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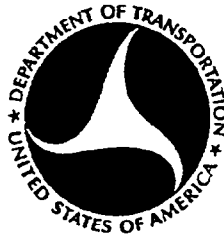
Report Number TRC-95-N07

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Chrysler Corporation
1995 Jeep Cherokee
4-door Multi-Purpose Passenger Vehicle
NHTSA Number: MS0302
TRC Test Number: 950103

Prepared By:
Transportation Research Center Inc.
10820 State Route 347
East Liberty, Ohio 43319



January 26, 1995

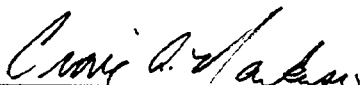
Final Report

Prepared For:
U. S. Department Of Transportation
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Office Of Market Incentives
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Washington, D.C. 20590

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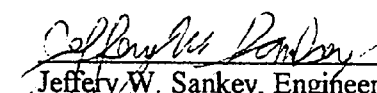
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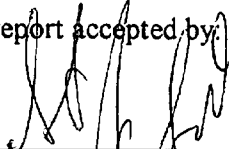
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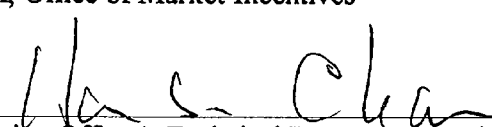
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Final report accepted by:



Manager, New Car Assessment Program
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16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1995 Jeep Cherokee 4-door Multi-Purpose Passenger Vehicle NHTSA No. MS0302, at Transportation Research Center Inc. on January 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 56.3 kph. The vehicle's maximum static crush was 589 millimeters. The ambient temperature was 21° C. The driver's Head Injury Criteria (HIC) was 484. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 51.8 g. The driver's chest maximum deflection was 48 millimeters. The driver's left and right femur maximum axial forces were 5308 N and 5163 N, respectively. The passenger's HIC was 682. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 53.7 g. The passenger's chest maximum deflection was 42 millimeters. The passenger's left and right femur maximum axial forces were 5706 N and 4403 N, respectively.			
17. Key Words 56 kph (35 mph) Frontal Barrier Impact Test: New Car Assessment Program (NCAP) FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Retention" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division Nassif Building, Room 5108 400 Seventh Street, S.W. Washington, DC 20590	
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

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

*1 in = 2.54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10286.

Approximate Conversions from Metric Measures

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

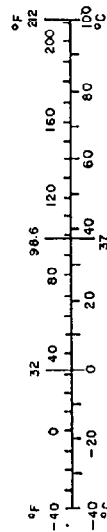


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Section 1.0

Purpose and Test Procedure

Purpose

This 56 kph (35 mph) frontal barrier impact test is part of the New Car Assessment Program (NCAP) conducted for the National Highway Traffic Safety Administration's (NHTSA) Office of Market Incentives by Transportation Research Center Inc. (TRC) under Contract 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 Jeep Cherokee 4-door MPV, NHTSA Number MS0302, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208 requirements.

Test Procedure

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

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

The test vehicle contained two (2) Part 572E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendices VII and VIII of the Laboratory Indicant Test Procedure. This test was the third use of the driver dummy and the first 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 sixteen (16) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

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

Section 2.0

Frontal Barrier Impact Test Summary

Test Results Summary

This frontal load cell barrier test was conducted at TRC on January 3, 1995.

The test vehicle, a 1995 Jeep Cherokee 4-door MPV, NHTSA Number MS0302, was equipped with a 2.5-liter inline engine, manual transmission, power steering, and power brakes. The vehicle's test weight was 1637 kg. The vehicle's impact speed was 56.3 kph. The vehicle sustained 589 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 484. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 51.8 g. The driver's chest maximum deflection was 48 mm. The driver's left and right femur maximum axial forces were 5308 N and 5163 N, respectively.

The passenger's HIC was 682. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 53.7 g. The passenger's chest maximum deflection was 42 mm. The passenger's left and right femur maximum axial forces were 5706 N and 4403 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 left rear seat X-axis accelerometer, TLRXG1, recorded a questionable data spike at 17 milliseconds. As a result, the left rear seat redundant X-axis acceleration, TLRXGA, data was used for the velocity and displacement calculations.

The instrument panel center X-axis accelerometer, DPCXG1, lost data from 68 to 197 milliseconds and did not return to zero following the impact event.

The driver's pelvis Y-axis accelerometer, PEVYG1, did not return to zero following the impact event. The data not returning to zero affected the driver pelvis resultant acceleration calculation.

The driver's pelvis Z-axis accelerometer, PEVZG1, recorded questionable data during the impact event and did not return to zero following the impact event. The questionable data and the data not returning to zero affected the driver's pelvis resultant acceleration calculations.

The passenger's pelvis Y-axis accelerometer, PEVYG2, recorded questionable data during the impact event and did not return to zero following the impact event. The questionable data and the data not returning to zero affected the passenger's pelvis resultant acceleration calculation.

Table 1 Crash Test Summary

NHTSA number:	MS0302	
Test type:	Frontal Load Cell Barrier	
Test date:	01/03/95	
Test time:	1445	
Ambient temperature:	21° C	
Vehicle year/make/ model/body style:	1995/Jeep/Cherokee/MPV	
Vehicle test weight:	1637 kg	
Impact angle ¹ :	0°	
Impact velocity ² :	Primary = 56.3 kph Secondary = 56.3 kph	
Maximum static crush:	589 mm	
Average rebound:	305 mm	
Dummies:	Driver #142	Passenger #192
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	3-point unbelt and airbag	3-point unbelt
Number of data channels:	89	
Number of cameras:	High-speed 16	
	Real-time 2	

¹ With respect to tow track centerline.

² Speed trap measurement (± .08 kph accuracy)

Table 2 Test Vehicle Information

Vehicle year/make/
model/body style: 1995/Jeep/Cherokee/MPV

Color: Black

VIN: 1J4FT28PXSL541888

NHTSA number: MS0302

Engine data:

 Placement: Longitudinal

 Cylinders: 4

 Displacement 2.5 liters

Transmission data: 5 speed, X manual, __automatic, __overdrive
 __FWD, XRWD, __4WD

Date vehicle received: 12/15/94

Odometer reading: 68

Dealer's name and address: Jeep-Eagle West Inc.
 1455 Automall Drive
 Columbus, OH 43228

Accessories:

Power steering	Yes	Automatic transmission	No
Power brakes	Yes	Automatic speed control	No
Power seats	No	Tilting steering wheel	No
Power windows	No	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	No
Clock	Yes	Rear window defroster	No
Other	None		

Certification data from vehicle's label:

Vehicle manufactured by: Chrysler Corporation

Date of manufacture: 10/94

VIN: 1J4FT28PXSL541888

GVWR: 2087 kg

GAWR: Front: 1134 kg

 Rear: 1225 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P215/75R15

Tire pressure with maximum
capacity vehicle load:

Front: 240 kPa

Rear: 240 kPa

Spare tire: Goodyear T125/90R16

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P215/75R15

Recommended cold tire pressure:

Front: 230 kPa

Rear: 230 kPa

Designated seating capacity:

Front 2

Rear 3

Total 5

Vehicle capacity weight: NA kg

Test vehicle attitude:

Delivered attitude: LF 798 mm; RF 795 mm; LR 780 mm; RR 784 mm

Pre-test attitude: LF 786 mm; RF 784 mm; LR 734 mm; RR 729 mm

Post-test attitude: LF 744 mm; RF 718 mm; LR 743 mm; RR 703 mm

Table 2 Test Vehicle Information, Cont'd

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

Right front	363 kg	Right rear	355 kg
Left front	317 kg	Left rear	318 kg
Total front weight	680 kg	(50.3% of total vehicle weight)	
Total rear weight	673 kg	(49.7% of total vehicle weight)	
Total delivered weight	1353 kg		

Calculation of test vehicle's target test weight:

RCLW¹ = Rated cargo and luggage weight

UDW = Unloaded delivered weight (1353 kg)

VCW = Vehicle capacity weight (NA)

DSC = Designated seating capacity (NA)

RCLW¹ = VCW - 68 (DSC) = 136 kg

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

Target test weight = 1353 + 136 + 152

Target test weight = 1641 kg

Weight of test vehicle with required dummies and 132 kg of cargo weight:

Right front	387 kg	Right rear	435 kg
Left front	391 kg	Left rear	424 kg
Total front weight	778 kg	(47.5% of total vehicle weight)	
Total rear weight	859 kg	(52.5% of total vehicle weight)	
Total test weight	1637 kg	(0.2 % under target test weight)	

Weight of ballast secured in vehicle: 0 kg of steel plate

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 1404 mm

Vehicle wheelbase: 2675 mm

¹ Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kg, whichever is less.

Table 3 Post-Impact Data

Test number: 950103
NHTSA number: MS0302
Test date: 01/03/95
Test time: 1445
Test type: Frontal load cell barrier
Impact angle: 0°
Ambient temperature
at impact area: 21° C
Temperature in
occupant compartment: 21° C
Impact velocity:
 Primary 56.3 kph
 Secondary 56.3 kph
 Specified range 55.5 to 57.1 kph

Distance from vehicle to barrier:

 Entering velocity trap 356 mm
 Exiting velocity trap 51 mm

Test vehicle static crush:

Overall length of test vehicle:

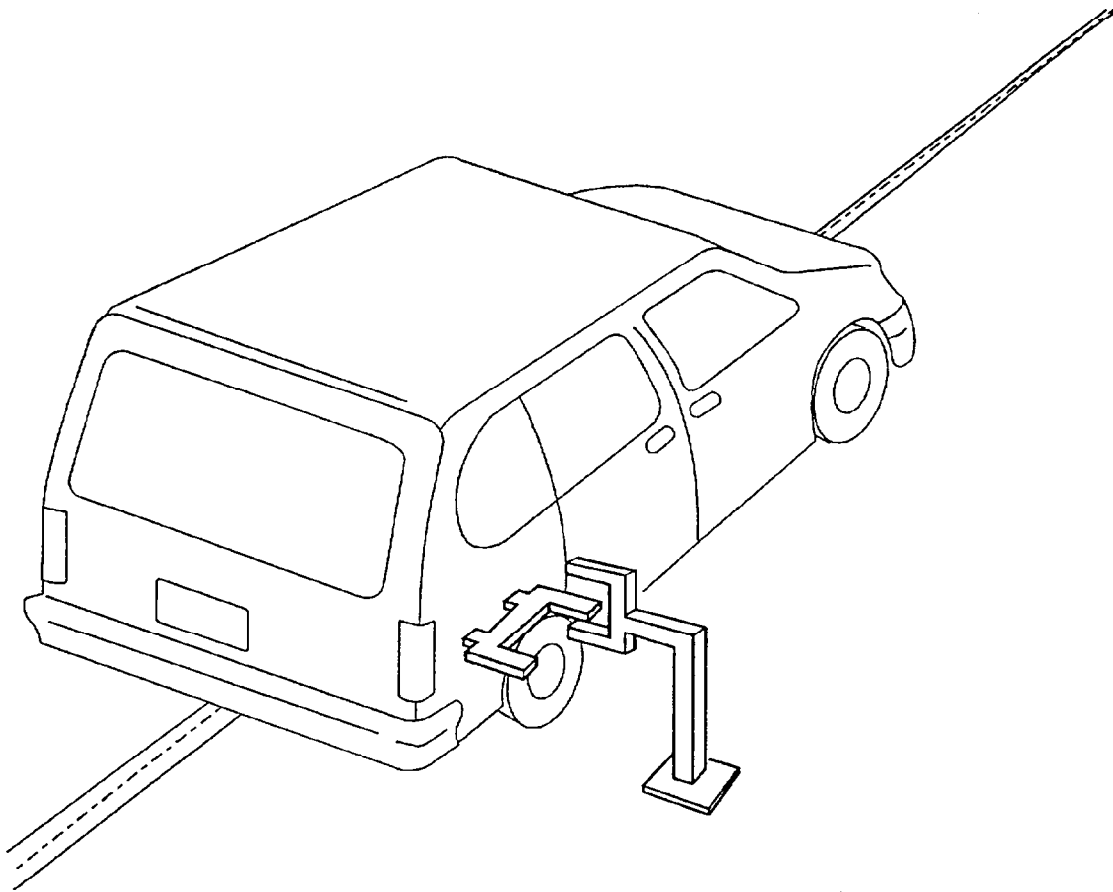
Pre-test: L 4149 mm; C 4175 mm; R 4150 mm
Post-test: L 3604 mm; C 3586 mm; R 3601 mm
Total crush: L 545 mm; C 589 mm; R 549 mm
Average crush: 561 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test: L 290 mm; C 320 mm; R 305 mm
Average rebound 305 mm

Figure 1 Impact Velocity Measurement System



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

The vanes have 305-millimeter spacing.

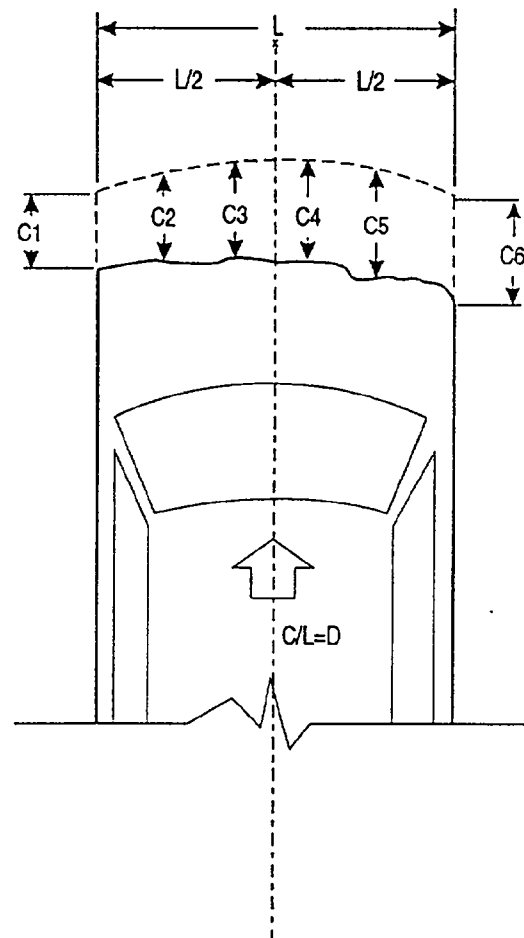
Figure 2 Accident Investigation Division Data
for 56 kph (35 mph) Frontal Barrier Impact

NHTSA number: MS0302
 Test date: 01/03/95
 Vehicle year/make/
 model/body style: 1995/Jeep/Cherokee/MPV
 Vehicle size category: Multi-purpose Passenger Vehicle
 VIN: 1J4FT28PXSL541888
 Build date: 10/94
 Test weight: 1637 kg
 Vehicle wheelbase: 2675 mm
 Maximum width: 1734 mm
 Front overhang: 705 mm

Collision Deformation
 Classification (CDC) code: 12FDEW3

Crush depth
 measurements:

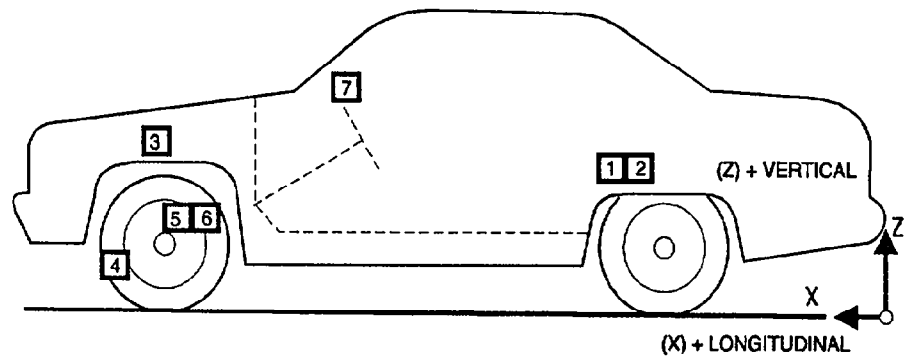
C1	=	545 mm
C2	=	545 mm
C3	=	572 mm
C4	=	557 mm
C5	=	567 mm
C6	=	549 mm



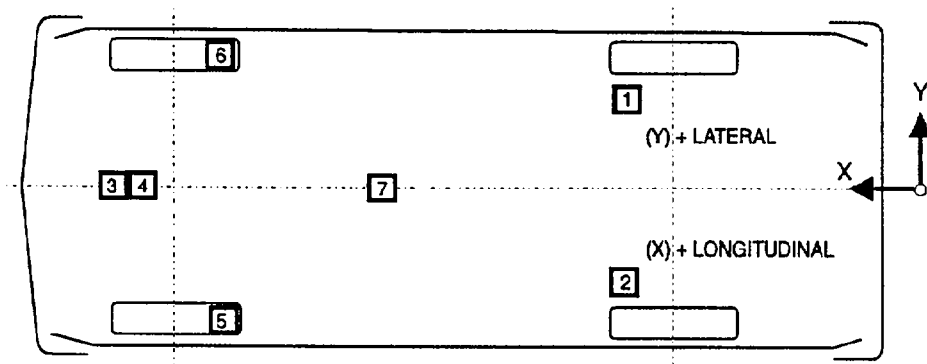
Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1412 mm

Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 950103					POSITIVE		NEGATIVE	
No. LOCATION	X	Y	Z		DIRECTION		DIRECTION	
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL ¹ REDUNDANT	2635 mm	460 mm	513 mm		---	---	53.9 g @ 59.2 ms	
					12.1 g @ 123.6 ms		55.7 g @ 59.5 ms	
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	2635 mm	-425 mm	487 mm					
					9.7 g @ 122.5 ms		43.2 g @ 61.4 ms	
					11.6 g @ 122.4 ms		46.1 g @ 61.4 ms	
3 ENGINE TOP LONGITUDINAL	710 mm	-30 mm	1020 mm		24.3 g @ 43.8 ms		140.5 g @ 31.0 ms	
4 ENGINE BOTTOM LONGITUDINAL	845 mm	50 mm	411 mm		12.6 g @ 154.3 ms		104.4 g @ 31.7 ms	
5 RIGHT BRAKE CALIPER LONGITUDINAL	802 mm	-603 mm	306 mm		20.3 g @ 55.4 ms		83.5 g @ 35.0 ms	
6 LEFT BRAKE CALIPER LONGITUDINAL	797 mm	603 mm	322 mm		97.1 g @ 45.6 ms		112.2 g @ 33.2 ms	
7 INSTRUMENT PANEL CENTER LONGITUDINAL ¹	1420 mm	0 mm	1188 mm		---	---	---	---

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

REFERENCE: X: + FORWARD ACCELERATION

Y: + LEFT FROM VEHICLE CENTERLINE

Z: + UP FROM GROUND LEVEL

¹ See DATA ACQUISITION EXPLANATIONS

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver #142</u>	<u>Passenger #192</u>
Head	Airbag	Instrument panel and right knee
Chest	Airbag	None
Abdomen	Steering wheel - lower rim	None
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door Opening:

	<u>Left</u>	<u>Right</u>
Front	Difficult - tools required	Difficult - tools required
Rear	NA	NA

Seat Movement:

	<u>Seat Back Failure</u>	<u>Seat Shift</u>
Front	None	None
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/Jeep/Cherokee/MPV
Vehicle NHTSA number: MS0302
Test date: 01/03/95

	Driver		Passenger	
	Dummy #142		Dummy #192	
<u>Maximum Accelerations:</u>				
Head X-axis	-63.0	g	-102.8	g
Head Y-axis	13.8	g	25.4	g
Head Z-axis	-30.0	g	-54.3	g
Head resultant	63.2	g	106.0	g
Chest X-axis	-50.4	g	-49.7	g
Chest Y-axis	10.3	g	-7.4	g
Chest Z-axis	-24.1	g	-24.9	g
Chest resultant ¹	51.8	g	53.7	g
Chest resultant time interval ¹	.003	sec	.003	sec
<u>Head Injury Criteria (HIC) Values:</u>				
HIC ²	484		682	
HIC starting time	.048	sec	.078	sec
HIC ending time	.084	sec	.114	sec
Avg. head resultant accel. during HIC time interval	44.8	g	51.4	g
<u>Maximum Chest Deflections:</u>				
Chest X-axis	48	mm	42	mm
Maximum chest deflection time	.062	sec	.070	sec
<u>Maximum Compressive Femur Forces:</u>				
Left femur	5308	N	5706	N
Right femur	5163	N	4403	N
<u>Maximum Seat Belt Forces:</u>				
Lap belt	4980	N	6522	N
Shoulder belt	6036	N	9137	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/Jeep/Cherokee/MPV
Vehicle NHTSA number: MS0302
Test date: 01/03/95

	Driver Dummy #142	Passenger Dummy #192
<u>Maximum Values:</u>		
Neck X-axis force	1696 N	1162 N
Neck Y-axis force	-326 N	-310 N
Neck Z-axis force	2793 N	2402 N
Neck moment about X-axis	25 N-m	-39 N
Neck moment about Y-axis	-109 N-m	-54 N
Neck moment about Z-axis	22 N-m	18 N
Pelvis X-axis	-63.7 g	-77.5 g
Pelvis Y-axis ¹	11.5 g	NA g
Pelvis Z-axis ¹	-24.1 g	25.4 g
Pelvis Resultant ¹	64.6 g	NA 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 head and chest impacted 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.

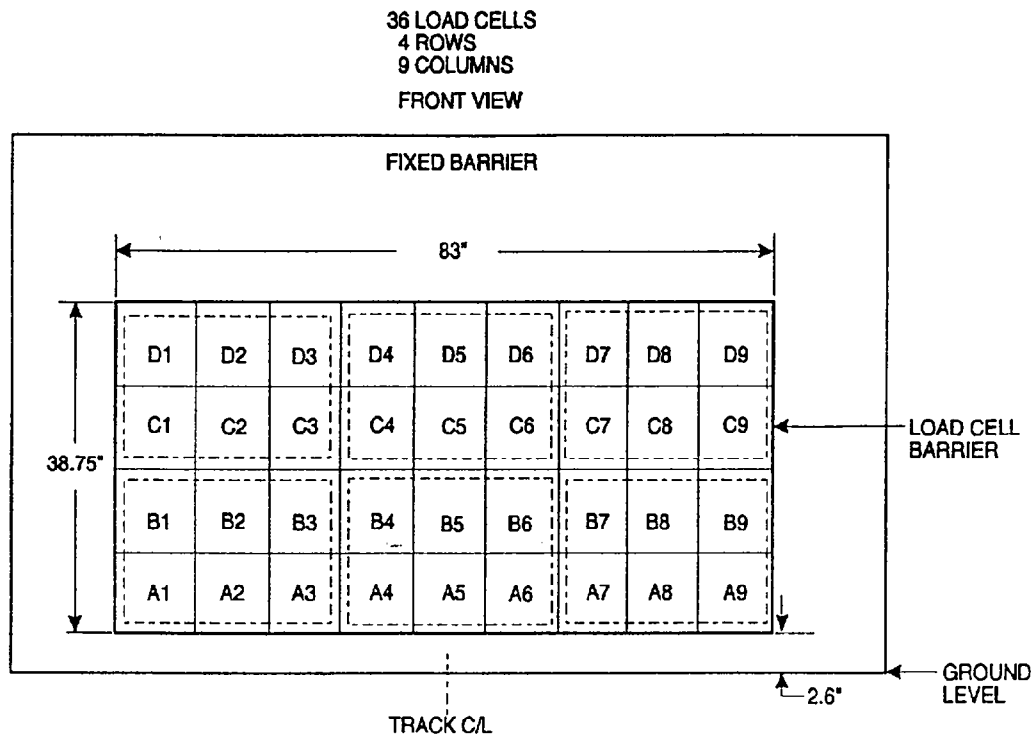
Right Front Passenger Dummy

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated downward impacting the instrument panel and right knee. The right front passenger dummy was restrained by the three-point unbelt. The dummy rebounded rearward 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.	2540 mm	2560 mm
Shoulder belt length as measured on Part 572 dummy.	830 mm	820 mm
Lap belt length as measured on Part 572 dummy.	765 mm	770 mm
<u>Shoulder belt spool-off length:</u>		
As determined by film analysis	38 mm	51 mm
As determined mechanically	38 mm	38 mm
As determined electronically	43 mm	58 mm
<u>Belt stretch length:</u>		
As measured mechanically	0 mm/m	0 mm/m
As measured electronically	0 mm/m	0 mm/m
<u>Retractor lock-up time:</u>		
As determined by shoulder belt spool-off	60 ms	46 ms

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	1.0 kN @ 1.1 ms	62.0 kN @ 69.4 ms
Total group 2	1.5 kN @ 46.7 ms	35.8 kN @ 13.3 ms
Total group 3	1.1 kN @ 285.6 ms	59.6 kN @ 63.1 ms
Total group 4	0.7 kN @ 283.9 ms	114.0 kN @ 13.0 ms
Total group 5	0.0 kN @ 285.8 ms	377.3 kN @ 33.1 ms
Total group 6	1.0 kN @ 178.6 ms	135.5 kN @ 16.2 ms
Total load cell force	3.7 kN @ 285.8 ms	656.8 kN @ 32.7 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.:

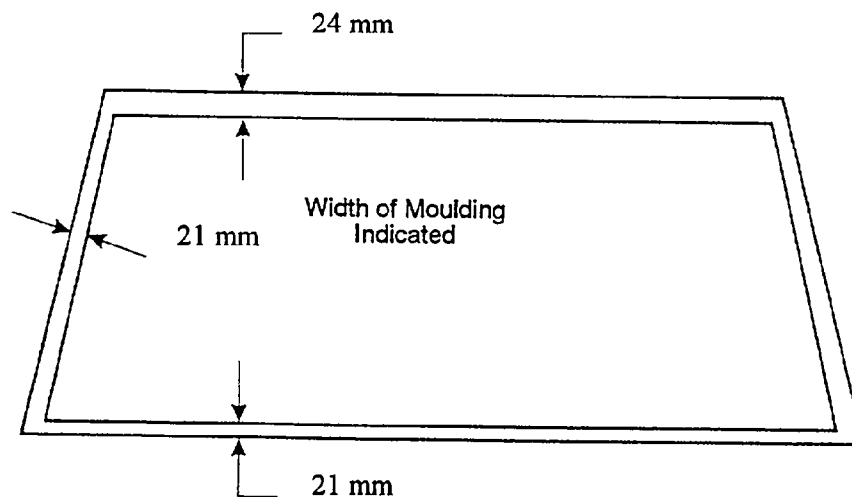
Plastic trim around outer perimeter, adhesive around inner perimeter.

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	1957 mm	1957 mm	100
Left side	1957 mm	1957 mm	100
Total	3914 mm	3914 mm	100

Pre-test windshield mounting material temperature: 21° C



Front view of windshield¹

Loss of windshield retention lengths: None

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

Figure 6 FMVSS 219 Test Data

Protected zone lower edge requirement:

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

Windshield measurements:

A = 1346 mm

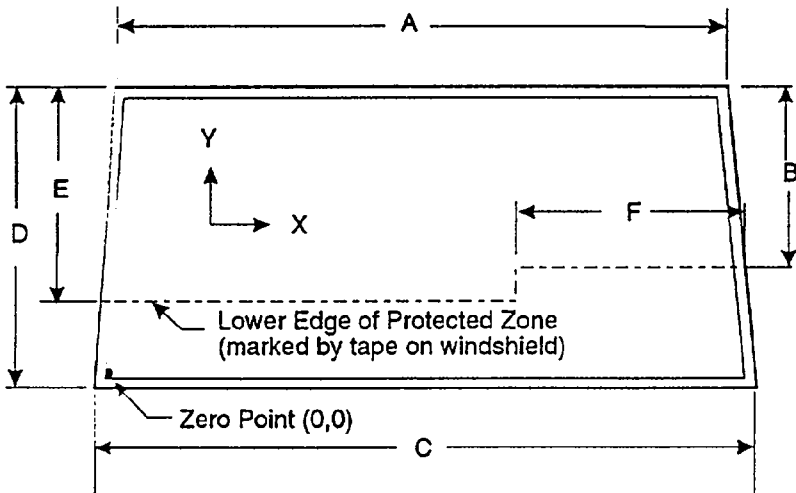
B = 346 mm

C = 1560 mm

D = 609 mm

E = 446 mm

F = 1022 mm



FRONT VIEW

Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

Coordinates
X Y

- 1.
- 2.
- 3.

Areas of windshield penetration, below the protected zone, through the inner surface of the windshield: None

- 1.
- 2.
- 3.

Table 10 Fuel System Data

Vehicle year/make/ model/body style:	1995/Jeep/Cherokee/MPV
NHTSA number:	MS0302
Fuel system capacity:	75.7 liters (from owner's manual)
Usable capacity:	75.7 liters (furnished by COTR)
Test volume range:	69.6 liters to 71.2 liters (92-94% of usable)
Actual test volume:	69.8 liters (with entire fuel system filled)
Test fluid type:	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	Purple

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

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

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MS0302
Test date: 01/03/95
Vehicle year/make/
model/body style: 1995/Jeep/Cherokee/MPV

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:

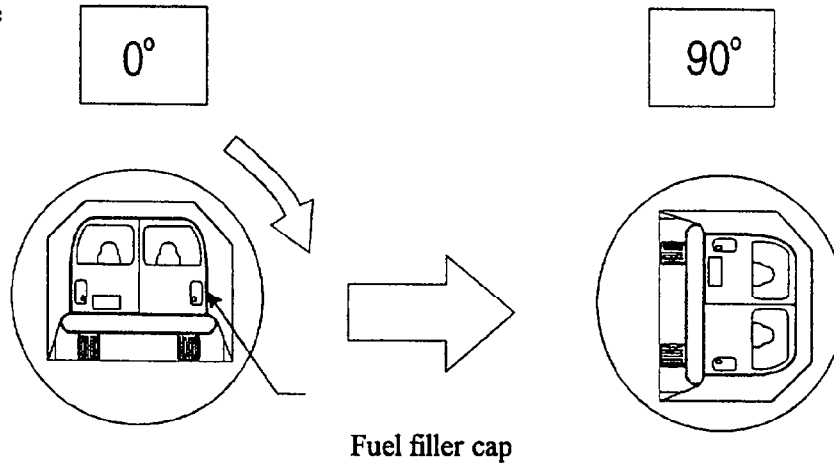
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 g	28 g
2. 5-minute period after vehicle motion ceases	0 g	142 g
3. Next 25 minutes after 5-minute period	0 g	28 g/min

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data

NHTSA number: MS0302

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

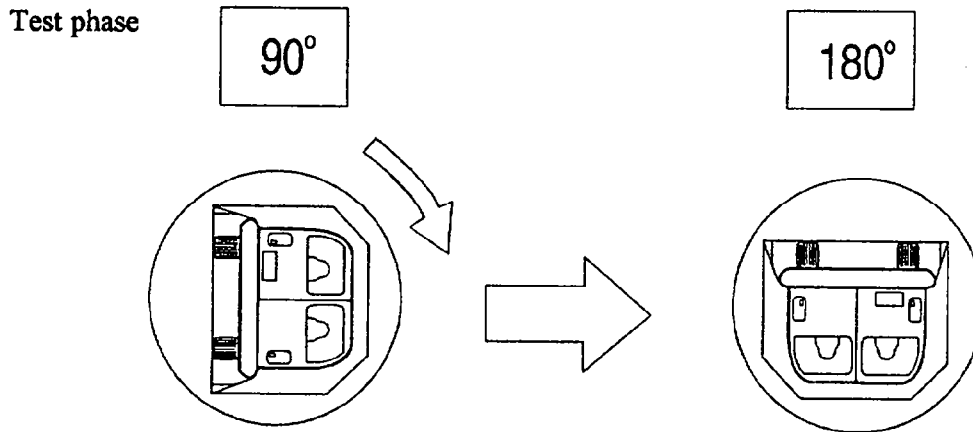
Next whole minute interval = 7 minutes

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.



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

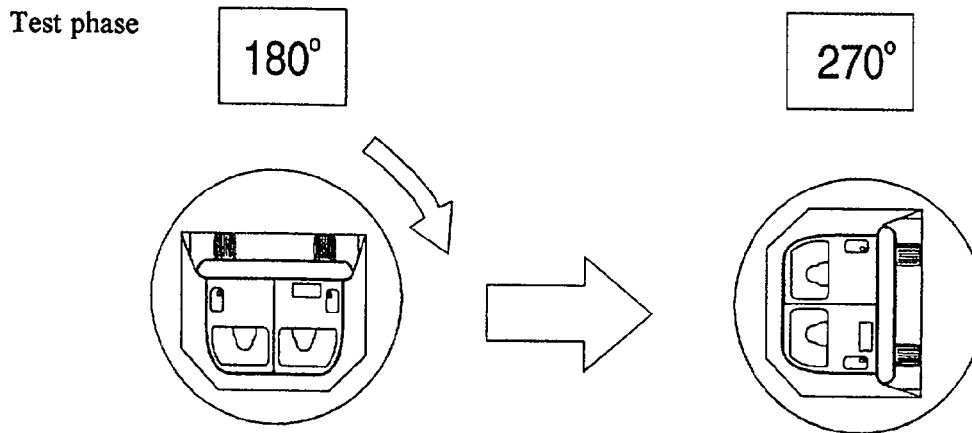
Time required for machine to rotate 90°	=	2 minutes,	0 seconds
FMVSS 301 position hold time	=	5 minutes,	0 seconds
Total	=	7 minutes,	0 seconds
Next whole minute interval	=	14 minutes	

Fuel system fluid spillage measurements:

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

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.



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		

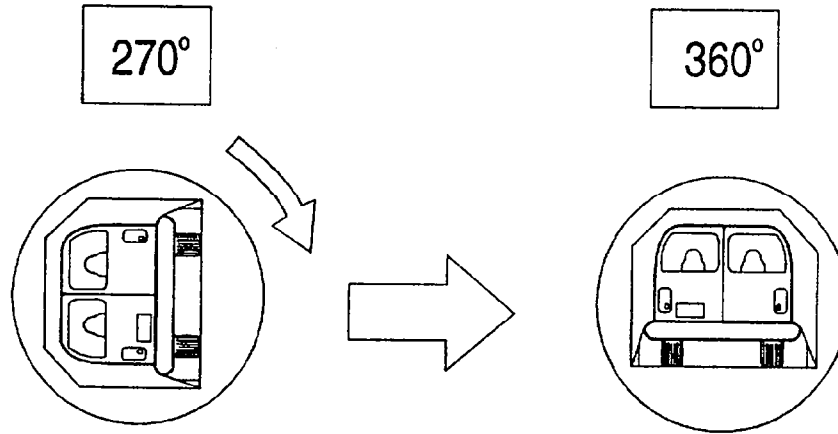
Fuel system fluid spillage measurements:

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

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



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

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

Fuel system fluid spillage measurements:

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

Fuel system fluid spillage location(s): None

Section 4.0

Occupant, Camera, and Vehicle Information

Figure 8 Dummy Measurement Locations for Front Seat Occupants

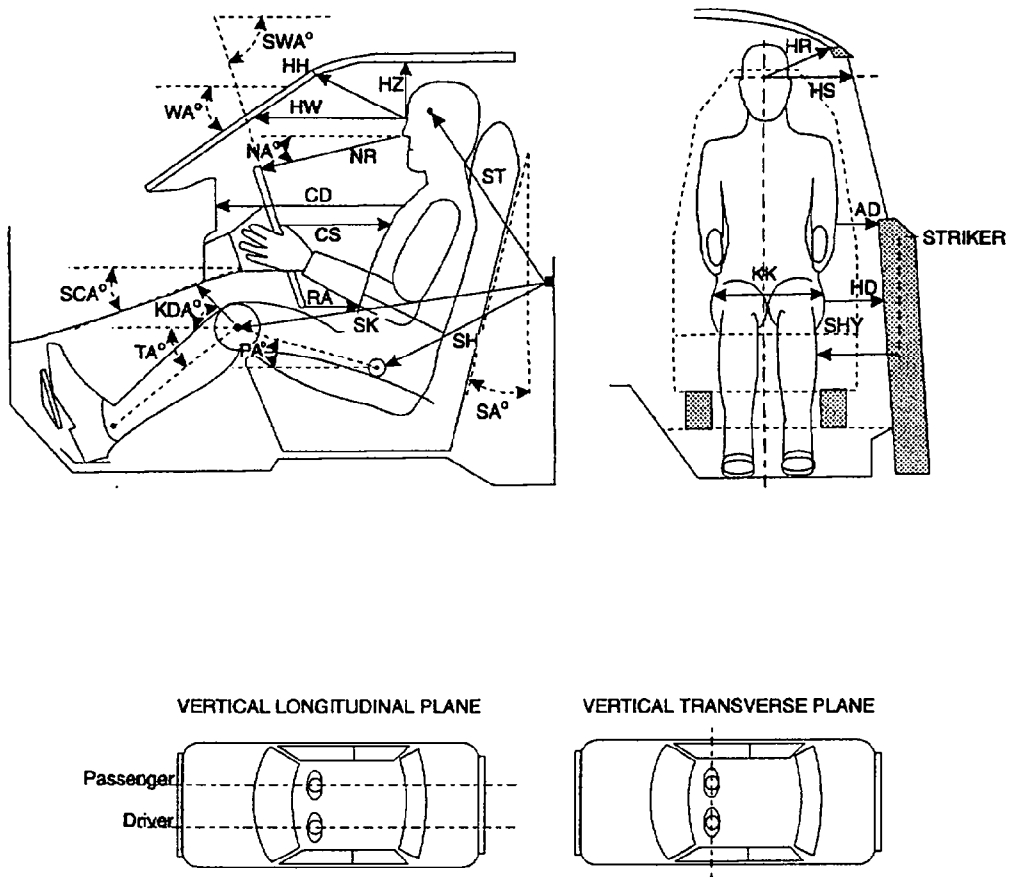
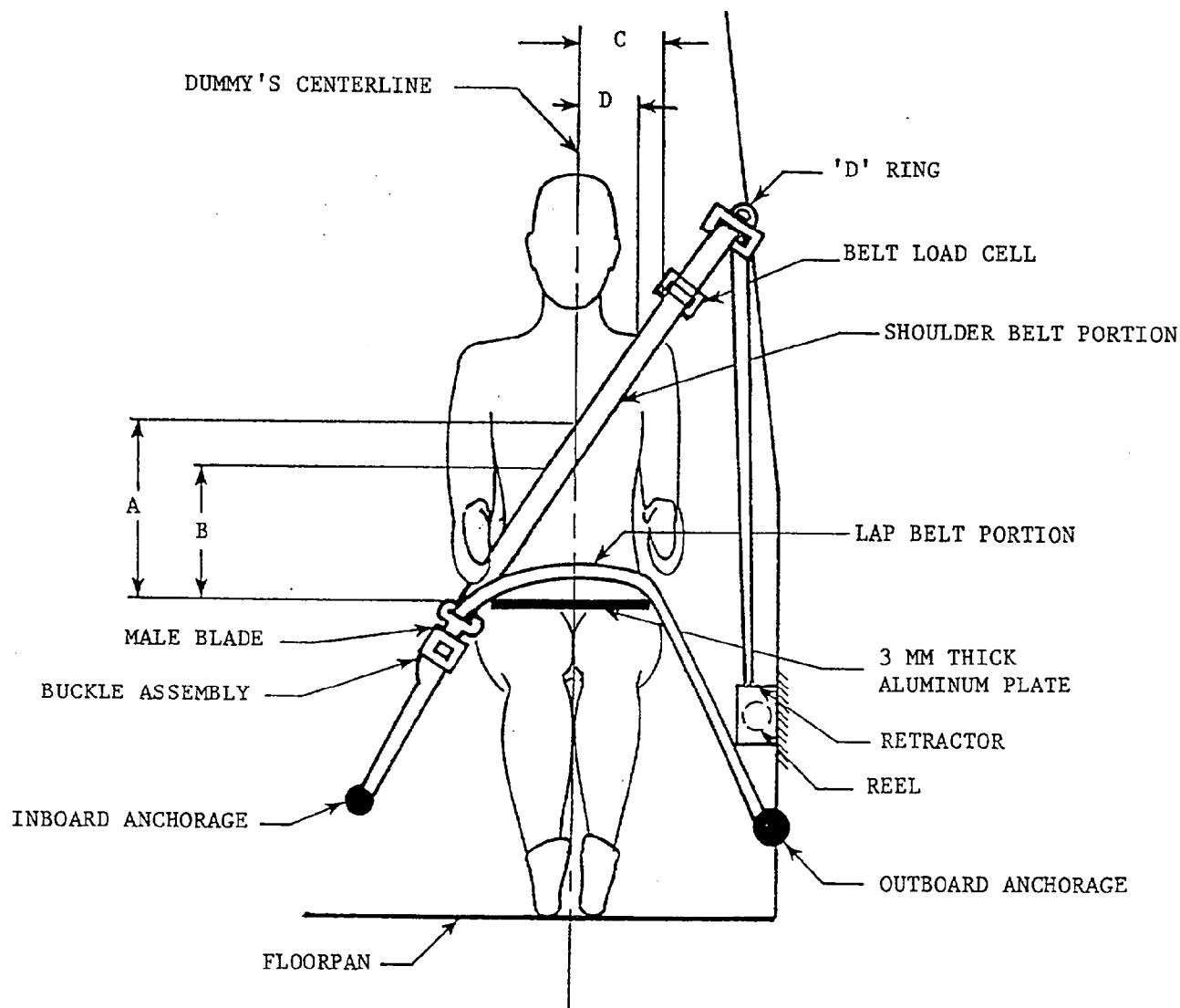


Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #142)	Passenger (Serial #192)
WA	Windshield angle	40°	NA
SWA	Steering wheel angle	68°	NA
SCA	Steering column angle	28°	NA
SA	Seat back angle	23.5°	23.5°
HZ	Head to roof	177 mm	171 mm
HH	Head to header	375 mm	361 mm
HW	Head to windshield	479 mm	484 mm
HR	Head to side header	248 mm	195 mm
NR	Nose to rim	347 mm	NA
NA	Nose to rim angle	12°	NA
CD	Chest to dash	525 mm	554 mm
CS	Steering wheel to chest	234 mm	NA
RA	Rim to abdomen	145 mm	NA
KDL	Left knee to dash	86 mm	100 mm
KDR	Right knee to dash	80 mm	110 mm
KDA	Outboard knee to dash angle	24°	21°
PA	Pelvic angle	21.5°	22.5°
TA	Tibial angle	46°	46°
KK	Knee to knee	205 mm	175 mm
ST ¹	Striker to head	546 mm	541 mm
	Striker to head angle	-79°	-79°
SK ¹	Striker to knee	619 mm	641 mm
	Striker to knee angle	0°	1°
SH ¹	Striker to H-point	273 mm	272 mm
	Striker to H-point angle	29°	25°
SHY	Striker to H-point (Y dir.)	215 mm	213 mm
HS	Head to side window	266 mm	262 mm
HD	H-point to door	167 mm	134 mm
AD	Arm to door	87 mm	86 mm

¹ The seat back angle (SA°) is measured relative to vertical, all other angles are measured relative to horizontal.

Figure 9 Seat Belt Positioning Data



	Driver	Passenger
A - Top surface of aluminum plate to belt upper edge	333 mm	305 mm
B - Top surface of aluminum plate to belt lower edge	260 mm	219 mm
C - Dummy centerline to outer edge of belt at chest flesh top	110 mm	104 mm
D - Dummy centerline to inner edge of belt at chest flesh top	41 mm	42 mm
Lap belt tension	18 N	18 N
Shoulder belt tension	18 N	18 N
Adjustable seat belt anchorage position	NA	NA

Figure 10 Camera Positions

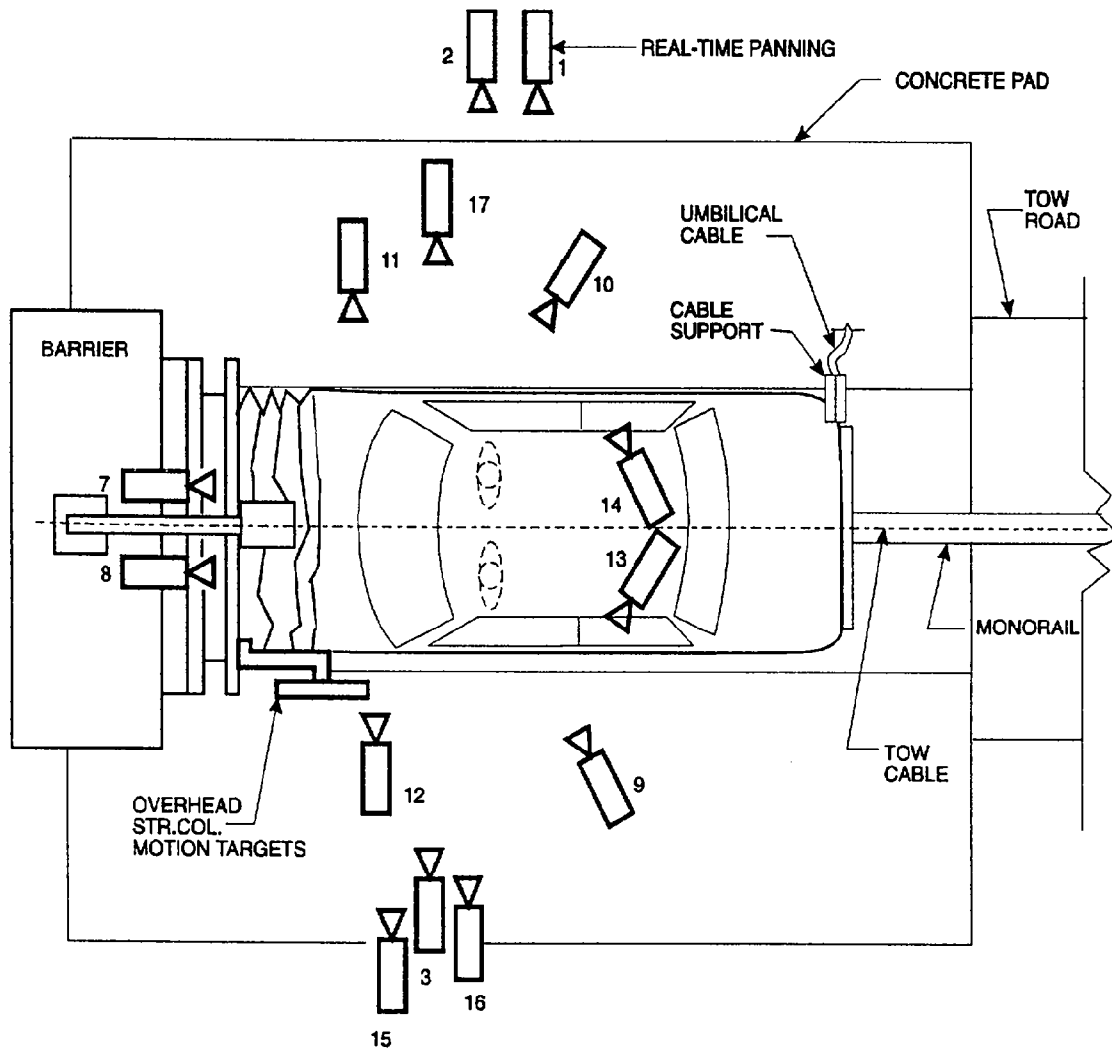


Figure 10 Camera Positions, Cont'd.

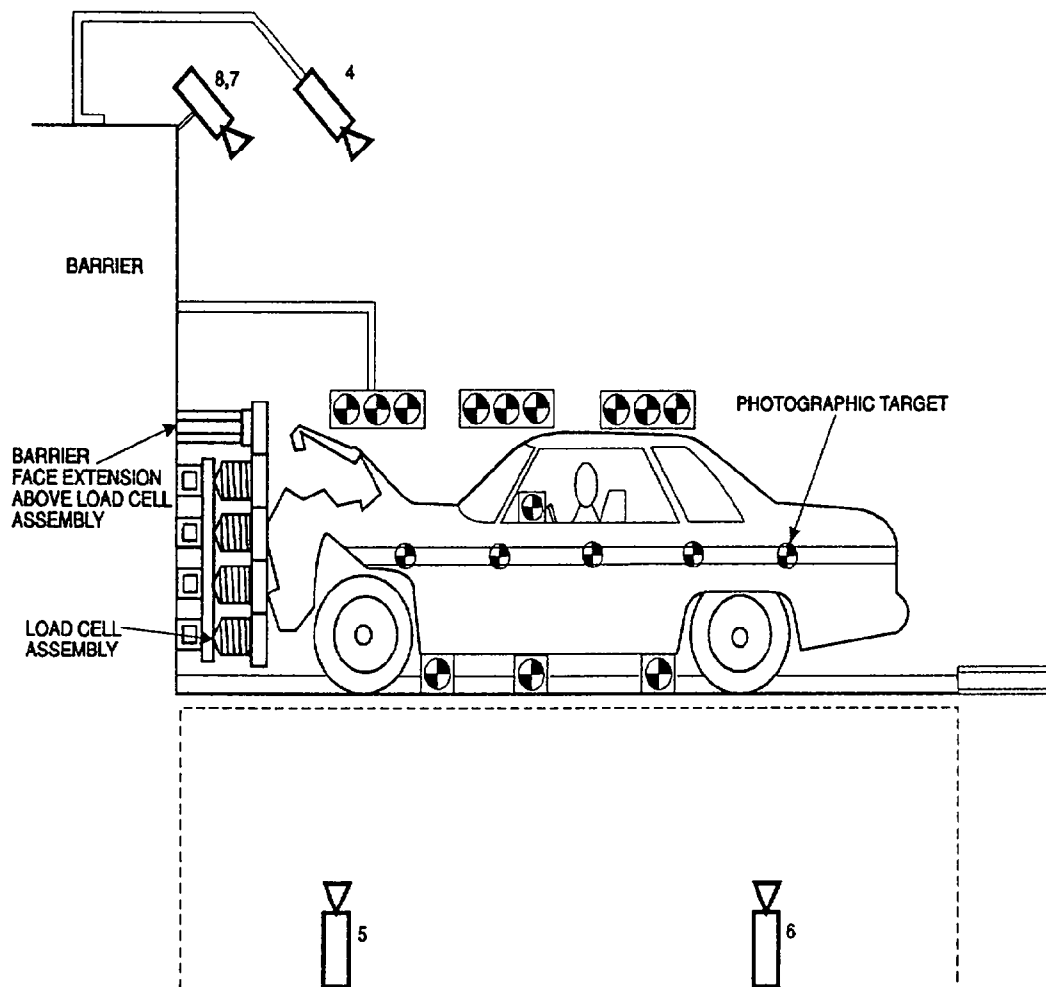


Table 13. Motion Picture Camera Locations

Test Number: 950103

Vehicle year/make/model/body style: 1995/Jeep/Cherokee/MPV

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	502 frames/s
3	Dummy kinematics	-1054 mm	7493 mm	1118 mm	-12°	5410 mm	25 mm	995 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	998 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	505 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	502 frames/s
10	Passenger kinematics	-4674 mm	-1880 mm	2540 mm	-26°	2489 mm	25 mm	490 frames/s
11	Windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA mm	50 mm	505 frames/s
12	Windshield intrusion	-1346 mm	7859 mm	1074 mm	0°	NA mm	50 mm	502 frames/s
13	Driver seat belt movement	NA	NA	NA	NA	NA mm	NA mm	500 frames/s
14	Passenger seat belt movement	NA	NA	NA	NA	NA mm	NA mm	500 frames/s
15	Column movement	-2438 mm	7264 mm	2616 mm	-14°	NA mm	25 mm	498 frames/s
16	Column movement	-2438 mm	7264 mm	1908 mm	-9°	NA mm	25 mm	500 frames/s
17	Passenger kinematics	-986 mm	-5354 mm	1151 mm	7°	5486 mm	25 mm	983 frames/s

¹ +X = Film plane forward of barrier face

+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

² +Angle = Film plane angled upward from horizontal plane

Figure 11 Vehicle Target Locations

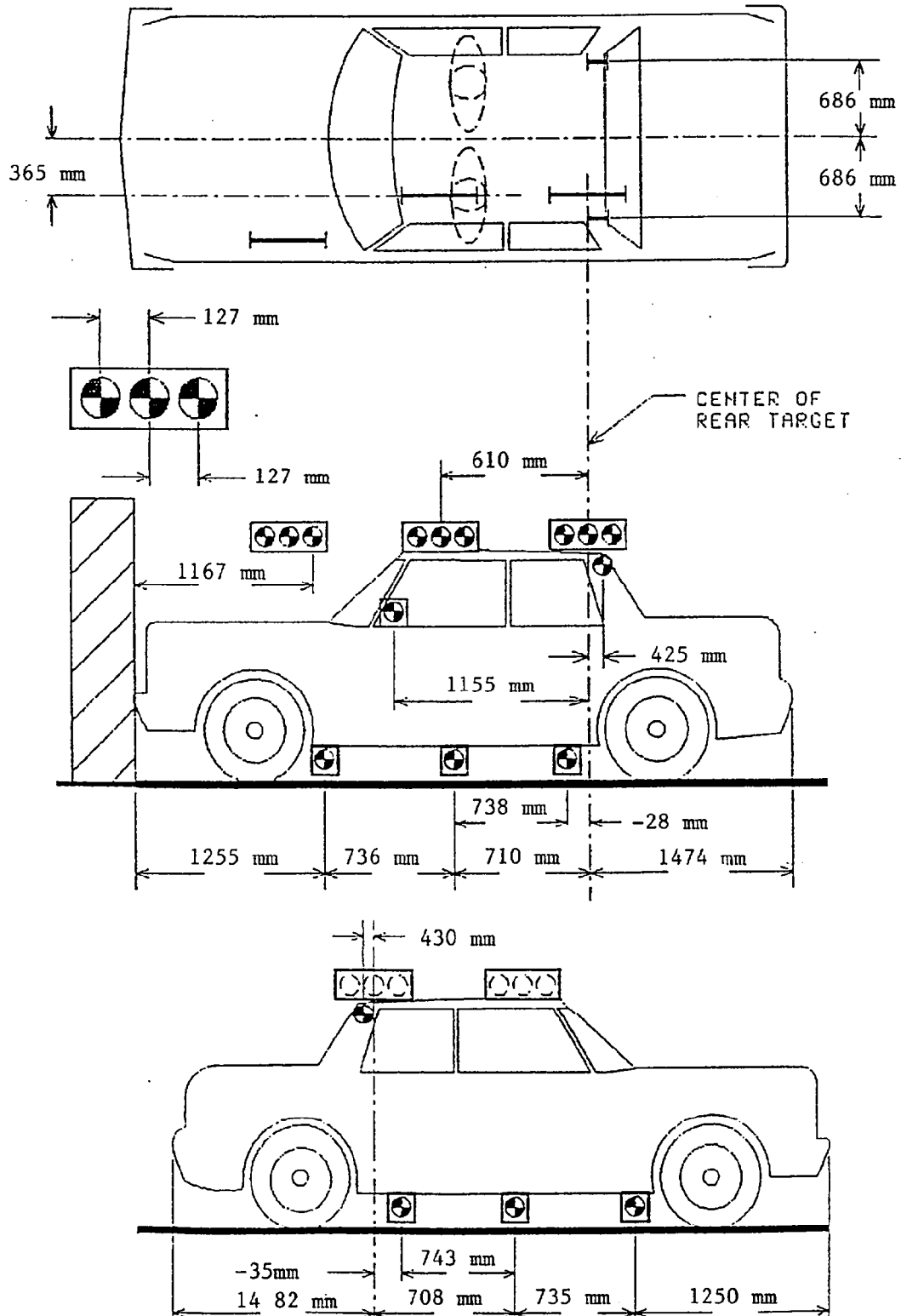


Figure 12 Pre-Test And Post-Test Measurement Points

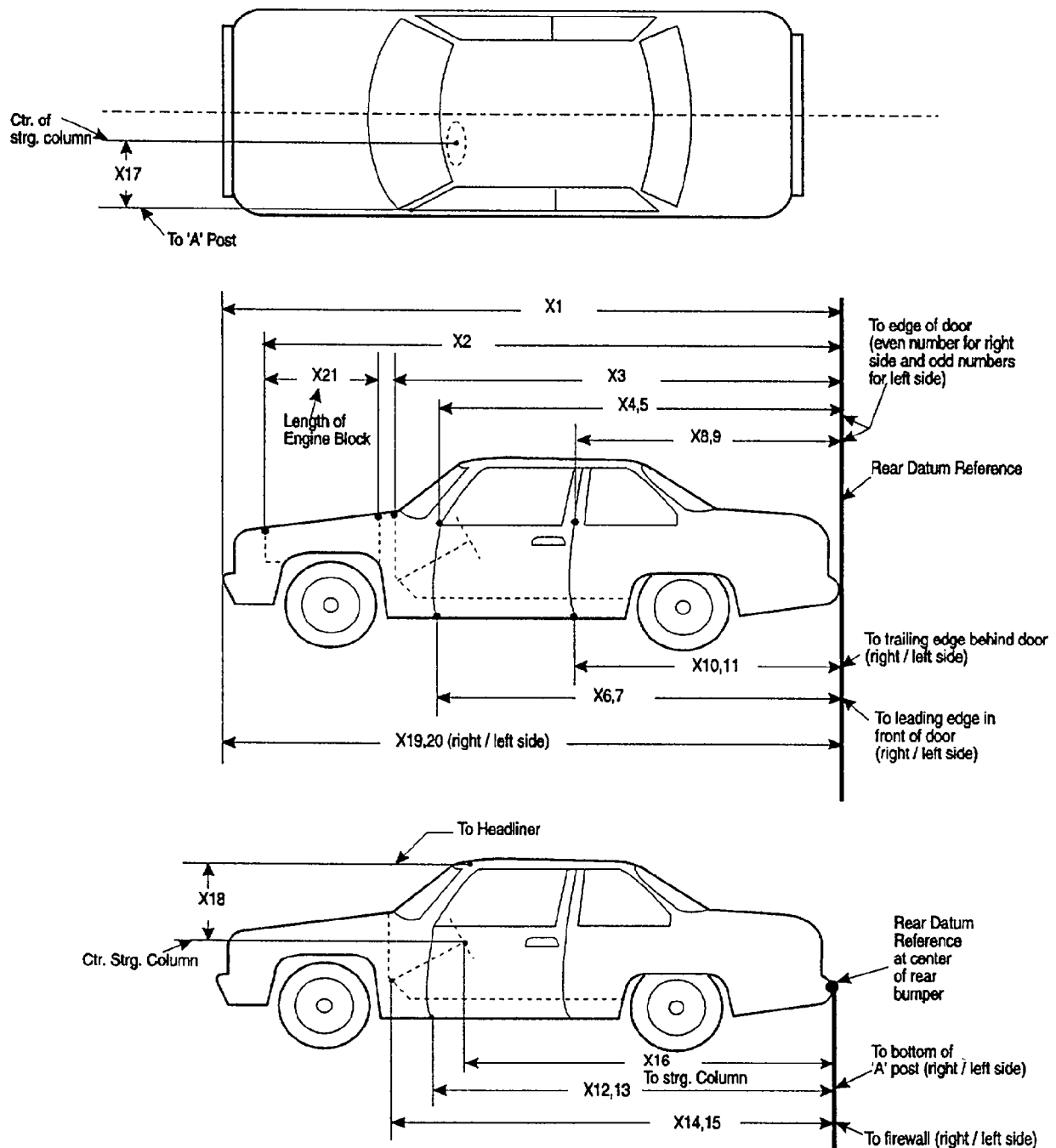


Table 14 Impacted Vehicle Measurements

Vehicle Make/Model: Jeep/Cherokee

Test Number: 950103

No.	Type of measurement	Pre-test	Post-test	Diff.
X1	Total length of vehicle at centerline	4175 mm	3586 mm	589 mm
X2	Rear surface of vehicle to front of engine block	3583 mm	3296 mm	287 mm
X3	Rear surface of vehicle to firewall	3061 mm	2932 mm	129 mm
X4	Rear surface of vehicle to upper leading edge of right door	2844 mm	2854 mm	-10 mm
X5	Rear surface of vehicle to upper leading edge of left door	2846 mm	2843 mm	3 mm
X6	Rear surface of vehicle to lower leading edge of right door	2864 mm	2839 mm	25 mm
X7	Rear surface of vehicle to lower leading edge of left door	2866 mm	2833 mm	33 mm
X8	Rear surface of vehicle to upper trailing edge of right door	1878 mm	1890 mm	-12 mm
X9	Rear surface of vehicle to upper trailing edge of left door	1880 mm	1895 mm	-15 mm
X10	Rear surface of vehicle to lower trailing edge of right door	1882 mm	1858 mm	24 mm
X11	Rear surface of vehicle to lower trailing edge of left door	1890 mm	1858 mm	32 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	2839 mm	2839 mm	0 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	2836 mm	2830 mm	6 mm
X14	Rear surface of vehicle to firewall - right side	3060 mm	3039 mm	21 mm
X15	Rear surface of vehicle to firewall - left side	3057 mm	3017 mm	40 mm
X16	Rear surface of vehicle to steering wheel center	2456 mm	2405 mm	51 mm
X17	Center of steering column to "A" post	328 mm	301 mm	27 mm
X18	Center of steering column to headliner	440 mm	412 mm	28 mm
X19	Rear surface of vehicle to right side of front bumper	4150 mm	3601 mm	549 mm
X20	Rear surface of vehicle to left side of front bumper	4149 mm	3604 mm	545 mm
X21	Length of engine block	481 mm	481 mm	0 mm

Appendix A

Photographs

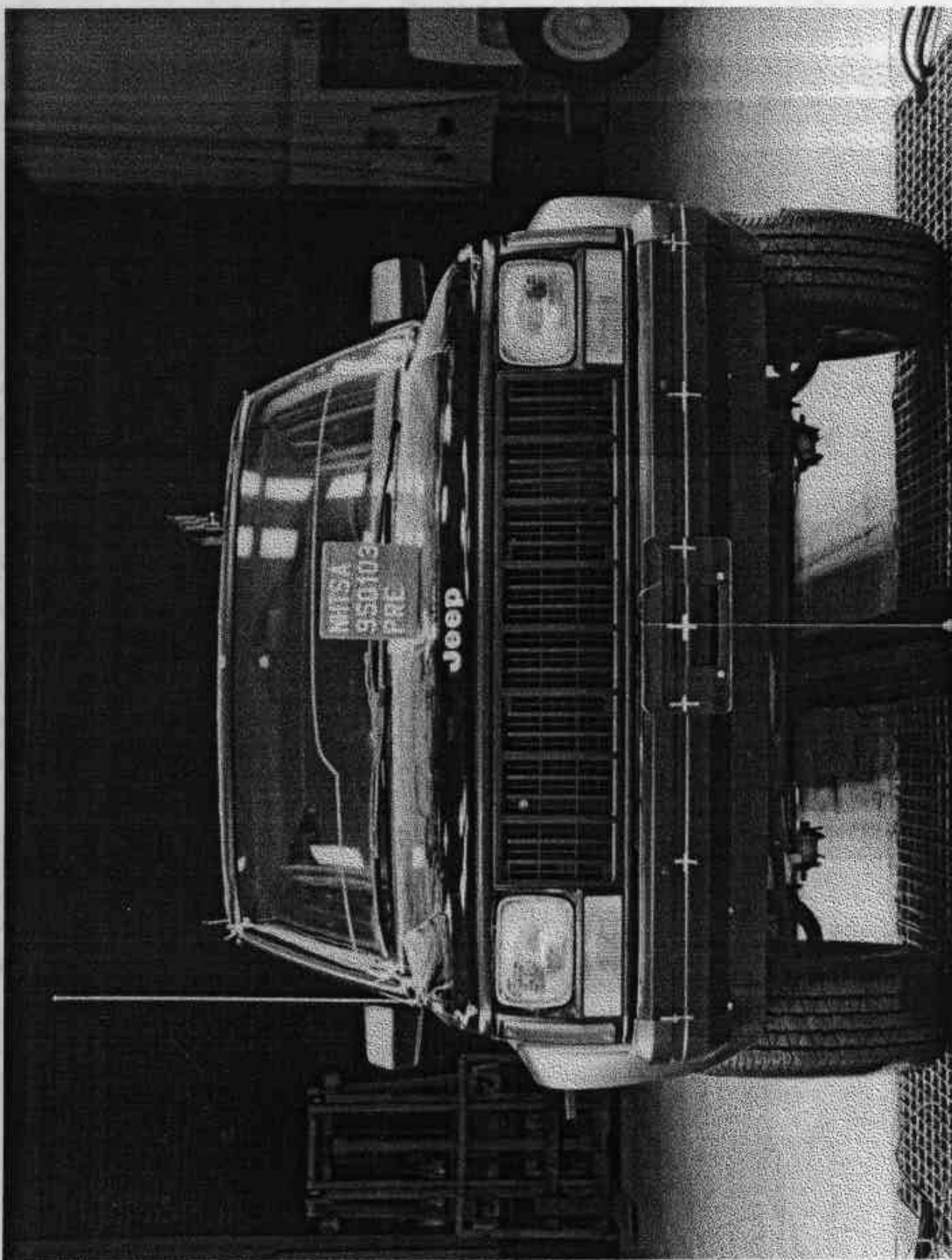


Figure A-1. Pre-Test Front View
A-2

950103

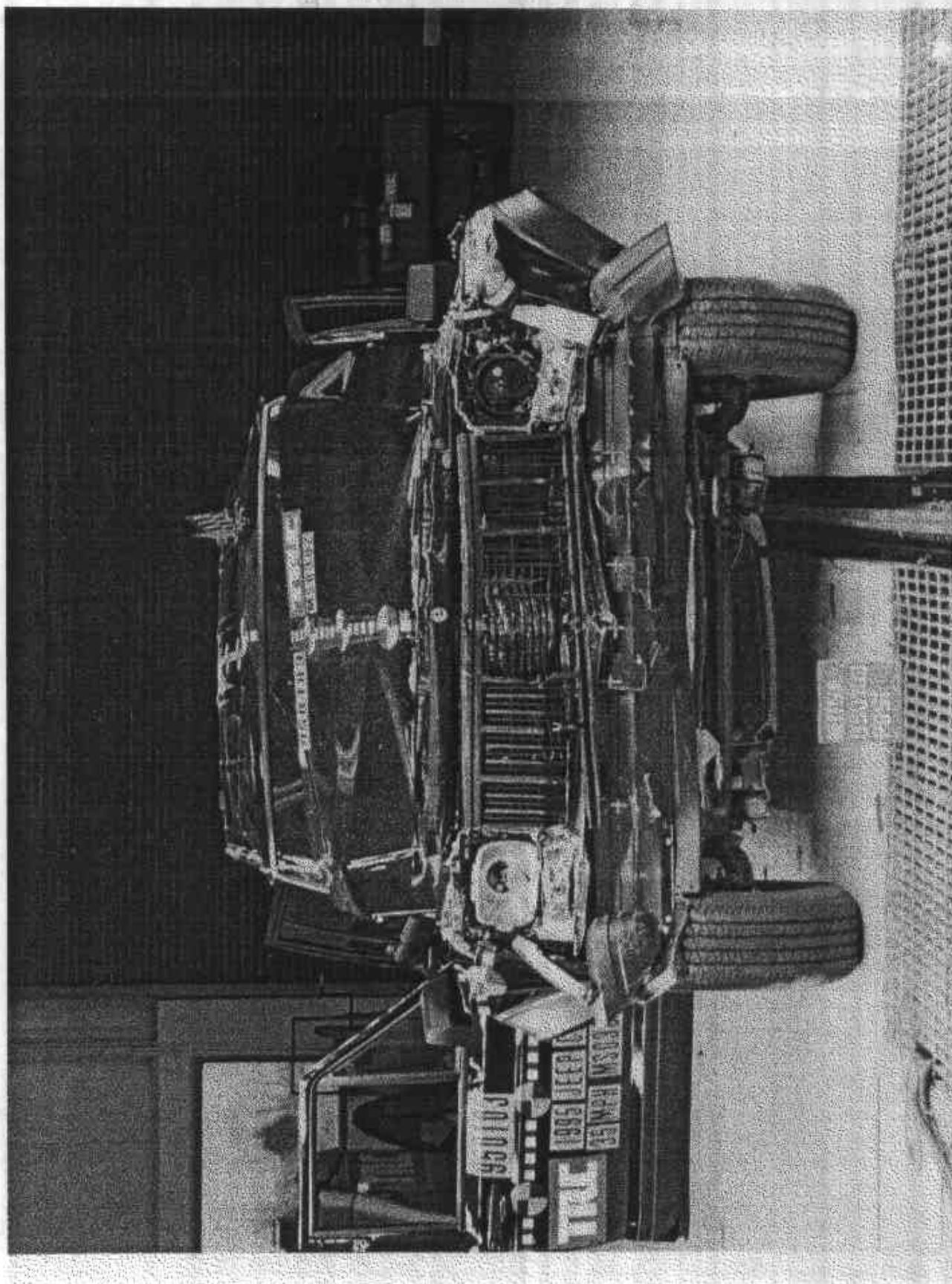


Figure A-2. Post-Test Front View

A-3

950103

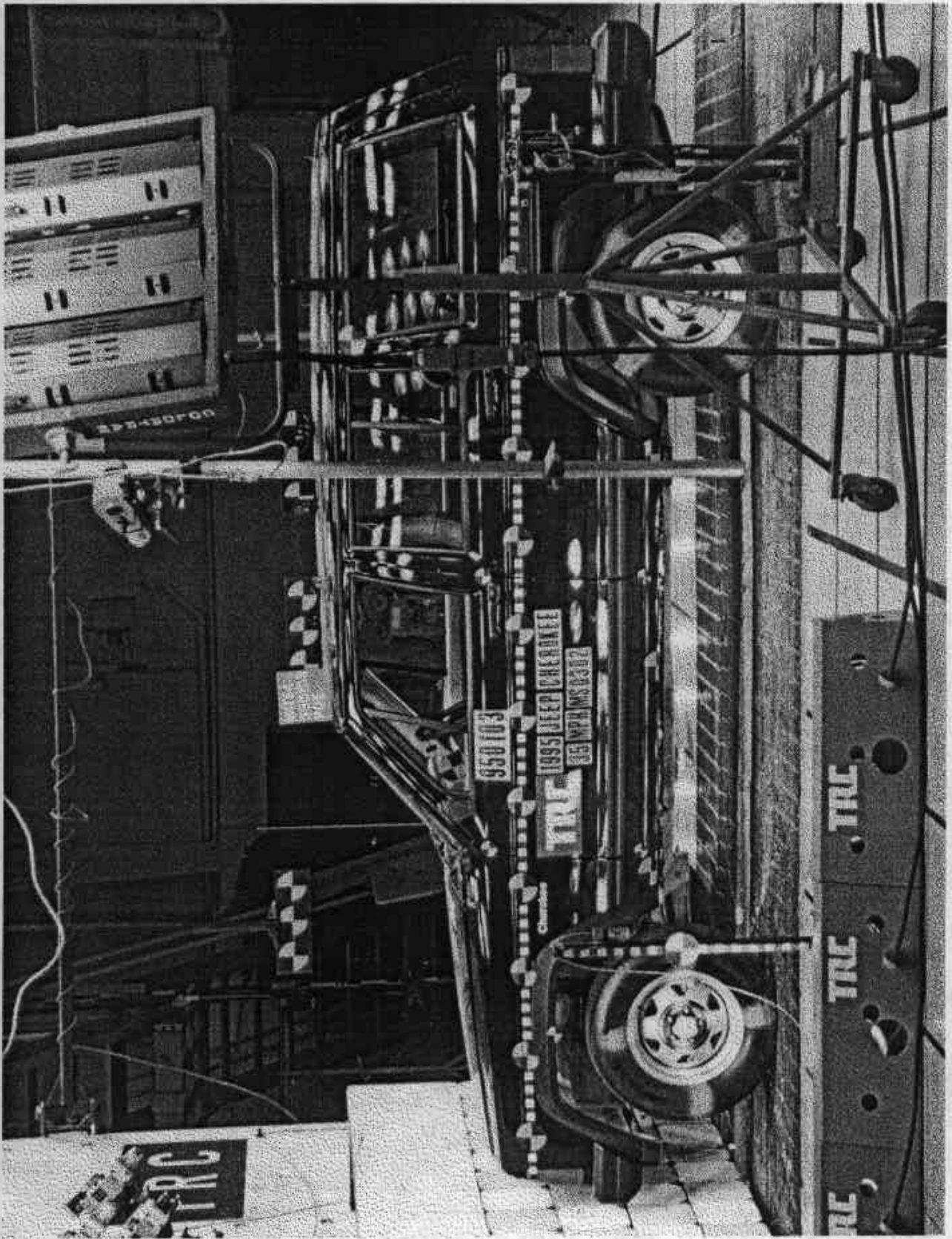


Figure A-3. Pre-Test Left Side View
A-4

950103

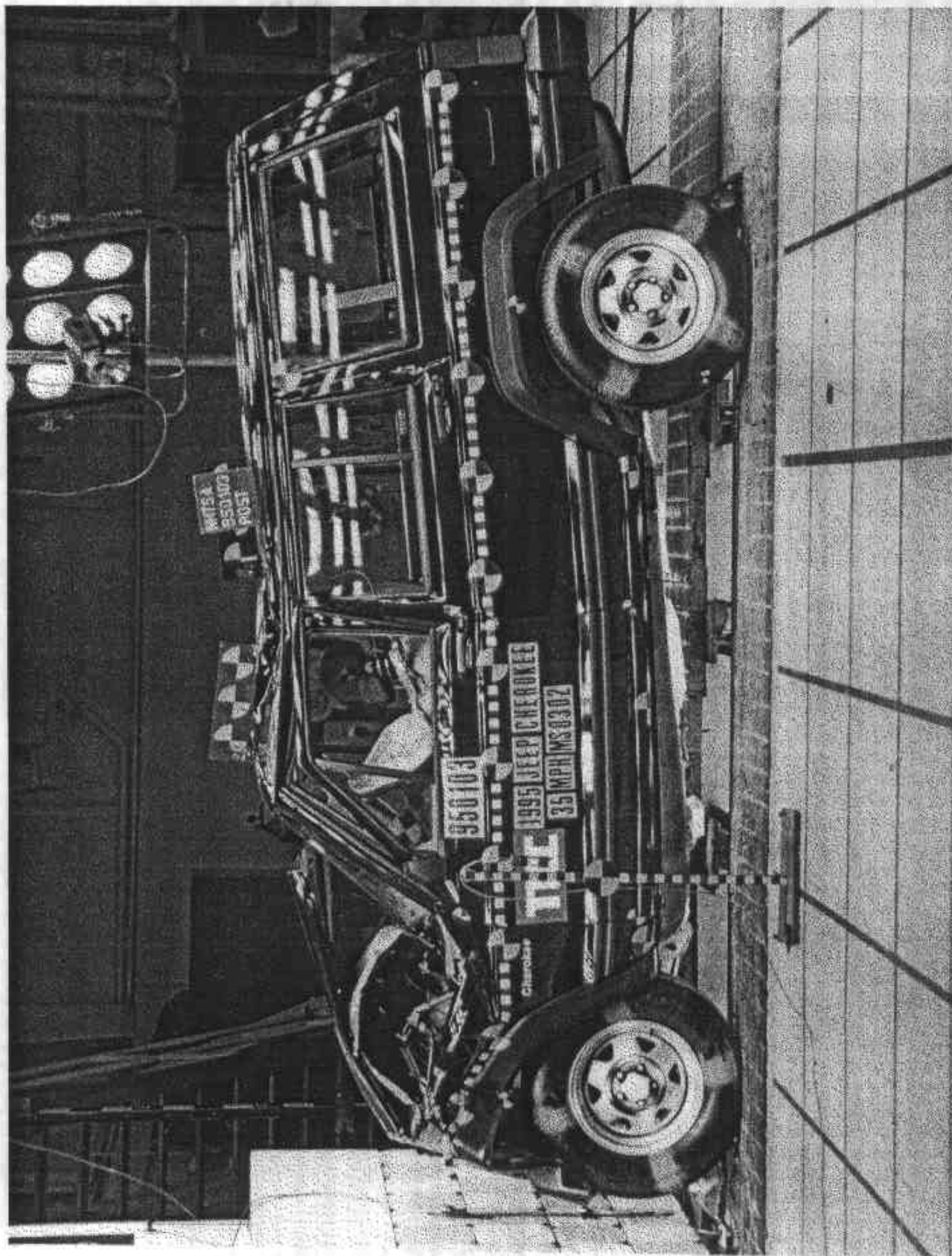


Figure A-4. Post-Test Left Side View
A-5

950103

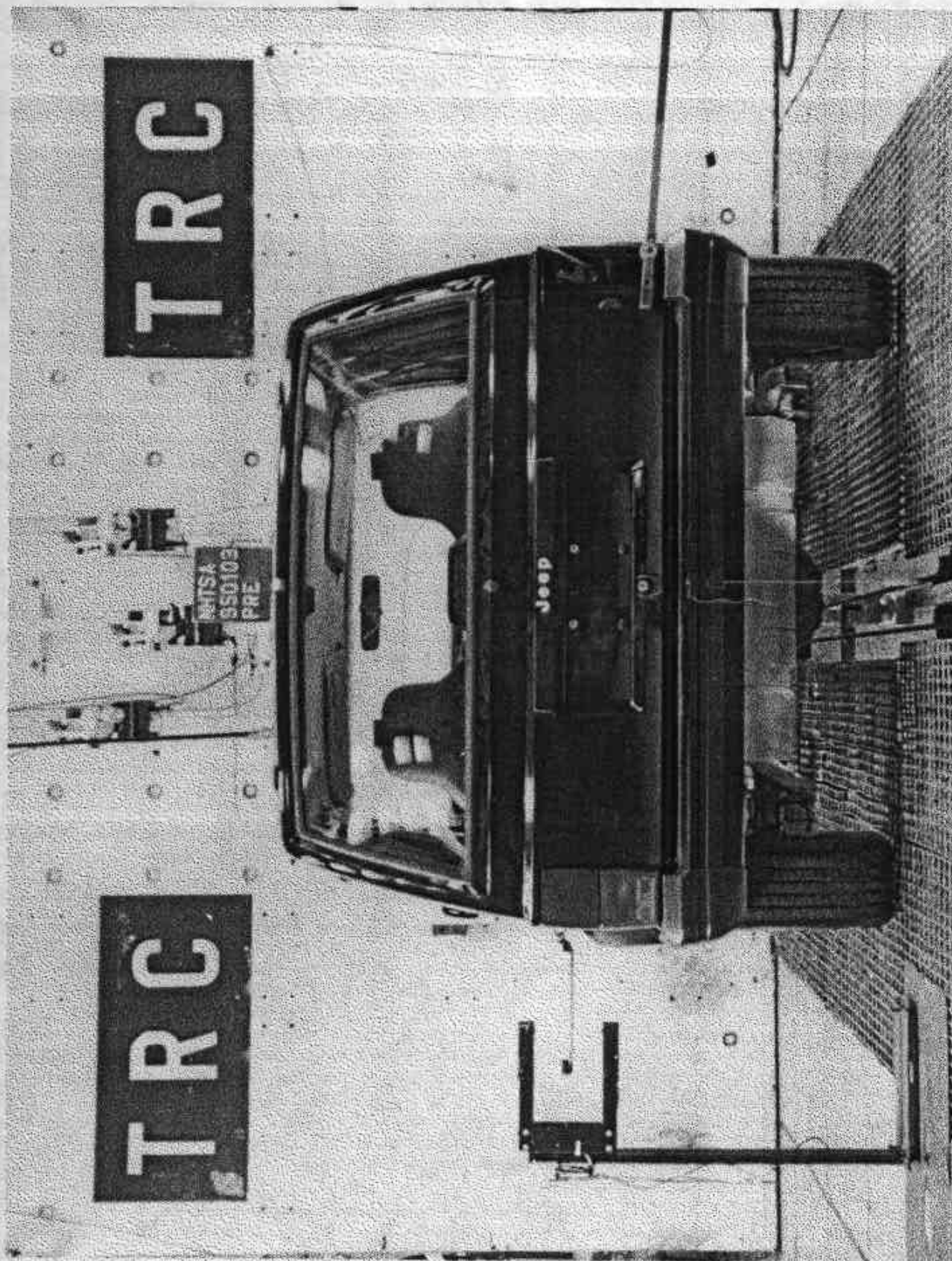


Figure A-5. Pre-Test Rear View

A-6

950103

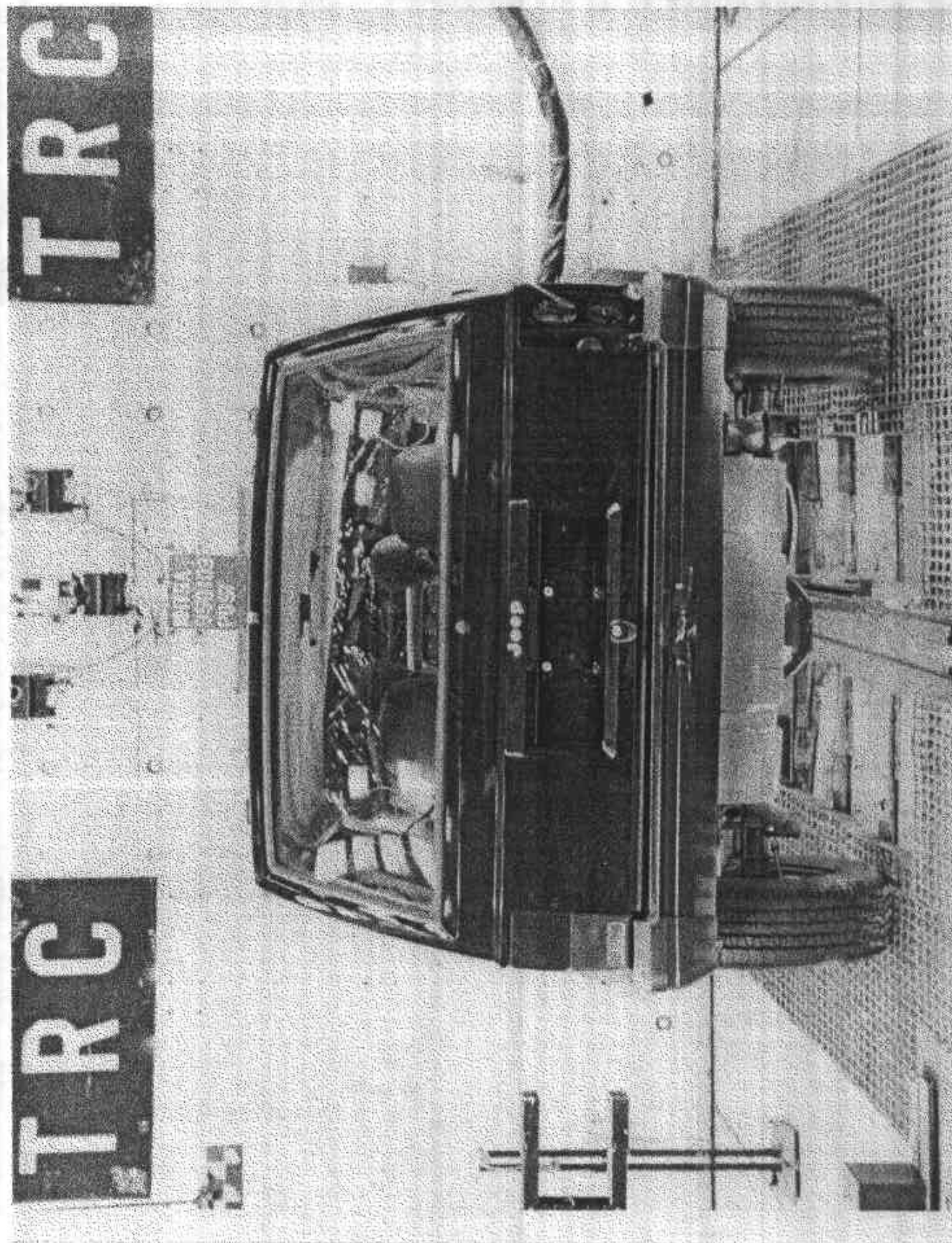


Figure A-6. Post-Test Rear View

A-7

950103

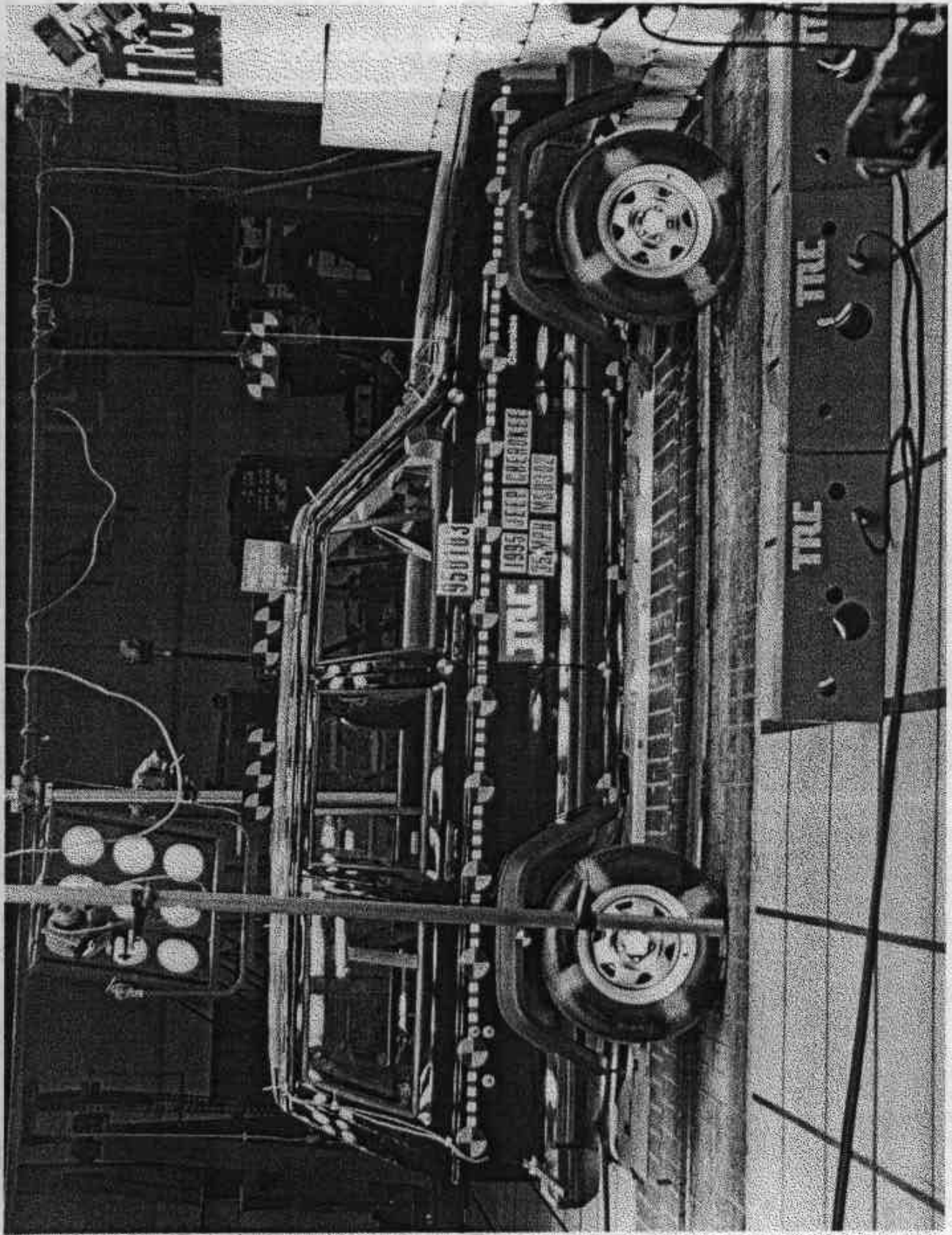


Figure A-7. Pre-Test Right Side View
A-8

950103

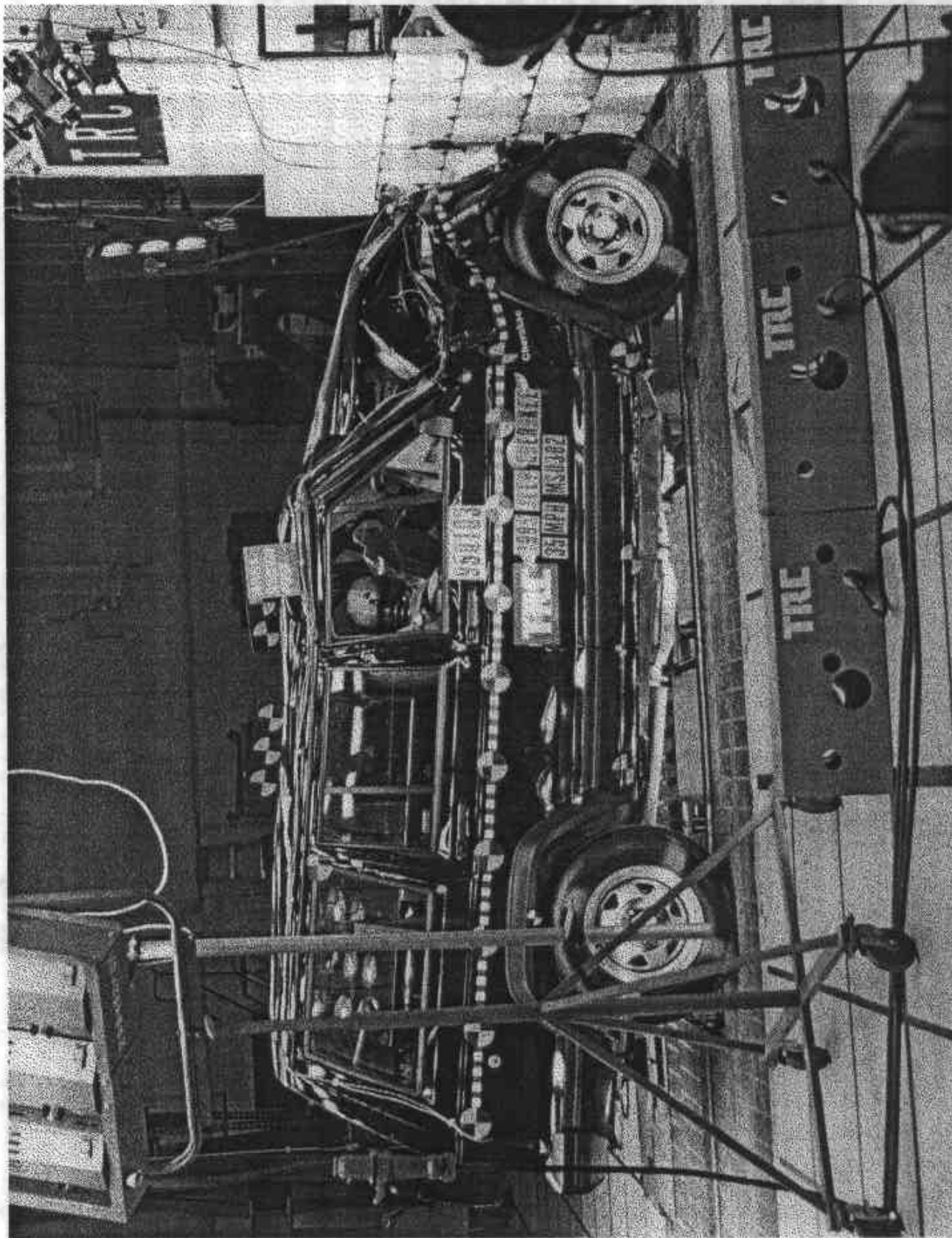


Figure A-8. Post-Test Right Side View
A-9

950103

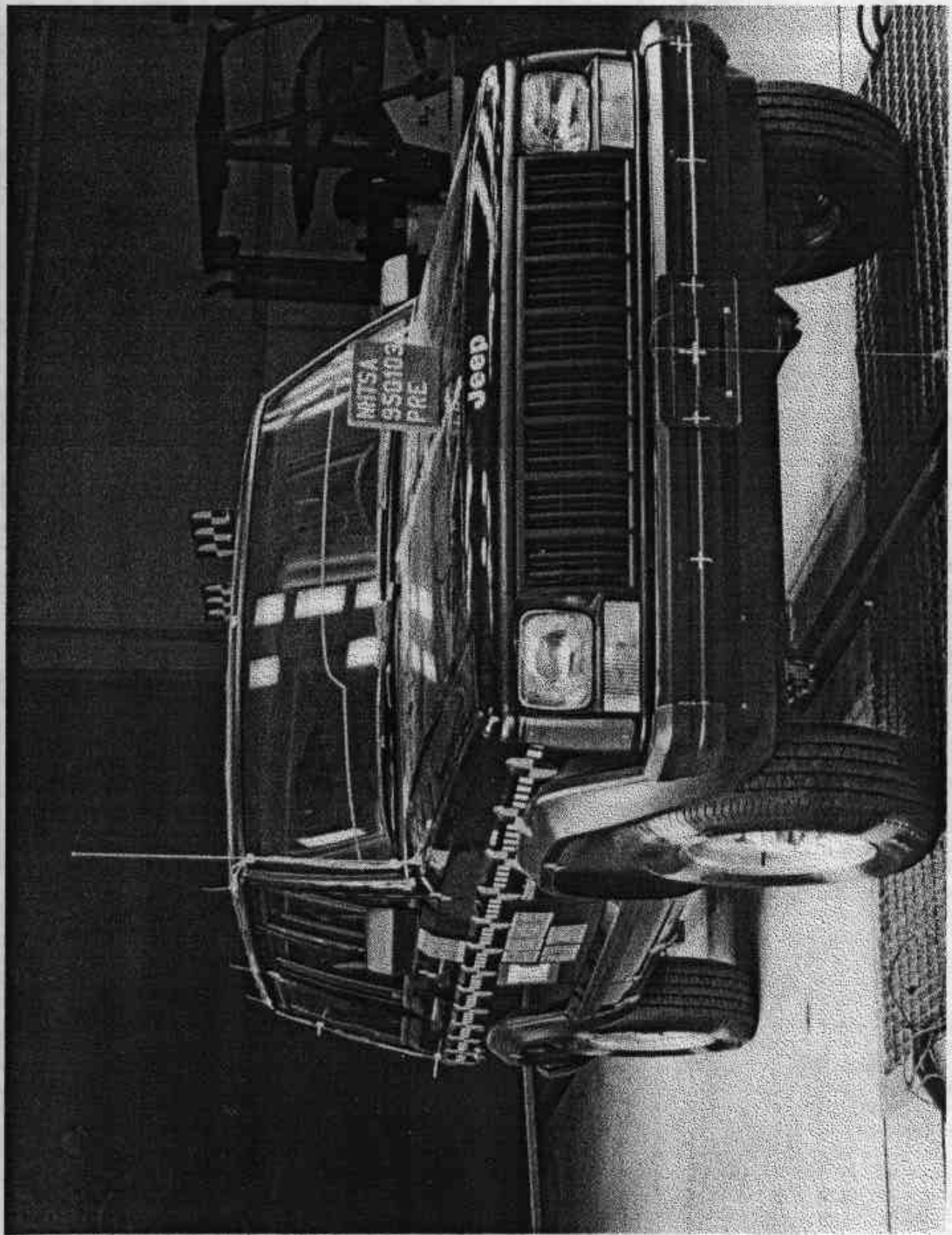


Figure A-9. Pre-Test Right Front Three-Quarter View
A-10

950103

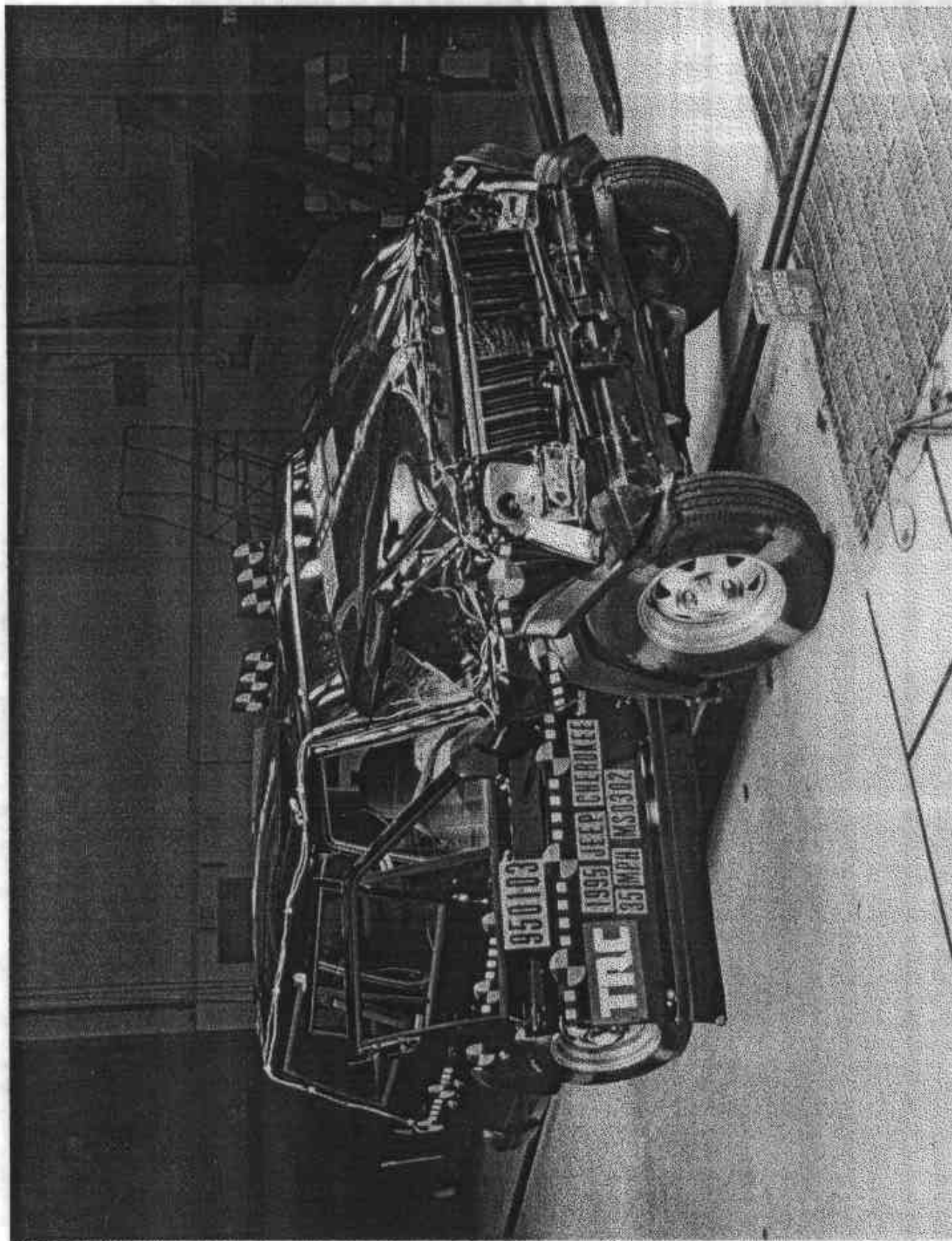


Figure A-10. Post-Test Right Front Three-Quarter View
A-11

950103

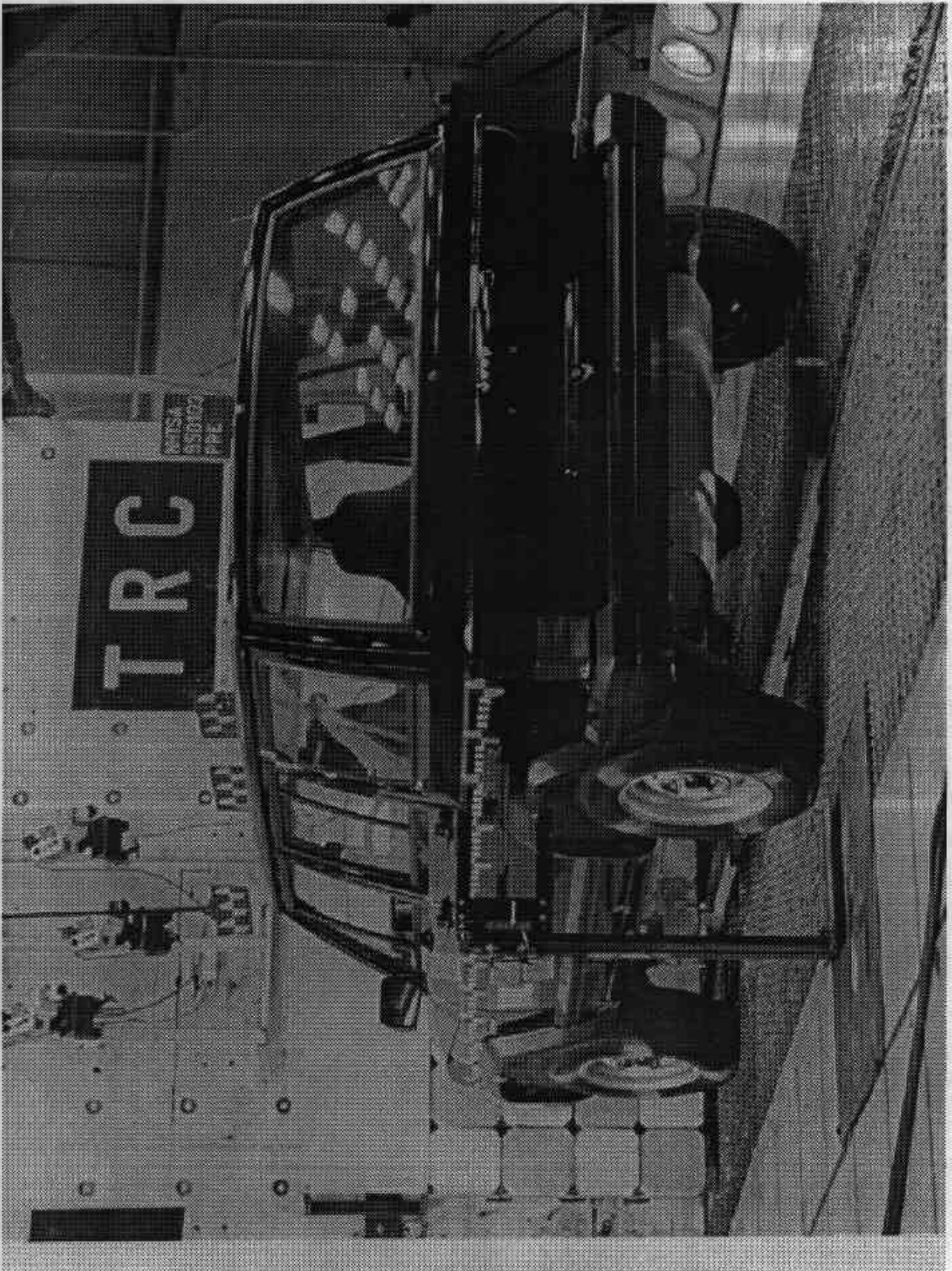


Figure A-11. Pre-Test Left Rear Three-Quarter View
A-12

950103



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

950103



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

950103



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

950103

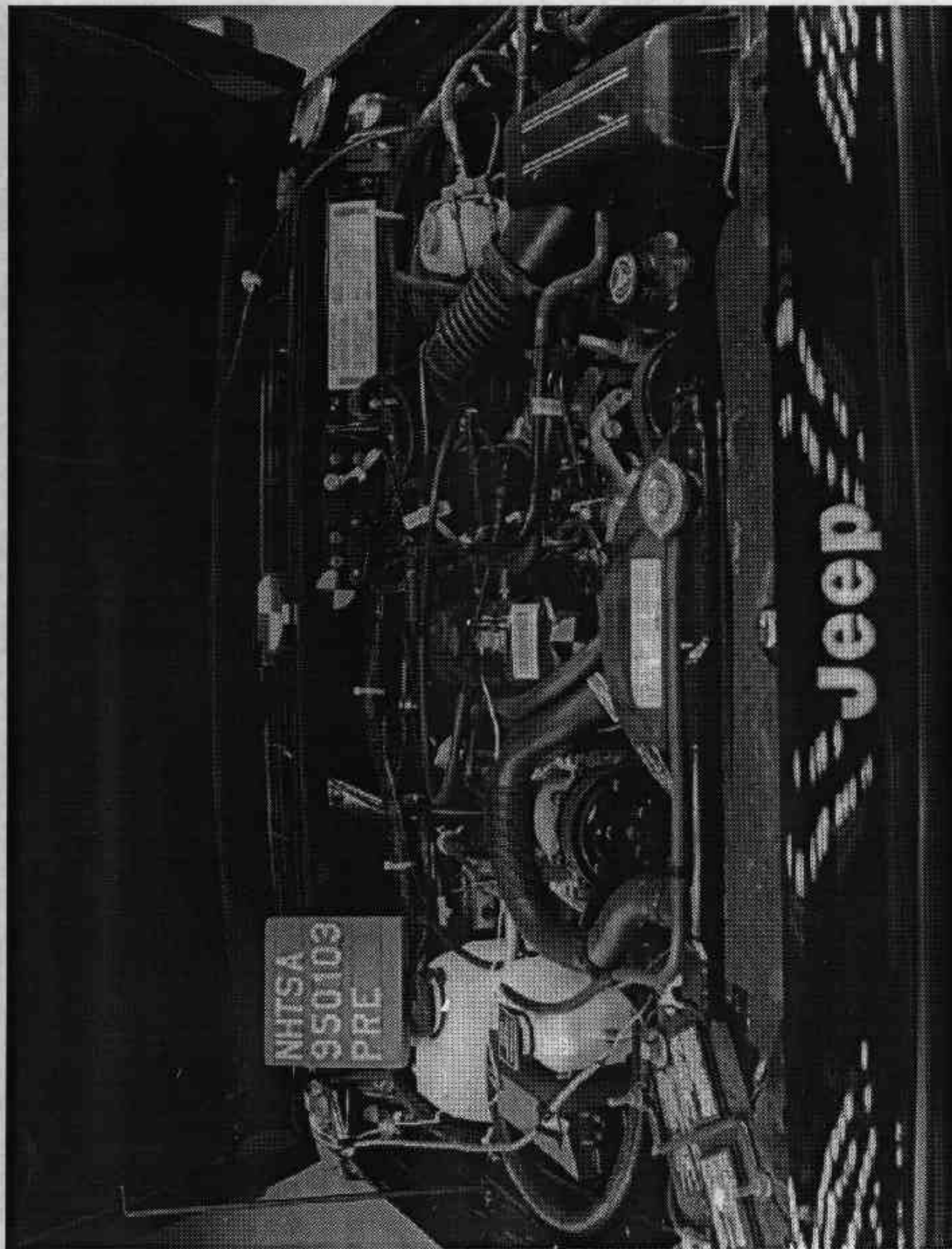


Figure A-15. Pre-Test Engine Compartment View
A-16

950103

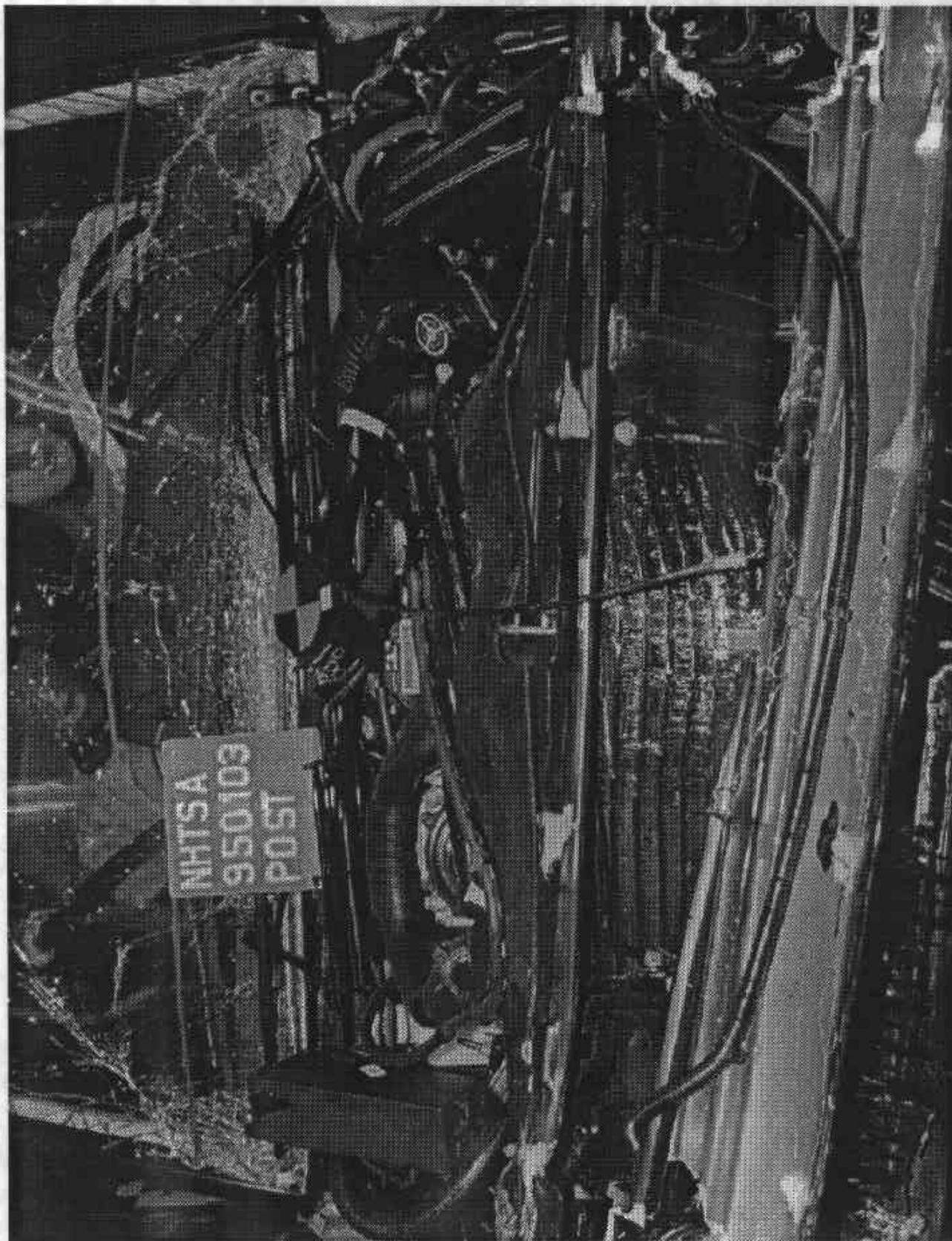


Figure A-16. Post-Test Engine Compartment View
A-17

950103



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

950103

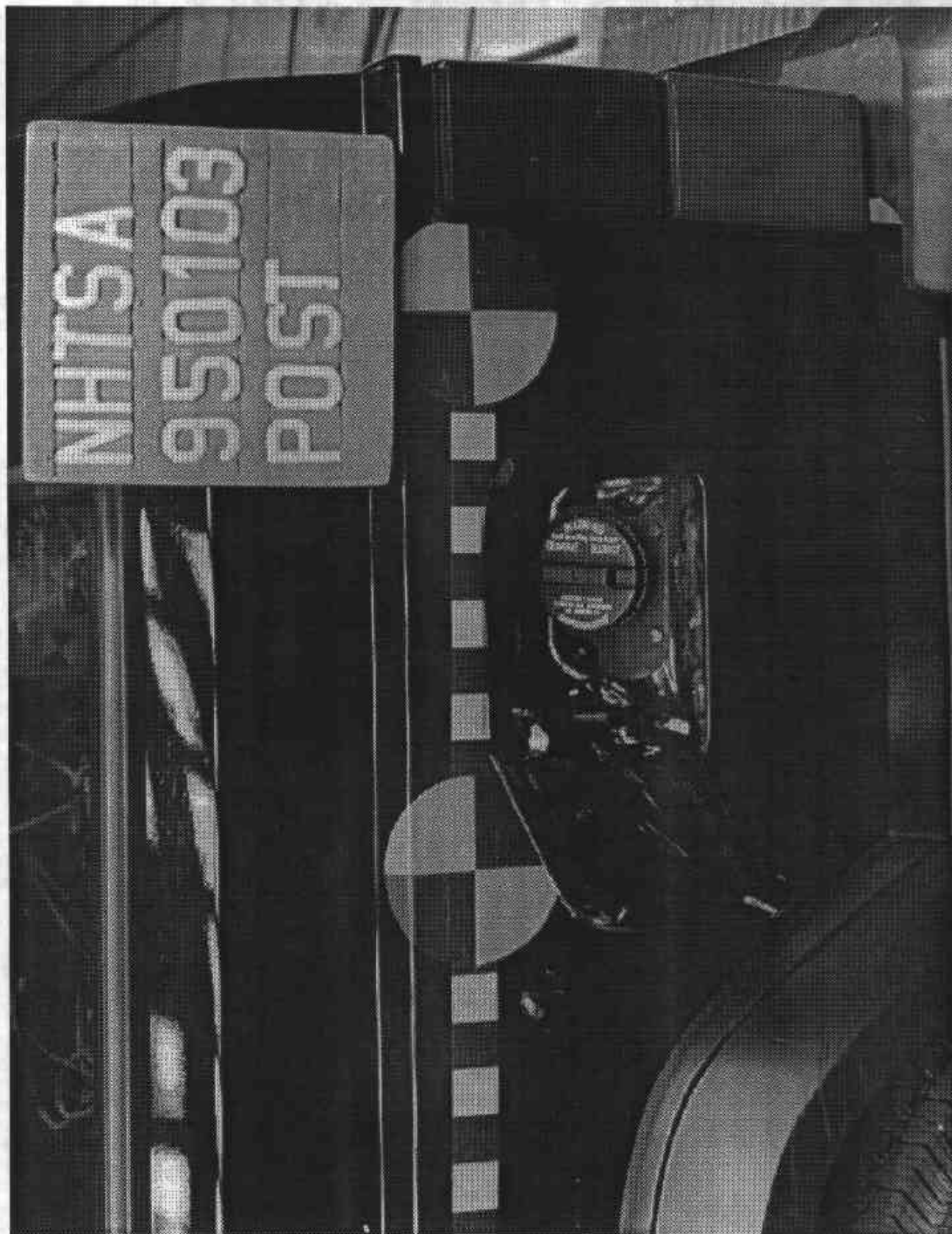


Figure A-18. Post-Test Fuel Filler Cap View
A-19

950103



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

950103



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

950103

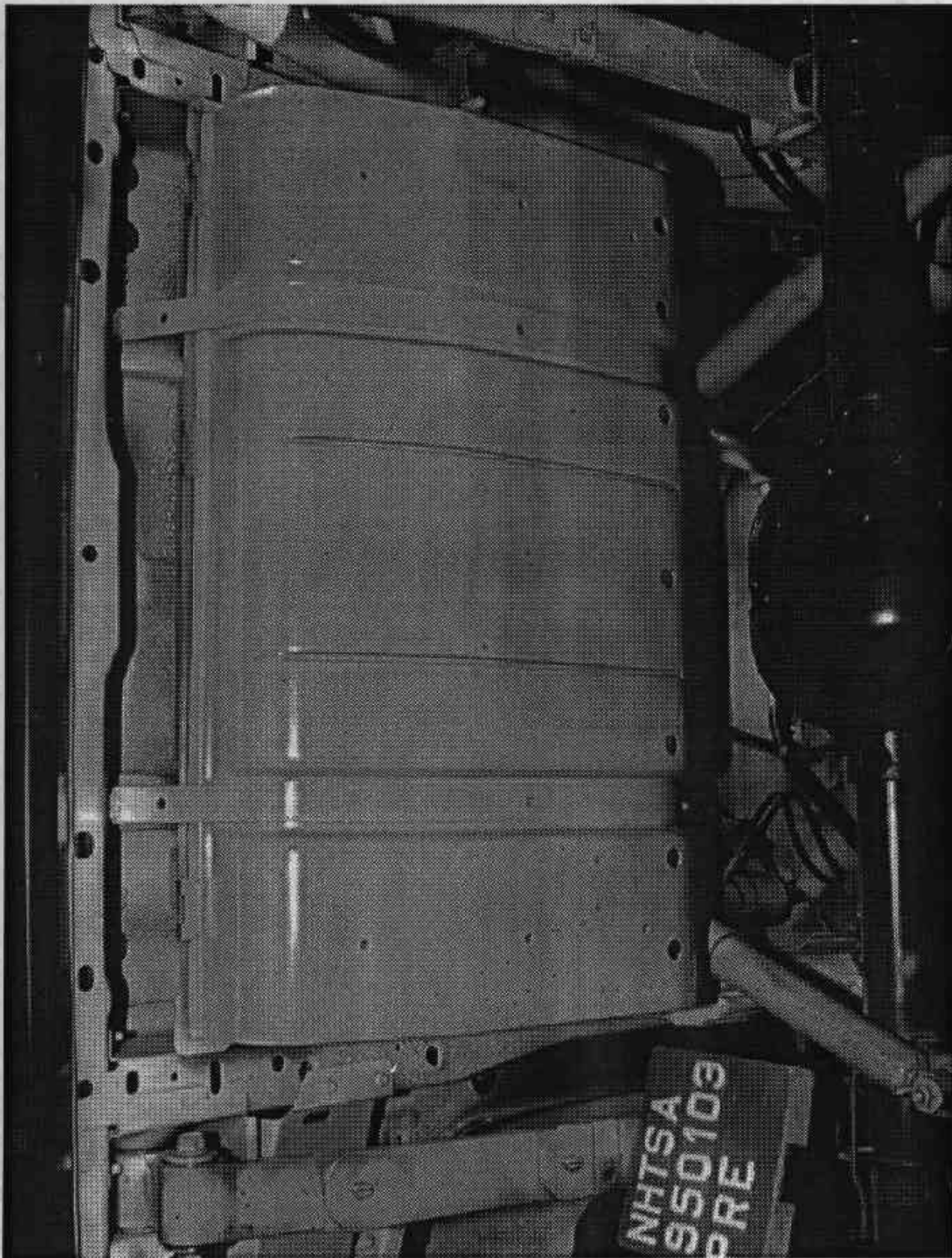


Figure A-21. Pre-Test Fuel Tank View
A-22

950103

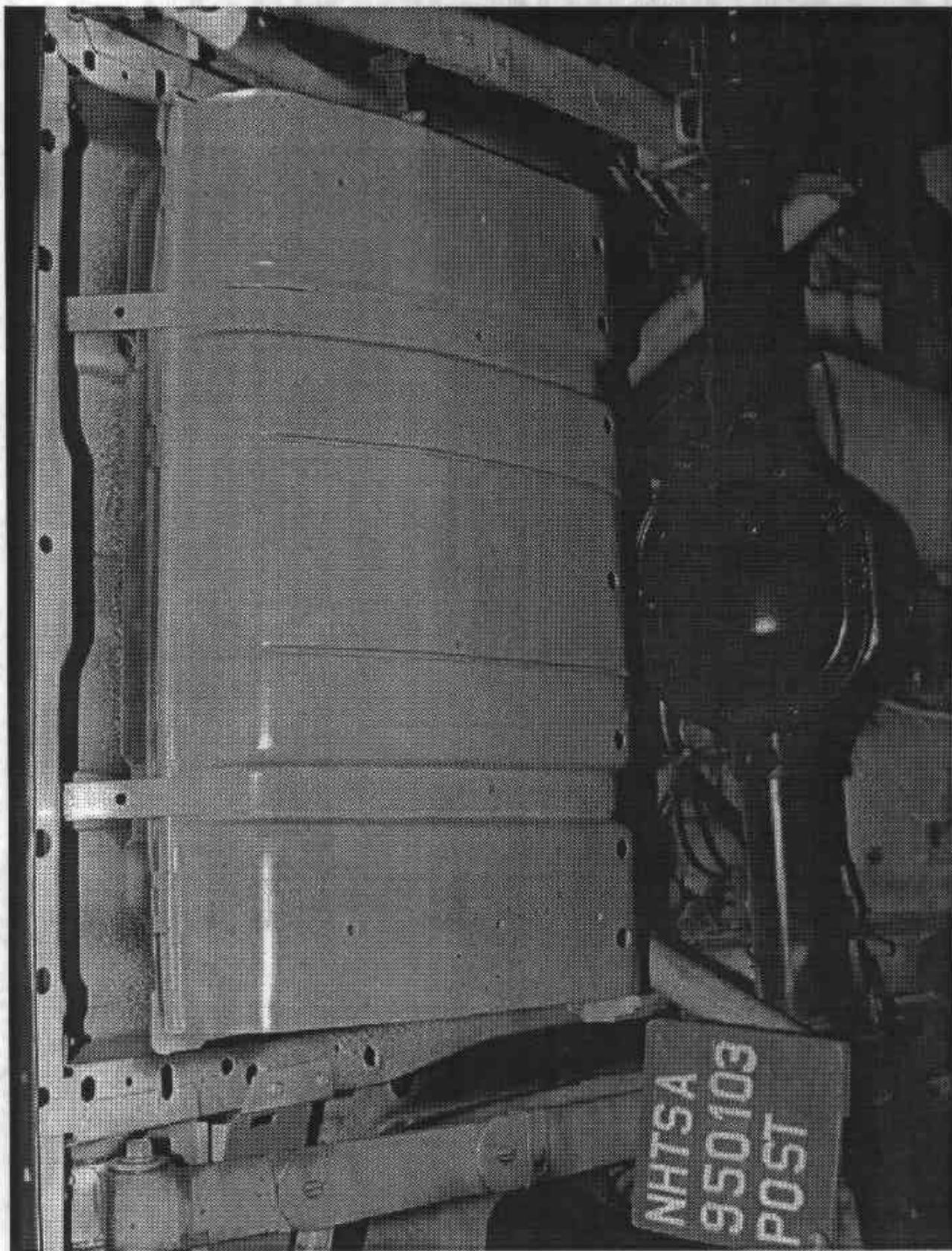


Figure A-22. Post-Test Fuel Tank View
A-23

950103

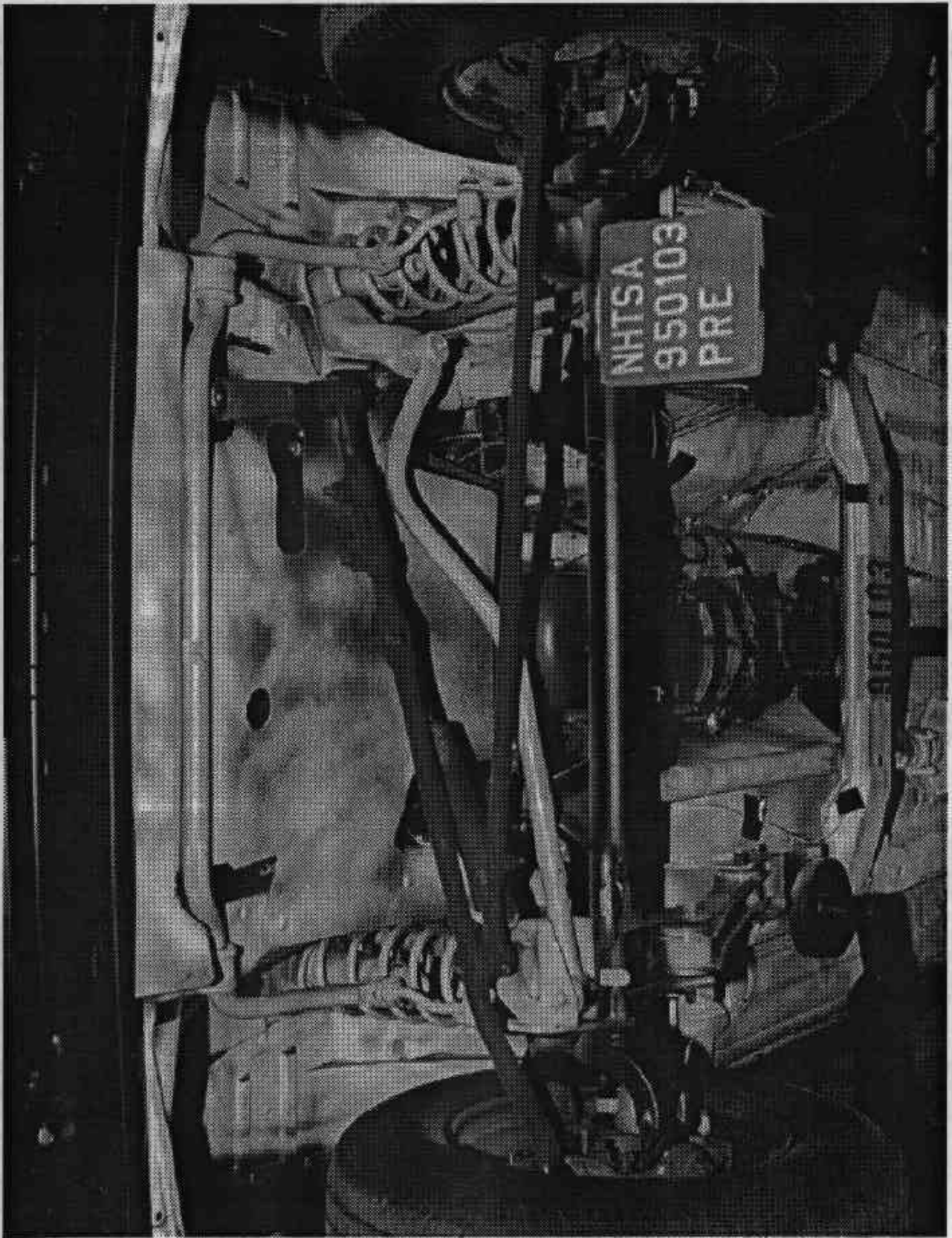


Figure A-23. Pre-Test Front Underbody View

A-24

950103

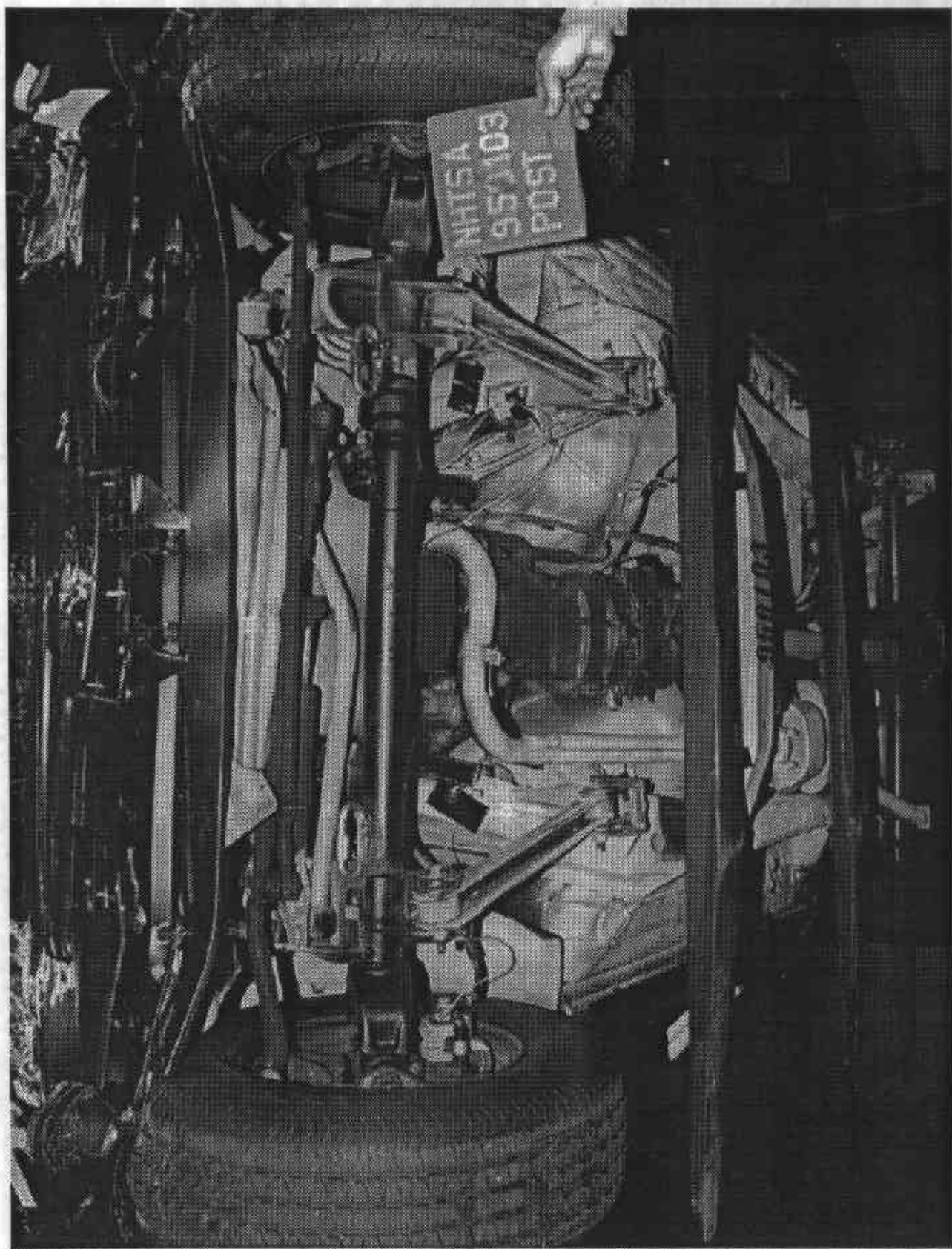


Figure A-24. Post-Test Front Underbody View
A-25

950103

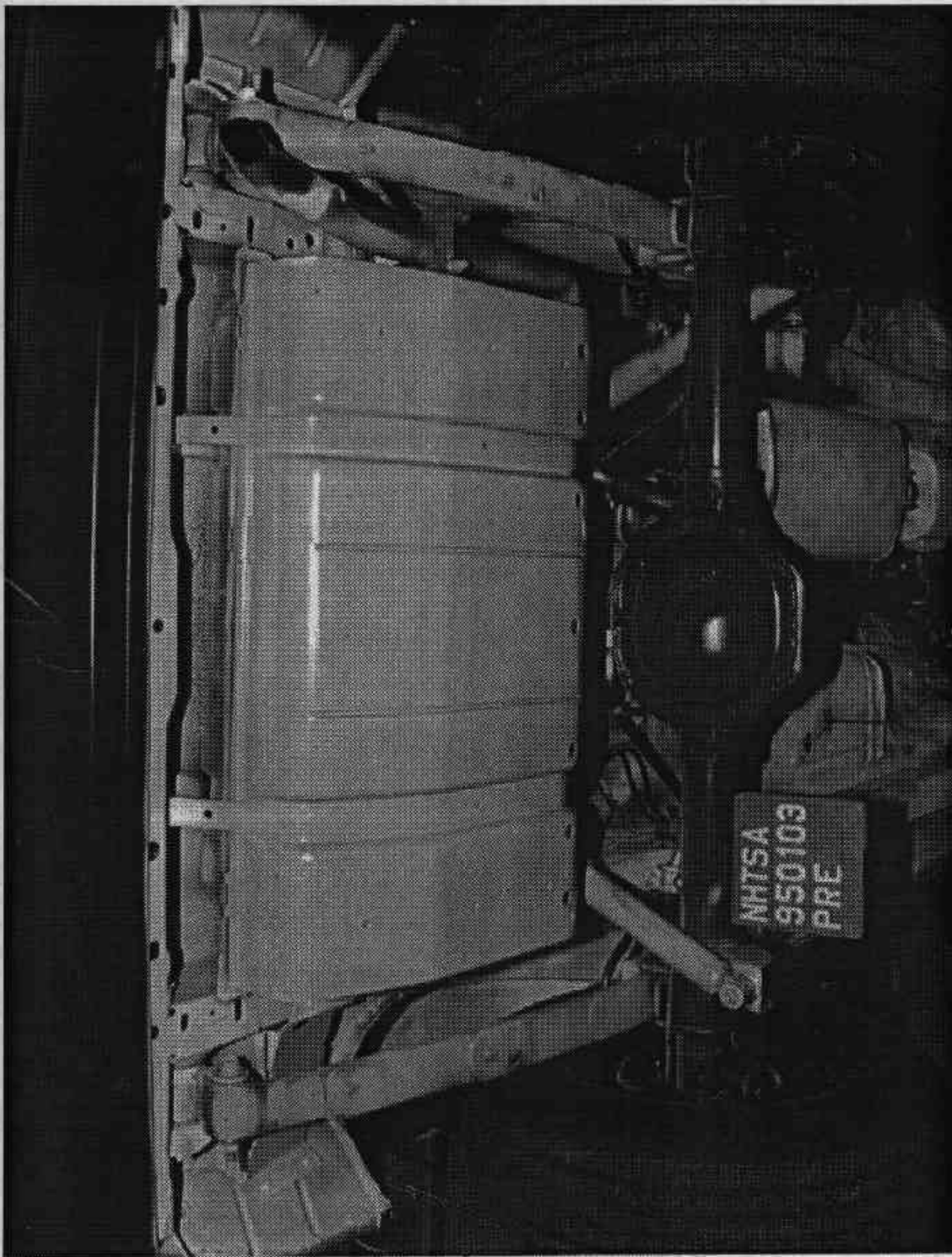


Figure A-25. Pre-Test Rear Underbody View
A-26

950103

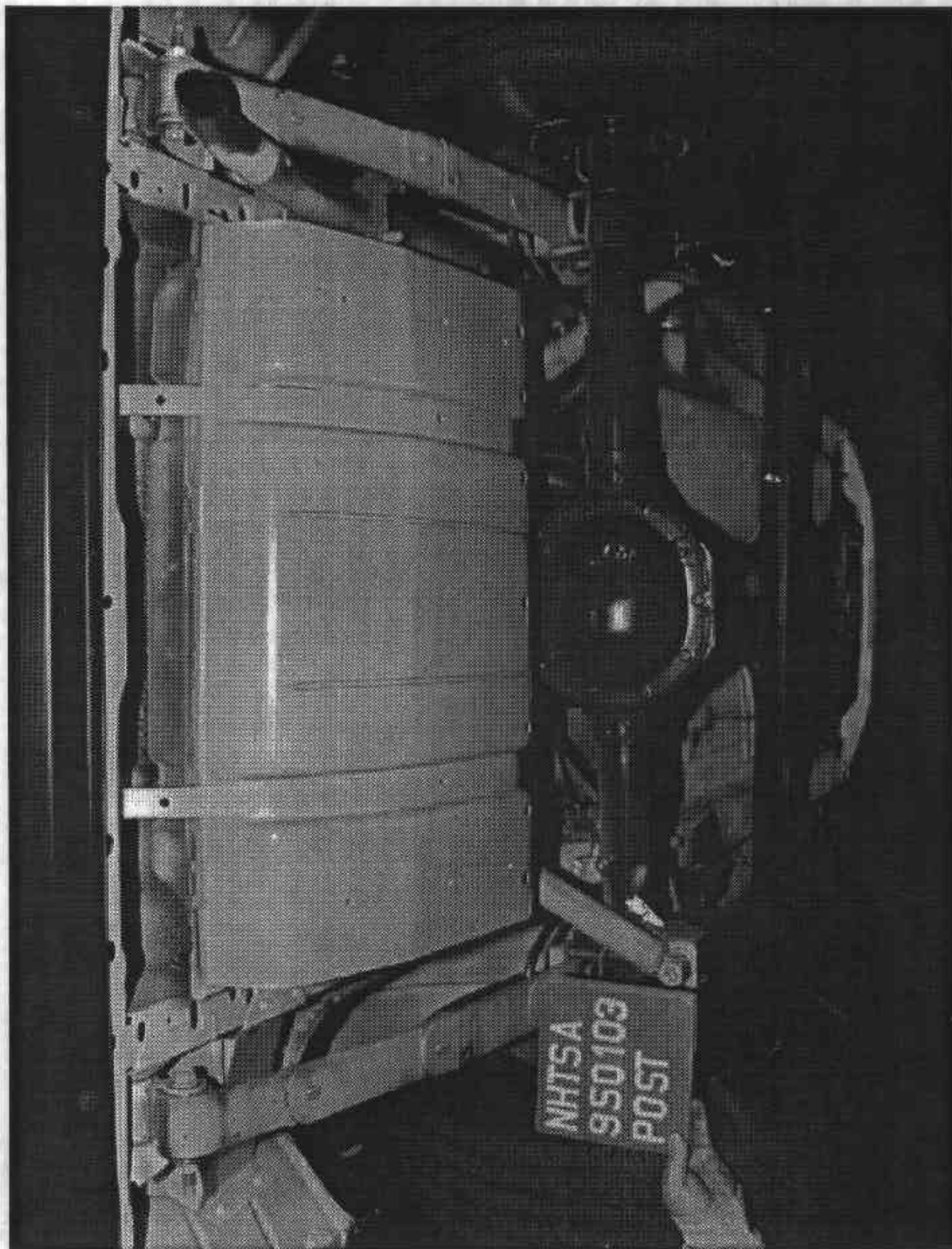


Figure A-26. Post-Test Rear Underbody View
A-27

950103

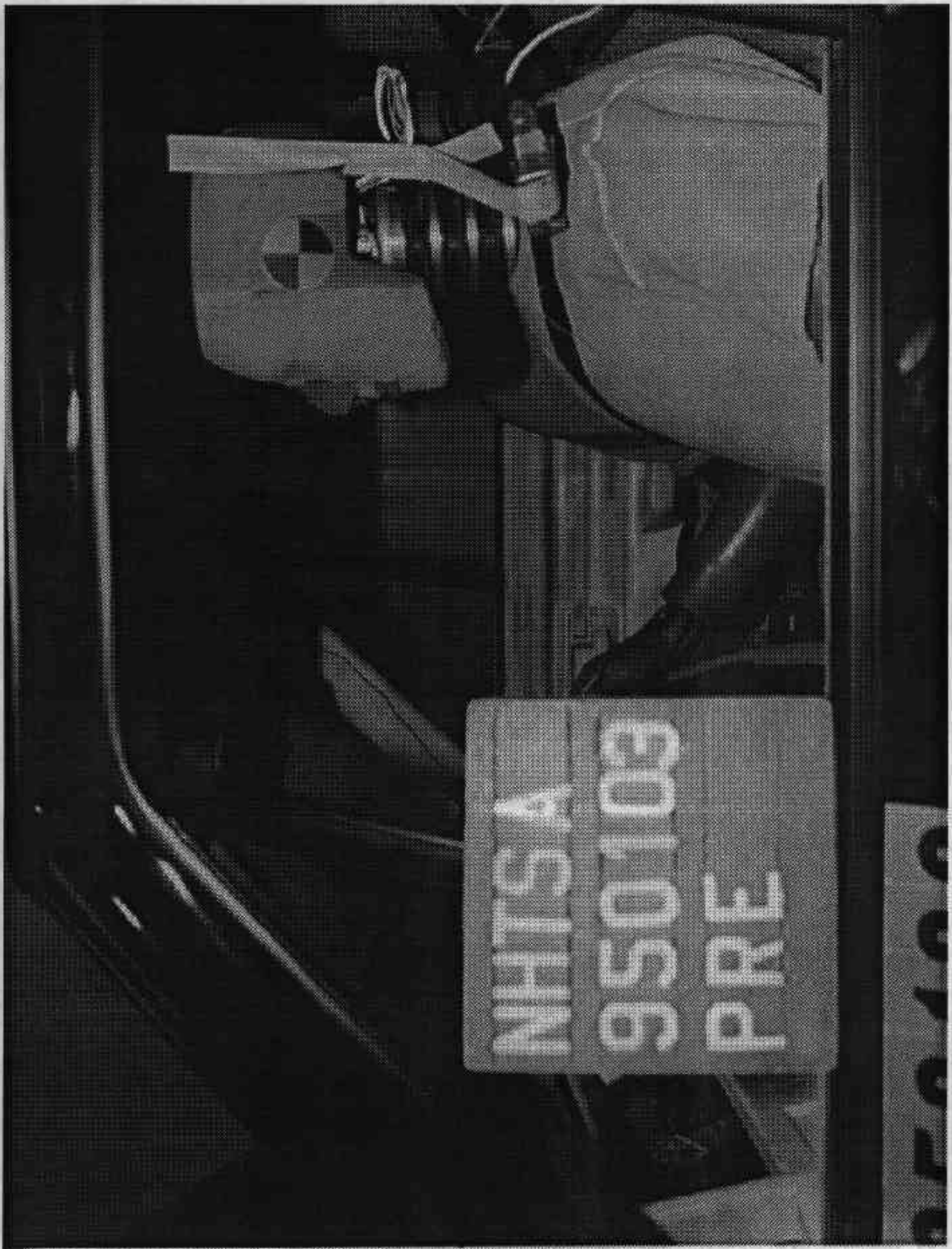


Figure A-27. Pre-Test Driver Dummy Position View
A-28

950103

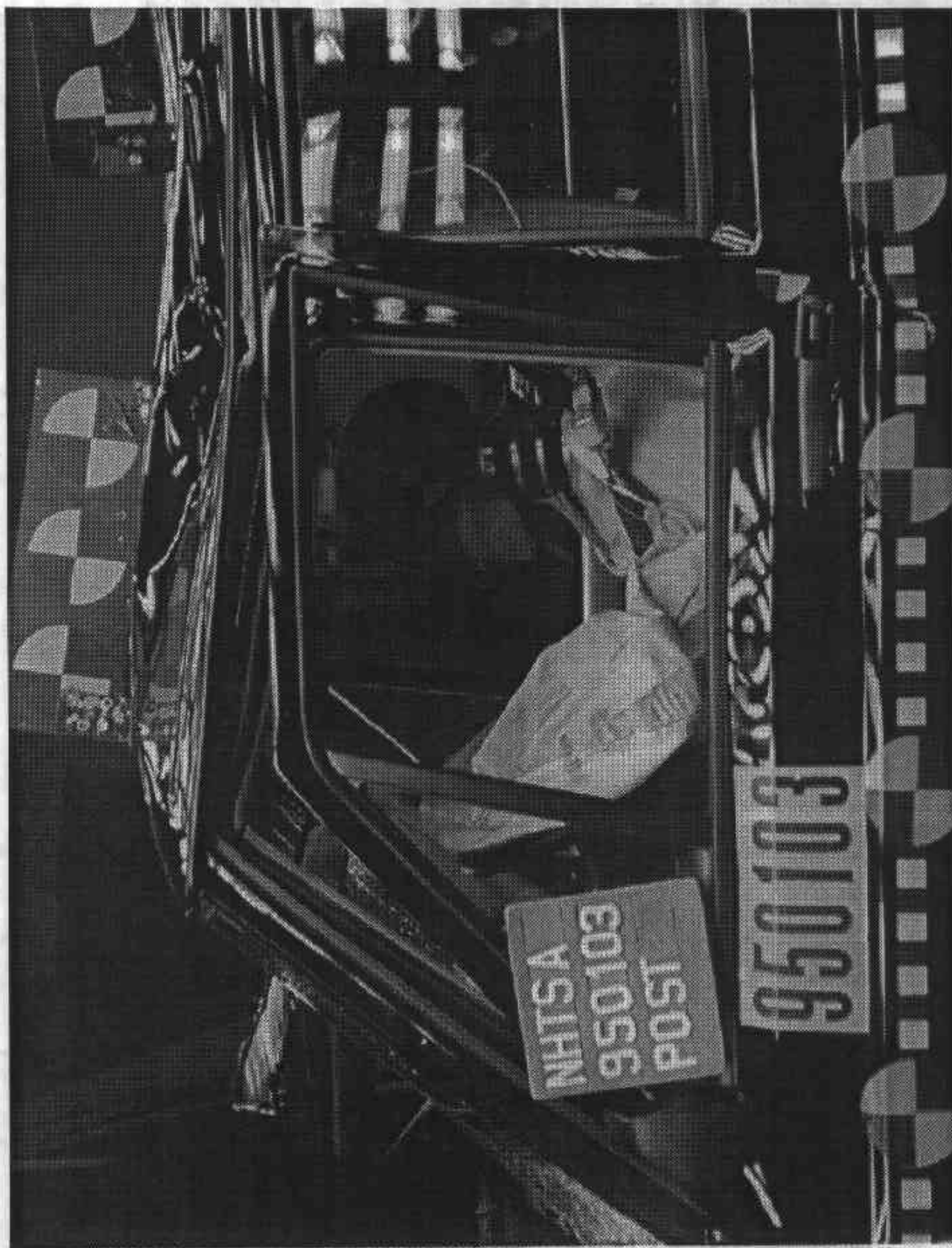


Figure A-28. Post-Test Driver Dummy Position View
A-29

950103



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

950103

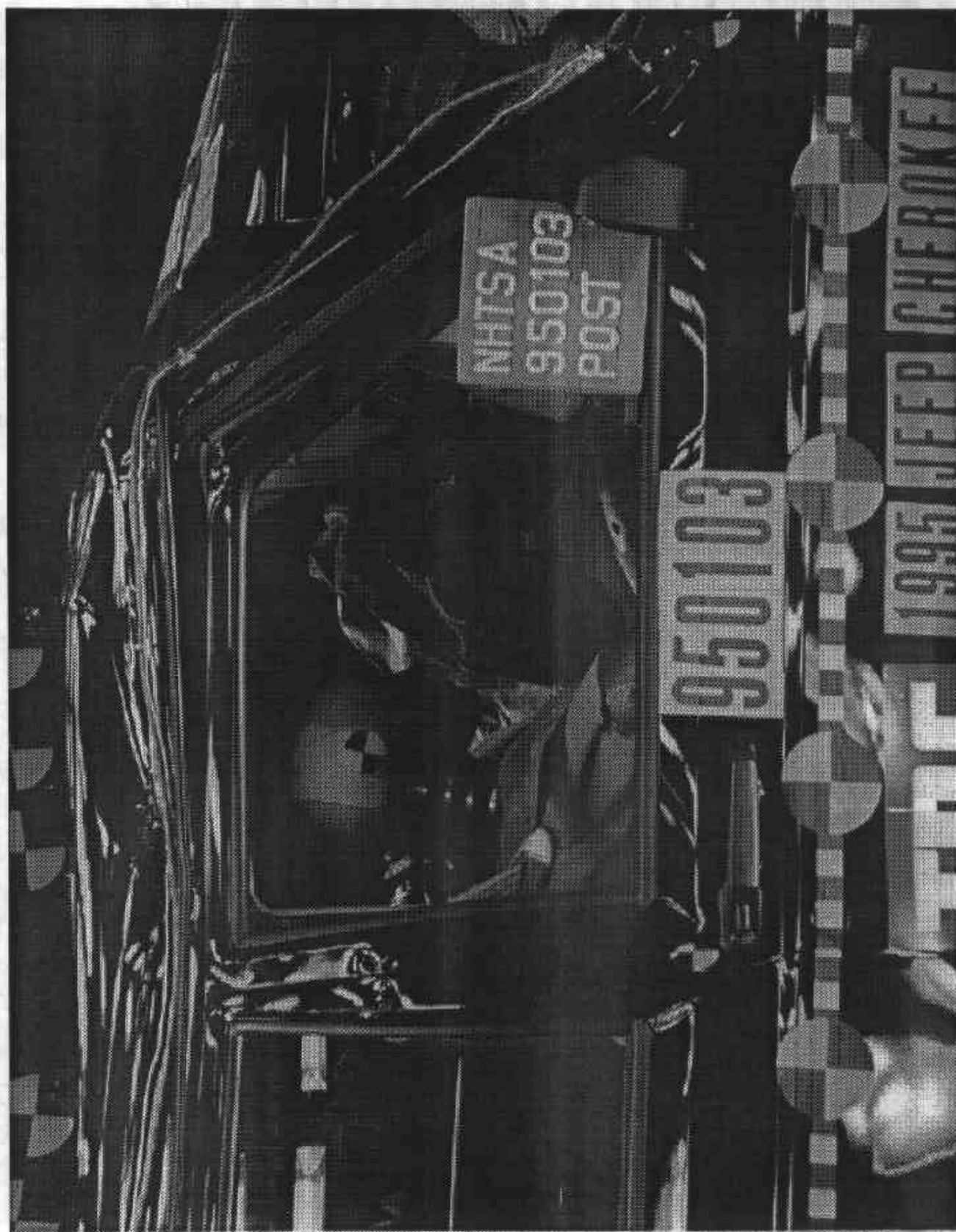


Figure A-30. Post-Test Passenger Dummy Position View
A-31

950103

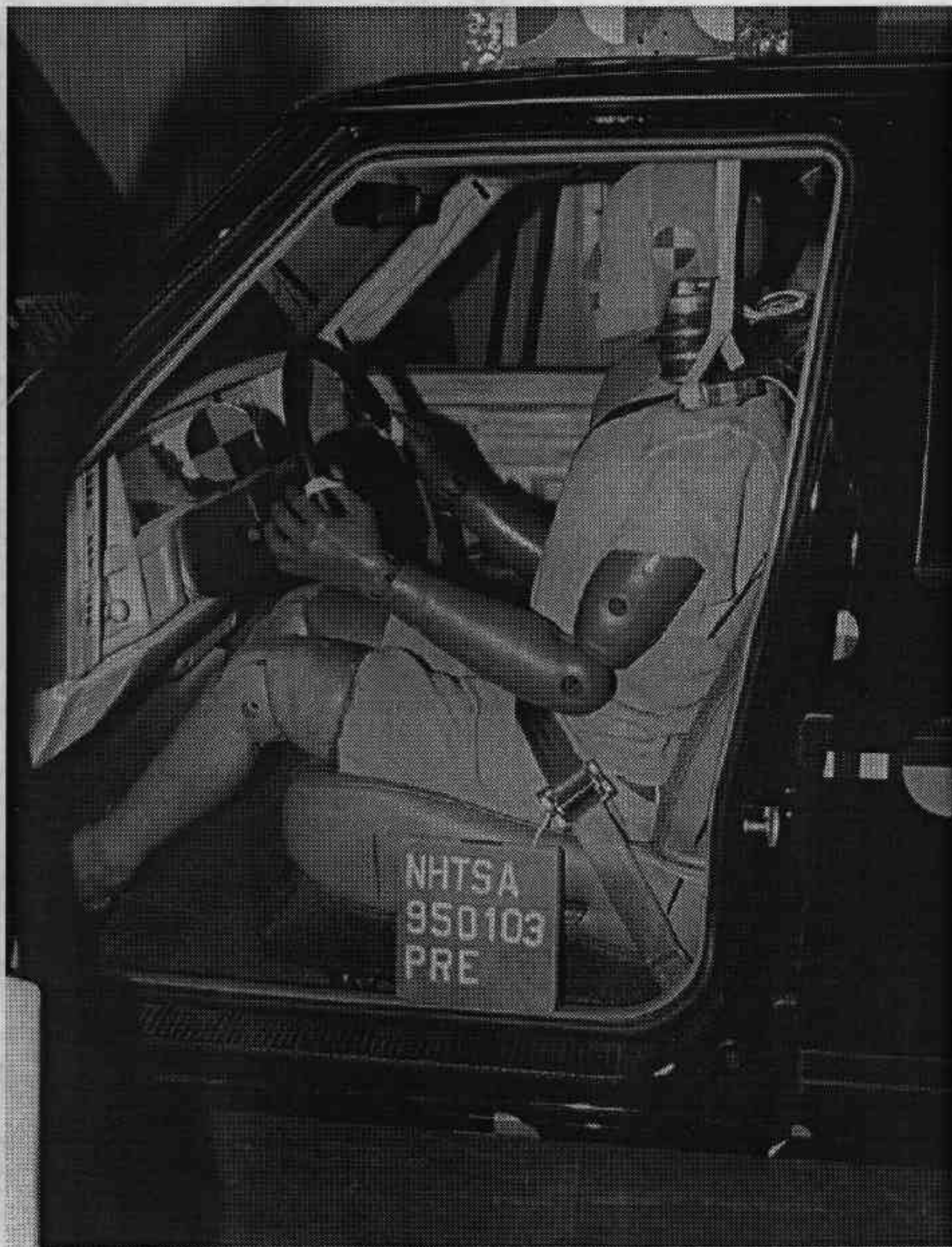


Figure A-31. Pre-Test Driver Dummy & Vehicle Interior - View 1

A-32

950103

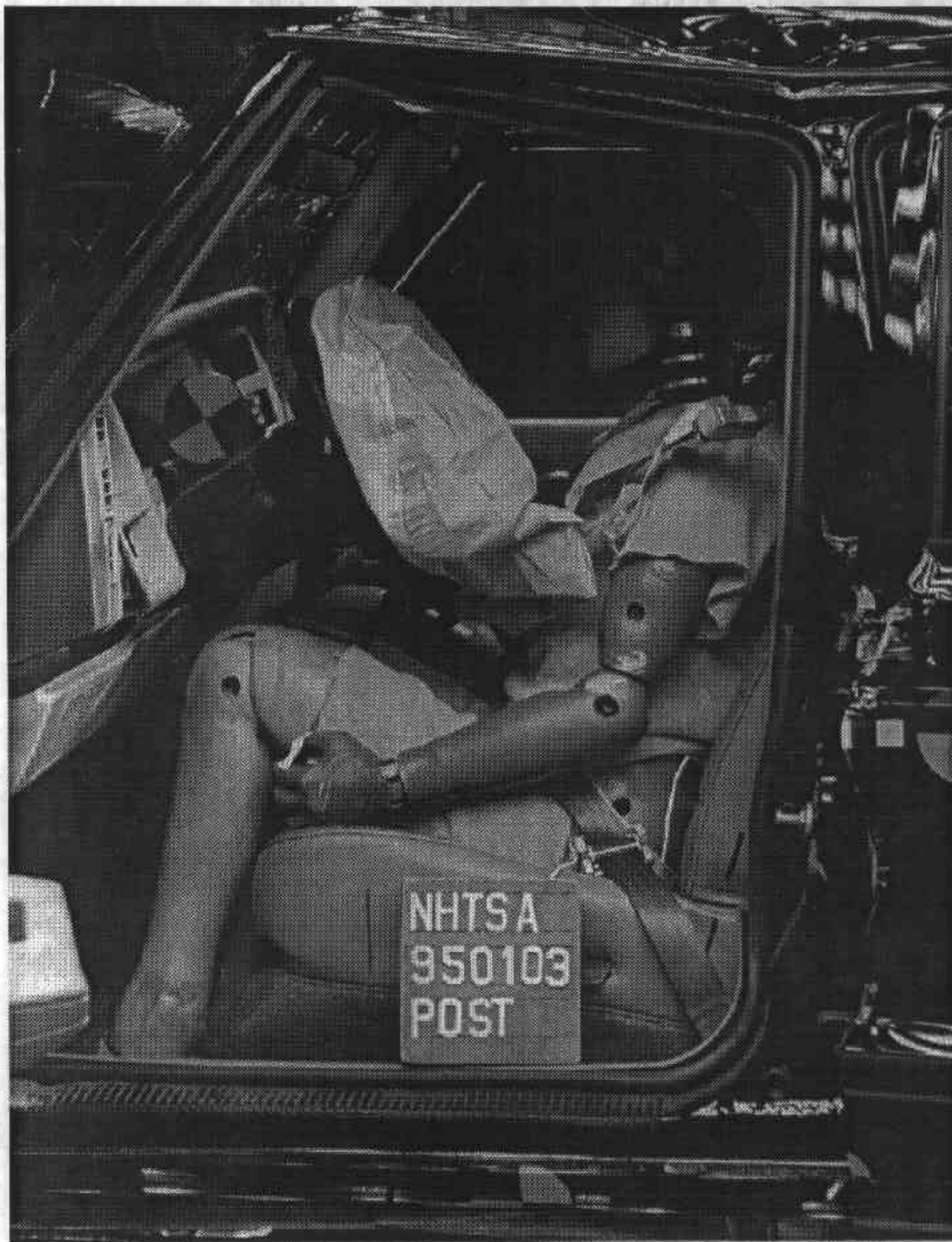


Figure A-32. Post-Test Driver Dummy & Vehicle Interior - View 1
A-33

950103

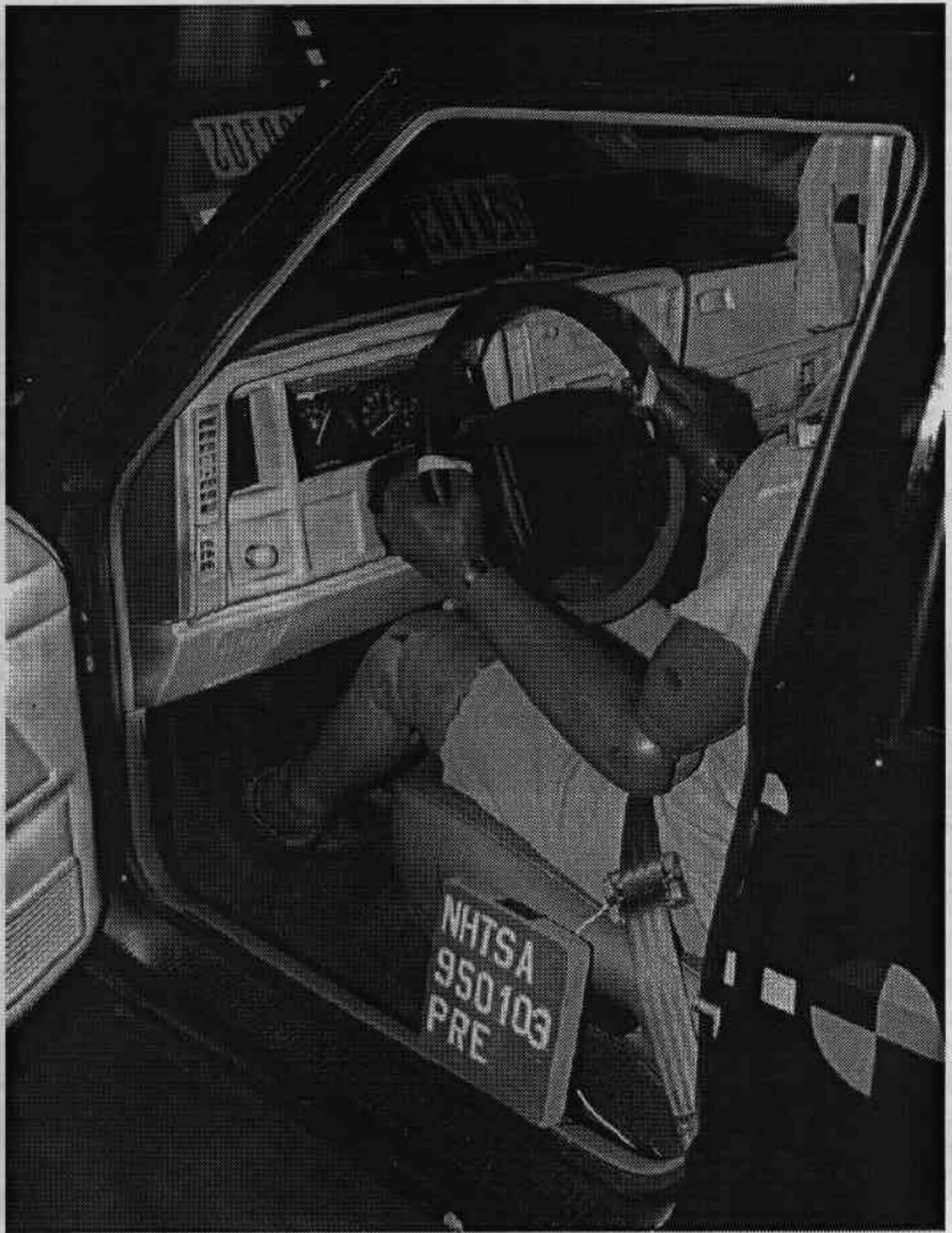


Figure A-33. Pre-Test Driver Dummy & Vehicle Interior - View 2

A-34

950103



Figure A-34. Post-Test Driver Dummy & Vehicle Interior - View 2
A-35

950103

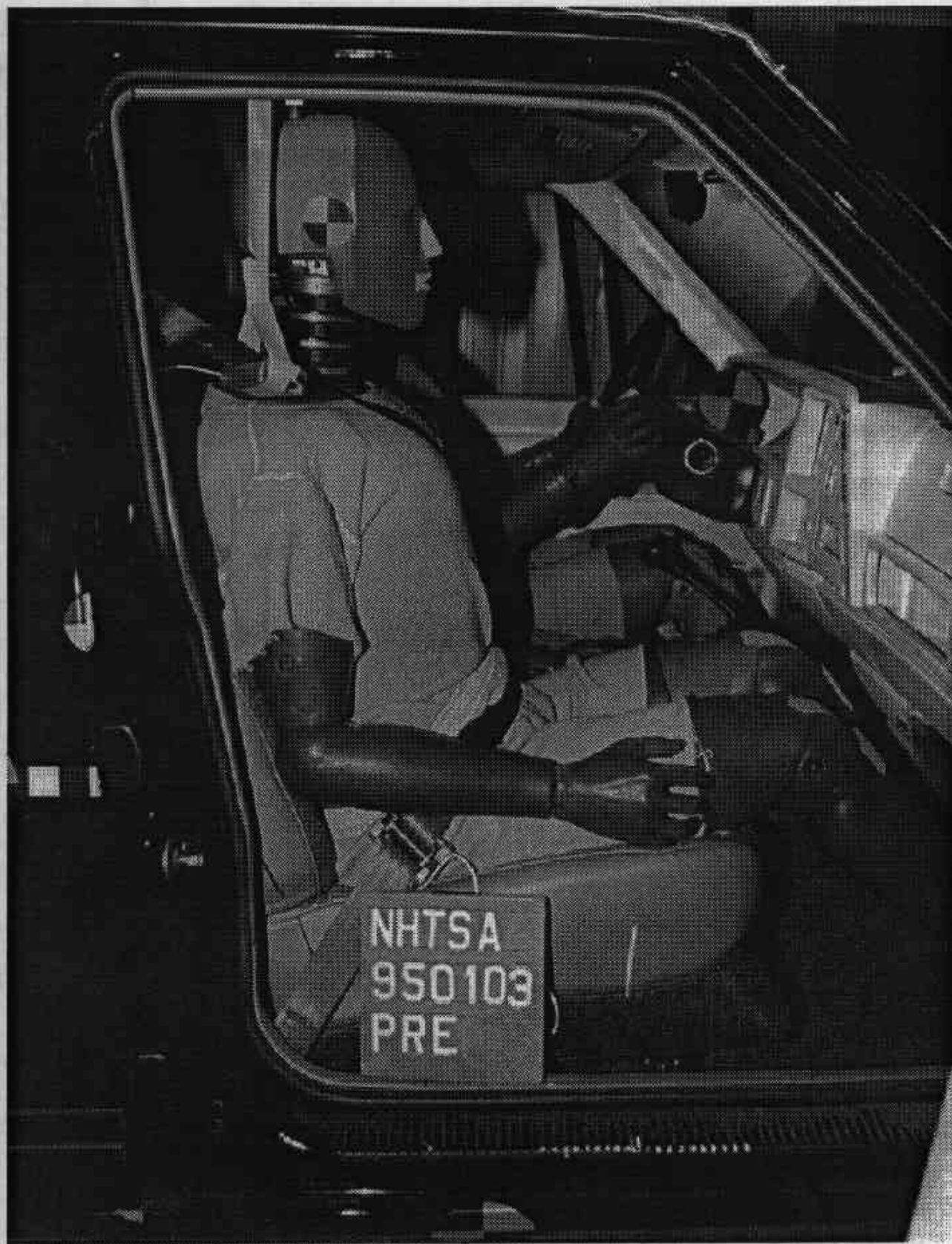


Figure A-35. Pre-Test Passenger Dummy & Vehicle Interior - View 1

A-36

950103



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

A-37

950103



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

A-38

950103



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

A-39

950103

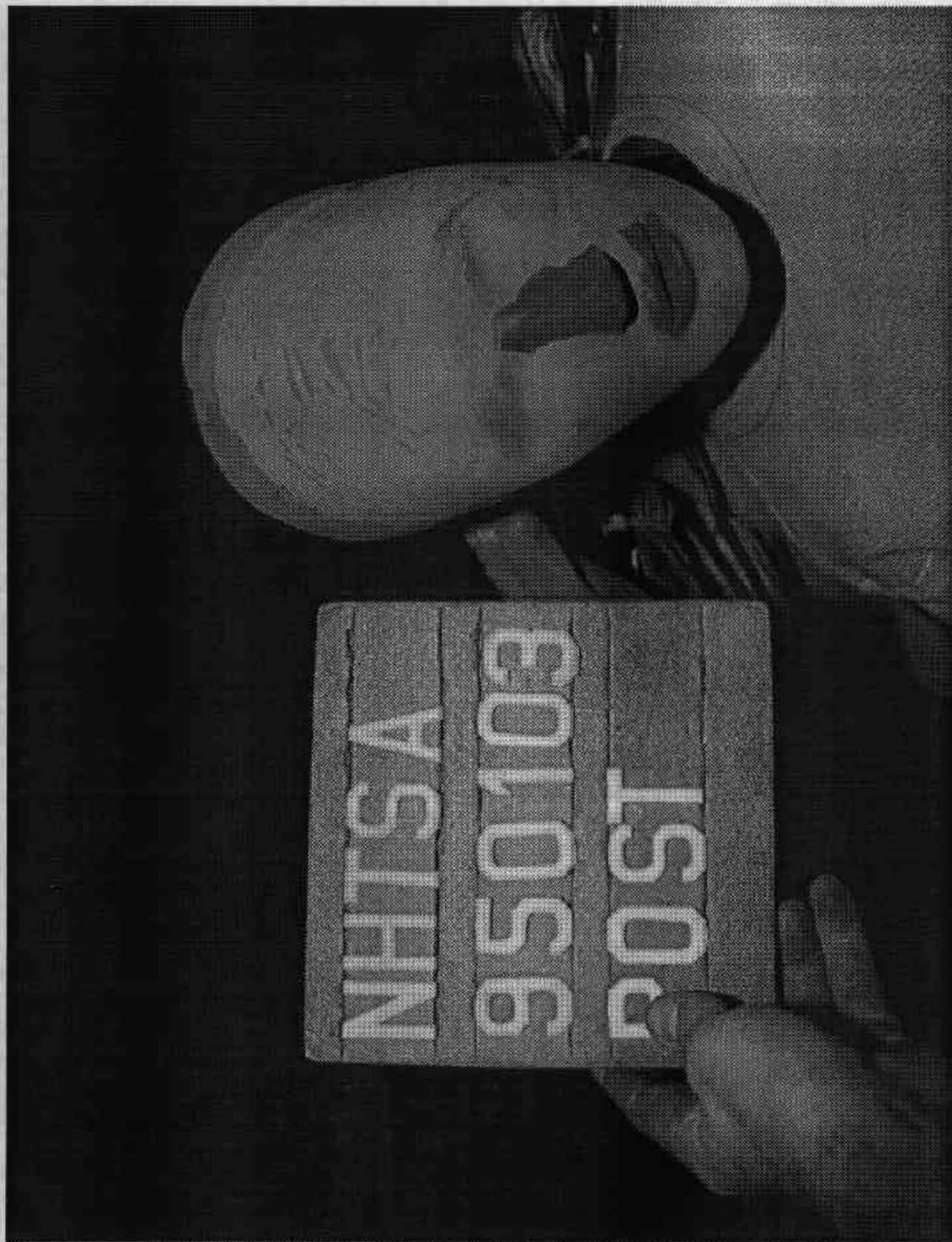


Figure A-39. Post-Test Driver Dummy Head Contact - View 1

A-40

950103

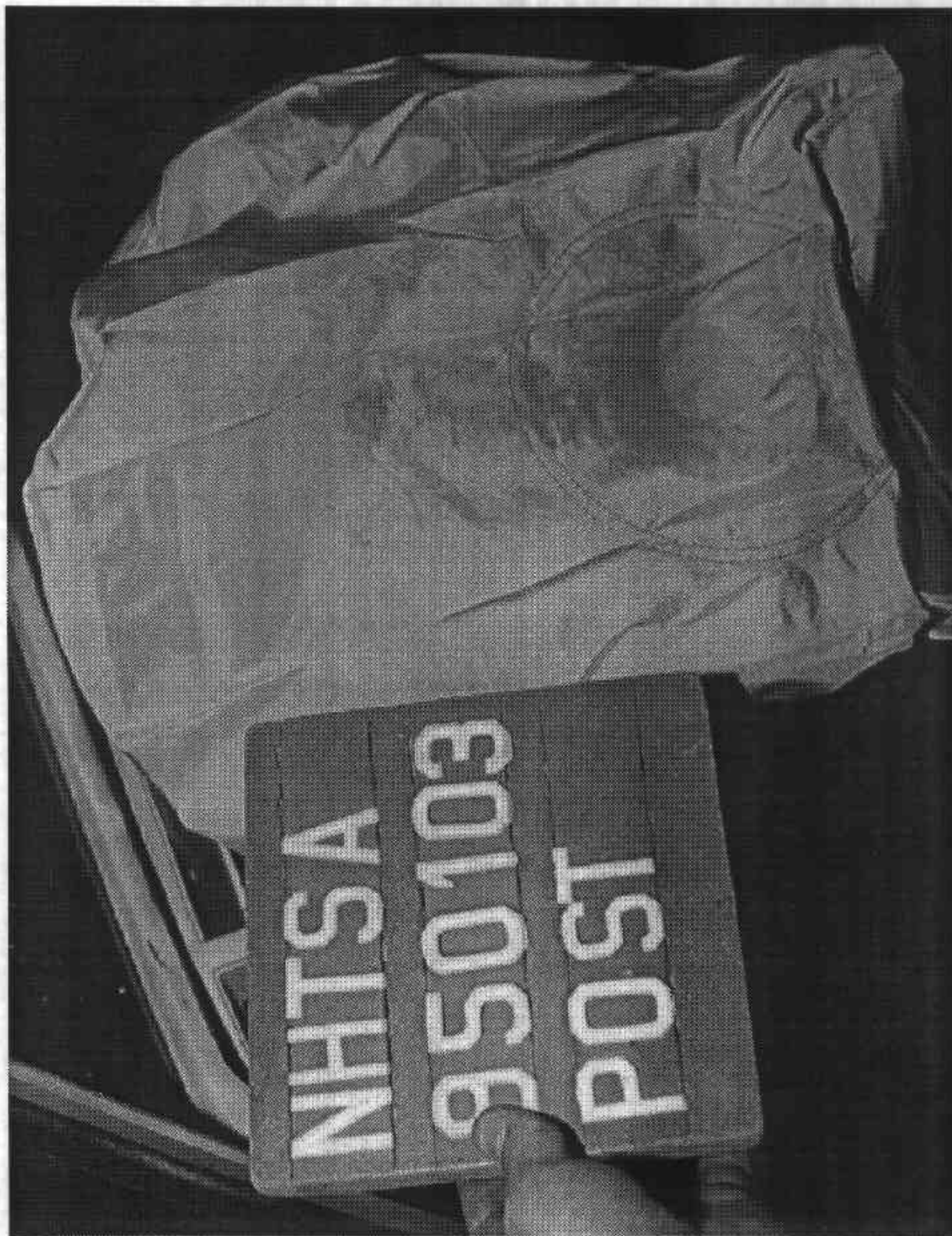


Figure A-40. Post-Test Driver Dummy Head Contact - View 2

A-41

950103

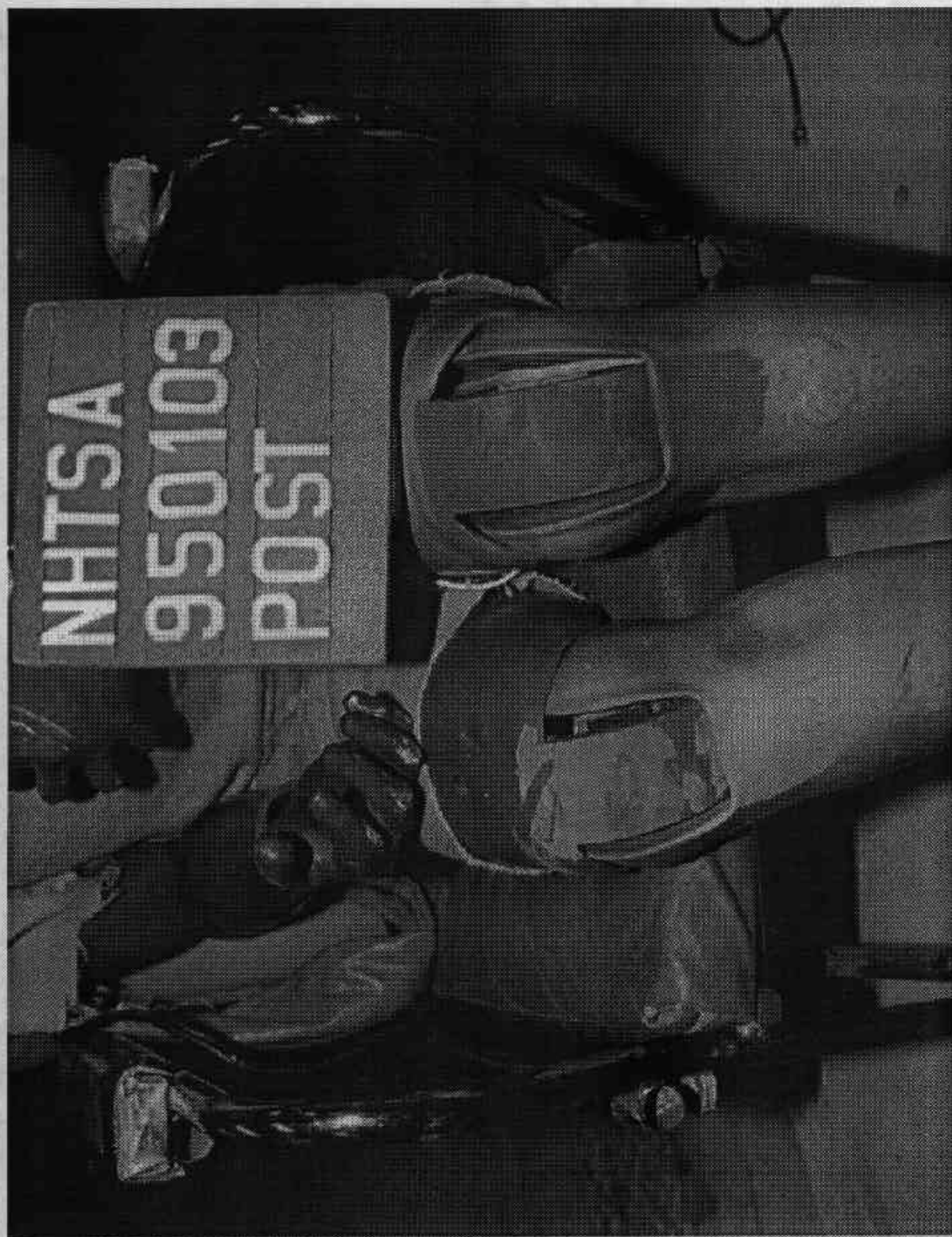


Figure A-41. Post-Test Driver Dummy Knee Contact - View I

A-42

950103



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

A-43

950103

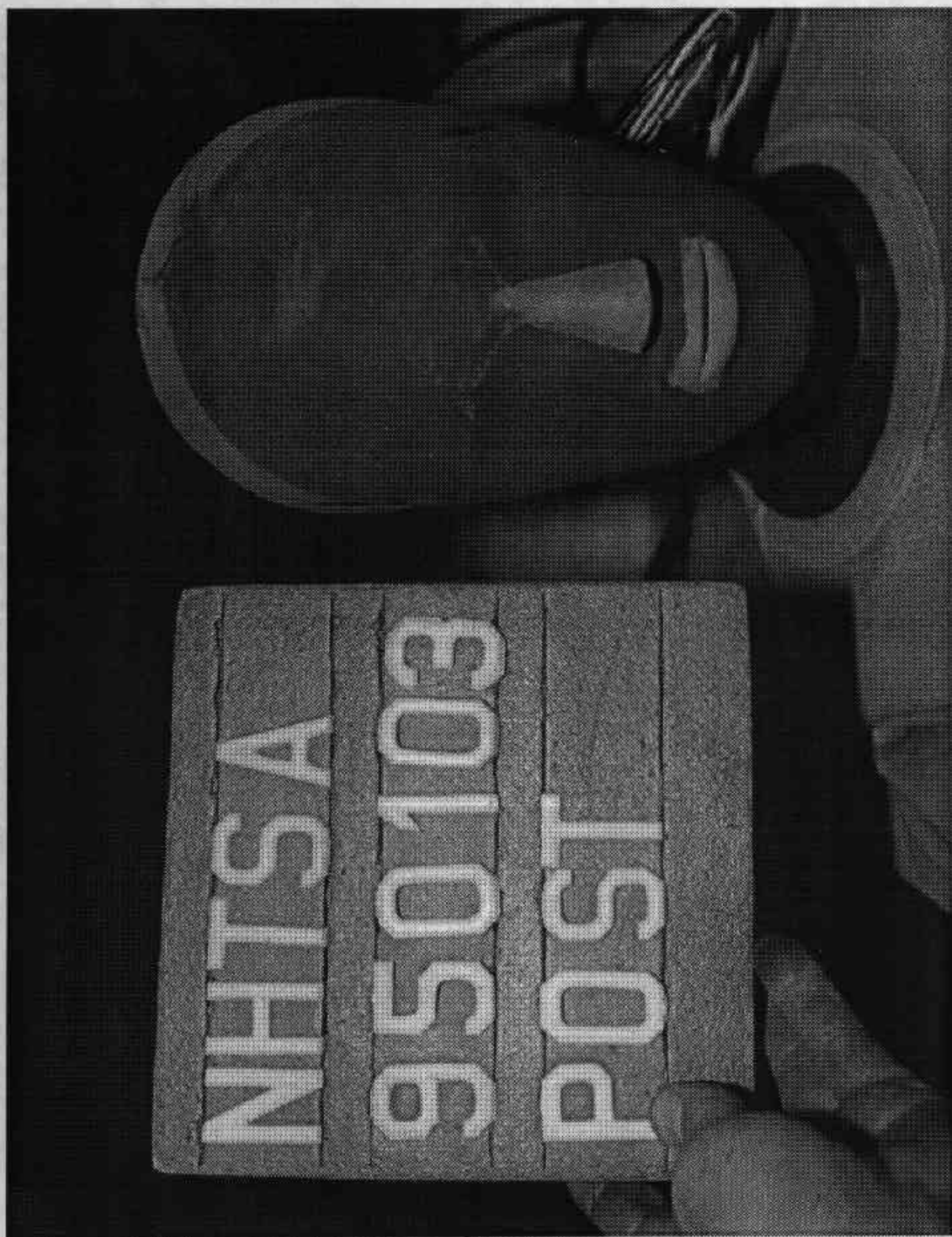


Figure A-43. Post-Test Passenger Dummy Head Contact View

A-44

950103



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

A-45

950103

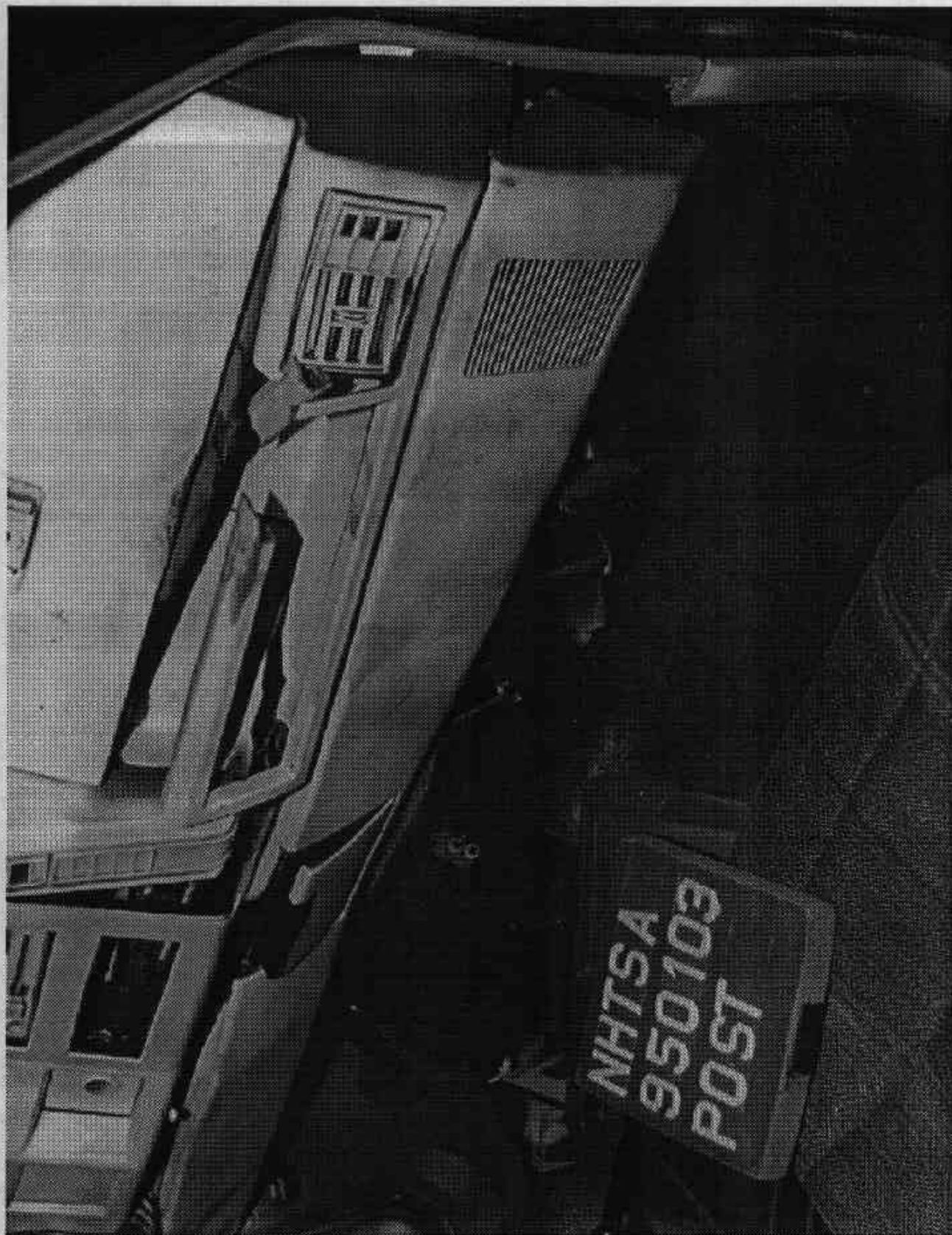


Figure A-45. Post-Test Passenger Dummy Head and Knee Contact View

A-46

950103

MADE BY	CHRYSLER CORPORATION	DATE OF MFR	10-94	GVWR	04600 LB	2007 KG
SALE FRONT		WITH TIRES		RIMS AT	15 X 7.0	PSI COLD
2500 LB	1134 KG	P215/75R15		RIMS AT	15 X 7.0	PSI COLD
SALE REAR		WITH TIRES		RIMS AT	15 X 7.0	PSI COLD
2700 LB	1225 KG	P215/75R15				

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: 1J4FT28PXS541808 TYPE: MPV SINGLE X DR

100618 244 P4141P43 VEHICLE MADE IN U.S.A. 10061558

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

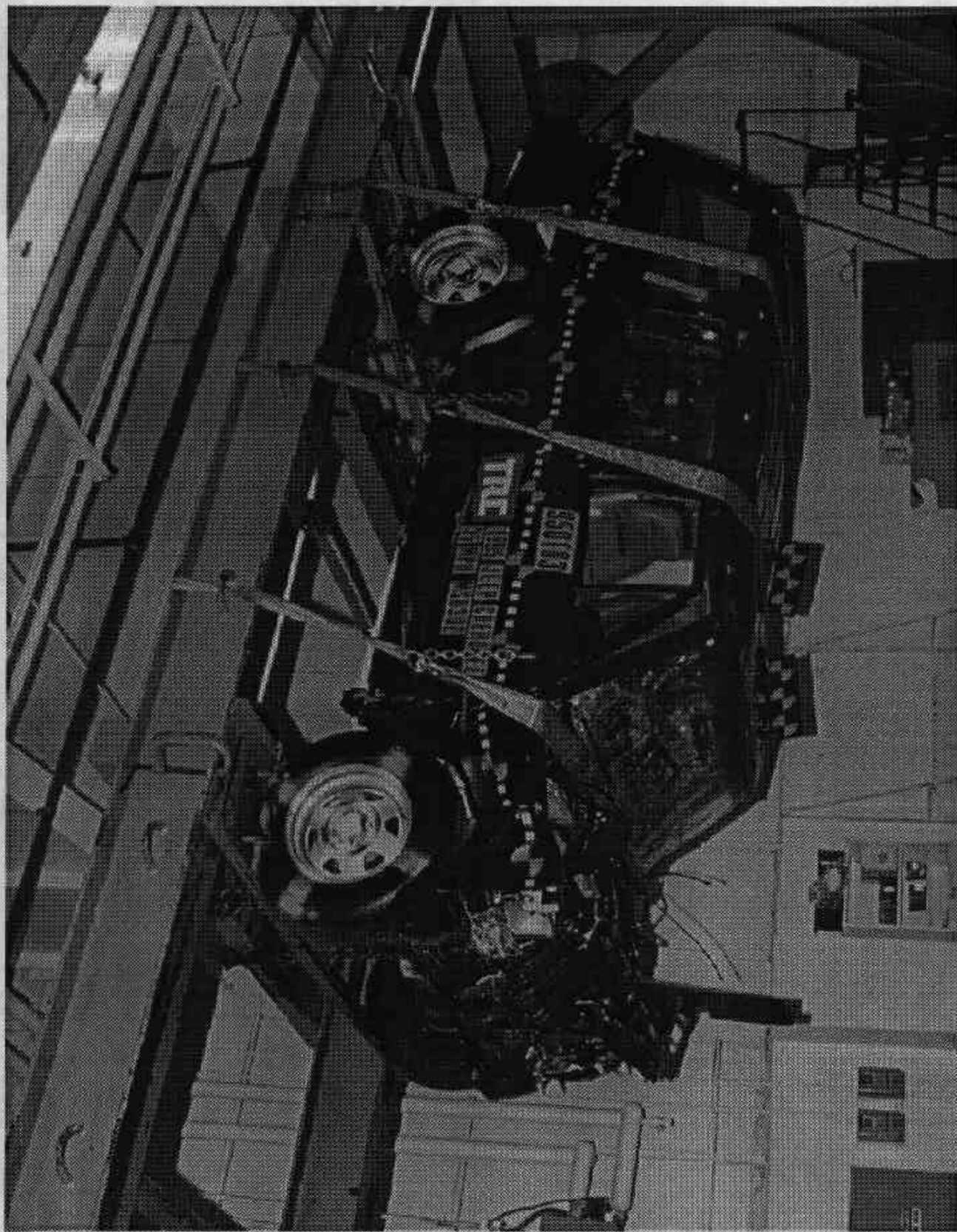


Figure A-47. Post-Test Vehicle on Static Rollover Machine View

A-48

950103

Appendix B

Data Plots

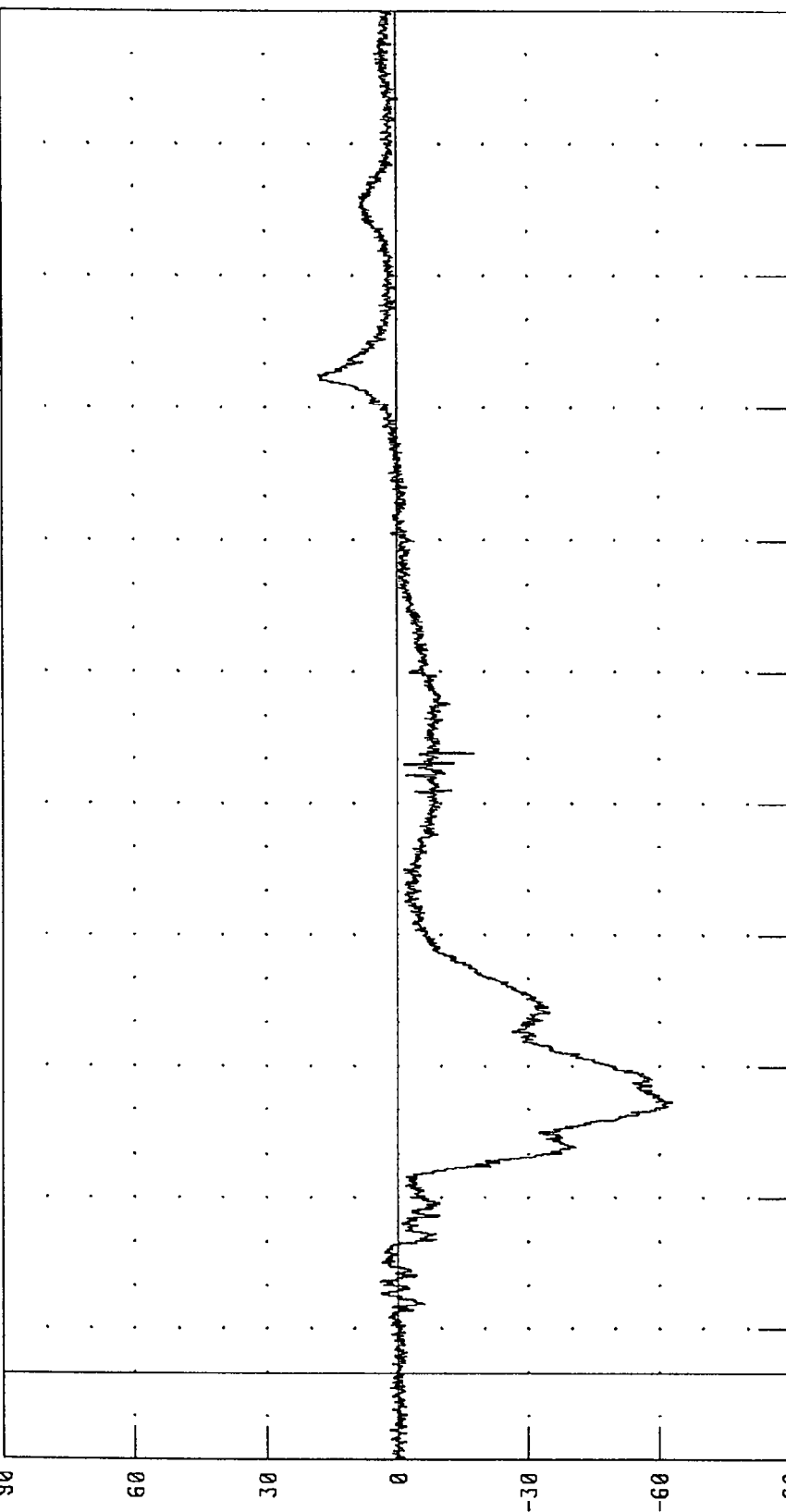
1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

90

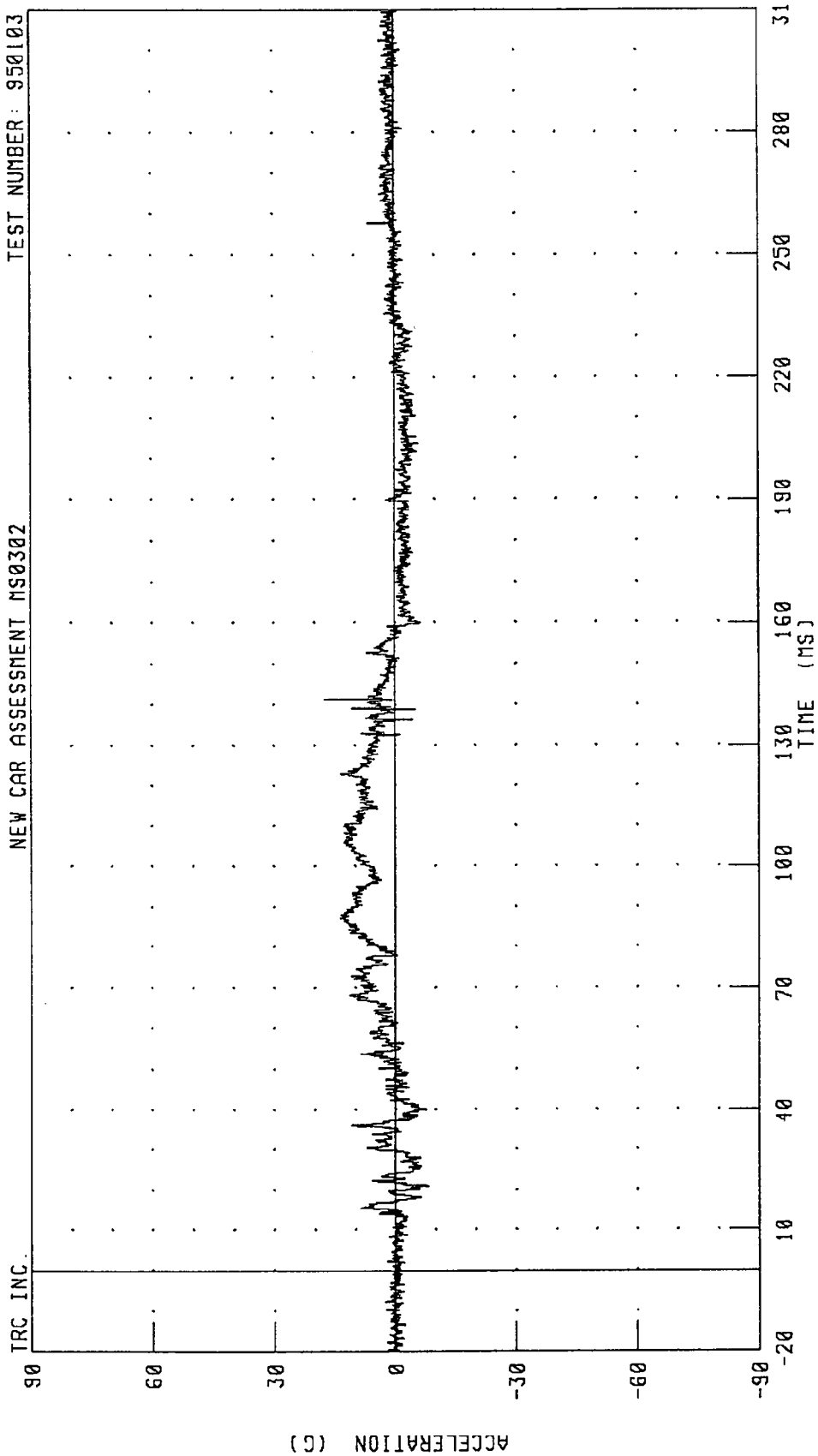


CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 18.08 G @ 227.76 MS; -63.05 G @ 61.68 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

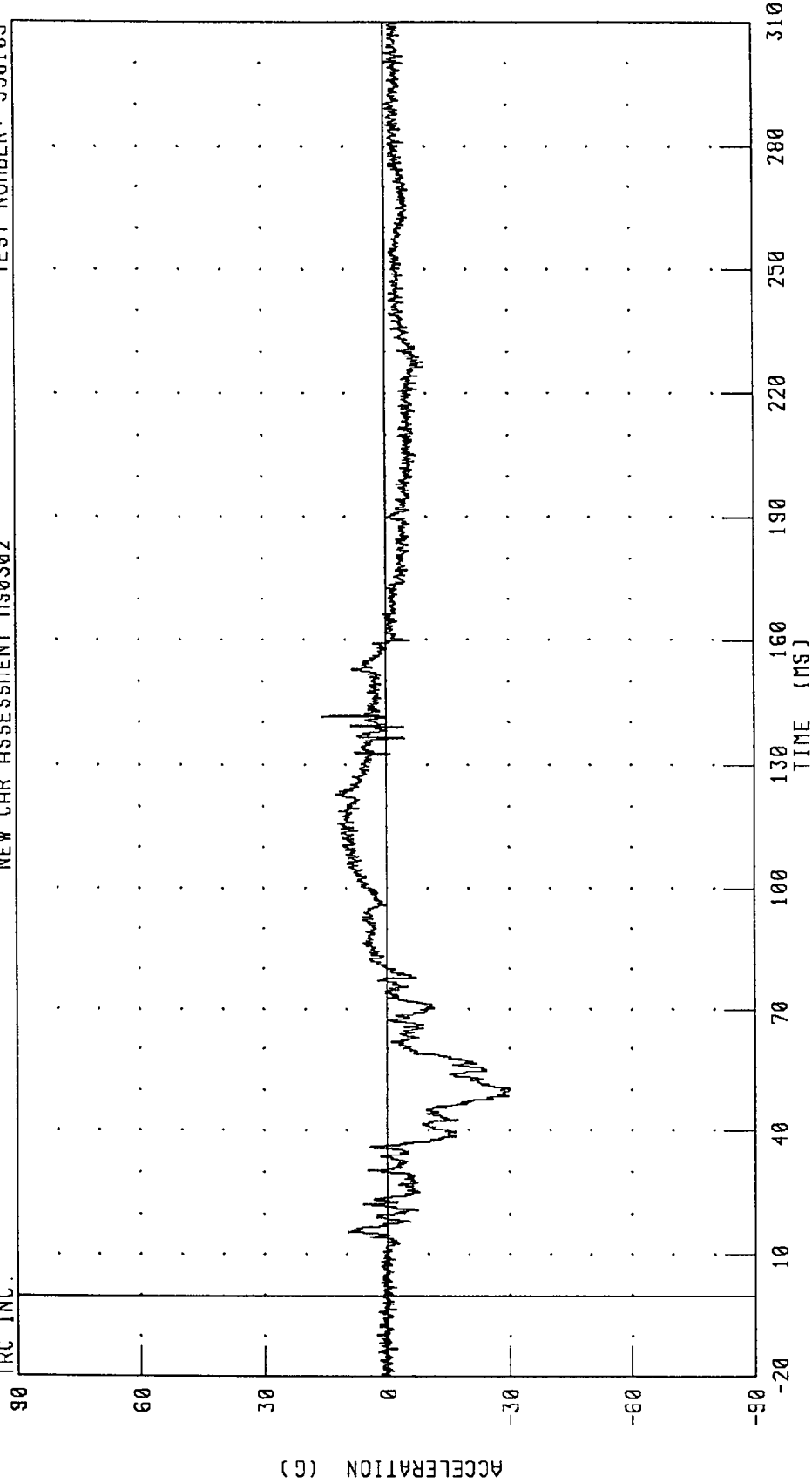
950103

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

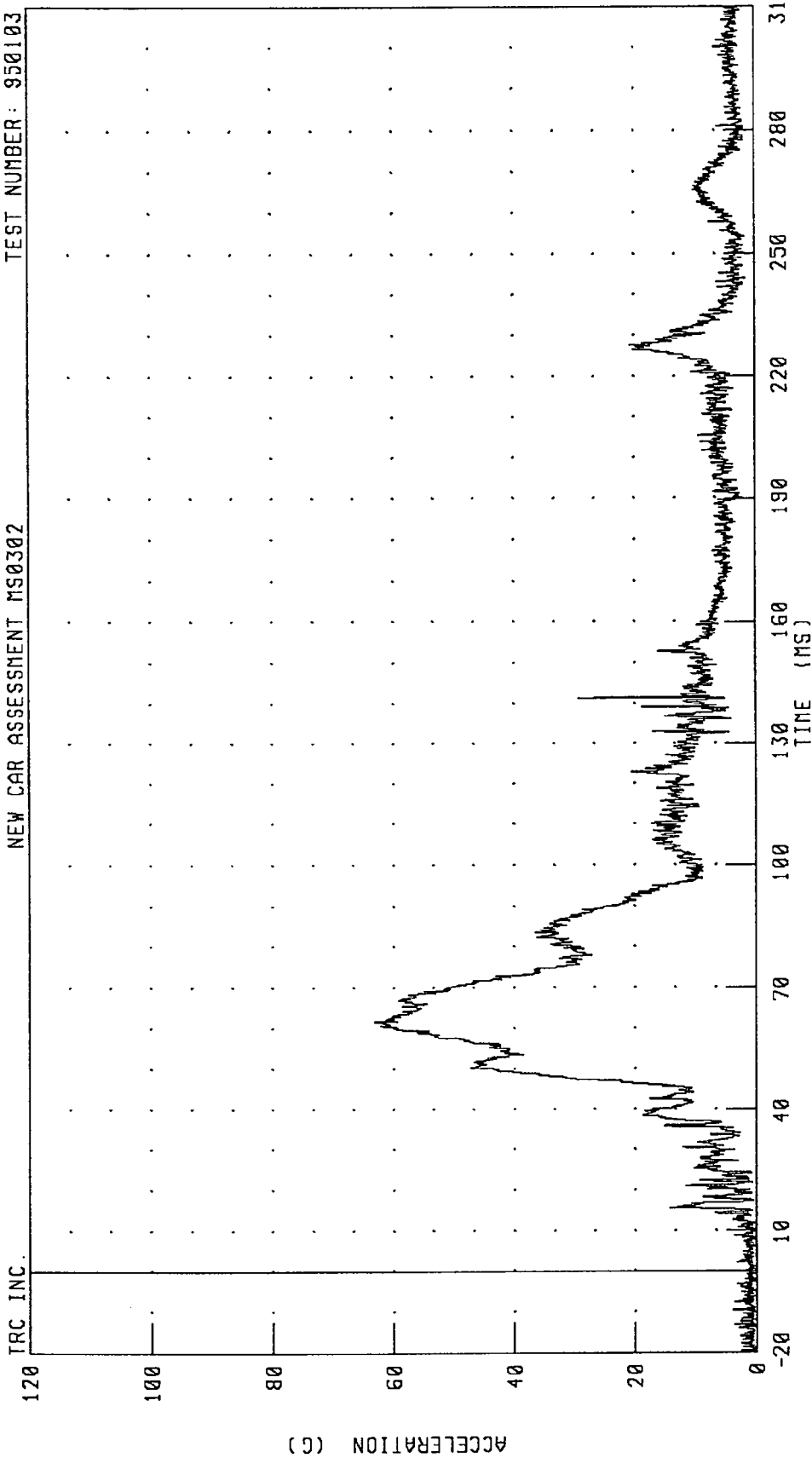


PEAK DATA: 15.82 G @ 141.36 MS; -29.96 G @ 50.56 MS

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



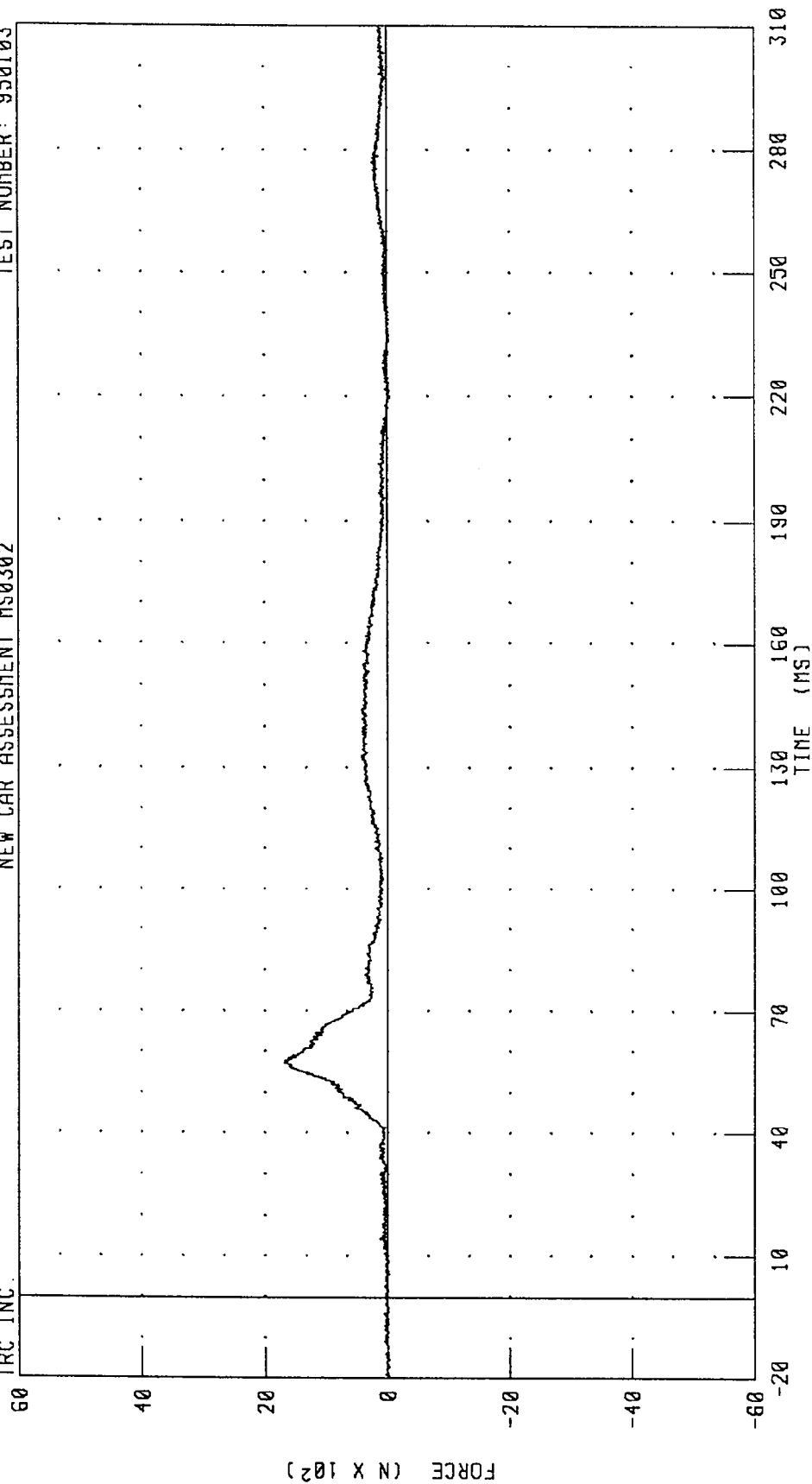
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 63.19 G @ 61.68 MS; 0.16 G @ -10.32 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK X-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.

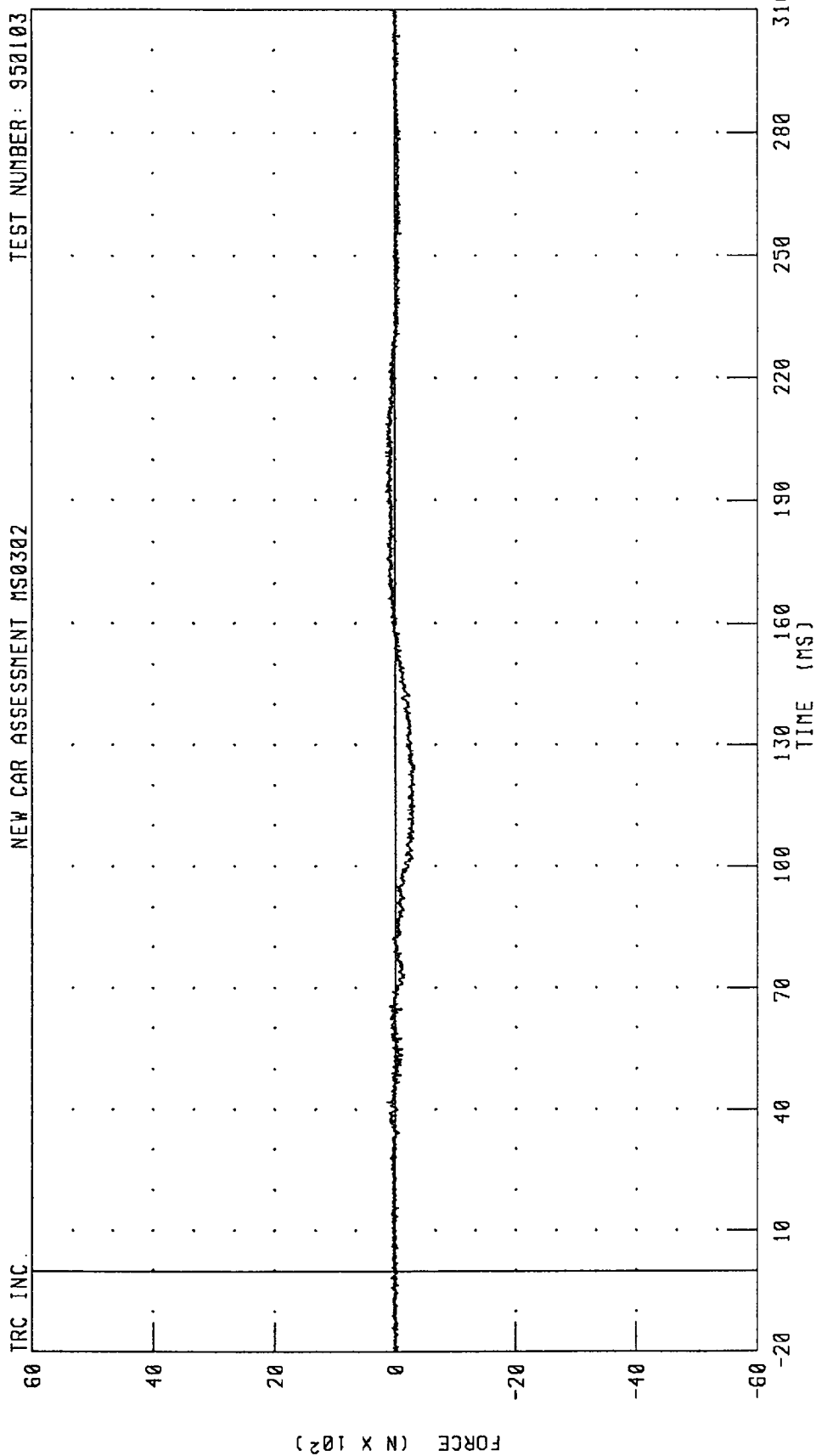


CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 1695.72 N @ 57.76 MS; -51.37 N @ 220.32 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Y-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



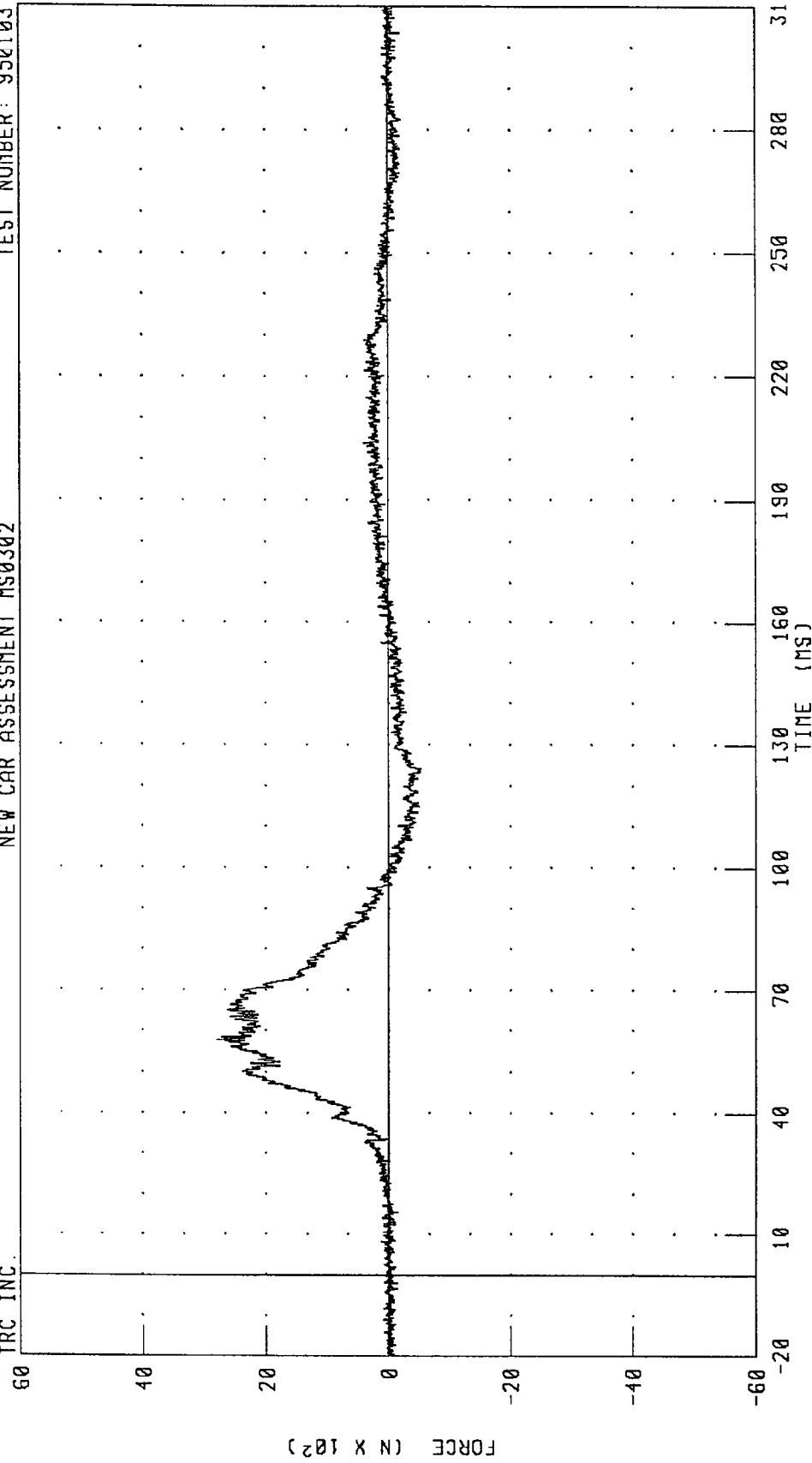
PEAK DATA: 153.19 N @ 192.16 MS; -325.83 N @ 120.32 MS

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

IRC INC.

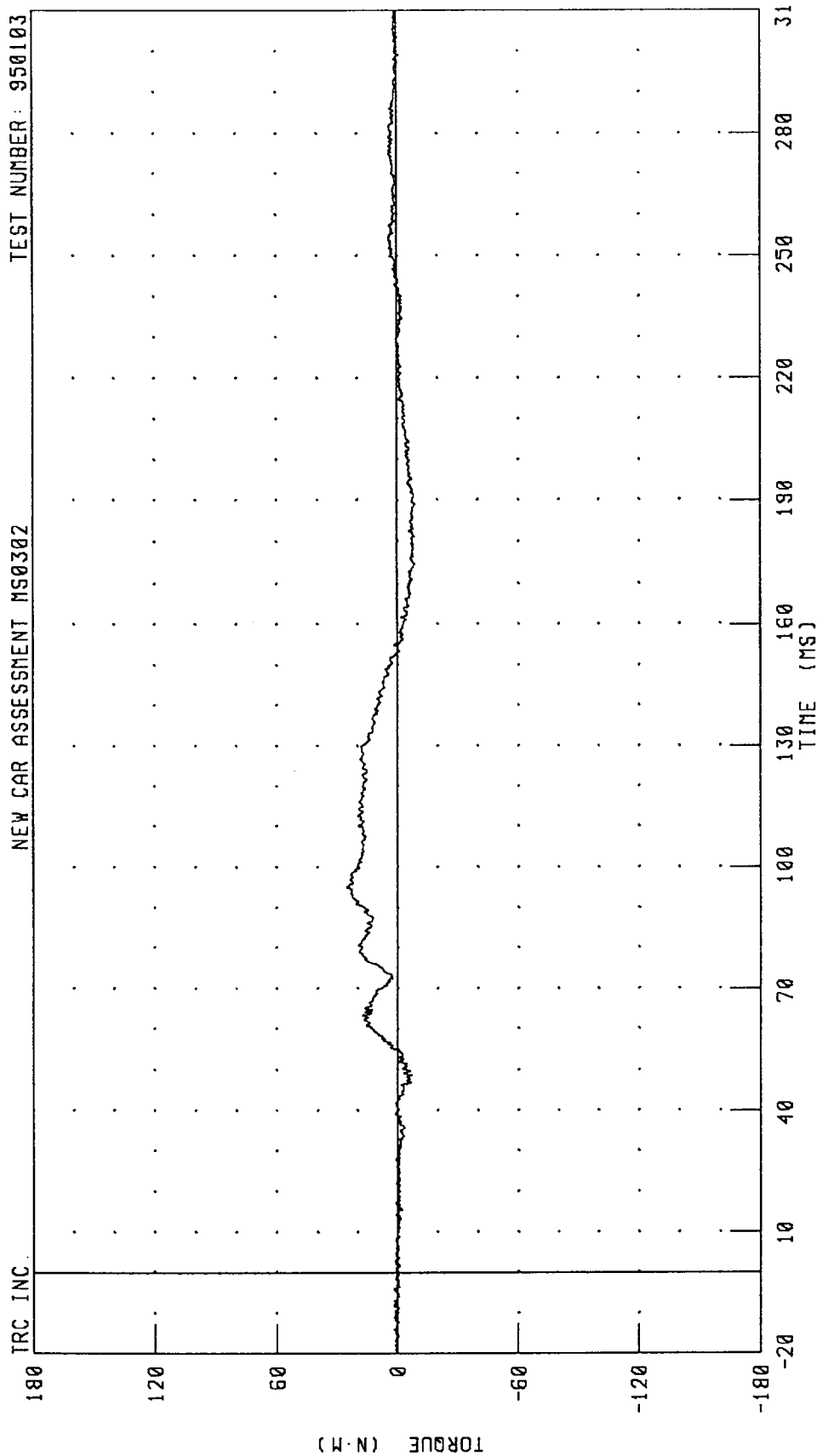


PEAK DATA: 2792.88 N @ 57.76 MS; -541.77 N @ 124.24 MS

CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT X AXIS
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



PEAK DATA: 25.46 N.M @ 95.04 MS; -8.97 N.M @ 189.12 MS

CHANNEL: NEKXM1 FILTER: CH. CLASS 600

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

180

120

60

0

-60

-120

-180

TORQUE (N·M)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

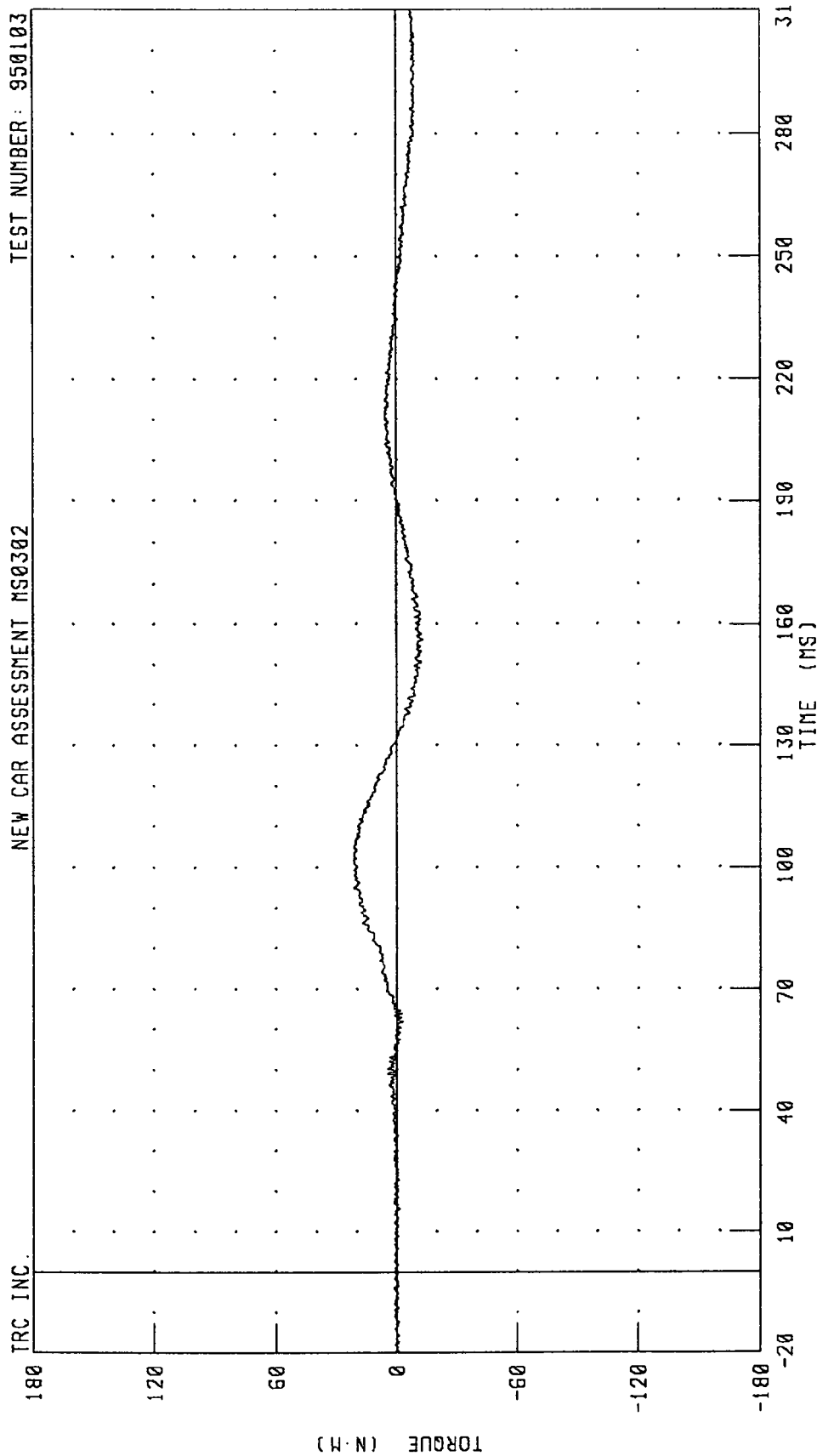
-20

PEAK DATA: 32.80 N·M @ 148.88 MS; -108.93 N·M @ 57.92 MS

CHANNEL: NEKYM1 FILTER: CH. CLASS 600

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT Z AXIS
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

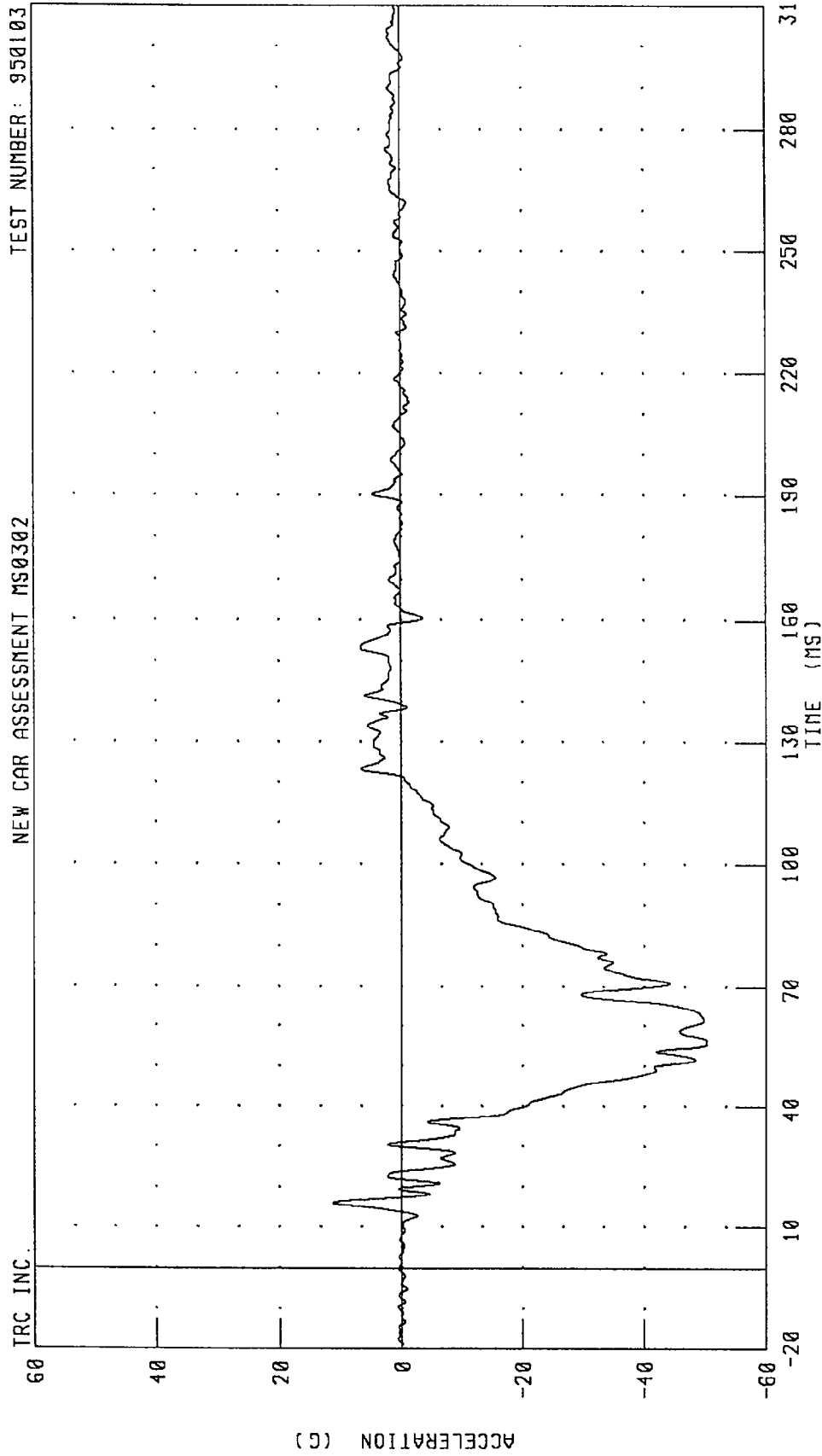


PEAK DATA: 22.08 N.M @ 101.84 MS; -12.73 N.M @ 156.24 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



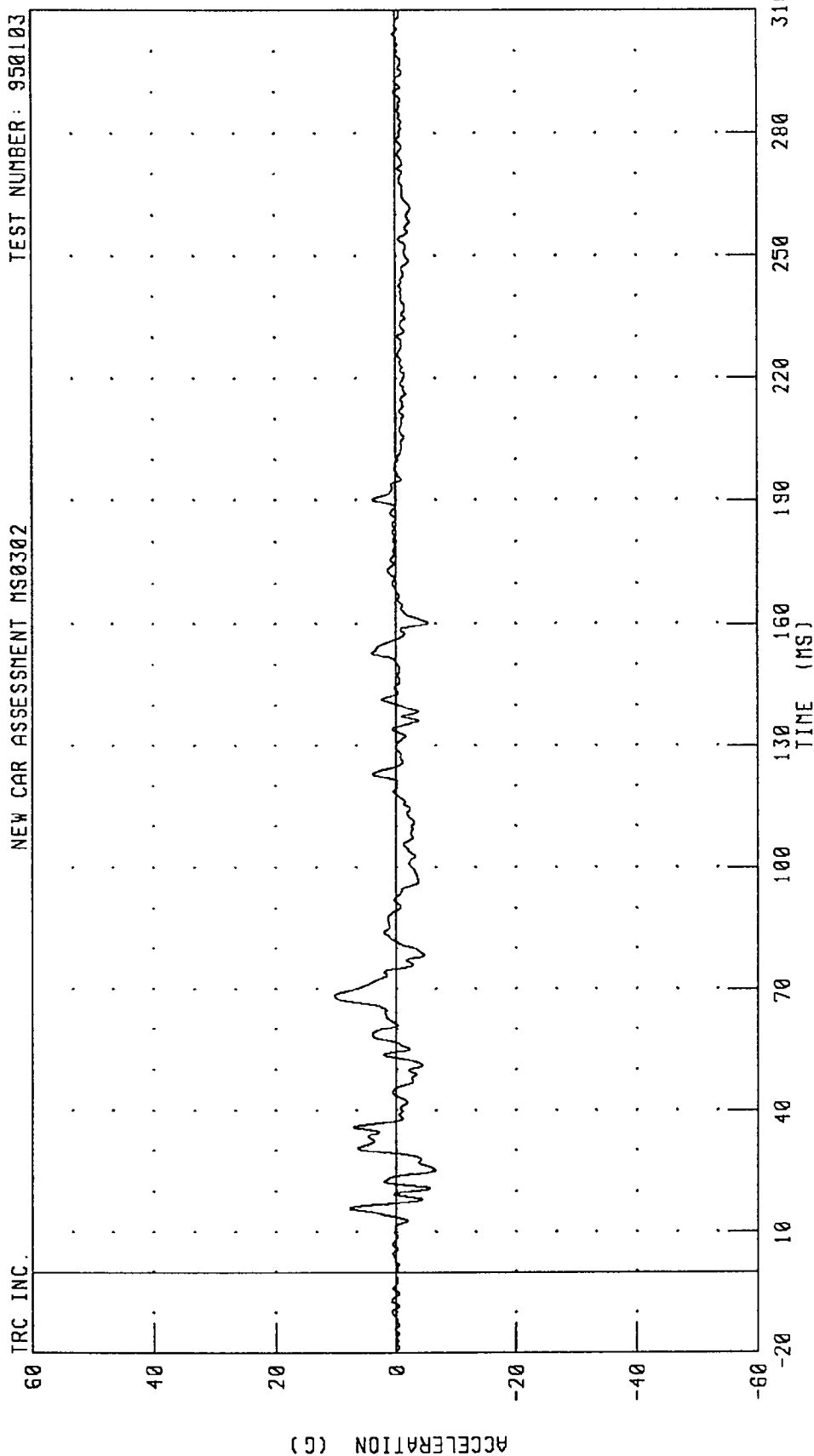
PEAK DATA: 11.41 G @ 16.08 MS; -50.37 G @ 56.32 MS

CHANNEL: CSTXG1 FILTER: CH. CLASS 180

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



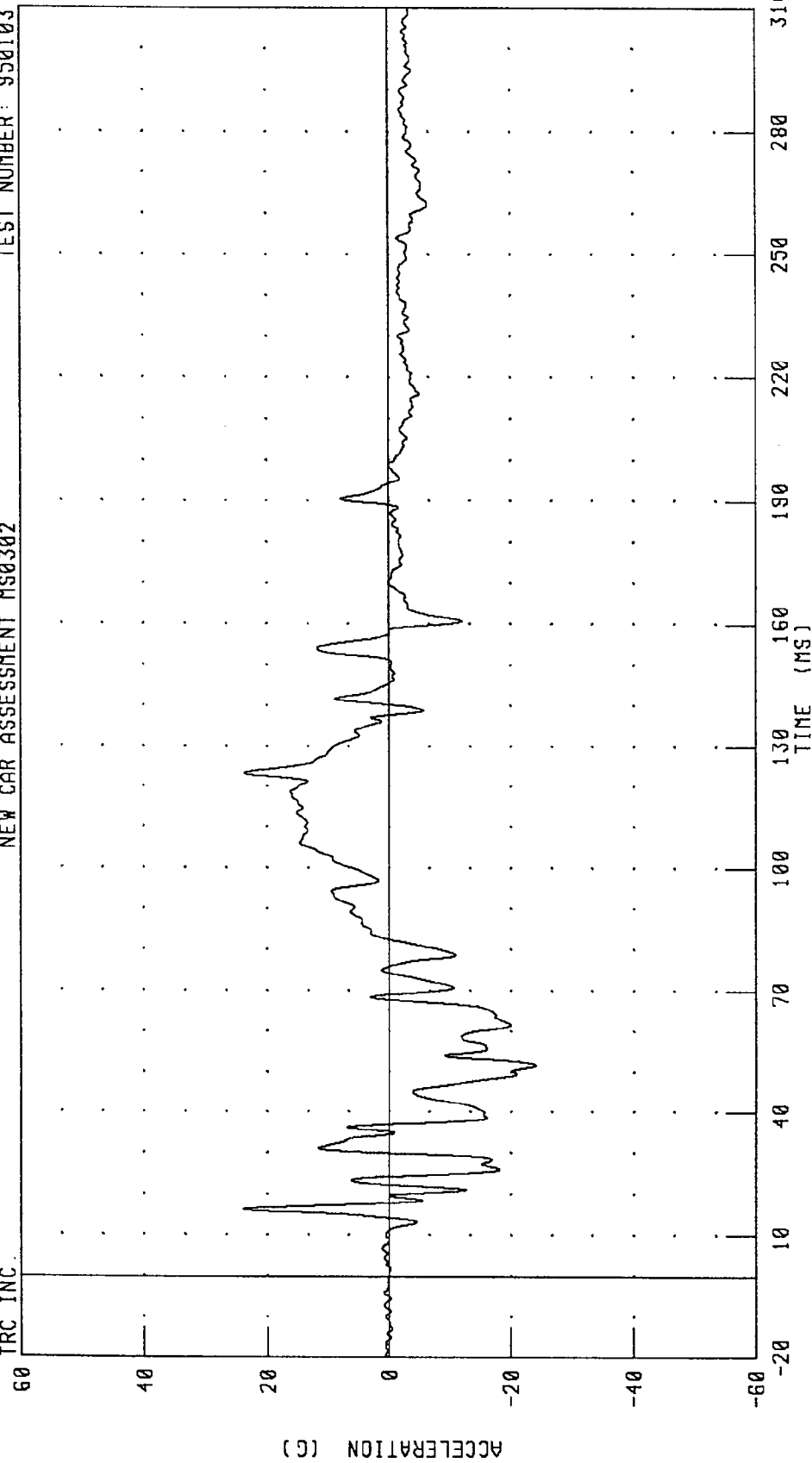
CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 10.34 G @ 68.40 MS; -6.51 G @ 25.28 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



PEAK DATA: 24.03 G @ 16.32 MS; -24.12 G @ 51.68 MS

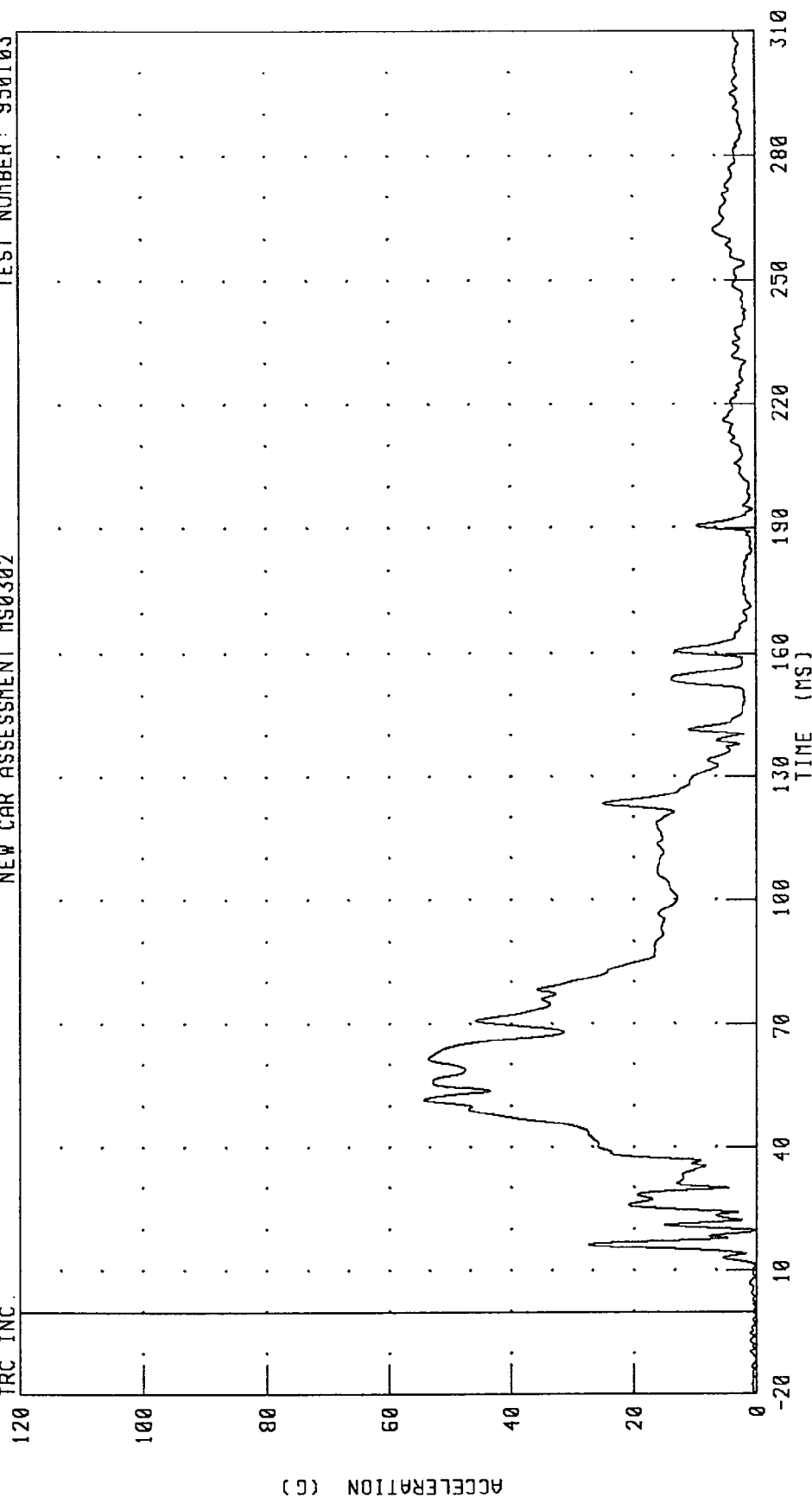
CHANNEL: CSTZG1 FILTER: CH. CLASS 180

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

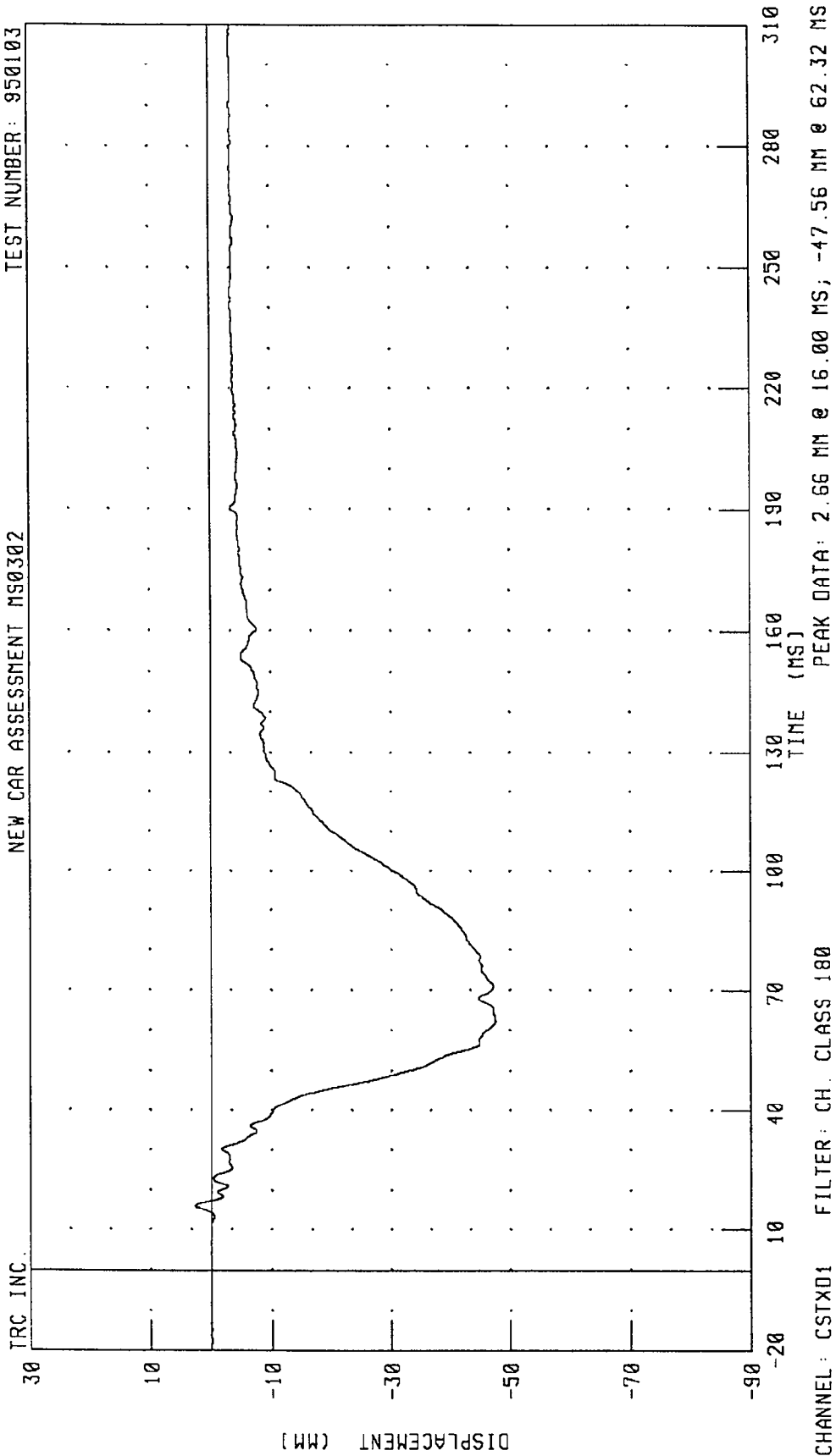


PEAK DATA: 54.29 G @ 51.60 MS; 0.06 G @ -20.00 MS

CHANNEL: CSTRG1 FILTER: CH. CLASS 180

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST DEFLECTION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

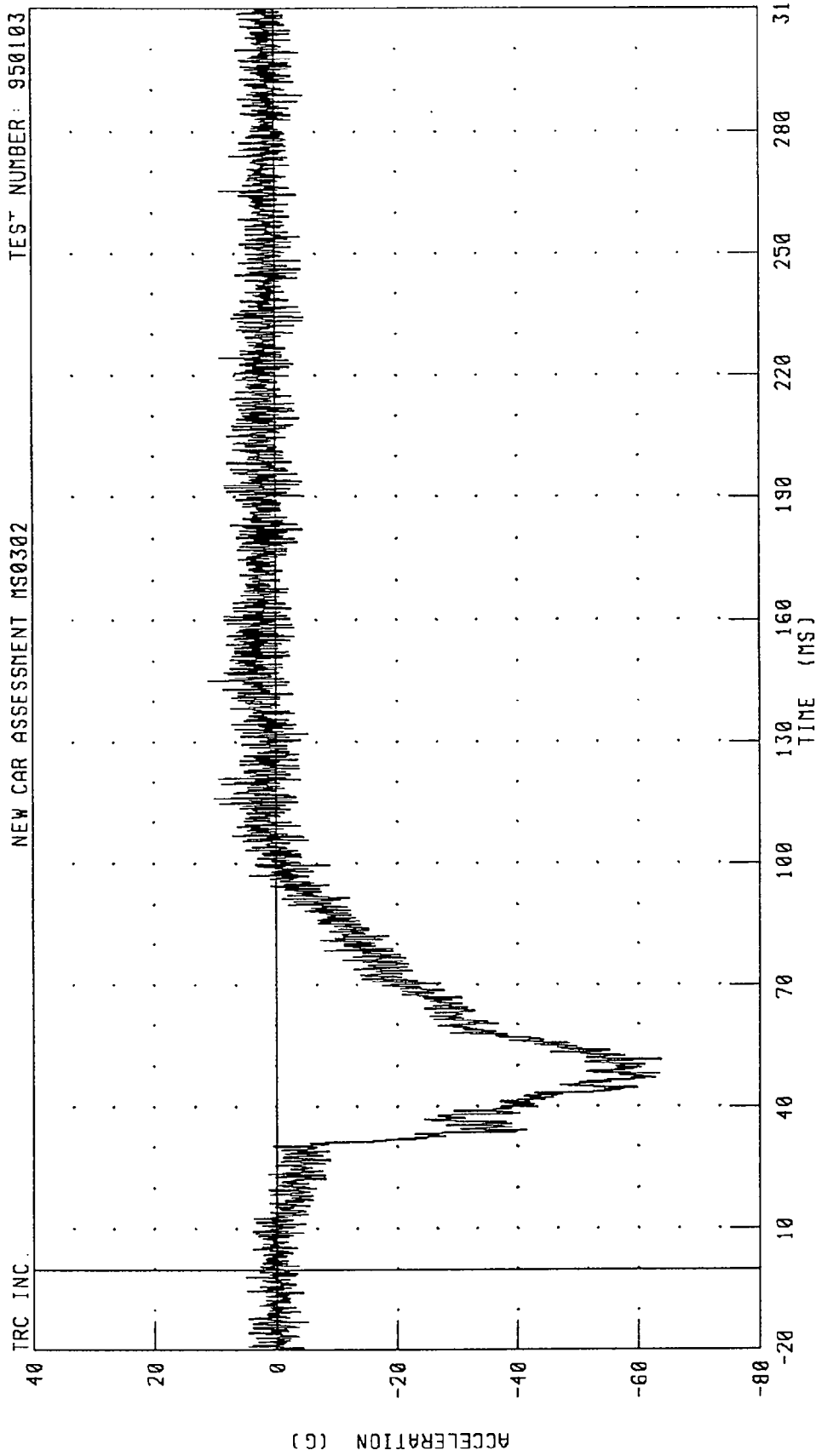


CHANNEL: CSTXD1 FILTER: CH. CLASS 180

PEAK DATA: 2.66 MM @ 16.00 MS; -47.56 MM @ 62.32 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

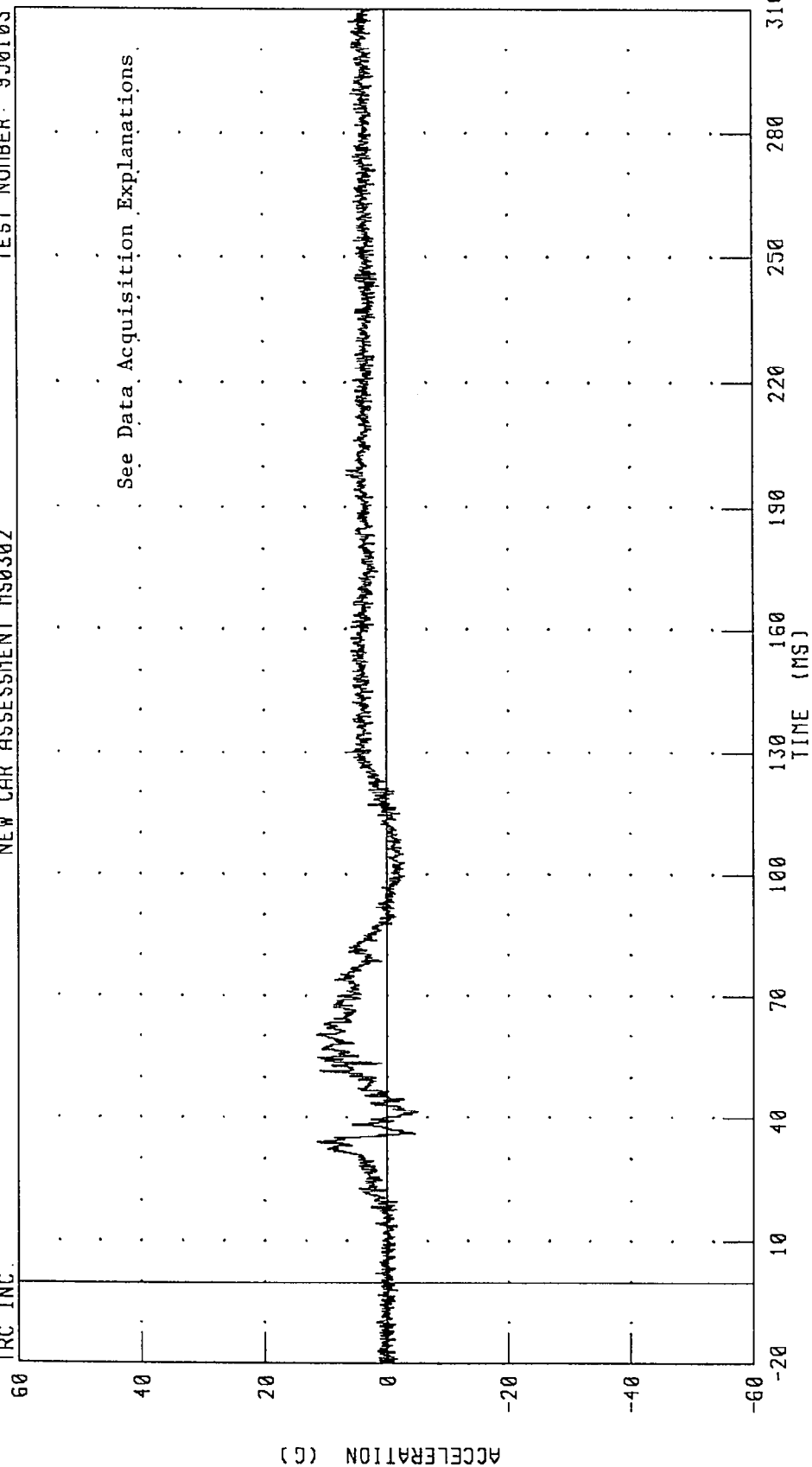


CHANNEL: PEVXG1 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.

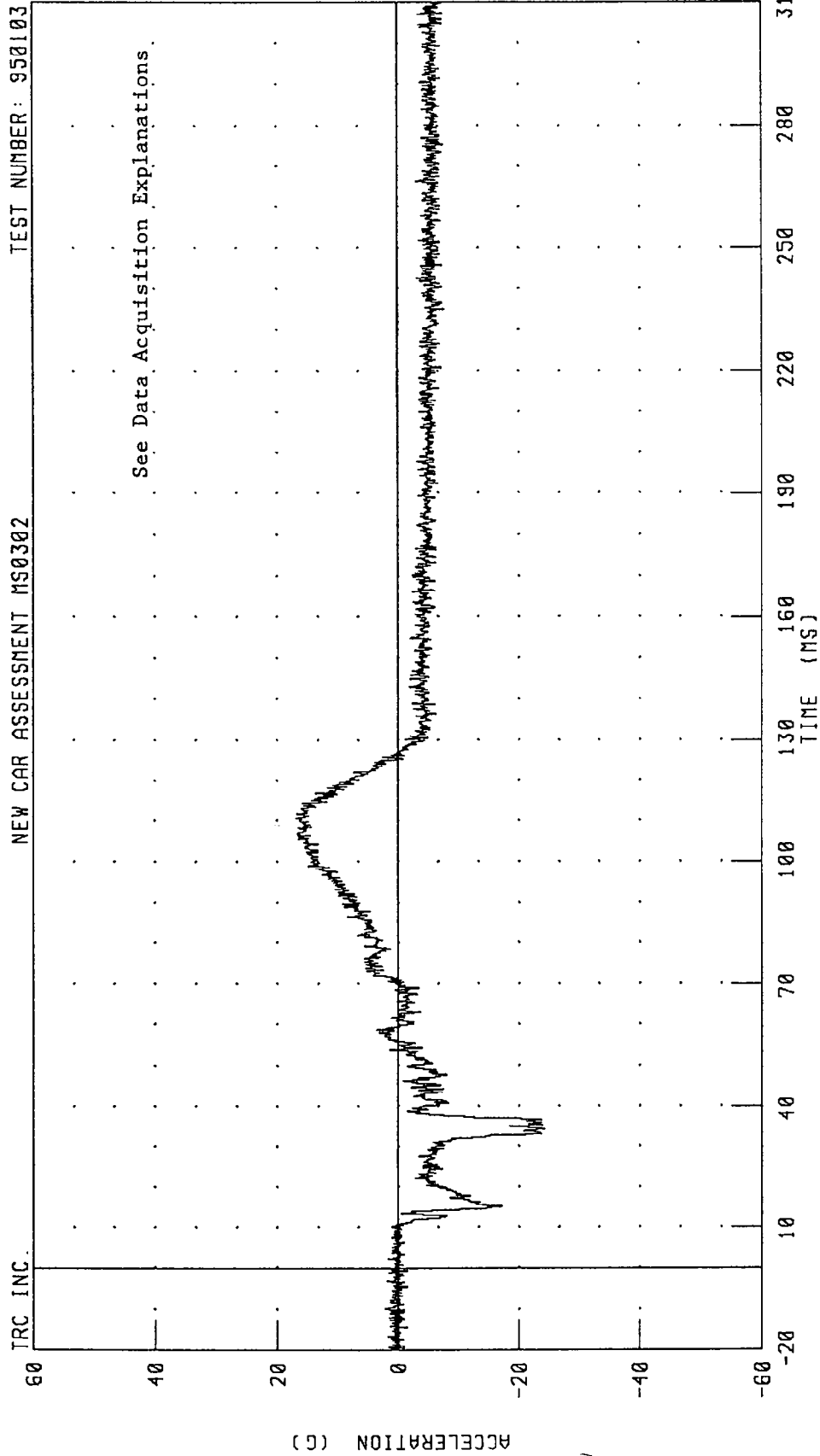


CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

PEAK DATA: 11.47 G @ 34.08 MS; -5.03 G @ 41.60 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

PEAK DATA: 16.97 G @ 110.64 MS; -24.15 G @ 34.48 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS RESULTANT ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

120

See Data Acquisition Explanations

100

ACCELERATION (G)

80

60

40

20

0

310

280

250

220

190

160

130

100

70

40

10

-20

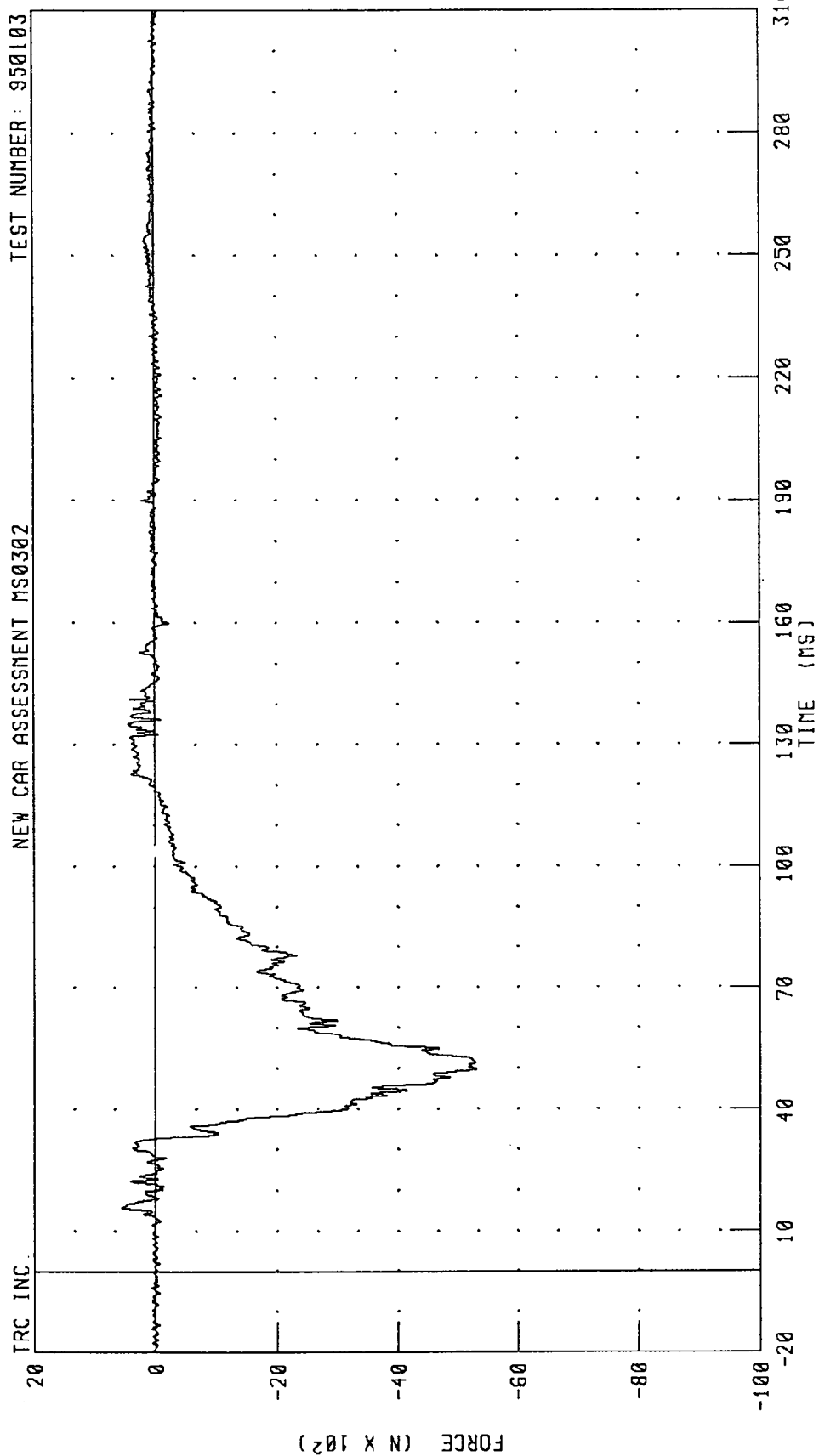
TIME (MS)

CHANNEL: PEVRG1 FILTER: CH. CLASS 1000

PEAK DATA: 64.63 G @ 51.52 MS; 0.26 G @ -11.60 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE
NEW CAR ASSESSMENT MS0302

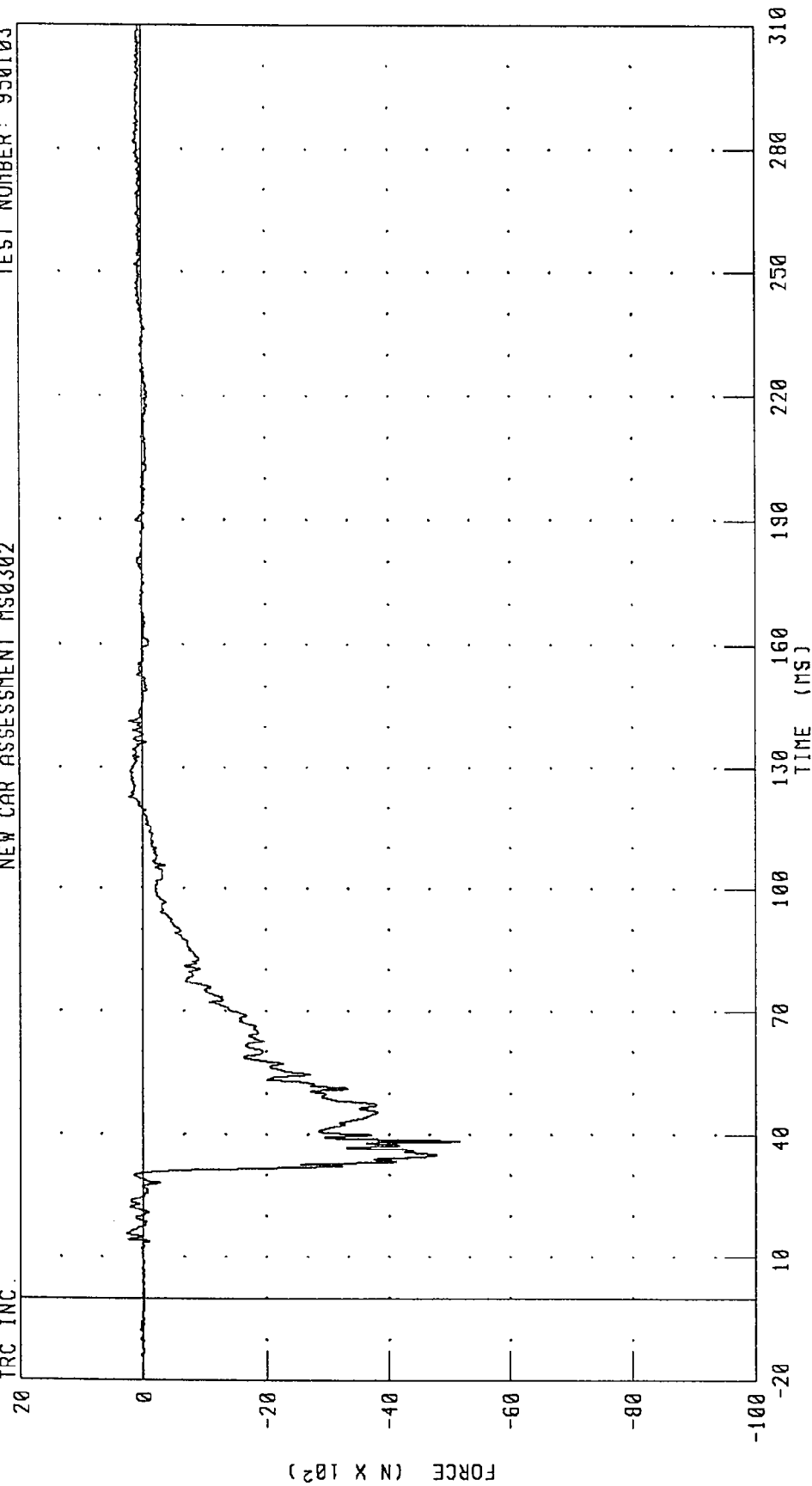
TEST NUMBER: 950103



1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FEMUR FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.

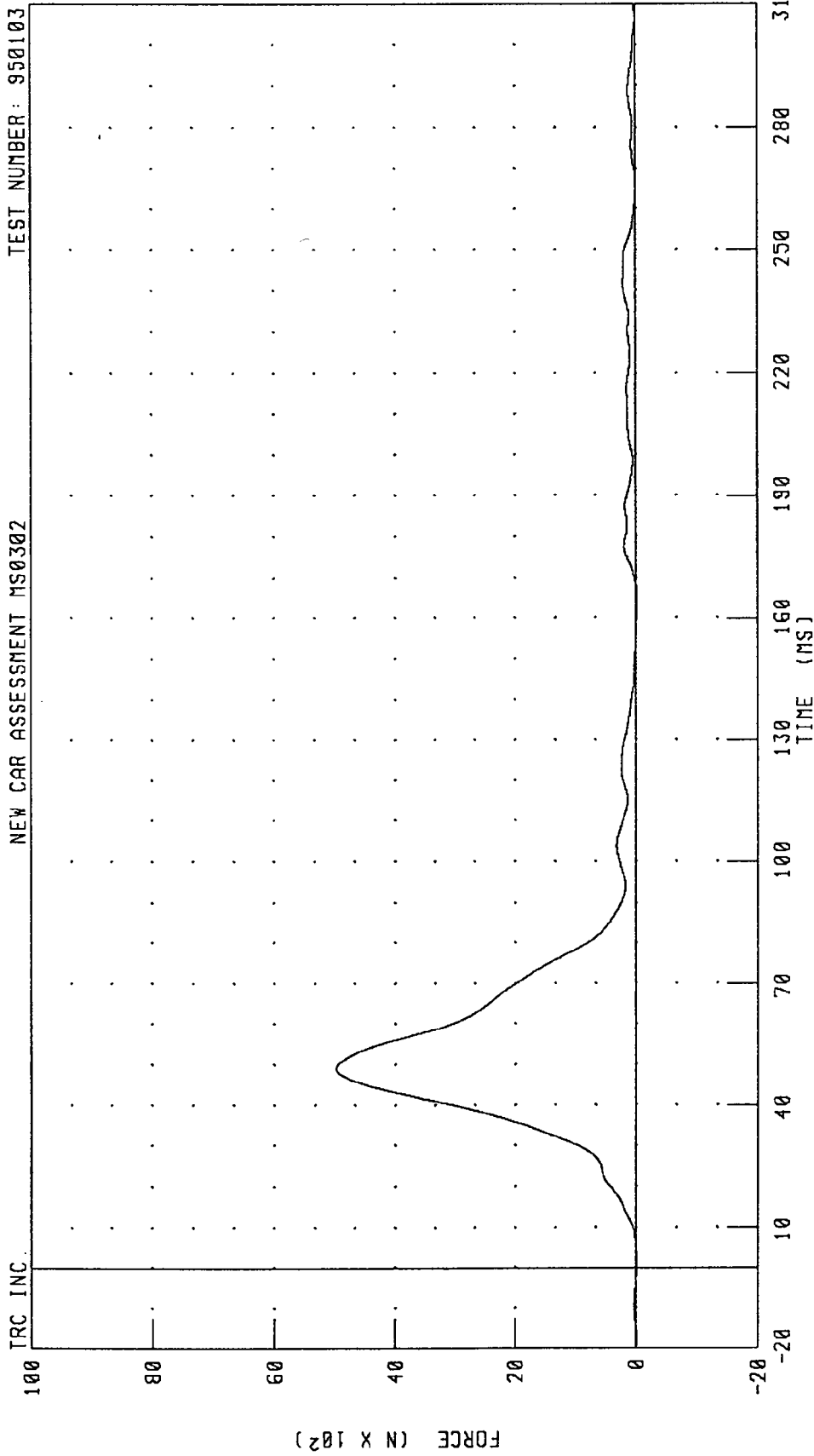


PEAK DATA: 265.86 N @ 15.68 MS; -5163.05 N @ 38.40 MS

CHANNEL: RFMFI FILTER: CH. CLASS 600

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER LAP BELT OUTBOARD FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



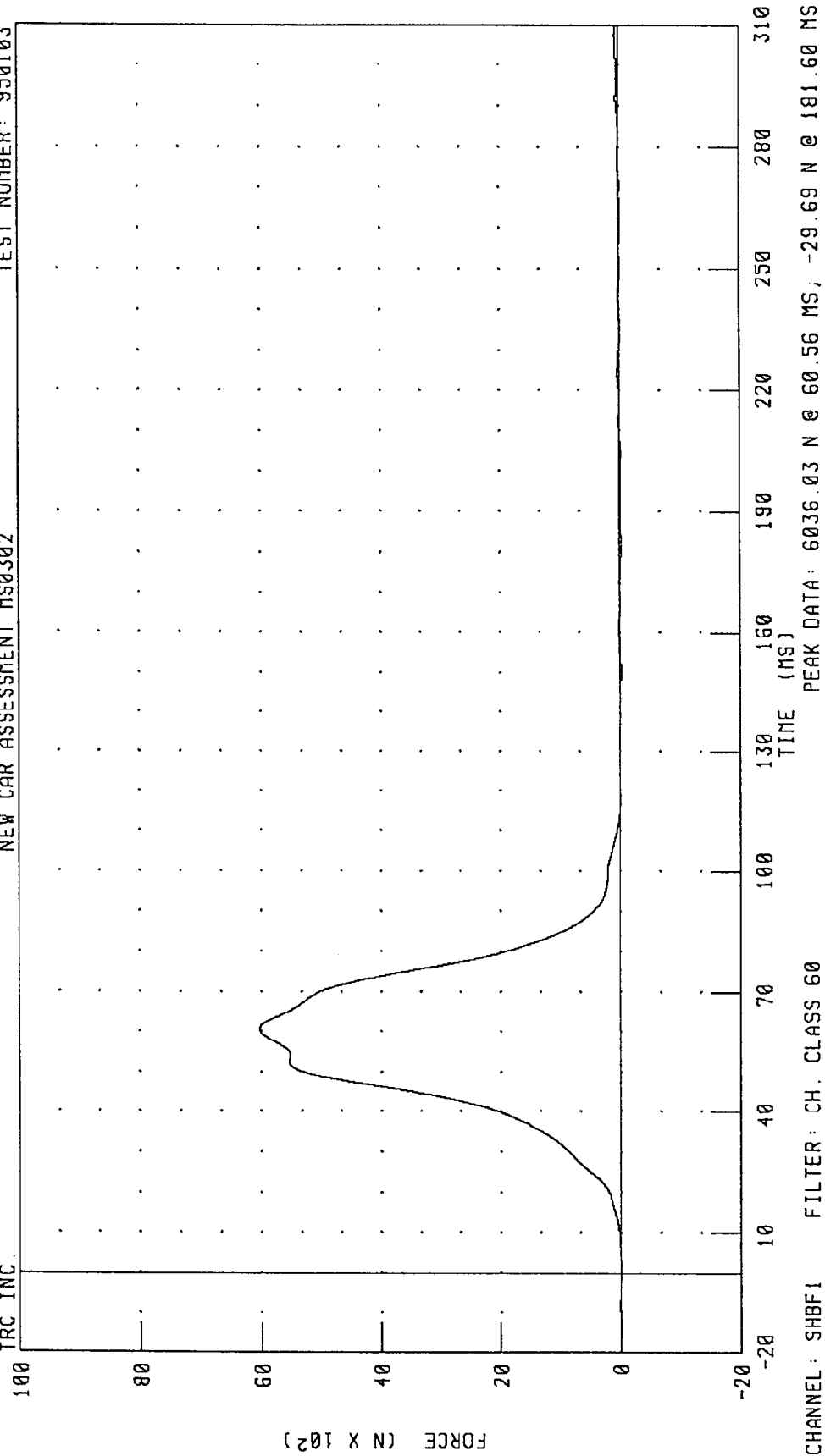
PEAK DATA: 490.36 N @ 49.04 MS; -18.78 N @ 162.40 MS

CHANNEL: LBOF1 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT FORCE
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



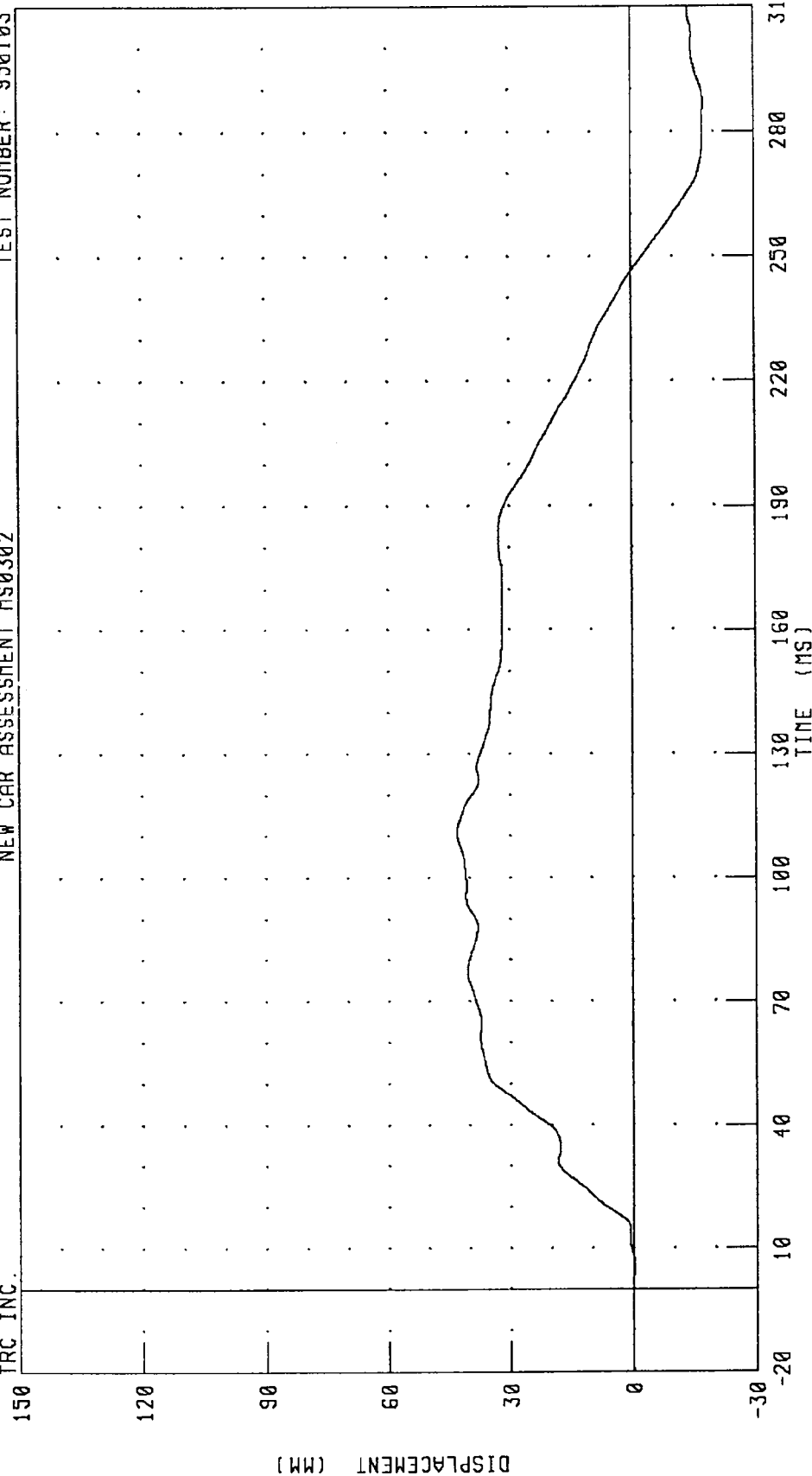
CHANNEL: SHBF1 FILTER: CH. CLASS 60

PEAK DATA: 6036.03 N @ 60.56 MS, -29.69 N @ 181.60 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT DISPLACEMENT
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.

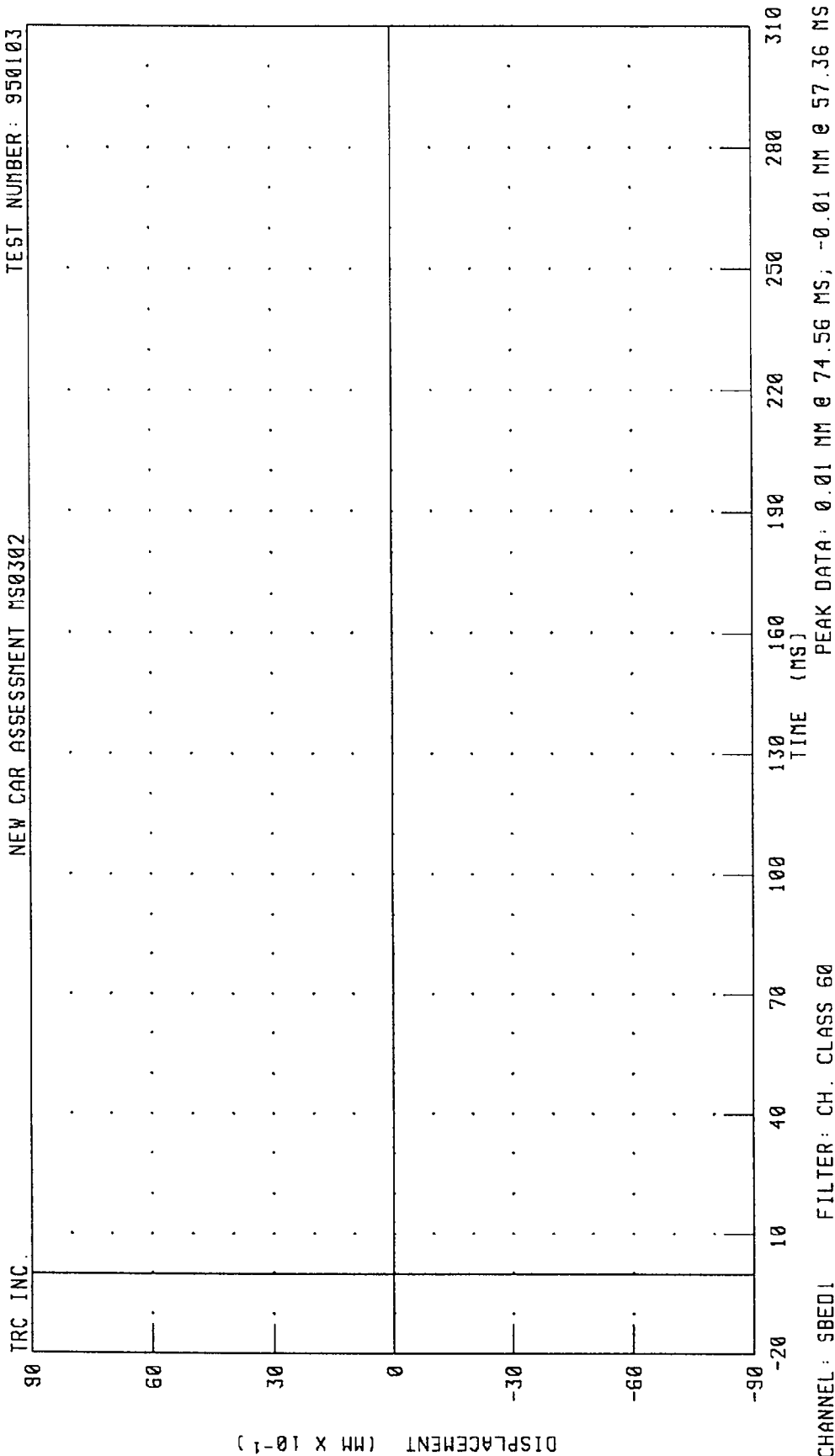


PEAK DATA: 43.06 MM @ 111.04 MS; -17.64 MM @ 286.96 MS

CHANNEL: SHB01 FILTER: CH. CLASS 60

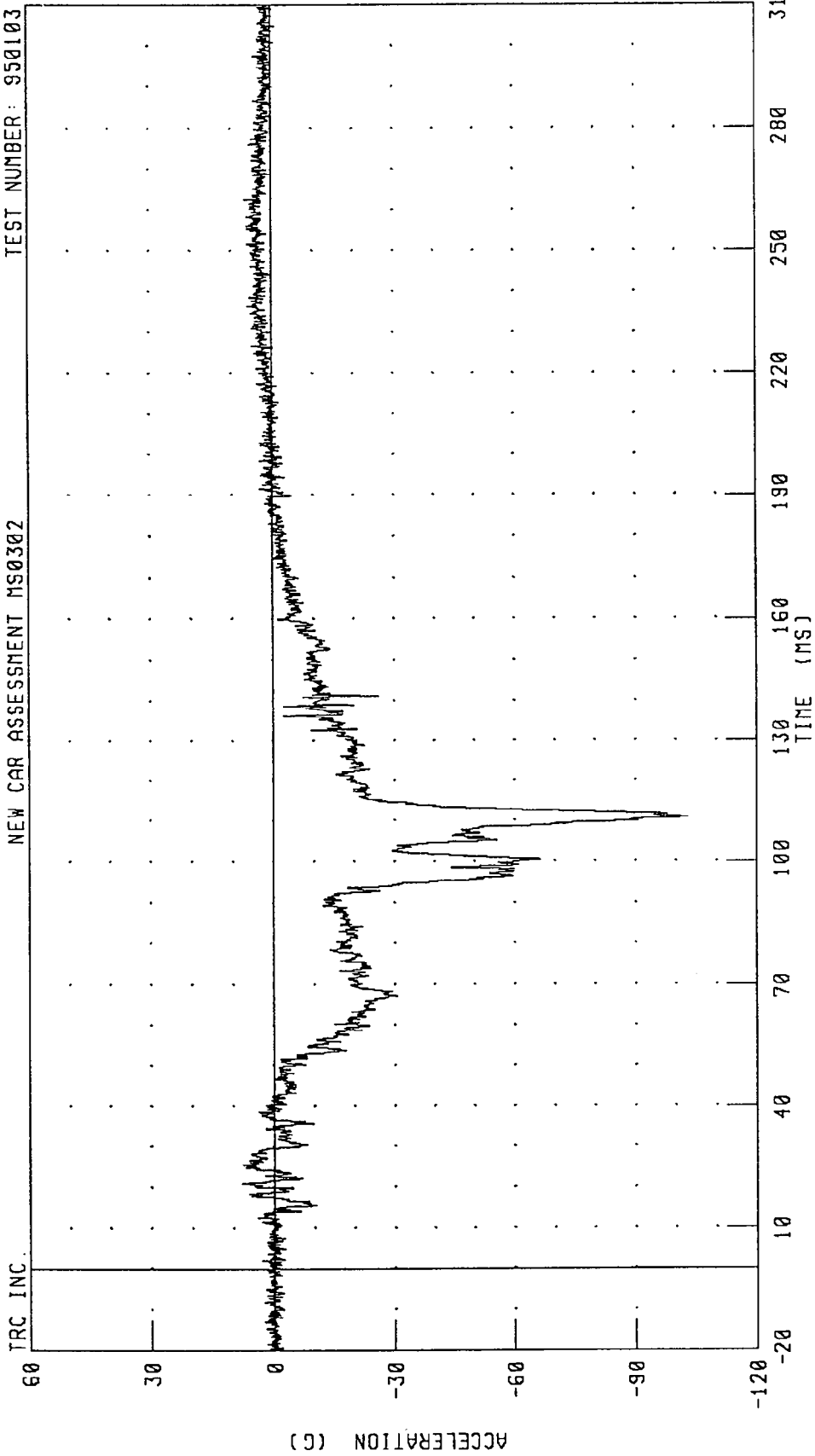
1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 DRIVER SEAT BELT EXTENSION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

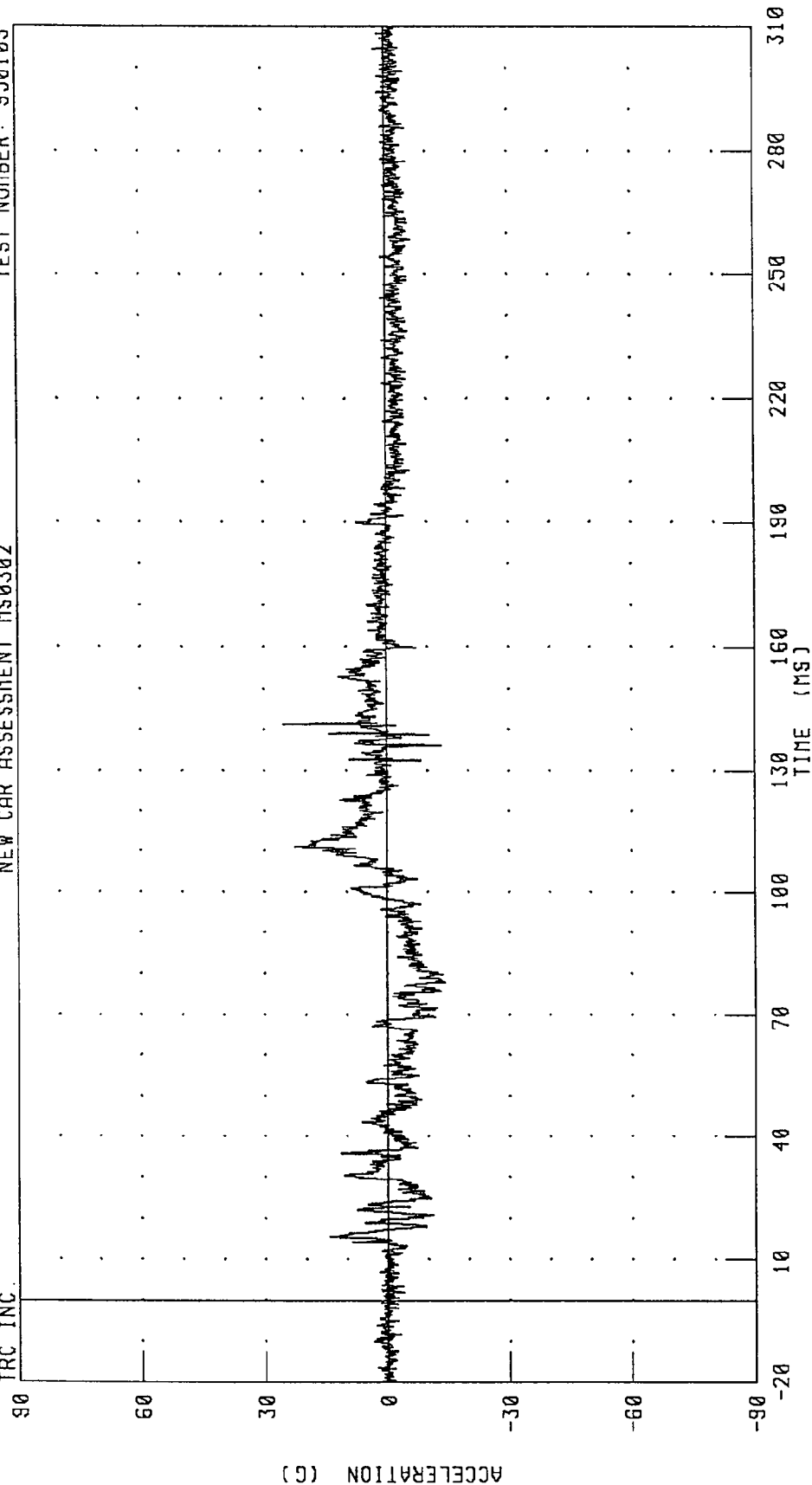
PEAK DATA: 7.83 G @ 20.88 MS; -102.82 G @ 110.80 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

PEAK DATA: 25.38 G @ 141.36 MS, -14.11 G @ 77.92 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.

90

60

30

0

-30

-60

-90

ACCELERATION (G)

TIME (MS)

-20 10 40 70 100 130 160 190 220 250 280 310

CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

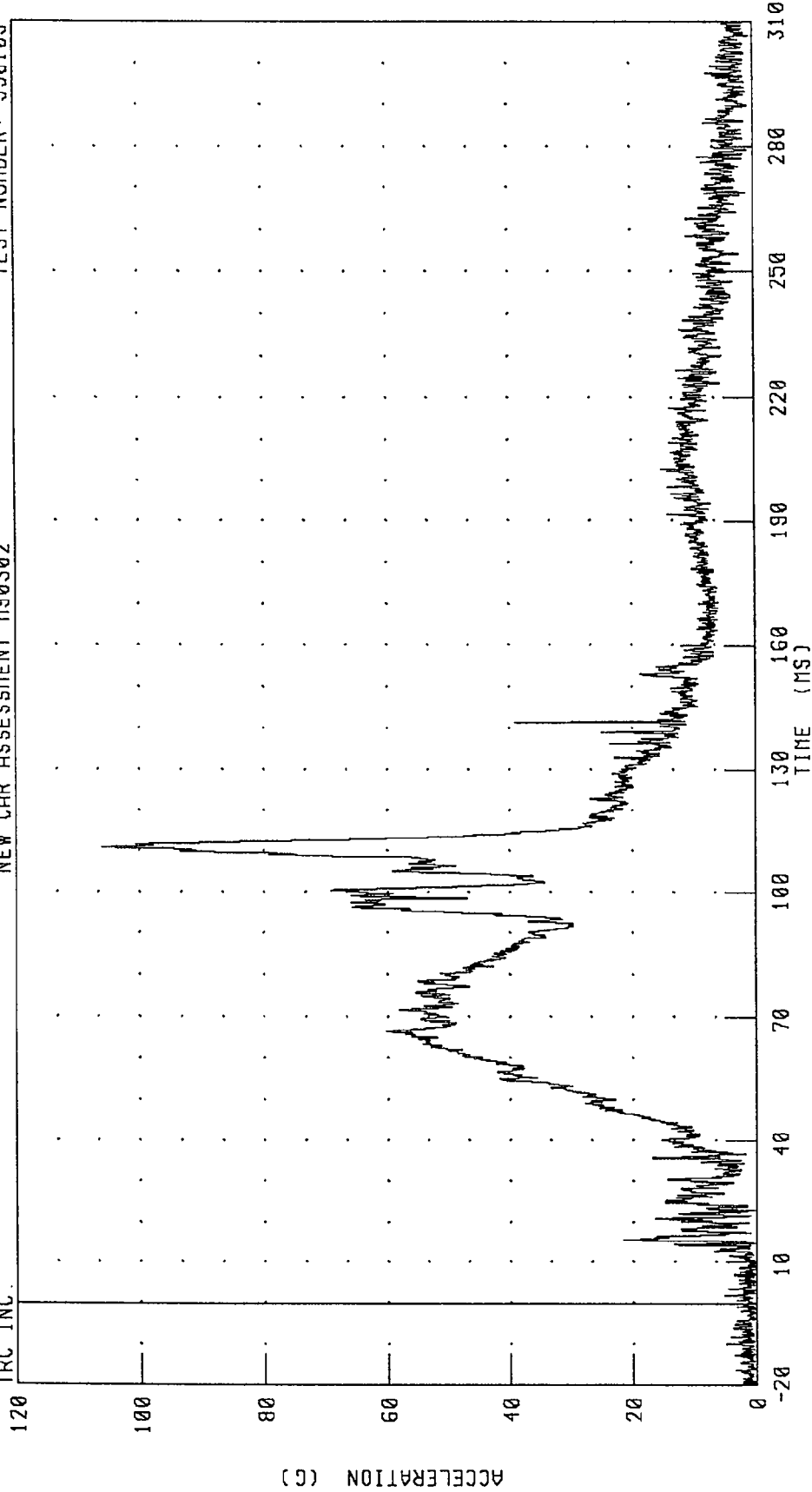
PEAK DATA: 13.90 G @ 141.36 MS; -54.31 G @ 66.40 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

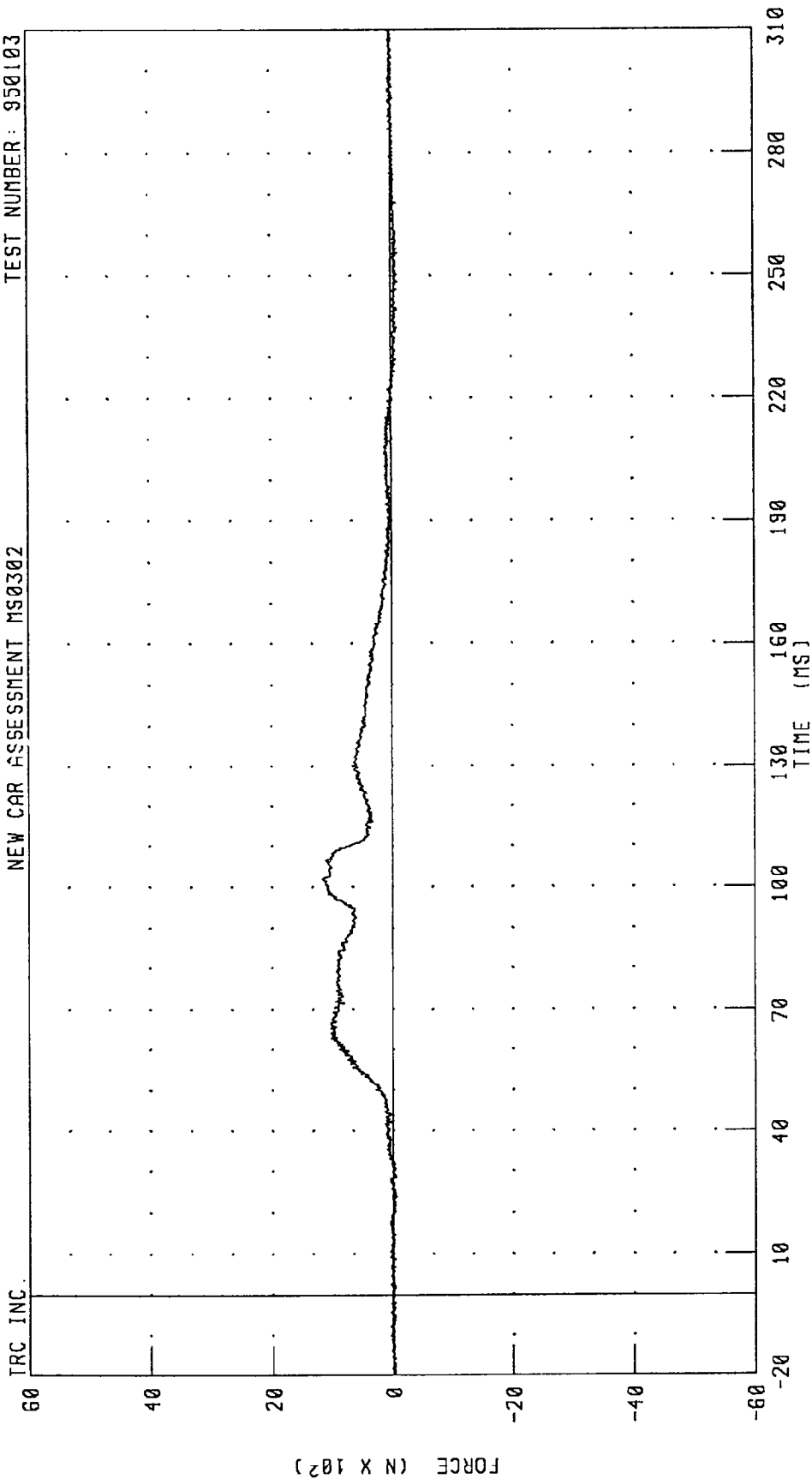


CHANNEL: HEDRC2 FILTER: CH. CLASS 1000

PEAK DATA: 106.04 G @ 110.88 MS; 0.04 G @ 9.92 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

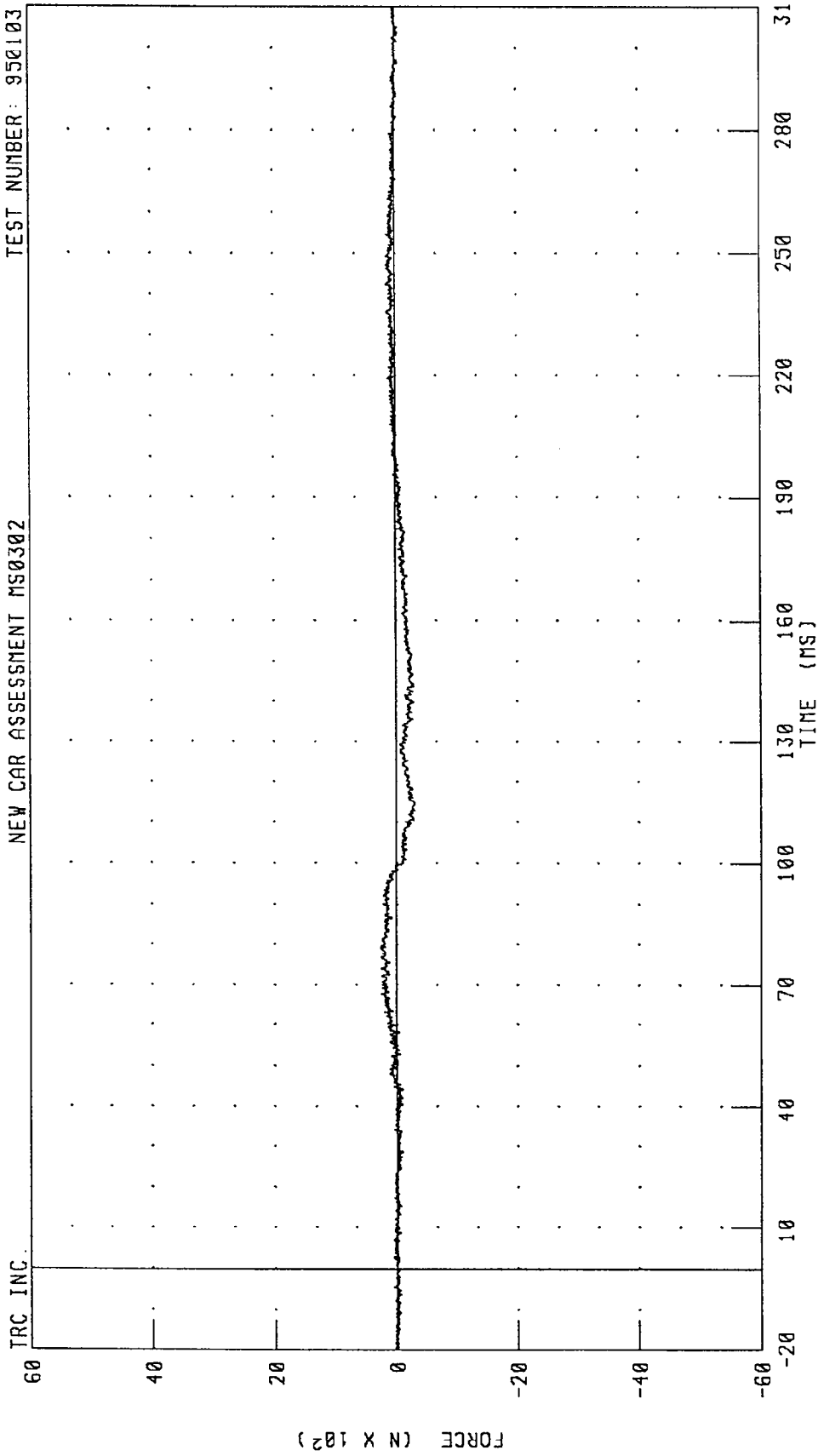


PEAK DATA: 1162.26 N @ 102.00 MS; -111.78 N @ 248.56 MS

CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

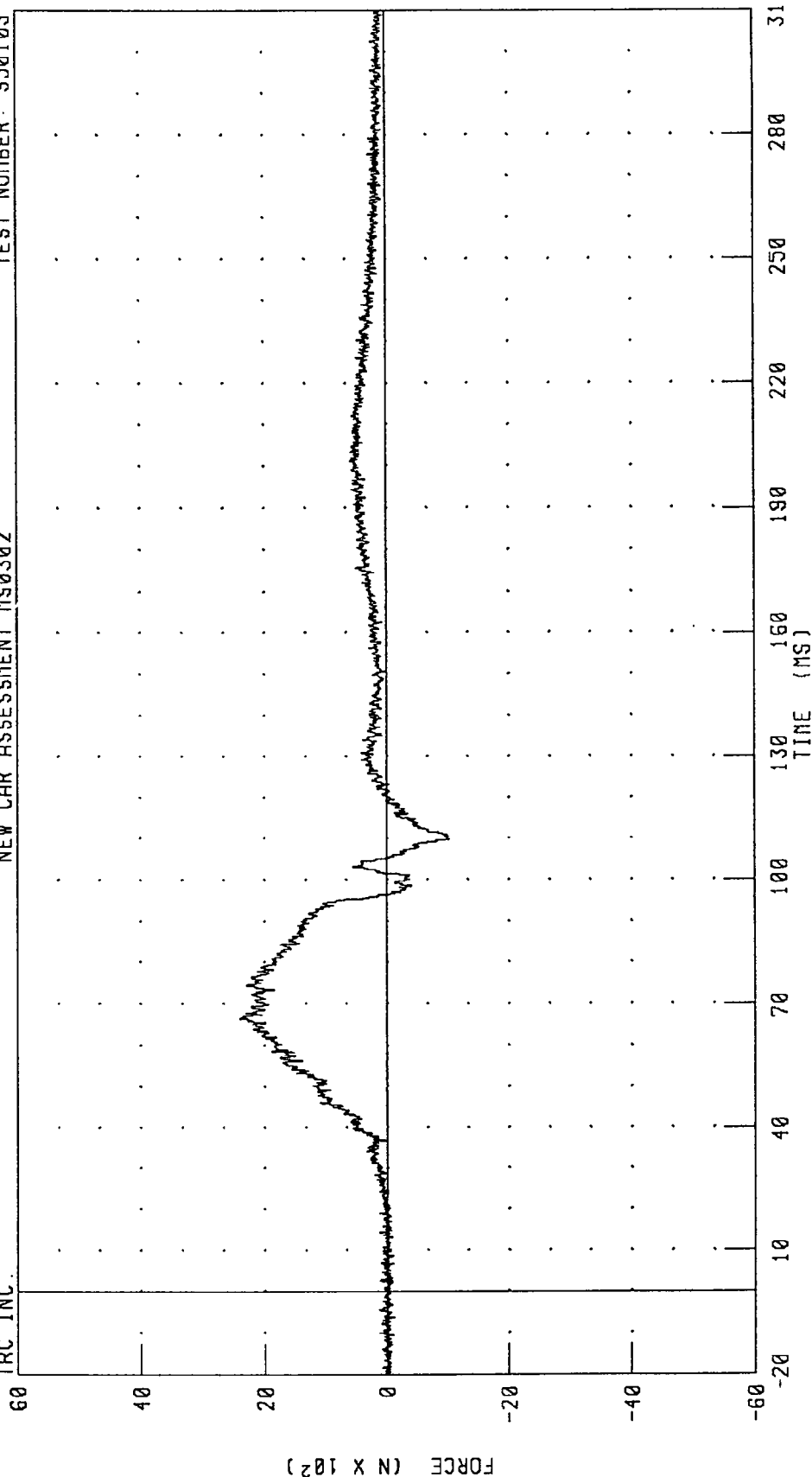


CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



PEAK DATA: 2401.68 N @ 66.56 MS; -1031.31 N @ 109.92 MS

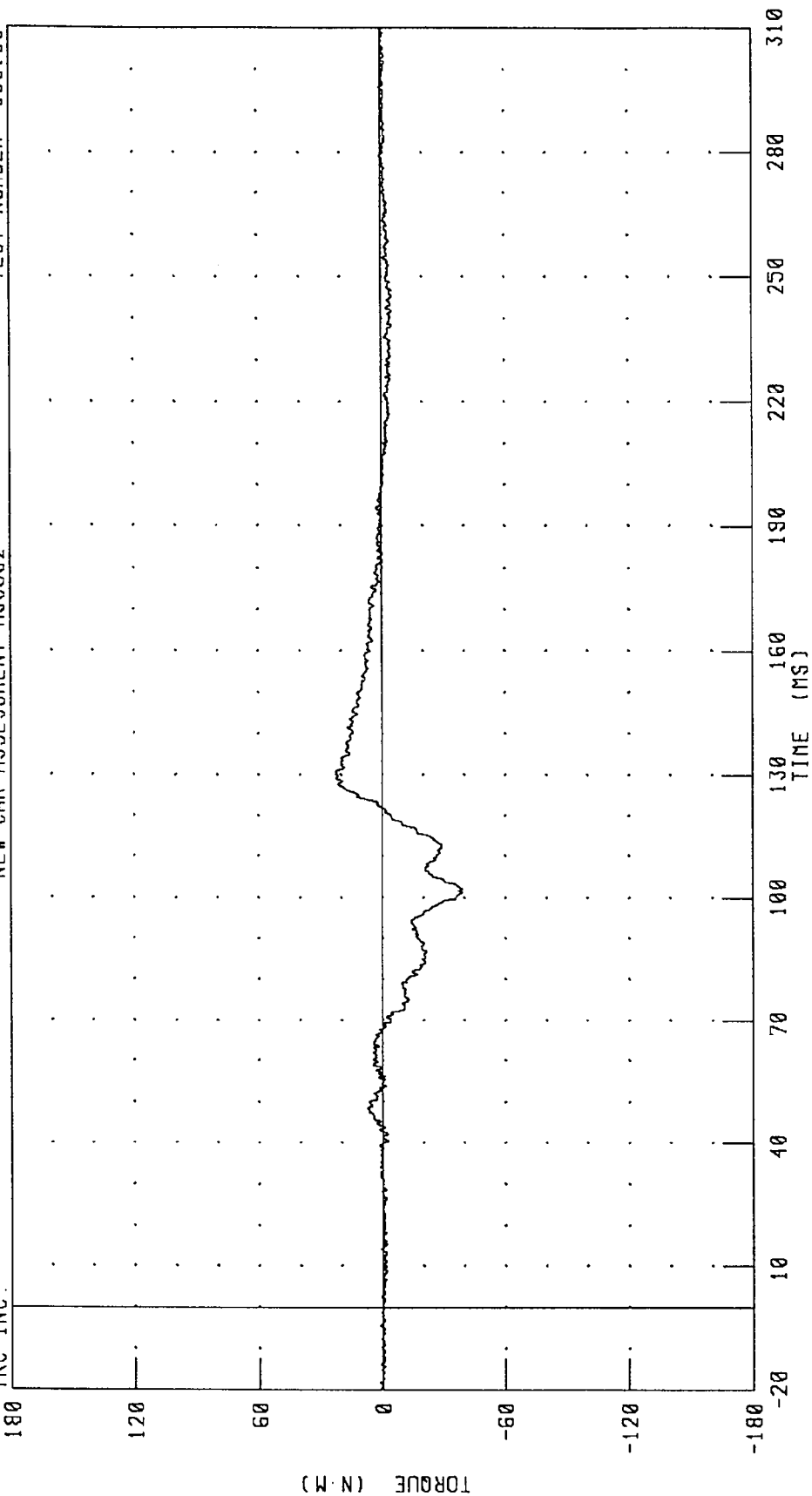
CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



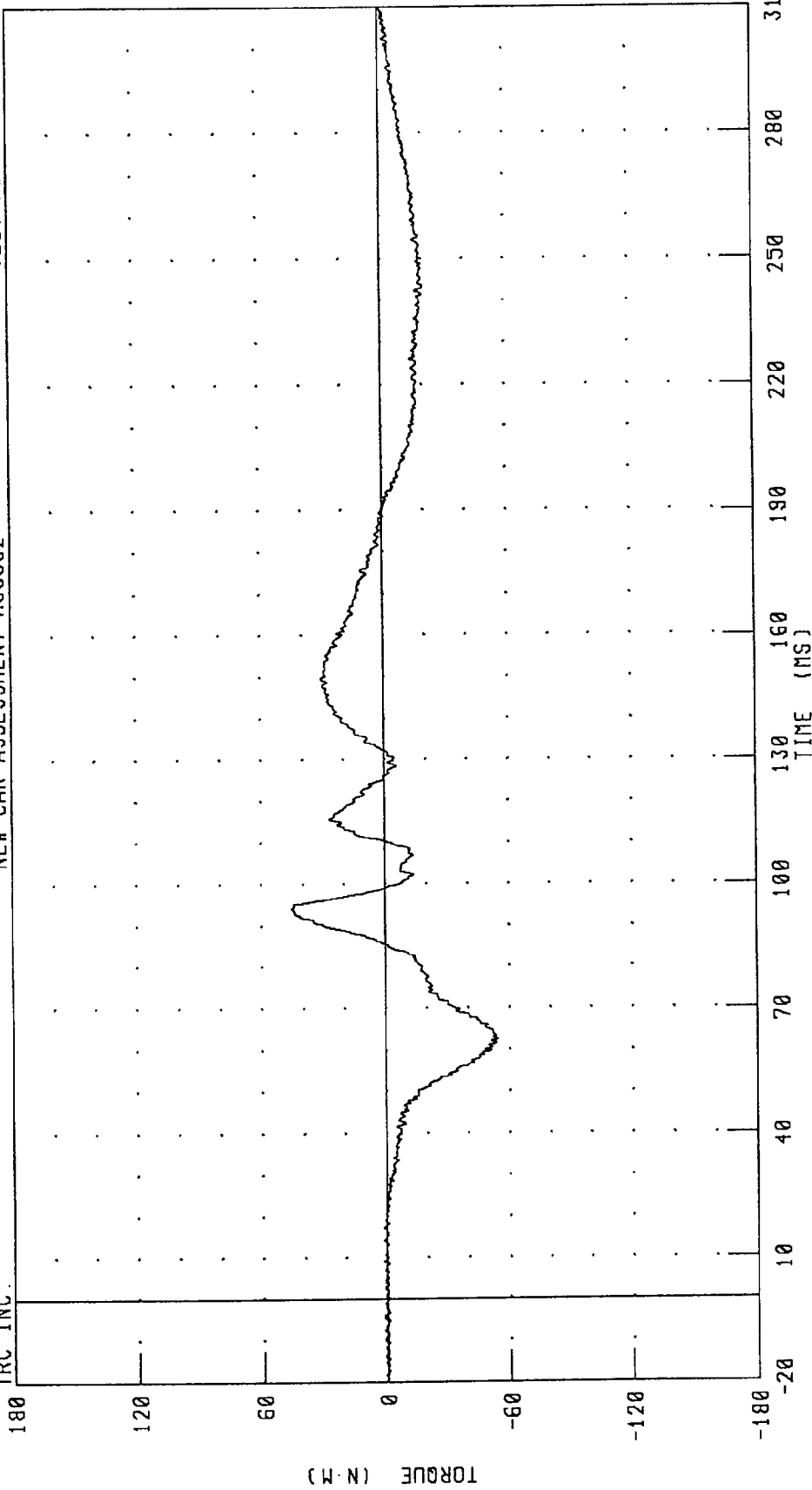
CHANNEL: NEXXM2 FILTER: CH. CLASS 600

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

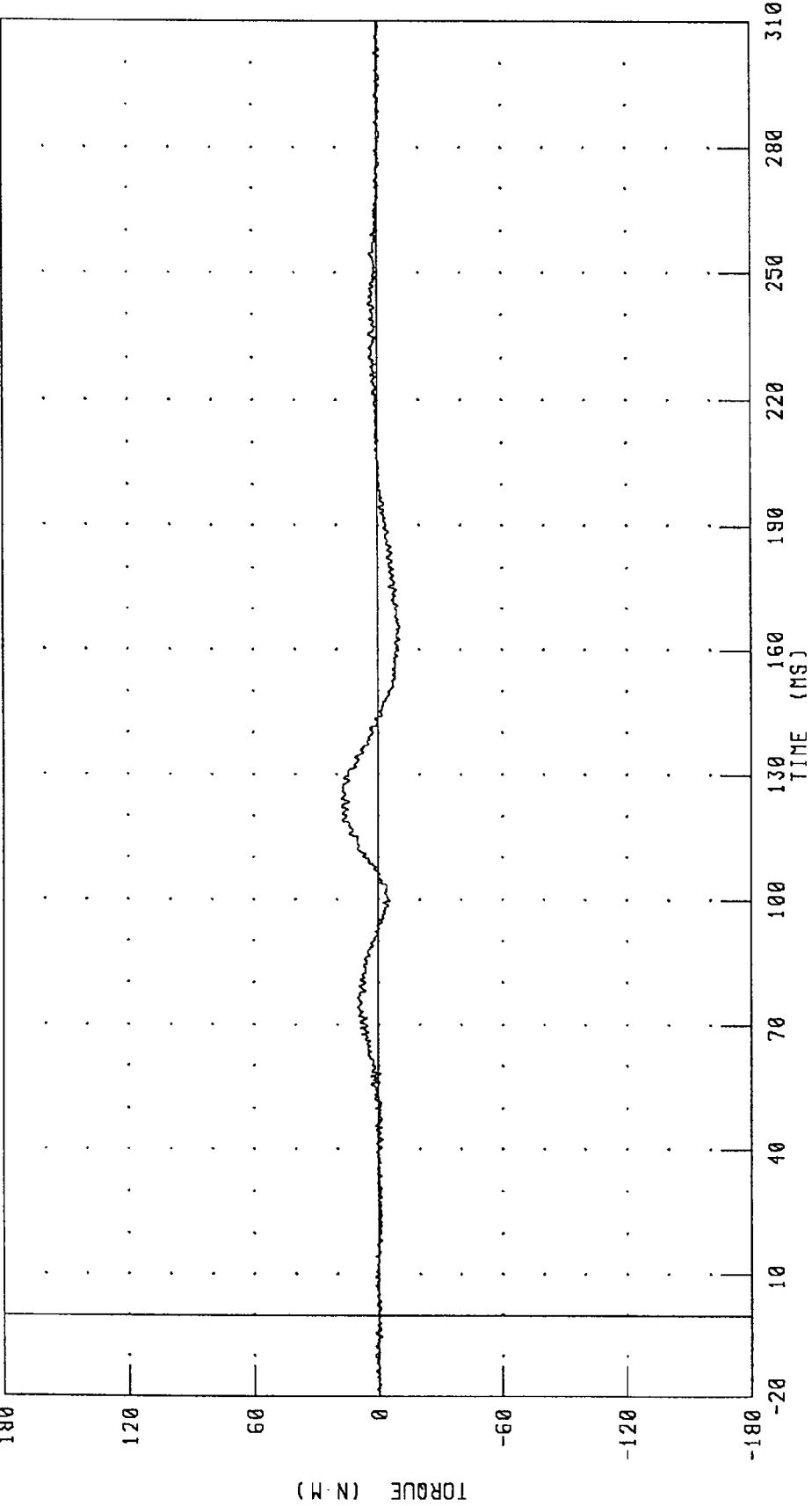
PEAK DATA: 45.85 N.M @ 94.16 MS; -54.28 N.M @ 62.64 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 17.57 N-M @ 124.16 MS; -10.81 N-M @ 165.52 MS

CHANNEL: NEK7M2 FILTER: CH. CLASS 600

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

60

40

20

ACCELERATION (G)

-20

-40

-60

TIME (MS)

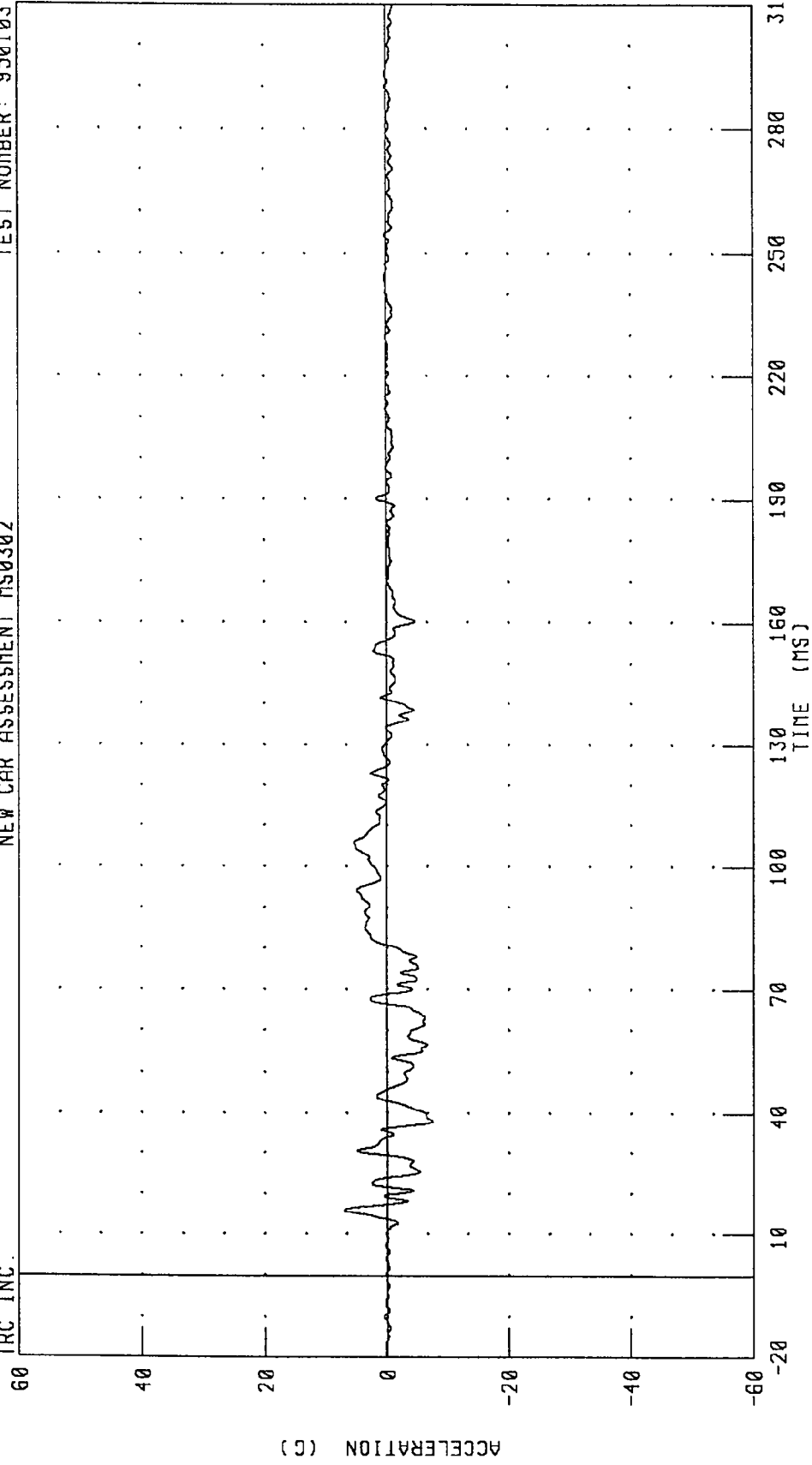
PEAK DATA: 9.25 G @ 16.00 MS; -49.66 G @ 65.76 MS

CHANNEL: CSTXG2 FILTER: CH. CLASS 180

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



PEAK DATA: 7.18 G @ 16.00 MS; -7.45 G @ 38.00 MS

CHANNEL: CSTYG2 FILTER: CH. CLASS 180

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

60

40

20

0

-20

-40

-60

ACCELERATION (G)

TIME (MS)

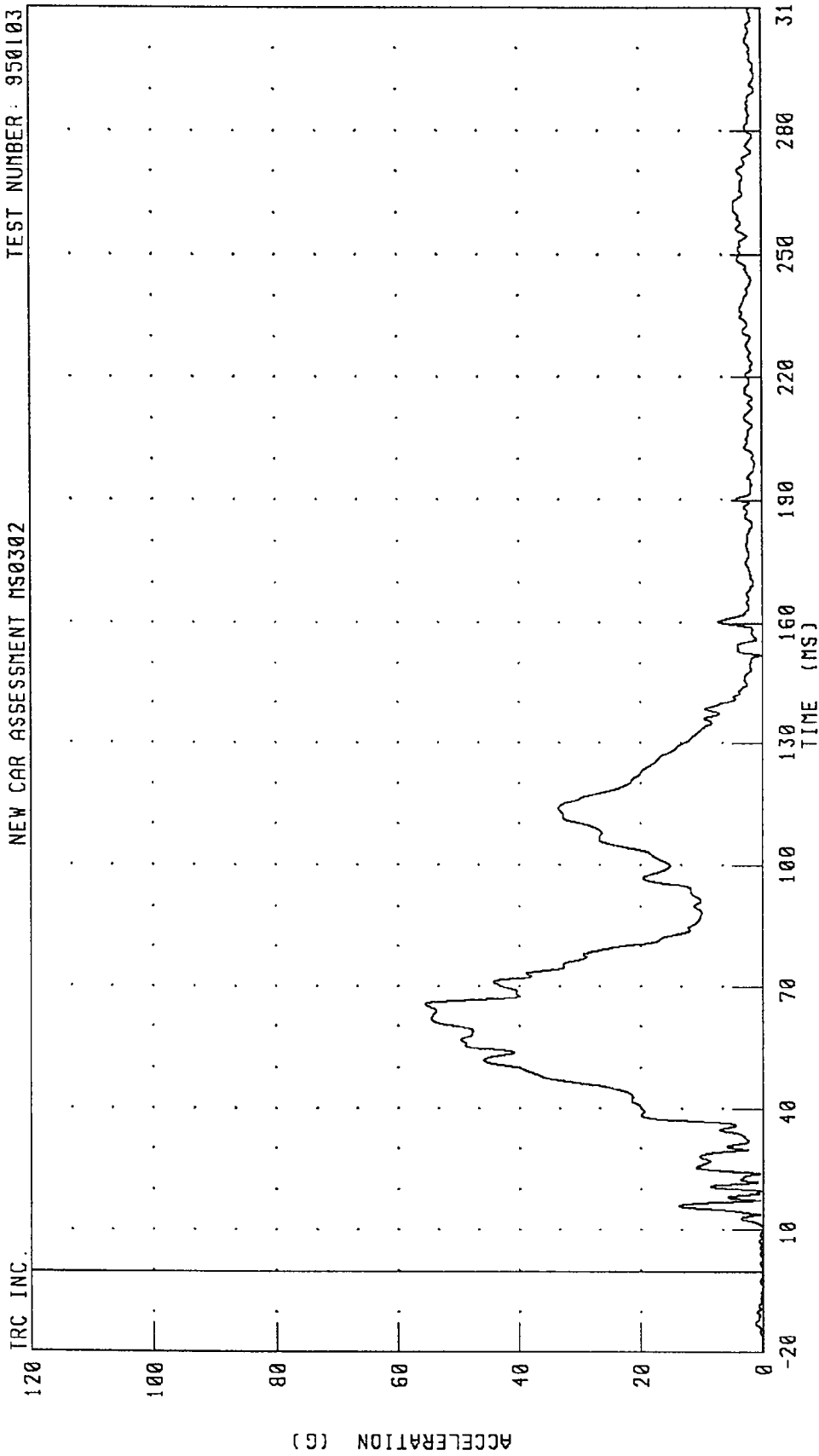
10 40 70 100 130 160 190 220 250 280 310

CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 21.36 G @ 114.00 MS; -24.91 G @ 65.36 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

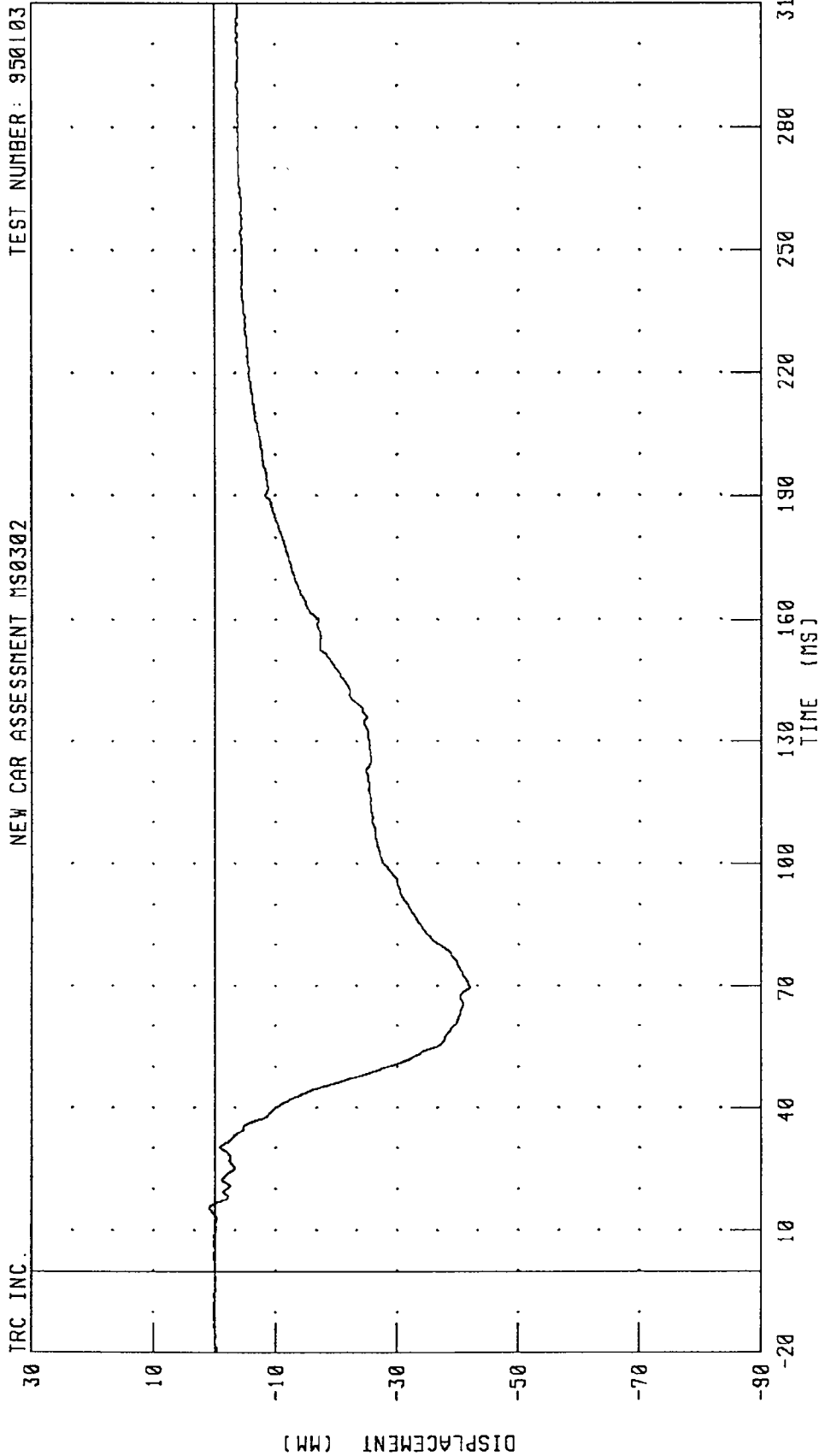
950103

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER

PASSENGER CHEST DEFLECTION

NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



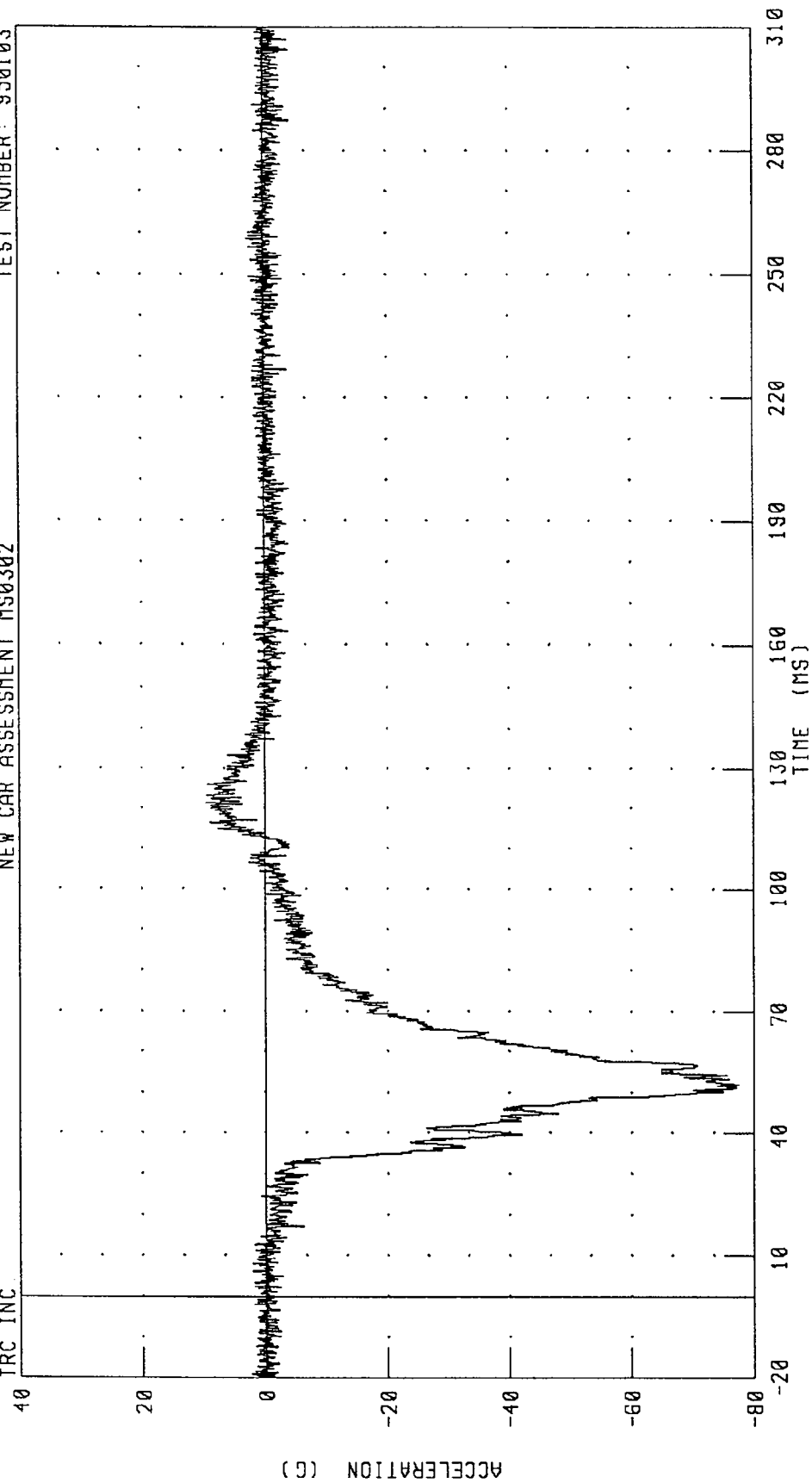
CHANNEL: CSTXD2 FILTER: CH. CLASS 180 PEAK DATA: 0.85 MM @ 15.60 MS; -41.93 MM @ 69.68 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS X-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

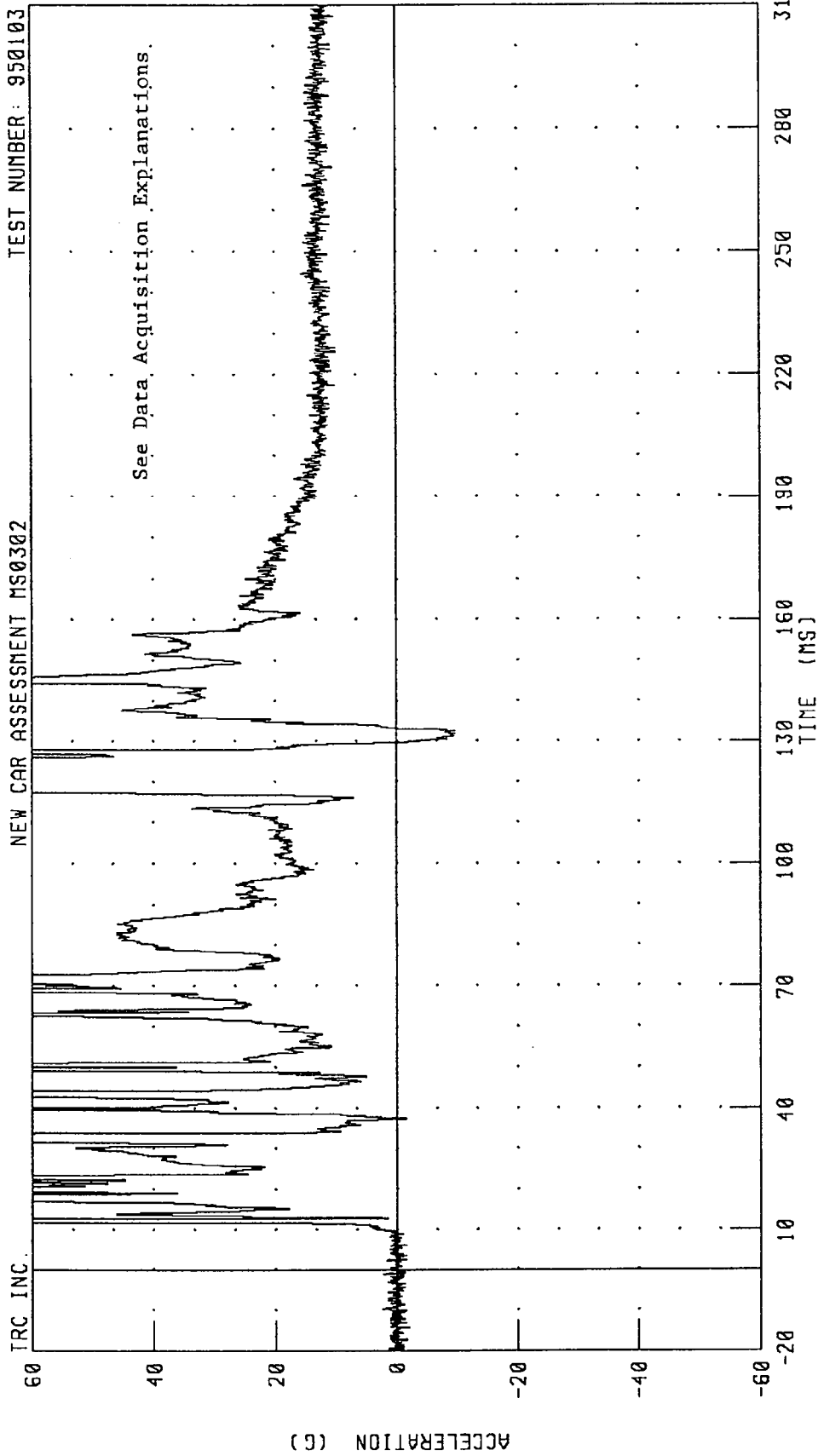


CHANNEL: PEYXG2 FILTER: CH. CLASS 1000

PEAK DATA: 9.68 G @ 121.52 MS; -77.47 G @ 52.00 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



CHANNEL: PEVY62 FILTER: CH. CLASS 1000

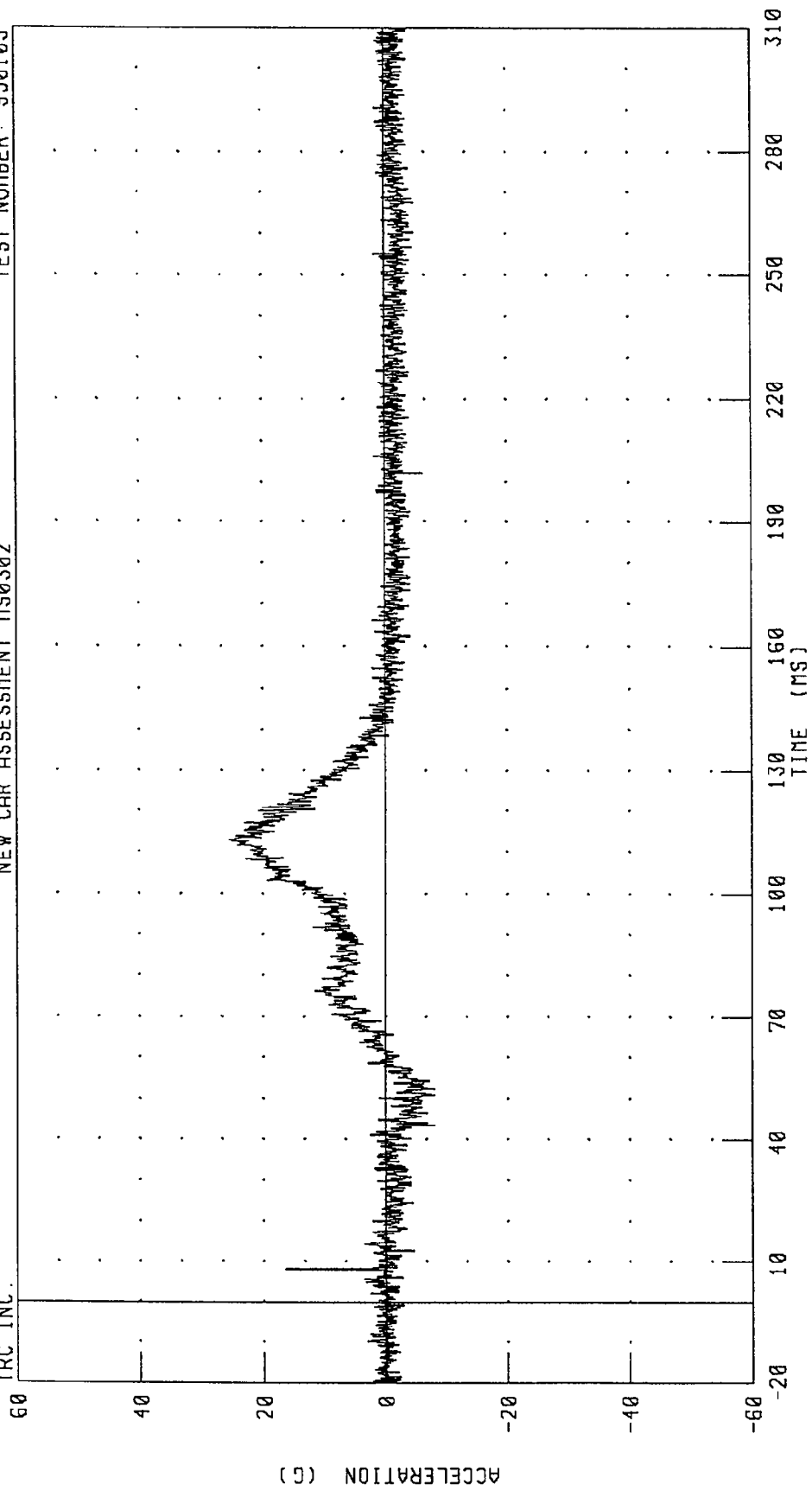
PEAK DATA: 354.61 G @ 17.44 MS; -9.60 G @ 131.92 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Z-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



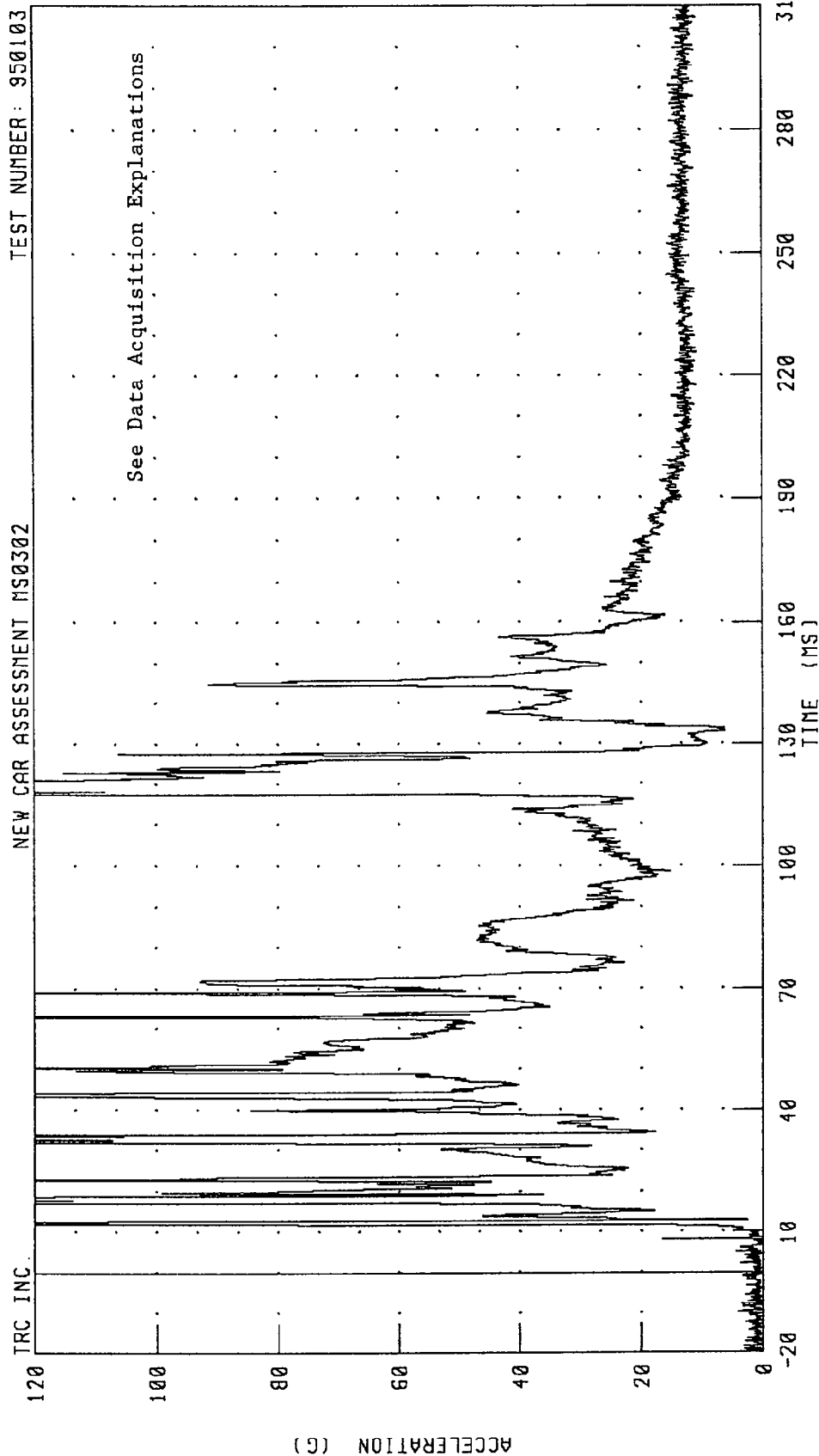
PEAK DATA: 25.39 G @ 112.88 MS; -8.00 G @ 52.48 MS

CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS RESULTANT ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

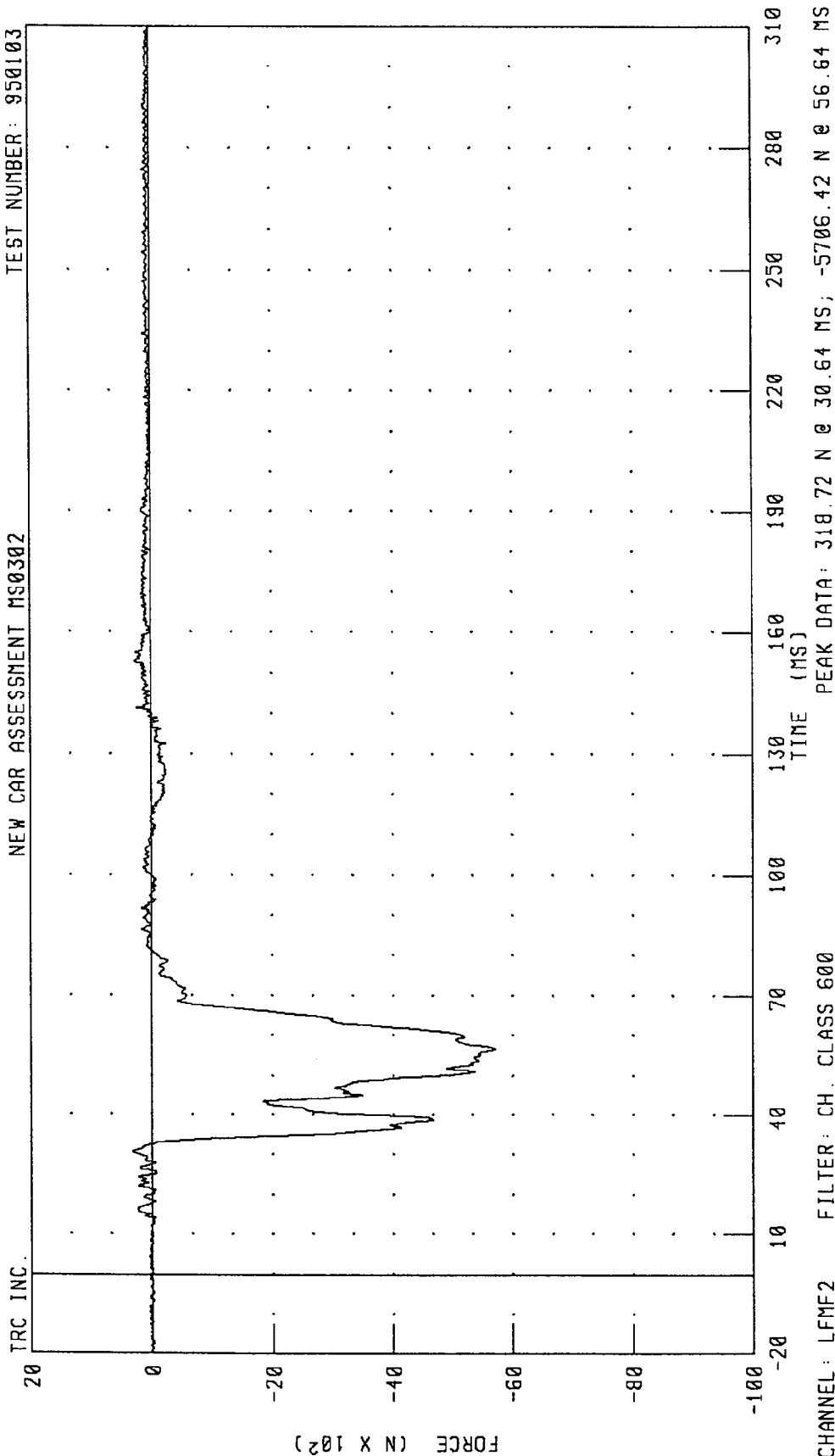


CHANNEL: PEVRC2 FILTER: CH. CLASS 1000

PEAK DATA: 354.63 G @ 17.44 MS, 0.08 G @ -6.32 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 PASSENGER LEFT FEMUR FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER

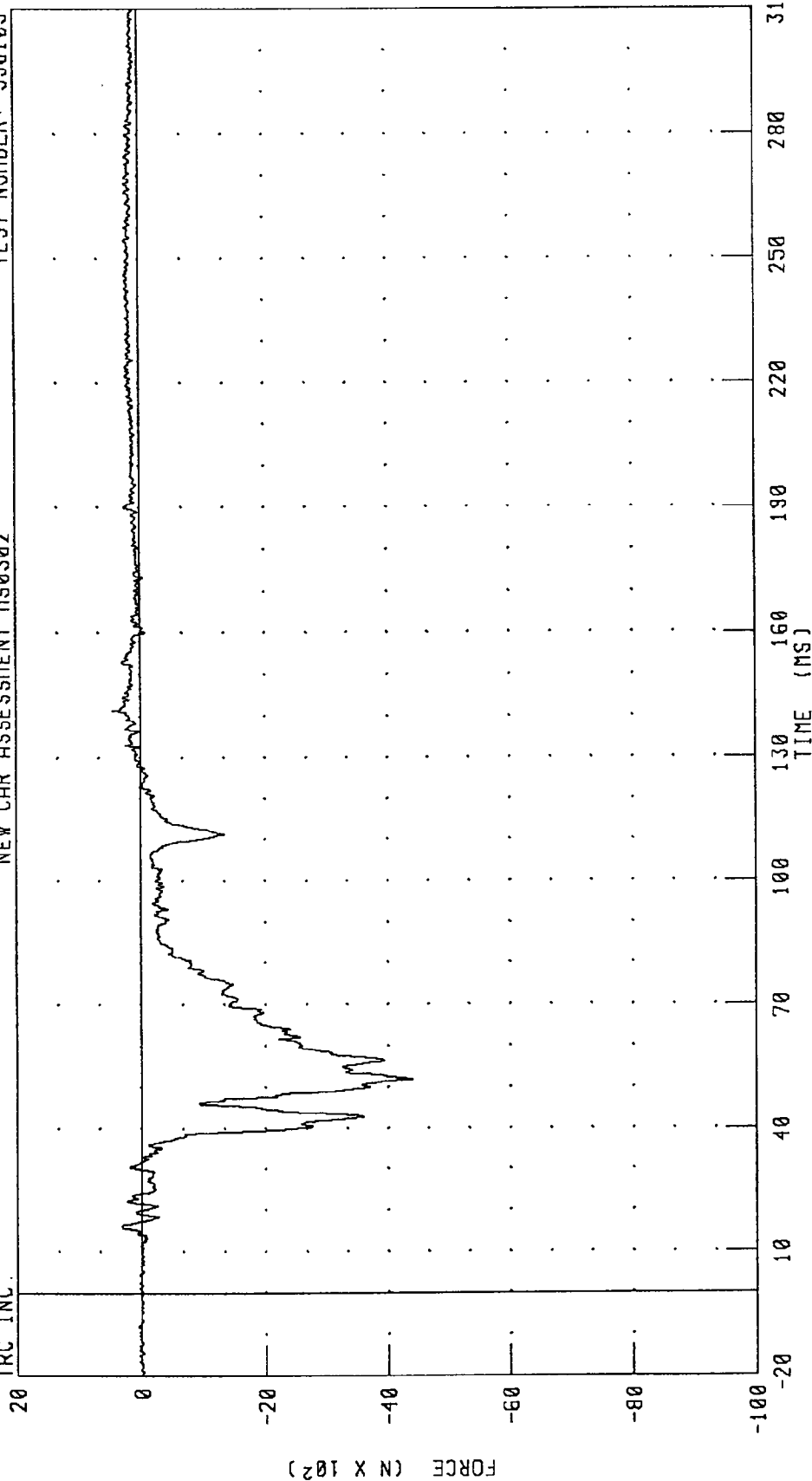
PASSENGER RIGHT FEMUR FORCE

NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.

20

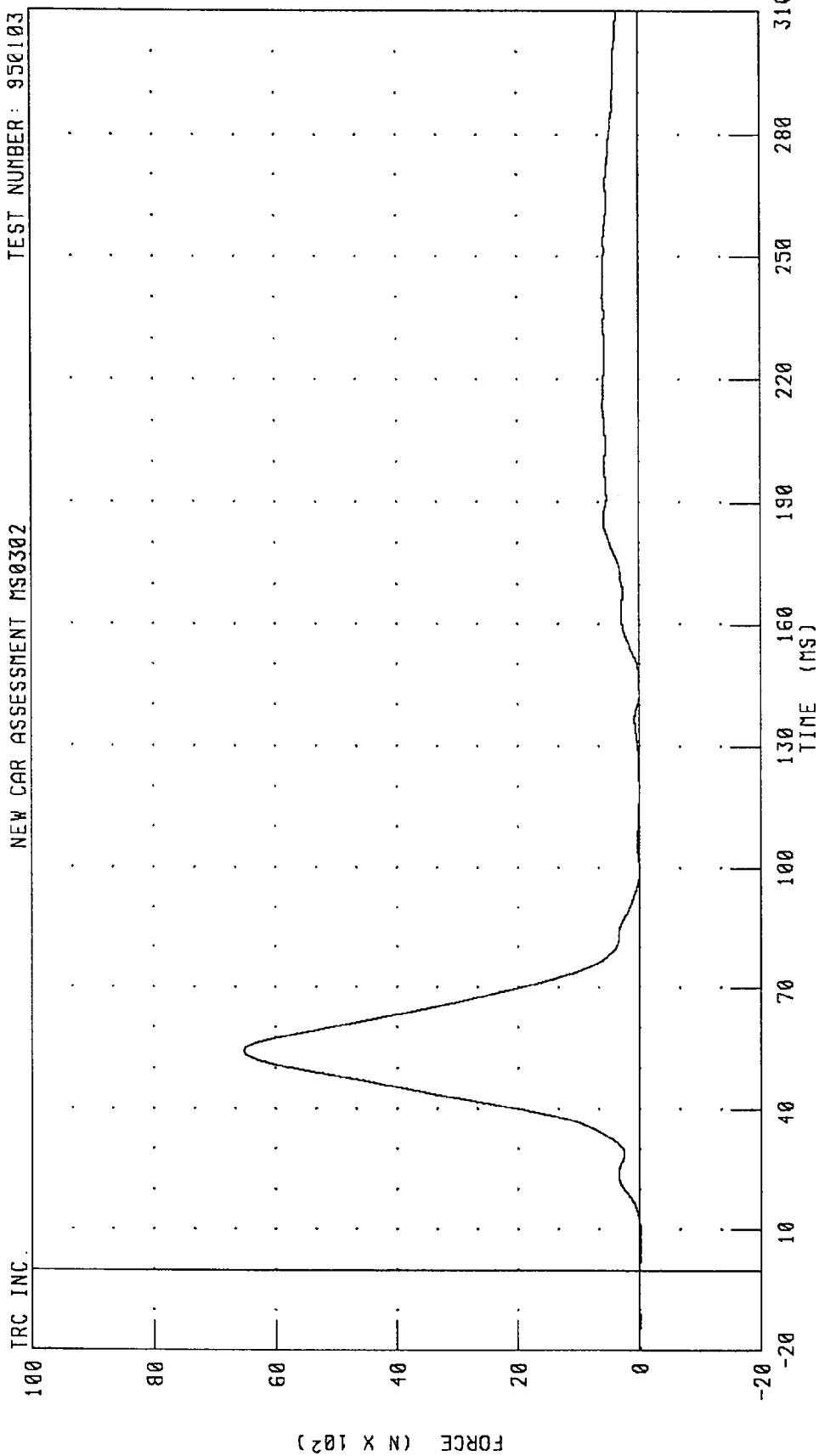


CHANNEL: RFMF2 FILTER: CH. CLASS 600

PEAK DATA: 452.61 N @ 141.44 MS; -4402.85 N @ 51.84 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

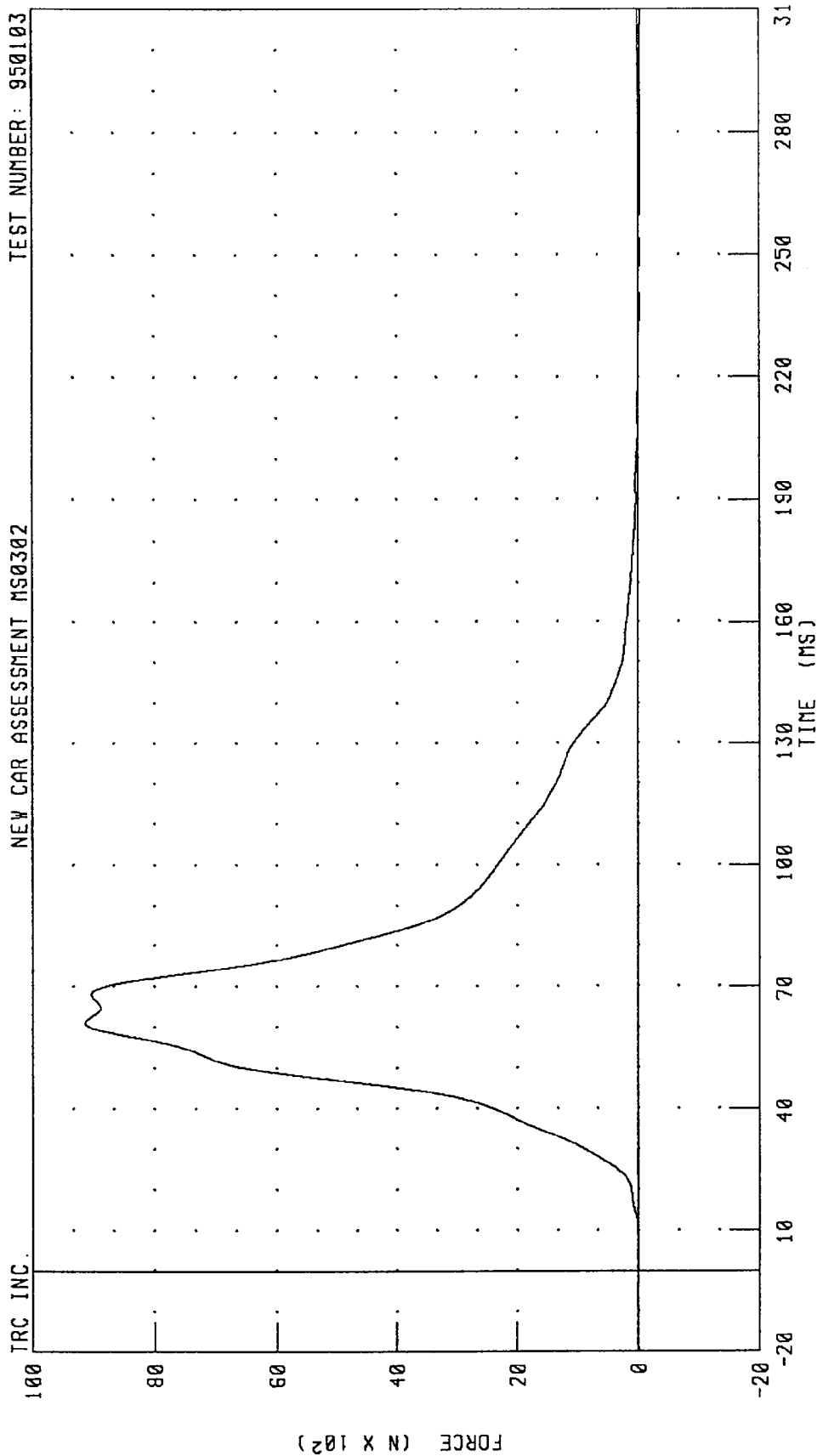


PEAK DATA: 6521.62 N @ 54.24 MS; -15.21 N @ 9.44 MS

CHANNEL: LBOF2 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



PEAK DATA: 9136.68 N @ 61.04 MS; -38.66 N @ 309.28 MS

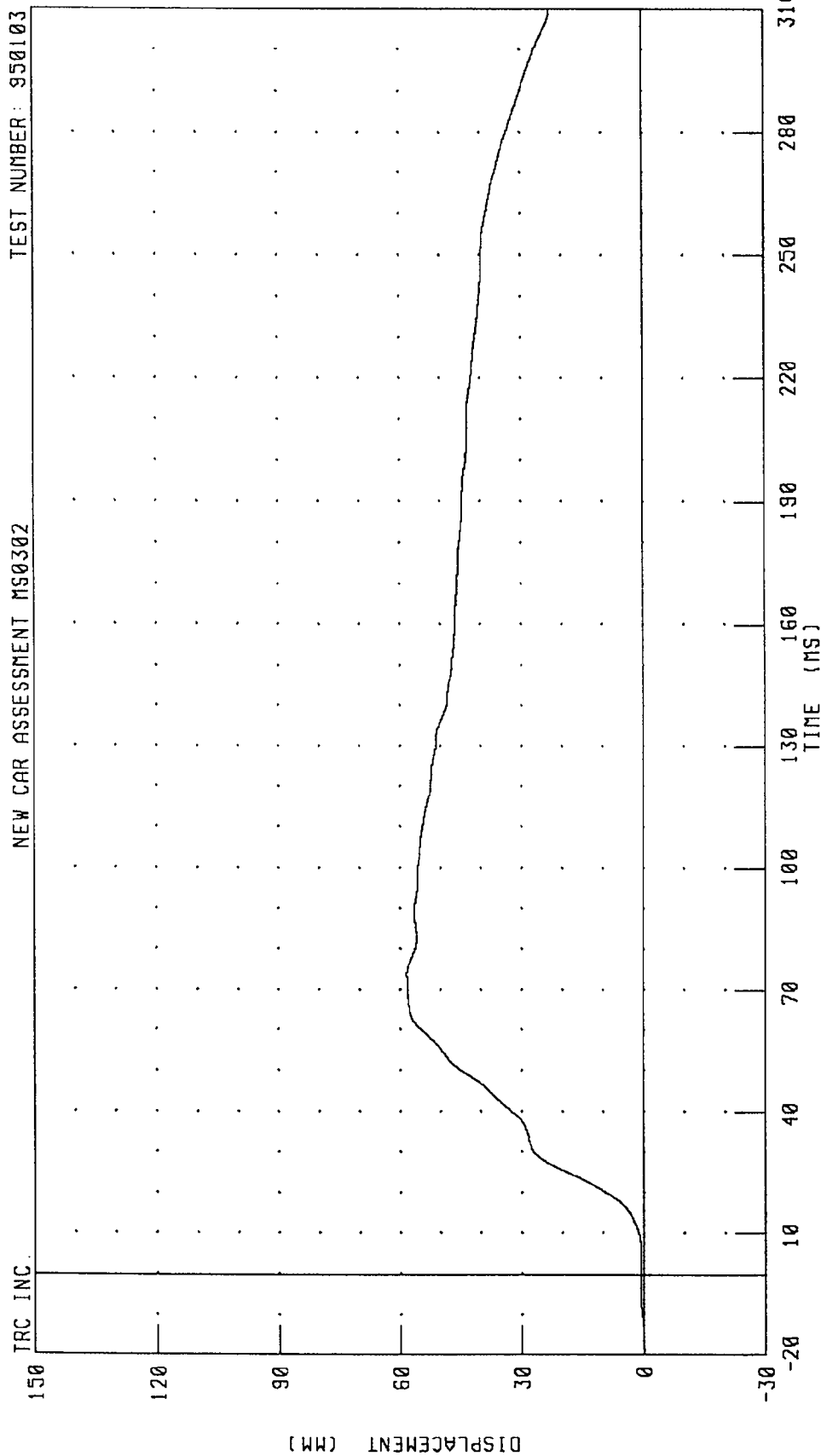
CHANNEL: SHBF2 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

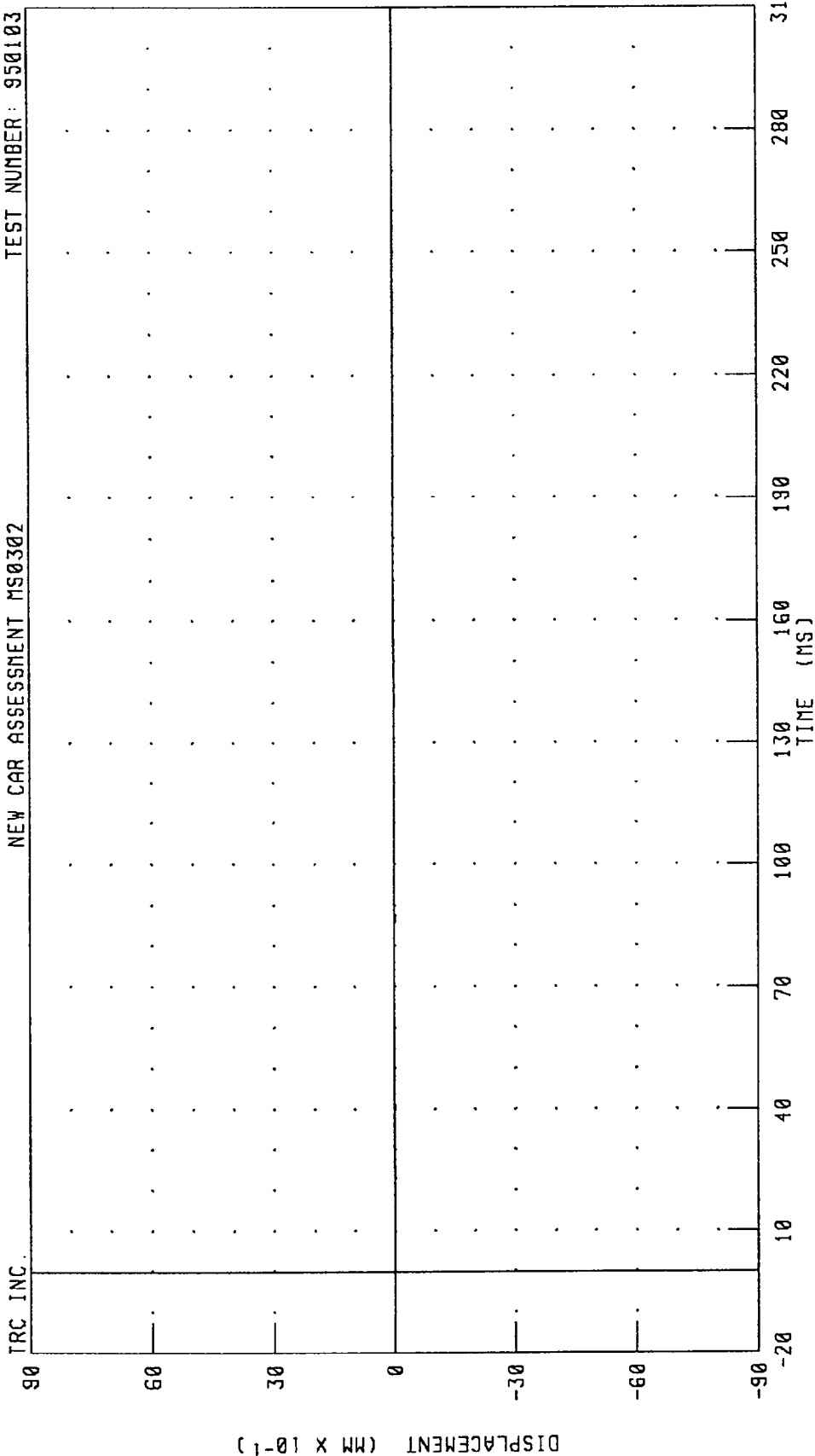


PEAK DATA: 58.38 MM @ 73.68 MS; -0.06 MM @ -19.04 MS

CHANNEL: SH002 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



PEAK DATA: 0.01 MM @ 75.04 MS; -0.01 MM @ 140.88 MS

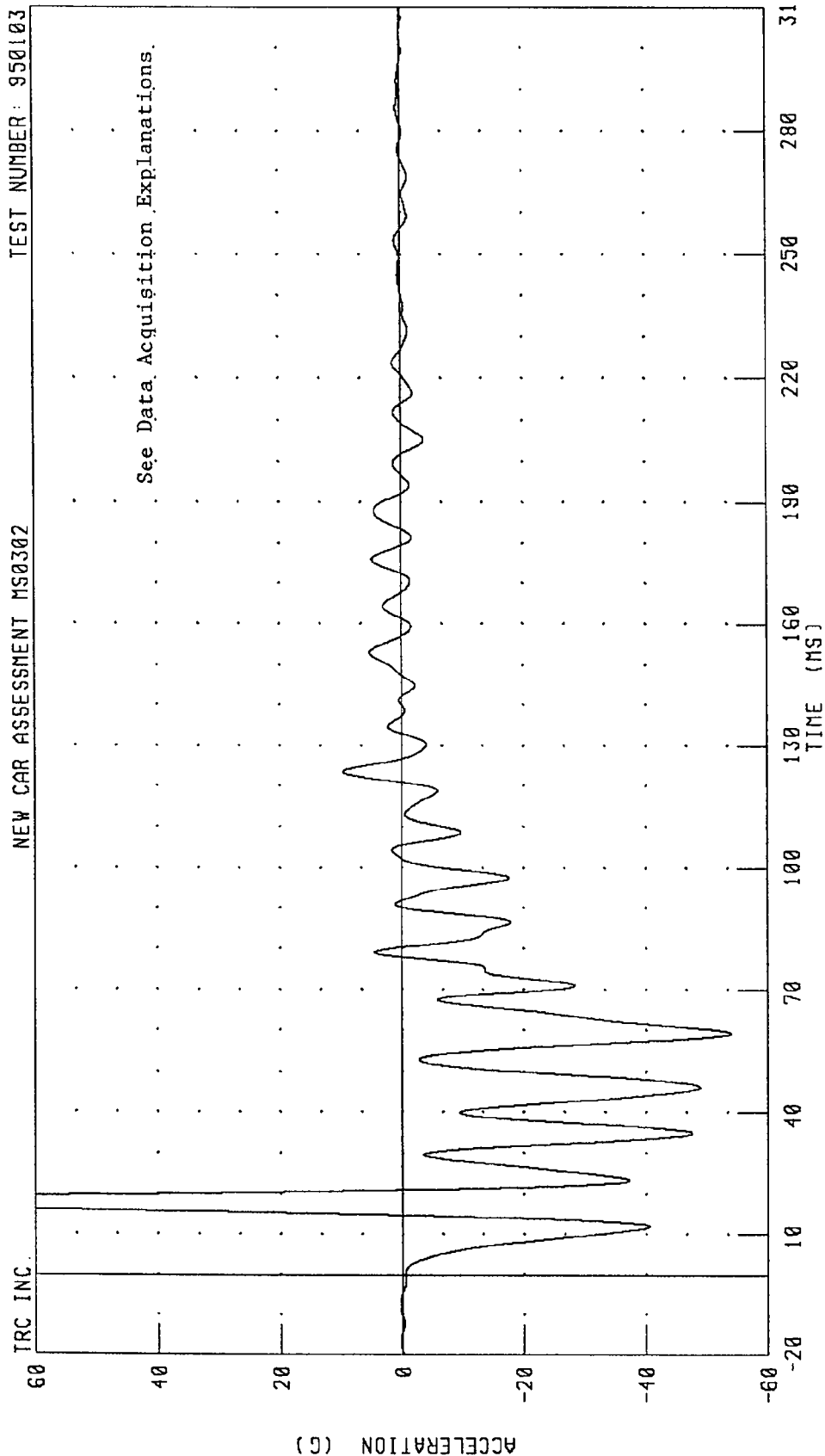
CHANNEL: SBED2 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



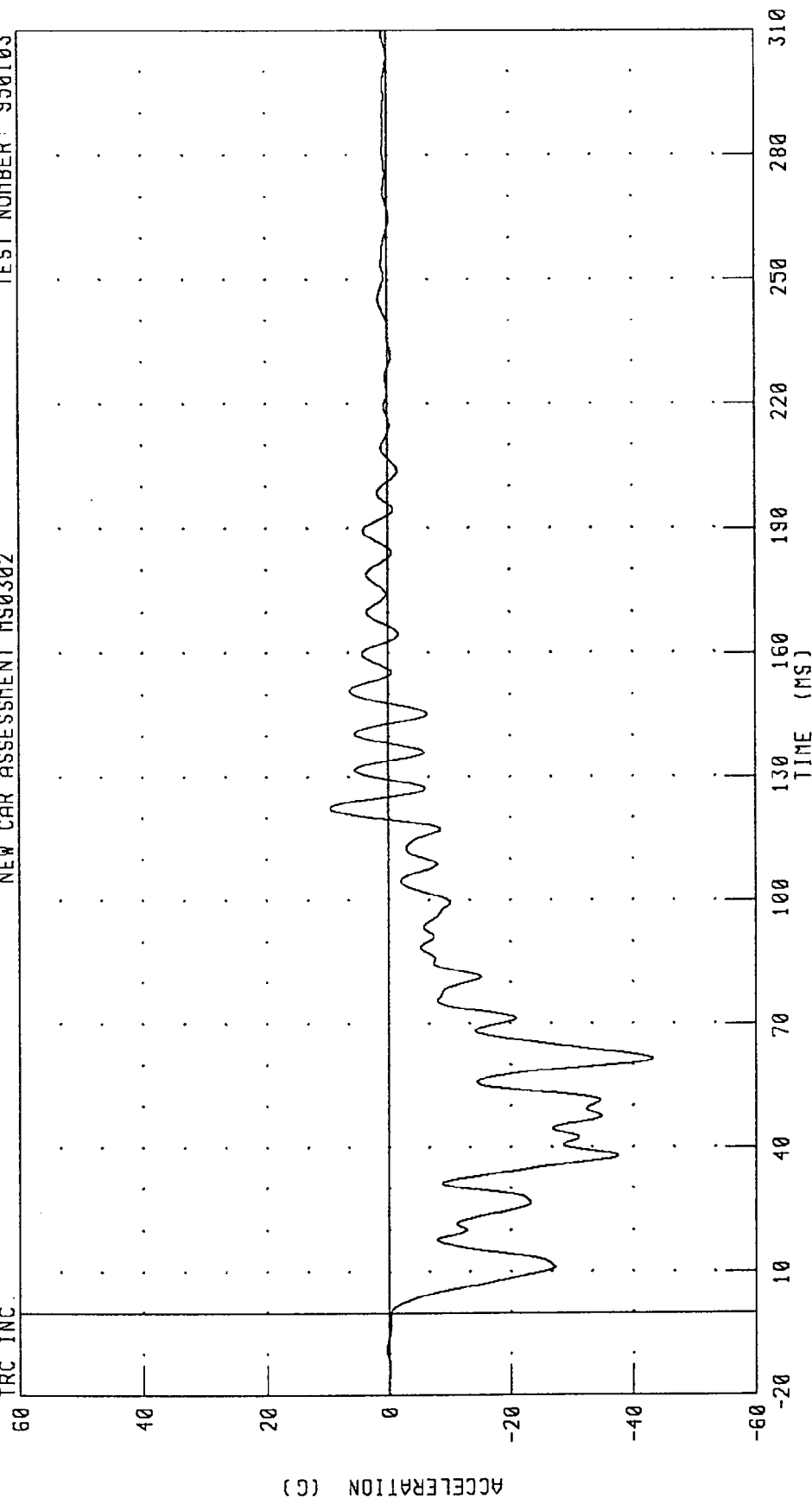
PEAK DATA: 113.81 G @ 17.84 MS; -53.94 G @ 59.20 MS

CHANNEL: TLRXG1 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



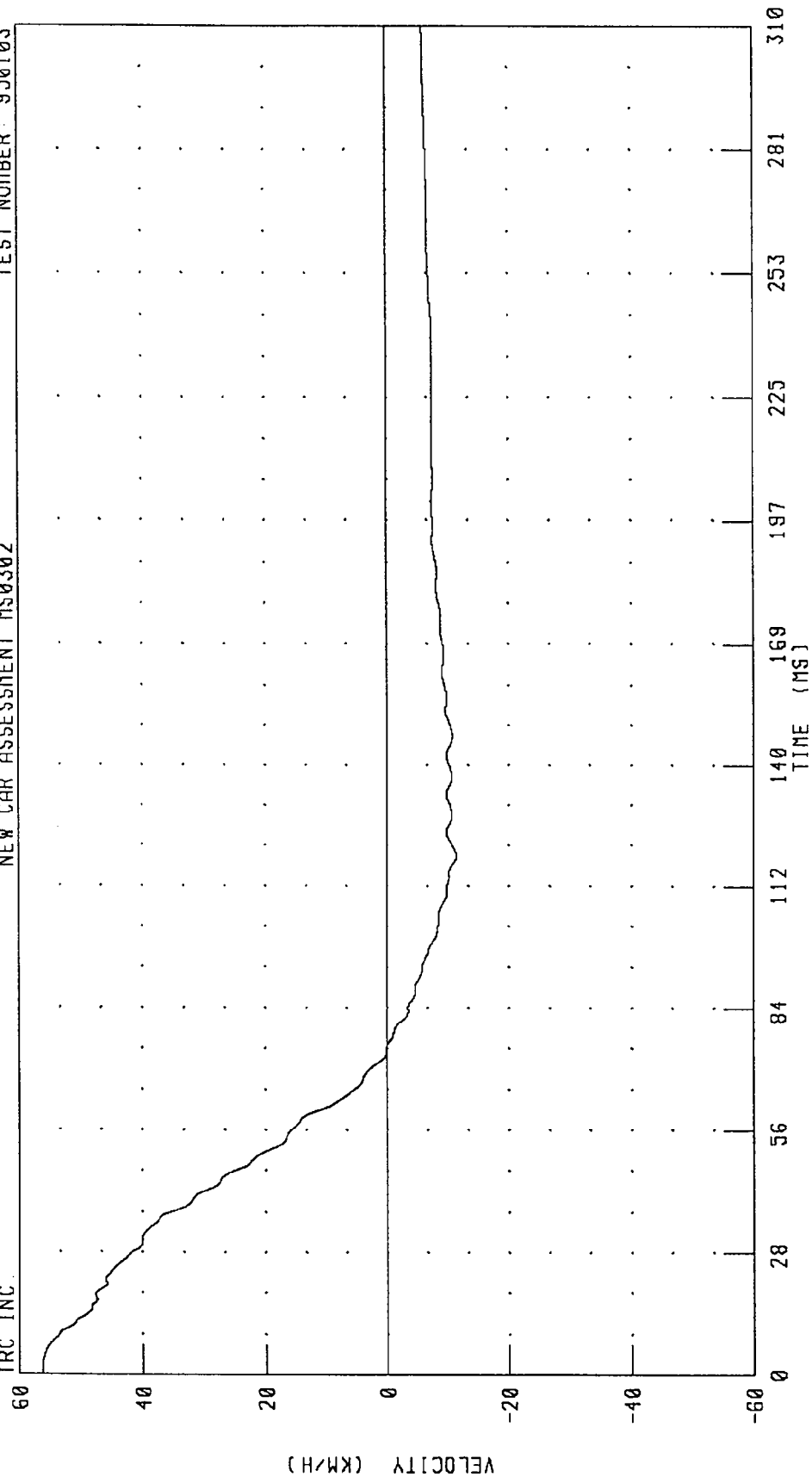
CHANNEL: TRRXG1 FILTER: CH. CLASS 60

PEAK DATA: 9.74 G @ 122.48 MS, -43.24 G @ 61.44 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS VELOCITY
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

IRC INC.



CHANNEL: TRRXV1 FILTER: CH. CLASS 180

950103

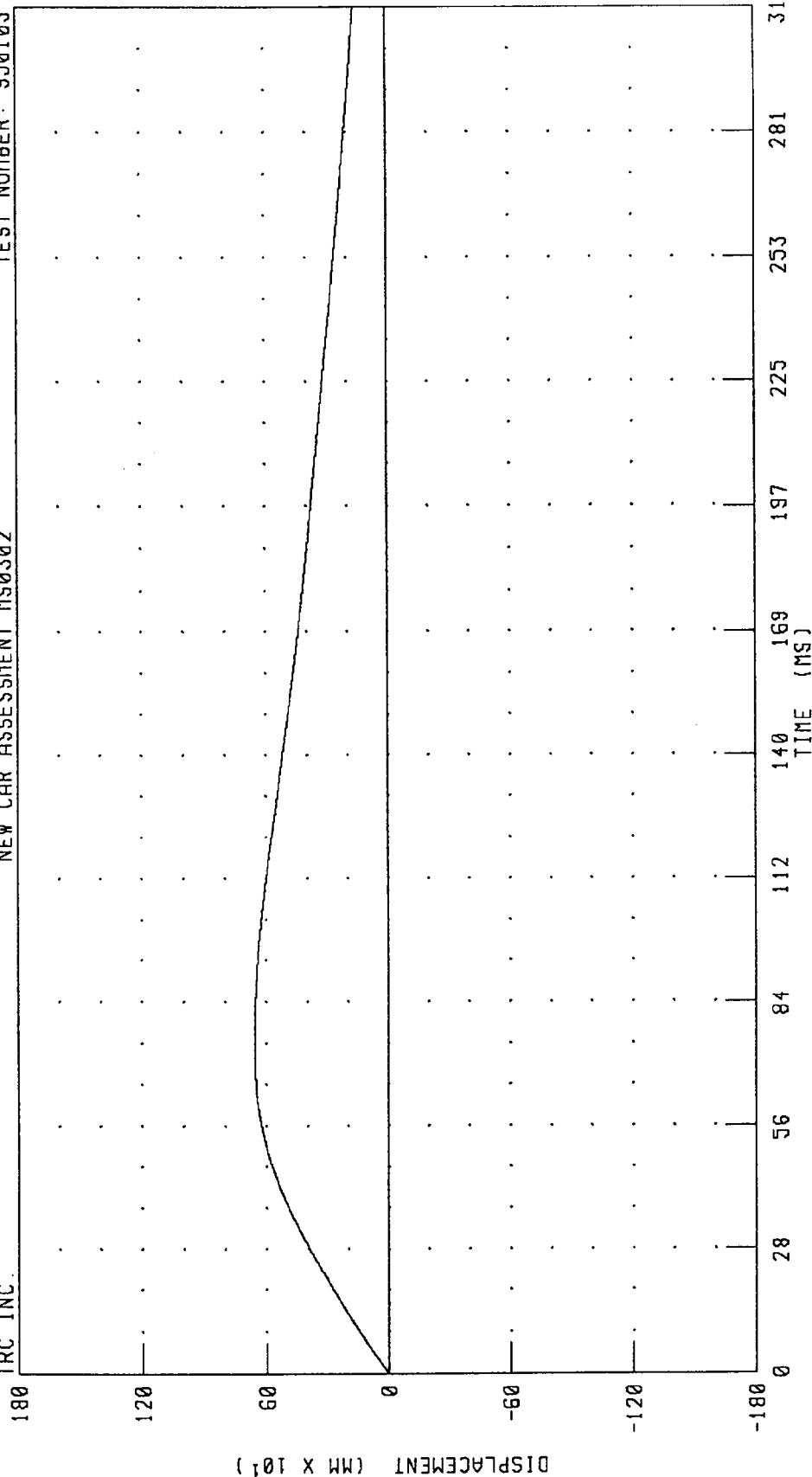
1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER

RIGHT REAR SEAT X-AXIS DISPLACEMENT

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

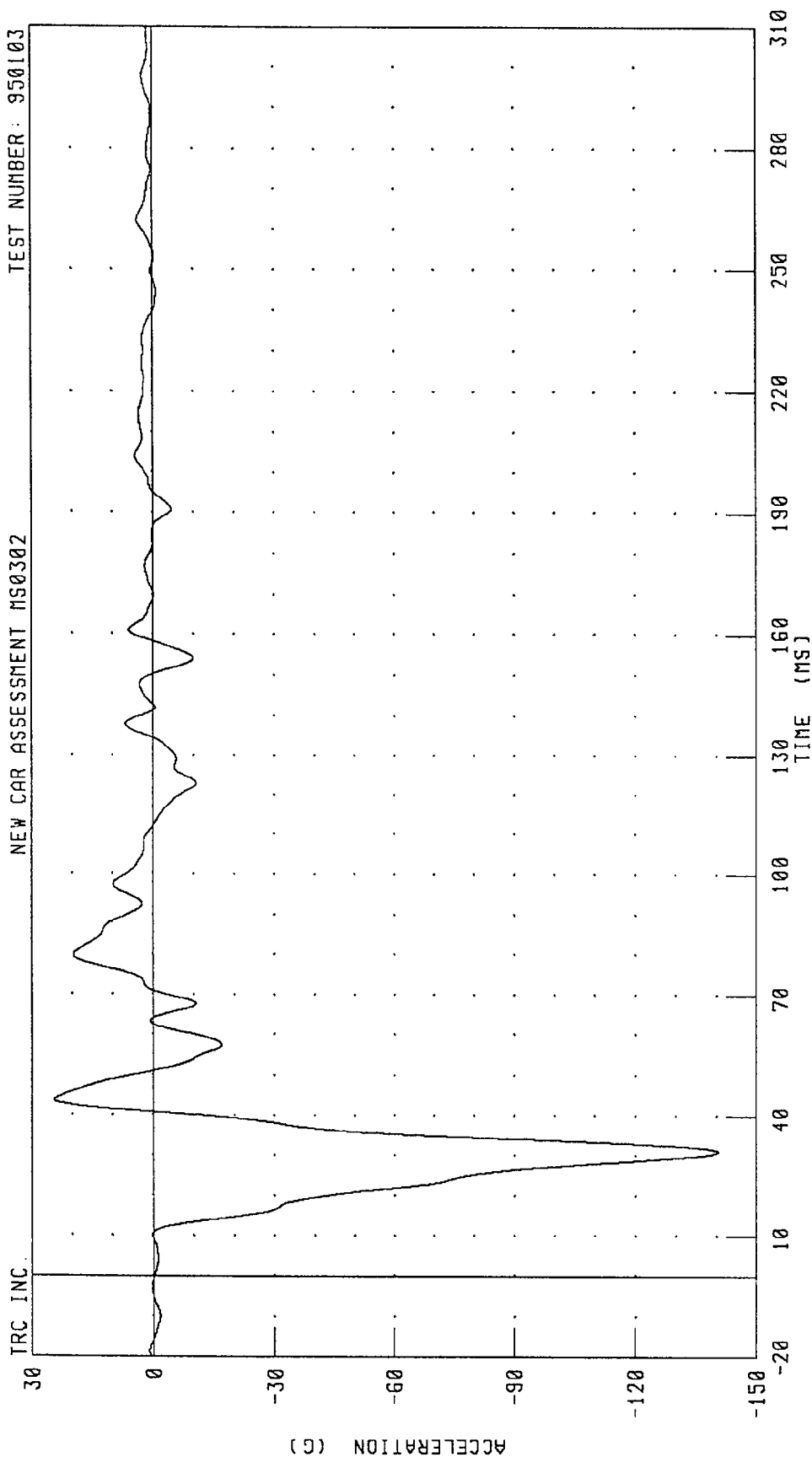


CHANNEL: TRRXD1 FILTER: CH. CLASS 180

PEAK DATA: 658.14 MM @ 75.84 MS; 0.00 MM @ 0.00 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

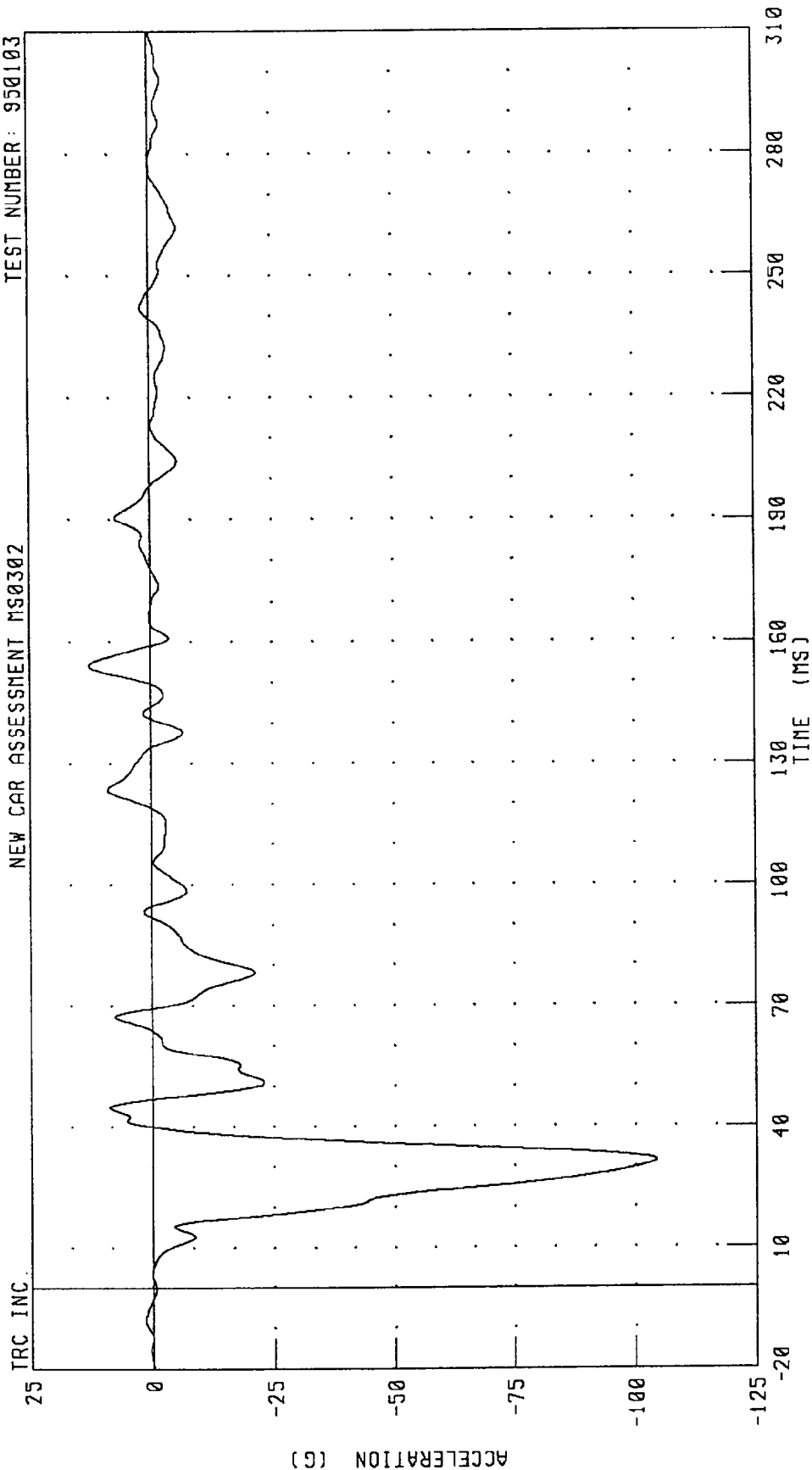


CHANNEL: ENGXC1 FILTER: CH. CLASS 60

PEAK DATA: 24.35 G @ 140.49 MS; -140.49 G @ 43.76 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



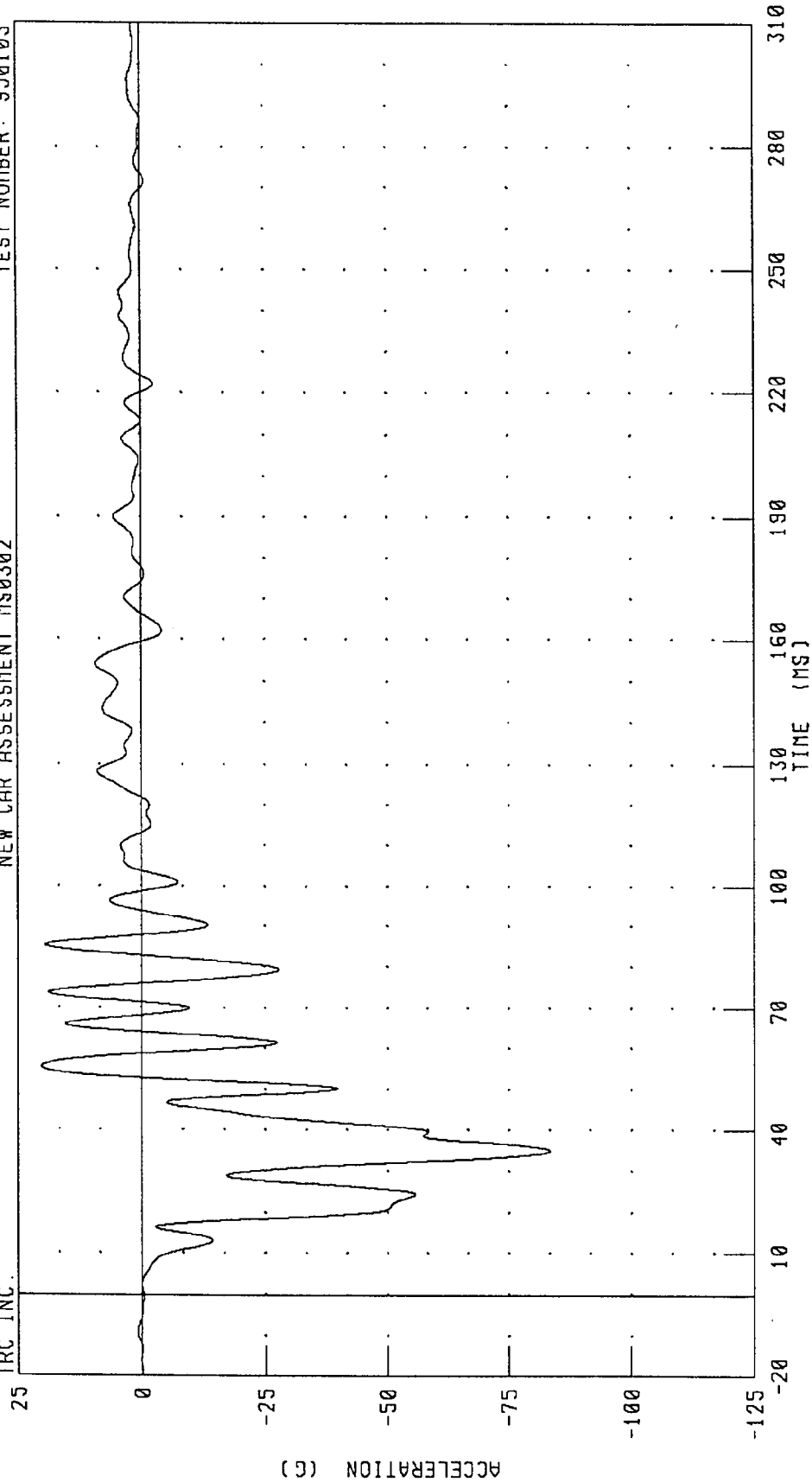
PEAK DATA: 12.64 G @ 154.32 MS; -104.41 G @ 31.68 MS

CHANNEL: ENGCG2 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 RIGHT BRAKE CALIPER X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



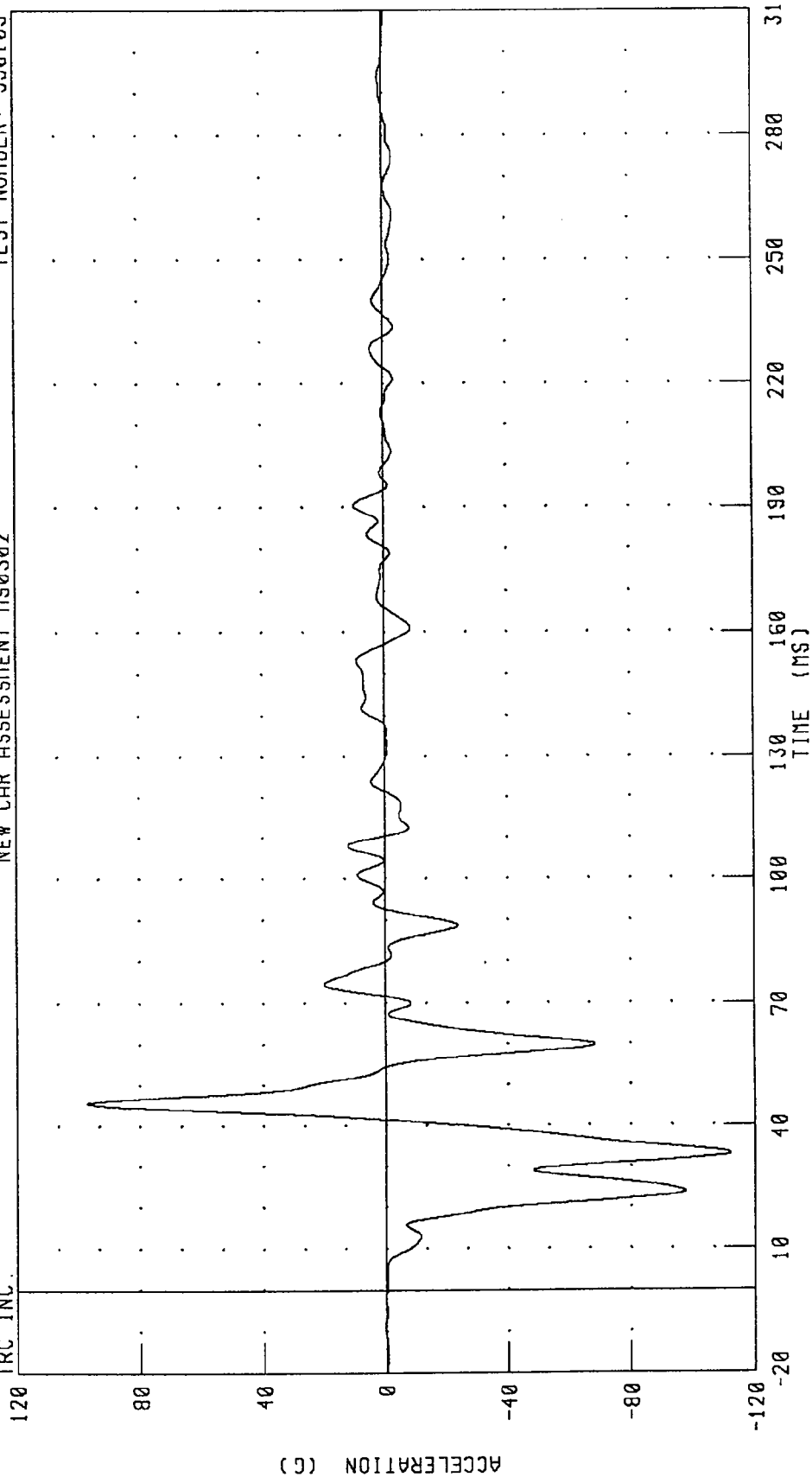
CHANNEL: BCRXC1 FILTER: CH. CLASS 60

950103

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 97.13 G @ 45.60 MS; -112.17 G @ 112.20 MS

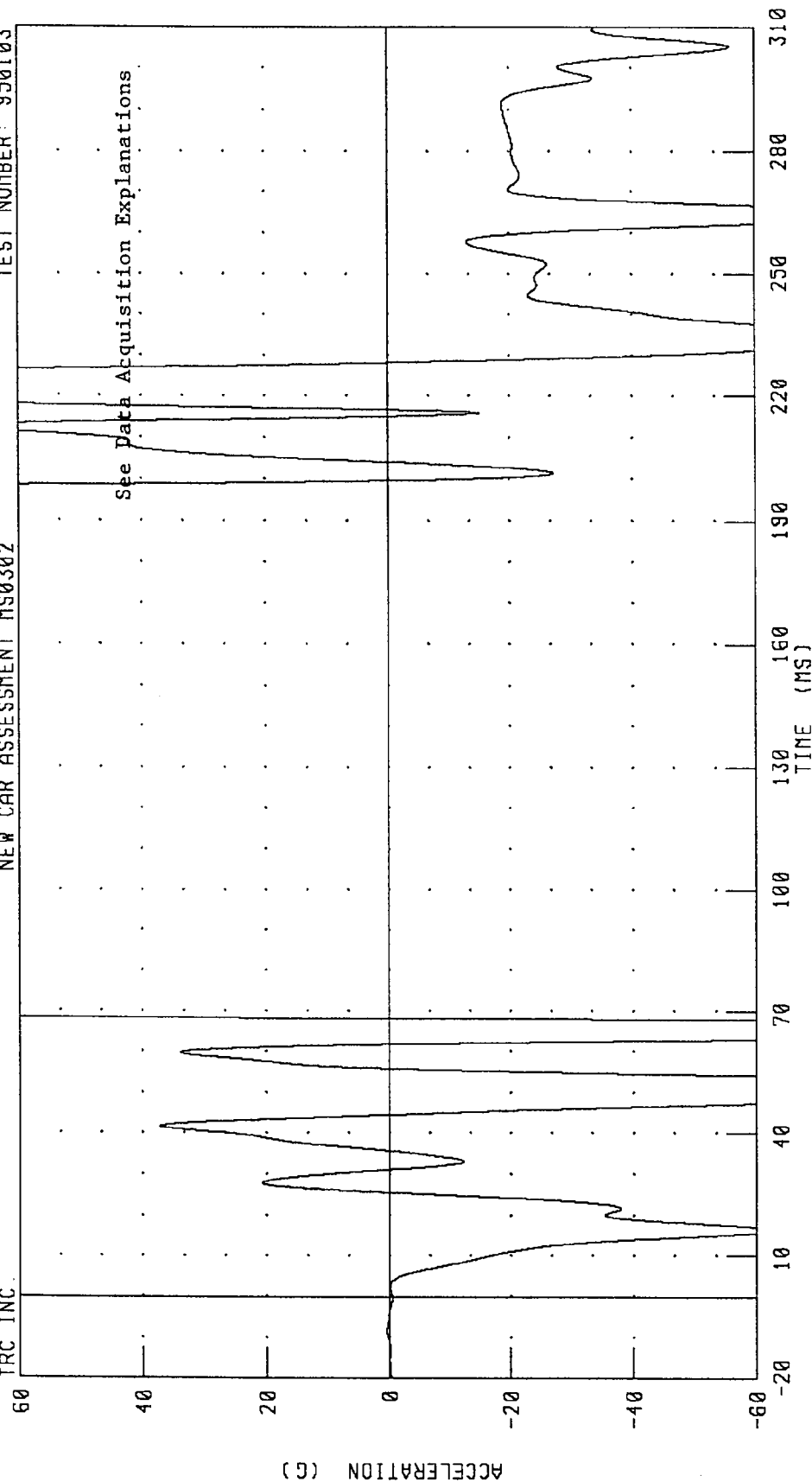
1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

See Data Acquisition Explanations



PEAK DATA: 463.97 G @ 93.04 MS; -332.41 G @ 65.84 MS

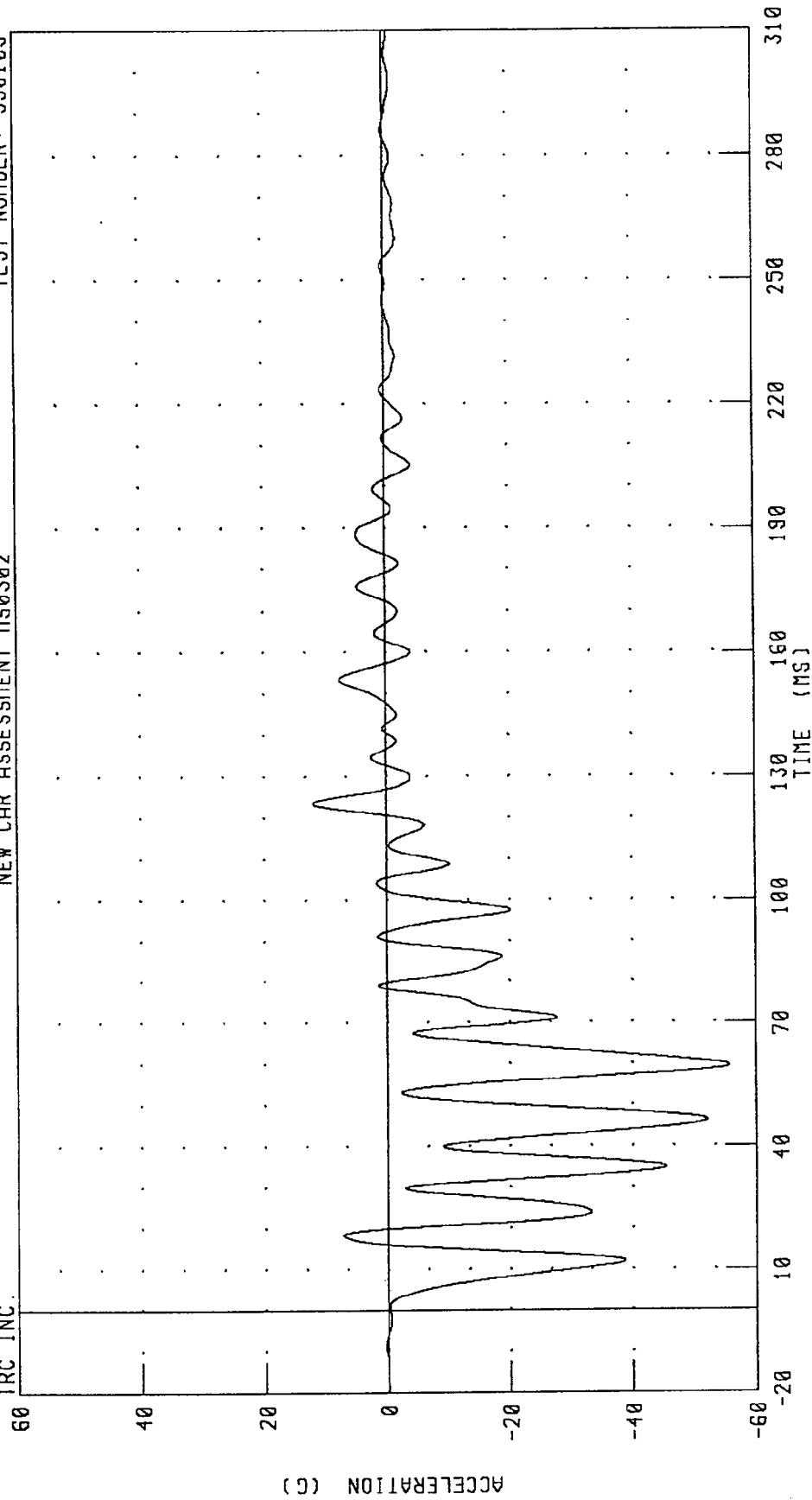
CHANNEL: DPCXG1 FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



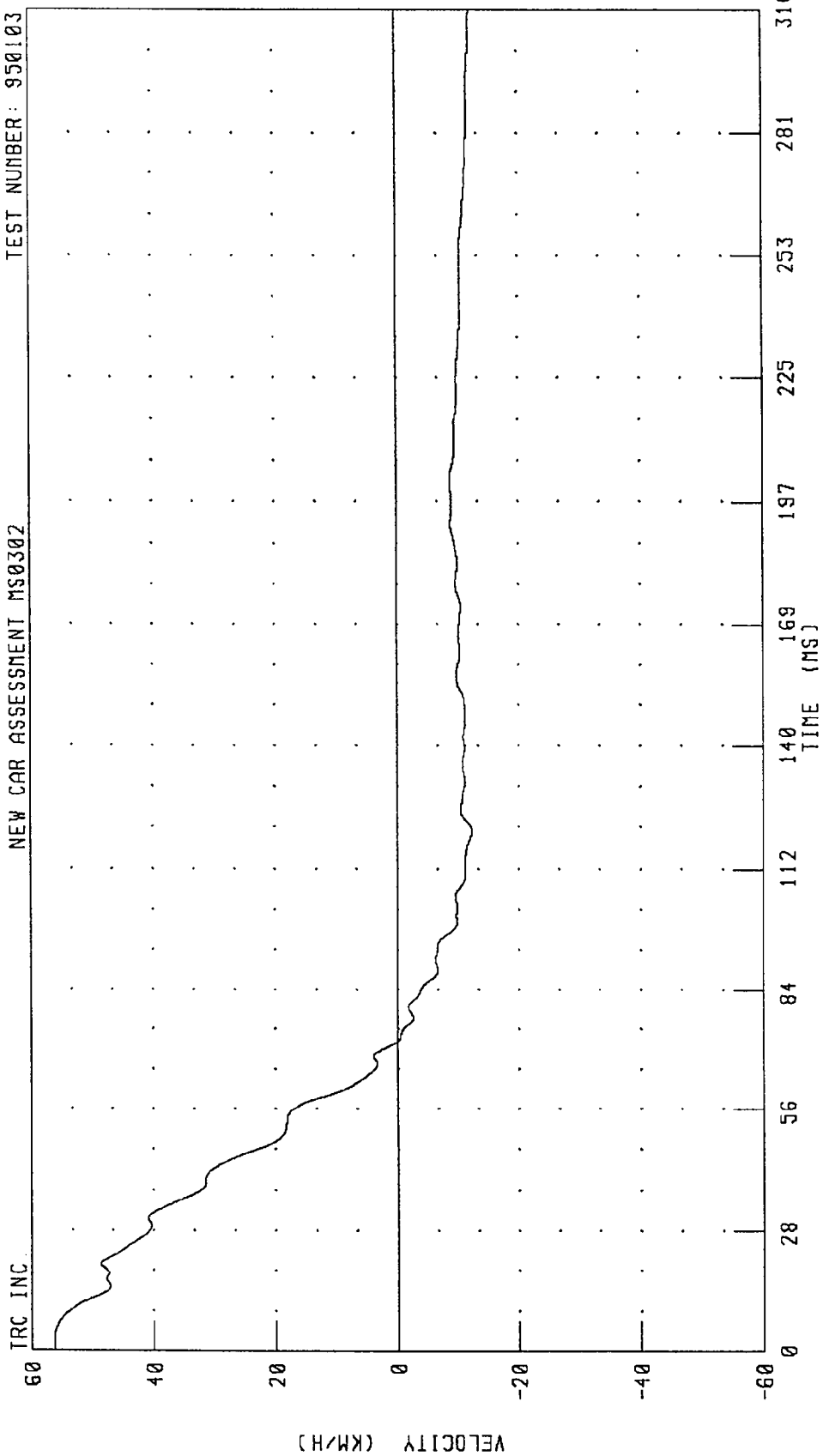
CHANNEL: TLRXGA FILTER: CH. CLASS 60

PEAK DATA: 12.11 G @ 123.60 MS; -55.68 G @ 59.52 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS VELOCITY

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302



CHANNEL: TLRXVA FILTER: CH. CLASS 180

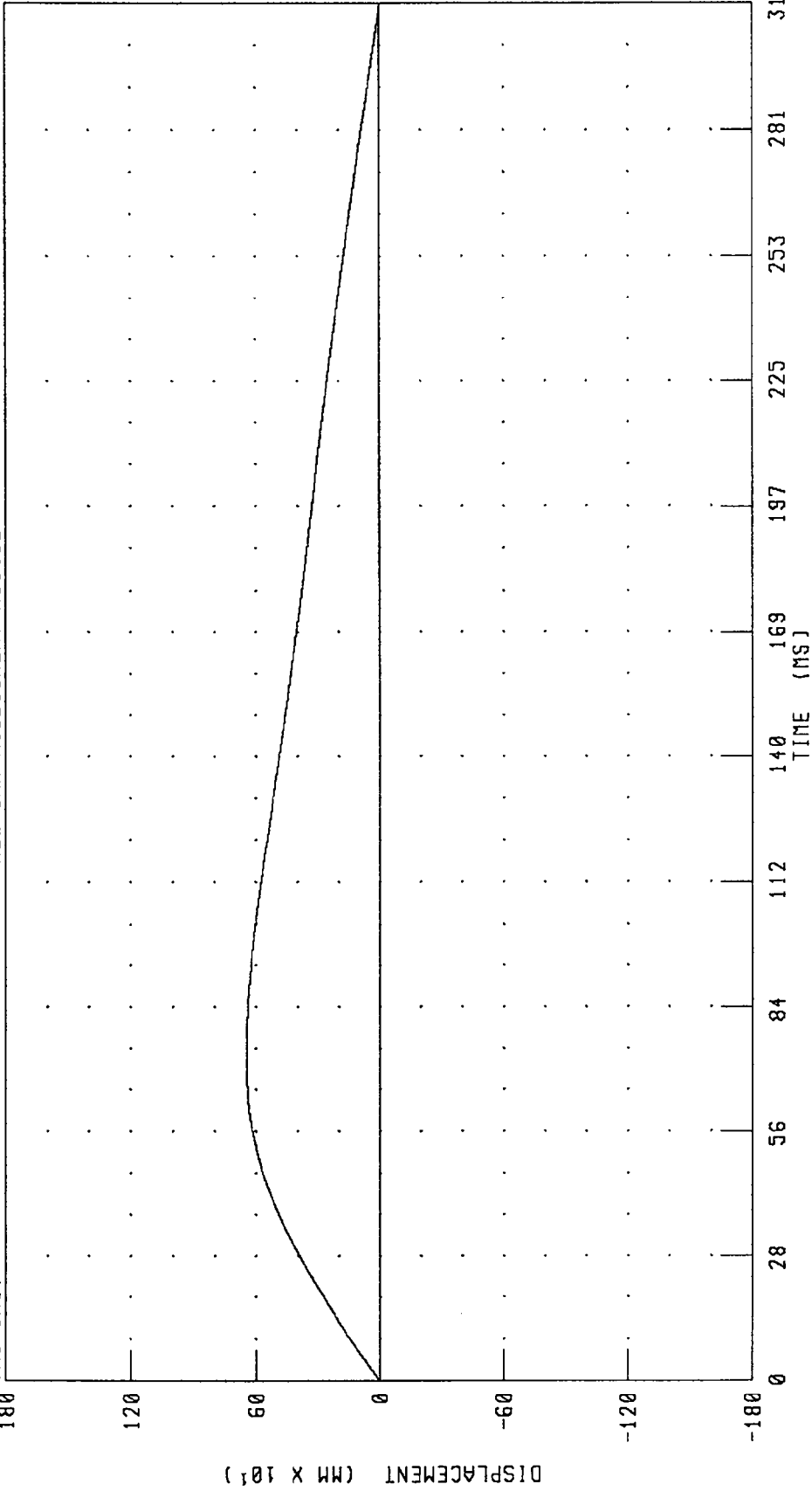
PEAK DATA: 56.30 KM/H @ 0.08 MS; -12.27 KM/H @ 121.28 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS DISPLACEMENT

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

IRC INC.



PEAK DATA: 647.41 MM @ 72.16 MS; -3.25 MM @ 310.00 MS

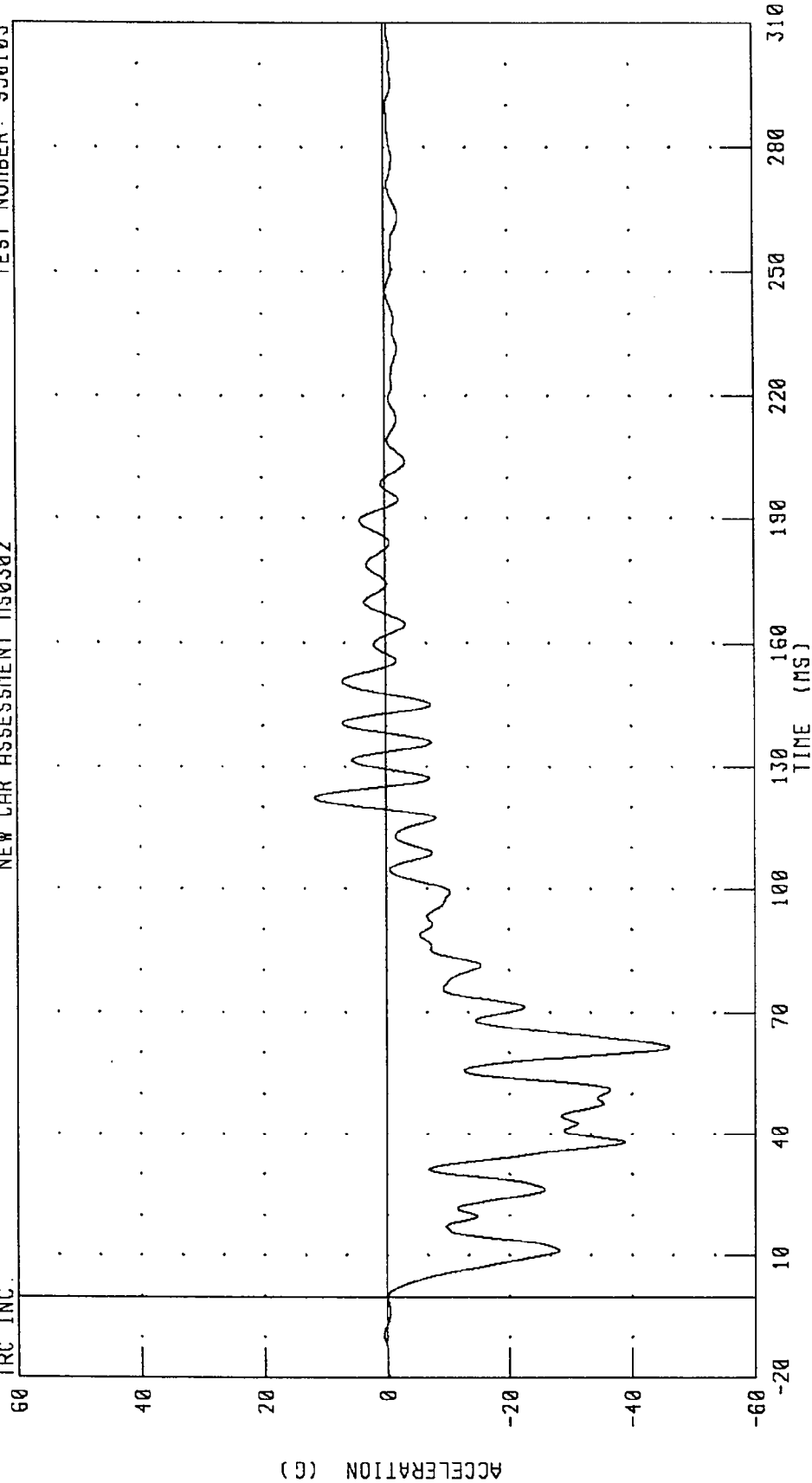
CHANNEL: TLRX0A FILTER: CH. CLASS 180

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



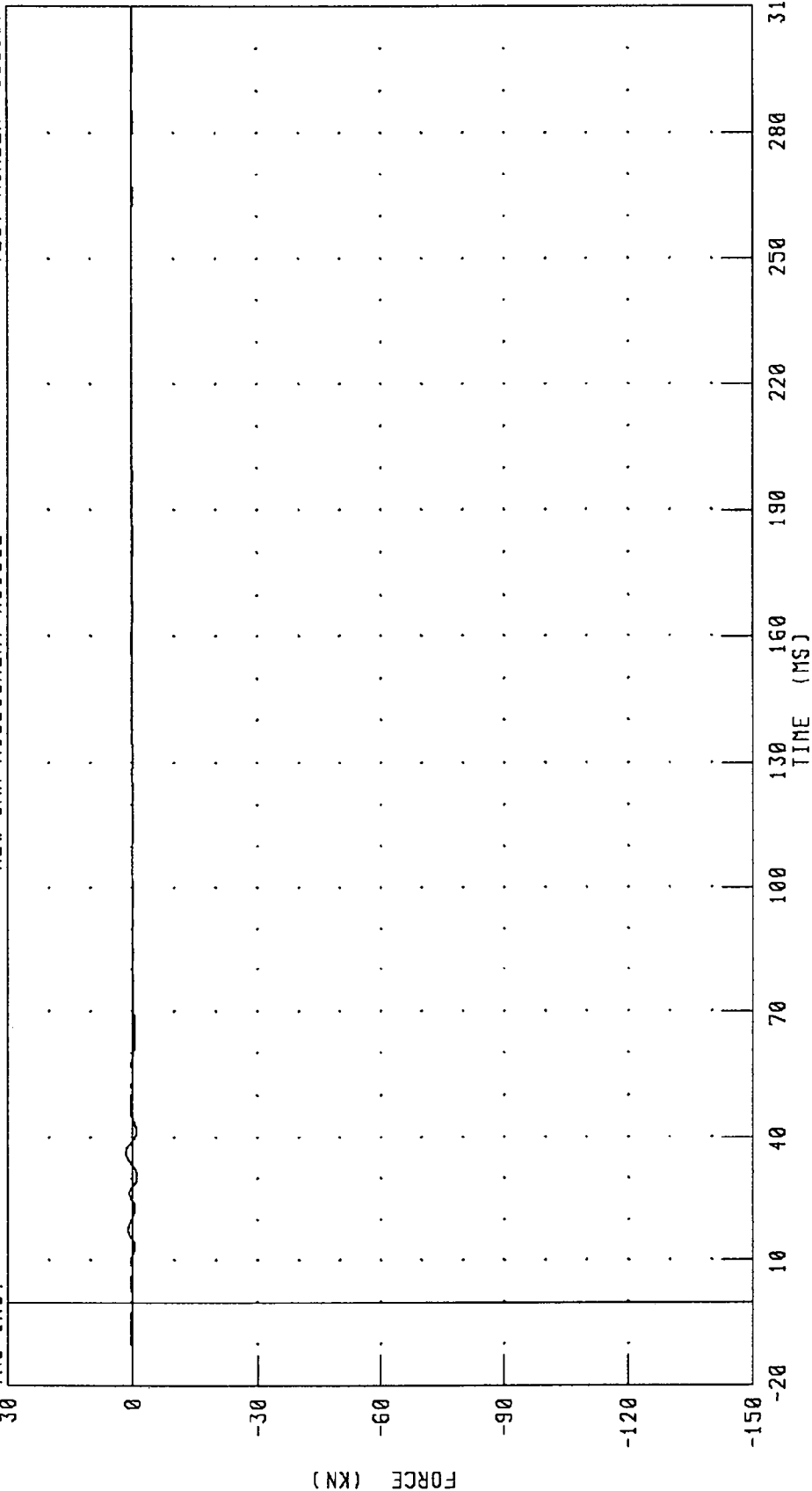
CHANNEL: TRRXGA FILTER: CH. CLASS 60

PEAK DATA: 11.62 G @ 122.40 MS; -46.13 G @ 61.44 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A1 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



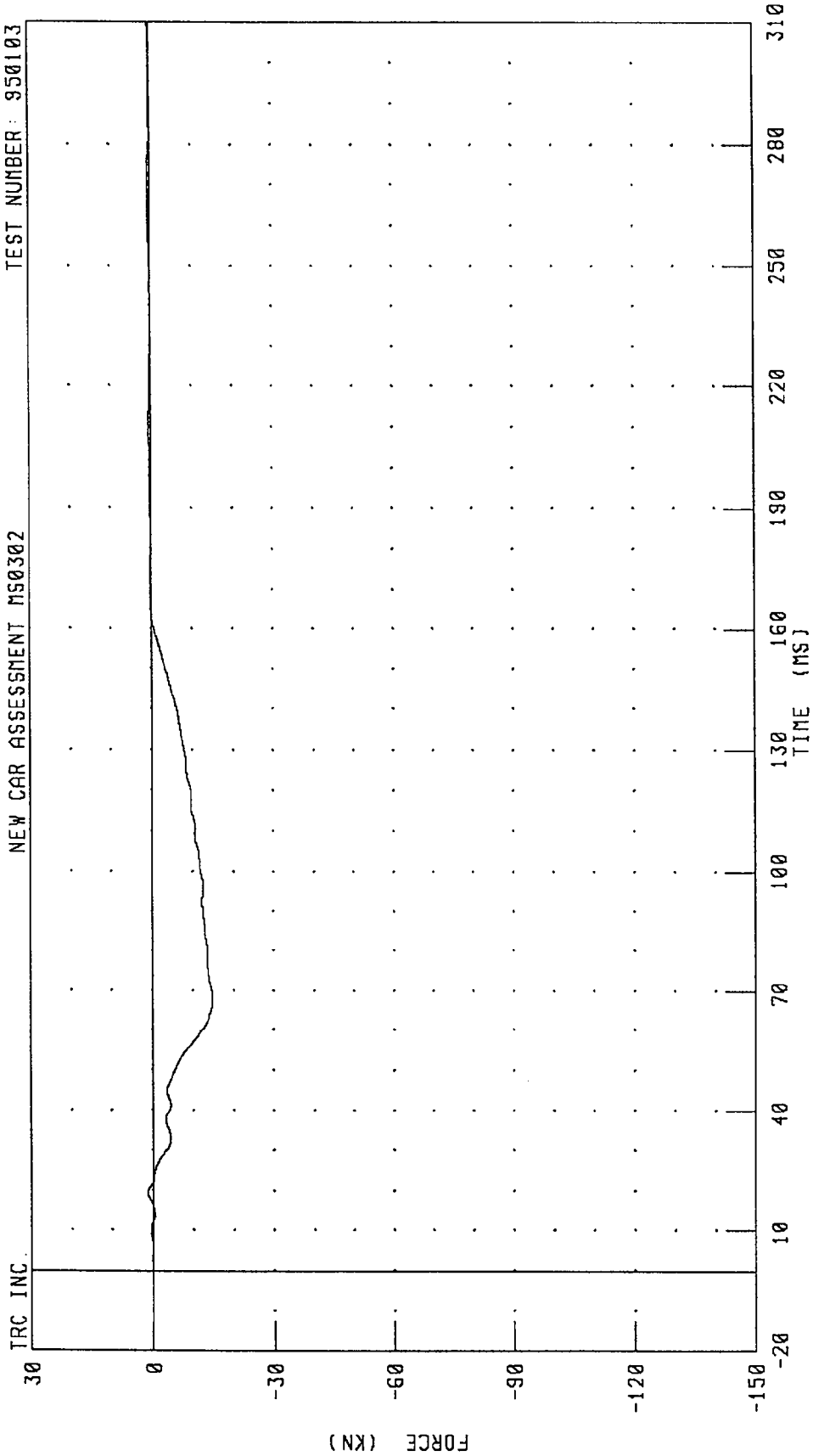
CHANNEL: BA1F

FILTER: CH. CLASS 60

PEAK DATA: 1.59 KN @ 36.32 MS; -1.16 KN @ 30.48 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A2 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



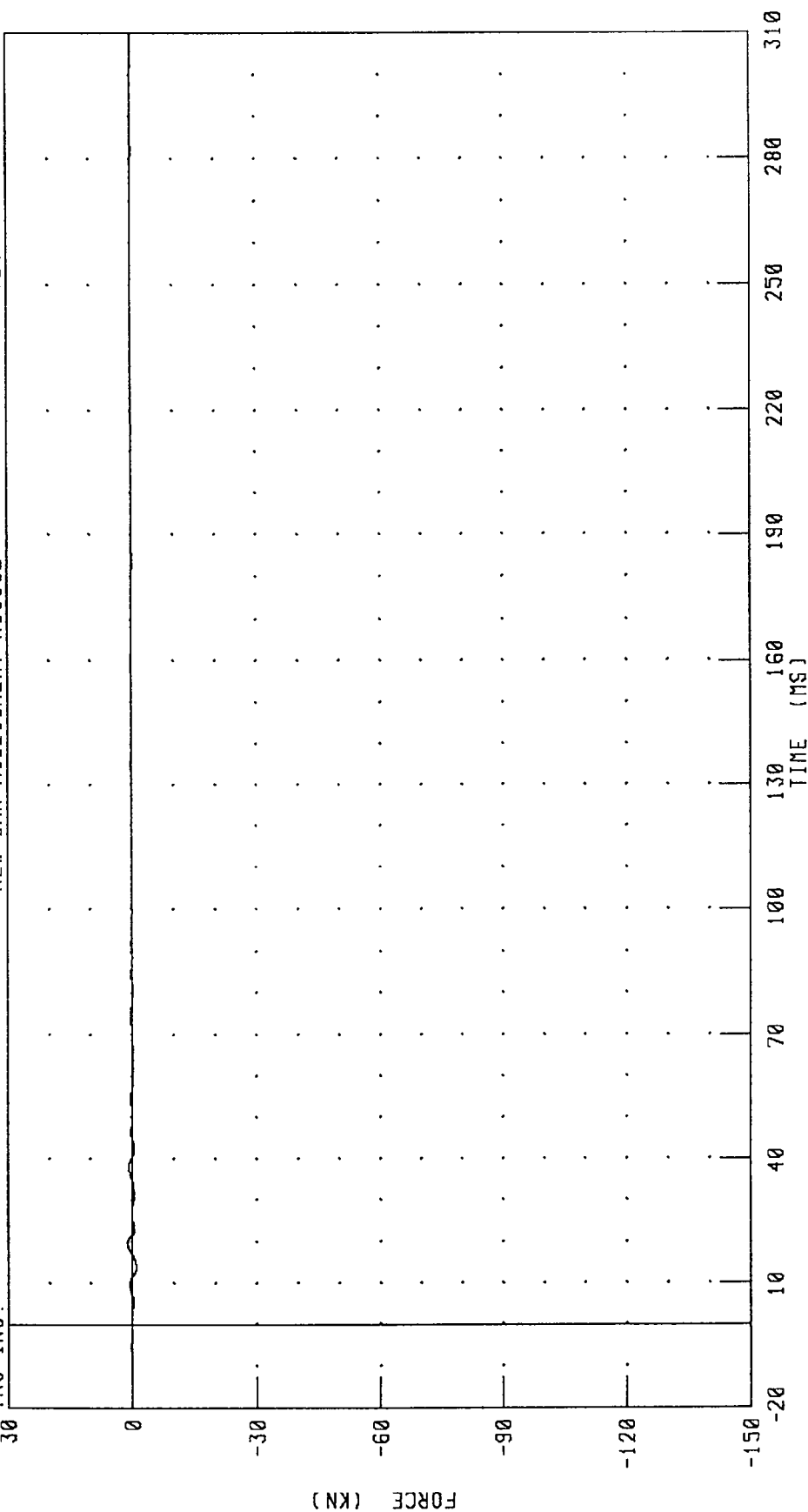
PEAK DATA: 1.26 KN @ 19.44 MS; -14.87 KN @ 68.08 MS

CHANNEL: BA2F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



PEAK DATA: 1.09 KN @ 19.52 MS; -1.03 KN @ 13.84 MS

FILTER: CH. CLASS 60

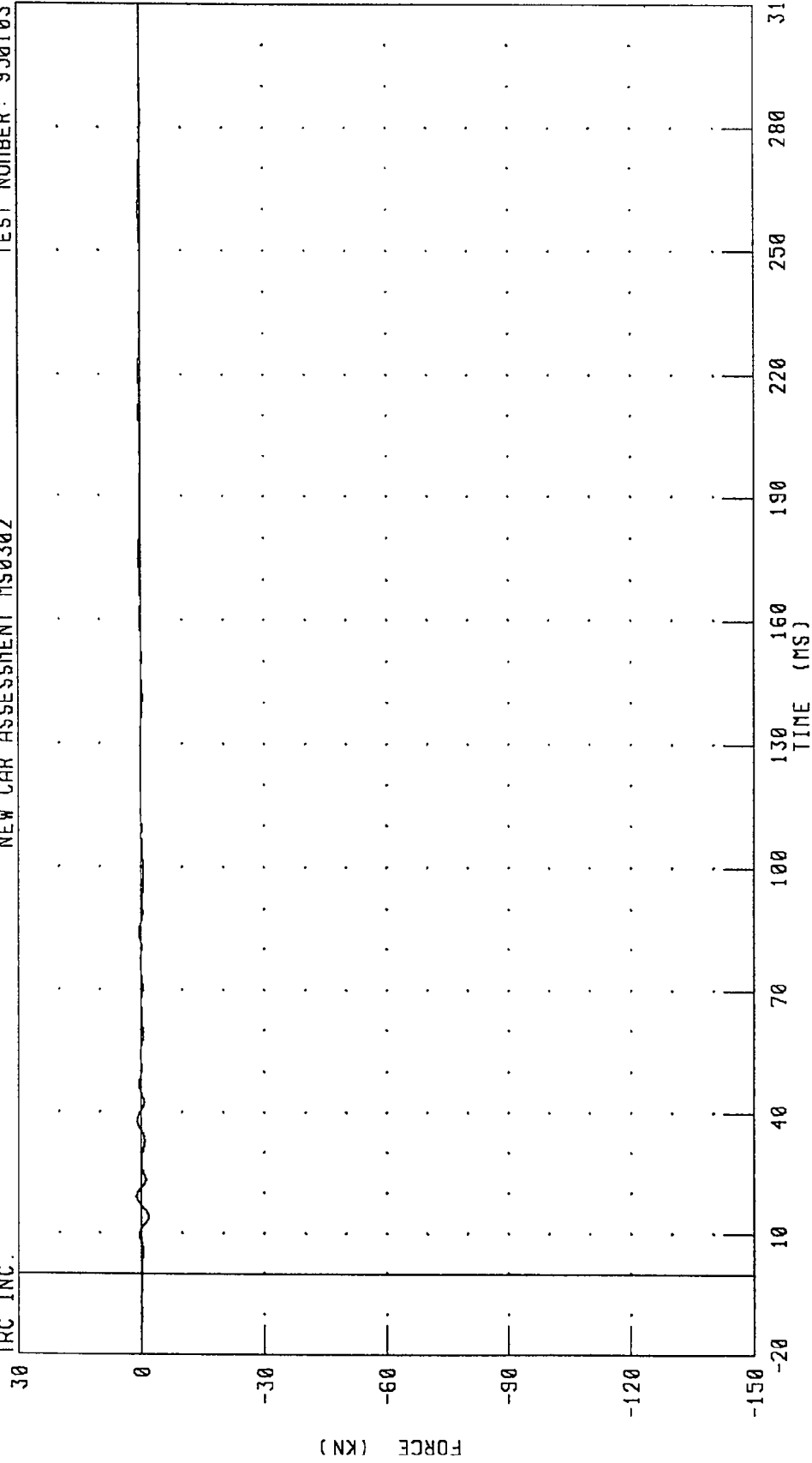
CHANNEL: BA3F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 1.11 KN @ 19.20 MS; -1.74 KN @ 14.16 MS

FILTER: CH. CLASS 60

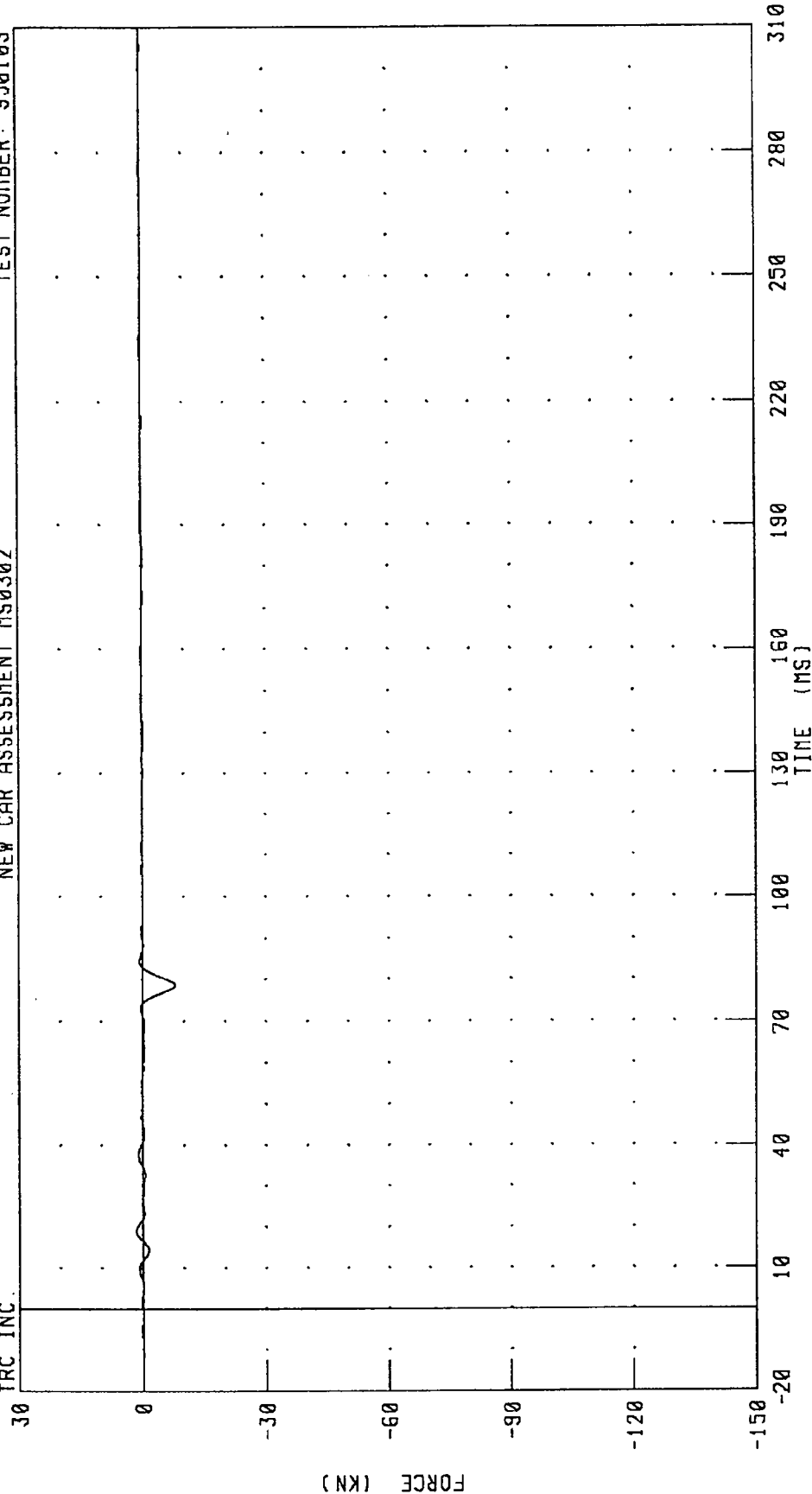
CHANNEL: BA4F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION AS FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT M50302

TRC INC.



PEAK DATA: 1.45 KN @ 19.04 MS; -7.91 KN @ 78.64 MS

FILTER: CH. CLASS 60

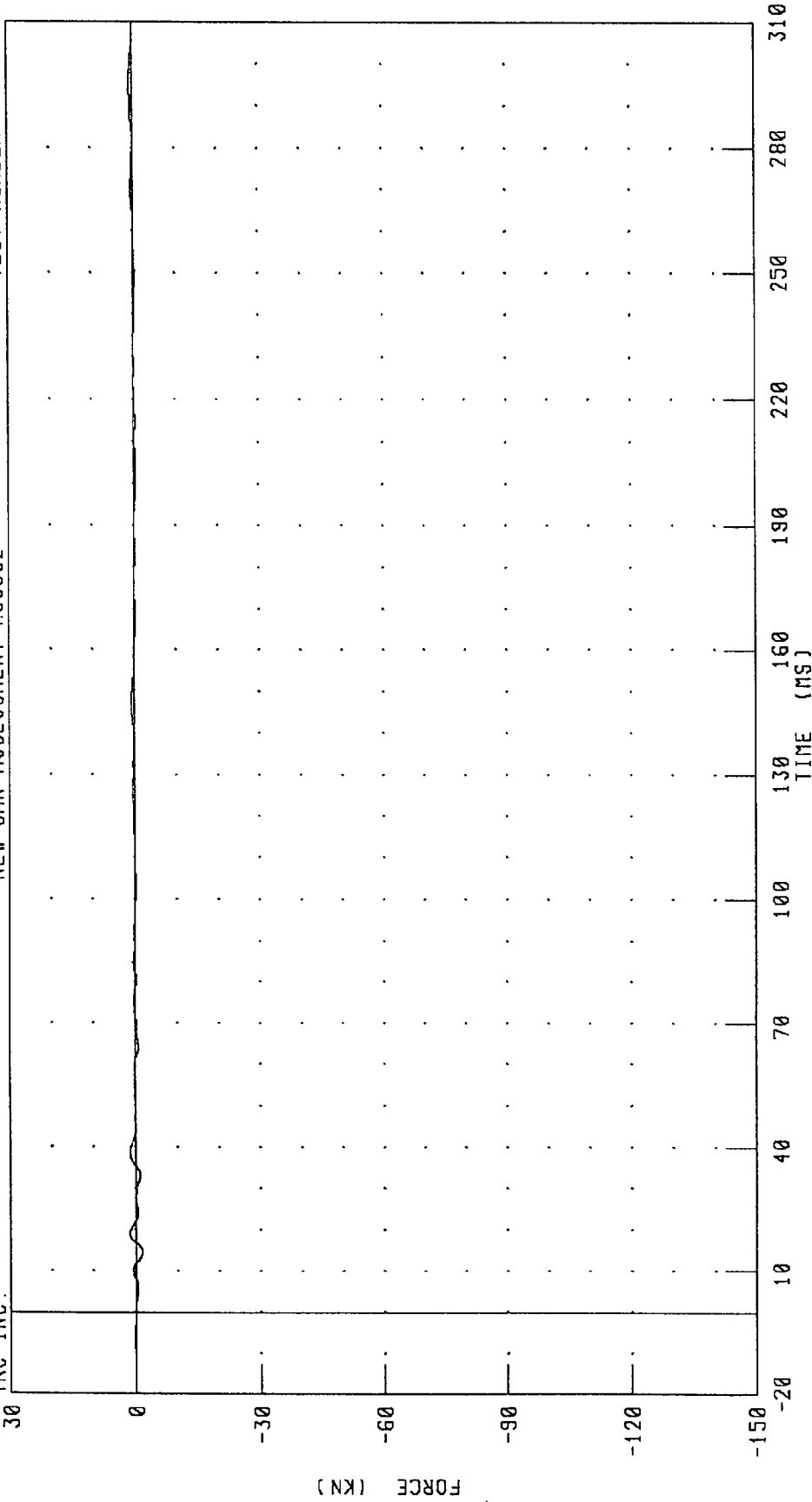
CHANNEL: BASF

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



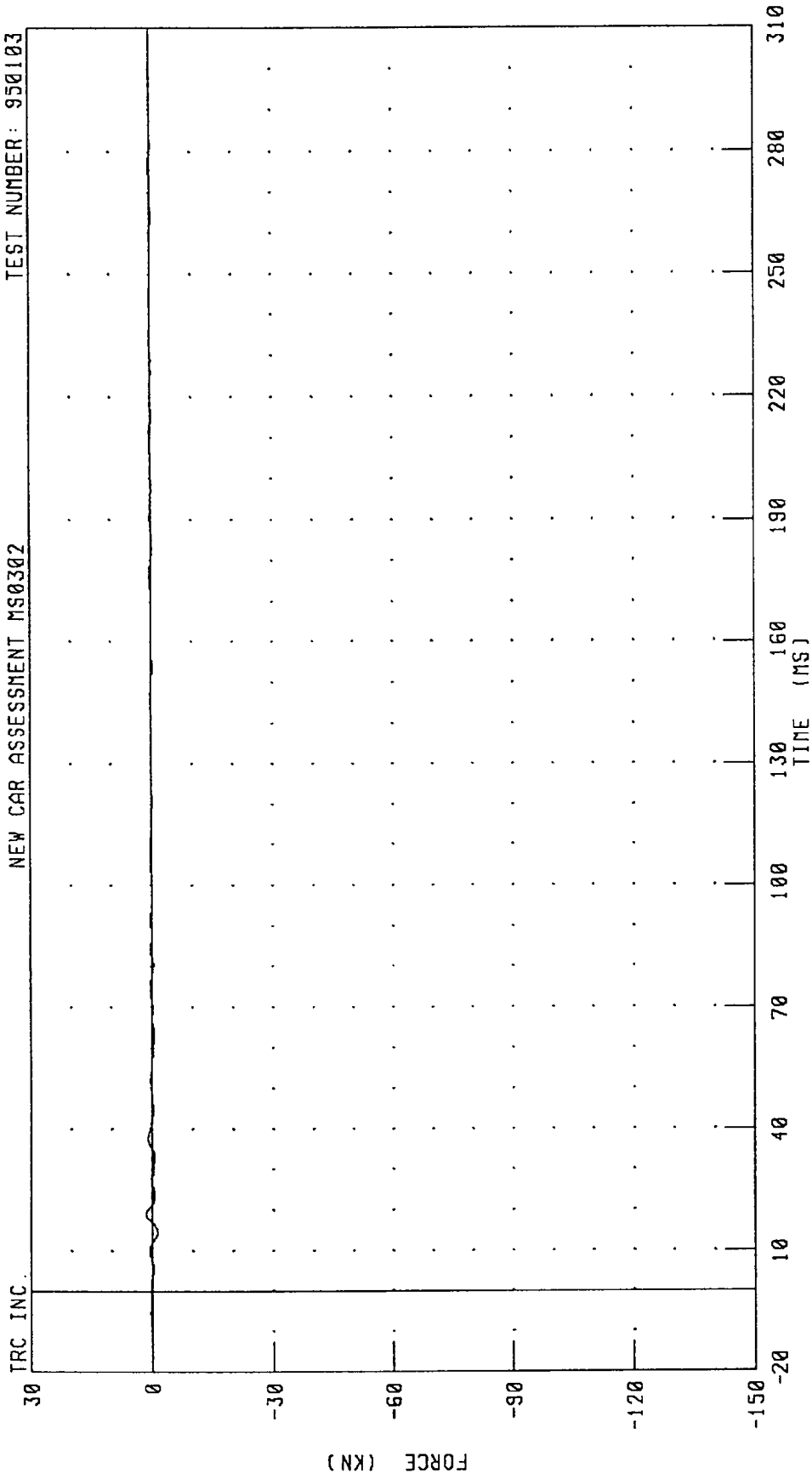
PEAK DATA: 1.55 KN @ 18.96 MS, -1.67 KN @ 14.56 MS

FILTER: CH. CLASS 60

CHANNEL: BAGF

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A7 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



PEAK DATA: 1.41 KN @ 18.96 MS; -1.41 KN @ 14.72 MS

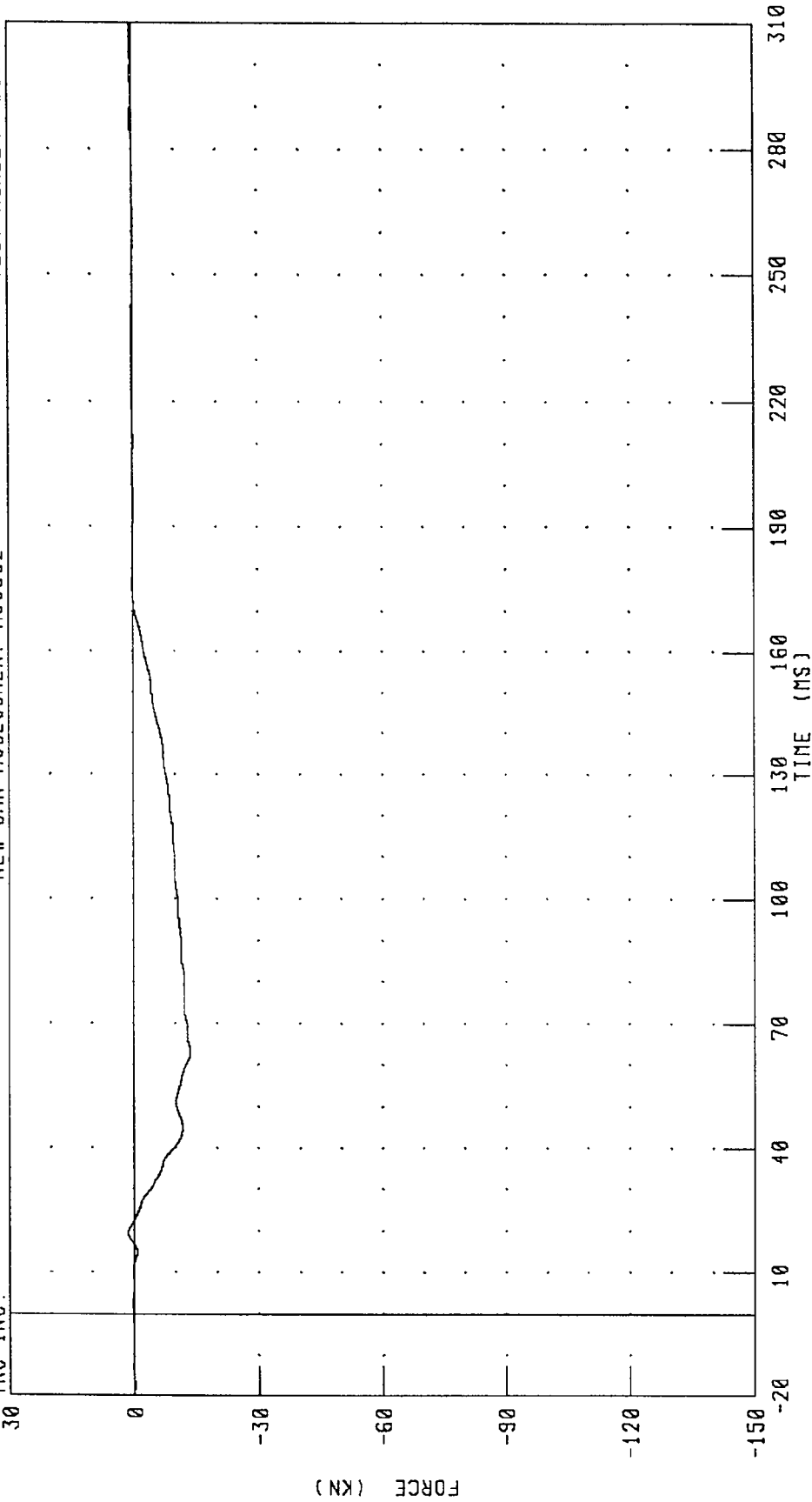
CHANNEL: BA7F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A8 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 1.45 KN @ 19.44 MS; -13.62 KN @ 62.96 MS

FILTER: CH. CLASS 60

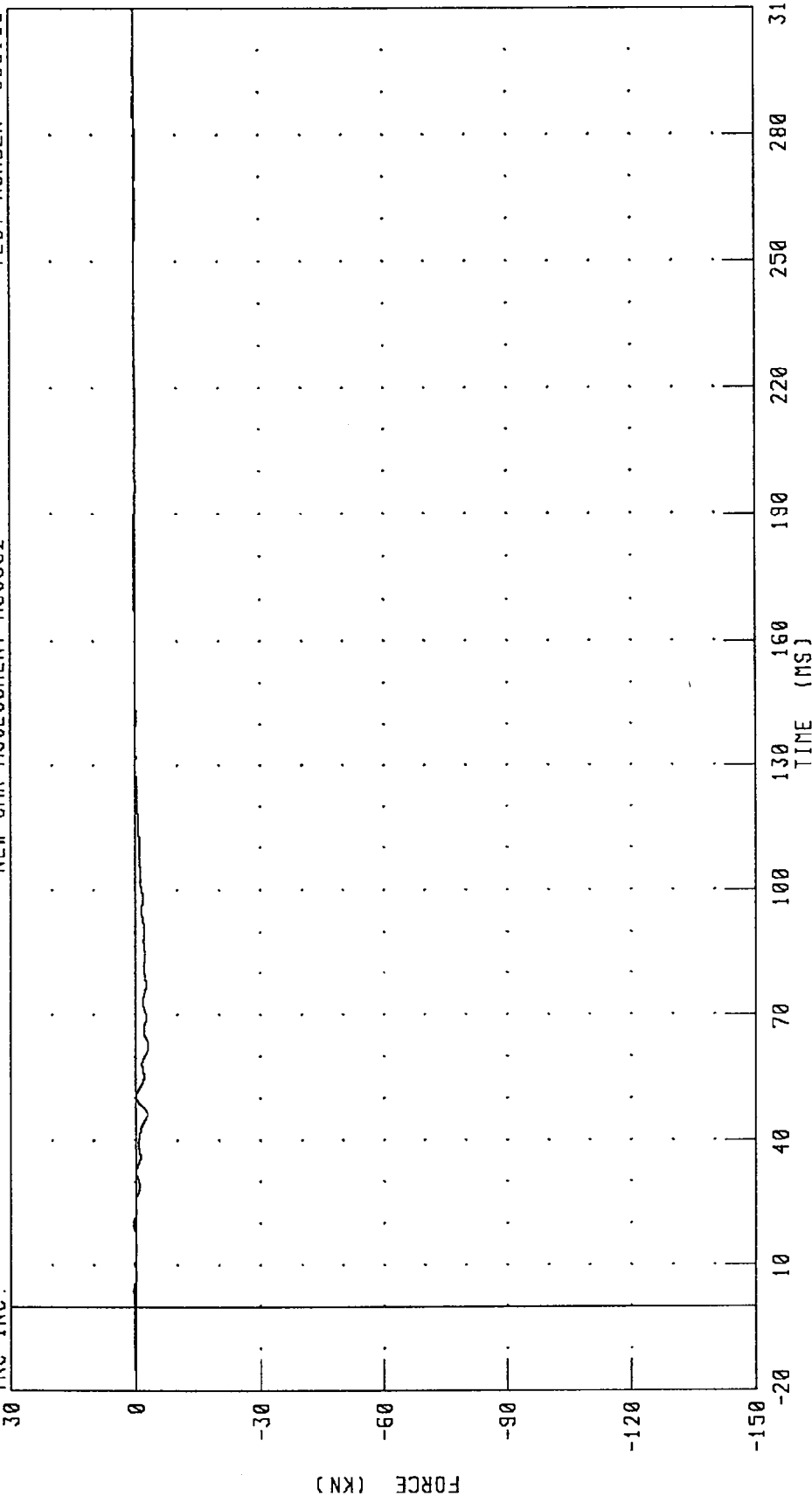
CHANNEL: BA8F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION AS FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



CHANNEL: BA9F

FILTER: CH. CLASS 60

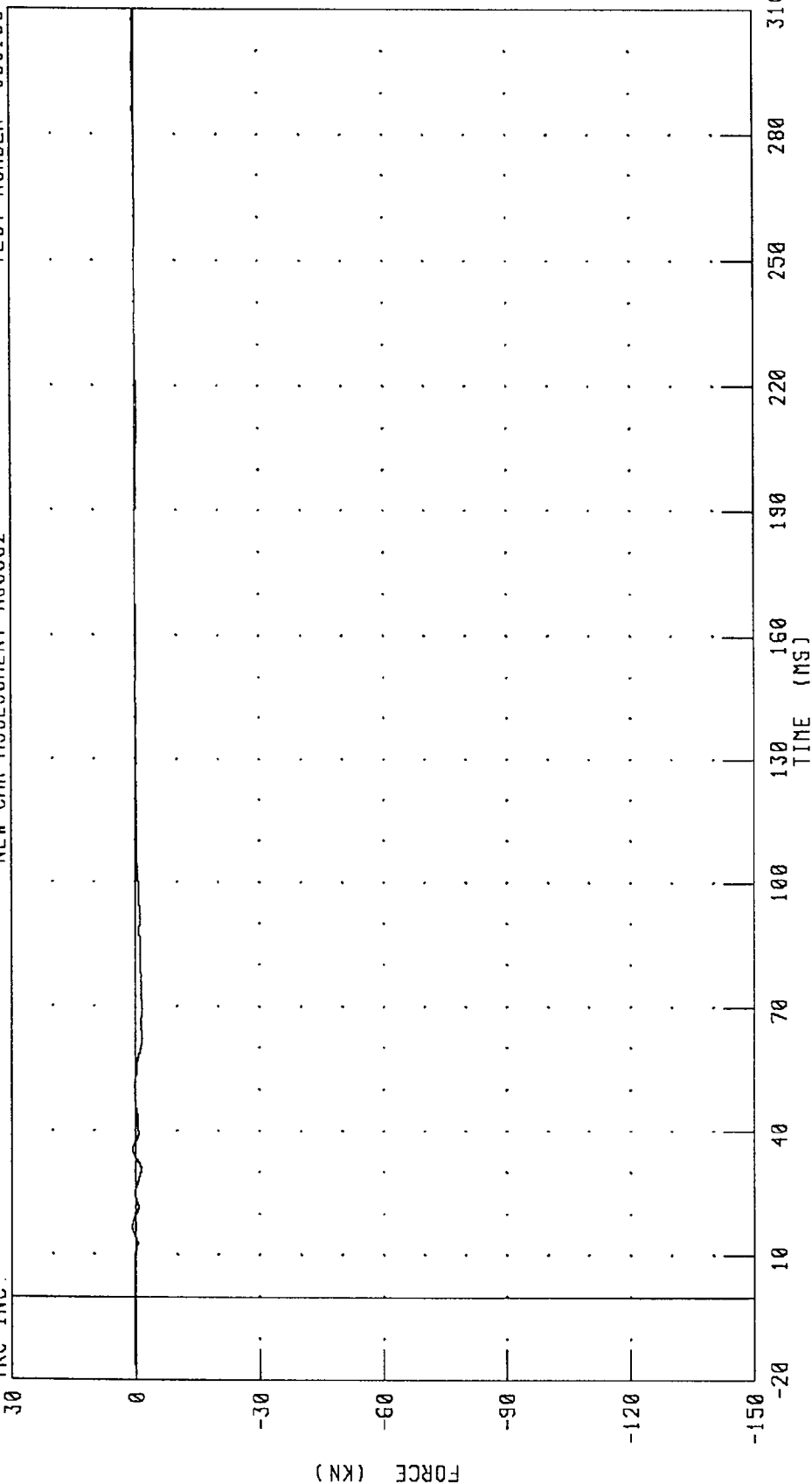
PEAK DATA: 0.54 KN @ 20.08 MS; -3.19 KN @ 62.48 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.88 KN @ 16.88 MS; -1.58 KN @ 69.20 MS

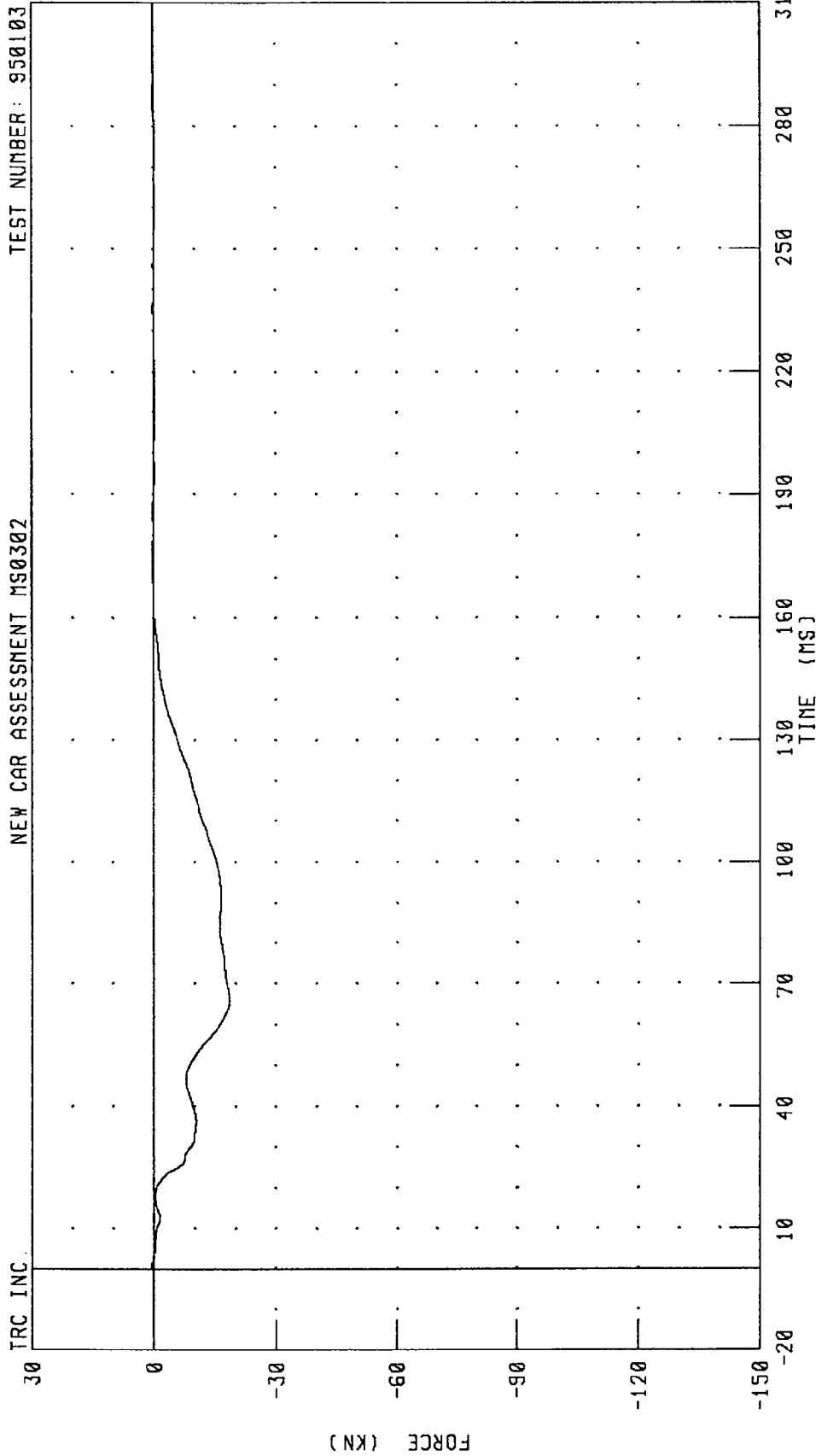
FILTER: CH. CLASS 60

CHANNEL: BB1F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302



PEAK DATA: 0.36 KN @ 0.72 MS; -18.62 KN @ 66.08 MS

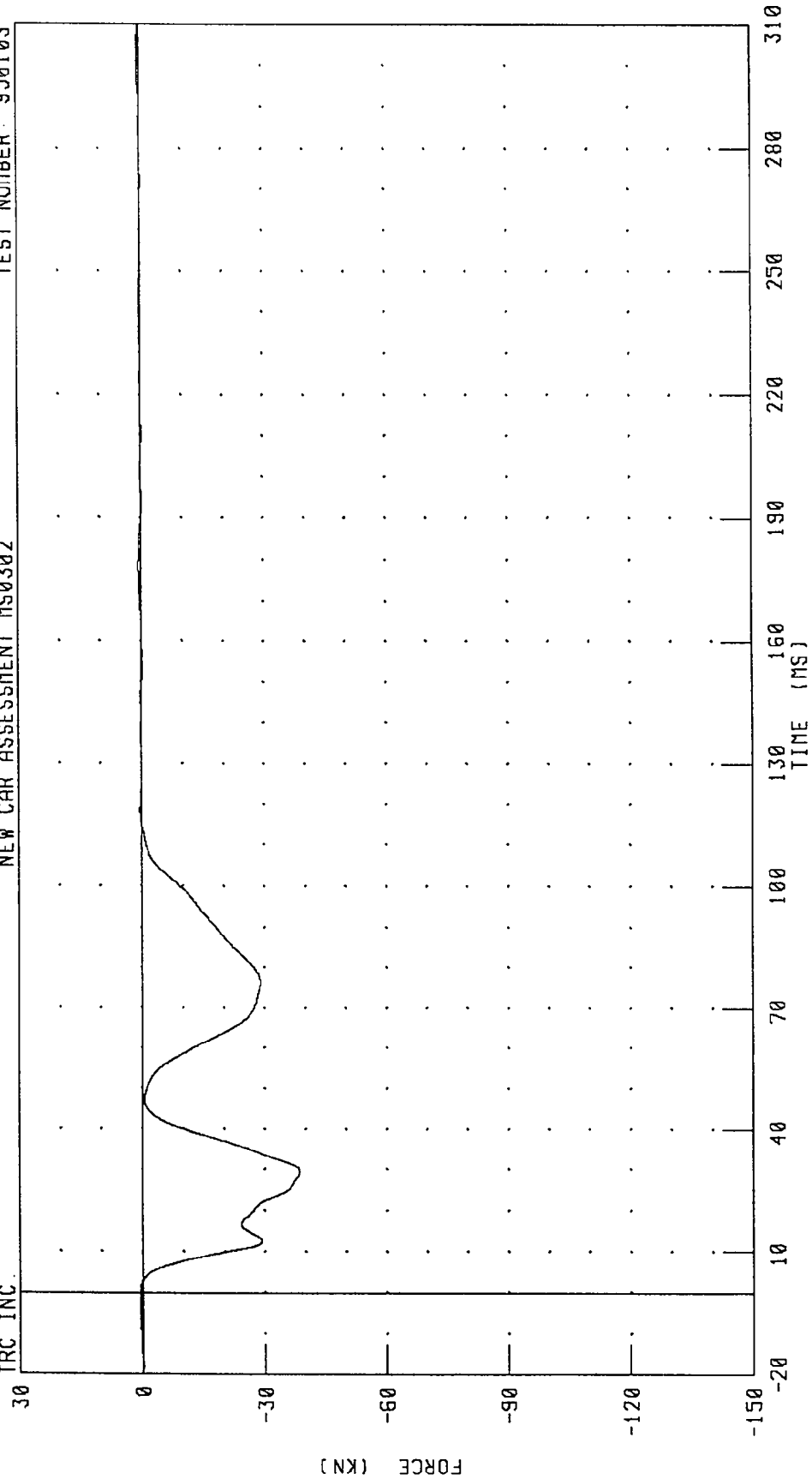
CHANNEL: BB2F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



CHANNEL: BB3F FILTER: CH. CLASS 60

PEAK DATA: 0.63 KN @ 178.56 MS; -38.52 KN @ 29.52 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

IRC INC.

30

0

-30

-60

-90

-120

-150

FORCE (KN)

10

40

70

100

130

160

190

220

250

280

310

TIME (MS)

PEAK DATA: 0.57 KN @ 3.84 MS, -24.59 KN @ 31.60 MS

CHANNEL: BB4F

FILTER: CH. CLASS 60

950103

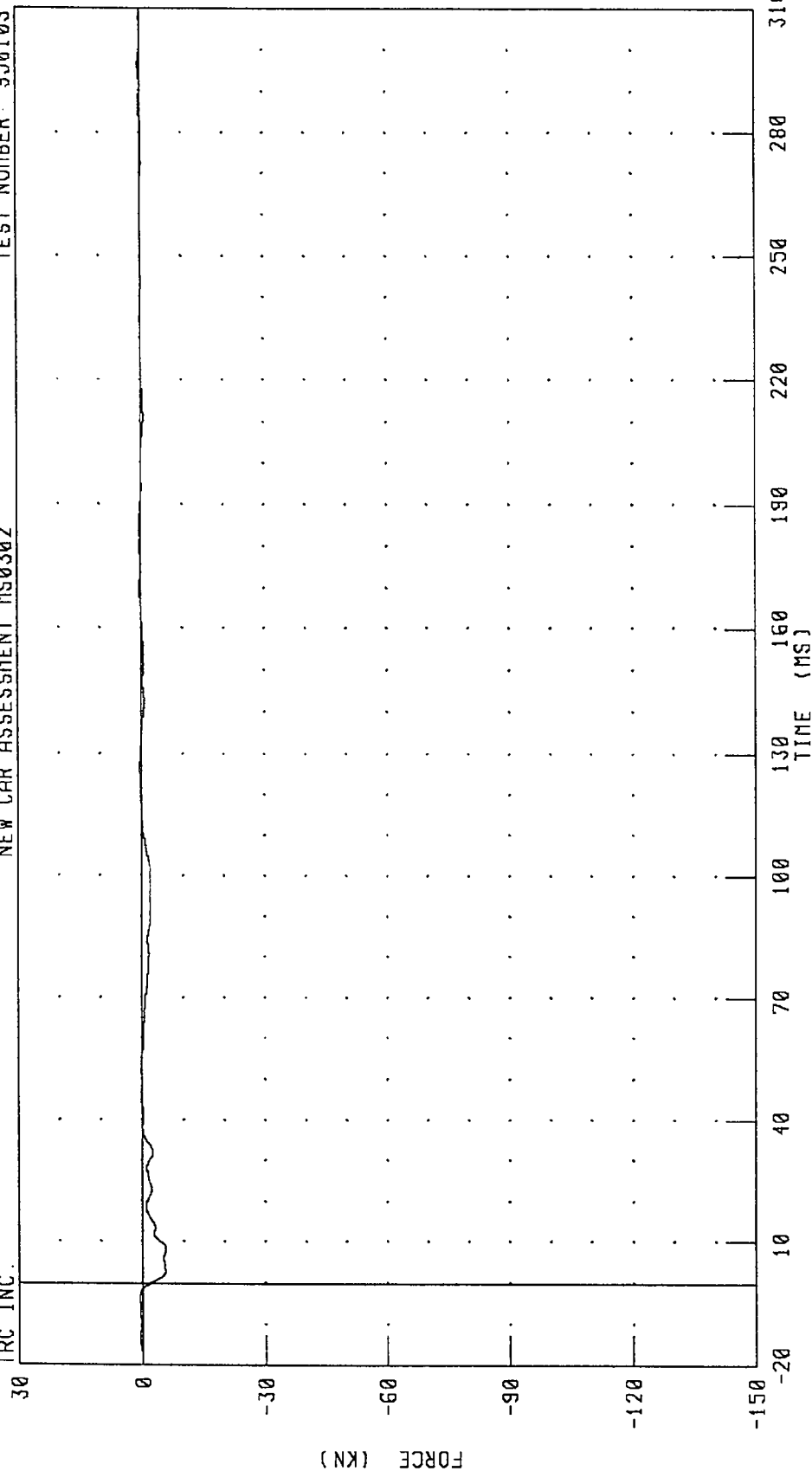
B-77

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.67 KN @ -3.60 MS; -5.69 KN @ 8.32 MS

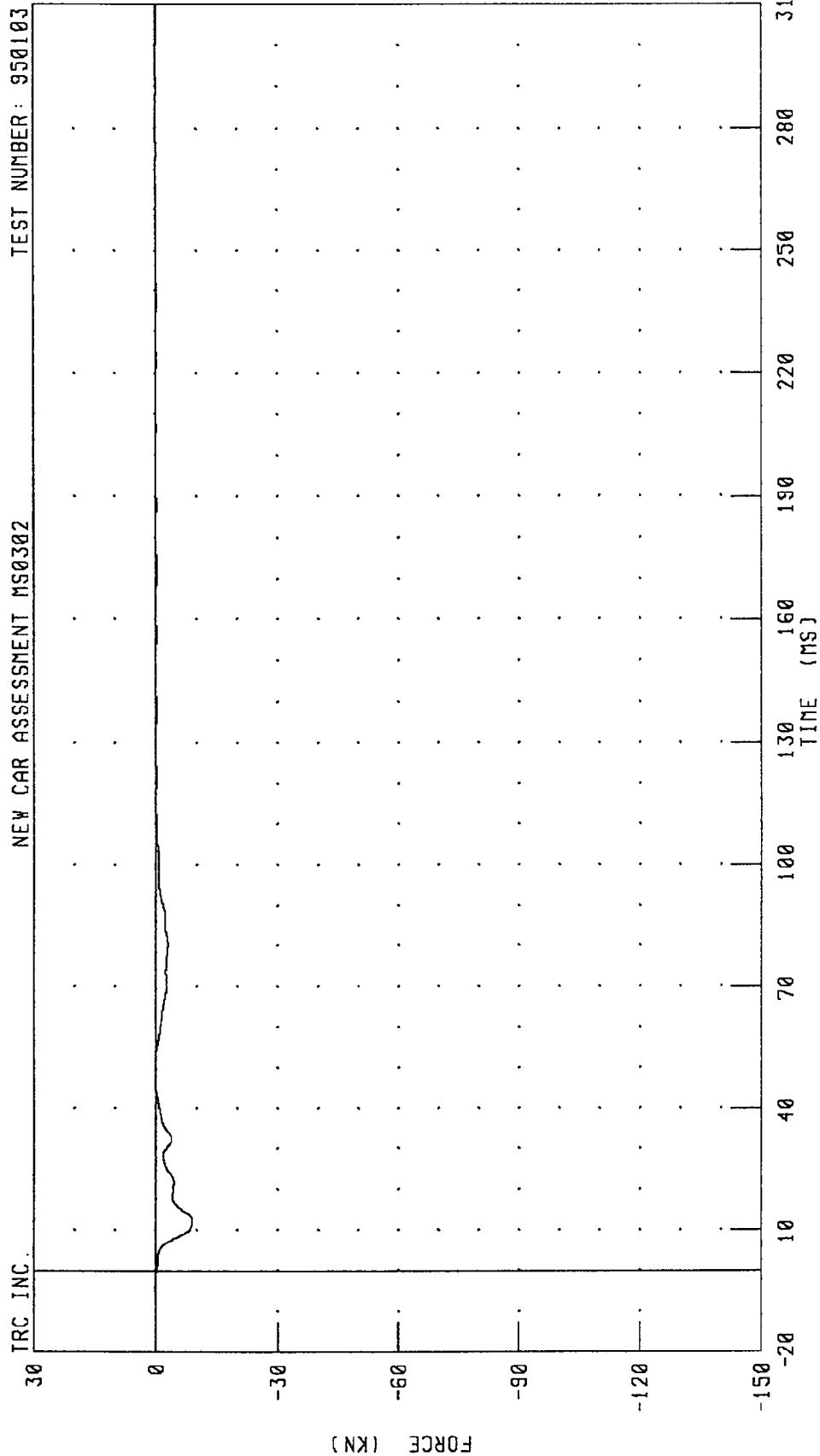
FILTER: CH. CLASS 60

CHANNEL: 885F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B6 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

IRC INC.



PEAK DATA: 0.12 KN @ 46.40 MS; -9.03 KN @ 12.24 MS

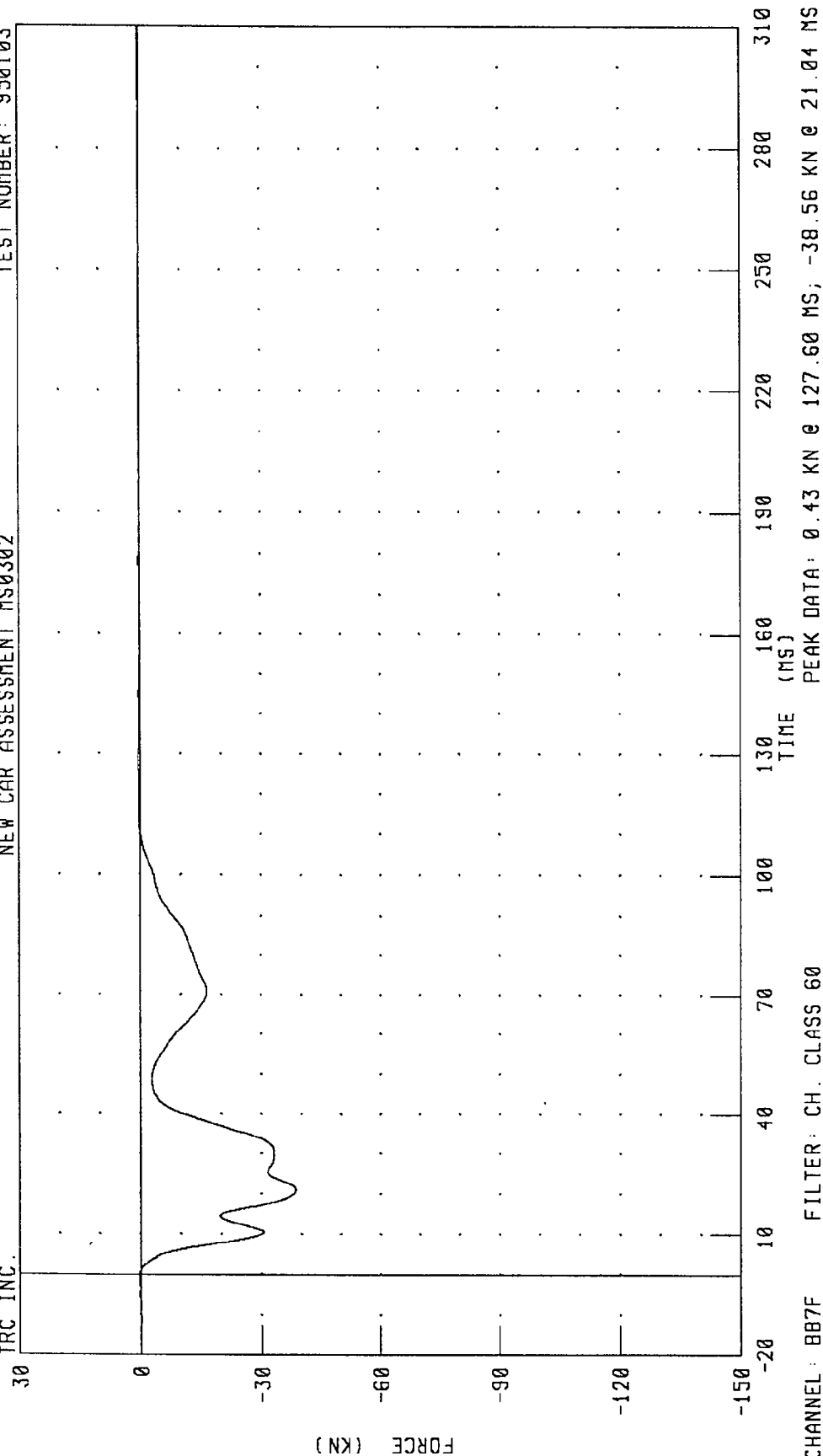
CHANNEL: BB6F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



950103

CHANNEL: BB7F FILTER: CH. CLASS 60

PEAK DATA:

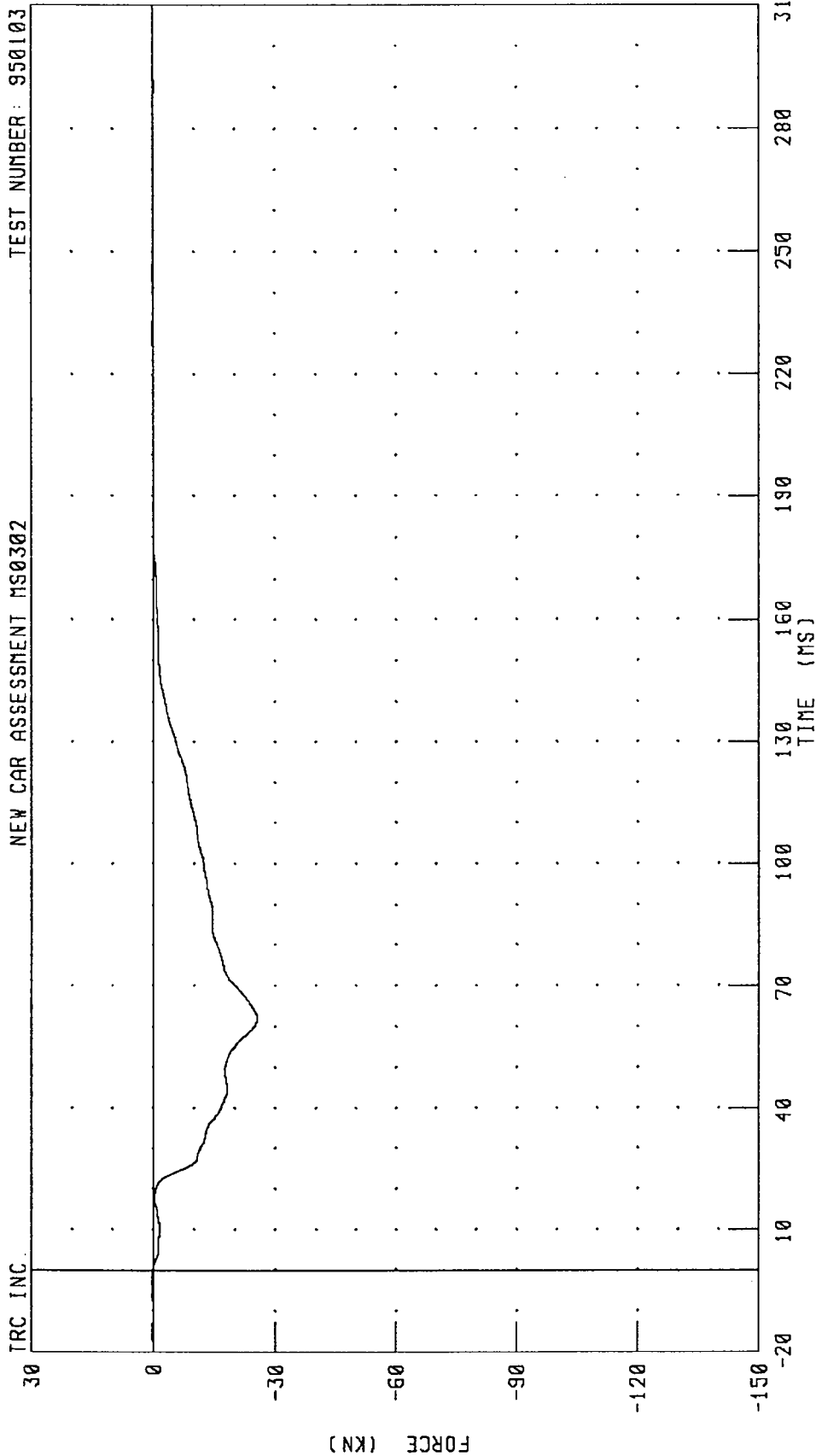
0.43 KN @ 127.60 MS; -38.56 KN @ 21.04 MS

B-80

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302



PEAK DATA: 0.18 KN @ -14.64 MS; -25.51 KN @ 61.92 MS

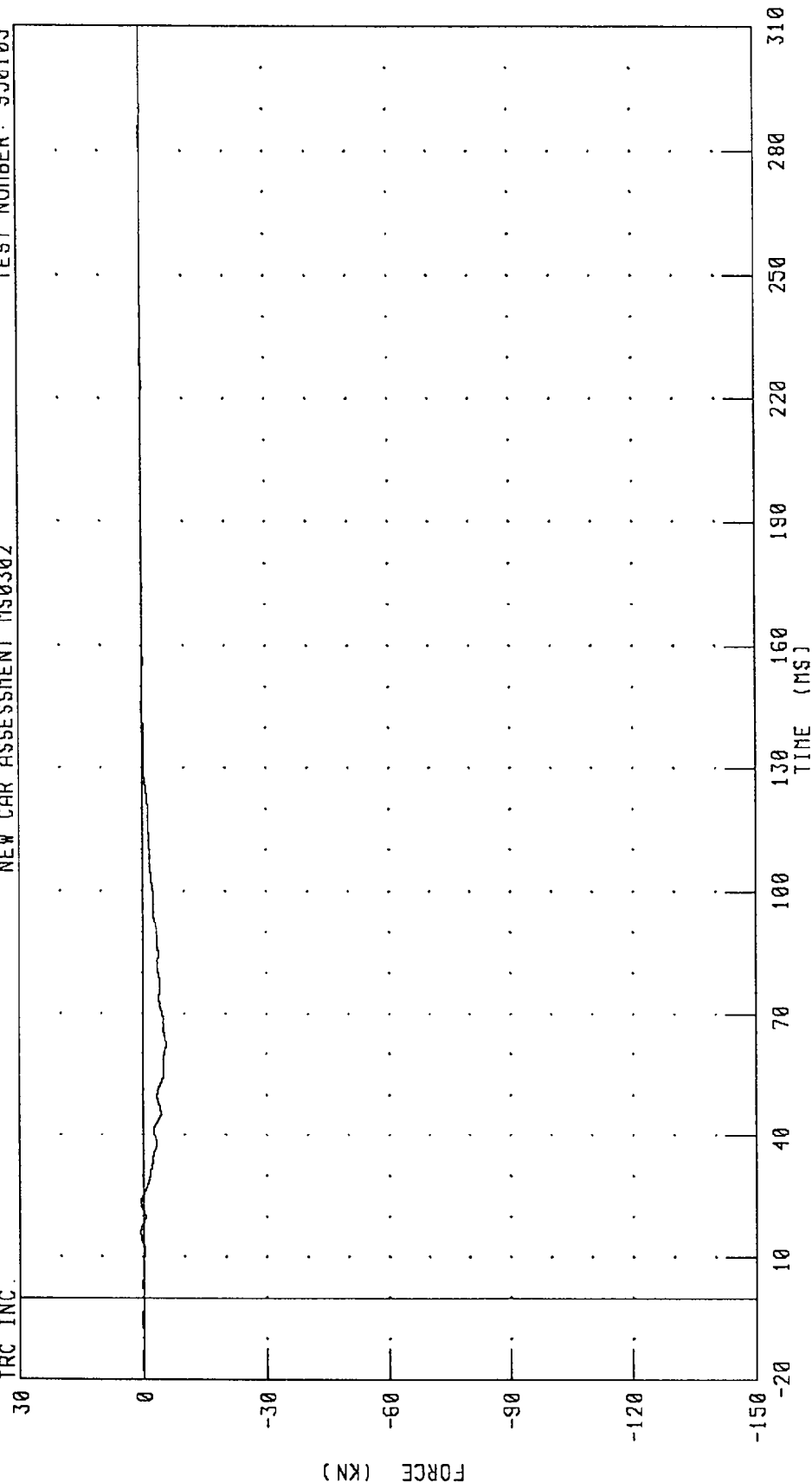
CHANNEL: BB8F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



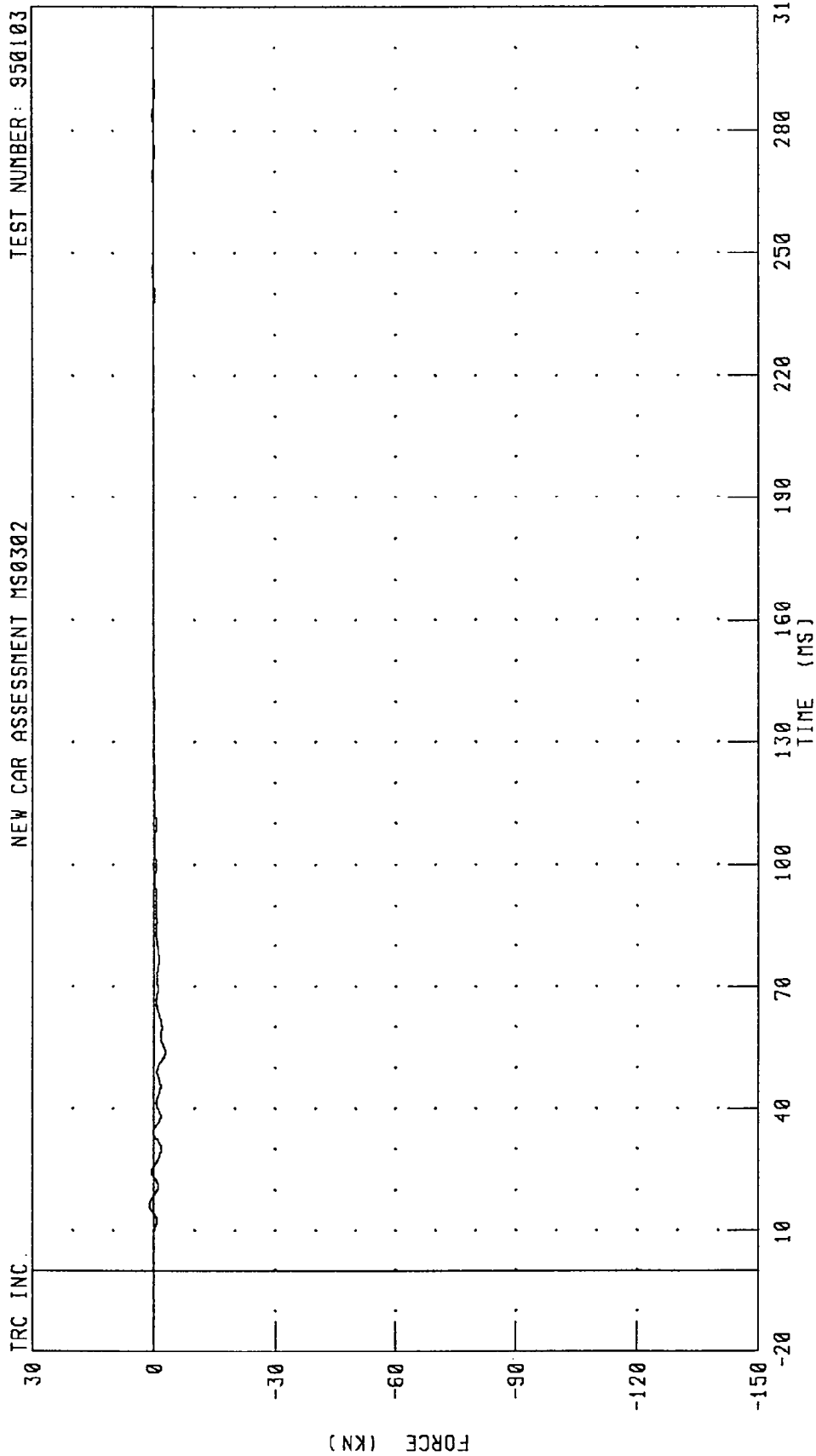
PEAK DATA: 0.62 KN @ 16.16 MS; -5.58 KN @ 62.24 MS

FILTER: CH. CLASS 60

CHANNEL: BB9F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



PEAK DATA: 0.95 KN @ 16.48 MS; -2.80 KN @ 53.68 MS

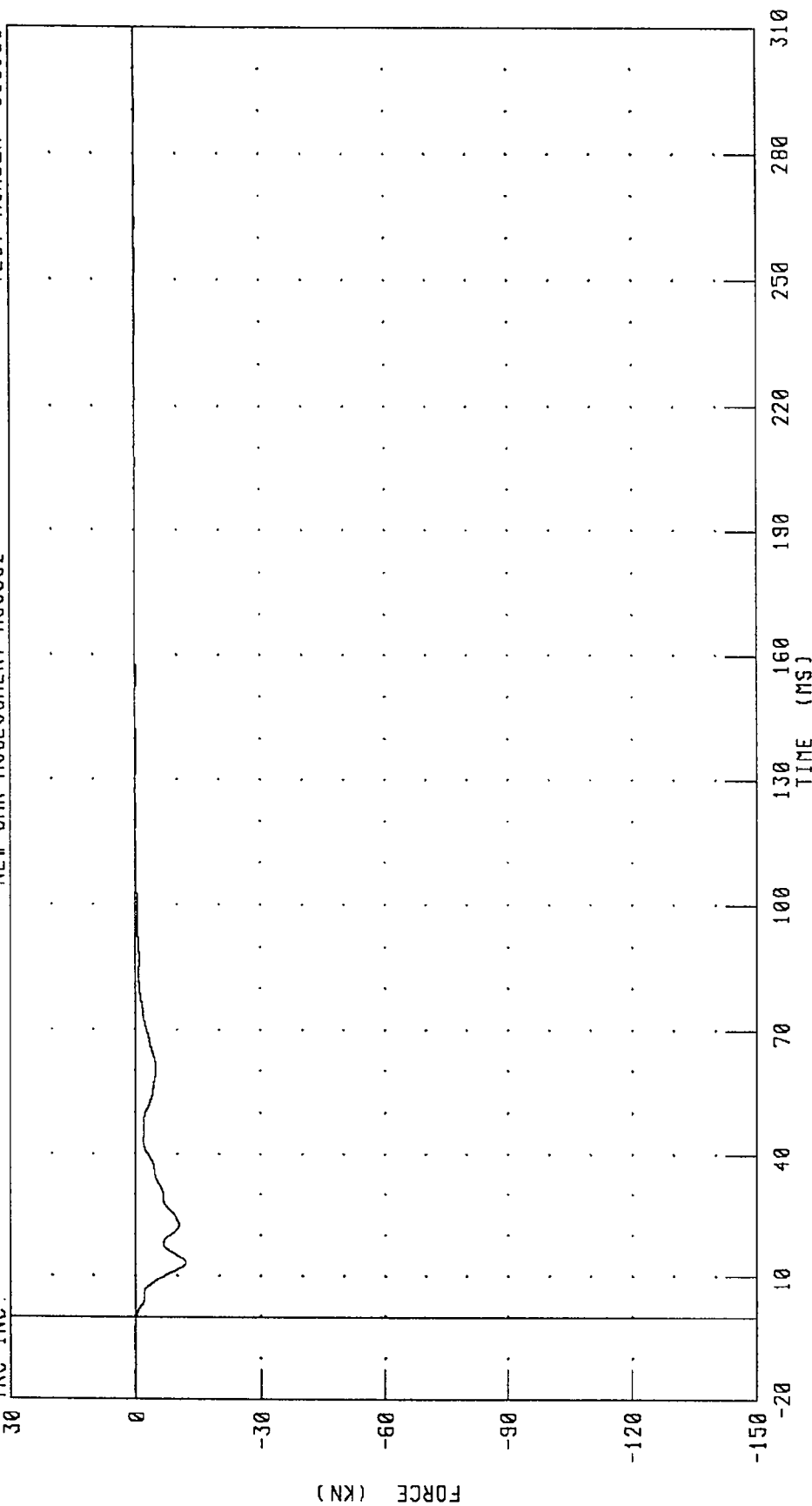
CHANNEL: BC1F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.23 KN @ -15.28 MS; -11.91 KN @ 13.20 MS

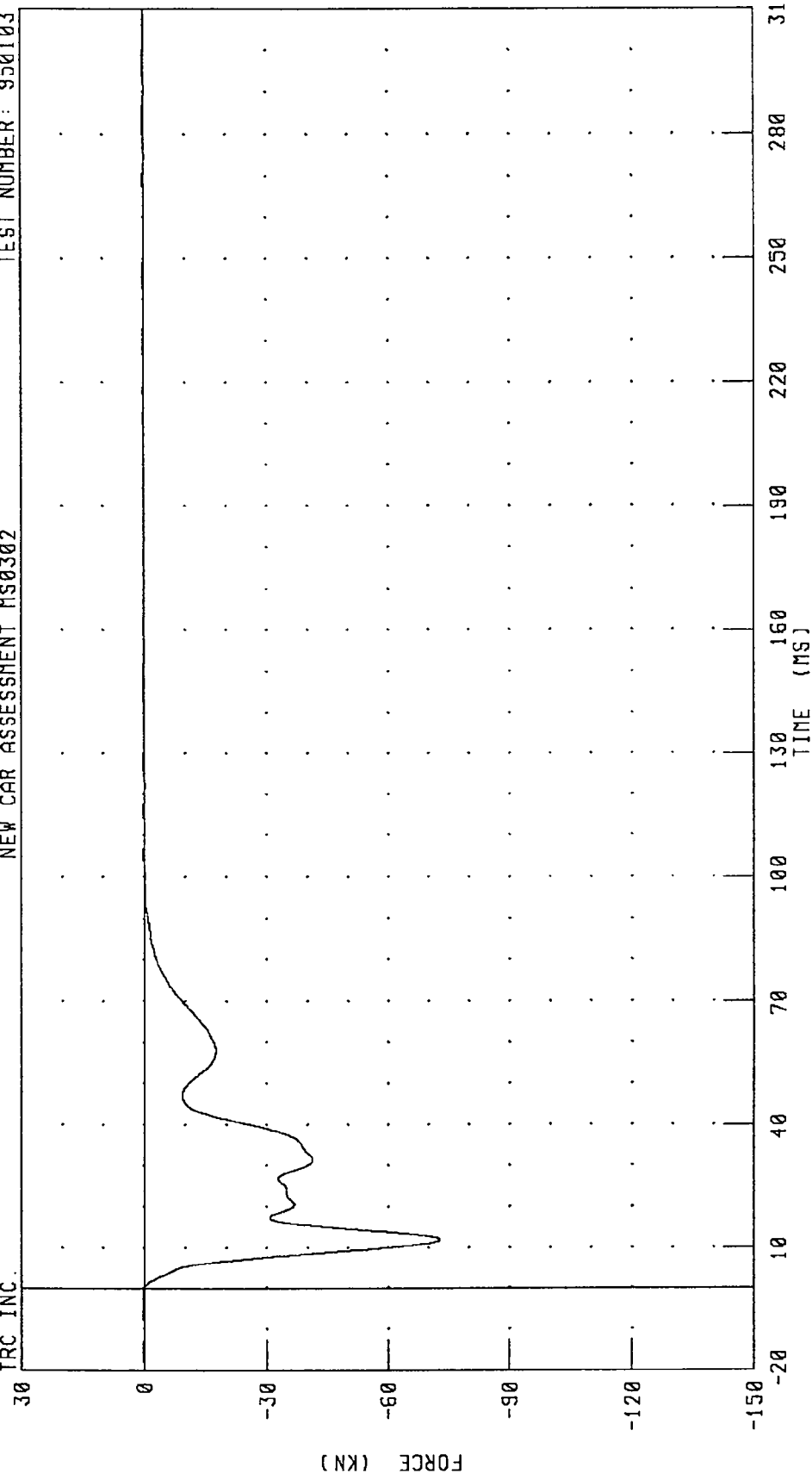
CHANNEL: BC2F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.29 KN @ 144.88 MS; -72.81 KN @ 12.00 MS

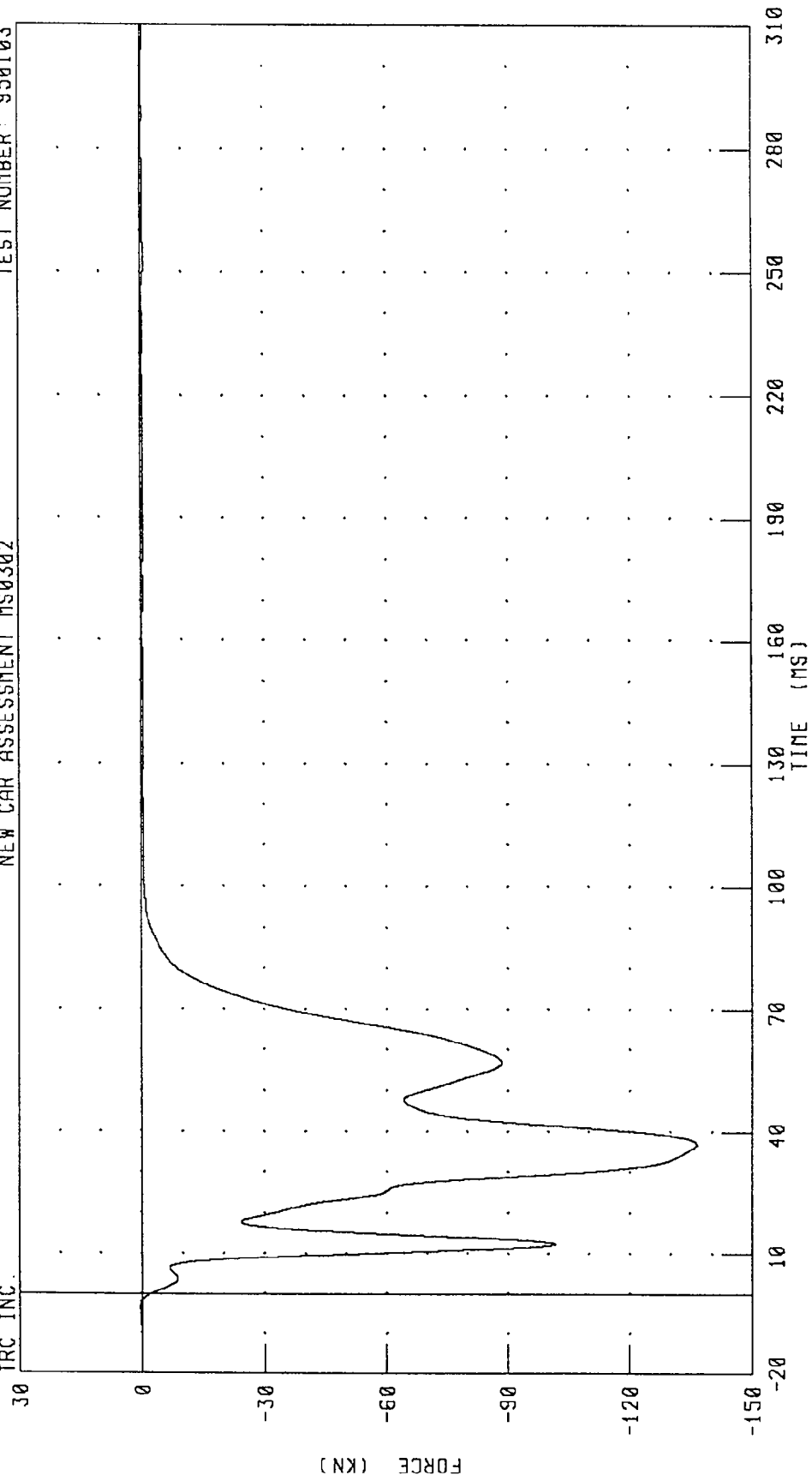
CHANNEL: BC3F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.35 KN @ -3.52 MS; -136.39 KN @ 37.04 MS

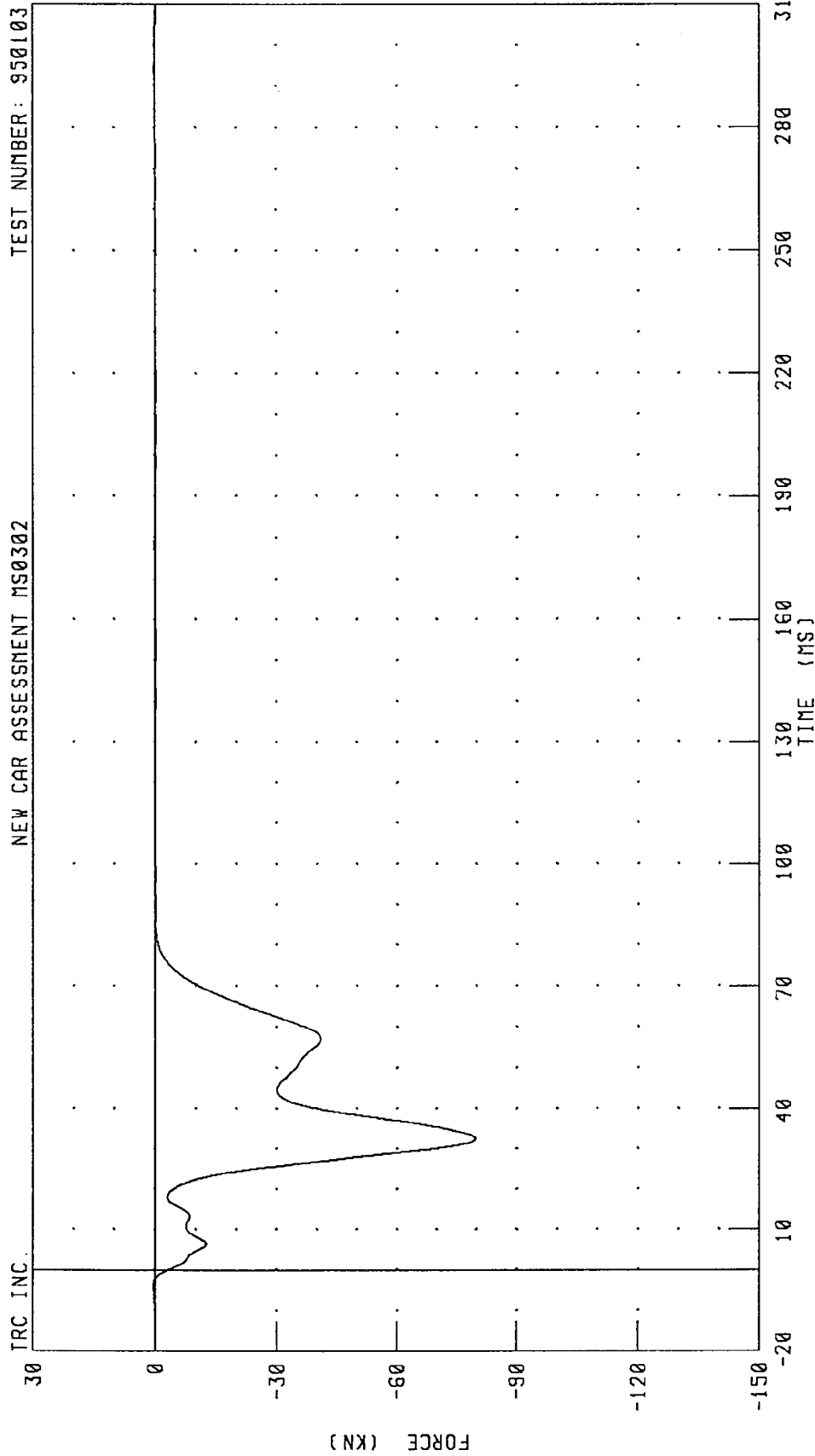
FILTER: CH. CLASS 60

CHANNEL: BC4F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

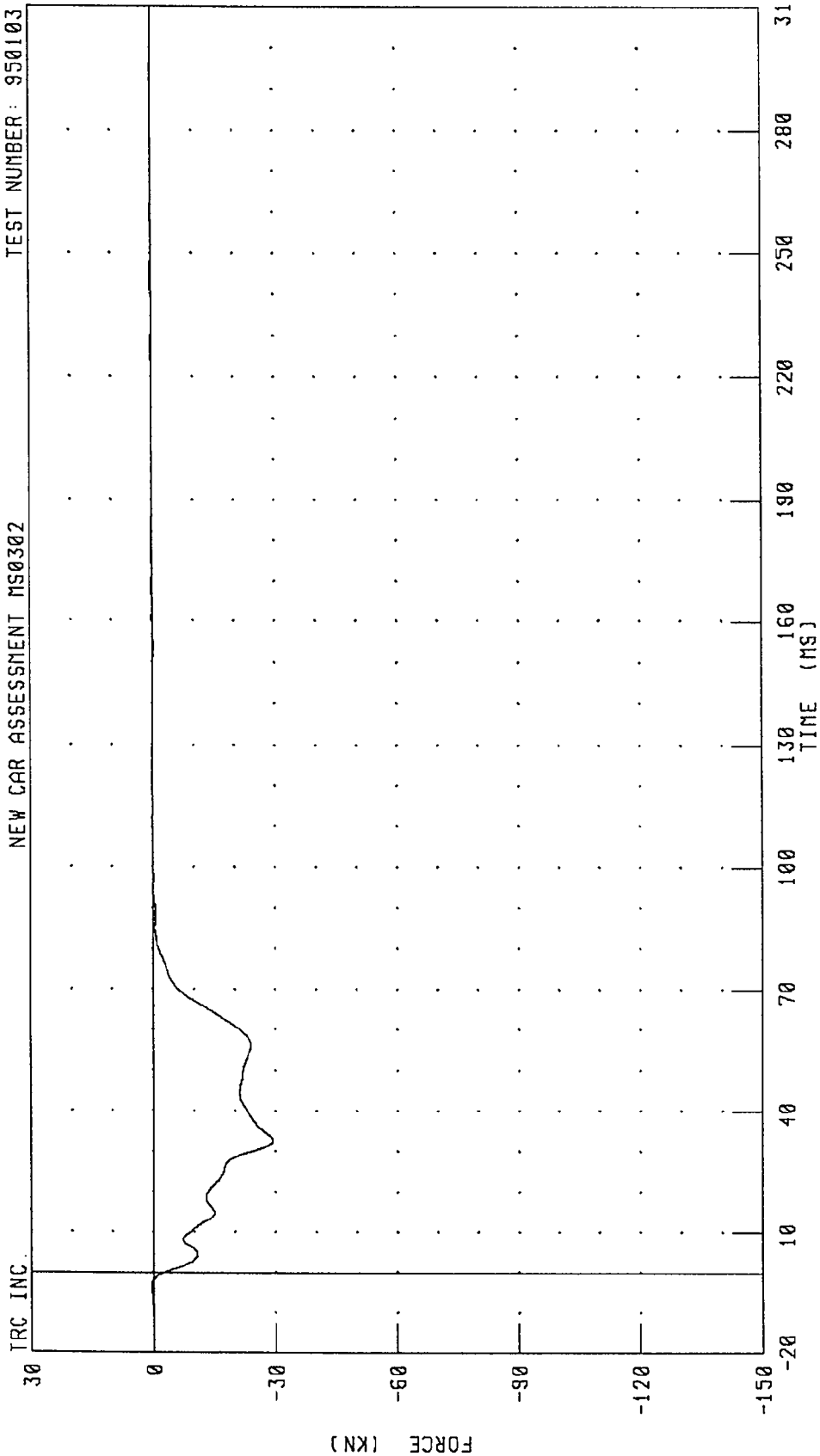


CHANNEL: BC5F FILTER: CH. CLASS 60

PEAK DATA: 0.37 KN @ -4.08 MS, -79.79 KN @ 32.56 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE

NEW CAR ASSESSMENT MS0302 TEST NUMBER: 950103



CHANNEL: BC6F FILTER: CH. CLASS 60

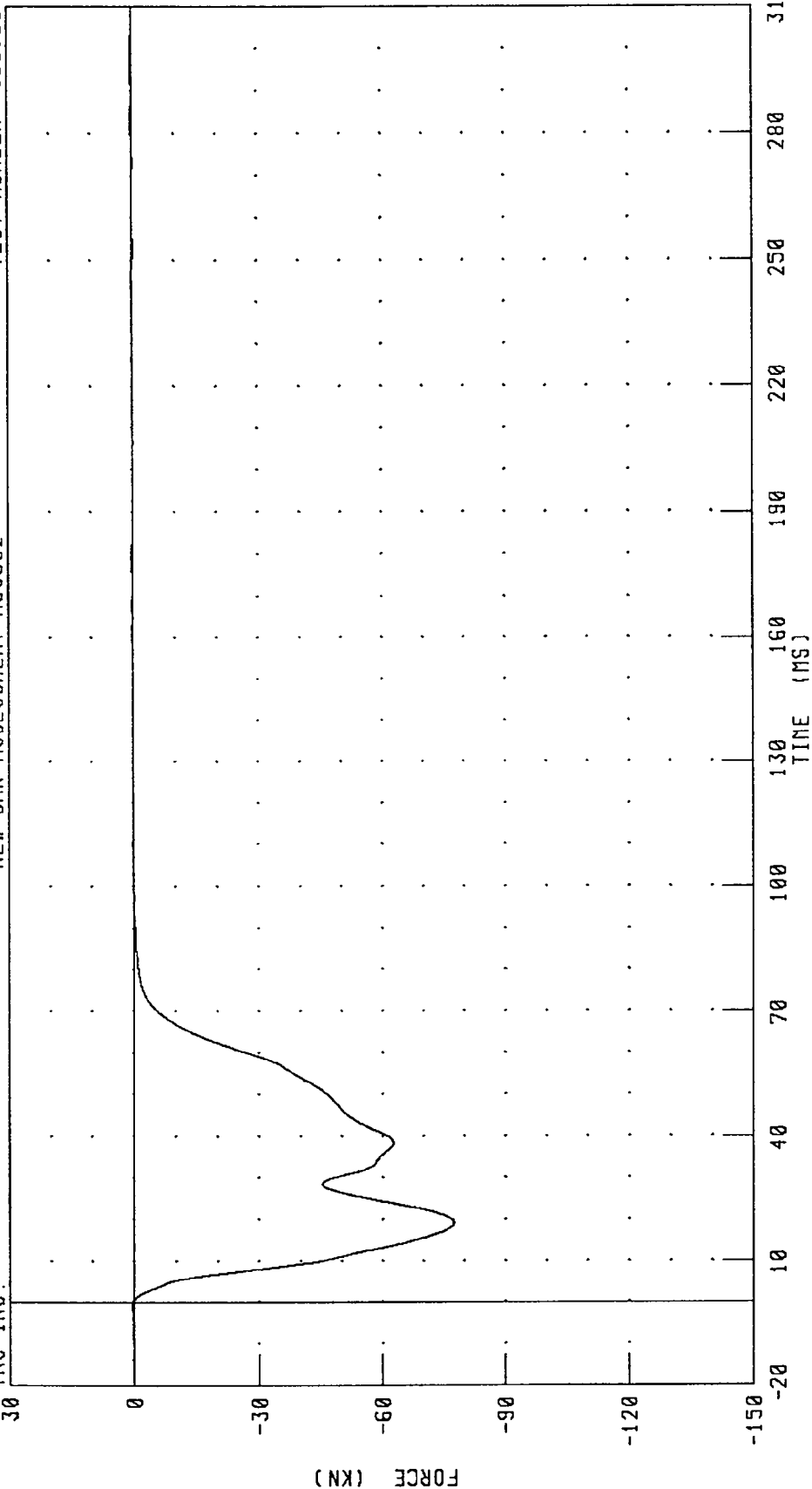
PEAK DATA: 0.48 KN @ -3.44 MS; -29.31 KN @ 32.72 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.37 KN @ -1.20 MS; -77.44 KN @ 19.20 MS

FILTER: CH. CLASS 60

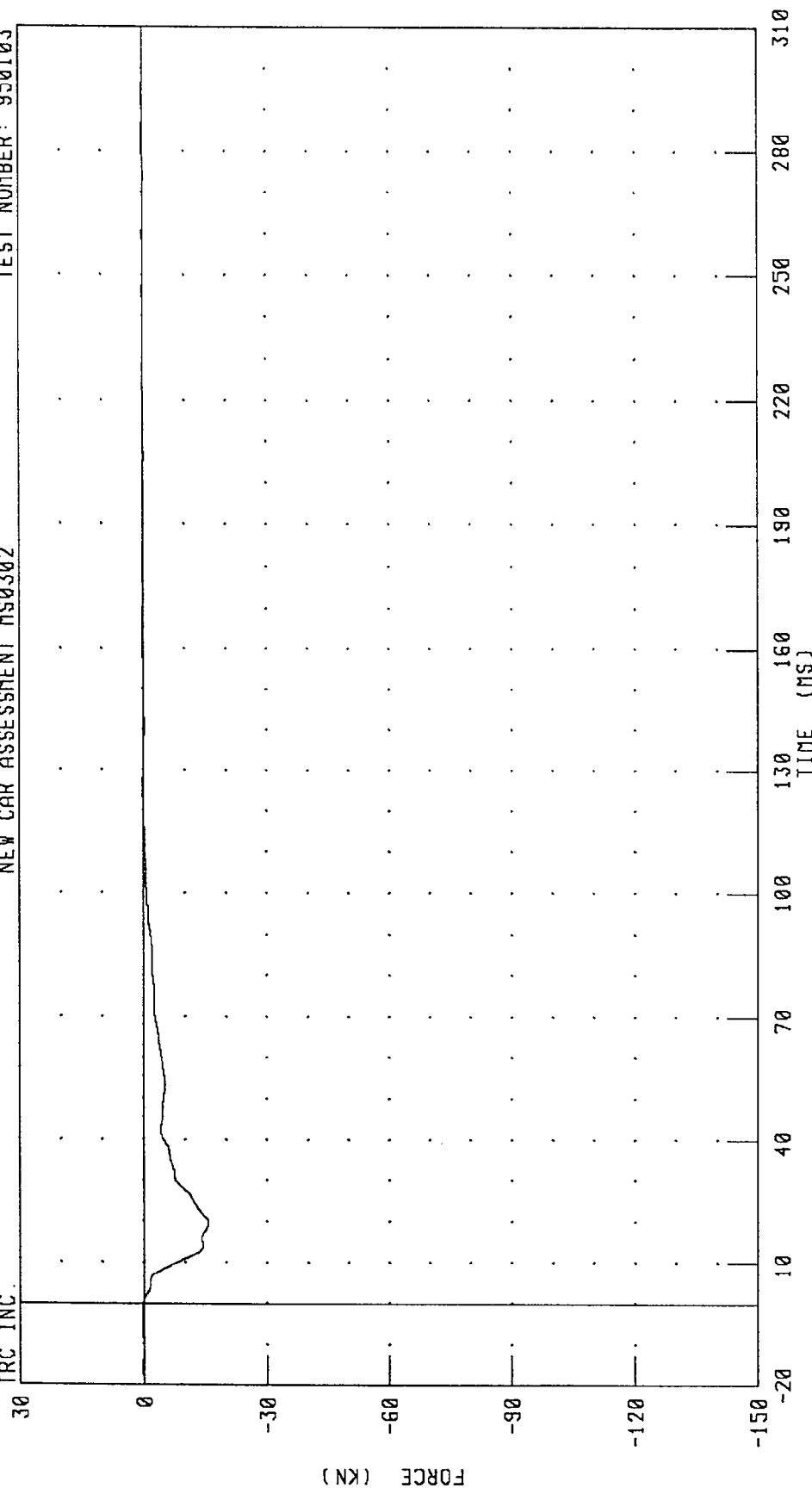
CHANNEL: BC7F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION CB FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

IRC INC.



PEAK DATA: 0.26 KN @ 283.60 MS; -15.65 KN @ 19.52 MS

FILTER: CH. CLASS 60

CHANNEL: BC8F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C9 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.

30

0

-30

-60

-90

-120

-150

FORCE (KN)

310

TIME (MS)

100

70

40

10

-20

-150

CHANNEL: BC9F

FILTER: CH. CLASS 60

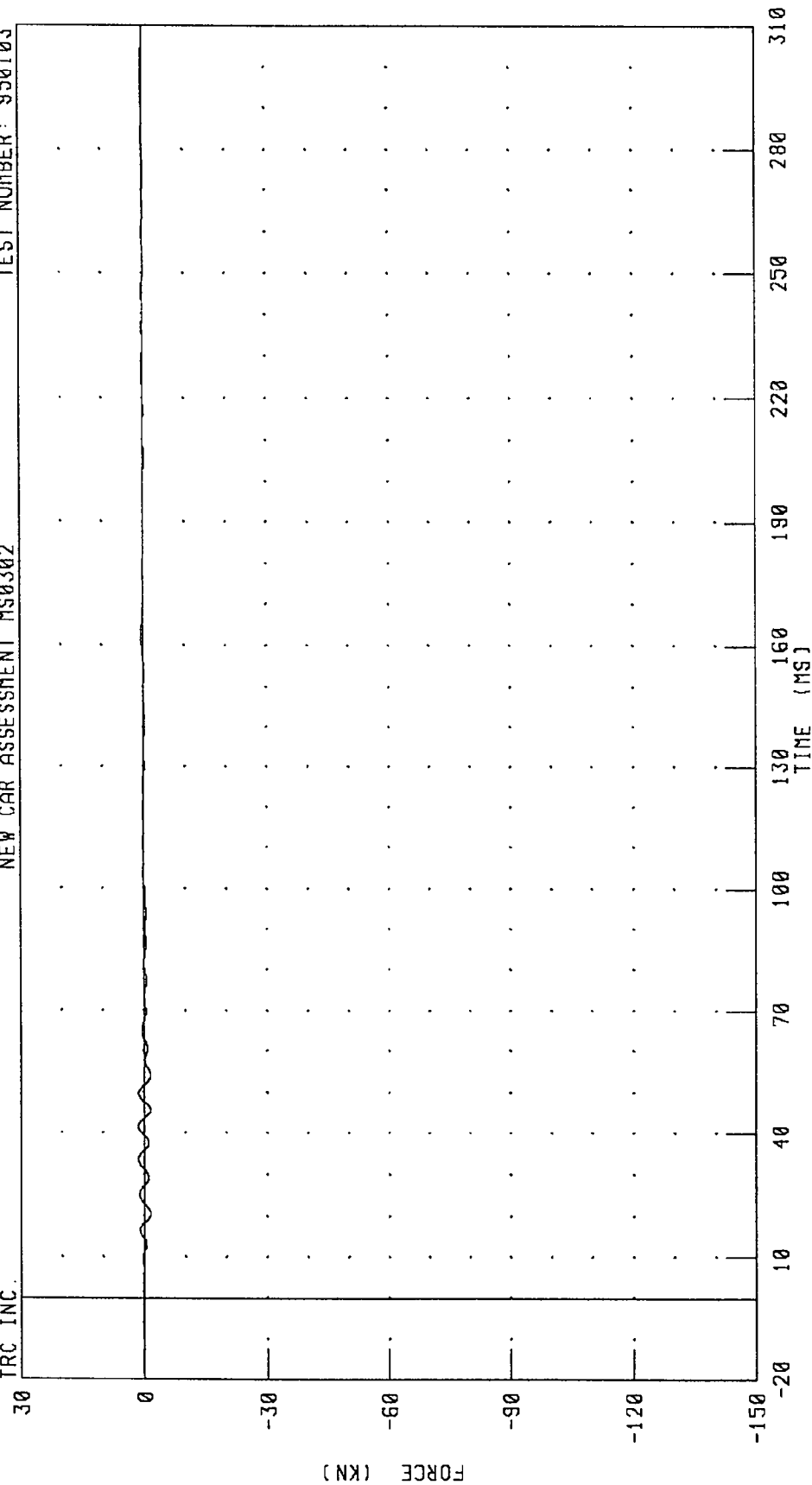
PEAK DATA: 1.02 KN @ 15.52 MS; -1.78 KN @ 61.60 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



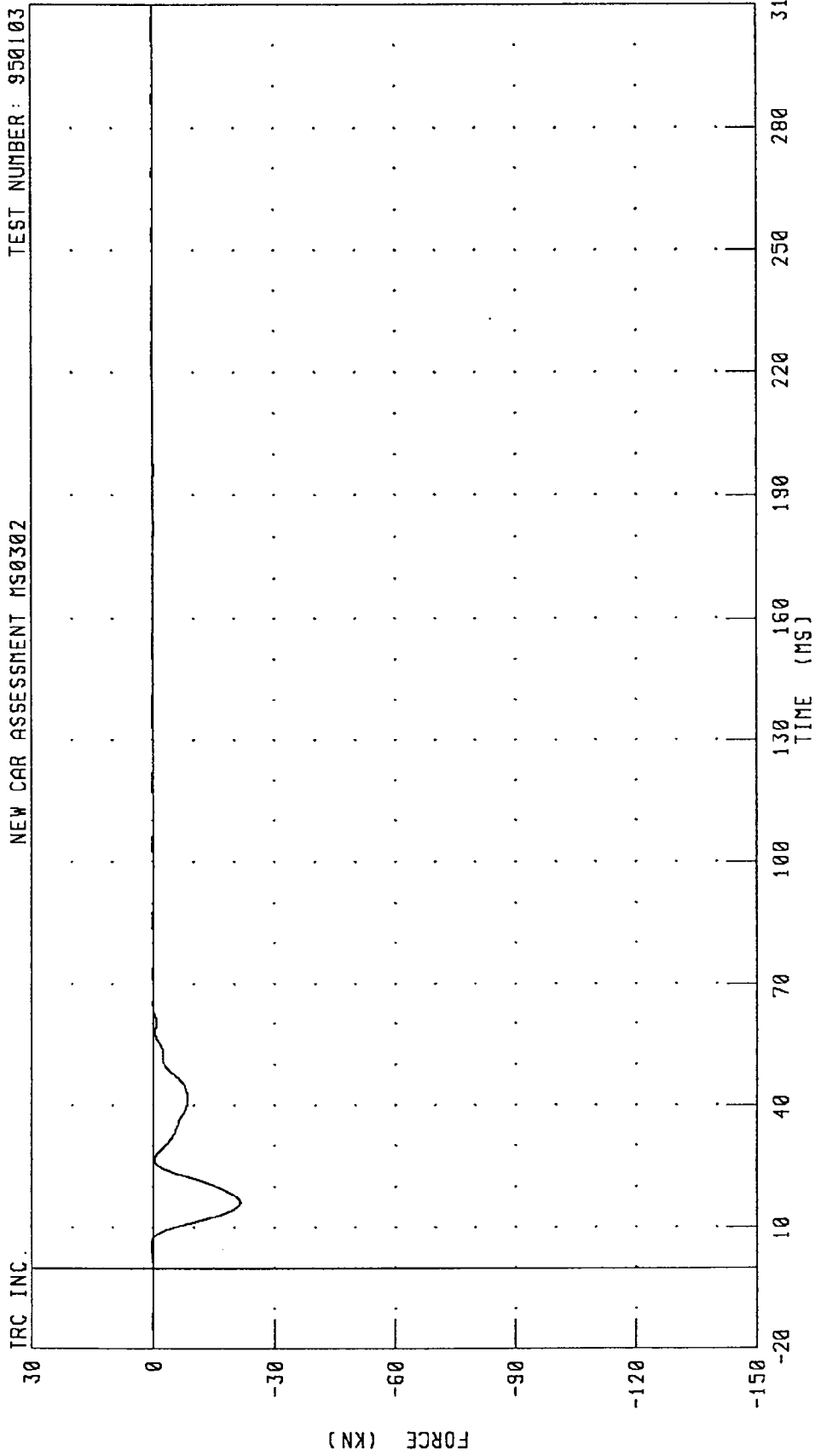
PEAK DATA: 1.46 KN @ 33.60 MS, -1.58 KN @ 20.56 MS

FILTER: CH. CLASS 60

CHANNEL: BDIF

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE

NEW CAR ASSESSMENT MS0302 TEST NUMBER: 950103



PEAK DATA: 0.39 KN @ 4.96 MS; -21.53 KN @ 16.24 MS

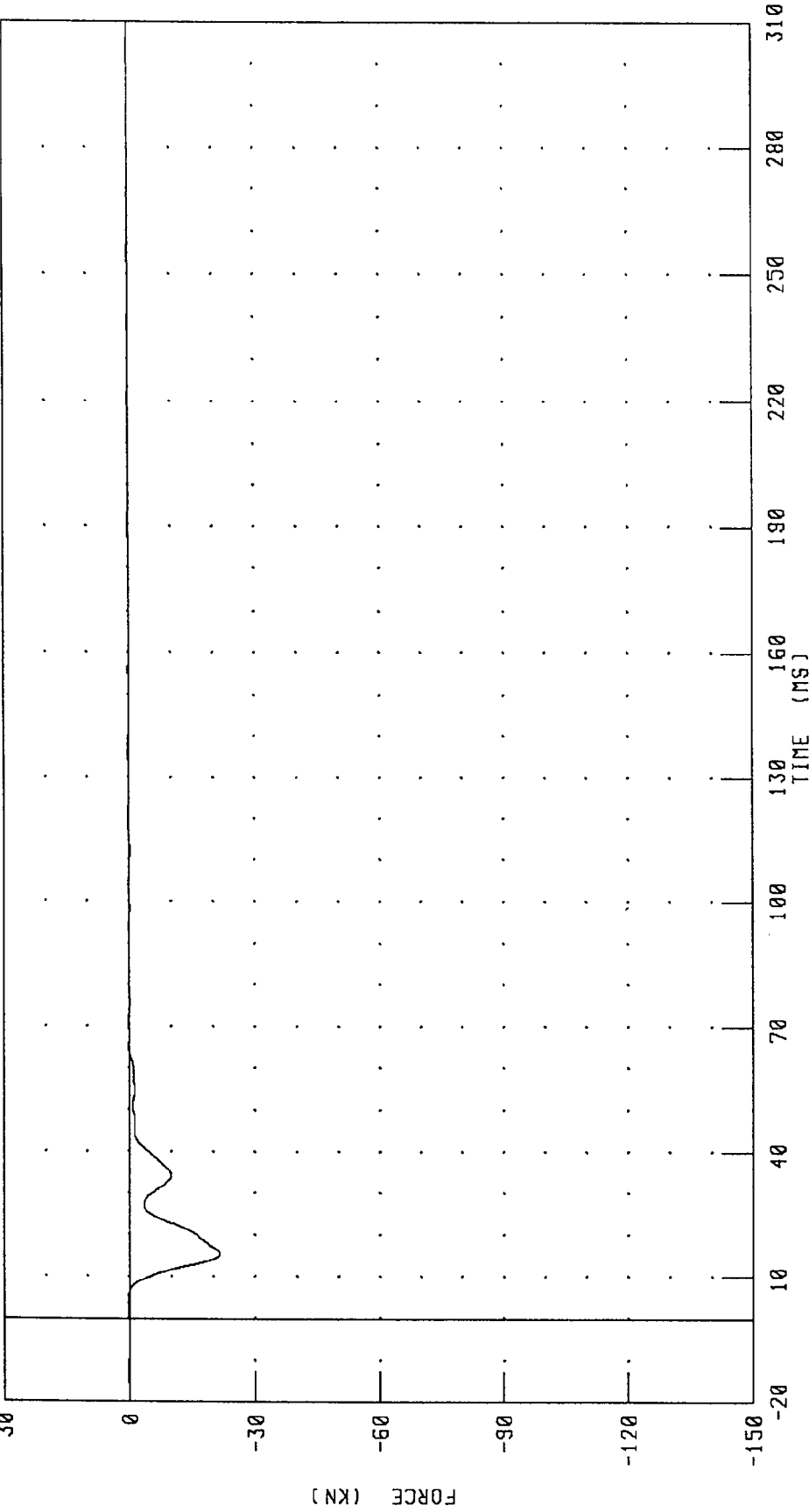
CHANNEL: BD2F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.30 KN @ 3.12 MS; -21.57 KN @ 15.36 MS

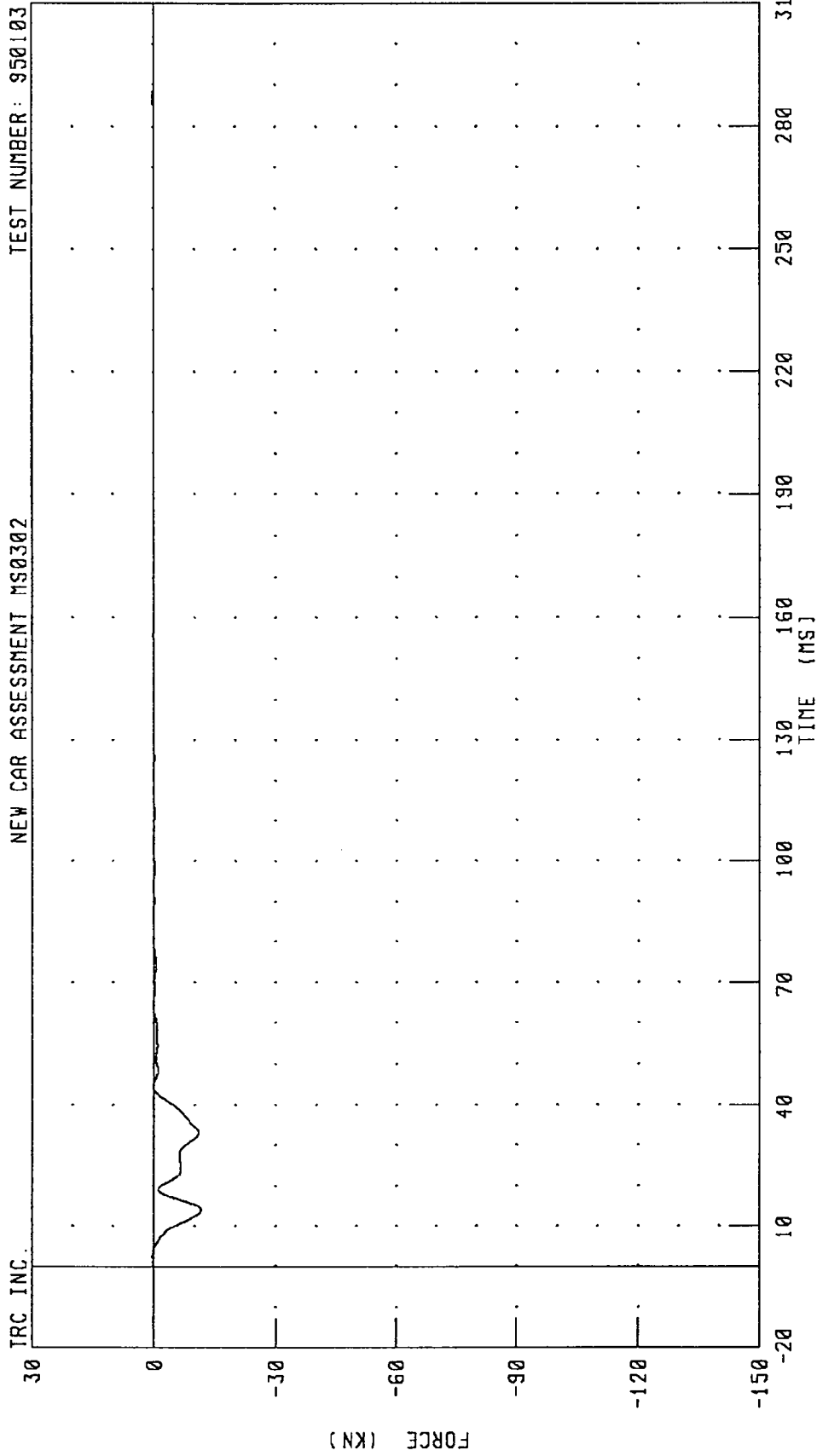
FILTER: CH. CLASS 60

CHANNEL: 803F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D4 FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103

TRC INC.



PEAK DATA: 0.34 KN @ 2.40 MS; -11.64 KN @ 14.08 MS

FILTER: CH. CLASS 60

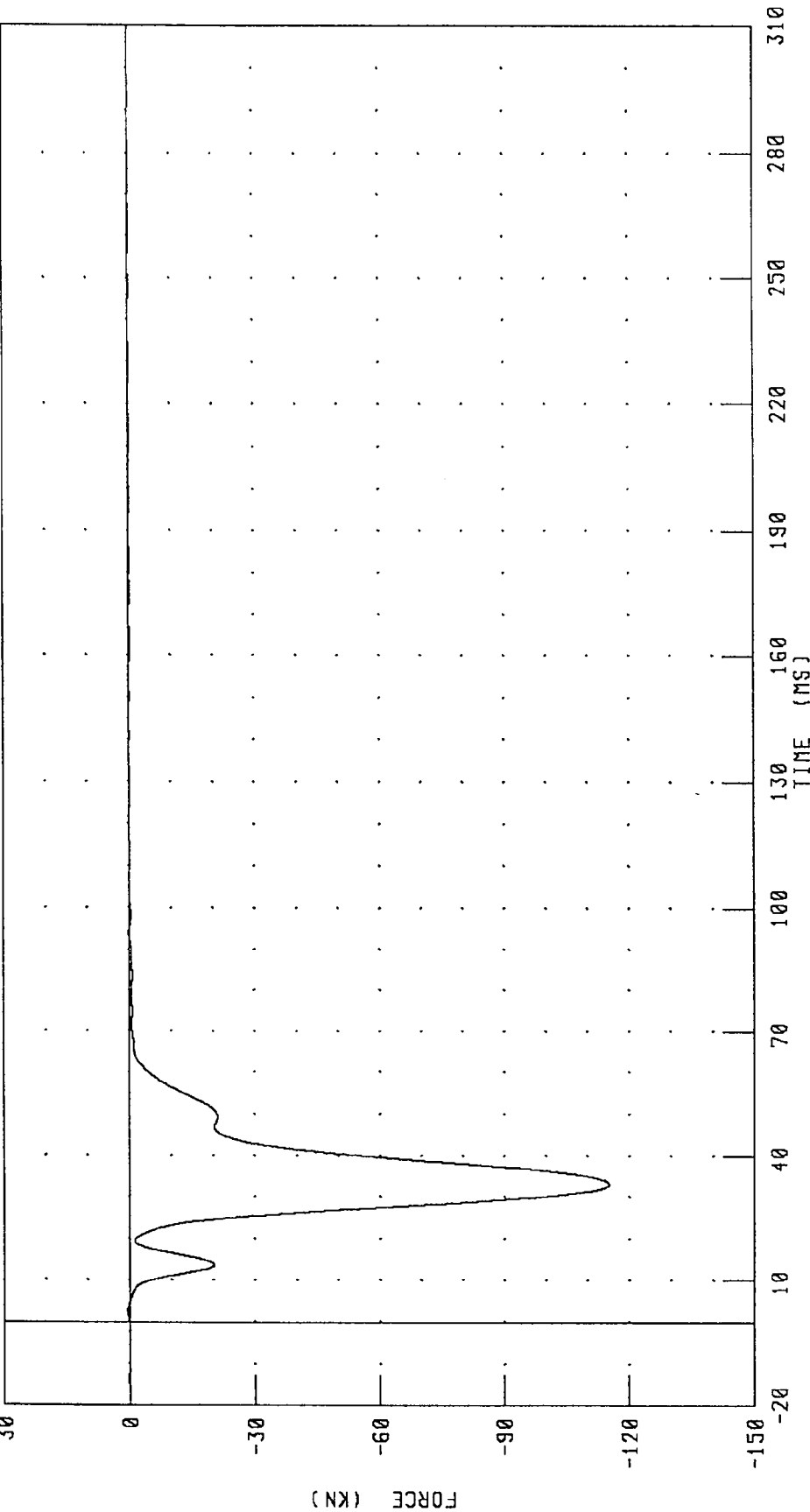
CHANNEL: BD4F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.40 KN @ 2.24 MS; -115.19 KN @ 33.12 MS

FILTER: CH. CLASS 60

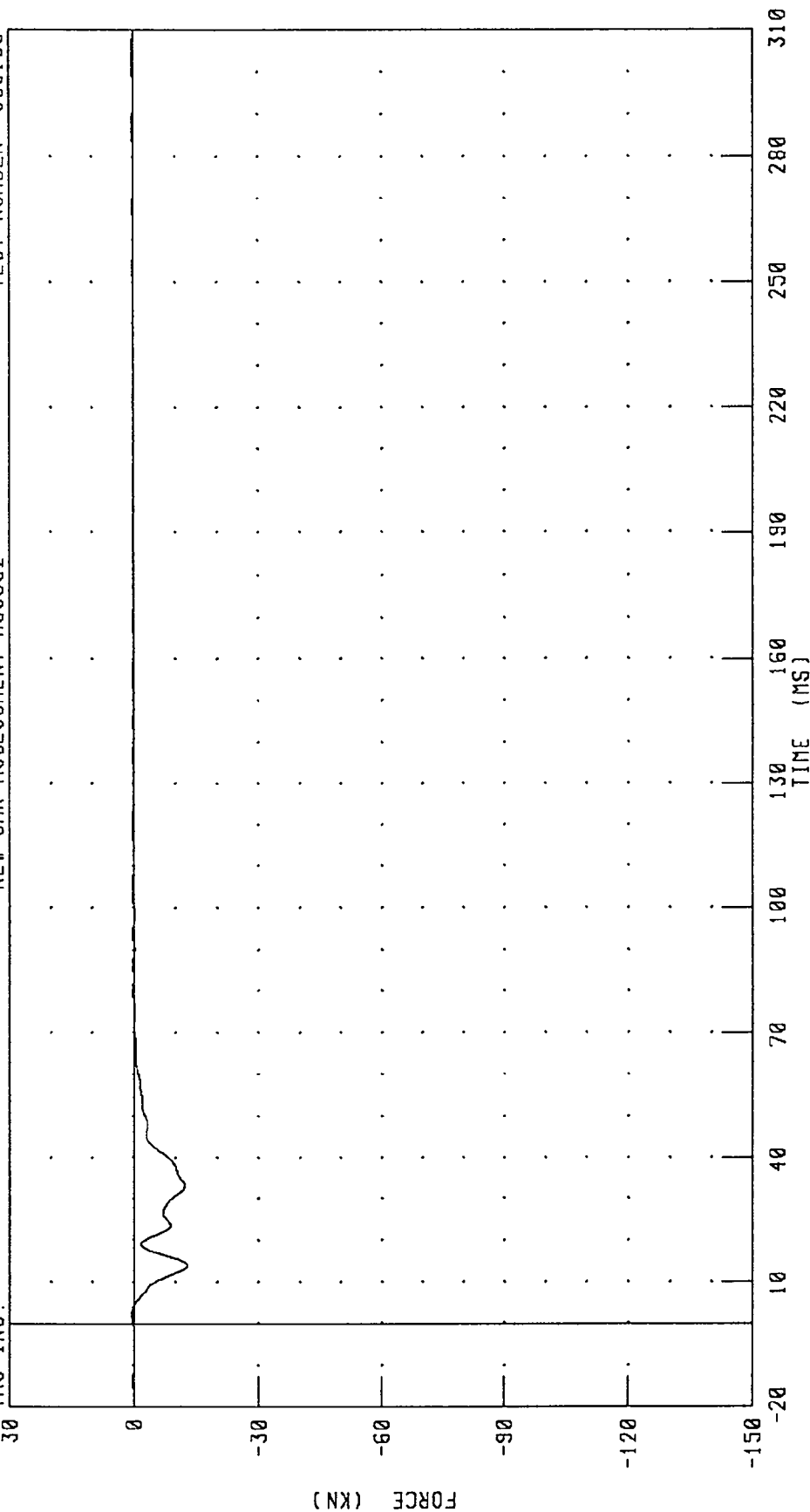
CHANNEL: 805F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.40 KN @ 2.16 MS, -12.75 KN @ 14.00 MS

FILTER: CH. CLASS 60

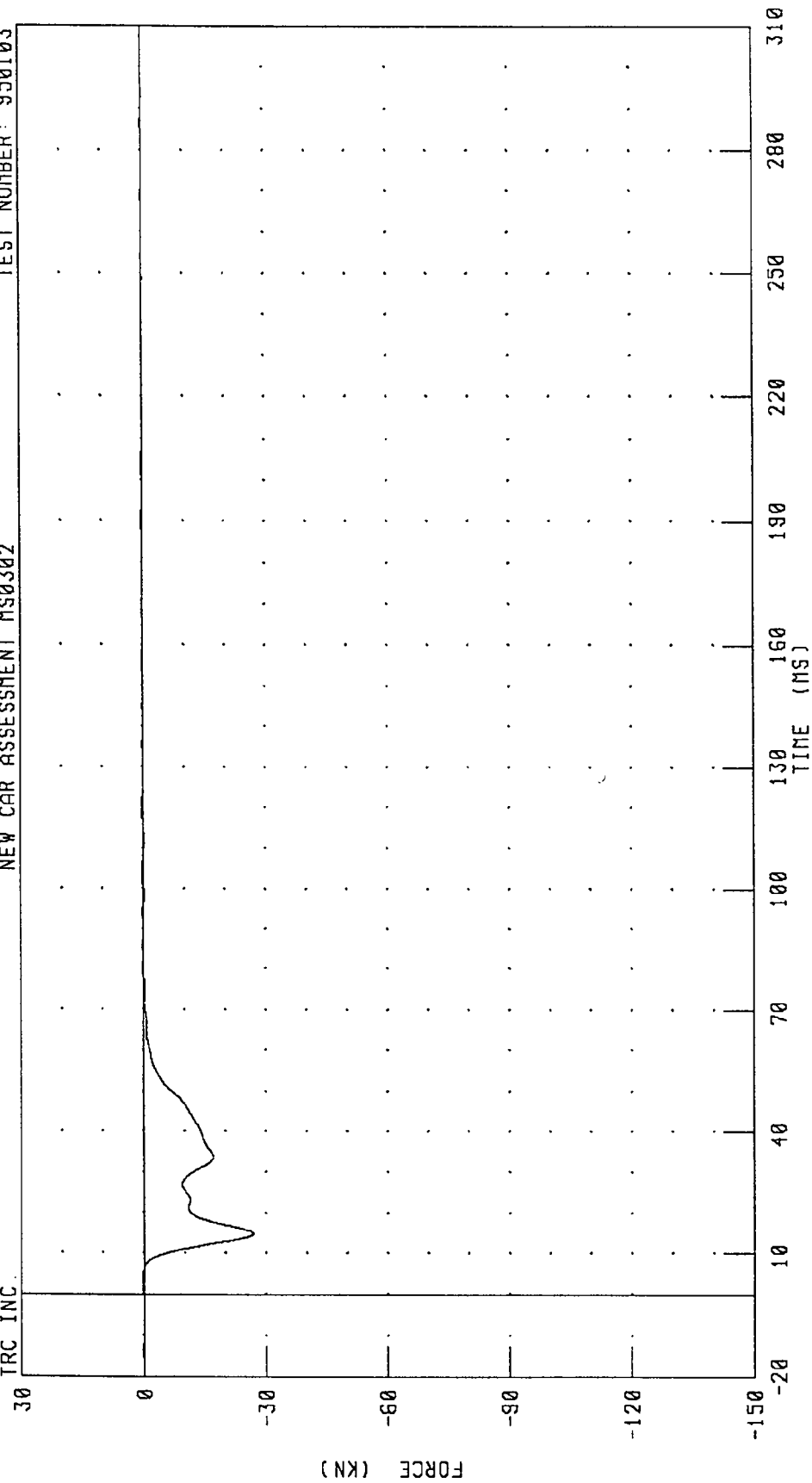
CHANNEL: BD6F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D7 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.26 KN @ 103.12 MS; -26.87 KN @ 14.80 MS

FILTER: CH. CLASS 60

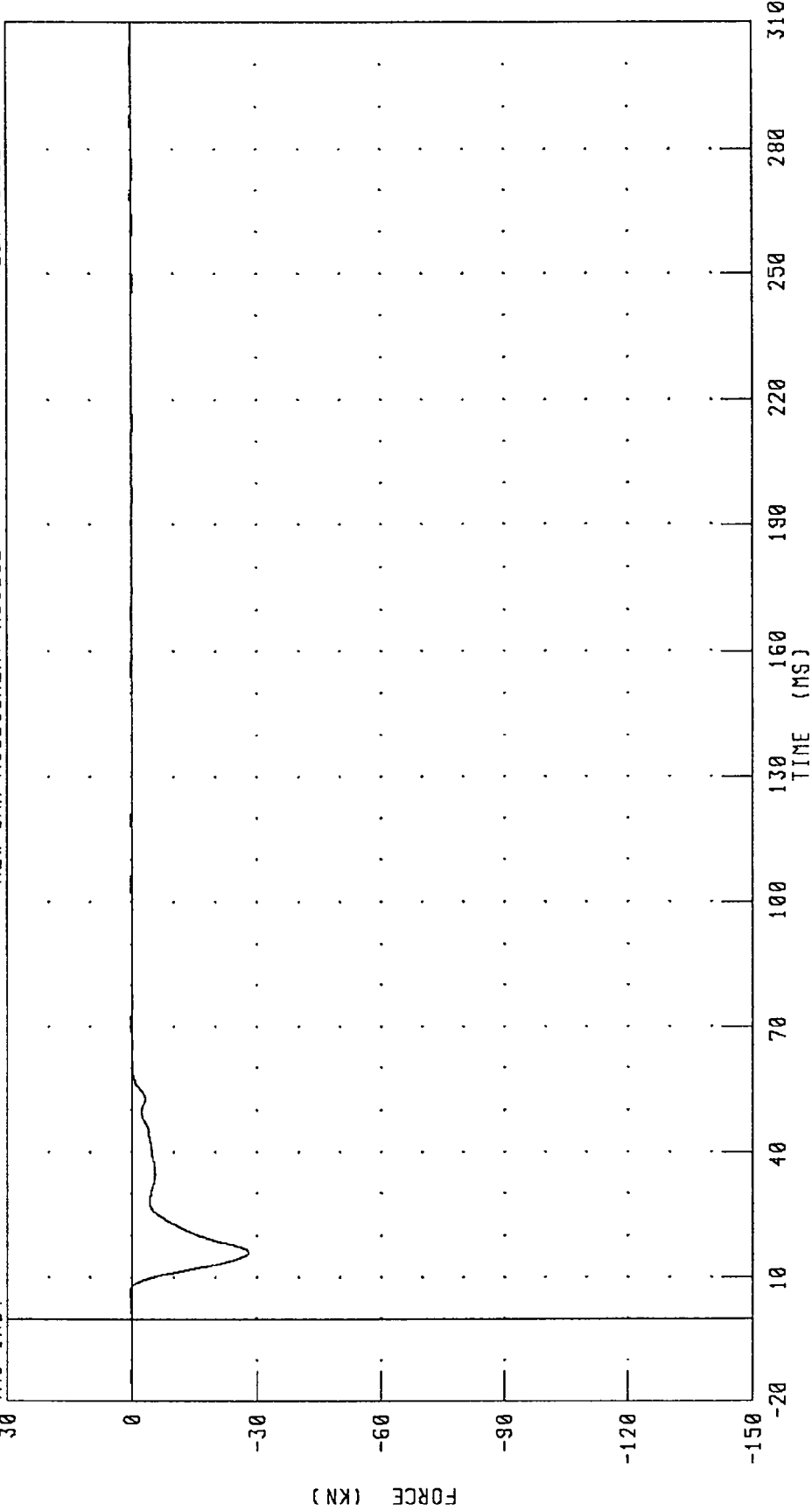
CHANNEL: B07F

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 0.39 KN @ 6.32 MS; -28.00 KN @ 16.08 MS

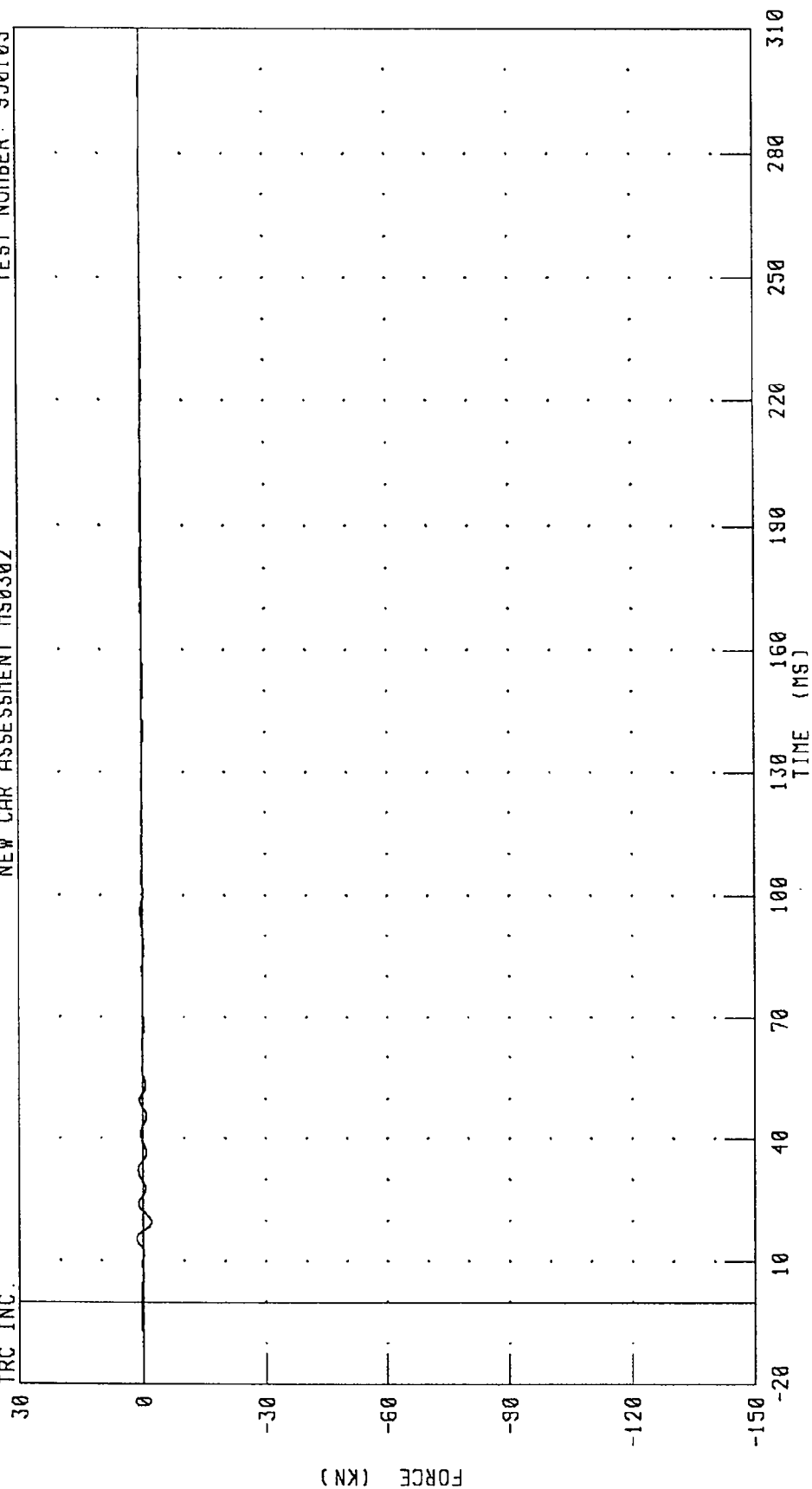
CHANNEL: B08F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 1.56 KN @ 15.52 MS; -2.09 KN @ 19.68 MS

FILTER: CH. CLASS 60

CHANNEL: B09F

FORCE (KN)

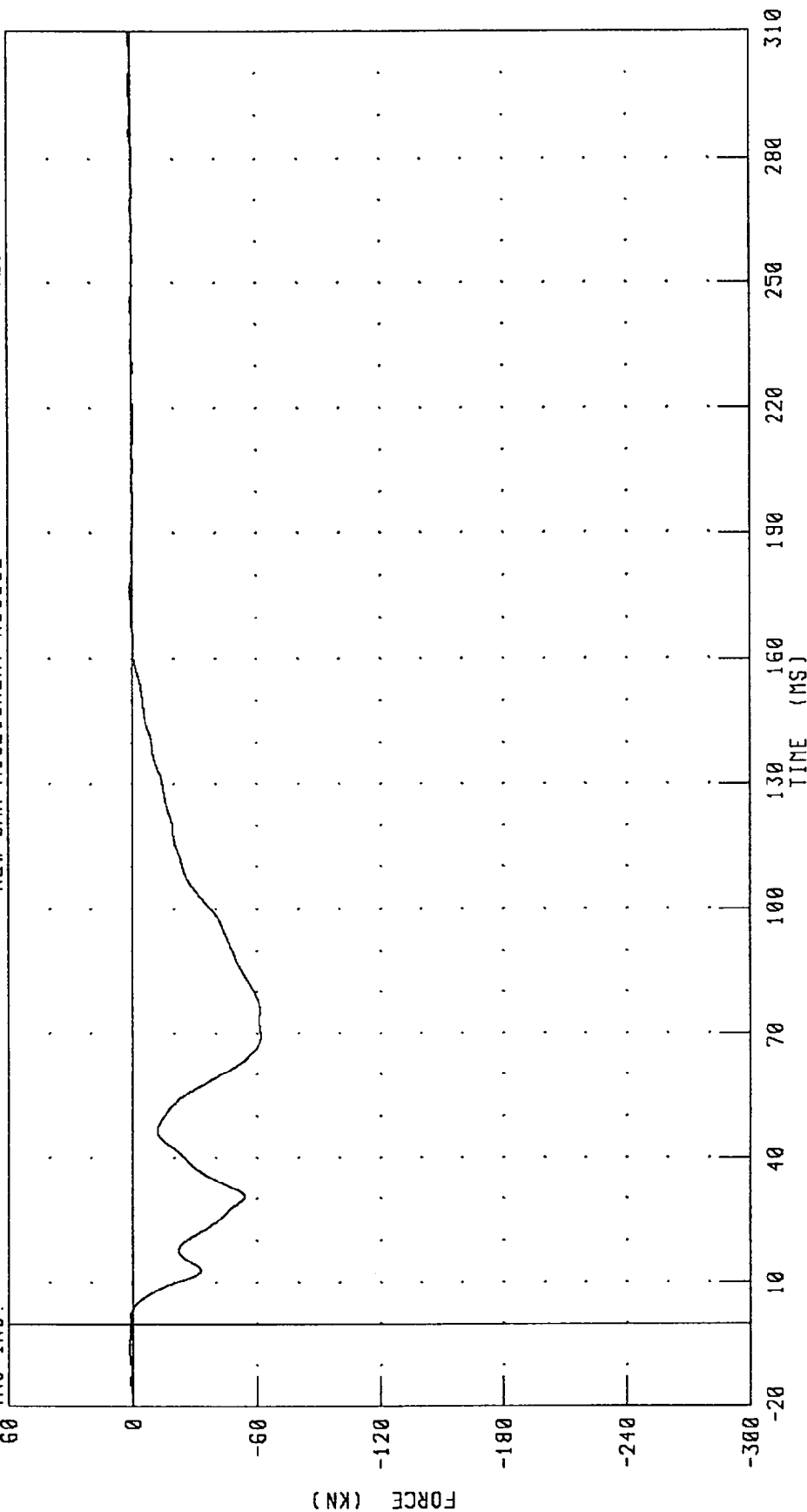
TIME (MS)

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



PEAK DATA: 1.49 KN @ -5.68 MS; -61.95 KN @ 69.44 MS

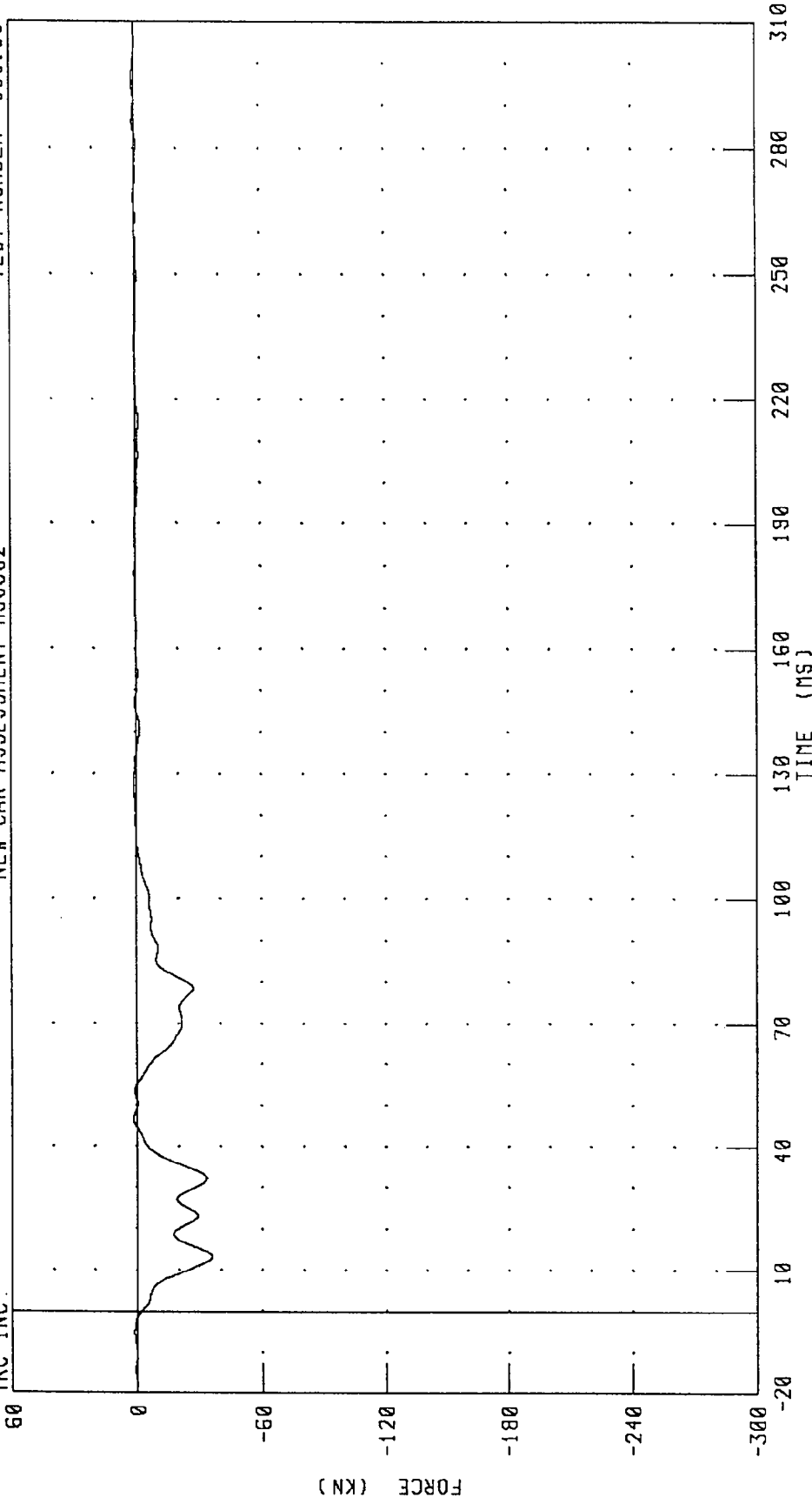
CHANNEL: LCBGIF FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 2 FORCE TOTAL

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

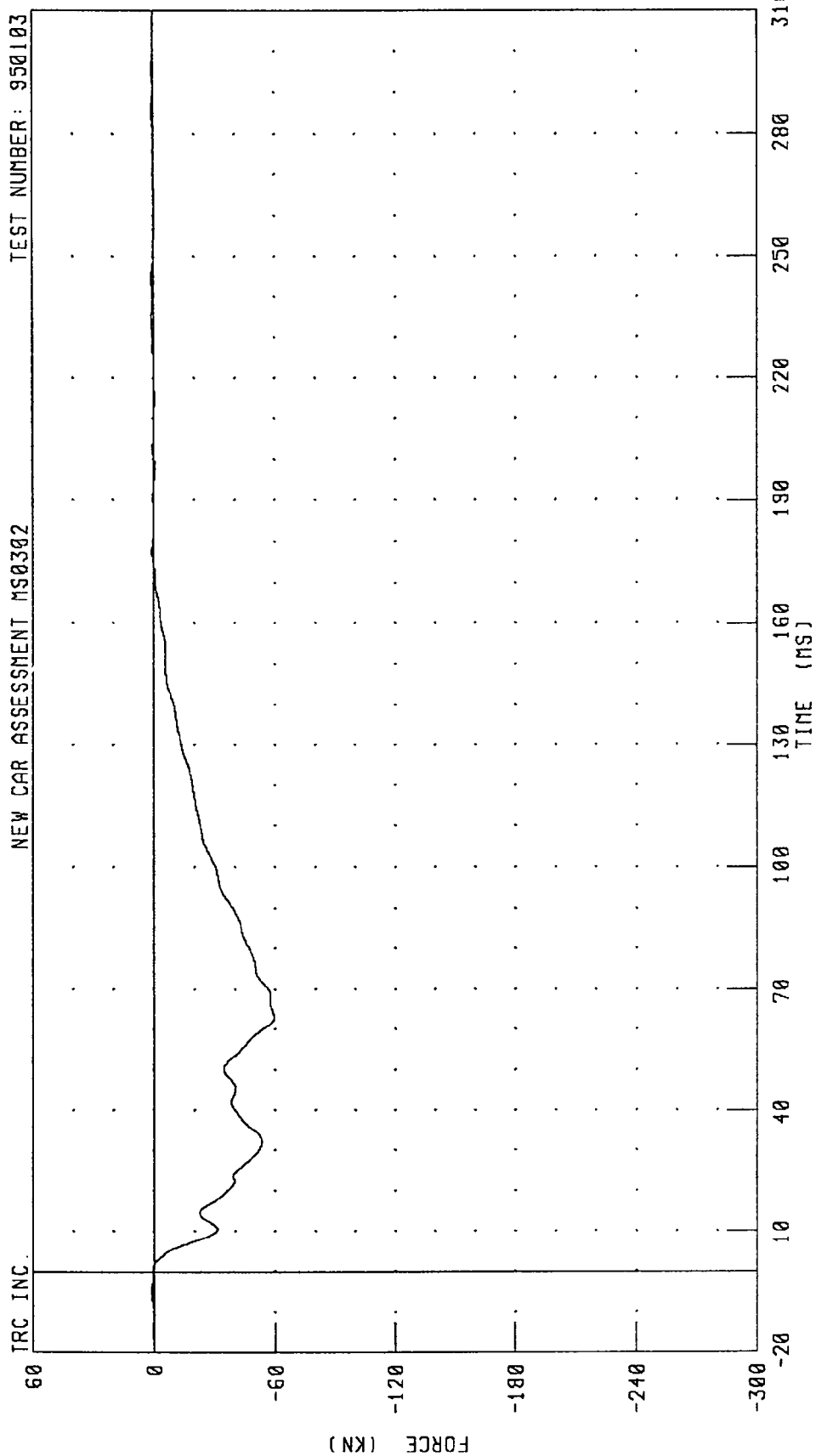


PEAK DATA: 1.45 KN @ 46.72 MS; -35.81 KN @ 13.28 MS

CHANNEL: LCBG2F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



PEAK DATA: 1.08 KN @ 285.60 MS; -59.61 KN @ 63.12 MS

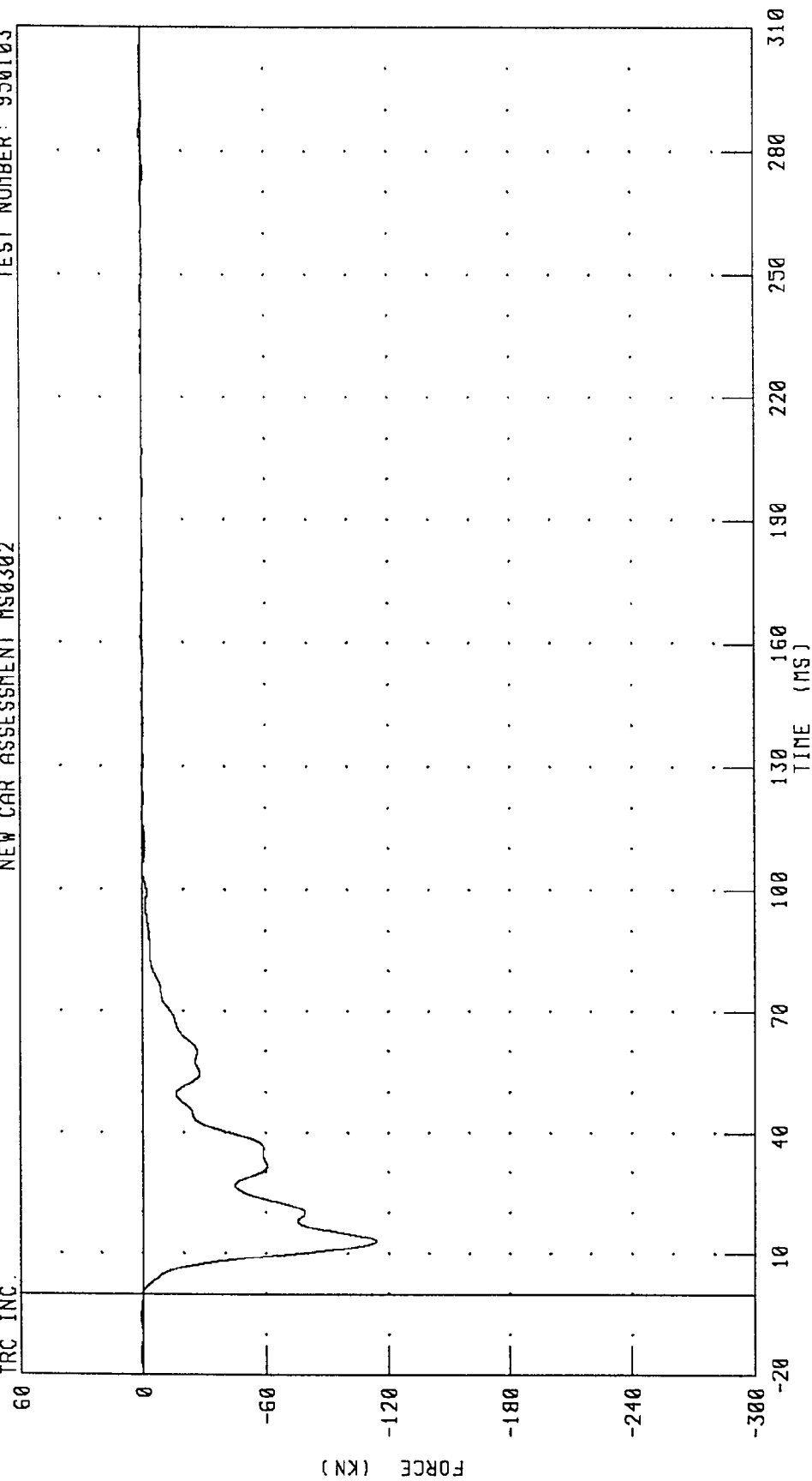
CHANNEL: LCBG3F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.



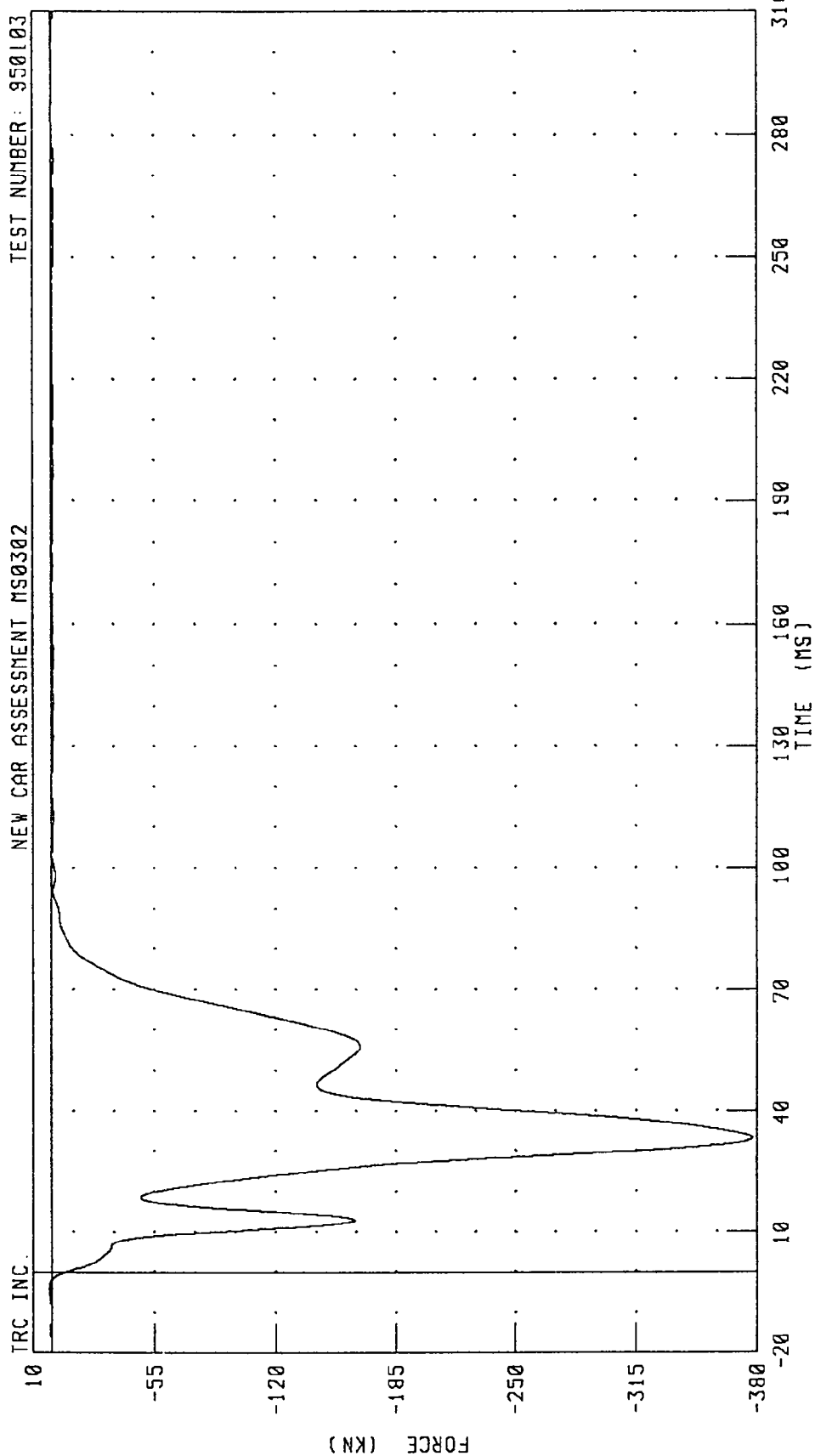
PEAK DATA: 1.11 KN @ -14.48 MS; -113.99 KN @ 13.04 MS

CHANNEL: LCBG4F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL

NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



CHANNEL: LCBG5F FILTER: CH. CLASS 60

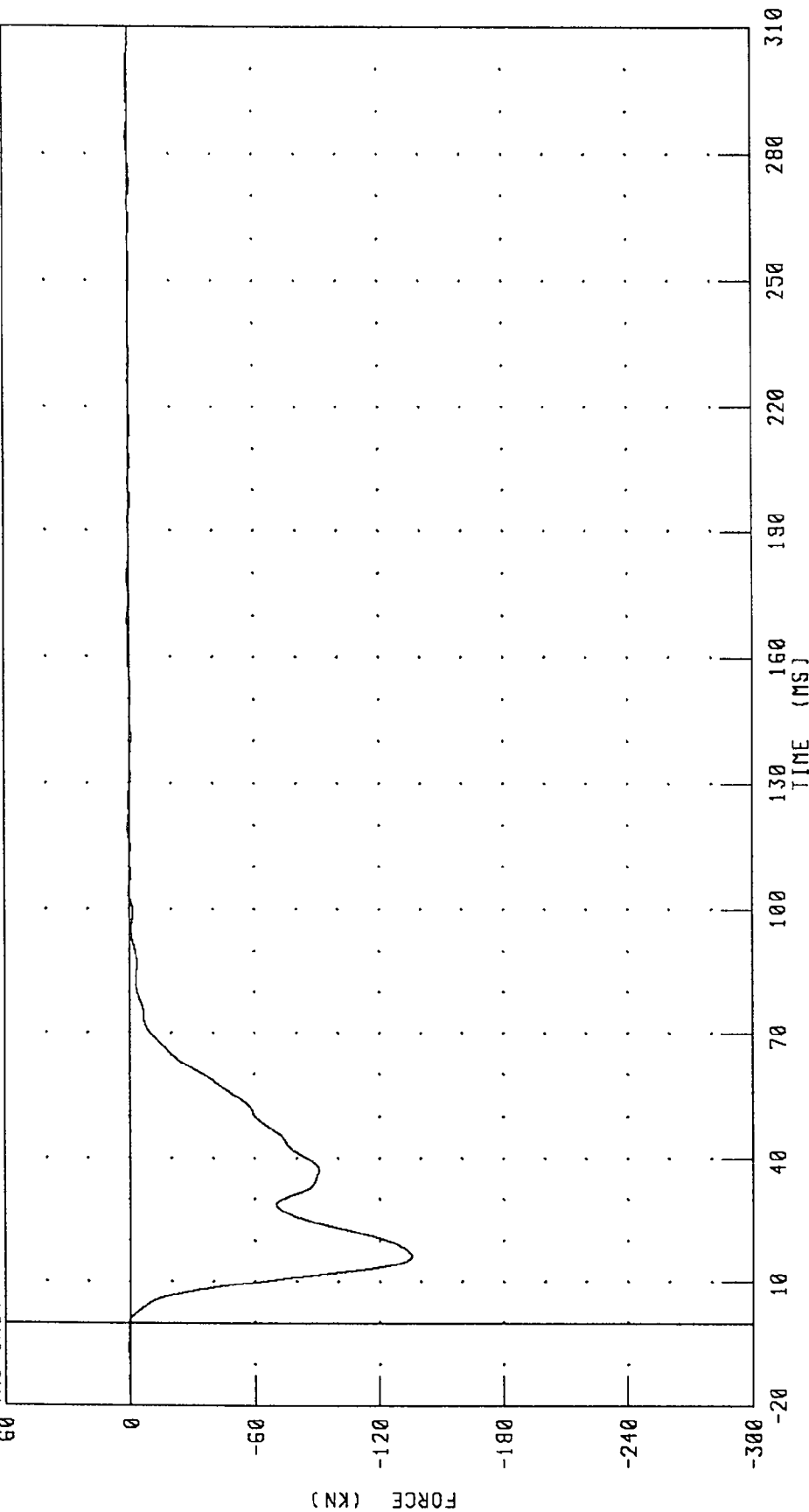
PEAK DATA: 1.13 KN @ -3.84 MS, -377.31 KN @ 33.12 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL

TEST NUMBER: 950103

NEW CAR ASSESSMENT MS0302

TRC INC.

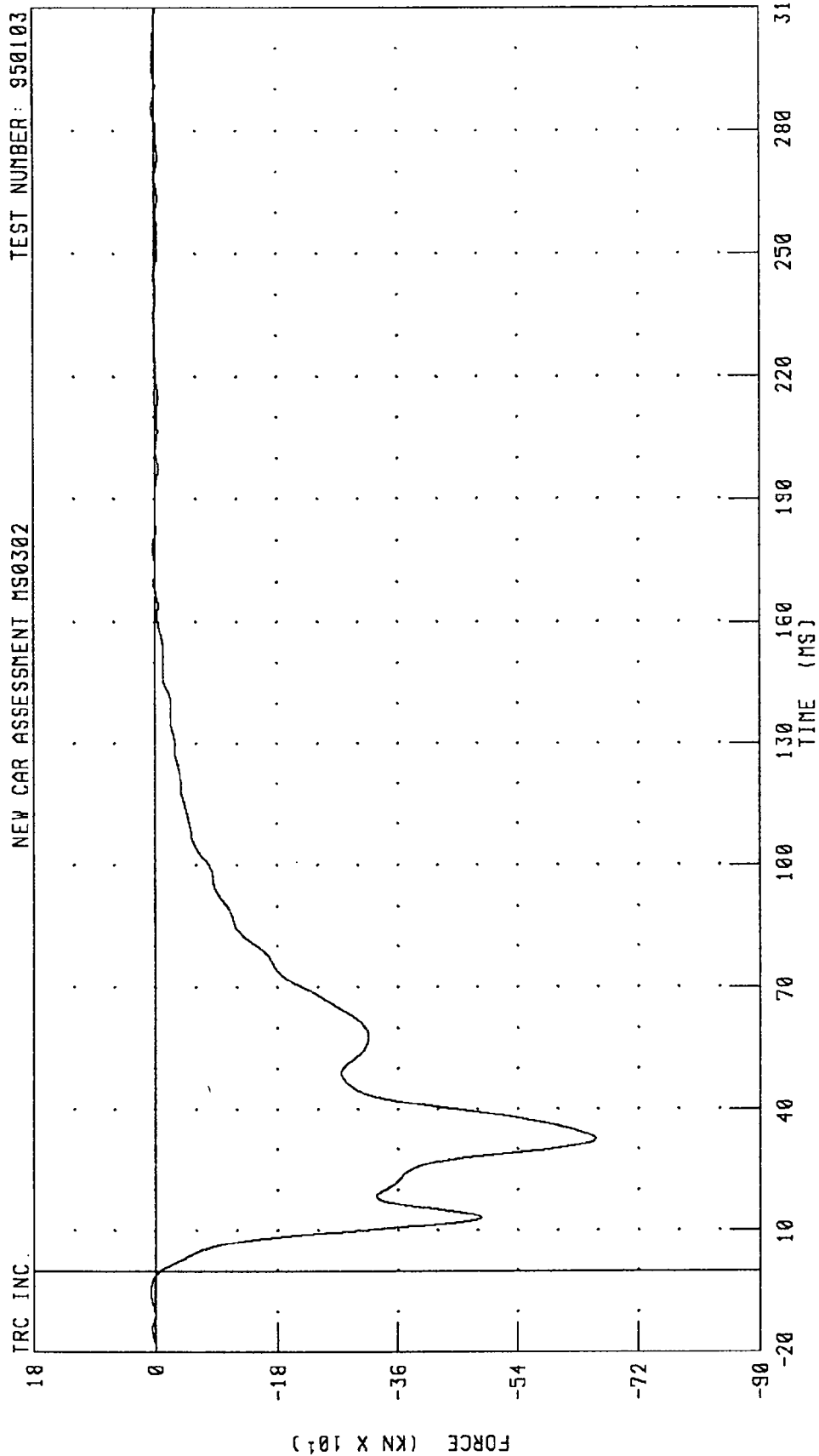


PEAK DATA: 0.98 KN @ 178.56 MS; -135.47 KN @ 16.24 MS

CHANNEL: LCBG6F FILTER: CH. CLASS 60

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 TOTAL LOAD CELL BARRIER FORCE
 NEW CAR ASSESSMENT MS0302

TEST NUMBER: 950103



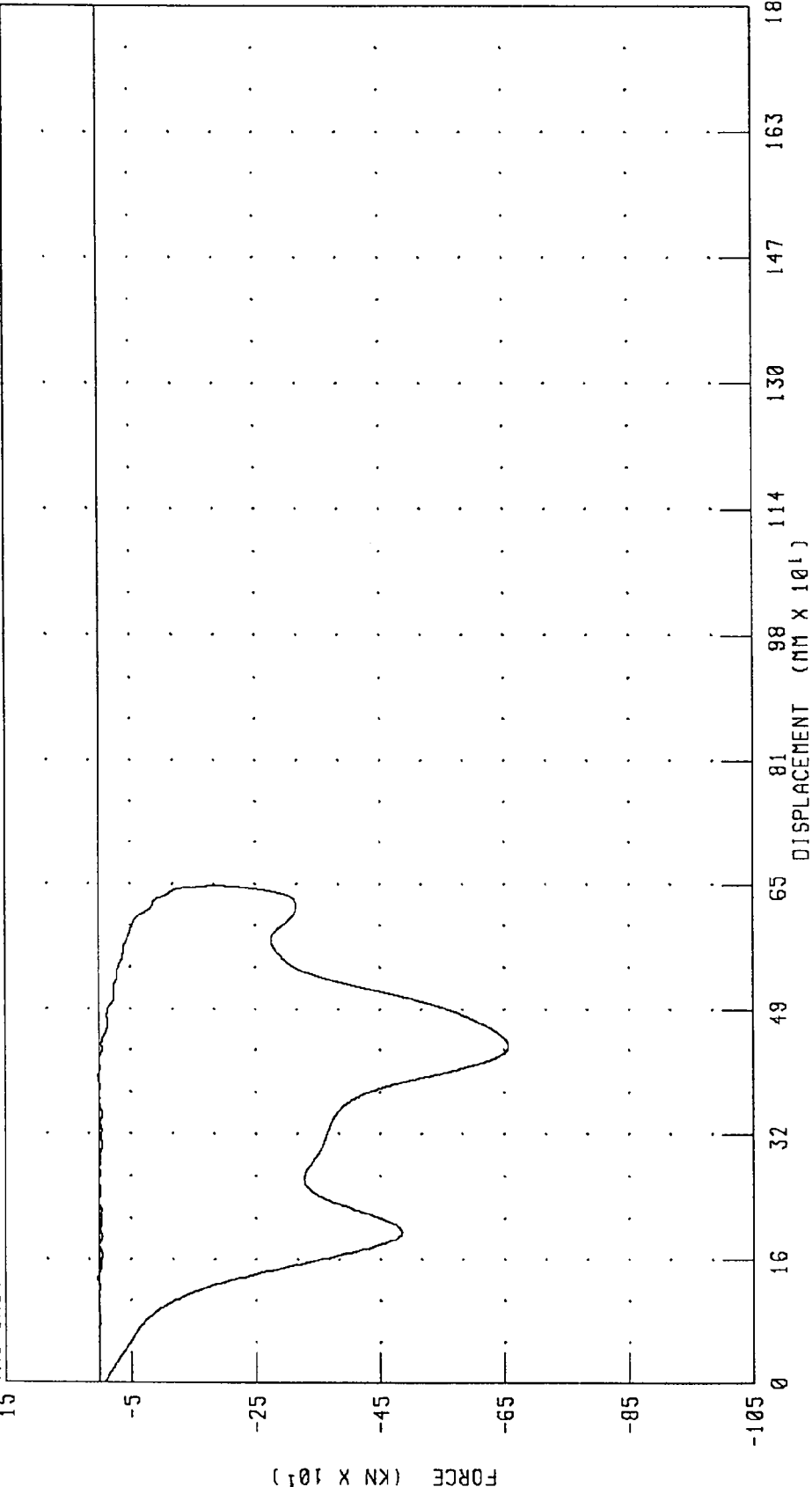
CHANNEL: LCBGT FILTER: CH. CLASS 60

PEAK DATA: 6.09 KN @ 32.72 MS; -656.76 KN @ 5.28 MS

1995 JEEP CHEROKEE INTO FRONTAL LOAD CELL BARRIER
 TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT
 TEST NUMBER: 950103

TRC INC. NEW CAR ASSESSMENT MS0302

15



CHANNEL: OTHXD FILTER: CH: CLASS 180
 LCBGT CH: CLASS 60
 PEAK DATA: 652.66 MM @ 73.04 MS; 0.00 NM @ 0.00 NS
 3.73 KN @ 285.76 MS; -656.76 KN @ 32.72 MS

Appendix C

Dummy Certification Data

Pre-test Certification Data

Driver Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

142 HUMANOID

05-DEC-94

TRC INC.

TEST NO: 142C25ED1

572E SN142 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	986. MM
WAIST CIRCUMFERENCE	(Z)	836 - 866 MM	848. MM
CHEST DEPTH	(O)	213 - 229 MM	221. MM
H-POINT HEIGHT	(C)	84 - 89 MM	84. MM
H-POINT FROM SEATBACK	(D)	135 - 140 MM	137. MM
SKULL CAP TO BACKLINE	(H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT	(A)	879 - 889 MM	879. MM
THIGH CLEARANCE	(F)	140 - 155 MM	145. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	445. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	488. MM
FOOT LENGTH	(P)	252 - 267 MM	257. MM
FOOT BREADTH	(W)	91 - 107 MM	97. MM
SHOULDER PIVOT FROM BACKLINE	(E)	84 - 94 MM	91. MM
SHOULDER BREADTH	(V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	508. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	203. MM
SHOULDER-ELBOW LENGTH	(I)	330 - 345 MM	345. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	292. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Pete F. A.

RUN NUMBER: 120694.0840

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

05-DEC-94

TRC INC.

TEST NO: 142C25HD1

572E SN142 HEAD DROP CAL 25

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	56.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	232.40 G
PEAK LATERAL ACCELERATION	15 G MAX	3.09 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

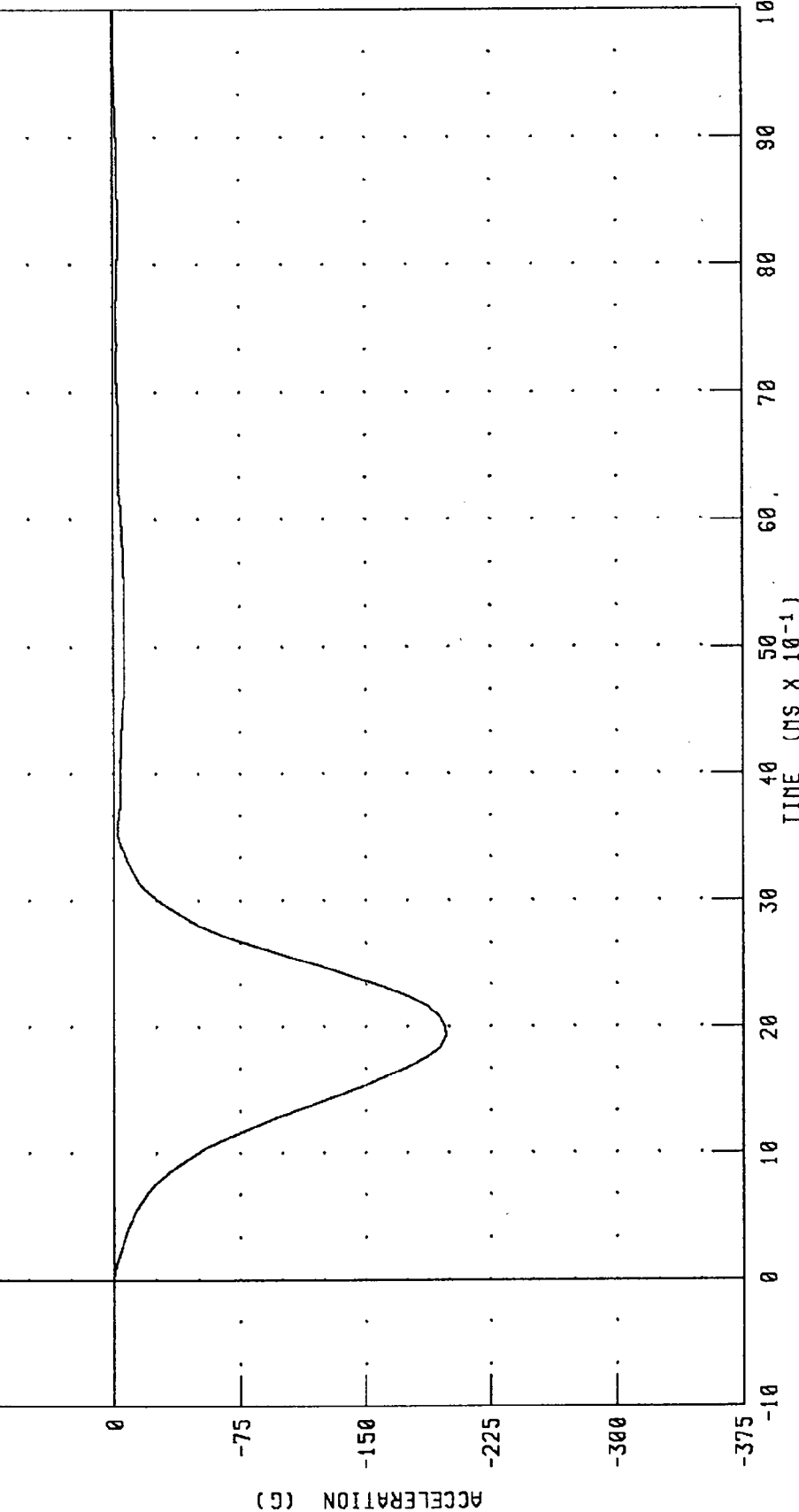
TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Fount

RUN NUMBER: 120594.1342;1

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

IRC TEST NUMBER: 142C25HD1 572E SN142 HEAD DROP CAL 25 RUN NUMBER: 020795.1125;1



PEAK DATA: 0.03 G @ -0.08 MS; -198.26 G @ 1.92 MS

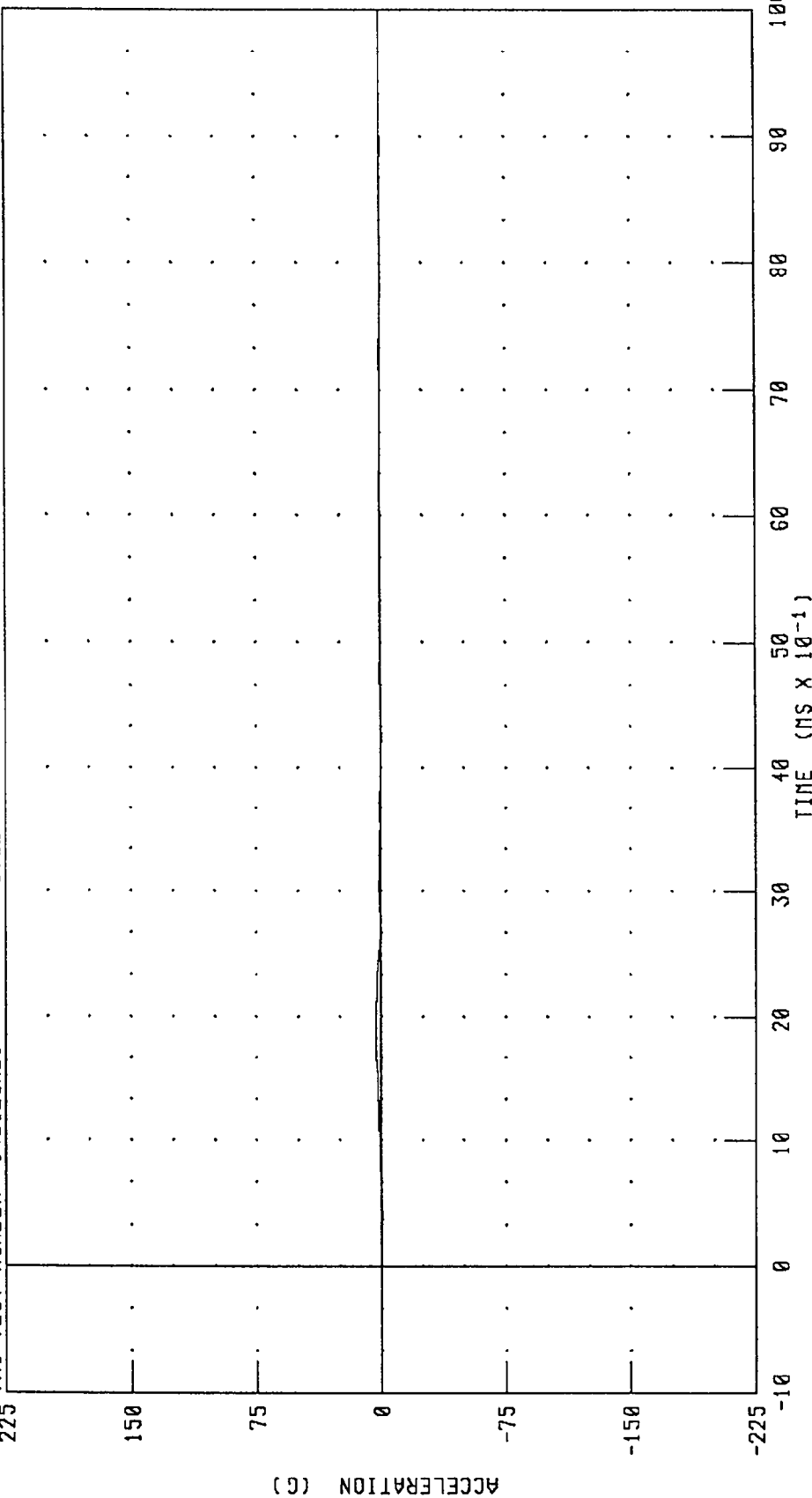
CHANNEL: HEDX6 FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 142C25HD1

572E SN142 HEAD DROP GAL 25

RUN NUMBER: 020795.1125;1

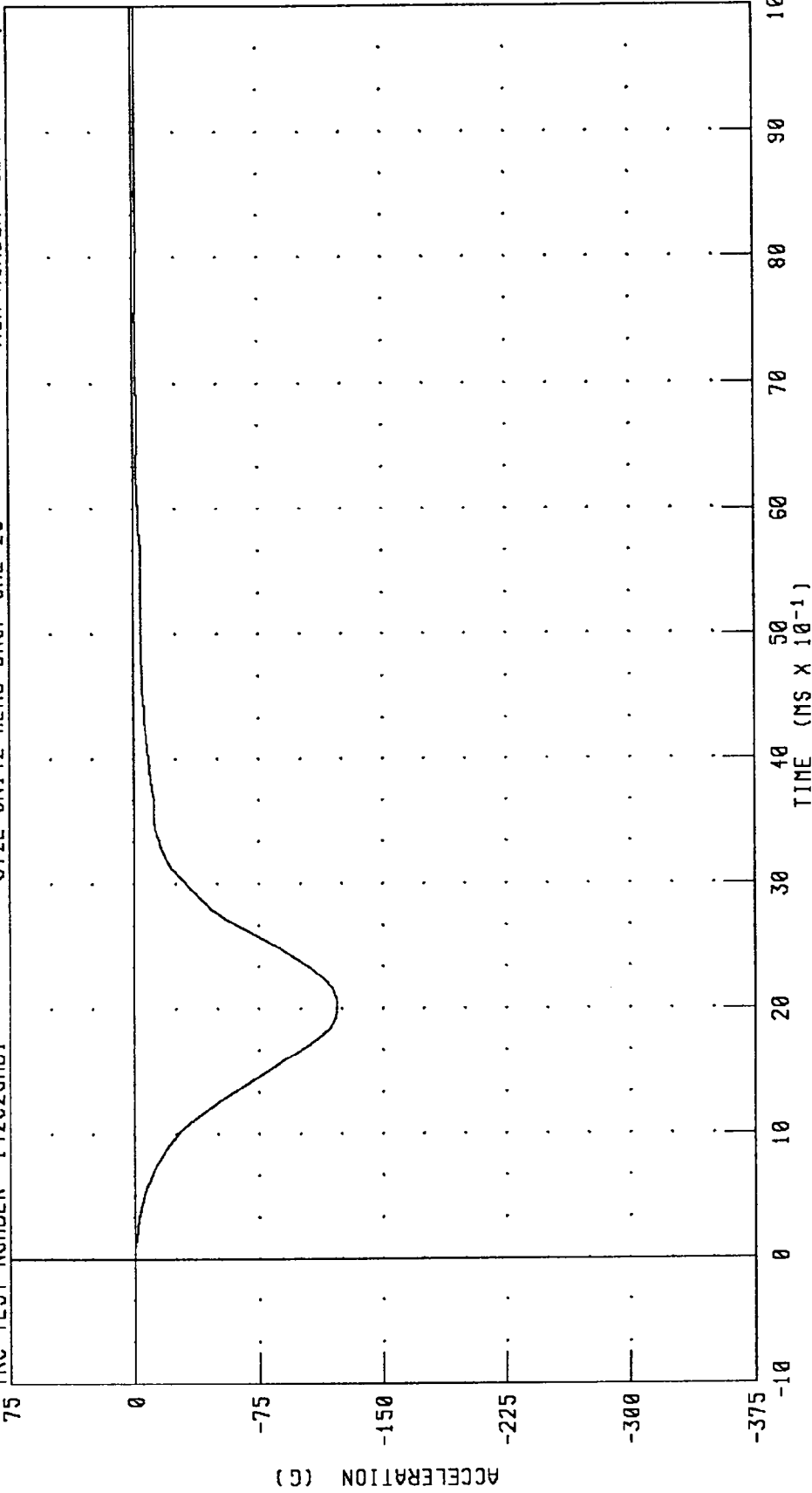


PEAK DATA: 3.09 G @ 1.76 MS; -0.48 G @ 7.92 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 142C25HD1 572E SN142 HEAD DROP CAL 25 RUN NUMBER: 020795.1125.1



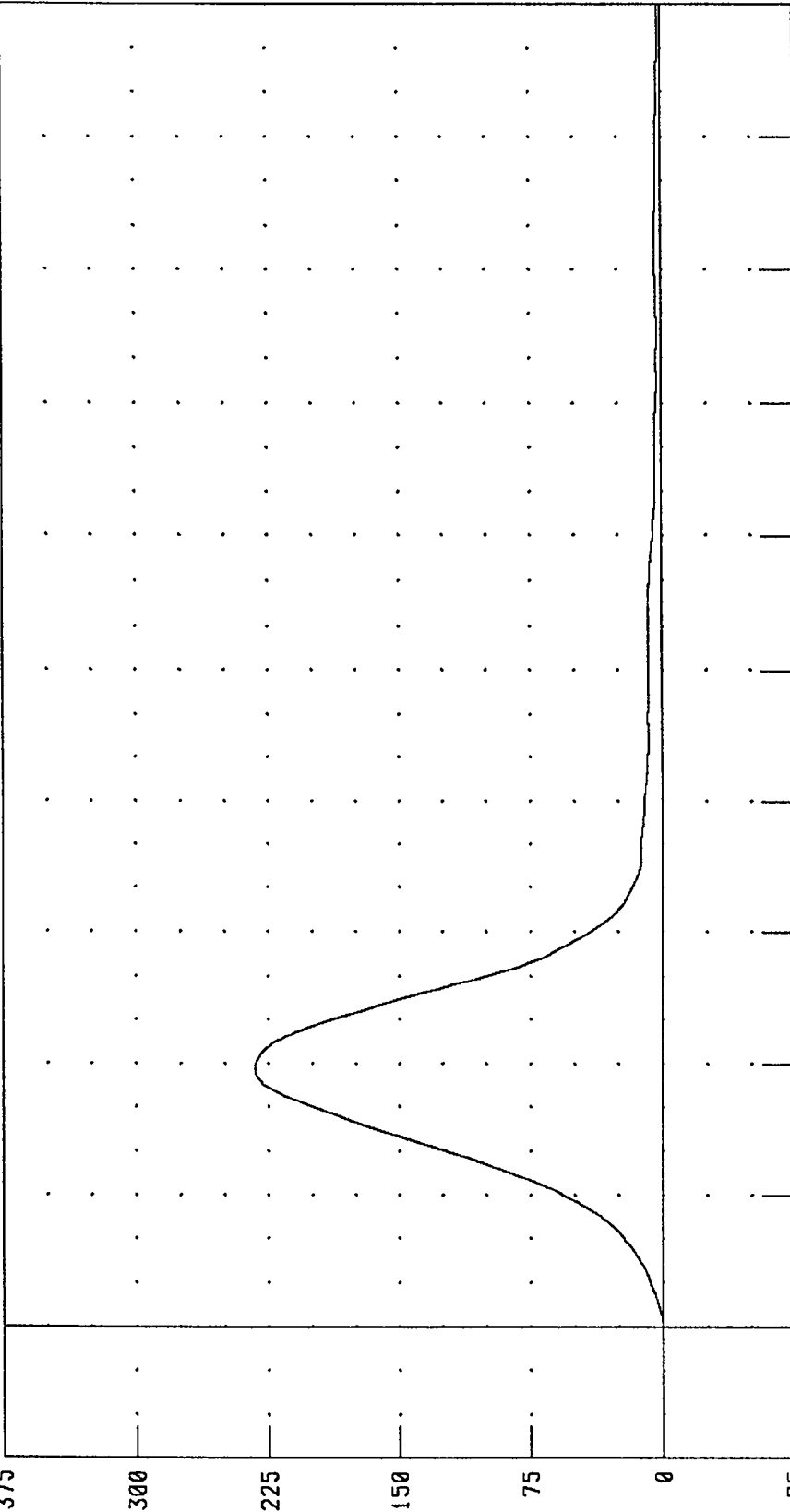
CHANNEL: HEDZG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
 HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 142025HD1 RUN NUMBER: 020795.1125;1

572E SN142 HEAD DROP CAL 25

375



ACCELERATION (G)

TIME (NS X 10⁻¹)

CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 232.41 G @ 1.92 MS; 0.05 G @ -0.40 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

05-DEC-94

TRC INC. TEST NO: 142C25NF1 572E SN142 NECK FLEXION CAL25

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY		10 - 70 %	56.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.01 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	24.69 G
	20 MS	17.60 - 22.60 G	20.73 G
	30 MS	12.50 - 18.50 G	16.47 G
MAX PENDULUM G		29 G MAX	25.47 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	16.42 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	36.40 MS
D PLANE	MAX	64 - 78 DEG.	72.85 DEG.
ROTATION	TIME	57 - 64 MS	57.52 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	91.85 NM
	TIME	47 - 58 MS	50.00 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	114.72 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	102.96 MS

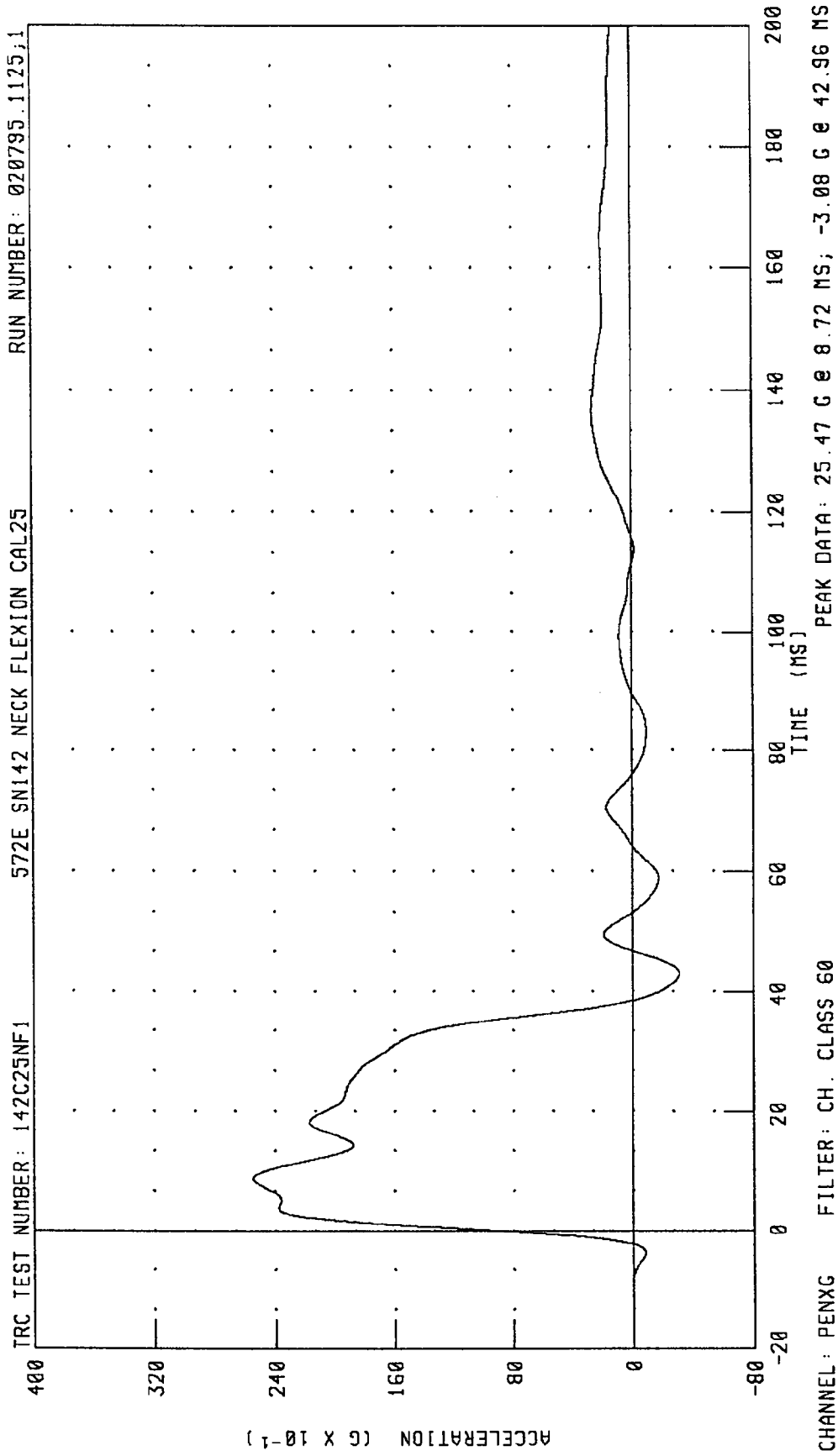
TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Foss

RUN NUMBER: 120594.1442;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION PENDULUM DECELERATION



CHANNEL: PENXG FILTER: CH. CLASS 60

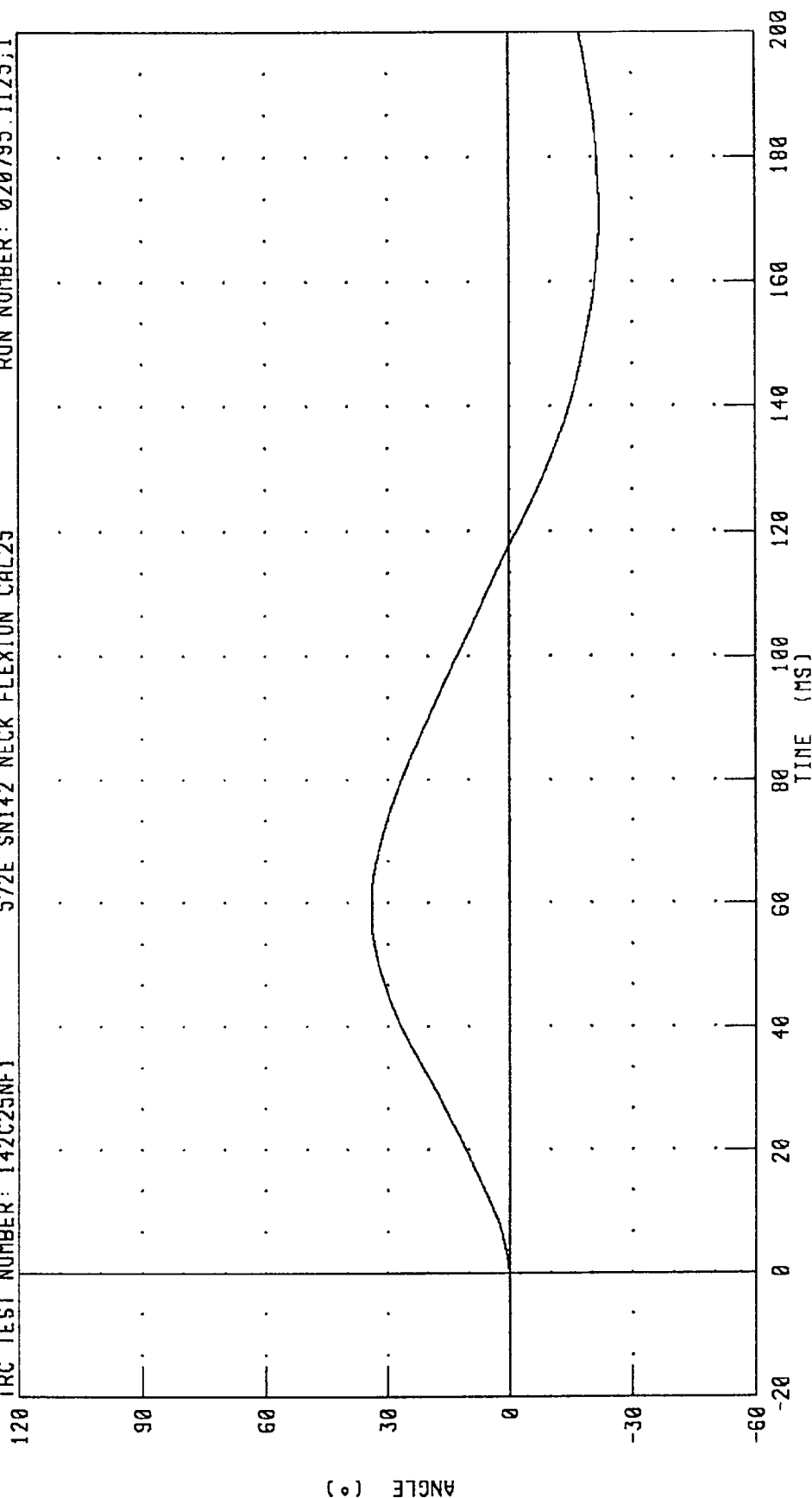
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C25NF1

572E SN142 NECK FLEXION CAL25

RUN NUMBER: 020795.1125;1



CHANNEL: BETA FILTER: CH. CLASS 60

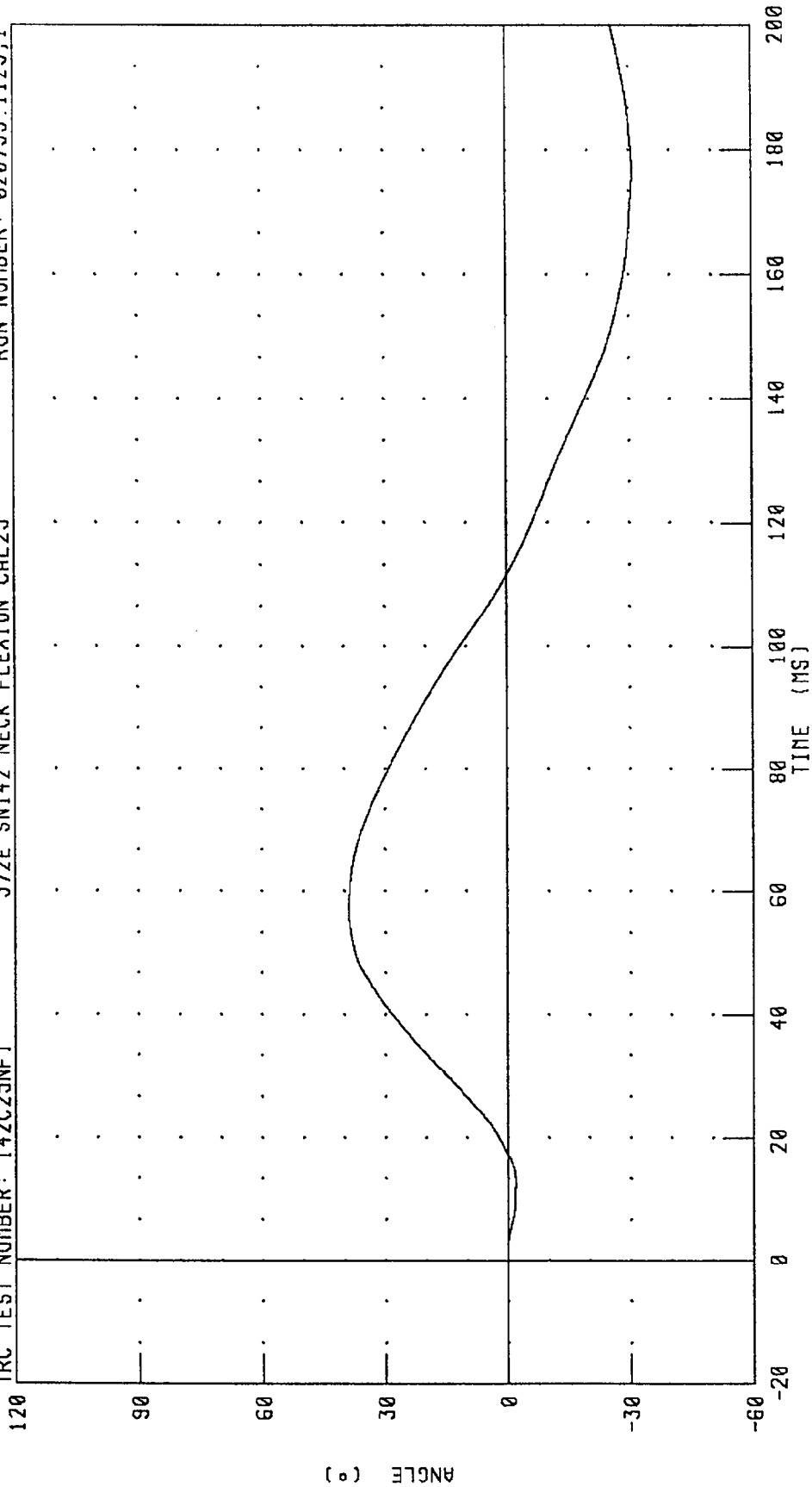
PEAK DATA: 33.95 ° @ 58.88 MS; -22.06 ° @ 170.80 MS

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

TRC TEST NUMBER: 142C25NF1

572E SN142 NECK FLEXION CAL25

RUN NUMBER: 020795.1125;1



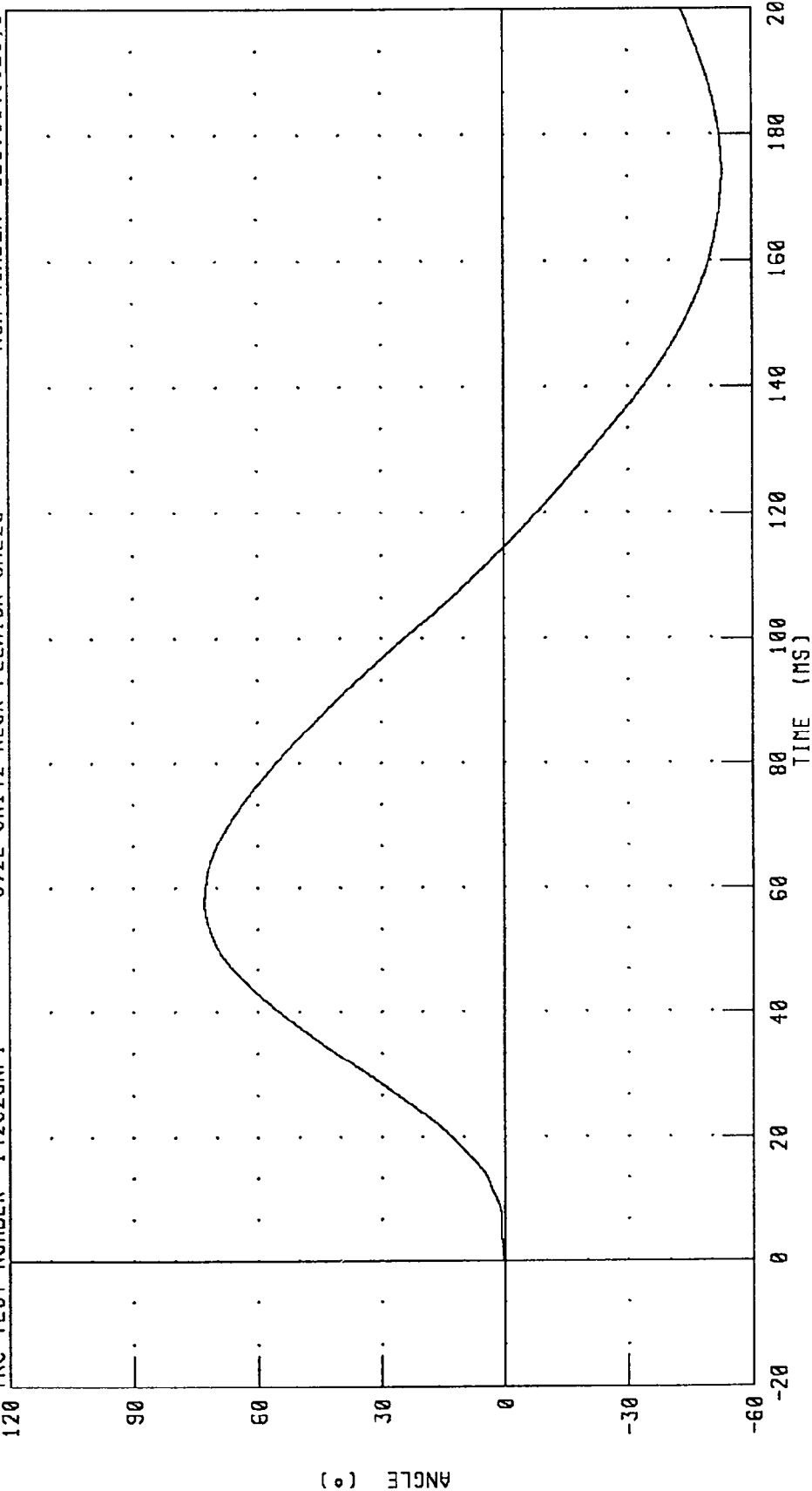
CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 38.93 ° @ 57.04 MS; -30.84 ° @ 176.80 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C25NF1 572E SN142 NECK FLEXION CAL25 RUN NUMBER: 020795.1125;1



PEAK DATA: 72.86 ° @ 57.52 MS; -52.70 ° @ 174.16 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

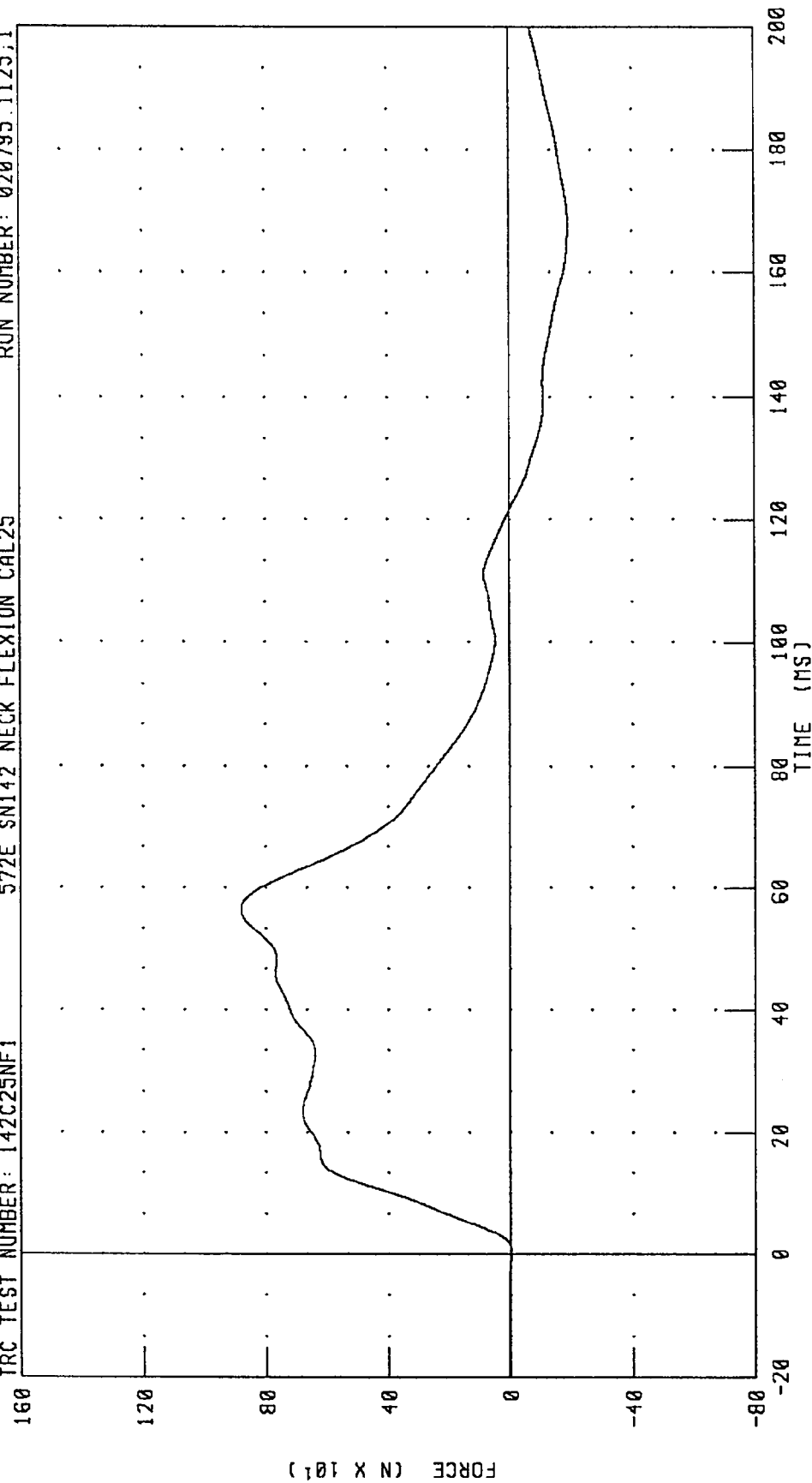
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

IRC TEST NUMBER: 142C25NF1

572E SN142 NECK FLEXION CAL25

RUN NUMBER: 020795.1125.1



PEAK DATA: 882.72 N @ 56.48 MS; -191.75 N @ 167.60 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

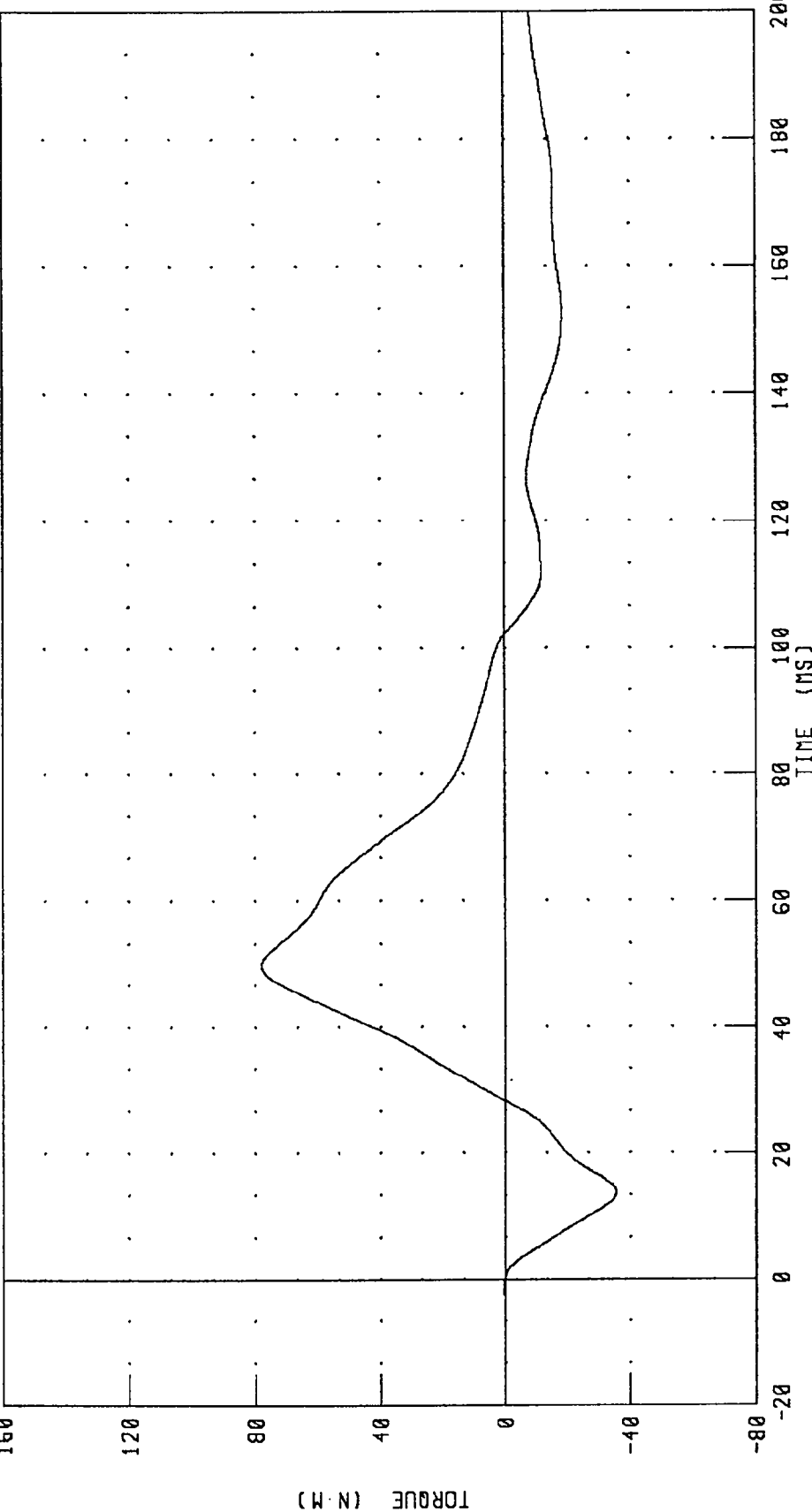
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C25NF1

572E SN142 NECK FLEXION CAL25

RUN NUMBER: 020795.1125;1



PEAK DATA: 78.07 N.M @ 49.84 MS; -35.52 N.M @ 13.76 MS

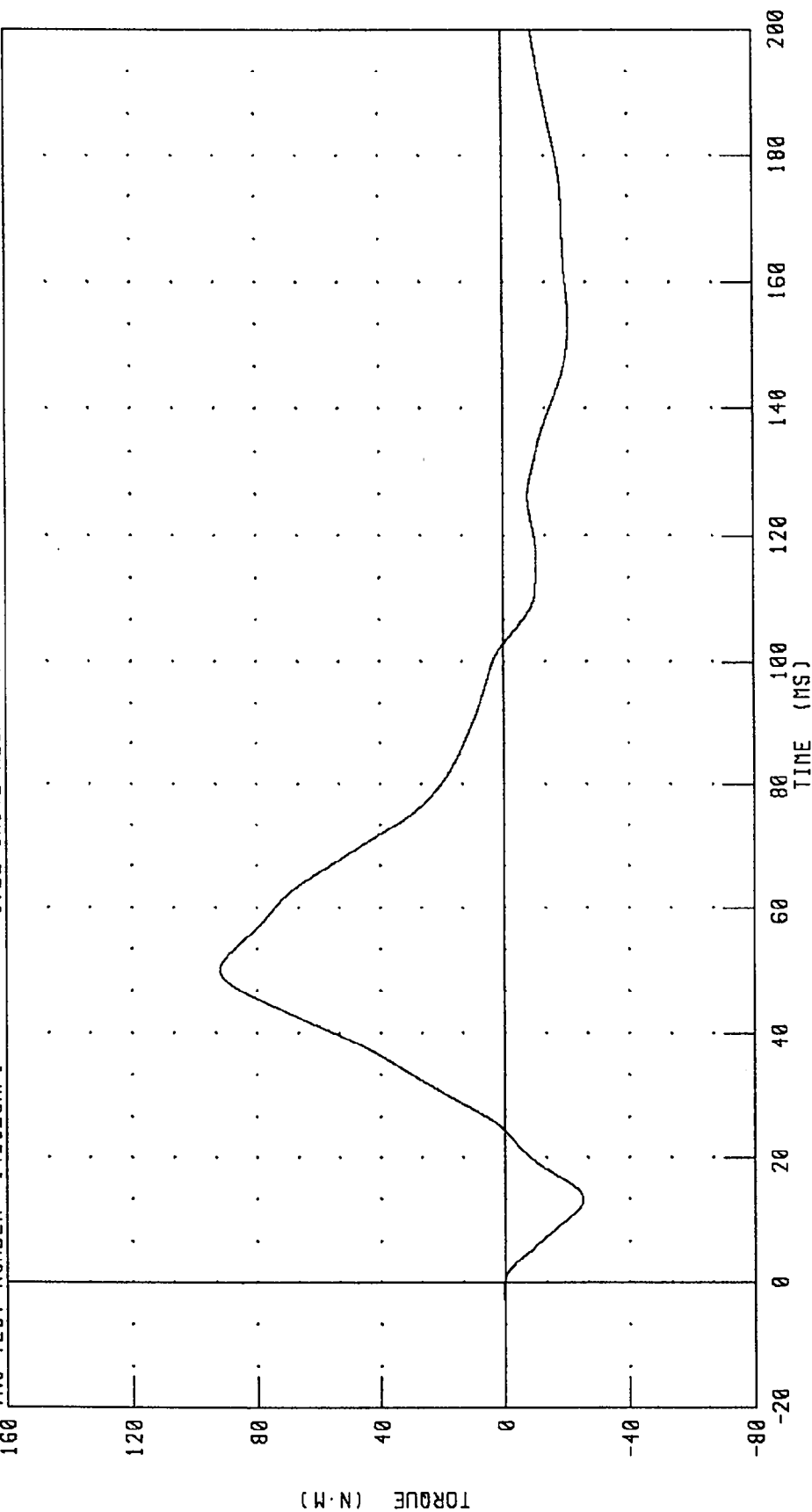
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C25NF1

572E SN142 NECK FLEXION CAL25

RUN NUMBER: 020795.1125;1



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 91.85 N·M @ 50.00 MS; -25.08 N·M @ 13.36 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

05-DEC-94

TRC INC. TEST NO: 142C25NE1 572E SN142 NECK EXT. CAL25

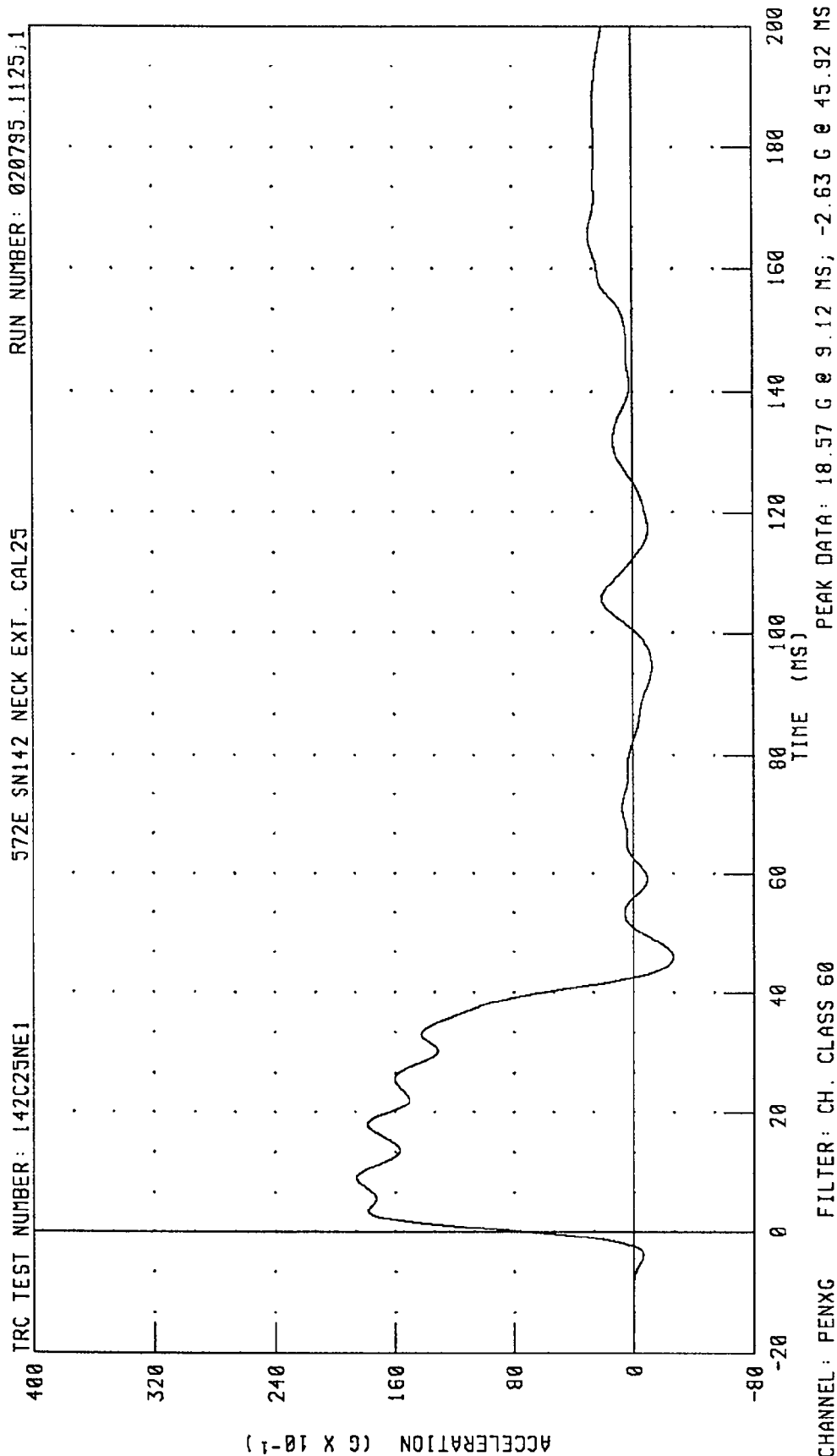
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY		10 - 70 %	56.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.02 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.29 G
	20 MS	14.00 - 19.00 G	16.44 G
	30 MS	11.00 - 16.00 G	13.14 G
MAX PENDULUM G		22 G MAX	18.56 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.22 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	40.40 MS
D PLANE	MAX	81 - 106 DEG.	96.99 DEG.
ROTATION	TIME	72 - 82 MS	73.68 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-72.98 NM
	TIME	65 - 79 MS	69.60 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	152.24 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	138.24 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Fouts

RUN NUMBER: 120594.1452;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION PENDULUM DECELERATION



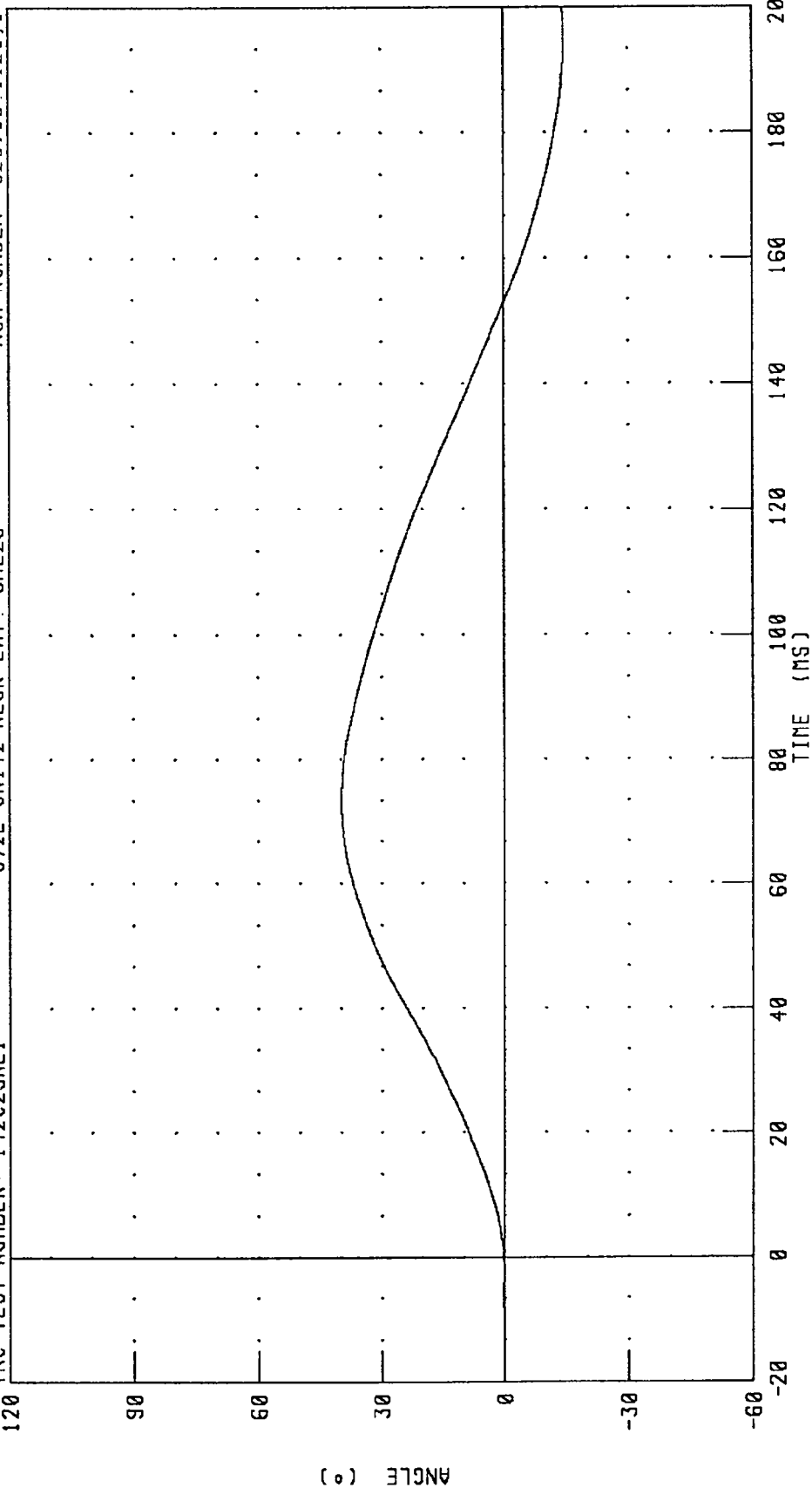
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C25NE1

572E SN142 NECK EXT. CAL25

RUN NUMBER: 020795.1125.1

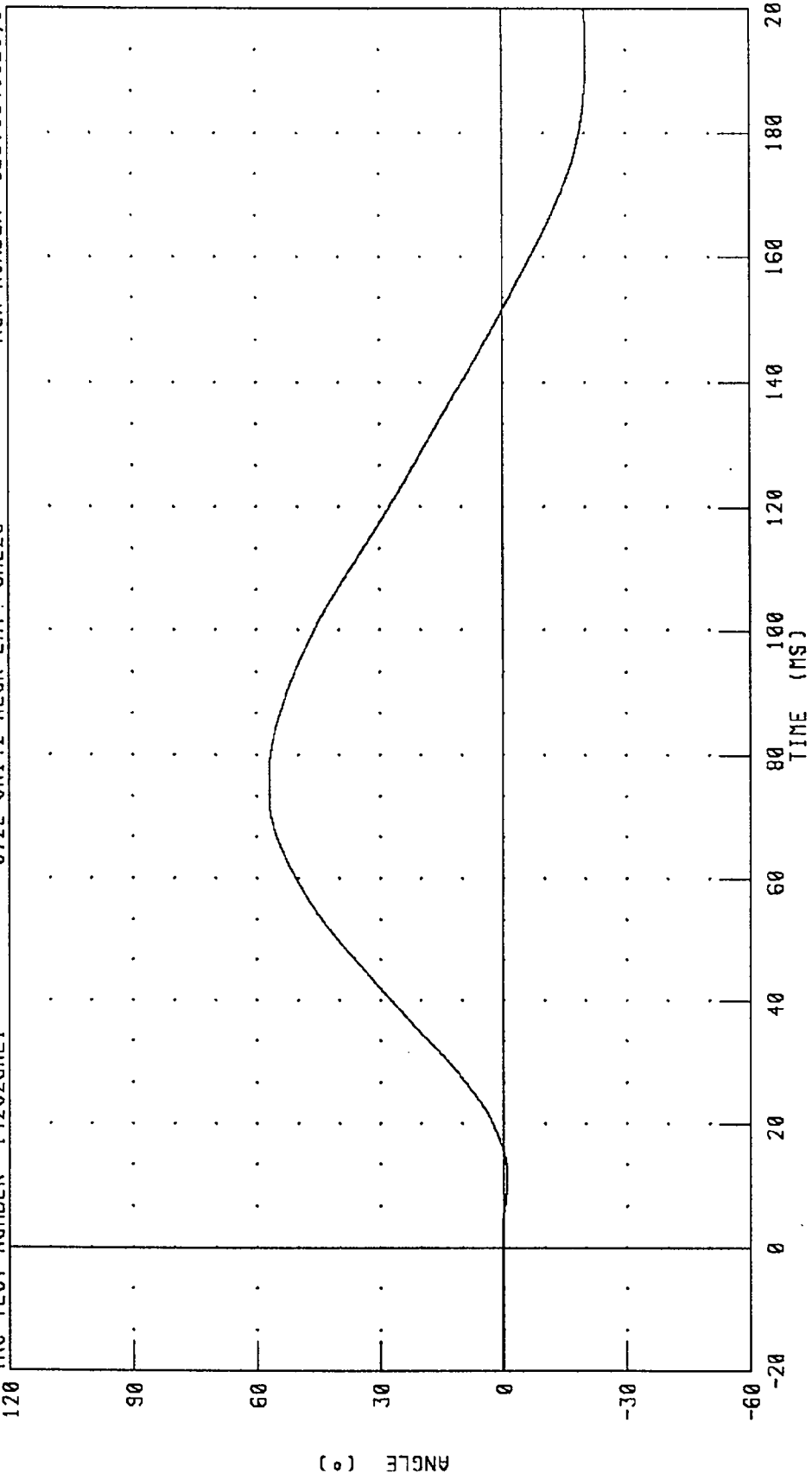


PEAK DATA: 39.97 ° @ 73.44 MS; -14.53 ° @ 195.28 MS

CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C25NE1 572E SN142 NECK EXT. CAL25 RUN NUMBER: 020795.1125;1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 57.03 ° @ 74.88 MS; -20.34 ° @ 193.76 MS

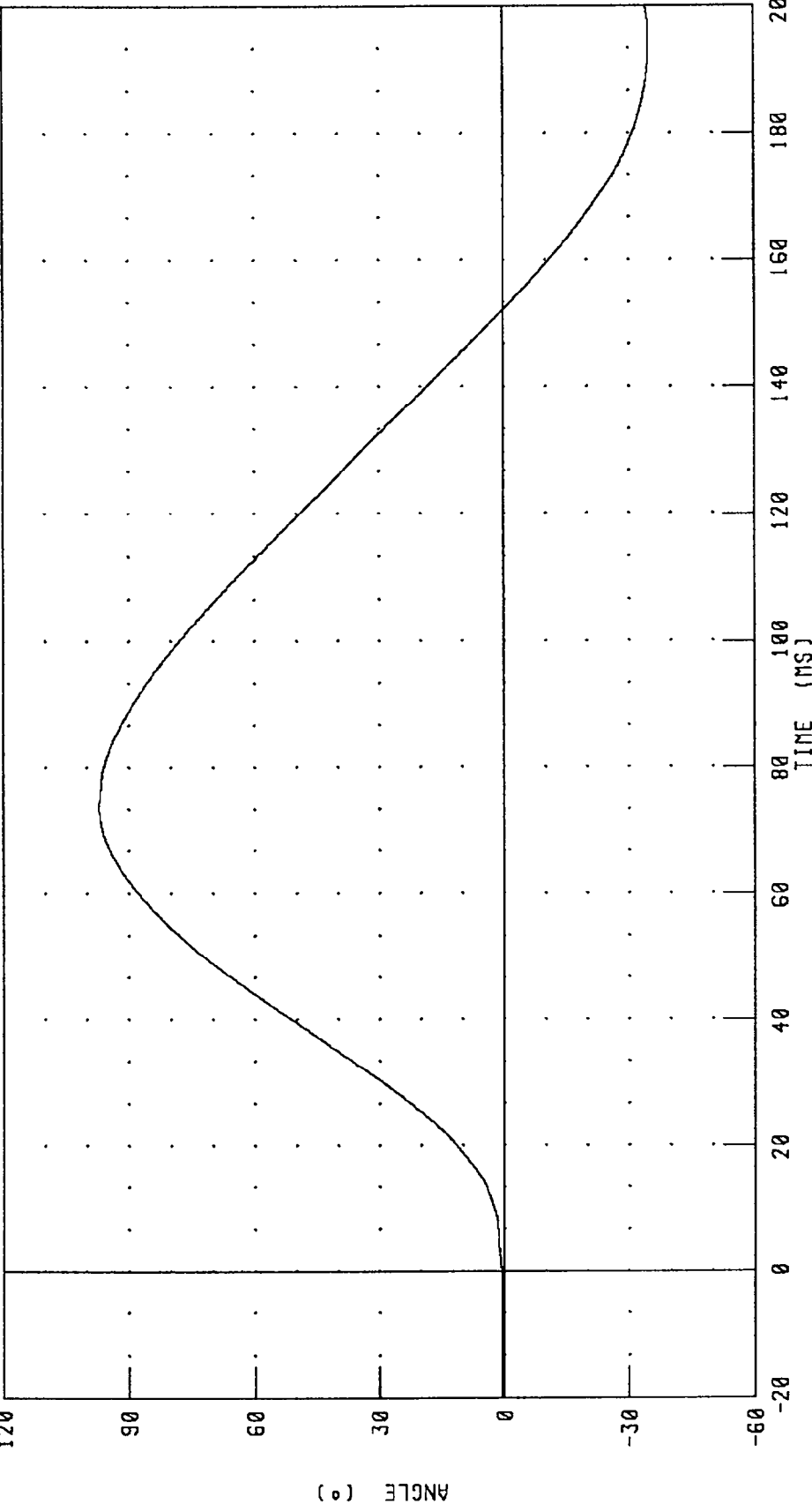
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C25NE1

572E SN142 NECK EXT. CAL25

RUN NUMBER: 020795.1125;1



CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 96.99 ° @ 73.68 MS; -34.87 ° @ 194.80 MS

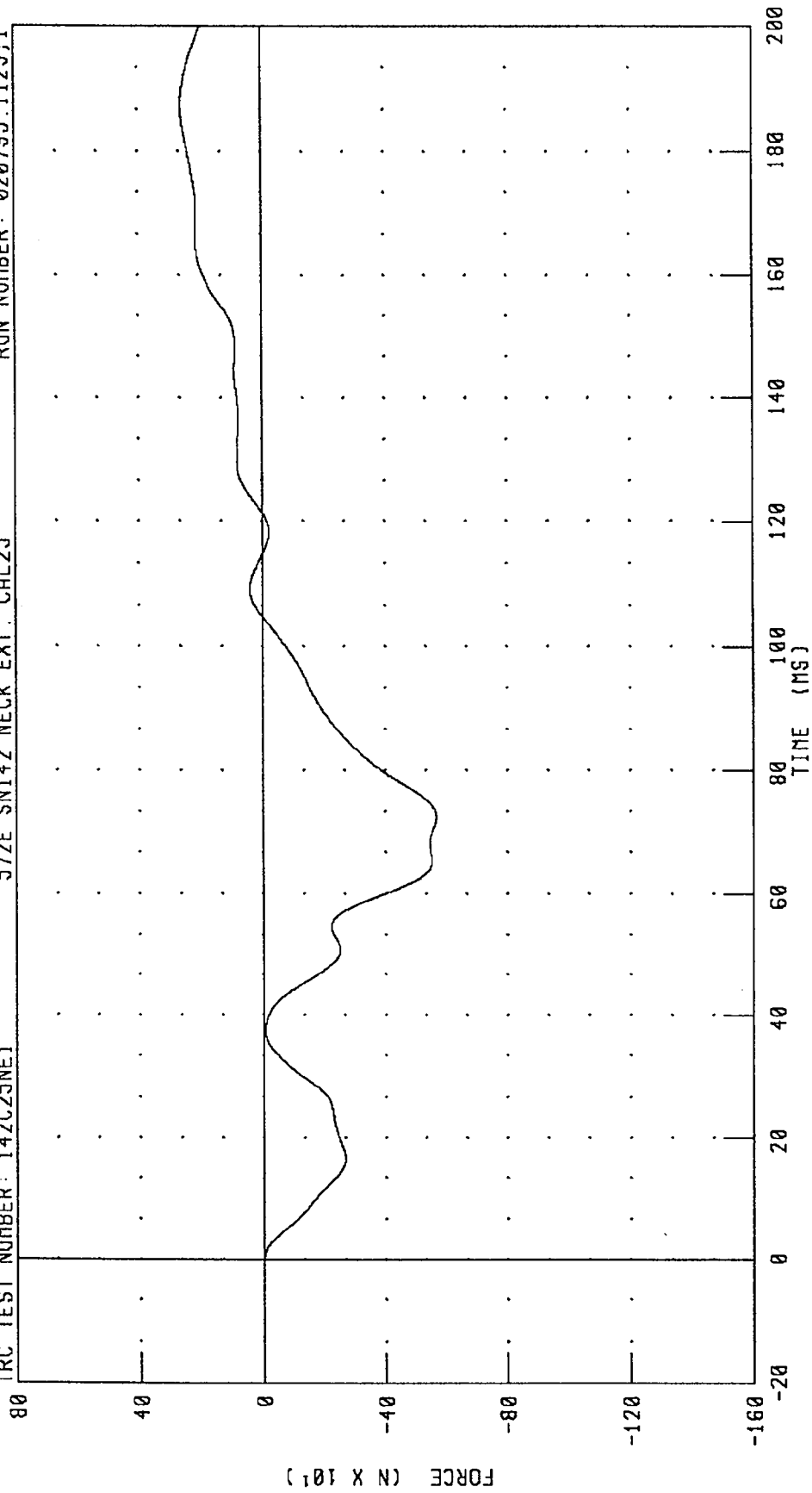
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C25NE1

572E SN142 NECK EXT. CAL25

RUN NUMBER: 020795.1125,1



CHANNEL: NEKXF FILTER: CH. CLASS 60

PEAK DATA: 260.19 N @ 187.04 MS; -567.47 N @ 72.56 MS

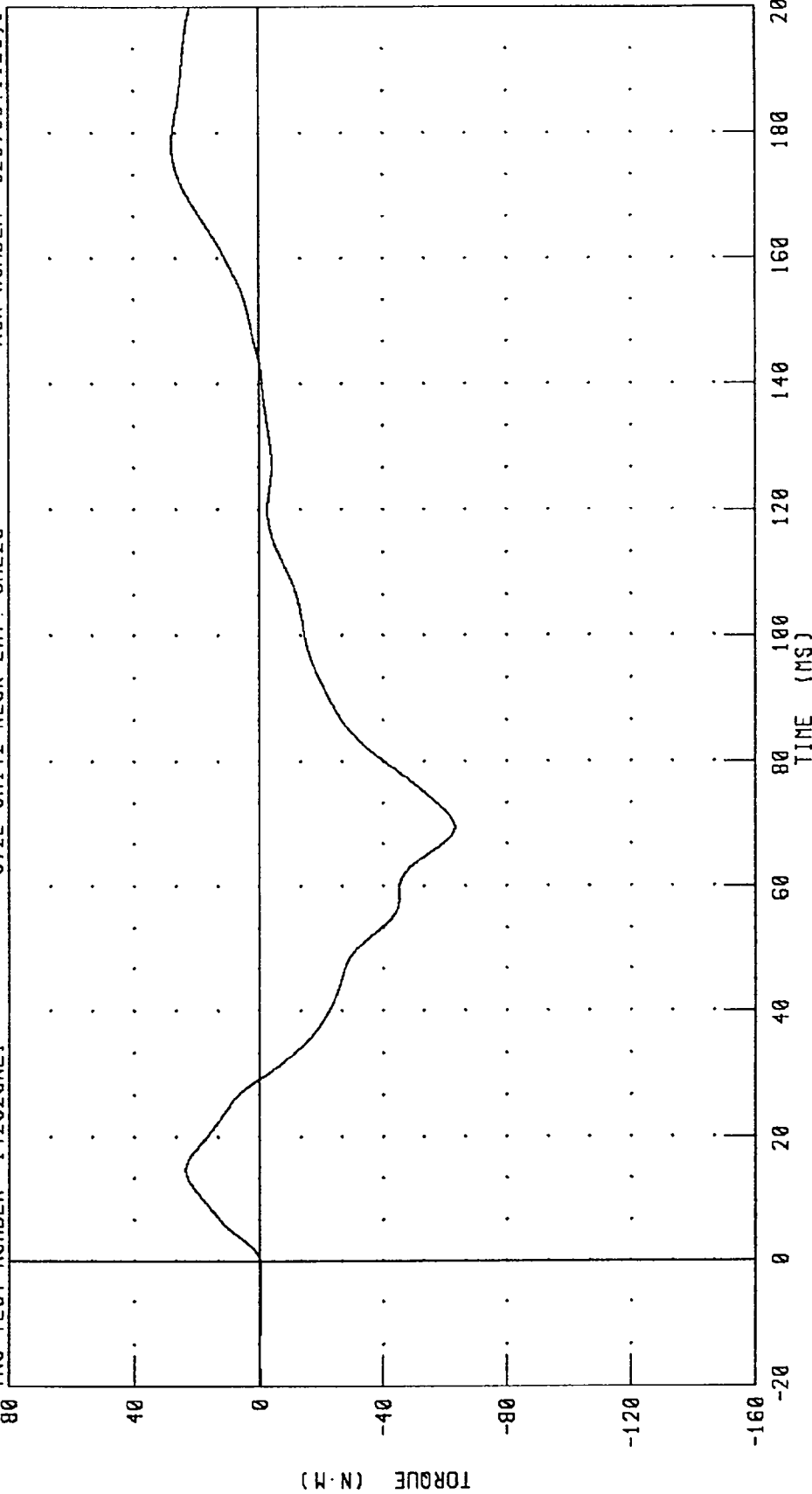
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

IRC TEST NUMBER: 142C25NE1

572E SN142 NECK EXT. CAL25

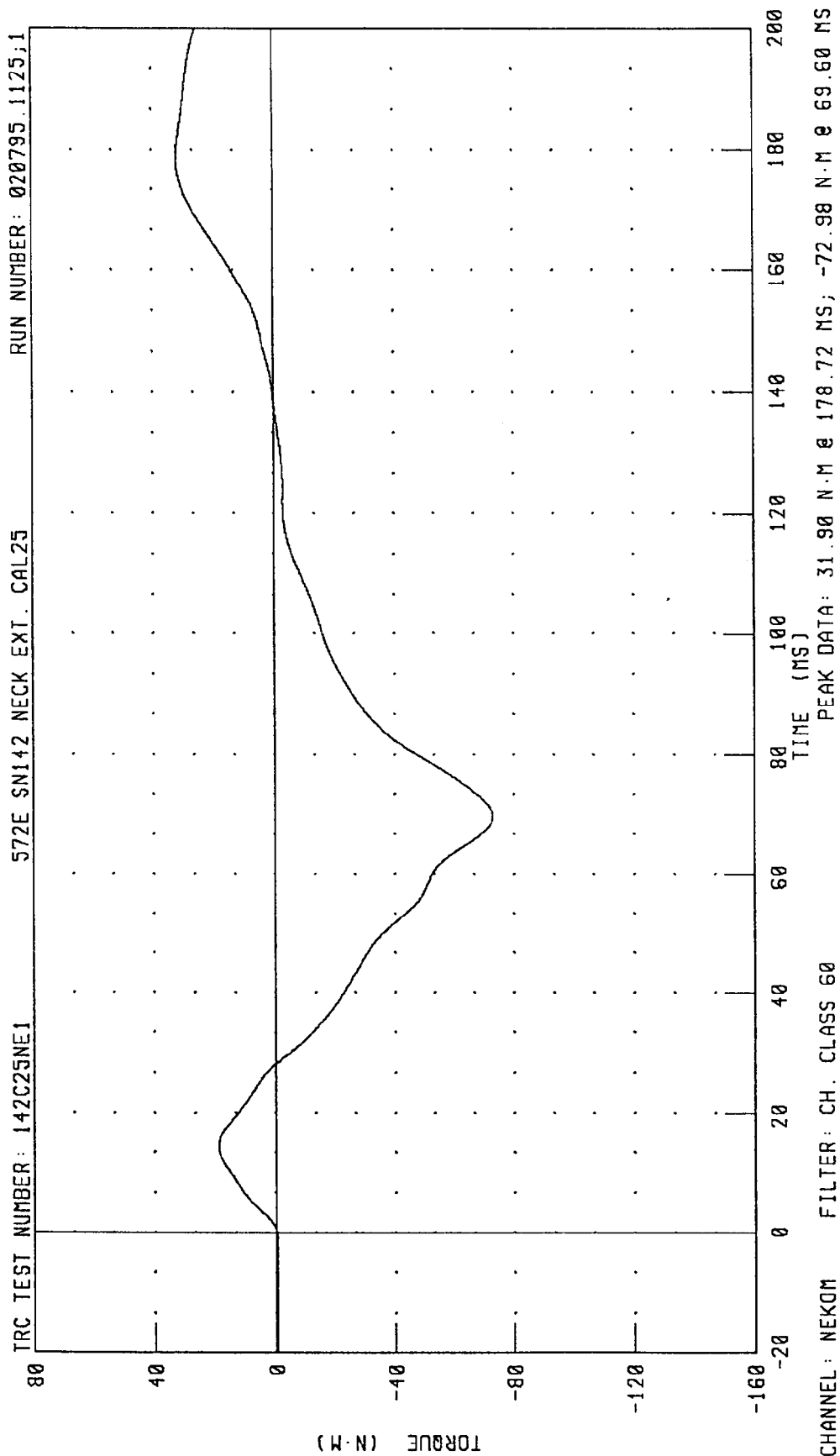
RUN NUMBER: 020795.1125;1



PEAK DATA: 27.76 N-M @ 178.16 MS; -63.20 N-M @ 69.52 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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



TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

06-DEC-94

TRC INC.

TEST NO: 142C25TH1

572E SN142 H.S.THORAX CAL25

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.65 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	70.8 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5498. N
INTERNAL HYSTERESIS	69% - 85%	73.2%

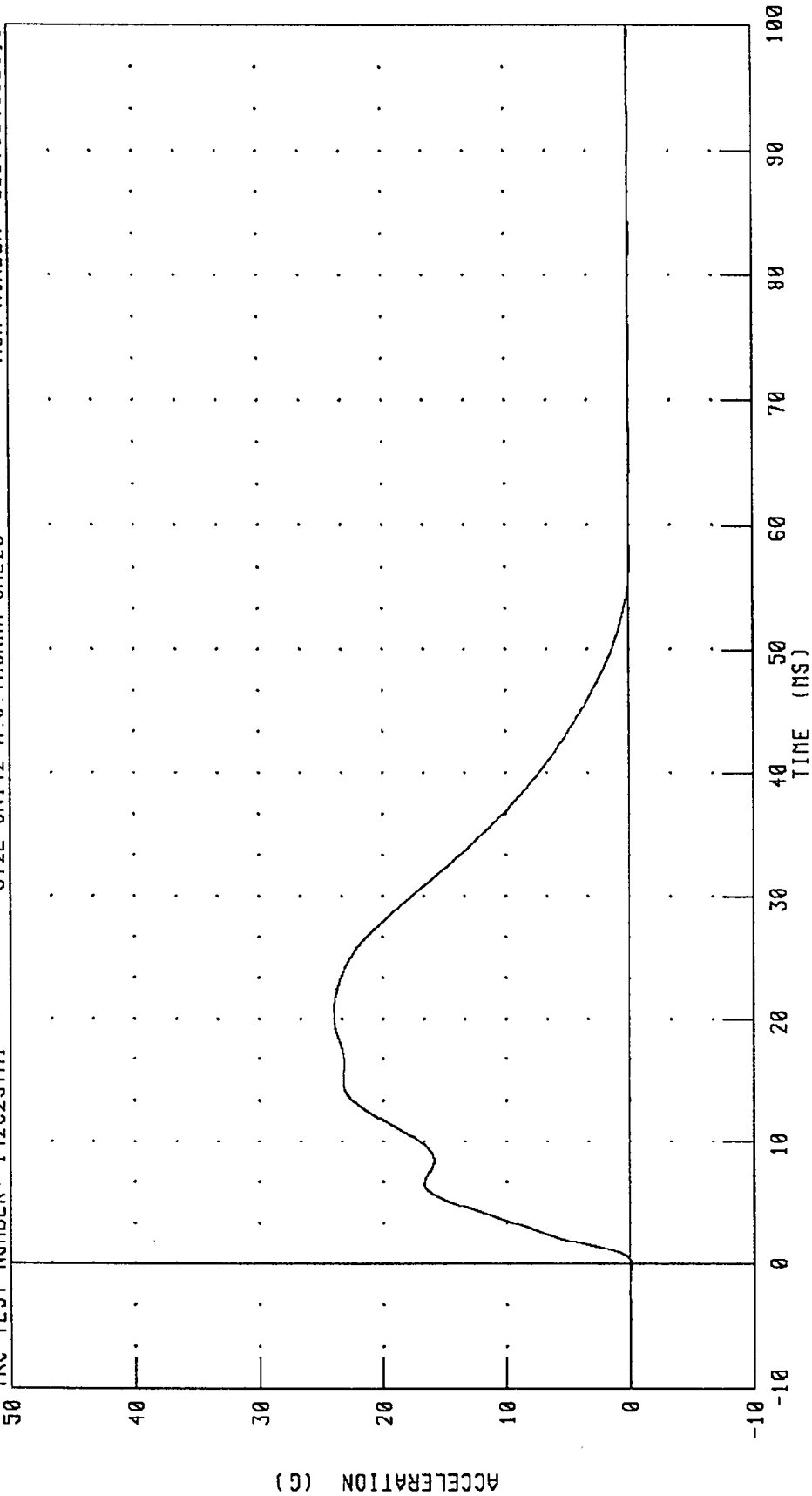
TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Foss

RUN NUMBER: 120694.0838;1

PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 142C25TH1 572E SN142 H.S. THORAX CAL25 RUN NUMBER: 020795.1125.1

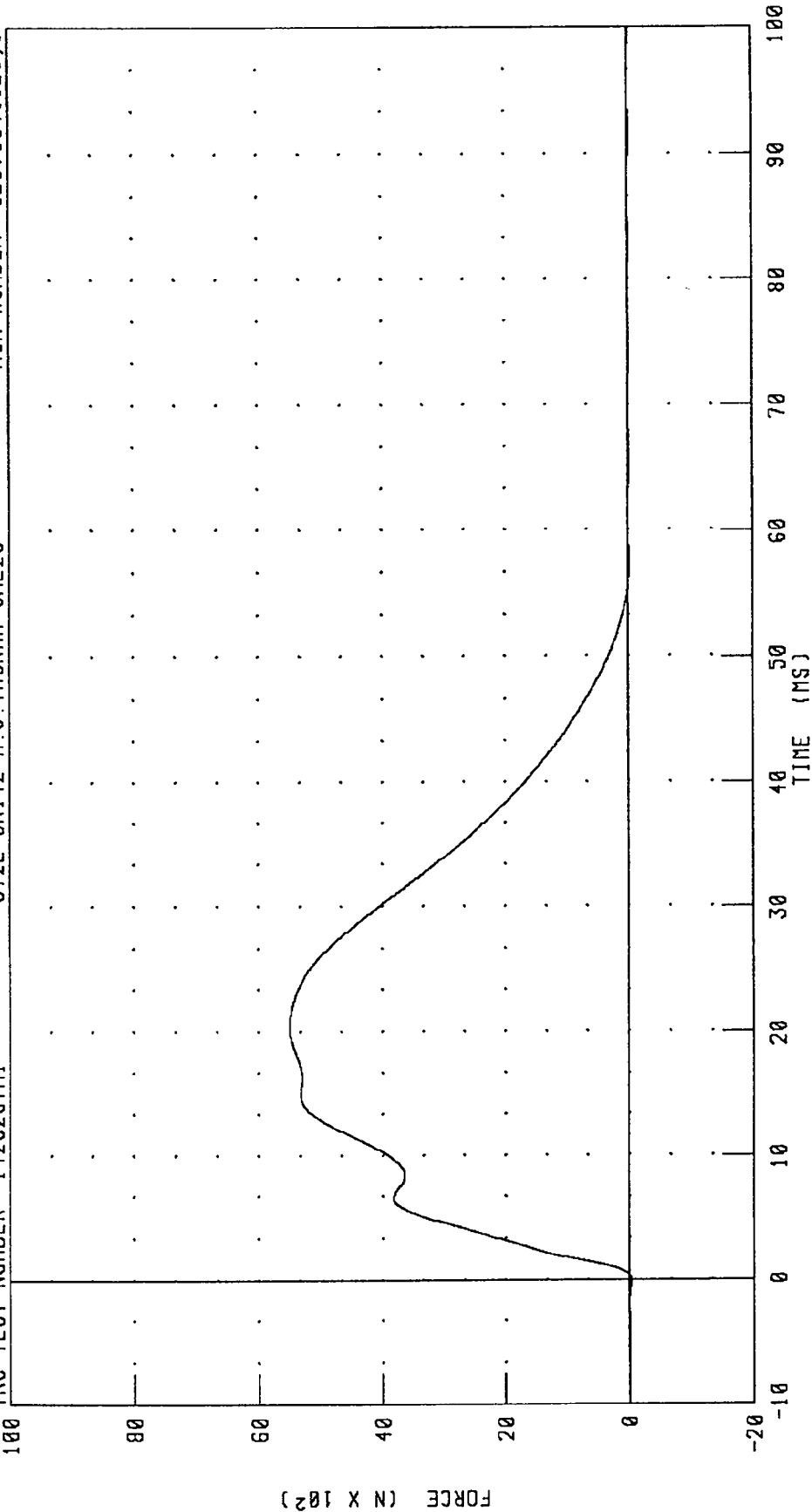


CHANNEL: PENXG

FILTER: CH. CLASS 180

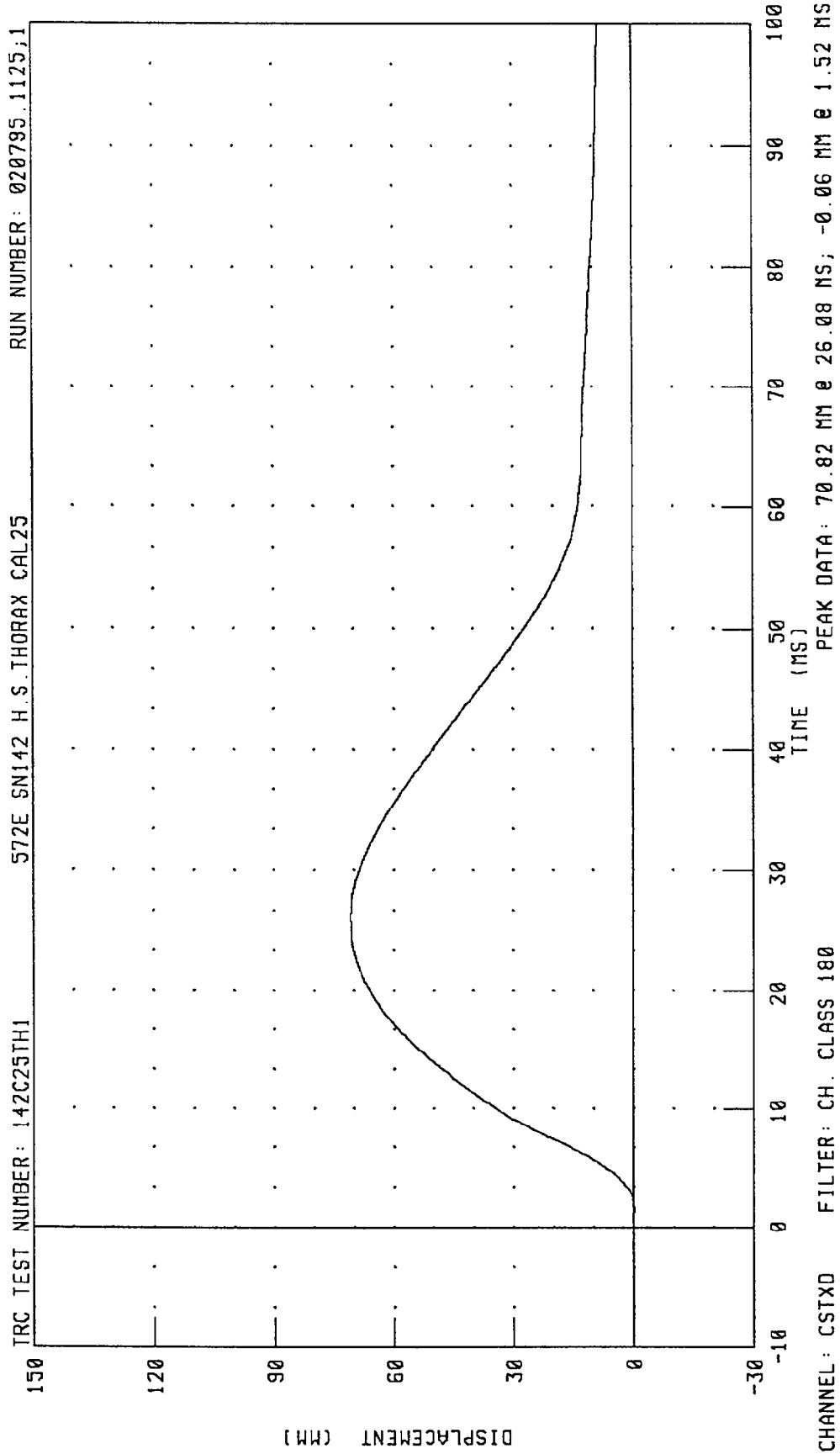
PART 572-E HYBRID III THORAX CALIBRATION PENDULUM FORCE

IRC TEST NUMBER: 142C25TH1 572E SN142 H.S. THORAX CAL25 RUN NUMBER: 020795.1125;1

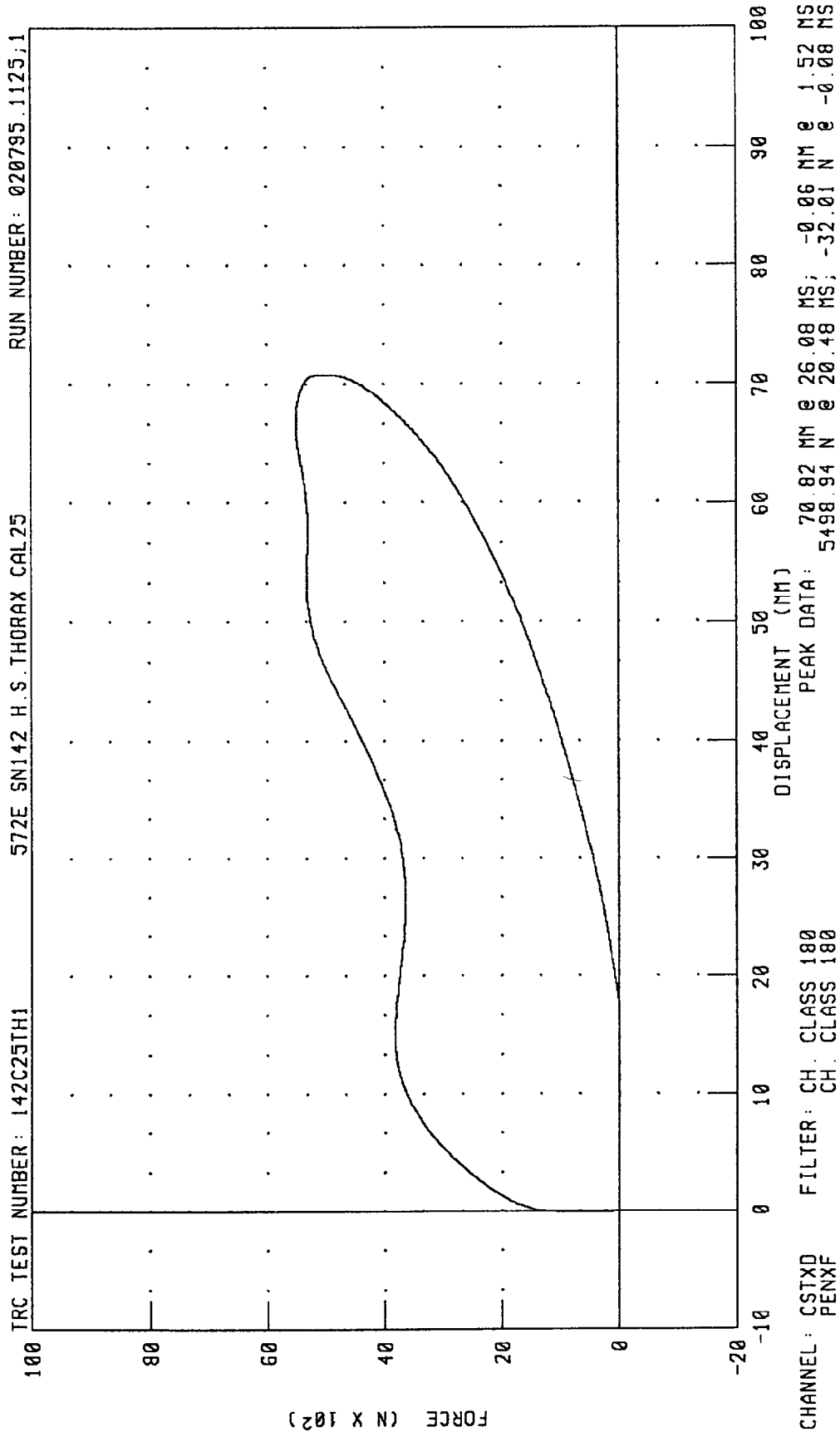


CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5498.94 N @ 20.48 MS; -32.01 N @ -0.08 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT



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



TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

05-DEC-94

TRC INC.

TEST NO: 142C25RK1

572E SN142 RIGHT KNEE CAL 25

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	56.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5549.3 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Faust

RUN NUMBER: 120594.1401;1

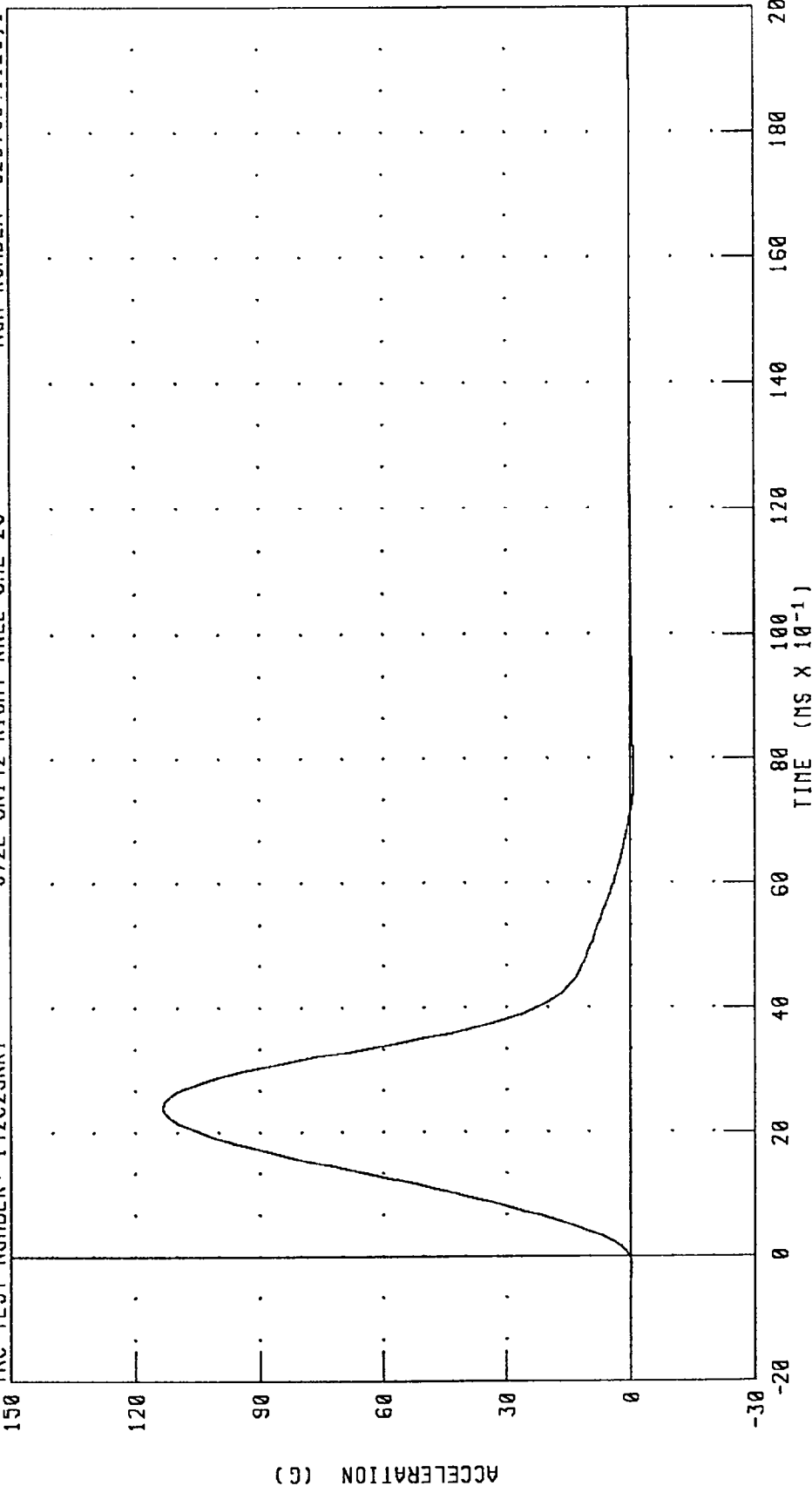
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 142C25RK1

572E SN142 RIGHT KNEE CAL 25

RUN NUMBER: 020795.1125,1



PEAK DATA: 113.42 G @ 2.40 MS, -0.80 G @ 7.76 MS

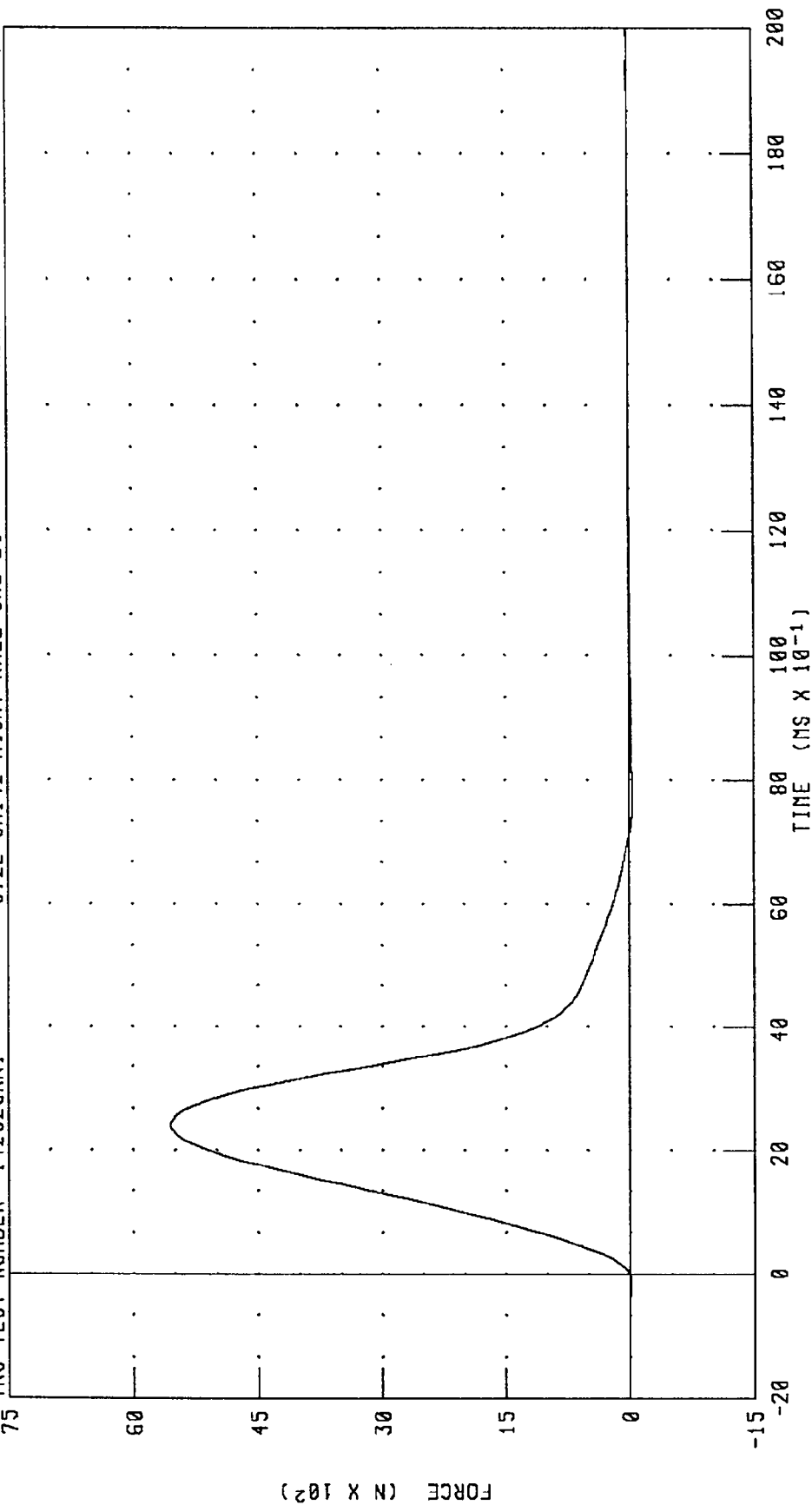
CHANNEL: PENXG FILTER: CH. CLASS 600

PART 572-E HYBRID II) RIGHT KNEE CALIBRATION
 PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 142C25RK1

572E SN142 RIGHT KNEE CAL 25

RUN NUMBER: 020795.1125;1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5549.35 N @ 2.40 NS; -39.20 N @ 7.76 NS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

05-DEC-94

TRC INC.

TEST NO: 142C25LK1

572E SN142 LEFT KNEE CAL 25

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	56.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5563.0 N

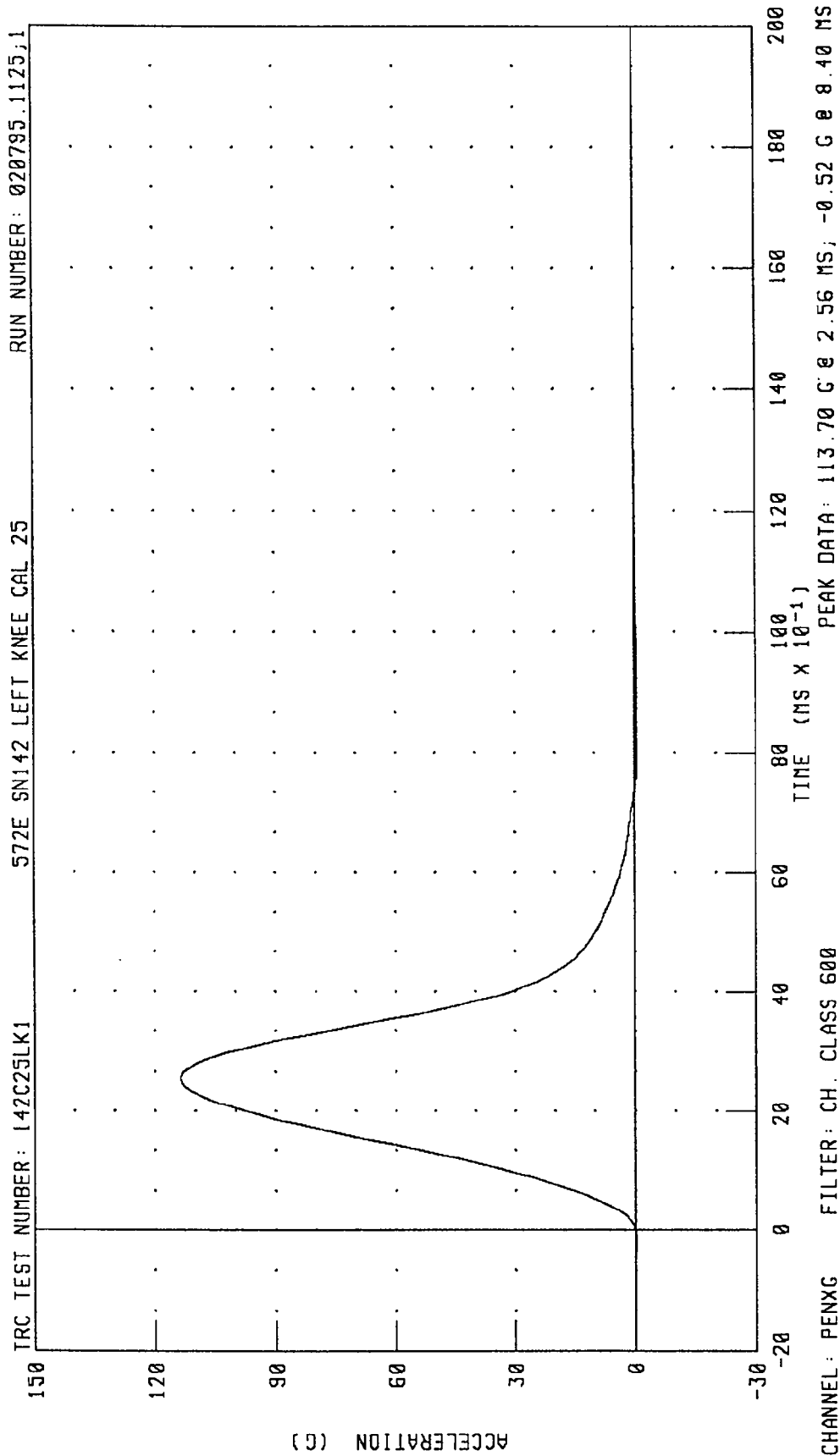
TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete Fouts

RUN NUMBER: 120594.1351;1

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



PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN142 LEFT KNEE CAL 25

TRC TEST NUMBER: 142C25LK1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5563.08 N @ 2.56 MS; -25.66 N @ 8.40 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

RUN NUMBER: 020795.1125;1

FORCE (N X 10²)

Pre-test Certification Data

Passenger Dummy S/N: 192

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III EXTERNAL DIMENSIONS

192 ALDERSON

26-DEC-94

TRC INC.

TEST NO: 192C24ED1

572E SN192 EXT.DIMENSION CAL24

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

R. E. Faint

RUN NUMBER: 122694.1303

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

26-DEC-94

TRC INC.

TEST NO: 192C24HD1

572E SN192 HEAD DROP CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	231.15 G
PEAK LATERAL ACCELERATION	15 G MAX	-4.09 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete F. J.

RUN NUMBER: 122694.0903;1

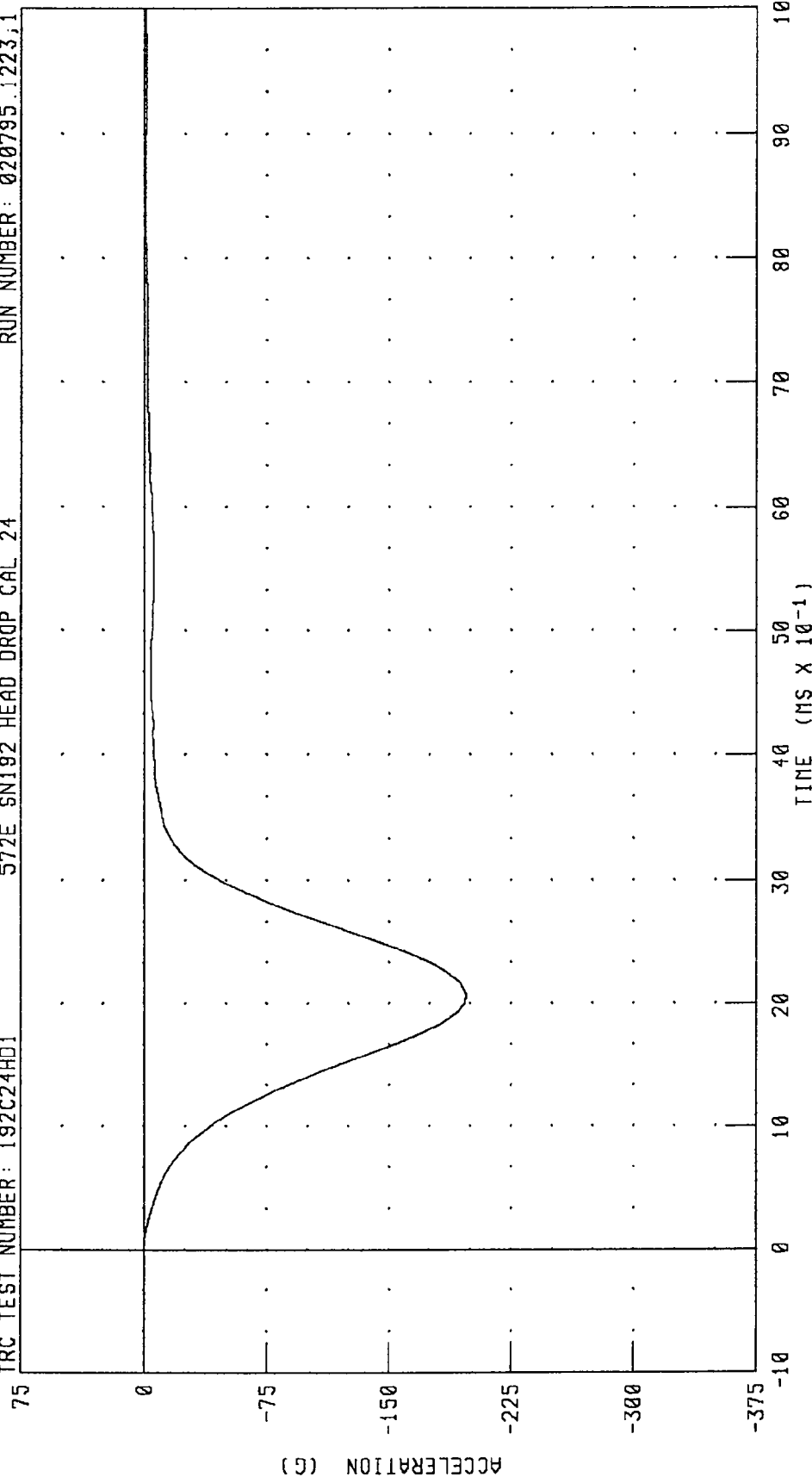
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 192C24HD1

572E SN192 HEAD DRQP CAL 24

RUN NUMBER: 020795.1223,1



PEAK DATA: 0.02 G @ -0.08 MS; -197.85 G @ 2.08 MS

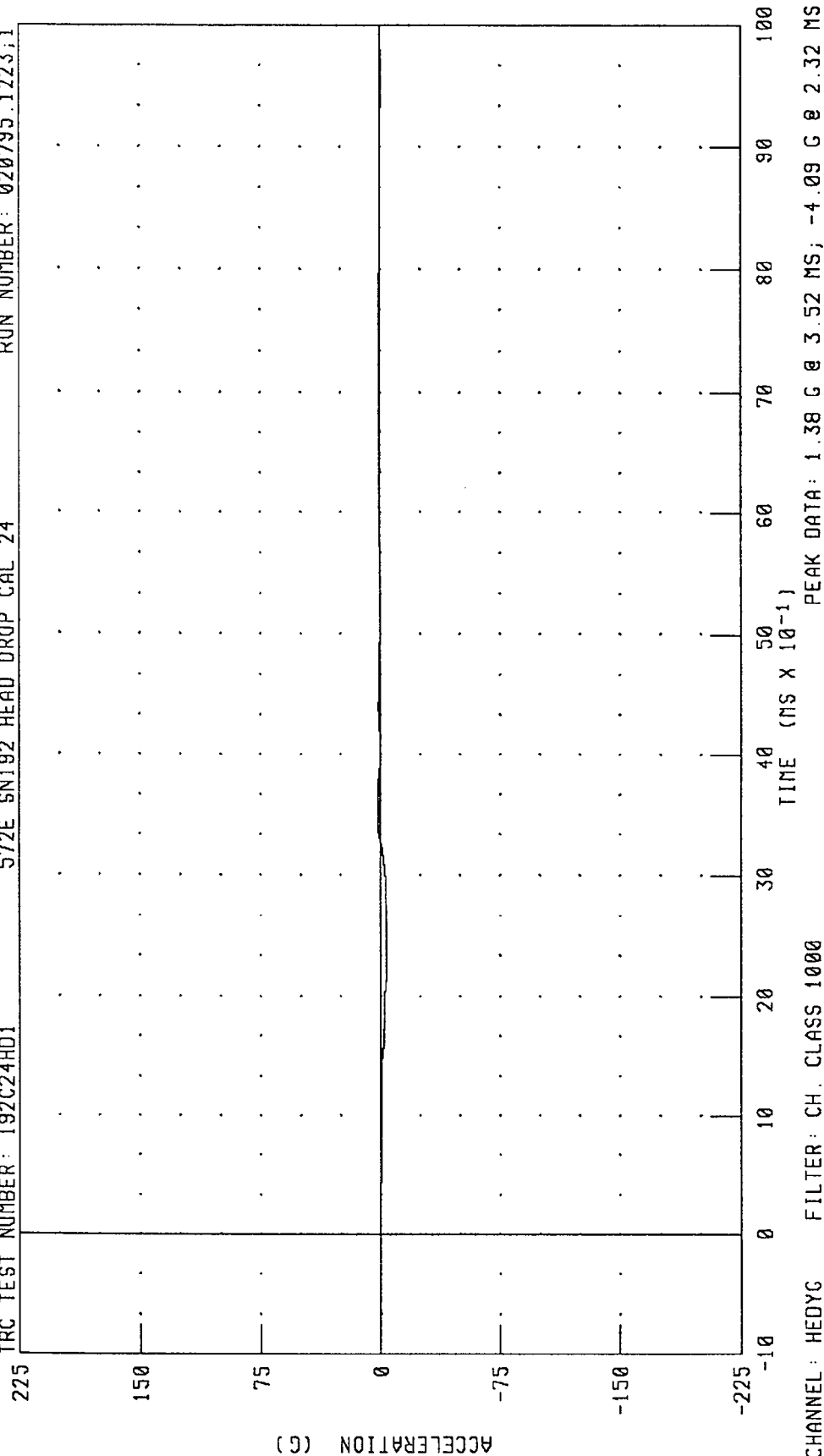
CHANNEL: HEDXG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 192C24HD1

572E SN192 HEAD DROP CAL 24

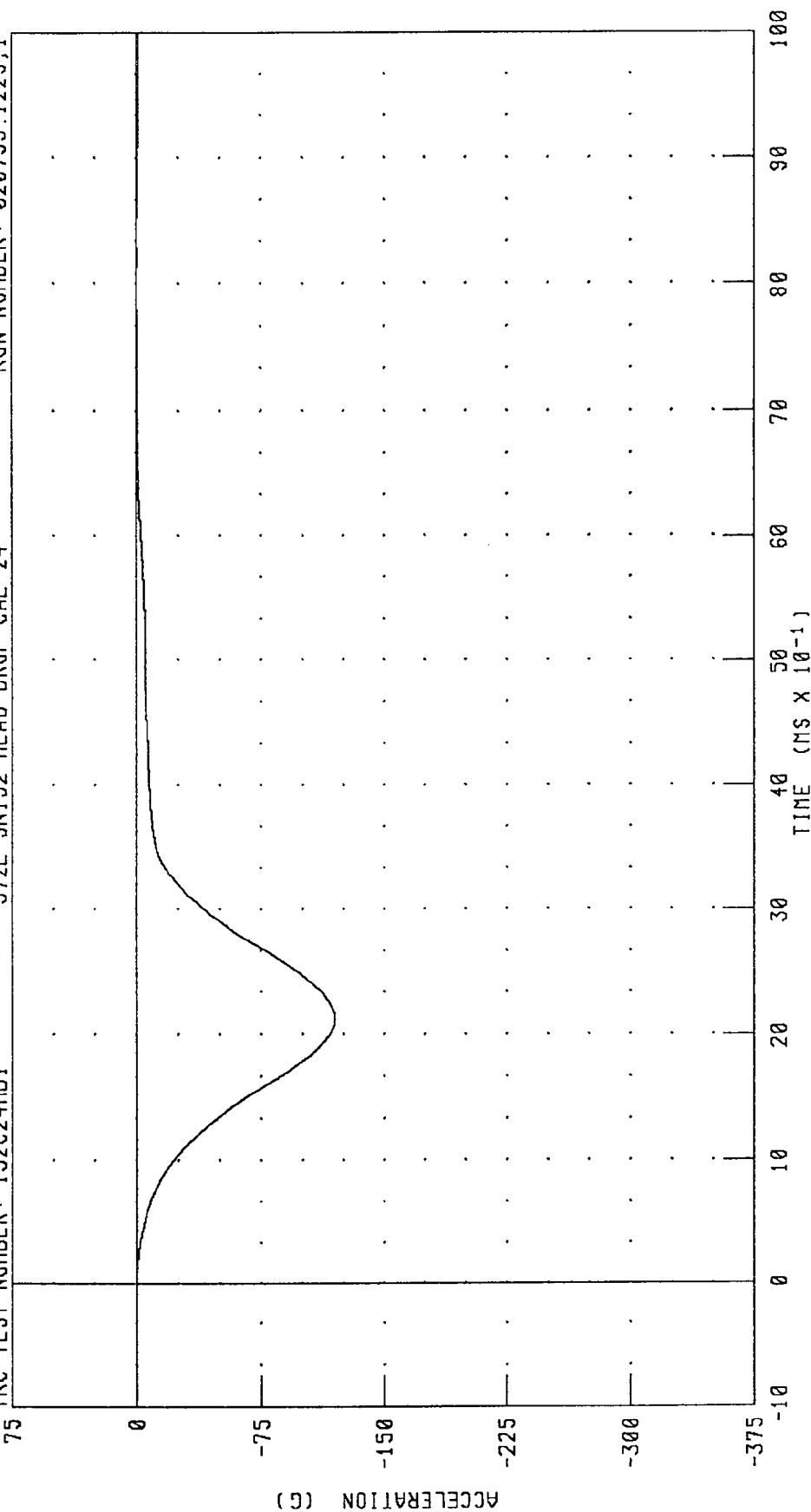
RUN NUMBER: 020795.1223;1



CHANNEL: HEDYC FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 192C24HD1 572E SN192 HEAD DROP CAL 24 RUN NUMBER: 020795.1223;1



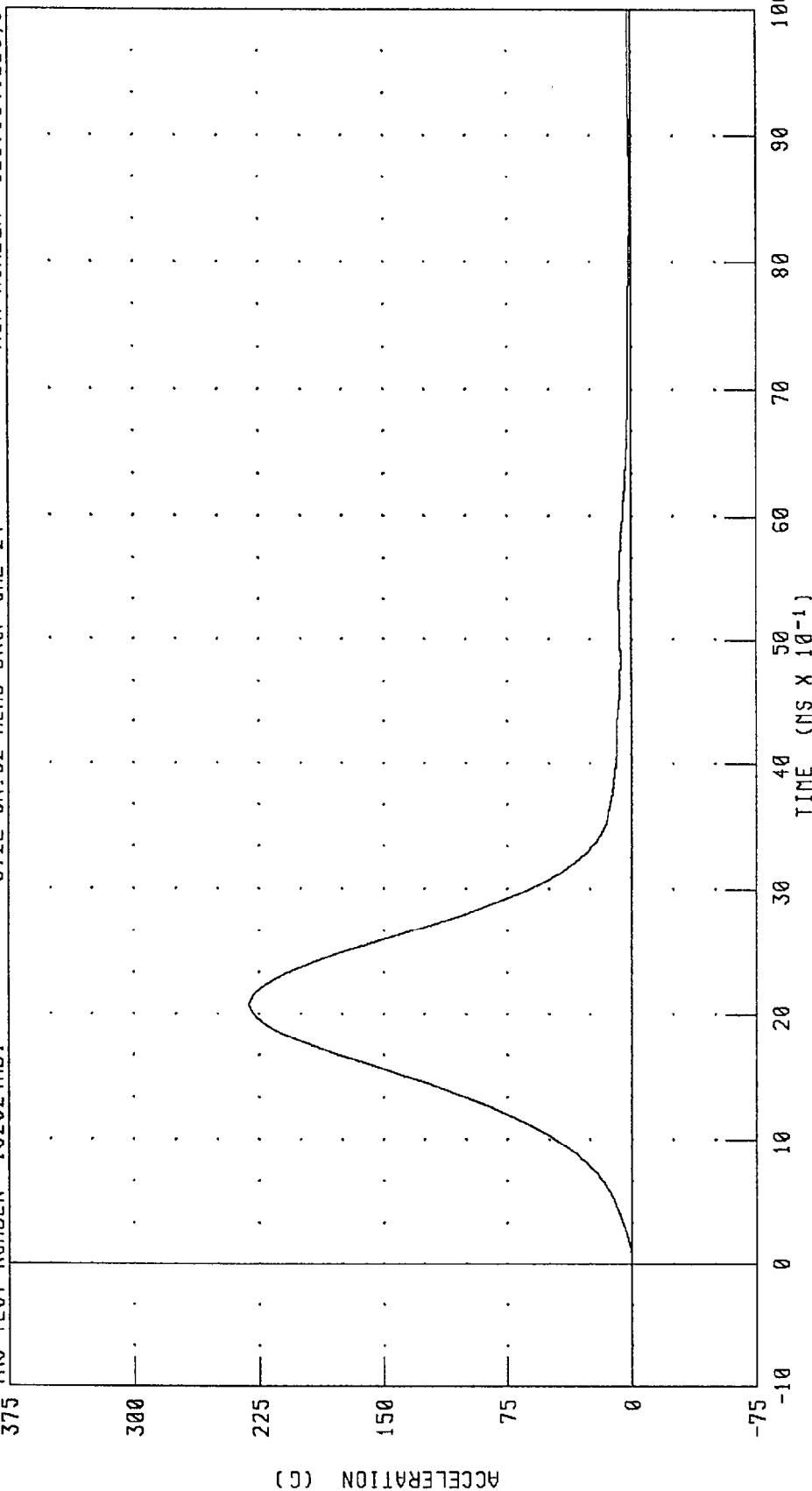
PEAK DATA: 0.05 G @ -0.96 MS; -119.64 G @ 2.16 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
 HEAD RESULTANT ACCELERATION
 572E SN192 HEAD DROP CAL 24

RUN NUMBER: 020795.1223;1

TRC TEST NUMBER: 192C24HD1



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 231.16 G @ 2.08 MS; 0.07 G @ -0.80 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

26-DEC-94

TRC INC. TEST NO: 192C24NF1 572E SN192 NECK FLEXION CAL24

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	33.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	22.92 G
	20 MS	17.60 - 22.60 G	19.90 G
	30 MS	12.50 - 18.50 G	17.15 G
MAX PENDULUM G		29 G MAX	23.54 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.09 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	39.84 MS
D PLANE	MAX	64 - 78 DEG.	65.99 DEG.
ROTATION	TIME	57 - 64 MS	58.96 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	92.82 NM
	TIME	47 - 58 MS	52.40 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	103.68 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Rita Font

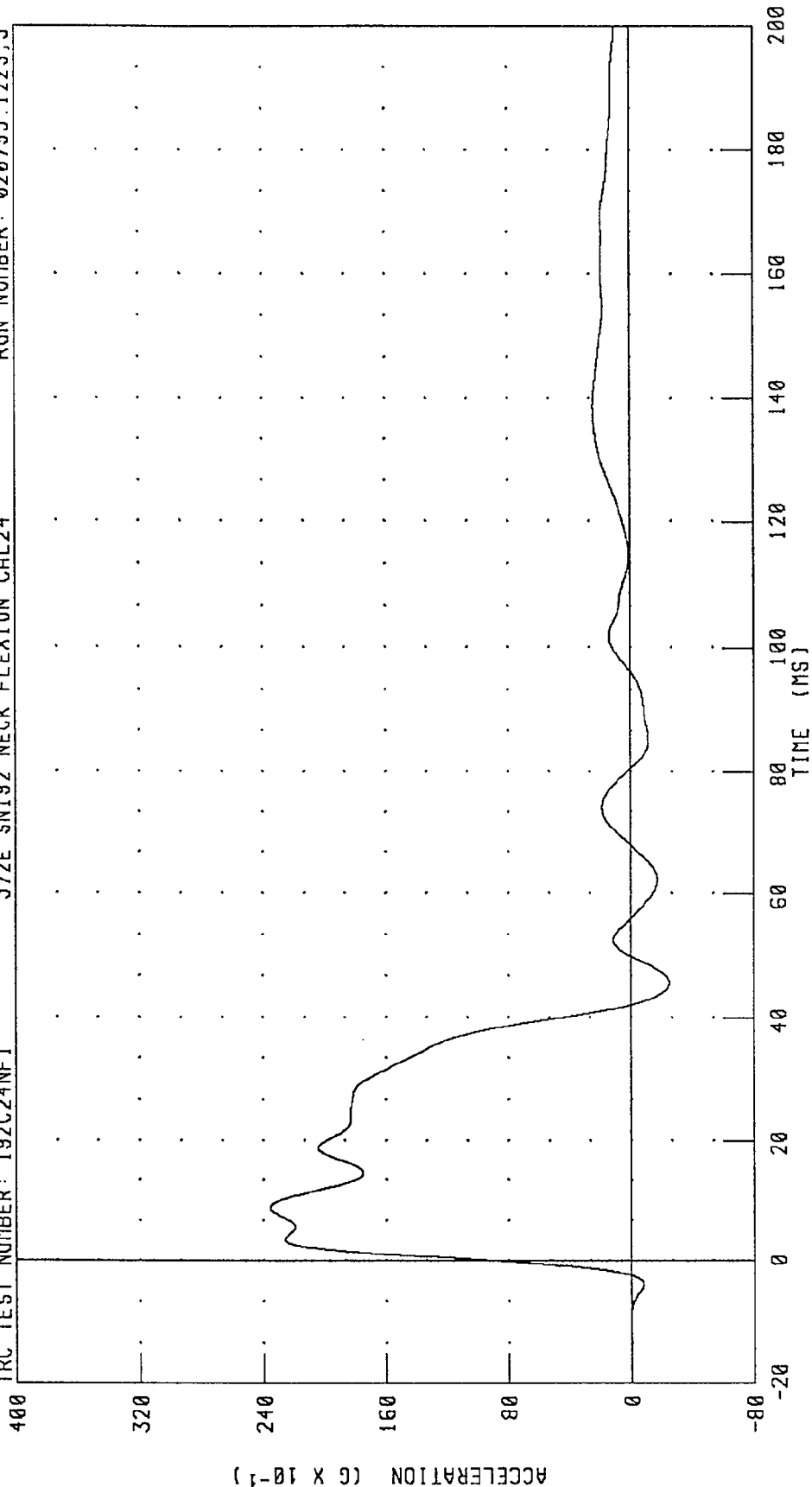
RUN NUMBER: 122694.1313;5

PART 572-E HYBRID III NECK FLEXION CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C24NF1

572E SN192 NECK FLEXION CAL24

RUN NUMBER: 020795.1223,5



PEAK DATA: 23.54 G @ 8.80 MS, -2.47 G @ 45.60 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

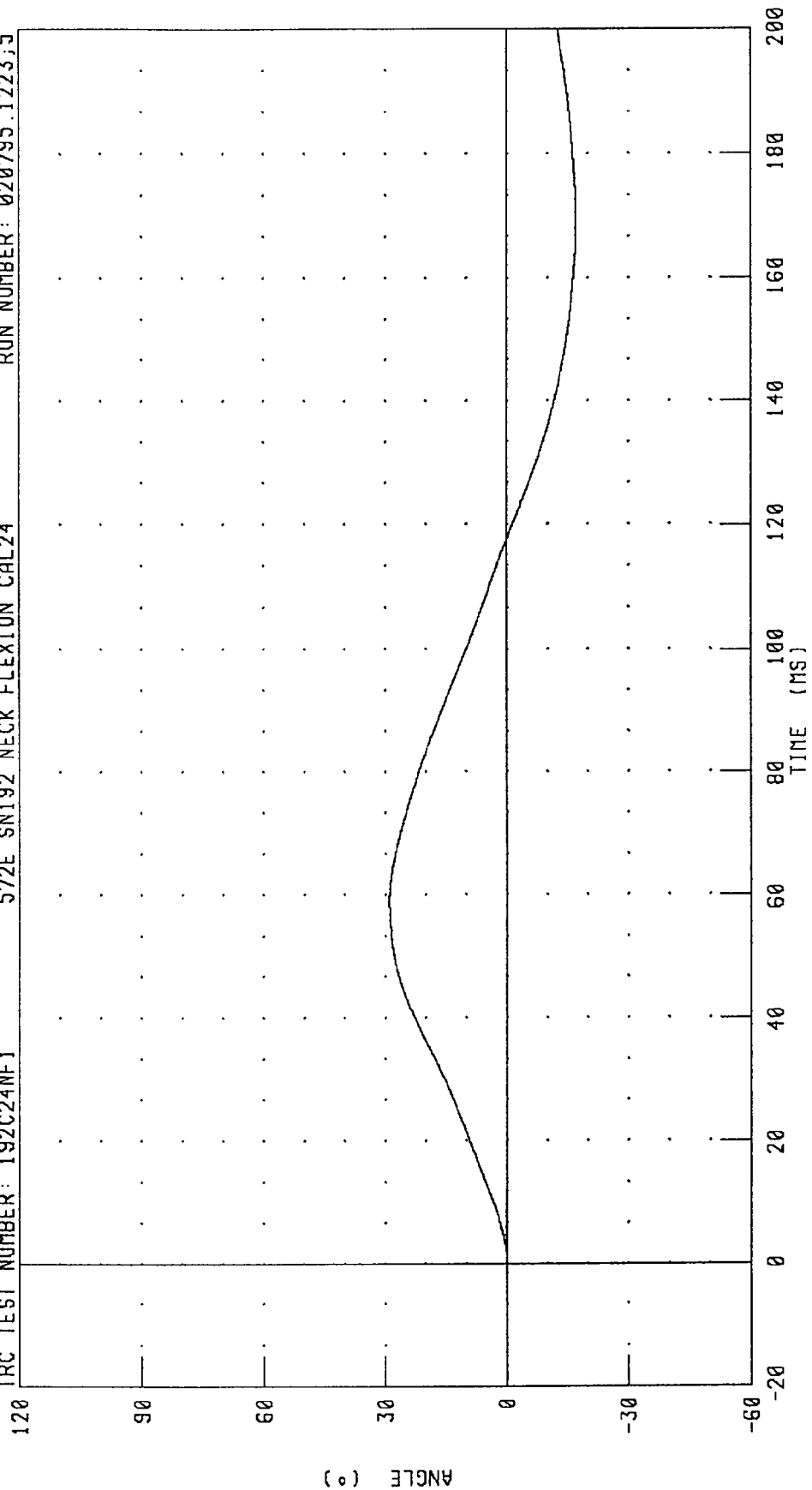
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C24NF1

572E SN192 NECK FLEXION CAL24

RUN NUMBER: 020795.1223;5



CHANNEL: BETA FILTER: CH. CLASS 60

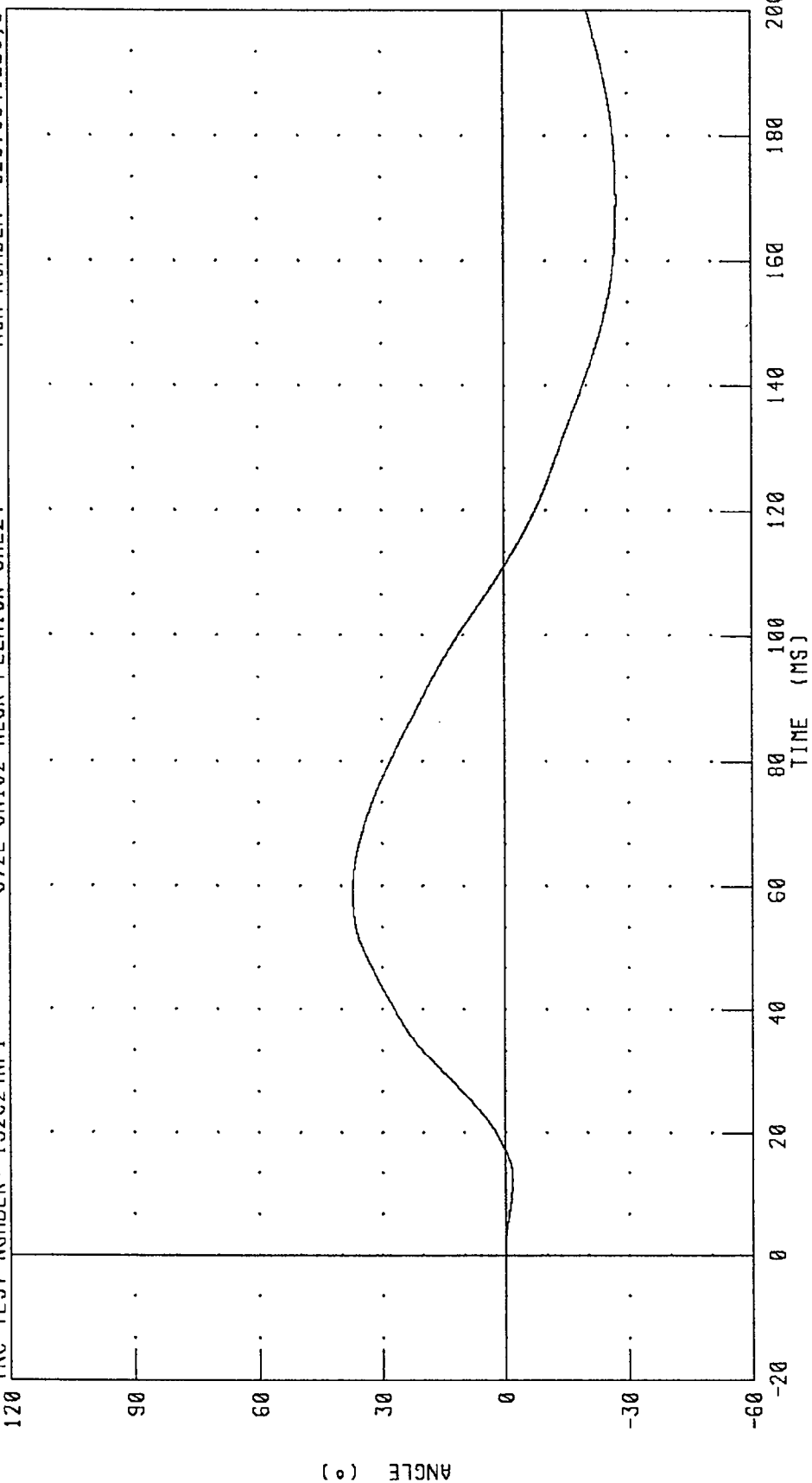
PEAK DATA: 28.90 ° @ 58.96 MS; -16.96 ° @ 171.60 MS

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

TRC TEST NUMBER: 192C24NF1

572E SN192 NECK FLEXION CAL24

RUN NUMBER: 020795.1223,5



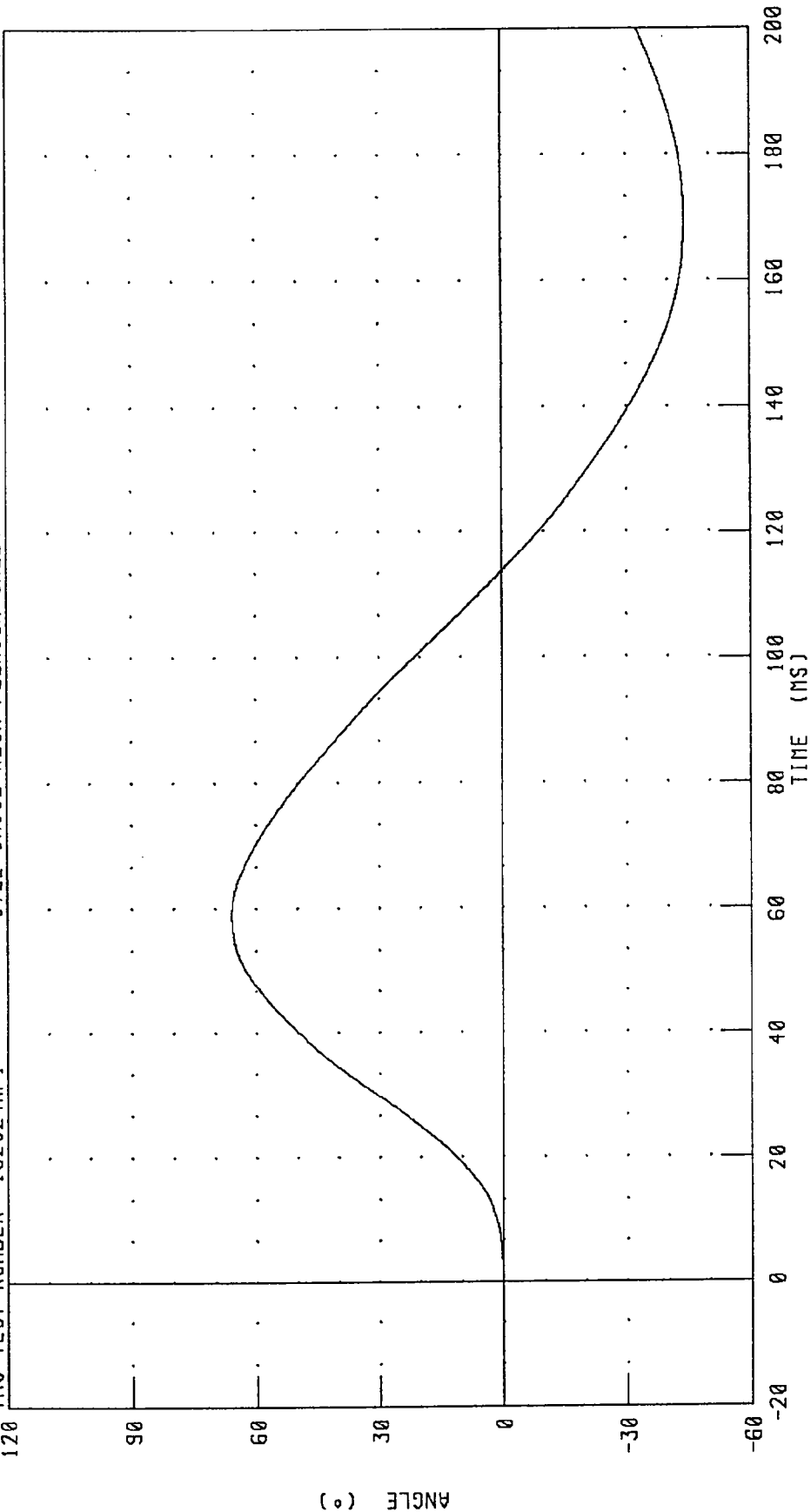
CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 37.10 ° @ 58.88 MS; -27.27 ° @ 169.68 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C24NF1 572E SN192 NECK FLEXION CAL24 RUN NUMBER: 020795.1223;5



PEAK DATA: 66.00 ° @ 58.96 MS; -44.23 ° @ 169.68 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

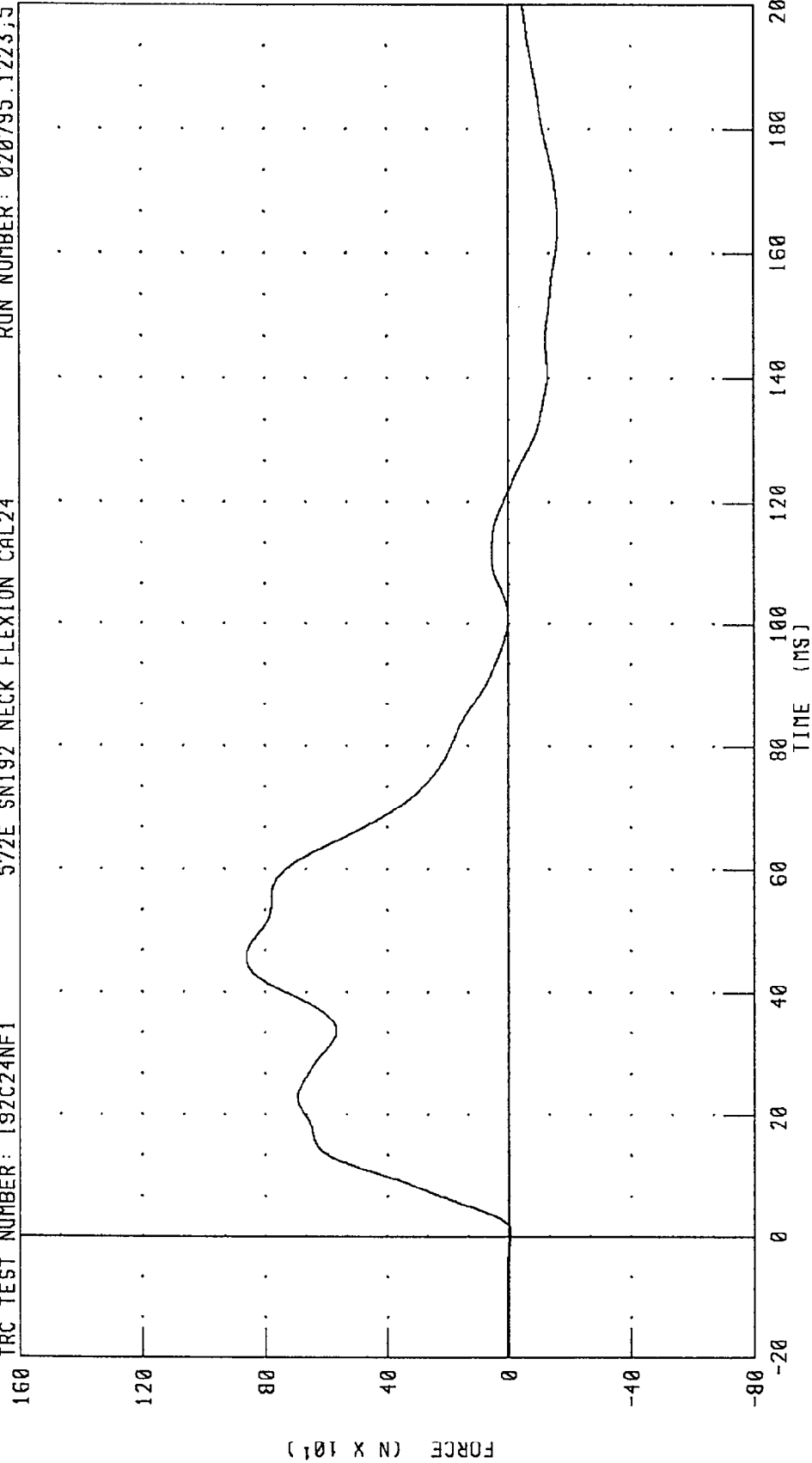
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C24NF1

572E SN192 NECK FLEXION CAL24

RUN NUMBER: 020795.1223,5



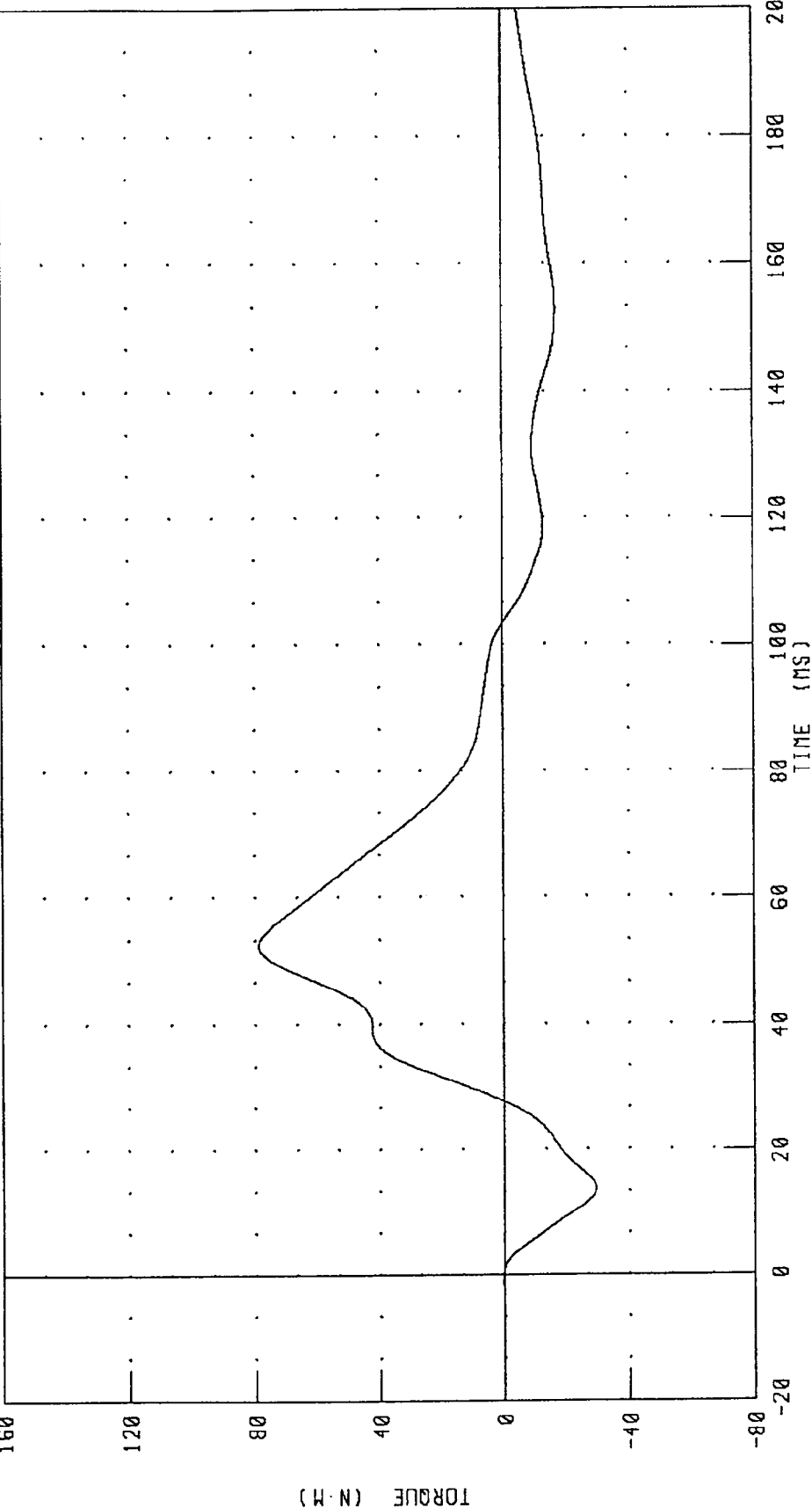
PEAK DATA: 862.40 N @ 45.68 MS; -163.05 N @ 164.80 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C24NF1 572E SN192 NECK FLEXION CAL24 RUN NUMBER: 020795.1223;5



PEAK DATA: 78.86 N·M @ 52.48 MS; -29.30 N·M @ 13.76 MS

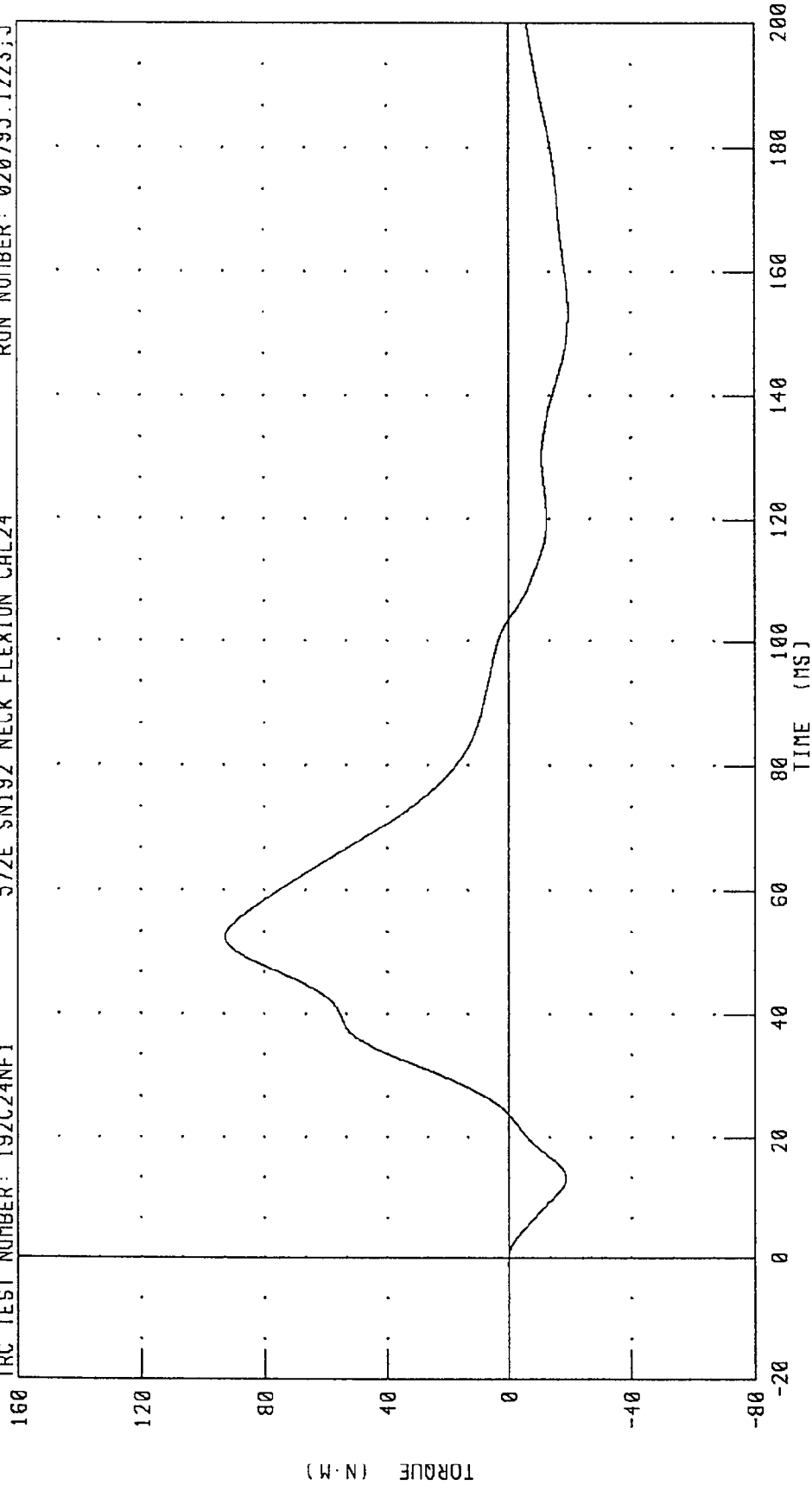
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C24NF1

572E SN192 NECK FLEXION CAL24

RUN NUMBER: 020795.1223;5



PEAK DATA: 92.82 N.M @ 52.40 MS; -19.49 N.M @ 153.44 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

26-DEC-94

TRC INC. TEST NO: 192C24NE1 572E SN192 NECK EXT. CAL24

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	33.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.02 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.31 G
	20 MS	14.00 - 19.00 G	15.40 G
	30 MS	11.00 - 16.00 G	13.01 G
MAX PENDULUM G		22 G MAX	18.81 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	12.99 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	42.64 MS
D PLANE	MAX	81 - 106 DEG.	92.51 DEG.
ROTATION	TIME	72 - 82 MS	75.44 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-56.14 NM
	TIME	65 - 79 MS	71.84 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	158.00 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	139.44 MS

TEST MEETS SPECIFICATIONS

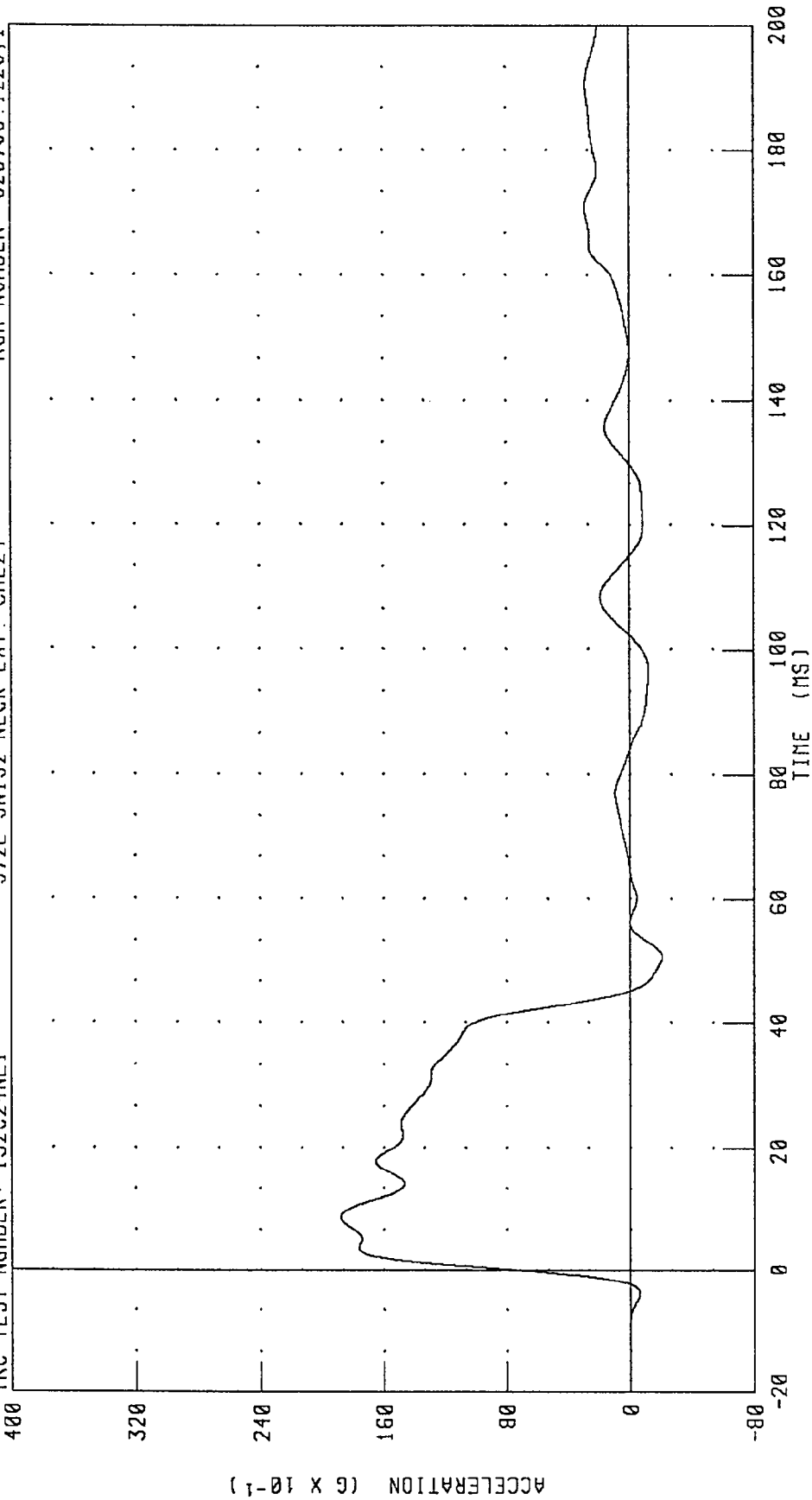
TECHNICIAN

Pete Fox

RUN NUMBER: 122694.1323;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

IRC TEST NUMBER: 192C24NE1 572E SN192 NECK EXT. CAL24 RUN NUMBER: 020795.1223;1



CHANNEL: PENXG FILTER: CH. CLASS 60 PEAK DATA: 18.82 G @ 8.72 MS, -2.08 G @ 50.64 MS

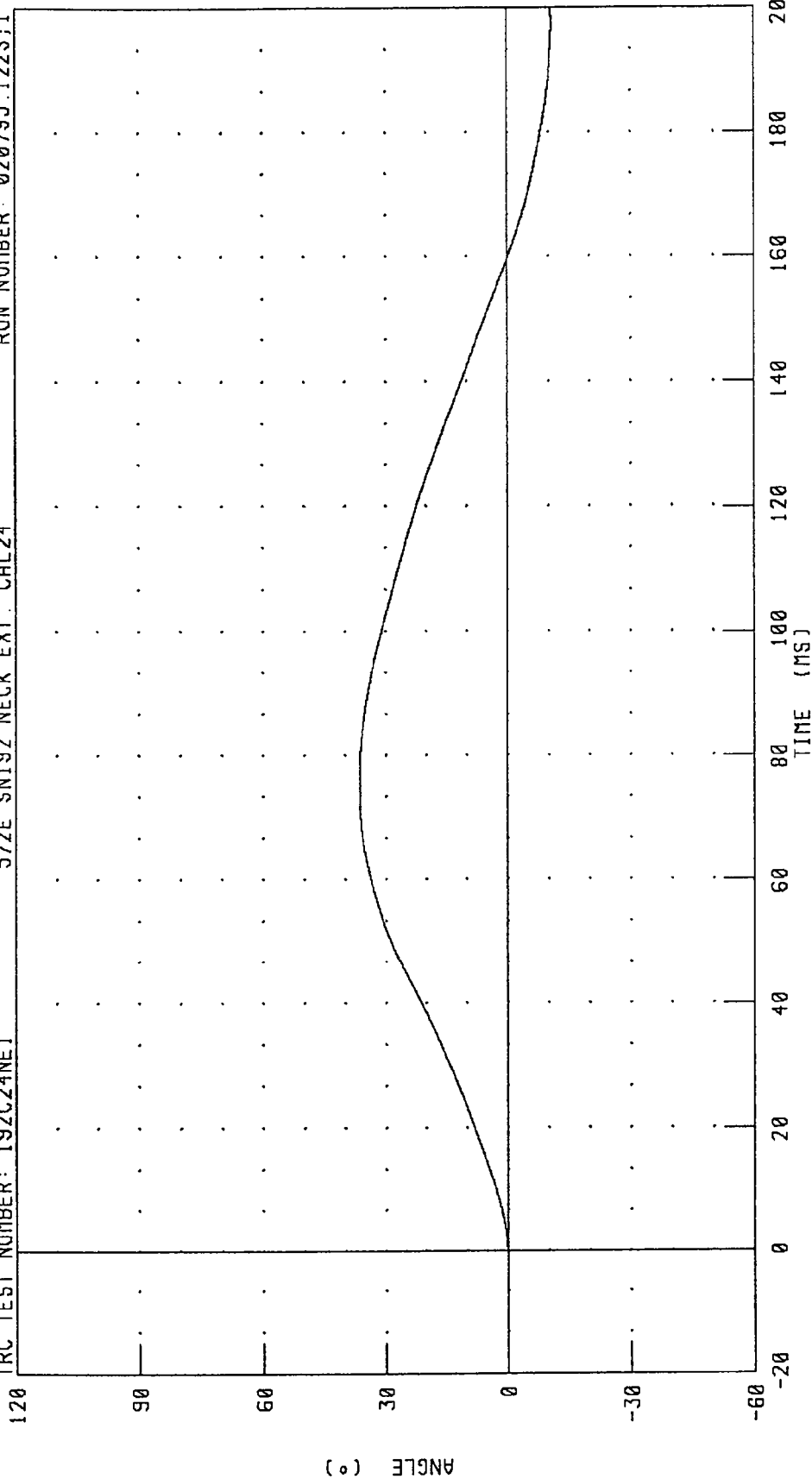
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN192 NECK EXT. CAL24

RUN NUMBER: 020795.1223;1

TRC TEST NUMBER: 192C24NE1



CHANNEL: BETA FILTER: CH. CLASS 60

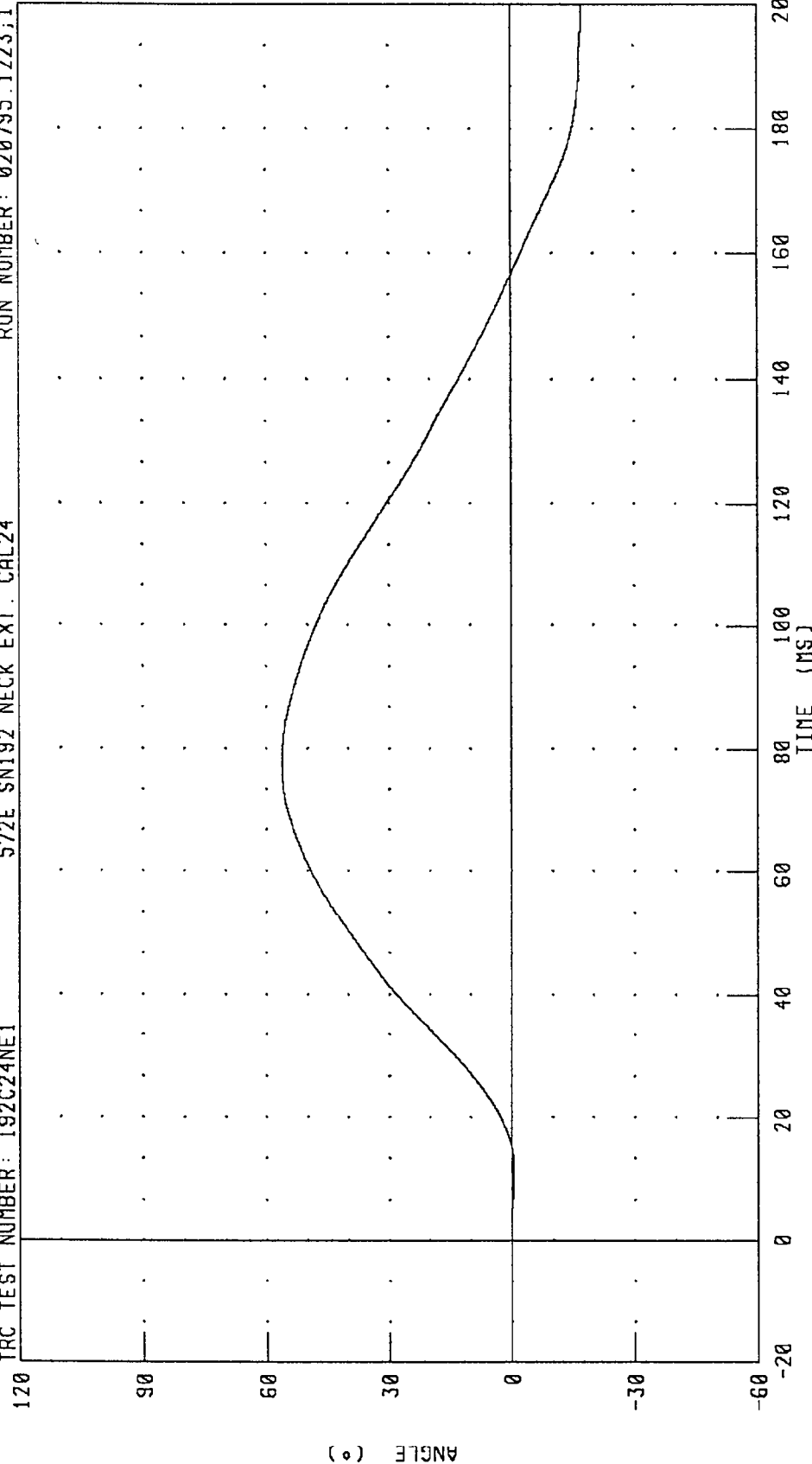
PEAK DATA: 36.44 ° @ 74.48 MS; -10.77 ° @ 197.36 MS

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

TRC TEST NUMBER: 192C24NE1

572E SN192 NECK EXT. CAL24

RUN NUMBER: 020795.1223;1



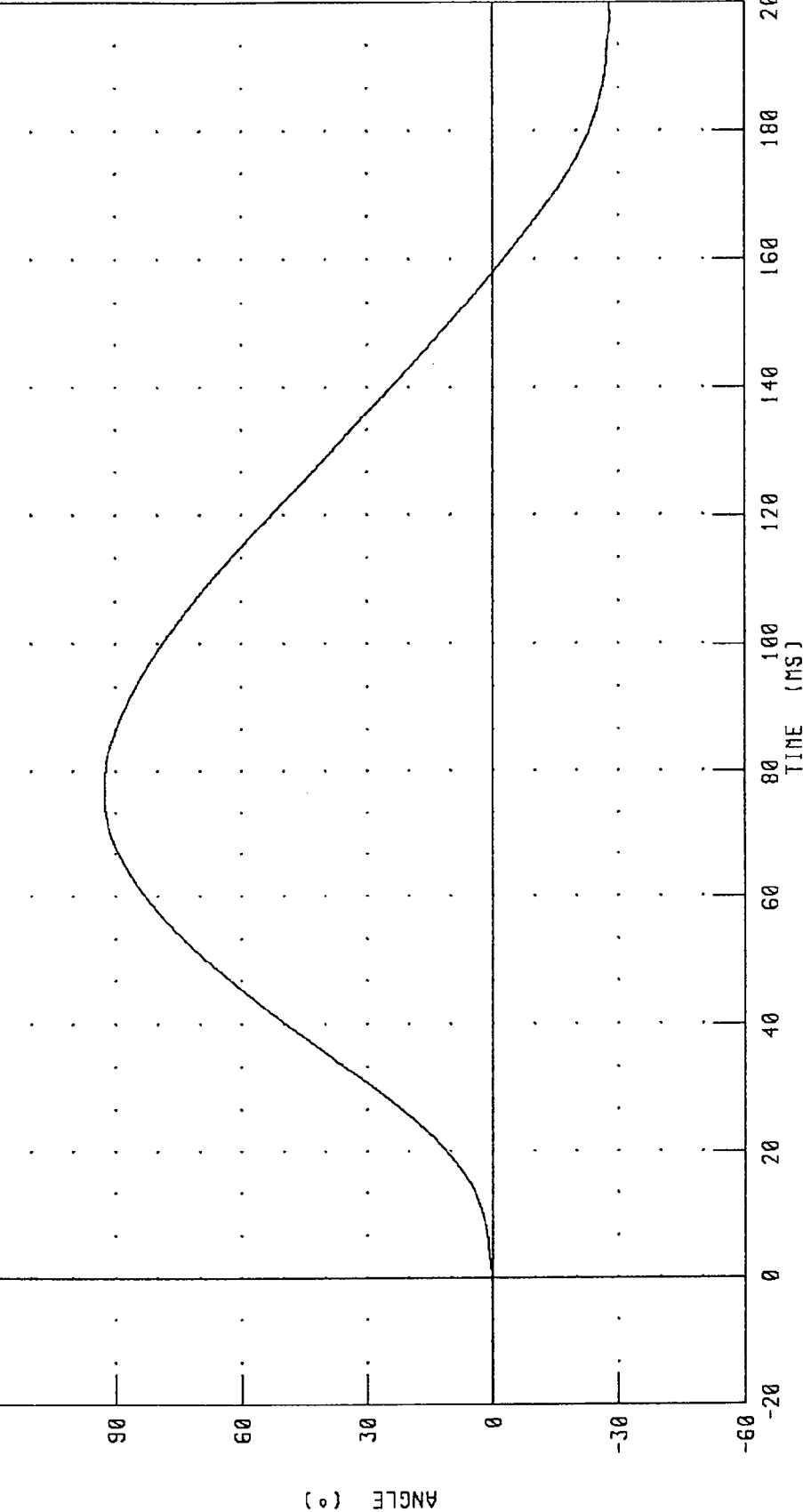
PEAK DATA: 56.11 ° @ 77.04 MS; -17.31 ° @ 197.76 MS

CHANNEL: THETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C24NE1 572E SN192 NECK EXT. CAL24 RUN NUMBER: 020795.1223,1



CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 92.52 ° @ 75.44 MS; -28.08 ° @ 197.68 MS

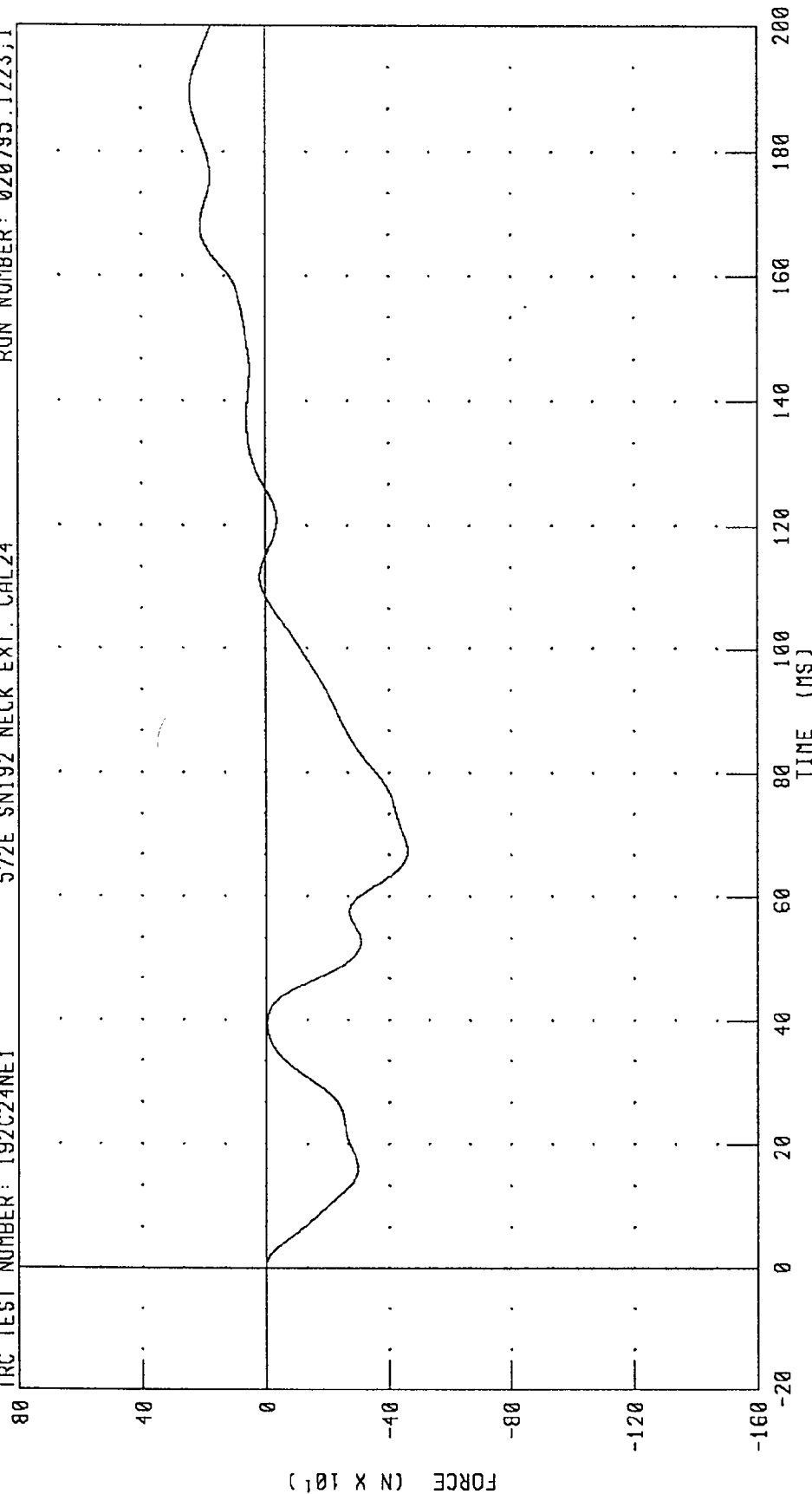
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C24NE1

572E SN192 NECK EXT. CAL24

RUN NUMBER: 020795.1223,1



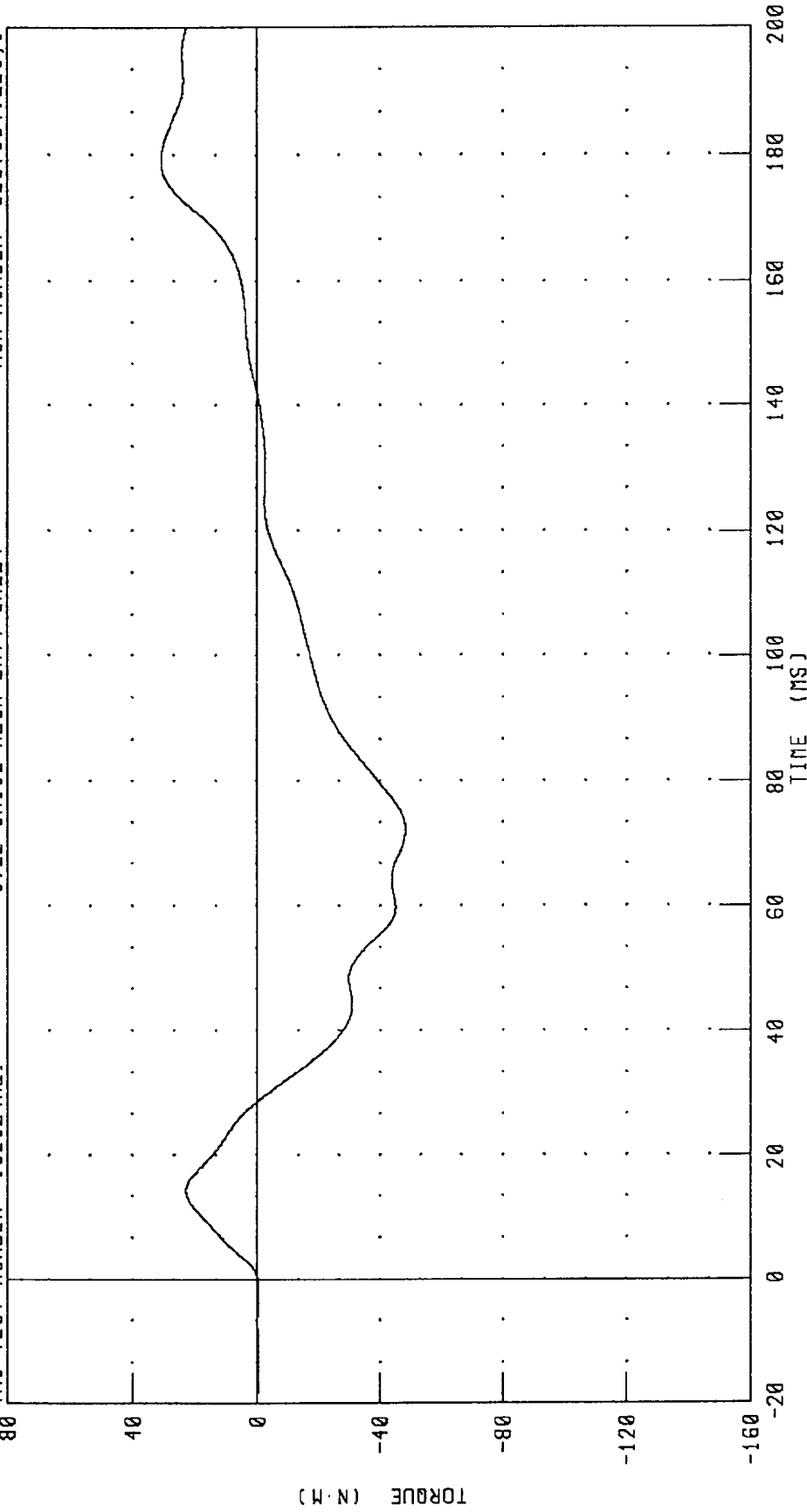
PEAK DATA: 244.03 N @ 189.20 MS; -460.35 N @ 67.36 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C24NE1 572E SN192 NECK EXT. CAL24 RUN NUMBER: 020795.1223;1



PEAK DATA: 30.61 N·M @ 179.04 MS; -48.45 N·M @ 72.24 MS

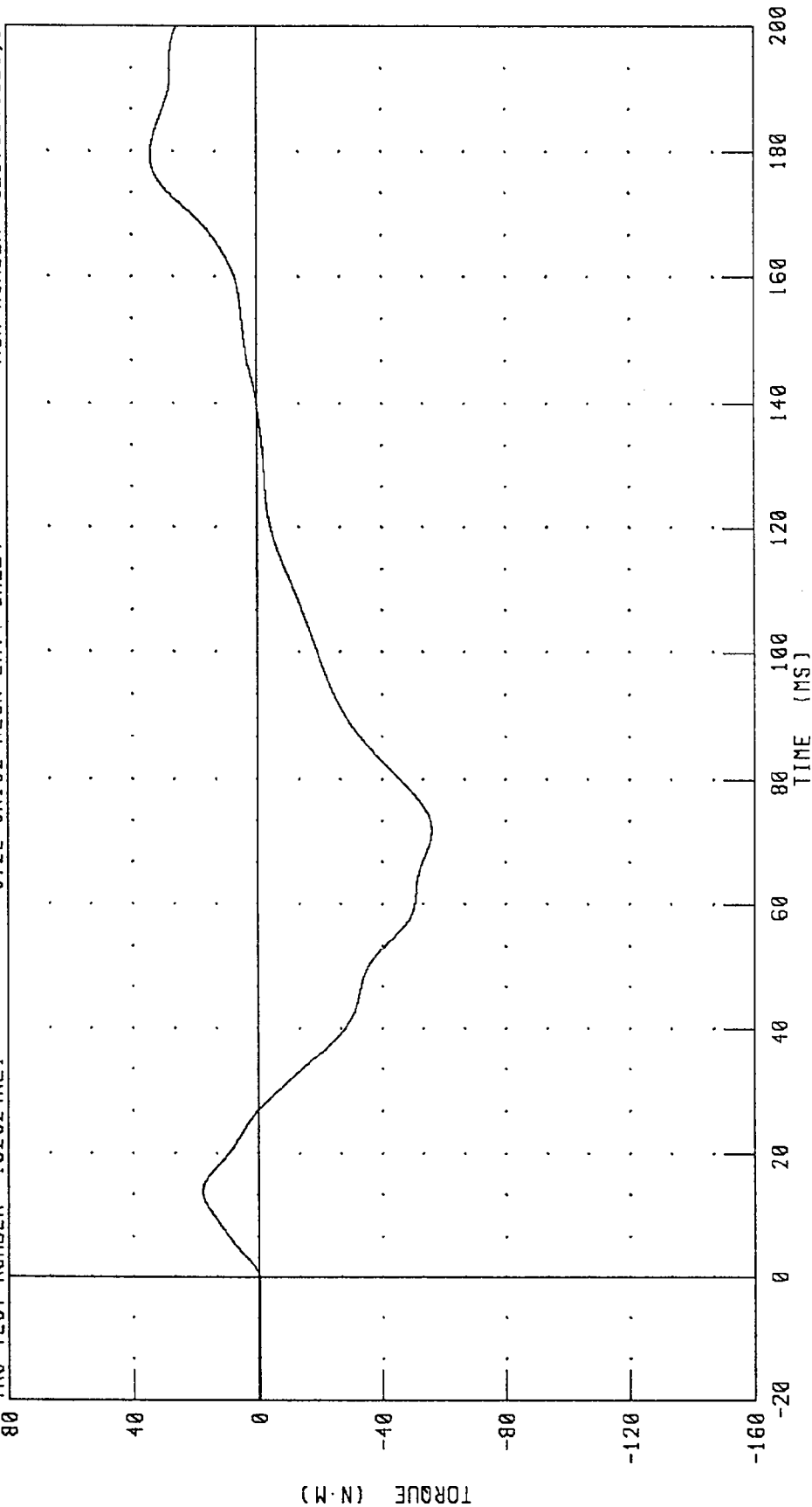
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C24NE1

572E SN192 NECK EXT. CAL24

RUN NUMBER: 020795.1223,1



PEAK DATA: 33.95 N.M @ 179.44 MS; -56.14 N.M @ 71.84 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

26-DEC-94

TRC INC.

TEST NO: 192C24TH1

572E SN192 H.S.THORAX CAL24

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	64.7 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5639. N
INTERNAL HYSTERESIS	69% - 85%	72.3%

TEST MEETS SPECIFICATIONS

TECHNICIAN Rita F. Smith

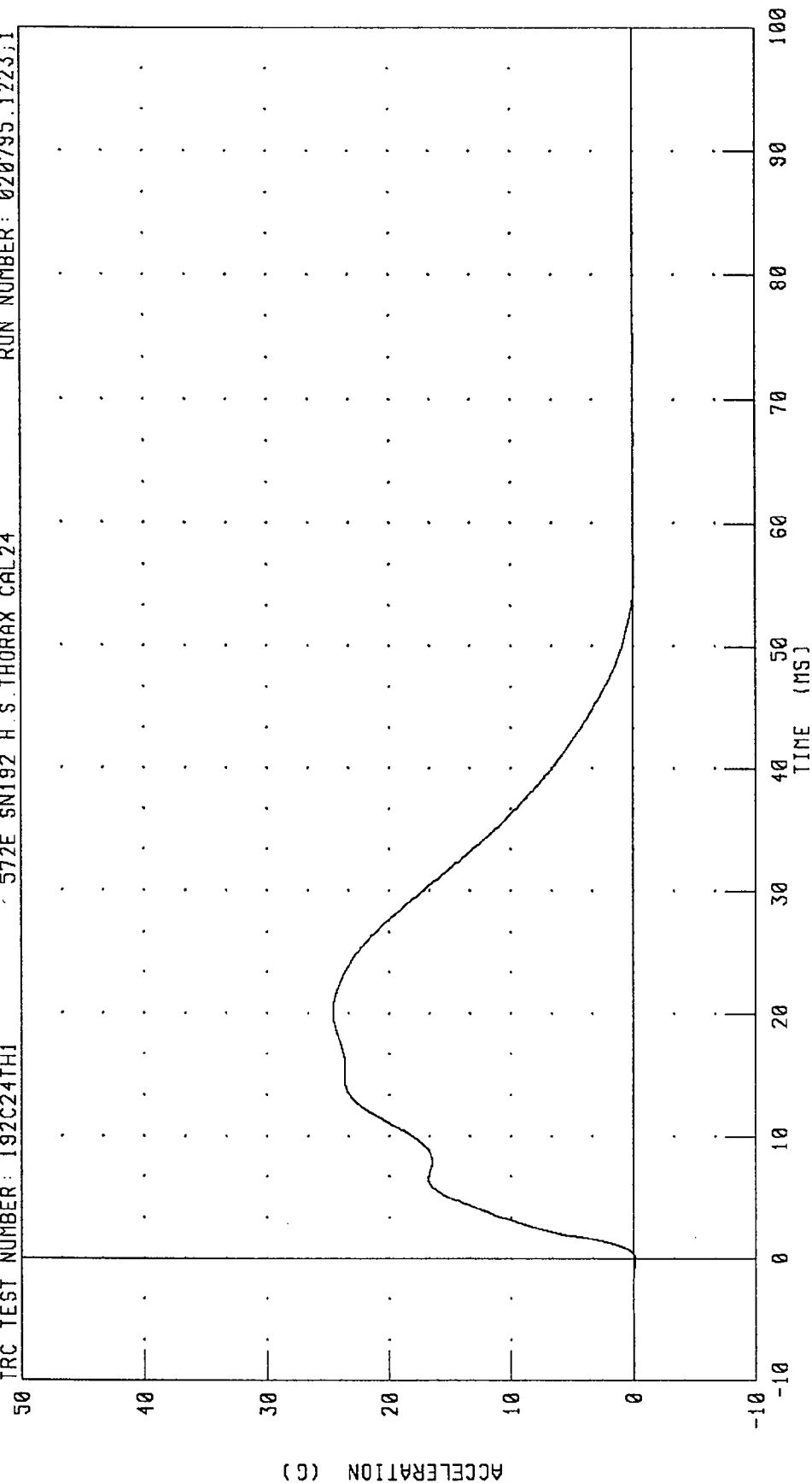
RUN NUMBER: 122694.1416;1

PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C24TH1

572E SN192 H S THORAX CAL24

RUN NUMBER: 020795.1223;1

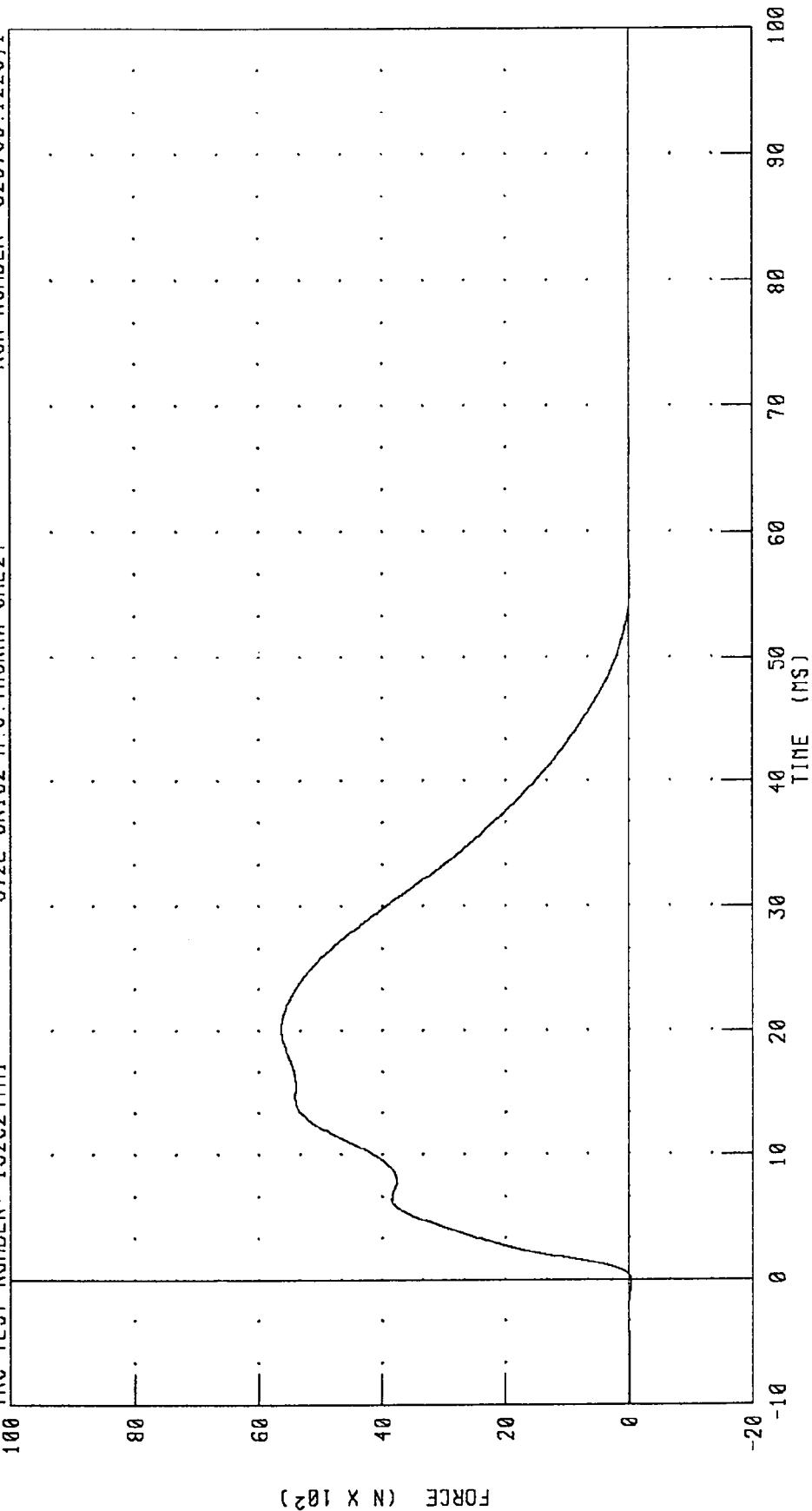


CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 24.62 G @ 20.16 MS; -0.15 G @ -0.16 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 192C24TH1 572E SN192 H.S. THORAX CAL24 RUN NUMBER: 020795.1223,1



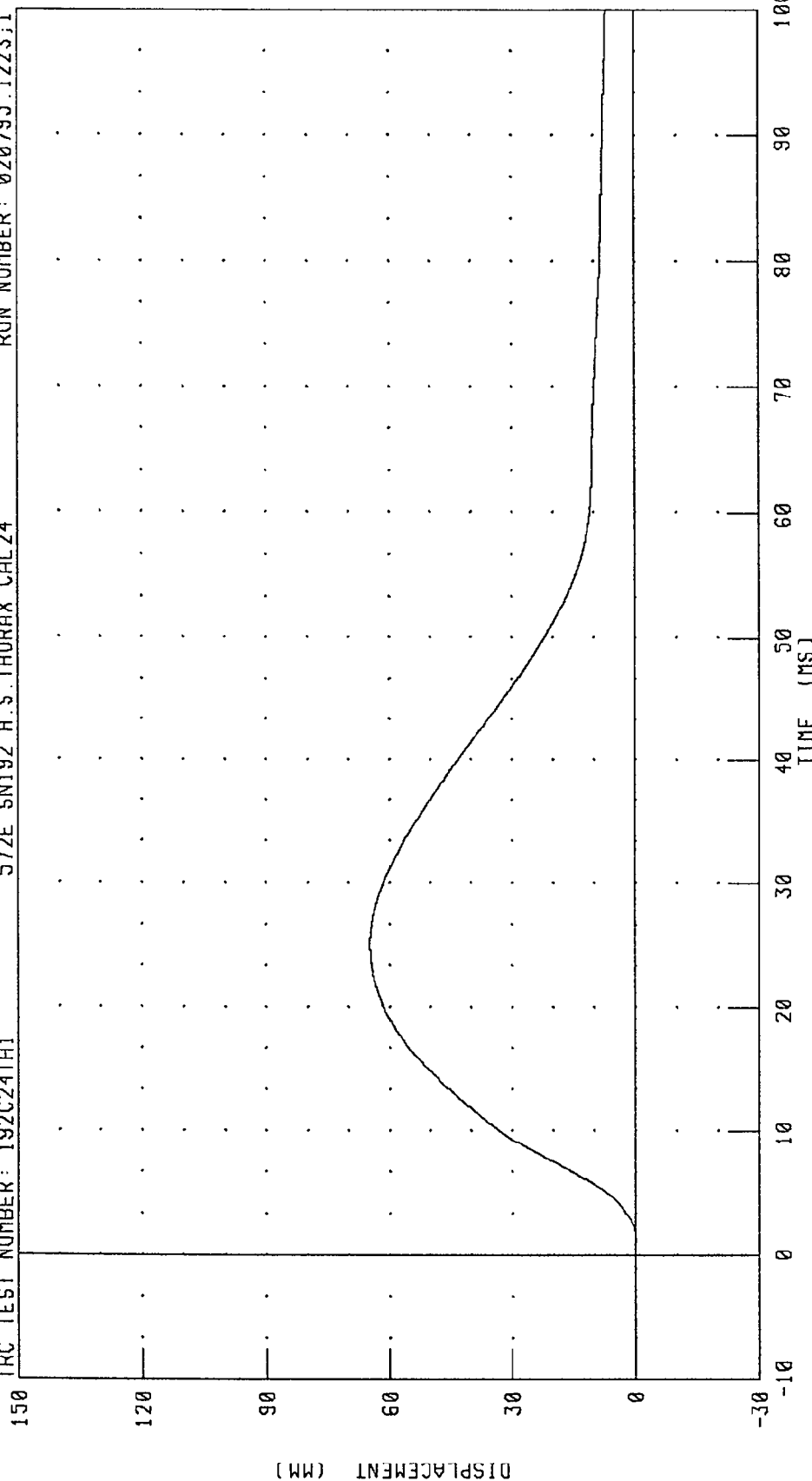
CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5639.67 N @ 20.16 MS; -33.79 N @ -0.16 MS

PART 572-E HYBRID III THORAX CALIBRATION STERNUM DISPLACEMENT

TRC TEST NUMBER: 192C24TH1

572E SN192 H.S. THORAX CAL24

RUN NUMBER: 020795.1223.1



PEAK DATA: 64.77 MM @ 25.04 MS; -0.06 MM @ 1.20 MS

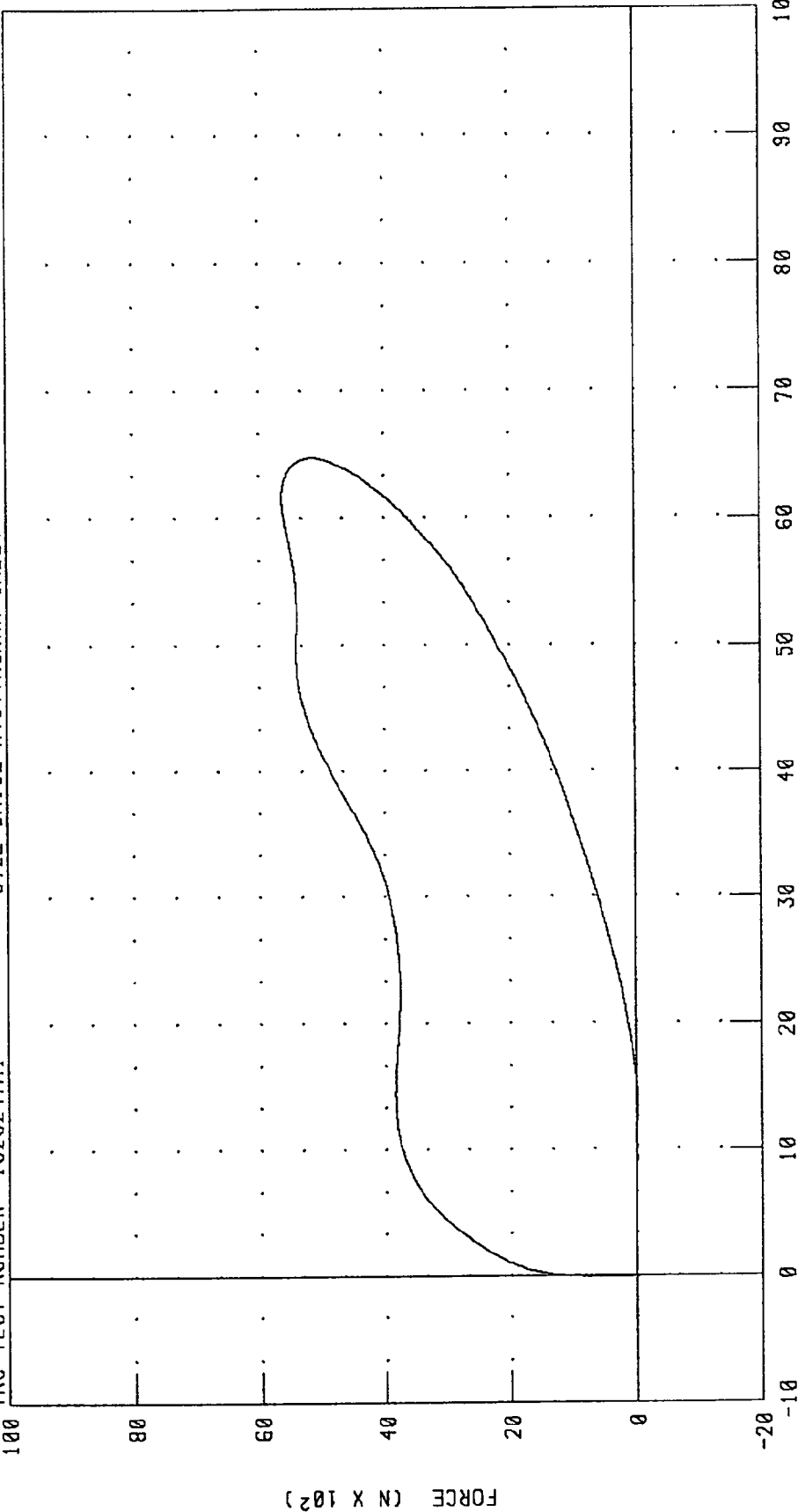
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 192C24TH1

572E SN192 H.S. THORAX CAL24

RUN NUMBER: 020795.1223,1



CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

DISPLACEMENT (MM)

PEAK DATA: 64.77 MM @ 25.04 MS; -0.06 MM @ 1.20 MS
5639.67 N @ 20.16 MS; -33.79 N @ -0.16 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

26-DEC-94

TRC INC.

TEST NO: 192C24RK1

572E SN192 RIGHT KNEE CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.12 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5373.4 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Peter Smith

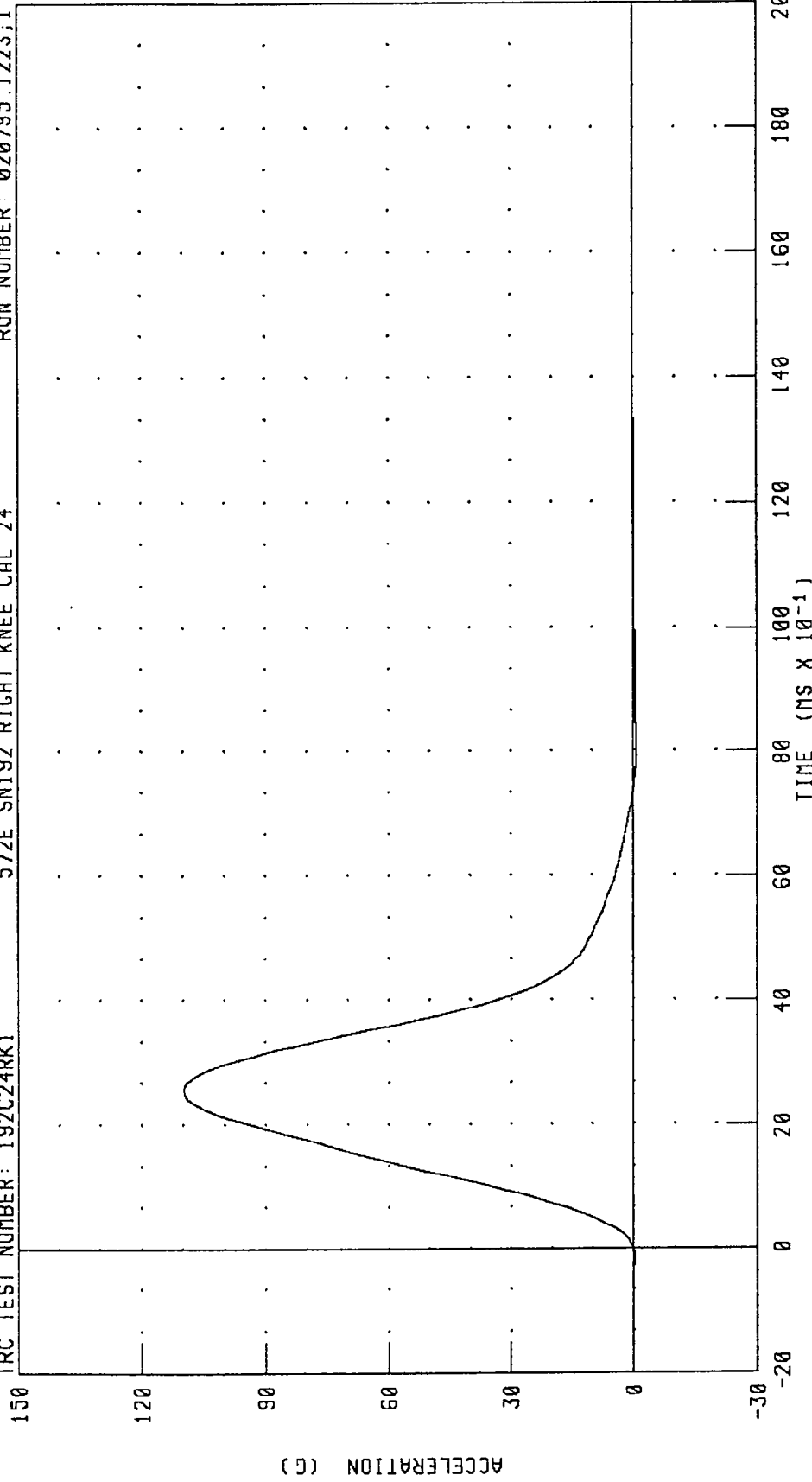
RUN NUMBER: 122694.1038;1

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

TRC TEST NUMBER: 192C24RK1

572E SN192 RIGHT KNEE CAL 24

RUN NUMBER: 020795.1223;1



CHANNEL: PENXC FILTER: CH. CLASS 600

PEAK DATA: 109.82 G @ 2.56 MS; -0.71 G @ 8.00 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

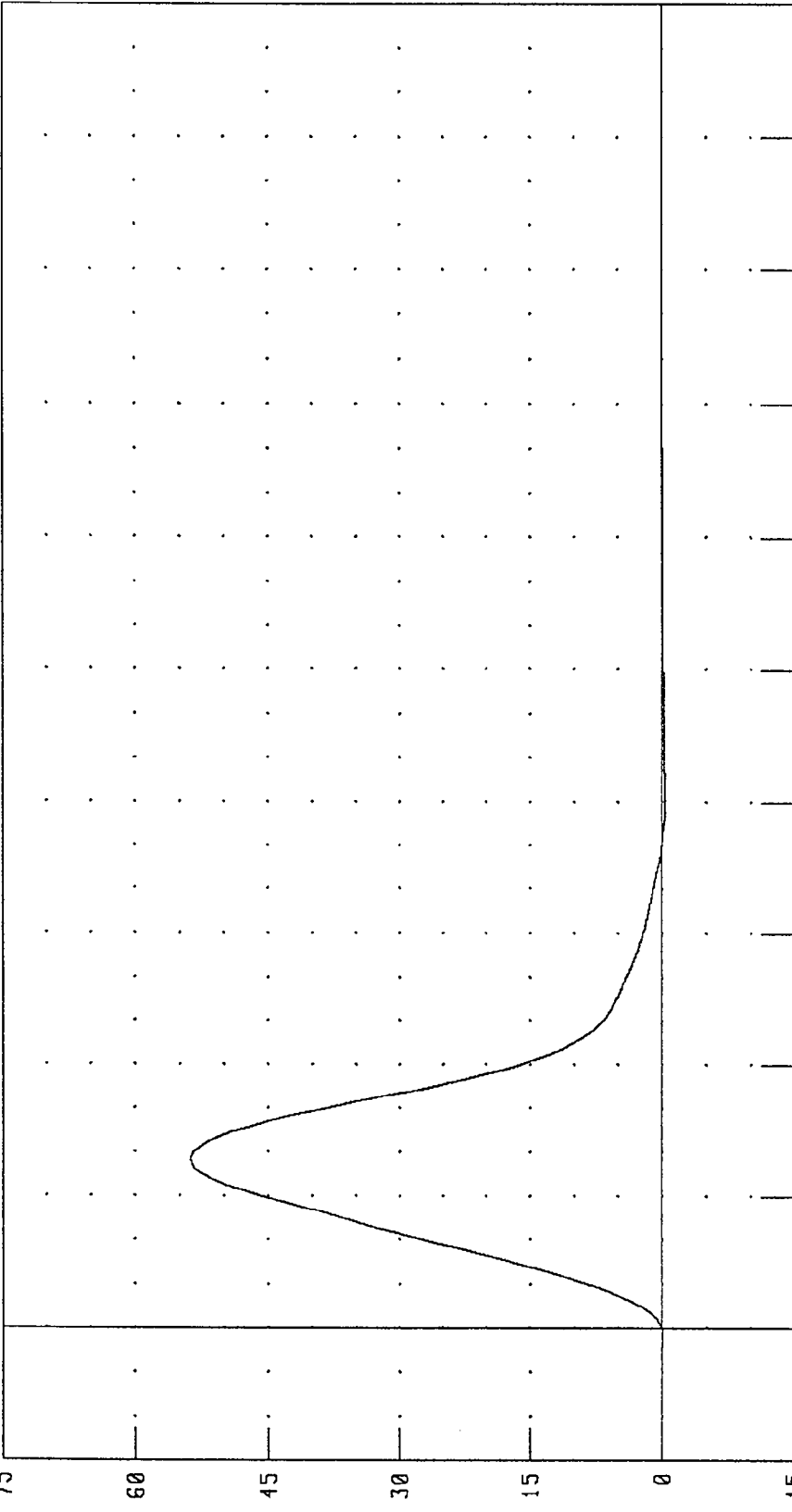
PENDULUM FORCE (5 KC PEND.)

TRC TEST NUMBER: 192C24RK1

572E SN192 RIGHT KNEE CAL 24

RUN NUMBER: 020795.1223;1

75



FORCE (N X 10²)

-15

TIME (MS X 10⁻¹)

100

120

140

160

180

200

CHANNEL: PENXF

FILTER: CH. CLASS 600

PEAK DATA: 5373.47 N @ 2.56 MS;

-34.60 N @ 8.00 MS

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 %	33.0 %
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 *Rita KSA*

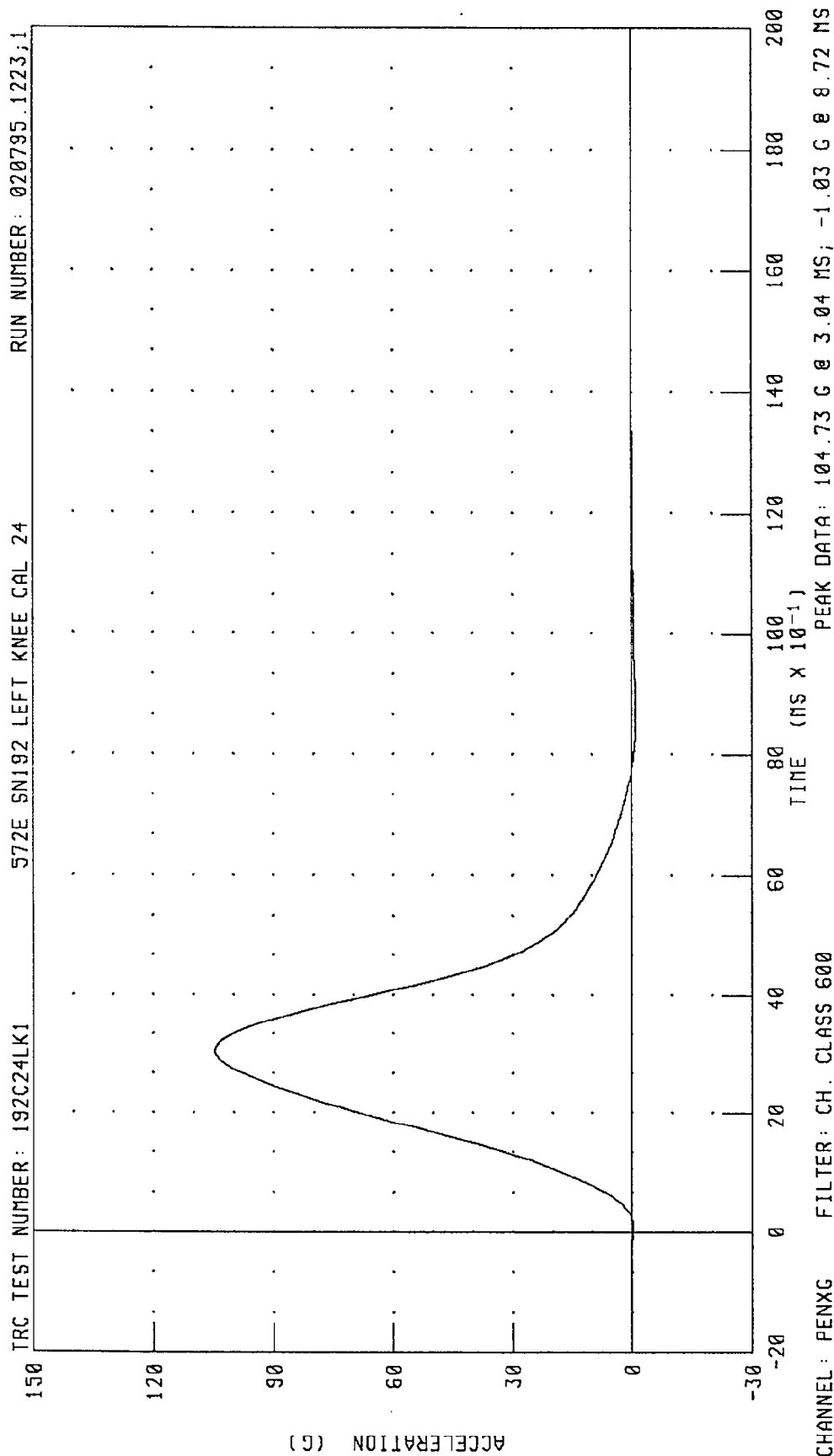
RUN NUMBER: 122694.0928;1

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: 020795.1223;1



CHANNEL: PENXG FILTER: CH. CLASS 600

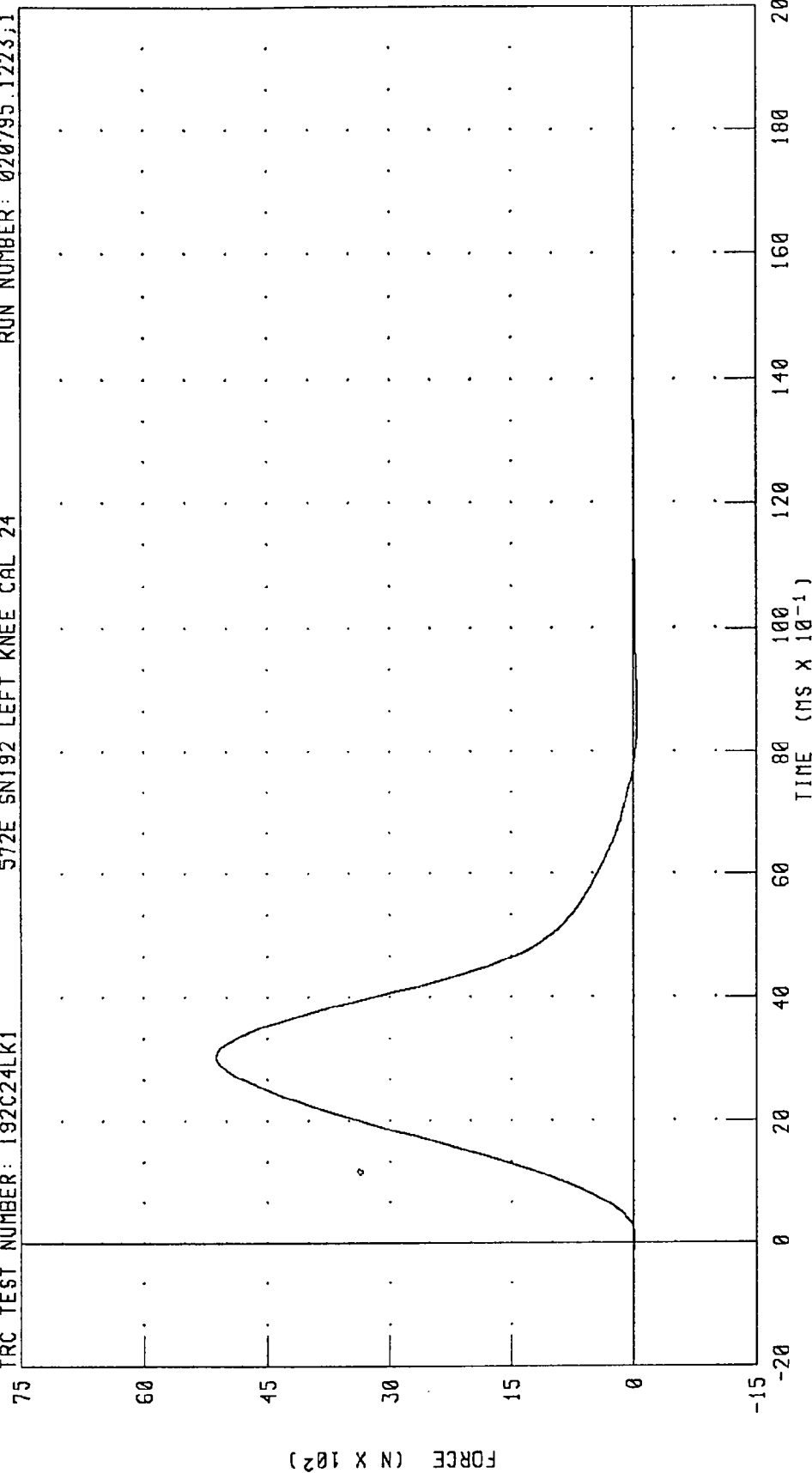
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C24LK1

572E SN192 LEFT KNEE CAL 24

RUN NUMBER: 020795.1223;1



CHANNEL: PENXF FILTER: CH. CLASS 600

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

Appendix D

Miscellaneous Test Information

Dummy Instrument Calibrations

Driver Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Head X-axis accelerometer	FH25J	7264	Endevco	08/29/94	02/29/95
Head Y-axis accelerometer	CY32H	7264	Endevco	08/29/94	02/29/95
Head Z-axis accelerometer	DB81H	7264	Endevco	08/29/94	02/29/95
Chest X-axis accelerometer	A79GJ	7264	Endevco	08/25/94	02/25/95
Chest Y-axis accelerometer	AC8W6	7264	Endevco	08/29/94	02/29/95
Chest Z-axis accelerometer	CW42H	7264	Endevco	08/29/94	02/29/95
Left femur force load cell	901	2430	GSE	08/30/94	02/30/95
Right femur force load cell	902	2430	GSE	08/30/94	02/30/95
Neck X-axis force load cell ¹	0280	1716	Denton	08/30/94	02/30/95
Neck Y-axis force load cell ¹	0280	1716	Denton	08/30/94	02/30/95
Neck Z-axis force load cell ¹	0280	1716	Denton	08/30/94	02/30/95
Neck Moment about X-axis load cell ¹	0280	1716	Denton	08/30/94	02/30/95
Neck Moment about Y-axis load cell ¹	0280	1716	Denton	08/30/94	02/30/95
Neck Moment about Z-axis load cell ¹	0280	1716	Denton	08/30/94	02/30/95
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	14CB1-2981	81422A	Vernitech	08/29/94	02/29/95

¹ Hybrid III use only.

Dummy Instrument Calibrations

Right Front Passenger Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Head X-axis accelerometer	AAL82	7264	Endevco	08/30/94	02/30/95
Head Y-axis accelerometer	A84JJ	7264	Endevco	08/30/94	02/30/95
Head Z-axis accelerometer	DW04J	7264	Endevco	08/30/94	02/30/95
Chest X-axis accelerometer	CT22H	7264	Endevco	08/30/94	02/30/95
Chest Y-axis accelerometer	AC708	7264	Endevco	08/30/94	02/30/95
Chest Z-axis accelerometer	CW59H	7264	Endevco	08/30/94	02/30/95
Left femur force load cell	986	2430	GSE	08/30/94	02/30/95
Right femur force load cell	987	2430	GSE	08/30/94	02/30/95
Neck X-axis force load cell ¹	085	1716	Denton	08/30/94	02/30/95
Neck Y-axis force load cell ¹	085	1716	Denton	08/30/94	02/30/95
Neck Z-axis force load cell ¹	085	1716	Denton	08/30/94	02/30/95
Neck Moment about X-axis load cell ¹	085	1716	Denton	08/30/94	02/30/95
Neck Moment about Y-axis load cell ¹	085	1716	Denton	08/30/94	02/30/95
Neck Moment about Z-axis load cell ¹	085	1716	Denton	08/30/94	02/30/95
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	02/30/95

¹Hybrid 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	AGR14	7264	Endevco	08/15/94	02/15/95
Left rear seat crossmember X-axis redundant	AGRF9	7264	Endevco	07/05/94	01/05/95
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	CR81H	7264	Endevco	10/21/94	04/21/95
Left brake caliper X-axis	AGRF4	7264	Endevco	11/22/94	05/22/95
Instrument panel center X-axis	CK08H	7264	Endevco	10/21/94	04/21/95

Calibration Laboratory Instruments

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco	09/26/94	03/26/95
Neck bending rotary potentiometer	NA	35435-1-102	Bournes	Mfr. Specification	
Neck bending linear potentiometer	NA	5184-2051846003	Bournes	09/26/94	03/26/95
Thorax/Hybrid II femur pendulum accelerometer	CC64	7232	Endevco	09/26/94	03/26/95
Lumbar flexion force gauge	NA	DPPH-50	Chatillon	05/03/89	repaired
Lumbar flexion rotation gauge	CP17-0601-1	7020	Humphrey	Mfr. Specification	
Abdomen compression displacement gauge	4075-175	80294-2051941504	Bournes	09/26/94	03/26/95
Abdomen compression force gauge	3443	3167	Lebow	09/26/94	03/26/95
Hybrid III femur pendulum accelerometer	CG83	7232	Endevco	09/26/94	03/26/95

Sign Convention
NHTSA Data Tape Reference Guide

Accelerometers:

+X: Forward
+Y: Leftward
+Z: Upward

Potentiometers:

+Chest longitudinal deflection: Outward
+Chest lateral deflection: Leftward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia increased
(in relation to a seated dummy)

Load cells:

+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:

+X force: Head pushed forward
+y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Right ear rotating toward right shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

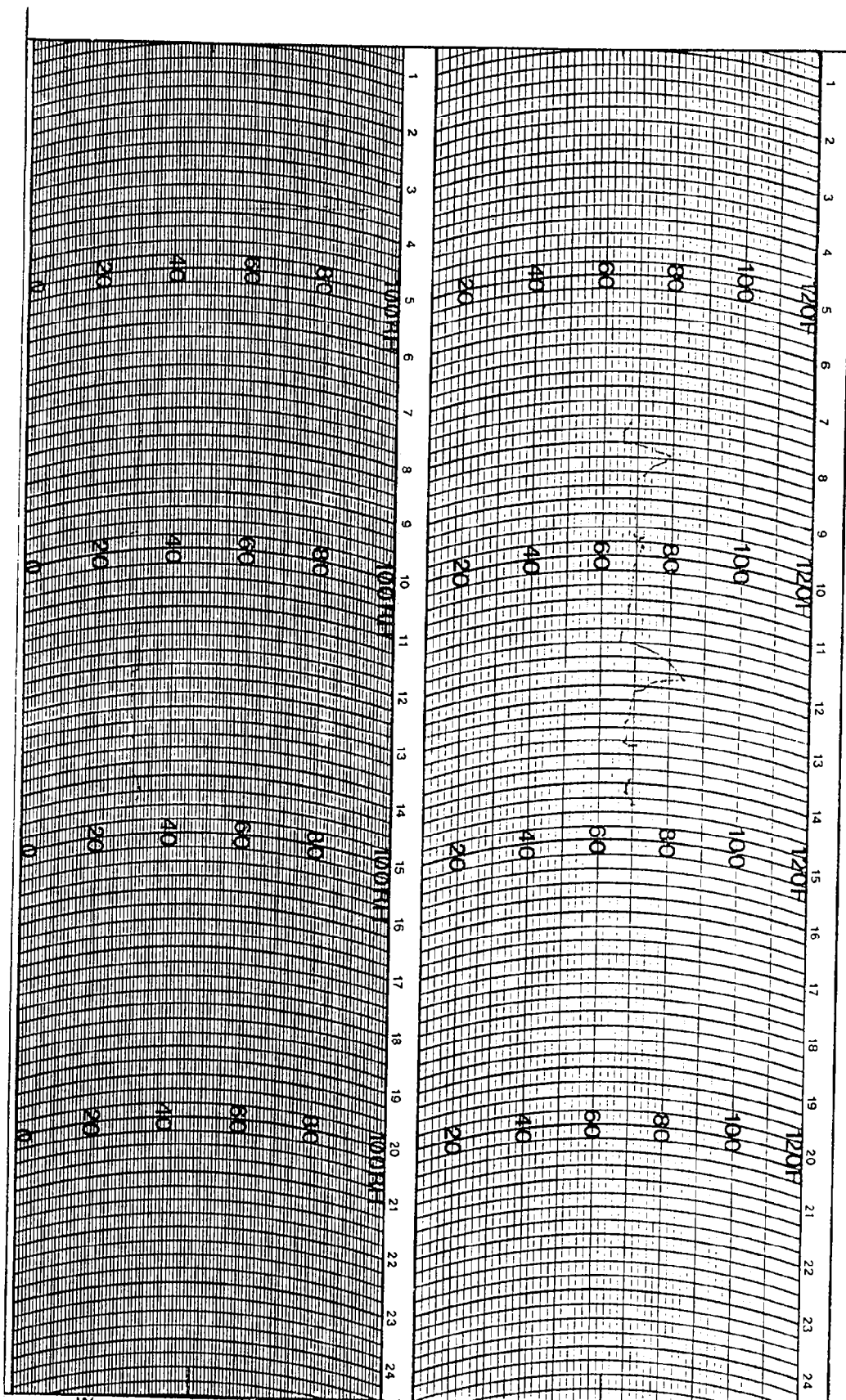
Tibia load cells:

+X force: Tension
+Y force: Tension
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Frequency Response Classes

SAE J211 OCT88

<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

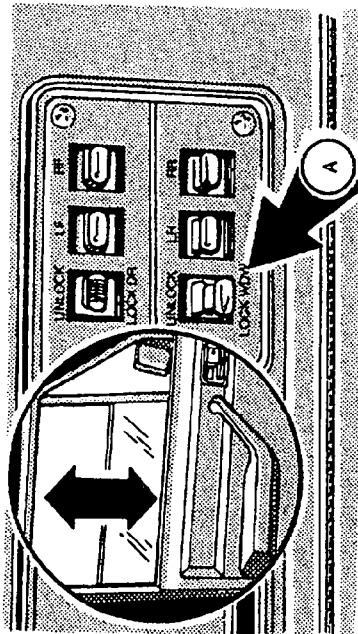
STATION _____ DATE ON _____ DATE OFF _____

Appendix E

Restraint System Instructions from Owner's Manual

12 BEFORE STARTING YOUR VEHICLE

all side windows. A lockout control (A) allows only the driver to operate the windows.



OCCUPANT RESTRAINTS

One of the most important safety features in your vehicle is the restraint system. This system includes the front and rear seat belts. Your seat belts can also be used to hold

infant and child restraint systems if you will be carrying children too small for adult-size belts.

Please pay careful attention to the information in this section. It tells you how to use your restraint system properly to keep you and your passengers as safe as possible.

Seat Belt Warning Light

A warning chime or buzzer and an indicator light will alert you to buckle the seat belts.



the inside of the vehicle. Everyone in a motor vehicle needs to be buckled up all the time.

Unibelts

The outboard front and rear seats of your vehicle have combination lap/shoulder belts, or unibelts. The retractor is designed to lock during very sudden stops or impacts. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and reduce the risk of your striking the inside of the vehicle or being thrown out.

Seat Belt Operating Instructions

1. Enter the vehicle and close the door. Sit back and adjust the seat.
2. The latch plate of the belt is above the back of your seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.

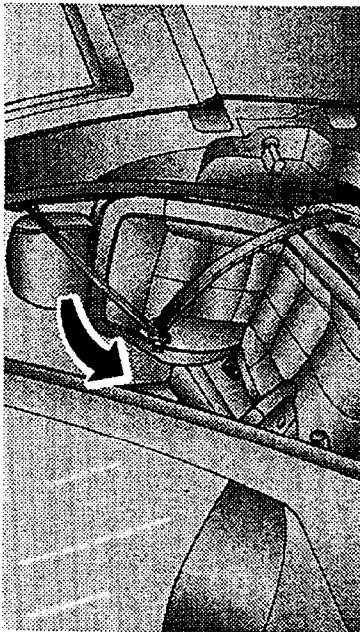
WARNING!

In a collision you and your passengers can suffer much greater injuries if you are not properly buckled up. You can strike parts of the inside of the vehicle or other passengers, or you can be thrown out of the vehicle. Always be sure you and others in your vehicle are buckled up properly.

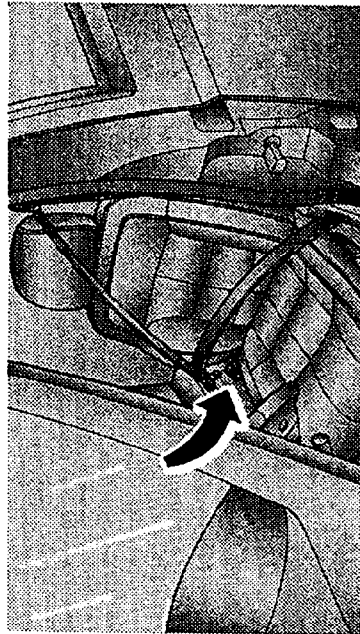
Buckle up even though you are an excellent driver. Even on short trips. Someone else on the road may be a poor driver and cause a collision which involves you. And this can happen far from home or on your own street.

Research has shown that seat belts save lives. And they can reduce the seriousness of injuries in a collision. Some of the worst injuries happen when people are thrown from the vehicle. Seat belts provide protection against that, and they reduce the risk of injury caused by striking

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3. When the belt is long enough to fit, insert the latch plate into the buckle until you hear a "click."



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WARNING!

A belt buckled into the wrong buckle will not protect you properly. The lap portion could ride too high on your body, possibly causing internal injuries. Always buckle your belt into the buckle nearest you.

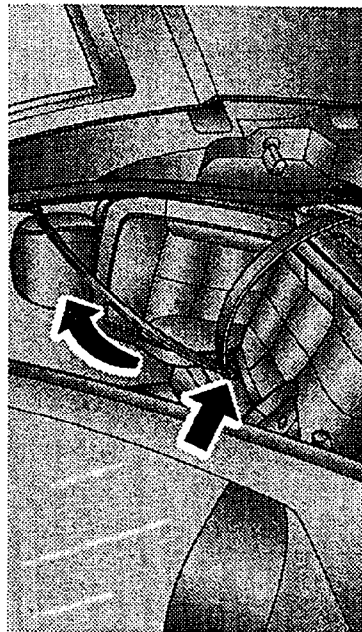
WARNING!

- A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly.
- A shoulder belt worn under your arm is very dangerous. Your body could fall into the inside surfaces of the vehicle in a crash, increasing head and neck injury. And a belt worn under the arm can cause internal injuries. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

4. Position the lap belt across your thighs, below your abdomen. If you need the lap portion tighter, pull up

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a bit on the shoulder part. A snug belt reduces the risk of sliding under the belt in a collision.



WARNING!

A lap belt worn too high can increase the risk of internal injury in a collision. The belt forces won't be at the strong hip and pelvic bones, but across your abdomen. Always wear the lap part of your seat belt as low as possible, and keep it snug.

5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. The retractor will withdraw any slack in the belt.

WARNING!

A twisted belt can't do its job as well. In a collision it could even cut into you. Be sure your belt is straight. If you can't straighten a belt in your vehicle, take it to your dealer and have it fixed.

6. To release the belt, push the button on the buckle. The belt will automatically retract to its stowed position. If necessary, slide the latch plate down the webbing to allow the belt to retract fully.

WARNING!

A frayed or torn belt could rip apart in a collision and leave you with no protection. Inspect your belts periodically, checking for cuts, frays, and loose parts. Do not disassemble or modify the system. Seat belt assemblies must be replaced immediately after an accident if they have been damaged (bent retractor, torn webbing, etc.).

Rear Center Lap Belts

Rear center seating positions have a lap belt only.

To fasten a lap belt, slip the latch plate into the buckle.

To lengthen the lap belt, tilt the latch plate and pull. To shorten the belt, pull the loose end of the webbing.

Wear the lap belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

WARNING!

- A lap belt worn too loose or too high is dangerous. A belt worn too loose can allow you to slip down and under the belt in a collision. A belt that is too high will apply crash forces to the abdomen, not to the stronger hip bones. In either case, the risk of internal injuries is greater. Wear a lap belt low and snug.
- Belting two people into one seat belt can lead to greater injury. People belted together can crash into one another in an accident, hurting one another badly. Never use a belt for more than one person, no matter what their size.

Seat Belts and Pregnant Women

We recommend that pregnant women use seat belts throughout their pregnancies. Keeping the mother safe is the best way to keep the baby safe.

Pregnant women should wear the lap part of the belt across the thighs and as snug against the hips as possible. Keep the belt low so that it does not come across the abdomen. That way the strong bones of the hips will take the force if there is a collision.

Seat Belt Extender

If a seat belt is too short, even when fully extended, your dealer can provide you with a seat belt extender. This extender should be used only if the existing belt is not long enough. When it is not required, remove the extender and stow it.

Child Restraint

When we say that everyone in your vehicle needs to be buckled up all the time, we mean babies and children, too.

WARNING!

In a collision, an unrestrained child, even a tiny baby, can become a missile inside the vehicle. The force required to hold even an infant on your lap could become so great that you could not hold the child, no matter how strong you are. The child and others could be badly injured. Any child riding in your vehicle should be in a proper restraint for the child's size.

Every state in the United States and all Canadian provinces require small children to ride in proper restraint

systems. This is the law, and you can be prosecuted for ignoring it.

Infants and Small Children

There are different sizes and types of restraints for children from newborn size to the bigger child almost large enough for an adult safety belt. Use the restraint that is correct for your child.

Two different child restraint systems are generally available.

- The infant carrier for babies weighing up to 20 lbs. (9 kg.)
- The child seat for small children over 20 lbs.

In addition, some manufacturers make systems that can be used first as an infant carrier, and then converted to a child seat as the child grows.

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Here are some tips on getting the most out of your child restraint:

- Before buying any restraint system, make sure that it has a label certifying that it meets Motor Vehicle Safety Standard 213. We also recommend that before you buy a child restraint, you try it in the vehicle in the seats where you will use it.
- The restraint must be appropriate for your child's weight and height. Check the label on the restraint for this, too.
- If possible, install the restraint in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seats rather than in the front.
- Carefully follow the instructions that come with the restraint. If you install the restraint improperly, it may not work when you need it.

WARNING!

Improper installation can lead to failure of an infant or child restraint. It could come loose in a collision. The child could be badly injured or killed. Follow the manufacturer's directions exactly when installing an infant or child restraint.

- Infant and child restraints are secured in vehicle seats by the lap belt or the lap part of the lap/shoulder belt. In the rear seat, you may have trouble tightening the belt on the child restraint because the buckle or latch plate interferes with the belt path opening on the restraint. Disconnect the latch plate from the buckle and twist the short buckle-end belt several turns to shorten it. Reassemble the latch plate to the buckle with the release button facing out.

In the front seat, move the seat forward to re-position

the buckle against the side of the child restraint.

In the center rear seat, if the belt still can't be tightened or if pulling and pushing on the restraint loosens the belt, you may need to do something more. Disconnect the latch plate from the buckle, turn it over, and reconnect it to the buckle. If you still can't make the child restraint secure, try a different seating position.

- Buckle the child into the restraint exactly as the seat manufacturer's directions tell you. The cinching latch plate will keep the belt tight.
- When your infant carrier or child restraint is not in use, secure it with the seat belt or remove it from the vehicle. Don't leave it loose in the vehicle. In a sudden stop or collision it could strike occupants and injure them.
- Some child seat manufacturers recommend the use of a top anchorage (tether) strap in addition to the lap

belt. Your vehicle has tether strap anchorages behind the rear seating positions for use with these child seats.

WARNING!

An incorrectly anchored tether strap could lead to seat failure and injury to the child. In a collision, the seat could come loose and allow the child to crash into the inside of the vehicle or other passengers, or even be thrown from the vehicle. Use only the specified anchor positions to secure a child restraint requiring top tether strap(s). Follow the instructions below. See your dealer for help if necessary.

Children Too Large for Child Seats

Children who are too large for child seats and who can sit upright by themselves should use the available lap/shoulder belts for best protection.

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- Make sure that the child is seated upright in the seat.
- The lap belt should be fastened low on the hips and as snug as possible.
- Check belt fit periodically. A child's squirming or slouching can move the belt out of position.

If the shoulder belt contacts the face or neck, move the child closer to the middle of the vehicle. If this doesn't solve the problem, move the child to a rear seat lap belt.

Booster seats that may help overcome this problem are also available for use with lap/shoulder belts. Before buying a booster seat, make sure it has a label certifying that it meets applicable Motor Vehicle Safety Standards. Make sure it is satisfactory for use in this vehicle.

DRIVER SUPPLEMENTAL RESTRAINT SYSTEM — AIRBAG

The vehicle has an airbag for the driver as a supplement to the seat belt restraint system. The airbag is mounted in

the steering wheel. Its job is to inflate in higher speed frontal impacts. It works with the instrument panel knee bolster and the seat belt to provide improved protection for the driver.

WARNING!

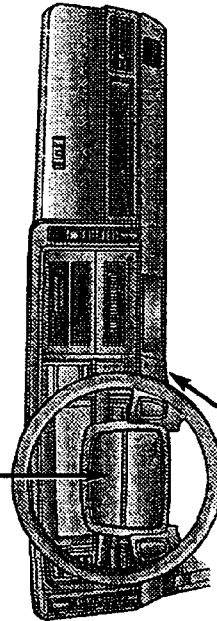
- Relying on the airbags alone could lead to more severe injuries in a collision. The airbags work with your seat belt to restrain you properly. In some collisions the airbags won't deploy at all. Wear your seat belts even though you have airbags.

The seat belt is designed to protect you in many types of collisions. The airbag deploys only on frontal collisions. It will not deploy in collisions at slow speeds. Even in collisions where the airbag does work, you need the seat

1

belt to keep you in the right position for the airbag to protect you properly.

DRIVER AIRBAG



KNEE BOLSTER

The airbag system consists of the following:

- Airbag Module
- Crash Sensor
- Inflator Assembly

- Airbag cushions
- Trim Cover

- Unique Steering Wheel and Column
- Knee Impact Bolster

How the Airbag System Works

The Crash Sensor/Inflator assembly is located in the steering wheel at the back of the airbag module. The crash sensor provides verification of the direction and severity of the impact. When the crash sensor detects an impact requiring the airbag, it activates the inflator. A large quantity of non-toxic nitrogen gas is generated to inflate the airbag. The steering wheel hub trim cover separates and folds out of the way as the bag inflates to full size. The bag fully inflates in about 50 milliseconds. This is about half of the time it takes to blink your eyes. It then quickly deflates by venting the nitrogen gas through the back panel of the airbag towards the instru-

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ment panel. In this way the bag does not interfere with your control of the vehicle.

If a Deployment Occurs

The airbag system is designed to deploy at a precisely calibrated vehicle deceleration force and is not linked to vehicle road speed. The ignition does not have to be on for the airbag to deploy.

NOTE: A frontal collision that is not severe enough to need airbag protection will not activate the system. This does not mean something is wrong with the airbag system.

If you do have a collision which deploys the airbag, any or all of the following may occur:

- The nylon airbag material may sometimes cause abrasions and/or skin reddening to the driver as the airbag deploys and unfolds itself from the steering wheel.

The abrasions are similar to friction rope burns or

these you might get sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals. They are not permanent and normally heal quickly. However, if you haven't healed significantly within a few days, or if you have any blistering, see your doctor immediately.

- As the airbag deflates you may see some smoke-like particles. The particles are a normal by-product of the process that generates the non-toxic nitrogen gas used for airbag inflation. These airborne particles may irritate the skin, eyes, nose, or throat. If you have skin or eye irritation, rinse the area with cool water. For nose or throat irritation, move to fresh air. If the irritation continues, see your doctor.

If these particles settle on your clothing, follow the garment manufacturer's instructions for cleaning.

- Your vehicle may be driveable after the airbag deploys. If so, you can tuck the deployed airbag inside

WARNING!

Being too close to the steering wheel or instrument panel during airbag deployment could cause serious injury. Airbags need room to inflate. Sit back, comfortably extending your arms to reach the steering wheel or instrument panel.

the opening in the steering wheel hub trim cover to make driving somewhat easier.

WARNING!

The airbag inflator becomes hot during deployment. To prevent injury, wait at least 15 minutes before tucking a deployed airbag back inside the opening in the steering wheel hub trim cover.

WARNING!

A deployed airbag can't protect you in another collision. Have the airbag replaced by an authorized dealer as soon as possible.

Maintaining Your Airbag System

WARNING!

- Modifications to any part of the airbag system could cause it to fail when you need it. You could be injured because the airbag is not there to protect you. Do not modify the components, including adding any kind of badges or stickers to the steering wheel hub cover. Do not modify the front bumper or vehicle body structure.
- You need proper knee impact protection in a collision. Do not mount or locate any aftermarket equipment on or behind the knee bolster.
- It is dangerous to repair any part of the airbag system yourself. Don't try to repair any part of the airbag system. Be sure to tell anyone who works on your vehicle that it has an airbag.

SEATS

WARNING!

Adjusting a seat while the vehicle is moving is dangerous. The sudden movement of the seat could cause you to lose control. The seat belt might not be properly adjusted and you could be injured. Adjust any seat only while the vehicle is parked.