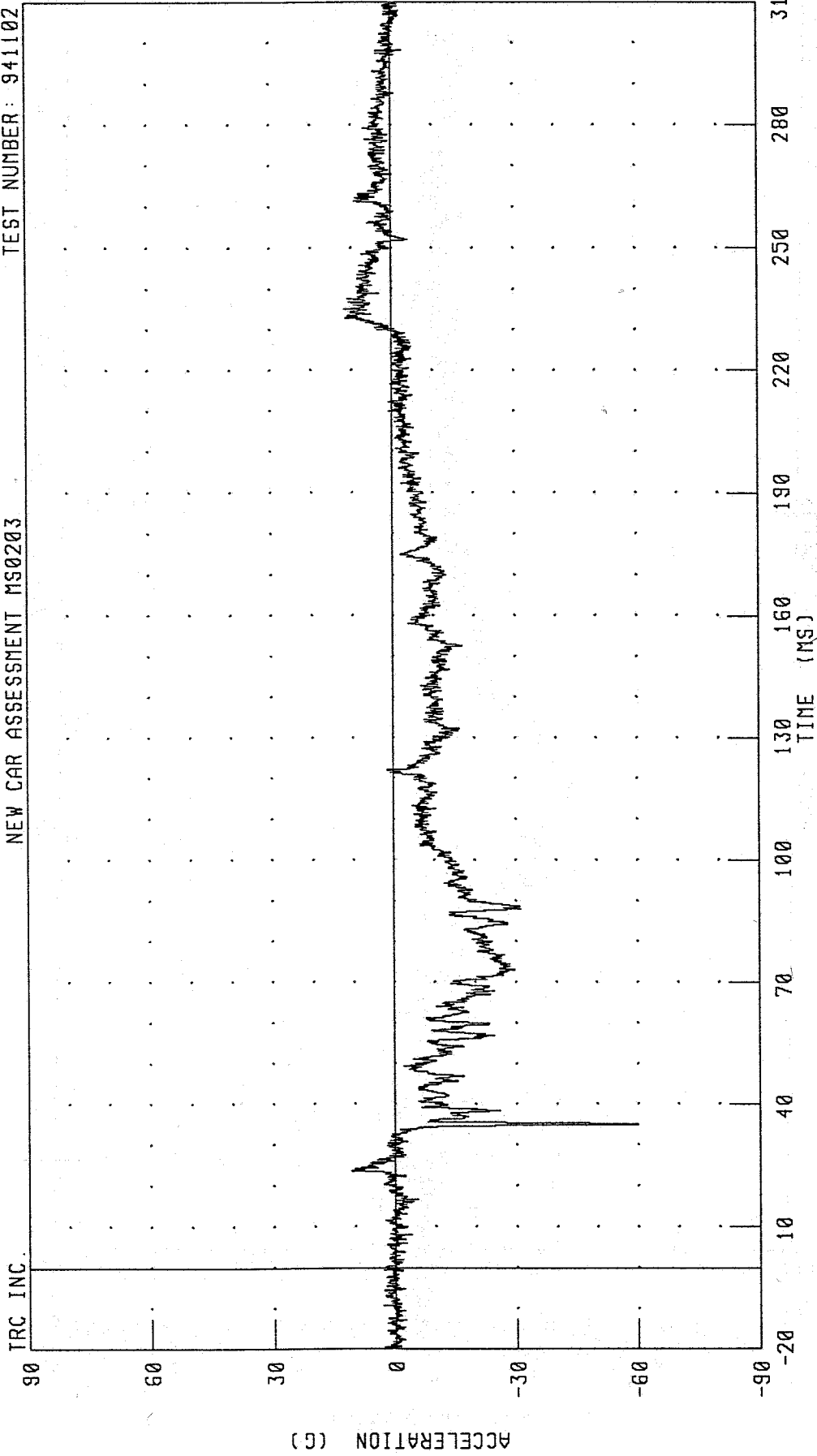
TRC INC.



CHANNEL: SBEDI FILTER: CH. CLASS 60 PEAK DATA: 0.01 MM @ 18.32 MS; -0.01 MM @ 158.72 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

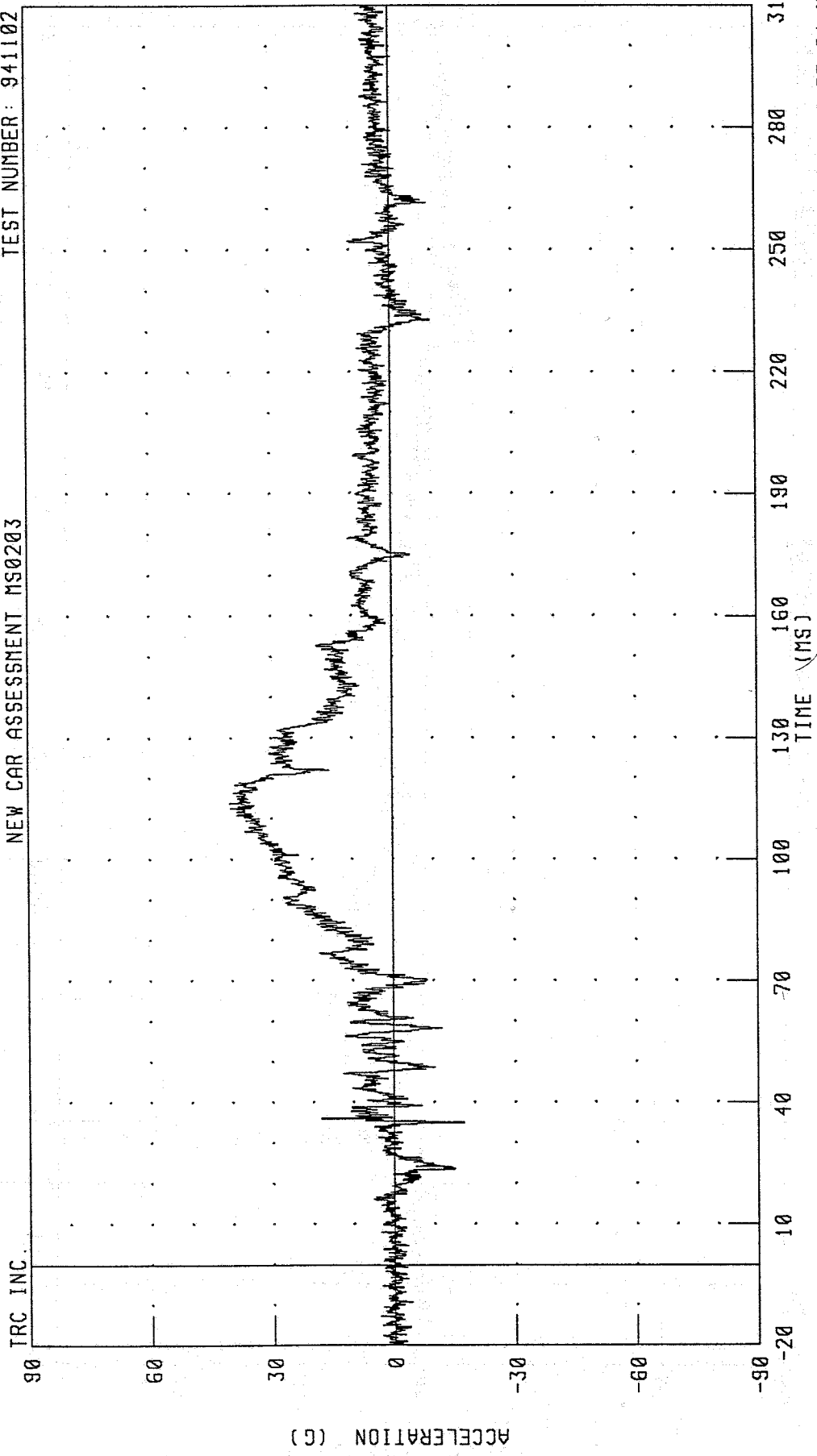


TRC INC.

CHANNEL: HEDXC2 FILTER: CH. CLASS 1000
PEAK DATA: 11.78 G @ 235.12 MS; -59.91 G @ 35.04 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

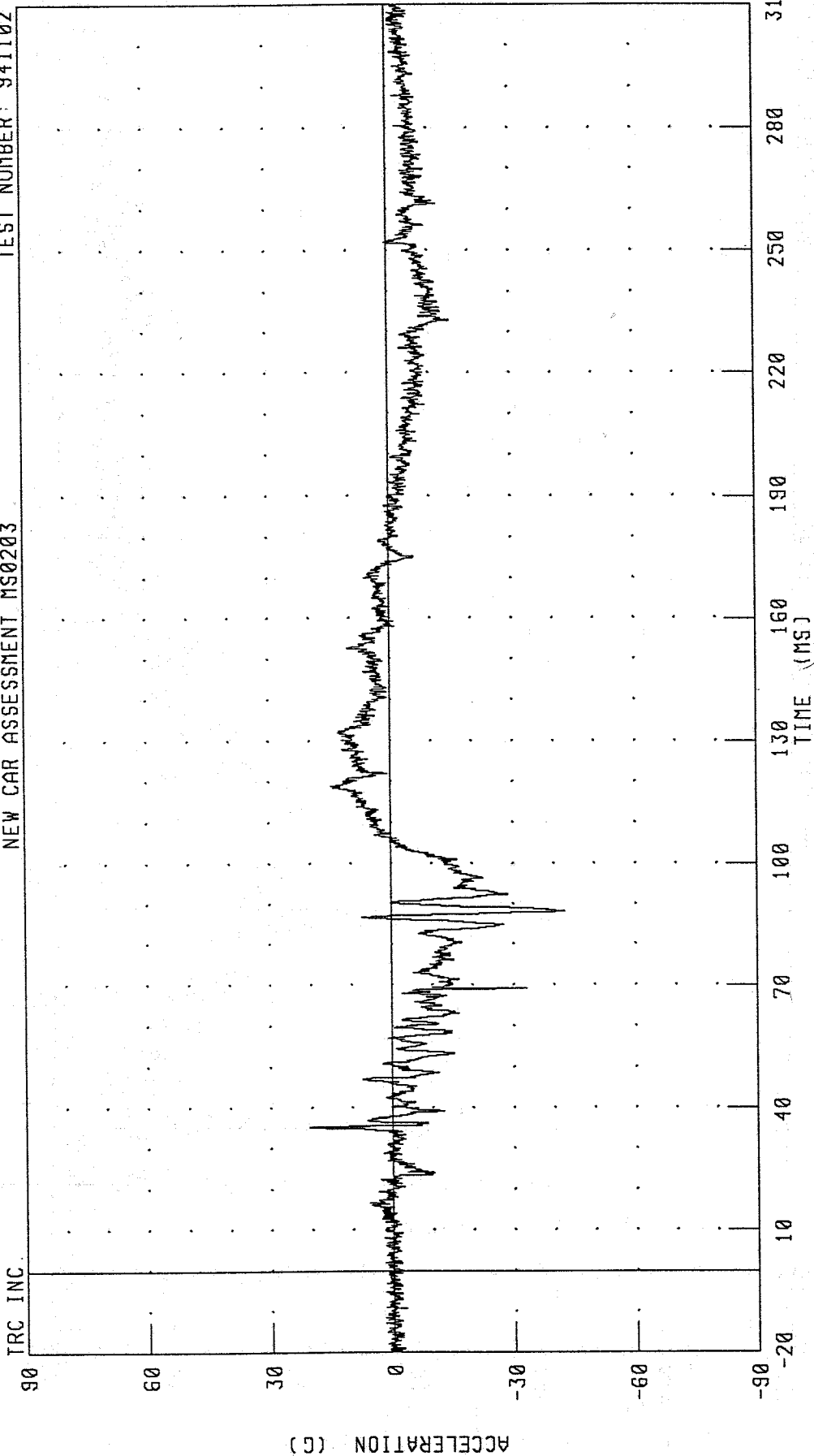
TEST NUMBER: 941102



CHANNEL: HEDYC2 FILTER: CH. CLASS 1000 PEAK DATA: 40.45 G @ 113.92 MS; -17.21 G @ 35.04 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



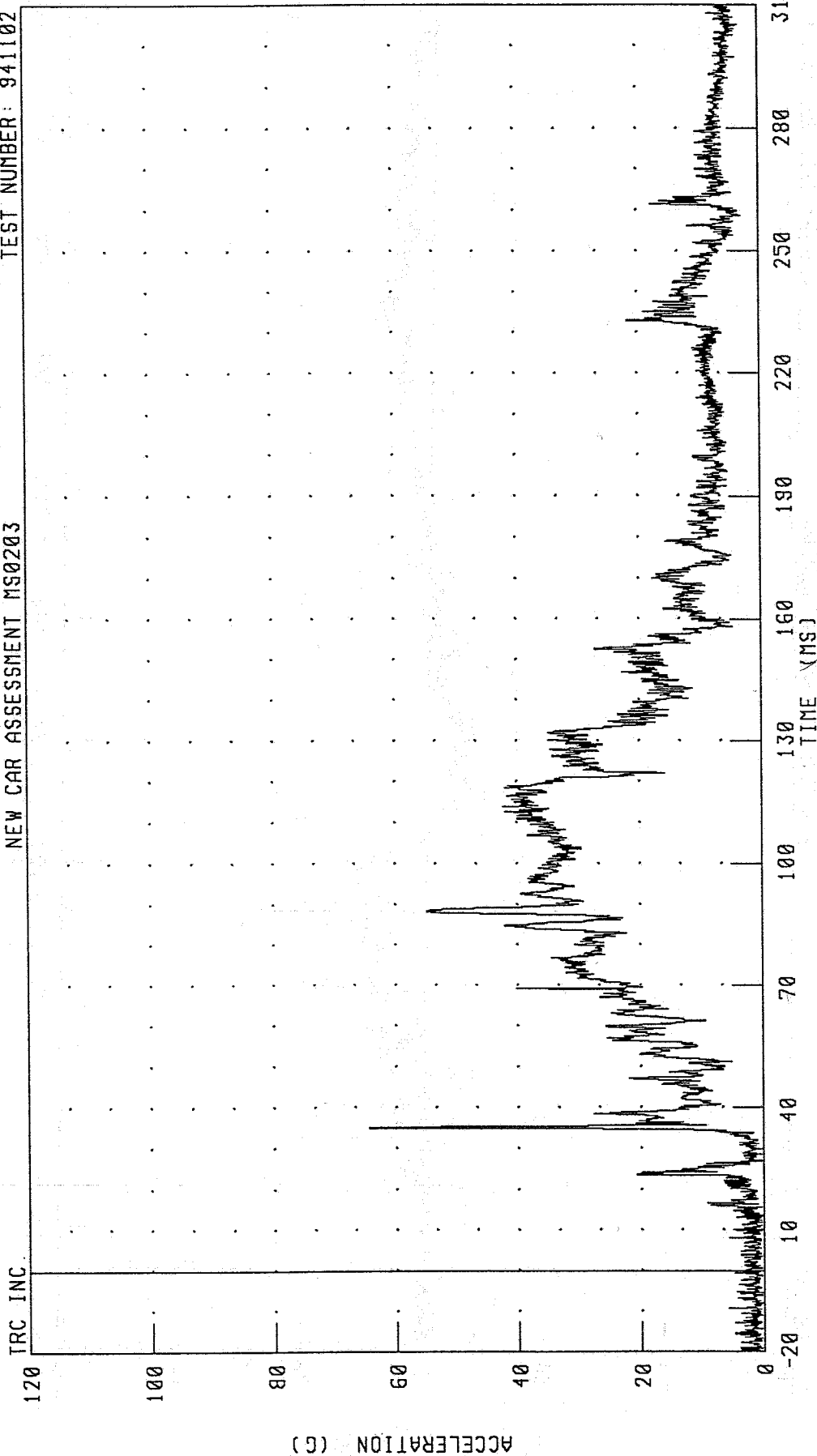
TRC INC.

CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 20.61 G @ 35.28 MS; -42.56 G @ 88.24 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT MS0203

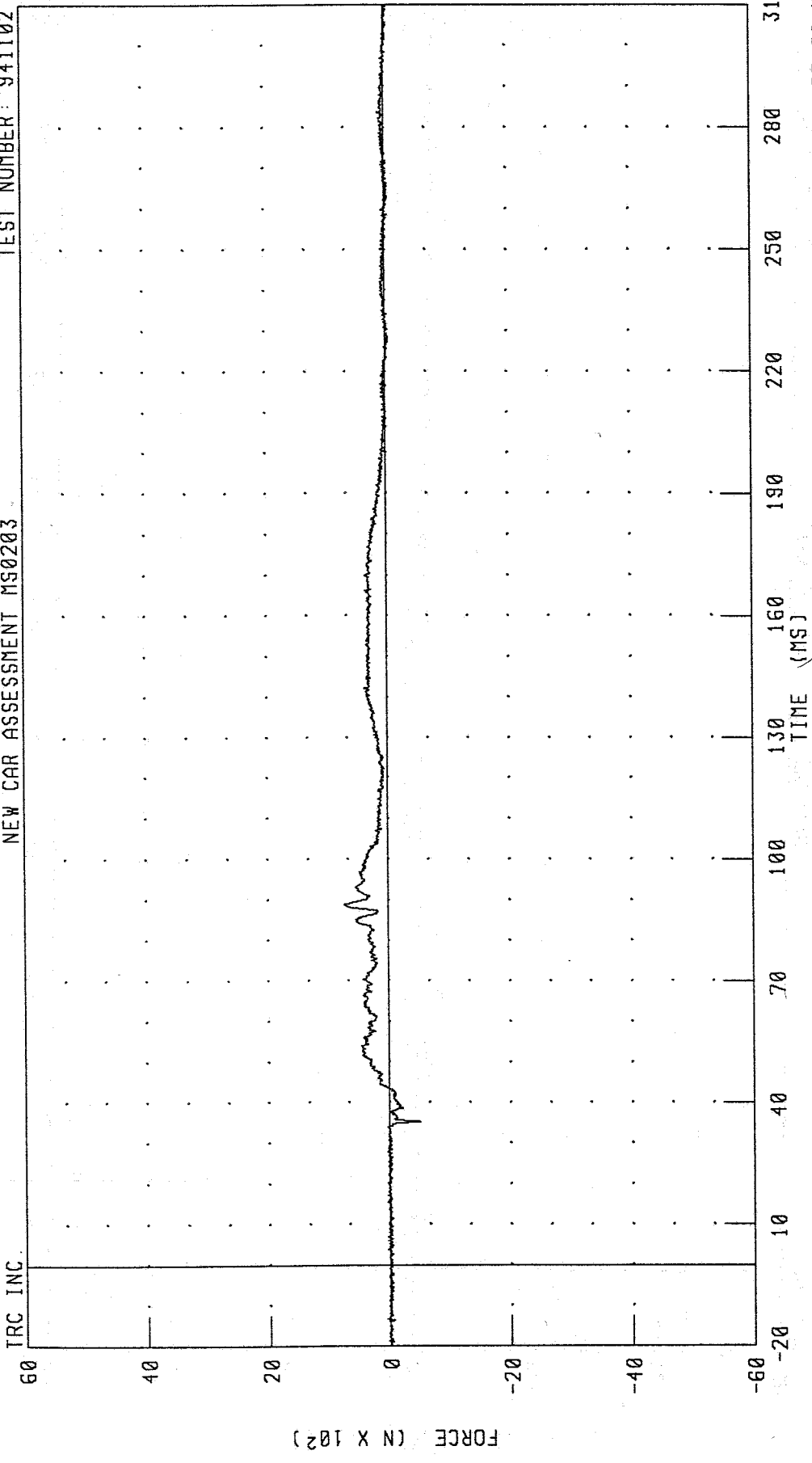
TEST NUMBER: 941102



CHANNEL: HEDRG2 FILTER: CH. CLASS 1000 PEAK DATA: 64.47 G @ 35.04 MS; 0.15 G @ -8.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT M50203

TEST NUMBER: 941102

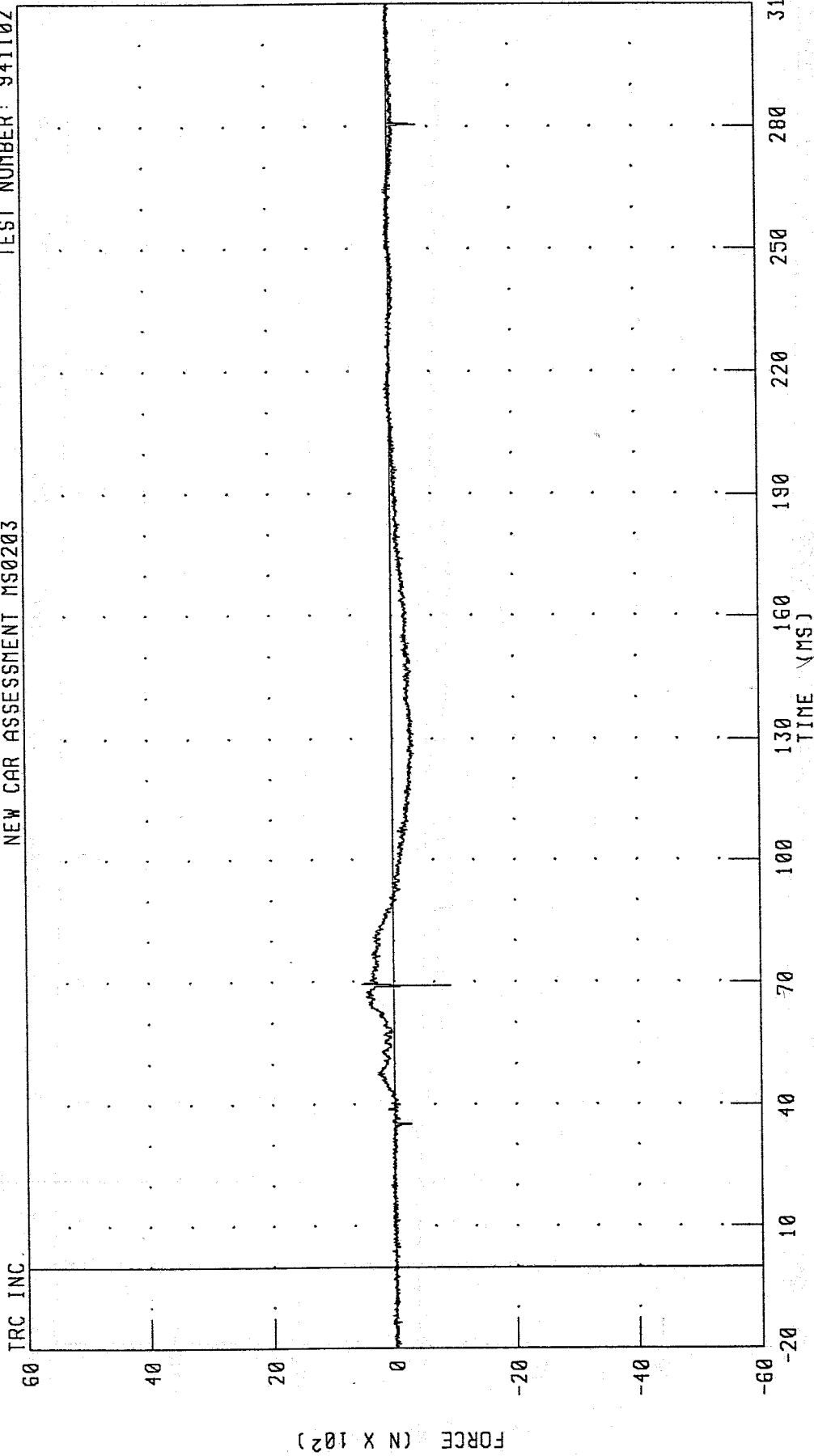


PEAK DATA: 727.58 N @ 88.88 MS; -510.94 N @ 35.20 MS

CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0203

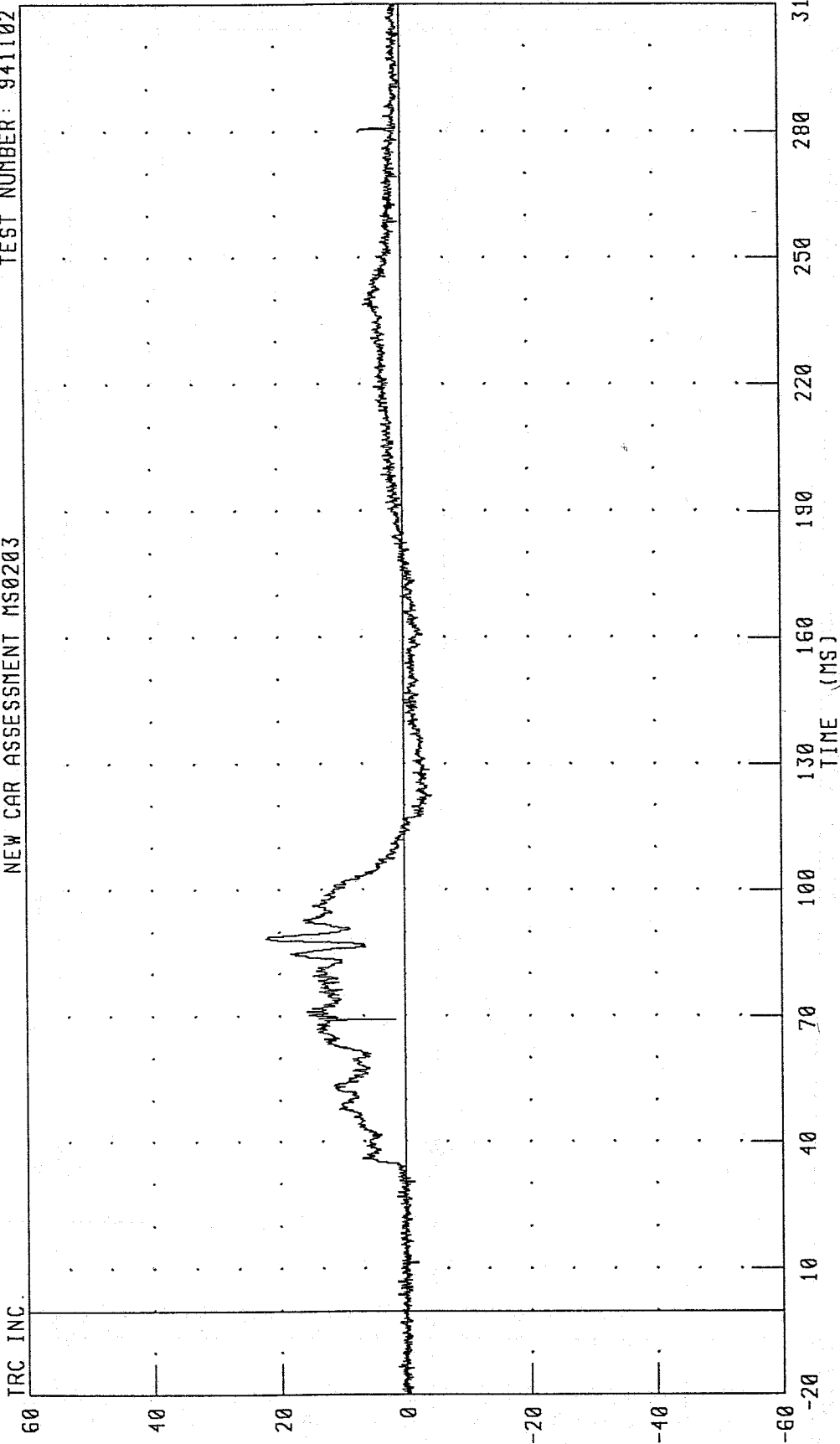
TEST NUMBER: 941102



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000 PEAK DATA: 518.49 N @ 69.52 MS; -935.23 N @ 69.20 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



TRC INC.

FORCE ($N \times 10^2$)

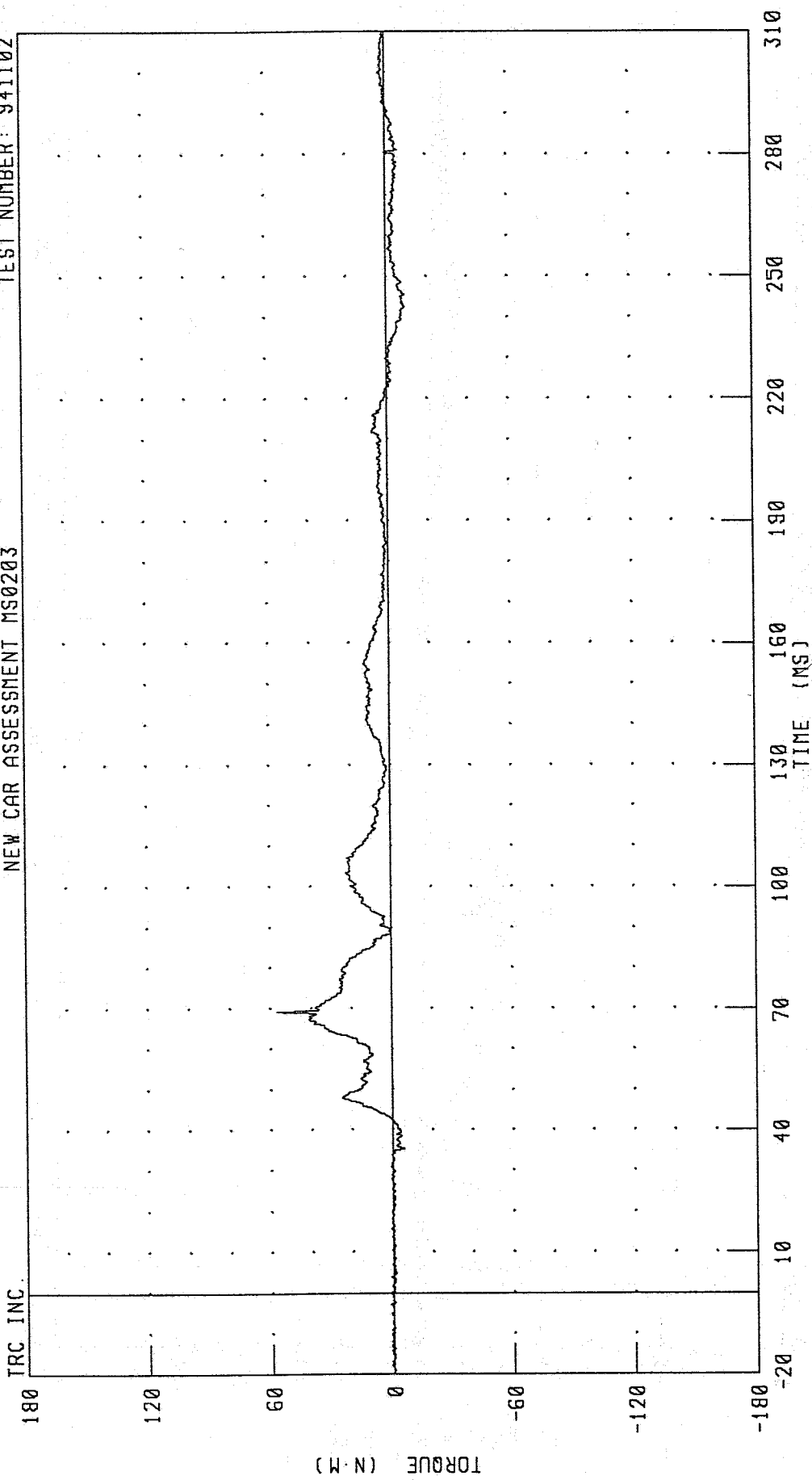
TIME (MS)

PEAK DATA: 2213.44 N @ 88.56 MS; -434.80 N @ 122.56 MS

CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT MS0203

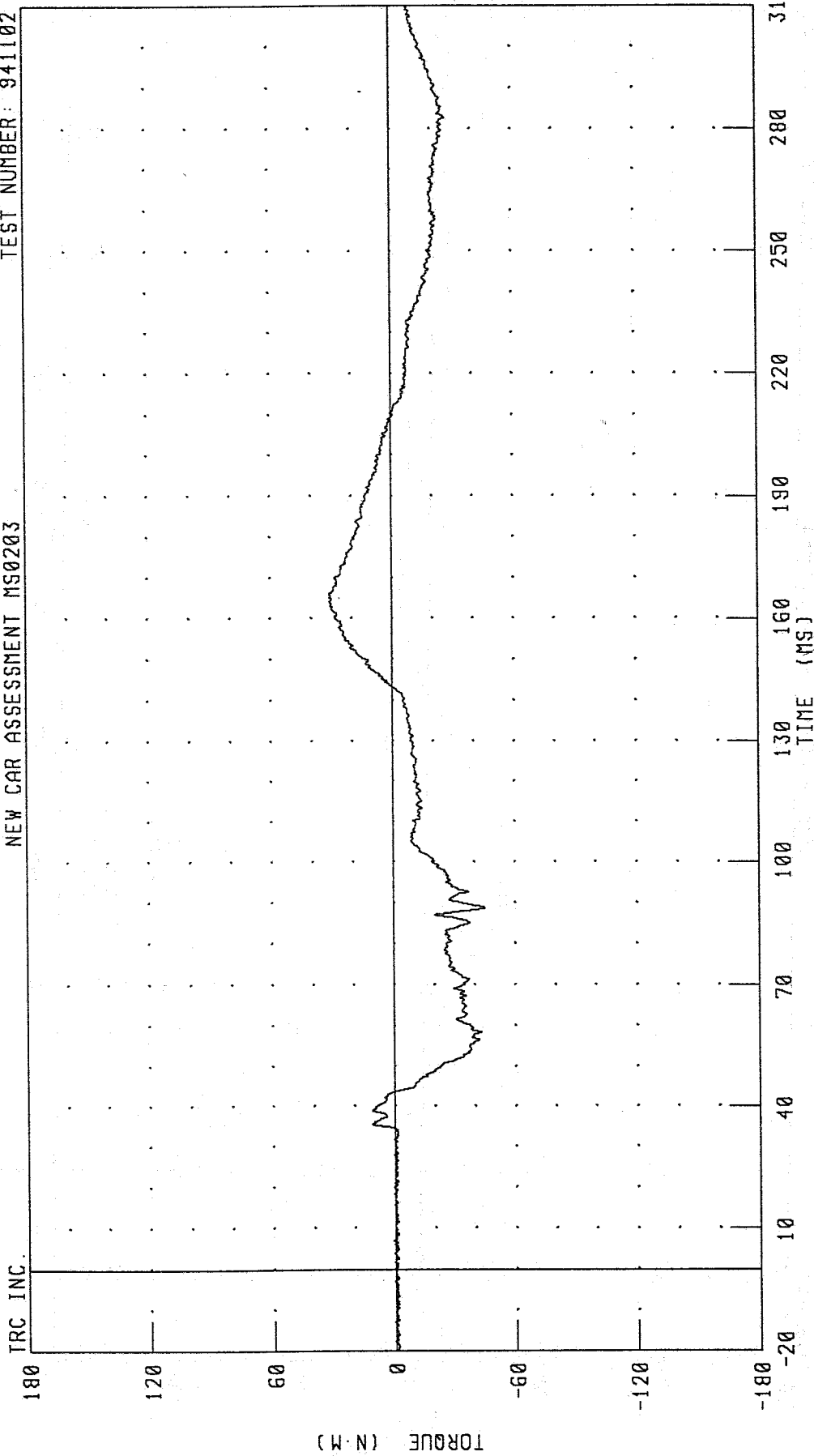
TEST NUMBER: 941102



CHANNEL: NEKX12 FILTER: CH. CLASS 600 PEAK DATA: 56.90 N.M @ 69.12 MS; -9.07 N.M @ 242.56 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT MS0203

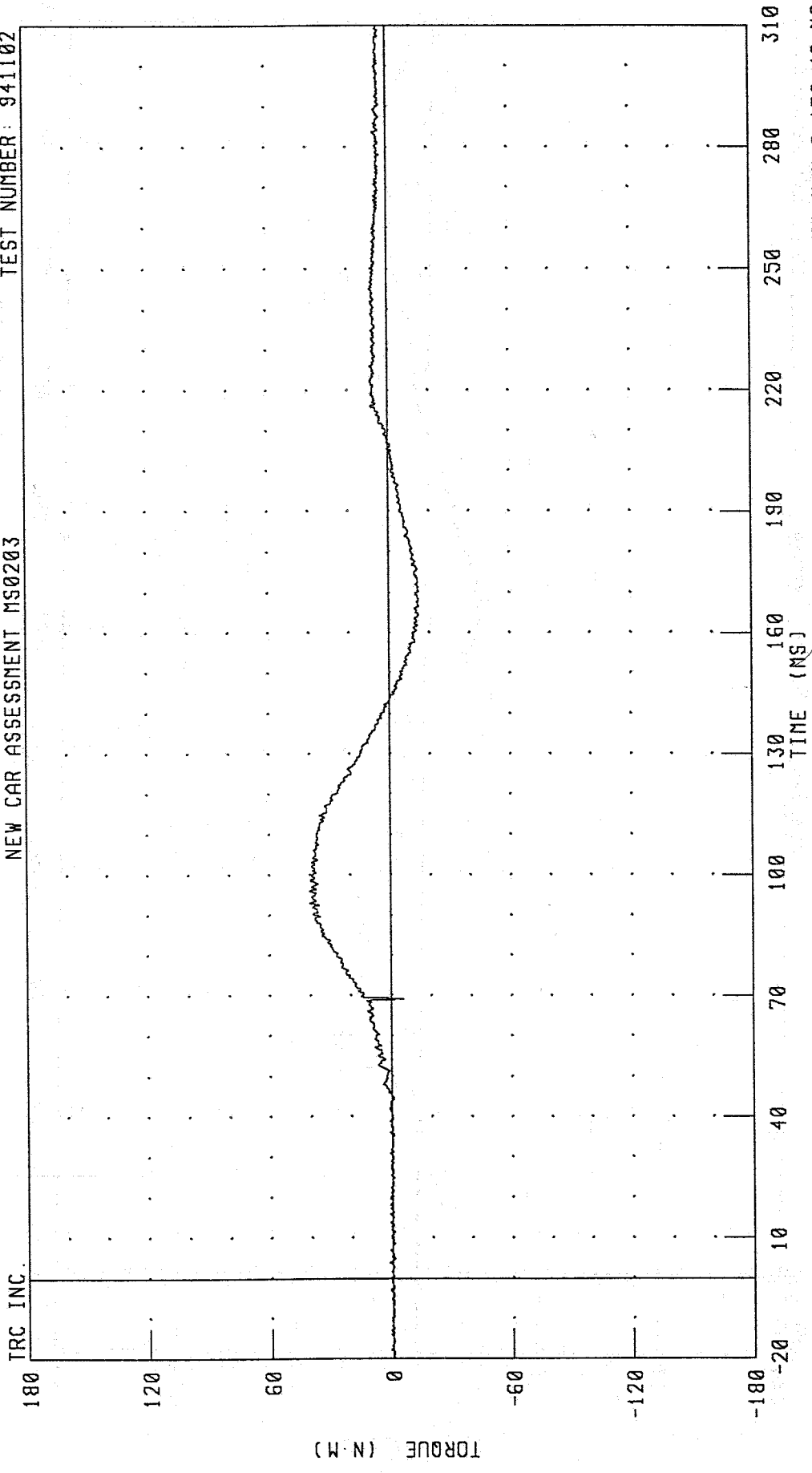
TEST NUMBER: 941102



CHANNEL: NEKYM2 FILTER: CH. CLASS 600
PEAK DATA: 30.97 N.M @ 166.00 MS; -45.24 N.M @ 88.72 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

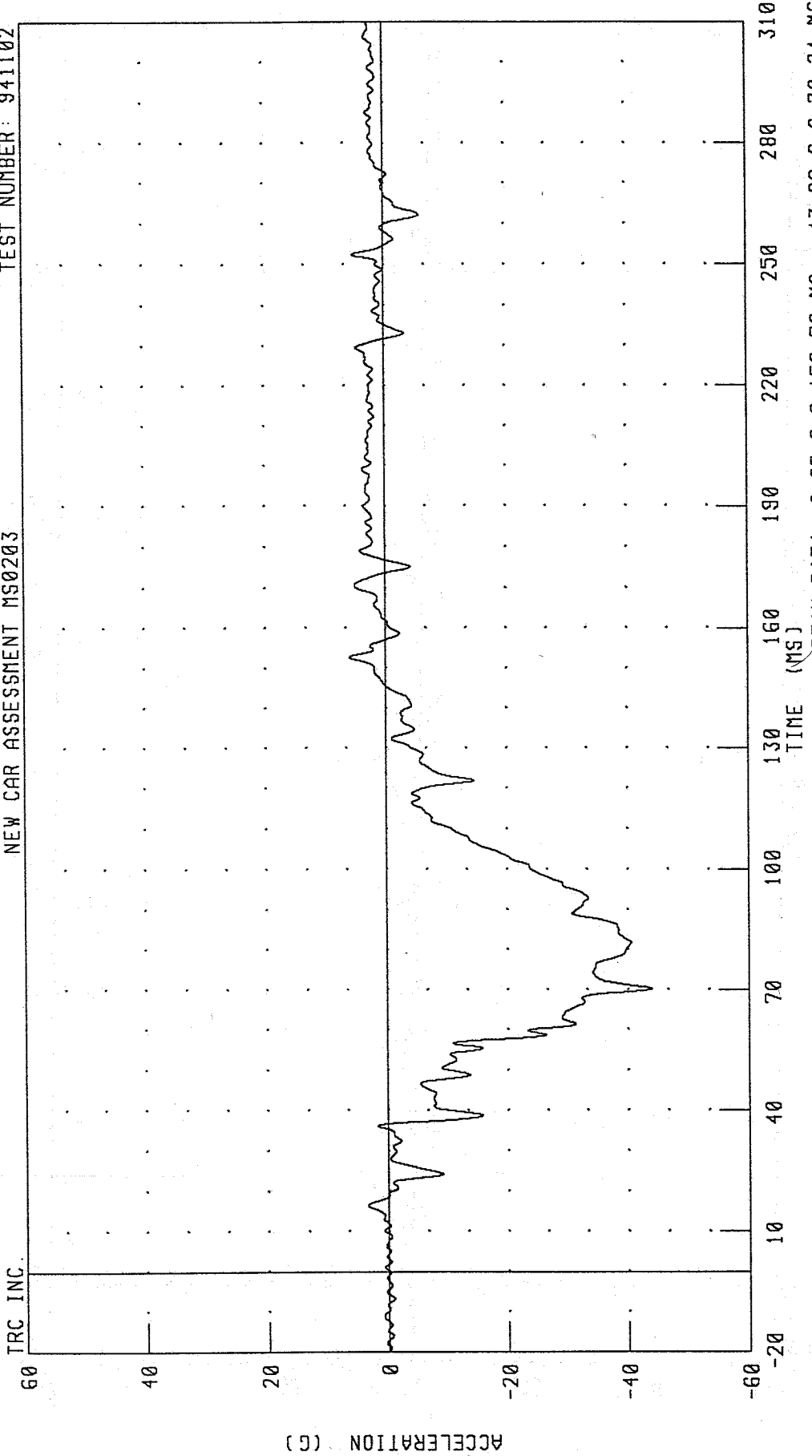


TRC INC.

CHANNEL: NEKZM2 FILTER: CH. CLASS 600 PEAK DATA: 40.34 N.M @ 92.96 MS; -14.81 N.M @ 170.40 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



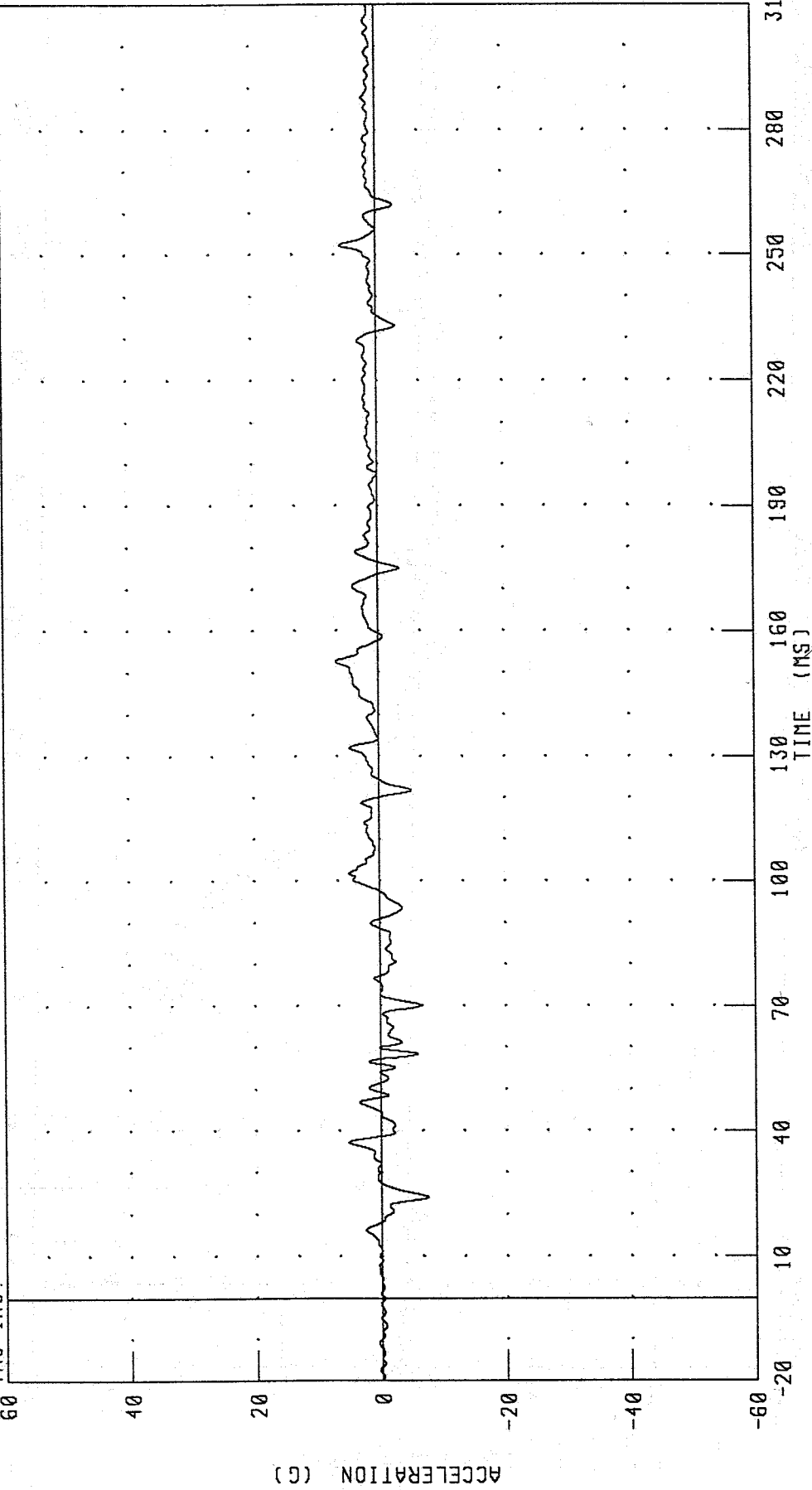
CHANNEL: CSTXG2 FILTER: CH. CLASS 180 PEAK DATA: 6.07 G @ 152.72 MS; -43.99 G @ 70.24 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

TRC INC.



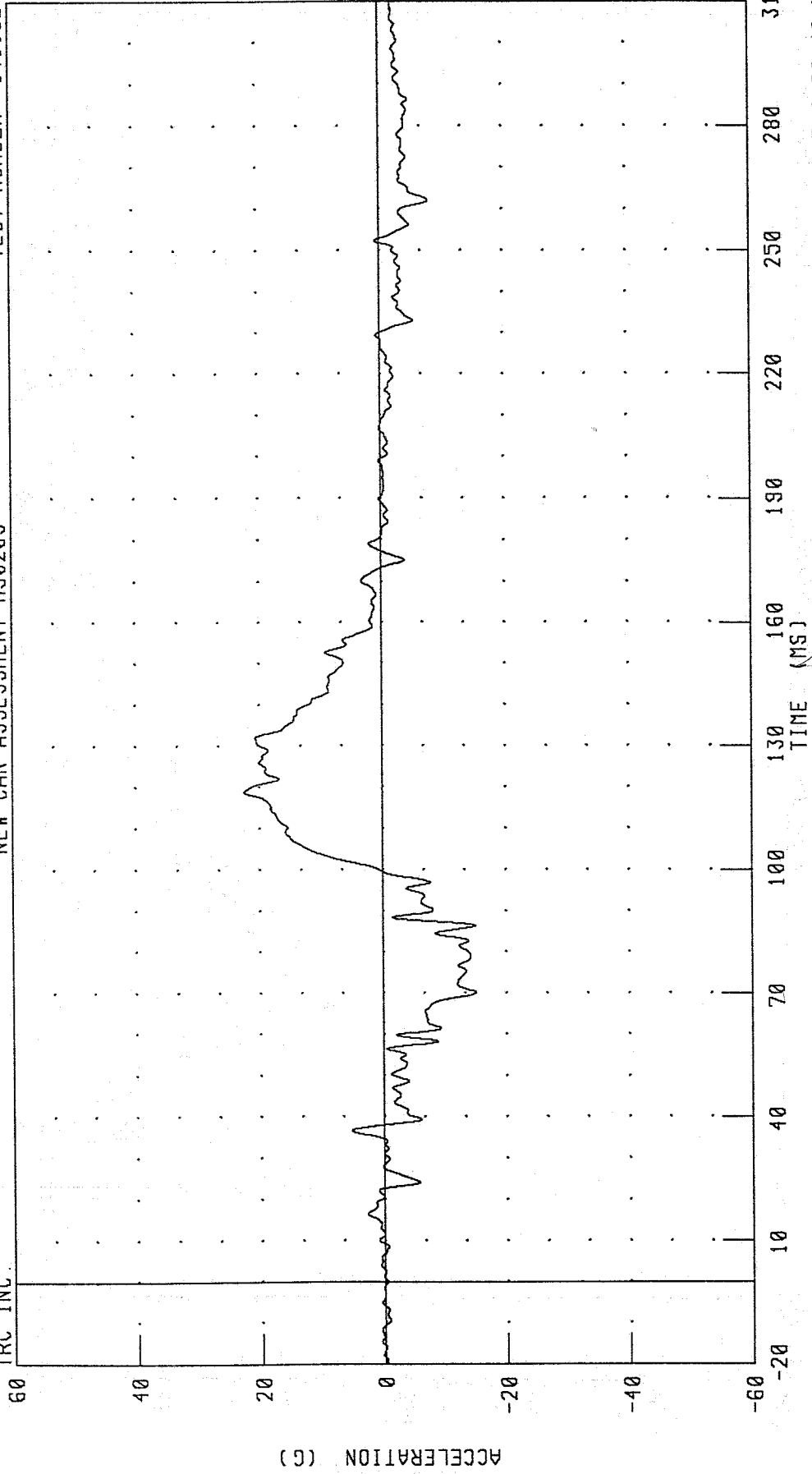
PEAK DATA: 6.82 G @ 152.72 MS; -7.49 G @ 24.08 MS

CHANNEL: CSTYG2 FILTER: CH. CLASS 180

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

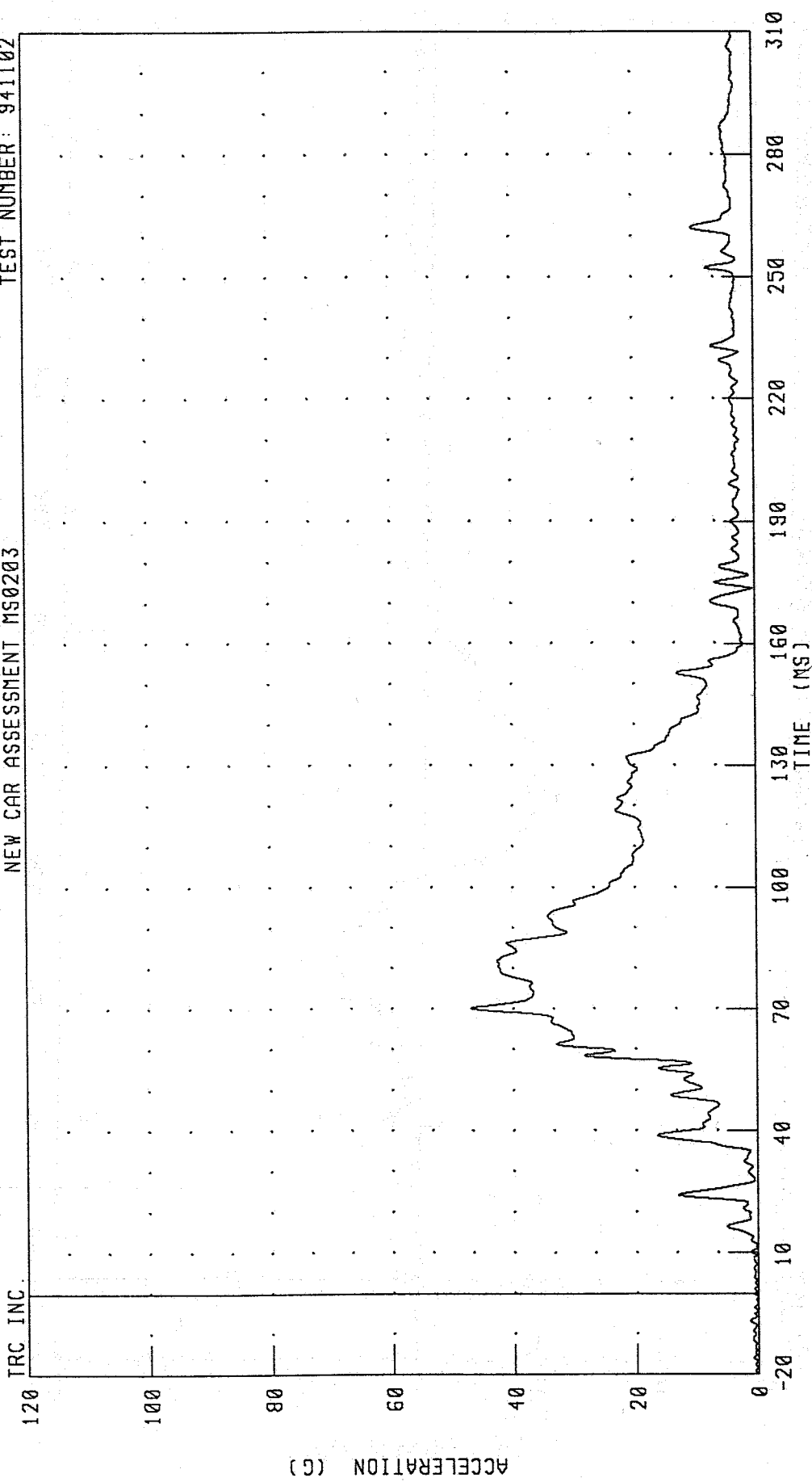


PEAK DATA: 22.56 G @ 118.88 MS; -15.13 G @ 86.40 MS

CHANNEL: CSTZG2 FILTER: CH. CLASS 180

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT MS0203

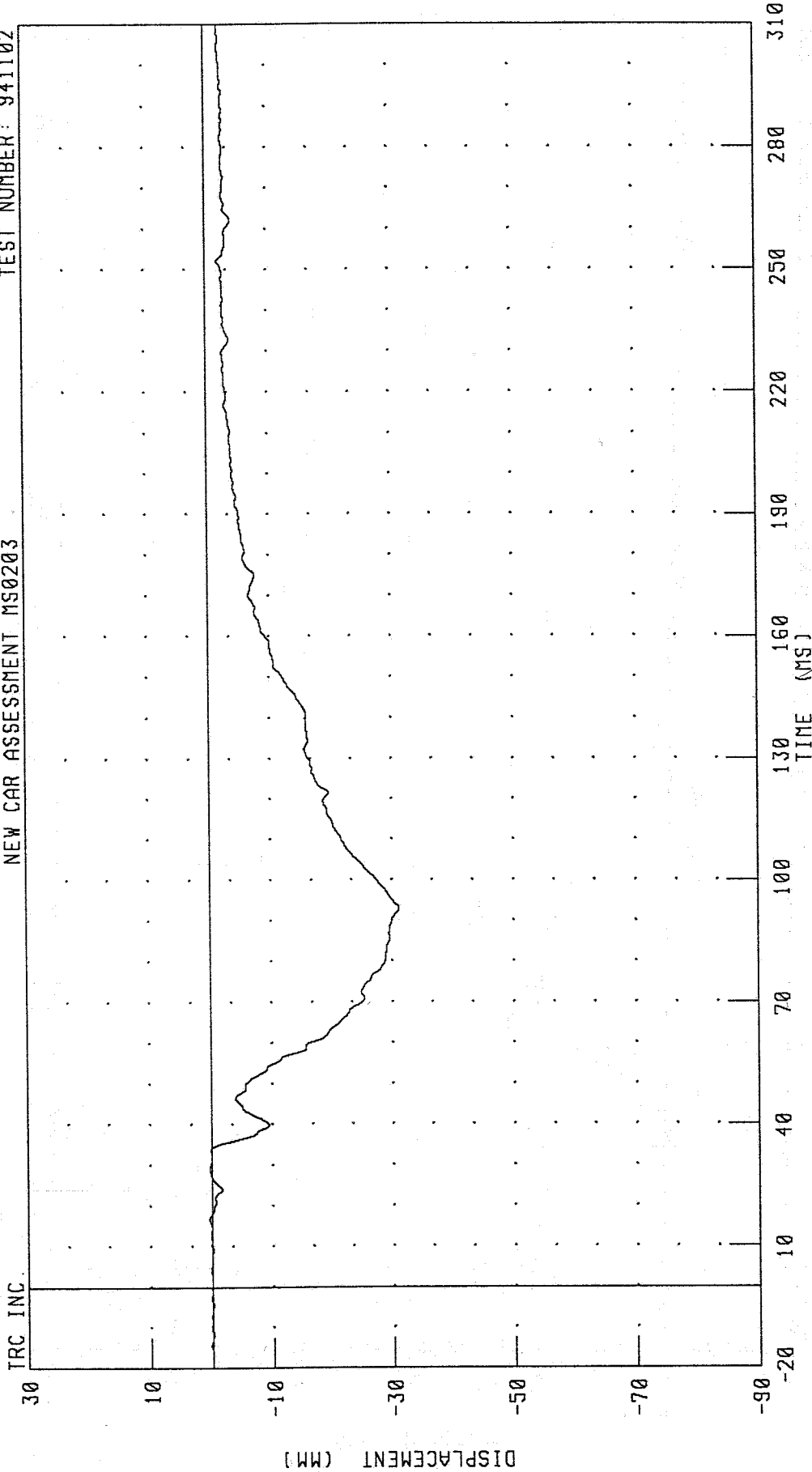
TEST NUMBER: 941102



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST DEFLECTION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

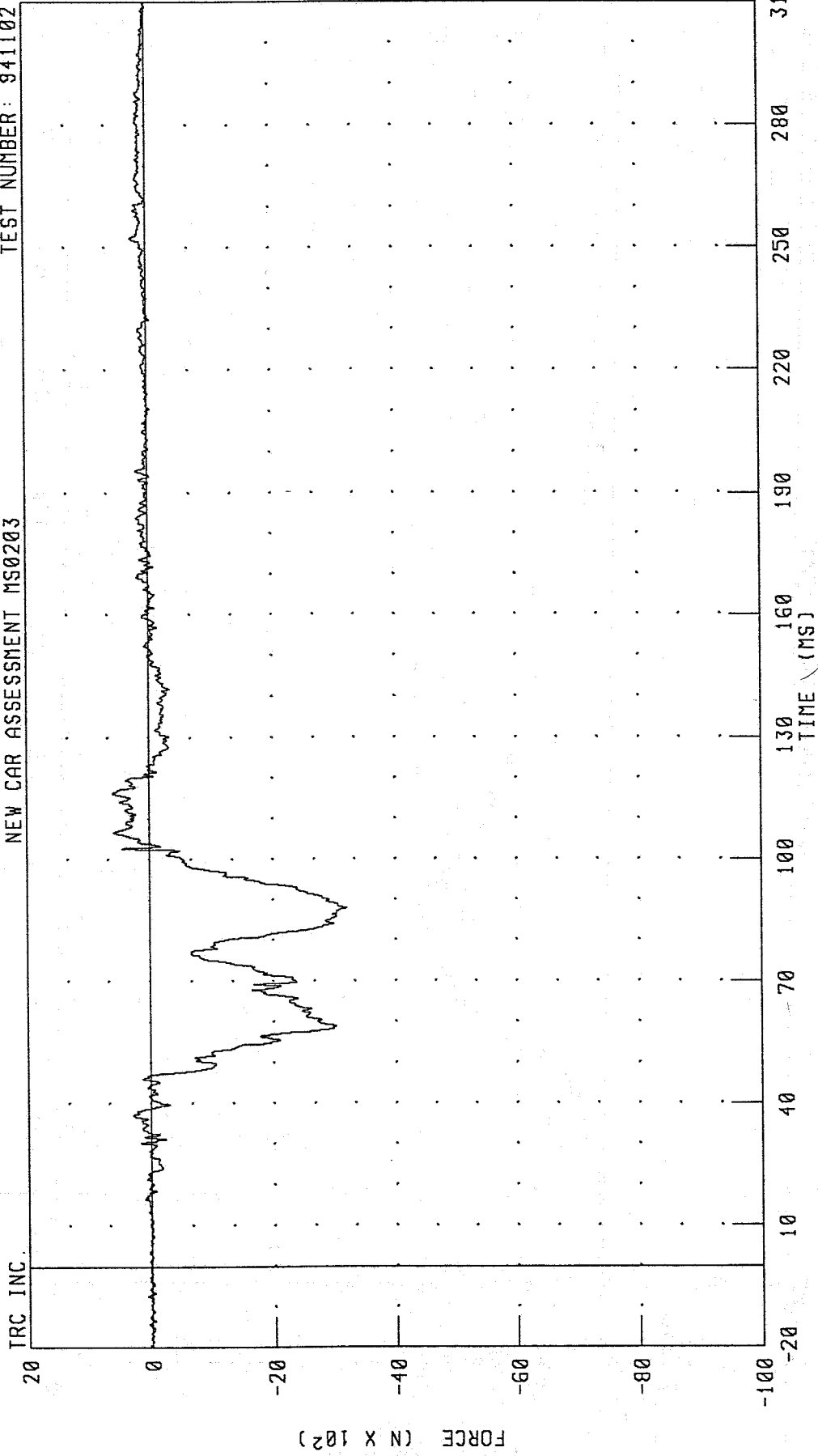


PEAK DATA: 0.45 MM @ 16.56 MS; -31.21 MM @ 92.96 MS

CHANNEL: CSTXD2 FILTER: CH. CLASS 180

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

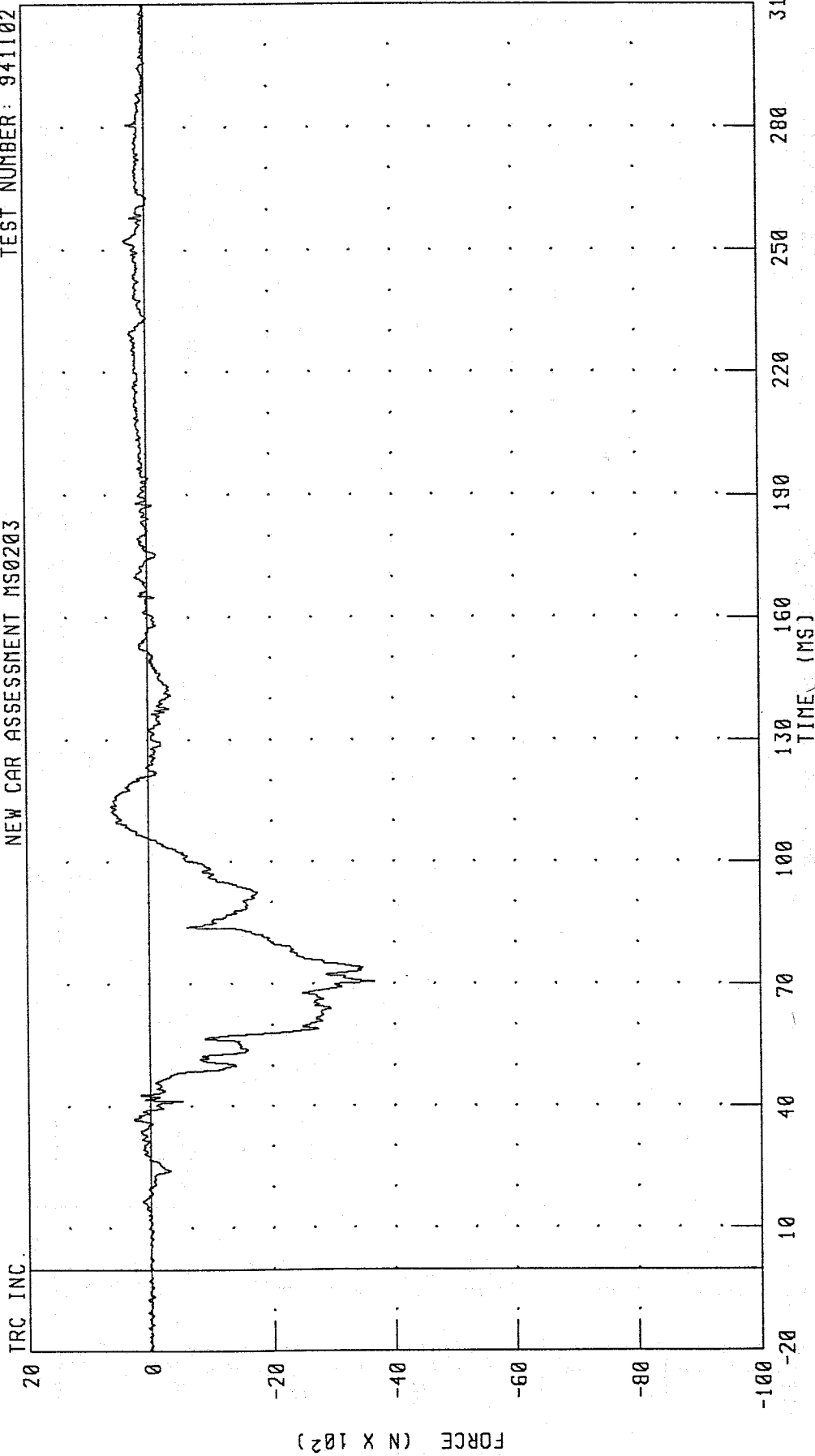


CHANNEL: LFMF2 FILTER: CH. CLASS 600

PEAK DATA: 583.58 N @ 116.32 MS; -3196.17 N @ 87.92 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

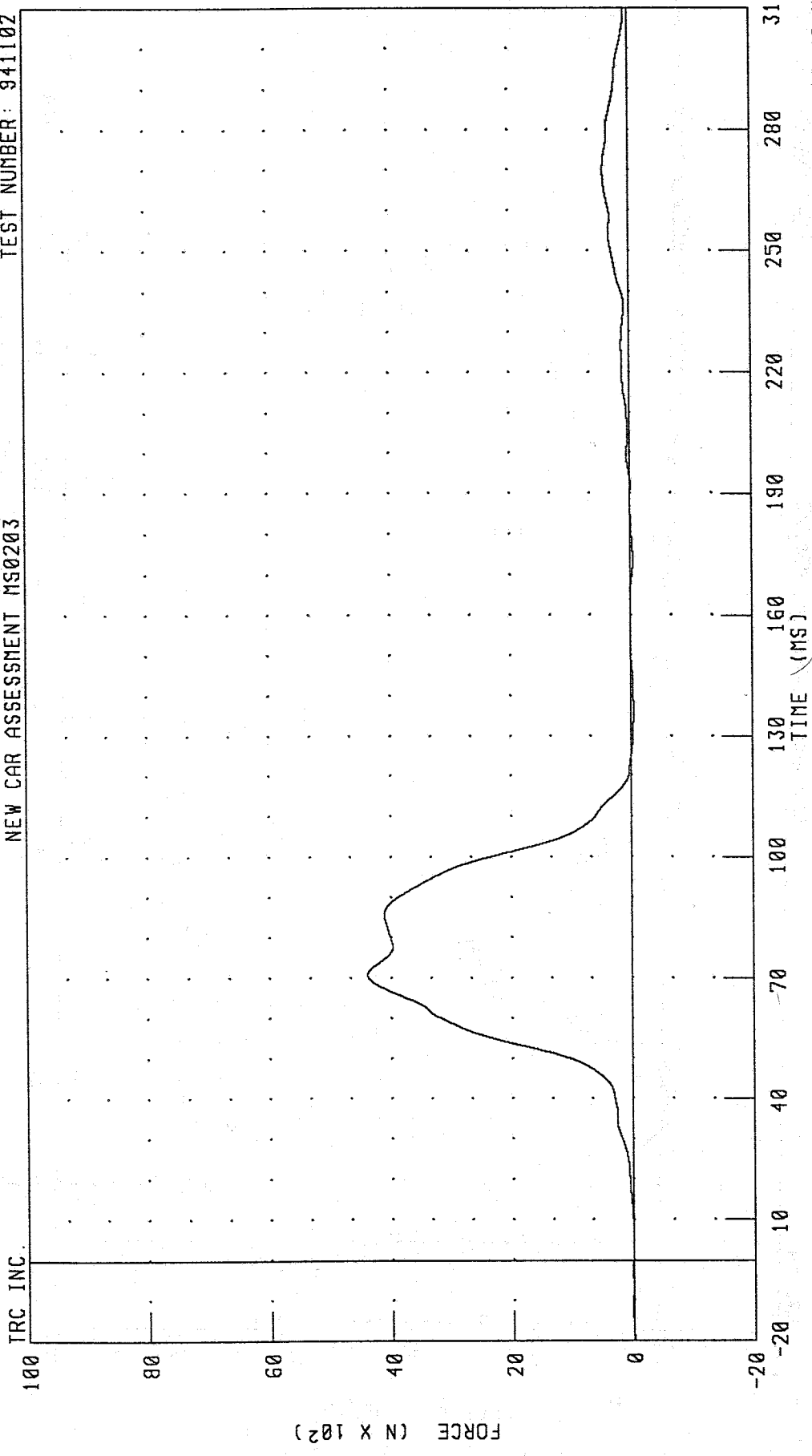


PEAK DATA: 606.75 N @ 113.68 MS; -3682.75 N @ 70.56 MS

CHANNEL: RFMF2 FILTER: CH. CLASS 600

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 4386.09 N @ 70.80 MS; -46.22 N @ 136.40 MS

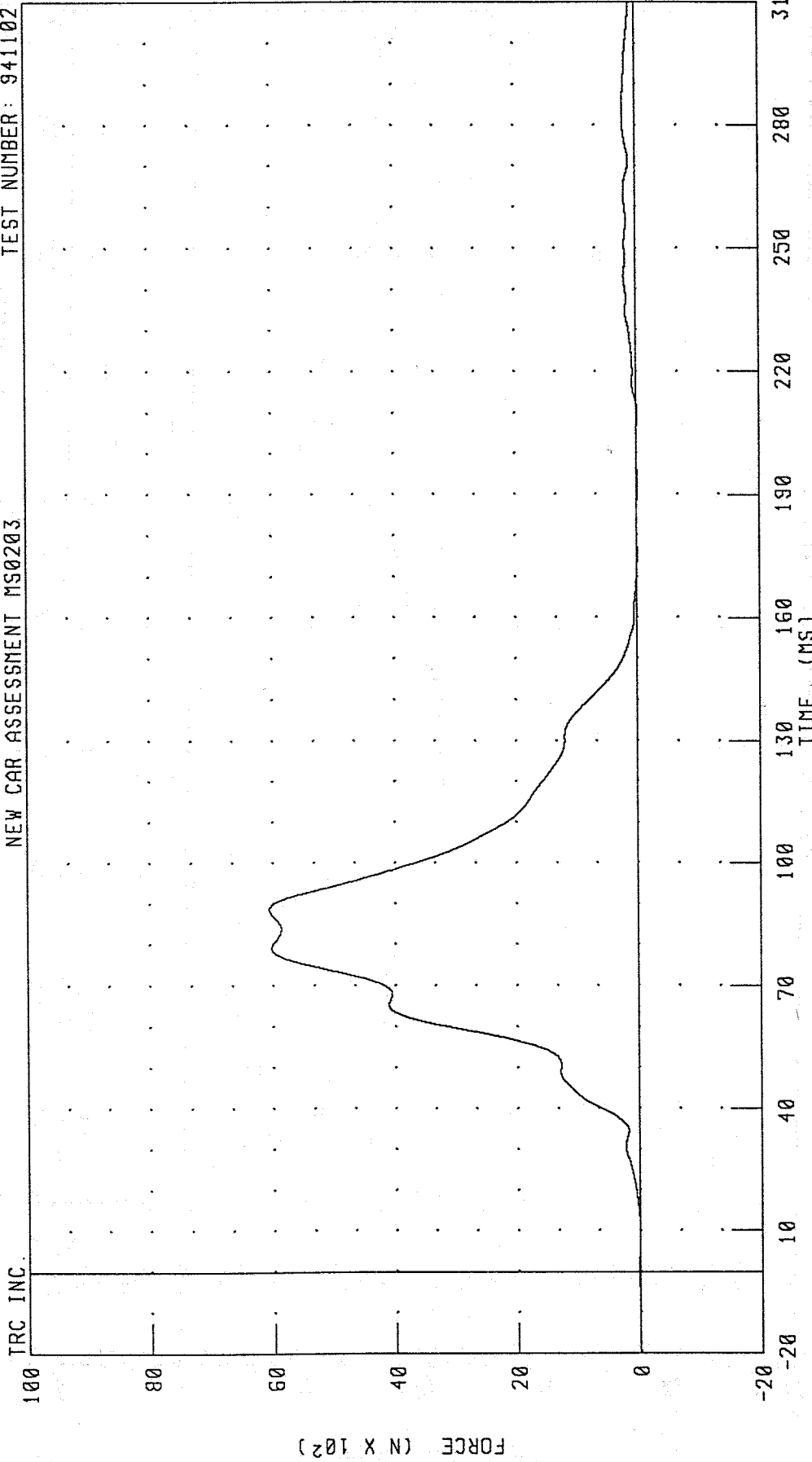
CHANNEL: LBOF2 FILTER: CH. CLASS 60

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1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



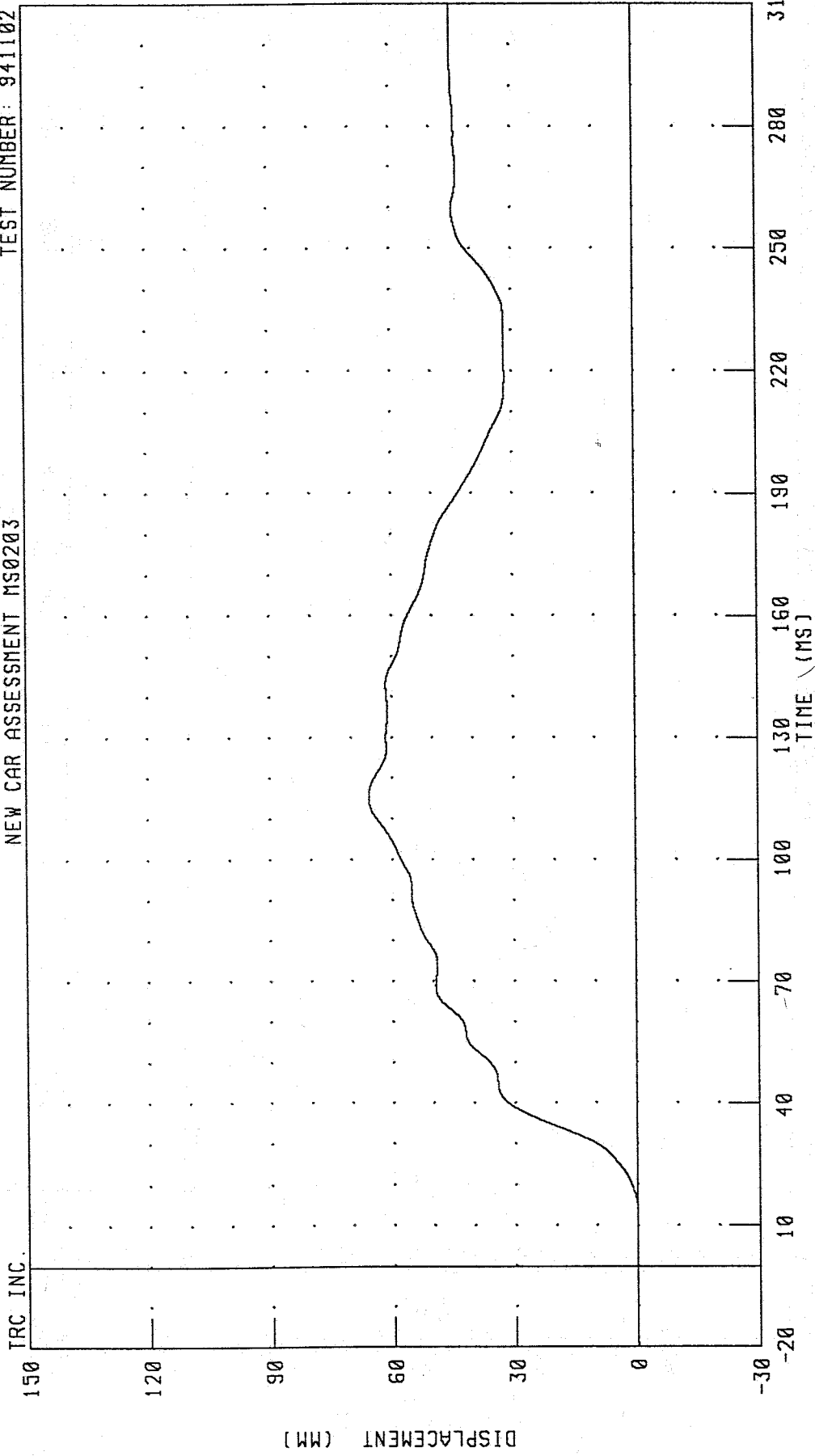
CHANNEL: SHBF2 FILTER: CH. CLASS 60

PEAK DATA: 6063.97 N @ 88.64 MS; -16.79 N @ 209.84 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

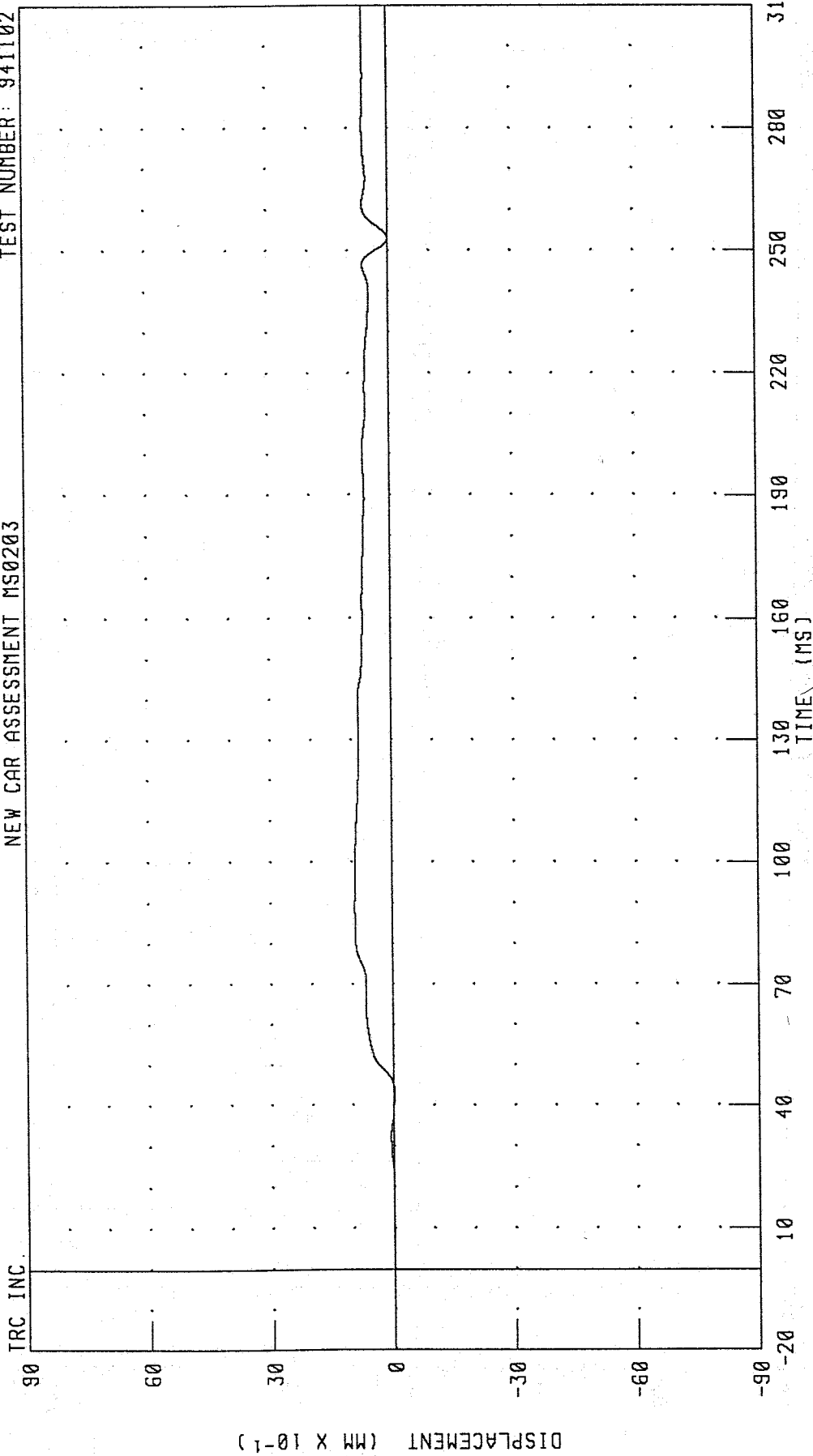


CHANNEL: SHB02 FILTER: CH. CLASS 60

PEAK DATA: 65.68 MM @ 114.88 MS; -0.19 MM @ -20.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



TRC INC.

DISPLACEMENT (MM X 10⁻¹)

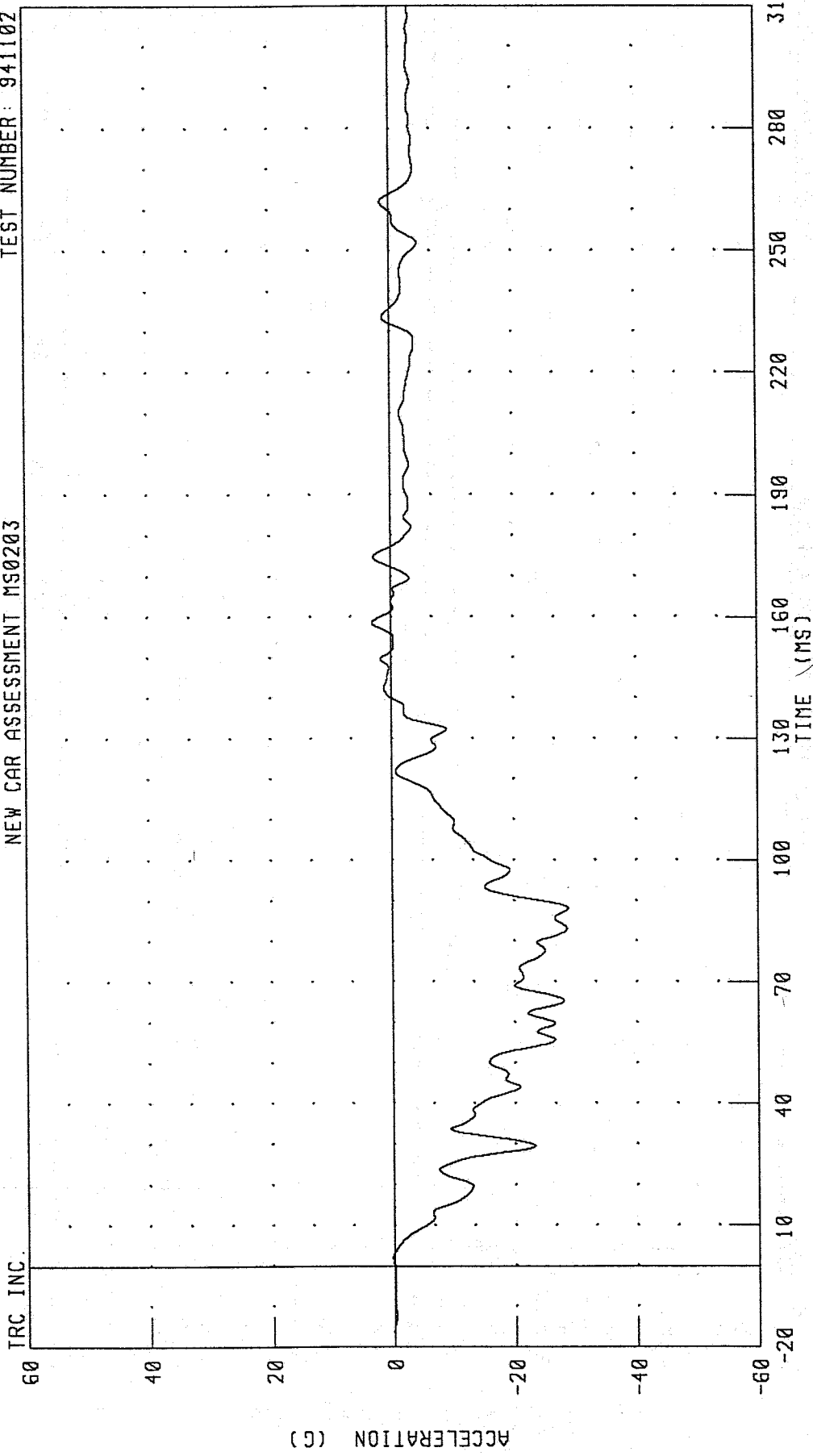
TIME (MS)

CHANNEL: SBED2 FILTER: CH. CLASS 60

PEAK DATA: 0.93 MM @ 88.48 MS; -0.02 MM @ 43.28 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



CHANNEL: TLRXG1 FILTER: CH. CLASS 60

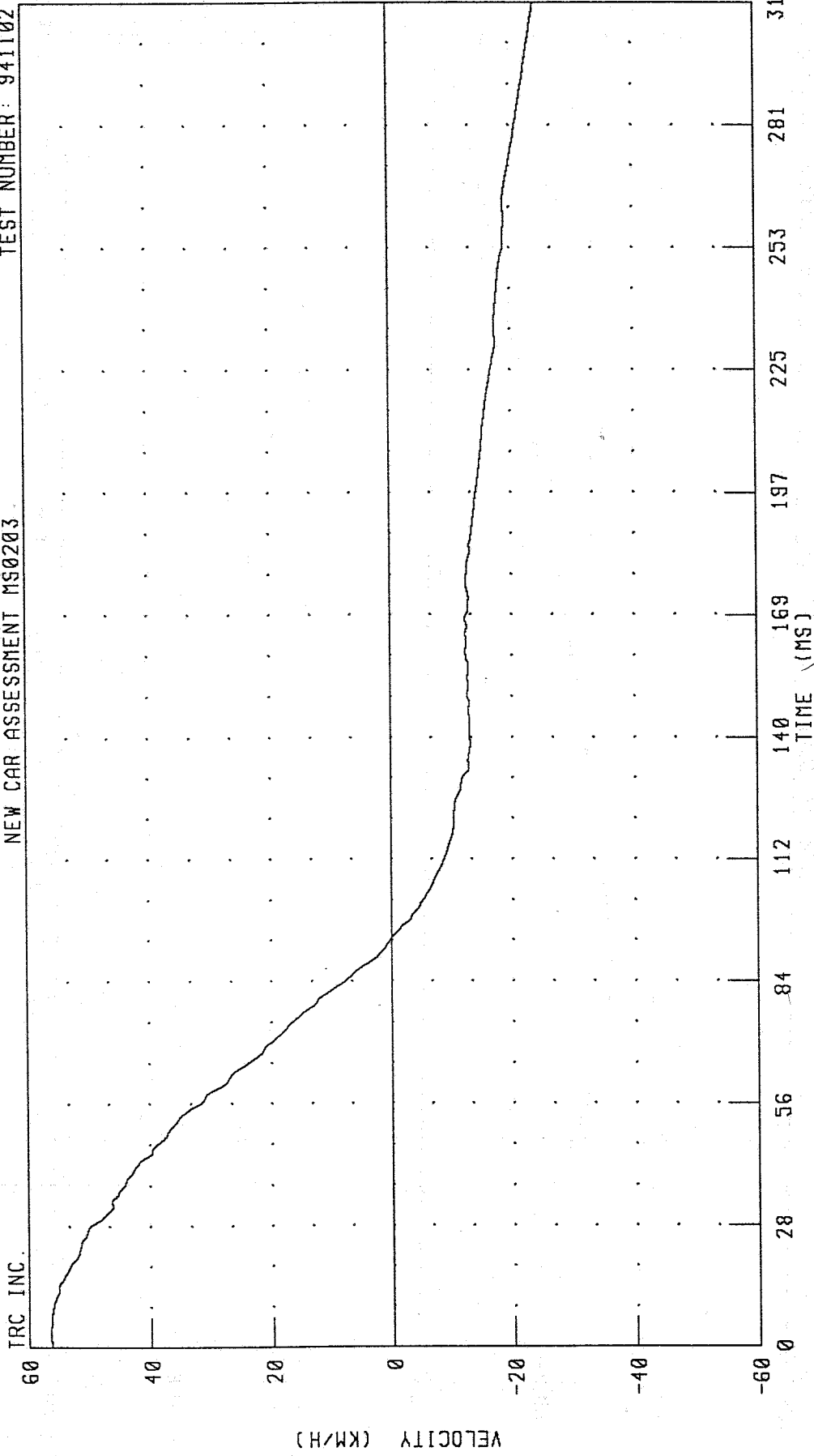
PEAK DATA: 3.10 G @ 158.64 MS; -28.88 G @ 88.16 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER

LEFT REAR SEAT X-AXIS VELOCITY

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



TRC INC.

VELOCITY (KM/H)

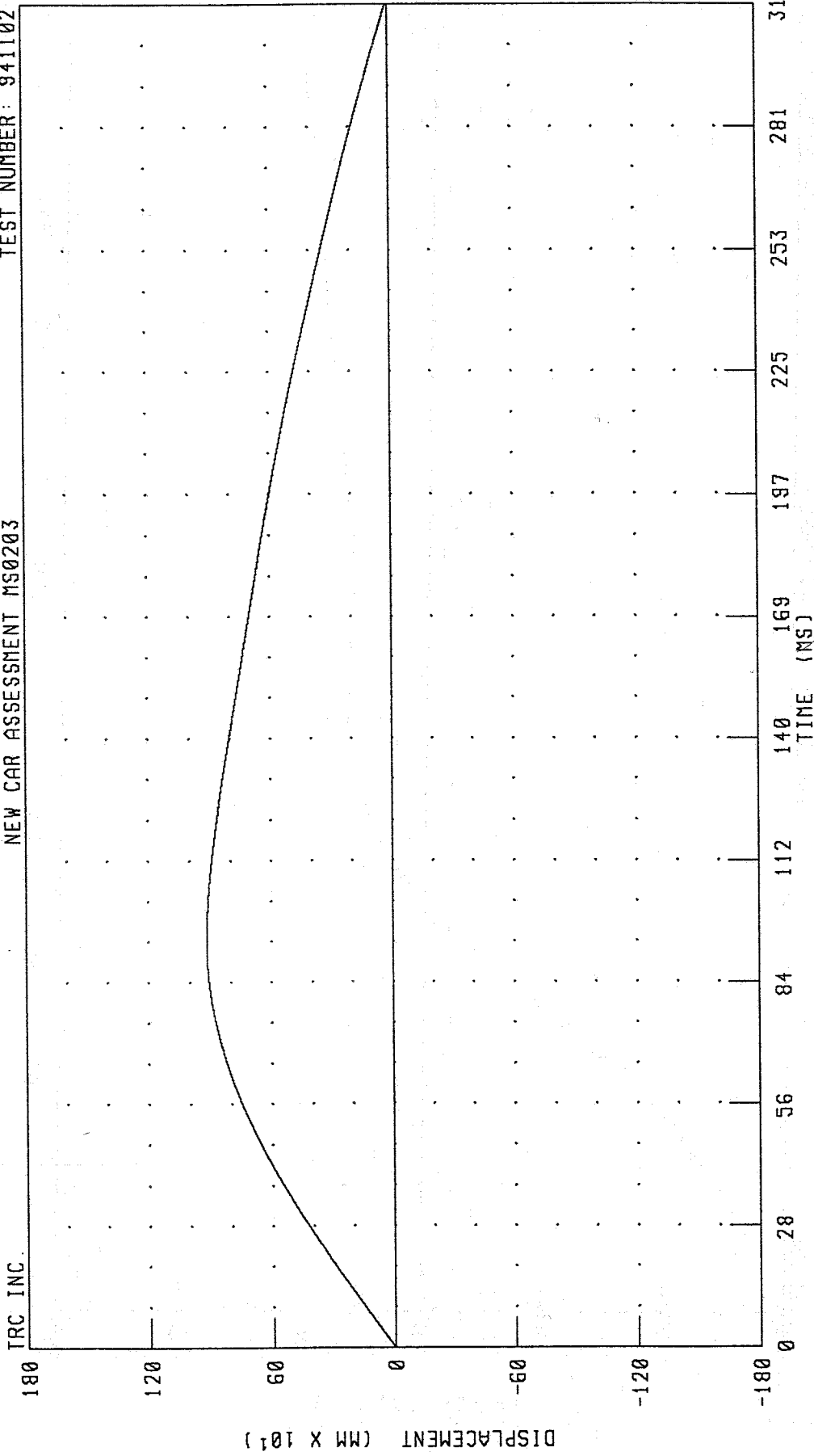
TIME (MS)

PEAK DATA: 56.36 KM/H @ 3.12 MS; -24.15 KM/H @ 310.00 MS

CHANNEL: TLRXV1 FILTER: CH. CLASS 180

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

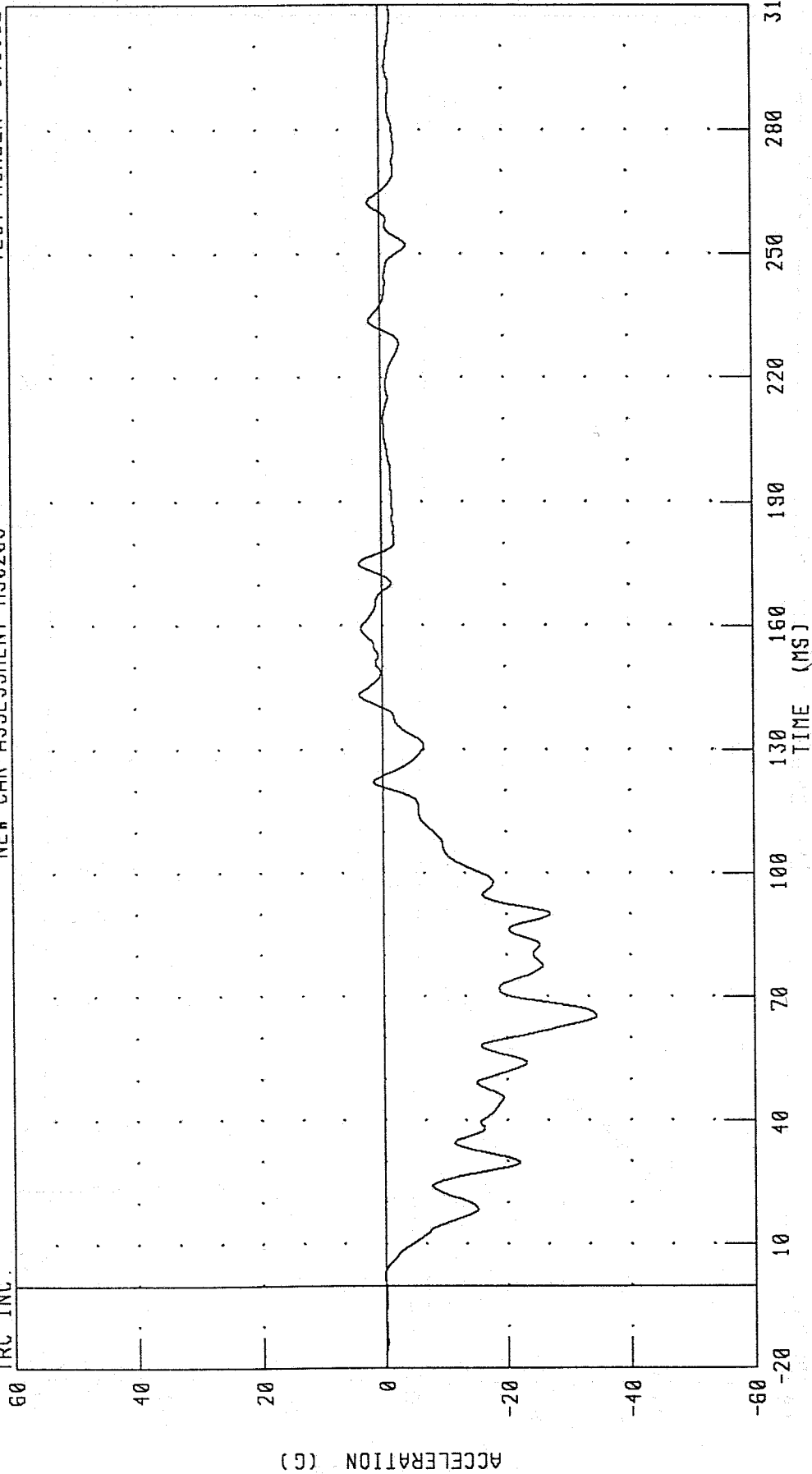


CHANNEL: TLRXD1 FILTER: CH. CLASS 180
PEAK DATA: 916.06 MM @ 94.56 MS; 0.00 MM @ 0.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

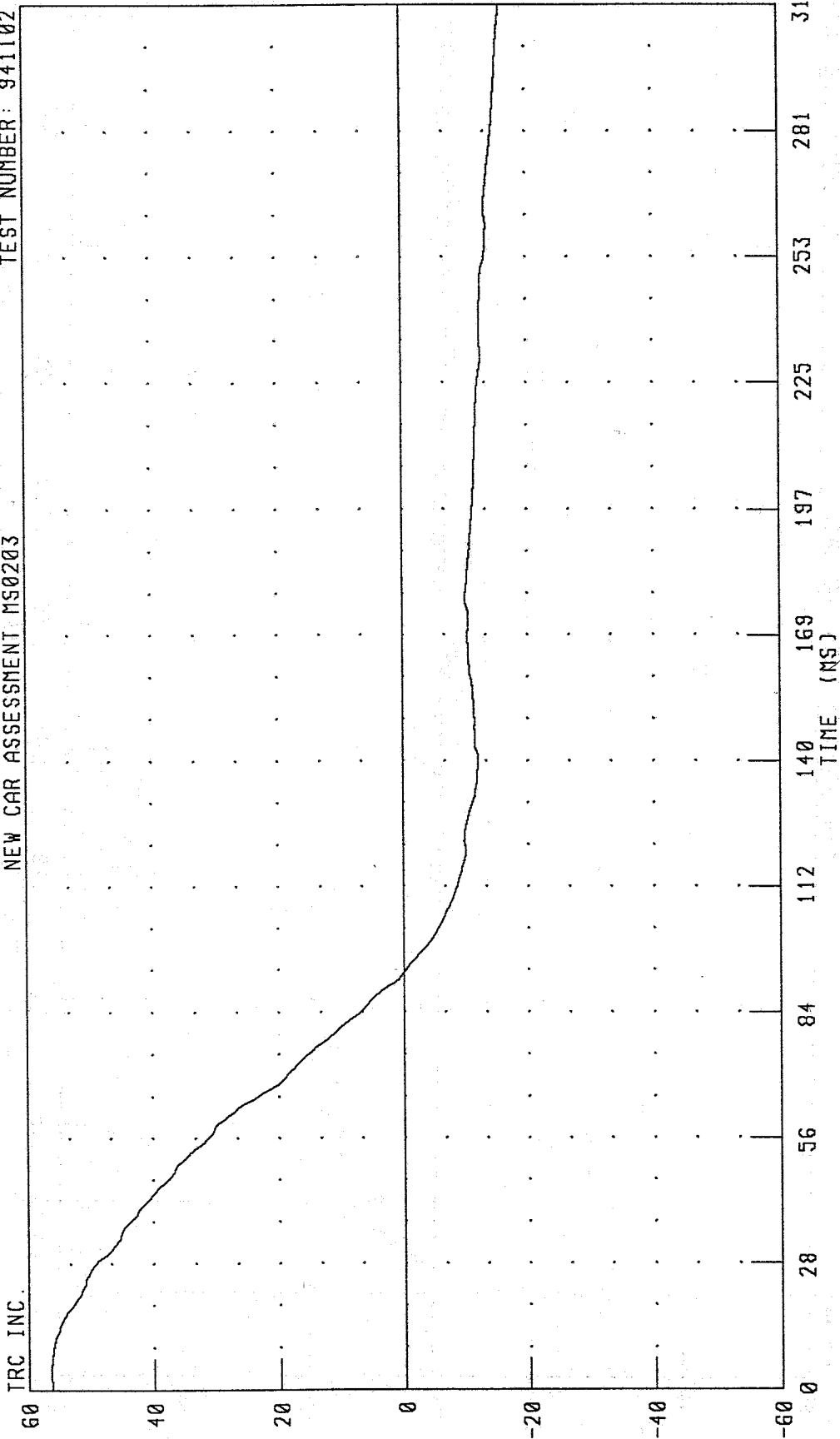


PEAK DATA: 3.73 G @ 175.12 MS; -34.53 G @ 65.28 MS

CHANNEL: TRRXG1 FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS VELOCITY
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

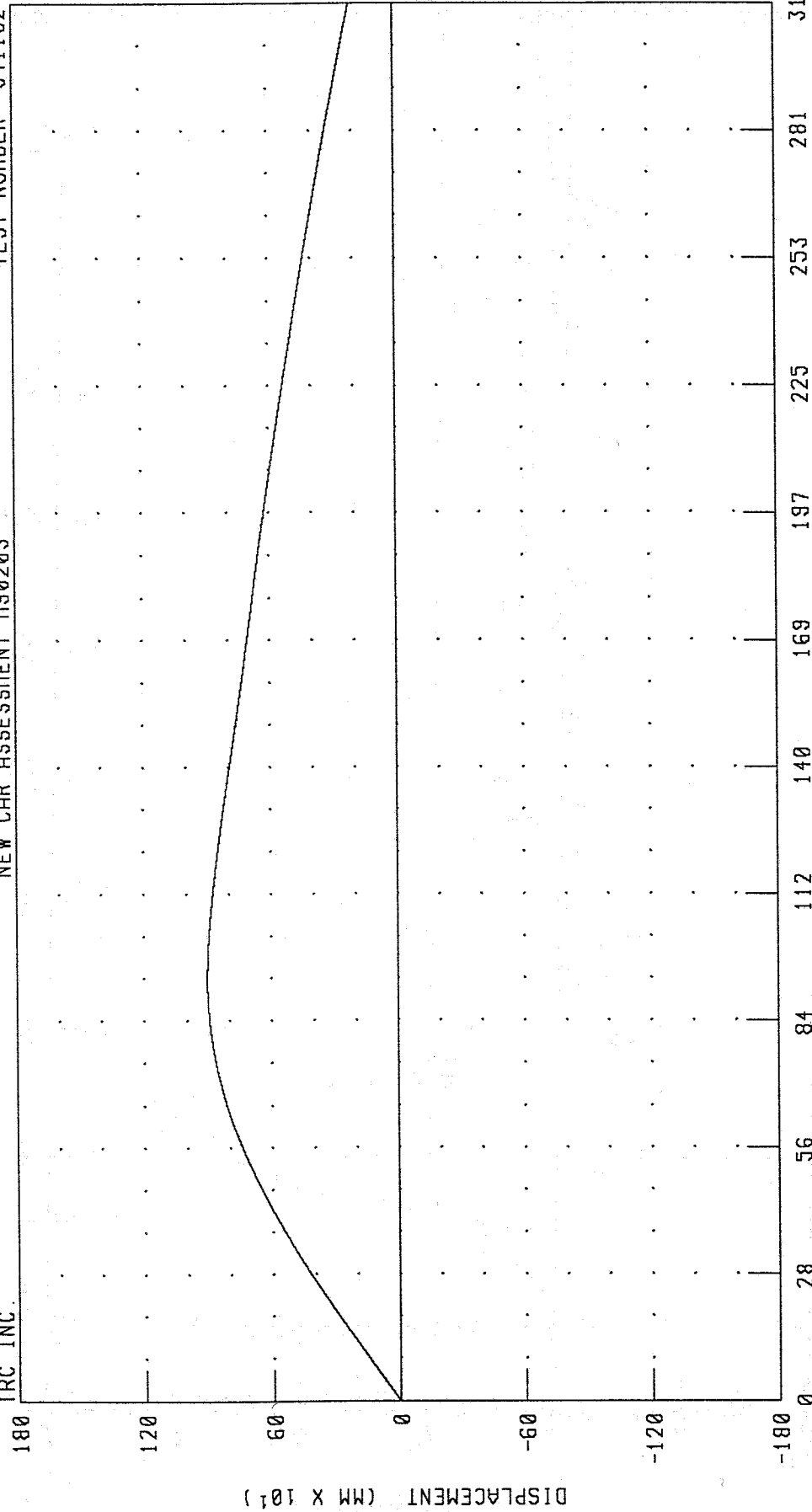


CHANNEL: TRRXV1 FILTER: CH. CLASS 180 PEAK DATA: 56.33 KM/H @ 3.12 MS, -15.94 KM/H @ 310.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

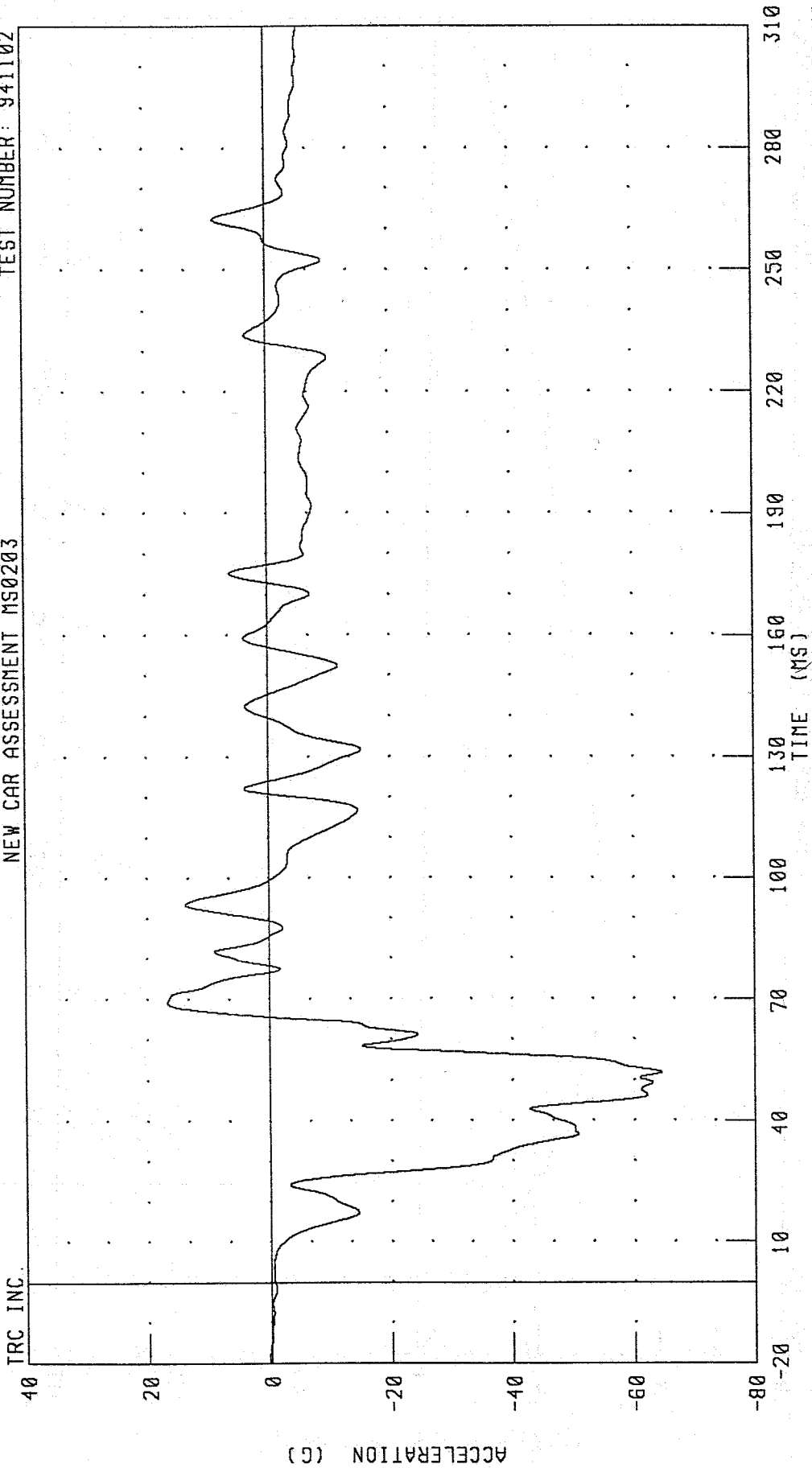


PEAK DATA: 902.51 MM @ 93.44 MS, 0.00 MM @ 0.00 MS

CHANNEL: TRRXD1 FILTER: CH. CLASS 180

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

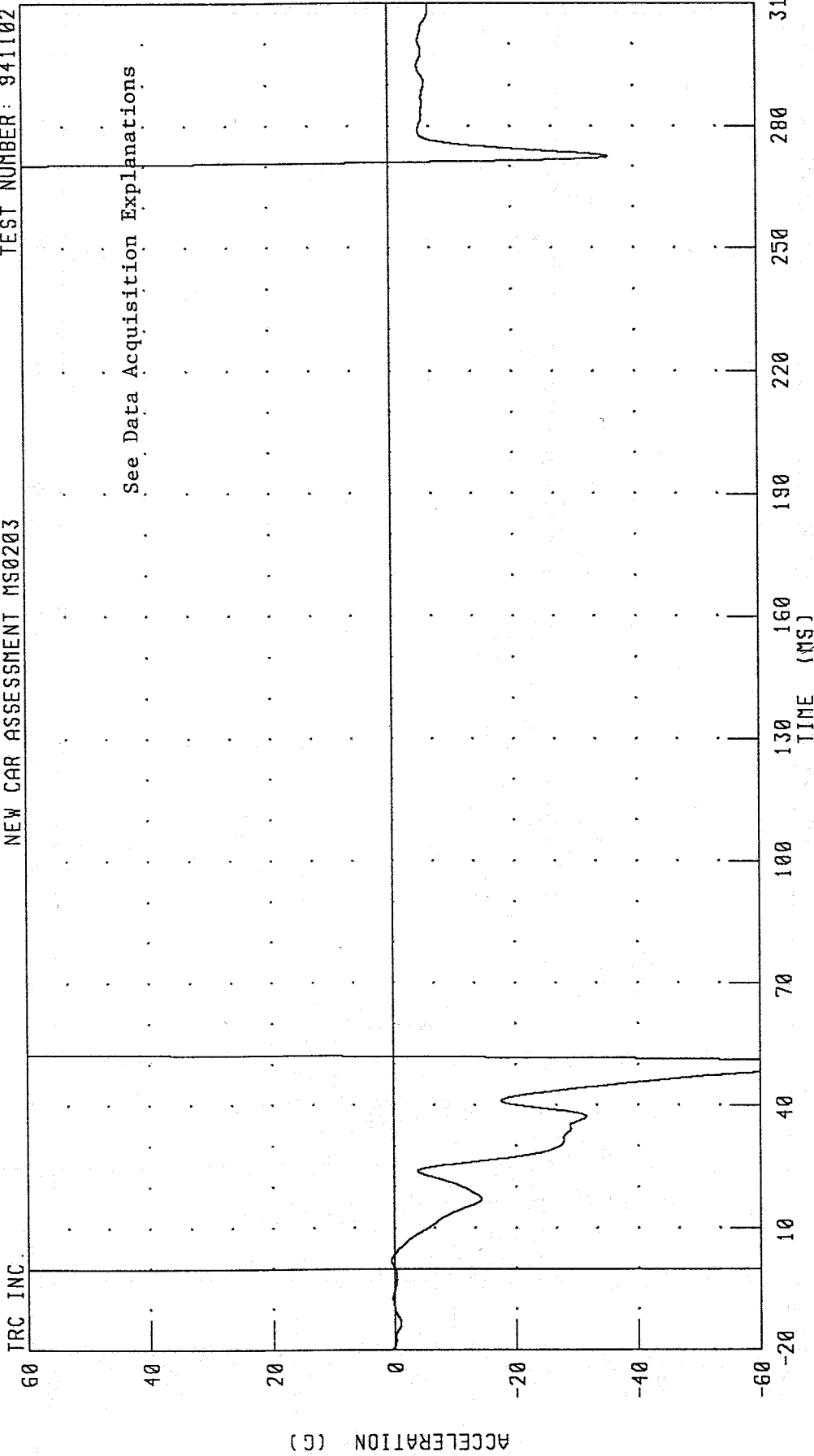
TEST NUMBER: 941102



CHANNEL: ENGXG1 FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

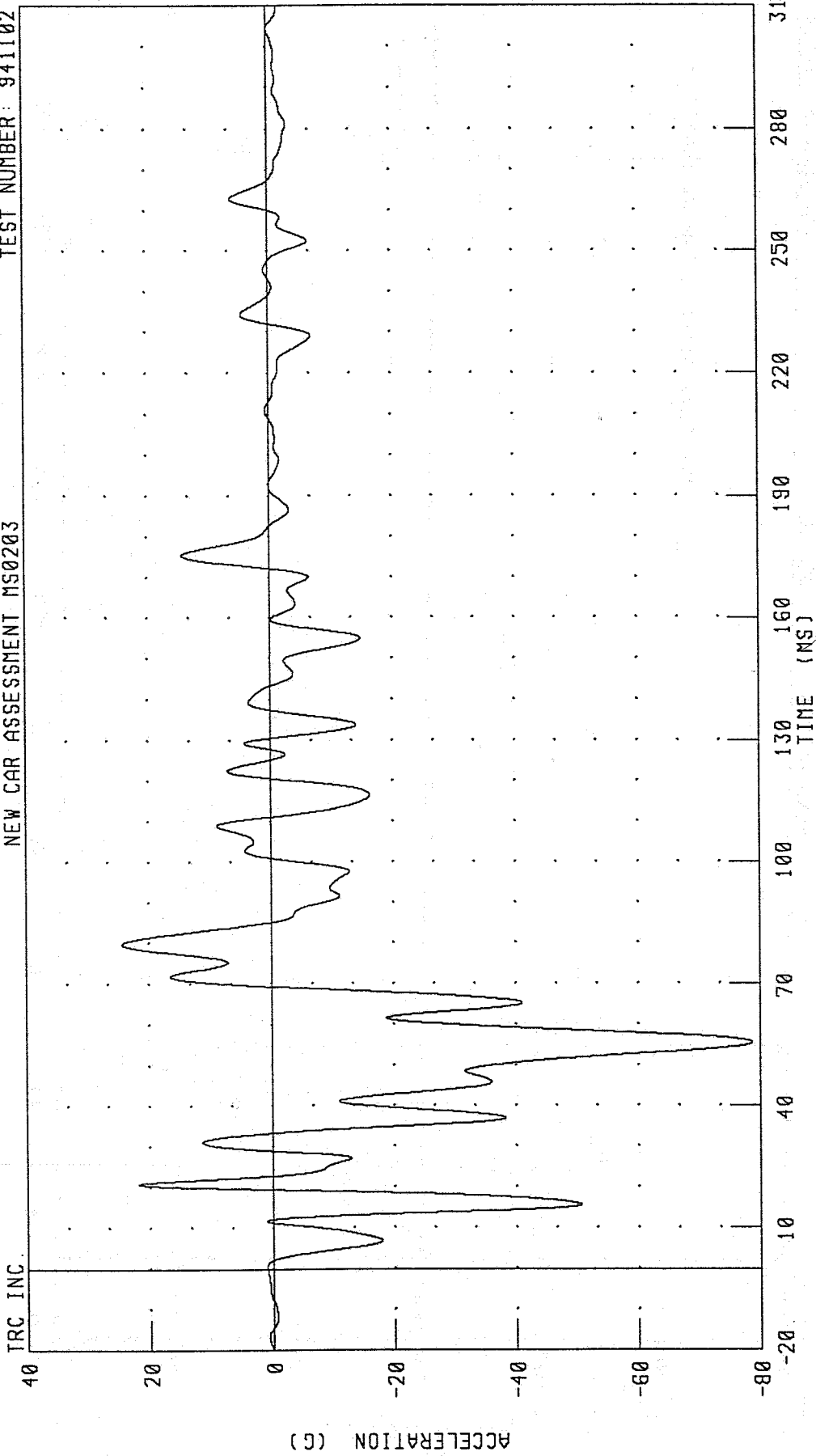


CHANNEL: ENGXG2 FILTER: CH. CLASS 60

PEAK DATA: 976.11 G @ 264.00 MS; -80.02 G @ 50.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



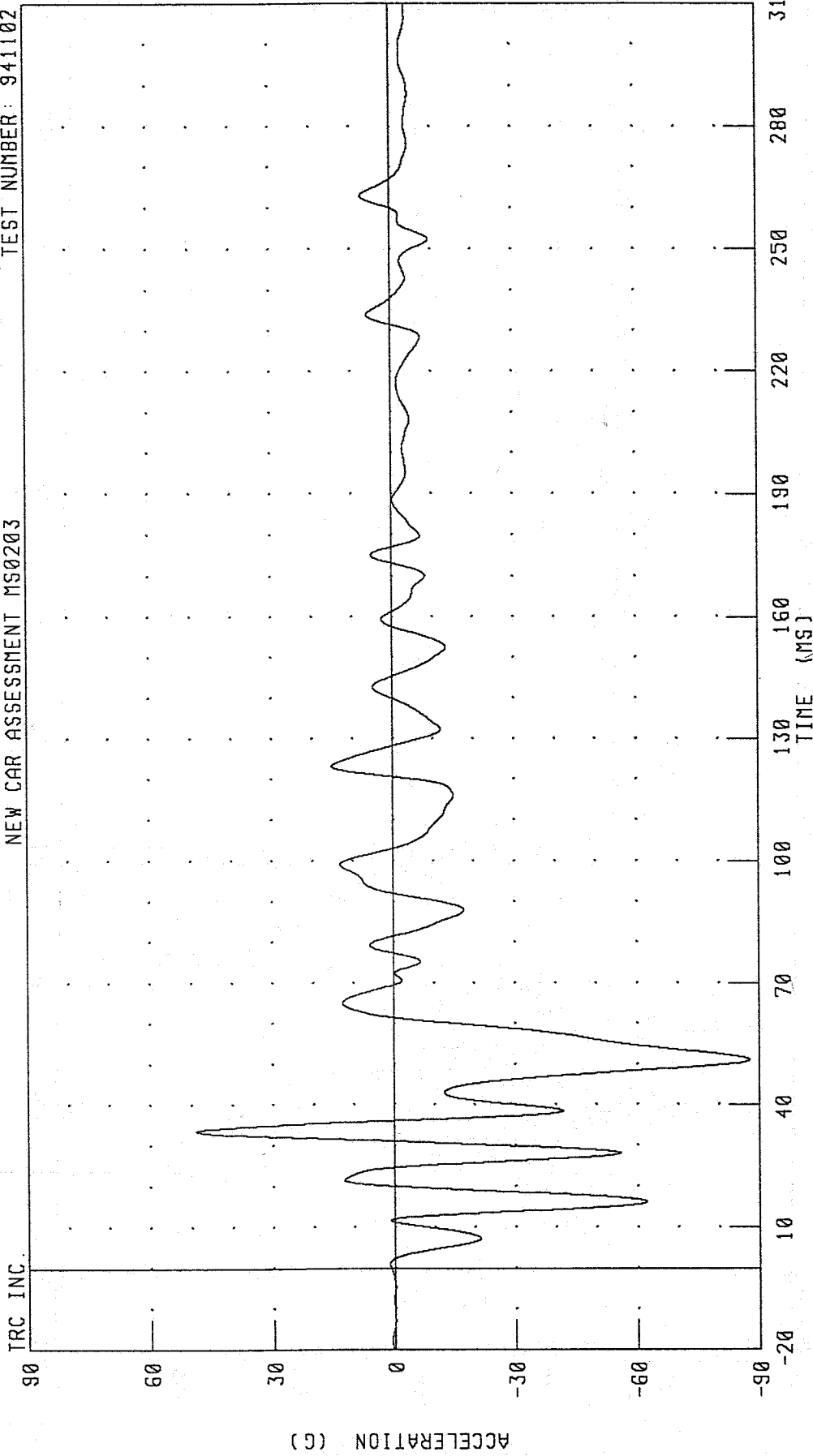
CHANNEL: BCRXG1 FILTER: CH. CLASS 60

PEAK DATA: 24.34 G @ 79.84 MS; -78.58 G @ 55.52 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

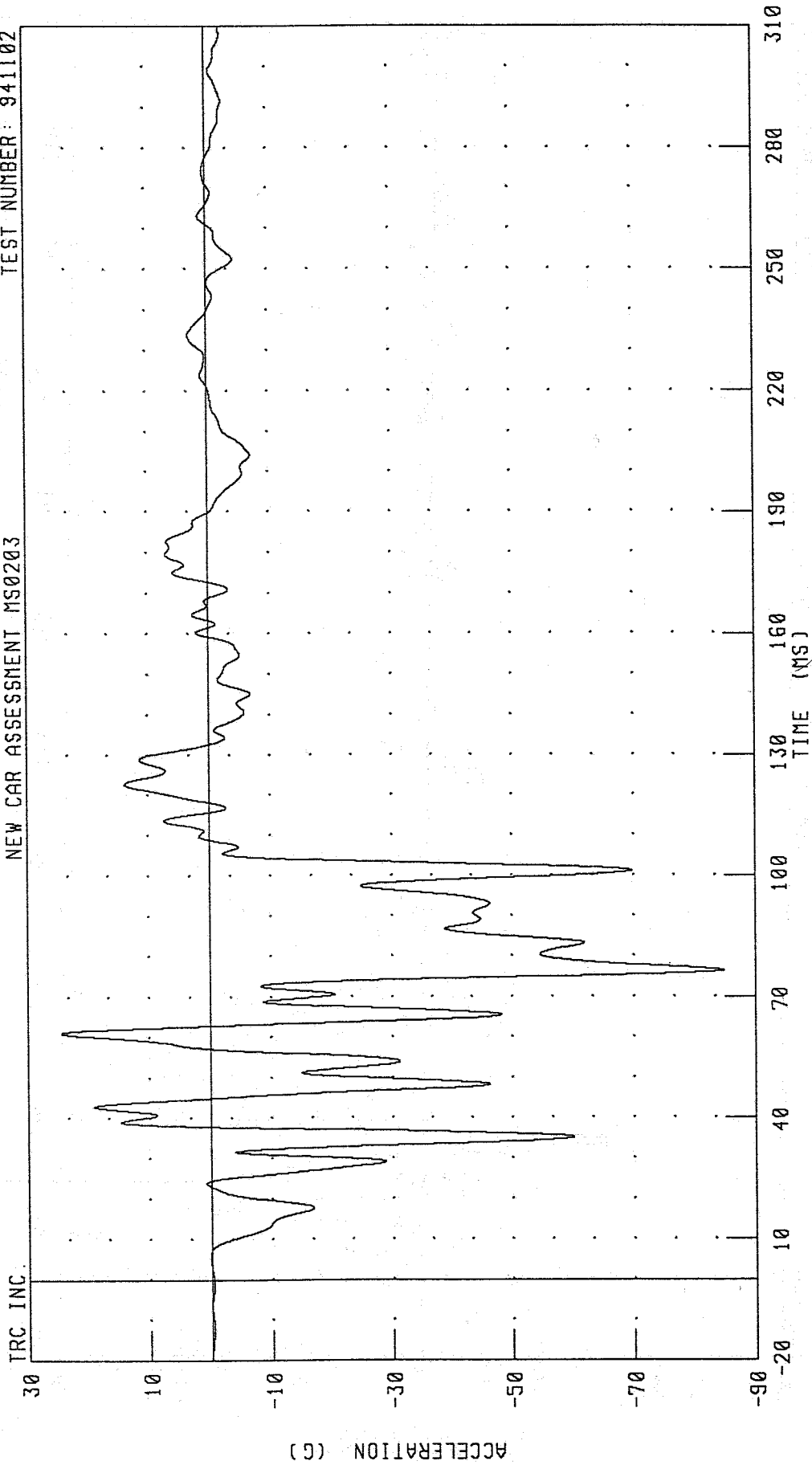


PEAK DATA: 48.92 G @ 33.60 MS; -87.56 G @ 50.96 MS

CHANNEL: BCLXG1 FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

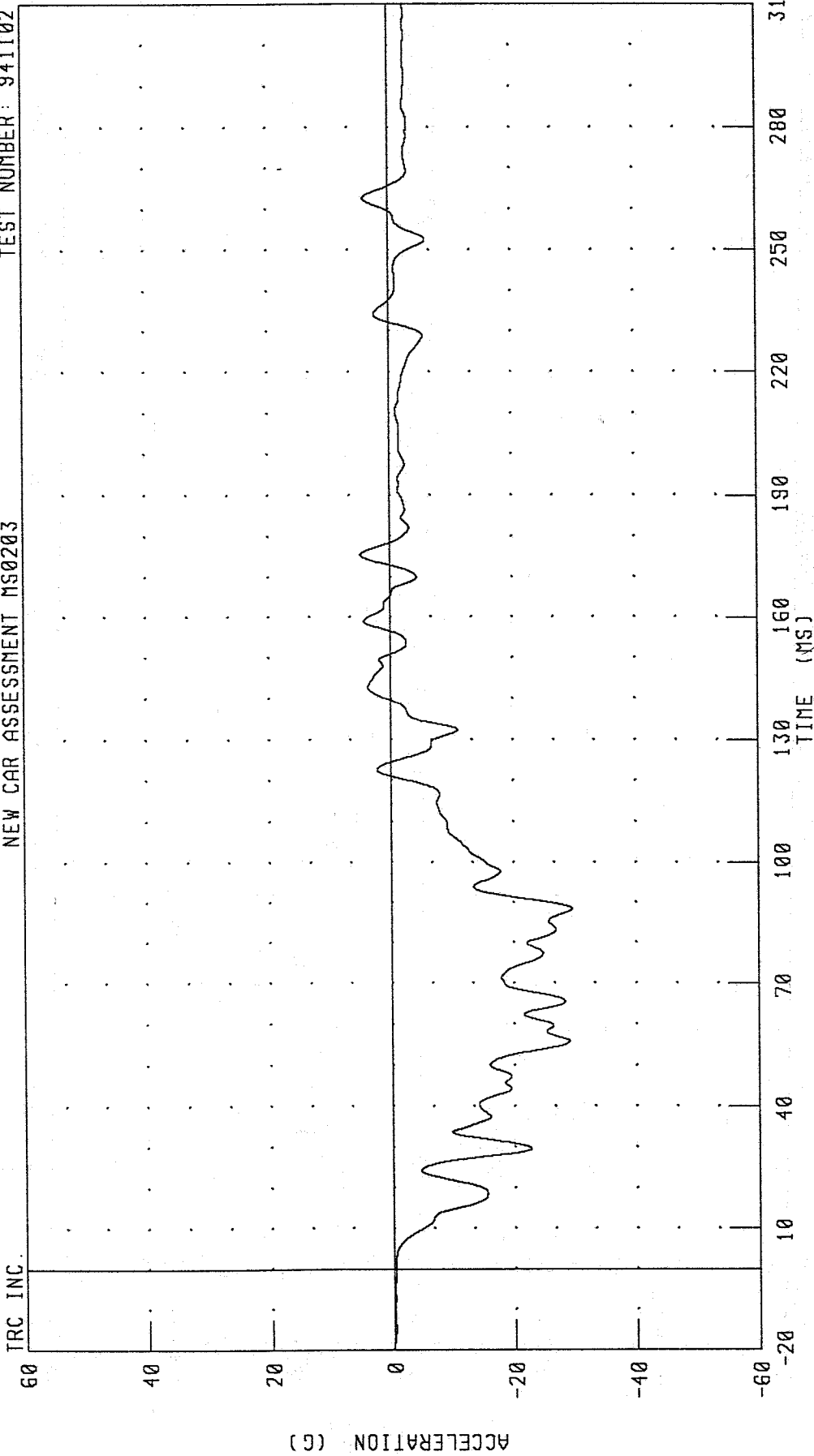
TEST NUMBER: 941102



CHANNEL: DPCXG1 FILTER: CH. CLASS 60
PEAK DATA: 24.44 G @ 61.04 MS; -84.85 G @ 76.48 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



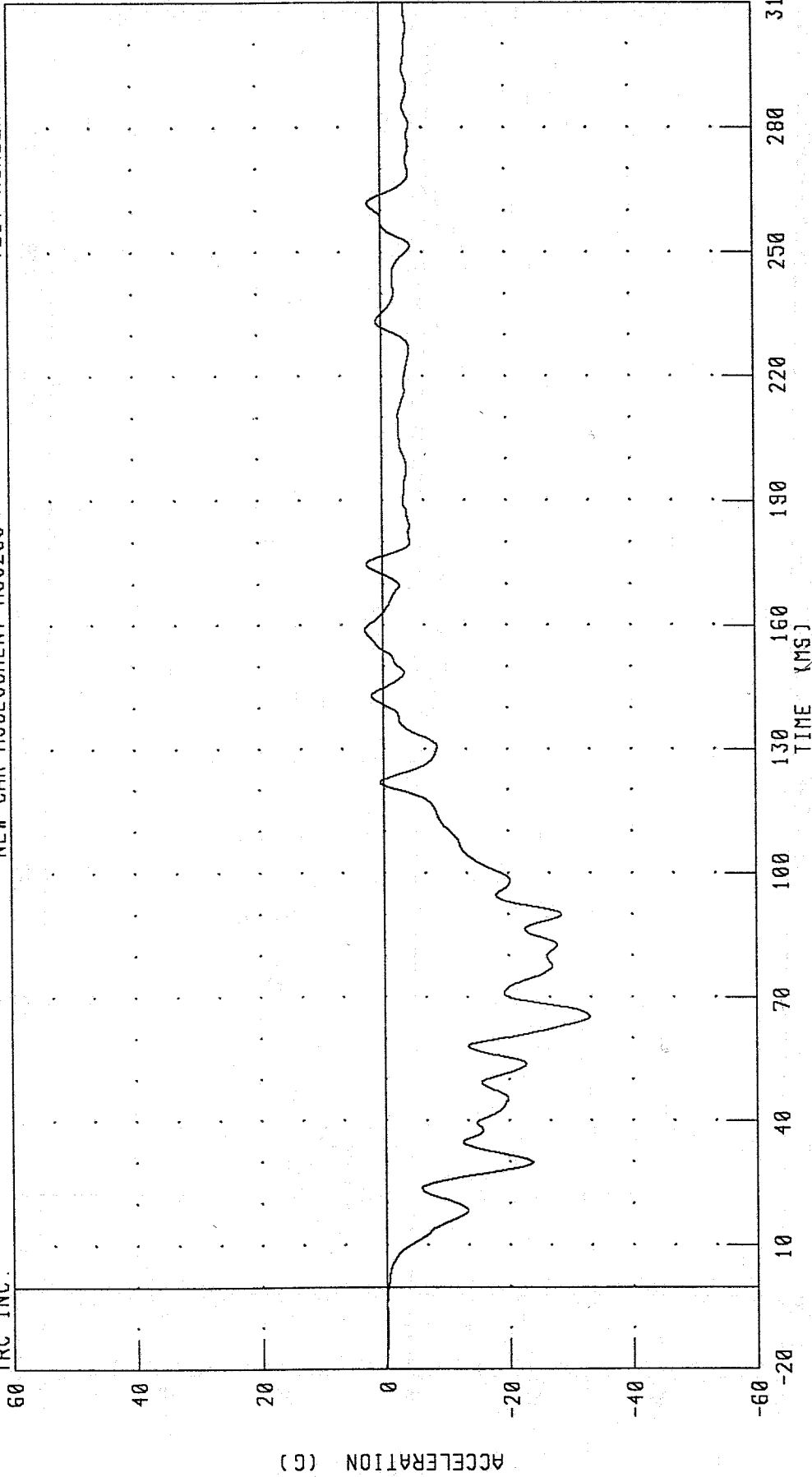
CHANNEL: TLRXGA FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

TRC INC.



CHANNEL: TRRXGA FILTER: CH. CLASS 60 PEAK DATA: 2.90 G @ 158.96 MS; -33.11 G @ 65.28 MS

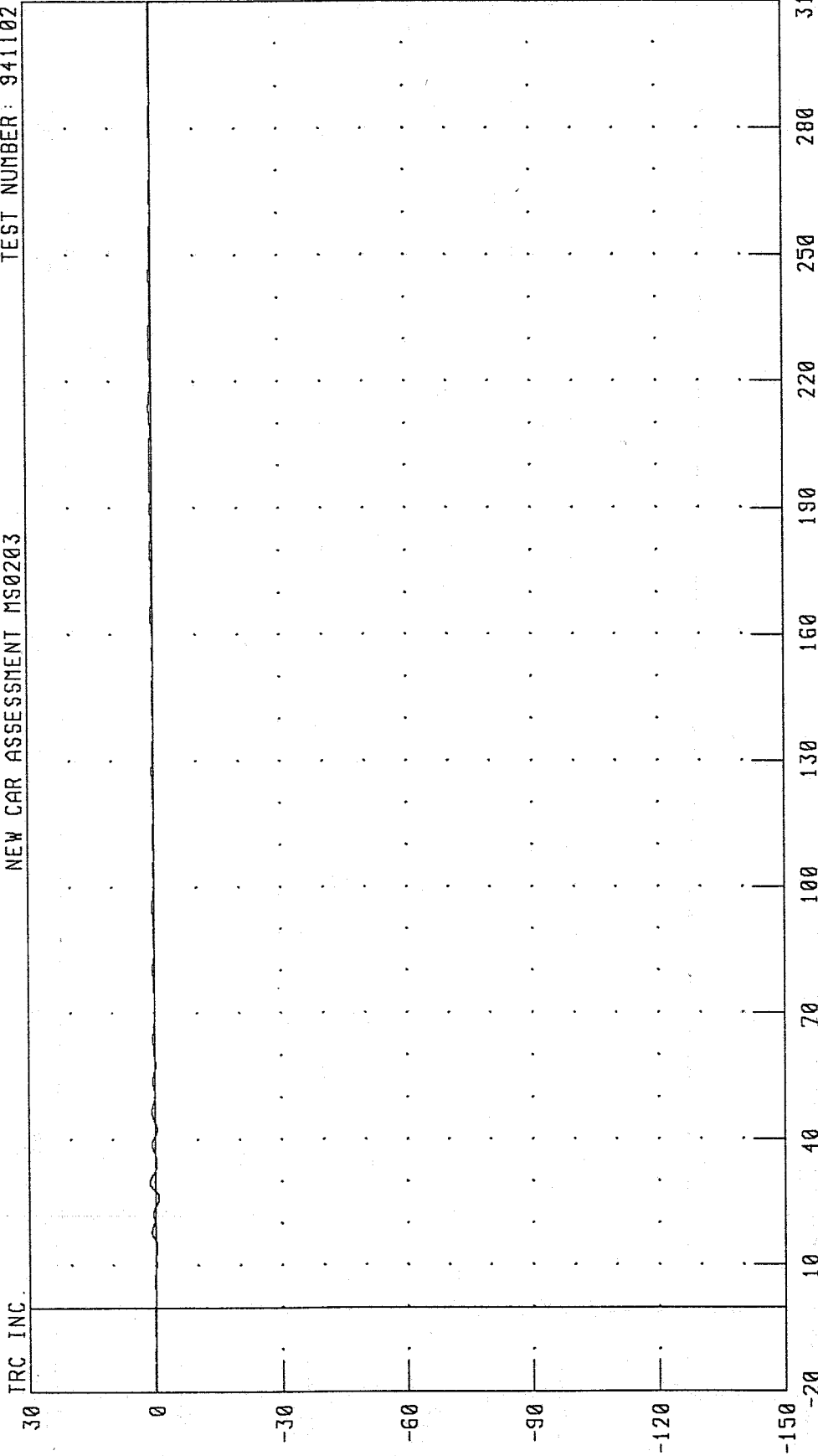
1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER

LOAD CELL BARRIER POSITION A1 FORCE

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

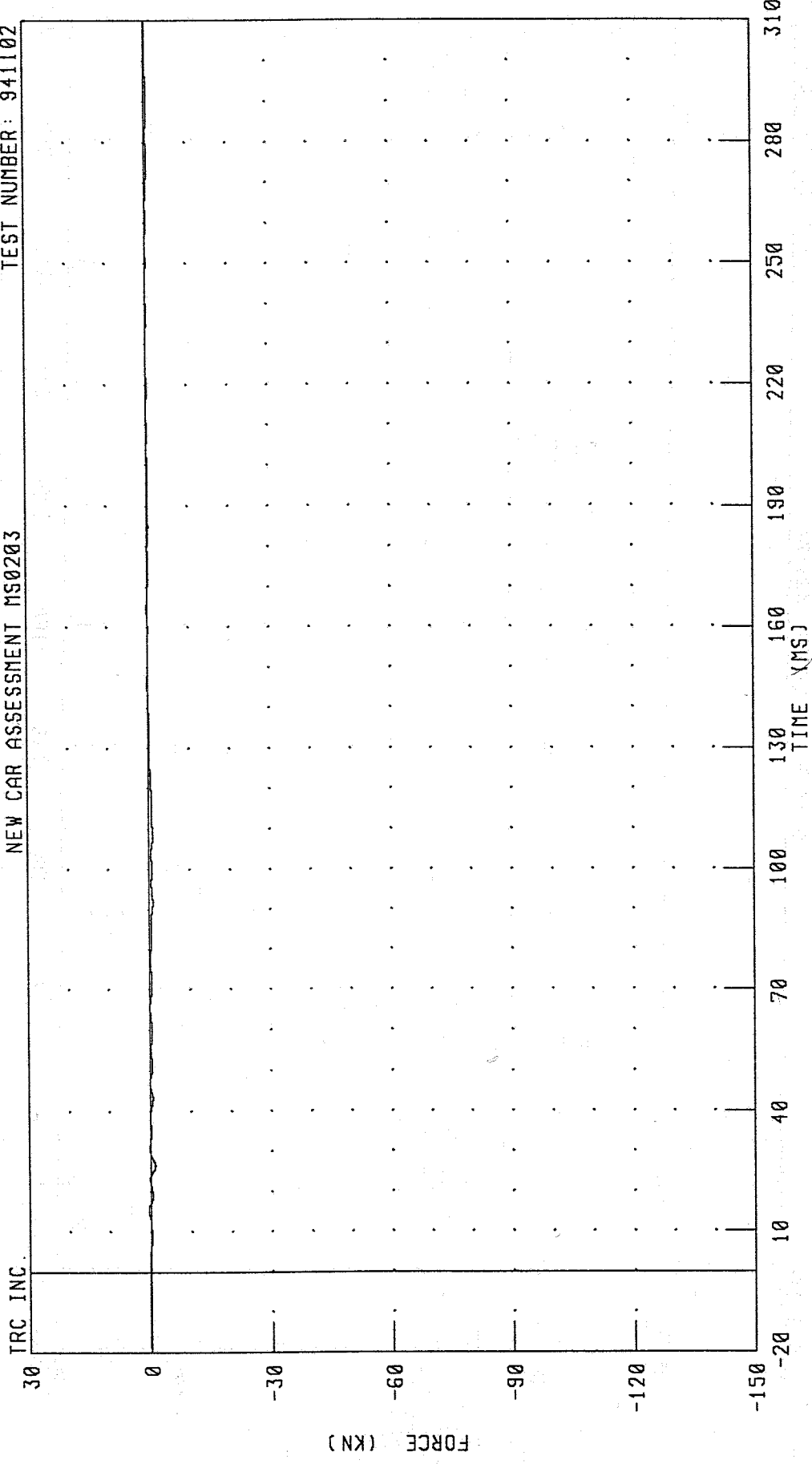


CHANNEL: BA1F FILTER: CH. CLASS 60 PEAK DATA: 1.29 KN @ 29.92 MS; -0.87 KN @ 26.16 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

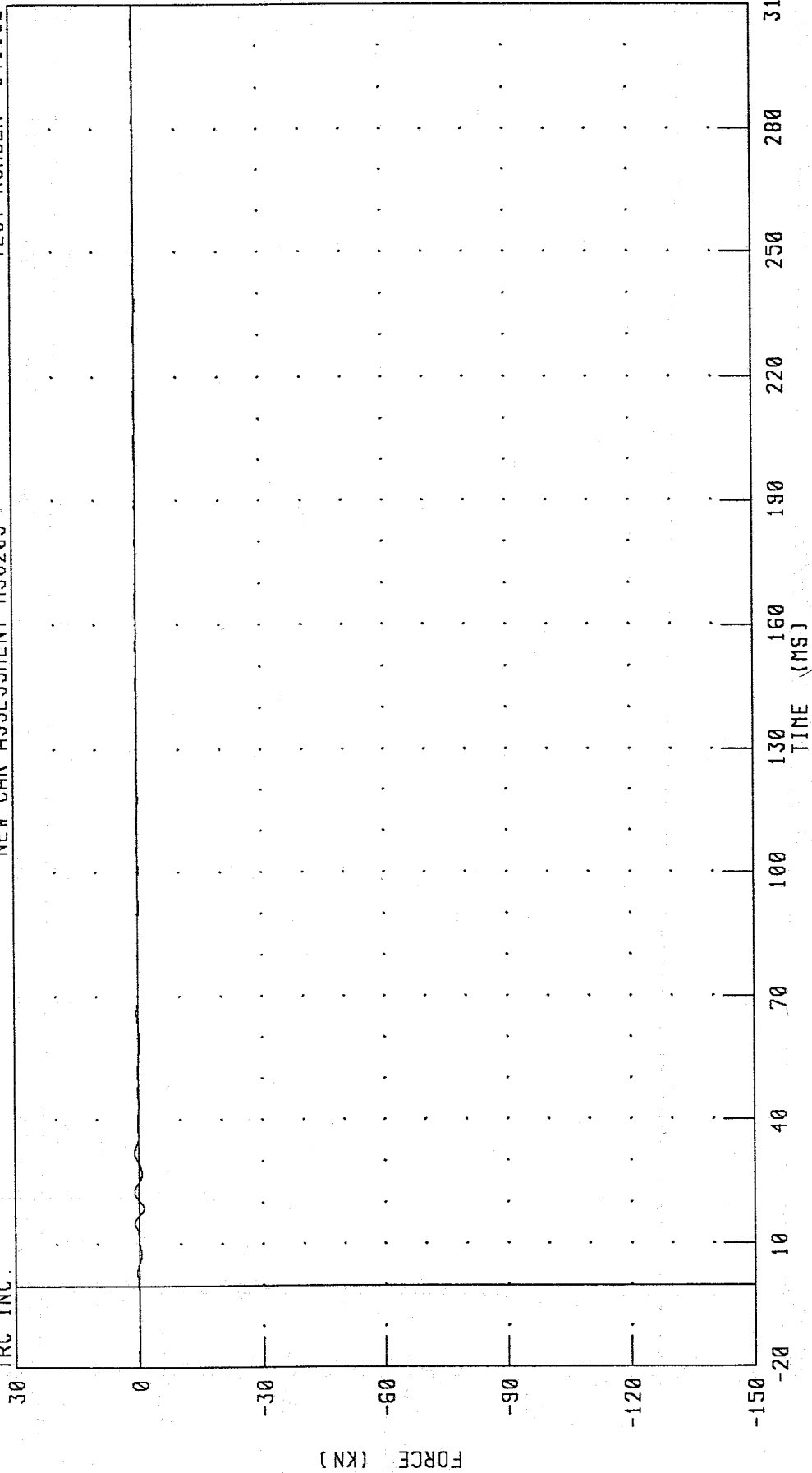


CHANNEL: BA2F FILTER: CH. CLASS 60 PEAK DATA: 0.58 KN @ 15.44 MS; -1.19 KN @ 26.56 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



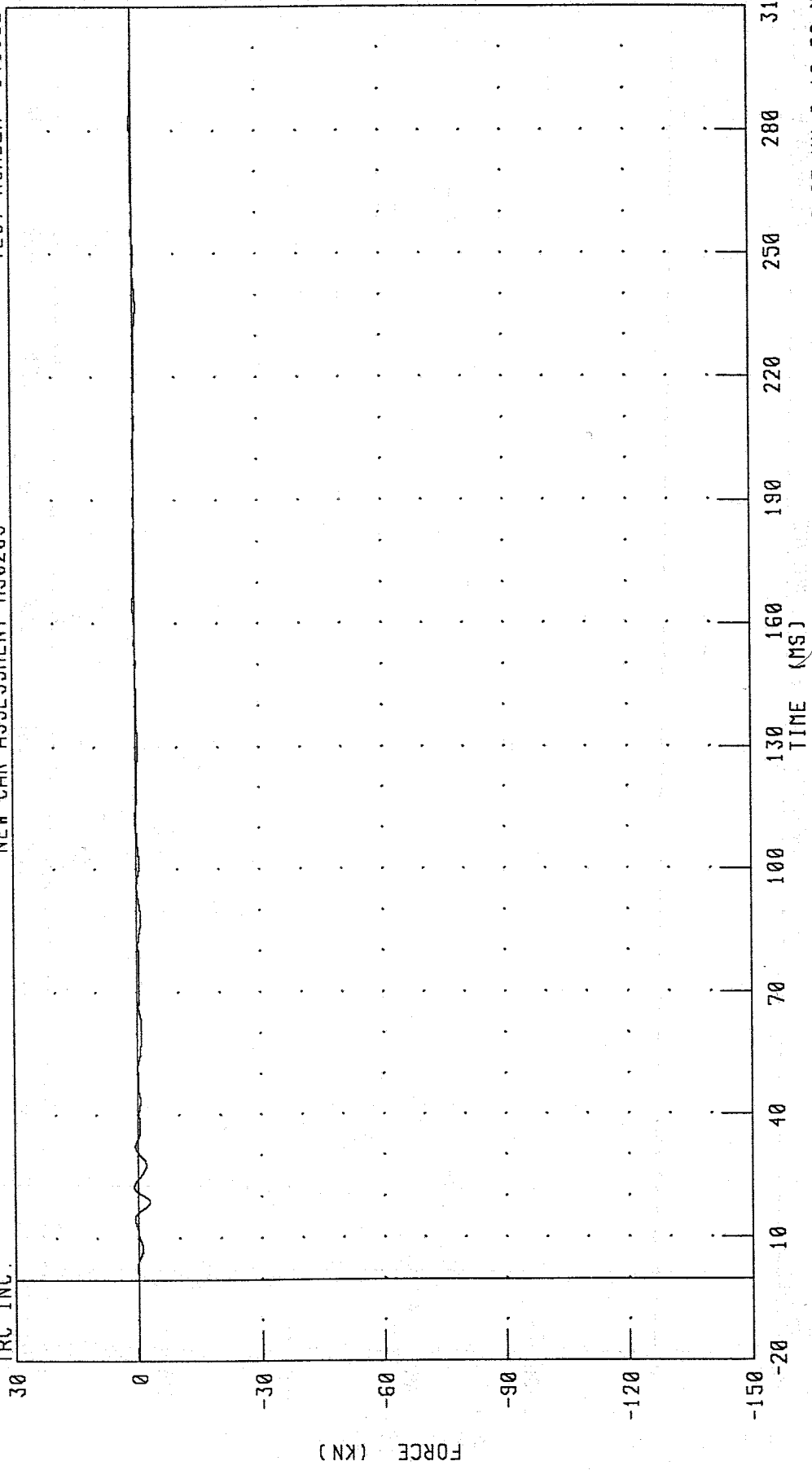
CHANNEL: BA3F FILTER: CH. CLASS 60 PEAK DATA: 1.01 KN @ 22.80 MS; -1.24 KN @ 18.80 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

TRC INC.



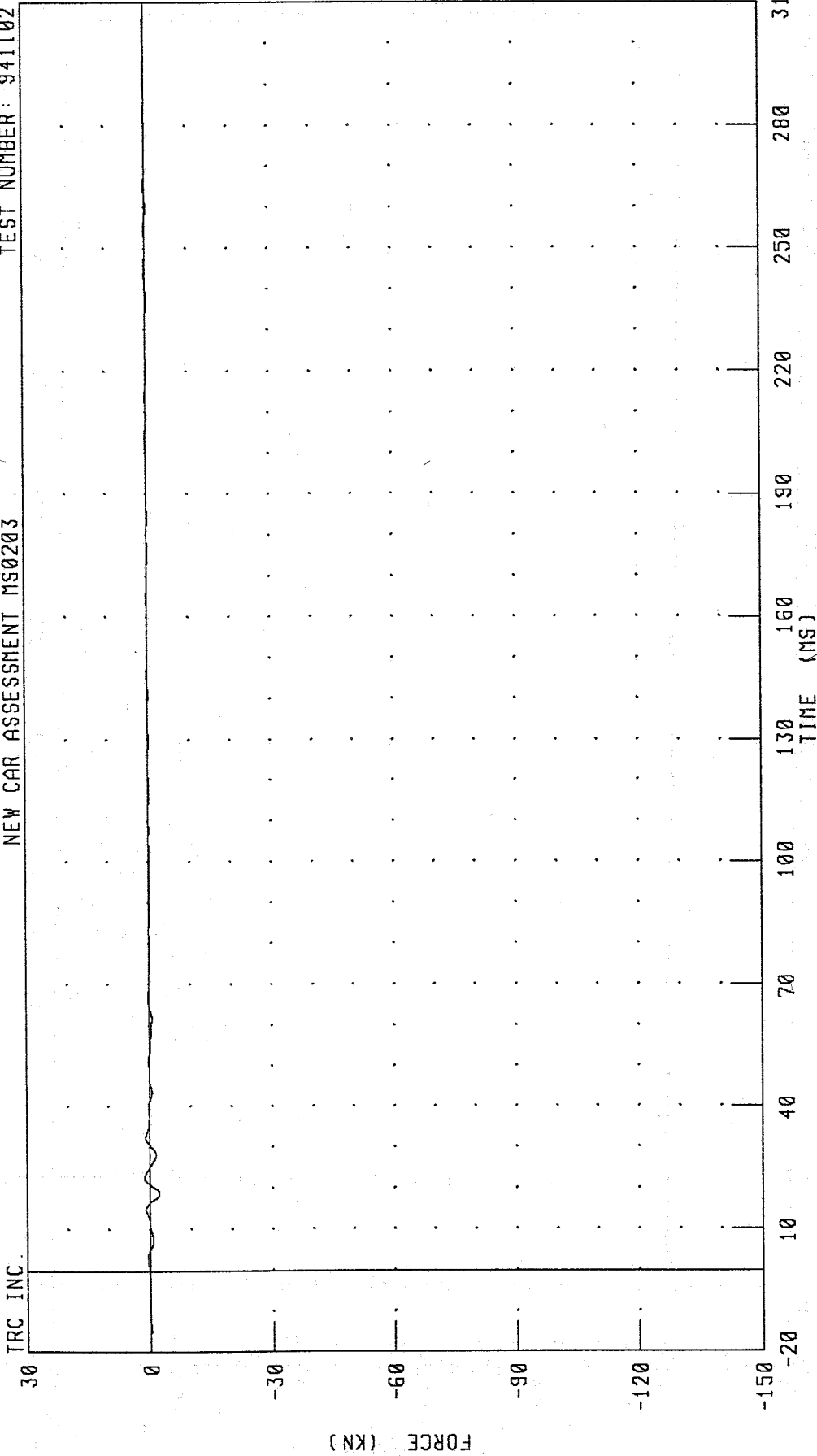
PEAK DATA: 0.89 KN @ 22.64 MS; -2.87 KN @ 18.88 MS

CHANNEL: BA4F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

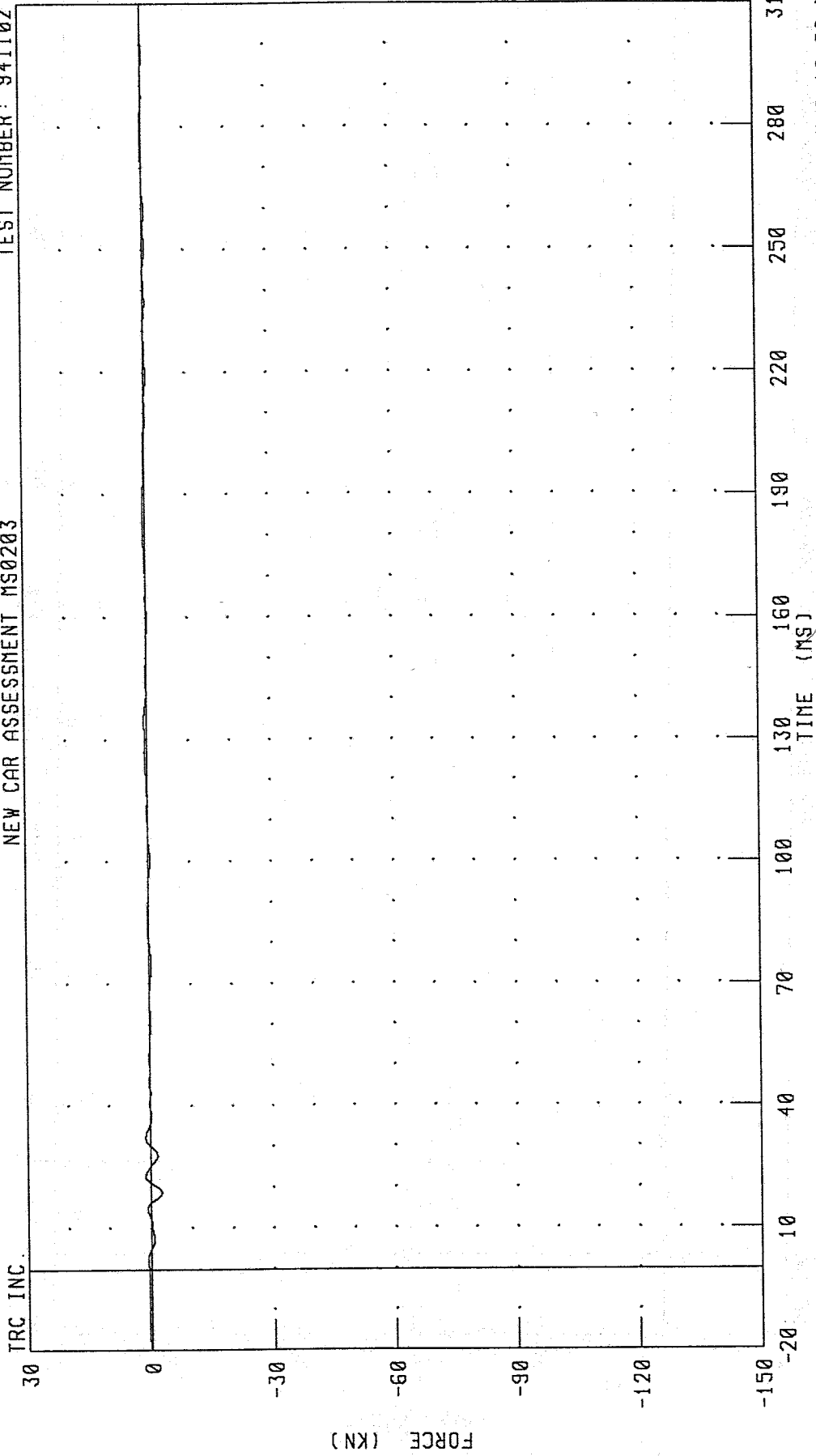


PEAK DATA: 1.27 KN @ 22.64 MS; -2.43 KN @ 18.80 MS

CHANNEL: BA5F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 1.20 KN @ 22.80 MS; -2.74 KN @ 18.80 MS

CHANNEL: BAGF FILTER: CH. CLASS 60

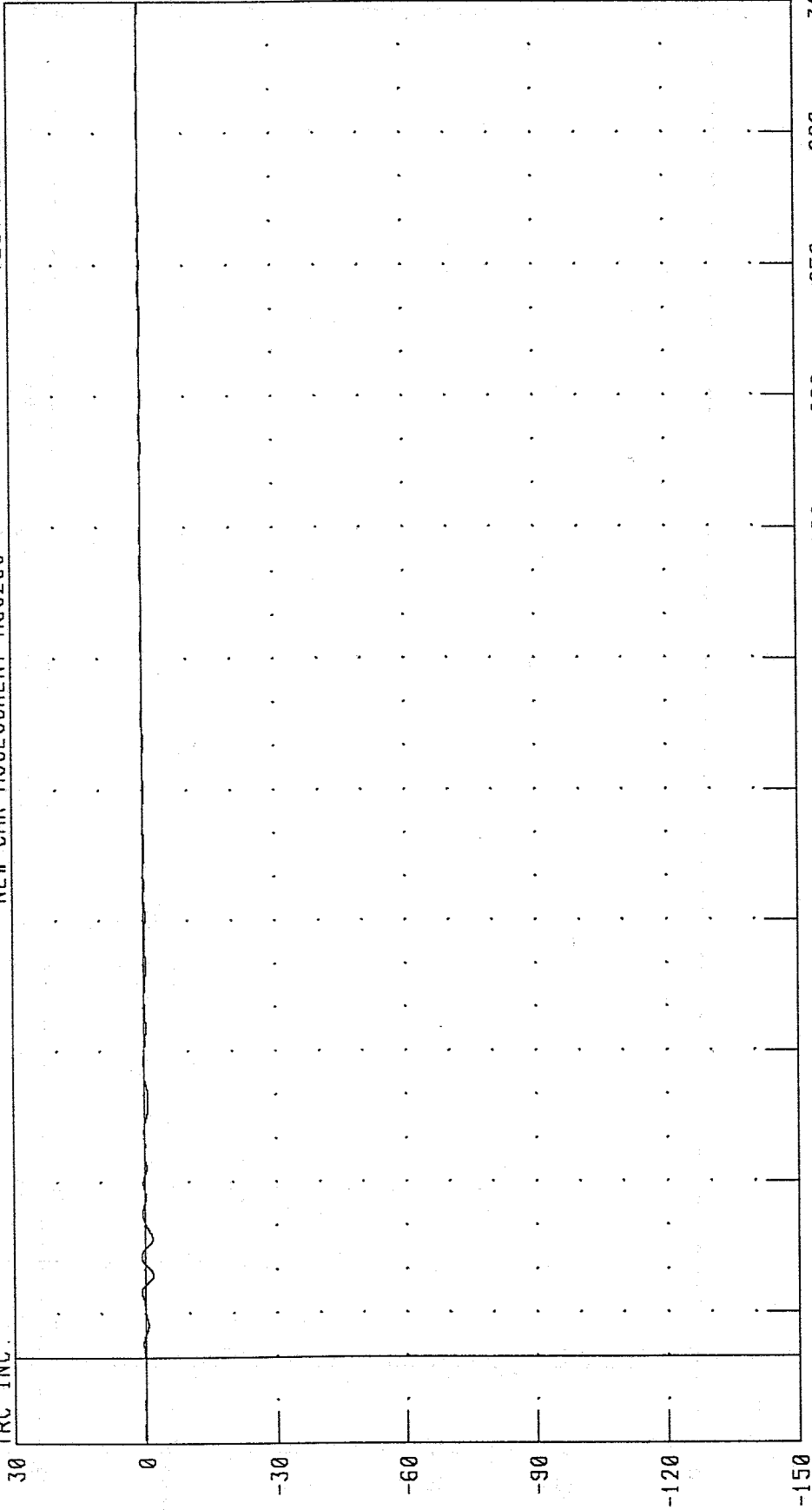
TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

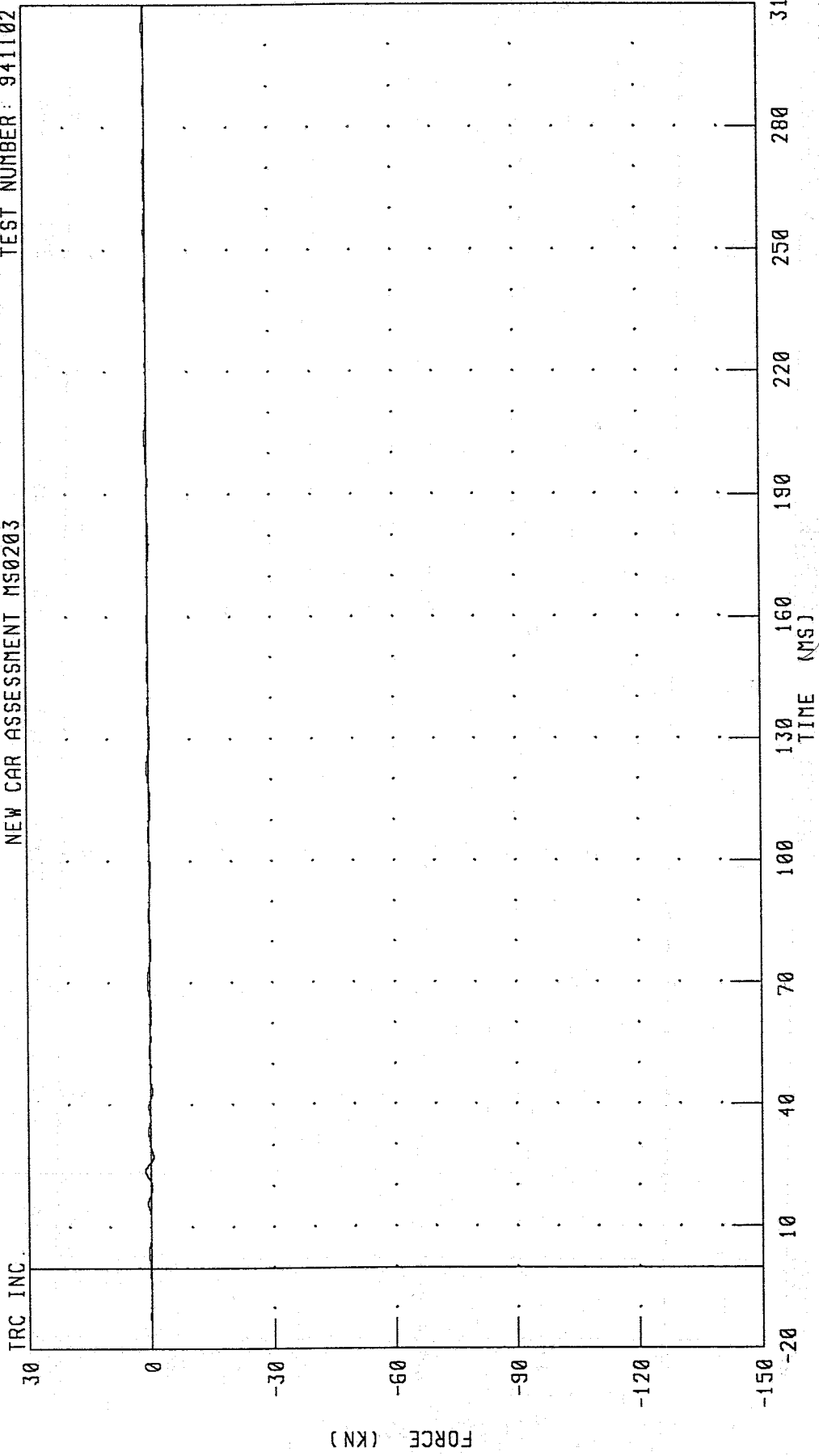


PEAK DATA: 0.82 KN @ 23.20 MS; -1.90 KN @ 18.80 MS

CHANNEL: BA7F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A8 FORCE
 NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



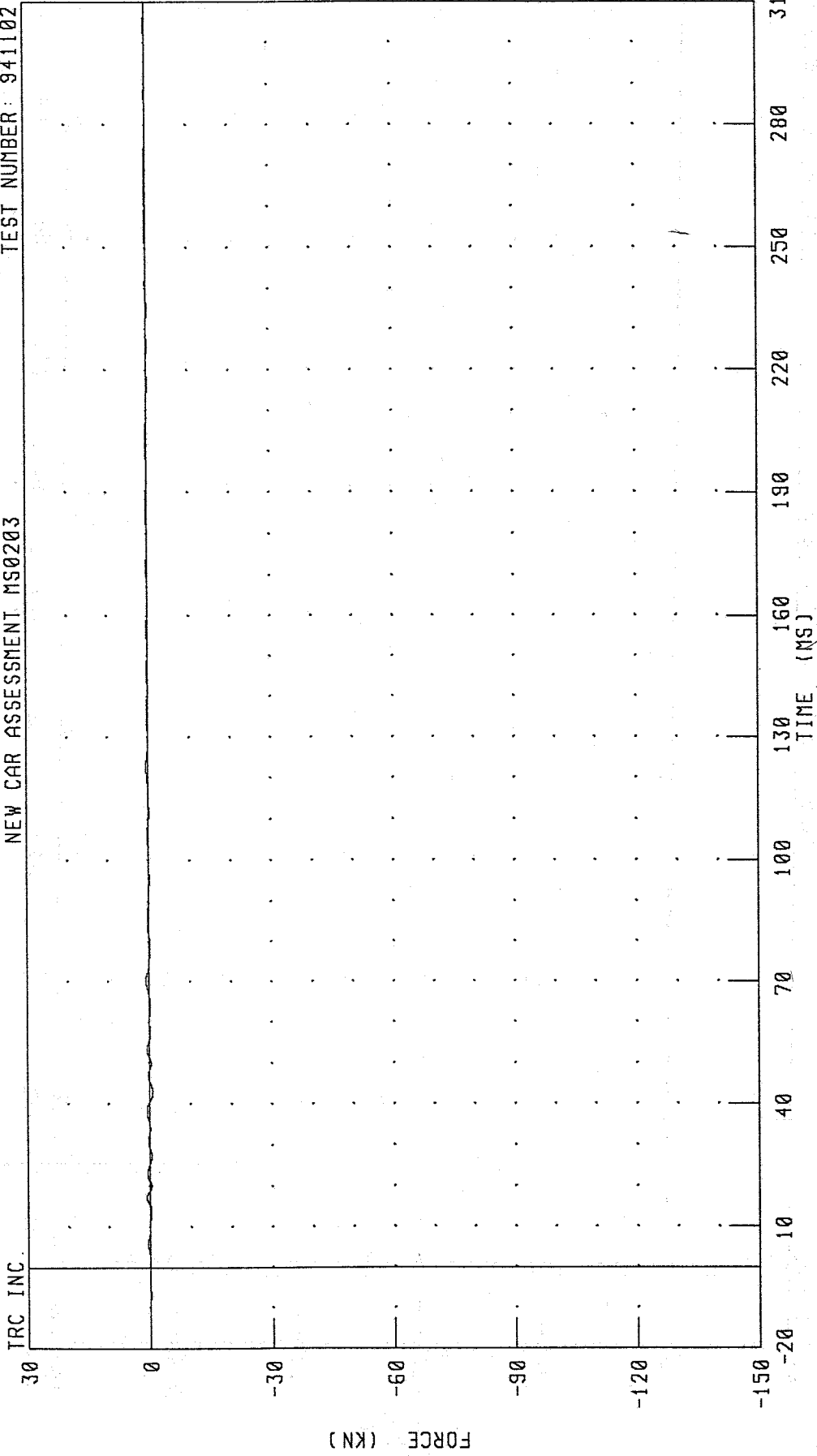
PEAK DATA: 1.26 KN @ 23.76 MS; -0.73 KN @ 27.44 MS

CHANNEL: B8BF FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 0.78 KN @ 70.40 MS, -0.88 KN @ 42.96 MS

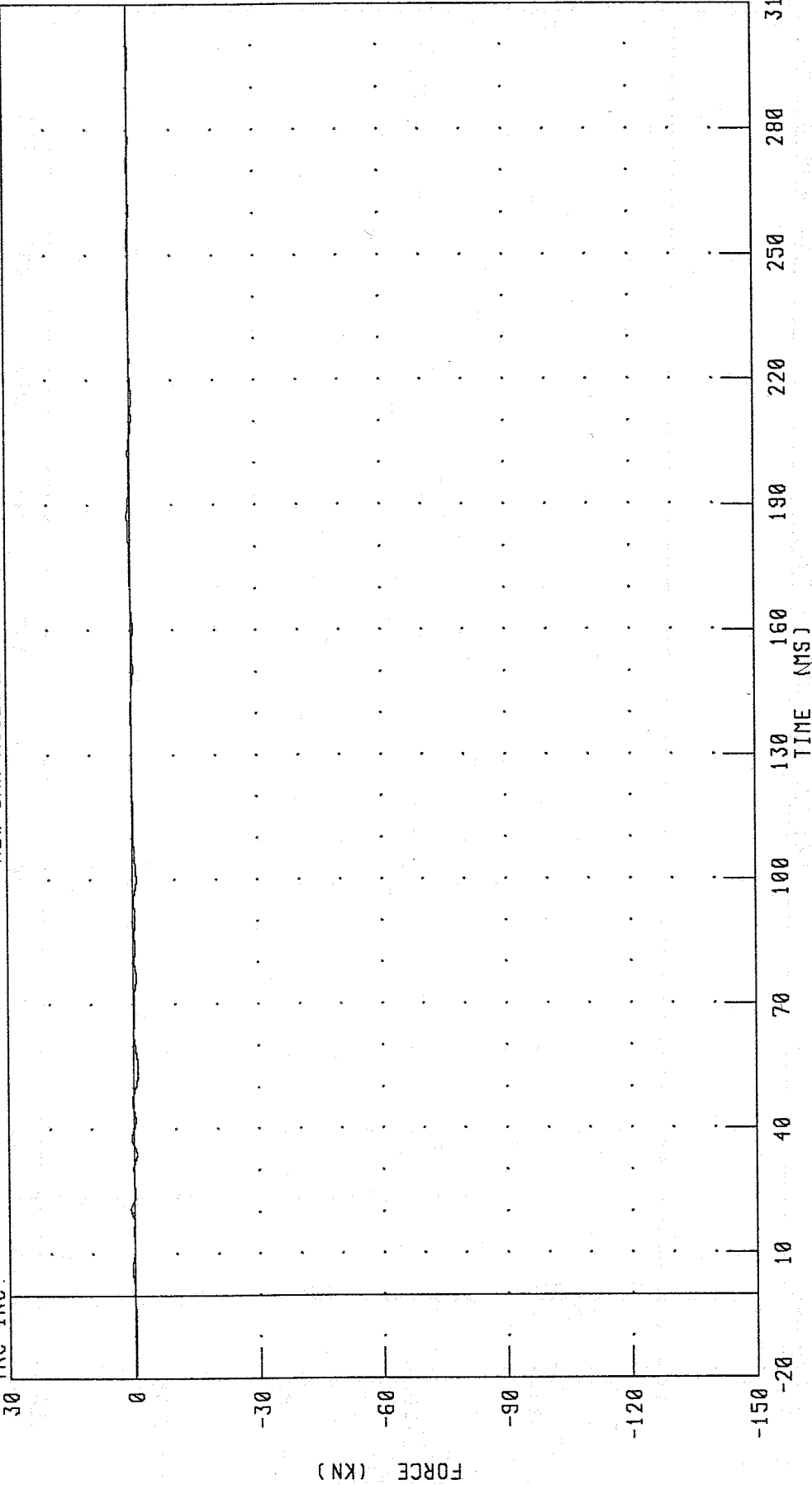
CHANNEL: BA9F FILTER: CH. CLASS 60

TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

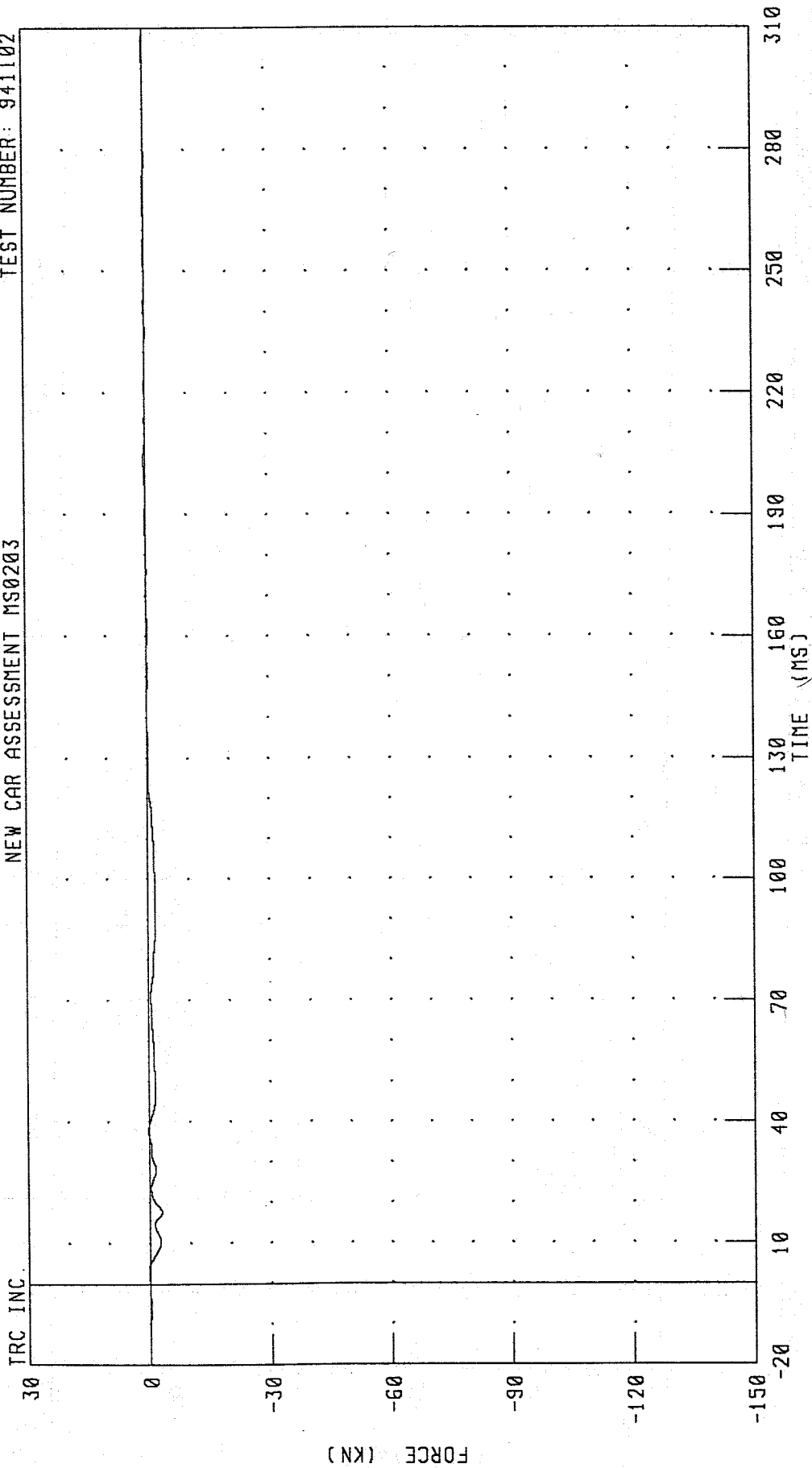


PEAK DATA: 0.85 KN @ 20.80 MS; -1.07 KN @ 55.44 MS

CHANNEL: BBIF FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 0.38 KN @ 203.76 MS; -3.01 KN @ 17.76 MS

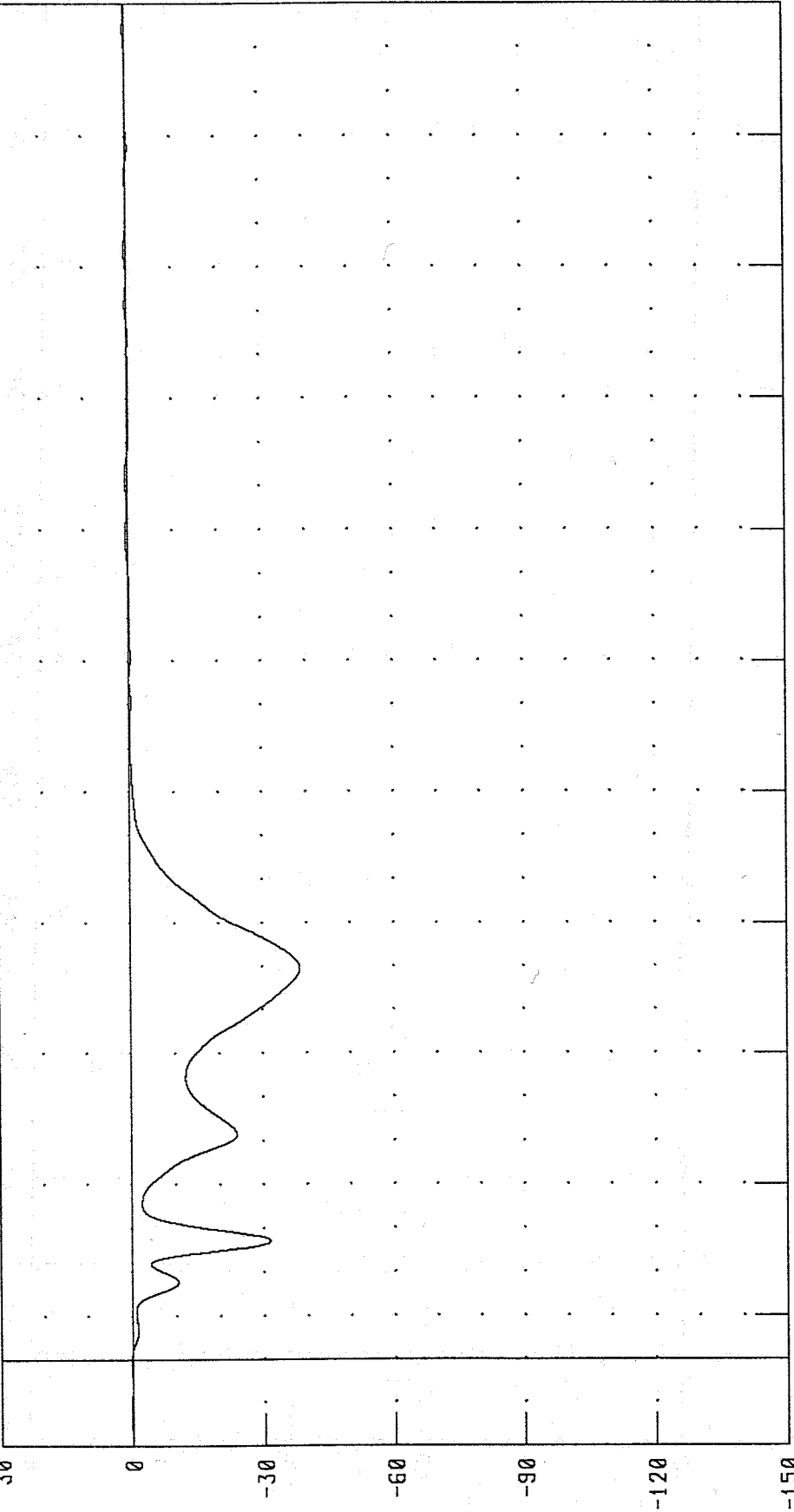
TRC INC.

CHANNEL: BB2F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

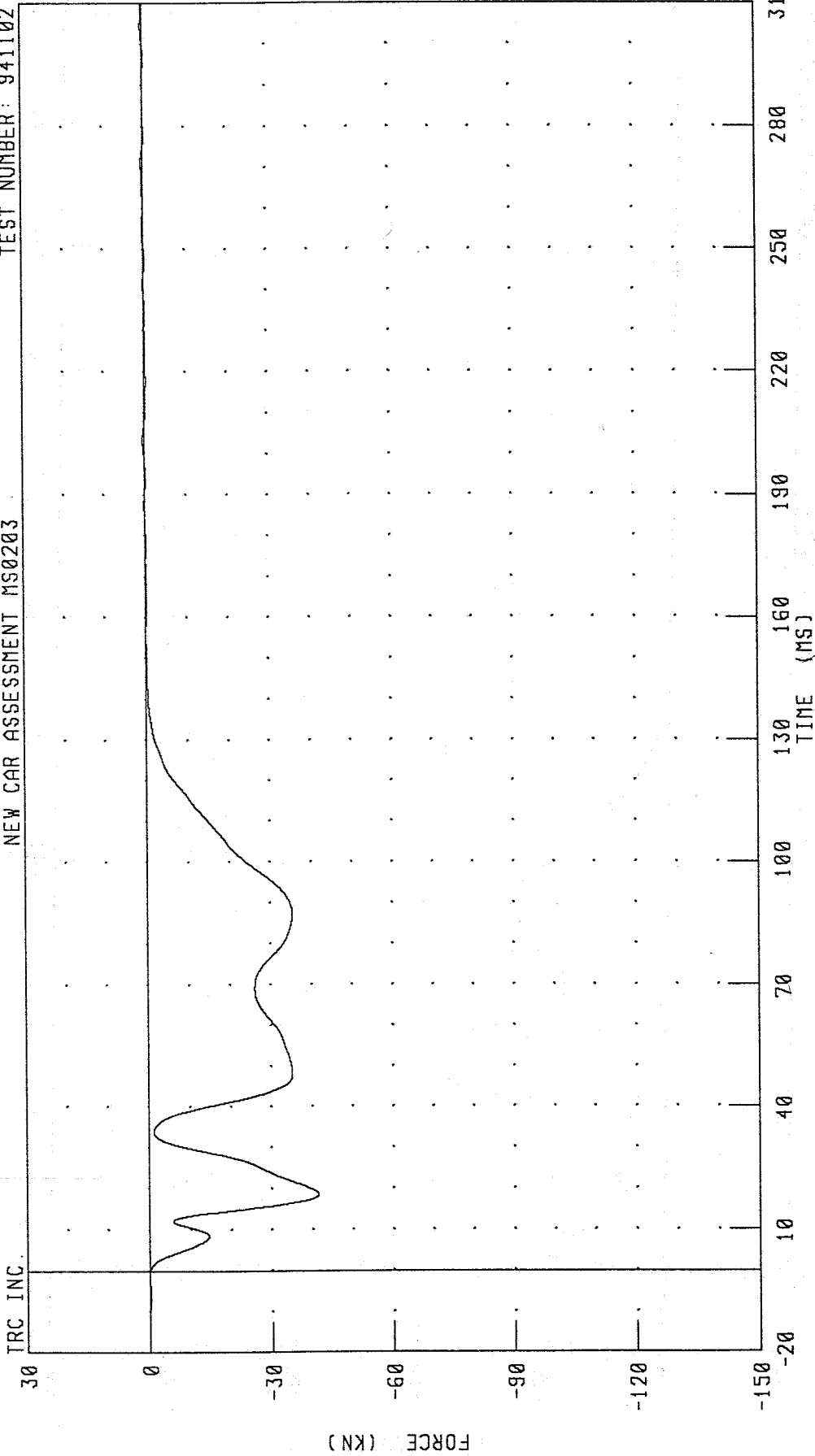


CHANNEL: BB3F FILTER: CH. CLASS 60
PEAK DATA: 0.51 KN @ 188.24 MS; -38.47 KN @ 89.52 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

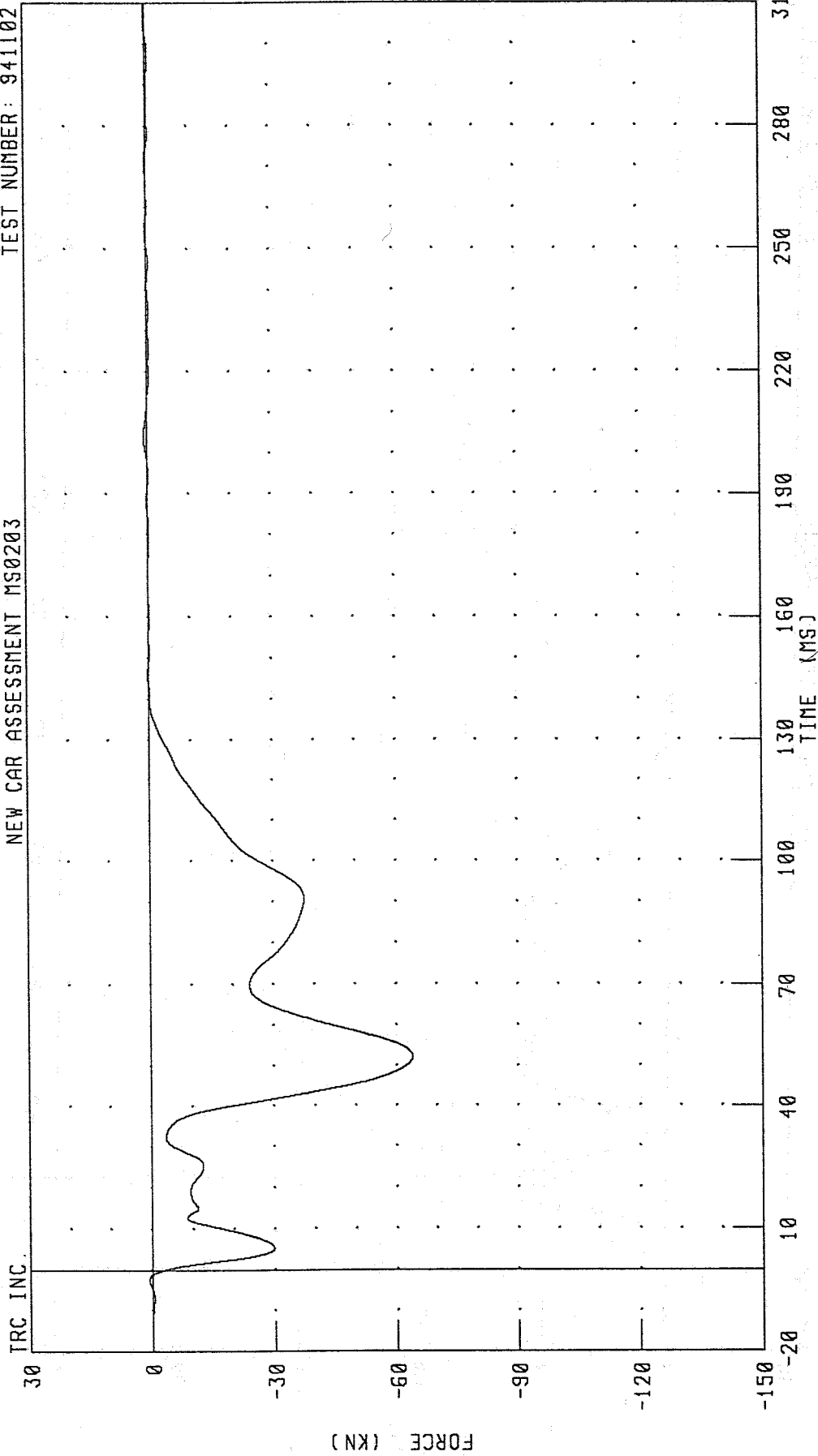


PEAK DATA: 0.38 KN @ 271.36 MS, -41.54 KN @ 18.48 MS

CHANNEL: BB4F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 0.78 KN @ -2.48 MS; -64.10 KN @ 52.16 MS

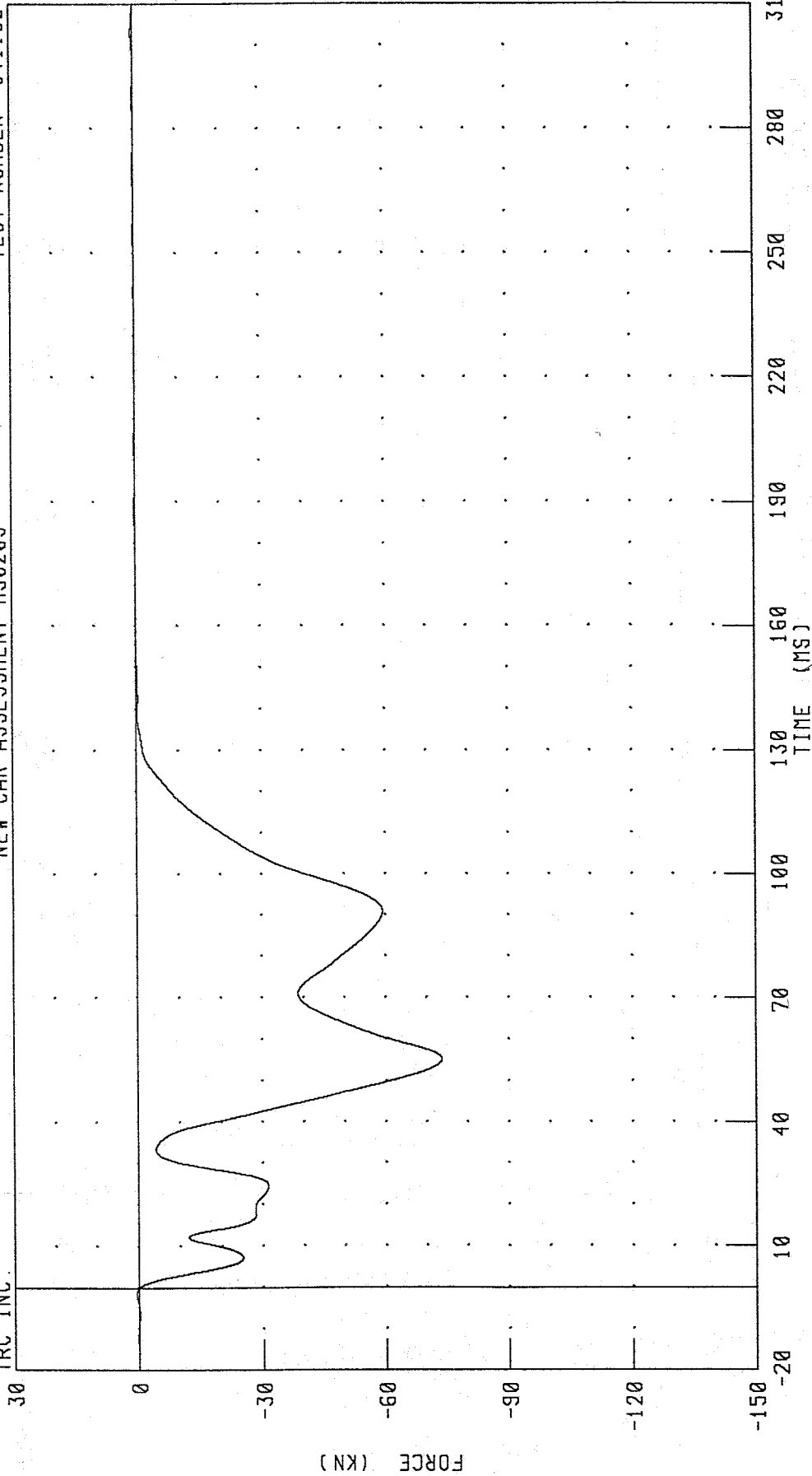
CHANNEL: BB5F FILTER: CH. CLASS 60

TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

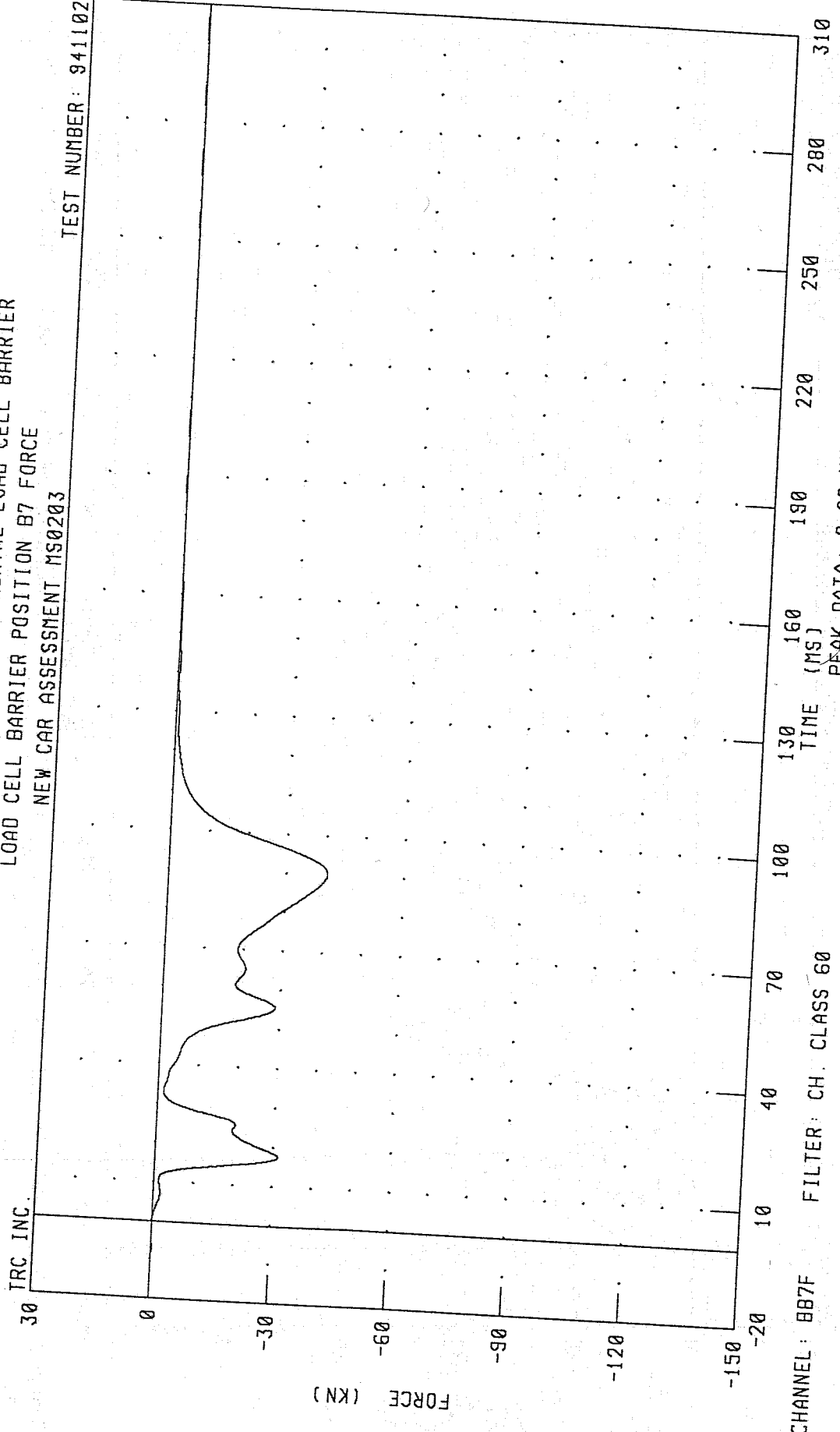


PEAK DATA: 0.45 KN @ -1.60 MS; -73.67 KN @ 55.20 MS

CHANNEL: BB6F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



CHANNEL: BB7F FILTER: CH. CLASS 60
PEAK DATA: 0.29 KN @ 204.24 MS; -40.48 KN @ 90.32 MS

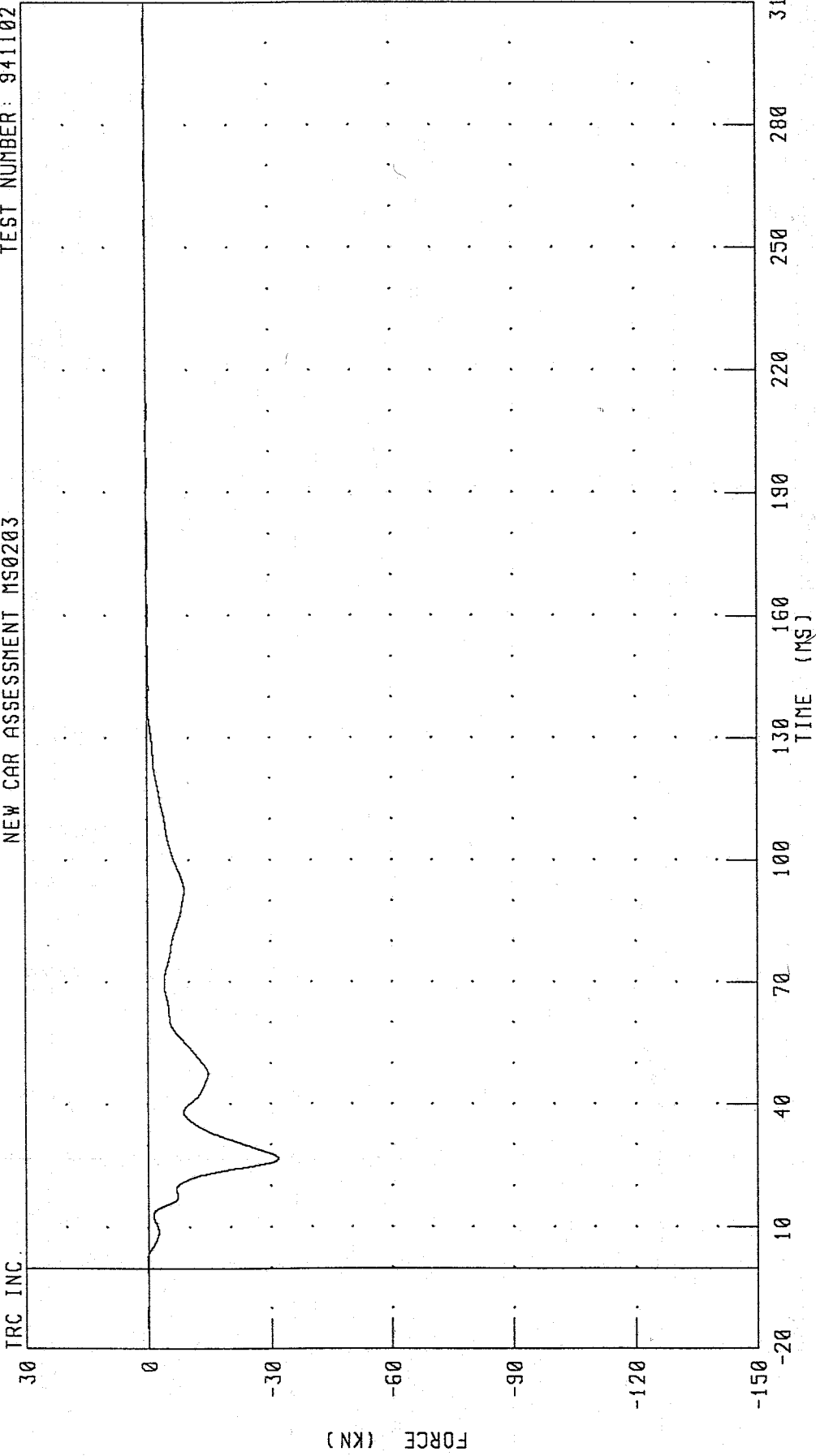
TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER

LOAD CELL BARRIER POSITION B8 FORCE

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



TRC INC.

PEAK DATA: 0.26 KN @ 303.12 MS; -31.78 KN @ 26.72 MS

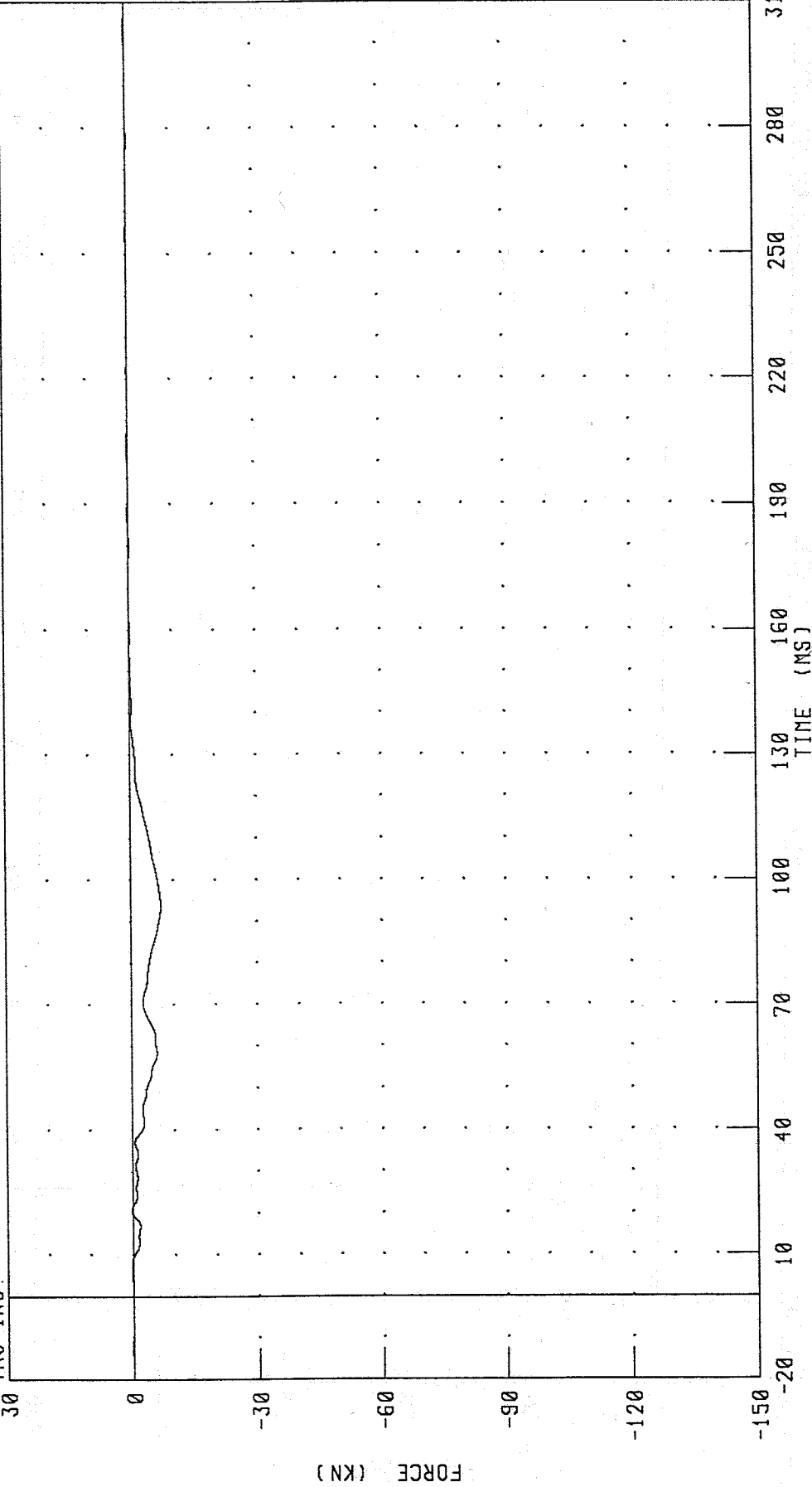
FILTER: CH. CLASS 60

CHANNEL: BBBF

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



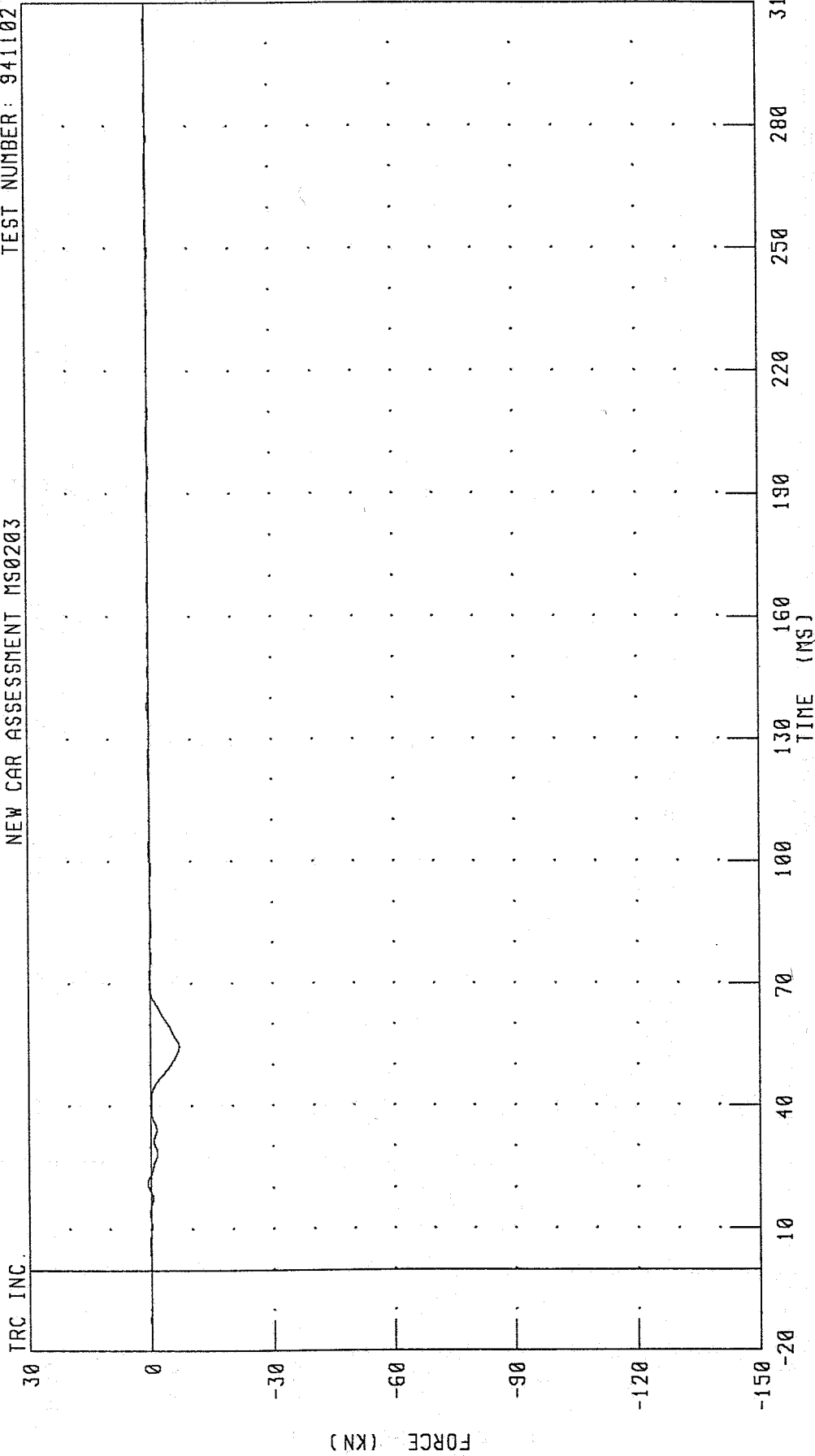
PEAK DATA: 0.32 KN @ 7.60 MS; -7.14 KN @ 93.84 MS

FILTER: CH. CLASS 60

CHANNEL: BB9F

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



TRC INC.

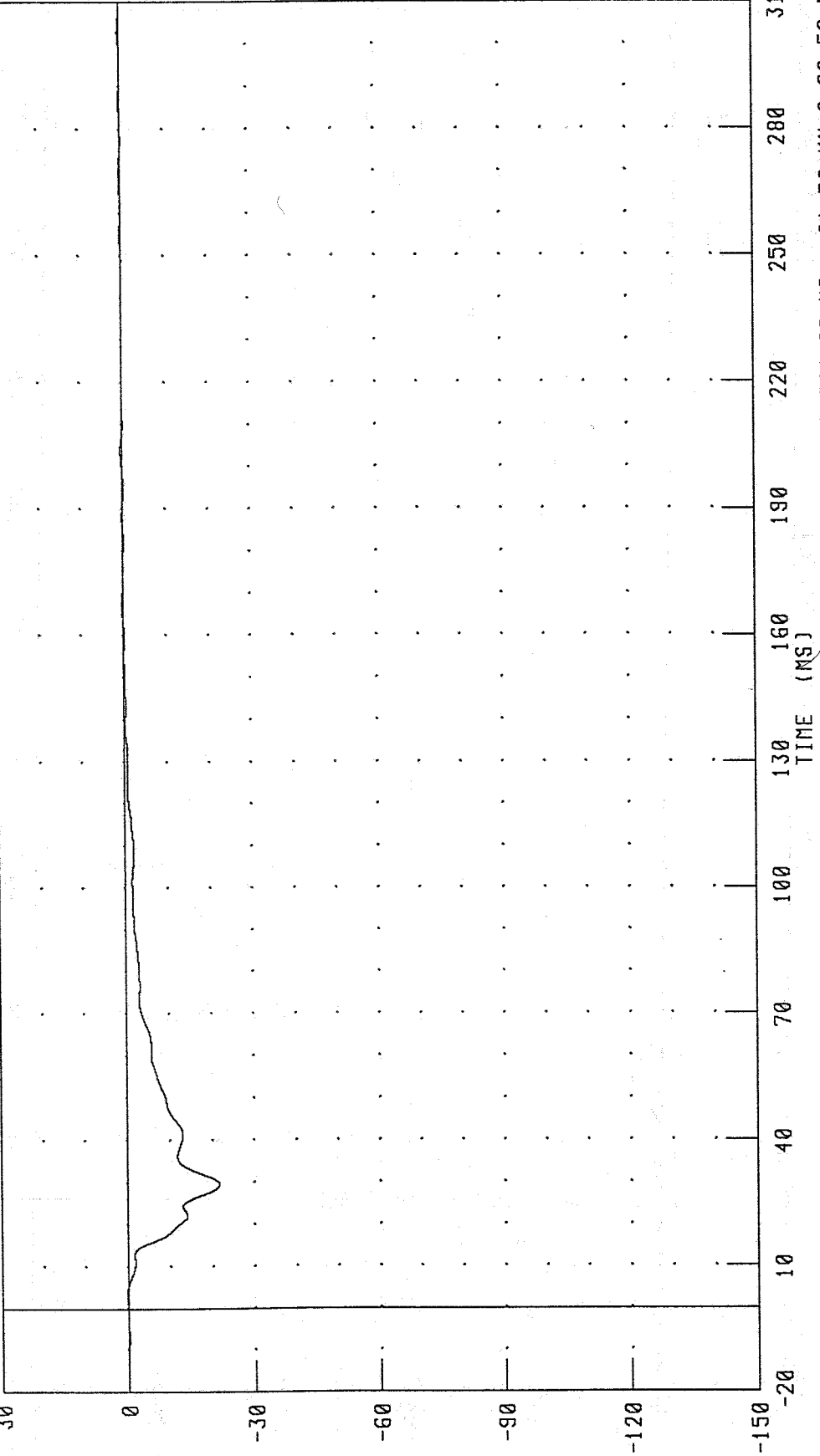
CHANNEL: BC1F FILTER: CH. CLASS 60

PEAK DATA: 0.79 KN @ 21.20 MS; -7.03 KN @ 54.56 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

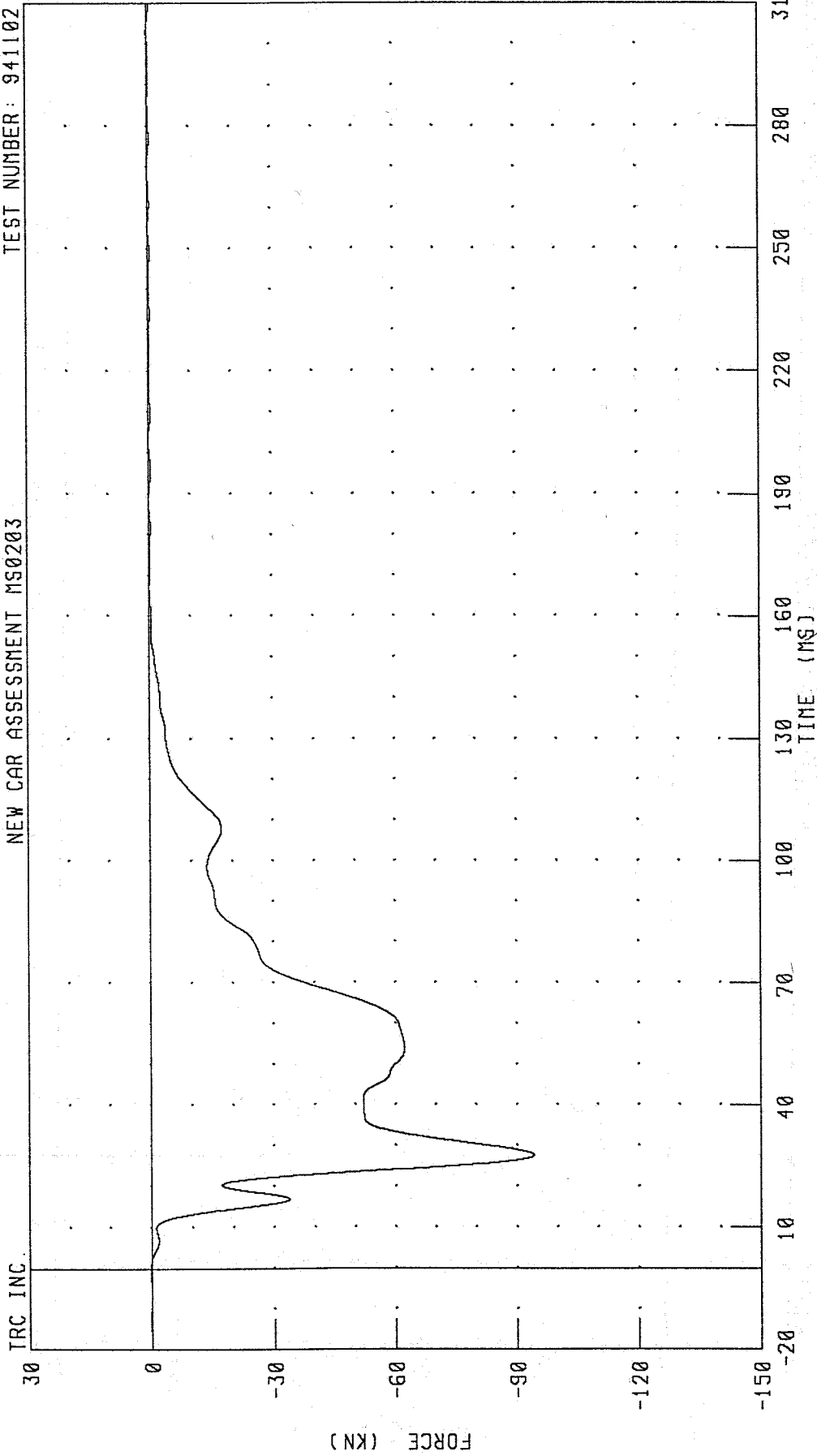


PEAK DATA: 0.38 KN @ 204.00 MS; -21.70 KN @ 29.52 MS

CHANNEL: BC2F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE
NEW CAR ASSESSMENT MS0203

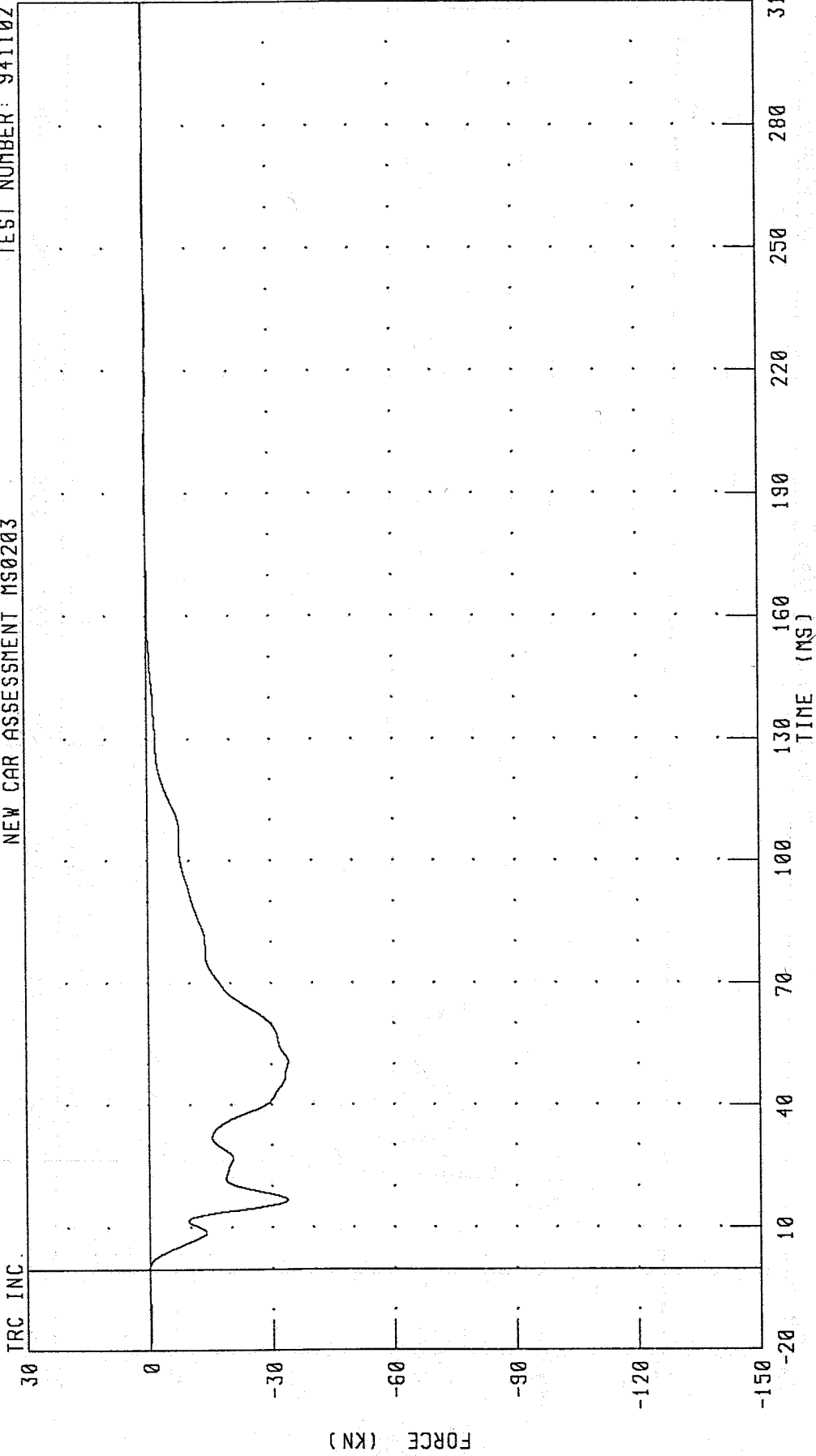
TEST NUMBER: 941102



CHANNEL: BC3F FILTER: CH. CLASS 60 PEAK DATA: 0.21 KN @ -12.56 MS; -94.24 KN @ 27.68 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



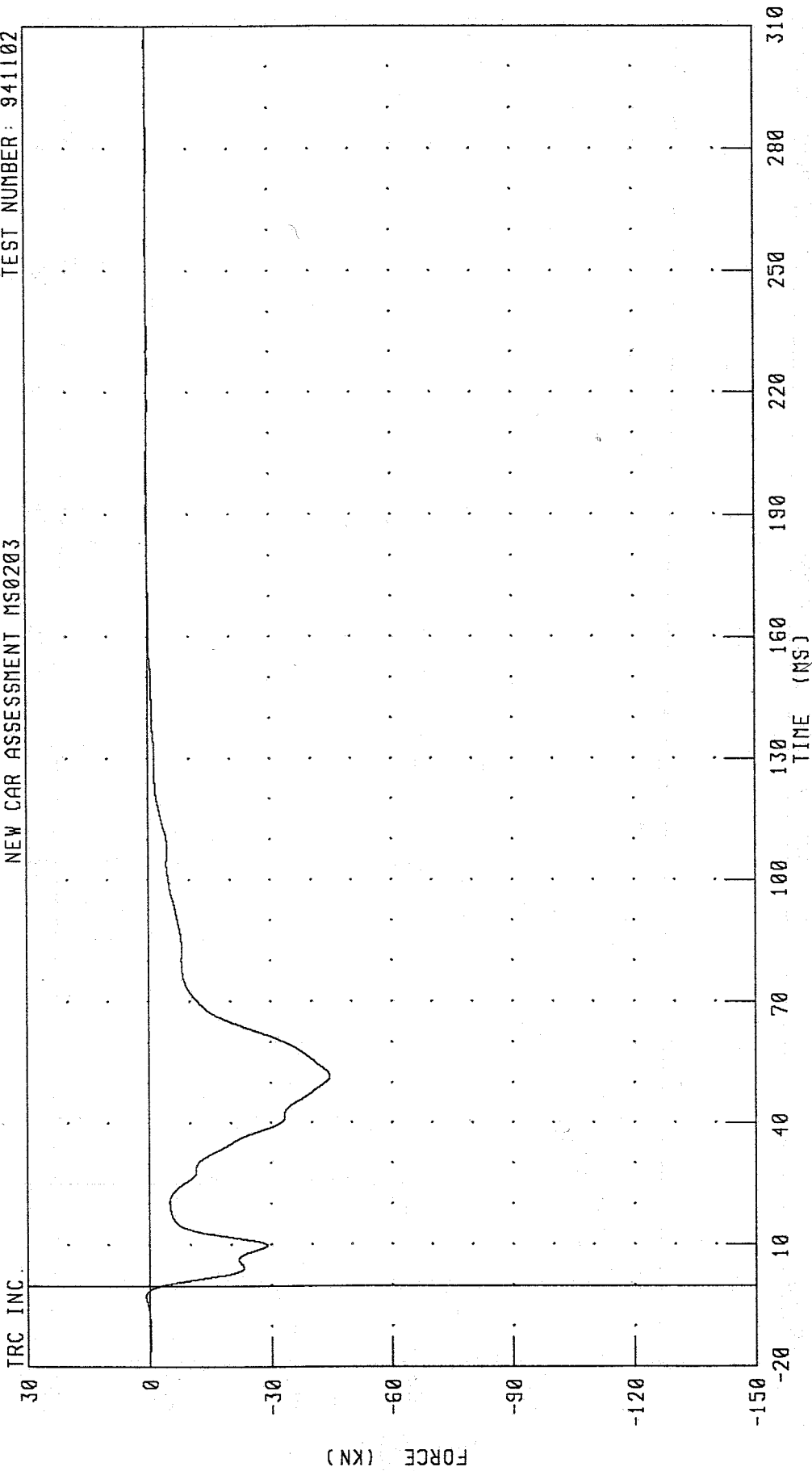
PEAK DATA: 0.26 KN @ 260.80 MS; -34.02 KN @ 50.64 MS

CHANNEL: BC4F FILTER: CH. CLASS 60

TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

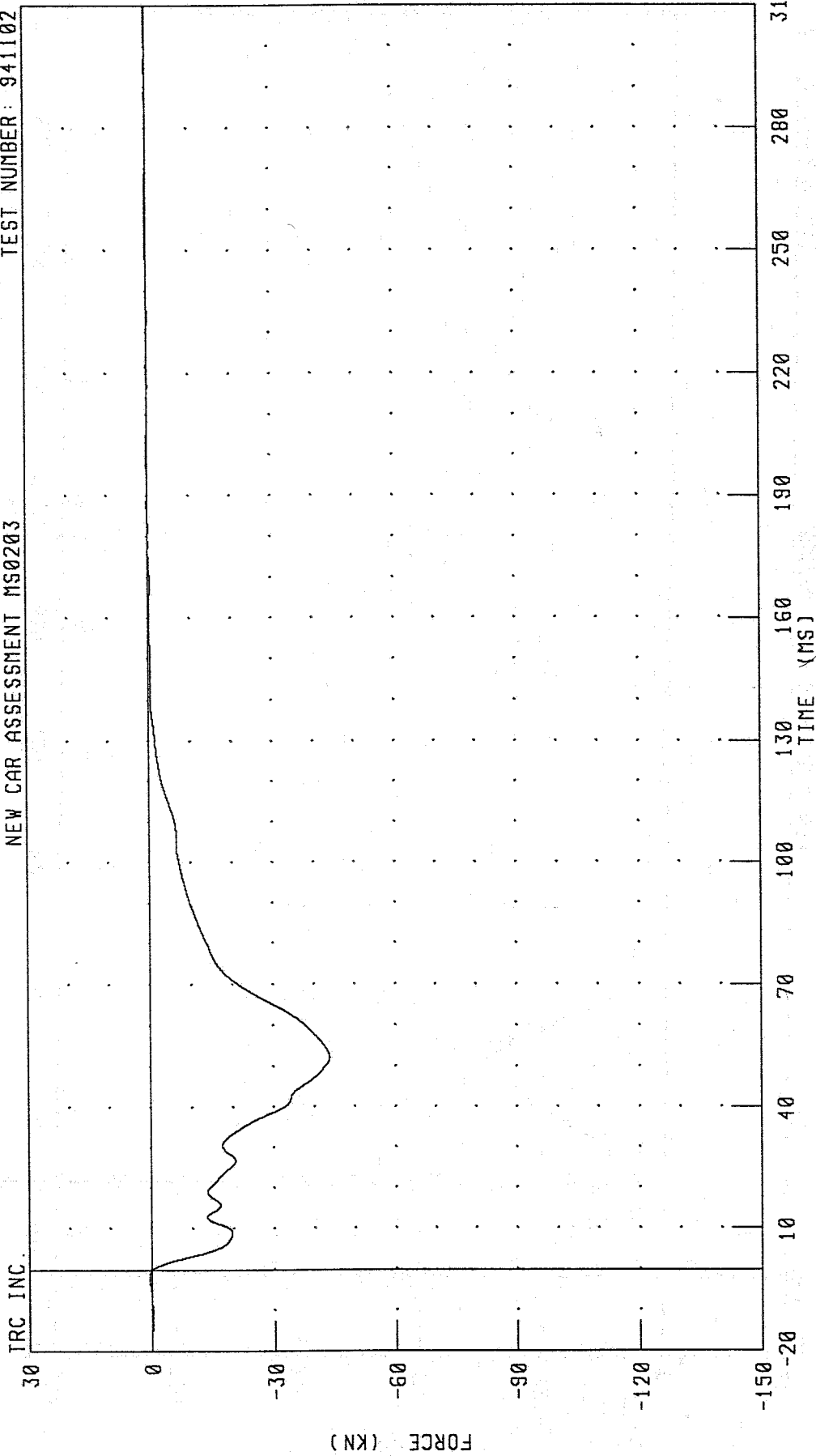


CHANNEL: BC5F FILTER: CH. CLASS 60

PEAK DATA: 0.85 KN @ -2.72 MS; -44.53 KN @ 51.60 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

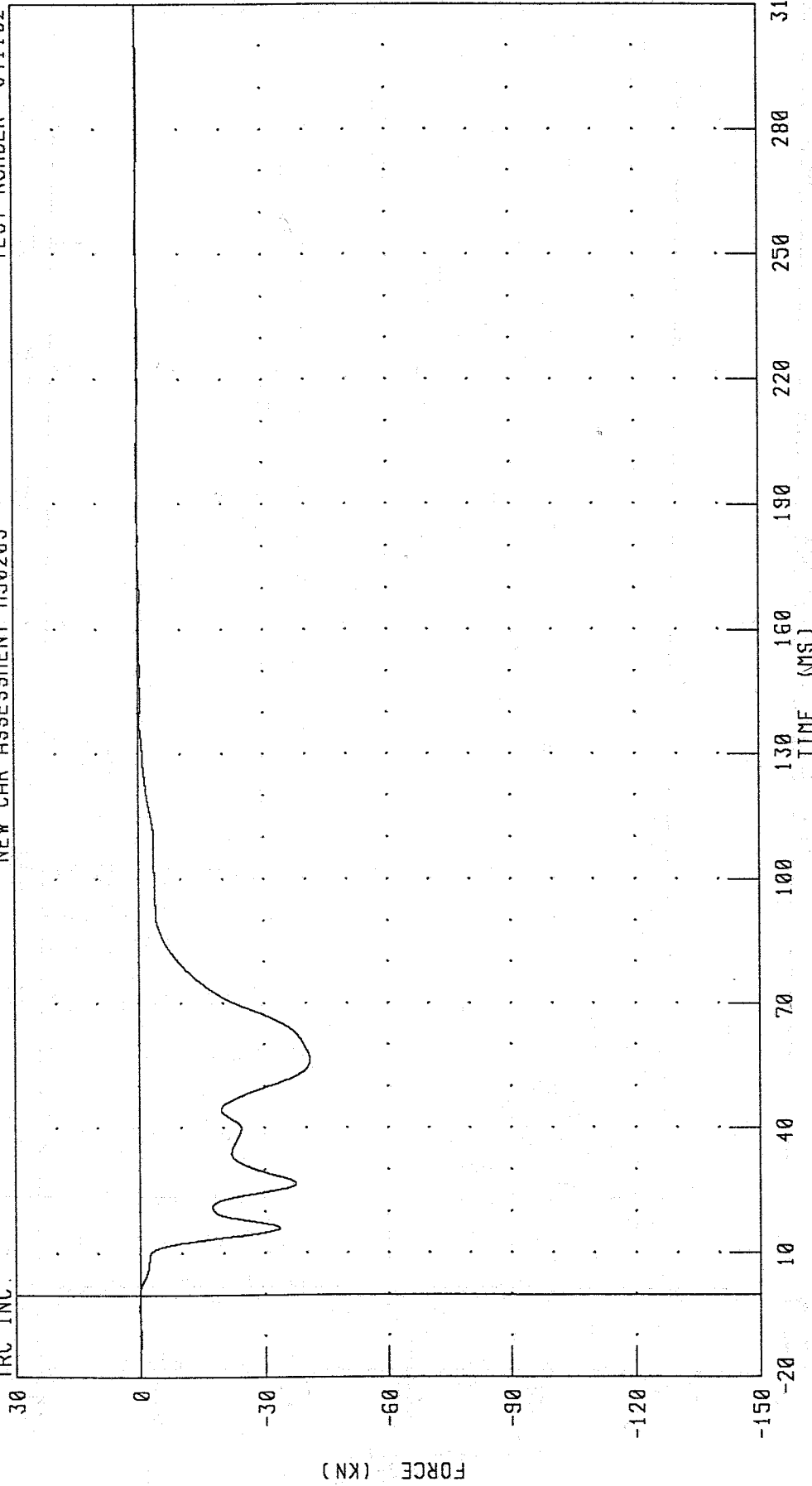


CHANNEL: BC6F FILTER: CH. CLASS 60 PEAK DATA: 0.53 KN @ -1.92 MS; -43.86 KN @ 52.16 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



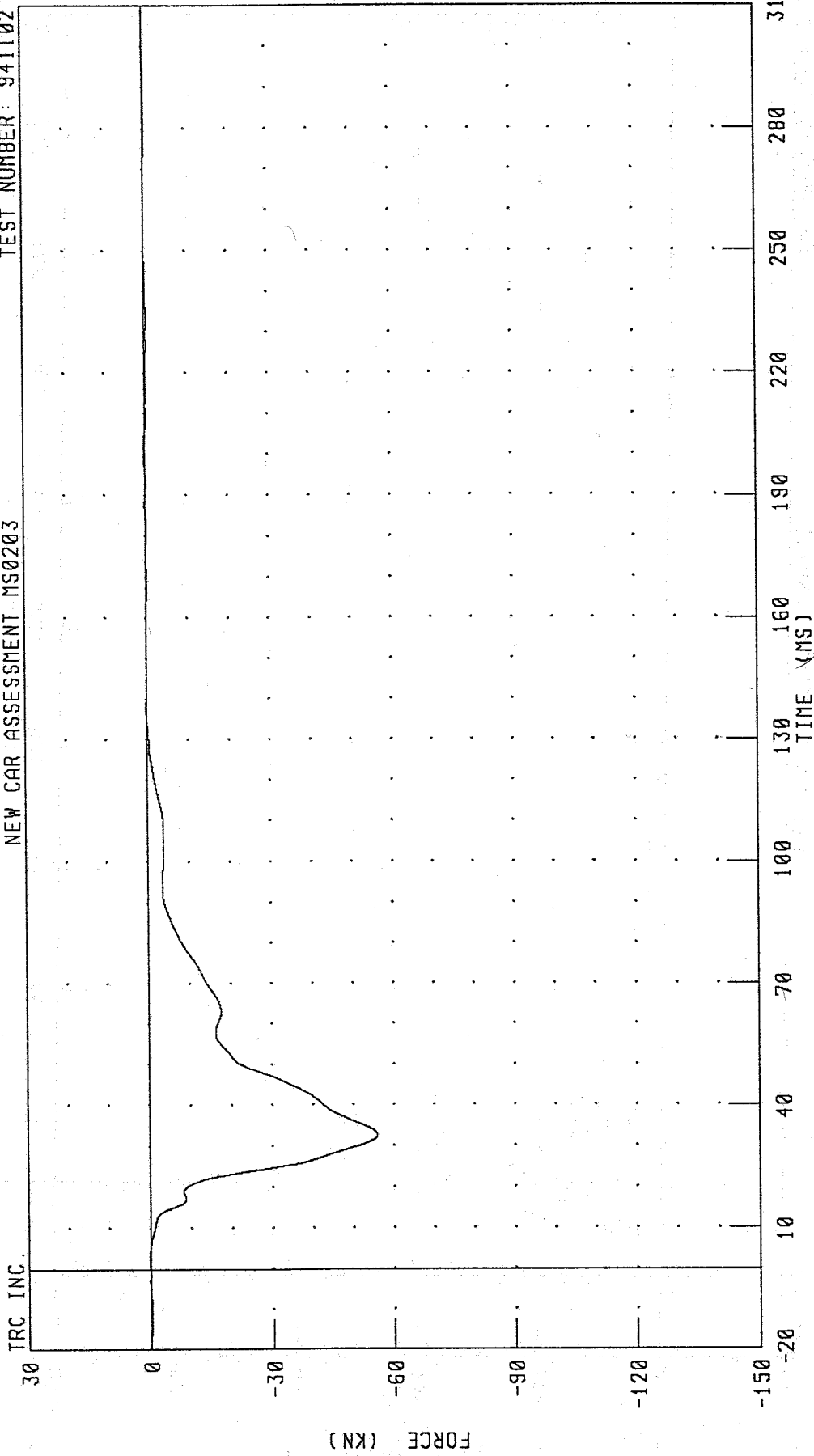
PEAK DATA: 0.28 KN @ 200.40 MS; -40.93 KN @ 56.40 MS

FILTER: CH. CLASS 60

CHANNEL: BC7F

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C8 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

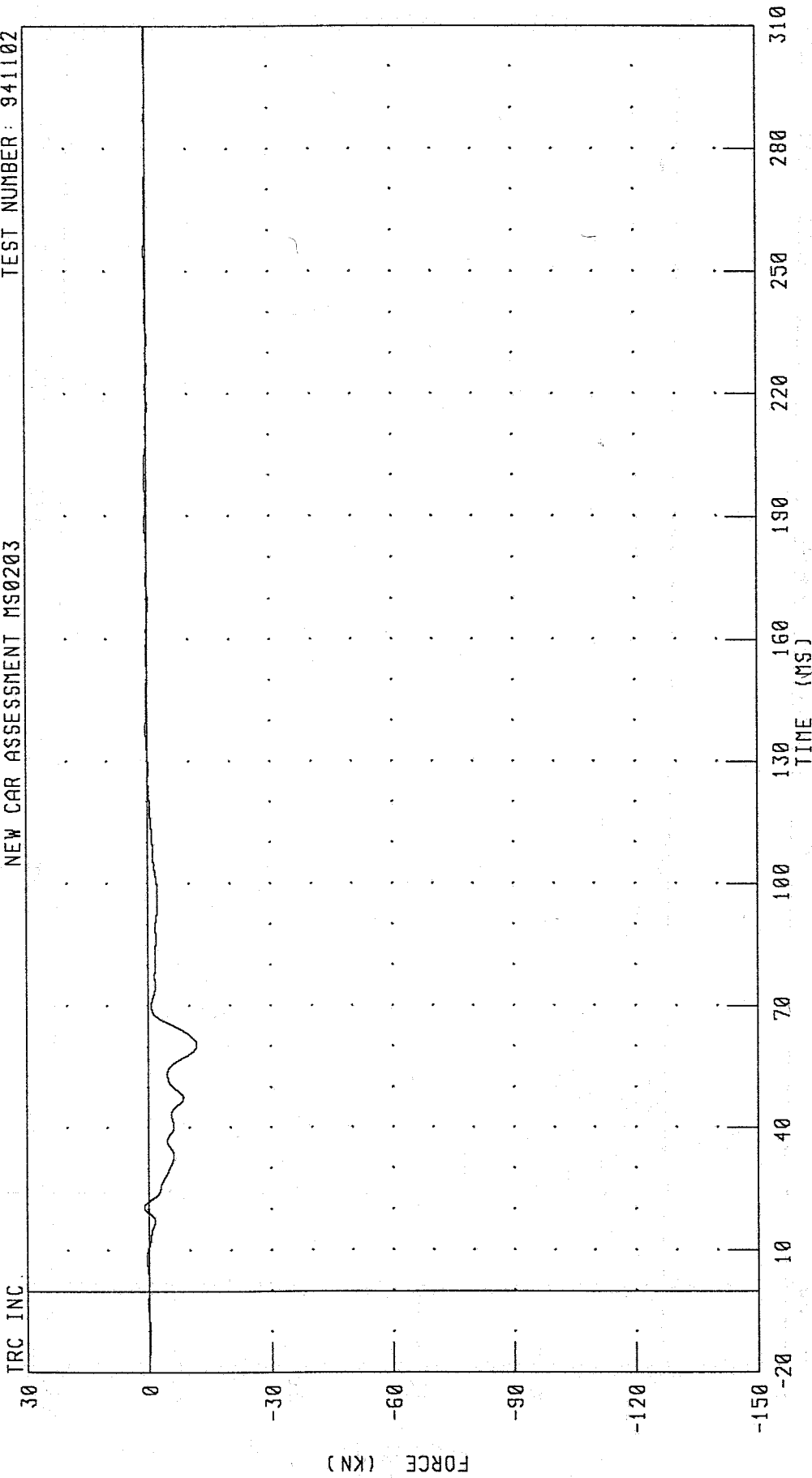


CHANNEL: BC8F FILTER: CH. CLASS 60
PEAK DATA: 0.28 KN @ 200.72 MS; -55.91 KN @ 32.64 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE

NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



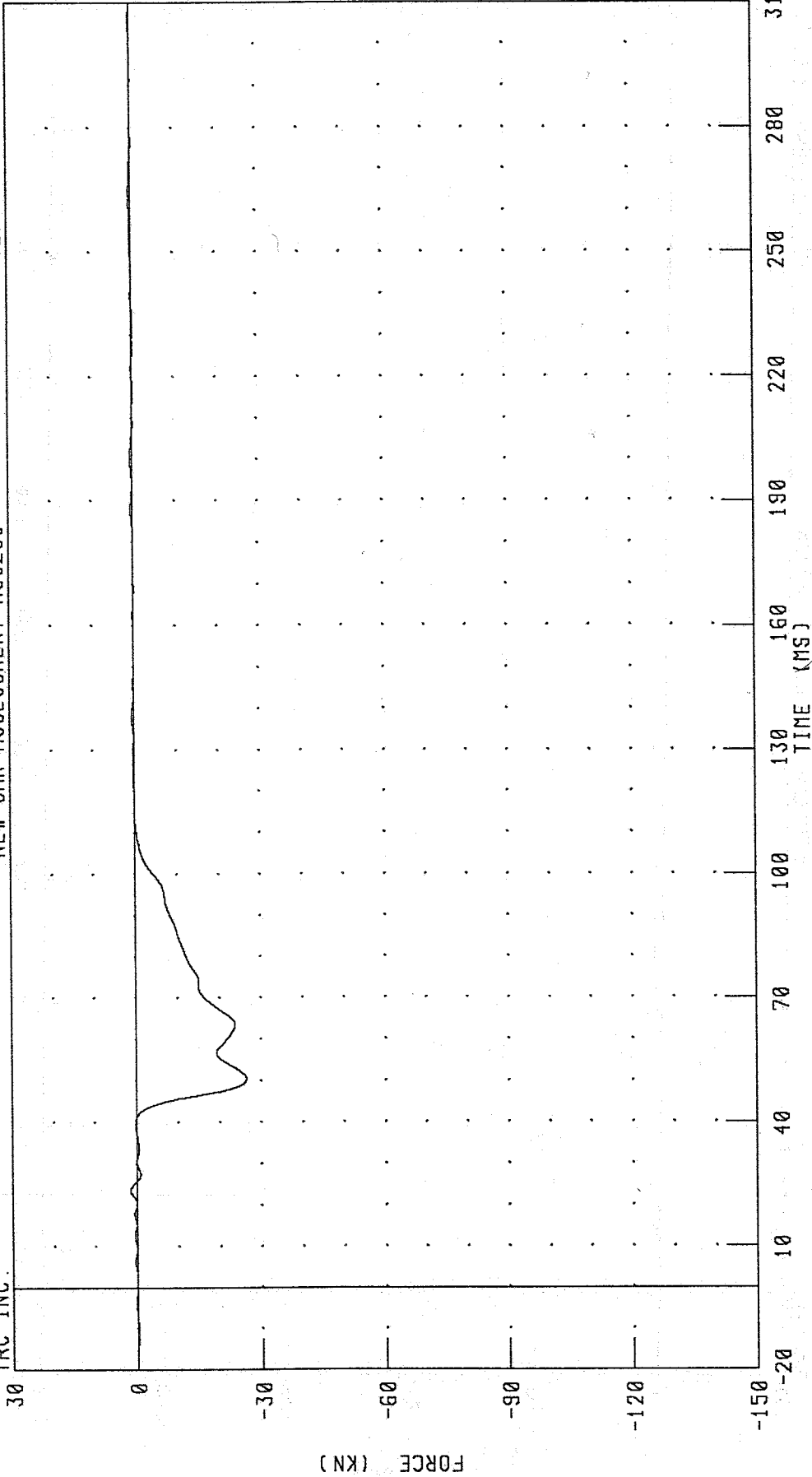
CHANNEL: BC9F FILTER: CH. CLASS 60

PEAK DATA: 1.02 KN @ 20.56 MS; -11.79 KN @ 60.40 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.



CHANNEL: BD1F FILTER: CH. CLASS 60

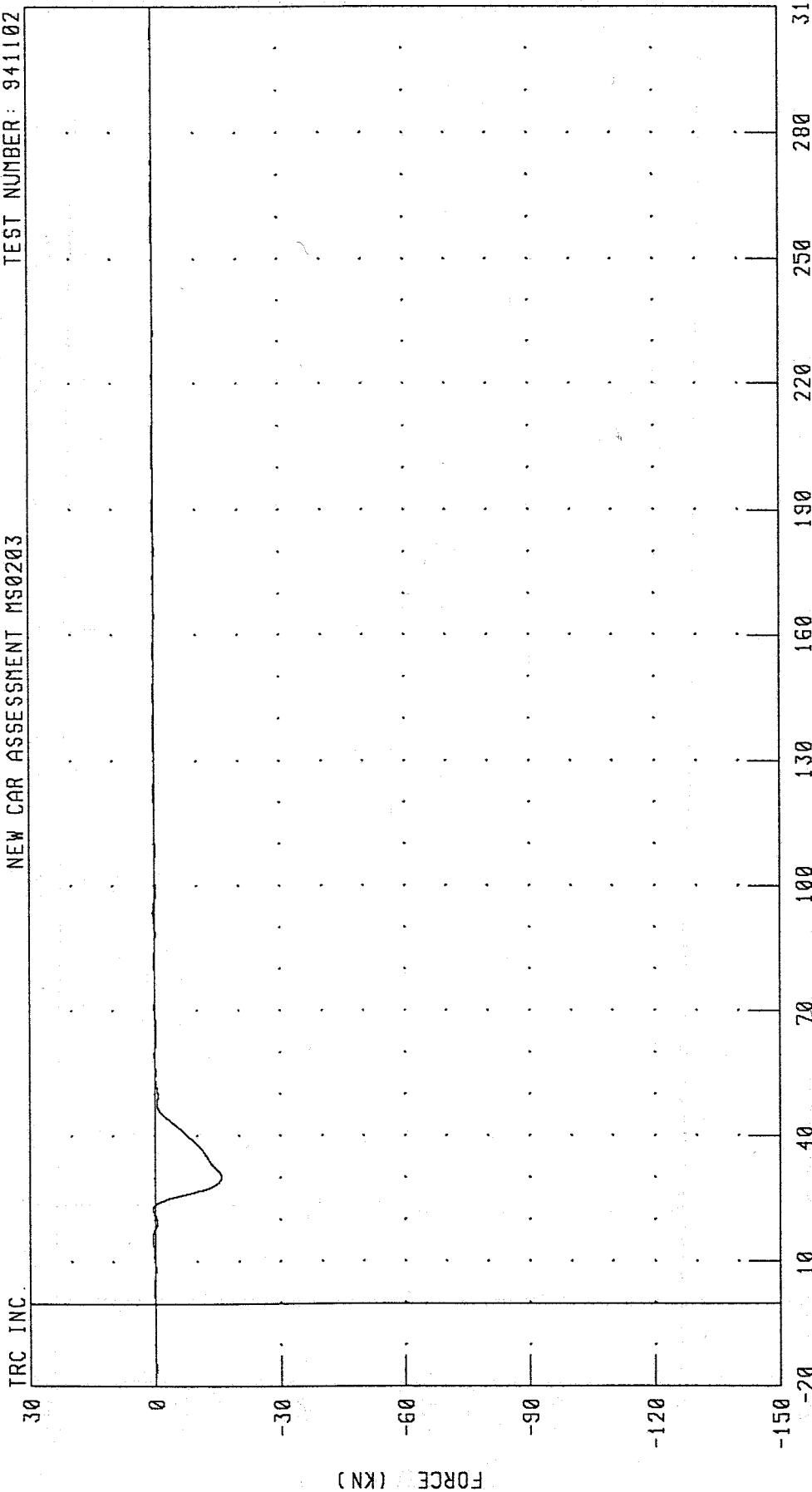
PEAK DATA: 1.50 KN @ 23.68 MS; -26.37 KN @ 50.48 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

TRC INC.



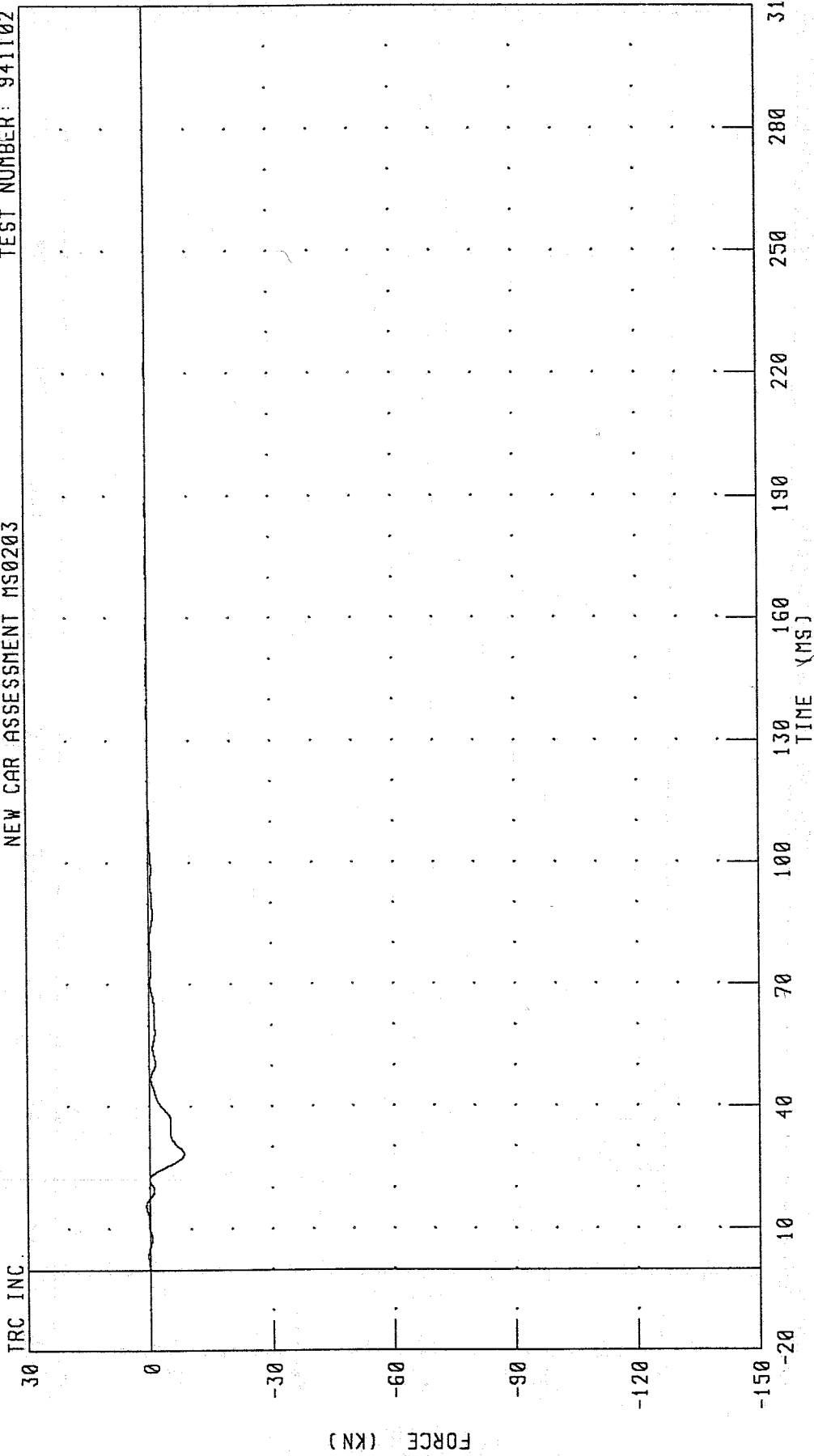
PEAK DATA: 0.58 KN @ 15.60 MS; -15.81 KN @ 30.32 MS

FILTER: CH. CLASS 60

CHANNEL: 802F

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



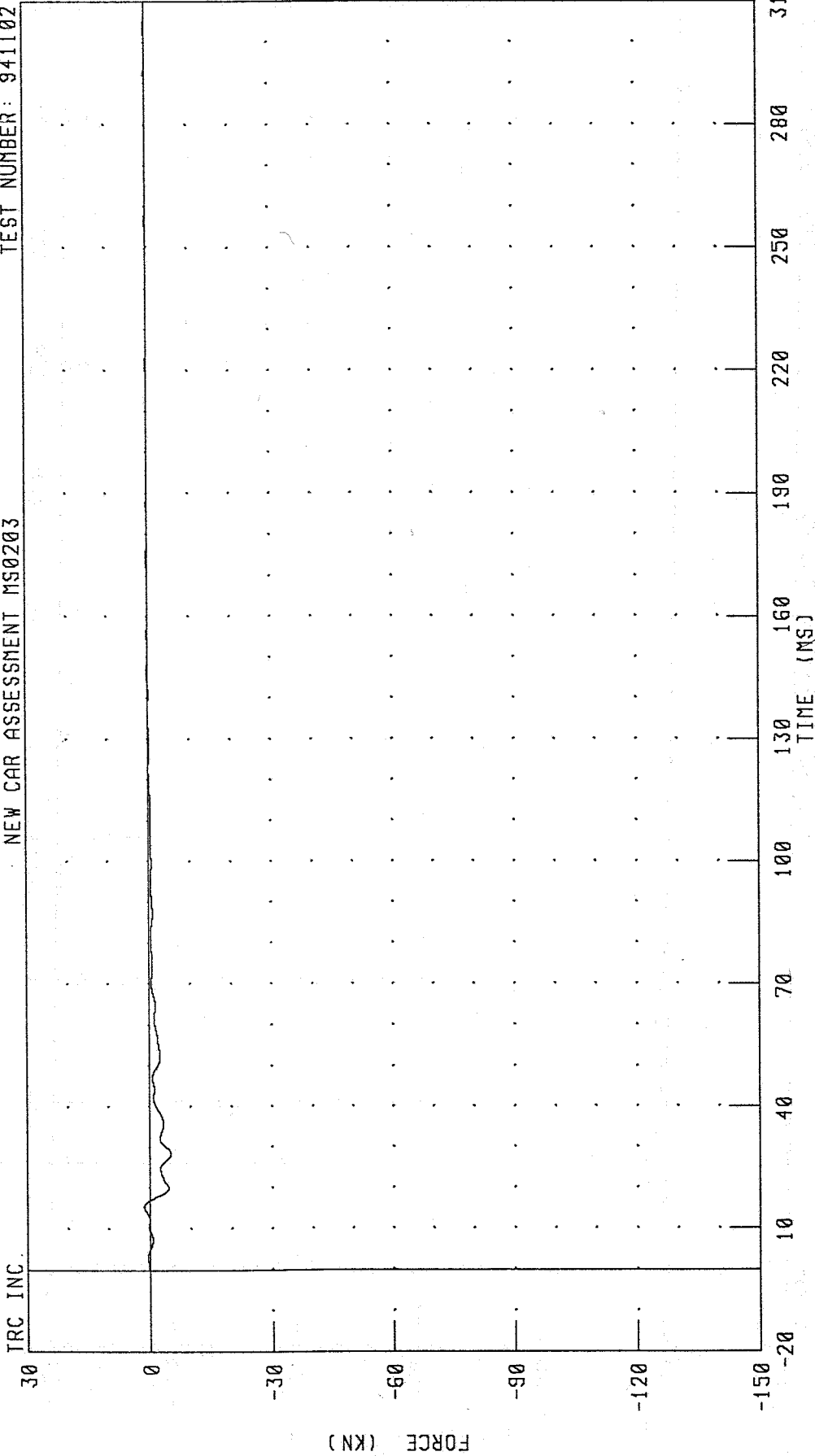
CHANNEL: BD3F FILTER: CH. CLASS 60 PEAK DATA: 0.88 KN @ 15.60 MS; -8.38 KN @ 28.32 MS

TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203



PEAK DATA: 1.38 KN @ 15.44 MS; -5.22 KN @ 28.48 MS

FILTER: CH. CLASS 60

CHANNEL: BD4F

TRC INC.

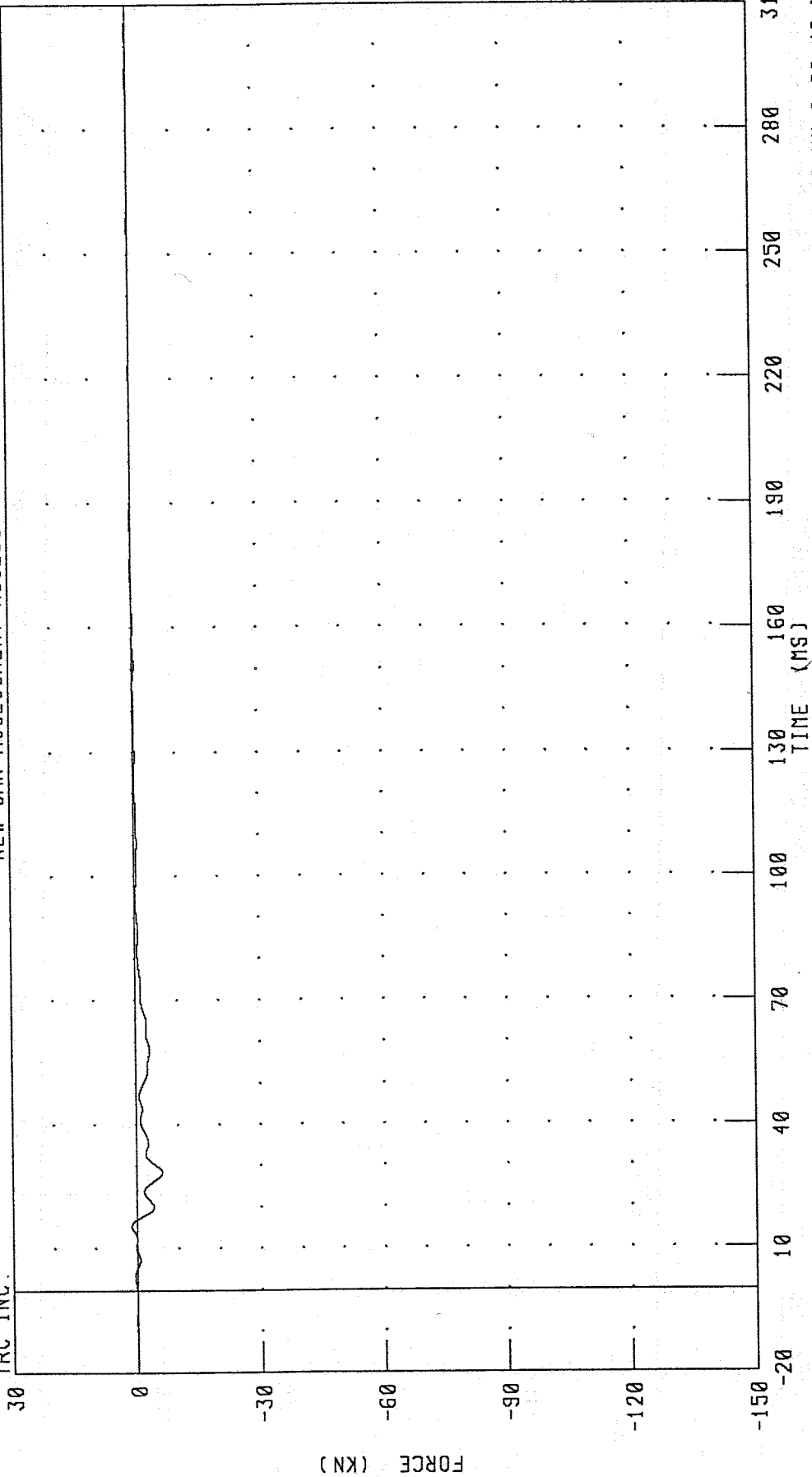
FORCE (KN)

TIME (MS)

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 05 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

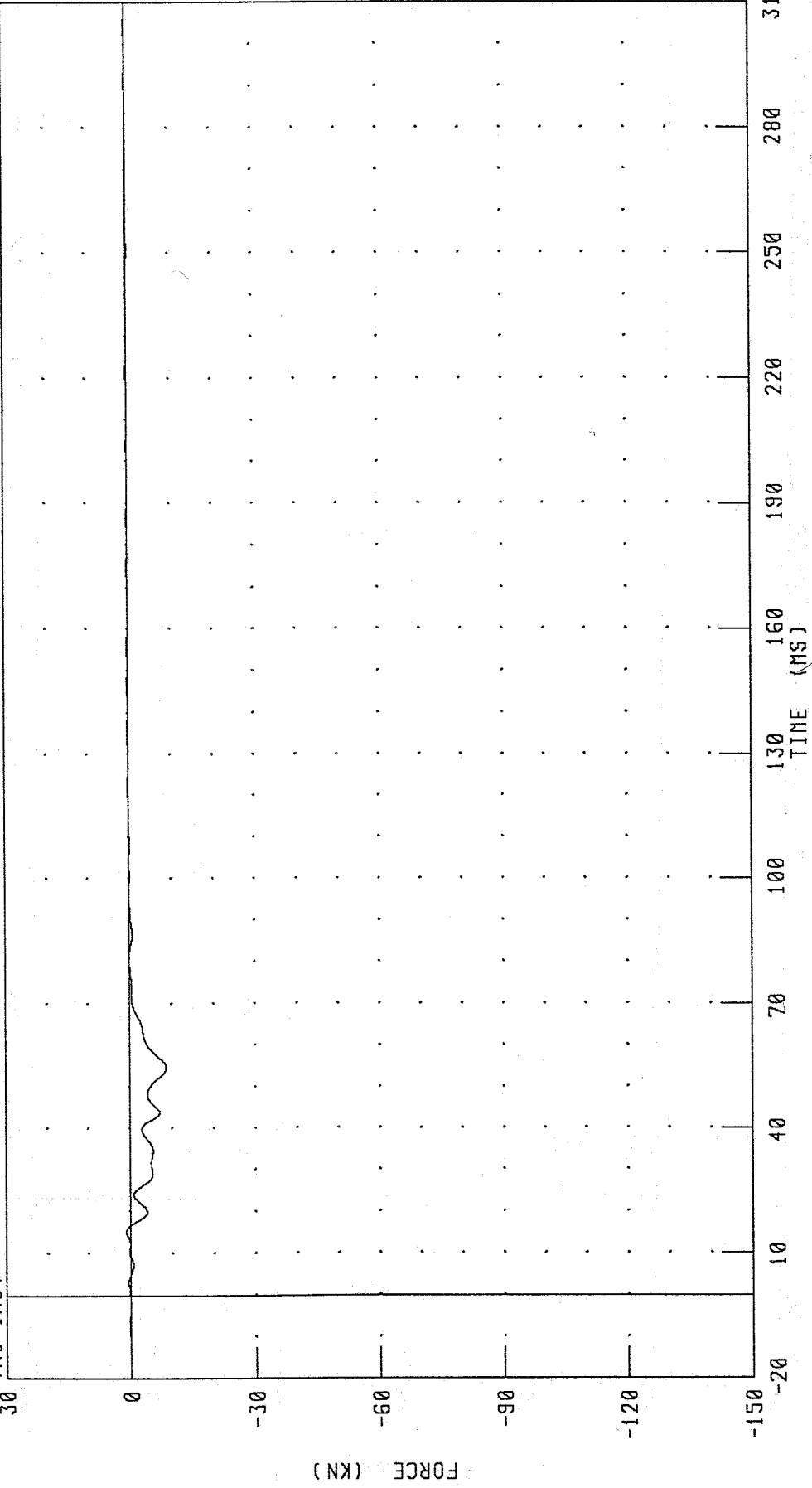


CHANNEL: B05F FILTER: CH. CLASS 60 PEAK DATA: 1.26 KN @ 15.44 MS; -6.17 KN @ 28.40 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC INC.

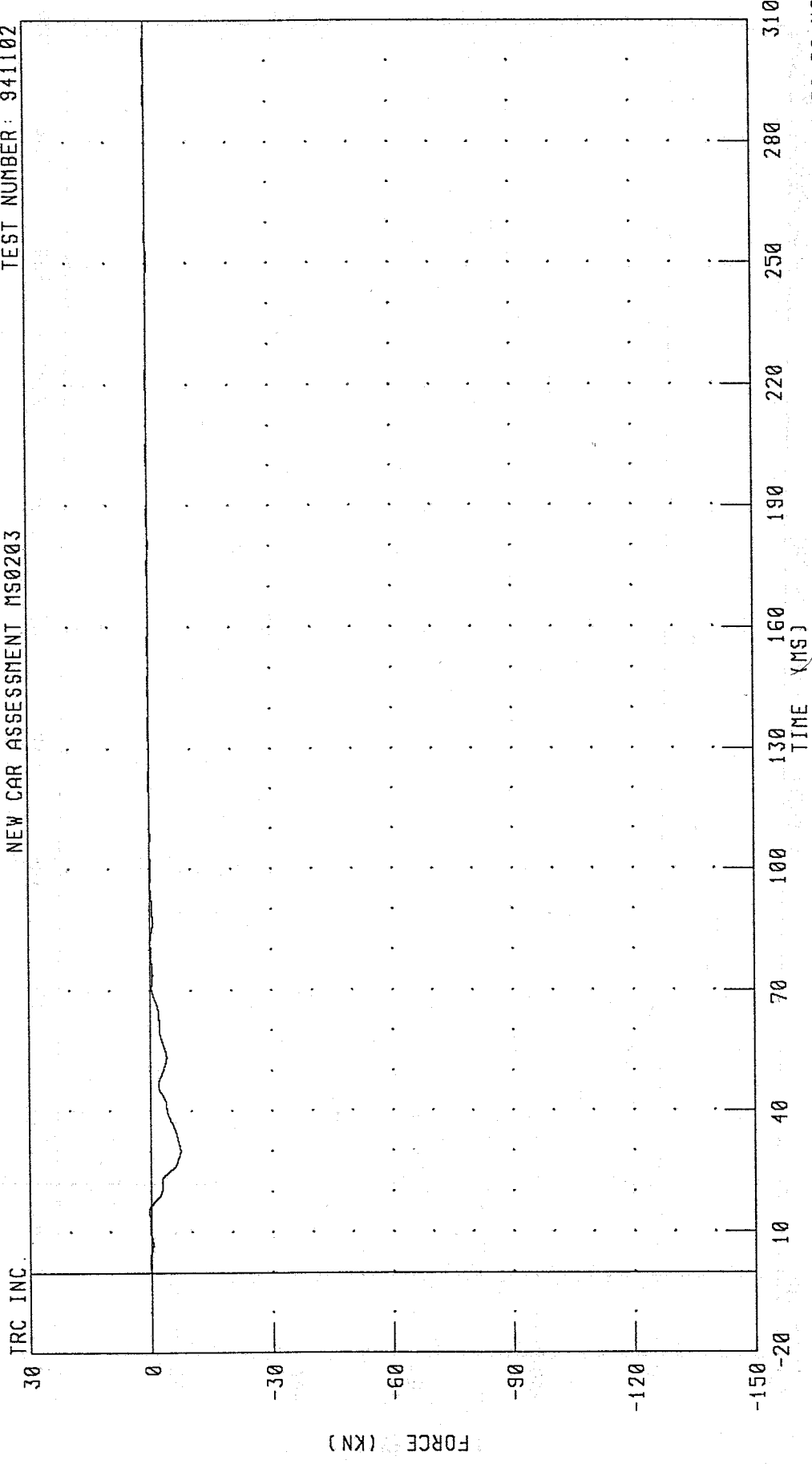


CHANNEL: BD6F FILTER: CH. CLASS 60 PEAK DATA: 0.98 KN @ 15.20 MS; -8.77 KN @ 54.72 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D7 FORCE

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203



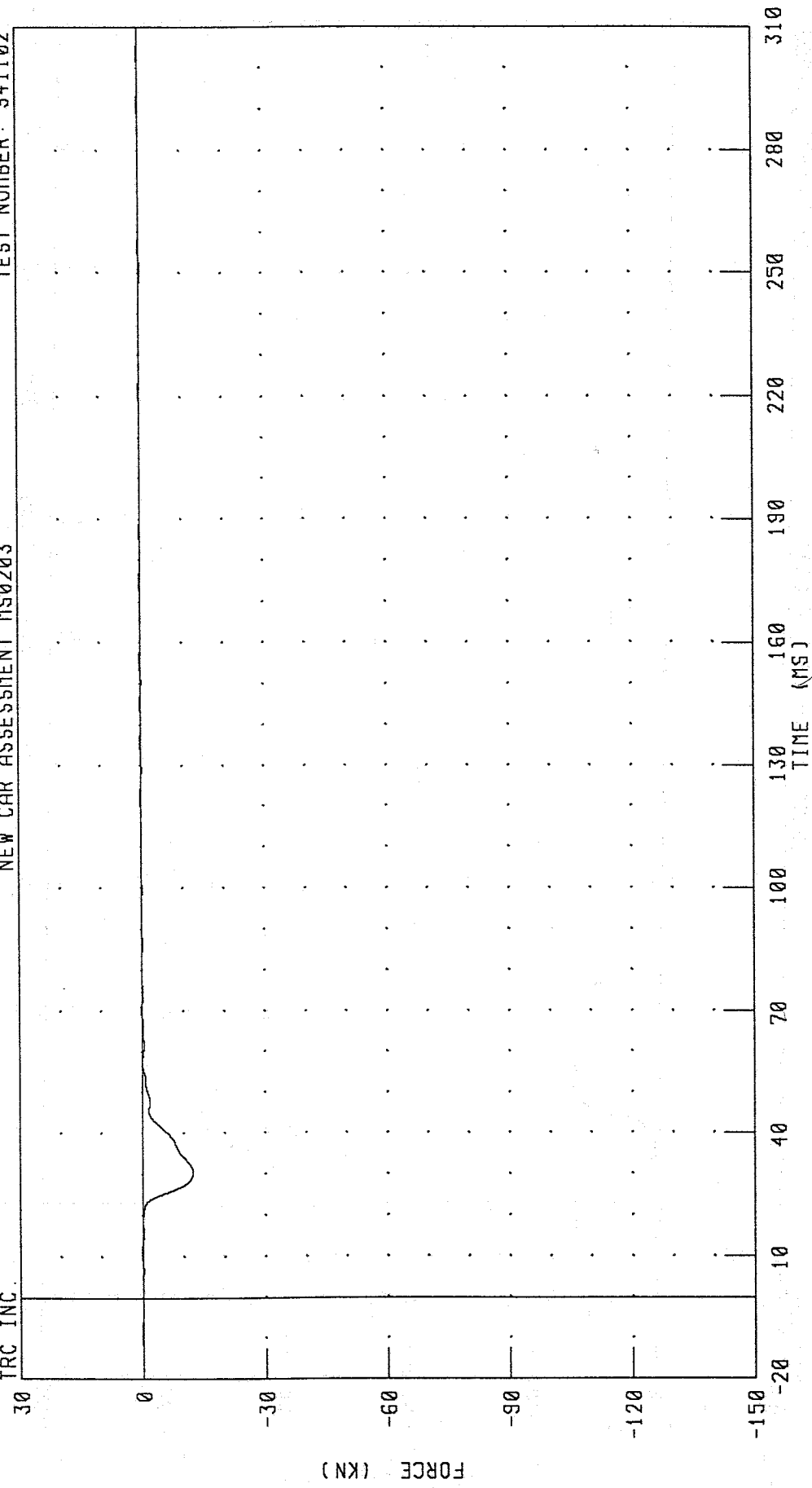
CHANNEL: BD7F FILTER: CH. CLASS 60 PEAK DATA: 0.48 KN @ 15.12 MS; -7.30 KN @ 30.32 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

TRC INC.



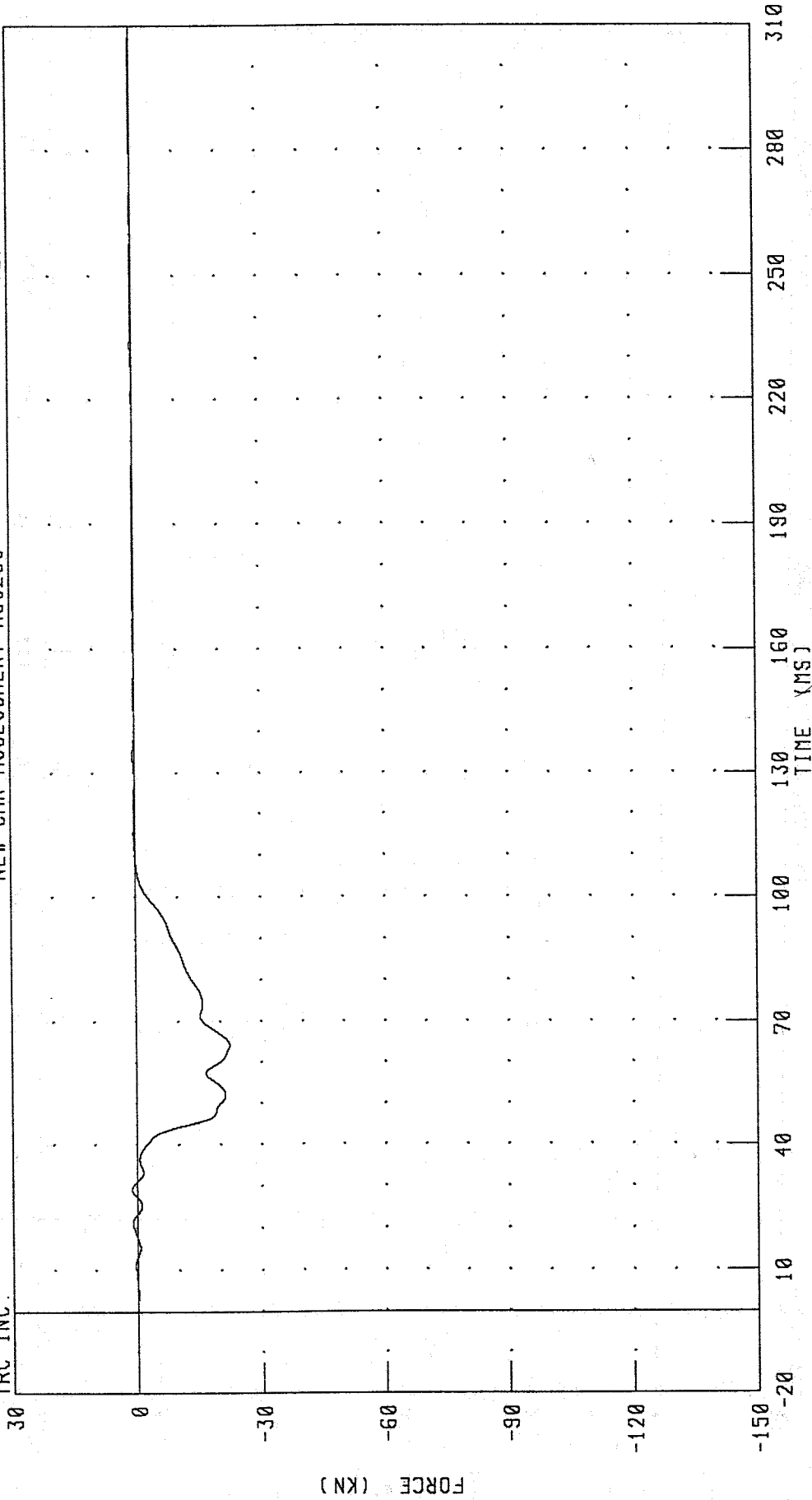
PEAK DATA: 0.30 KN @ 10.88 MS; -12.30 KN @ 30.48 MS

CHANNEL: BD8F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

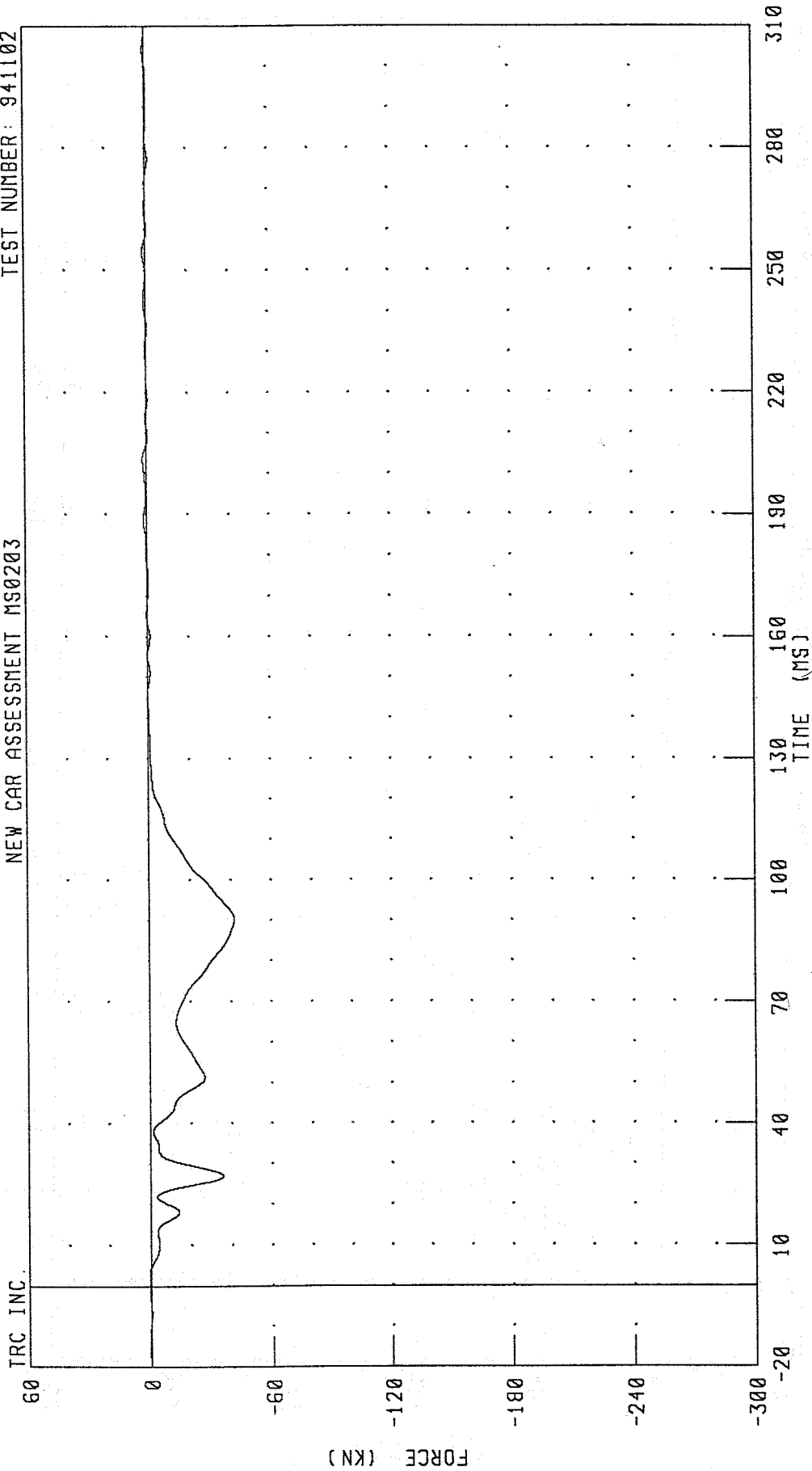
TRC INC.



CHANNEL: BD9F FILTER: CH. CLASS 60
PEAK DATA: 1.26 KN @ 29.36 MS; -22.31 KN @ 64.32 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



TRC INC.

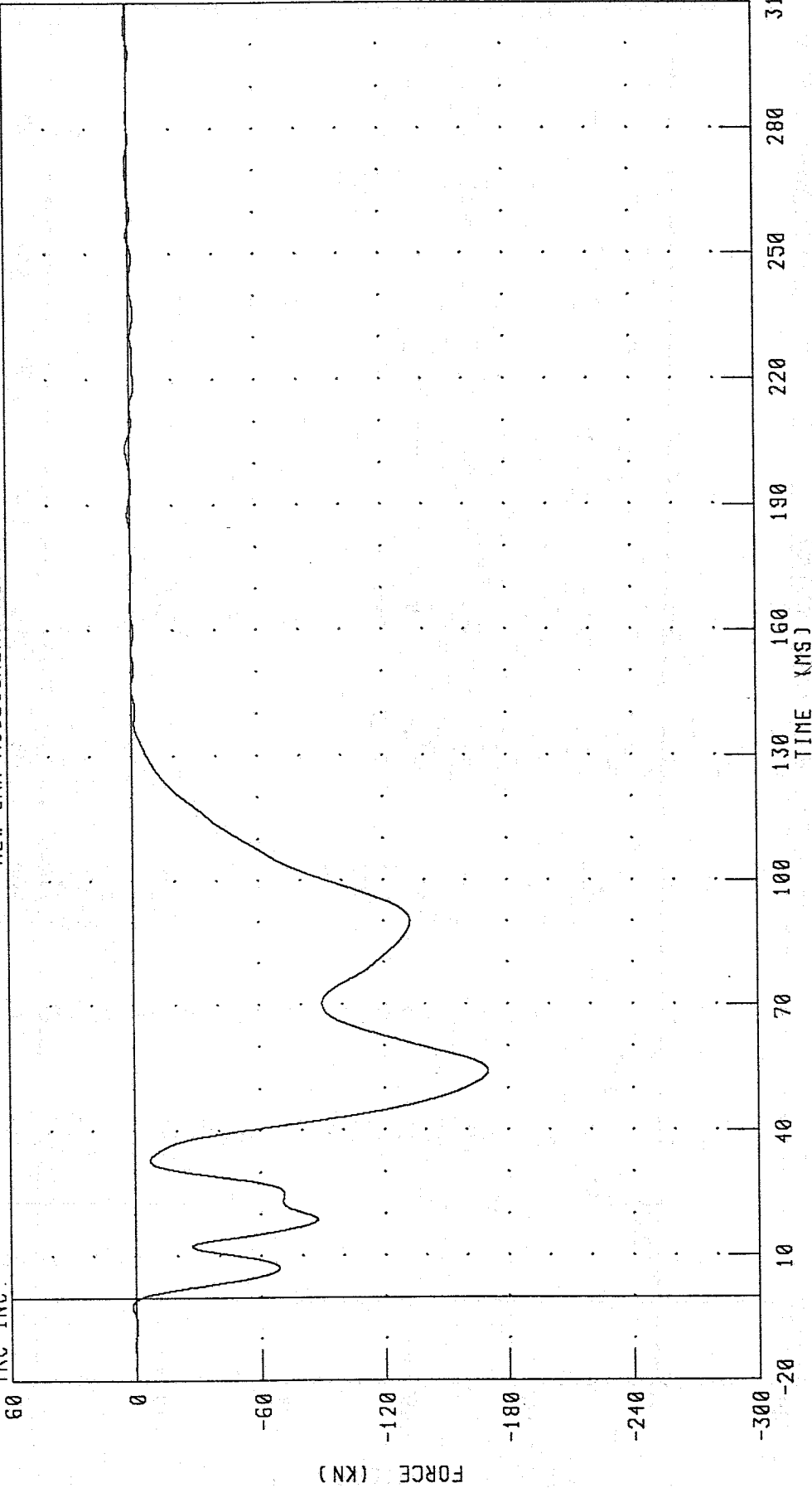
CHANNEL: LCBGIF FILTER: CH. CLASS 60

PEAK DATA: 1.78 KN @ 203.60 MS, -41.73 KN @ 90.32 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

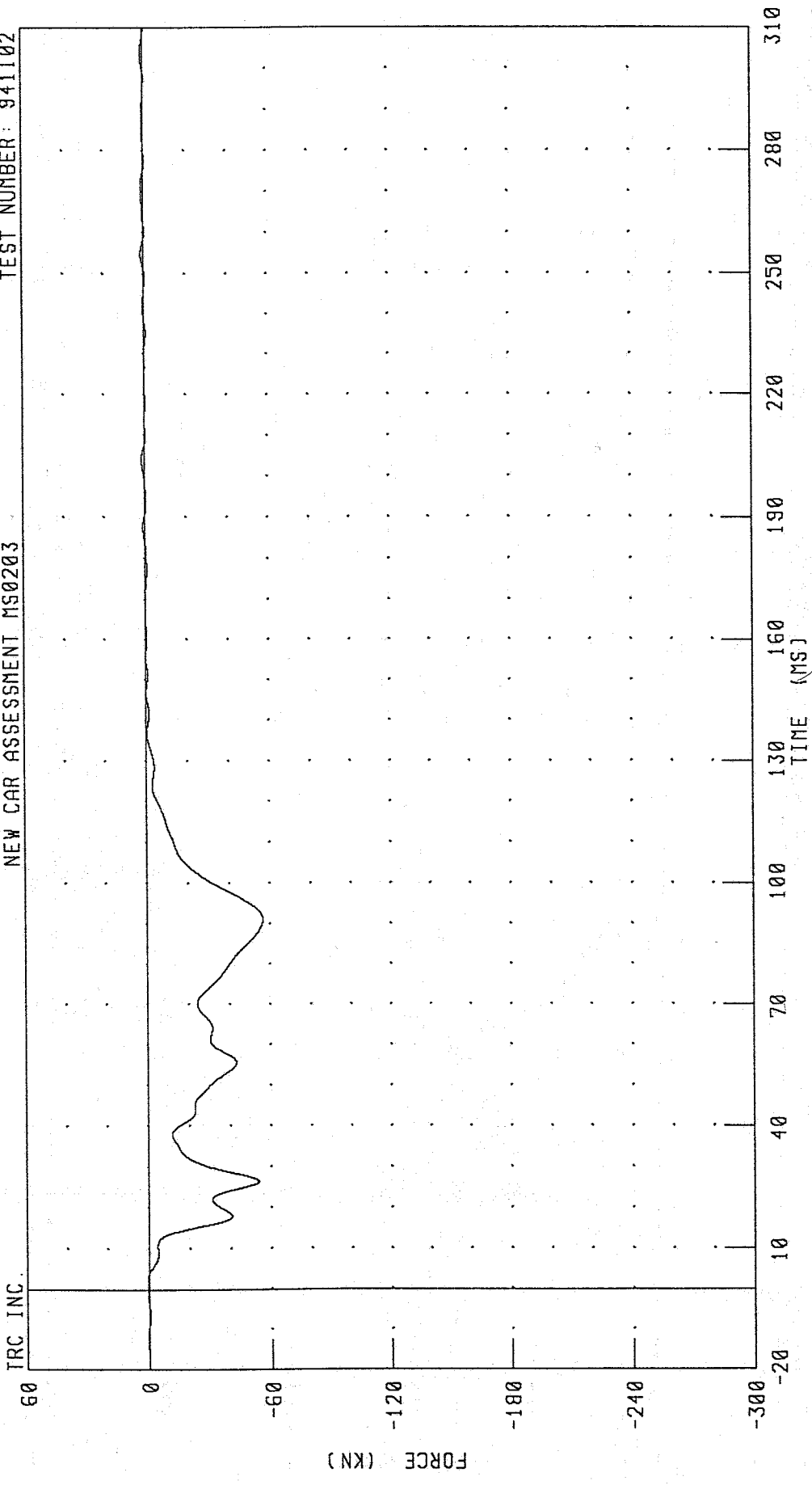
TRC INC.



CHANNEL: LCBG2F FILTER: CH. CLASS 60 PEAK DATA: 1.96 KN @ 203.84 MS; -170.41 KN @ 54.00 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

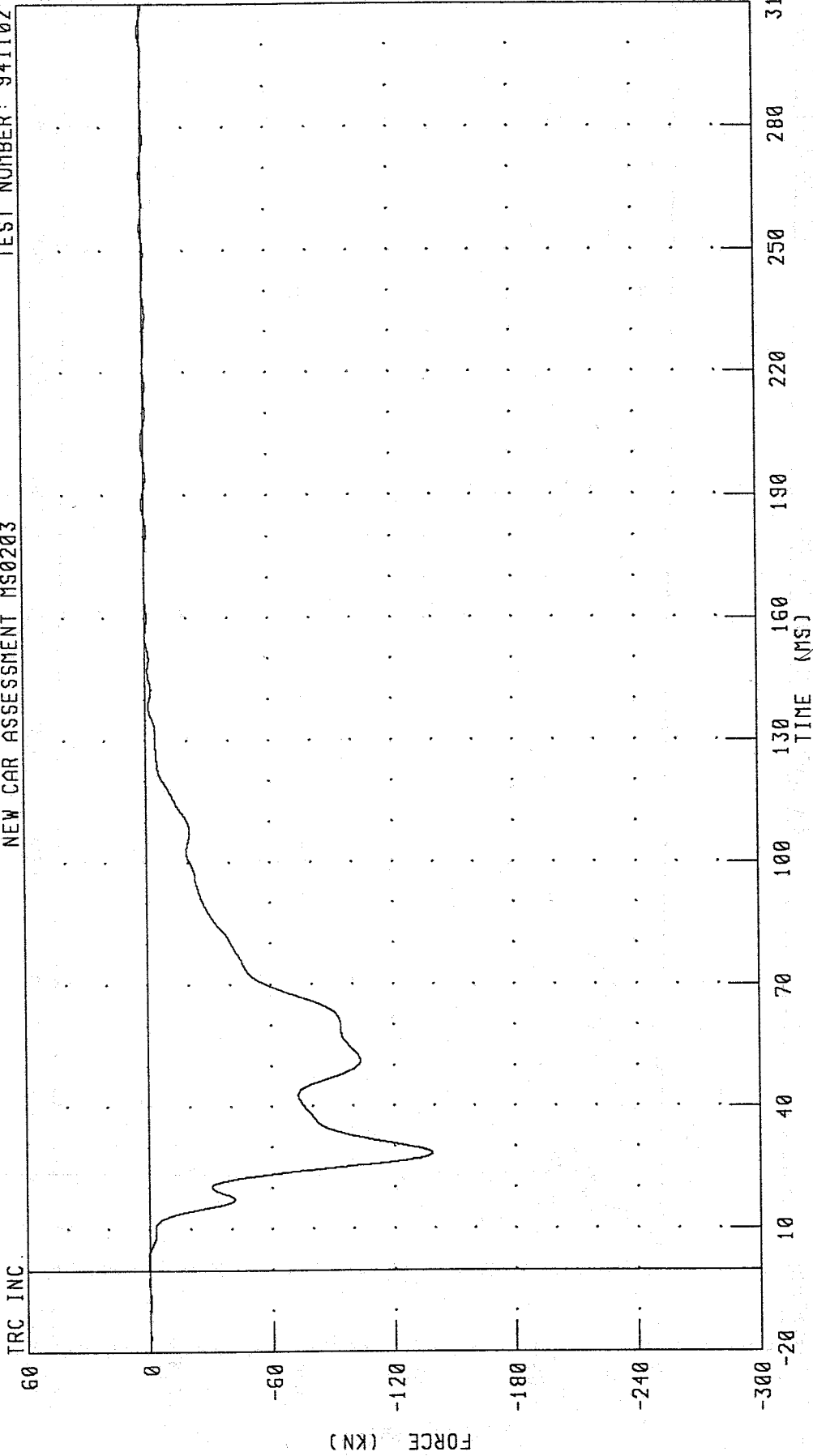


TRC INC.

CHANNEL: LCBG3F FILTER: CH. CLASS 60
PEAK DATA: 1.51 KN @ 204.24 MS; -56.39 KN @ 91.04 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



PEAK DATA: 1.11 KN @ 203.76 MS; -138.70 KN @ 28.32 MS

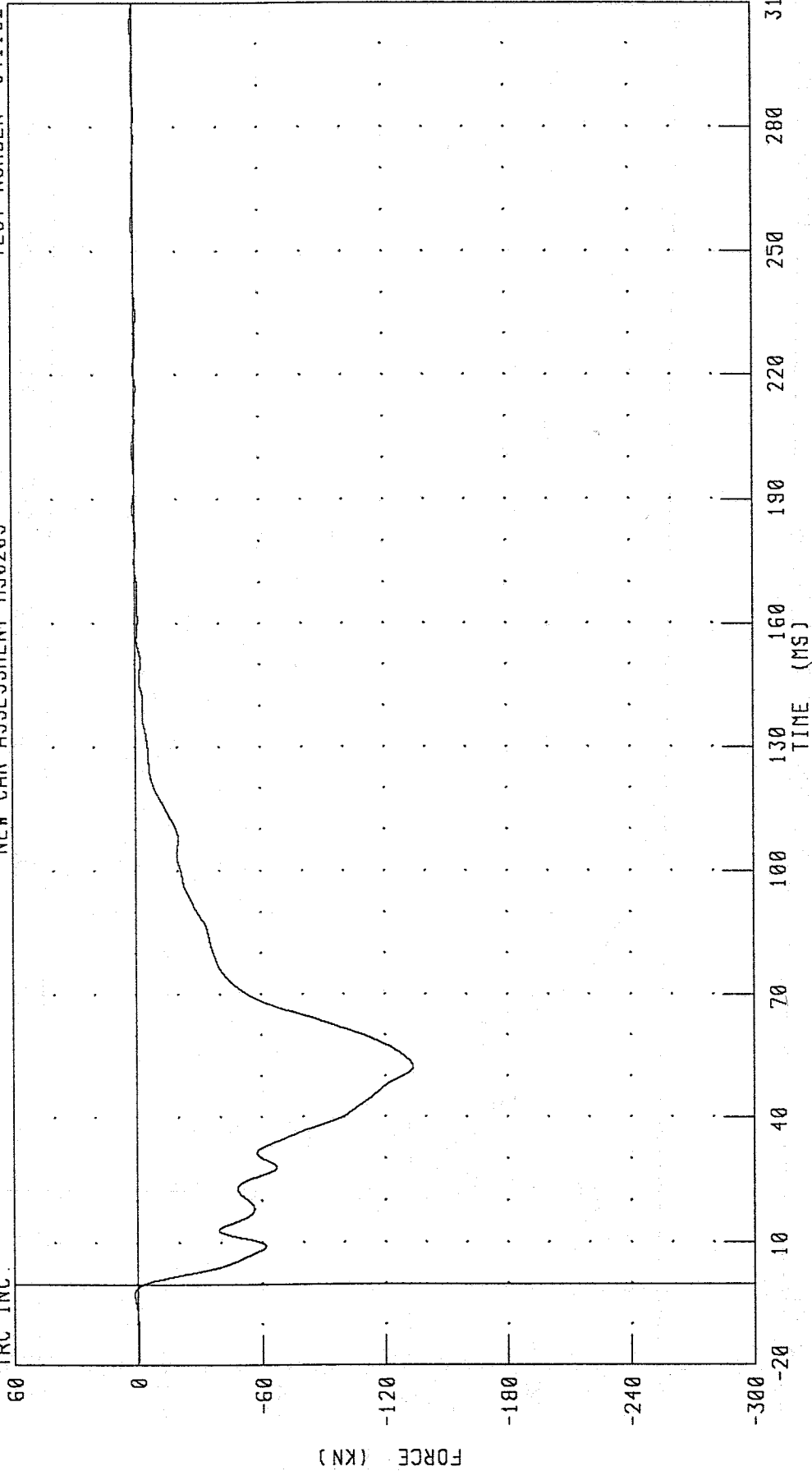
CHANNEL: LCBG4F FILTER: CH. CLASS 60

TRC INC.

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102

TRC_INC

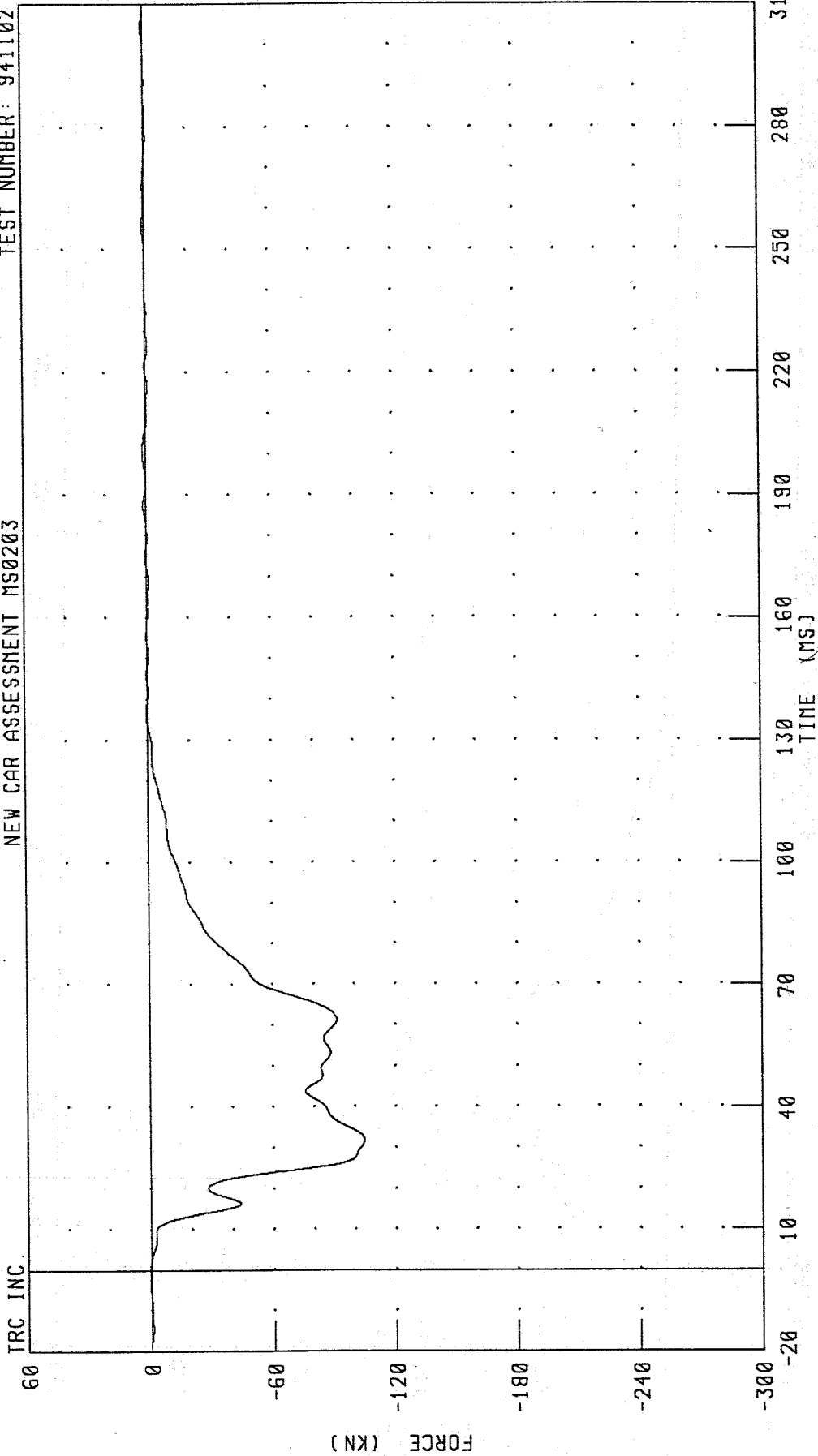


PEAK DATA: 1.39 KN @ -2.64 MS; -133.90 KN @ 52.24 MS

CHANNEL: LCBG5F FILTER: CH. CLASS 60

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
NEW CAR ASSESSMENT MS0203

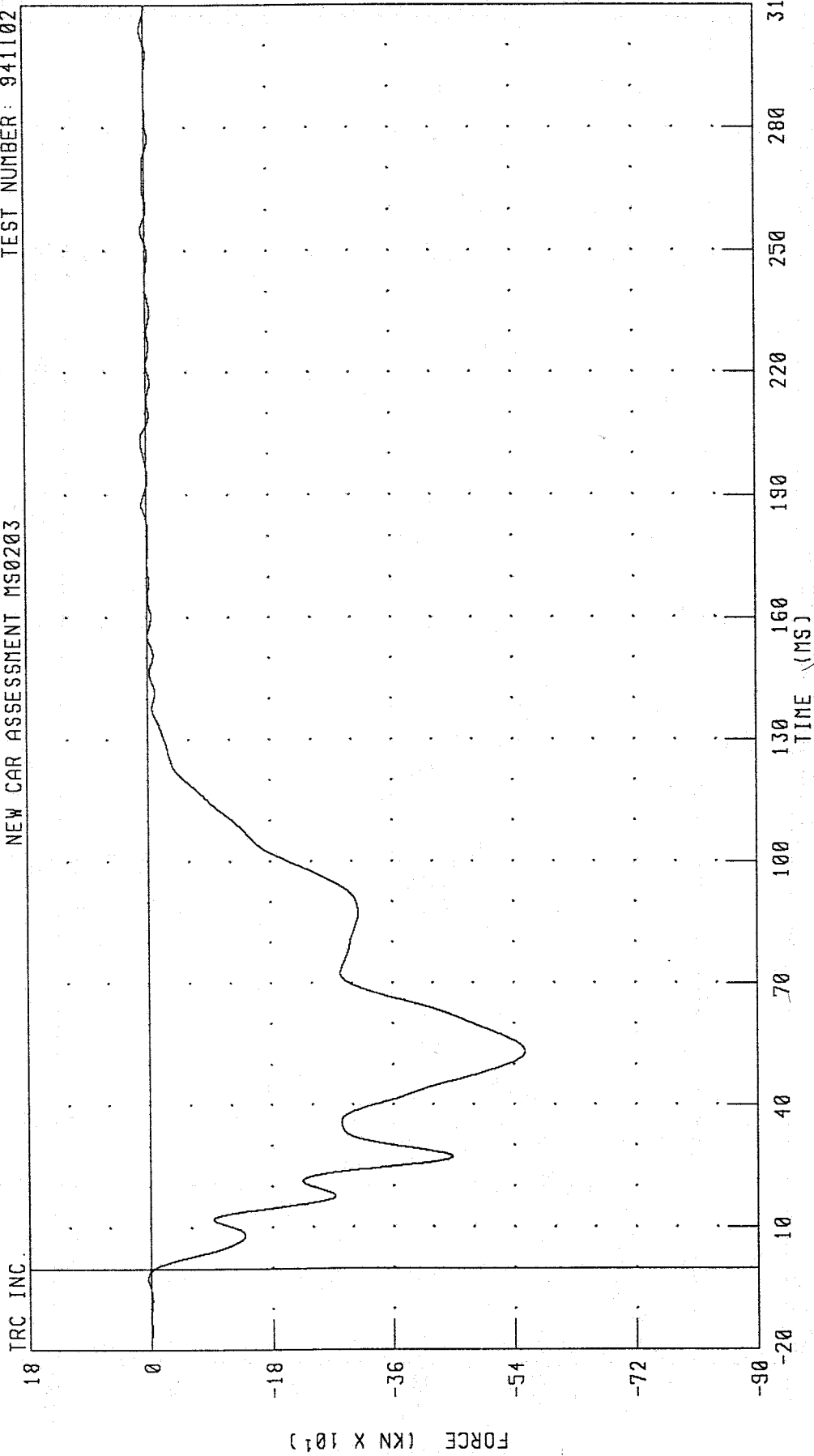
TEST NUMBER: 941102



CHANNEL: LCBG6F FILTER: CH. CLASS 60
PEAK DATA: 1.46 KN @ 200.72 MS; -104.77 KN @ 31.84 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE
NEW CAR ASSESSMENT MS0203

TEST NUMBER: 941102



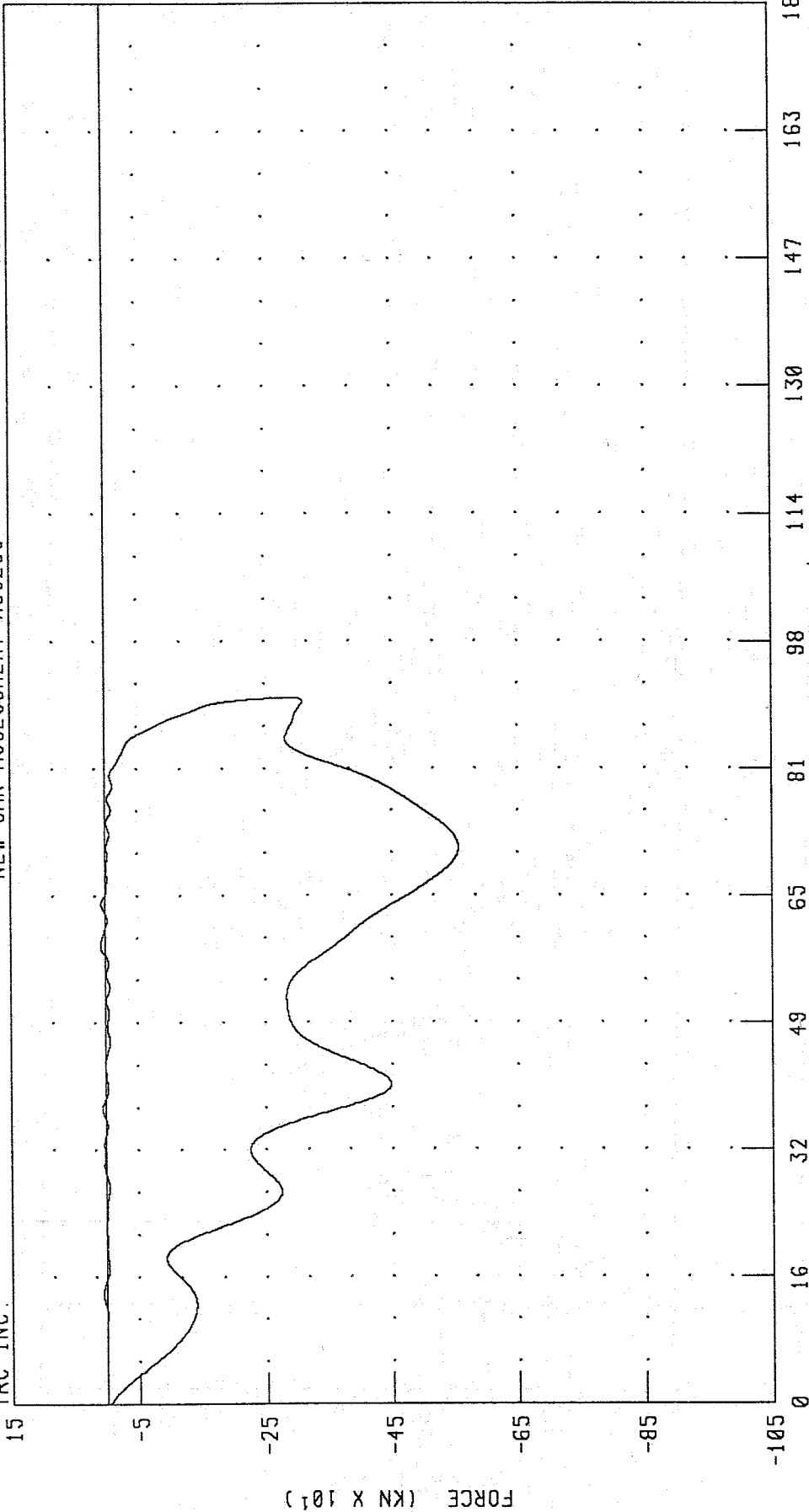
CHANNEL: LCBGT FILTER: CH. CLASS 60
PEAK DATA: 8.07 KN @ 203.76 MS; -556.47 KN @ 53.20 MS

1995 FORD CROWN VICTORIA INTO FRONTAL LOAD CELL BARRIER
 TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT

TEST NUMBER: 941102

NEW CAR ASSESSMENT MS0203

TRC INC.



DISPLACEMENT (MM X 10¹)

CHANNEL: 0THXD FILTER: CH. CLASS 180
 LCBGT CH. CLASS 60
 PEAK DATA: 909.27 MM @ 93.92 MS; 0.00 MM @ 0.00 MS
 8.07 KN @ 203.76 MS; -556.47 KN @ 53.20 MS

Appendix C

Dummy Certification Data

Pre-test Certification Data

Driver Dummy S/N: 192

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

192 ALDERSON

08-SEP-94

TRC INC. TEST NO: 192C22ED1 572E SN192 EXT.DIMENSION CAL22

TEST PARAMETER (DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE (AA)	429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE (BB)	226 - 231 MM	229. MM
CHEST CIRCUMFERENCE (Y)	970 -1001 MM	980. MM
WAIST CIRCUMFERENCE (Z)	836 - 866 MM	851. MM
CHEST DEPTH (O)	213 - 229 MM	218. MM
H-POINT HEIGHT (C)	84 - 89 MM	84. MM
H-POINT FROM SEATBACK (D)	135 - 140 MM	135. MM
SKULL CAP TO BACKLINE (H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT (A)	879 - 889 MM	889. MM
THIGH CLEARANCE (F)	140 - 155 MM	150. MM
BUTTOCK KNEE LENGTH (K)	579 - 605 MM	597. MM
BUTTOCK POPLITEAL LENGTH (N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT (L)	429 - 455 MM	447. MM
KNEE PIVOT HEIGHT (M)	485 - 500 MM	493. MM
FOOT LENGTH (P)	252 - 267 MM	259. MM
FOOT BREADTH (W)	91 - 107 MM	102. MM
SHOULDER PIVOT FROM BACKLINE (E)	84 - 94 MM	94. MM
SHOULDER BREADTH (V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT (B)	506 - 521 MM	516. MM
ELBOW REST HEIGHT (J)	191 - 211 MM	211. MM
SHOULDER-ELBOW LENGTH (I)	330 - 345 MM	345. MM
BACK OF ELBOW TO WRIST PIVOT (G)	290 - 305 MM	290. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete FS

RUN NUMBER: 090994.1056

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

09-SEP-94

TRC INC.

TEST NO: 192C22HD1

572E SN192 HEAD DROP CAL 22

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	227.58 G
PEAK LATERAL ACCELERATION	15 G MAX	-3.21 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete F. S.

RUN NUMBER: 090994.0739;2

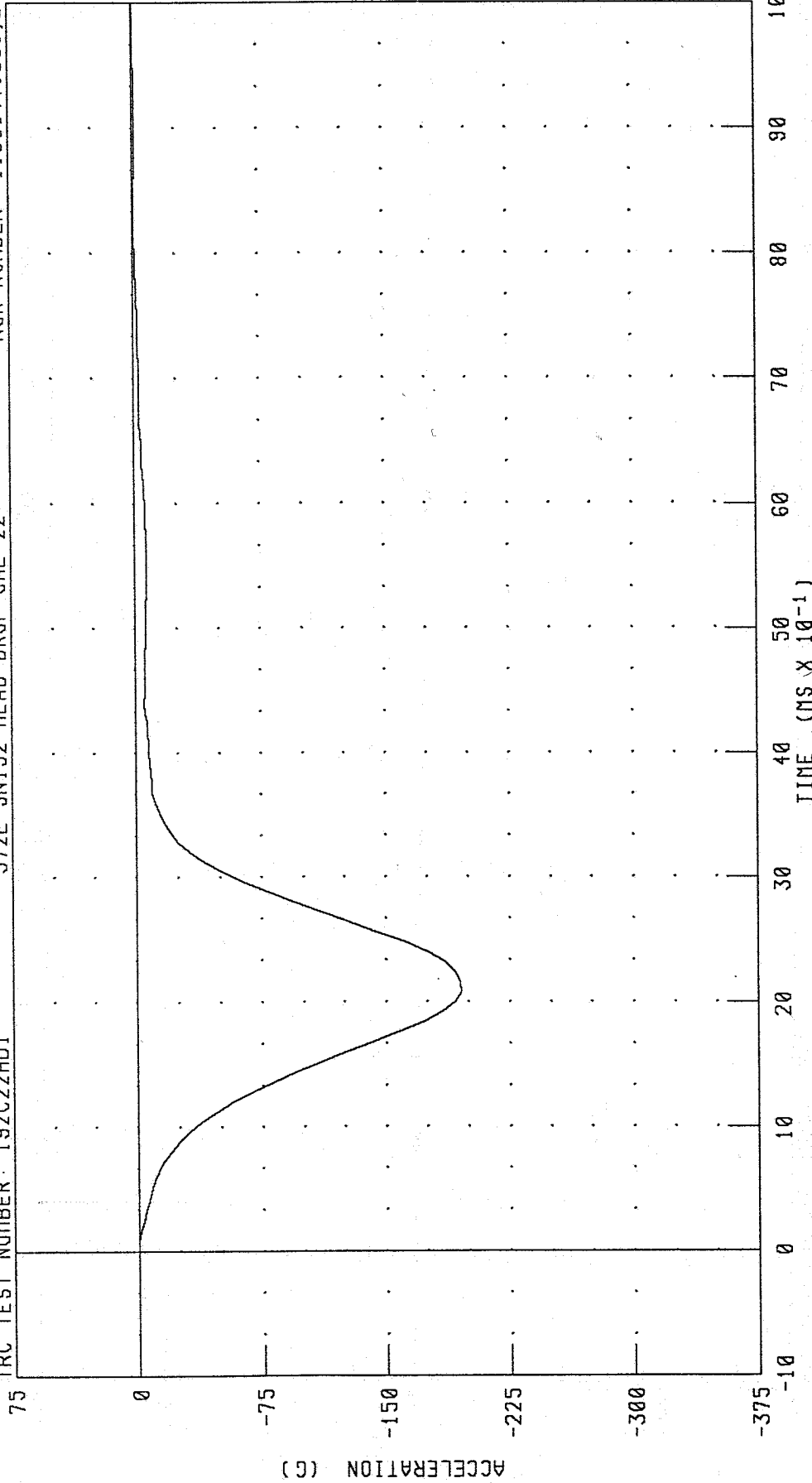
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 192C22HD1

572E SN192 HEAD DROP CAL 22

RUN NUMBER: 113094.1308;2



CHANNEL: HEDXG FILTER: CH. CLASS 1000 PEAK DATA: 0.03 G @ 0.00 MS; -195.56 G @ 2.08 MS

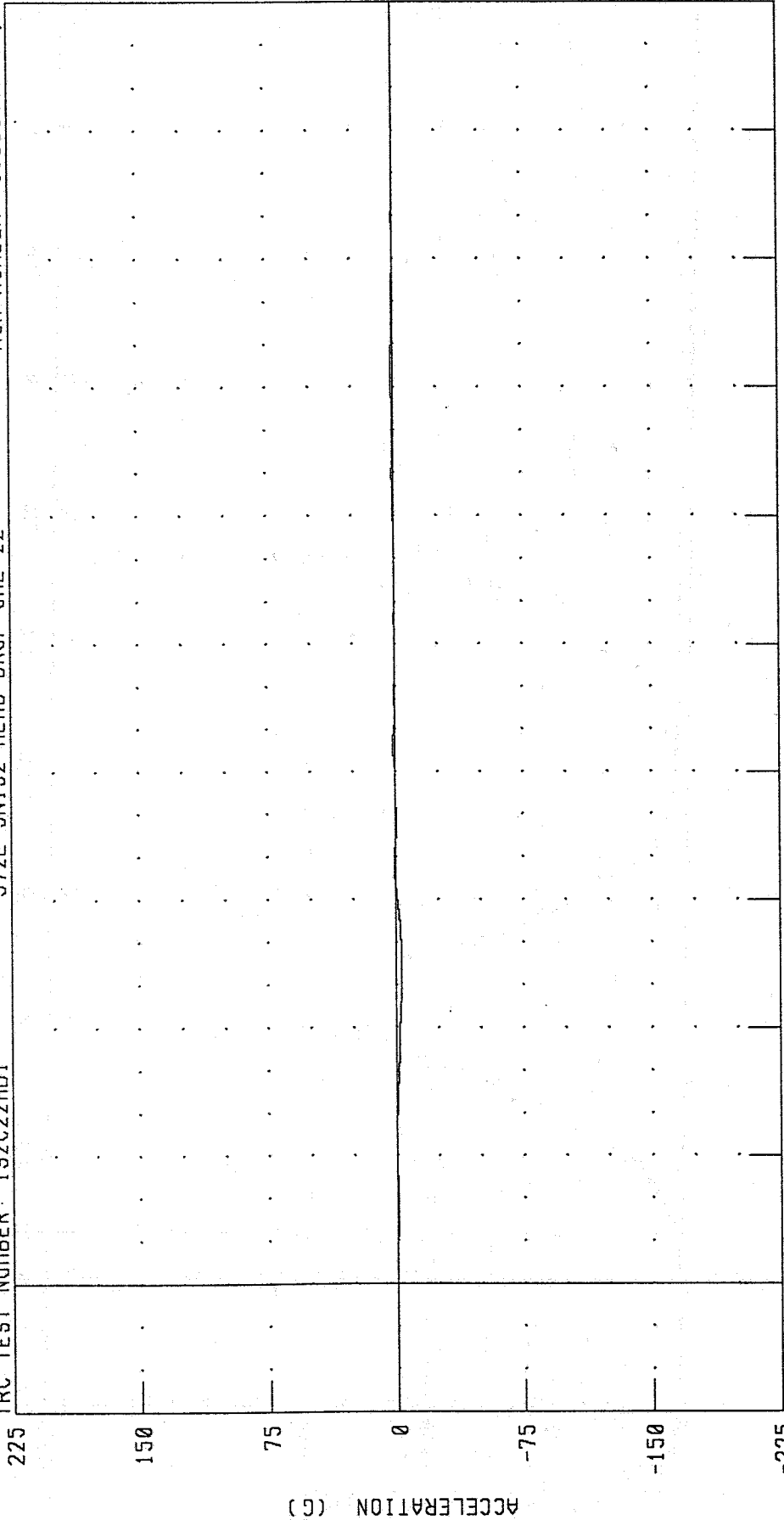
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

572E SN192 HEAD DROP CAL 22

RUN NUMBER: 113094.1308;2

TRC TEST NUMBER: 192C22HD1



PEAK DATA: 1.37 G @ 4.16 MS; -3.22 G @ 2.40 MS

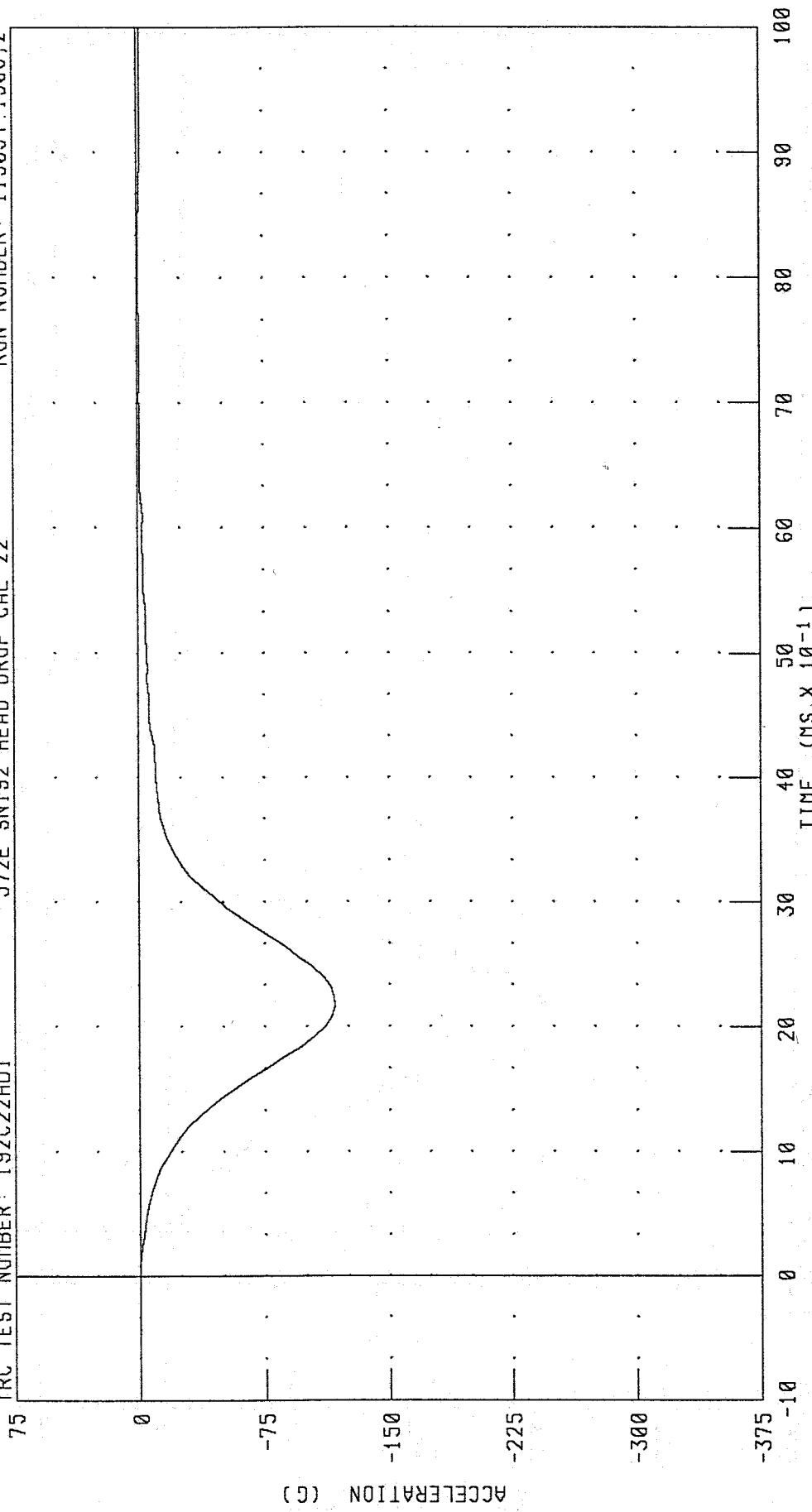
CHANNEL: HEDYG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 192C22HD1

572E SN192 HEAD DROP CAL 22

RUN NUMBER: 113094.1308;2



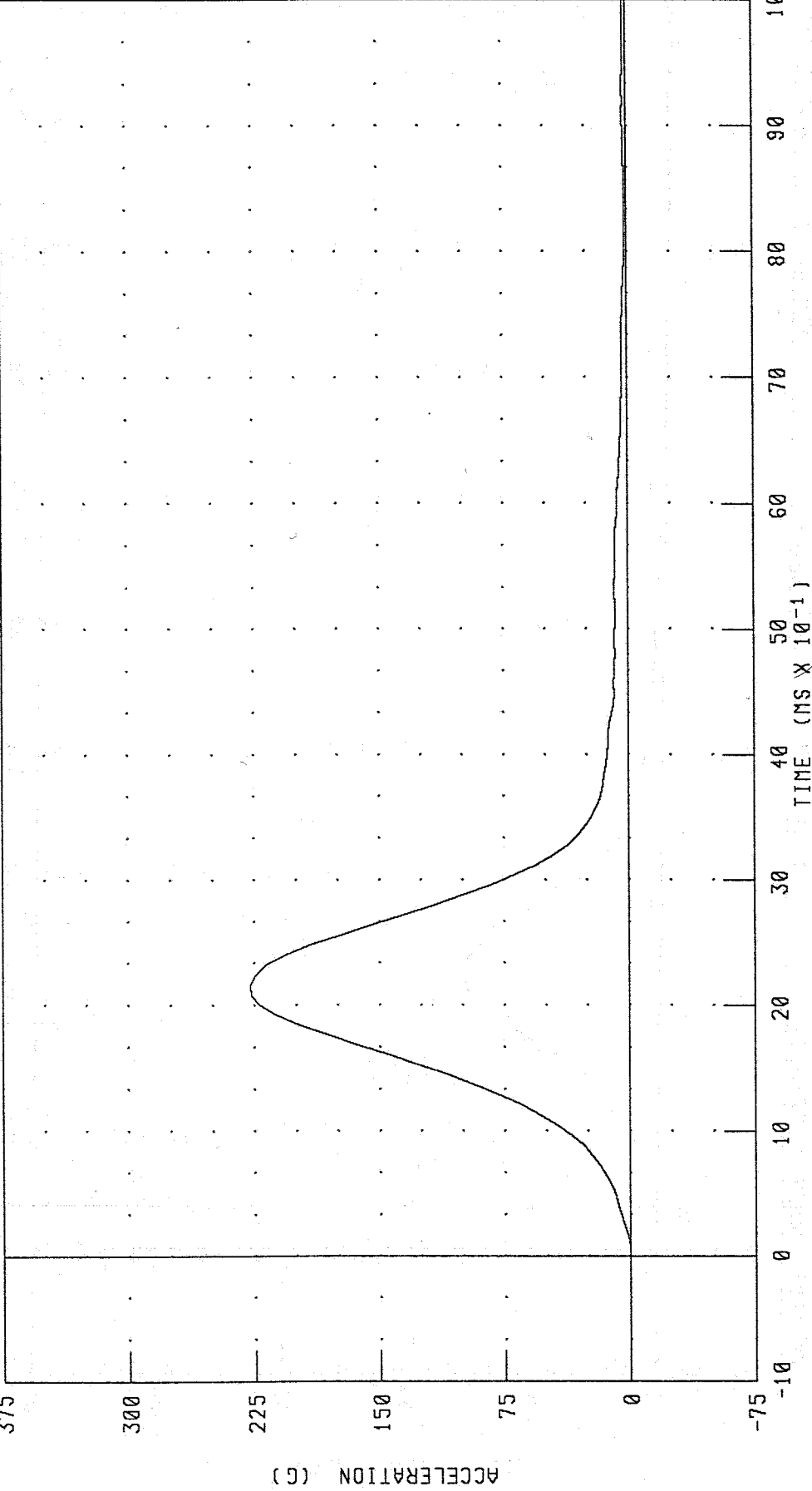
CHANNEL: HEDZG FILTER: CH. CLASS 1000 PEAK DATA: 0.05 G @ -0.32 MS; -116.71 G @ 2.16 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 192C22HD1

572E SN192 HEAD DROP CAL 22

RUN NUMBER: 113094.1308;2



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 227.59 G @ 2.16 MS; 0.02 G @ -0.72 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

09-SEP-94

TRC INC. TEST NO: 192C22NF1 572E SN192 NECK FLEXION CAL22

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS 22.50 - 27.50 G	23.51 G
	20 MS 17.60 - 22.60 G	20.71 G
	30 MS 12.50 - 18.50 G	18.29 G
MAX PENDULUM G	29 G MAX	24.67 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	18.26 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	36.88 MS
D PLANE	MAX 64 - 78 DEG.	67.94 DEG.
ROTATION	TIME 57 - 64 MS	57.28 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX 88.2 - 108.5 NM	92.33 NM
	TIME 47 - 58 MS	49.84 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	114.32 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	102.64 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Ford

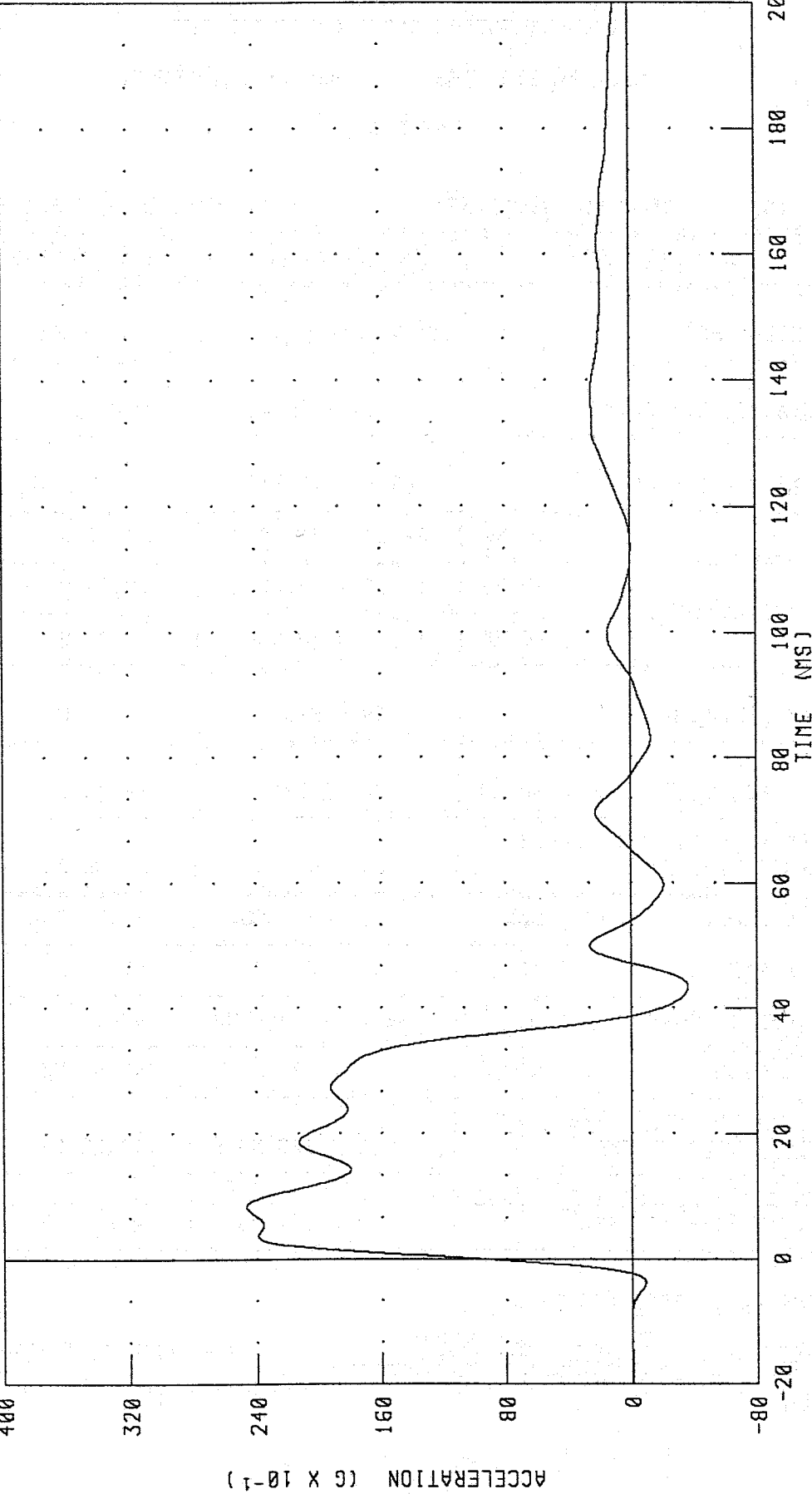
RUN NUMBER: 090994.0907;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C22NF1

572E SNI92 NECK FLEXION CAL22

RUN NUMBER: 113094.1308,1



PEAK DATA: 24.67 G @ 8.40 MS; -3.60 G @ 43.36 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN192 NECK FLEXION CAL22

RUN NUMBER: 113094.1308;1

TRC TEST NUMBER: 192C22NF1

120

90

60

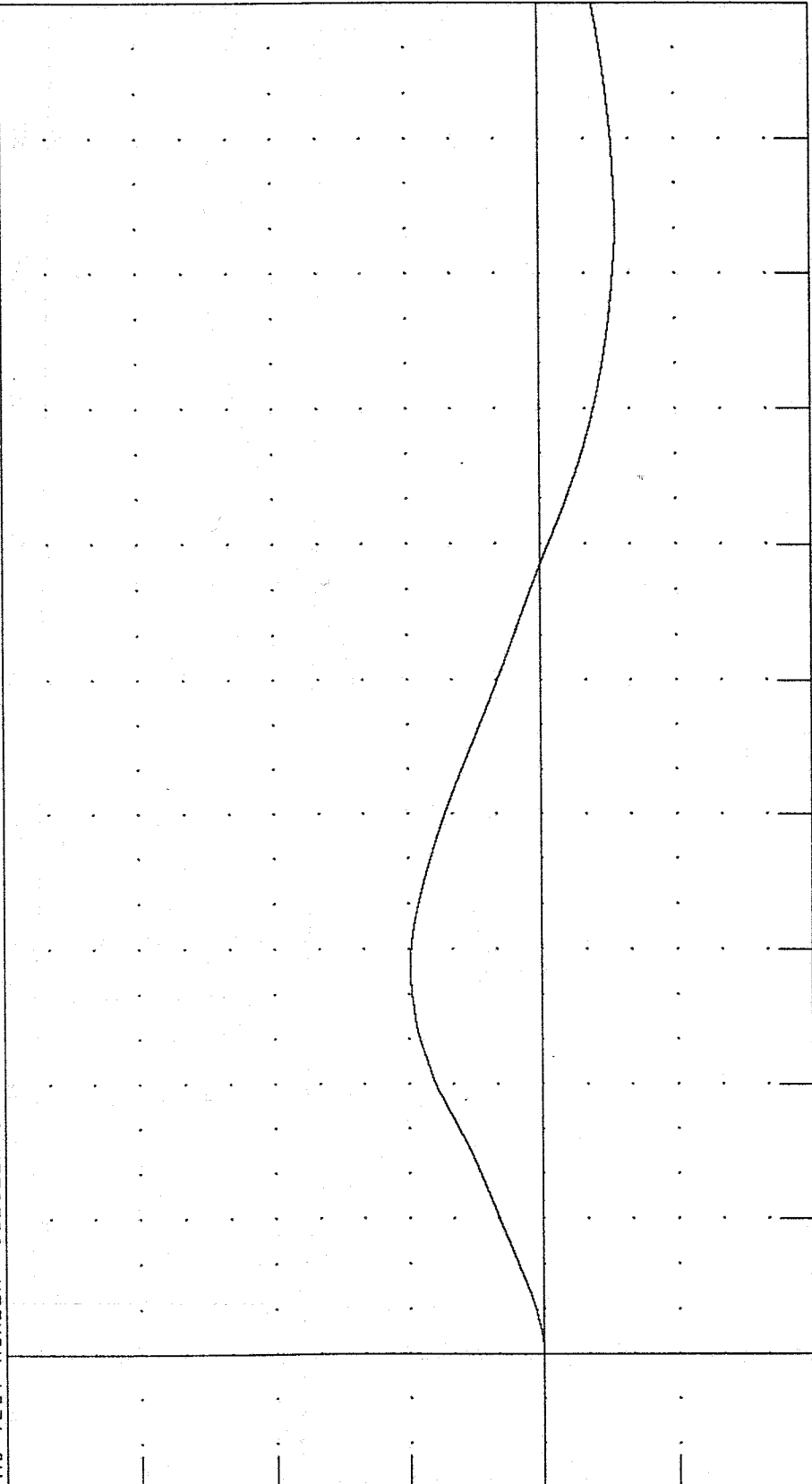
30

0

-30

-60

ANGLE (°)

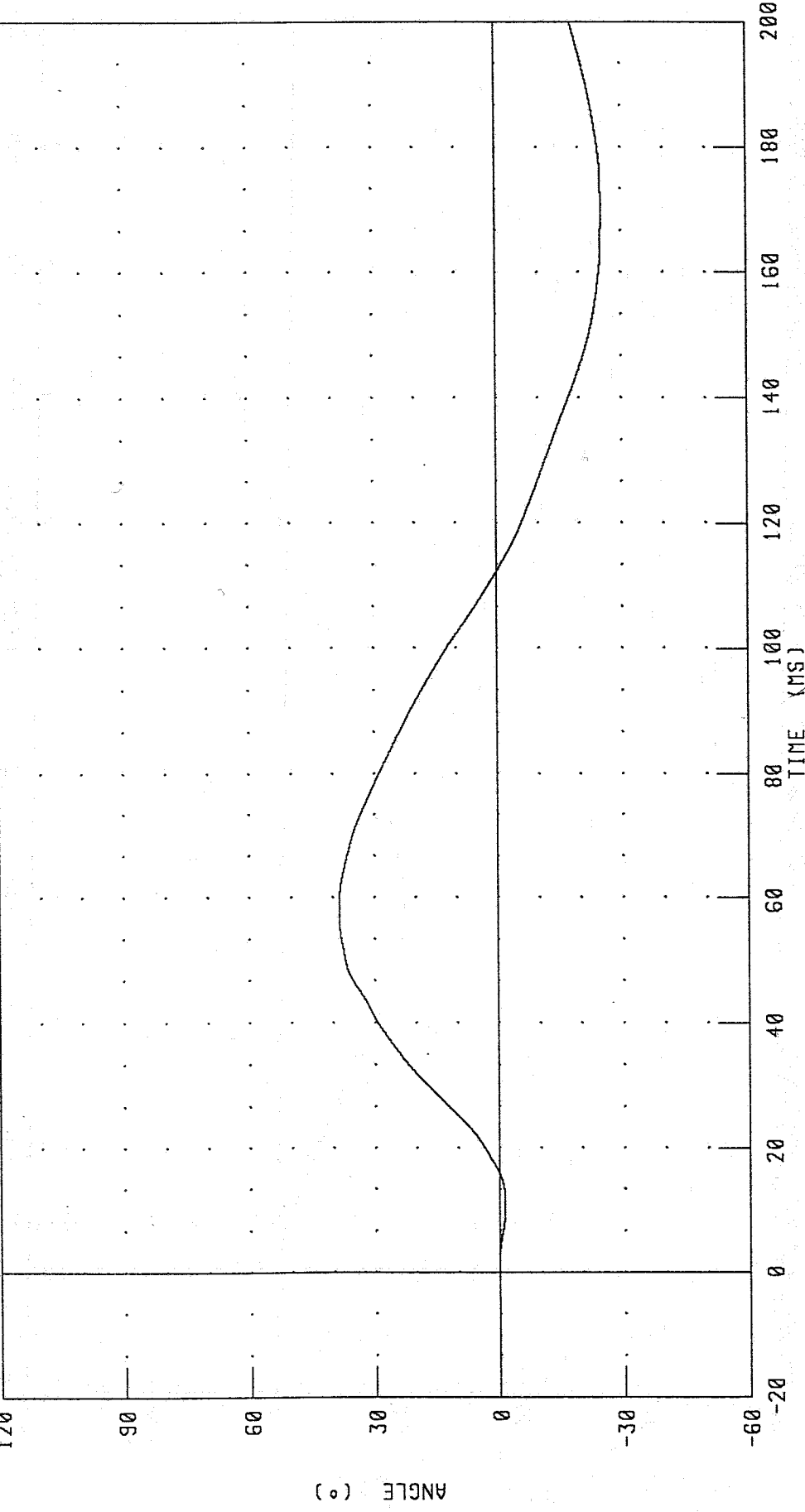


PEAK DATA: 29.54 ° @ 57.12 MS; -16.93 ° @ 167.36 MS

CHANNEL: BETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C22NF1 572E SN192 NECK FLEXION CAL22 RUN NUMBER: 113094.1308.1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 38.41 ° @ 57.76 MS; -25.35 ° @ 169.84 MS

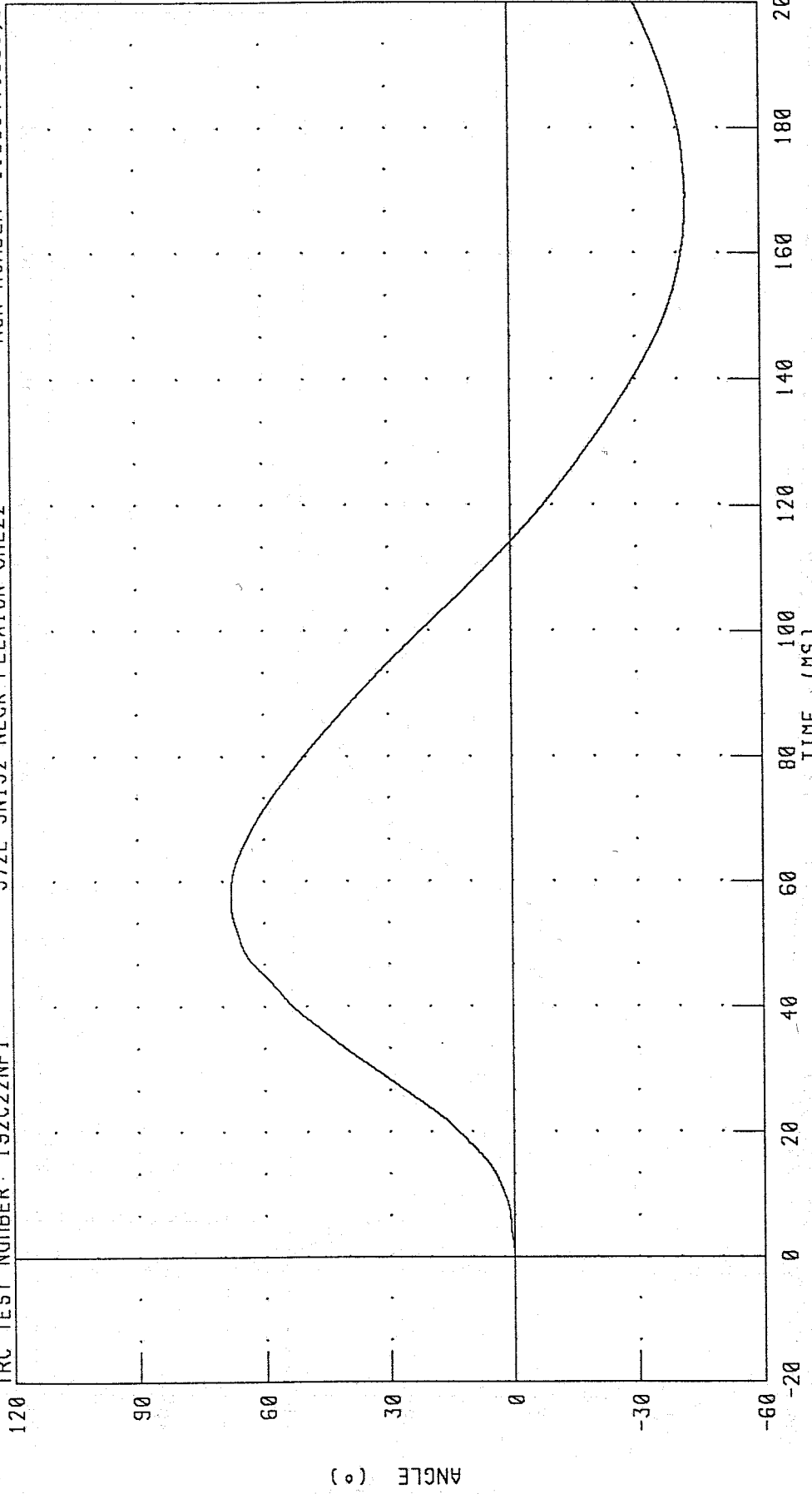
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C22NF1

572E SN192 NECK FLEXION CAL22

RUN NUMBER: 113094.1308,1



CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 67.95 ° @ 57.28 MS; -42.25 ° @ 169.20 MS

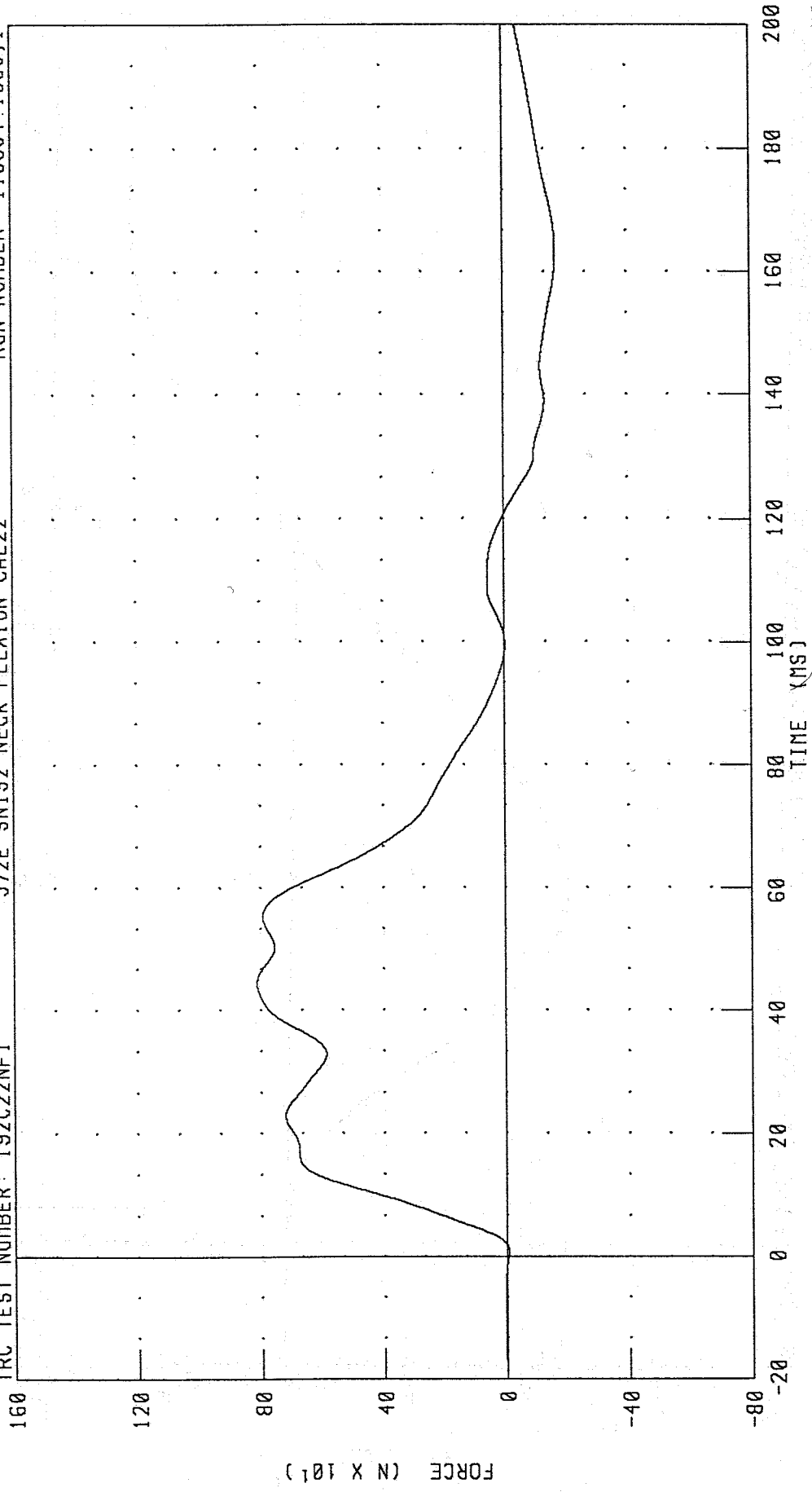
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C22NF1

572E SN192 NECK FLEXION CAL22

RUN NUMBER: 113094.1308.1



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 812.59 N @ 44.32 MS; -170.27 N @ 163.44 MS

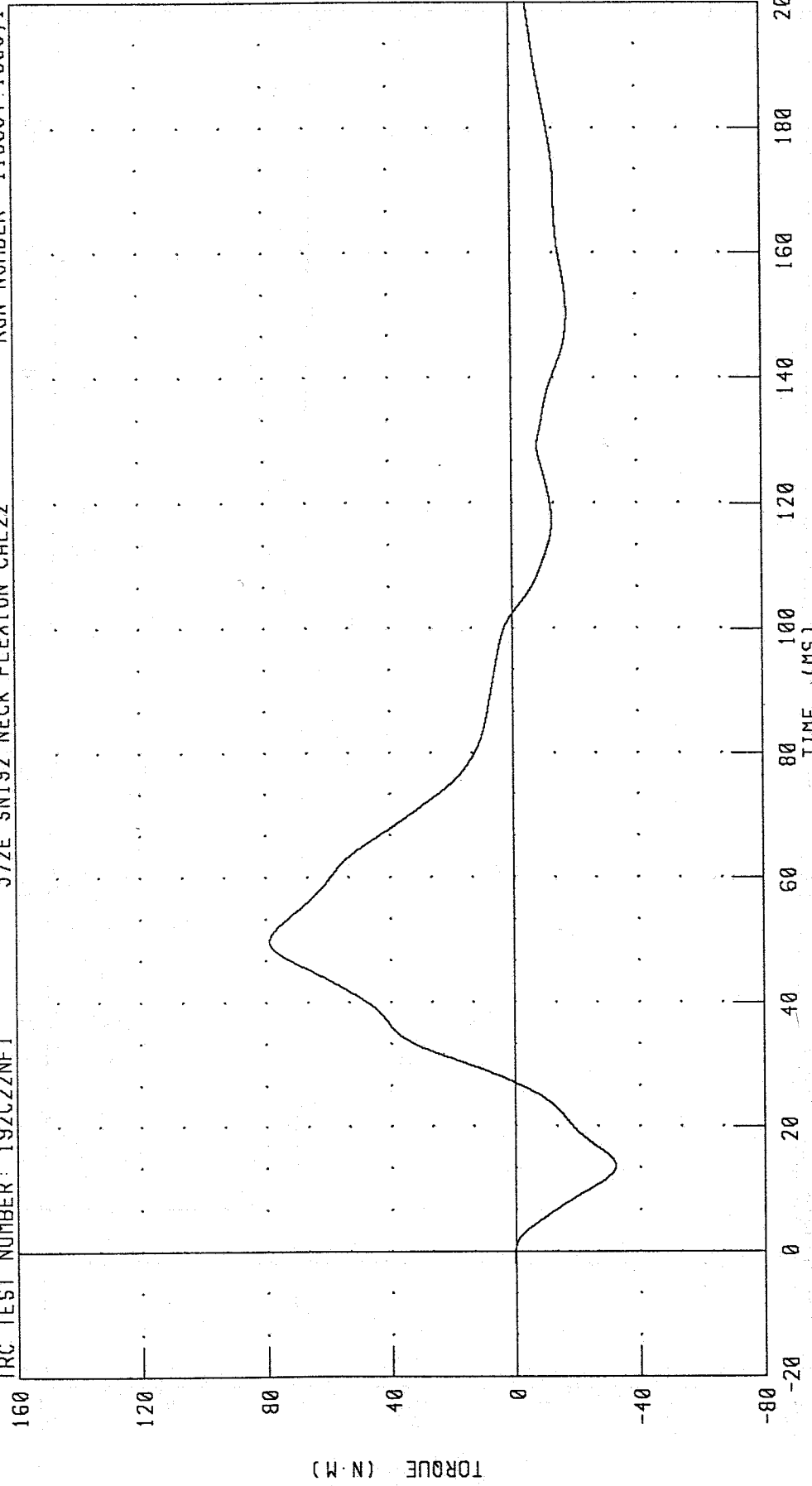
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C22NF1

572E SN192 NECK FLEXION CAL22

RUN NUMBER: 113094.1308.1



PEAK DATA: 78.90 N·M @ 49.84 MS; -32.11 N·M @ 13.68 MS

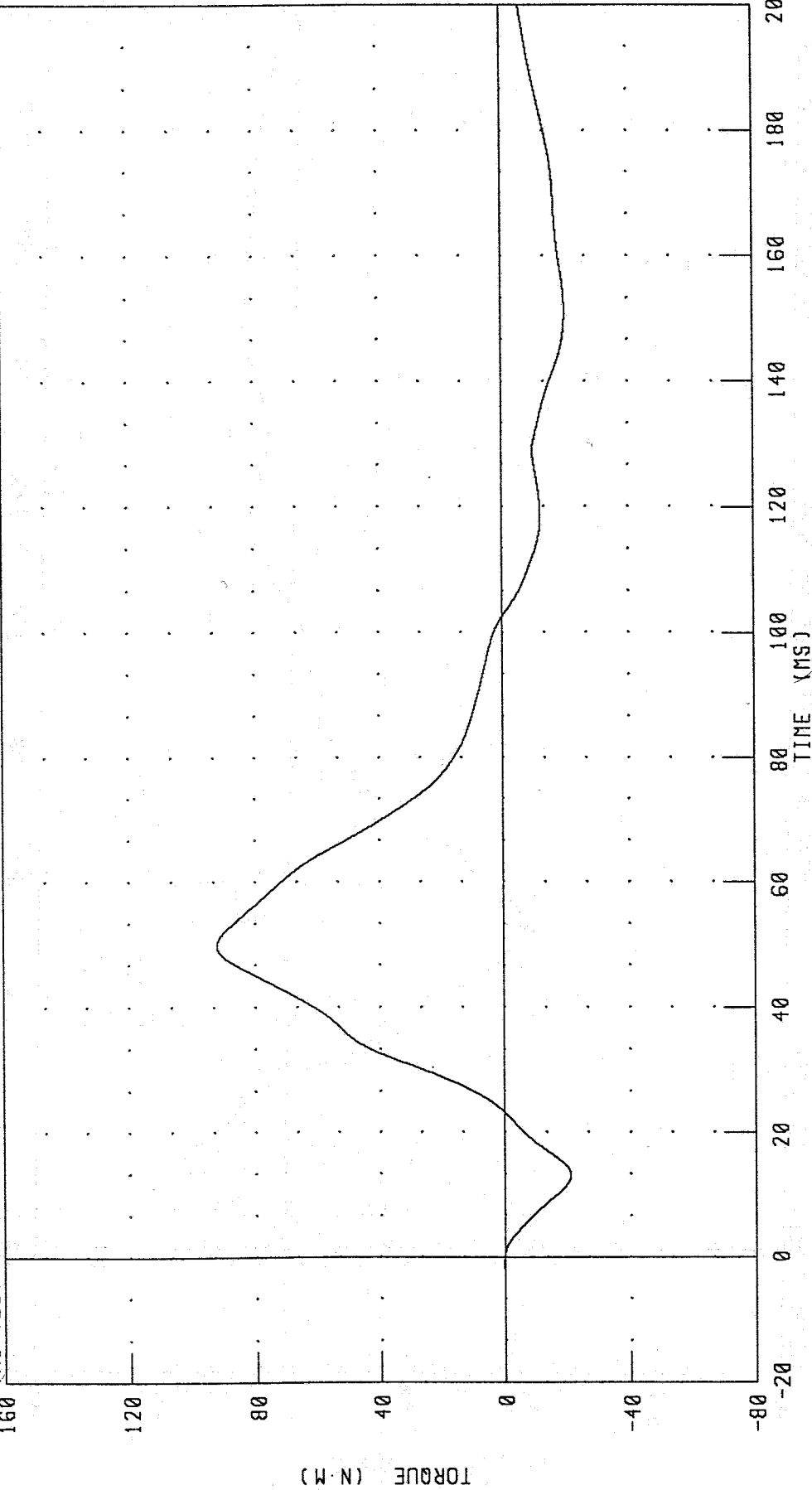
CHANNEL: NEKYM FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C22NF1

572E SN192 NECK FLEXION CAL22

RUN NUMBER: 113094.1308;1



CHANNEL: NEKOM FILTER: CH. CLASS 60

PEAK DATA: 92.33 N·M @ 49.84 MS; -20.99 N·M @ 13.12 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

09-SEP-94

TRC INC. TEST NO: 192C22NE1 572E SN192 NECK EXT. CAL22

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.00 M/S
PENDULUM DECELERATION	10 MS 17.20 - 21.20 G	18.73 G
	20 MS 14.00 - 19.00 G	15.91 G
	30 MS 11.00 - 16.00 G	13.22 G
MAX PENDULUM G	22 G MAX	19.52 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	13.89 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	40.64 MS
D PLANE	MAX 81 - 106 DEG.	91.91 DEG.
ROTATION	TIME 72 - 82 MS	75.04 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN -80.0/-52.9 NM	-58.32 NM
	TIME 65 - 79 MS	70.64 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	156.32 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	138.80 MS

TEST MEETS SPECIFICATIONS

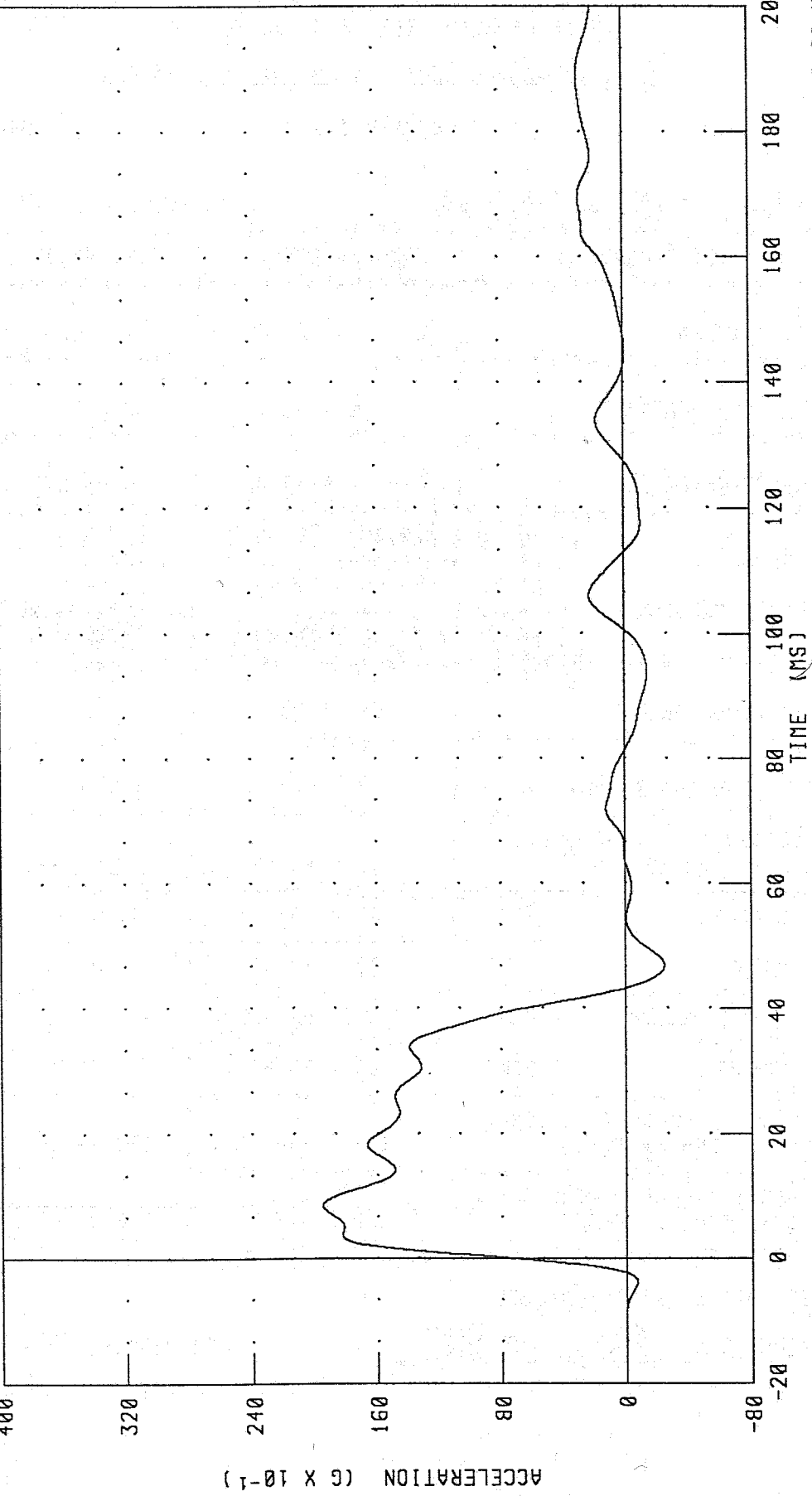
TECHNICIAN

Pete F. S.

RUN NUMBER: 090994.0924;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C22NE1 572E SN192 NECK EXT. CAL22 RUN NUMBER: 113094.1308;1



CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 19.52 G @ 8.48 MS; -2.47 G @ 46.80 MS

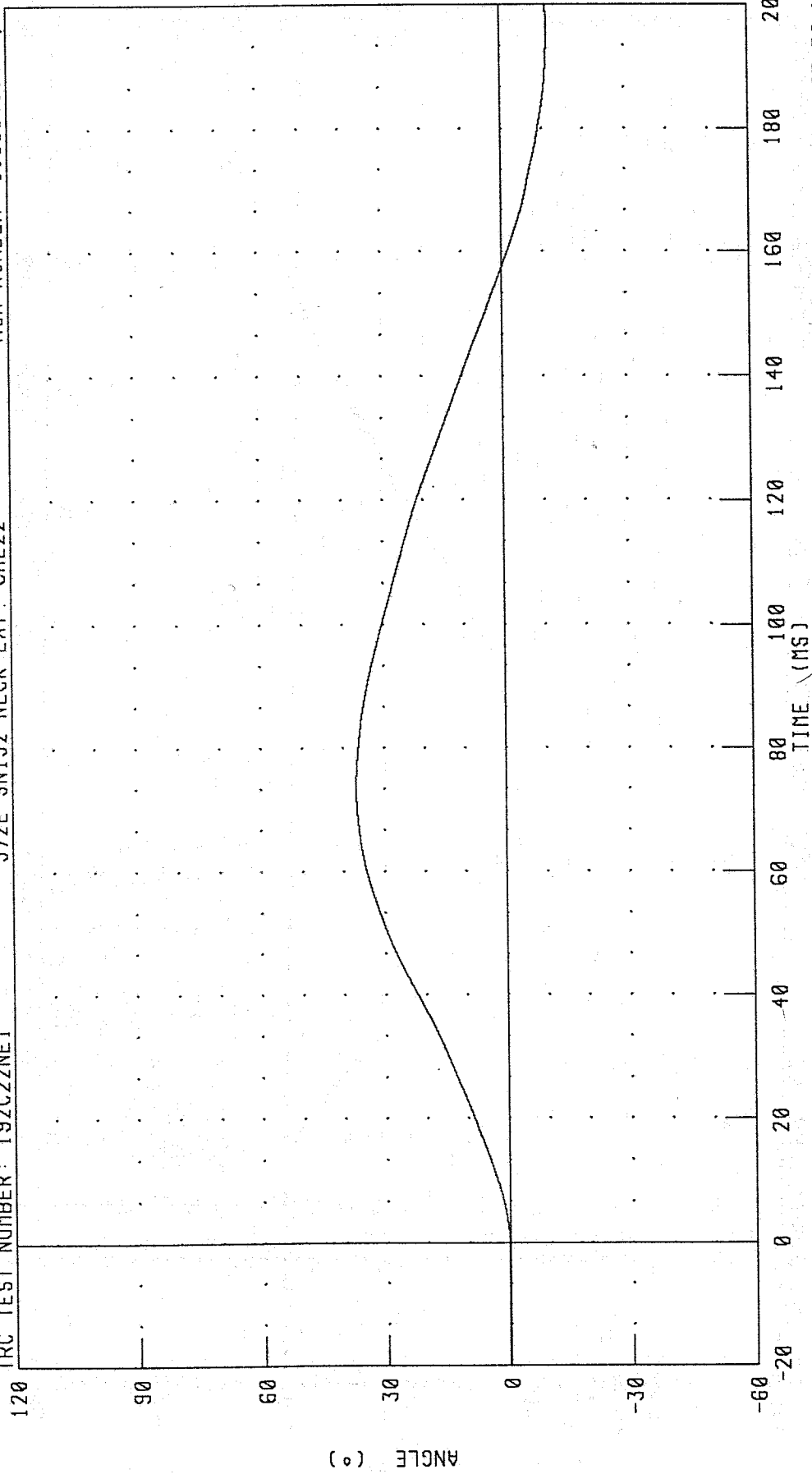
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C22NE1

572E SN192 NECK EXT. CAL22

RUN NUMBER: 113094.1308;1



PEAK DATA: 36.83 ° @ 73.28 MS; -11.36 ° @ 195.76 MS

CHANNEL: BETA FILTER: CH. CLASS 60

ANGLE (°)

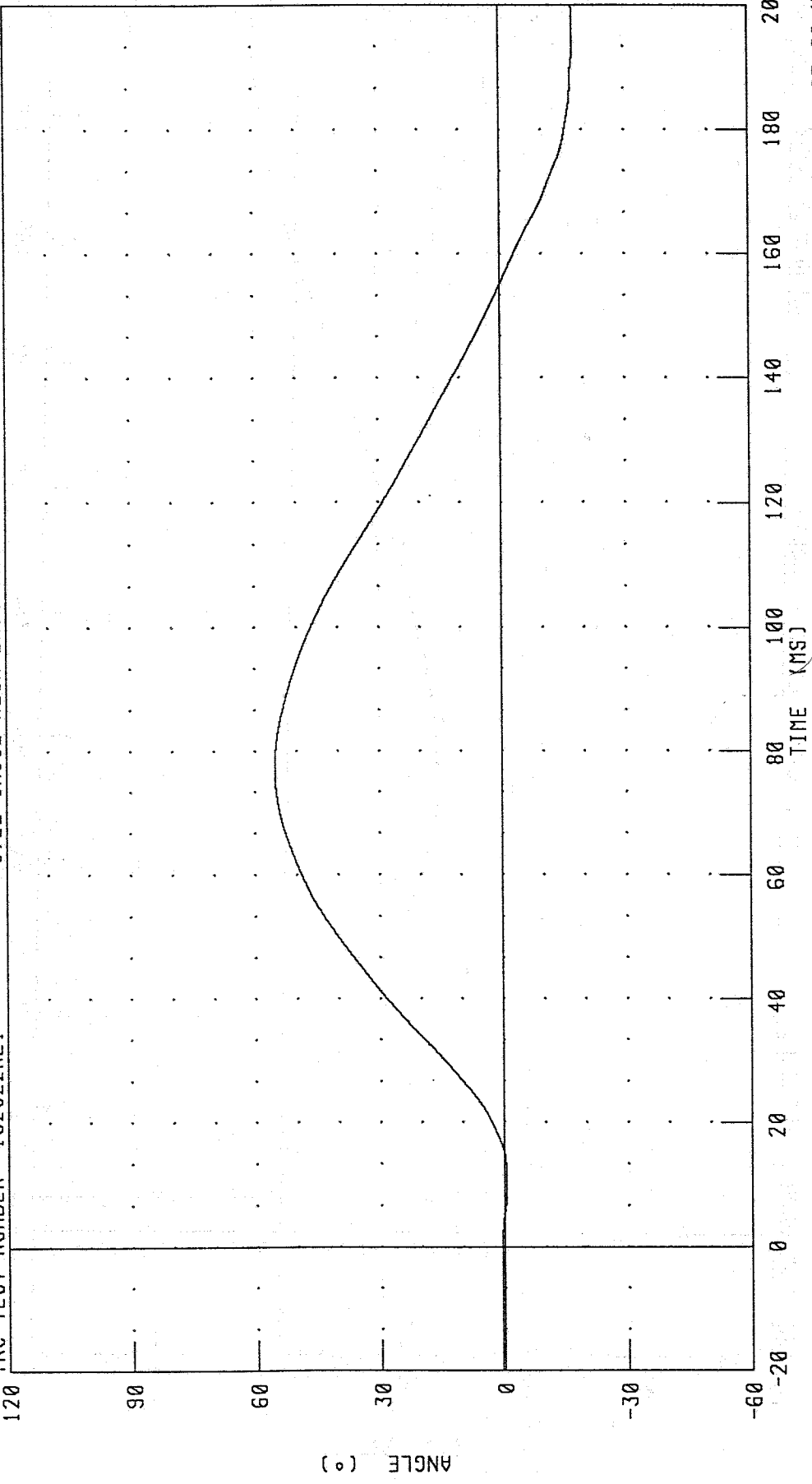
TIME (MS)

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C22NE1

572E SN192 NECK EXT. CAL22

RUN NUMBER: 113094.1308.1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 55.17 ° @ 76.96 MS; -17.80 ° @ 195.68 MS

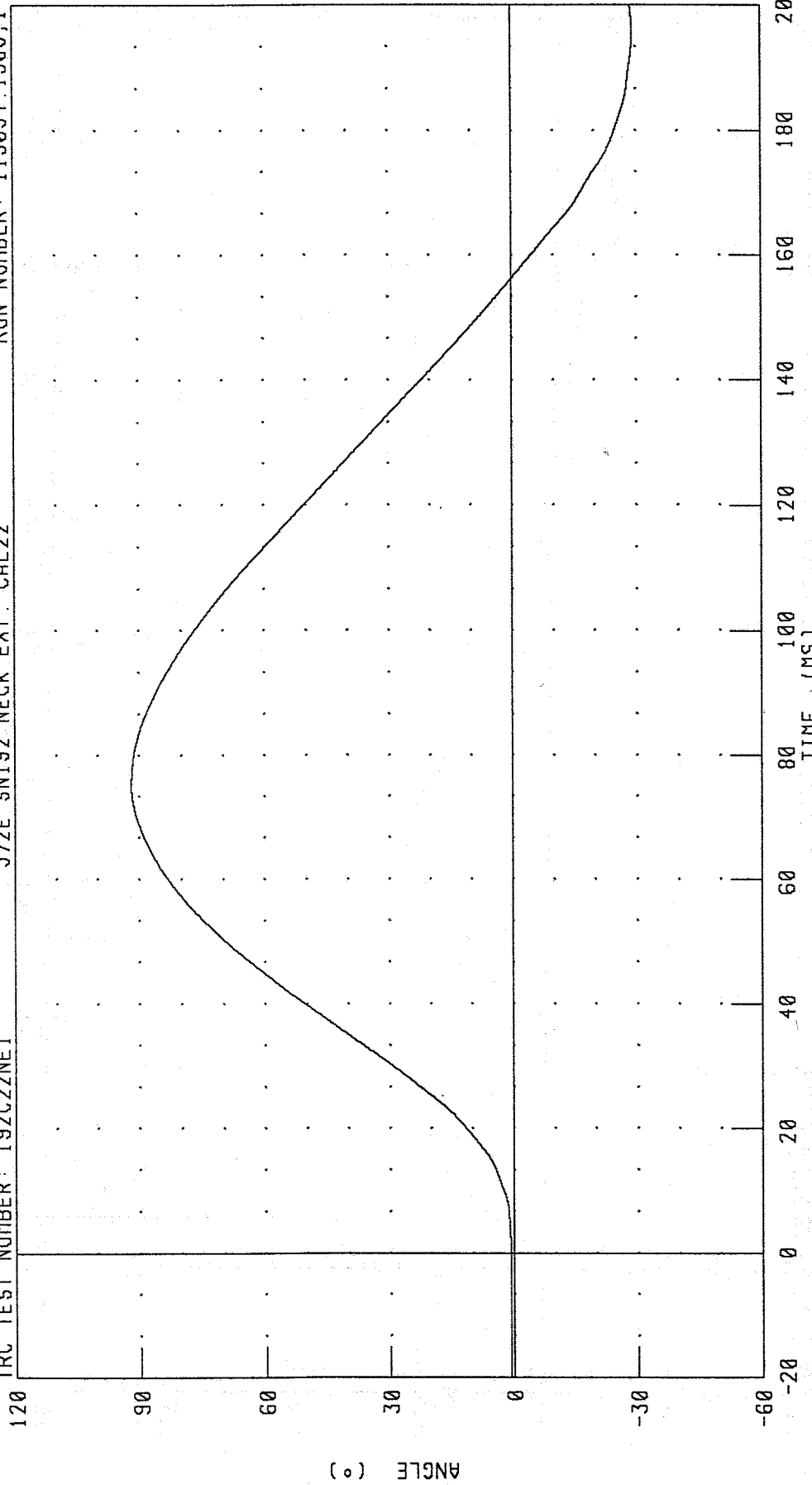
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C22NE1

572E SN192 NECK EXT. CAL22

RUN NUMBER: 113094.1308;1



CHANNEL: TOTAL FILTER: CH. CLASS 60

PEAK DATA: 91.91 ° @ 75.04 MS; -29.17 ° @ 195.76 MS

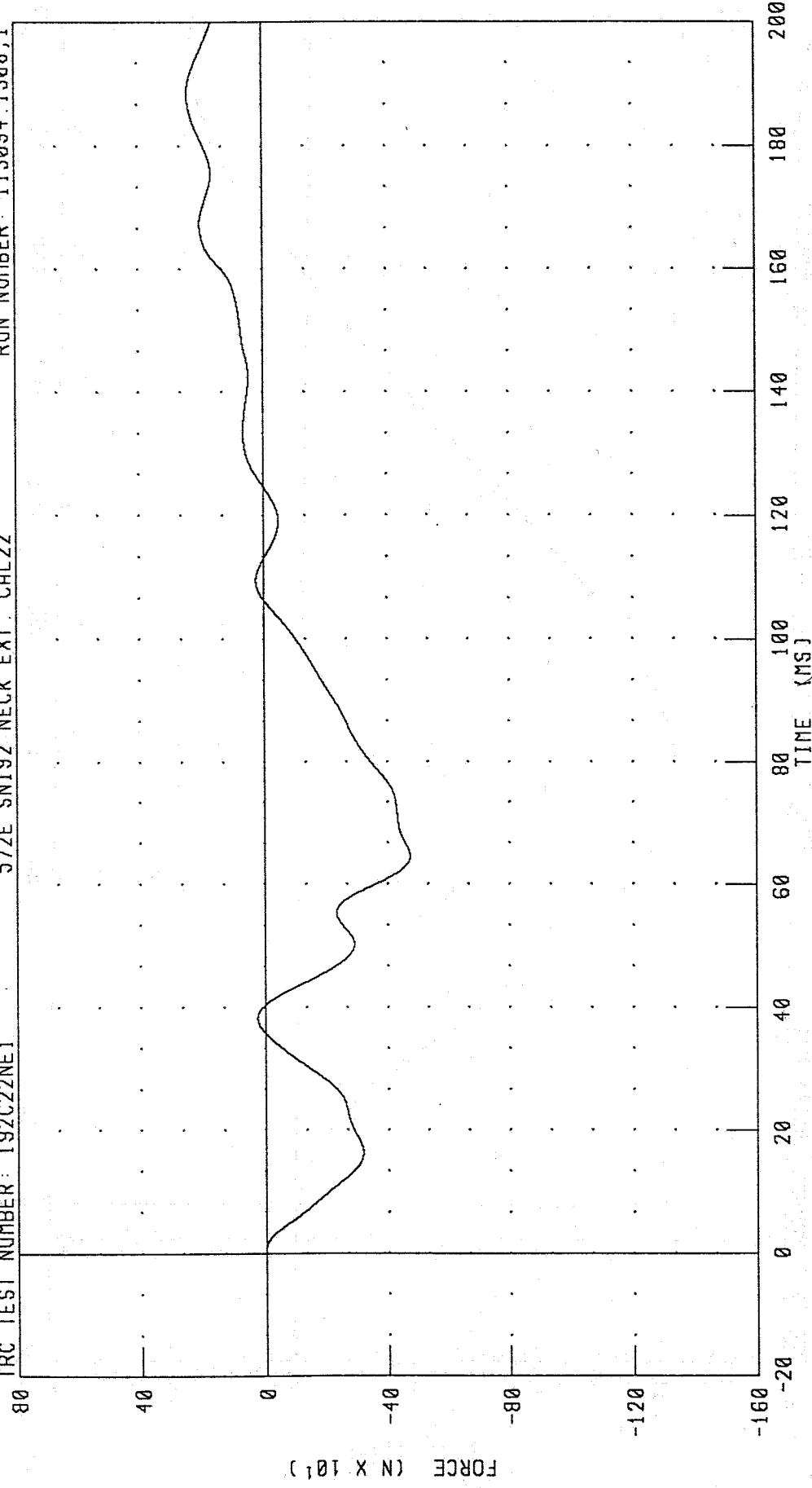
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C22NE1

572E SN192 NECK EXT. CAL22

RUN NUMBER: 113094.1308;1



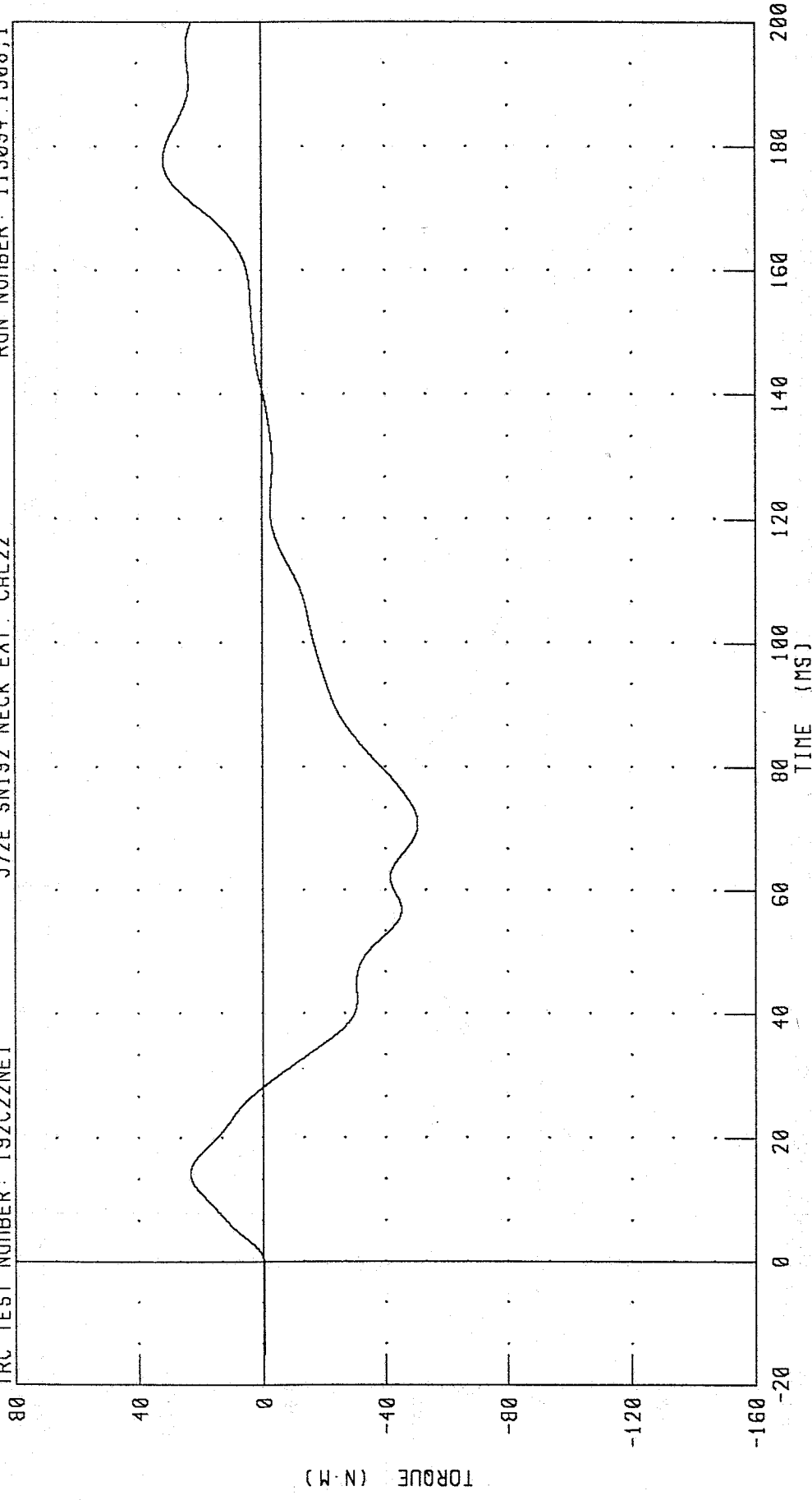
CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 240.59 N @ 188.40 MS; -473.76 N @ 64.48 MS

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

TRC TEST NUMBER: 192C22NE1

572E SN192 NECK EXT. CAL22

RUN NUMBER: 113094.1308.1

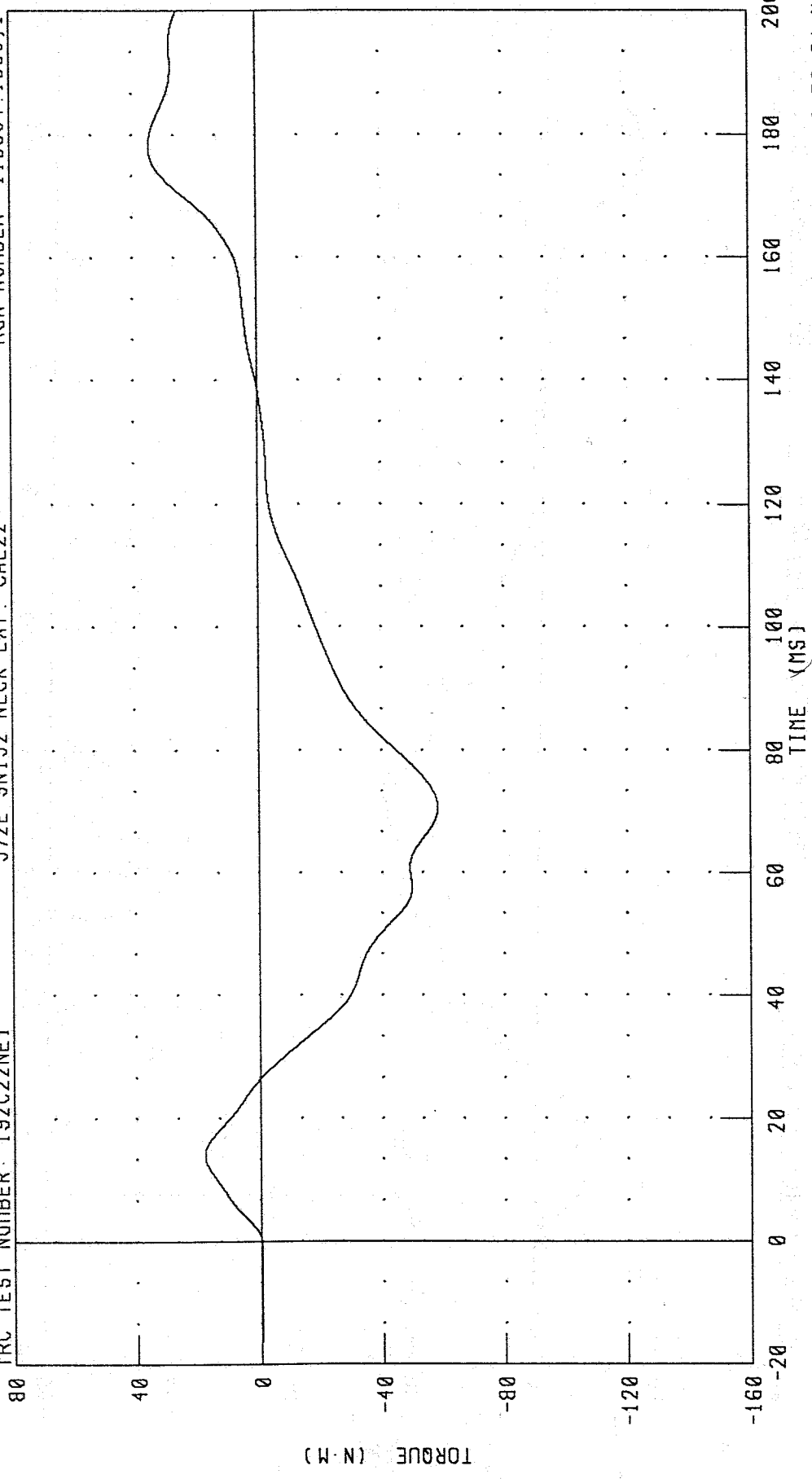


PEAK DATA: 31.55 N·M @ 177.84 MS; -50.61 N·M @ 70.72 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C22NE1 572E SNI92 NECK EXT. CAL22 RUN NUMBER: 113094.1308.1



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 34.65 N.M @ 178.24 MS; -58.32 N.M @ 70.64 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

09-SEP-94

TRC INC.

TEST NO: 192C22TH1

572E SN192 H.S.THORAX CAL22

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.65 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	65.9 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5625. N
INTERNAL HYSTERESIS	69% - 85%	73.5%

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Fouts

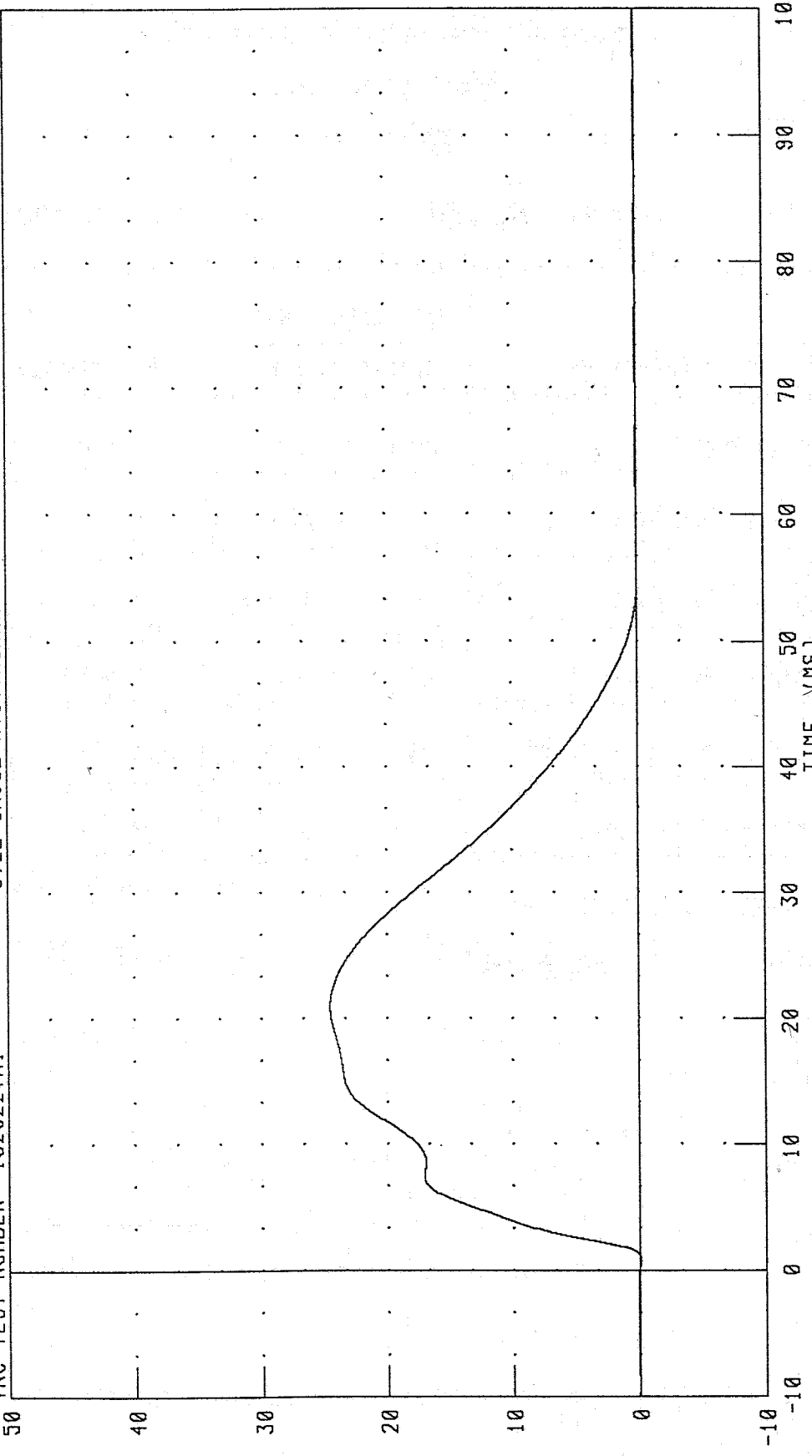
RUN NUMBER: 090994.1047;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C22TH1

572E SN192 H.S. THORAX CAL22

RUN NUMBER: 113094.1308.1



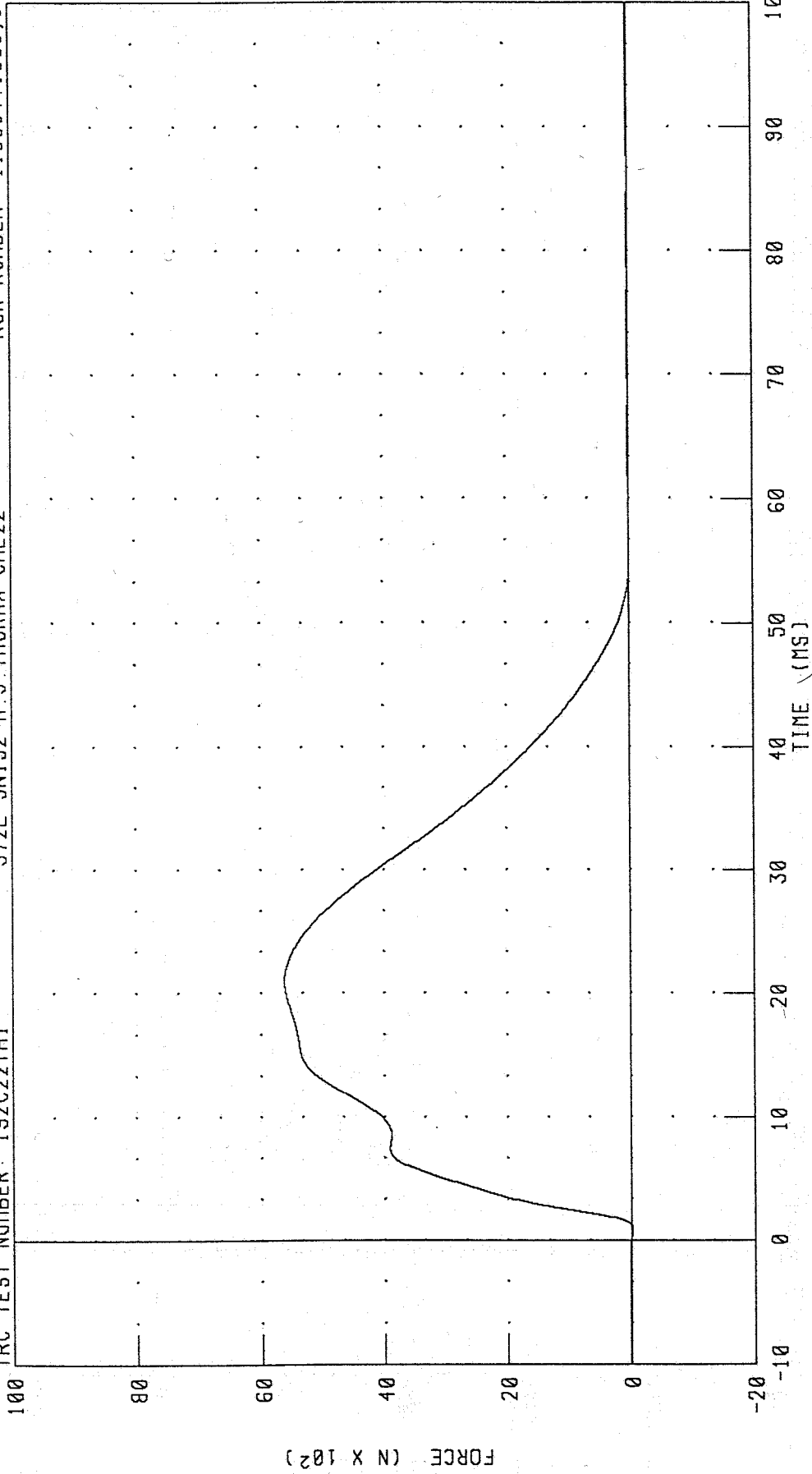
CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 24.56 G @ 20.96 MS; -0.08 G @ 0.80 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 192C22TH1

572E SN192 H.S. THORAX CAL22

RUN NUMBER: 113094.1308,1

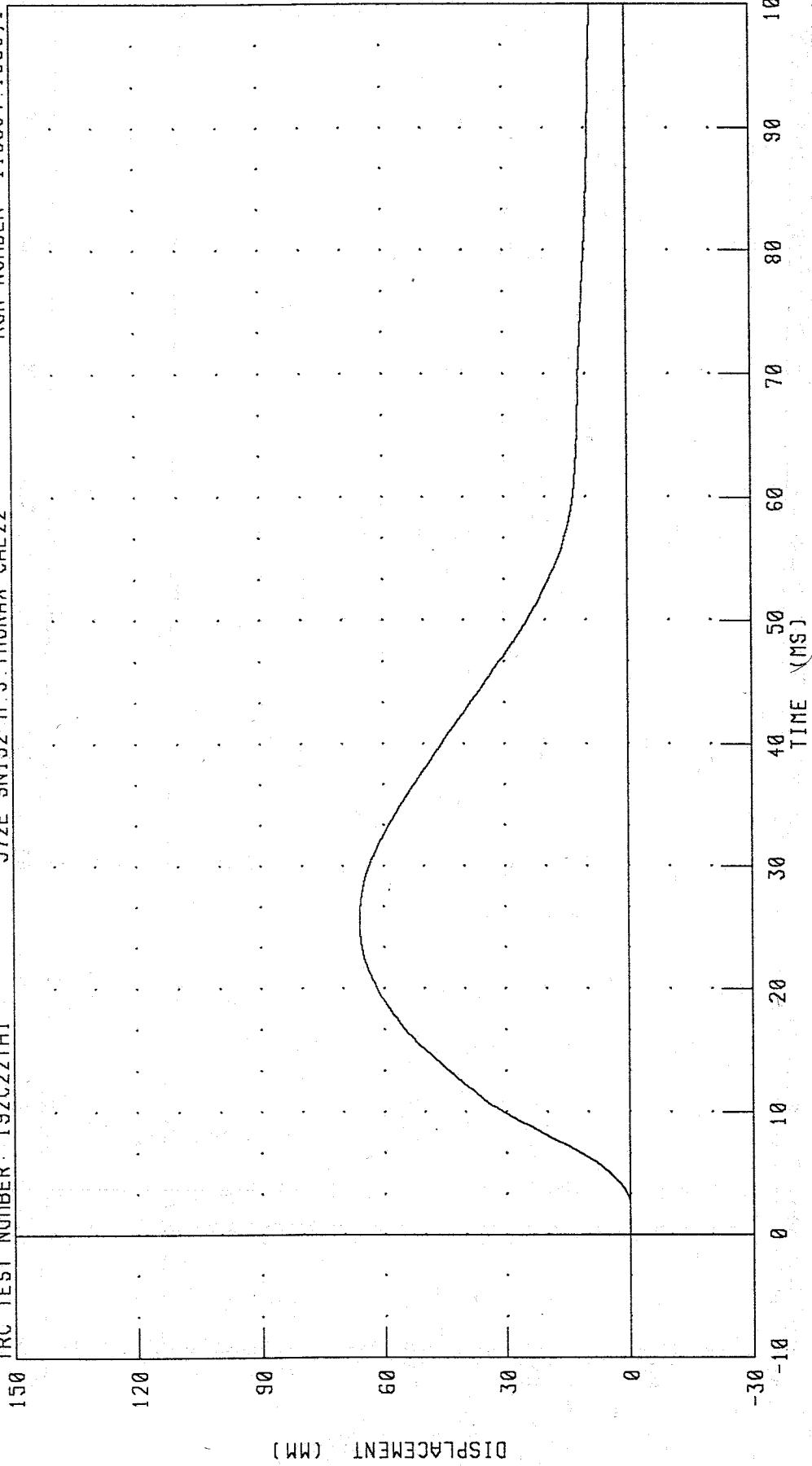


CHANNEL: PENXF FILTER: CH. CLASS 180

PEAK DATA: 5625.32 N @ 20.96 MS; -18.75 N @ 0.80 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 192C22TH1 572E SN192 H.S. THORAX CAL22 RUN NUMBER: 113094.1308;1



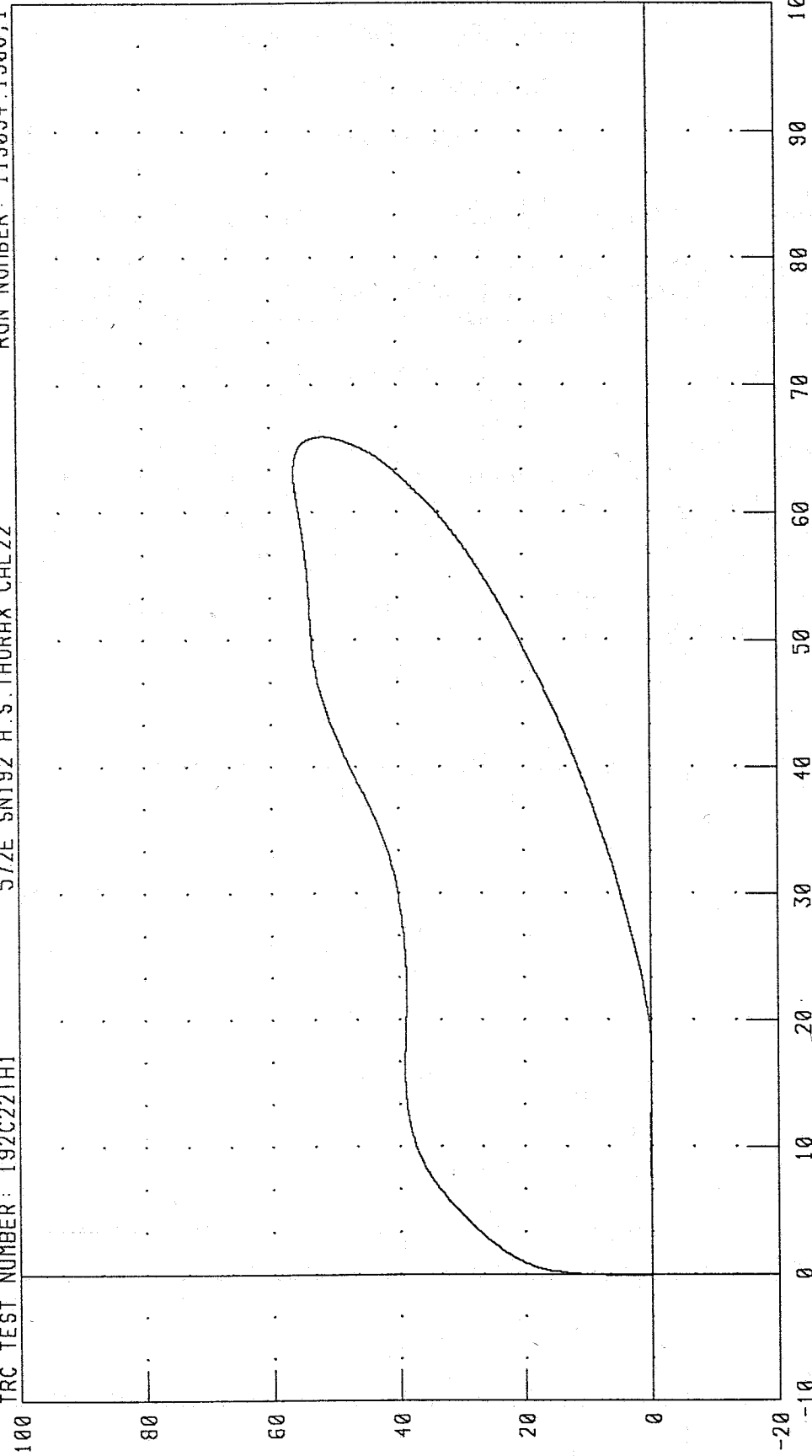
CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 65.94 MM @ 25.60 MS; -0.04 MM @ 1.84 MS

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

TRC TEST NUMBER: 192C22TH1

572E SN192 H.S.THORAX CAL22

RUN NUMBER: 113094.1308,1



FORCE (N X 10²)

DISPLACEMENT (MM)
PEAK DATA: 65.94 MM @ 25.60 MS; -0.04 MM @ 1.84 MS
5625.32 N @ 20.96 MS; -18.75 N @ 0.80 MS

CHANNEL: CSTXD FILTER: CH: CLASS 180
PENXF CH: CLASS 180

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

09-SEP-94

TRC INC.

TEST NO: 192C22RK1

572E SN192 RIGHT KNEE CAL 22

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.09 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	4740.3 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Peter SA

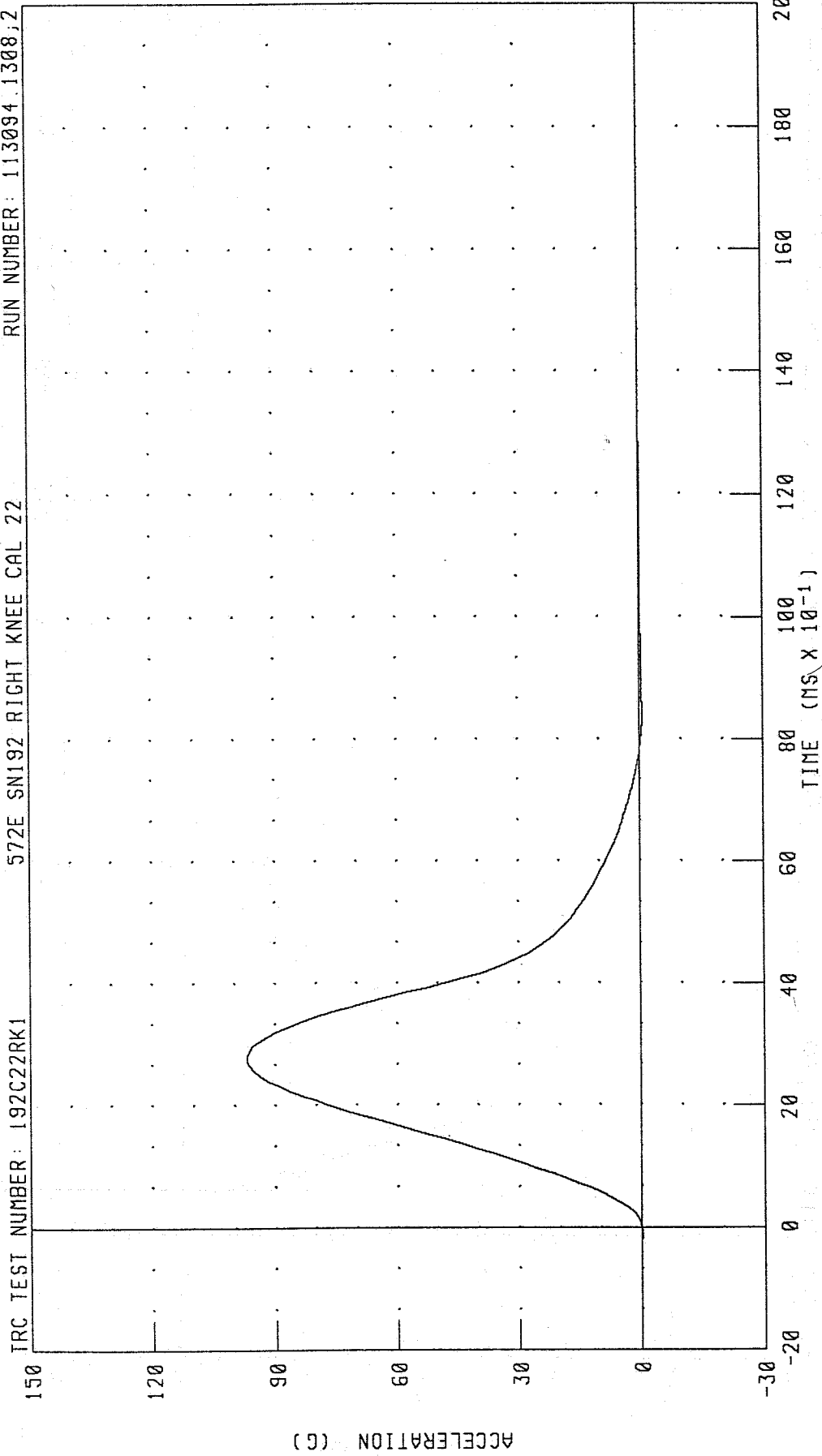
RUN NUMBER: 090994.0729;2

PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 192C22RK1

572E SN192 RIGHT KNEE CAL 22

RUN NUMBER: 113094.1308;2



CHANNEL: PENXC FILTER: CH. CLASS 600 PEAK DATA: 96.88 G @ 2.80 MS; -0.66 G @ 8.40 MS

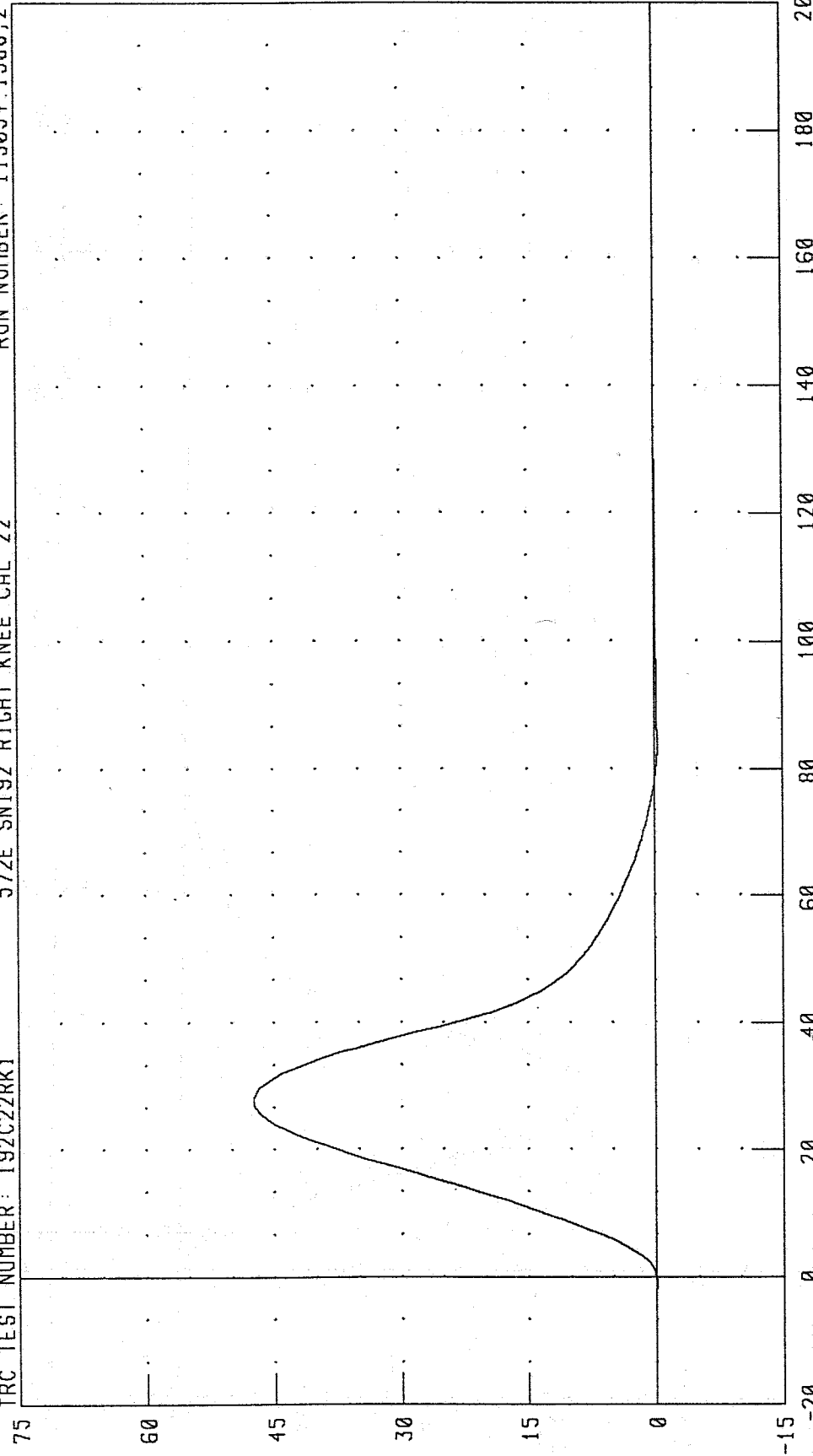
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN192 RIGHT KNEE CAL 22

RUN NUMBER: 113094.1308;2

TRC TEST NUMBER: 192C22RK1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 4740.39 N @ 2.80 MS; -32.46 N @ 8.40 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

09-SEP-94

TRC INC.

TEST NO: 192C22LK1

572E SN192 LEFT KNEE CAL 22

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.08 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	4982.1 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete F. J.

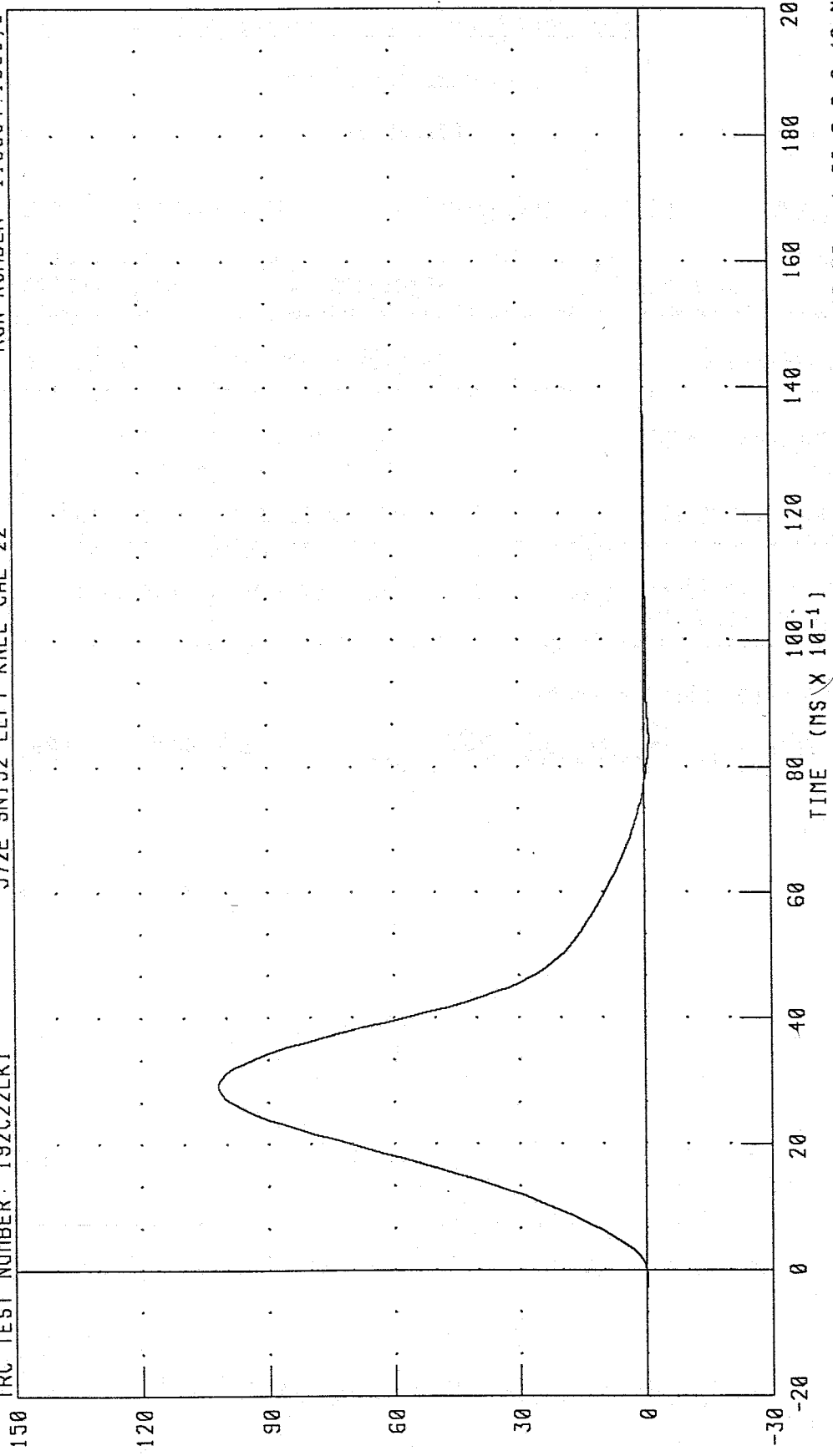
RUN NUMBER: 110294.1233;3

PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 192C22LK1

572E SN192 LEFT KNEE CAL 22

RUN NUMBER: 113094.1308,3



CHANNEL: PENXG FILTER: CH. CLASS 600 PEAK DATA: 101.83 G @ 2.96 MS, -1.09 G @ 8.40 MS

ACCELERATION (G)

TIME (MS X 10⁻¹)

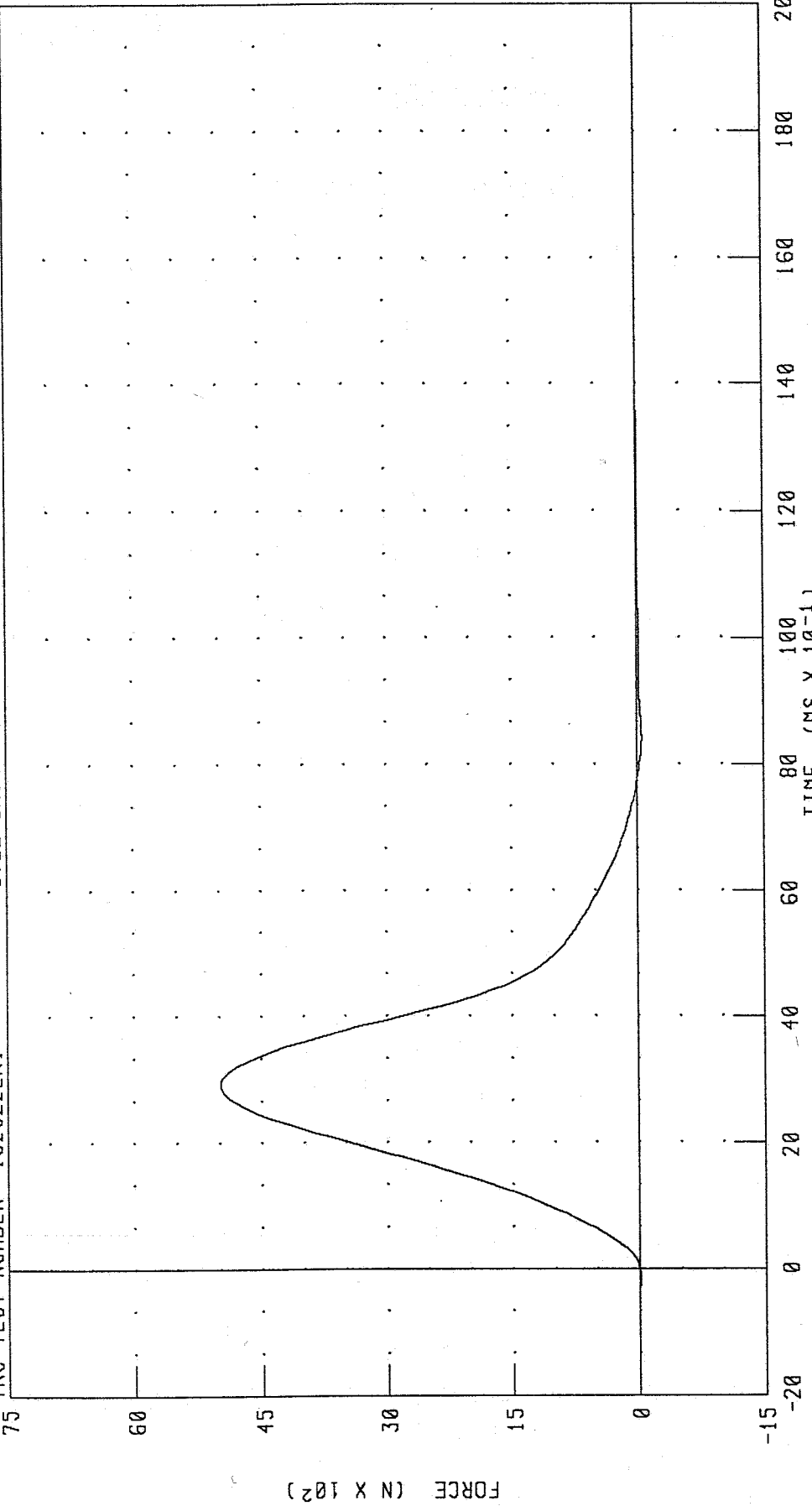
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN192 LEFT KNEE CAL 22

TRC TEST NUMBER: 192C22LK1

RUN NUMBER: 113094.1308,3



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 4982.17 N @ 2.96 MS; -53.41 N @ 8.40 MS

Pre-test Certification Data

Passenger Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
 HYBRID III EXTERNAL DIMENSIONS
 142 HUMANOID

08-SEP-94

TRC INC. TEST NO: 142C23ED1 572E SN142 EXT.DIMENSION CAL23

TEST PARAMETER (DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE (AA)	429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE (BB)	226 - 231 MM	229. MM
CHEST CIRCUMFERENCE (Y)	970 -1001 MM	986. MM
WAIST CIRCUMFERENCE (Z)	836 - 866 MM	848. MM
CHEST DEPTH (O)	213 - 229 MM	221. MM
H-POINT HEIGHT (C)	84 - 89 MM	84. MM
H-POINT FROM SEATBACK (D)	135 - 140 MM	137. MM
SKULL CAP TO BACKLINE (H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT (A)	879 - 889 MM	879. MM
THIGH CLEARANCE (F)	140 - 155 MM	145. MM
BUTTOCK KNEE LENGTH (K)	579 - 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH (N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT (L)	429 - 455 MM	445. MM
KNEE PIVOT HEIGHT (M)	485 - 500 MM	488. MM
FOOT LENGTH (P)	252 - 267 MM	257. MM
FOOT BREADTH (W)	91 - 107 MM	97. MM
SHOULDER PIVOT FROM BACKLINE (E)	84 - 94 MM	91. MM
SHOULDER BREADTH (V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT (B)	506 - 521 MM	508. MM
ELBOW REST HEIGHT (J)	191 - 211 MM	203. MM
SHOULDER-ELBOW LENGTH (I)	330 - 345 MM	345. MM
BACK OF ELBOW TO WRIST PIVOT (G)	290 - 305 MM	292. MM

DUMMY MEETS SPECIFICATIONS
 TECHNICIAN Pete Faust

RUN NUMBER: 090994.1059

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

08-SEP-94

TRC INC.

TEST NO: 142C23HD1

572E SN142 HEAD DROP CAL 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	60.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	244.94 G
PEAK LATERAL ACCELERATION	15 G MAX	-2.58 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

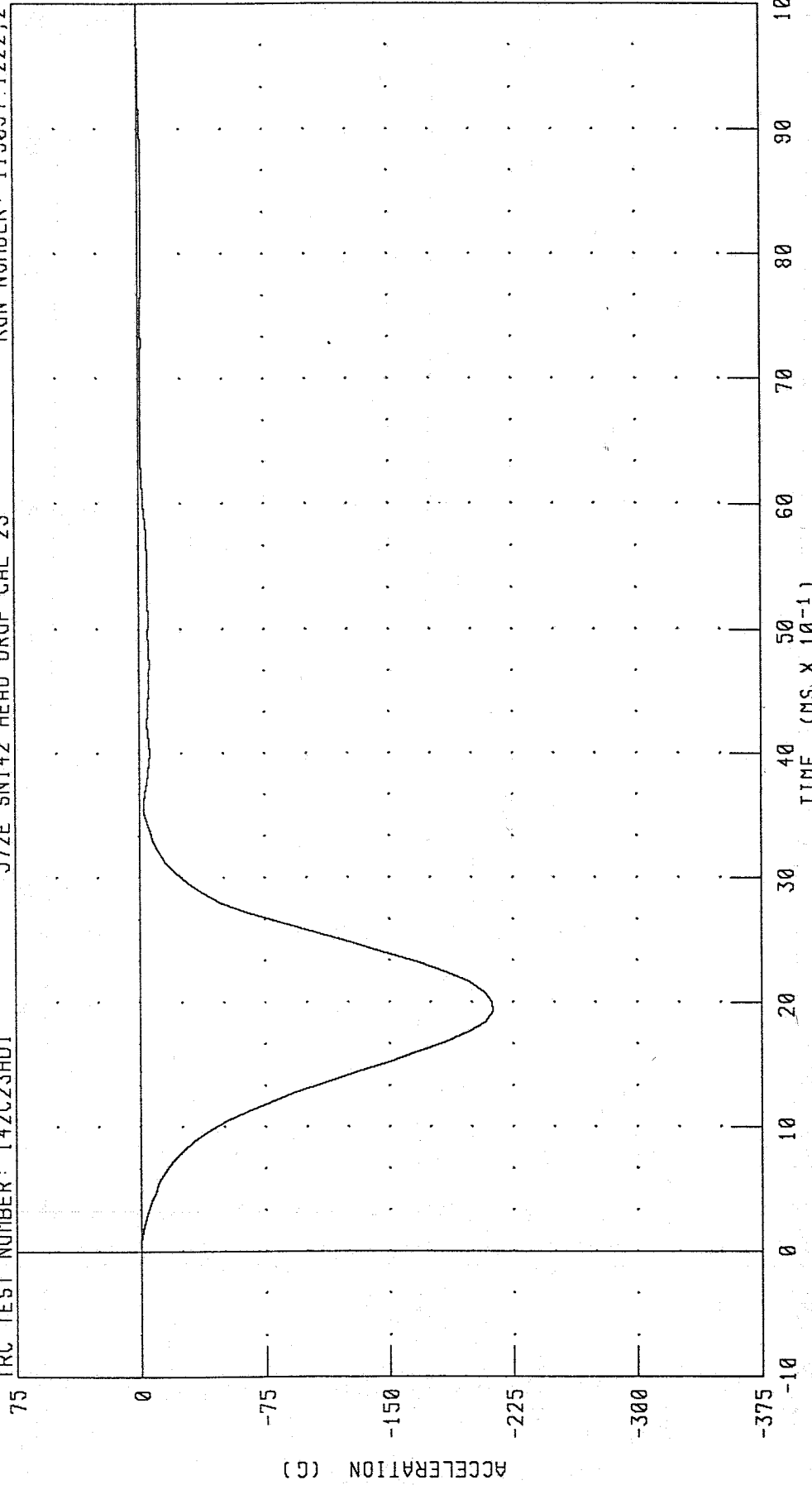
TECHNICIAN

Pete FST

RUN NUMBER: 090894.1443;2

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

TRC TEST NUMBER: 142C23HD1 572E SN142 HEAD DROP CAL 23 RUN NUMBER: 113094.1222;2



CHANNEL: HEDXG FILTER: CH. CLASS 1000

PEAK DATA: 0.17 G @ 9.84 MS; -213.11 G @ 1.92 MS

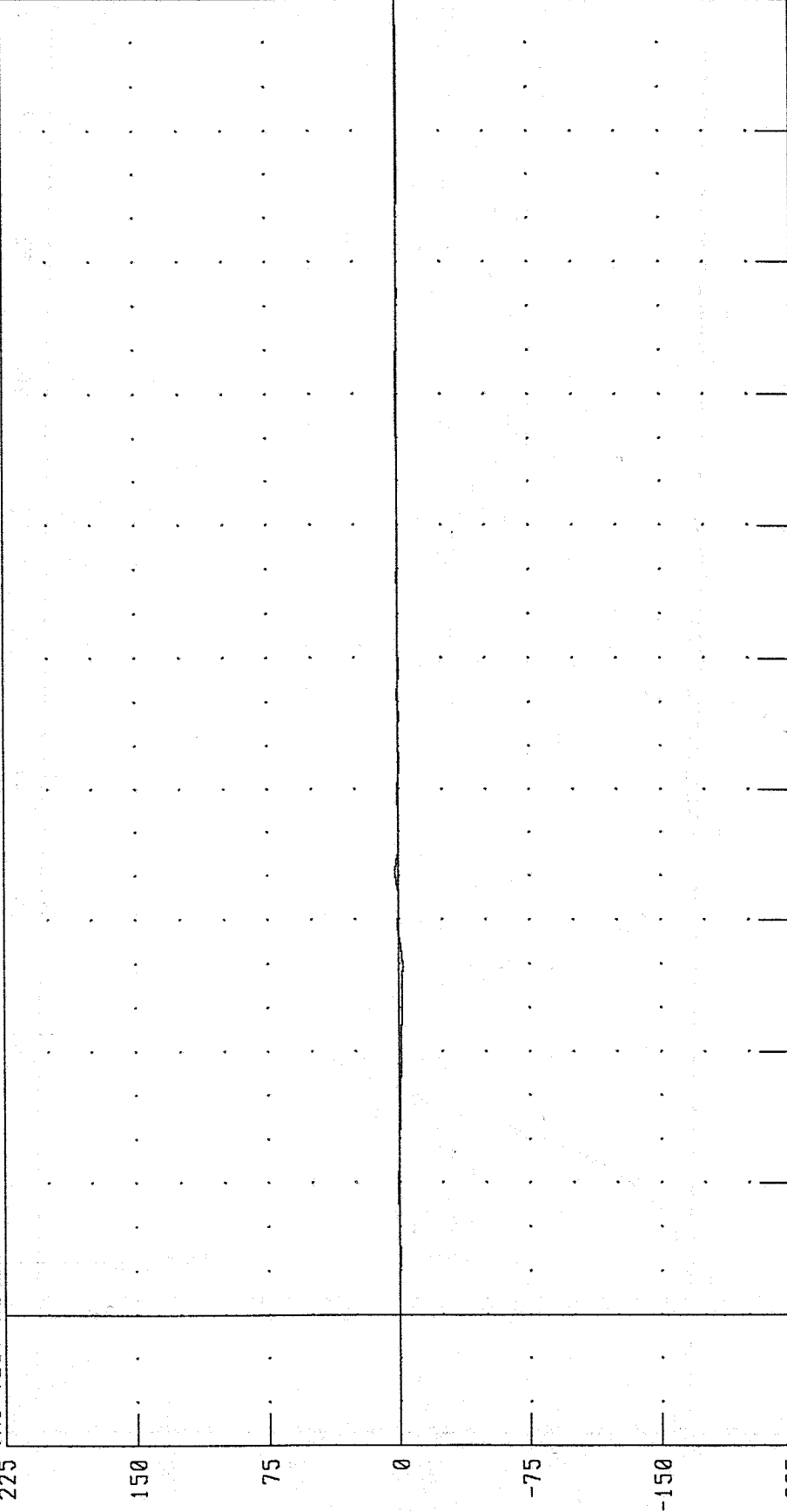
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: 142C23HD1

572E SN142 HEAD DROP CAL 23

RUN NUMBER: 113094.1222.2



TIME (MS X 10⁻¹)

PEAK DATA: 1.97 G @ 3.36 MS; -2.59 G @ 2.64 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

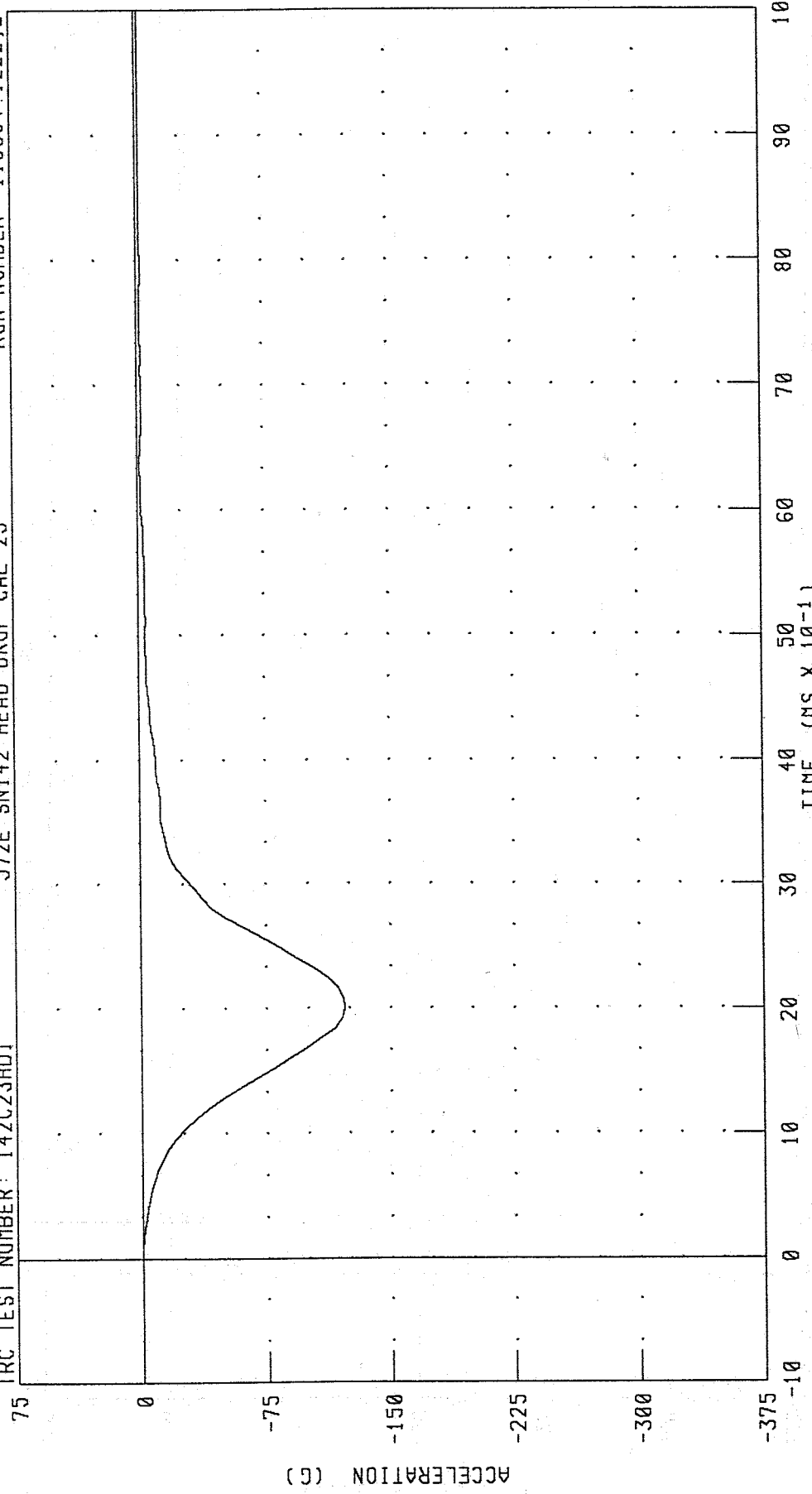
ACCELERATION (G)

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

TRC TEST NUMBER: 142C23HD1

572E SN142 HEAD DROP CAL 23

RUN NUMBER: 113094.1222,2



CHANNEL: HEDZG FILTER: CH. CLASS 1000
PEAK DATA: 0.00 G @ 0.00 MS; -121.87 G @ 2.00 MS

PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN142 HEAD DROP CAL 23

RUN NUMBER: 113094.1222,2

TRC TEST NUMBER: 142C23HD1

375

300

225

150

75

0

-75

ACCELERATION (G)

TIME (MS X 10⁻¹)

40

50

60

70

80

90

100

PEAK DATA: 244.95 G @ 2.00 MS; 0.01 G @ -0.24 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

08-SEP-94

TRC INC. TEST NO: 142C23NF1 572E SN142 NECK FLEXION CAL23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	7.01 M/S
PENDULUM DECELERATION	10 MS 22.50 - 27.50 G	24.40 G
	20 MS 17.60 - 22.60 G	20.41 G
	30 MS 12.50 - 18.50 G	15.95 G
MAX PENDULUM G	29 G MAX	25.19 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	15.93 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	37.44 MS
D PLANE	MAX 64 - 78 DEG.	72.10 DEG.
ROTATION	TIME 57 - 64 MS	59.68 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX 88.2 - 108.5 NM	91.84 NM
	TIME 47 - 58 MS	50.96 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	114.96 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	103.20 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete F. J.

RUN NUMBER: 090994.0823;1

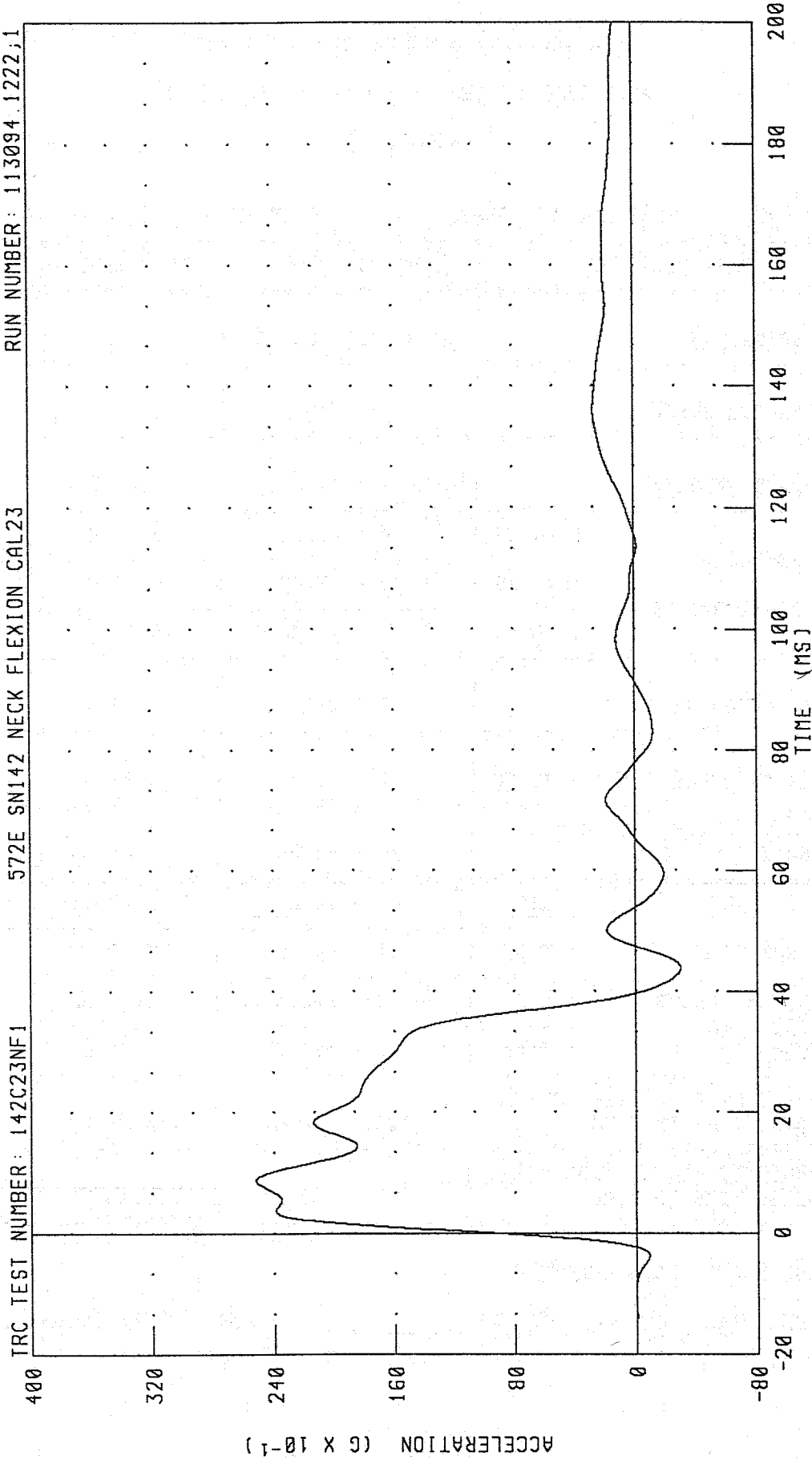
PART 572-E HYBRID III NECK FLEXION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 142C23NF1

572E SN142 NECK FLEXION CAL23

RUN NUMBER: 113094.1222;1



CHANNEL: PENXG FILTER: CH. CLASS 60 PEAK DATA: 25.19 G @ 8.80 MS; -2.94 G @ 43.84 MS

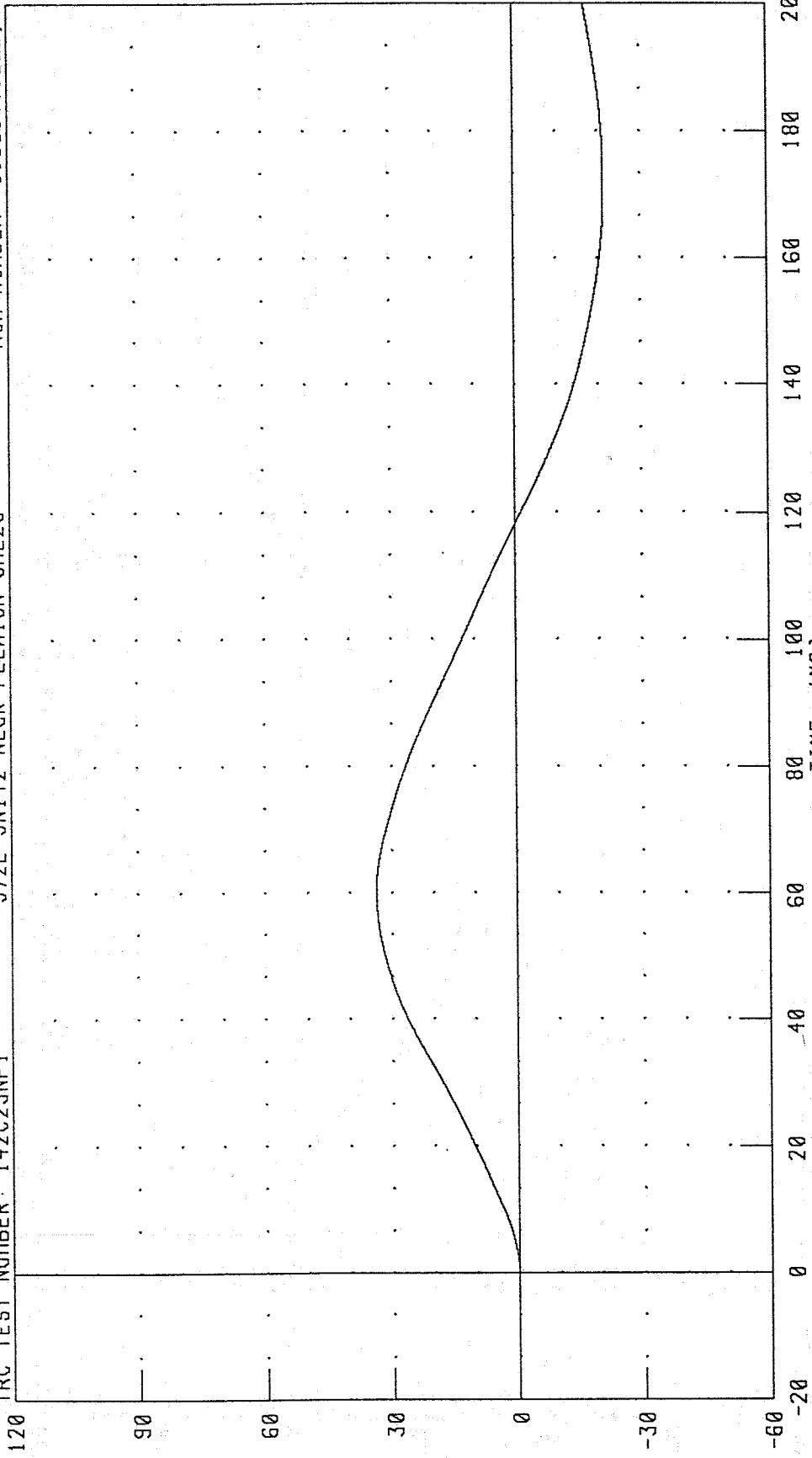
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN142 NECK FLEXION CAL23

RUN NUMBER: 113094.1222,1

TRC TEST NUMBER: 142C23NF1

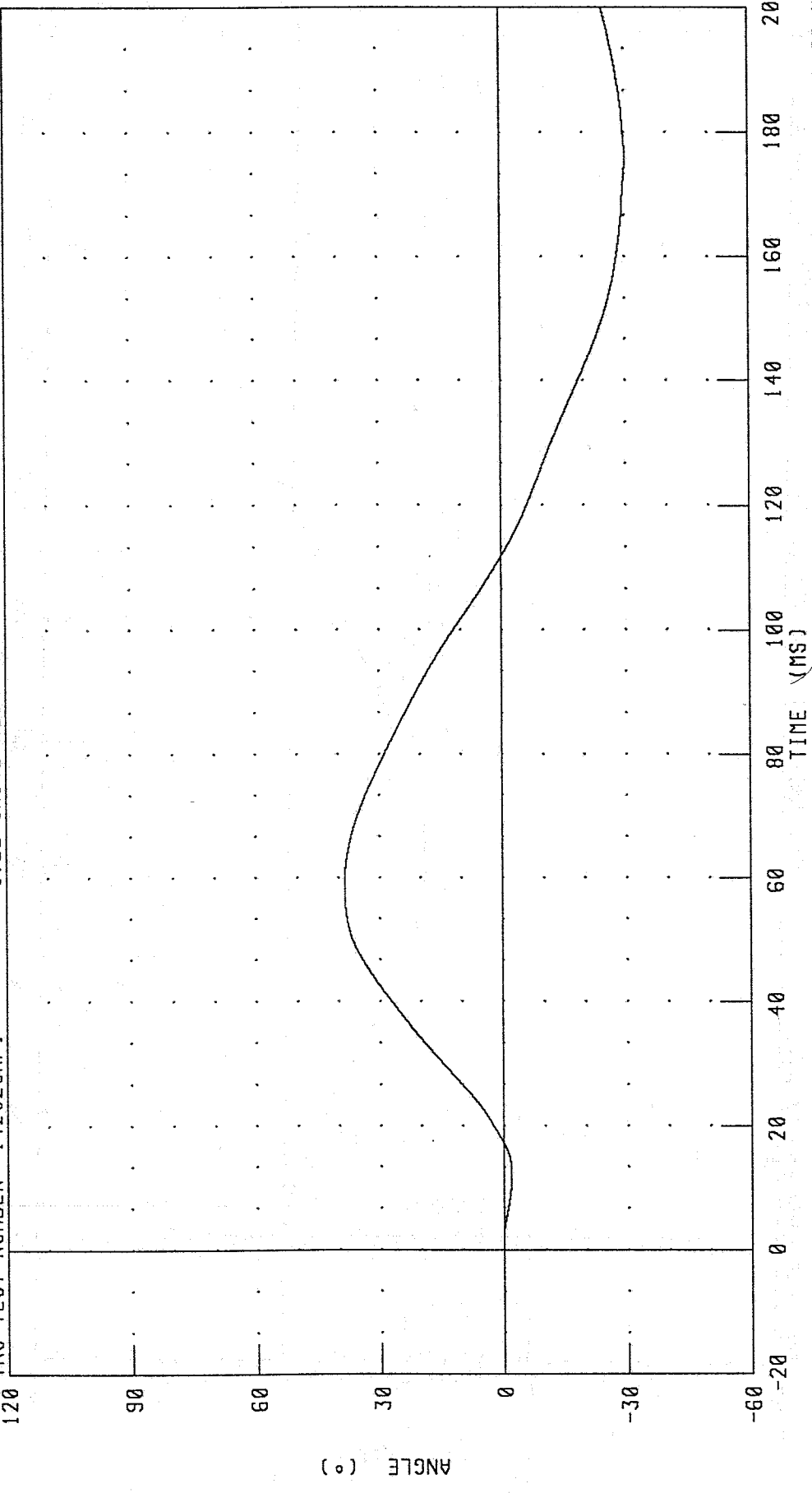


CHANNEL: BETA FILTER: CH. CLASS 60

PEAK DATA: 33.69 ° @ 60.00 MS; -21.41 ° @ 174.48 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C23NF1 572E SN142 NECK FLEXION CAL23 RUN NUMBER: 113094.1222.j.1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 38.43 ° @ 58.24 MS; -30.13 ° @ 176.00 MS

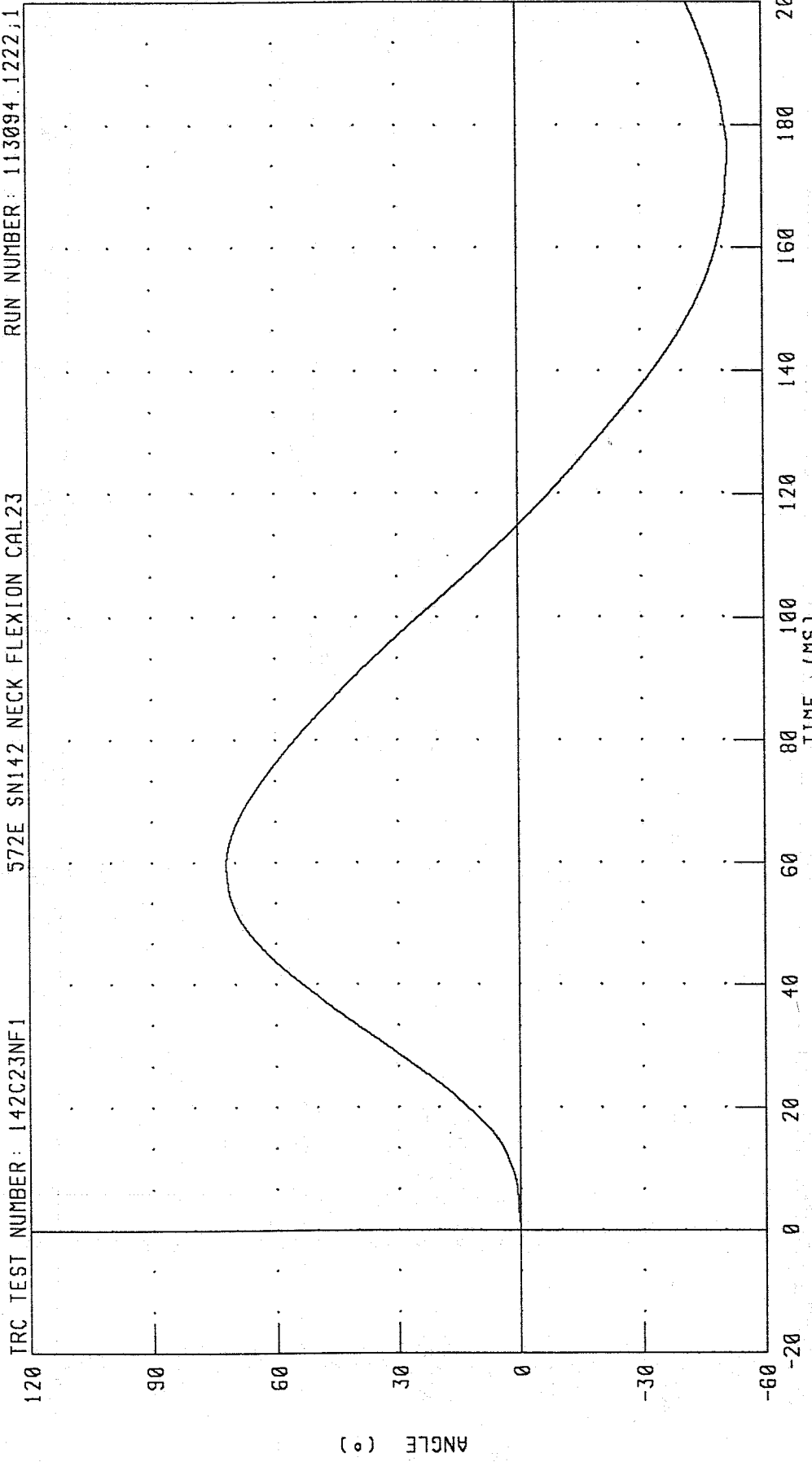
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C23NF1

572E SN142 NECK FLEXION CAL23

RUN NUMBER: 113094.1222,1



PEAK DATA: 72.10 ° @ 59.68 MS; -51.52 ° @ 175.68 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

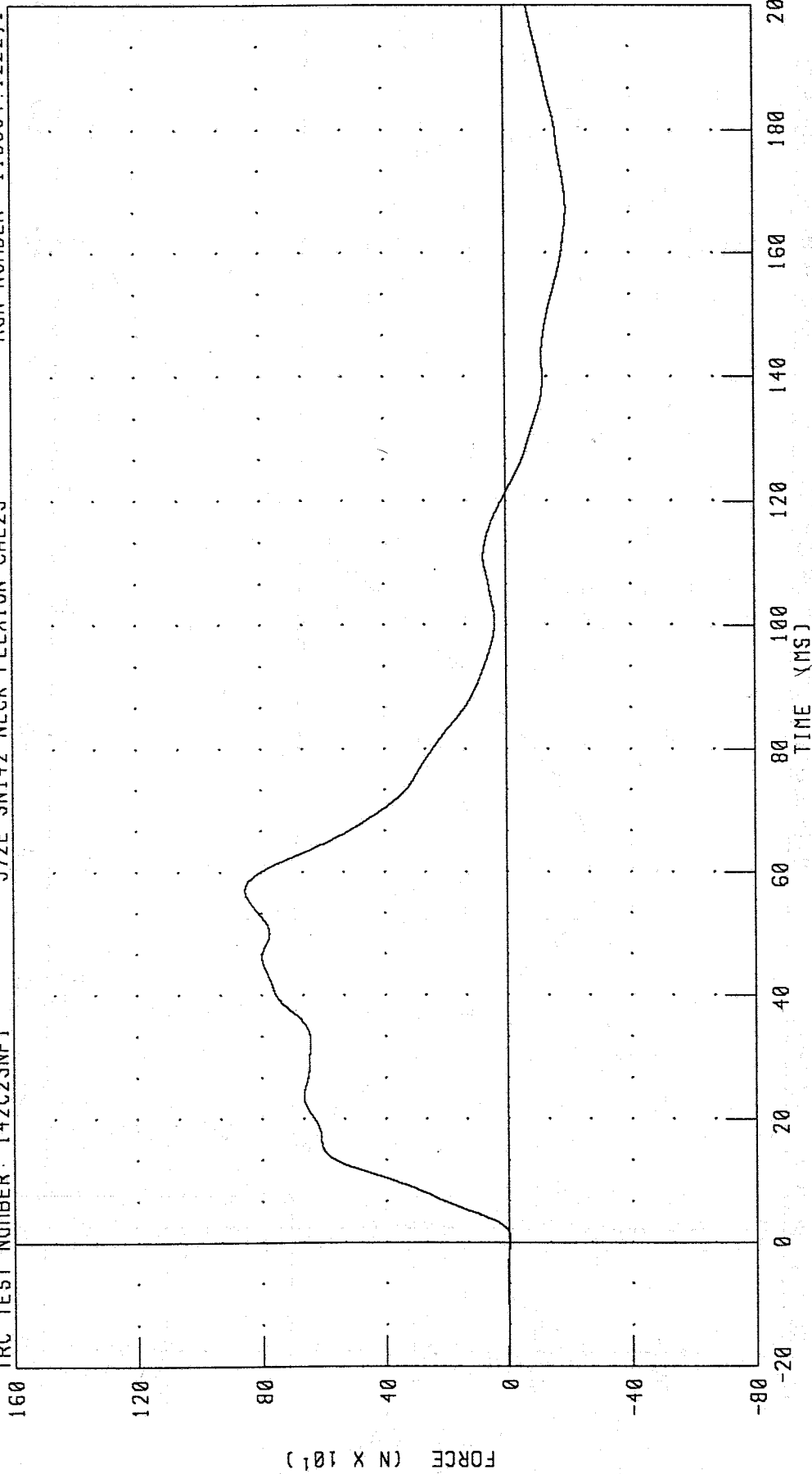
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C23NF1

572E SN142 NECK FLEXION CAL23

RUN NUMBER: 113094.1222.1



PEAK DATA: 853.05 N @ 57.12 MS; -197.93 N @ 167.12 MS

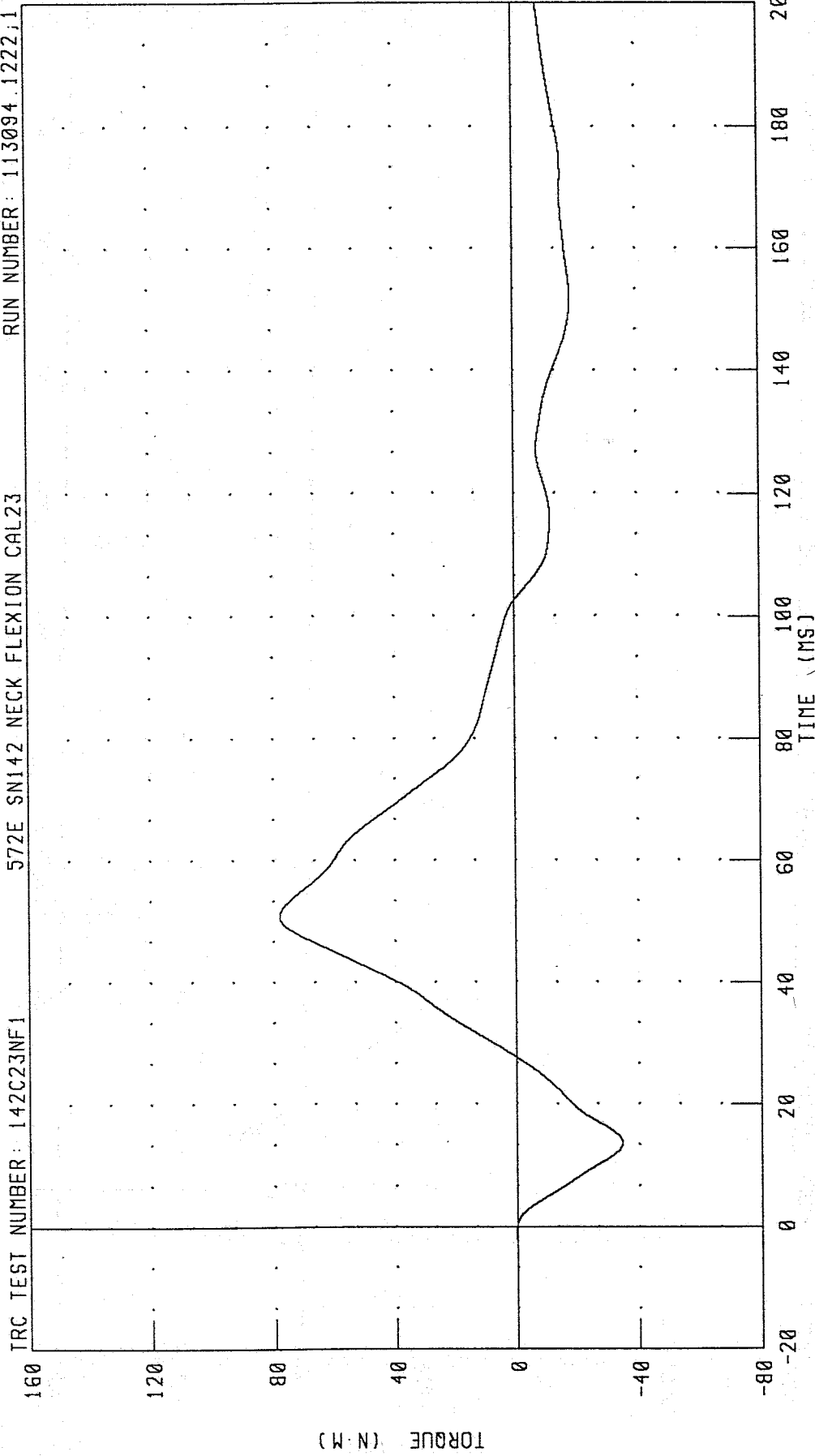
CHANNEL: NEKXF FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C23NF1

572E SN142 NECK FLEXION CAL23

RUN NUMBER: 113094.1222;1



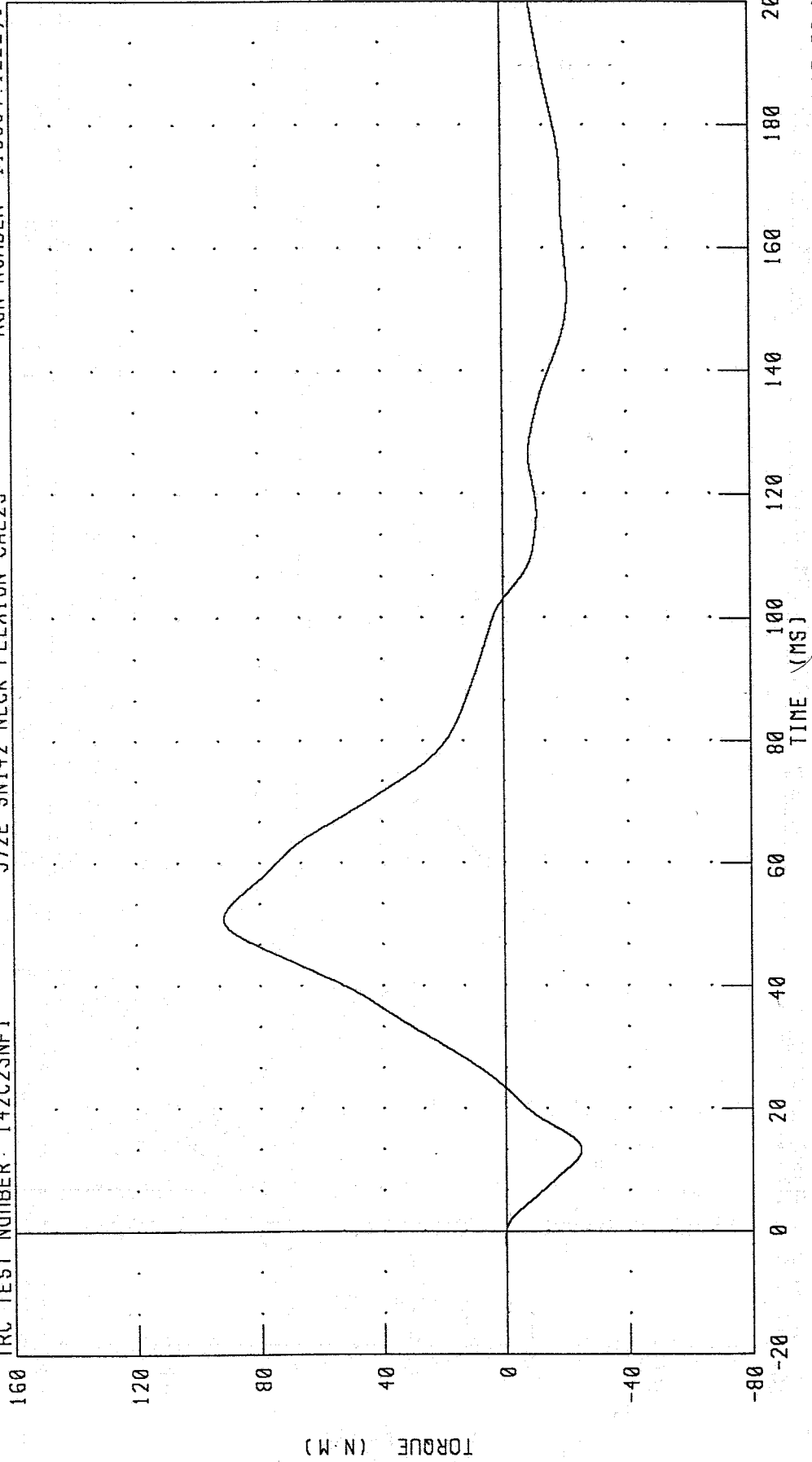
PEAK DATA: 78.03 N.M @ 50.80 MS, -34.51 N.M @ 13.68 MS.

CHANNEL: NEKYM FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C23NF1 RUN NUMBER: 113094.1222;1

572E SN142 NECK FLEXION CAL23



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 91.84 N·M @ 50.96 MS; -24.44 N·M @ 13.20 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

09-SEP-94

TRC INC. TEST NO: 142C23NE1 572E SN142 NECK EXT. CAL23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.00 M/S
PENDULUM DECELERATION	10 MS 17.20 - 21.20 G	18.75 G
	20 MS 14.00 - 19.00 G	15.59 G
	30 MS 11.00 - 16.00 G	14.10 G
MAX PENDULUM G	22 G MAX	19.62 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	14.06 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	40.64 MS
D PLANE	MAX 81 - 106 DEG.	95.32 DEG.
ROTATION	TIME 72 - 82 MS	74.96 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN -80.0/-52.9 NM	-70.49 NM
	TIME 65 - 79 MS	69.84 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	152.88 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	139.84 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Foster

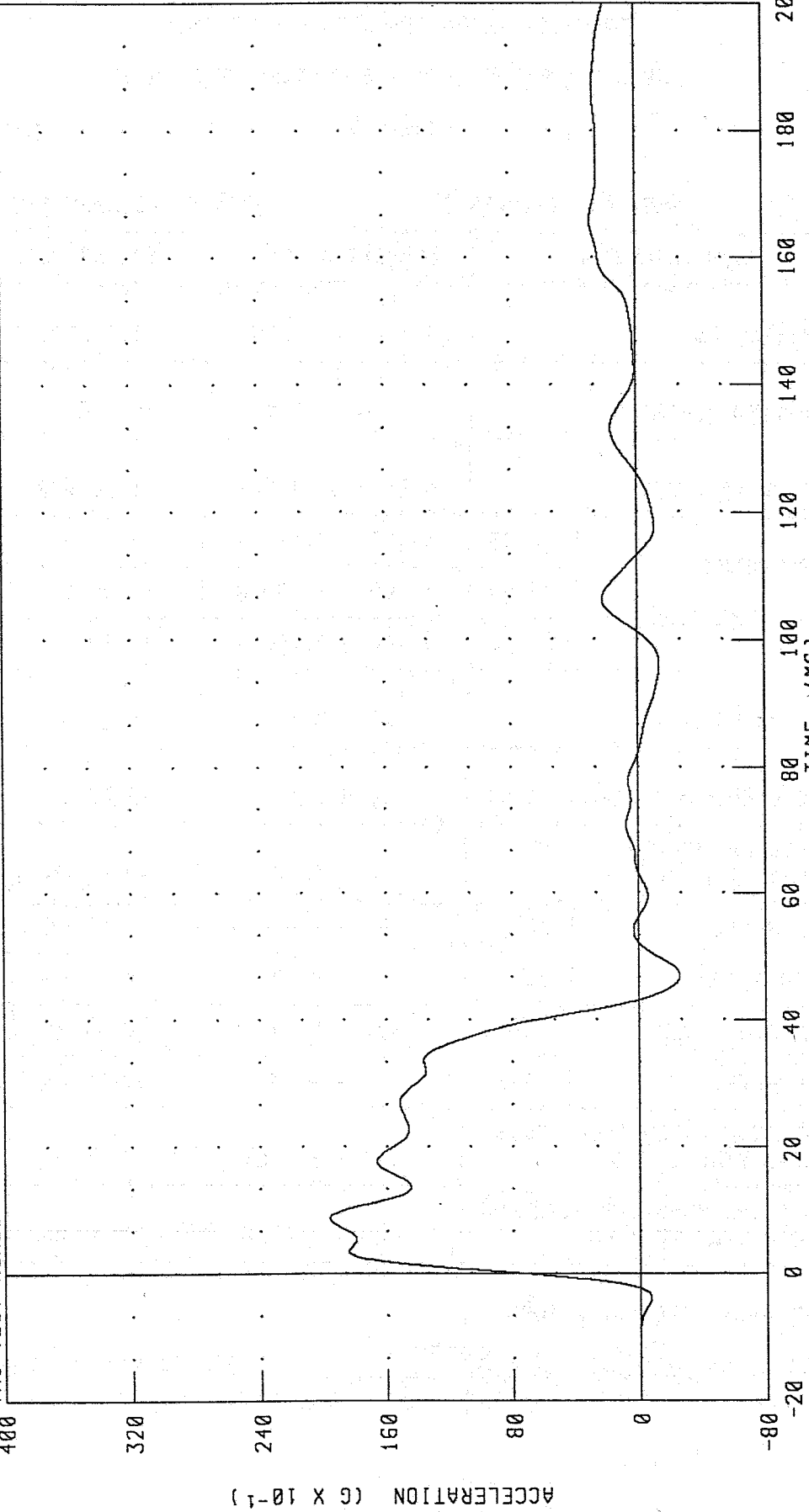
RUN NUMBER: 090994.0916;2

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 142C23NE1

572E SN142 NECK EXT. CAL23

RUN NUMBER: 113094.1222;2



PEAK DATA: 19.63 G @ 8.64 MS; -2.59 G @ 46.88 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

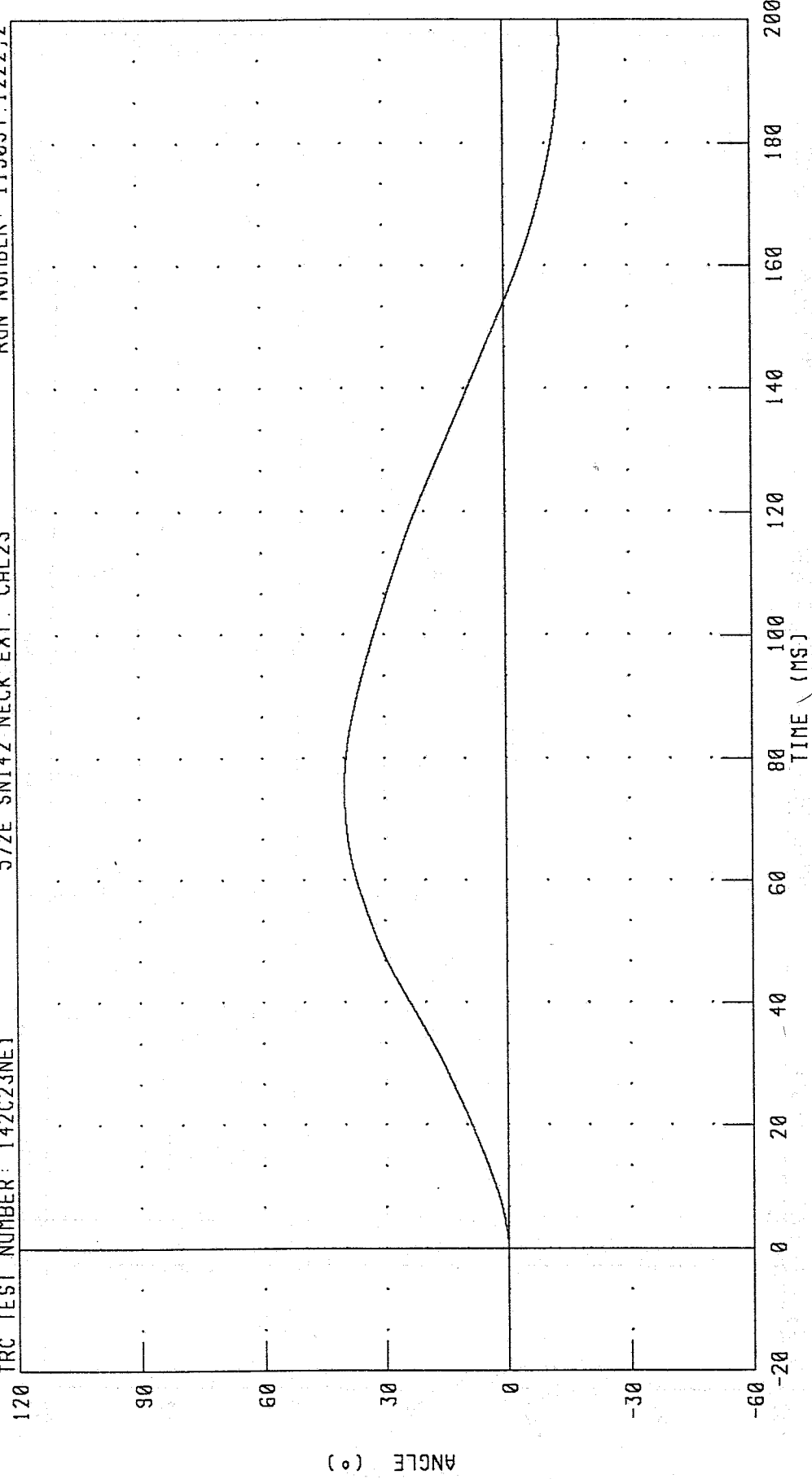
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN142 NECK EXT. CAL23

TRC TEST NUMBER: 142C23NE1

RUN NUMBER: 113094.1222;2

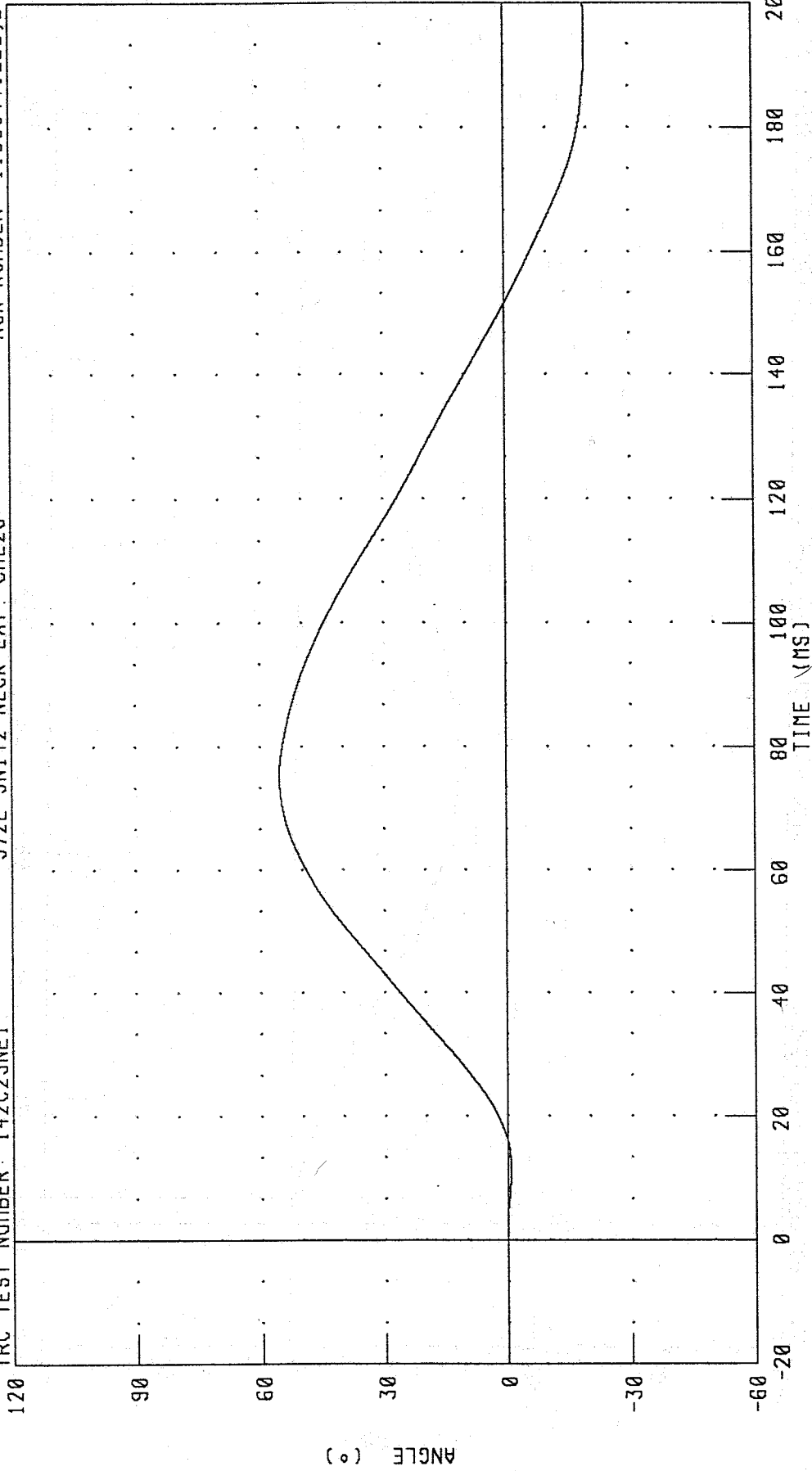


CHANNEL: BETA FILTER: CH. CLASS 60

PEAK DATA: 39.94 ° @ 74.72 MS; -13.81 ° @ 196.48 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C23NE1 572E SN142 NECK EXT CAL23 RUN NUMBER: 113094.1222;2



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 55.38 ° @ 75.20 MS; -19.44 ° @ 197.36 MS

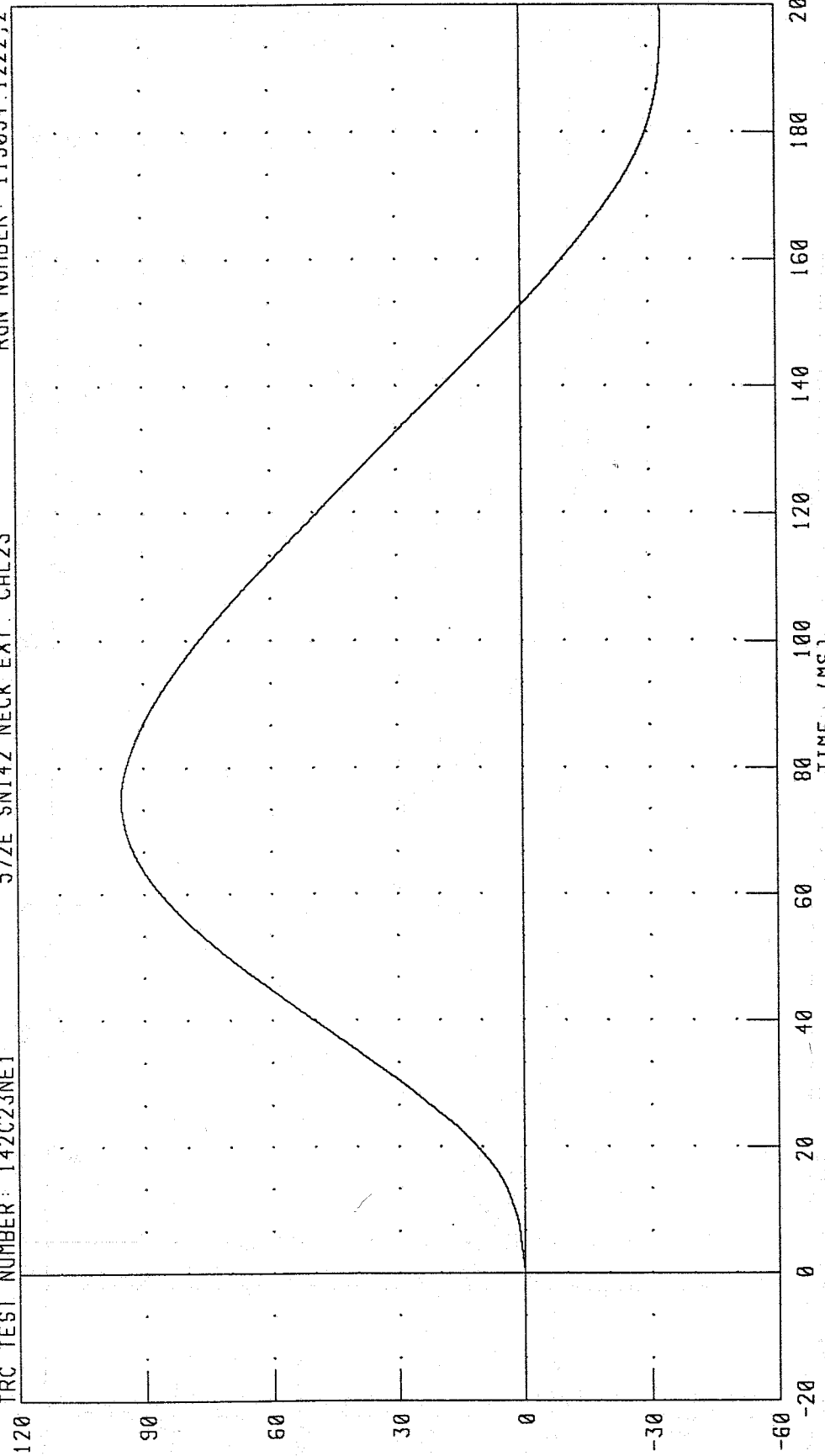
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

RUN NUMBER: 113094.1222;2

572E SN142 NECK EXT. CAL23

IRC TEST NUMBER: 142C23NE1



PEAK DATA: 95.33 ° @ 74.96 MS; -33.25 ° @ 196.72 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

ANGLE (°)

TIME (MS)

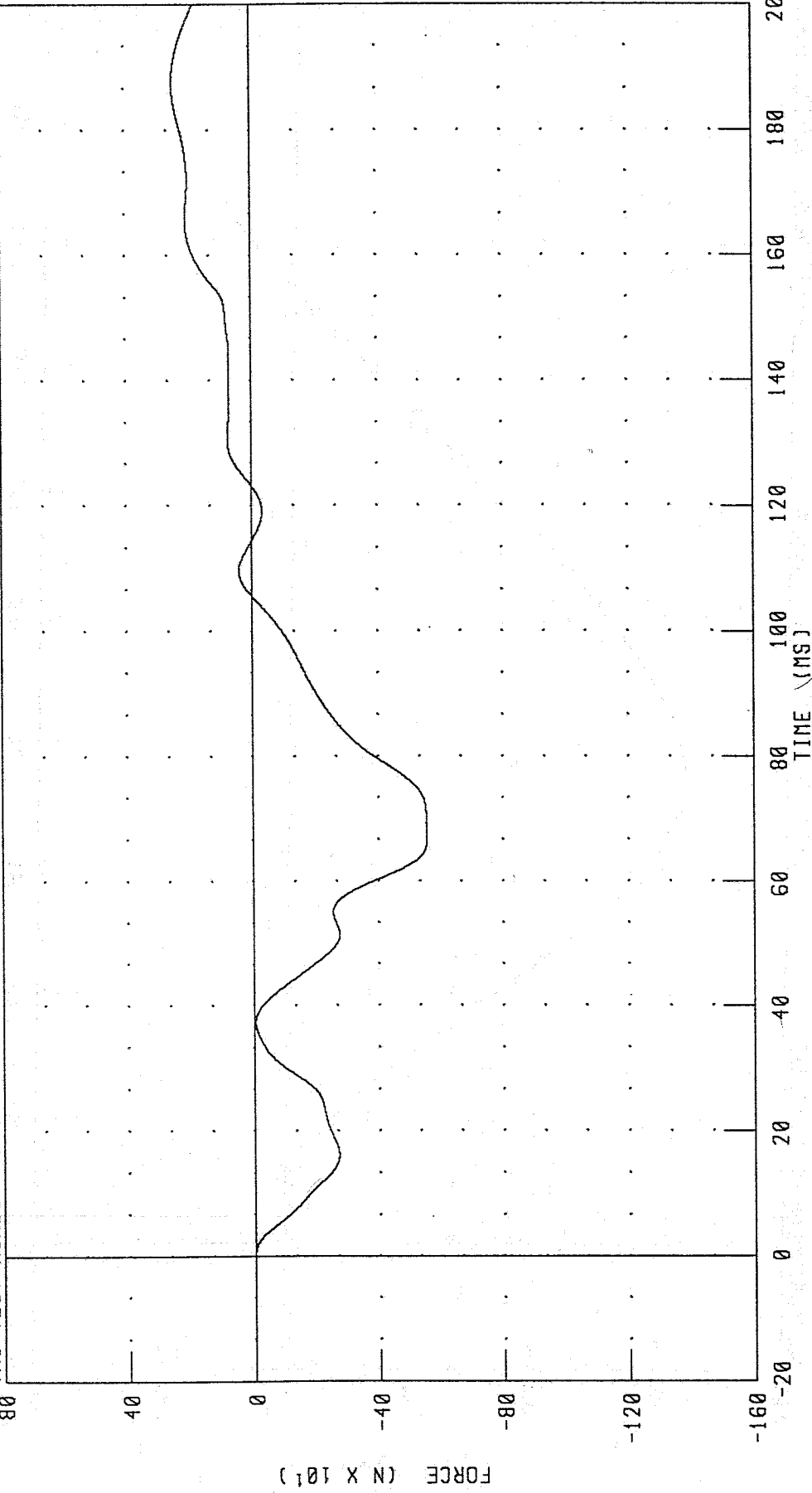
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C23NE1

572E SN142 NECK EXT. CAL23

RUN NUMBER: 113094.1222,2



CHANNEL: NEKXF FILTER: CH. CLASS 60

PEAK DATA: 246.93 N @ 187.36 MS; -556.14 N @ 66.48 MS

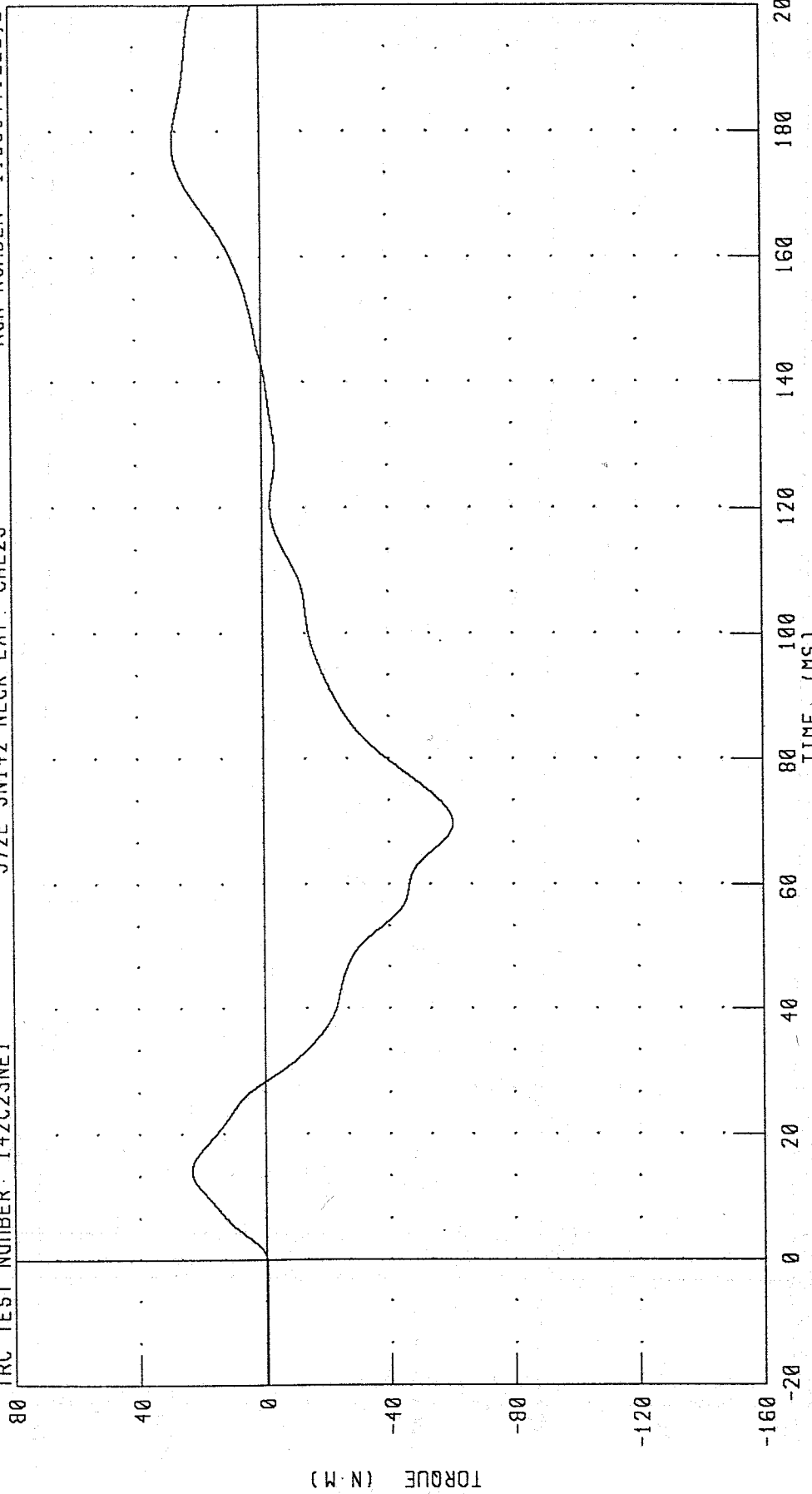
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

572E SN142 NECK EXT. CAL23

RUN NUMBER: 113094.1222,2

TRC TEST NUMBER: 142C23NE1



CHANNEL: NEKYM FILTER: CH. CLASS 60

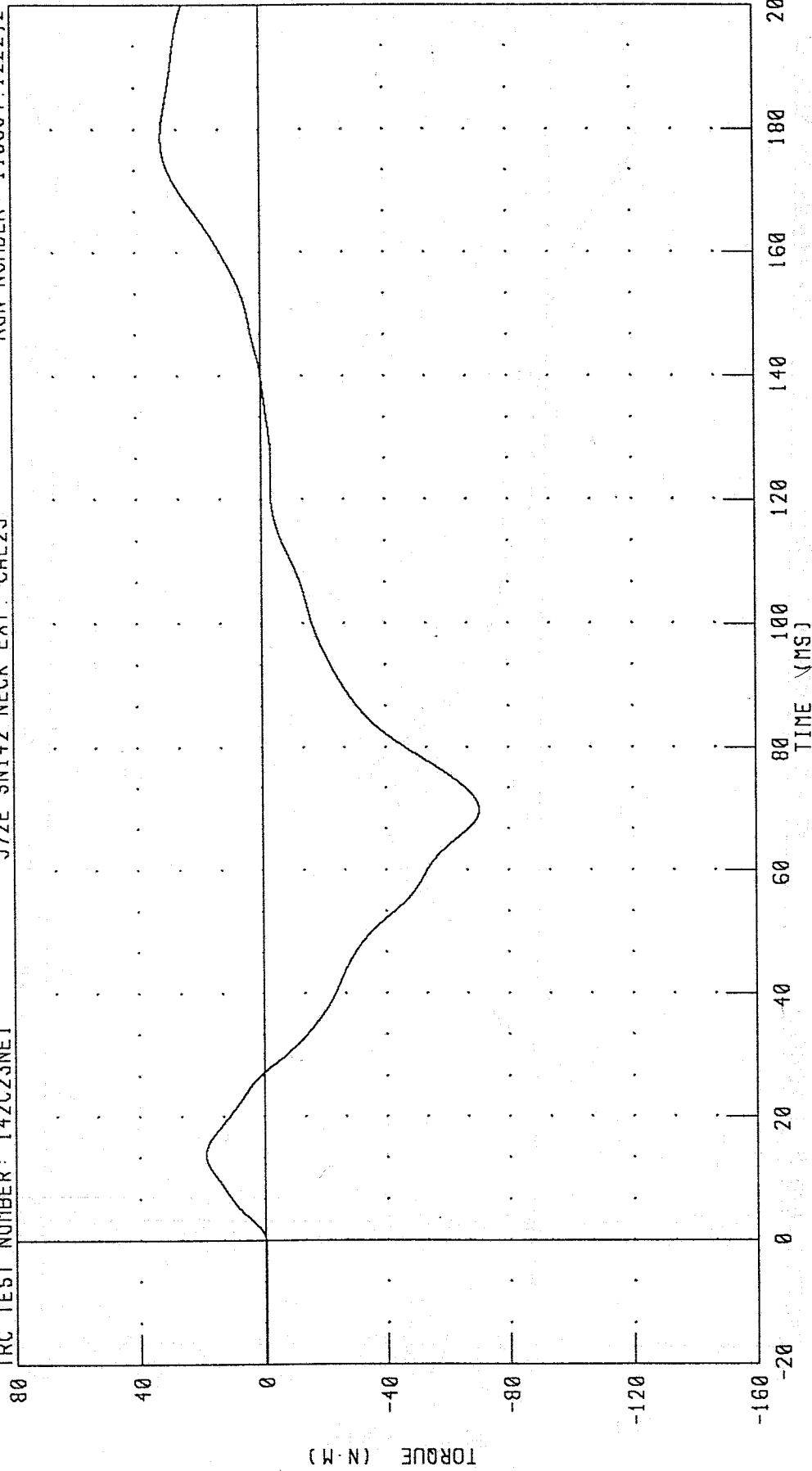
PEAK DATA: 27.85 N·M @ 178.24 MS; -60.64 N·M @ 69.76 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C23NE1

572E SN142 NECK EXT CAL23

RUN NUMBER: 113094.1222,2



PEAK DATA: 31.69 N.M @ 178.72 MS; -70.49 N.M @ 69.84 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

09-SEP-94

TRC INC.

TEST NO: 142C23TH1

572E SN142 H.S.THORAX CAL23

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	72.3 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5424. N
INTERNAL HYSTERESIS	69% - 85%	72.0%

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete F. S.

RUN NUMBER: 090994.1029;1

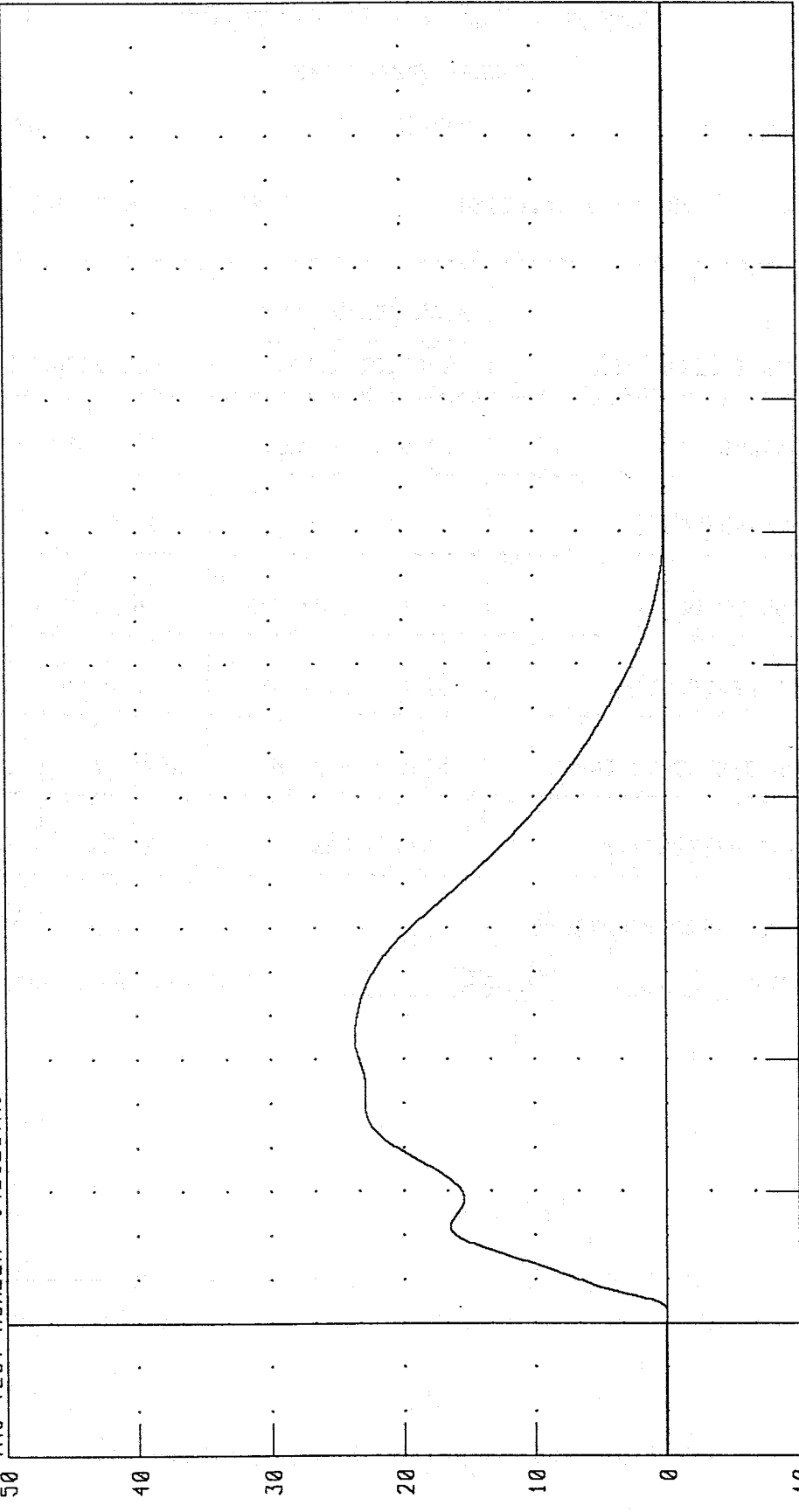
PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 142C23TH1

572E 5N142 H.S. THORAX CAL23

RUN NUMBER: 113094.1222,1



ACCELERATION (G)

TIME (MS)

PEAK DATA: 23.68 G @ 21.60 MS; -0.01 G @ 0.72 MS

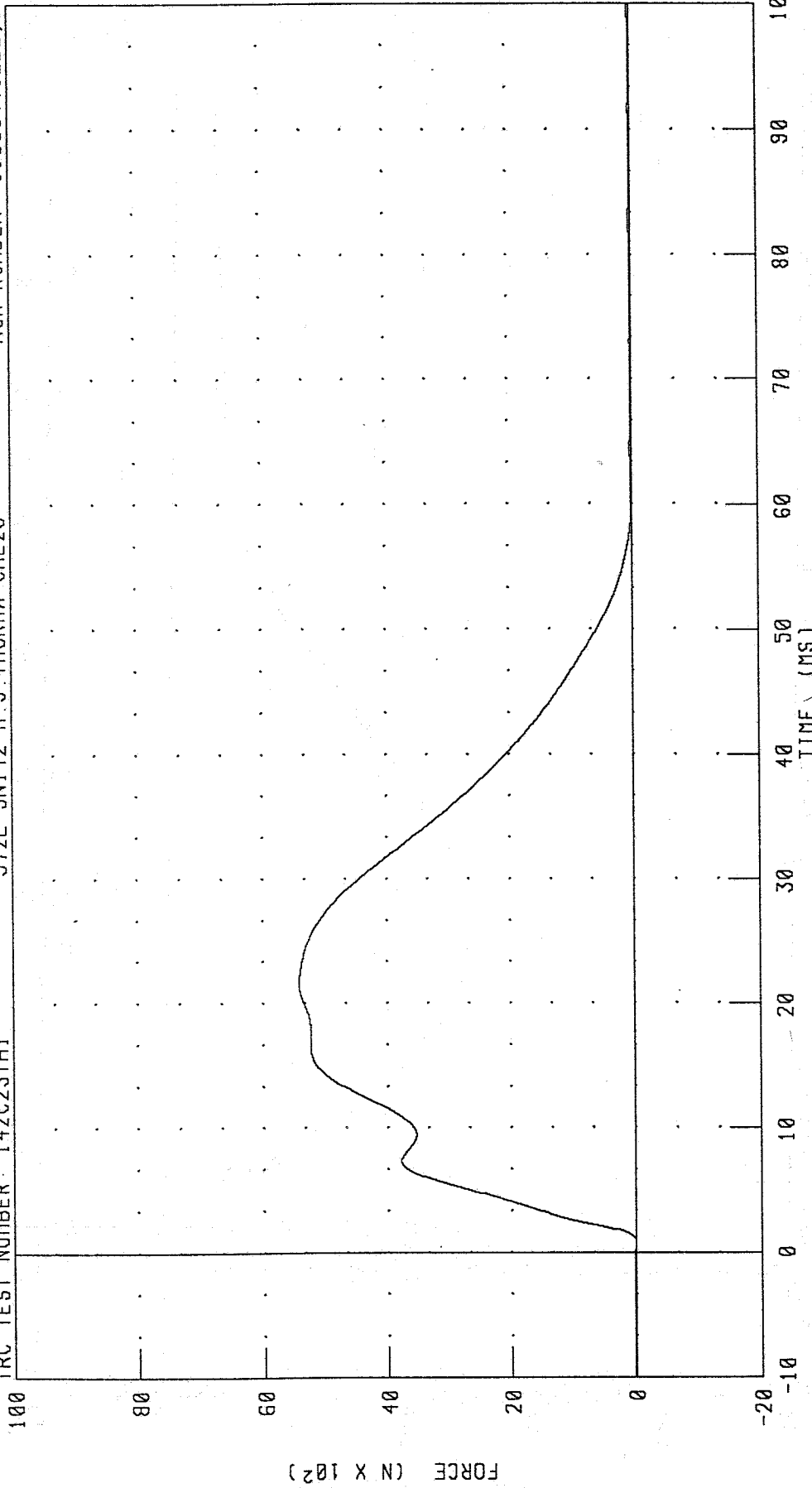
CHANNEL: PENXG FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 142C23THJ

572E 5N142 H.S. THORAX CAL23

RUN NUMBER: 113094.1222,1



PEAK DATA: 5424.69 N @ 21.60 MS; -1.88 N @ 0.72 MS

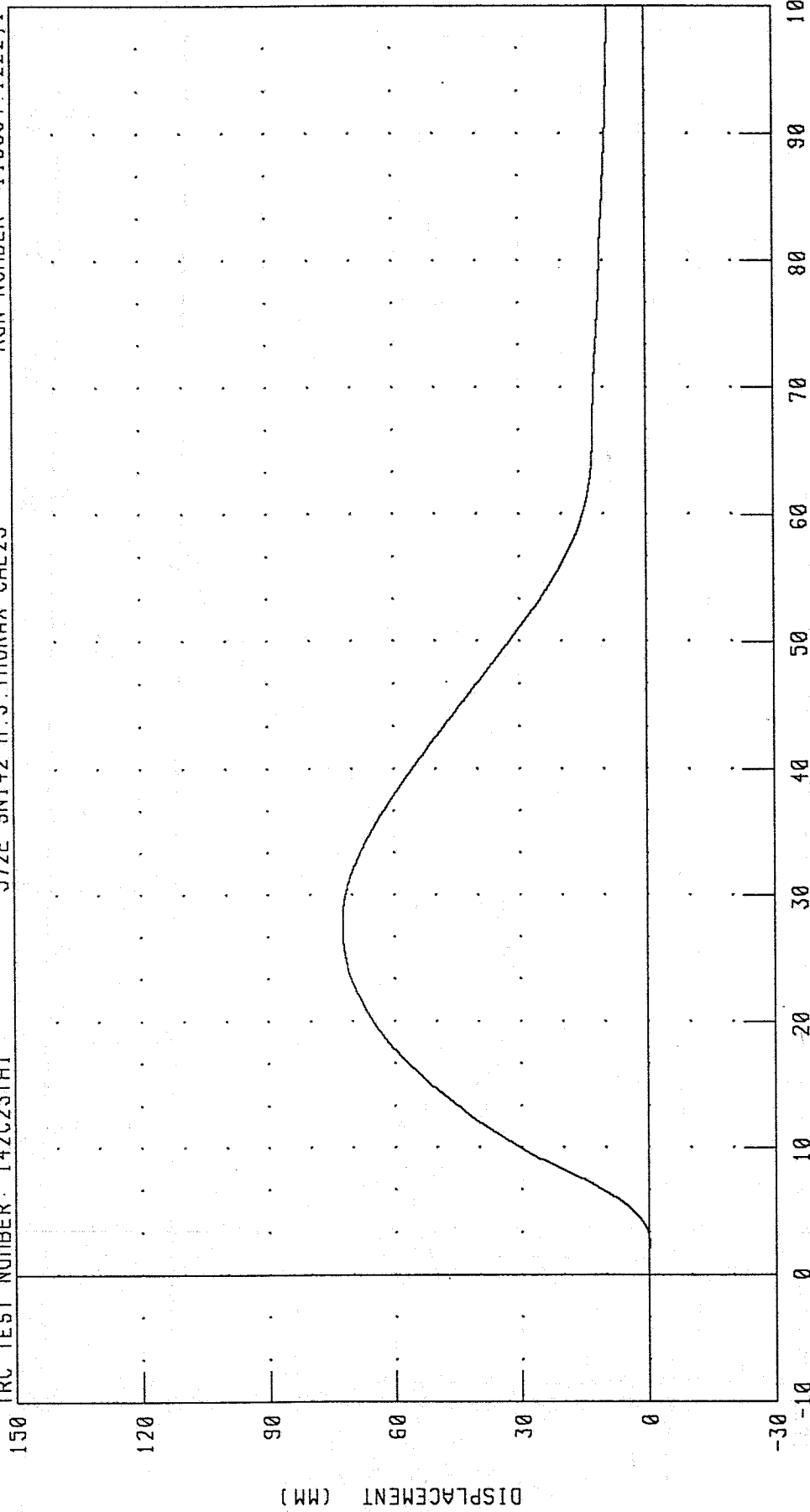
CHANNEL: PENXF FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 142C23TH1

572E SN142 H.S.THORAX CAL23

RUN NUMBER: 113094.1222,1



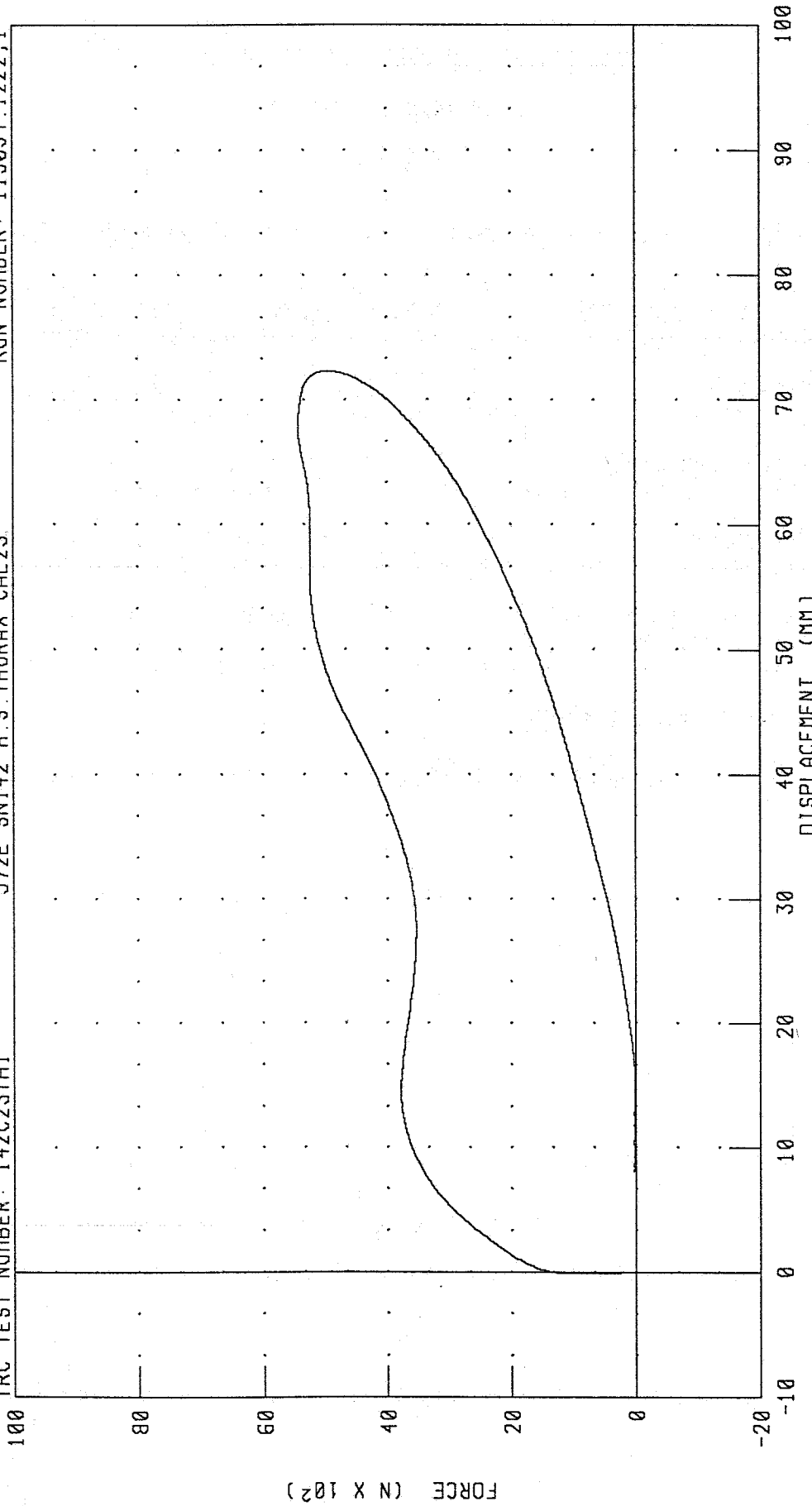
CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 72.33 MM @ 27.68 MS; -0.07 MM @ 2.56 MS

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

TRC TEST NUMBER: 142C23TH1

572E SN142 H.S. THORAX CAL23

RUN NUMBER: 113094.1222;1



CHANNEL: CSTXD FILTER: CH. CLASS 180
PENXF CH. CLASS 180
PEAK DATA: 72.33 MM @ 27.68 MS; -0.07 MM @ 2.56 MS
5424.69 N @ 21.60 MS; -1.88 N @ 0.72 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

08-SEP-94

TRC INC.

TEST NO: 142C23RK1

572E SN142 RIGHT KNEE CAL 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	60.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.09 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5214.5 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Furt

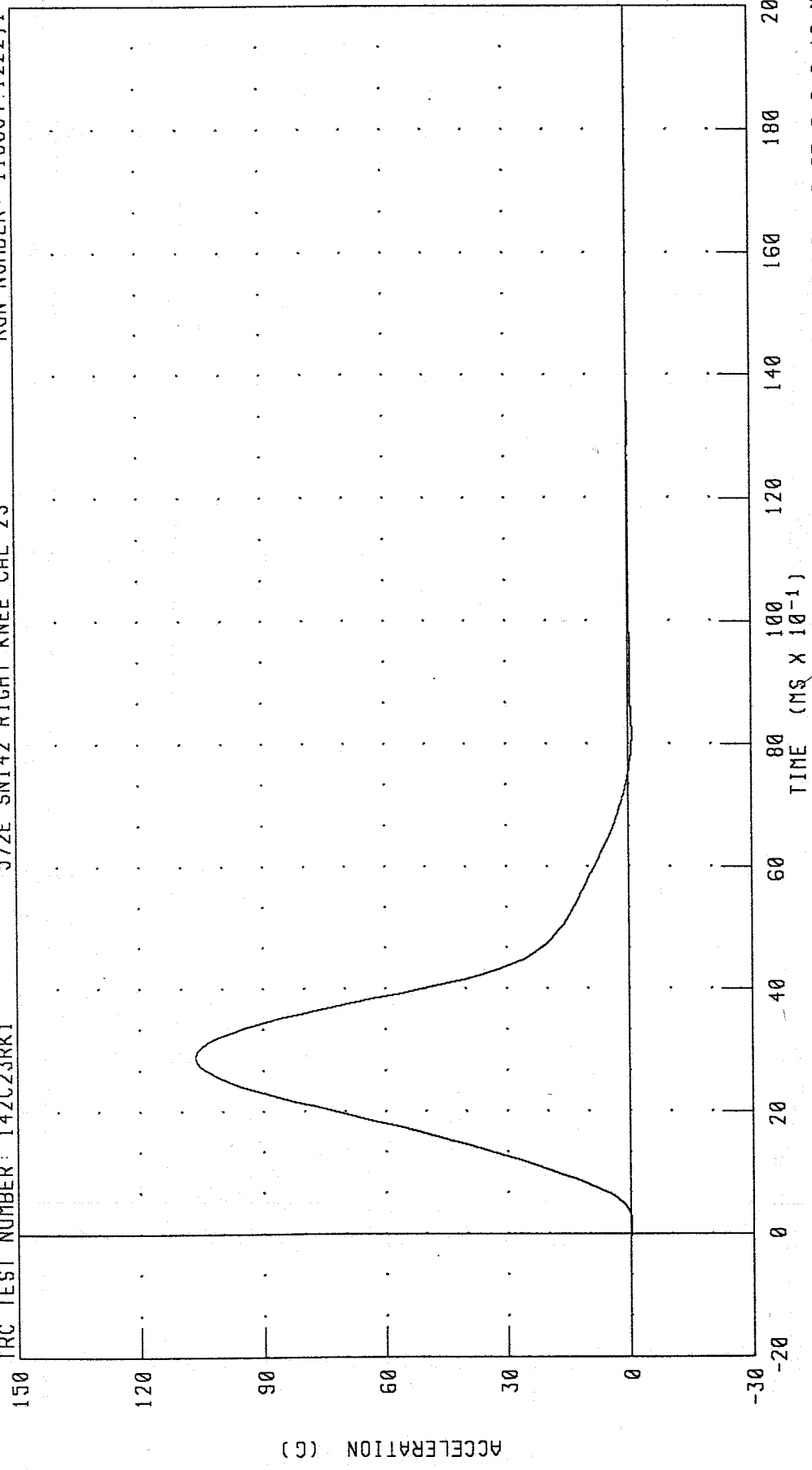
RUN NUMBER: 090894.1505;1

PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 142C23RK1

572E SN142 RIGHT KNEE CAL 23

RUN NUMBER: 113094.1222;1



CHANNEL: PENXG FILTER: CH. CLASS 600

PEAK DATA: 106.58 G @ 2.88 MS; -0.85 G @ 8.16 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN142 RIGHT KNEE CAL 23

RUN NUMBER: 113094.1222,1

TRC TEST NUMBER: 142C23RK1

75

60

45

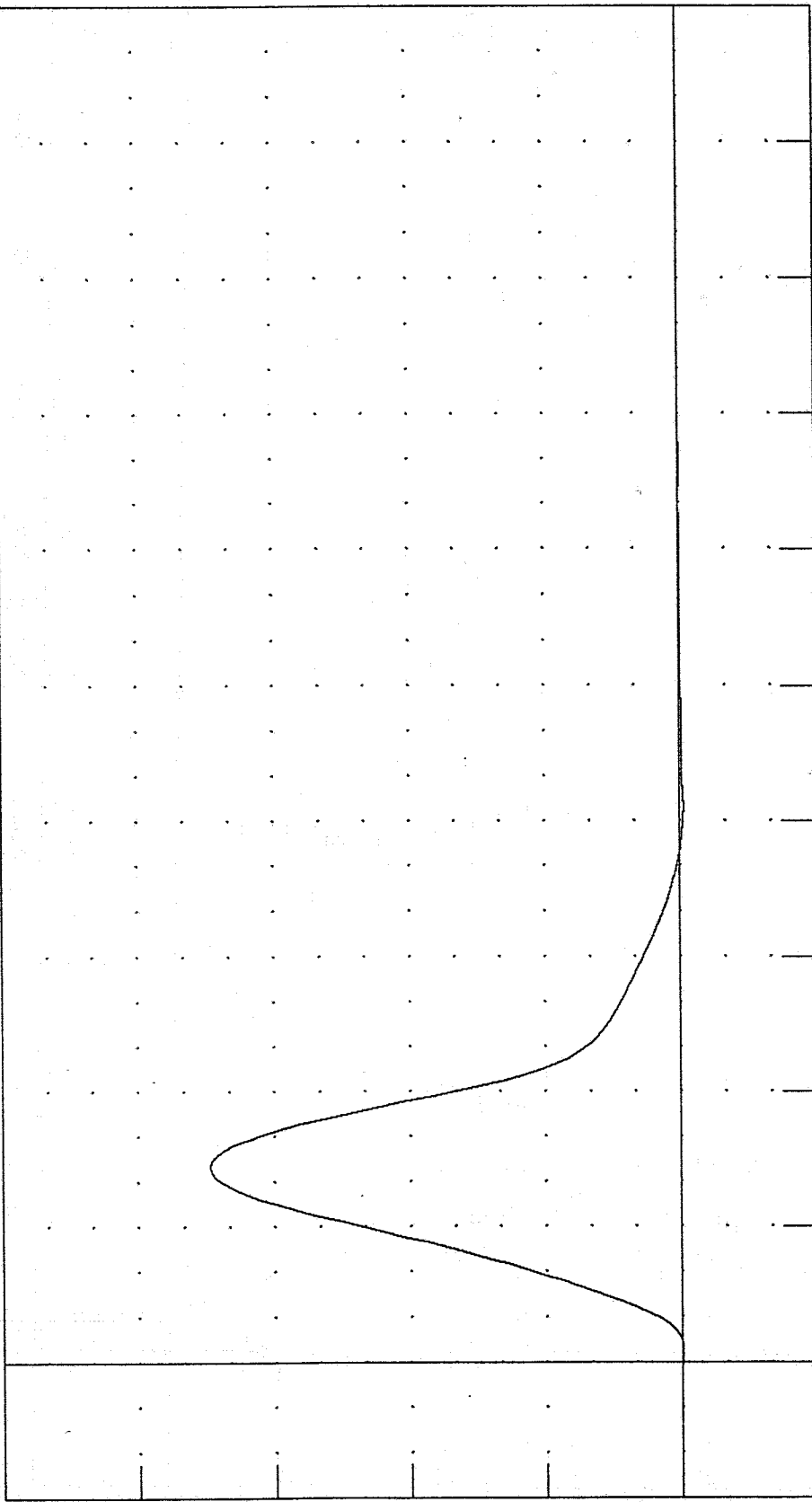
30

15

0

-15

FORCE (N X 10²)



TIME (MS X 10⁻¹)

200

180

160

140

120

100

80

60

40

20

0

CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5214.54 N @ 2.88 MS; -41.79 N @ 8.16 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

08-SEP-94

TRC INC.

TEST NO: 142C23LK1

572E SN142 LEFT KNEE CAL 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	60.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.09 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5333.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Rust

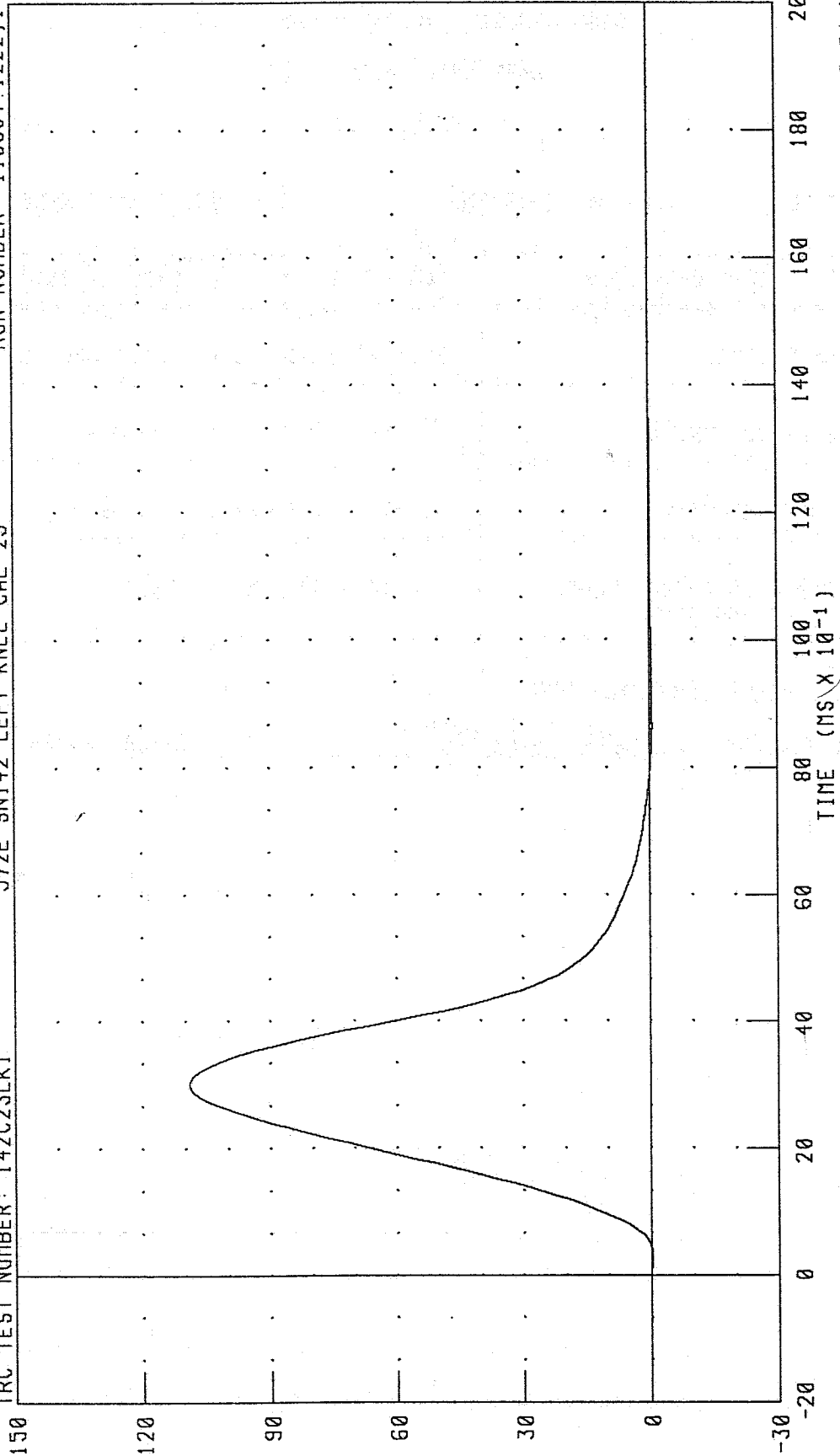
RUN NUMBER: 090894.1459;1

PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 142C23LK1

572E 5N142 LEFT KNEE CAL 23

RUN NUMBER: 113094.1222,1



ACCELERATION (G)

TIME (MS X 10⁻¹)

CHANNEL: PENXC FILTER: CH. CLASS 600

PEAK DATA: 109.01 G @ 3.04 MS; -0.57 G @ 8.64 MS

PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN142 LEFT KNEE CAL 23

RUN NUMBER: 113094.1222,1

TRC TEST NUMBER: 142C23LK1

75

60

45

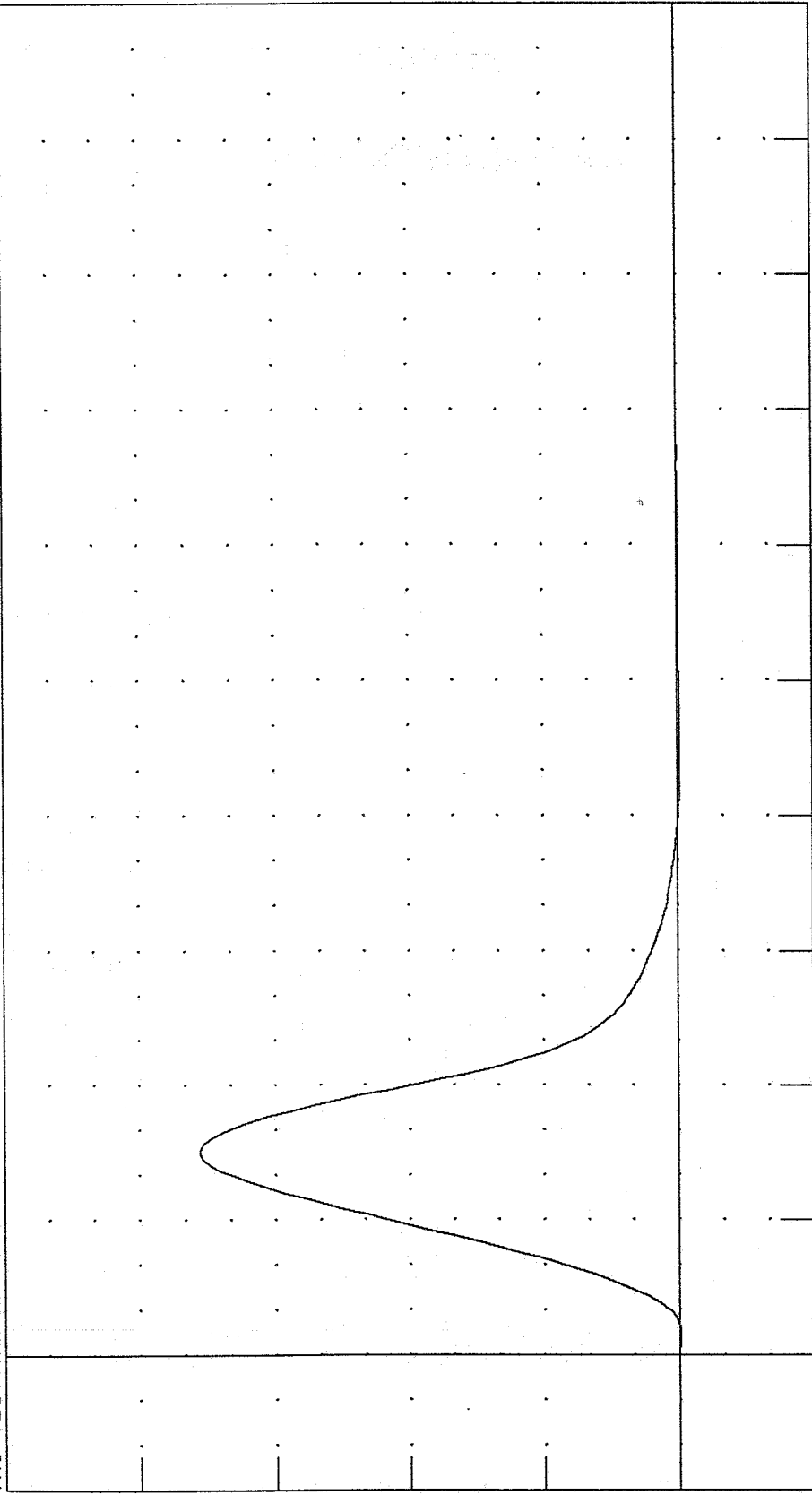
30

15

0

-15

FORCE (N X 10²)



TIME (MS X 10⁻¹)

PEAK DATA: 5333.63 N @ 3.04 MS; -27.76 N @ 8.64 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

Appendix D

Miscellaneous Test Information

Dummy Instrument Calibrations

Driver Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Head X-axis accelerometer	AAL82	7264	Endevco	08/30/94	02/28/95
Head Y-axis accelerometer	A84JJ	7264	Endevco	08/30/94	02/28/95
Head Z-axis accelerometer	DW04J	7264	Endevco	08/30/94	02/28/95
Chest X-axis accelerometer	CT22H	7264	Endevco	08/30/94	02/28/95
Chest Y-axis accelerometer	AC708	7264	Endevco	08/30/94	02/28/95
Chest Z-axis accelerometer	CW59H	7264	Endevco	08/30/94	02/28/95
Left femur force load cell	986	2430	GSE	08/30/94	02/28/95
Right femur force load cell	987	2430	GSE	08/30/94	02/28/95
Neck X-axis force load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Y-axis force load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Z-axis force load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Moment about X-axis load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Moment about Y-axis load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Moment about Z-axis load cell ¹	085	1716	Denton	08/30/94	02/28/95
Chest deflection potentiometer ¹	87313-96	81422A	Vernitech	08/30/94	02/28/95
Lap belt force load cell	571	3419	Lebow	08/19/94	02/19/95
Shoulder belt force load cell	610	3419	Lebow	08/19/94	02/19/95
Shoulder belt spool-out potentiometer	A02465	PT-101-50A	Celesco	11/02/94	05/02/95
Shoulder belt stretch potentiometer	2087	20514101	Bournes	11/02/94	05/02/95

¹Hybrid III use only.

Dummy Instrument Calibrations

Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Head X-axis accelerometer	FH25J	7264	Endevco	08/29/94	02/28/95
Head Y-axis accelerometer	CY32H	7264	Endevco	08/29/94	02/28/95
Head Z-axis accelerometer	DB81H	7264	Endevco	08/29/94	02/28/95
Chest X-axis accelerometer	A79GJ	7264	Endevco	08/29/94	02/28/95
Chest Y-axis accelerometer	AC8W6	7264	Endevco	08/29/94	02/28/95
Chest Z-axis accelerometer	CW42H	7264	Endevco	08/29/94	02/28/95
Left femur force load cell	901	2430	GSE	08/30/94	02/28/95
Right femur force load cell	902	2430	GSE	08/30/94	02/28/95
Neck X-axis force load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Y-axis force load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Z-axis force load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Moment about X-axis load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Moment about Y-axis load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Moment about Z-axis load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Chest deflection potentiometer ¹	90320B	81422A	Vernitech	08/29/94	02/28/95
Lap belt force load cell	130	3419	Lebow	08/19/94	02/19/95
Shoulder belt force load cell	615	3419	Lebow	08/19/94	02/19/95
Shoulder belt spool-out potentiometer	52	PT-101-50A	Celesco	11/02/94	05/02/95
Shoulder belt stretch potentiometer	3	20514101	Bournes	11/02/94	05/02/95

¹ Hybrid III use only.

Vehicle and Calibration Laboratory Instrument Calibrations

Vehicle Accelerometers

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left rear seat crossmember X-axis	ACCG5	7264	Endevco	07/05/94	01/05/95
Left rear seat crossmember X-axis redundant	AGRF4	7264	Endevco	07/05/94	01/05/95
Right rear seat crossmember X-axis	BW77J	7264	Endevco	09/21/94	03/21/95
Right rear seat crossmember X-axis redundant	CR59H	7264	Endevco	08/08/94	02/08/95
Engine top X-axis	AGRJ1	7264	Endevco	08/24/94	02/24/95
Engine bottom X-axis	CC71H	7264	Endevco	08/09/94	02/09/95
Right brake caliper X-axis	AGRG7	7264	Endevco	09/08/94	03/08/95
Left brake caliper X-axis	DT96JT	7264	Endevco	05/26/94	11/26/94
Instrument panel center X-axis	A19FJ	7264	Endevco	09/14/94	03/14/95

Calibration Laboratory Instruments

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco	09/26/94	03/26/95
Neck bending rotary potentiometer	NA	35435-1-102	Bournes	Mfr. Specification	
Neck bending linear potentiometer	NA	5184-2051846003	Bournes	09/26/94	03/26/95
Thorax/Hybrid II femur pendulum accelerometer	CC64	7232	Endevco	09/26/94	03/26/95
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 displacement gauge	4075-175	80294-2051941504	Bournes	09/26/94	03/26/95
Abdomen compression force gauge	3443	3167	Lebow	09/26/94	03/26/95
Hybrid III femur pendulum accelerometer	CG83	7232	Endevco	09/26/94	03/26/95

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

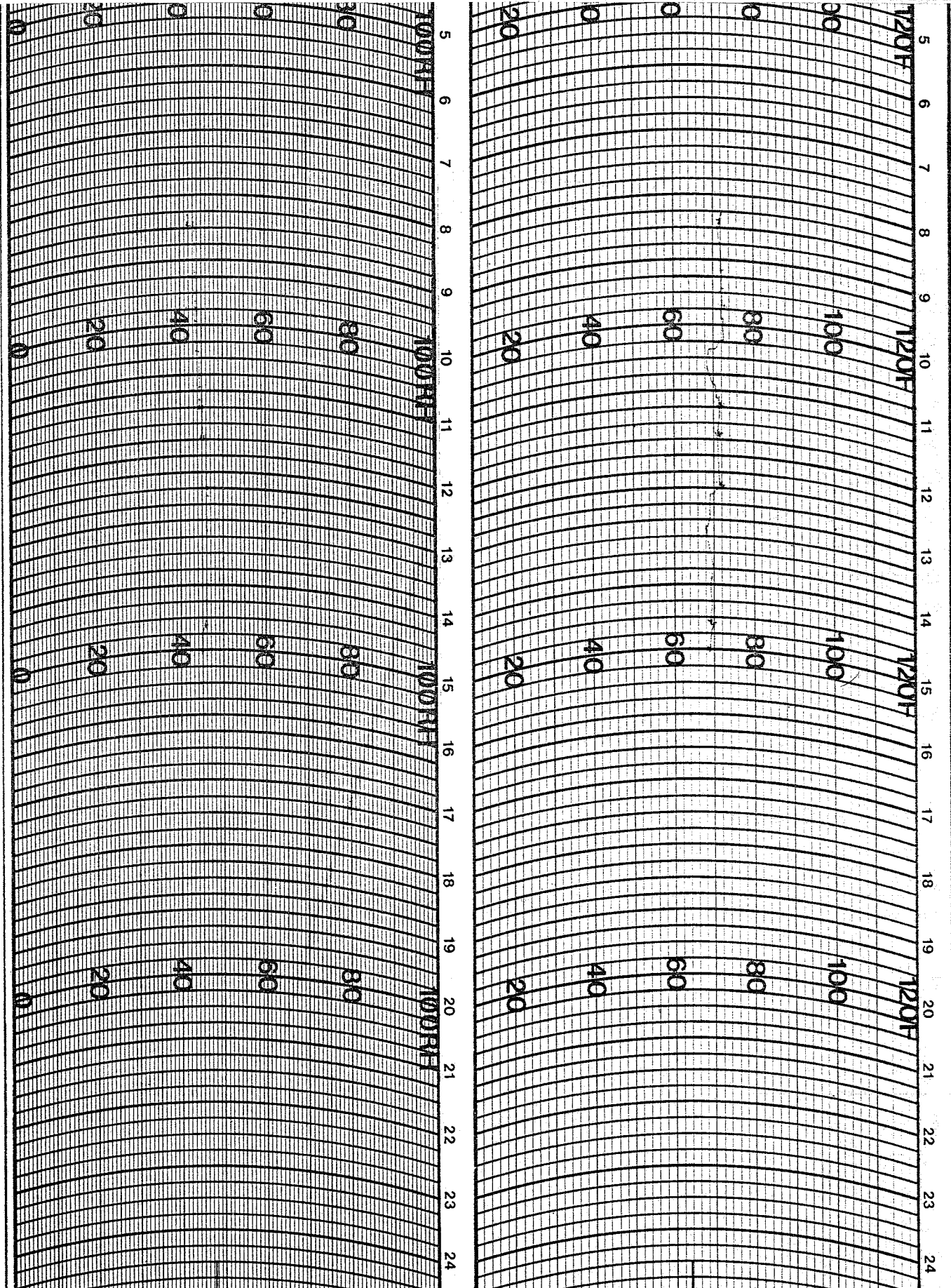
Moments 600

Displacements 180

Sled Accelerations 60

Steering Column Loads 600

Head form Accelerations 1000



WEATHER MEASURE
 P.O. BOX 41257
 SACRAMENTO, CA. 95841
 PHONE (916) 481-7565

HYGROTHERMOGRAPH
1 DAY

CHART # C311 D HF
 PART # 699123

STATION _____ DATE ON _____ DATE OFF _____