

V2221

Report Number TRC-95-N11

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Diamond-Star Motors Corporation

1995 Dodge Avenger

2-door coupe

NHTSA Number: MS0301

TRC Test Number: 950203

Prepared By:

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February 28, 1995

Final Report

Prepared For:

U. S. Department Of Transportation

National Highway Traffic Safety Administration

Office Of Market Incentives

Room No. 5313 (NRM-22)

400 Seventh Street, S.W.

Washington, D.C. 20590

10887

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1. Report No. TRC-95-N11	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle New Car Assessment Program (NCAP), Frontal Barrier Impact Test of a 1995 Dodge Avenger 2-door coupe, NHTSA No. MS0301		5. Report Date February 28, 1995	
		6. Performing Organization Code TRC	
7. Author(s) C. A. Markusic, Senior Project Engineer, TRC		8. Performing Organization Report No. TRC-95-N11	
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. DTNH22-90-D-22121	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Market Incentives 400 Seventh St., Washington, DC 20590		13. Type of Report and Period Covered Final Report February 1995	
		14. Sponsoring Agency Code NRM-22	
15. Supplemental Notes			
16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1995 Dodge Avenger 2-door coupe, NHTSA No. MS0301, at Transportation Research Center Inc. on February 3, 1995. 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 56.2 kph. The vehicle's maximum static crush was 470 millimeters. The ambient temperature was 23° C. The driver's Head Injury Criteria (HIC) was 408. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 41.7 g. The driver's chest maximum deflection was 34 millimeters. The driver's left and right femur maximum axial forces were 5146 N and 4031 N, respectively. The passenger's HIC was 277. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 35.2 g. The passenger's chest maximum deflection was 23 millimeters. The passenger's left and right femur maximum axial forces were 6823 N and 4046 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	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. Number of Pages 297	22. Price

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

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

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
in	inches	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
m ³	cubic meters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

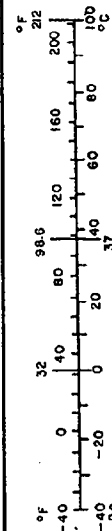


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Section 1.0

Purpose and Test Procedure

Purpose

This 56 kph (35 mph) frontal barrier impact test is part of the New Car Assessment Program (NCAP) conducted for the National Highway Traffic Safety Administration's (NHTSA) Office of Market Incentives by Transportation Research Center Inc. (TRC) under Contract 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 Dodge Avenger 2-door coupe, NHTSA Number MS0301, 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 load cells to measure lap and shoulder belt forces and potentiometers to measure shoulder belt stretch and spoolout. 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 second use of the driver dummy and the second use of the passenger dummy.

Both dummies were instrumented with head, chest, and pelvis 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-nine (89) 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 fourteen (14) 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 February 3, 1995.

The test vehicle, a 1995 Dodge Avenger 2-door coupe, NHTSA Number MS0301, was equipped with a 2.0-liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1516 kg. The vehicle's impact speed was 56.2 kph. The vehicle sustained 470 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 408. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 41.7 g. The driver's chest maximum deflection was 34 mm. The driver's left and right femur maximum axial forces were 5146 N and 4031 N, respectively.

The passenger's HIC was 277. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 35.2 g. The passenger's chest maximum deflection was 23 mm. The passenger's left and right femur maximum axial forces were 6823 N and 4046 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 driver's pelvis Y-axis accelerometer, PEVYG1, recorded questionable data during the impact event. The questionable data affected the driver's pelvis resultant acceleration calculation, PEVRG1.

The right front passenger's pelvis X-, Y-, and Z-axis accelerometers, PEVXG2, PEVYG2, and PEVZG2, did not return to zero following the crash event. These signals affected the right front passenger's pelvis resultant acceleration calculation, PEVRG2.

Table 1 Crash Test Summary

NHTSA number:	MS0301	
Test type:	Frontal Load Cell Barrier	
Test date:	02/03/95	
Test time:	1443	
Ambient temperature:	23° C	
Vehicle year/make/ model/body style:	1995/Dodge/Avenger/2-door coupe	
Vehicle test weight:	1516 kg	
Impact angle ¹ :	0°	
Impact velocity ² :	Primary = 56.2 kph Secondary = 56.2 kph	
Maximum static crush:	470 mm	
Average rebound:	998 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:	89	
Number of cameras:	High-speed 14 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/Dodge/Avenger/2-door coupe

Color: White

VIN: 4B3AU42Y5SE116285

NHTSA number: MS0301

Engine data:

 Placement: Transverse

 Cylinders: 4

 Displacement 2.0 liters

Transmission data: 4 speed, __manual, X automatic, __overdrive
 X FWD, __RWD, __4WD

Date vehicle received: 01/26/95

Odometer reading: 68

Dealer's name Trader Bud's Westside Dodge
 and address: 4000 West Broad St.
 Columbus, OH 43228

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	None		

Certification data from vehicle's label:

Vehicle manufactured by: Diamond-Star Motors Corporation

Date of manufacture: 12/94

VIN: 4B3AU42Y5SE116285

GVWR: 1780 kg

GAWR: Front: 980 kg

 Rear: 800 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P195/70R14

Tire pressure with maximum
capacity vehicle load:

Front: 300 kPa

Rear: 300 kPa

Spare tire: Goodyear T125/70D15

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P195/70R14

Recommended cold tire pressure:

Front: 220 kPa

Rear: 200 kPa

Designated seating capacity:

Front 2

Rear 3

Total 5

Vehicle capacity weight: 375 kg

Test vehicle attitude:

Delivered attitude: LF 707 mm; RF 710 mm; LR 704 mm; RR 704 mm

Pre-test attitude: LF 685 mm; RF 695 mm; LR 675 mm; RR 685 mm

Post-test attitude: LF 710 mm; RF 807 mm; LR 668 mm; RR 668 mm

Table 2 Test Vehicle Information Cont'd

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

Right front	418 kg	Right rear	241 kg
Left front	426 kg	Left rear	254 kg
Total front weight	844 kg	(63.0% of total vehicle weight)	
Total rear weight	495 kg	(37.0% of total vehicle weight)	
Total delivered weight	1339 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated cargo and luggage weight

UDW = Unloaded delivered weight (1339 kg)

VCW¹ = Vehicle capacity weight (375 kg)

DSC = Designated seating capacity (5)

RCLW = VCW - 68 (DSC) = 375 - 68(5) = 35 kg

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

Target test weight = 1339 + 35 + 152

Target test weight = 1526 kg

Weight of test vehicle with required dummies and 25 kg of cargo weight:

Right front	443 kg	Right rear	301 kg
Left front	462 kg	Left rear	310 kg
Total front weight	905 kg	(59.7% of total vehicle weight)	
Total rear weight	611 kg	(40.3% of total vehicle weight)	
Total test weight	1516 kg	(0.7 % under target test weight)	

Weight of ballast secured in vehicle: 0 kg

Components removed to meet target test weight: Trunk lid, rear bumper

CG rearward of front wheel centerline: 1064 mm

Vehicle wheelbase: 2640 mm

¹ From the vehicle's recommended tire pressure label.

Table 3 Post-Impact Data

Test number: 950203
NHTSA number: MS0301
Test date: 02/03/95
Test time: 1443
Test type: Frontal load cell barrier
Impact angle: 0°
Ambient temperature
at impact area: 23° C
Temperature in
occupant compartment: 20° C
Impact velocity:
 Primary 56.2 kph
 Secondary 56.2 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:

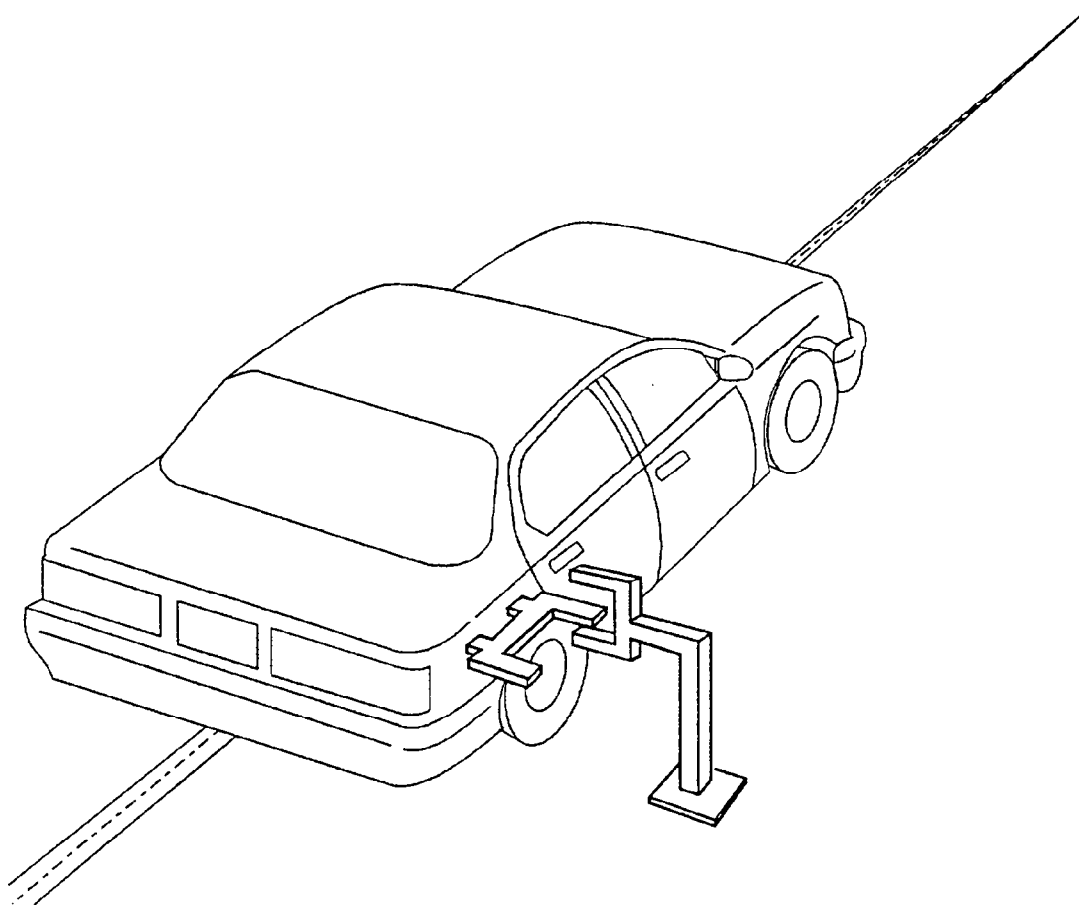
Pre-test: L 4531 mm; C 4730 mm; R 4531 mm
Post-test: L 4269 mm; C 4293 mm; R 4203 mm
Total crush: L 262 mm; C 437 mm; R 328 mm
Average crush: 342 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test: L 1050 mm; C 940 mm; R 1004 mm
Average rebound 998 mm

Figure 1 Impact Velocity Measurement System



The final vane clears the final 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: MS0301
 Test date: 02/03/95
 Vehicle year/make/
 model/body style: 1995/Dodge/Avenger/2-door coupe
 Vehicle size category: Compact
 VIN: 4B3AU42Y5SE116285
 Build date: 12/94
 Test weight: 1516 kg
 Vehicle wheelbase: 2640 mm
 Maximum width: 1730 mm
 Front overhang: 904 mm

Collision Deformation
 Classification (CDC) code: 12FDEW2

Crush depth
 measurements:

C1	=	262 mm
C2	=	412 mm
C3	=	432 mm
C4	=	450 mm
C5	=	470 mm
C6	=	328 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1448 mm

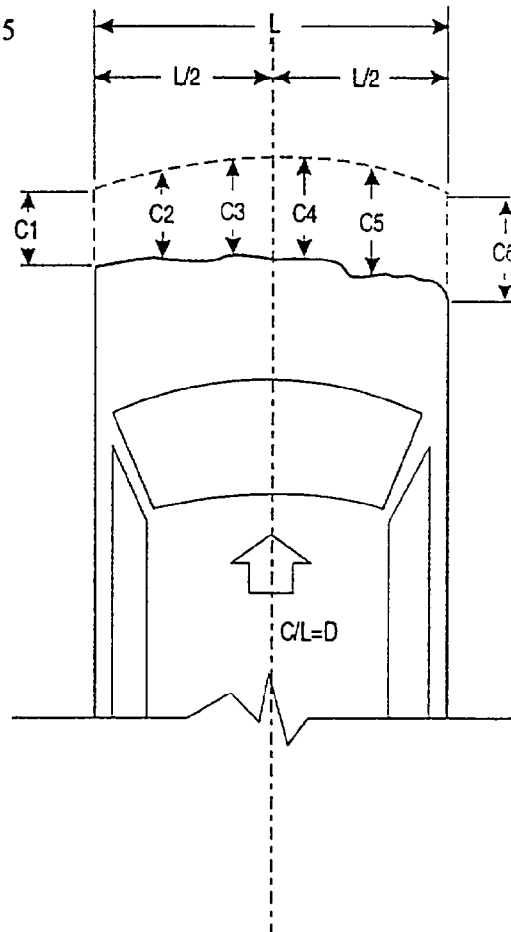
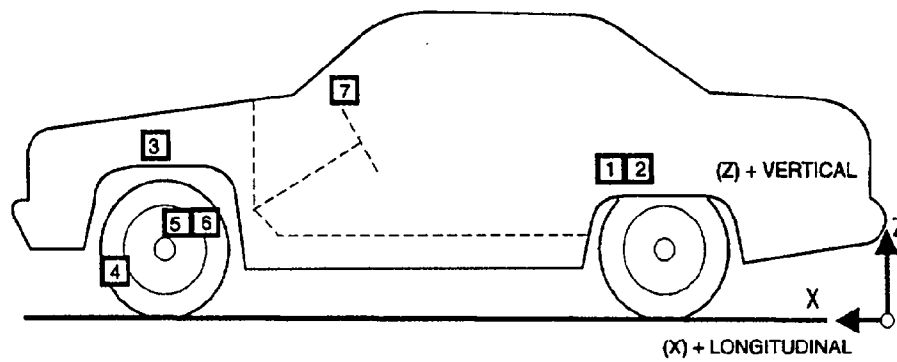
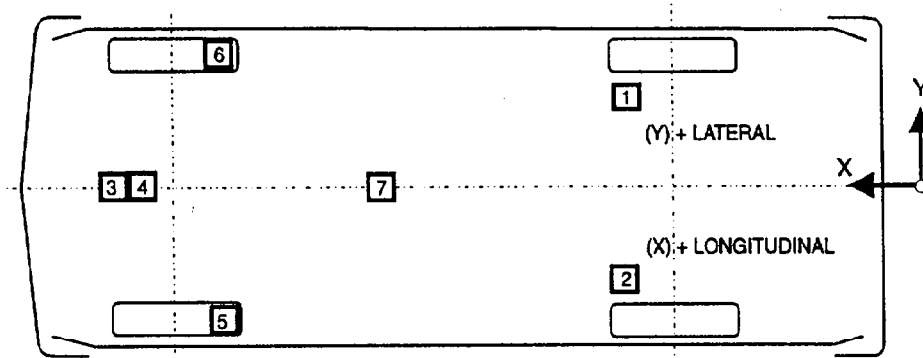


Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 950203					POSITIVE DIRECTION		NEGATIVE DIRECTION	
No. LOCATION	X	Y	Z					
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	2850 mm	290 mm	428 mm		4.4 g @ 129.9 ms 4.5 g @ 130.0 ms	35.9 g @ 56.2 ms 35.4 g @ 56.2 ms		
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	2850 mm	-301 mm	431 mm		3.7 g @ 130.4 ms 4.5 g @ 130.4 ms	38.2 g @ 55.9 ms 37.0 g @ 55.9 ms		
3 ENGINE TOP LONGITUDINAL	780 mm	-75 mm	799 mm		36.4 g @ 43.8 ms	137.3 g @ 33.1 ms		
4 ENGINE BOTTOM LONGITUDINAL	709 mm	251 mm	170 mm		25.7 g @ 38.3 ms	159.2 g @ 28.0 ms		
5 RIGHT BRAKE CALIPER LONGITUDINAL	862 mm	-671 mm	289 mm		30.9 g @ 65.2 ms	80.4 g @ 43.1 ms		
6 LEFT BRAKE CALIPER LONGITUDINAL	874 mm	670 mm	285 mm		49.8 g @ 64.3 ms	128.0 g @ 44.4 ms		
7 INSTRUMENT PANEL CENTER LONGITUDINAL	1520 mm	0 mm	931 mm		3.9 g @ 136.2 ms	85.0 g @ 45.9 ms		

* X-AXIS LOCATIONS ARE MEASURED REARWARD FROM THE FRONT BUMPER.

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

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver #192</u>	<u>Passenger #142</u>
Head	Airbag	Airbag
Chest	Airbag	Airbag
Abdomen	None	None
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door Opening:

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

Seat Movement:

	<u>Seat Back Failure</u>	<u>Seat Shift</u>
Front	None	Both inboard seat tracks shifted forward 6 inches
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/Dodge/Avenger/2-door coupe
Vehicle NHTSA number: MS0301
Test date: 02/03/95

	Driver Dummy #192		Passenger Dummy #142	
<u>Maximum Accelerations:</u>				
Head X-axis	-48.9	g	-47.4	g
Head Y-axis	13.9	g	28.1	g
Head Z-axis	-23.1	g	-24.1	g
Head resultant	51.2	g	51.5	g
Chest X-axis	-42.9	g	-34.7	g
Chest Y-axis	8.2	g	14.3	g
Chest Z-axis	9.9	g	19.6	g
Chest resultant ¹	41.7	g	35.2	g
Chest resultant time interval ¹	.003	sec	.003	sec
<u>Head Injury Criteria (HIC) Values:</u>				
HIC ²	408		277	
HIC starting time	.051	sec	.038	sec
HIC ending time	.087	sec	.074	sec
Avg. head resultant accel. during HIC time interval	41.8	g	35.8	g
<u>Maximum Chest Deflections:</u>				
Chest X-axis	34	mm	23	mm
Maximum chest deflection time	.064	sec	.061	sec
<u>Maximum Compressive Femur Forces:</u>				
Left femur	5146	N	6823	N
Right femur	4031	N	4046	N
<u>Maximum Seat Belt Forces:</u>				
Lap belt	1847	N	2635	N
Shoulder belt	3638	N	3547	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 and Pelvis Data Summary

Vehicle year/make/
model/body style: 1995/Dodge/Avenger/2-door coupe
Vehicle NHTSA number: MS0301
Test date: 02/03/95

	Driver Dummy #192	Passenger Dummy #142
<u>Maximum Values:</u>		
Neck X-axis force	-719 N	-1280 N
Neck Y-axis force	-163 N	-951 N
Neck Z-axis force	1586 N	-1082 N
Neck moment about X-axis	17 N-m	-32 N
Neck moment about Y-axis	88 N-m	134 N
Neck moment about Z-axis	14 N-m	43 N
<u>Maximum Accelerations:</u>		
Pelvis X-axis ¹	-52.9 g	-80.1 g
Pelvis Y-axis ¹	NA	-29.6 g
Pelvis Z-axis ¹	28.2 g	-32.8 g
Pelvis resultant ¹	NA	80.5 g

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

¹ See data acquisition explanations.

Dummy Kinematic Summary

Driver Dummy

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

Right Front Passenger Dummy

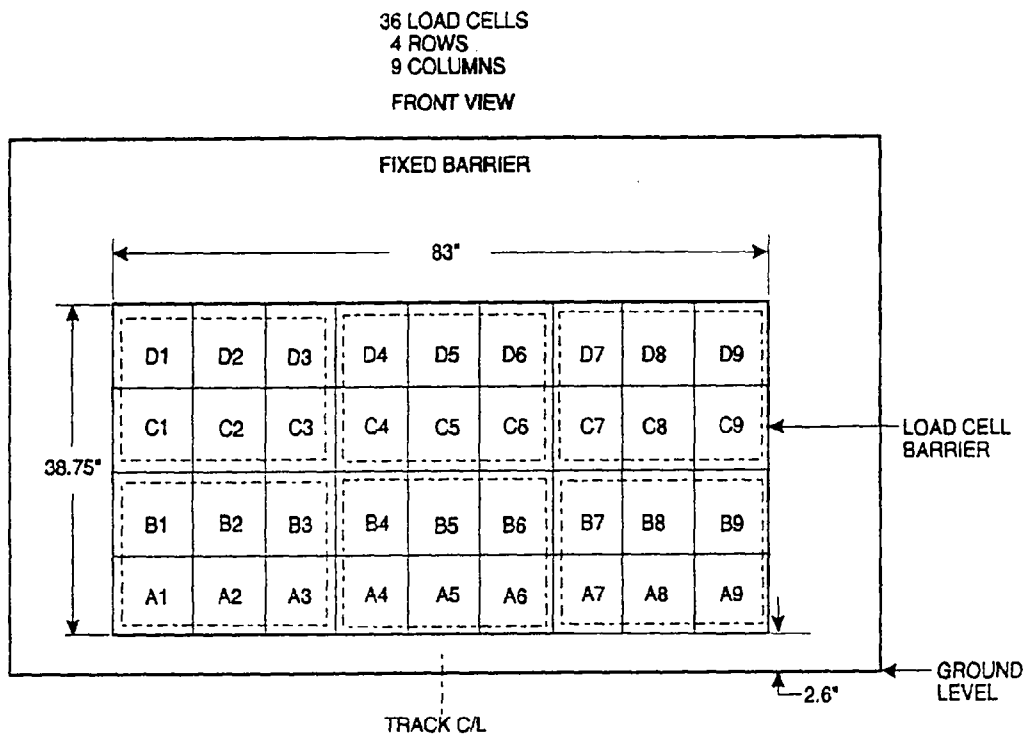
Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag with the dummy's head rotating rearward. The right front passenger was restrained by the passenger's airbag and three-point unbelt.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

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.	2270 mm	2340 mm
Shoulder belt length as measured on Part 572 dummy.	NA mm	NA mm
Lap belt length as measured on Part 572 dummy.	NA mm	NA mm
<u>Shoulder belt spool-off length:</u>		
As determined by film analysis ¹	NA	NA
As determined mechanically	71 mm	62 mm
As determined electronically	83 mm	81 mm
<u>Belt stretch length:</u>		
As measured mechanically	0 mm	0 mm
As measured electronically	0 mm	5 mm
<u>Retractor lock-up time:</u>		
As determined by shoulder belt spool-off ^d	NA	NA

¹ Onboard cameras were not used to achieve the target test weight.

Figure 4 Load Cell Barrier Configuration



- 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	3.6 kN @ 2.6 ms	130.1 kN @ 15.4 ms
Total group 2	0.8 kN @ 254.6 ms	290.7 kN @ 29.4 ms
Total group 3	2.9 kN @ 2.8 ms	128.7 kN @ 27.8 ms
Total group 4	1.3 kN @ 226.0 ms	29.4 kN @ 37.2 ms
Total group 5	1.7 kN @ 2.3 ms	38.1 kN @ 10.7 ms
Total group 6	1.4 kN @ 142.3 ms	33.9 kN @ 35.0 ms
Total load cell force	4.0 kN @ 210.0 ms	543.6 kN @ 28.2 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.:

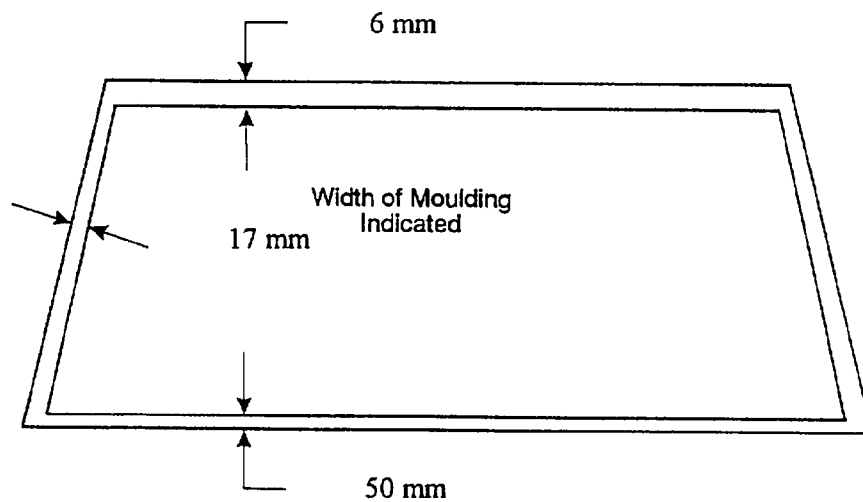
Plastic trim around outer perimeter, adhesive around inner perimeter.

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	2100 mm	2100 mm	100
Left side	2100 mm	2100 mm	88.5
Total	4200 mm	4200 mm	94.3

Pre-test windshield mounting material temperature: 20° C



Front view of windshield¹

Loss of windshield retention lengths: None

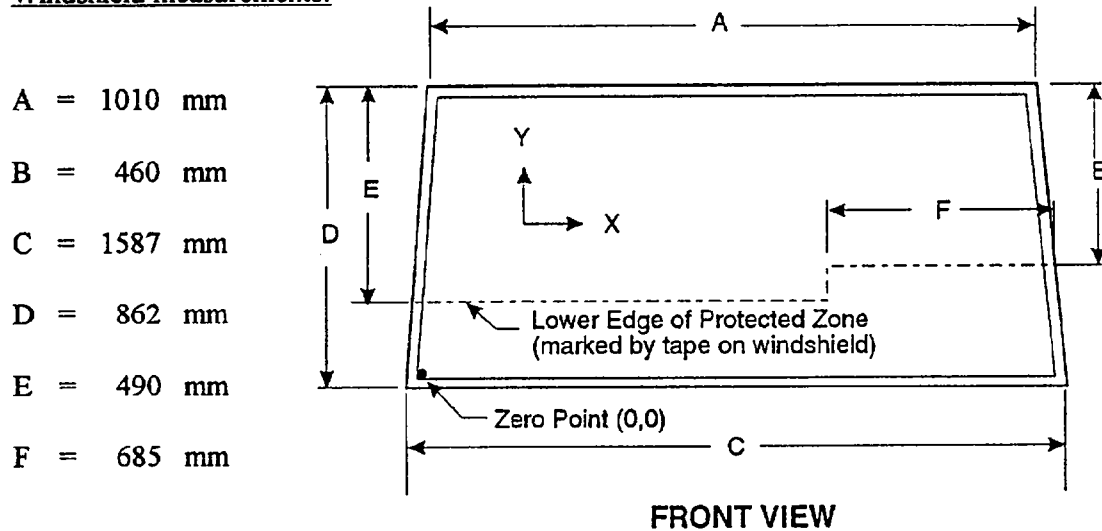
¹ Indicate areas of loss of retention, if any, on windshield diagram.

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:



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/Dodge/Avenger/2-door coupe
NHTSA number:	MS0301
Fuel system capacity:	64.0 liters (from owner's manual)
Usable capacity:	64.0 liters (furnished by COTR)
Test volume range:	58.9 liters to 60.2 liters (92-94% of usable)
Actual test volume:	59.4 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 in front of the rear axle.
 The fuel filler neck is located on the right side.
 The fuel lines run along the right side to the front.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MS0301
Test date: 02/03/95
Vehicle year/make/
model/body style: 1995/Dodge/Avenger/2-door coupe

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:

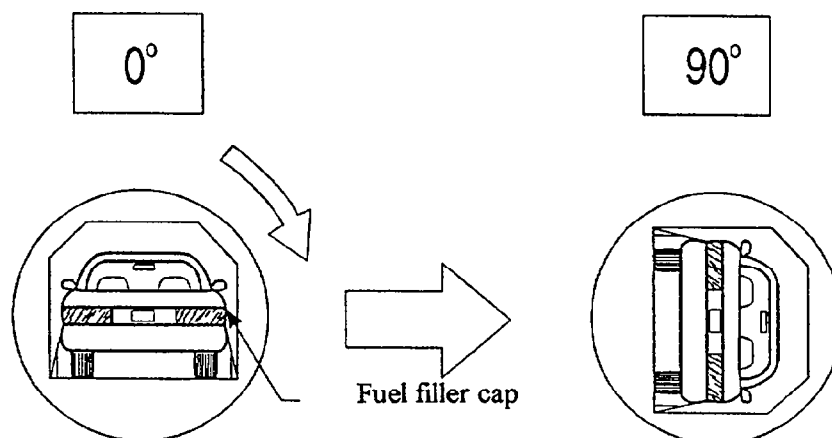
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 g	28 g
2. 5-minute period after vehicle motion ceases	0 g	142 g
3. Next 25 minutes after 5-minute period	0 g	28 g/min

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data

NHTSA number: MS0301

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

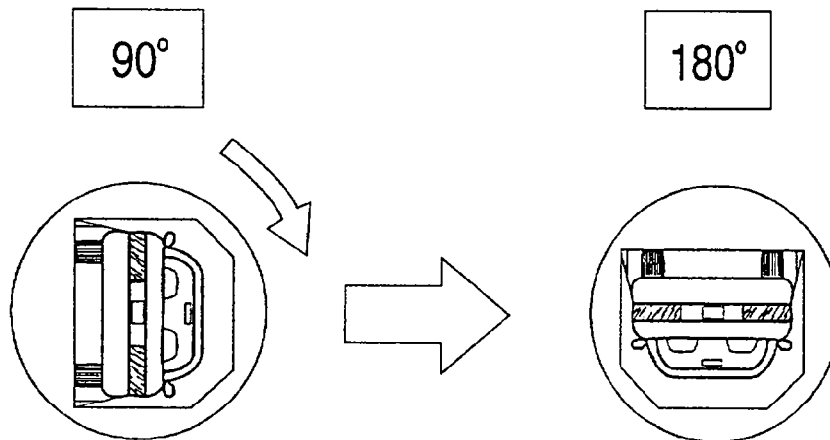
Fuel system fluid spillage measurements:

	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

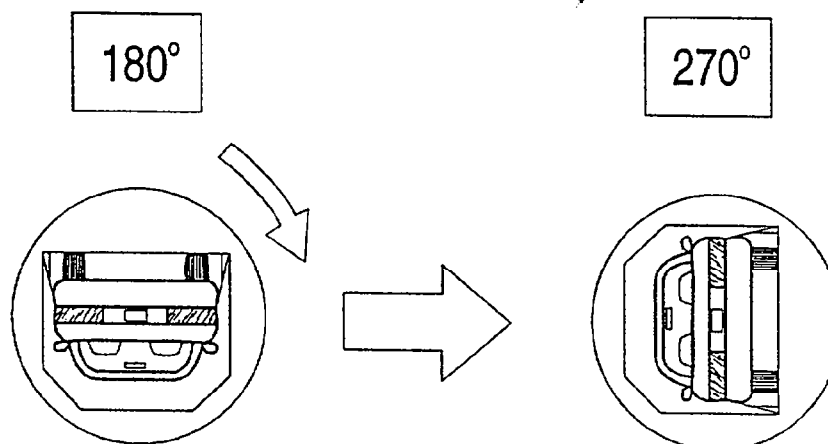
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>90° to 180° 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 = 21 minutes

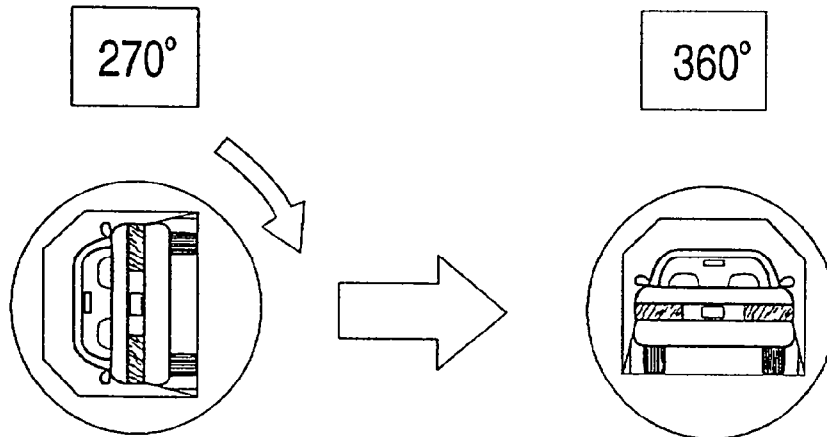
Fuel system fluid spillage measurements:

<u>180° to 270° rotation</u>		Test Results	Maximum Allowable
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

Occupant, Camera, and Vehicle Information

Figure 8 Dummy Measurement Locations for Front Seat Occupants

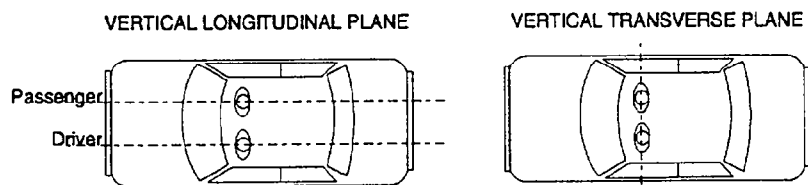
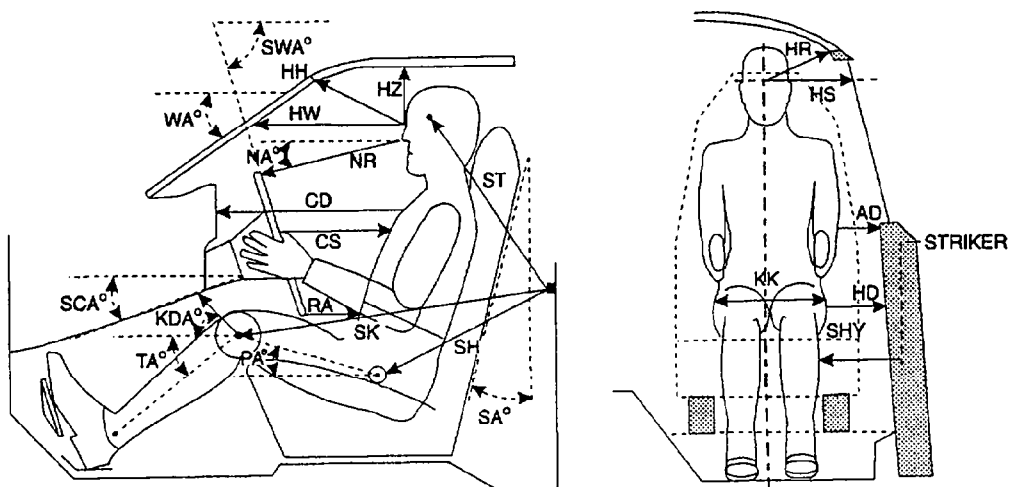


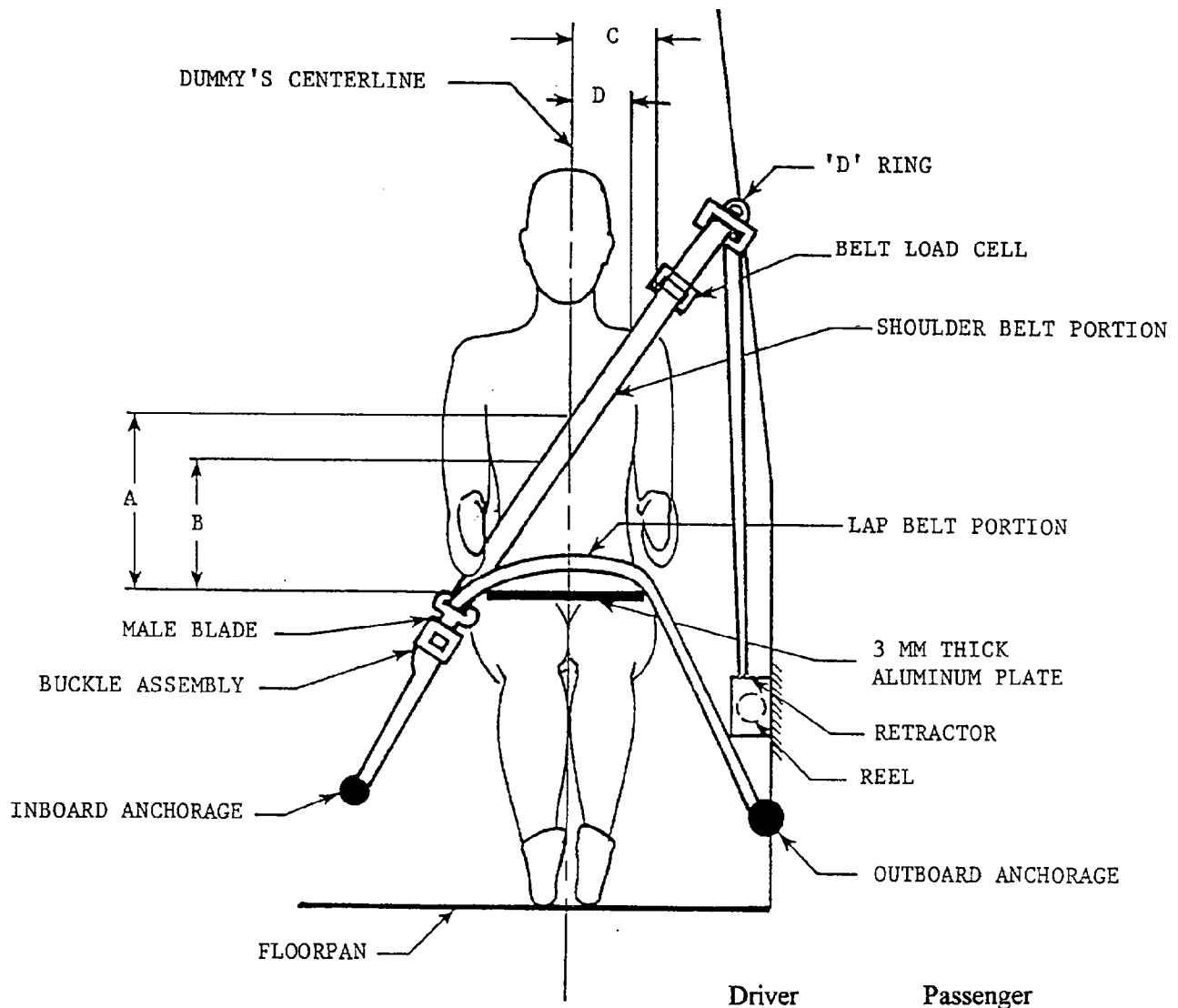
Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #192)	Passenger (Serial #142)
WA	Windshield angle	23°	23°
SWA	Steering wheel angle	73°	NA
SCA	Steering column angle	16°	NA
SA	Seat back angle	14°	14°
HZ	Head to roof	167 mm	172 mm
HH	Head to header	315 mm	333 mm
HW	Head to windshield	571 mm	611 mm
HR	Head to side header	204 mm	199 mm
NR	Nose to rim	352 mm	NA
NA	Nose to rim angle	11°	NA
CD	Chest to dash	549 mm	543 mm
CS	Steering wheel to chest	330 mm	NA
RA	Rim to abdomen	206 mm	NA
KDL	Left knee to dash	172 mm	182 mm
KDR	Right knee to dash	142 mm	186 mm
KDA	Outboard knee to dash angle	22°	32°
PA	Pelvic angle	24°	24.5°
TA	Tibial angle	32°	30°
KK	Knee to knee	251 mm	200 mm
ST ¹	Striker to head	518 mm	493 mm
	Striker to head angle	-58°	-58°
SK ¹	Striker to knee	771 mm	789 mm
	Striker to knee angle	6°	8°
SH ¹	Striker to H-point	457 mm	467 mm
	Striker to H-point angle	28°	30°
SHY	Striker to H-point (Y dir.)	256 mm	241 mm
HS	Head to side window	298 mm	292 mm
HD	H-point to door	142 mm	128 mm
AD	Arm to door	71 mm	70 mm

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

¹ A negative angle indicates the measurement point was located above the striker.

Figure 9 Seat Belt Positioning Data



	Driver	Passenger
A - Top surface of aluminum plate to belt upper edge	332 mm	341 mm
B - Top surface of aluminum plate to belt lower edge	240 mm	251 mm
C - Dummy centerline to outer edge of belt at chest flesh top	70 mm	87 mm
D - Dummy centerline to inner edge of belt at chest flesh top	6 mm	30 mm
Lap belt tension	13 N	13 N
Shoulder belt tension	13 N	13 N
Adjustable seat belt anchorage position	One position up from lowest	One position up from lowest

Figure 10 Camera Positions

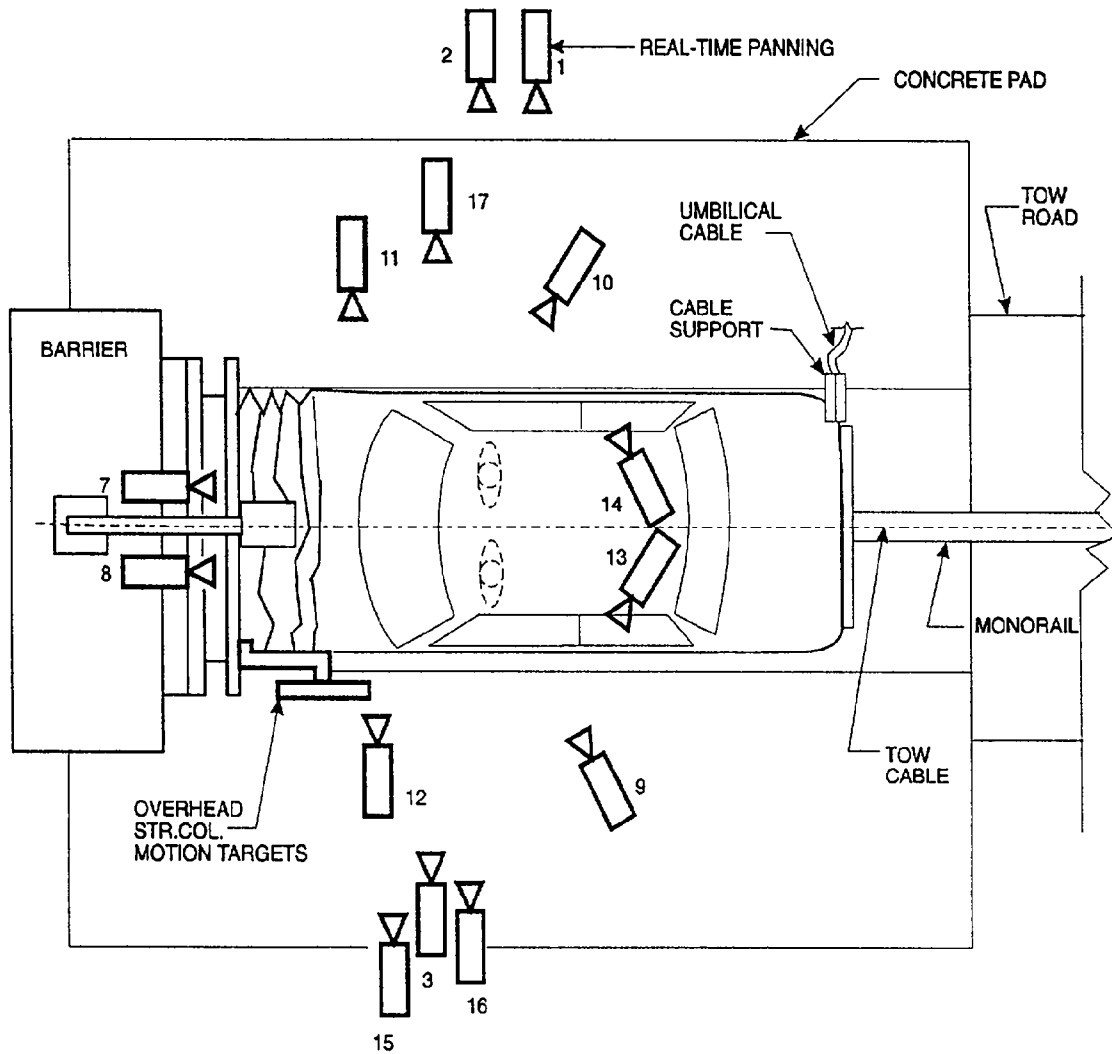


Figure 10 Camera Positions, Cont'd.

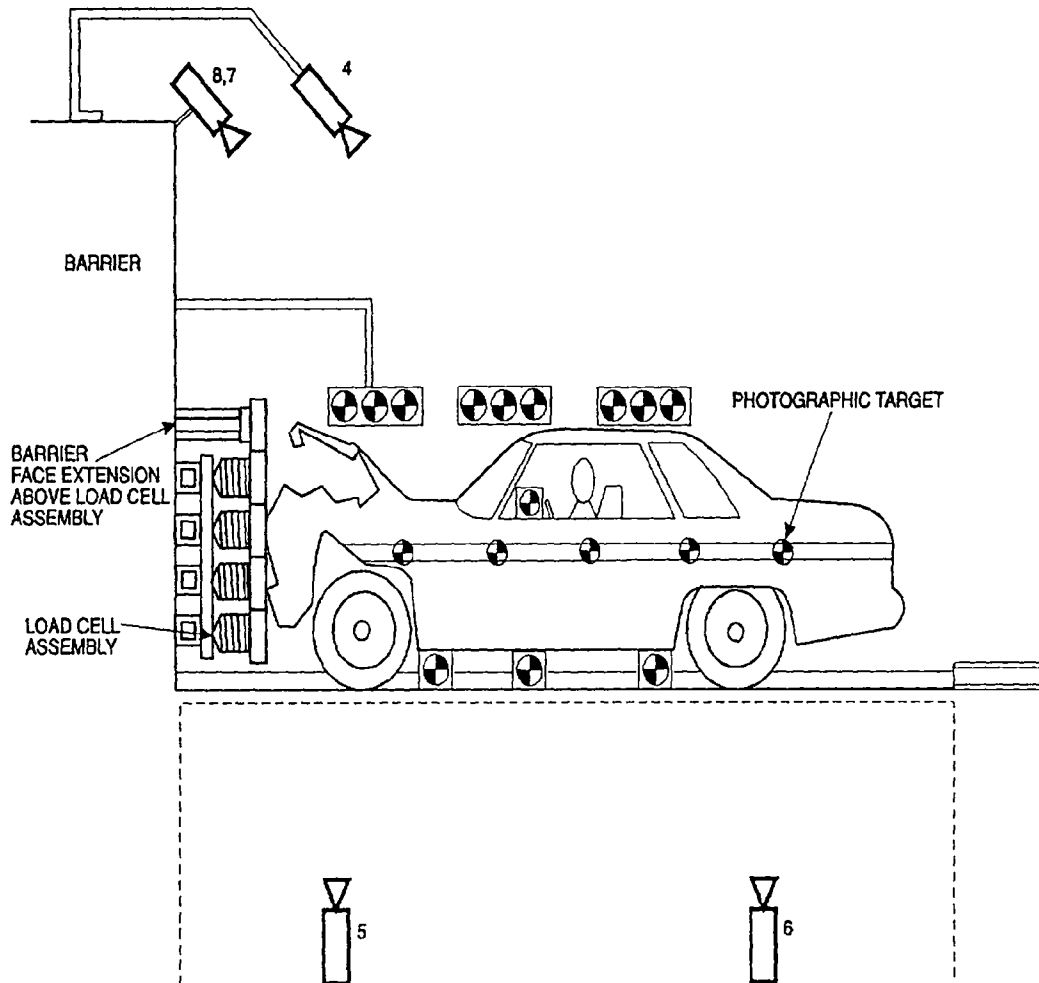


Table 13 Motion Picture Camera Locations

Vehicle year/make/model/body style: 1995/Dodge/Avenger/2-door coupe

Test Number: 950203

Camera Number	View	Camera Positions ¹			Angle ²	Film Plane to Head Target	Lens	Film Speed
		X	Y	Z				
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	508 frames/s
3	Dummy kinematics	-1054 mm	7493 mm	1118 mm	-12°	5232 mm	25 mm	1002 frames/s
4	Windshield damage	-925 mm	0 mm	2489 mm	-40°	NA mm	13 mm	498 frames/s
5	Crush & fluid spillage	-1283 mm	0 mm	-2347 mm	90°	NA mm	13 mm	1000 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	508 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°	2667 mm	25 mm	500 frames/s
10	Passenger kinematics	-4674 mm	-1880 mm	2540 mm	-26°	2108 mm	25 mm	492 frames/s
11	Windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA mm	50 mm	500 frames/s
12	Windshield intrusion	-1346 mm	7859 mm	1074 mm	0°	NA mm	50 mm	502 frames/s
13	Driver seat belt movement ³	NA	NA	NA	NA	NA mm	NA mm	NA frames/s
14	Passenger seat belt movement ³	NA	NA	NA	NA	NA mm	NA mm	NA frames/s
15	Column movement	-2896 mm	7264 mm	2616 mm	-14°	NA mm	25 mm	500 frames/s
16	Column movement	-2896 mm	7264 mm	1908 mm	-9°	NA mm	25 mm	502 frames/s
17	Passenger kinematics	-986 mm	-5354 mm	1151 mm	7°	5588 mm	25 mm	995 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

³ The onboard cameras were not used to achieve test weight.

Figure 11 Vehicle Target Locations

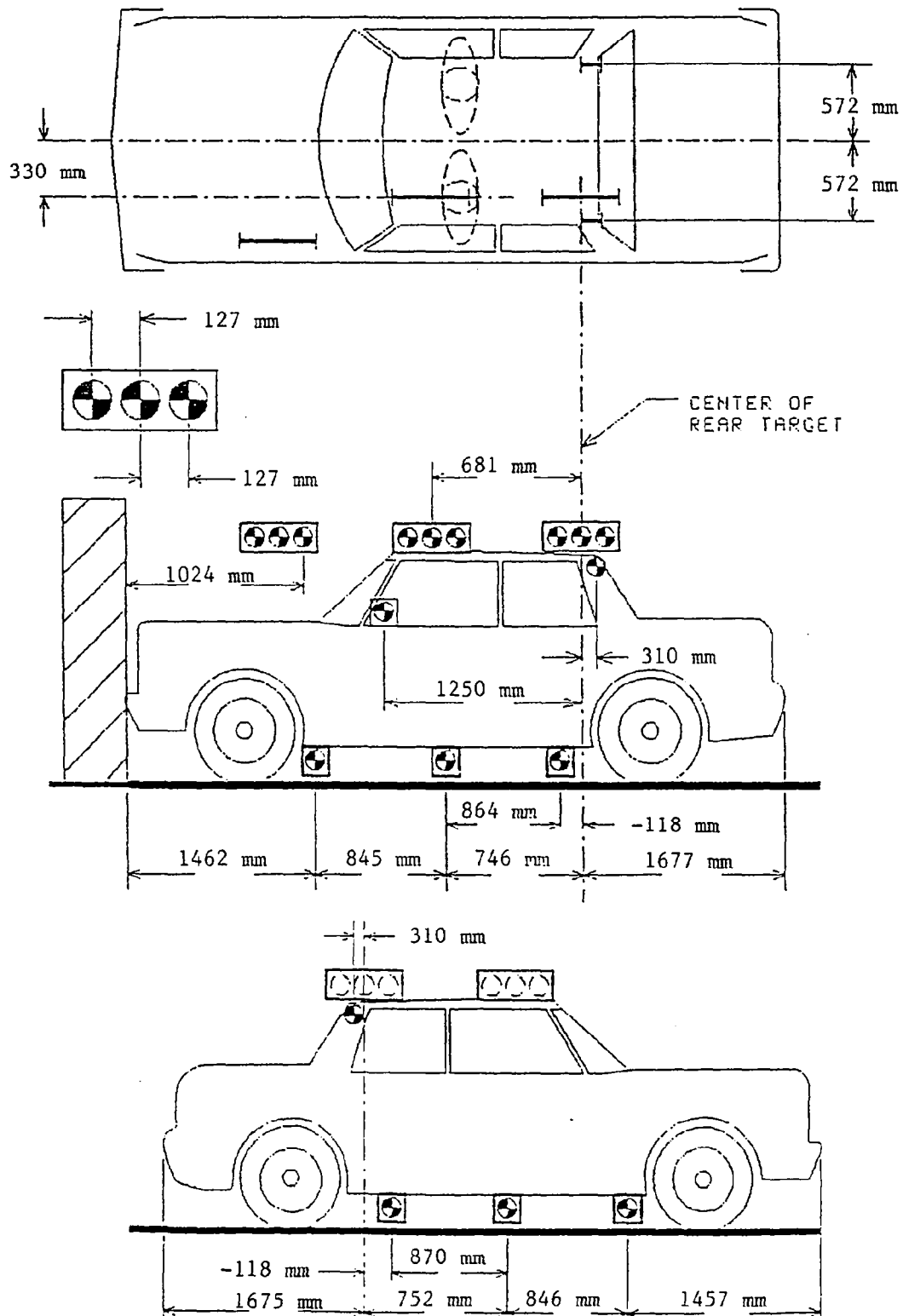


Figure 12 Pre-Test And Post-Test Measurement Points

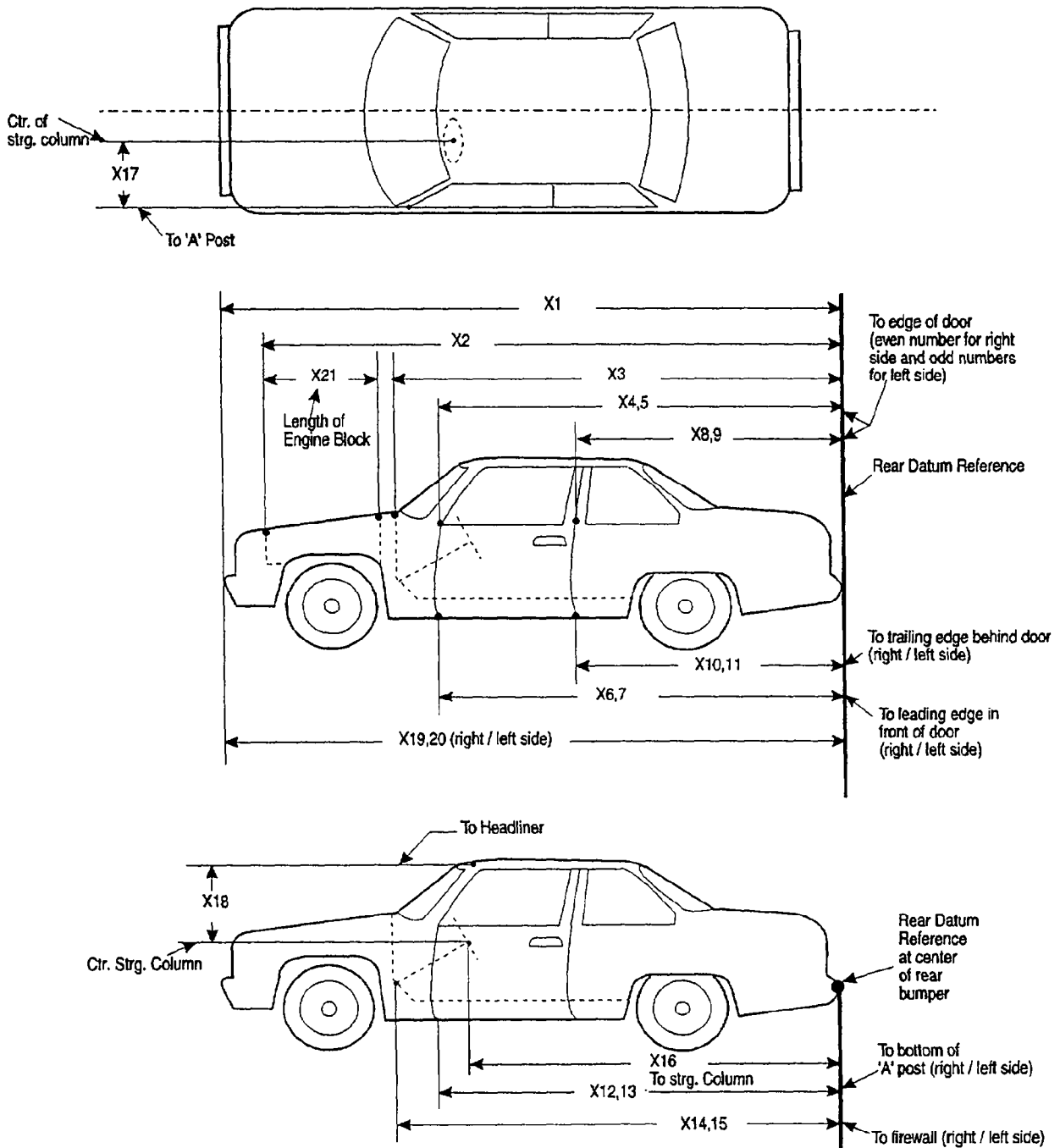


Table 14 Impacted Vehicle Measurements

Vehicle Make/Model: Dodge Avenger		Test Number: 950203					
No.	Type of measurement	Pre-test		Post-test		Diff.	
X1	Total length of vehicle at centerline	4730	mm	4293	mm	437	mm
X2	Rear surface of vehicle to front of engine block	4016	mm	3876	mm	140	mm
X3	Rear surface of vehicle to firewall	3588	mm	3517	mm	71	mm
X4	Rear surface of vehicle to upper leading edge of right door	3233	mm	3216	mm	17	mm
X5	Rear surface of vehicle to upper leading edge of left door	3225	mm	3233	mm	-8	mm
X6	Rear surface of vehicle to lower leading edge of right door	3248	mm	3237	mm	11	mm
X7	Rear surface of vehicle to lower leading edge of left door	3244	mm	3246	mm	-2	mm
X8	Rear surface of vehicle to upper trailing edge of right door	1978	mm	1955	mm	23	mm
X9	Rear surface of vehicle to upper trailing edge of left door	1970	mm	1969	mm	1	mm
X10	Rear surface of vehicle to lower trailing edge of right door	2044	mm	2032	mm	12	mm
X11	Rear surface of vehicle to lower trailing edge of left door	2050	mm	2038	mm	12	mm
X12	Rear surface of vehicle to bottom of "A" post on right side	3218	mm	3200	mm	18	mm
X13	Rear surface of vehicle to bottom of "A" post on left side	3208	mm	3202	mm	6	mm
X14	Rear surface of vehicle to firewall - right side	3587	mm	3497	mm	90	mm
X15	Rear surface of vehicle to firewall - left side	3546	mm	3561	mm	-15	mm
X16	Rear surface of vehicle to steering wheel center	2777	mm	2864	mm	-87	mm
X17	Center of steering column to "A" post	297	mm	337	mm	-40	mm
X18	Center of steering column to headliner	440	mm	493	mm	-53	mm
X19	Rear surface of vehicle to right side of front bumper	4531	mm	4203	mm	328	mm
X20	Rear surface of vehicle to left side of front bumper	4531	mm	4269	mm	262	mm
X21	Length of engine block	471	mm	471	mm	0	mm

Appendix A

Photographs

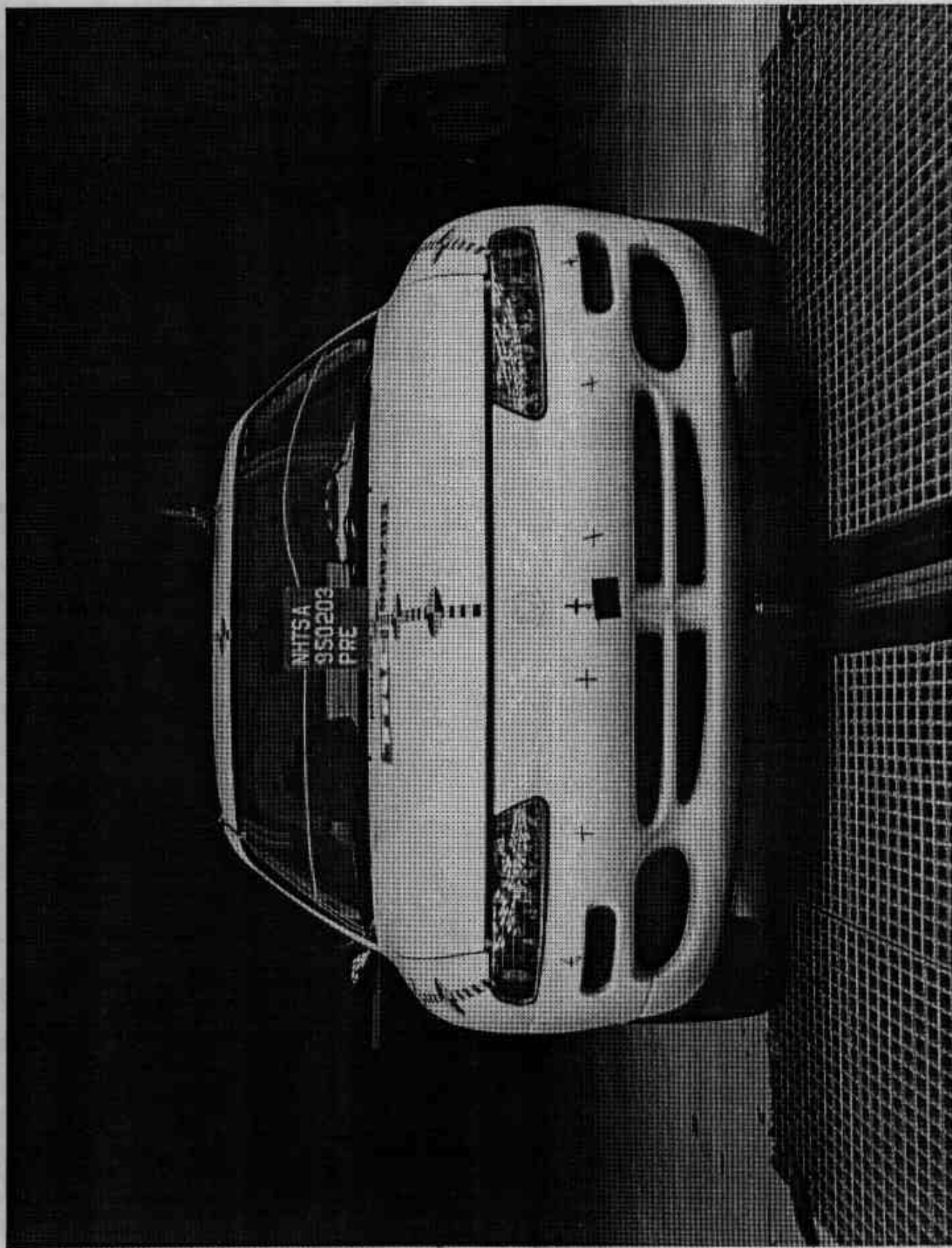


Figure A-1. Pre-Test Front View
A-2

950203

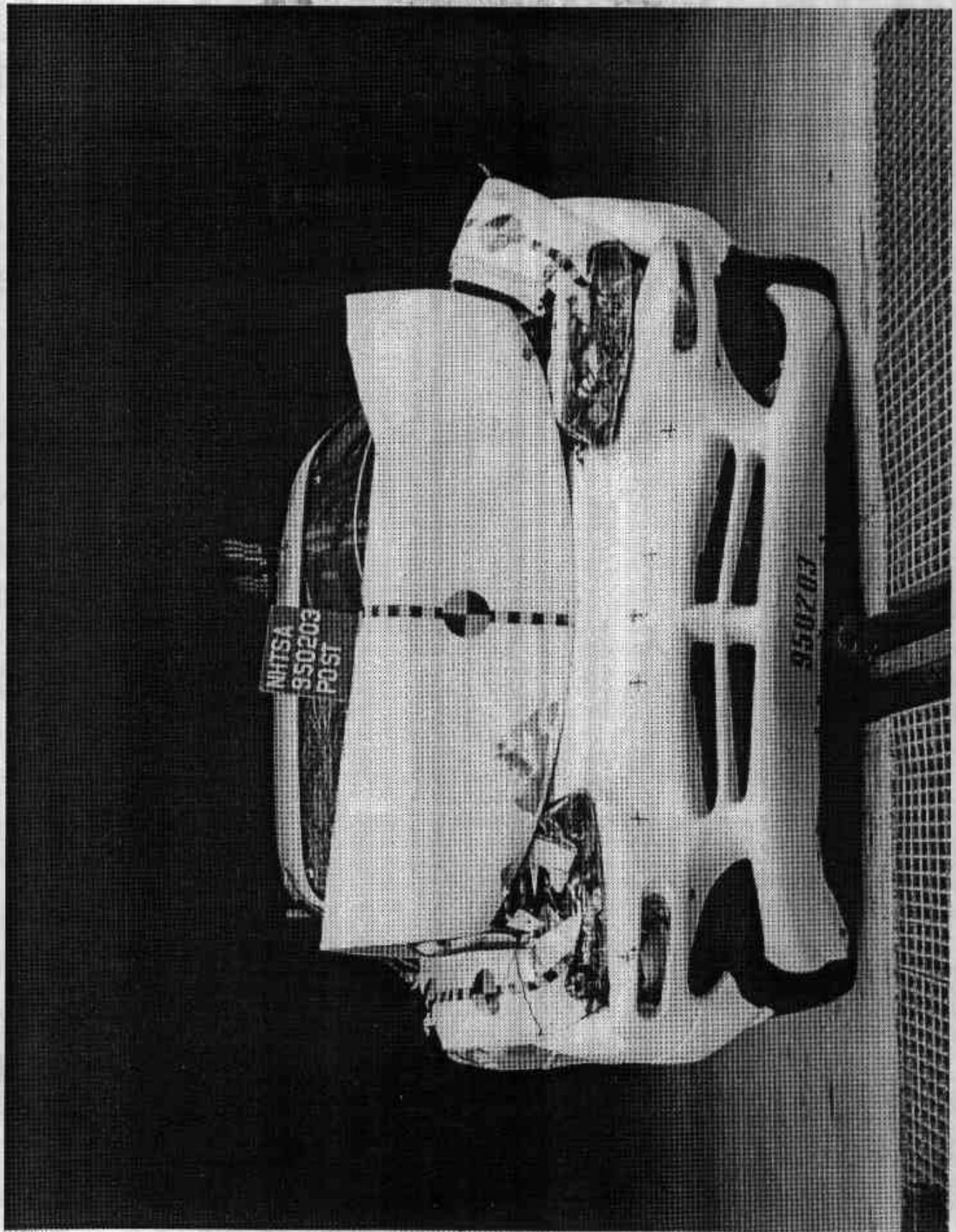


Figure A-2. Post-Test Front View
A-3

950203

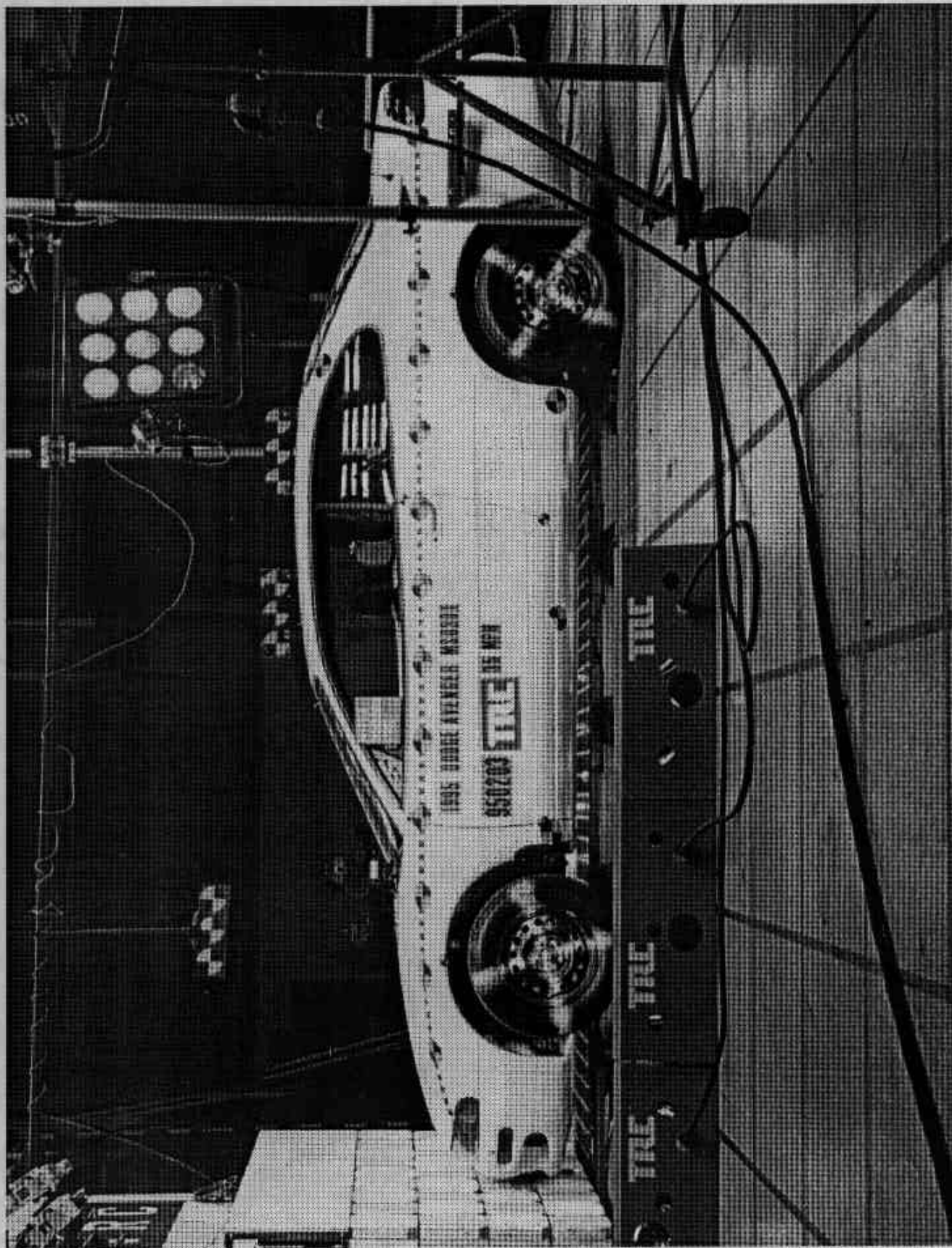


Figure A-3. Pre-Test Left Side View
A-4

950203

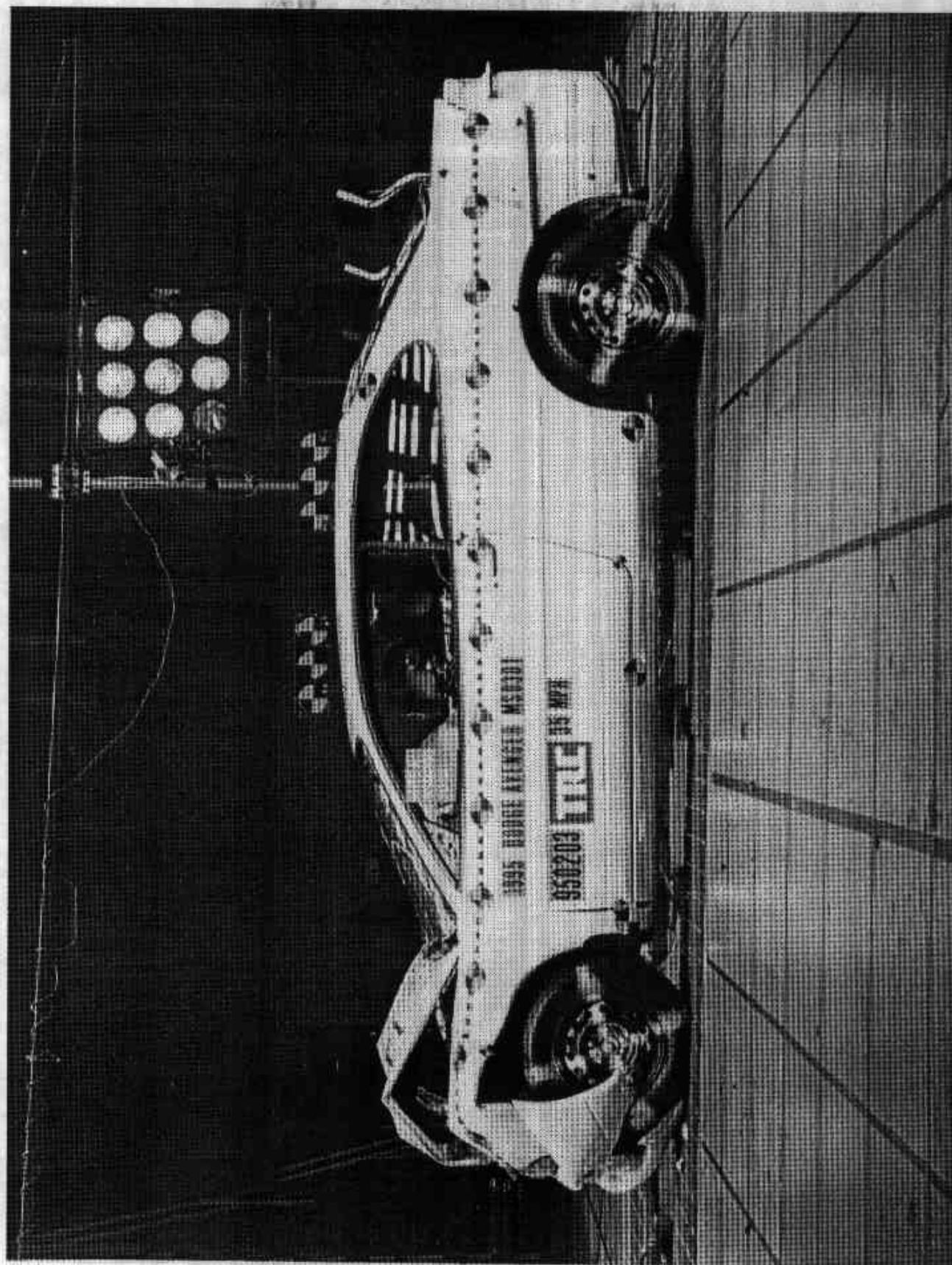


Figure A-4. Post-Test Left Side View
A-5

950203

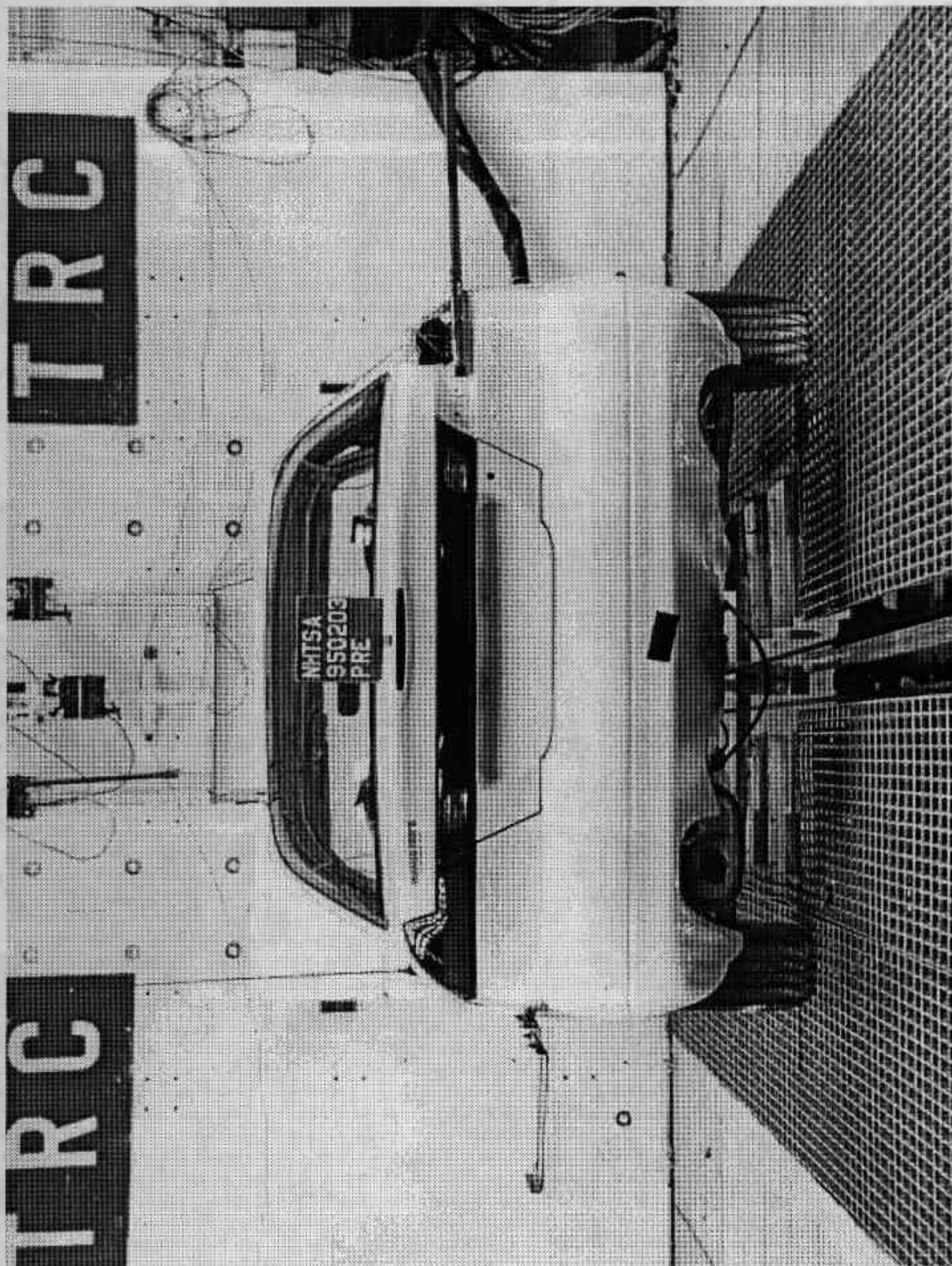


Figure A-5. Pre-Test Rear View
A-6

950203

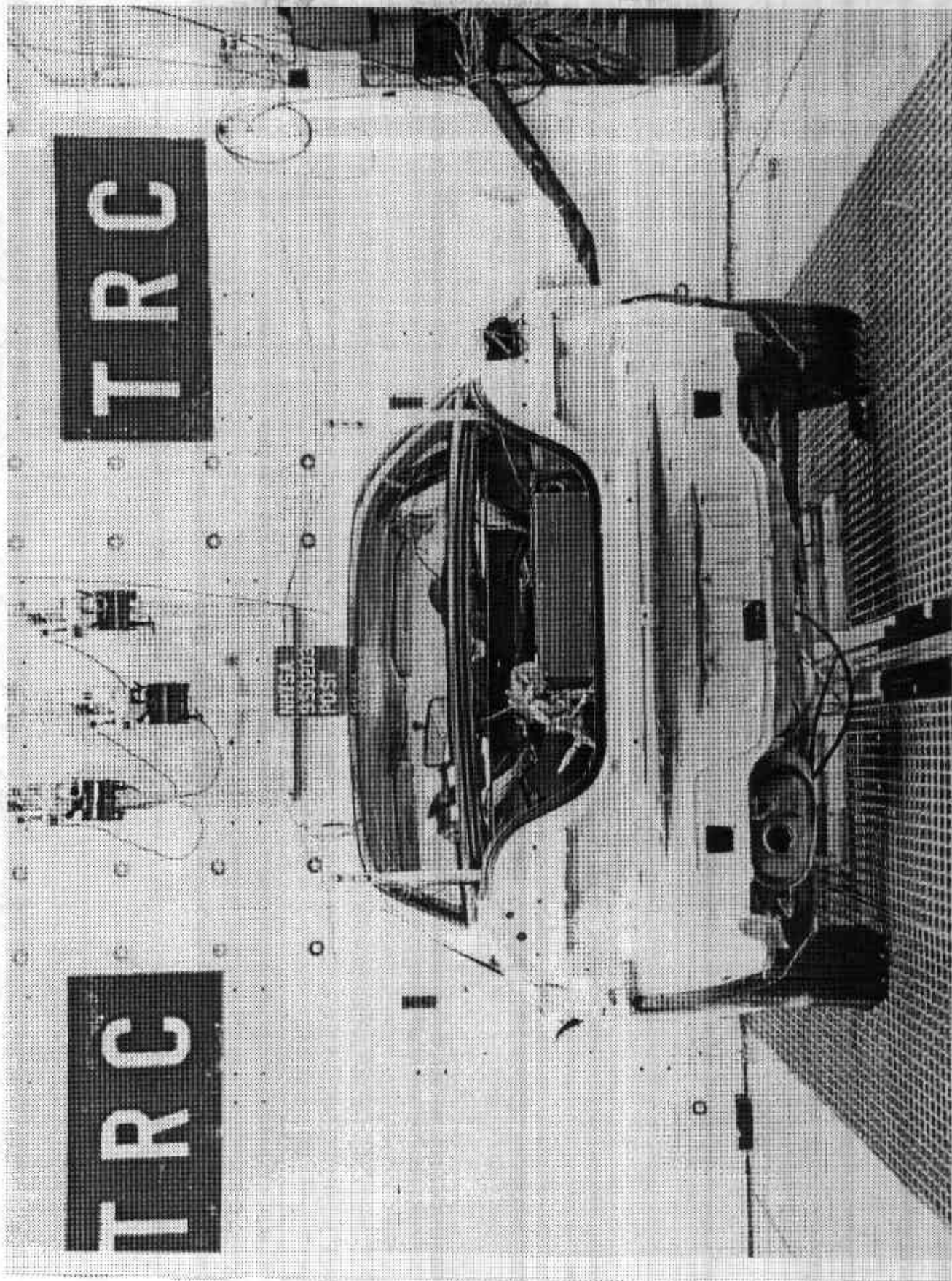


Figure A-6. Post-Test Rear View
A-7

950203

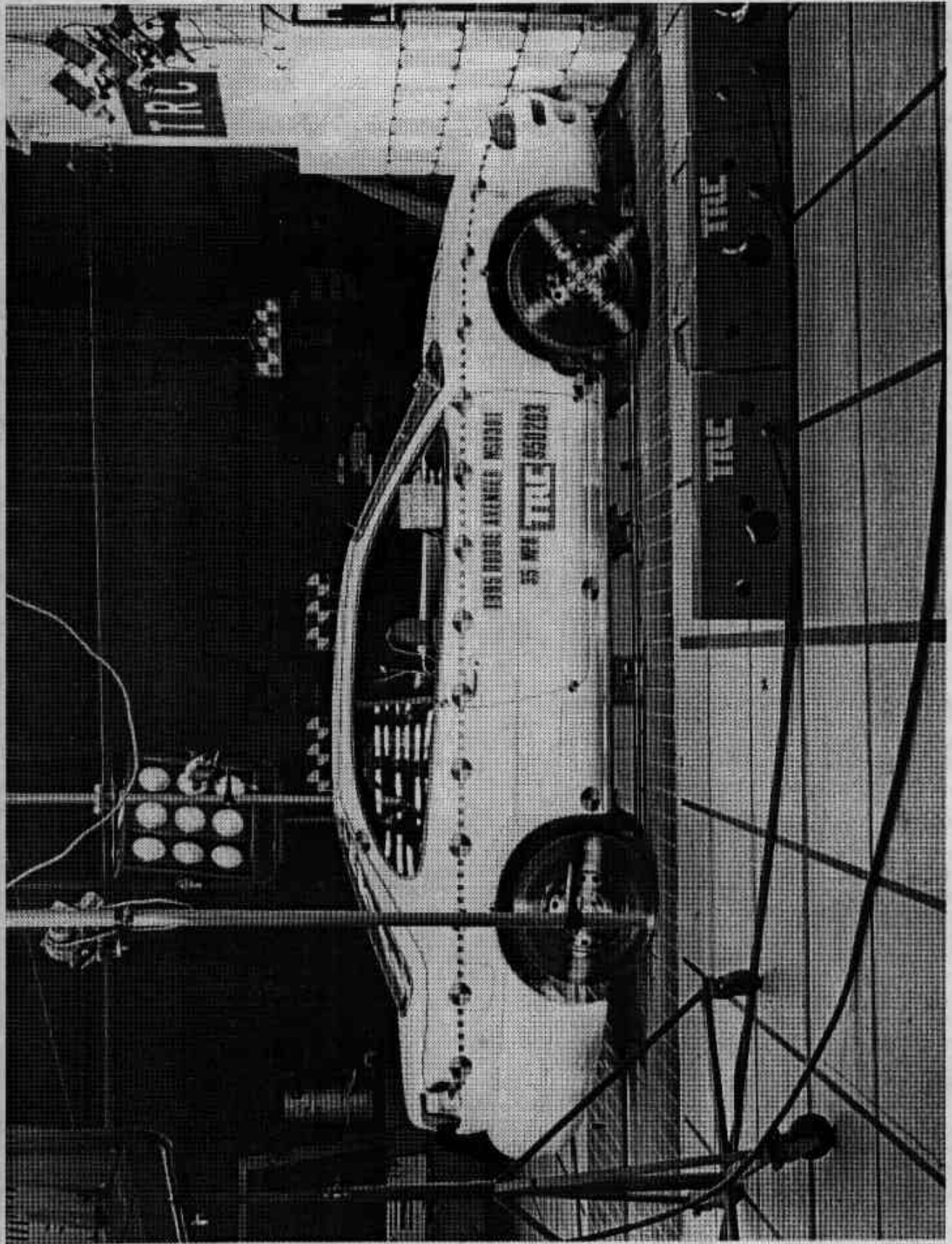


Figure A-7. Pre-Test Right Side View
A-8

950203

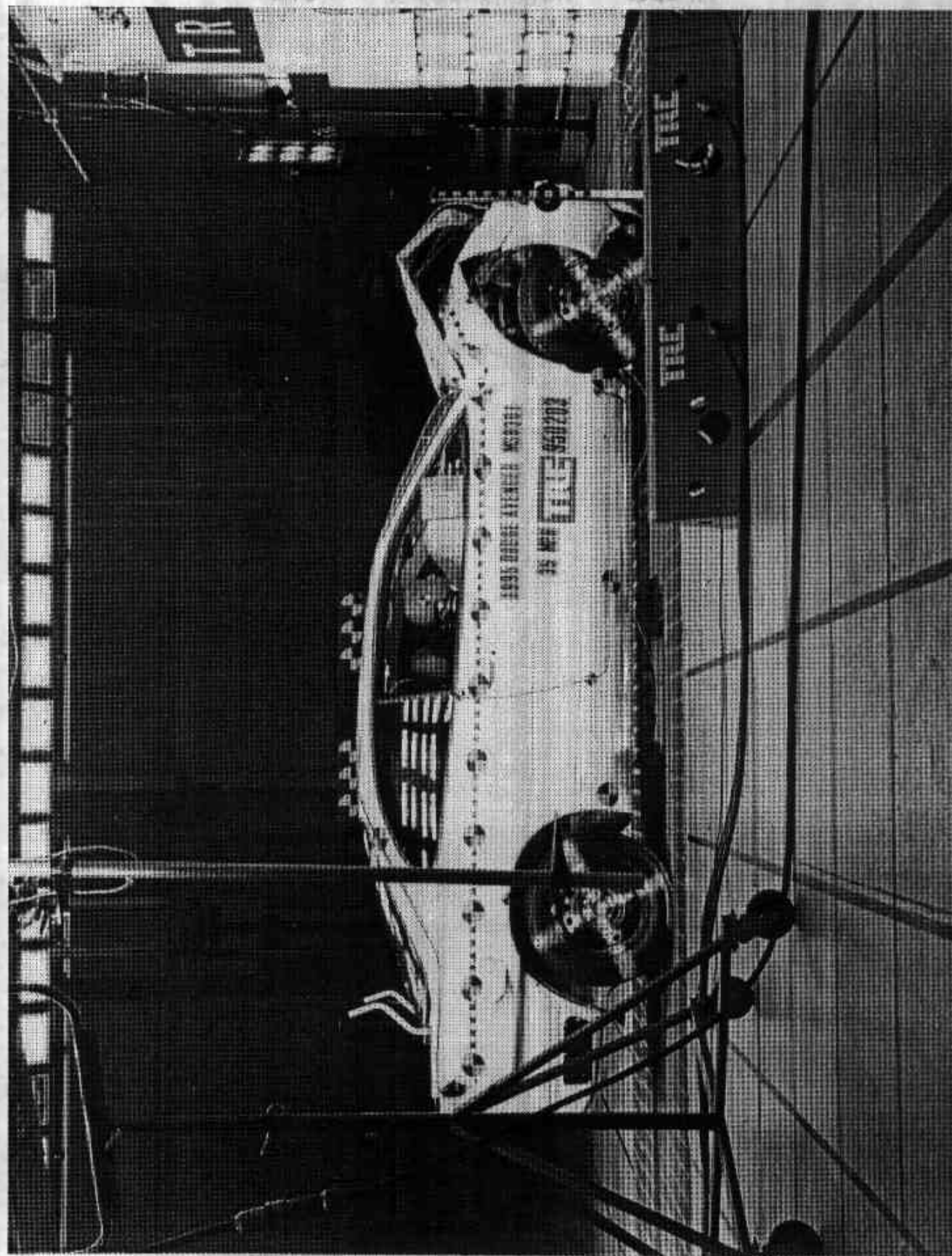


Figure A-8. Post-Test Right Side View
A-9

950203



Figure A-9. Pre-Test Right Front Three-Quarter View
A-10

950203

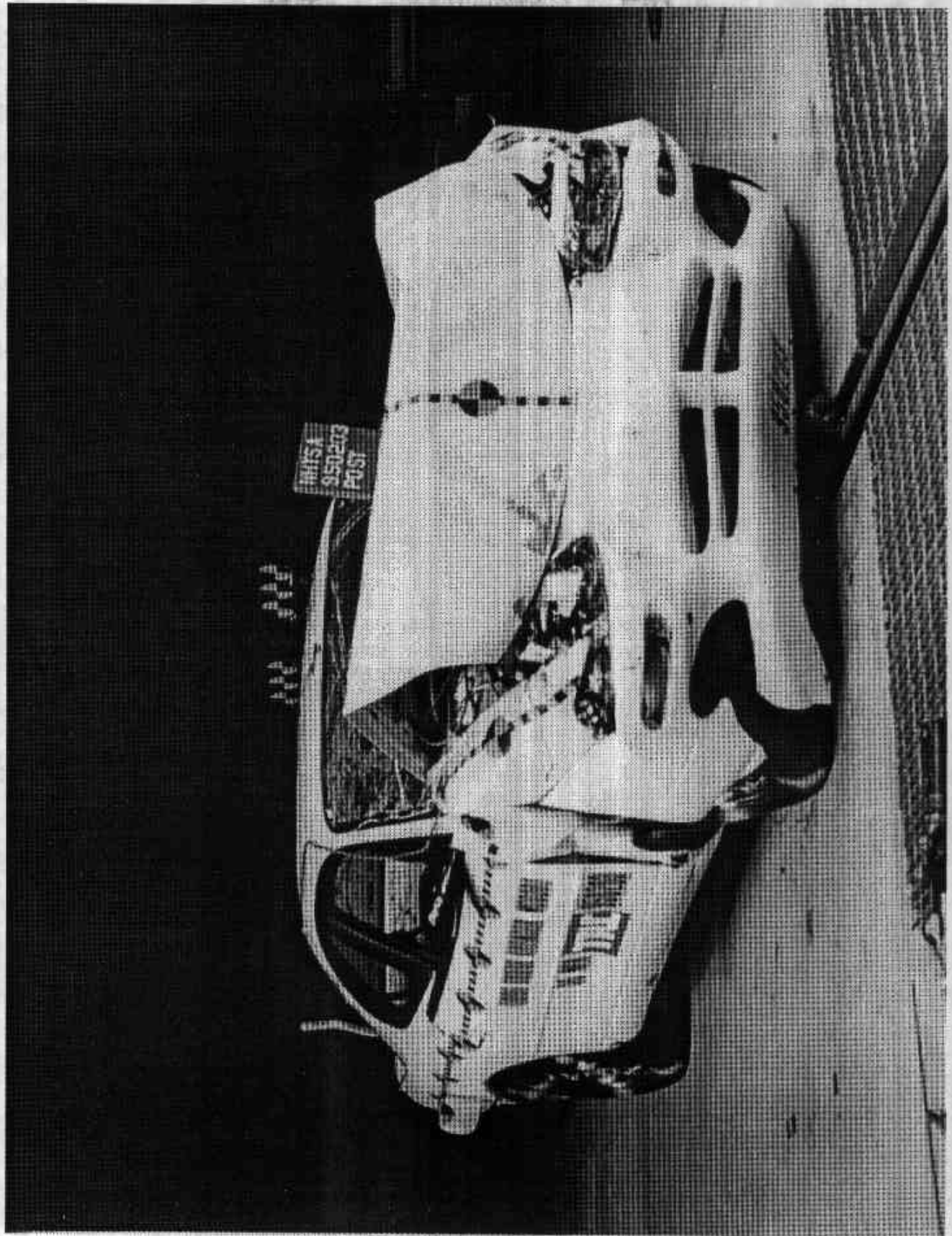


Figure A-10. Post-Test Right Front Three-Quarter View
A-11

950203

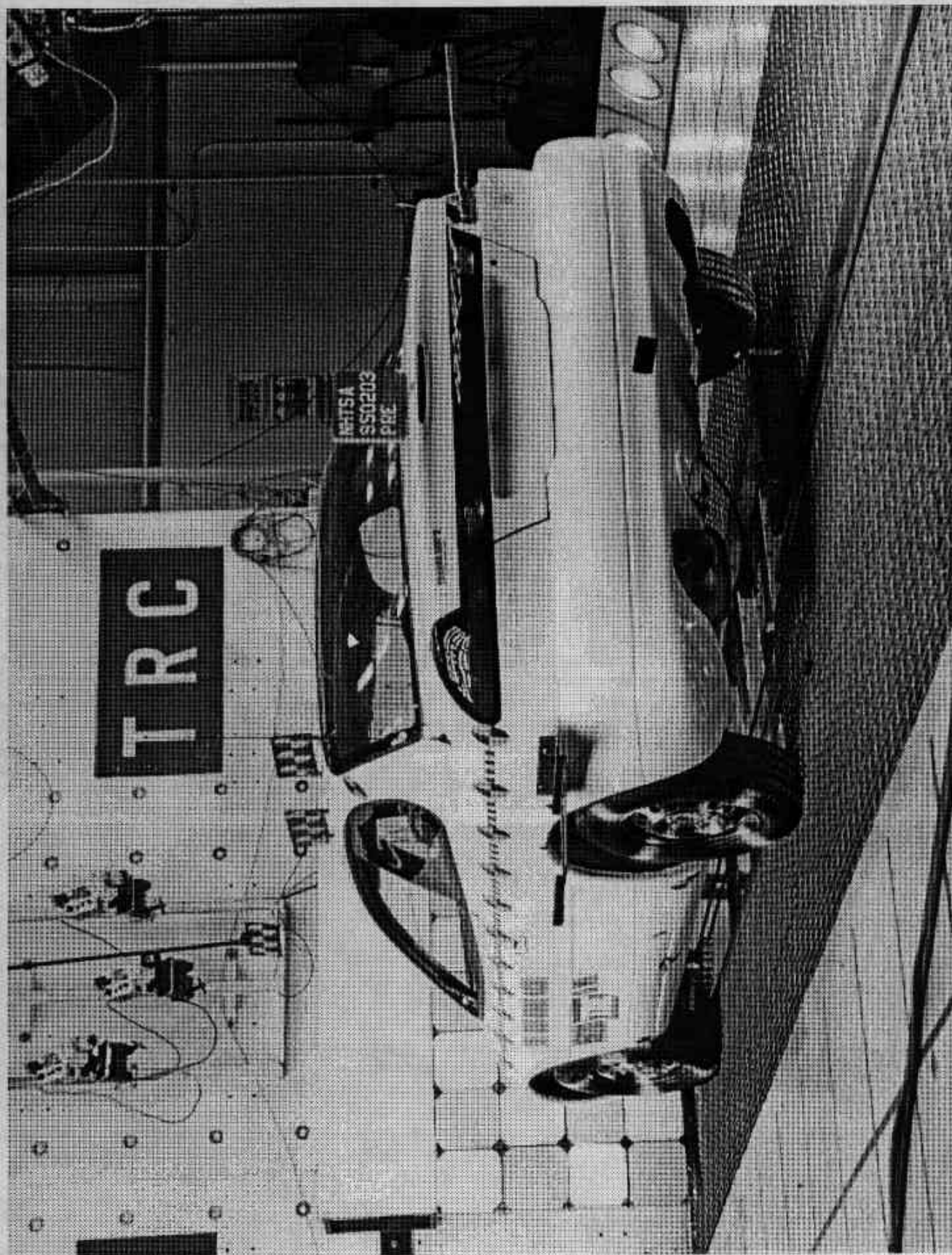


Figure A-11. Pre-Test Left Rear Three-Quarter View
A-12

950203

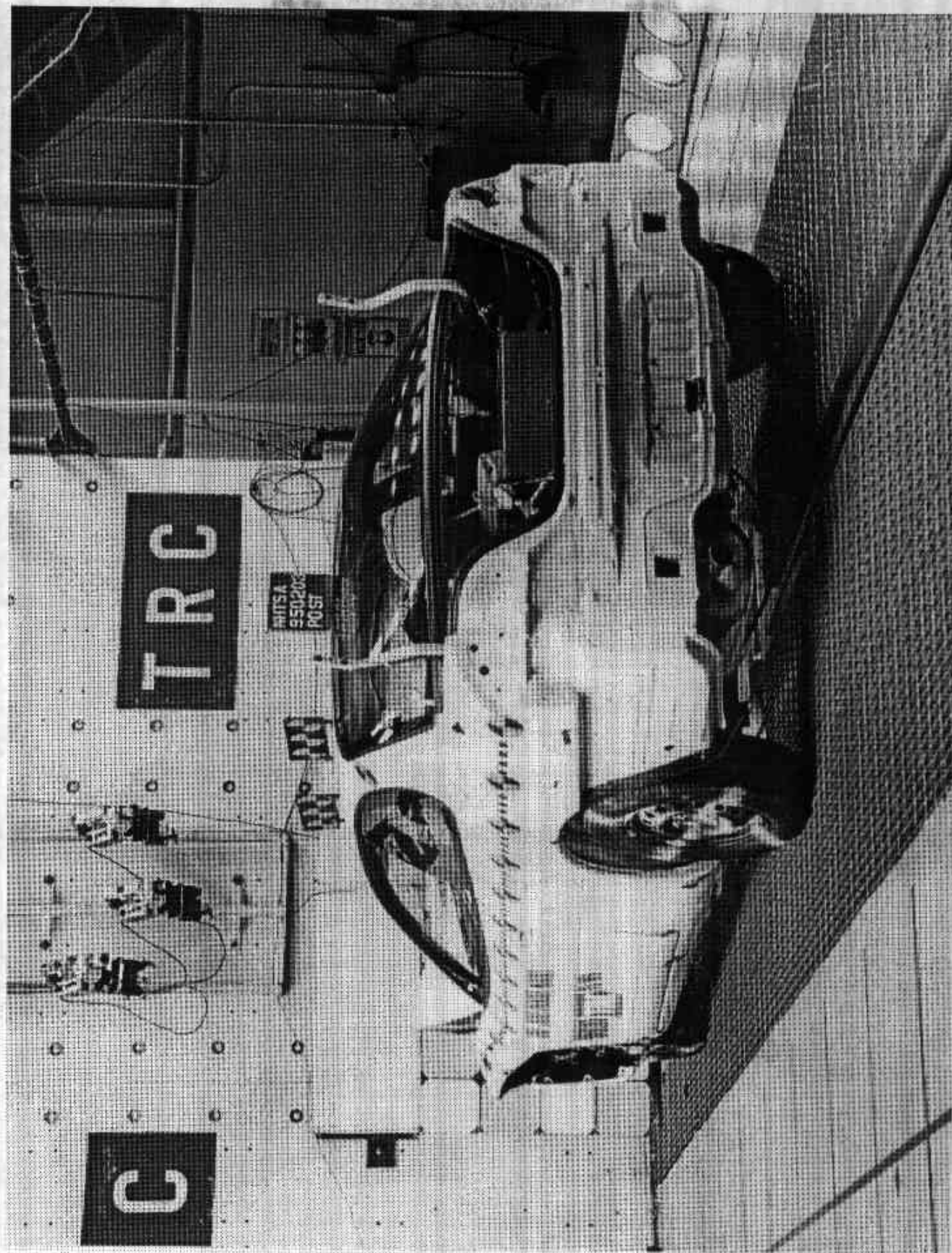


Figure A-12. Post-Test Left Rear Three-Quarter View
A-13

950203

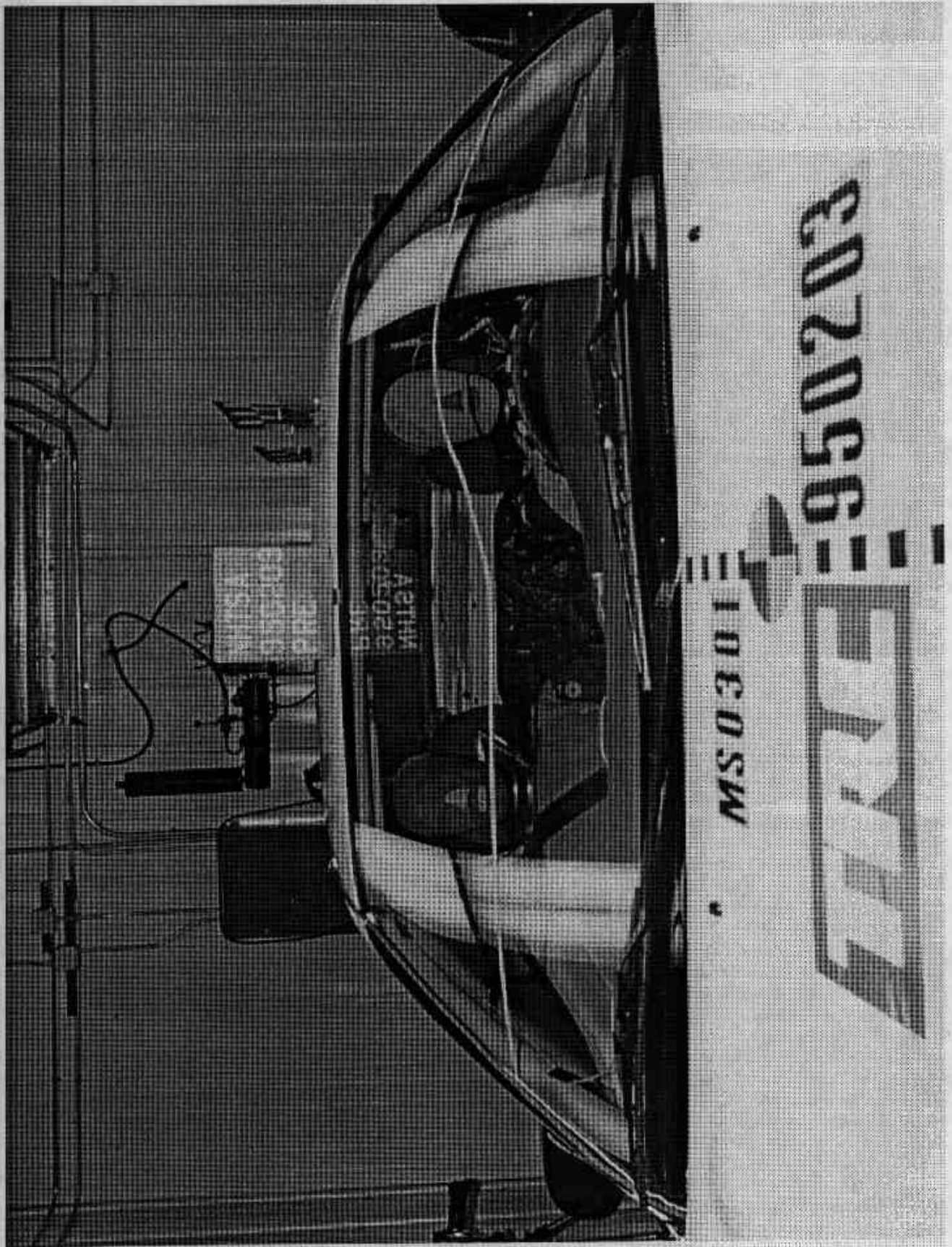


Figure A-13. Pre-Test Windshield View
A-14

950203

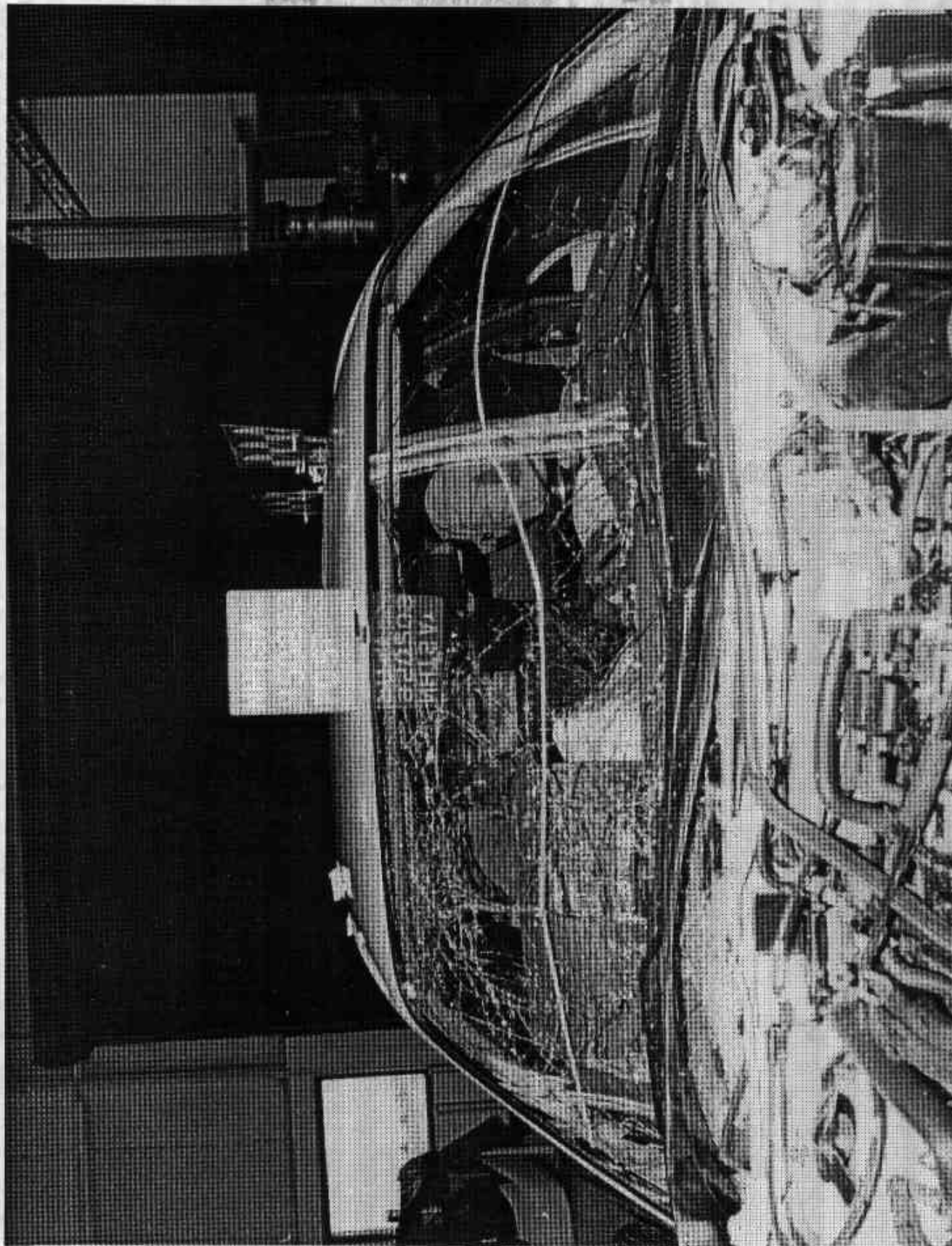


Figure A-14. Post-Test Windshield View
A-15

950203

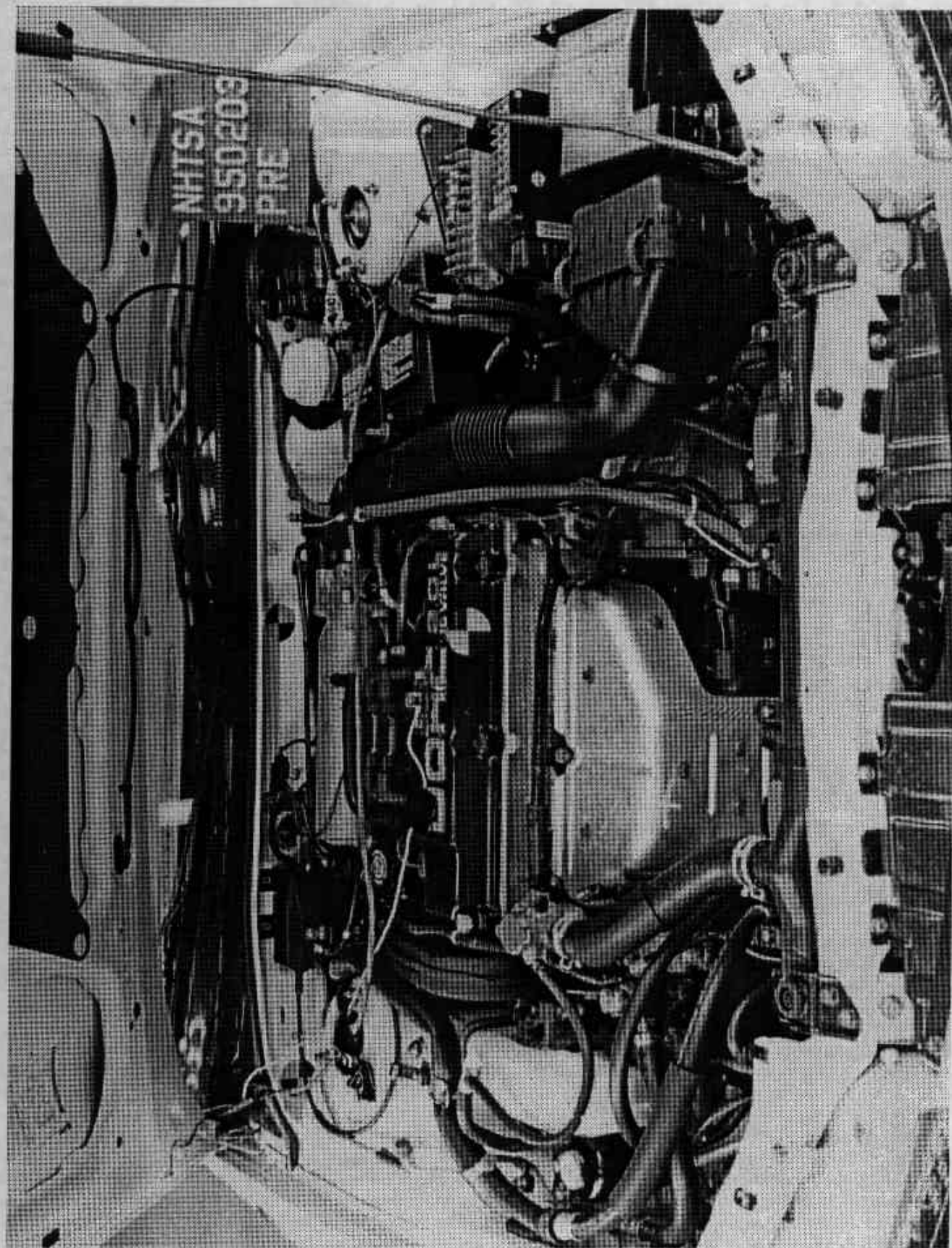


Figure A-15. Pre-Test Engine Compartment View
A-16

950203

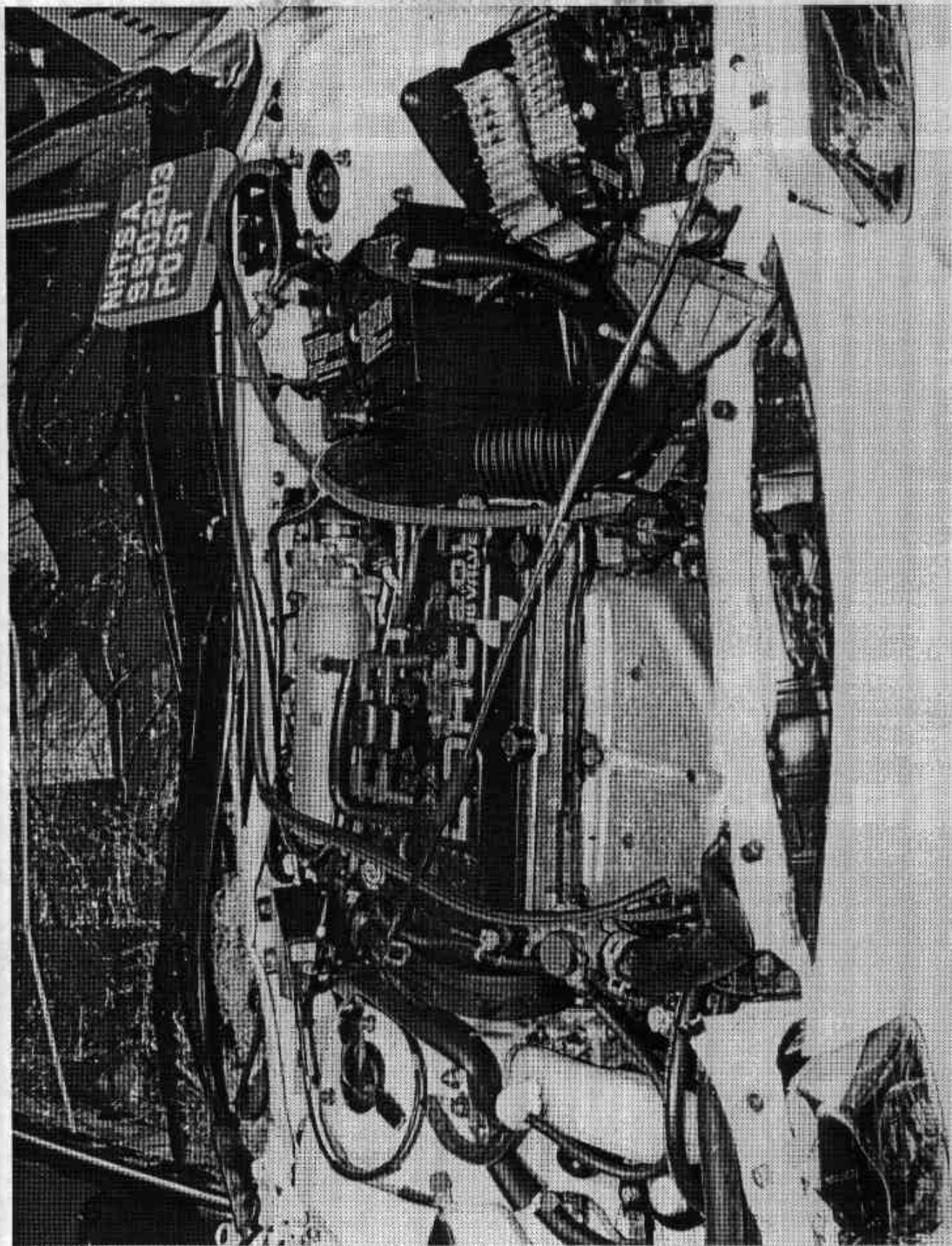


Figure A-16. Post-Test Engine Compartment View
A-17

950203

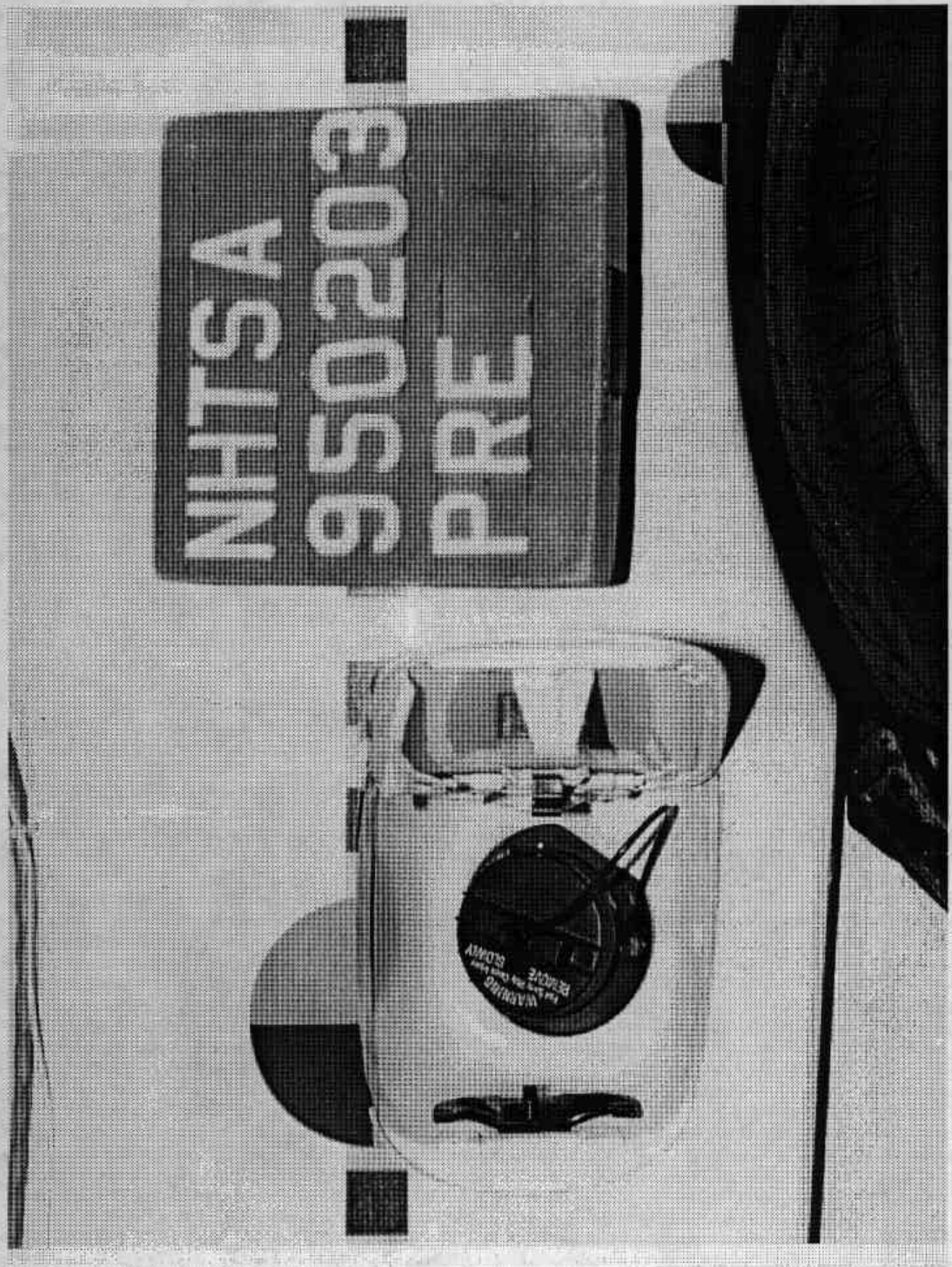


Figure A-17. Pre-Test Fuel Filler Cap View
A-18

950203

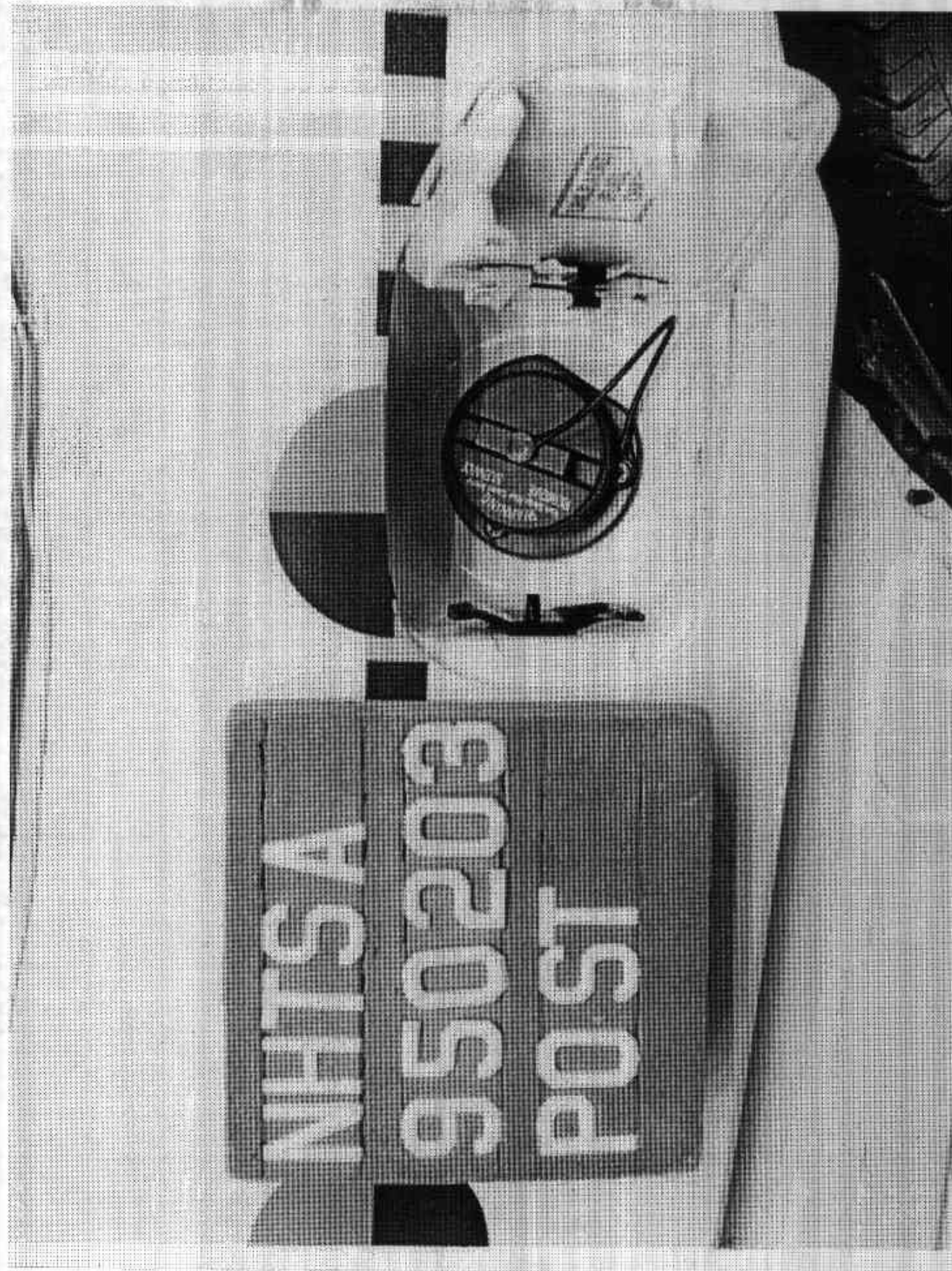


Figure A-18. Post-Test Fuel Filler Cap View
A-19

950203

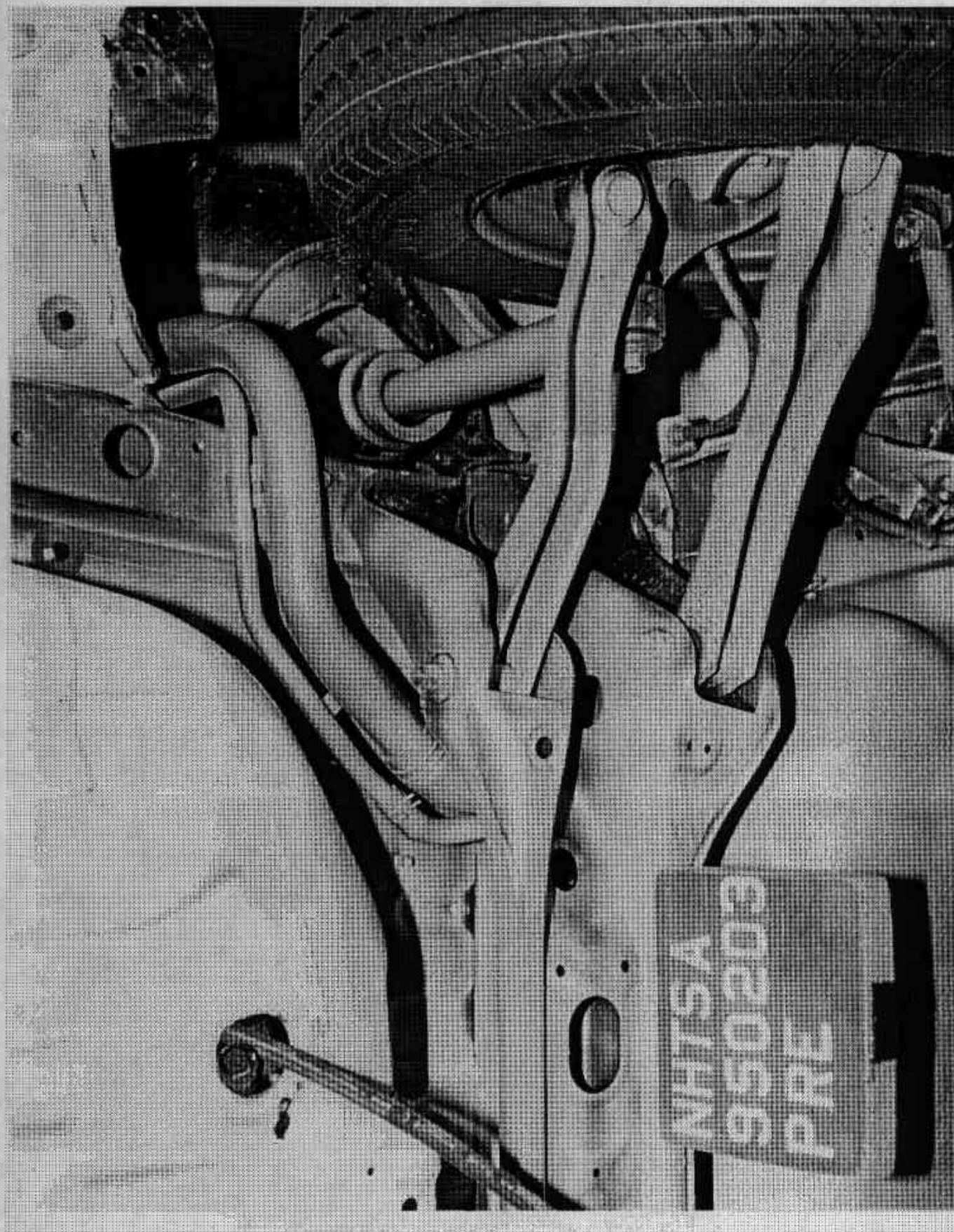


Figure A-19. Pre-Test Fuel Filler Neck View
A-20

950203

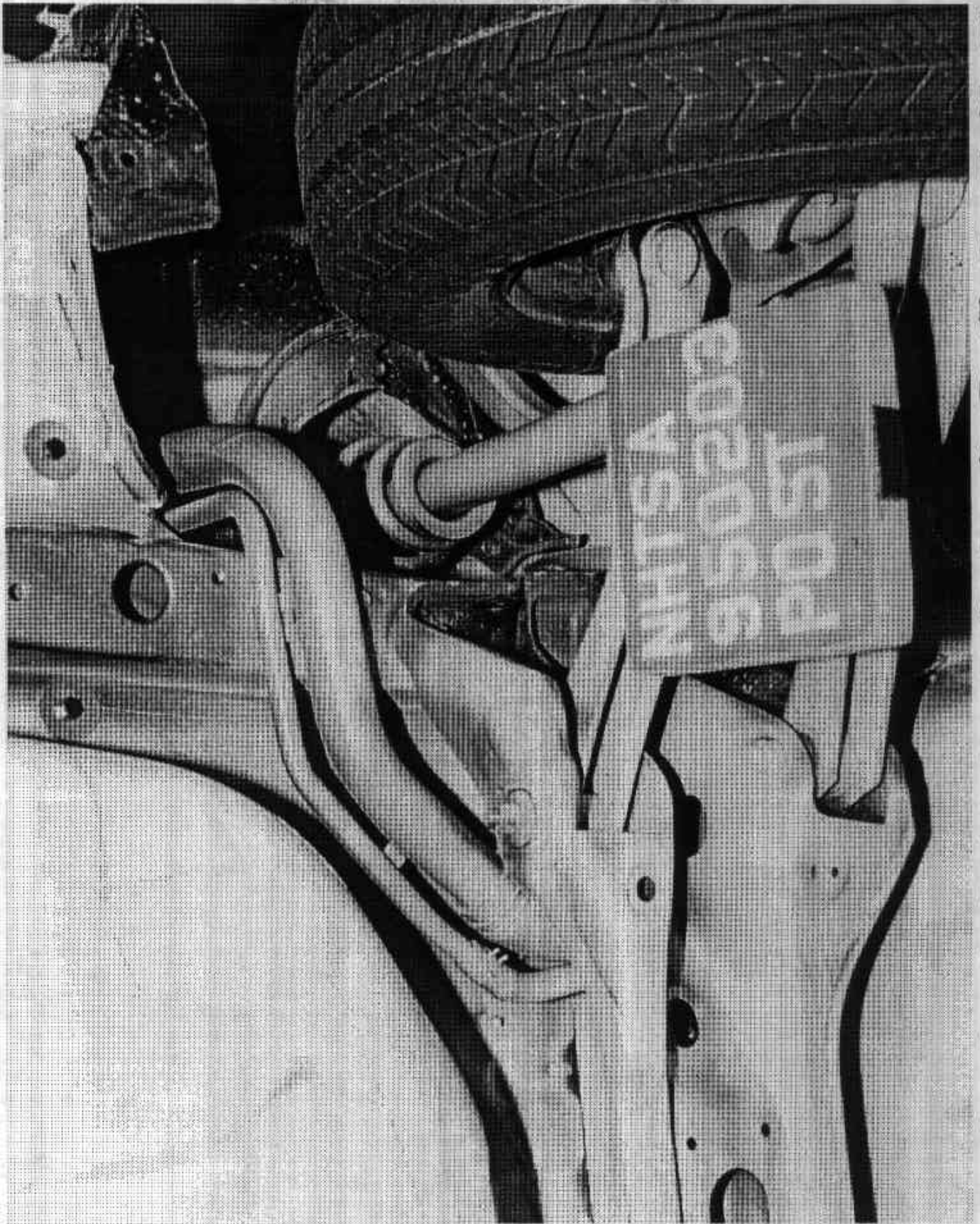


Figure A-20. Post-Test Fuel Filler Neck View
A-21

950203

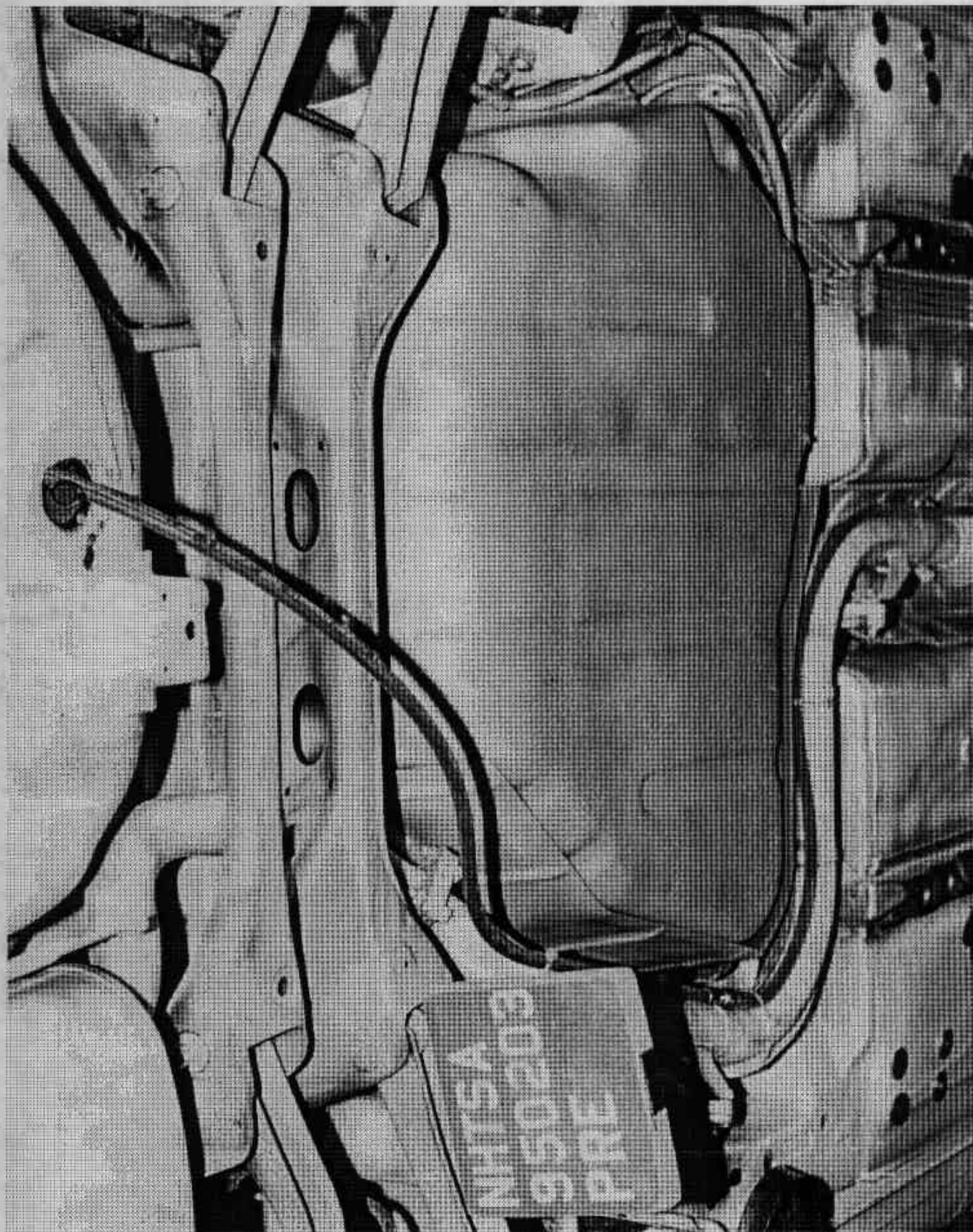


Figure A-21. Pre-Test Fuel Tank View
A-22

950203

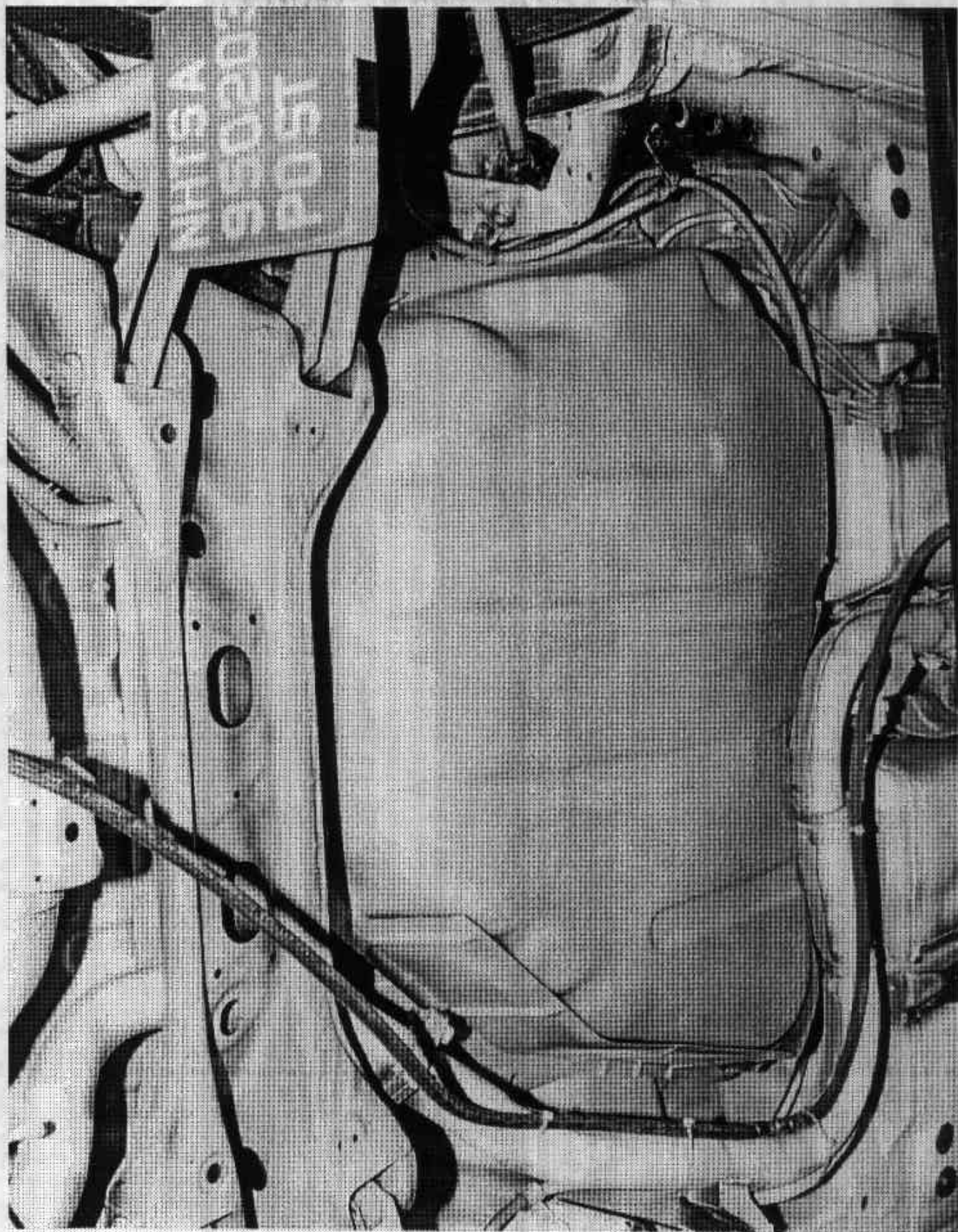


Figure A-22. Post-Test Fuel Tank View
A-23

950203

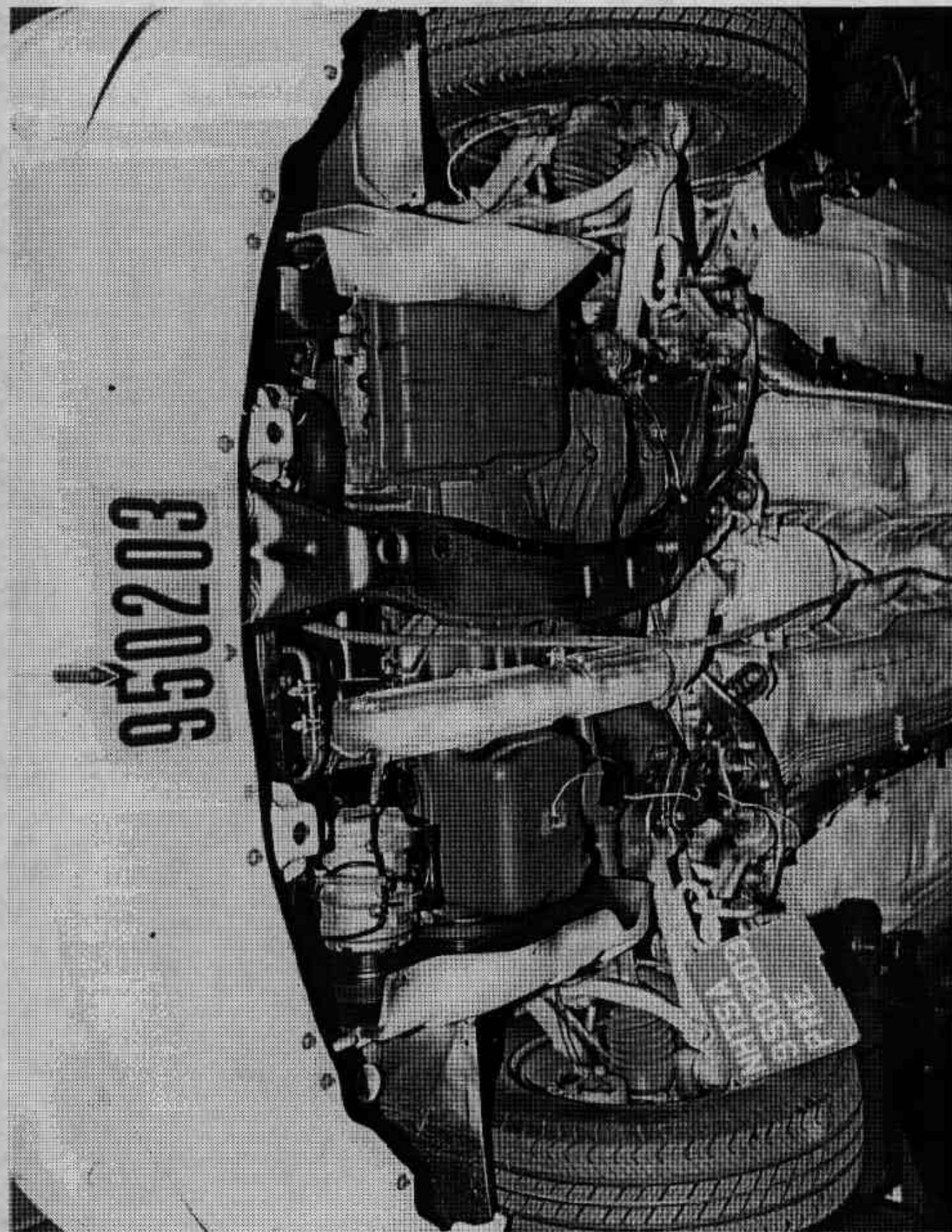


Figure A-23. Pre-Test Front Underbody View
A-24

950203

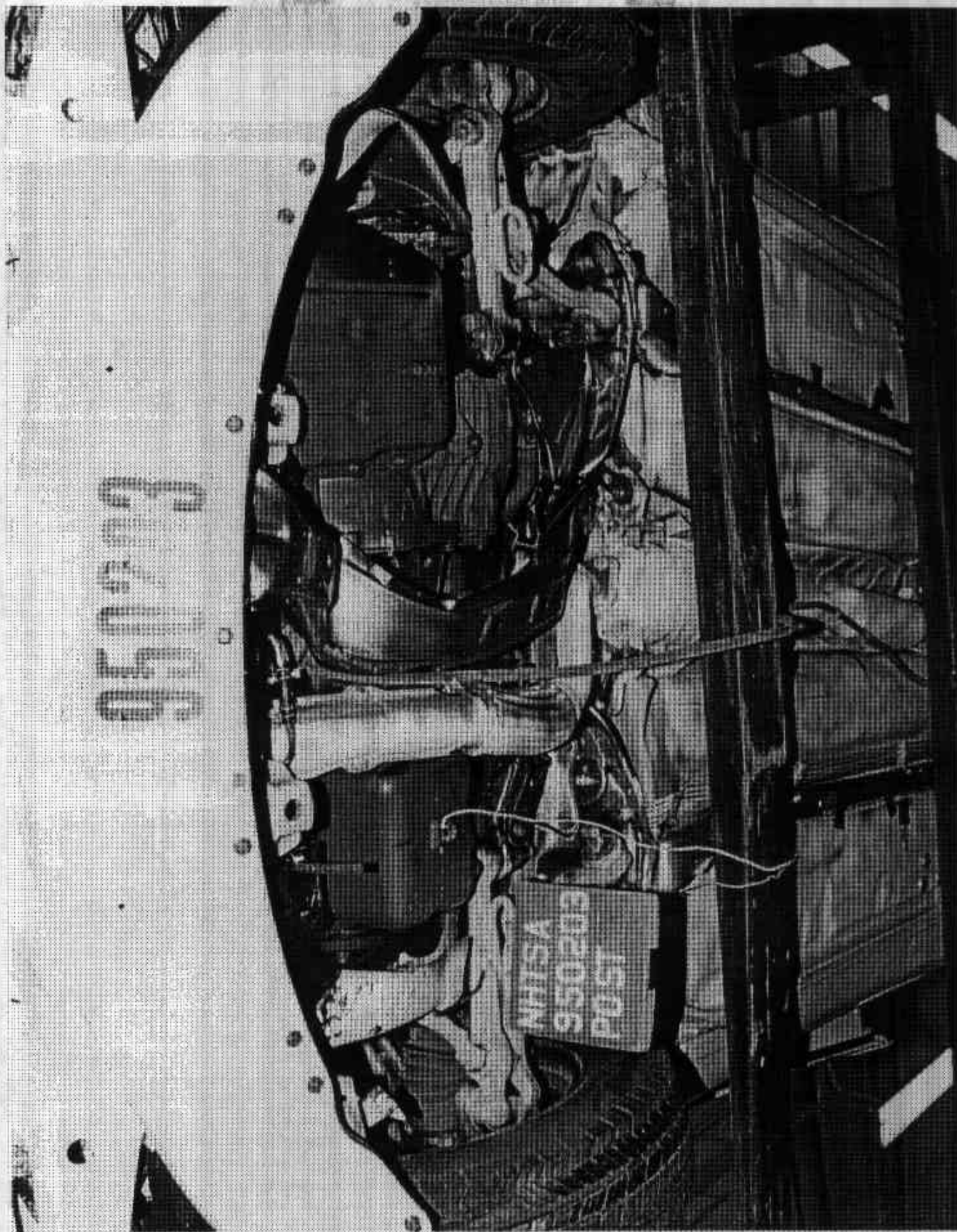


Figure A-24. Post-Test Front Underbody View
A-25

950203

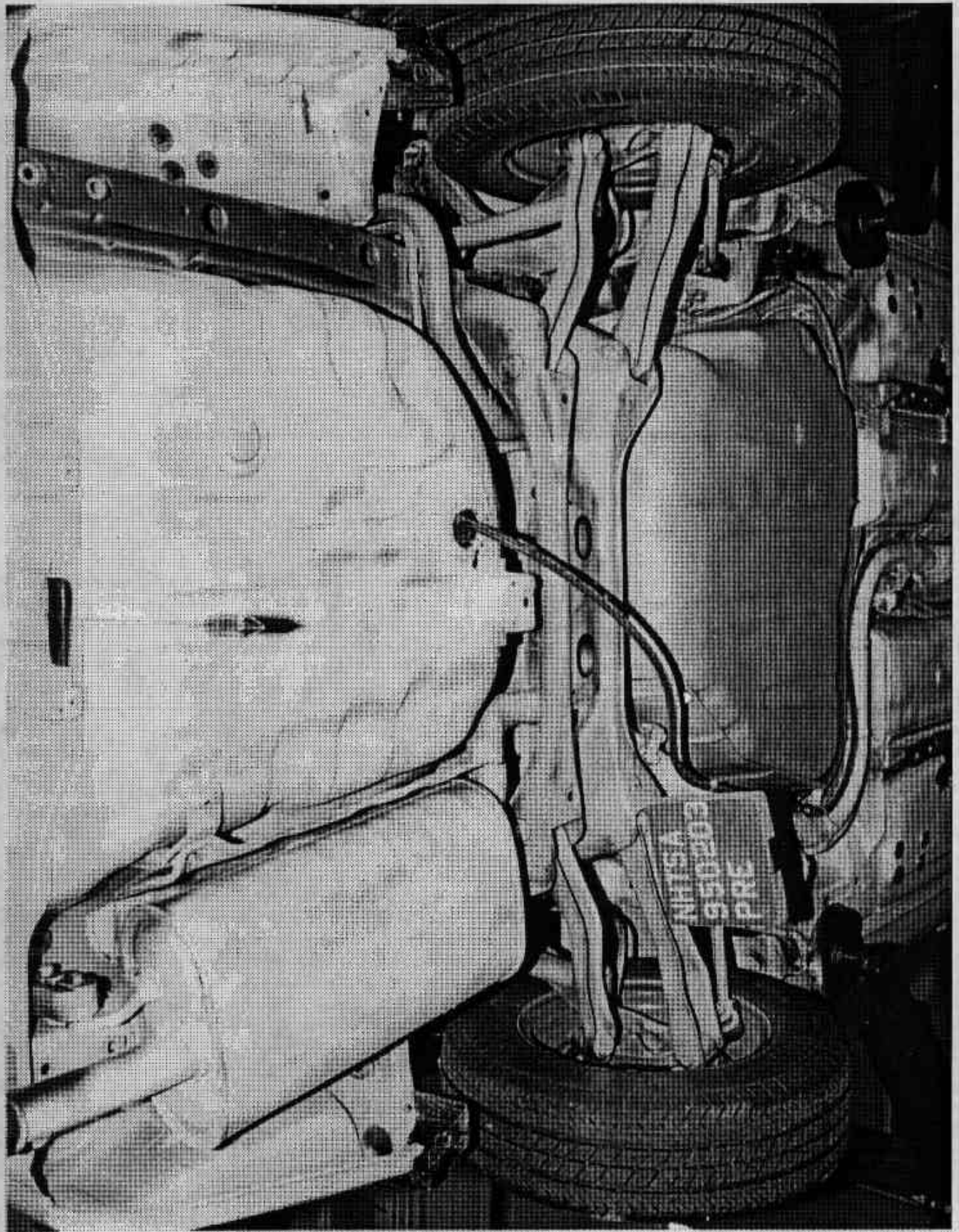


Figure A-25. Pre-Test Rear Underbody View
A-26

950203

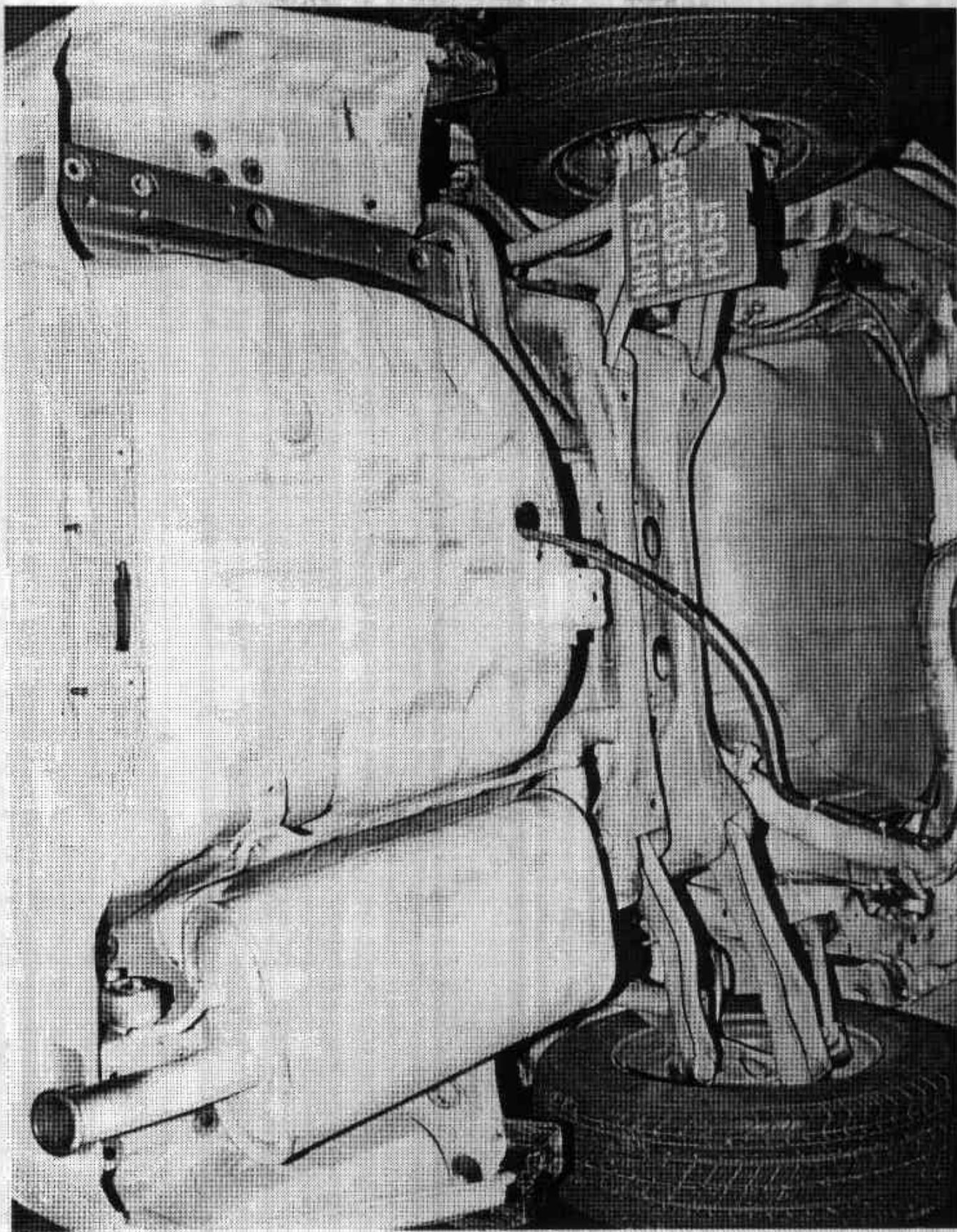


Figure A-26. Post-Test Rear Underbody View
A-27

950203

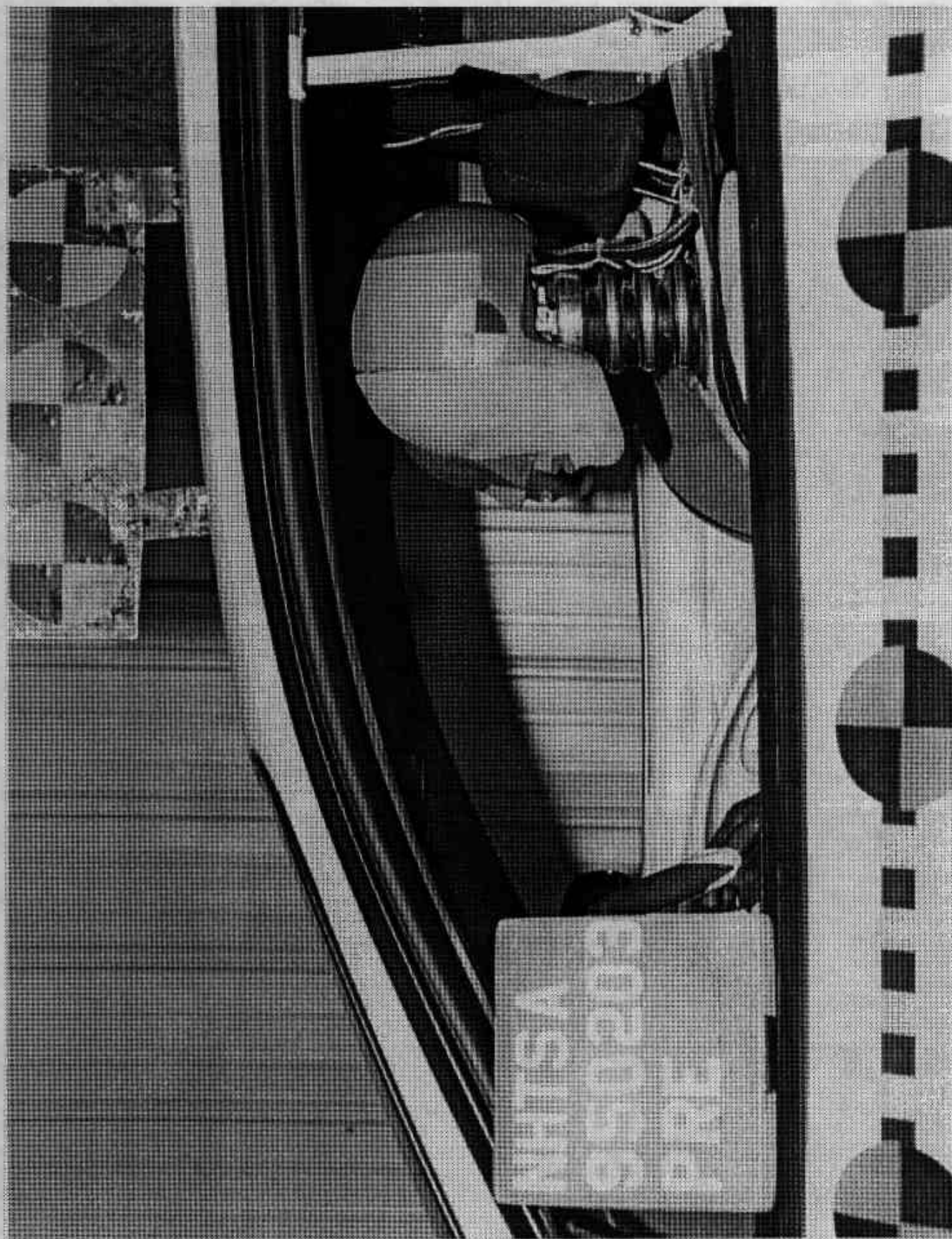


Figure A-27. Pre-Test Driver Dummy Position View
A-28

950203

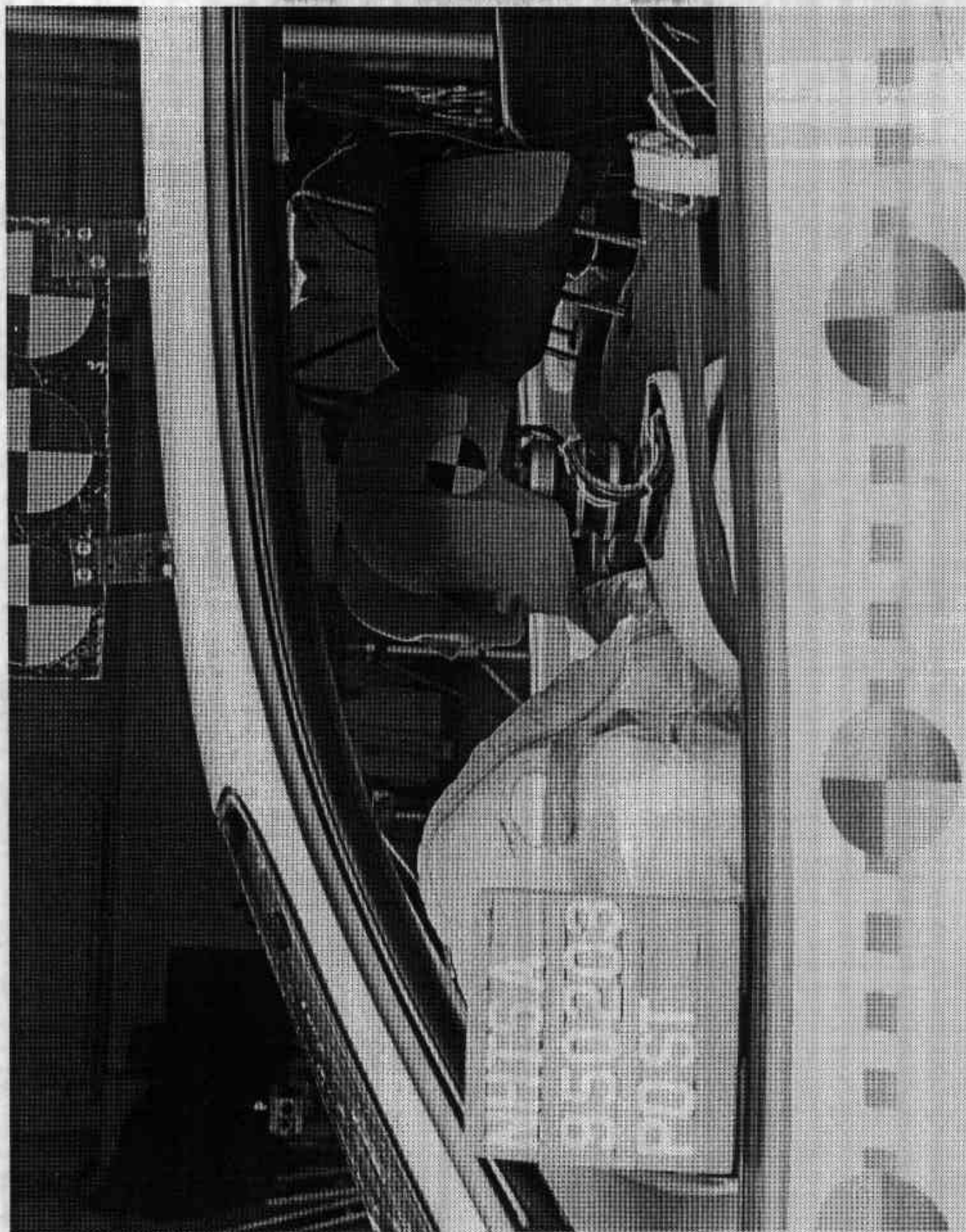


Figure A-28. Post-Test Driver Dummy Position View
A-29

950203

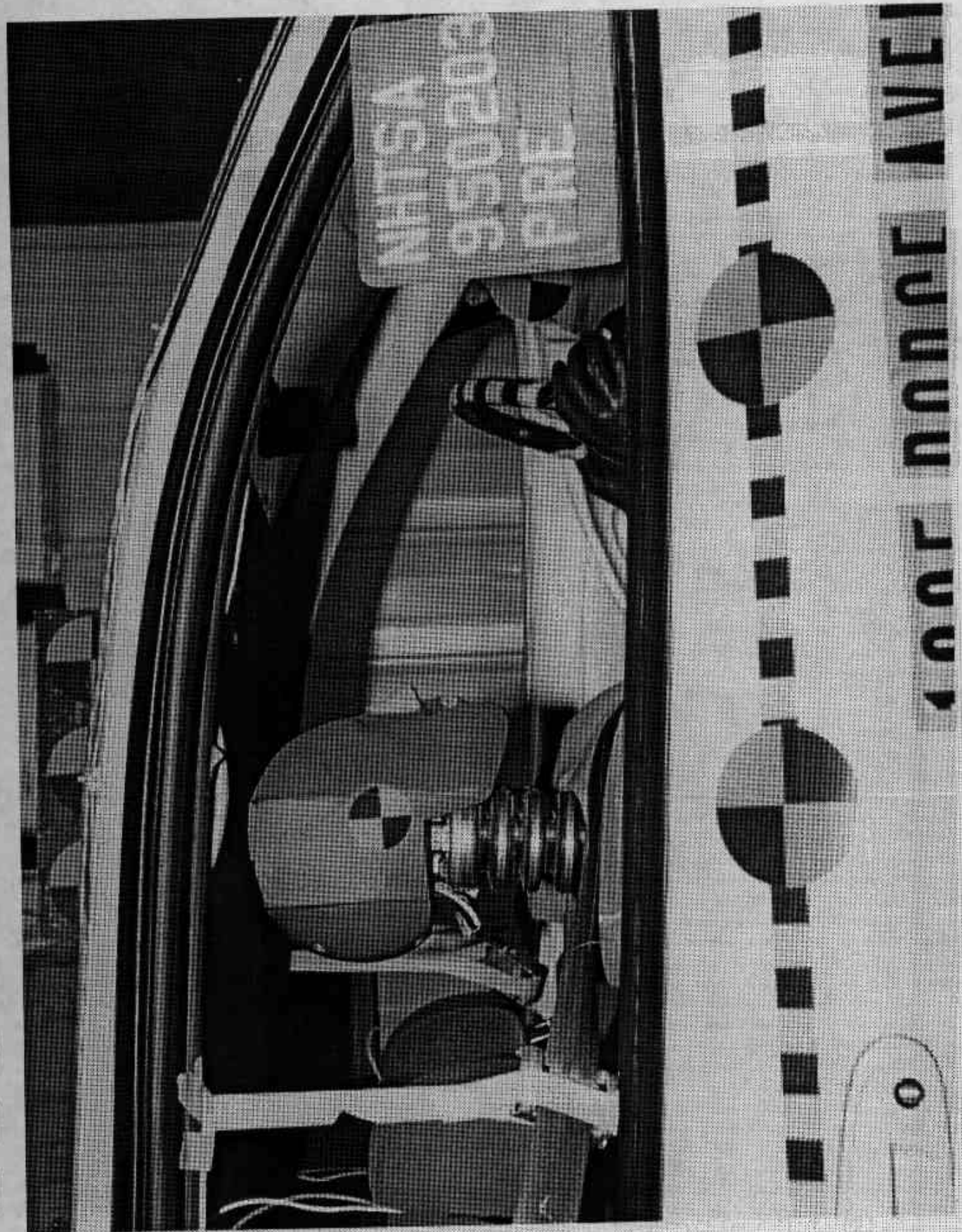


Figure A-29. Pre-Test Passenger Dummy Position View
A-30

950203

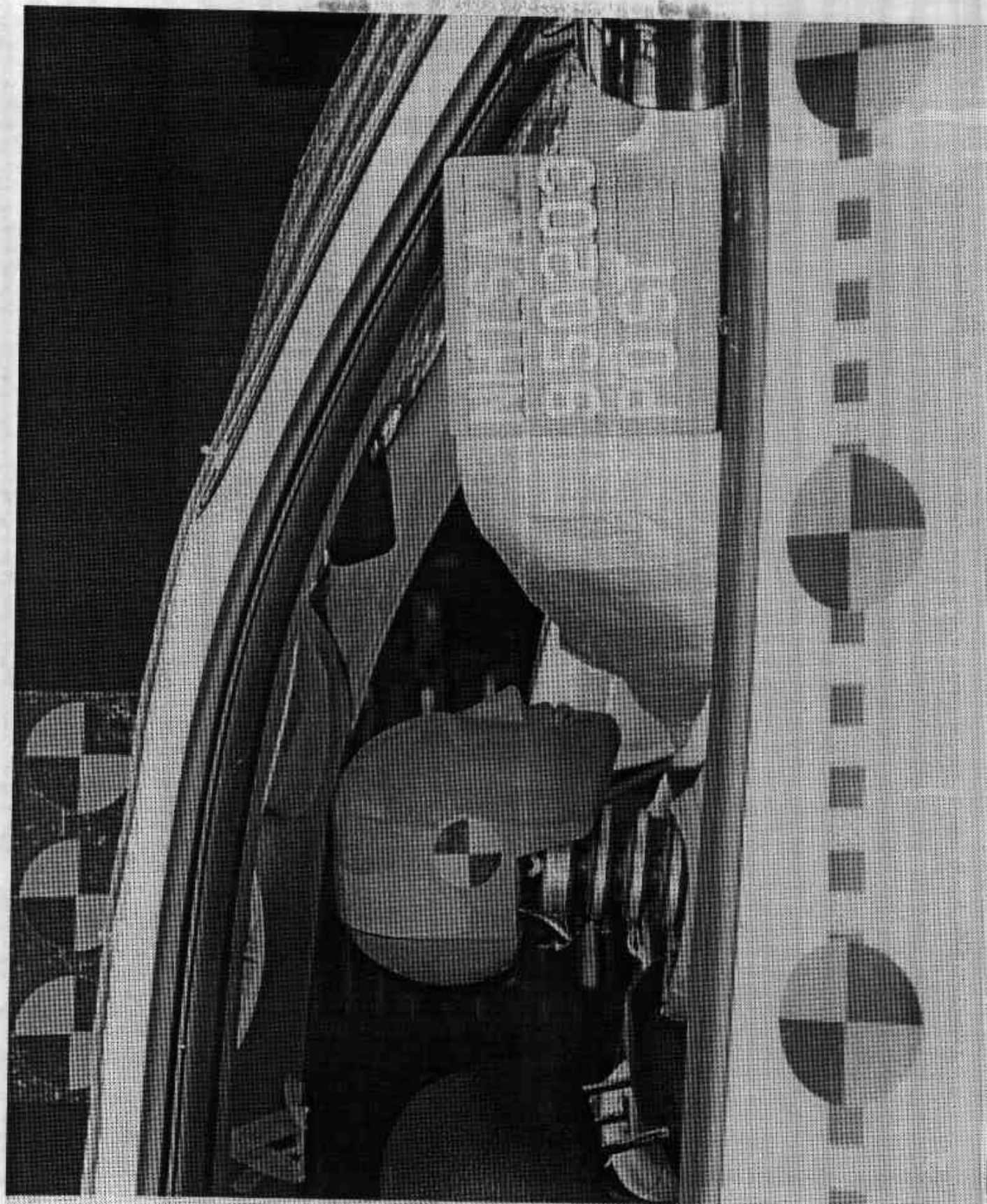


Figure A-30. Post-Test Passenger Dummy Position View
A-31

950203

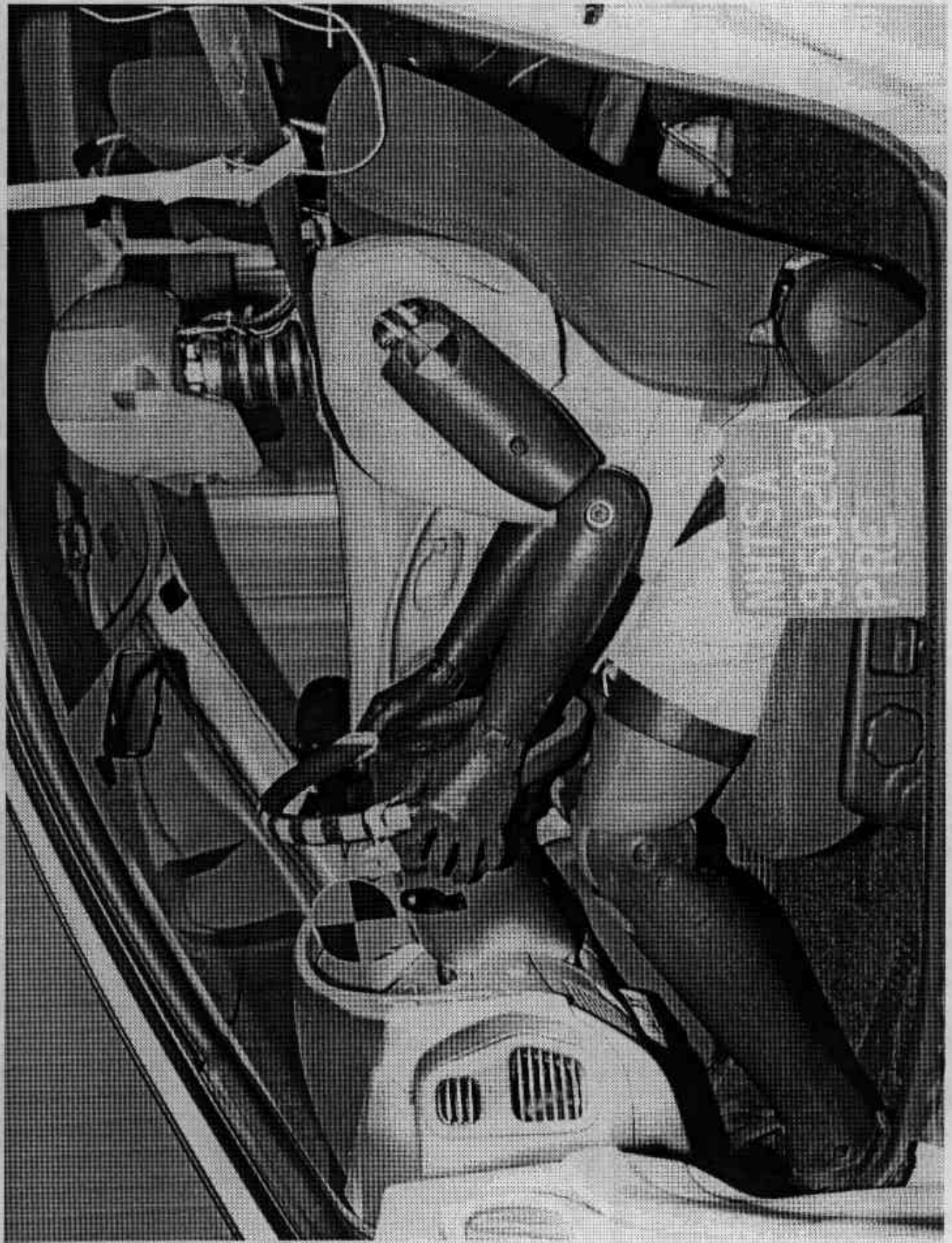


Figure A-31. Pre-Test Driver Dummy & Vehicle Interior - View 1
A-32

950203

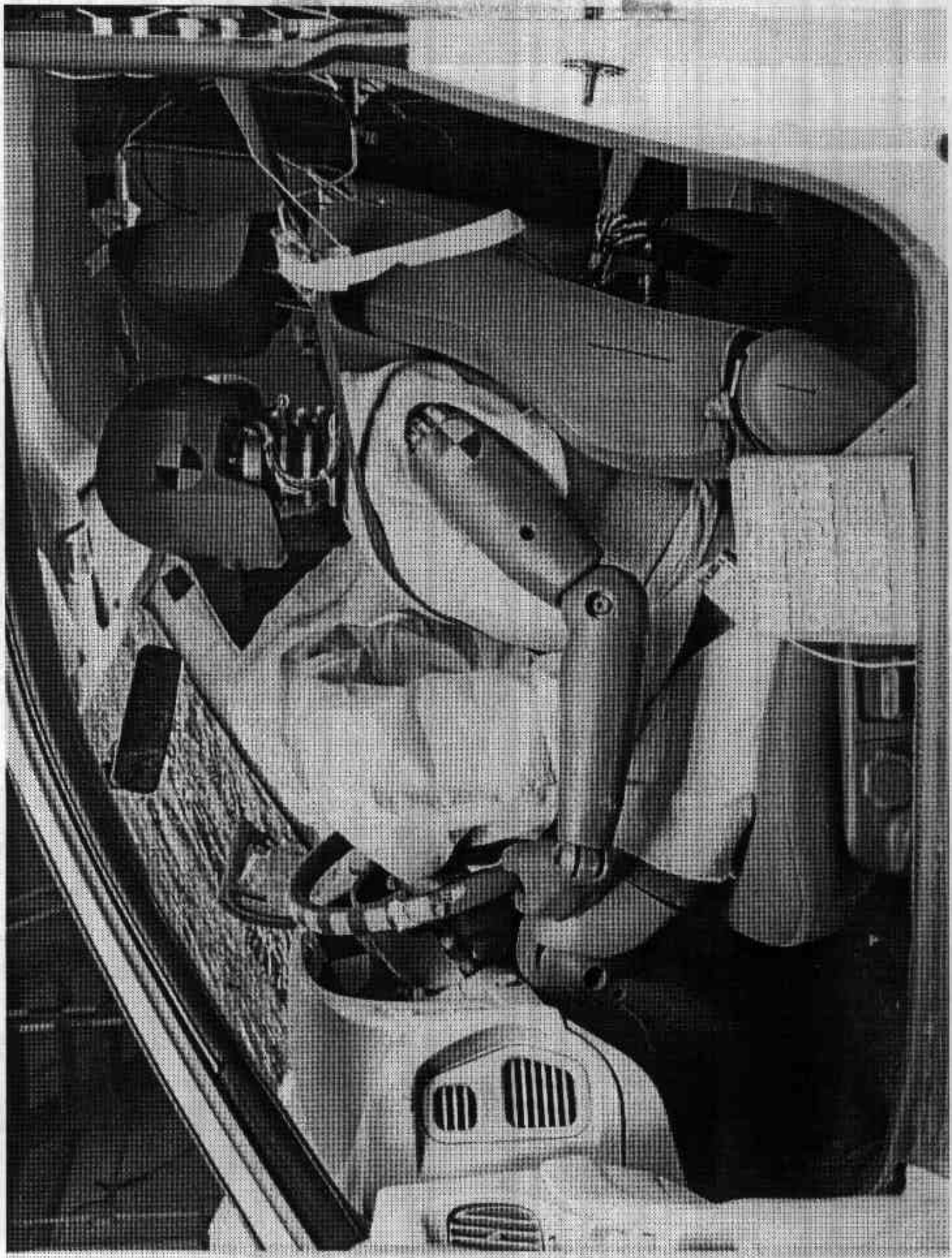


Figure A-32. Post-Test Driver Dummy & Vehicle Interior - View 1

A-33

950203

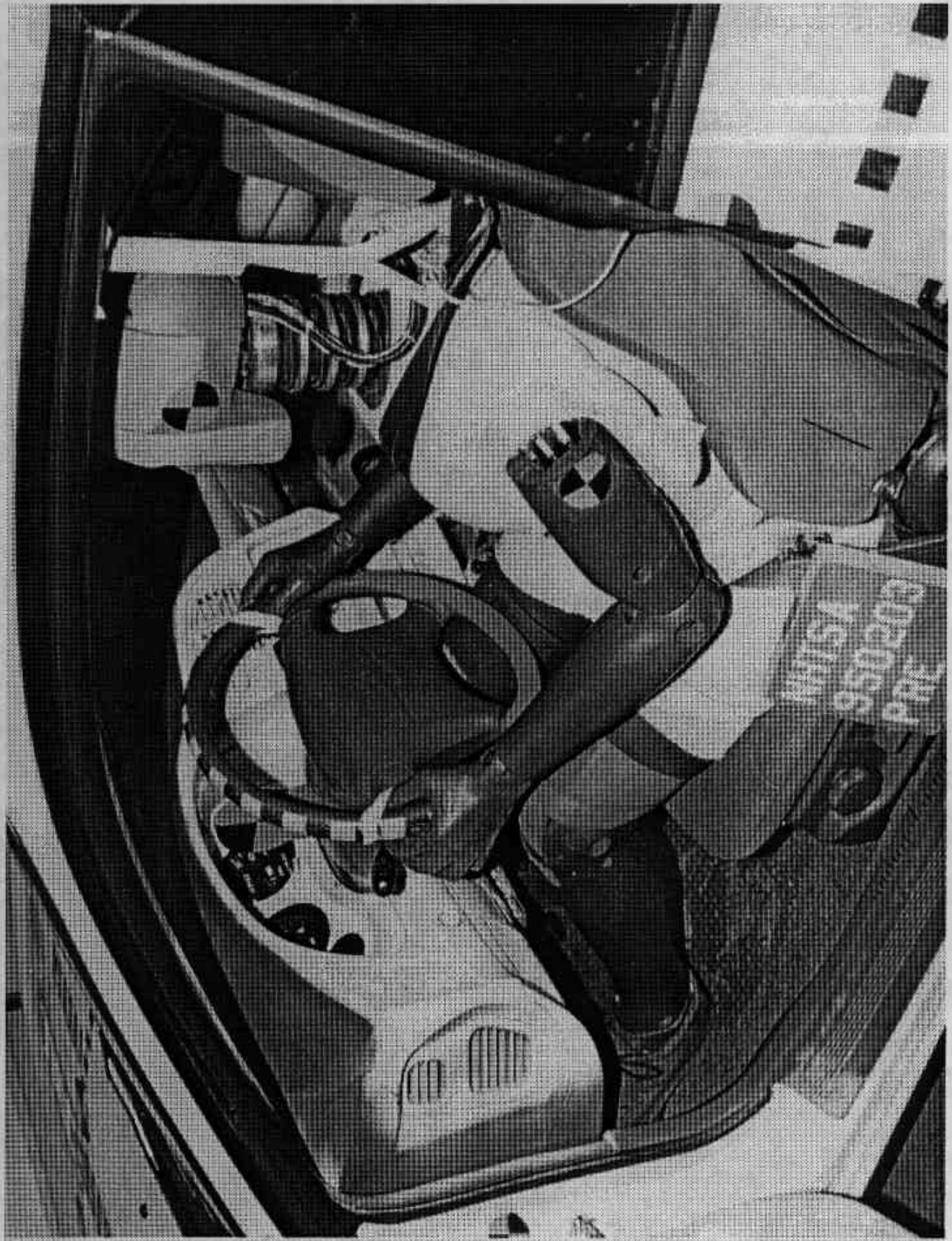


Figure A-33. Pre-Test Driver Dummy & Vehicle Interior - View 2

A-34

950203



Figure A-34. Post-Test Driver Dummy & Vehicle Interior - View 2

A-35

950203



Figure A-35. Pre-Test Passenger Dummy & Vehicle Interior - View 1
A-36

950203

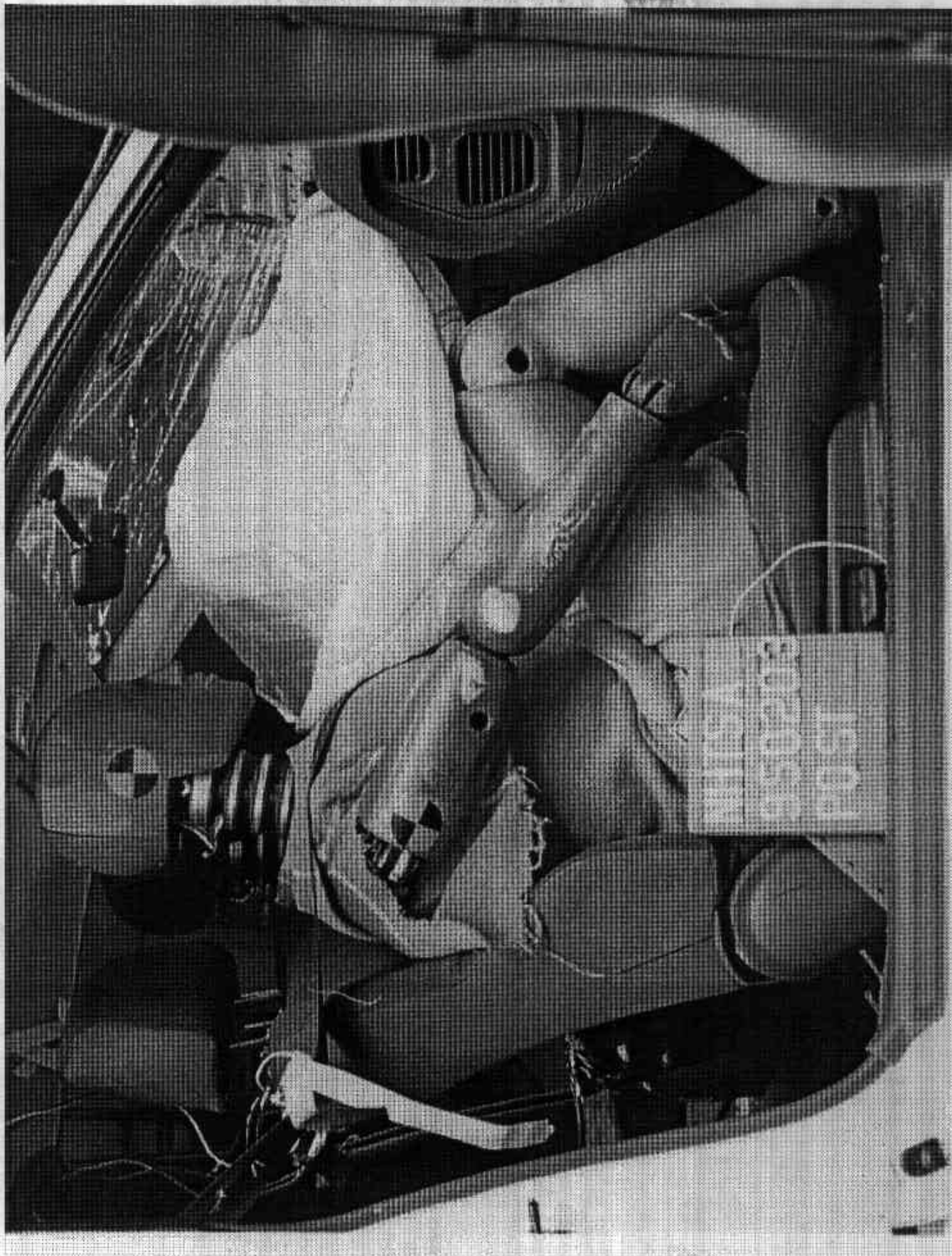


Figure A-36. Post-Test Passenger Dummy & Vehicle Interior - View 1

A-37

950203



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

A-38

950203

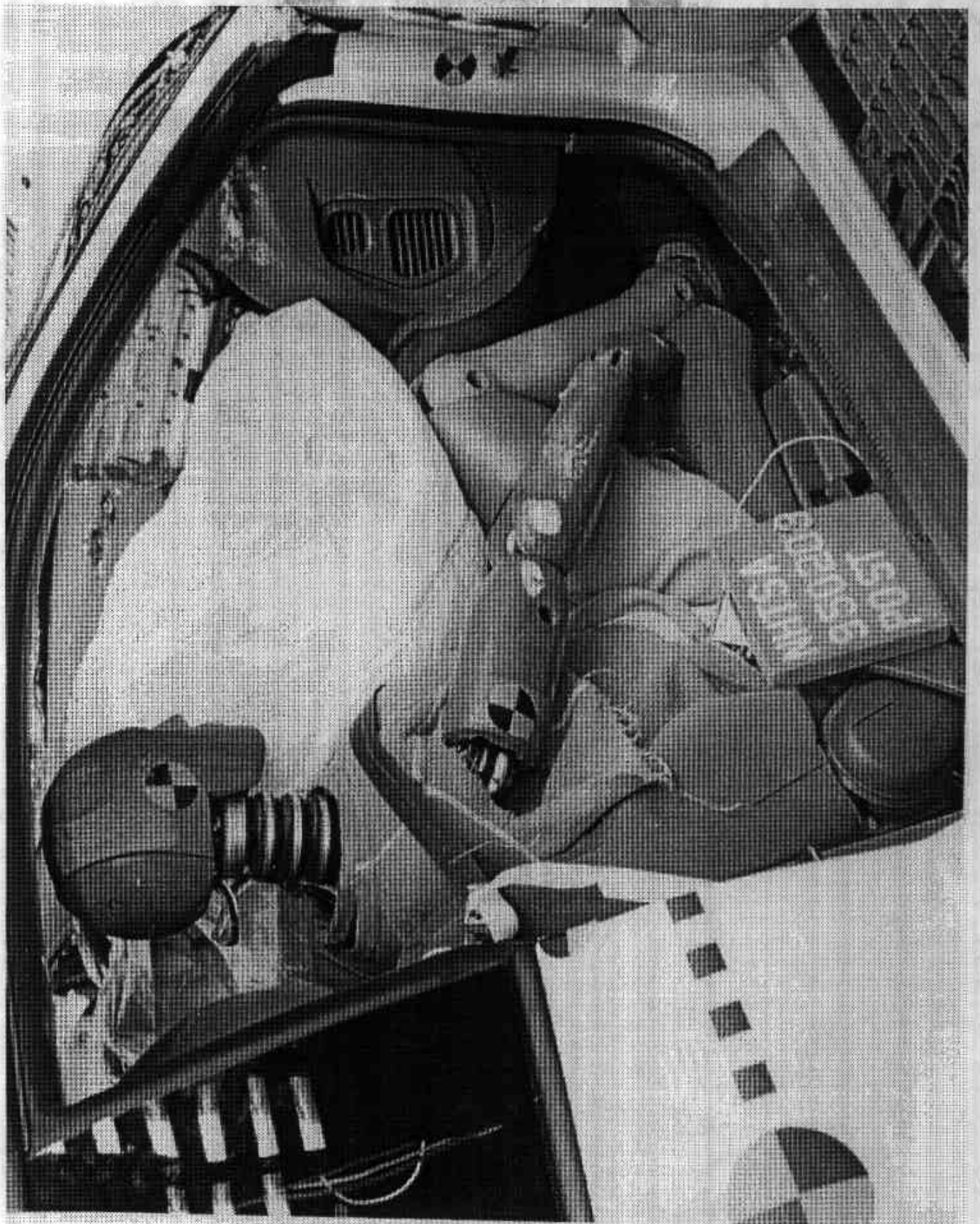


Figure A-38. Post-Test Passenger Dummy & Vehicle Interior - View 2

A-39

950203

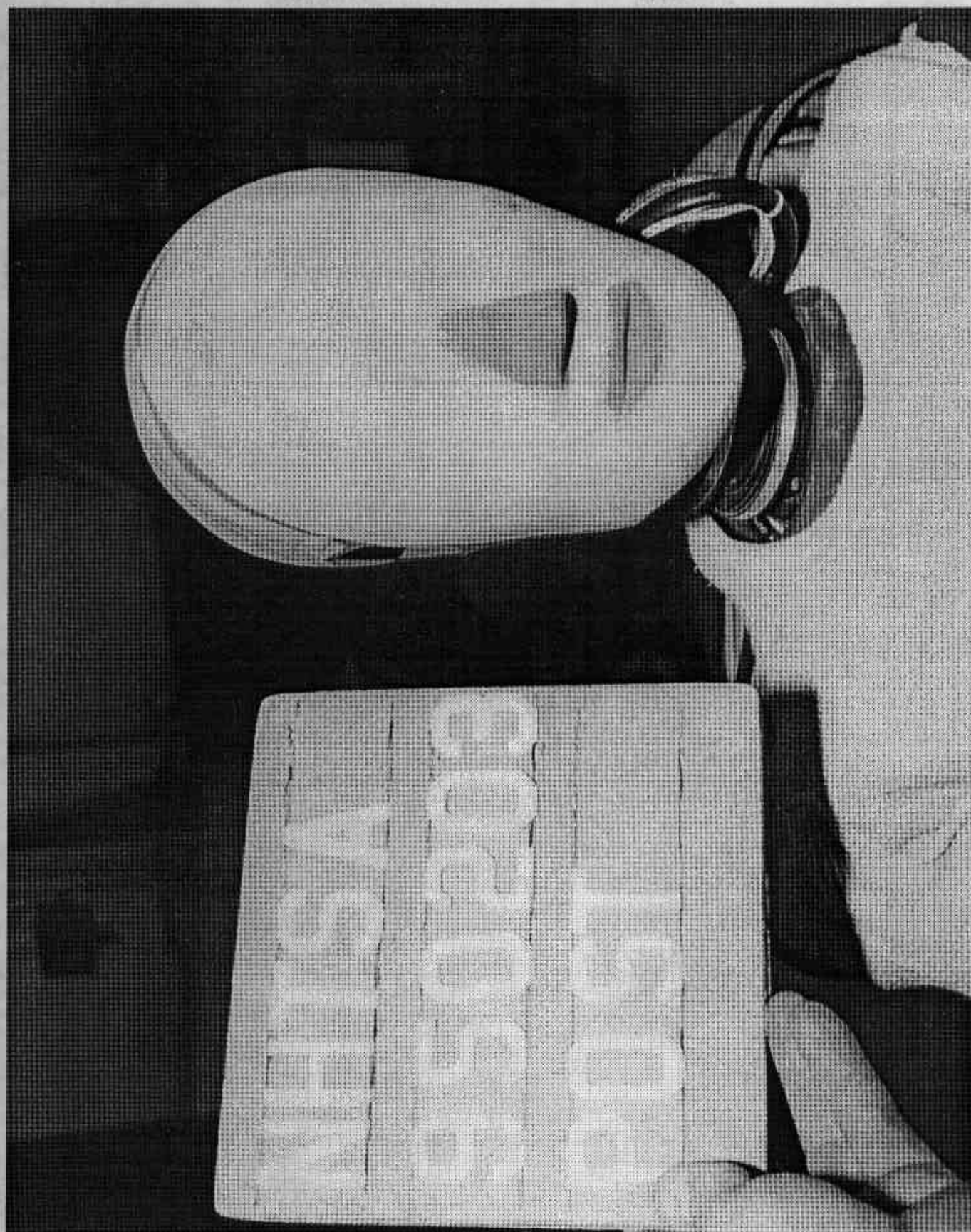


Figure A-39. Post-Test Driver Dummy Head Contact - View 1

A-40

950203



Figure A-40. Post-Test Driver Dummy Head Contact - View 2
A-41

950203

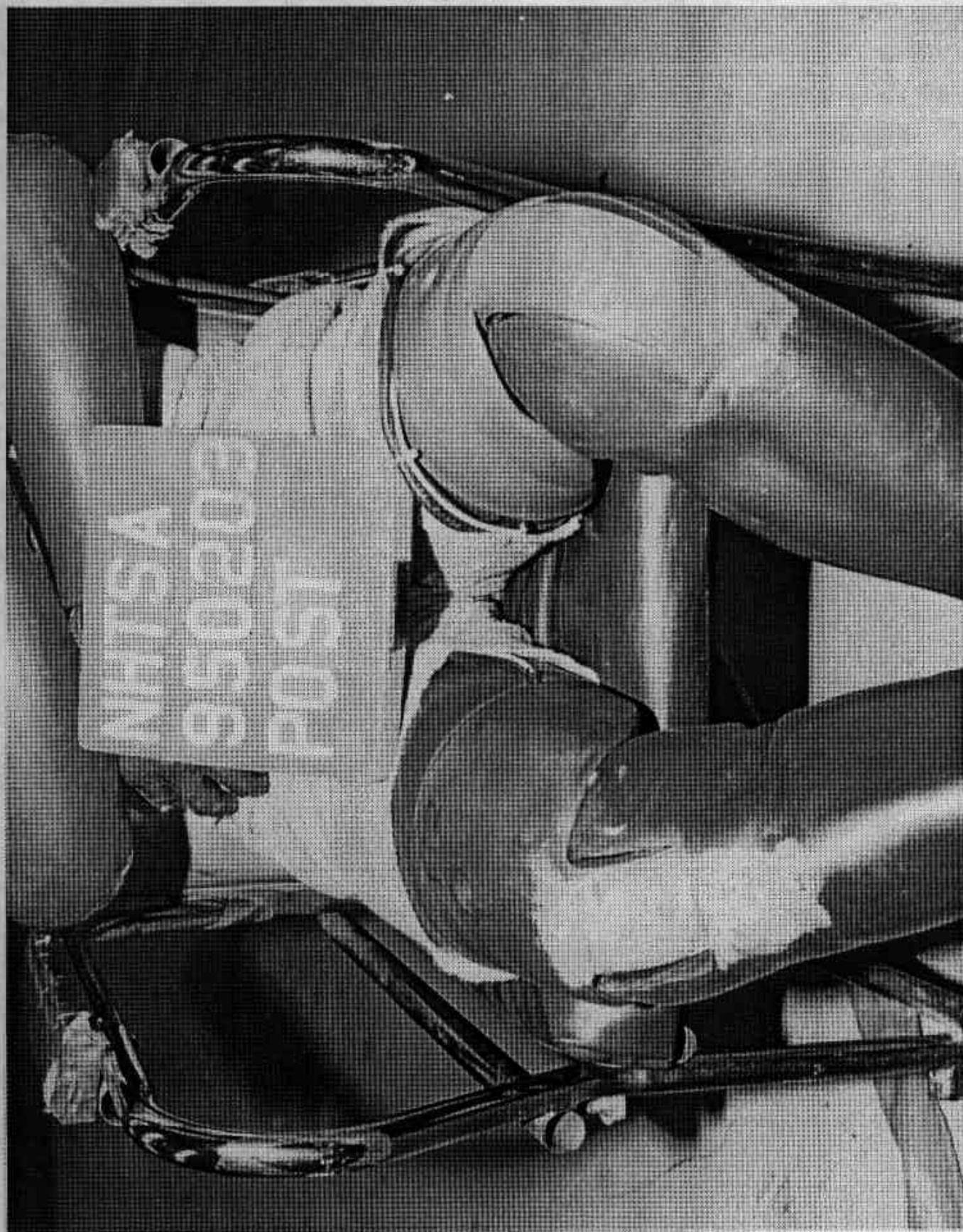


Figure A-41. Post-Test Driver Dummy Knee Contact - View 1
A-42

950203

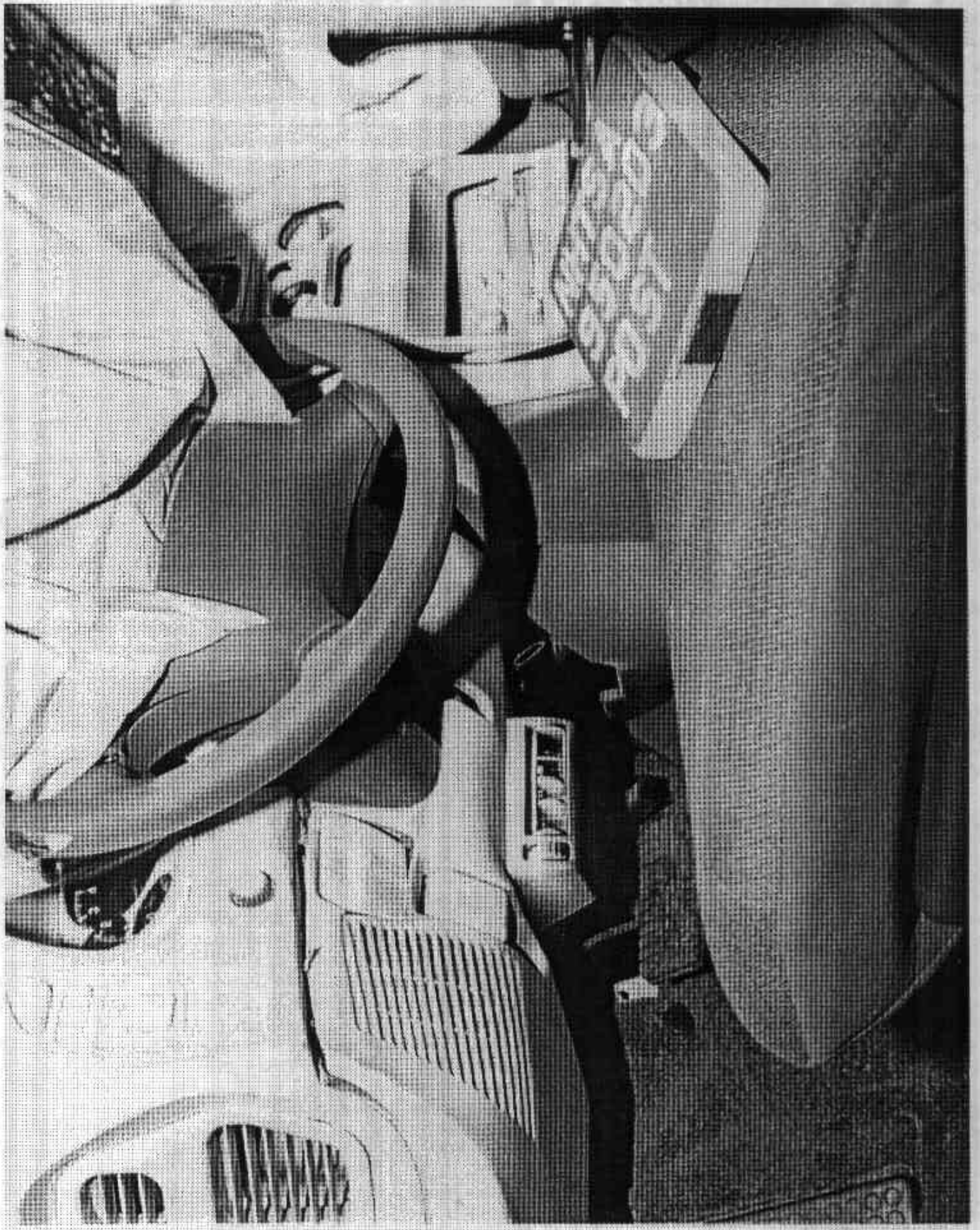


Figure A-42. Post-Test Driver Dummy Knee Contact - View 2

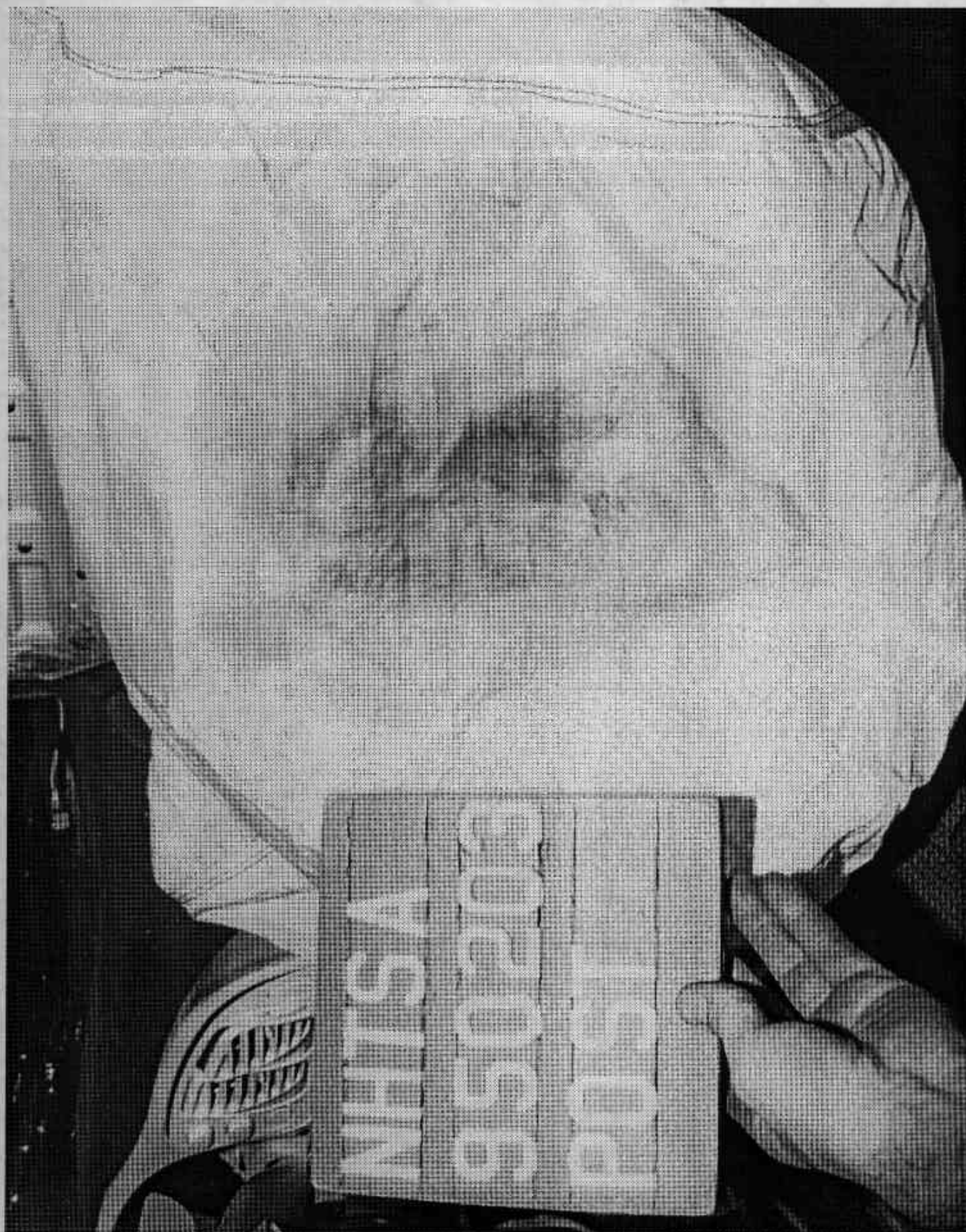


Figure A-43. Post-Test Passenger Dummy Head Contact View

A-44

950203

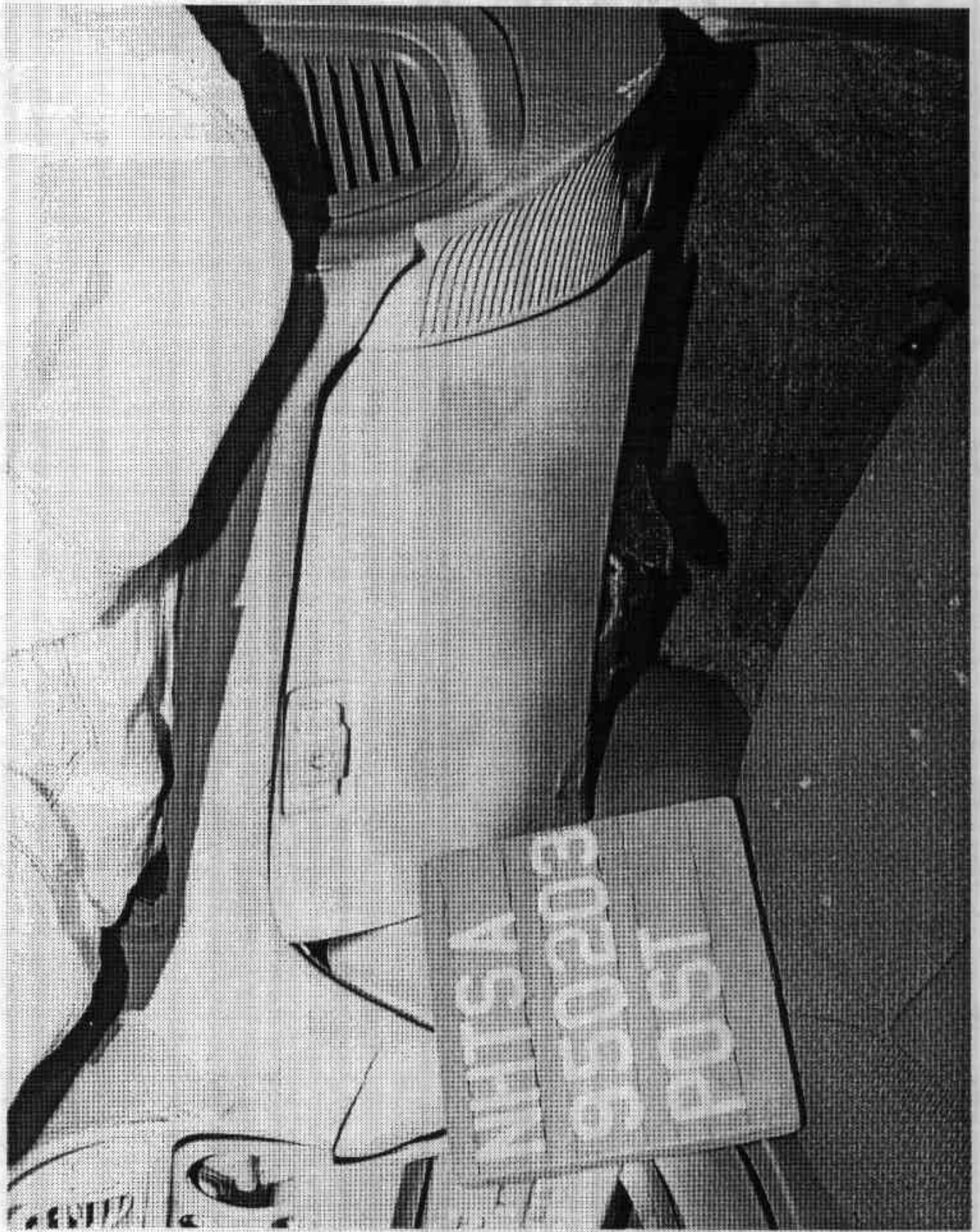


Figure A-44. Post-Test Passenger Dummy Knee Contact View
A-45

950203

MADE IN U.S.A. DATE DEC. 1974

MANUFACTURED BY LIAISON-STAMP MOTORS CORP.

GVA 3925 LBS GMP 2162 LBS GMP 1764 LBS
1760 LBS FF. 580 LBS GMP 400 LBS

THIS VEHICLE OFFERS THE ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY BUREAU AND
TEST PREVENTIVE STANDARDS IN EFFECT AT
THE DATE OF MANUFACTURE SHOWN ABOVE.

4334 42752116285



FM 120008

VEHICLE TYPE: PASSENGER CAR 115000237

Figure A-45. Pre-Test Vehicle Certification Label View

TIRE INFLATION PRESSURE (COLD)	
STANDARD INFLATION PRESSURE FOR ALL LOAD	
1ST SEAT	2 PASS.
2ND SEAT	3 PASS.
TOTAL	5 PASS.
LUGGAGE	35kg (77 lbs)
TOTAL WEIGHT	375kg (827 lbs)
TIRE SIZE	P195/70R14 90H
FRONT	REAR
220kPa (32psi)	200kPa (29psi)
TIRE SIZE T125/70D15 TEMPORARY USE ONLY	
420kPa	(60psi)

PART NO. MR130711

Figure A-46. Pre-Test Vehicle Recommended Tire Pressure Label View

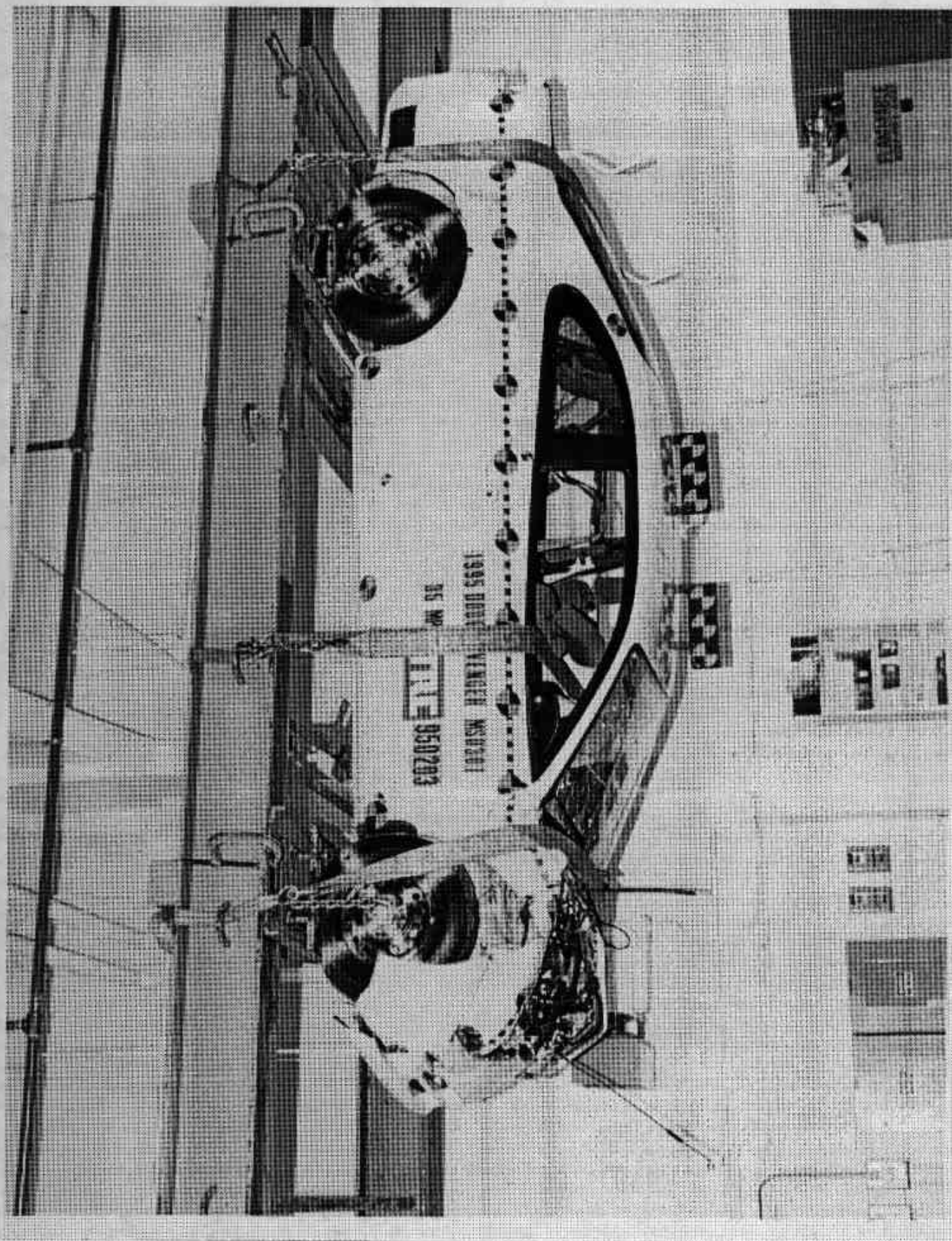


Figure A-47. Post-Test Vehicle on Static Rollover Machine View

A-48

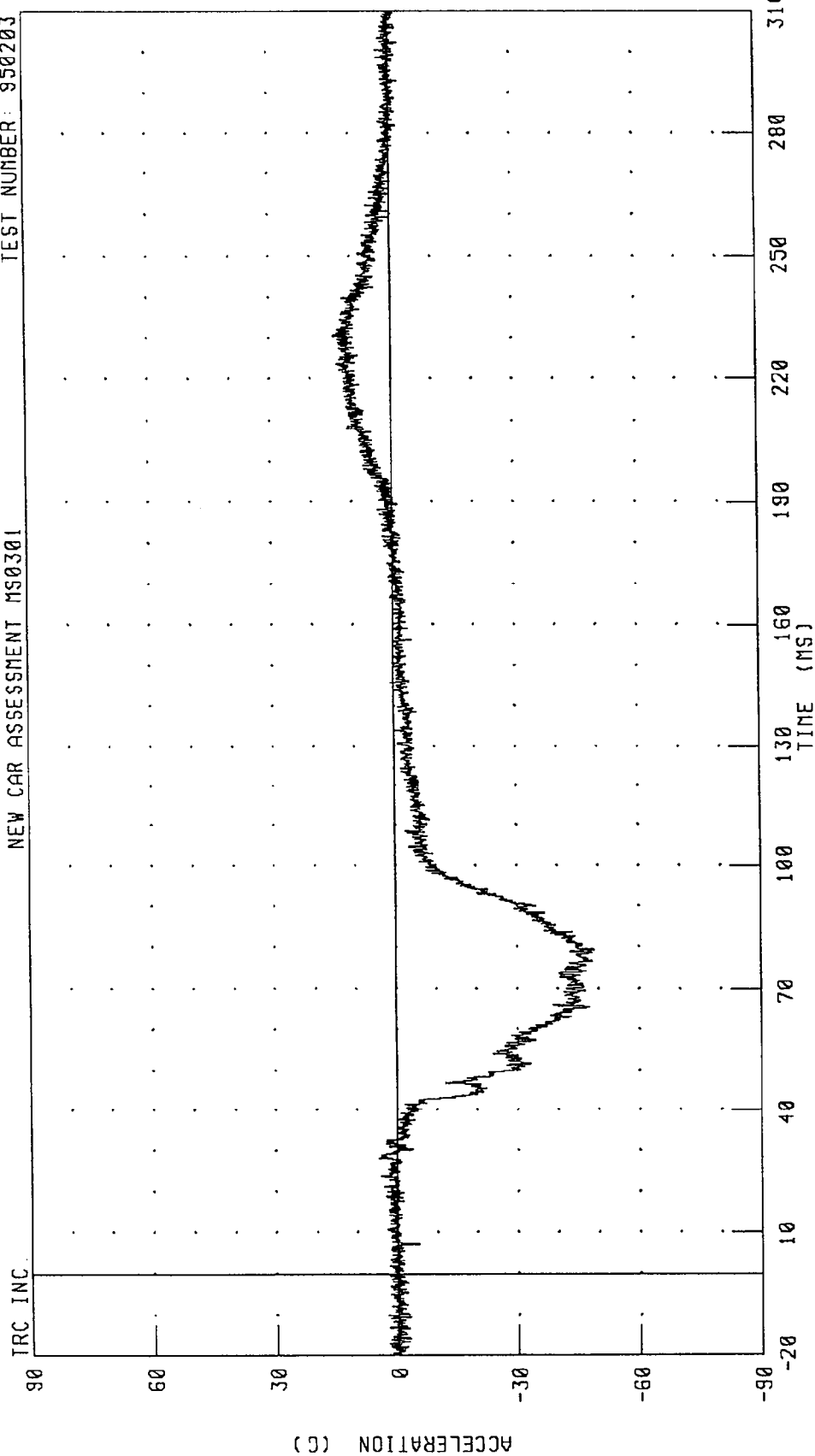
950203

Appendix B

Data Plots

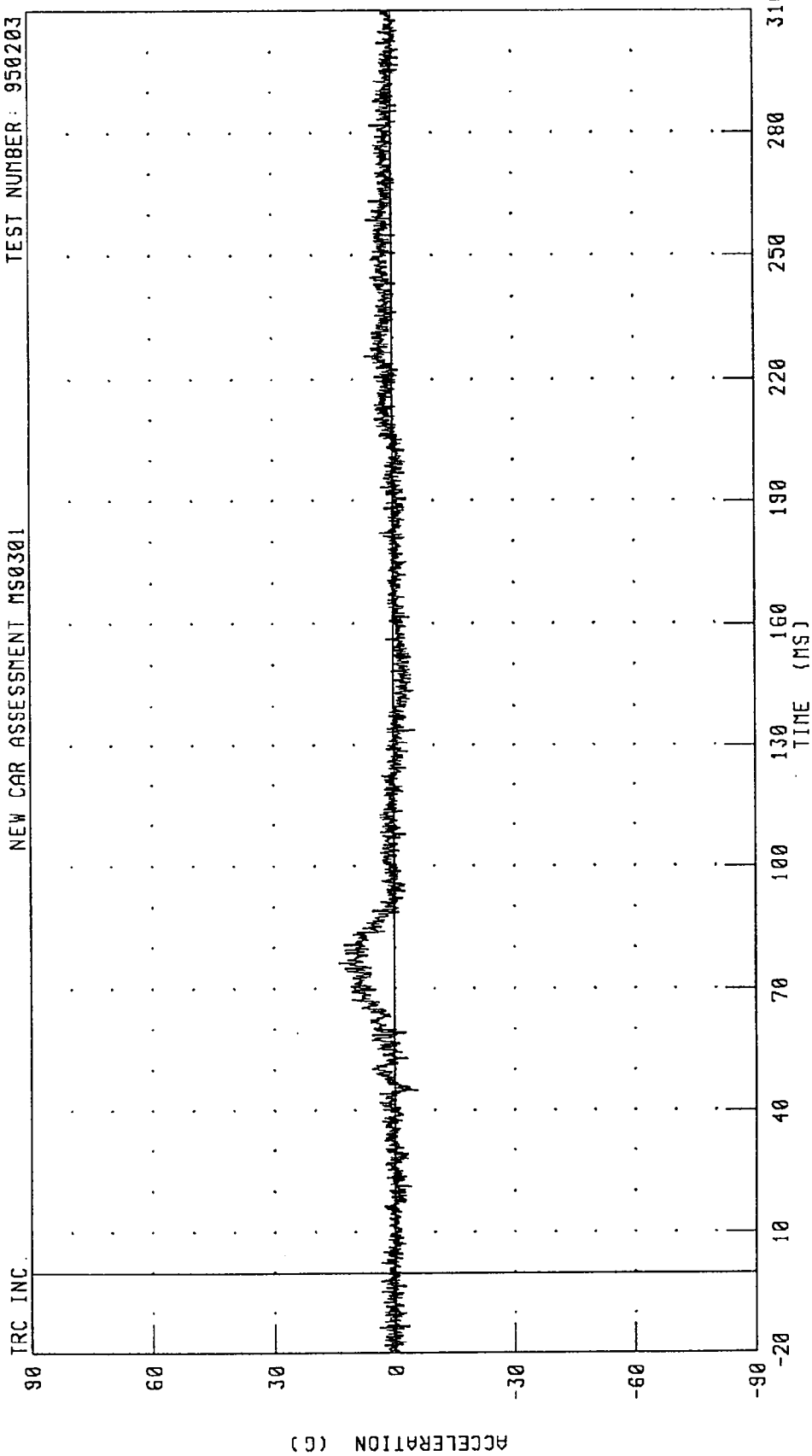
1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

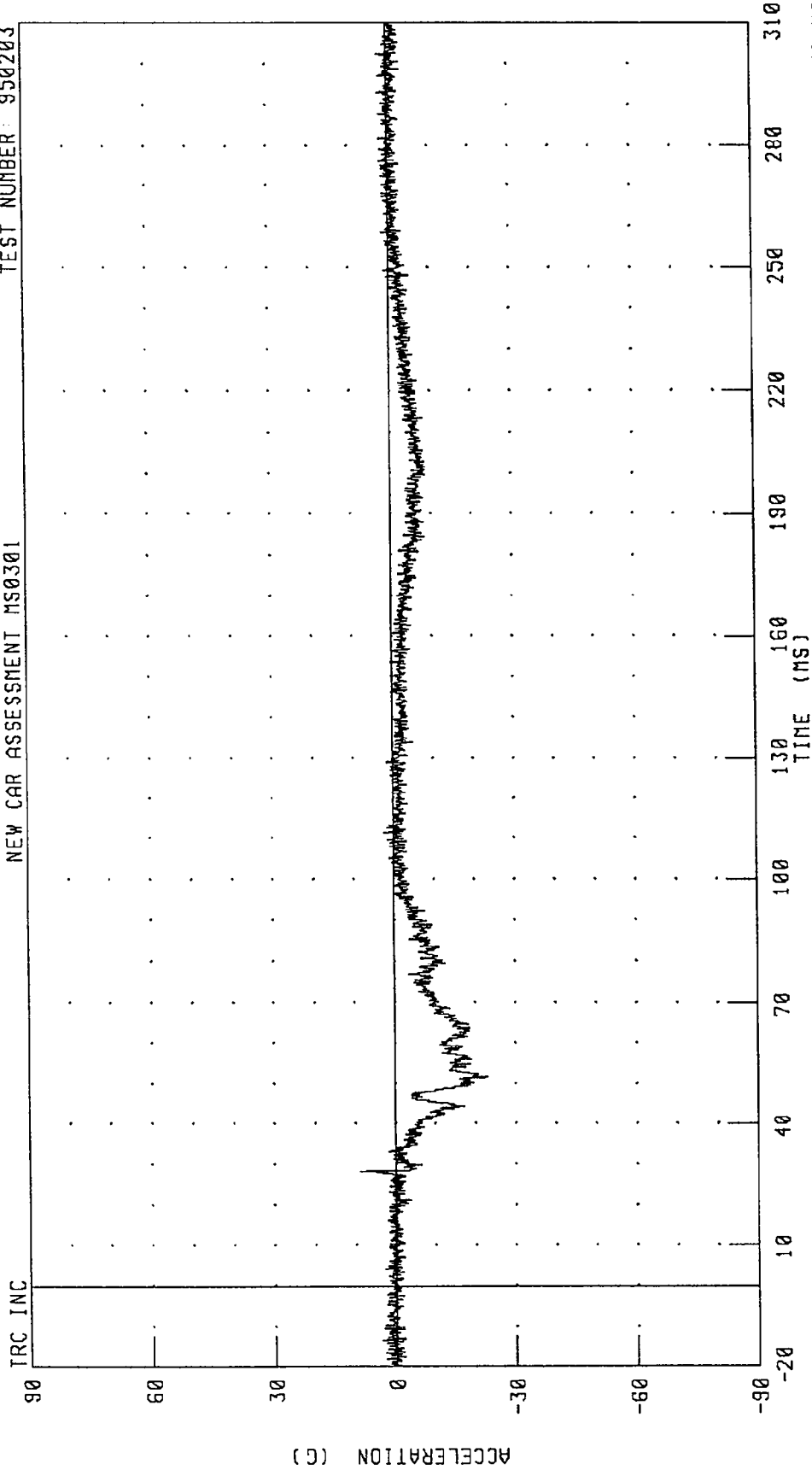


CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

950203

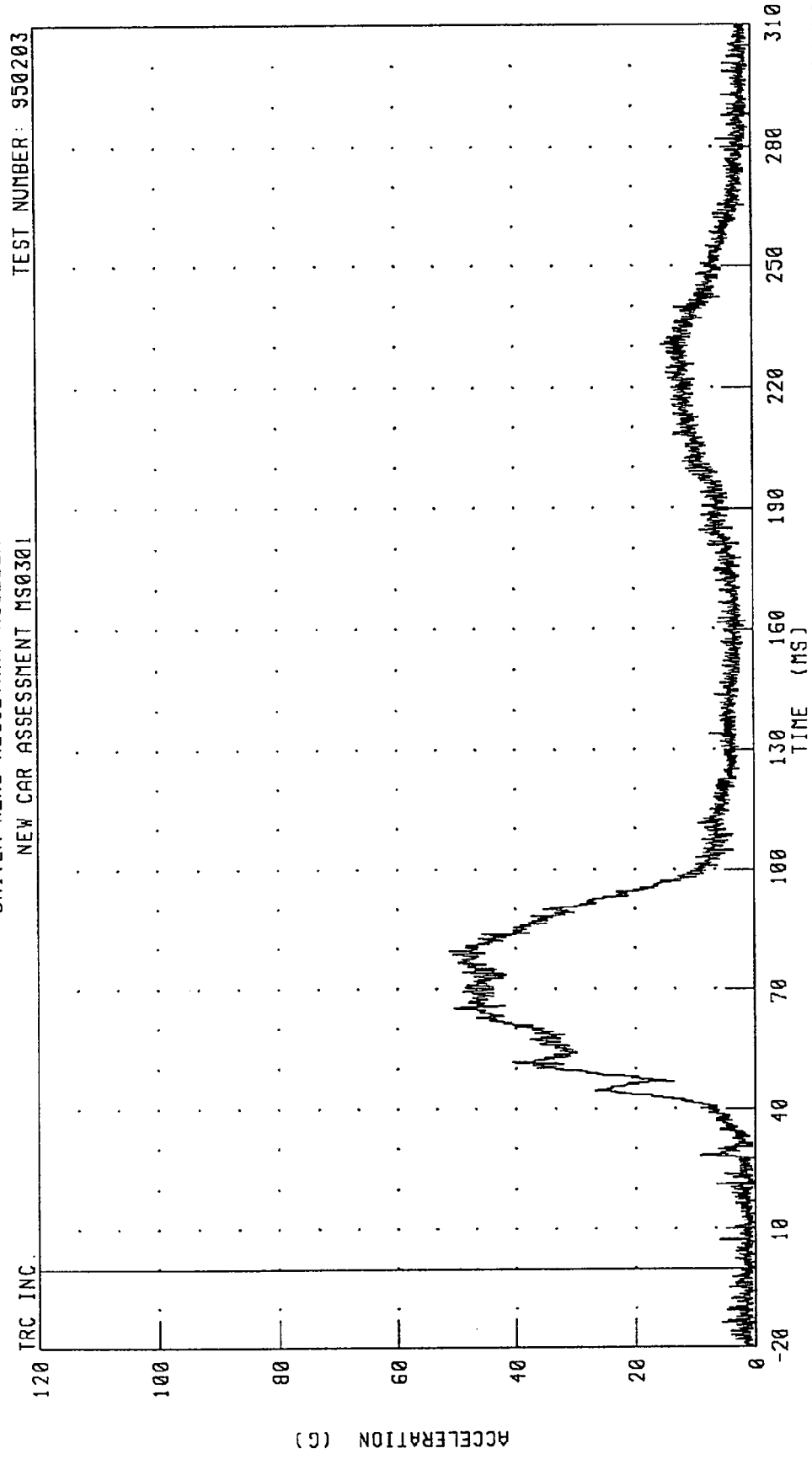
1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD RESULTANT ACCELERATION

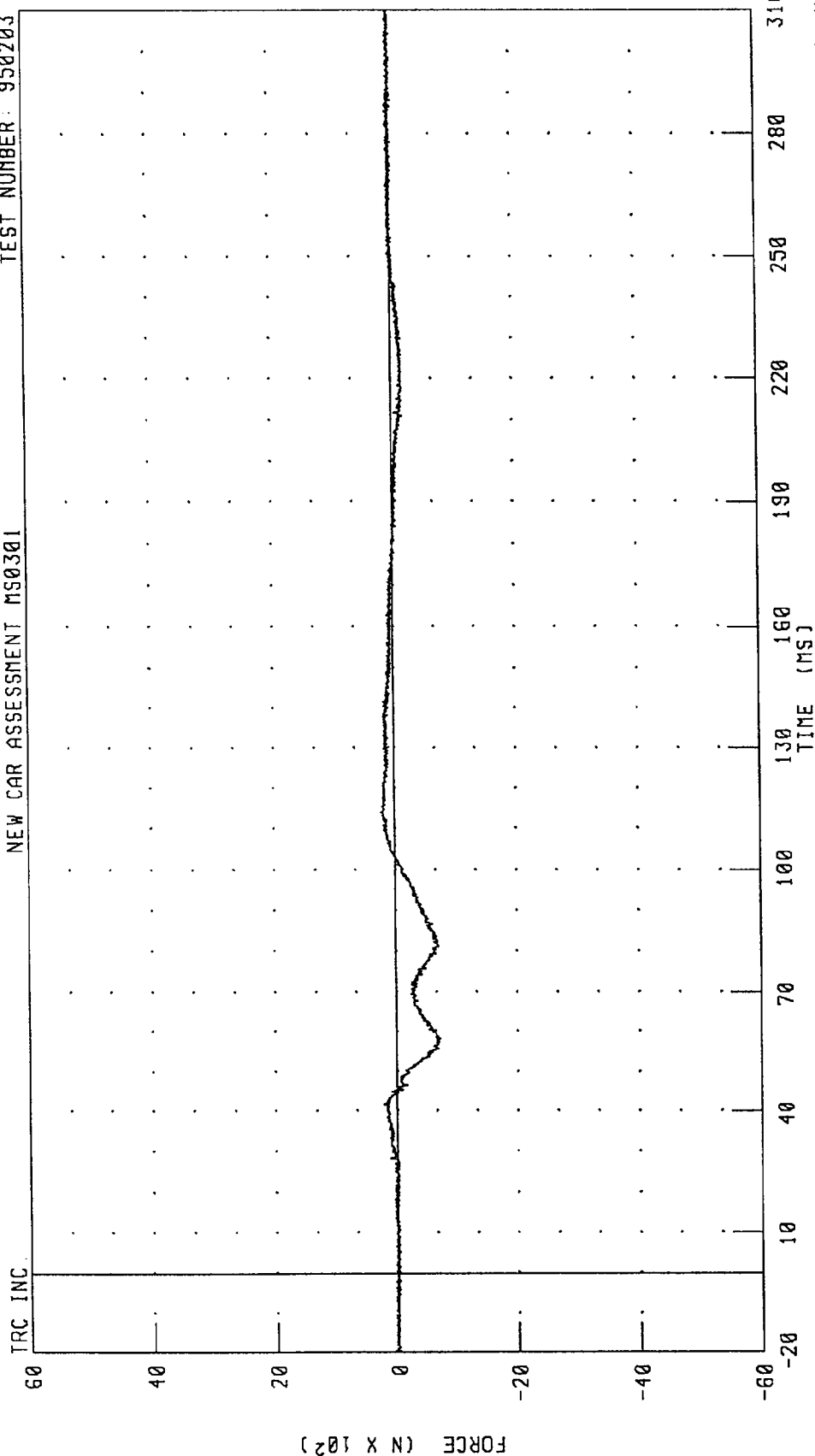


CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 51.17 G @ 79.52 MS; 0.24 G @ -13.76 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK X-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

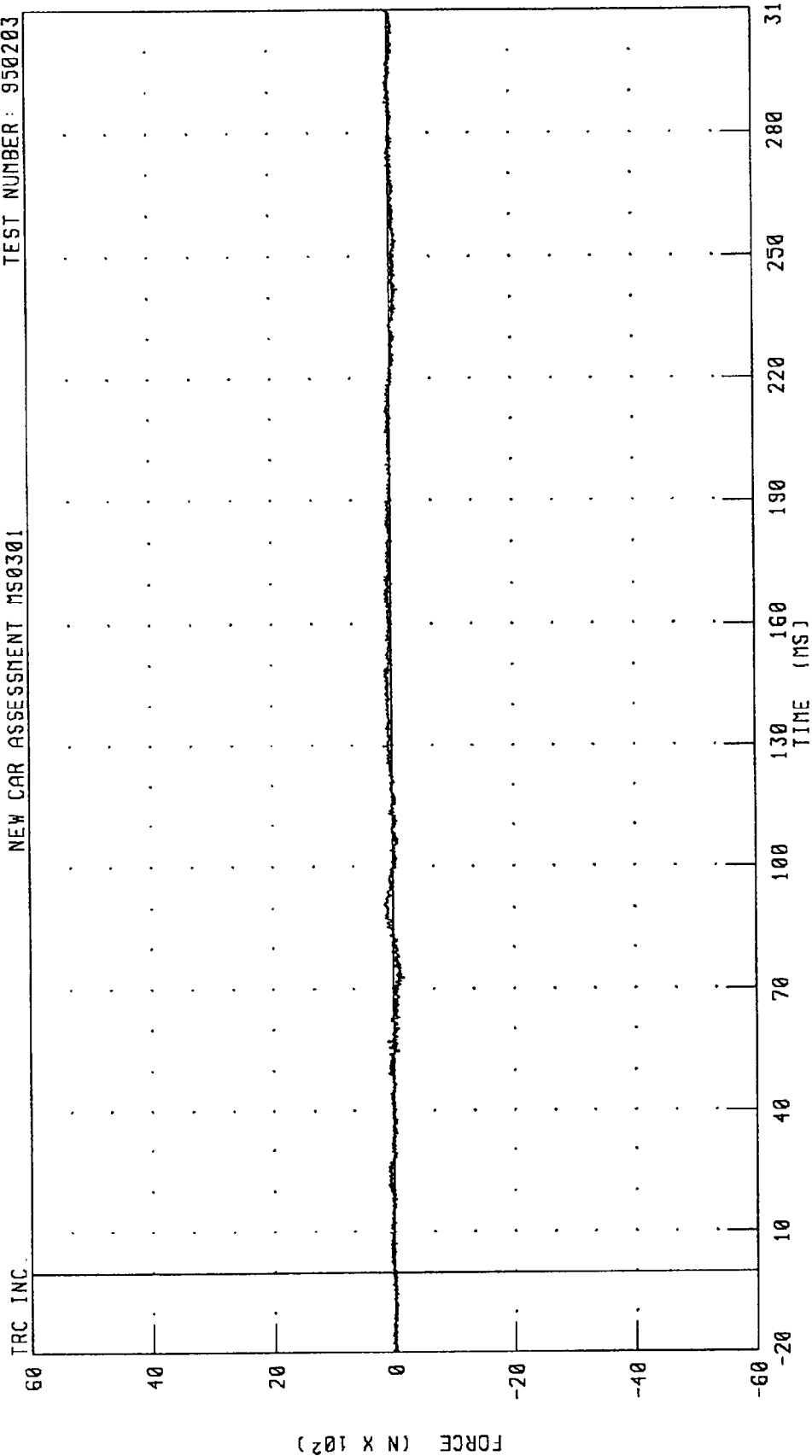


CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 238.92 N @ 114.00 MS; -719.43 N @ 58.24 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Y-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

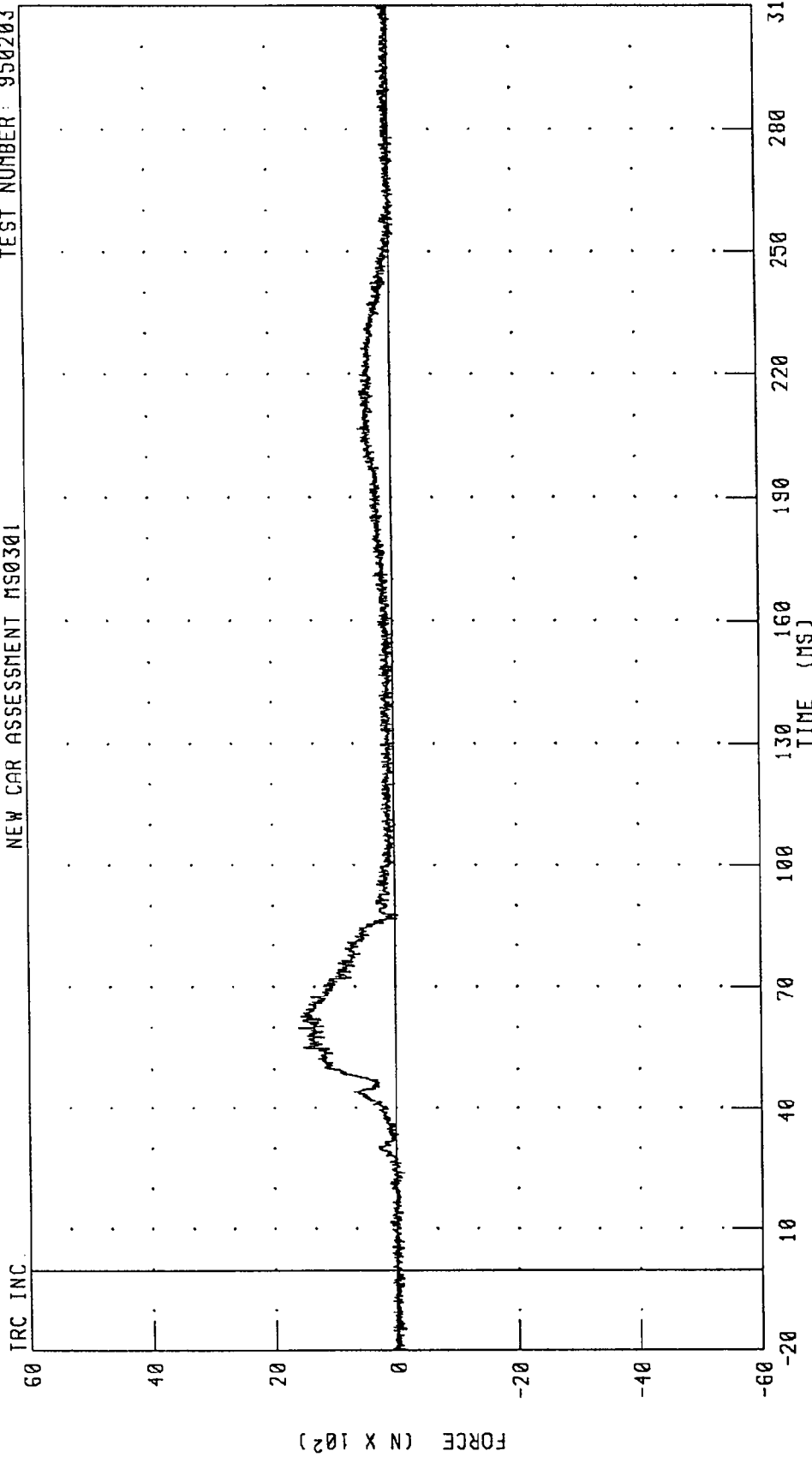


PEAK DATA: 156.05 N @ 90.72 MS; -163.24 N @ 72.80 MS

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Z-AXIS AXIAL FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

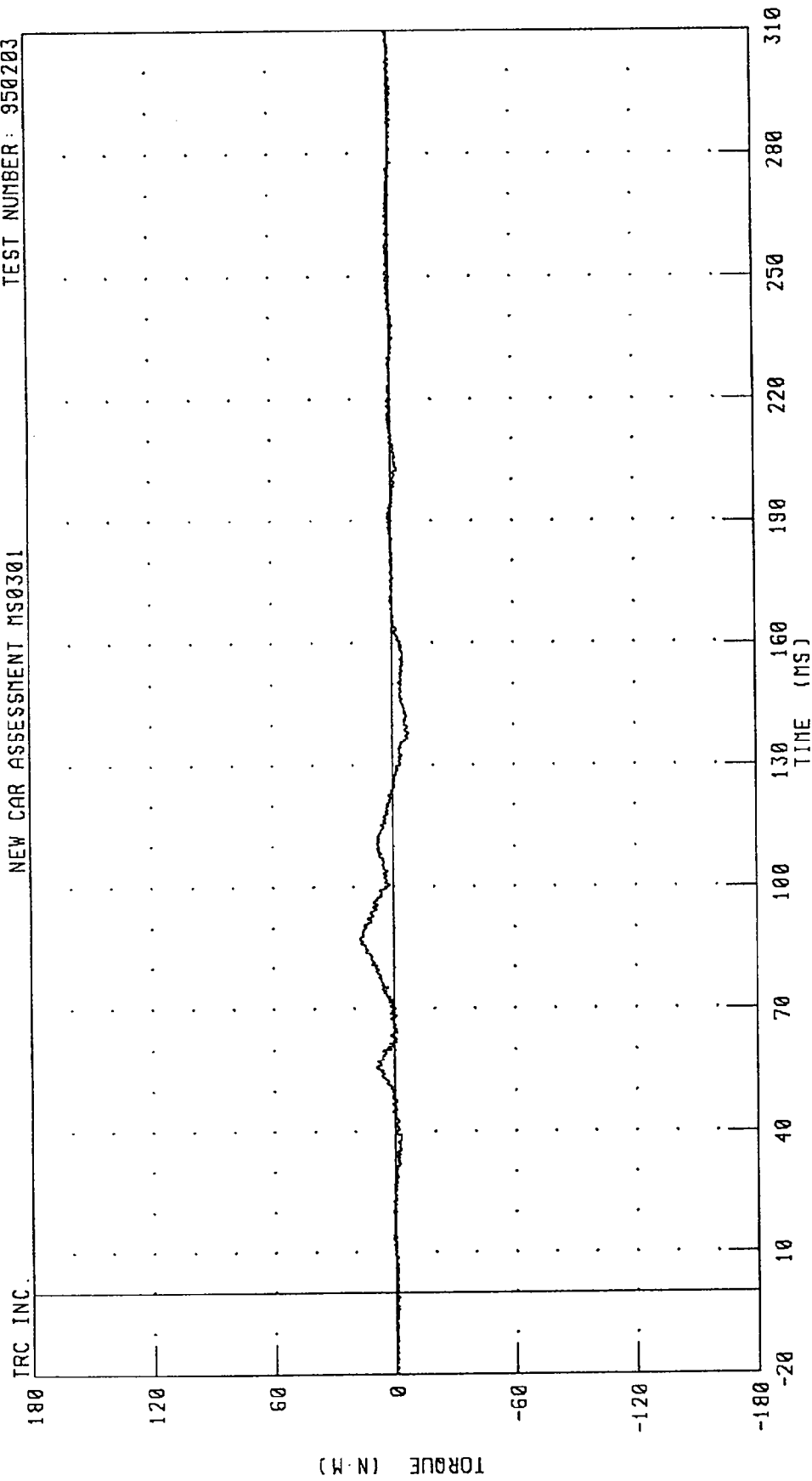
PEAK DATA: 1585.85 N @ 59.92 MS; -126.20 N @ -14.72 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK MOMENT ABOUT X AXIS

NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

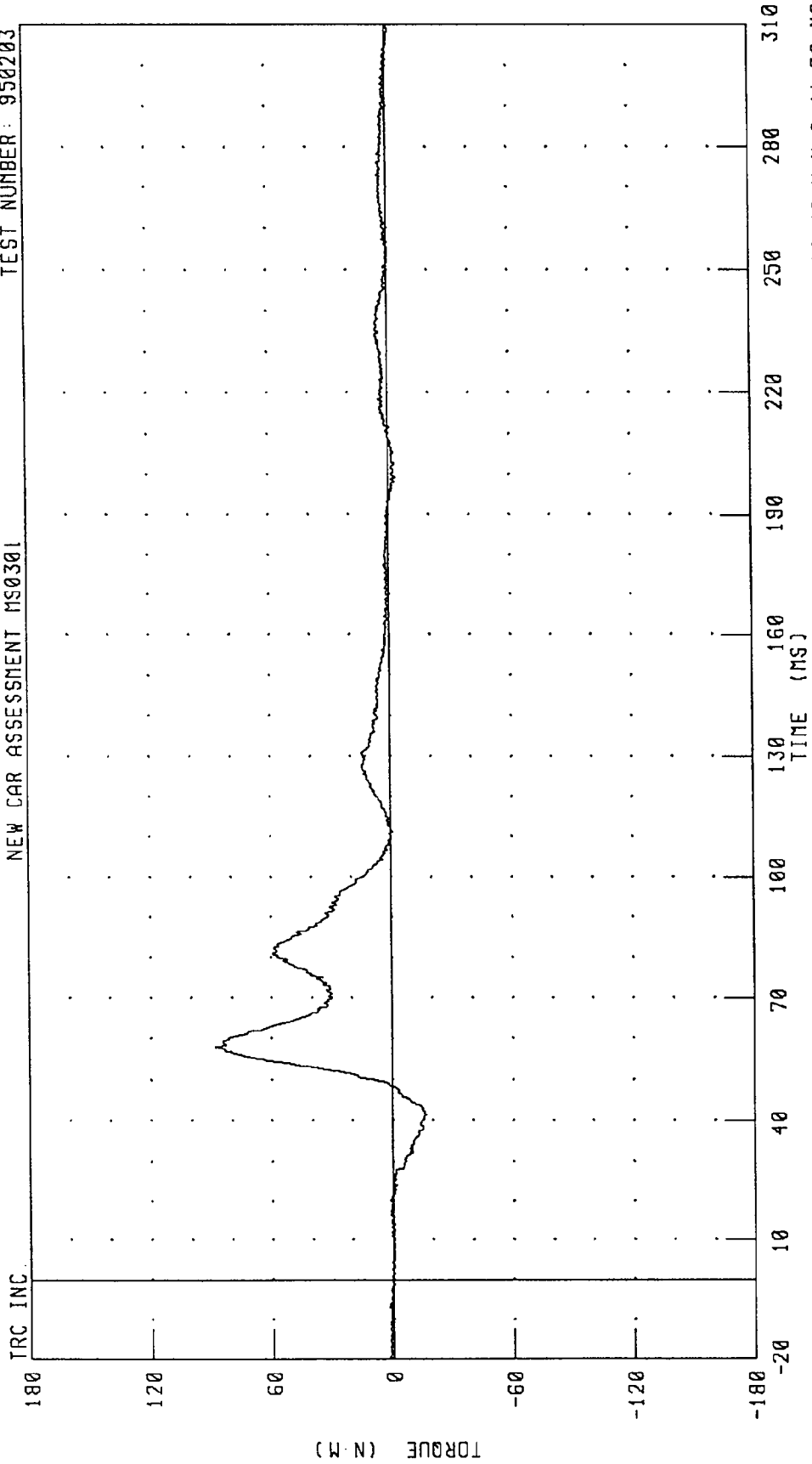


PEAK DATA: 17.23 N-M @ 87.28 MS; -8.12 N-M @ 138.16 MS

CHANNEL: NEKXM1 FILTER: CH. CLASS 600

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT Y AXIS
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



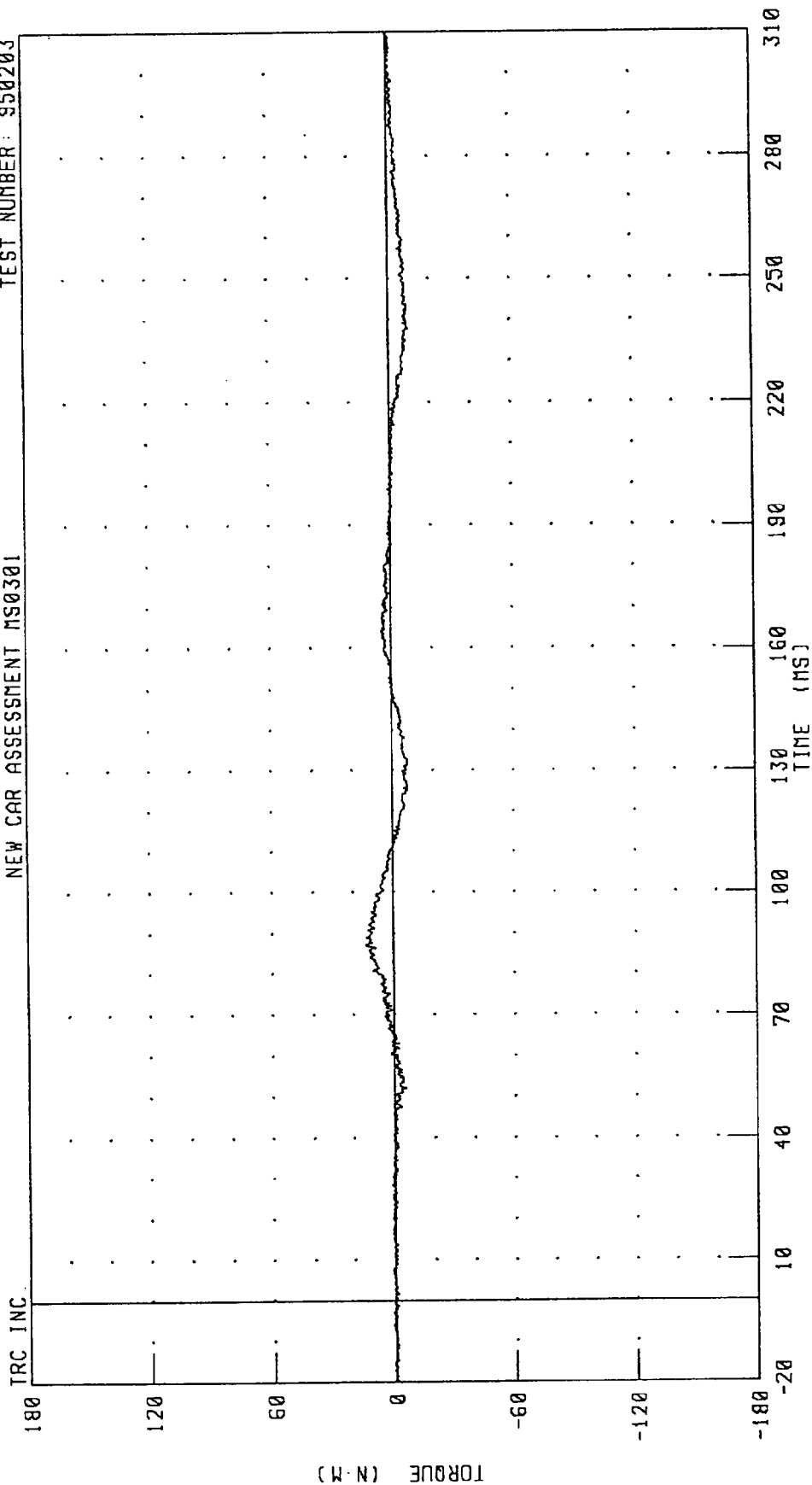
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK MOMENT ABOUT Z AXIS

NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

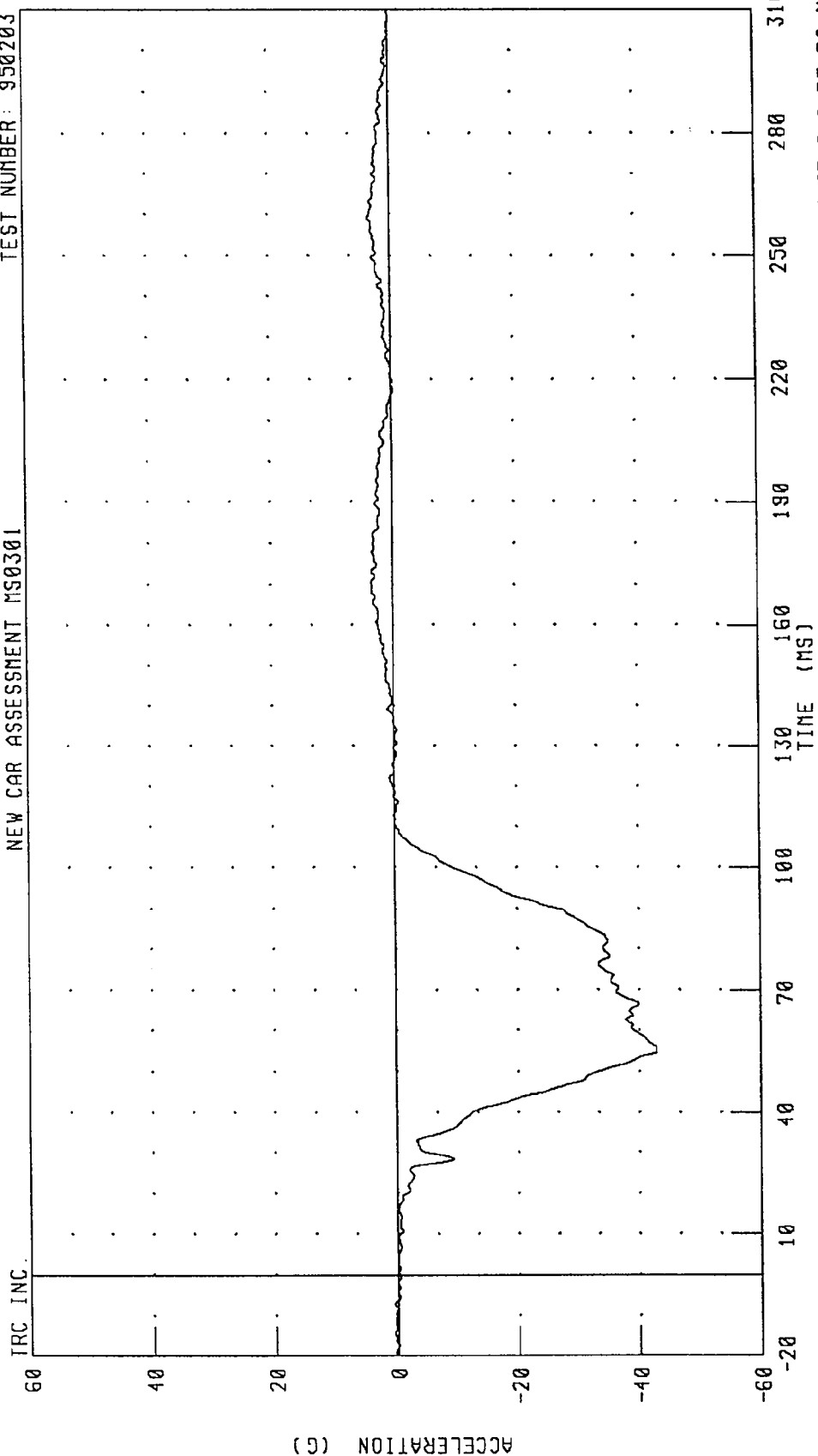


PEAK DATA: 13.95 N-M @ 87.36 MS; -9.45 N-M @ 237.76 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

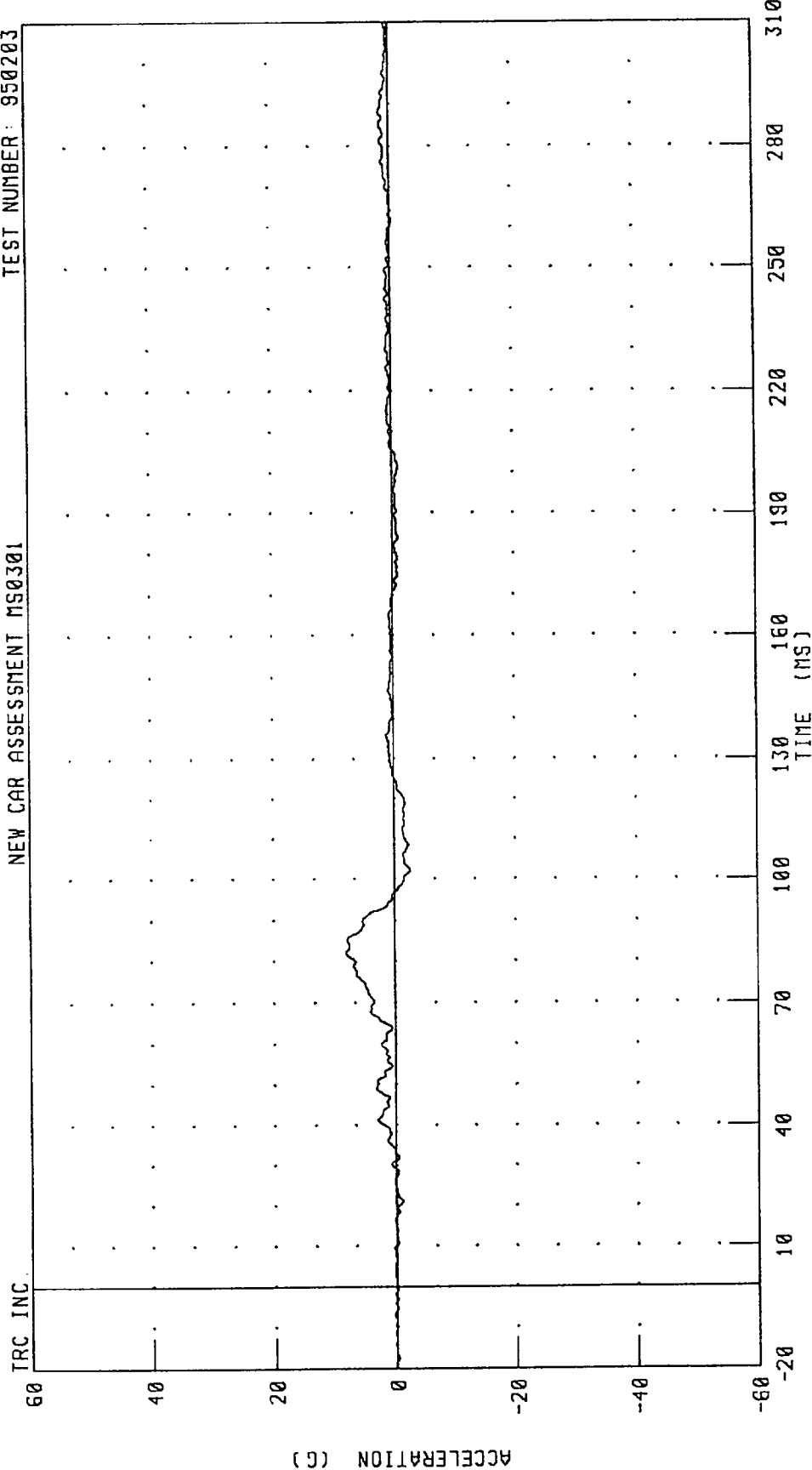


CHANNEL: CSTXG1 FILTER: CH. CLASS 180

PEAK DATA: 3.54 G @ 170.56 MS, -42.87 G @ 55.76 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

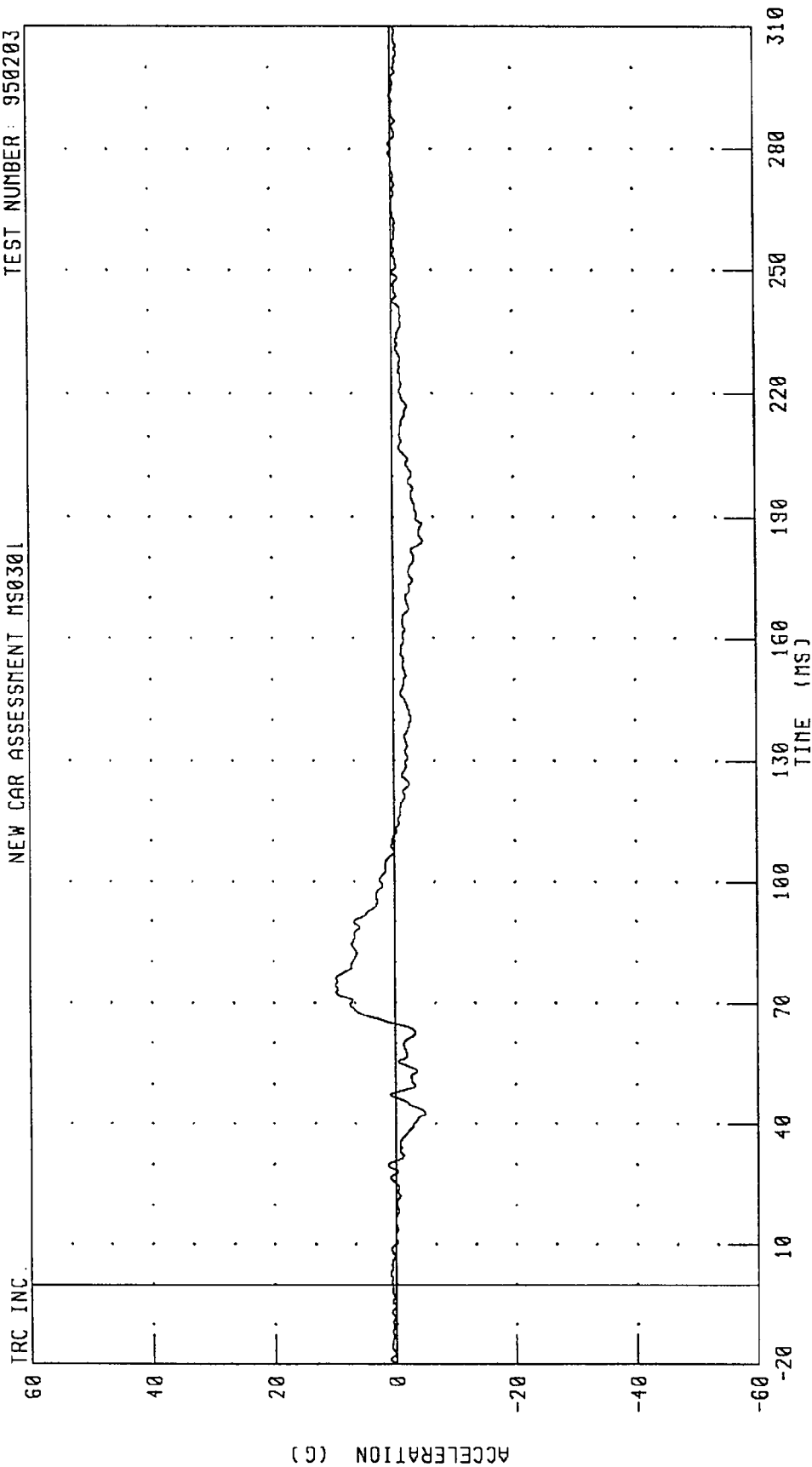


CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 8.15 G @ 82.08 MS; -2.57 G @ 102.48 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

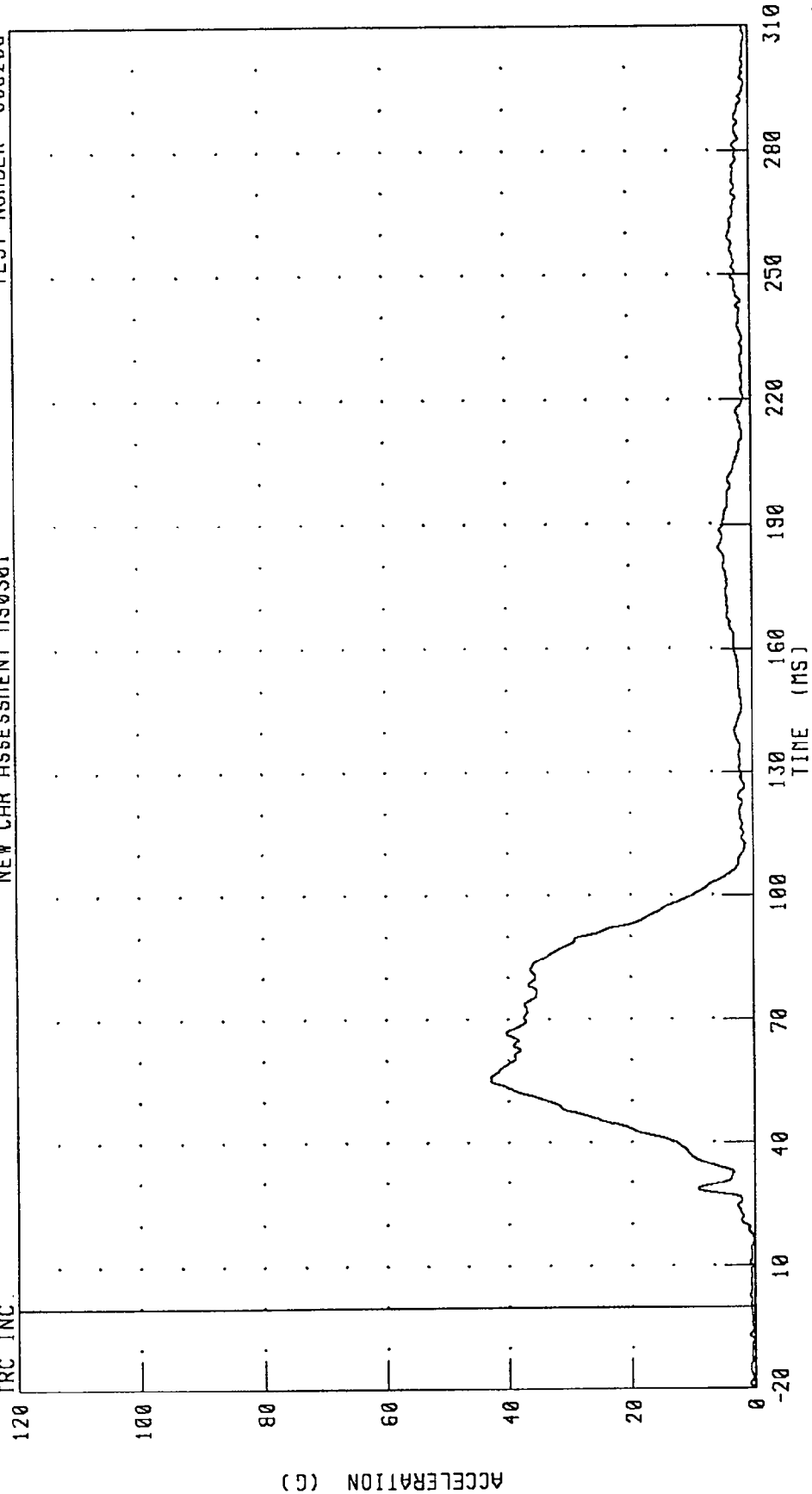
TEST NUMBER: 950203



1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST RESULTANT ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

IRC INC.



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

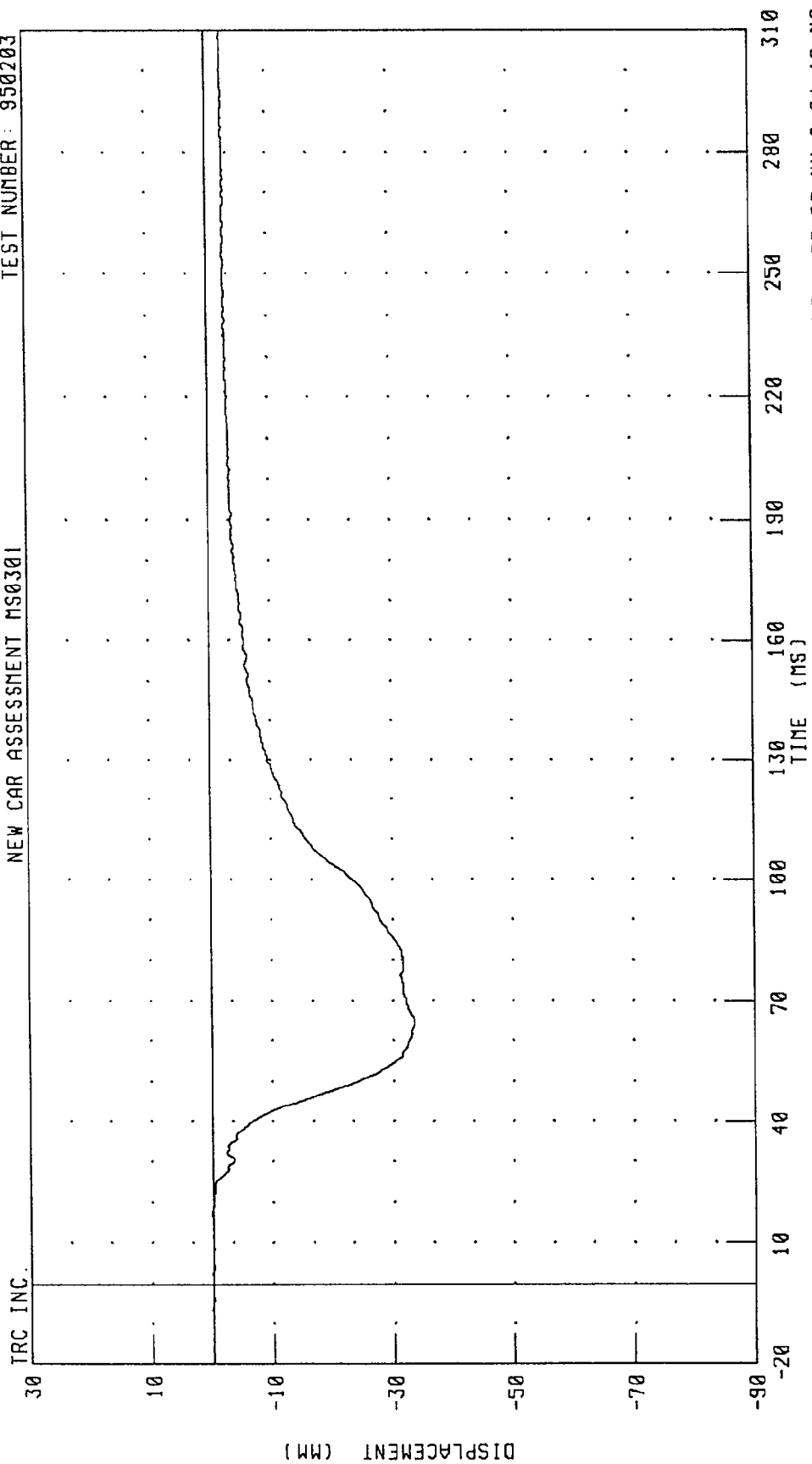
PEAK DATA: 42.90 G @ 55.76 MS; 0.11 G @ -20.00 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

DRIVER CHEST DEFLECTION

NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

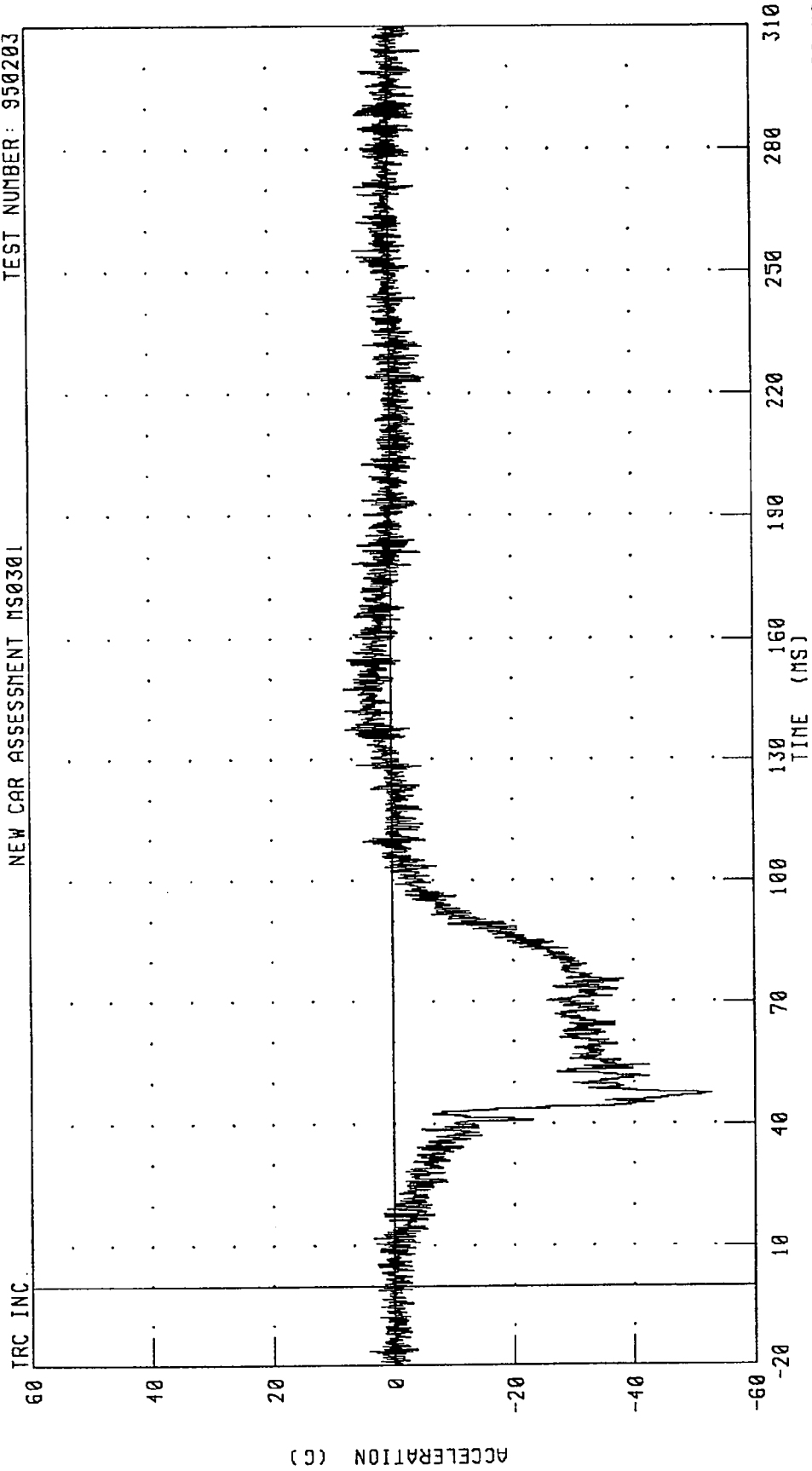


CHANNEL: CSTXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.17 MM @ -16.48 MS; -33.53 MM @ 64.16 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

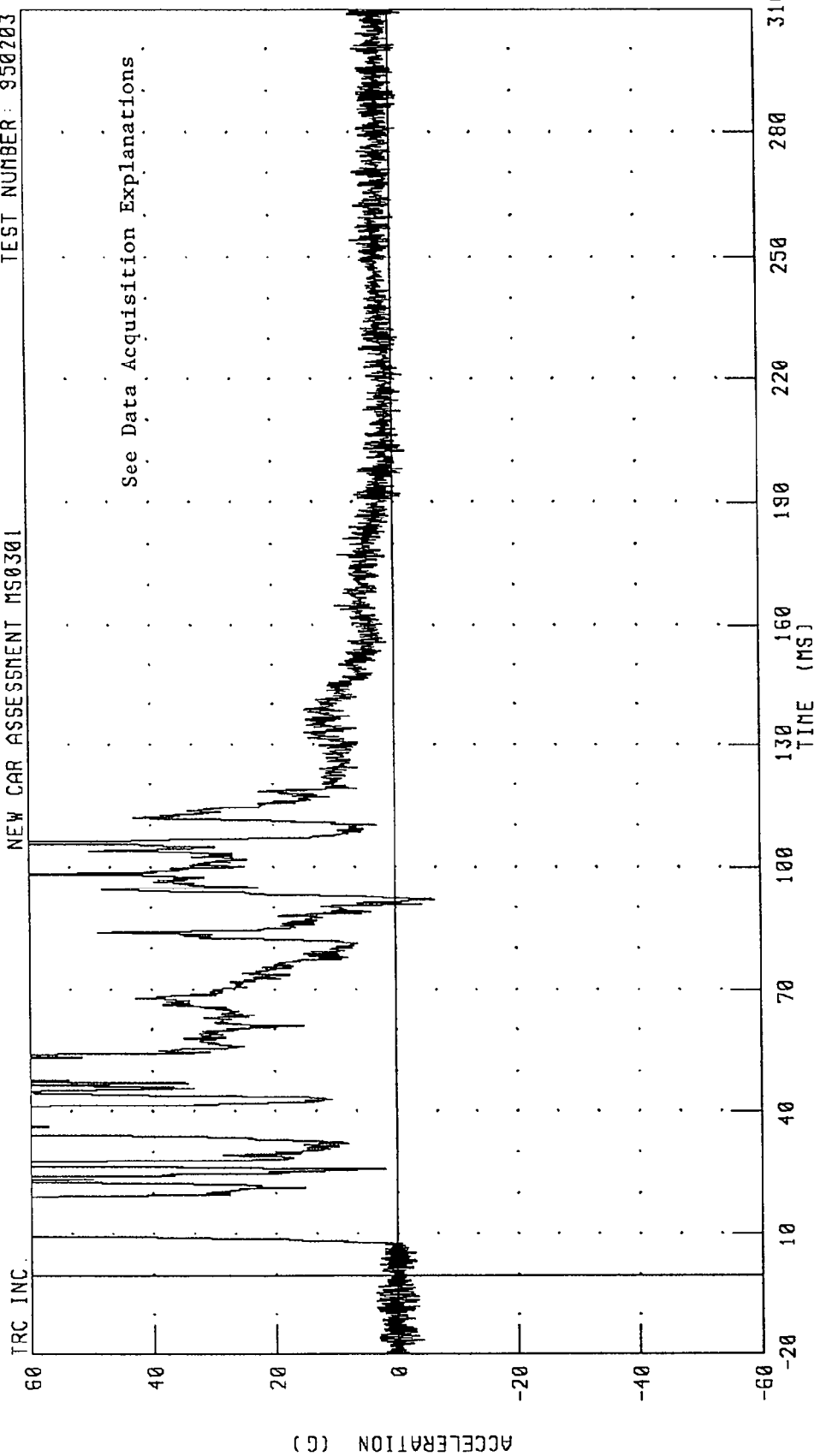


CHANNEL: PEVXC1 FILTER: CH. CLASS 1000

PEAK DATA: 7.95 G @ 147.60 MS; -52.90 G @ 47.28 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

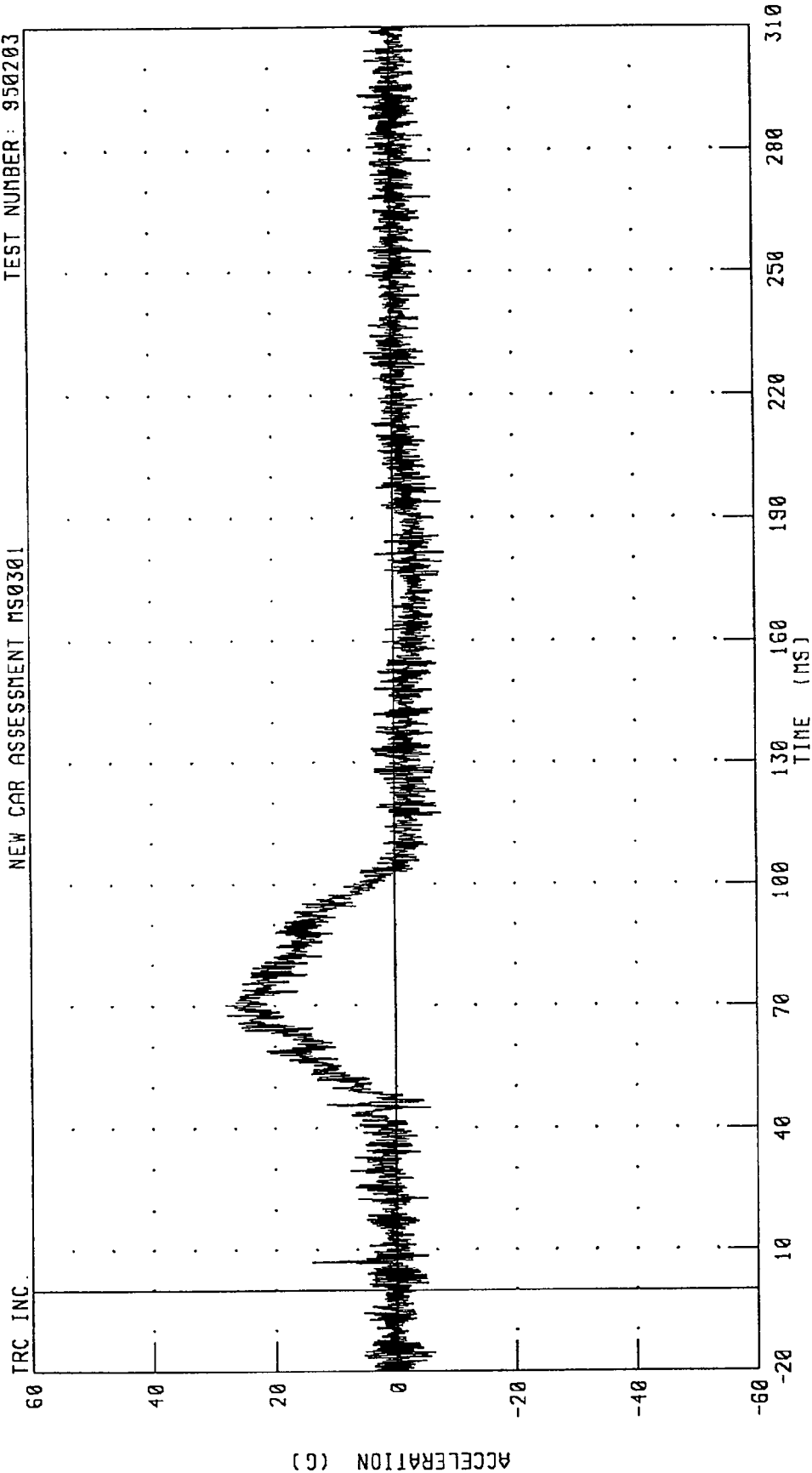


PEAK DATA: 352.30 G @ 50.00 MS; -6.49 G @ 91.84 MS

CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



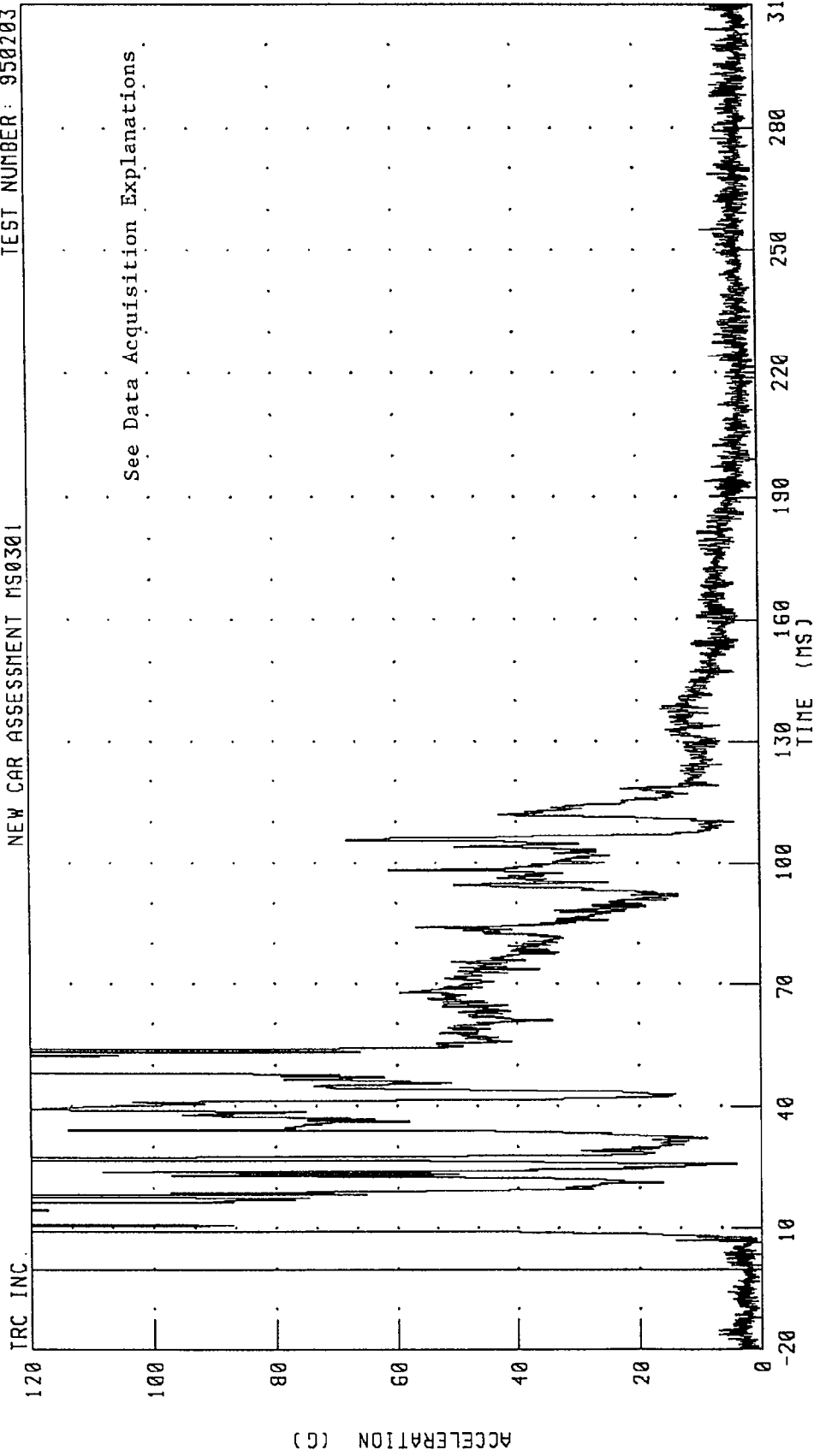
PEAK DATA: 28.16 G @ 70.24 MS; -8.51 G @ 181.60 MS

CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS RESULTANT ACCELERATION

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



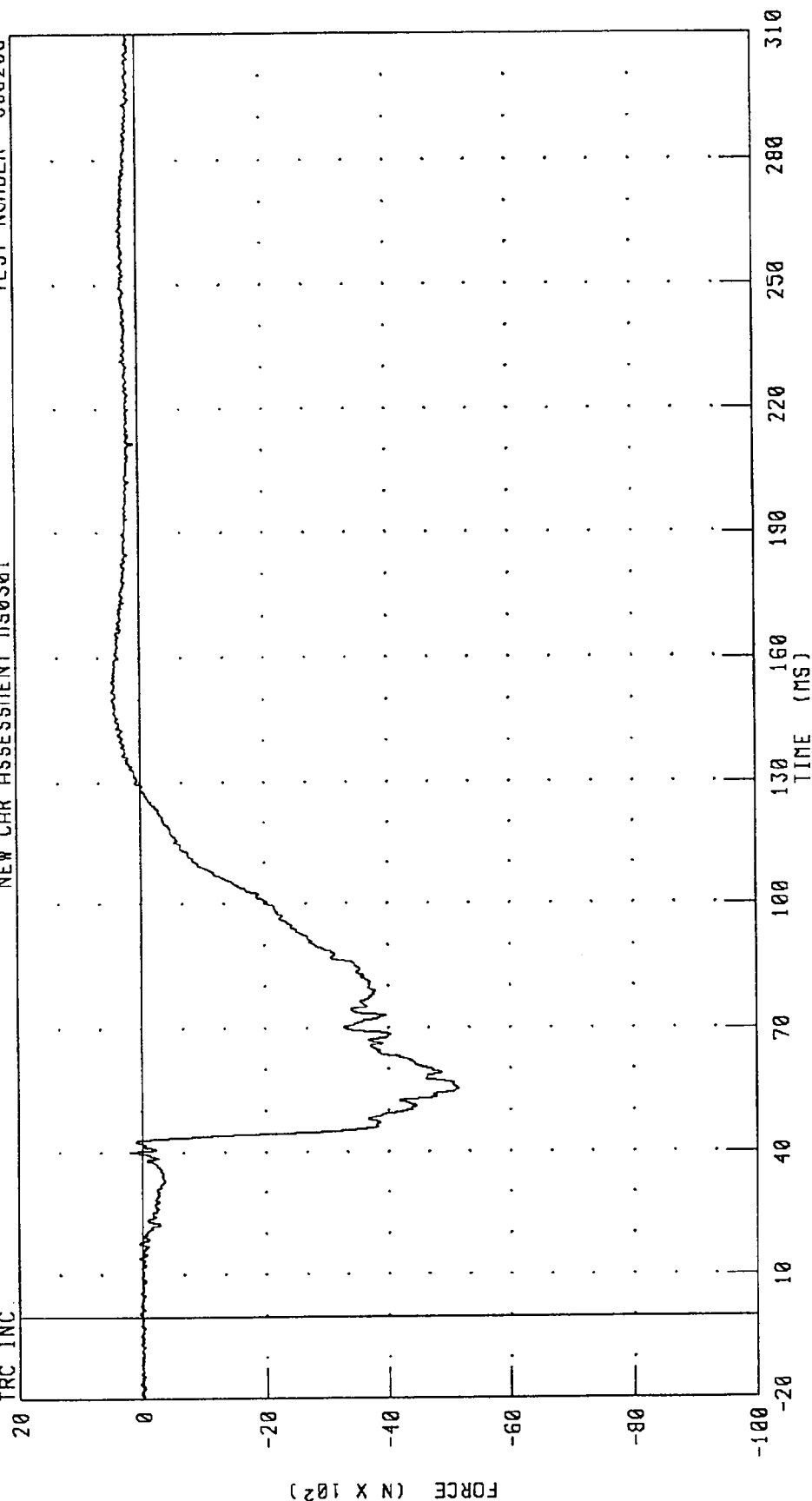
1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

DRIVER LEFT FEMUR FORCE

NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

TRC INC.

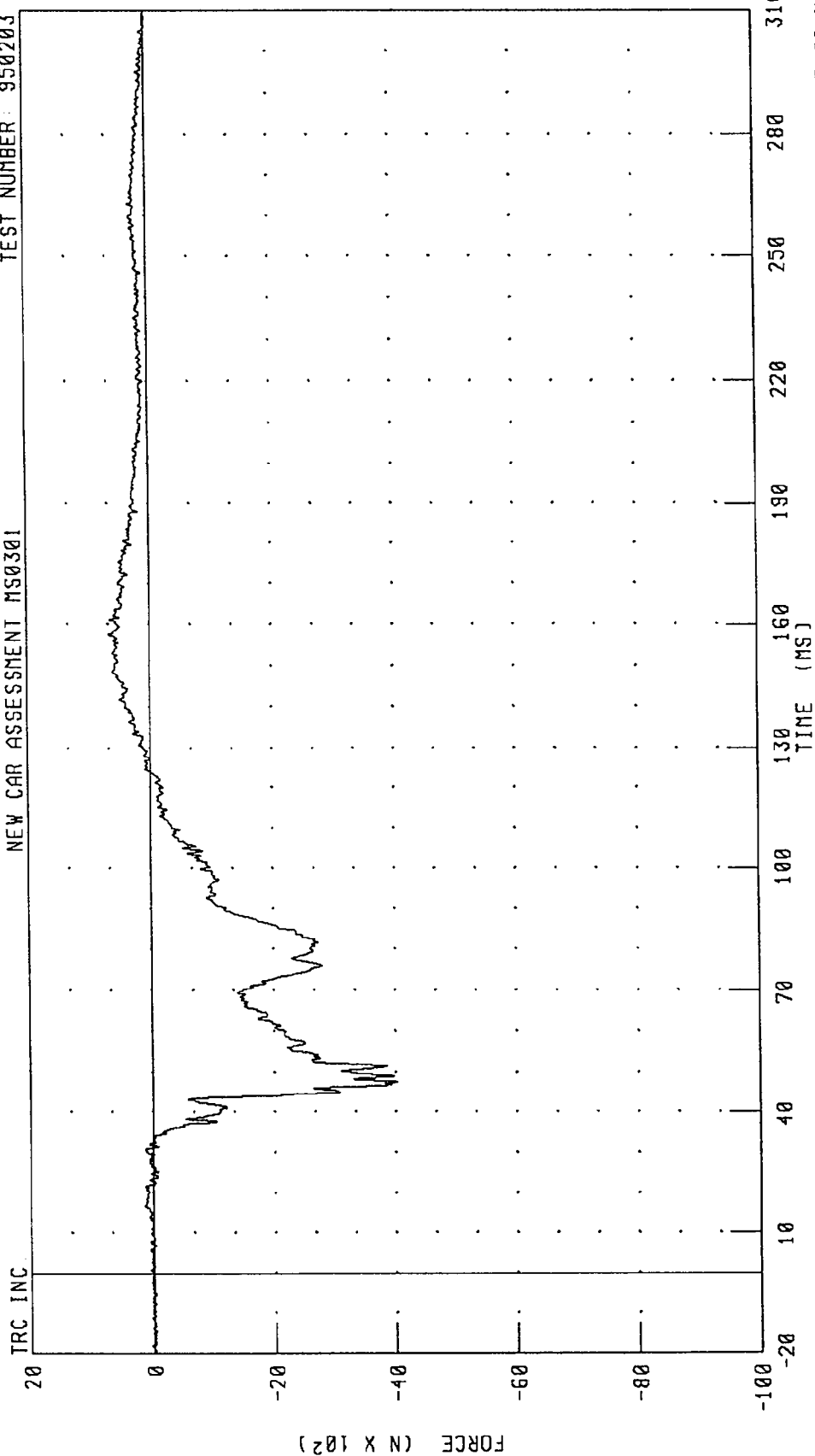


CHANNEL: LFMF1 FILTER: CH. CLASS 600

PEAK DATA: 451.53 N @ 152.08 MS; -5145.57 N @ 55.36 MS

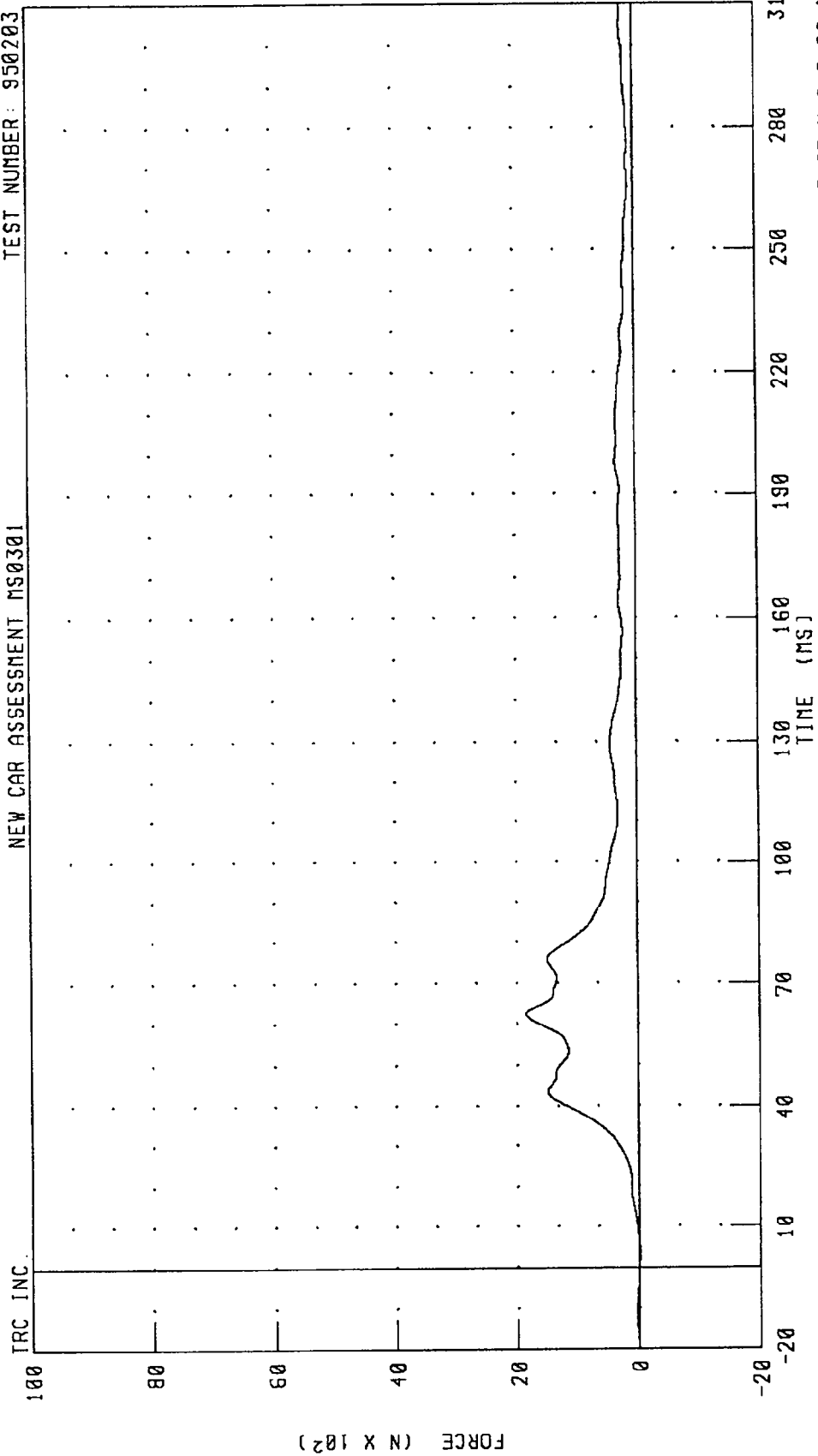
1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER LAP BELT OUTBOARD FORCE
 NEW CAR ASSESSMENT NS0301

TEST NUMBER: 950203

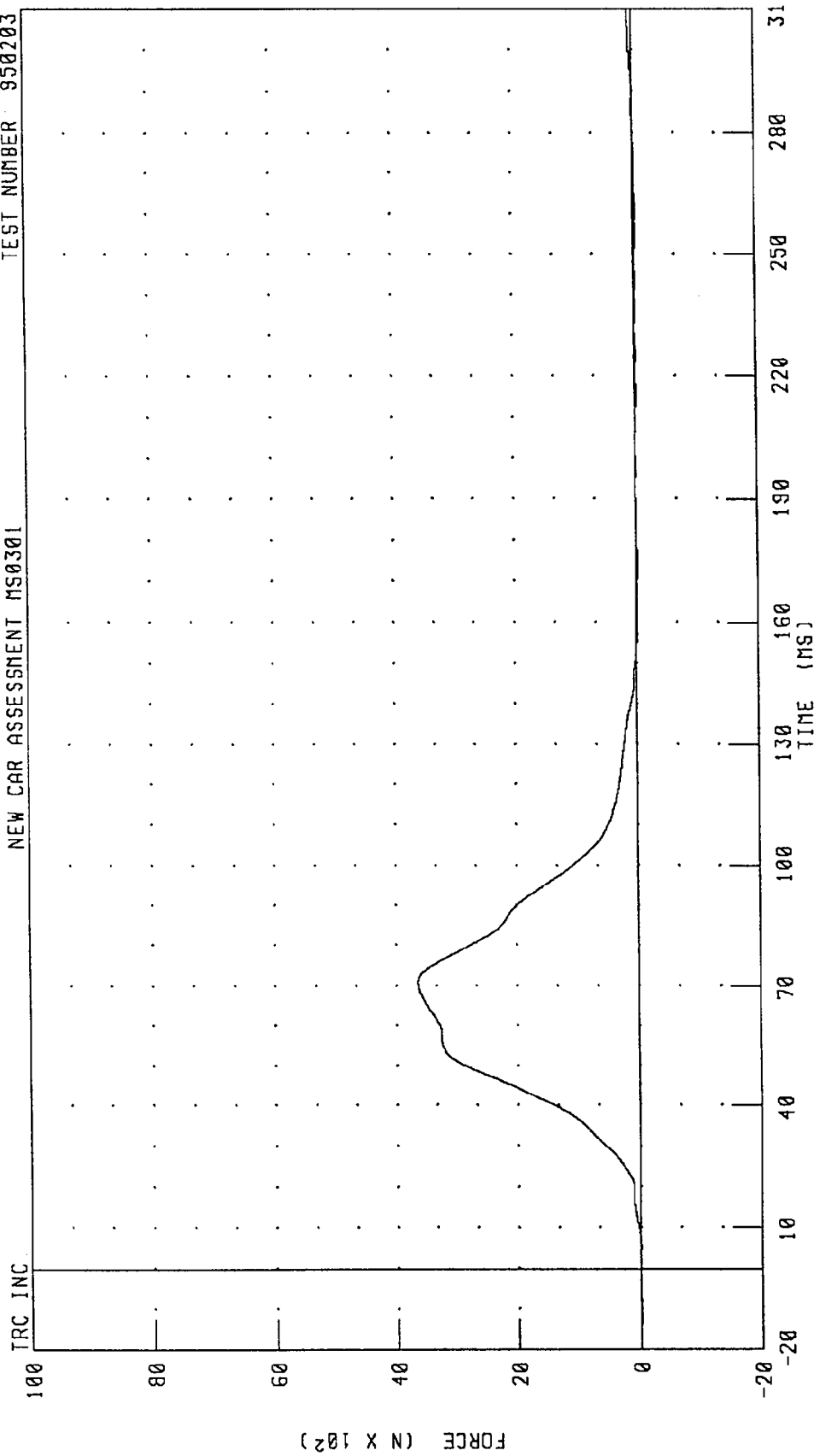


CHANNEL: LBOF1 FILTER: CH. CLASS 60

PEAK DATA: 1847.44 N @ 62.48 MS; -7.27 N @ 3.28 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER 950203

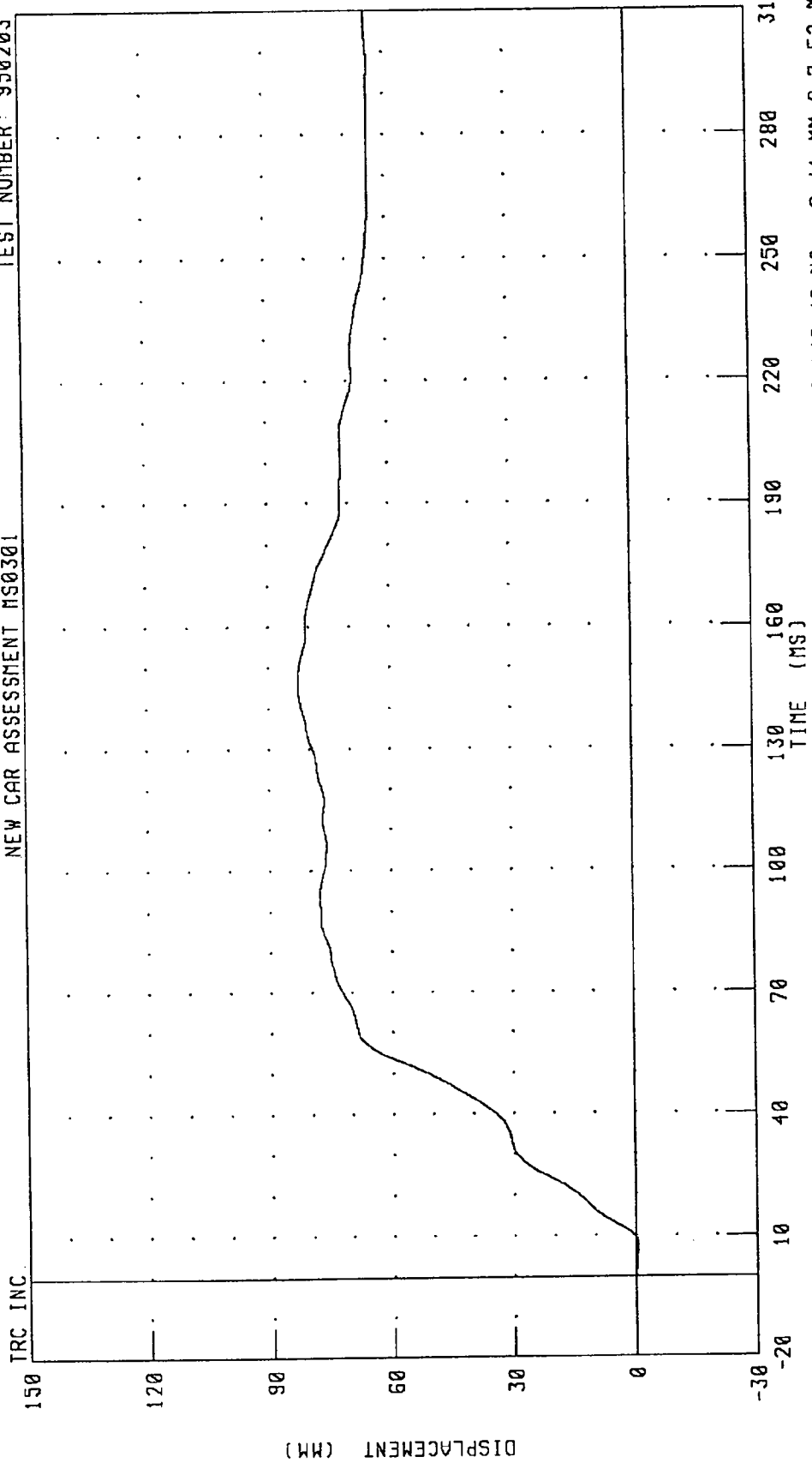


PEAK DATA: 3638.19 N @ 70.96 MS; -30.44 N @ 262.24 MS

CHANNEL: SHBF1 FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT DISPLACEMENT
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

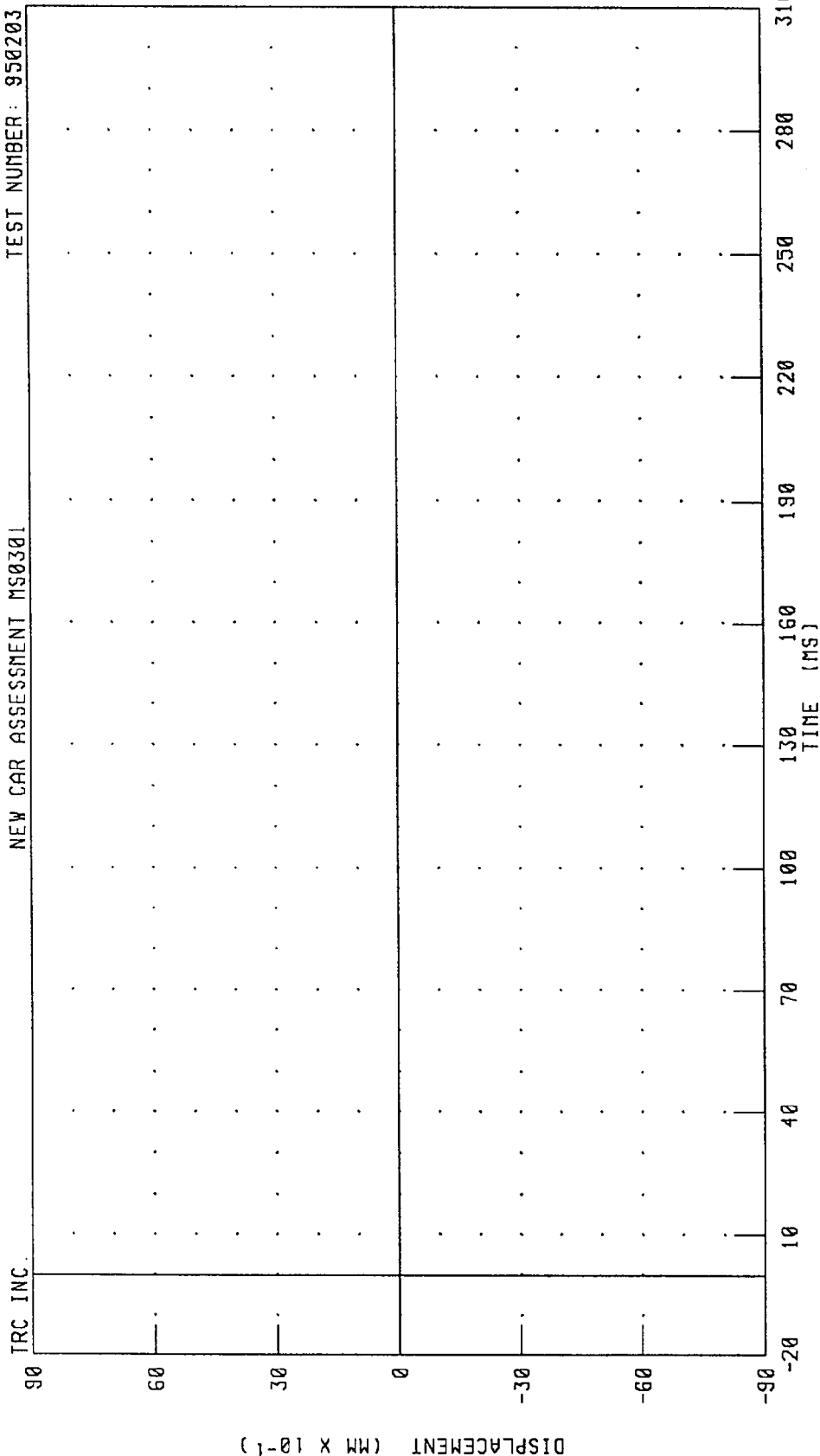


CHANNEL: SHB01 FILTER: CH. CLASS 60

PEAK DATA: 82.67 MM @ 146.40 MS; -0.41 MM @ 7.52 MS

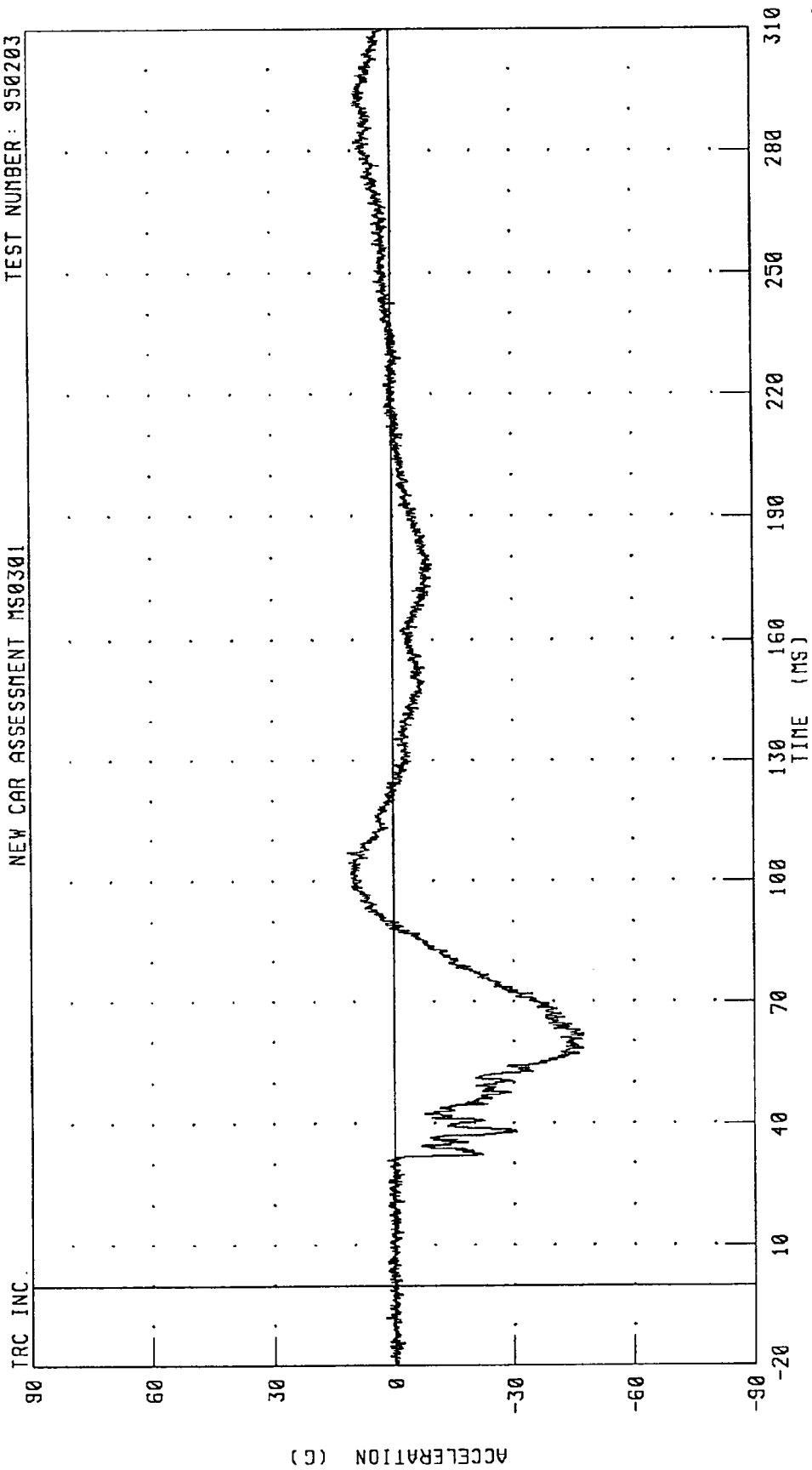
1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 DRIVER SEAT BELT EXTENSION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

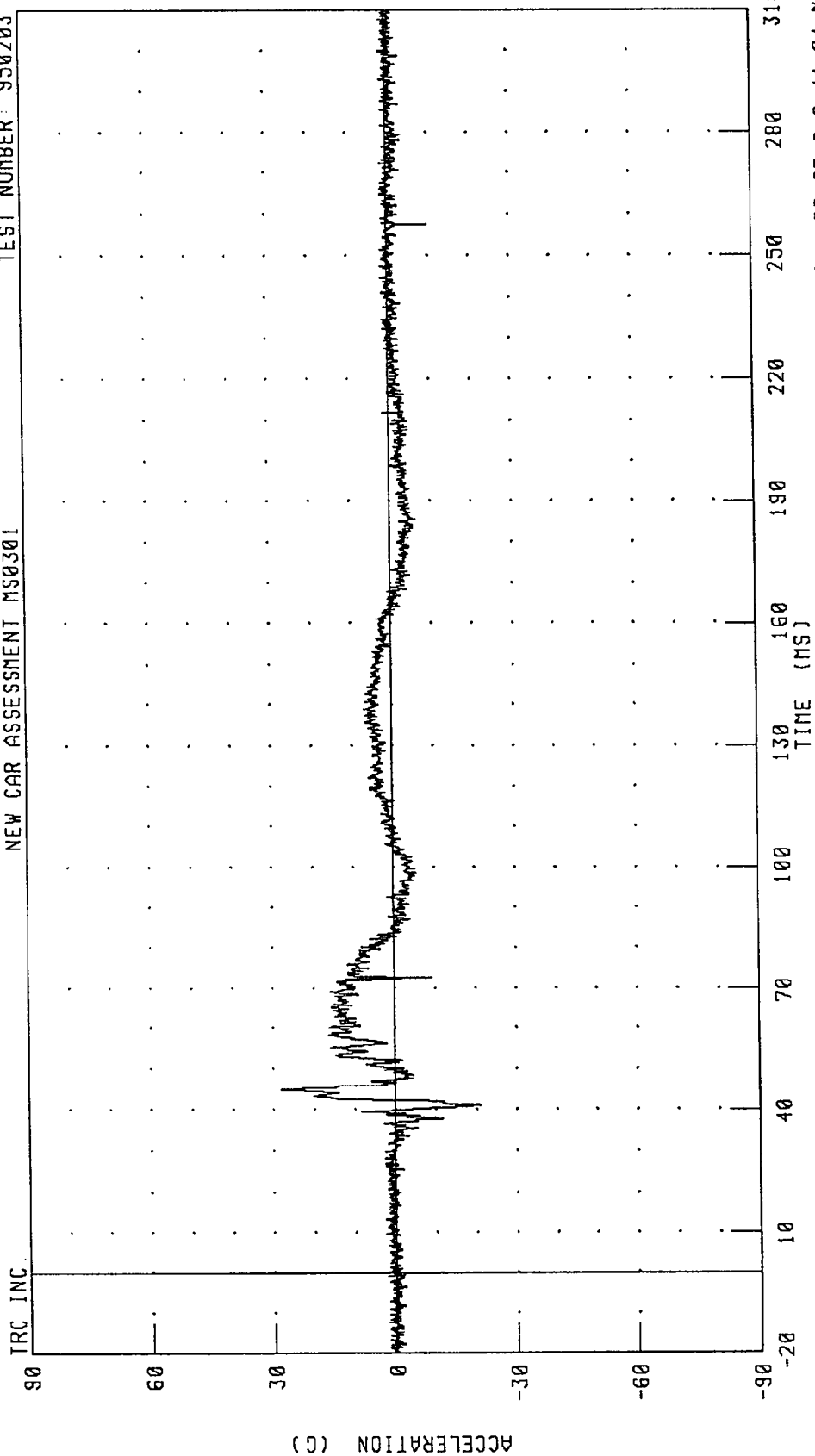


CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

PEAK DATA: 11.57 G @ 106.96 MS; -47.45 G @ 62.16 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

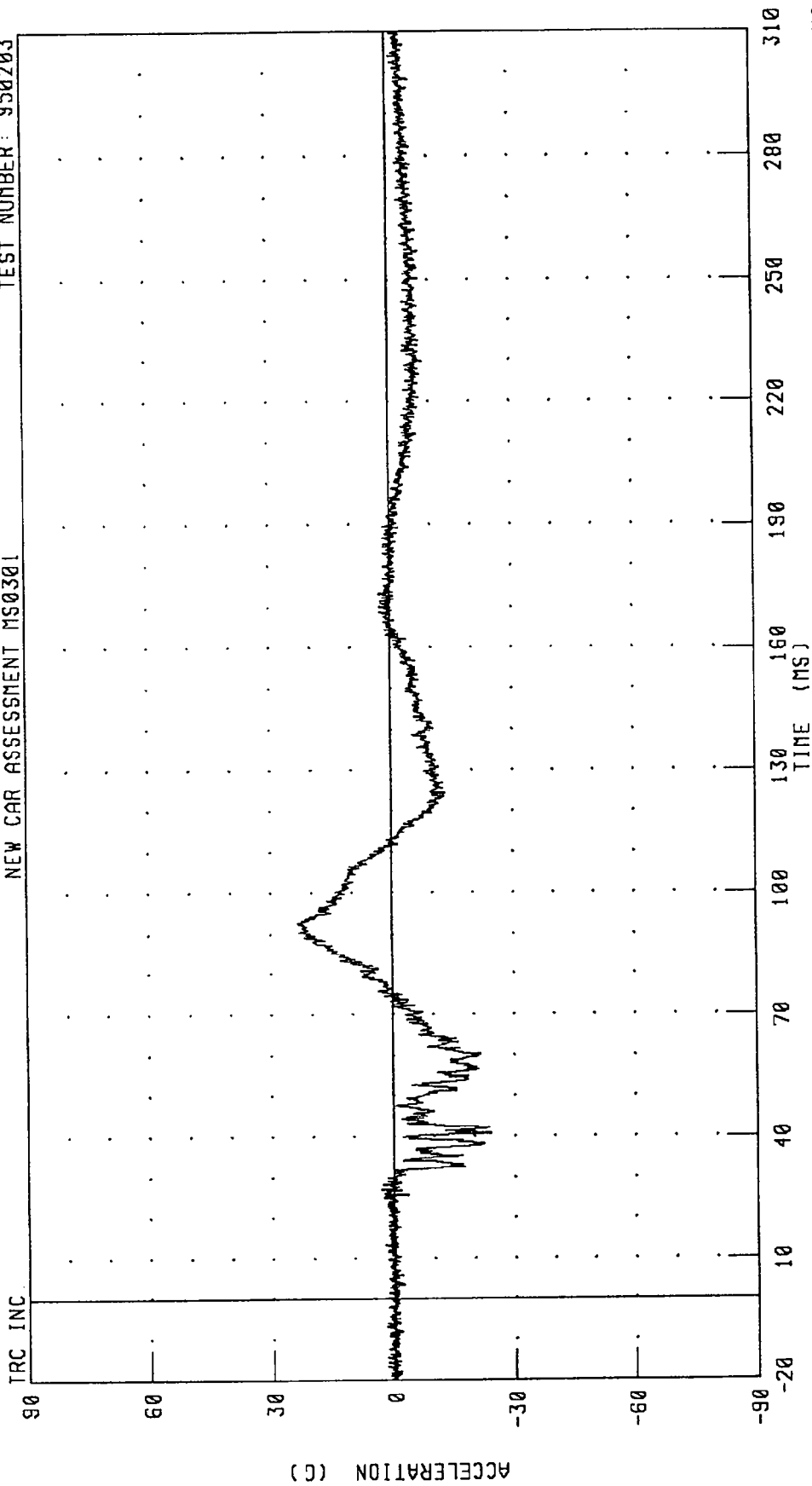


PEAK DATA: 28.12 G @ 44.96 MS; -20.95 G @ 41.04 MS

CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



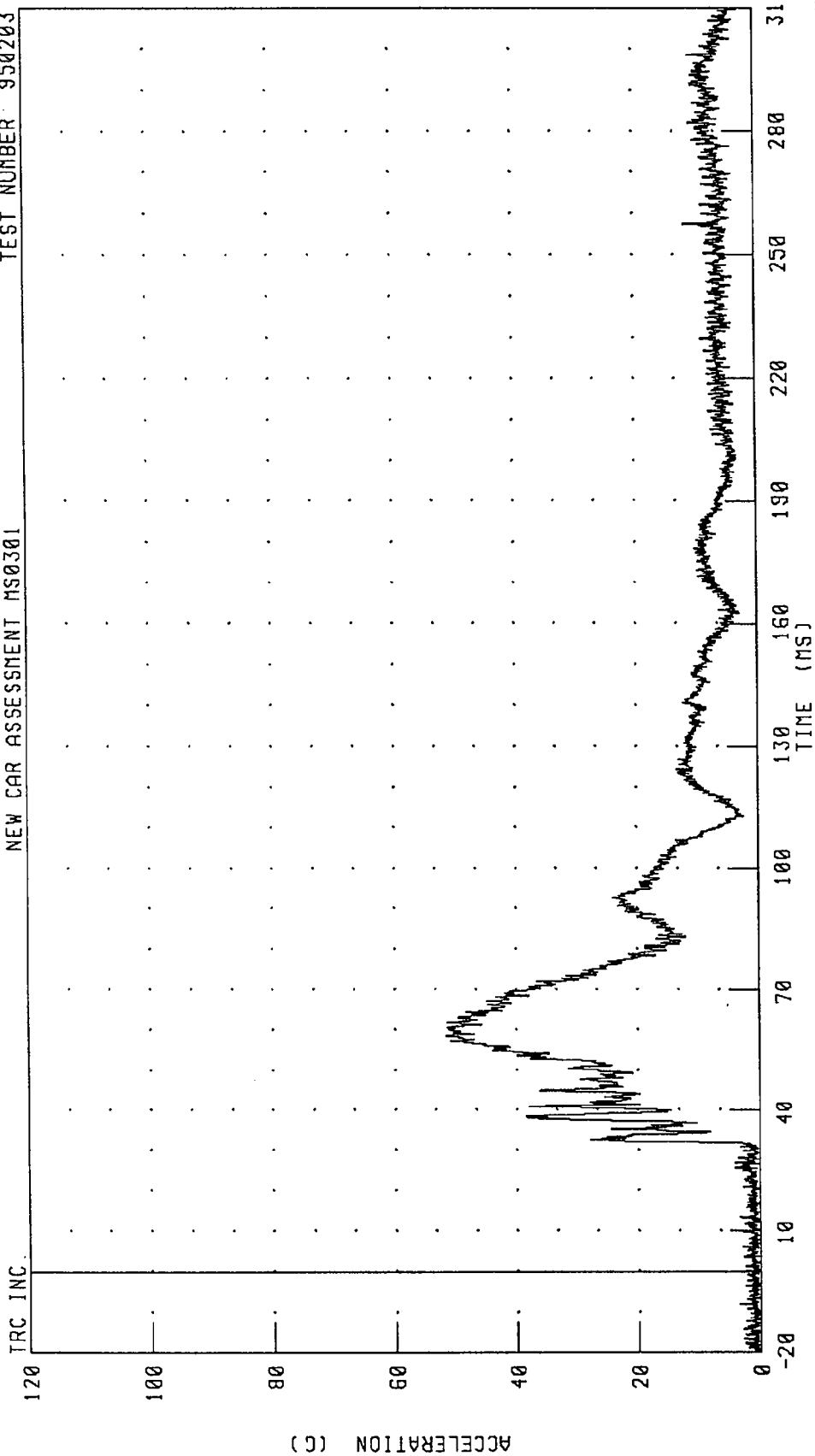
CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 23.48 G @ 92.72 MS; -24.11 G @ 40.88 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION

TEST NUMBER 950203

NEW CAR ASSESSMENT MS0301

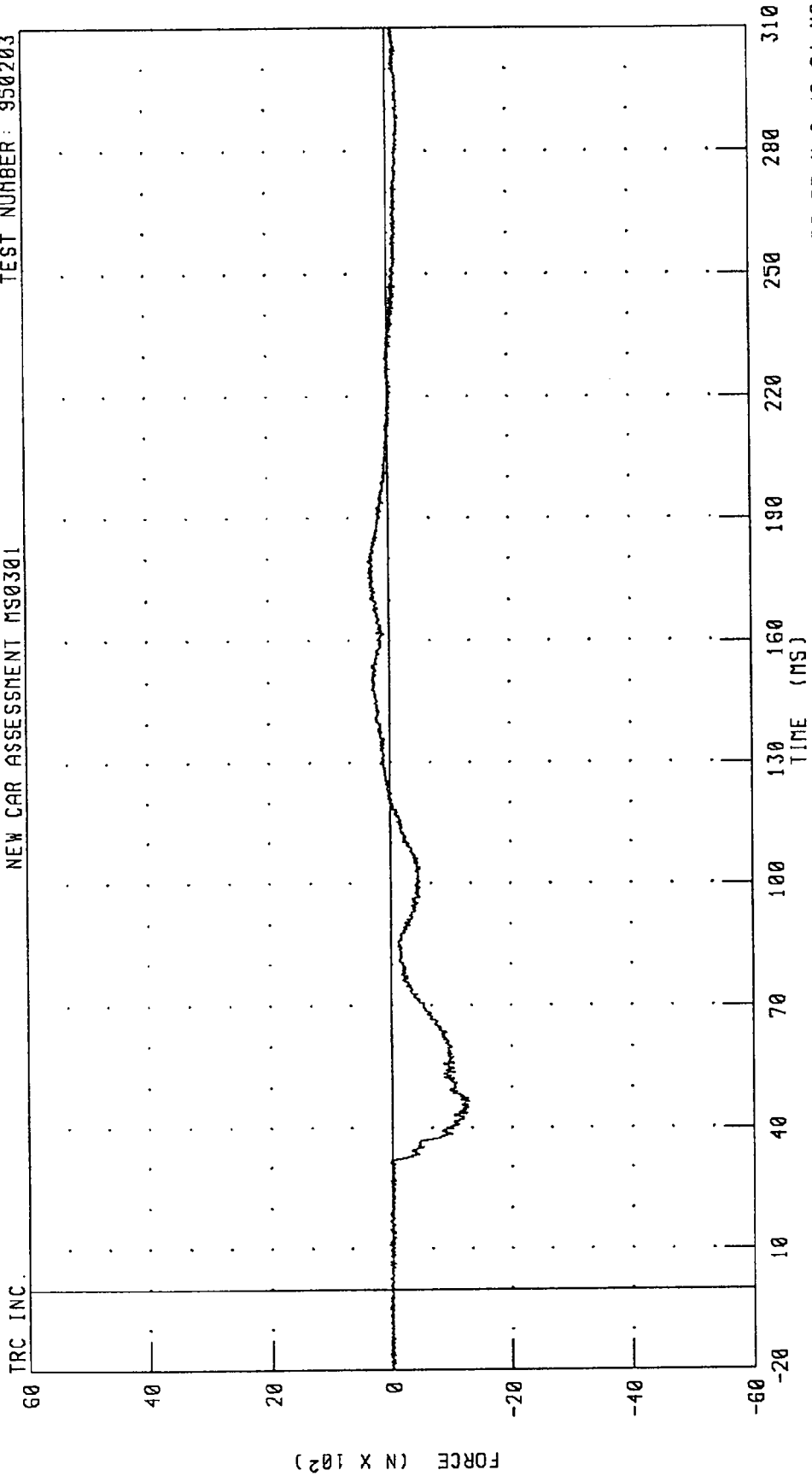


CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

PEAK DATA: 51.49 G @ 58.40 MS; 0.09 G @ 12.80 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

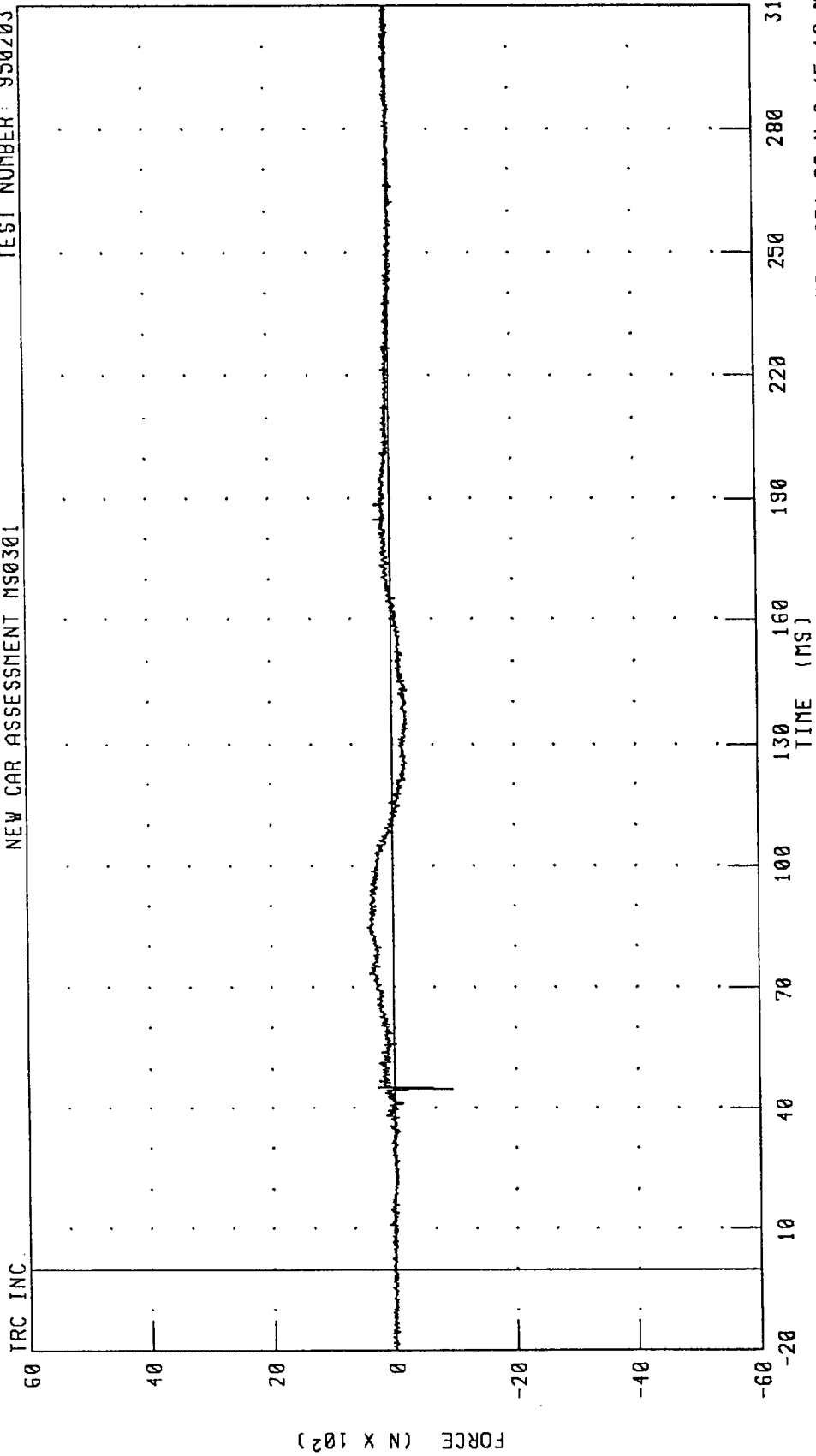


CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

950203

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0301

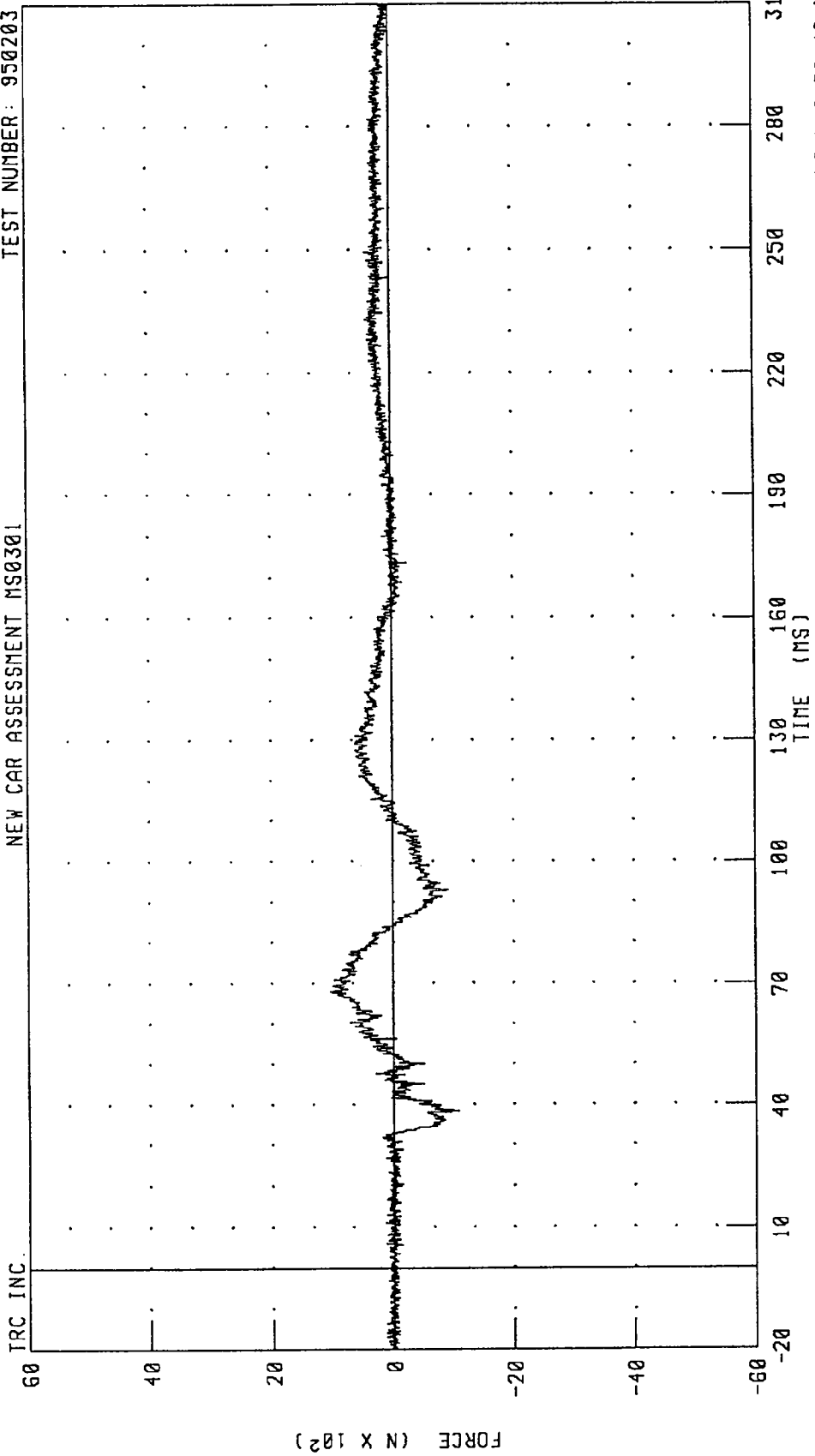
TEST NUMBER: 950203



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER NECK Z-AXIS AXIAL FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

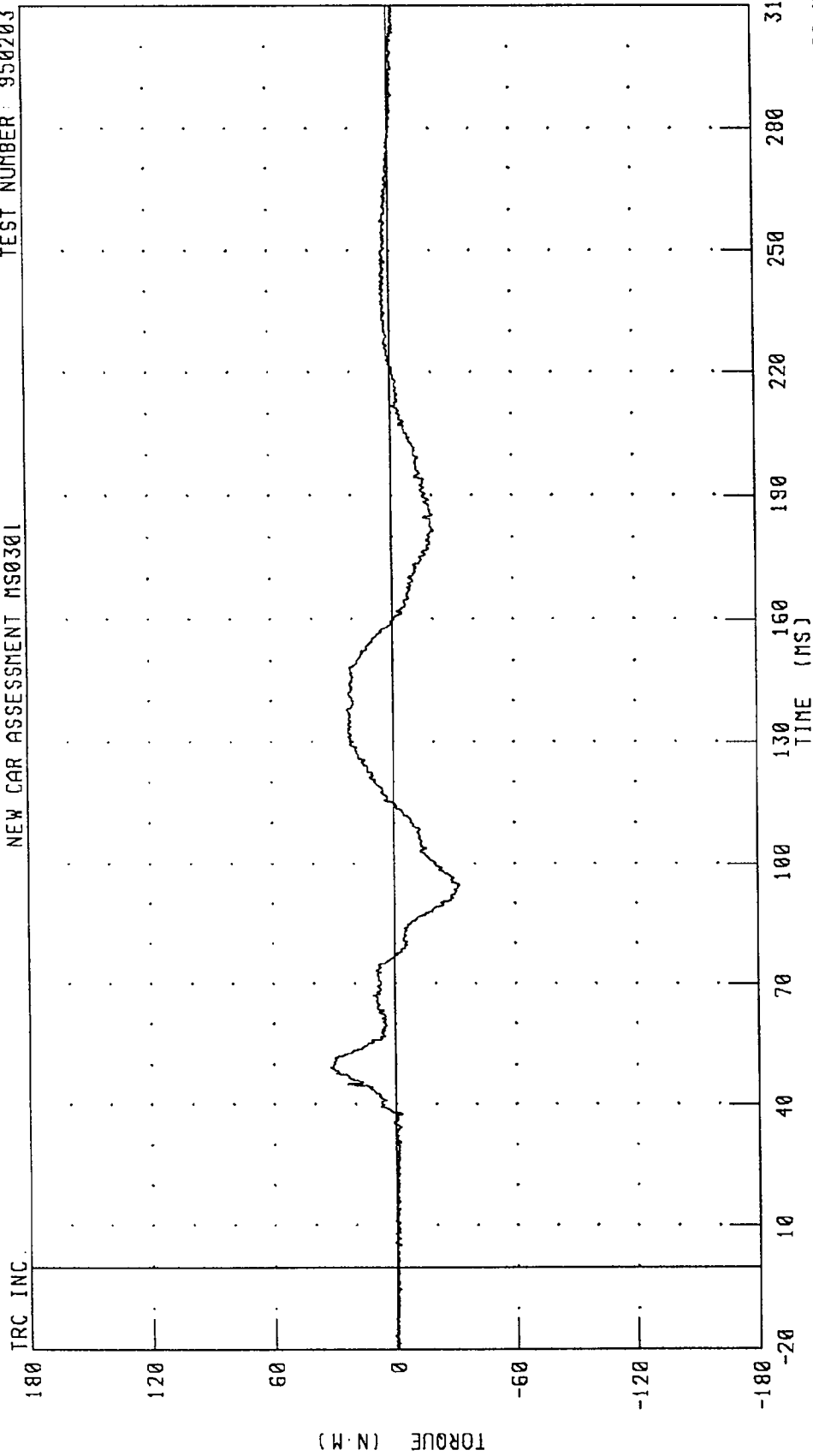


CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

PEAK DATA: 1043.74 N @ 67.92 MS; -1082.03 N @ 38.48 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

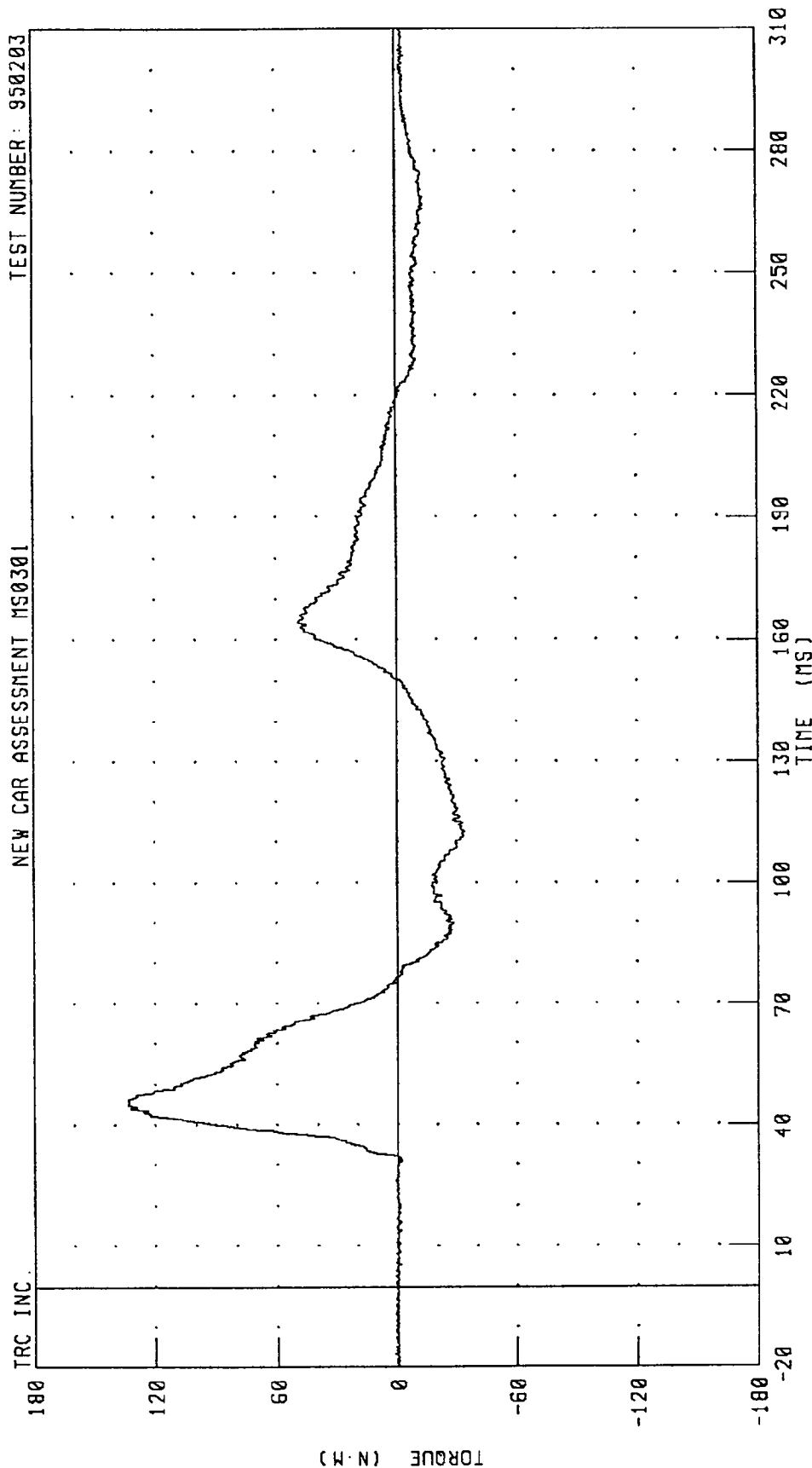


CHANNEL: NEKM2 FILTER: CH. CLASS 600

PEAK DATA: 31.93 N.M @ 49.20 MS; -32.13 N.M @ 94.88 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT MS0301

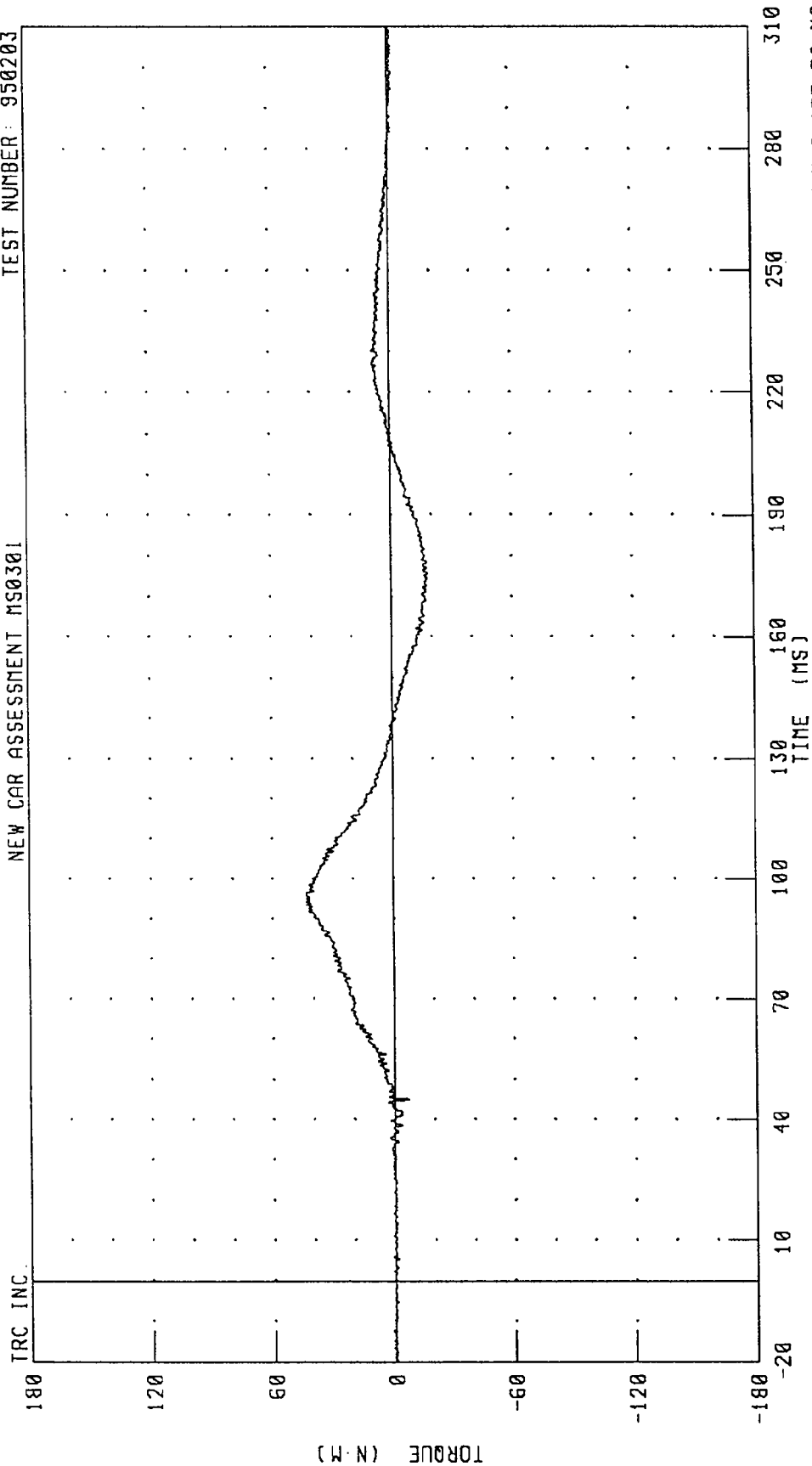
TEST NUMBER: 950203



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS
NEW CAR ASSESSMENT MS0301

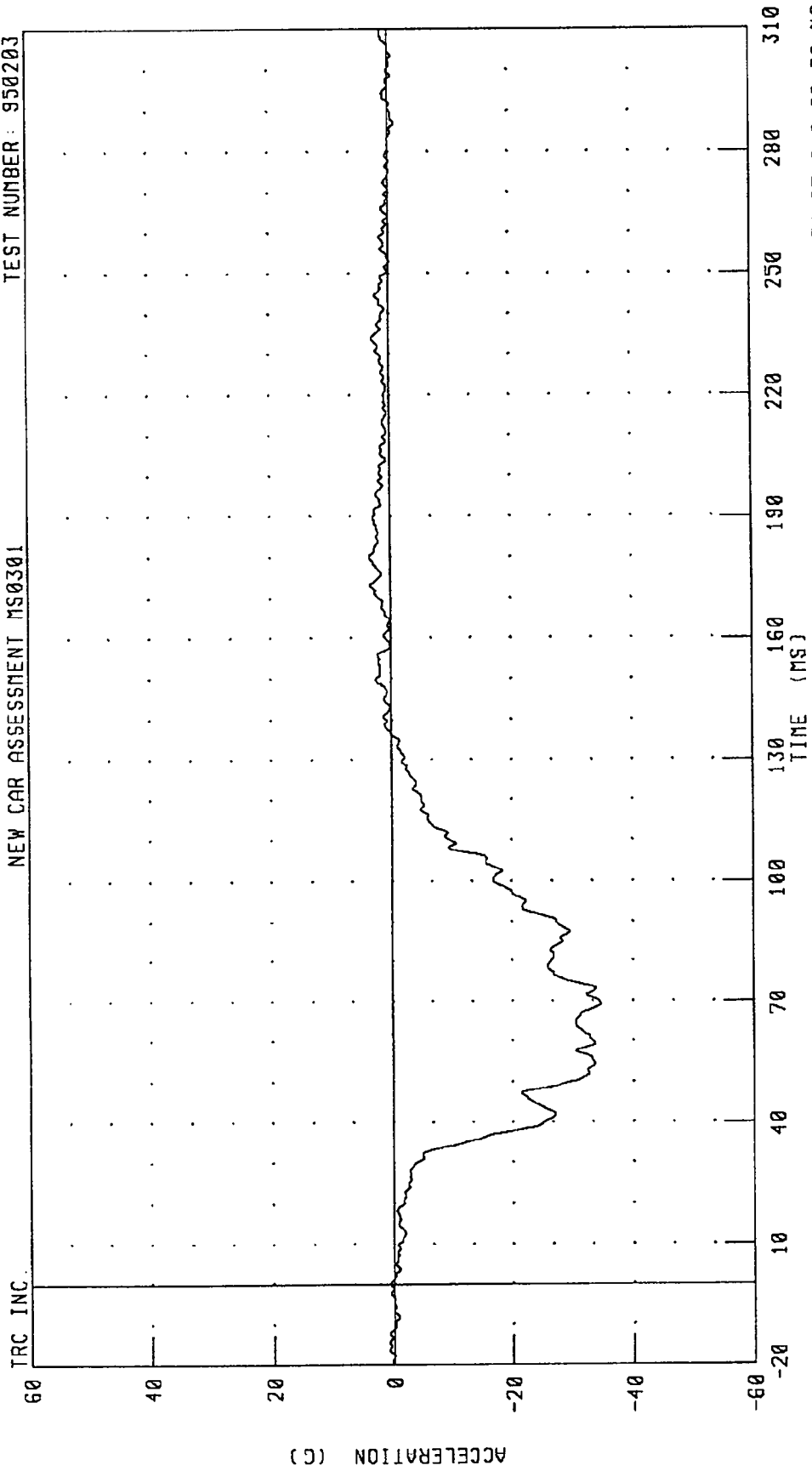
TEST NUMBER: 950203



CHANNEL: NEKZM2 FILTER: CH. CLASS 600

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER CHEST X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

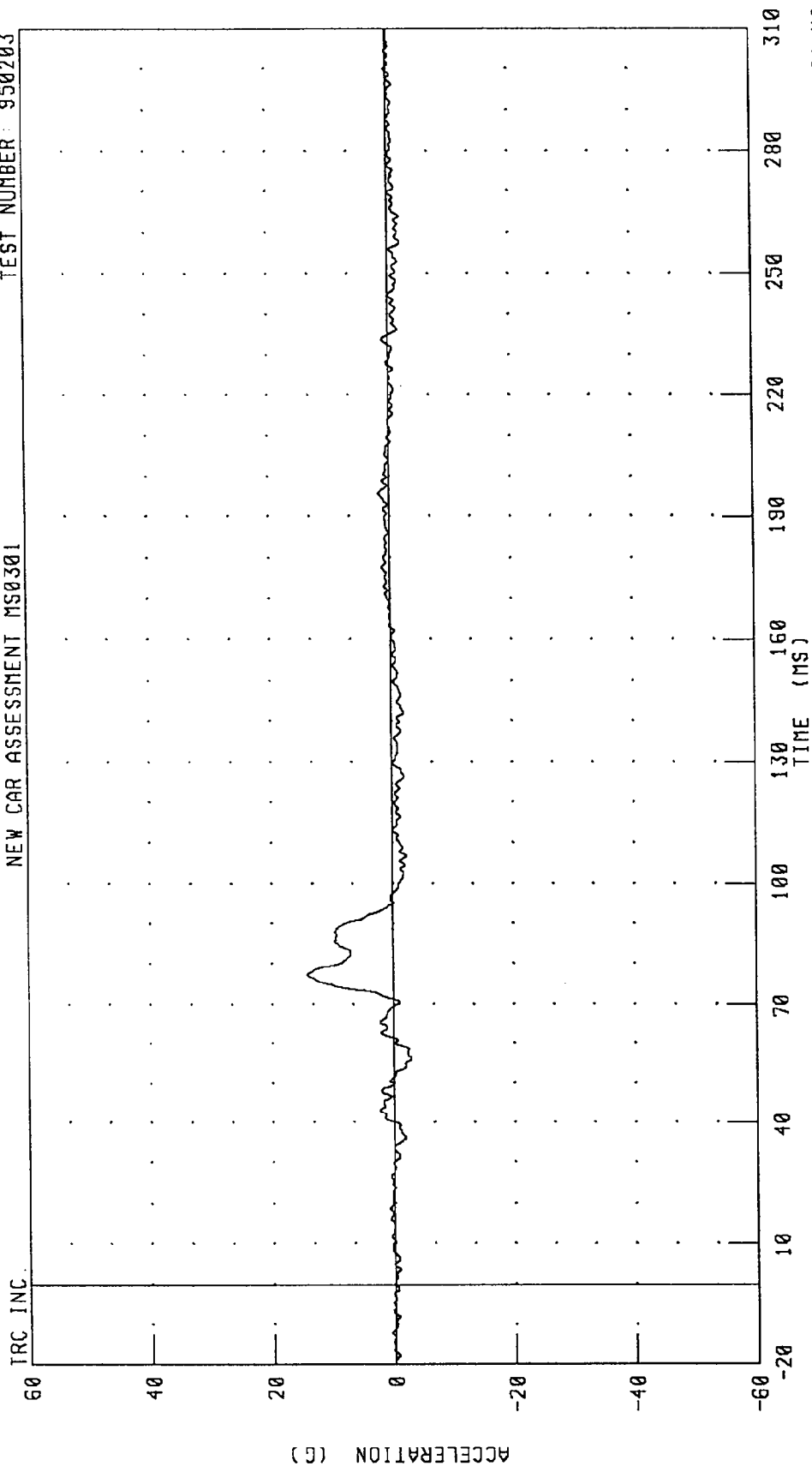


CHANNEL: CSTXG2 FILTER: CH. CLASS 180

PEAK DATA: 3.63 G @ 180.00 MS; -34.67 G @ 69.36 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER CHEST Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

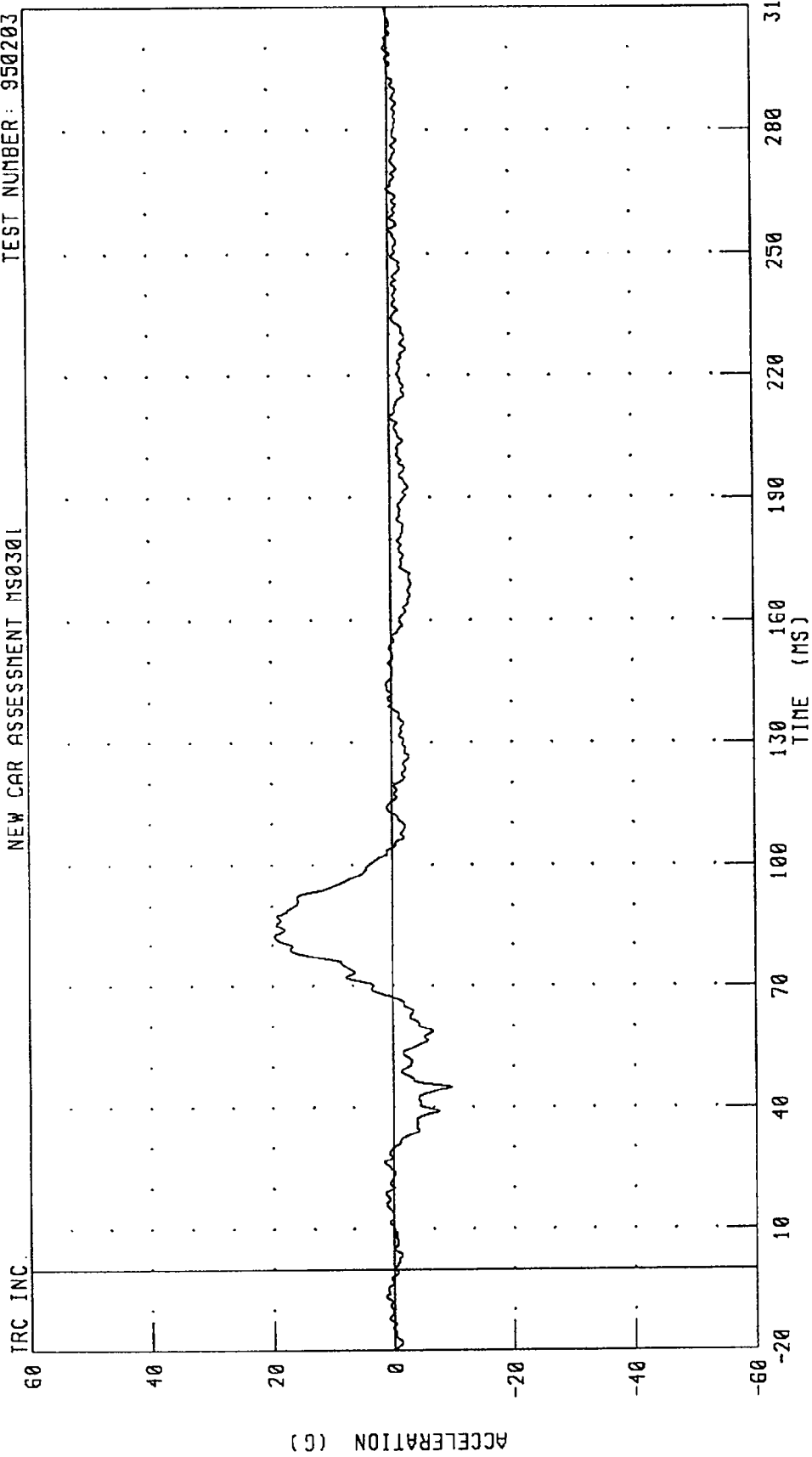


PEAK DATA: 14.32 G @ 77.28 MS; -2.91 G @ 56.24 MS

CHANNEL: CSTYC2 FILTER: CH. CLASS 180

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



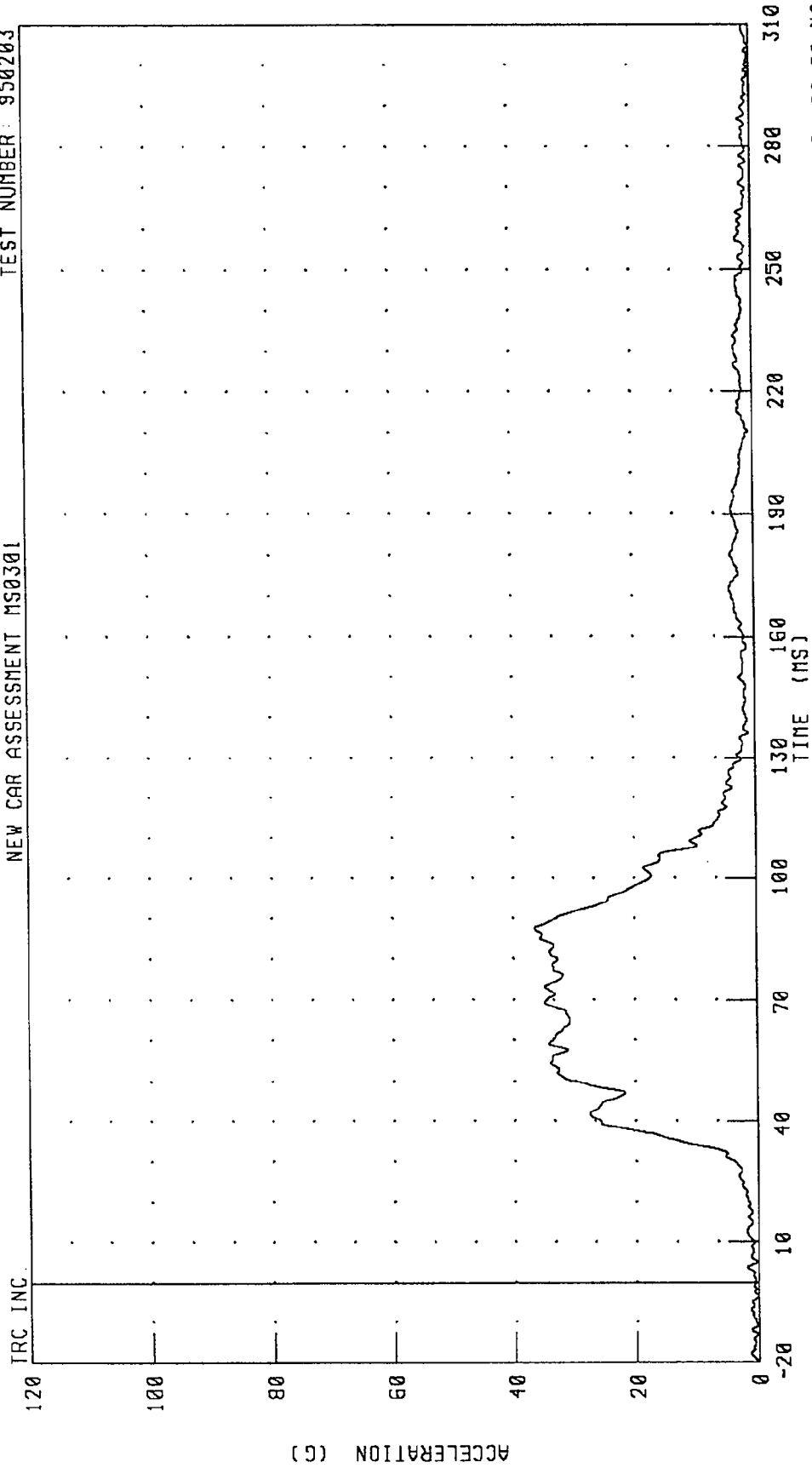
CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 19.64 G @ 82.24 MS; -9.57 G @ 45.04 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301

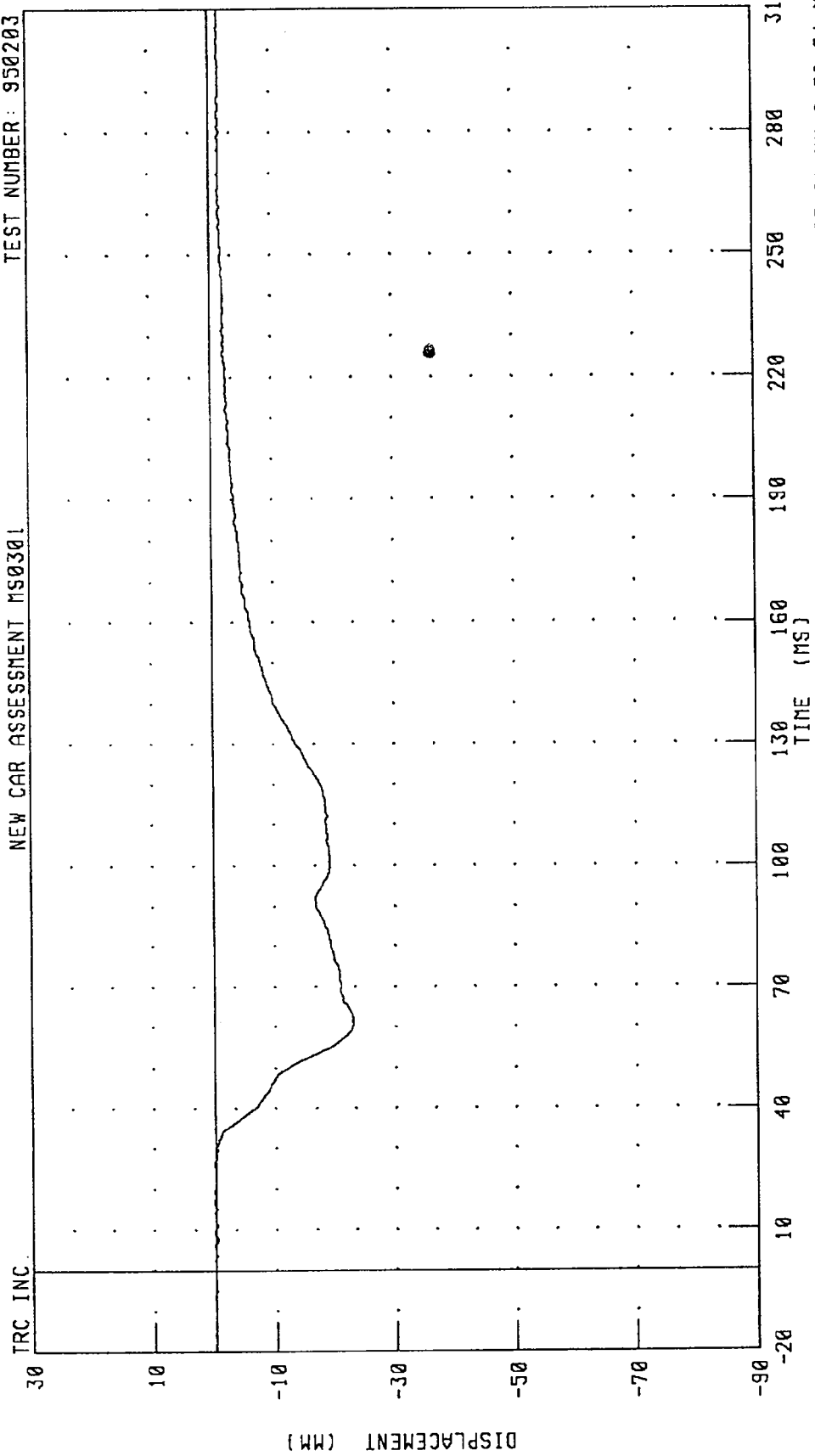


CHANNEL: CSTRG2 FILTER: CH. CLASS 180

PEAK DATA: 36.55 G @ 87.52 MS; 0.06 G @ -20.00 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER CHEST DEFLECTION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

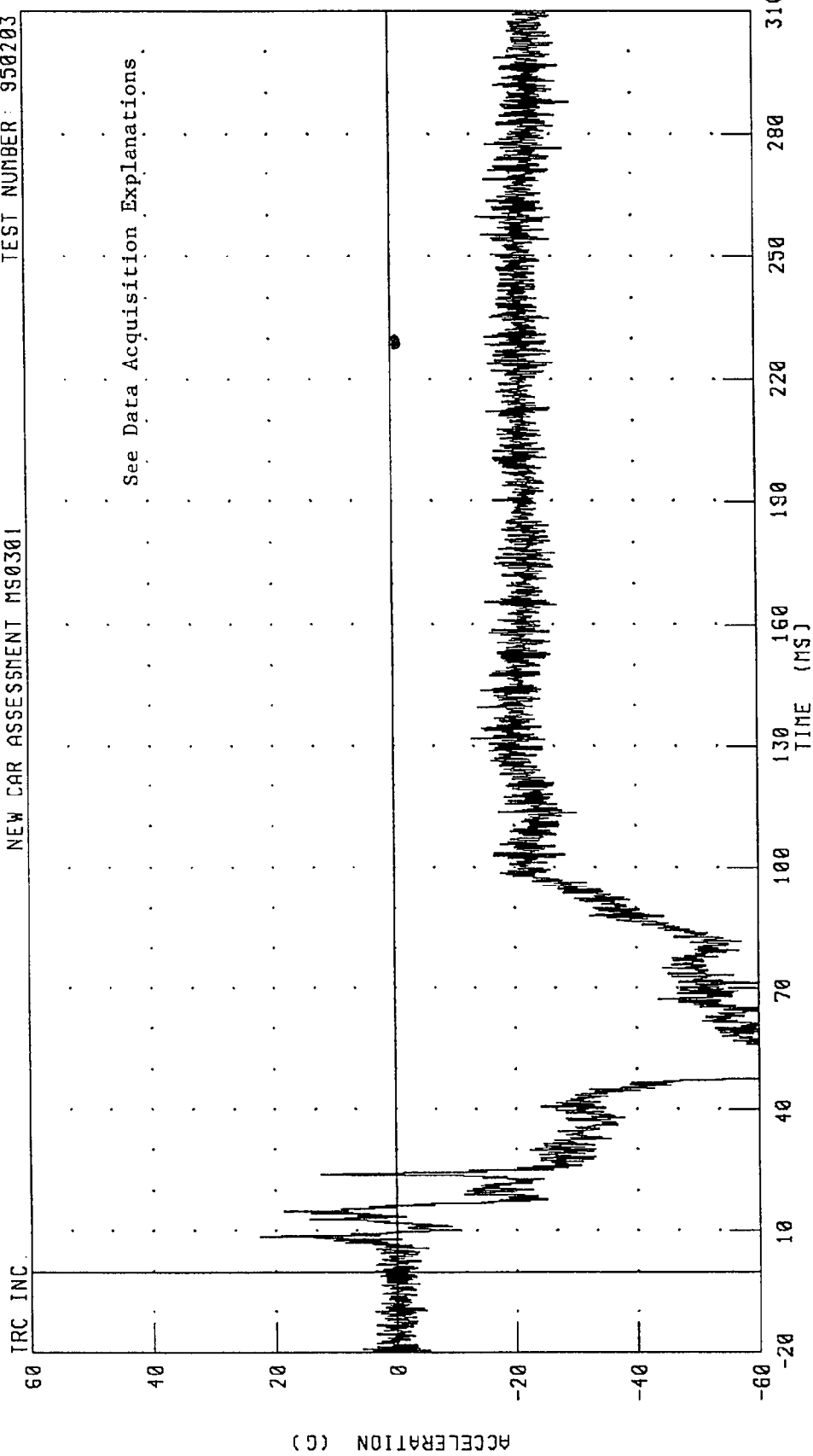


PEAK DATA: 0.22 NM @ 9.36 MS; -23.01 MM @ 60.64 MS

CHANNEL: CSTX02 FILTER: CH. CLASS 180

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER PELVIS X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

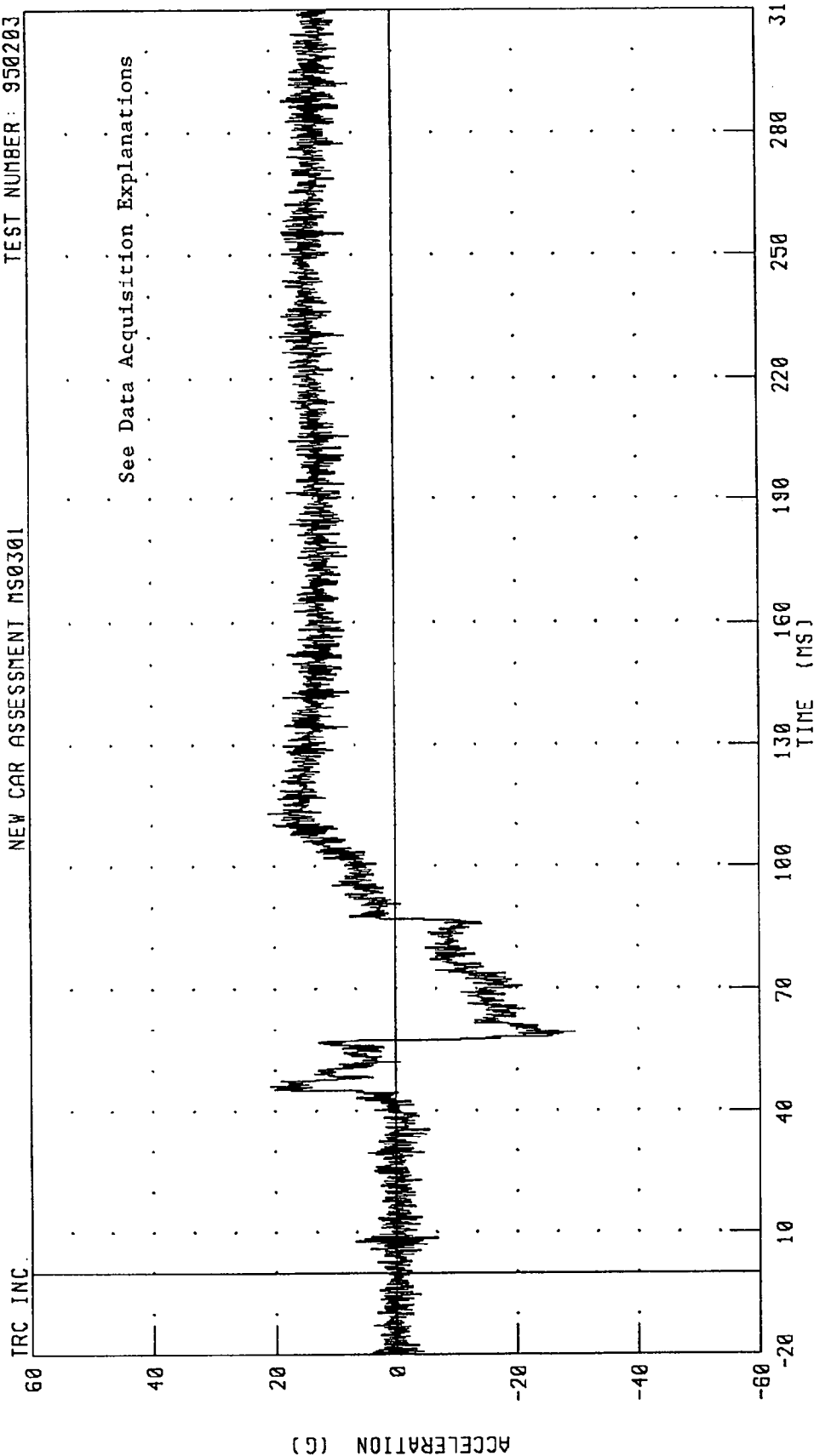


PEAK DATA: 22.78 G @ 8.56 MS; -80.06 G @ 51.68 MS

CHANNEL: PEVXG2 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

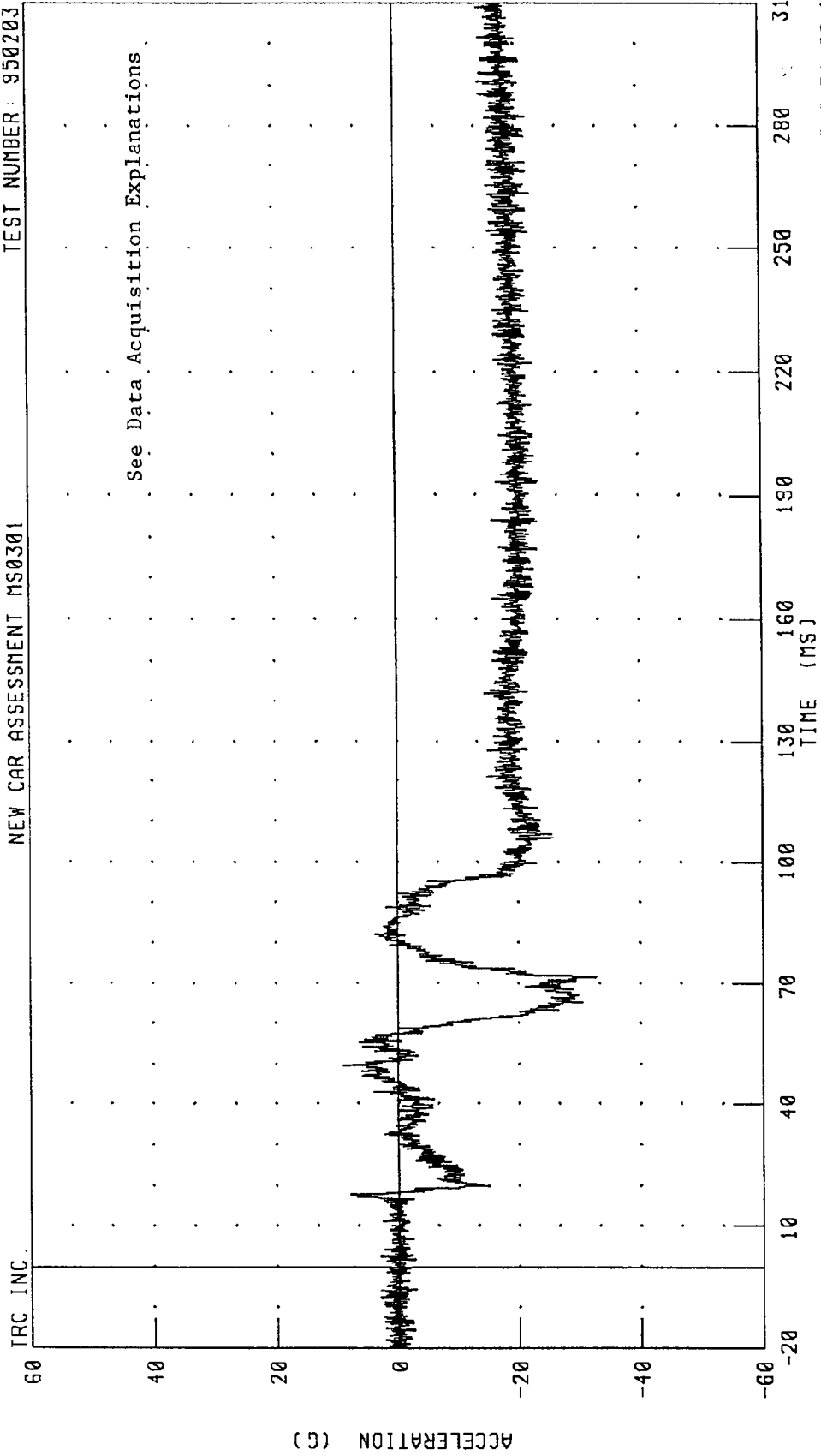


CHANNEL: PEVYG2 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Z-AXIS ACCELERATION

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



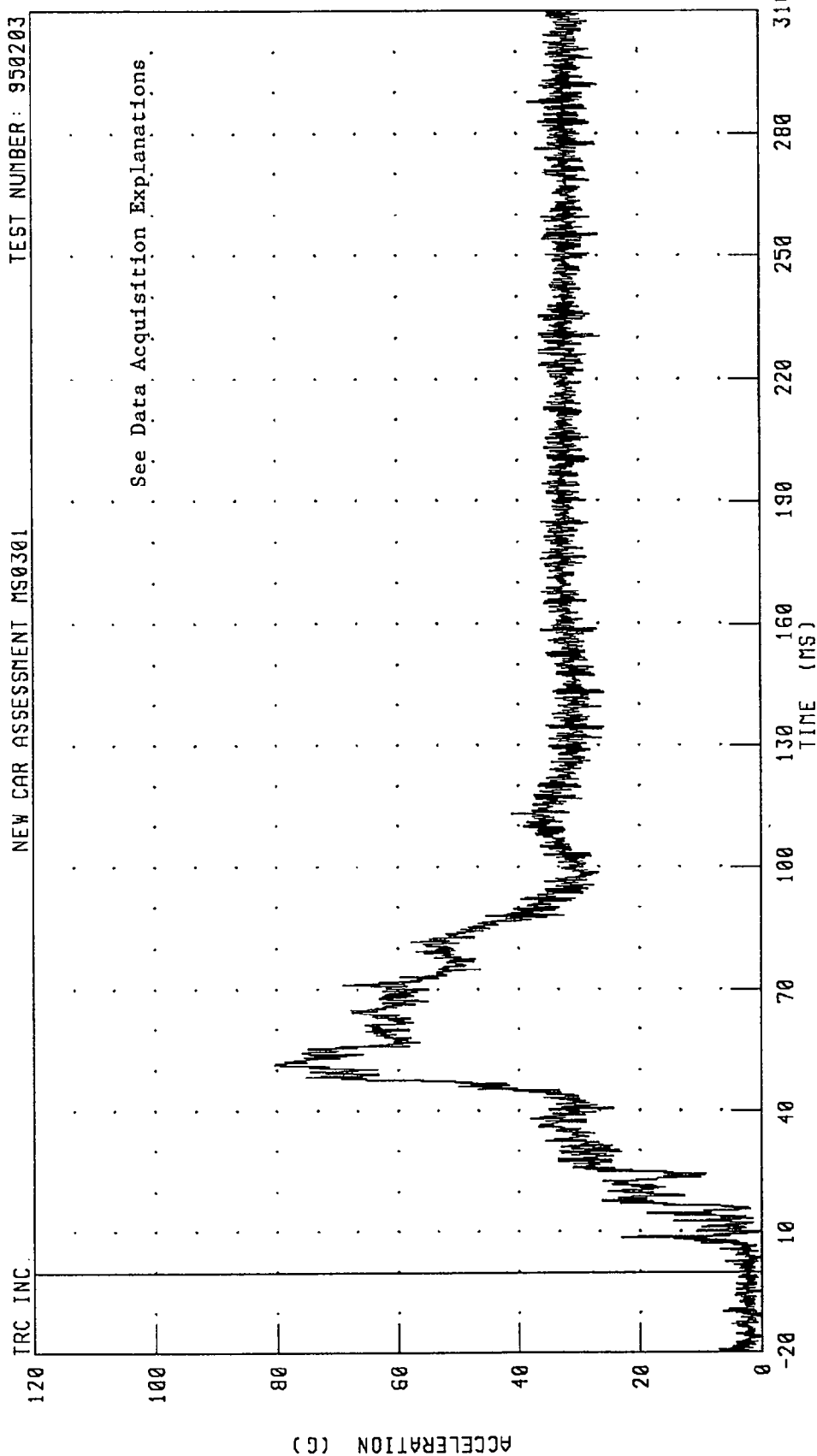
PEAK DATA: 9.07 G @ 49.68 MS; -32.83 G @ 71.68 MS

CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS RESULTANT ACCELERATION

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



CHANNEL: PEVRG2 FILTER: CH. CLASS 1000

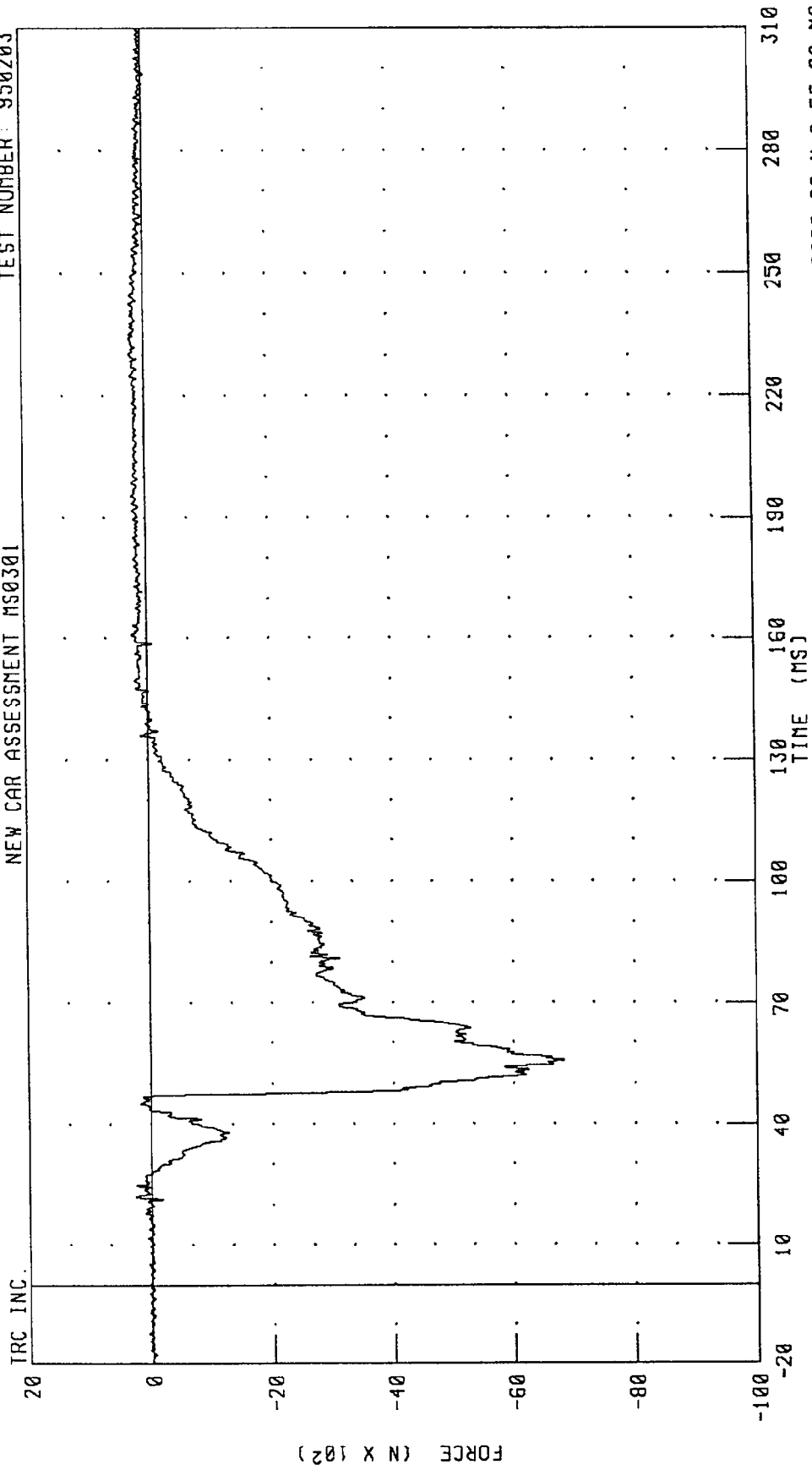
PEAK DATA: 80.51 G @ 51.36 MS; 0.33 G @ -10.40 MS

1995 DODGE AVENTURER INTO FRONTAL LOAD CELL BARRIER

PASSENGER LEFT FEMUR FORCE

NEW CAR ASSESSMENT MS0301

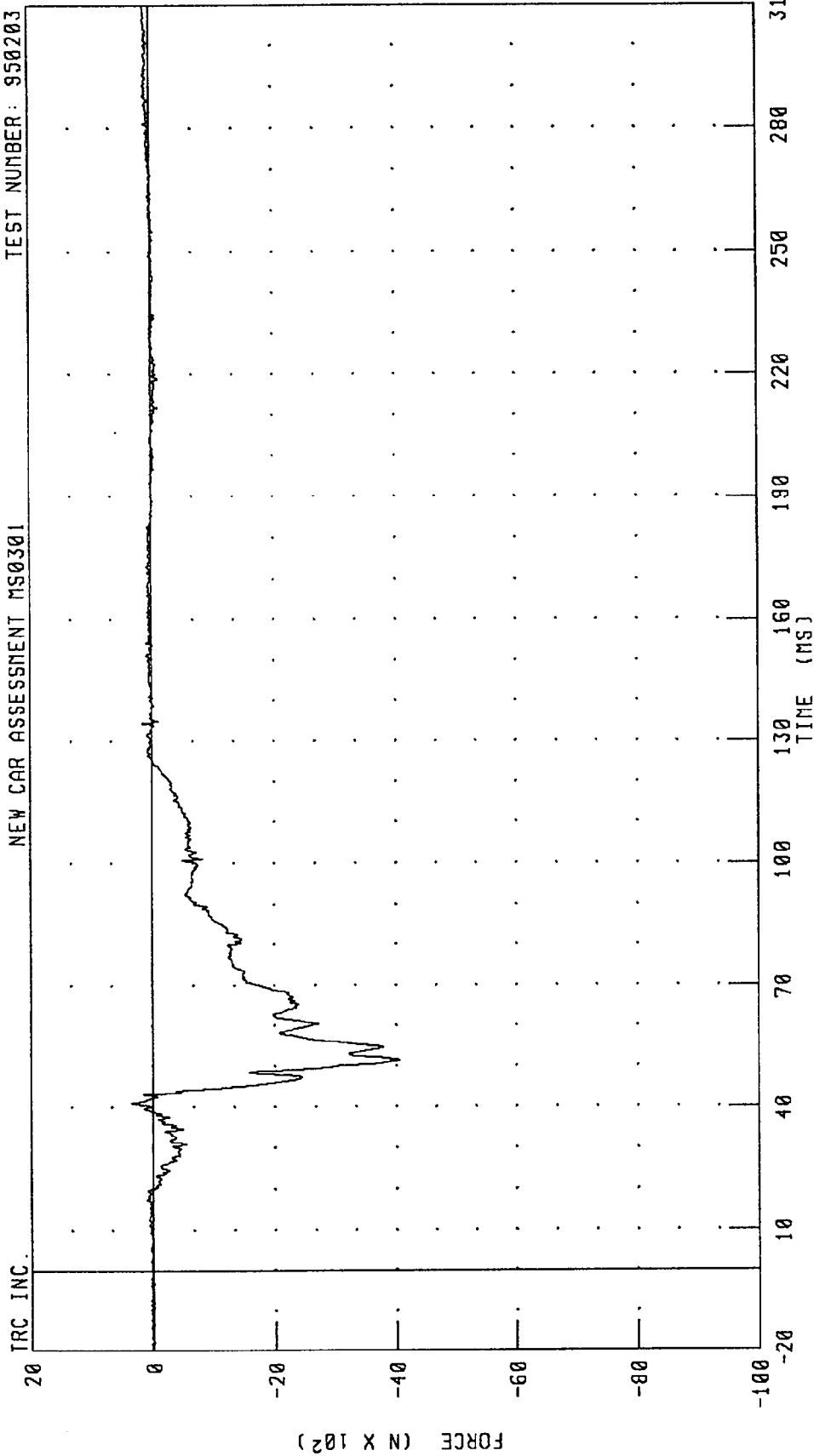
TEST NUMBER: 950203



CHANNEL: LFMF2 FILTER: CH. CLASS 600

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

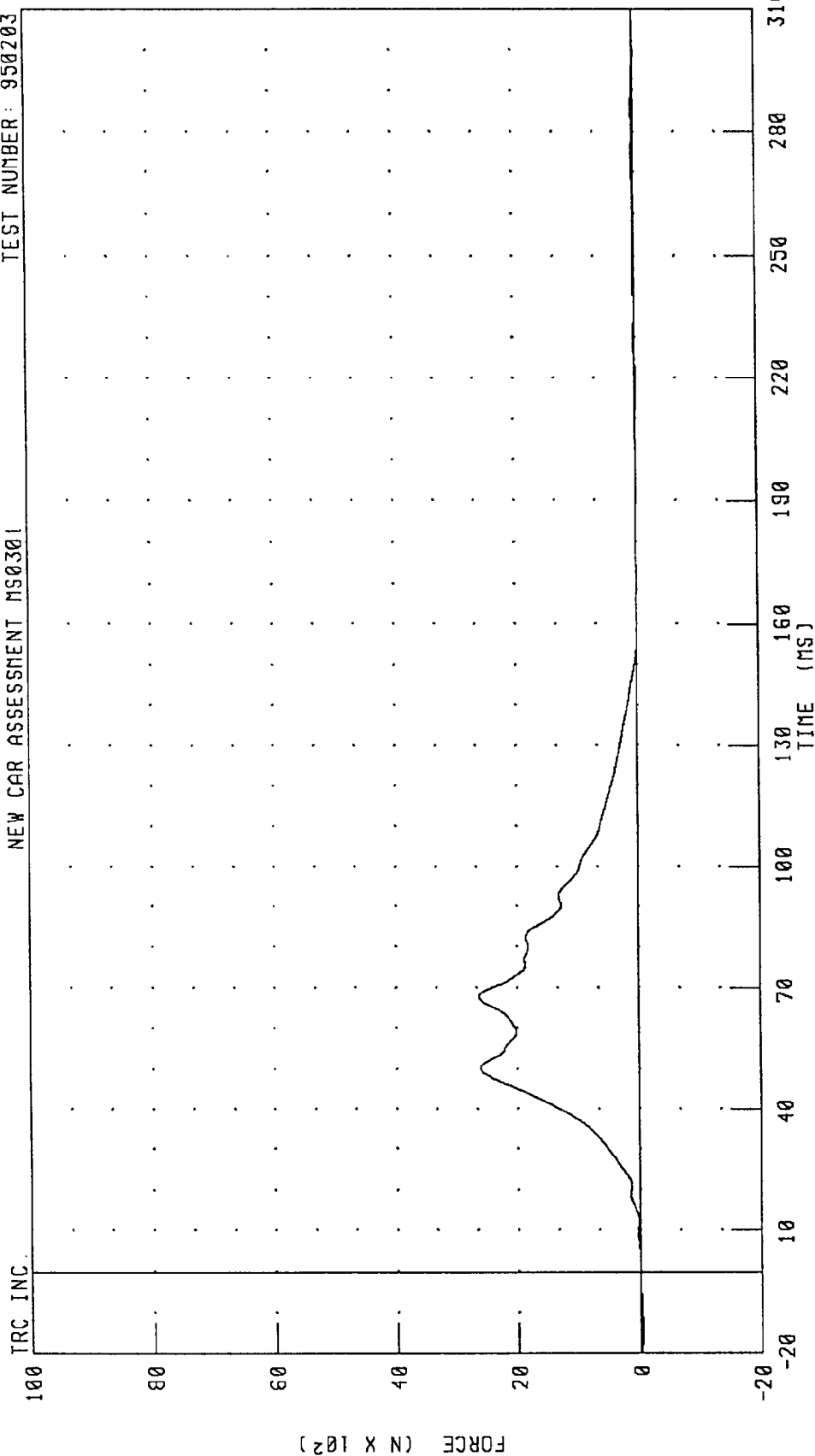


CHANNEL: RFMF2 FILTER: CH. CLASS 600

PEAK DATA: 346.78 N @ 40.96 MS; -4046.08 N @ 51.44 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER LAP BELT OUTBOARD FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

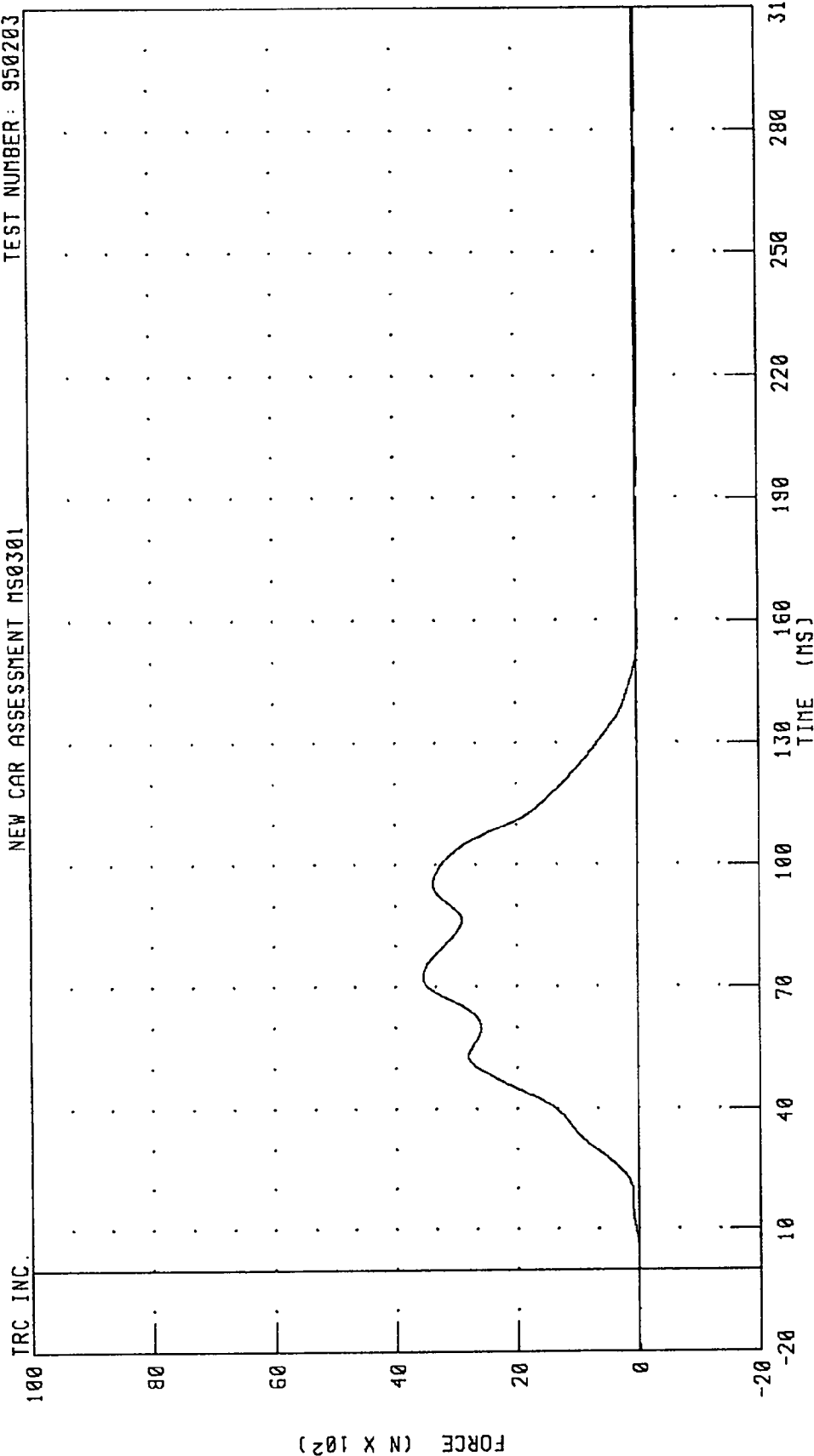


CHANNEL: LBOF2 FILTER: CH. CLASS 60

PEAK DATA: 2634.71 N @ 67.92 MS; -24.98 N @ -15.44 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER SHOULDER BELT FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

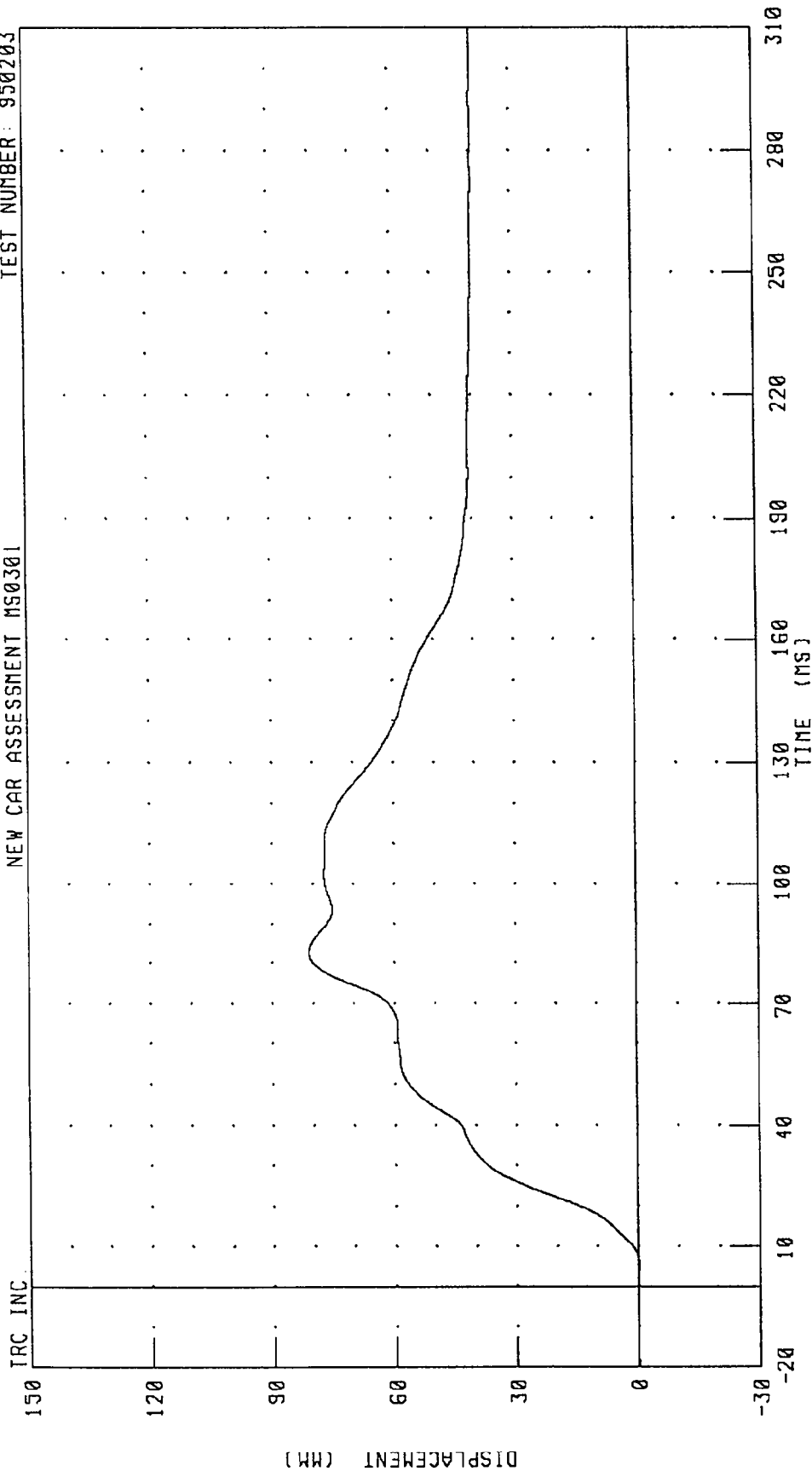


PEAK DATA: 3547.05 N @ 72.32 MS; -36.95 N @ 235.92 MS

CHANNEL: SHBF2 FILTER: CH CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER SHOULDER BELT DISPLACEMENT
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

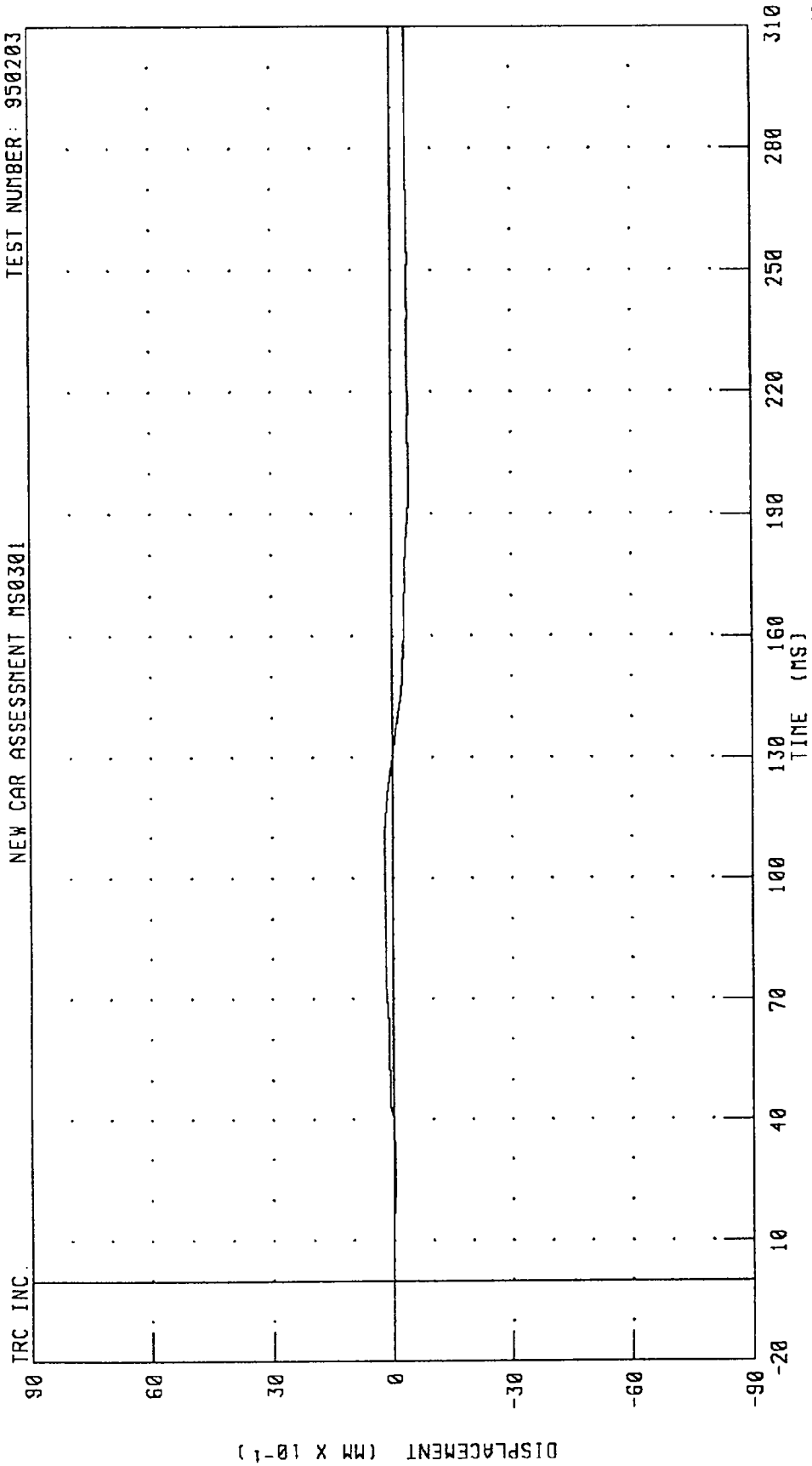


PEAK DATA: 81.02 MM @ 82.40 MS; -0.12 MM @ -20.00 MS

CHANNEL: SHBD2 FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

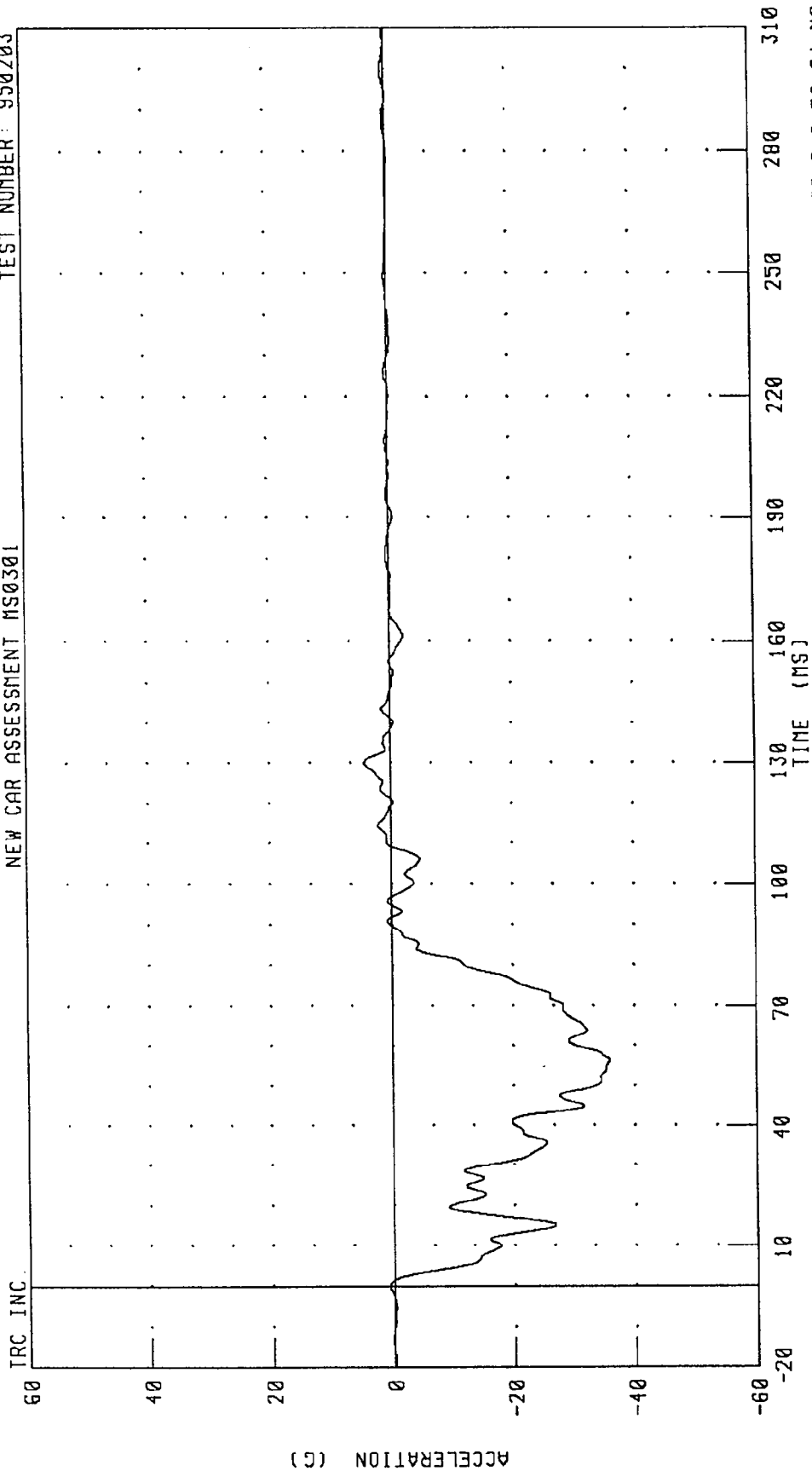


CHANNEL: SBED2 FILTER: CH. CLASS 60

PEAK DATA: 0.21 mm @ 105.20 ms; -0.44 mm @ 200.16 ms

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



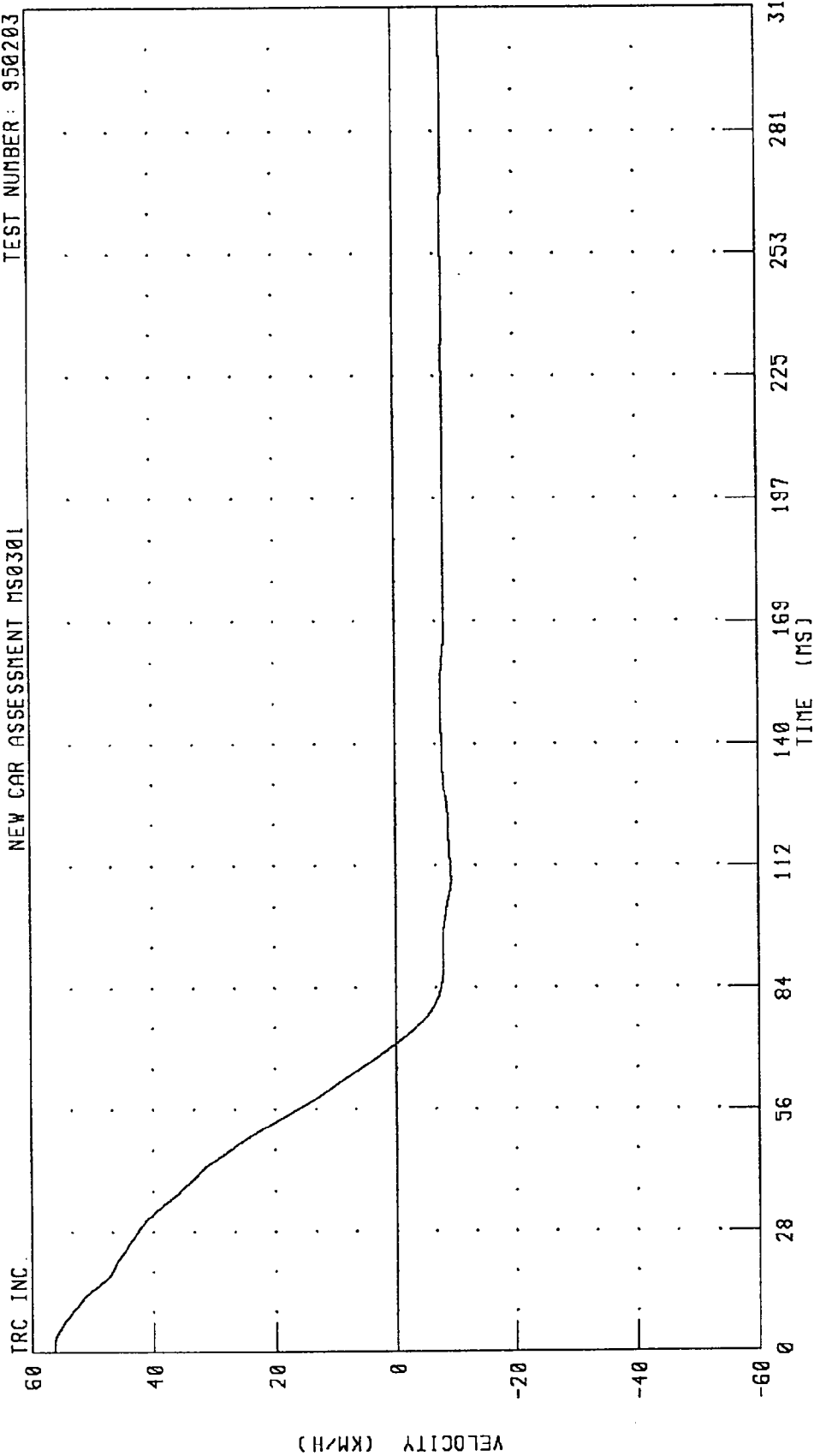
CHANNEL: TLRXG1 FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

LEFT REAR SEAT X-AXIS VELOCITY

NEW CAR ASSESSMENT MS0301

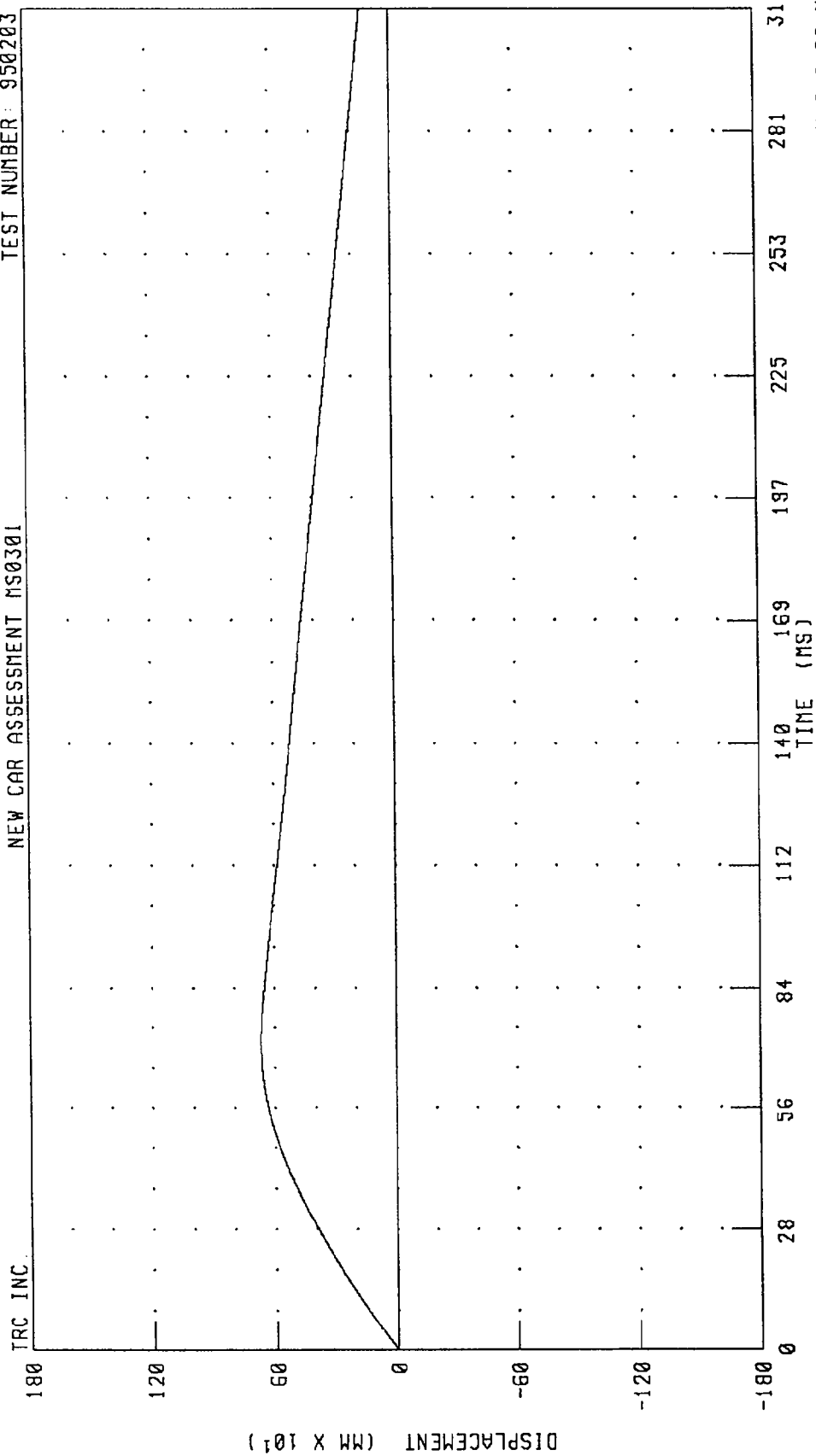
TEST NUMBER: 950203



CHANNEL: TLRXV1 FILTER: CH. CLASS 180

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT X-AXIS DISPLACEMENT
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



PEAK DATA: 669.03 MM @ 71.44 MS; 0.00 MM @ 0.00 MS

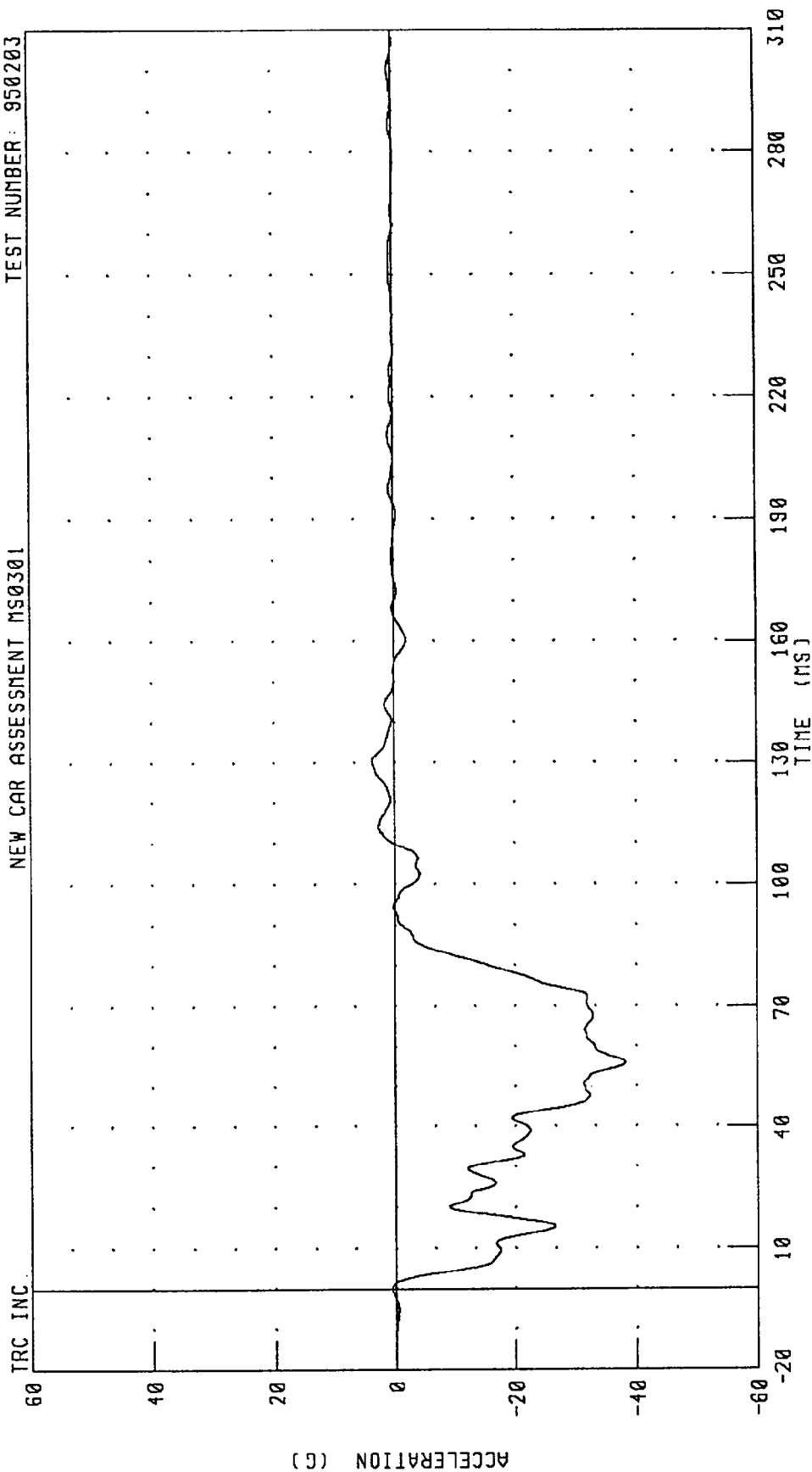
CHANNEL: TLRX01 FILTER: CH. CLASS 180

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

RIGHT REAR SEAT X-AXIS ACCELERATION

NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

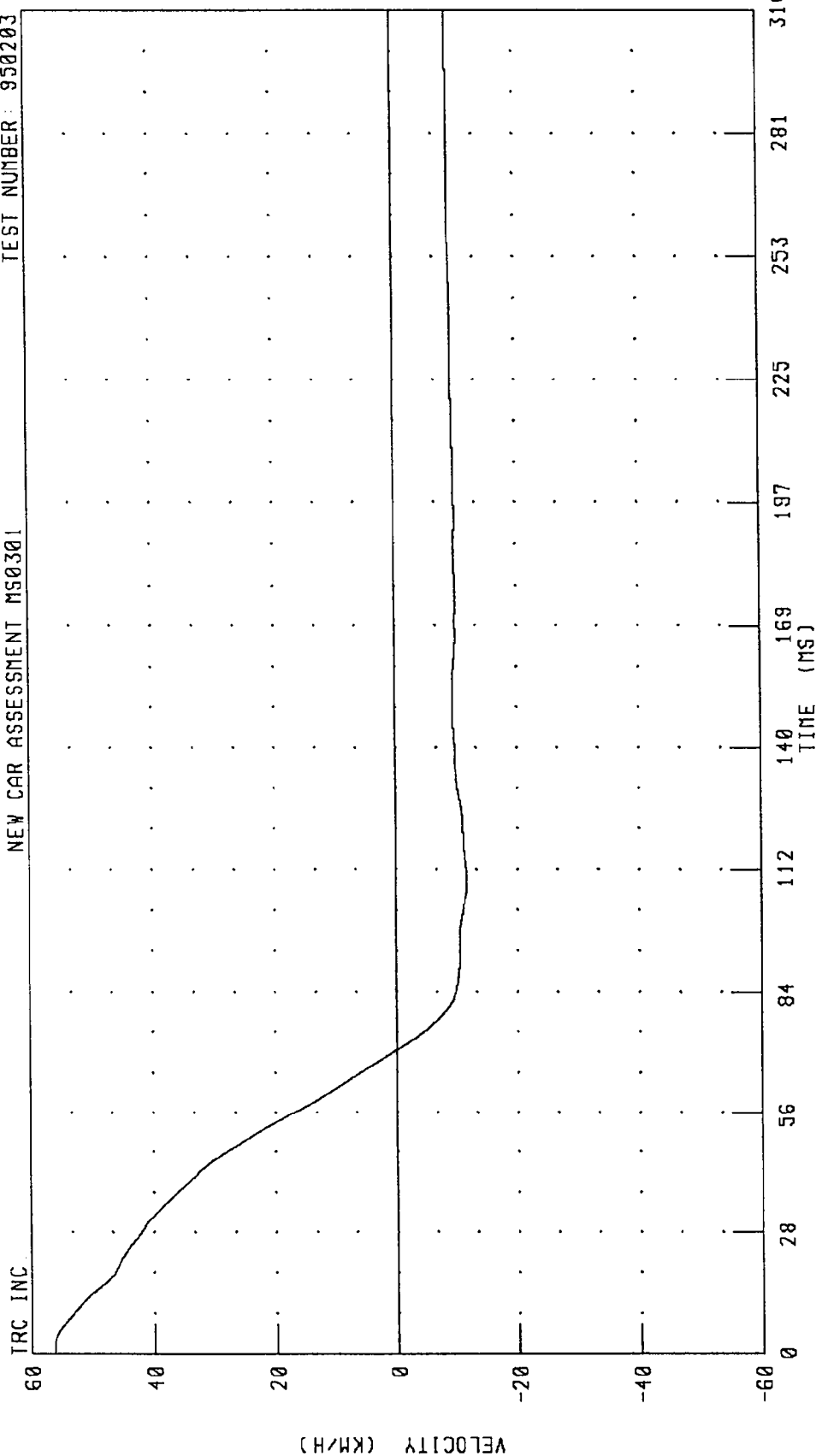


CHANNEL: TRRXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.74 G @ 130.40 MS; -38.24 G @ 55.92 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS VELOCITY
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



PEAK DATA: 56.22 KM/H @ 1.52 MS; -11.75 KM/H @ 109.92 MS

CHANNEL: TRRXV1 FILTER: CH. CLASS 180

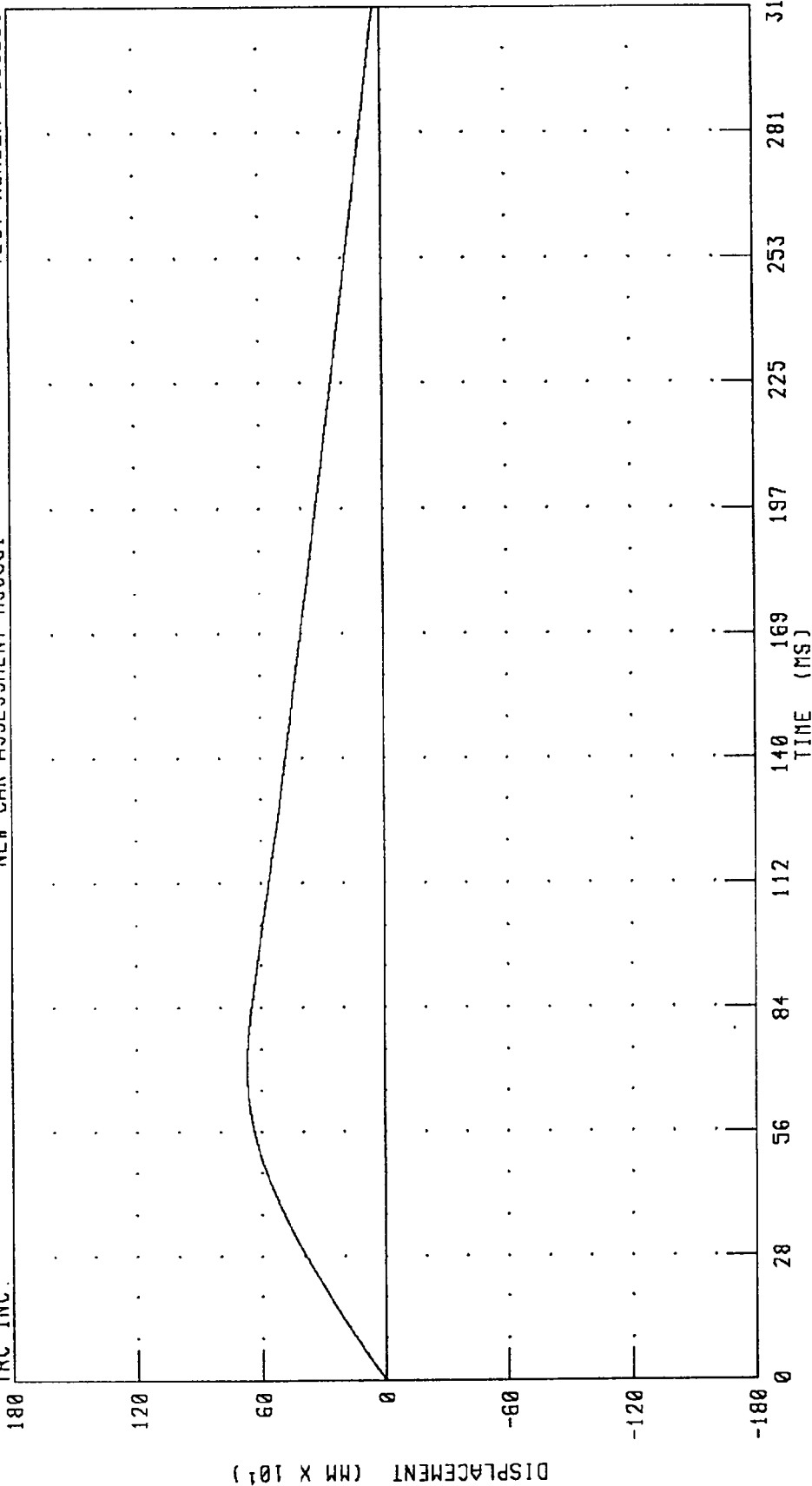
1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

RIGHT REAR SEAT X-AXIS DISPLACEMENT

NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

TRC INC.



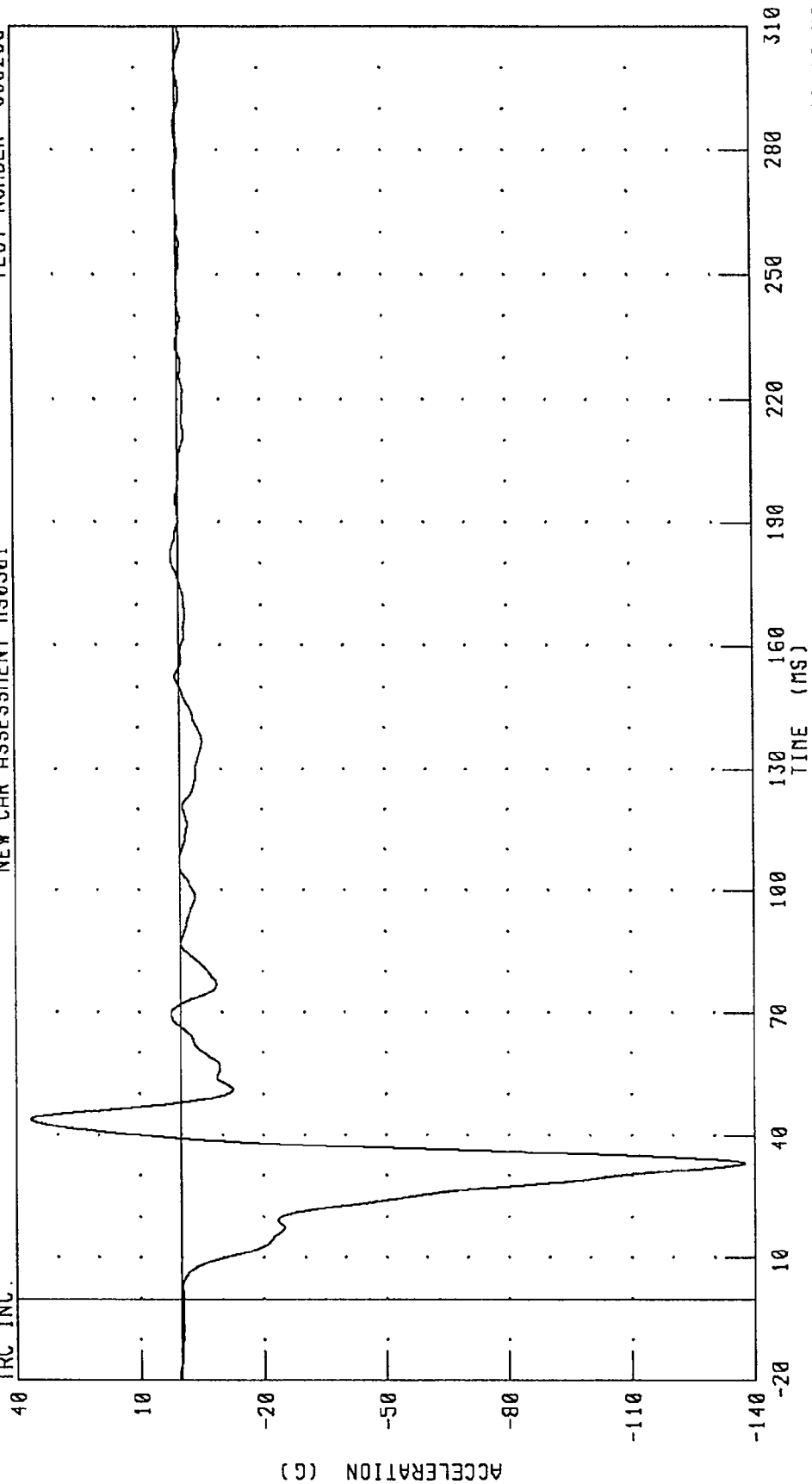
CHANNEL: TRRXD1 FILTER: CH. CLASS 180

PEAK DATA: 671.14 MM @ 71.04 MS; 0.00 MM @ 0.00 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

TRC INC.

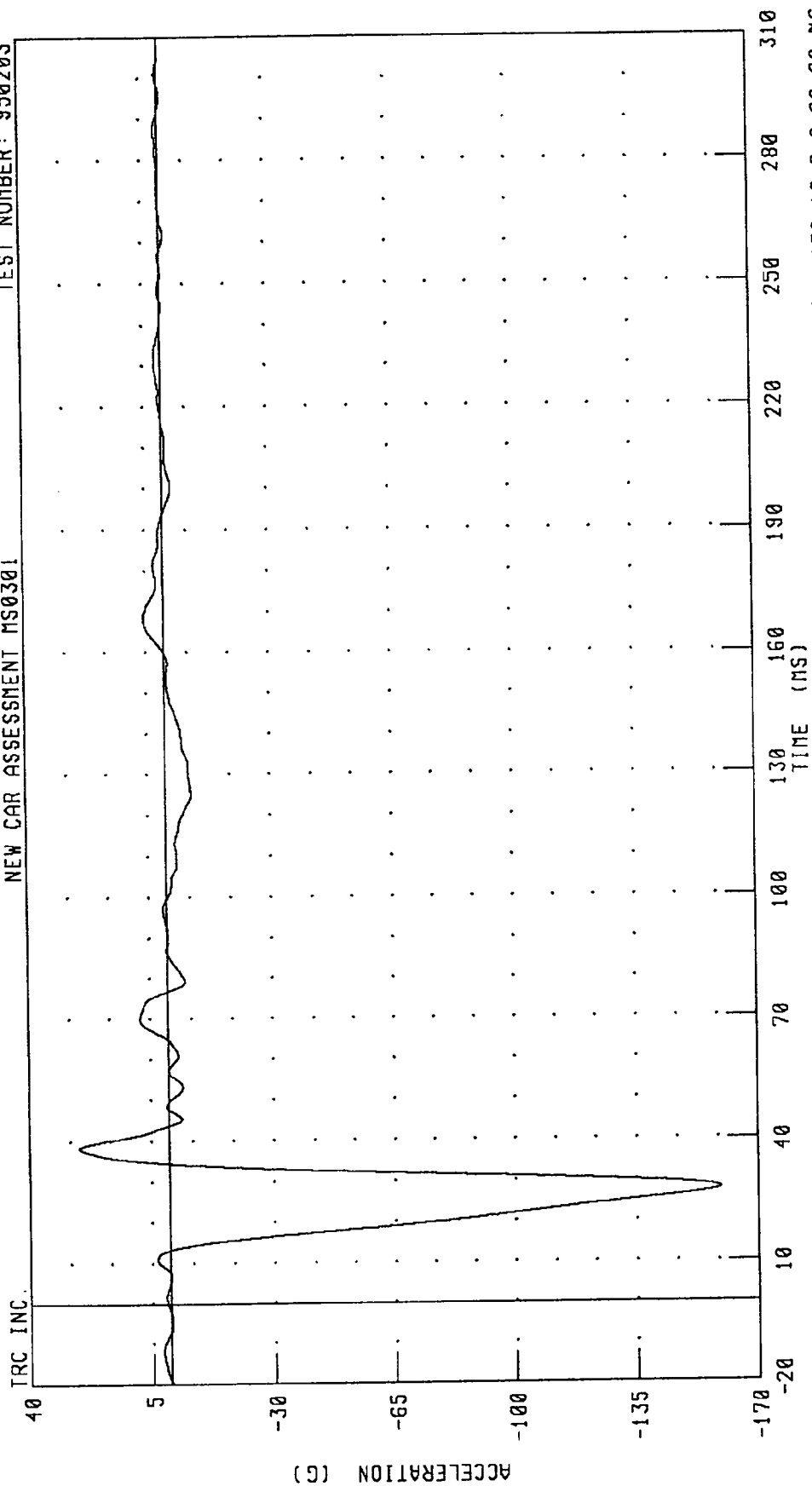


CHANNEL: ENGXC1 FILTER: CH. CLASS 60

PEAK DATA: 36.38 G @ 43.84 MS; -137.27 G @ 33.12 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

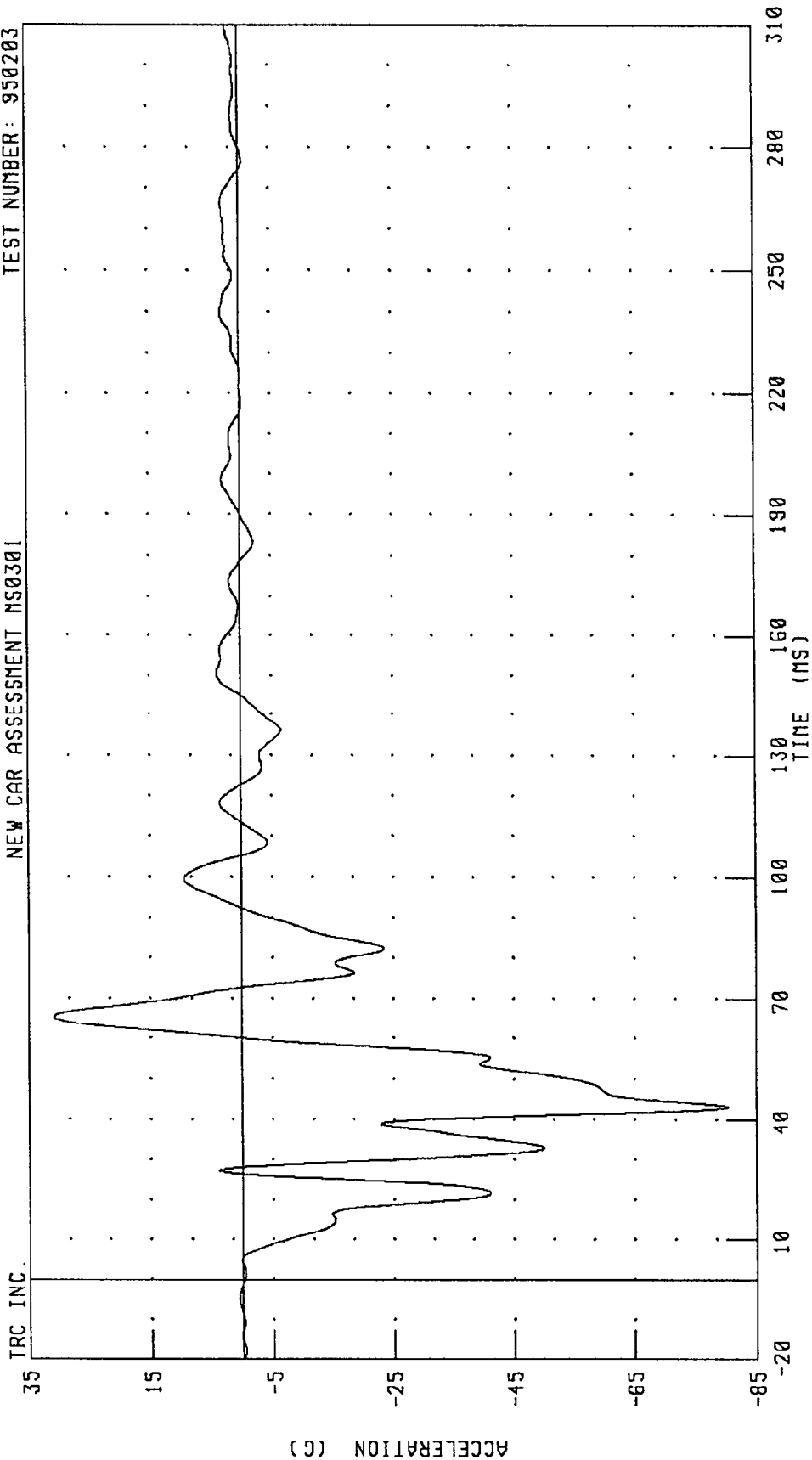


CHANNEL: ENGXC2 FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 950203

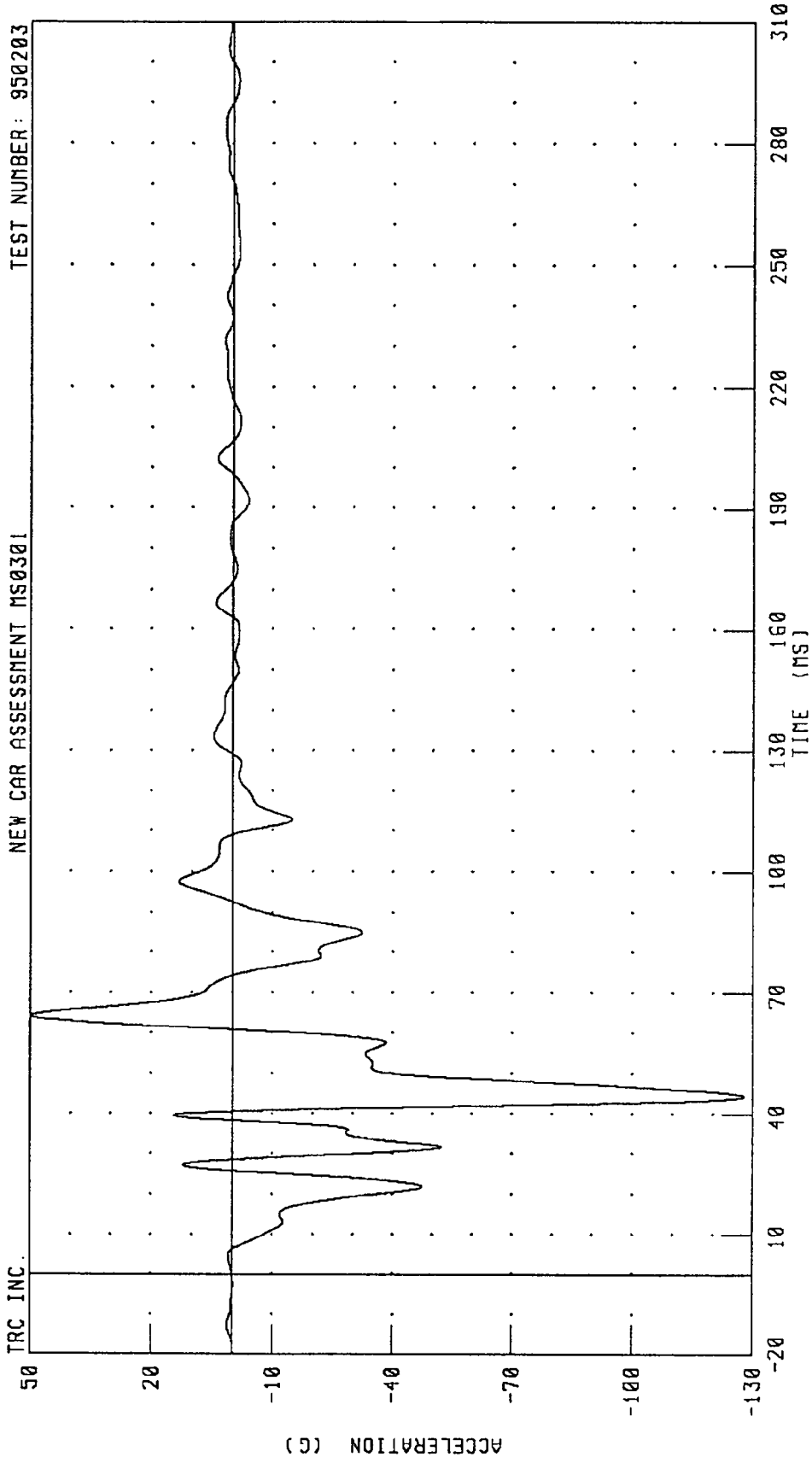
NEW CAR ASSESSMENT MS0301



PEAK DATA: 30.90 G @ 65.20 MS; -80.42 G @ 43.12 MS

CHANNEL: BCRXG1 FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION

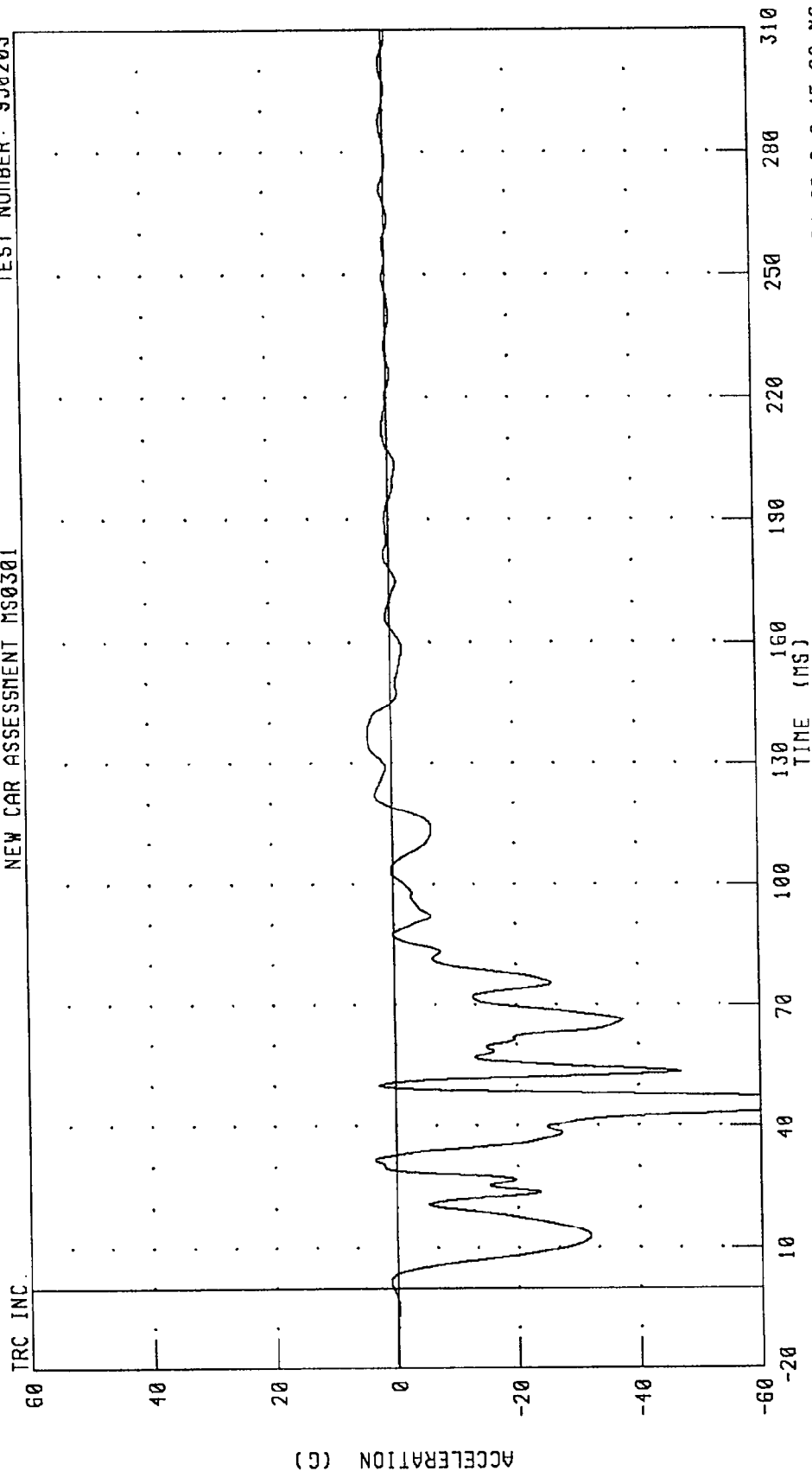


CHANNEL: BCLXG1 FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301

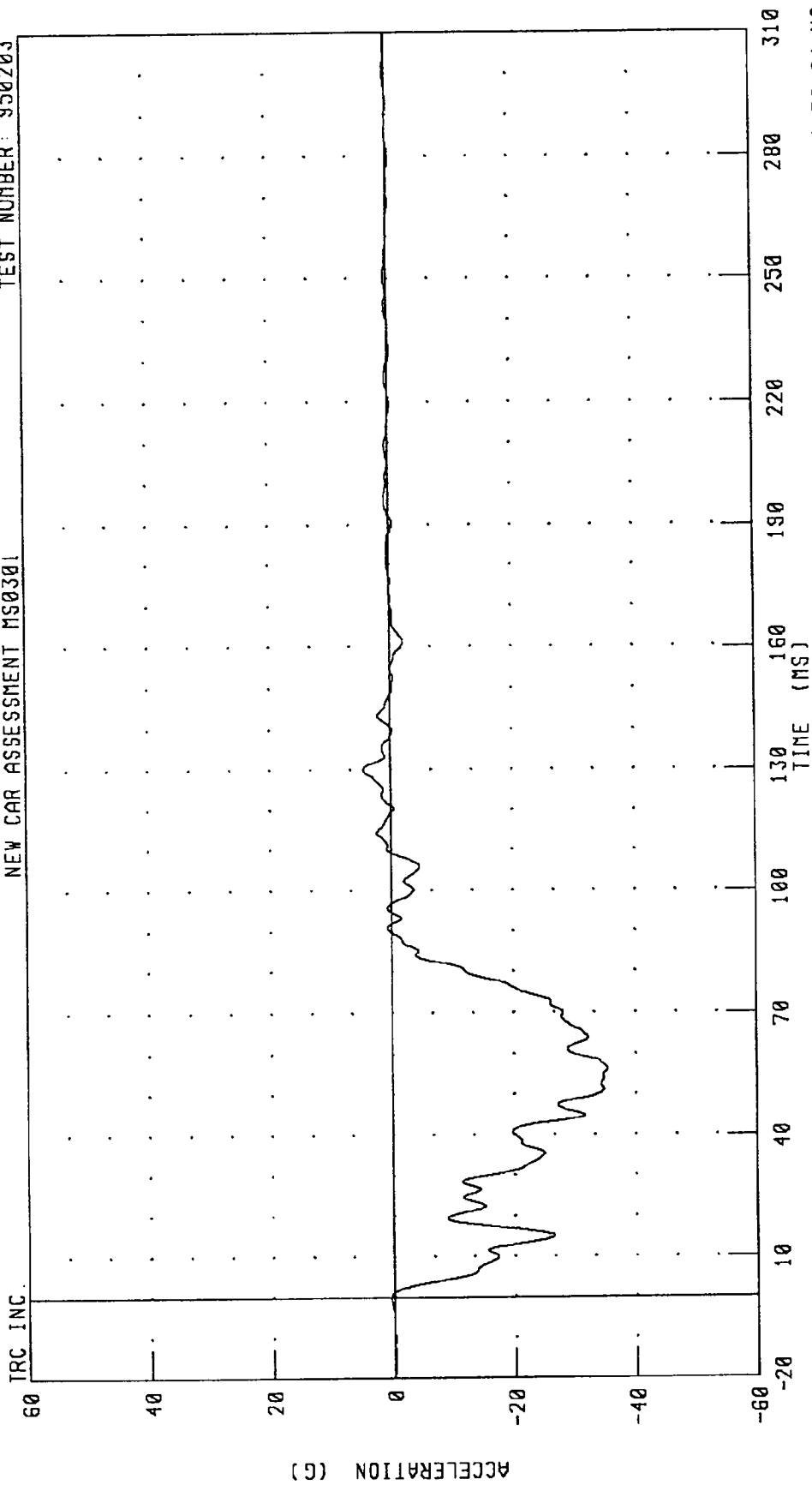


CHANNEL: DPCXG1 FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



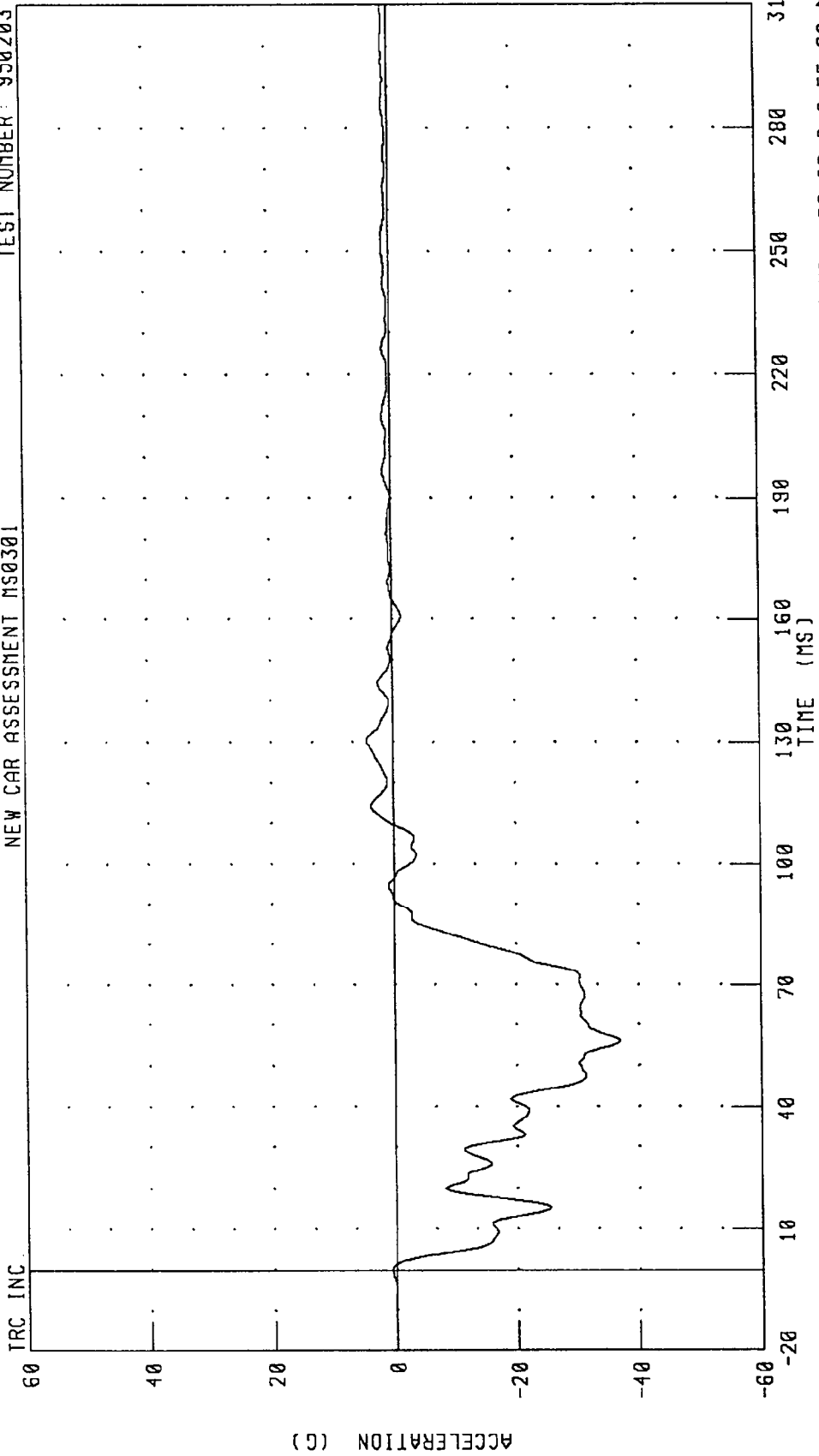
CHANNEL: TLRXGA FILTER: CH. CLASS 60

PEAK DATA: 4.51 G @ 130.00 MS; -35.44 G @ 56.24 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 950203

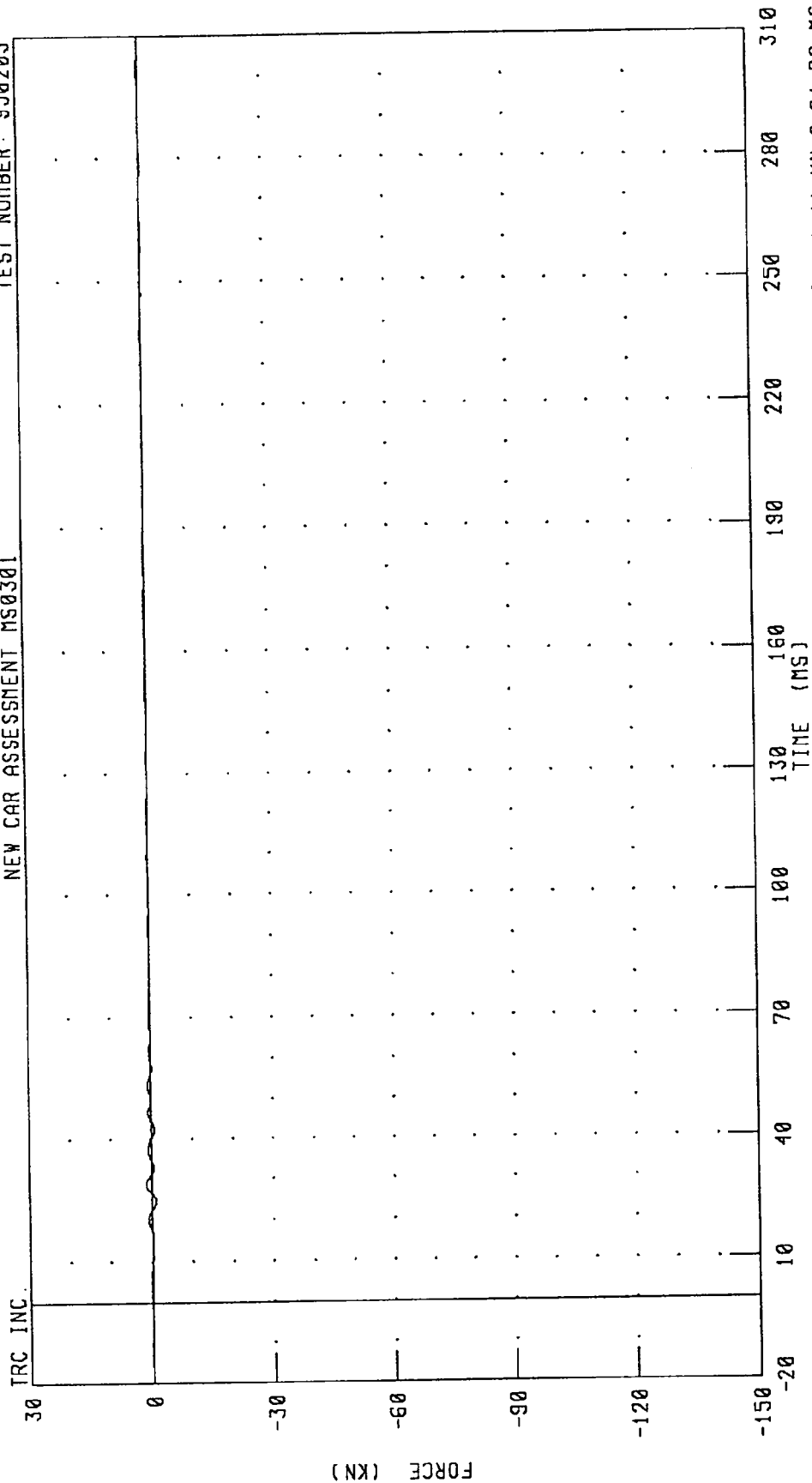
NEW CAR ASSESSMENT MS0301



CHANNEL: TRRXGA FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A1 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



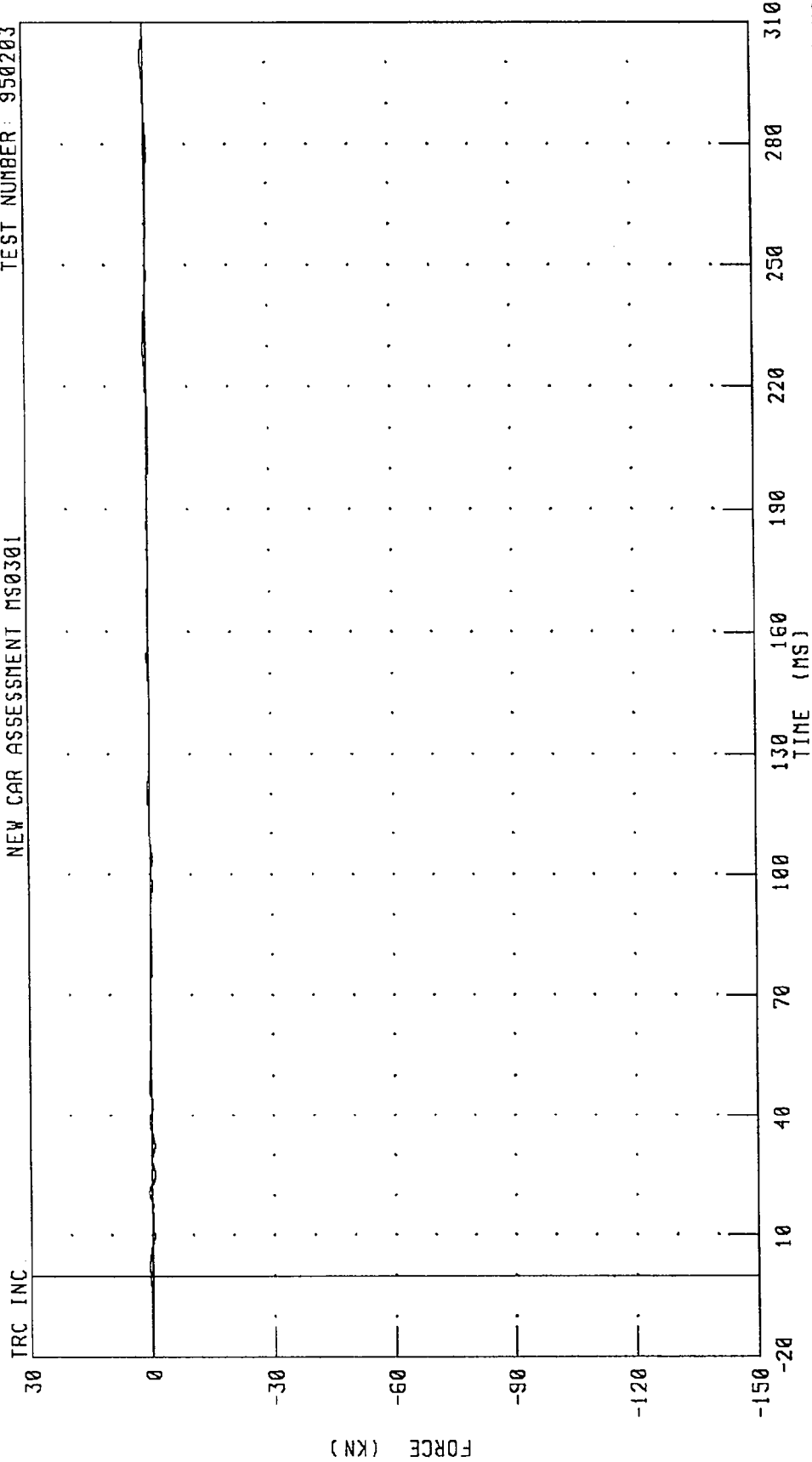
PEAK DATA: 1.29 KN @ 28.80 MS; -1.11 KN @ 24.72 MS

FILTER: CH. CLASS 60

CHANNEL: BA1F

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE

NEW CAR ASSESSMENT MS0301 TEST NUMBER: 950203

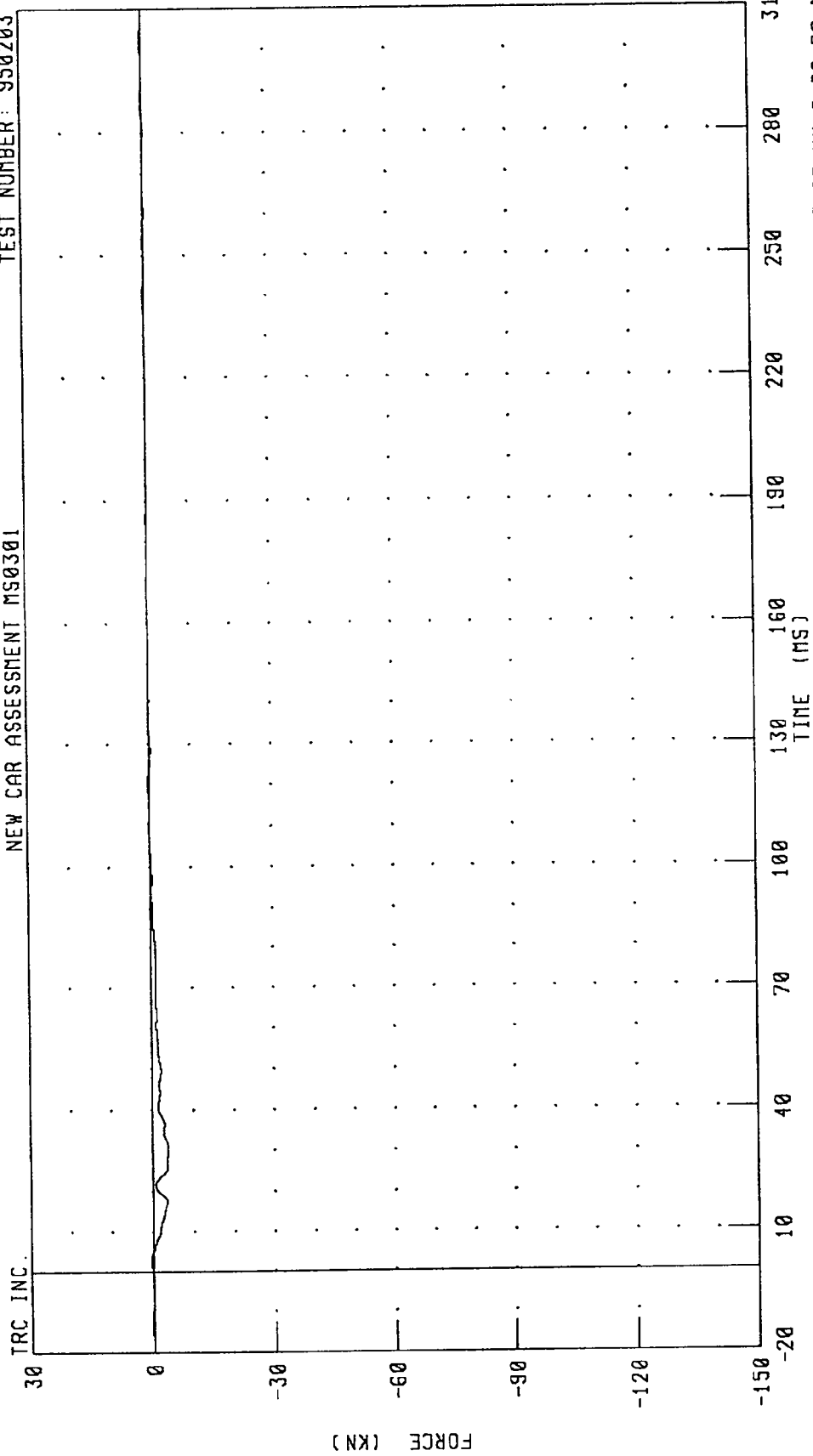


PEAK DATA: 0.74 KN @ 301.44 MS; -0.83 KN @ 25.36 MS

CHANNEL: BA2F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

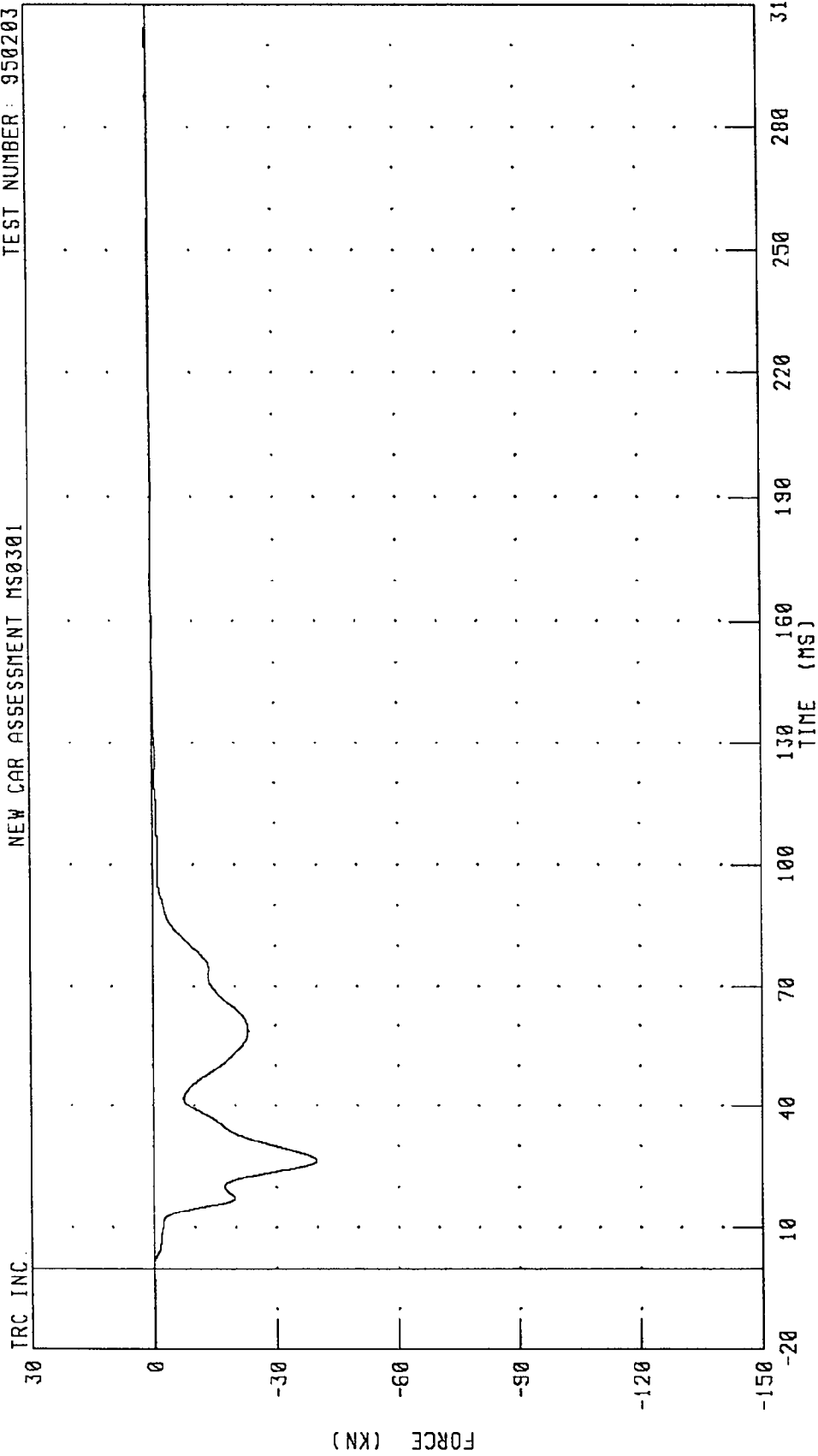


PEAK DATA: 0.52 KN @ 2.32 MS; -3.97 KN @ 30.72 MS

CHANNEL: BA3F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A4 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

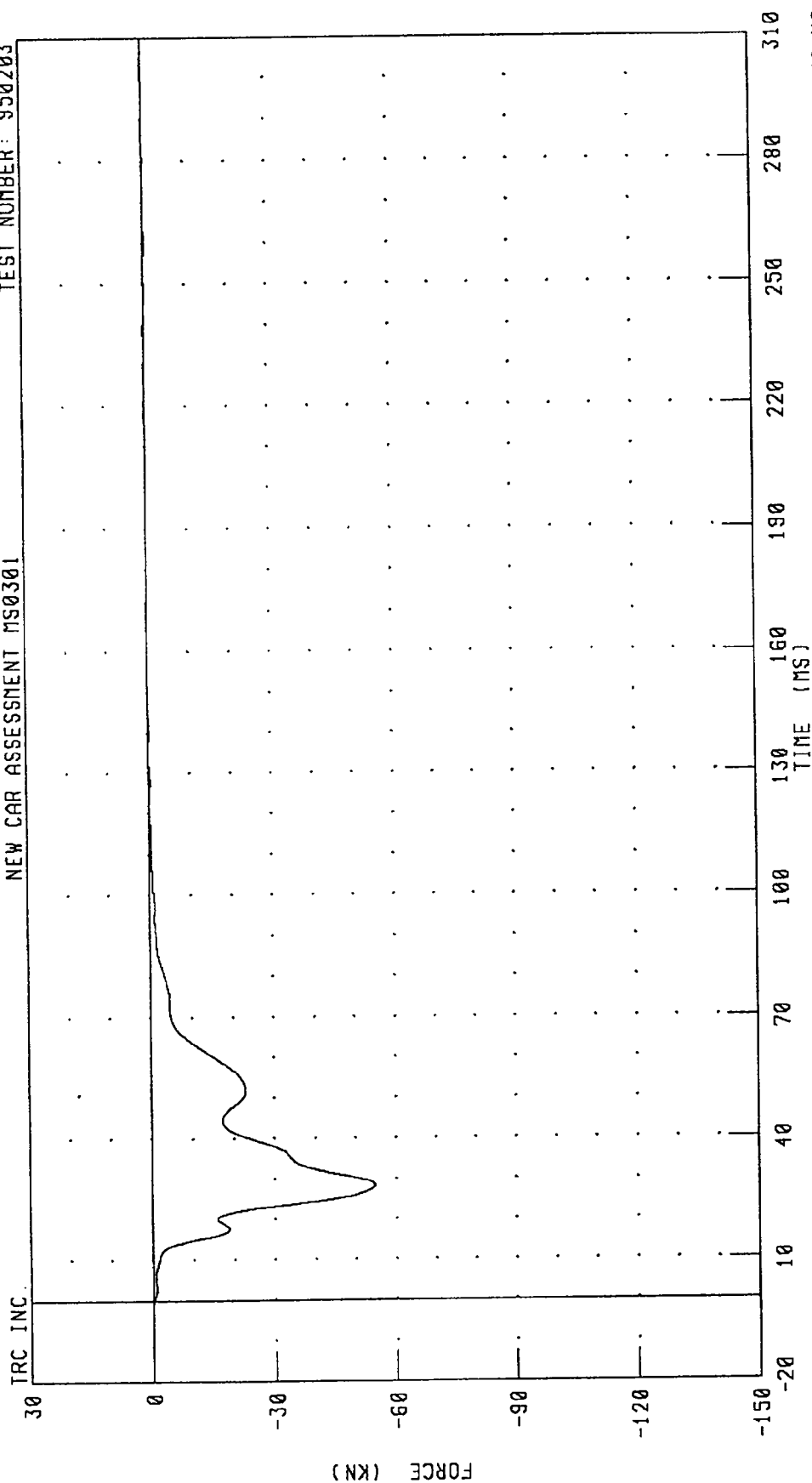


PEAK DATA: 0.48 KN @ 302.00 MS; -39.82 KN @ 26.56 MS

CHANNEL: BA4F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A5 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



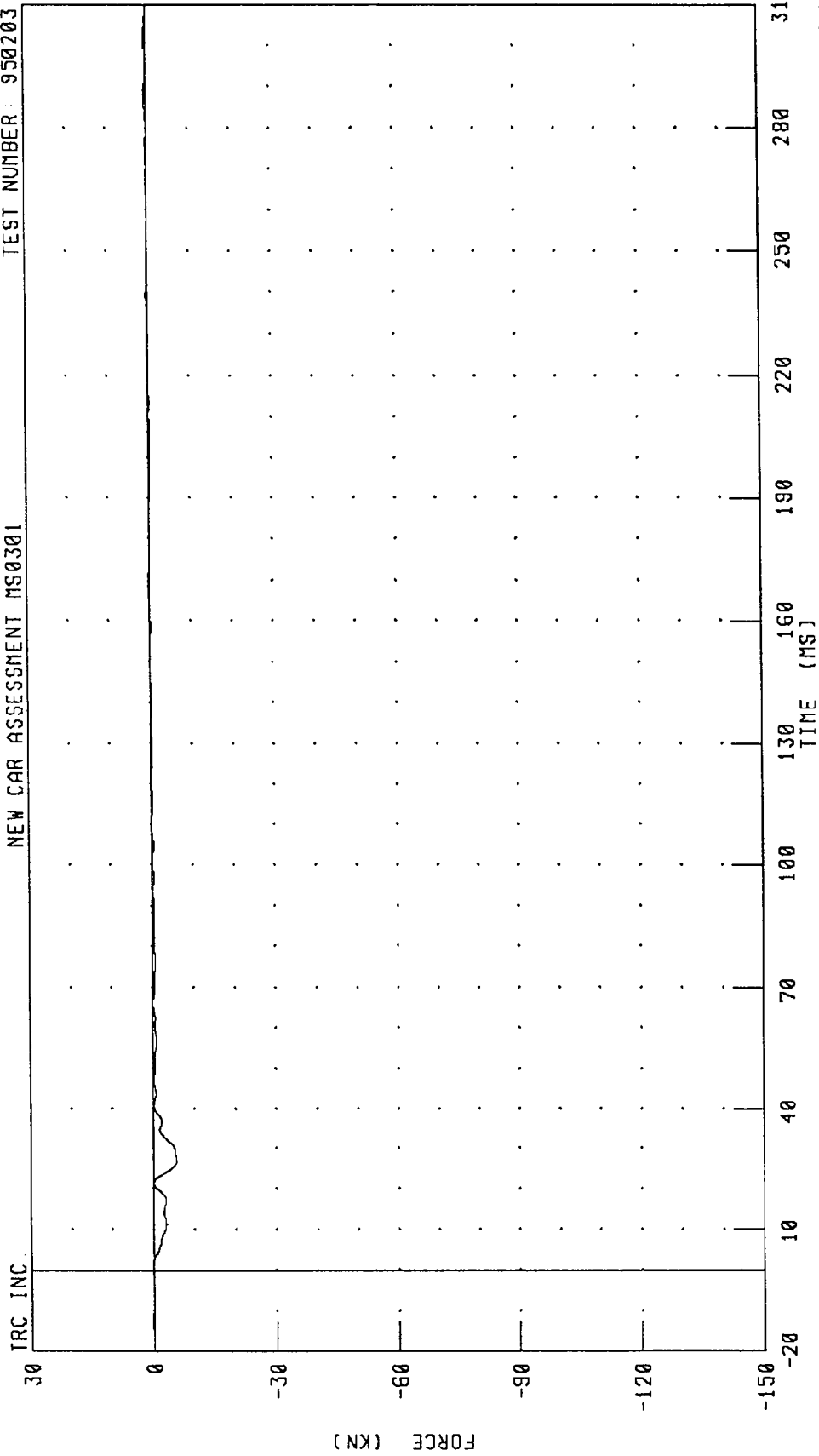
PEAK DATA: 0.31 KN @ 168.80 MS; -54.86 KN @ 28.40 MS

CHANNEL: BASF FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE

TEST NUMBER 950203

NEW CAR ASSESSMENT MS0301

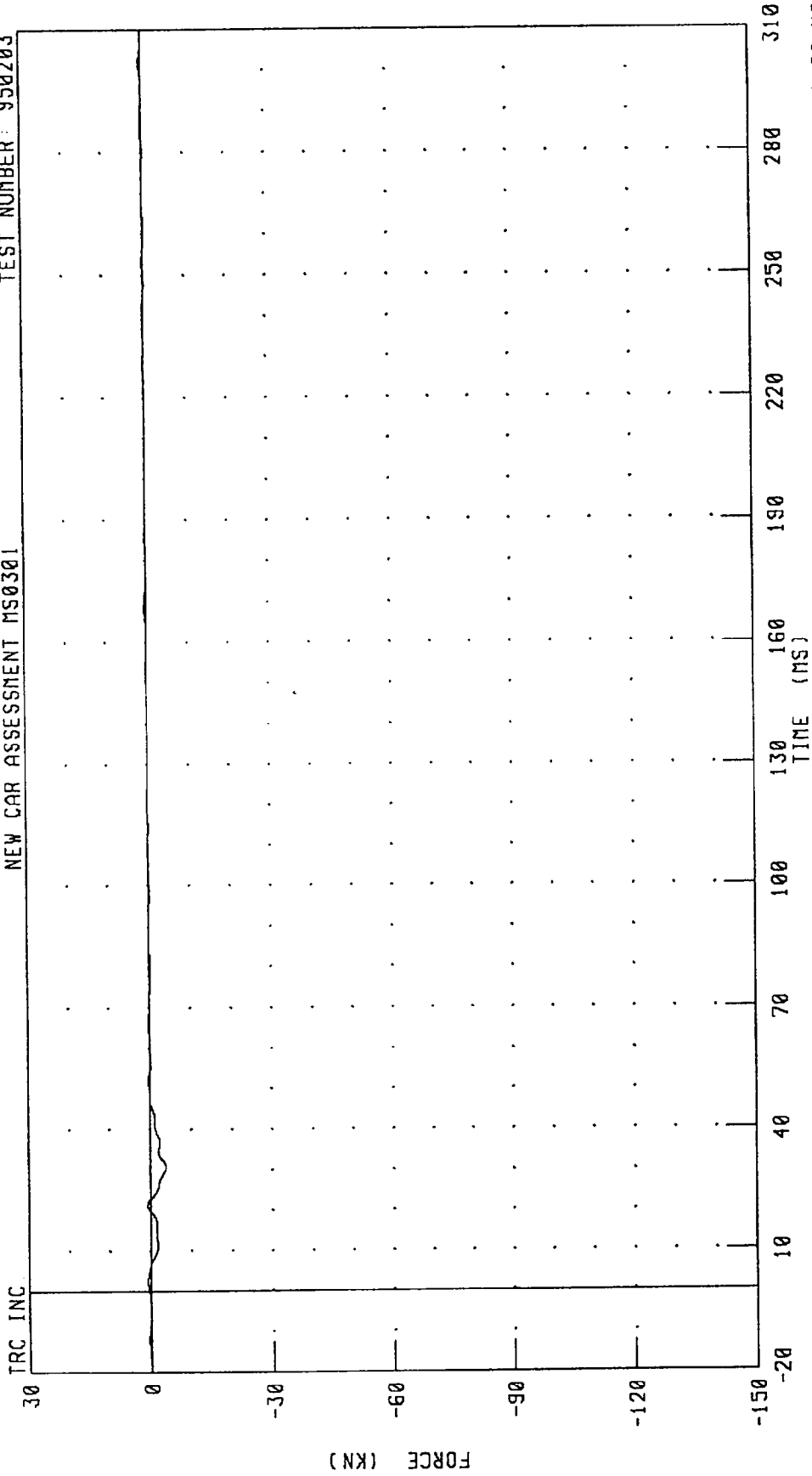


PEAK DATA: 0.55 KN @ 301.92 MS; -5.70 KN @ 26.96 MS

CHANNEL: BA6F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A7 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

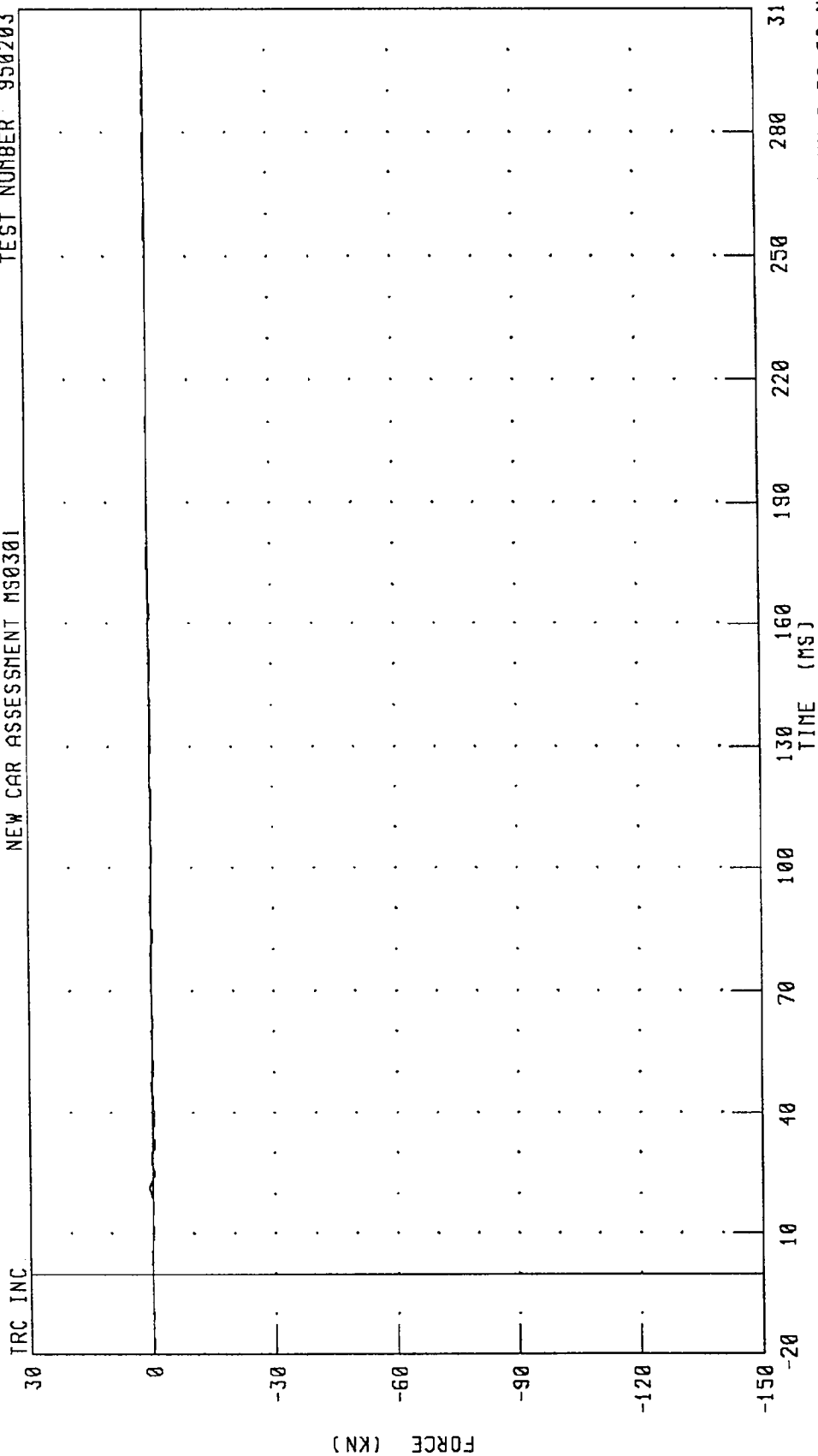


PEAK DATA: 0.68 KN @ 21.36 MS; -3.87 KN @ 30.88 MS

CHANNEL: BA7F FILTER: CH. CLASS 60

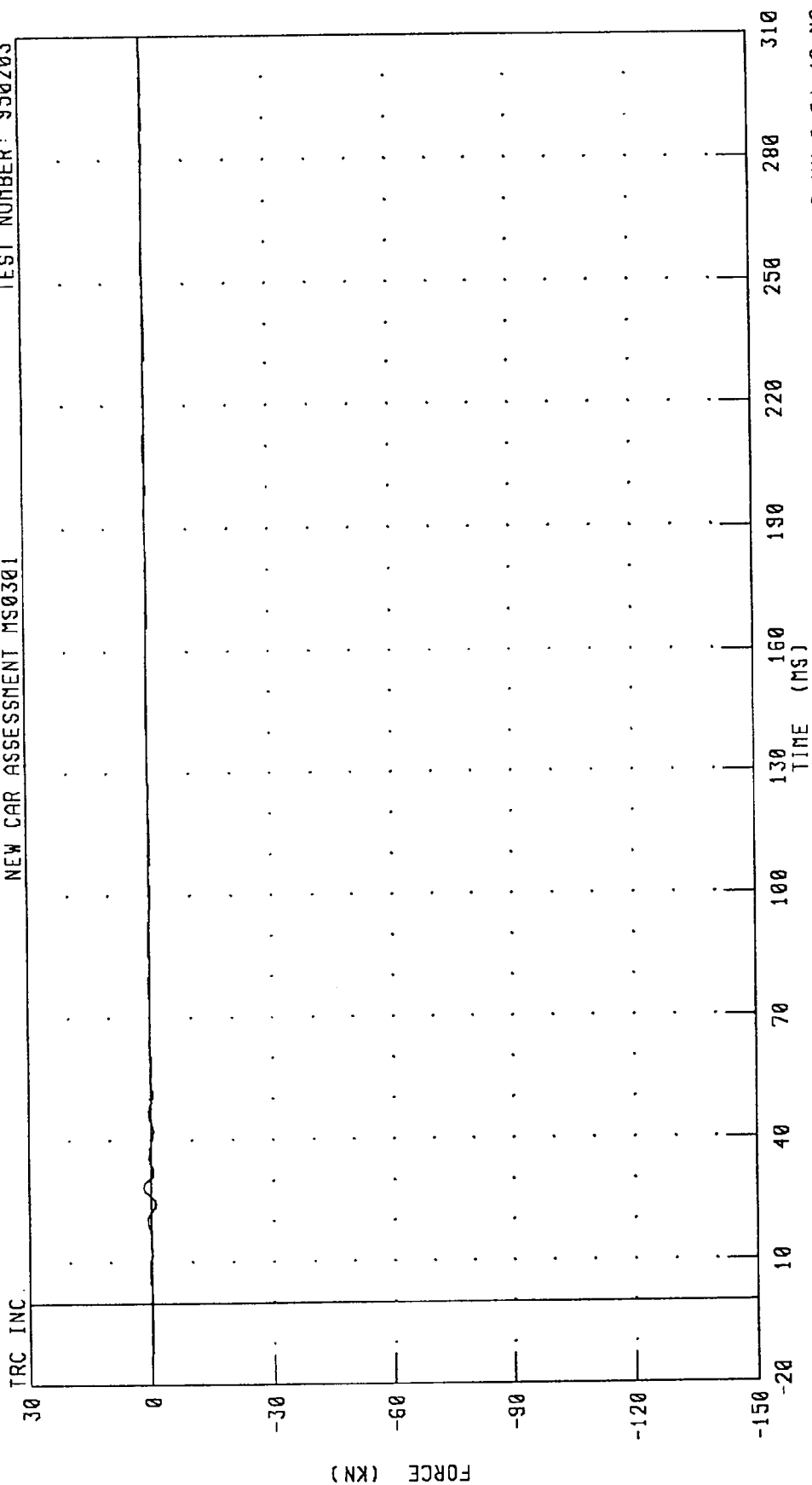
1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A8 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER 950203



1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A9 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

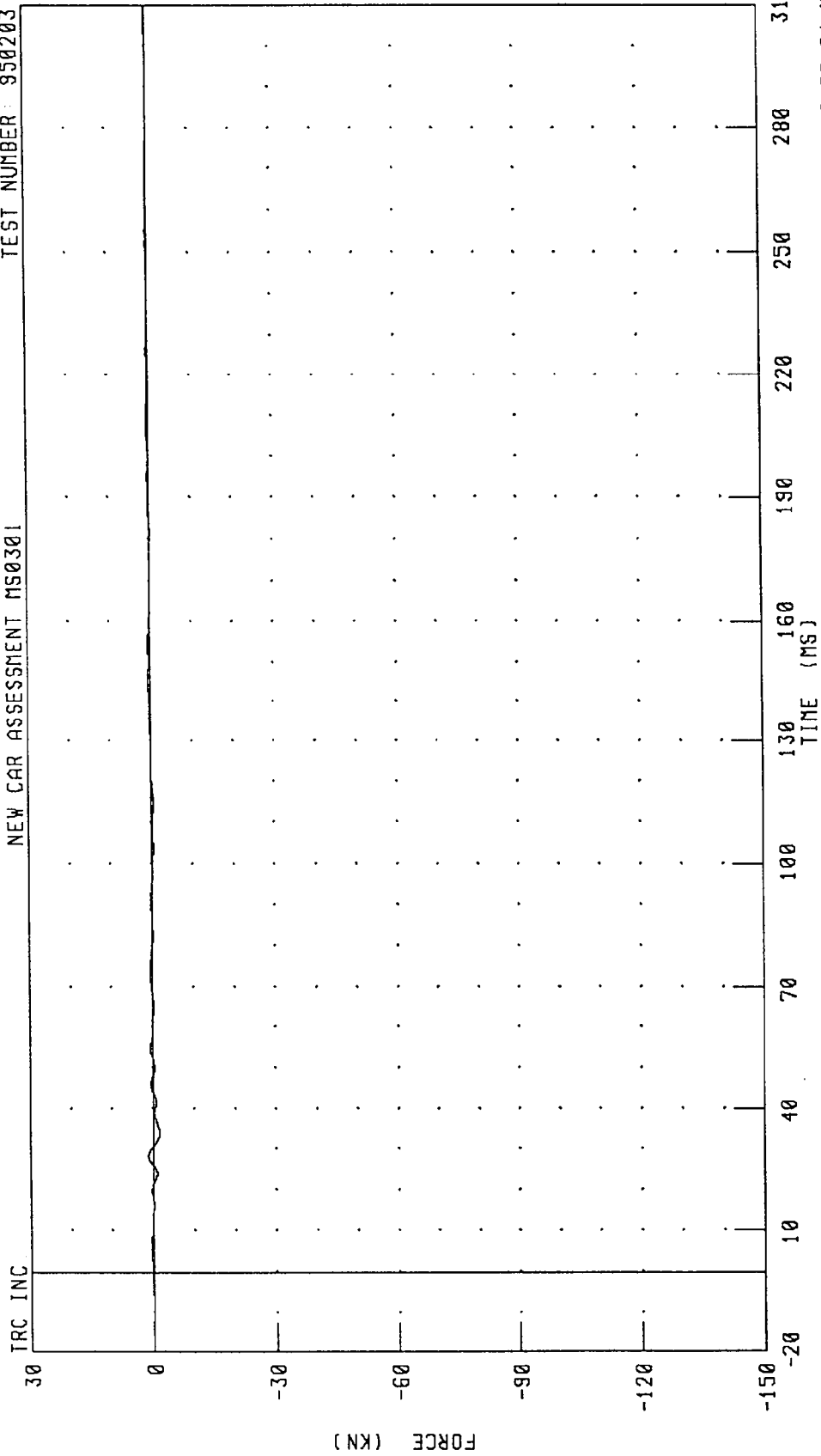


CHANNEL: BASF FILTER: CH. CLASS 60

PEAK DATA: 1.84 KN @ 28.40 MS; -1.19 KN @ 24.48 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B1 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



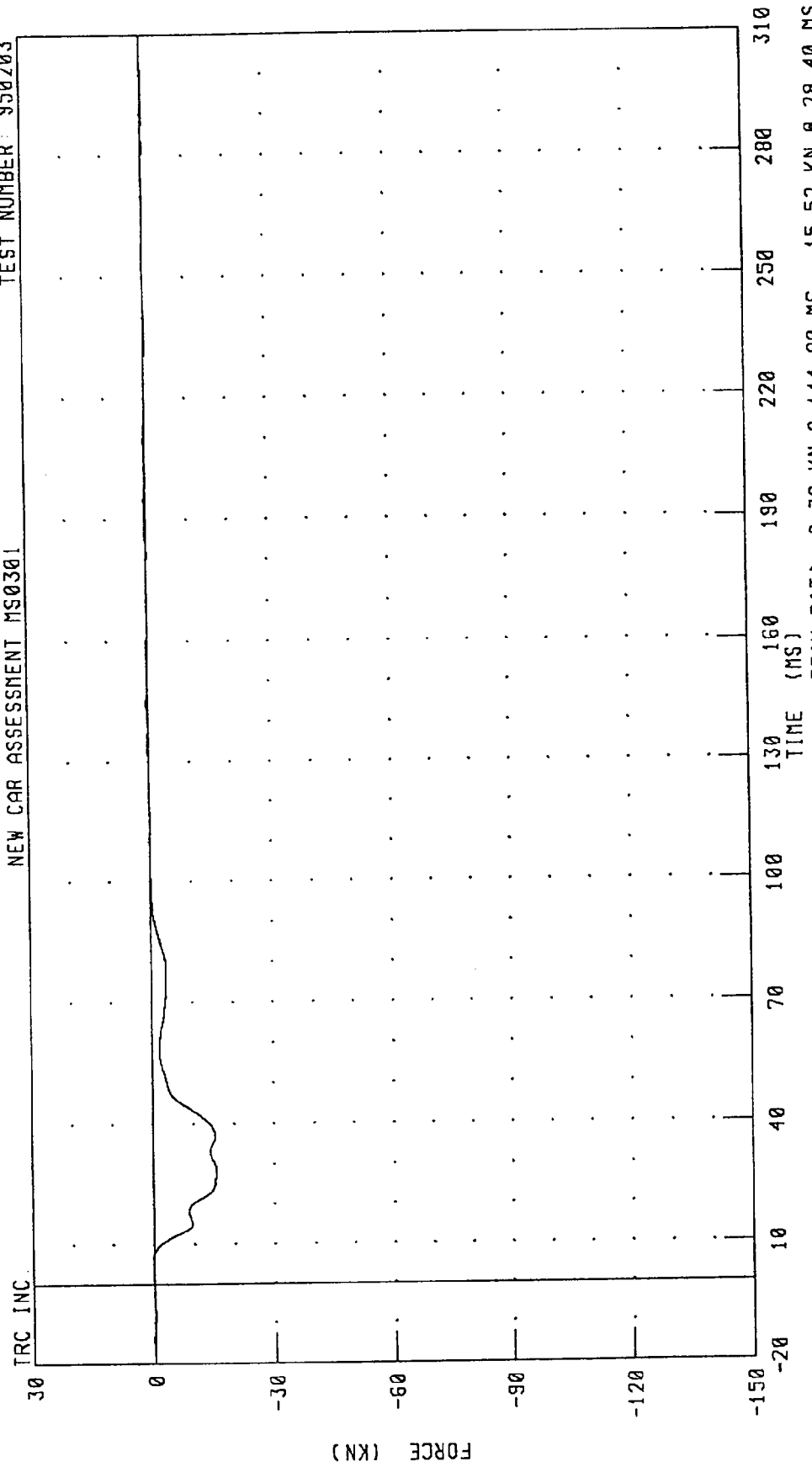
PEAK DATA: 1.15 KN @ 28.24 MS; -1.57 KN @ 33.84 MS

FILTER: CH. CLASS 60

CHANNEL: BB1F

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B2 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



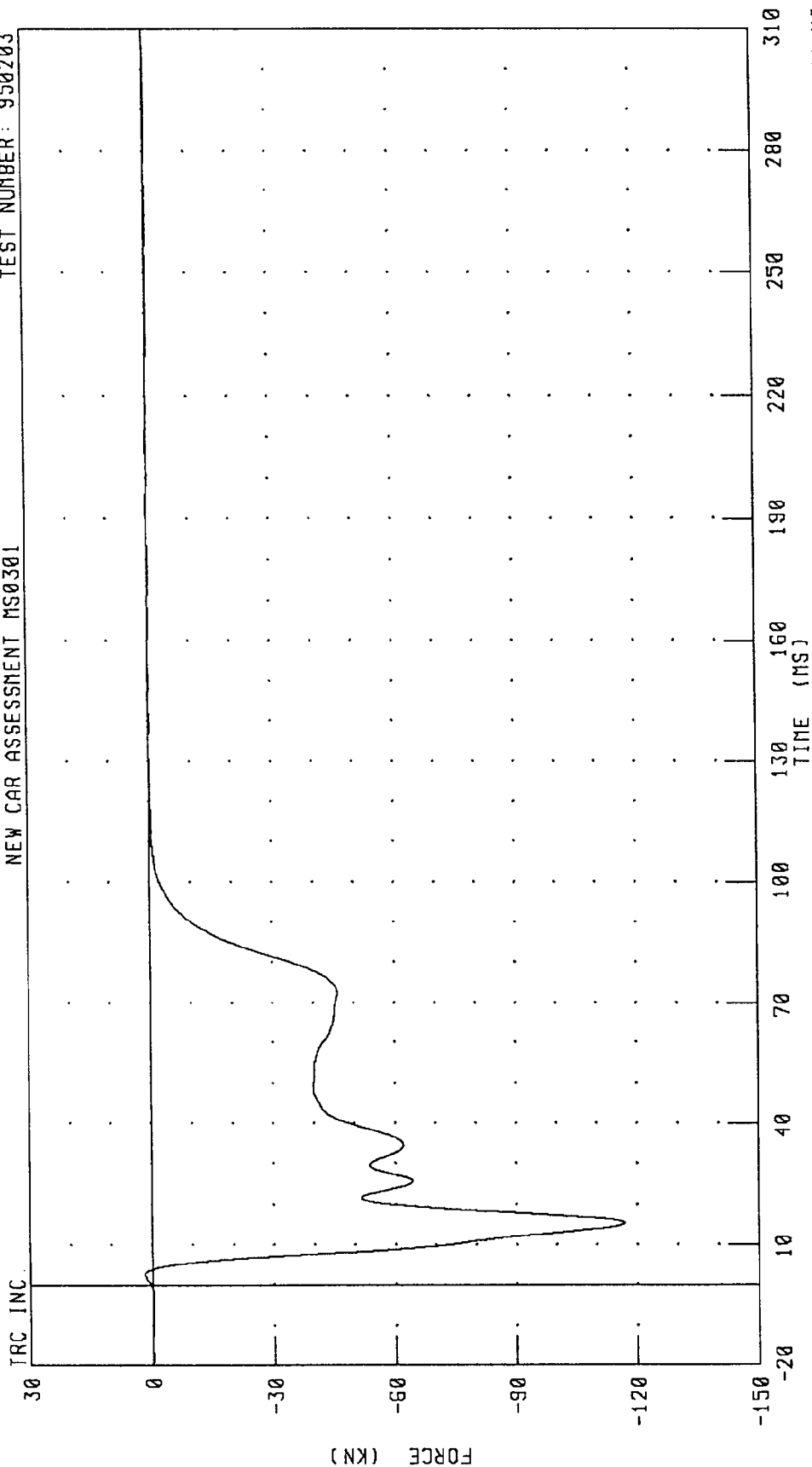
PEAK DATA: 0.36 KN @ 144.80 MS; -15.52 KN @ 28.40 MS

CHANNEL: BB2F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE

NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

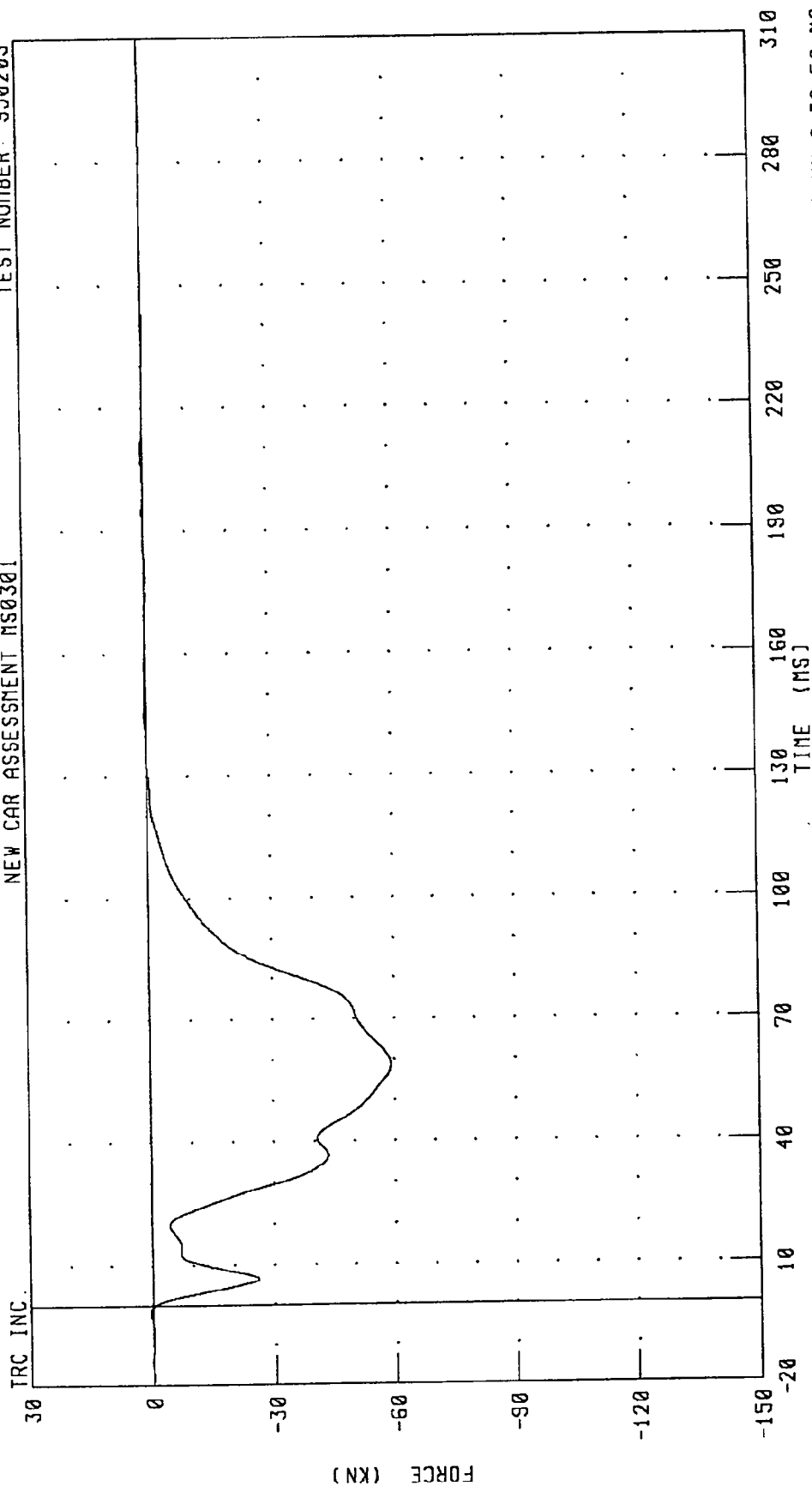


CHANNEL: BB3F FILTER: CH. CLASS 60

PEAK DATA: 1.72 KN @ 2.48 MS; -116.86 KN @ 15.44 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B4 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

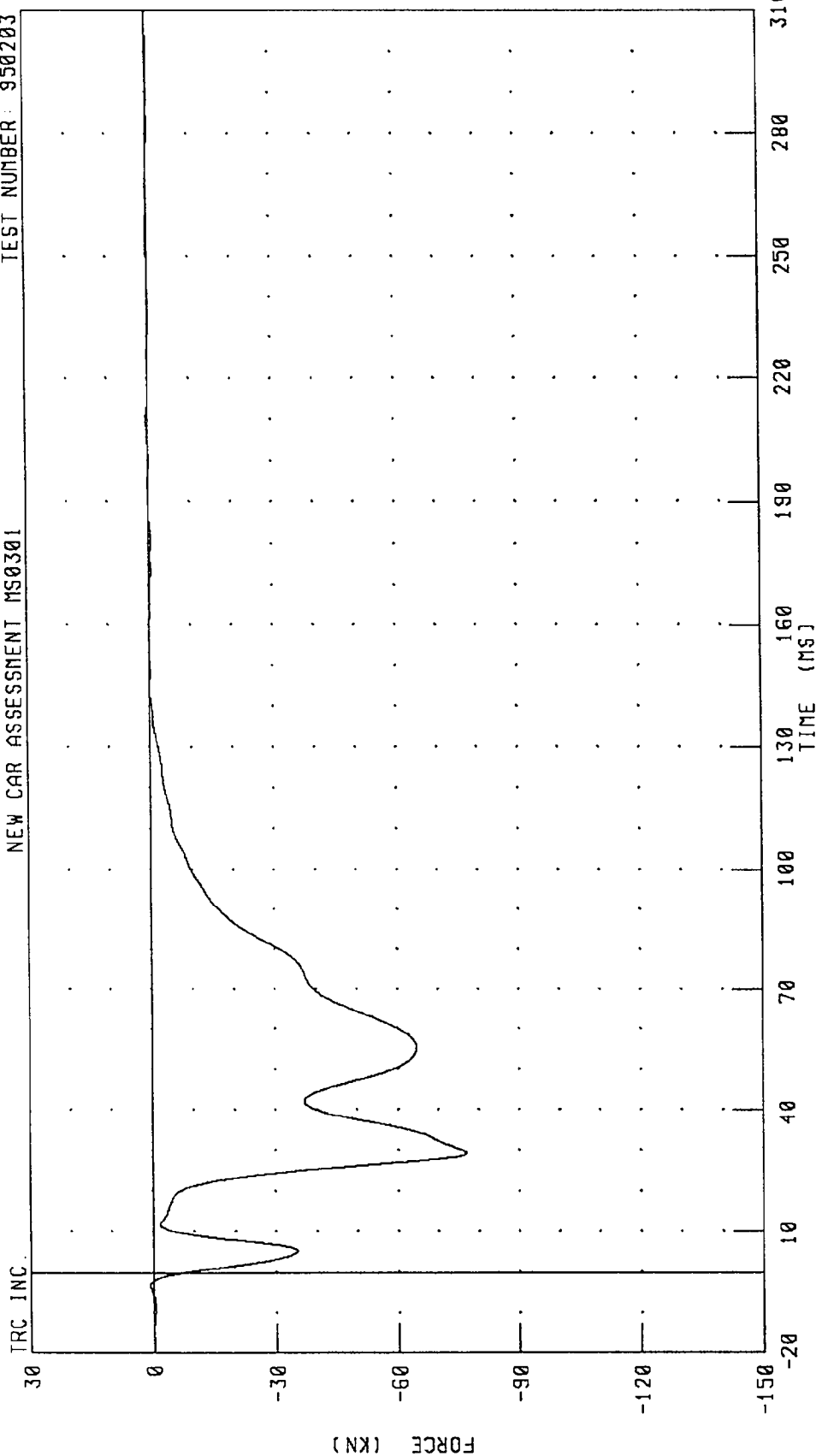


PEAK DATA: 0.49 KN @ -2.00 MS; -59.21 KN @ 58.56 MS

CHANNEL: BB4F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B5 FORCE
 NEW CAR ASSESSMENT MS0301

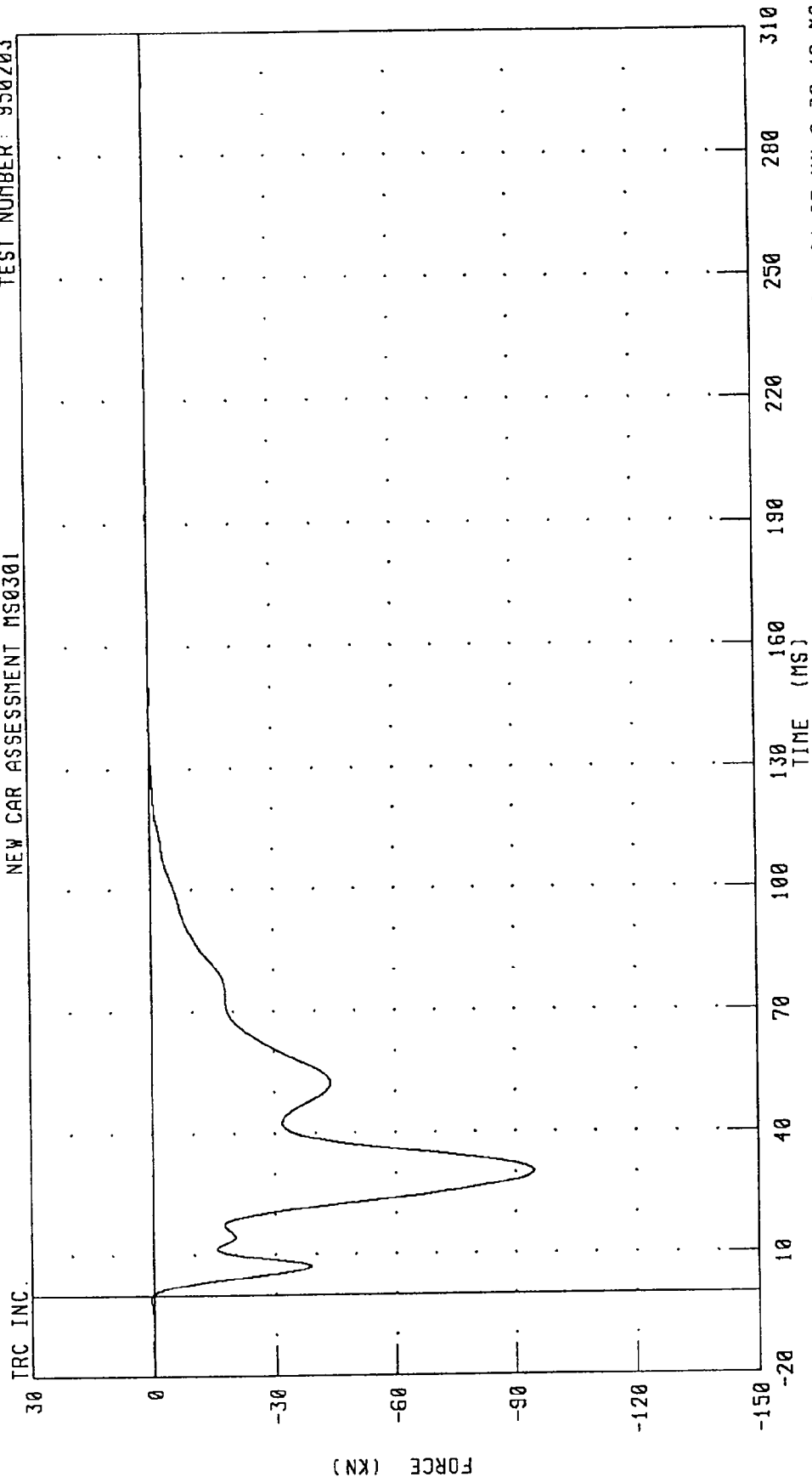
TEST NUMBER: 950203



CHANNEL: BB5F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B6 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

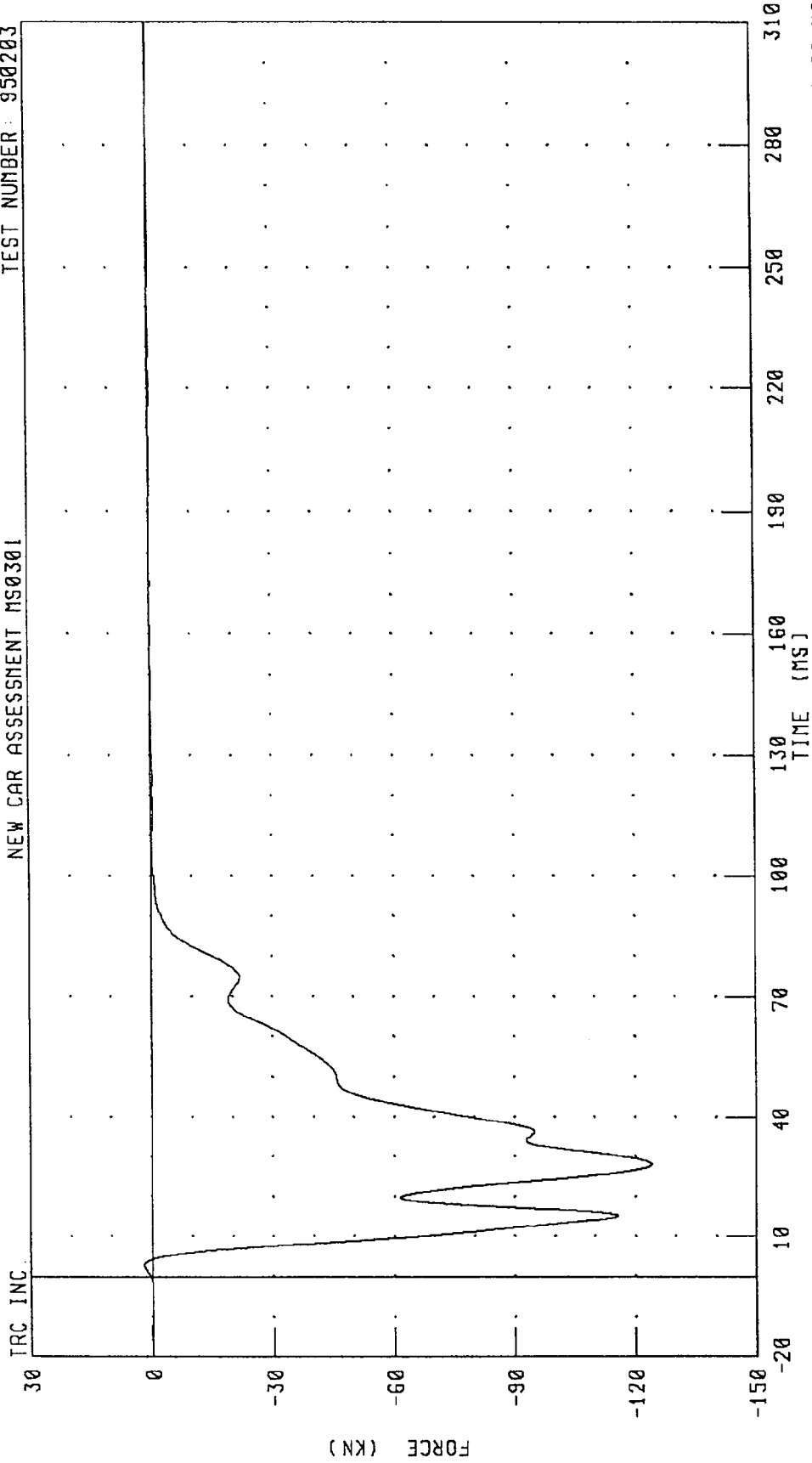


PEAK DATA: 0.73 KN @ -1.20 MS; -94.67 KN @ 30.40 MS

CHANNEL: BB6F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

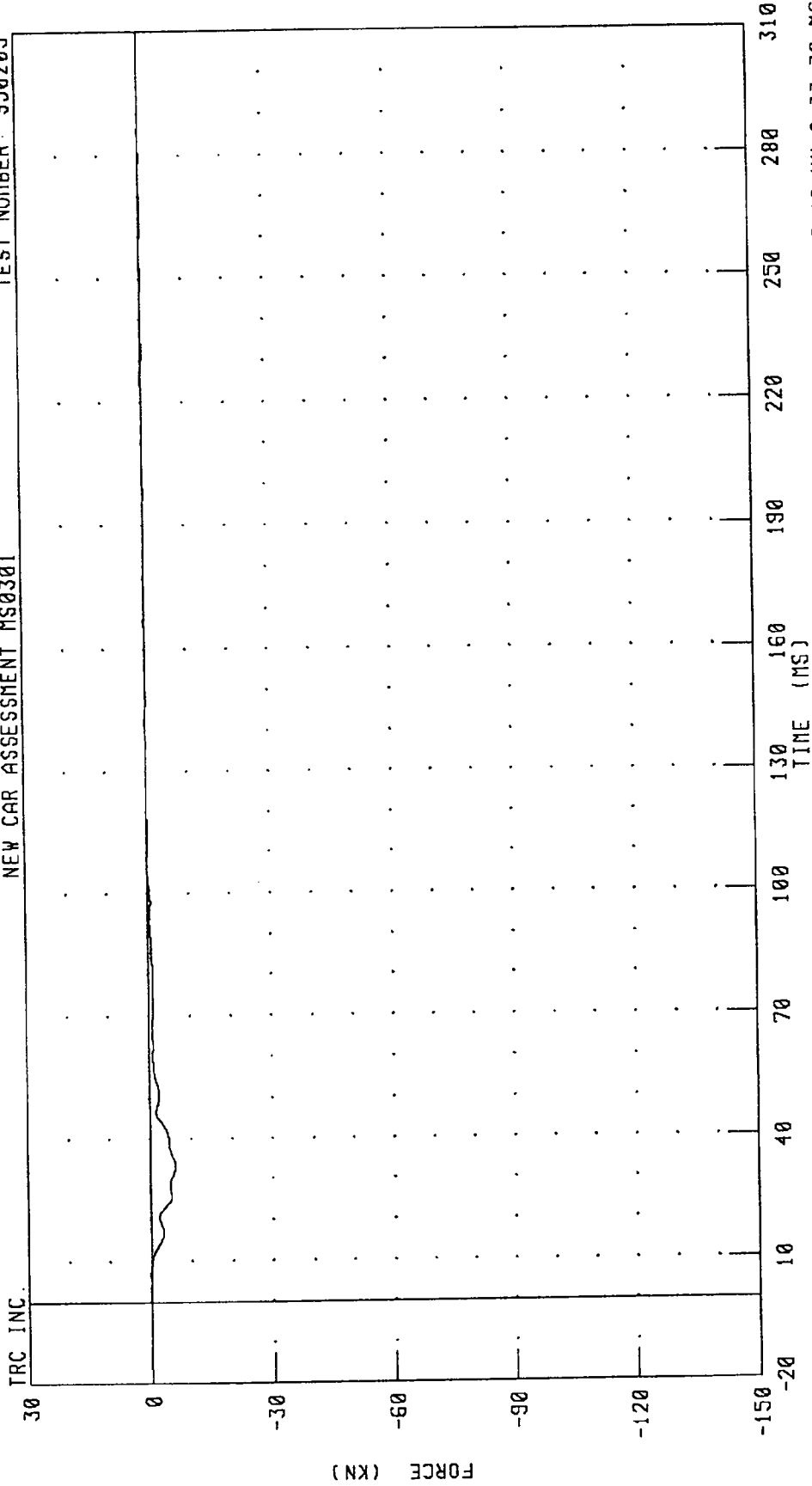


CHANNEL: BB7F FILTER: CH. CLASS 60

PEAK DATA: 1.95 KN @ 2.88 MS; -124.15 KN @ 28.08 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B8 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



PEAK DATA: 0.25 KN @ -14.16 MS; -6.19 KN @ 33.36 MS

FILTER: CH. CLASS 60

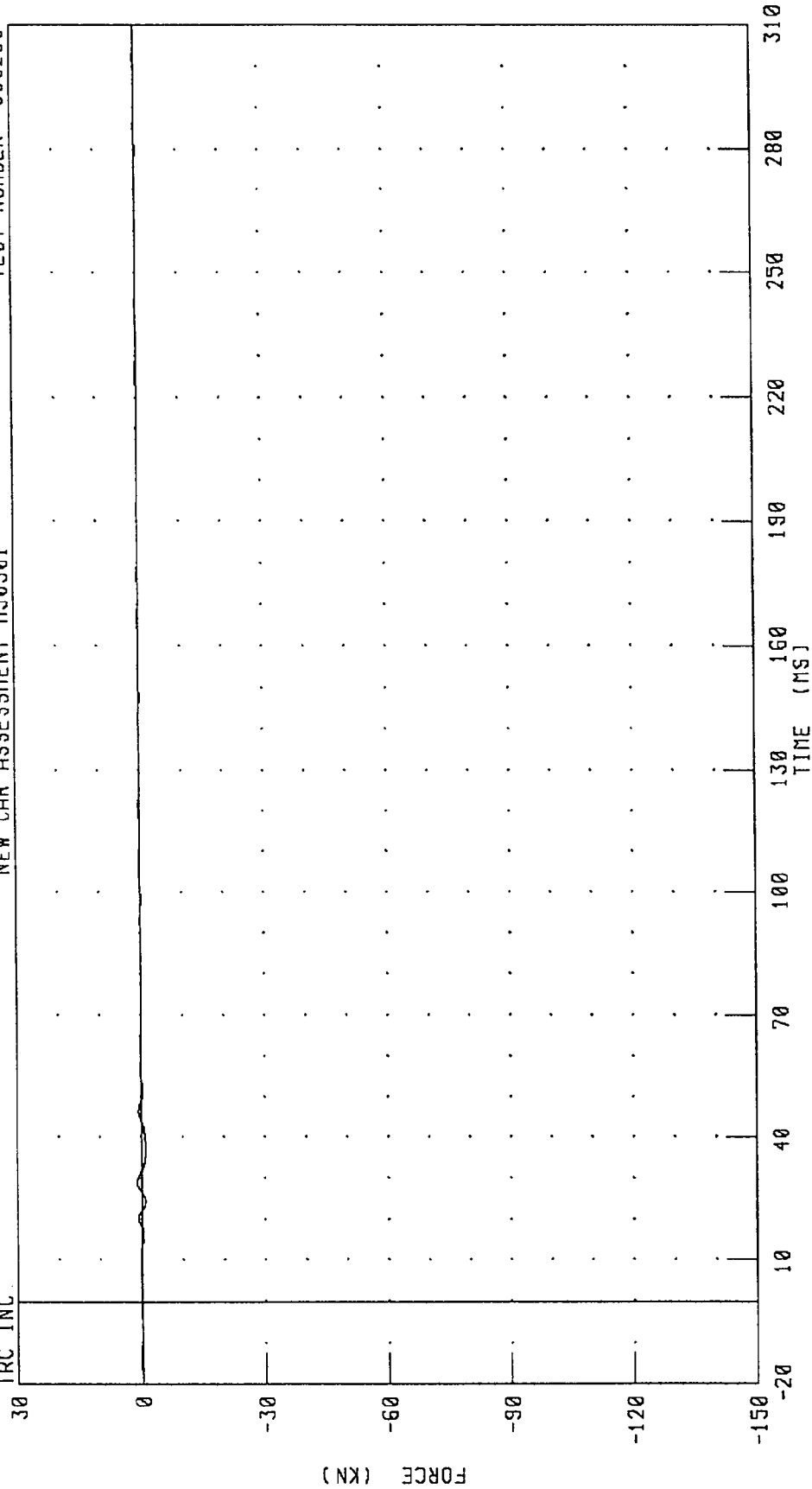
CHANNEL: 888F

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301

TRC INC.



PEAK DATA: 1.04 KN @ 29.04 MS; -1.03 KN @ 37.04 MS

FILTER: CH. CLASS 60

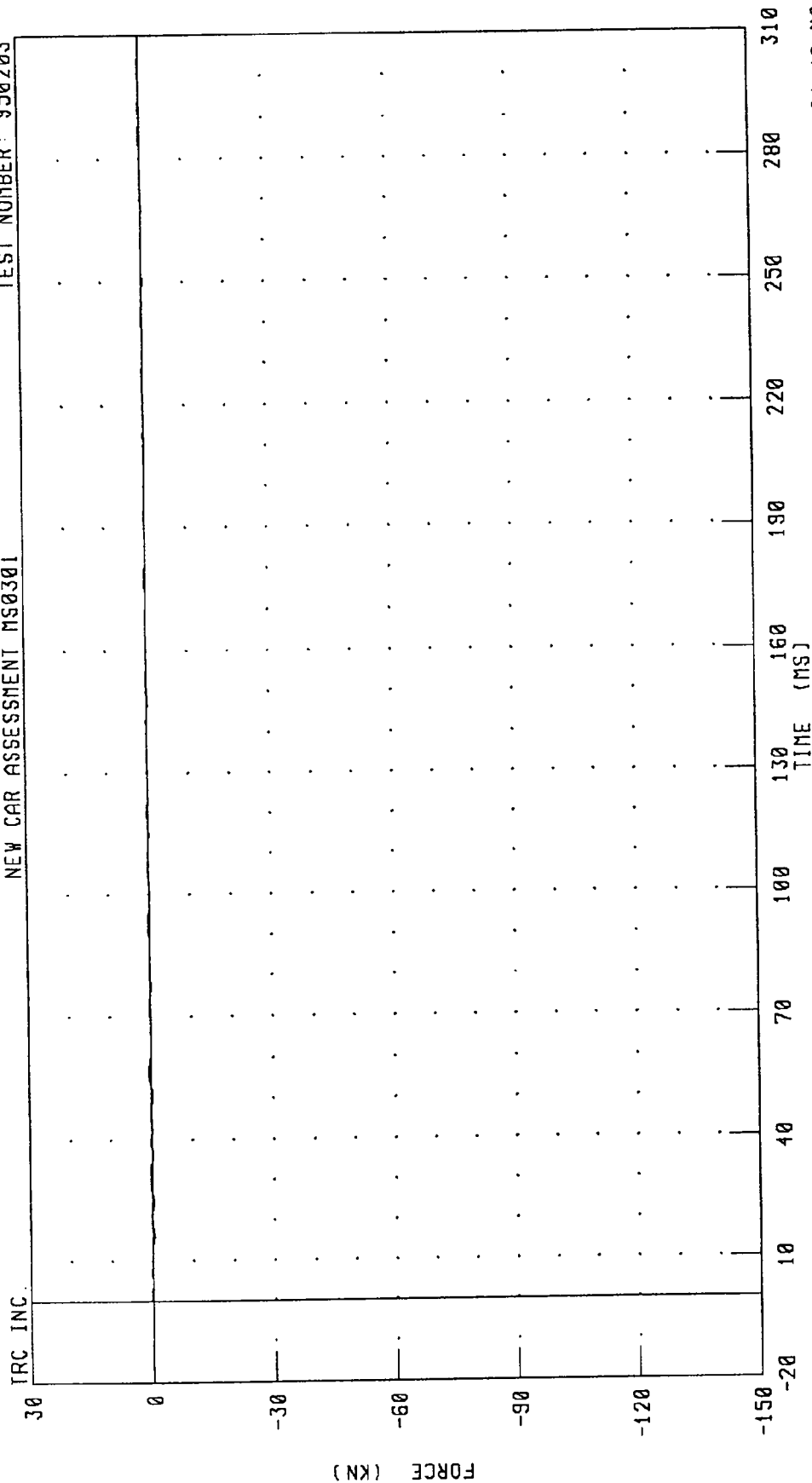
CHANNEL: BB9F

FORCE (KN)

TIME (MS)

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



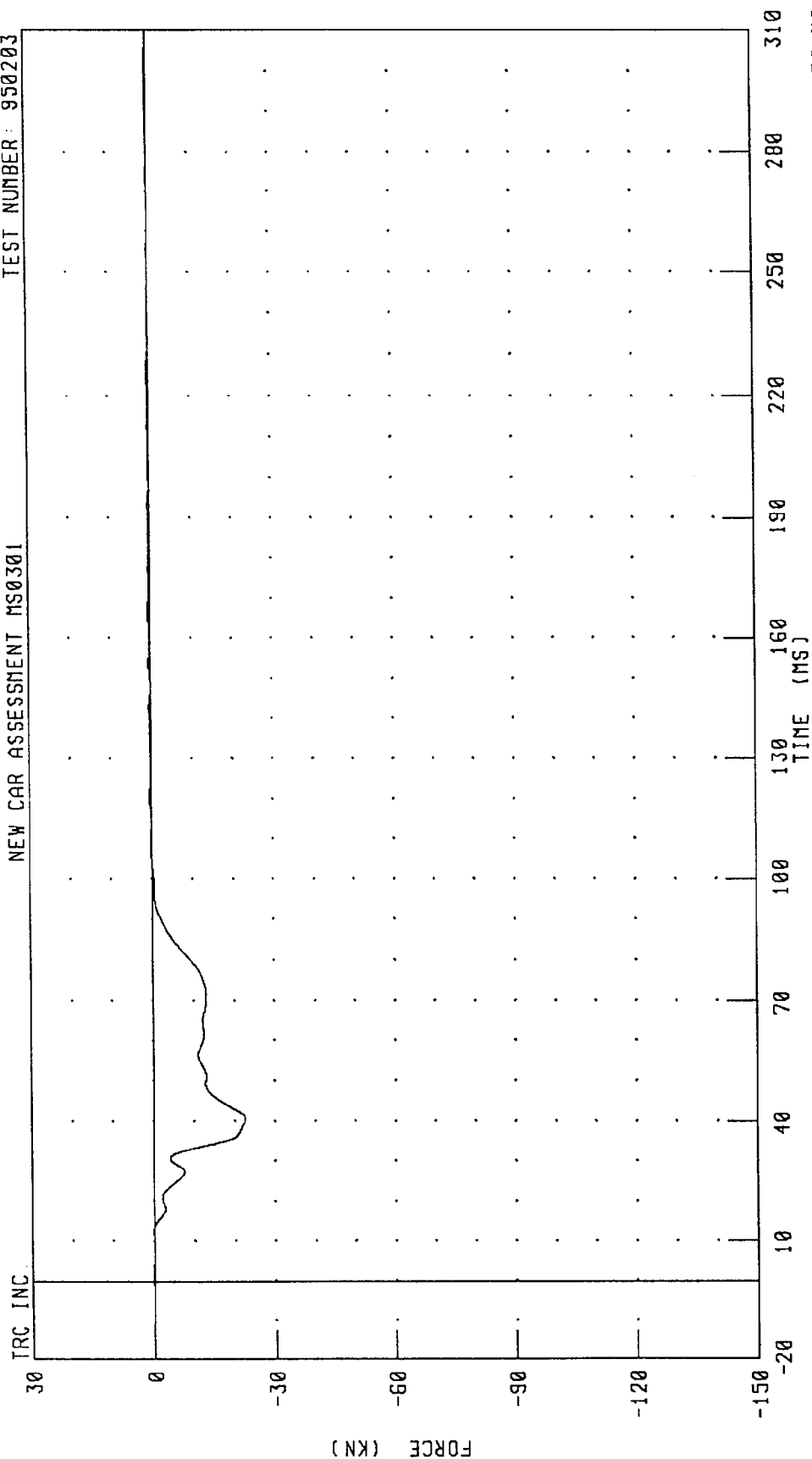
CHANNEL: BC1F

FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



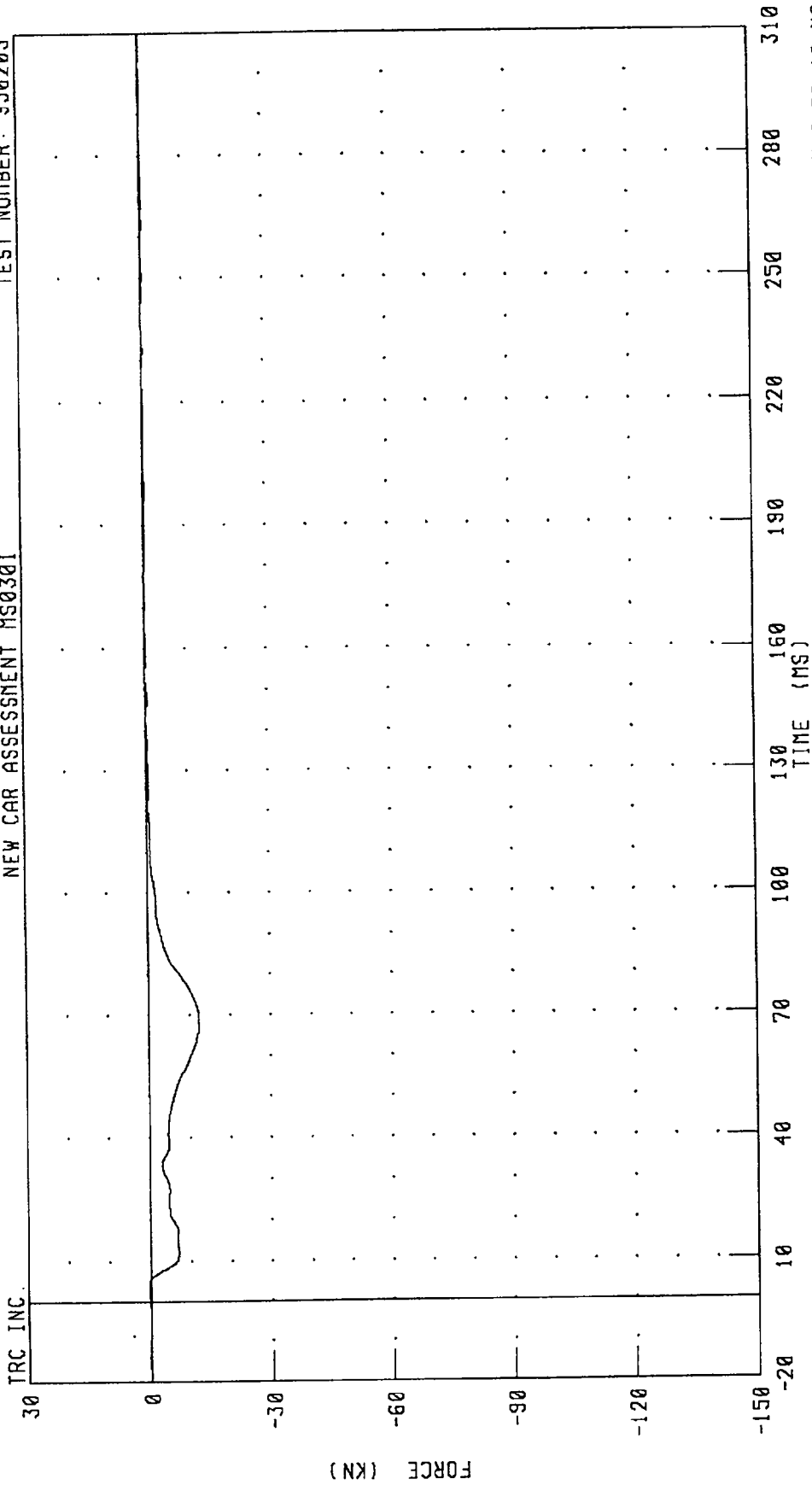
PEAK DATA: 0.55 KN @ 226.16 MS; -22.59 KN @ 40.56 MS

FILTER: CH. CLASS 60

CHANNEL: BC2F

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

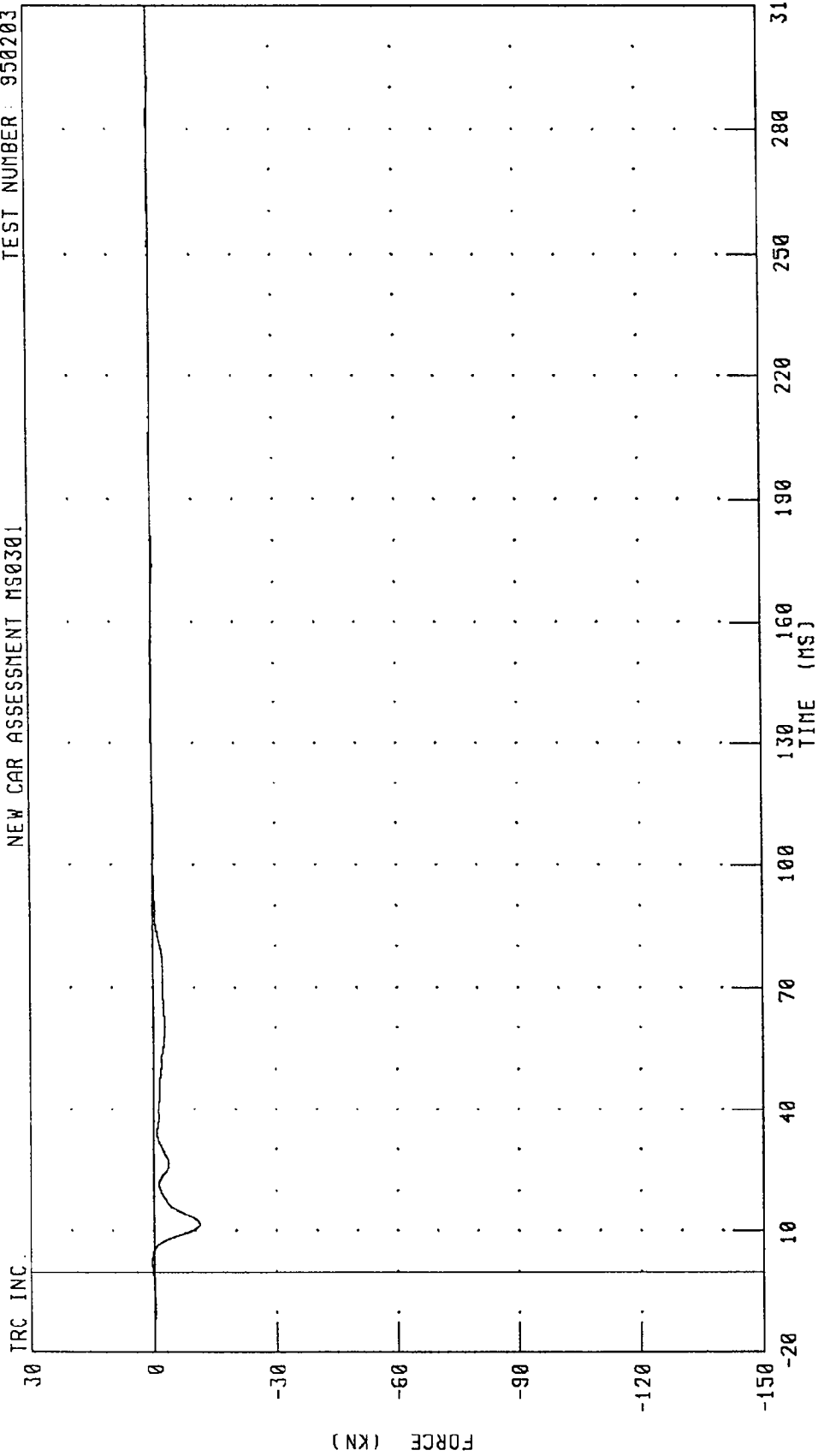


PEAK DATA: 0.46 KN @ 2.80 MS; -12.32 KN @ 68.16 MS

CHANNEL: BC3F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C4 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

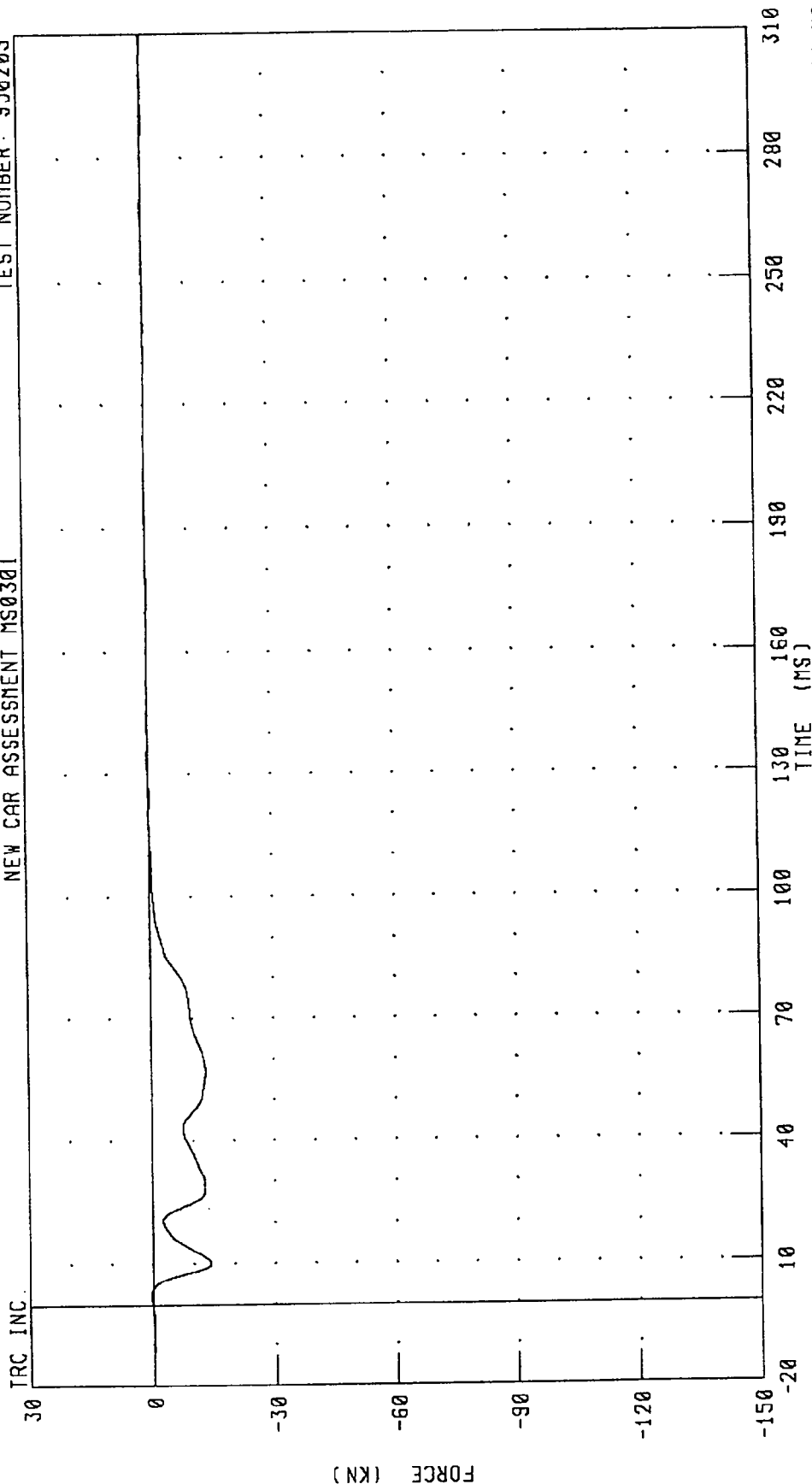


PEAK DATA: 0.39 KN @ 2.24 MS; -11.12 KN @ 11.60 MS

CHANNEL: BC4F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C5 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



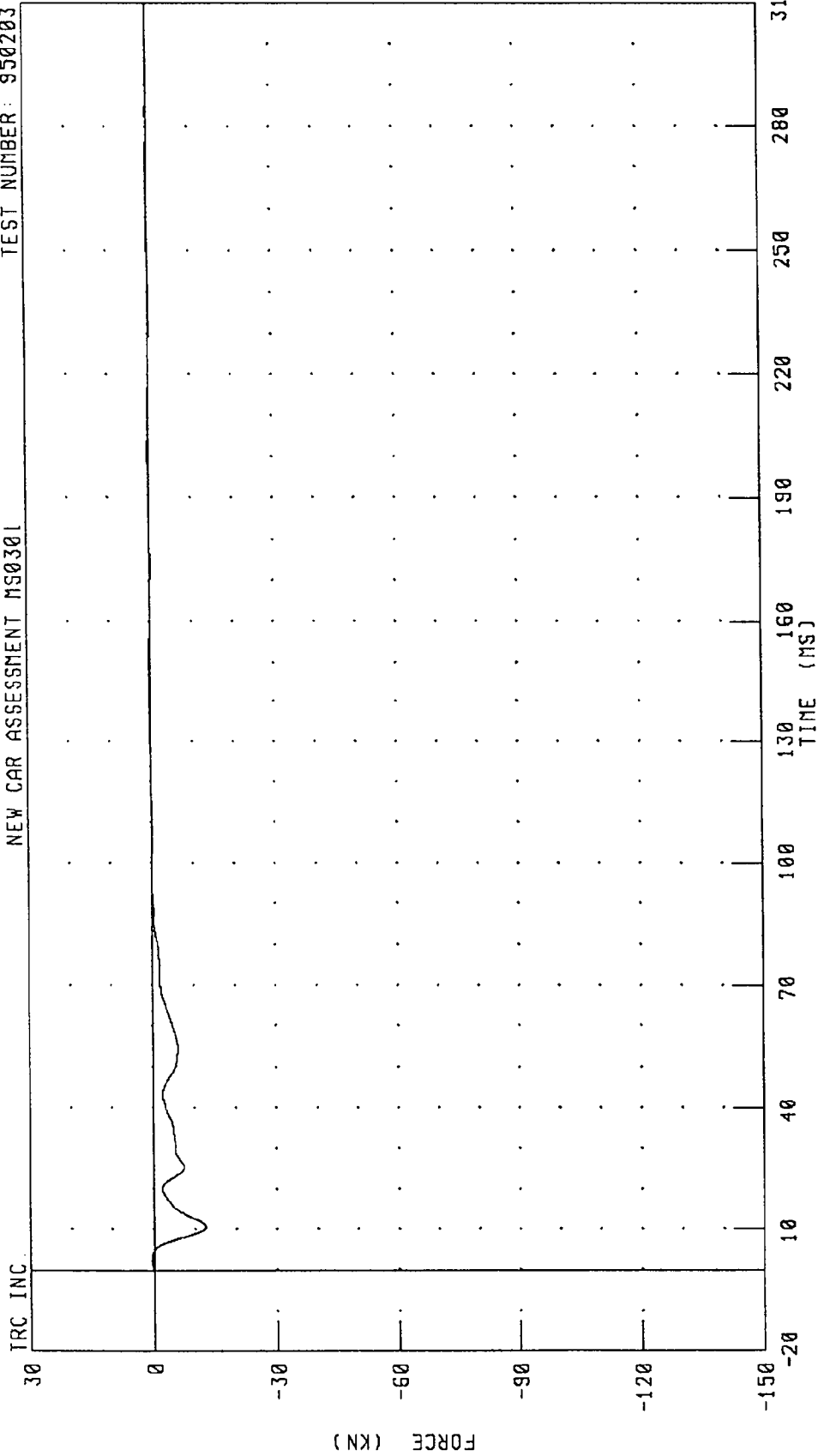
PEAK DATA: 0.44 KN @ 2.16 MS; -14.13 KN @ 10.16 MS

CHANNEL: BC5F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



PEAK DATA: 0.49 KN @ 2.56 MS; -12.63 KN @ 10.48 MS

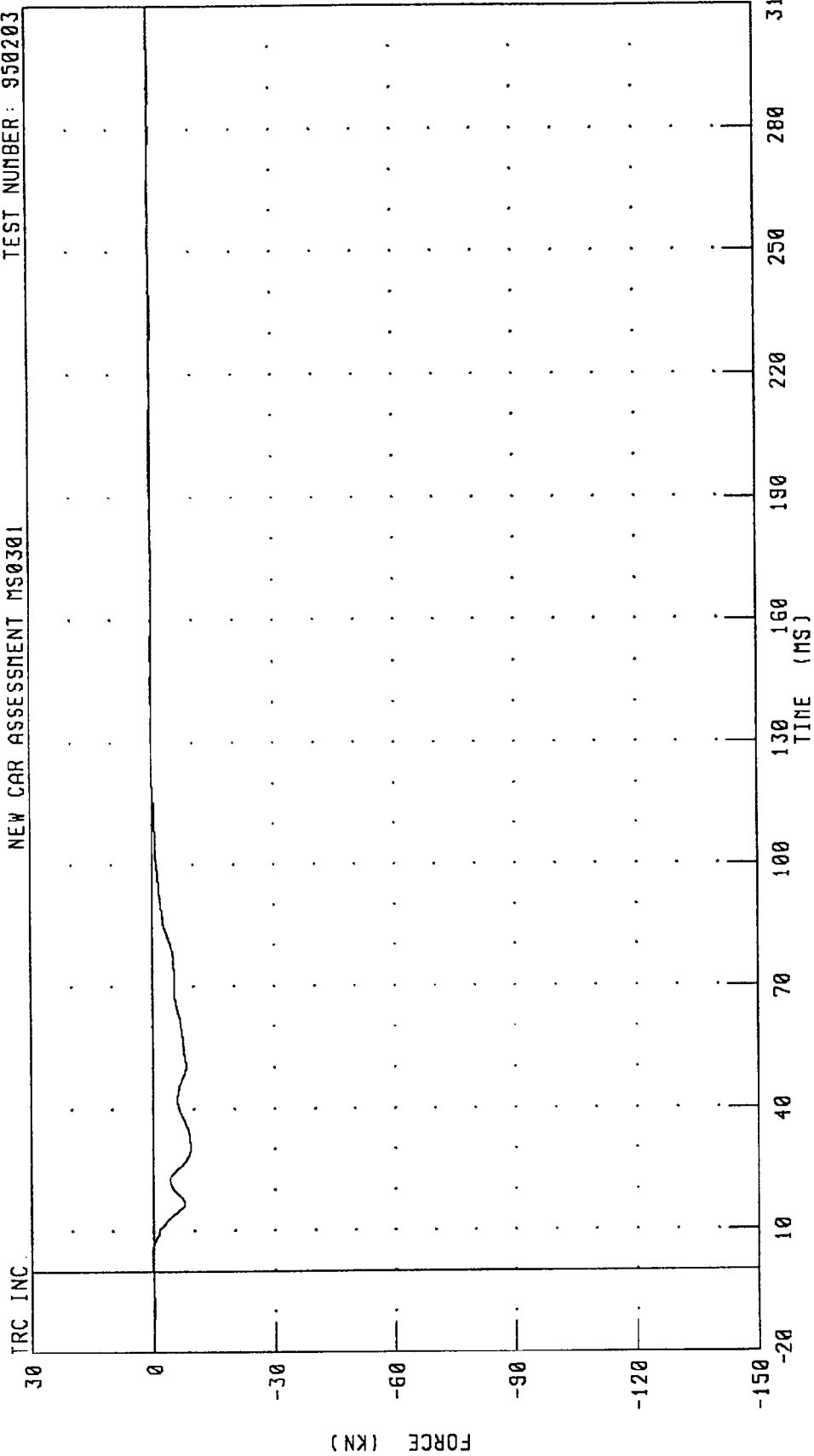
FILTER: CH. CLASS 60

CHANNEL: BCGF

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



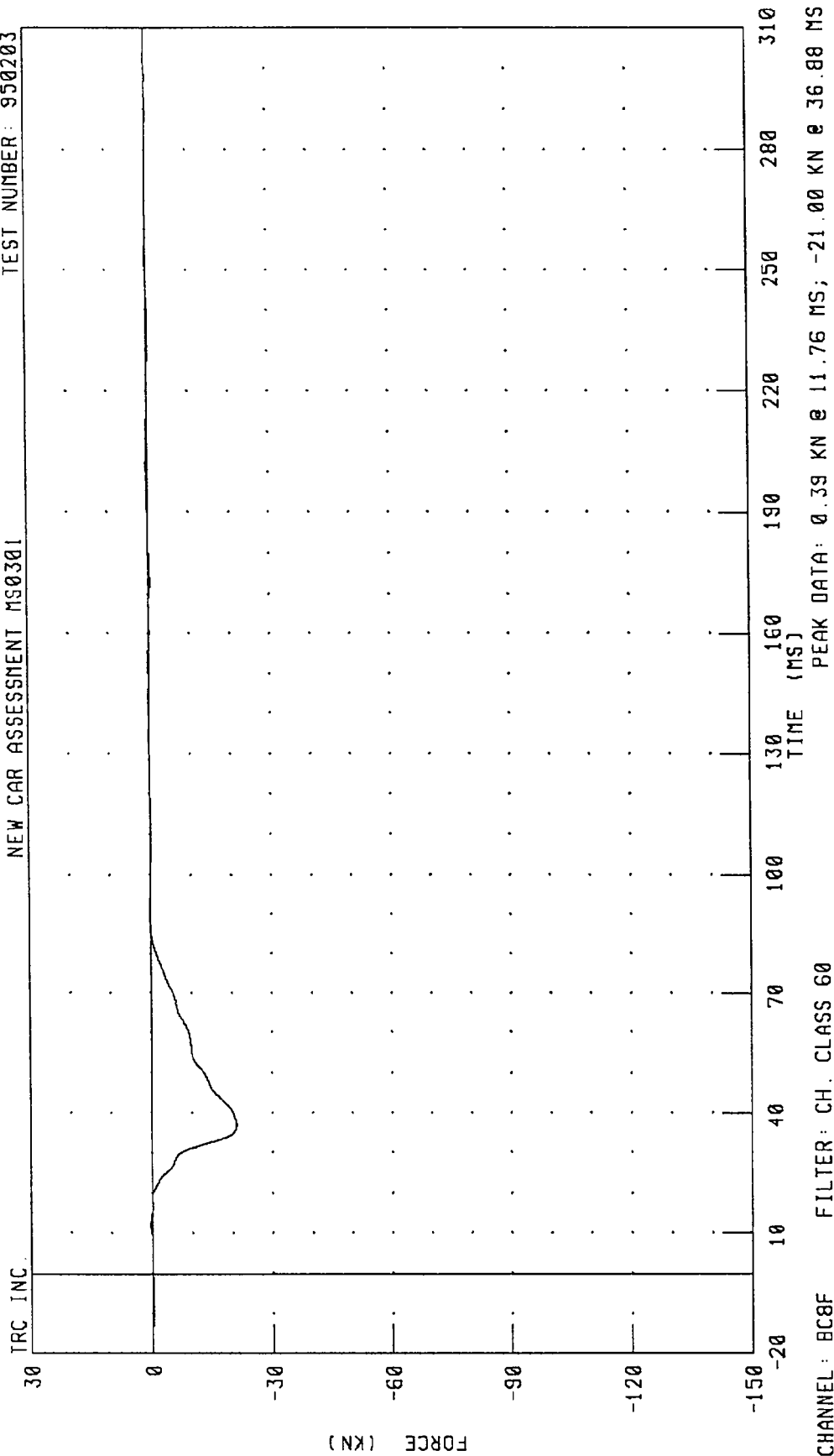
PEAK DATA: 0.30 KN @ 201.60 MS; -9.23 KN @ 30.56 MS

FILTER: CH. CLASS 60

CHANNEL: BC7F

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C8 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



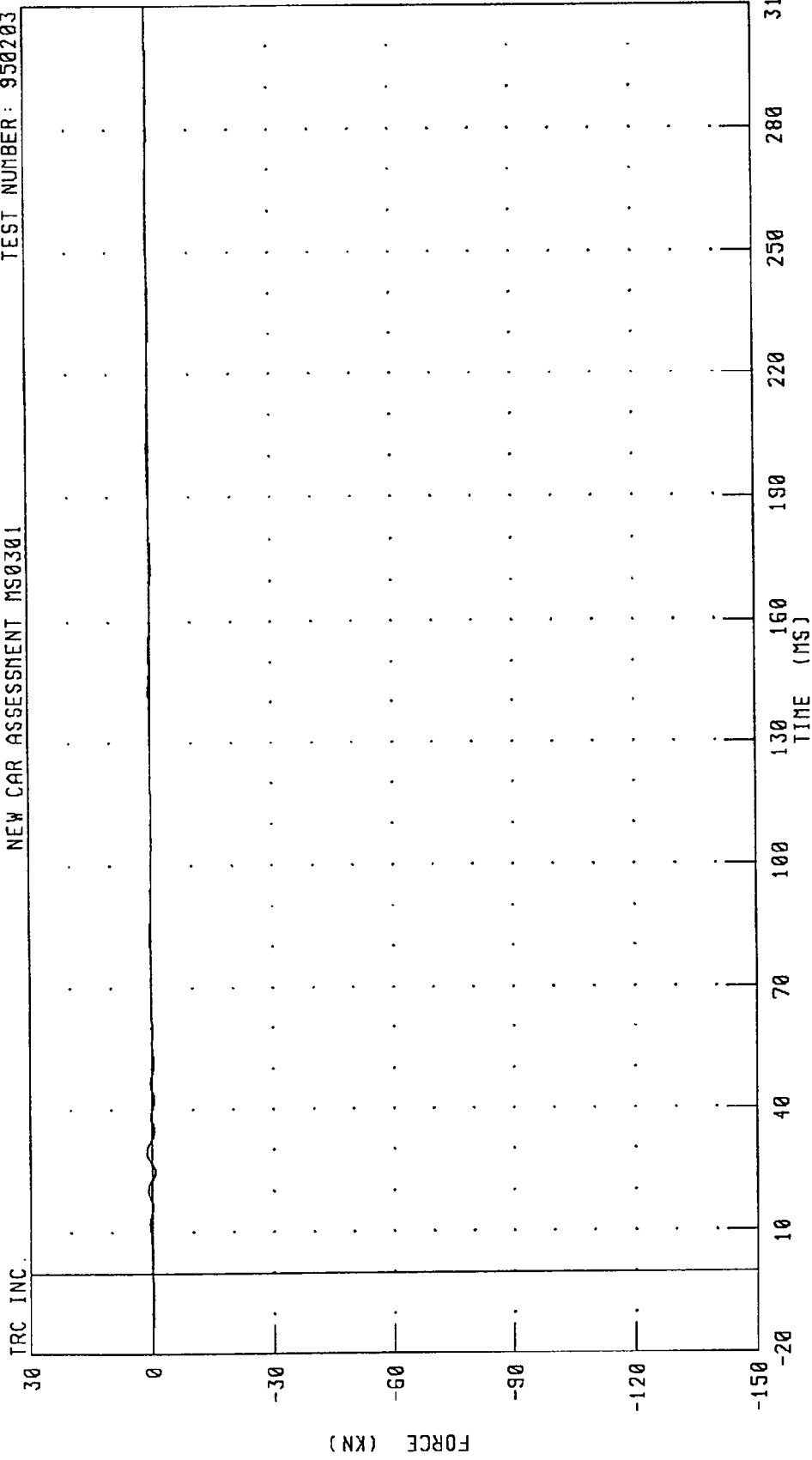
CHANNEL: BC8F

FILTER: CH. CLASS 60

PEAK DATA: 0.39 KN @ 11.76 MS; -21.00 KN @ 36.88 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C9 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



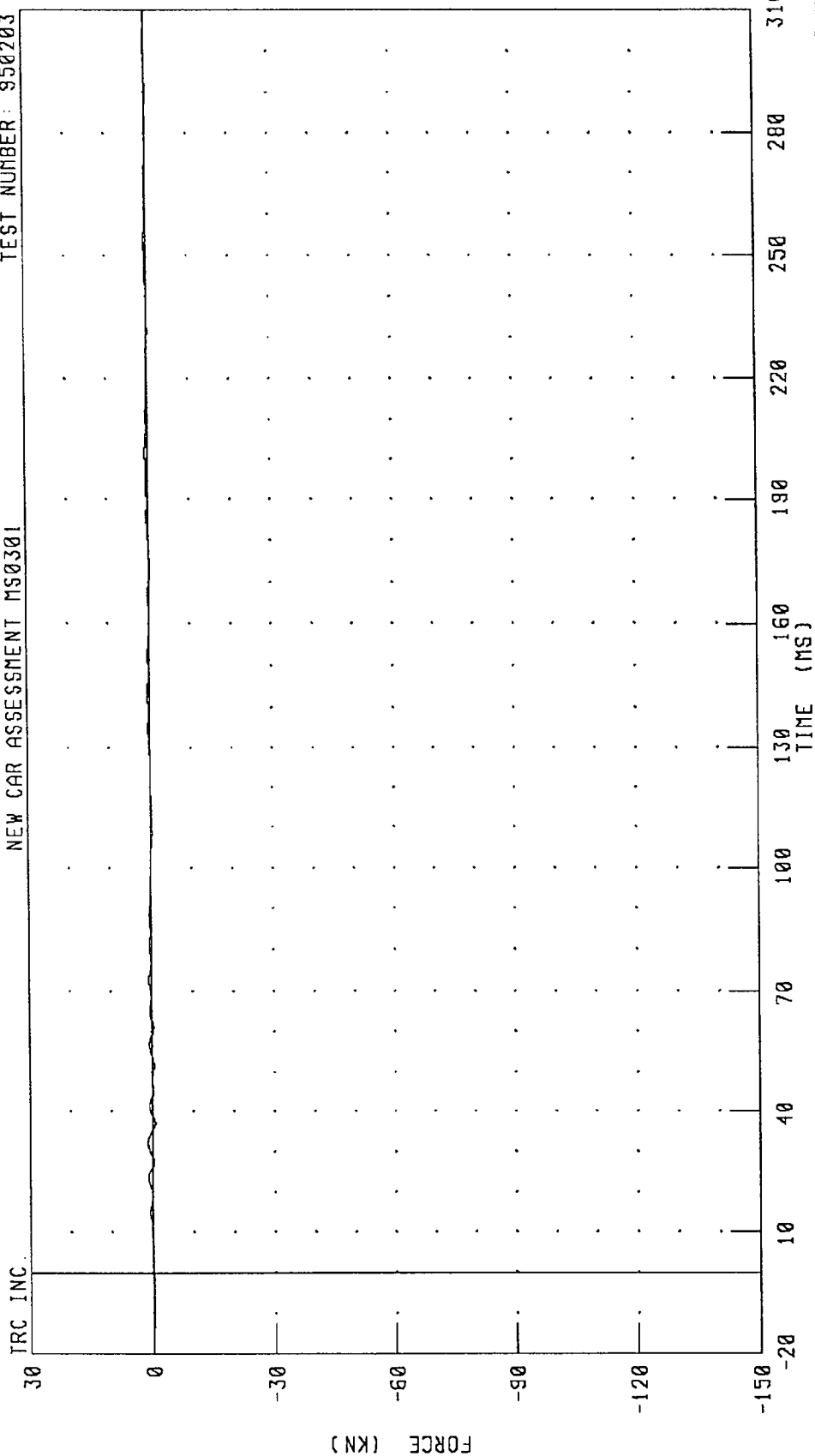
PEAK DATA: 1.35 KN @ 29.68 MS; -0.73 KN @ 24.88 MS

FILTER: CH. CLASS 60

CHANNEL: BC9F

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D1 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

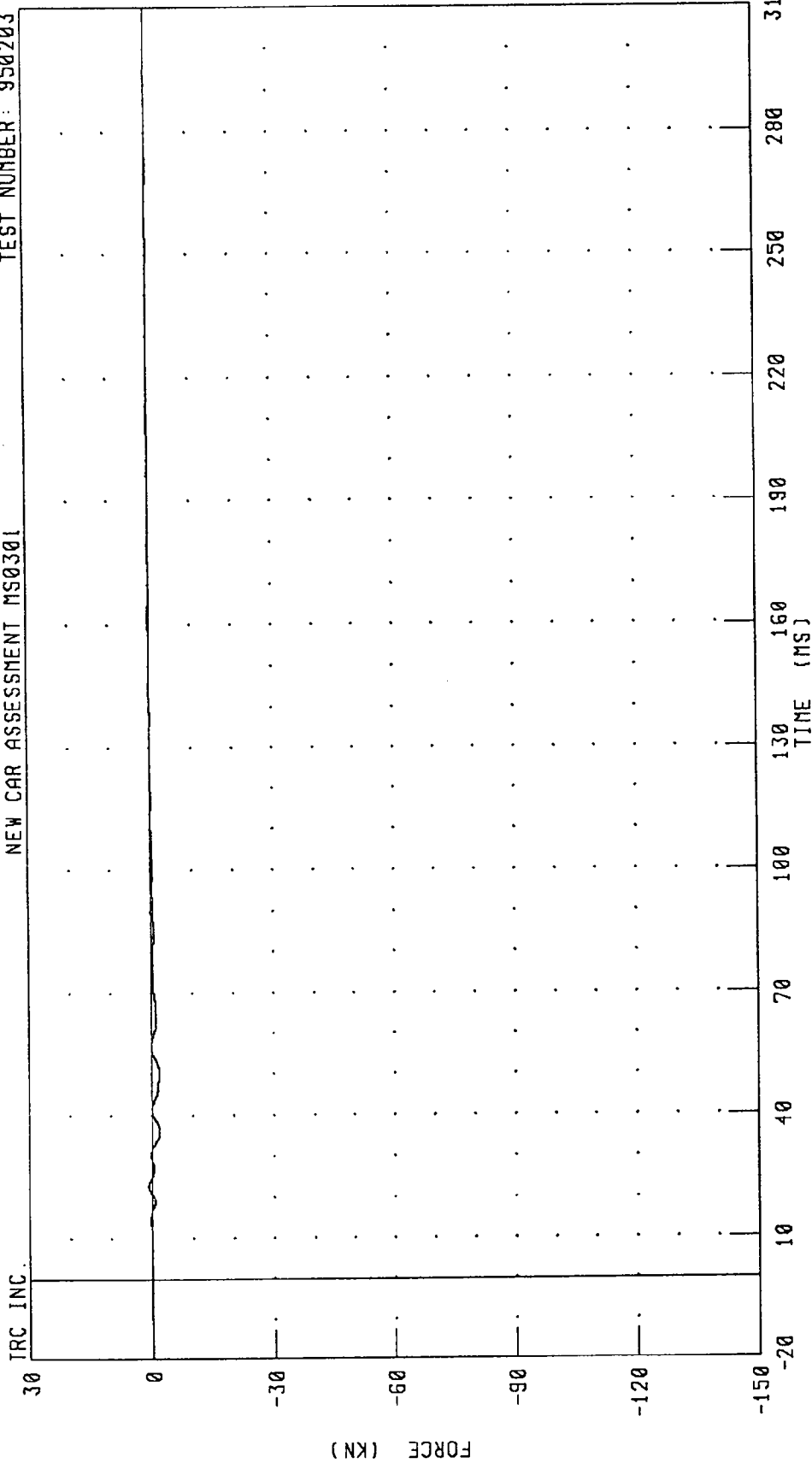


PEAK DATA: 1.17 KN @ 32.24 MS; -0.70 KN @ 37.20 MS

CHANNEL: B01F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D2 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



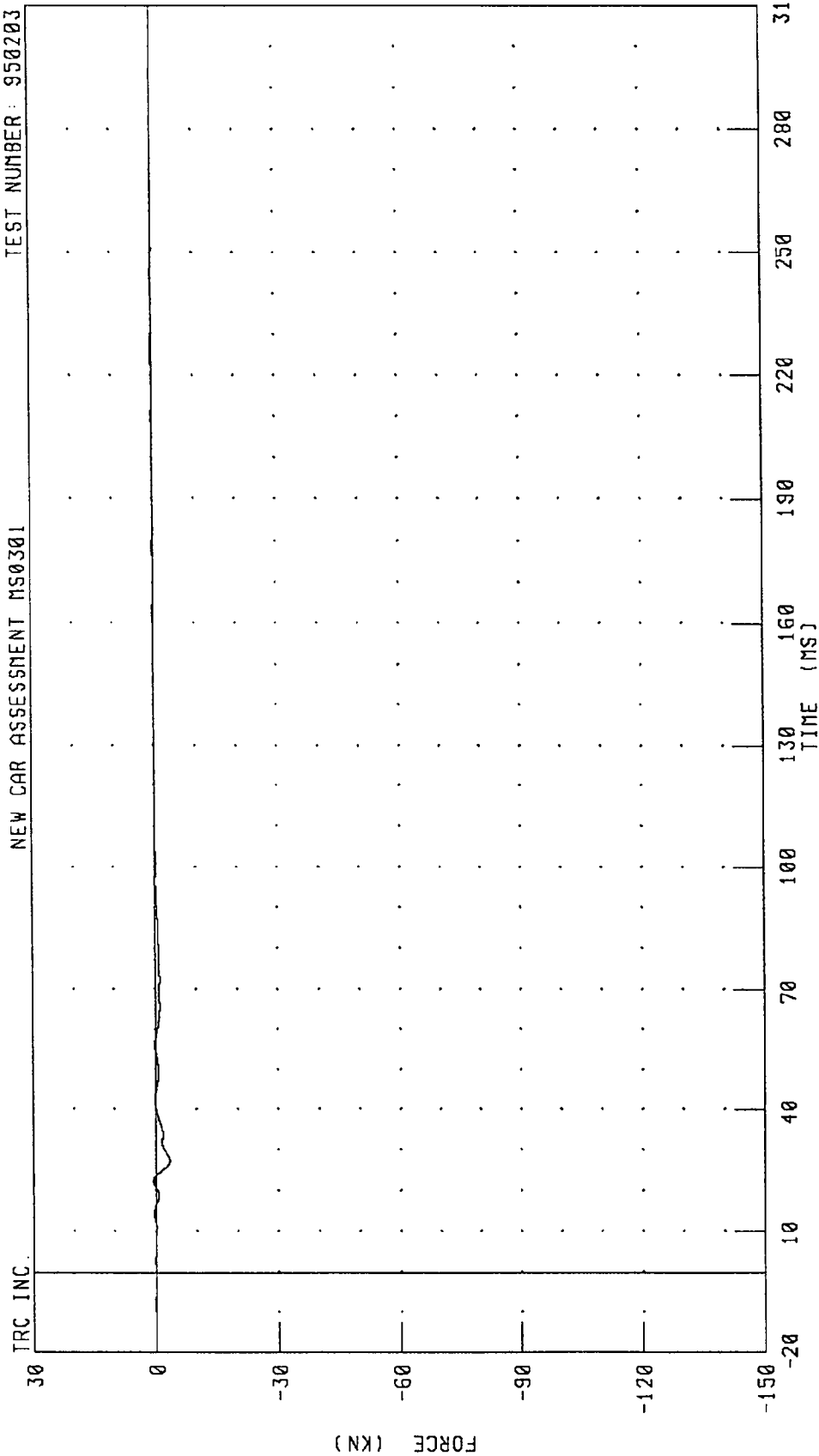
PEAK DATA: 0.86 KN @ 22.96 MS; -1.94 KN @ 36.24 MS

CHANNEL: B02F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301



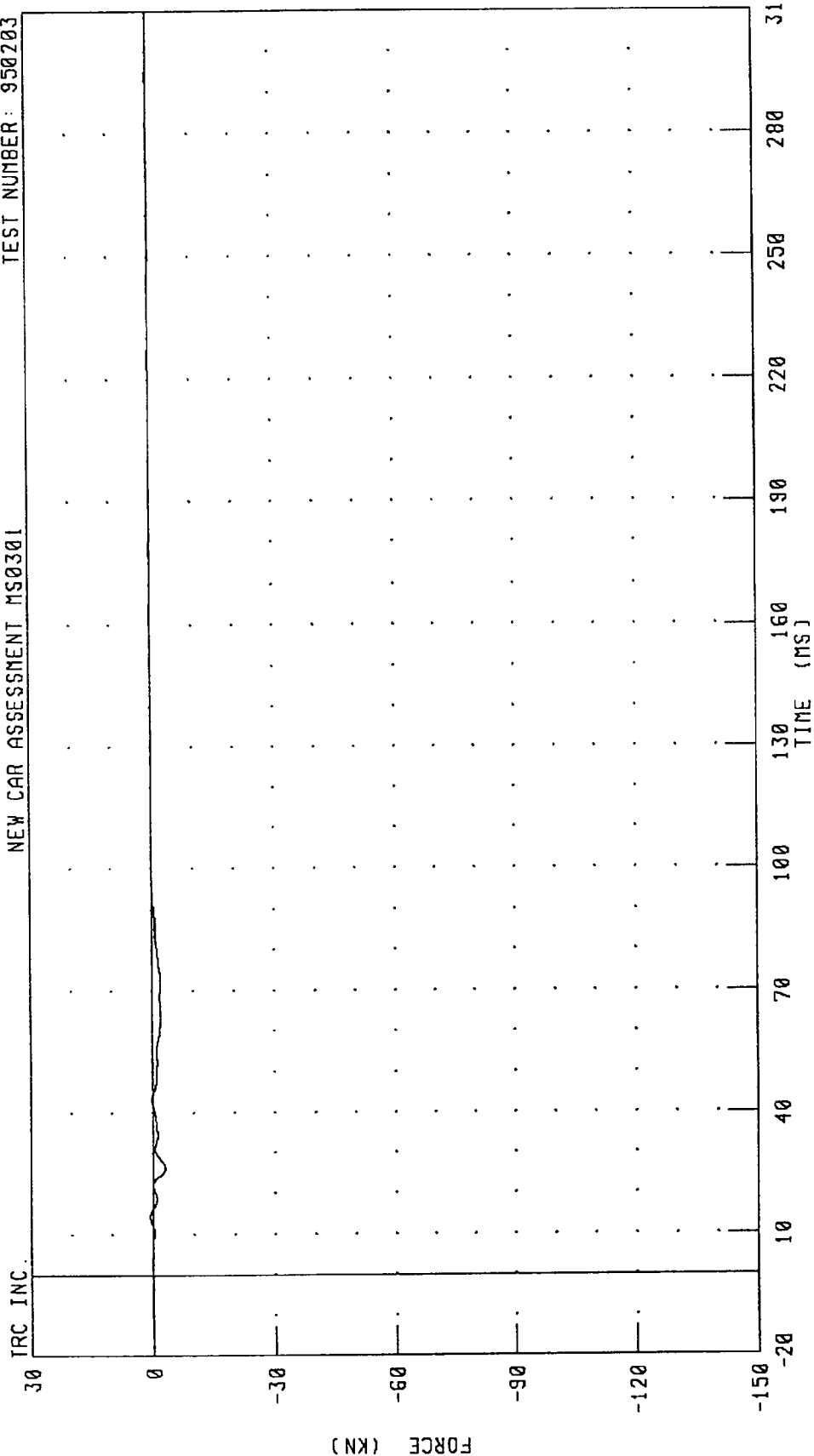
PEAK DATA: 0.60 KN @ 22.32 MS; -3.49 KN @ 27.36 MS

FILTER: CH. CLASS 60

CHANNEL: B03F

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D4 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

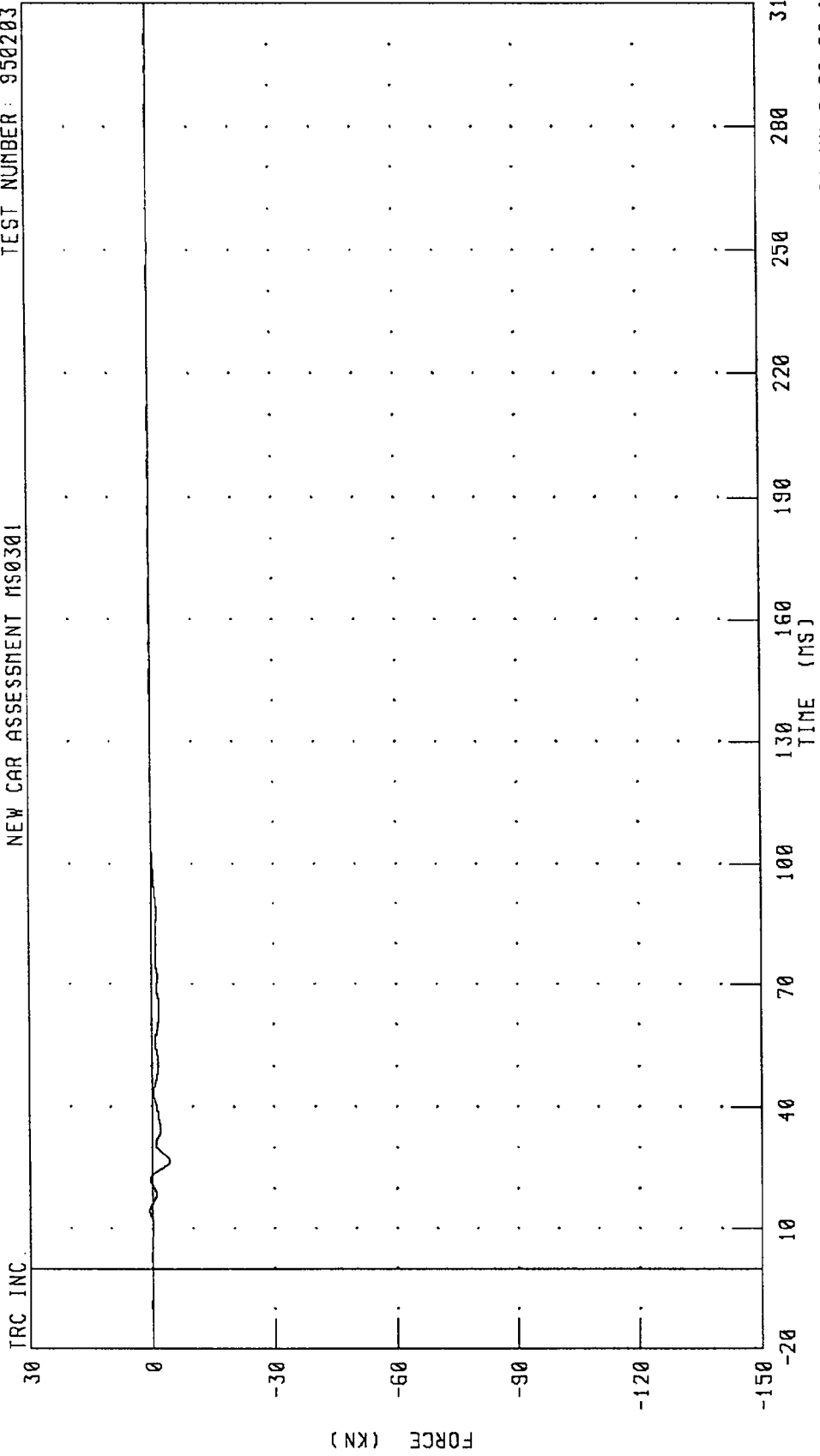


PEAK DATA: 0.65 KN @ 14.24 MS, -3.00 KN @ 26.24 MS

CHANNEL: BD4F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D5 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

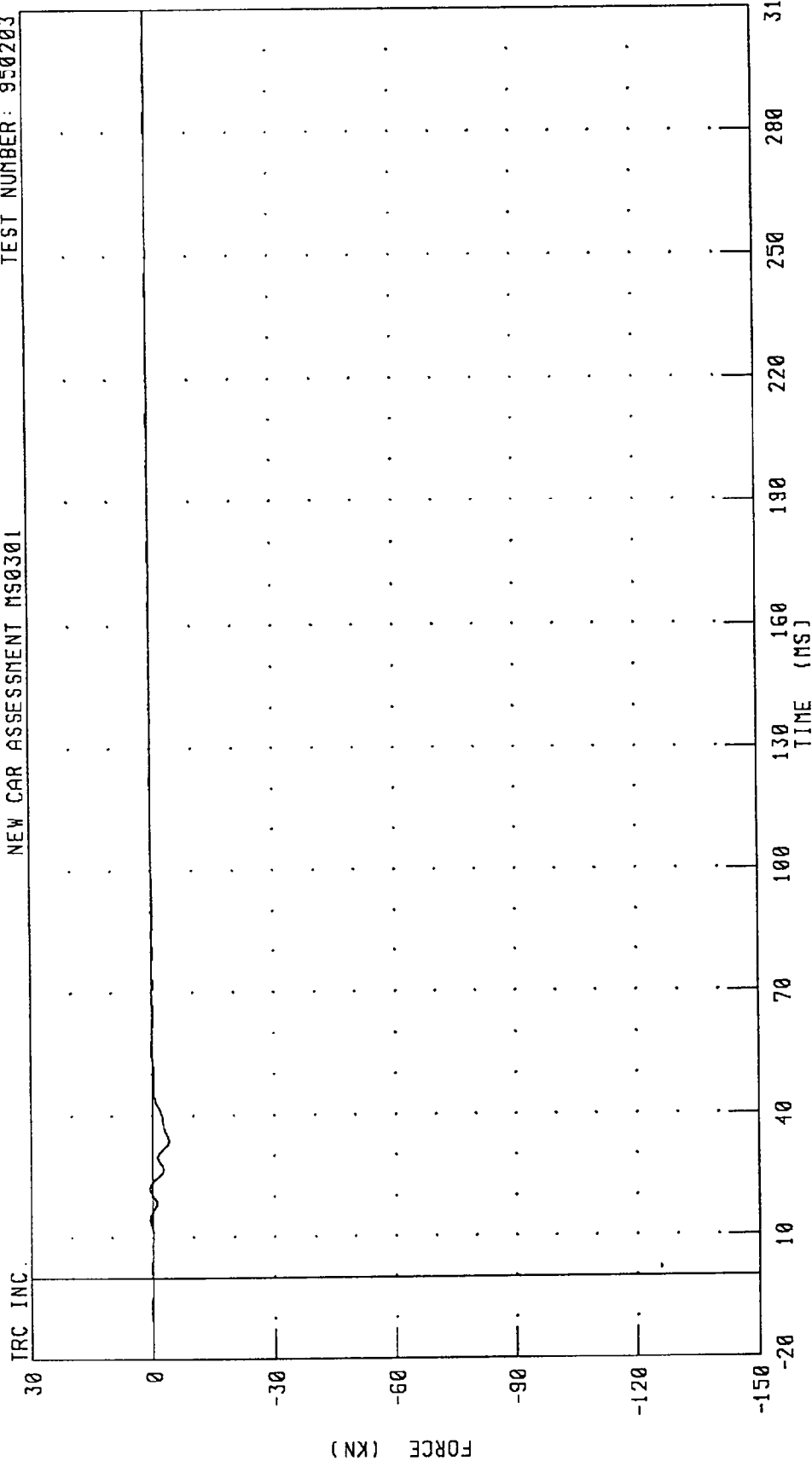


CHANNEL: B05F FILTER: CH. CLASS 60

PEAK DATA: 0.65 KN @ 14.40 MS; -4.31 KN @ 26.80 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D6 FORCE
 NEW CAR ASSESSMENT M50301

TEST NUMBER: 950203

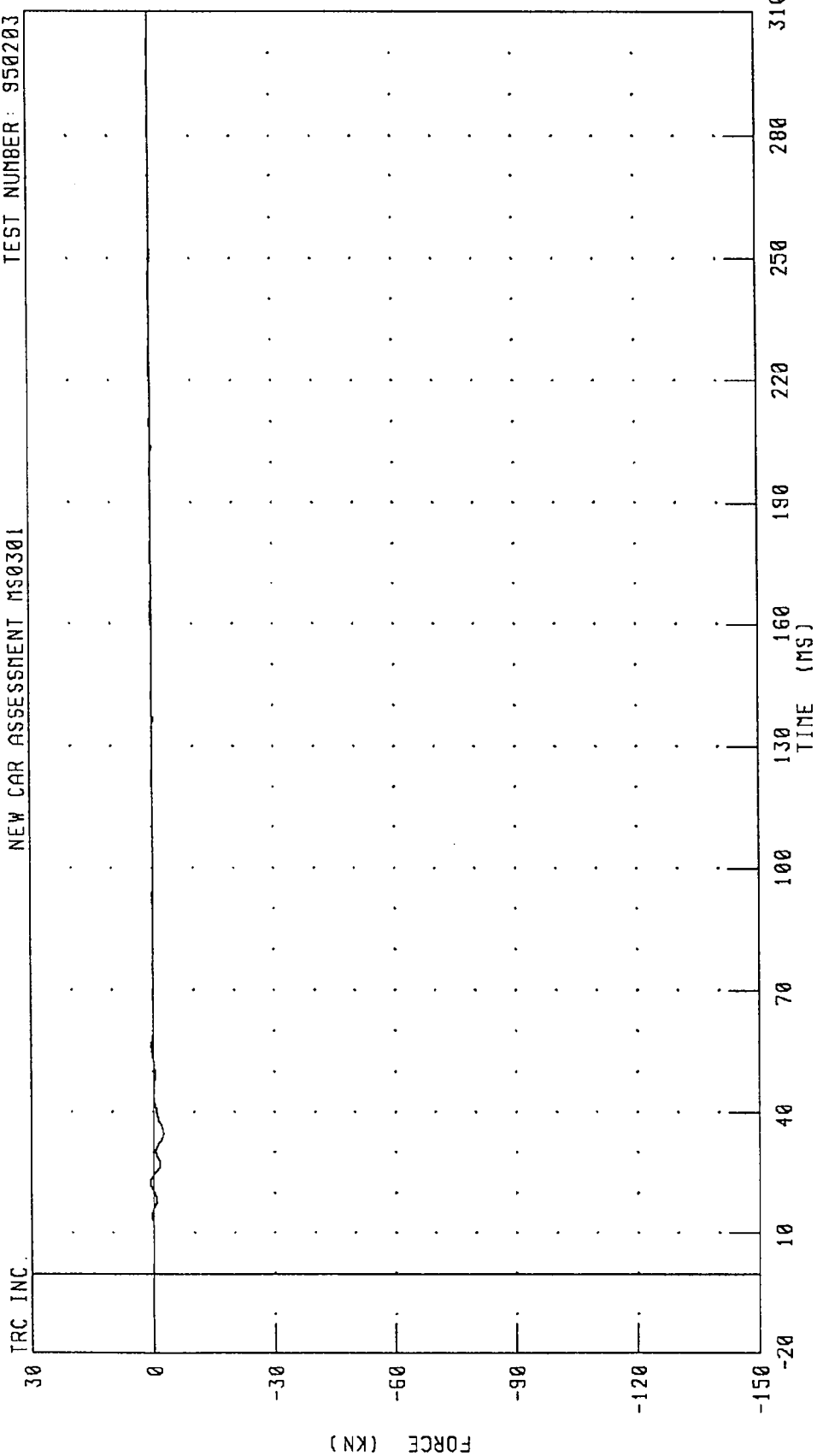


PEAK DATA: 0.66 KN @ 22.08 MS; -4.05 KN @ 33.92 MS

CHANNEL: BD6F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D7 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

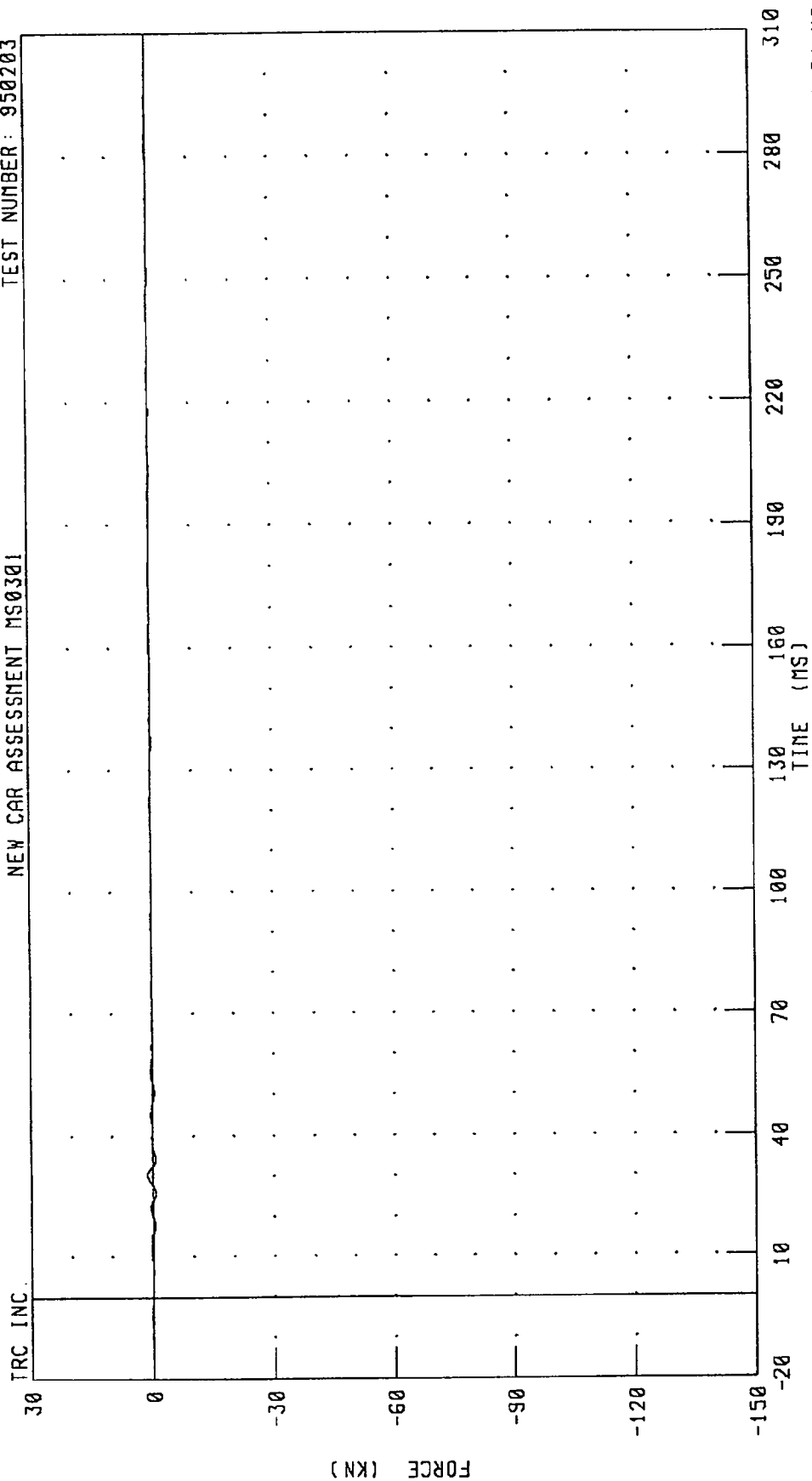


CHANNEL: BD7F FILTER: CH. CLASS 60

950203

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D8 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

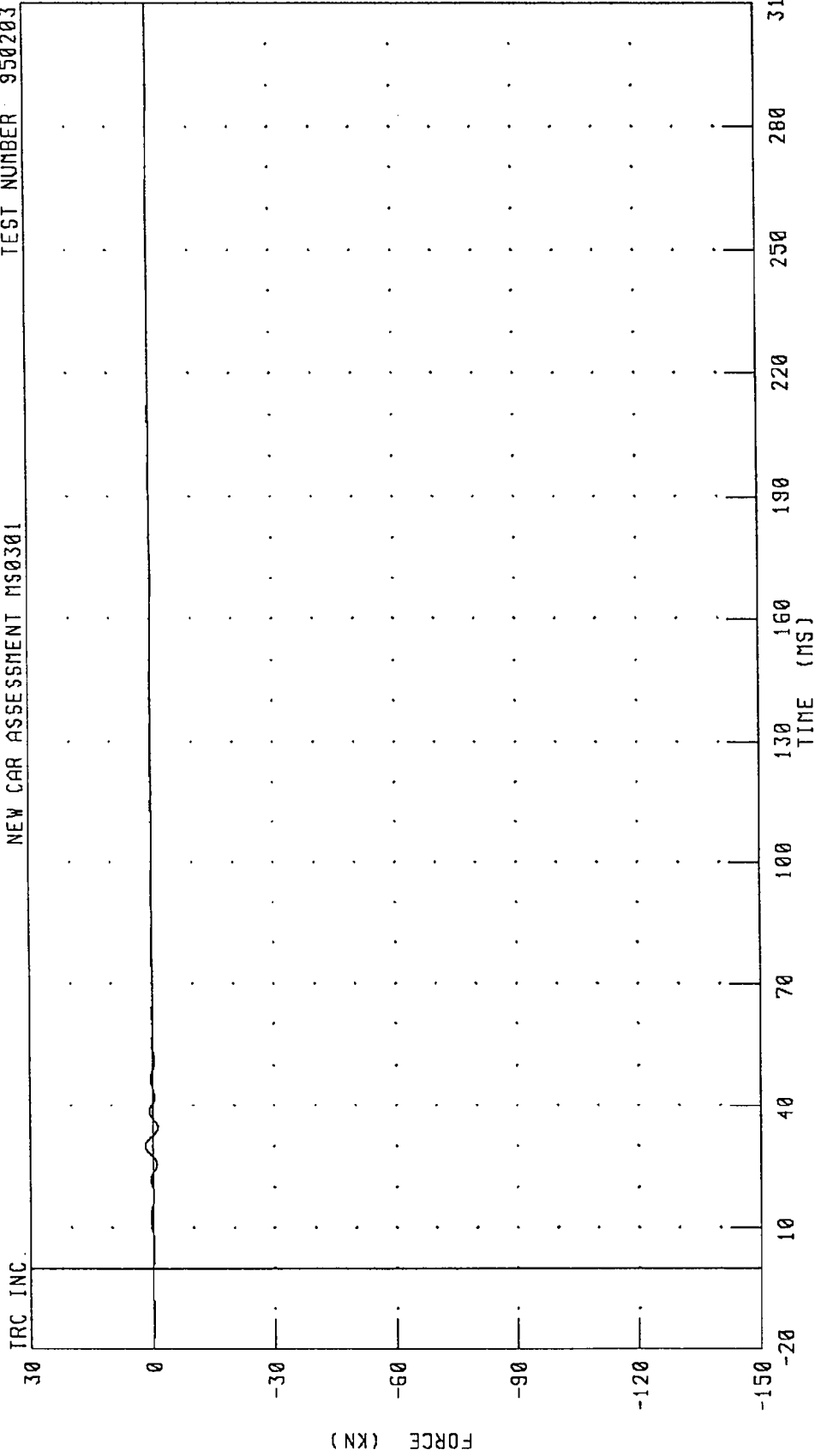


CHANNEL: BD8F

FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D9 FORCE
 NEW CAR ASSESSMENT MS0301

TEST NUMBER 950203

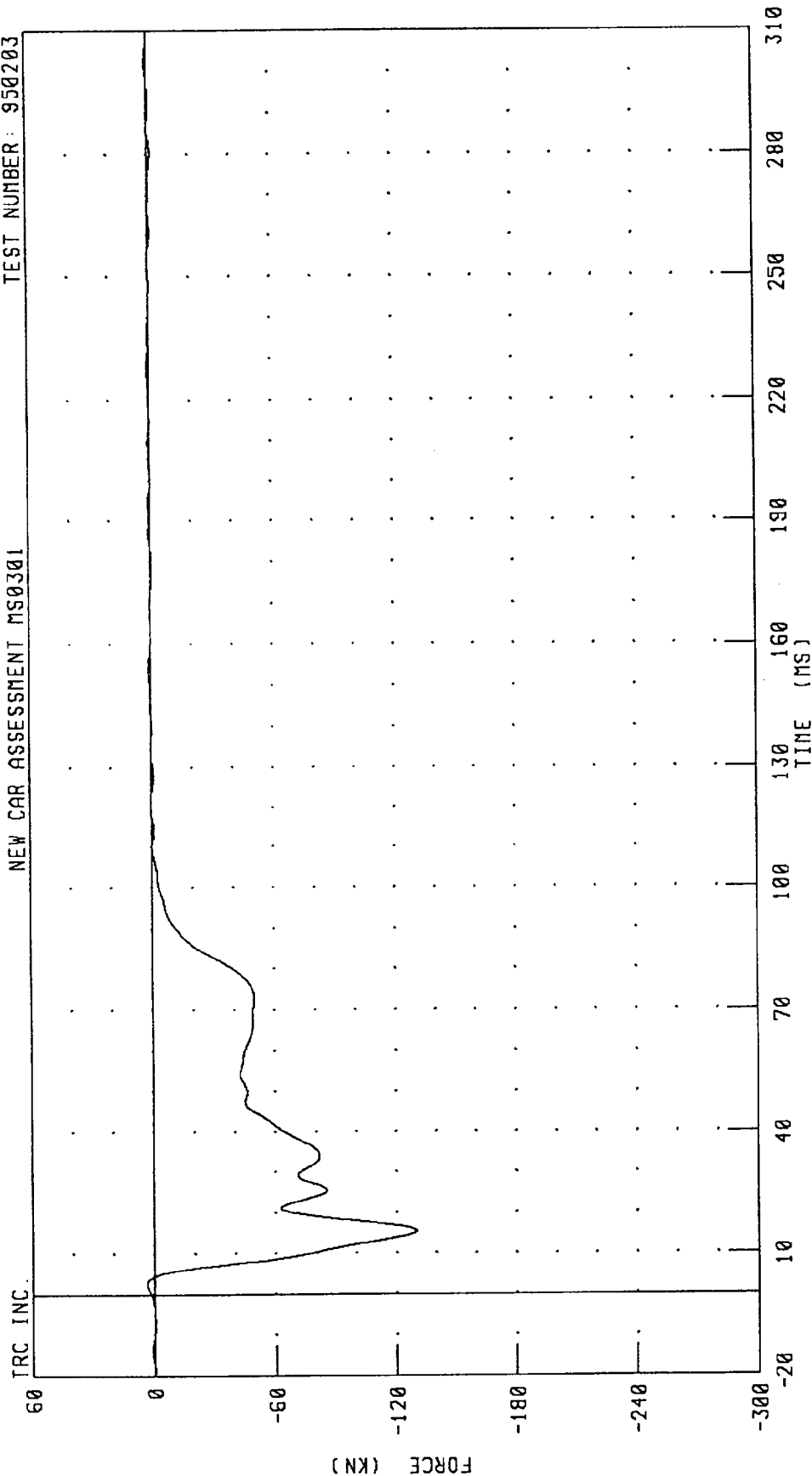


PEAK DATA: 1.77 KN @ 30.08 MS; -1.30 KN @ 34.48 MS

CHANNEL: B09F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



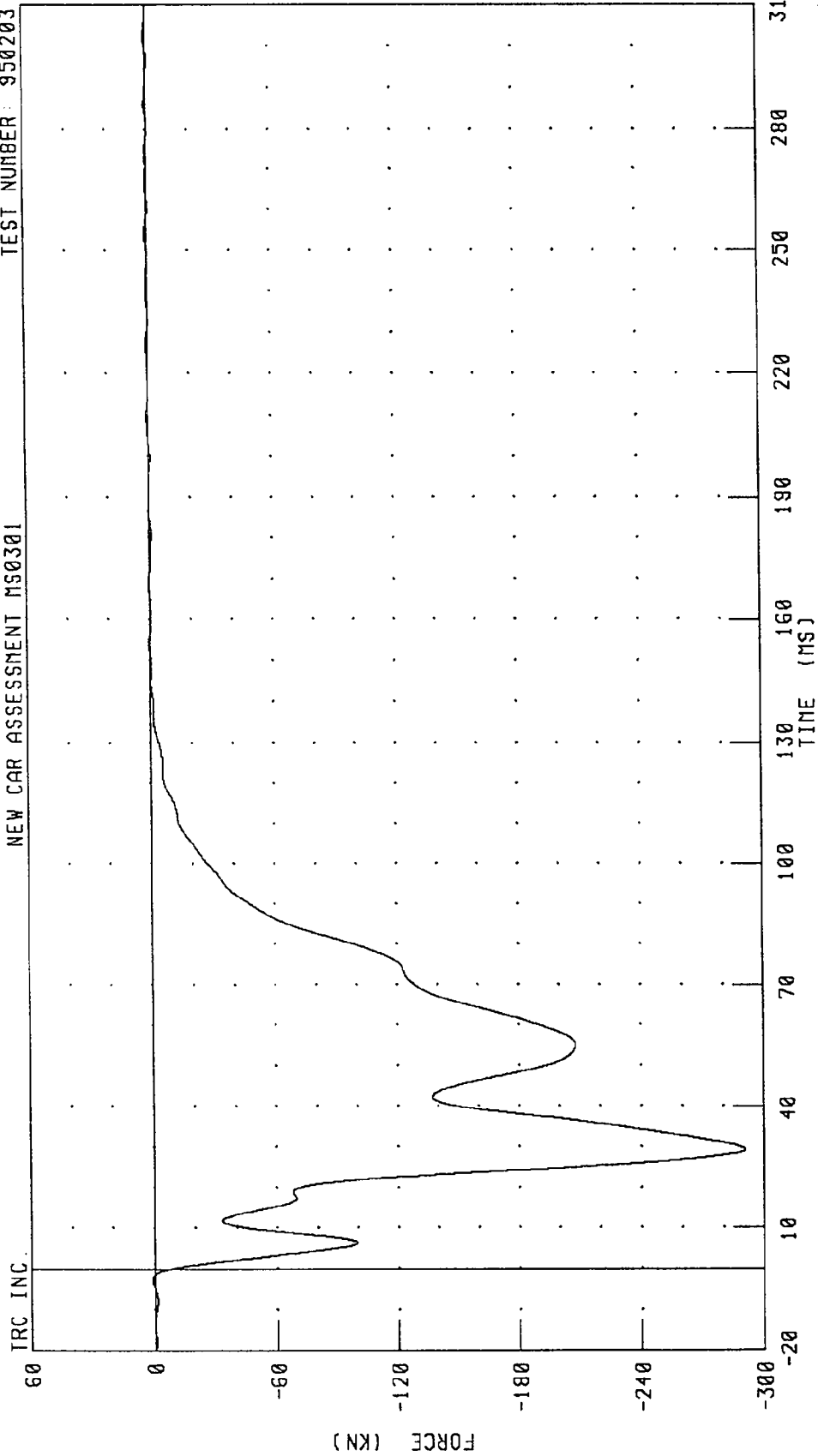
PEAK DATA: 3.61 KN @ 2.56 MS; -130.07 KN @ 15.44 MS

CHANNEL: LCBGIF FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 2 FORCE TOTAL

TEST NUMBER: 950203

NEW CAR ASSESSMENT MS0301

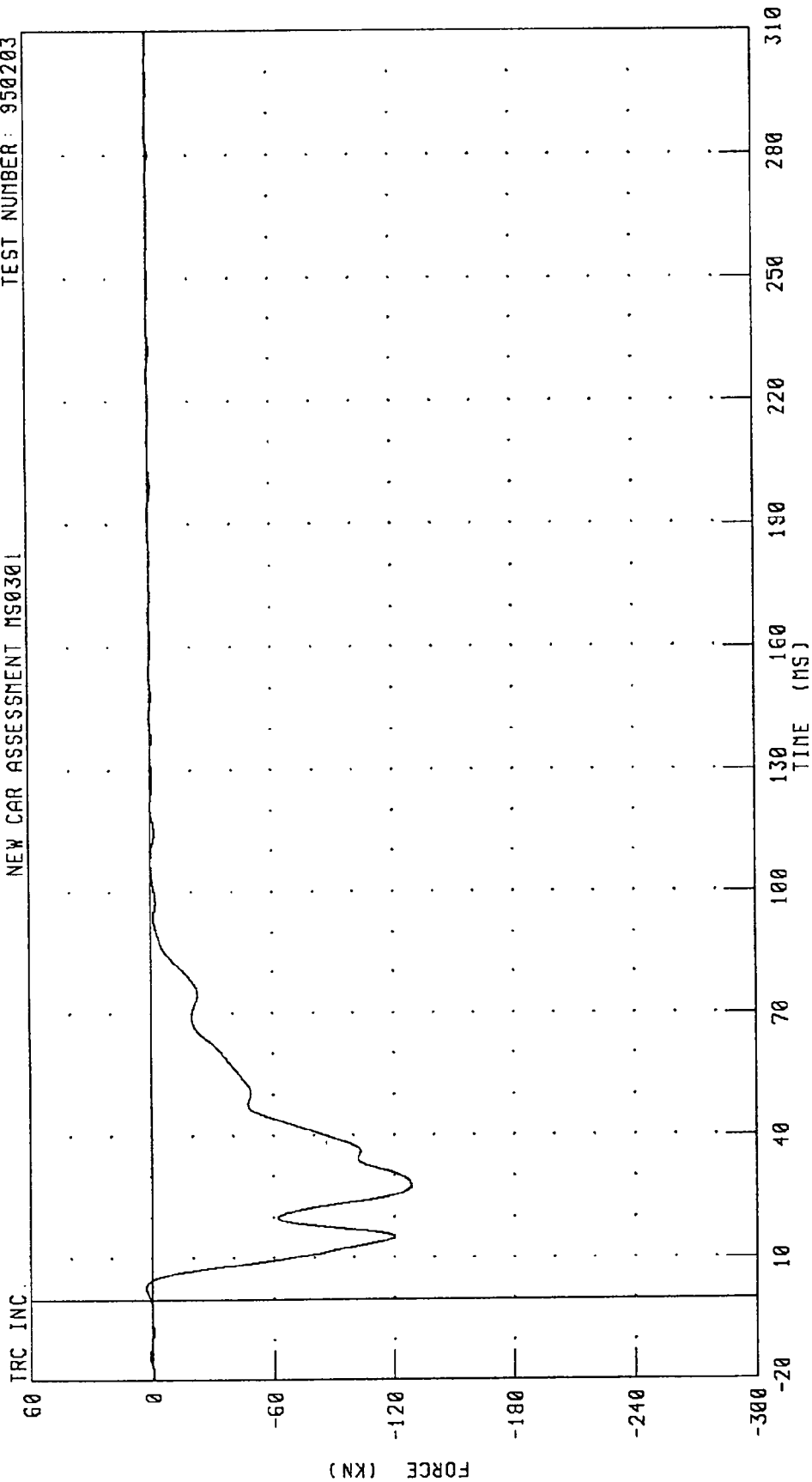


CHANNEL: LCBC2F FILTER: CH. CLASS 60

PEAK DATA: 1.19 KN @ -2.64 MS; -290.73 KN @ 29.36 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

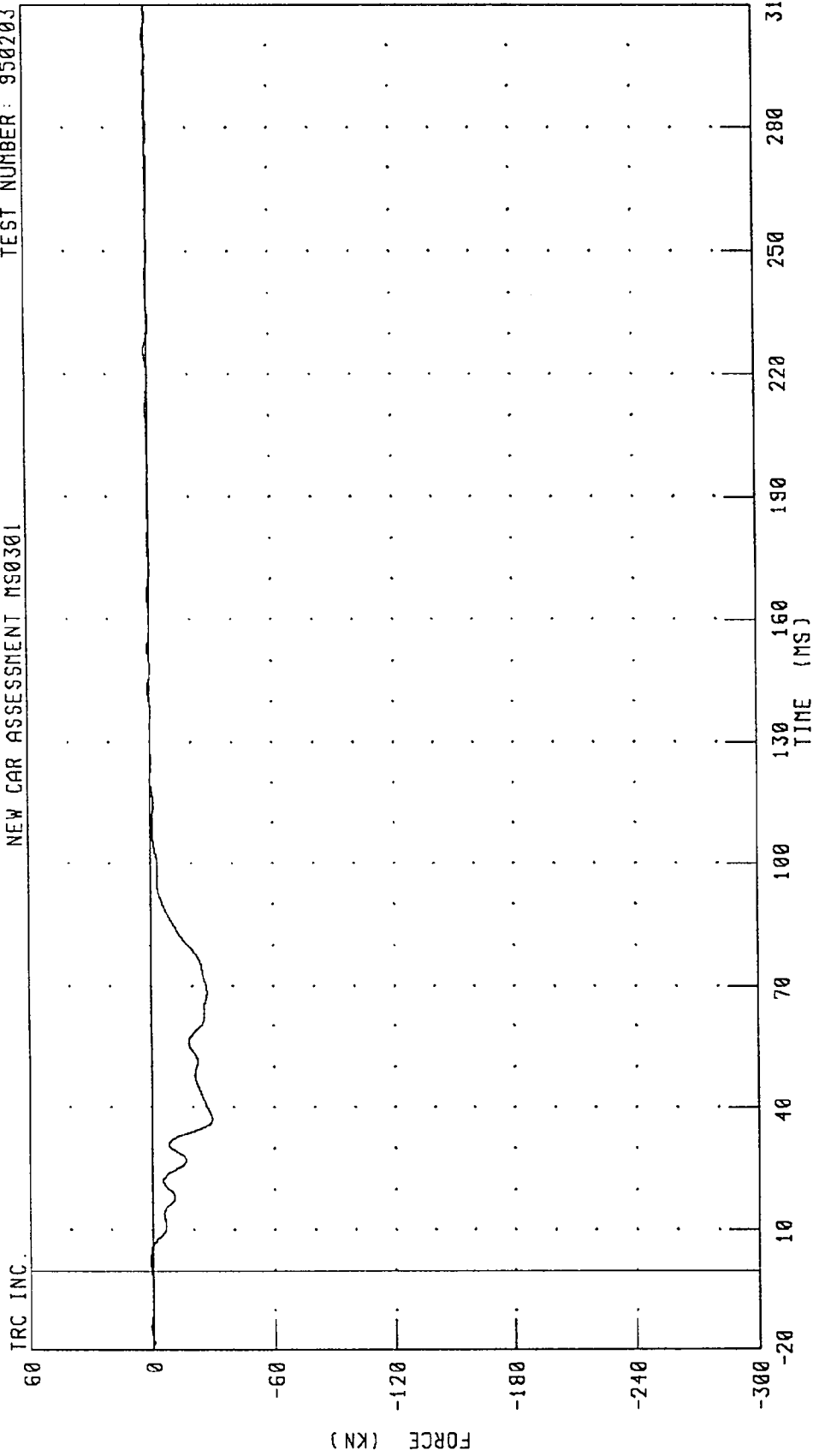


CHANNEL: LCBG3F FILTER: CH. CLASS 60

PEAK DATA: 2.94 KN @ 2.80 MS, -128.69 KN @ 27.76 MS

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 4 FORCE TOTAL
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

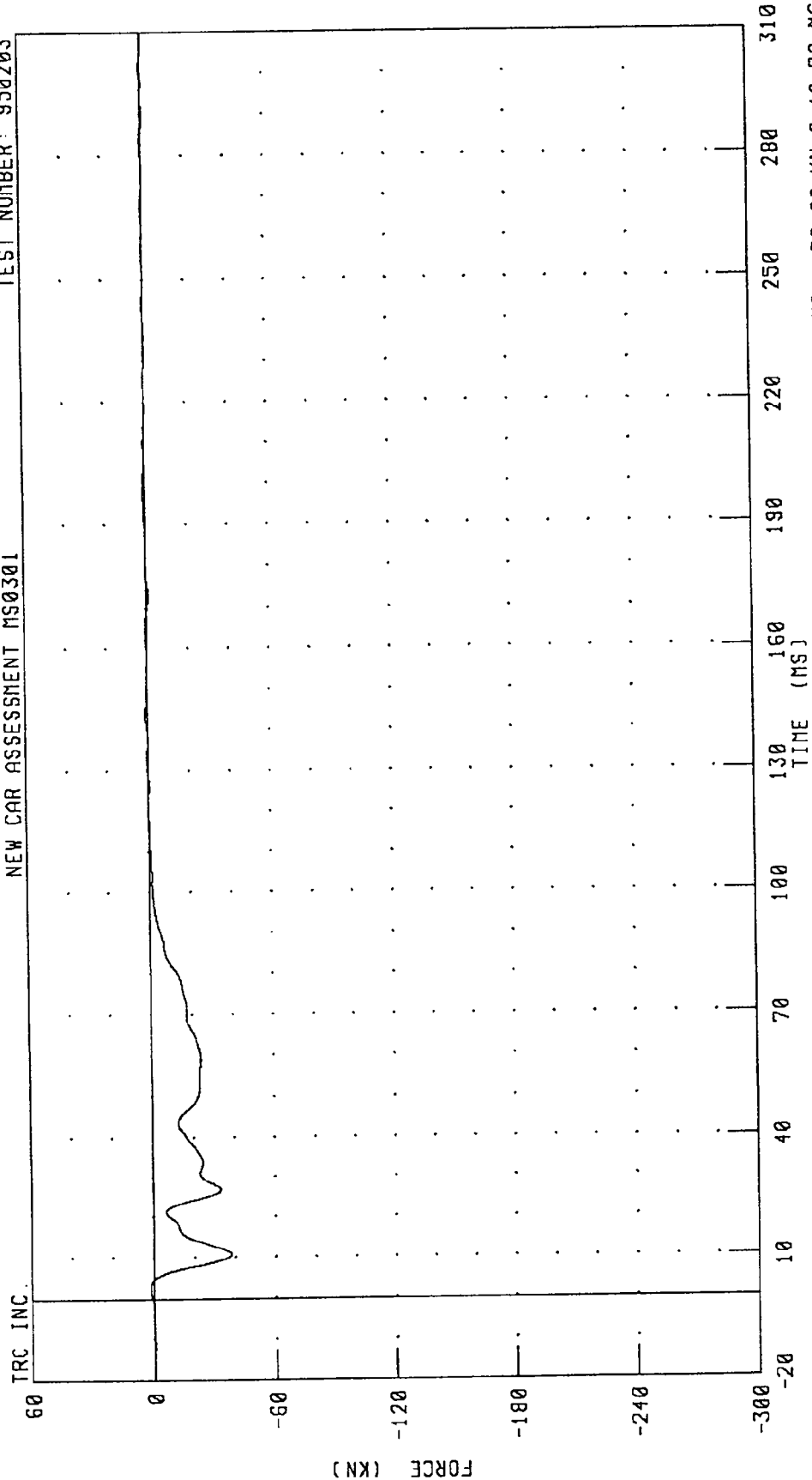


PEAK DATA: 1.32 KN @ 226.00 MS; -29.38 KN @ 37.20 MS

CHANNEL: LCBC4F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL
NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203

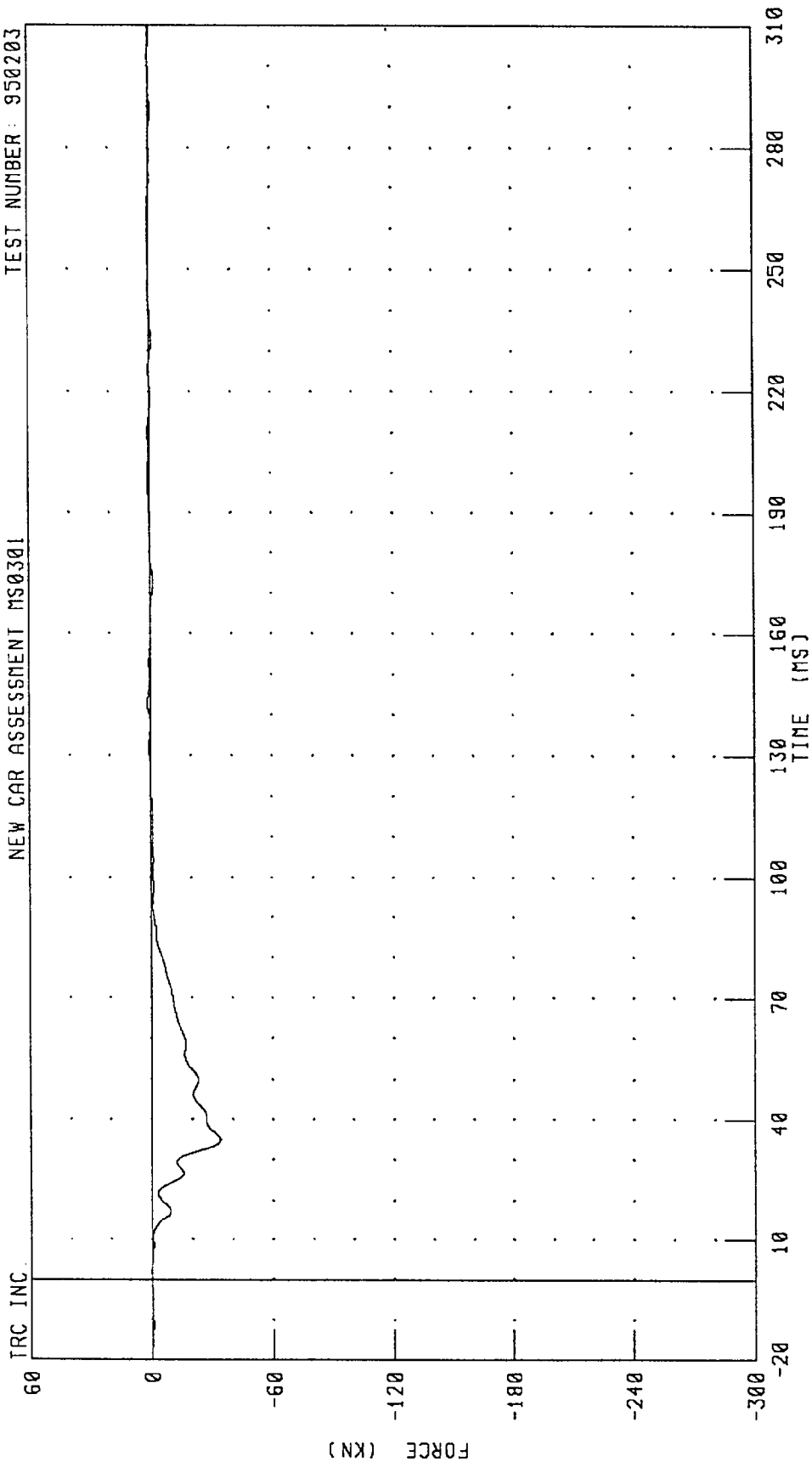


PEAK DATA: 1.67 KN @ 2.32 MS; -38.06 KN @ 10.72 MS

CHANNEL: LCBG5F FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
 NEW CAR ASSESSMENT MS0301

TEST NUMBER: 950203



PEAK DATA: 1.39 KN @ 142.32 MS; -33.88 KN @ 34.96 MS

CHANNEL: LCBG6F FILTER: CH. CLASS 60

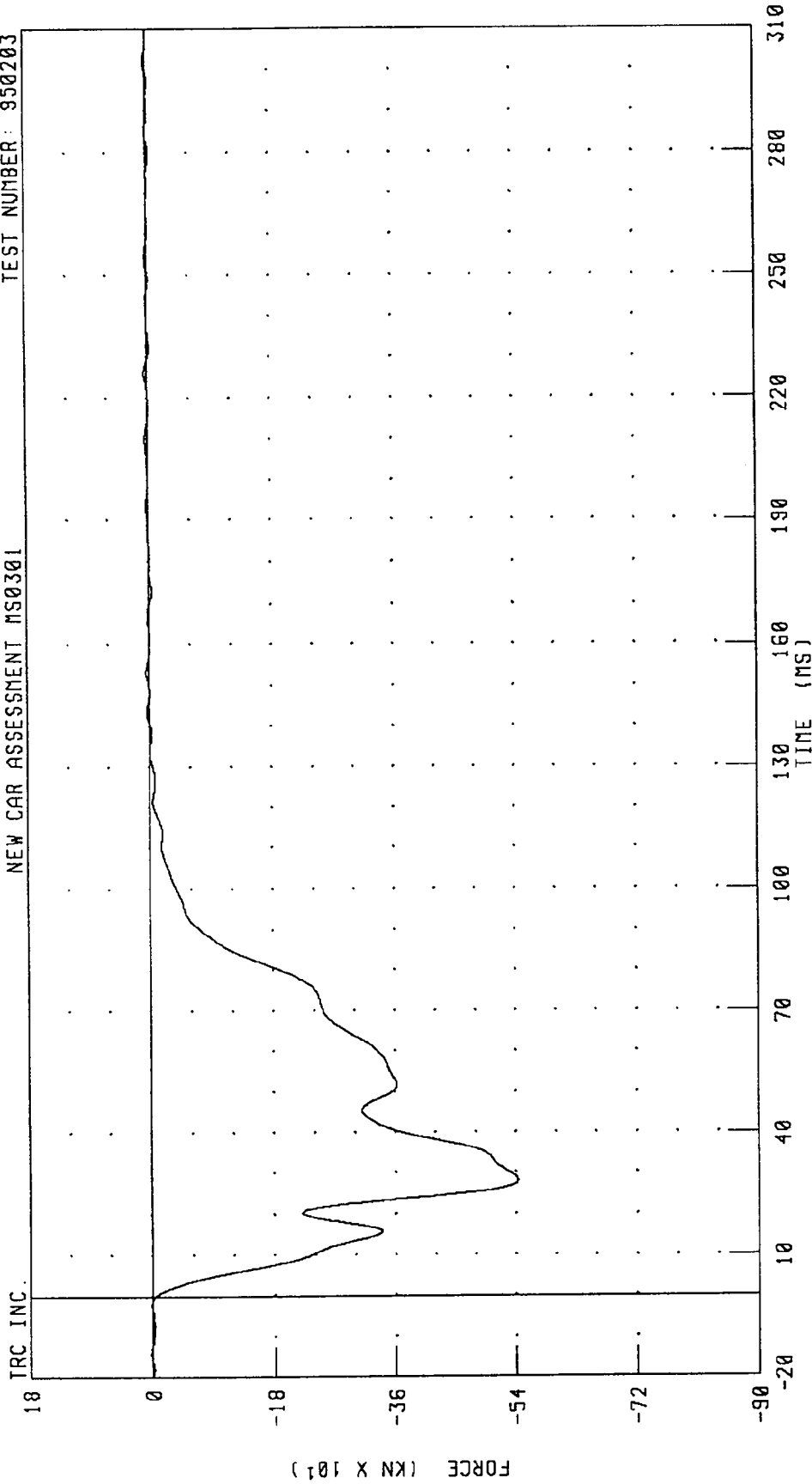
TRC INC.

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER

TOTAL LOAD CELL BARRIER FORCE

NEW CAR ASSESSMENT MS0301

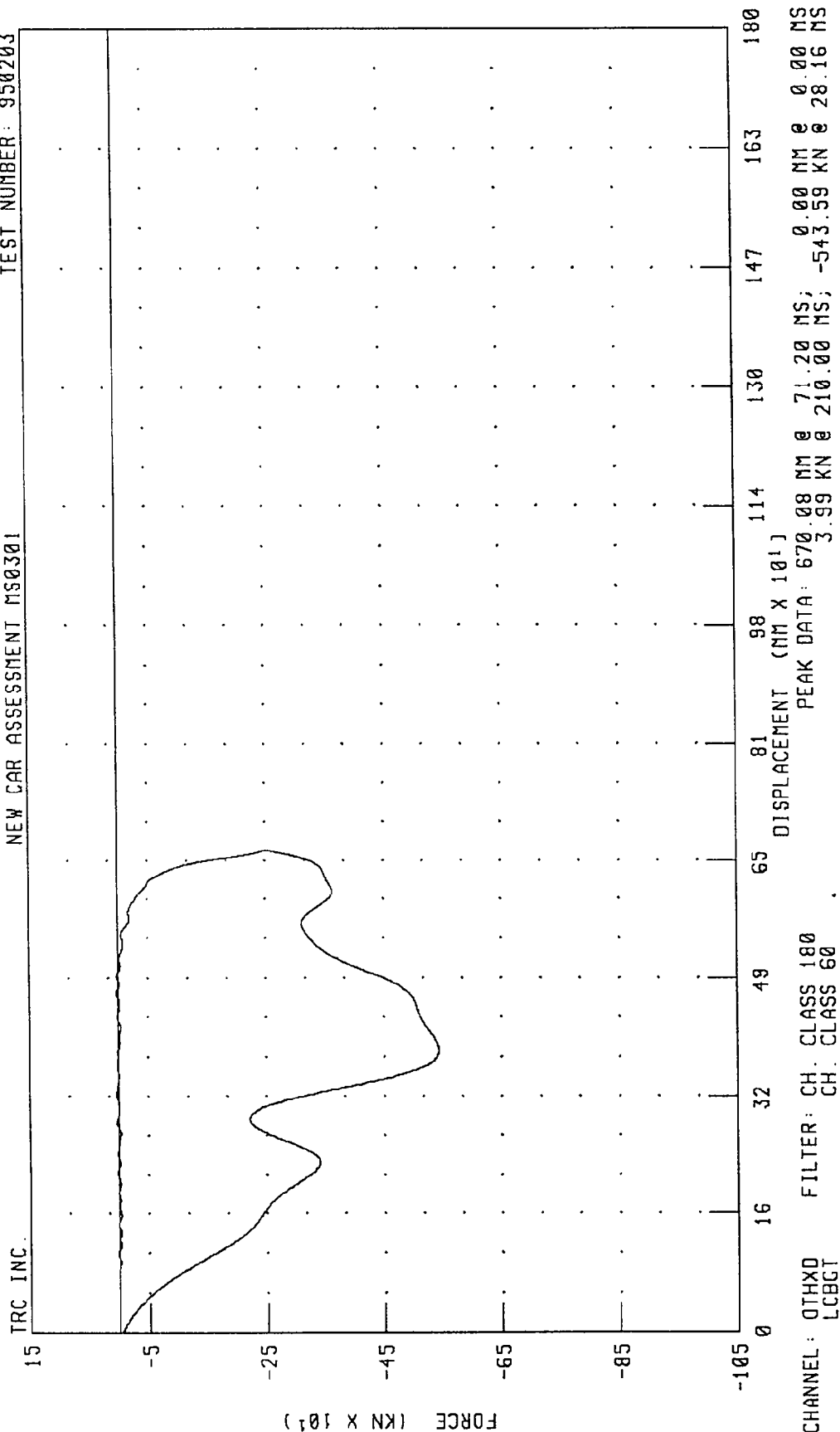
TEST NUMBER: 950203



PEAK DATA: 3.99 KN @ 210.00 MS; -543.59 KN @ 28.16 MS

CHANNEL: LCBGT FILTER: CH. CLASS 60

1995 DODGE AVENGER INTO FRONTAL LOAD CELL BARRIER
 TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT
 NEW CAR ASSESSMENT MS0301 TEST NUMBER: 950203



Appendix C

Dummy Certification Data

Pre-test Certification Data

Driver Dummy S/N: 192

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

192 ALDERSON

25-JAN-95

TRC INC.

TEST NO: 192C25ED1

572E SN192 EXT.DIMENSION CAL25

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

Pat Fout

RUN NUMBER: 012595.1352

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

25-JAN-95

TRC INC.

TEST NO: 192C25HD1

572E SN192 HEAD DROP CAL 25

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	229.49 G
PEAK LATERAL ACCELERATION	15 G MAX	-8.03 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN Rth Fox

RUN NUMBER: 012595.1011;1

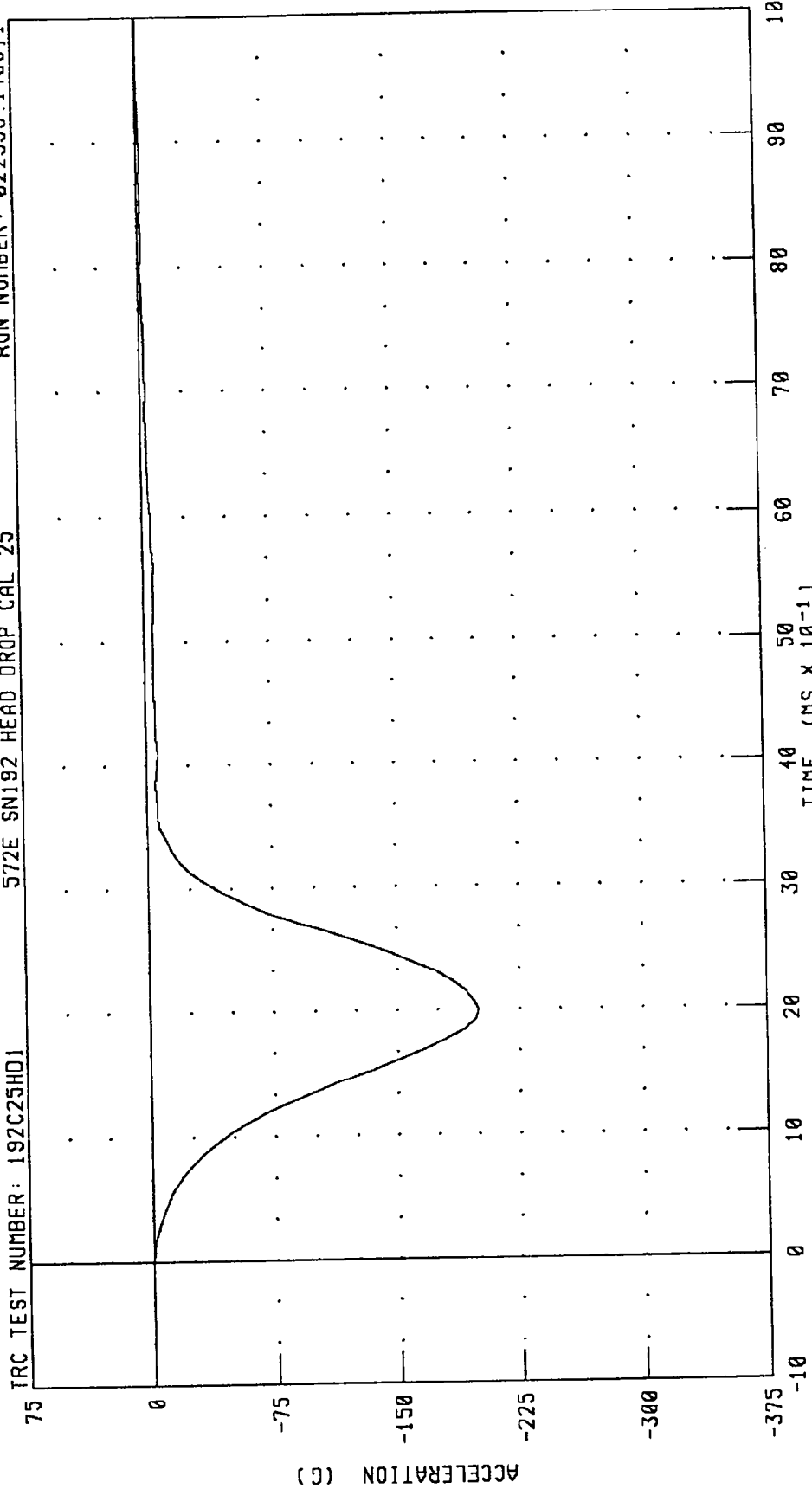
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 192C25HD1

572E SN192 HEAD DROP CAL 25

RUN NUMBER: 022395.1458;1



PEAK DATA: 0.04 G @ -0.72 MS; -199.84 G @ 2.00 MS

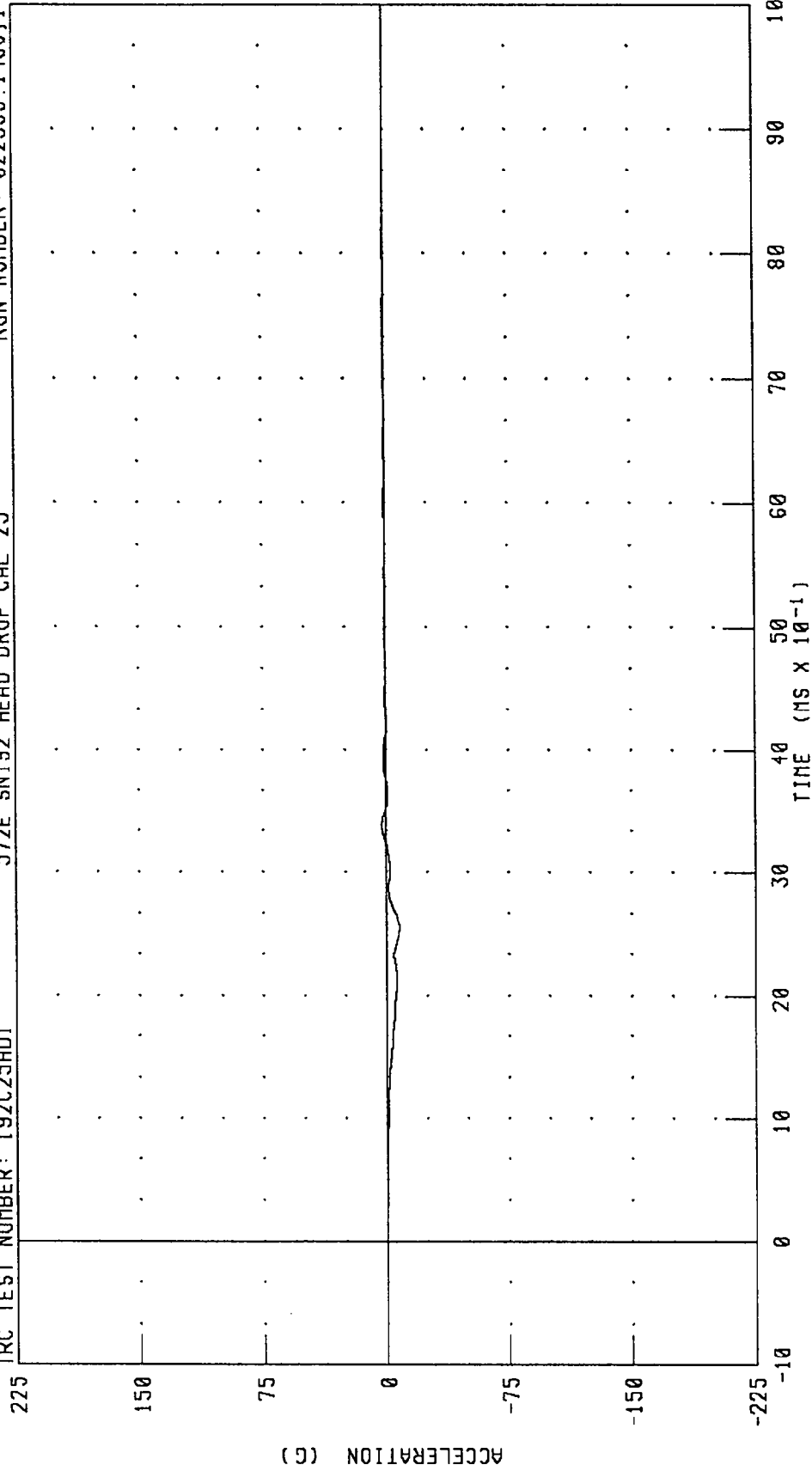
CHANNEL: HEDXG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

572E SN:92 HEAD DROP CAL 25 RUN NUMBER: 022395.1458,1

TRC TEST NUMBER: 192C25HDI



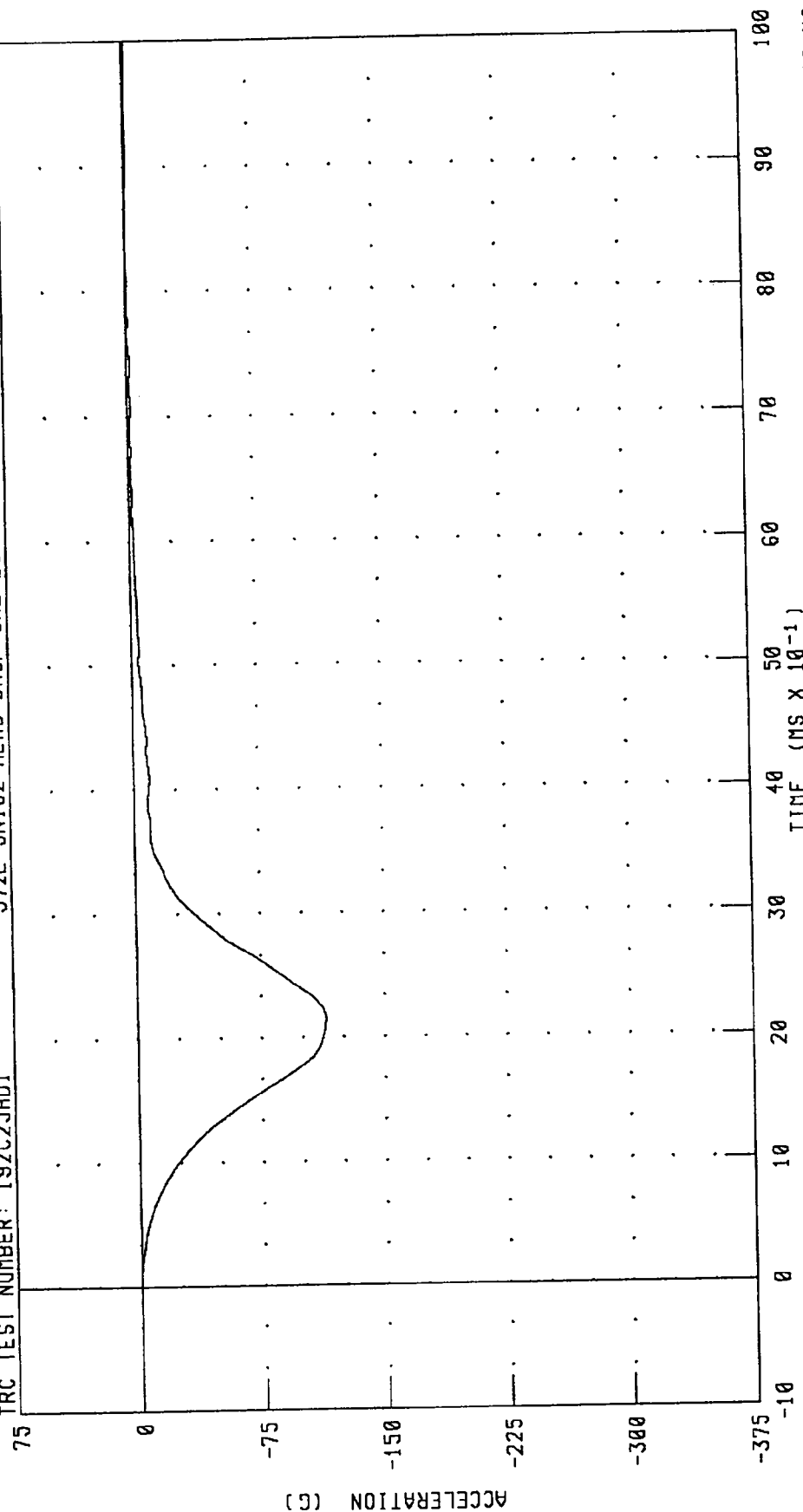
PEAK DATA: 2.28 G @ 3.36 MS; -8.03 G @ 2.56 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
 HEAD ACCELERATION Z AXIS
 572E SN192 HEAD DROP CAL 25

RUN NUMBER: 022395.1458;1

TRC TEST NUMBER: 192C25HD1



PEAK DATA: -0.02 G @ -0.24 MS; -114.57 G @ 2.16 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

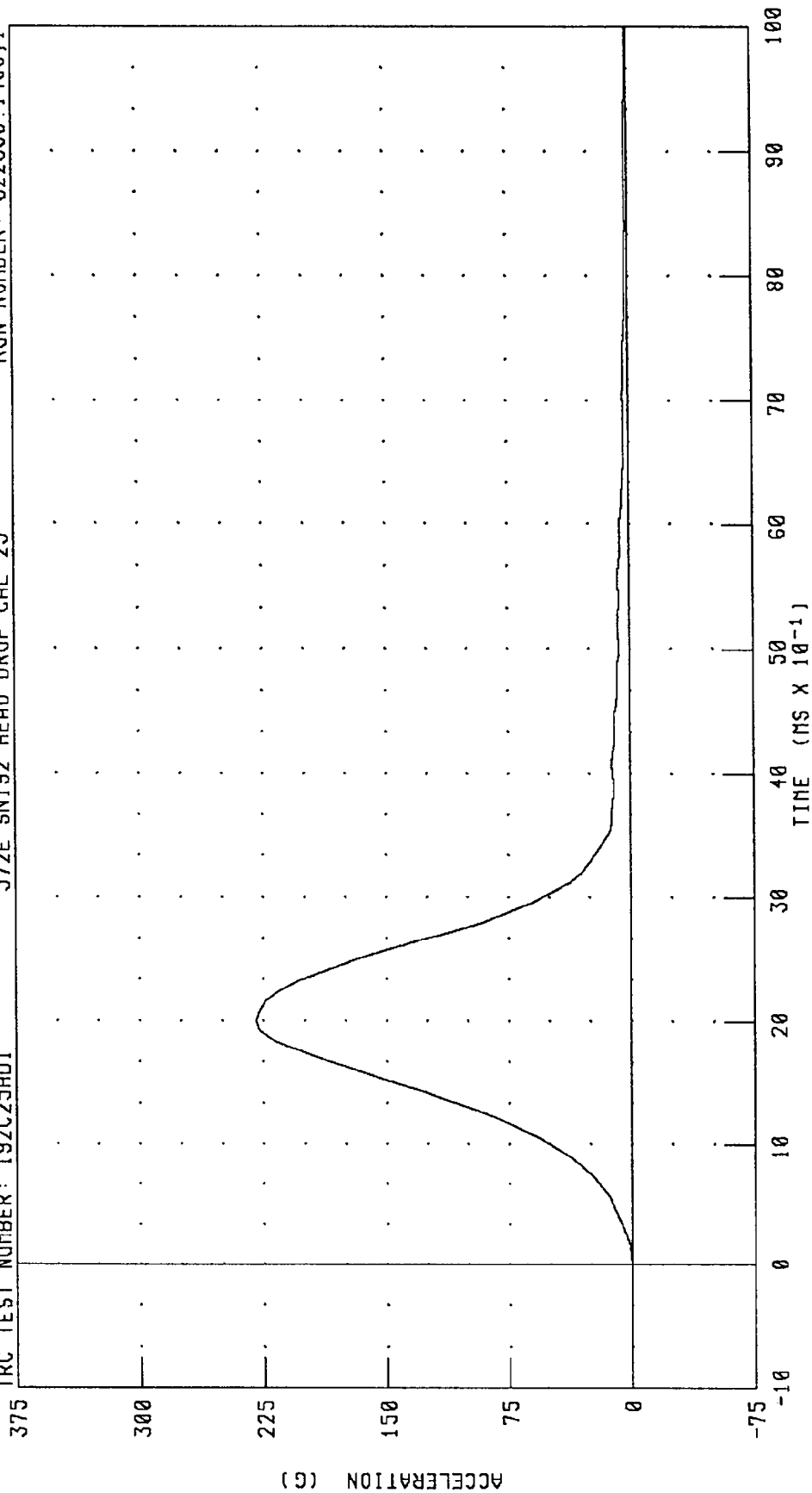
PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN192 HEAD DROP CAL 25

RUN NUMBER: 022395.1458;1

TRC TEST NUMBER: 192C25HD1



PEAK DATA: 229.49 G @ 2.00 MS; 0.04 G @ -0.16 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.
NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

25-JAN-95

TRC INC. TEST NO: 192C25NF1 572E SN192 NECK FLEXION CAL25

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	25.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	22.58 G
	20 MS	17.60 - 22.60 G	20.88 G
	30 MS	12.50 - 18.50 G	17.77 G
MAX PENDULUM G		29 G MAX	23.24 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.75 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	38.24 MS
D PLANE	MAX	64 - 78 DEG.	65.20 DEG.
ROTATION	TIME	57 - 64 MS	57.28 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	92.02 NM
	TIME	47 - 58 MS	50.40 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	113.68 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	102.96 MS

TEST MEETS SPECIFICATIONS

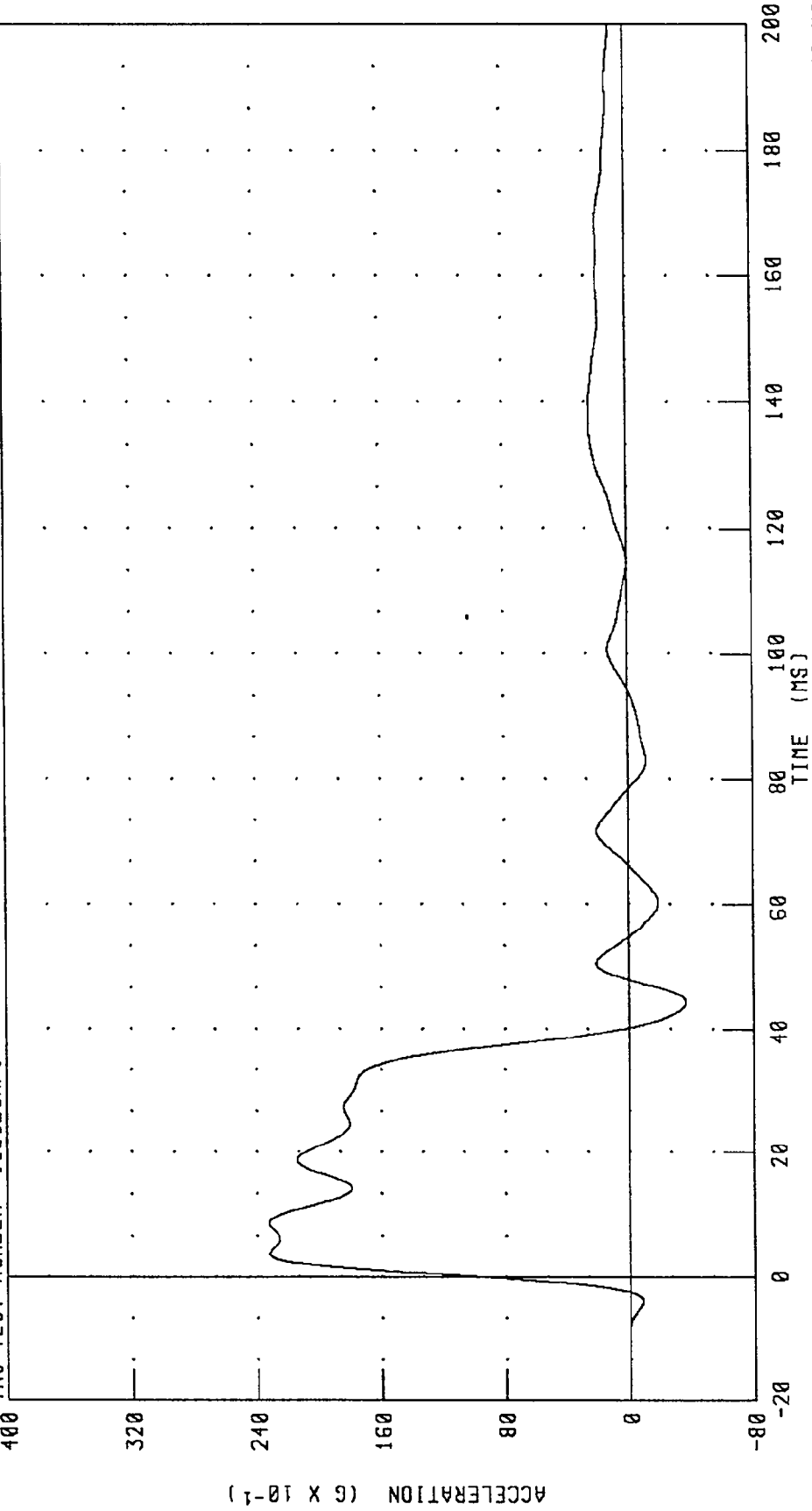
TECHNICIAN Pete F. S.

RUN NUMBER: 012595.1059;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 192025NF1 572E SN192 NECK FLEXION CAL25 RUN NUMBER: 022395.1458;1



PEAK DATA: 23.24 G @ 8.72 MS; -3.65 G @ 44.40 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

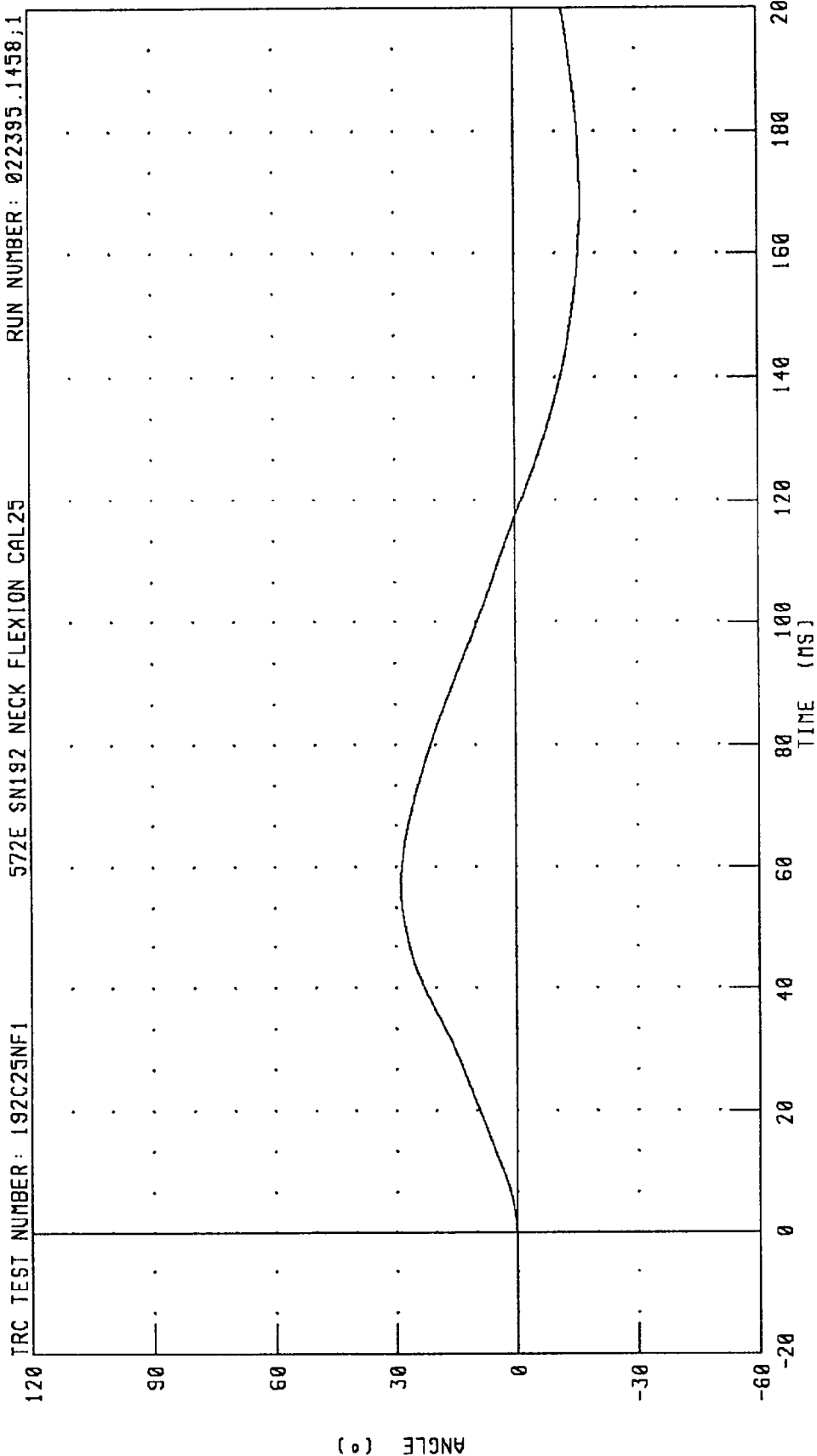
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

RUN NUMBER: 022395.1458;1

572E SN192 NECK FLEXION CAL25

TRC TEST NUMBER: 192C25NF1



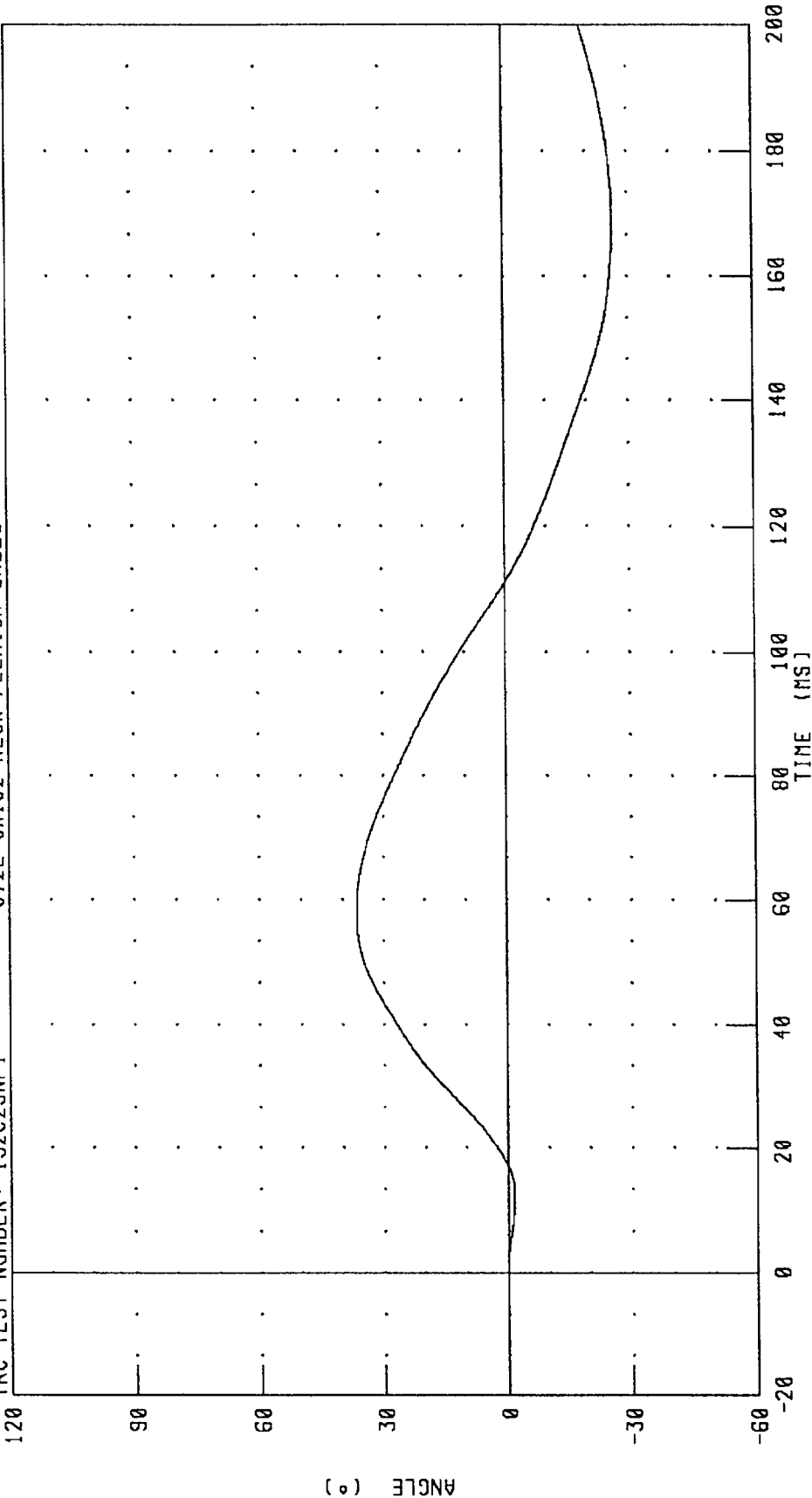
PEAK DATA: 28.74 ° @ 56.88 MS; -16.50 ° @ 168.32 MS

FILTER: CH. CLASS 60

CHANNEL: BETA

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

TRC TEST NUMBER: 192C25NF1 572E SNI92 NECK FLEXION CAL25 RUN NUMBER: 022395.1458;1



PEAK DATA: 36.47 ° @ 58.00 MS; -26.44 ° @ 169.92 MS

CHANNEL: THETA FILTER: CH. CLASS 60

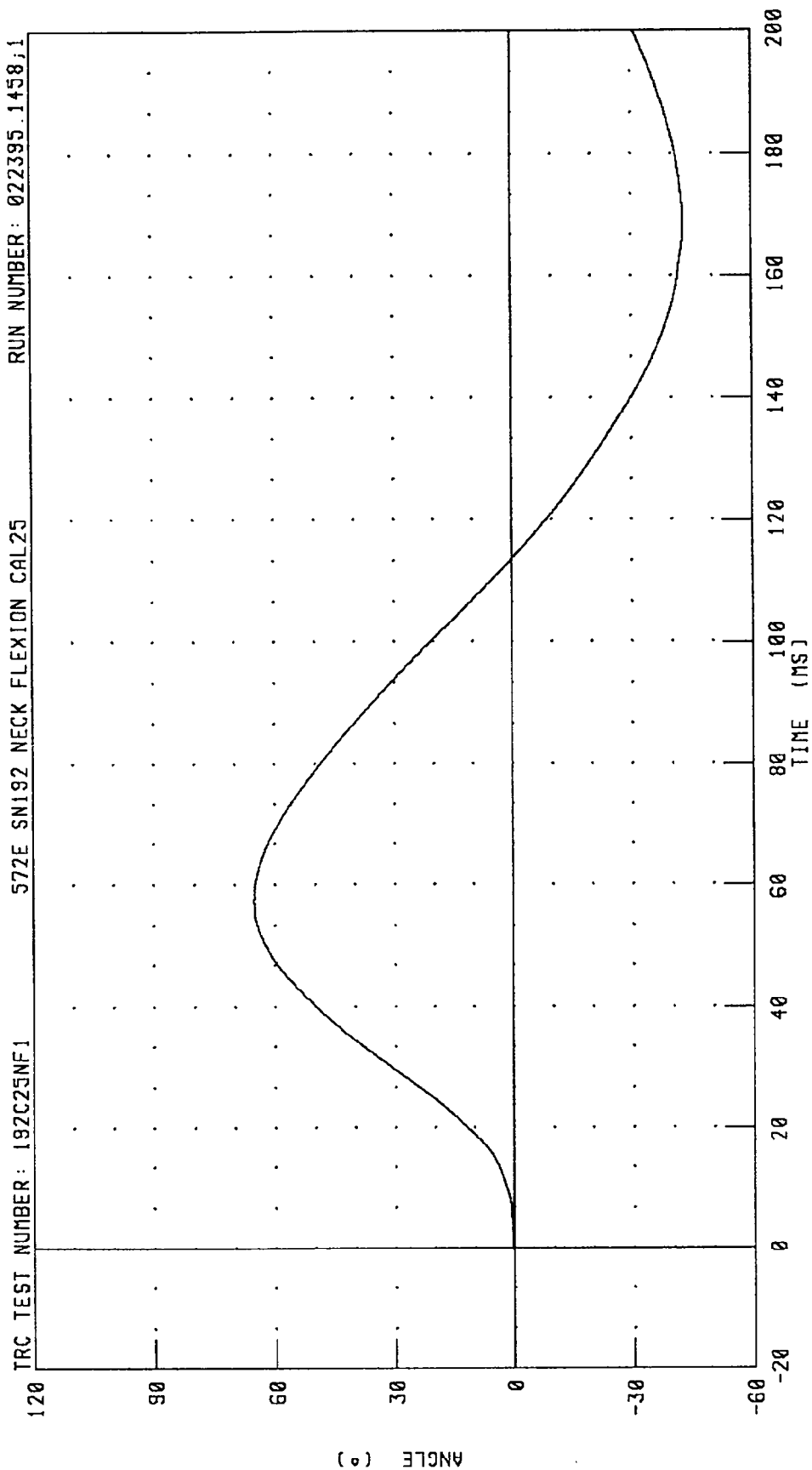
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C25NF1

572E SN192 NECK FLEXION CAL25

RUN NUMBER: 022395.1458,1



PEAK DATA: 65.20 ° @ 57.28 MS; -42.94 ° @ 168.40 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

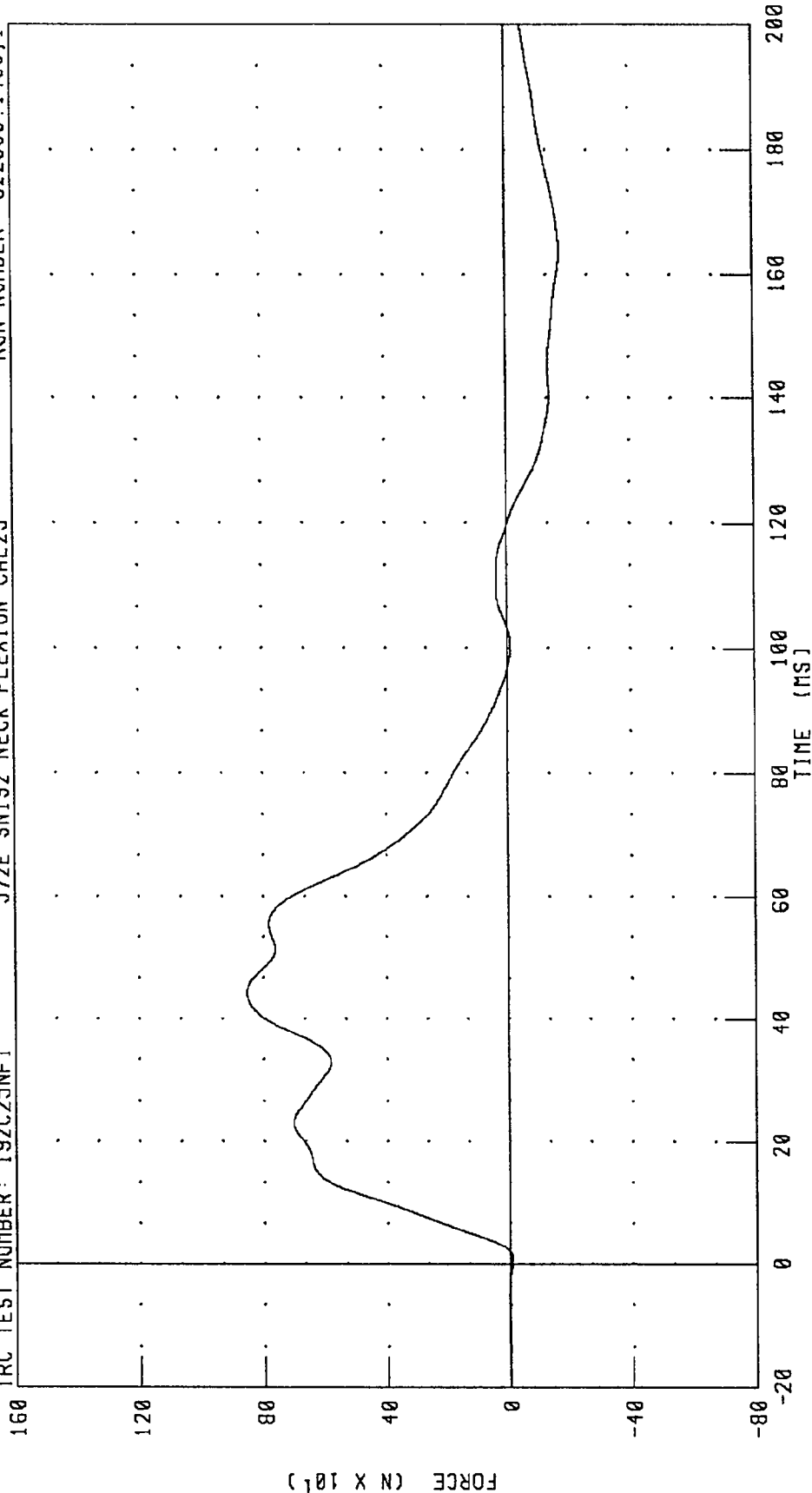
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C25NF1

572E SN192 NECK FLEXION CAL25

RUN NUMBER: 022395.1458;1



PEAK DATA: 853.28 N @ 44.24 MS; -175.10 N @ 163.68 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

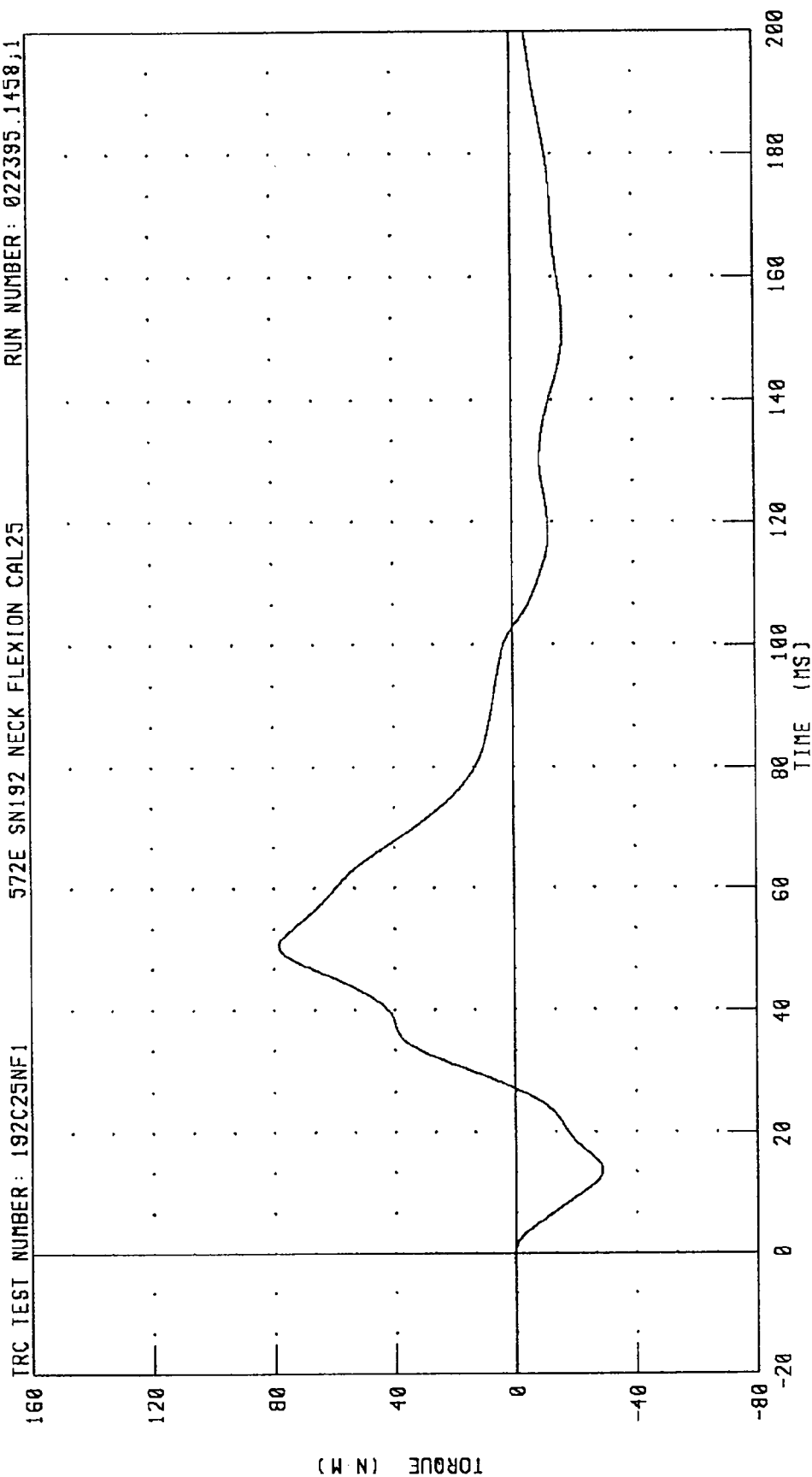
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C25NF1

572E SN192 NECK FLEXION CAL25

RUN NUMBER: 022395.1458,1



PEAK DATA: 78.41 N·M @ 50.48 MS; -28.87 N·M @ 13.68 MS

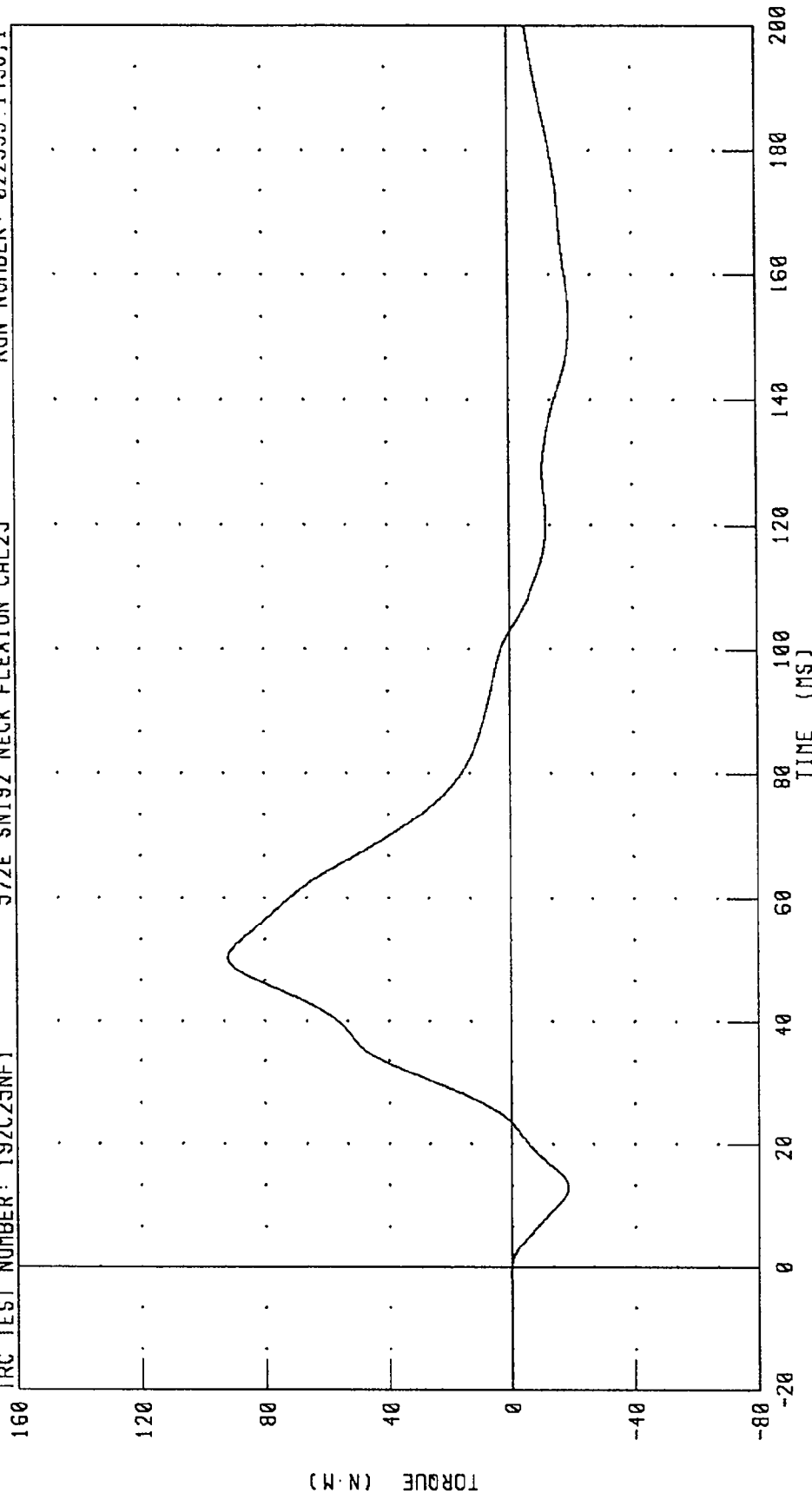
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C25NF1

572E SN192 NECK FLEXION CAL25

RUN NUMBER: 022395.1458.1



PEAK DATA: 92.02 N·M @ 50.40 MS; -19.68 N·M @ 152.64 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

25-JAN-95

TRC INC. TEST NO: 192C25NE1 572E SN192 NECK EXT. CAL25

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	25.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.44 G
	20 MS	14.00 - 19.00 G	14.52 G
	30 MS	11.00 - 16.00 G	14.60 G
MAX PENDULUM G		22 G MAX	19.28 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.56 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	42.16 MS
D PLANE	MAX	81 - 106 DEG.	92.06 DEG.
ROTATION	TIME	72 - 82 MS	74.80 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-56.74 NM
	TIME	65 - 79 MS	71.60 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	157.44 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	140.08 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

John F. S.

RUN NUMBER: 012595.1219;2

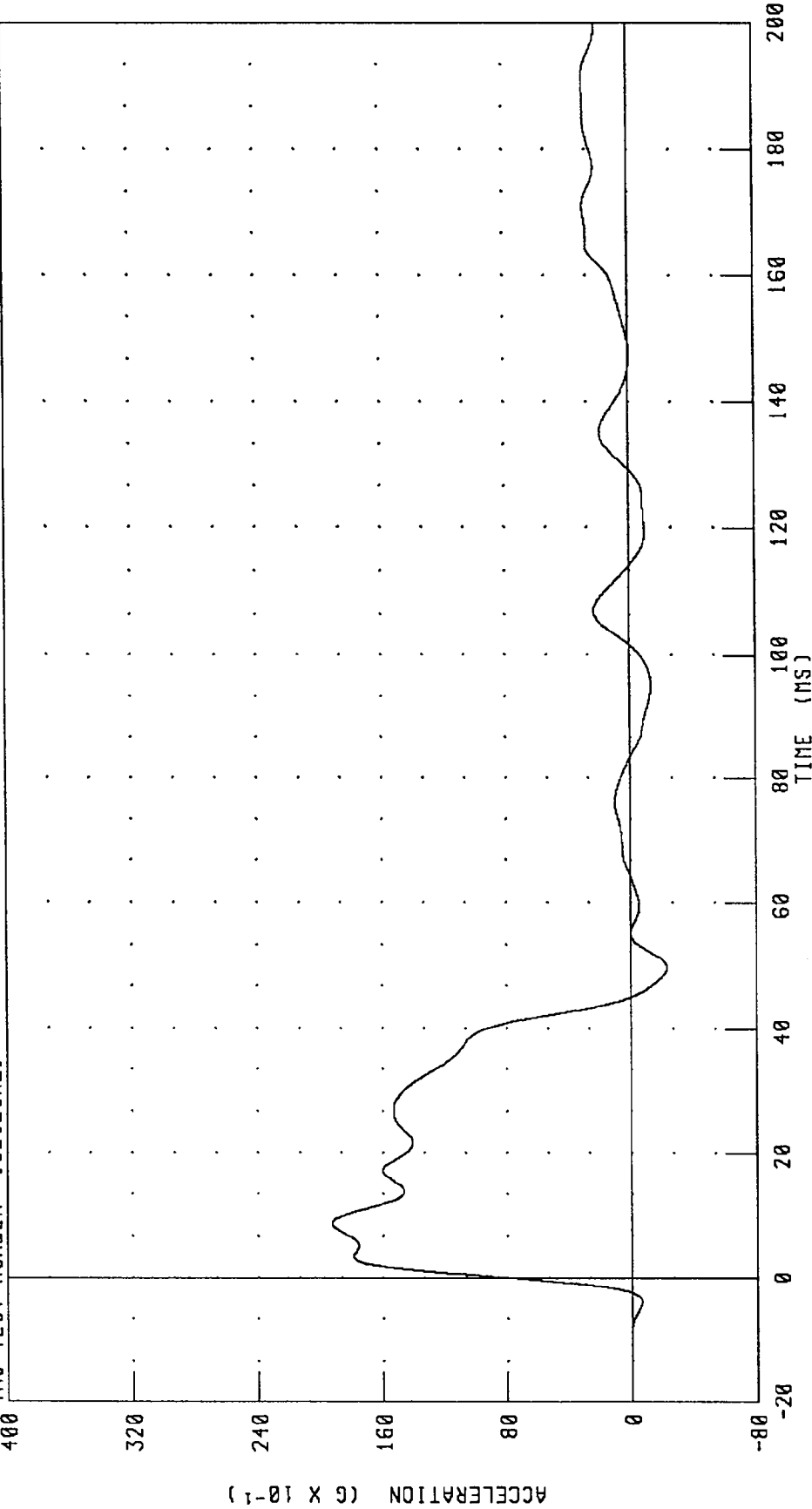
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 192C25NE1

572E SN192 NECK EXT. CAL25

RUN NUMBER: 022395.1458;2



PEAK DATA: 19.29 G @ 8.64 MS; -2.30 G @ 49.60 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN192 NECK EXT. CAL25

TRC TEST NUMBER: 192C25NE1

120

90

60

30

0

-30

-60

ANGLE (°)

TIME (MS)

80

100

120

140

160

180

200

220

240

260

280

300

320

340

360

380

400

420

440

460

480

500

520

540

560

580

600

620

640

660

680

700

720

740

760

780

800

820

840

860

880

900

920

940

960

980

1000

1020

1040

1060

1080

1100

1120

1140

1160

1180

1200

1220

1240

1260

1280

1300

1320

1340

1360

1380

1400

1420

1440

1460

1480

1500

1520

1540

1560

1580

1600

1620

1640

1660

1680

1700

1720

1740

1760

1780

1800

1820

1840

1860

1880

1900

1920

1940

1960

1980

2000

2020

2040

2060

2080

2100

2120

2140

2160

2180

2200

2220

2240

2260

2280

2300

2320

2340

2360

2380

2400

2420

2440

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2500

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2800

2820

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2860

2880

2900

2920

2940

2960

2980

3000

3020

3040

3060

3080

3100

3120

3140

3160

3180

3200

3220

3240

3260

3280

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3960

3980

4000

4020

4040

4060

4080

4100

4120

4140

4160

4180

4200

4220

4240

4260

4280

4300

4320

4340

4360

4380

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4800

4820

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4860

4880

4900

4920

4940

4960

4980

5000

5020

5040

5060

5080

5100

5120

5140

5160

5180

5200

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5340

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5400

5420

5440

5460

5480

5500

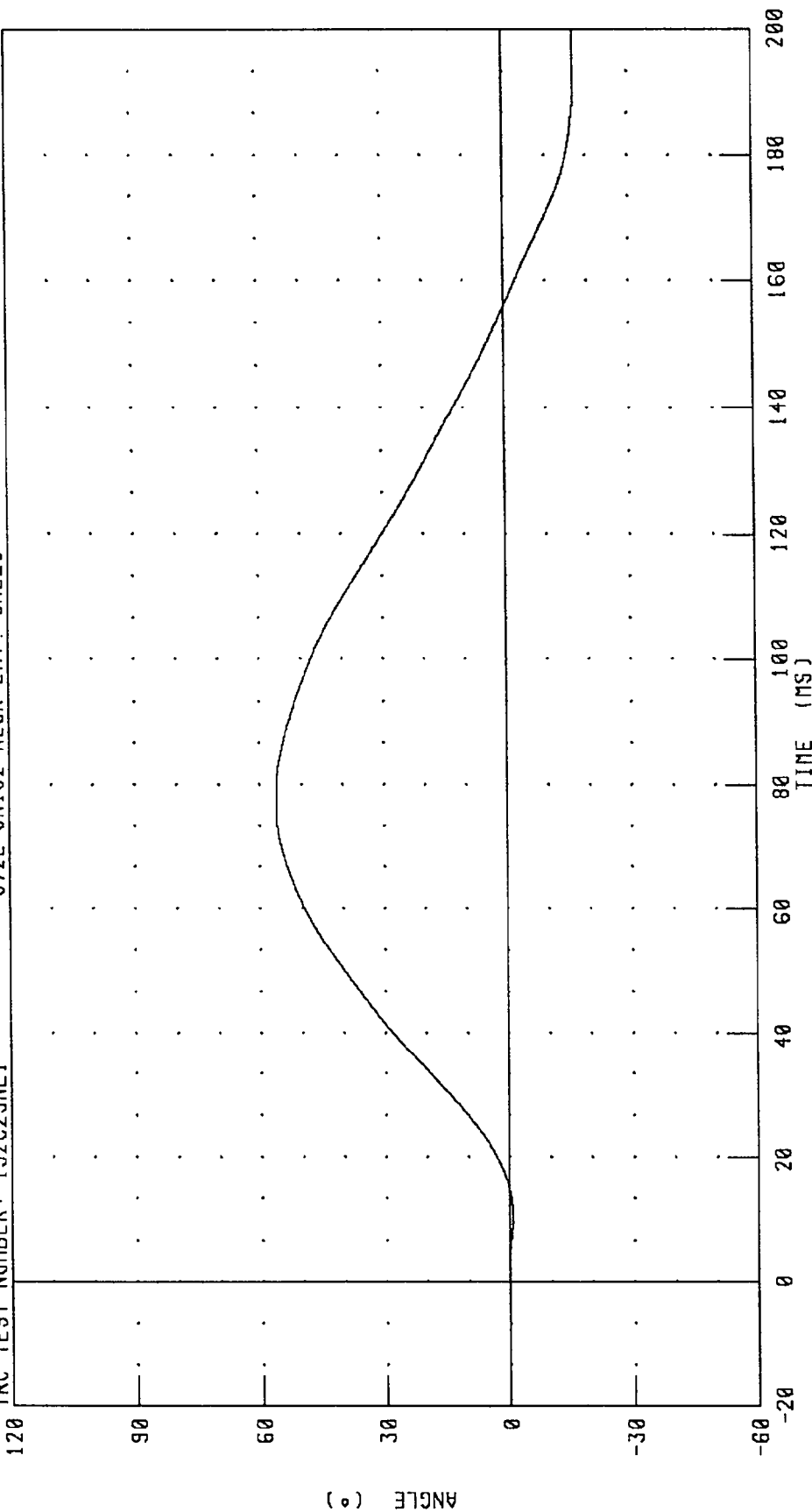
5520

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

TRC TEST NUMBER: 192C25NE1

572E SN192 NECK EXT. CAL25

RUN NUMBER: 022395.1450;2



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 55.95 ° @ 78.40 MS; -17.00 ° @ 198.64 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

RUN NUMBER: 022395.1458;2

572E SN192 NECK EXT. CAL25

TRC TEST NUMBER: 192C25NE1

120

90

60

30

0

-30

-60

ANGLE (°)

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS)

PEAK DATA: 92.07 ° @ 74.80 MS; -27.78 ° @ 197.52 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

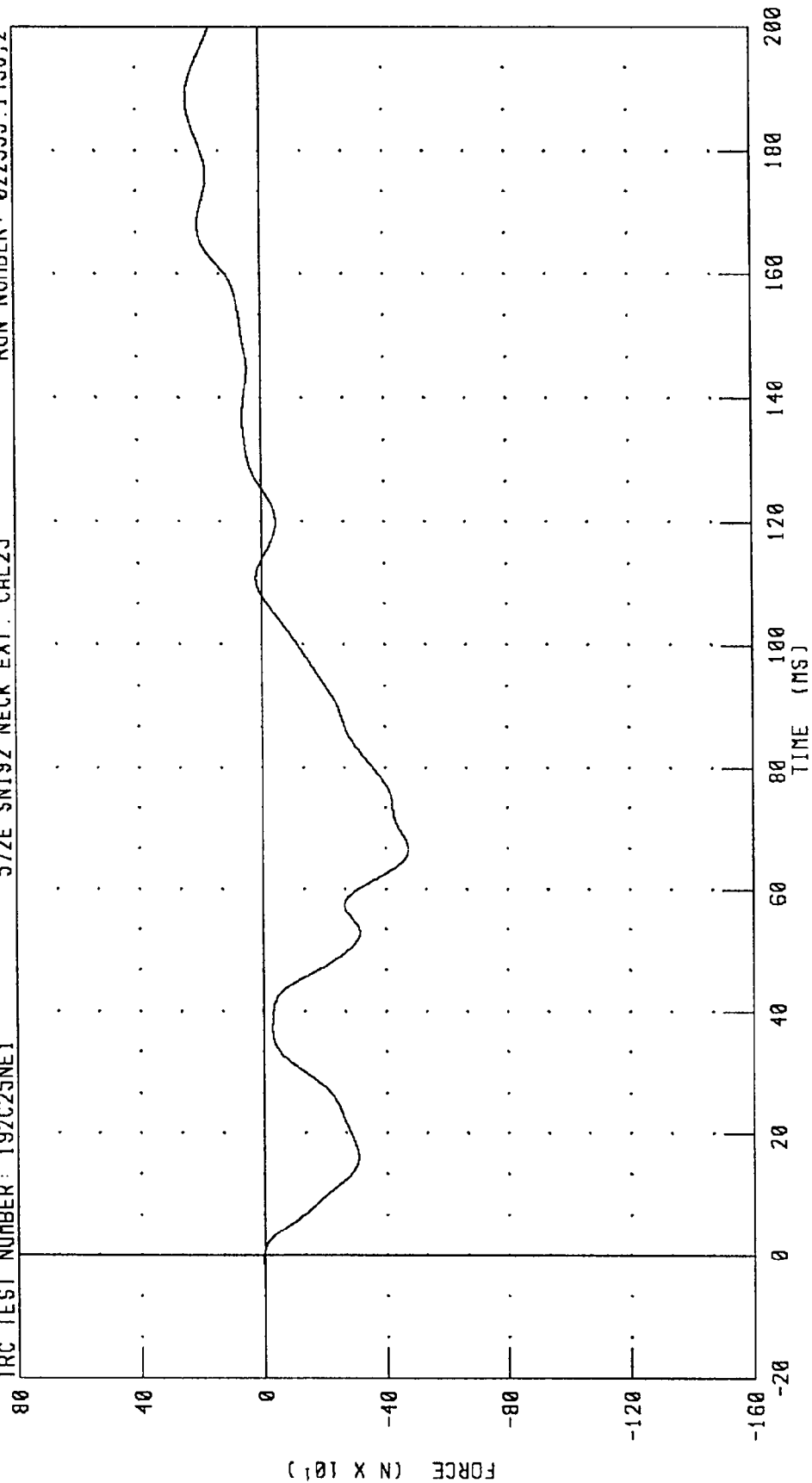
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 022395.1458;2

572E SN192 NECK EXT. CAL25

TRC TEST NUMBER: 192C25NE1



PEAK DATA: 238.34 N @ 188.56 MS; -474.09 N @ 86.56 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

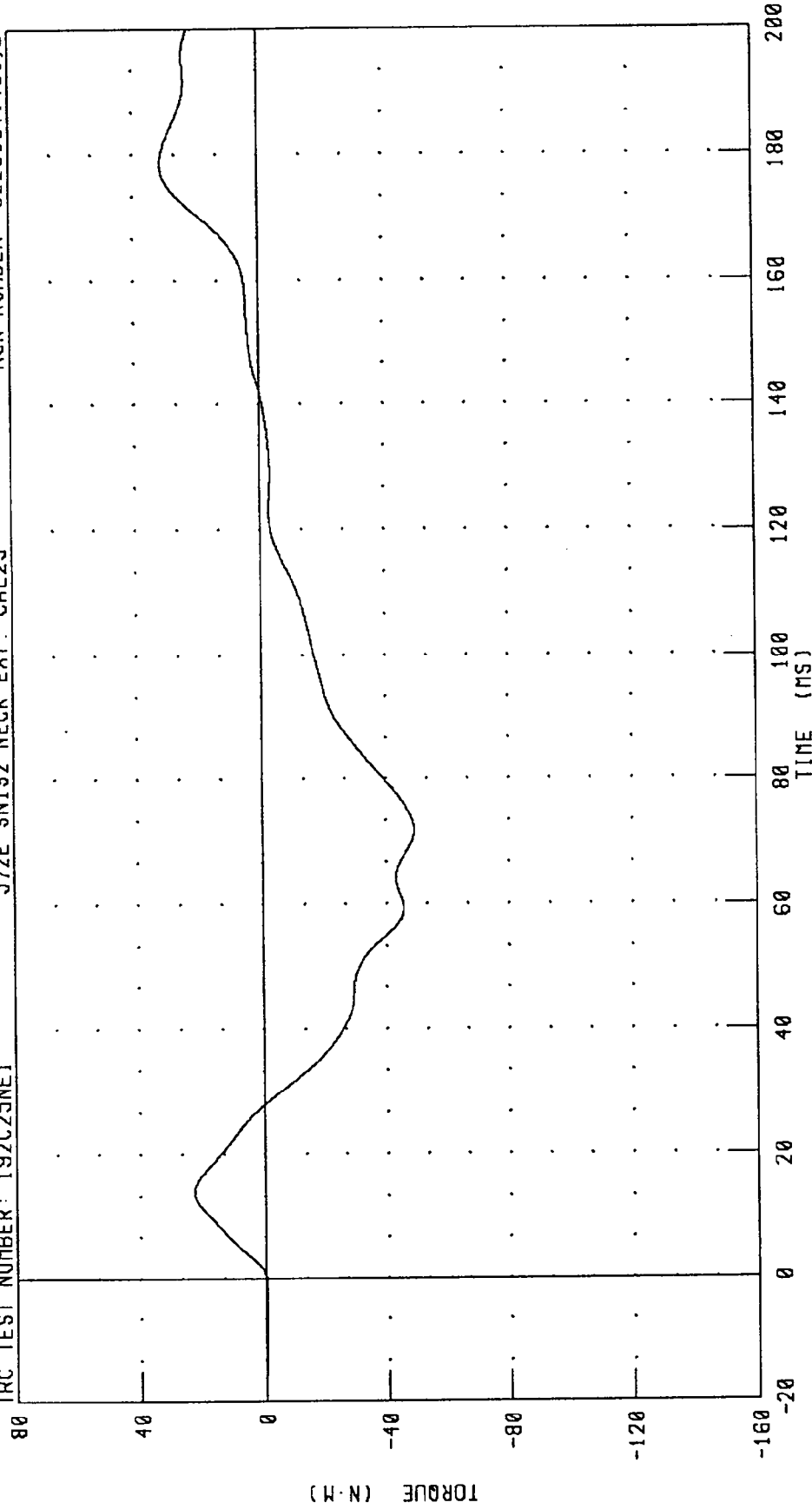
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C25NE1

572E SN192 NECK EXT. CAL25

RUN NUMBER: 022395.1458;2



PEAK DATA: 31.14 N·M @ 178.56 MS; -49.10 N·M @ 71.76 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

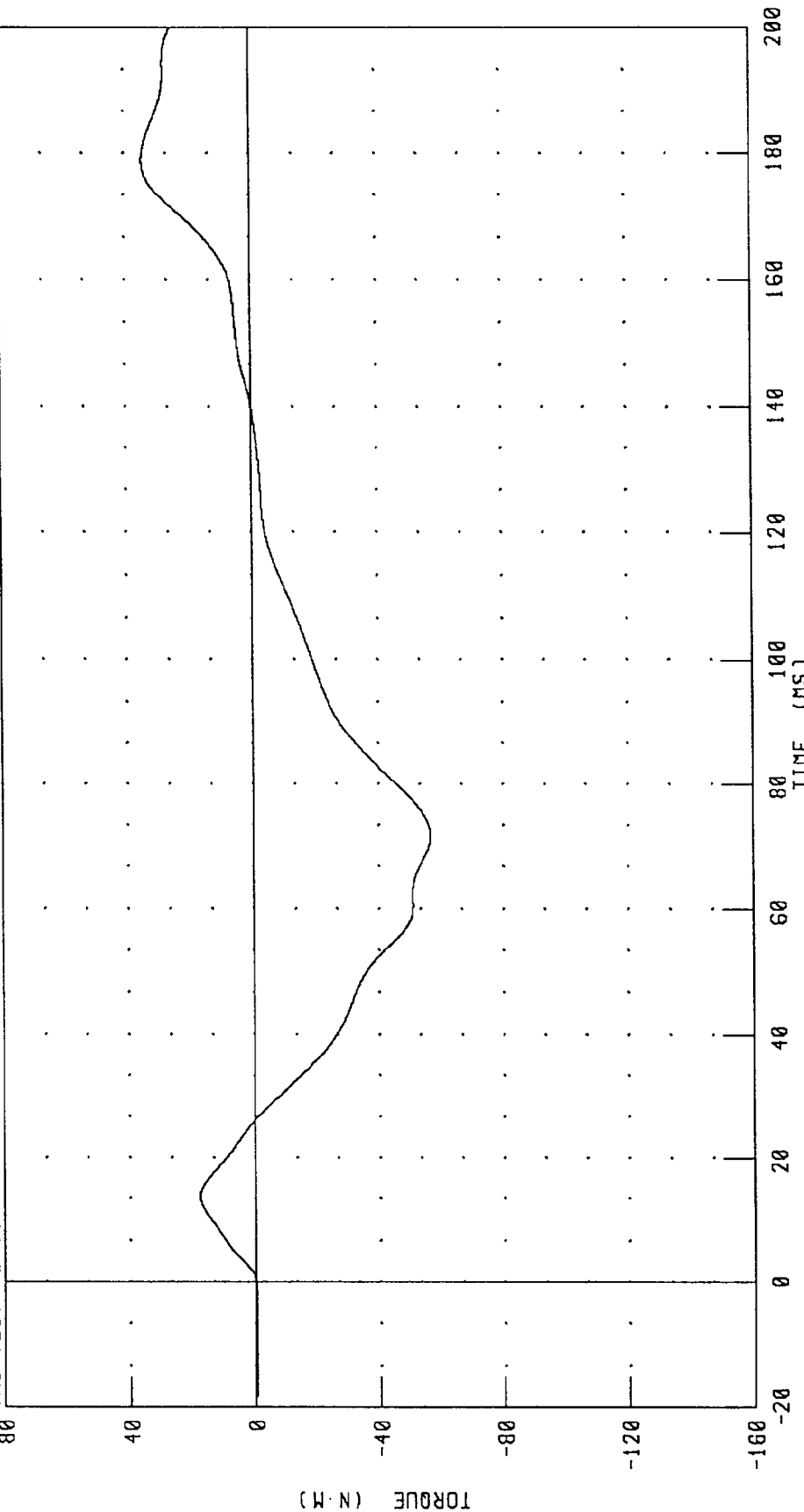
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

IRC TEST NUMBER: 192C25NE1

572E SN192 NECK EXT. CAL25

RUN NUMBER: 022395.1458;2



PEAK DATA: 34.39 N-M @ 178.96 MS; -56.74 N-M @ 71.60 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

25-JAN-95

TRC INC.

TEST NO: 192C25TH1

572E SN192 H.S.THORAX CAL25

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.62 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	65.2 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5680. N
INTERNAL HYSTERESIS	69% - 85%	71.9%

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Fouts

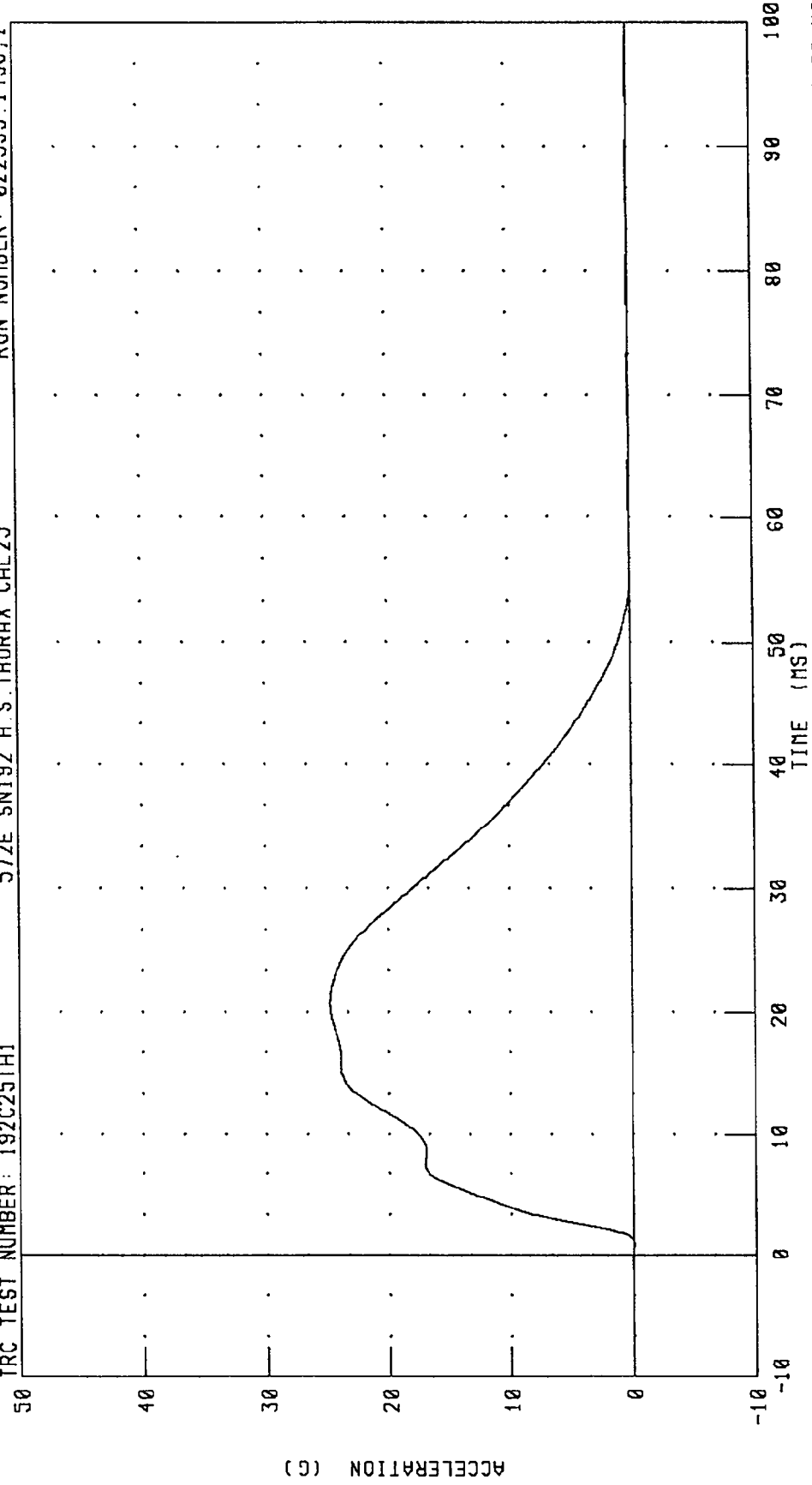
RUN NUMBER: 012595.1323;1

PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C25TH1

572E SN192 H.S. THORAX CAL25

RUN NUMBER: 022395.1458;1



PEAK DATA: 24.80 G @ 20.64 MS; -0.03 G @ 0.88 MS

CHANNEL: PENXG FILTER: CH. CLASS 180

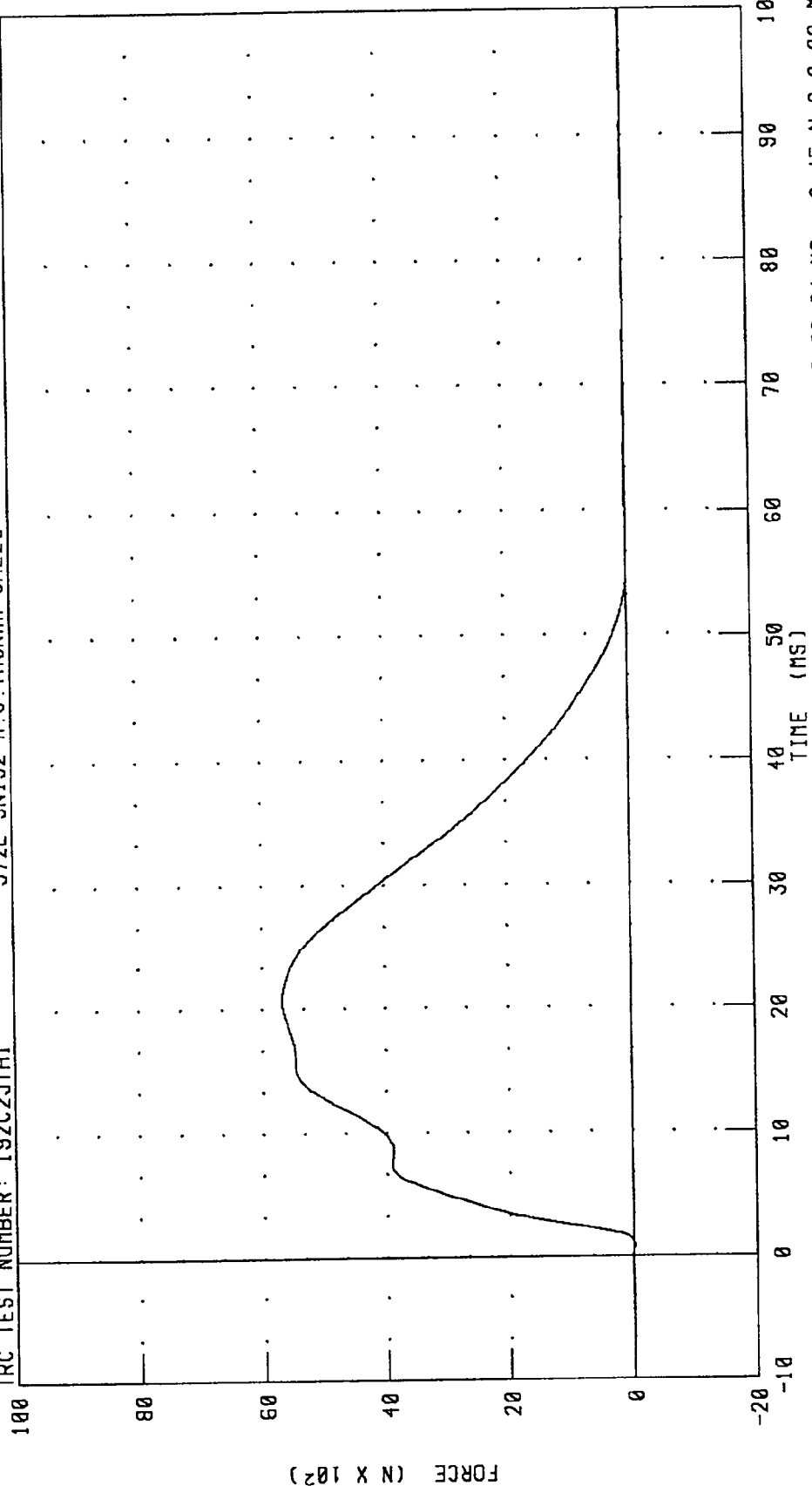
PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM FORCE

RUN NUMBER: 022395.1458;1

572E SN192 H.S. THORAX CAL25

TRC TEST NUMBER: 192C25TH1



PEAK DATA: 5680.22 N @ 20.64 MS; -6.45 N @ 0.88 MS

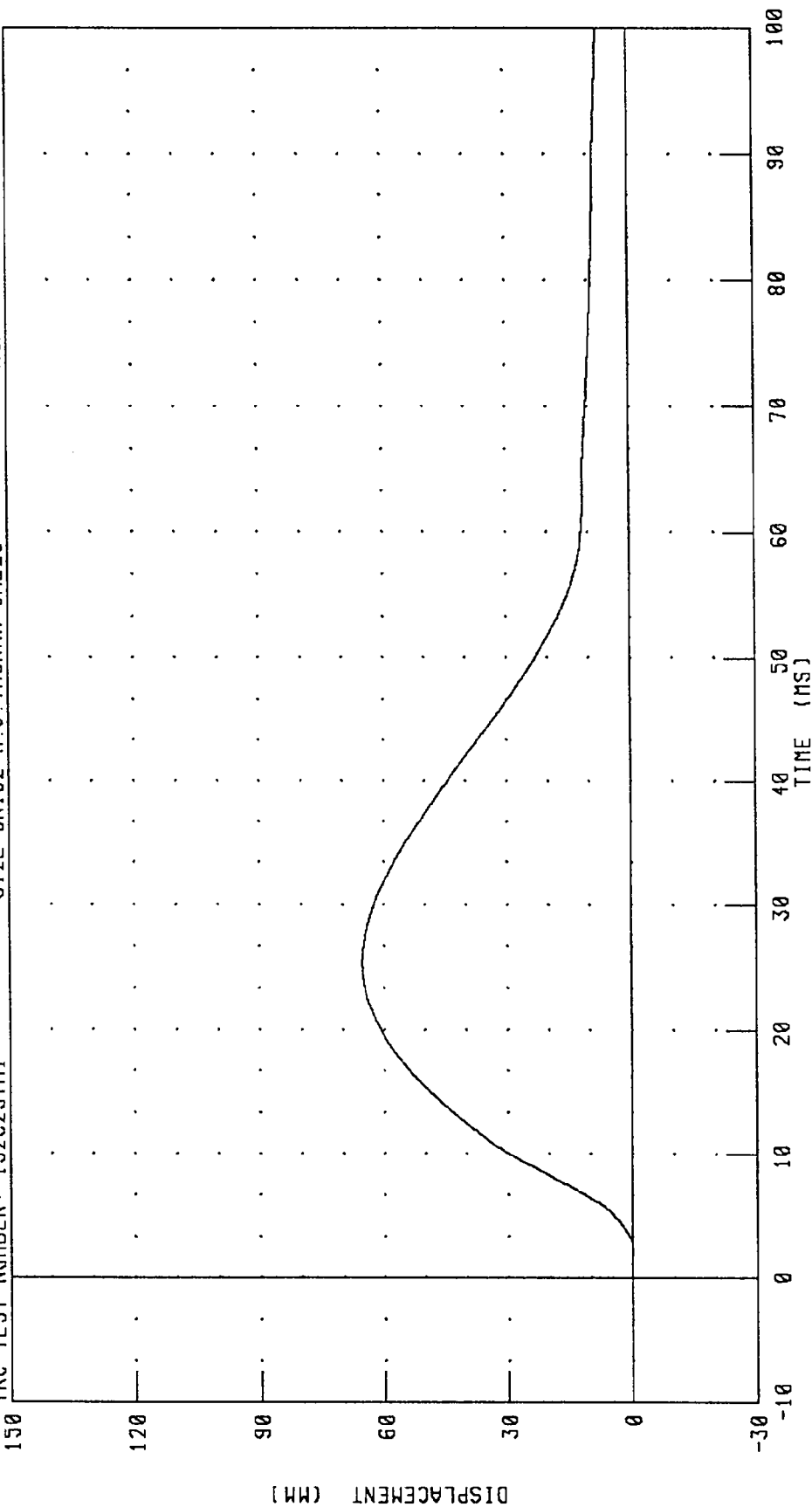
CHANNEL: PENXF FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 192C25TH1

572E SN192 H.S. THORAX CAL25

RUN NUMBER: 022395.1458;1



PEAK DATA: 65.24 MM @ 25.36 MS; -0.07 MM @ 2.16 NS

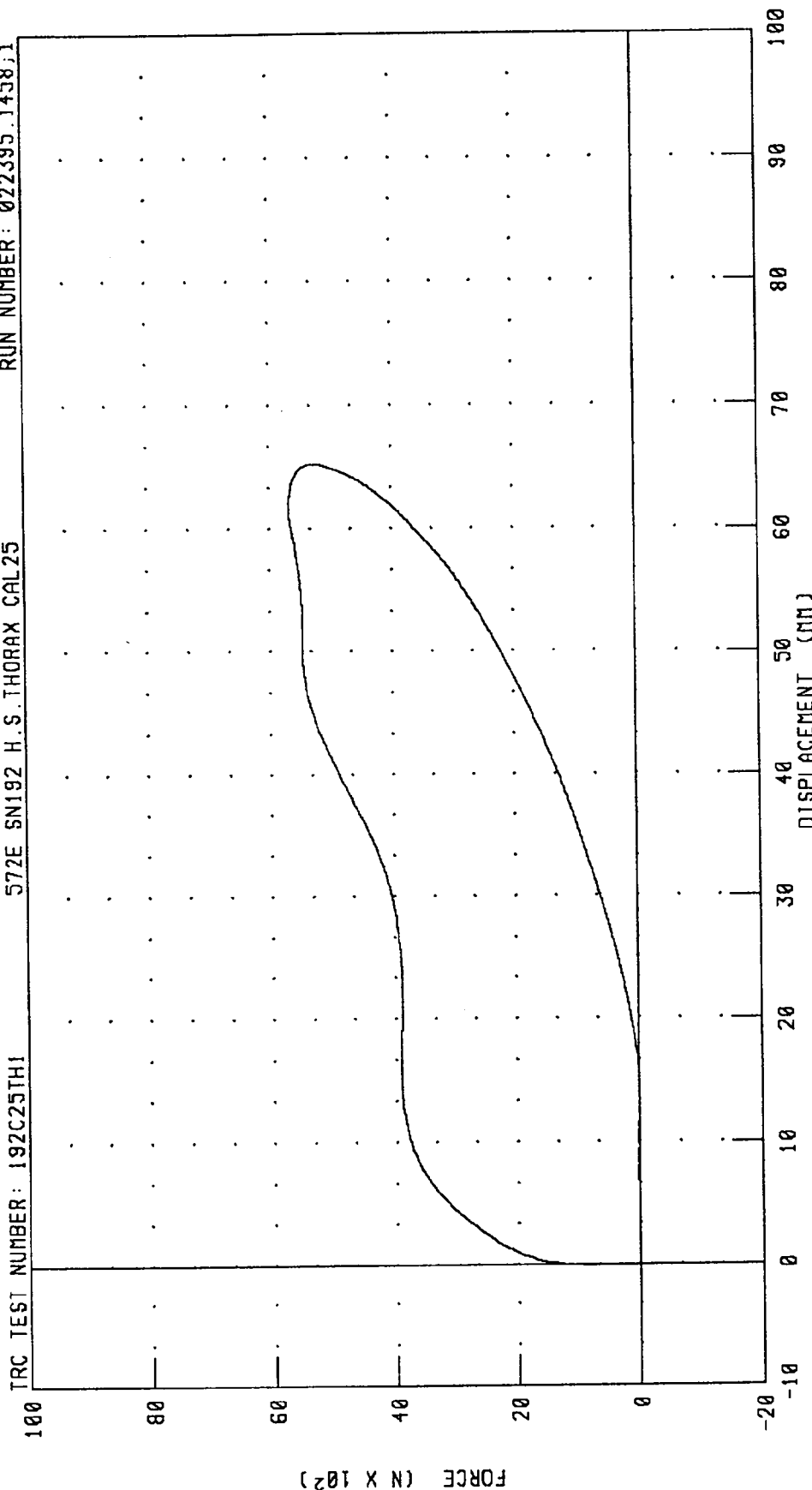
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 192C25TH1

572E SN192 H.S.THORAX CAL25

RUN NUMBER: 022395.1458;1



PEAK DATA: 65.24 MM @ 25.36 MS; -0.07 MM @ 2.16 MS
5680.22 N @ 20.64 MS; -6.45 N @ 0.88 MS

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

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

25-JAN-95

TRC INC.

TEST NO: 192C25RK1

572E SN192 RIGHT KNEE CAL 25

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5421.4 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete F.S.

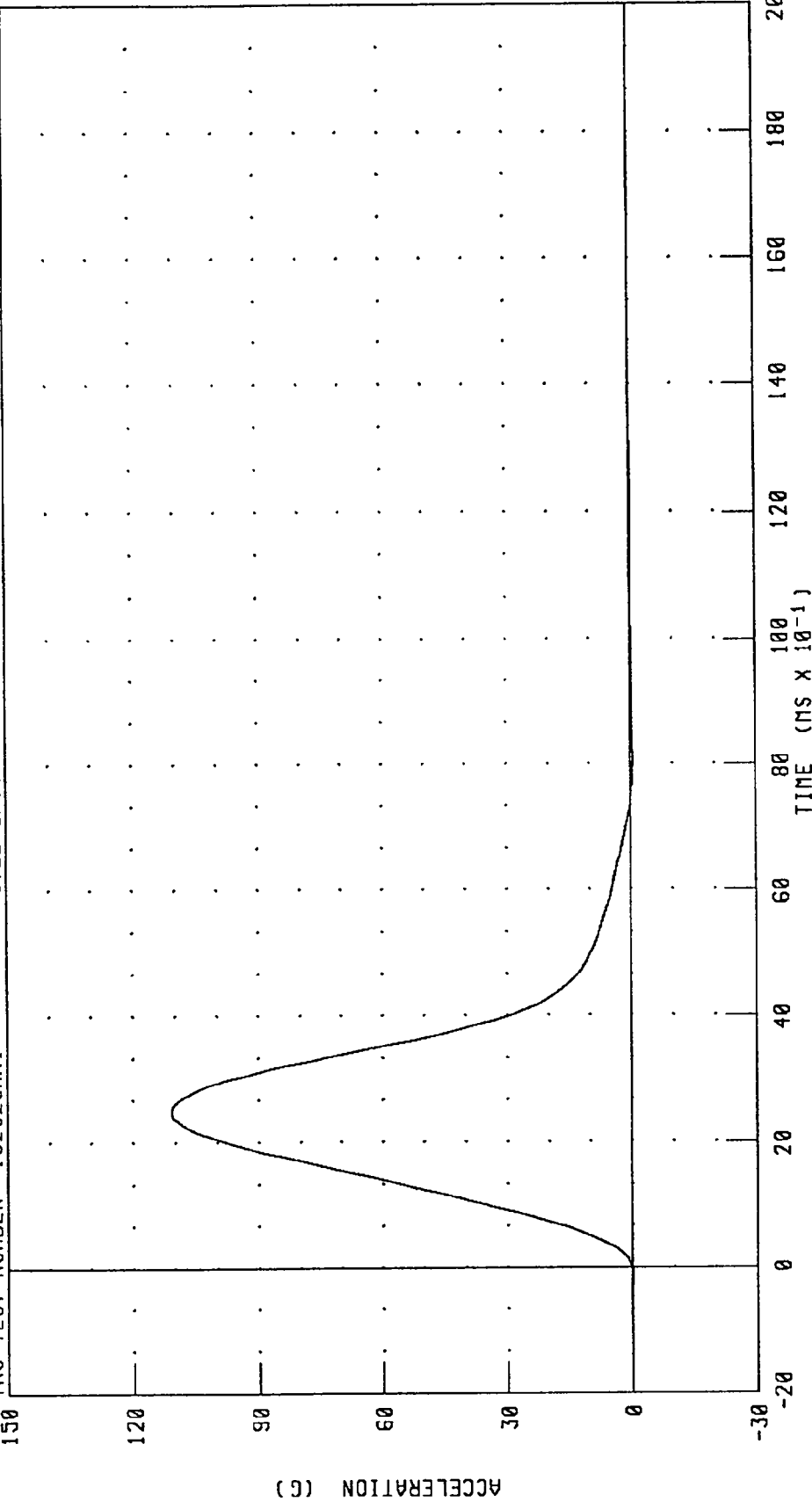
RUN NUMBER: 012595.1052;1

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

RUN NUMBER: 022395.1458;1

TRC TEST NUMBER: 192C25RK1

572E SN192 RIGHT KNEE CAL 25



PEAK DATA: 110.81 G @ 2.48 MS; -0.59 G @ 8.08 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

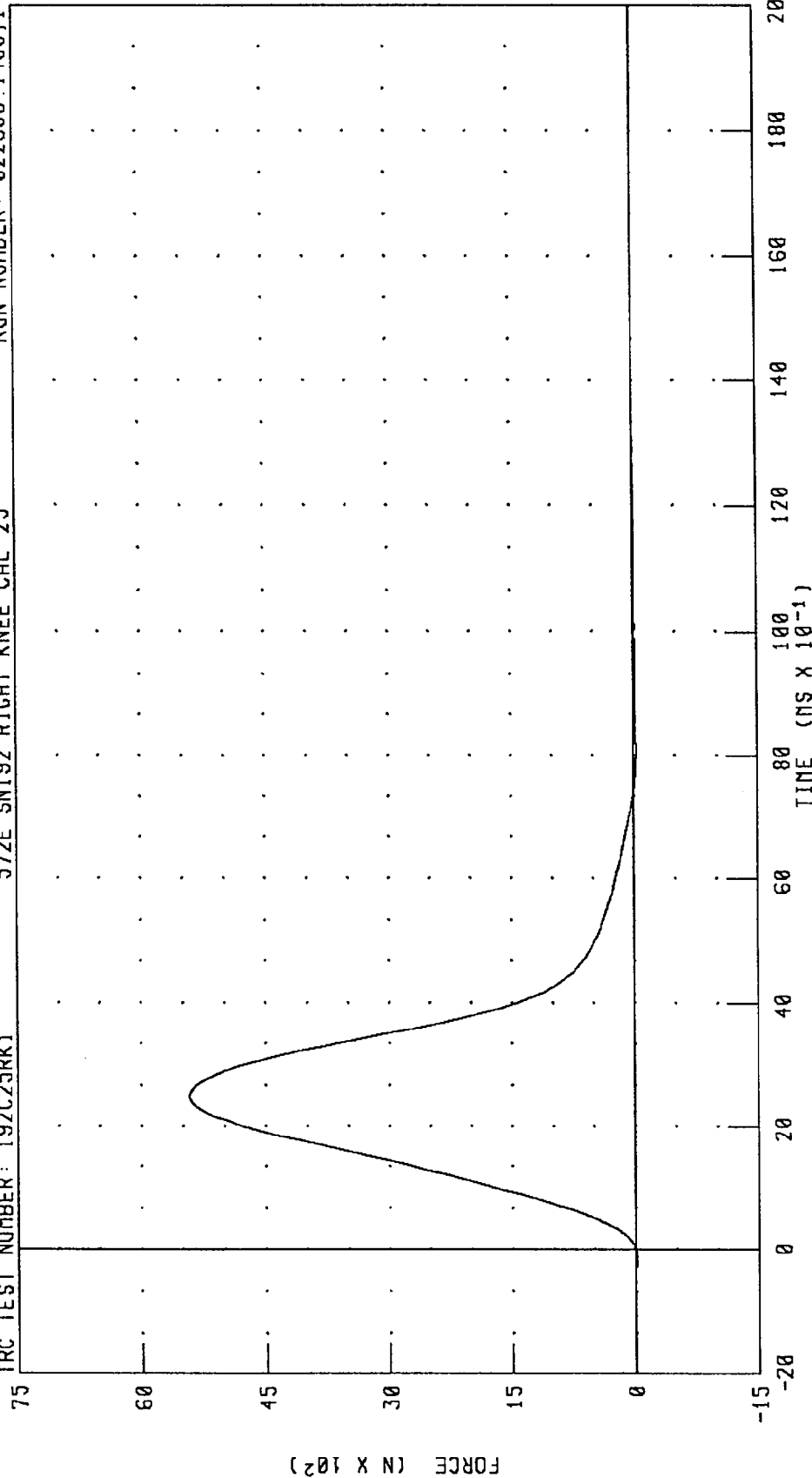
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C25RK1

572E SN192 RIGHT KNEE CAL 25

RUN NUMBER: 022395.1458,1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5421.48 N @ 2.48 NS; -28.95 N @ 8.08 NS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

26-DEC-94

TRC INC.

TEST NO: 192C24LK1

572E SN192 LEFT KNEE CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5124.3 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete F. S.

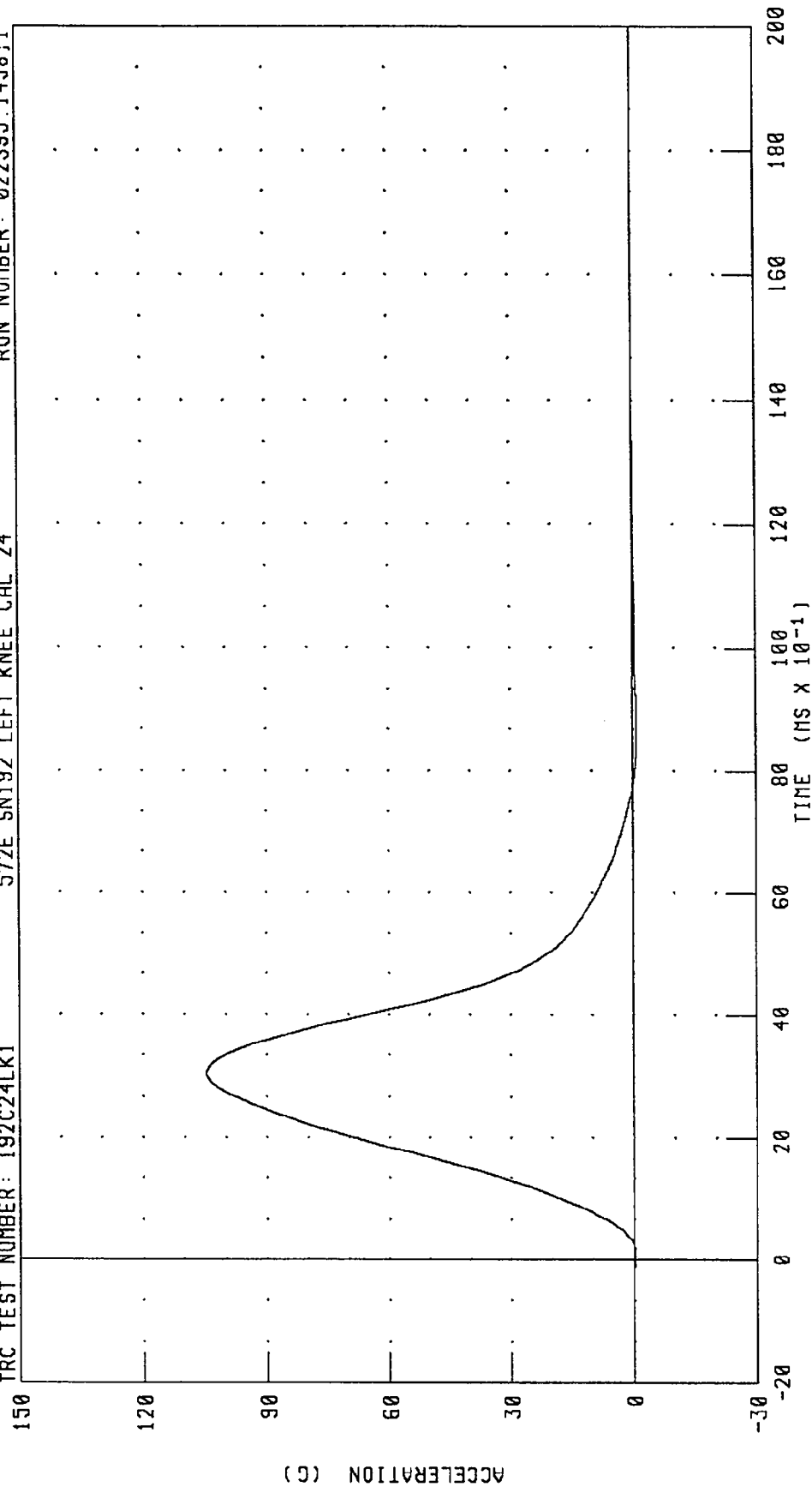
RUN NUMBER: 012595.1048;1

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

TRC TEST NUMBER: 192C24LK1

572E SN192 LEFT KNEE CAL 24

RUN NUMBER: 022395.1458;1



CHANNEL: PENXG FILTER: CH. CLASS 600

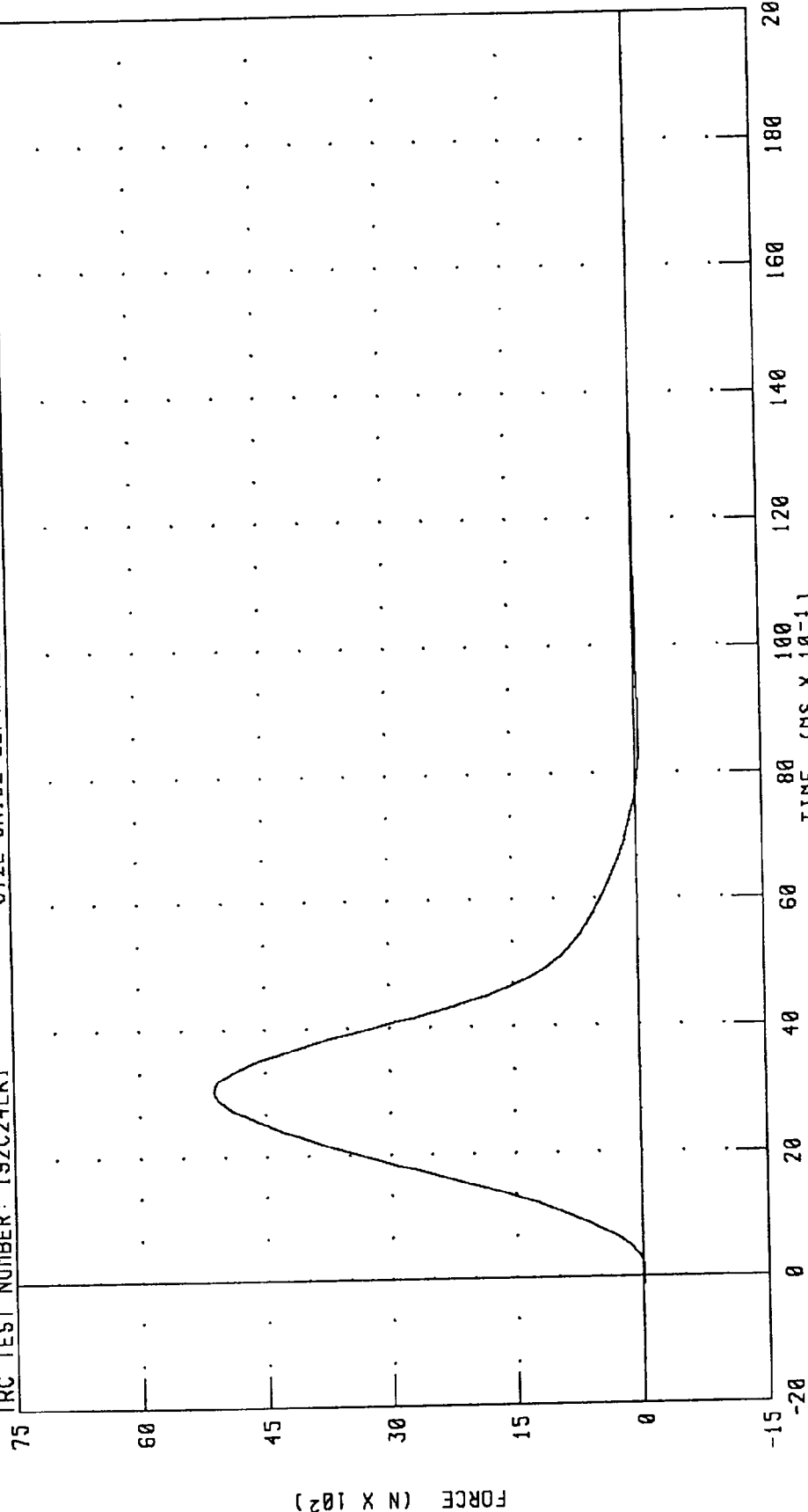
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN192 LEFT KNEE CAL 24

RUN NUMBER: 022395.1458;1

TRC TEST NUMBER: 192C24LK1



PEAK DATA: 5124.36 N @ 3.04 MS; -50.41 N @ 8.72 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

Pre-test Certification Data

Passenger Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

142 HUMANOID

25-JAN-95

TRC INC. TEST NO: 142C26ED1 572E SN142 EXT.DIMENSION CAL26

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 R. E. S.

RUN NUMBER: 012595.1342

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

13-JAN-95

TRC INC.

TEST NO: 142C26HD7

572E SN142 HEAD DROP CAL 26

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	230.81 G
PEAK LATERAL ACCELERATION	15 G MAX	-1.41 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Ford

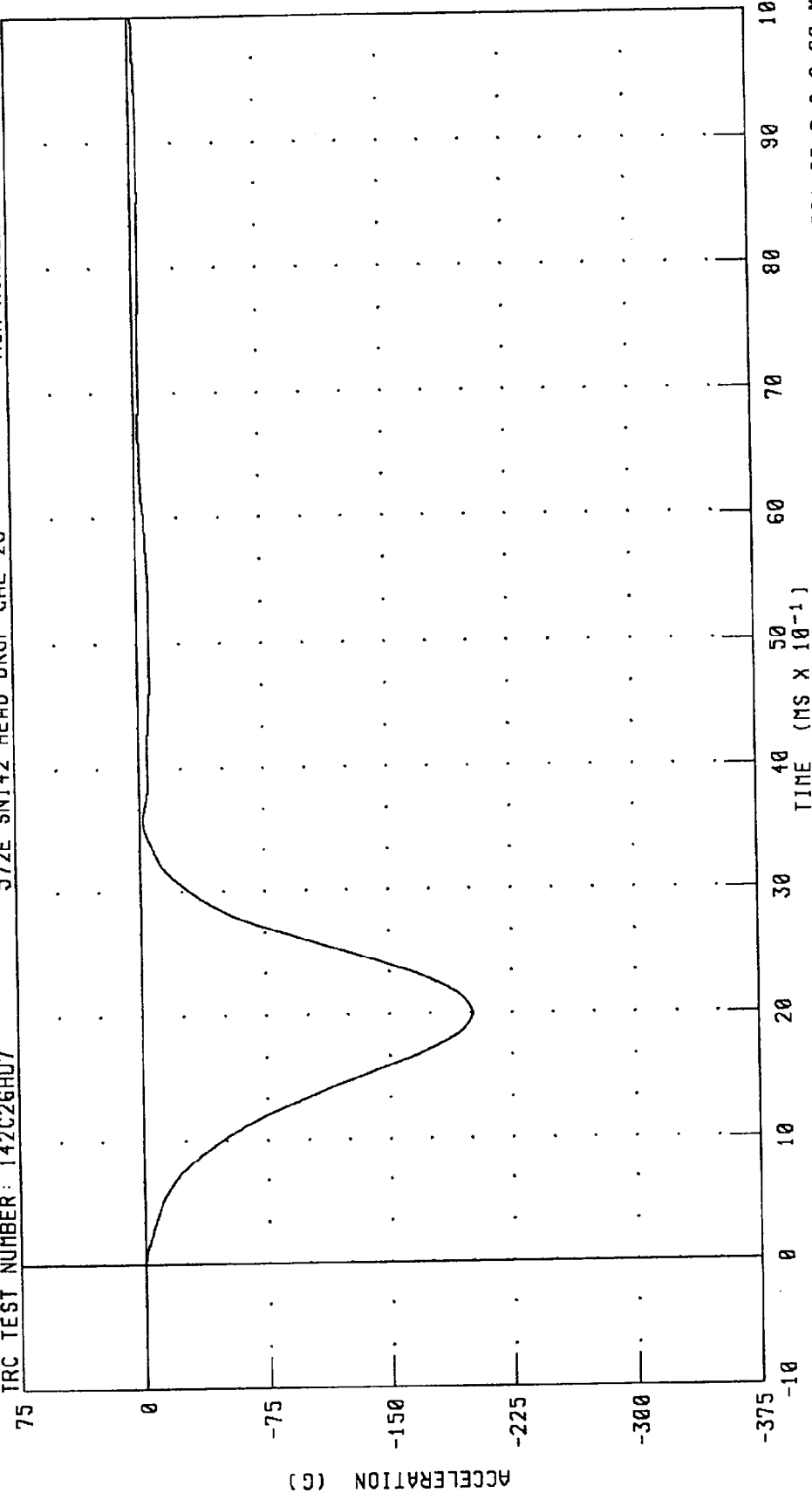
RUN NUMBER: 011395.1457;1

PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION X AXIS

572E SN142 HEAD DROP CAL 26 RUN NUMBER: 022395.1509;1

TRC TEST NUMBER: 142C26HD7



PEAK DATA: 0.04 G @ -0.08 MS; -201.23 G @ 2.00 MS

CHANNEL: HEDXG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION

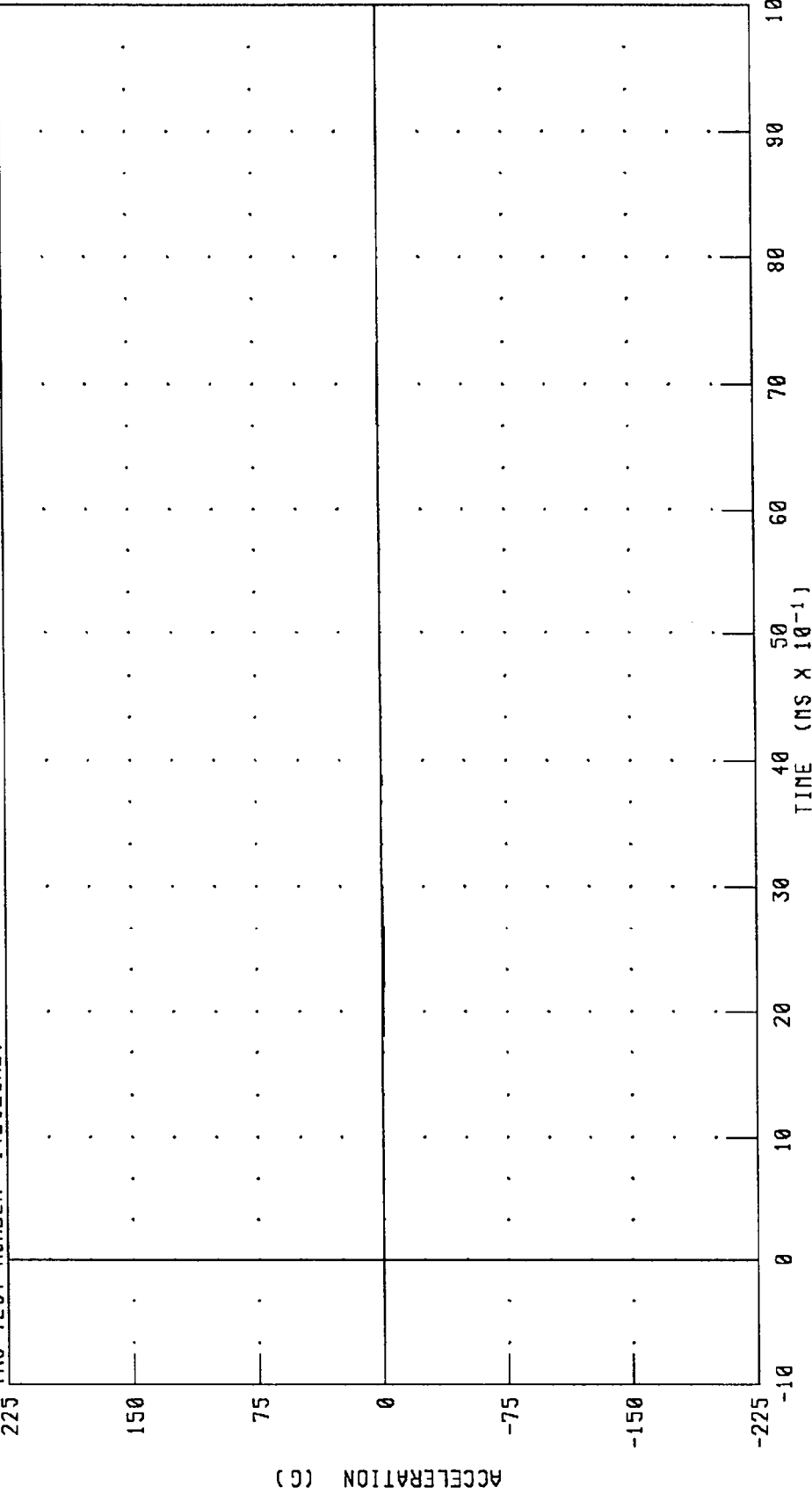
HEAD ACCELERATION Y AXIS

572E SN142 HEAD DROP CAL 26

TRC TEST NUMBER: 142C26HD7

225

RUN NUMBER: 022395.1509,1



PEAK DATA: 0.65 G @ 6.96 MS; -1.42 G @ 2.48 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

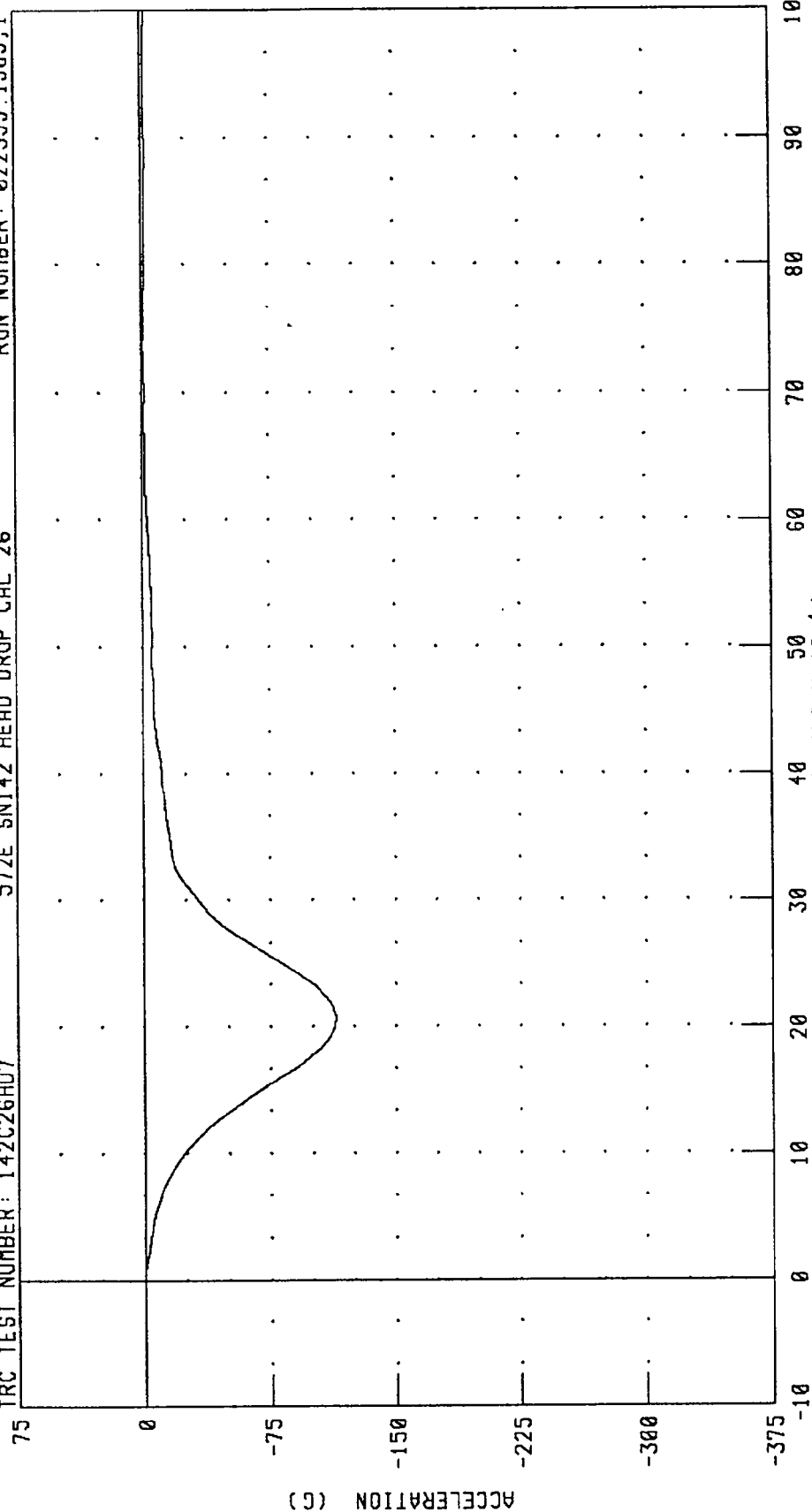
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Z AXIS

572E SN142 HEAD DROP CAL 26

RUN NUMBER: 022395.1509;1

TRC TEST NUMBER: 142C26HD7



PEAK DATA: 0.03 G @ -0.32 MS; -113.57 G @ 2.08 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

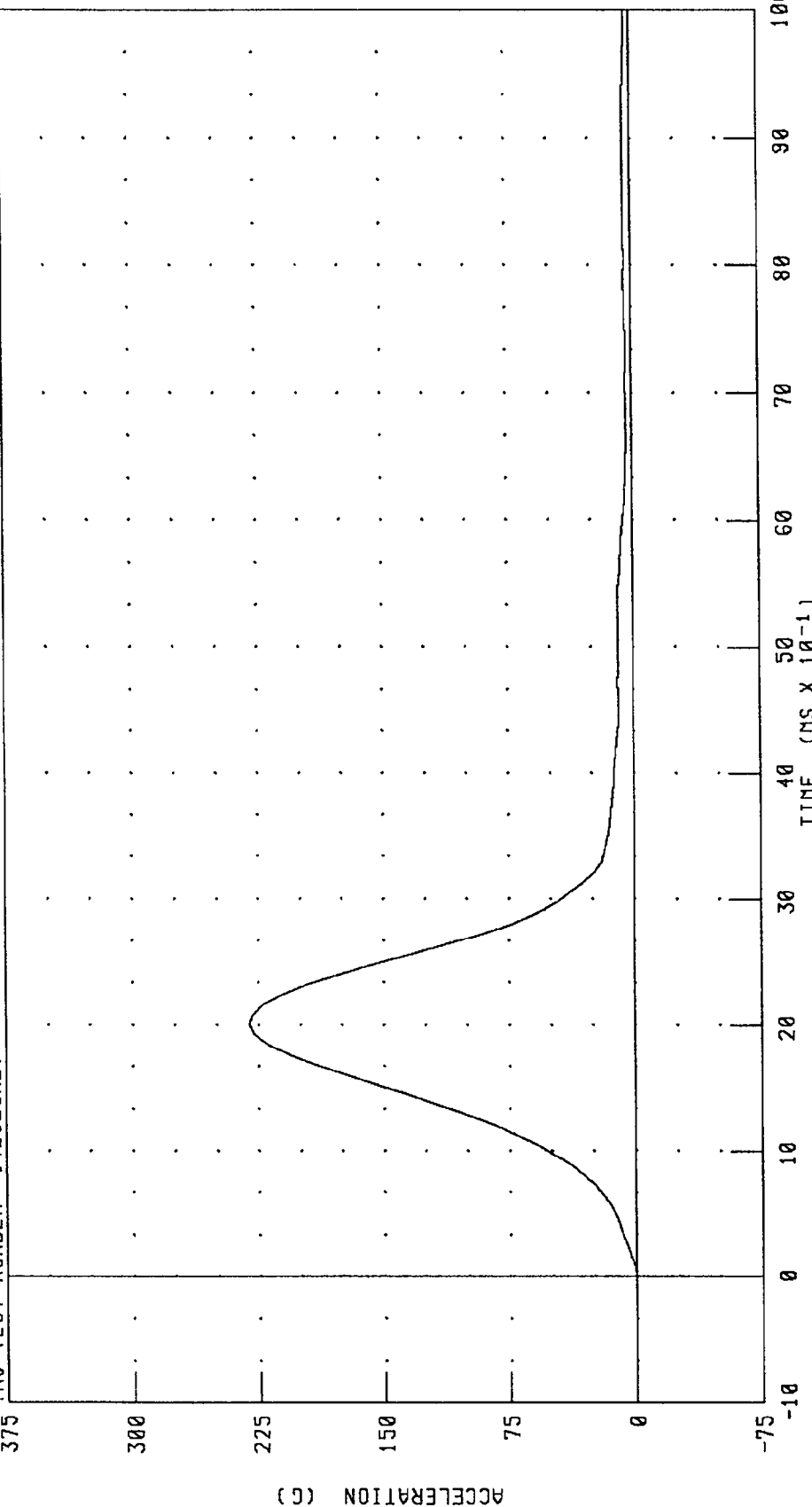
PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN142 HEAD DROP CAL 26

RUN NUMBER: 022395.1509;1

IRC TEST NUMBER: 142C26HD7



PEAK DATA: 230.81 G @ 2.00 MS; 0.03 G @ -0.40 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.
NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

13-JAN-95

TRC INC. TEST NO: 142C26NF7 572E SN142 NECK FLEXION CAL26

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	23.08 G
	20 MS	17.60 - 22.60 G	20.10 G
	30 MS	12.50 - 18.50 G	16.77 G
MAX PENDULUM G		29 G MAX	23.86 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	16.72 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	39.28 MS
D PLANE	MAX	64 - 78 DEG.	73.75 DEG.
ROTATION	TIME	57 - 64 MS	60.48 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	95.22 NM
	TIME	47 - 58 MS	52.88 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	115.76 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	104.40 MS

TEST MEETS SPECIFICATIONS

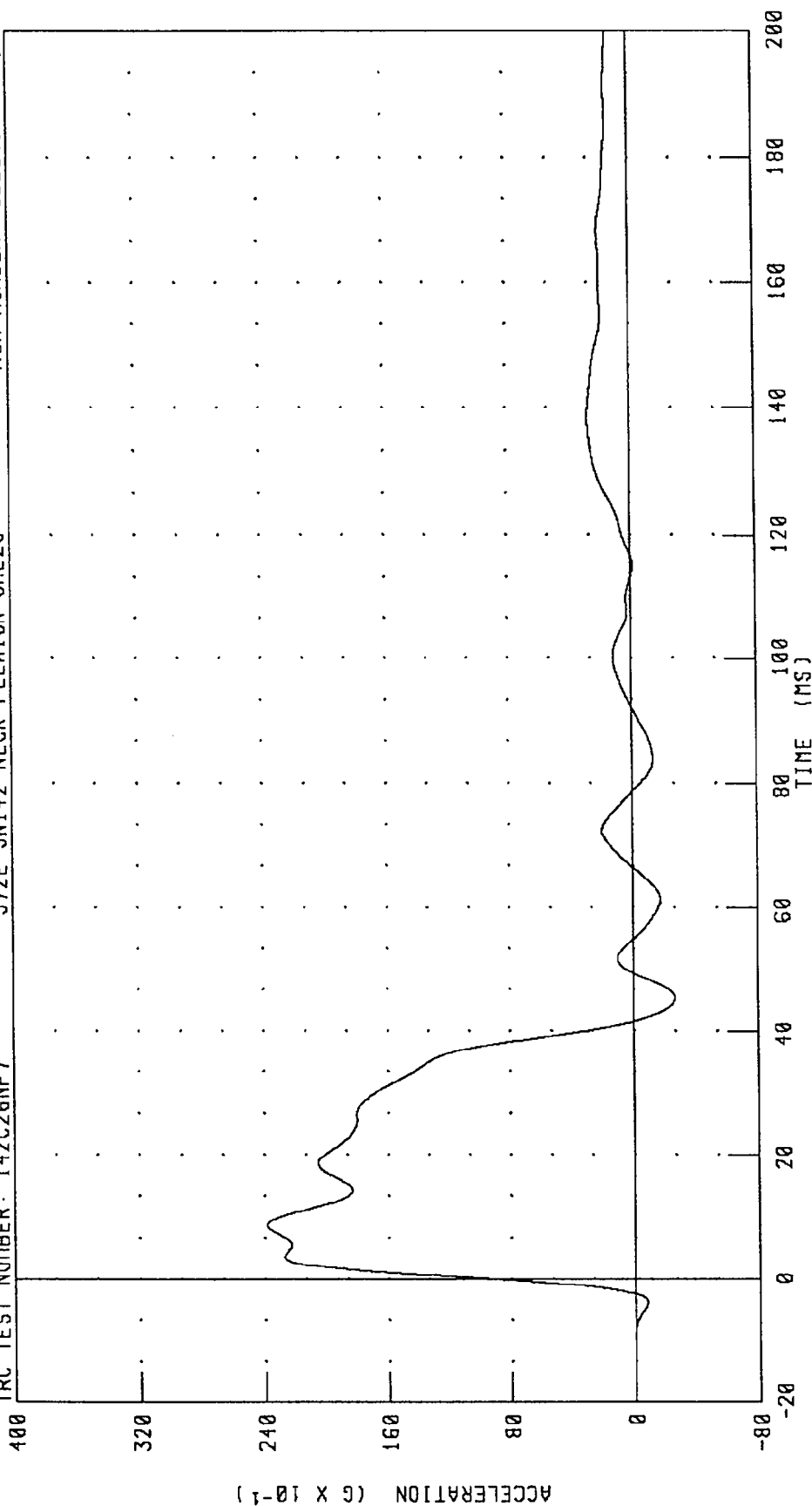
TECHNICIAN

Rita G. Smith

RUN NUMBER: 011395.1436;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION PENDULUM DECELERATION

TRC TEST NUMBER: 142C26NF7 572E SN142 NECK FLEXION CAL26 RUN NUMBER: 022395.1509;1



CHANNEL: PENXG FILTER: CH. CLASS 60

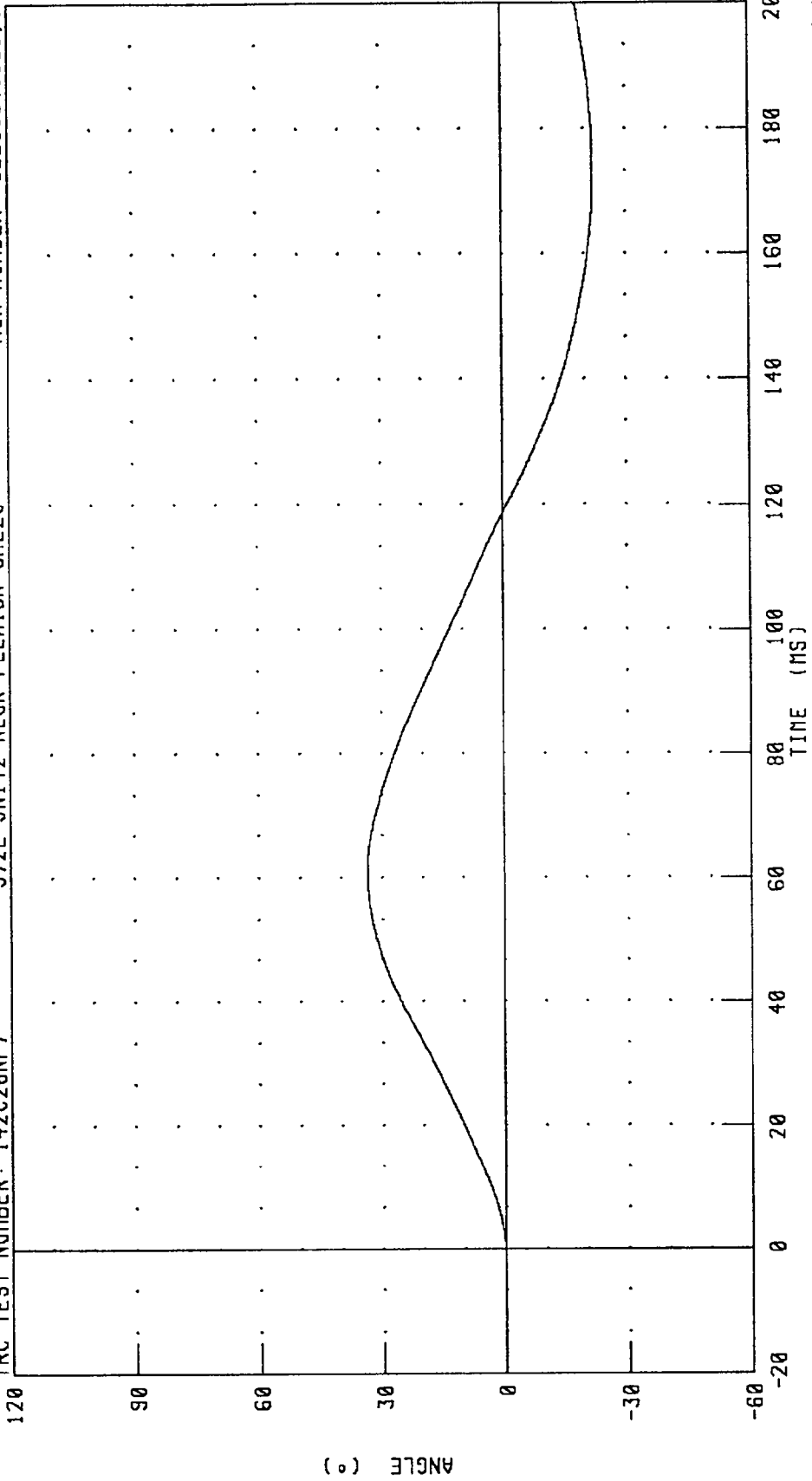
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

RUN NUMBER: 022395.1509;1

572E SN142 NECK FLEXION CAL26

TRC TEST NUMBER: 142C26NF7

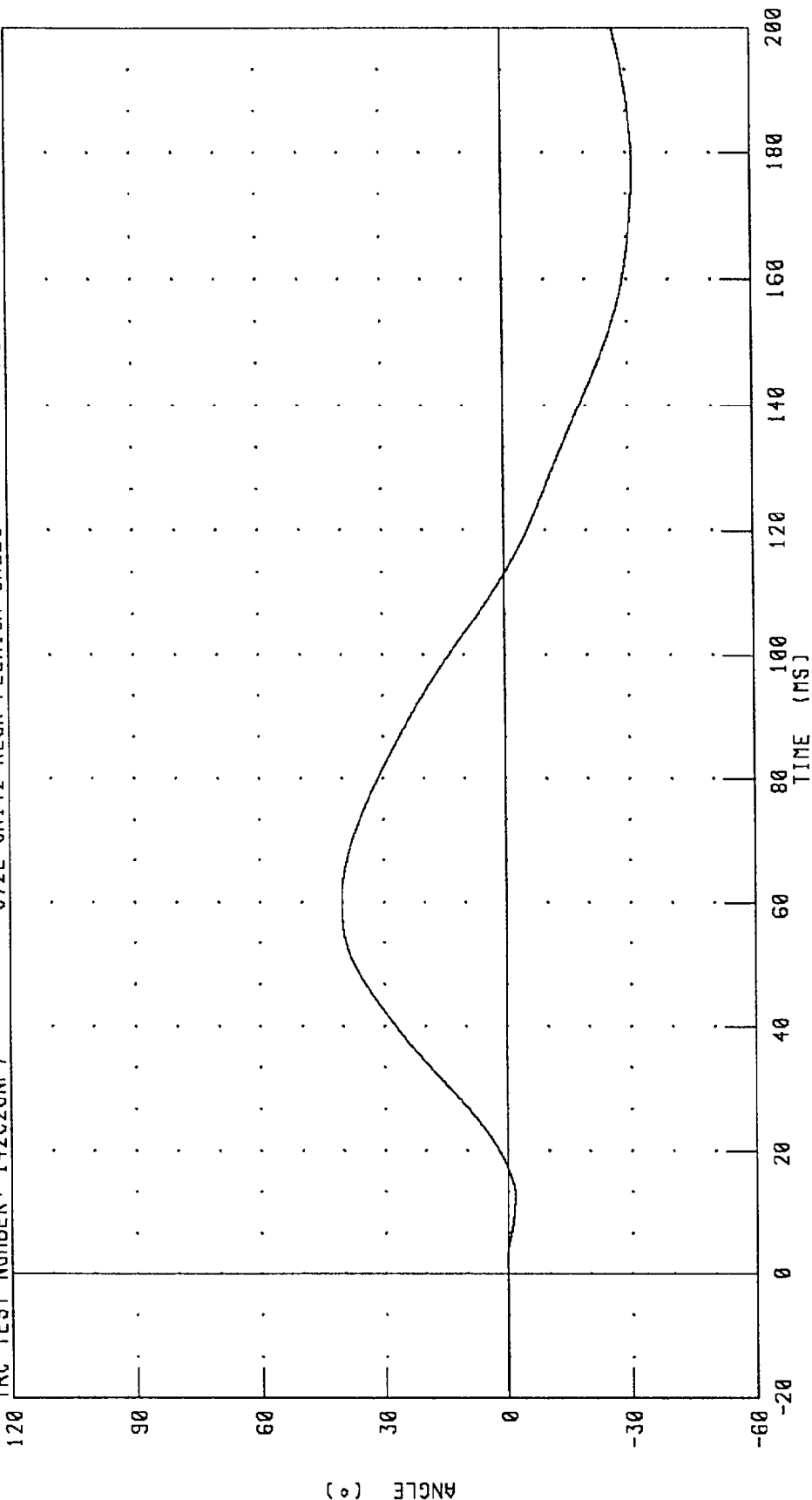


PEAK DATA: 33.61 ° @ 60.72 MS; -22.04 ° @ 174.72 MS

CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C26NF7 572E SN142 NECK FLEXION CAL26 RUN NUMBER: 022395.1509,1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 40.15 ° @ 59.92 MS; -31.56 ° @ 177.52 MS

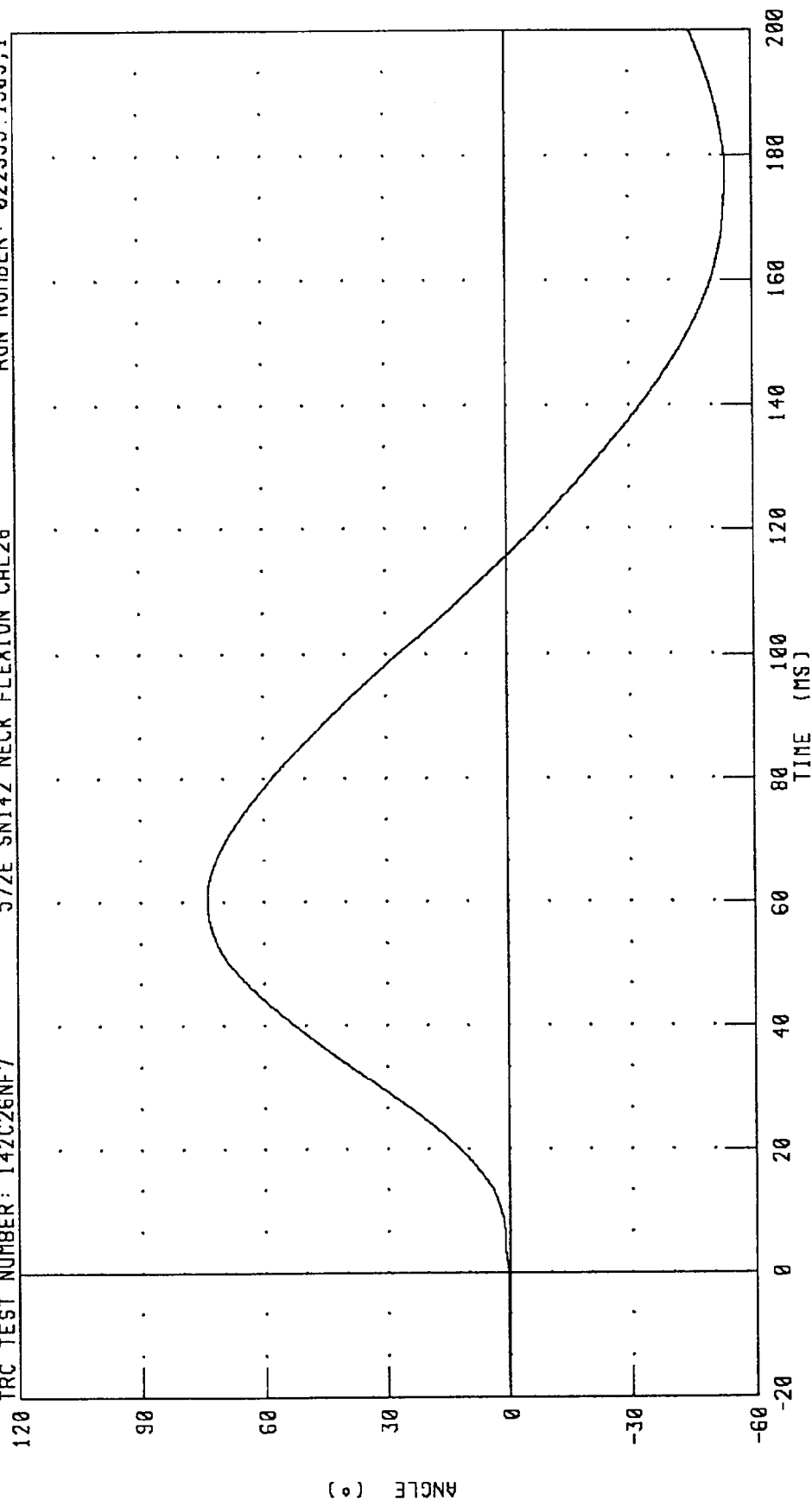
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C26NF7

572E SN142 NECK FLEXION CAL26

RUN NUMBER: 022395.1509;1



PEAK DATA: 73.76 ° @ 60.48 MS; -53.60 ° @ 177.20 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

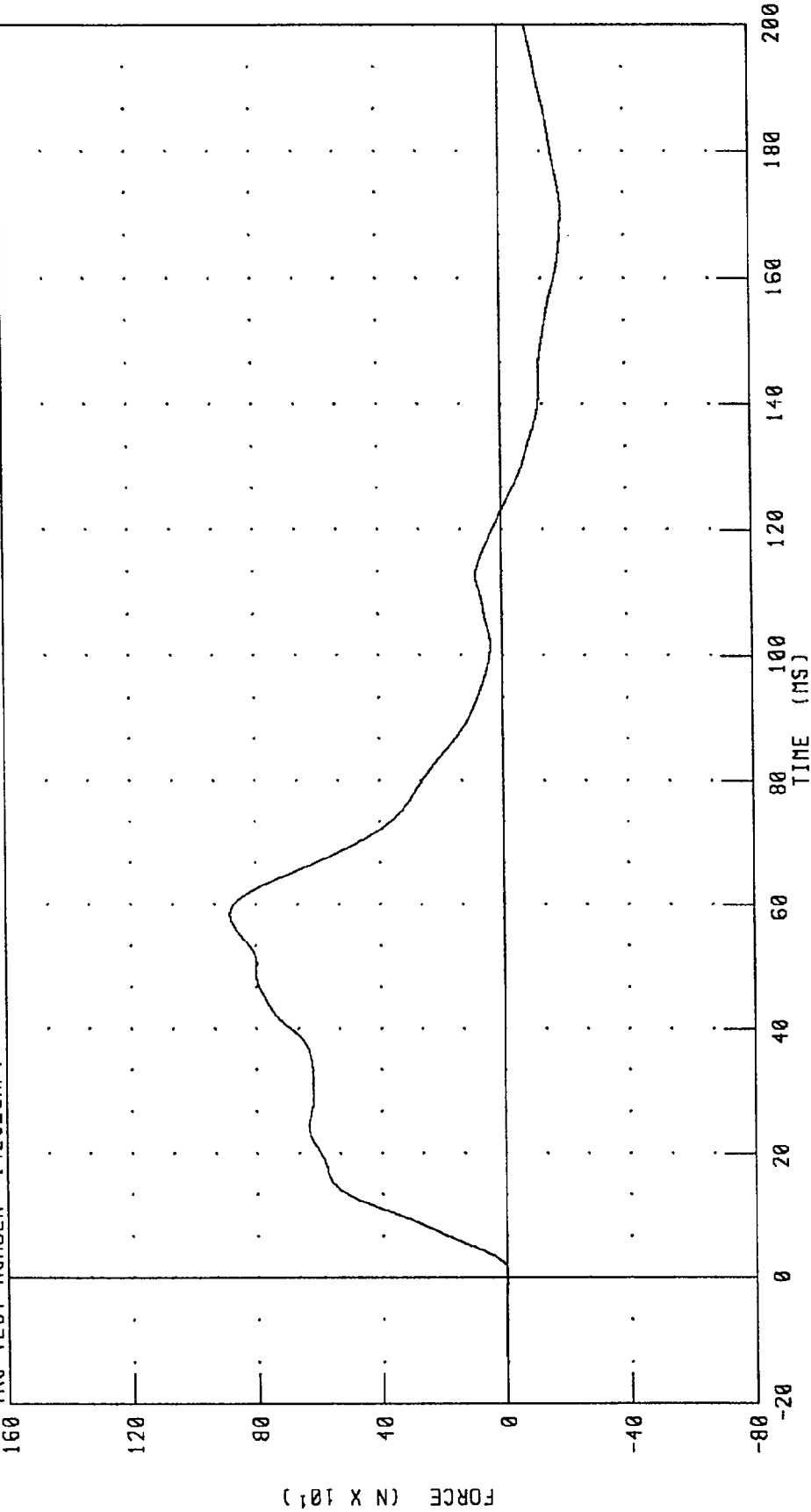
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C26NF7

572E SN142 NECK FLEXION CAL26

RUN NUMBER: 022395.1509;1



CHANNEL: NEKXF FILTER: CH. CLASS 60

PEAK DATA: 883.20 N @ 58.40 MS; -198.76 N @ 170.56 MS

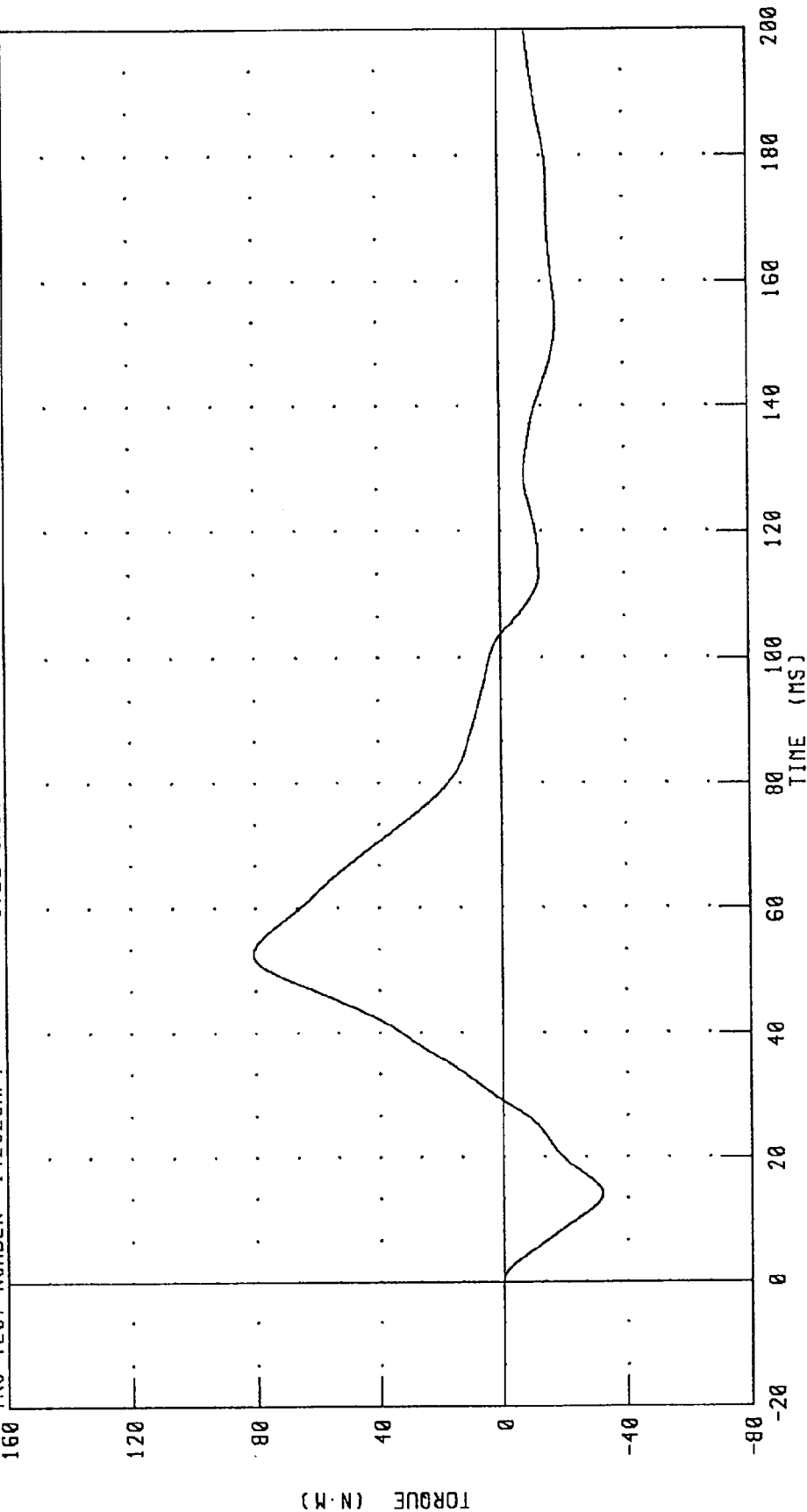
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C26NF7

572E SN142 NECK FLEXION CAL26

RUN NUMBER: 022395.1509.1



PEAK DATA: 80.76 N.M @ 52.72 MS; -31.92 N.M @ 14.00 MS

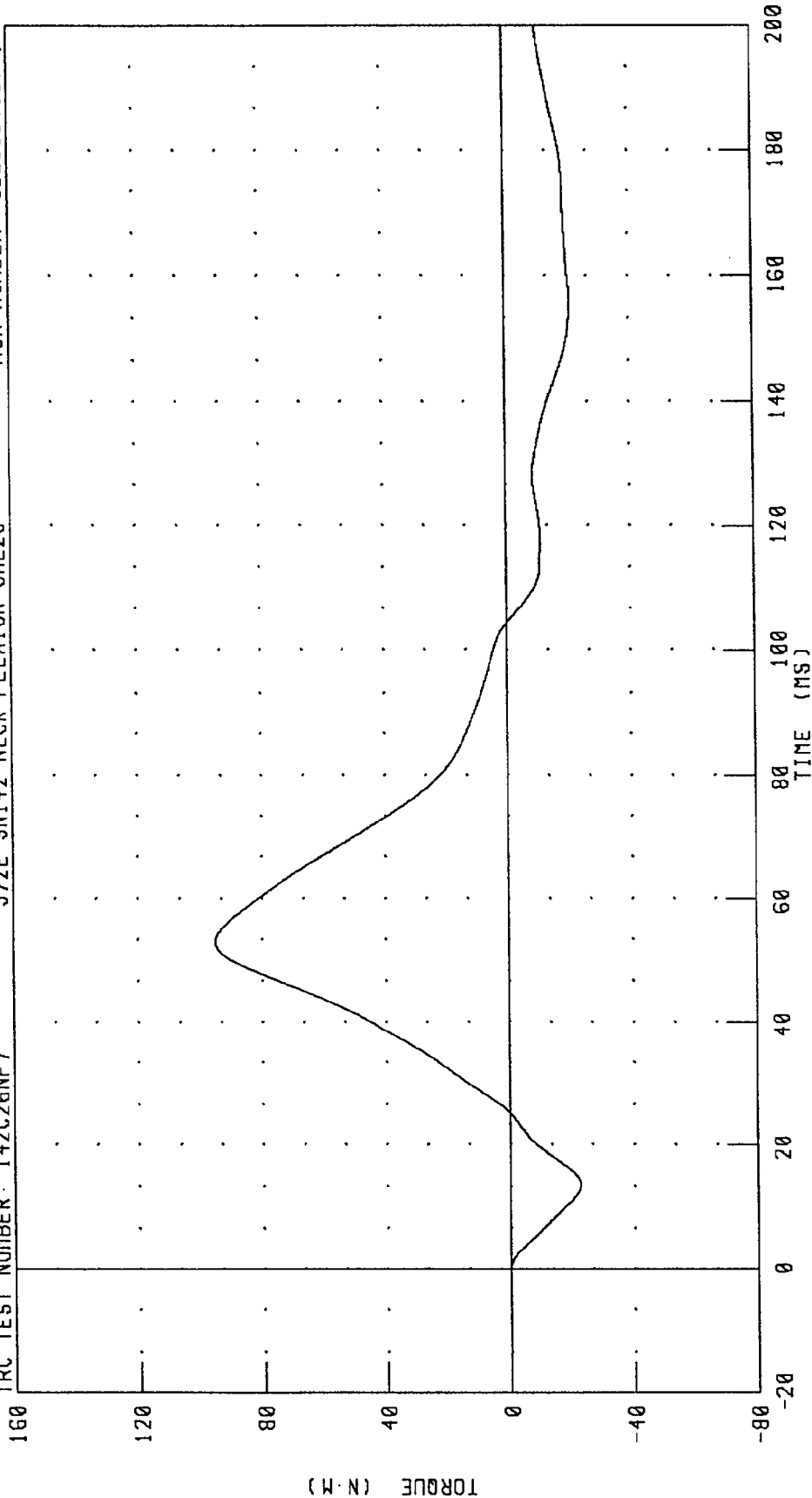
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C26NF7

572E SN142 NECK FLEXION CAL26

RUN NUMBER: 022395.1509;1



PEAK DATA: 95.22 N·M @ 52.88 MS; -22.57 N·M @ 13.60 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

09-JAN-95

TRC INC. TEST NO: 142C26NE1 572E SN142 NECK EXT. CAL26

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	26.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	17.95 G
	20 MS	14.00 - 19.00 G	15.21 G
	30 MS	11.00 - 16.00 G	13.47 G
MAX PENDULUM G		22 G MAX	19.05 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	13.49 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	42.40 MS
D PLANE	MAX	81 - 106 DEG.	95.90 DEG.
ROTATION	TIME	72 - 82 MS	74.72 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-69.77 NM
	TIME	65 - 79 MS	70.48 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	152.80 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	140.48 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete F. S.

RUN NUMBER: 010995.0930;1

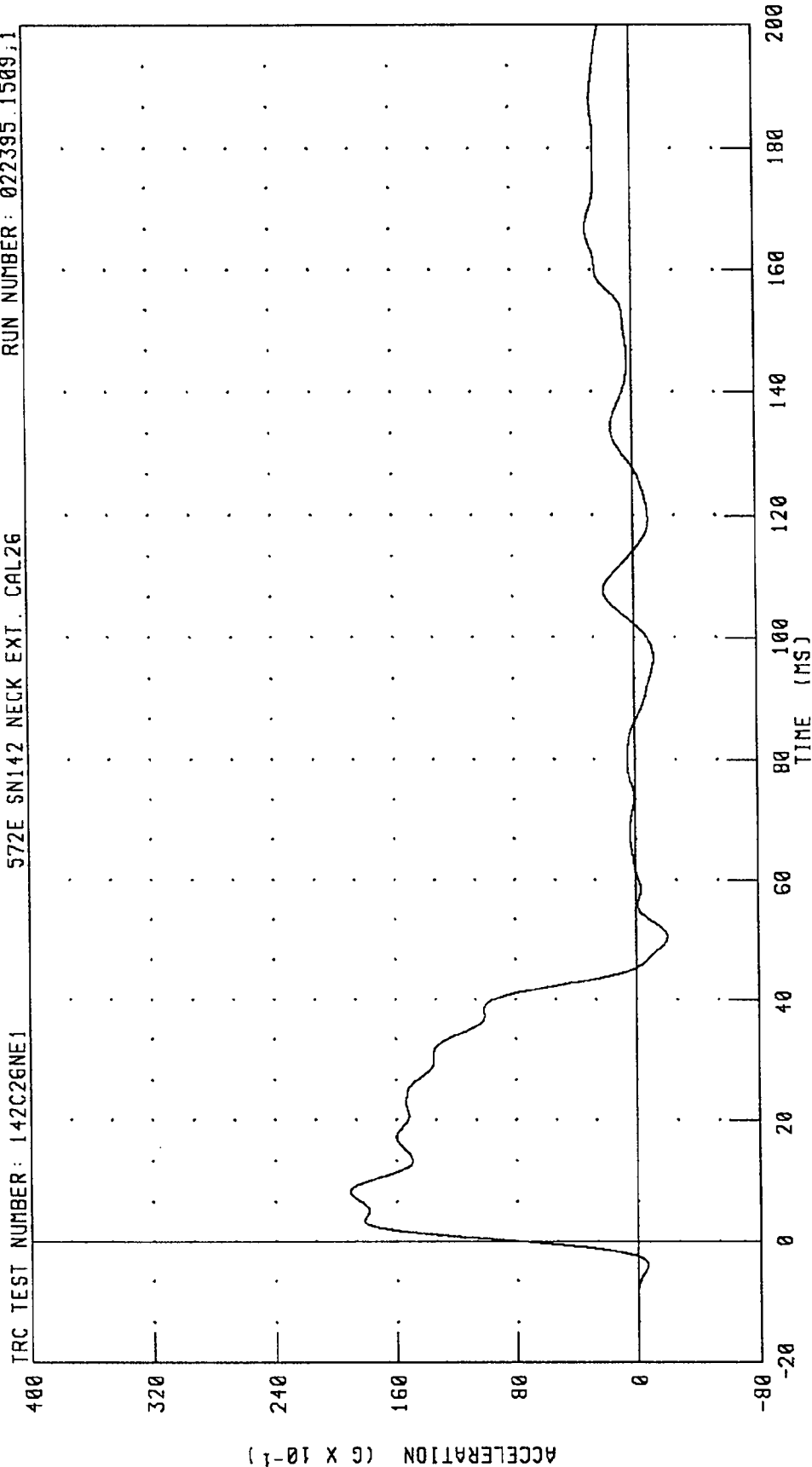
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 142C26NE1

572E SN142 NECK EXT. CAL26

RUN NUMBER: 022395.1509;1



CHANNEL: PENXG FILTER: CH. CLASS 60

PEAK DATA: 19.06 G @ 8.32 MS; -2.06 G @ 50.48 MS

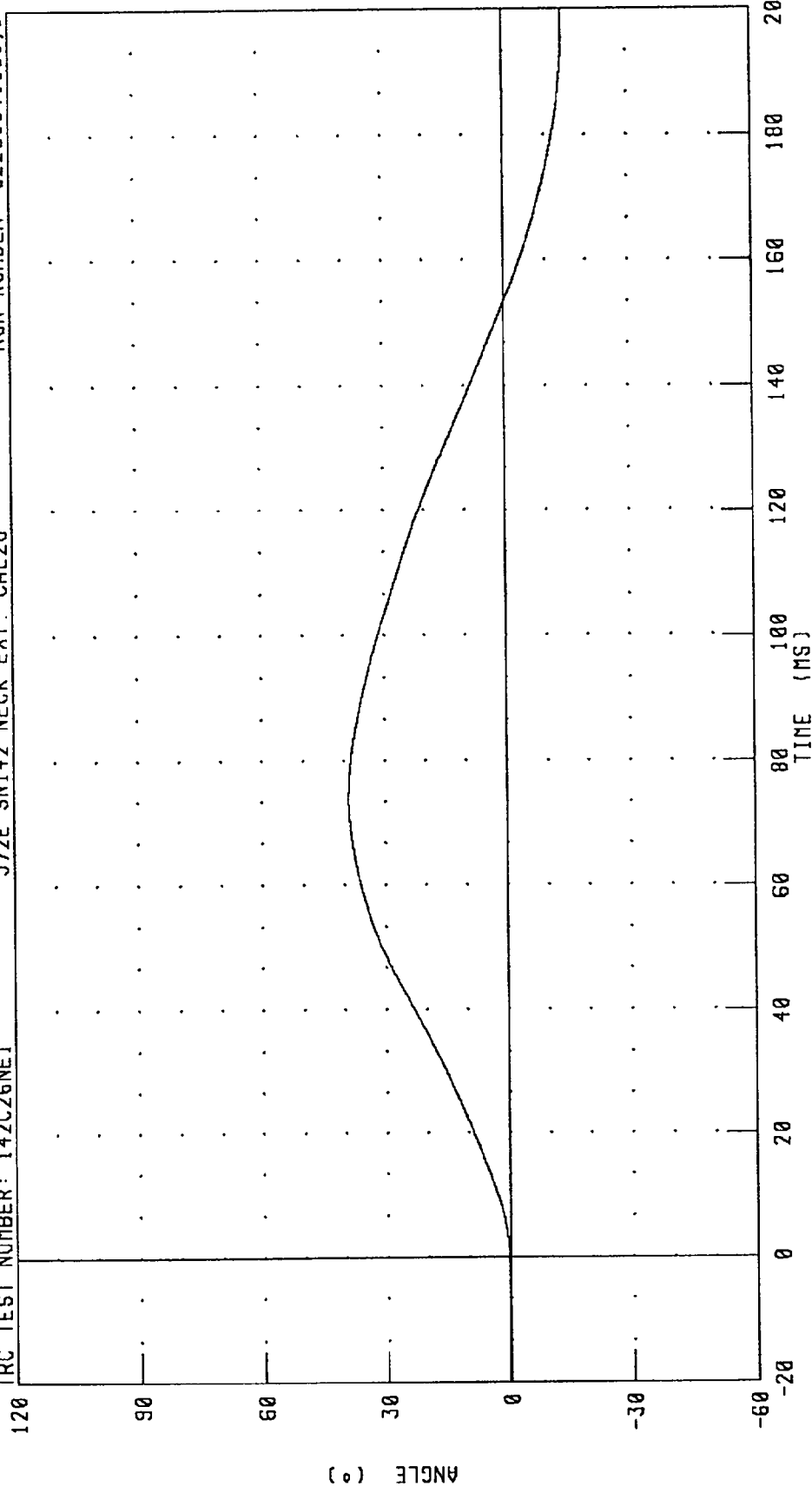
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C26NE1

572E SN142 NECK EXT. CAL26

RUN NUMBER: 022395.1509,1



PEAK DATA: 38.79 ° @ 73.84 MS; -14.37 ° @ 197.28 MS

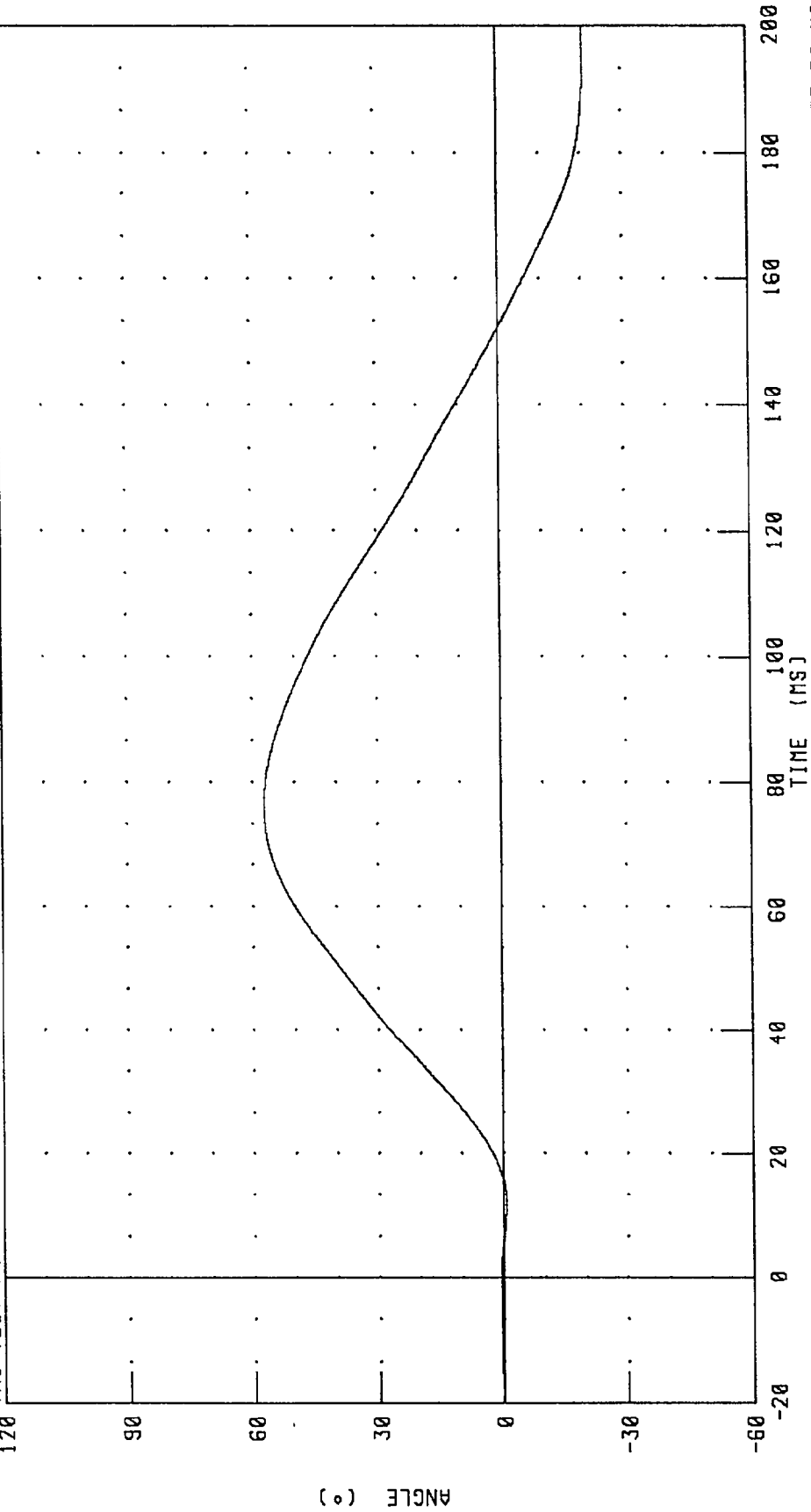
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C26NE1

572E SN142 NECK EXT. CAL26

RUN NUMBER: 022395.1509;1



CHANNEL: THETA FILTER: CH. CLASS 60

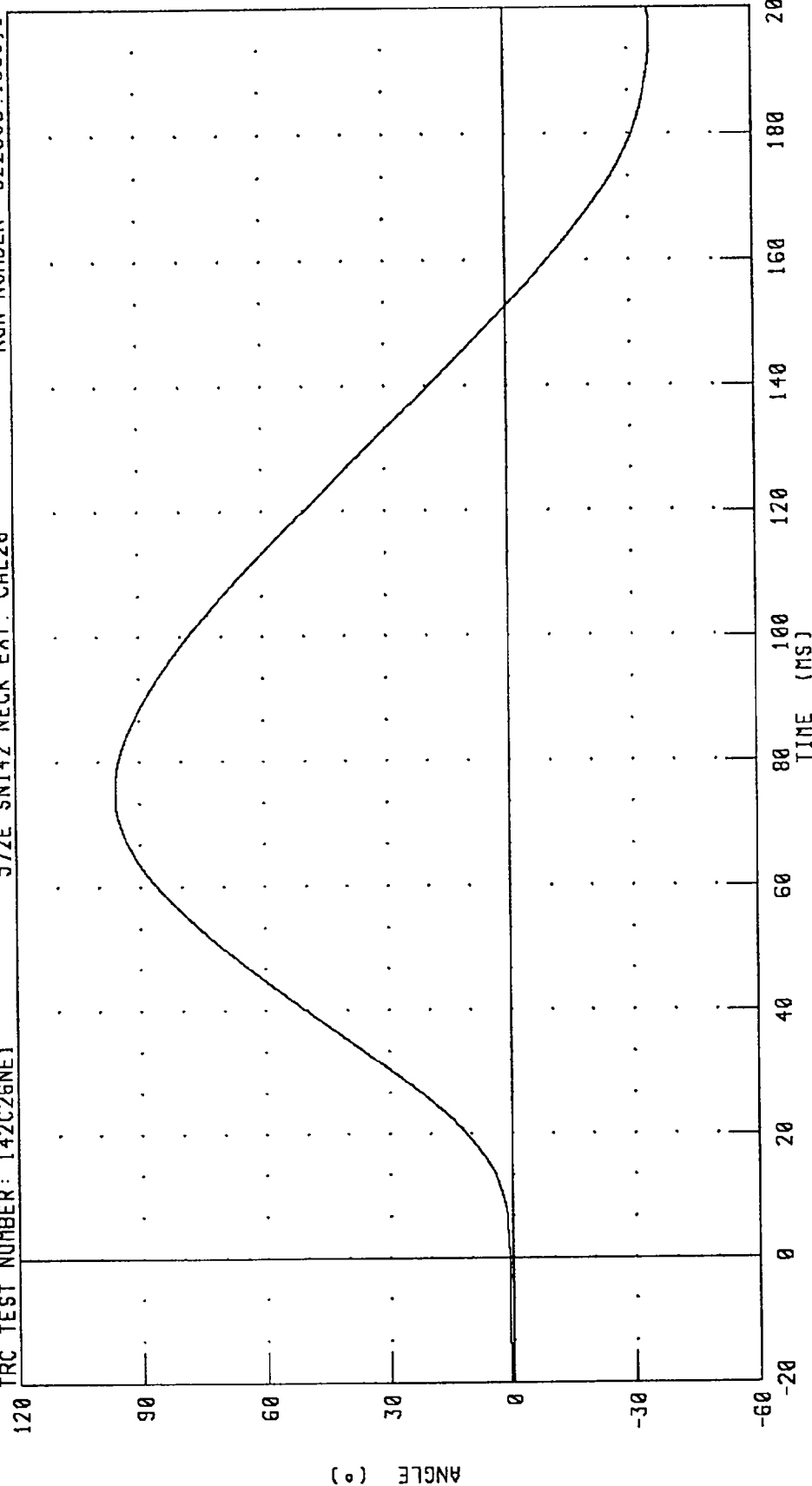
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

RUN NUMBER: 022395.1509;1

TRC TEST NUMBER: 142C26NE1

572E SN142 NECK EXT. CAL26



PEAK DATA: 95.90 ° @ 74.72 MS; -35.21 ° @ 195.84 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

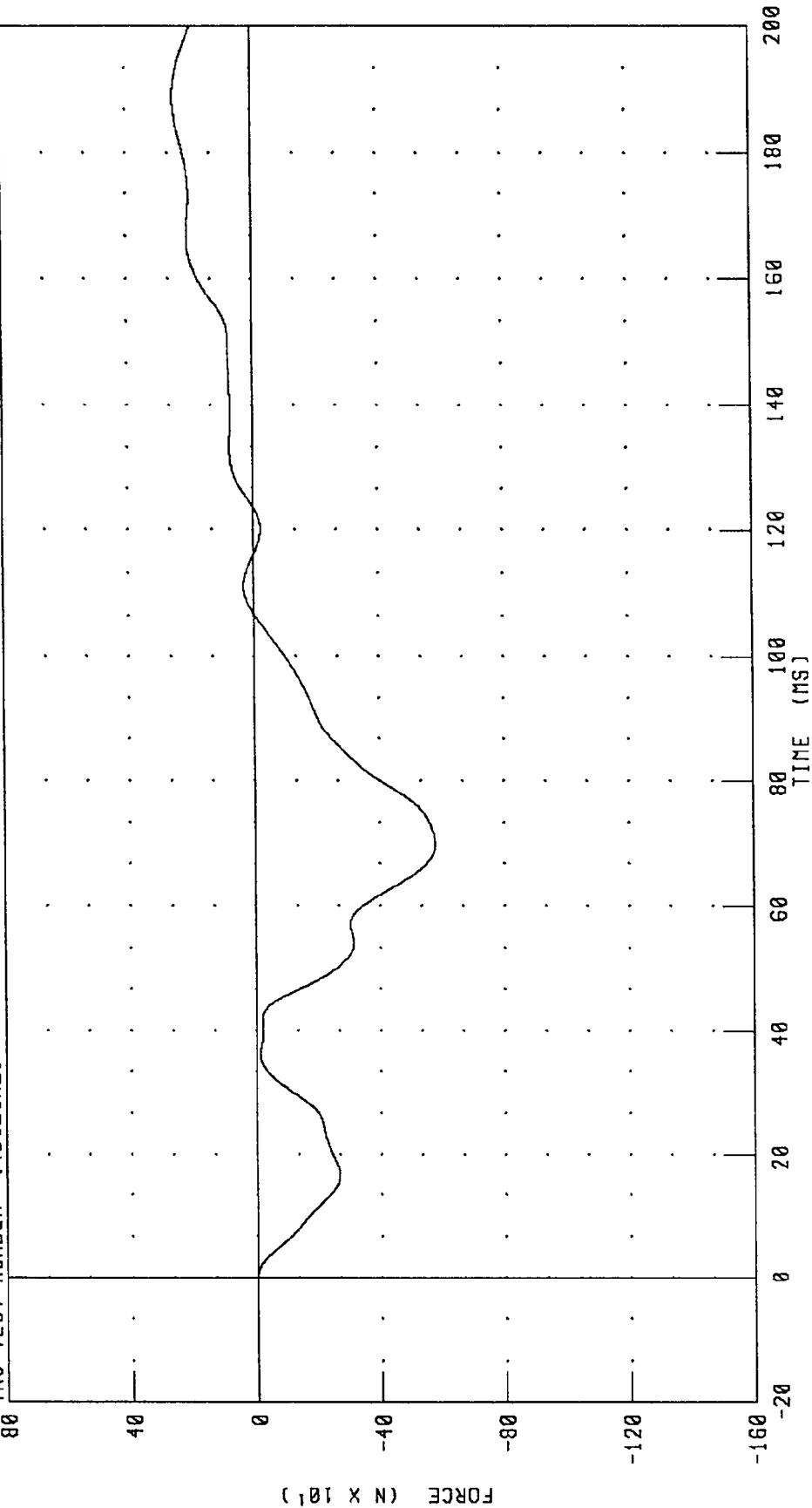
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

572E SN142 NECK EXT. CAL26

IRC TEST NUMBER: 142C26NE1

RUN NUMBER: 022395.1509;1



PEAK DATA: 249.76 N @ 188.72 MS; -579.67 N @ 69.84 MS

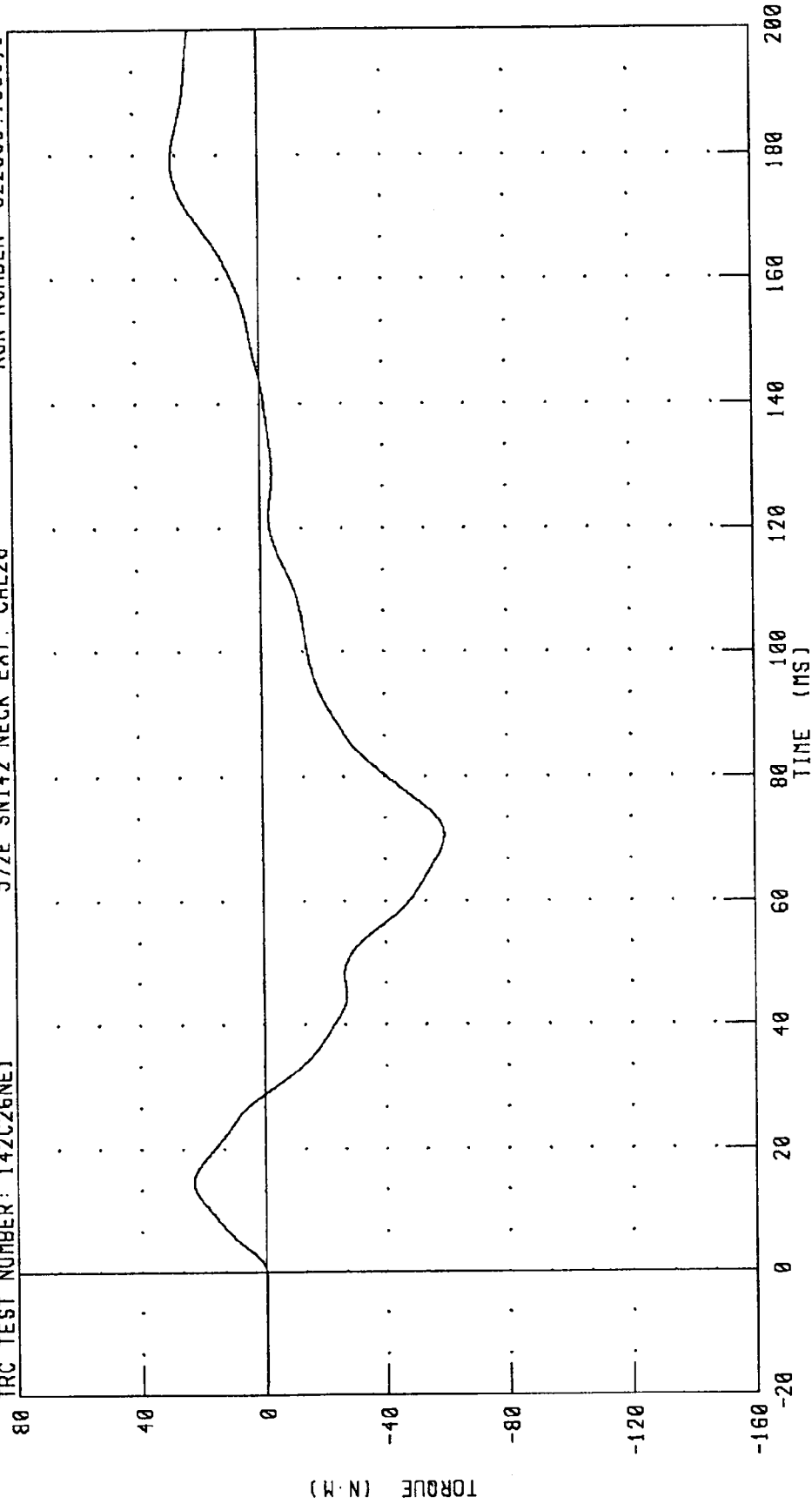
CHANNEL: NEKXF FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

572E SN142 NECK EXT. CAL26 RUN NUMBER: 022395.1509;1

IRC TEST NUMBER: 142C26NE1



CHANNEL: NEKYM FILTER: CH. CLASS 60

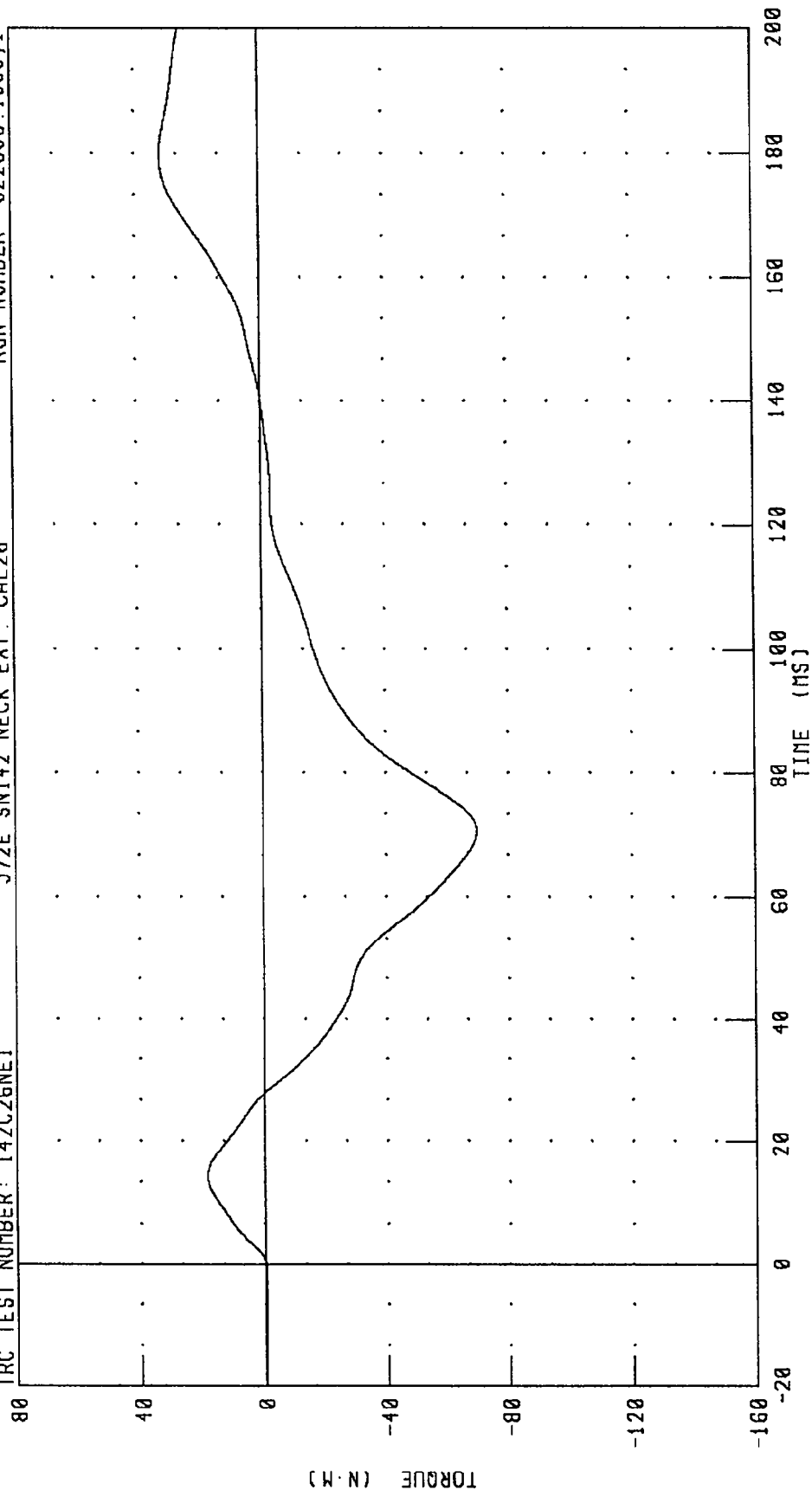
PEAK DATA: 28.08 N·M @ 179.12 MS; -59.48 N·M @ 70.56 MS

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

TRC TEST NUMBER: 142C26NE1

572E SN142 NECK EXT. CAL26

RUN NUMBER: 022395.1509;1



PEAK DATA: 31.92 N.M @ 179.60 MS; -69.77 N.M @ 70.48 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

25-JAN-95

TRC INC.

TEST NO: 142C26TH12

572E SN 142 H.S.THORAX CAL 26

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	66.6 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5652. N
INTERNAL HYSTERESIS	69% - 85%	75.1%

TEST MEETS SPECIFICATIONS

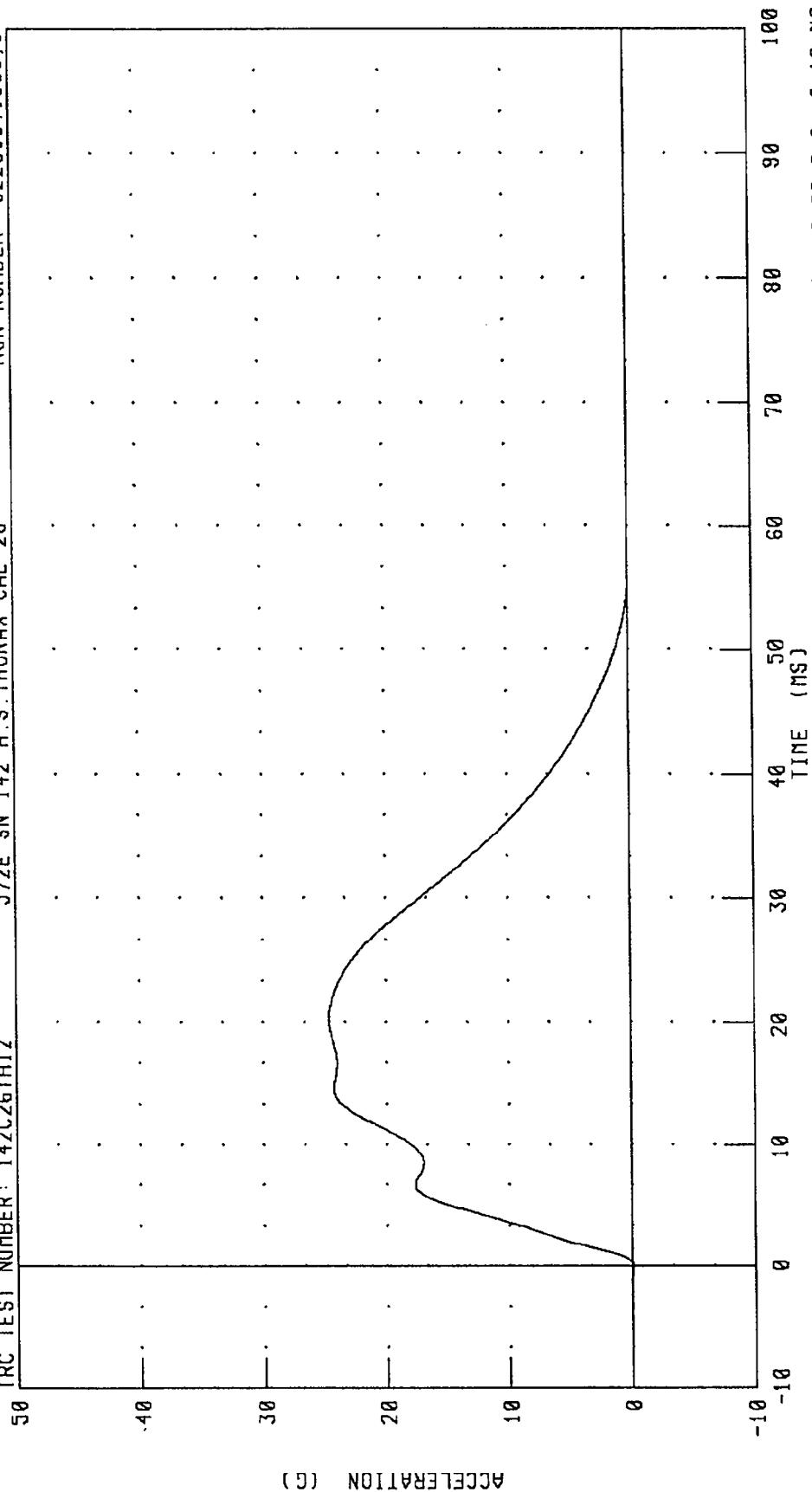
TECHNICIAN

Pete F. S.

RUN NUMBER: 012595.1305;1

PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 142C26TH12 572E SN 142 H.S. THORAX CAL 26 RUN NUMBER: 022395.1509;1



CHANNEL: PENXC FILTER: CH. CLASS 180

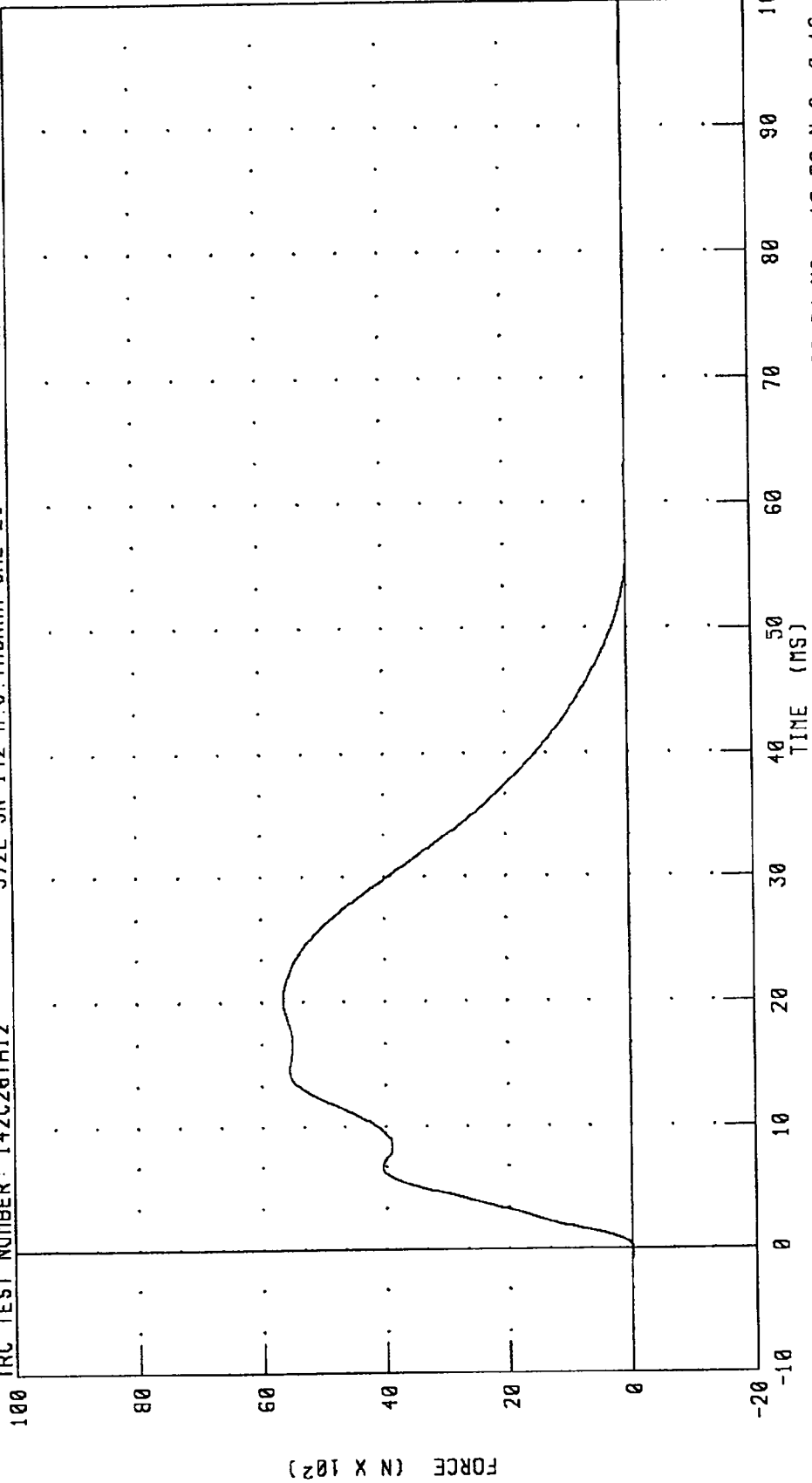
PEAK DATA: 24.67 G @ 20.24 MS; -0.09 G @ -0.16 MS

PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM FORCE

572E SN 142 H.S. THORAX CAL 26 RUN NUMBER: 022395.1509;1

IRC TEST NUMBER: 142C26TH12

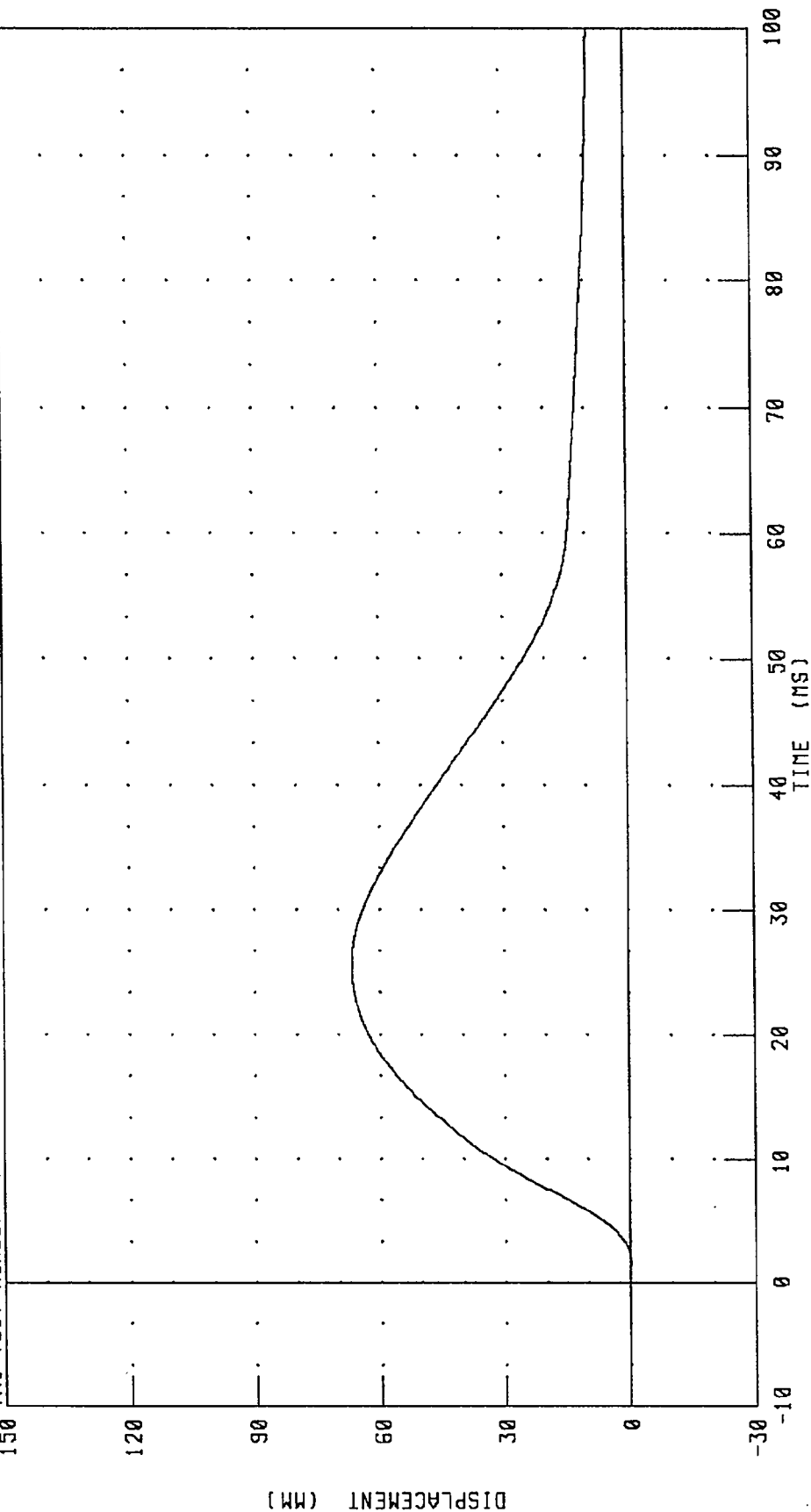


CHANNEL: PENXF FILTER: CH. CLASS 180

PEAK DATA: 5652.18 N @ 20.24 MS; -19.72 N @ -0.16 MS

PART 572-E HYBRID III THORAX CALIBRATION
 STERNUM DISPLACEMENT

TRC TEST NUMBER: 142C26TH12 572E SN 142 H.S. THORAX CAL 26 RUN NUMBER: 022395.1509;1



PEAK DATA: 66.68 MM @ 25.68 MS; -0.07 MM @ 1.76 MS

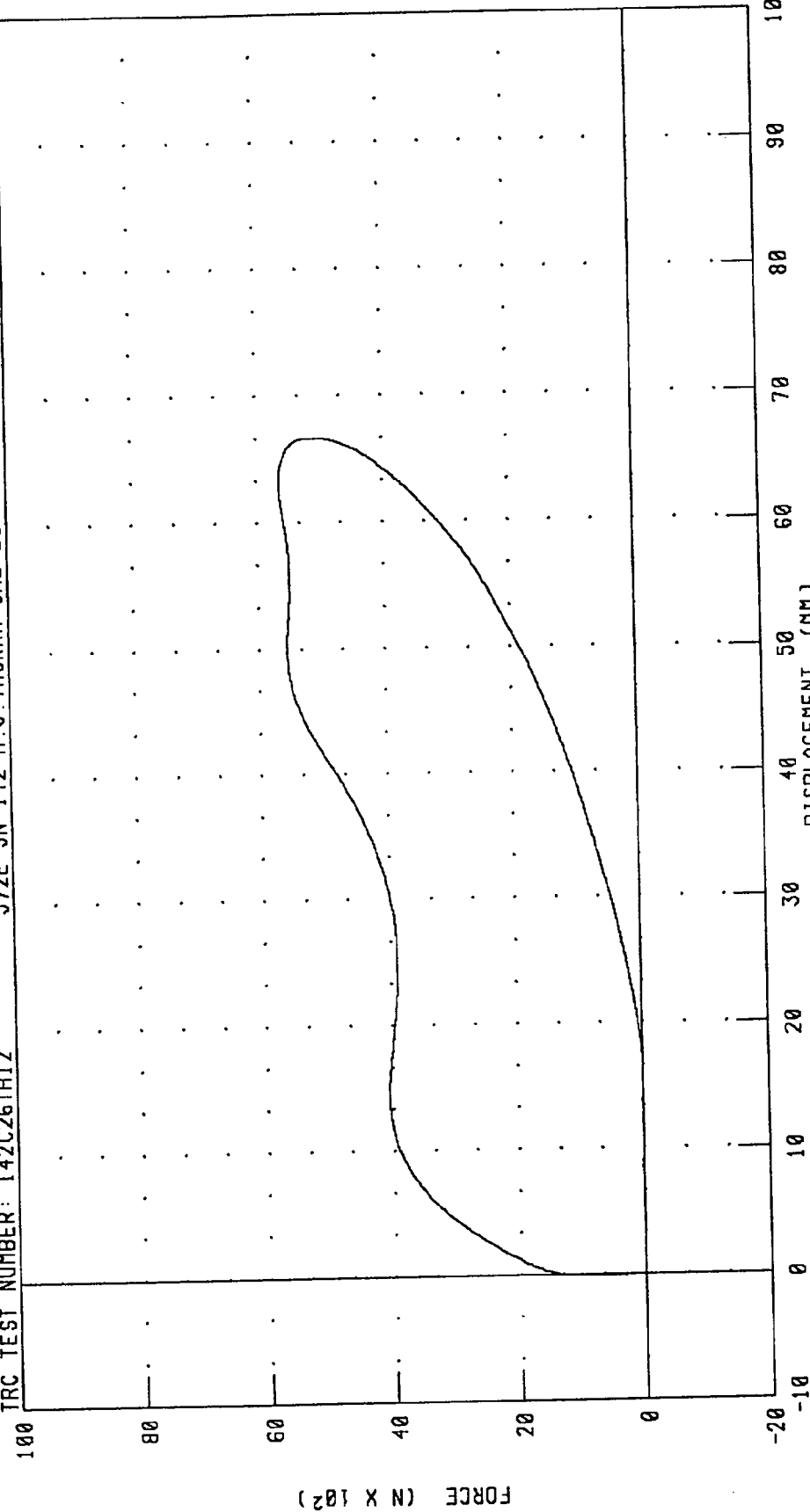
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

RUN NUMBER: 022395.1509;1

TRC TEST NUMBER: 142C26TH12

572E SN 142 H.S. THORAX CAL 26



PEAK DATA: 66.68 mm @ 25.68 ms; -0.07 mm @ 1.76 ms; -19.72 N @ -0.16 ms

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

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

09-JAN-95

TRC INC.

TEST NO: 142C26RK1

572E SN142 RIGHT KNEE CAL 26

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	26.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.13 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5594.3 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pat F. S.

RUN NUMBER: 010995.0832;1

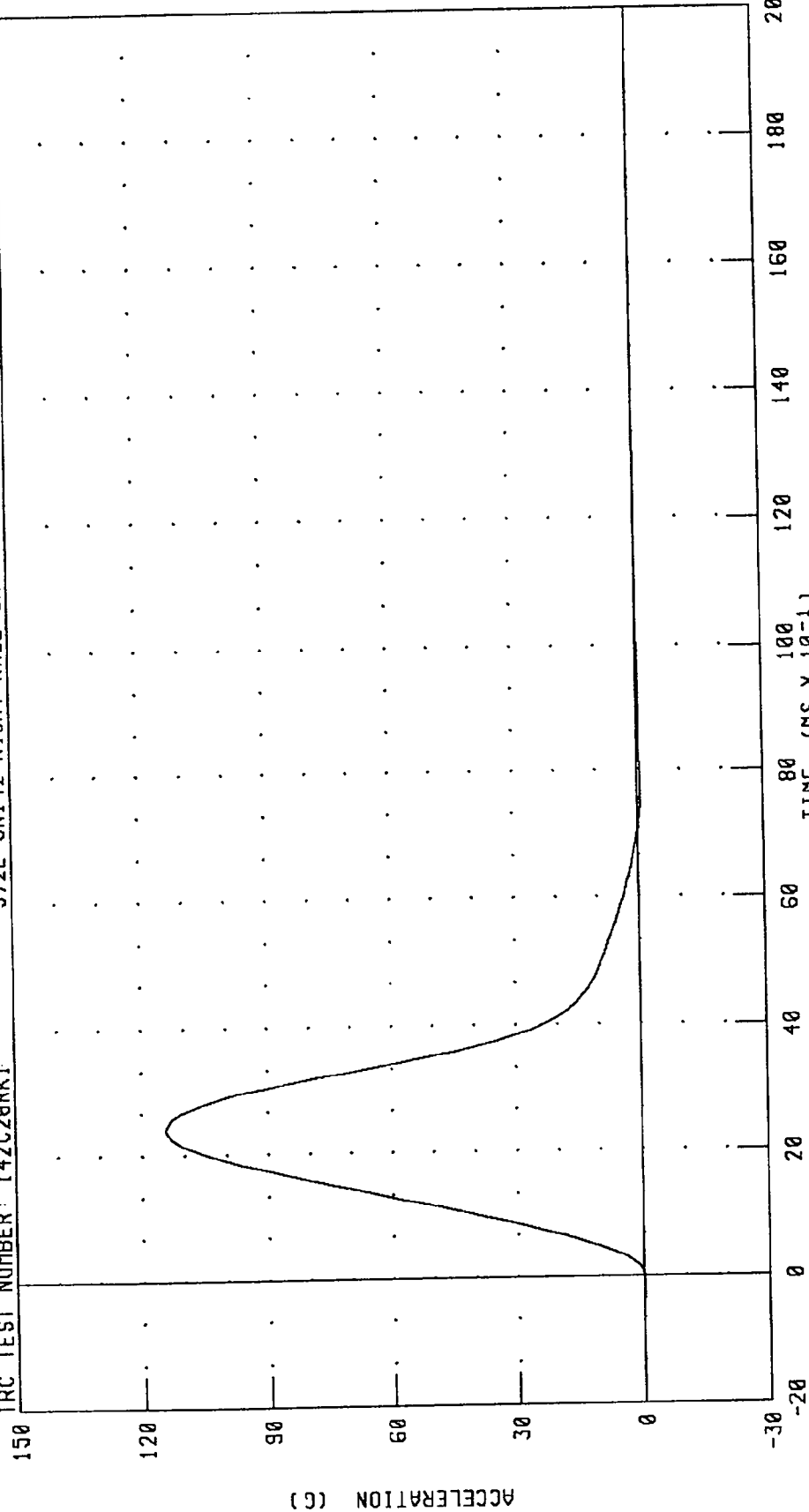
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM DECELERATION (5 KG PEND.)

RUN NUMBER: 022395.1509;1

TRC TEST NUMBER: 142C26RK1

572E SN142 RIGHT KNEE CAL 26



PEAK DATA: 114.34 G @ 2.40 MS; -0.75 G @ 7.76 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

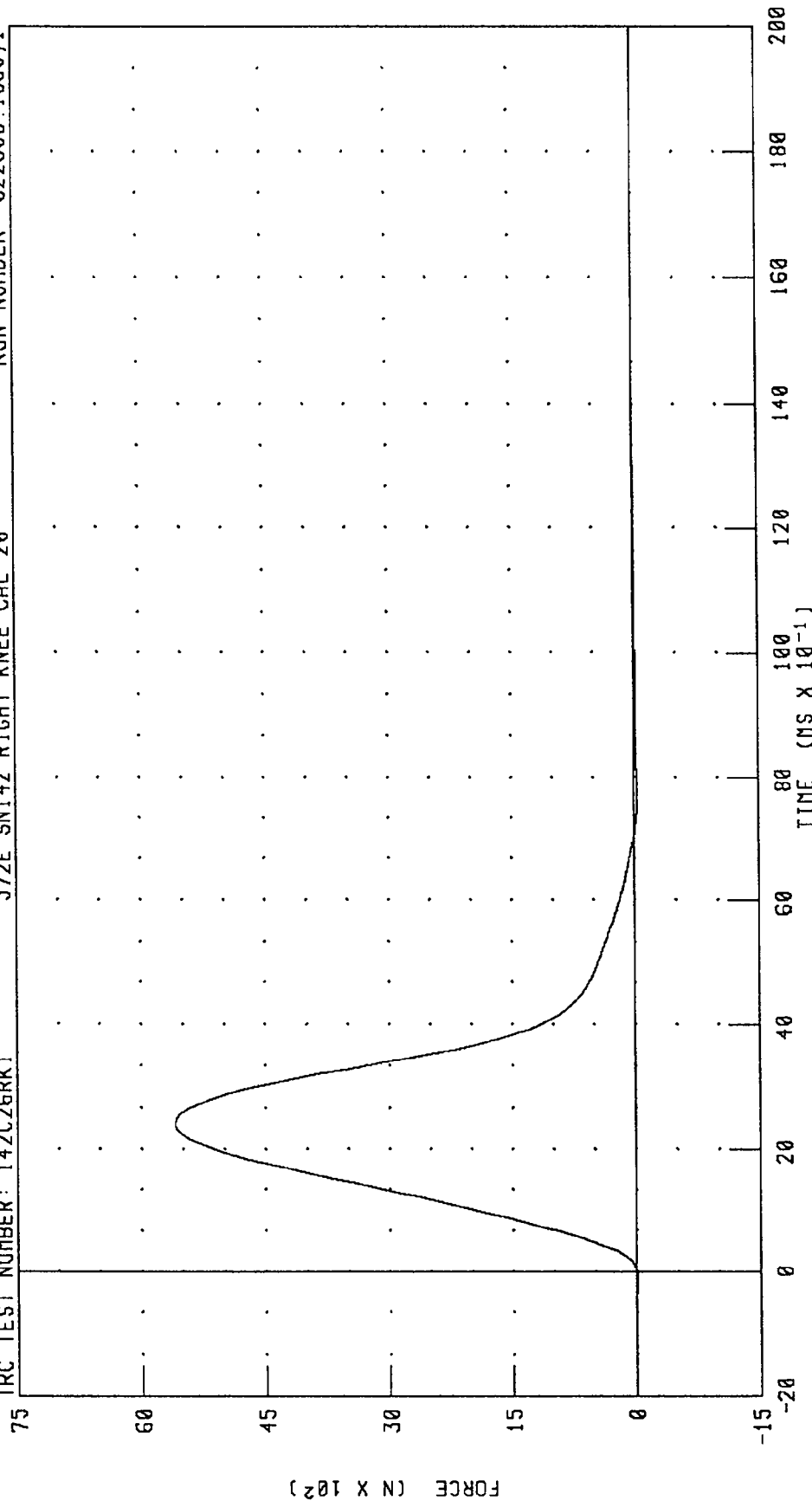
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN142 RIGHT KNEE CAL 26

RUN NUMBER: 022395.1509;1

TRC TEST NUMBER: 142C26RK1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5594.38 N @ 2.40 MS; -36.91 N @ 7.76 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

09-JAN-95

TRC INC.

TEST NO: 142C26LK1

572E SN142 LEFT KNEE CAL 26

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	26.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.09 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	4789.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Rita F. A.

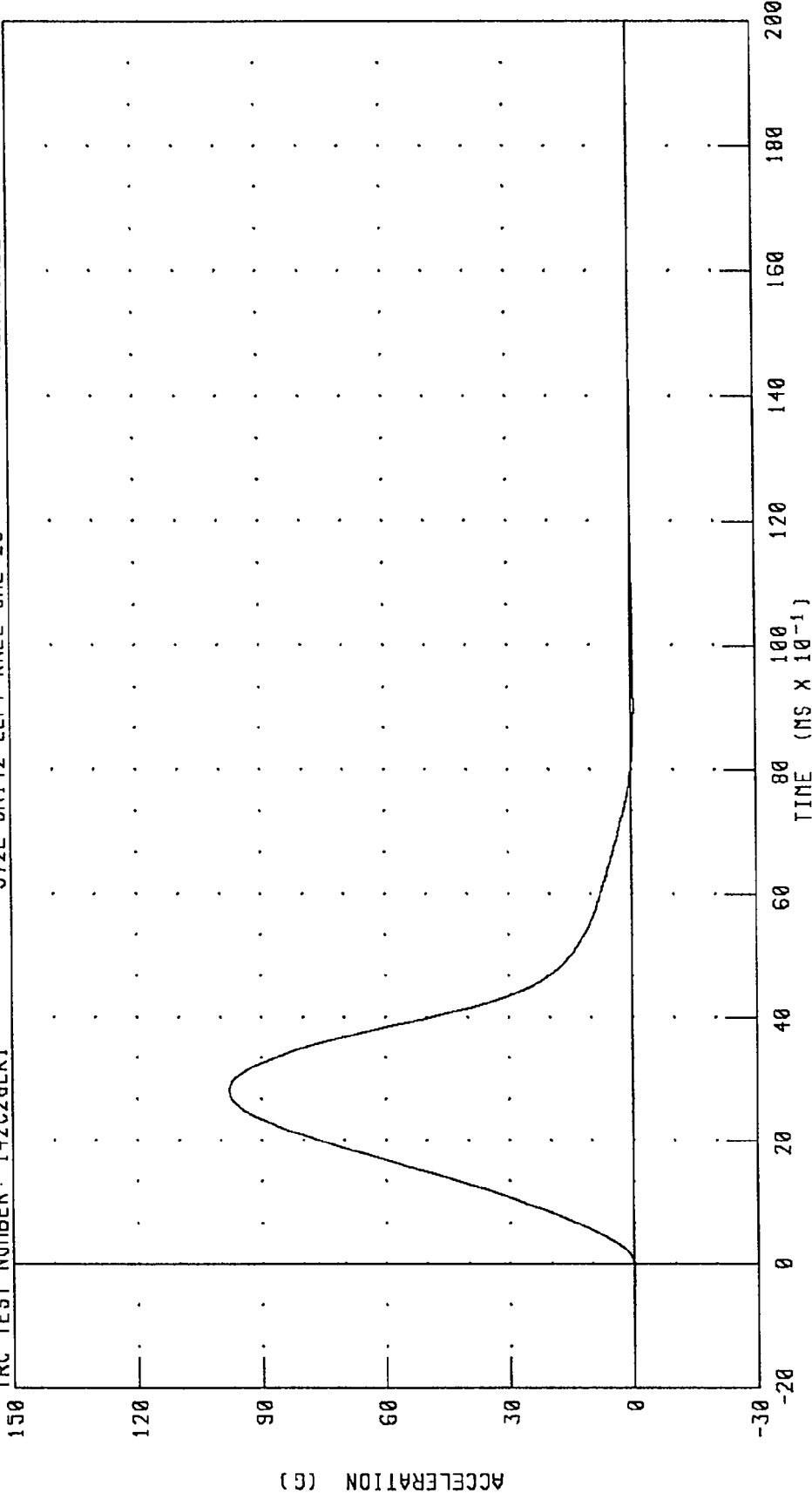
RUN NUMBER: 010995.1010;2

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

TRC TEST NUMBER: 142C26LK1

572E SN142 LEFT KNEE CAL 26

RUN NUMBER: 022395.1509;2



PEAK DATA: 97.89 G @ 2.80 MS; -0.58 G @ 9.04 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

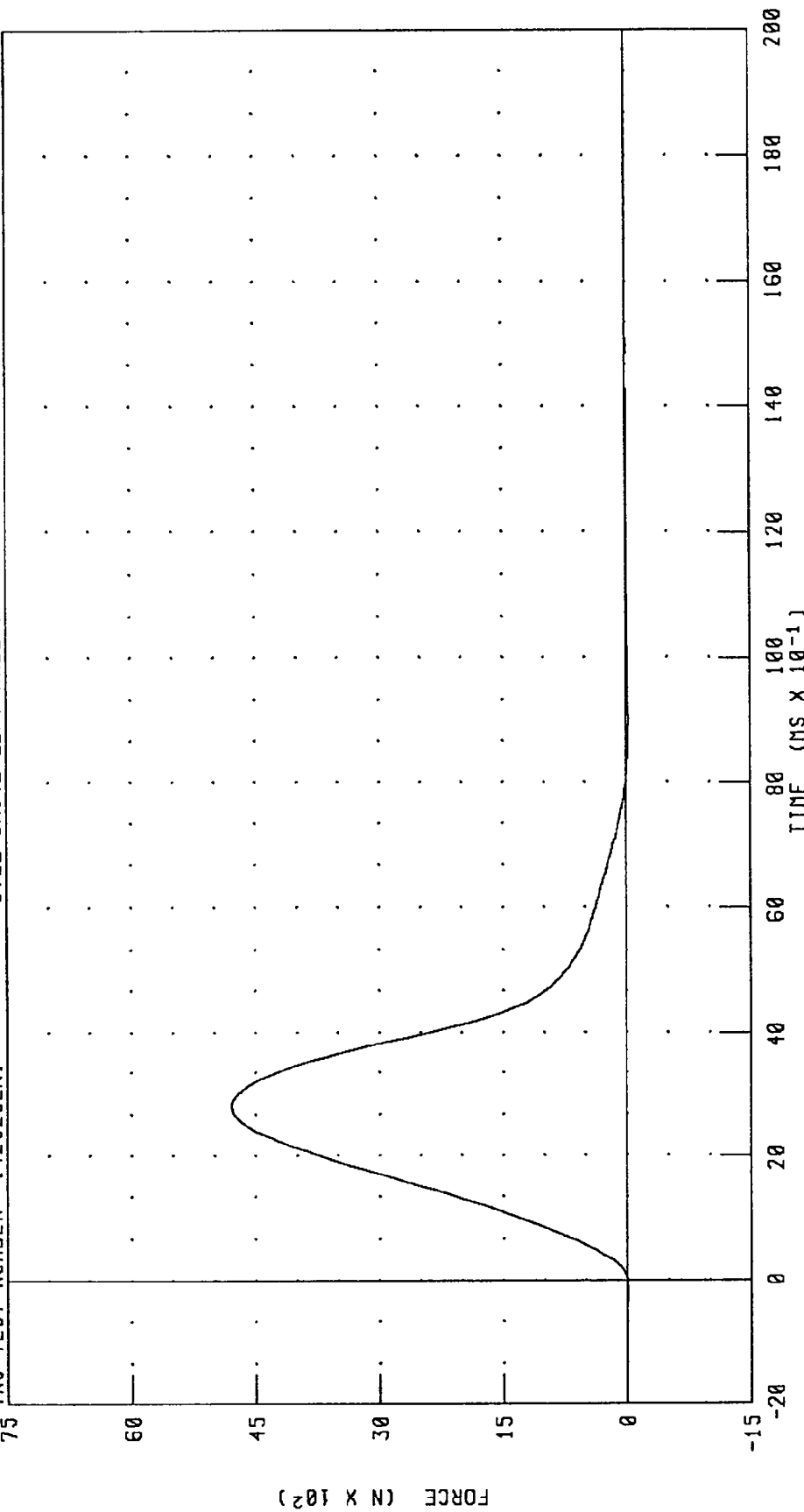
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 142C26LK1

572E SN142 LEFT KNEE CAL 26

RUN NUMBER: 022395.1509,2



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 4789.66 N @ 2.80 MS; -28.48 N @ 9.04 MS

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	03/01/95
Head Y-axis accelerometer	A84JJ	7264	Endevco	08/30/94	03/01/95
Head Z-axis accelerometer	DW04J	7264	Endevco	08/30/94	03/01/95
Chest X-axis accelerometer	CT22H	7264	Endevco	08/30/94	03/01/95
Chest Y-axis accelerometer	AC708	7264	Endevco	08/30/94	03/01/95
Chest Z-axis accelerometer	CW59H	7264	Endevco	08/30/94	03/01/95
Left femur force load cell	986	2430	GSE	08/30/94	03/01/95
Right femur force load cell	987	2430	GSE	08/30/94	03/01/95
Neck X-axis force load cell ¹	085	1716	Denton	08/30/94	03/01/95
Neck Y-axis force load cell ¹	085	1716	Denton	08/30/94	03/01/95
Neck Z-axis force load cell ¹	085	1716	Denton	08/30/94	03/01/95
Neck Moment about X-axis load cell ¹	085	1716	Denton	08/30/94	03/01/95
Neck Moment about Y-axis load cell ¹	085	1716	Denton	08/30/94	03/01/95
Neck Moment about Z-axis load cell ¹	085	1716	Denton	08/30/94	03/01/95
Pelvis X-axis accelerometer	AJ694	7264	Endevco	10/11/94	04/11/95
Pelvis Y-axis accelerometer	AJ656	7264	Endevco	10/11/94	04/11/95
Pelvis Z-axis accelerometer	AJ788	7264	Endevco	10/11/94	04/11/95
Chest deflection potentiometer ¹	87313-96	81422A	Vernitech	08/30/94	03/01/95
Shoulder Belt Load Cell	610	3419	Lebow	08/19/94	02/19/95
Lap Belt Load Cell	616	3419	Lebow	08/19/94	02/19/95

¹ Hybrid III use only.

Dummy Instrument Calibrations

Right Front Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Head X-axis accelerometer	AGR73	7264	Endevco	12/30/94	06/30/95
Head Y-axis accelerometer	CY32H	7264	Endevco	08/29/94	03/01/95
Head Z-axis accelerometer	DB81H	7264	Endevco	08/29/94	03/01/95
Chest X-axis accelerometer	A79GJ	7264	Endevco	08/25/94	02/25/95
Chest Y-axis accelerometer	AC8W6	7264	Endevco	08/29/94	03/01/95
Chest Z-axis accelerometer	CW42H	7264	Endevco	08/29/94	03/01/95
Left femur force load cell	901	2430	GSE	08/30/94	03/01/95
Right femur force load cell	902	2430	GSE	08/30/94	03/01/95
Neck X-axis force load cell ¹	0280	1716	Denton	08/30/94	03/01/95
Neck Y-axis force load cell ¹	0280	1716	Denton	08/30/94	03/01/95
Neck Z-axis force load cell ¹	0280	1716	Denton	08/30/94	03/01/95
Neck Moment about X-axis load cell ¹	0280	1716	Denton	08/30/94	03/01/95
Neck Moment about Y-axis load cell ¹	0280	1716	Denton	08/30/94	03/01/95
Neck Moment about Z-axis load cell ¹	0280	1716	Denton	08/30/94	03/01/95
Pelvis X-axis accelerometer	AJ8A6	7264	Endevco	10/11/94	04/11/95
Pelvis Y-axis accelerometer	AJ8J7	7264	Endevco	10/11/94	04/11/95
Pelvis Z-axis accelerometer	AJ789	7264	Endevco	10/11/94	04/11/95
Chest deflection potentiometer ¹	90320B	81422A	Vernitech	08/29/94	03/01/95
Shoulder Belt Load Cell	615	3419	Lebow	08/19/94	02/19/95
Lap Belt Load Cell	236	3419	Lebow	08/19/94	02/19/95

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	DK26JT	7264	Endevco	10/27/94	04/27/95
Left rear seat crossmember X-axis redundant	AGRF4	7264	Endevco	11/22/94	05/22/95
Right rear seat crossmember X-axis	DR49J7	7264	Endevco	08/29/94	03/01/95
Right rear seat crossmember X-axis redundant	AHRK5	7264	Endevco	09/13/94	03/13/95
Engine top X-axis	AHR06	7264	Endevco	10/07/94	04/07/95
Engine bottom X-axis	ACCJ0	7264	Endevco	09/08/94	03/08/95
Right brake caliper X-axis	DW12J	7264	Endevco	12/13/94	06/13/95
Left brake caliper X-axis	CY78H	7264	Endevco	01/02/95	07/02/95
Instrument panel center X-axis	CJ75H	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

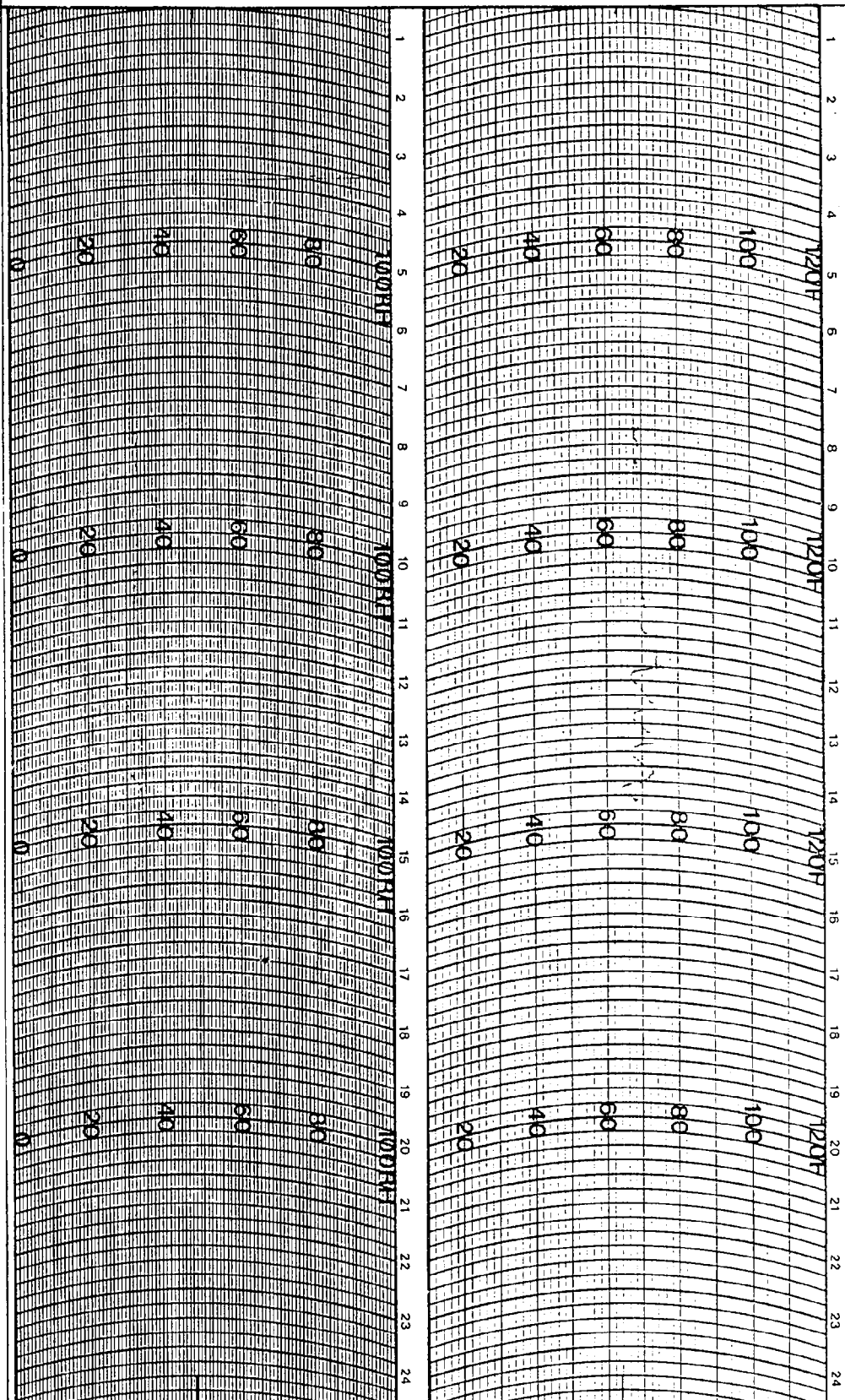
Sign Convention
NHTSA Data Tape Reference Guide

<u>Accelerometers:</u>	+X: Forward	
	+Y: Leftward	
	+Z: Upward	
<u>Potentiometers:</u>	+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)
<u>Load cells:</u>	+Femur force:	Tension
	+Seat belt force:	Tension
	+Barrier force:	Tension
<u>Neck load cells:</u>	+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
<u>Tibia load cells:</u>	+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

<u>Typical Test Measurements</u>	<u>Channel Class</u>
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 _____

Appendix E

Restraint System Instructions from Owner's Manual

that they do not come out of the seatback.

WARNING!

Driving with the head restraints removed is dangerous. Always have them mounted when you drive the car. Failure to have them properly mounted may increase the chance of injury in a collision.

SEATBELTS

Seatbelts are installed in your car to protect the driver and passengers.

Always use the seatbelts. In an accident, injury to the driver and passengers may be reduced if seatbelts are properly used.

NOTE: Legislation in your state may require you to use seatbelts, but even if it is not required, you should always use them.

The following pages contain the recommended proce-

dure for fastening, adjusting, and wearing the belts for comfort and safety.

WARNING!

- (1) Never use one seatbelt for more than one occupant.
- (2) Never wear the shoulder belt under your arm or out of position.
Always wear both the seat and shoulder belts and wear them in the proper position.
- (3) Do not make any modifications that could change the effectiveness of the seatbelts.
- (4) Never try to repair or replace the seatbelt assemblies on your own.

An authorized dealer should make all repairs and replacements.

UNIBELT restraint system

Front seats and both sides of the rear seat are equipped with a UNIBELT system, which uses a single belt and an emergency locking retractor.

This system is designed to provide comfort and safety by permitting full extension and automatic retraction of the belts during normal car operation. A sensing device inside the belt retractor locks the retractor when there is an abrupt change in motion.

NOTE: For instructions on how to install a child restraint system to the rear seat, see "Installing a child restraint system to a UNIBELT," on page 53.

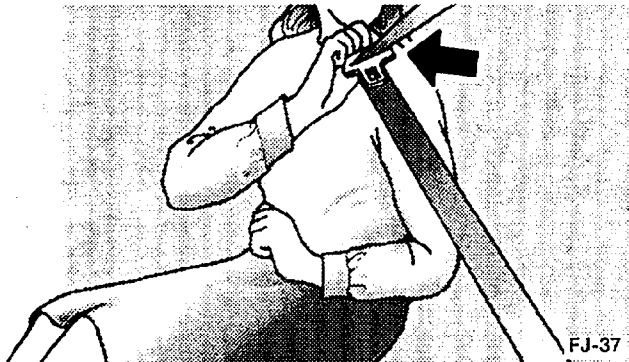
UNIBELT instructions

1. Get into the car and sit in the normal correct posture.

WARNING!

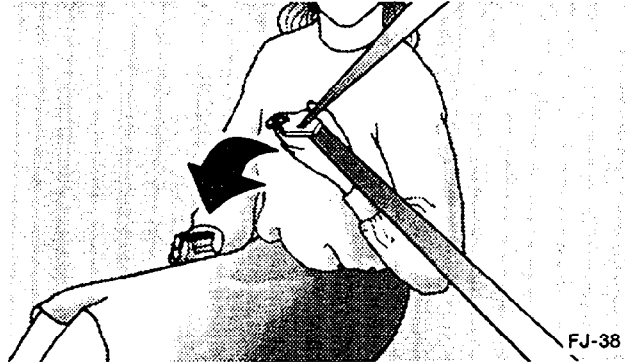
To minimize the risk of injury in a collision or a sudden stop, both the driver and passenger seatbacks should always be in a nearly upright position while the car is moving.

The protection provided by the seatbelts may be reduced significantly when the seatback is reclined. When the seatback is reclined, there is greater risk that the passenger will slide under the belt resulting in serious injury.

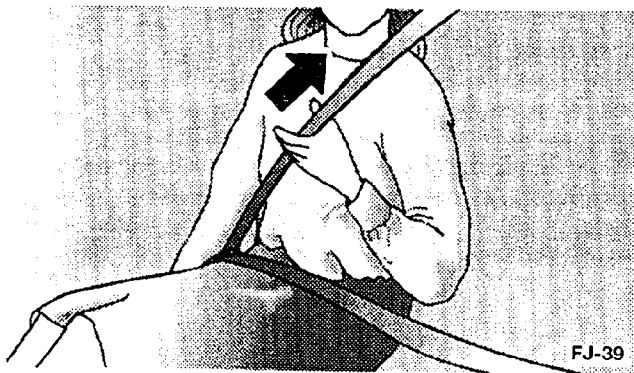


2. Grasp the movable latch plate. Slide it up the webbing as far as necessary so that it will be easy to pull across your body.

After a couple of tries, this will become an automatic, one-handed operation.



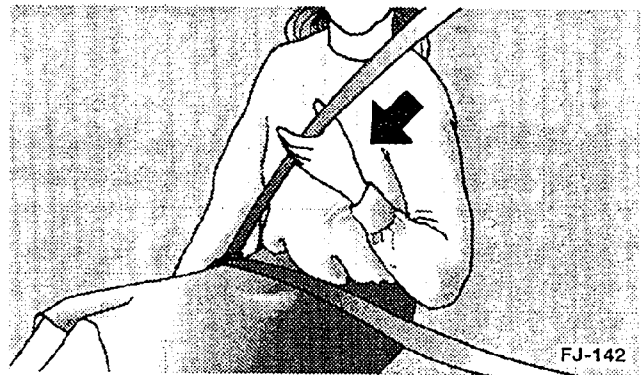
3. Pull the webbing, and slide the movable latch plate toward the buckle. This system will not lock up if you stop or hesitate, so relax and continue to buckle-up. Push the latch plate into the buckle until you hear a click.



4. Pull up on the shoulder belt to ensure that there is no slack in the seatbelt. The seatbelt will not tighten during use; therefore, you can set it once for safety and comfort.

WARNING!

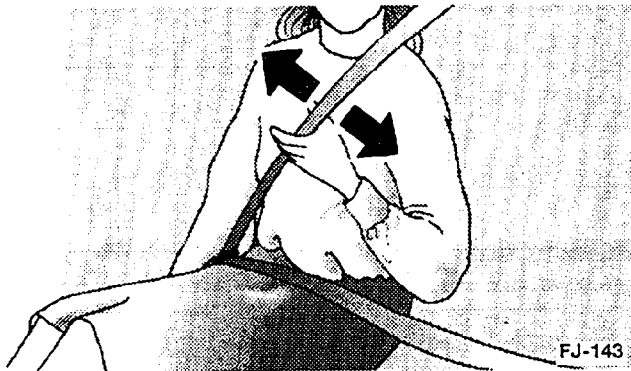
- (1) Be sure that the seatbelt portion fits snugly and as low as possible around your hips, not around your waist. Failure to do so may increase the chance or severity of injury in a collision.
- (2) Wear the seatbelt without twisting it.



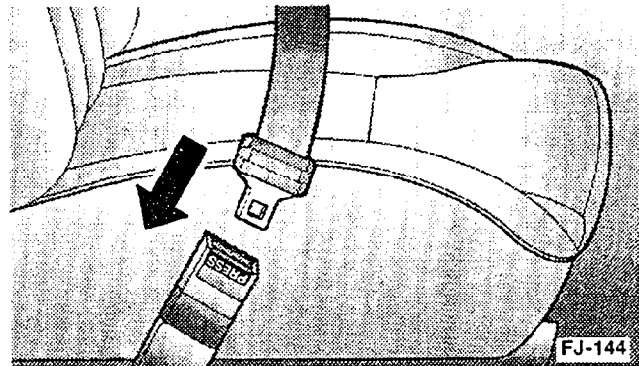
5. Check the belt slackness. The belt will retain the small

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amount of slack necessary for comfort when you return to your normal seating position. If the belt is still too tight, pull out 6 or 8 inches of webbing, let it return to your chest, and repeat the above motion.



6. The shoulder belt will allow unrestricted movement under normal conditions. The belt will lock when there is an abrupt change in motion.



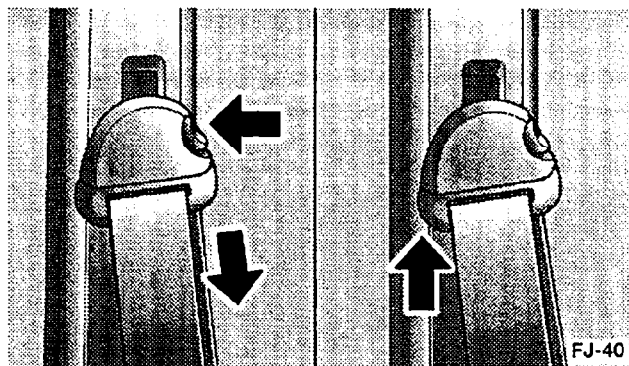
7. To release the belt, push the button on the buckle. To return the belt to its stowed position, pull the shoulder belt down slightly and release it immediately.

NOTE: As the belt retracts automatically, hold the plate while retracting so that the belt stows slowly.

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WARNING!

Lock all doors before driving. Locking the doors and using the seatbelts will minimize the risk of injury or ejection in an accident.

**Adjustable seatbelt anchor (front seats)**

You can adjust the height of the seatbelt anchor.

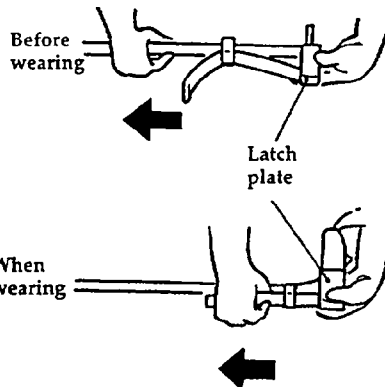
Depress the lock knob and move the seatbelt anchor down.

To move the anchor up, slide it without depressing the lock knob.

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WARNING!

When adjusting the seatbelt anchor, set it at a position that is sufficiently high so that the belt will make full contact with your shoulder but will not touch your neck.



2

Rear seat lap belt**Center belt**

To adjust the center belt, hold the belt and latch plate at right angles to each other. Then pull the belt as illustrated above to fit snugly.

Never use the same lap belt on more than one person at a time.

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NOTE: The buckle and plate of the center lap belt are marked "CENTER." Be sure to check the marking before wearing the center lap belt.

The outboard restraint system buckle and center restraint system tongue are not compatible and will not engage with one another.

Seatbelt extender

If the seatbelt is too short even when it is fully extended, you may buy a seatbelt extender from your dealer. The extender may be used for either front seating positions.

This extender should be used only if the existing belt is not long enough. When it is not required, remove it and stow it because using the extender when not required may deactivate the seatbelt locking mechanism.

WARNING!

People who can use the standard seatbelt should not use an extender. Unnecessary use of an extender could result in serious injury in an accident.

CHILD RESTRAINT

When transporting children in your car, use some type of child restraint system according to the size of the child. This is required by law in most states.

WARNING!

- (1) Accident statistics indicate that children are safer when they are properly restrained in the rear seat rather than in the front seat. Accordingly, Chrysler Corporation recommends that children be restrained in the rear seat.
- (2) Holding a child in your arms is no substitute for a restraint system. Failure to use a proper restraint system can result in severe or fatal injury to your child.
- (3) This car is also equipped with a passenger airbag.

REAR-FACING INFANT SEATS SHOULD BE USED ONLY IN THE REAR SEAT.

In rear-facing infant seats, the infant's head is closer to the passenger airbag. The force of the rapidly inflating airbag could push the top of the rear-facing seat against the car seatback.

WARNING (Continued)

Forward-facing child seats used in the front seat must have the passenger seat moved as far back from the instrument panel as possible.

Infants and small children

For infants who are small enough for infant seats, use an infant carrier. For small children, use a child seat. Both types of seats are available from your authorized dealer or from most automotive parts and accessory supply outlets.

The child restraint system should be appropriate for your child's weight and height and should properly fit the car seat. For a higher degree of safety, install THE CHILD RESTRAINT SYSTEM IN THE REAR SEAT.

When installing a child restraint system, refer to the instructions provided by the manufacturer of the restraint system. Follow the directions listed under the illustrations. Failure to do so can result in severe or fatal injury to your child. When not in use, secure your child

or infant seat with the seatbelt or remove it from the car to prevent injury to your child.

NOTE: Before buying a child seat or infant carrier, try installing it in the rear seat to ensure a good fit. Due to the location of the seatbelt buckles in the seat cushion, it may be difficult to securely install some child restraint systems.

If you can easily pull the child restraint system forward on the seat cushion after the belt has been tightened, choose another child restraint system.



Installing a child restraint system to the rear center seat (Lap belt)

Installation:

1. To secure the child restraint system, fasten the center lap belt.

WARNING!

For safety, an infant carrier should face backward; a child seat should face forward.

2. Pull the excess webbing through the belt's adjustment feature.
3. Push and pull the child restraint in all directions to be sure it is secure.

If your child restraint system requires the use of a top strap, see "Anchors for the child restraint system" on page 55.



Installing a child restraint system with a UNIBELT (Combination lap/shoulder belt)

Accident statistics show that children are safer when they are properly restrained in the rear seat of a car, rather than in the front seat. For this reason, Chrysler Corporation recommends that children be restrained in the rear seat.

Installation

1. Place the child restraint system in the seating position as shown in the illustration.

WARNING!

- (1) For safety, an infant carrier should face backward; a child seat should face forward.
- (2) Always secure rear-facing infant seats in the rear seat.
- (3) If you use a forward-facing child seat in the front seat, move the passenger seat as far back from the instrument panel as possible.

Convert the retractor function from

ELR
(emergency locking retractor)

to

ALR
(automatic locking retractor)

2. Pull the seatbelt to its fully extended position. Hold the belt taut (extended). Then, fasten the seatbelt around or through the child restraint system according to the restraint manufacturer's instructions. Insert the latch plate into the buckle. Check that the webbing is rolled up steadily to securely fix the restraint system.

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When the belt is released, it will be in the proper ALR position. When the child restraint system is removed and the belt released to its retracted position, it will automatically revert to the ELR position.

NOTE: After pulling the seatbelt to its fully extended position, always release it to its fully retracted position. Otherwise, the seatbelt will be locked, making it impossible to pull out the belt.

WARNING!

- (1) Be absolutely sure to make the conversion of the retractor from the ELR function to the ALR function. By doing so, the child restraint system is always tightly secured to the seat by the automatic lock. If the conversion to ALR is not made, the infant carrier or child seat will move forward in the event of sudden braking or an accident.
- (2) Follow the infant carrier manufacturer's installation instructions for attaching the child restraint system to the seatbelt.
Be sure the seatbelt is not twisted.

2

Anchors for the child restraint system

If you choose to use a top-strap-equipped child restraint in the rear seat, ask your dealer how to attach it.

Your car has the anchors to secure the top strap of a child restraint system. The anchor nuts are welded to the back

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SEAT AND SEATBELT

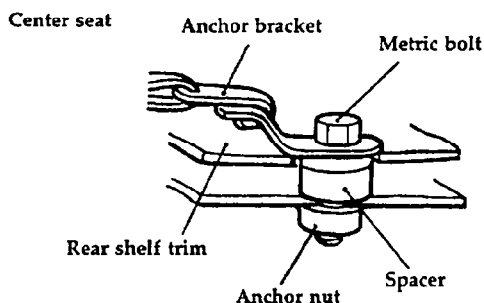
of the sheet metal of the rear shelf and are concealed by the plugs on the rear shelf trim.

Before installing the anchor bracket, remove the plugs.

To install the anchor bracket, you must use a metric bolt.

NOTE:

- (1) The bolt provided with the child restraint system may not be a metric type. You can damage the anchor nuts on your car if you force bolts with different thread into the anchor nuts.
- (2) You may obtain anchoring hardware (anchor bracket, metric bolt and spacer) and installation instructions from an authorized dealer.



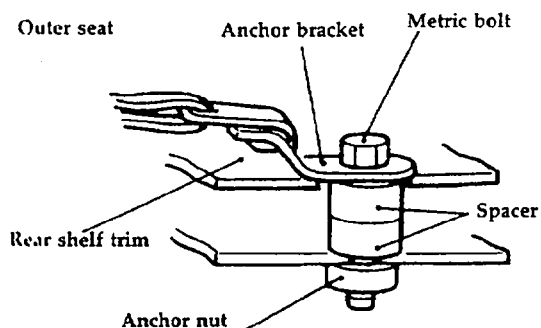
Hook the top strap to the anchor bracket. Tighten the top strap.

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WARNING!

After installation, shake the child seat back and forth, and side to side to see that it is secured.

If the child restraint system is not restrained securely, it may cause injury to the child in case of an accident or during sudden stops.



SEAT AND SEATBELT

Children who have outgrown a child restraint

Children who have outgrown a child restraint system should be seated in the rear seat and should wear the combination UNIBELT.

2

If the shoulder belt crosses the face or neck of the child, use a child restraint system according to the size of the child.

WARNING!

- (1) Children who are not buckled up can strike other people who are buckled up, or they can be thrown out of the car in an accident.
- (2) Never leave a child unattended in your car. When you leave the car, take the child with you.

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PREGNANT WOMAN RESTRAINT

WARNING!

Chrysler Corporation recommends that pregnant women use the available shoulder and seatbelts. This will reduce the likelihood of injury to both the woman and the unborn child. The seatbelt should be worn across the thighs and as snug against the hips as possible, but not across the waist.

Consult the woman's doctor if you have any questions.

MAINTAINING AND INSPECTING SEATBELTS

The webbing used in belts may be cleaned with a hydrocarbon dry cleaner or with soap or detergent in water.

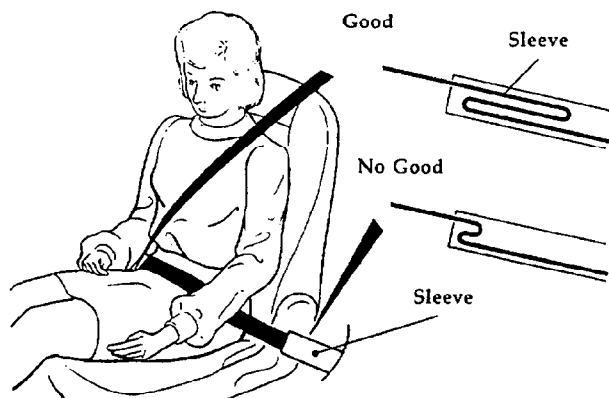
Do not try to bleach or re-dye belts. The resulting color may rub off and webbing strength could be affected.

Regularly check seatbelt buckles and release mechanisms

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for positive action and check automatic locking retractors for positive engagement.

Check that the anchor mounting bolts are tight. The seatbelt should be replaced if the seatbelt webbing is cut or protruding broken fibers increase webbing thickness. Severe fading indicates weakening by exposure to sunlight. The seatbelt should also be replaced if it is severely faded.



The lap belt portions of the front seatbelts have on them a sleeve inside which has the seatbelt webbing folded back over itself in a loop. This allows it to absorb the energy of a shock by pulling loose and releasing slack. If the loop inside the sleeve has come loose, replace the seatbelt.

WARNING!

All seatbelt assemblies including retractors and attaching hardware, should be inspected by an authorized dealer after any collision. We recommend that all seatbelt assemblies in use during a collision be replaced, unless the collision was minor and the belts show no damage and continue to operate properly.

Do not try to repair or replace any part of the seatbelt assemblies; that work should be done by an authorized dealer. Failure to have an authorized dealer perform the work could reduce the effectiveness of the belts and could result in serious injury in a collision.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

This car is equipped with a Supplemental Restraint System (SRS), which includes driver and front passenger air bags.

The SRS supplements the seatbelts to provide those

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SEAT AND SEATBELT

occupants with protection against head and chest injuries in certain moderate-to-severe frontal collisions.

The SRS is NOT a substitute for seatbelts. For maximum protection in all types of crashes and accidents, seatbelts should ALWAYS be worn by everyone who drives or rides in this car, with infants and small children in child restraints.

WARNING!

ALWAYS WEAR YOUR SEATBELT, EVEN IF YOUR CAR HAS AN AIR BAG.

- (1) Seatbelts help keep the driver and front passenger properly positioned, which reduces injury risk in all accidents and when the air bags inflate.
- (2) Seatbelts reduce the risk of injury in rollovers, in side- or rear-impact collisions, and in lower speed frontal collisions because the air bags are not designed to inflate in those situations.
- (3) Seatbelts reduce the risk of being thrown from your car in a collision or rollover.

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SEAT AND SEATBELT

WARNING!

IT IS VERY IMPORTANT TO BE PROPERLY SEATED, EVEN IF YOUR CAR HAS AN AIR BAG.

Air bags inflate very fast and with great force. If the driver and front passenger are not properly seated, the air bag may not protect you properly and could cause injury when it inflates. So:

- (1) Before driving, adjust the driver's seat as far back as possible while still maintaining complete control of the car.
- (2) Before driving, adjust the front passenger seat as far back as possible.
- (3) With seatbelts properly fastened, the driver and front passenger should sit upright with their backs against the seatbacks.
- (4) Do not lean head or chest close to the steering wheel or instrument panel. Do not put feet or legs on or against the instrument panel.

WARNING (Continued)

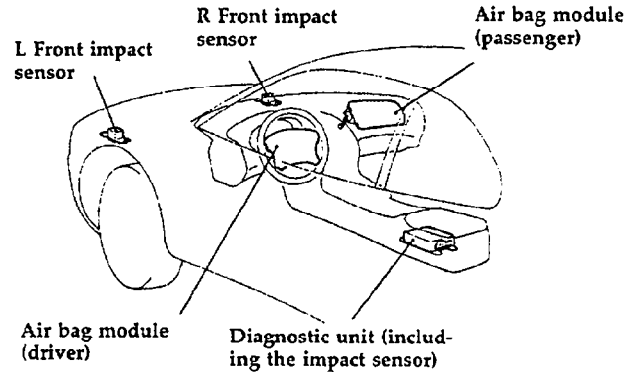
- (5) Infants and small children should never be unrestrained or held in your arms or on your lap while in the car. They could be seriously hurt in an accident or when the air bag inflates. Proper seat children in a child restraint system. See "Child Restraints" on page 50.

2

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WARNING!

- Do Not use REAR-FACING CHILD RESTRAINTS in the front seat of the car. The force of an inflating passenger air bag could push that restraint into the seatback, causing serious or fatal injury to the child.
Rear-facing child restraints should be used only in the rear seat.
- Whenever you can, use FRONT-FACING CHILD RESTRAINTS in the rear seat. If used in the front passenger seat, adjust the seat as far back as possible.

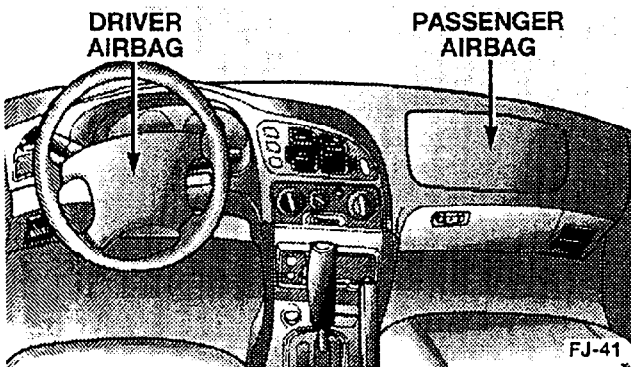
**How the Supplemental Restraint System works**

The SRS includes the following components:

- Impact sensors
- Diagnostic unit
(Including the impact sensor)
- SRS warning light
- Air bag modules
- Interconnecting wiring

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The air bags will operate only when the ignition switch is in the "ON" or "START" positions.

**Air bag system**

The driver's air bag is under the padded cover in the middle of the steering wheel. The front passenger's air bag is in the instrument panel above the glove compartment. The driver's air bag and the front passenger's air bag are designed to inflate at the same time.

The air bags are designed to inflate only in certain moderate-to-severe frontal collisions. The air bags are not designed to inflate in certain lower speed frontal collisions, in rollovers, or in side or rear impact collisions. The air bags also may not inflate in certain frontal collisions, even through the car may be severely damaged. Such non-inflation does not mean that something is wrong with the SRS system, but rather that the collision forces were not severe enough to activate it.

When the impact sensors detect an impact of sufficient frontal force, their switches close a circuit which ignites materials in the inflator to generate nitrogen gas and inflate the air bags.

Deployment of the air bags produces a sudden, fairly loud noise and releases some smoke and powder, but these conditions are not injurious, and do not indicate a fire in the car. The air bags deflate very rapidly after deployment, so there is little danger of obscured vision.

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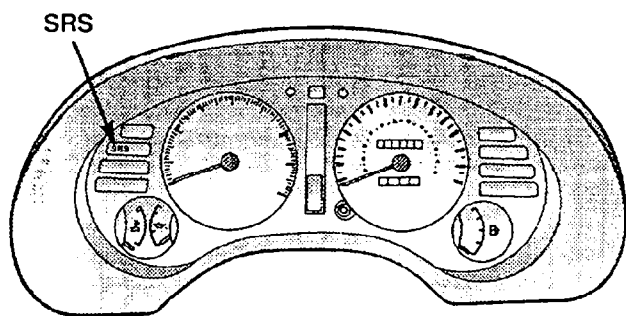
WARNING!

- (1) Do not attach anything to the steering wheel padded cover, such as trim material, badges, etc. Added materials might strike and injure an occupant if the air bag inflates.
- (2) Do not set anything on or attach anything to the instrument panel above the glove compartment. These objects might strike and injure an occupant if the air bag inflates.
- (3) Do not attach accessories to, or put them in front of, the windshield. They could restrict air bag inflation, or they could strike and injure an occupant if the air bags inflate.
- (4) Do not put packages, pets, or other objects between the air bags and the driver or front passenger. Doing so could affect air bag performance or could cause injury when the air bag inflates.

WARNING (Continued)

- (5) After an air bag inflates, several air bag components will be hot. Do not touch them; you could be burned.
- (6) The SRS system is designed to work only once. After the air bags deploy, they will not work again. They must be promptly replaced and the entire SRS system must be inspected by an authorized dealer.

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SRS warning light

A supplemental restraint system ("SRS") warning light is on the instrument panel. The system checks itself and the light tells you if there is a problem.

When the ignition key is turned to the "ON" or "START" positions, the warning light should illuminate for about 7 seconds and should then go out. This means the system is ready.

The air bags will operate only when the ignition switch is in the "ON" or "START" positions.

WARNING!

If any of the following conditions occur, the SRS is not working properly. Immediately have it inspected by an authorized dealer:

- The SRS warning light does not illuminate when you start the car.
- The SRS warning light does not go off after about 7 seconds.
- The SRS warning light illuminates while driving.

SRS servicing

Have the entire SRS system inspected by an authorized dealer 10 years after the car manufacture date shown on the certification label. The certification label is on the center pillar on the driver's side.

2

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WARNING!

- (1) Any maintenance performed on or near the components of the SRS must be performed only by an authorized dealer.

Do not permit anyone else to service, inspect, maintain, or repair any SRS components or wiring. Similarly, no part of the SRS system should ever be handled or disposed of by anyone except an authorized dealer.

Improper work on the SRS components or wiring could result in inadvertent deployment of the air bags or could render the SRS system inoperative. Either situation could result in serious injury.

- (2) Do not modify your steering wheel or any other SRS components. For example, replacing the steering wheel or modifying the front bumper or body structure can adversely affect SRS performance and lead to possible injury.

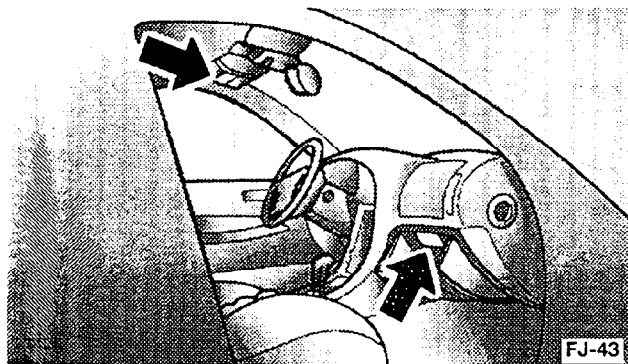
WARNING (Continued)

- (3) If your car has had any front-end damage, have the SRS system inspected by an authorized dealer to ensure it is working properly.

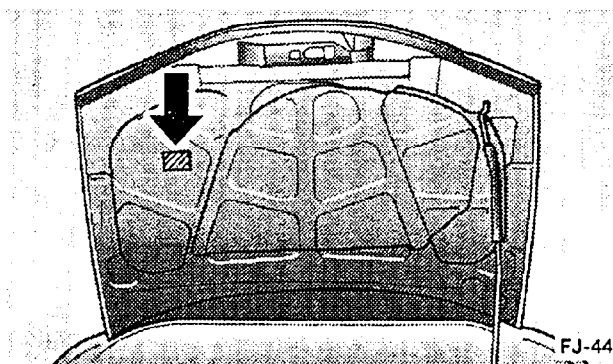
NOTE:

- (1) When you transfer ownership of the car to someone else, we urge you to alert the new owner that it is equipped with the SRS system. Refer that owner to the applicable section in this owner's manual.
- (2) If you junk or scrap the car, we urge you to first take the car to an authorized dealer so that the SRS system can be made safe.

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**Service and information label**

Service and information labels are attached as shown in the illustration.



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