

V3050

REPORT NUMBER: NCAP-TRC-98-002

**NEW CAR ASSESSMENT PROGRAM
"SIDE IMPACT TESTING"**

**1999 JEEP CHEROKEE
4-DOOR SPORT UTILITY**

NHTSA NUMBER: MX0310

**TRANSPORTATION RESEARCH CENTER INC.
10820 STATE ROUTE 347
P. O. BOX B-67
EAST LIBERTY, OH 43319**



**January 20, 1999
FINAL REPORT**

**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
400 Seventh Street, S. W.
Room No. 5313 (NPS-10)
Washington, DC 20590**

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Prepared By: Allison E. Loudon
Allison E. Loudon, Project Engineer

Approved By: Jeffery W. Sankey
Jeffery W. Sankey, Manager, Project Operations
Transportation Research Center Inc.

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16. Abstract This 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 1999 Jeep Cherokee 4-door Sport Utility in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure Side NCAP for the generation of consumer information on vehicle side crash protection. This test was conducted at Transportation Research Center Inc. in East Liberty, Ohio, on January 20, 1999. The impact velocity of the Moving Deformable Barrier (MDB) was 62.3 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22 °C. The target vehicles post-test maximum crush was 463 mm at Level 1. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Front SID</u></th> <th></th> <th style="text-align: center;"><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td style="text-align: center;">43</td> <td>g's</td> <td style="text-align: center;">39</td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td style="text-align: center;">62</td> <td>g's</td> <td style="text-align: center;">51</td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td style="text-align: center;">90</td> <td>g's</td> <td style="text-align: center;">56</td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td style="text-align: center;">76</td> <td>g's</td> <td style="text-align: center;">53</td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">123</td> <td>g's</td> <td style="text-align: center;">90</td> <td>g's</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.					<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	43	g's	39	g's	Left Lower Rib Acceleration:	62	g's	51	g's	Lower Spine Acceleration:	90	g's	56	g's	Thoracic Trauma Index, (TTI):	76	g's	53	g's	Pelvis Acceleration (PEV):	123	g's	90	g's
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy (SID)		18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division Room 5108 (NAD-52), 400 Seventh Street, S.W. Washington, DC 20590 Telephone No. (202) 366-4946 Attn: Robert Hornicle																															
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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	0.9	tonnes	t
	(2000 lb)			
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 m = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 296, Units of Weights and Measures, Price \$2.25, SO 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
km	kilometers	1.1	yards	yd
		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

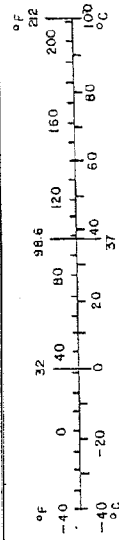


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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 99 New Car Assessment Program Side Impact Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-98-C-12001. The purpose of this test was to generate comparative side impact performance in a 1999 Jeep Cherokee 4-Door Sport Utility. The test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated July 1997.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 1999 Jeep Cherokee Sport Utility was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 62.3 km/h (38.7 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on January 20, 1999. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-04, dated September 1, 1995). Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 52 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	76	53
PEV (g)	123	90

Data Acquisition Explanations

The vehicle's left side sill at front seat Y-axis data channel, LFSYG1, exceeded the data channel's full scale capacity at approximately 21 milliseconds and recorded questionable data after that. This affected the velocity and the displacement calculations. The data summary shows numbers from 0 to 15 milliseconds.

The vehicle's left side sill at rear seat Y-axis data channel, LRSYG1, exceeded the data channel's full scale capacity at approximately 10 milliseconds and recorded questionable data after that. This affected the velocity and displacement calculations.

The vehicle's left rear door upper centerline Y-axis data channel, LRUYG1, exceeded the data channel's full scale capacity at approximately 20 milliseconds and recorded questionable data after that. This affected the velocity and the displacement calculations.

The vehicle's lower B-post Y-axis data channel, LLBYG1, exceeded the data channel's full scale capacity at approximately 20 milliseconds and recorded questionable data after that. This affected the velocity calculation. The data summary shows numbers from 0 to 15 milliseconds.

The vehicle's front seat track Y-axis data channel, LFTYG1, exceeded the data channel's full scale capacity at approximately 62 milliseconds and recorded questionable data after that. This affected the velocity calculation.

SECTION 3

VEHICLE TEST DATA

DATA SHEET 1

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999 Jeep Cherokee Sport Utility
 Vehicle Body Color: Gunmetal VIN: 1J4FF28SOXL541210
 Vehicle NHTSA No.: MX0310 Month & Year of Manufacture: 10/98
 Engine Data: 6 Cylinders; - CID; 4.0 Liters; - cc
 Engine Placement: X Longitudinal; or - Lateral
 Transmission: 5 Speed; X Manual; - Automatic; - Overdrive
 Final Drive: - Rear Wheel Drive; - Front Wheel Drive; X Four-Wheel
 Odometer Reading: 175 km
 Options: X A/C; X Power steering; X Pwr. brakes; - Pwr. windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity); 227 kPa FRONT
227 kPa REAR
 Recommended Tire Size: P215/75R15
 Tires on Test Vehicle: P215/75R15 Manufacturer: Goodyear
 Vehicle Capacity Data:
 Number of Occupants: 2 Front; 3 Rear; - 3rd seat; 5 Total
 Type of Front Seats: X Bucket; - Bench; - Split bench
 Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
 Vehicle Max Capacity Loading = 476.3 kg (A)
 No. of Occupants x 68.04 kg. = 340.2 kg (B)
 Vehicle Cargo Capacity = 136.1 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>418.7</u>	kg	Left Rear	=	<u>349.7</u>	kg
Right Front	=	<u>425.5</u>	kg	Right Rear	=	<u>338.8</u>	kg
TOTAL FRONT	=	<u>844.2</u>	kg	TOTAL REAR	=	<u>688.5</u>	kg
% of Total Weight	=	<u>55.1</u>	%	% of Total Weight	=	<u>44.9</u>	%
TOTAL WEIGHT	=	<u>1532.7</u>	kg				

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight With Max. Fluids = 1532.7 kg (A)
 Maximum Cargo Carrying Capacity Of Test Vehicle = 136.1 kg (B)
 Weight Of Instrumented Side Impact Dummies (1 Or 2 X 79.0 kg) = 158.0 kg (C)
 TEST VEHICLE TARGET WEIGHT: = 1826.8 kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDW + 1 OR 2 SID(s) + CARGO):

Left Front	=	<u>453.1</u>	kg	Left Rear	=	<u>462.7</u>	kg
Right Front	=	<u>459.5</u>	kg	Right Rear	=	<u>471.3</u>	kg
TOTAL FRONT	=	<u>912.6</u>	kg	TOTAL REAR	=	<u>934.0</u>	kg
% of Total Weight	=	<u>49.4</u>	%	% of Total Weight	=	<u>50.6</u>	%
TOTAL WEIGHT	=	<u>1,846.6</u>	kg				

AS TESTED WEIGHT OF TEST VEHICLE (1 OR 2 SID(s) + CARGO + EQUIPMENT & INSTRUMENTATION)

Left Front	=	<u>470.5</u>	kg	Left Rear	=	<u>455.5</u>	kg
Right Front	=	<u>442.5</u>	kg	Right Rear	=	<u>450.5</u>	kg
TOTAL FRONT	=	<u>913.0</u>	kg	TOTAL REAR	=	<u>906.0</u>	kg
% of Total Weight	=	<u>50.2</u>	%	% of Total Weight	=	<u>49.8</u>	%
TOTAL WEIGHT	=	<u>1819.0</u>	kg				

TEST VEHICLE ATTITUDE (ALL DIMENSIONS IN MILLIMETERS):

AS DELIVERED:

Left Front 790 Right Front 798 Left Rear 767 Right Rear 765

FULLY LOADED:

Left Front 776 Right Front 776 Left Rear 715 Right Rear 719

READY FOR TEST:

Left Front 776 Right Front 778 Left Rear 715 Right Rear 719

TEST VEHICLE WHEELBASE: 2,572 millimeters

C.G. = 1,281 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4,175 millimeters
 Left Side = 4,160 millimeters
 Centerline = 4,220 millimeters

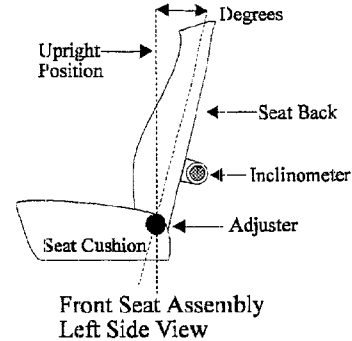
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



FRONT SEAT CUSHION PLACEMENT: Mid position

Total Length Of Adjustment Travel: 190 millimeters

Total Number Of Adjustment Positions Or Detents: 20

FRONT SEAT BACK ADJUSTMENT POSITION: Align witness hole in seat back adjuster
With sight hole for 7° seat back angle

Seat Back Torso Angle: 24 degrees

SECOND POSITION SEAT:

Total Length Of Fore/Aft Adjustment Travel: N/A millimeters

Seat Back Adjustment Position: N/A

ADJUSTABLE STEERING COLUMN POSITION: Mid-position

WINDOW POSITIONS: Left Front: Closed Left Rear: Closed
Right Front: Open Right Rear: Open

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

75.7 liters (fuel tank usable capacity)

70.4 liters used in test (92% - 94% of fuel tank usable capacity)

LOCATION OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:

Wheelbase = 2,572 millimeters

Impact point is 346.0 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 351.0 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 1999 Jeep Cherokee
 Body Style: Sport Utility VIN: 1J4FF28SOXL541210
 NHTSA No.: MX0310 Test Date: January 20, 1999
 Overall Length = 4,220 millimeters; Overall Width = 1,724 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 470.5 kg Left Rear = 455.5 kg
 Right Front = 442.5 kg Right Rear = 450.5 kg
 TOTAL FRONT = 913.0 kg TOTAL REAR = 906.0 kg
 TOTAL VEHICLE WEIGHT 1,819.0 kg
 Wheelbase = 2,572 millimeters
 Longitudinal C.G. From Center Of Front Axle = 1,281 millimeters
 Impact Angle With Respect To Impactor = 90 degrees

ACTUAL IMPACT POINT:

Actual Impact Point is 5 mm rearward of nominal impact ref. line (Lateral)
 Actual Impact Point is 7 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (454 mm above ground) = 463 millimeters
 2. LEVEL 2 (736 mm above ground) = 428 millimeters
 3. LEVEL 3 (796 mm above ground) = 425 millimeters
 4. LEVEL 4 (1,054 mm above ground) = 331 millimeters
 5. LEVEL 5 (1,591 mm above ground) = 132 millimeters
 Maximum Post-Test Intrusion = 463 millimeters

OCCUPANTS:

	<u>Driver:</u>	<u>Left Rear Passenger:</u>
Dummy Identification	<u>051</u>	<u>052</u>
Restraints Used	<u>3-point active seat belt</u>	<u>3-point active seat belt</u>

INSTRUMENTATION:

Number Of Vehicle Data Channels: = 52
 Number Of Cameras: Onboard = 3
 Offboard = 7
 TOTAL = 10

DATA SHEET 3

MOVING DEFORMABLE BARRIER(MDB) SUMMARY

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore, Inc.: 012C1098, 013C1098, 027A1098, 029C1098

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to the left

MDB DETAILS:

Overall Width of Framework Carriage = 1,251 millimeters

Overall Length of MDB (Incl. honeycomb impact face) = 4,115 millimeters

Wheelbase of Framework Carriage = 2,591 millimeters

Tread of Framework Carriage (Front & Rear) = 1,880 millimeters

C.G. Location Rearward of Front Axle = 1,105 millimeters

MDB WEIGHT:

Left Front = 349.0 kg Left Rear = 331.0 kg

Right Front = 431.5 kg Right Rear = 249.5 kg

TOTAL FRONT = 780.5 kg TOTAL REAR = 580.5 kg

TOTAL MDB WEIGHT = 1,361.0 kg

Impact Angle (MDB C/L to Target Vehicle C/L) = 90 degrees

Impact Speed = 62.3 km/h

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level = 83.5 millimeters

2. Row B at Top of Bumper Level = 59.9 millimeters

3. Row C at Mid Level = 71.6 millimeters

4. Row D at Top of Stack Level = 157.7 millimeters

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>B-pillar</u>	<u>C-pillar</u>
Upper Torso:	<u>N/A</u>	<u>N/A</u>
Lower Torso:	<u>N/A</u>	<u>N/A</u>
Left Knee:	<u>Dash panel</u>	<u>N/A</u>
Right Knee:	<u>Side door</u>	<u>Side door</u>

DOOR OPENING:

	<u>LEFT DOOR</u>	<u>RIGHT DOOR</u>
Front:	<u>Tools</u>	<u>Easy</u>
Rear:	<u>Tools</u>	<u>Easy</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

Vertical: 7 mm above target
Horizontal: 5 mm rearward of target

ARM REST LOCATIONS:

Front: 72 mm below the bottom of the window
Rear: 72 mm below the bottom of the window

SEAT MOVEMENT:

Front: Seat buckled
Rear: Seat buckled

GLAZING DAMAGE:

Windshield: Left edge of windshield cracked
Window: Left driver window and left rear passenger window did not break during impact

PILLAR PERFORMANCE:

No visible tears or separations

SILL SEPARATION:

None

OTHER NOTABLE IMPACT EFFECTS:

The driver and passenger frontal airbags did not deploy.

DATA SHEET 4 (continued)

POST-TEST OBSERVATIONS

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

AIRBAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>LEFT REAR PASSENGER</u>
Frontal:	<u>No</u>	<u>No</u>
Side:	<u>N/A</u>	<u>N/A</u>

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

TEST NUMBER: 990120

DRIVER DUMMY SERIAL NUMBER: 051

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	43.0 g	@	32.5 ms	17.3 g	@	91.9 ms
LATERAL (R)	42.9 g	@	32.5 ms	17.7 g	@	91.9 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	61.9 g	@	31.3 ms	16.7 g	@	63.8 ms
LATERAL (R)	61.6 g	@	31.3 ms	16.5 g	@	63.8 ms
TTI d (P)	75.7					
TTI d (R)	76.2					

LOWER SPINE ACCELERATION

LATERAL (P)	89.5 g	@	31.9 ms	24.9 g	@	56.9 ms
LATERAL (R)	90.7 g	@	31.9 ms	24.9 g	@	56.9 ms

PELVIS ACCELERATION

LATERAL (P)	122.8 g	@	27.5 ms	41.2 g	@	46.9 ms
LATERAL (R)	121.9 g	@	27.5 ms	40.8 g	@	46.9 ms

POSITIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: RIGHTWARD
VERTICAL: UPWARD

NEGATIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: LEFTWARD
VERTICAL: DOWNWARD

DATA SHEET 5 (continued)

SID INSTRUMENTATION DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

TEST NUMBER: 990120

PASSENGER DUMMY SERIAL NUMBER: 051

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	39.3 g	@ 38.1 ms	7.1 g	@ 120.6 ms
LATERAL (R)	39.1 g	@ 37.5 ms	7.4 g	@ 120.6 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	50.9 g	@ 32.5 ms	17.9 g	@ 61.9 ms
LATERAL (R)	50.8 g	@ 31.9 ms	17.1 g	@ 62.5 ms
TTI d (P)	53.3			
TTI d (R)	53.4			

LOWER SPINE ACCELERATION

LATERAL (P)	55.7 g	@ 29.4 ms	30.4 g	@ 69.4 ms
LATERAL (R)	56.0 g	@ 29.4 ms	30.4 g	@ 69.4 ms

PELVIS ACCELERATION

LATERAL (P)	89.5 g	@ 23.1 ms	22.2 g	@ 68.8 ms
LATERAL (R)	89.1 g	@ 23.1 ms	22.4 g	@ 68.8 ms

POSITIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: RIGHTWARD
VERTICAL: UPWARD

NEGATIVE DIRECTION

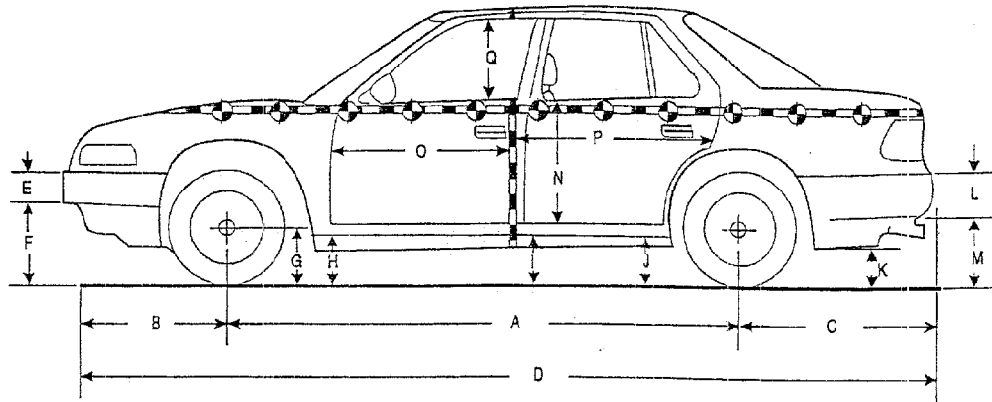
LONGITUDINAL: FORWARD
LATERAL: LEFTWARD
VERTICAL: DOWNWARD

DATA SHEET 6

VEHICLE PRE- AND POST-TEST MEASUREMENTS

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310



LEFT SIDE VIEW

Note: All dimensions are in millimeters with tolerance of ± 3 mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2572	2572	2527	45
B	746	746	750	-4
C	894	894	895	-1
D	4220	4220	4172	48
E	168	168	168	0
F	468	440	433	7
G	333	331	341	-10
H	410	380	434	-54
I	420	382	490	-108
J1	390	345	495	-150
J2	415	367	420	-53
K	428	377	412	-35
L	153	153	153	0
M	470	410	465	-55
N	654	654	597	57
O	517	517	542	-25
P	1228	1228	1152	76
Q	382	382	405	-23
R	4175	4175	4205	-30
S	4160	4160	4050	110
T	1683	1683	1380	303

D = Length at centerline
T = Width at B-pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

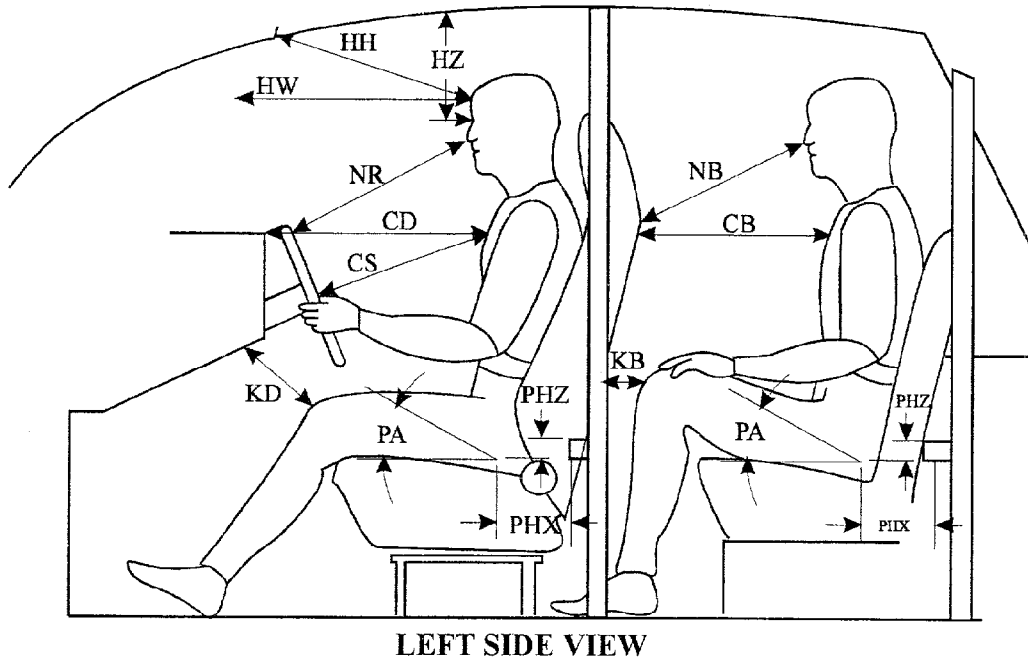
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310



LEFT SIDE VIEW

Note: All dimensions are in millimeters with tolerance of ± 3 mm

	DRIVER ID #051	LEFT REAR PASS. ID#052
HH	363	N/A
HW	439	N/A
HZ	146	183
NR/NB	360	572
CD/CB	478	525
CS	283	N/A
KDL(KDA°)/KBL(KDA°)	73/20°	112/0°
KDR(KBA°)/KBR(KBA°)	40/30°	106/0°
PA°	23.3°	23.6°
PHX	193	153
PHZ	64	226

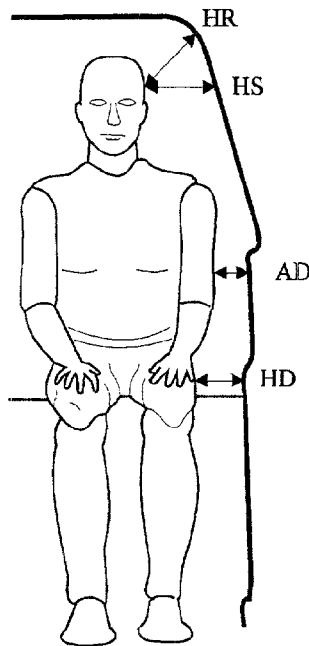
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310



Note: All dimensions are in millimeters with tolerance of ± 3 mm

	DRIVER ID #051		LEFT REAR PASS. ID #052	
HR	164		194	
HS	218		233	
AD*	LOWER: 72	UPPER: 55	LOWER: 75	UPPER: 50
HD	156		148	

* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

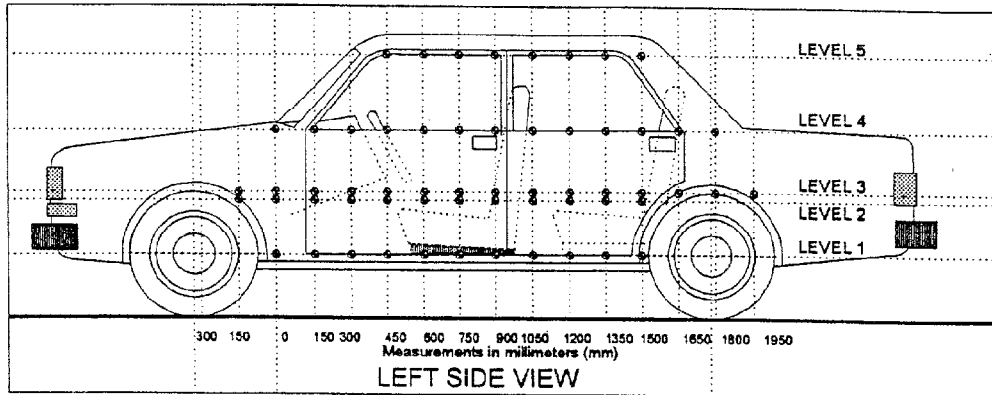
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310



LEVEL 5 - WINDOW TOP
 LEVEL 4 - WINDOW SILL
 LEVEL 3 - MID-DOOR
 LEVEL 2 - OCCUPANT H-POINT
 LEVEL 1 - AXLE CENTERLINE HEIGHT OR SILL TOP HEIGHT

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1,591</u>	millimeters
Level 4 @ Window Sill	=	<u>1,054</u>	millimeters
Level 3 @ Mid Door	=	<u>796</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>736</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>454</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

Location	Height	(mm) From Impact Point														
		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	
Level 1 Side Sill	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	432	430	430	430	426	
	Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	705	851	863	864	873	
	Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	273	421	433	434	447	
Level 2 H-Point	Pre	N/A	N/A	457	446	N/A	N/A	N/A	N/A	392	400	397	394	396	387	
	Post	N/A	N/A	470	465	N/A	N/A	N/A	N/A	560	655	680	712	735	756	
	Crush	N/A	N/A	13	19	N/A	N/A	N/A	N/A	168	255	283	318	339	369	
Level 3 Mid-Door	Pre	N/A	N/A	458	448	N/A	N/A	N/A	N/A	407	398	395	391	397	382	
	Post	N/A	N/A	475	460	N/A	N/A	N/A	N/A	585	630	650	699	731	756	
	Crush	N/A	N/A	17	12	N/A	N/A	N/A	N/A	178	232	255	308	334	374	
Level 4 Window Sill	Pre	N/A	N/A	N/A	N/A	N/A	N/A	463	452	435	426	423	425	430	415	
	Post	N/A	N/A	N/A	N/A	N/A	N/A	500	505	505	510	535	566	591	595	
	Crush	N/A	N/A	N/A	N/A	N/A	N/A	37	53	70	84	112	141	161	180	
Level 5 Window Top	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	568	
	Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	660	
	Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	92	

DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

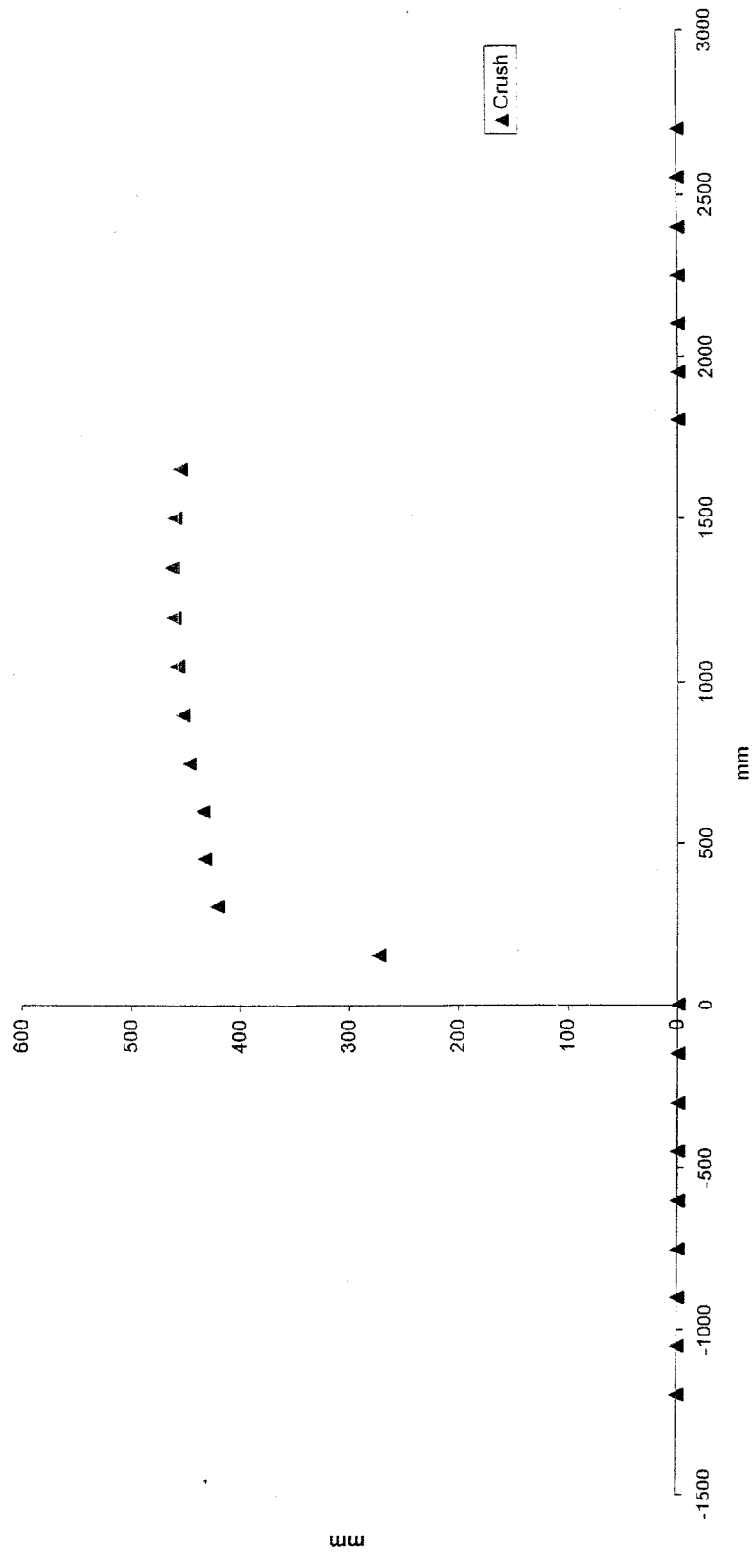
Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

Location	Height	(mm) From Impact Point													
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	
Level 1 Side Sill	Pre	422	418	419	418	420	420	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Post	875	876	880	881	880	875	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Crush	453	458	461	463	460	455	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Level 2 H-Point	Pre	385	382	383	379	385	381	382	N/A	N/A	N/A	N/A	375	394	
	Post	780	788	798	807	808	805	793	N/A	N/A	N/A	N/A	440	429	
	Crush	395	406	415	428	423	424	411	N/A	N/A	N/A	N/A	65	35	
Level 3 Mid-Door	Pre	387	380	382	379	383	380	381	359	344	349	354	388	395	
	Post	782	786	785	793	803	805	803	653	573	513	465	498	420	
	Crush	395	406	403	414	420	425	422	294	229	164	111	110	25	
Level 4 Window Sill	Pre	419	410	412	405	412	410	412	413	414	418	418	419	425	
	Post	630	659	670	736	738	707	638	606	582	540	510	480	445	
	Crush	211	249	258	331	326	297	226	193	168	122	92	61	20	
Level 5 Window Top	Pre	555	555	558	550	558	557	560	561	564	566	569	571	581	
	Post	657	660	690	655	633	627	623	643	631	626	612	608	593	
	Crush	102	105	132	105	75	70	63	82	67	60	43	37	12	

DATA SHEET 10 (continued)
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

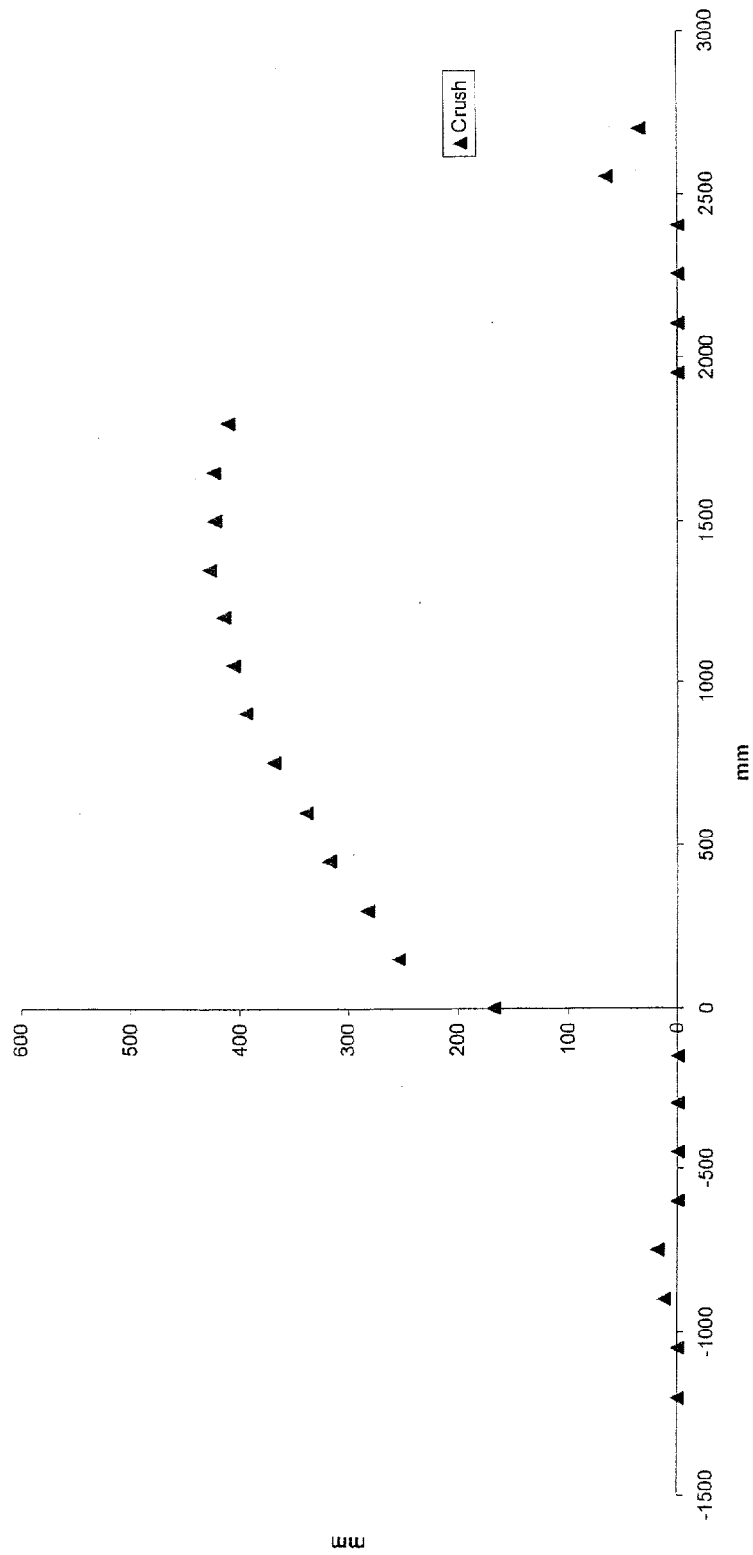
Side Profile Level 1 454 mm Above Ground



DATA SHEET 10 (continued)
 VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

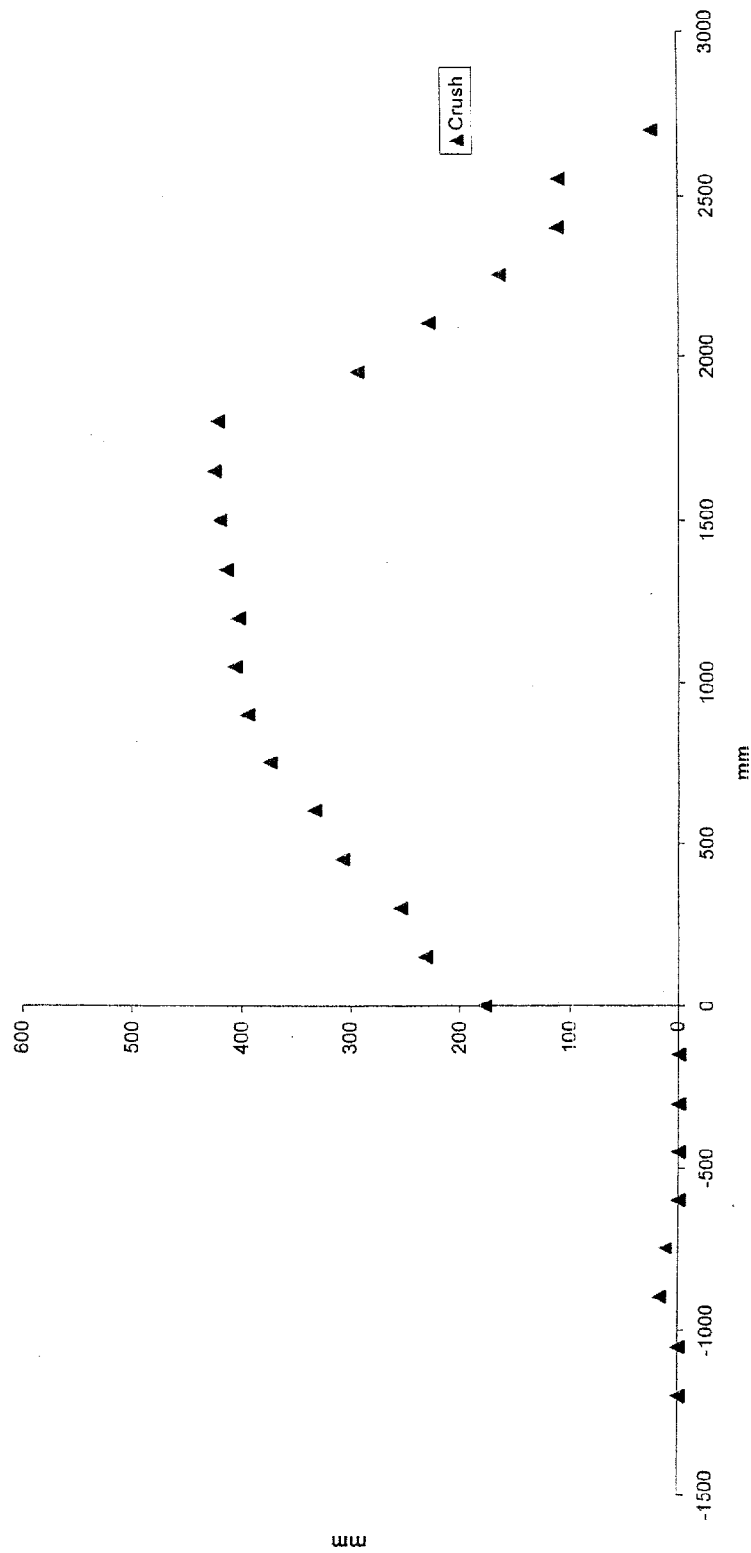
Side Profile Level 2 736 mm Above Ground



DATA SHEET 10 (continued)
 VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Jeep Cherokee Sport Utility NIITSA No.: MX0310

Side Profile Level 3 796 mm Above Ground

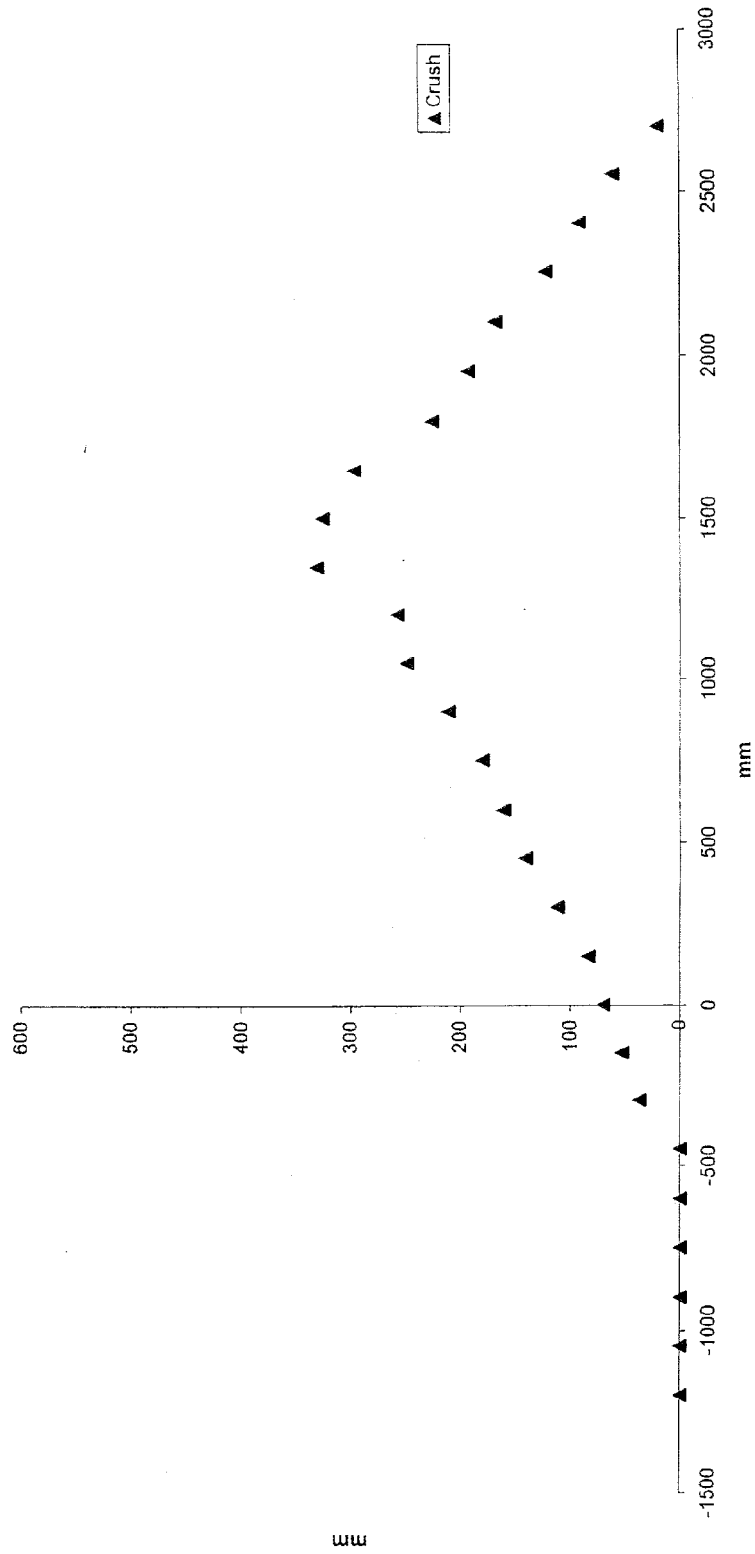


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

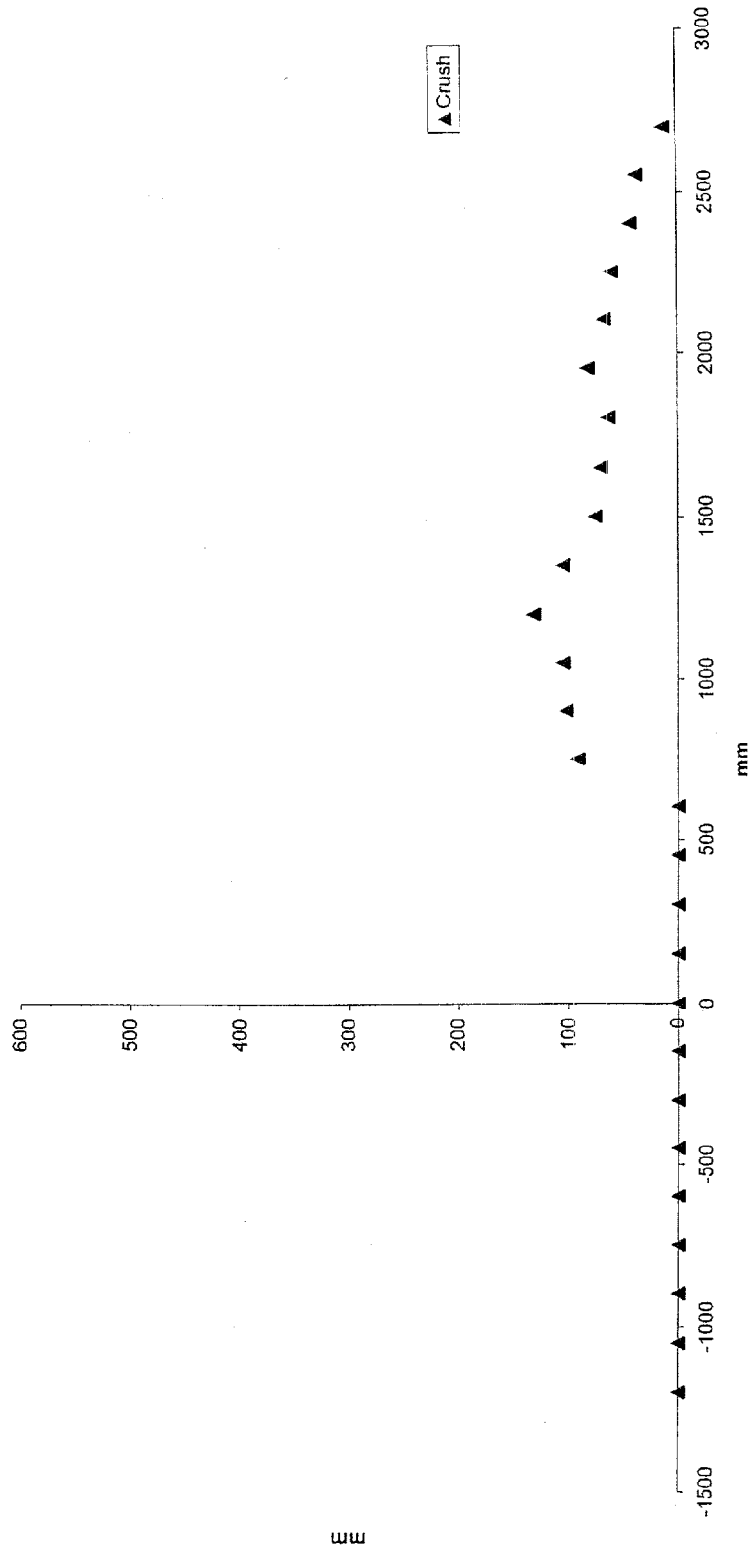
Side Profile Level 4 1054 mm Above Ground



DATA SHEET 10 (continued)
 VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

Side Profile Level 5 1591 mm Above Ground



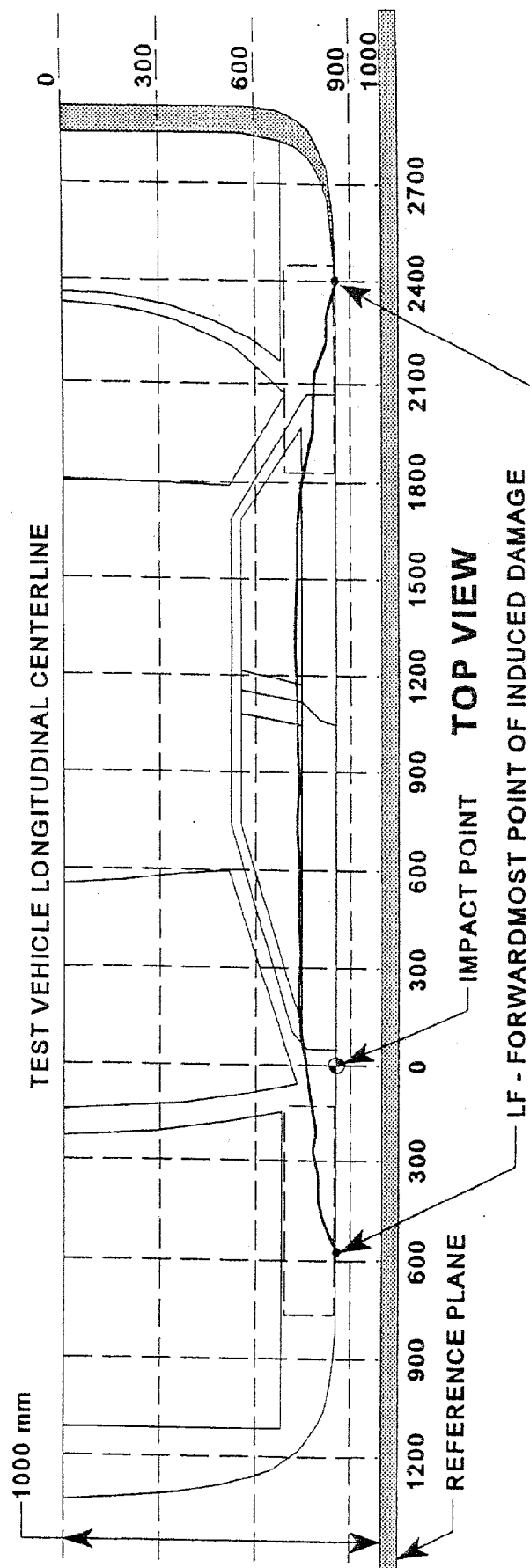
DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

NOTE: All measurements are in millimeters (mm) and should be accurate to ± 3 mm.



MEASUREMENT CONVENTIONS: LR - REARWARDMOST POINT OF INDUCED DAMAGE
 Forward of the impact point (towards front of vehicle) is considered negative (—).
 Rearward of the impact point (toward rear of vehicle) is considered positive (+).

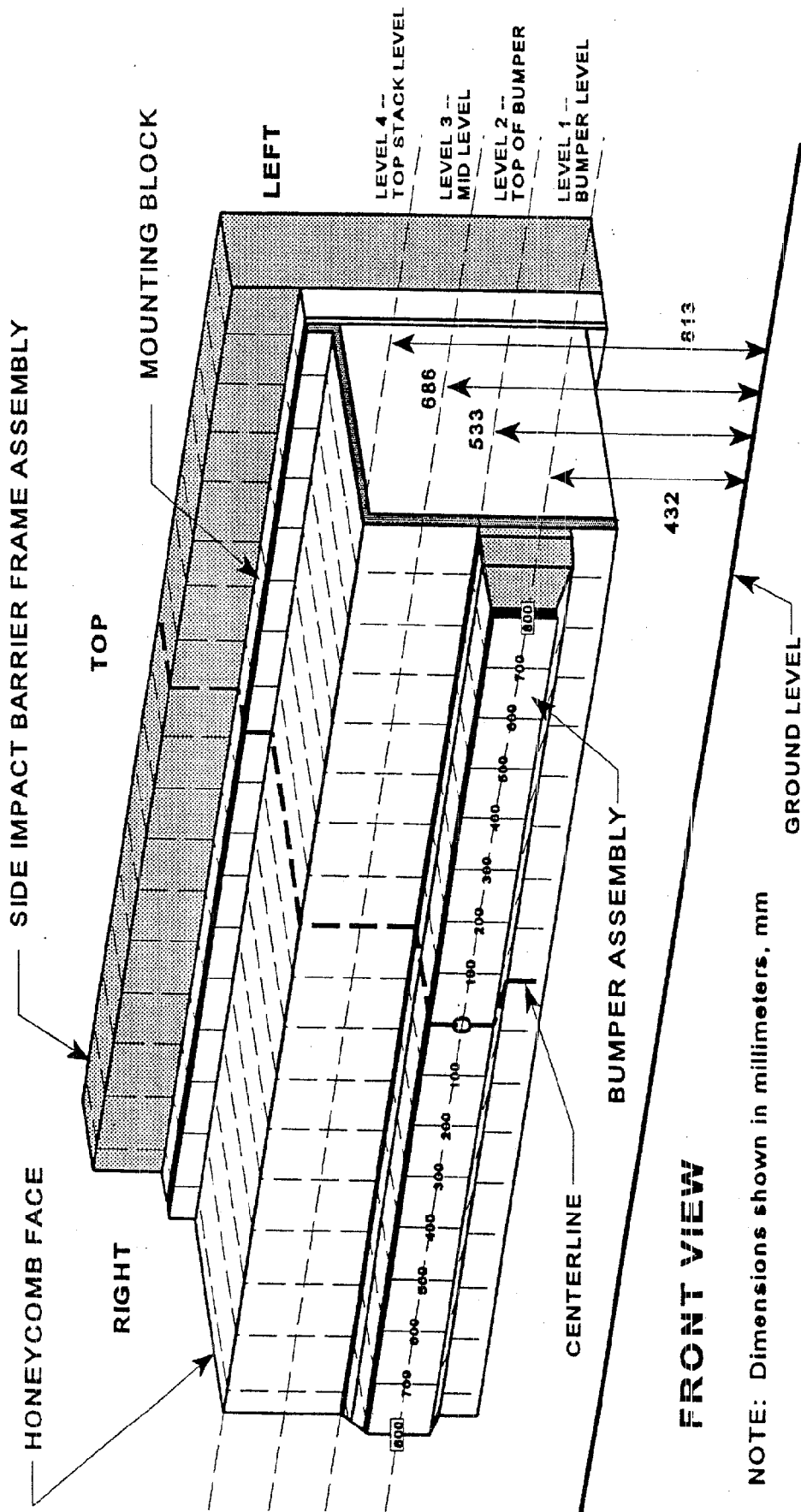
DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
1 (LF = 150 mm)	705	432	273
2 450	863	430	433
3 750	873	426	447
4 1050	876	418	458
5 1350	881	418	463
6 (LR = 1650 mm)	875	420	455

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

(Grid as looking at MDB from front)

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310



FRONT VIEW

NOTE: Dimensions shown in millimeters, mm

DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

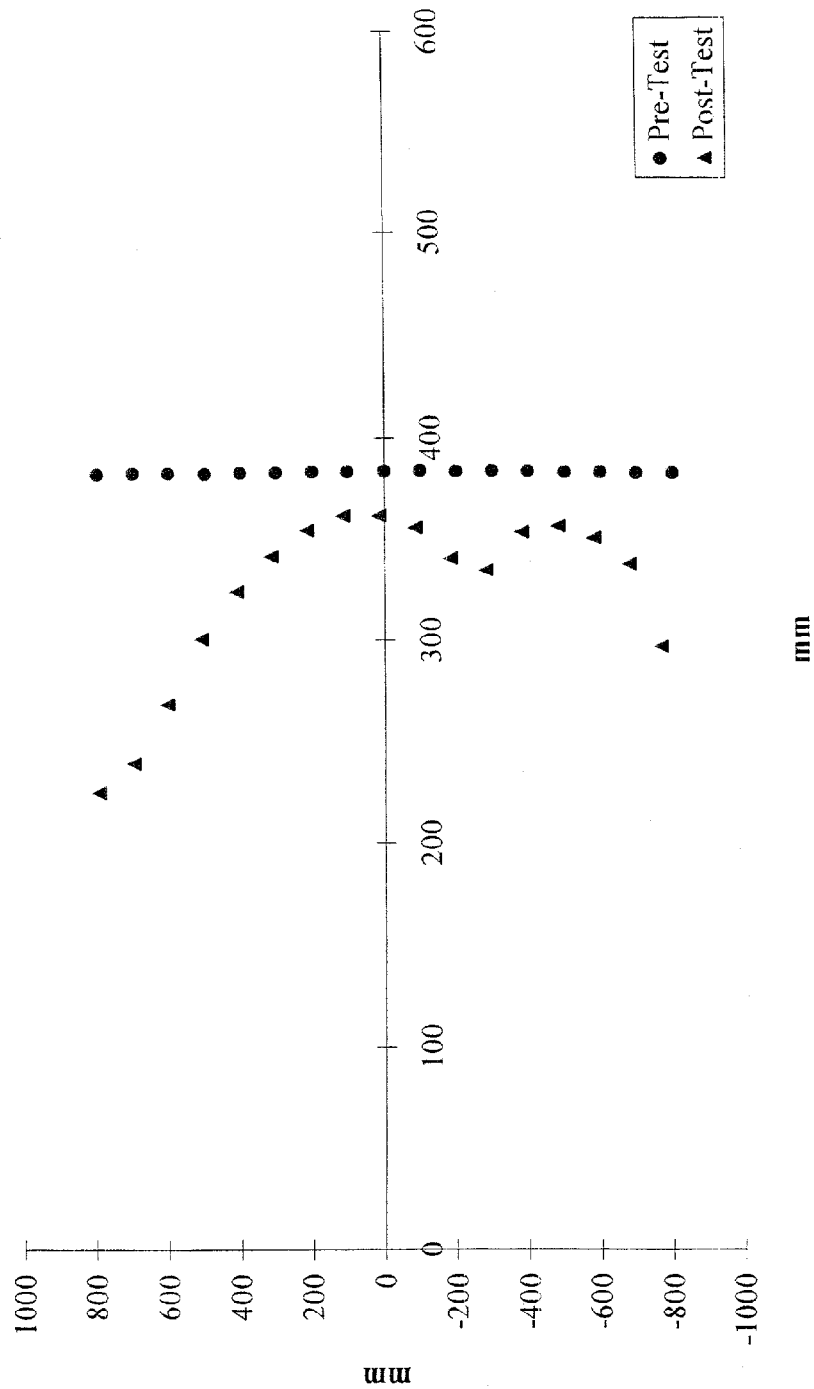
		Distance Right of Center (mm)										Distance Left of Center (mm)							
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800	
Location	Height At CL																		
Top Stack Level Level 4	810	86.0	44.9	32.5	26.8	30.0	49.0	43.0	28.3	22.2	22.1	28.9	41.5	59.1	82.0	115.0	143.9	157.7	
Mid Level Level 3	685	53.4	36.0	23.0	12.2	5.2	9.4	1.4	1.6	2.2	1.4	1.8	4.9	12.7	26.1	42.3	61.1	71.6	
Top Bumper Level Level 2	560	59.9	38.0	31.2	24.8	18.9	13.8	10.1	14.3	14.5	17.9	19.6	19.1	20.6	21.6	22.6	26.4	32.1	
Mid Bumper Level Level 1	432	83.5	46.7	39.7	31.0	20.5	17.0	16.4	15.3	12.9	13.5	13.4	14.2	13.7	16.3	21.6	27.6	36.2	

All measurements are in millimeters and have a tolerance of ± 3 mm.

DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

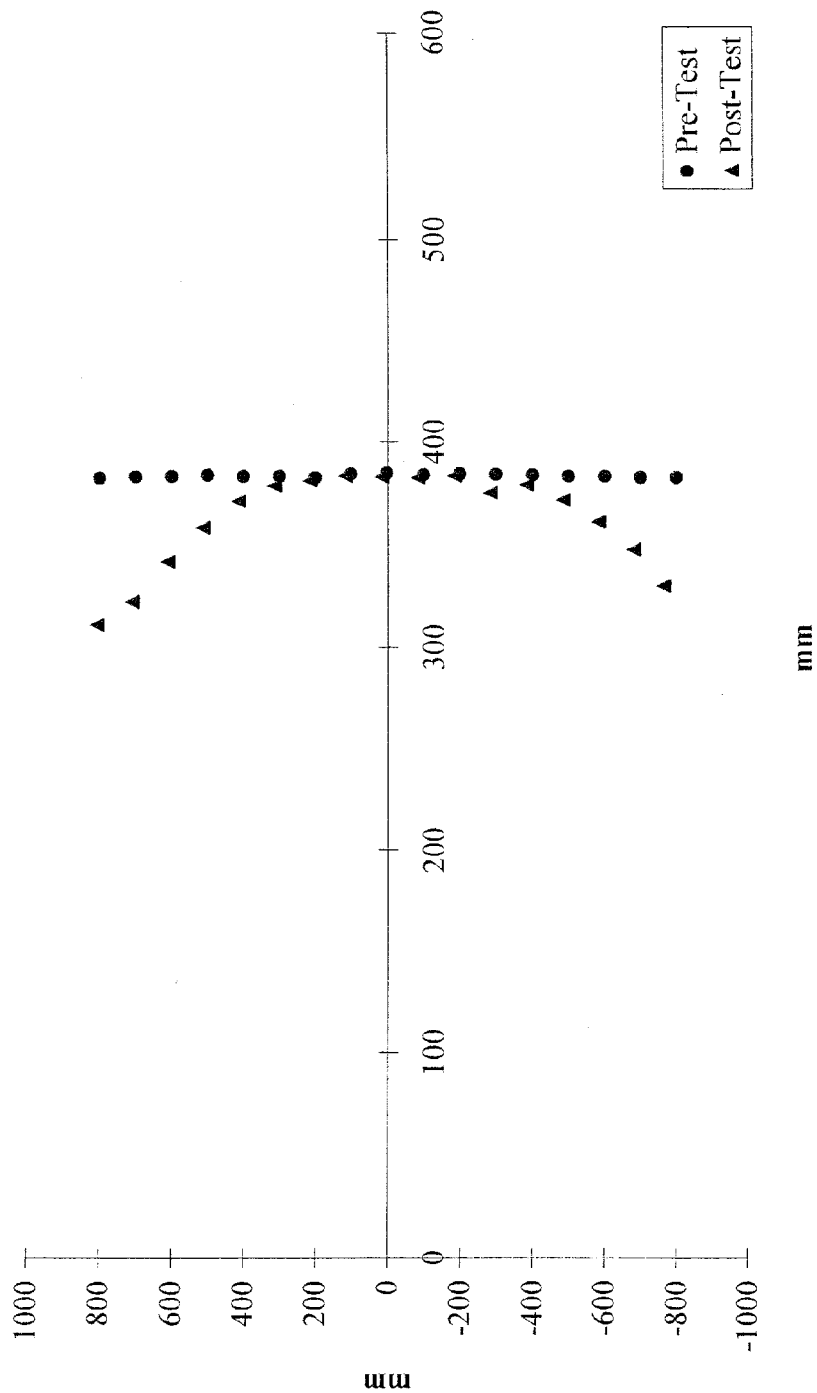
Deformable Barrier Face Profile 1-17



DATA SHEET 12 (continued)
 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

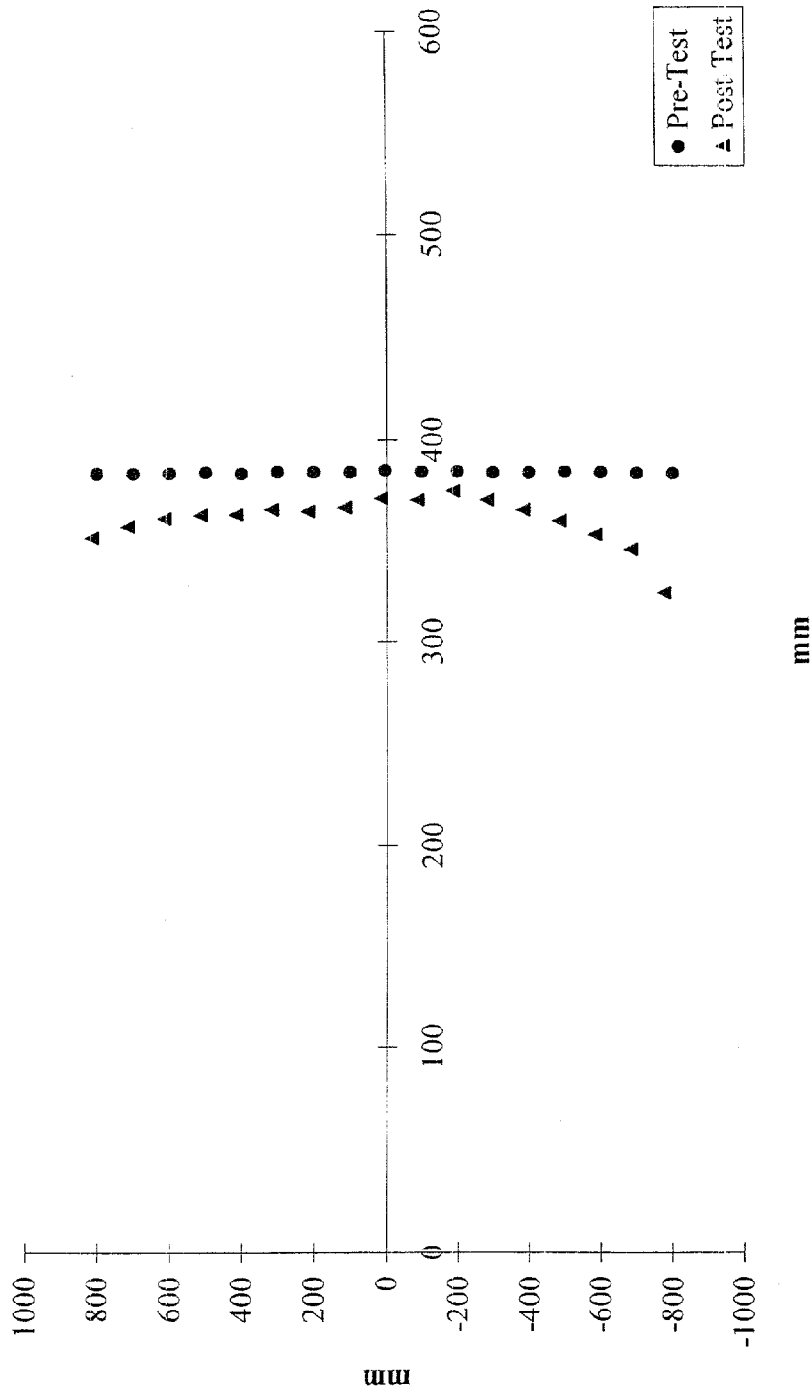
Deformable Barrier Face Profile 18-34



DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

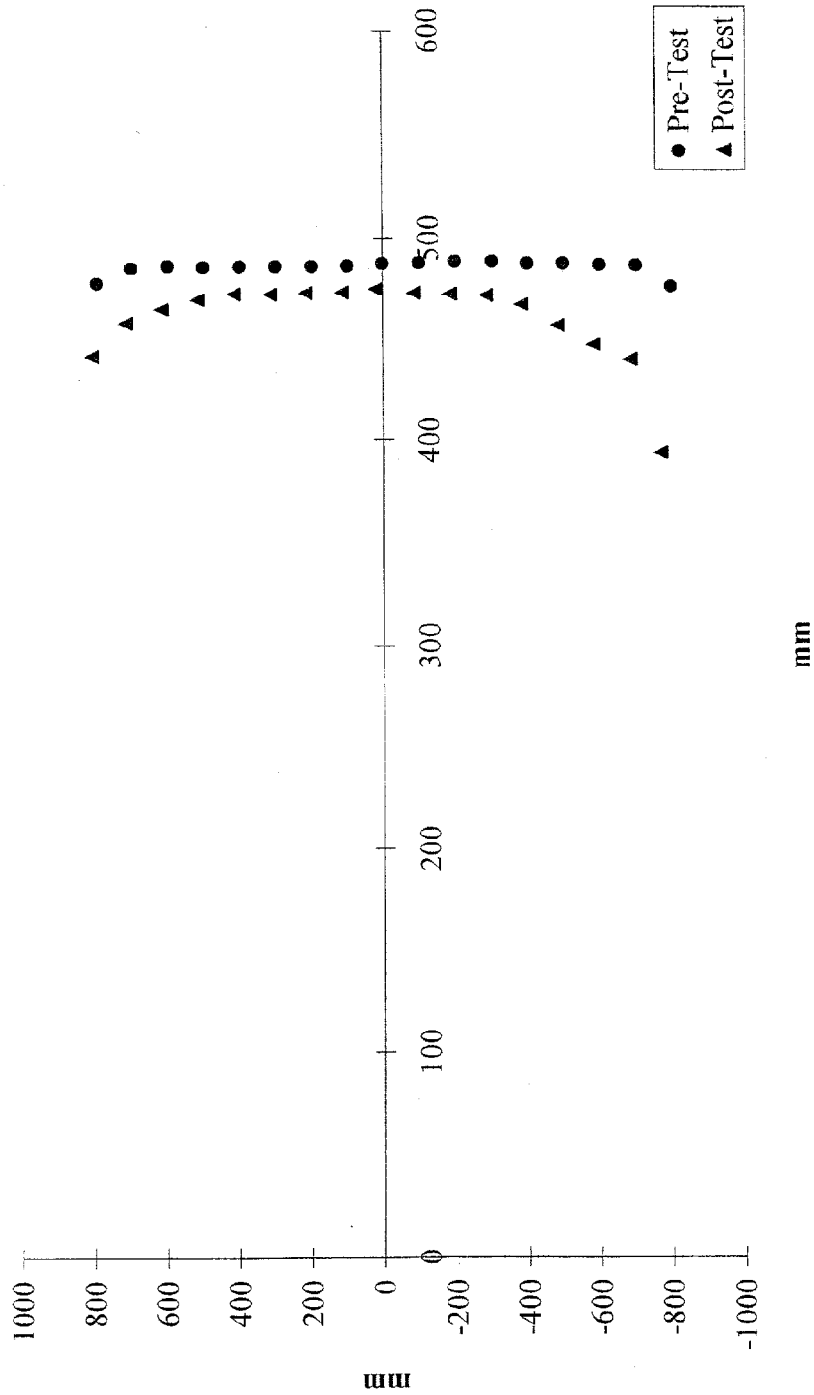
Deformable Barrier Face Profile 35-51



DATA SHEET 12 (continued)
 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

Deformable Barrier Face Profile 52-68



DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

Deformable Barrier Face Profile

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
1	382.7	-795.7	245	1	296.7	-764.8	231.1	1	86.0	-30.9	13.9
2	382.7	-695.9	244.8	2	337.8	-677.6	238.9	2	44.9	-18.3	5.9
3	383.2	-595.8	244.8	3	350.7	-577.5	237.9	3	32.5	-18.3	6.9
4	383.2	-496.8	245.1	4	356.4	-479	237.6	4	26.8	-17.8	7.5
5	383.6	-396.4	245.1	5	353.6	-378.8	235.8	5	30.0	-17.6	9.3
6	383.8	-296.7	245	6	334.8	-280	227.9	6	49.0	-16.7	17.1
7	383.6	-197.6	245.8	7	340.6	-182.3	230.8	7	43.0	-15.3	15.0
8	384.1	-97.5	245.8	8	355.8	-83.9	236.9	8	28.3	-13.6	8.9
9	383.9	2.4	244.6	9	361.7	15.8	238.1	9	22.2	-13.4	6.5
10	383.7	103.1	245	10	361.6	116.9	238.3	10	22.1	-13.8	6.7
11	383.6	202.9	244.8	11	354.7	216.4	237.6	11	28.9	-13.5	7.2
12	383.3	302.8	244.7	12	341.8	315.8	234.9	12	41.5	-13.0	9.8
13	383.2	402.4	244.8	13	324.1	414.4	230	13	59.1	-12.0	14.8
14	382.8	501.3	245.7	14	300.8	510.7	222.9	14	82.0	-9.4	22.8
15	383	601.5	244.6	15	268	604.9	207.1	15	115.0	-3.4	37.5
16	383	700.9	245.2	16	239.1	698.5	194	16	143.9	2.4	51.2
17	382.6	801	244.2	17	224.9	796.9	193.3	17	157.7	4.1	50.9
18	383.1	-796.4	118.3	18	329.7	-762.5	108.7	18	53.4	-33.9	9.6
19	383	-697.4	119	19	347	-679.9	112.4	19	36.0	-17.5	6.6
20	383.5	-597.1	118.4	20	360.5	-580.7	112.7	20	23.0	-16.4	5.7
21	383.5	-496.8	118.6	21	371.3	-481.1	112.2	21	12.2	-15.7	6.4
22	383.9	-396.9	118.5	22	378.7	-381.4	111.6	22	5.2	-15.5	6.9

DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

Deformable Barrier Face Profile Cont'd.

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
23	384.1	-296.6	118.9	23	374.7	-282.1	110.4	23	9.4	-14.5	8.5
24	384.4	-197.2	119.6	24	383	-183.5	113.1	24	1.4	-13.7	6.5
25	383.8	-97.4	118.9	25	382.2	-83.5	113.1	25	1.6	-13.9	5.8
26	384.7	3.5	118.6	26	382.5	17.7	113.6	26	2.2	-14.2	5.0
27	384.3	103.6	119	27	382.9	116.3	114.9	27	1.4	-12.7	4.1
28	382.6	202.6	118.3	28	380.8	216.8	115	28	1.8	-14.2	3.3
29	383.2	302.1	118.2	29	378.3	316	115.4	29	4.9	-13.9	2.8
30	383.3	402.1	117.7	30	370.6	415.1	114.9	30	12.7	-13.0	2.8
31	383.8	501.7	117.2	31	357.7	514.4	110.1	31	26.1	-12.7	7.1
32	383.3	601.4	117.3	32	341	612.4	104.4	32	42.3	-11.0	12.9
33	382.9	701.6	117.2	33	321.8	710.1	98	33	61.1	-8.5	19.2
34	382.4	801	117.1	34	310.8	808	100.4	34	71.6	-7.0	16.7
35	383.3	-795.1	-23.2	35	323.4	-769.7	-12	35	59.9	-25.4	-11.2
36	383.2	-695.4	-23	36	345.2	-679.6	-19.1	36	38.0	-15.8	-3.9
37	383.7	-594.7	-22.8	37	352.5	-579.7	-20.7	37	31.2	-15.0	-2.1
38	384	-495	-22.2	38	359.2	-478.9	-21.3	38	24.8	-16.1	-0.9
39	383.6	-394.9	-22.2	39	364.7	-379	-21.8	39	18.9	-15.9	-0.4
40	383.5	-295.9	-22.2	40	369.7	-278.2	-19.2	40	13.8	-17.7	-3.0
41	384.2	-196.9	-21.9	41	374.1	-184	-19.9	41	10.1	-12.9	-2.0
42	383.9	-95.6	-21.9	42	369.6	-83	-23.2	42	14.3	-12.6	1.3
43	384.9	4.3	-22.3	43	370.4	17.5	-21	43	14.5	-13.2	-1.3
44	383.9	102.2	-22.3	44	366	117	-19.8	44	17.9	-14.8	-2.5

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Jeep Cherokee Sport Utility NHTSA No.: MX0310

Deformable Barrier Face Profile Cont'd.

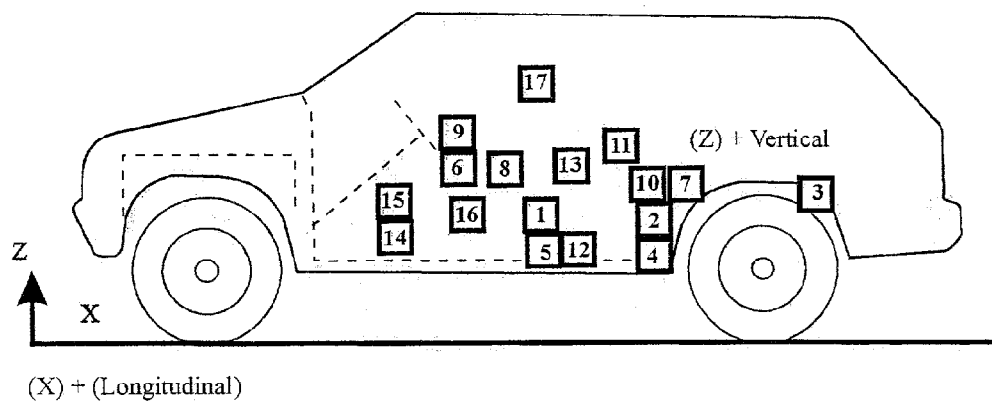
Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
45	383.9	203	-21.6	45	364.3	218.4	-19.6	45	19.6	-15.4	-2.0
46	384.2	302.8	-21.7	46	365.1	319.6	-17.6	46	19.1	-16.8	-4.1
47	383.3	403.7	-22.7	47	362.7	419.1	-19	47	20.6	-15.4	-3.7
48	384	502.5	-23.2	48	362.4	517.7	-19.8	48	21.6	-15.2	-3.4
49	383.5	602.7	-22.4	49	360.9	618.9	-19.1	49	22.6	-16.2	-3.3
50	383.2	702.5	-23.4	50	356.8	718.3	-18.2	50	26.4	-15.8	-5.2
51	383.2	802.3	-24.1	51	351.1	817.7	-18.1	51	32.1	-15.4	-6.0
52	476.8	-793.1	-132.9	52	393.3	-764.2	-124.4	52	83.5	-28.9	-8.5
53	487.1	-696.7	-132.9	53	440.4	-680.3	-122.1	53	46.7	-16.4	-10.8
54	487.3	-597	-133.5	54	447.6	-580.5	-120.9	54	39.7	-16.5	-12.6
55	487.9	-497.4	-133.6	55	456.9	-482.3	-118.4	55	31.0	-15.1	-15.2
56	487.9	-397.1	-134.1	56	467.4	-380.8	-117.7	56	20.5	-16.3	-16.4
57	488.8	-299	-134.5	57	471.8	-283.4	-117.2	57	17.0	-15.6	-17.3
58	488.8	-197.4	-132.7	58	472.4	-183.1	-116.5	58	16.4	-14.3	-16.2
59	488.2	-98.7	-134.6	59	472.9	-84.4	-117.1	59	15.3	-14.3	-17.5
60	487.9	1.3	-133.7	60	475	20.9	-121.9	60	12.9	-19.6	-11.8
61	486.8	98.8	-133.8	61	473.3	114.6	-115.7	61	13.5	-15.8	-18.1
62	486.6	198.7	-133.9	62	473.2	214.6	-115.8	62	13.4	-15.9	-18.1
63	486.7	298.1	-134.4	63	472.5	313.7	-116.6	63	14.2	-15.6	-17.8
64	486.5	398.2	-134.9	64	472.8	413.6	-116.6	64	13.7	-15.4	-18.3
65	486.3	497.9	-135.4	65	470	513.2	-117.6	65	16.3	-15.3	-17.8
66	486.9	596.5	-135.3	66	465.3	613.3	-118.7	66	21.6	-16.8	-16.6
67	486	697.2	-135.4	67	458.4	712.5	-119.6	67	27.6	-15.3	-15.8
68	478.3	791	-133.5	68	442.1	805.3	-121.6	68	36.2	-14.3	-11.9

DATA SHEET 13

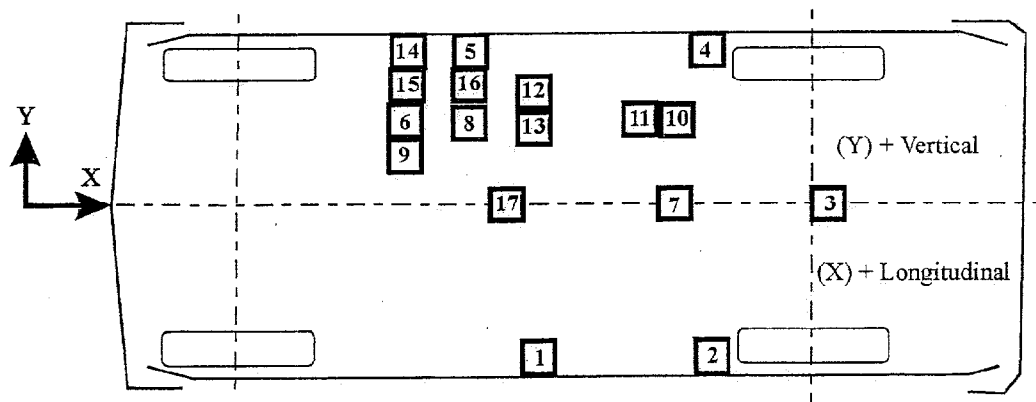
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310



Side View



Bottom View

- 1-Right Front Sill
- 2-Right Rear Sill
- 3-Rear Floorpan Sill
- 4-Left Rear Sill
- 5-Left Front Sill
- 6-Left Front Door Centerline
- 7-Right Rear Seat
- 8-Left Front Door Midrear
- 9-Left Front Door Upper Centerline

- 10-Left Rear Door Midrear
- 11-Left Rear Door Upper Centerline
- 12-Left Side Lower B-pillar
- 13-Left Side Middle B-pillar
- 14-Left Side Lower A-pillar
- 15-Left Side Middle A-pillar
- 16-Left Side Front Seat Track at H-point
- 17-Vehicle Center of Gravity

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Jeep Cherokee Sport Utility				NHTSA No.: MX0310	
TEST NUMBER: 990120				NEGATIVE	
No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 RIGHT SIDE SILL AT FRONT SEAT	PRE 2527 in	-657 in	430 in		
	POST 2540 in	-635 in	440 in		
	LONGITUDINAL		5.4 g	@ 6.4 ms	2.4 g @ 85.1 ms
	LATERAL		21.2 g	@ 17.9 ms	2.1 g @ 73.0 ms
	VERTICAL		10.0 g	@ 15.9 ms	6.3 g @ 43.0 ms
RESULTANT			23.2 g	@ 15.7 ms	
2 RIGHT SIDE SILL AT REAR SEAT	PRE 1705 in	-672 in	425 in		
	POST 1710 in	-600 in	495 in		
	LONGITUDINAL		5.1 g	@ 6.2 ms	2.9 g @ 23.0 ms
	LATERAL		20.0 g	@ 16.4 ms	1.9 g @ 159.8 ms
	VERTICAL		13.0 g	@ 18.5 ms	5.7 g @ 81.9 ms
RESULTANT			22.5 g	@ 17.0 ms	
3 REAR FLOORPAN ABOVE AXLE	PRE 932 in	0 in	580 in		
	POST 940 in	0 in	646 in		
	LONGITUDINAL		7.1 g	@ 75.6 ms	12.2 g @ 15.2 ms
	LATERAL		19.2 g	@ 44.1 ms	2.7 g @ 159.0 ms
	VERTICAL		20.0 g	@ 28.7 ms	22.7 g @ 23.1 ms
RESULTANT			27.3 g	@ 44.0 ms	
4 LEFT SIDE SILL AT REAR SEAT	PRE 1705 in	672 in	440 in		
	POST 1689 in	420 in	570 in		
LATERAL ¹				---	---

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

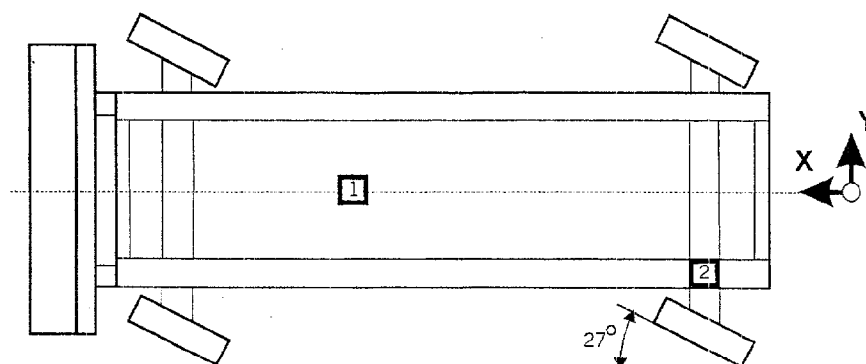
Vehicle: 1999 Jeep Cherokee Sport Utility				NHTSA No.: MX0310	
TEST NUMBER: 990120				NEGATIVE DIRECTION	
No. LOCATION	X	Y	Z	POSITIVE DIRECTION	
5 LEFT SIDE SILL AT FRONT SEAT LATERAL ¹	PRE 2528 in	657 in	435 in		
	POST 2521 in	448 in	571 in	119.3 g @ 12.9 ms	30.4 g @ 6.4 ms
6 LEFT FRONT DOOR ON CENTERLINE LATERAL	PRE 2432 in	750 in	790 in		
	POST 2395 in	525 in	878 in	221.8 g @ 8.2 ms	108.0 g @ 12.1 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	PRE 1530 in	-565 in	495 in		
	POST 1540 in	-450 in	500 in	21.0 g @ 15.6 ms	2.1 g @ 158.7 ms
8 LEFT FRONT DOOR MIDREAR LATERAL	PRE 2052 in	742 in	790 in		
	POST 2031 in	505 in	878 in	155.3 g @ 5.2 ms	59.9 g @ 23.8 ms
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	PRE 2343 in	763 in	1033 in		
	POST 2400 in	640 in	1069 in	134.8 g @ 13.6 ms	59.3 g @ 5.5 ms

DATA SHEET 14

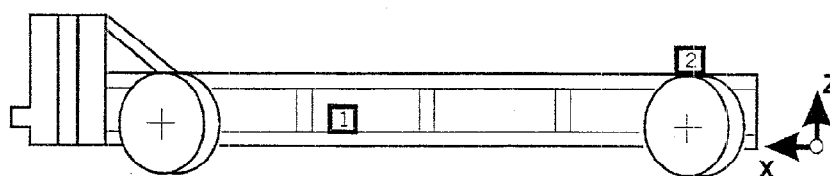
MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310



TOP VIEW



SIDE VIEW

Accel. No.	Location		Coordinates (millimeters)			Positive Direction		Negative Direction	
			X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity		1850	0	498				
	Longitudinal	X				17.3	34.8	2.6	148.2
	Lateral	Y				3.1	61.8	9.0	37.5
	Vertical	Z				5.5	103.6	8.6	15.5
	Resultant	R				19.3	35.4		
2	Rear Frame Member		385	-635	610				
	Longitudinal	X				20.7	31.8	2.1	147.0
	Lateral	Y				3.6	37.8	4.4	98.1

*Reference: X=Rear Bumper (+ Forward)
Y=Vehicle Centerline (+ To Right)
Z=Ground Level (+ Up)

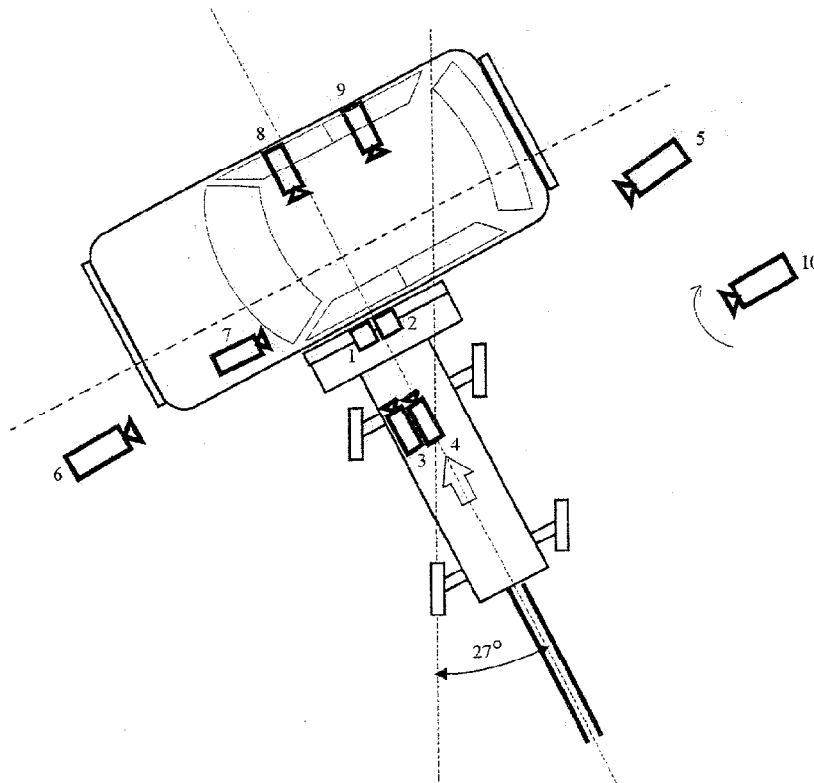
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310



Camera Number	Location	Location, mm			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Overhead wide	N/A	N/A	N/A	13	935
2	Overhead tight	N/A	N/A	N/A	25	992
3	Onboard MDB left side	0	1,829	787	25	975
4	Onboard MDB center	838	2,438	1,422	13	960
5	Right side	7,290	-1,702	826	13	1010
6	Left side	-4,572	-305	787	13	1002
7	Onboard vehicle front	-305	432	1,397	8	1005
8	Onboard side front door	889	1,626	1,118	8	1002
9	Onboard side rear door	1,651	1,626	1,118	8	995
10	Real-time Panning	N/A	N/A	N/A	16	24

+X: Rearward from impact point

+Y: Toward right from impact point

+Z: Upward from ground level

SECTION 5

VEHICLE FUEL SYSTEM INTEGRITY

DATA SHEET 16

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA NO.: MX0310 TEST DATE: January 20, 1999

Vehicle Mfgr./Make/Model : 1999 Jeep Cherokee Sport Utility

TEST VEHICLE IMPACT TYPE : _____ Frontal (48.28 km/h)
 _____ Oblique (48.28 km/h) with _____° barrier
 _____ face first contacting the (driver/passenger) side
 _____ Rear Moving Barrier (48.28 km/h)
 _____ Lateral Moving Barrier (32.19 km/h)
 X Side Impact Moving Deformable Barrier
 (62.3 km/h) contacting the driver side

FUEL SPILLAGE MEASUREMENT:

1. From impact until vehicle motion ceases
2. For five-minute period after vehicle motion ceases
3. For next 25 minutes.

ACTUAL	MAXIMUM ALLOWED
0 g	28 g
0 g	142 g
0 g	28 g/1 min.

SOLVENT SPILLAGE DETAILS :

None

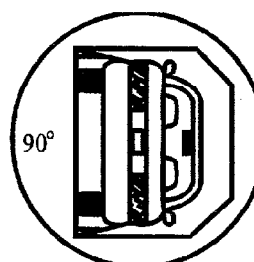
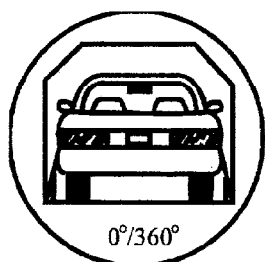
DATA SHEET 17

ROLLOVER DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

0 - 90 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

None

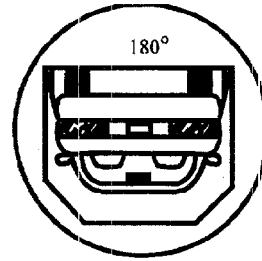
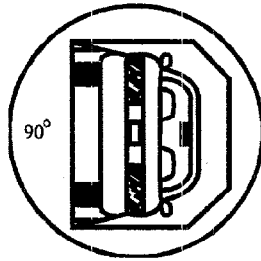
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

None

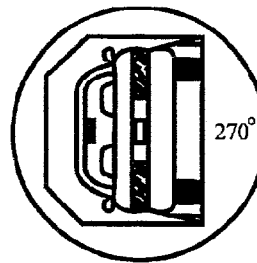
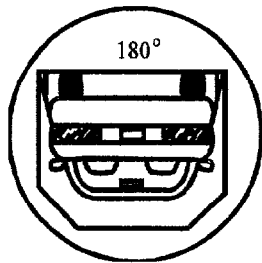
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

None

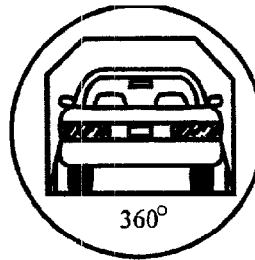
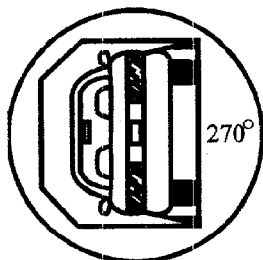
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Jeep Cherokee Sport Utility

NHTSA No.: MX0310

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

None

Appendix A

Photographs

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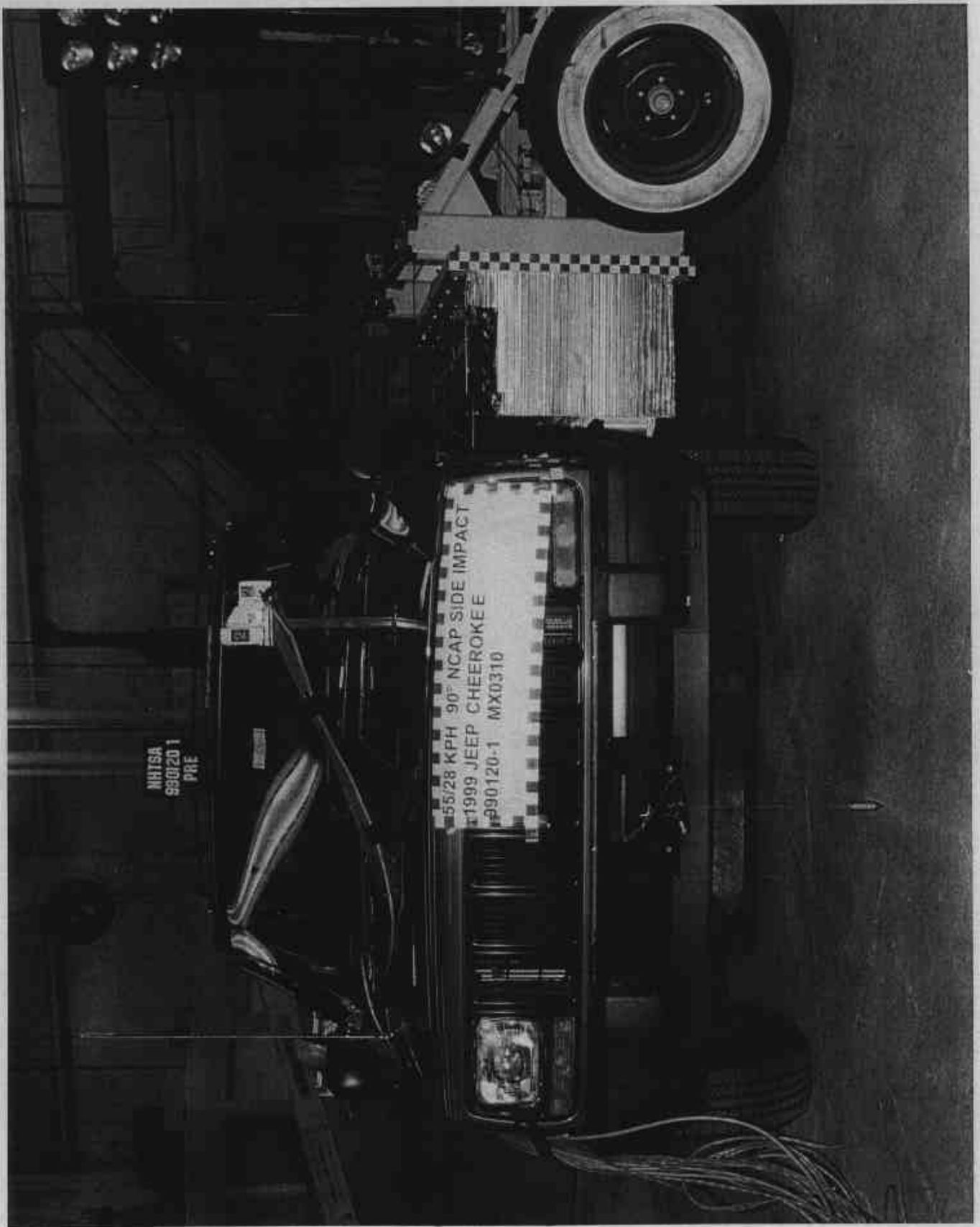


Figure A-1 Pre-Test Front View of Test Vehicle
A-3

990120

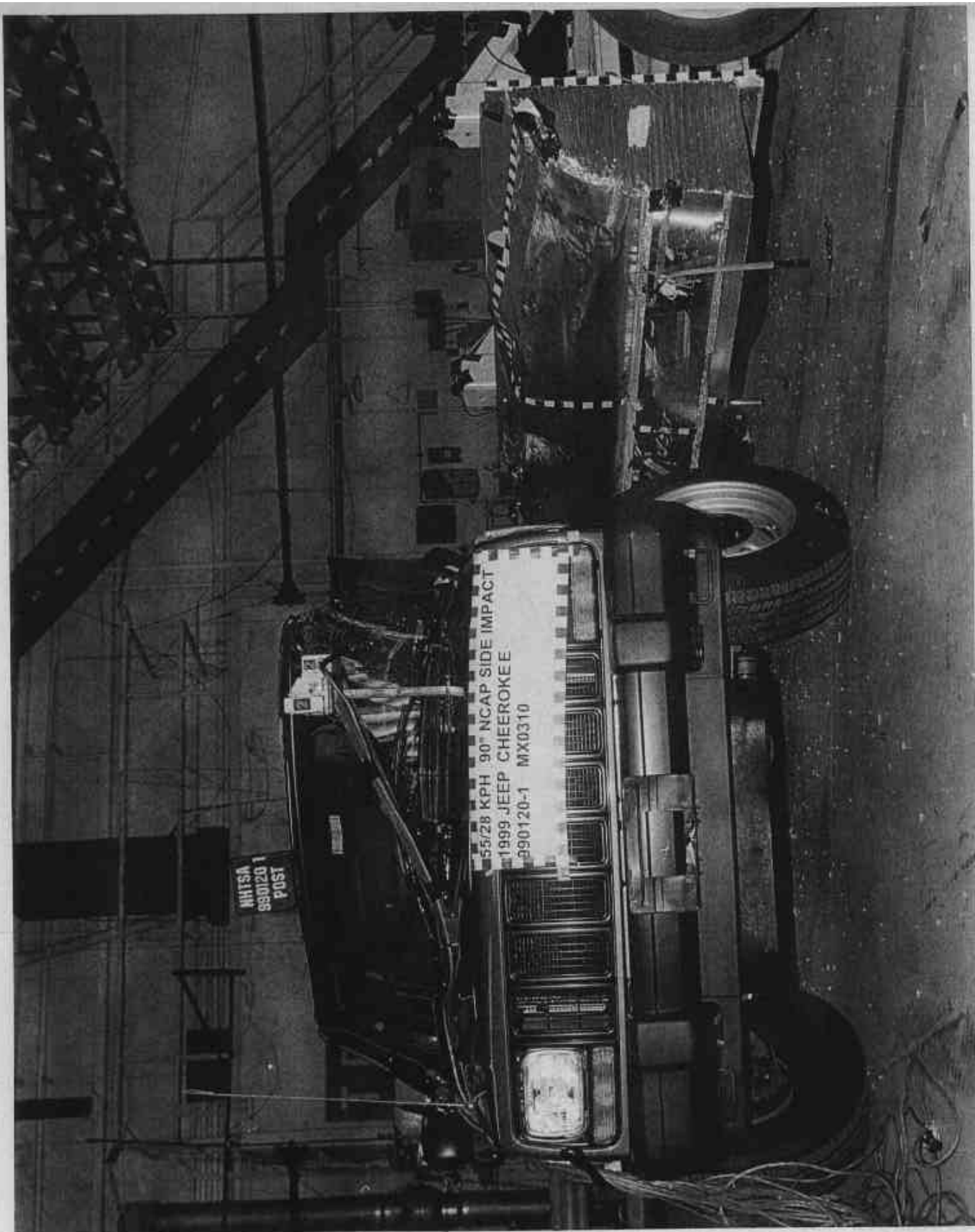


Figure A-2 Post-Test Front View of Test Vehicle
A-4

990120

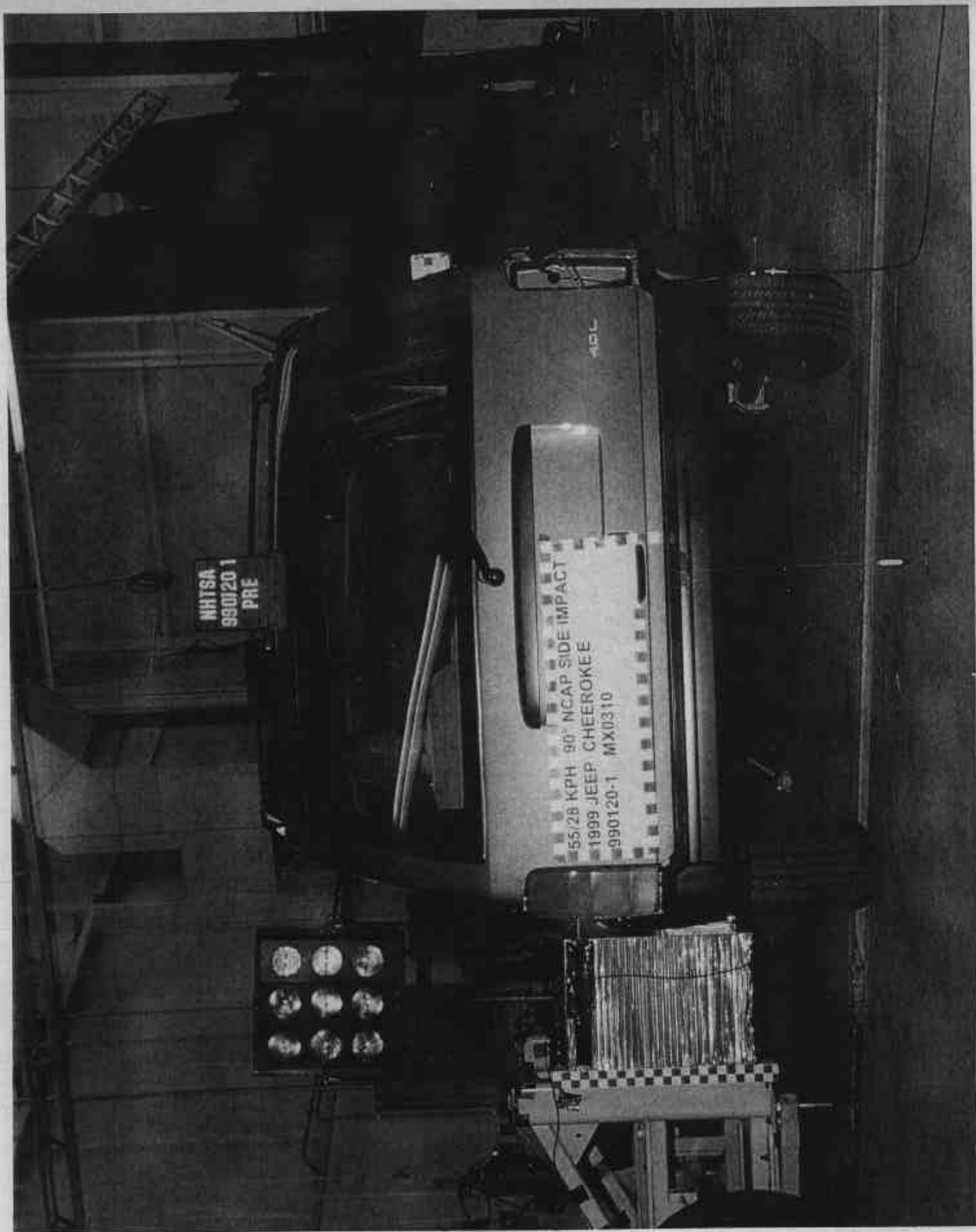


Figure A-3 Pre-Test Rear View of Test Vehicle
A-5

990120

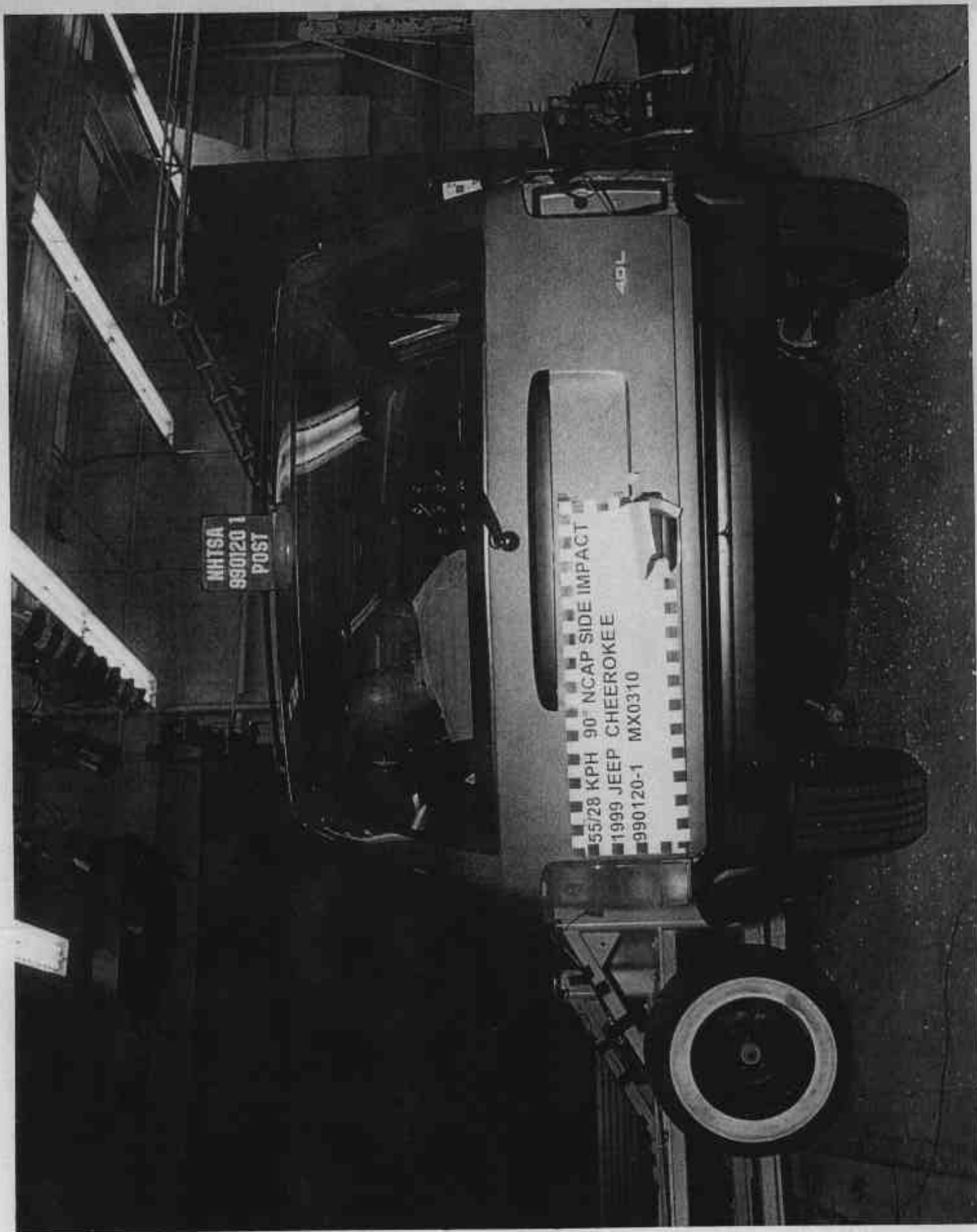


Figure A-4 Post-Test Rear View of Test Vehicle
A-6

990120

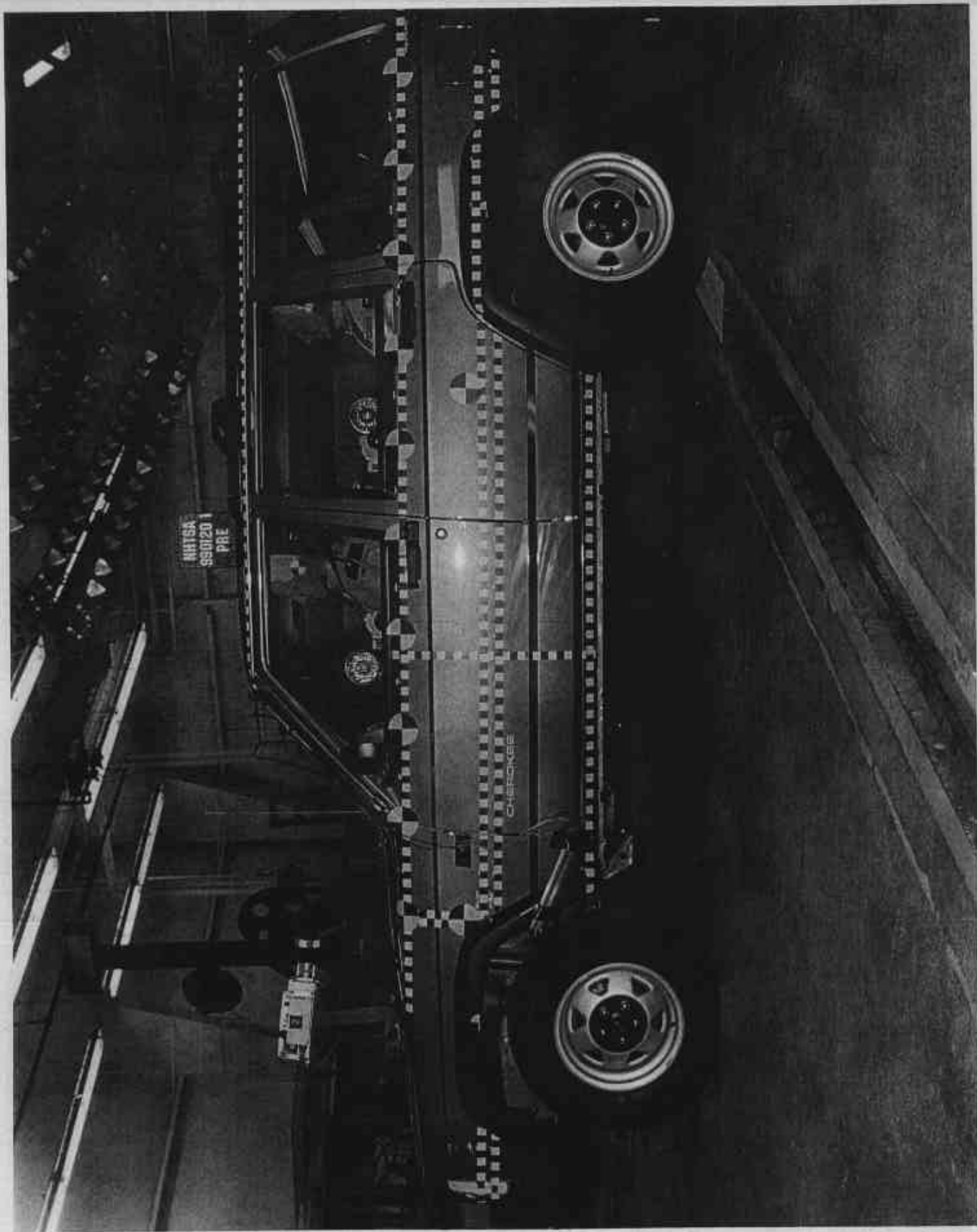


Figure A-5 Pre-Test Impacted Side View of Test Vehicle
A-7

990120

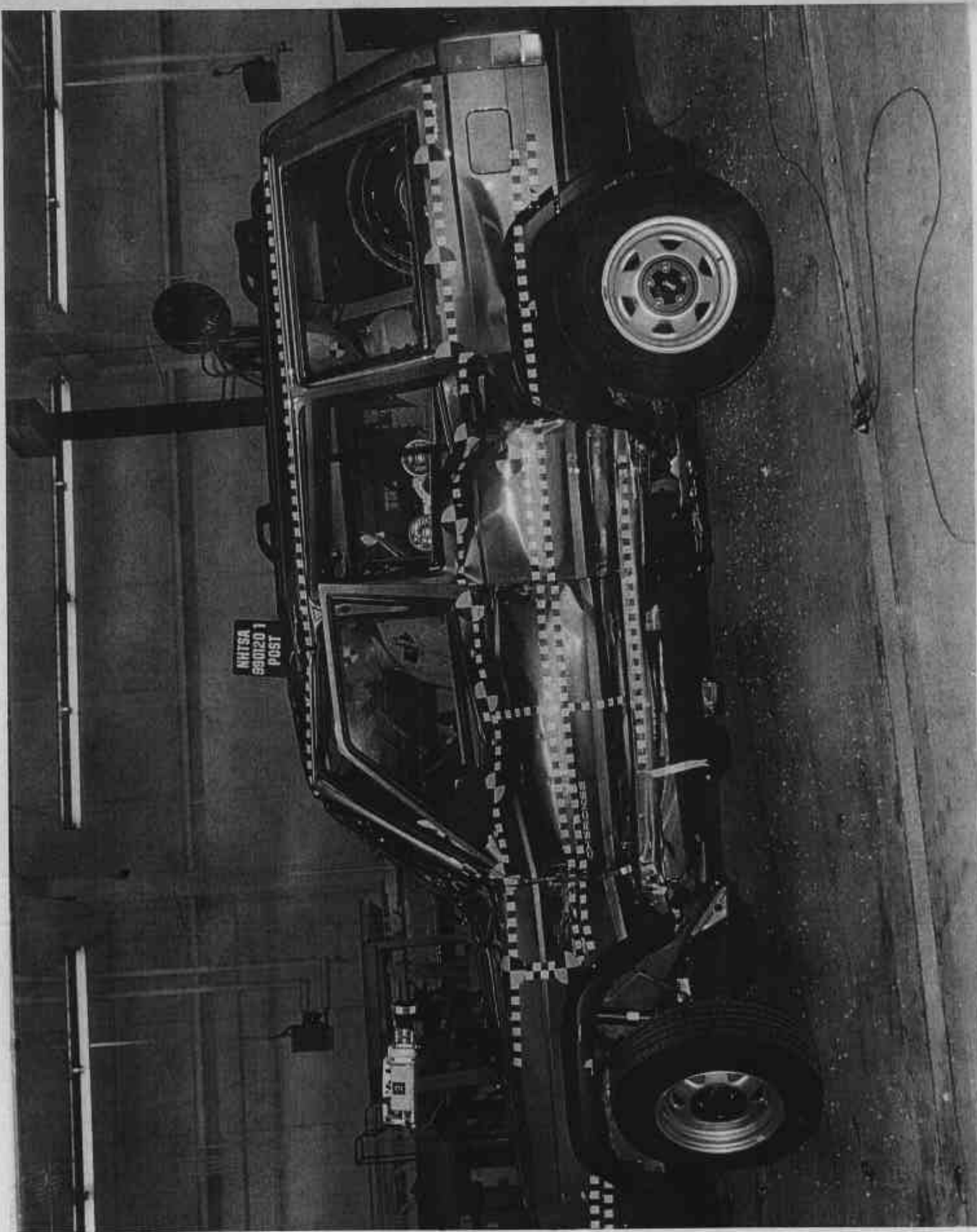


Figure A-6 Post-Test Impacted Side View of Test Vehicle
A-8

990120

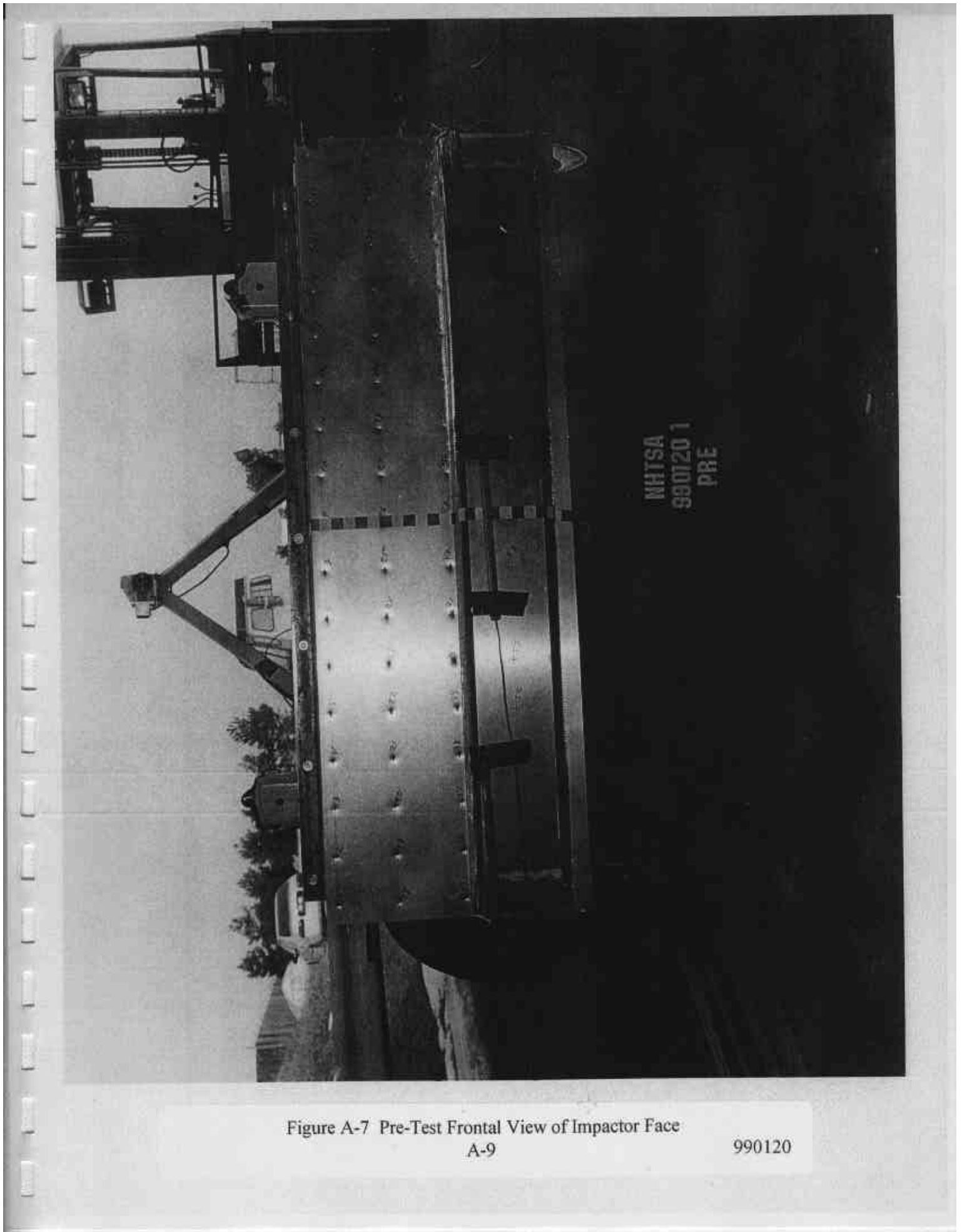


Figure A-7 Pre-Test Frontal View of Impactor Face
A-9

990120

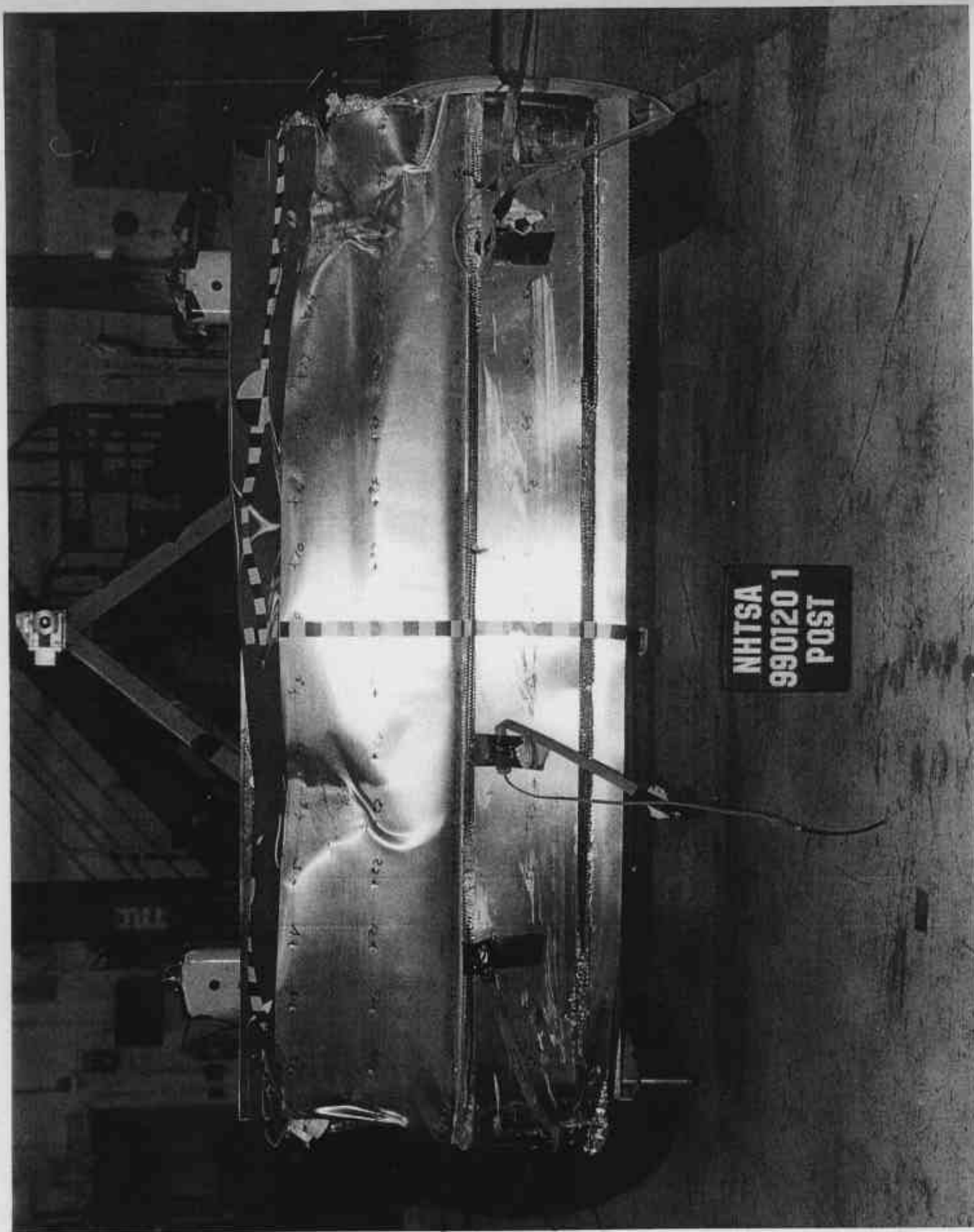


Figure A-8 Post-Test Frontal View of Impactor Face
A-10

990120

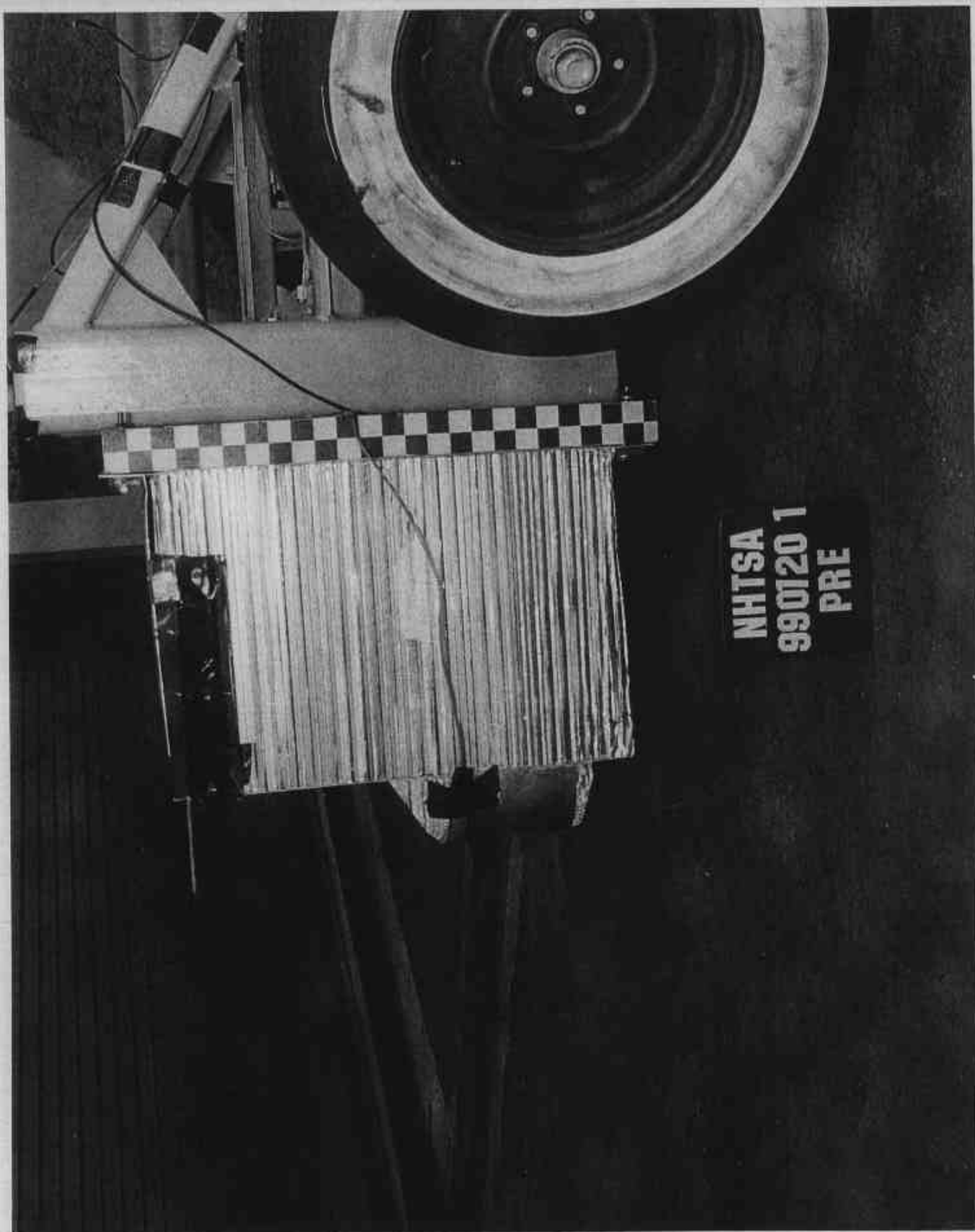


Figure A-9 Pre-Test Left Side View of Impactor Face
A-11

990120

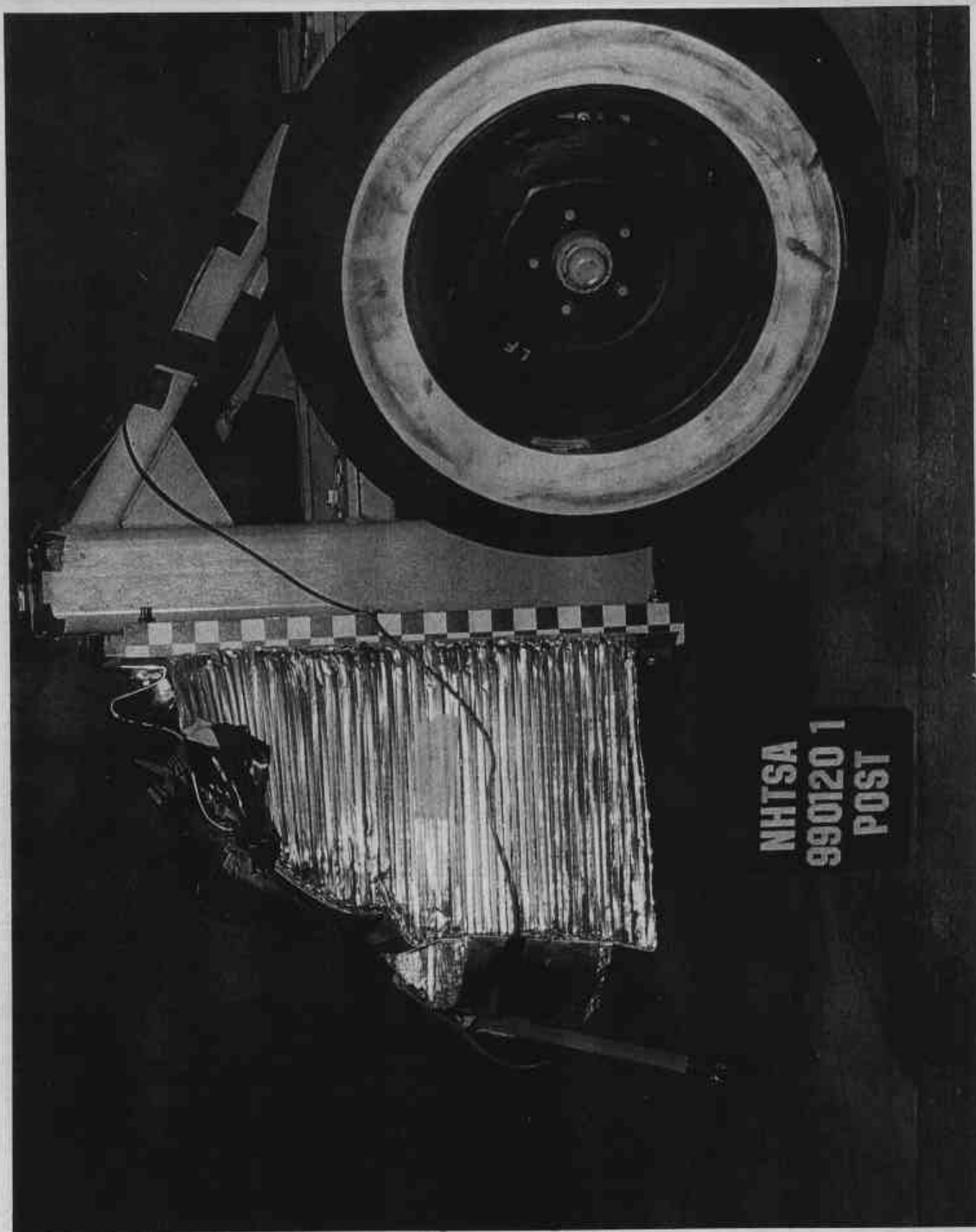


Figure A-10 Post-Test Left Side View of Impactor Face
A-12

990120



Figure A-11 Pre-Test Right Side View of Impactor Face
A-13

990120

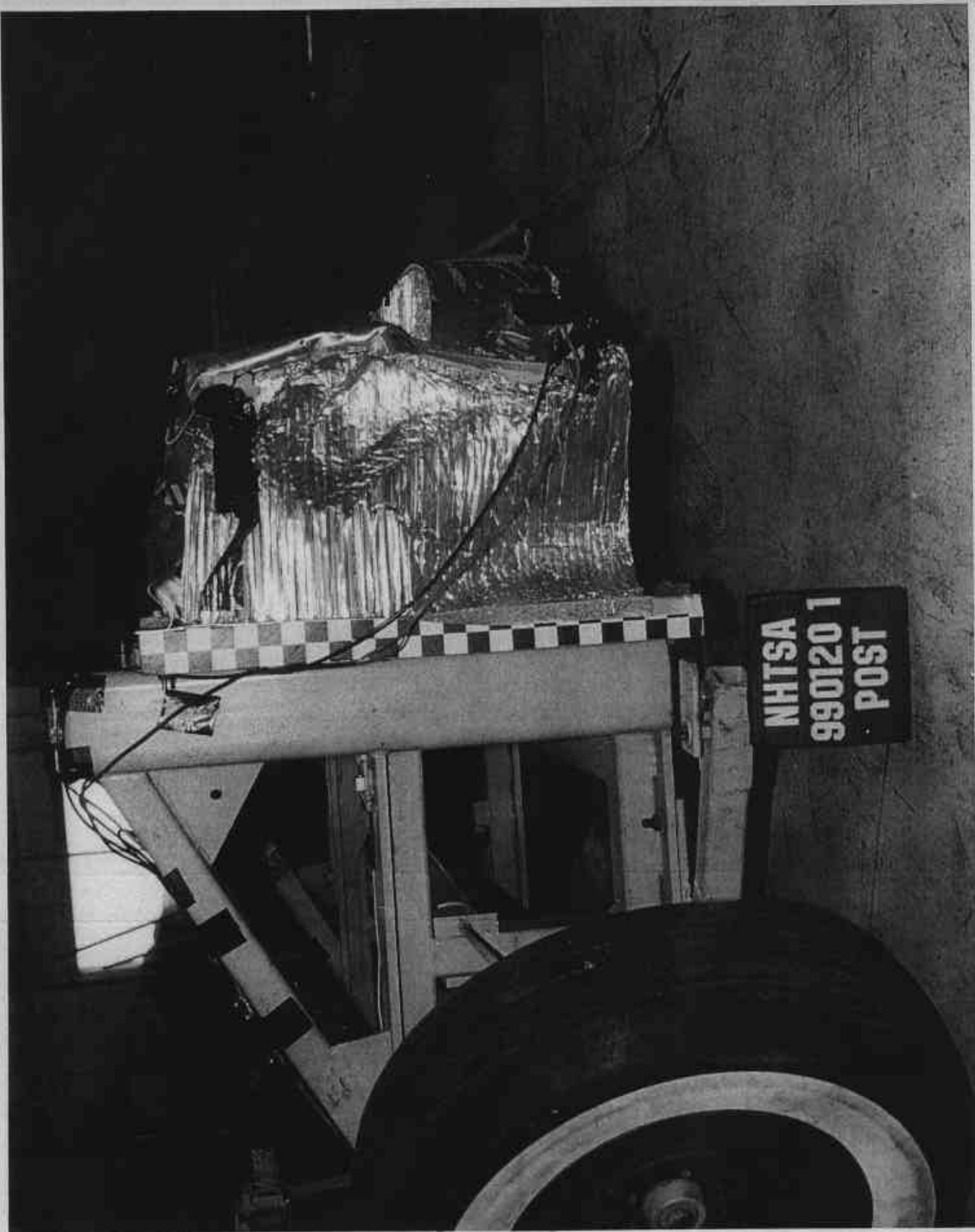


Figure A-12 Post-Test Right Side View of Impactor Face
A-14

990120

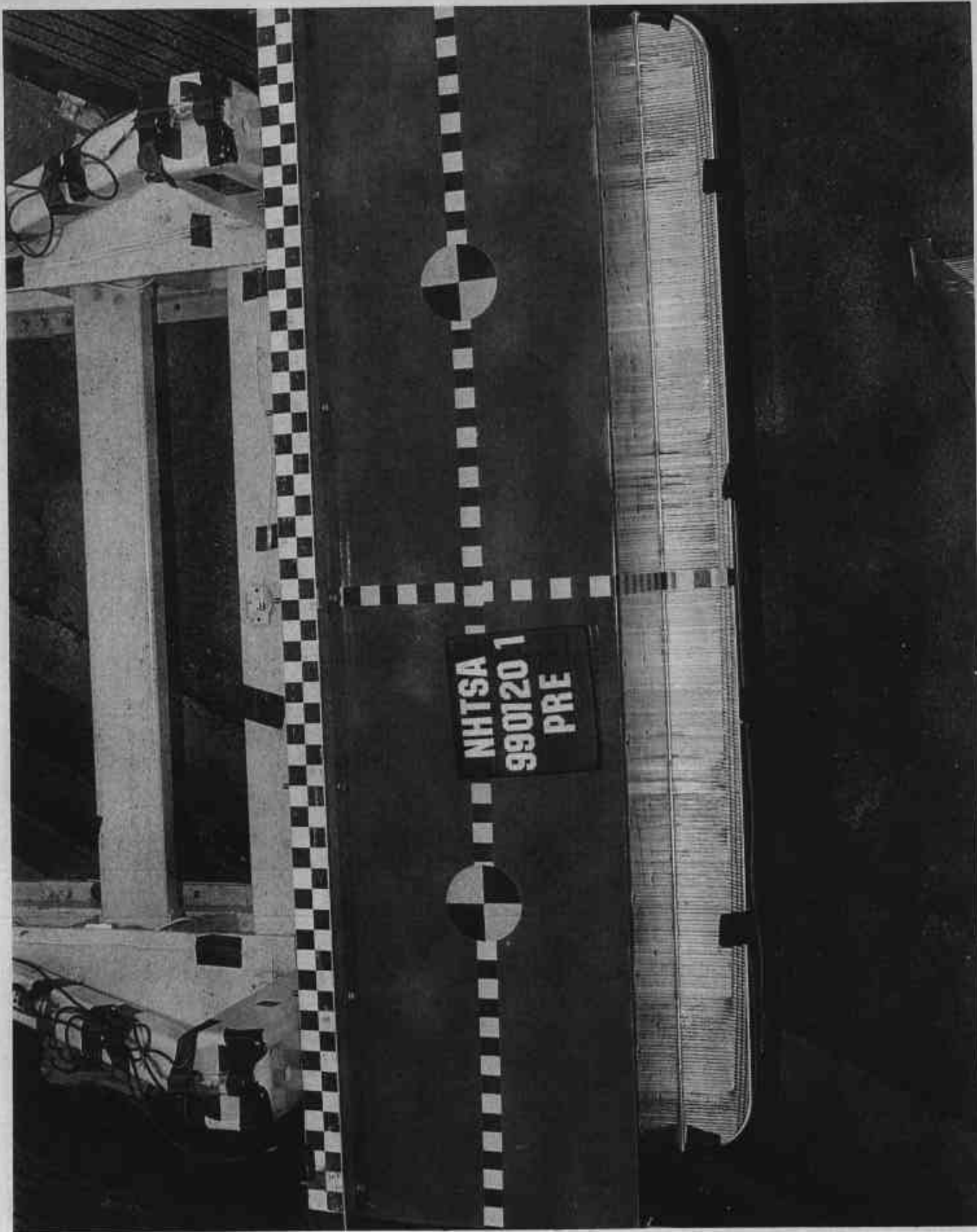


Figure A-13 Pre-Test Top View of Impactor Face
A-15

990120

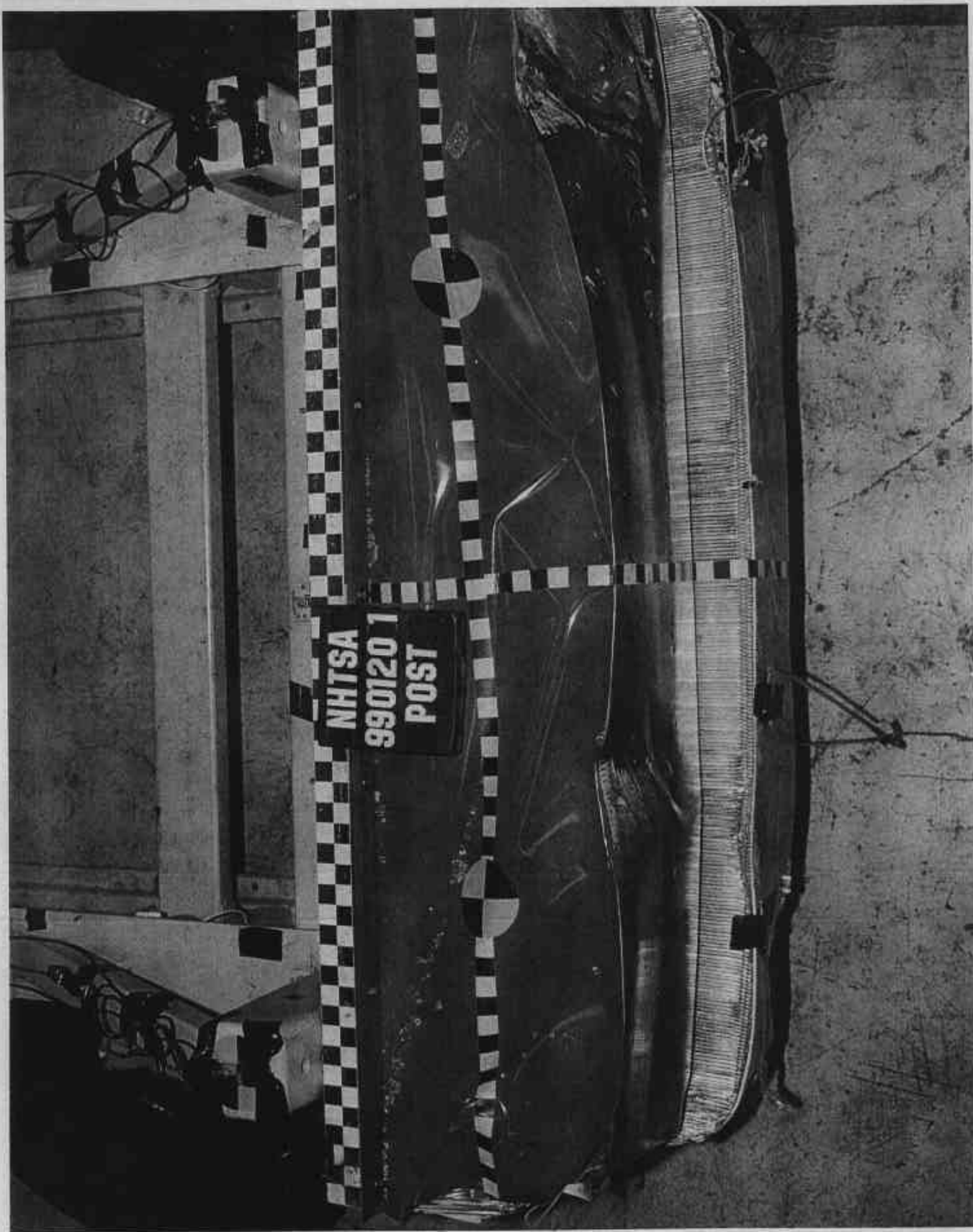


Figure A-14 Post-Test Top View of Impactor Face
A-16

990120

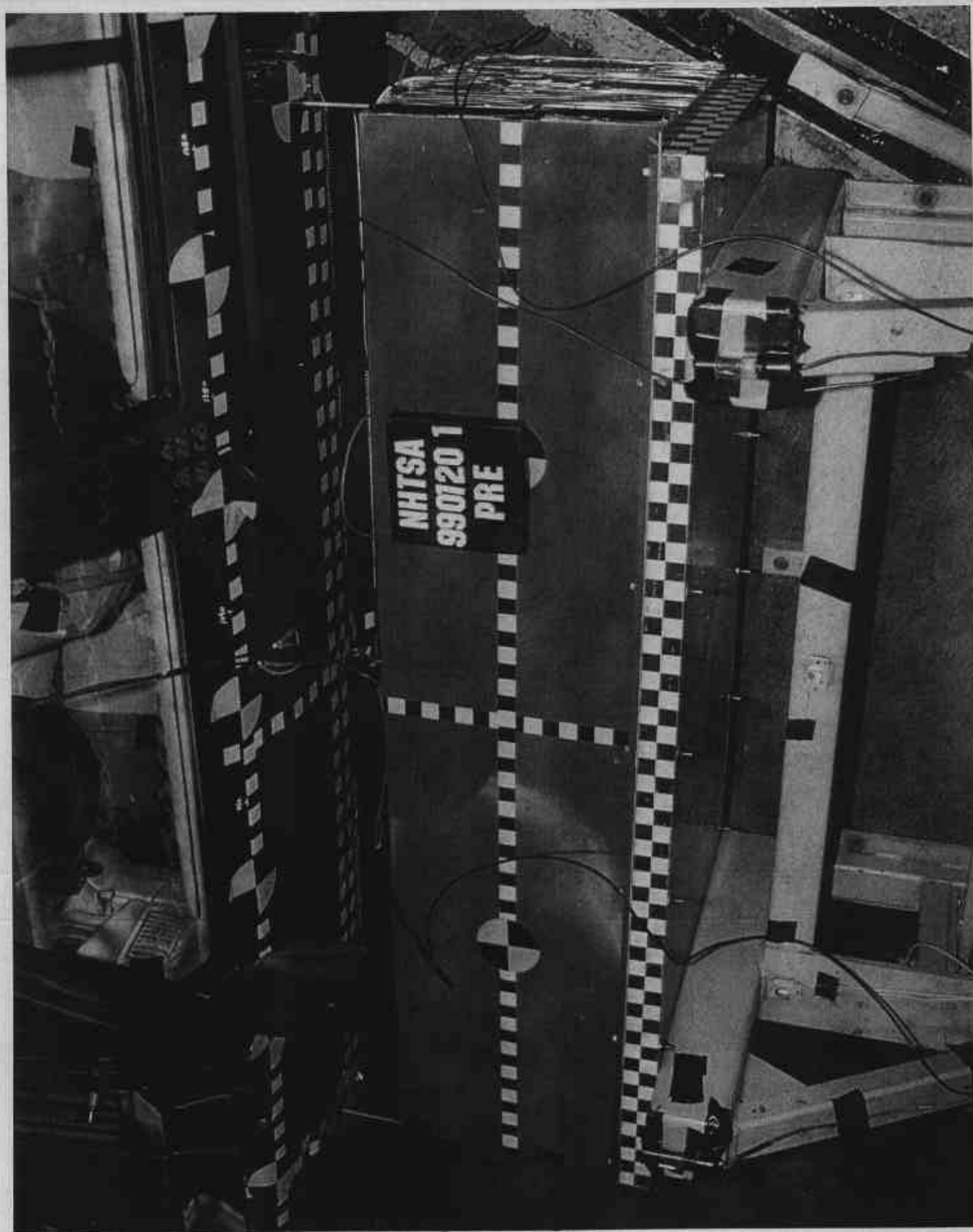


Figure A-15 Pre-Test Overhead View of MDB Aligned with Vehicle

A-17

990120



Figure A-16 Pre-Test Right Occupant Compartment View of Front SID

A-18

990120



Figure A-17 Post-Test Right Occupant Compartment View of Front SID
A-19 990120



Figure A-18 Pre-Test Right Occupant Compartment View of Rear SID

A-20

990120



Figure A-19 Post-Test Right Occupant Compartment View of Rear SID

A-21

990120

NHTSA
990120 1
PRE



Figure A-20 Pre-Test Left Occupant Compartment View of Front SID

A-22

990120



Figure A-21 Post-Test Left Occupant Compartment View of Front SID

A-23

990120

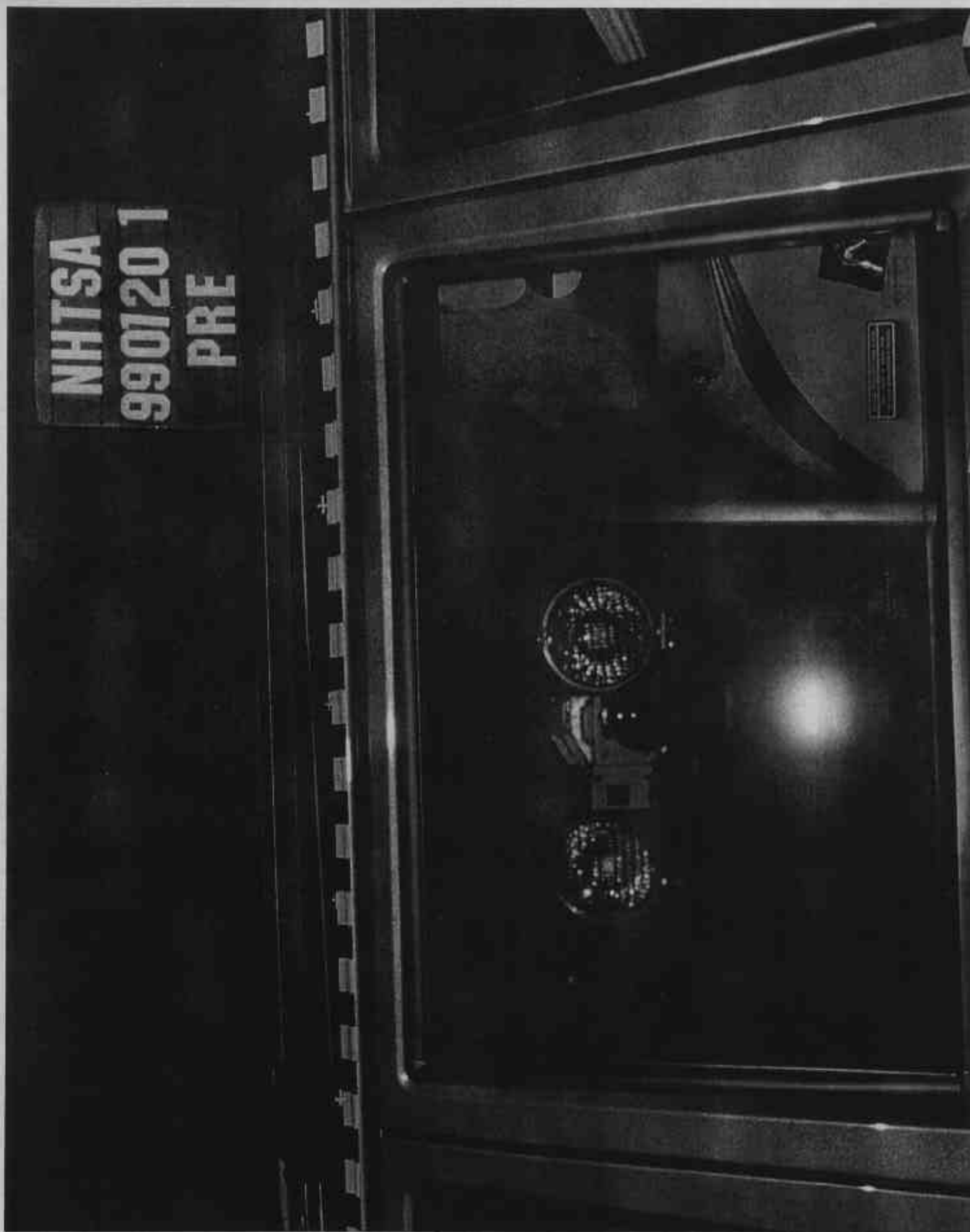


Figure A-22 Pre-Test Left Occupant Compartment View of Rear SID

A-24

990120

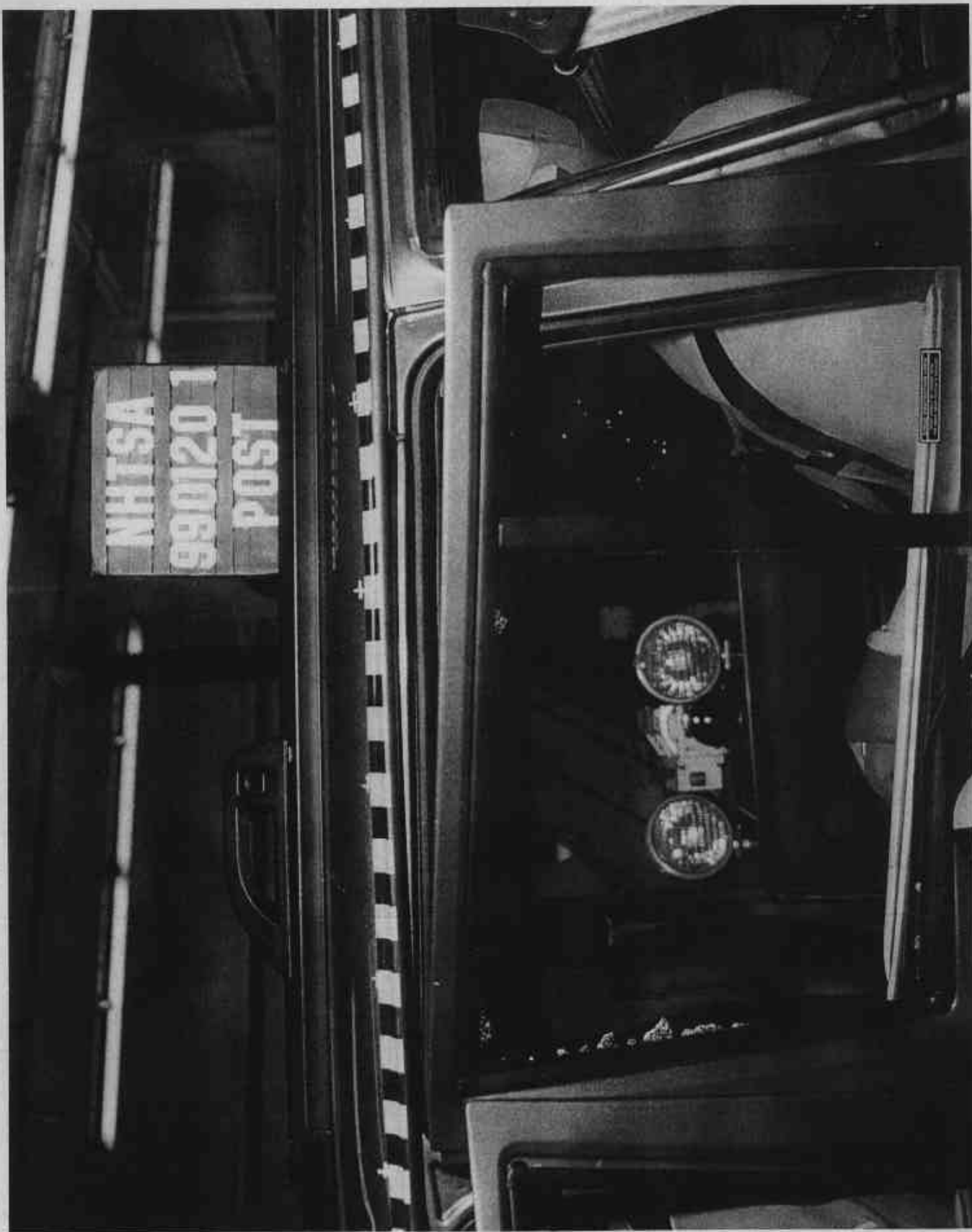


Figure A-23 Post-Test Left Occupant Compartment View of Rear SID

A-25

990120

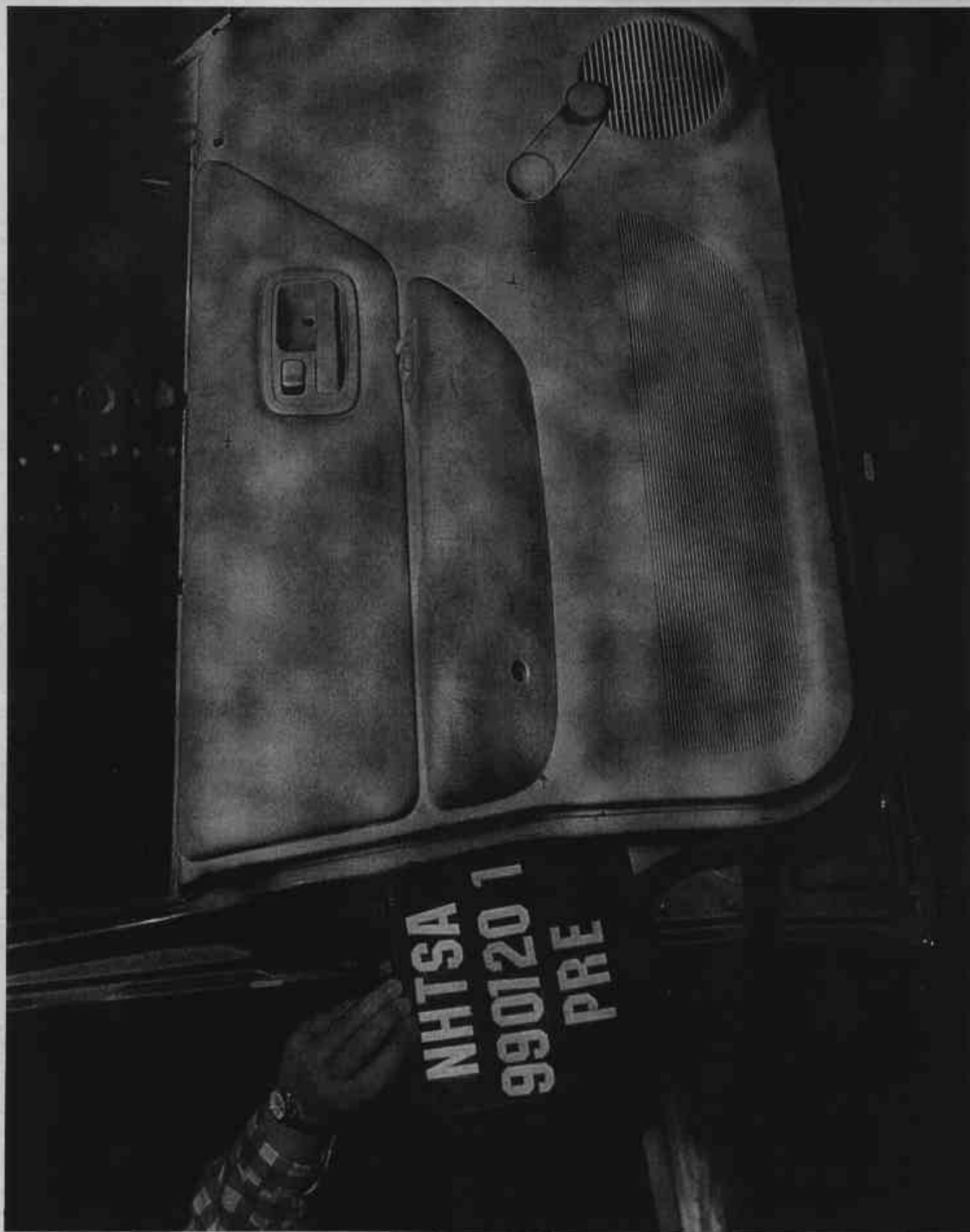


Figure A-24 Pre-Test Interior of Front Door
A-26

990120

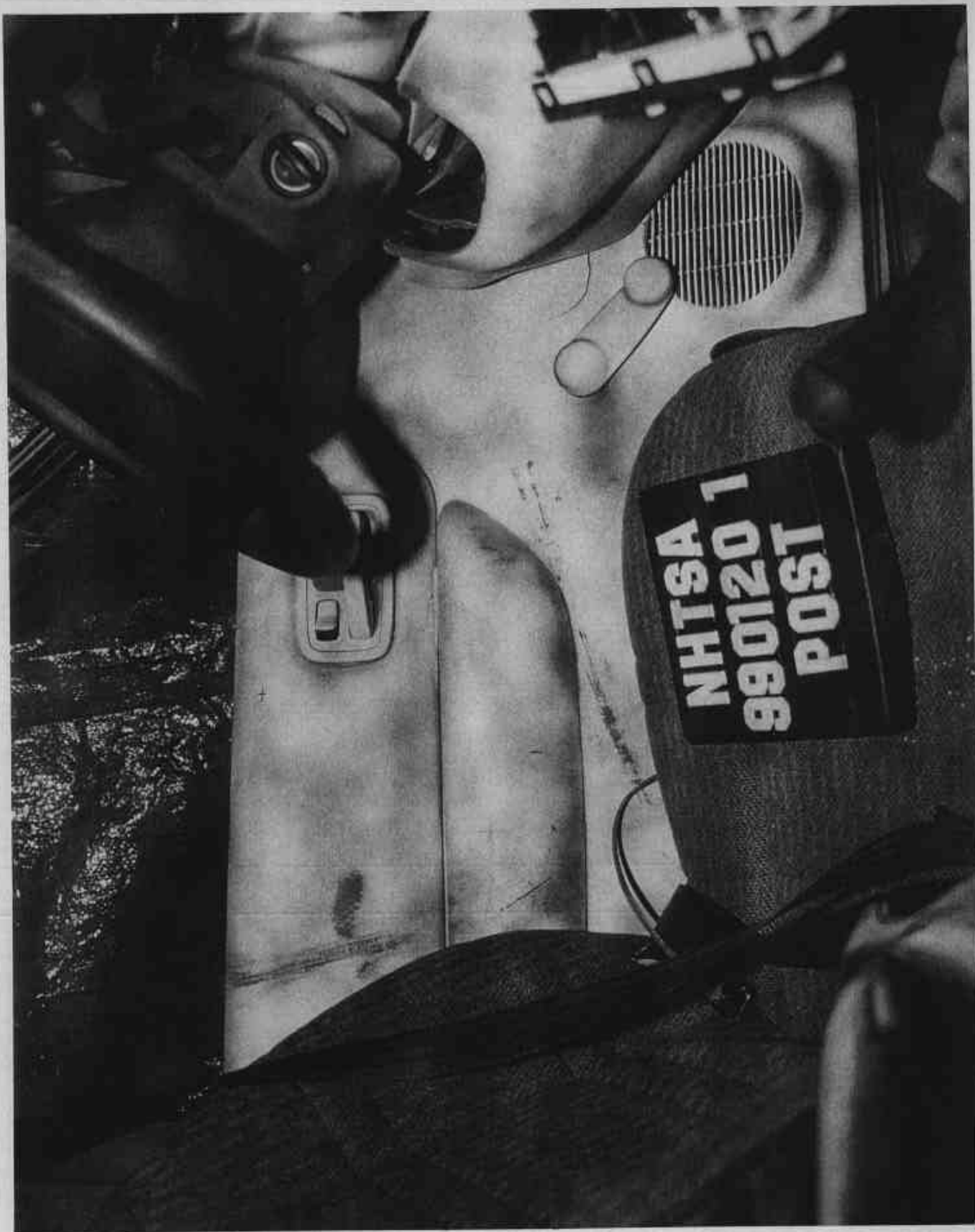


Figure A-25 Post-Test Interior of Front Door Showing SID Impact Locations
A-27 990120



Figure A-26 Post-Test Interior of Side Header Showing SID Impact Locations
A-28 990120

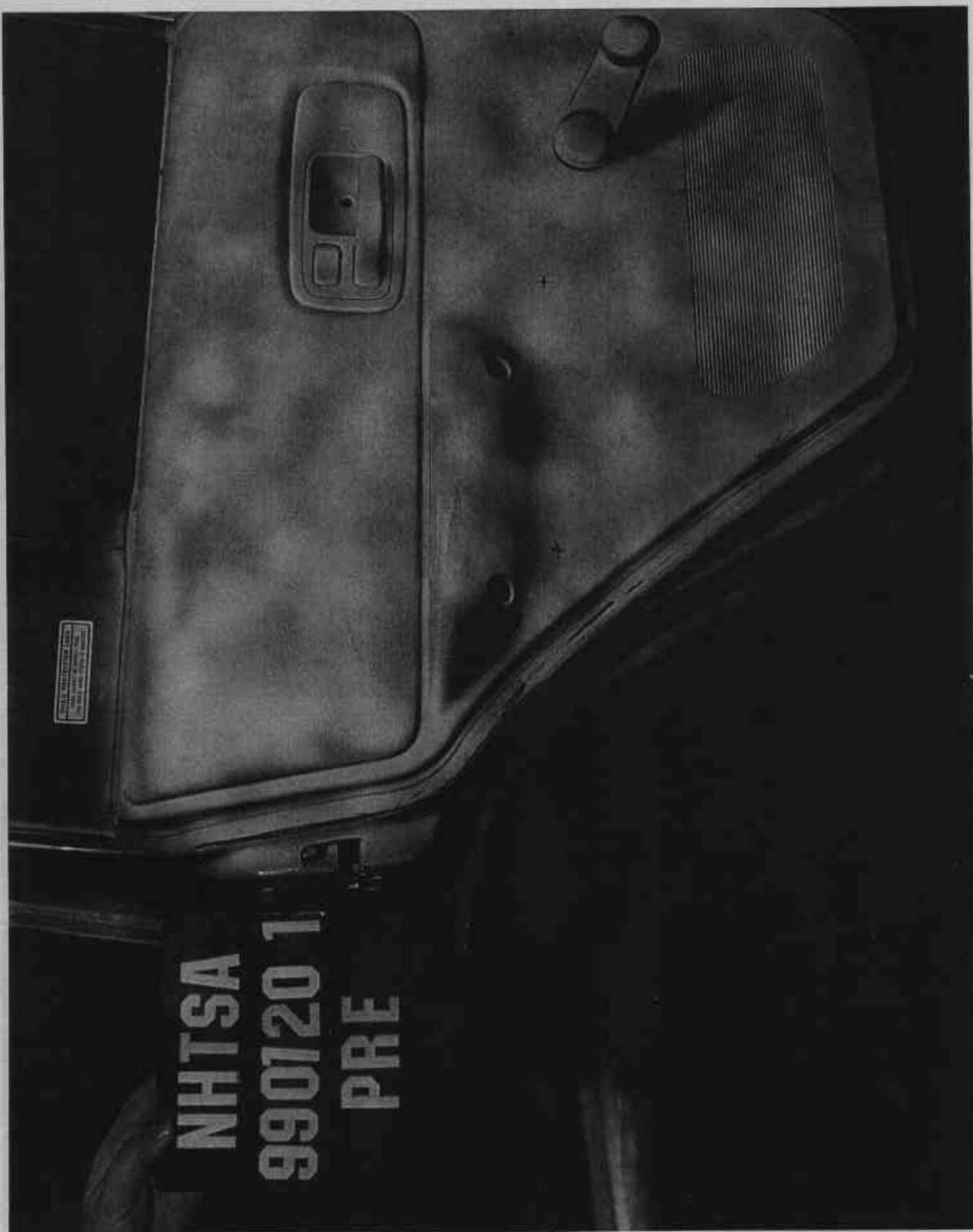


Figure A-27 Pre-Test Interior of Rear Door
A-29

990120



Figure A-29 Post-Test Interior of Rear C-Pillar Showing SID Impact Locations
A-31 990120

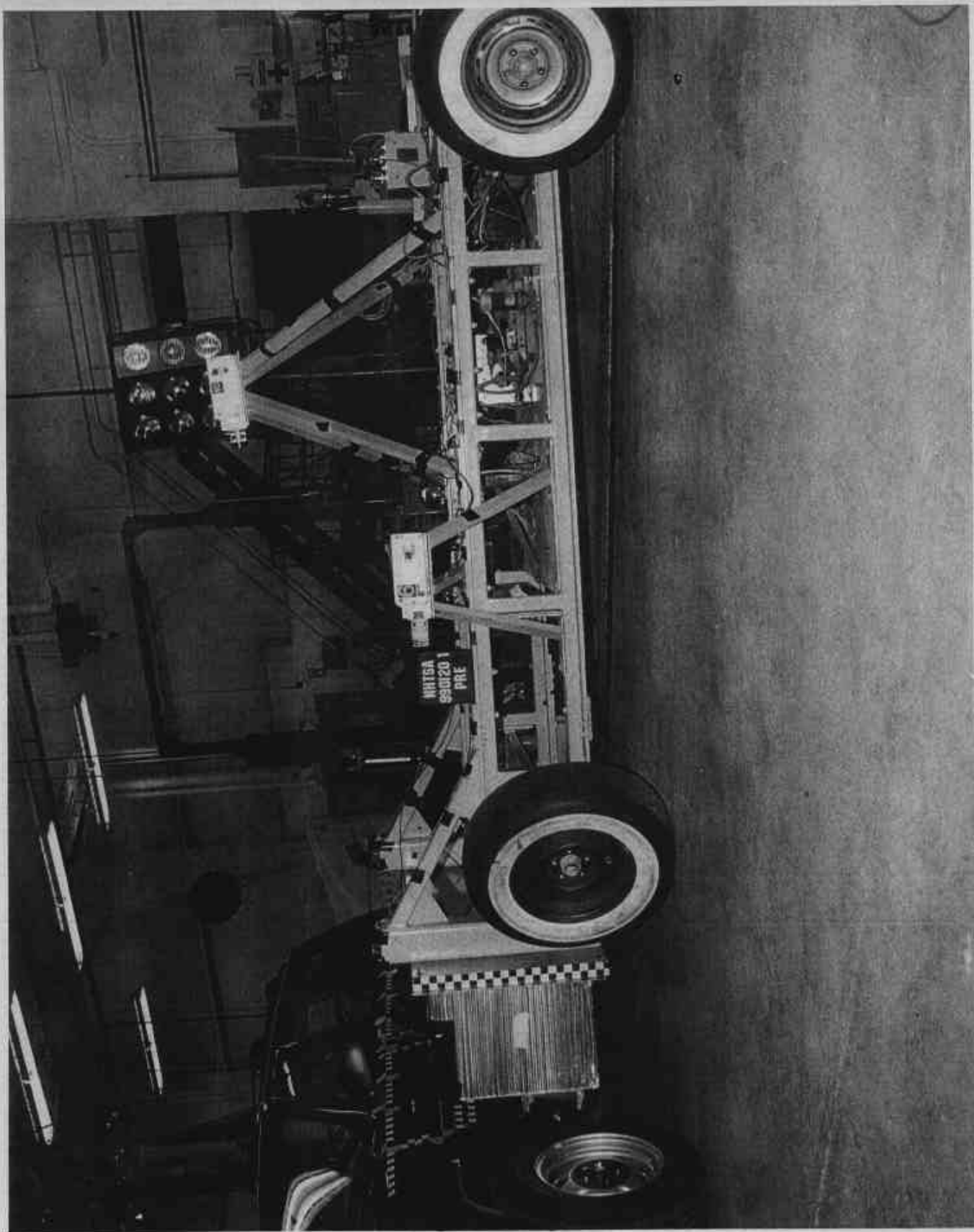


Figure A-30 Pre-Test Left Side View of MDB With Impactor Face in Position
A-32 990120

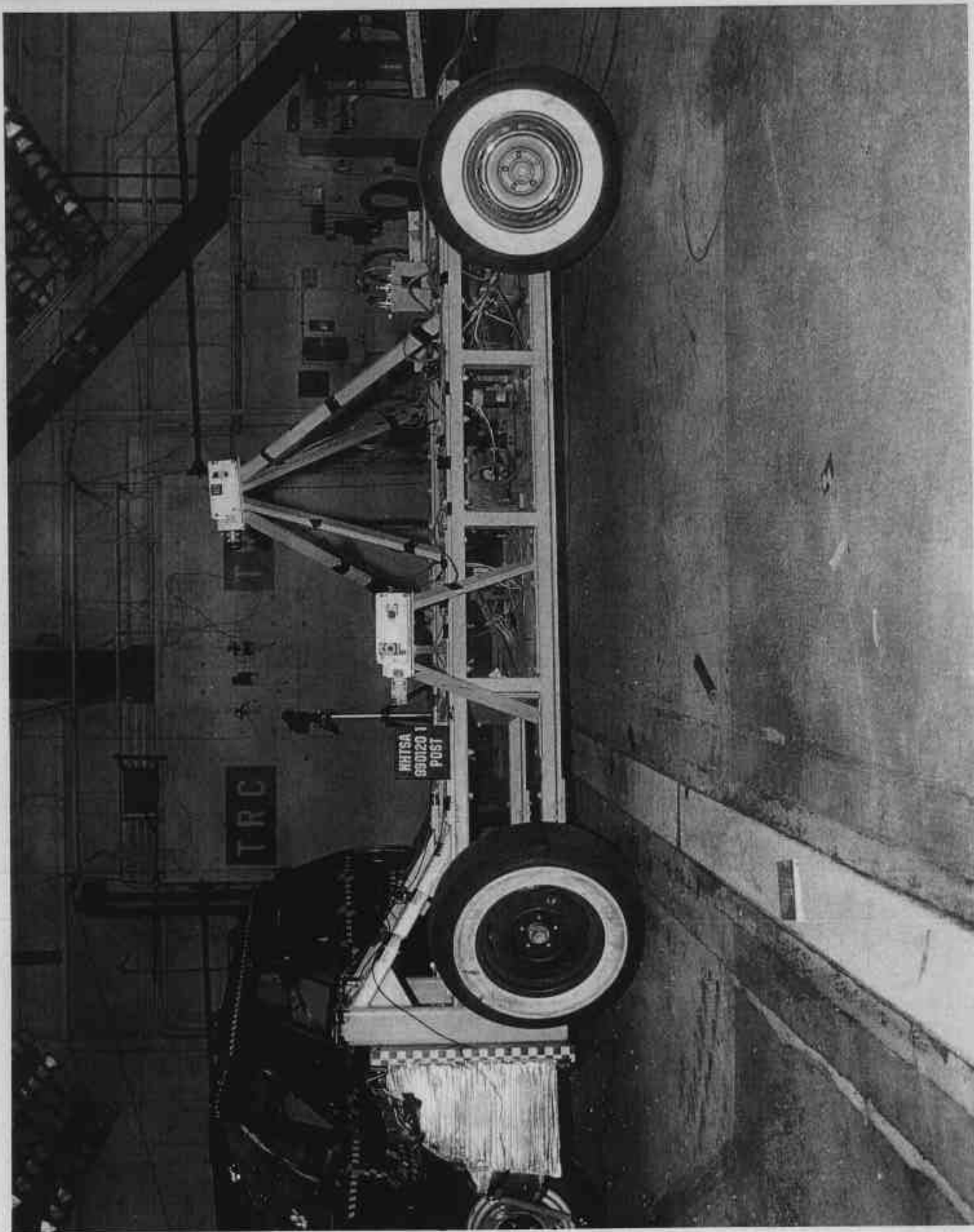


Figure A-31 Post-Test Left Side View of MDB With Impactor Face in Position
A-33 990120

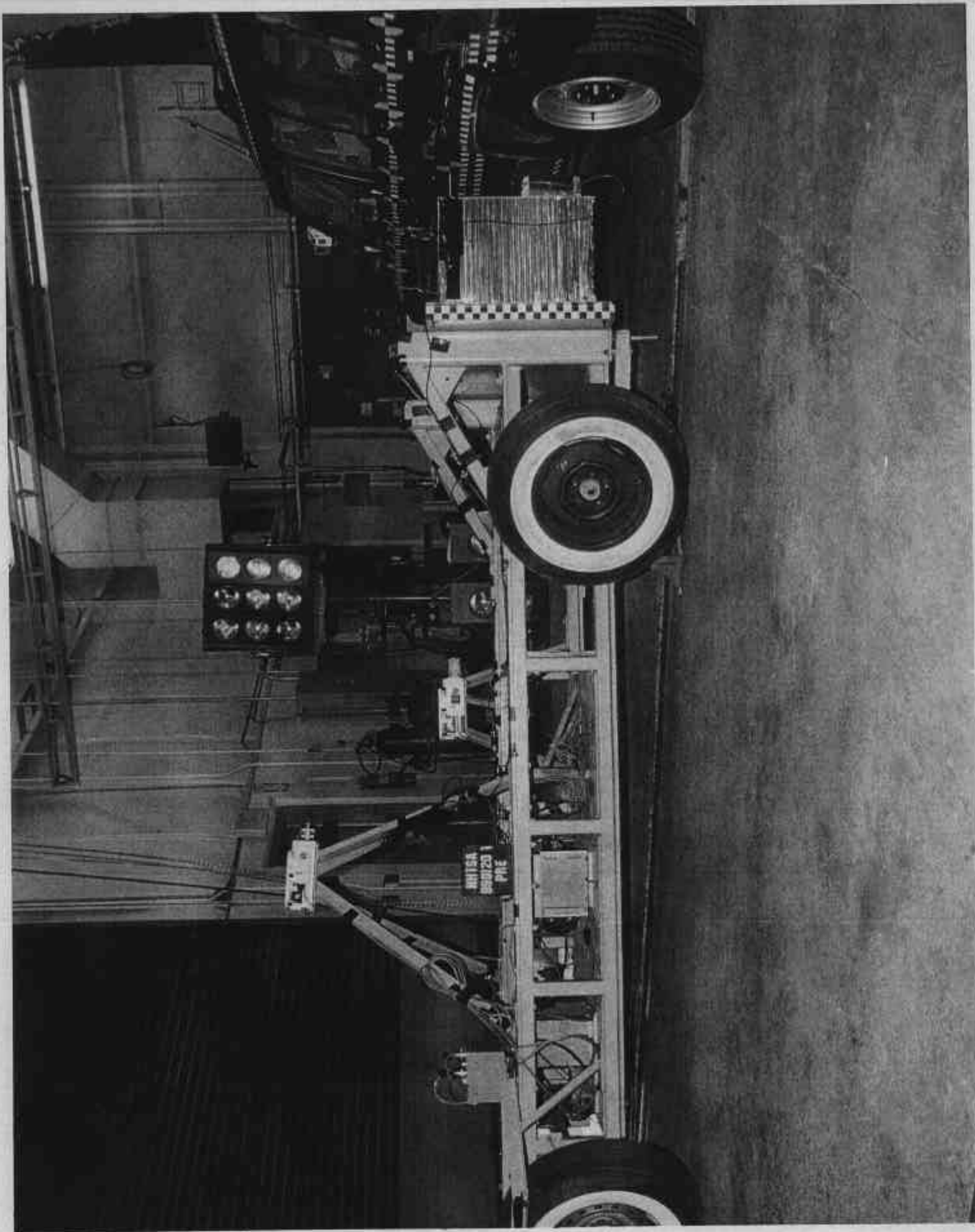


Figure A-32 Pre-Test Right Side View of MDB With Impactor Face in Position
A-34 990120

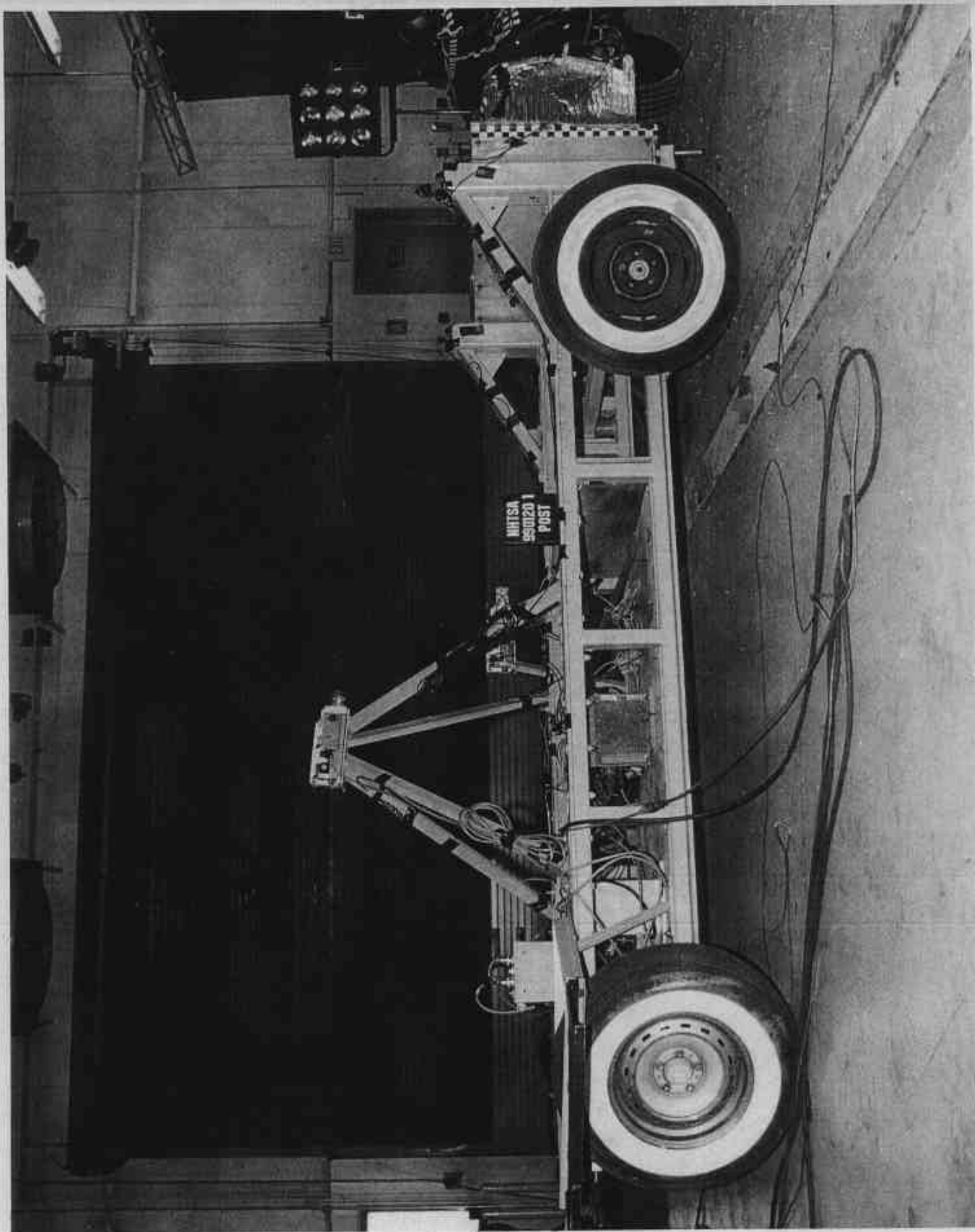


Figure A-33 Post-Test Right Side View of MDB With Impactor Face in Position
A-35 990120

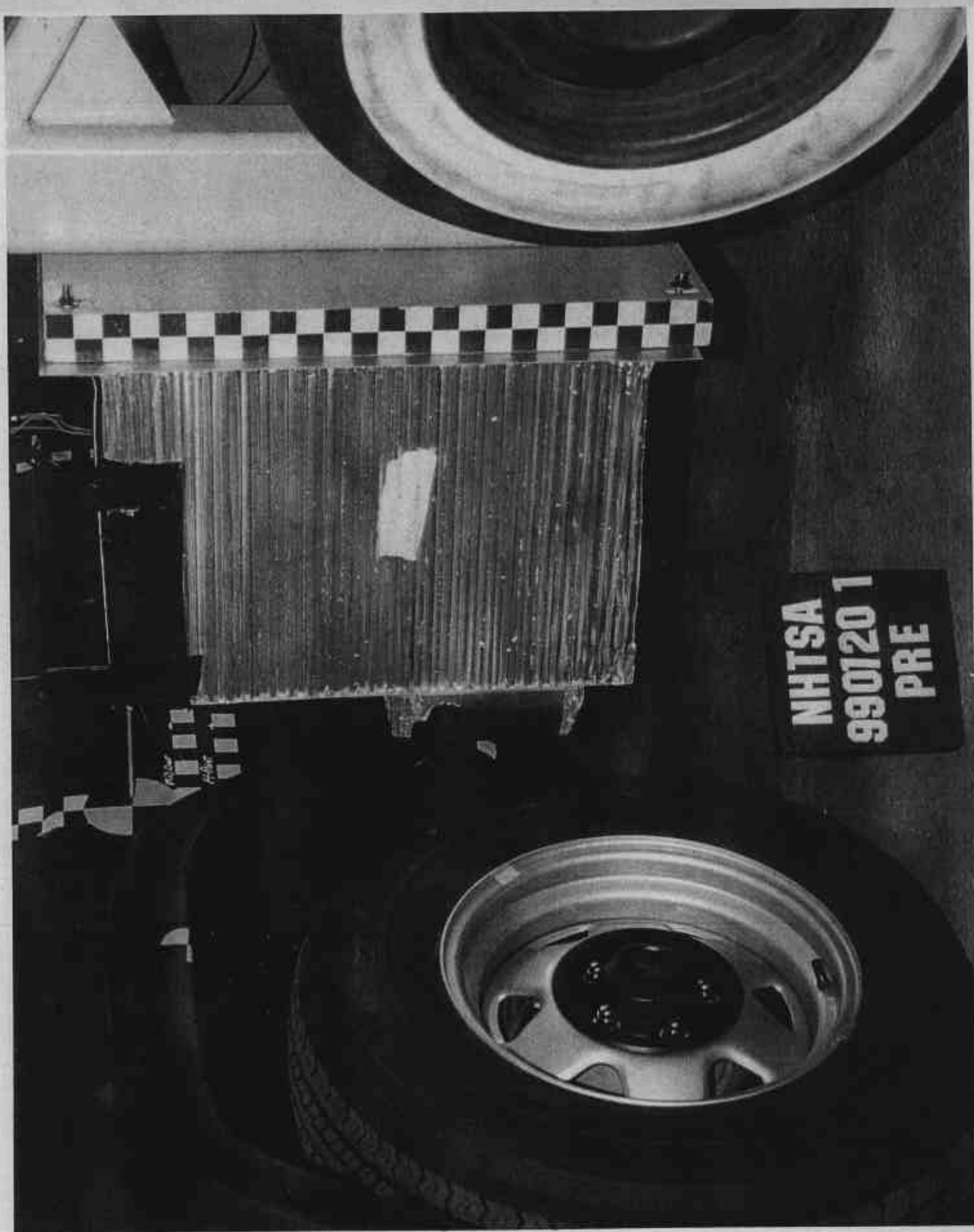


Figure A-34 Pre-Test Close-Up View of Impact Point Target
A-36

990120

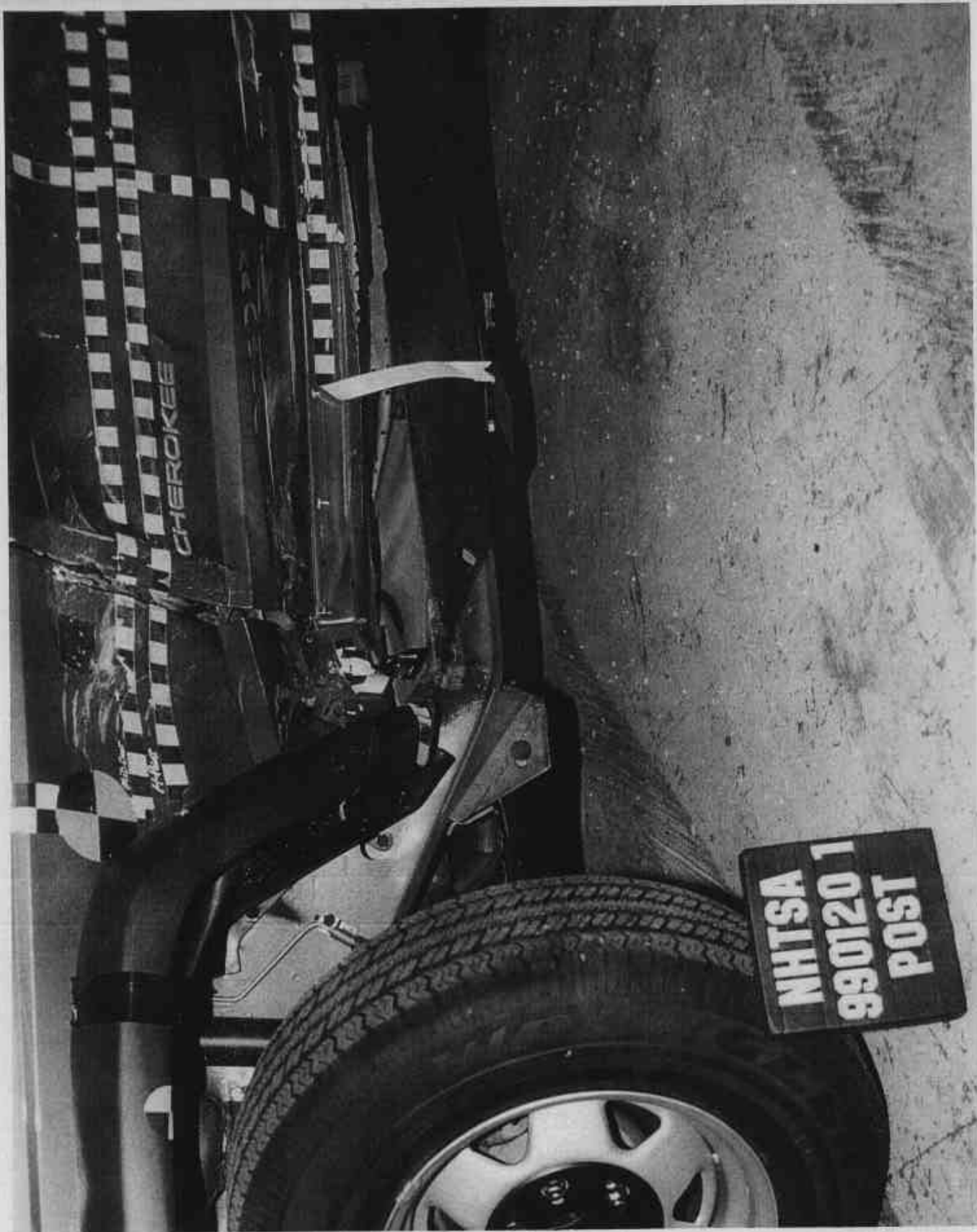


Figure A-35 Post-Test Close-Up View of Impact Point
A-37

990120

MFD BY	CHRYSLER	DATE OF MFR	GVWR
	CORPORATION	10-98	2223 KG(04900 LB)
GAWR FRONT	WITH TIRES	RIMS AT	COLD
1134 KG(2500 LB)	P215/75R15	15X7	227 KPA(33 PSI)
GAWR REAR	WITH TIRES	RIMS AT	COLD
1225 KG(2700 LB)	P215/75R15	15X7	227 KPA(33 PSI)

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

VIN: 1J4FF28S0XL541210 TYPE: MPV SINGLE X DUAL



4648503

MDH: 100814 299AA PNT:P07

VEHICLE MADE IN U.S.A. TRM:H50Z

Figure A-36 Pre-Test Vehicle Recommended Tire Pressure Label View

Appendix B

Data Plots

Table of Data Plots

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
14	DRIVER UPPER RIB Y-AXIS ACCELERATION	B-20
15	DRIVER UPPER RIB Y-AXIS VELOCITY	B-21
16	DRIVER LOWER RIB Y-AXIS ACCELERATION	B-22
17	DRIVER LOWER RIB Y-AXIS VELOCITY	B-23
18	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-24
19	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-25
20	DRIVER LOWER SPINE Y-AXIS ACCELERATION (FILTER CLASS 180)	B-26
21	DRIVER LOWER SPINE Y-AXIS VELOCITY (FILTER CLASS 180)	B-27
22	DRIVER PELVIS Y-AXIS ACCELERATION	B-28
23	DRIVER PELVIS Y-AXIS VELOCITY	B-29
37	PASSENGER UPPER RIB Y-AXIS ACCELERATION	B-43
38	PASSENGER UPPER RIB Y-AXIS VELOCITY	B-44
39	PASSENGER LOWER RIB Y-AXIS ACCELERATION	B-45
40	PASSENGER LOWER RIB Y-AXIS VELOCITY	B-46
41	PASSENGER LOWER SPINE Y-AXIS ACCELERATION	B-47
42	PASSENGER LOWER SPINE Y-AXIS VELOCITY	B-48
43	PASSENGER LOWER SPINE Y-AXIS ACCELERATION (FILTER CLASS 180)	B-49
44	PASSENGER LOWER SPINE Y-AXIS VELOCITY (FILTER CLASS 180)	B-50
45	PASSENGER PELVIS Y-AXIS ACCELERATION	B-51
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Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
47	RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION	B-54
48	RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY	B-55
49	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION	B-56
50	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-57
51	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION	B-58
52	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY	B-59
53	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION	B-60
54	RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION	B-61
55	RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY	B-62
56	RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION	B-63
57	RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY	B-64
58	RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION	B-65
59	RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY	B-66
60	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION	B-67
61	REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION	B-68
62	REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY	B-69

63	REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION	B-70
64	REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY	B-71
65	REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION	B-72
66	REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY	B-73
67	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION	B-74
68	LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION	B-75
69	LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-76
70	LEFT SIDE SILL AT FRONT SEAT Y-AXIS DISPLACEMENT	B-77
71	LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION	B-78
72	LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY	B-79
73	LEFT SIDE SILL AT REAR SEAT Y-AXIS DISPLACEMENT	B-80
74	LEFT FRONT DOOR ON CENTERLINE Y-AXIS ACCELERATION	B-81
75	LEFT FRONT DOOR ON CENTERLINE Y-AXIS VELOCITY	B-82
76	LEFT FRONT DOOR ON CENTERLINE Y-AXIS DISPLACEMENT	B-83
77	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION	B-84
78	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY	B-85
79	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT	B-86
80	MID-REAR OF LEFT FRONT DOOR Y-AXIS ACCELERATION	B-87
81	MID-REAR OF LEFT FRONT DOOR Y-AXIS VELOCITY	B-88
82	MID-REAR OF LEFT FRONT DOOR Y-AXIS DISPLACEMENT	B-89
83	LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS ACCELERATION	B-90
84	LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS VELOCITY	B-91
85	LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT	B-92
86	MID REAR OF LEFT REAR DOOR Y-AXIS ACCELERATION	B-93
87	MID REAR OF LEFT REAR DOOR Y-AXIS VELOCITY	B-94
88	MID REAR OF LEFT REAR DOOR Y-AXIS DISPLACEMENT	B-95
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90	LEFT REAR DOOR UPPER CENTERLINE Y-AXIS VELOCITY	B-97
91	LEFT REAR DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT	B-98
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105	VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY	B-112
106	VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION	B-113
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109	VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY	B-116
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MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

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112	MDB CENTER OF GRAVITY X-AXIS VELOCITY	B-120
113	MDB CENTER OF GRAVITY Y-AXIS ACCELERATION	B-121
114	MDB CENTER OF GRAVITY Y-AXIS VELOCITY	B-122
115	MDB CENTER OF GRAVITY Z-AXIS ACCELERATION	B-123
116	MDB CENTER OF GRAVITY Z-AXIS VELOCITY	B-124
117	MDB CENTER OF GRAVITY RESULTANT ACCELERATION	B-125
118	MDB REAR X-AXIS ACCELERATION	B-126
119	MDB REAR X-AXIS VELOCITY	B-127
120	MDB REAR Y-AXIS ACCELERATION	B-128
121	MDB REAR Y-AXIS VELOCITY	B-129
122	MDB RIGHT CONTACT SWITCH	B-130
123	MDB LEFT CONTACT SWITCH	B-131

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered

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125	DRIVER UPPER RIB Y-AXIS VELOCITY	B-134
126	DRIVER LOWER RIB Y-AXIS ACCELERATION	B-135
127	DRIVER LOWER RIB Y-AXIS VELOCITY	B-136
128	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-137
129	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-138
130	DRIVER PELVIS Y-AXIS ACCELERATION	B-139
131	DRIVER PELVIS Y-AXIS VELOCITY	B-140
132	PASSENGER UPPER RIB Y-AXIS ACCELERATION	B-141
133	PASSENGER UPPER RIB Y-AXIS VELOCITY	B-142
134	PASSENGER LOWER RIB Y-AXIS ACCELERATION	B-143
135	PASSENGER LOWER RIB Y-AXIS VELOCITY	B-144
136	PASSENGER LOWER SPINE Y-AXIS ACCELERATION	B-145
137	PASSENGER LOWER SPINE Y-AXIS VELOCITY	B-146
138	PASSENGER PELVIS Y-AXIS ACCELERATION	B-147
139	PASSENGER PELVIS Y-AXIS VELOCITY	B-148

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
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141	DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-151
142	DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-152

143	DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-153
144	DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-154
145	DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-155
146	DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION	B-156
147	DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY	B-157
148	PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION	B-158
149	PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-159
150	PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-160
151	PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-161
152	PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-162
153	PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-163
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155	PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY	B-165

Driver and Passenger Dummy Contact Switches

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
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Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

**Driver's Head X-Axis Data Channel,
HEDXG1, Was Not Recorded**
(head accelerometers were not used)

**Driver's Head X-Axis Velocity Channel,
HEDXV1, Was Not Calculated**
(head accelerometers were not used)

**Driver's Head Y-Axis Data Channel,
HEDYG1, Was Not Recorded**
(head accelerometers were not used)

**Driver's Head Y-Axis Velocity Channel,
HEDYV1, Was Not Calculated**
(head accelerometers were not used)

**Driver's Head Z-Axis Data Channel,
HEDZG1, Was Not Recorded**
(head accelerometers were not used)

**Driver's Head Z-Axis Velocity Channel,
HEDZV1, Was Not Calculated**
(head accelerometers were not used)

Driver's Head Resultant, HEDR1, Was Not Calculated
(head accelerometers were not used)

Driver's Neck X-Axis Force, NEKXF1, Was Not Recorded
(neck axis load cells were not used)

Driver's Neck Y-Axis Force, NEKYF1, Was Not Recorded
(neck axis load cells were not used)

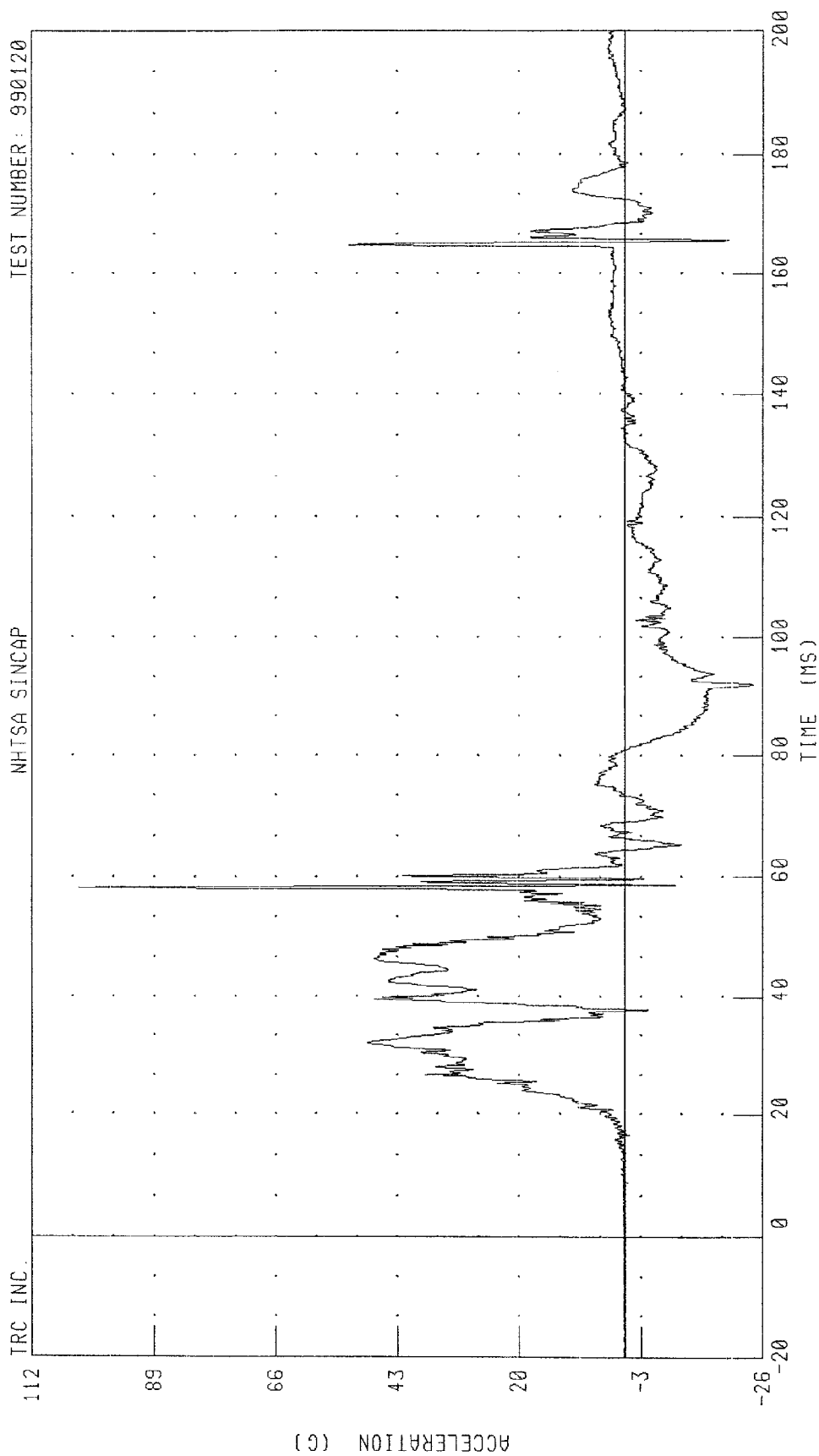
Driver's Neck Z-Axis Force, NEKZF1, Was Not Recorded
(neck axis load cells were not used)

Driver's Neck X-Axis Moment, NEKXM1, Was Not Recorded
(6 axis neck load cells were not used)

Driver's Neck Y-Axis Moment, NEKYM1, Was Not Recorded
(6 axis neck load cells were not used)

Driver's Neck Z-Axis Moment, NEKZM1, Was Not Recorded
(6 axis neck load cells were not used)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
DRIVER UPPER RIB Y-AXIS ACCELERATION



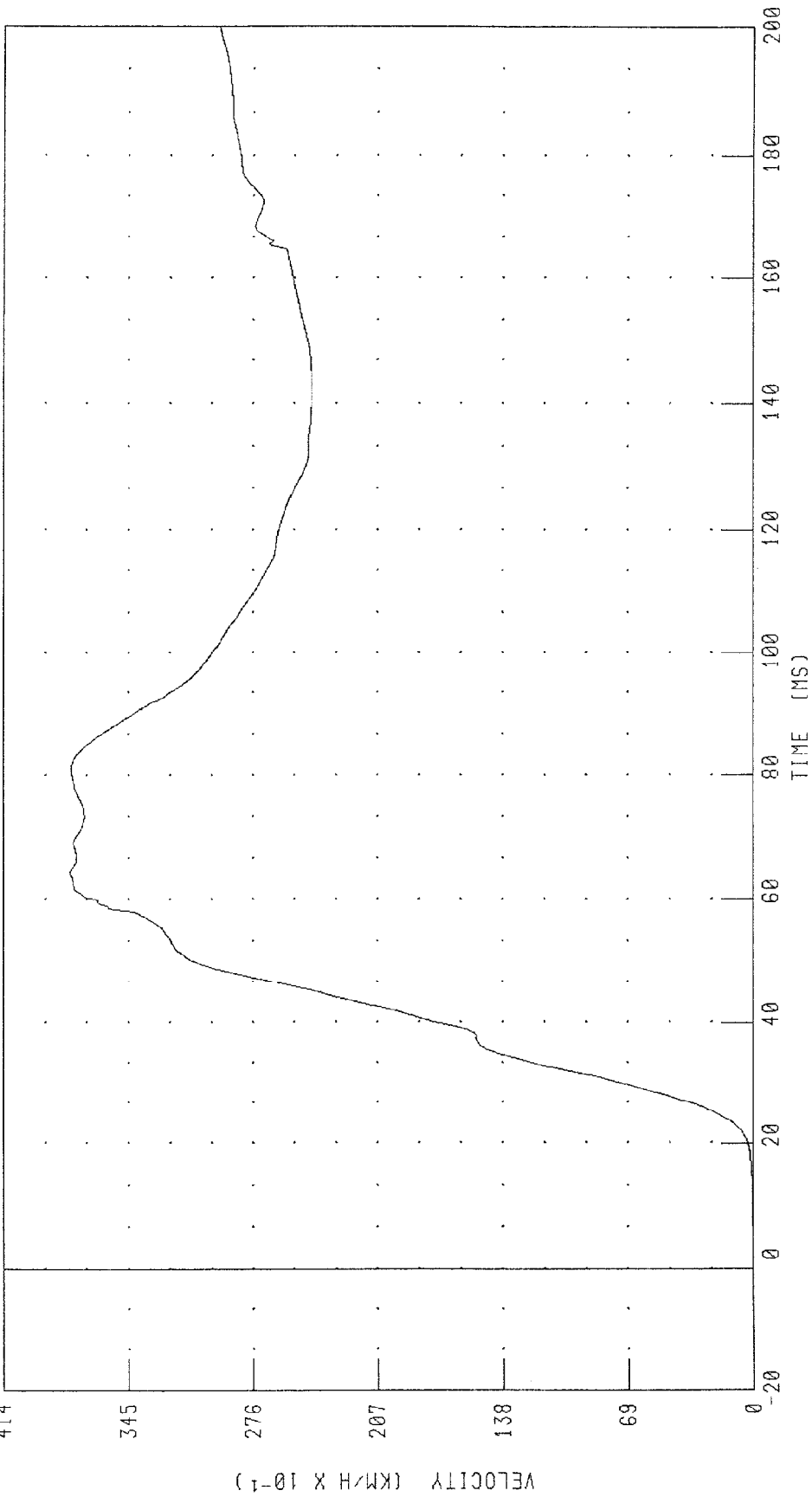
CHANNEL: LURY01 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



PEAK DATA: 37.75 KM/H @ 64.40 MS; 0.00 KN/H @ 0.00 MS

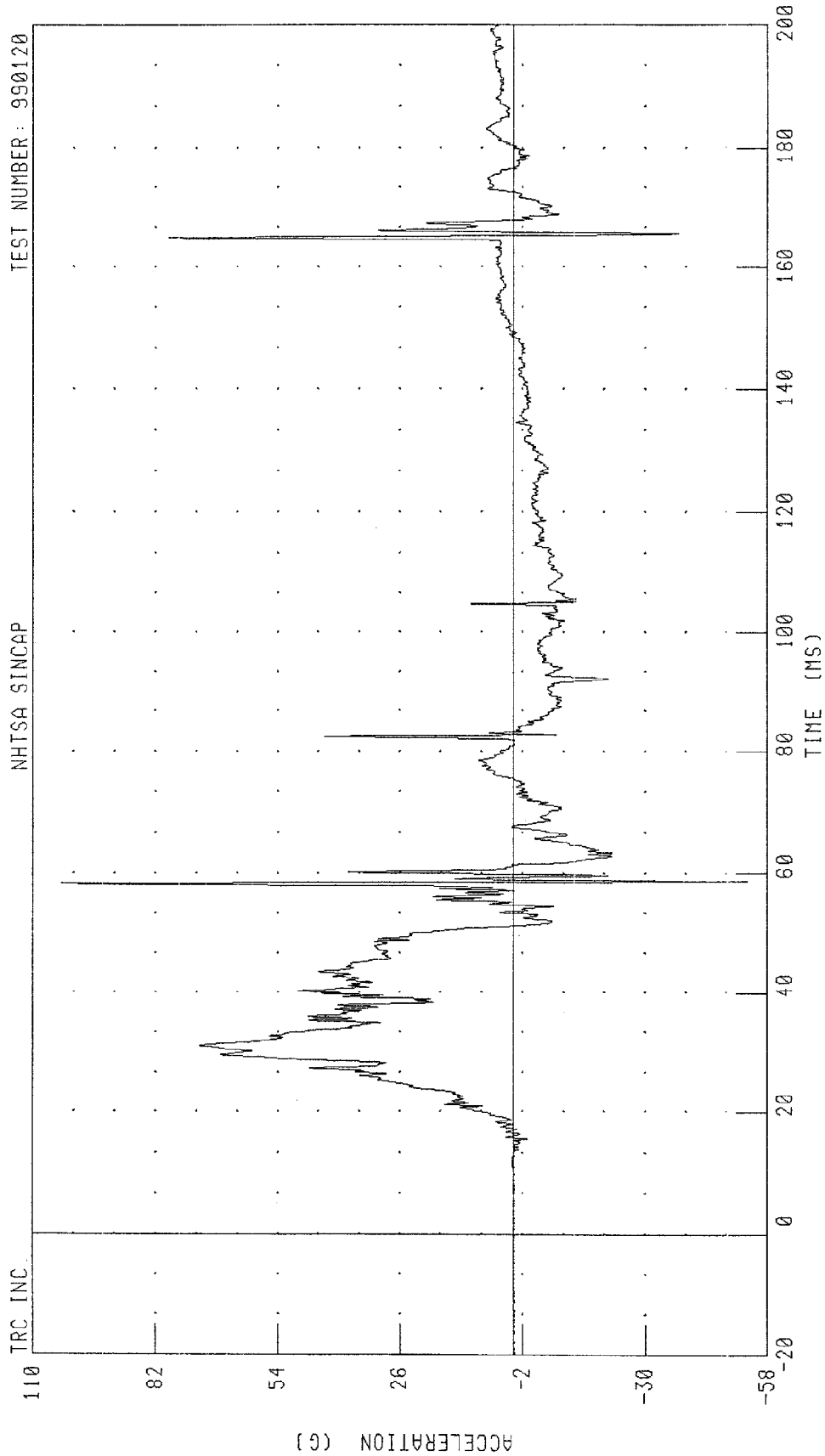
CHANNEL: LURYU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

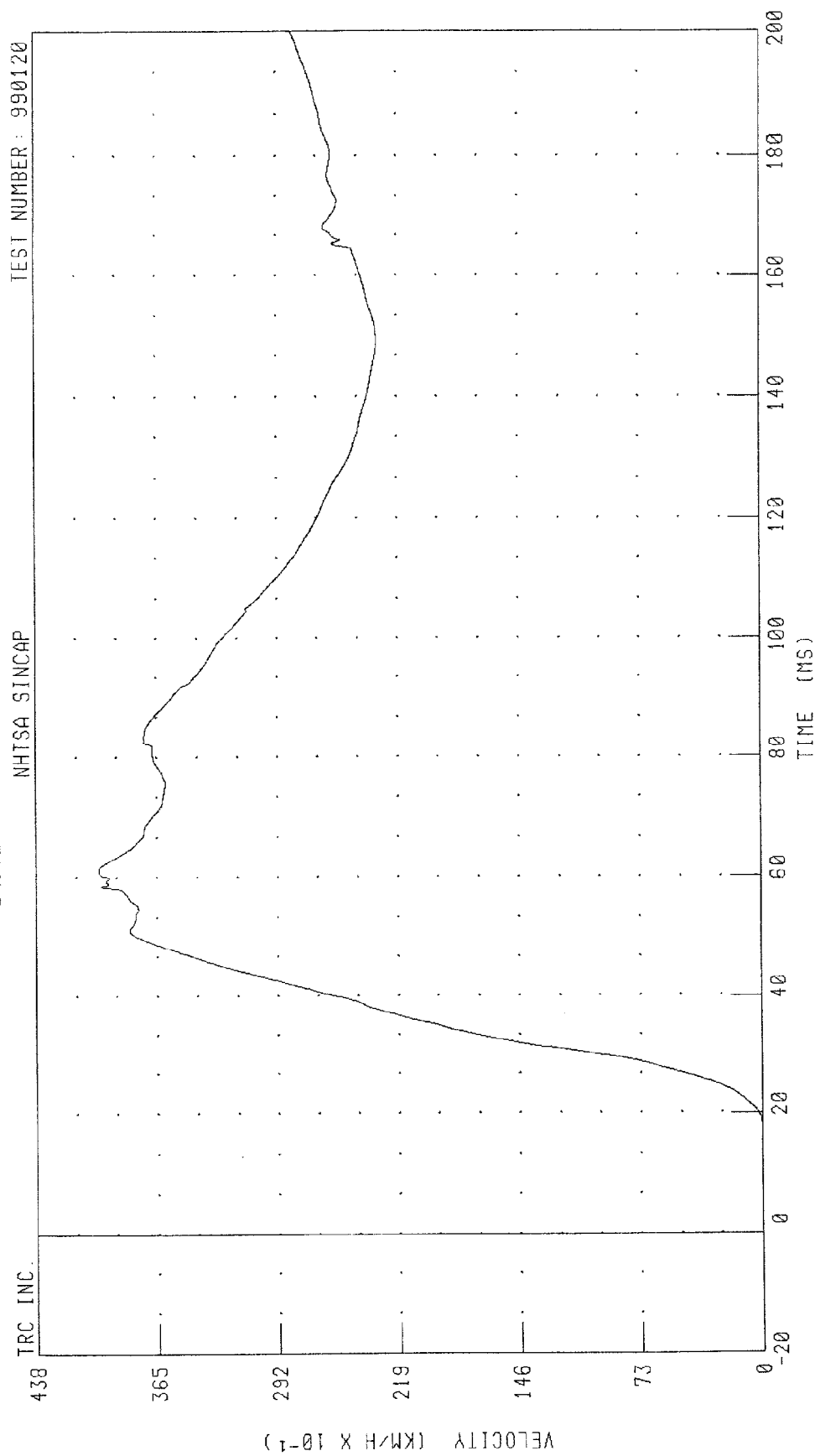
TRC INC.



CHANNEL: LLRYG1 FILTER: CH. CLASS 1000

PEAK DATA: 103.72 G @ 58.32 MS; -53.43 G @ 160.43 MS

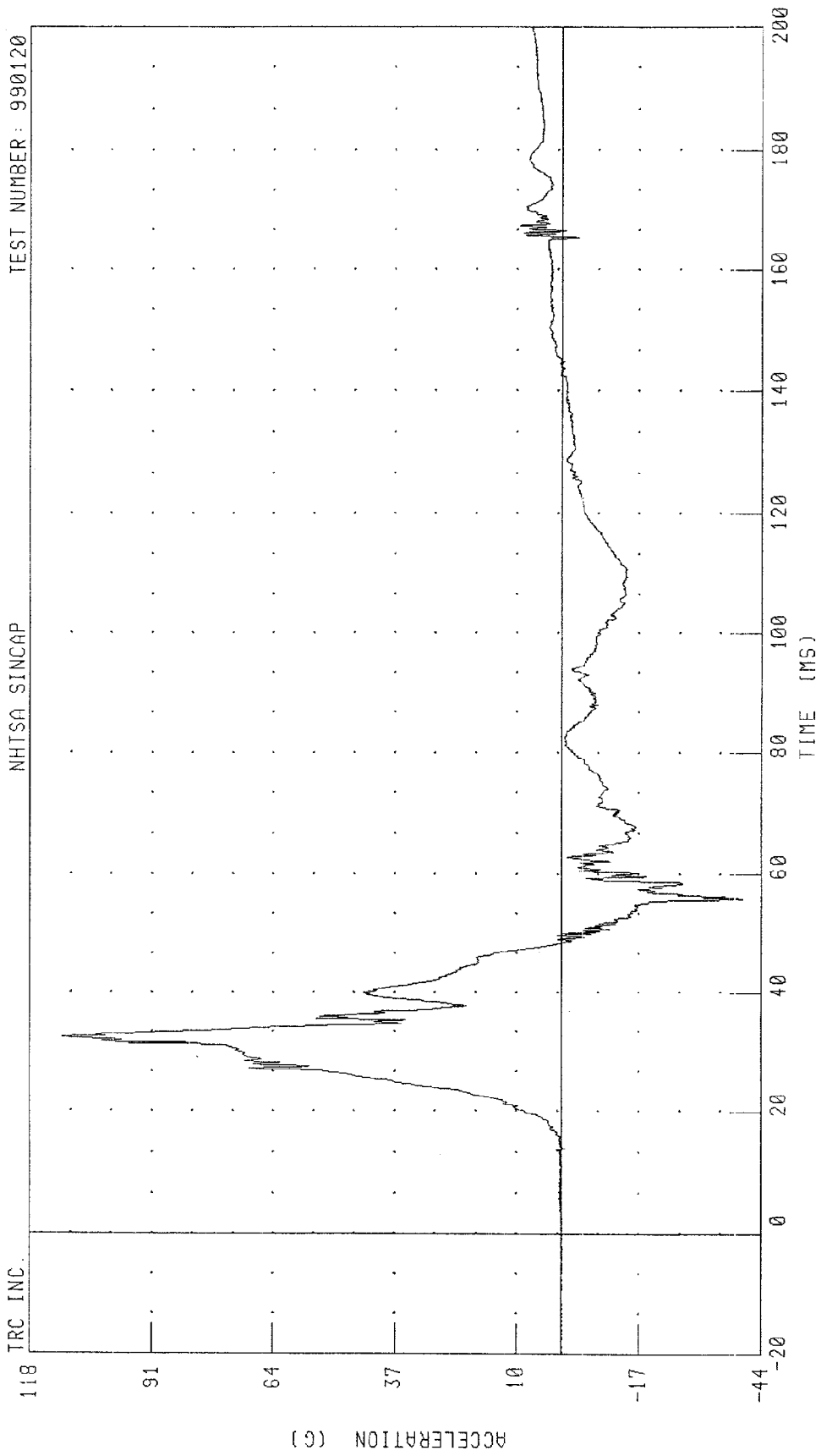
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
DRIVER LOWER RIB Y-AXIS VELOCITY



CHANNEL: LLRYU1 FILTER: CH. CLASS 1000

PEAK DATA: 39.98 KM/H @ 61.44 MS, -0.06 KM/H @ 16.56 MS

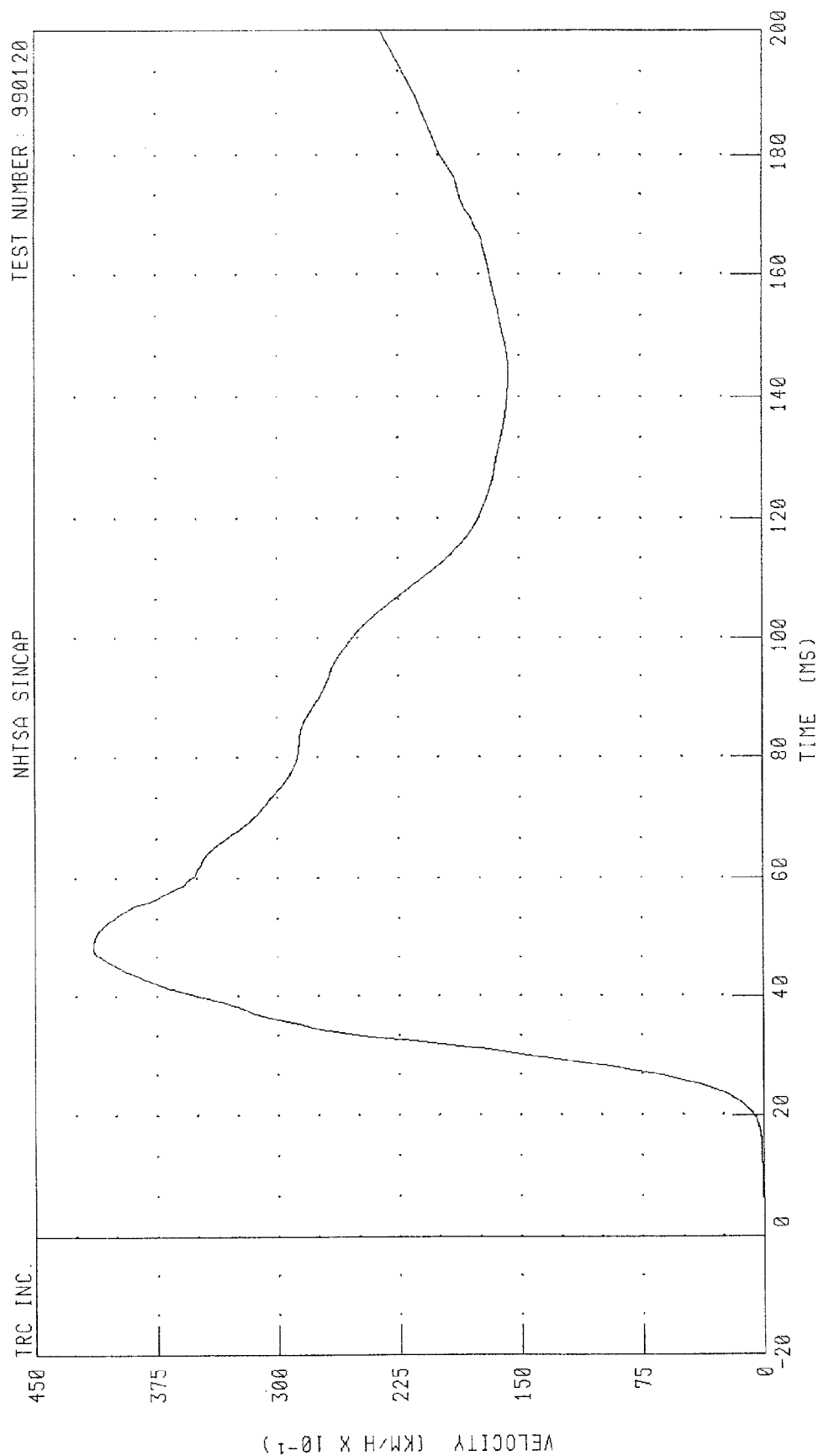
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER SPINE Y-AXIS ACCELERATION



PEAK DATA: 111.03 G @ 32.40 MS; -40.01 G @ 55.68 MS

CHANNEL: T12YG1 FILTER: CH. CLASS 1000

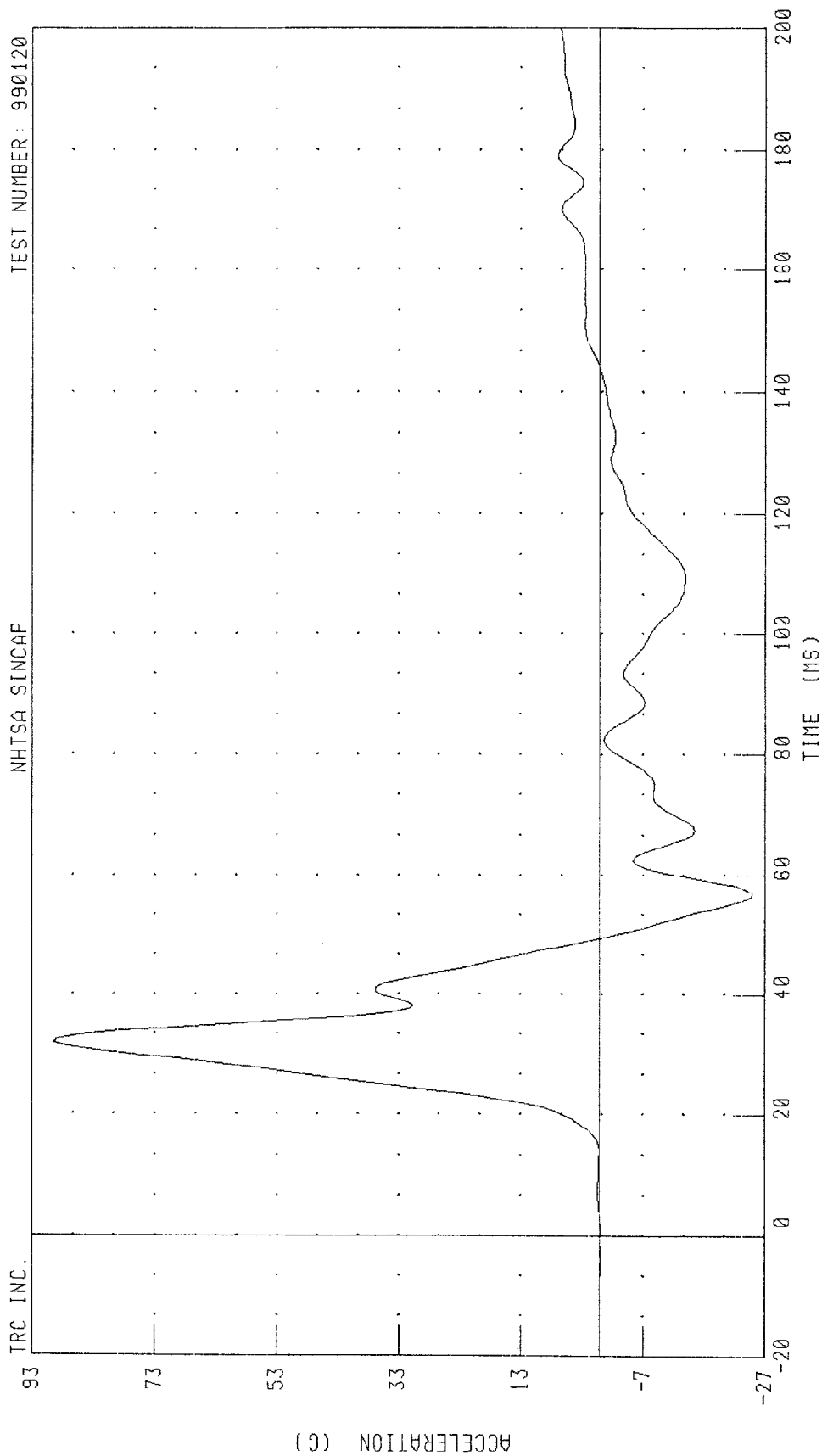
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER SPINE Y-AXIS VELOCITY



PEAK DATA: 41.43 KM/H @ 48.48 MS; 0.00 KM/H @ 0.00 MS

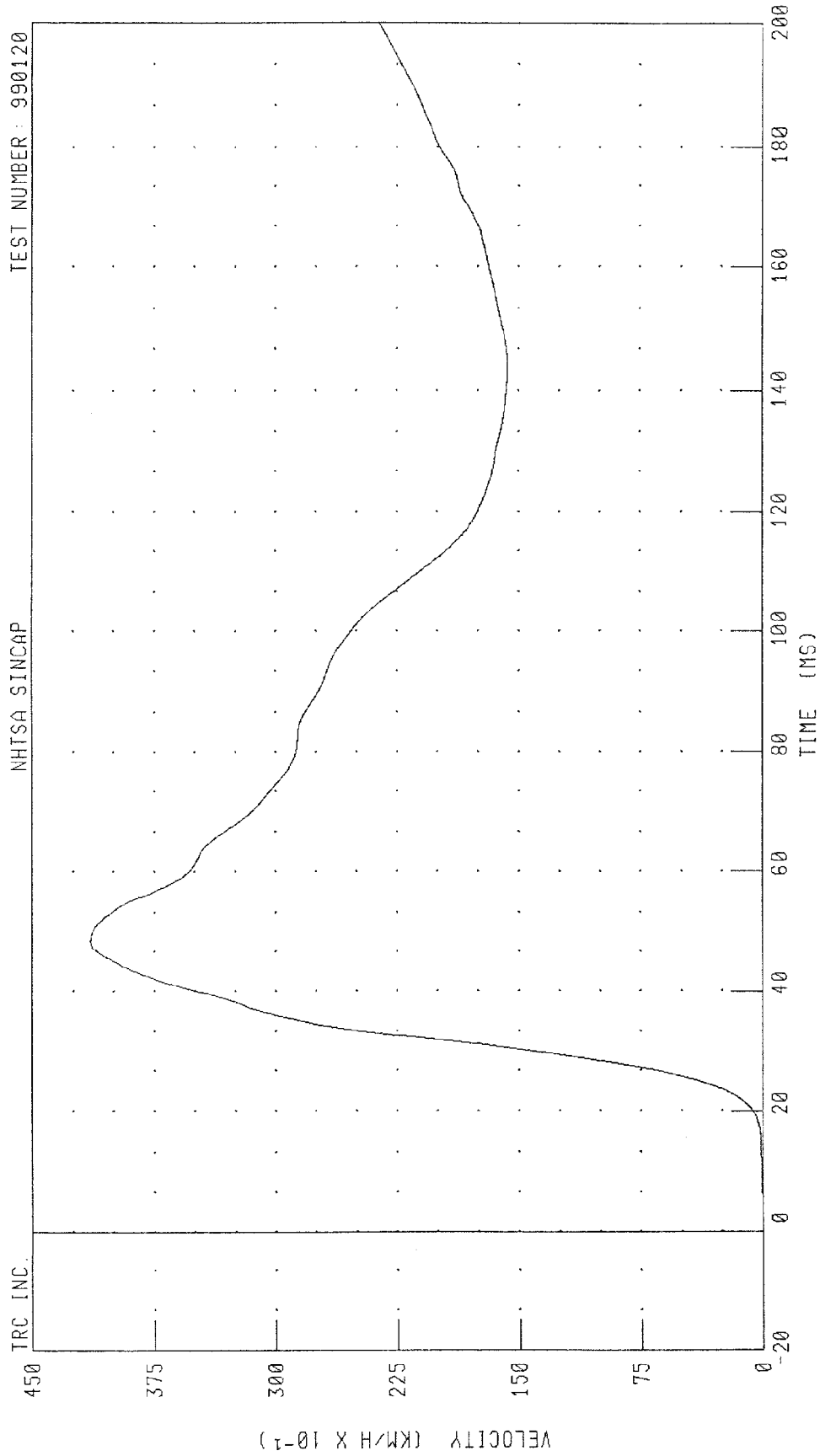
CHANNEL: T12YU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER SPINE Y-AXIS ACCELERATION



CHANNEL: T12YC1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER SPINE Y-AXIS VELOCITY



PEAK DATA: 41.43 KM/H @ 48.56 MS; 0.00 KM/H @ 0.00 MS

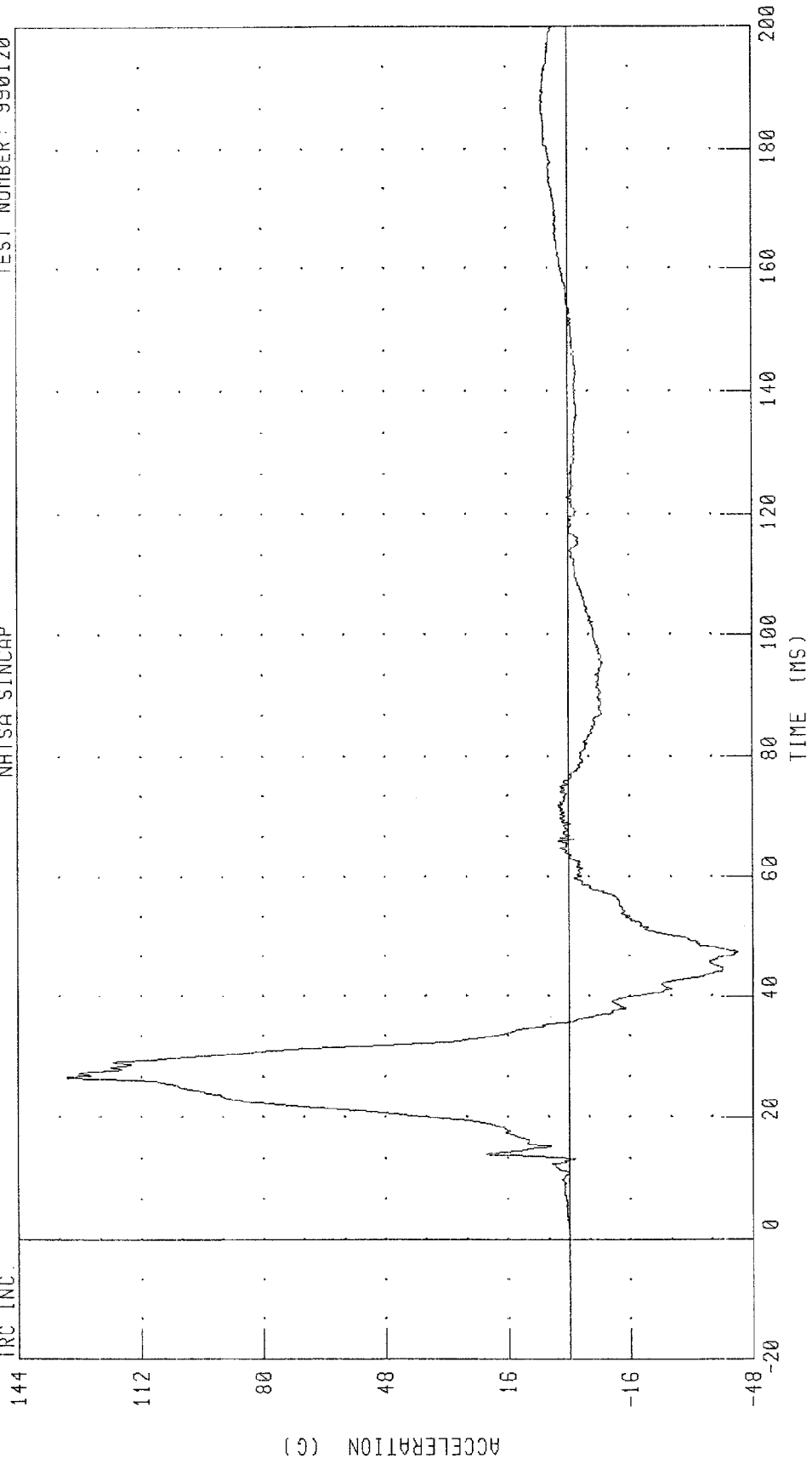
CHANNEL: T12YV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
DRIVER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

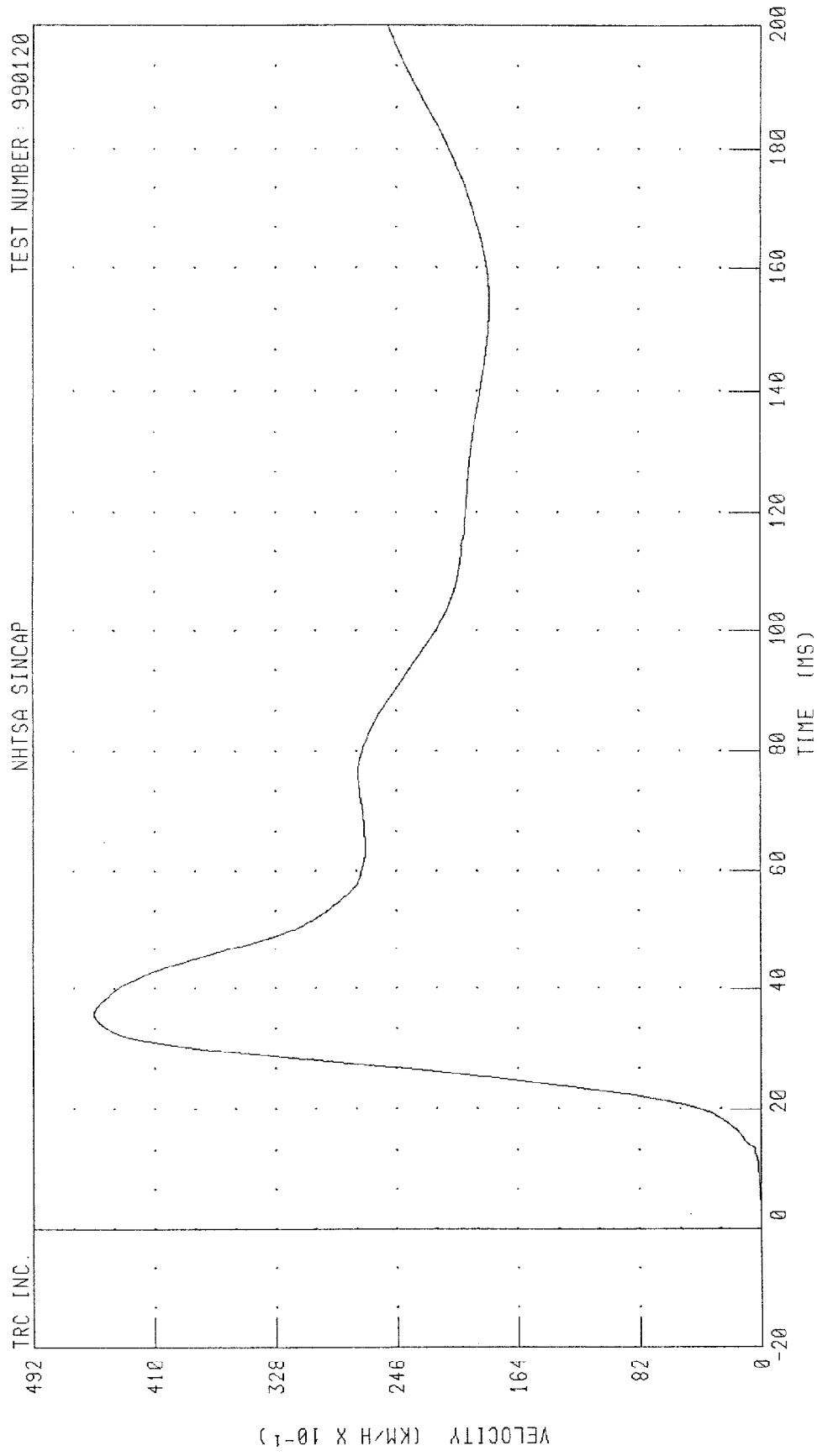
TRC INC.



PEAK DATA: 131.43 G @ 26.64 MS, -44.20 G @ 47.36 MS

CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER PELVIS Y-AXIS VELOCITY
 NHTSA SINCAP



CHANNEL: PEVYU1 FILTER: CH. CLASS 1000 PEAK DATA: 45.12 KM/H @ 35.68 MS; 0.00 KM/H @ 0.00 MS

**Left Rear Passenger's Head X-Axis Data Channel,
HEDXG4, Was Not Recorded**
(head accelerometers were not used)

**Left Rear Passenger's Head X-Axis Velocity Channel,
HEDXV4, Was Not Calculated**
(head accelerometers were not used)

**Left Rear Passenger's Head Y-Axis Data Channel,
HEDYG4, Was Not Recorded**
(head accelerometers were not used)

**Left Rear Passenger's Head Y-Axis Velocity Channel,
HEDYV4, Was Not Calculated**
(head accelerometers were not used)

**Left Rear Passenger's Head Z-Axis Data Channel,
HEDZG4, Was Not Recorded**
(head accelerometers were not used)

**Left Rear Passenger's Head Z-Axis Velocity Channel,
HEDZV4, Was Not Calculated**
(head accelerometers were not used)

Left Rear Passenger's Head Resultant, HEDR4, Was Not Calculated
(head accelerometers were not used)

Left Rear Passenger's Neck X-Axis Force, NEKXF4, Was Not Recorded
(neck axis load cells were not used)

Left Rear Passenger's Neck Y-Axis Force, NEKYF4, Was Not Recorded
(neck axis load cells were not used)

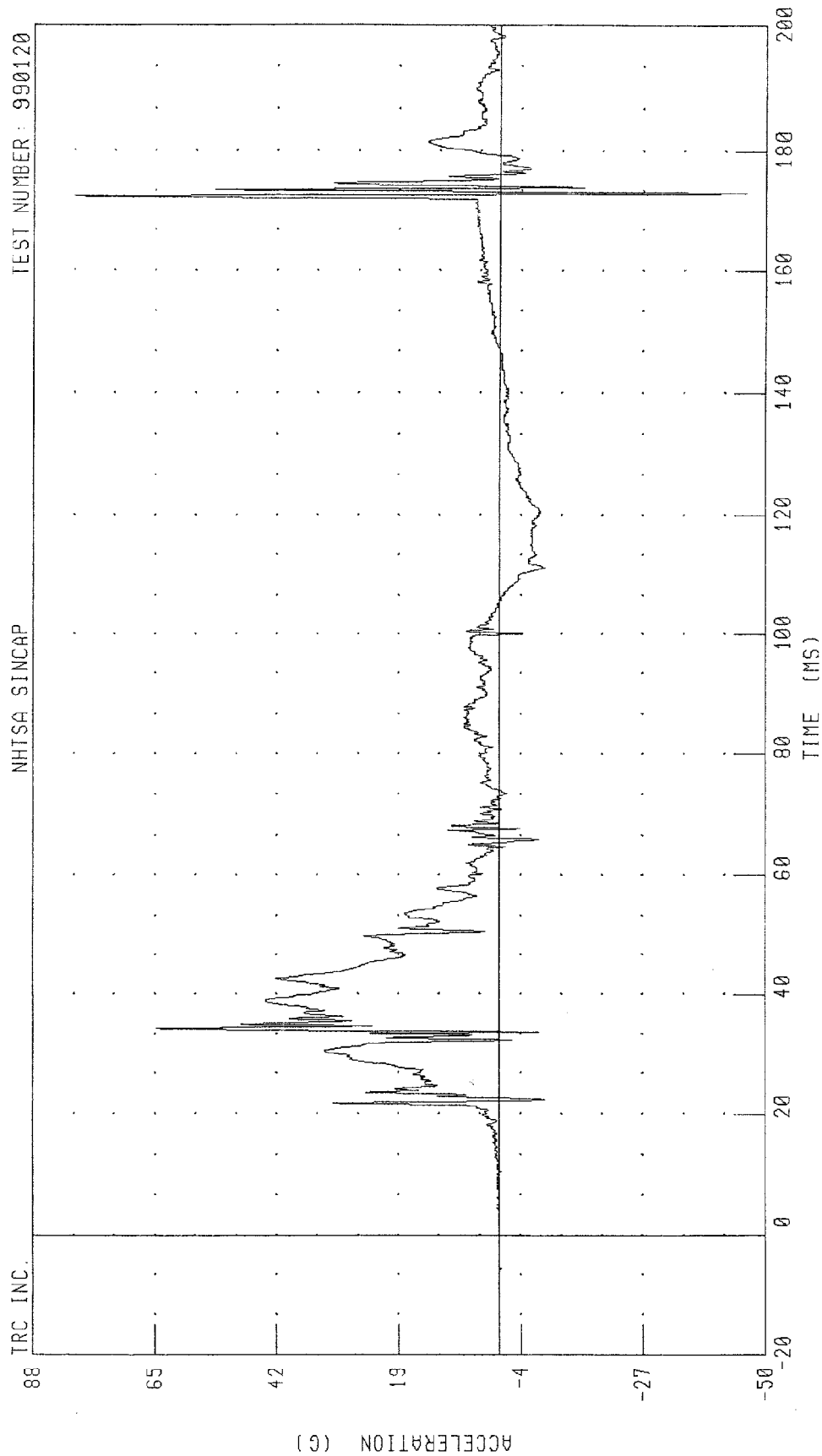
Left Rear Passenger's Neck Z-Axis Force, NEKZF4, Was Not Recorded
(neck axis load cells were not used)

Left Rear Passenger's Neck X-Axis Moment, NEKXM4, Was Not Recorded
(6 axis neck load cells were not used)

Left Rear Passenger's Neck Y-Axis Moment, NEKYM4, Was Not Recorded
(6 axis neck load cells were not used)

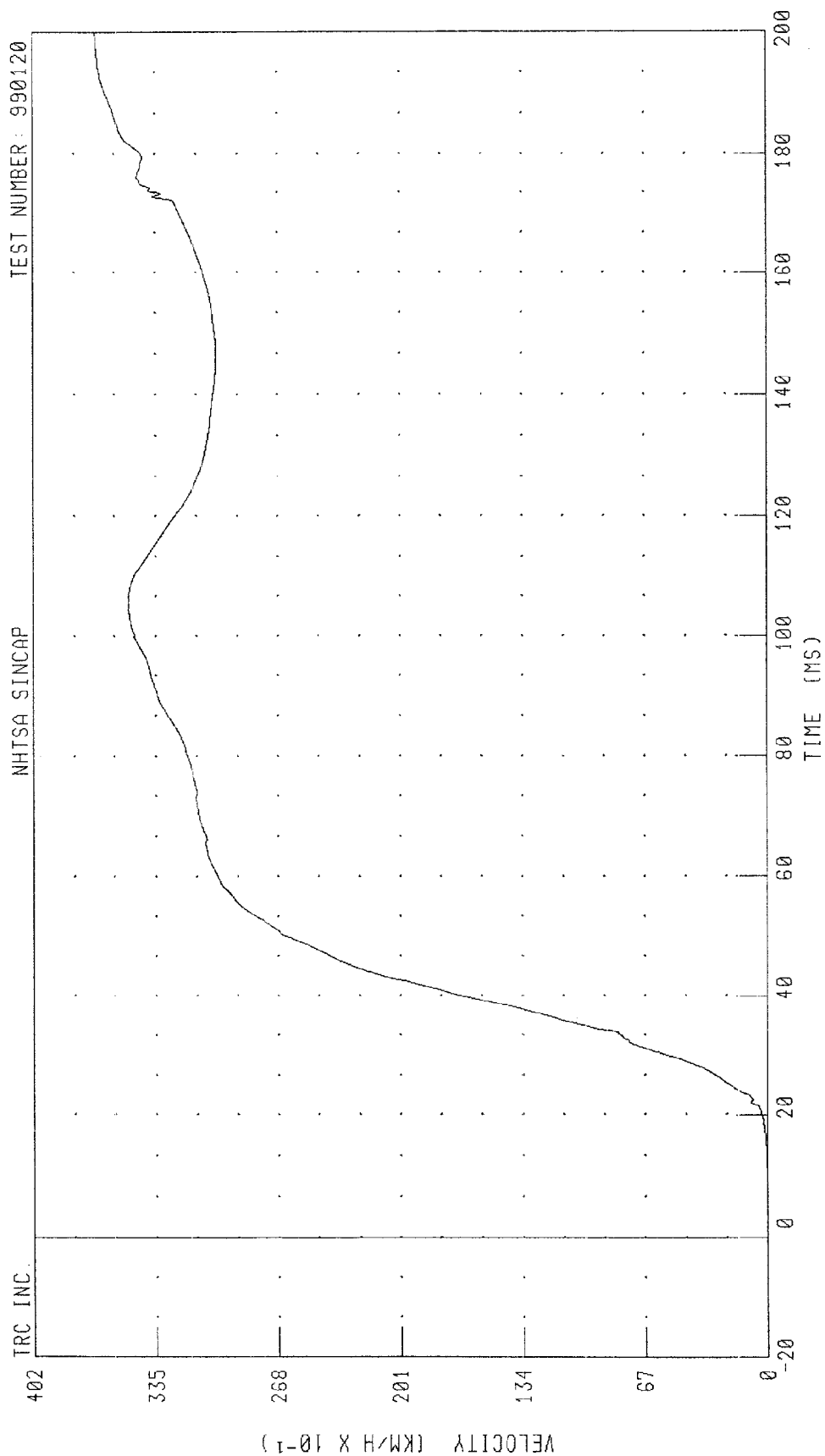
Left Rear Passenger's Neck Z-Axis Moment, NEKZM4, Was Not Recorded
(6 axis neck load cells were not used)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION



CHANNEL: LURYG4 FILTER: CH. CLASS 1000 PEAK DATA: 80.46 G @ 172.48 MS; -45.31 G @ 172.96 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY



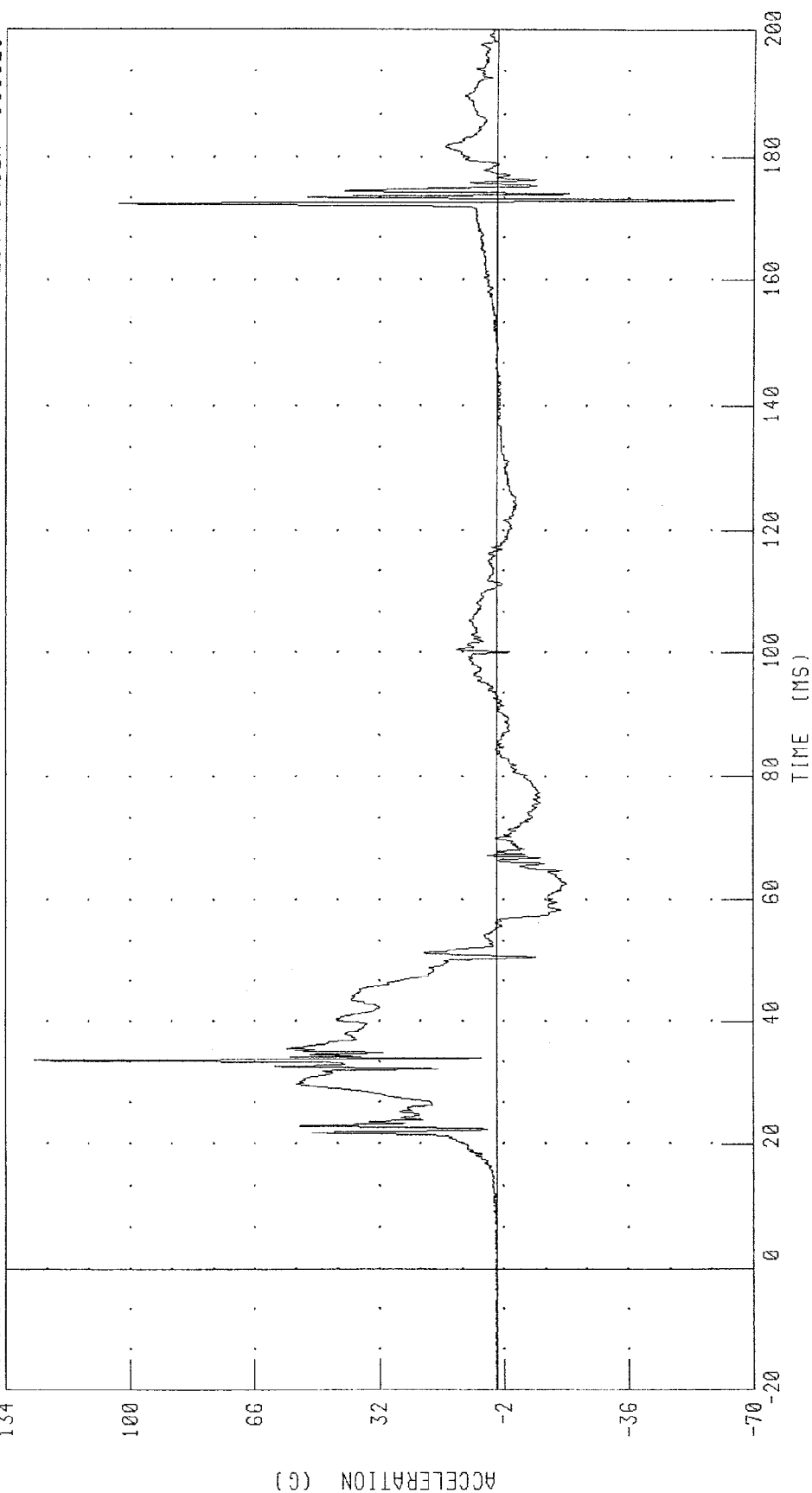
CHANNEL: LURYU4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

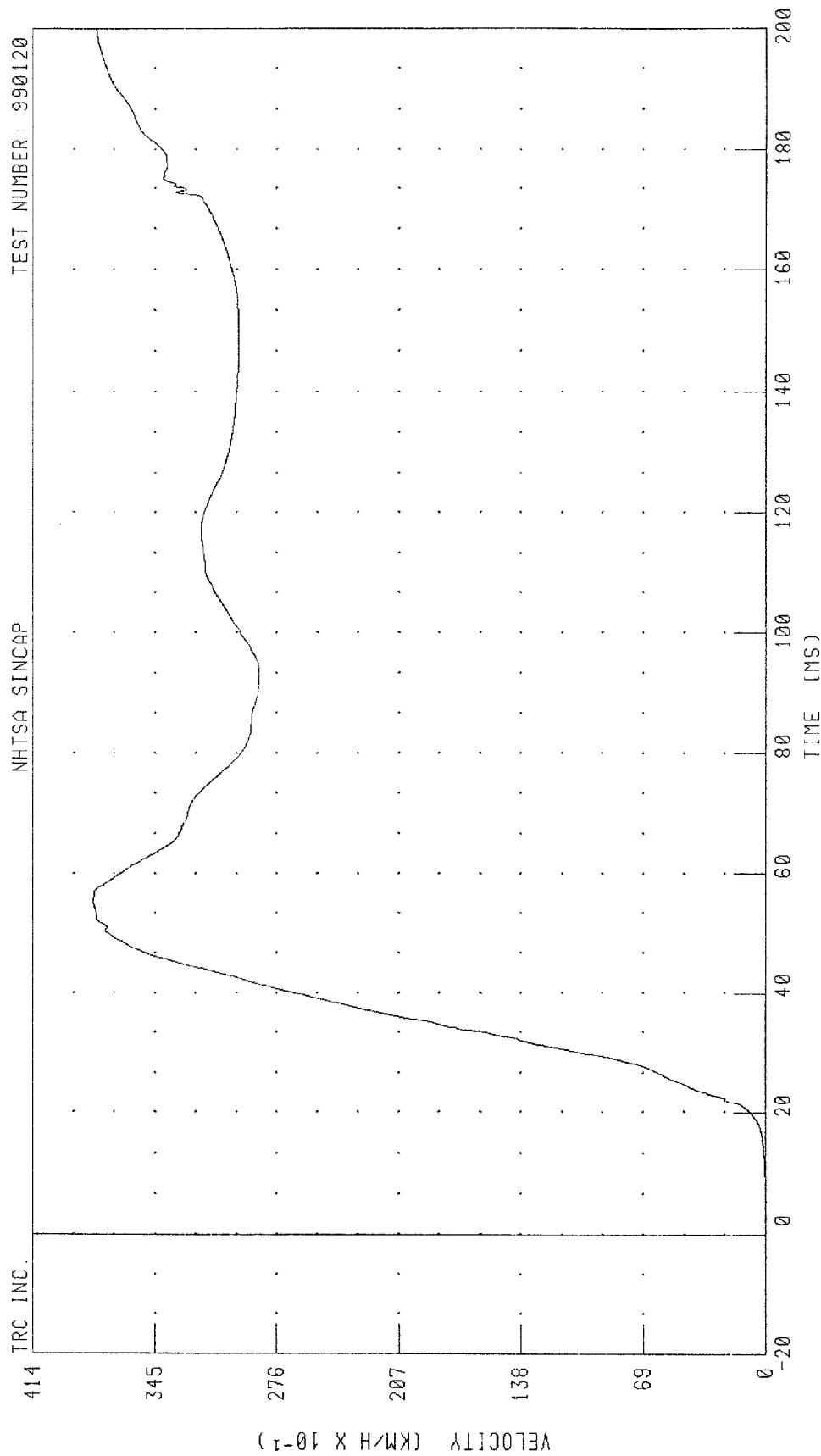
TRC INC.



CHANNEL: LLRYG4 FILTER: CH. CLASS 1000

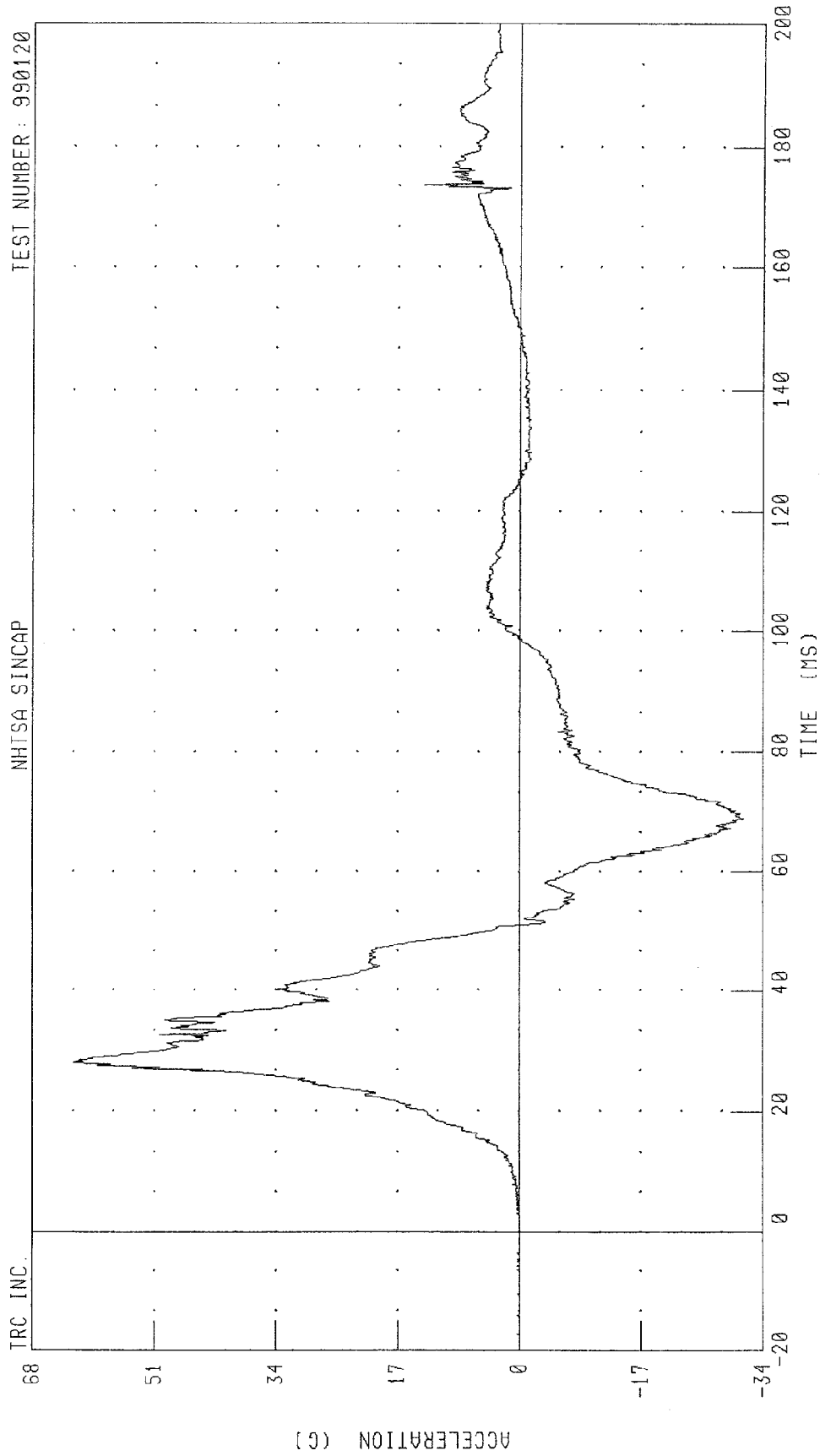
PEAK DATA: 126.32 G @ 33.60 MS, -64.48 G @ 172.96 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY



CHANNEL: LLRYU4 FILTER: CH. CLASS 1000 PEAK DATA: 38.02 KM/H @ 55.52 MS, 0.00 KM/H @ 3.28 MS

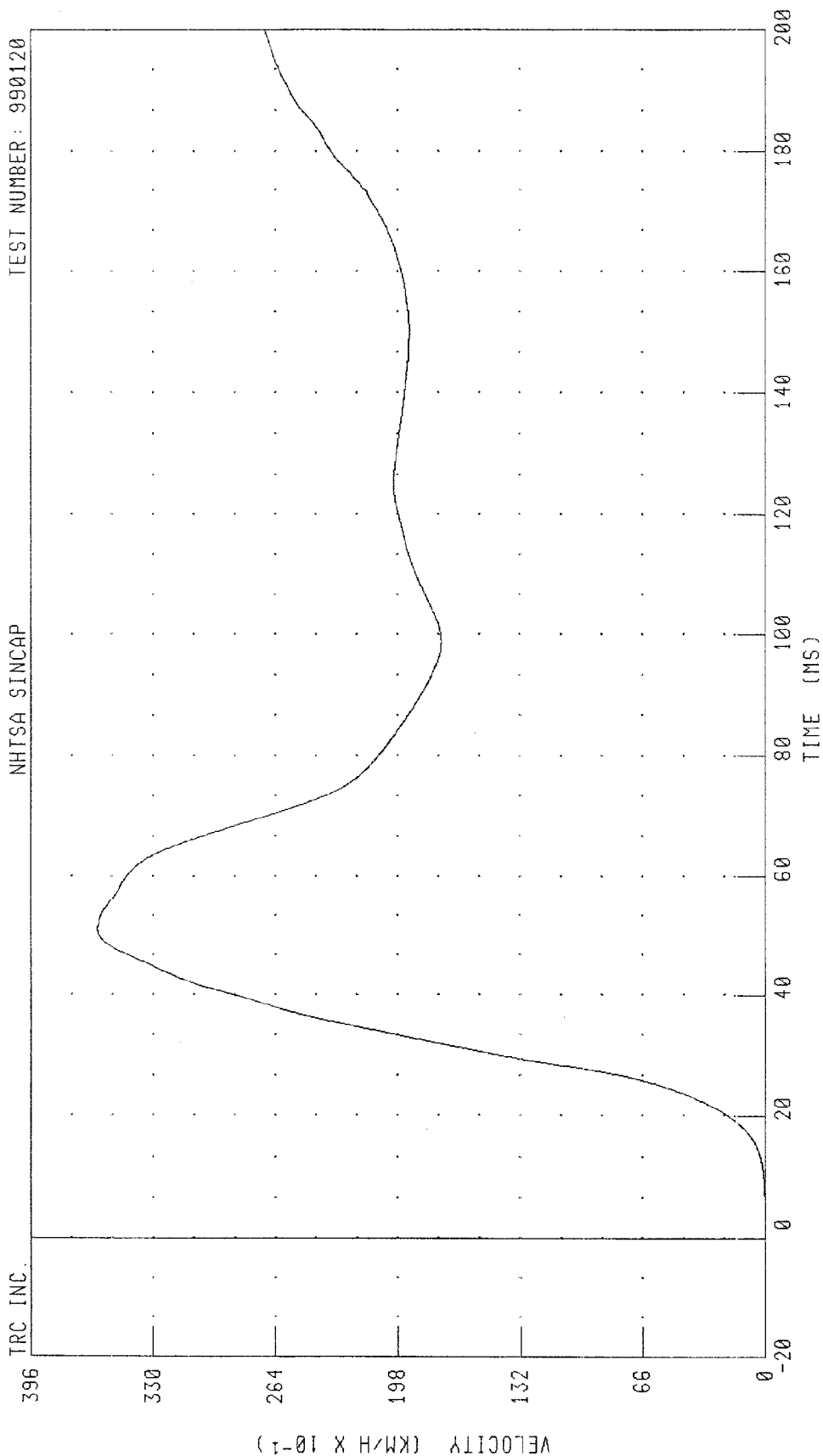
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION



CHANNEL: T12YC4 FILTER: CH. CLASS 1000

PEAK DATA: 62.32 G @ 27.92 MS; -31.26 G @ 68.88 MS

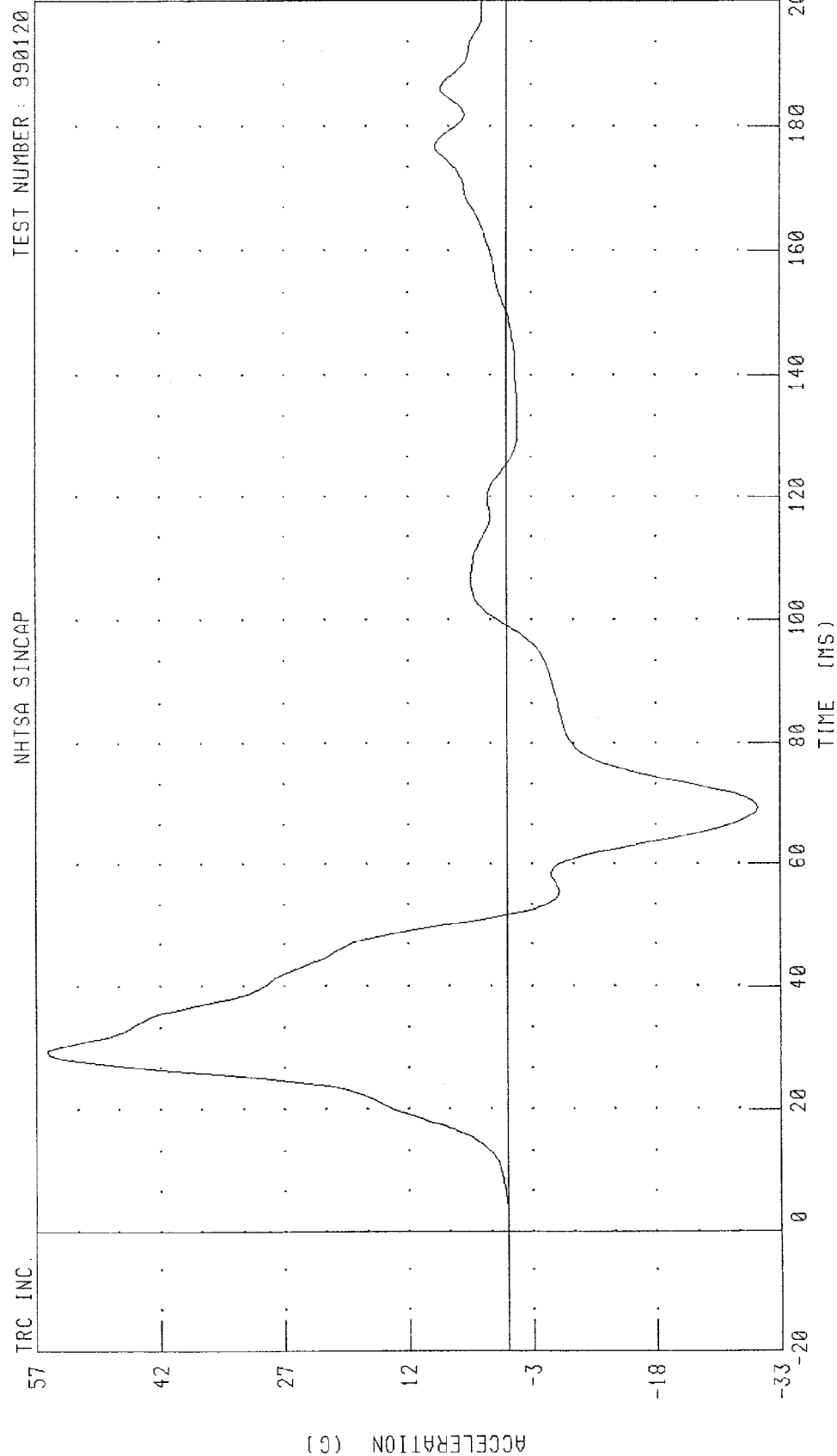
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY



PEAK DATA: 36.03 KM/H @ 51.04 MS, 0.00 KM/H @ 2.88 MS

CHANNEL: T12YU4 FILTER: CH. CLASS 1000

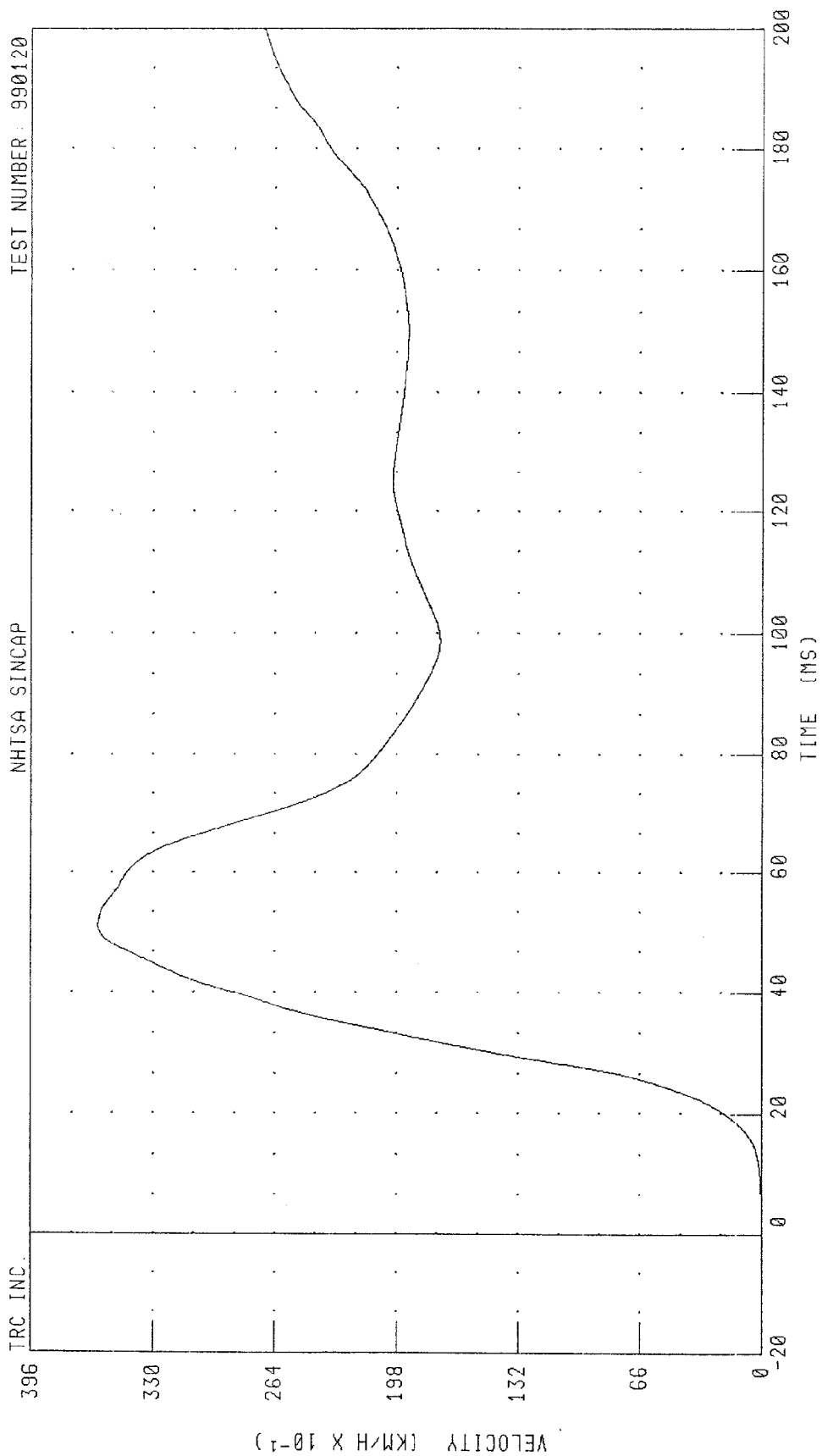
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
PASSENGER LOWER SPINE Y-AXIS ACCELERATION



CHANNEL: T12YG4 FILTER: FIR 100

PEAK DATA: 55.66 G @ 29.38 MS, -30.35 G @ 69.38 MS

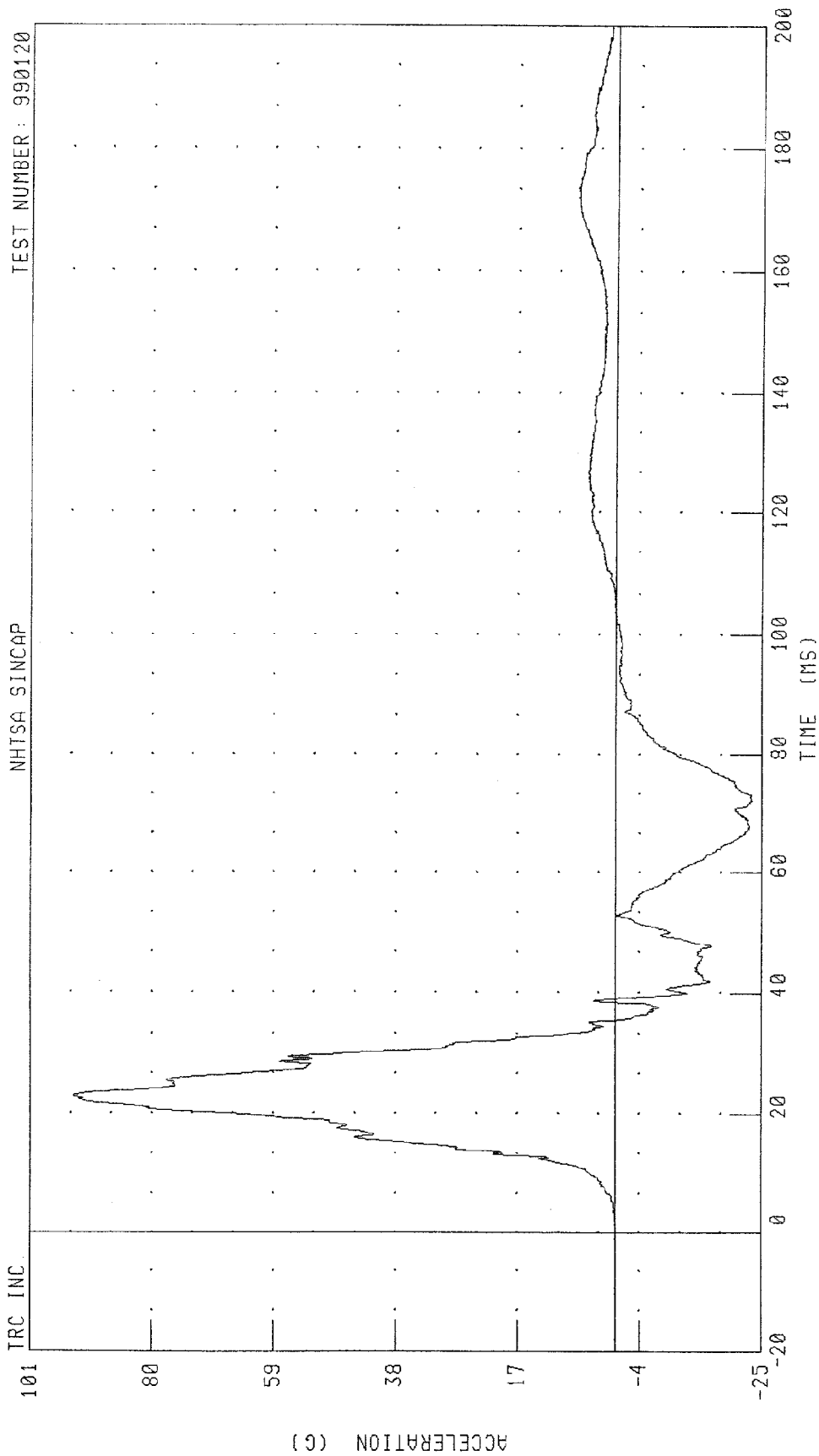
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
PASSENGER LOWER SPINE Y-AXIS VELOCITY



PEAK DATA: 36.01 KM/H @ 51.04 MS; 0.00 KM/H @ 2.08 MS

CHANNEL: T12YV4 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION



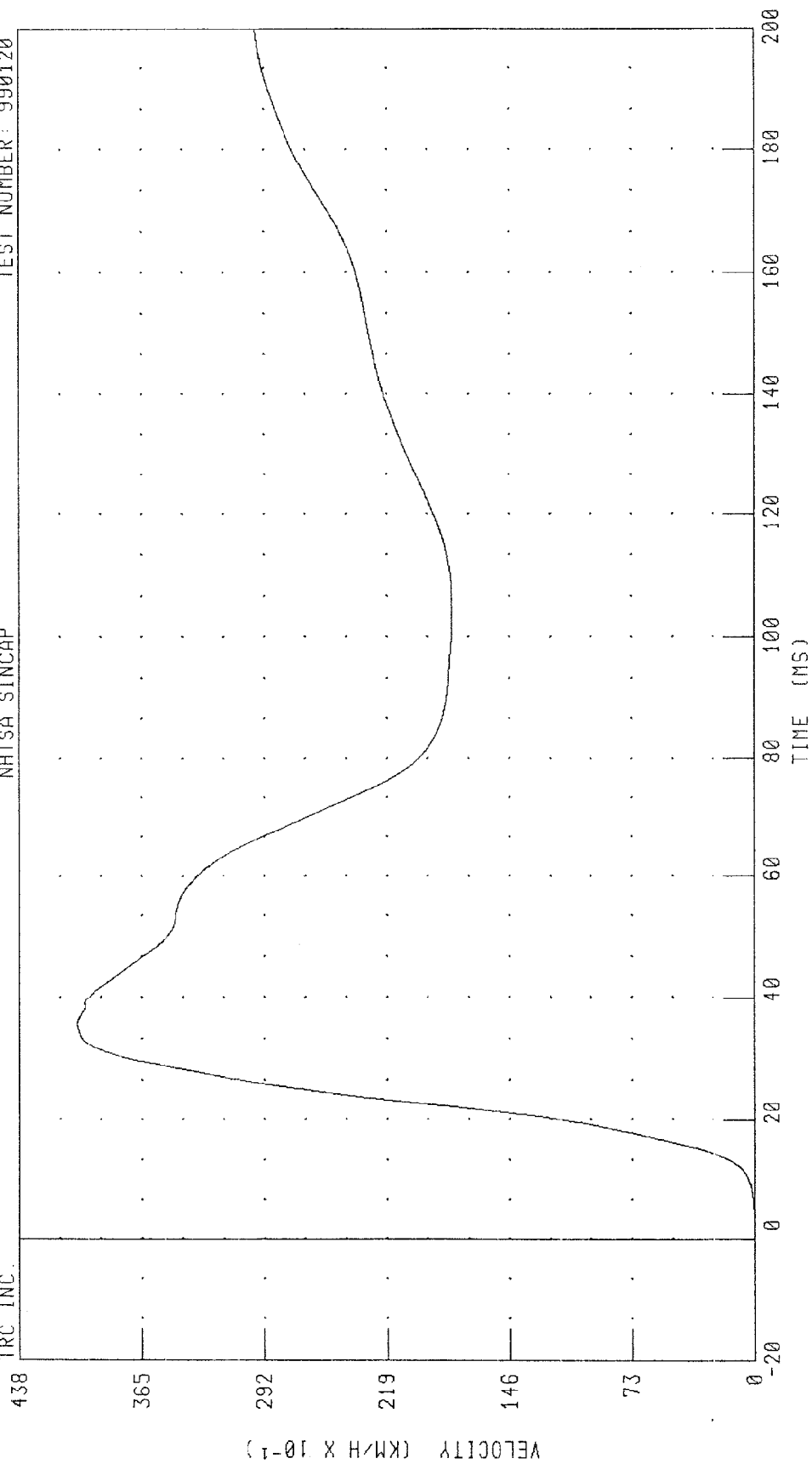
CHANNEL: PEVYG4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



PEAK DATA: 40.35 KM/H @ 35.60 MS; 0.00 KM/H @ 1.28 MS

CHANNEL: PEVU4 FILTER: CH. CLASS 1000

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

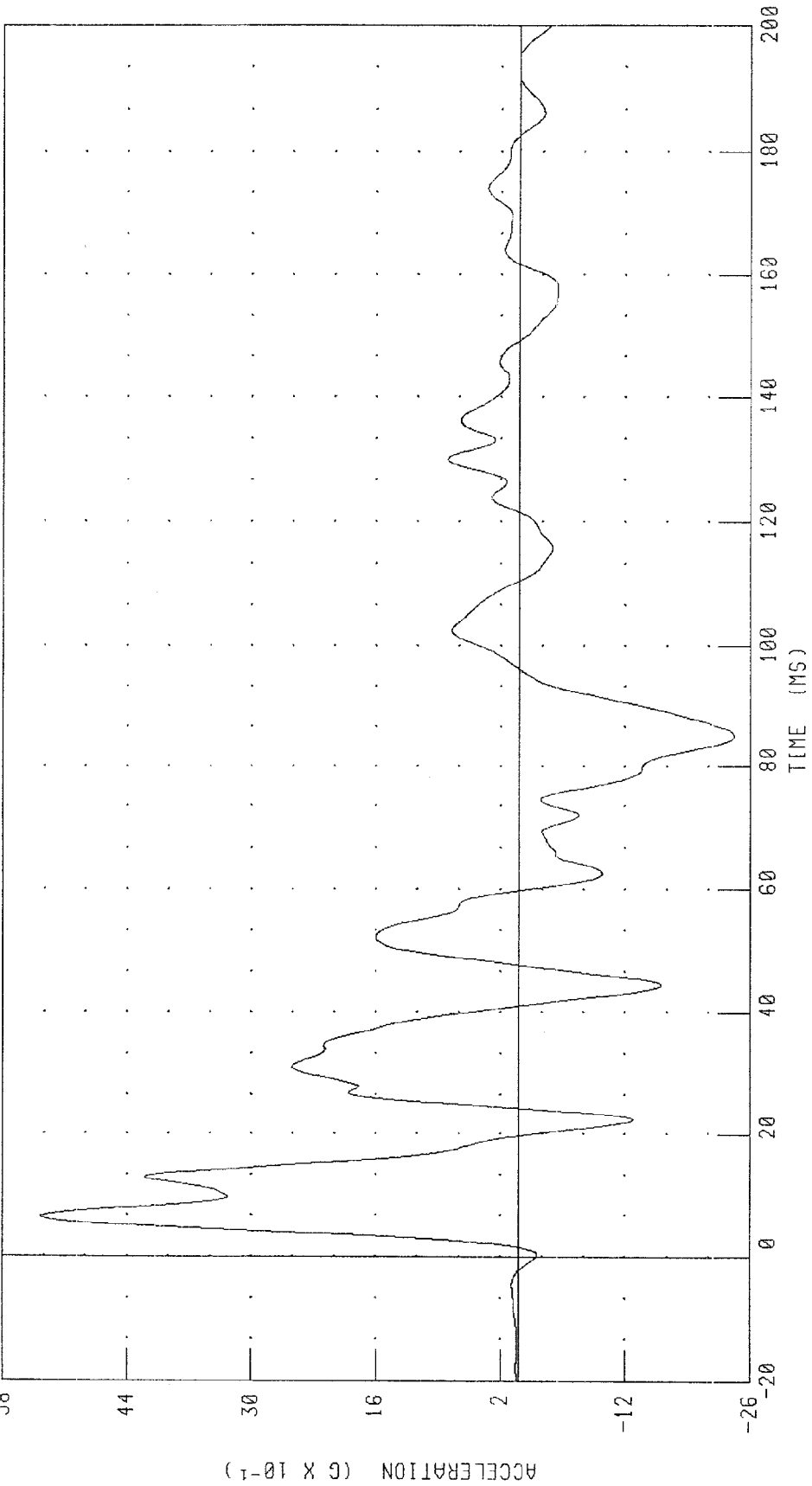
Integration Data - Filter Class 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



PEAK DATA: 5.38 G @ 6.40 MS, -2.42 G @ 85.12 MS

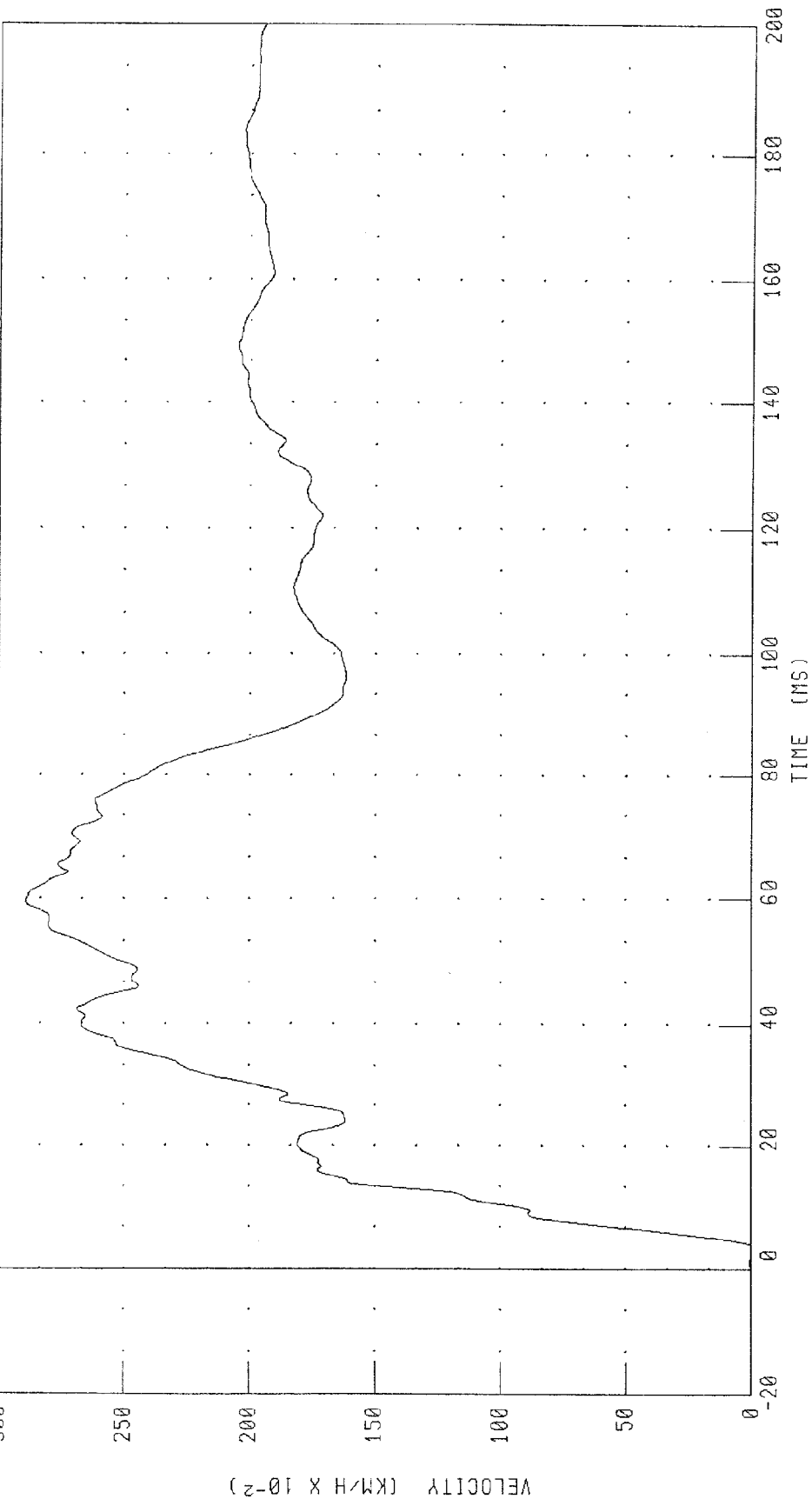
CHANNEL: RFSXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

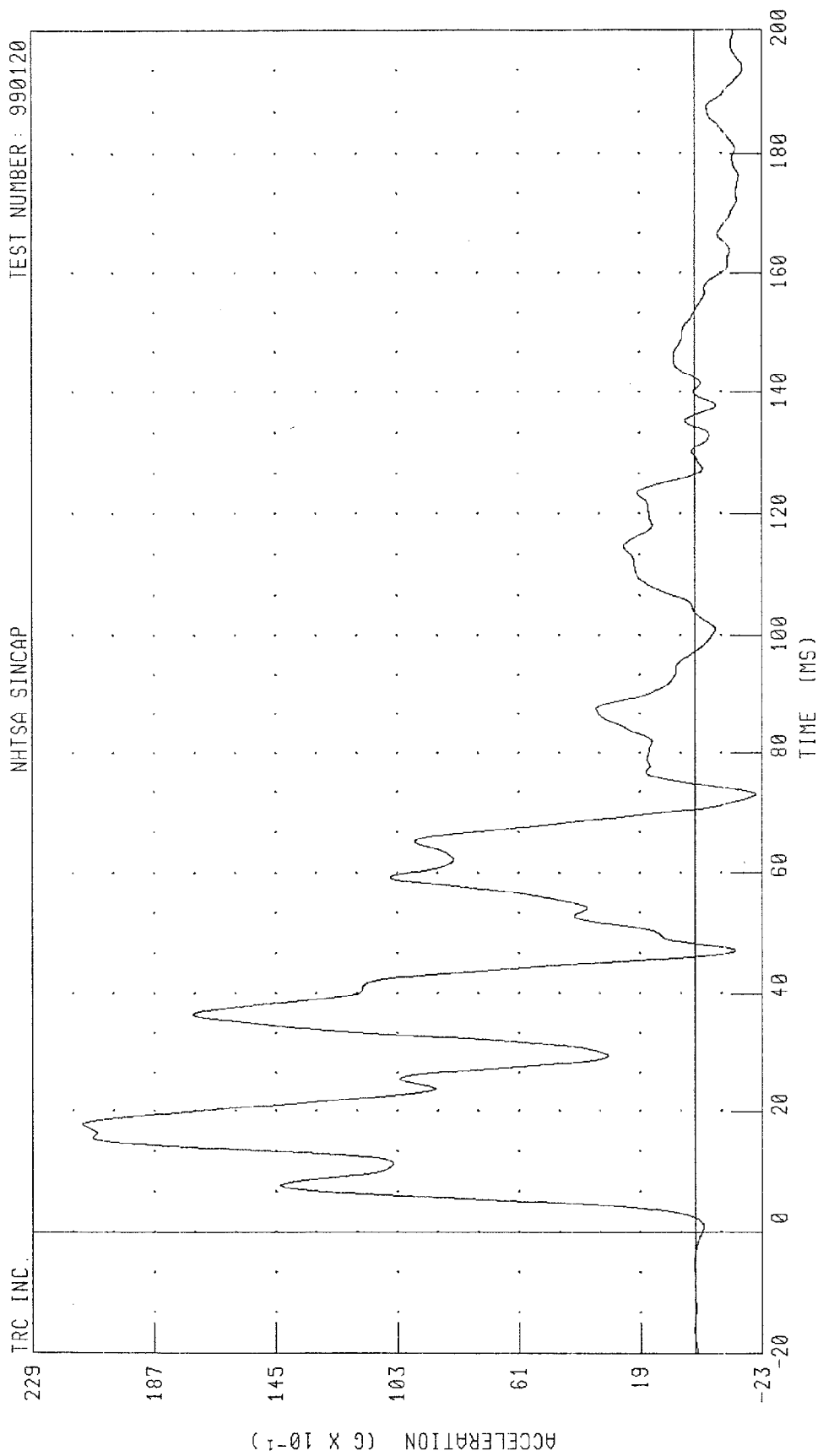
TRC INC.



CHANNEL: RFSXV1 FILTER: CH. CLASS 180

PEAK DATA: 2 89 KM/H @ 59.68 MS, -0.03 KM/H @ 3.20 MS

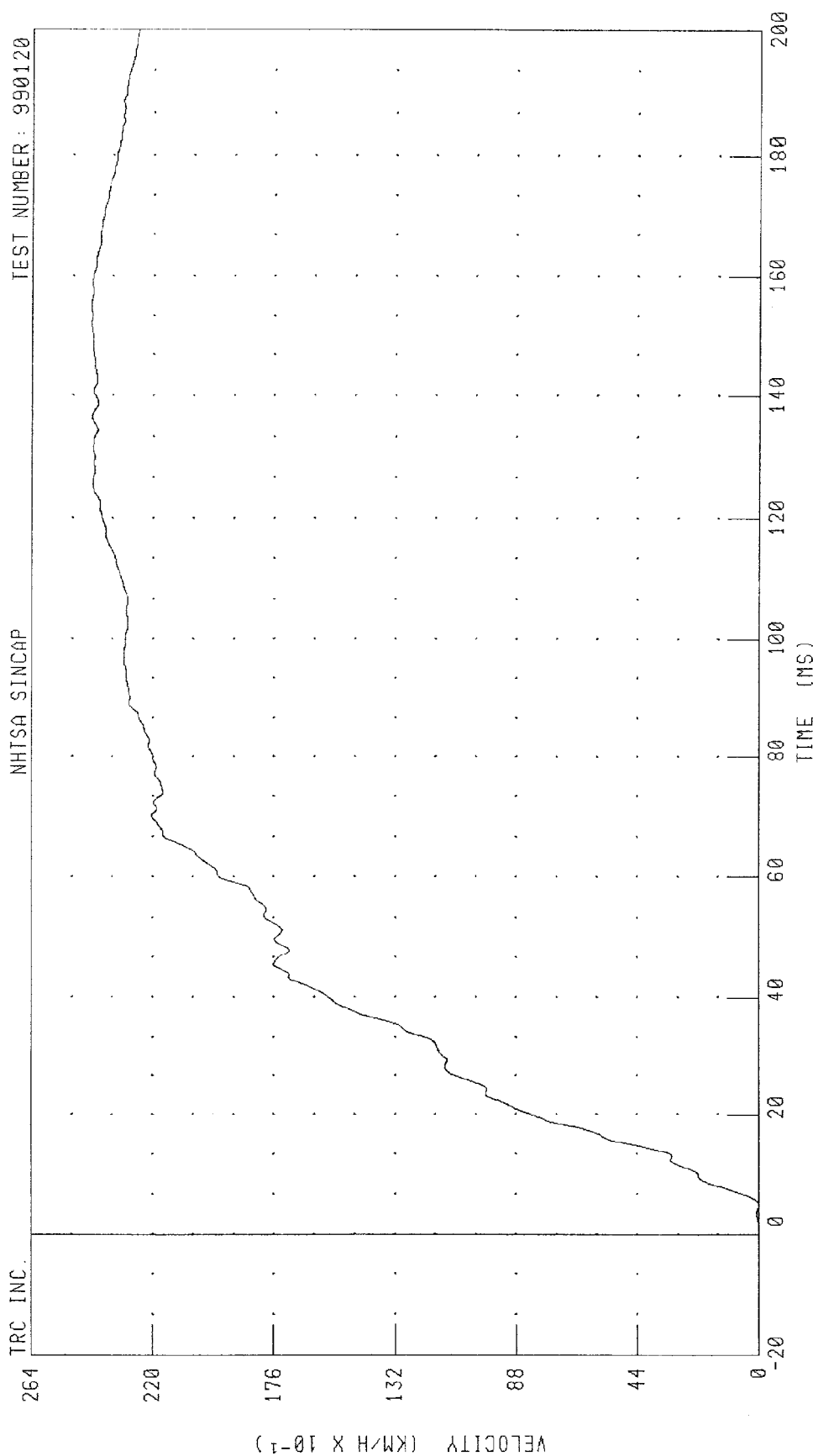
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION



PEAK DATA: 21.17 G @ 17.92 MS, -2.10 G @ 72.96 MS

CHANNEL: RFSYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY



CHANNEL: RFSYV1 FILTER: CH. CLASS 180

PEAK DATA: 24.27 KM/H @ 155.04 MS; -0.01 KM/H @ 4.96 MS

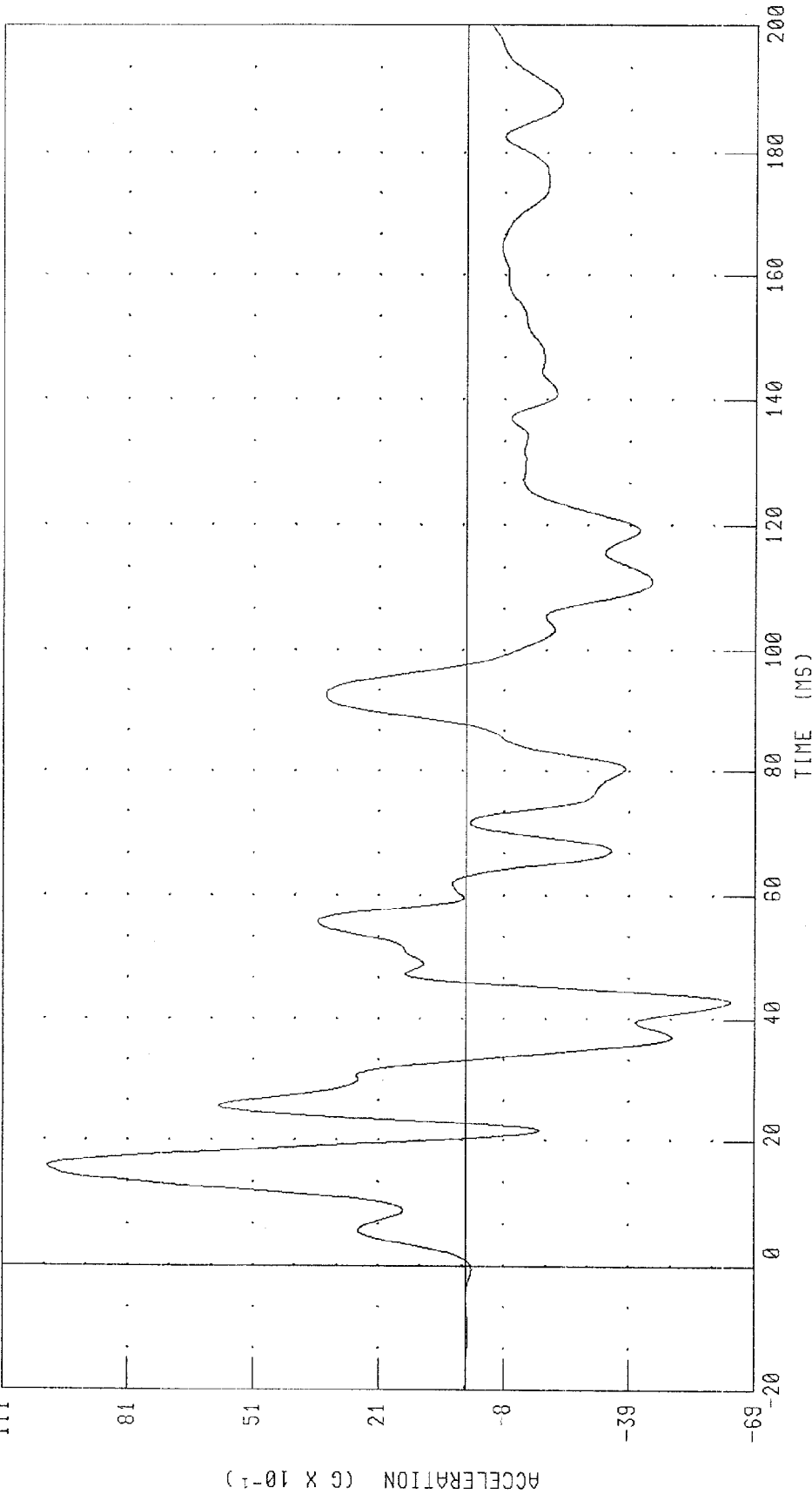
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.

111



PEAK DATA: 10.04 G @ 15.92 MS, -6.33 G @ 42.96 MS

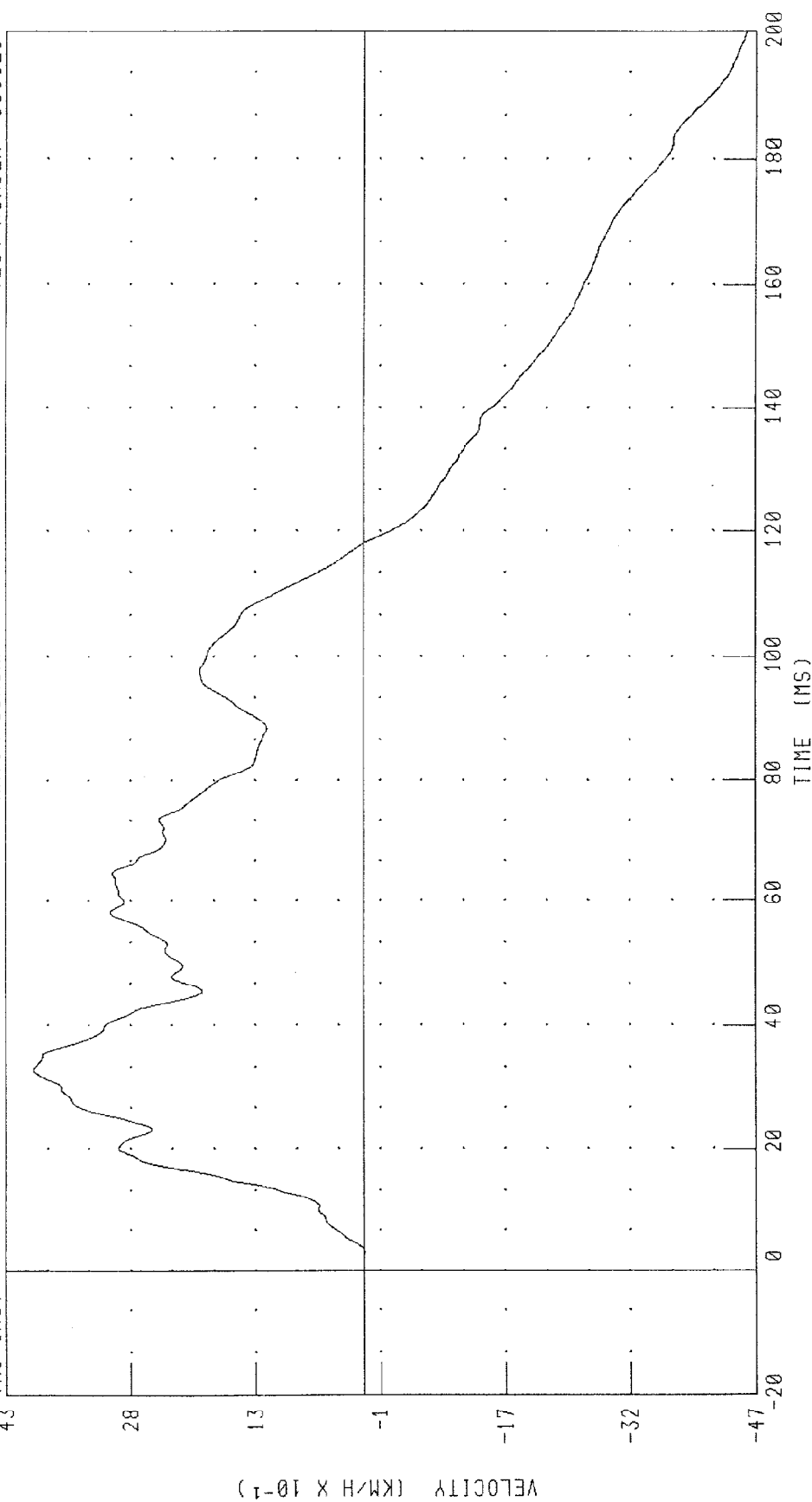
CHANNEL: RFSZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



PEAK DATA: 3.97 KM/H @ 32.96 MS; -4.59 KM/H @ 200.00 MS

CHANNEL: RFSZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

TEST NUMBER 990120

NHTSA SINCAP

TRC INC.

251

209

ACCELERATION ($G \times 10^{-1}$)

167

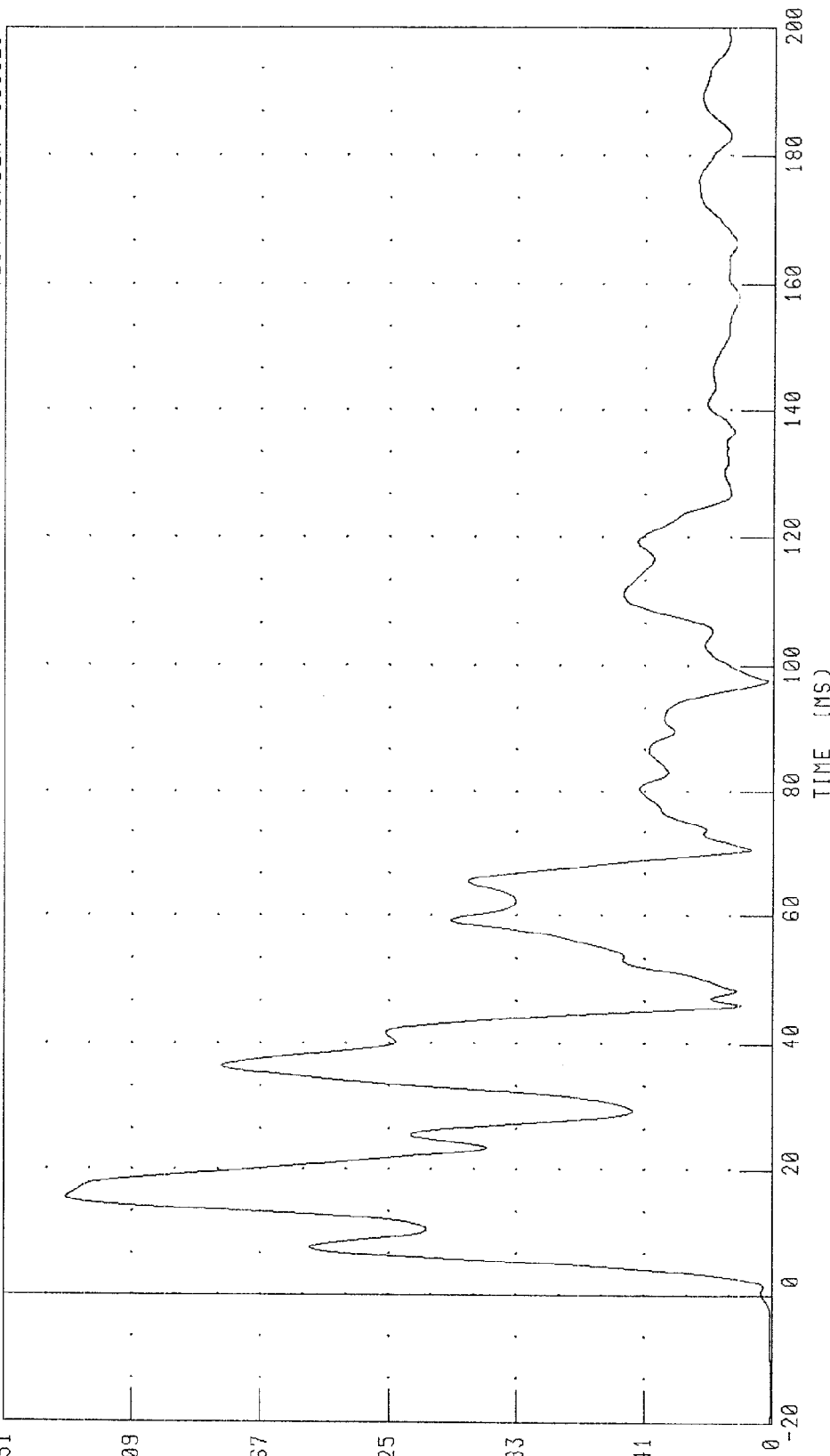
125

83

41

0

-20



CHANNEL: RFSRG1 FILTER: CH. CLASS 60

PEAK DATA: 23.17 G @ 15.68 MS, 0.02 G @ -14.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

IRC INC.

53

39

ACCELERATION ($G \times 10^{-1}$)

25

11

-3

-17

-31

-20

TIME (MS)

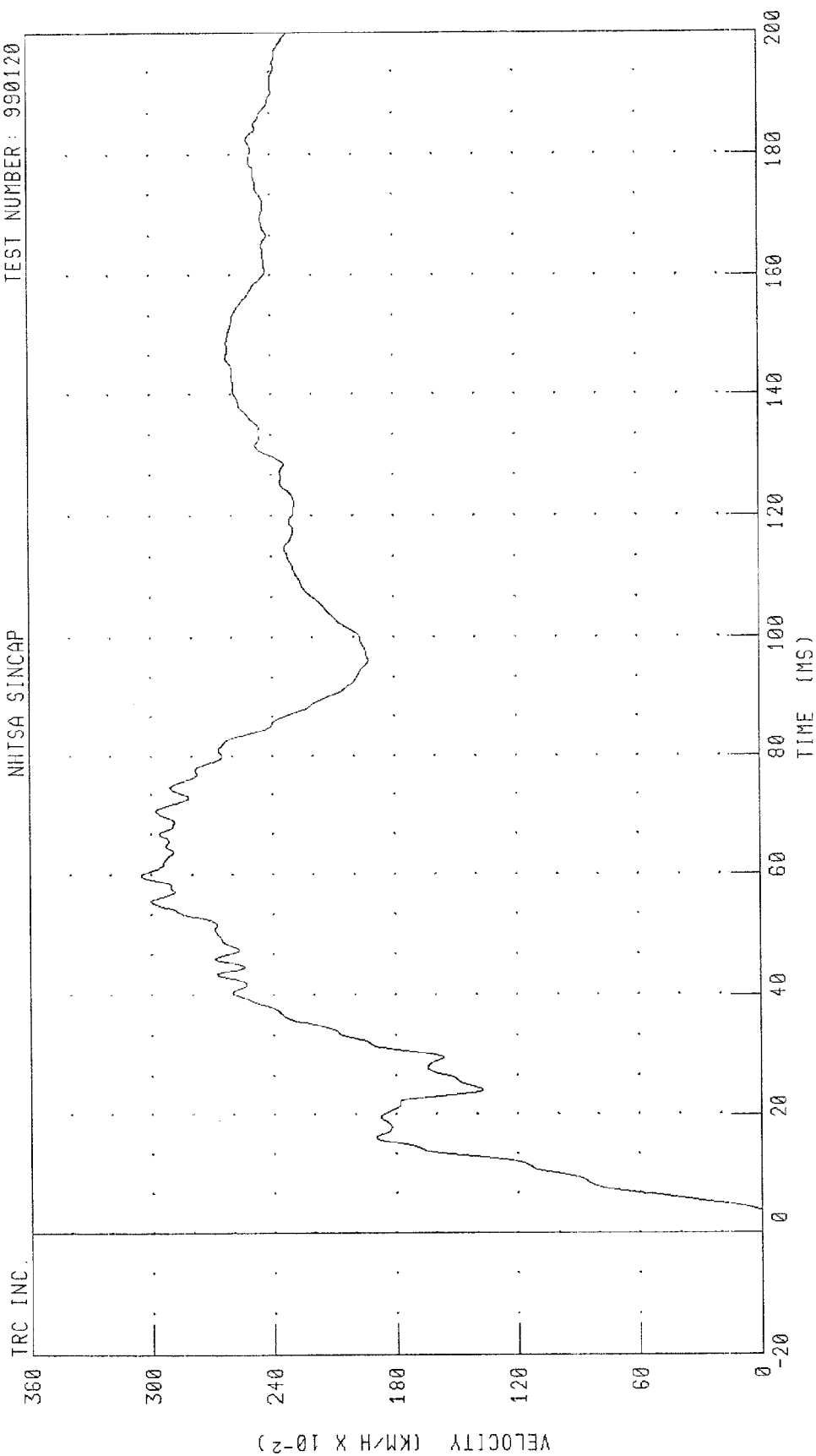
CHANNEL: RRSXG1 FILTER: CH. CLASS 60

PEAK DATA: 5.14 G @ 6.16 MS; -2.88 G @ 22.96 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY

TEST NUMBER: 990120

NIITSA SINCAP



PEAK DATA: 3.05 KM/H @ 59.84 MS; -0.02 KM/H @ 2.88 MS

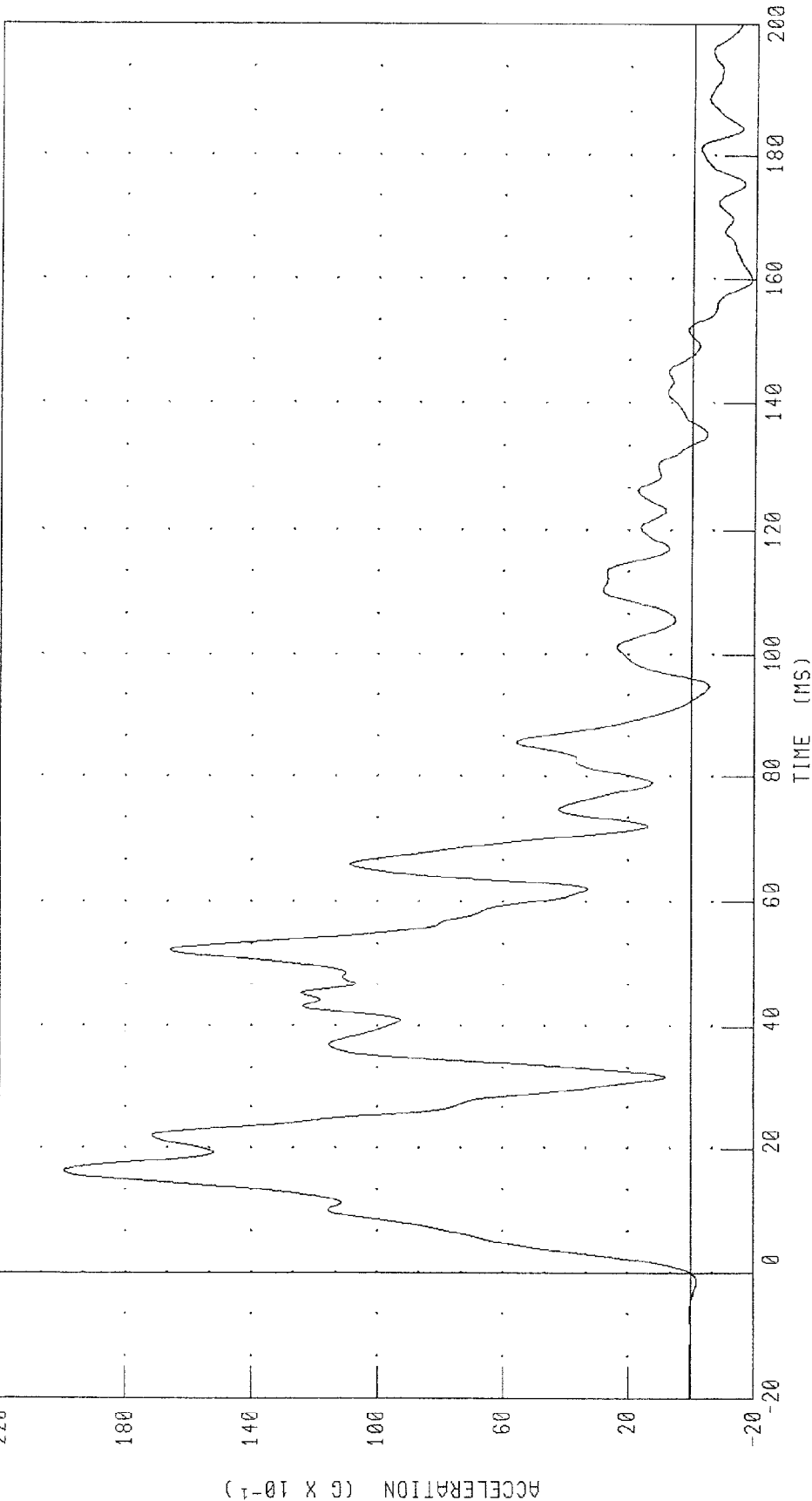
CHANNEL: RRSXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



CHANNEL: RRSYG1 FILTER: CH. CLASS 60

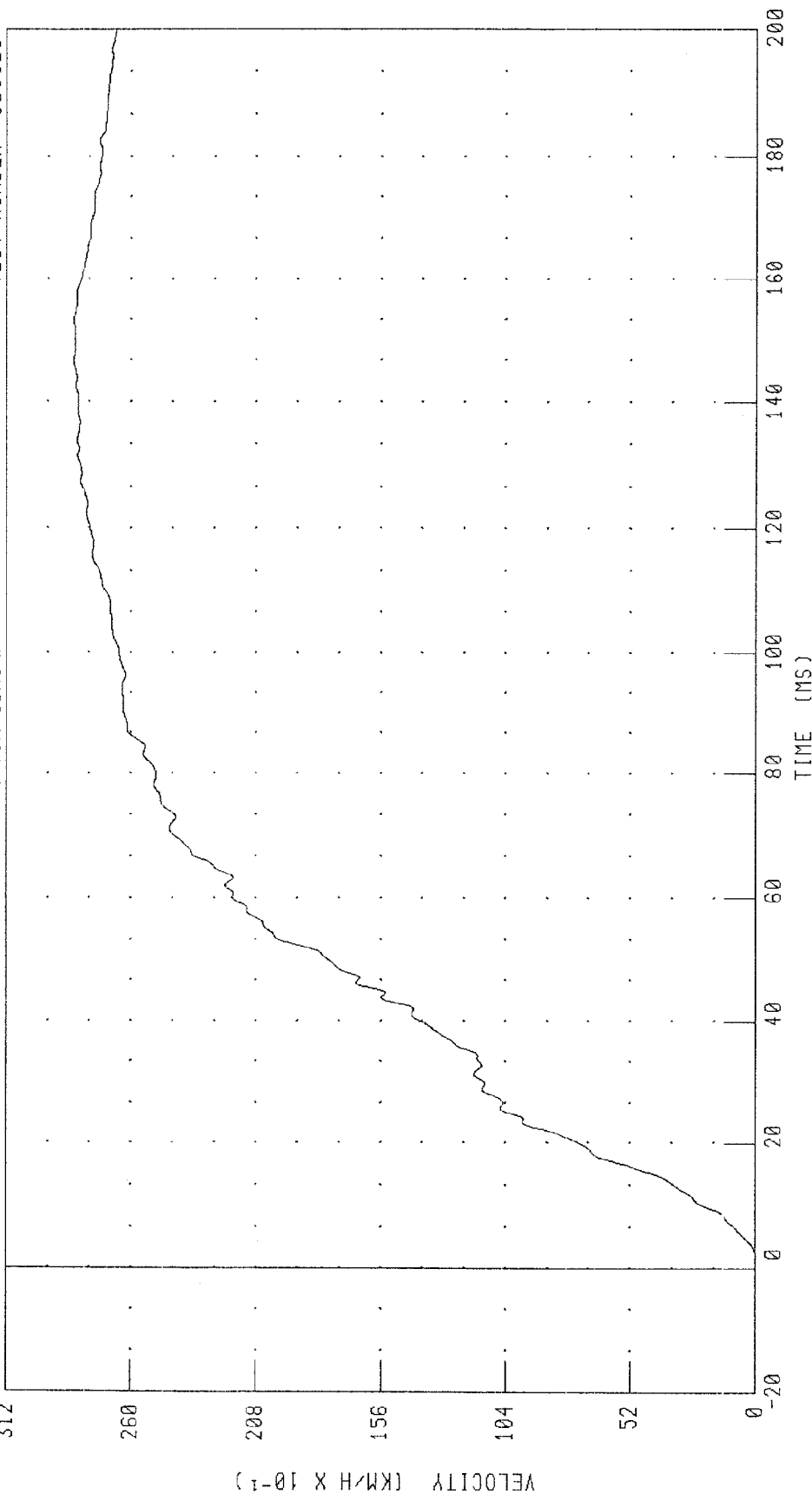
PEAK DATA: 19.95 G @ 16.40 MS, -1.87 G @ 159.84 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

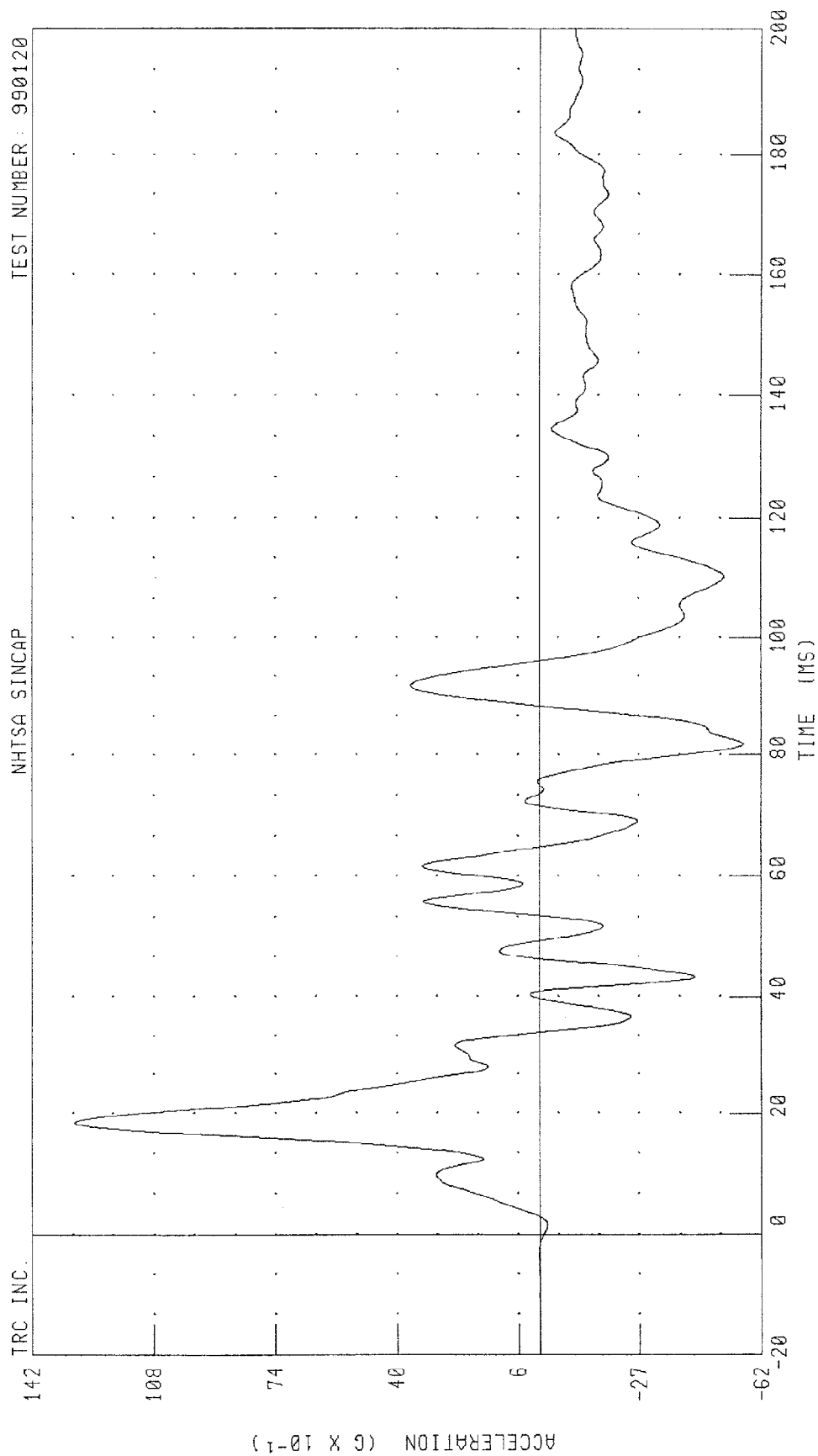
TRC INC.



PEAK DATA: 28.40 KM/H @ 153.20 MS; 0.00 KM/H @ 1.36 MS

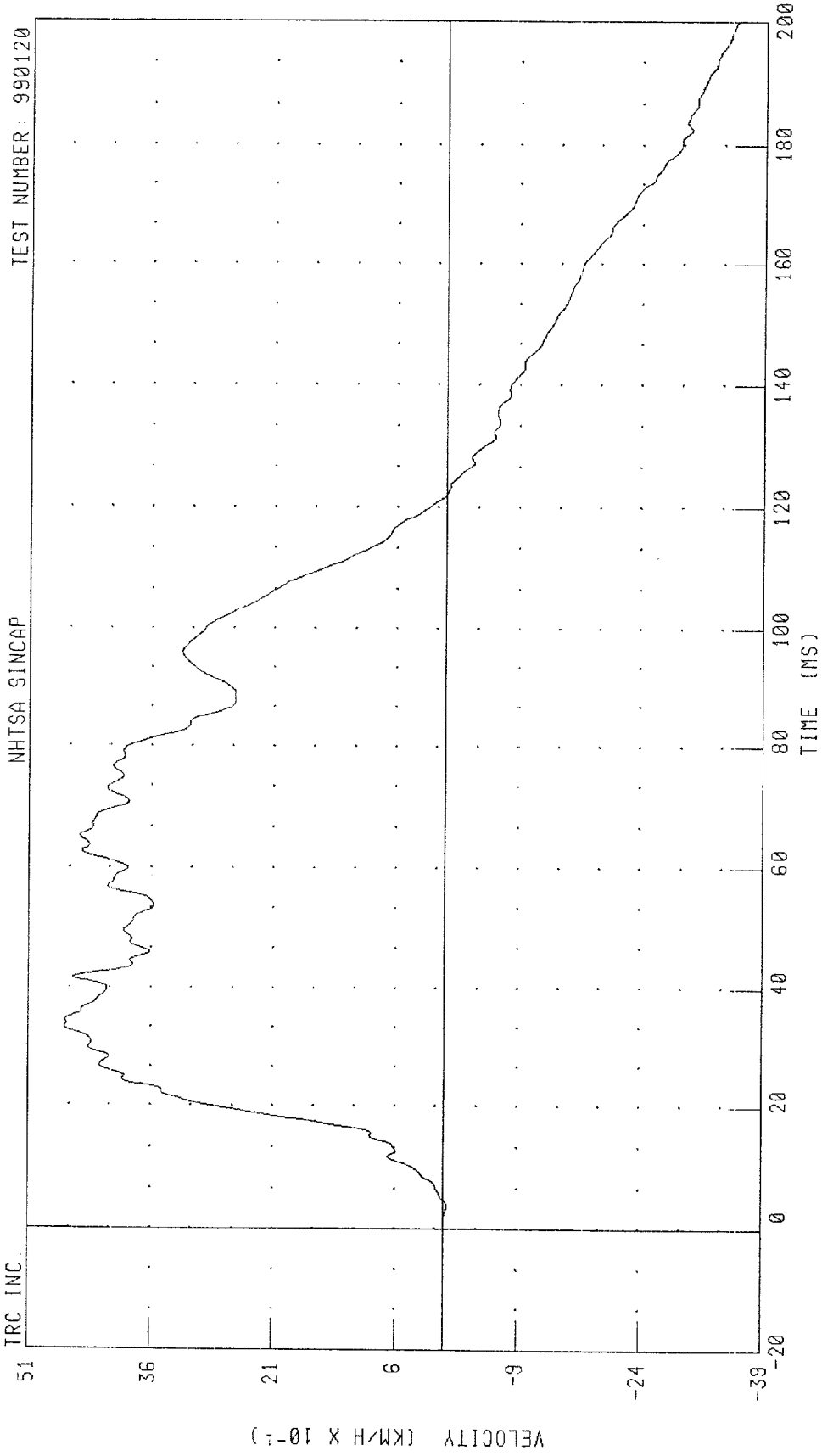
CHANNEL: RRSYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION



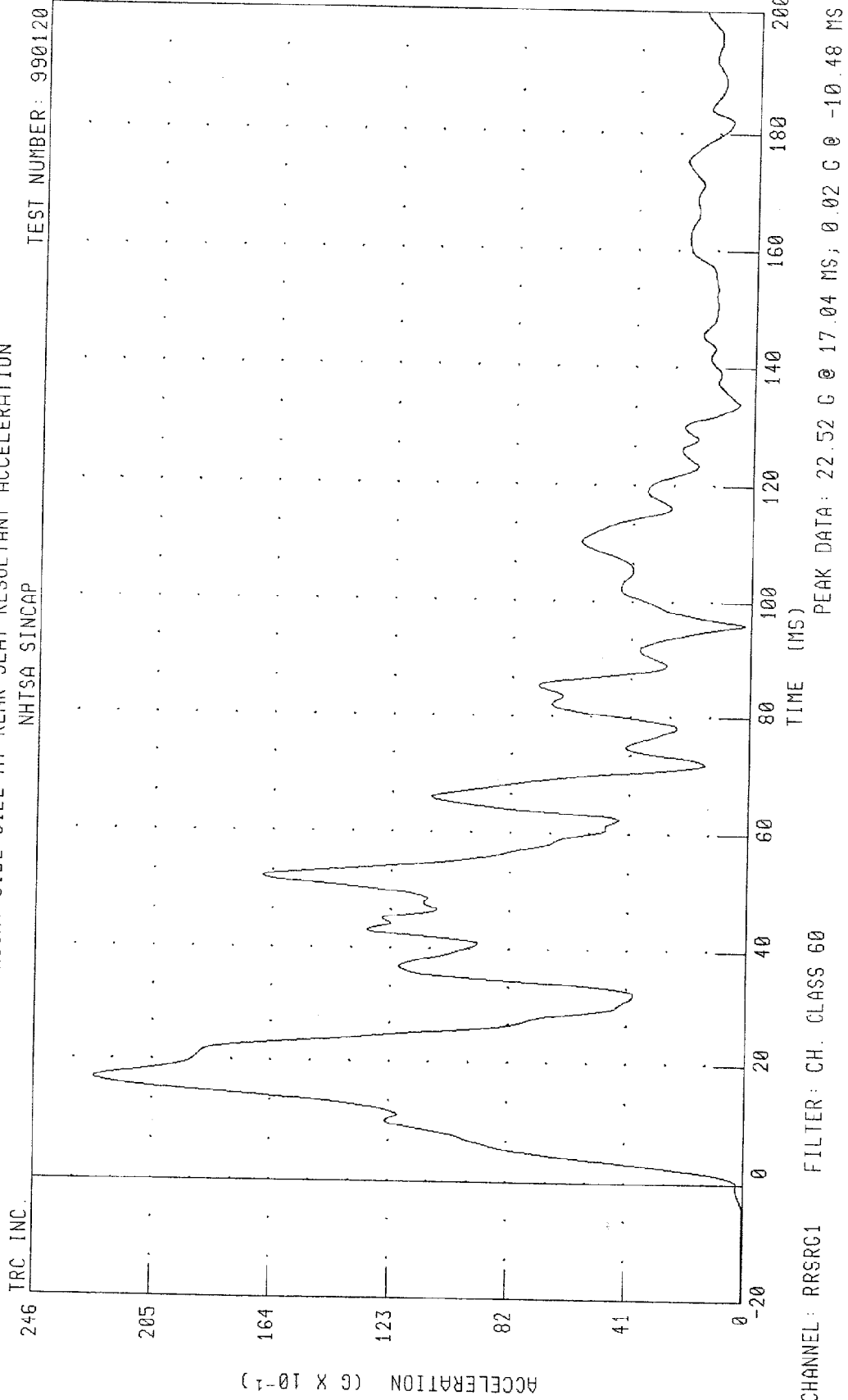
CHANNEL: RRSZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY



CHANNEL: RRSZV1 FILTER: CH. CLASS 180 PEAK DATA: 4.66 KM/H @ 33.28 MS; -3.56 KM/H @ 200.00 MS

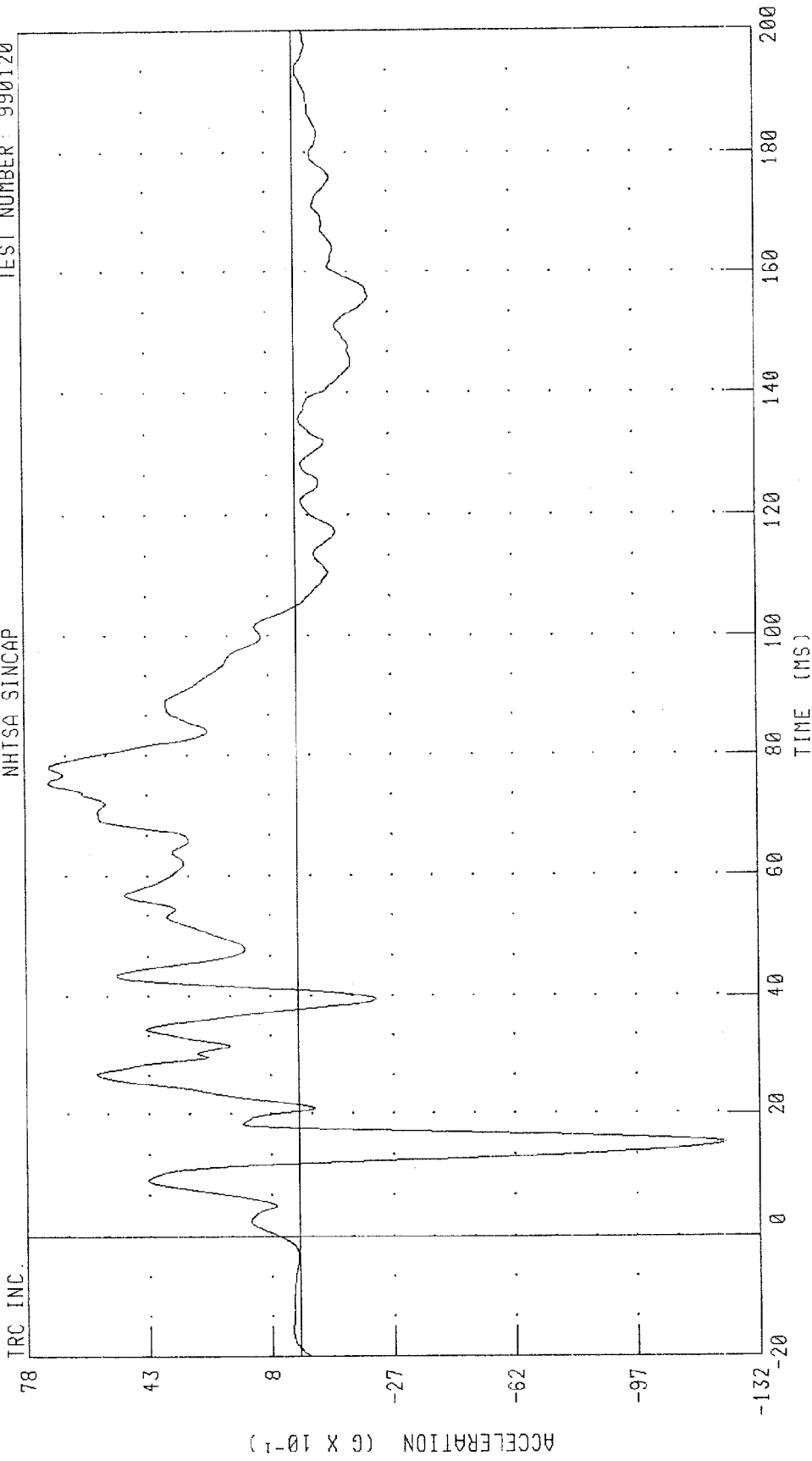
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

TEST NUMBER: 990120

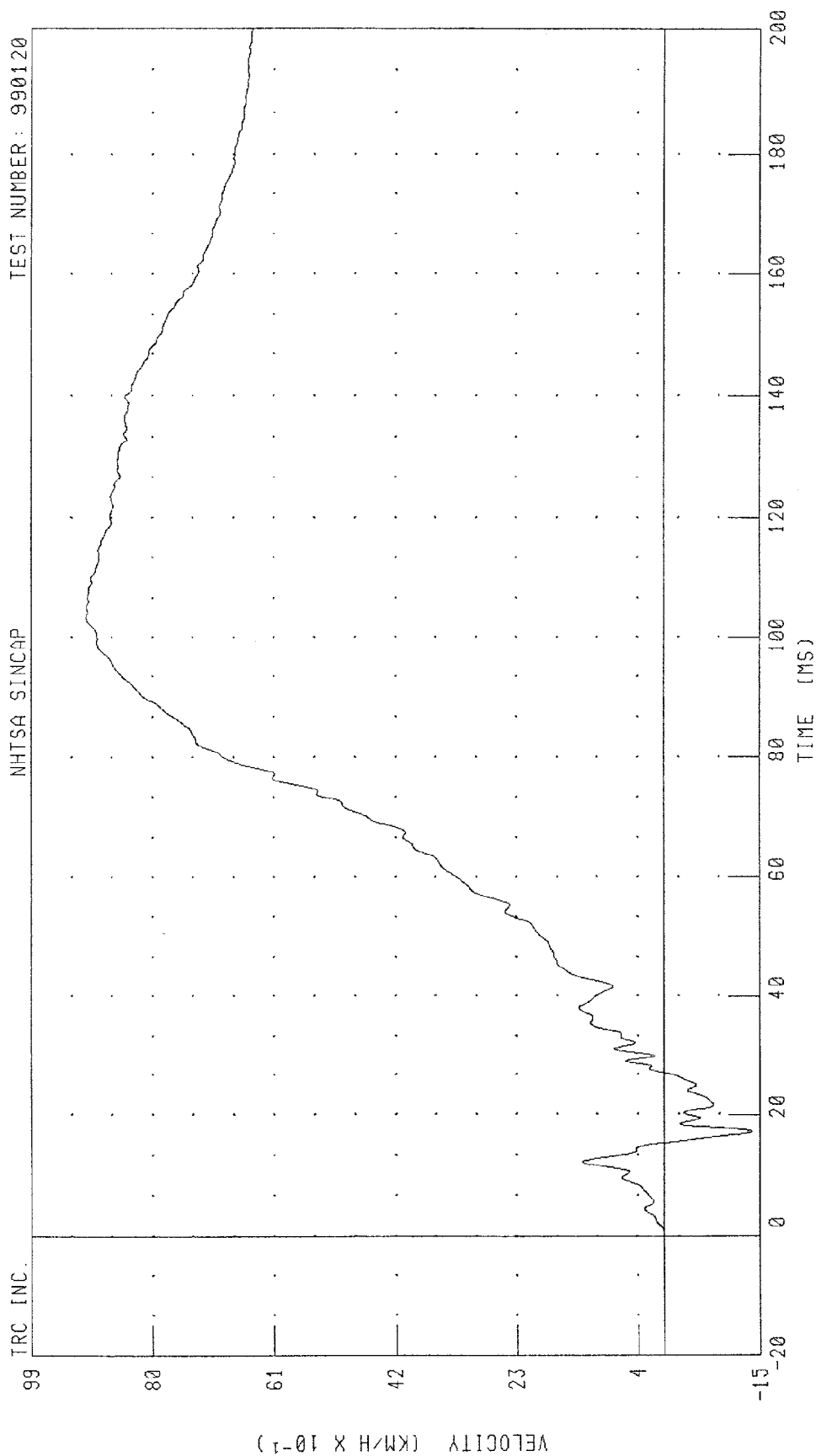
NHTSA SINCAP



PEAK DATA: 7.12 G @ 75.60 MS, -12.23 G @ 15.20 MS

CHANNEL: RDKXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY

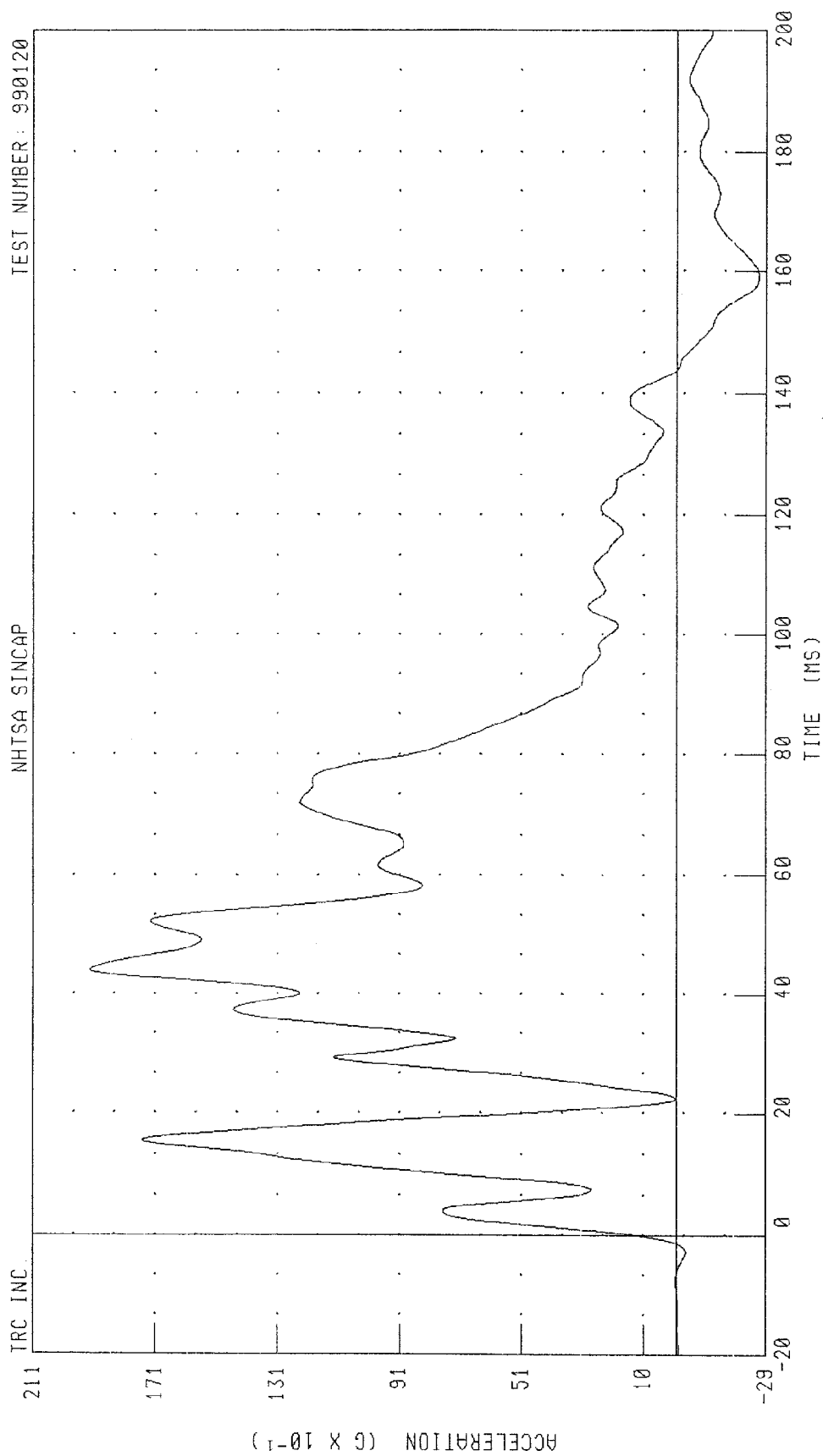


CHANNEL: RDKXV1 FILTER: CH. CLASS 180

PEAK DATA: 9.04 KM/H @ 103.36 MS, -1.38 KM/H @ 17.28 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION
 NHTSA SINCAP

TEST NUMBER: 990120



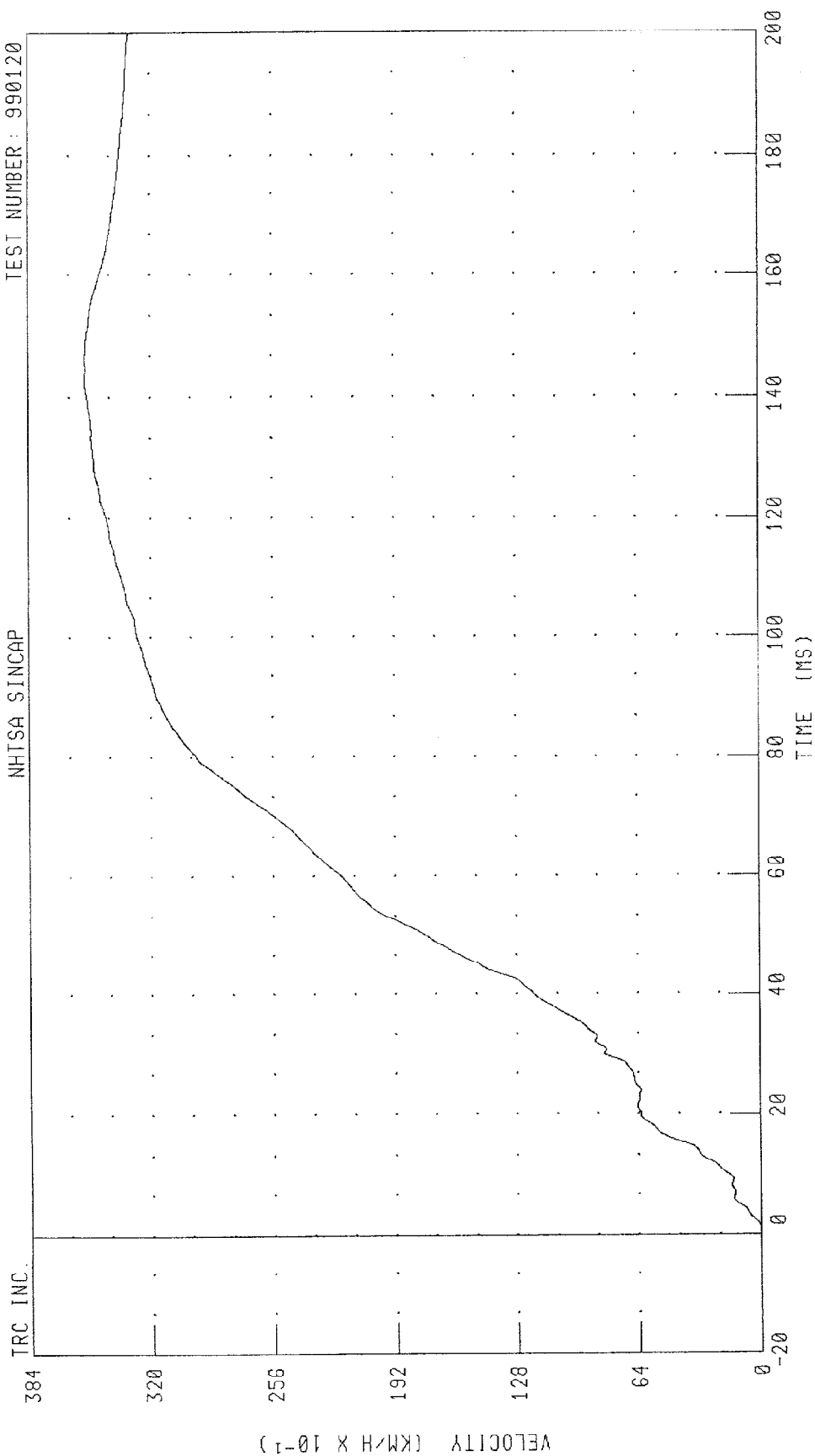
PEAK DATA: 19.23 G @ 44.08 MS, -2.67 G @ 158.96 MS

CHANNEL: RDKYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

NHTSA SINCAP

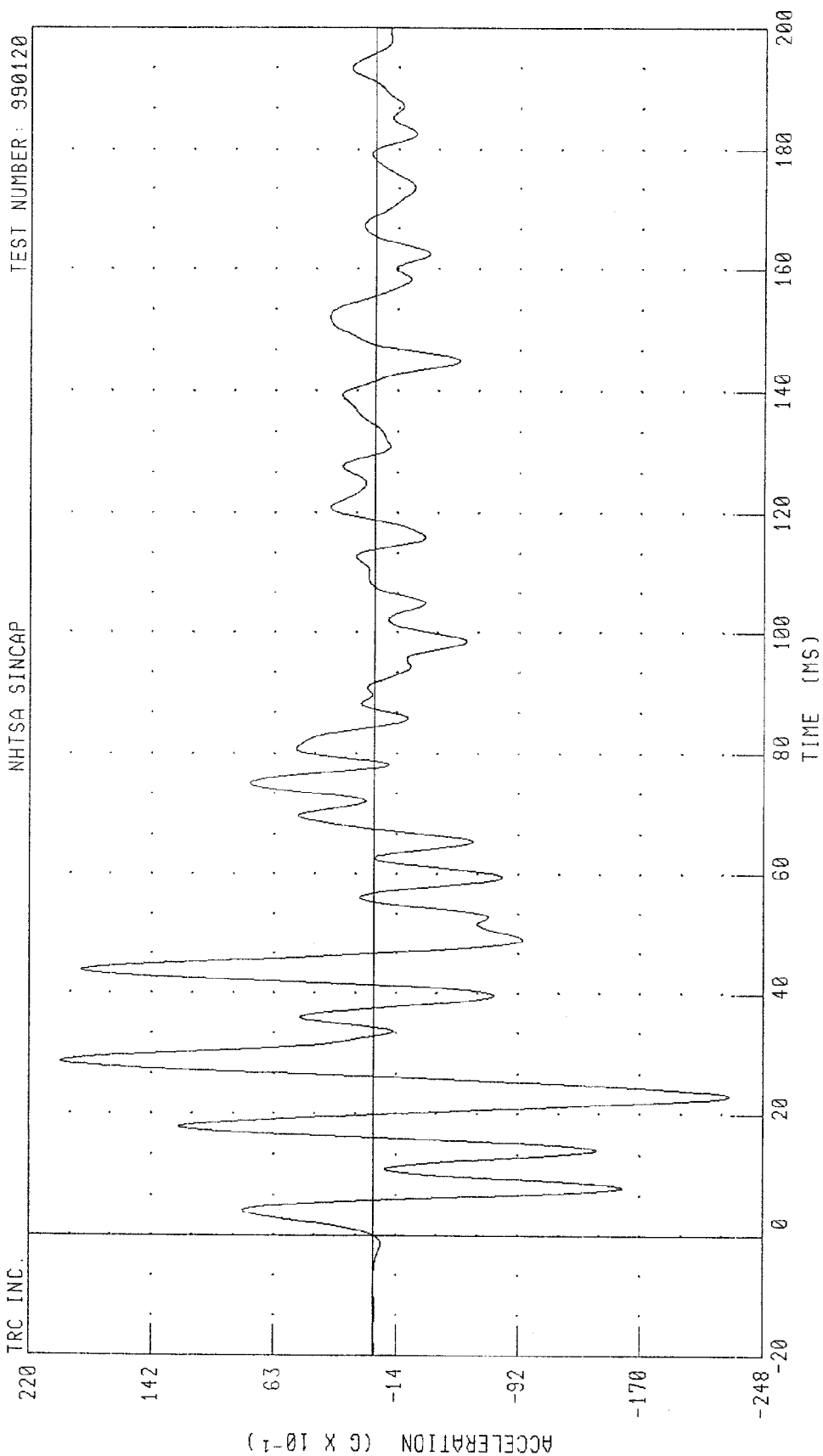
TEST NUMBER: 990120



PEAK DATA: 35.44 KM/H @ 142.88 MS, -0.01 KM/H @ 0.64 MS

CHANNEL: RDKYV1 FILTER: CH. CLASS 180

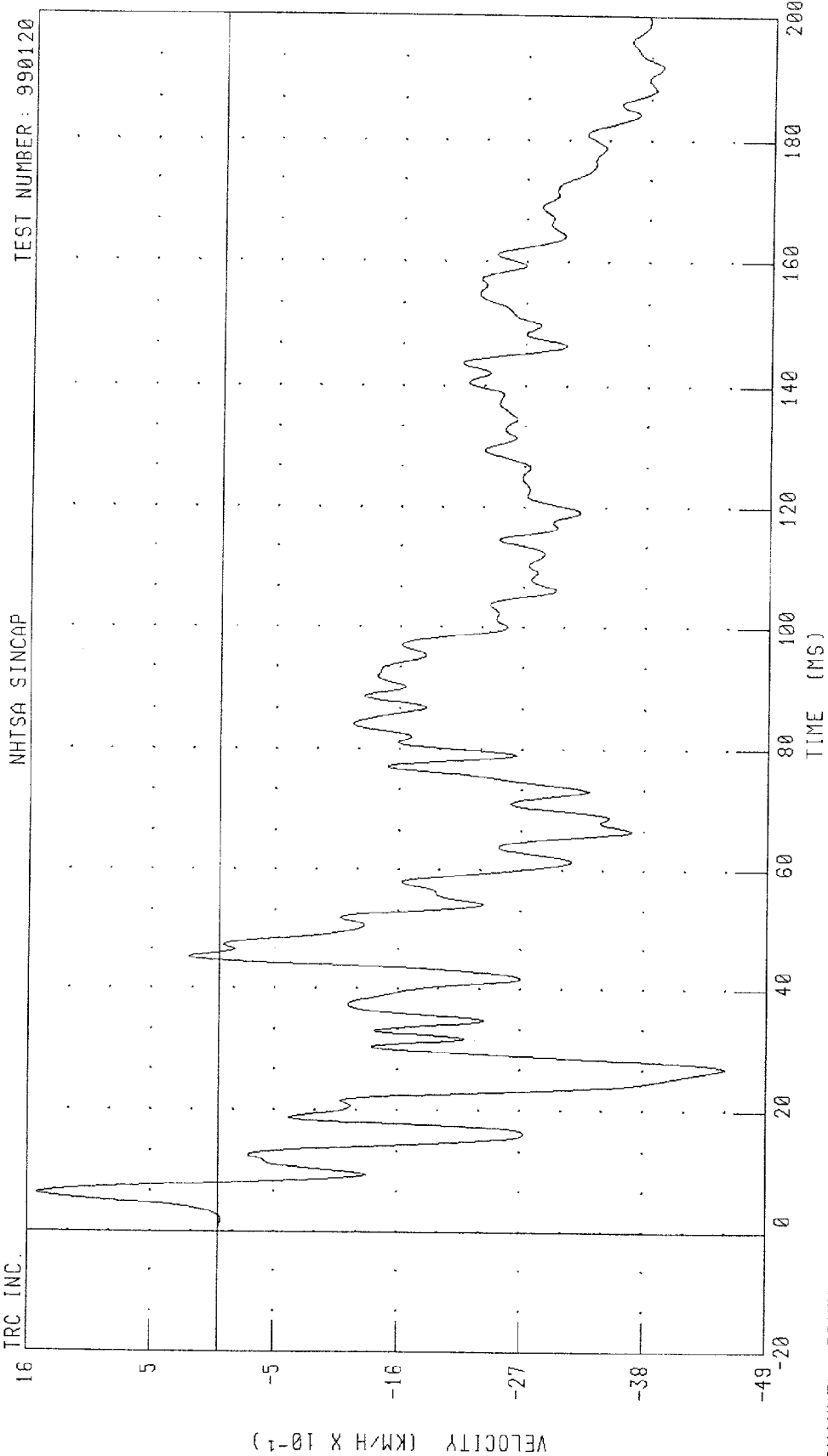
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION



PEAK DATA: 20.03 G @ 28.72 MS; -22.68 G @ 23.12 MS

CHANNEL: ROKZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY



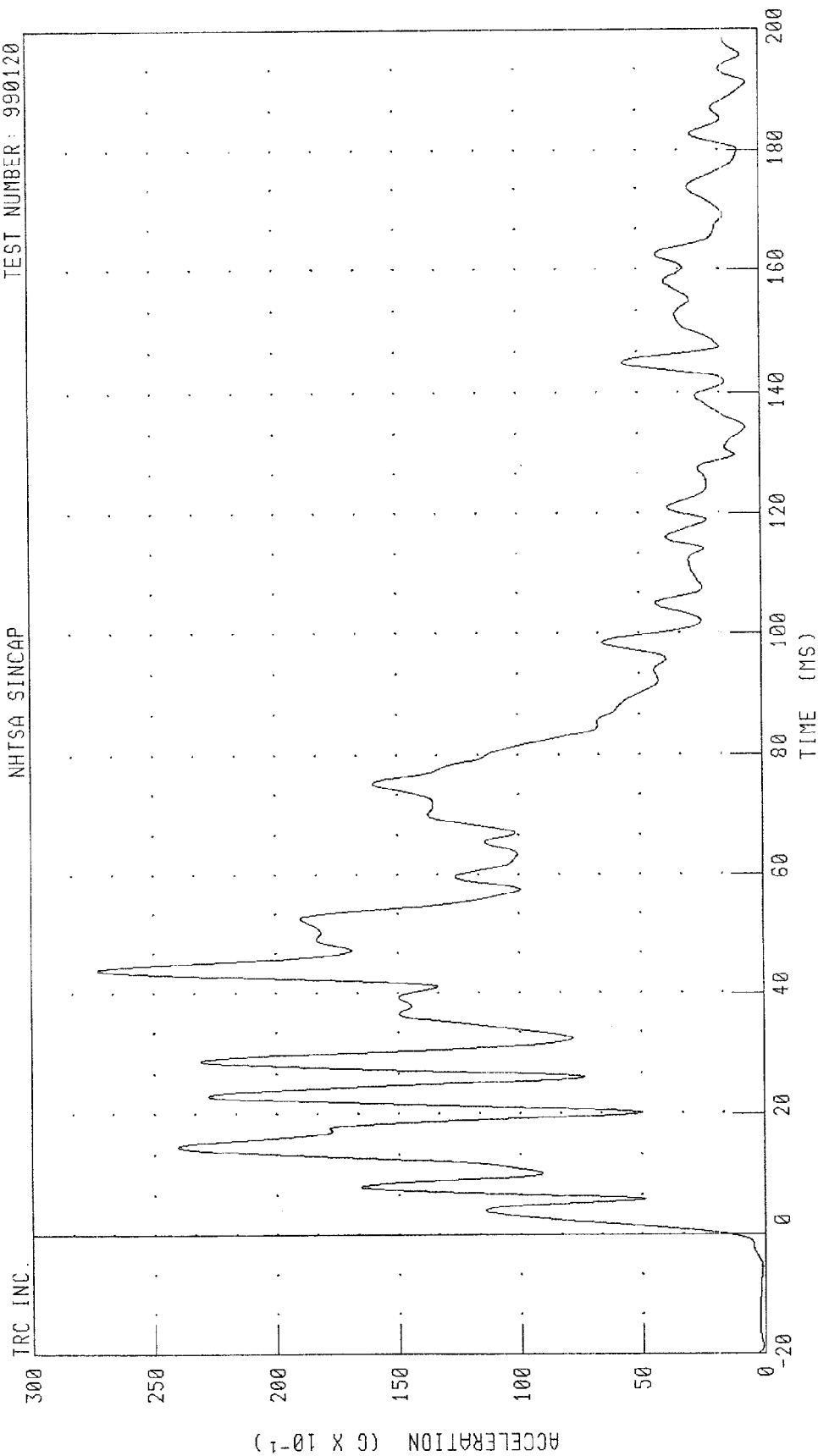
CHANNEL: RDKZV1 FILTER: CH. CLASS 180

PEAK DATA: 1.61 KM/H @ 6.40 MS; -4.53 KM/H @ 26.96 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP



PEAK DATA: 27.31 G @ 44.00 MS; 0.06 G @ -18.64 MS

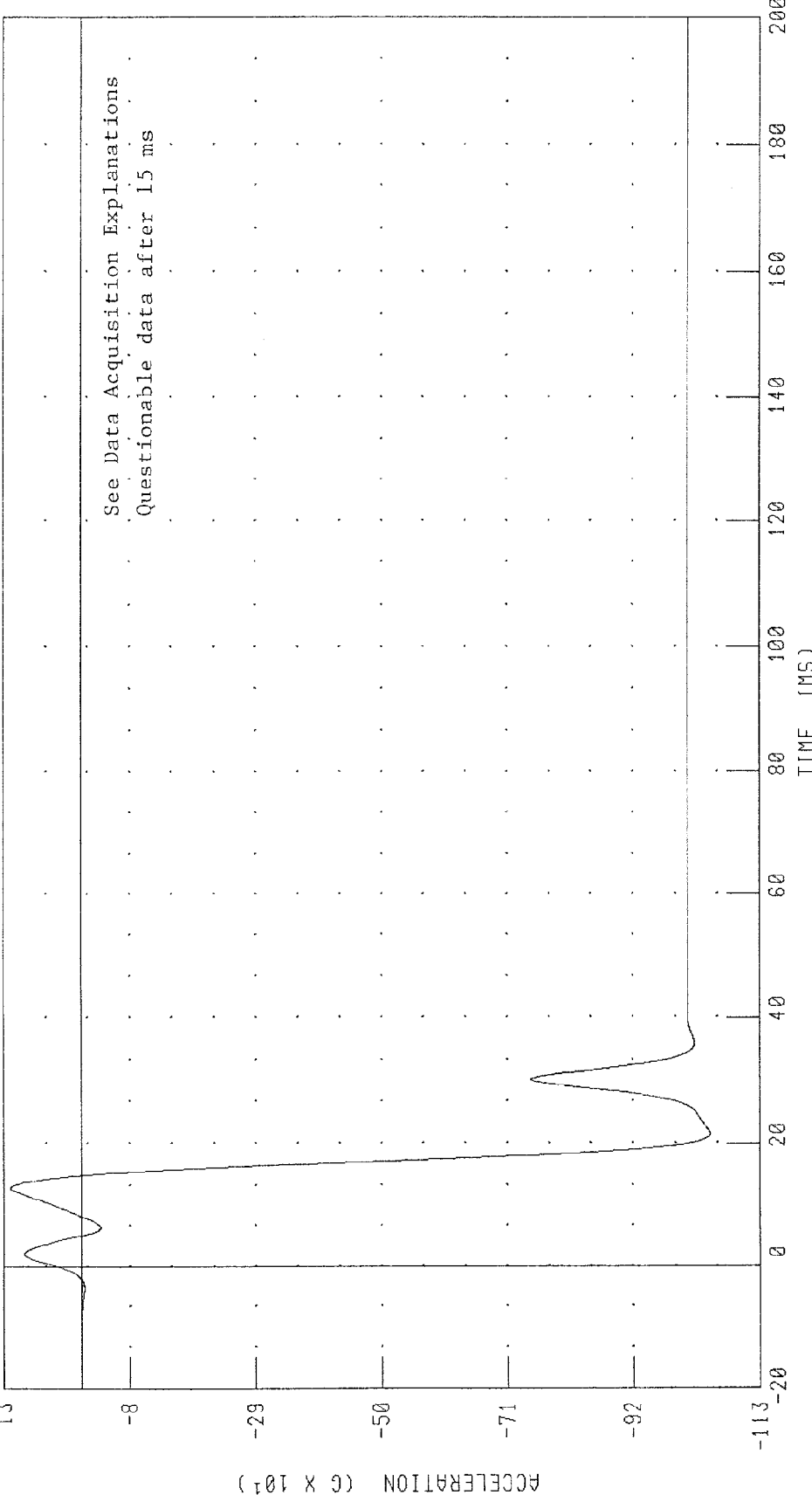
CHANNEL: RDKRC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

TEST NUMBER : 990120

NHTSA SINCAP

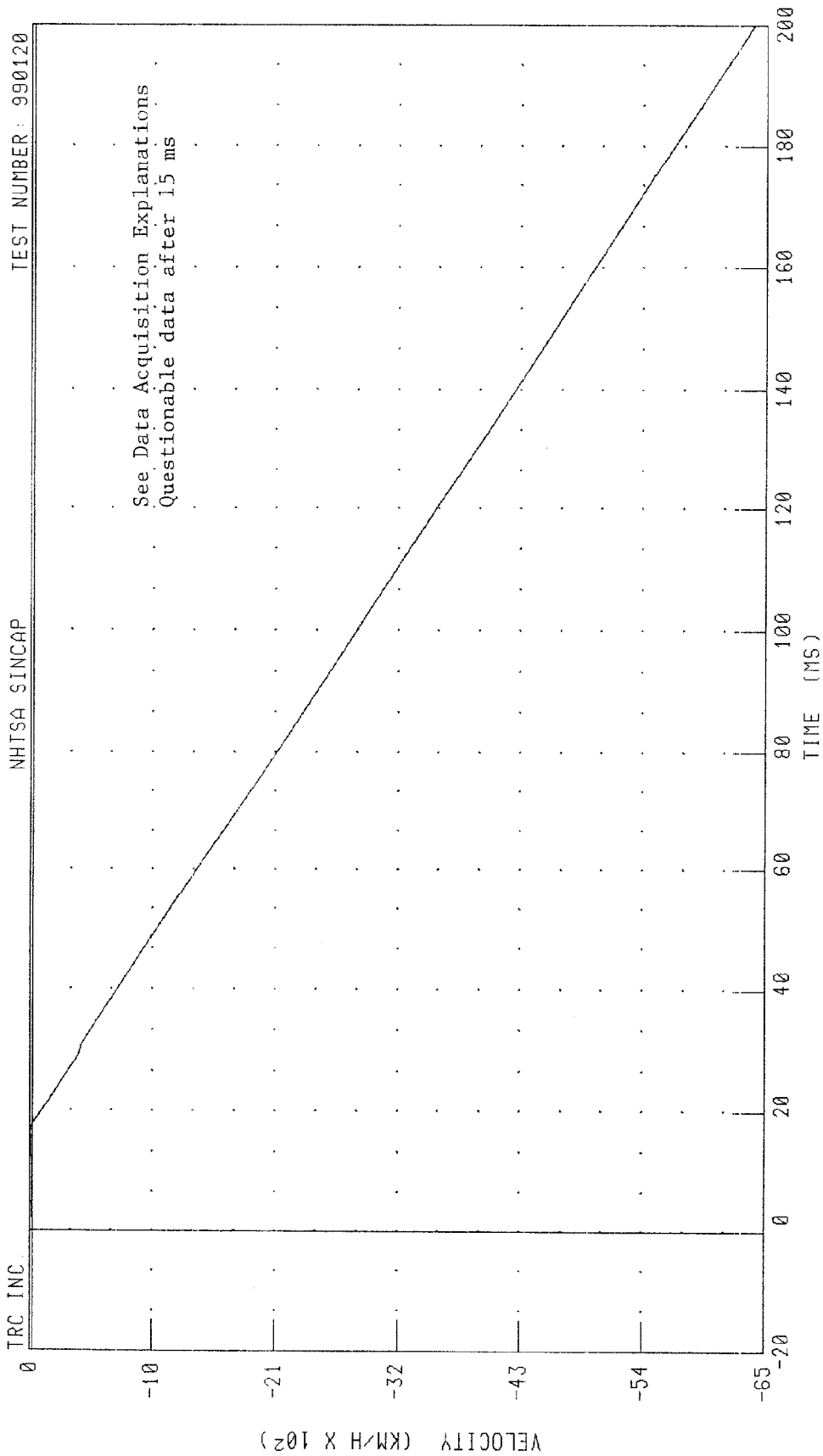
TRC INC.



PEAK DATA: 119.26 G @ 12.88 MS; -1047.86 G @ 21.52 MS

CHANNEL: LFSYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY



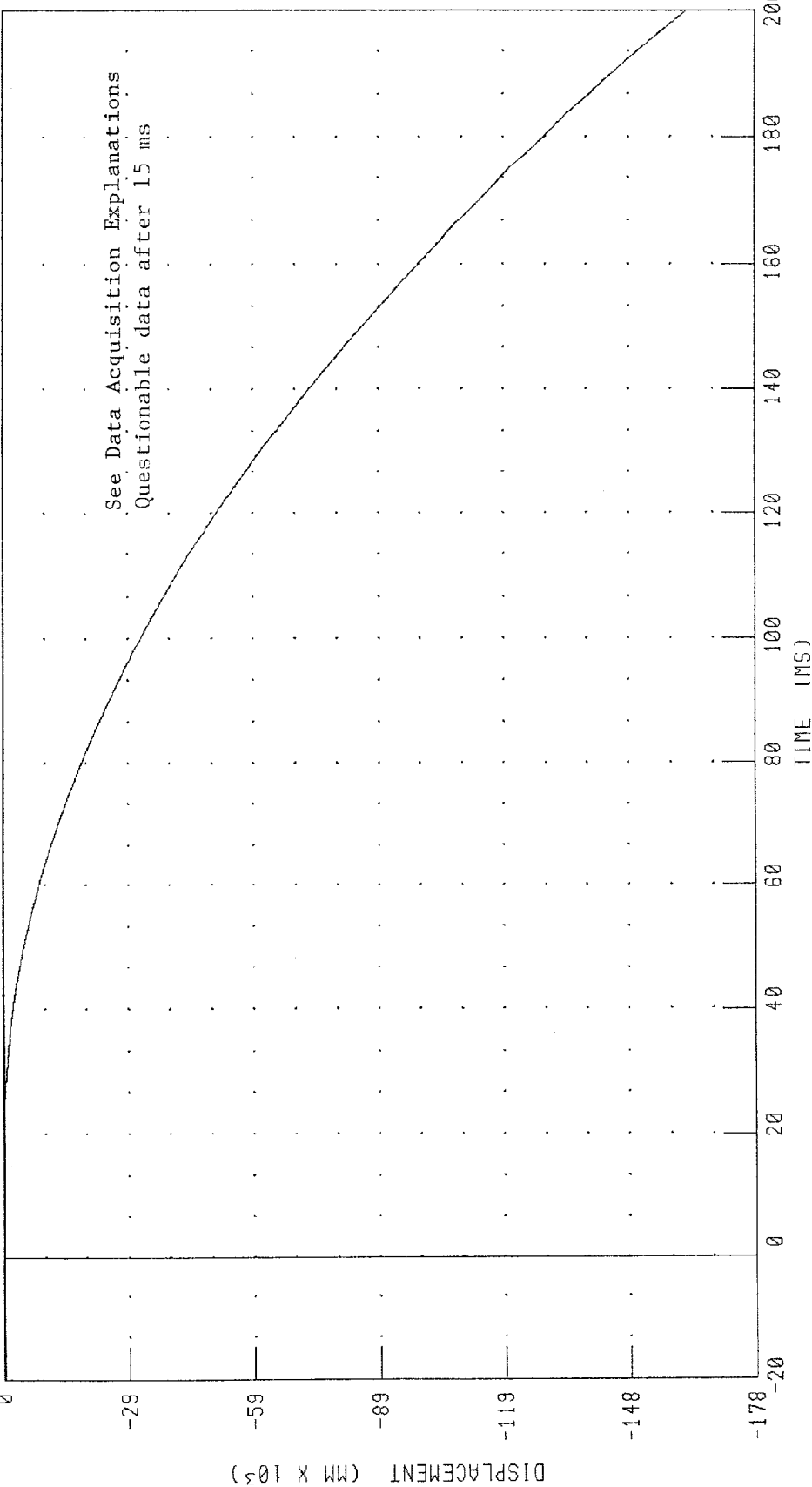
CHANNEL: LFSYV1 FILTER: CH. CLASS 180 PEAK DATA: 27.19 KM/H @ 16.40 MS; -6463.64 KM/H @ 200.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT SIDE SILL AT FRONT SEAT Y-AXIS DISPLACEMENT

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



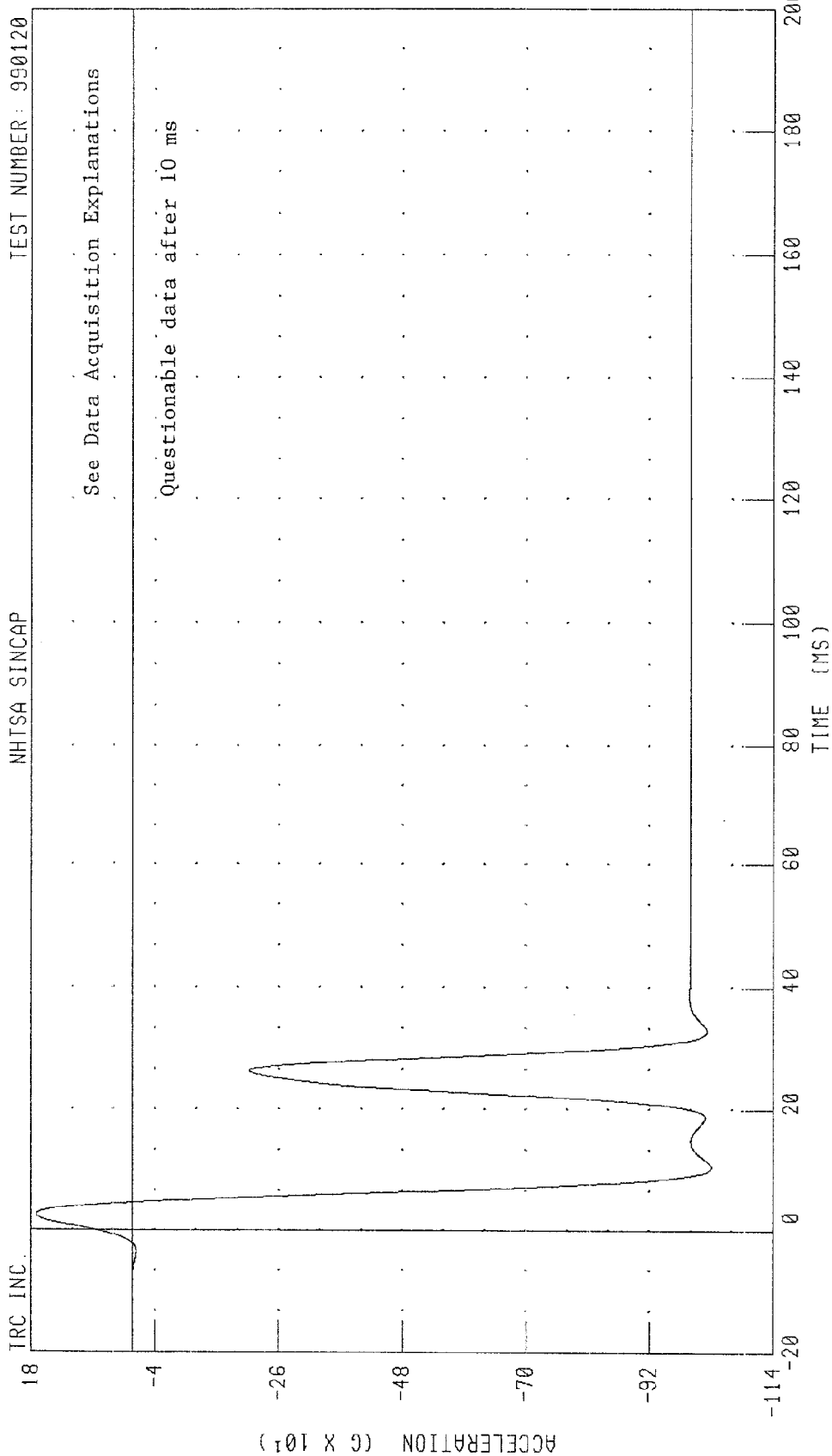
PEAK DATA: 70.05 MM @ 17.92 MS, -162652.33 MM @ 200.00 MS

CHANNEL: LFSYD1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP



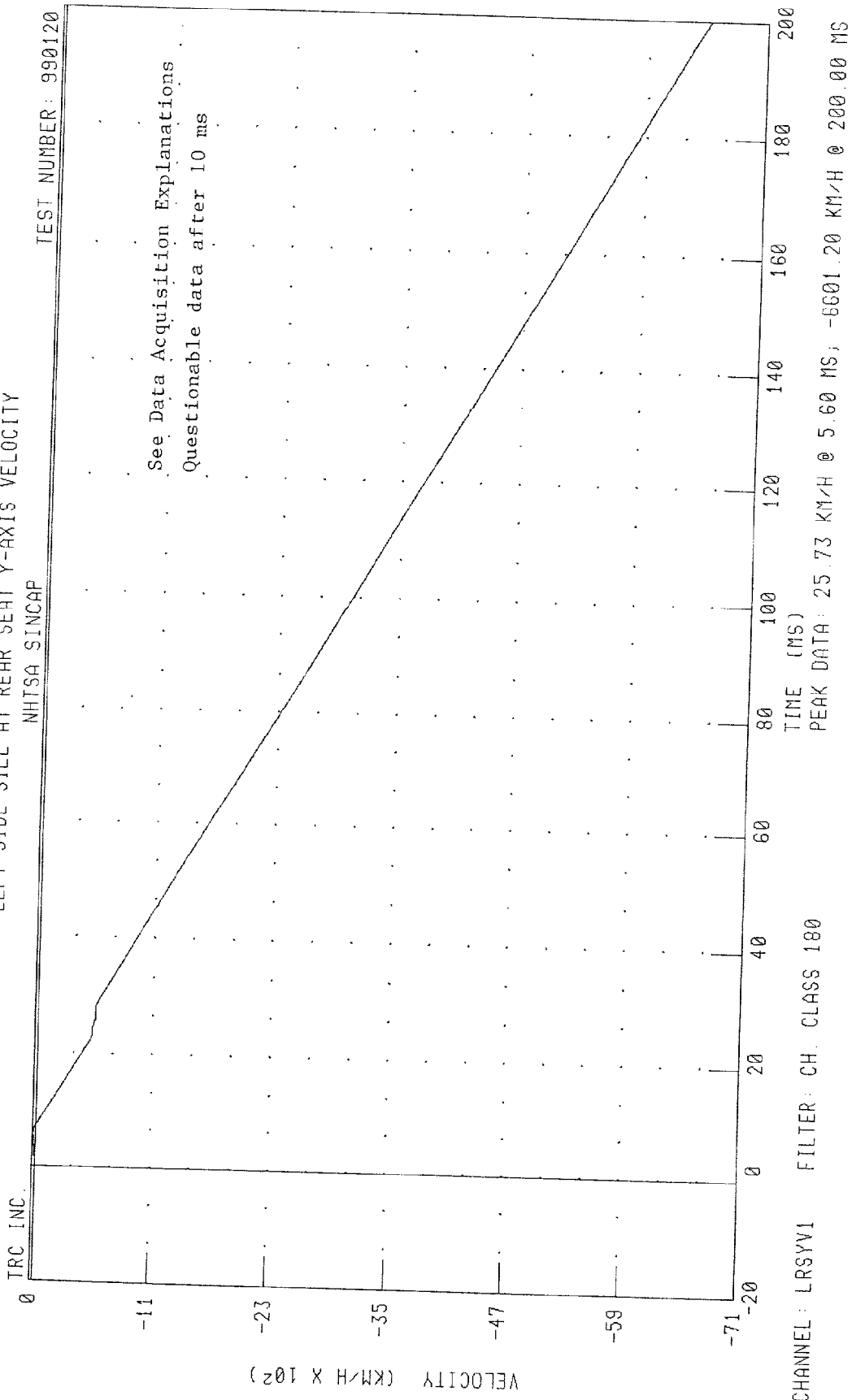
See Data Acquisition Explanations

Questionable data after 10 ms

PEAK DATA: 171.96 G @ 2.48 MS; -1029.99 G @ 10.56 MS

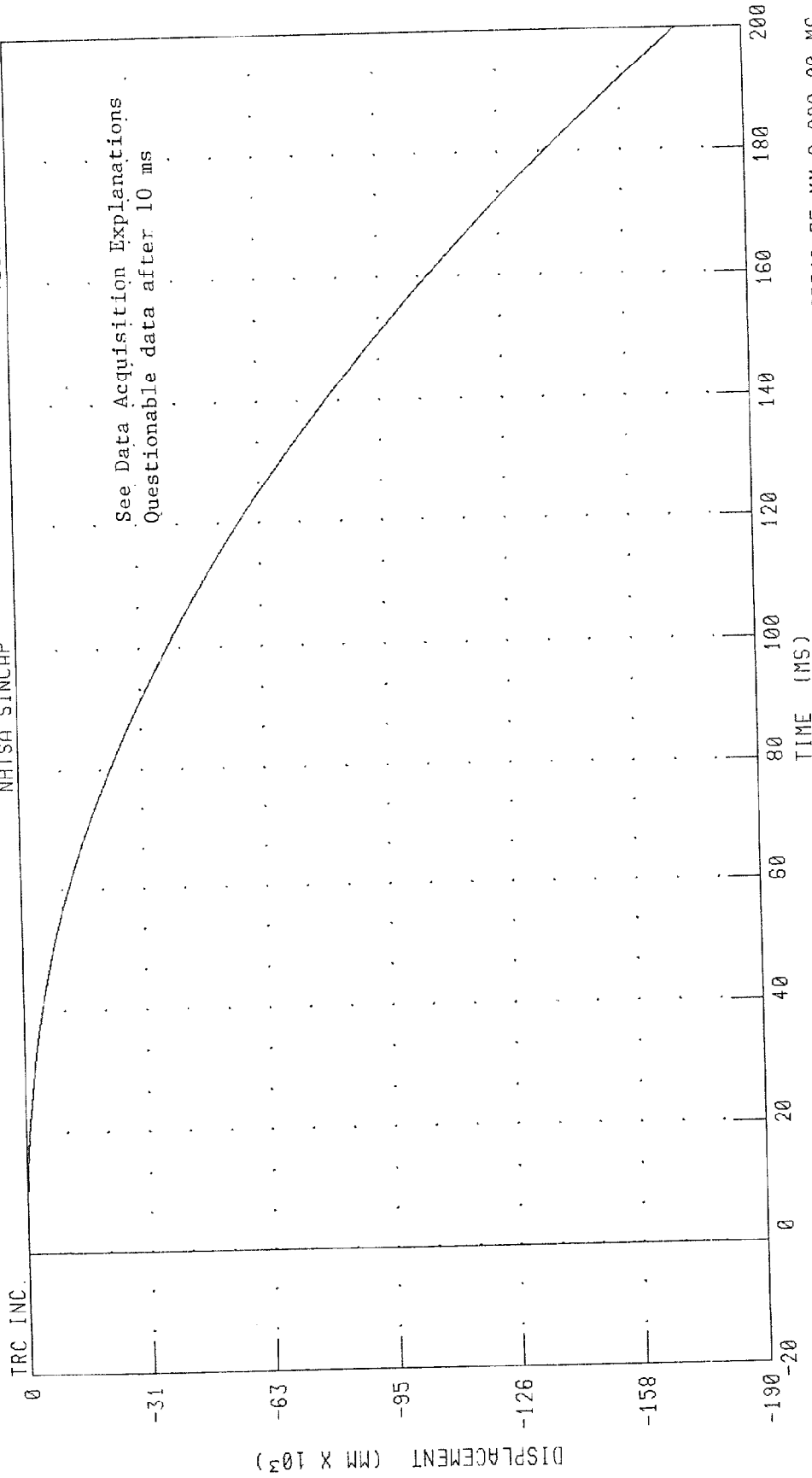
CHANNEL: LRSYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 LEFT SIDE SILL AT REAR SEAT Y-AXIS DISPLACEMENT
 NHTSA SINCAP

TEST NUMBER: 990120



PEAK DATA: 26.37 MM @ 7.12 MS; -173346.75 MM @ 200.00 MS

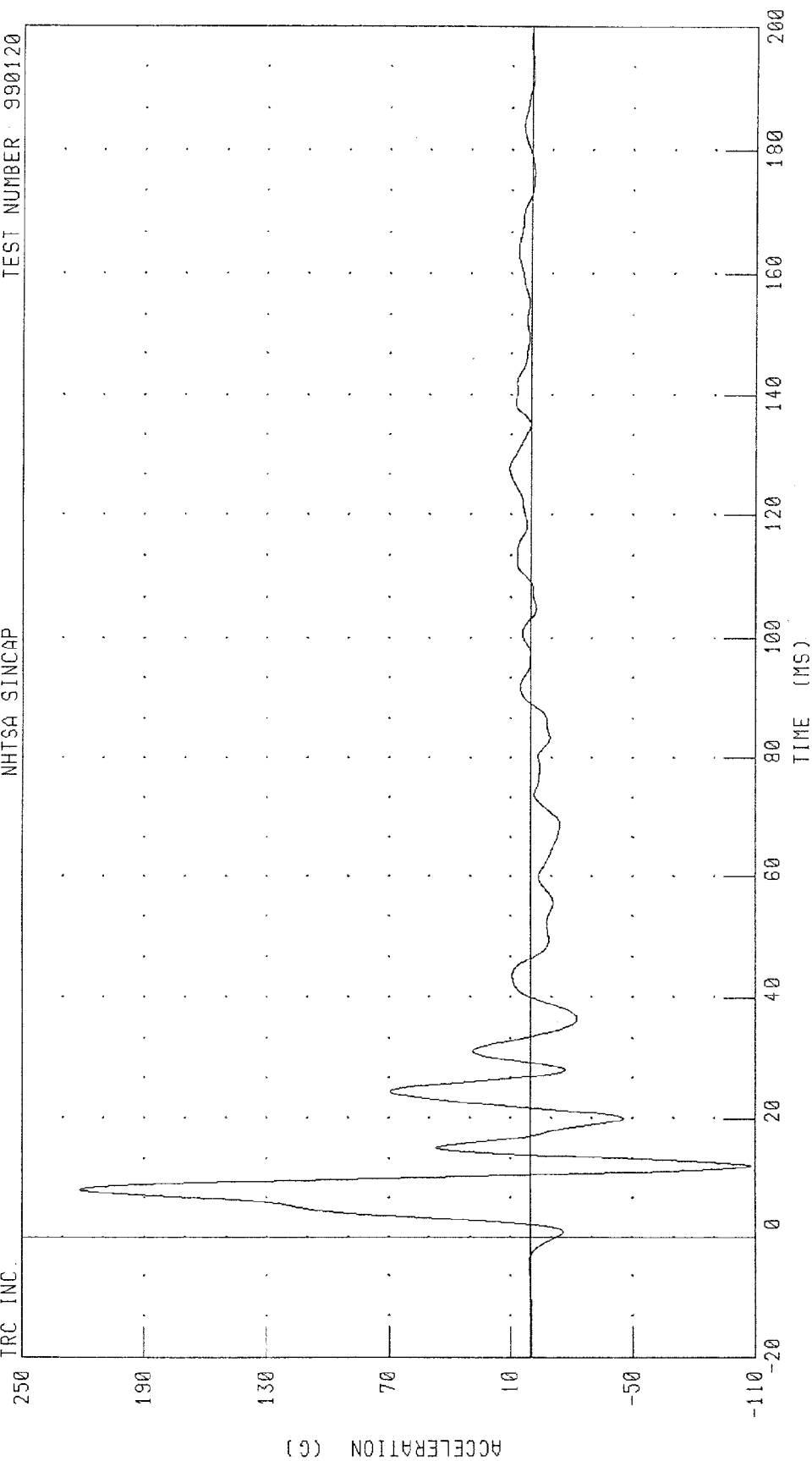
CHANNEL: LRSYD1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT FRONT DOOR ON CENTERLINE Y-AXIS ACCELERATION

TEST NUMBER 990120

NHTSA SINCAP

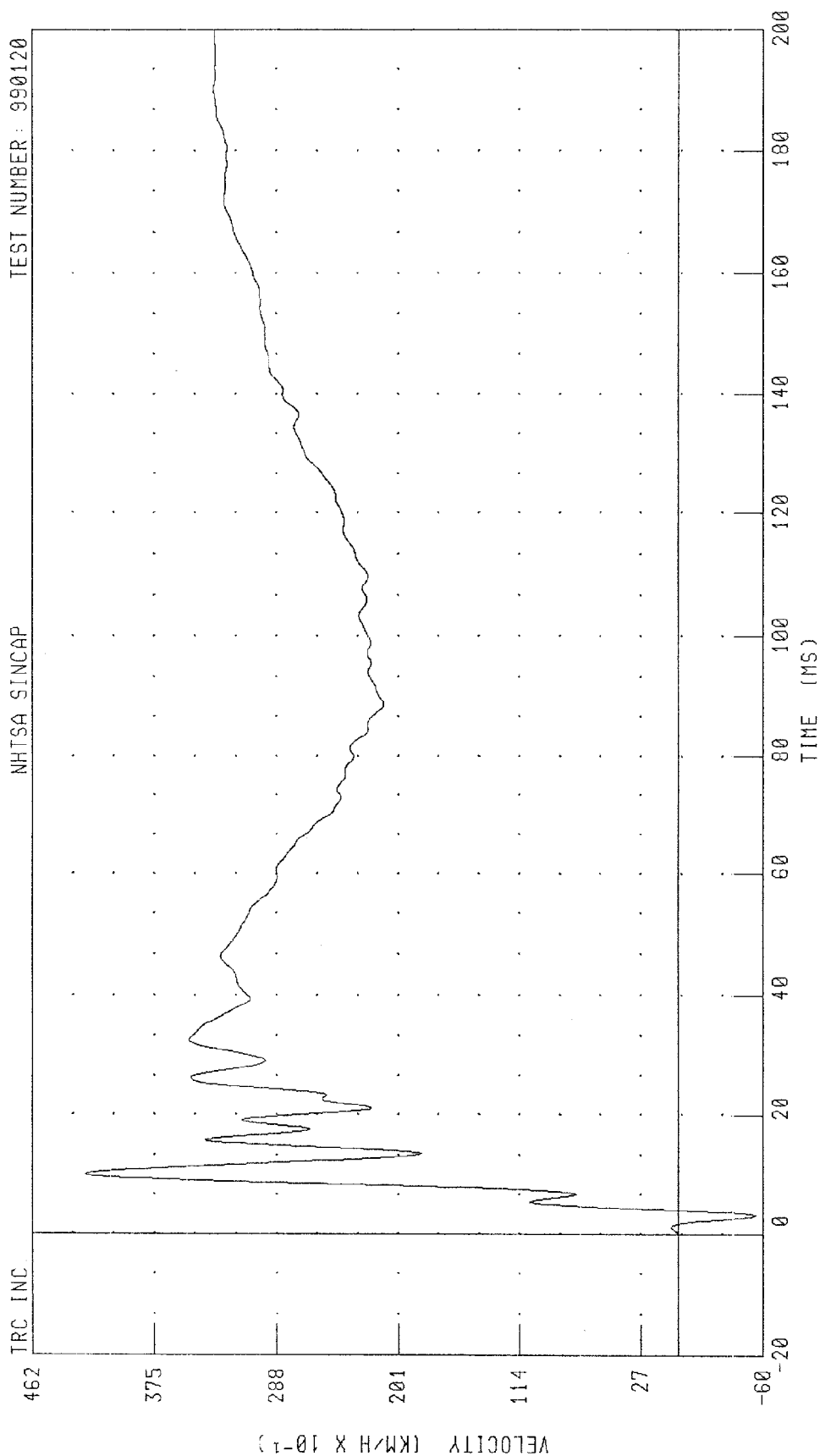
TRC INC.



CHANNEL: LFCYG1 FILTER: CH. CLASS 60

PEAK DATA: 221.79 308.16 MS; -108.01 G @ 12.08 MS

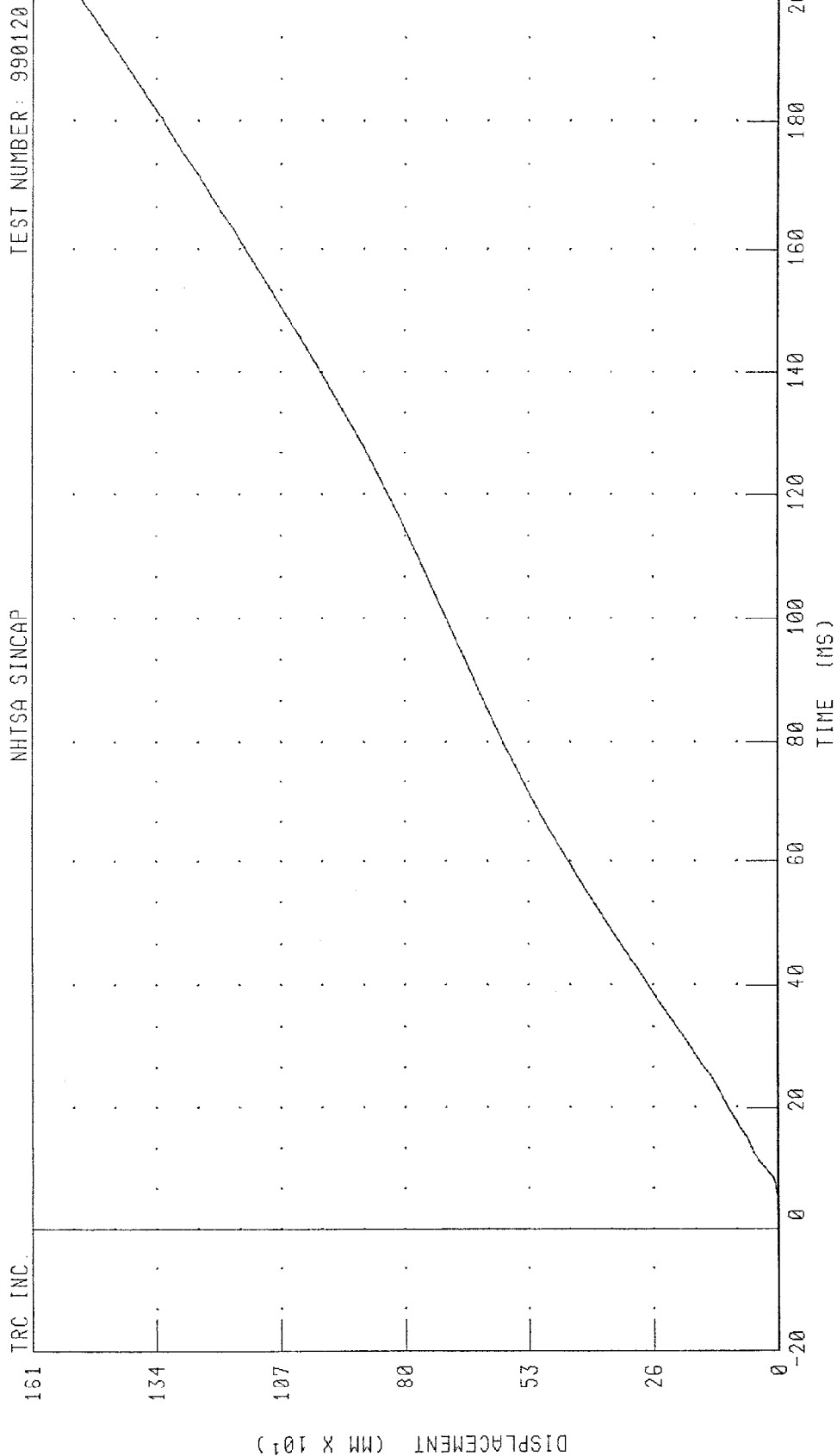
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT FRONT DOOR ON CENTERLINE Y-AXIS VELOCITY



PEAK DATA: 42.40 KM/H @ 10.16 MS; -5.46 KM/H @ 3.12 MS

CHANNEL: LFCYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT FRONT DOOR ON CENTERLINE Y-AXIS DISPLACEMENT



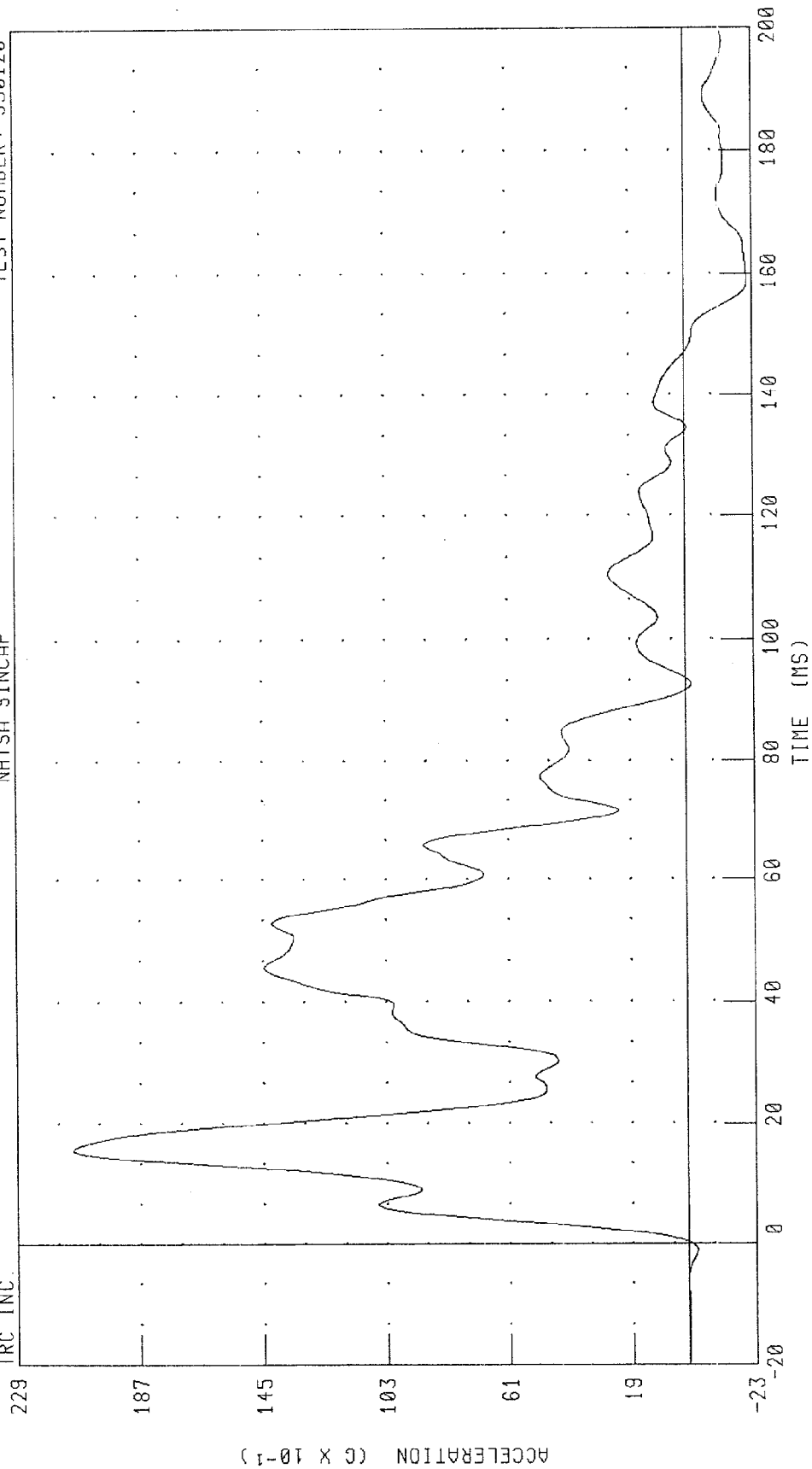
CHANNEL: LFCY01 FILTER: CH. CLASS 180 PEAK DATA: 1515.77 MM @ 200.00 MS; -1.88 MM @ 4.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

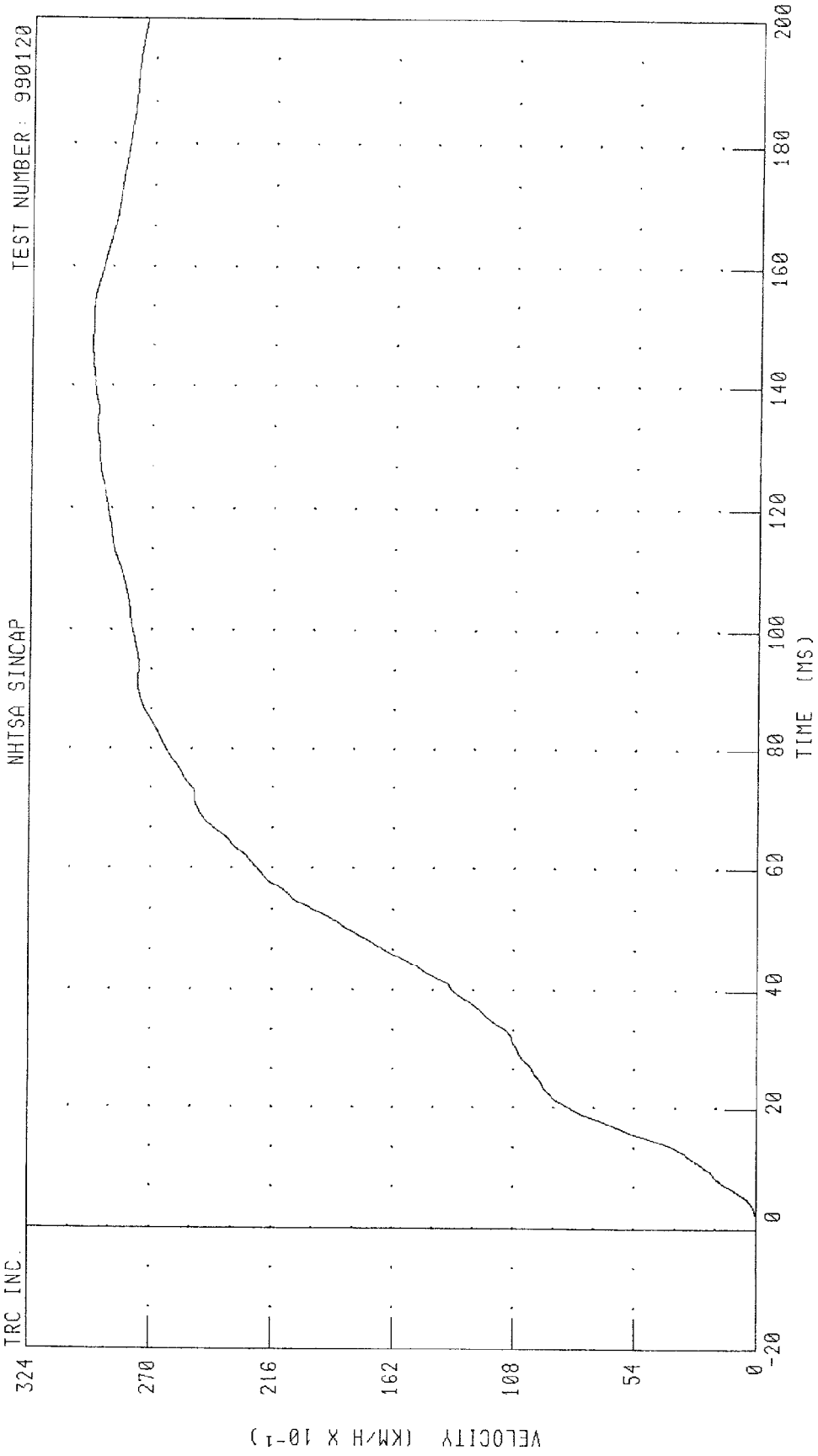
TRC INC.



PEAK DATA: 21.00 G @ 15.60 MS, -2.13 G @ 158.72 MS

CHANNEL: RRTYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY



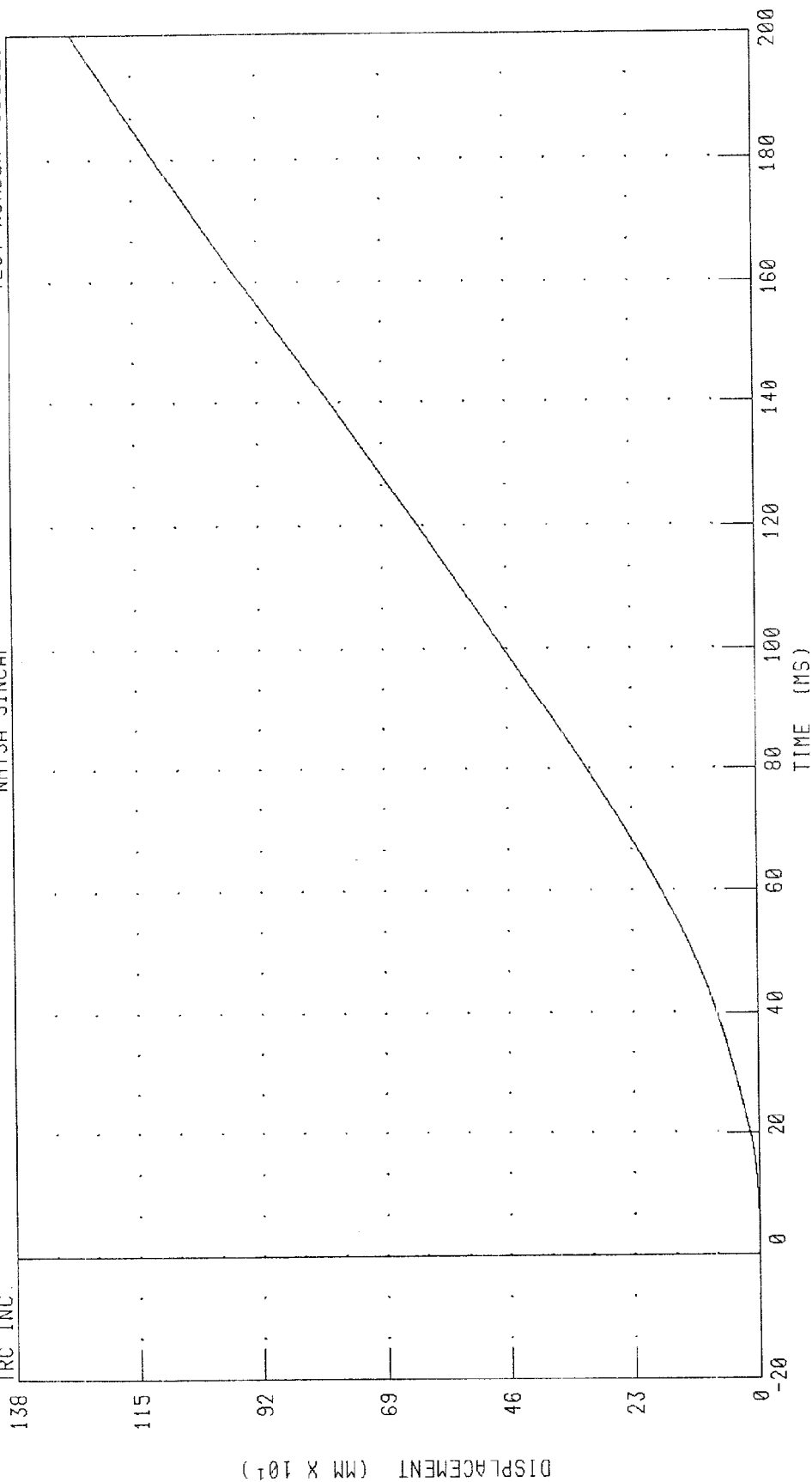
CHANNEL: RRTYV1 FILTER: CH. CLASS 180 PEAK DATA: 29.70 KM/H @ 146.48 MS; -0.01 KM/H @ 1.44 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT

TEST NUMBER: 990120

NHTSA SINCAP

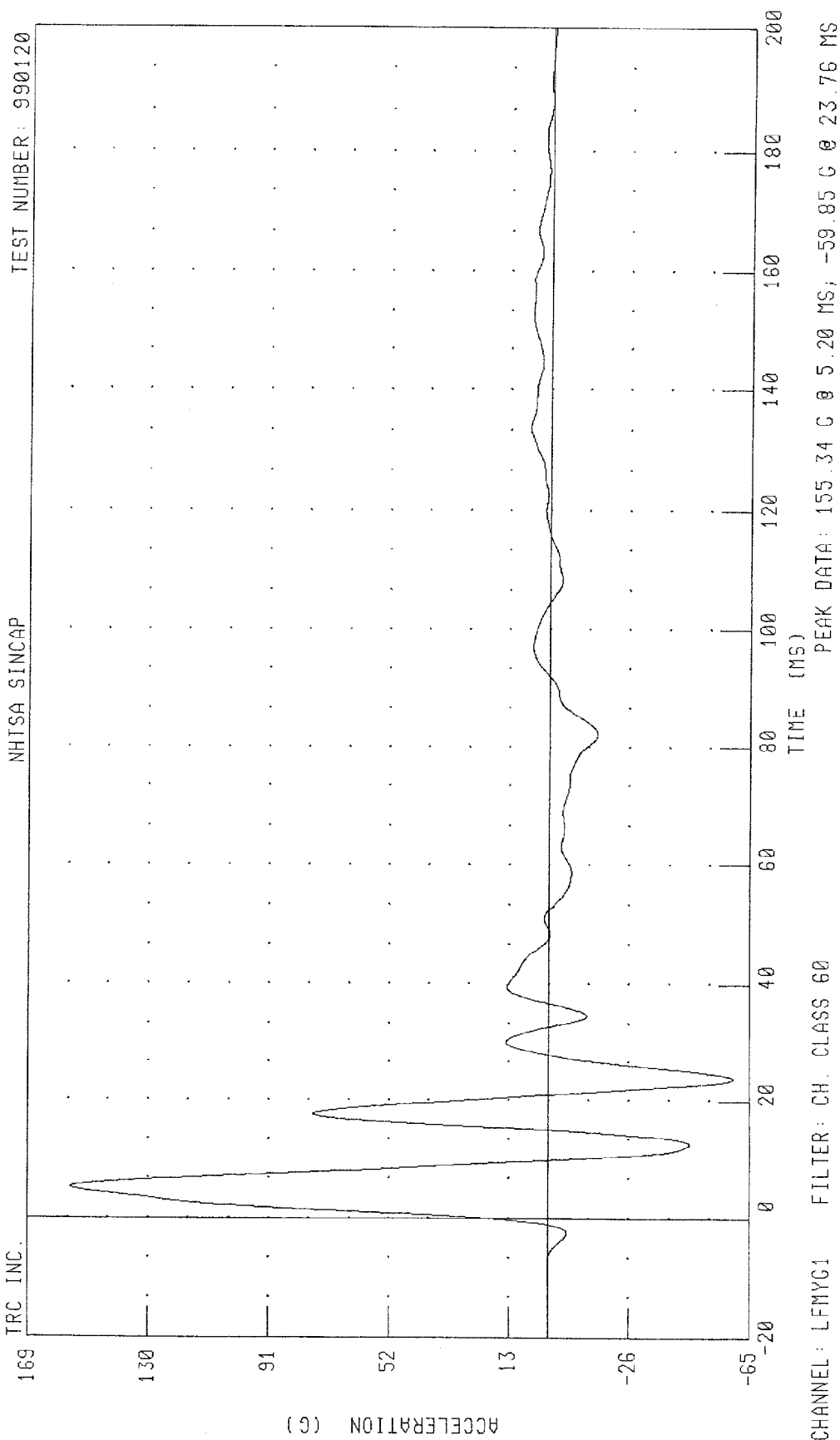
TRC INC.



PEAK DATA: 1262.77 MM @ 200.00 MS; 0.00 MM @ 1.92 MS

CHANNEL: RRTYD1 FILTER: CH. CLASS 180

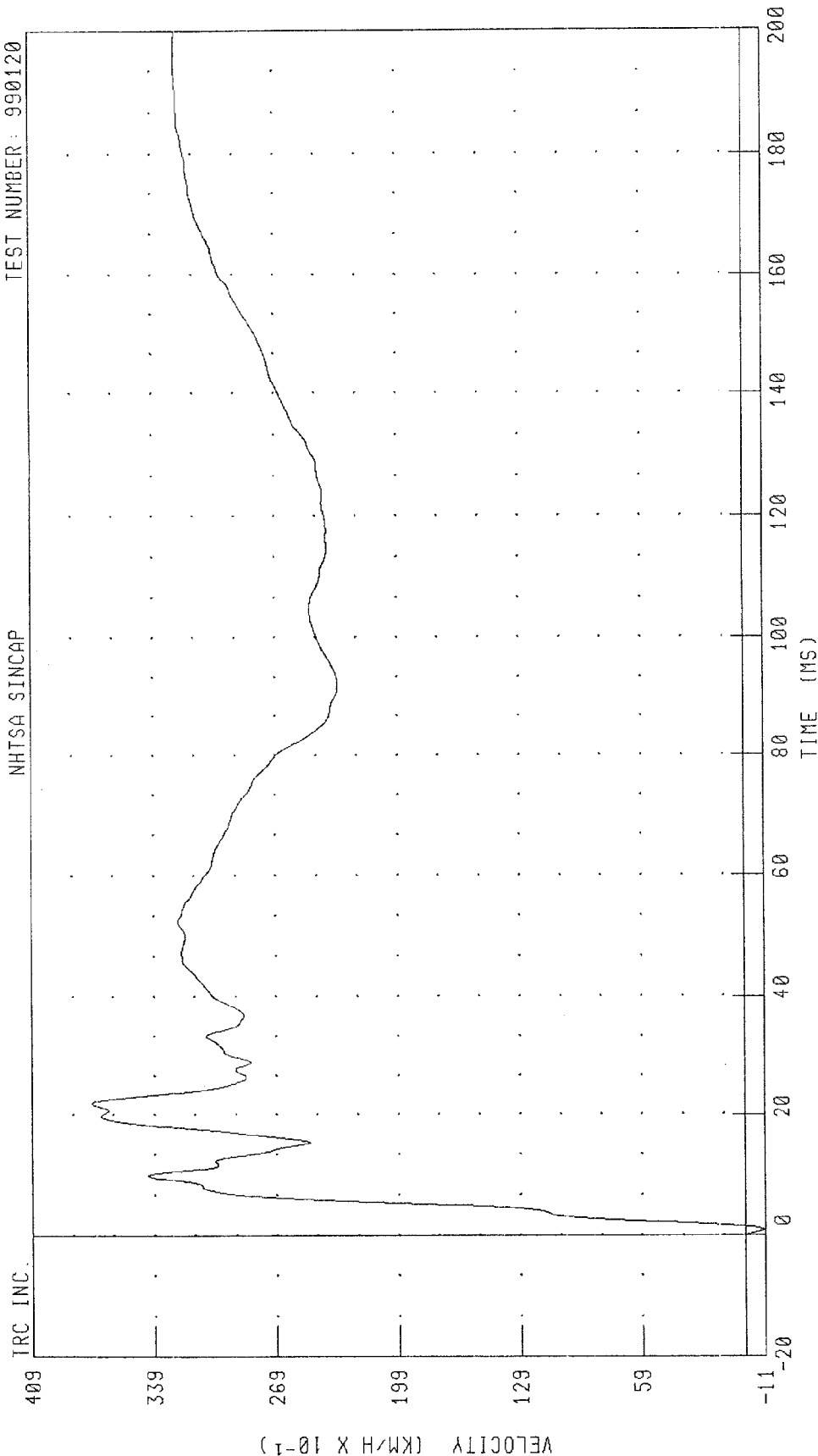
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MID-REAR OF LEFT FRONT DOOR Y-AXIS ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MID-REAR OF LEFT FRONT DOOR Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP



PEAK DATA: 37.46 KM/H @ 22.08 MS; -1.04 KM/H @ 0.88 MS

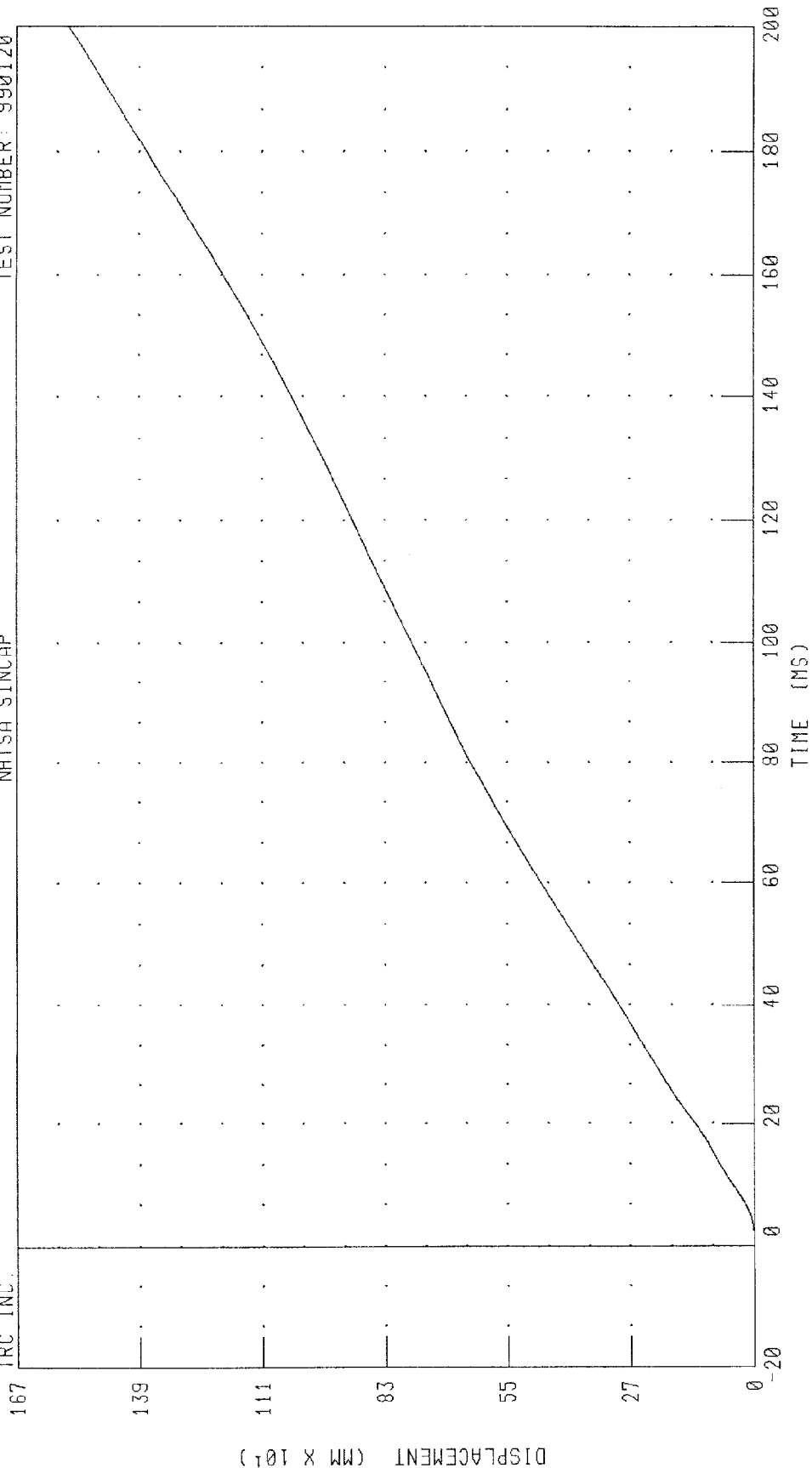
CHANNEL: LFMYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MID-REAR OF LEFT FRONT DOOR Y-AXIS DISPLACEMENT

TEST NUMBER: 990120

NHTSA SINCAP

IRC INC.



PEAK DATA: 1561.97 MM @ 200.00 MS; -0.25 MM @ 1.44 MS

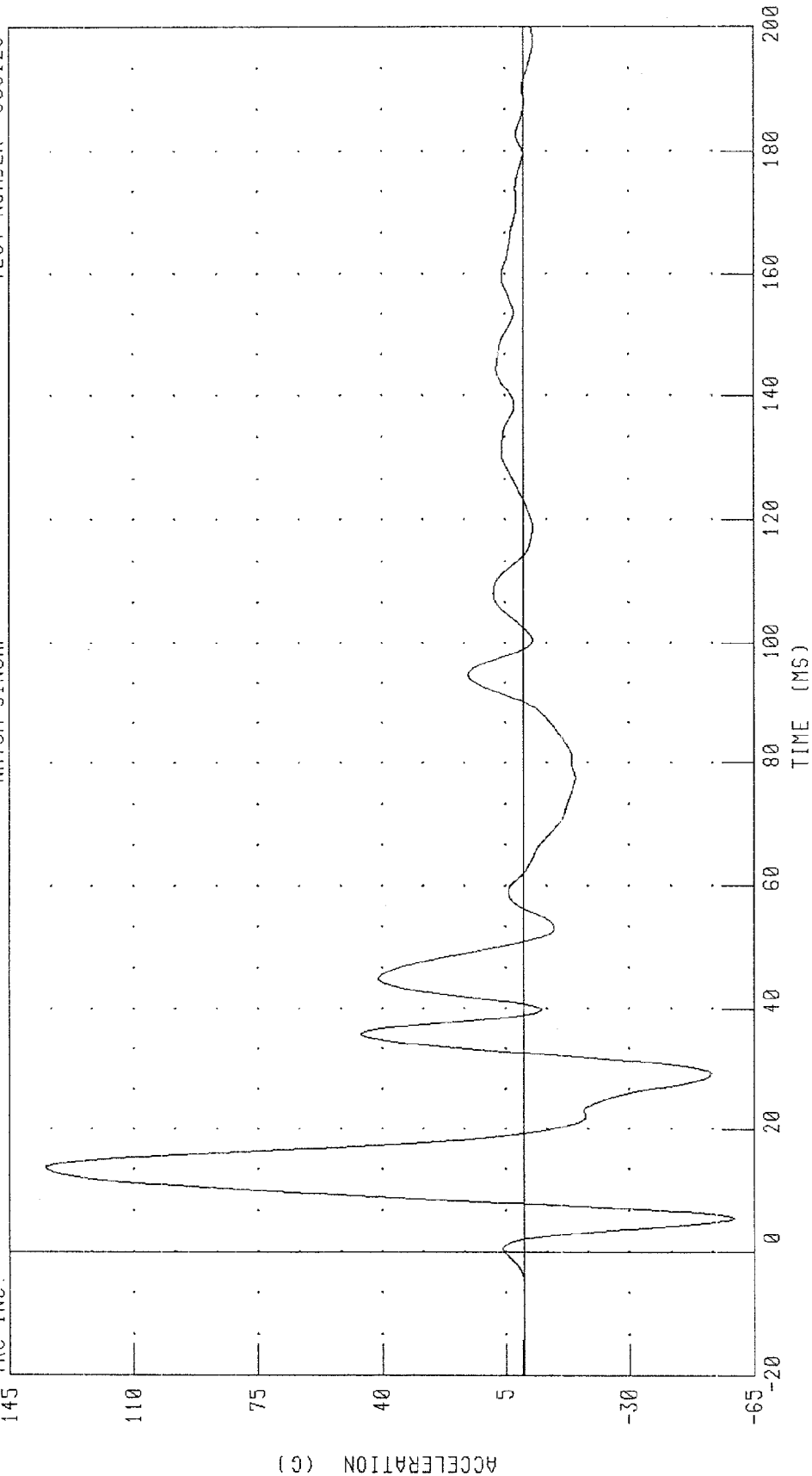
CHANNEL: LFMYD1 FILTER: CH CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

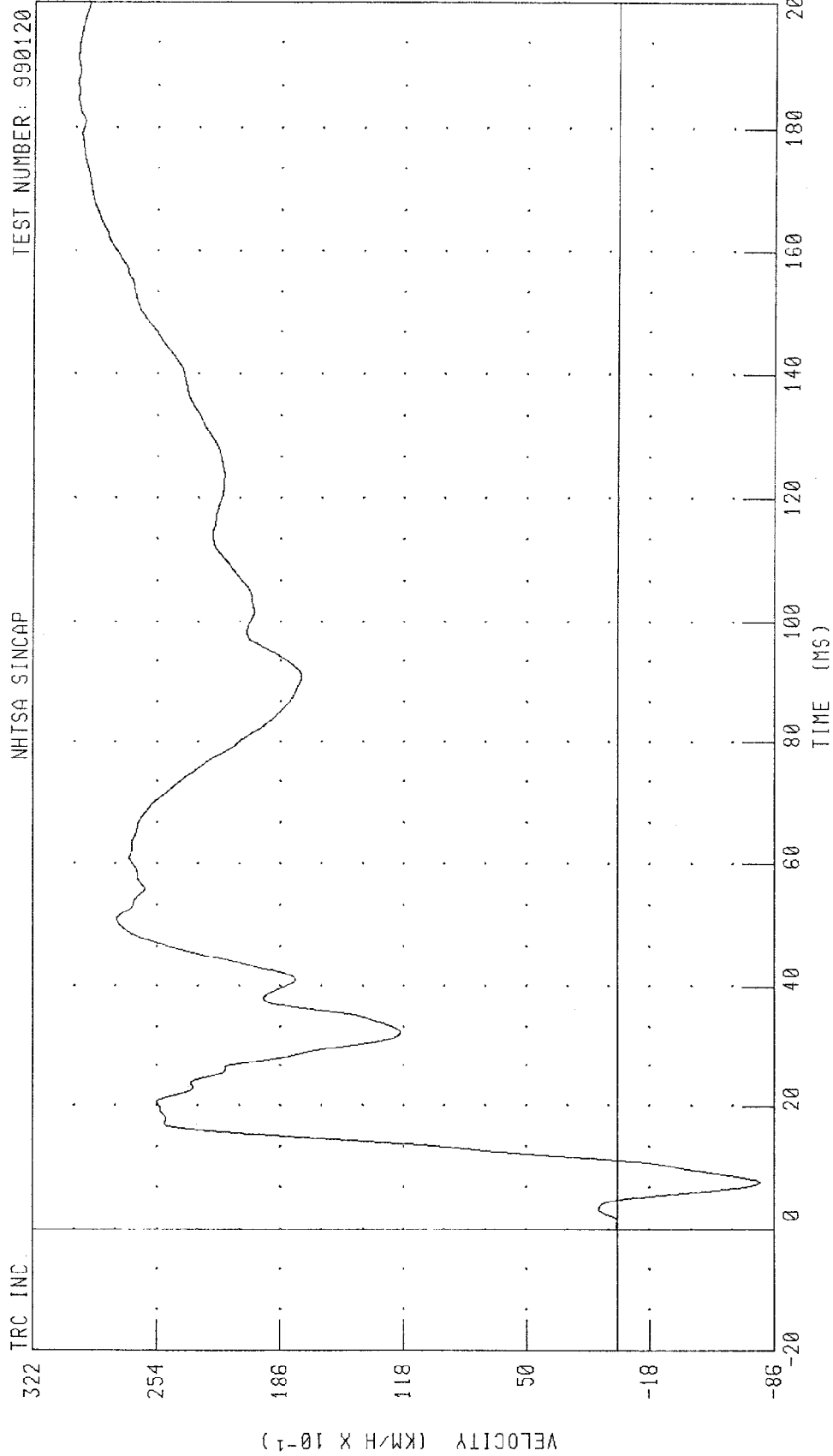
IRC INC.



PEAK DATA: 134.78 G @ 13.60 MS; -59.29 G @ 5.52 MS

CHANNEL: LFUYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS VELOCITY
 NHTSA SINCAP



CHANNEL: LFUYV1 FILTER: CH. CLASS 180

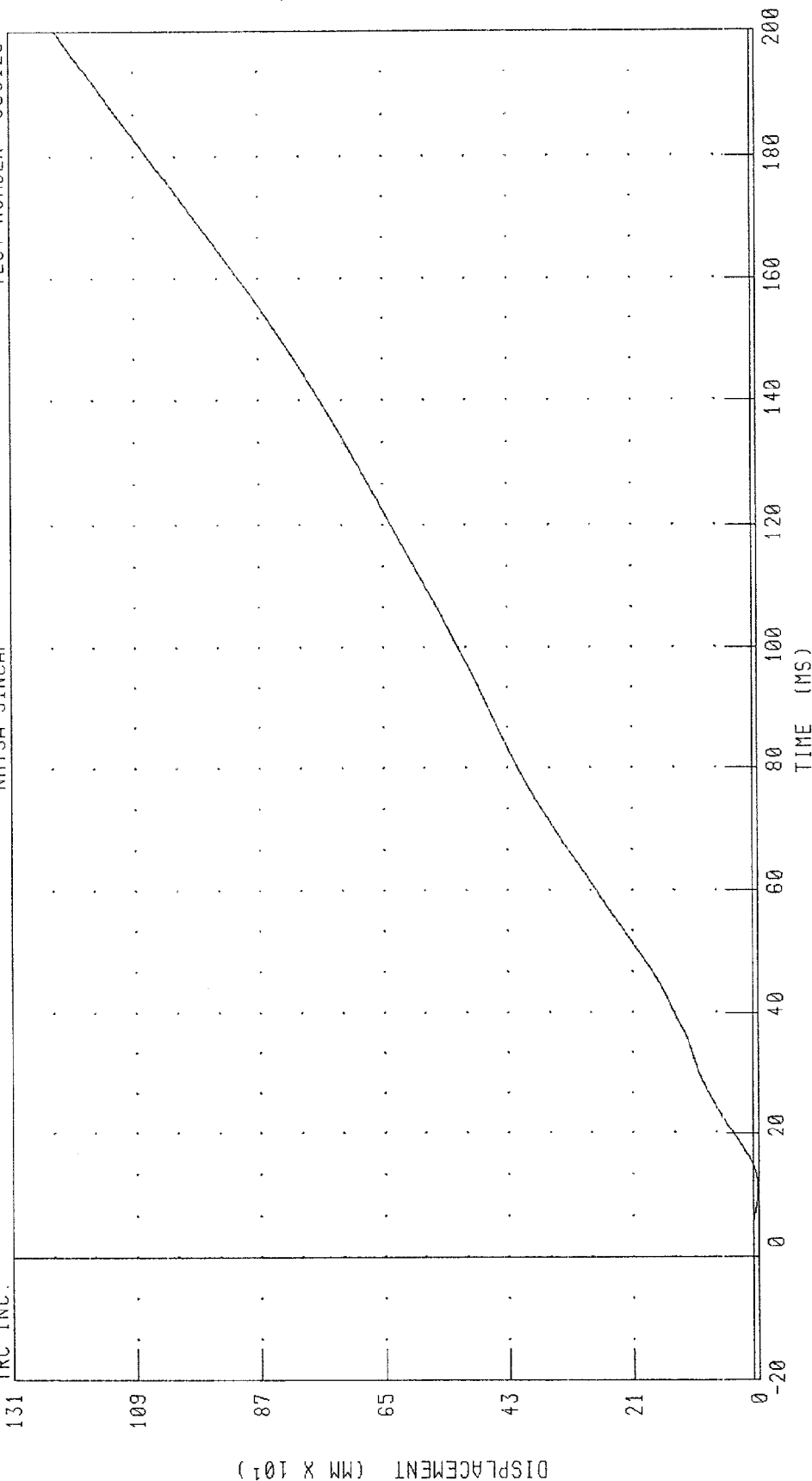
PEAK DATA: 29.79 KM/H @ 187.20 MS; -7.83 KM/H @ 7.44 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT

TEST NUMBER: 990120

NHTSA SINCAP

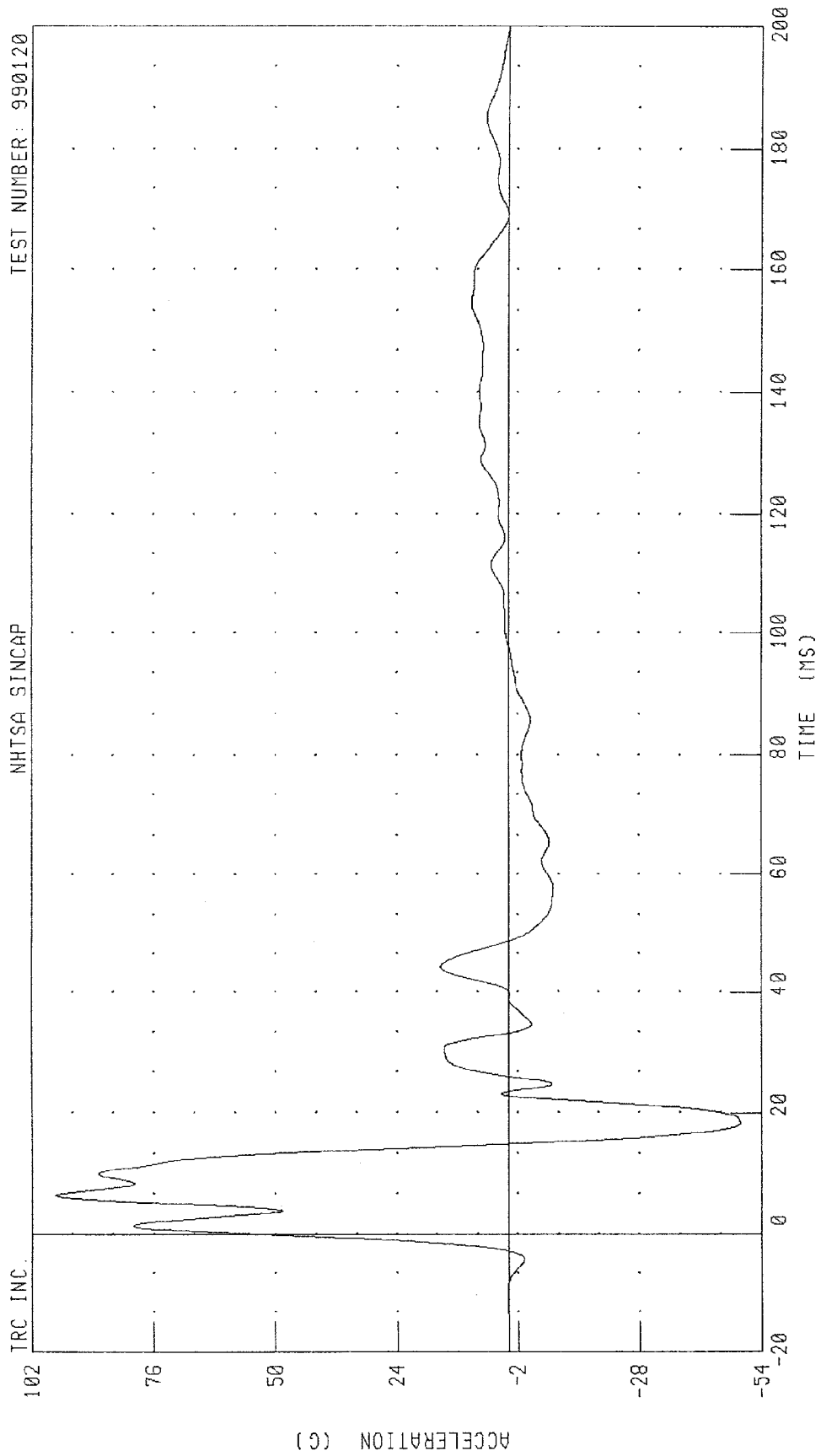
TRC INC.



PEAK DATA: 1231.18 MM @ 200.00 MS; -7.74 MM @ 11.20 MS

CHANNEL: LFUYD1 FILTER: CH. CLASS 180

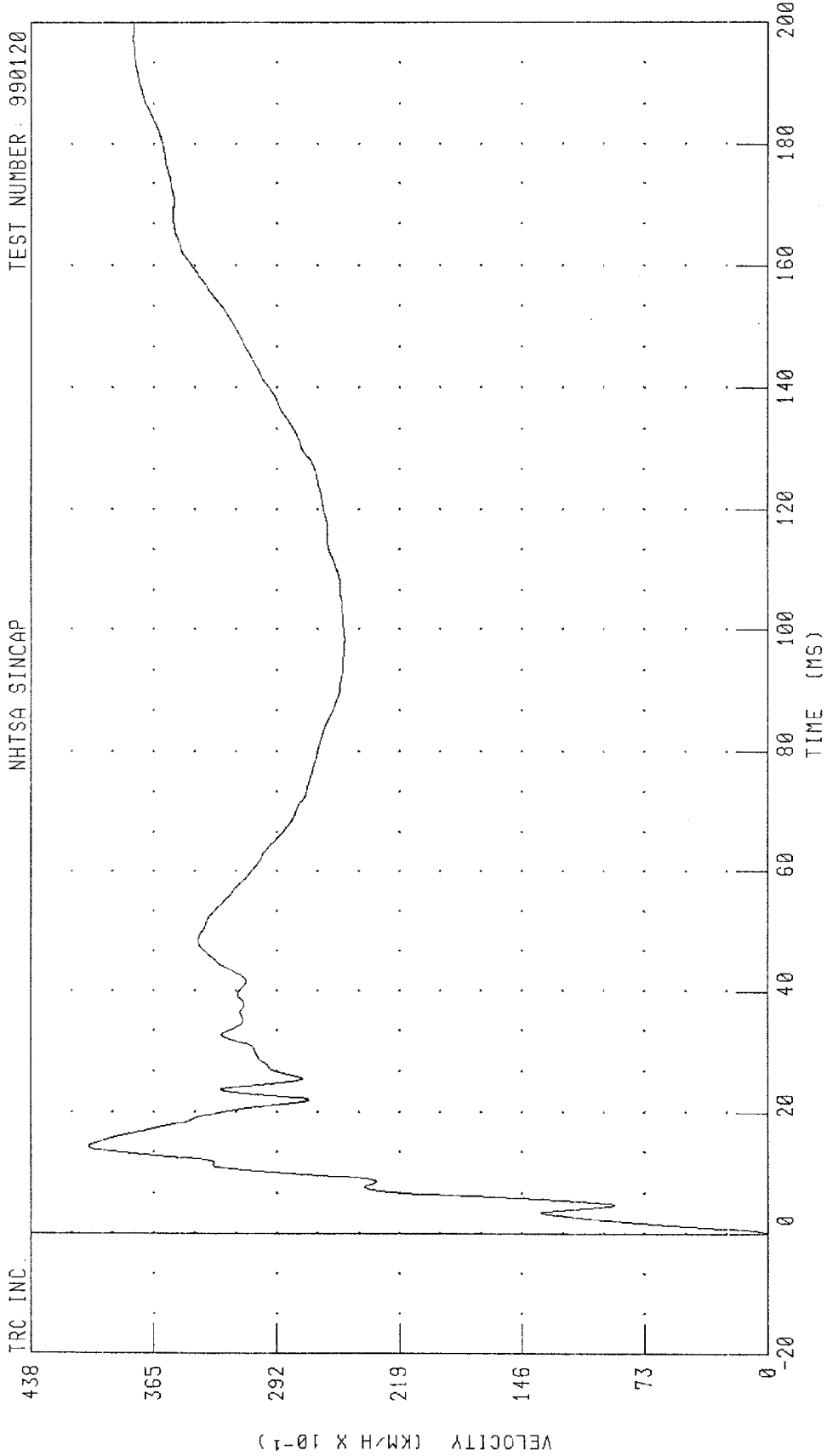
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR DOOR MIDREAR Y-AXIS ACCELERATION



CHANNEL: LRMVG1 FILTER: CH. CLASS 60

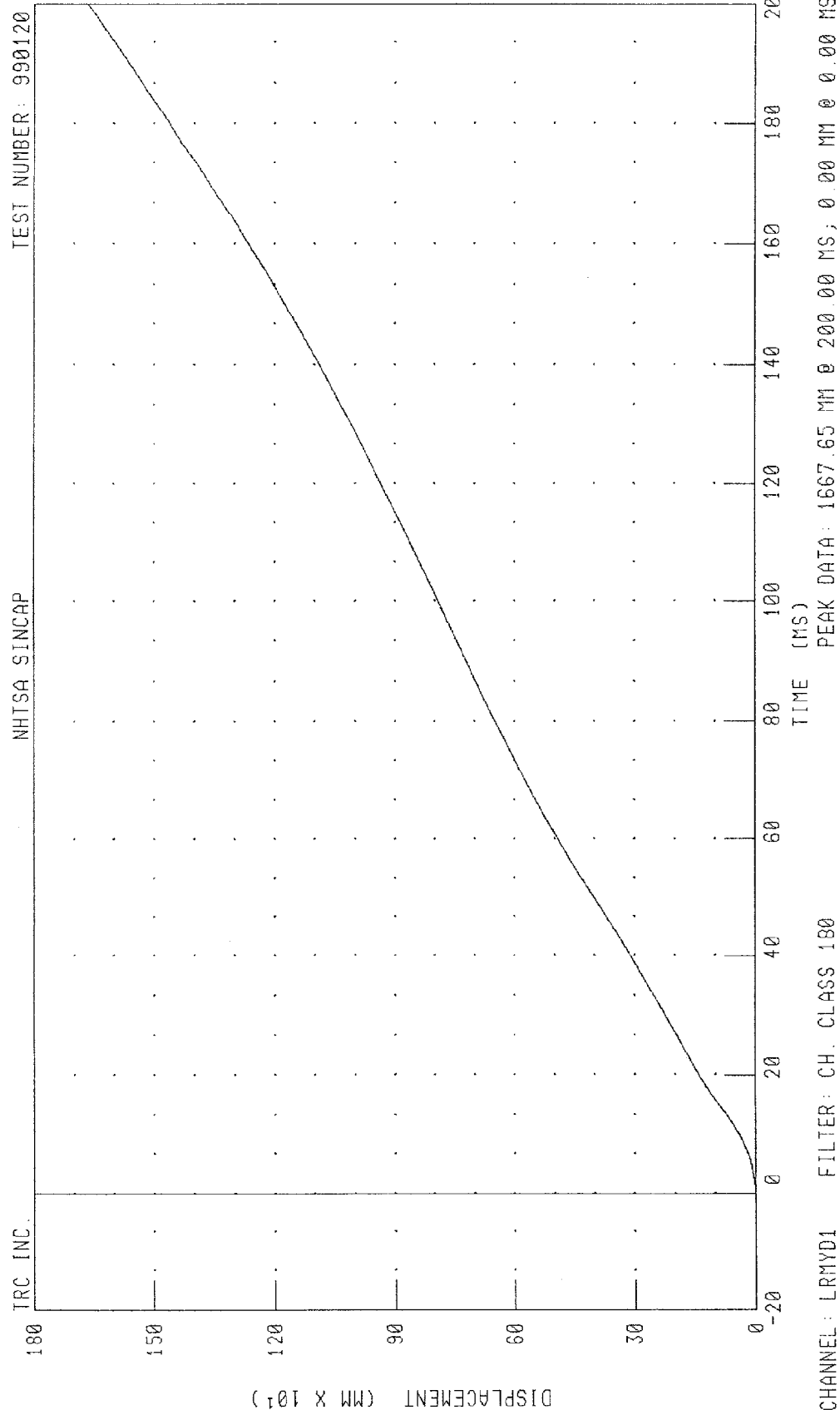
PEAK DATA: 96.94 G @ 6.40 MS; -49.62 G @ 18.32 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR DOOR MIDREAR Y-AXIS VELOCITY



CHANNEL: LRMV1 FILTER: CH. CLASS 180 PEAK DATA: 40.36 KM/H @ 14.32 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 LEFT REAR DOOR MIDREAR Y-AXIS DISPLACEMENT
 NHTSA SINCAP

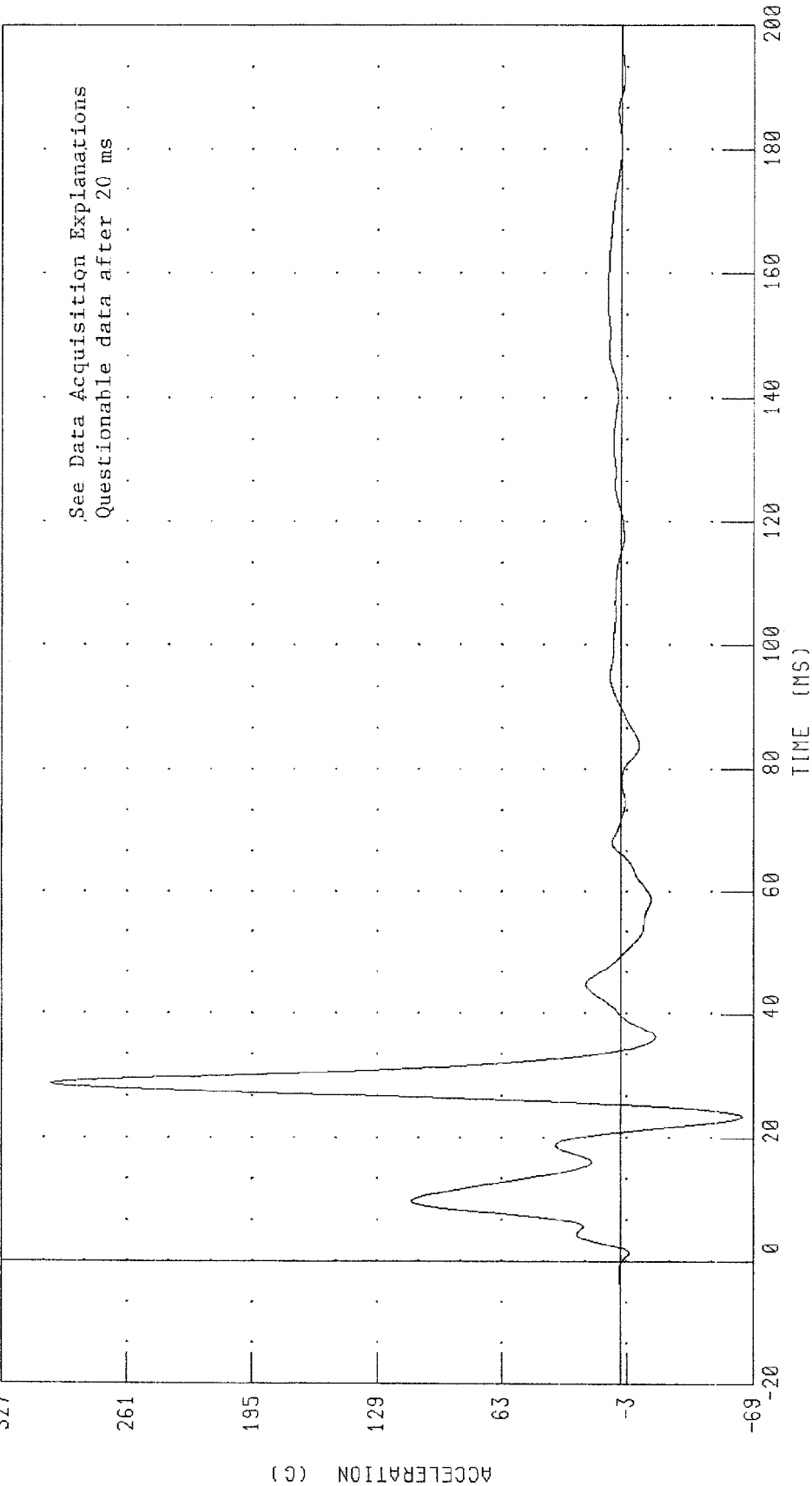


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

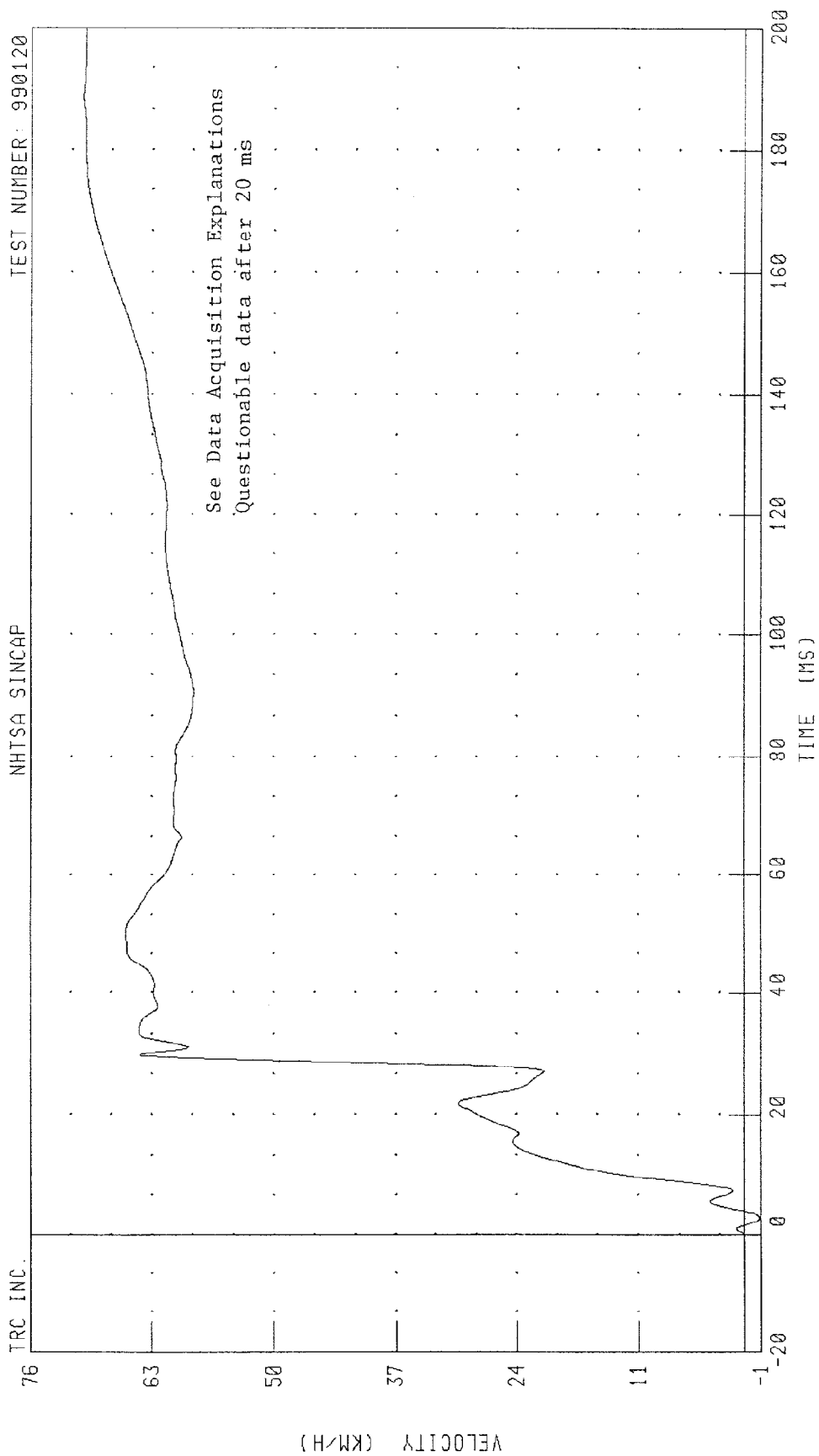
TRC INC.



PEAK DATA: 301.26 G @ 28.72 MS, -63.32 G @ 23.52 MS

CHANNEL: LRUVC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS VELOCITY



CHANNEL: LRUYV1 FILTER: CH. CLASS 180

PEAK DATA: 70.78 KM/H @ 188.64 MS, -1.61 KM/H @ 2.72 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.

347

289

DISPLACEMENT (MM X 10⁻¹)

231

173

115

57

0

-20

See Data Acquisition Explanations
Questionable data after 20 ms

TIME (MS)

200

180

160

140

120

100

80

60

40

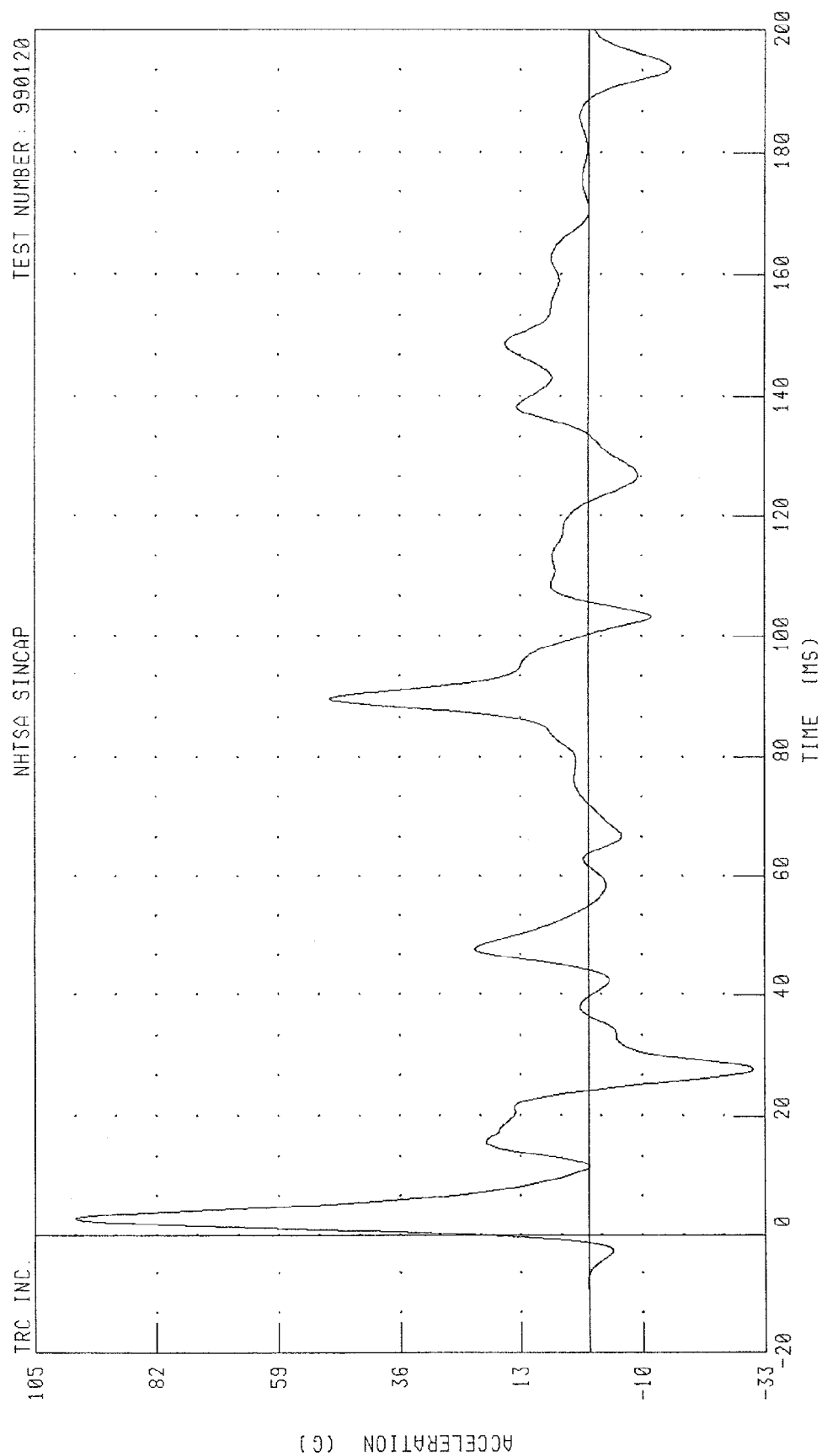
20

0

CHANNEL: LRUVD1 FILTER: CH. CLASS 180

PEAK DATA: 3188.32 MM @ 200.00 MS; -0.47 MM @ 3.92 MS

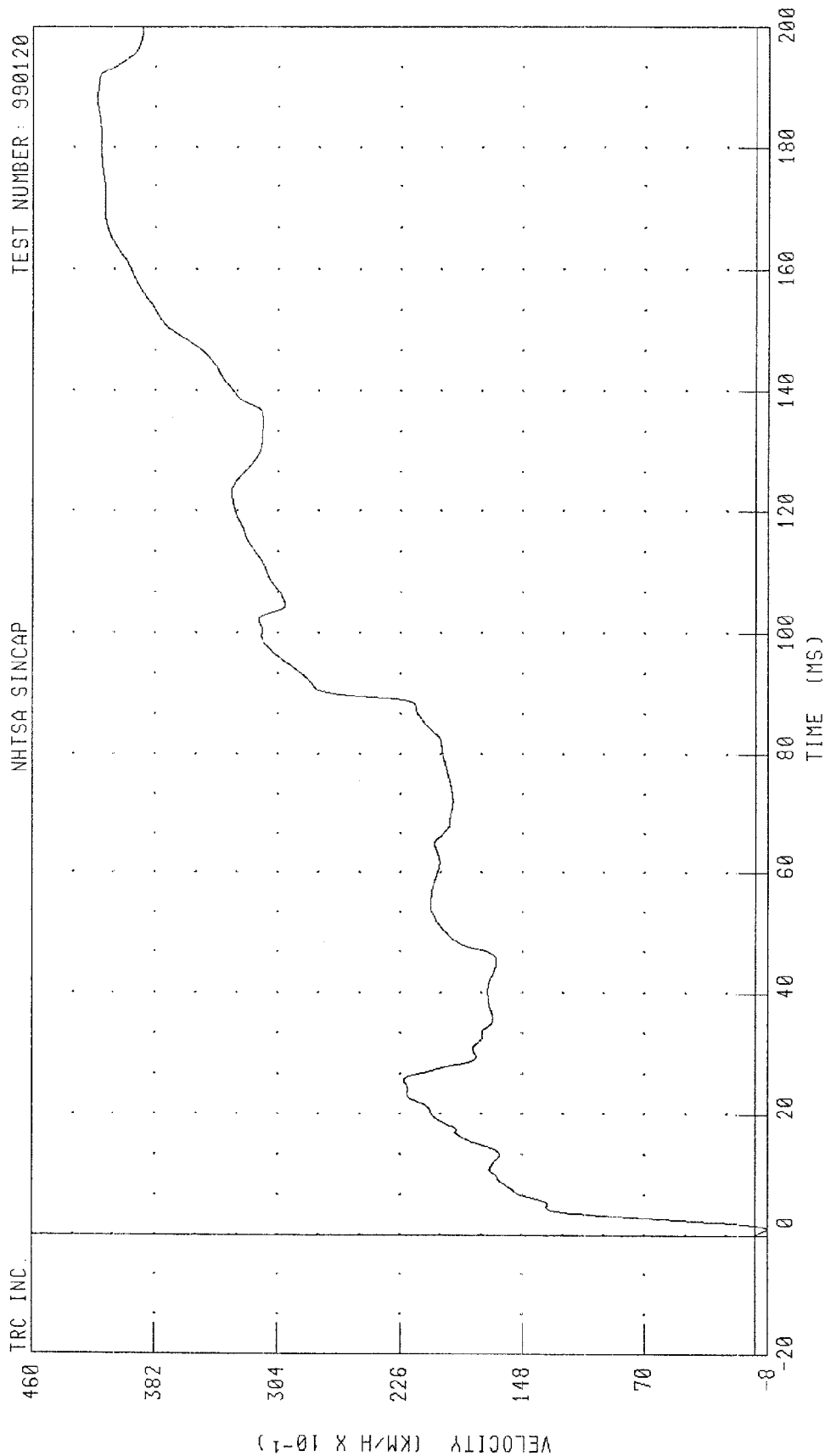
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT LOWER A-POST Y-AXIS ACCELERATION



PEAK DATA: 97.27 G @ 2.88 MS; -30.86 G @ 27.68 MS

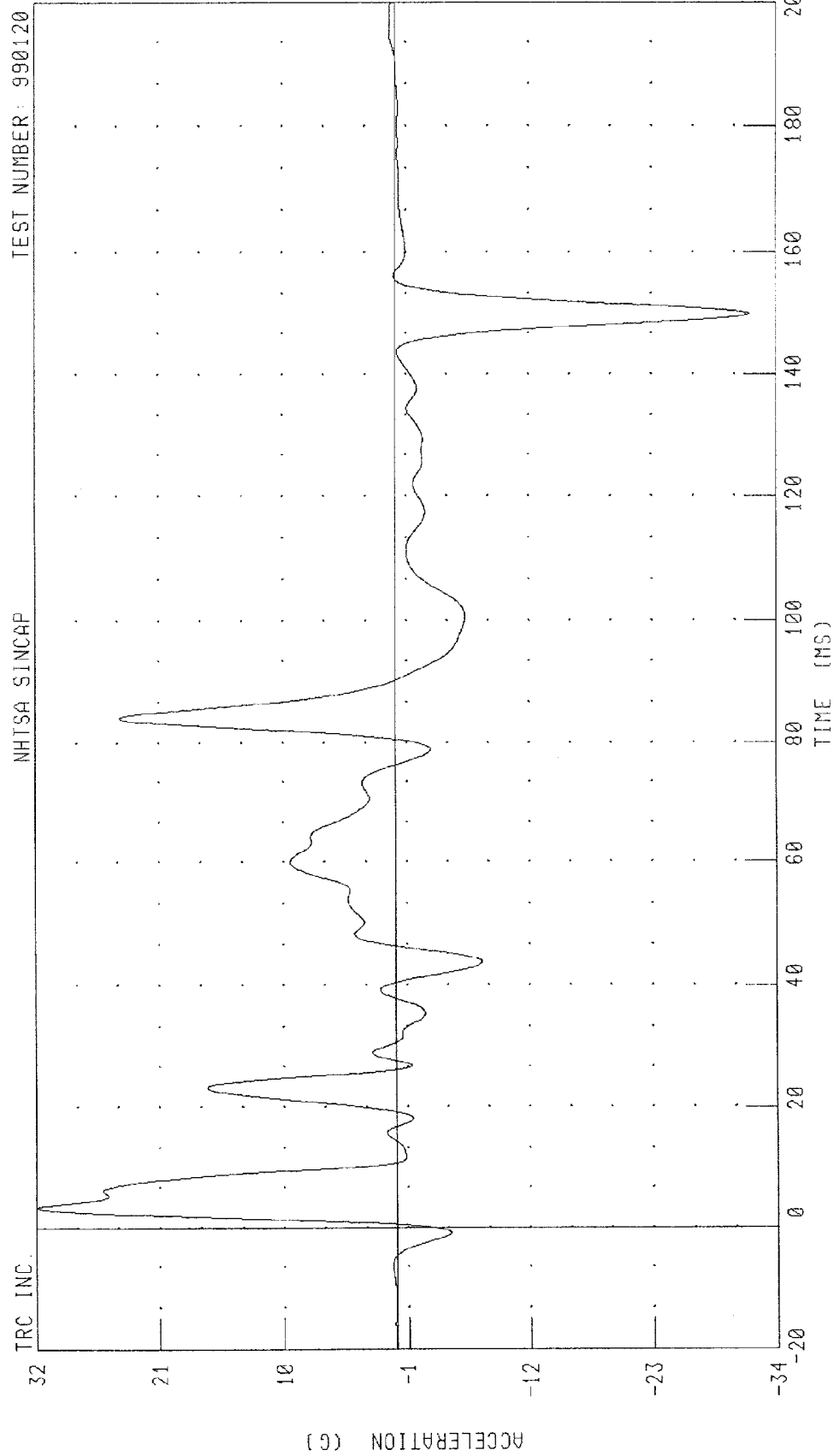
CHANNEL: LLAYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT LOWER A-POST Y-AXIS VELOCITY



CHANNEL: LLAYV1 FILTER: CH. CLASS 180

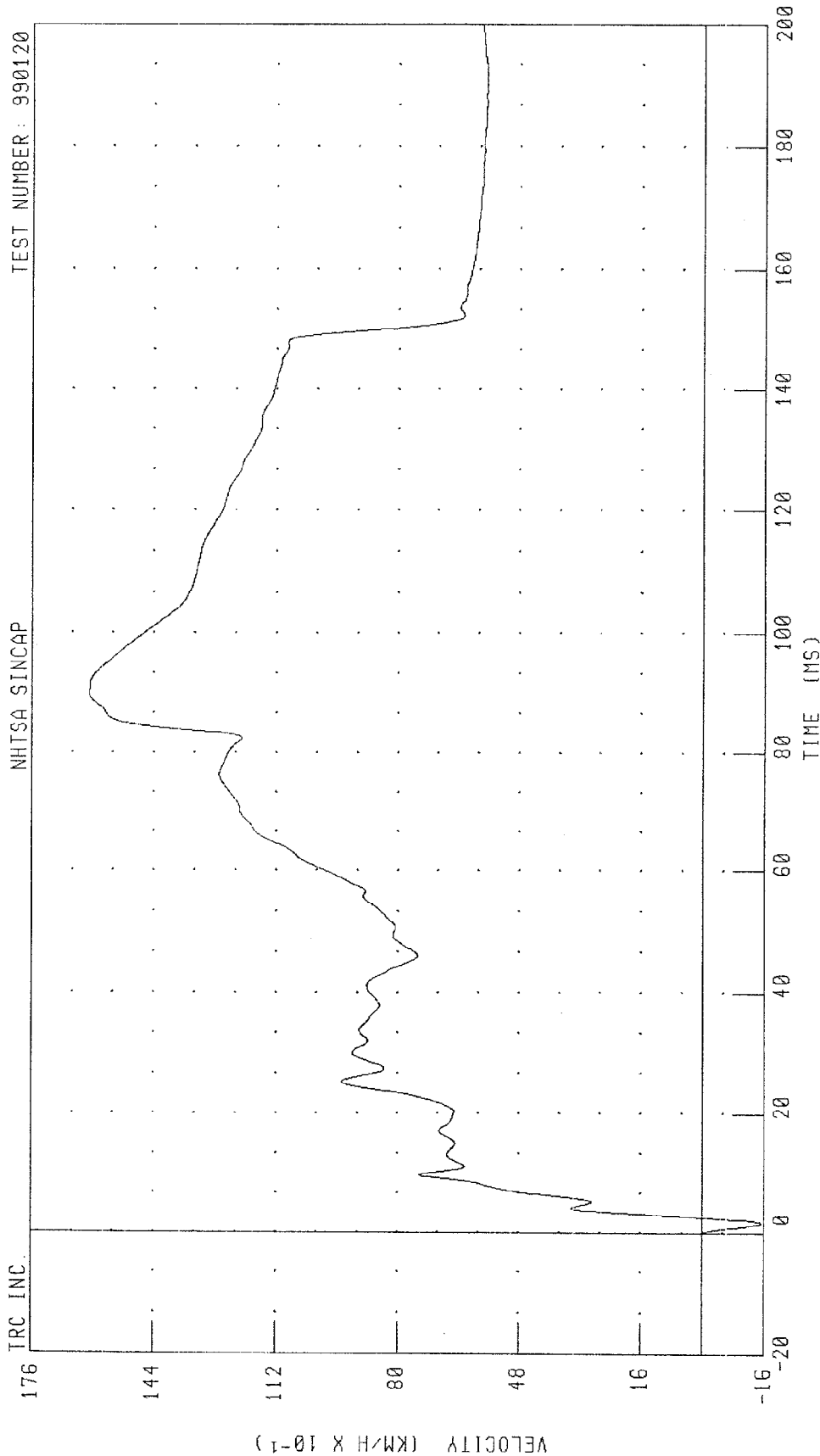
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT MIDDLE A-POST Y-AXIS ACCELERATION
NHTSA SINCAP



PEAK DATA: 31.93 G @ 3.28 MS; -31.64 G @ 150.00 MS

CHANNEL: LMAYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT MIDDLE A-POST Y-AXIS VELOCITY

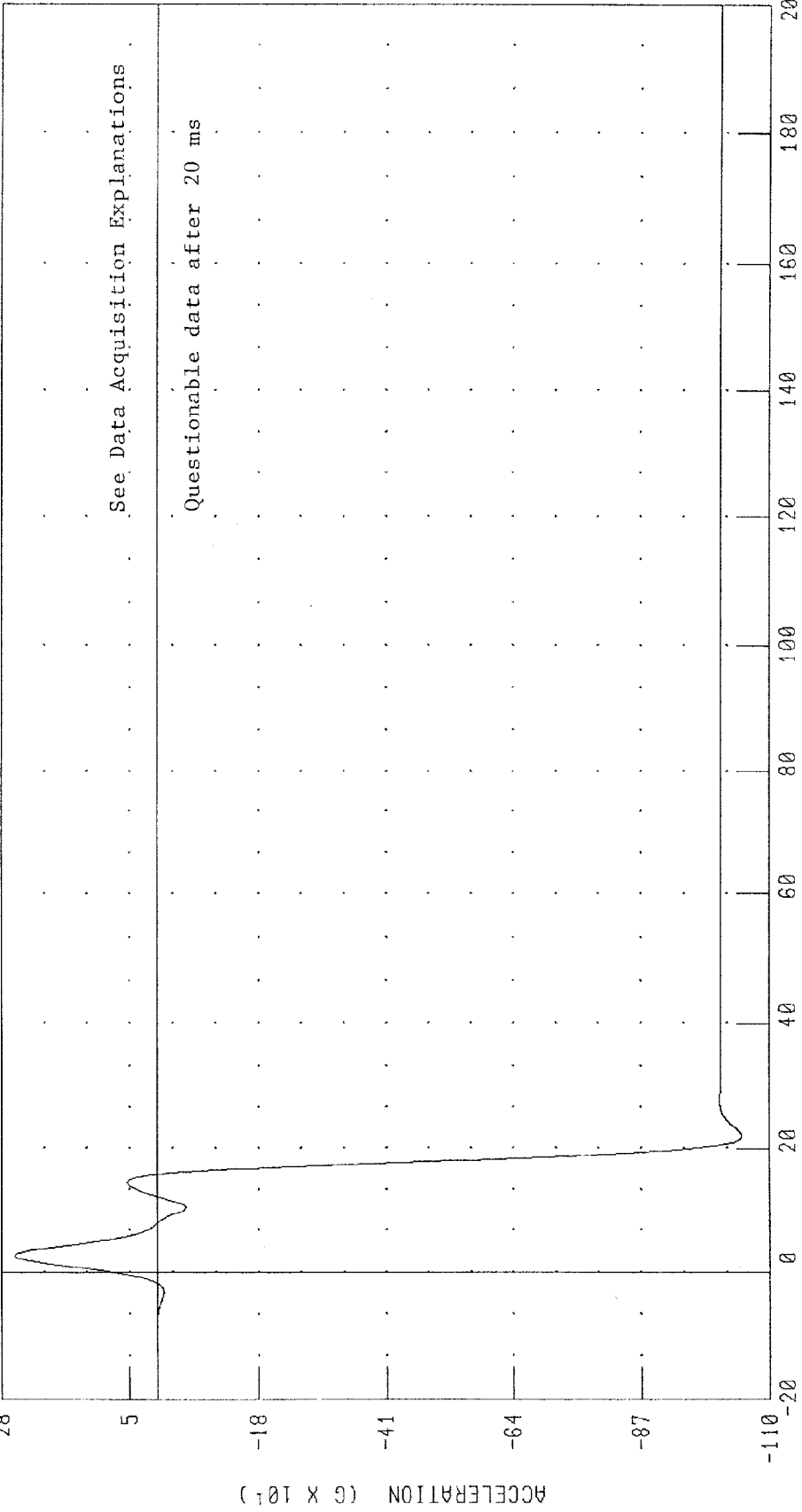


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 LOWER B-POST Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



CHANNEL: LLBYC1 FILTER: CH. CLASS 60

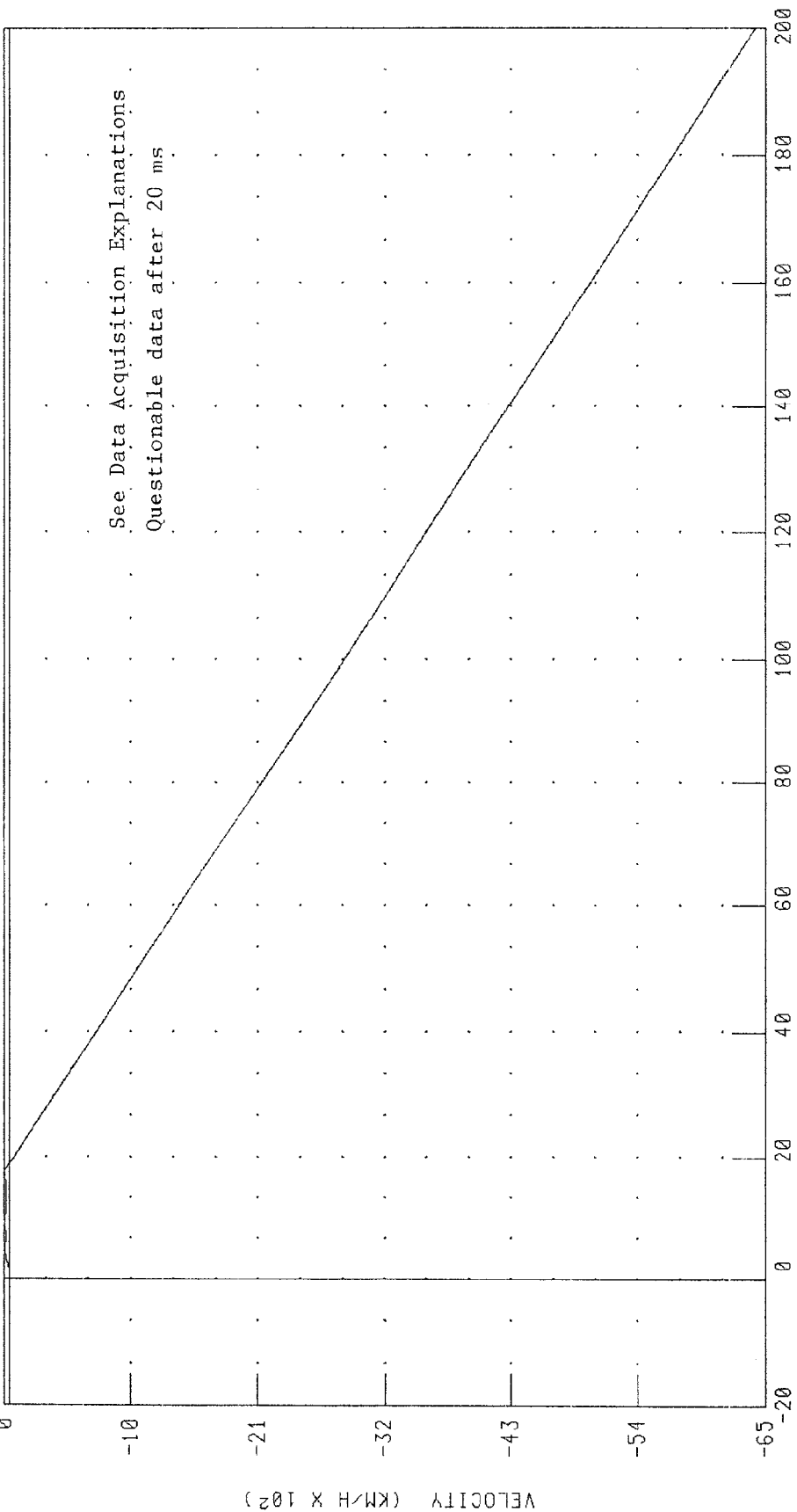
PEAK DATA: 256.81 G @ 2.56 MS; -1050.32 G @ 22.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LOWER B-POST Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.

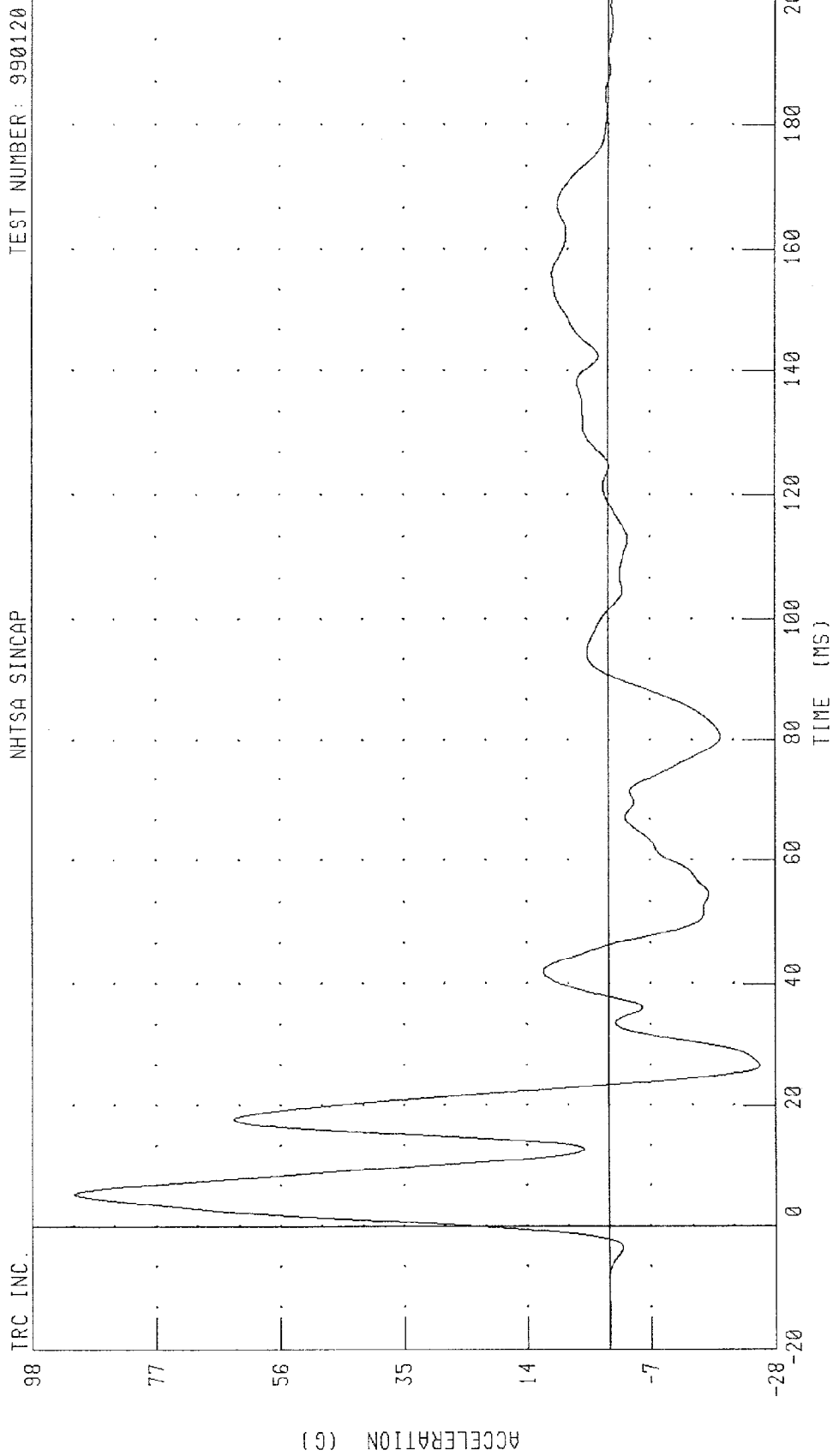


TIME (MS)

PEAK DATA: 43.64 KM/H @ 17.12 MS, -6472.00 KM/H @ 200.00 MS

CHANNEL: LLBYV1 FILTER: CH. CLASS 180

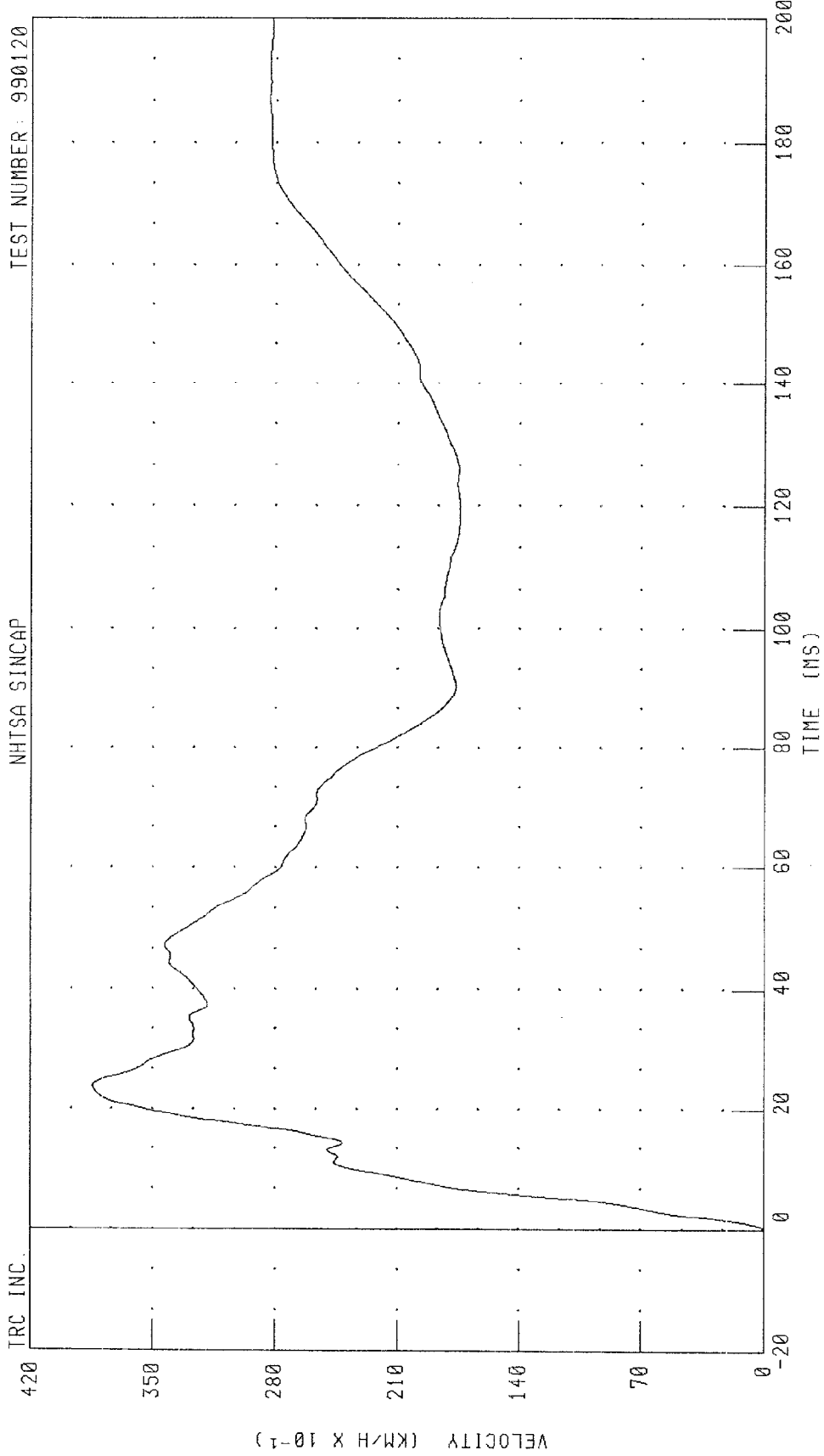
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MIDDLE B-POST Y-AXIS ACCELERATION



PEAK DATA: 90.91 G @ 5.28 MS; -25.46 G @ 26.56 MS

CHANNEL: LMBYC1 FILTER: CH. CLASS 60

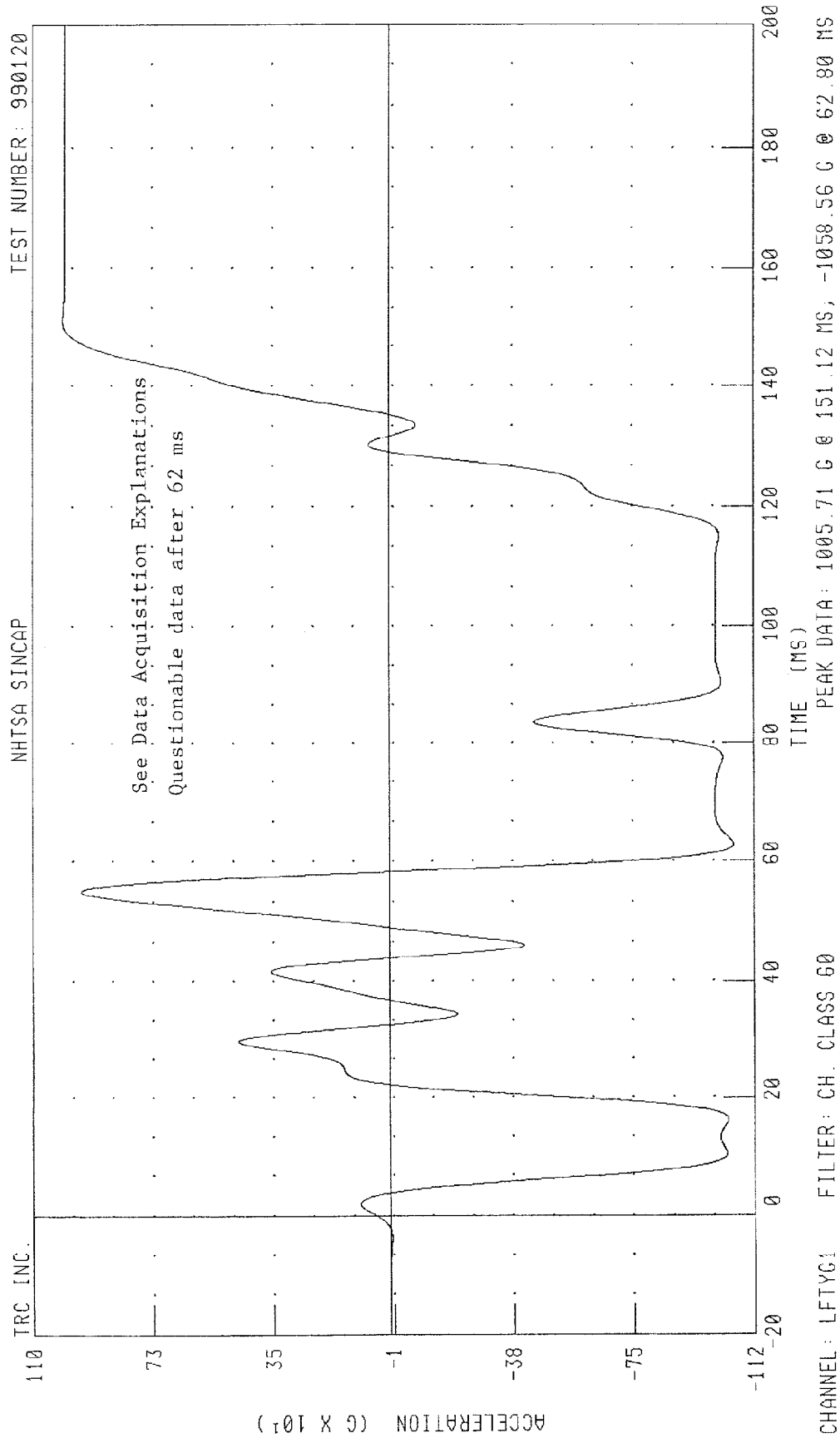
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MIDDLE B-POST Y-AXIS VELOCITY



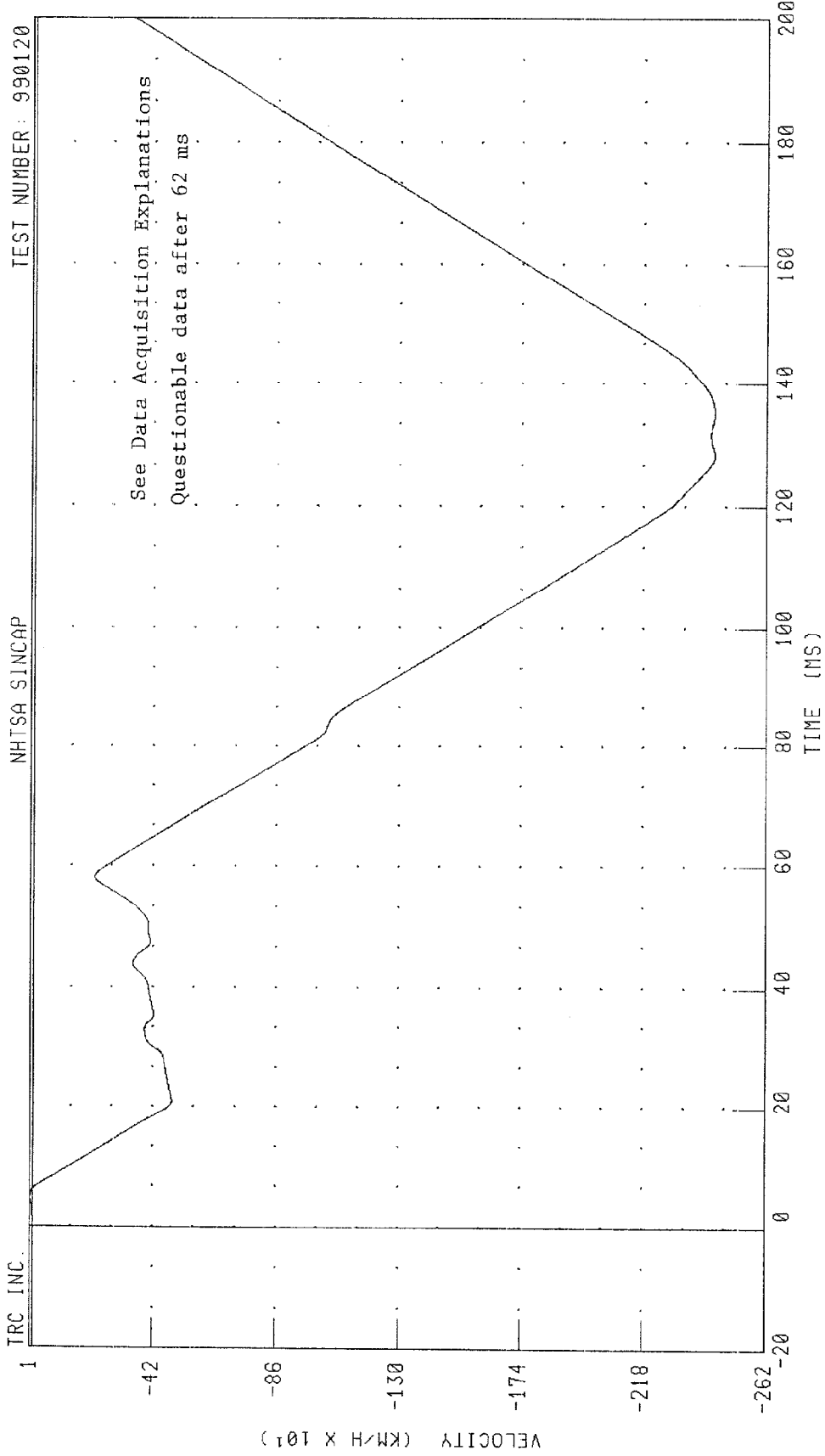
CHANNEL: LMBYV1 FILTER: CH. CLASS 180

PEAK DATA: 38.43 KM/H @ 23.84 MS, 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
FRONT SEAT TRACK Y-AXIS ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
FRONT SEAT TRACK Y-AXIS VELOCITY

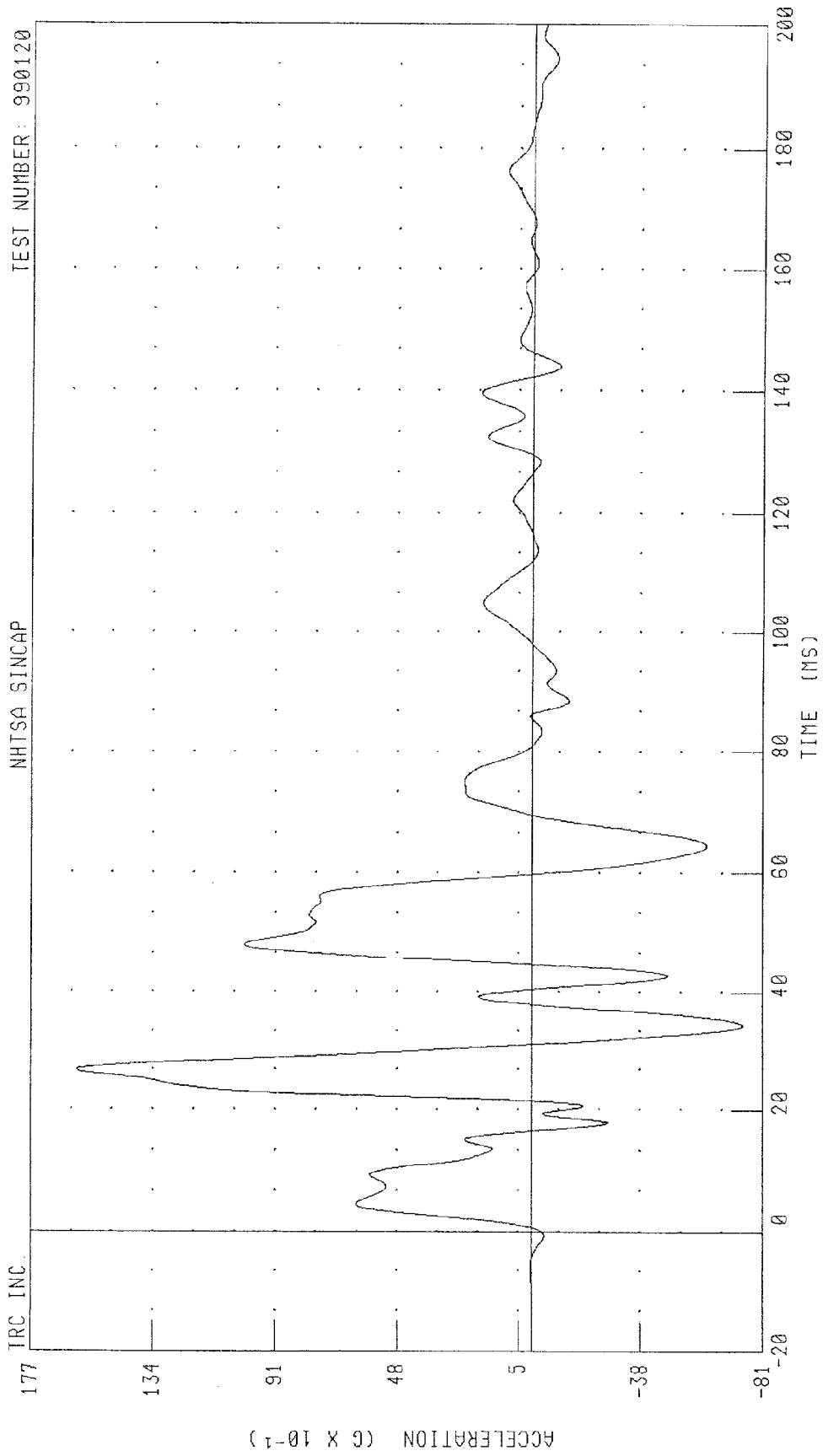


CHANNEL: LFTYV1 FILTER: CH. CLASS 180 PEAK DATA: 11.62 KM/H @ 4.80 MS; -2442.40 KM/H @ 135.12 MS

**Vehicle Rear Seat Track Y-Axis Data Channel,
LRTYG1, Was Not Installed**

**Vehicle Rear Seat Track Y-Axis Velocity Channel,
LRTYV1, Was Not Calculated**

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION



PEAK DATA: 16.09 G @ 25.56 MS, -7.42 G @ 34.32 MS

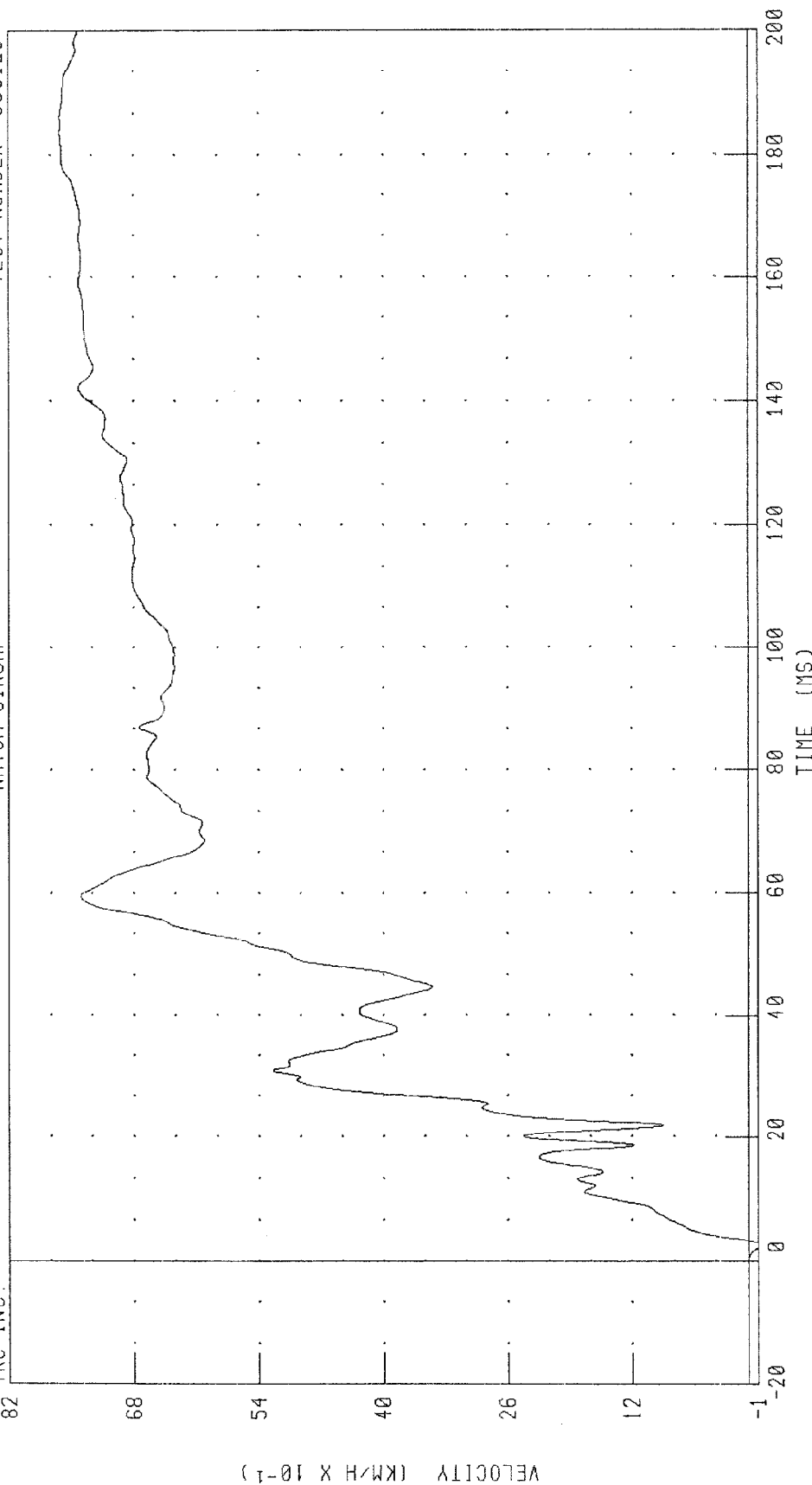
CHANNEL: VCCXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

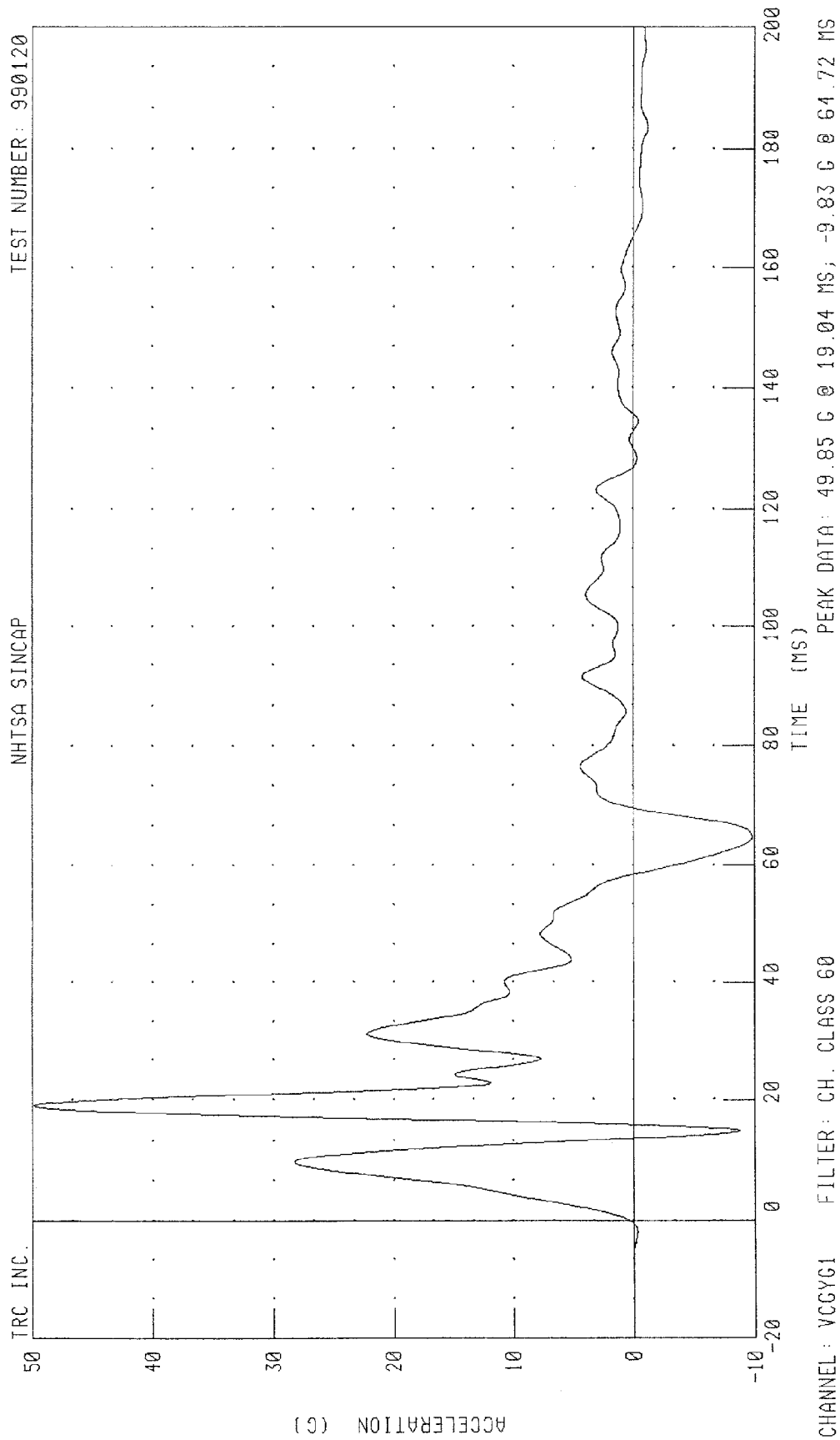
TRC INC.



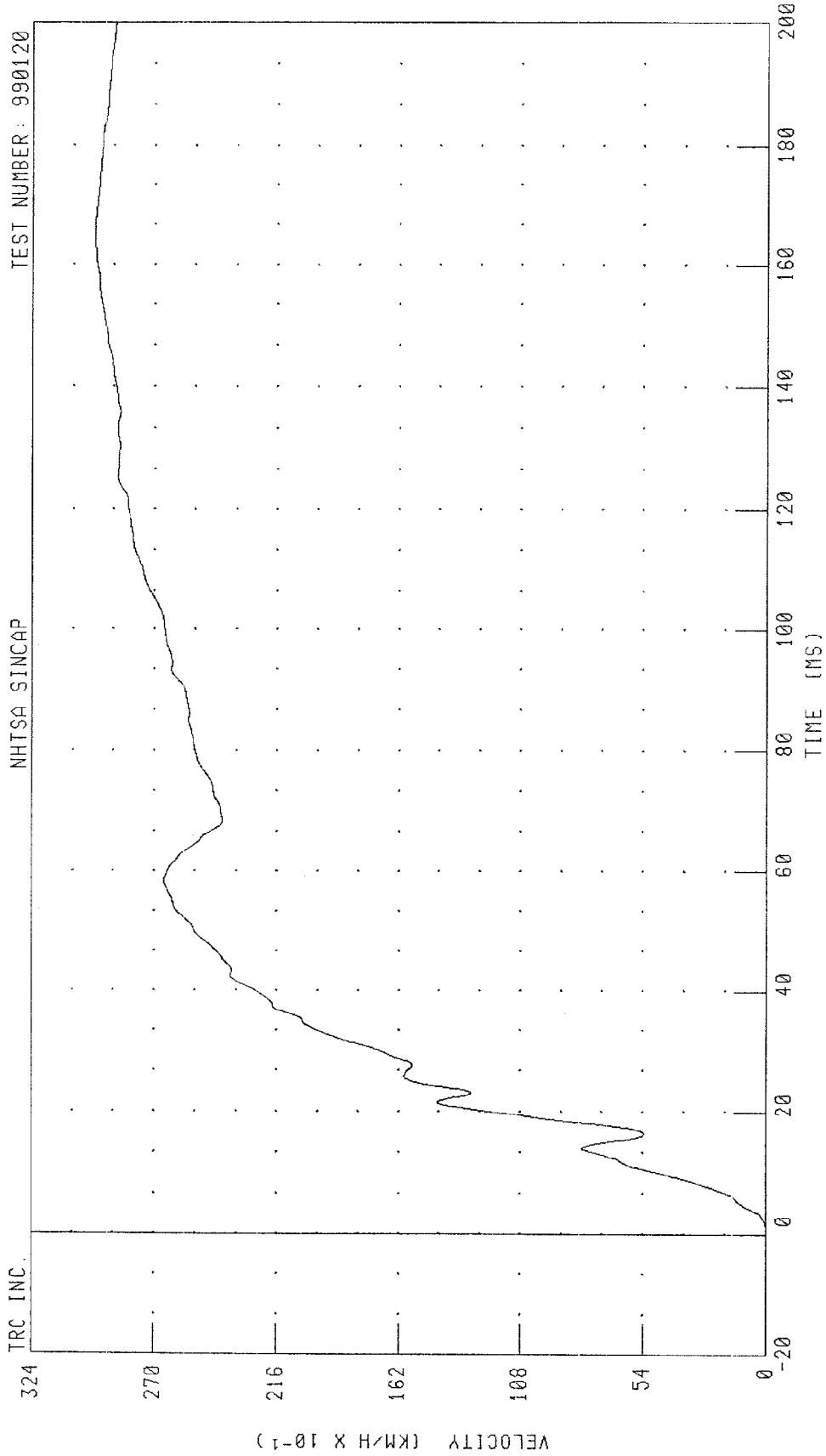
PEAK DATA: 7.73 KM/H @ 183.60 MS; -0.13 KM/H @ 2.56 MS

CHANNEL: VCGXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

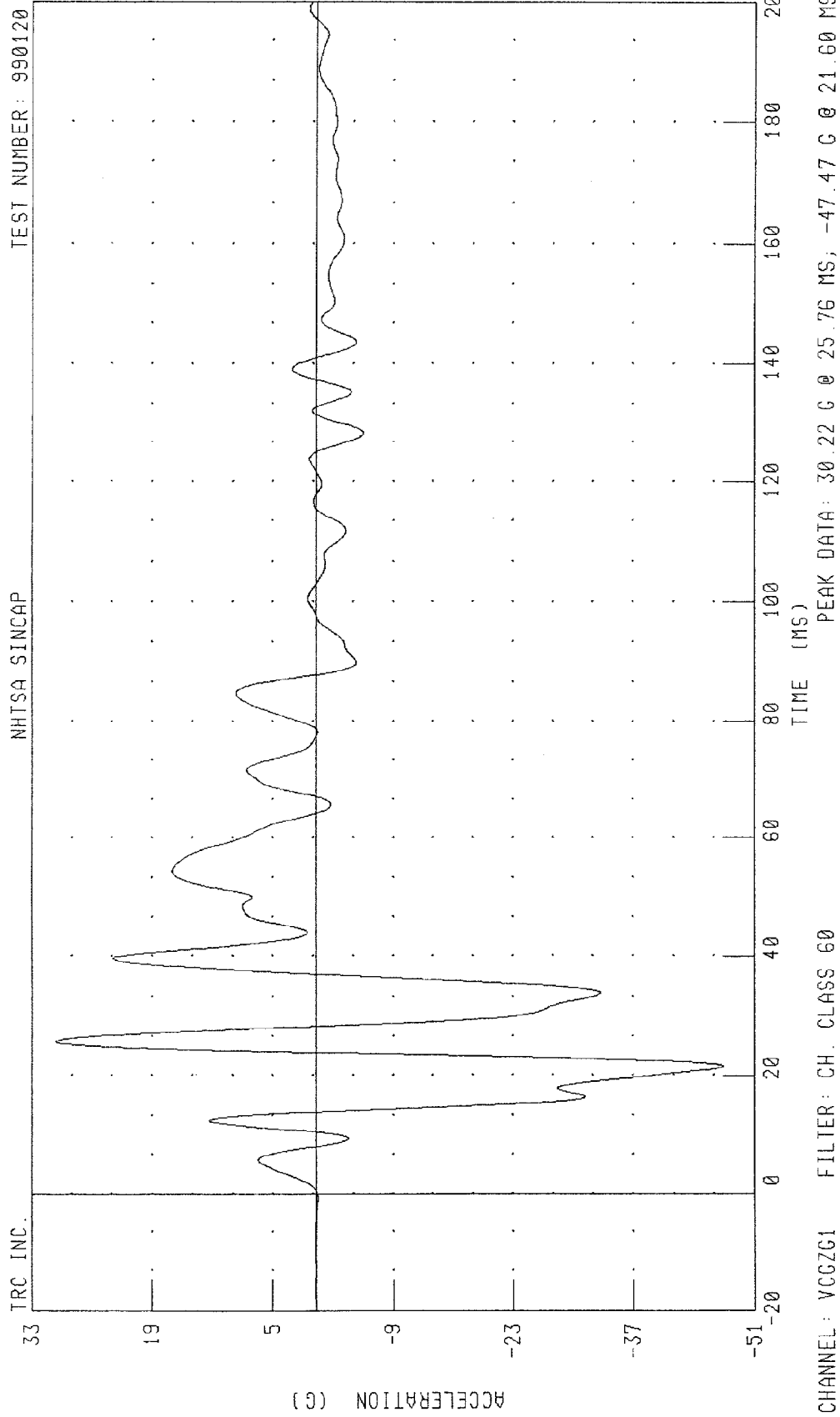


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY



CHANNEL: VCCYV1 FILTER: CH. CLASS 180 PEAK DATA: 29.62 KM/H @ 135.20 MS, 0.00 KM/H @ 0.08 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

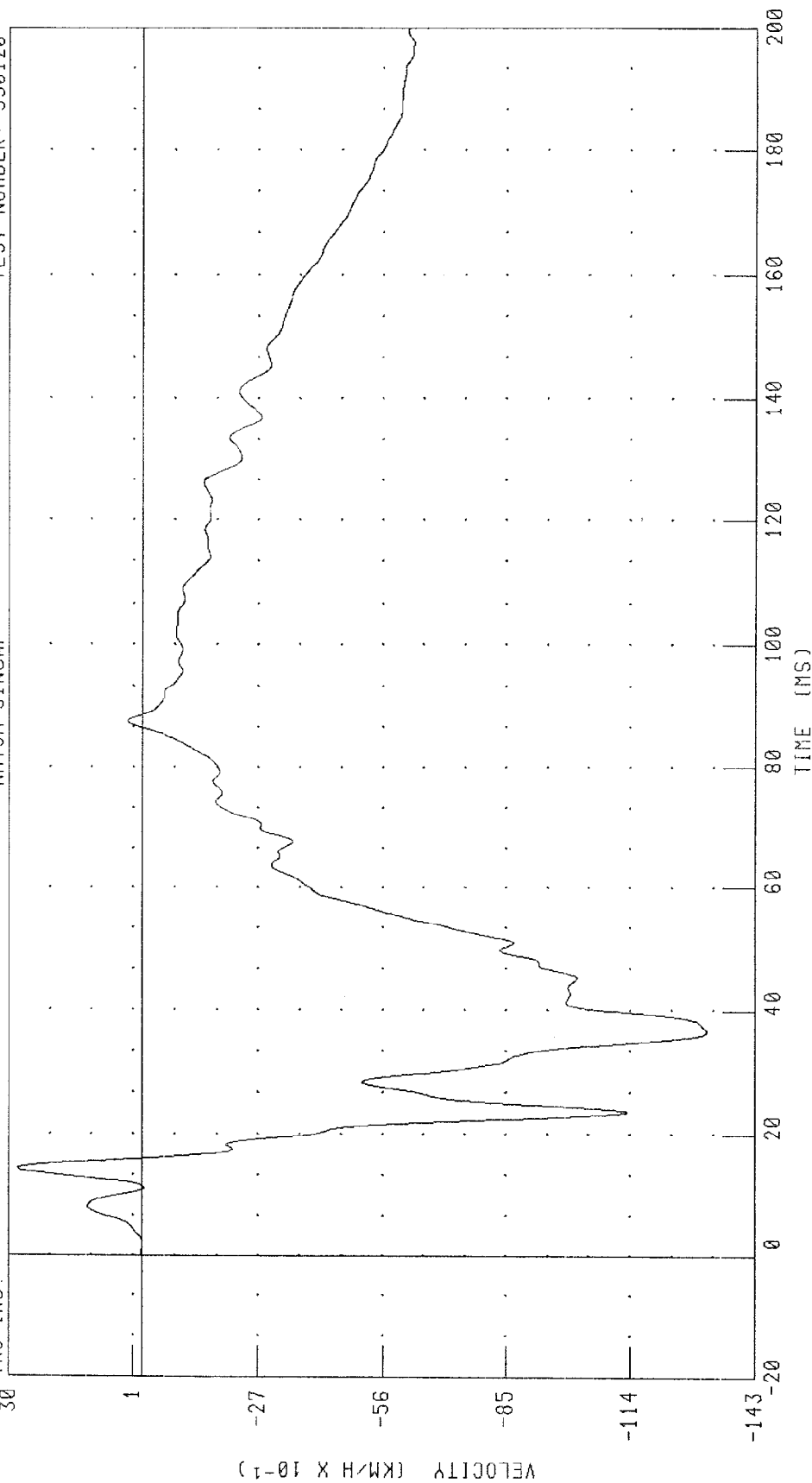


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

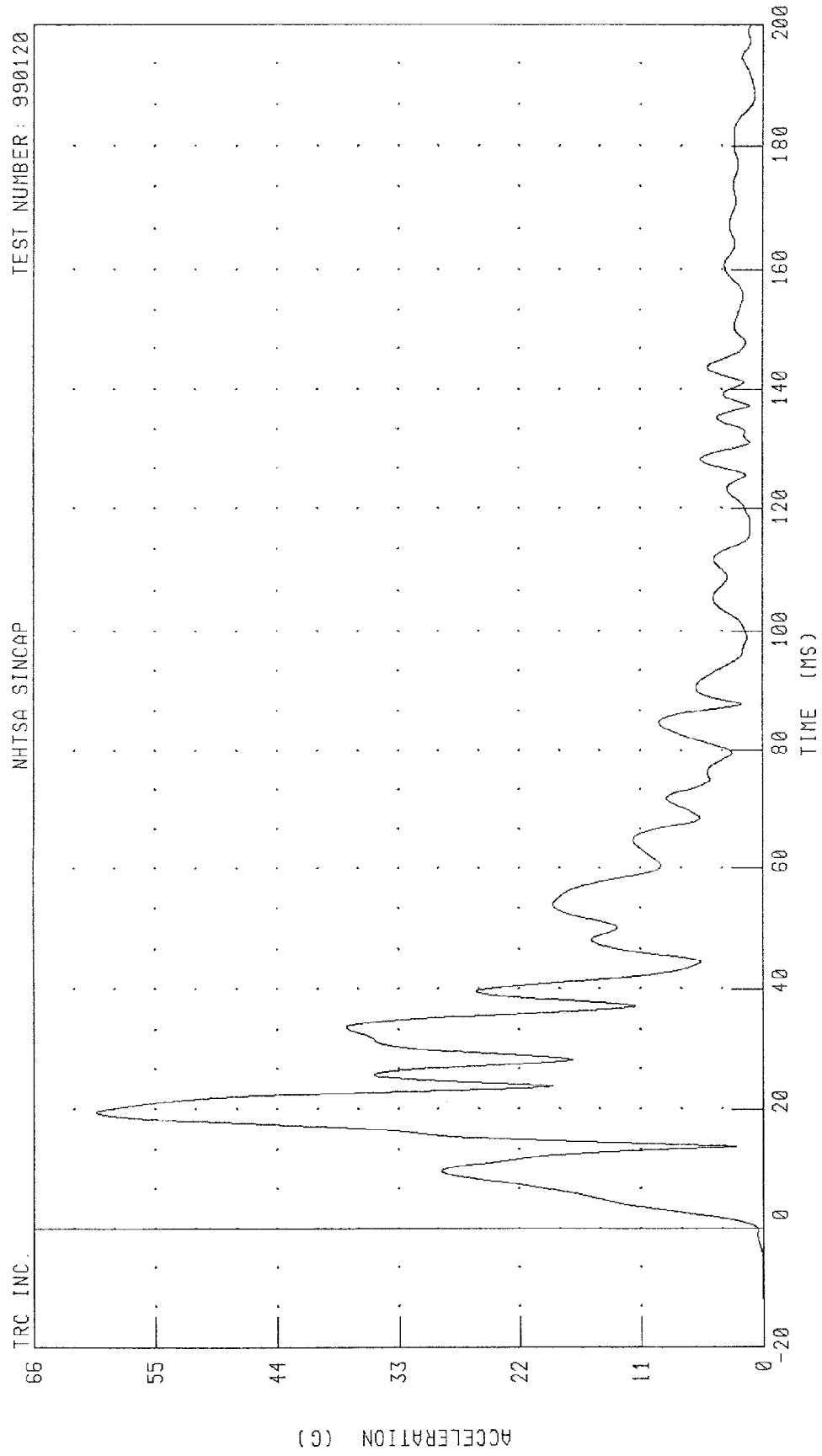
TRC INC.



PEAK DATA: 2.89 KM/H @ 14.40 MS; -13.19 KM/H @ 36.56 MS

CHANNEL: VCCZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION



CHANNEL: VCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 60.35 G @ 19.52 MS; 0.02 G @ -20.00 MS

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.

188

152

ACCELERATION (G X 10⁻¹)

116

80

44

8

-28

TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

-20

CHANNEL: BCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 17.31 G @ 34.80 MS, -2.57 G @ 148.24 MS

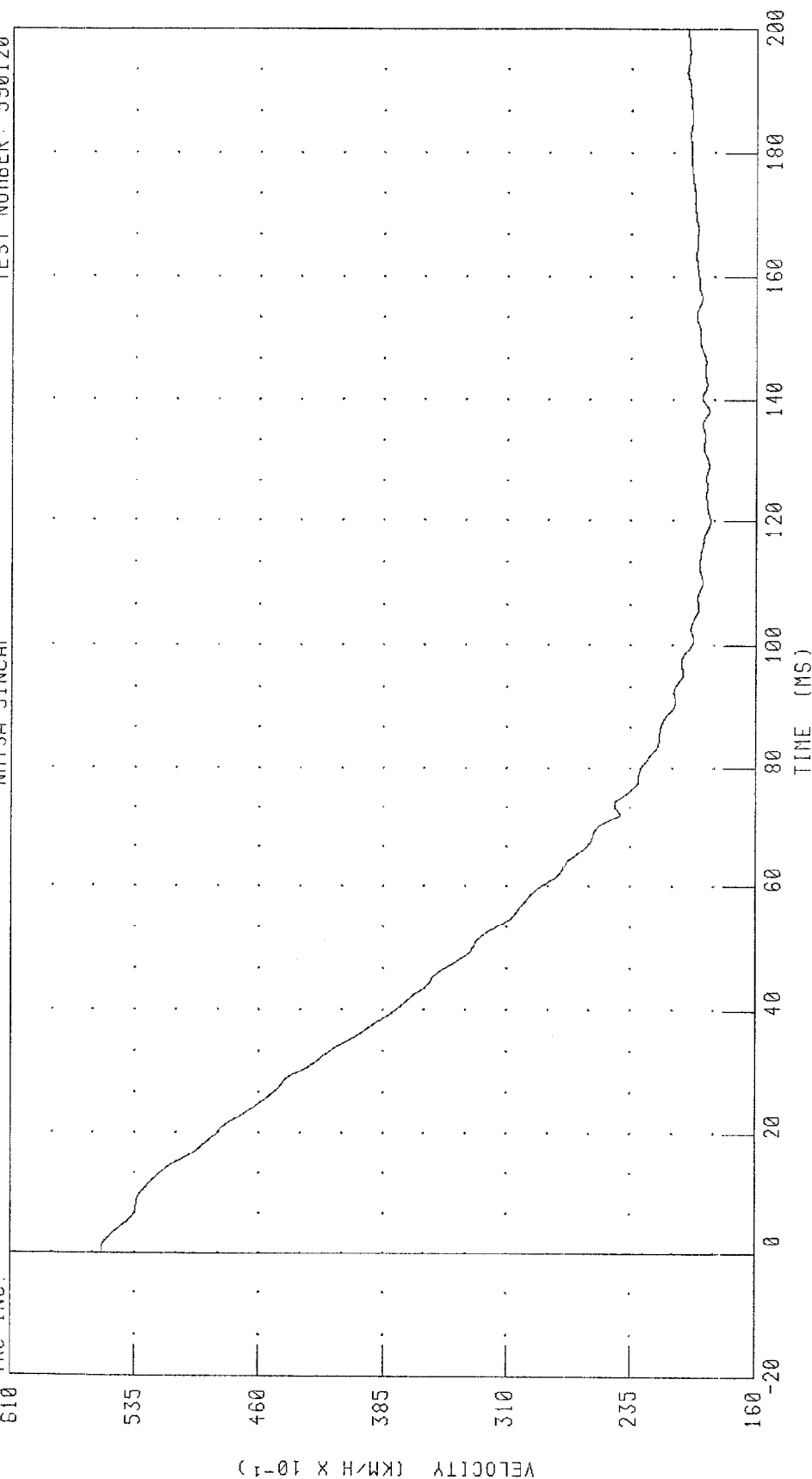
990120

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

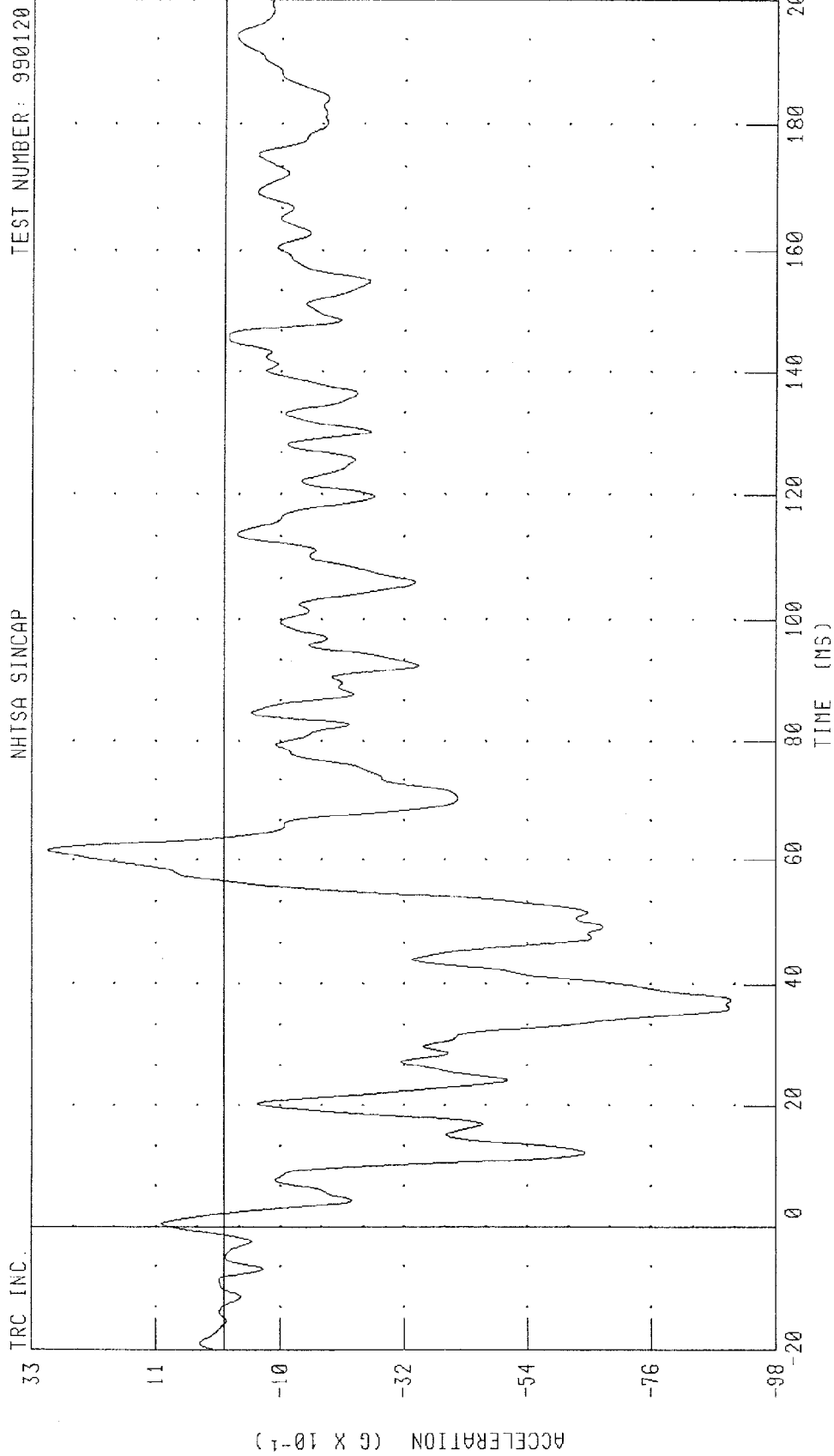
TRC INC.



PEAK DATA: 55.51 KM/H @ 0.24 MS; 18.73 KM/H @ 119.92 MS

CHANNEL: BCCXV1 FILTER: CH. CLASS 180

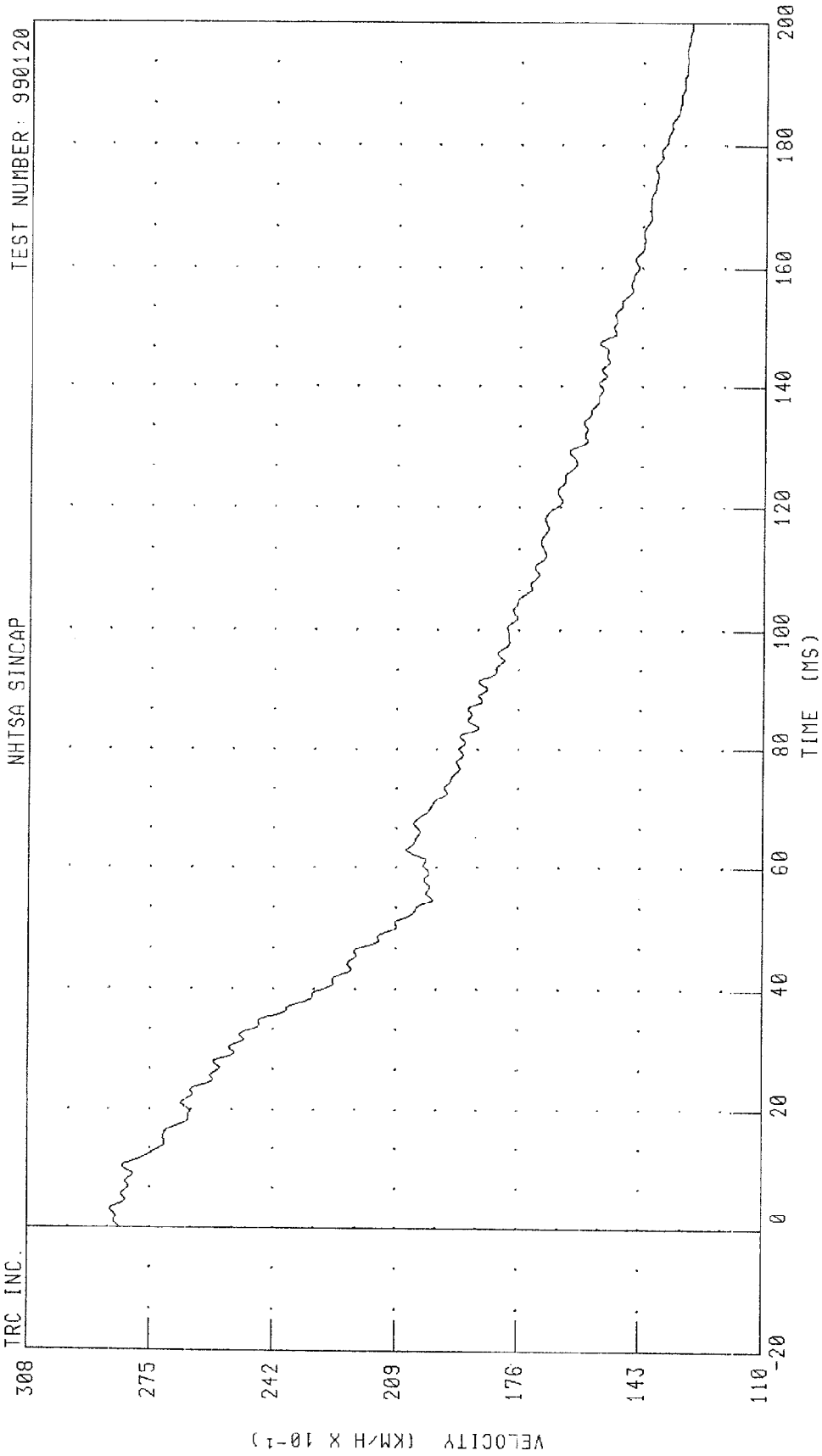
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION
 NHISA SINCAP



CHANNEL: BCCYG1 FILTER: CH. CLASS 60

PEAK DATA: 3.12 G @ 61.76 MS; -9.01 G @ 37.52 MS

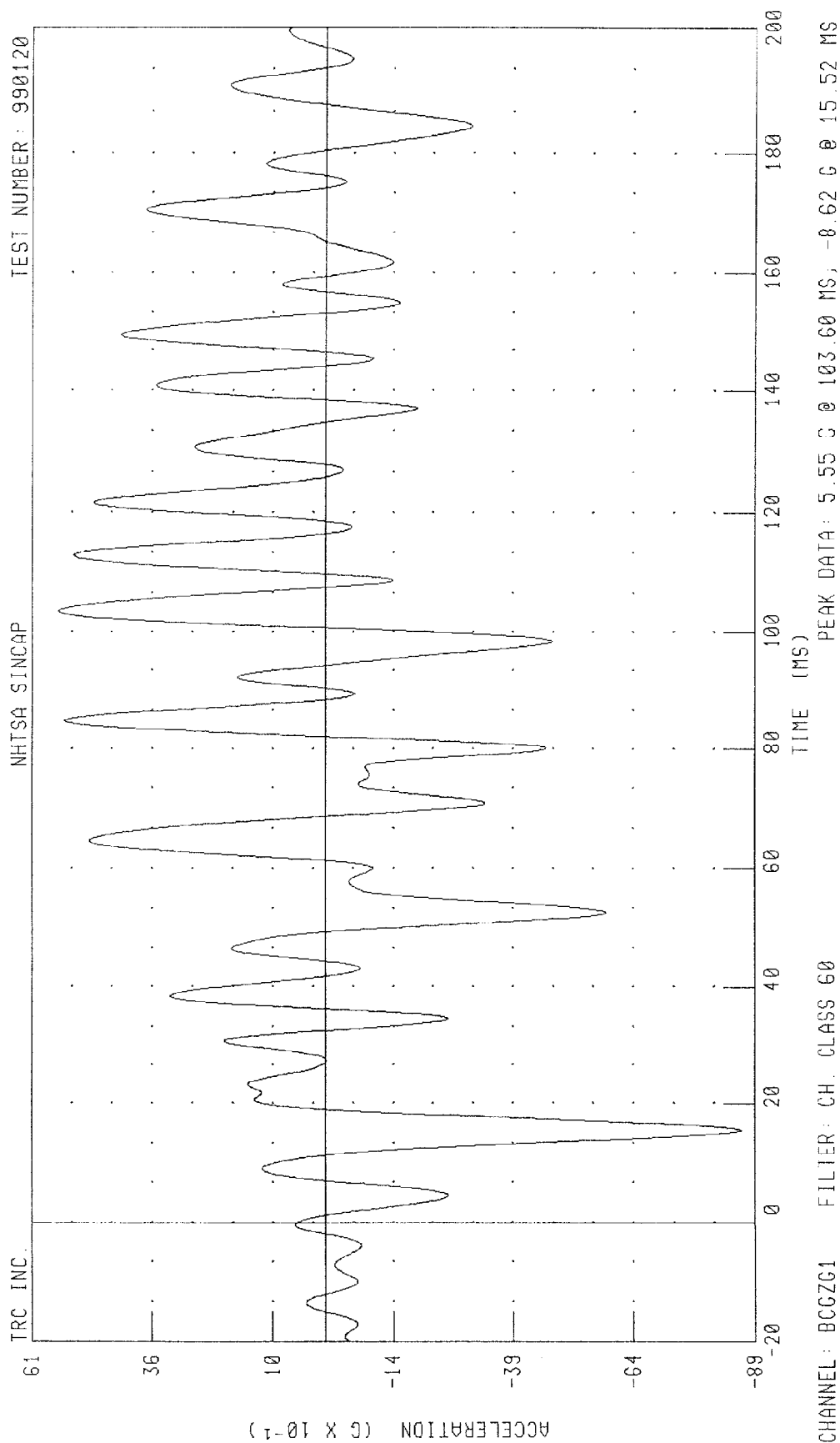
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY



PEAK DATA: 28.56 KM/H @ 3.12 MS; 13.01 KM/H @ 199.04 MS

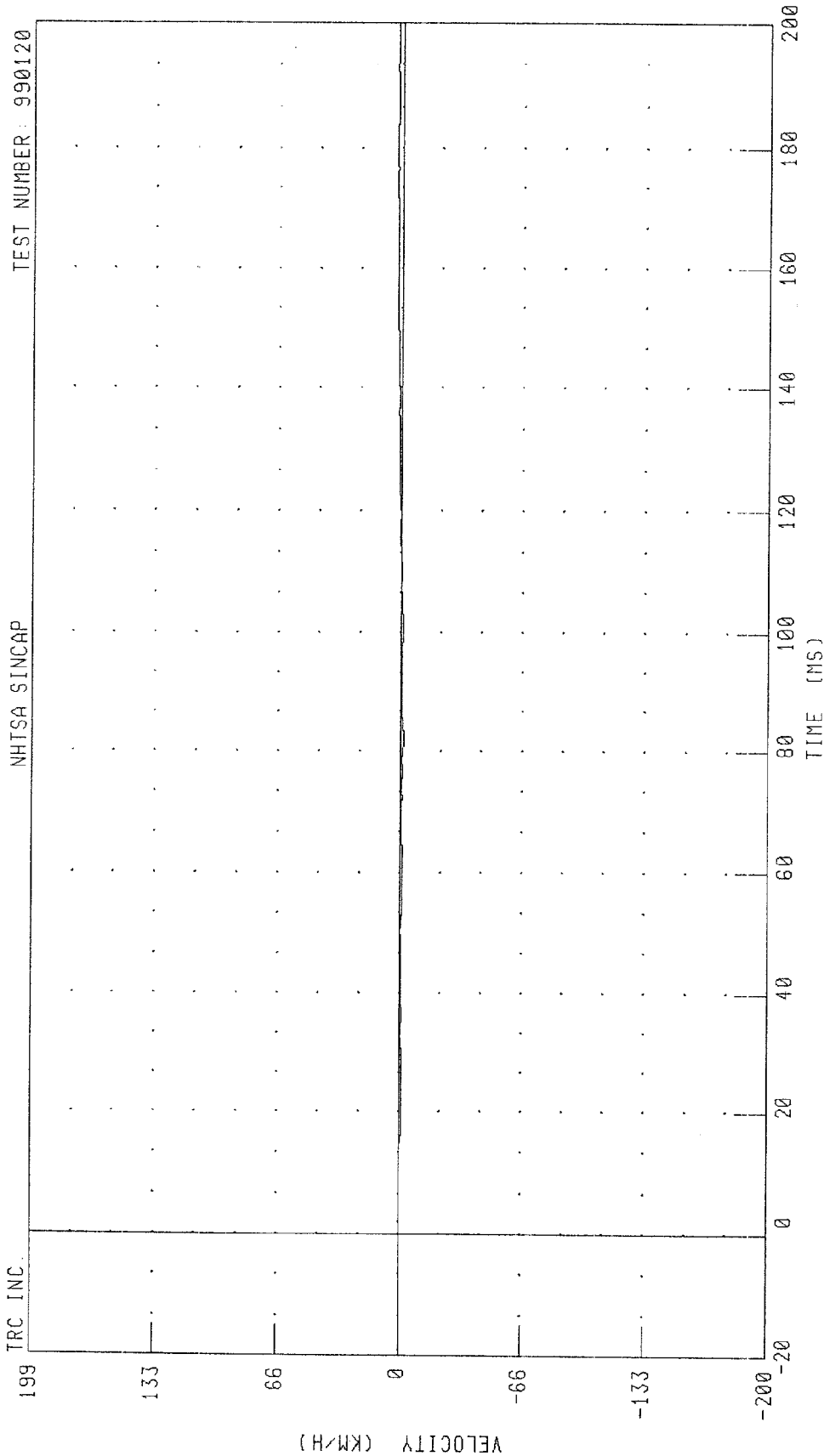
CHANNEL: BCCV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION
 NHTSA SINCAP

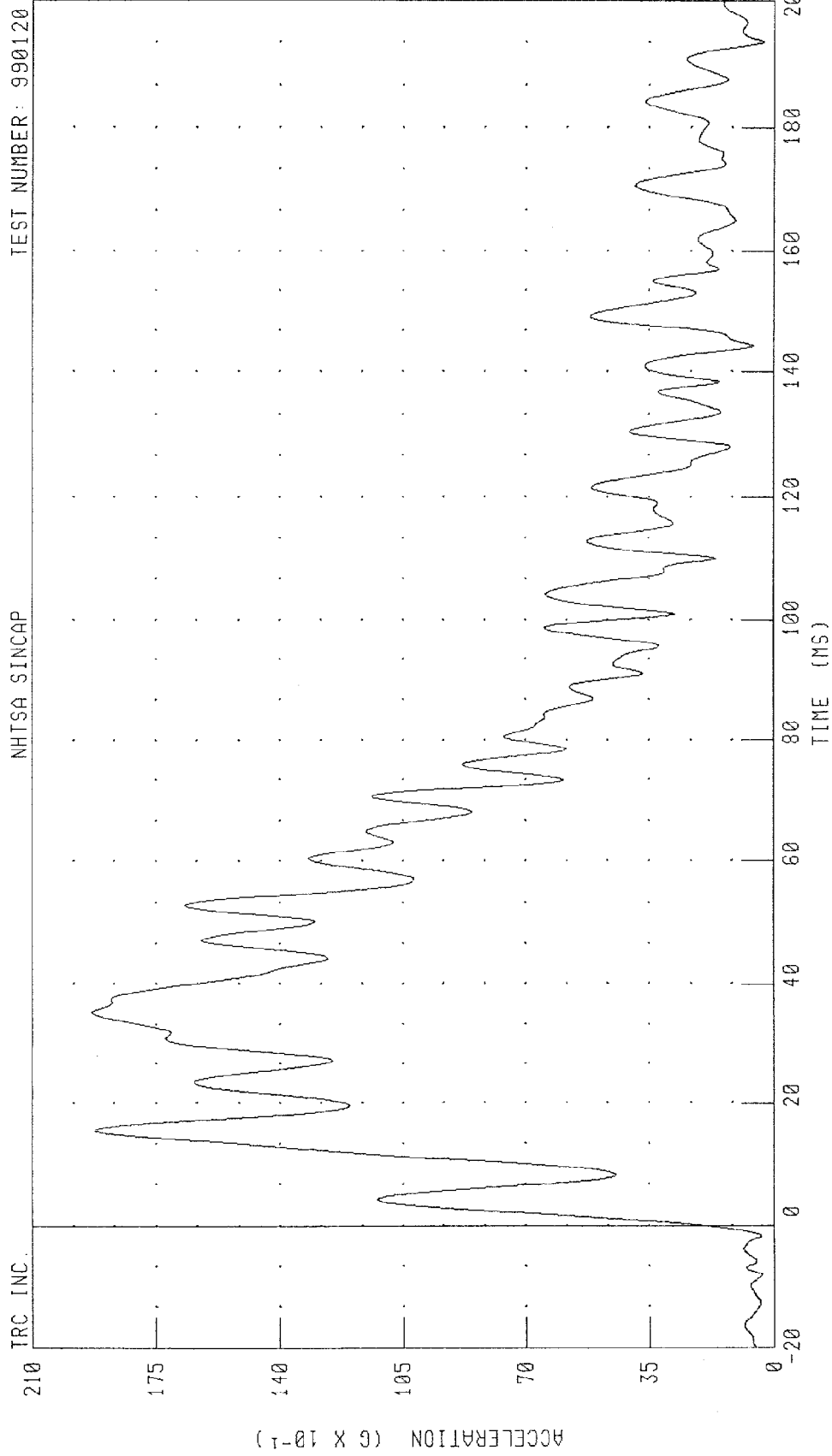


CHANNEL: BCCZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION



PEAK DATA: 19.31 G @ 35.36 MS; 0.29 G @ 193.44 MS

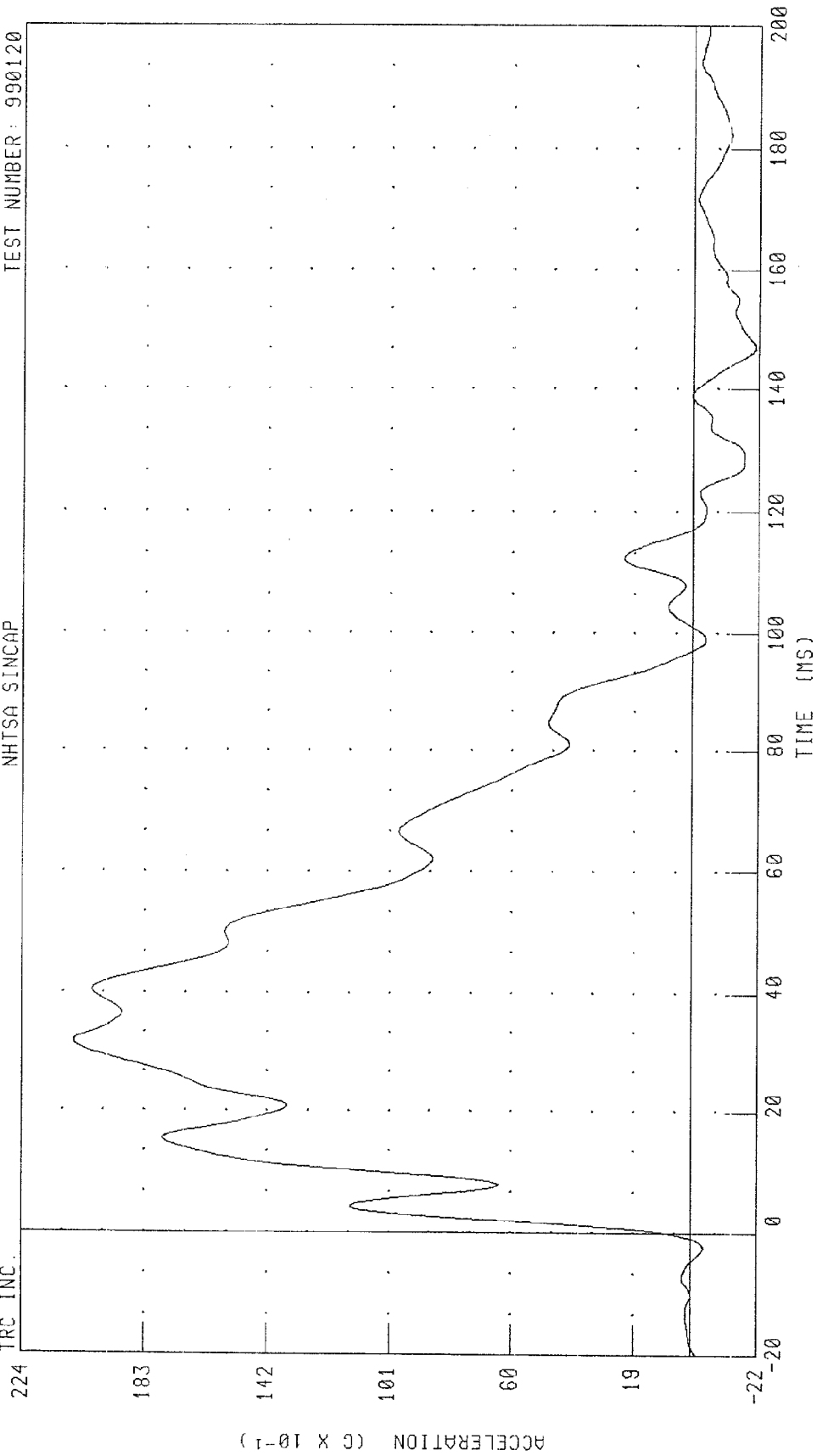
CHANNEL: BCCRG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER REAR X-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



PEAK DATA: 20.68 G @ 31.84 MS, -2.08 G @ 146.96 MS

FILTER: CH. CLASS 60

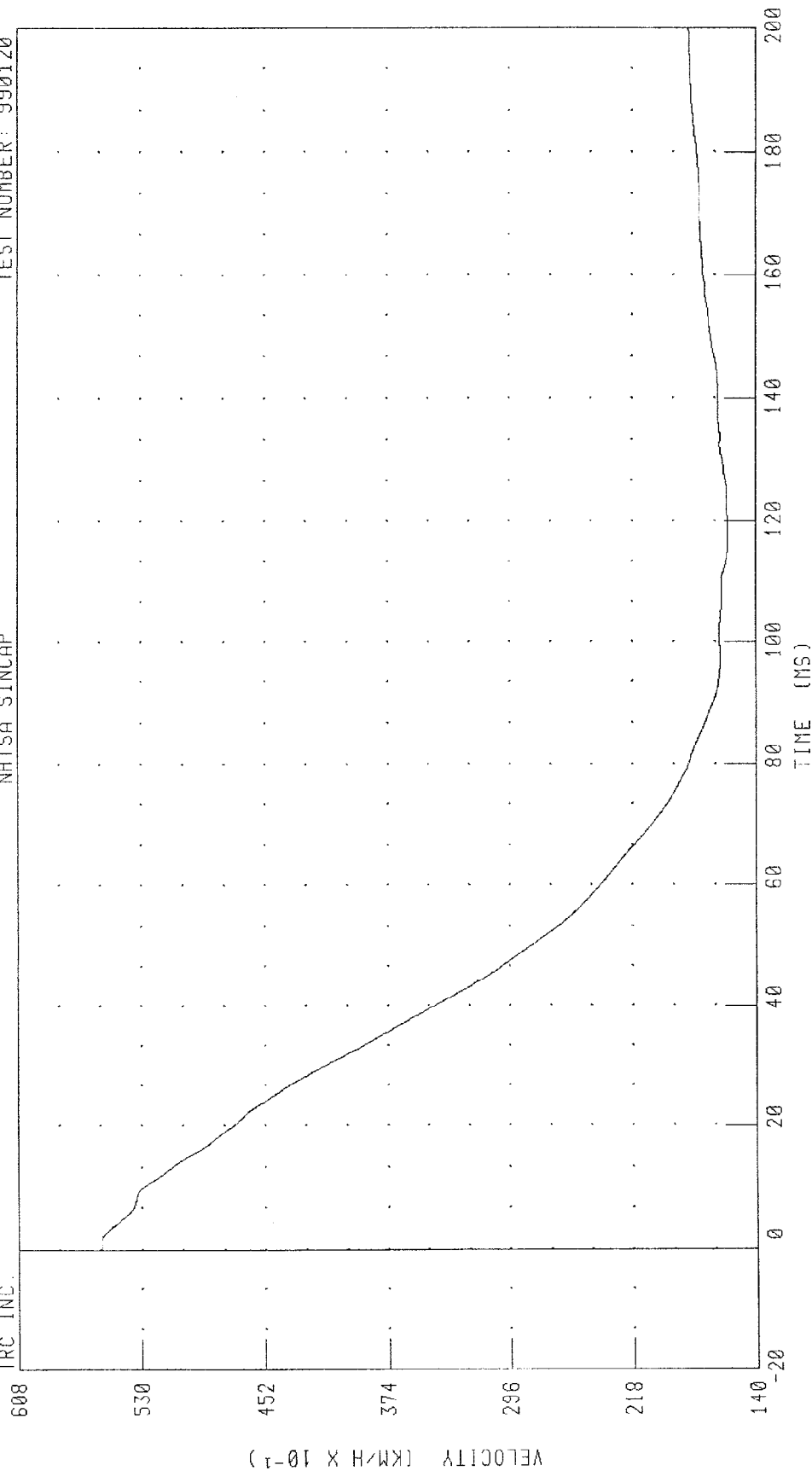
CHANNEL: LRRXG1

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER REAR X-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



PEAK DATA: 55.54 KM/H @ 1.28 MS; 15.74 KM/H @ 116.64 MS

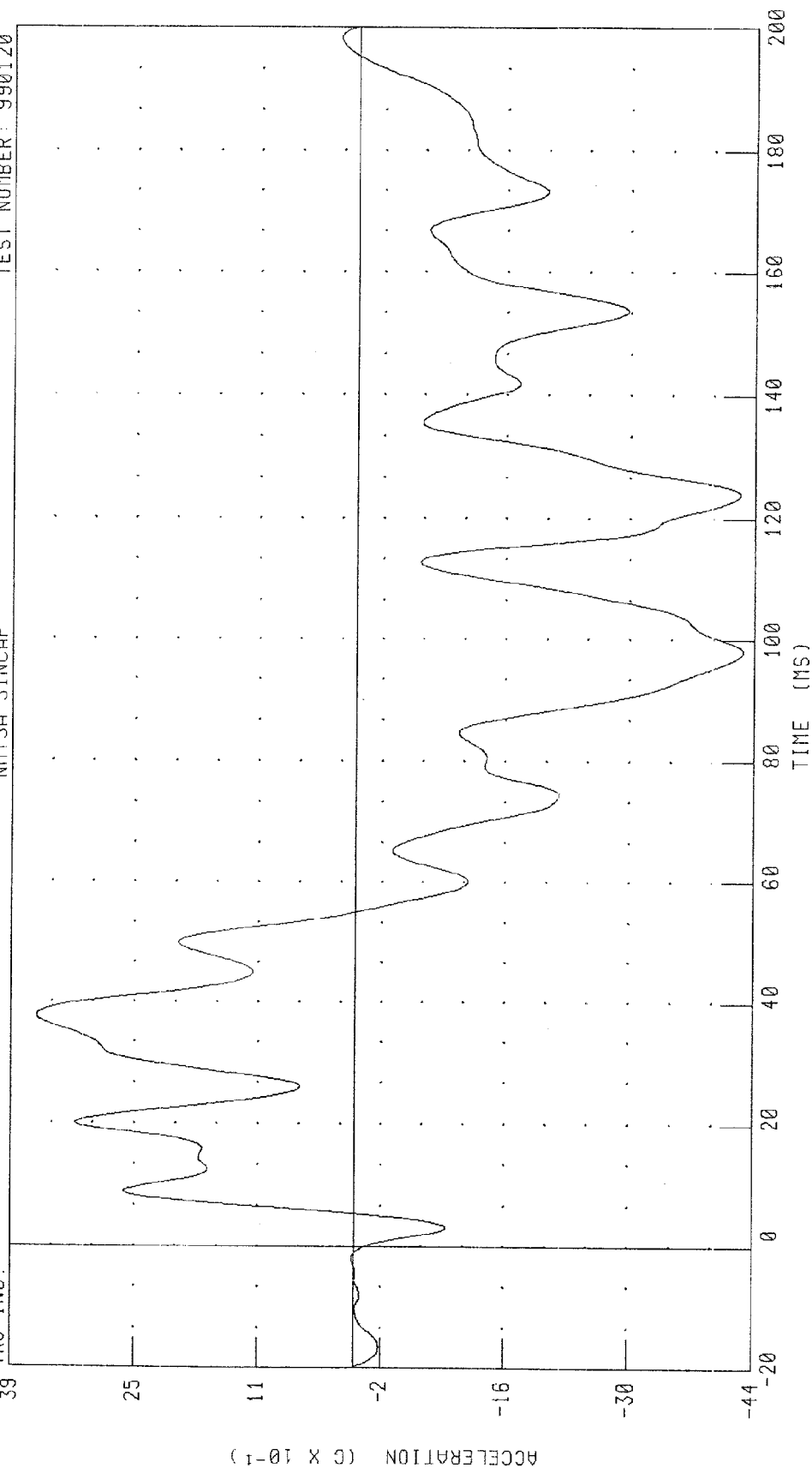
CHANNEL: LRRXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER REAR Y-AXIS ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

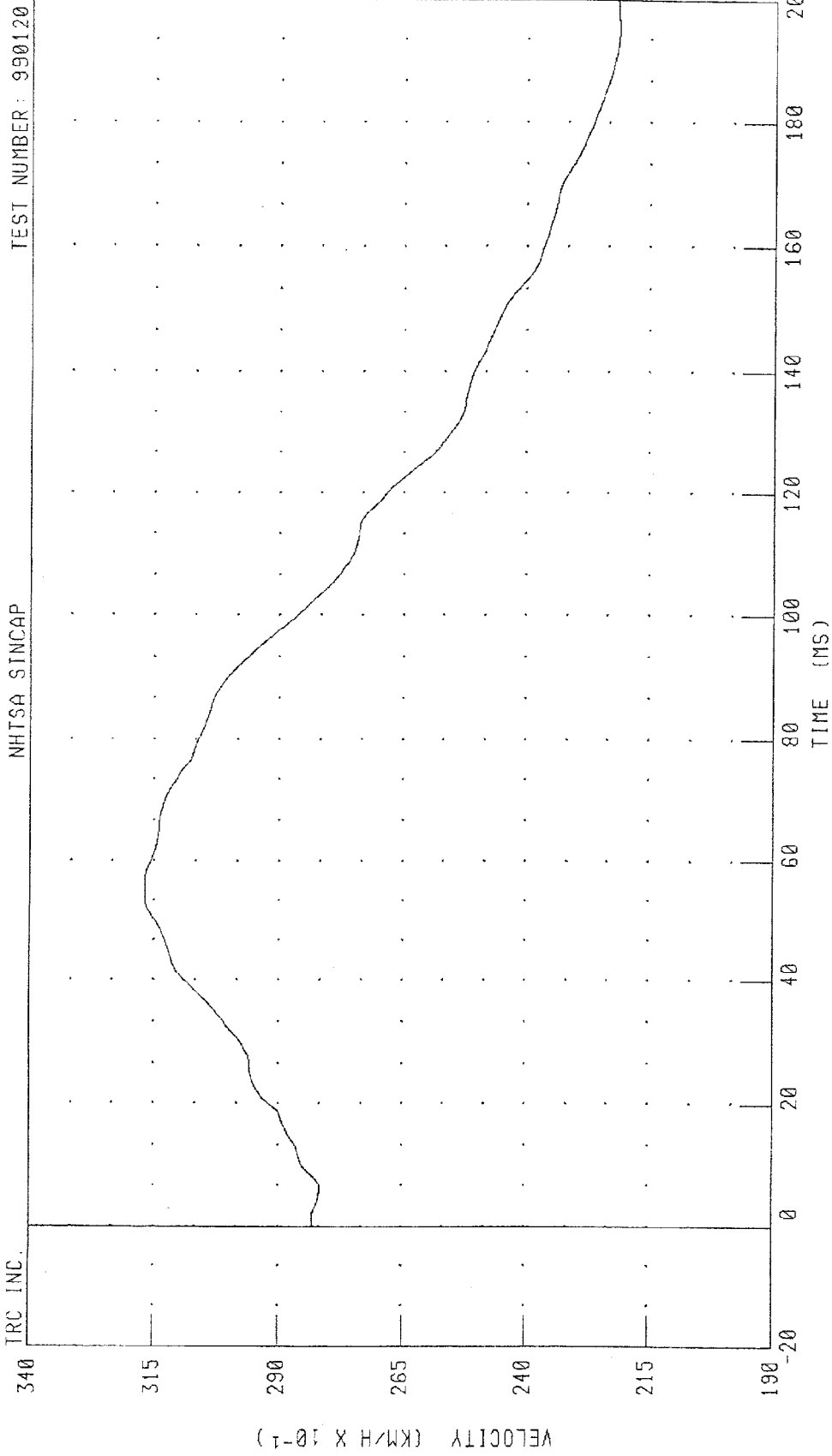
TRC INC.



PEAK DATA: 3.61 G @ 37.76 MS; -4.37 G @ 98.08 MS

CHANNEL: LRRYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
MOVING DEFORMABLE BARRIER REAR Y-AXIS VELOCITY



CHANNEL: LRRYV1 FILTER: CH. CLASS 180

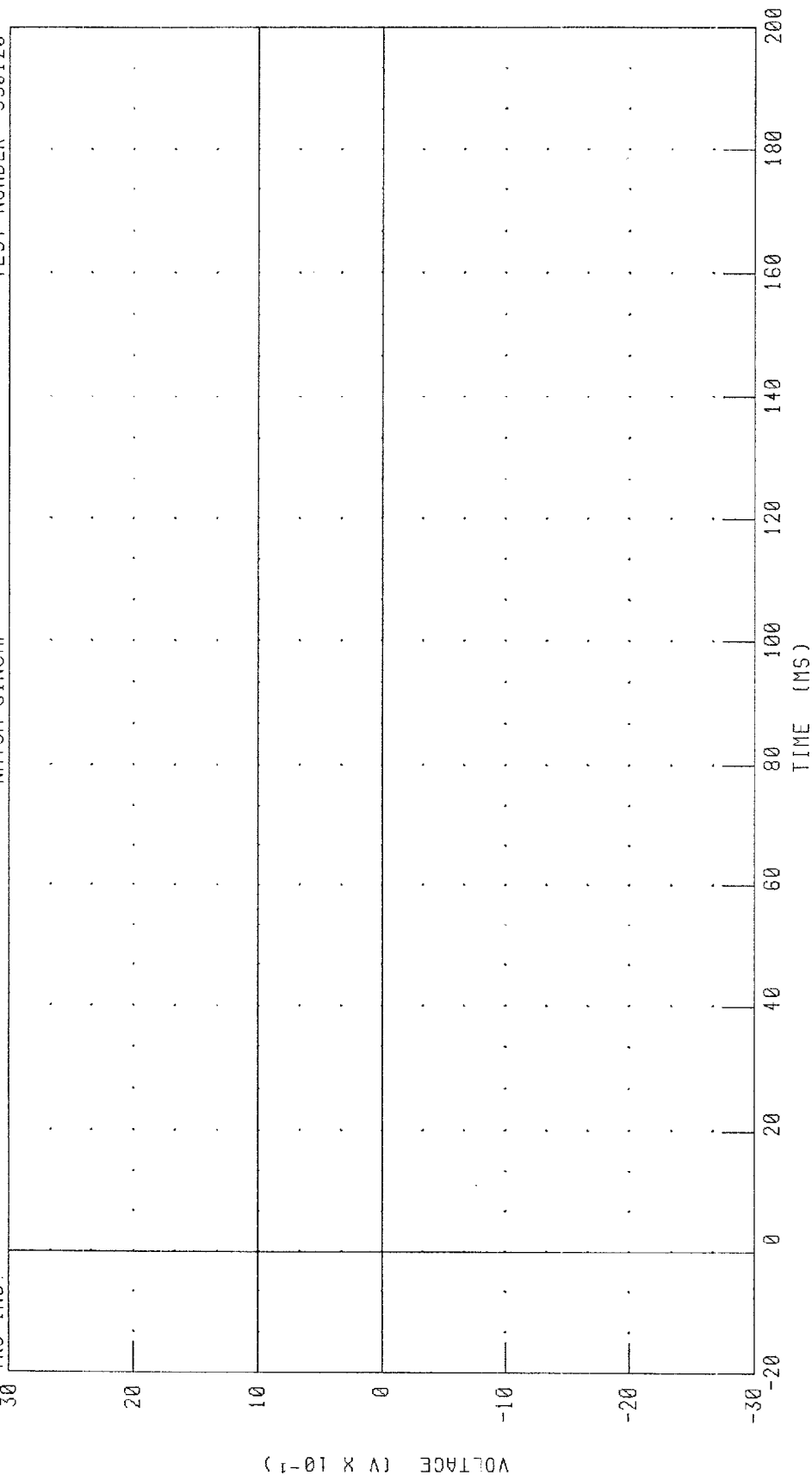
PEAK DATA: 31.69 KM/H @ 55.68 MS; 22.14 KM/H @ 194.96 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 MDB RIGHT CONTACT SWITCH

TEST NUMBER: 990120

NHTSA SINCAP

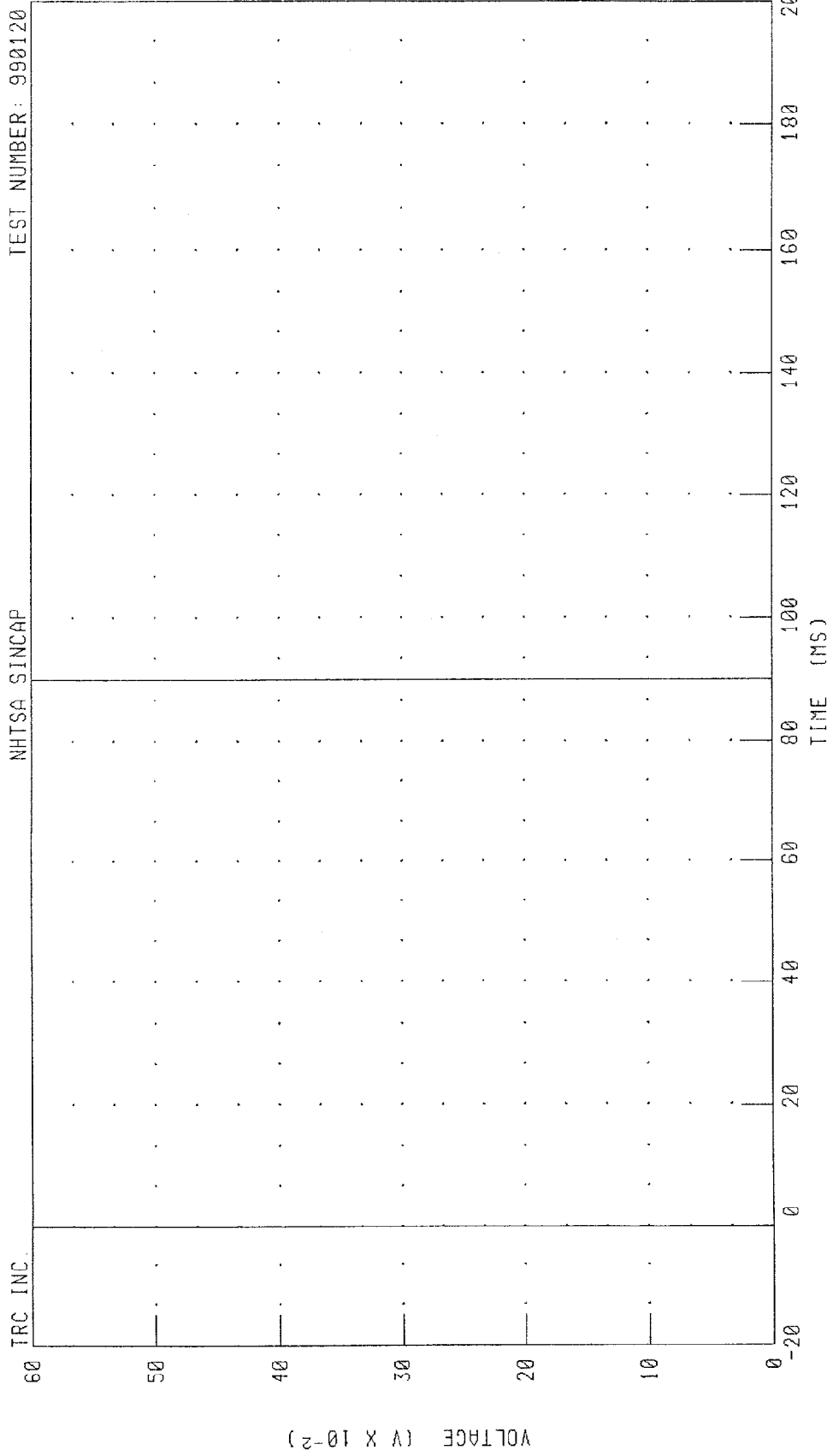
TRC INC.



PEAK DATA: 1.00 V @ 200.00 MS; 1.00 V @ -20.00 MS

CHANNEL: MDBR1 FILTER: CH. CLASS 1000

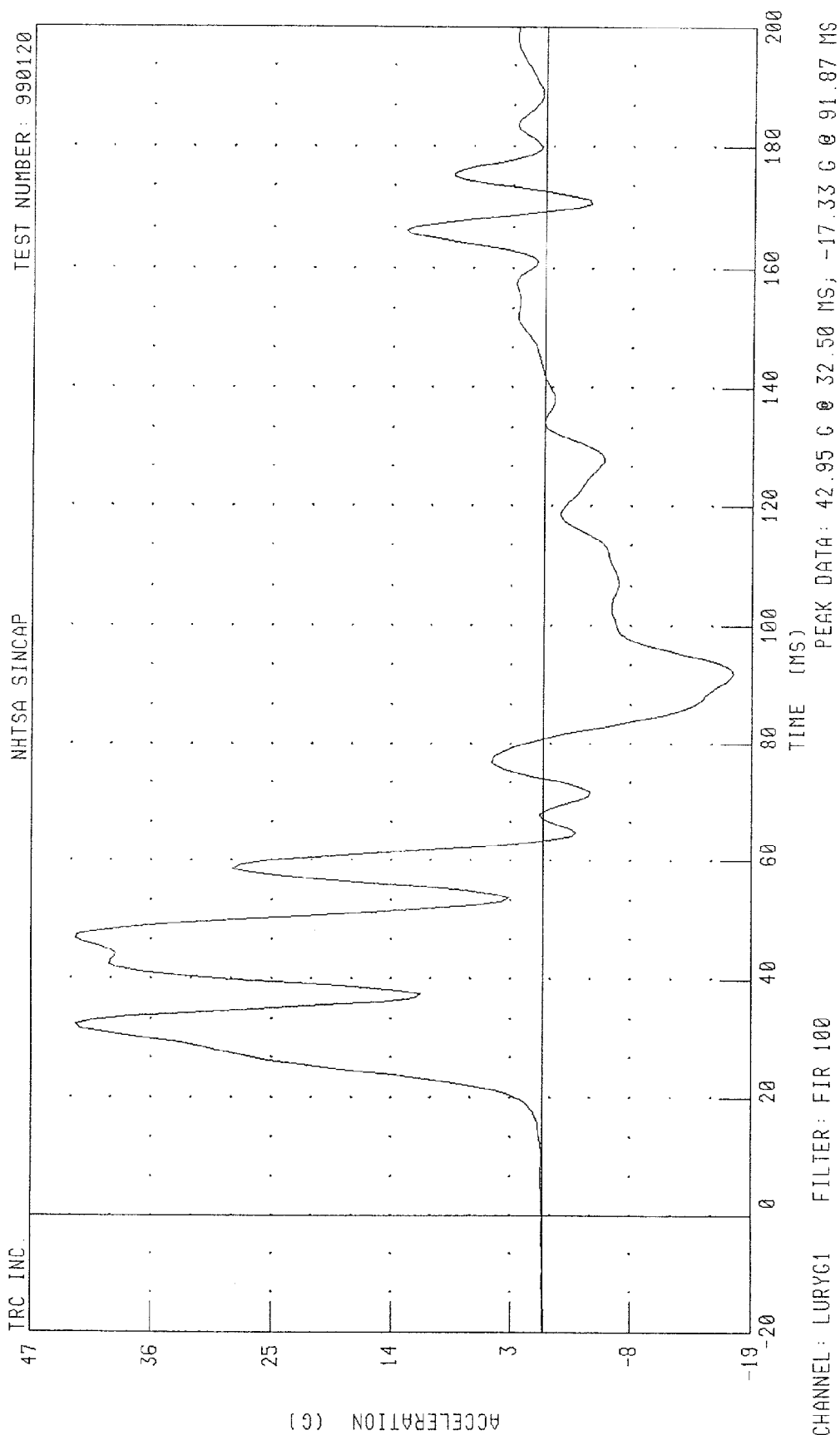
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 MDB LEFT CONTACT SWITCH



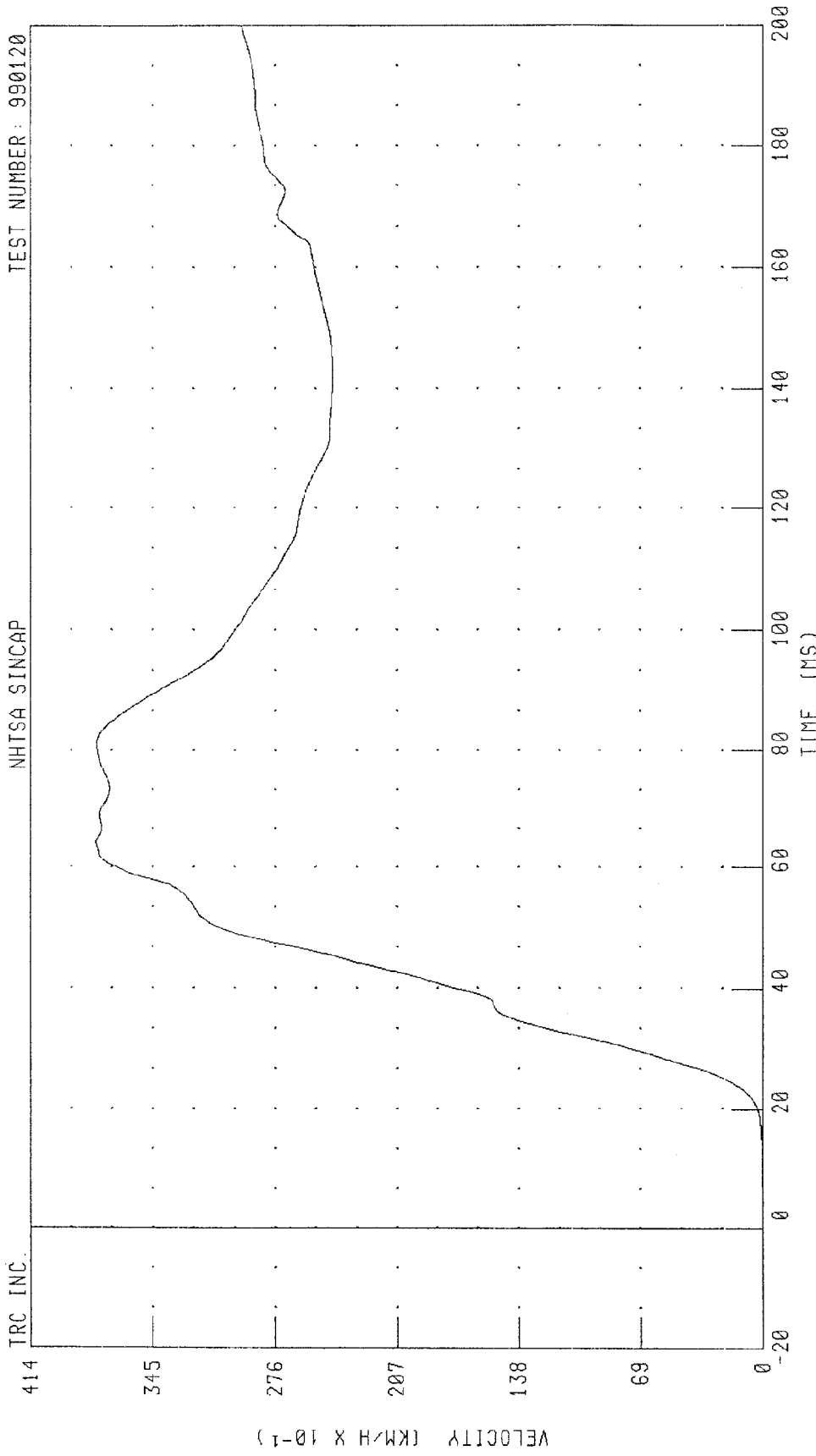
CHANNEL: MDBL1 FILTER: CH. CLASS 1000 PEAK DATA: 1.00 V @ 200.00 MS; 0.00 V @ -0.08 MS

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
DRIVER UPPER RIB Y-AXIS ACCELERATION



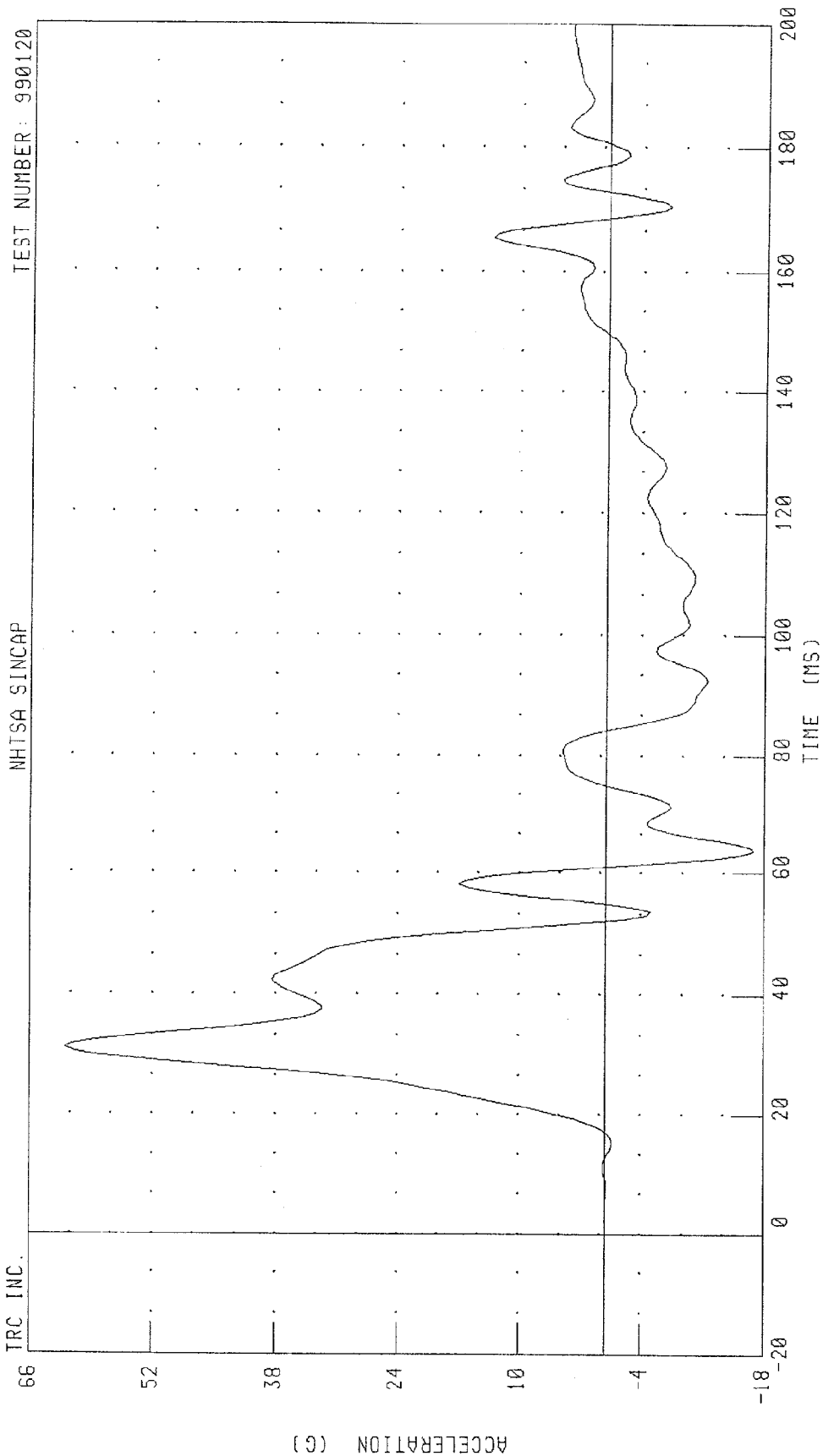
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER UPPER RIB Y-AXIS VELOCITY



PEAK DATA: 37.71 KM/H @ 64.32 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LURYV1 FILTER: CH CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER RIB Y-AXIS ACCELERATION



CHANNEL: LLRYC1 FILTER: FIR 100

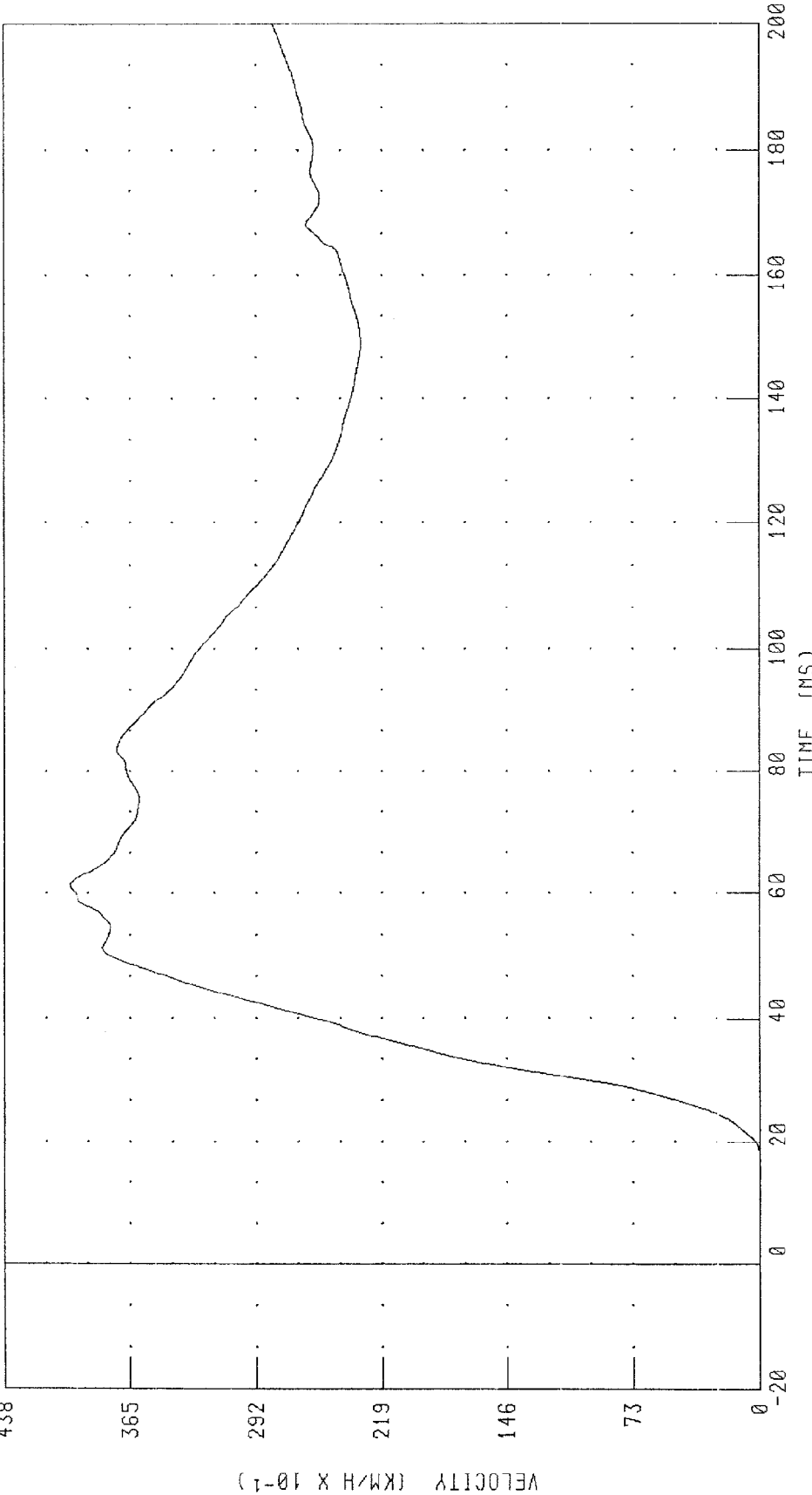
PEAK DATA: 61.94 G @ 31.25 MS; -16.70 G @ 63.75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

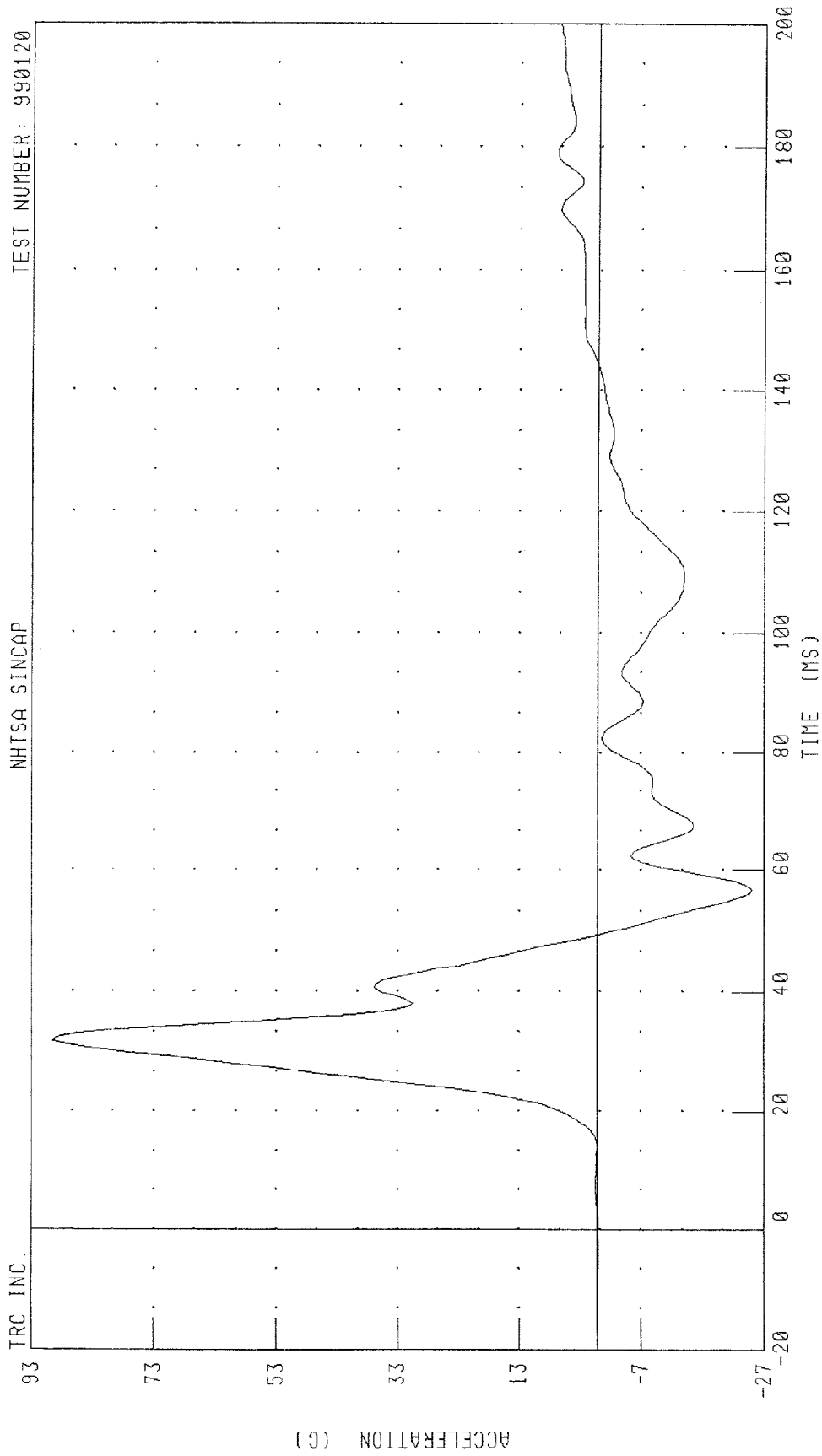
TRC INC.



PEAK DATA: 39.97 KM/H @ 61.28 MS; -0.05 KM/H @ 16.48 MS

CHANNEL: LLRYV1 FILTER: CH. CLASS 180

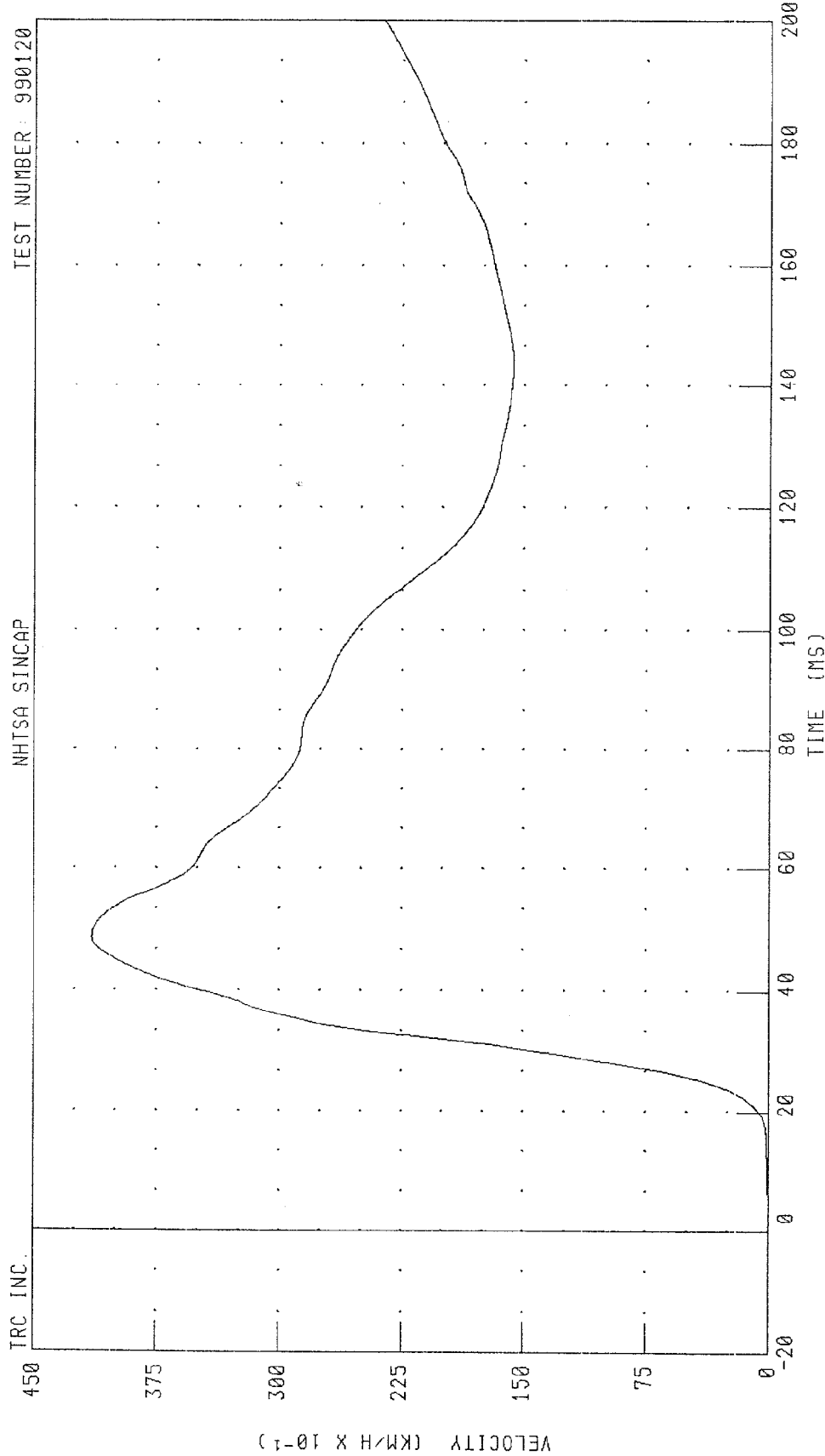
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER SPINE Y-AXIS ACCELERATION



CHANNEL: T12YG1 FILTER: FIR 100

PEAK DATA: 89.50 G @ 31.88 MS; -24.94 G @ 56.87 MS

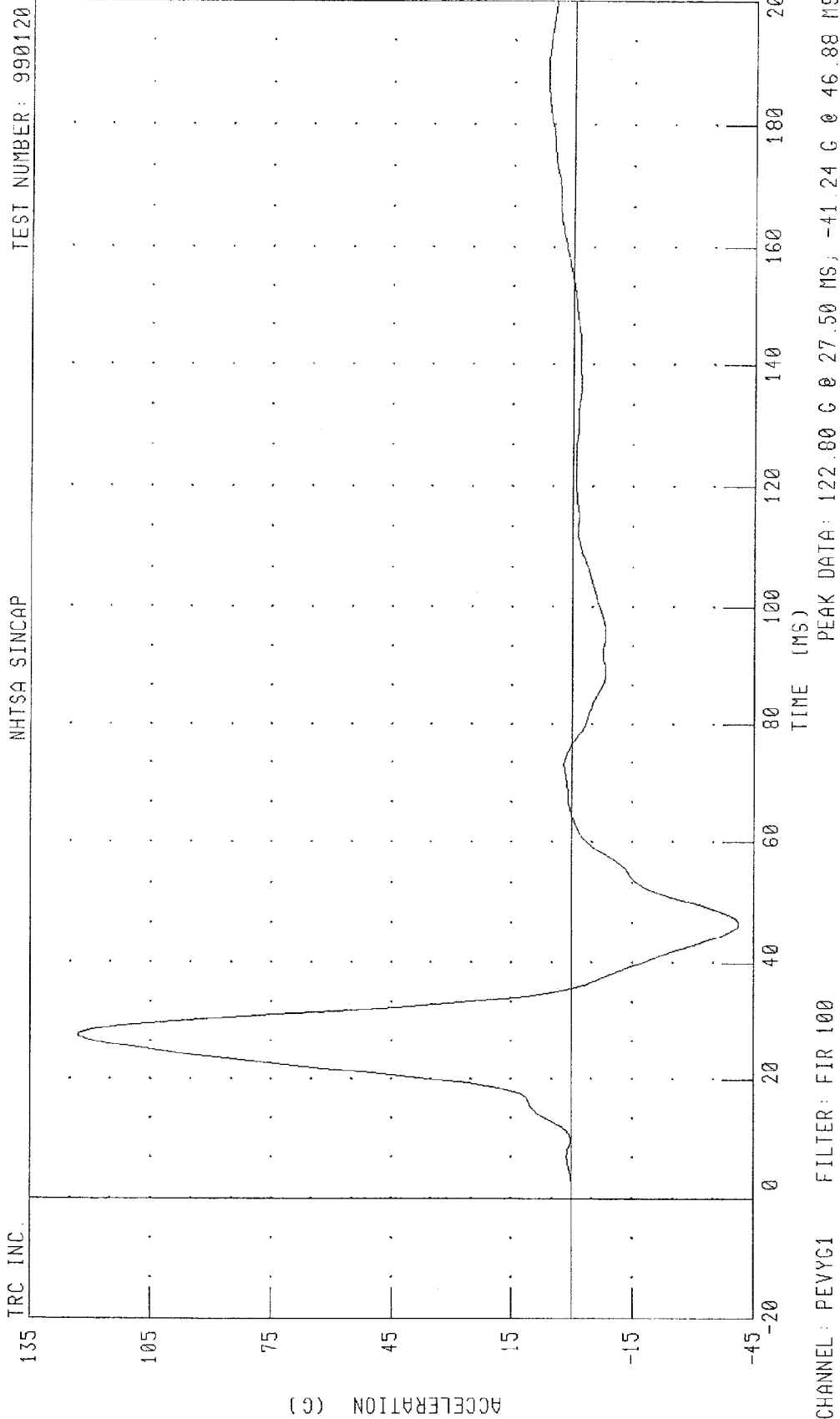
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
DRIVER LOWER SPINE Y-AXIS VELOCITY



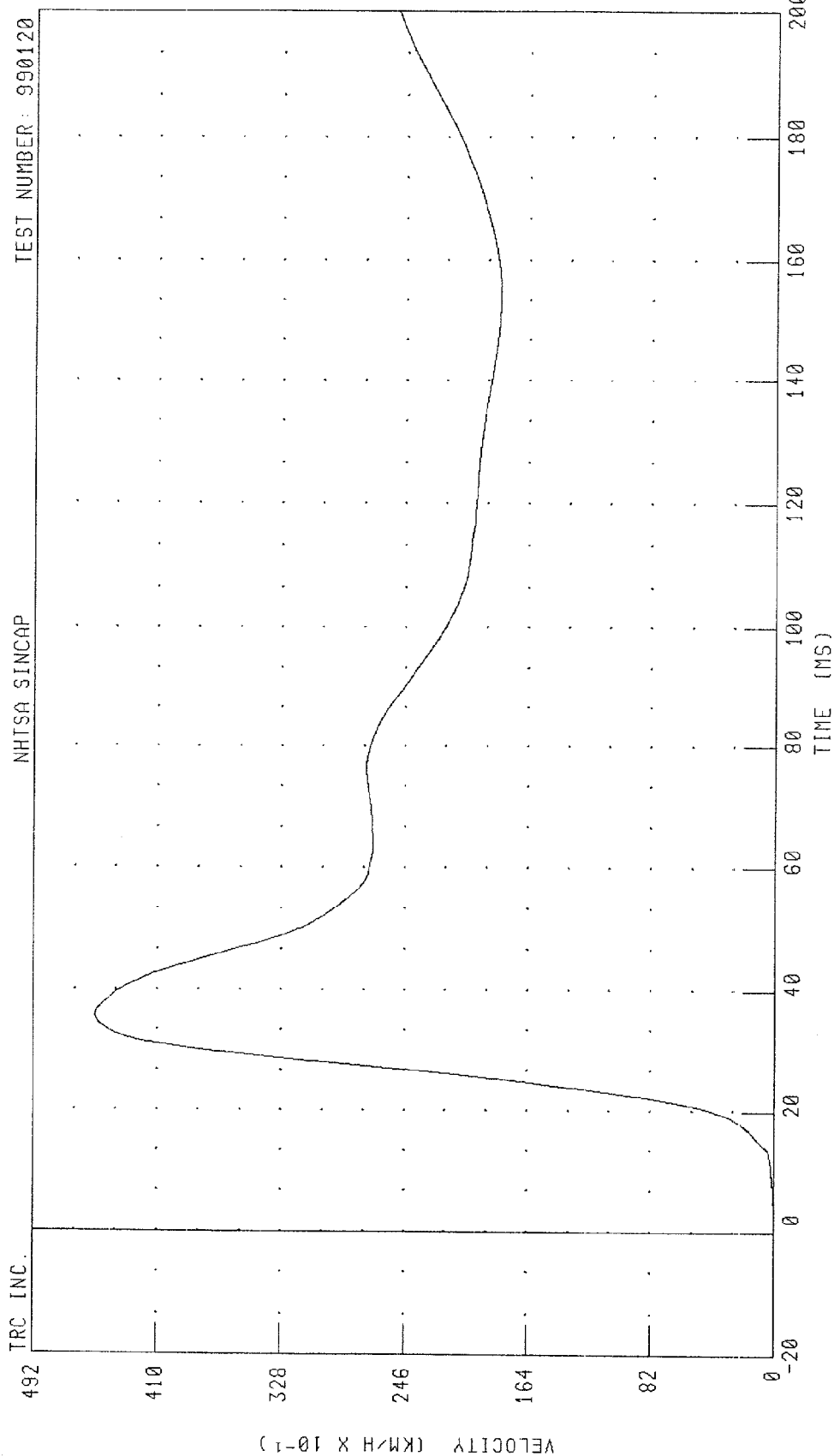
CHANNEL: T12YV1 FILTER: CH. CLASS 180

PEAK DATA: 41.43 KM/H @ 48.56 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER PELVIS Y-AXIS ACCELERATION



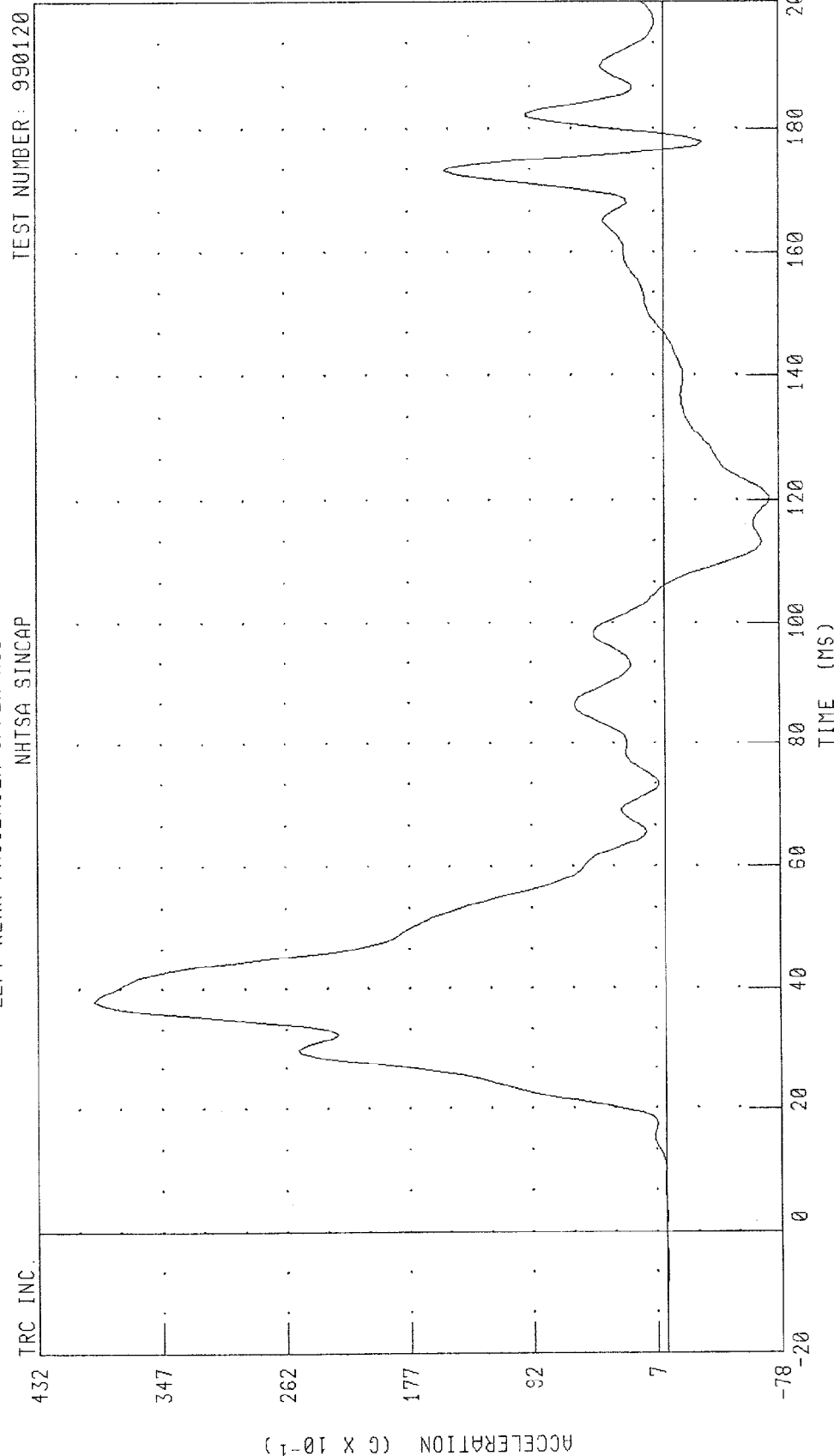
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
DRIVER PELVIS Y-AXIS VELOCITY



CHANNEL: PEVYV1 FILTER: CH. CLASS 180

PEAK DATA: 45.11 KM/H @ 35.76 MS; 0.00 KM/H @ 0.80 MS

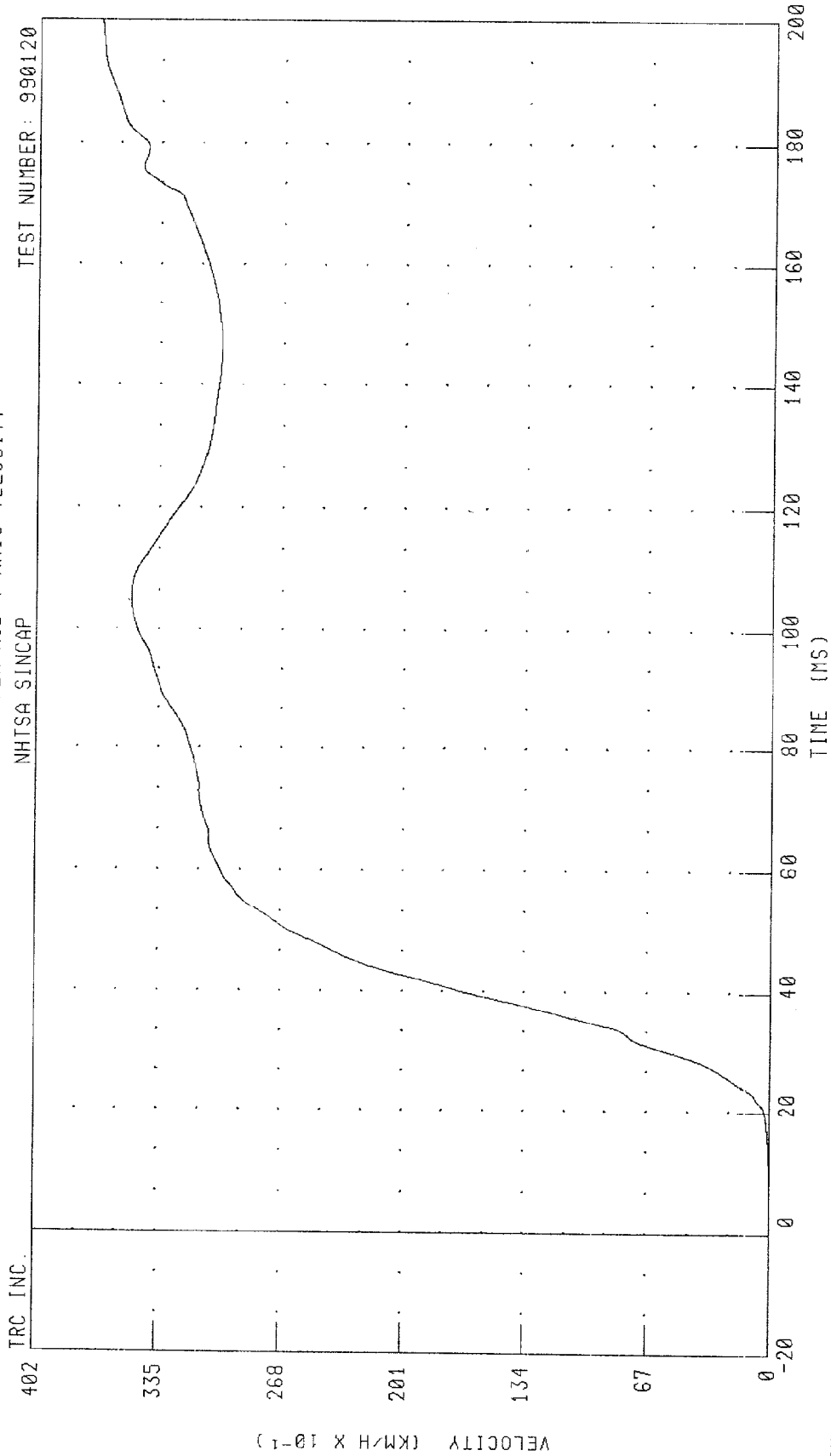
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION



CHANNEL: LURYG4 FILTER: FIR 100

PEAK DATA: 39 31 G @ 38.13 MS; -7.13 G @ 120.63 MS

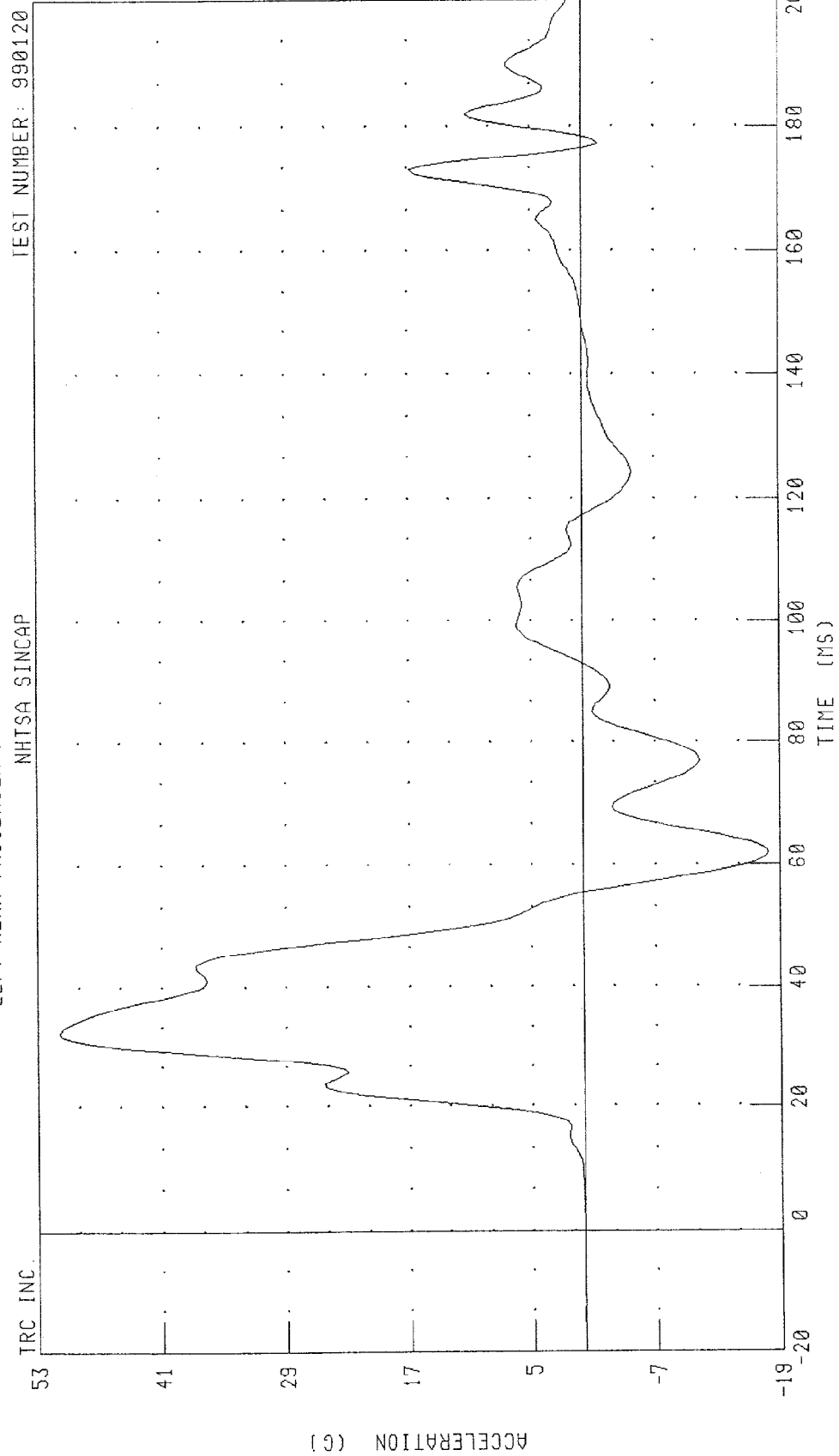
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY



PEAK DATA: 36.82 KM/H @ 200.00 MS; 0.00 KN/H @ 0.00 MS

CHANNEL: LURYV4 FILTER: CH. CLASS 180

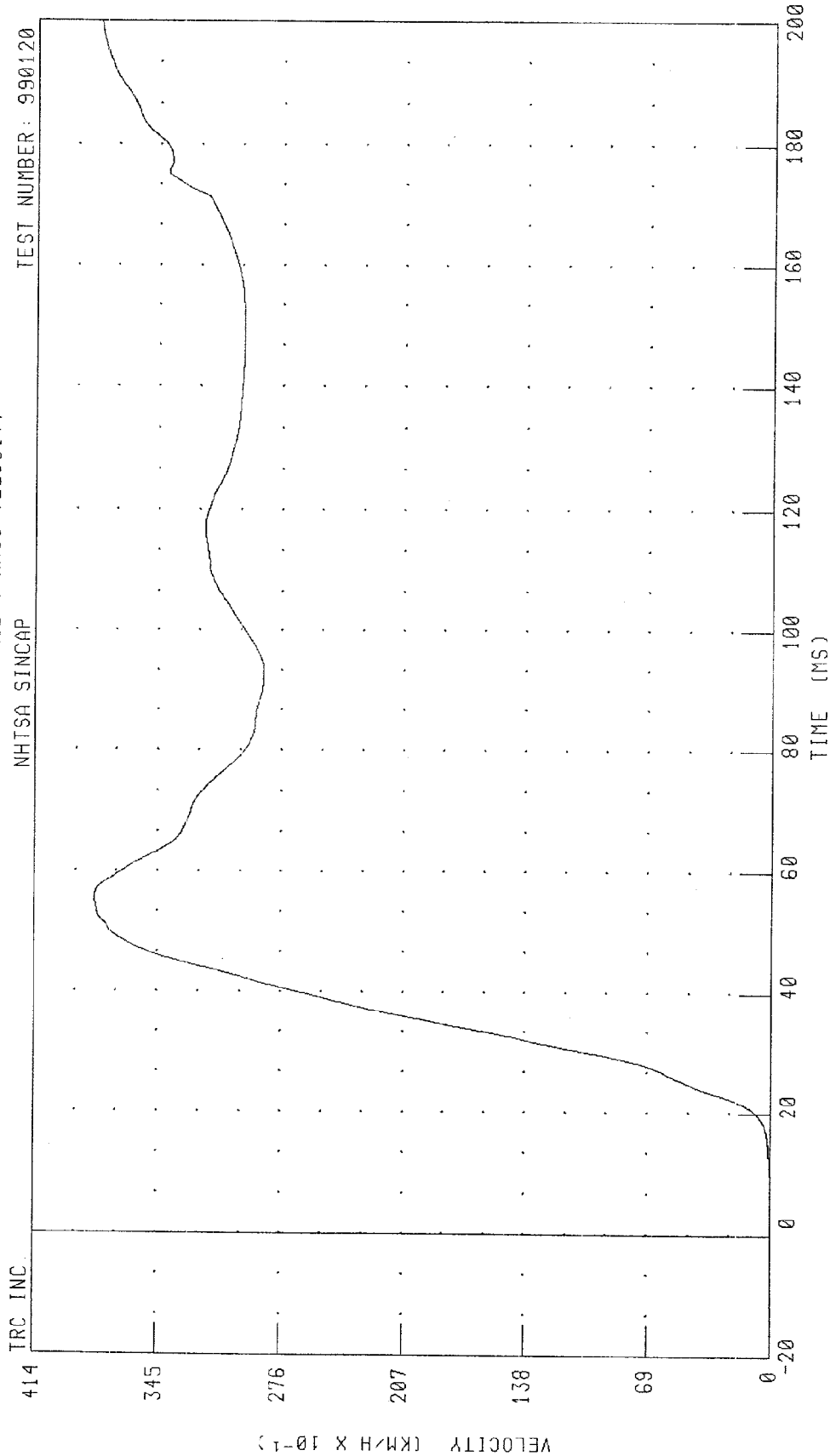
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION



CHANNEL: LLRYG4 FILTER: FIR 100

PEAK DATA: 50.87 G @ 32.50 MS, -17.90 G @ 61.87 MS

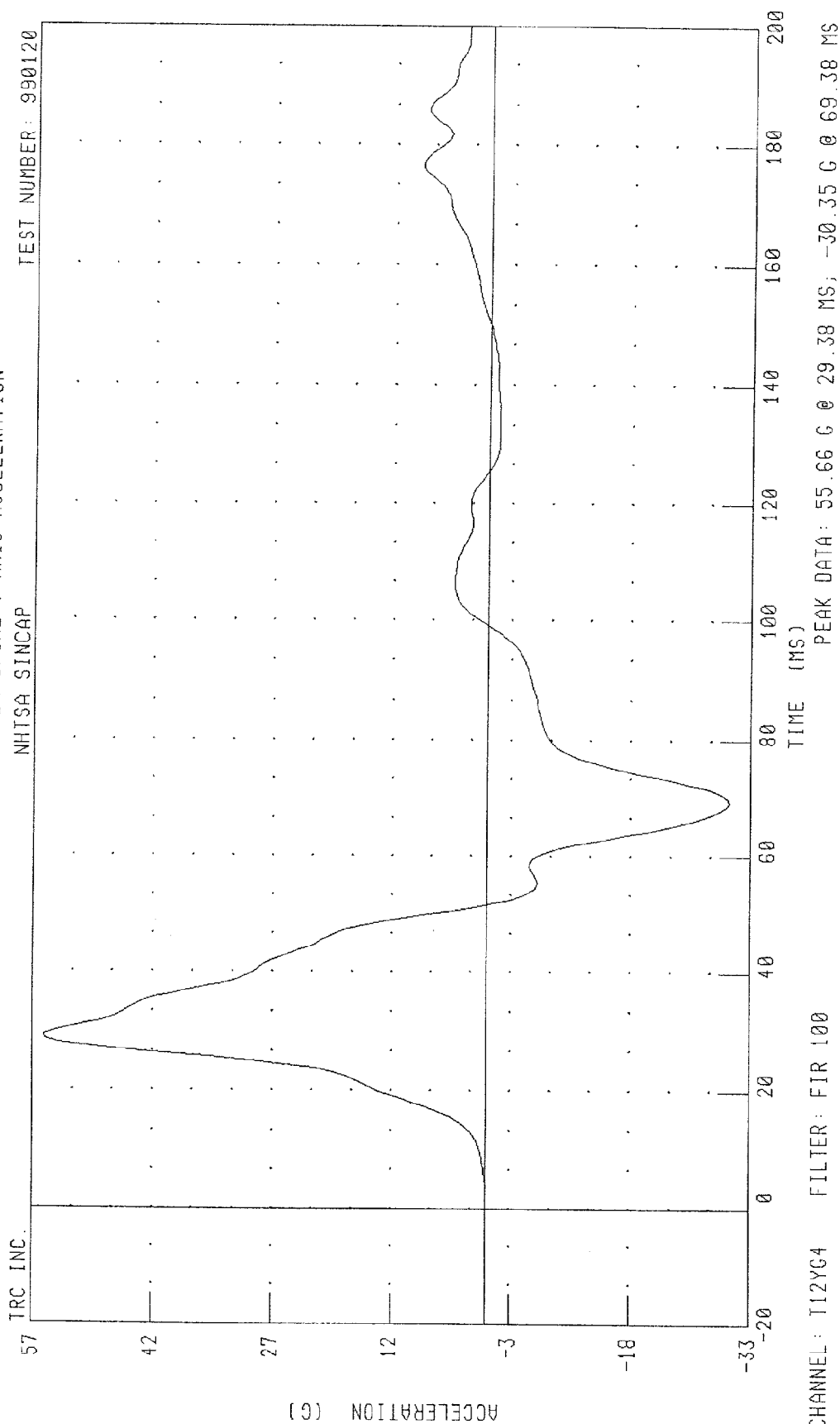
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY



PEAK DATA: 38.01 KM/H @ 55.68 MS; 0.00 KM/H @ 3.20 MS

CHANNEL: LLRYV4 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

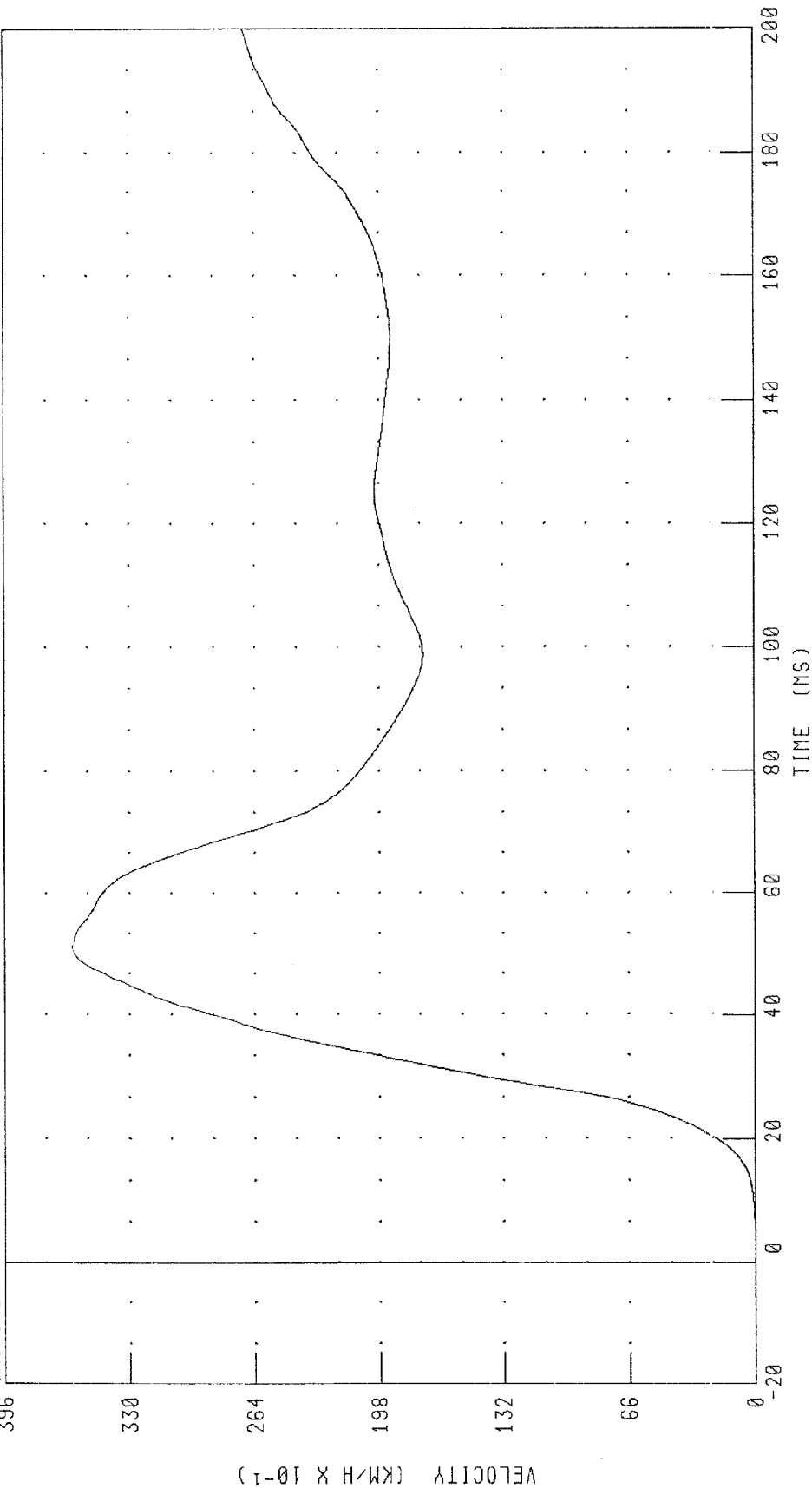


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

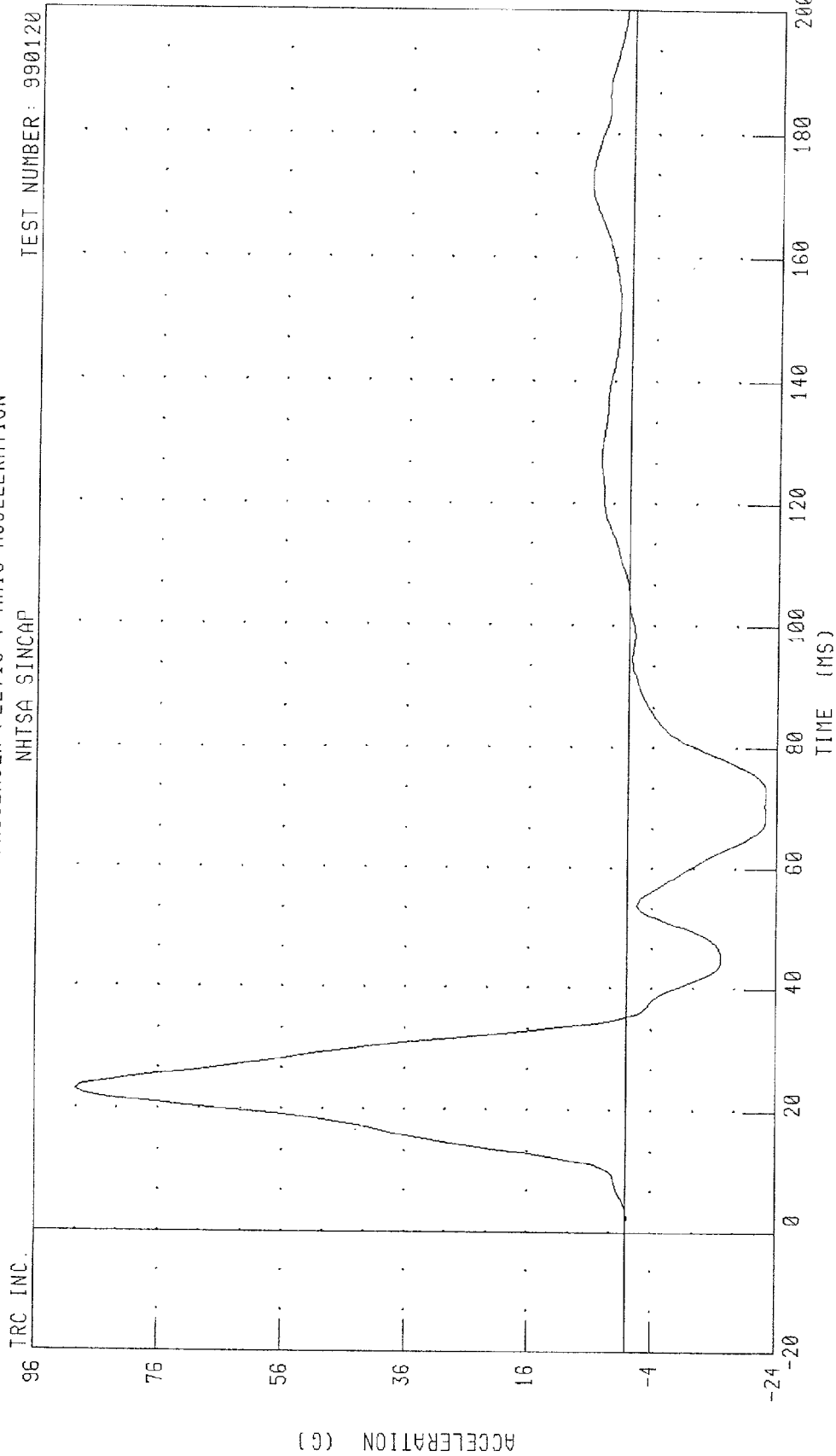
TRC INC.



PEAK DATA: 36.01 KM/H @ 51.04 MS; 0.00 KM/H @ 2.08 MS

CHANNEL: T12VV4 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION



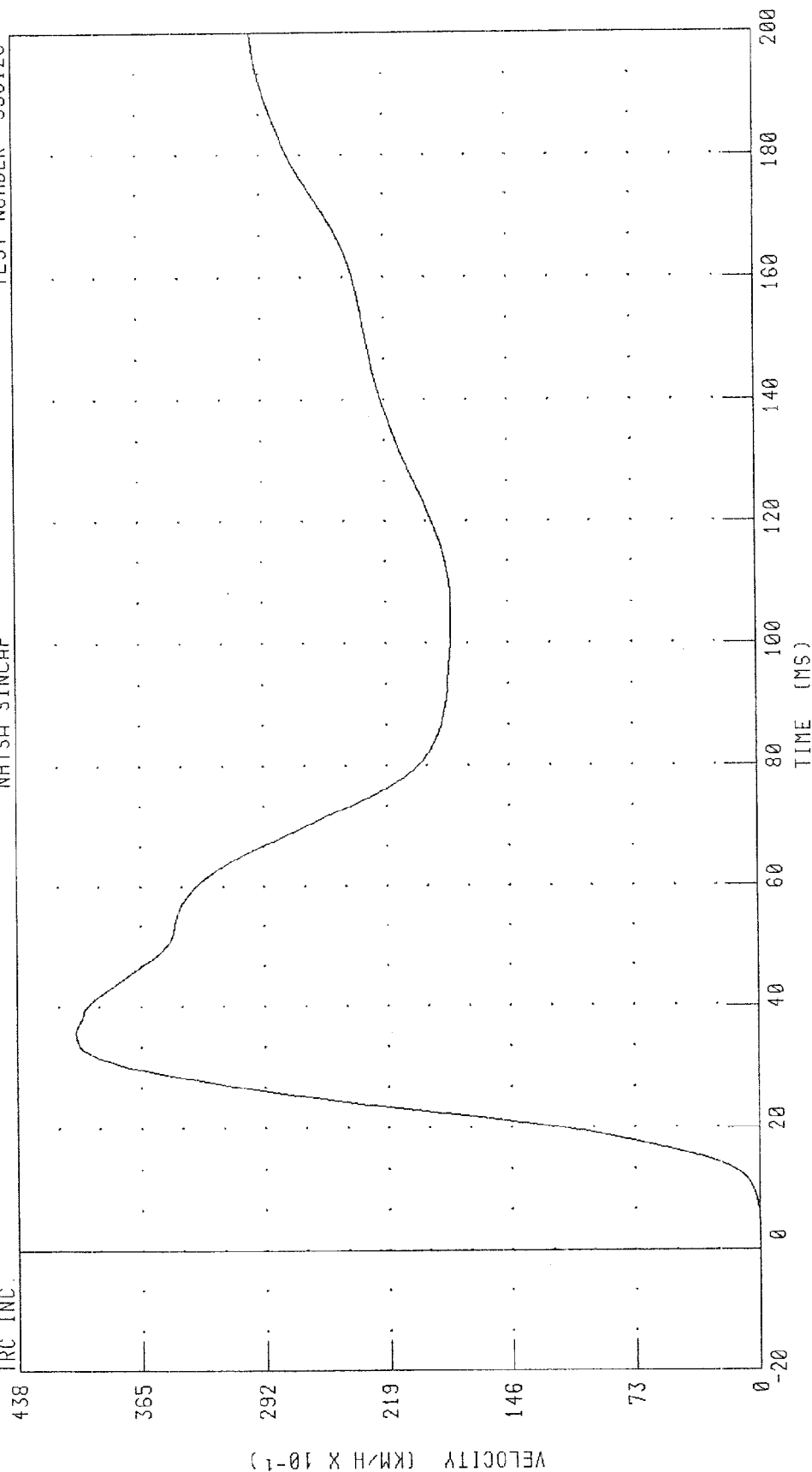
CHANNEL: PEYGC4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.

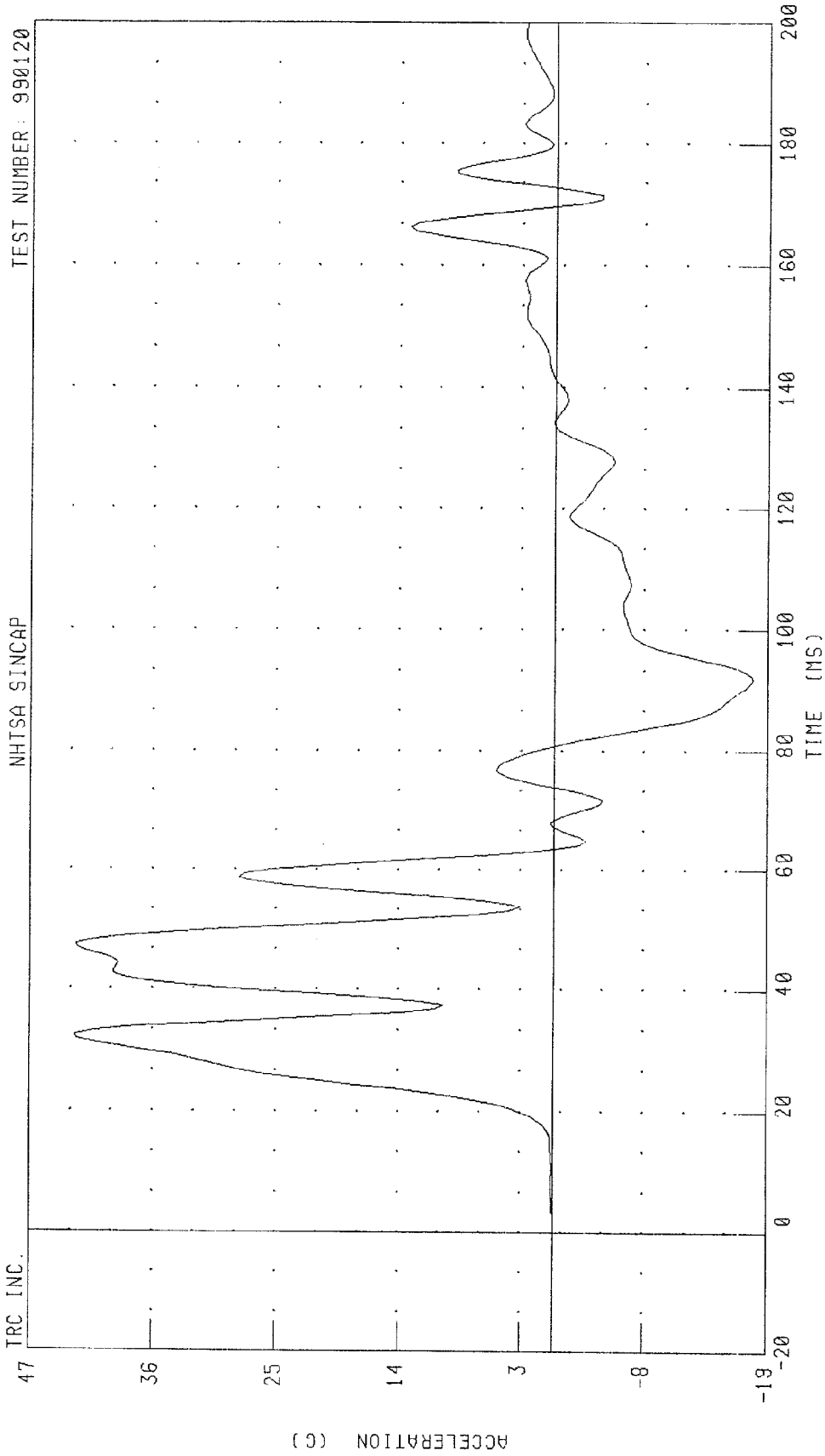


PEAK DATA: 40.33 KM/H @ 35.68 MS; 0.00 KM/H @ 0.72 MS

CHANNEL: PEVYV4 FILTER: CH. CLASS 180

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

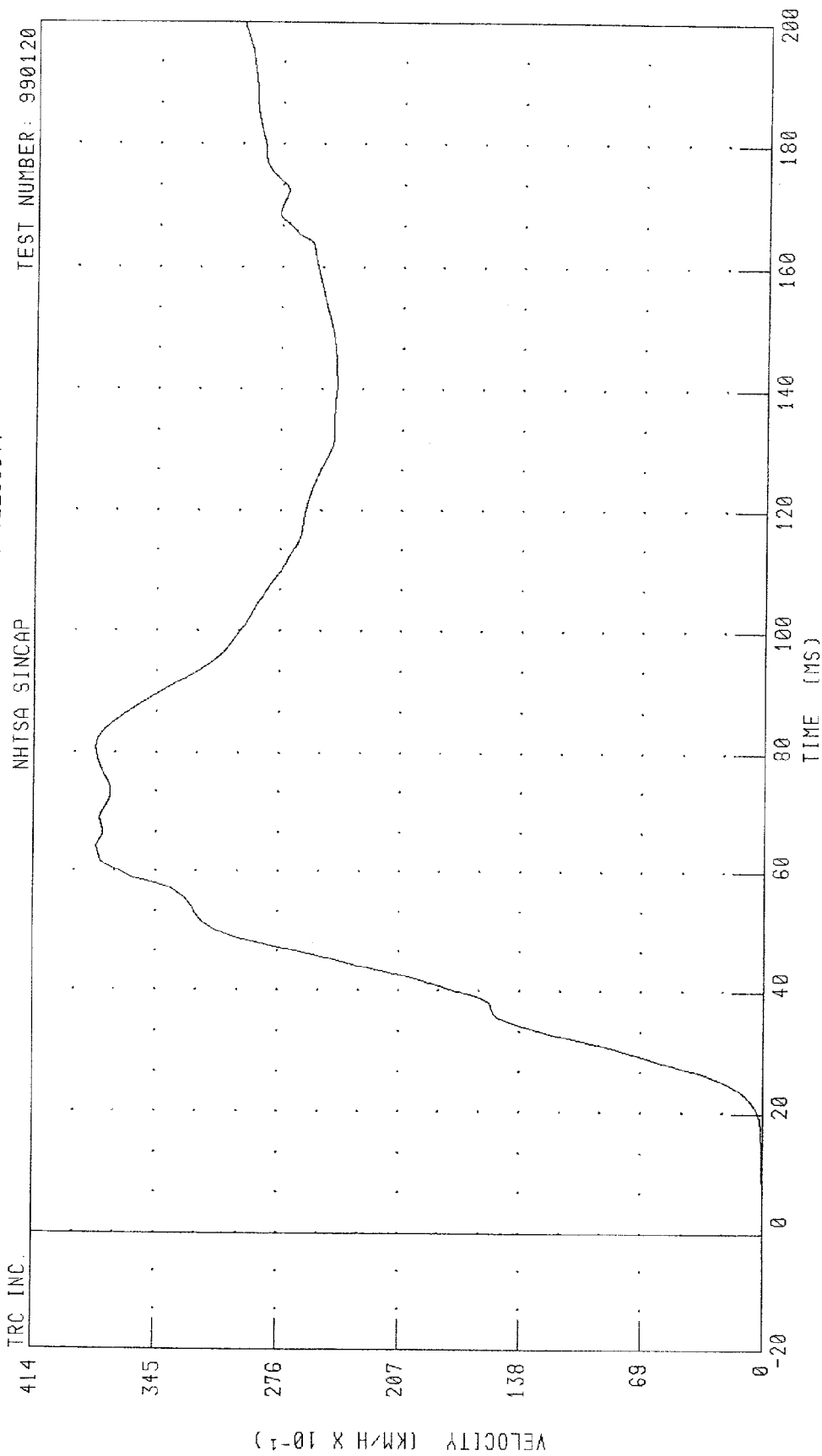
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION



PEAK DATA: 42.95 G @ 32.50 MS; -17.69 G @ 91.87 MS

CHANNEL: LURYR1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY



PEAK DATA: 37.88 KM/H @ 80.96 MS, 0.00 KM/H @ 0.32 MS

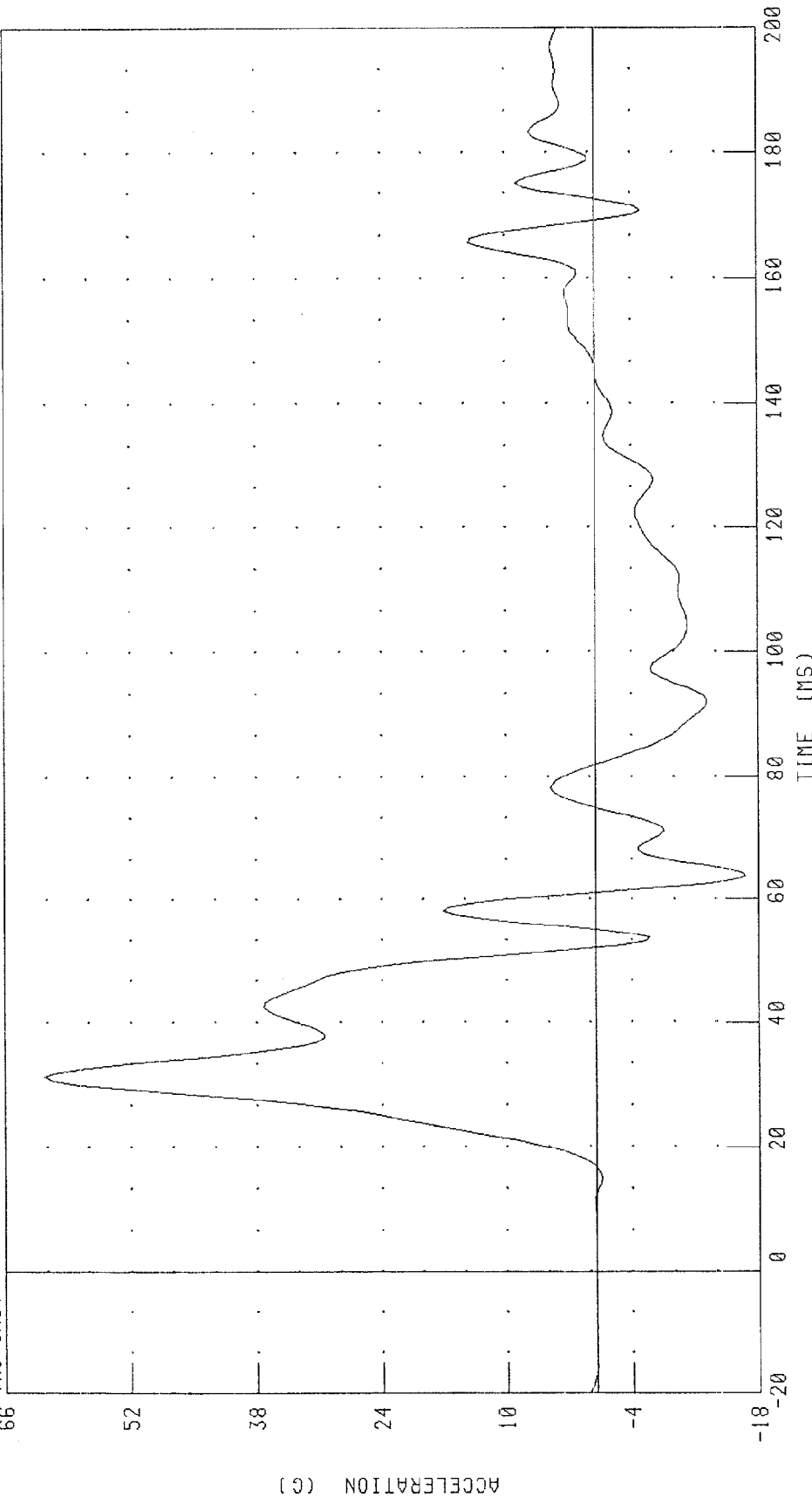
CHANNEL: LURYVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

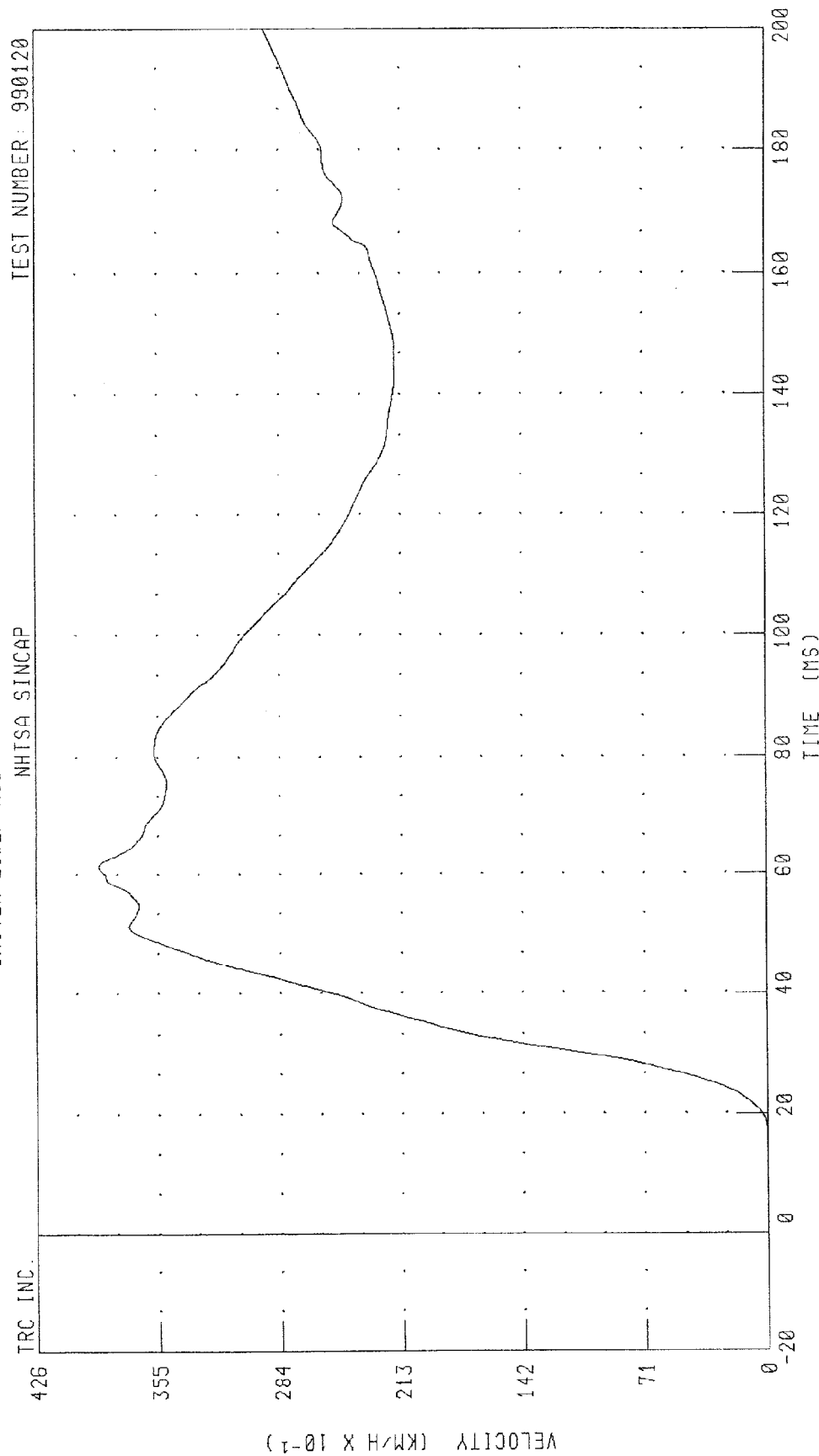
TRC INC.



PEAK DATA: 61.61 G @ 31.25 MS; -16.54 G @ 63.75 MS

CHANNEL: LLRYR1 FILTER: FIR 100

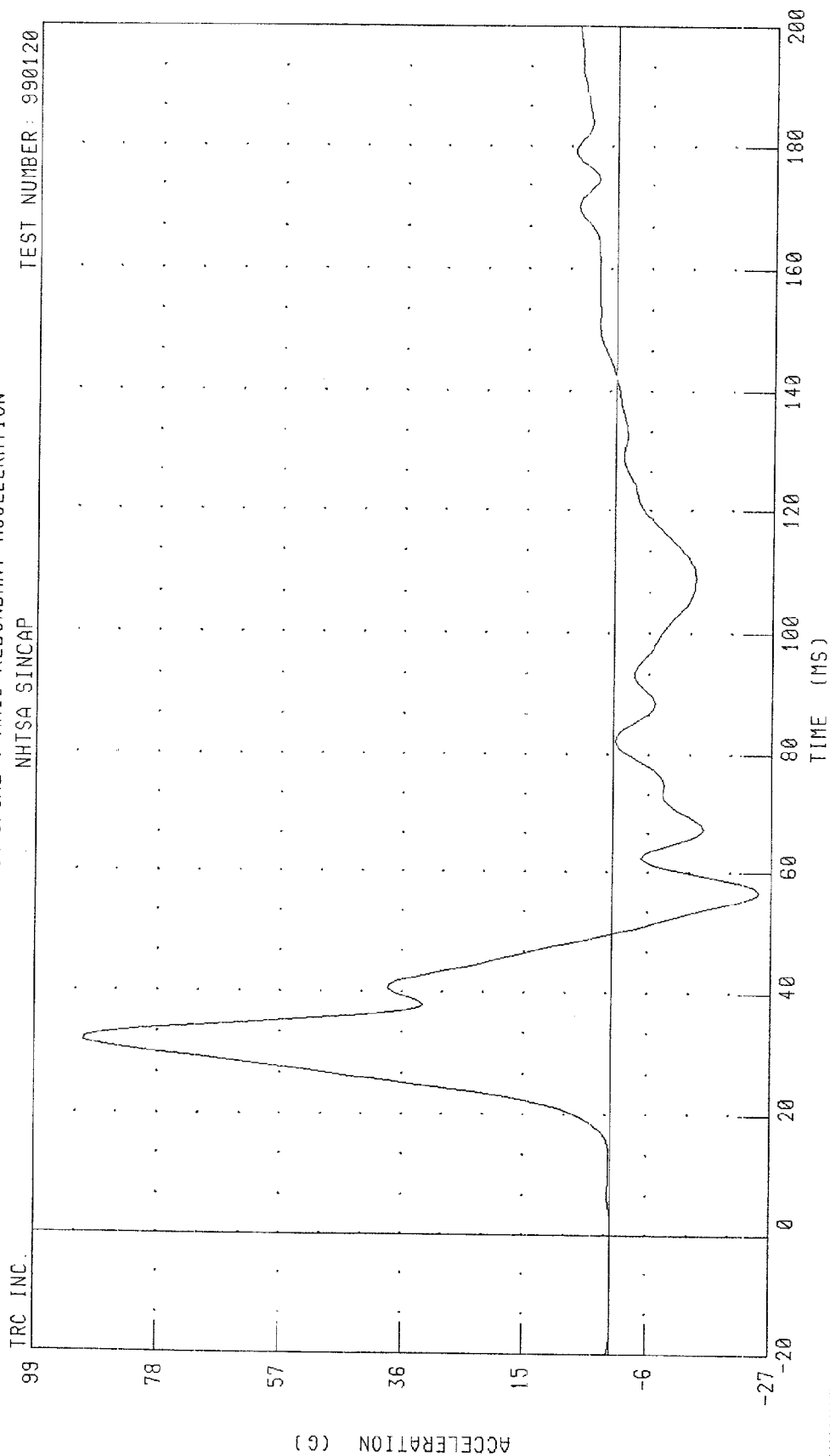
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY



PEAK DATA: 38.94 KM/H @ 61.36 MS; -0.03 KM/H @ 16.32 MS

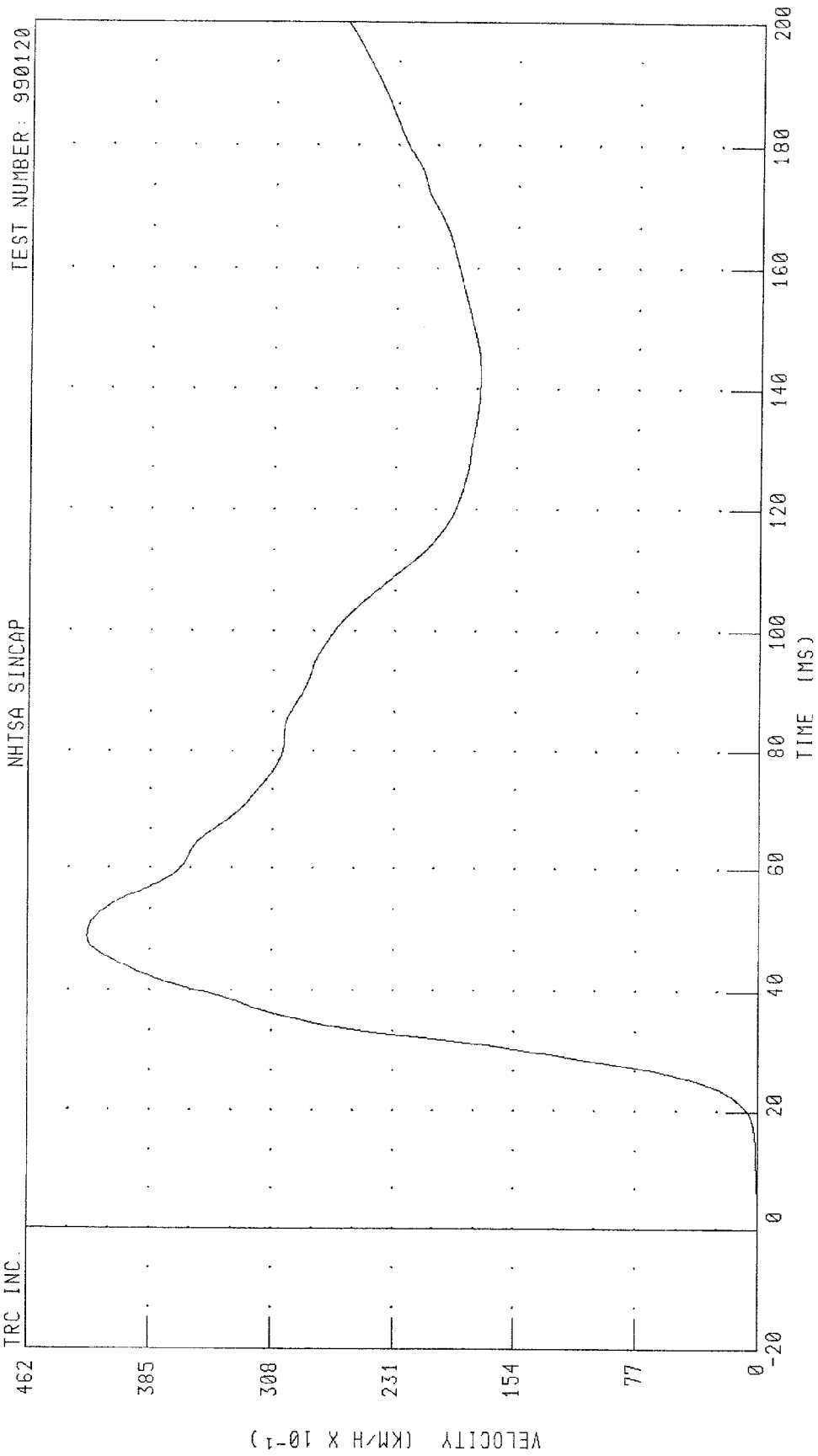
CHANNEL: LLRYVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION



CHANNEL: T12YR1 FILTER: FIR 100 PEAK DATA: 90.74 G @ 31.88 MS; -24.91 G @ 56.87 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY



CHANNEL: T12YVI FILTER: CH. CLASS 180

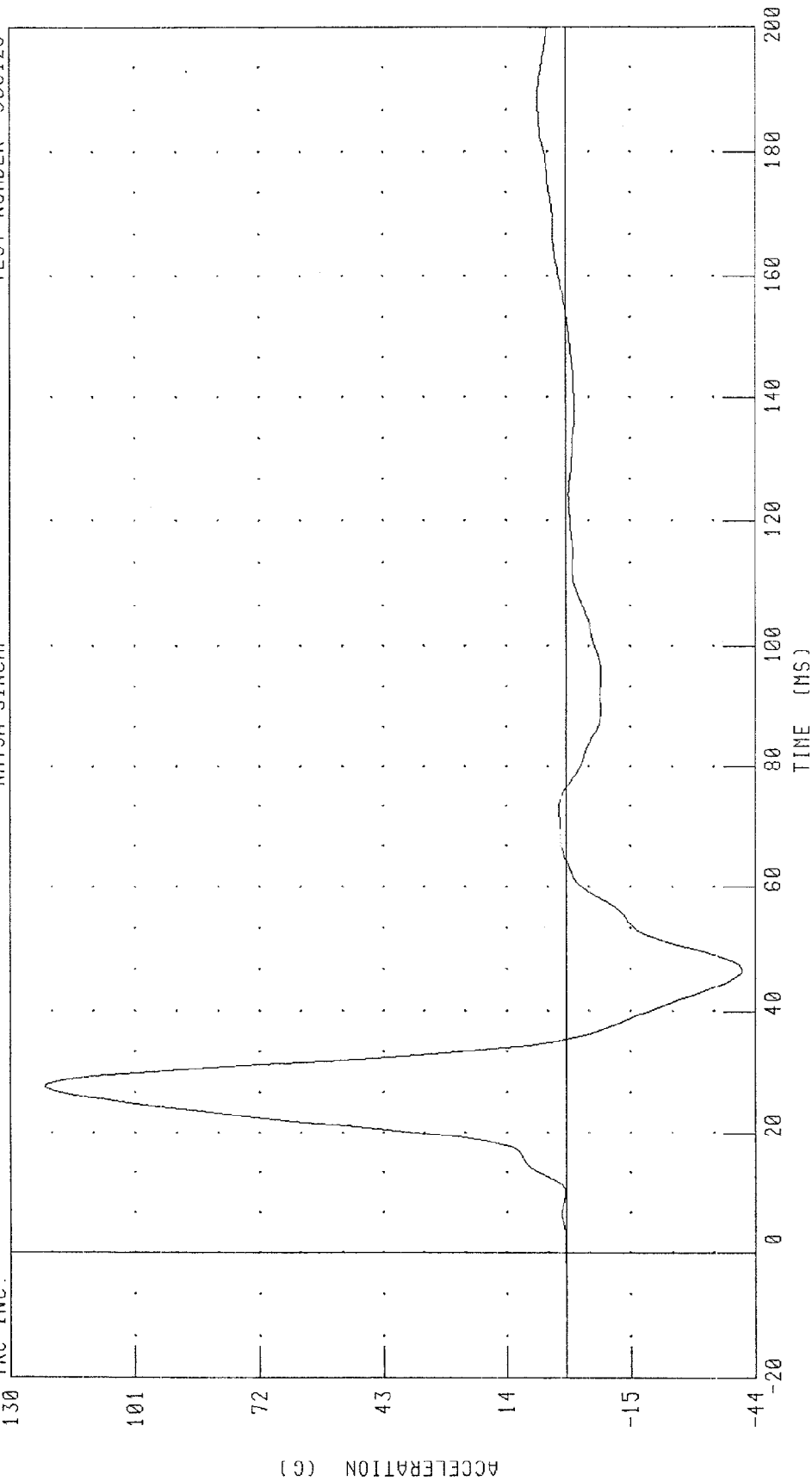
PEAK DATA: 42.47 KM/H @ 49.04 MS; 0.00 KM/H @ 2.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

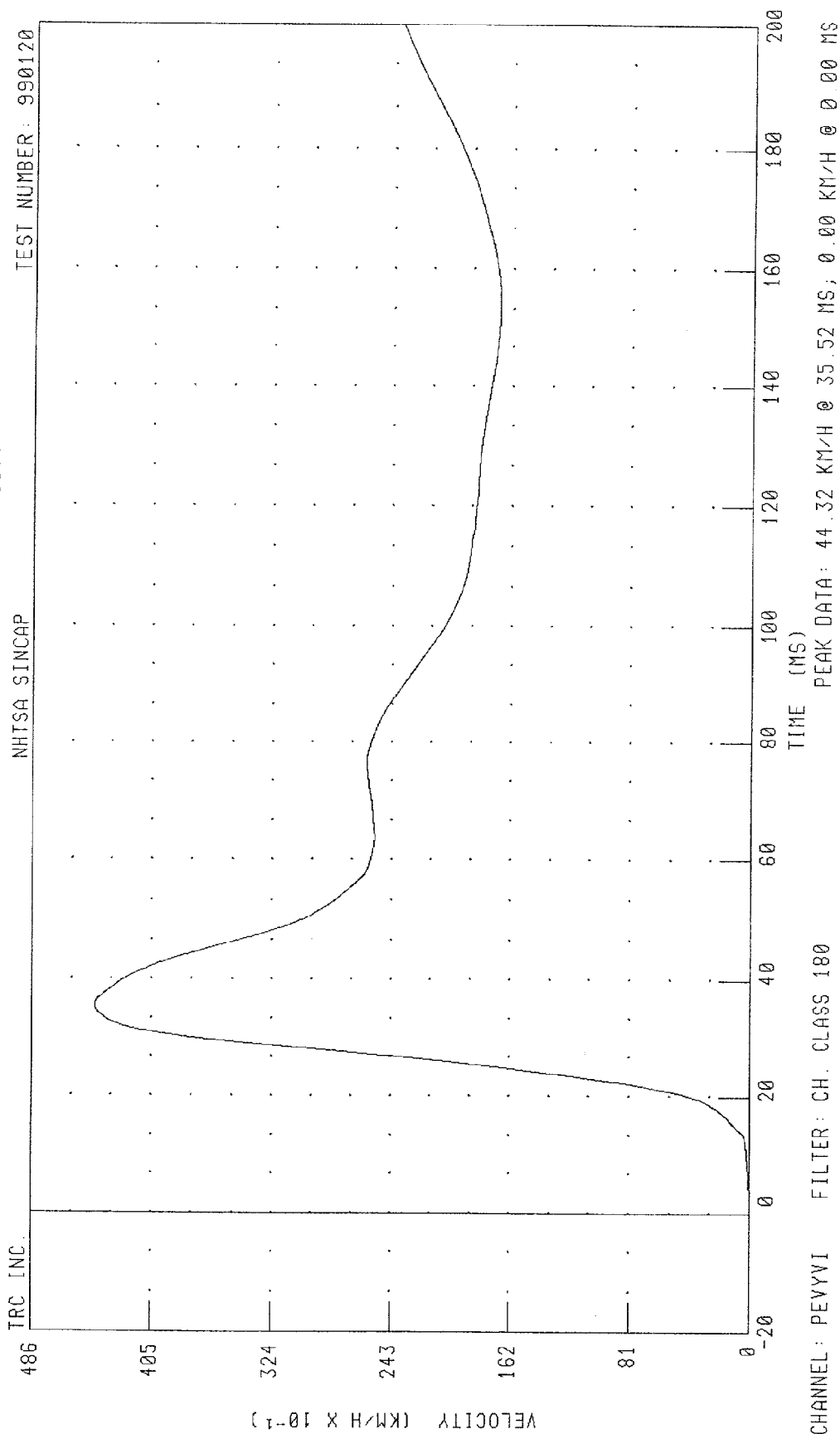
TRC INC.



PEAK DATA: 121.90 G @ 27.50 MS, -40.79 G @ 46.88 MS

CHANNEL: PEVYR1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

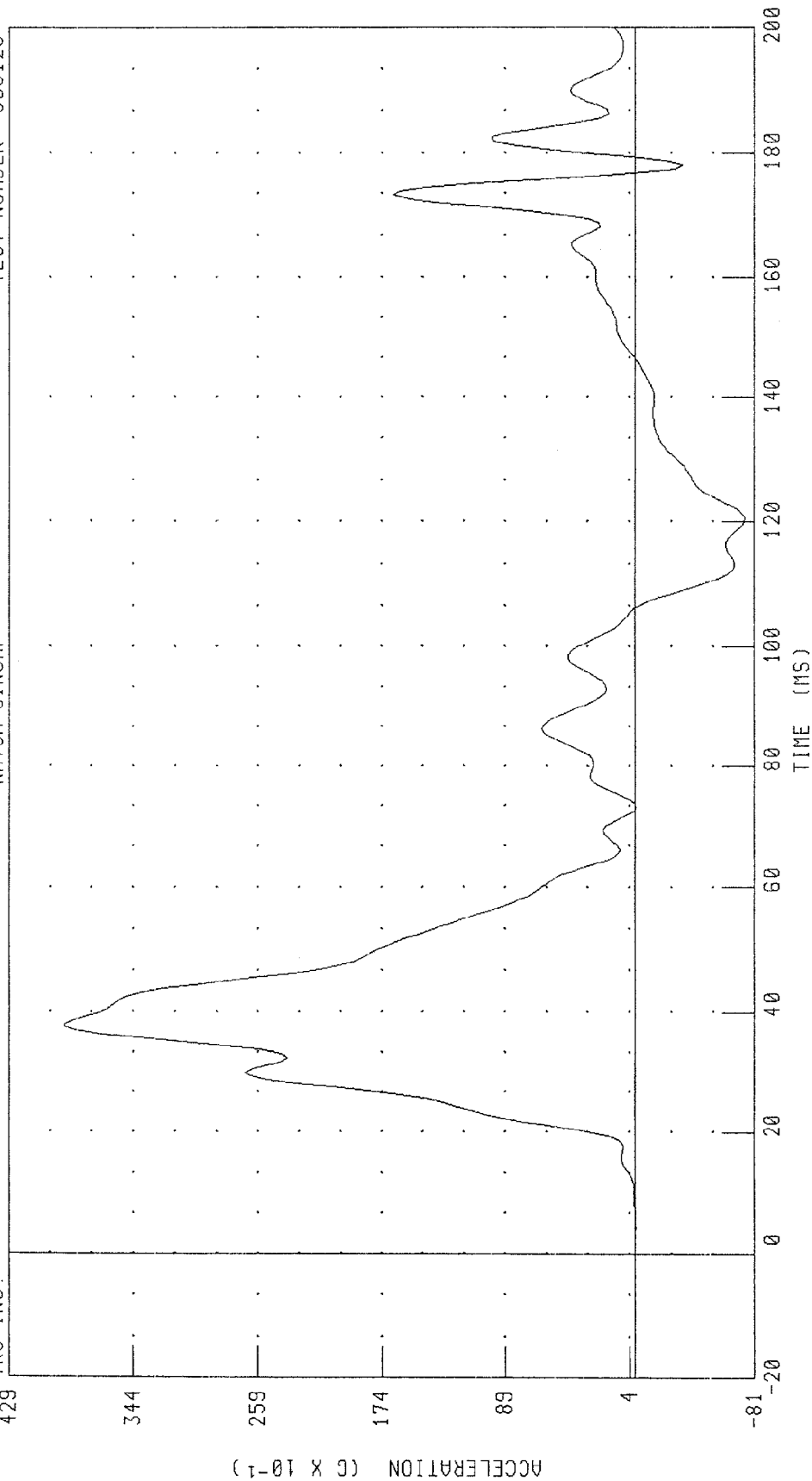


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

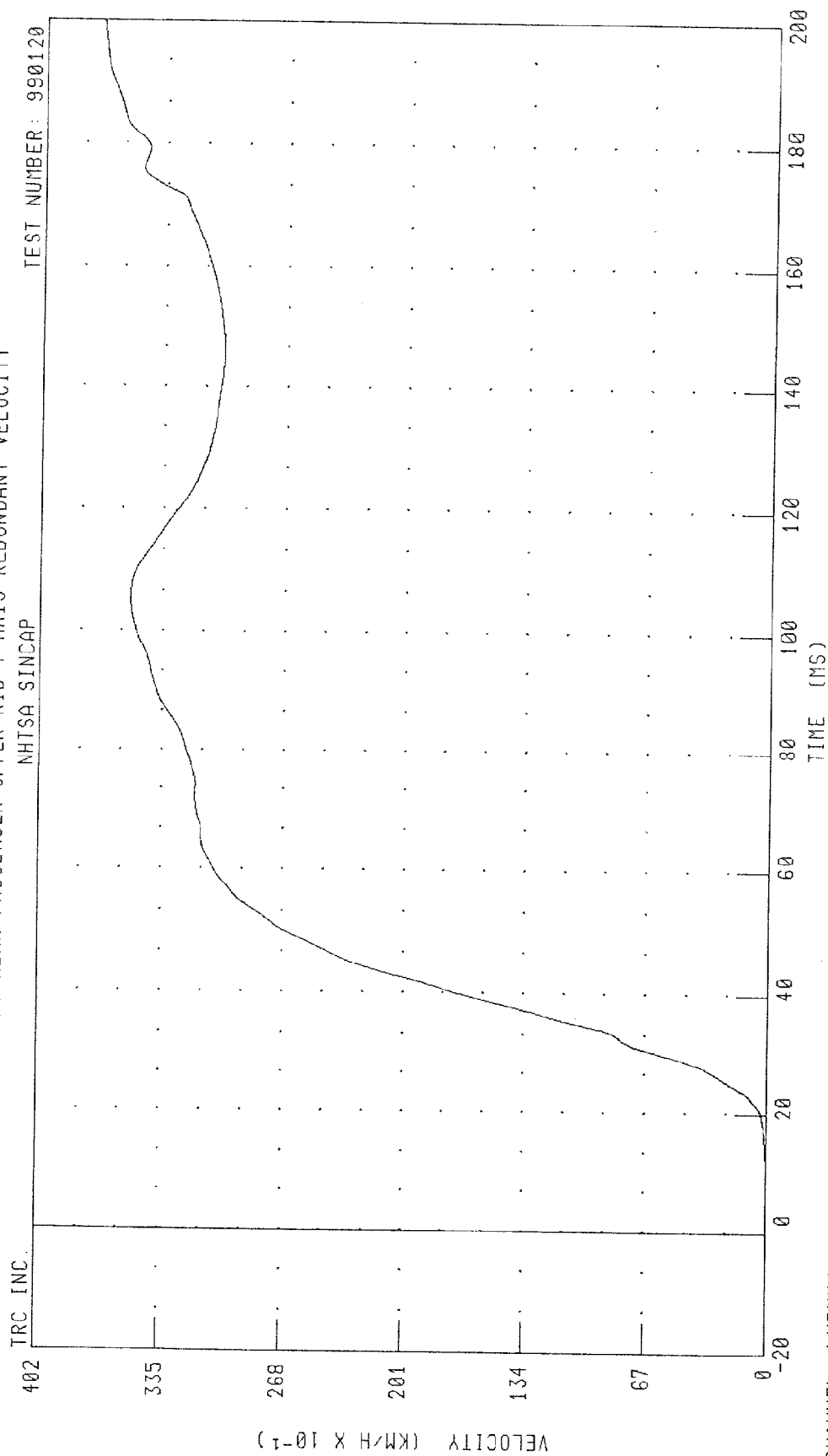
TRC INC.



PEAK DATA: 39.11 G @ 37.50 MS; -7.43 G @ 120.63 MS

CHANNEL: LURYR4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY



CHANNEL: LURVVJ FILTER: CH. CLASS 180

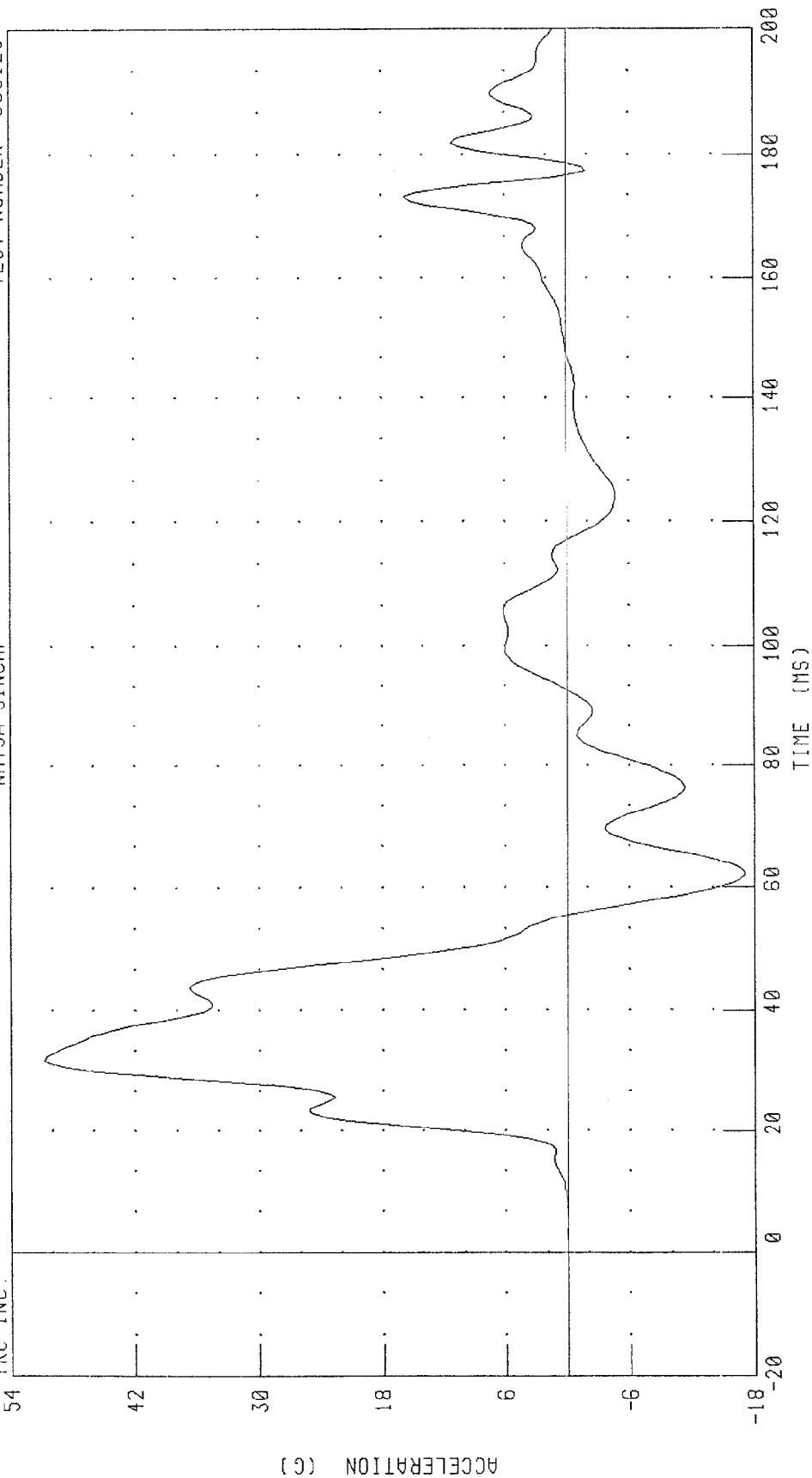
PEAK DATA: 37.08 KM/H @ 200.00 MS; 0.00 KM/H @ 6.80 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

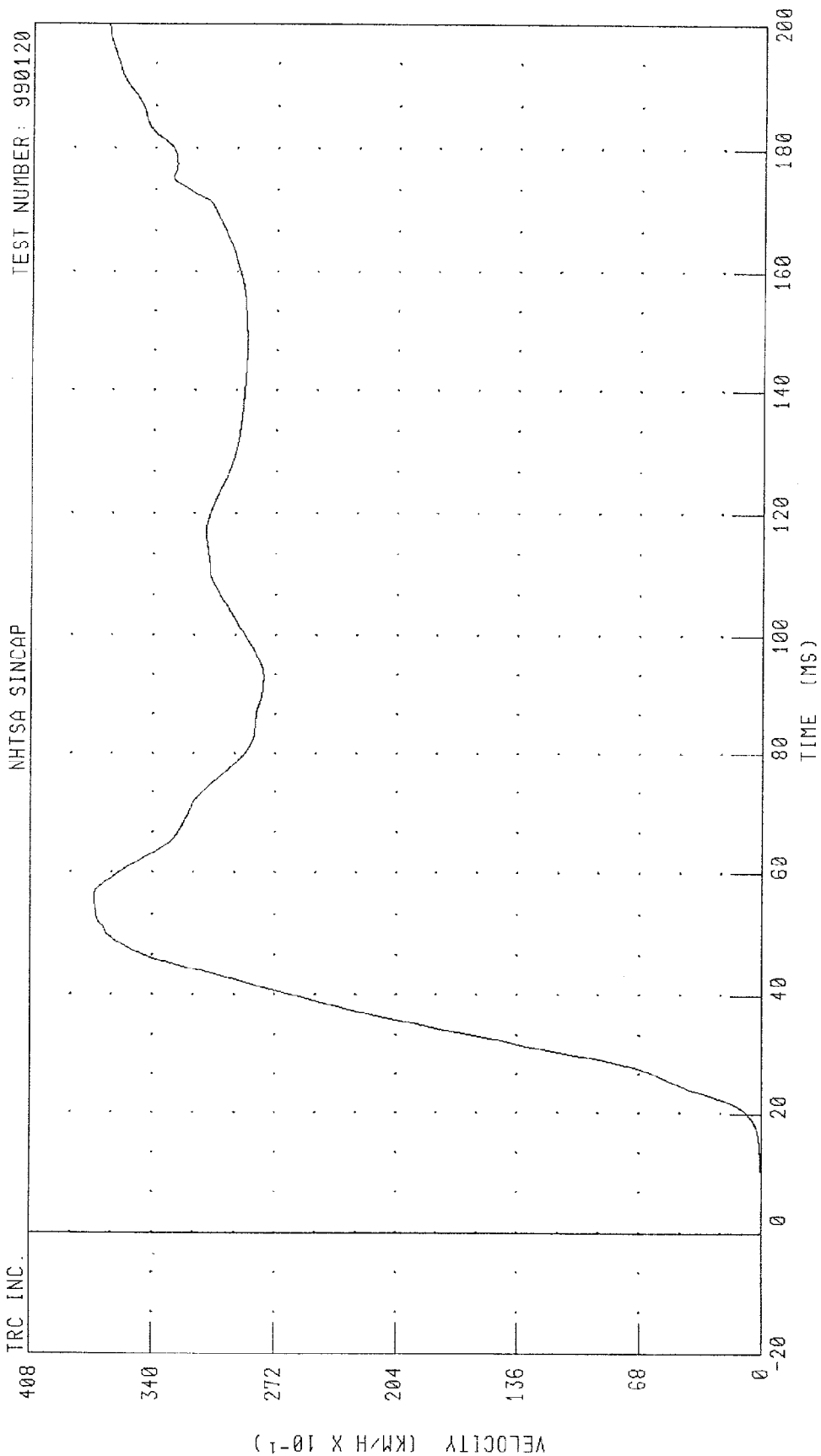
TRC INC.



PEAK DATA: 50.82 G @ 31.88 MS; -17.08 G @ 62.50 MS

CHANNEL: LLRYR4 FILTER: FIR 100

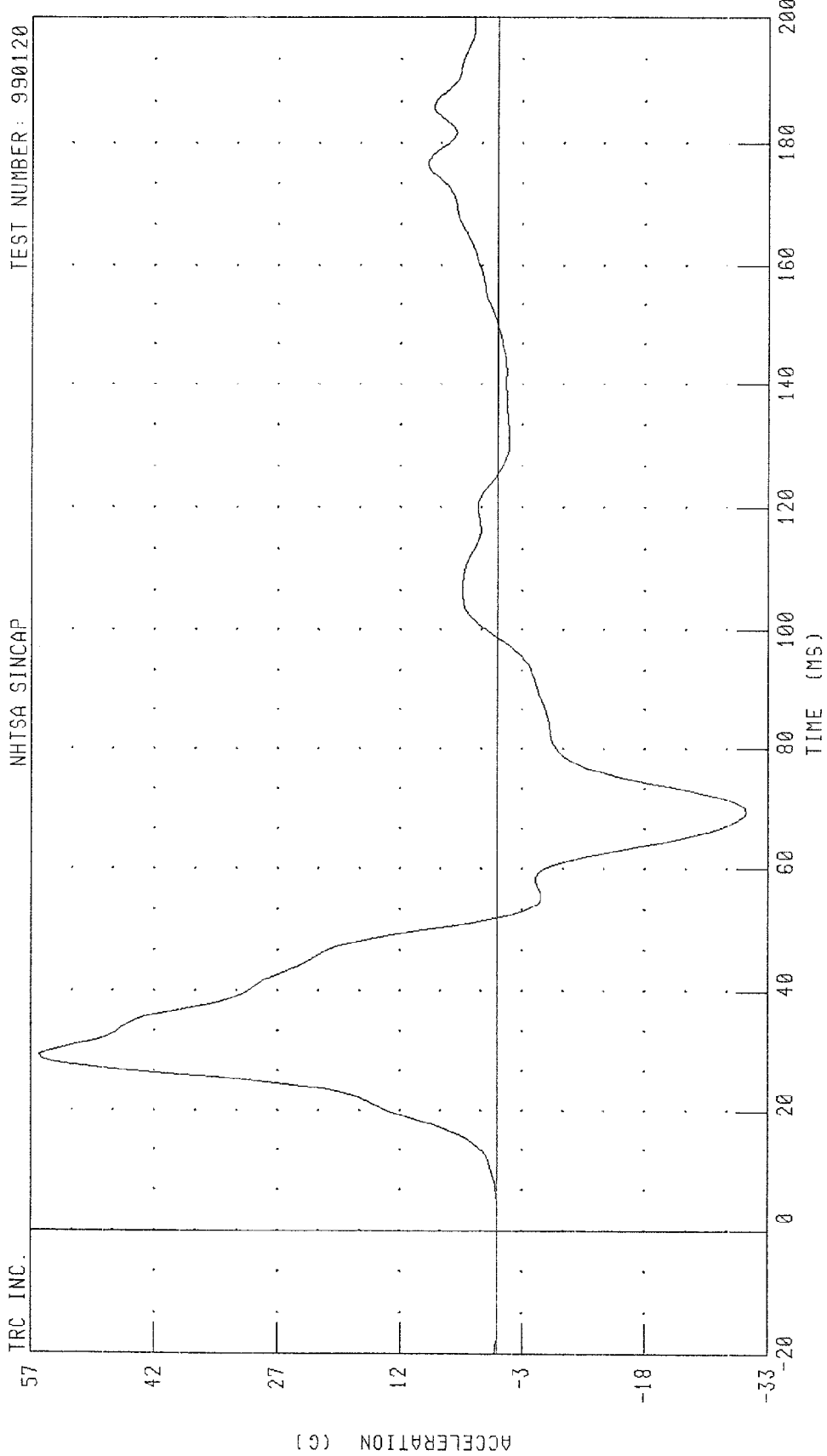
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY



CHANNEL: LLRYVJ FILTER: CH. CLASS 180

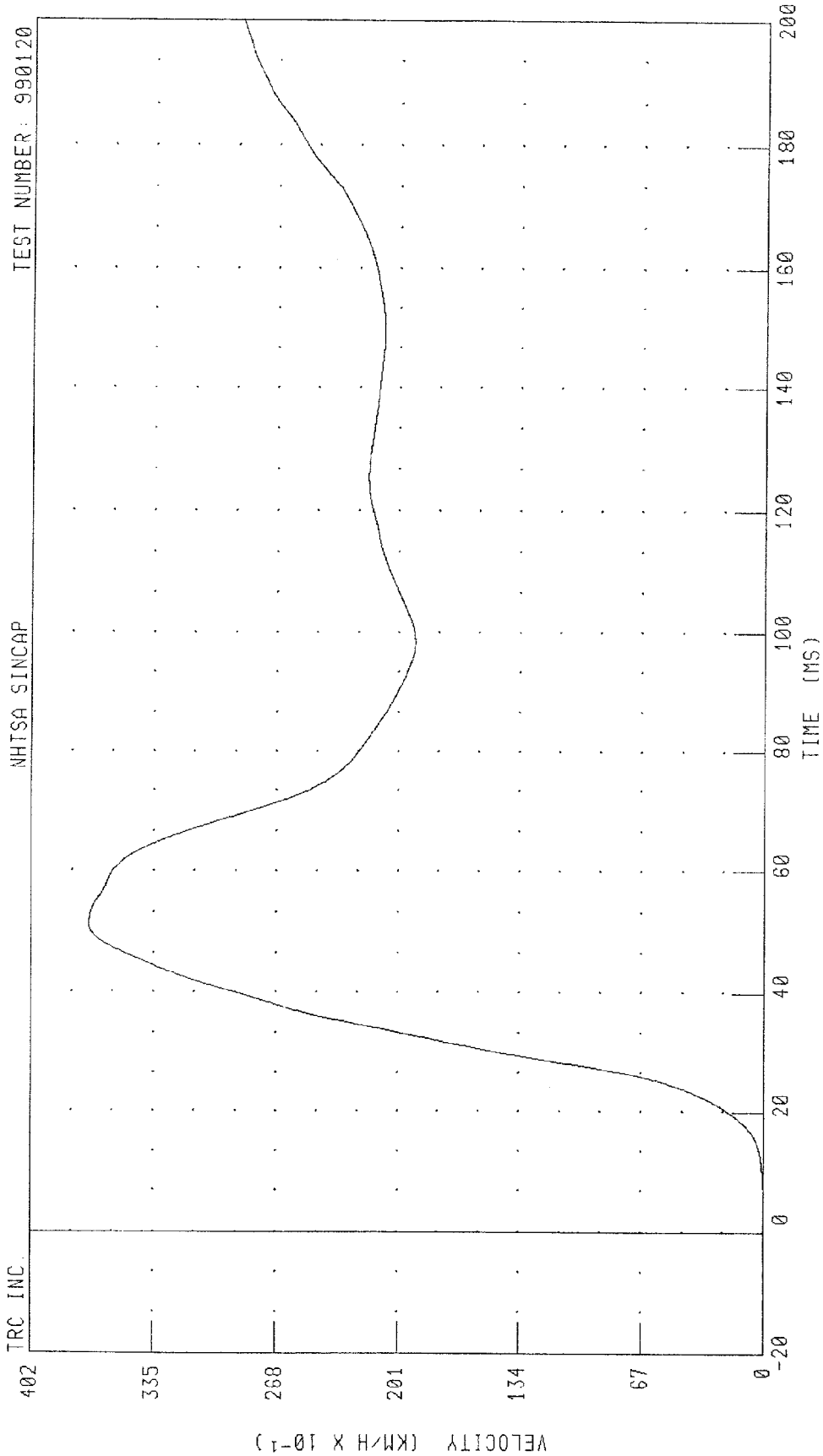
PEAK DATA: 37.24 KM/H @ 56.00 MS; 0.00 KM/H @ 0.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 JEEP CHEROKEE
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION



CHANNEL: T12YR4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY



CHANNEL: T12YVJ FILTER: CH, CLASS 100

PEAK DATA: 37.03 KM/H @ 51.36 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.

96

76

56

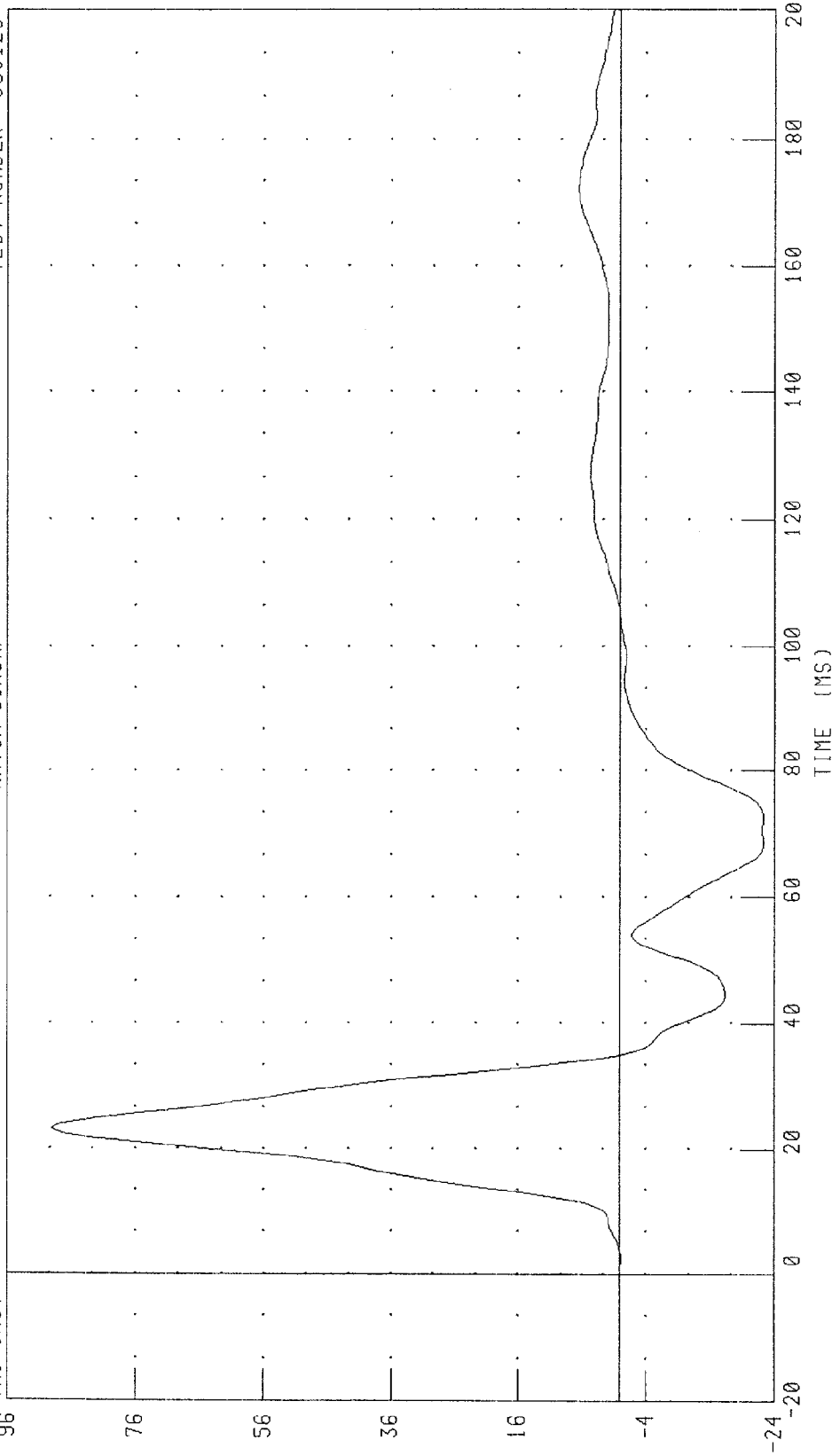
36

16

-4

-24

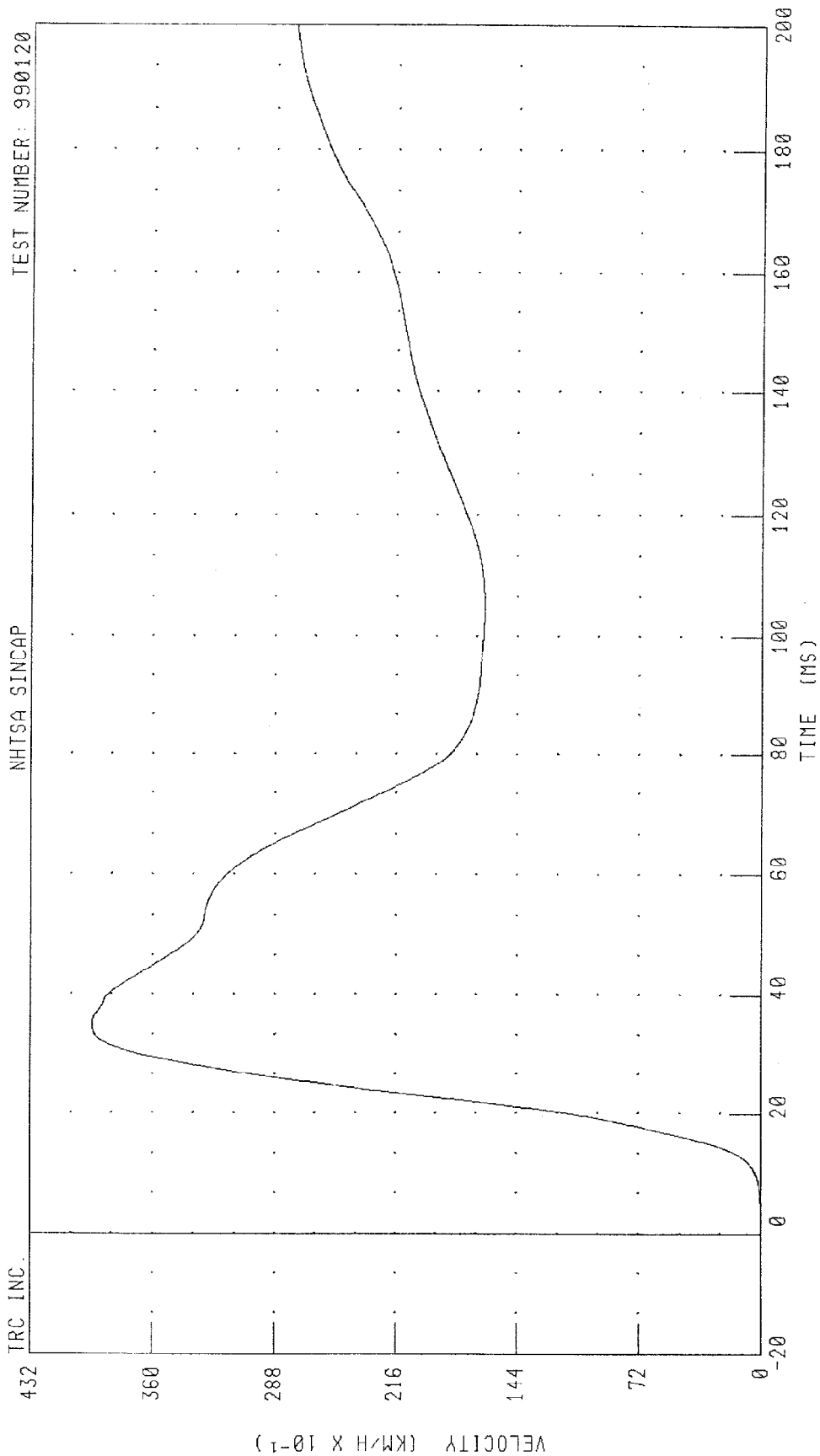
ACCELERATION (G)



PEAK DATA: 89.10 G @ 23.13 MS, -22.38 G @ 68.75 MS

CHANNEL: PEVYR4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

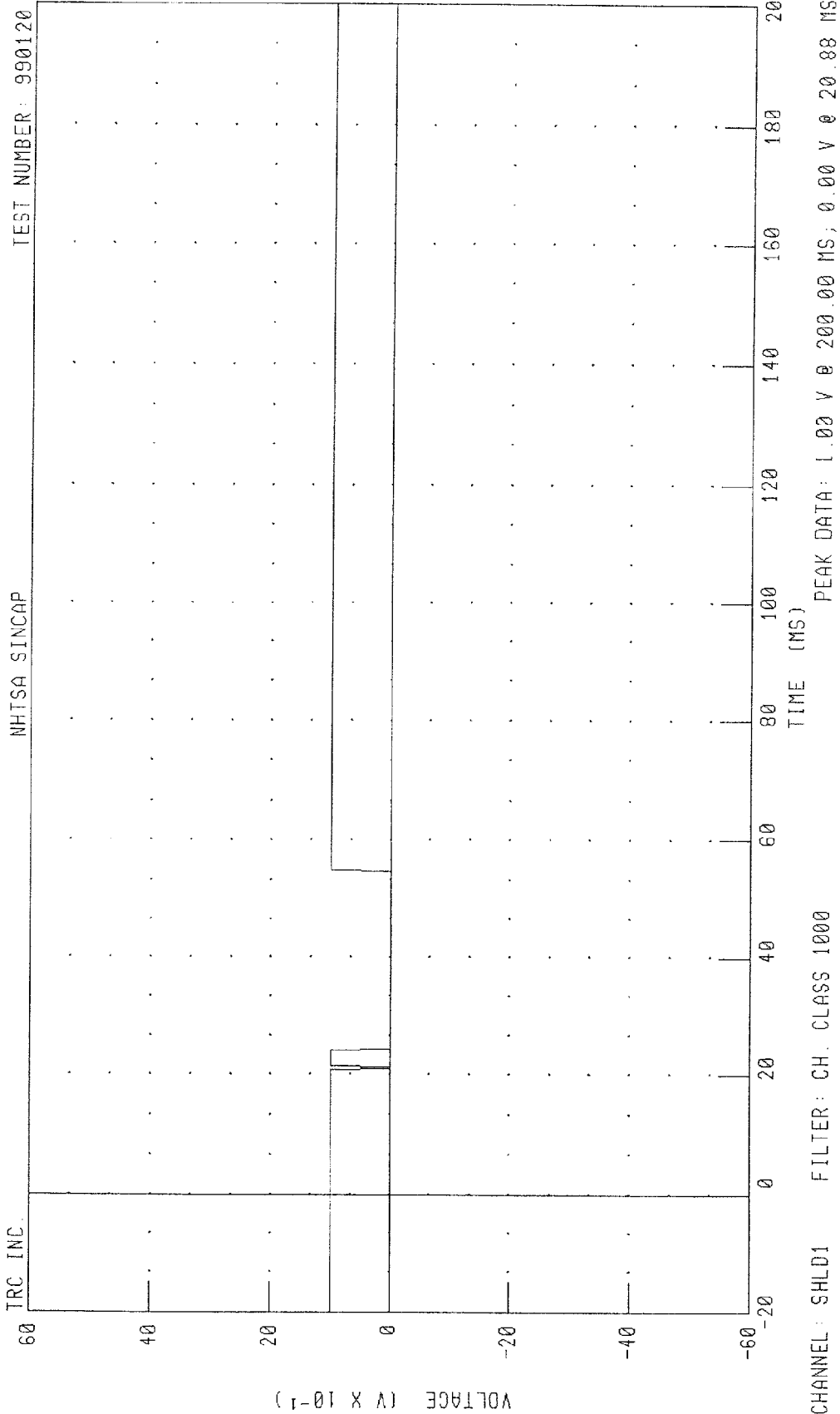


PEAK DATA: 39.56 KM/H @ 35.36 MS; 0.00 KM/H @ 0.00 MS

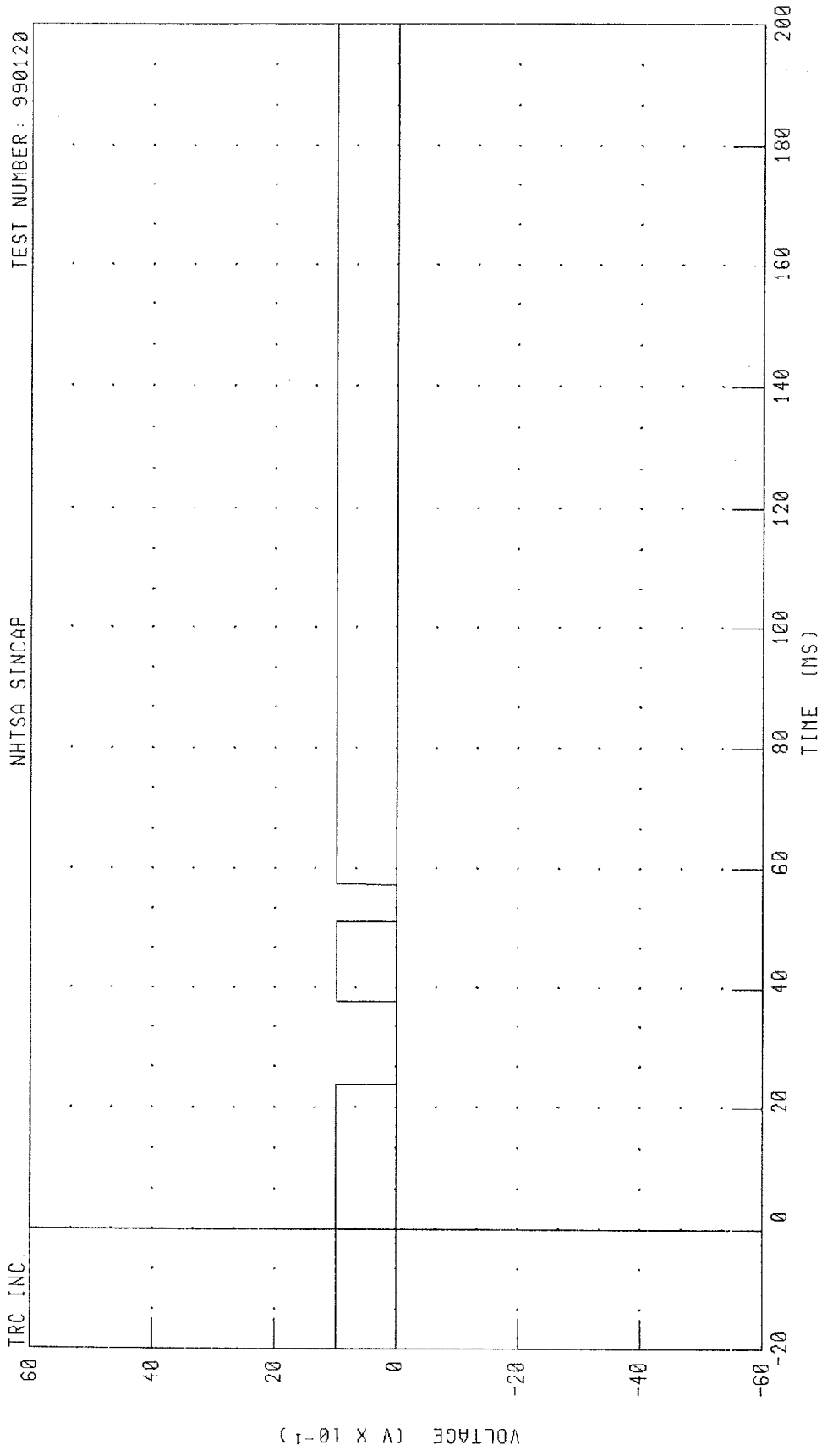
CHANNEL: PEVYVJ FILTER: CH. CLASS 180

Driver and Passenger Dummy Contact Switches

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER SHOULDER CONTACT SWITCH

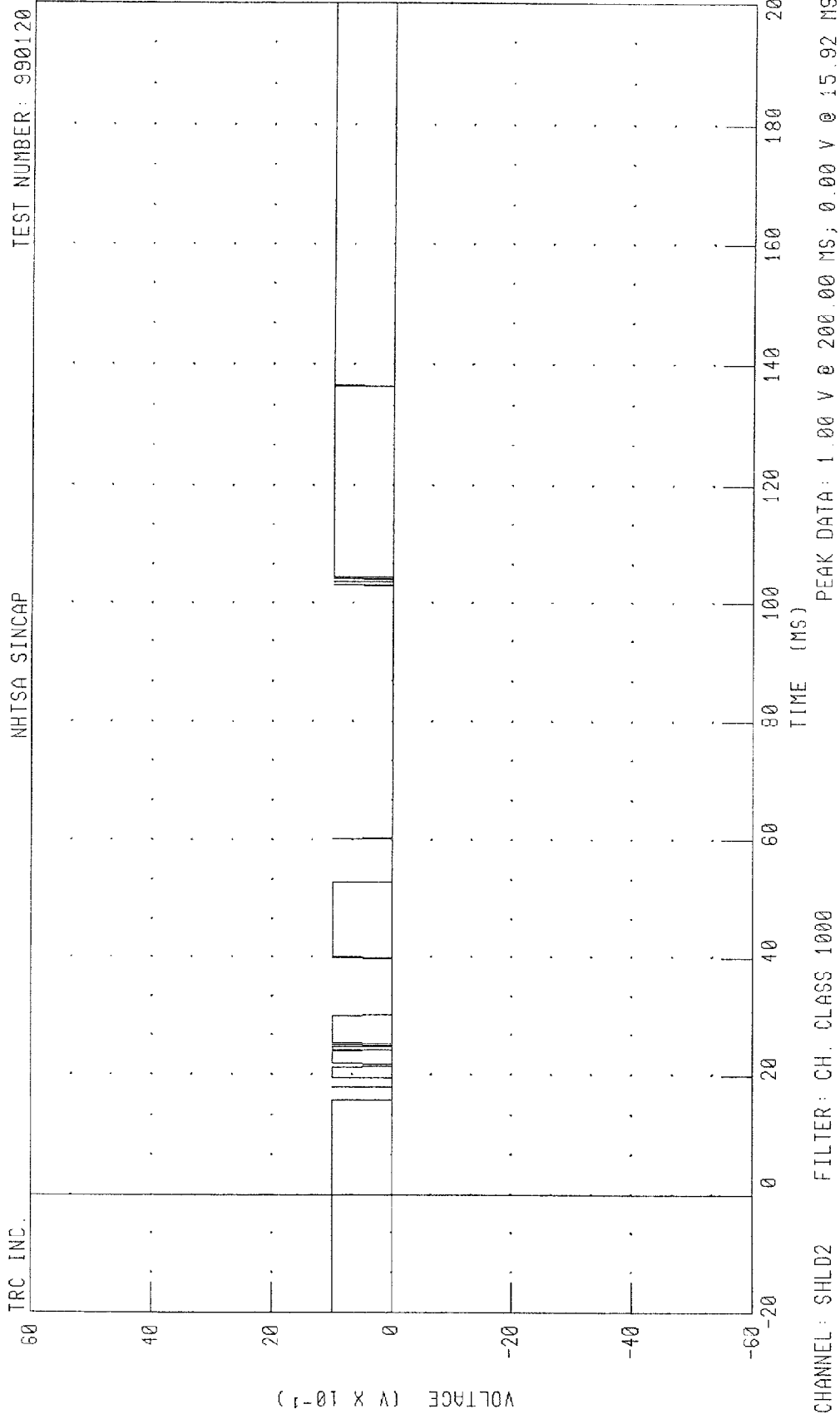


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
 DRIVER PELVIS CONTACT SWITCH



CHANNEL: PEV1 FILTER: CH. CLASS 1000 PEAK DATA: 1.00 V @ 200.00 MS; 0.00 V @ 23.84 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
PASSENGER SHOULDER CONTACT SWITCH

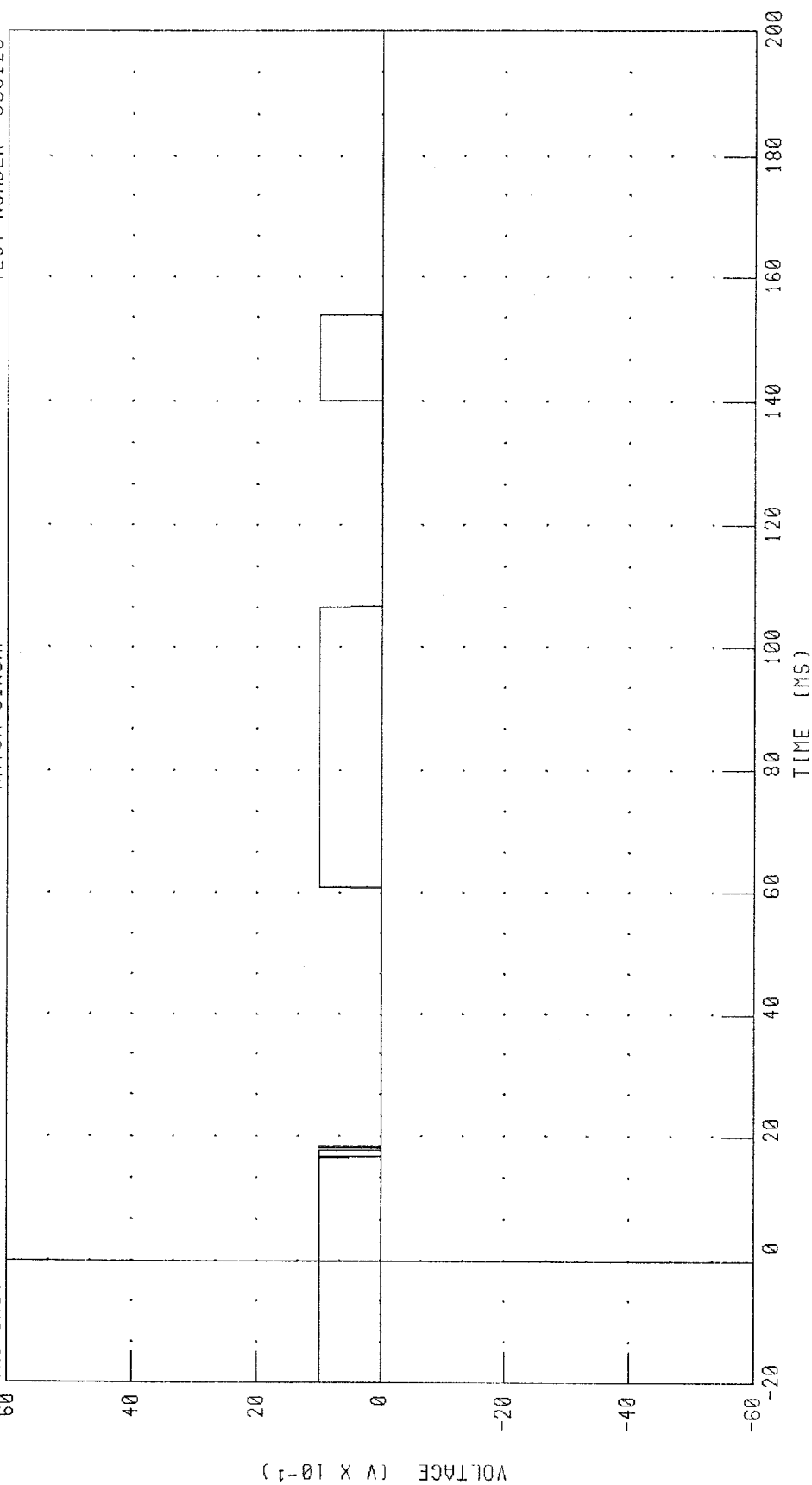


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 JEEP CHEROKEE
PASSENGER PELVIS CONTACT SWITCH

TEST NUMBER: 990120

NHTSA SINCAP

TRC INC.



CHANNEL: PEV2 FILTER: CH. CLASS 1000

PEAK DATA: 1.00 V @ -20.00 MS, 0.00 V @ 16.64 MS

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE-TEST AND POST-TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 01/18/99 & 01/25/99 TRC sequential test number: ED5111 & ED5210
Laboratory Technician: B. Crabtree, K. Watkins

Test Parameter	Specification	SID 051		SID 052	
		Pre-	Post-	Pre-	Post-
		Test	Test	Test	Test
SH - seated height (mm)	889-909	901.7	901.7	891.5	896.6
RH - Rib Height (mm)	502-520	501.6	501.6	505.5	505.5
HP - Hip Pivot Height (mm)	99 ref	99.1	99.1	99.1	99.1
RD - Rib from Back Line (mm)	229-241	236.2	236.1	238.8	238.8
KH - Knee Pivot from Back Line (mm)	511-526	520.7	520.7	518.2	520.7
KV - Knee Pivot to Floor (mm)	490-505	502.9	502.9	497.8	497.8
HW - Hip Width (mm)	356-391	373.4	373.4	378.5	378.5
THORAX IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.1	21.1	21.1
Relative Humidity (%)	10-70	20	20	20	20
Probe Speed (m/s)	4.27-4.33	4.32	4.29	4.32	4.29
Upper Rib (g's)	37-46	37.3	38.0	42.8	42.0
Lower Rib (g's)	37-46	38.4	39.5	41.0	40.2
Lower Spine (g's)	15-22	17.8	19.4	19.2	19.3
PELVIS IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.1	21.1	21.1
Relative Humidity (%)	10-70	20	20	20	20
Probe Speed (m/s)*	4.27-4.33	4.28	4.29	4.31	4.30
Pelvis (g's)*	40-60	52.5	54.4	46.9	51.2

Calibration Test Results

Pre-Test

SID: 051

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax passed all shock absorber requirements.

TRANSPORTATION RESEARCH CENTER INC.
 SIDE IMPACT DUMMY
 EXTERNAL DIMENSIONS
 LEFT SIDE CONFIGURATION
 SN SN51 VECTOR

18-01-99

TRC INC. TEST NO: ED5111 572F SN51 EXT.DIMESIONS CAL11

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		20.0 %
SH	SEATED HEIGHT	889 - 909 MM	901.7 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	520.7 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	502.9 MM
HW	HIP WIDTH	356 - 391 MM	373.4 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	501.6 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	177.8 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	177.8 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

By Call

RUN NUMBER: 011999.0732

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5111A

572F SN51 LEFT THORAX CAL11

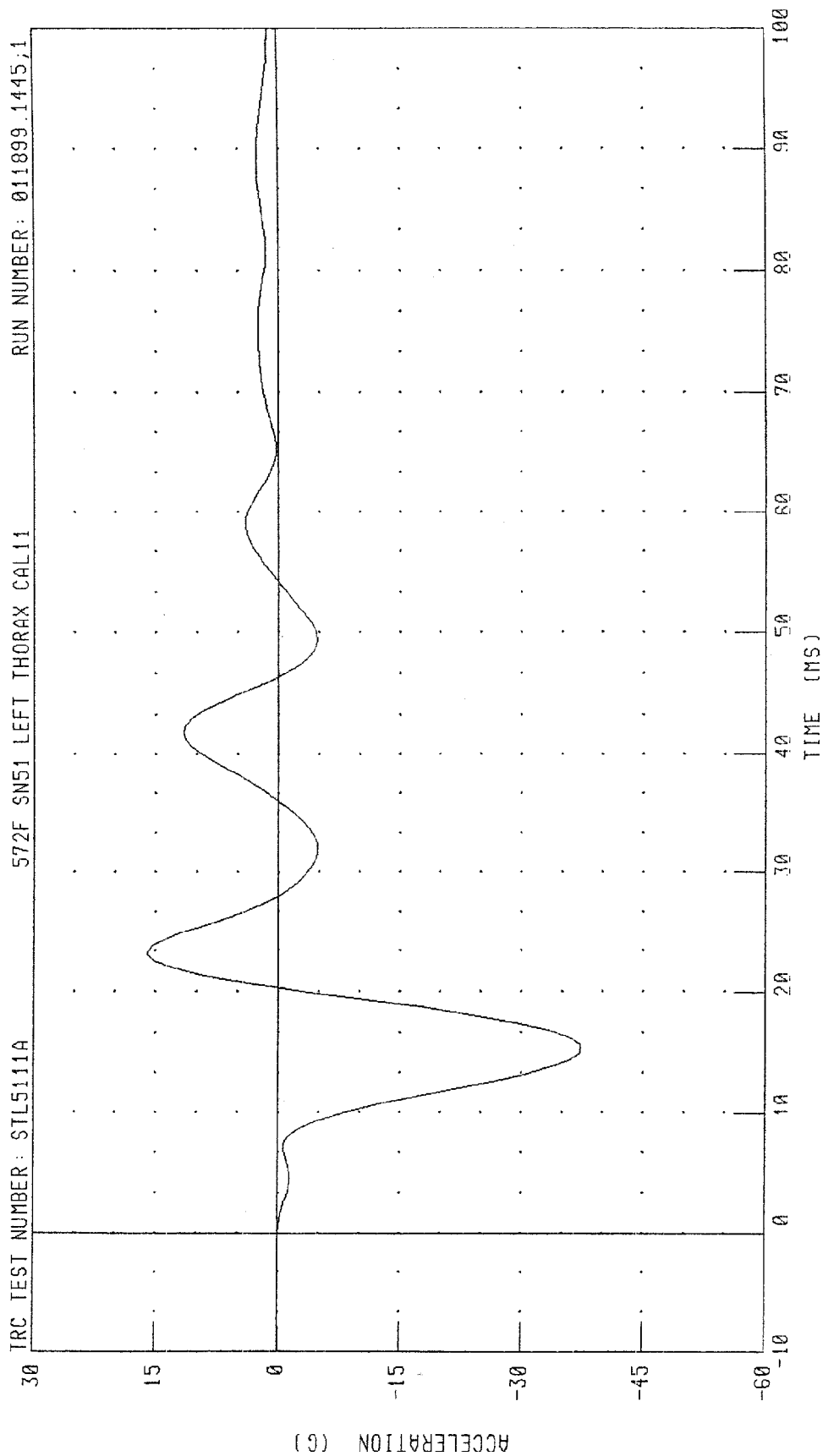
TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.32 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-37.3 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-38.4 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-17.8 G

TEST MEETS SPECIFICATIONS

TECHNICIAN By cult

RUN NUMBER: 011899.1445;1

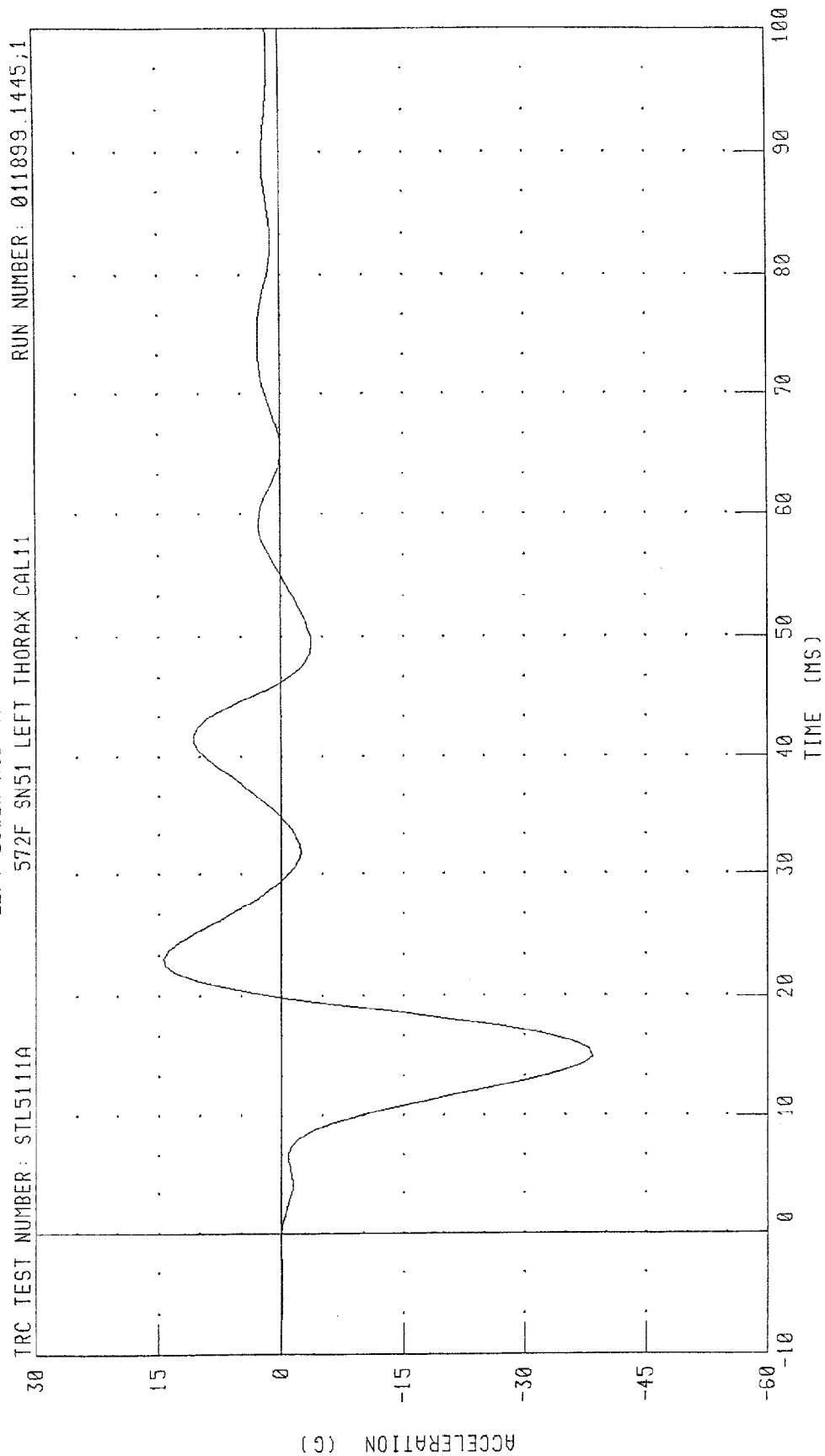
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
LEFT UPPER RIB ACCELERATION Y AXIS



CHANNEL: LURYC FILTER: FIR 100

PEAK DATA: 16.08 G @ 23.13 MS, -37.30 G @ 15.63 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
LEFT LOWER RIB ACCELERATION Y AXIS

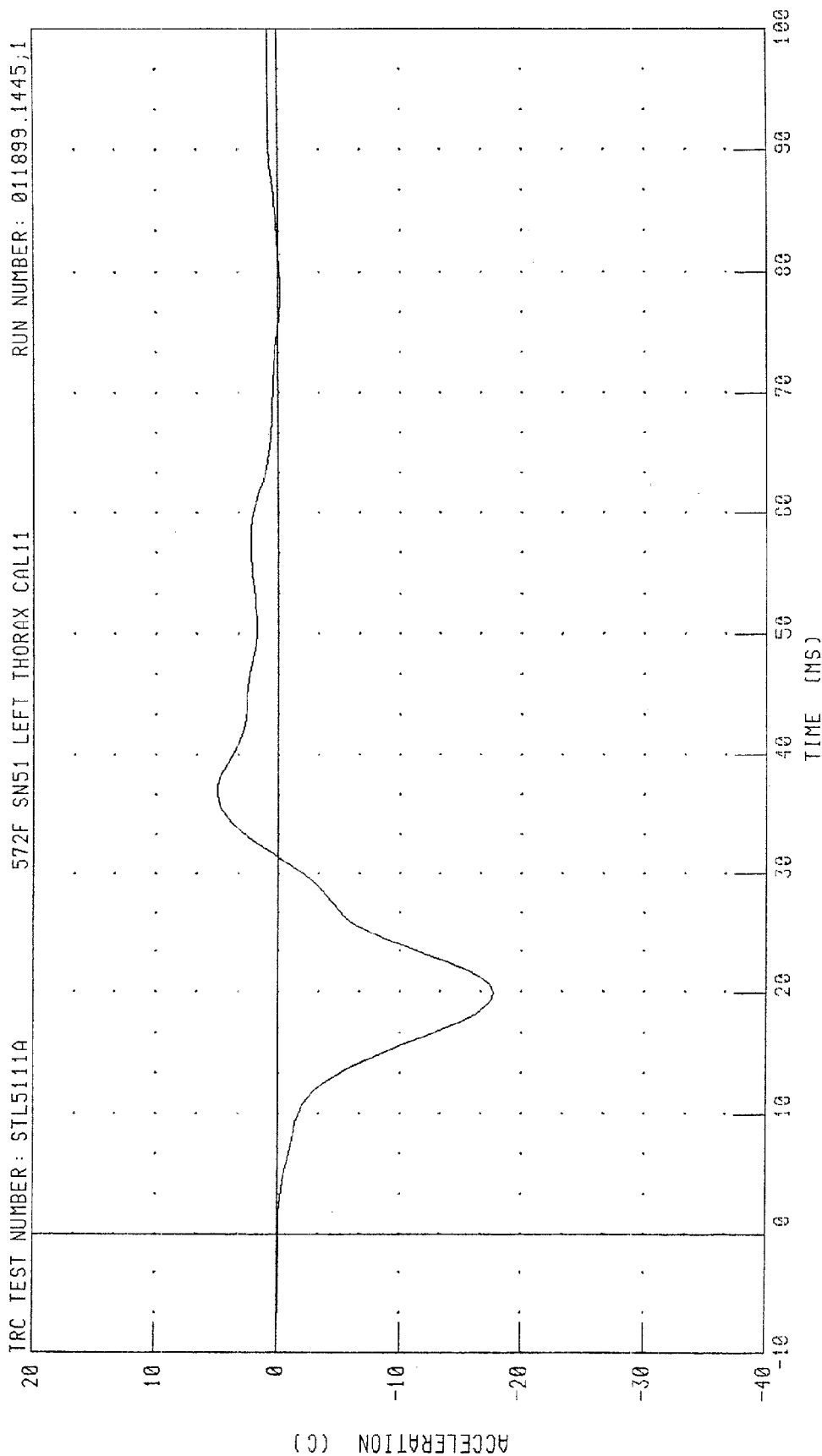


CHANNEL: LLRYG FILTER: FIR 100

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

572F SN51 LEFT THORAX CAL11 RUN NUMBER: 011899.1445;1



CHANNEL: T12YG FILTER: FIR 100

PEAK DATA: 4.97 G @ 36.88 MS, -17.78 G @ 20.00 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: SPL5111

572F SN51 LEFT PELVIS CAL11

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.28 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-52.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN By Cuth

RUN NUMBER: 011899.1338;1

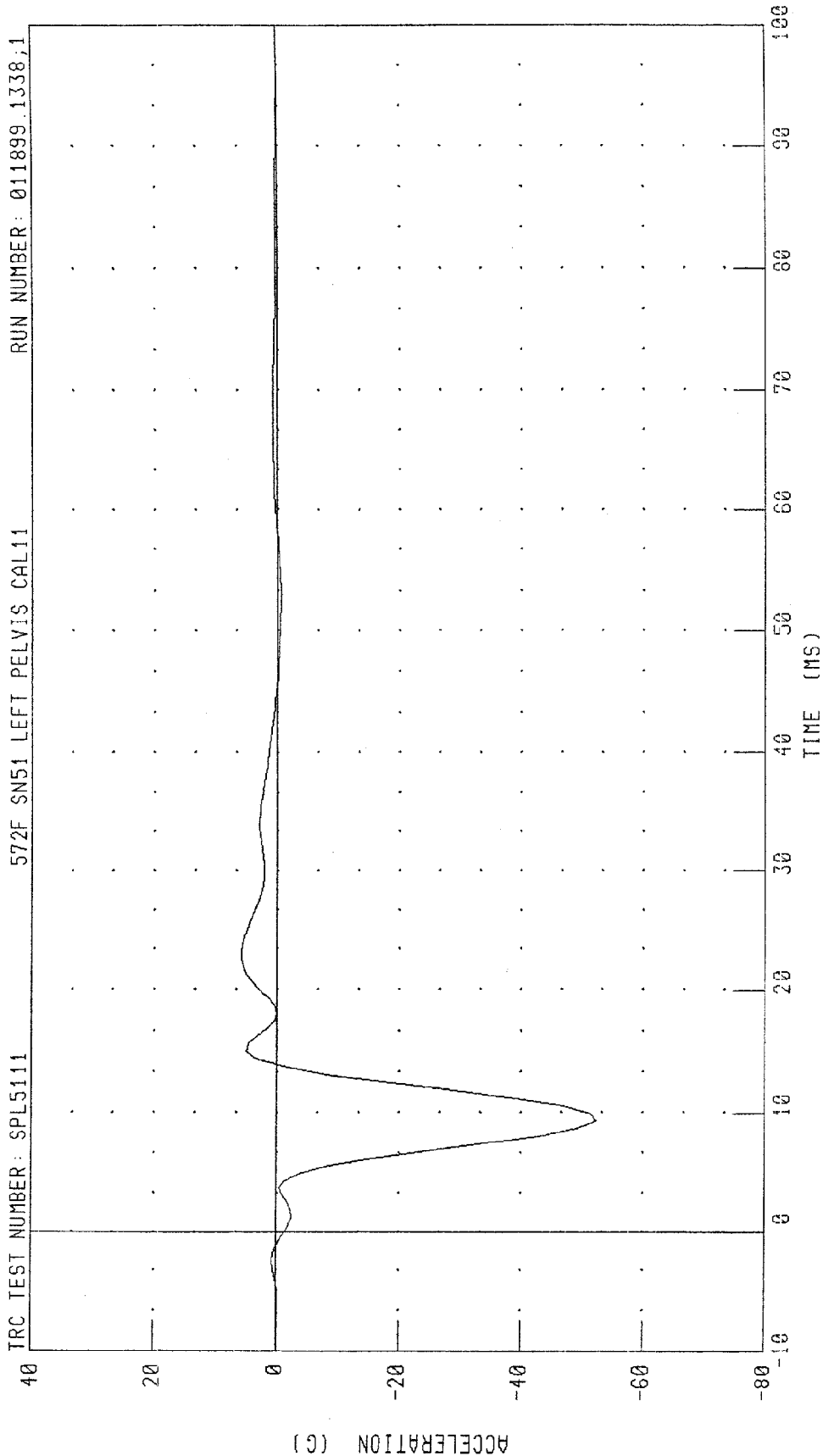
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5111

572F SN51 LEFT PELVIS CAL11

RUN NUMBER: 011899.1338;1



CHANNEL: PEVYC FILTER: FIR 100

PEAK DATA: 5.83 G @ 22.50 MS, -52.47 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

18-JAN-99

TRC INC. TEST NO: ABD5111C

ABDOMIN COMPRESSION TEST SN51

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.69 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	130.73 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	192.85 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	270.62 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	384.09 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By cult

RUN NUMBER: 011899.1049;1

PART 572-8 HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN51

RUN NUMBER: 011899.1050;1

TRC TEST NUMBER: ABD5111C

540

450

360

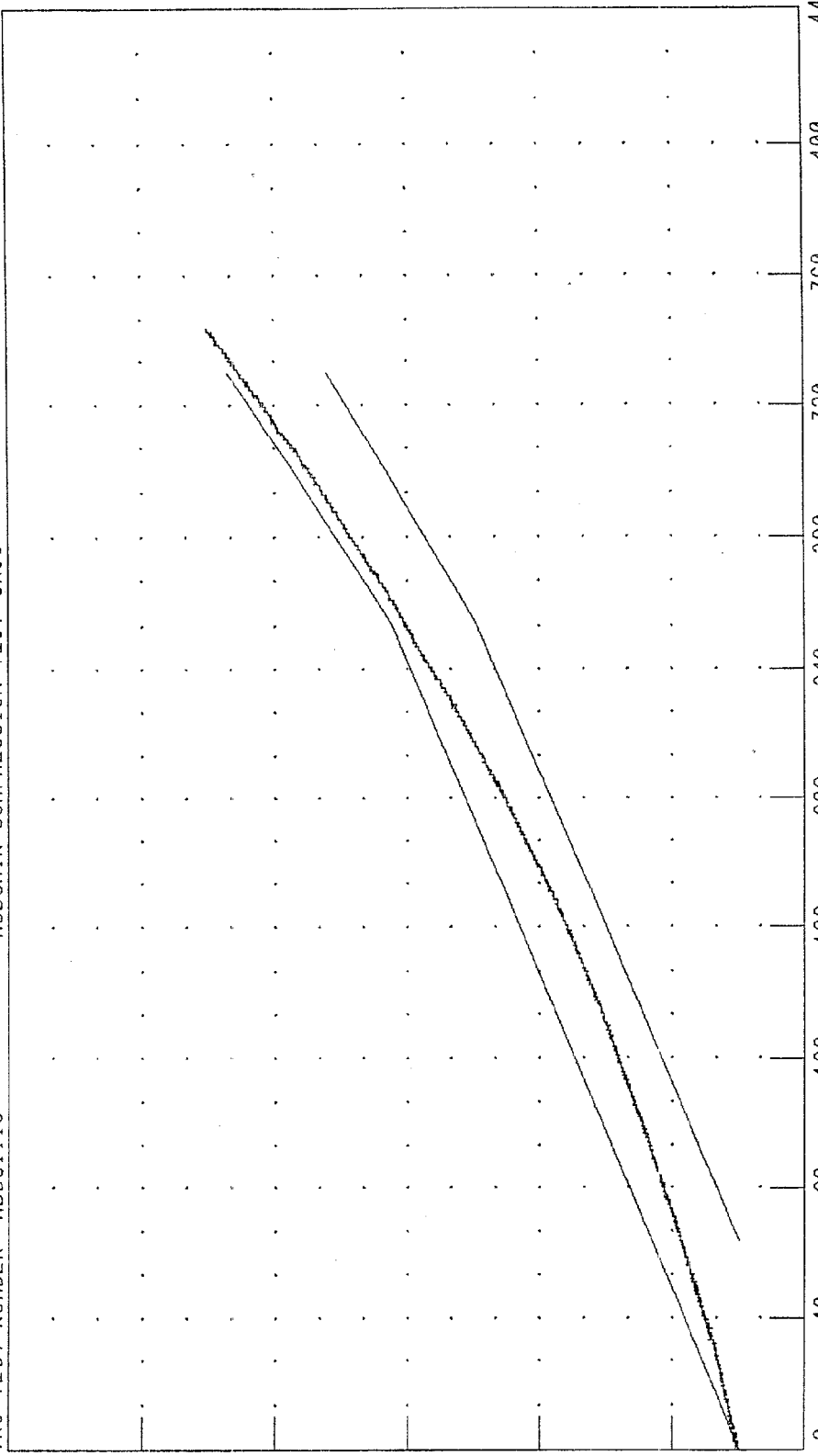
270

180

90

0

FORCE (N)



DISPLACEMENT (MM X 10⁻¹)

CHANNEL: ABXD
ABXF

FILTER: CH. CLASS 1000
CH. CLASS 1000

PEAK DATA:

34.39 MM @ 4.42 S; -0.13 MM @ 0.00 S
405.61 N @ 4.42 S; 43.67 N @ 0.00 S

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

18-01-99

TRC INC. TEST NO: LF5111

572F SN51 LUMBAR FLEX.

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	115.65 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	177.92 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	217.95 N
NET RETURN ANGLE	< 12 DEG.	3.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bryce Calt

RUN NUMBER: 011899.1519

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

18-JAN-99

TRC INC.

572F SN51 DAMPER TEST CAL11

TEST NUMBER: DP5111B

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	20.0 %
VELOCITY	FORCE	1733 - 2100 N	1628 N *
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.8 MM

DAMPER SETTING = 6.0

* TEST DOES NOT MEET SPECIFICATIONS

TECHNICIAN

John D. Drescher

RUN NUMBER: 011899.1024;1

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

18-JAN-99

TRC INC.

572F SN51 DAMPER TEST CAL11

TEST NUMBERS: DP5111A,DP5111B,DP5111C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	20.0 %
VELOCITY	FORCE	838 - 1125 N	916 N
3.06 M/S	DISPLACEMENT	30.2 - 35.2 MM	31.6 MM
VELOCITY	FORCE	1733 - 2100 N	1833 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.8 MM
VELOCITY	FORCE	3784 - 4495 N	4149 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.7 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN

By Calt

RUN NUMBER: 011899.1111;1

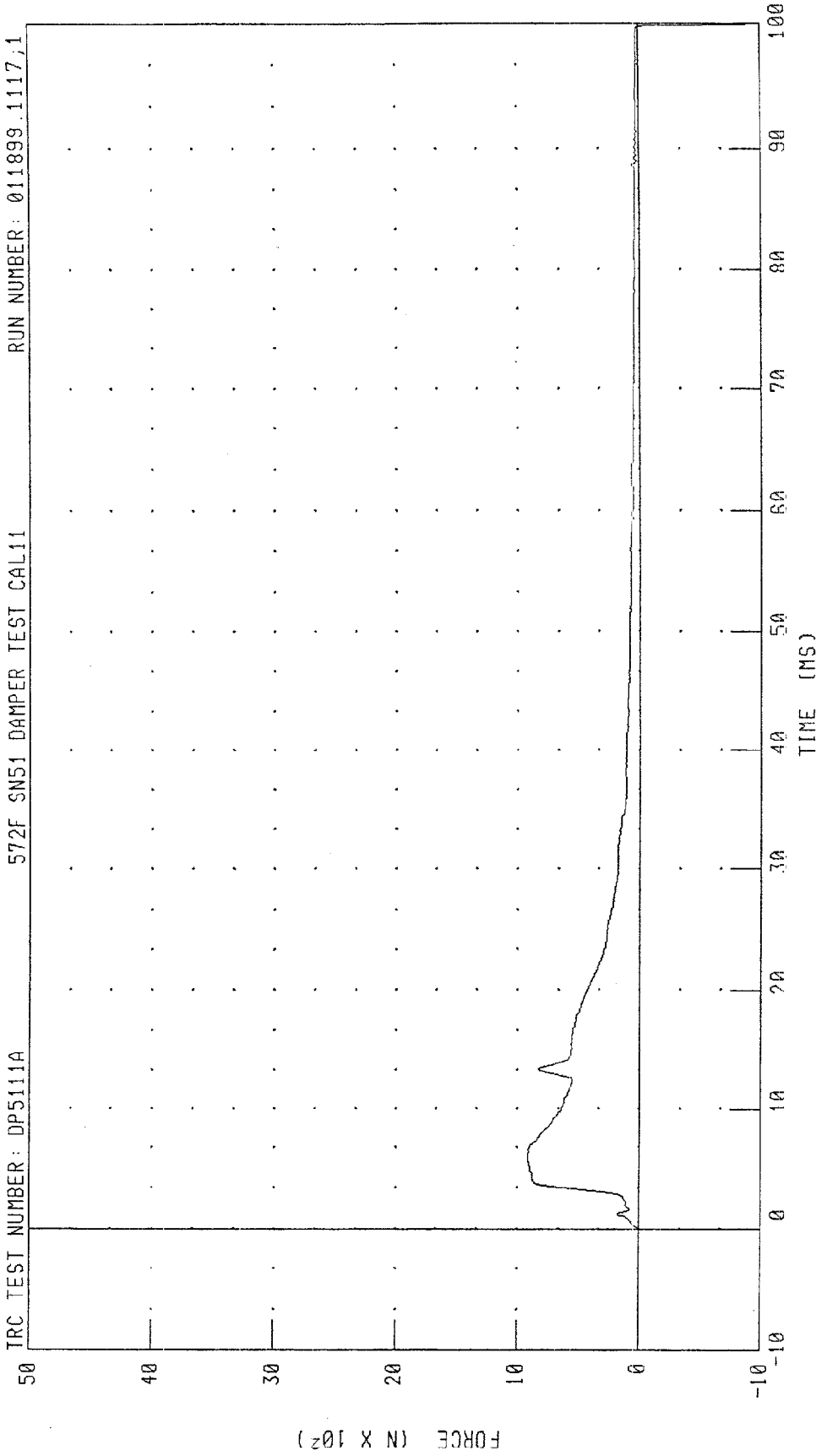
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111A

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1117,1



PEAK DATA: 916.34 N @ 5.68 MS; -1458.68 N @ 100.00 MS

CHANNEL: DAMPF

FILTER: CH. CLASS 1000

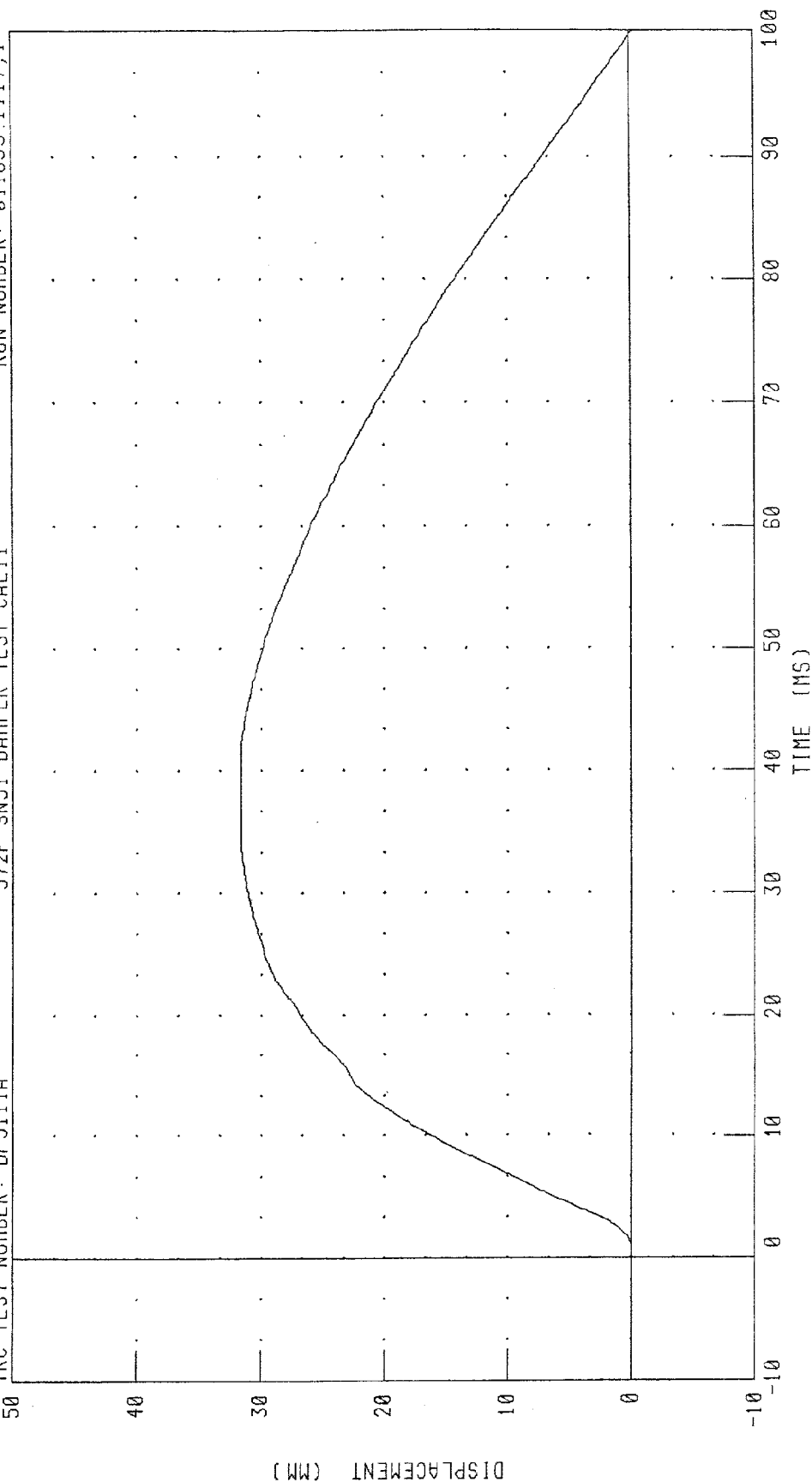
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5111A

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1117,1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

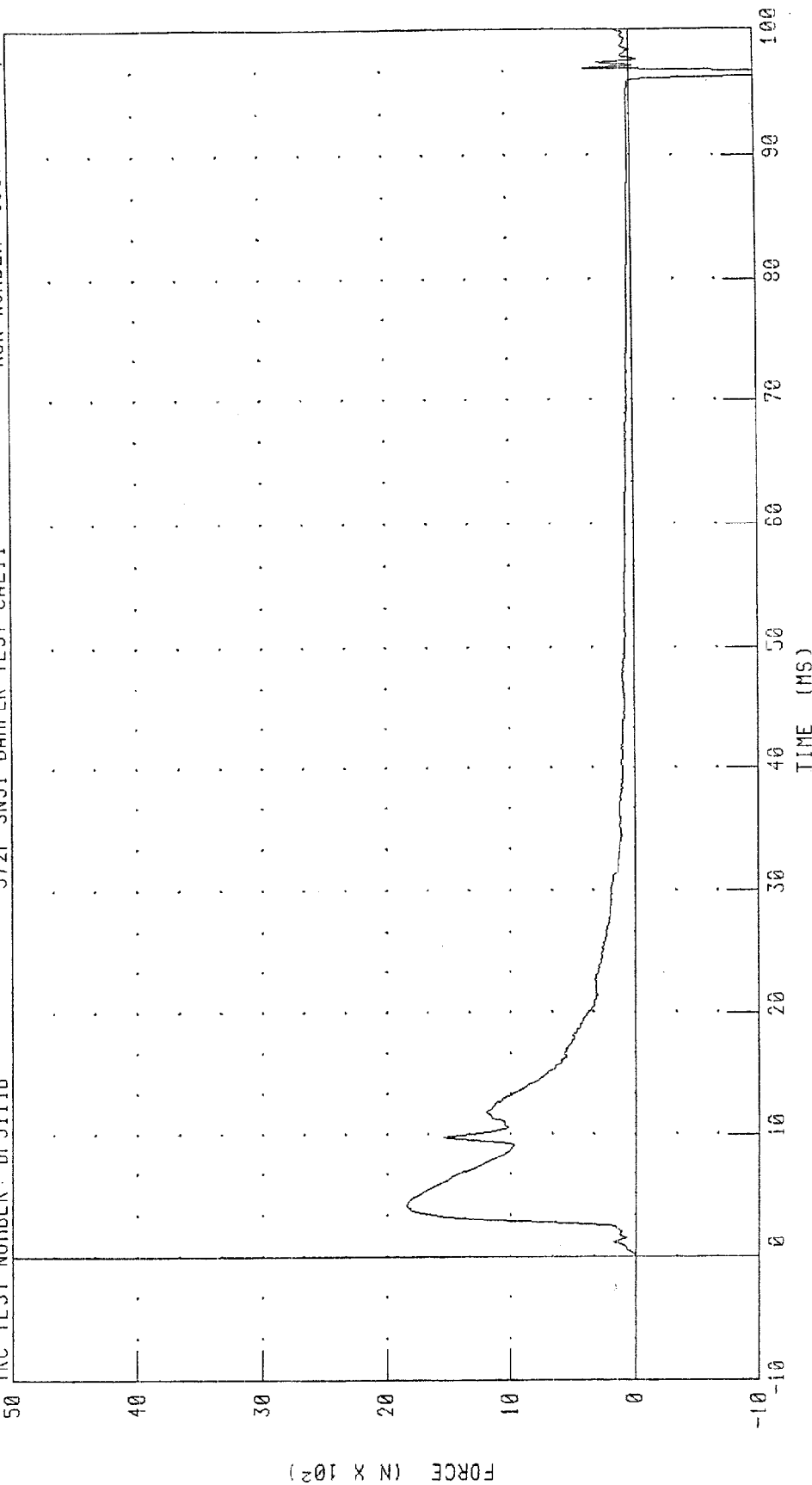
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111B

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1118.2



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 1832.88 N @ 4.16 MS; -2350.29 N @ 96.48 MS

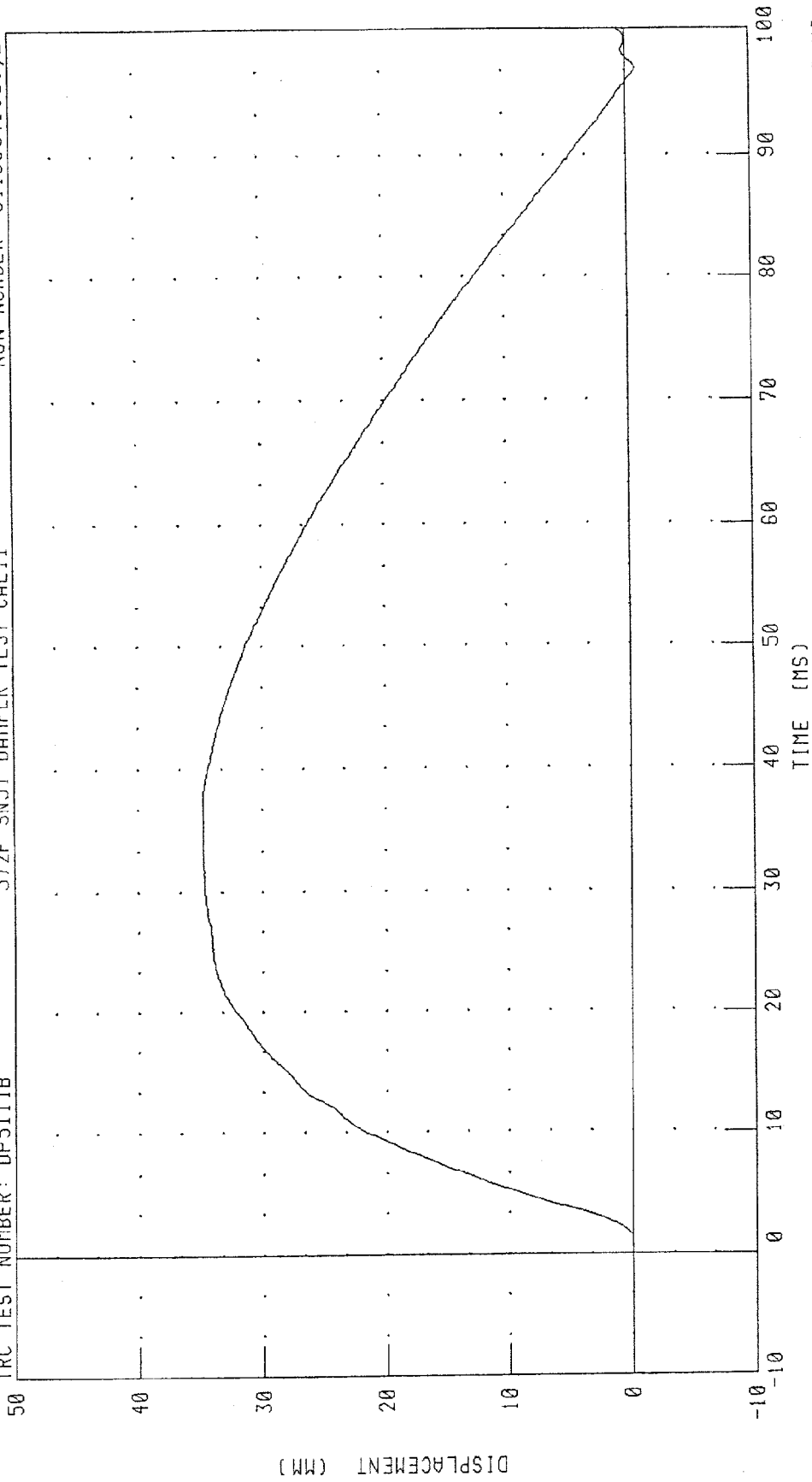
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL11

TRC TEST NUMBER: DP5111B

RUN NUMBER: 011899.1118;2



PEAK DATA: 34.81 MM @ 32.96 MS; -0.85 MM @ 96.96 MS

CHANNEL: CSTYD FILTER: CH CLASS 1000

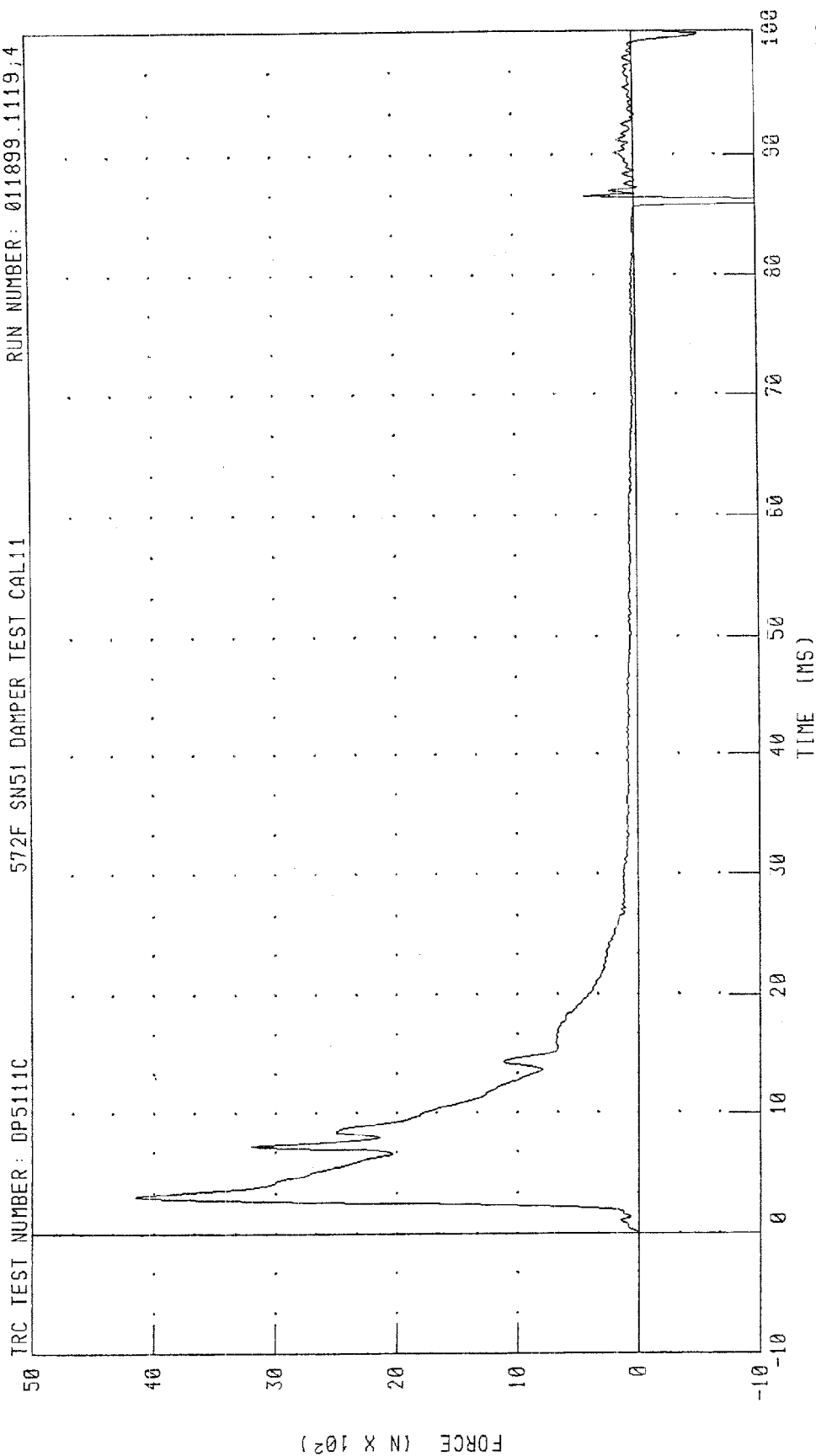
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN51 DAMPER TEST CAL11

TRC TEST NUMBER: DP5111C

RUN NUMBER: 011899.1119;4



PEAK DATA: 4149.11 N @ 3.04 MS, -2721.84 N @ 86.16 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5111C

572F SN51 DAMPER TEST CAL11

50

40

30

20

10

0

-10

DISPLACEMENT (MM)

TIME (MS)

PEAK DATA: 37.66 MM @ 26.72 MS; -0.60 MM @ 86.48 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

990120

C-21

Calibration Test Results

Pre-Test

SID: 052

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax passed all shock absorber requirements.

TRANSPORTATION RESEARCH CENTER INC.
SIDE IMPACT DUMMY
EXTERNAL DIMENSIONS
LEFT SIDE CONFIGURATION
SN SN52 VECTOR

18-01-99

TRC INC. TEST NO: ED5210 572F SN52 EXT.DIMENSIONS CAL10

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		20.0 %
SH	SEATED HEIGHT	889 - 909 MM	891.5 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	518.2 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	497.8 MM
HW	HIP WIDTH	356 - 391 MM	378.5 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	505.5 MM
RD	RIB FROM BACKLINE	229 - 241 MM	238.8 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	180.3 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	180.3 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Ben Calt

RUN NUMBER: 011999.0738

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5210

572F SN52 LEFT THORAX CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.32 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-42.8 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-41.0 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.2 G

TEST MEETS SPECIFICATIONS

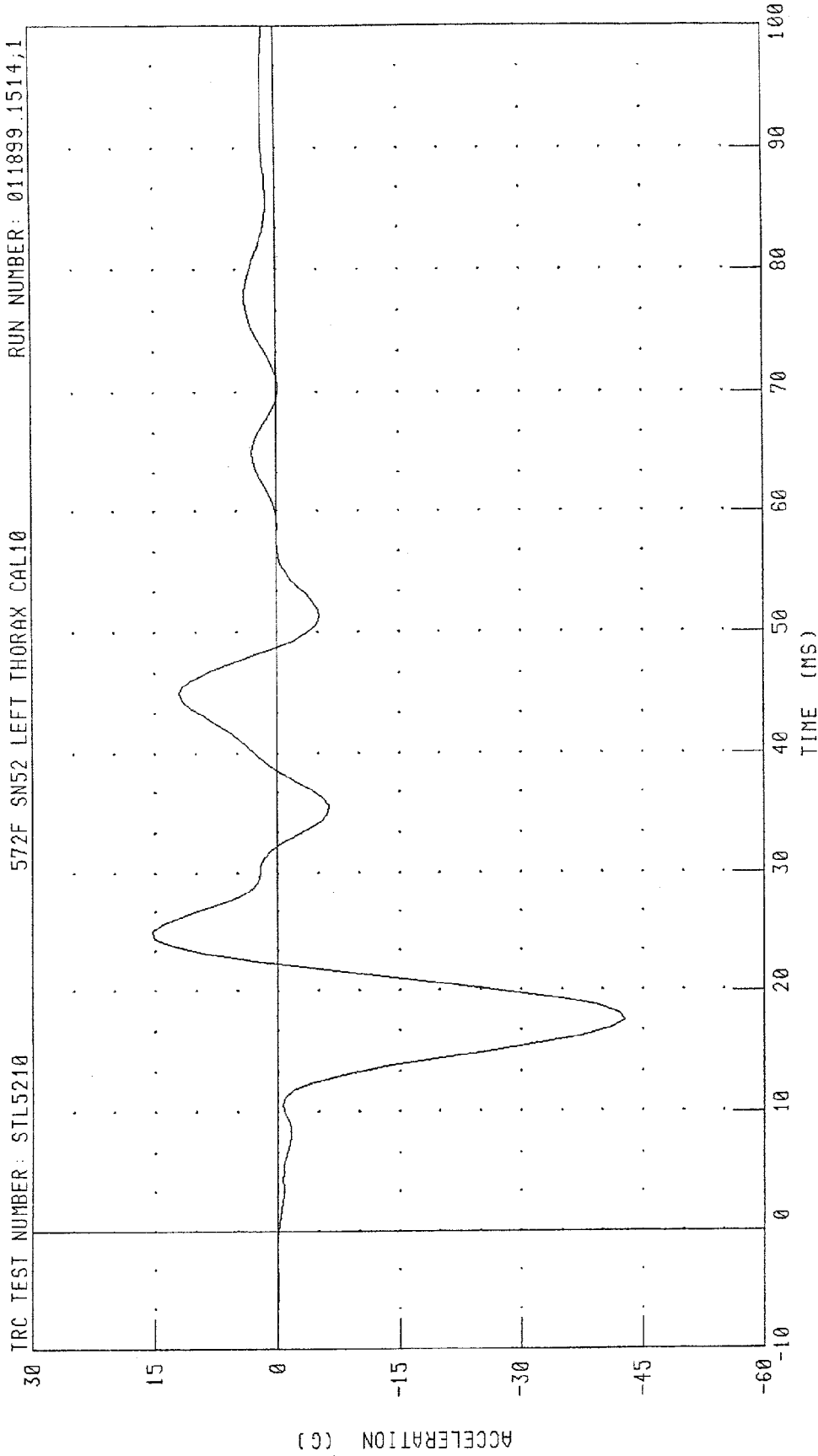
TECHNICIAN

Bj cult

RUN NUMBER: 011899.1514;1

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

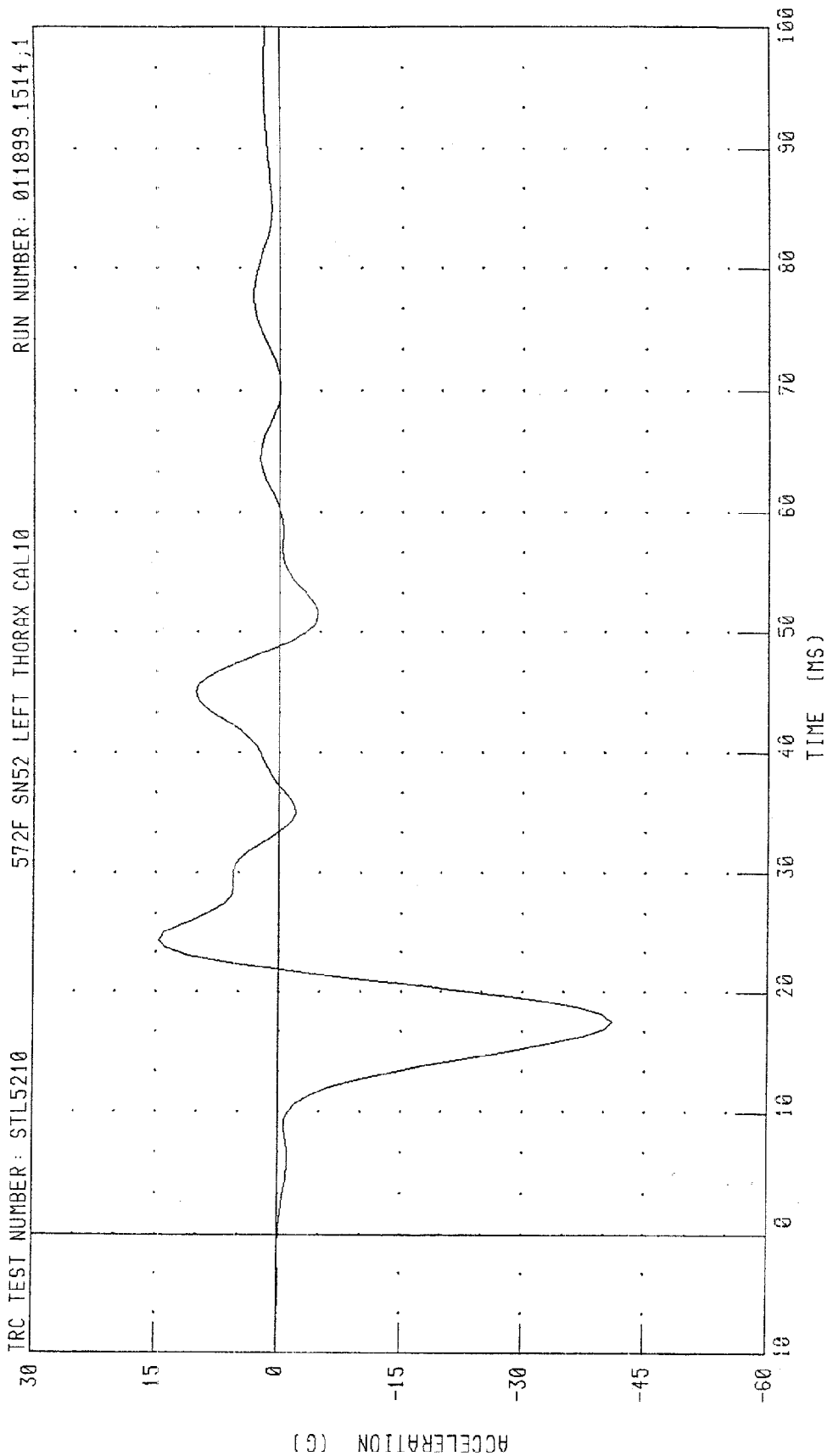


CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 15.35 G @ 25.00 MS; -42.83 G @ 17.50 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

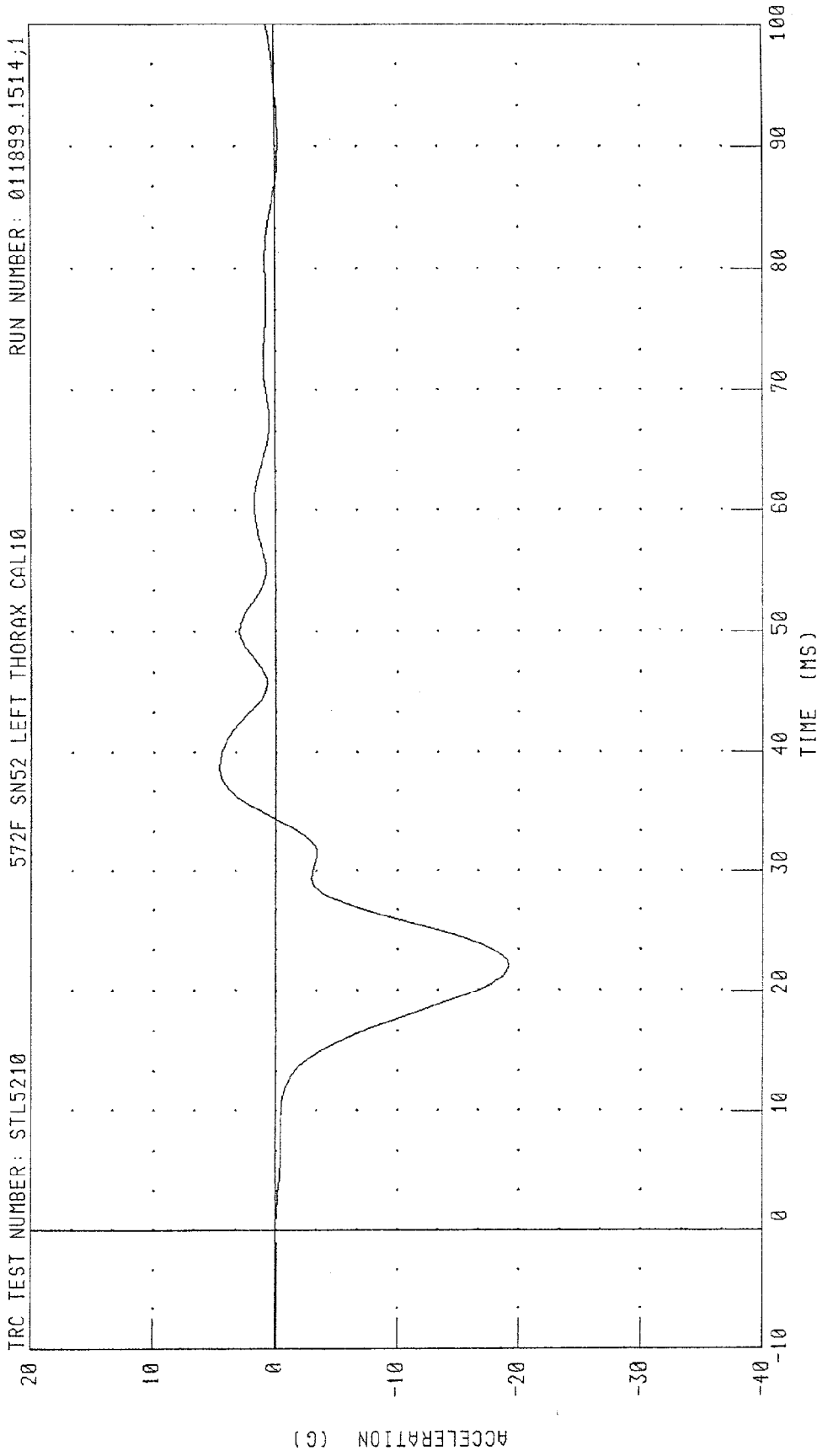


CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 14.67 G @ 24.38 MS; -41.01 G @ 17.50 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS



CHANNEL: T12YC FILTER: FIR 100

PEAK DATA: 4.60 G @ 38.75 MS, -19.17 G @ 21.88 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5210

572F SN52 LEFT PELVIS CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-46.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.9 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Ry Calt

RUN NUMBER: 011899.1523;1

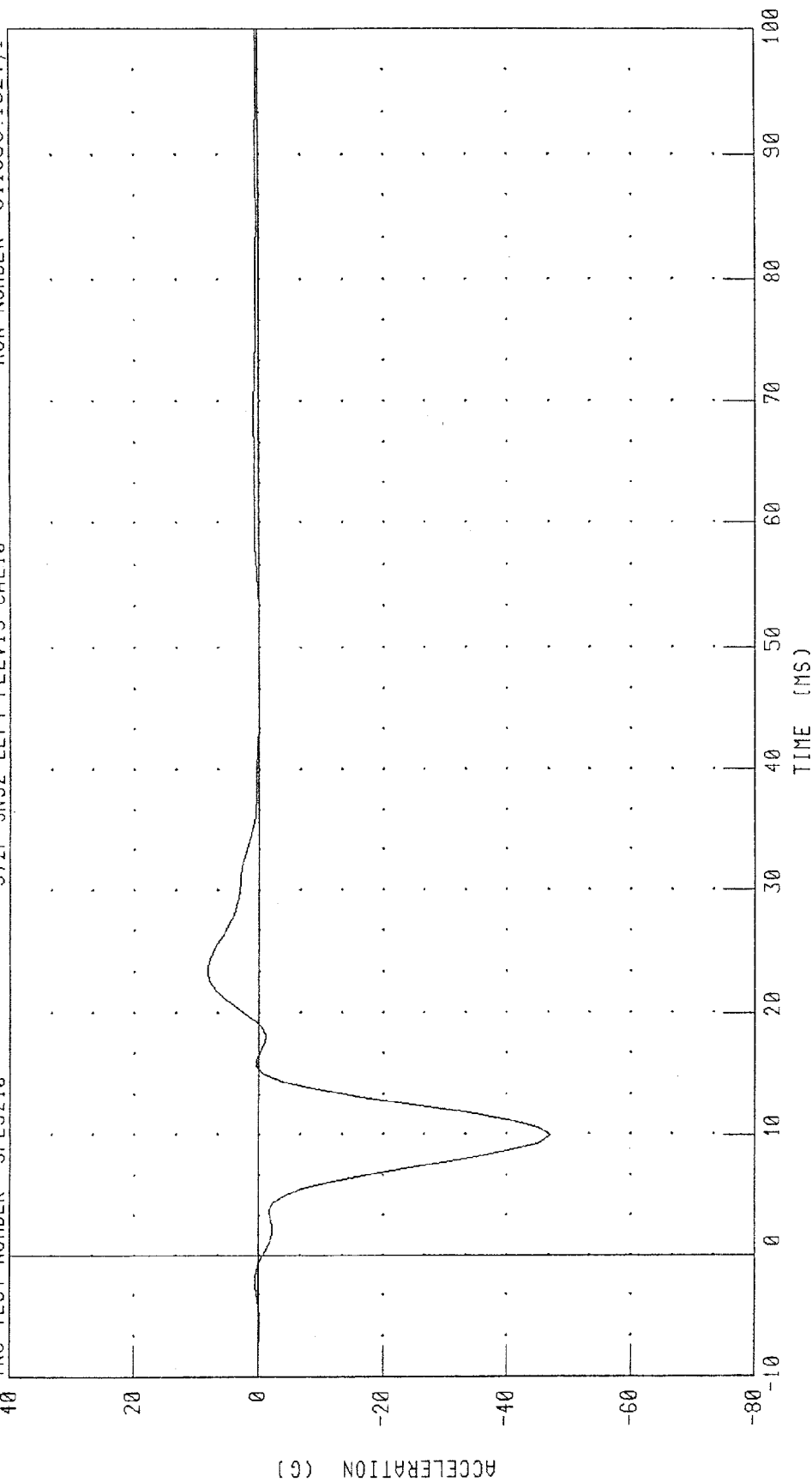
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN52 LEFT PELVIS CAL10

TRC TEST NUMBER: SPL5210

RUN NUMBER: 011899.1524;1



CHANNEL: PEVYC FILTER: FIR 100

PEAK DATA: 8.19 G @ 23.13 MS; -46.95 G @ 10.00 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

18-JAN-99

TRC INC. TEST NO: ABD5210

ABDOMIN COMPRESSION TEST SN52

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.76 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	123.25 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	179.98 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	257.26 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	375.63 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bj celt

RUN NUMBER: 011899.1231;1

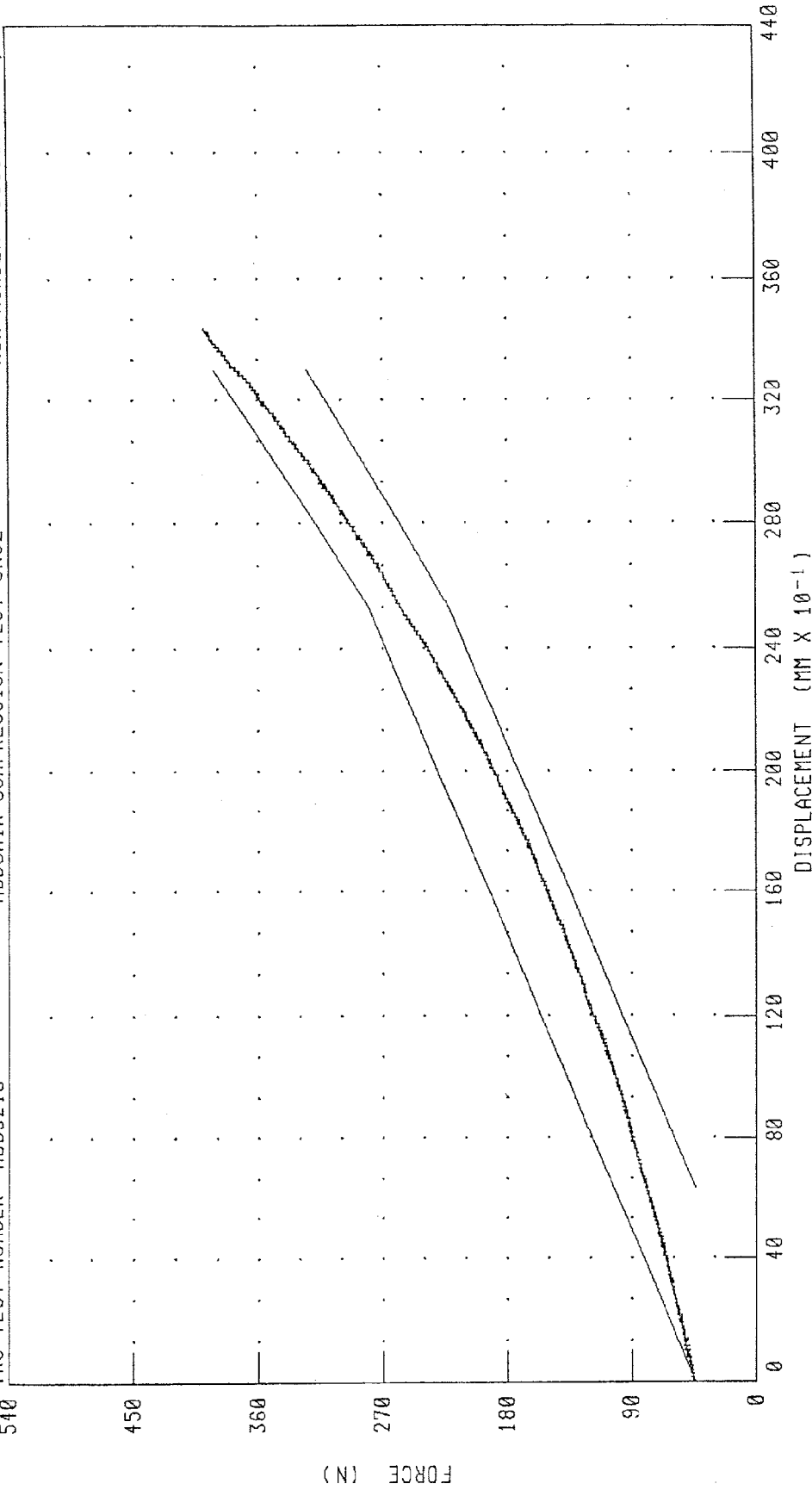
PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN52

RUN NUMBER: 011899.1232;1

TRC TEST NUMBER: ABD5210



PEAK DATA: 34.39 MM @ 4.40 S; 0.00 MM @ 0.00 S
398.62 N @ 4.40 S; 43.52 N @ 0.00 S

CHANNEL: ABXD
ABXF
FILTER: CH: CLASS 1000
CH: CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

18-01-99

TRC INC. TEST NO: LF5210

572F SN52 LUMBAR FLEX.

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	124.54 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	182.37 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	226.85 N
NET RETURN ANGLE	< 12 DEG.	0.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Ry Cull

RUN NUMBER: 011899.1514

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

30-NOV-98

TRC INC.

572F SN52 DAMPER TEST CAL08

TEST NUMBER: DP5208A

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	33.0 %
VELOCITY	FORCE	838 - 1125 N	967 N
3.05 M/S	DISPLACEMENT	30.2 - 35.2 MM	31.8 MM
VELOCITY	FORCE	1733 - 2100 N	1838 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.9 MM
VELOCITY	FORCE	3743 - 4448 N	4139 N
6.10 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.2 MM

DAMPER SETTING = 9.0

TEST MEETS SPECIFICATIONS

TECHNICIAN

B. C. [Signature]

RUN NUMBER: 113098.0837;3

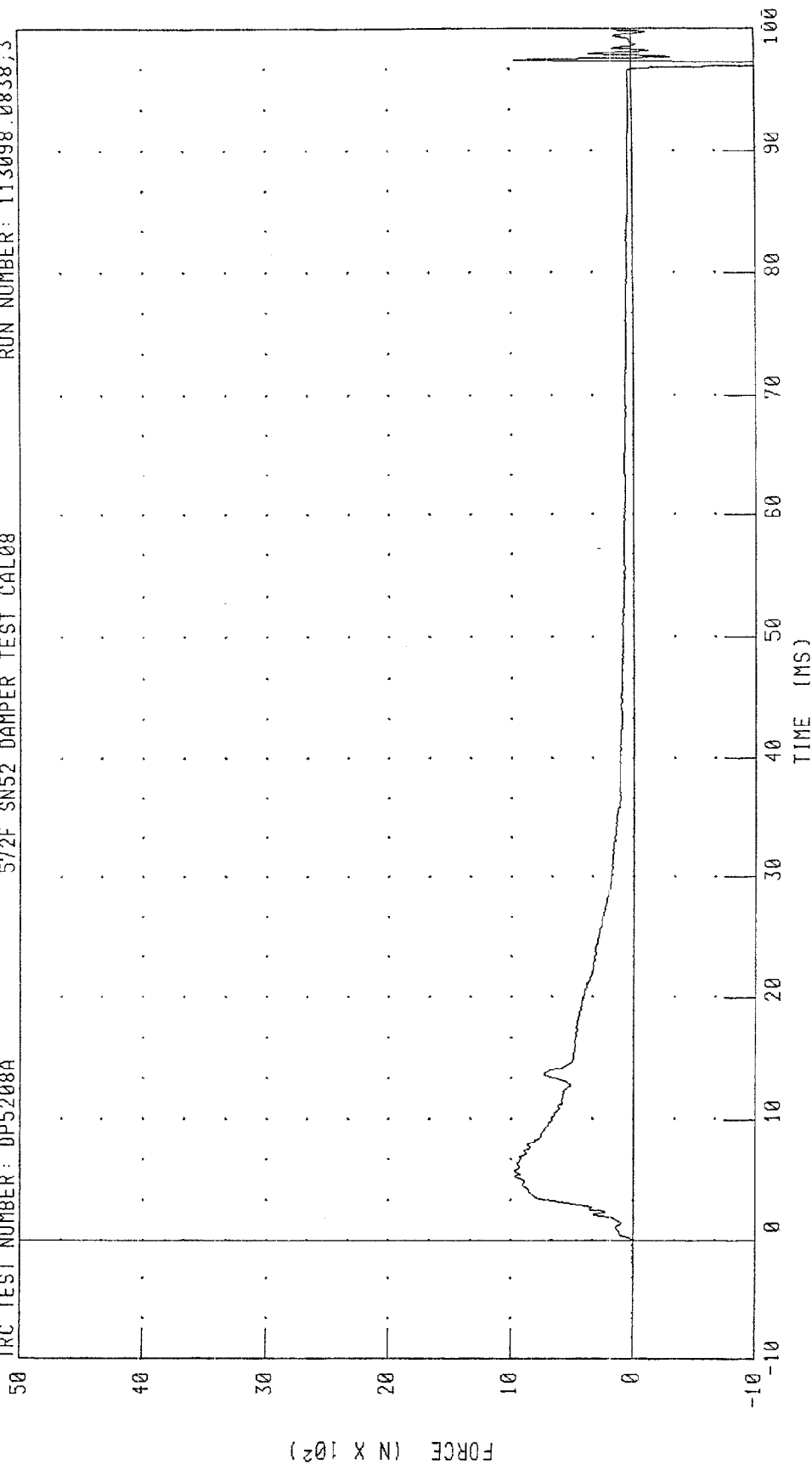
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5208A

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838,3



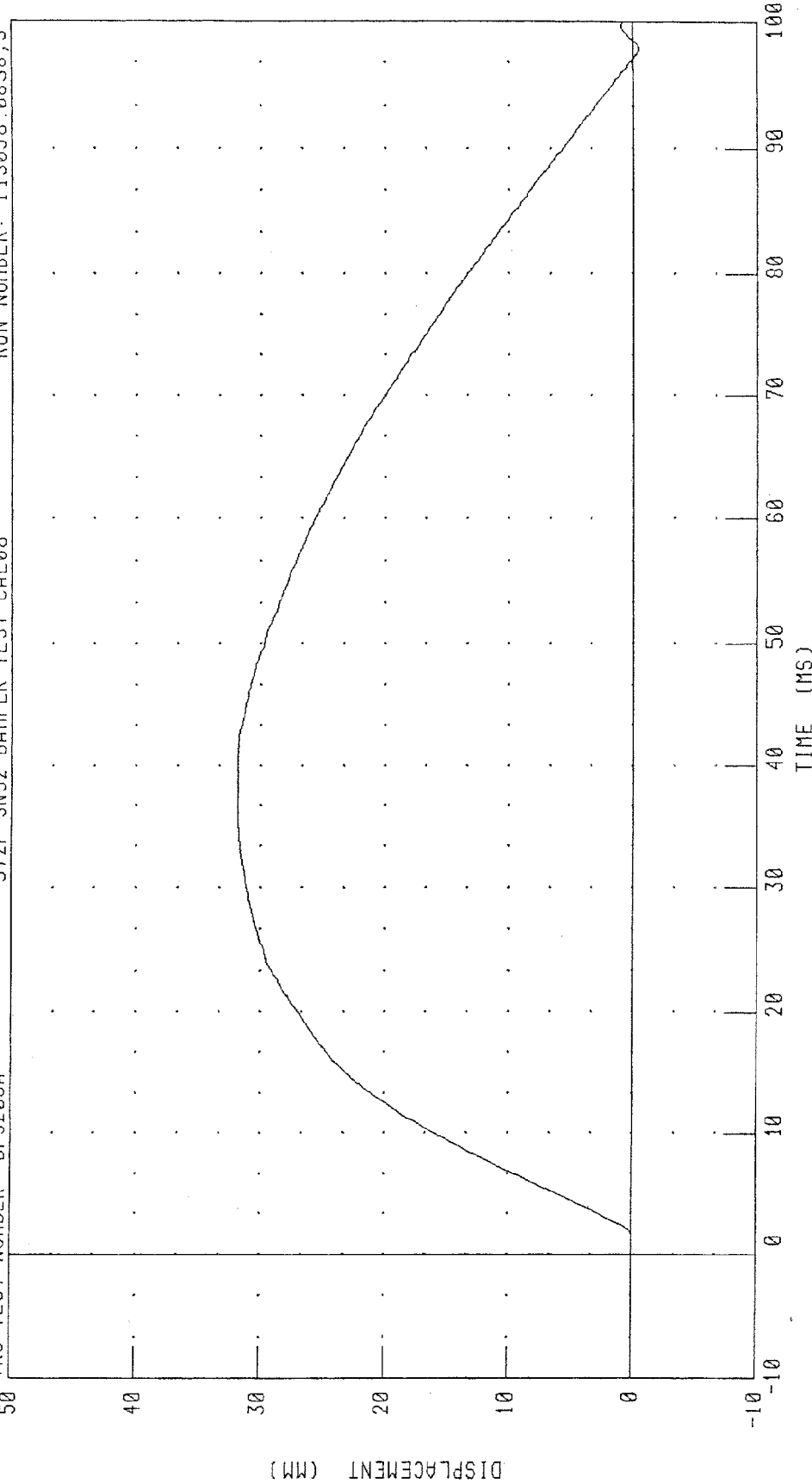
CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 967.30 N @ 5.28 MS, -3039.95 N @ 97.12 MS

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5208A 572F SN52 DAMPER TEST CAL08 RUN NUMBER: 113098.0838;3



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 31.82 MM @ 35.68 MS; -0.48 MM @ 97.76 MS

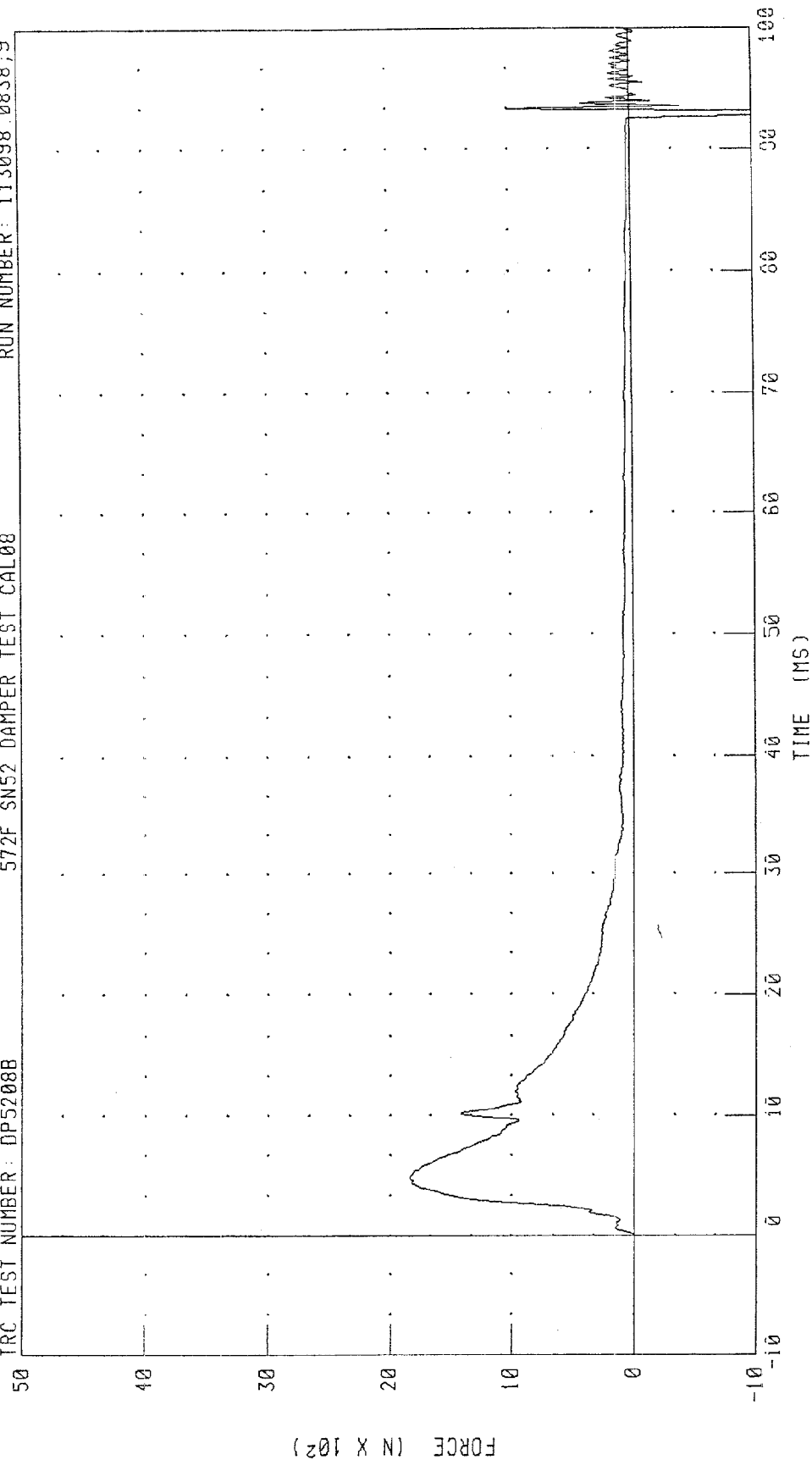
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5208B

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838;9



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 1838.07 N @ 4.88 MS; -2975.51 N @ 92.96 MS

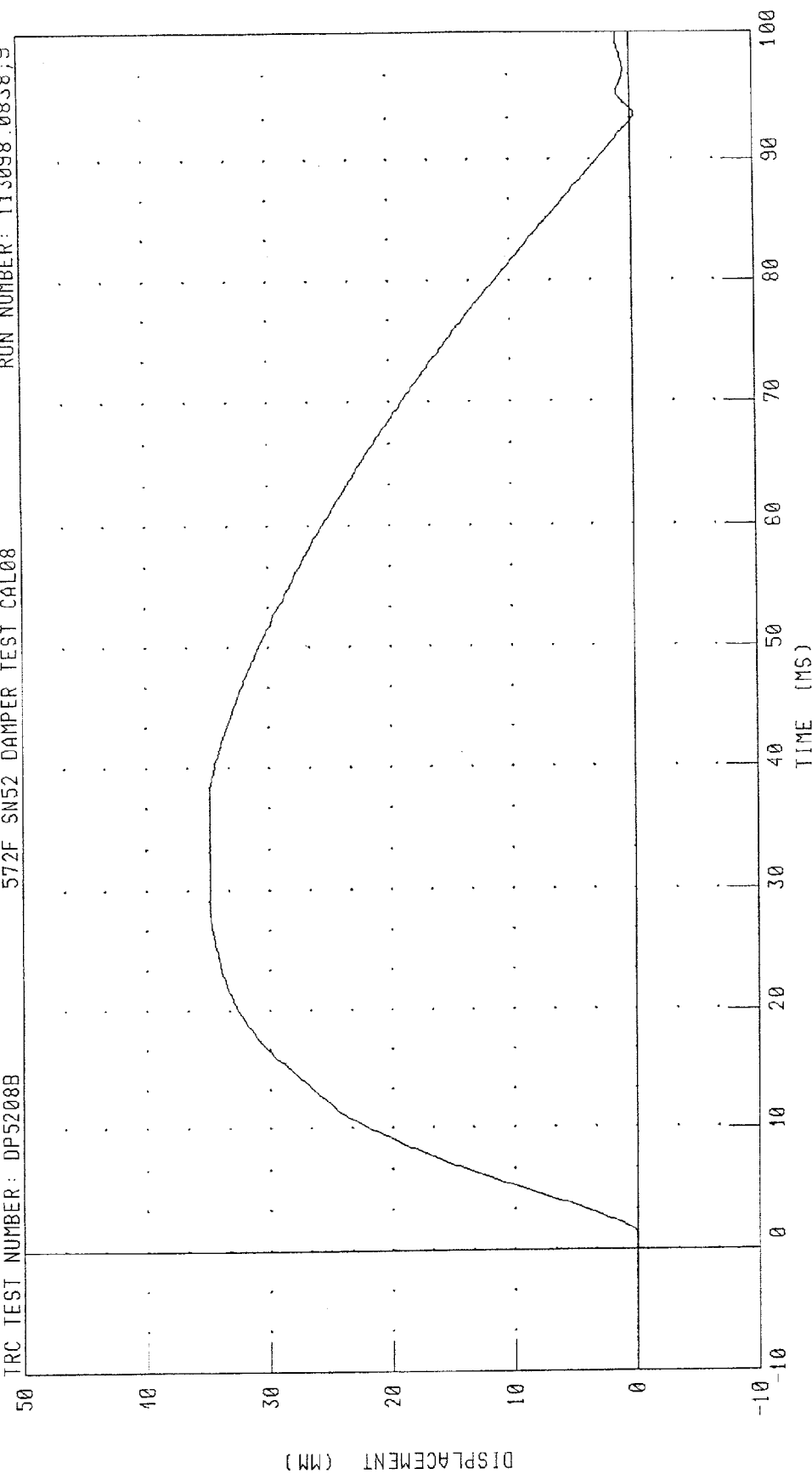
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL08

TRC TEST NUMBER: DP5208B

RUN NUMBER: 113098.0838;9



PEAK DATA: 34.94 MM @ 29.20 MS; -0.28 MM @ 93.60 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

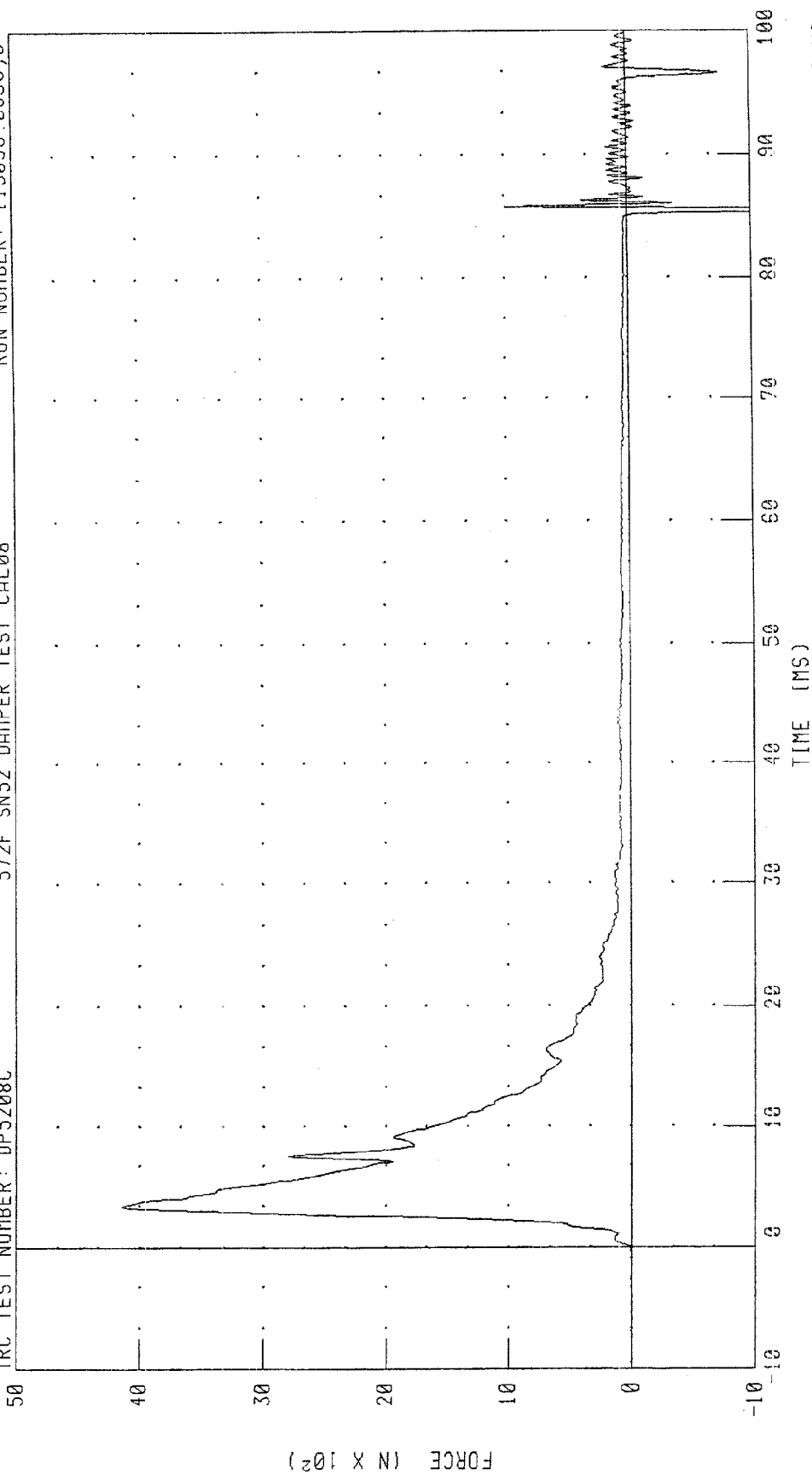
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5208C

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838;6



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 4138.81 N @ 3.28 MS; -3157.30 N @ 85.52 MS

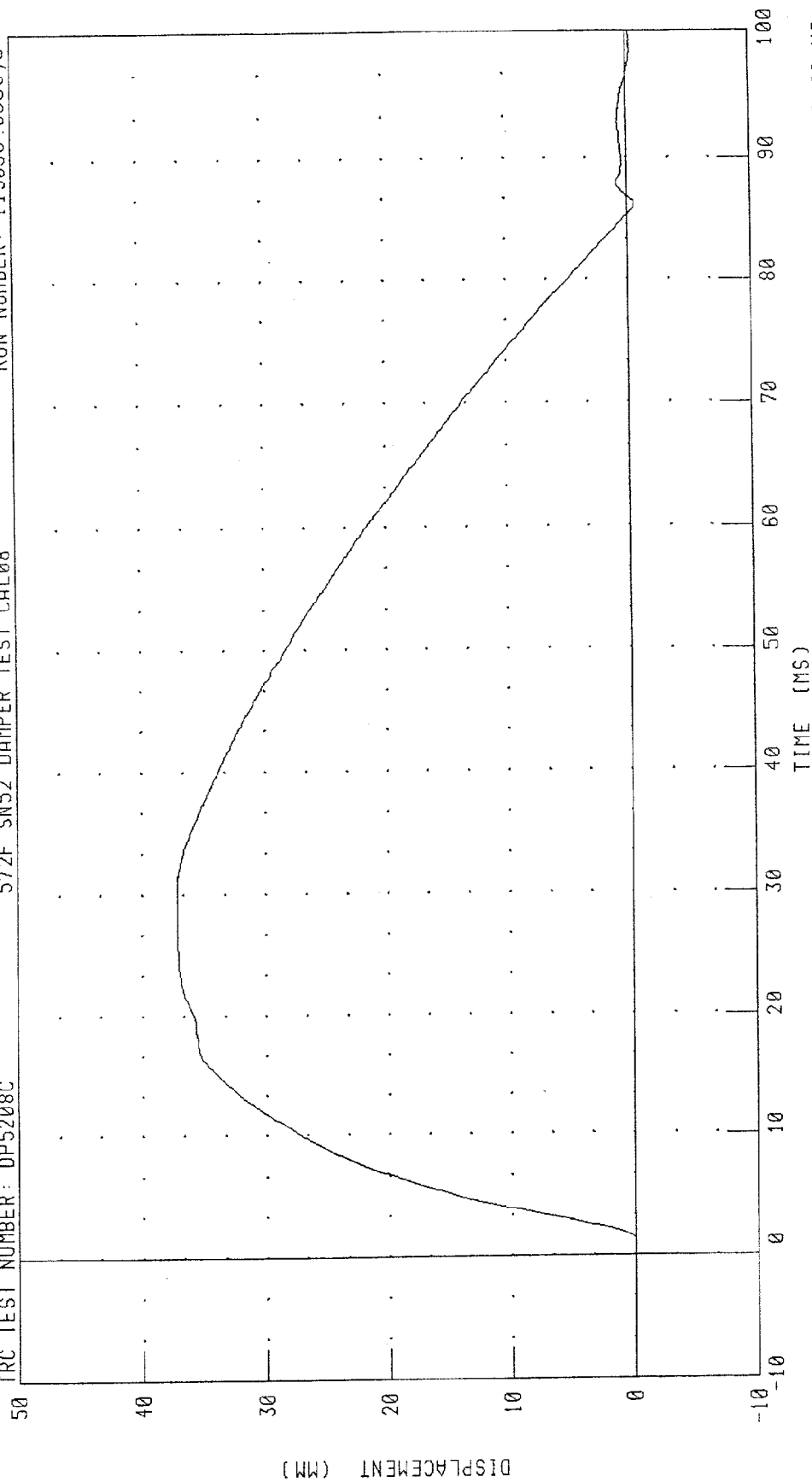
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

RUN NUMBER: 113098.0838;6

TRC TEST NUMBER: DP5208C

572F SN52 DAMPER TEST CAL08



PEAK DATA: 37.19 MM @ 26.96 MS; -0.56 MM @ 86.08 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

Calibration Test Results

Post-Test

SID: 051

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax passed all shock absorber requirements.

TRANSPORTATION RESEARCH CENTER INC.
SIDE IMPACT DUMMY
EXTERNAL DIMENSIONS
LEFT SIDE CONFIGURATION
SN SN51 VECTOR

25-01-99

TRC INC. TEST NO: ED5112 572F SN51 EXT.DIMESIONS CAL12

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		20.0 %
SH	SEATED HEIGHT	889 - 909 MM	901.7 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	520.7 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	502.9 MM
HW	HIP WIDTH	356 - 391 MM	373.4 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	501.6 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	177.8 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	177.8 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By C. L. T.

RUN NUMBER: 011999.0732

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

26-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5112

572F SN51 LEFT THORAX CAL12

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-38.0 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-39.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.4 G

TEST MEETS SPECIFICATIONS

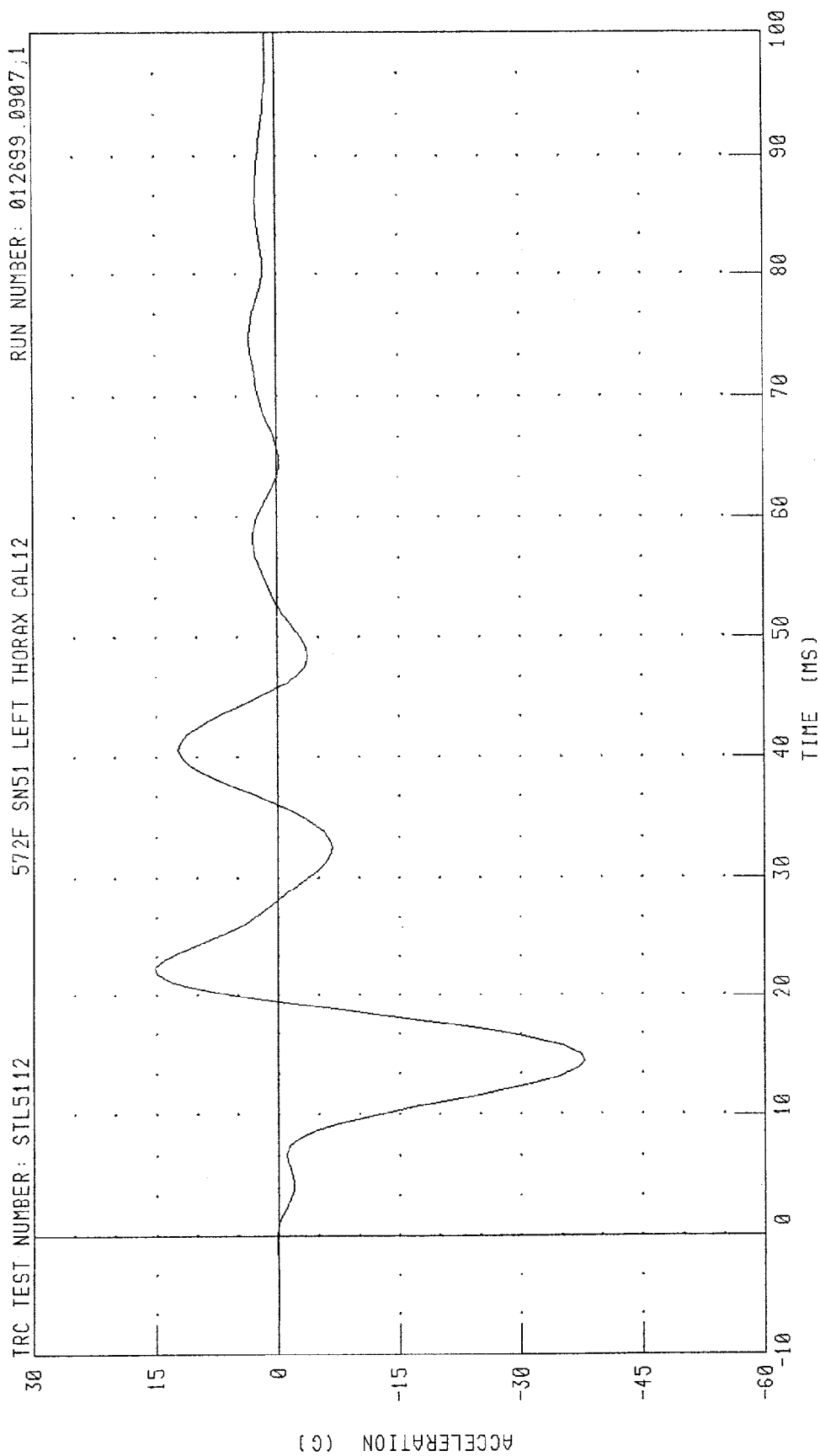
TECHNICIAN

B. C. L.

RUN NUMBER: 012699.0907;1

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS



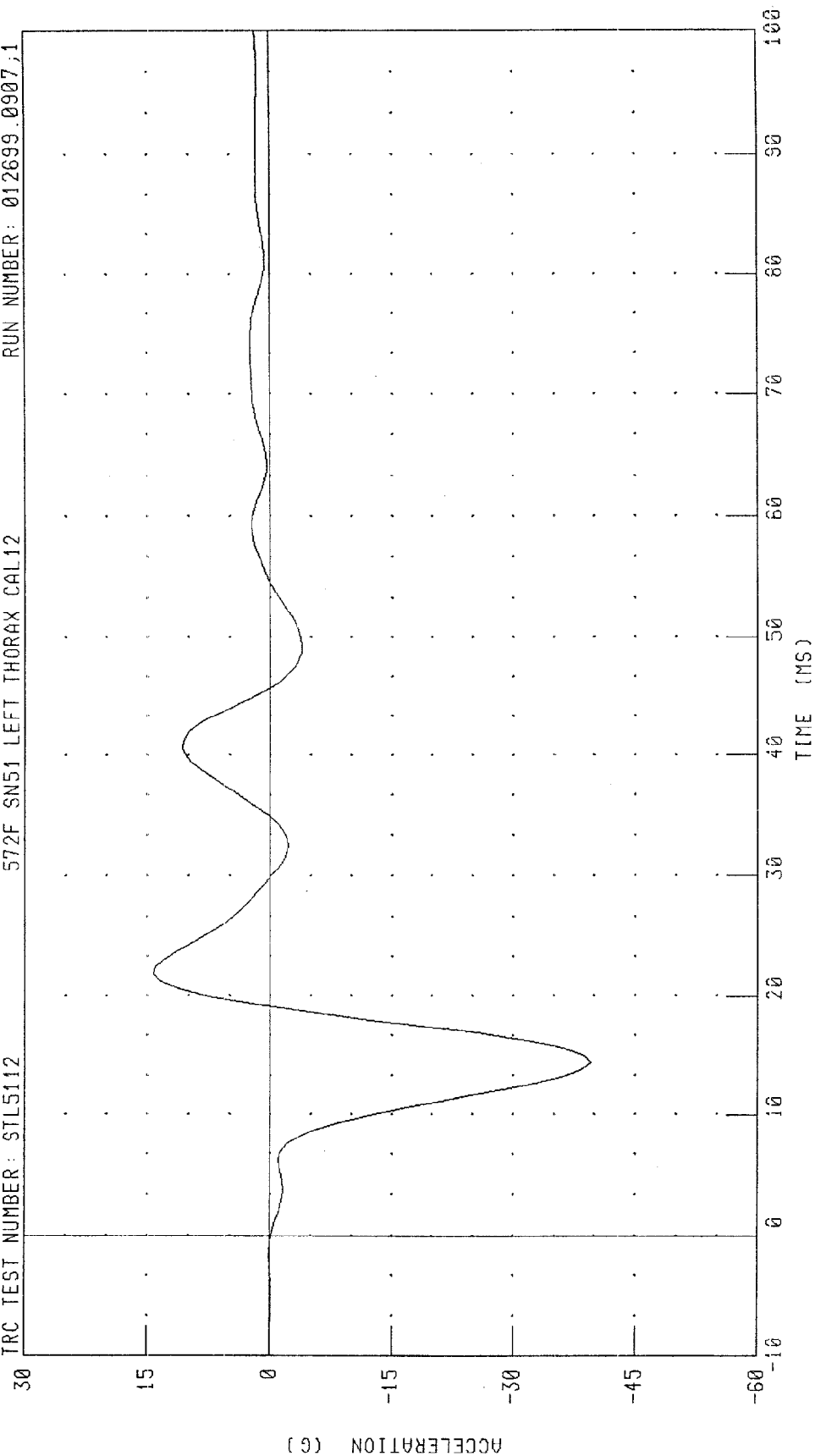
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL5112

572F SN51 LEFT THORAX CAL12

RUN NUMBER: 012699.0907,1



CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 14.27 G @ 21.88 MS, -39.53 G @ 14.37 MS

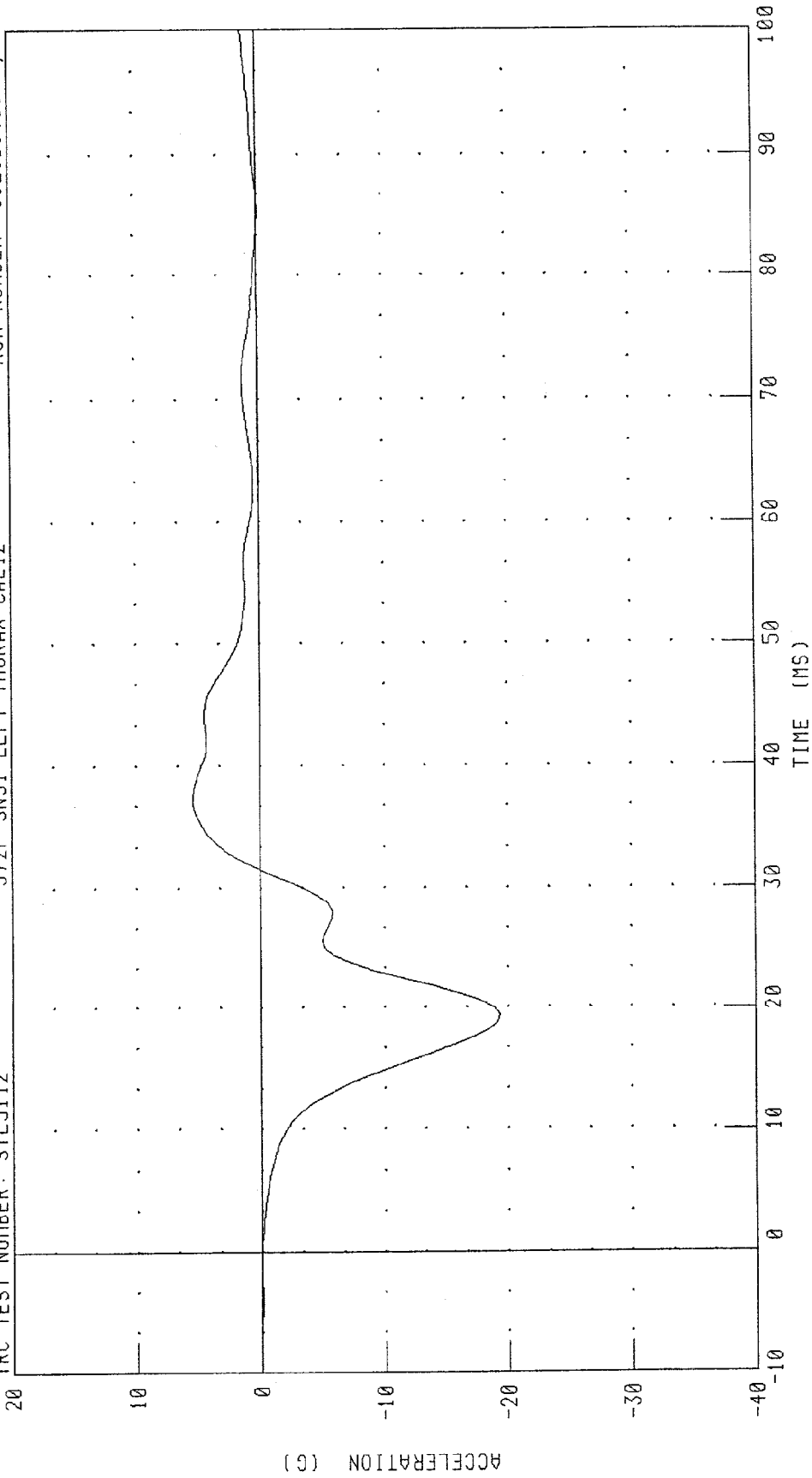
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

572F SN51 LEFT THORAX CAL12

TRC TEST NUMBER: STL5112

RUN NUMBER: 012699.0907;1



PEAK DATA: 5.47 G @ 37.50 MS; -19.36 G @ 19.38 MS

CHANNEL: T12YC FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

26-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5112

572F SN 51 LEFT PELVIS CAL12

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-54.4 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN Ry Calt

RUN NUMBER: 012699.0902;1

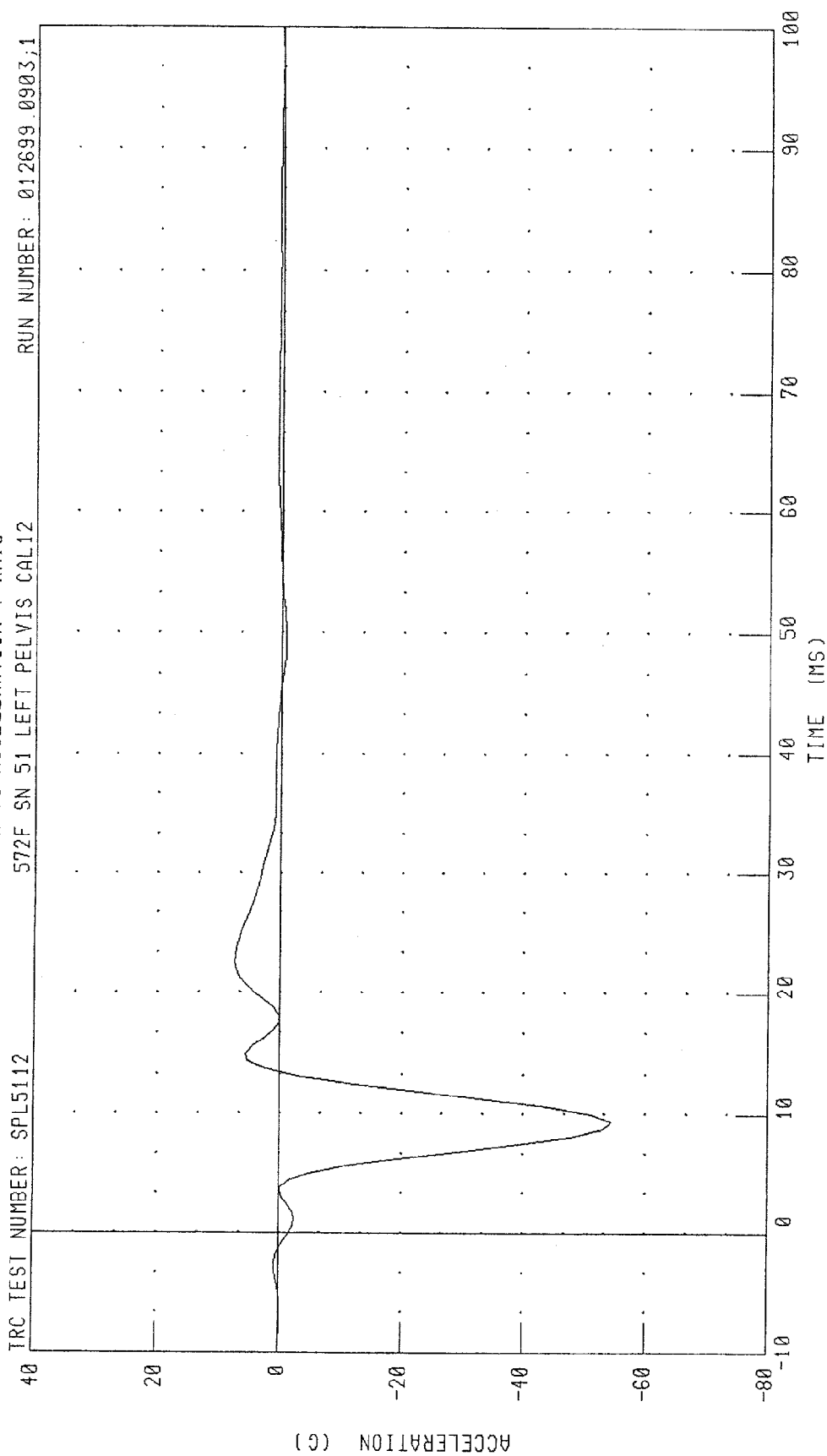
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5112

572F SN 51 LEFT PELVIS CAL12

RUN NUMBER: 012699.0903;1



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 7 46 C 0 22.50 MS, -54.40 C 0 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

25-JAN-99

TRC INC.

TEST NO: ABD5112

ABDOMIN COMPRESSION TEST SN51

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.79 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	121.81 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	176.10 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	245.06 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	354.14 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

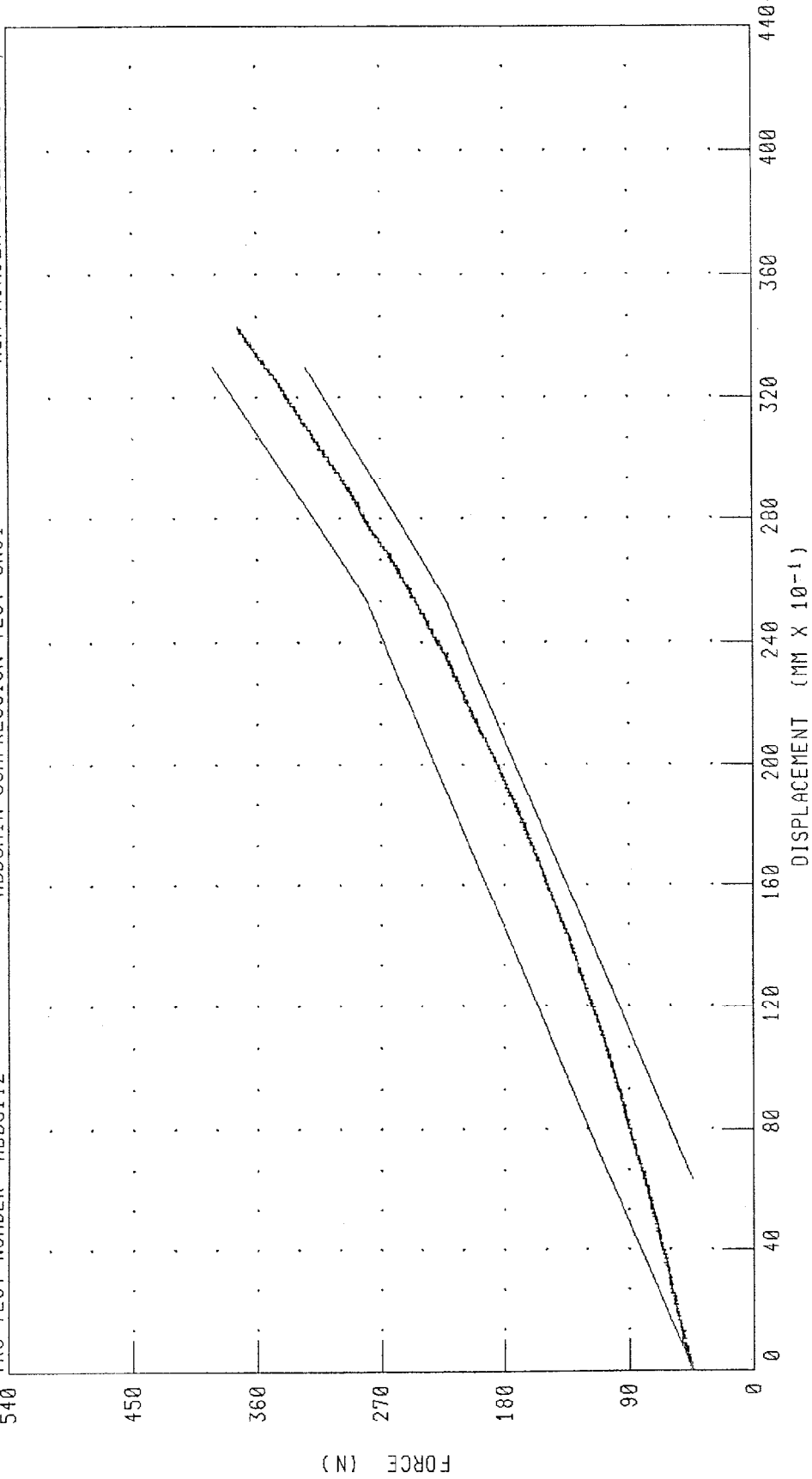
Bj Calt

RUN NUMBER: 012599.1351;1

PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT
ABDOMIN COMPRESSION TEST SN51

TRC TEST NUMBER: ABD5112 RUN NUMBER: 012599.1351,1



CHANNEL: ABXD
ABXF

FILTER: CH. CLASS 1000
CH. CLASS 1000

PEAK DATA: 34.39 MM @ 4.39 S; -0.13 MM @ 0.00 S
373.21 N @ 4.39 S; 43.55 N @ 0.00 S

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

25-01-99

TRC INC.

TEST NO: LF5112

572F LUMBAR FLEX. SN51 CAL12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	120.10 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	182.37 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	240.19 N
NET RETURN ANGLE	< 12 DEG.	3.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

By C. Let

RUN NUMBER: 012899.0834

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

18-JAN-99

TRC INC.

572F SN51 DAMPER TEST CAL11

TEST NUMBERS: DP5111A,DP5111B,DP5111C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	20.0 %
VELOCITY	FORCE	838 - 1125 N	916 N
	DISPLACEMENT	30.2 - 35.2 MM	31.6 MM
3.06 M/S	FORCE	1733 - 2100 N	1833 N
	DISPLACEMENT	31.6 - 37.2 MM	34.8 MM
VELOCITY	FORCE	3784 - 4495 N	4149 N
	DISPLACEMENT	33.3 - 39.6 MM	37.7 MM
4.27 M/S	FORCE		
	DISPLACEMENT		
6.12 M/S	FORCE		
	DISPLACEMENT		

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN

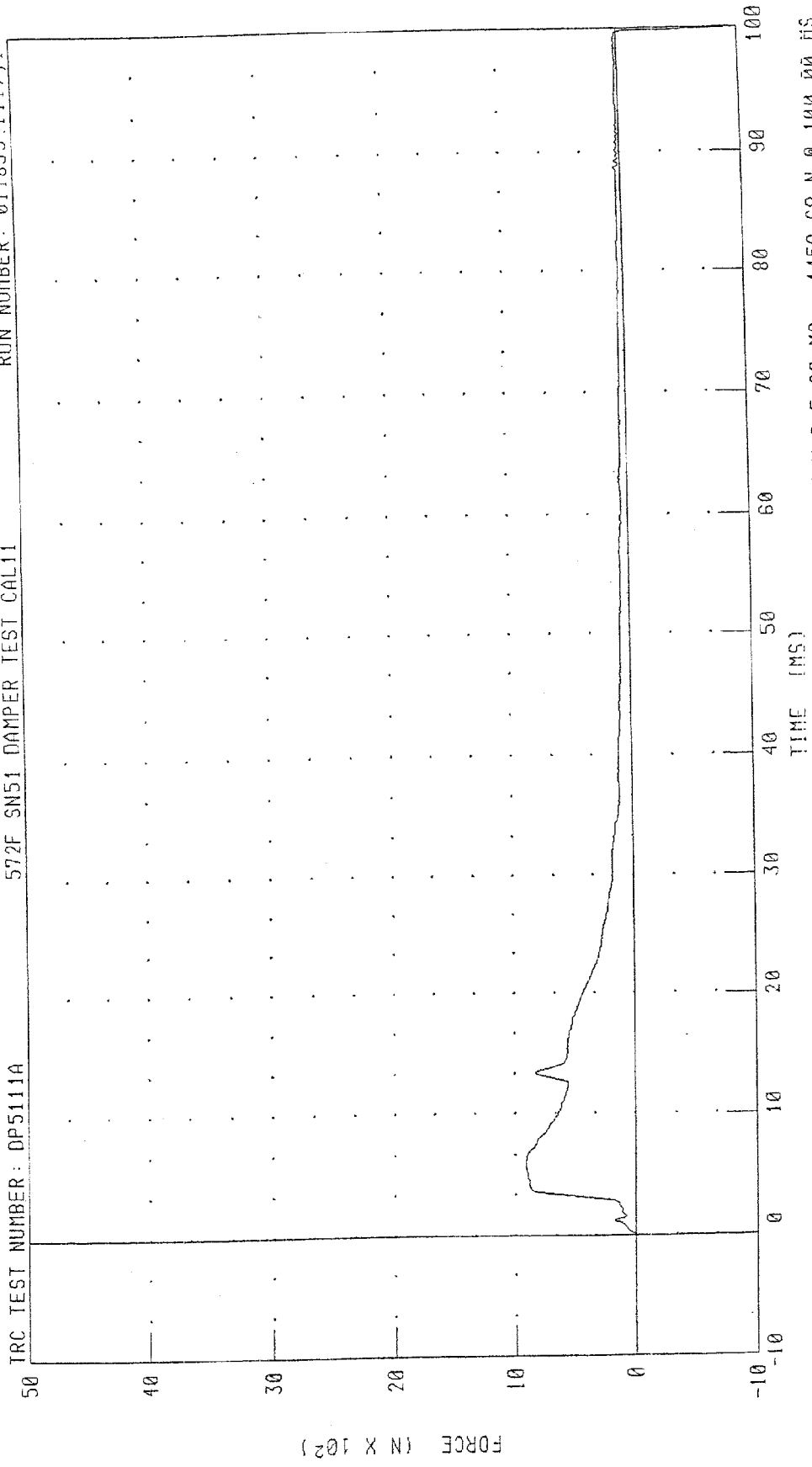
Ryalt

RUN NUMBER: 011899.1111;1

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111A 572F SN51 DAMPER TEST CAL11 RUN NUMBER: 011899.1117;1



PEAK DATA: 916.34 N @ 5.68 MS; -1458.68 N @ 100.00 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL11

TRC TEST NUMBER: DP5111A

50

40

30

20

10

0

-10

DISPLACEMENT (MM)

0

10

20

30

40

50

60

70

80

90

100

TIME (MS)

PEAK DATA: 31.65 MM @ 34.80 MS; -0.35 MM @ 100.00 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

RUN NUMBER: 011899.1117.1

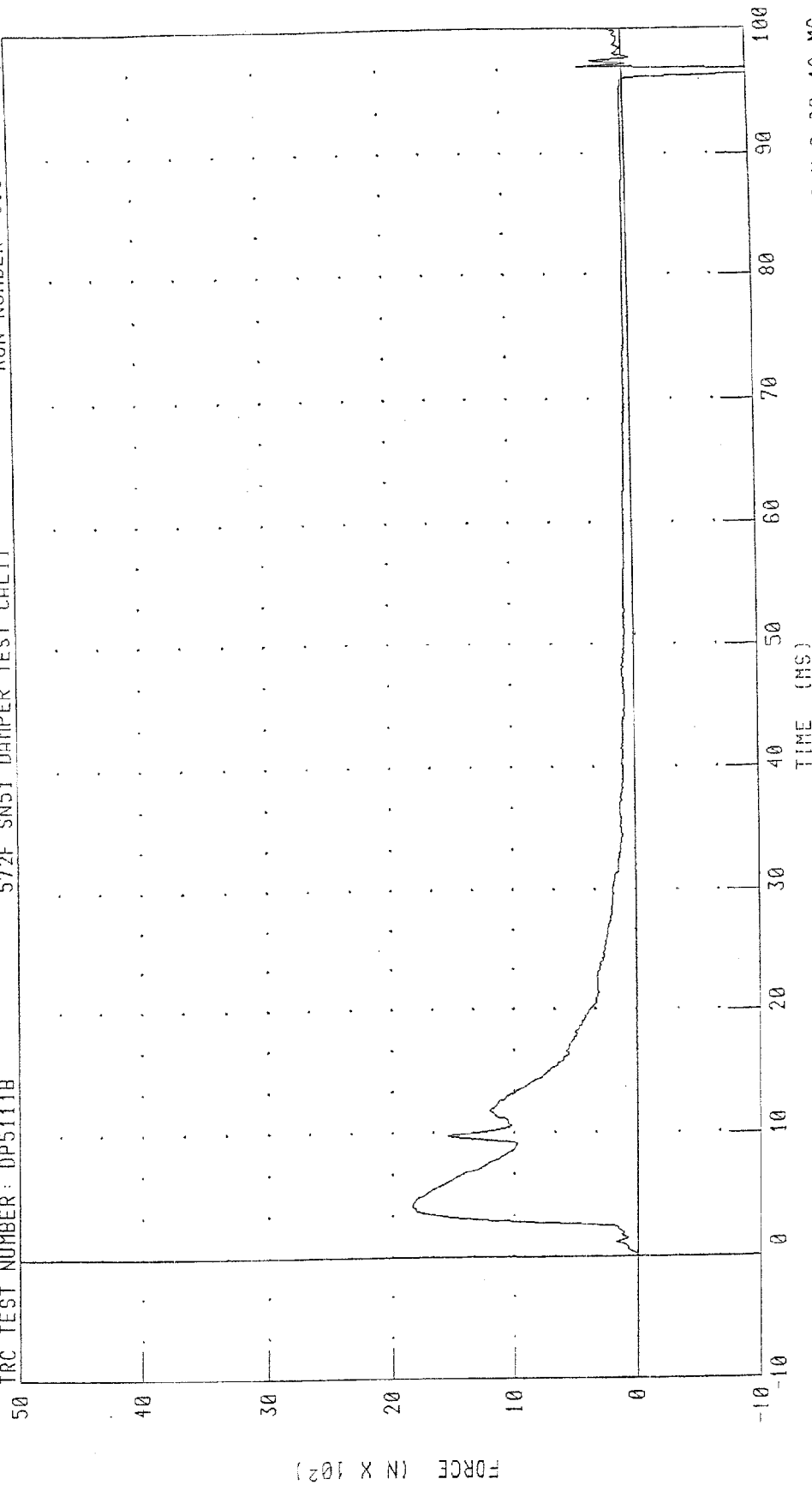
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111B

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1118;2



PEAK DATA: 1832.88 N @ 4.16 MS; -2350.29 N @ 96.48 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

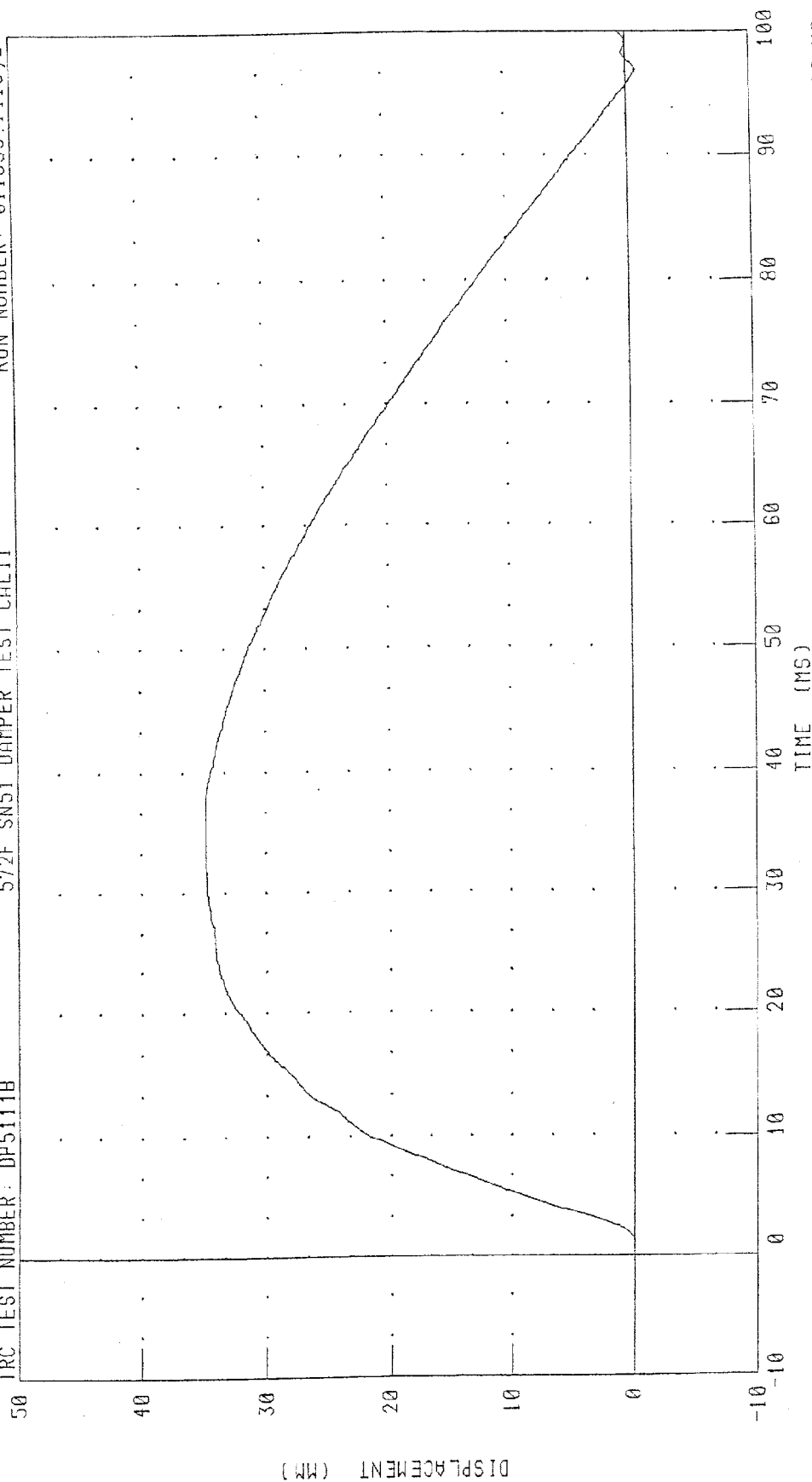
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5111B

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1118;2



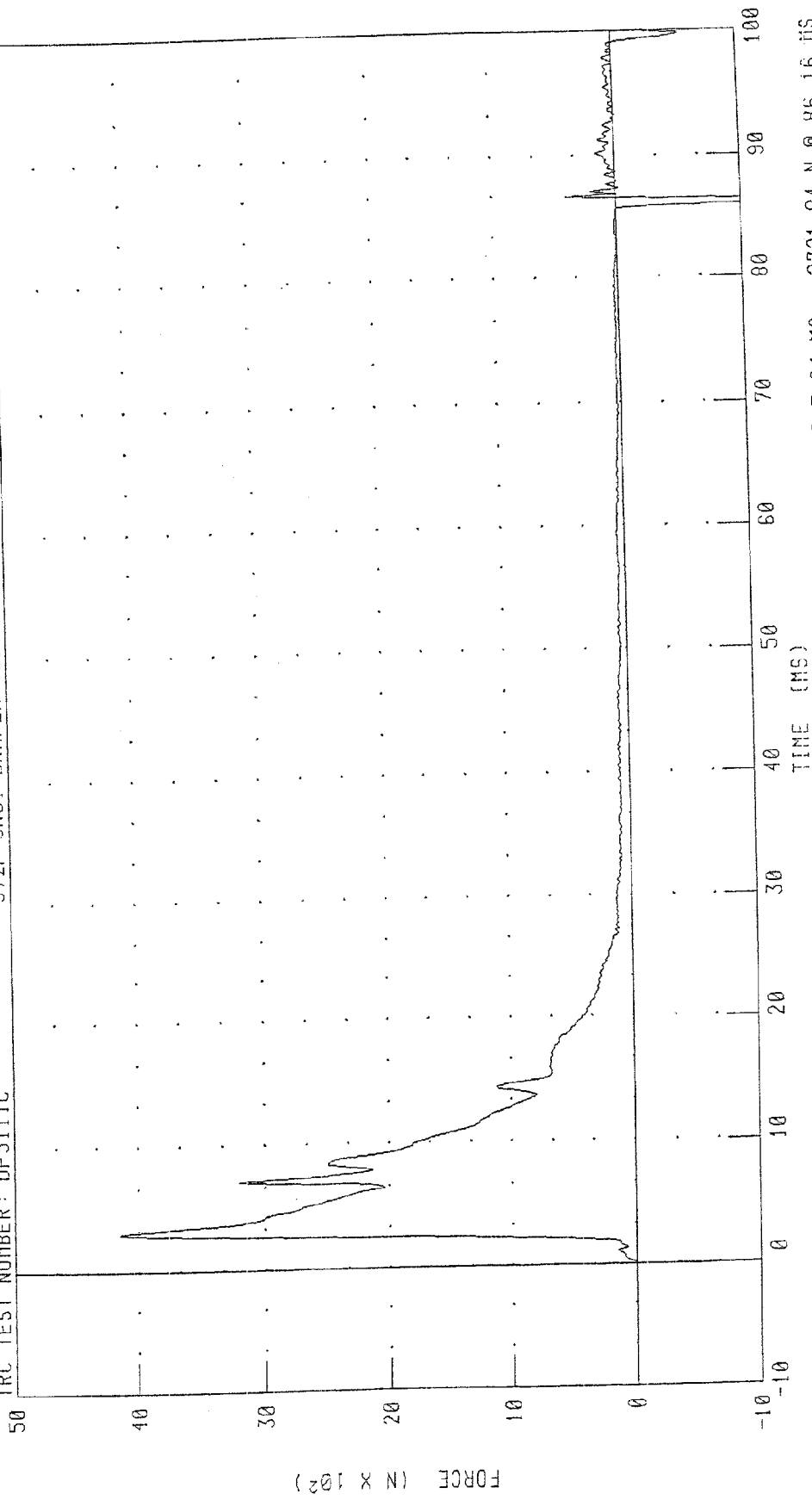
PEAK DATA: 34.81 MM @ 32.96 MS; -0.85 MM @ 96.96 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111C 572F SN51 DAMPER TEST CAL11 RUN NUMBER: 011899.1119,4



CHANNEL: DAMPF FILTER: CH. CLASS 1000

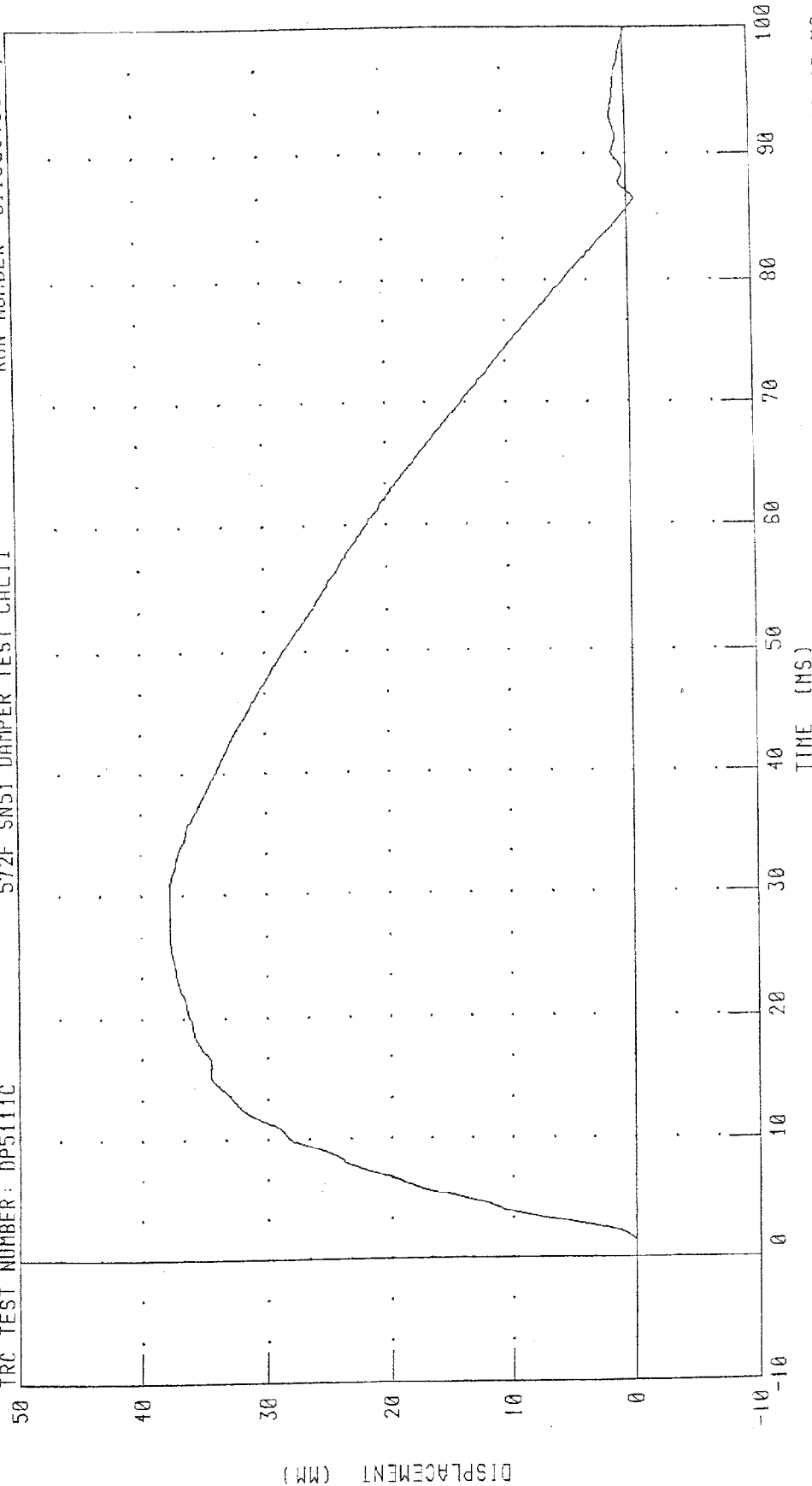
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER DISPLACEMENT

RUN NUMBER: 011899.1119;4

572F SN51 DAMPER TEST CAL11

TRC TEST NUMBER: DP5111C



PEAK DATA: 37.66 MM @ 26.72 MS, -0.60 MM @ 86.48 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

Calibration Test Results

Post-Test

SID: 052

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax passed all shock absorber requirements.

TRANSPORTATION RESEARCH CENTER INC.
SIDE IMPACT DUMMY
EXTERNAL DIMENSIONS
LEFT SIDE CONFIGURATION
SN SN52 VECTOR

25-01-99

TRC INC. TEST NO: ED5211 572F SN52 EXT.DIMENSIONS CAL11

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		20.0 %
SH	SEATED HEIGHT	889 - 909 MM	896.6 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	520.7 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	497.8 MM
HW	HIP WIDTH	356 - 391 MM	378.5 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	505.5 MM
RD	RIB FROM BACKLINE	229 - 241 MM	238.8 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	170.2 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	170.2 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

By alt

RUN NUMBER: 012899.0845

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

26-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5211

572F SN52 LEFT THORAX CAL11

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-42.0 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-40.2 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.3 G

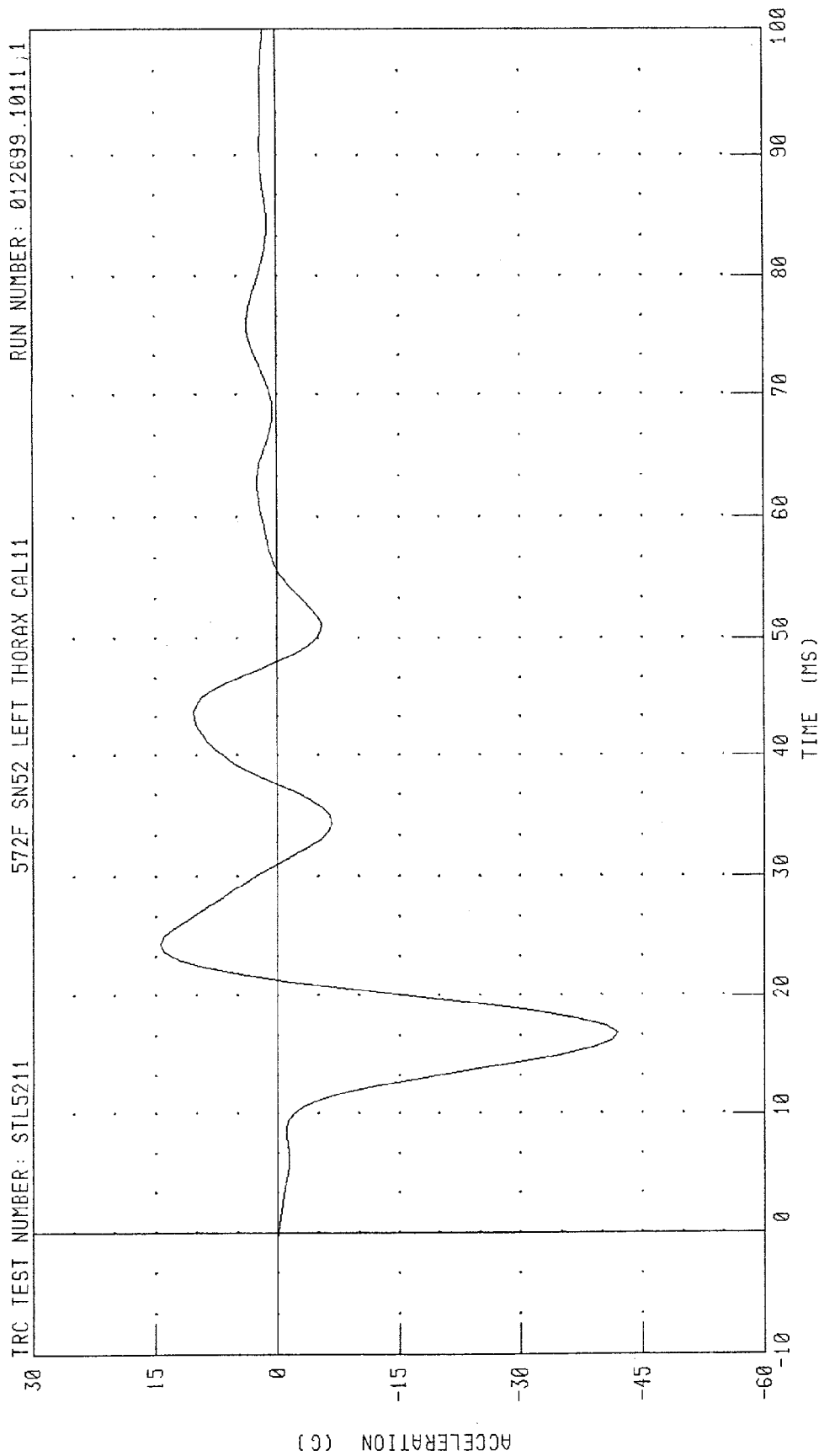
TEST MEETS SPECIFICATIONS

TECHNICIAN

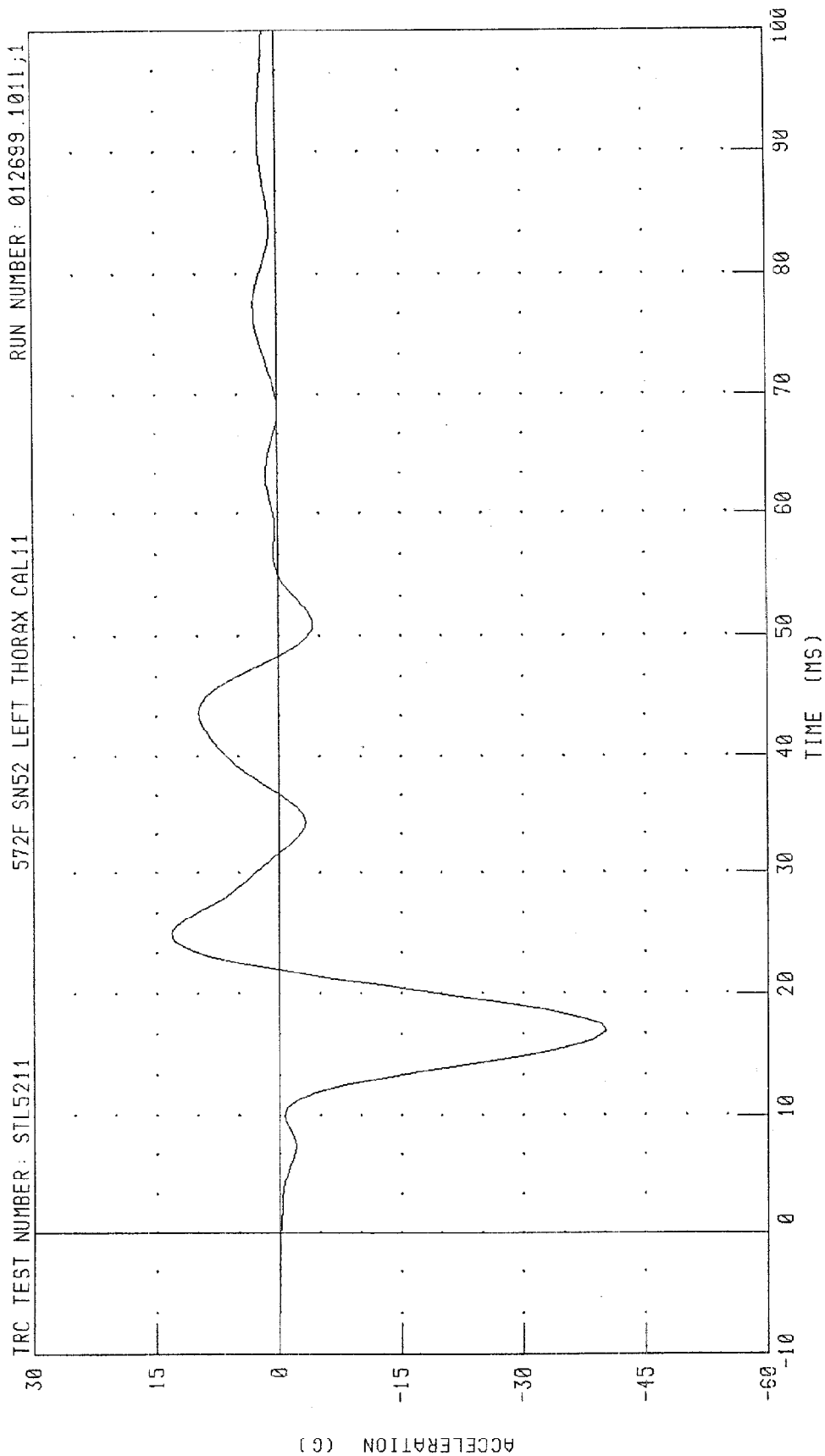
By [Signature]

RUN NUMBER: 012699.1011;1

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LEFT UPPER RIB ACCELERATION Y AXIS



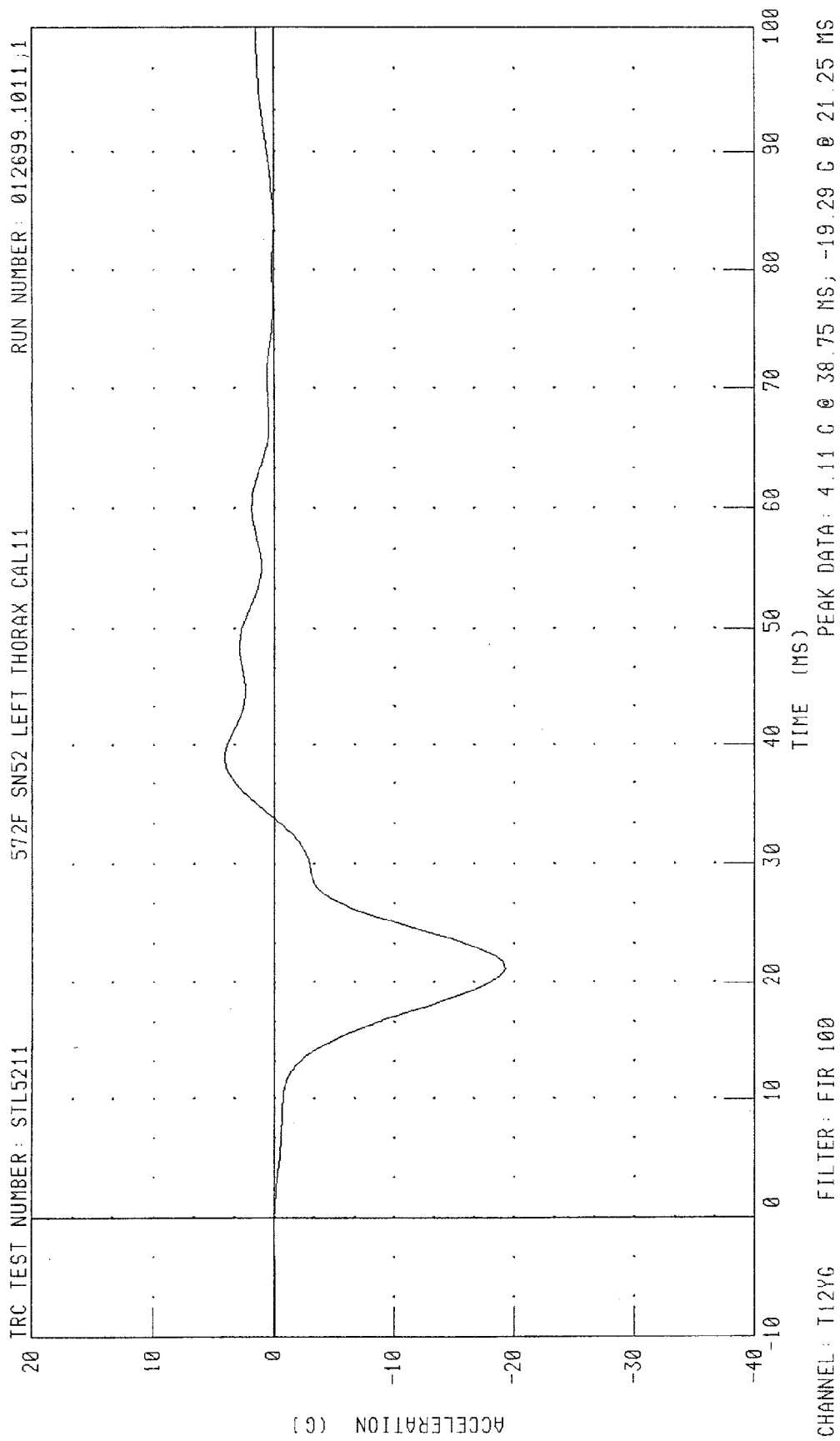
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LEFT LOWER RIB ACCELERATION Y AXIS



CHANNEL: LLRYG FILTER: FIR 100

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

26-JAN-99

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: SPL5211

572F SN52 LEFT PELVIS CAL11

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.30 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-51.2 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

B. J. C. L. T.

RUN NUMBER: 012699.1020;1

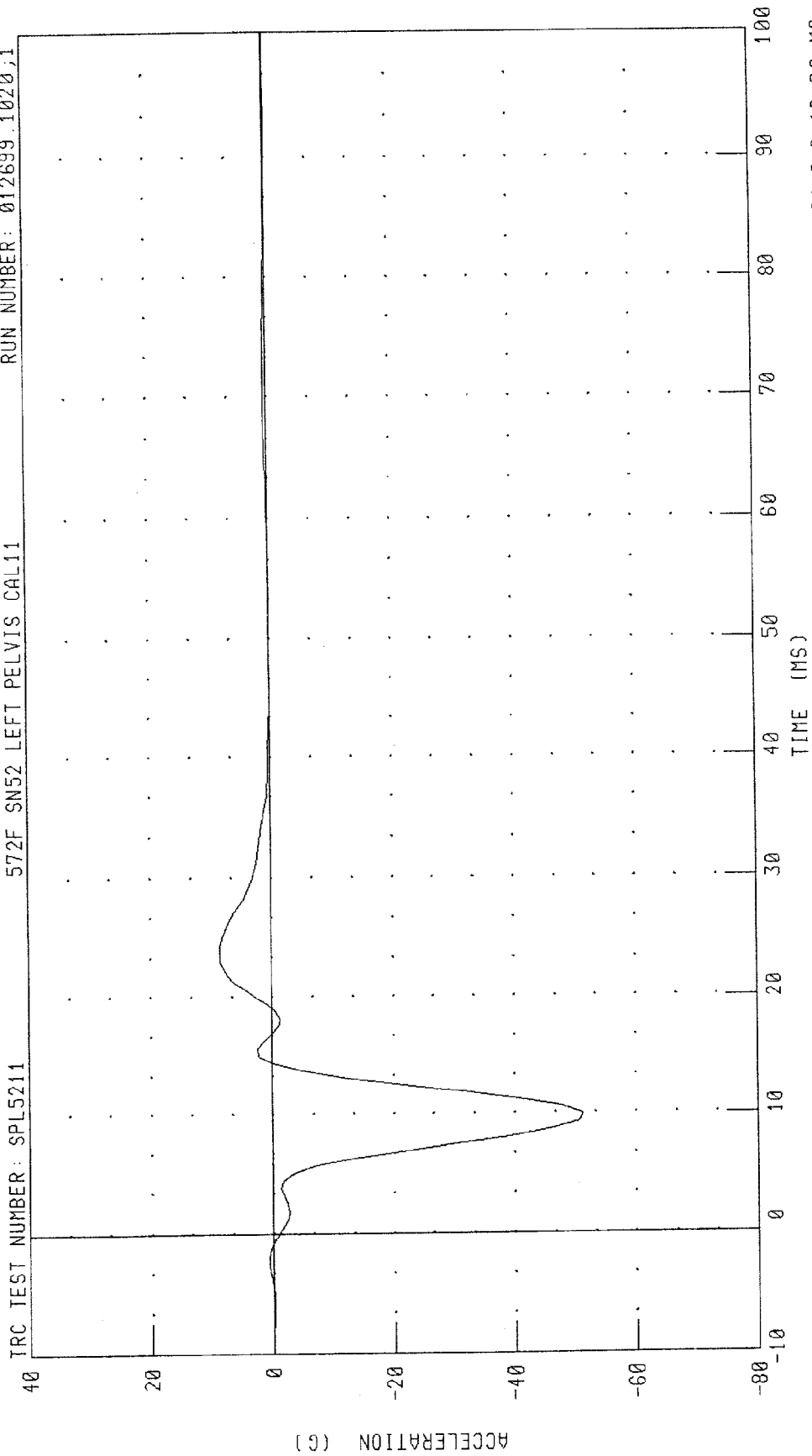
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN52 LEFT PELVIS CAL11

RUN NUMBER: 012699.1020;1

TRC TEST NUMBER: SPL5211



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 8.61 G @ 23.75 MS; -51.24 G @ 10.00 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

25-JAN-99

TRC INC. TEST NO: ABD5211

ABDOMIN COMPRESSION TEST SN52

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.81 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	120.03 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	173.83 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	244.26 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	356.27 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bjalt

RUN NUMBER: 012599.1516;1

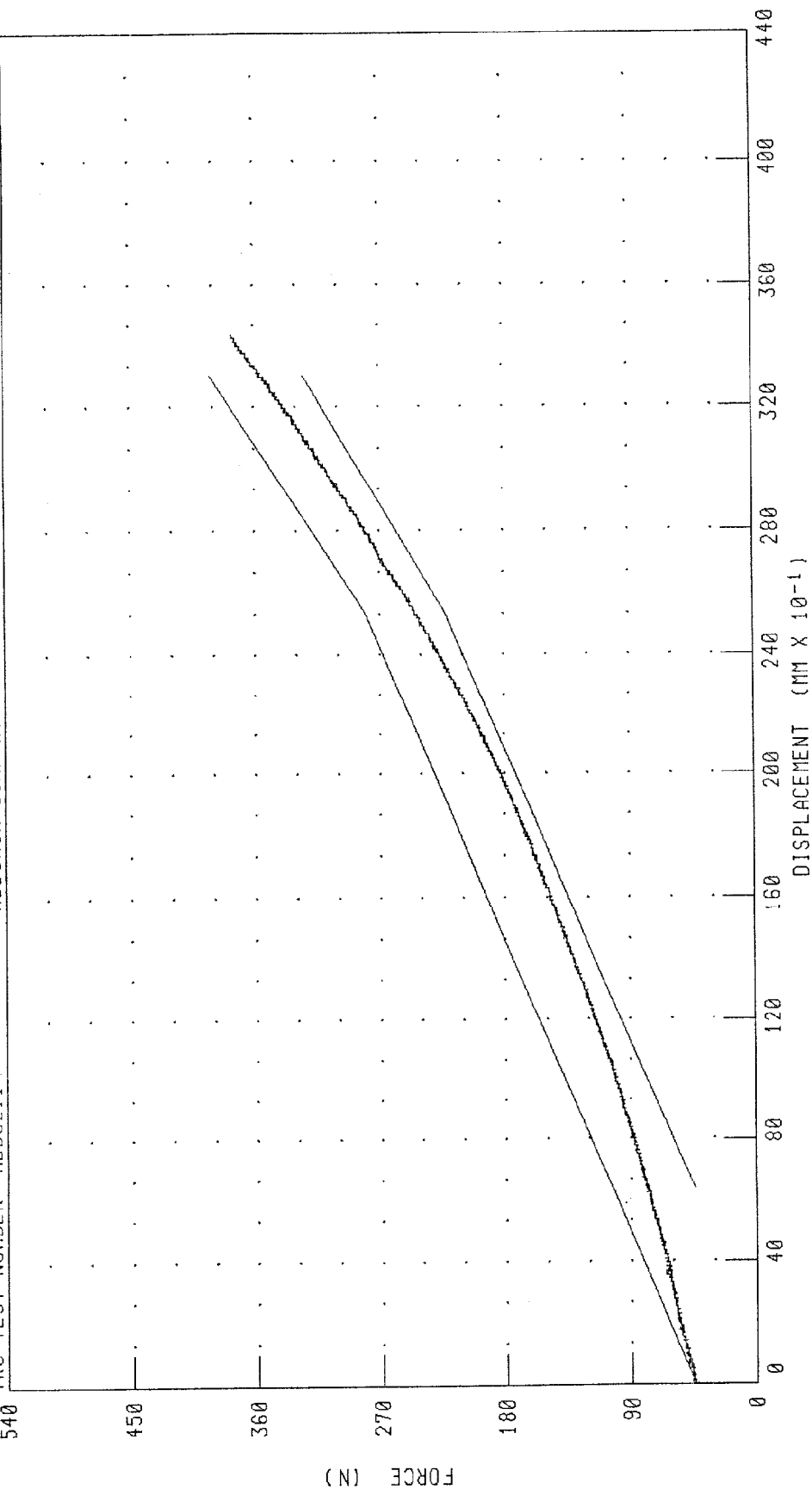
PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN52

RUN NUMBER: 012599.1516;1

TRC TEST NUMBER: ABD5211



PEAK DATA: 34.39 MM @ 4.39 S; 0.00 MM @ 0.00 S
375.34 N @ 4.39 S; 44.22 N @ 0.00 S

CHANNEL: ABXD FILTER: CH. CLASS 1000
ABXF CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

25-01-99

TRC INC.

TEST NO: LF5211

572F SN52 LUMBAR FLEX. CAL11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	142.34 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	200.16 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	249.09 N
NET RETURN ANGLE	< 12 DEG.	0.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN B. Calt

RUN NUMBER: 012899.0843

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

26-JAN-99

TRC INC.

572F SN52 DAMPER TEST CAL11

TEST NUMBERS: DP5211A,DP5211B,DP5211C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	20.0 %
VELOCITY	FORCE	838 - 1125 N	1011 N
3.05 M/S	DISPLACEMENT	30.2 - 35.2 MM	32.8 MM
VELOCITY	FORCE	1733 - 2100 N	1857 N
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	35.0 MM
VELOCITY	FORCE	3824 - 4542 N	4433 N
6.14 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.0 MM

DAMPER SETTING = 9.0

TEST MEETS SPECIFICATIONS

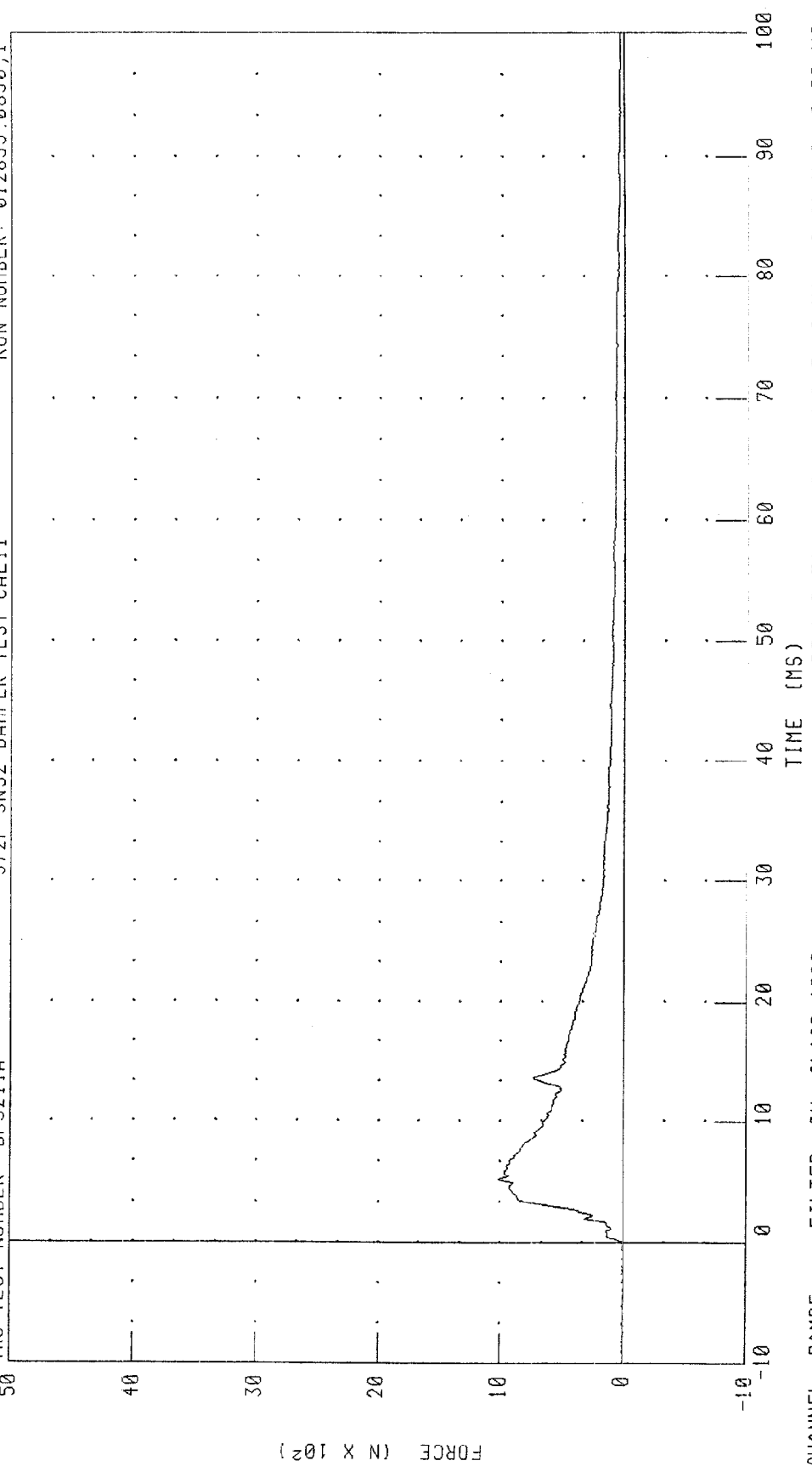
TECHNICIAN By Calt

RUN NUMBER: 012699.0849;1

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5211A 572F SN52 DAMPER TEST CAL11 RUN NUMBER: 012699.0850,1

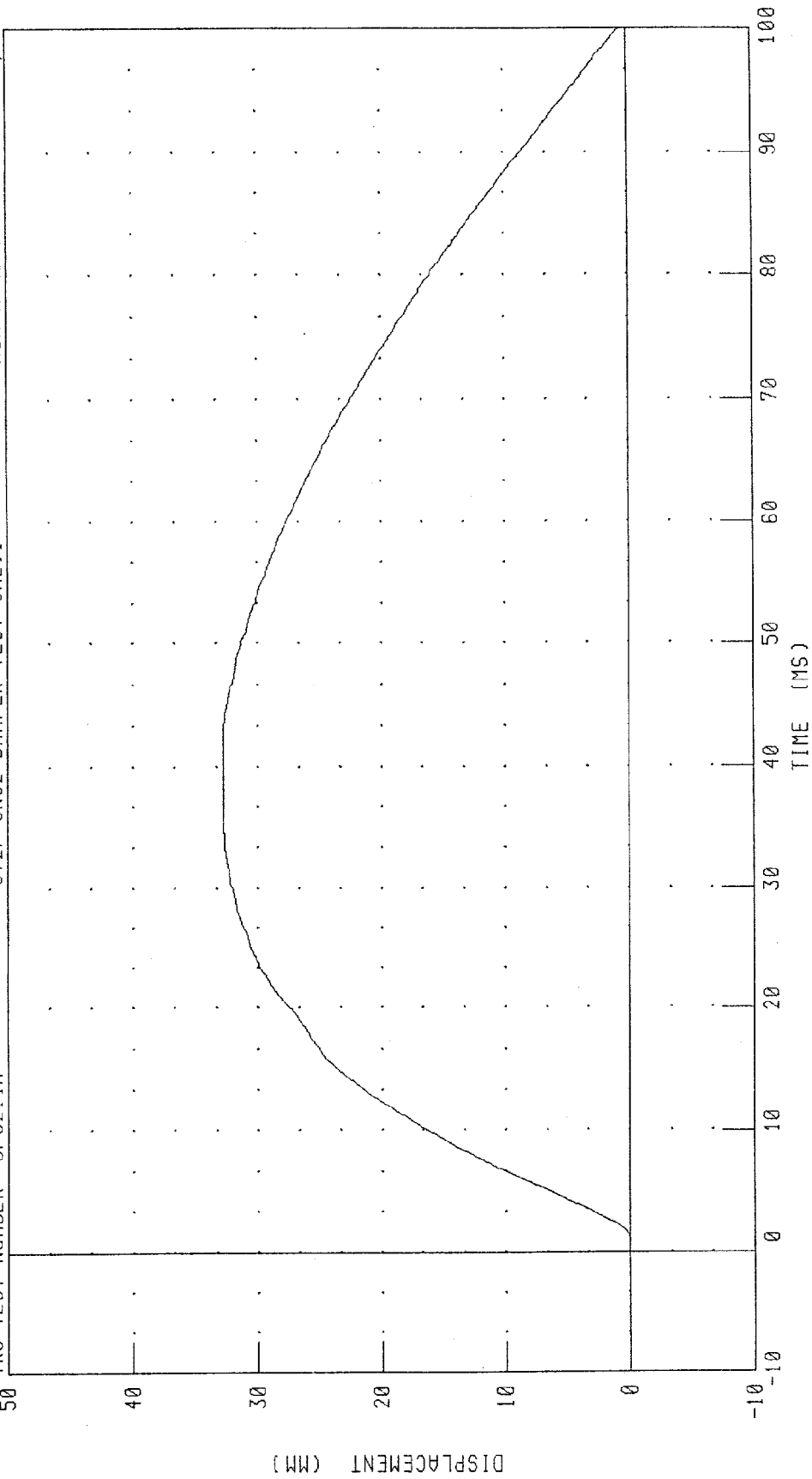


CHANNEL: DAMPF FILTER: CH. CLASS 1000 PEAK DATA: 1010.99 N @ 5.20 MS; -0.59 N @ -9.92 MS

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5211A 572F SN52 DAMPER TEST CAL11 RUN NUMBER: 012699 0850;1



PEAK DATA: 32.78 MM @ 35.04 MS; -0.03 MM @ -9.76 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5211B

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699 0851;1

50

40

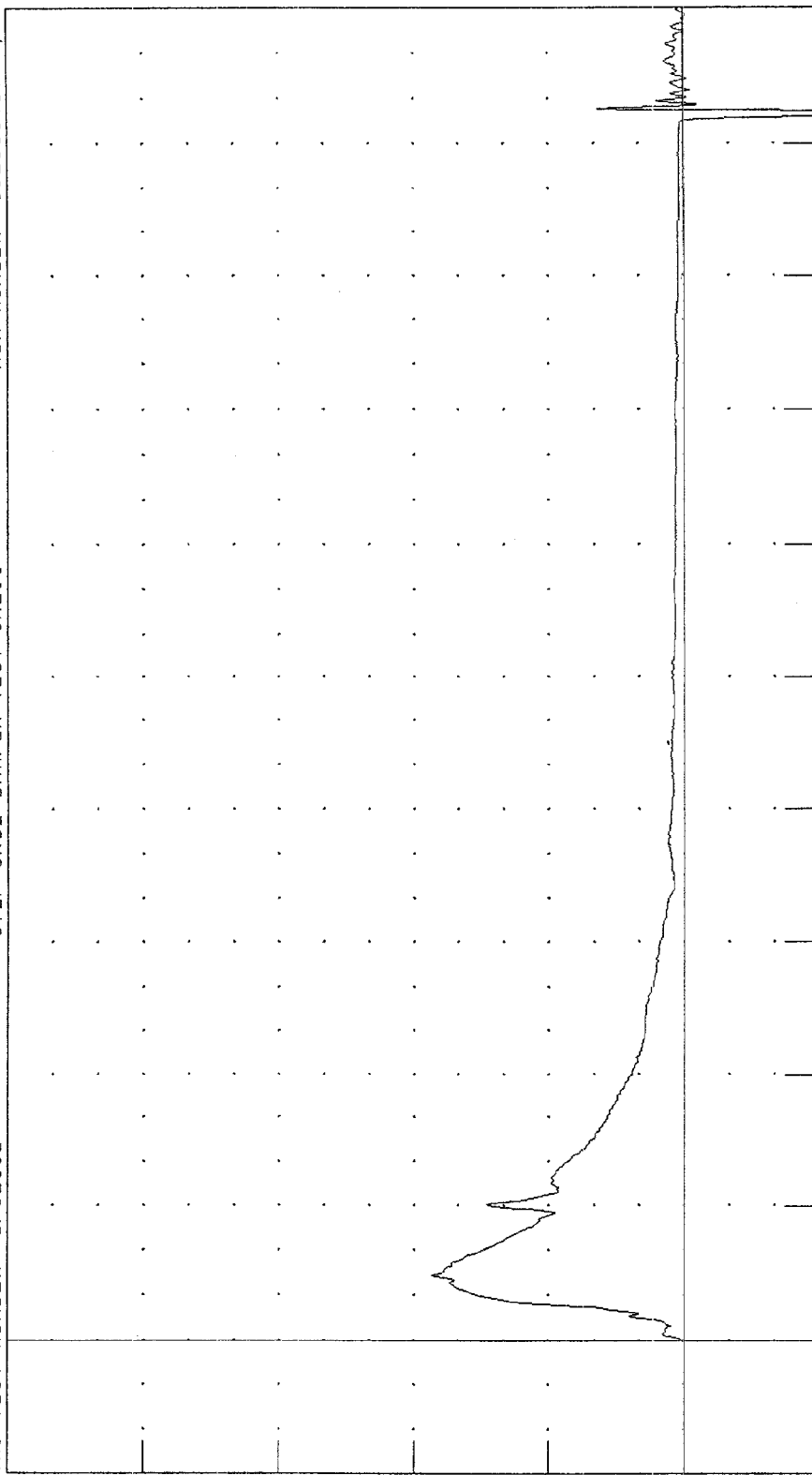
30

20

10

-10

FORCE (N X 10²)



TIME (MS)

PEAK DATA: 1857.15 N @ 4.80 MS, -2594.80 N @ 92.24 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

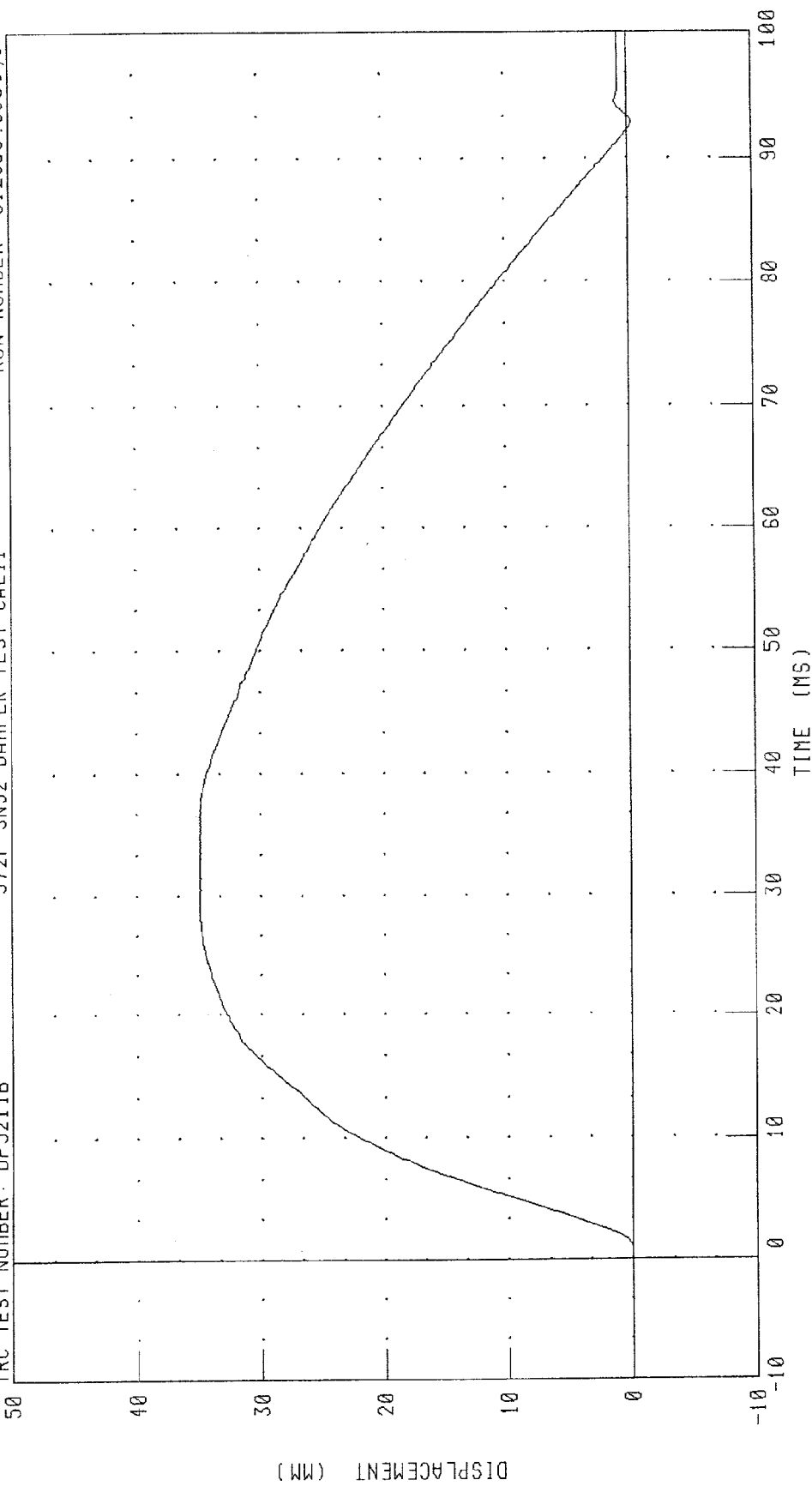
SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL11

TRC TEST NUMBER: DP5211B

50

RUN NUMBER: 012699.0851;1



PEAK DATA: 34.95 MM @ 28.32 MS; -0.35 MM @ 92.80 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5211C

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699 0852;1

50

40

30

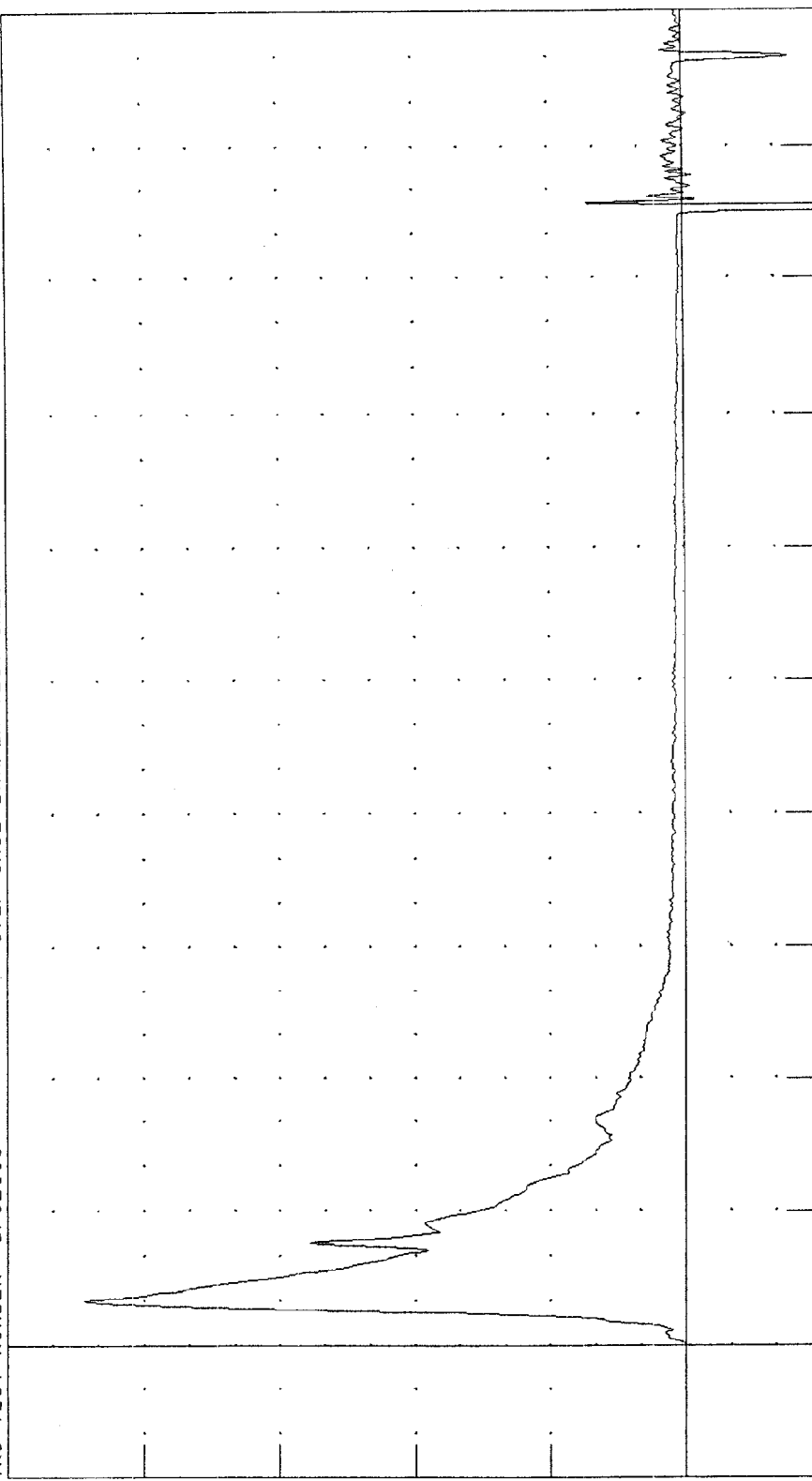
20

10

0

-10

FORCE (N X 10²)



TIME (MS)

PEAK DATA: 4432.57 N @ 3.36 MS; -3019.92 N @ 85.28 MS

CHANNEL: DAMPF

FILTER: CH. CLASS 1000

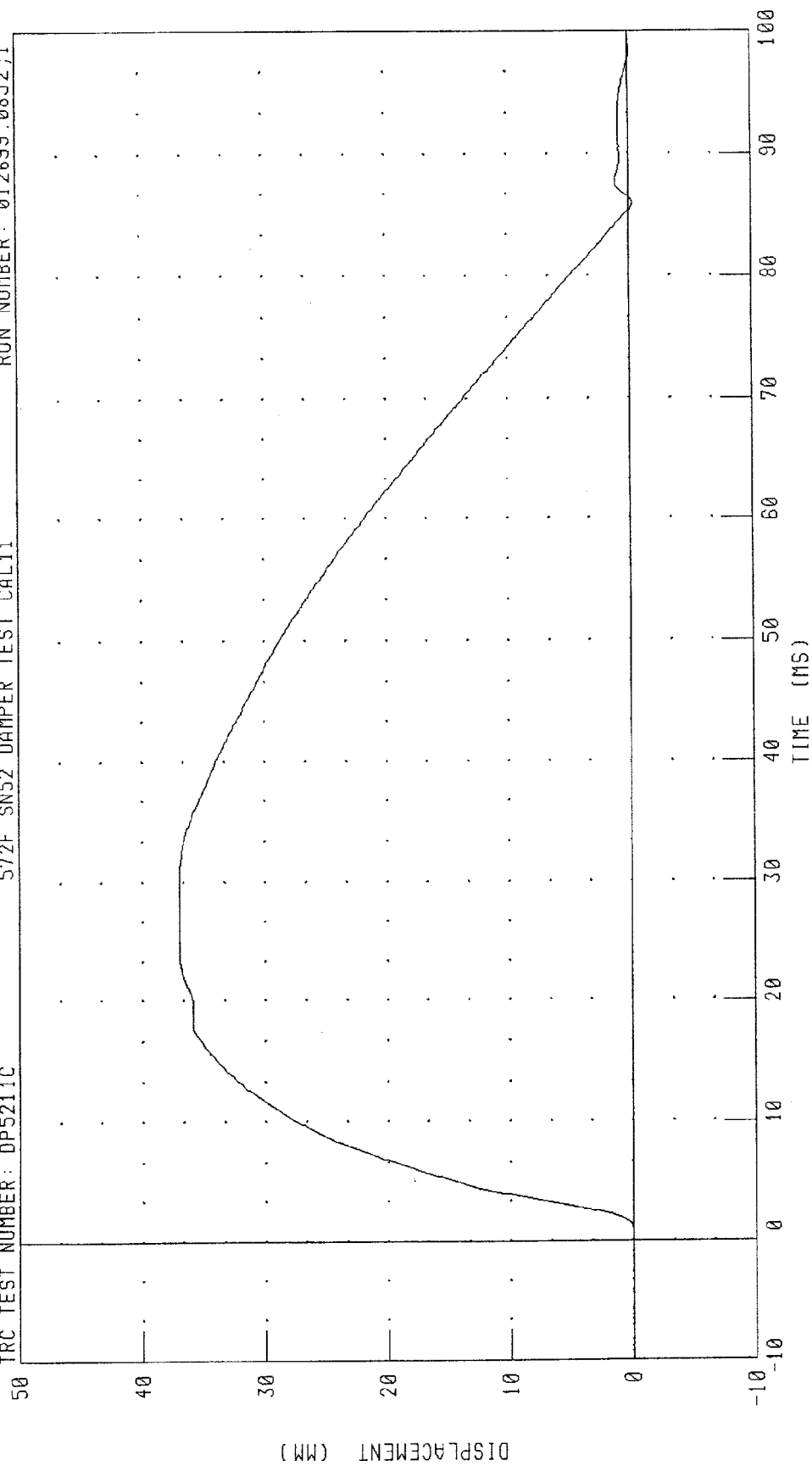
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5211C

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699.0852;1



PEAK DATA: 37.01 MM @ 24.08 MS; -0.35 MM @ 85.92 MS

CHANNEL: CSTVD FILTER: CH. CLASS 1000

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

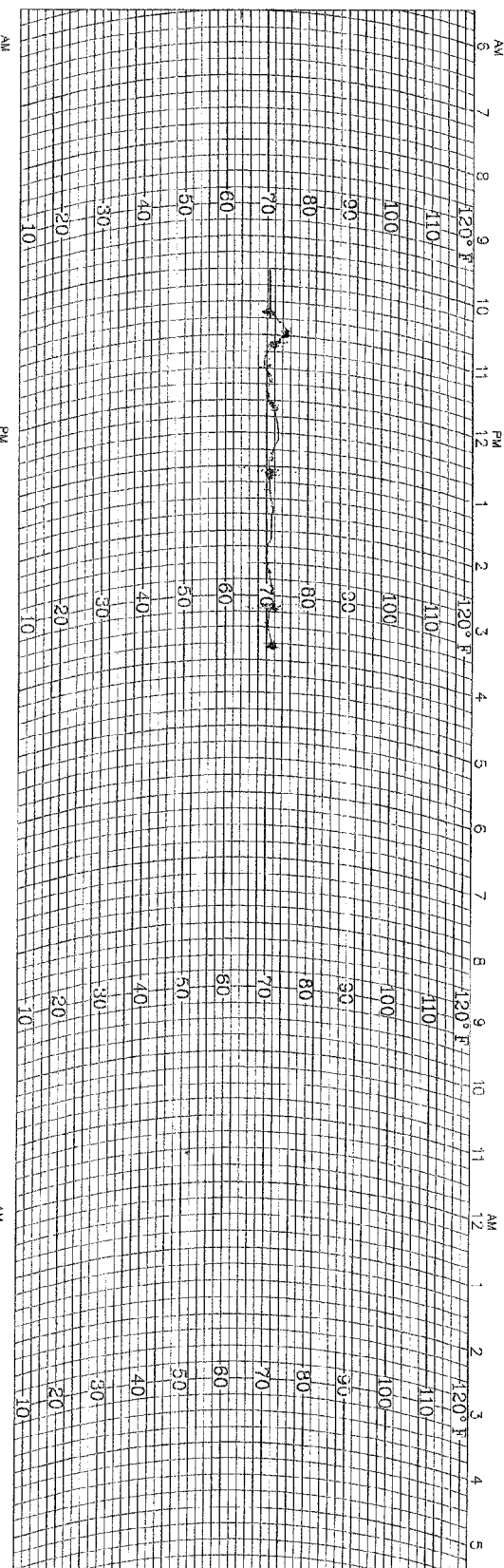
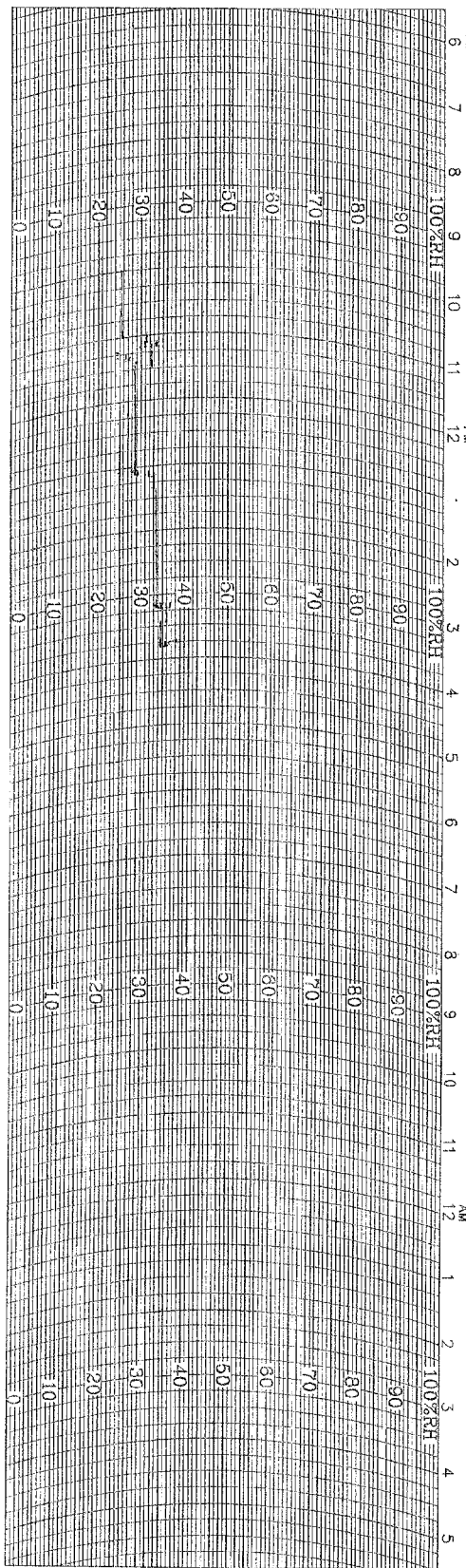
SID INSTRUMENTATION

FRONT SID NO.: 051			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Upper Rib	J22075	Endevco	11/98
Lower Rib	J22047	Endevco	11/98
Lower Spine	J15372	Endevco	11/98
Pelvis	J22197	Endevco	11/98
Upper Rib Redundant	J20184	Endevco	11/98
Lower Rib Redundant	J22046	Endevco	11/98
Lower Spine Redundant	J20024	Endevco	11/98
Pelvis Redundant	J20387	Endevco	11/98

REAR SID NO.: 052			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Upper Rib	J20148	Endevco	11/98
Lower Rib	J18811	Endevco	11/98
Lower Spine	J19303	Endevco	11/98
Pelvis	J20243	Endevco	11/98
Upper Rib Redundant	J20005	Endevco	11/98
Lower Rib Redundant	J20561	Endevco	11/98
Lower Spine Redundant	J20025	Endevco	11/98
Pelvis Redundant	J20462	Endevco	11/98

VEHICLE AND MDB INSTRUMENTATION

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Right Front Sill (X)	J19976	Endevco	12/98
Right Front Sill (Y)	J21532	Endevco	08/98
Right Front Sill (Z)	J21941	Endevco	09/98
Right Rear Sill (X)	J26485	Endevco	01/99
Right Rear Sill (Y)	CA57H	Endevco	08/98
Right Rear Sill (Z)	J26500	Endevco	01/99
Rear Floorpan Above Axle (X)	J26491	Endevco	01/99
Rear Floorpan Above Axle (Y)	J26499	Endevco	01/99
Rear Floorpan Above Axle (Z)	J26498	Endevco	01/99
Left Rear Sill (Y)	J21589	Endevco	10/98
Left Front Sill (Y)	J24273	Endevco	01/99
Right Rear Seat Occupant Comp. (Y)	J21422	Endevco	12/98
Lower Left B-Pillar (Y)	J21764	Endevco	11/98
Upper Left B-Pillar (Y)	J23898	Endevco	11/98
Lower Left A-Pillar (Y)	AMT99	Endevco	10/98
Upper Left A-Pillar (Y)	J25919	Endevco	12/98
Front Seat Track (Y)	J21775	Endevco	10/98
Rear Seat Track (Y)	-----	-----	-----
Vehicle CG (X)	J22660	Endevco	07/98
Vehicle CG (Y)	J22677	Endevco	08/98
Vehicle CG (Z)	J21632	Endevco	09/98
Left Front Door Centerline (Y)	J25465	Endevco	12/98
Left Front Door Midrear (Y)	J25541	Endevco	12/98
Left Front Door Upper Centerline (Y)	J22672	Endevco	8/98
Left Rear Door Midrear (Y)	J22537	Endevco	10/98
Left Rear Door Upper Centerline (Y)	J25463	Endevco	12/98
Mdb CG (X)	J21757	Endevco	10/98
Mdb CG (Y)	J22167	Endevco	10/98
Mdb CG (Z)	J25991	Endevco	12/98
MDB Rear Frame Member (X)	J22676	Endevco	07/98
MDB Rear Frame Member (Y)	J21803	Endevco	11/98



Weather Measure
WEATHERtronics
 Division of **QUALIMETRICS, Inc.**

P.O. BOX 41039
 SACRAMENTO, CA 95841
 PHONE: (916) 923-0055

HYGROTHERMOGRAPH
 1 DAY

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

STATION _____ DATE ON _____ DATE OFF _____