

V3055

**REPORT NUMBER: NCAP-TRC-98-003**

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

**1999 ISUZU RODEO  
4-DOOR SPORT UTILITY**

**NHTSA NUMBER: MX5700**

**TRANSPORTATION RESEARCH CENTER INC.  
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**January 29, 1999**

**FINAL REPORT**

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

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Approval Date: 3/5/99

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16. Abstract <p>This 55/28 kph 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 1999 Isuzu Rodeo 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 29, 1999.</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 61.9 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22° C. The target vehicle's post-test maximum crush was 369 mm at Level 3.</p> <p>The test or target vehicle's performance is given below:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 20%; text-align: center;"><u>Front SID</u></th> <th style="width: 10%;"></th> <th style="width: 20%; text-align: center;"><u>Rear SID</u></th> <th style="width: 10%;"></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td style="text-align: center;">40</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">31</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td style="text-align: center;">41</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">36</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td style="text-align: center;">50</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">32</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td style="text-align: center;">46</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">34</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">86</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">49</td> <td style="text-align: center;">g's</td> </tr> </tbody> </table> <p>The door on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door did not open during the side impact event. The vehicle rolled over onto its right side during impact.</p>					<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	40	g's	31	g's	Left Lower Rib Acceleration:	41	g's	36	g's	Lower Spine Acceleration:	50	g's	32	g's	Thoracic Trauma Index, (TTI):	46	g's	34	g's	Pelvis Acceleration (PEV):	86	g's	49	g's
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy (SID)		18. Distribution Statement <u>Copies of this report are available from:</u> 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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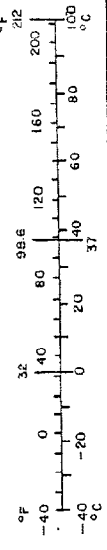
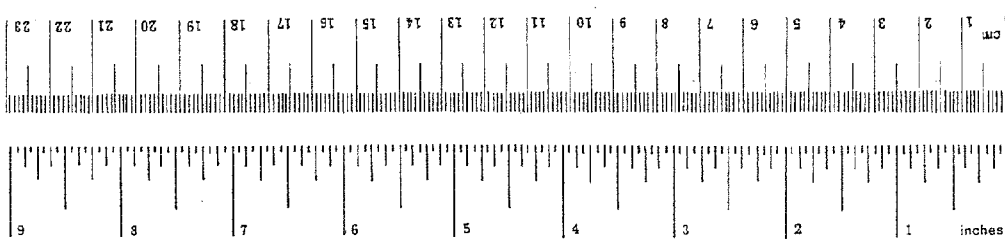
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (weight)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
tblsp	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 <sup>3</sup>	cubic feet	0.03	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.76	cubic meters	m <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

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



\* 1 in. = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 285, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10-285.

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## SECTION 1

### PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 98 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 Isuzu Rodeo 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 Isuzu Rodeo 4-Door 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 61.9 kph (38.5 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 29, 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 the left rear passenger (Pos. #4) designated seating positions according to the instructions specified in the OCWS Side Impact Laboratory Test Procedure which is dated July 1997. The 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 (T<sub>12</sub>) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)
5. Head (HED) triaxial accelerometers (X-Y-Z-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 59 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)	46	34
PEV (g)	86	49

### Data Acquisition Explanations

The left rear door mid rear Y-axis data channel, LRMYG1, lost data at approximately 18 milliseconds. This also affected the velocity and displacement calculation. The data summary shows numbers from 0 to 18 milliseconds.

The left side sill at rear seat Y-axis data channel, LRSYG1, recorded a data spike at 9 milliseconds. This affected the velocity and displacement calculations.

SECTION 3

VEHICLE TEST DATA

DATA SHEET 1

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999 Isuzu Rodeo 4-Door Sport Utility  
 Vehicle Body Color: White VIN: 4S2CM58WXX4322644  
 Vehicle NHTSA No.: MX5700 Month & Year of Manufacture: 11/98  
 Engine Data: 6 Cylinders; - CID; 3.2 Liters; - cc  
 Engine Placement: X Longitudinal; or - Lateral  
 Transmission: 4 Speed; - Manual; X Automatic; - Overdrive  
 Final Drive: - Rear Wheel Drive; - Front Wheel Drive; X Four-Wheel  
 Odometer Reading: 117 km  
 Options: X A/C; X Power steering; X Pwr. brakes; - Pwr. windows

DATA FROM TIRE PLACARD

Tire Pressure\* (at capacity); 200 kPa FRONT  
200 kPa REAR  
 Recommended Tire Size: P235/75R15  
 Tires on Test Vehicle: P235/75R15 Manufacturer: Goodyear  
 Vehicle Capacity Data:  
 Number of Occupants: 2 Front; 3 Rear; - 3rd seat; 5 Total  
 Type of Front Seats: X Bucket; - Bench; - 60/40 Split bench  
 Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob  
 Vehicle Max Capacity Loading = 441.3 kg (A)  
 No. of Occupants x 68.04 kg. = 340.2 kg (B)  
 Vehicle Cargo Capacity = 101.1 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>480.8</u>	kg	Left Rear	=	<u>416.9</u>	kg
Right Front	=	<u>459.9</u>	kg	Right Rear	=	<u>401.0</u>	kg
TOTAL FRONT	=	<u>940.7</u>	kg	TOTAL REAR	=	<u>817.9</u>	kg
% of Total Weight	=	<u>53.5</u>	%	% of Total Weight	=	<u>46.5</u>	%
TOTAL WEIGHT	=	<u>1,758.6</u>	kg				

\* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight With Max. Fluids = 1,758.6 kg (A)  
 Maximum Cargo Carrying Capacity Of Test Vehicle = 101.1 kg (B)  
 Weight Of Instrumented Side Impact Dummies (1 Or 2 X 79.0 kg) = 158.0 kg (C)  
 TEST VEHICLE TARGET WEIGHT: = 2,017.7 kg (A+B+C)

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

Left Front	=	<u>527.5</u>	kg	Left Rear	=	<u>575.6</u>	kg
Right Front	=	<u>455.9</u>	kg	Right Rear	=	<u>504.9</u>	kg
TOTAL FRONT	=	<u>983.4</u>	kg	TOTAL REAR	=	<u>1,080.5</u>	kg
% of Total Weight	=	<u>47.6</u>	%	% of Total Weight	=	<u>52.4</u>	%
TOTAL WEIGHT	=	<u>2,063.9</u>	kg				

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

Left Front	=	<u>471.0</u>	kg	Left Rear	=	<u>511.5</u>	kg
Right Front	=	<u>523.0</u>	kg	Right Rear	=	<u>504.5</u>	kg
TOTAL FRONT	=	<u>994.0</u>	kg	TOTAL REAR	=	<u>1,016.0</u>	kg
% of Total Weight	=	<u>49.5</u>	%	% of Total Weight	=	<u>50.5</u>	%
TOTAL WEIGHT	=	<u>2,010.0</u>	kg				

TEST VEHICLE ATTITUDE (ALL DIMENSIONS IN MILLIMETERS):

AS DELIVERED:

Left Front 818 Right Front 831 Left Rear 840 Right Rear 850

FULLY LOADED:

Left Front 808 Right Front 828 Left Rear 781 Right Rear 805

READY FOR TEST:

Left Front 810 Right Front 829 Left Rear 790 Right Rear 813

TEST VEHICLE WHEELBASE: 2,697 millimeters

C.G. = 1,363.3 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4,300 millimeters  
 Left Side = 4,320 millimeters  
 Centerline = 4,662 millimeters

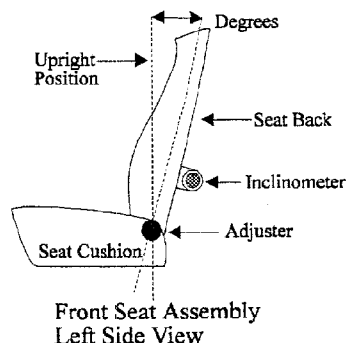
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

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: 200 millimeters

Total Number Of Adjustment Positions Or Detents: 21

FRONT SEAT BACK ADJUSTMENT POSITION: Adjust the seat back into the 5<sup>th</sup> latch position rearward from the upright position (1<sup>st</sup> latch position).

Seat Back Torso Angle: 8 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: N/A  
Right Front: Open Right Rear: N/A

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:

80.0 liters (fuel tank usable capacity)

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

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

Wheelbase = 2,697 millimeters

Impact point is 408.5 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 403.5 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 1999 Isuzu Rodeo  
Body Style: 4-Door Sport Utility VIN: 4S2CM58WXX4322644  
NHTSA No.: MX5700 Test Date: January 29, 1999

Overall Length = 4,662 millimeters; Overall Width = 1,784 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 471.0 kg Left Rear = 511.5 kg  
Right Front = 523.0 kg Right Rear = 504.5 kg  
TOTAL FRONT = 994.0 kg TOTAL REAR = 1,016.0 kg  
TOTAL VEHICLE WEIGHT 2,010.0 kg  
Wheelbase = 2,697 millimeters  
Longitudinal C.G. From Center Of Front Axle = 1,363.3 millimeters  
Impact Angle With Respect To Impactor = 90 degrees

ACTUAL IMPACT POINT:

Actual Impact Point is 5 mm forward of nominal impact ref. line (Lateral)  
Actual Impact Point is 4 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 ( 400 mm above ground) = 242 millimeters  
2. LEVEL 2 ( 748 mm above ground) = 360 millimeters  
3. LEVEL 3 ( 760 mm above ground) = 369 millimeters  
4. LEVEL 4 ( 1,060 mm above ground) = 309 millimeters  
5. LEVEL 5 ( 1,555 mm above ground) = 67 millimeters  
Maximum Post-Test Intrusion = 369 millimeters

OCCUPANTS:

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

INSTRUMENTATION:

Number Of Vehicle Data Channels: = 26  
Number Of Cameras: Onboard = 3  
Offboard = 7  
TOTAL = 10

DATA SHEET 3

MOVING DEFORMABLE BARRIER(MDB) SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore, Inc.: 012C1098, 013C1098, 027A1098, 029B1098

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 = 1,109 millimeters

MDB WEIGHT:

Left Front = 385.5 kg      Left Rear = 296.0 kg  
Right Front = 393.5 kg      Right Rear = 286.5 kg  
TOTAL FRONT = 779.0 kg      TOTAL REAR = 582.5 kg  
TOTAL MDB WEIGHT = 1,361.5 kg  
Impact Angle (MDB C/L to Target Vehicle C/L) = 90 degrees  
Impact Speed = 61.9 kph

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level = 222.7 millimeters  
2. Row B at Top of Bumper Level = 158.7 millimeters  
3. Row C at Mid Level = 112.8 millimeters  
4. Row D at Top of Stack Level = 158.5 millimeters

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>Side window</u>	<u>C-pillar</u>
Upper Torso:	<u>Door</u>	<u>Door</u>
Lower Torso:	<u>Door</u>	<u>Door</u>
Left Knee:	<u>Door</u>	<u>Door</u>
Right Knee:	<u>Center console</u>	<u>N/A</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Vertical: 4 mm above target  
Horizontal: 5 mm forward of target

ARM REST LOCATIONS:

Front: 122 mm below the bottom of the window  
Rear: 58 mm below the bottom of the window

SEAT MOVEMENT:

Front: Seat was pushed against center console  
Rear: None

GLAZING DAMAGE:

Windshield: It cracked on the driver's side.  
Window: Left driver window and left rear passenger window shattered at impact

PILLAR PERFORMANCE:

Driver's lower B-pillar facia was cracked.

SILL SEPARATION:

None

OTHER NOTABLE IMPACT EFFECTS:

The driver and passenger frontal airbags did deploy. The vehicle balanced on its right front and right rear tires before rolling over one-quarter turn.

DATA SHEET 4 (continued)  
POST-TEST OBSERVATIONS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

AIRBAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>LEFT REAR PASSENGER</u>
Frontal:	<u>Yes</u>	<u>N/A</u>
Side:	<u>N/A</u>	<u>N/A</u>

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

TEST NUMBER: 990129

DRIVER DUMMY SERIAL NUMBER: 052

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	17.1 g	@ 94.8 ms	3.9 g	@ 19.7 ms
LATERAL	20.3 g	@ 99.0 ms	7.4 g	@ 36.0 ms
VERTICAL	8.3 g	@ 51.4 ms	39.2 g	@ 73.8 ms
RESULTANT	39.9 g	@ 73.9 ms		
HIC	154 from 62.080 to 98.080 ms			

LEFT UPPER RIB ACCELERATION

LATERAL (P)	39.9 g	@ 58.1 ms	6.6 g	@ 96.9 ms
LATERAL (R)	40.5 g	@ 58.8 ms	6.3 g	@ 97.5 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	41.0 g	@ 42.5 ms	8.8 g	@ 110.0 ms
LATERAL (R)	41.3 g	@ 42.5 ms	8.8 g	@ 110.0 ms
TTI d (P)	45.5			
TTI d (R)	45.4			

LOWER SPINE ACCELERATION

LATERAL (P)	50.0 g	@ 35.6 ms	8.5 g	@ 113.7 ms
LATERAL (R)	49.6 g	@ 35.6 ms	8.4 g	@ 113.1 ms

PELVIS ACCELERATION

LATERAL (P)	85.9 g	@ 37.5 ms	13.0 g	@ 56.3 ms
LATERAL (R)	85.6 g	@ 37.5 ms	13.7 g	@ 56.3 ms

POSITIVE DIRECTION

LONGITUDINAL: REARWARD  
LATERAL: RIGHTWARD  
VERTICAL: UPWARD

NEGATIVE DIRECTION

LONGITUDINAL: FORWARD  
LATERAL: LEFTWARD  
VERTICAL: DOWNWARD

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

TEST NUMBER: 990129

PASSENGER DUMMY SERIAL NUMBER: 051

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	22.1 g	@ 85.7 ms	7.8 g	@ 75.9 ms
LATERAL	97.7 g	@ 64.6 ms	21.9 g	@ 78.1 ms
VERTICAL	27.4 g	@ 71.3 ms	12.2 g	@ 57.2 ms
RESULTANT	97.7 g	@ 64.6 ms		
HIC	640 from 59.120 to 69.040 ms			

LEFT UPPER RIB ACCELERATION

LATERAL (P)	30.9 g	@ 59.4 ms	2.8 g	@ 120.0 ms
LATERAL (R)	30.6 g	@ 58.8 ms	3.1 g	@ 120.0 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	35.9 g	@ 45.0 ms	4.0 g	@ 102.5 ms
LATERAL (R)	35.8 g	@ 45.0 ms	3.7 g	@ 71.9 ms
TTI d (P)	34.0			
TTI d (R)	34.4			

LOWER SPINE ACCELERATION

LATERAL (P)	32.2 g	@ 48.8 ms	11.1 g	@ 73.8 ms
LATERAL (R)	32.9 g	@ 48.8 ms	10.8 g	@ 73.8 ms

PELVIS ACCELERATION

LATERAL (P)	48.5 g	@ 38.8 ms	14.9 g	@ 76.9 ms
LATERAL (R)	47.8 g	@ 38.8 ms	14.8 g	@ 76.9 ms

POSITIVE DIRECTION

LONGITUDINAL: REARWARD  
LATERAL: RIGHTWARD  
VERTICAL: UPWARD

NEGATIVE DIRECTION

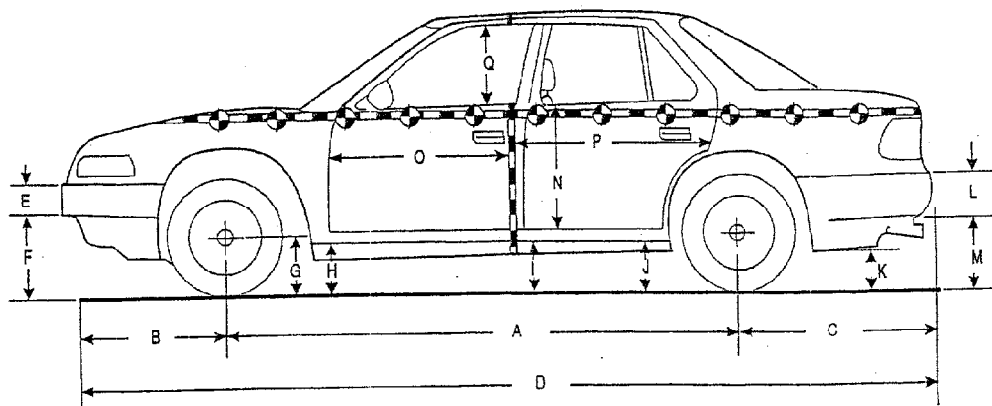
LONGITUDINAL: FORWARD  
LATERAL: LEFTWARD  
VERTICAL: DOWNWARD

DATA SHEET 6

VEHICLE PRE- AND POST-TEST MEASUREMENTS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700



LEFT SIDE VIEW

Note: All dimensions are in millimeters with tolerance of  $\pm 3$  mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2697	2697	2695	2
B	780	780	780	0
C	993	993	977	16
D	4662	4662	4645	17
E	320	320	320	0
F	365	361	350	11
G	335	334	340	-6
H	372	355	381	-26
I	391	350	284	66
J1	355	308	343	-35
J2	399	358	390	-32
K	415	363	405	-42
L	200	200	200	0
M	492	438	490	-52
N	690	690	651	39
O	735	735	702	33
P	1363	1363	1259	104
Q	433	433	427	6
R	4300	4300	4274	26
S	4320	4320	4308	12
T	1351	1351	1096	255

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

E&L = Bumper Thickness  
J1 = To Pinch Weld

R = Right Side Length  
J2 = To Sill

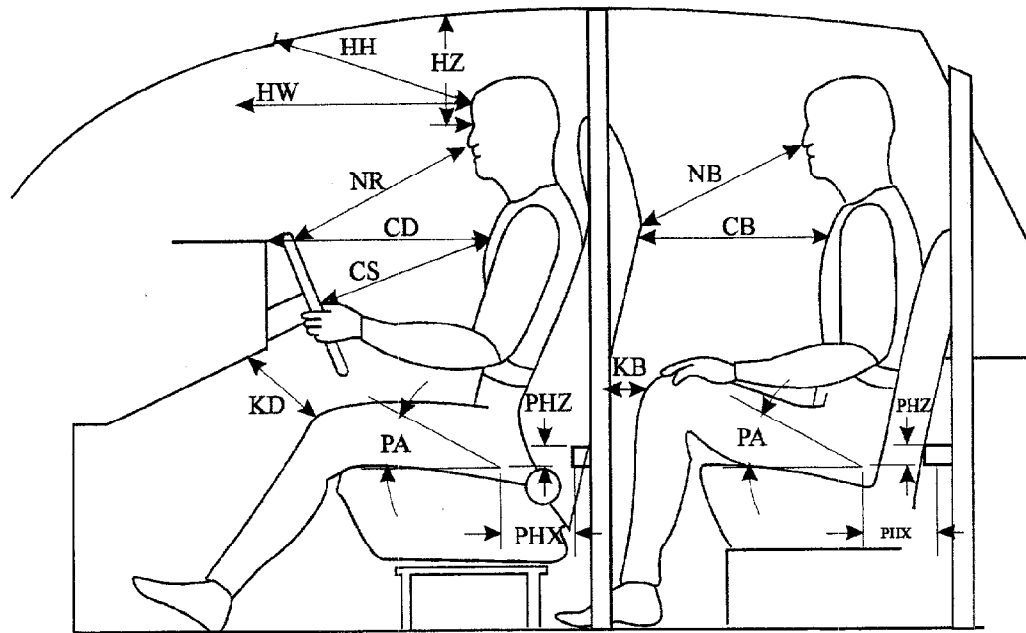
S = Left Side Length

# DATA SHEET 7

## SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700



**LEFT SIDE VIEW**

Note: All dimensions are in millimeters with tolerance of  $\pm 3$  mm

	DRIVER ID #052	LEFT REAR PASS. ID#051
HH	373	N/A
HW	524	N/A
HZ	163	N/A
NR/NB	443	740
CD/CB	534	640
CS	320	N/A
KDL(KDA°)/KBL(KDA°)	75/30°	120/20°
KDR(KBA°)/KBR(KBA°)	75/32°	123/21°
PA°	23.8°	23.9°
PHX	268	278
PHZ	75	225

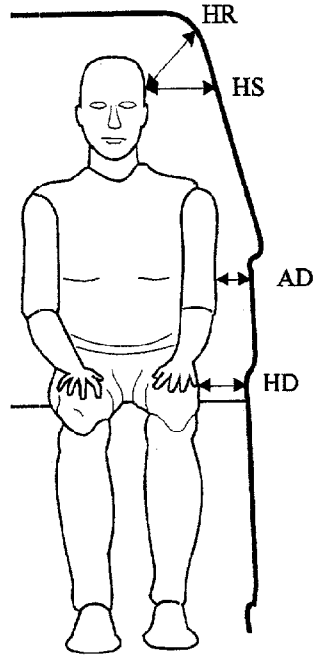
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.  
The was not a seating position for the rear passenger.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700



Note: All dimensions are in millimeters with tolerance of  $\pm 3$  mm

	DRIVER ID #052	PASSENGER ID #051
HR	182	164
HS	320	310
AD*	LOWER: 103      UPPER: 92	LOWER: 110      UPPER: 105
HD	110	130

\* 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 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	452	455	451	448	444	
	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	N/A	N/A	N/A	N/A	501	594	615	627	647	
	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	N/A	N/A	N/A	N/A	49	139	164	179	203	
Level 2 H-Point	Pre	N/A	N/A	405	361	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	369	369	369	374	369	
	Post	N/A	N/A	414	368	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	576	645	664	687	698	
	Crush	N/A	N/A	9	7	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	207	276	295	313	329	
Level 3 Mid-Door	Pre	N/A	N/A	405	368	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	368	365	367	371	368	
	Post	N/A	N/A	415	375	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	576	640	658	680	695	
	Crush	N/A	N/A	10	7	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	208	275	291	309	327	
Level 4 Window Sill	Pre	N/A	N/A	N/A	N/A	478	444	432	428	412	410	412	413	416	402	402	402	410	412	412	413	416	402	
	Post	N/A	N/A	N/A	N/A	485	467	462	470	457	461	495	452	527	548	548	548	461	495	495	452	527	548	
	Crush	N/A	N/A	N/A	N/A	7	23	30	42	45	51	83	39	111	146	146	146	51	83	39	111	146	146	
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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	593
	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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	484
	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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-109

DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

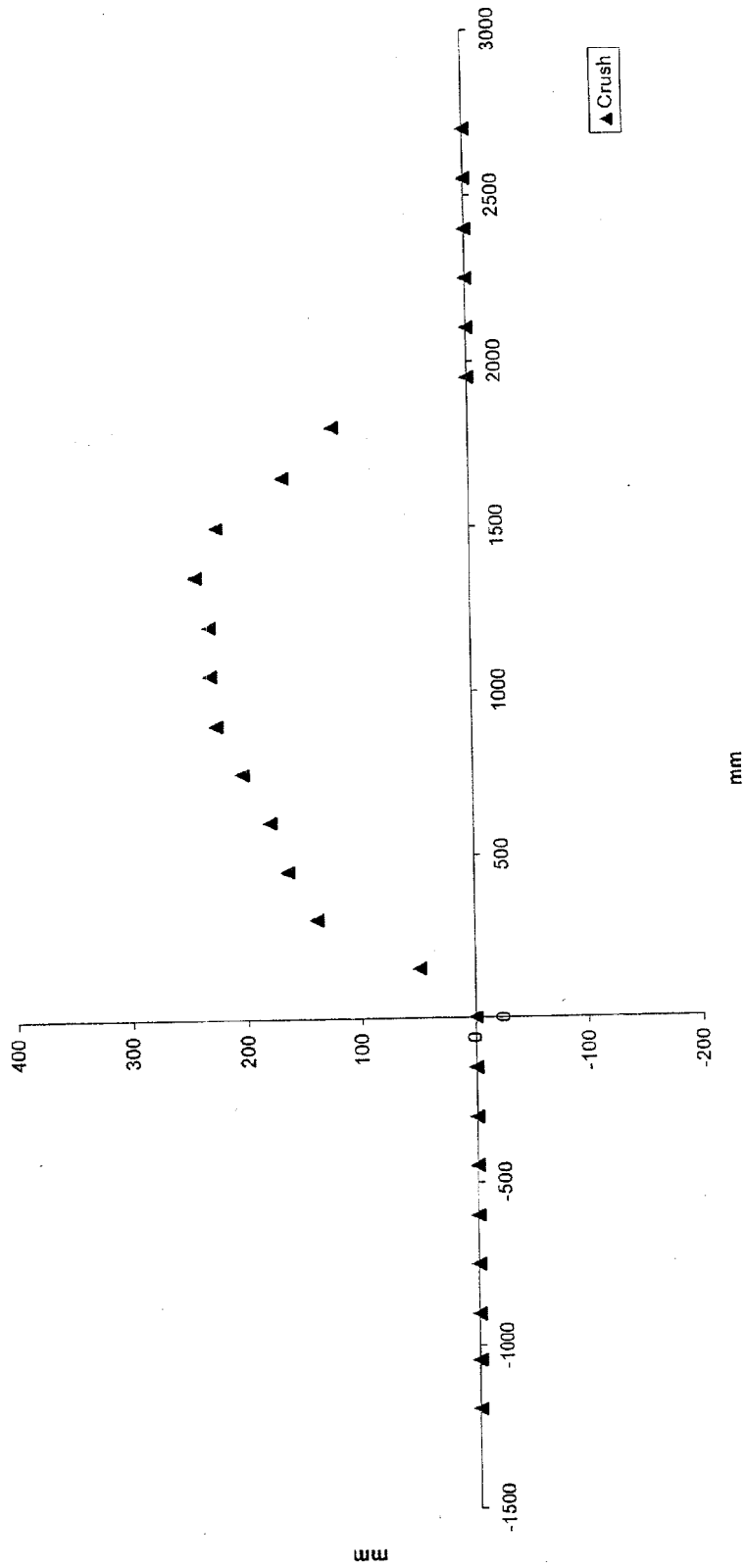
NHTSA No.: MX5700

Location	Height	(mm) From Impact Point														
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	Pre	444	444	442	446	451	454	455	N/A	N/A	N/A	N/A	N/A	N/A		
	Post	669	674	672	688	674	618	575	N/A	N/A	N/A	N/A	N/A	N/A		
	Crush	225	230	230	242	223	164	120	N/A	N/A	N/A	N/A	N/A	N/A		
Level 2 H-Point	Pre	365	373	366	369	366	365	369	329	N/A	N/A	N/A	N/A	N/A		
	Post	709	714	707	729	720	691	628	480	N/A	N/A	N/A	N/A	N/A		
	Crush	344	341	341	360	354	326	259	151	N/A	N/A	N/A	N/A	N/A		
Level 3 Mid-Door	Pre	364	369	364	365	359	361	359	333	N/A	N/A	N/A	N/A	N/A		
	Post	704	706	705	734	726	708	634	501	N/A	N/A	N/A	N/A	N/A		
	Crush	340	337	341	369	367	347	275	168	N/A	N/A	N/A	N/A	N/A		
Level 4 Window Sill	Pre	395	400	392	392	381	382	391	383	391	391	375	371	382		
	Post	569	604	640	701	690	646	552	509	451	451	434	425	418		
	Crush	174	204	248	309	309	264	161	126	60	60	59	54	36		
Level 5 Window Top	Pre	588	588	585	588	584	591	600	600	600	588	595	585	612		
	Post	510	556	604	655	590	543	473	429	634	632	639	626	647		
	Crush	-78	-32	19	67	6	-48	-127	-171	34	44	44	41	35		

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

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility NHTSA No.: MX5700

Side Profile Level 1 400 mm Above Ground



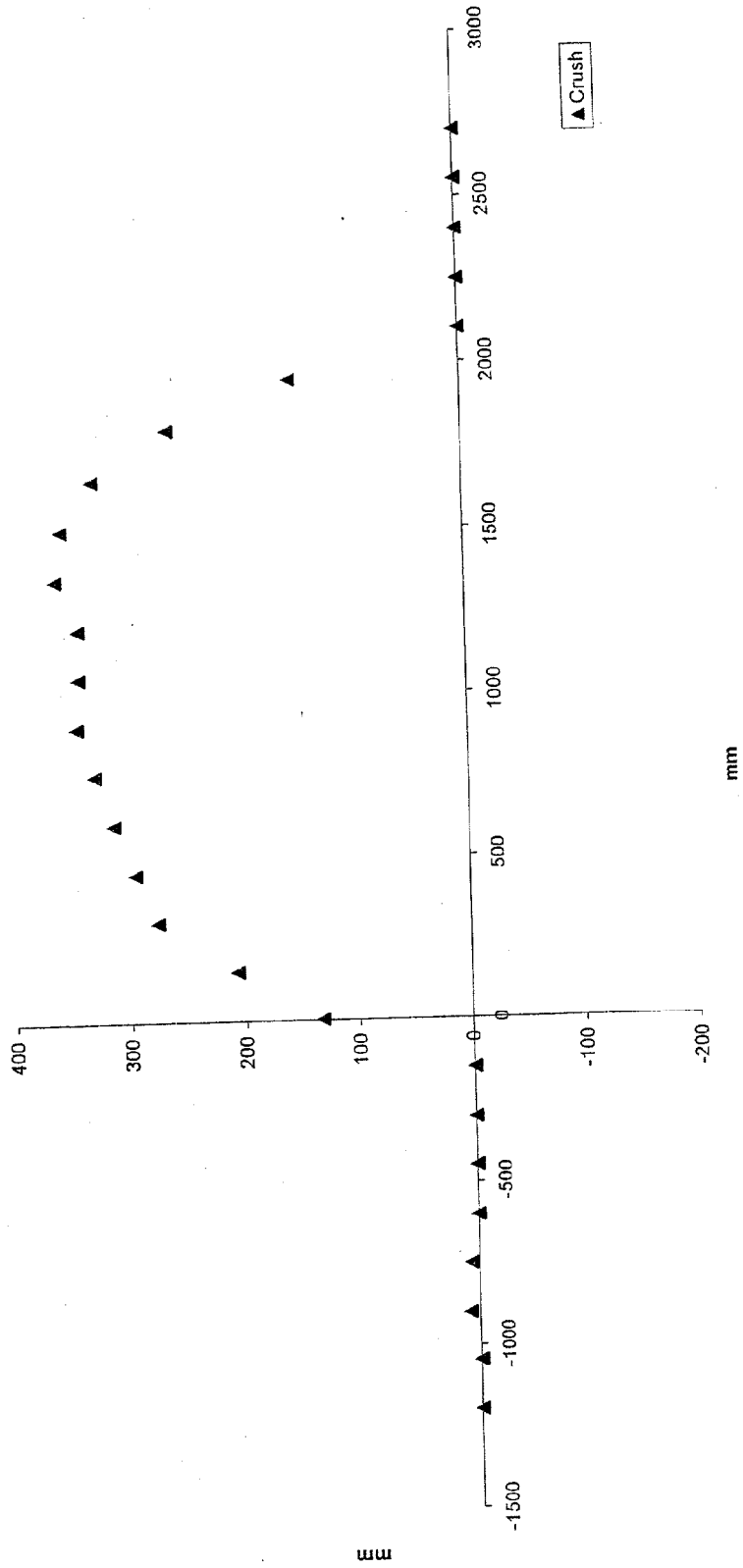
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

NHTSA No.: MX5700

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

Side Profile Level 2 748 mm Above Ground

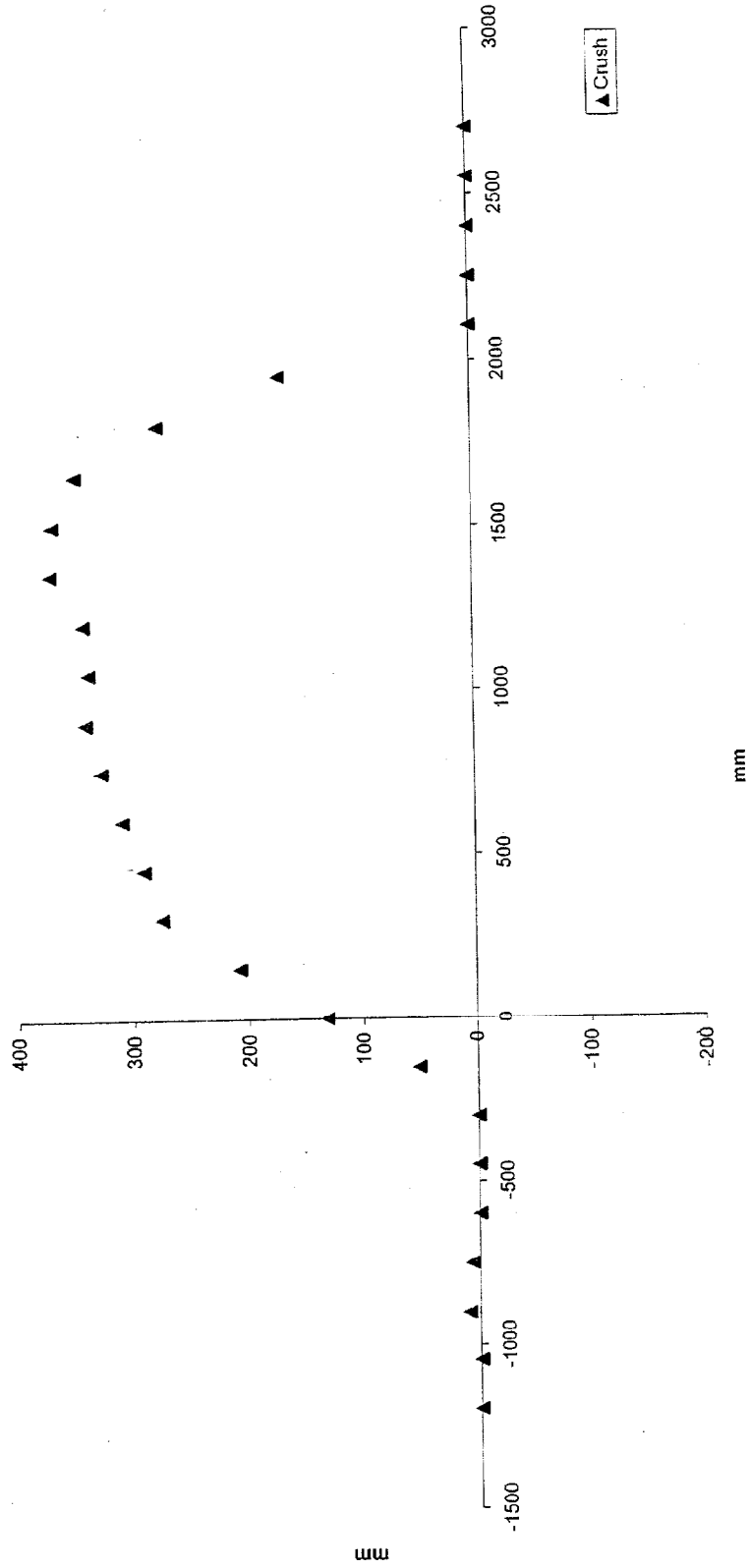


DATA SHEET 10 (continued)  
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

NHTSA No.: MX5700

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

Side Profile Level 3 760 mm Above Ground

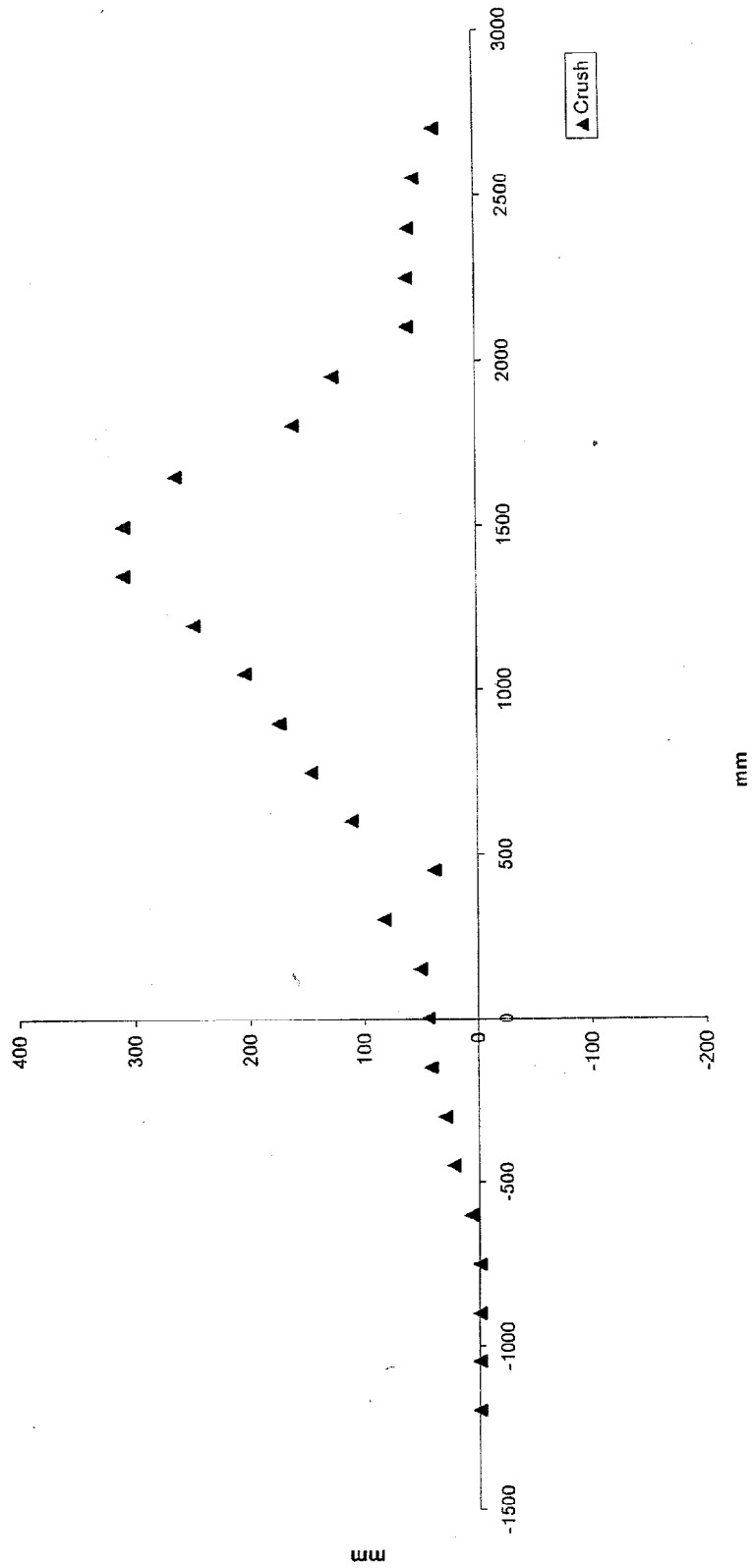


DATA SHEET 10 (continued)  
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

Side Profile Level 4 1060 mm Above Ground



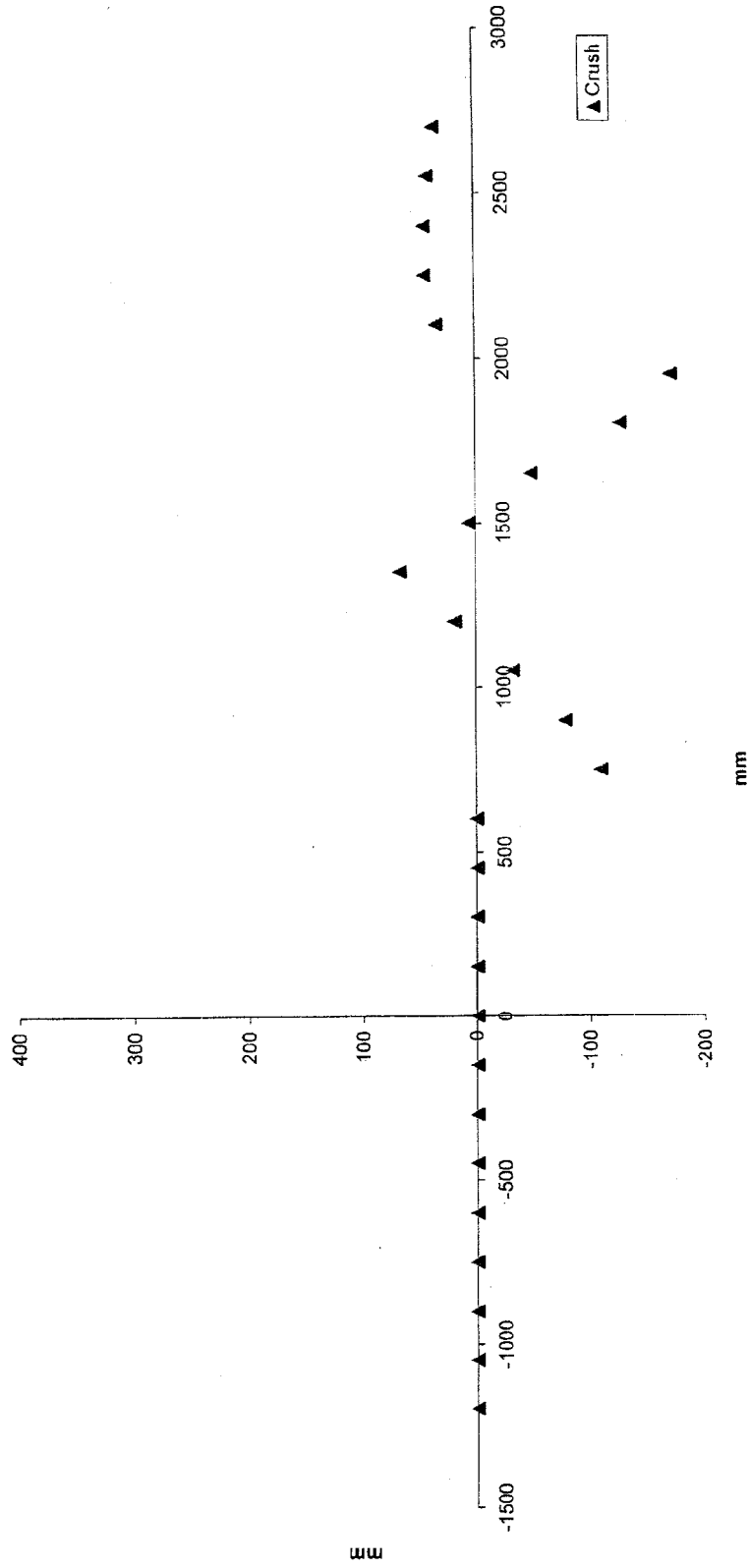
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

Side Profile Level 5 1555 mm Above Ground



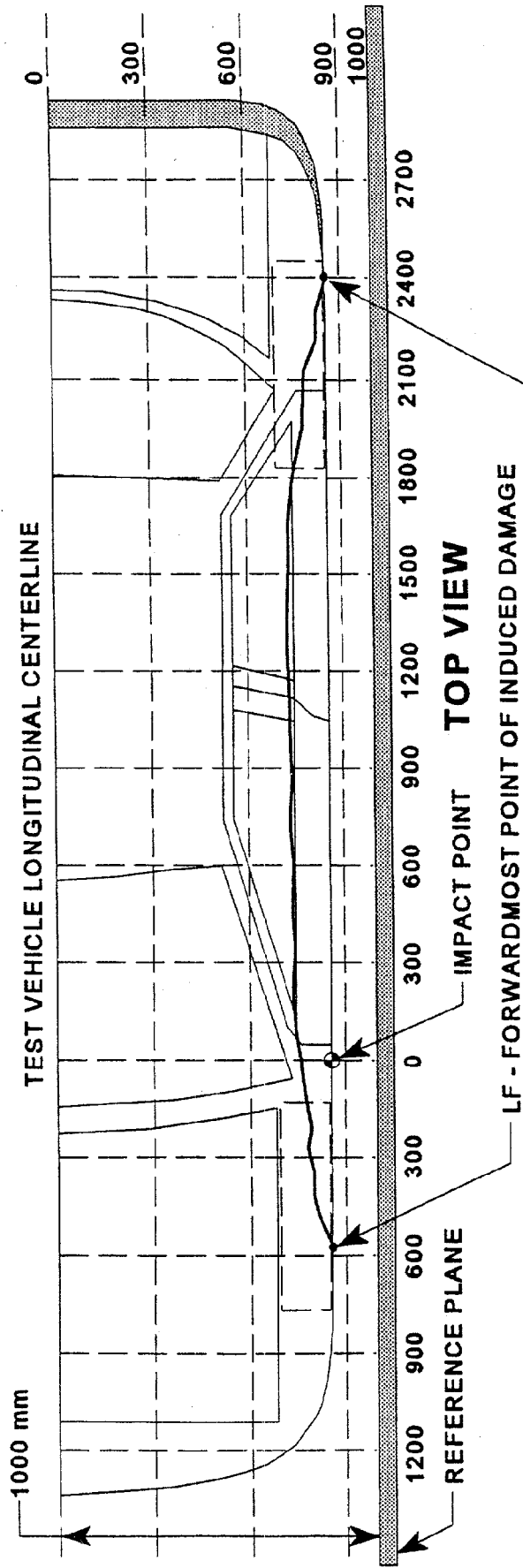
DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

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



**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 rearend of vehicle) is considered positive (+).

DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
1 (LF = -900 mm)	415	405	10
2 -330	379	340	39
3 240	614	366	248
4 810	699	366	333
5 1380	732	364	368
6 (LR = 1950 mm)	501	333	168

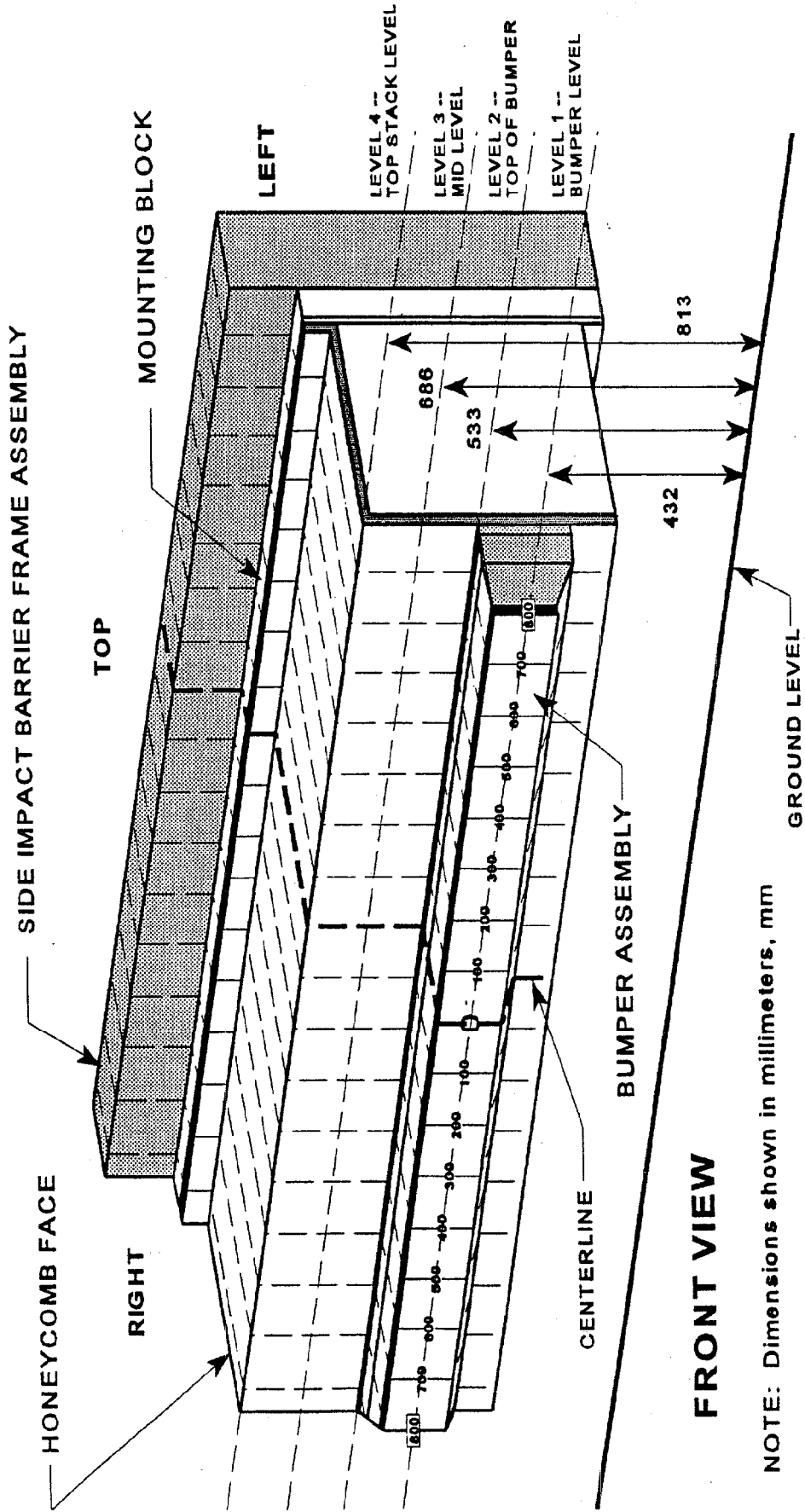
DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

(Grid as looking at MDB from front)

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700



FRONT VIEW

NOTE: Dimensions shown in millimeters, mm

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

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility NHTSA No.: MX5700

Location	Height At CL	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
Top Stack Level Level 4	810	82.7	43.8	13.4	25.2	49.3	50.4	49.5	53.4	65.6	67.4	78.3	94.1	102.6	112.5	124.0	139.1	158.5
Mid Level Level 3	685	112.8	80.5	50.1	23.9	20.6	20.1	16.9	17.4	18.8	24.1	32.9	31.1	25.9	33.6	46.0	72.4	110.1
Top Bumper Level Level 2	560	158.7	135.1	110.3	87.5	81.0	74.9	75.1	70.2	68.6	76.9	77.3	77.4	81.8	92.1	98.5	109.6	108.5
Mid Bumper Level Level 1	432	222.7	206.5	175.3	144.7	134.0	137.7	136.6	129.7	126.8	130.5	133.9	137.9	141.8	146.1	158.2	175.1	183.1

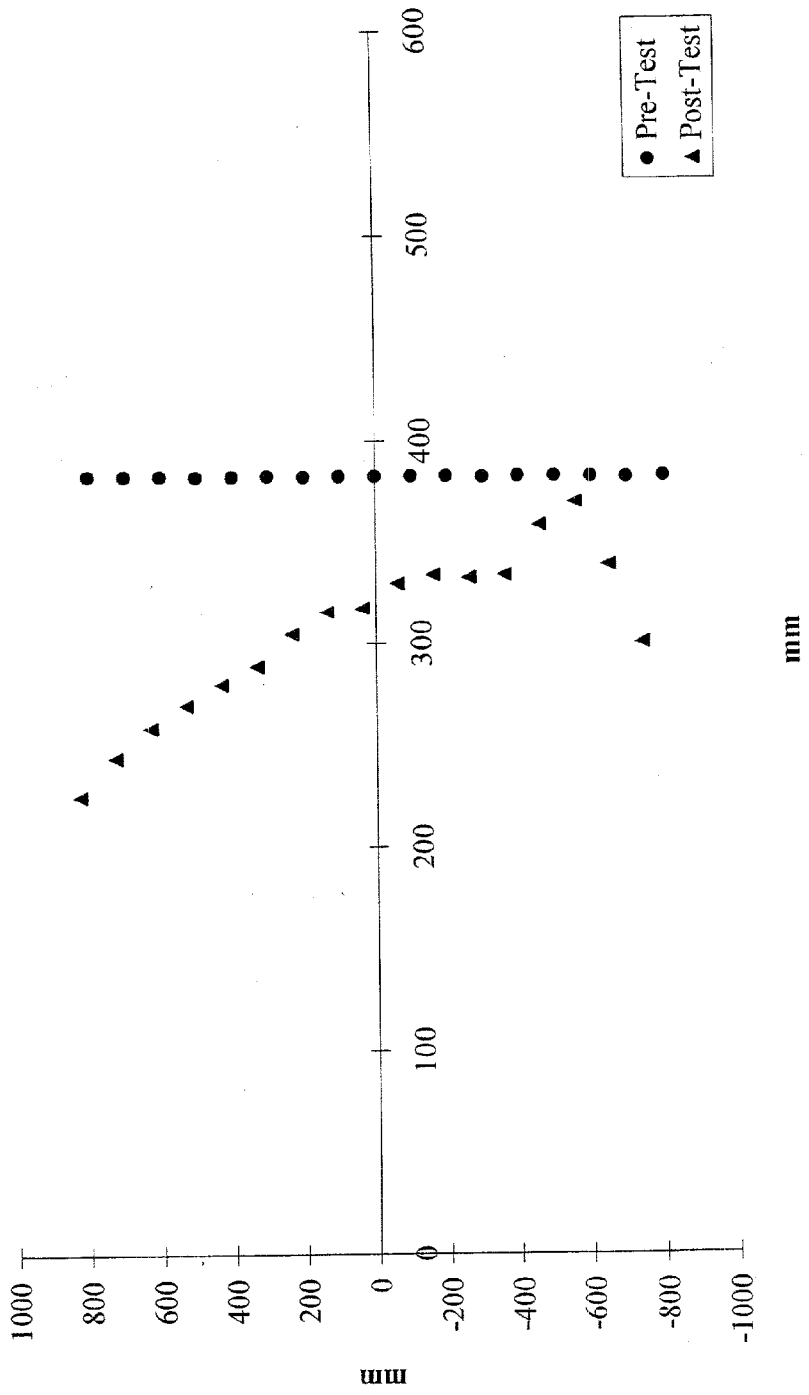
All measurements are in millimeters and have a tolerance of  $\pm 3$ mm.

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

NHTSA No.: MX5700

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

**Deformable Barrier Face Profile 1-17**

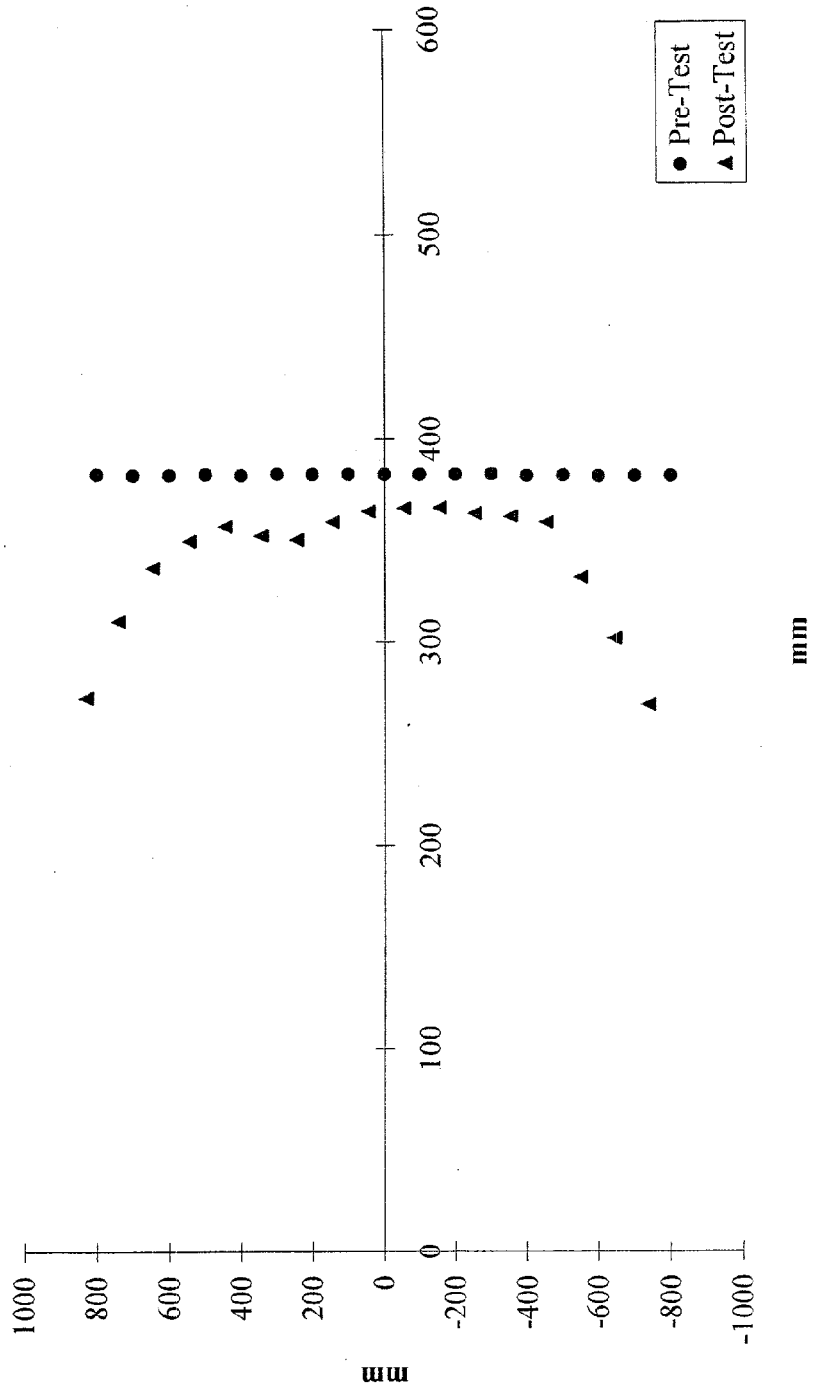


DATA SHEET 12 (continued)  
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

**Deformable Barrier Face Profile 18-34**

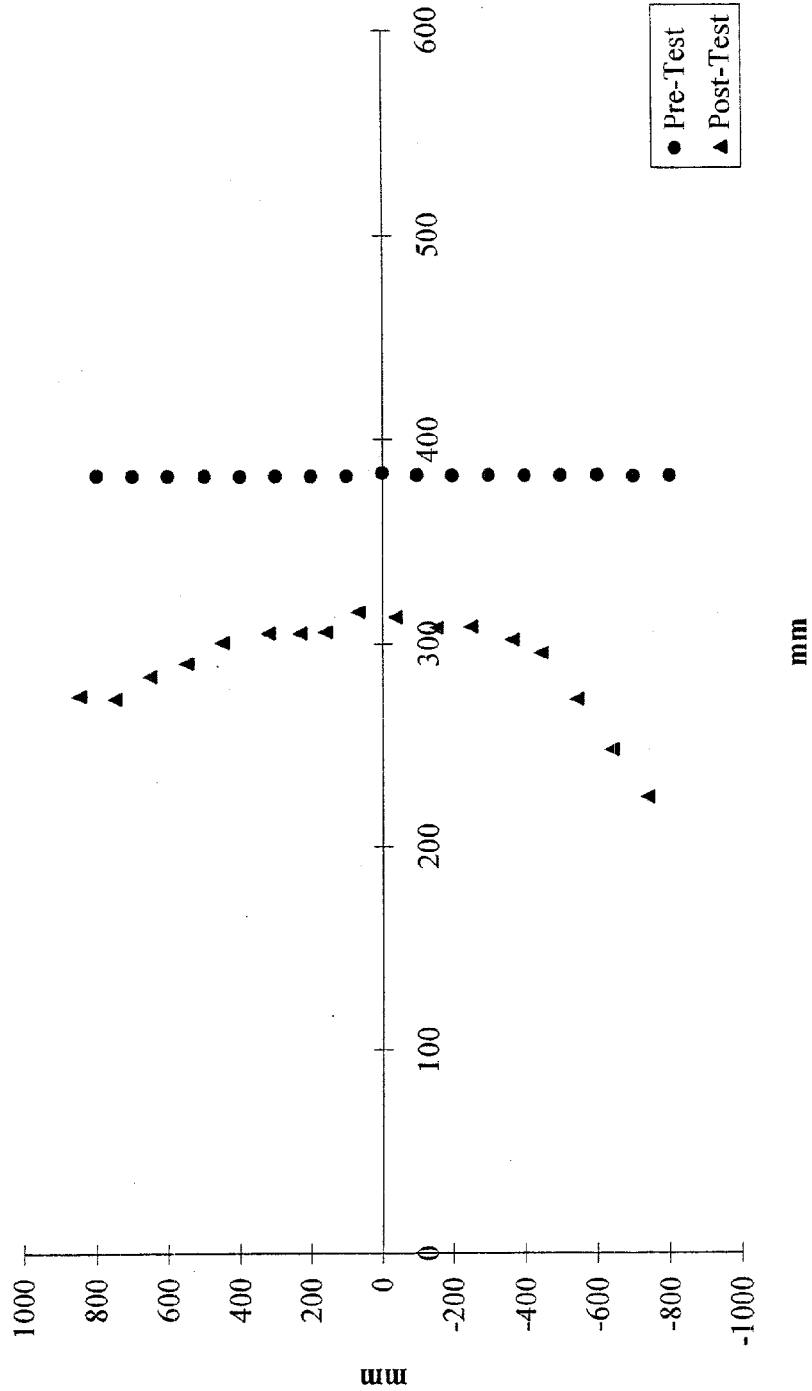


DATA SHEET 12 (continued)  
 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

**Deformable Barrier Face Profile 35-51**

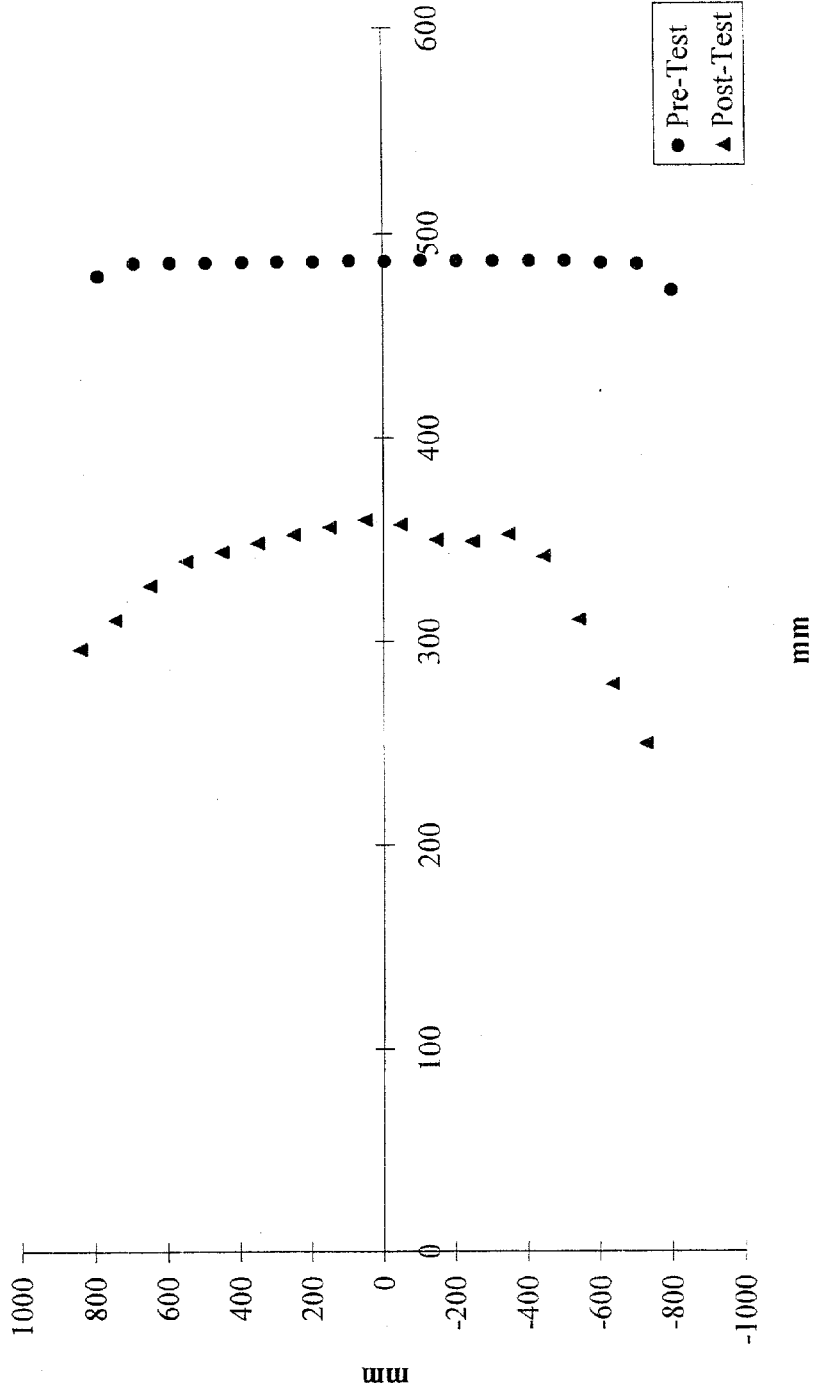


DATA SHEET 12 (continued)  
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

**Deformable Barrier Face Profile 52-68**



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

NHTSA No.: \_\_\_\_\_ MX5700

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

Deformable Barrier Face Profile

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
1	382.7	-798.5	267.2	1	300	-739.1	232	1	82.7	-59.4	35.2
2	382.4	-697.9	267.4	2	338.6	-646.9	227.7	2	43.8	-51.0	39.7
3	382.8	-597.9	267.4	3	369.4	-553.6	223.9	3	13.4	-44.3	43.5
4	383	-498.3	268.2	4	357.8	-455.5	223.6	4	25.2	-42.8	44.6
5	382.9	-397.7	268.5	5	333.6	-359.3	221.3	5	49.3	-38.4	47.2
6	382.6	-298.2	268	6	332.2	-259.6	225.1	6	50.4	-38.6	42.9
7	383	-198.3	268.7	7	333.5	-159.2	228.9	7	49.5	-39.1	39.8
8	382.9	-98.4	268.7	8	329.5	-59.7	231.7	8	53.4	-38.7	37.0
9	382.9	2	268.6	9	317.3	38.9	231.1	9	65.6	-36.9	37.5
10	383	102	268.6	10	315.6	138.4	236.2	10	67.4	-36.4	32.4
11	382.8	201.4	268.9	11	304.5	237.3	237	11	78.3	-35.9	31.9
12	383.2	301.7	269.9	12	289.1	335.4	232.1	12	94.1	-33.7	37.8
13	382.9	401.4	270	13	280.3	433.8	235.1	13	102.6	-32.4	34.9
14	382.8	501.7	269.4	14	270.3	531.7	238.9	14	112.5	-30.0	30.5
15	383.2	600.6	269.9	15	259.2	629.5	246.6	15	124.0	-28.9	23.3
16	383.3	700.1	269.8	16	244.2	727.7	249.9	16	139.1	-27.6	19.9
17	383.5	799.4	270.2	17	225	826.3	249.1	17	158.5	-26.9	21.1
18	382.1	-797.2	117.9	18	269.3	-735.7	93.6	18	112.8	-61.5	24.3
19	382.1	-697.1	118.1	19	301.6	-641.7	88	19	80.5	-55.4	30.1
20	381.9	-597.4	118.6	20	331.8	-547.6	82.4	20	50.1	-49.8	36.2
21	382.4	-497.5	119	21	358.5	-451.1	79.9	21	23.9	-46.4	39.1
22	382	-397.9	119.8	22	361.4	-351.4	79.4	22	20.6	-46.5	40.4

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

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

Deformable Barrier Face Profile Cont'd.

Pre-Test			
Index	Xmm	Ymm	Zmm
23	383	-297.6	120.3
24	382.7	-197.6	120.5
25	382.8	-97.4	120.9
26	382.8	1.9	120.9
27	382.8	102.8	121.1
28	382.8	202.7	121.8
29	383	302.2	121.5
30	382.3	402.4	122.5
31	382.8	501.2	122.1
32	382.3	602.5	122.6
33	382.4	702.4	122.9
34	382.7	803	122.7
35	382.6	-796	-26.6
36	382.4	-695.8	-26.9
37	382.8	-596.3	-26.8
38	382.7	-494.4	-27.2
39	382.7	-395.5	-26.8
40	382.9	-295.5	-26.6
41	382.7	-195.1	-26.6
42	382.9	-95.7	-26.5
43	383.9	1.6	-26.2
44	382.5	102.8	-24.4

Post-Test			
Index	Xmm	Ymm	Zmm
23	362.9	-252.6	82.6
24	365.8	-152.6	87.1
25	365.4	-52.4	91.7
26	364	46.3	96.4
27	358.7	146.7	101.2
28	349.9	246.9	106.5
29	351.9	346.8	111.5
30	356.4	447.4	117.6
31	349.2	547.1	122.2
32	336.3	647.9	127.3
33	310	743.3	129.5
34	272.6	832.2	127.1
35	223.9	-735.4	-23
36	247.3	-635.8	-27.3
37	272.5	-540.8	-33.5
38	295.2	-443	-38.7
39	301.7	-360.9	-34.4
40	308	-244.6	-29
41	307.6	-149.5	-33.4
42	312.7	-35.2	-34.4
43	315.3	69.3	-28.2
44	305.6	161.5	-23.2

Difference			
Index	Xmm	Ymm	Zmm
23	20.1	-45.0	37.7
24	16.9	-45.0	33.4
25	17.4	-45.0	29.2
26	18.8	-44.4	24.5
27	24.1	-43.9	19.9
28	32.9	-44.2	15.3
29	31.1	-44.6	10.0
30	25.9	-45.0	4.9
31	33.6	-45.9	-0.1
32	46.0	-45.4	-4.7
33	72.4	-40.9	-6.6
34	110.1	-29.2	-4.4
35	158.7	-60.6	-3.6
36	135.1	-60.0	0.4
37	110.3	-55.5	6.7
38	87.5	-51.4	11.5
39	81.0	-34.6	7.6
40	74.9	-50.9	2.4
41	75.1	-45.6	6.8
42	70.2	-60.5	7.9
43	68.6	-67.7	2.0
44	76.9	-58.7	-1.2

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

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

Deformable Barrier Face Profile Cont'd.

Pre-Test			
Index	Xmm	Ymm	Zmm
45	382.3	203	-23.6
46	382.3	302.7	-22.9
47	382.2	403	-23.3
48	382.3	502	-24.4
49	382.3	602.8	-24.6
50	382.4	702.5	-23.2
51	382.6	802	-24.6
52	472.2	-798.7	-134.8
53	485.3	-703.3	-132.9
54	485.8	-603.9	-132.3
55	486.6	-503.3	-132.1
56	486.6	-404.1	-131.9
57	486.6	-304.8	-132.2
58	486.5	-205	-132.3
59	486.9	-105.3	-131.1
60	486.3	-5.8	-131.4
61	486.5	94	-132.3
62	486.2	195	-131.3
63	486.1	294.1	-131.1
64	485.9	392.9	-131.8
65	485.7	492.8	-130.8
66	485.7	592.7	-131.3
67	485.4	692.8	-131.3
68	479.2	790.2	-130.1

Post-Test			
Index	Xmm	Ymm	Zmm
45	305	233.1	-14.1
46	304.9	322.2	-7.1
47	300.4	451.7	0.8
48	290.2	552	2.1
49	283.8	654	7.7
50	272.8	751.9	16.2
51	274.1	848.3	11.8
52	249.5	-724.5	-151.7
53	278.8	-632.9	-154
54	310.5	-539.1	-159.9
55	341.9	-443.1	-166.1
56	352.6	-344.6	-166
57	348.9	-244.7	-161.3
58	349.9	-146.1	-156.6
59	357.2	-46.8	-157.8
60	359.5	51.9	-155.1
61	356	151.6	-152.4
62	352.3	252.5	-146.6
63	348.2	351.3	-142.5
64	344.1	450.4	-138.5
65	339.6	550.2	-133.2
66	327.5	648.9	-125.8
67	310.3	746.9	-116.3
68	296.1	842.3	-104.8

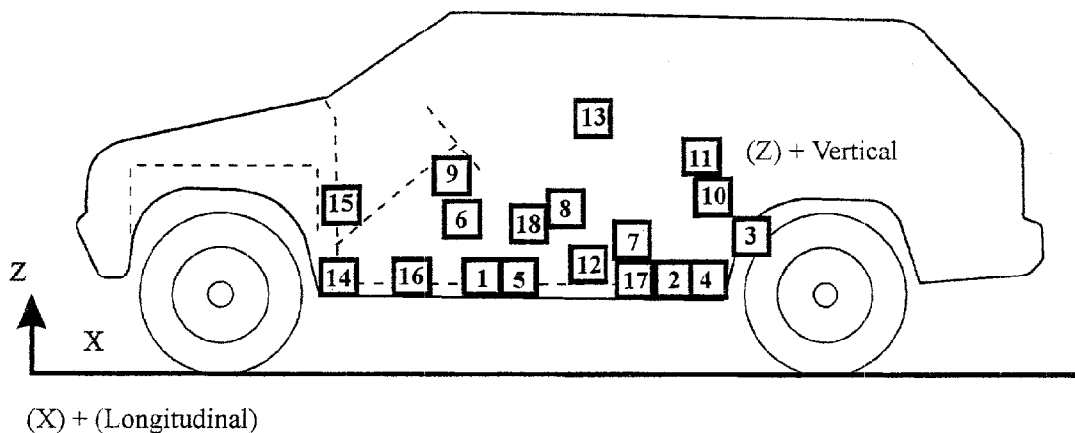
Difference			
Index	Xmm	Ymm	Zmm
45	77.3	-30.1	-9.5
46	77.4	-19.5	-15.8
47	81.8	-48.7	-24.1
48	92.1	-50.0	-26.5
49	98.5	-51.2	-32.3
50	109.6	-49.4	-39.4
51	108.5	-46.3	-36.4
52	222.7	-74.2	16.9
53	206.5	-70.4	21.1
54	175.3	-64.8	27.6
55	144.7	-60.2	34.0
56	134.0	-59.5	34.1
57	137.7	-60.1	29.1
58	136.6	-58.9	24.3
59	129.7	-58.5	26.7
60	126.8	-57.7	23.7
61	130.5	-57.6	20.1
62	133.9	-57.5	15.3
63	137.9	-57.2	11.4
64	141.8	-57.5	6.7
65	146.1	-57.4	2.4
66	158.2	-56.2	-5.5
67	175.1	-54.1	-15.0
68	183.1	-52.1	-25.3

DATA SHEET 13

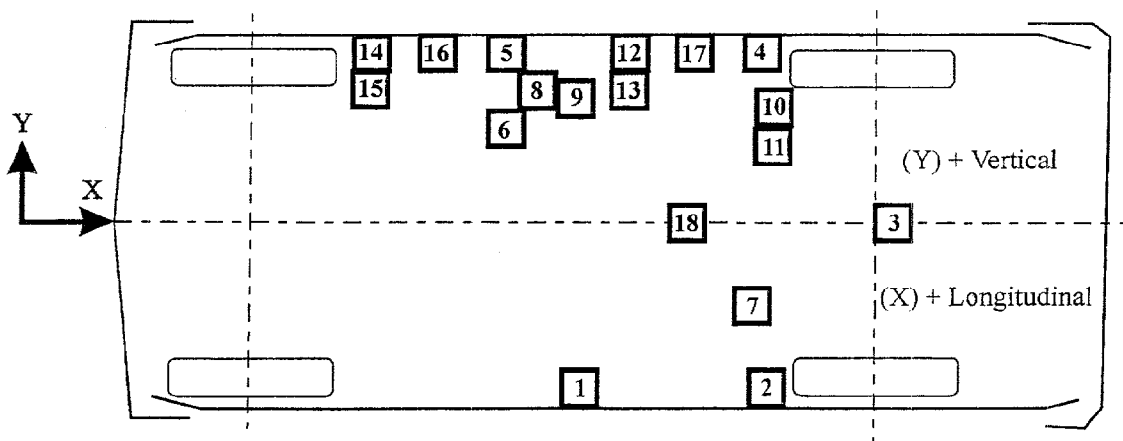
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700



Side View



Bottom View

- |                                    |  |
|------------------------------------|--|
| 1-Right Front Side Sill            | 10-Left Rear Door Mid Rear               |
| 2-Right Side Sill at Rear Seat     | 11-Left Rear Door Upper Centerline       |
| 3-Rear Floorpan Above Axle         | 12-Left Side Lower B-pillar              |
| 4-Left Side Sill at Rear Seat      | 13-Left Side Middle B-pillar             |
| 5-Left Front Side Sill             | 14-Left Side Lower A-pillar              |
| 6-Left Front Door on Centerline    | 15-Left Side Middle A-pillar             |
| 7-Right Rear Occupant Compartment  | 16-Left Side Front Seat Track at H-point |
| 8-Left Front Door Mid Rear         | 17-Left Rear Seat Track at H-point       |
| 9-Left Front Door Upper Centerline | 18-Vehicle Center of Gravity             |

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

TEST NUMBER: 990129-1  
No. LOCATION

POSITIVE DIRECTION  
NEGATIVE DIRECTION

	X	Y	Z		
1 RIGHT SIDE SILL AT FRONT SEAT LONGITUDINAL LATERAL VERTICAL RESULTANT	PRE	2895 mm	-635 mm	450 mm	
	POST	2886 mm	-630 mm	454 mm	
				13.3 g	@ 21.4 ms
				23.7 g	@ 13.8 ms
				17.8 g	@ 21.6 ms
			26.9 g	@ 21.6 ms	3.7 g @ 33.7 ms
					2.1 g @ 164.8 ms
					7.7 g @ 55.7 ms
2 RIGHT SIDE SILL AT FRONT SEAT LONGITUDINAL LATERAL VERTICAL RESULTANT	PRE	2019 mm	-640 mm	450 mm	
	POST	2022 mm	-622 mm	470 mm	
				8.7 g	@ 21.4 ms
				39.7 g	@ 6.3 ms
				19.9 g	@ 7.4 ms
			44.0 g	@ 6.5 ms	3.7 g @ 50.2 ms
					1.6 g @ 229.5 ms
					14.7 g @ 11.8 ms
3 REAR FLOORPAN ABOVE AXLE LONGITUDINAL LATERAL VERTICAL RESULTANT	PRE	1230 mm	0 mm	660 mm	
	POST	1230 mm	0 mm	650 mm	
				9.1 g	@ 25.2 ms
				27.2 g	@ 7.7 ms
				10.1 g	@ 39.0 ms
			27.5 g	@ 7.7 ms	2.5 g @ 62.9 ms
					1.4 g @ 233.9 ms
					12.9 g @ 15.2 ms
4 LEFT SIDE SILL AT FRONT SEAT LATERAL	PRE	2924 mm	630 mm	445 mm	
	POST	2818 mm	523 mm	489 mm	
				96.1 g	@ 5.8 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

TEST NUMBER: 990129-1

No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
5 LEFT SIDE SILL AT REAR SEAT LATERAL	PRE 2046 mm	625 mm	438 mm		
	POST 2000 mm	565 mm	509 mm	131.3 g @ 8.9 ms	76.5 g @ 24.9 ms
6 LEFT FRONT DOOR ON CENTERLINE LATERAL	PRE 2874 mm	760 mm	768 mm		
	POST 2725 mm	642 mm	780 mm	260.9 g @ 9.7 ms	123.7 g @ 17.3 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	PRE 1820 mm	-669 mm	495 mm		
	POST 1833 mm	-587 mm	478 mm	39.6 g @ 6.5 ms	2.3 g @ 163.3 ms
8 LEFT FRONT DOOR MIDREAR LATERAL	PRE 2400 mm	760 mm	790 mm		
	POST 2318 mm	661 mm	780 mm	173.1 g @ 9.2 ms	113.5 g @ 14.5 ms
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	PRE 2874 mm	760 mm	1043 mm		
	POST 2725 mm	642 mm	1050 mm	186.2 g @ 16.6 ms	117.0 g @ 30.6 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

TEST NUMBER: 990129-1

NEGATIVE DIRECTION

POSITIVE DIRECTION

Z

Y

X

10 LEFT REAR DOOR MIDREAR LATERAL <sup>1</sup>	PRE	1634 mm	762 mm	767 mm			
	POST	1582 mm	705 mm	808 mm			
					87.1 g	@ 3.8 ms	1030.6 g @ 24.0 ms
11 LEFT REAR DOOR UPPER CENTERLINE LATERAL	PRE	1783 mm	762 mm	1058 mm			
	POST	1777 mm	700 mm	1140 mm			
					168.2 g	@ 16.9 ms	131.6 g @ 29.7 ms
12 LOWER B-POST LATERAL	PRE	2292 mm	702 mm	720 mm			
	POST	2130 mm	484 mm	732 mm			
					164.2 g	@ 6.8 ms	40.3 g @ 17.0 ms
13 MIDDLE B-POST LATERAL	PRE	2267 mm	698 mm	910 mm			
	POST	2124 mm	485 mm	782 mm			
					217.0 g	@ 5.5 ms	48.4 g @ 15.0 ms
14 LOWER A-POST LATERAL	PRE	3369 mm	716 mm	680 mm			
	POST	3290 mm	662 mm	693 mm			
					117.6 g	@ 4.2 ms	21.9 g @ 28.5 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

TEST NUMBER: 990129-1  
No. LOCATION

	X	Y	Z		POSITIVE DIRECTION	NEGATIVE DIRECTION
15 MIDDLE A-POST LATERAL	PRE 3365 mm	715 mm	930 mm			
	POST 3284 mm	700 mm	935 mm	48.2 g @ 9.4 ms	124.9 g @ 13.8 ms	
16 FRONT SEAT TRACK LATERAL	PRE 2620 mm	640 mm	445 mm			
	POST 2506 mm	570 mm	485 mm	111.3 g @ 5.2 ms	24.3 g @ 26.1 ms	
17 REAR SEAT TRACK LATERAL	PRE 1681 mm	761 mm	600 mm			
	POST 1638 mm	737 mm	730 mm	63.0 g @ 11.2 ms	32.6 g @ 24.2 ms	
18 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL VERTICAL RESULTANT	PRE 2800 mm	0 mm	610 mm			
	POST 2800 mm	0 mm	617 mm	17.4 g @ 6.7 ms	9.5 g @ 15.6 ms	
				42.7 g @ 6.2 ms	12.0 g @ 56.8 ms	
				31.0 g @ 5.8 ms	14.8 g @ 28.0 ms	
				54.9 g @ 6.1 ms		

REFERENCE: X: + FORWARD FROM REAR BUMPER  
Y: + LEFTWARD FROM VEHICLE CENTERLINE  
Z: + UPWARD FROM GROUND LEVEL

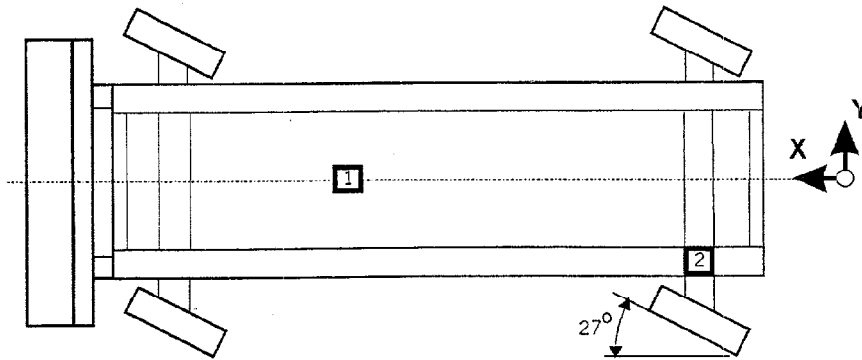
1 See DATA ACQUISITION EXPLANATIONS

DATA SHEET 14

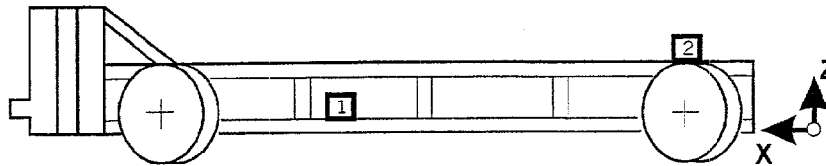
MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700



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				3.0	144.4	22.7	36.2
	Lateral Y				1.9	61.4	8.4	15.8
	Vertical Z				6.5	22.0	6.9	53.3
	Resultant R				23.4	36.1		
2	Rear Frame Member	385	-635	610				
	Longitudinal X				3.5	119.9	23.7	35.7
	Lateral Y				4.8	12.6	2.8	70.0

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

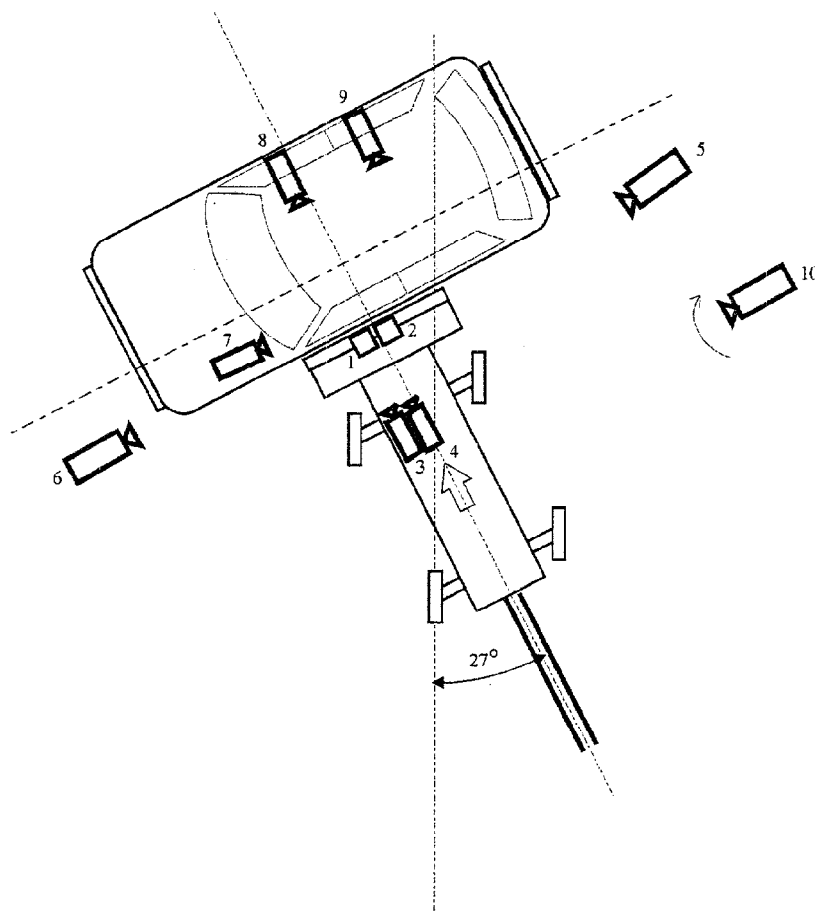
All measurements accurate to within  $\pm 3$  mm.

# DATA SHEET 15

## HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700



Camera Number	Location	Location, mm			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Overhead wide	1,142	1,811	10,866	13	1000
2	Overhead tight	1,142	1,378	10,866	25	990
3	Onboard MDB left side	1,829	0	787	25	955
4	Onboard MDB center	2,515	914	1,397	13	973
5	Right side	4,572	-229	965	13	1002
6	Left side	-8,230	1,219	910	13	995
7	Onboard vehicle front <sup>1</sup>	-483	-508	1,372	8	----
8	Onboard side front door <sup>1</sup>	-1,778	800	1,041	8	----
9	Onboard side rear door <sup>1</sup>	-1,778	1,714	1,308	8	----
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

<sup>1</sup> The onboard cameras did not run properly.

SECTION 5

VEHICLE FUEL SYSTEM INTEGRITY

DATA SHEET 16

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA NO.: MX5700 TEST DATE: January 29, 1999

Vehicle Mfgr./Make/Model : 1999 Isuzu Rodeo 4-Door Sport Utility

\*\*\*\*\*

TEST VEHICLE IMPACT TYPE : \_\_\_\_\_ Frontal (48.28 kph)  
\_\_\_\_\_ Oblique (48.28 kph) with \_\_\_\_\_ ° barrier  
\_\_\_\_\_ face first contacting the (driver/passenger) side  
\_\_\_\_\_ Rear Moving Barrier (48.28 kph)  
\_\_\_\_\_ Lateral Moving Barrier (32.19 kph)  
X \_\_\_\_\_ Side Impact Moving Deformable Barrier  
(61.15 kph) 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
Trace	142 g
Trace	28 g/1 min.

SOLVENT SPILLAGE DETAILS :

It leaked from the fuel line.

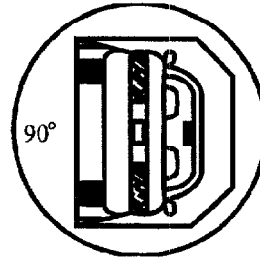
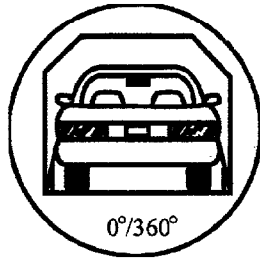
DATA SHEET 17

ROLLOVER DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

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

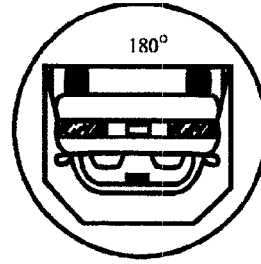
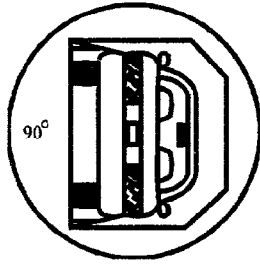
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

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

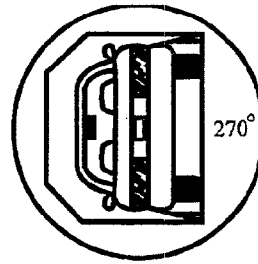
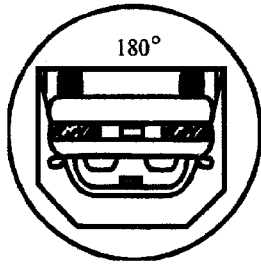
**DATA SHEET 17 (continued)**

**ROLLOVER DATA**

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes	<u>2</u> seconds
(Spec. Range = 1 to 3 minutes)		
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
<b>TOTAL</b>	<b><u>6</u> minutes</b>	<b><u>2</u> seconds</b>
Next whole minute interval	<u>7</u> 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

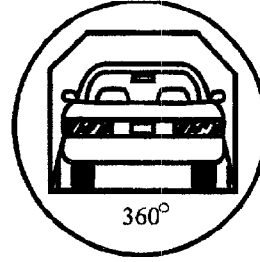
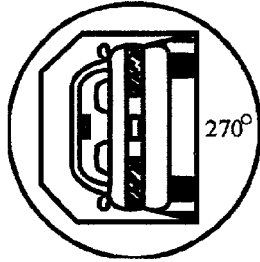
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Isuzu Rodeo 4-Door Sport Utility

NHTSA No.: MX5700

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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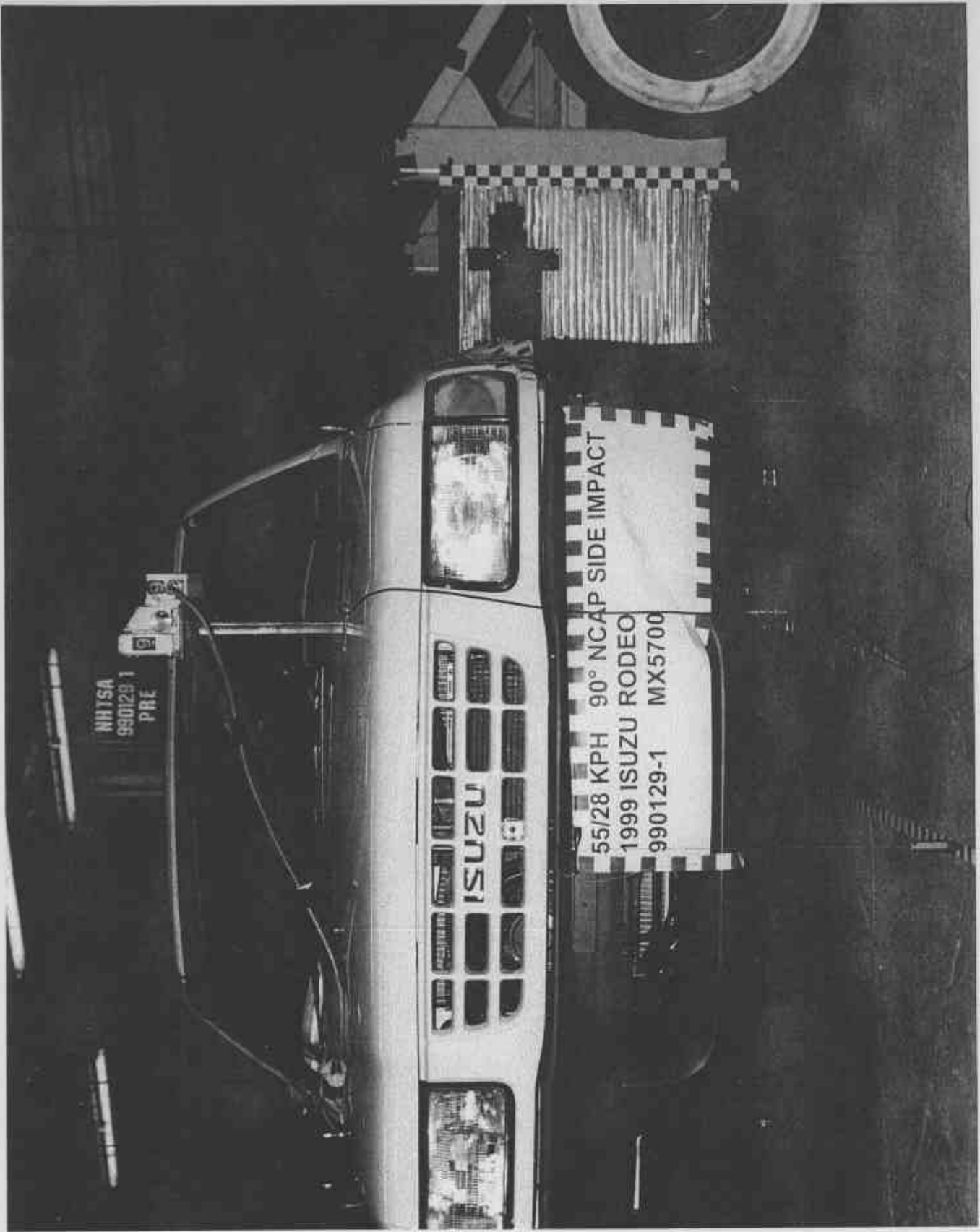


Figure A-1 Pre-Test Front View of Test Vehicle

A-4

990129



Figure A-2 Post-Test Front View of Test Vehicle - View 1

A-5

990129

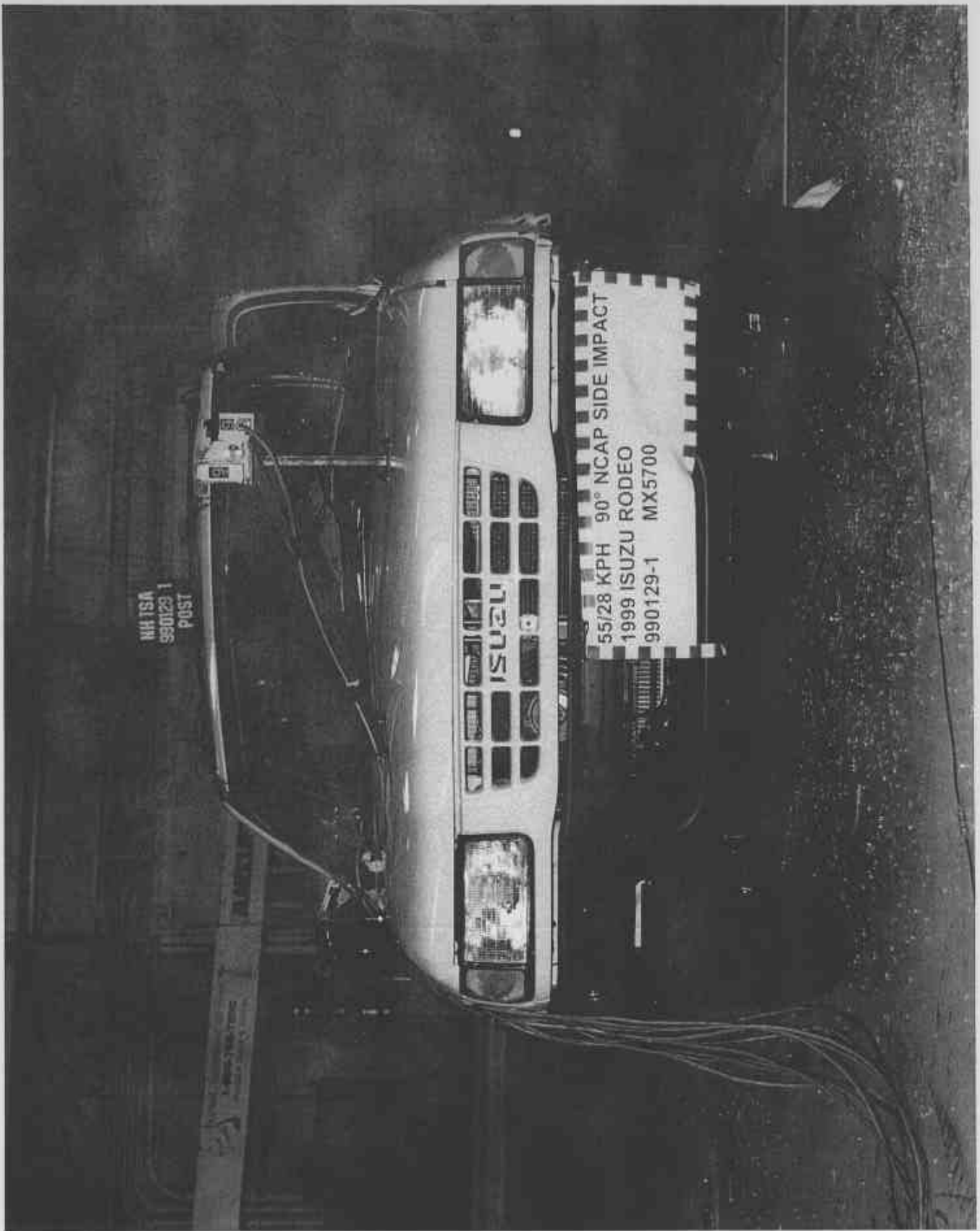


Figure A-3 Post-Test Front View of Test Vehicle - View 2

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990129



Figure A-4 Pre-Test Rear View of Test Vehicle  
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Figure A-5 Post-Test Rear View of Test Vehicle - View 1  
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990129

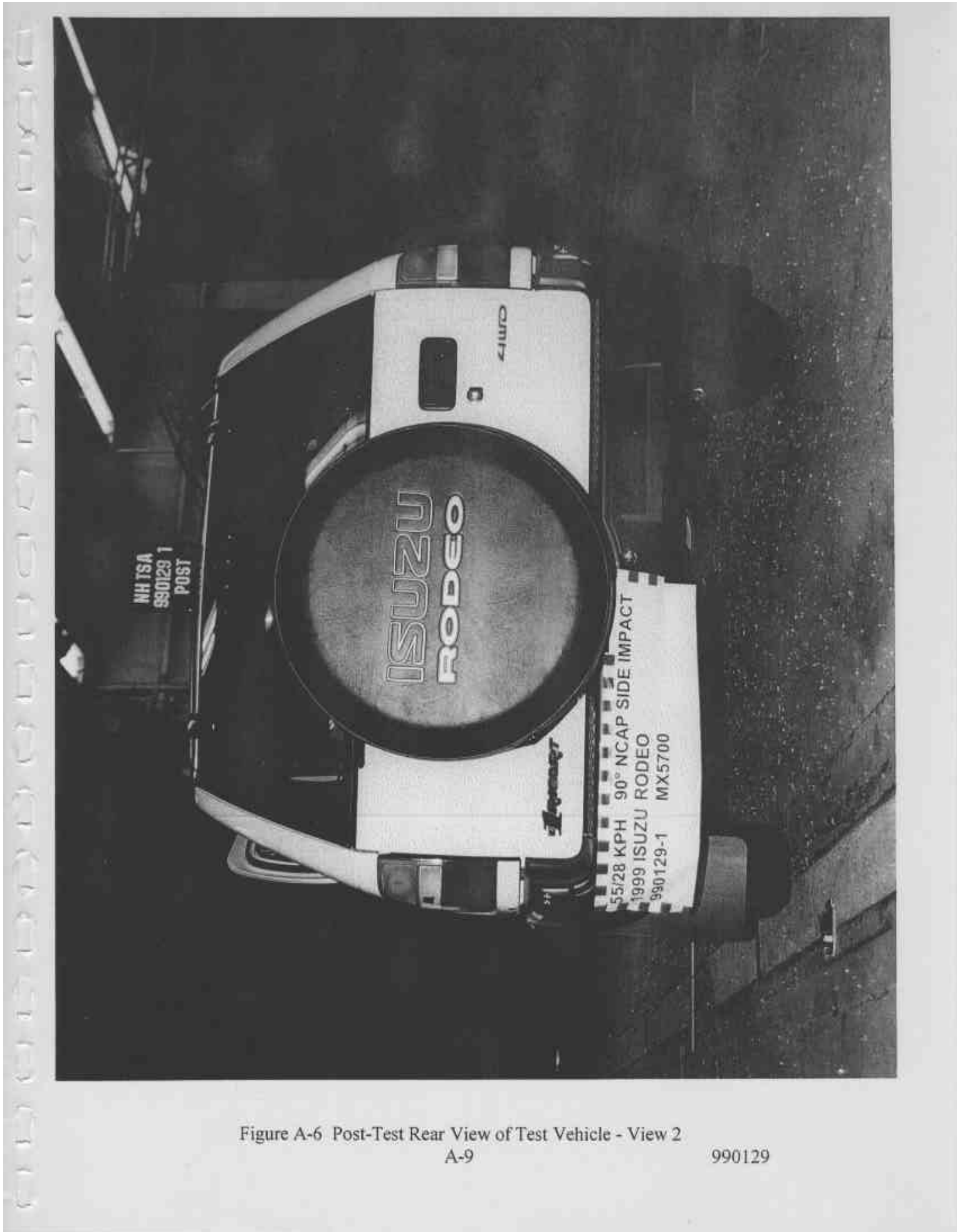


Figure A-6 Post-Test Rear View of Test Vehicle - View 2

A-9

990129

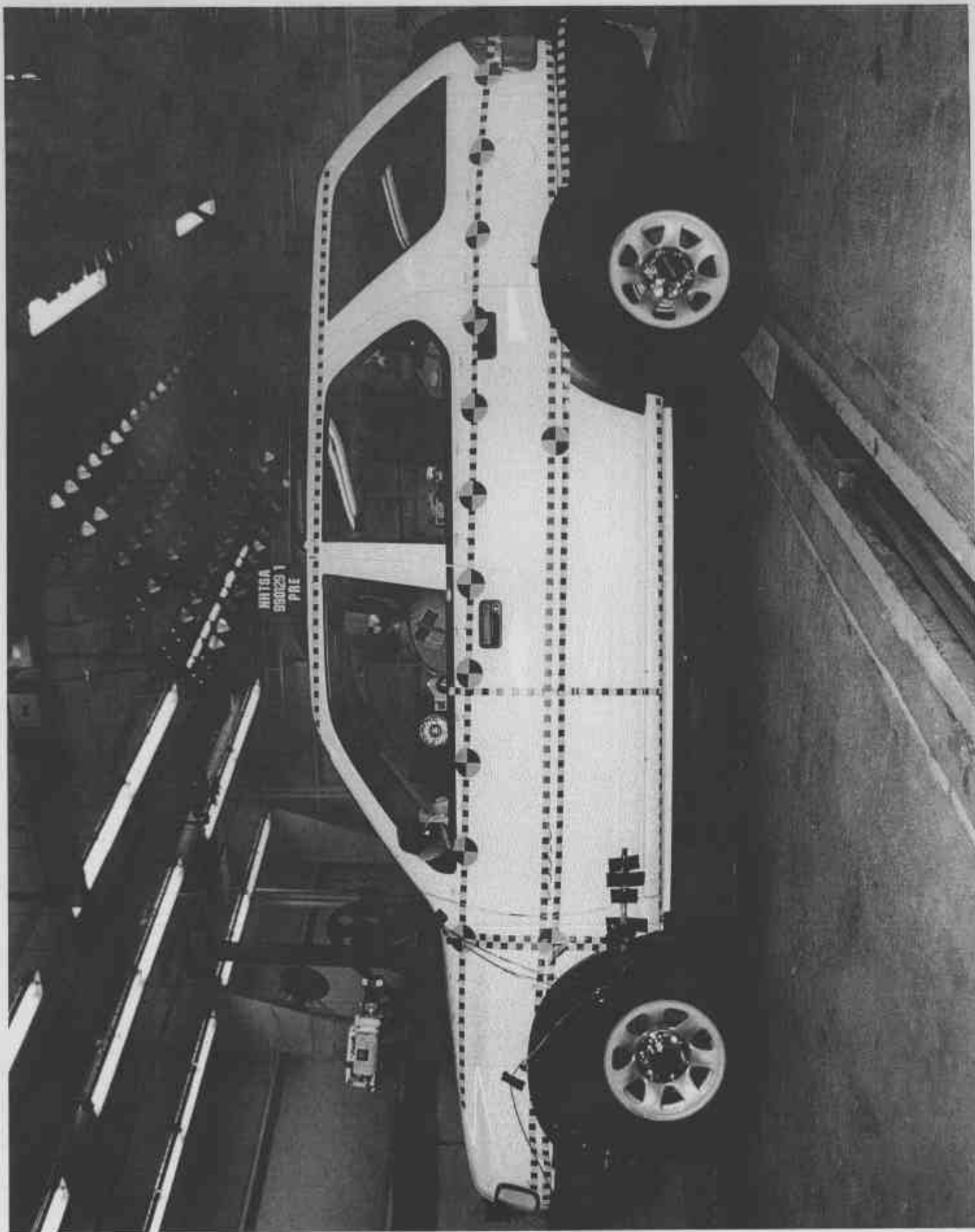


Figure A-7 Pre-Test Impacted Side View of Test Vehicle  
A-10

990129

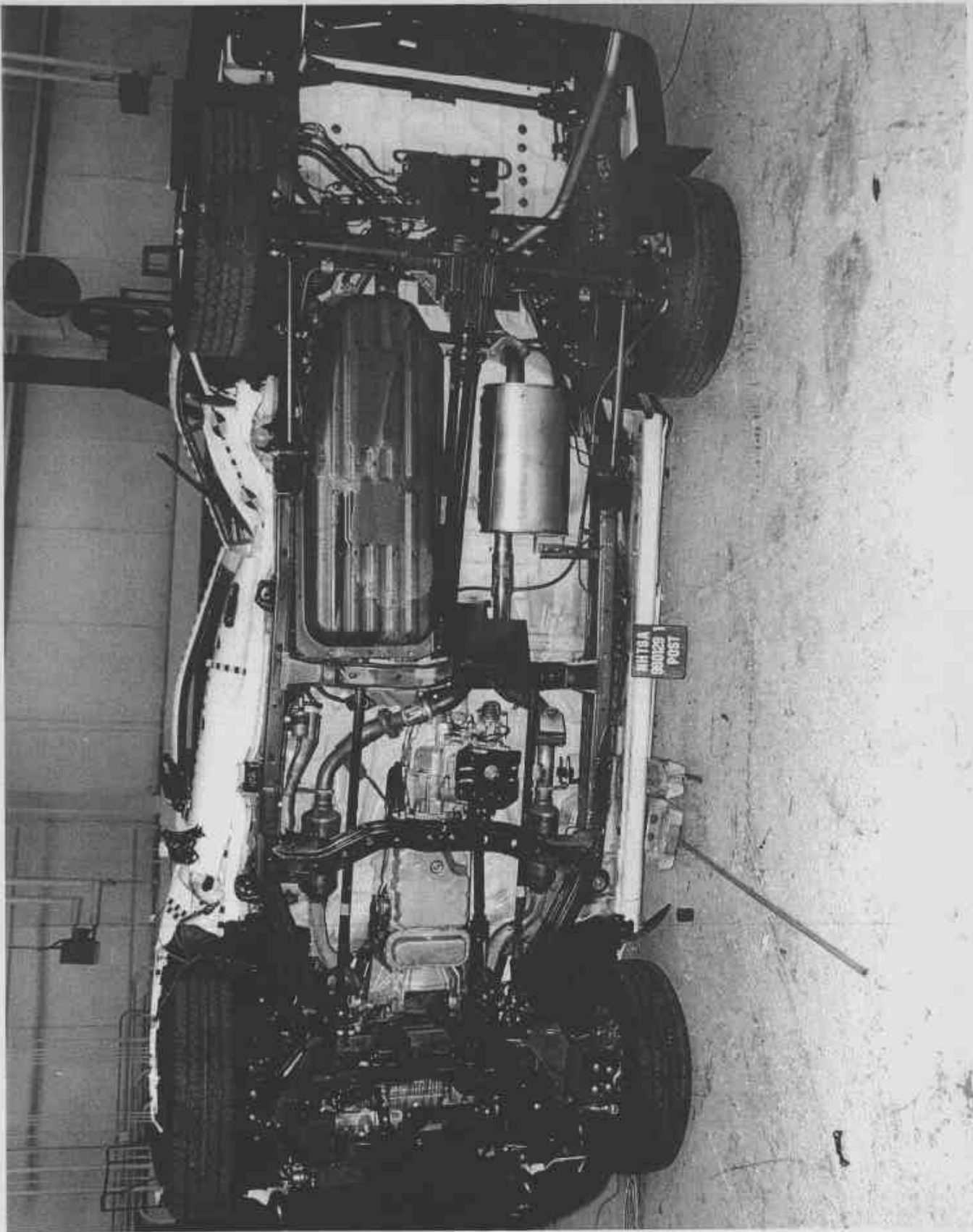


Figure A-8 Post-Test Impacted Side View of Test Vehicle - View 1

A-11

990129

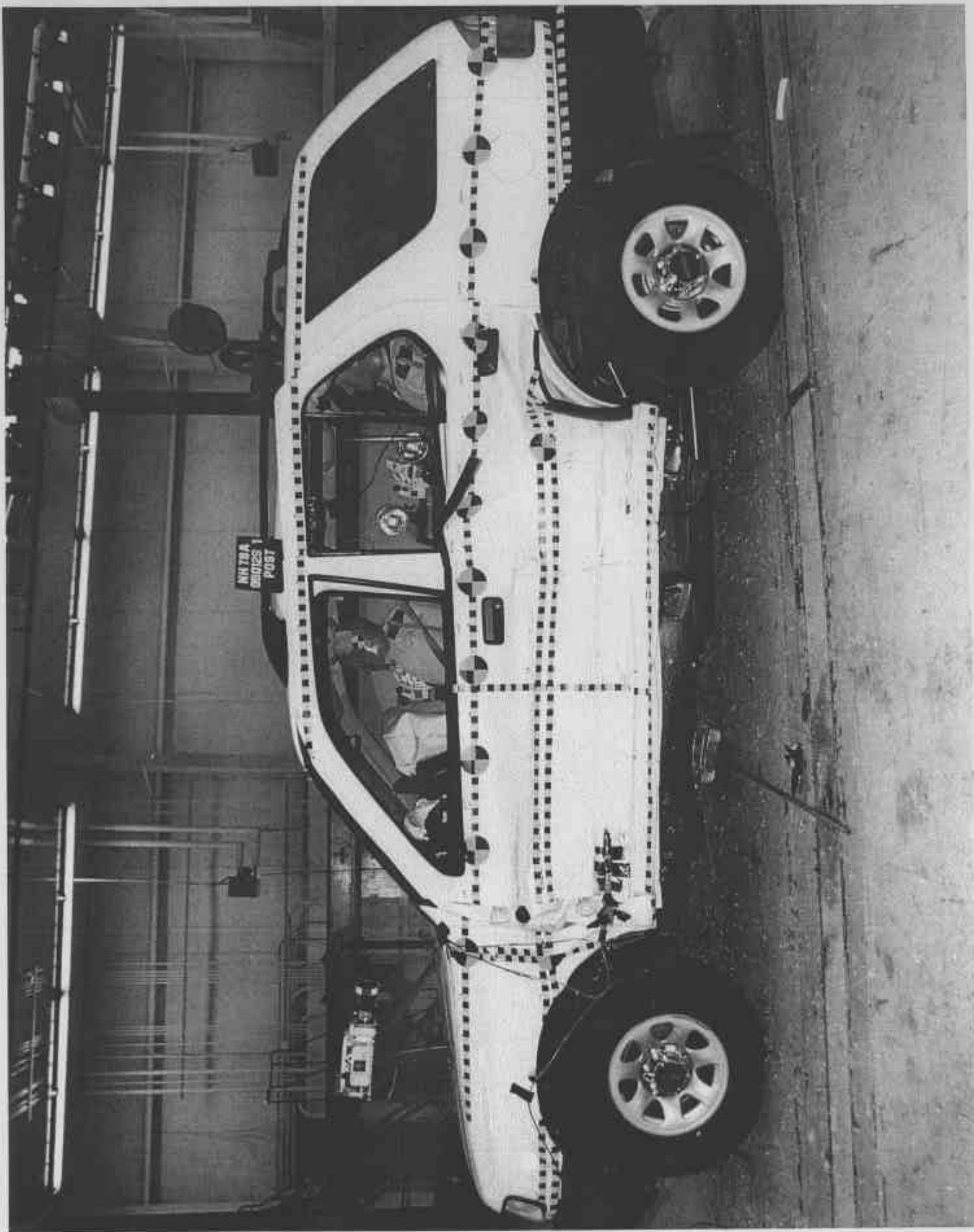


Figure A-9 Post-Test Impacted Side View of Test Vehicle - View 2

A-12

990129

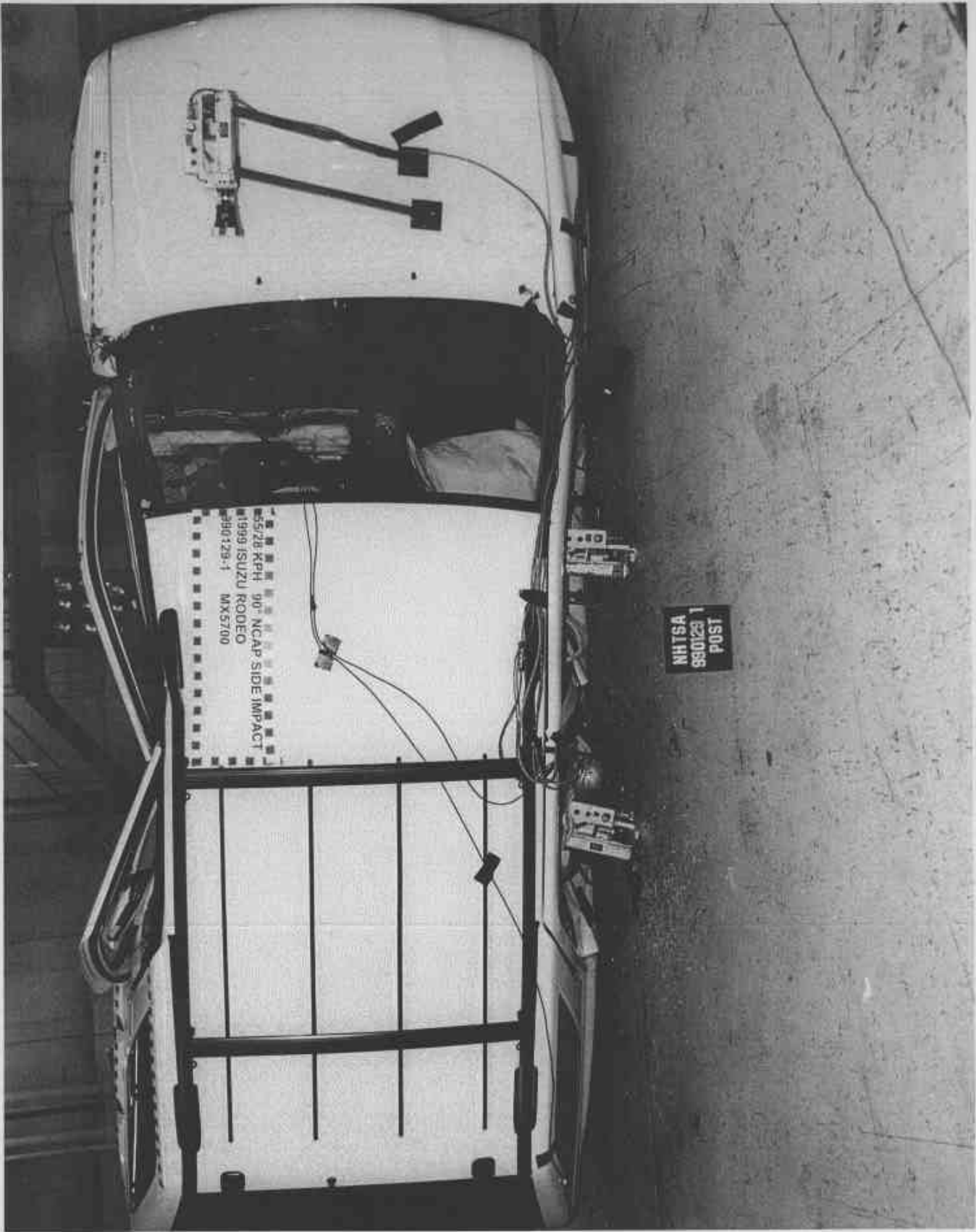


Figure A-10 Post-Test Right Side View of Test Vehicle - View 1

A-13

990129

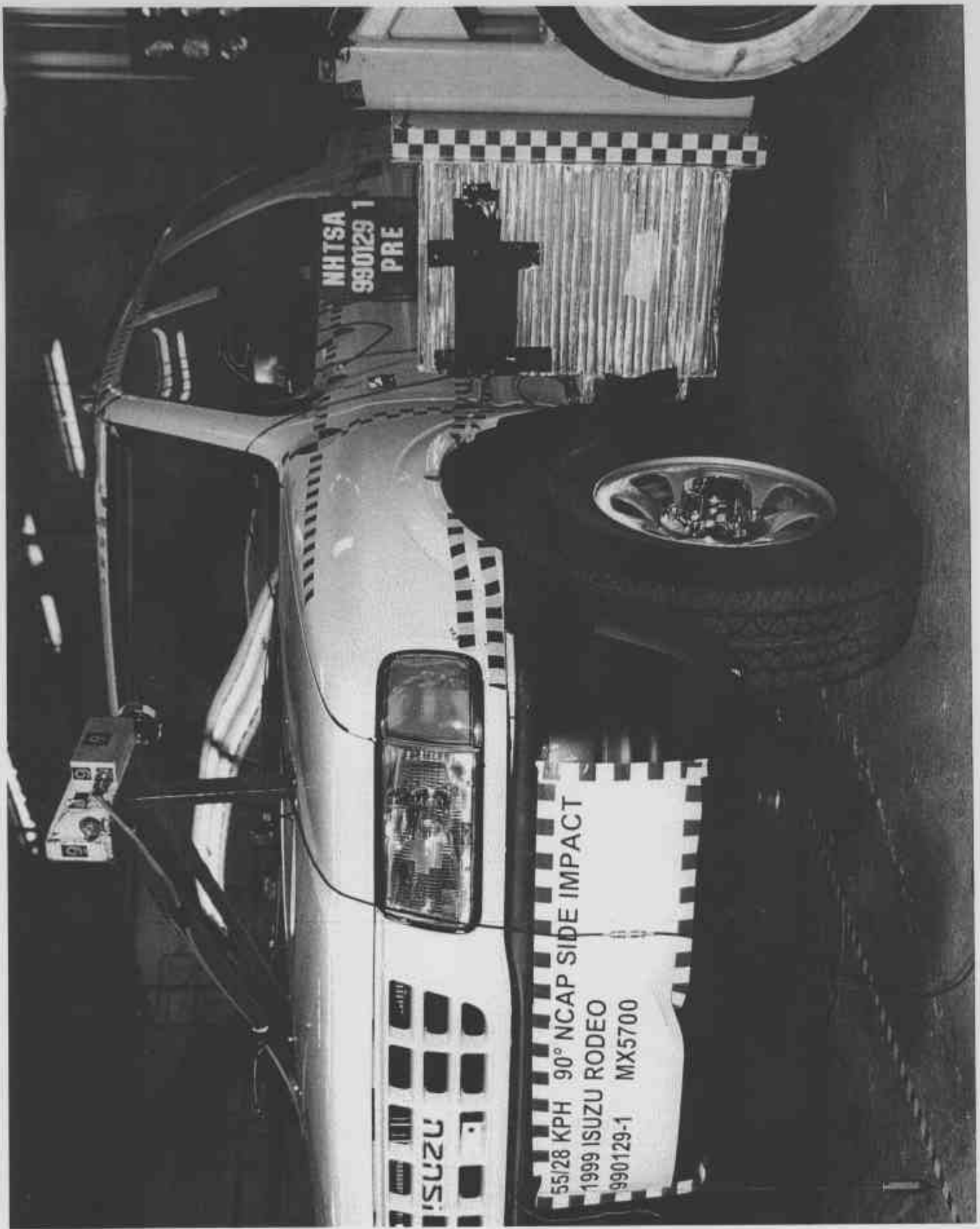


Figure A-11 Pre-Test Impact Point Alignment - View 1

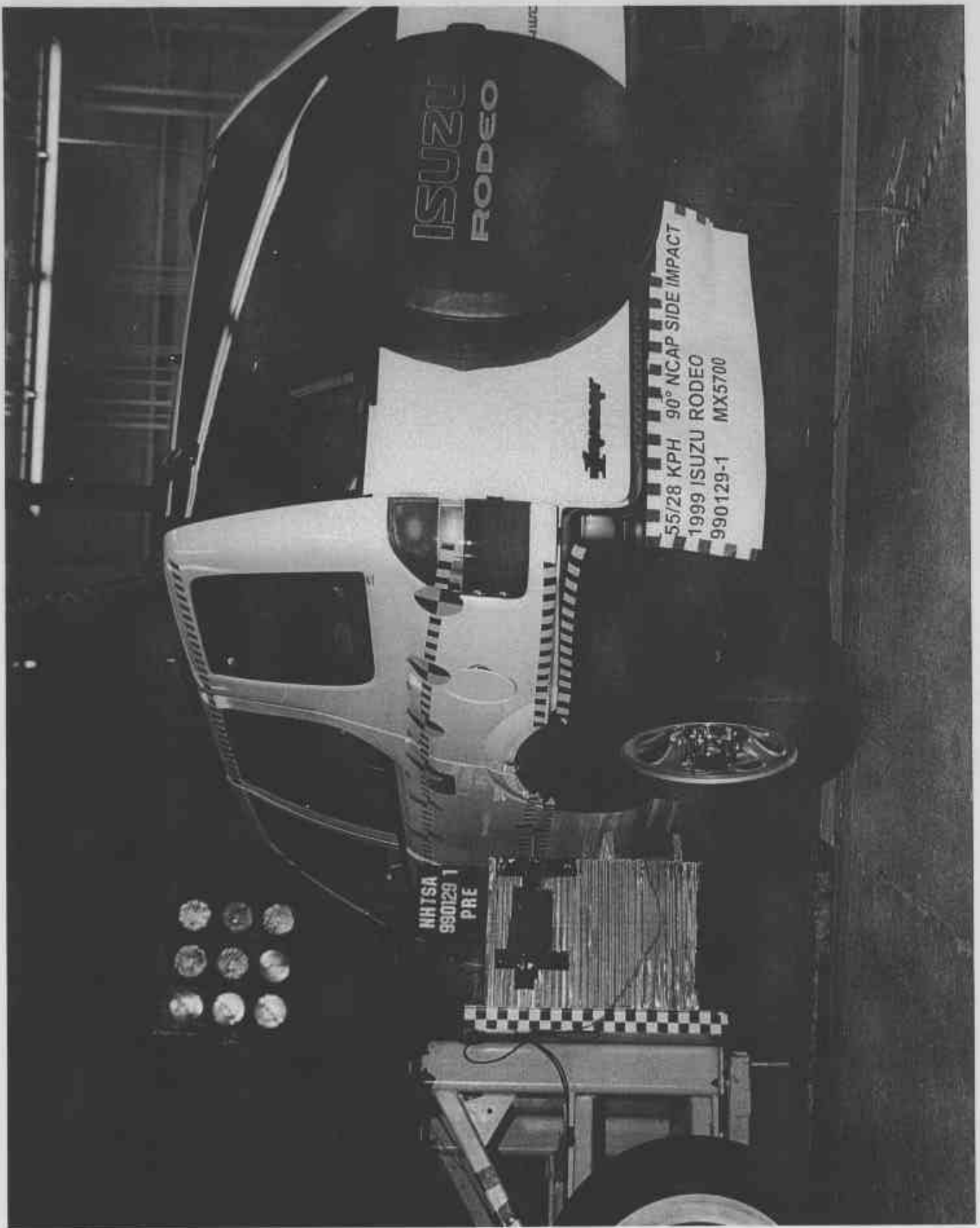


Figure A-12 Pre-Test Impact Point Alignment - View 2  
A-15

990129

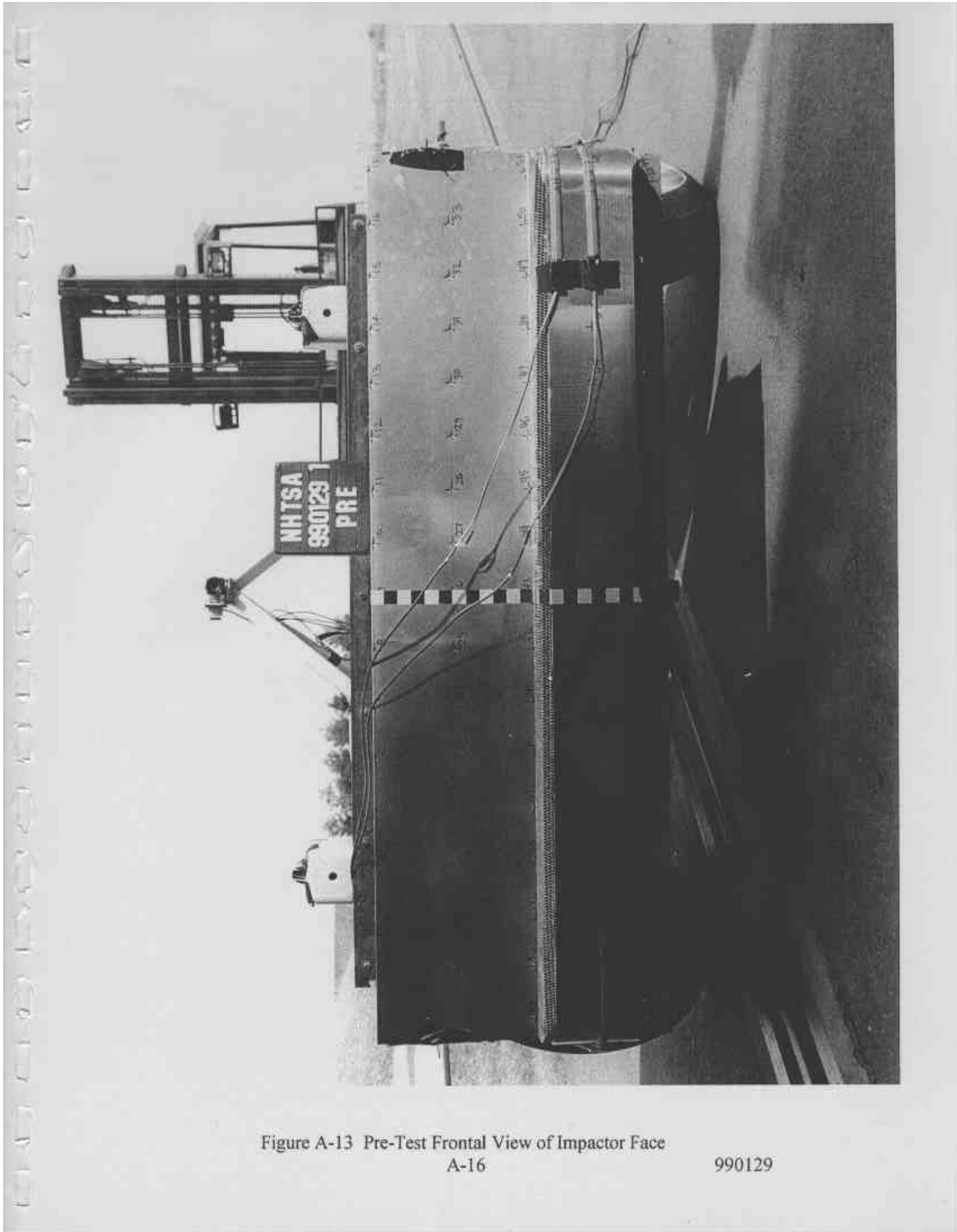


Figure A-13 Pre-Test Frontal View of Impactor Face

A-16

990129

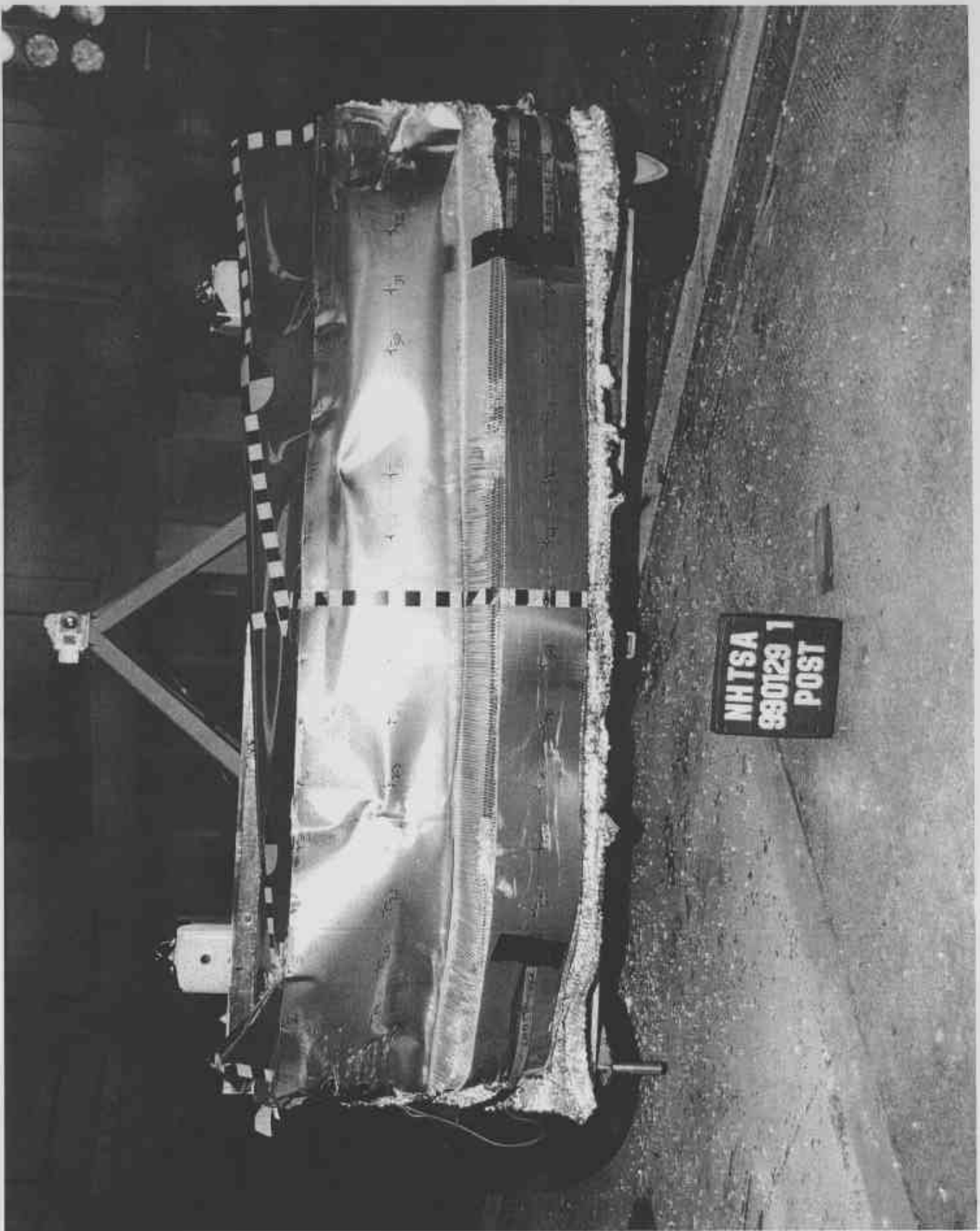


Figure A-14 Post-Test Frontal View of Impactor Face  
A-17

990129

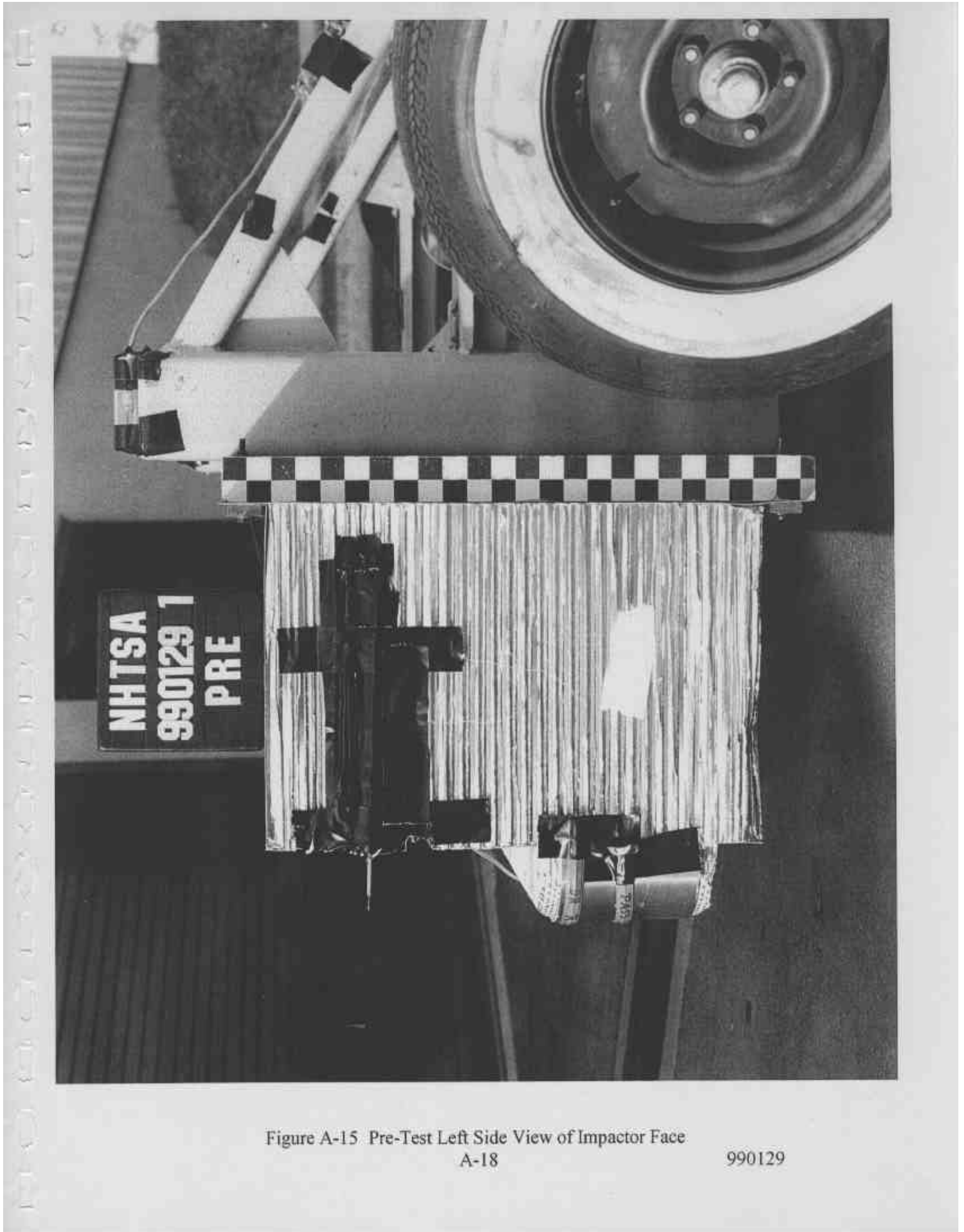


Figure A-15 Pre-Test Left Side View of Impactor Face  
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Figure A-16 Post-Test Left Side View of Impactor Face  
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Figure A-17 Pre-Test Right Side View of Impactor Face

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Figure A-18 Post-Test Right Side View of Impactor Face  
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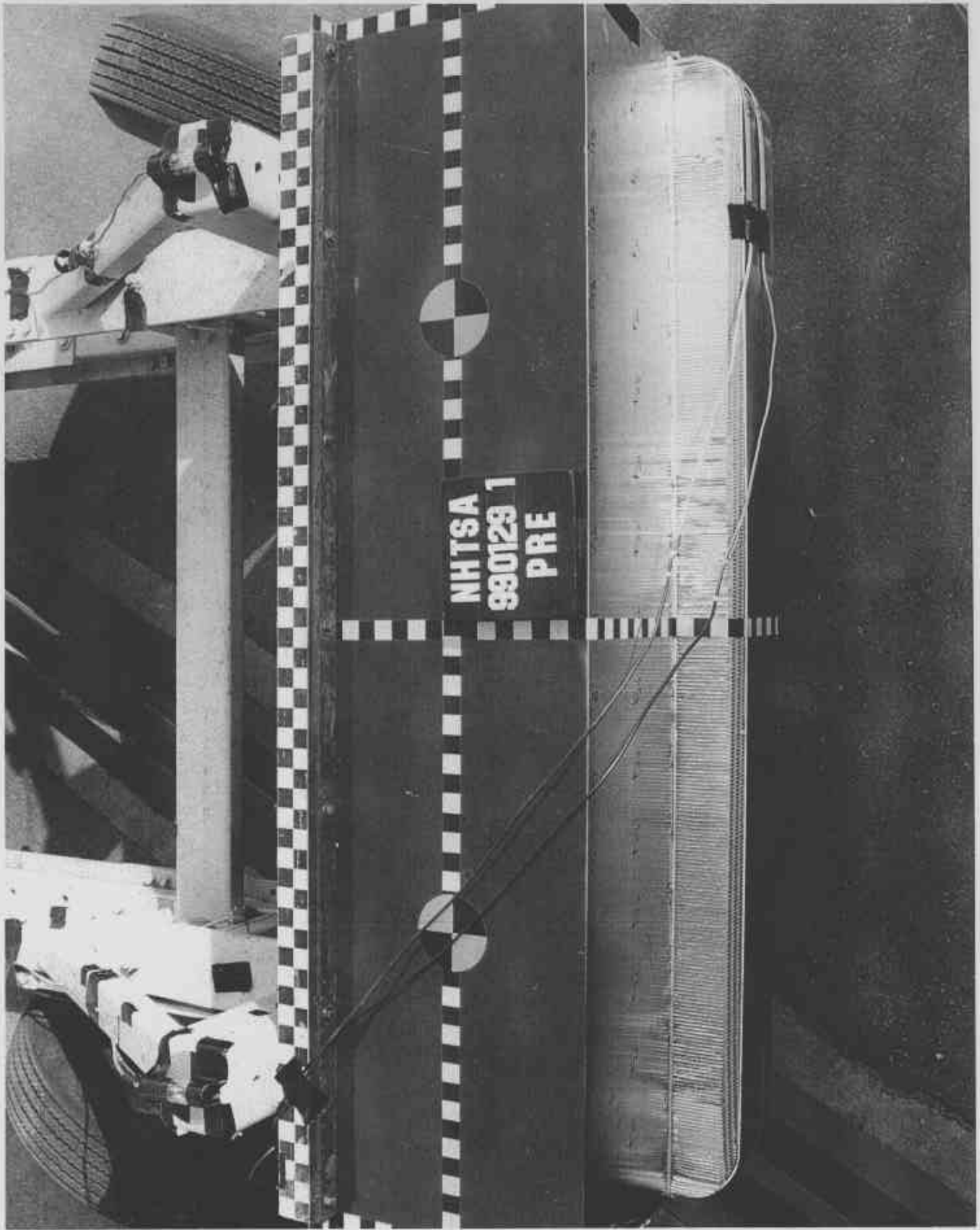


Figure A-19: Pre-Test Top View of Impactor Face  
A-22

990129

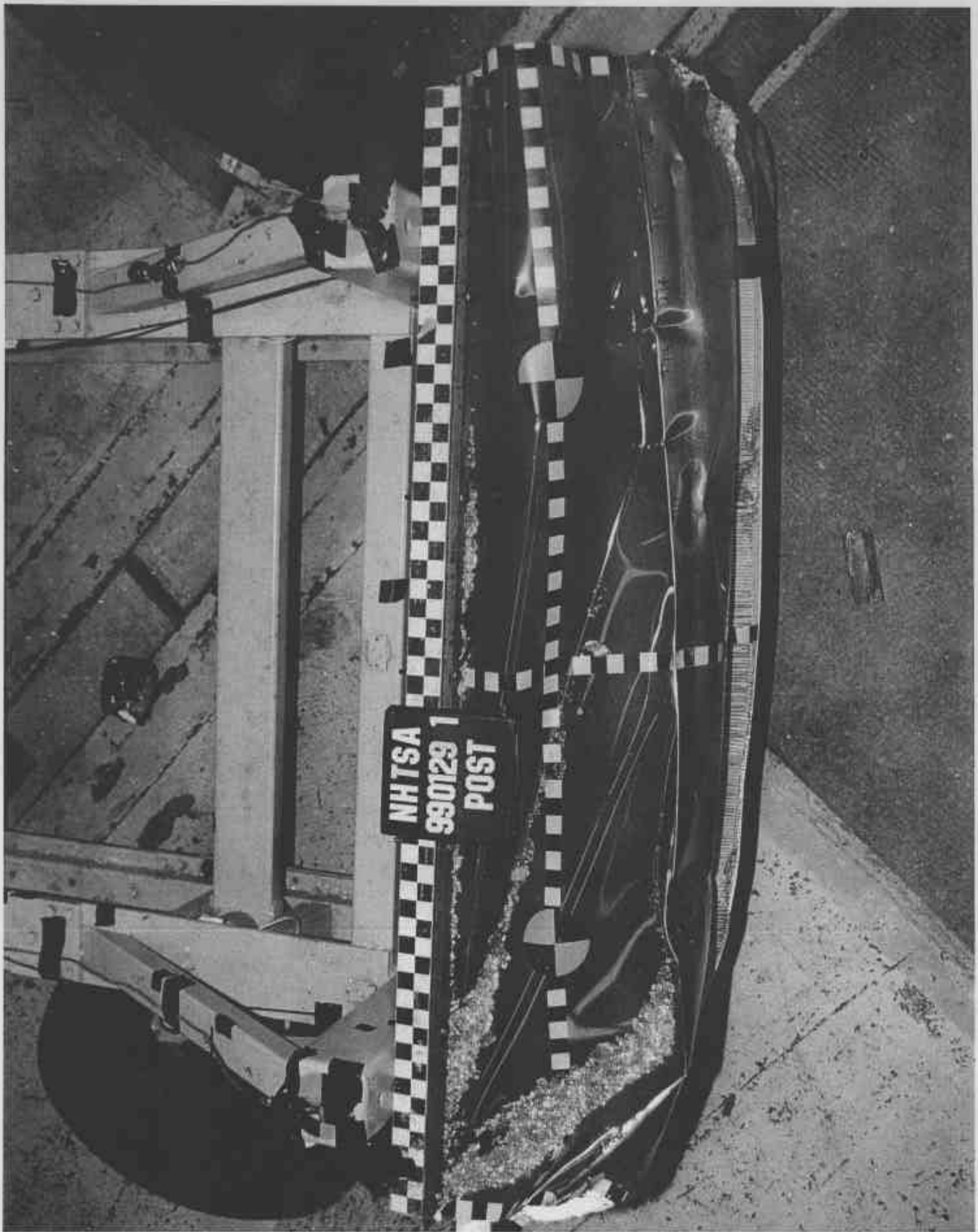


Figure A-20 Post-Test Top View of Impactor Face  
A-23

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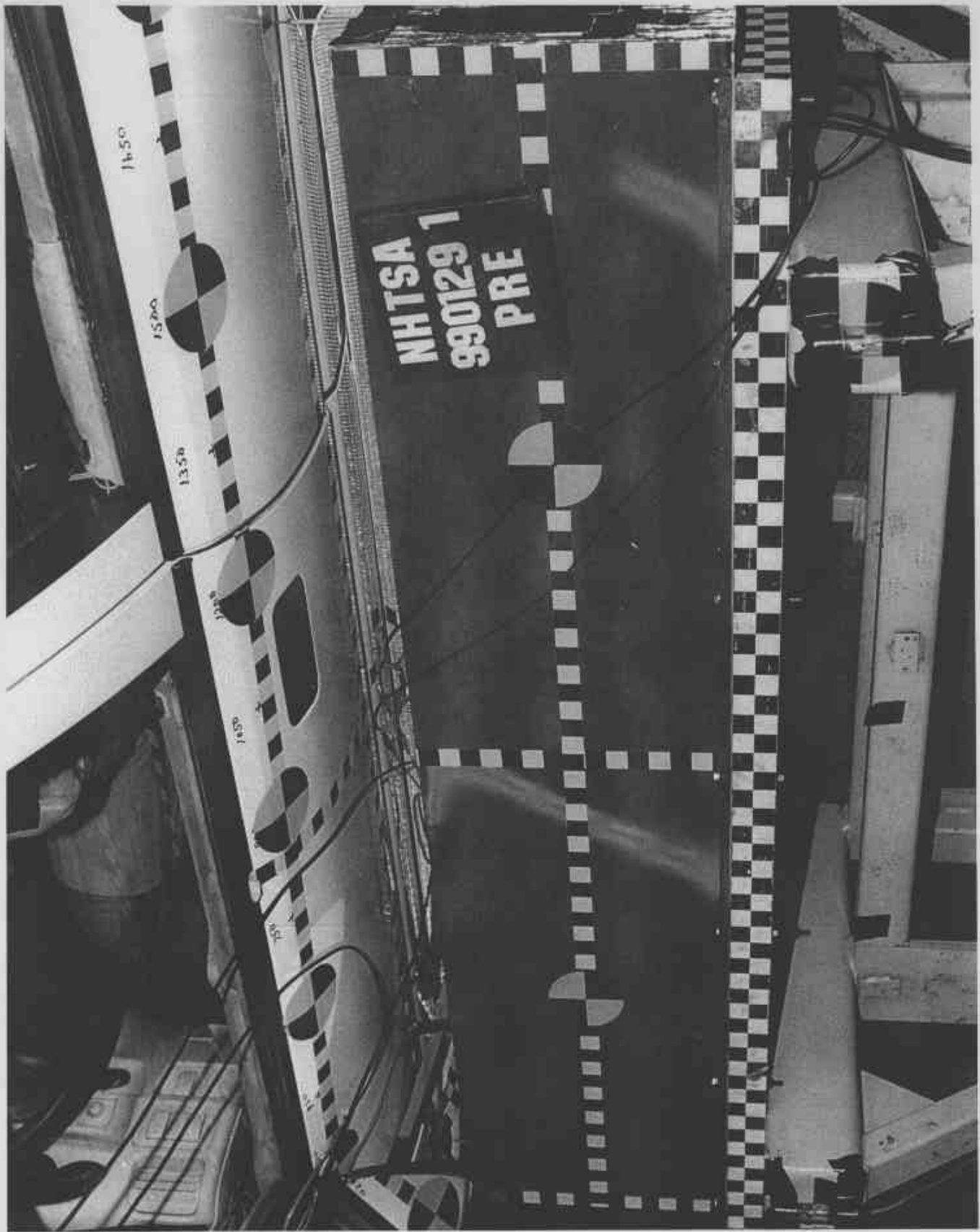


Figure A-21 Pre-Test Overhead View of MDB Aligned with Vehicle

A-24

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

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

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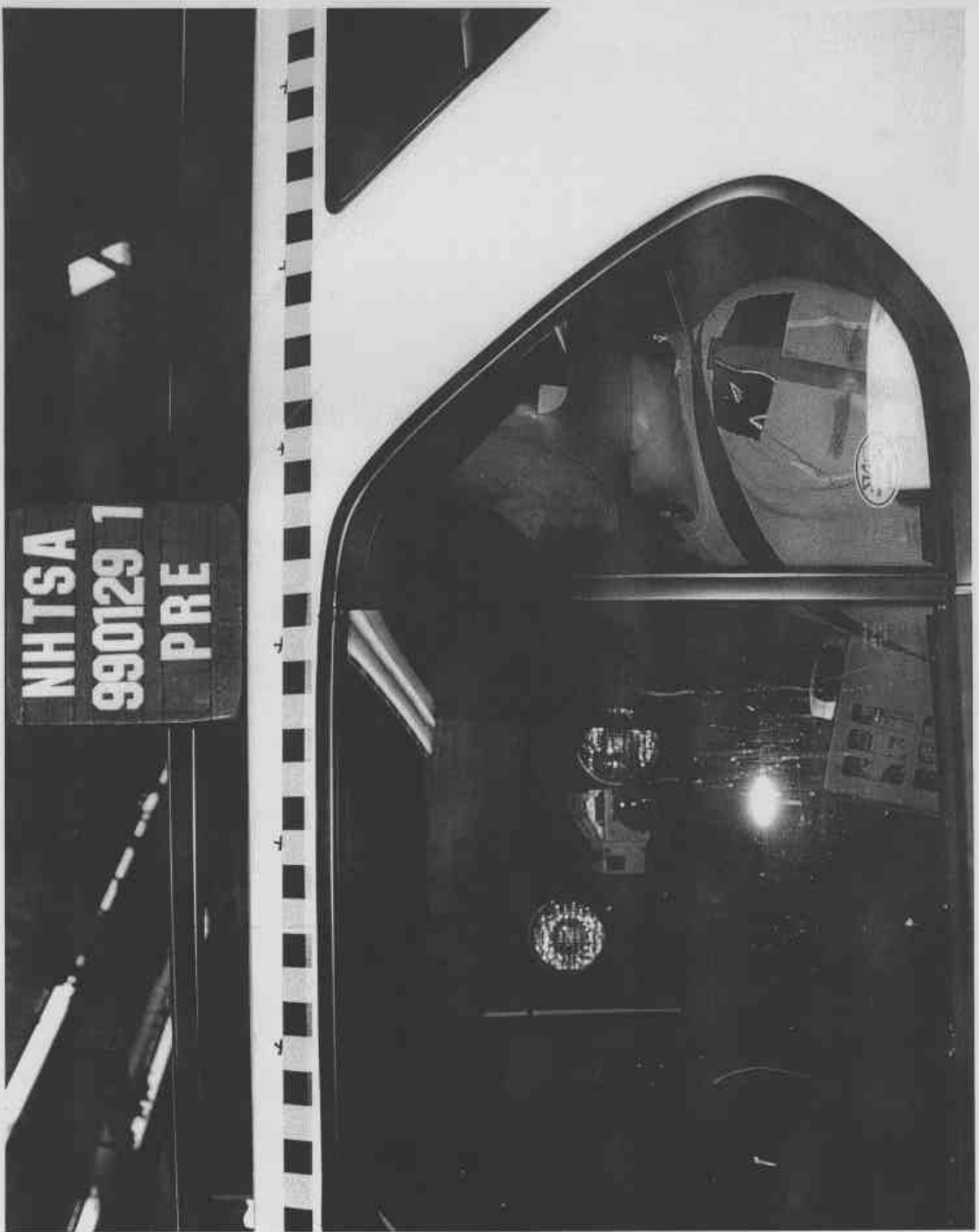


Figure A-24 Pre-Test Left Occupant Compartment View of Rear SID

A-27

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NTISA  
990129 1  
DNCT

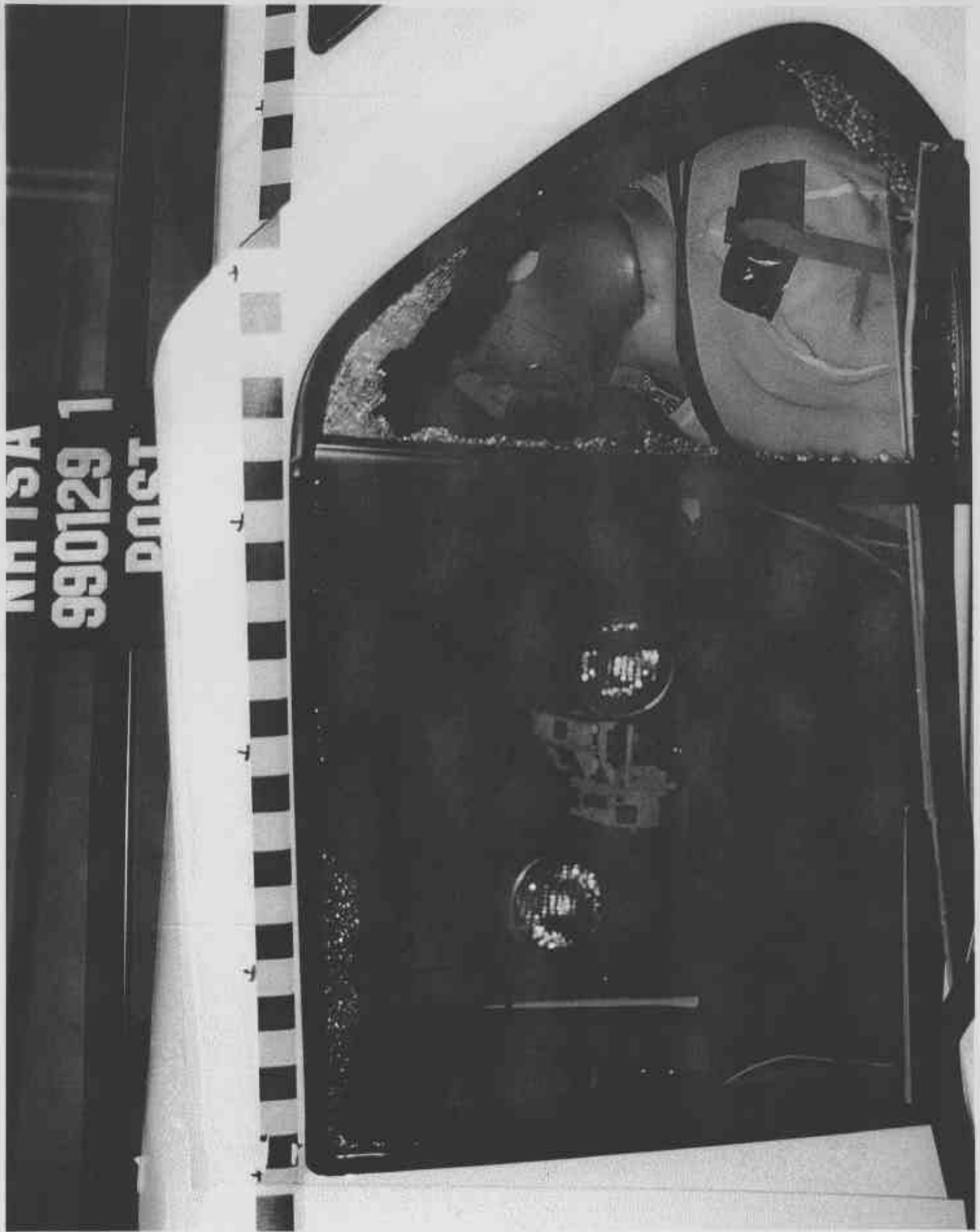


Figure A-25 Post-Test Left Occupant Compartment View of Rear SID

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Figure A-26 Pre-Test Right Occupant Compartment View of Front SID

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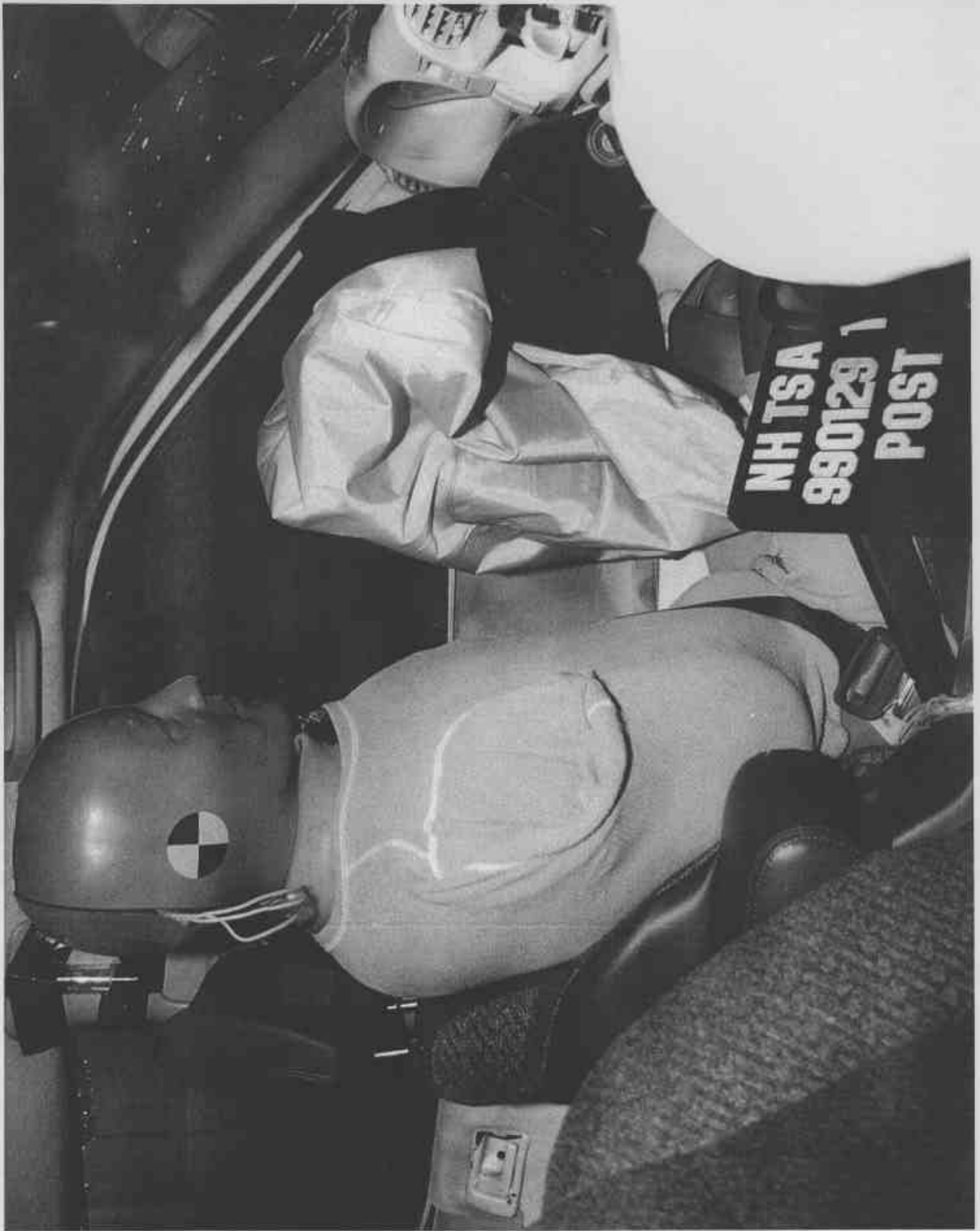


Figure A-27 Post-Test Right Occupant Compartment View of Front SID

A-30

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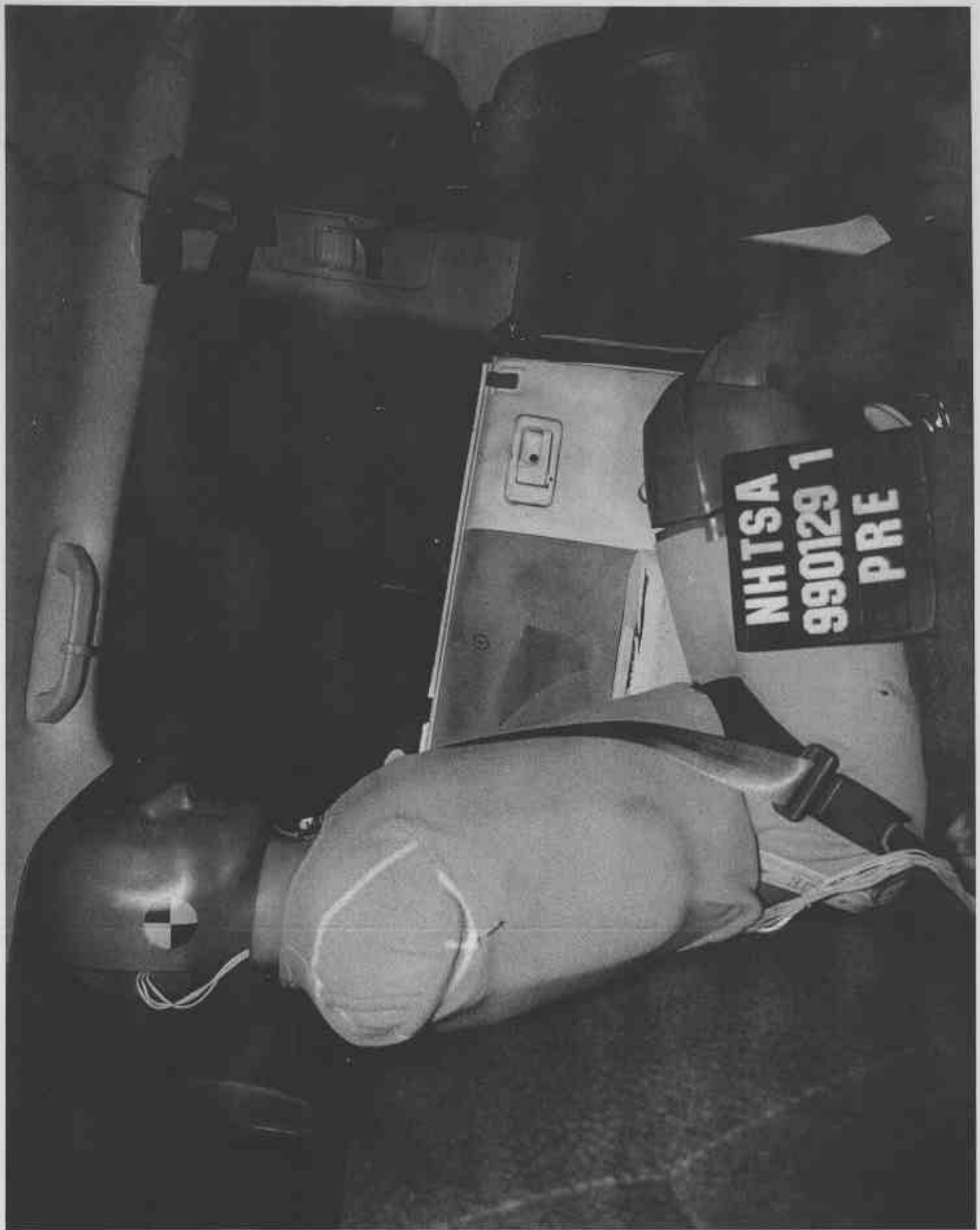


Figure A-28 Pre-Test Right Occupant Compartment View of Rear SID

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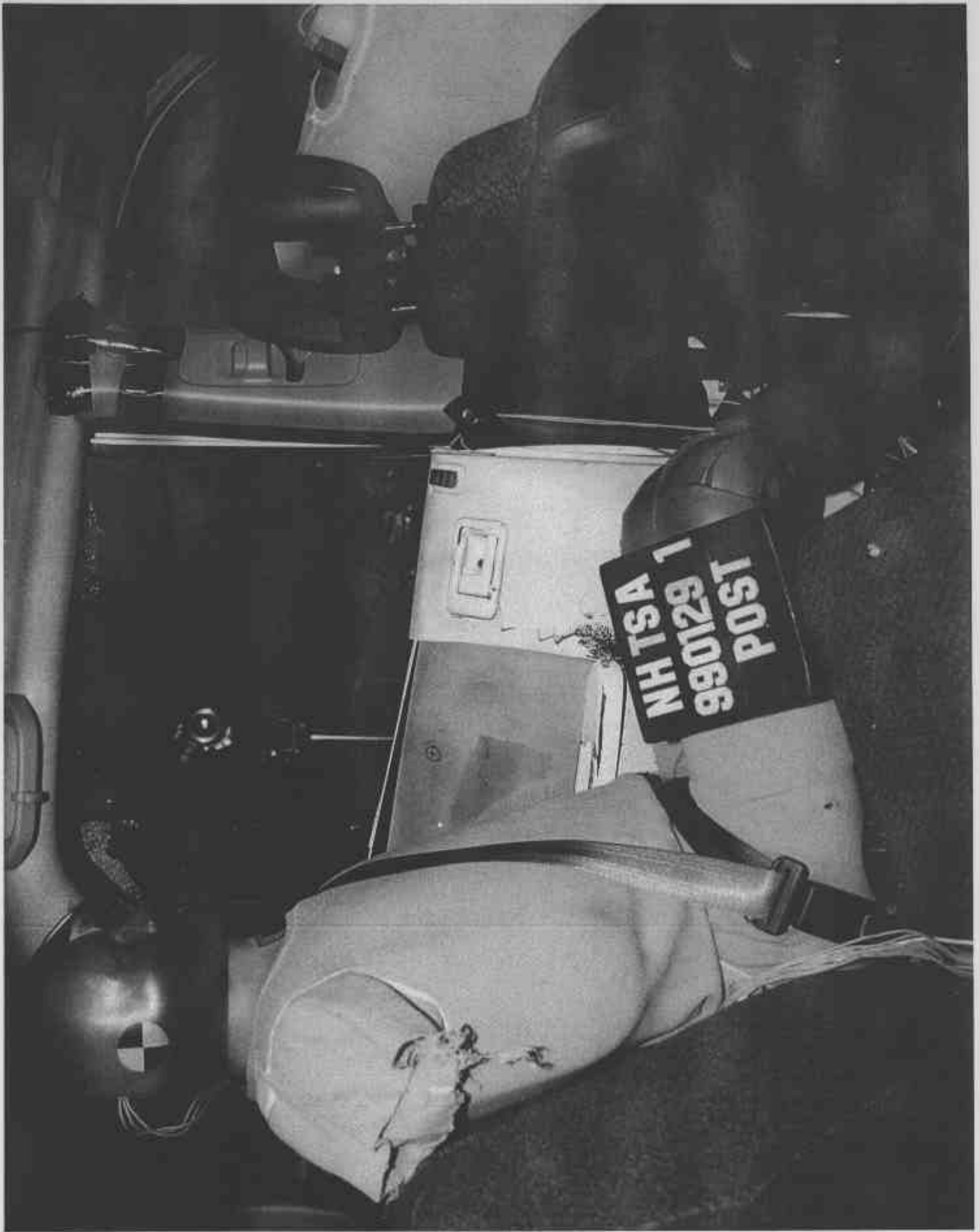


Figure A-29 Post-Test Right Occupant Compartment View of Rear SID

A-32

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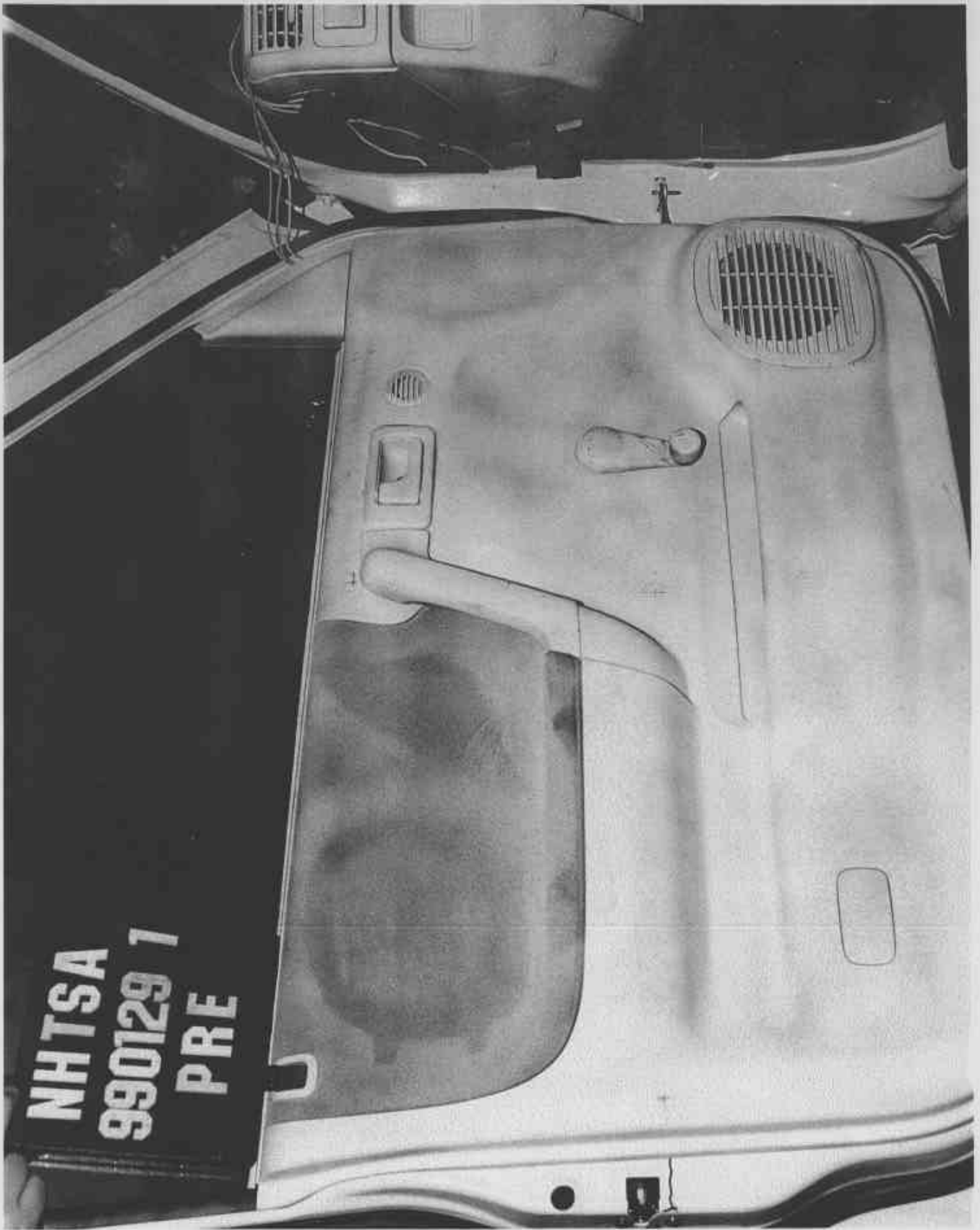


Figure A-30 Pre-Test Interior of Front Door

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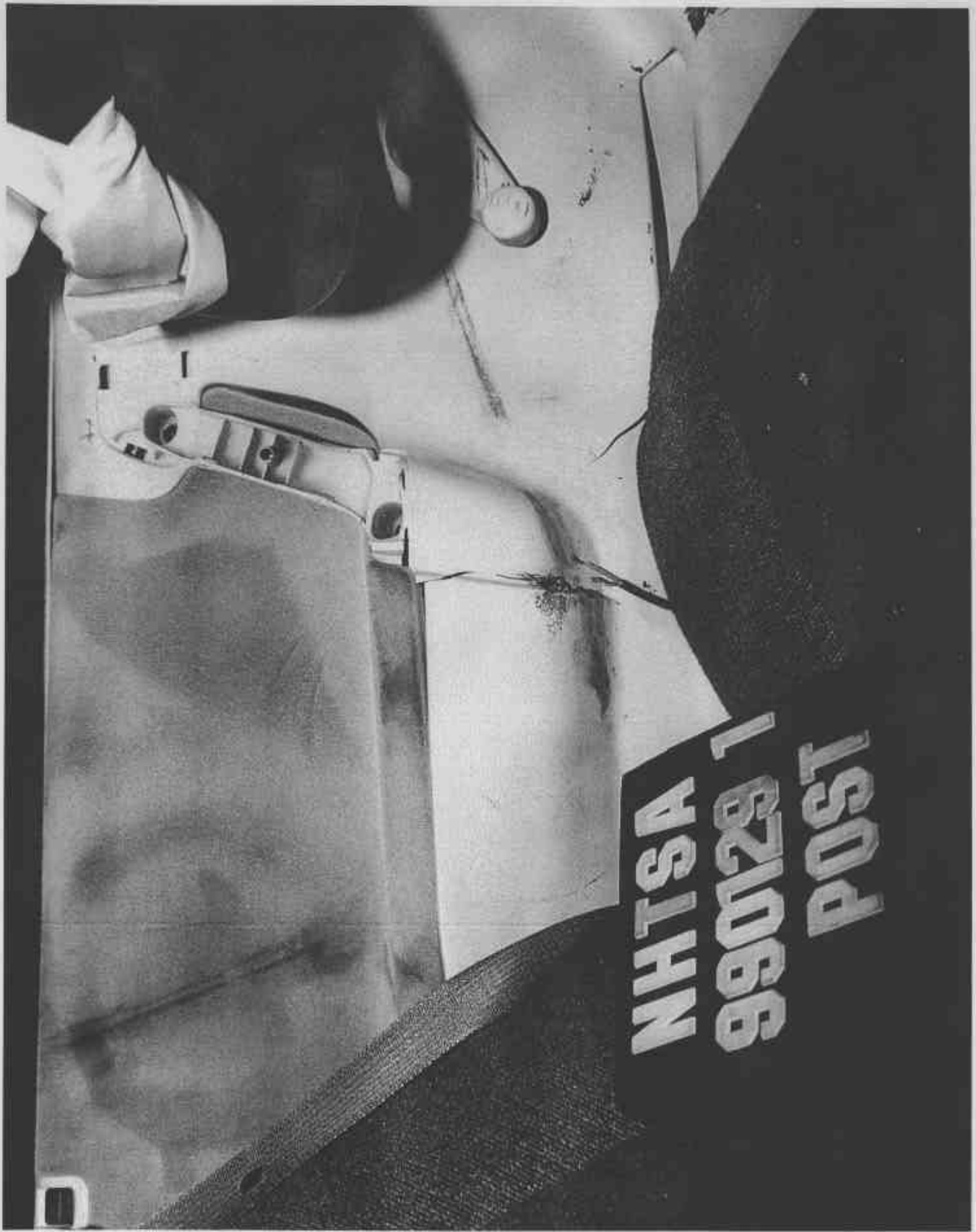


Figure A-31 Post-Test Interior of Front Door Showing SID Impact Locations



Figure A-32 Pre-Test Interior of Rear Door  
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Figure A-33 Post-Test Interior of Rear Door Showing SID Impact Locations

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Figure A-34 Post-Test Rear SID Impact Location  
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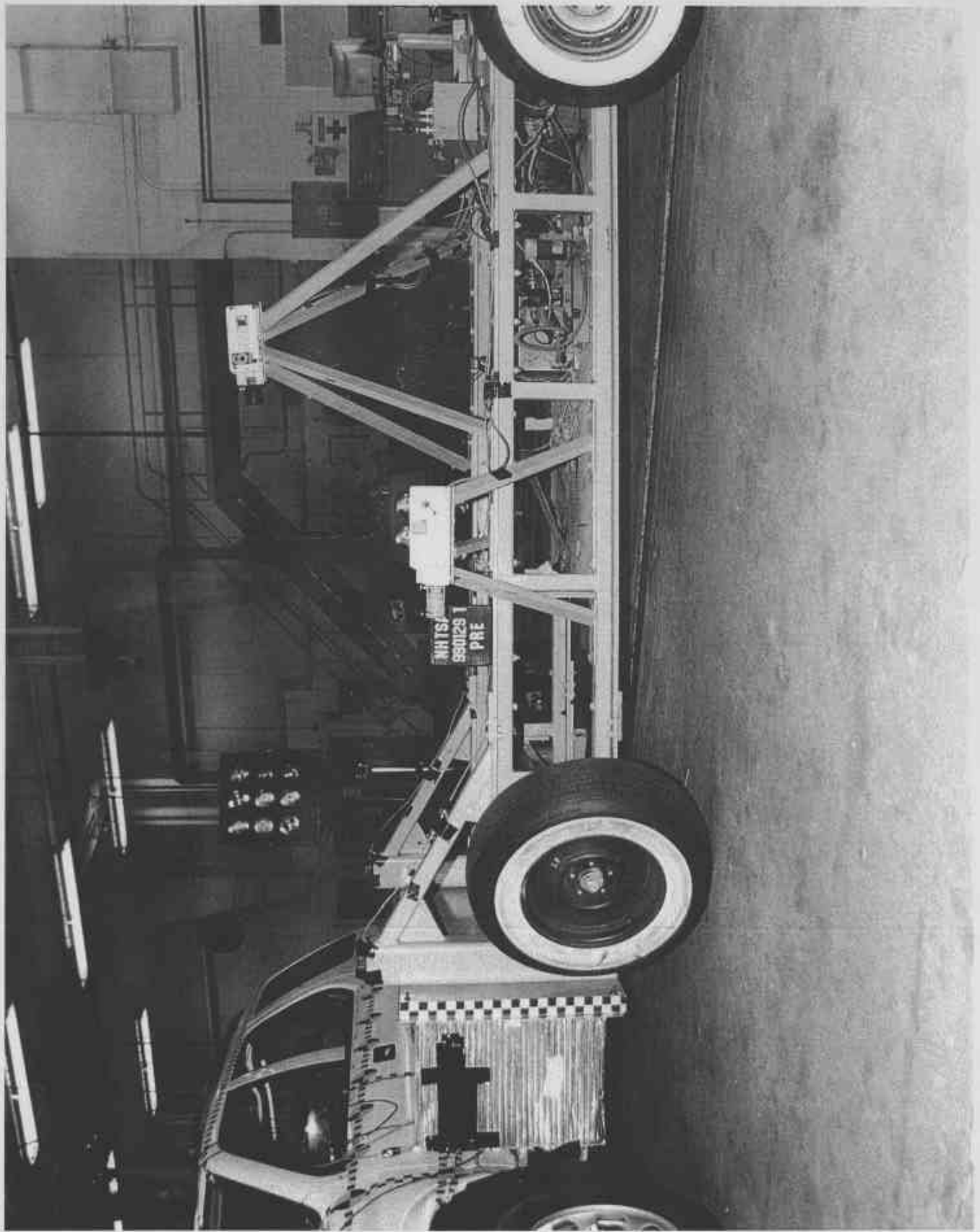


Figure A-35 Pre-Test Left Side View of MDB with Impactor Face in Position

A-38

990129

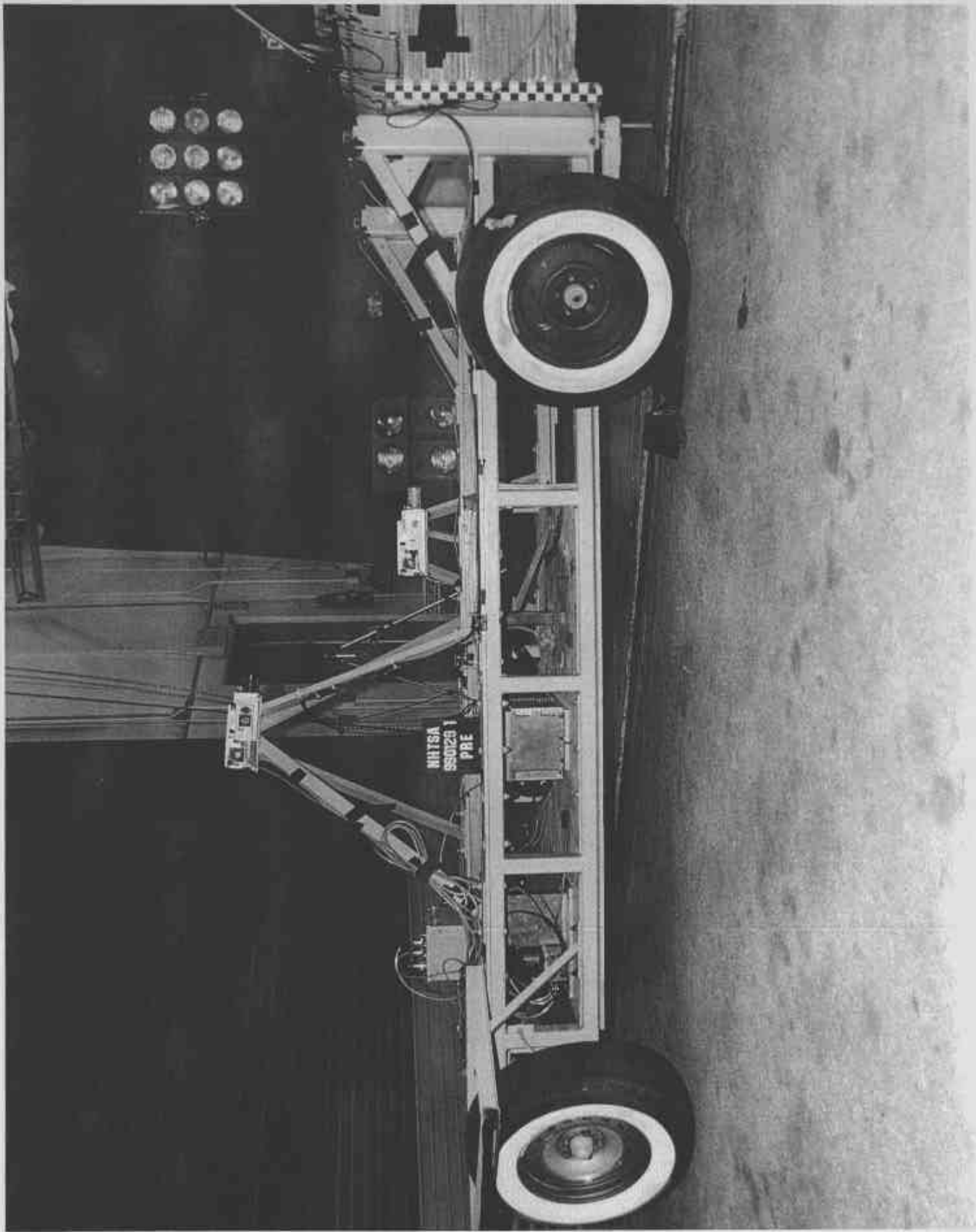


Figure A-36 Pre-Test Right Side View of MDB with Impactor Face in Position

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Figure A-37 Pre-Test Close-Up View of Impact Point Target  
A-40

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Figure A-38 Post-Test Close-Up View of Impact Point Target

A-41

990129

**MANUFACTURED BY  
ISUZU MOTORS LIMITED  
NOV.98**

GVWR: 2200KG (4850LBS)  
GAWR: FRONT-1090KG  
(2400LBS) WITH  
P235/75R15 TIRES &  
15X6.5 RIMS AT 200KPA  
(29PSI) COLD.  
GAWR: REAR-1225KG  
(2700LBS) WITH  
P235/75R15 TIRES &  
15X6.5 RIMS AT 200KPA  
(29PSI) COLD.

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

**4S2CM58WXX4322644**

MPV

ASSEMBLED BY SUBARU-ISUZU  
AUTOMOTIVE INC

Figure A-39 Pre-Test Vehicle Certification Label View

Appendix B

Data Plots

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Integration Data - Filter Class 1000

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### Test Vehicle Instrumentation Plots

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55	RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY	B-62
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57	RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY	B-64
58	RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION	B-65
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158	PASSENGER SHOULDER CONTACT SWITCH	B-169
159	PASSENGER PELVIS CONTACT SWITCH	B-170

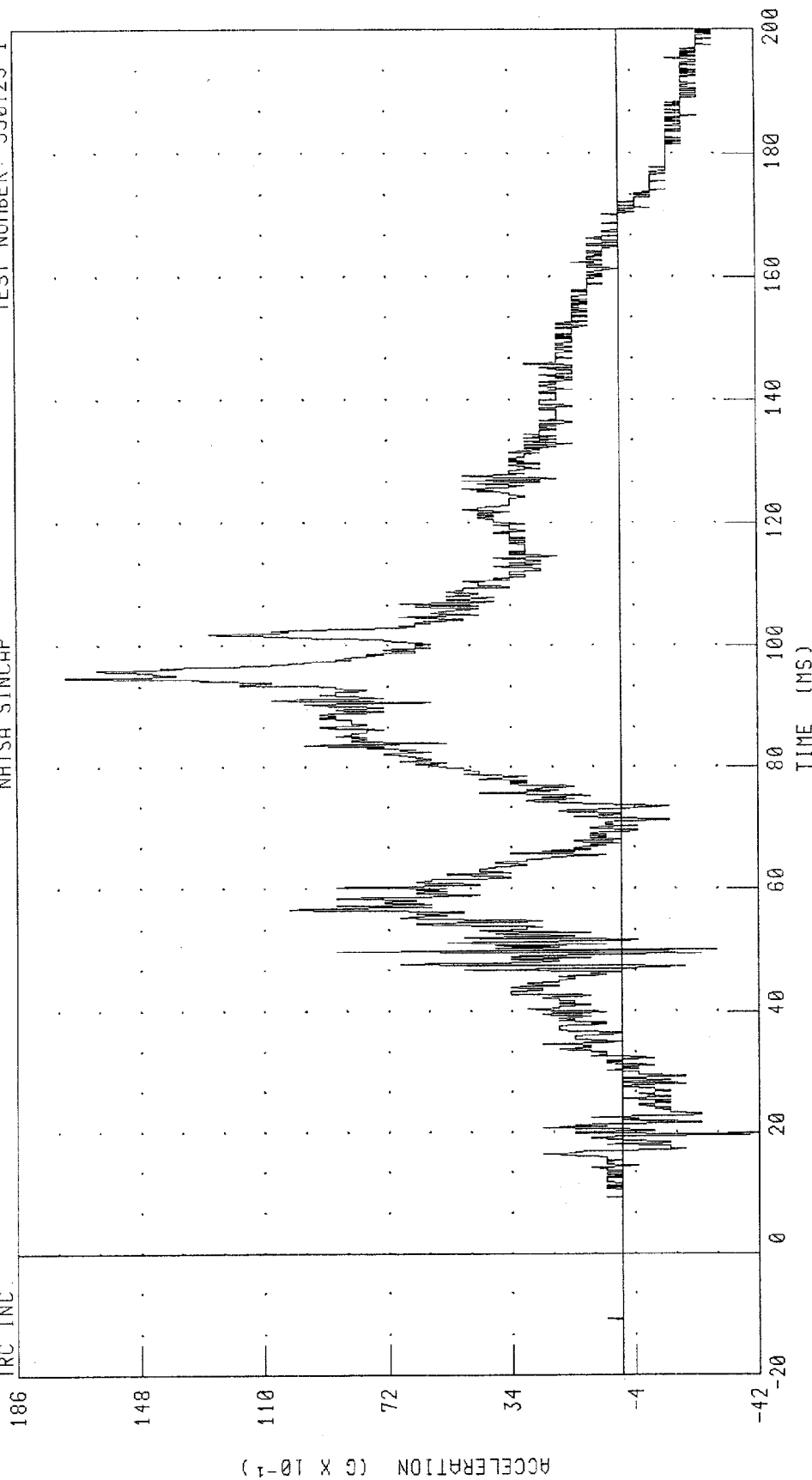
**Driver and Passenger Dummy Instrumentation Plots**  
Acceleration Data - Filter Class 1000  
Integration Data - Filter Class 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER HEAD X-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

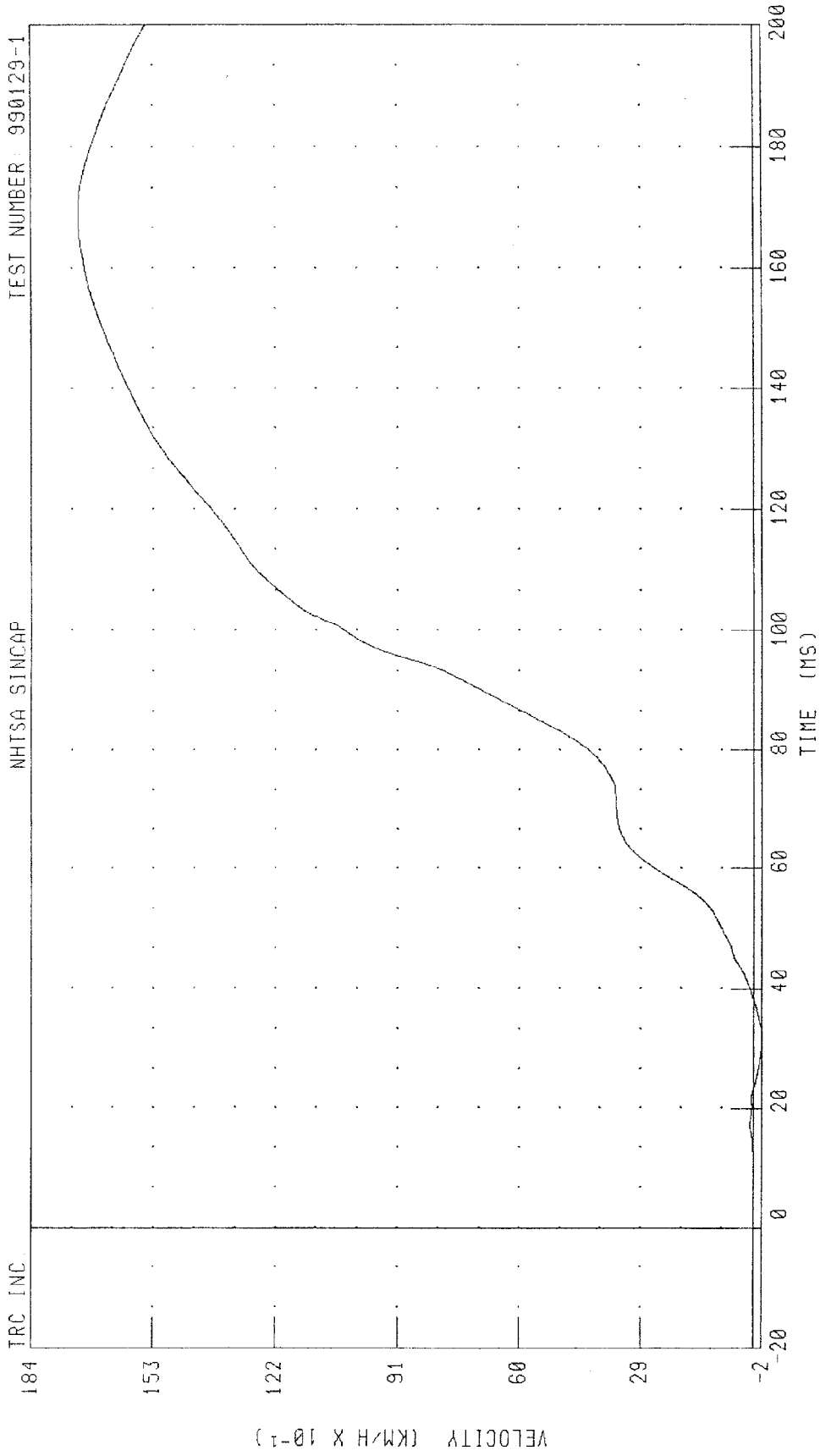
TRC INC.



CHANNEL: HEDXC1 FILTER: CH. CLASS 1000

CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER HEAD X-AXIS VELOCITY



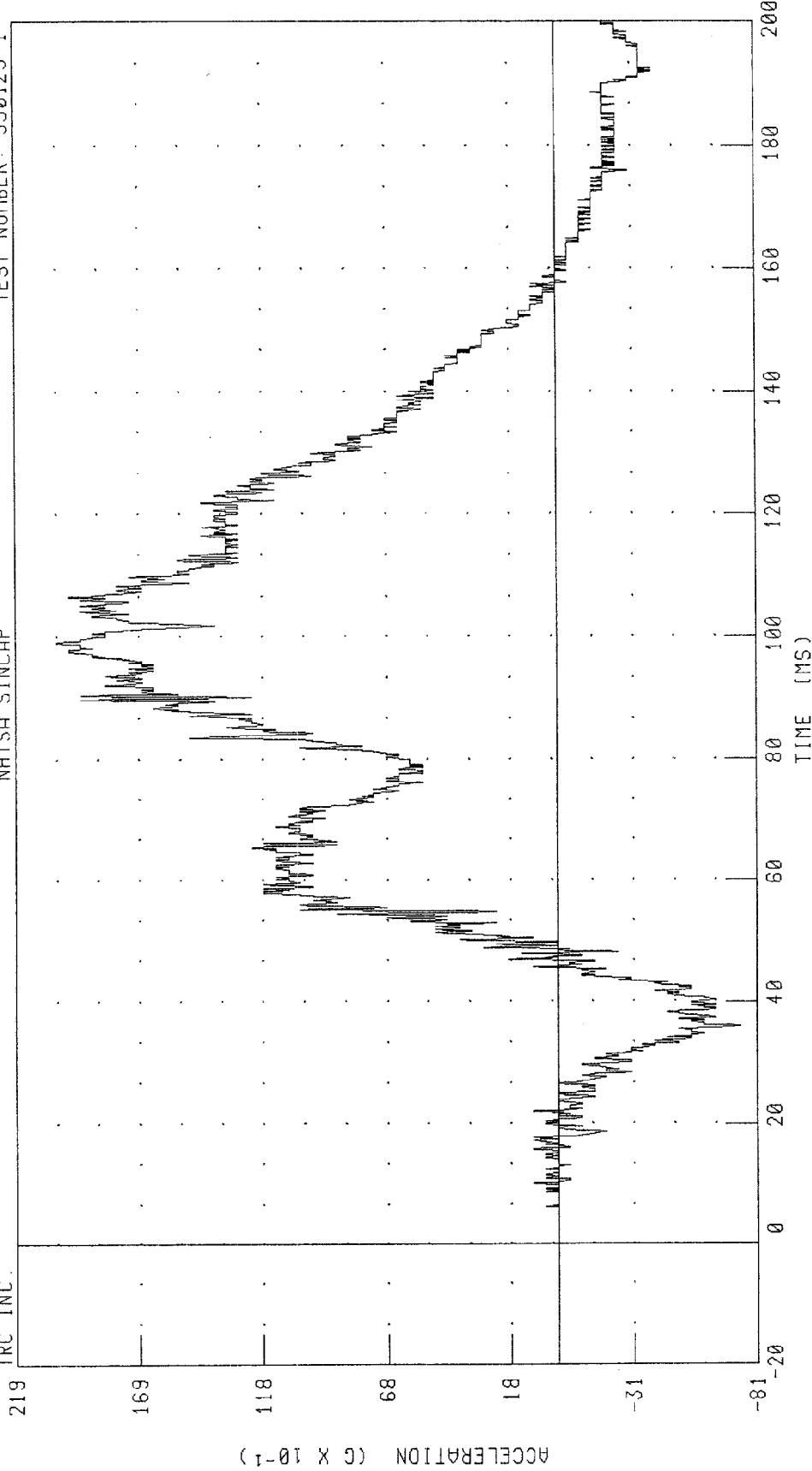
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MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

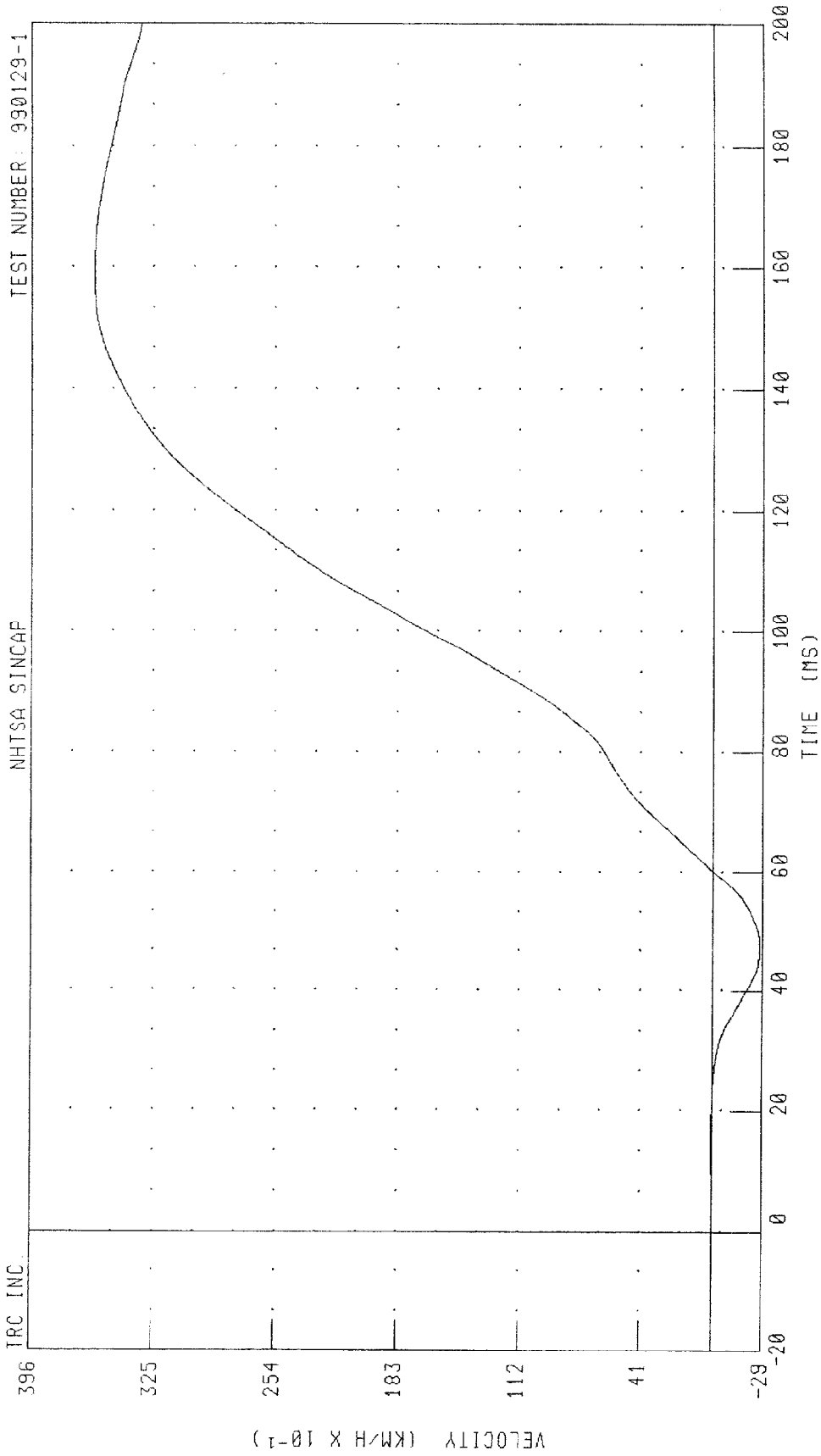
TRC INC.



PEAK DATA: 20.26 G @ 98.96 MS; -7.41 G @ 36.00 MS

CHANNEL: HEDYC1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER HEAD Y-AXIS VELOCITY

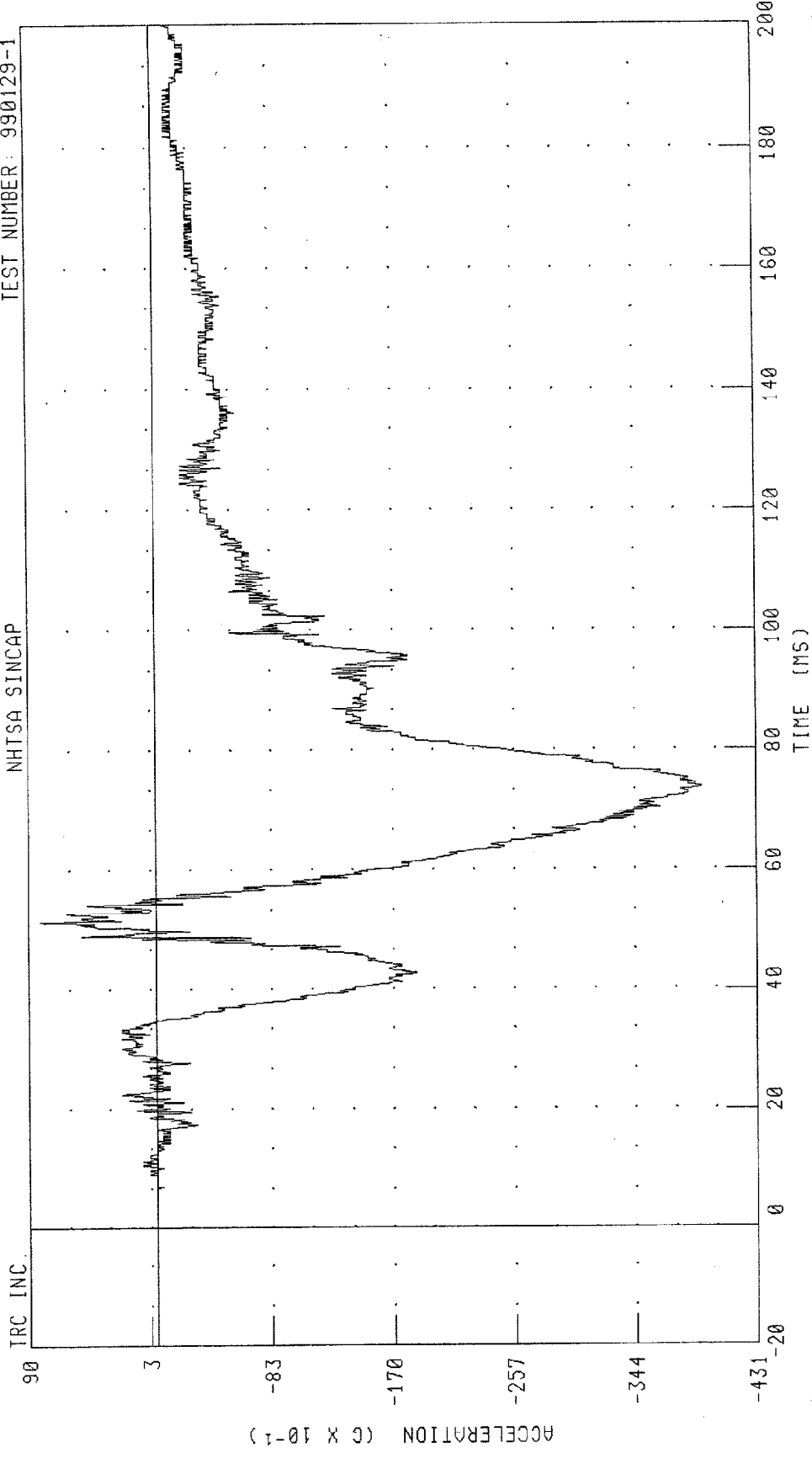


CHANNEL: HEDYVI FILTER: CH. CLASS 180

PEAK DATA: 36.05 KM/H @ 159.28 MS, -2.72 KM/H @ 48.08 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER HEAD Z-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1



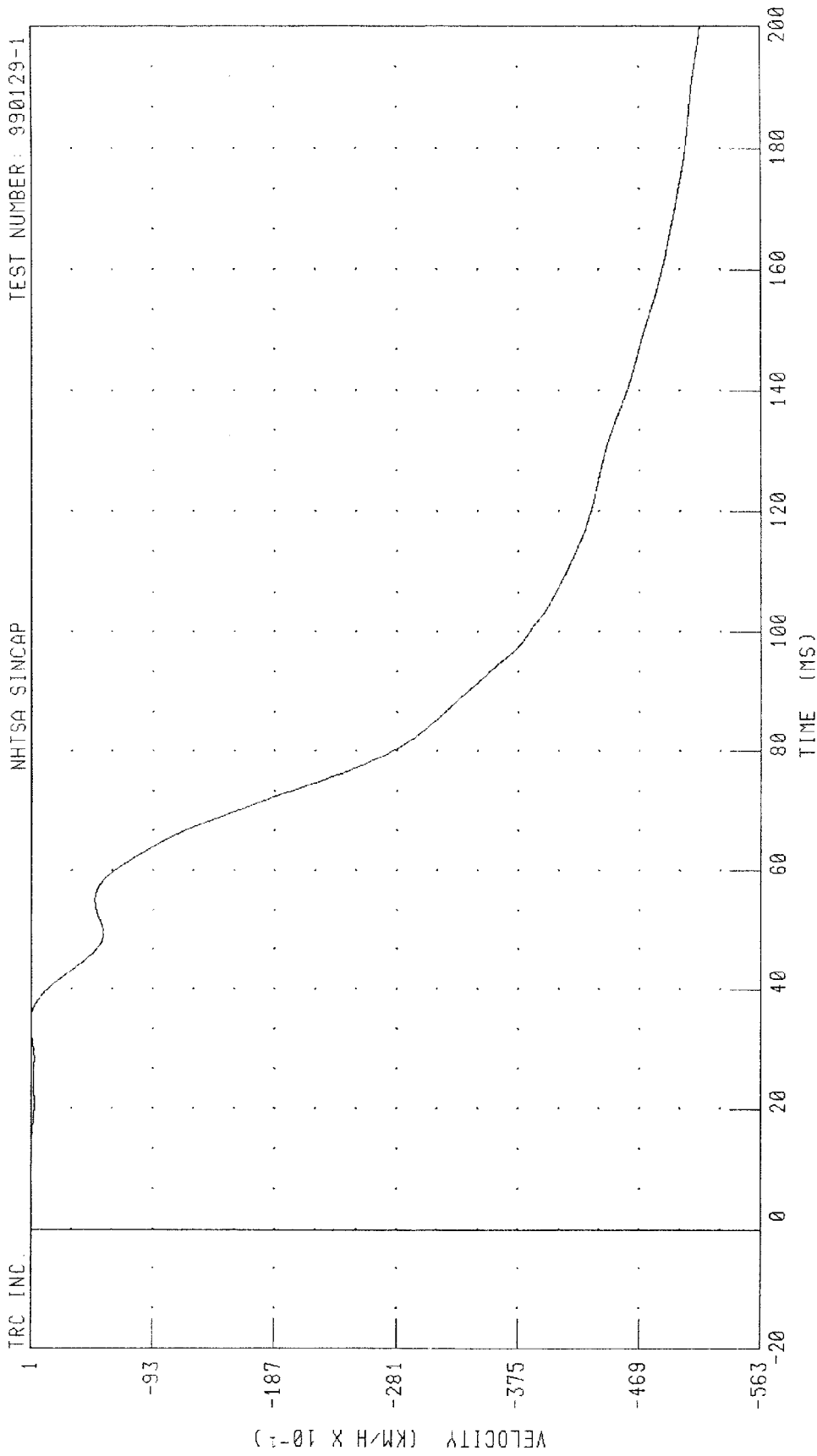
CHANNEL: HEDZG1 FILTER: CH. CLASS 1000 PEAK DATA: 8.34 G @ 51.36 MS, -39.23 G @ 73.76 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO

DRIVER HEAD Z-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

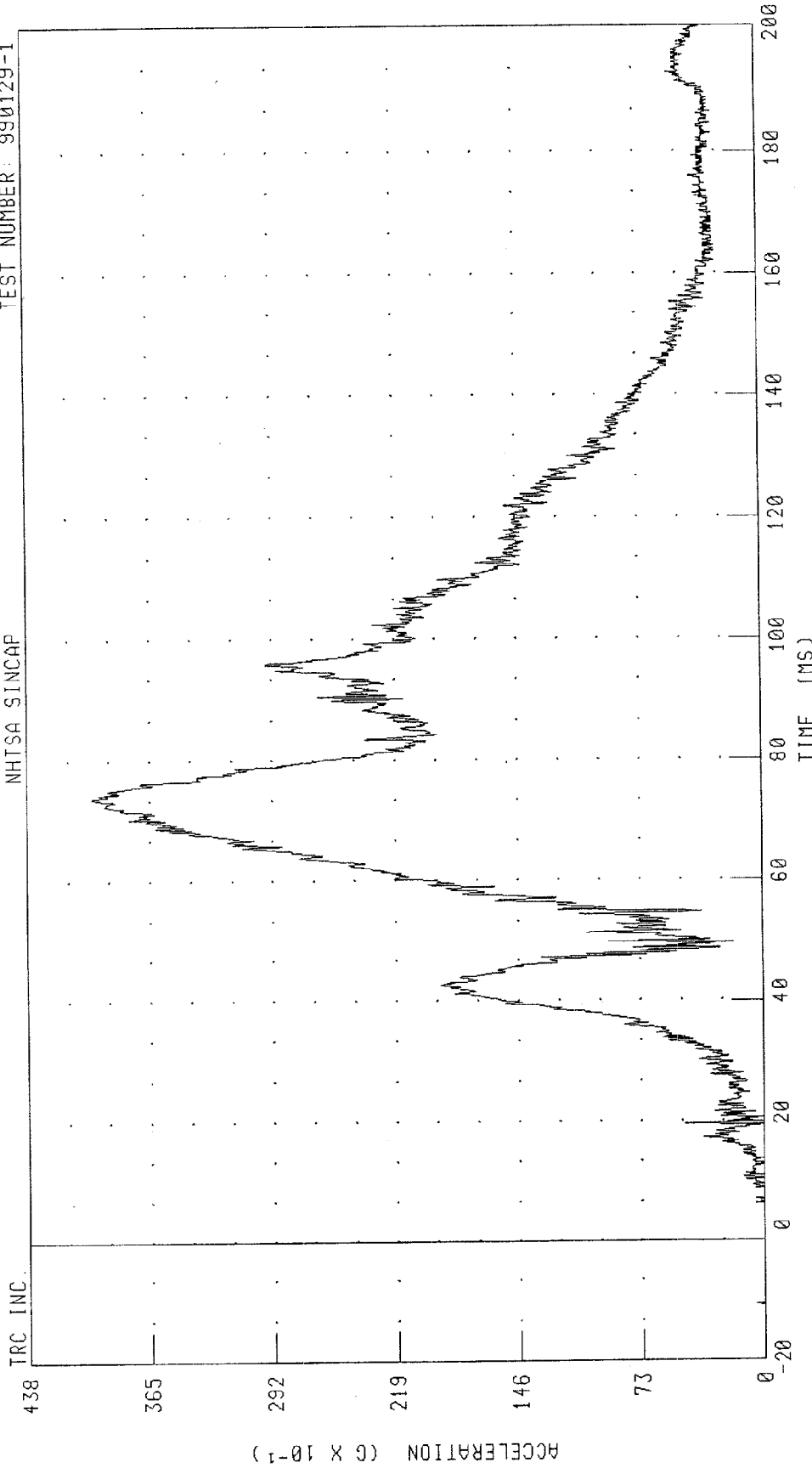


CHANNEL: HEDZVI FILTER: CH. CLASS 180

PEAK DATA: 0.14 KM/H @ 34.48 MS, -51.68 KM/H @ 200.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER HEAD RESULTANT  
NHTSA SINCAP

TEST NUMBER: 990129-1



PEAK DATA: 39.93 G @ 73.92 MS; 0.00 G @ -20.00 MS

CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

**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)

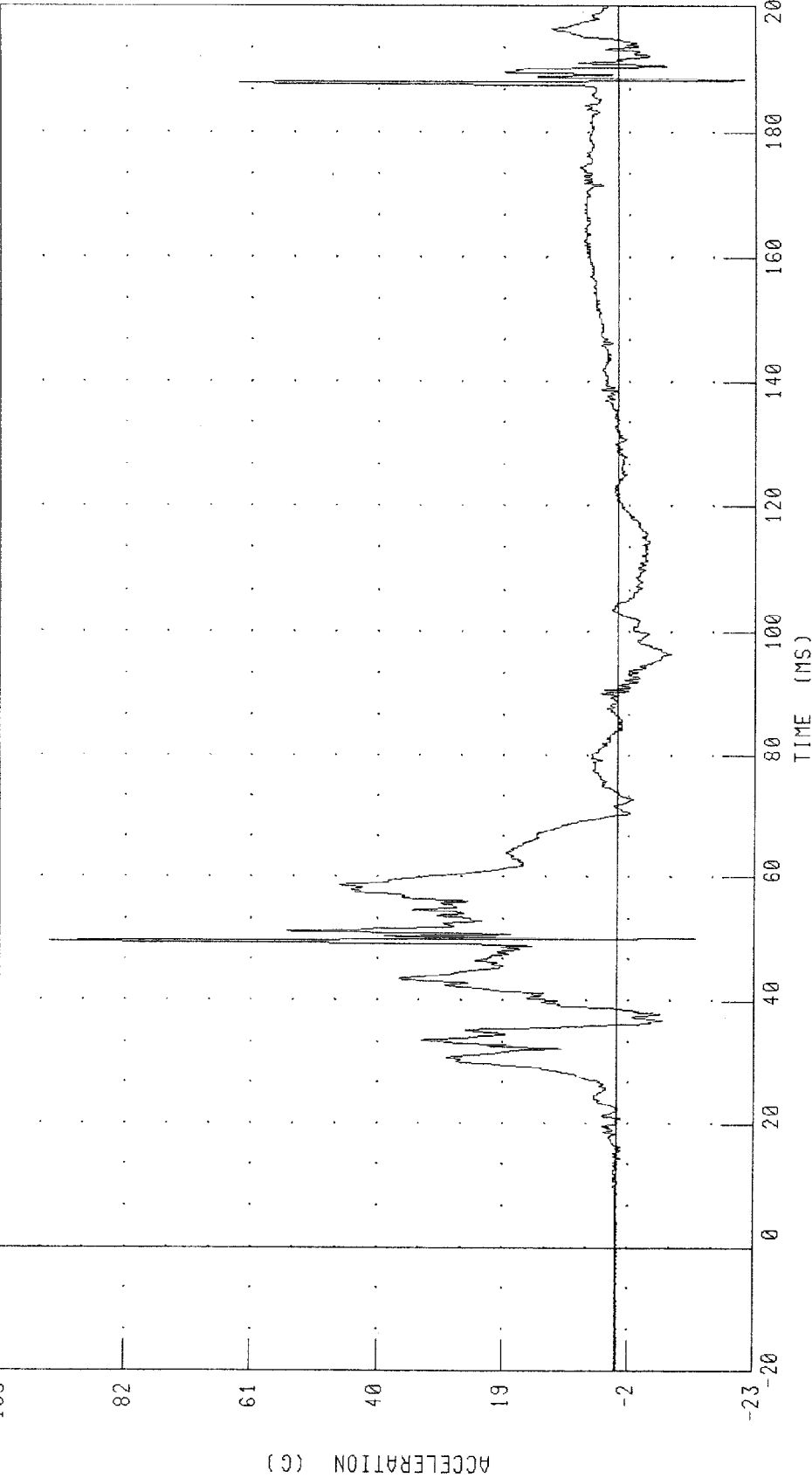
**Driver's Neck Z-Axis Moment, NEKZM1, Was Not Recorded**  
(6 axis neck load cells were not used)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: LURYG1 FILTER: CH. CLASS 1000

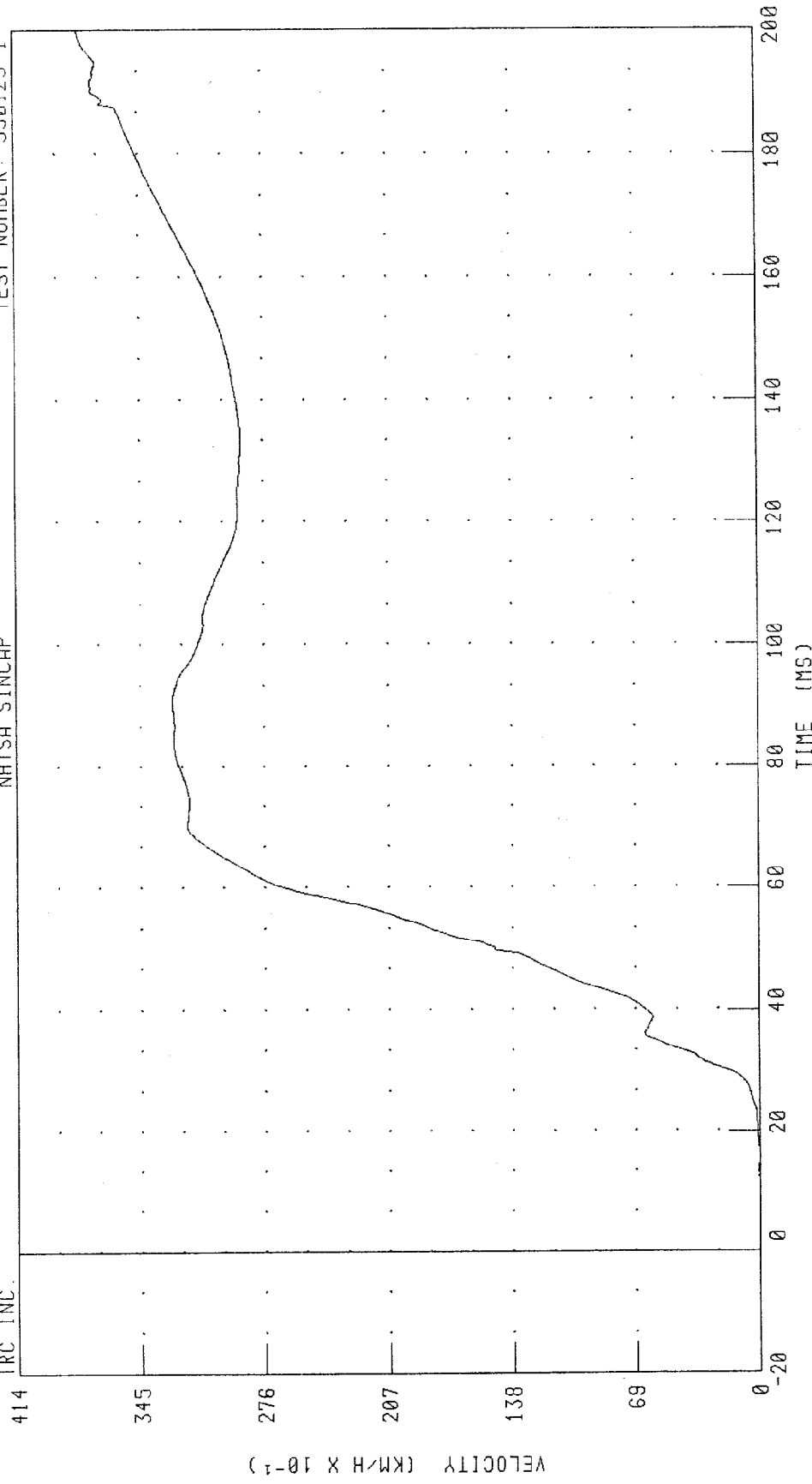
PEAK DATA: 94.65 G @ 49.44 MS; -21.12 G @ 188.24 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 37.86 KM/H @ 200.00 MS, 0.00 KM/H @ 4.08 MS

CHANNEL: LURYU1 FILTER: CH. CLASS 1000

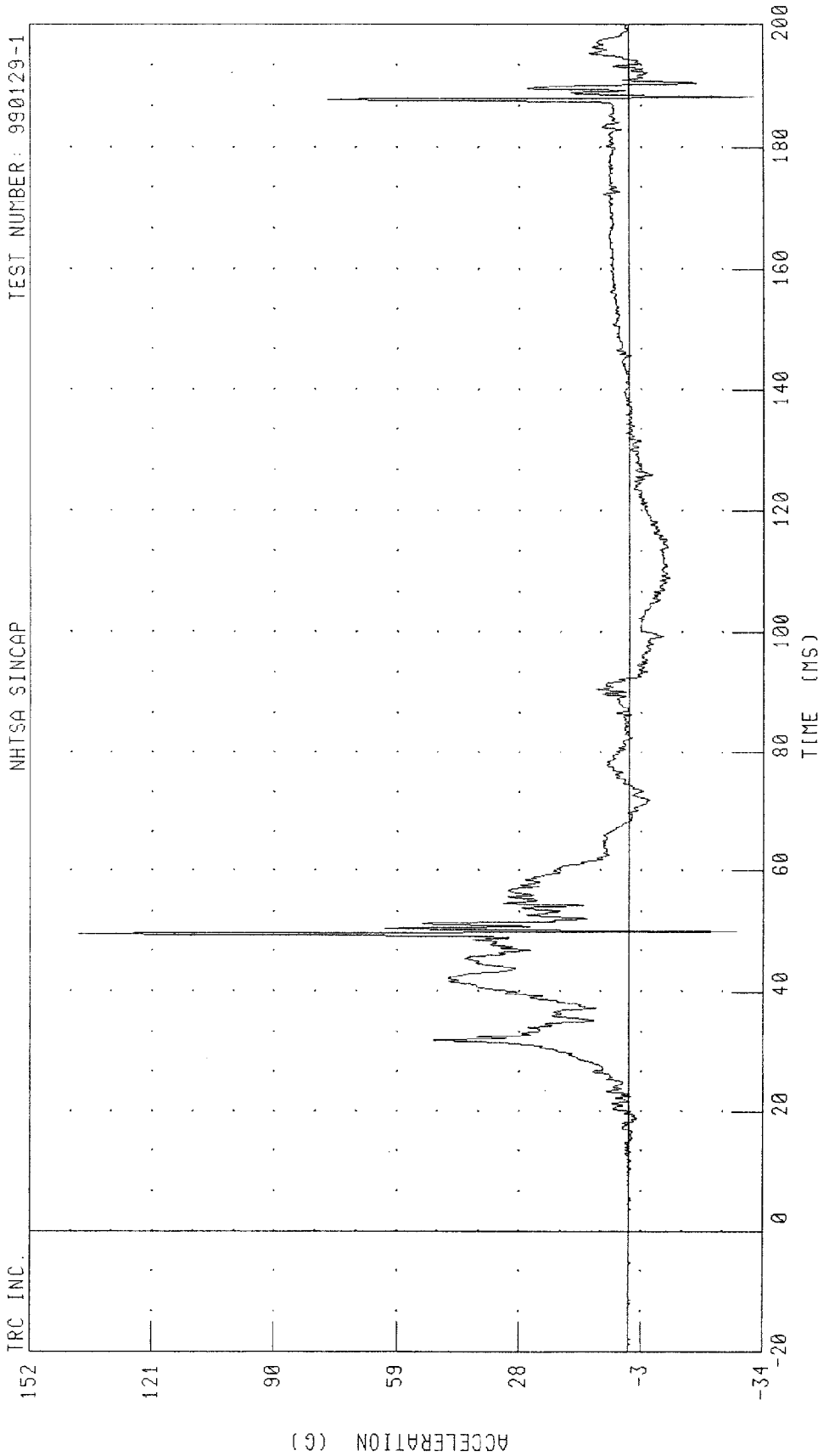
CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 139.70 C @ 49.44 MS; -31.59 C @ 188.24 MS

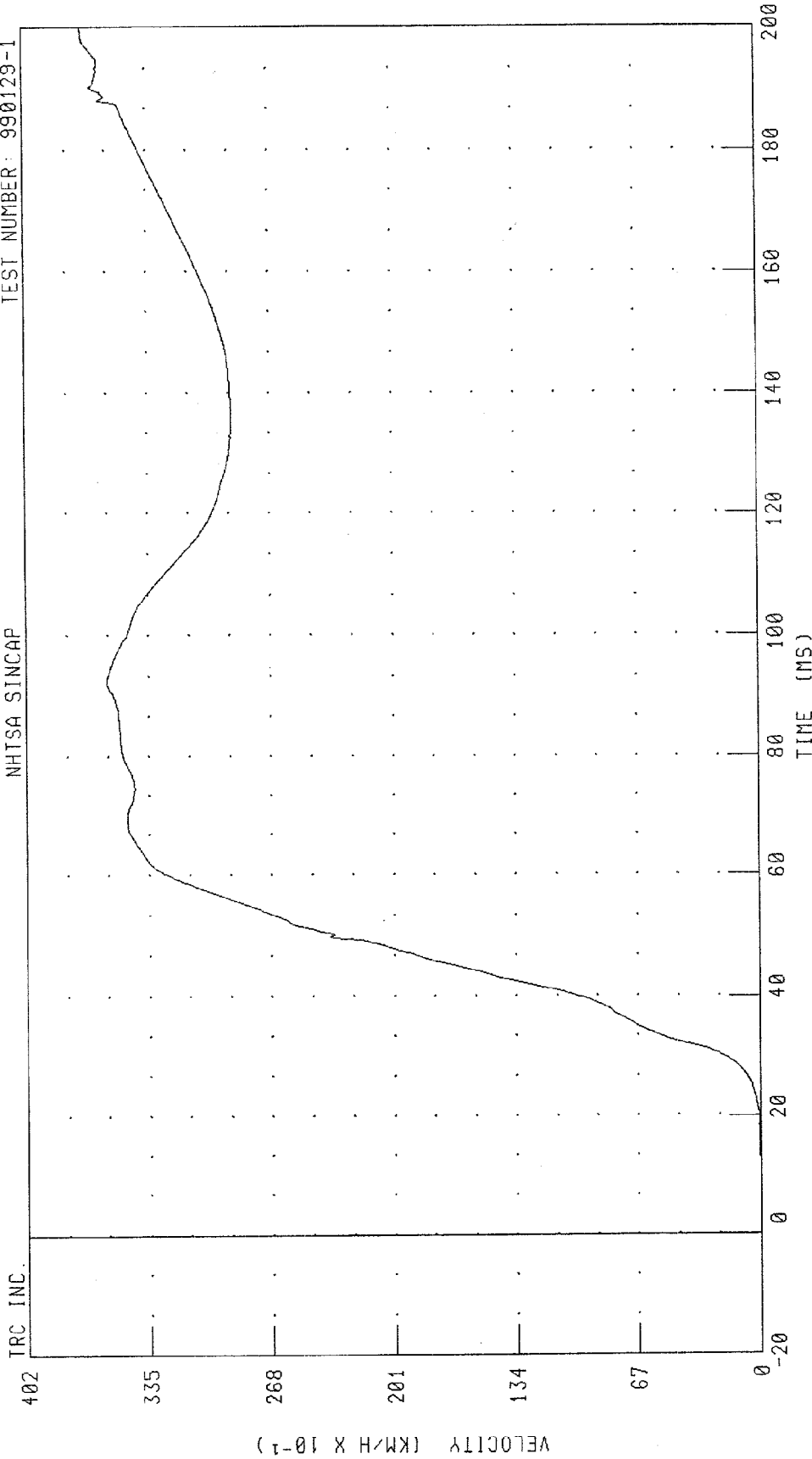
CHANNEL: LLRYC1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 37.02 KM/H @ 200.00 MS; 0.00 KM/H @ 0.00 MS

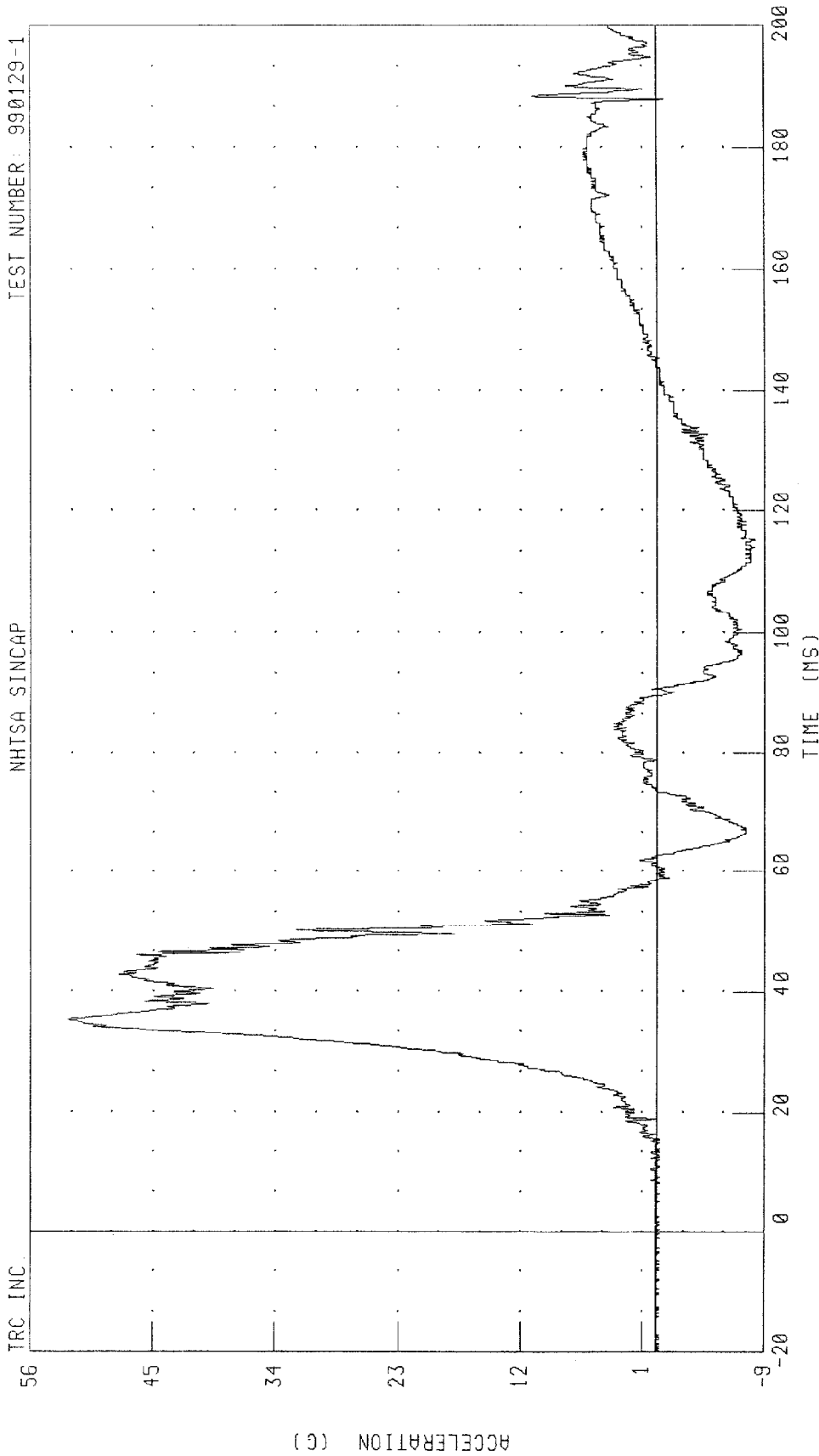
CHANNEL: LLRYU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC\_INC



PEAK DATA: 53.01 G @ 35.28 MS; -8.84 G @ 114.08 MS

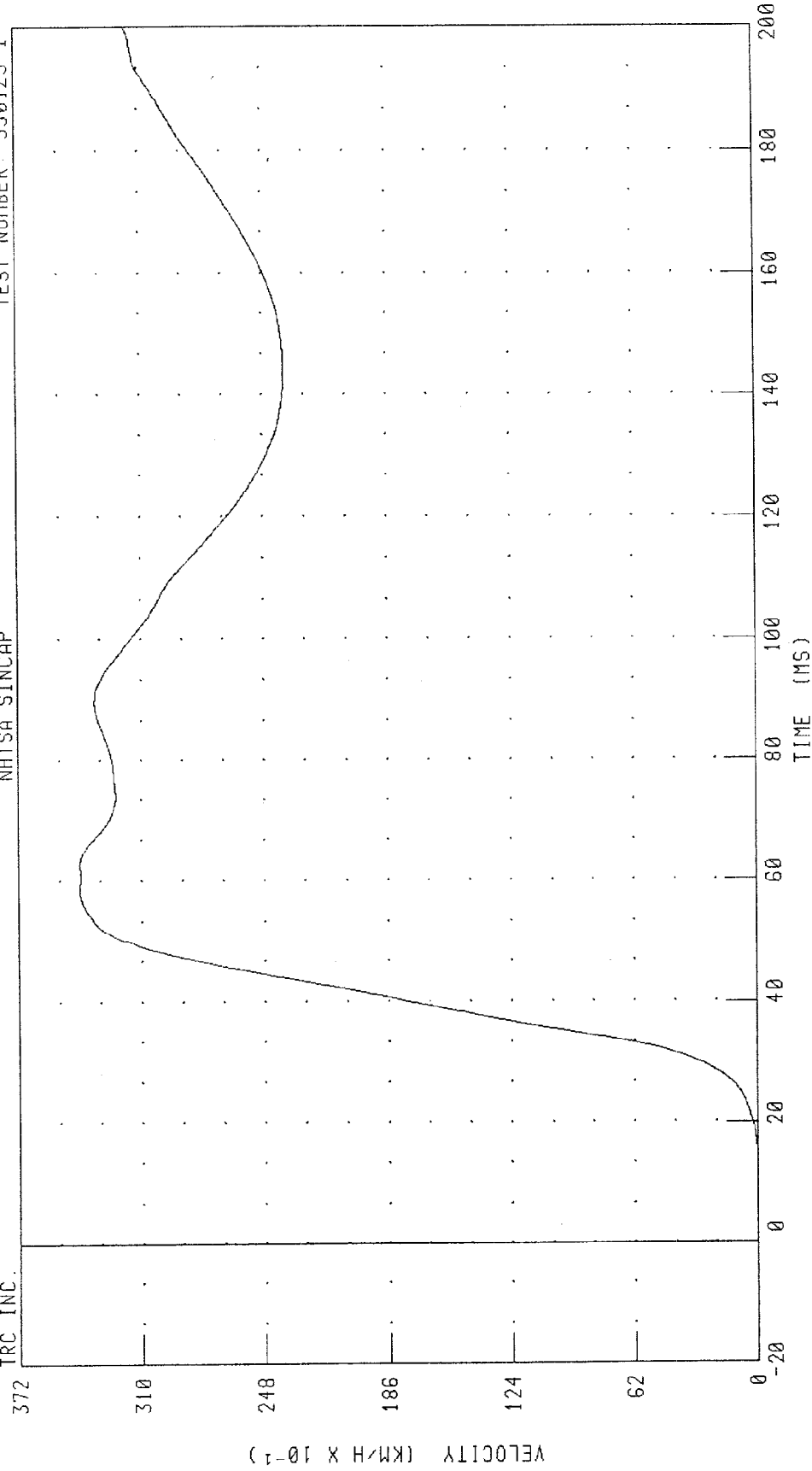
CHANNEL: T12YG1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZU RODEO  
DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: T12VU1 FILTER: CH. CLASS 1000

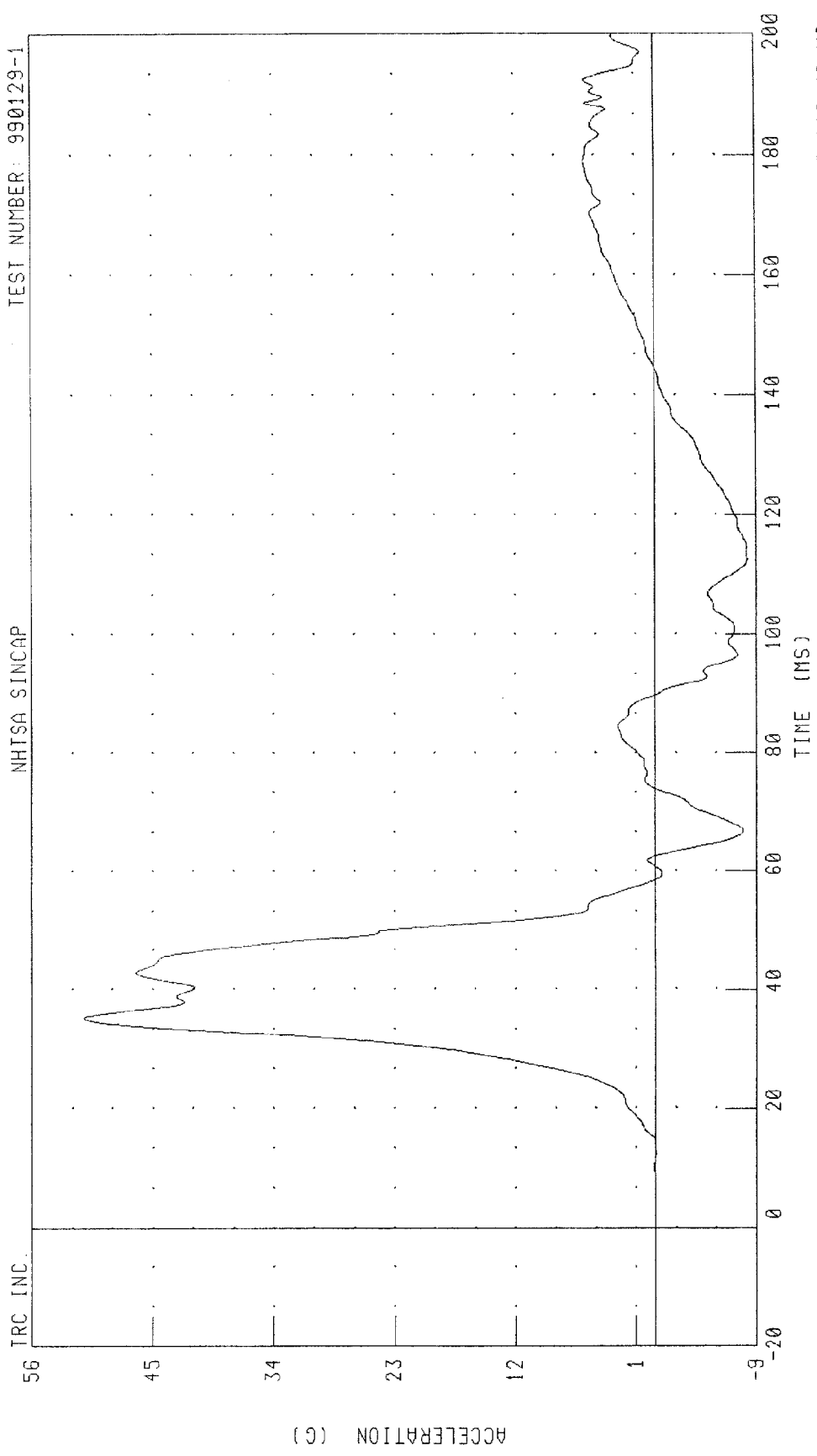
PEAK DATA: 34.11 KM/H @ 58.56 MS; 0.00 KM/H @ 1.68 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

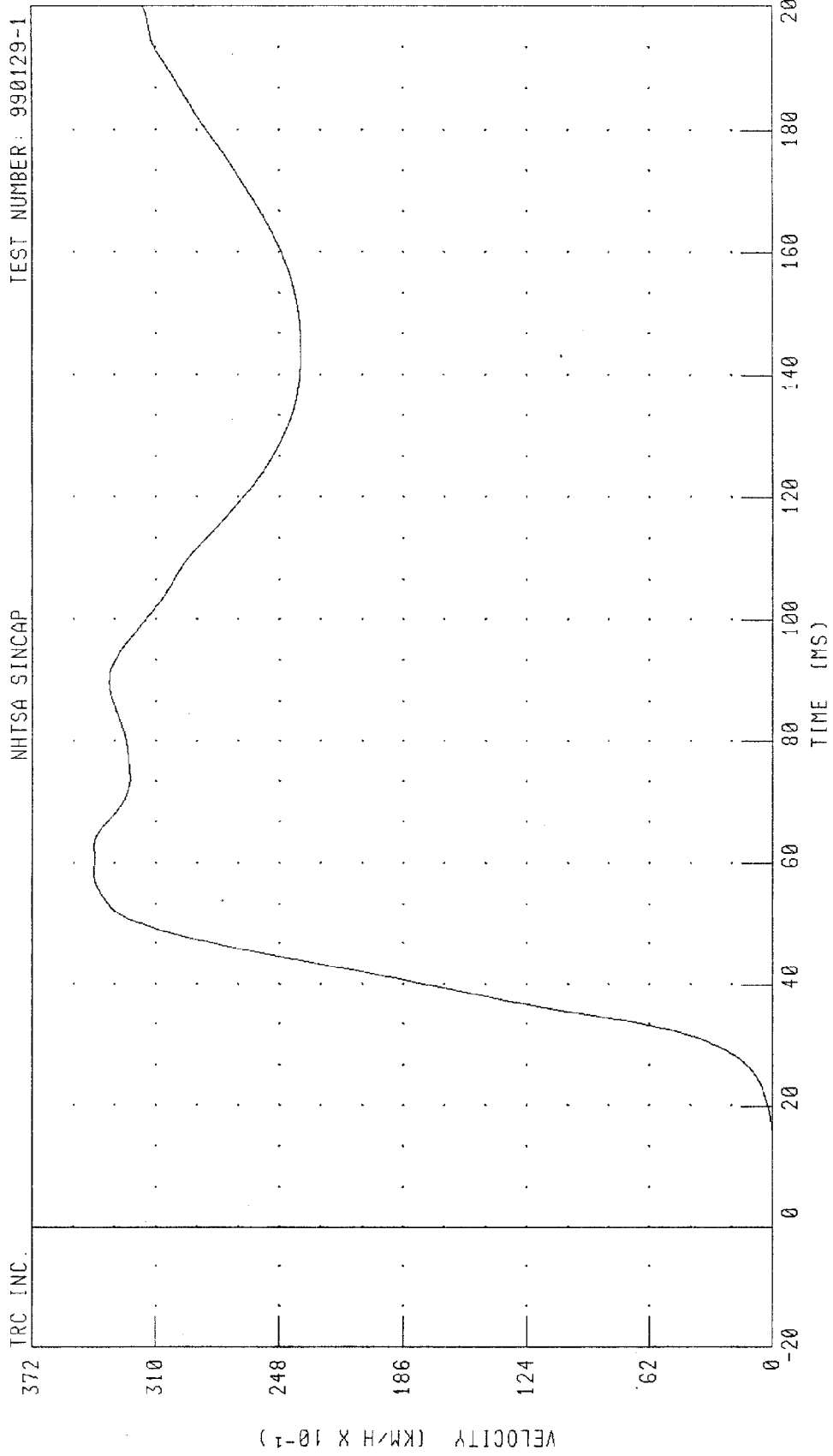
TRC INC.



PEAK DATA: 52.04 G @ 35.12 MS; -8.42 G @ 112.48 MS

CHANNEL: T12Y61 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZU RODEO  
DRIVER LOWER SPINE Y-AXIS VELOCITY



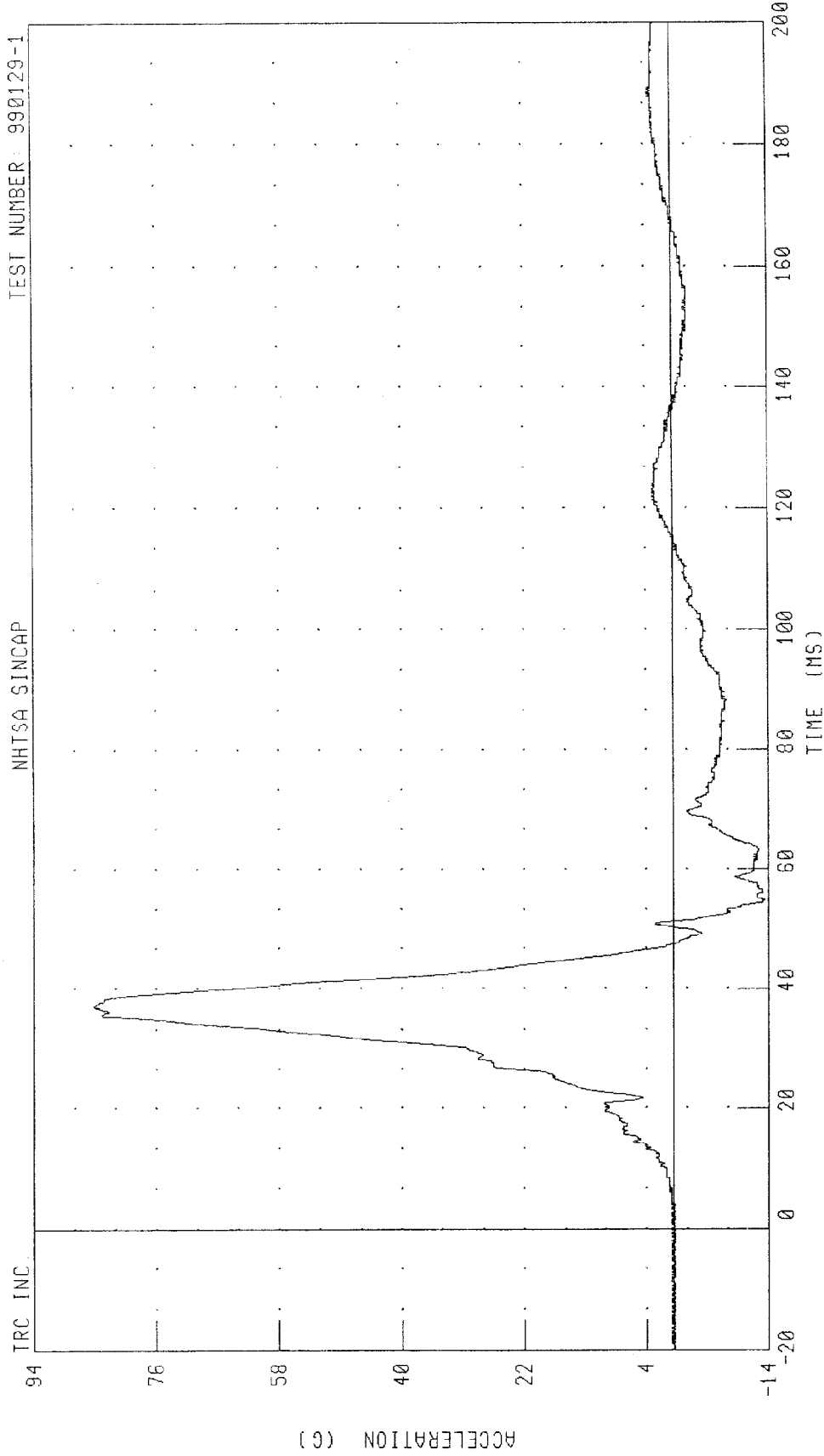
CHANNEL: T12YV1 FILTER: CH CLASS 1B0 PEAK DATA: 34.11 KM/H @ 58.48 MS; 0.00 KM/H @ 1.92 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 85.21 G @ 37.20 MS, -13.47 G @ 54.72 MS

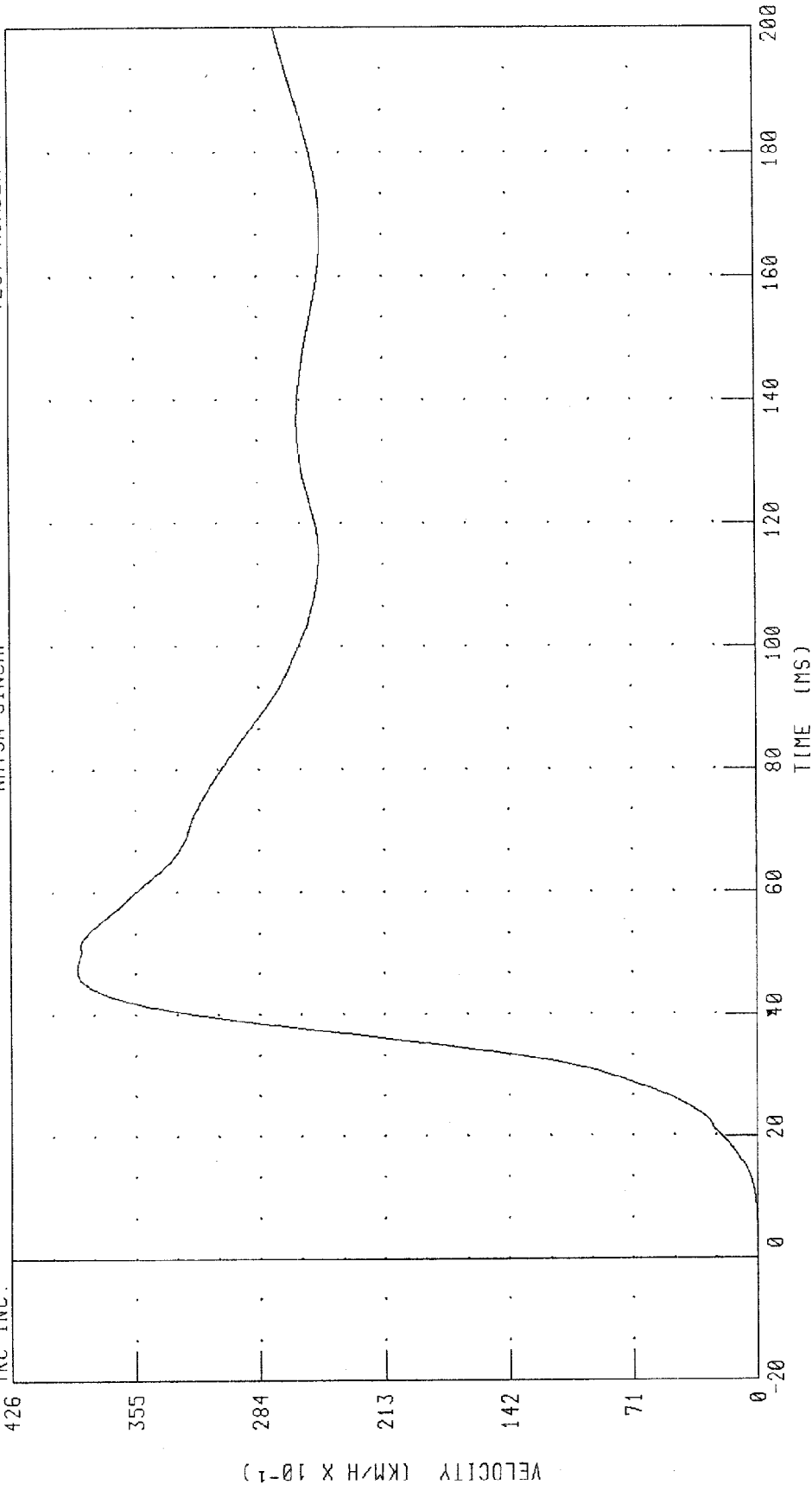
CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 38.84 KM/H @ 47.44 MS; 0.00 KM/H @ 0.48 MS

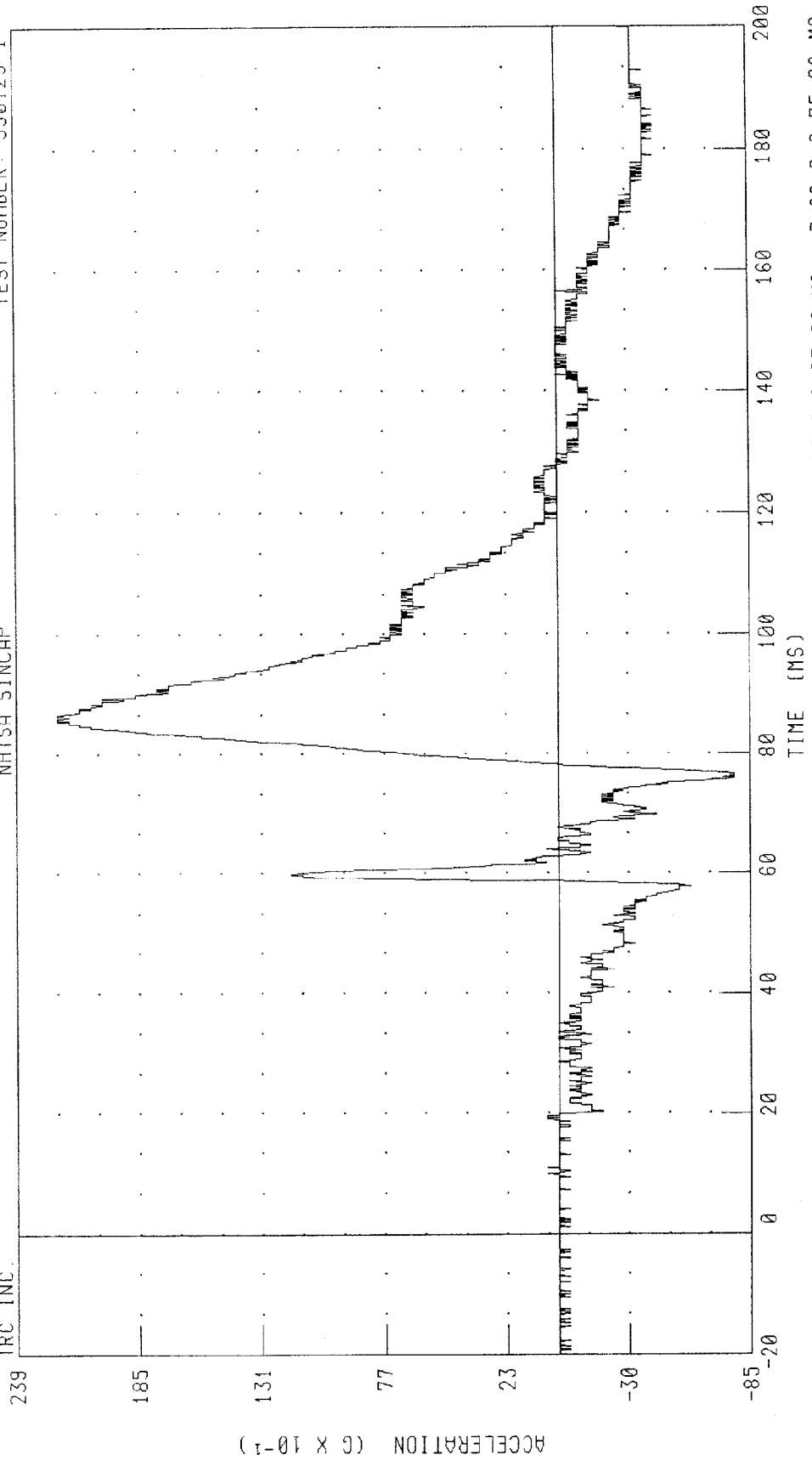
CHANNEL: PEVYU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER HEAD X-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 22.08 G @ 85.68 MS; -7.80 G @ 75.92 MS

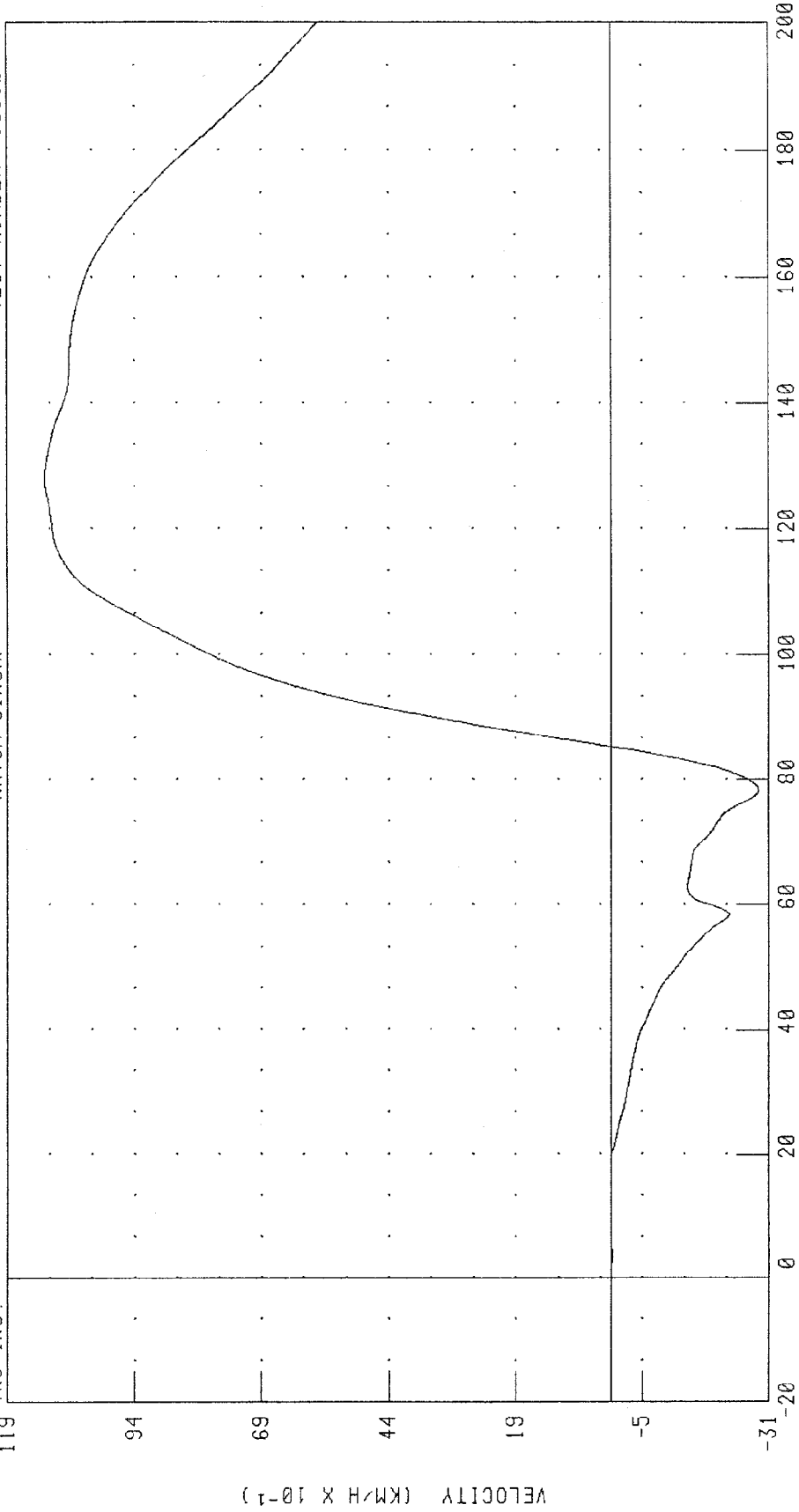
CHANNEL: HEDXC4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER HEAD X-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

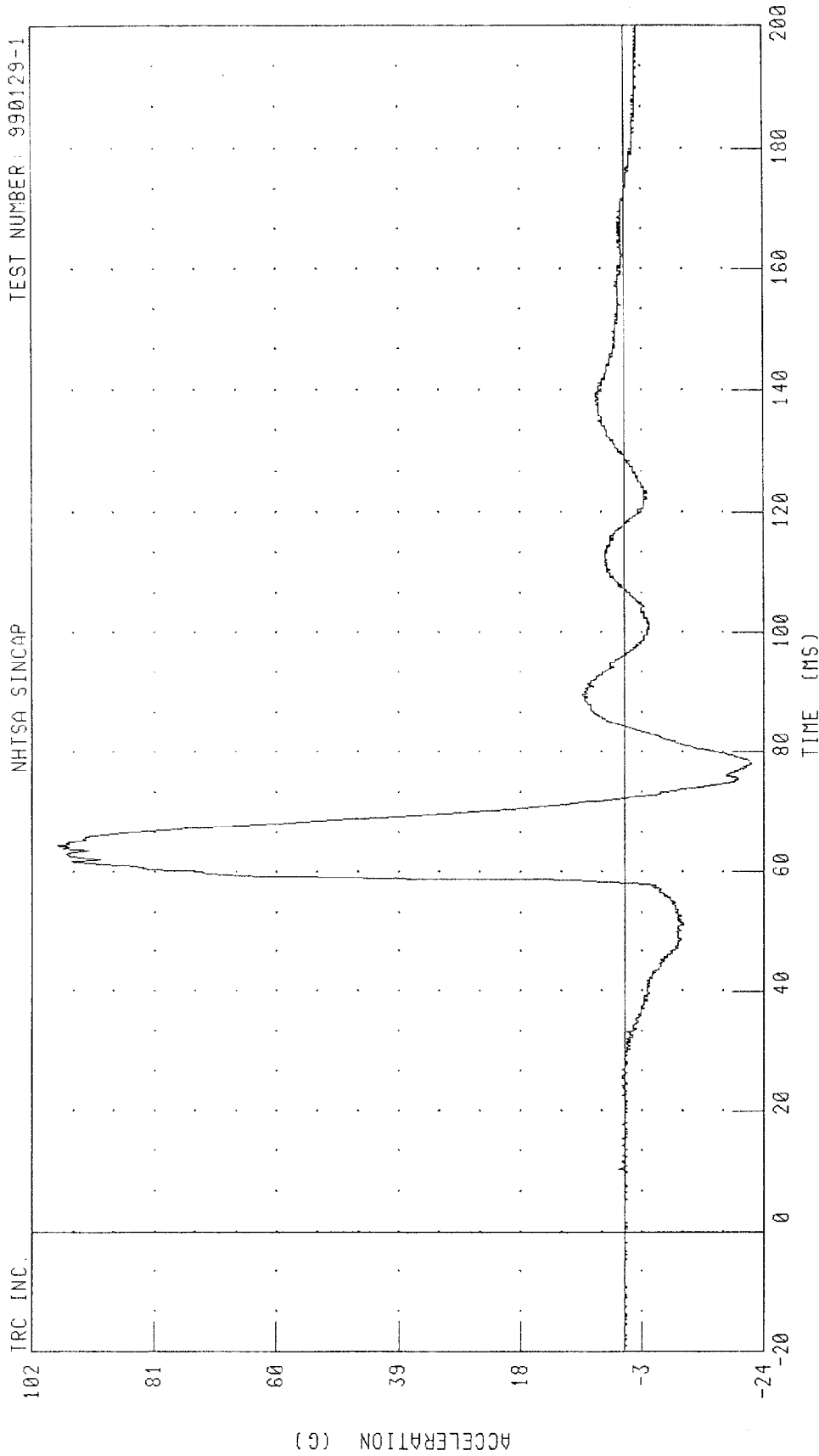
TRC INC.



CHANNEL: HEDXVJ FILTER: CH. CLASS 180 PEAK DATA: 11.17 KM/H @ 127.84 MS; -2.90 KM/H @ 78.32 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER HEAD Y-AXIS ACCELERATION  
NHTSA SINCAP

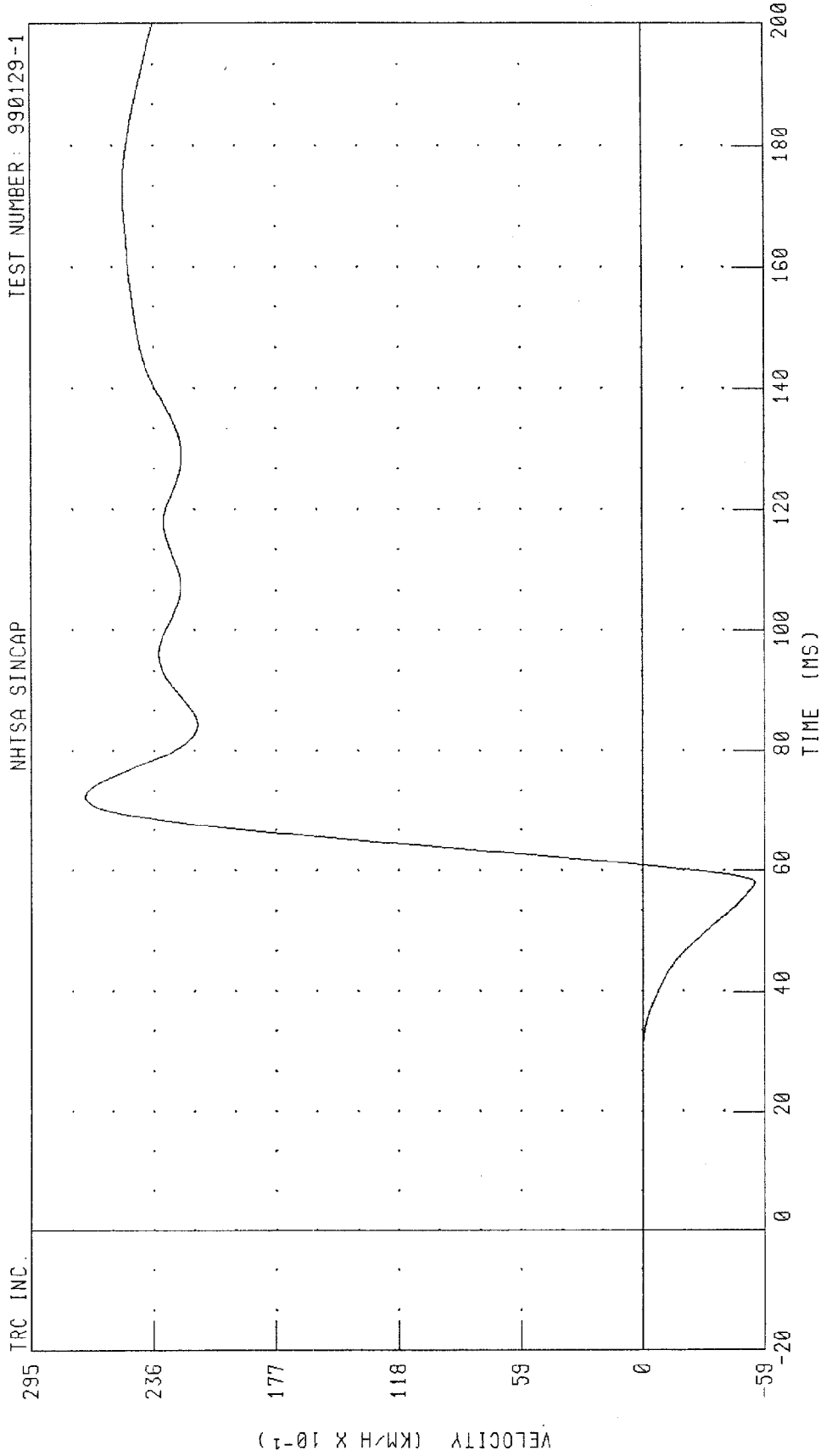
TEST NUMBER: 990129-1



CHANNEL: HEDYG4 FILTER: CH. CLASS 1000

PEAK DATA: 97.67 G @ 64.56 MS, -21.93 G @ 78.08 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER HEAD Y-AXIS VELOCITY



CHANNEL: HEDYVJ FILTER: CH. CLASS 180

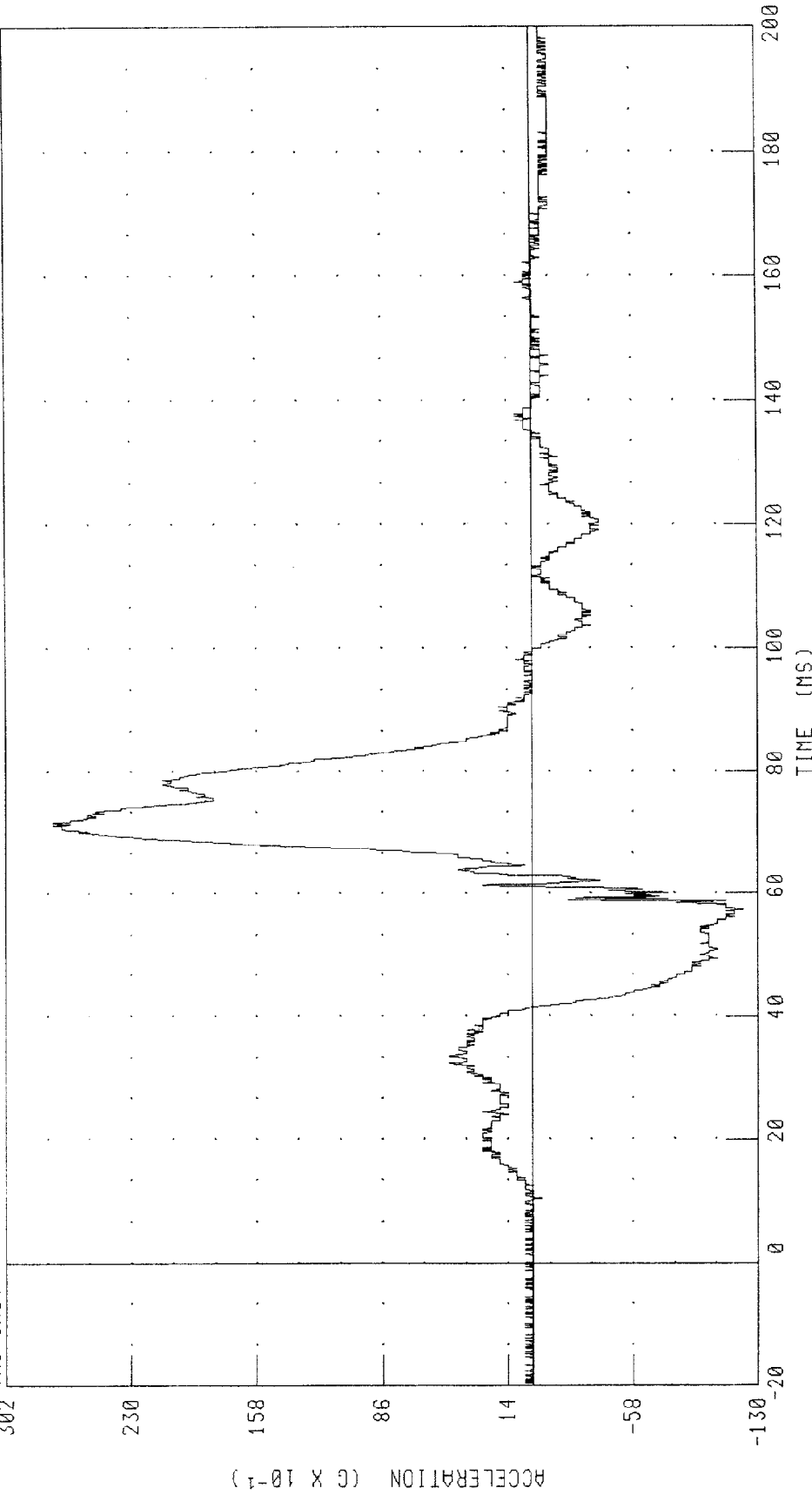
PEAK DATA: 26.91 KM/H @ 72.48 MS; -5.43 KM/H @ 57.92 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

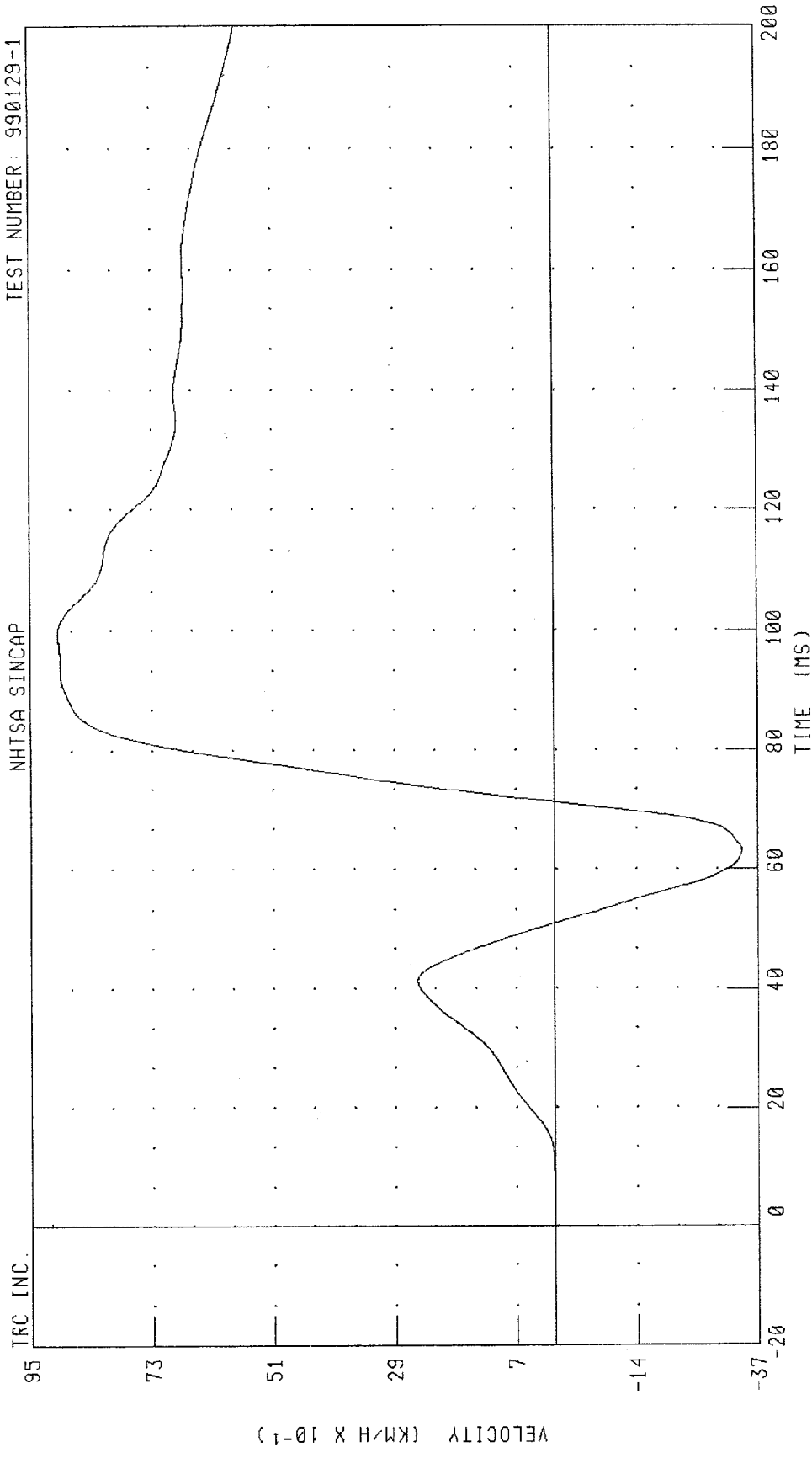
TRC INC.



CHANNEL: HEDZG4 FILTER: CH. CLASS 1000

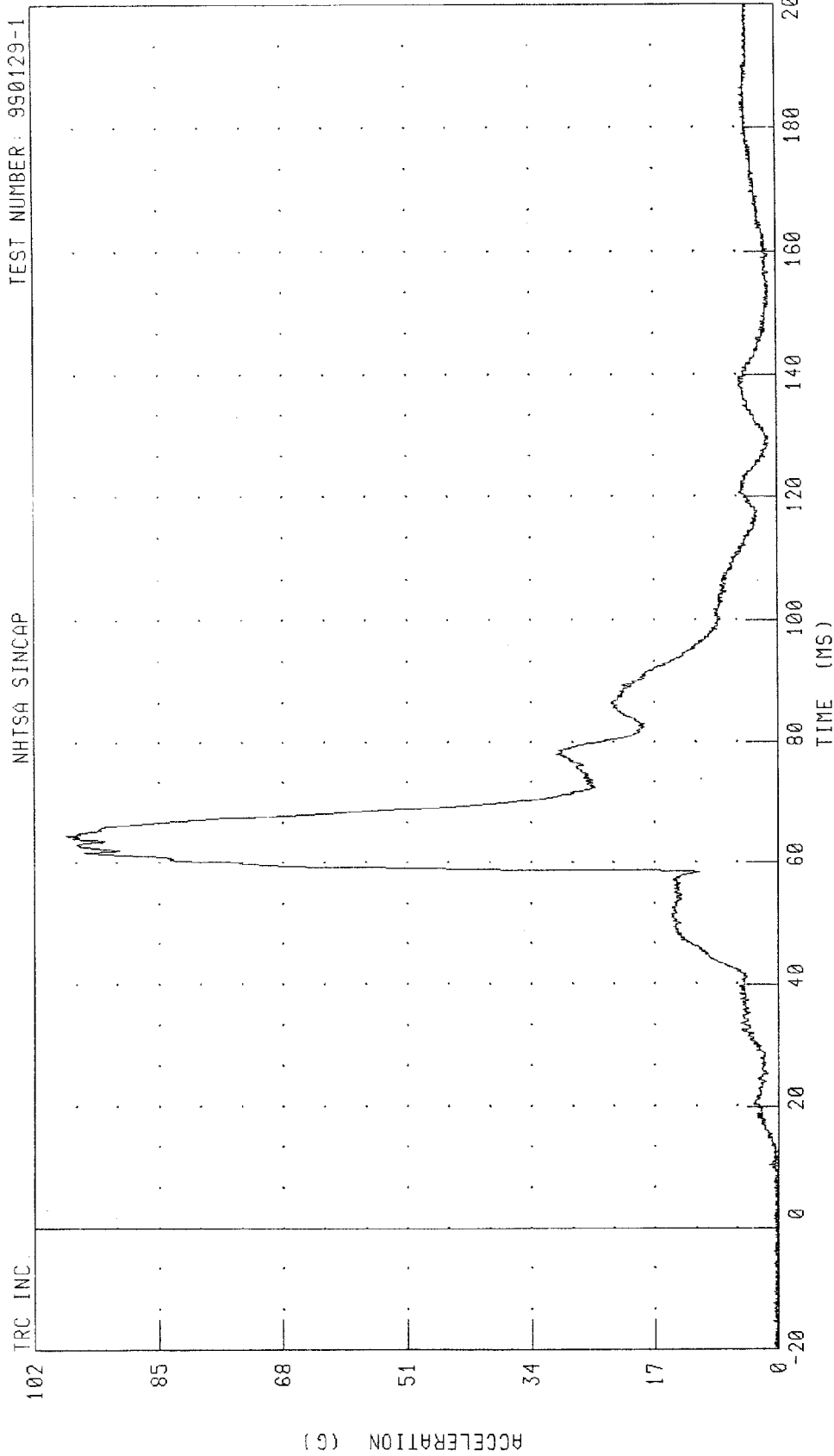
PEAK DATA: 27.45 G @ 71.28 MS; -12.15 G @ 12.15 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER HEAD Z-AXIS VELOCITY



CHANNEL: HEDZVJ FILTER: CH. CLASS 180 PEAK DATA: 9.00 KM/H @ 99.60 MS; -3.43 KM/H @ 63.12 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER HEAD RESULTANT  
NHTSA SINCAP



CHANNEL: HEDRC4 FILTER: CH. CLASS 1000 PEAK DATA: 97.71 G @ 64.56 MS; 0.10 G @ -20.00 MS

**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)

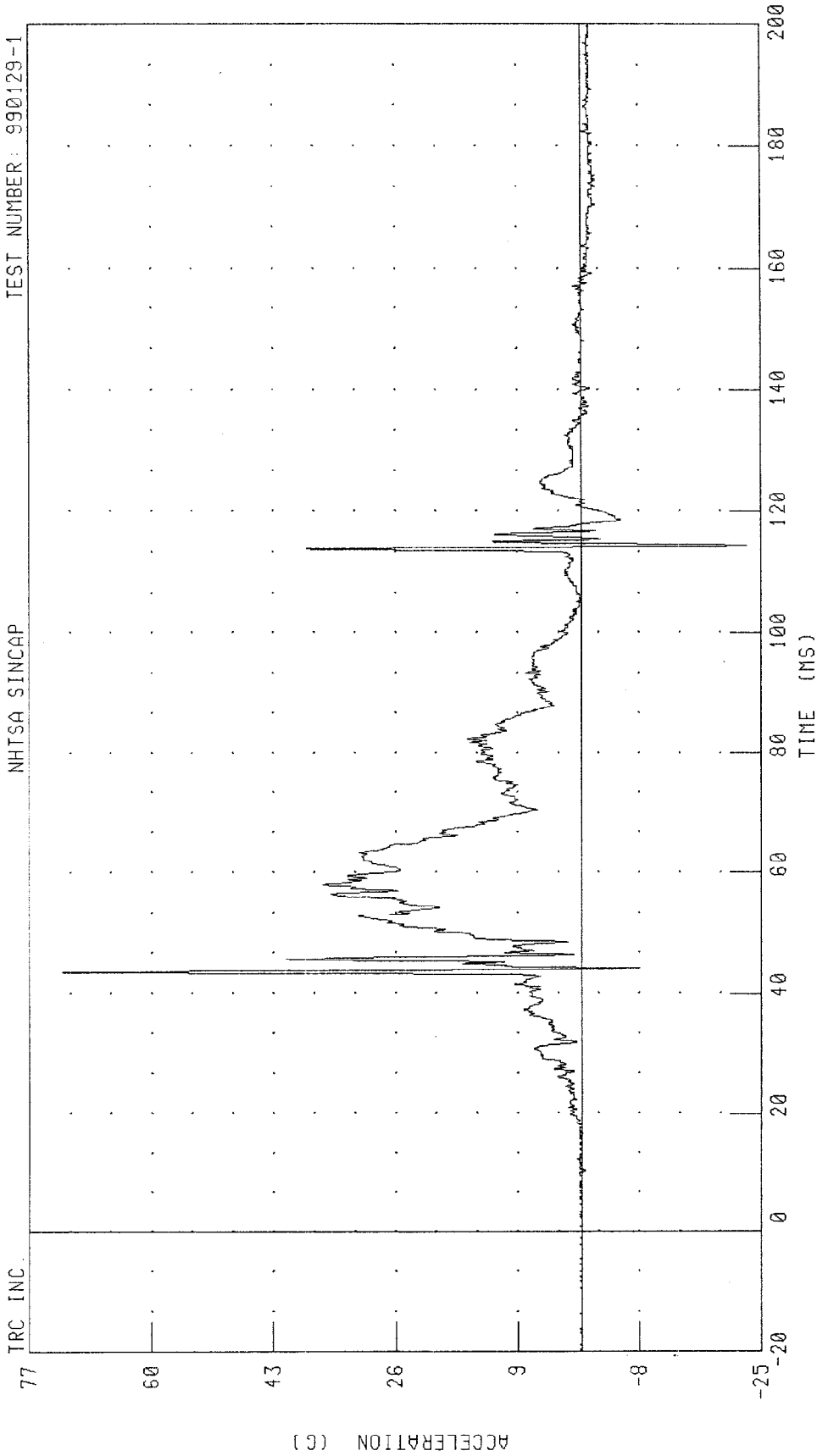
**Left Rear Passenger's Neck Y-Axis Moment, NEKYM4, Was Not Recorded**  
(6 axis neck load cells were not used)

**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 ISUZU RODEO  
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP



PEAK DATA: 72.40 G @ 43.52 MS; -22.99 G @ 114.40 MS

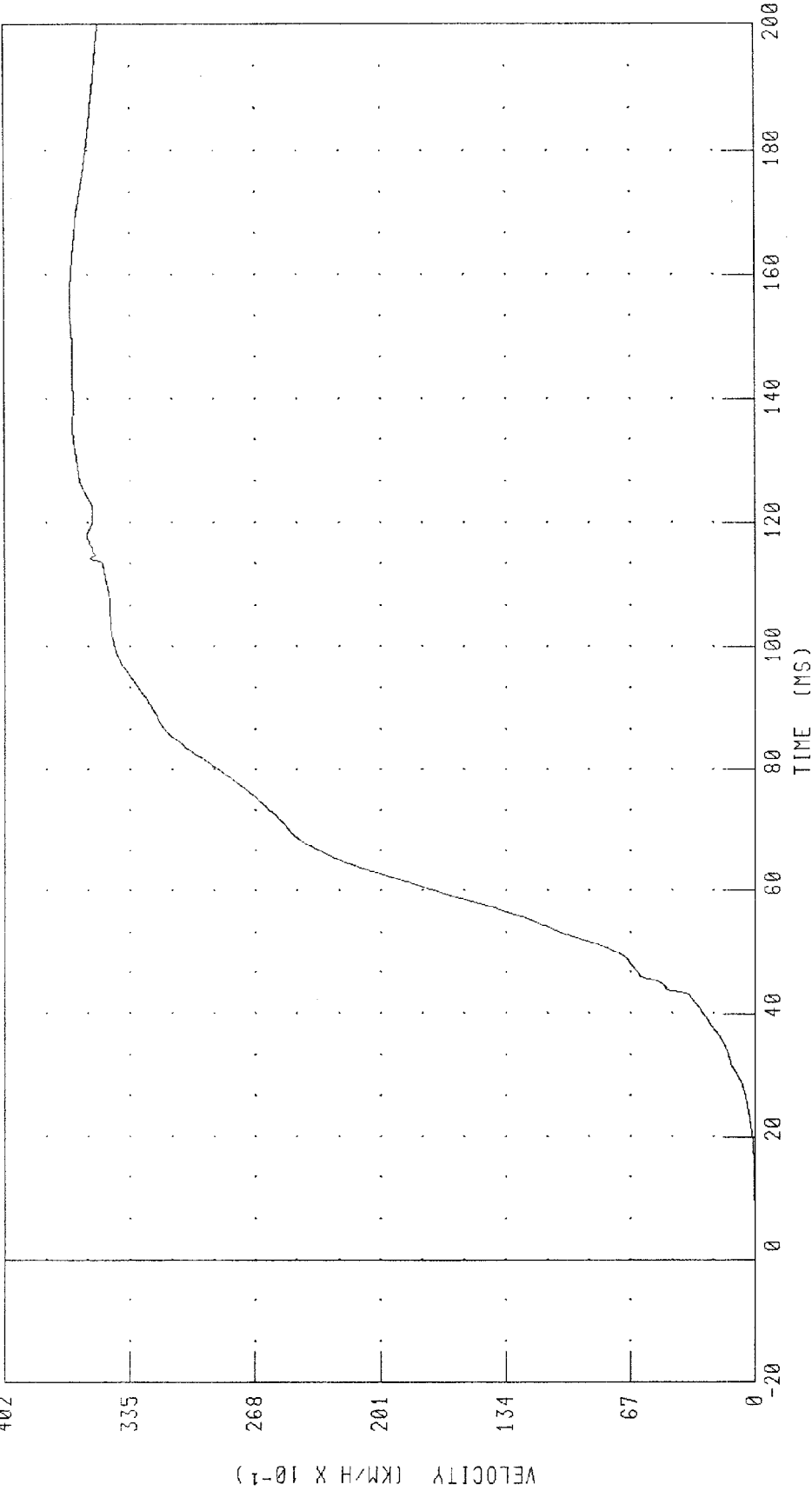
CHANNEL: LURY04 FILTER: CH. CLASS 1000

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

TEST NUMBER: 990129-1

NHTSA\_SINCAP

TRC INC.



PEAK DATA: 36.69 KM/H @ 157.36 MS; 0.00 KM/H @ 0.96 MS

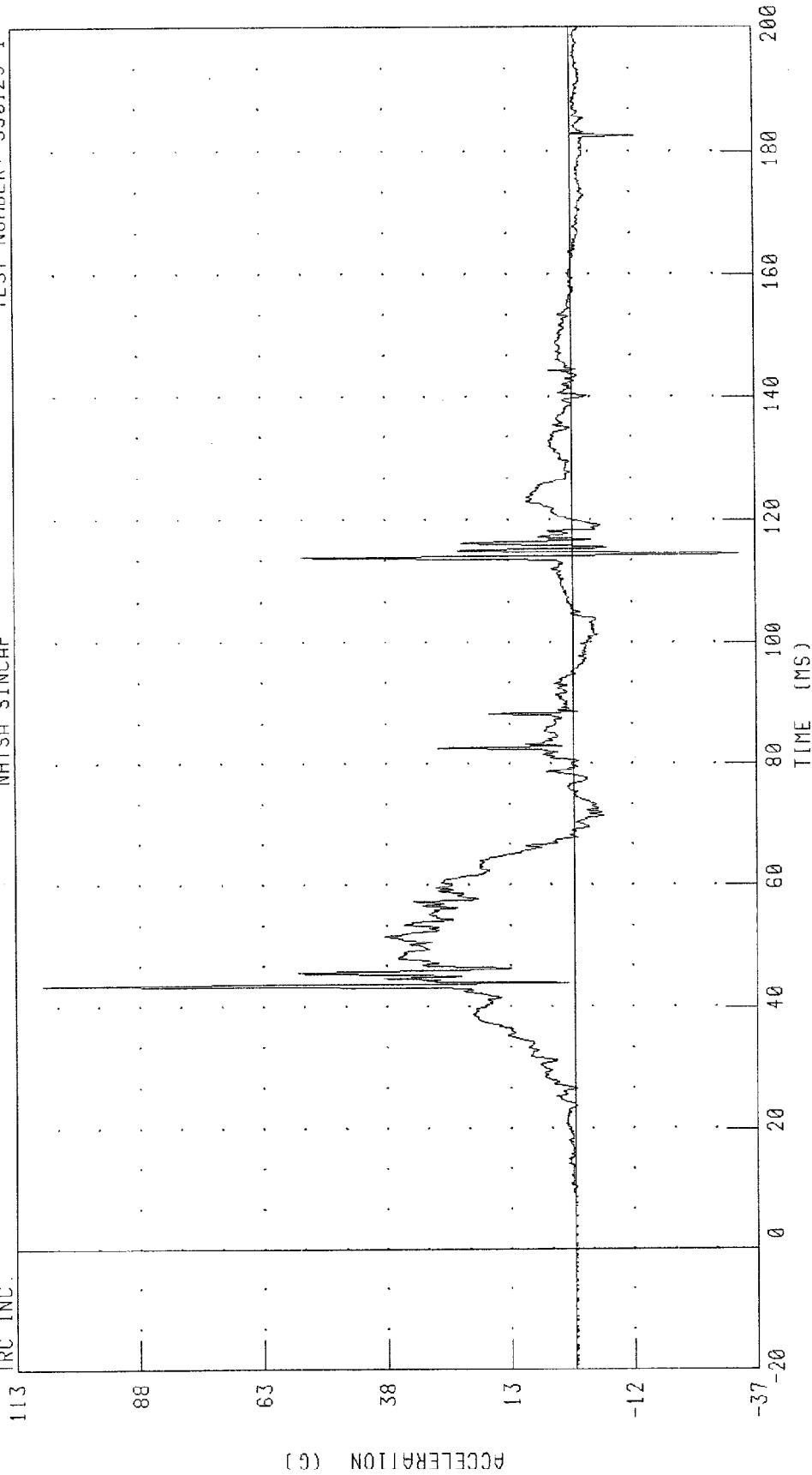
CHANNEL: LURYU4 FILTER: CH. CLASS 1000

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 107.53 G @ 43.52 MS; -33.71 G @ 114.48 MS

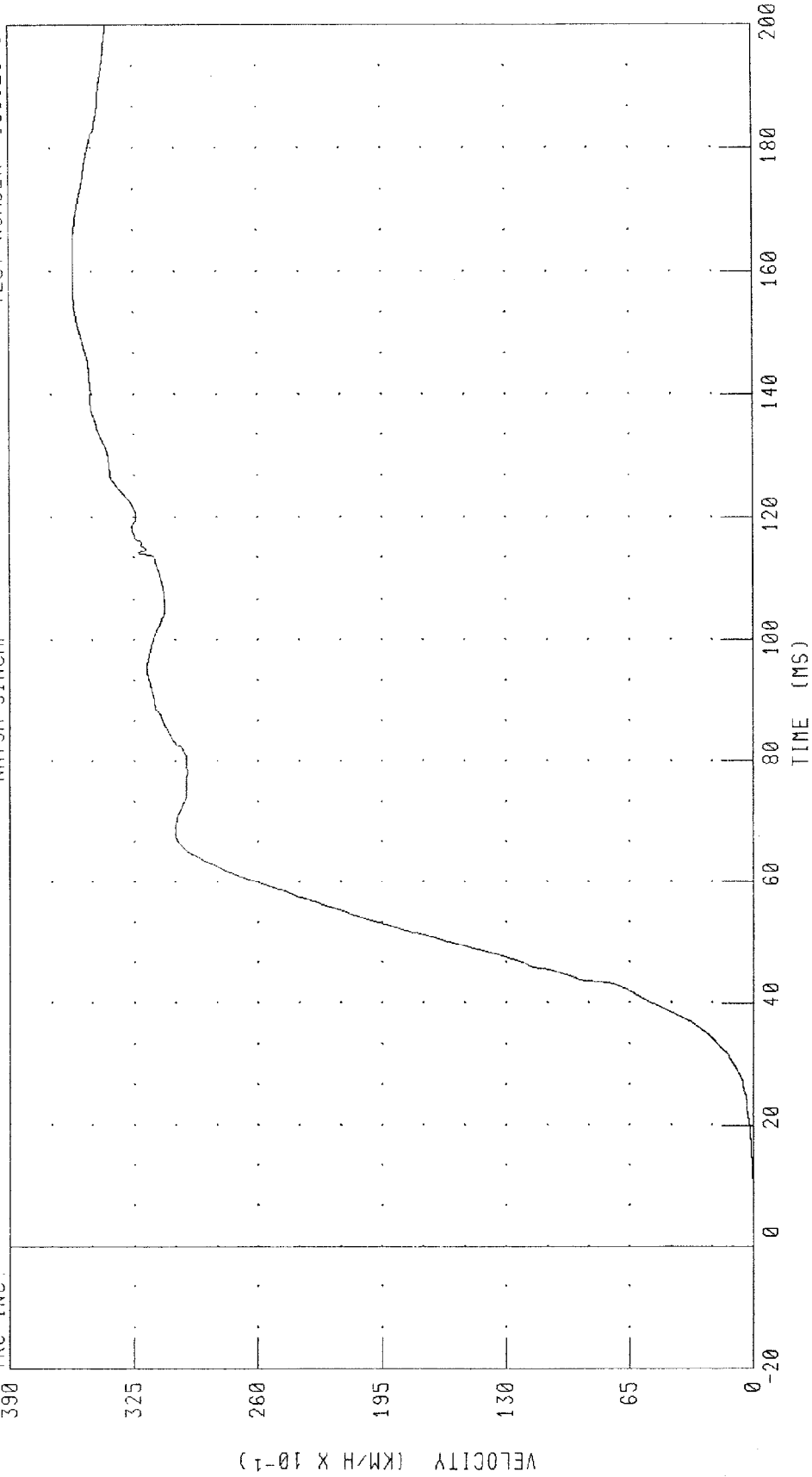
CHANNEL: LRLRYG4 FILTER: CH. CLASS 1000

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

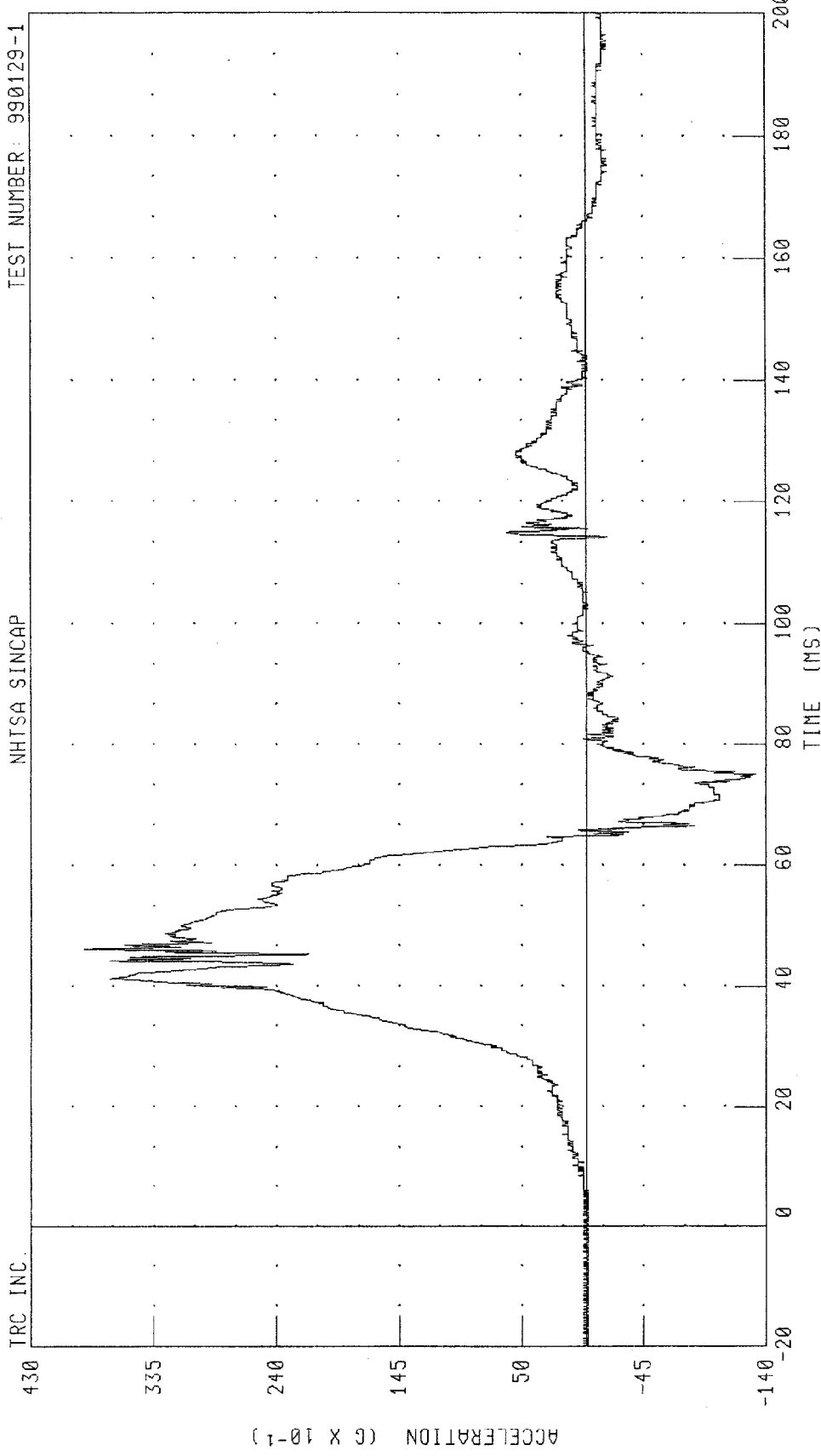


PEAK DATA: 35.68 KM/H @ 162.72 MS; 0.00 KM/H @ 2.24 MS

FILTER: CH. CLASS 1000

CHANNEL: LLRYU4

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



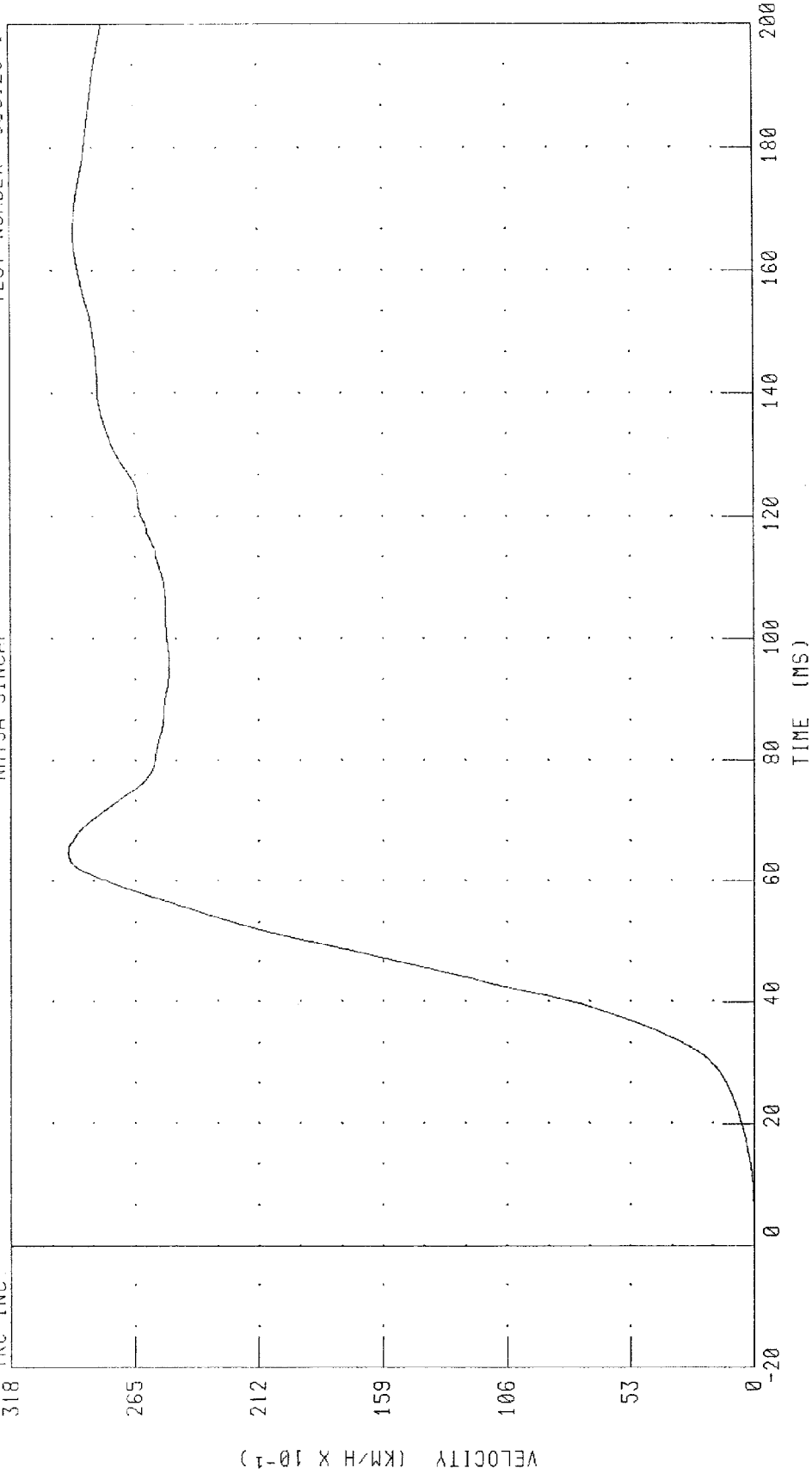
CHANNEL: T12YC4 FILTER: CH. CLASS 1000 PEAK DATA: 38.93 G @ 46.24 MS; -13.17 G @ 75.12 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: T12YU4 FILTER: CH. CLASS 1000

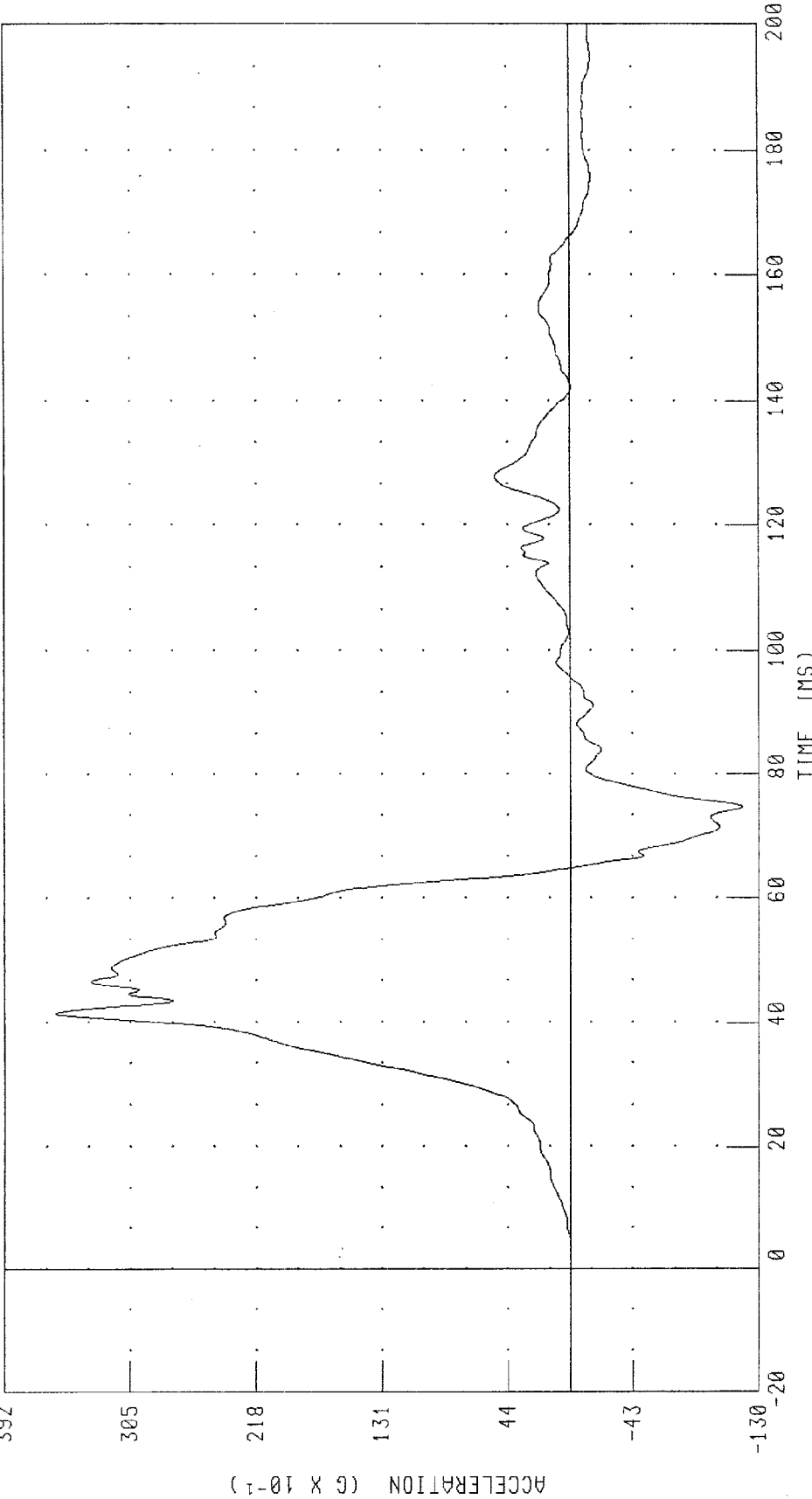
PEAK DATA: 29.38 KM/H @ 64.80 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC



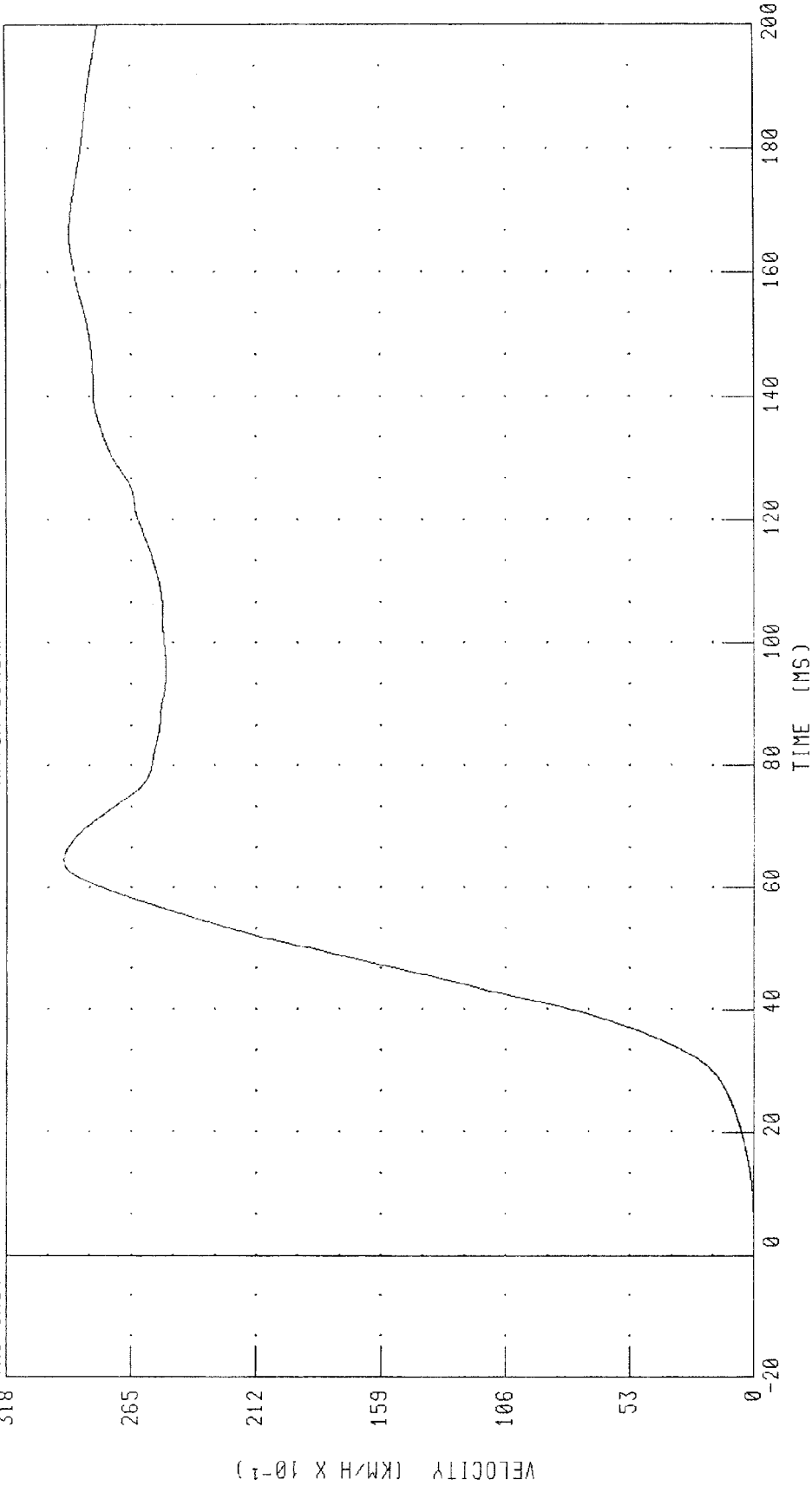
CHANNEL: T12YG4 FILTER: CH. CLASS 180 PEAK DATA: 35.67 G @ 41.60 MS, -11.91 G @ 74.72 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: T12YV4 FILTER: CH. CLASS 180

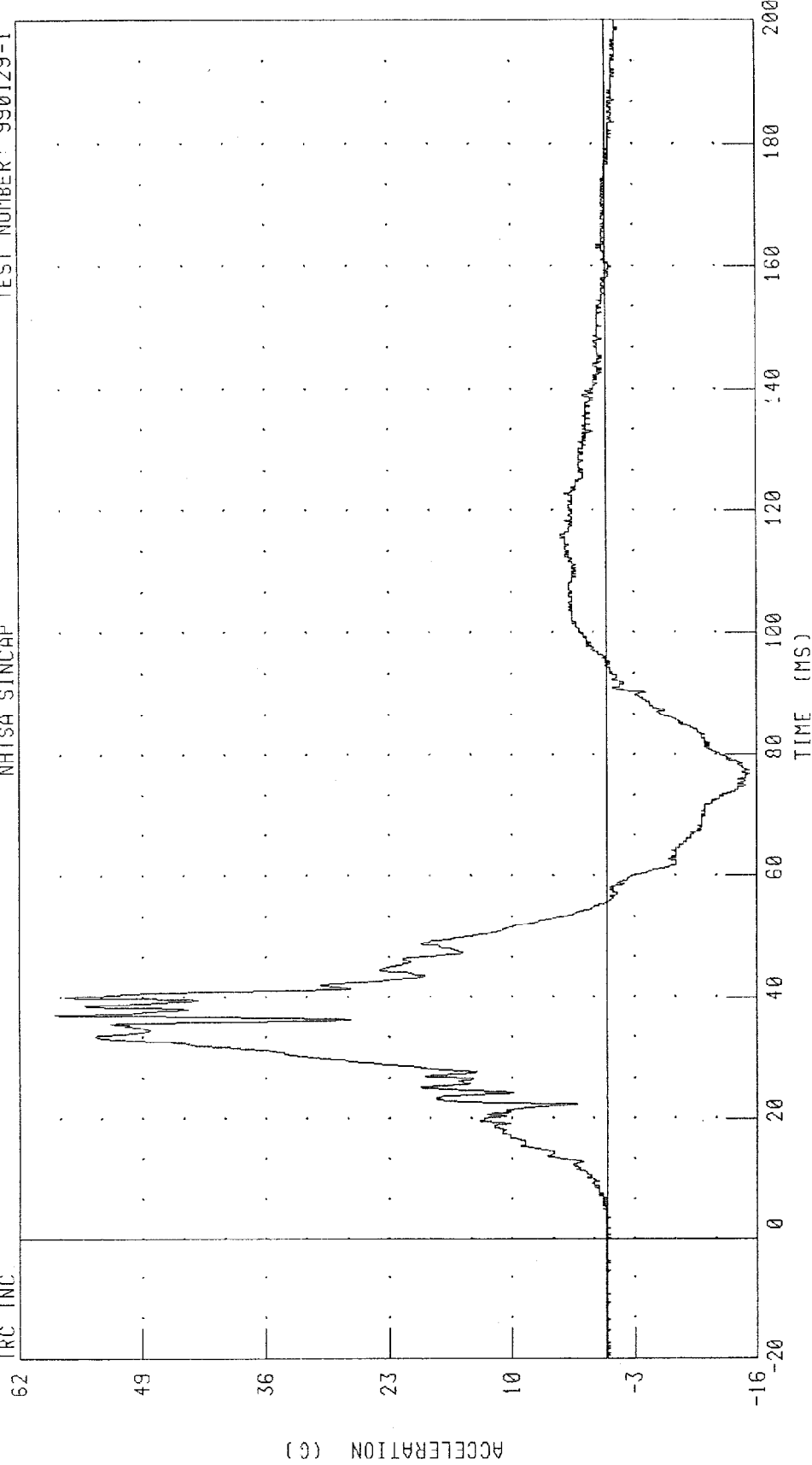
PEAK DATA: 29.37 KM/H @ 64.80 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC



CHANNEL: PEVYG4 FILTER: CH. CLASS 1000

PEAK DATA: 58.33 G @ 37.20 MS; -15.21 G @ 76.80 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

372

310

VELOCITY (KM/H X 10<sup>-1</sup>)

248

186

124

62

0

TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

PEAK DATA: 34.01 KM/H @ 55.92 MS; 0.00 KM/H @ 0.72 MS

CHANNEL: PEVYU4 FILTER: CH. CLASS 1000

**Test Vehicle Instrumentation Plots**

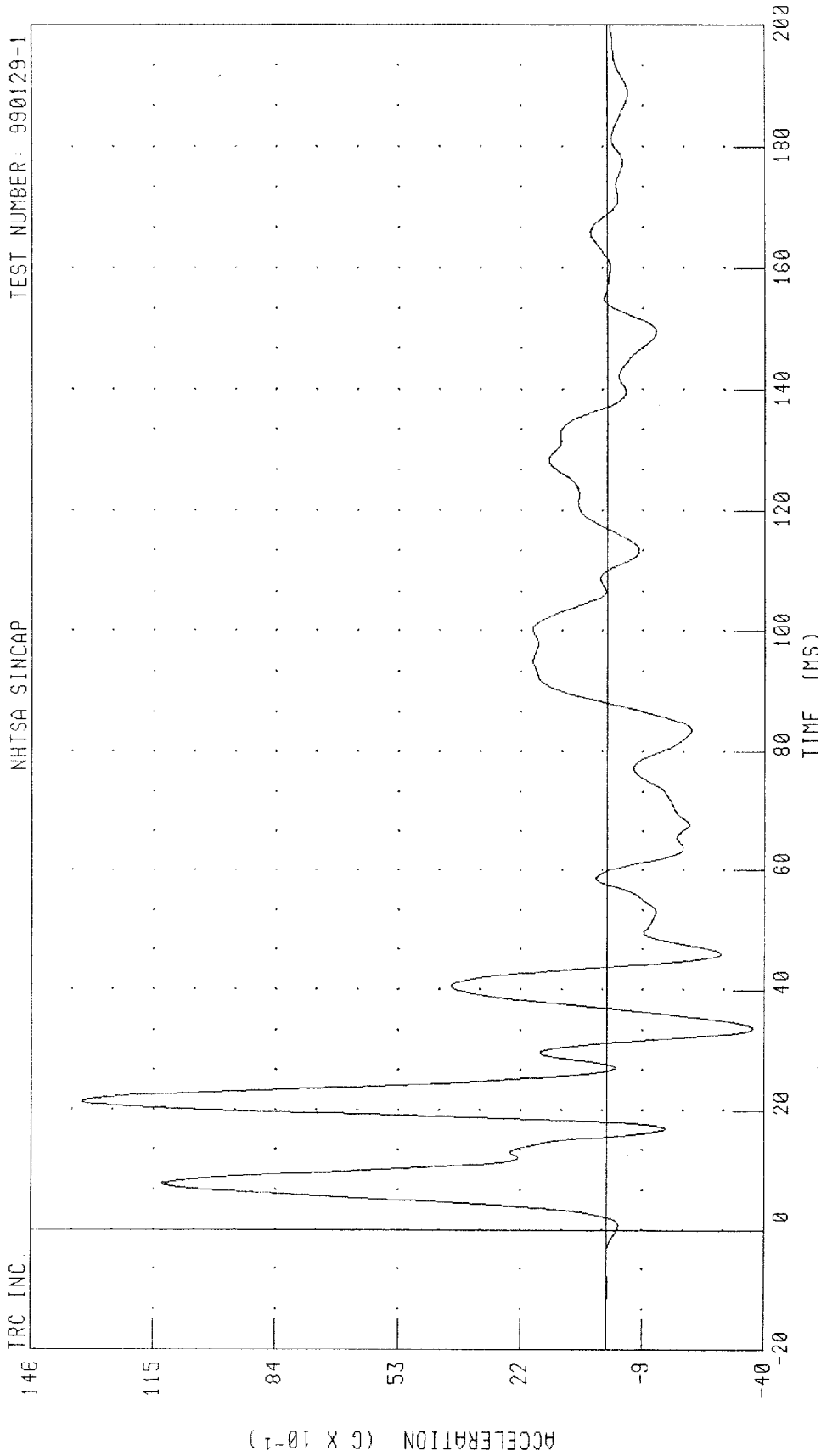
Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

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

TEST NUMBER: 990129-1

NHTSA SINCAP



CHANNEL: RFSXG1 FILTER: CH. CLASS 60

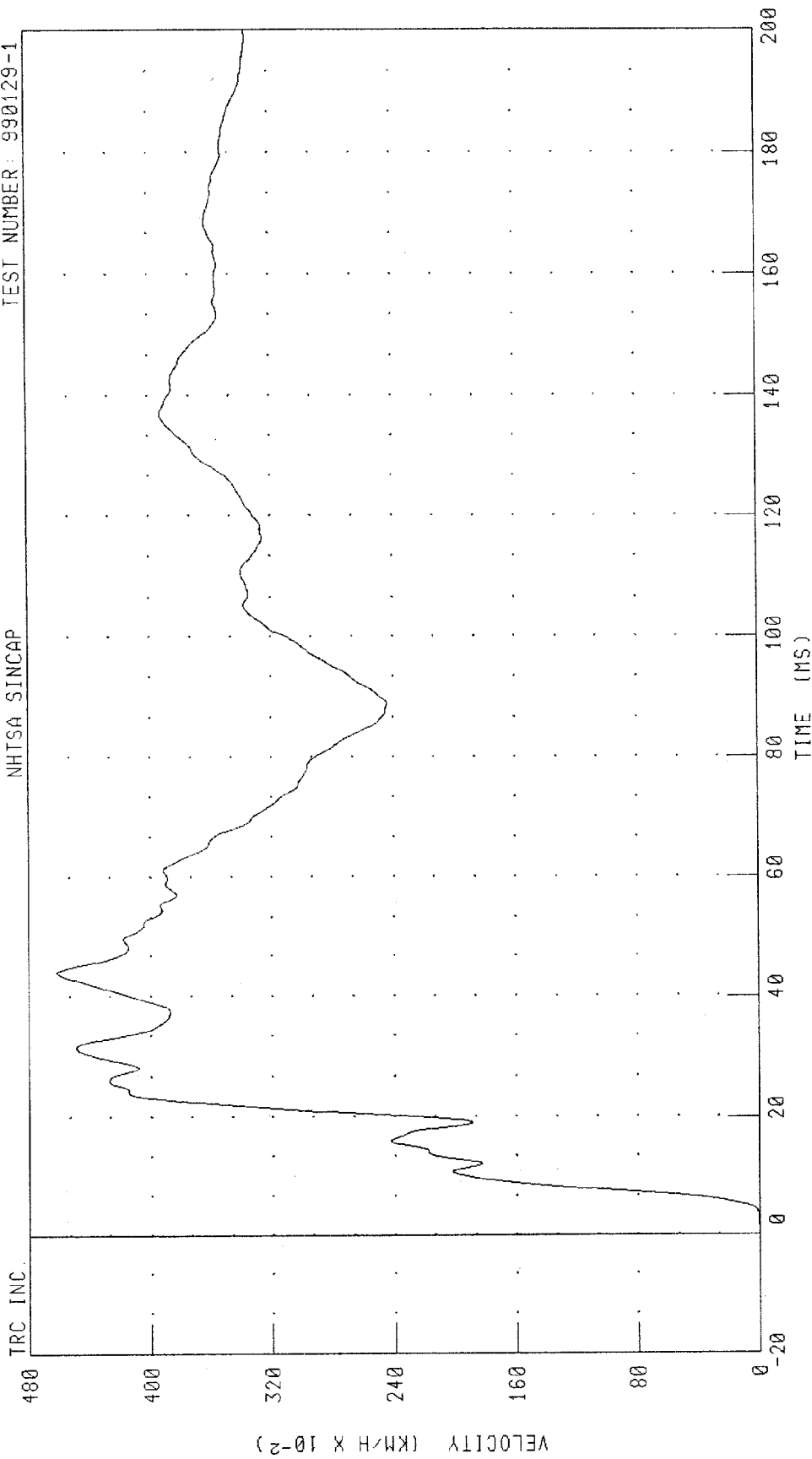
PEAK DATA: 13.32 G @ 21.44 MS; -3.71 G @ 33.68 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: RFSXY1 FILTER: CH. CLASS 180

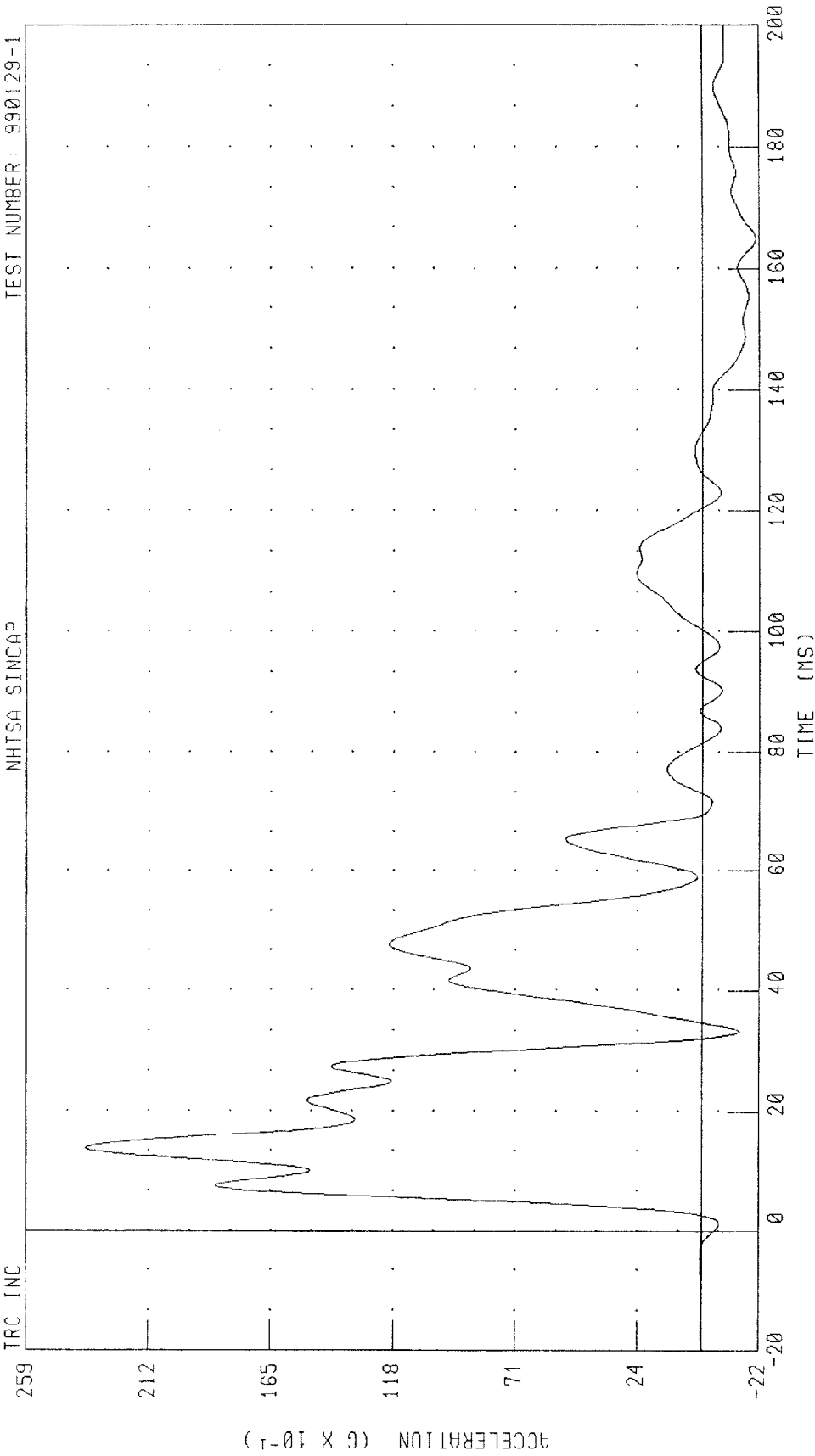
PEAK DATA: 4.62 KM/H @ 44.00 MS; 0.00 KM/H @ 0.00 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: RFSYG1 FILTER: CH. CLASS 60

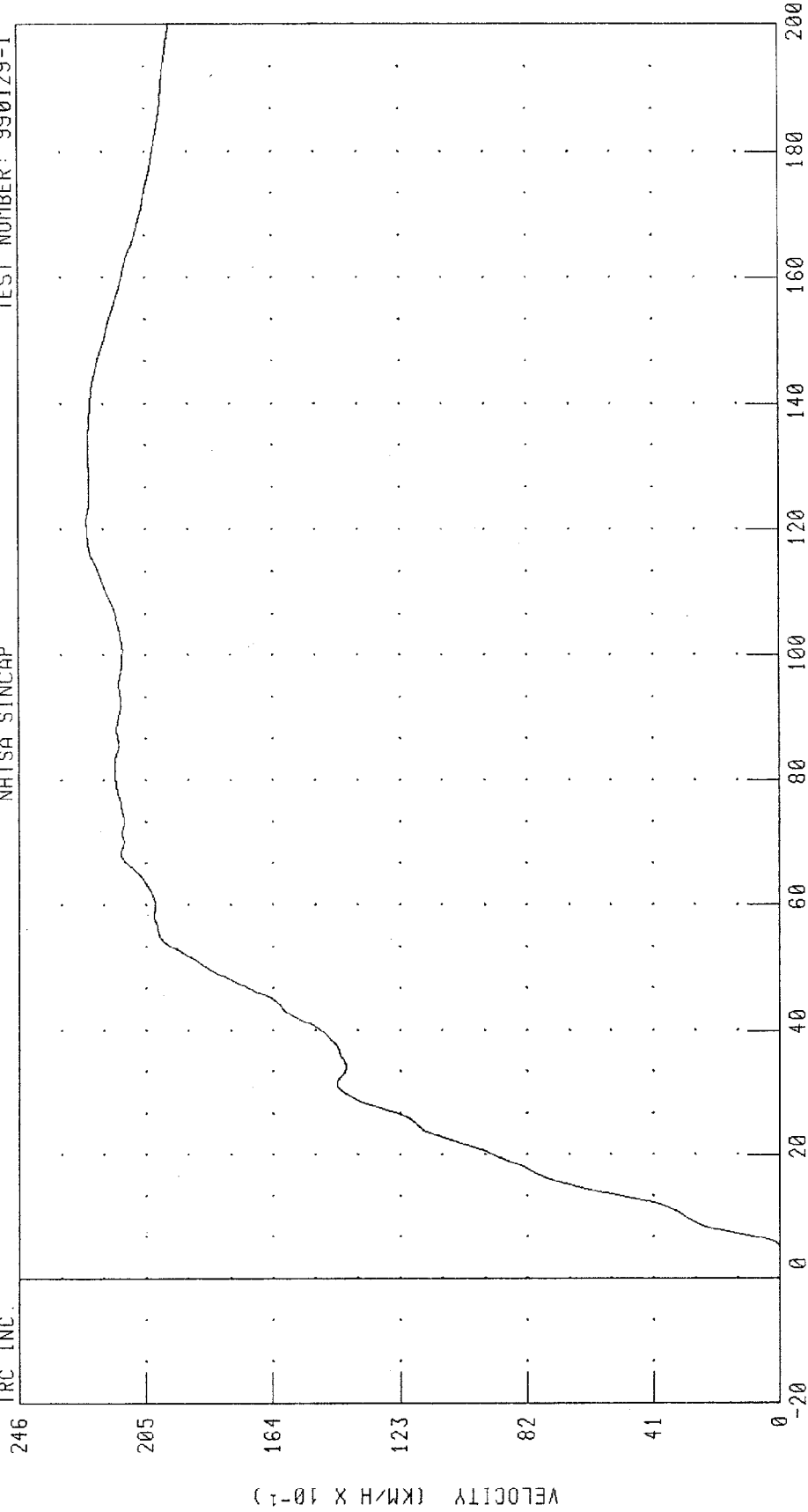
PEAK DATA: 23.74 G @ 13.76 MS, -2.08 G @ 164.80 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



TIME (MS)

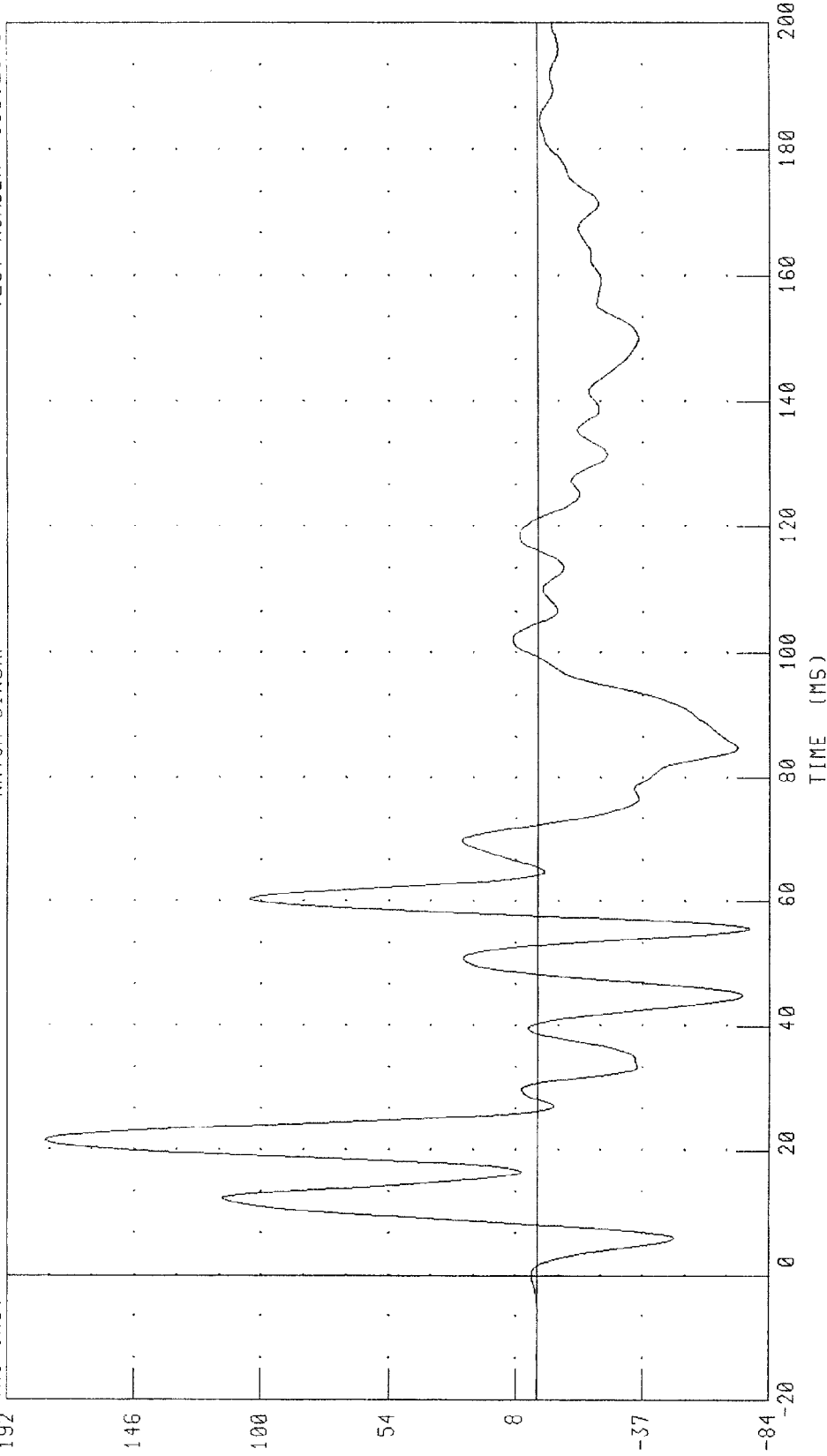
PEAK DATA: 22.41 KM/H @ 121.28 MS; -0.01 KM/H @ 4.80 MS

CHANNEL: RFSV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1

TRC INC.



CHANNEL: RFSZG1 FILTER: CH. CLASS 60

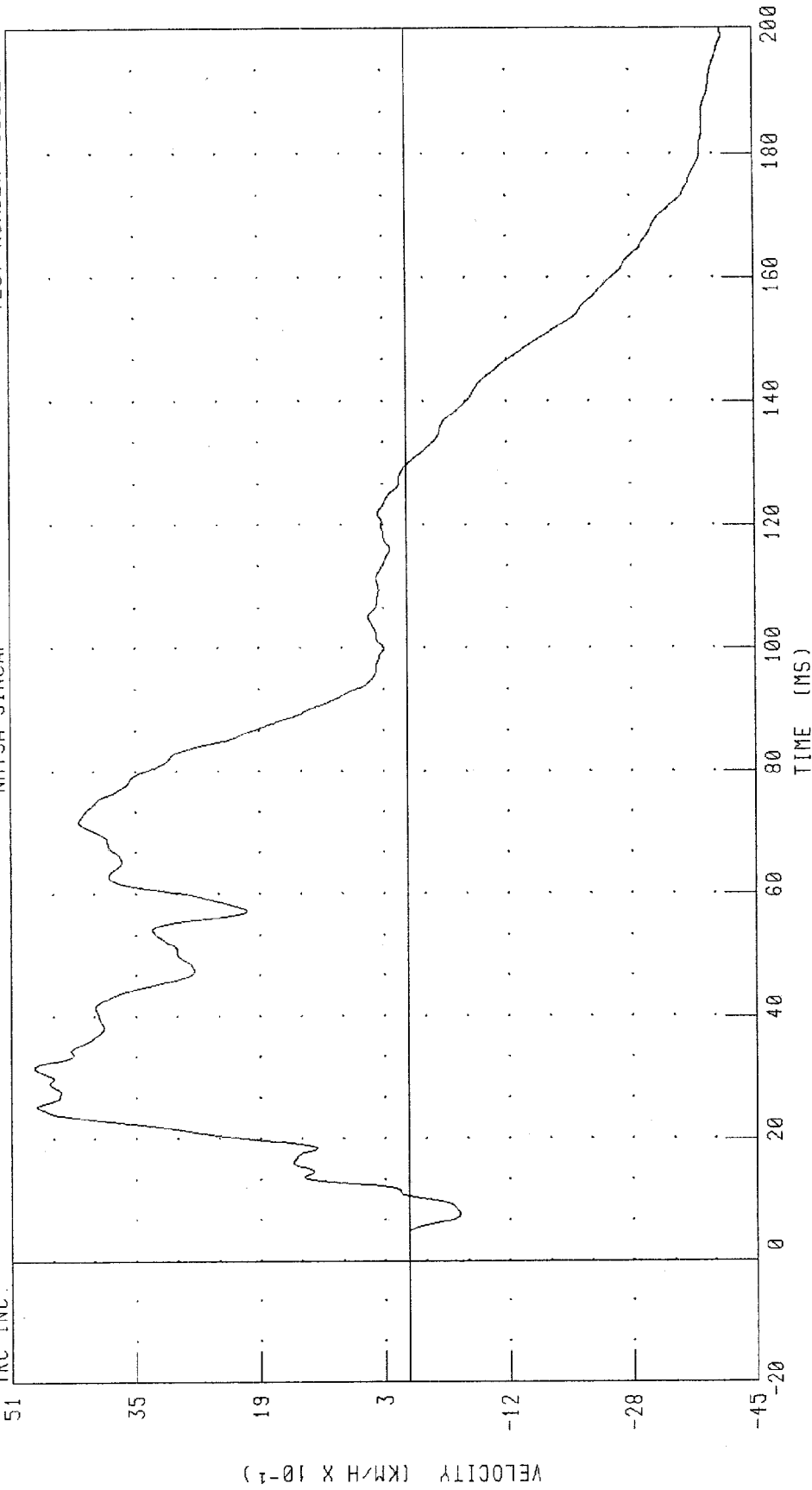
PEAK DATA: 17.80 G @ 21.60 MS, -7.70 G @ 55.68 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 4.81 KM/H @ 31.60 MS; -4.09 KM/H @ 198.56 MS

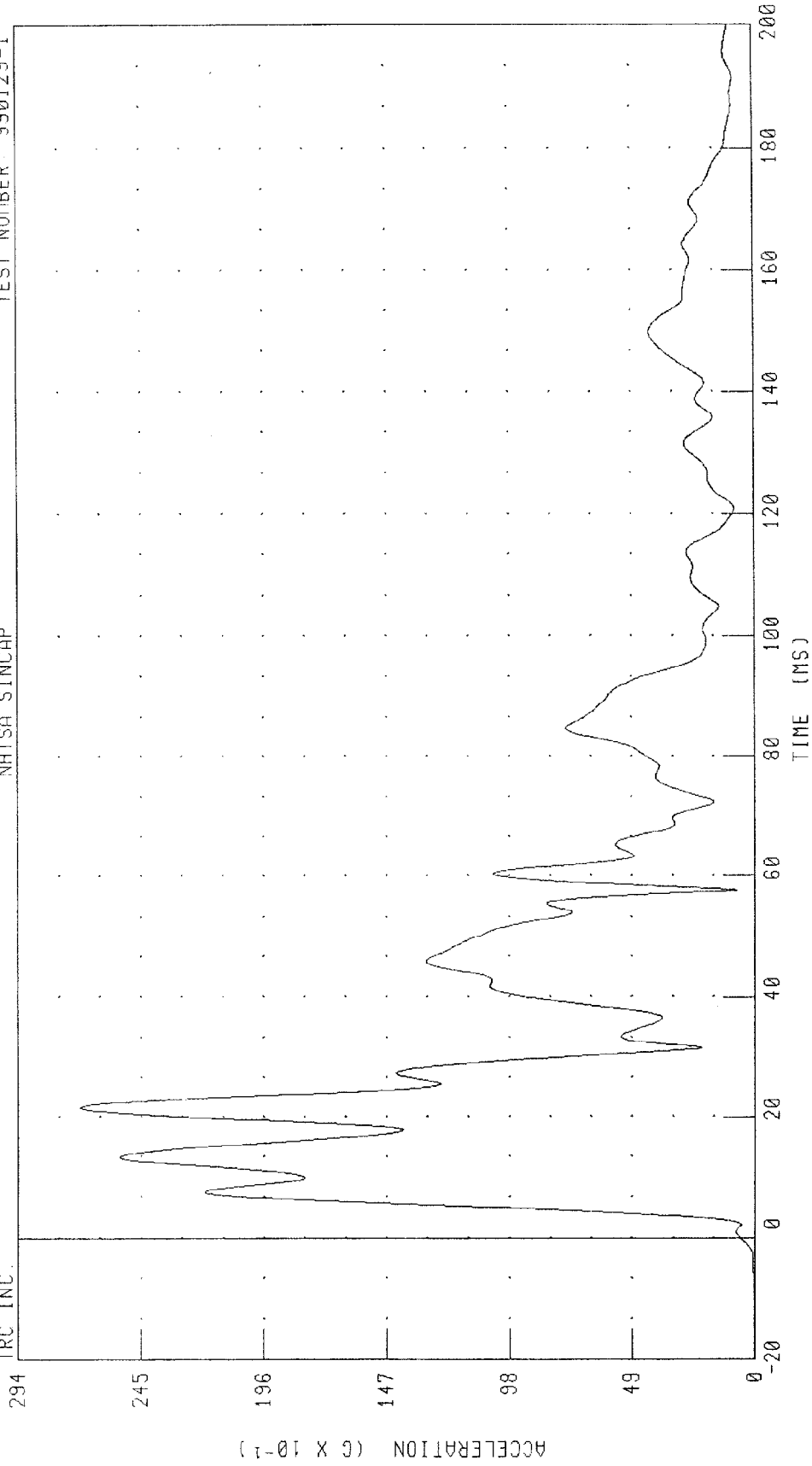
CHANNEL: RFSZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

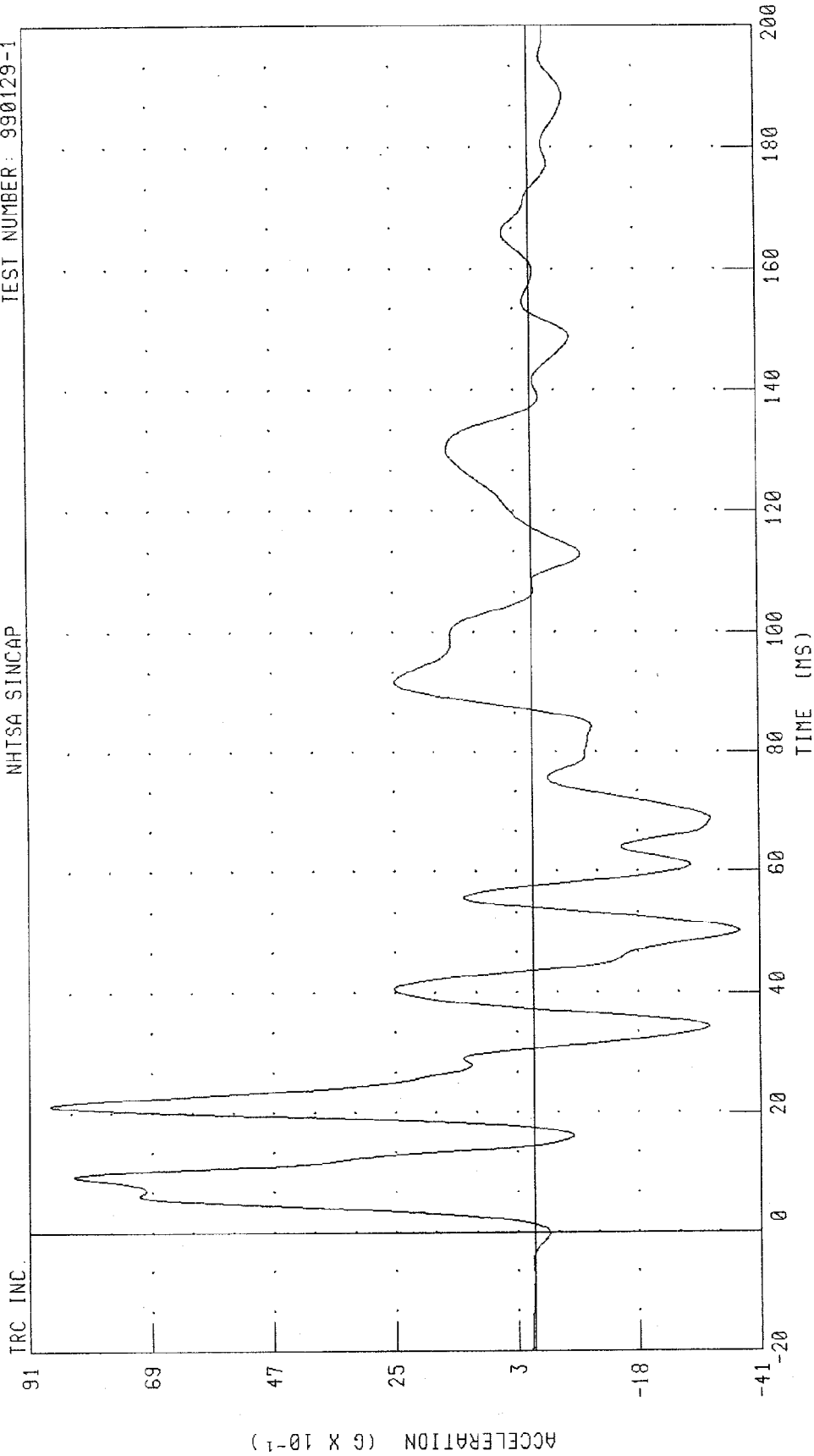


CHANNEL: RFSRC1 FILTER: CH. CLASS 60 PEAK DATA: 26.91 G @ 21.60 MS; 0.03 G @ -18.80 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP



CHANNEL: RRSXG1 FILTER: CH. CLASS 60

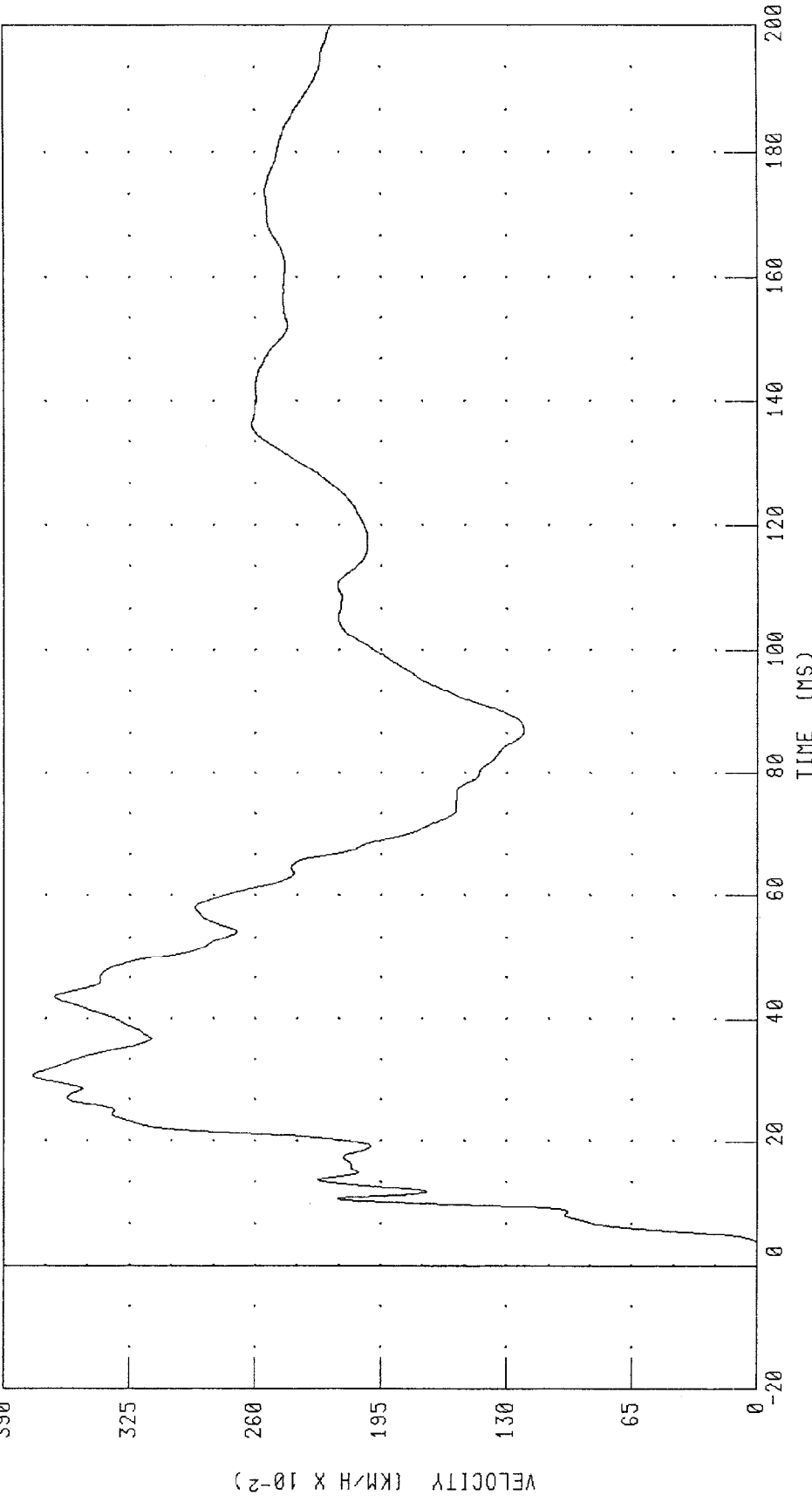
PEAK DATA: 8.73 G @ 21.36 MS, -3.75 G @ 50.16 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: RRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 3.75 KM/H @ 30.64 MS; 0.00 KM/H @ 3.44 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

434

359

ACCELERATION (G X 10<sup>-1</sup>)

284

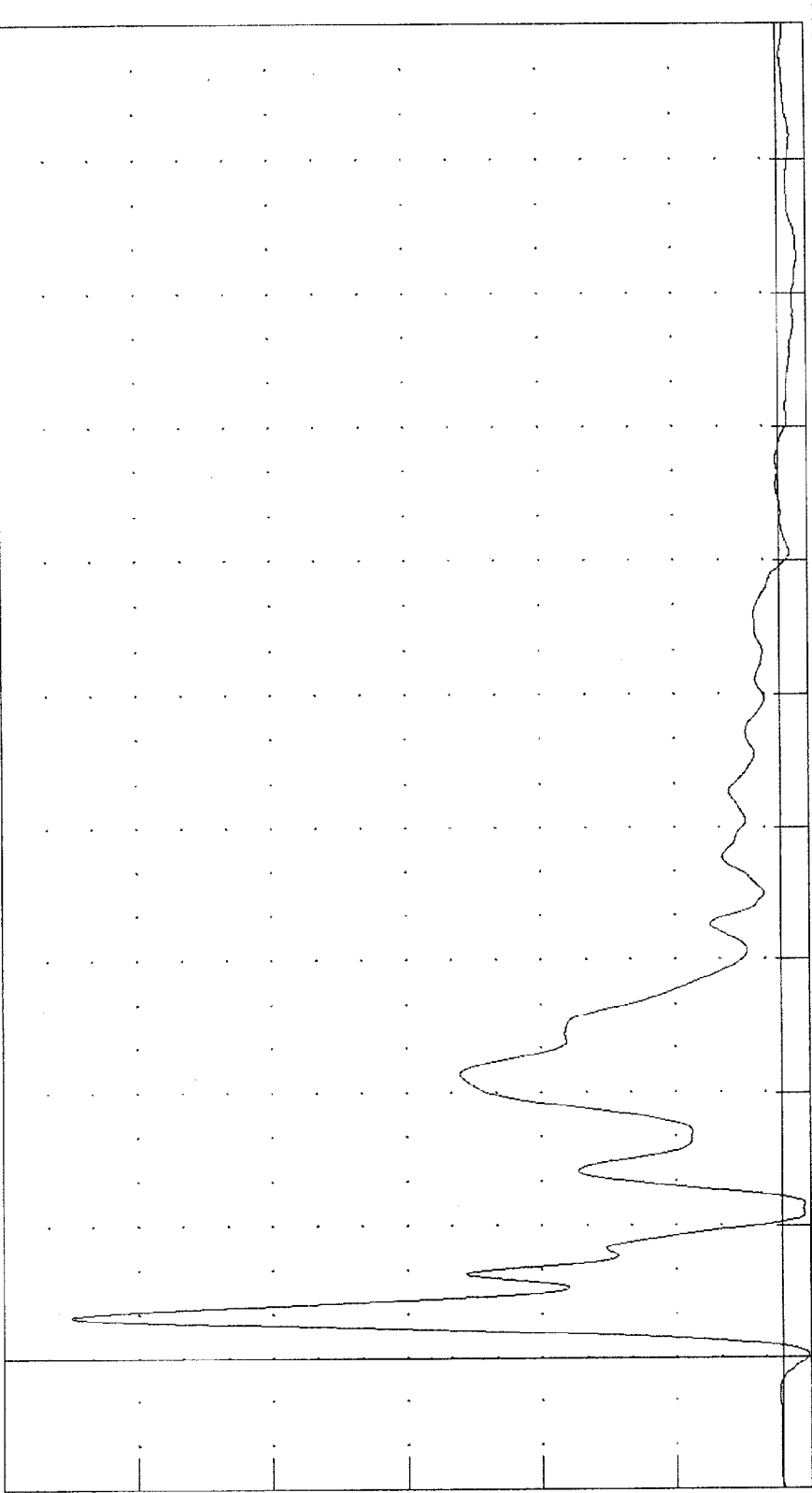
209

134

59

-16

-20

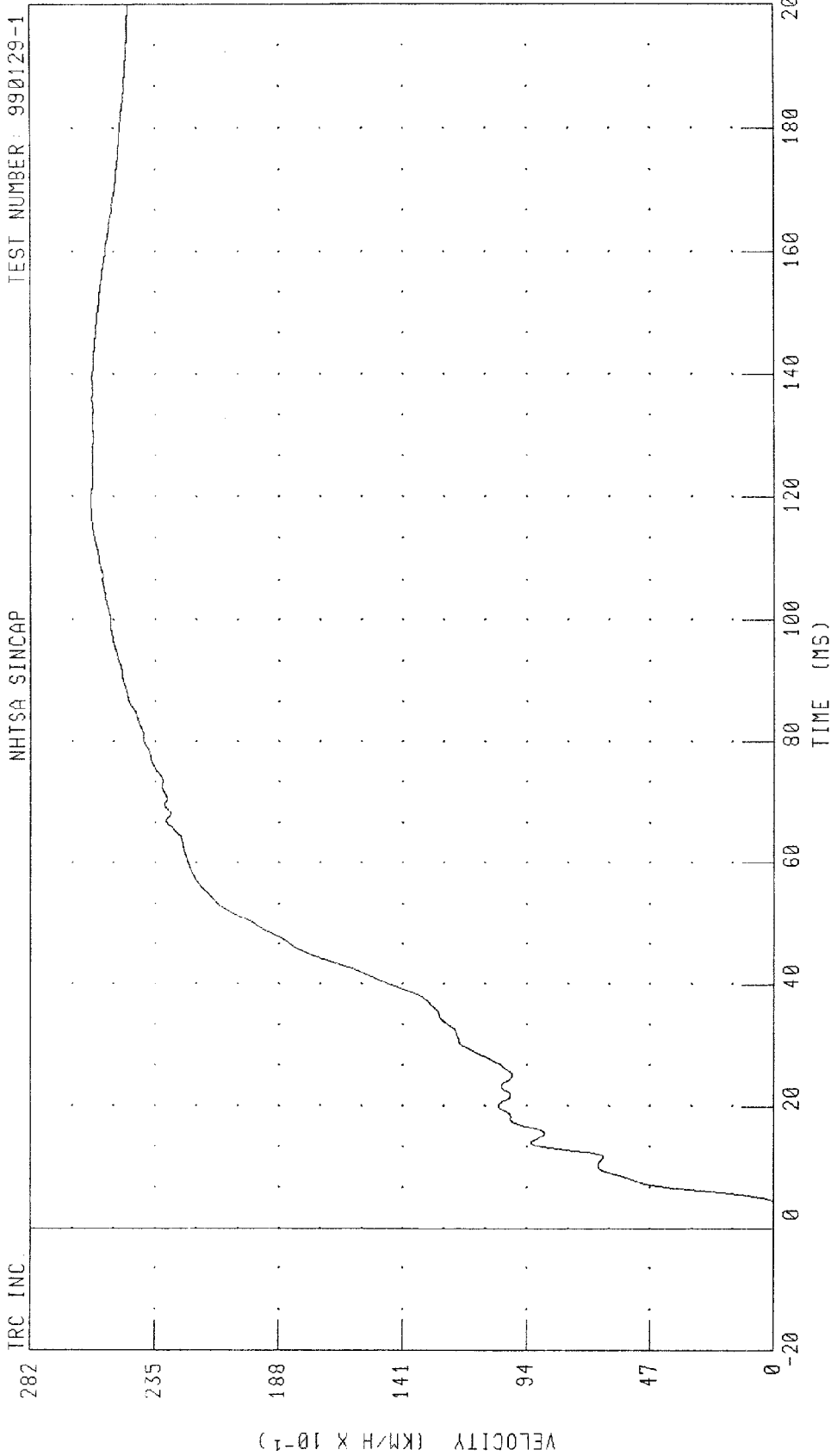


TIME (MS)

PEAK DATA: 39.70 G @ 6.32 MS, -1.51 G @ 0.24 MS

CHANNEL: RRSYG1 FILTER: CH. CLASS 60

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

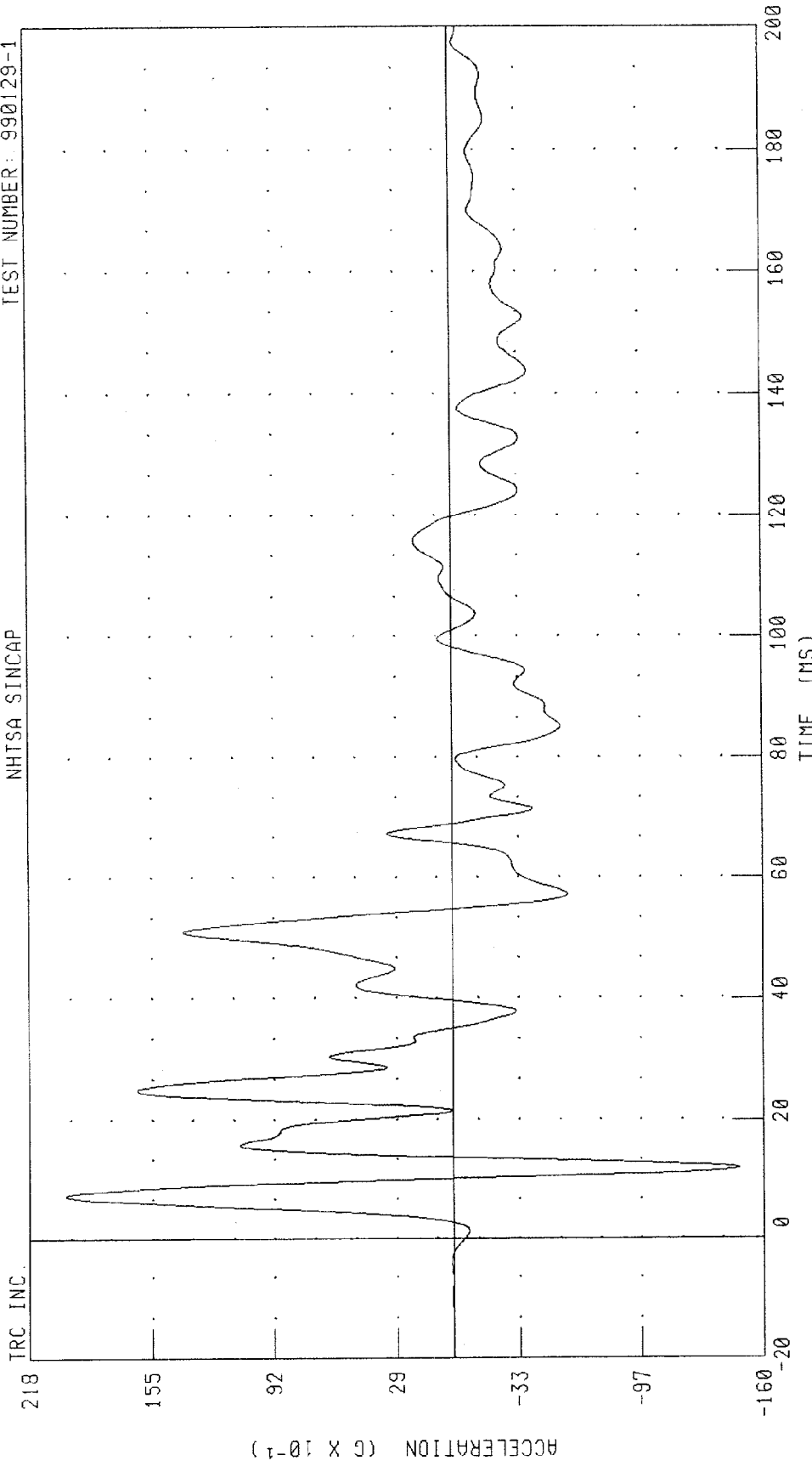


CHANNEL: RRSYV1 FILTER: CH. CLASS 180 PEAK DATA: 25.96 KM/H @ 118.96 MS, -0.03 KM/H @ 3.92 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP



CHANNEL: RRSZG1 FILTER: CH. CLASS 60

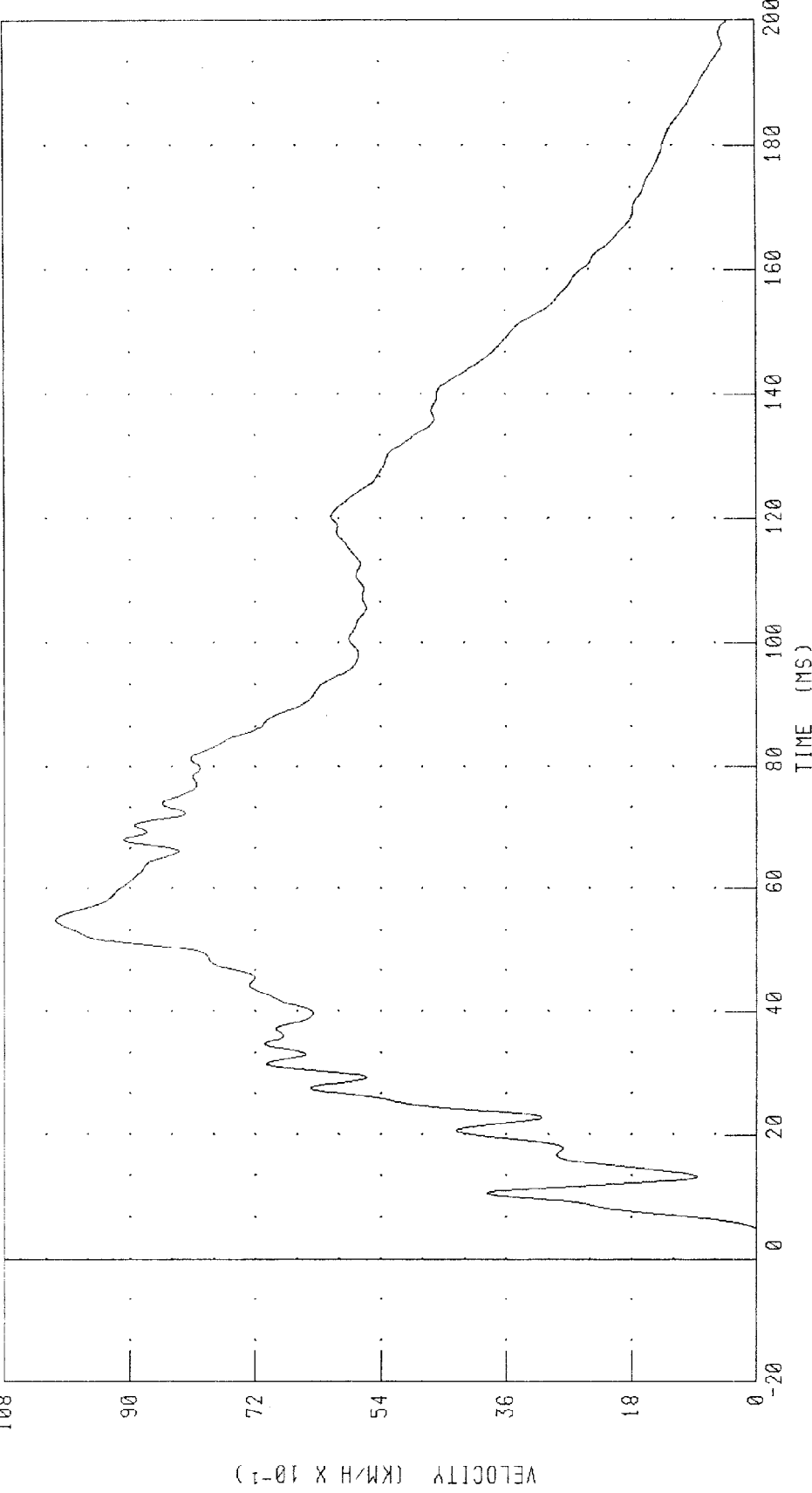
PEAK DATA: 19.94 G @ 7.36 MS, -14.74 G @ 11.84 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



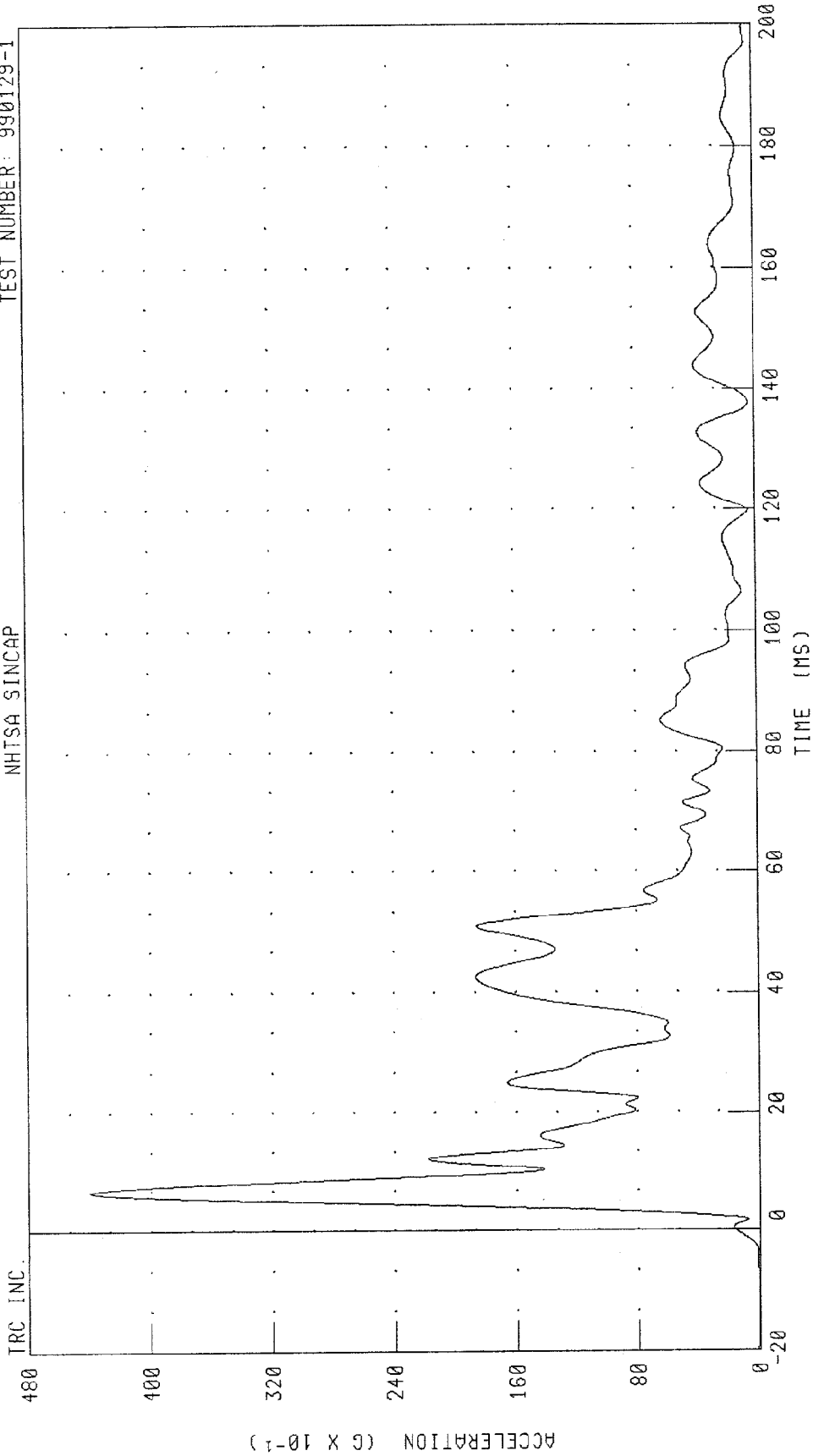
PEAK DATA: 10.07 KM/H @ 54.96 MS; -0.02 KM/H @ 4.24 MS

CHANNEL: RRSZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP



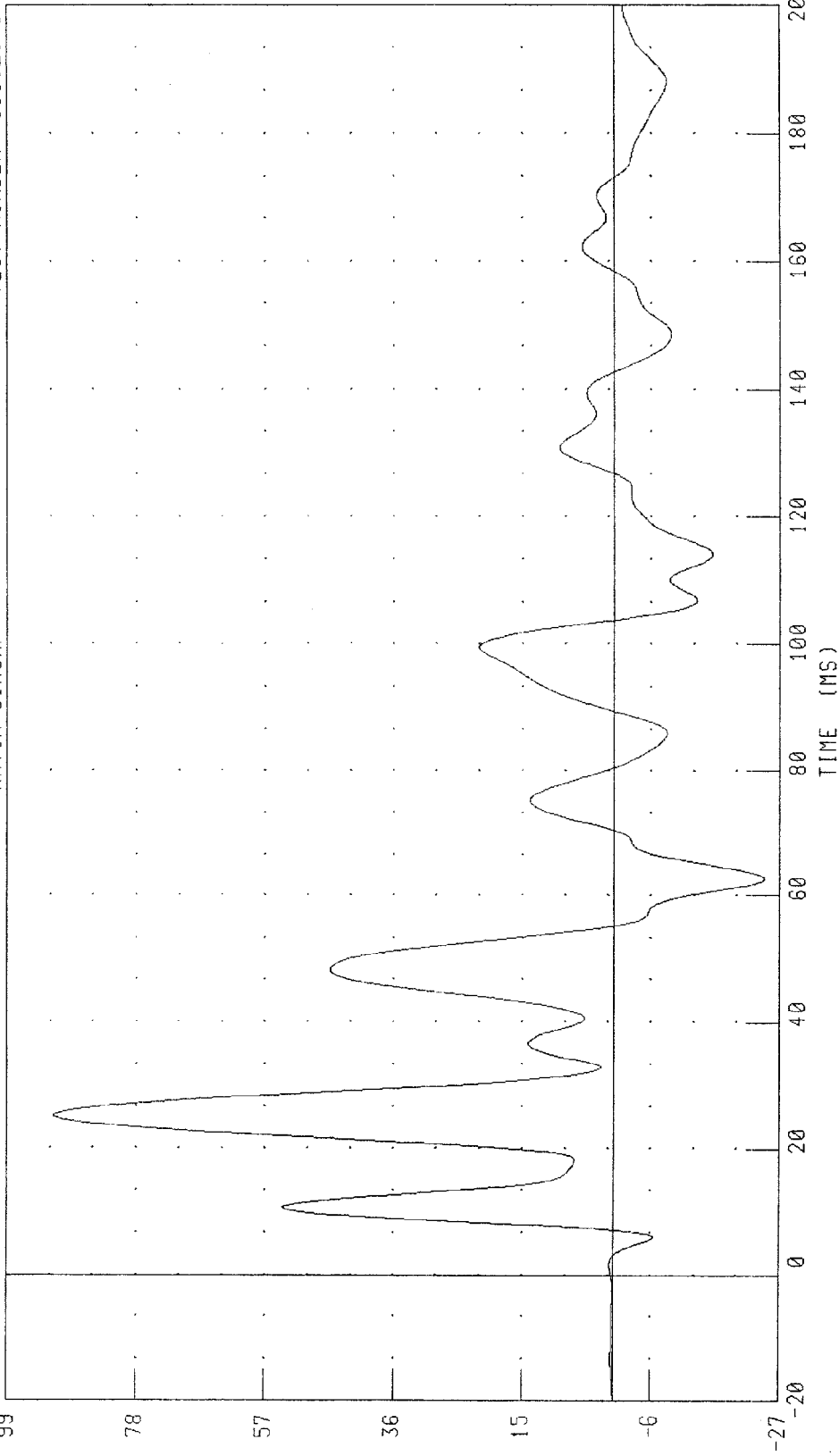
PEAK DATA: 44.04 G @ 6.48 MS; 0.03 G @ -12.56 MS

CHANNEL: RRSRG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1

TRC INC.



CHANNEL: RDKXG1 FILTER: CH. CLASS 60 PEAK DATA: 9 15 G @ 25.20 MS, -2.46 G @ 62.88 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

530

440

350

260

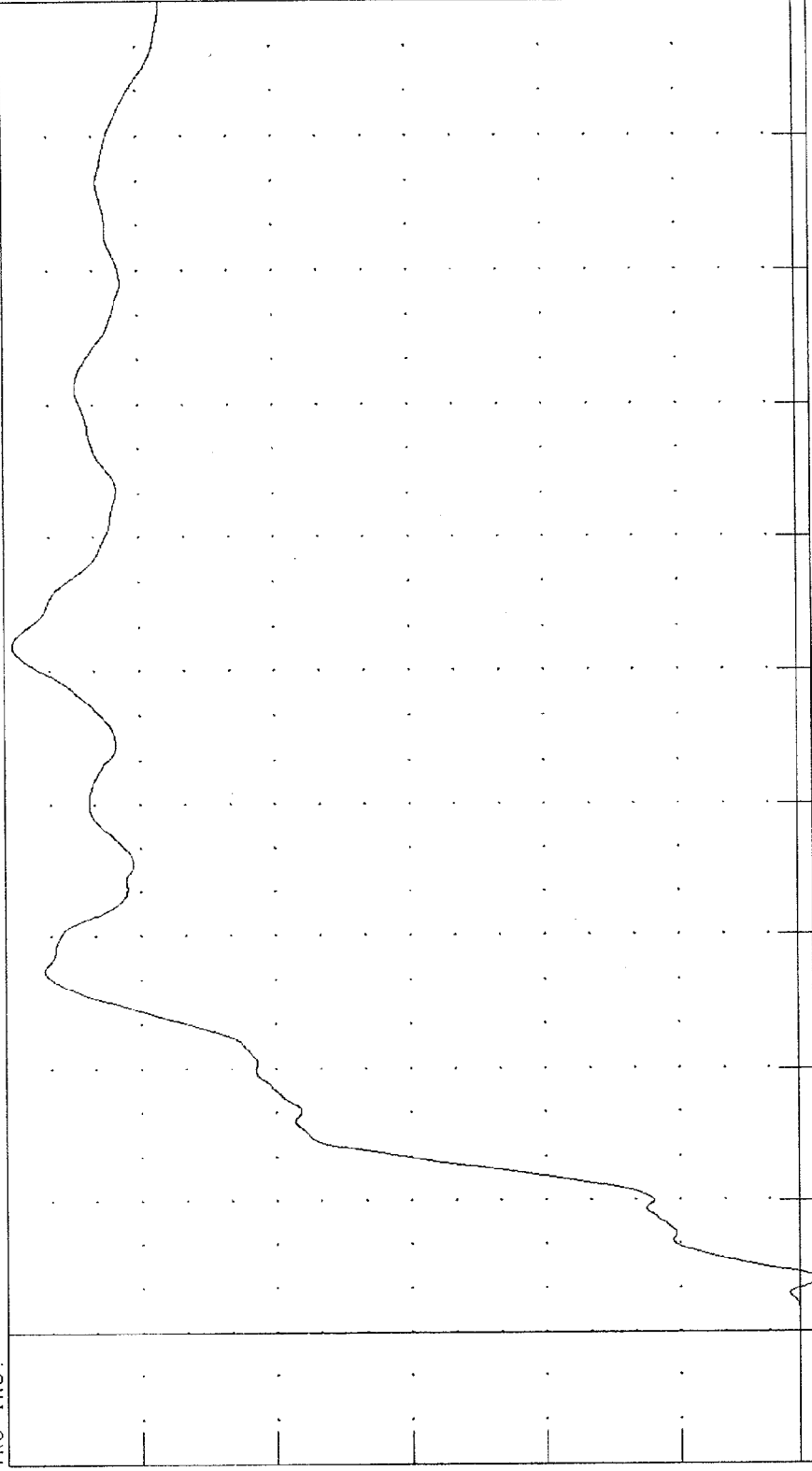
170

80

-10

-20

VELOCITY (KM/H X 10<sup>-2</sup>)



TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

PEAK DATA: 5.25 KM/H @ 103.84 MS; -0.13 KM/H @ 7.92 MS

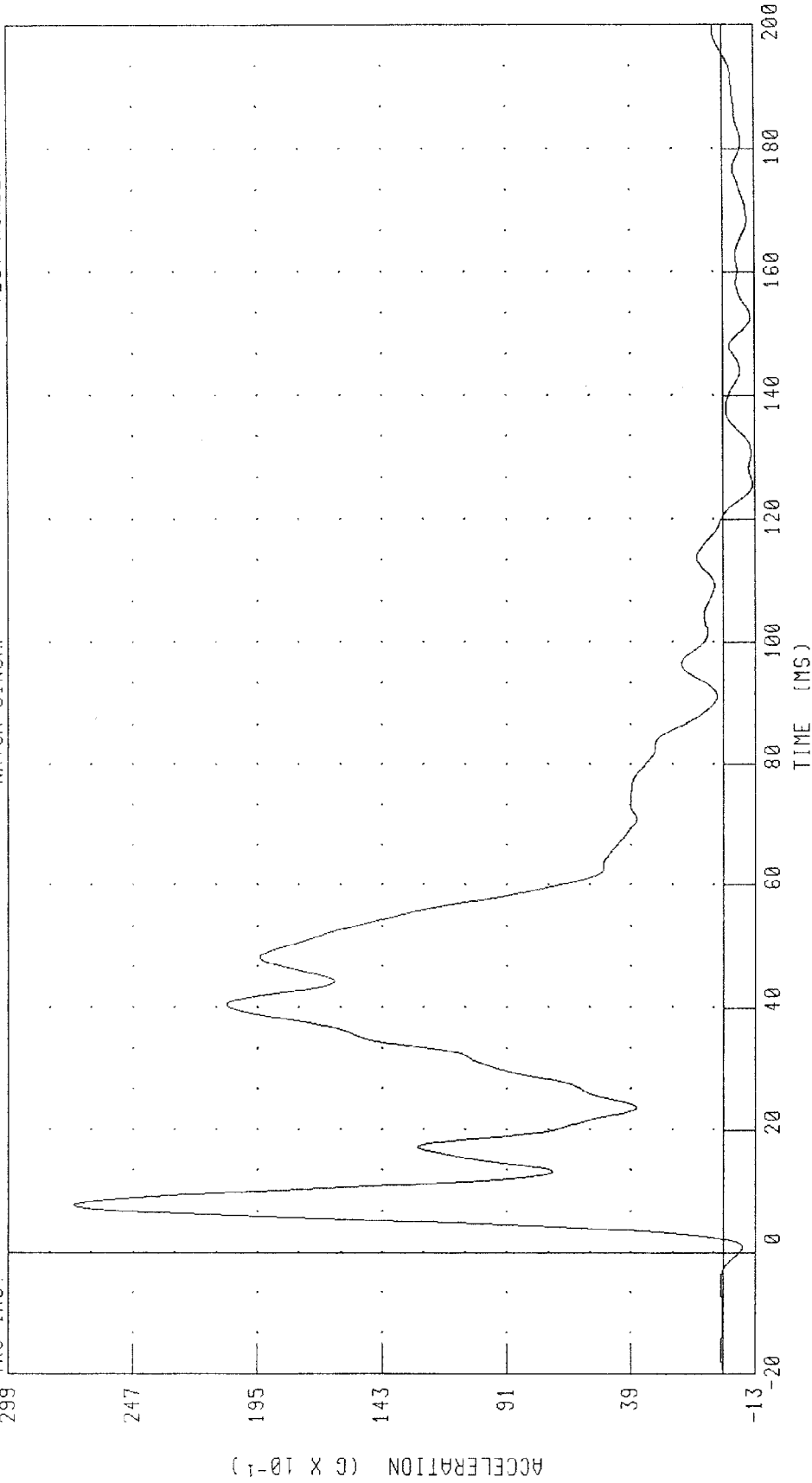
CHANNEL: RDKXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: RDKYG1 FILTER: CH. CLASS 60

PEAK DATA: 27.17 G @ 7.68 MS; -1.21 G @ 125.60 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

IRC INC.

342

285

228

171

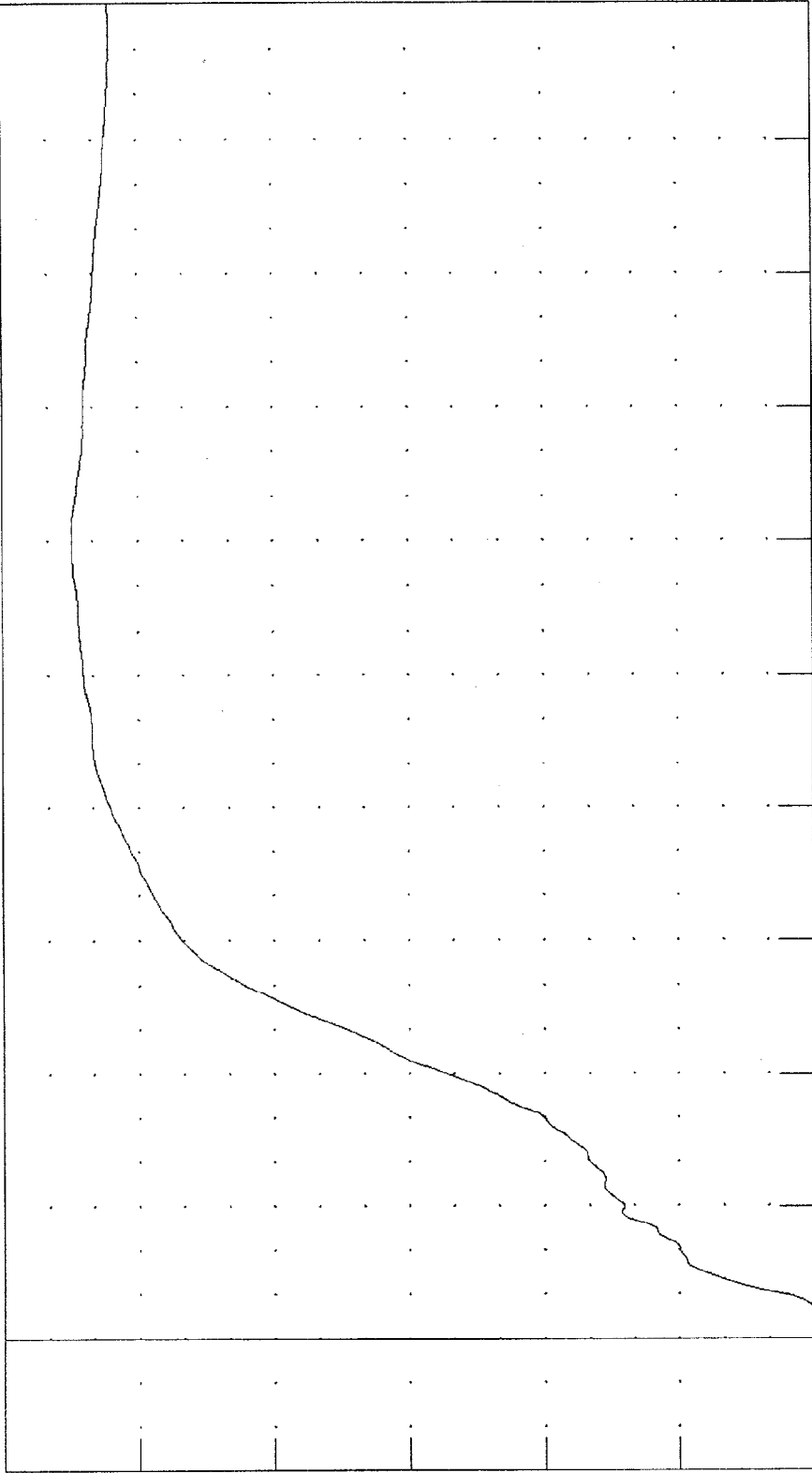
114

57

0

-20

VELOCITY (KM/H X 10<sup>-1</sup>)



TIME (MS)

PEAK DATA: 31.28 KM/H @ 122.24 MS; 0.00 KM/H @ 0.00 MS

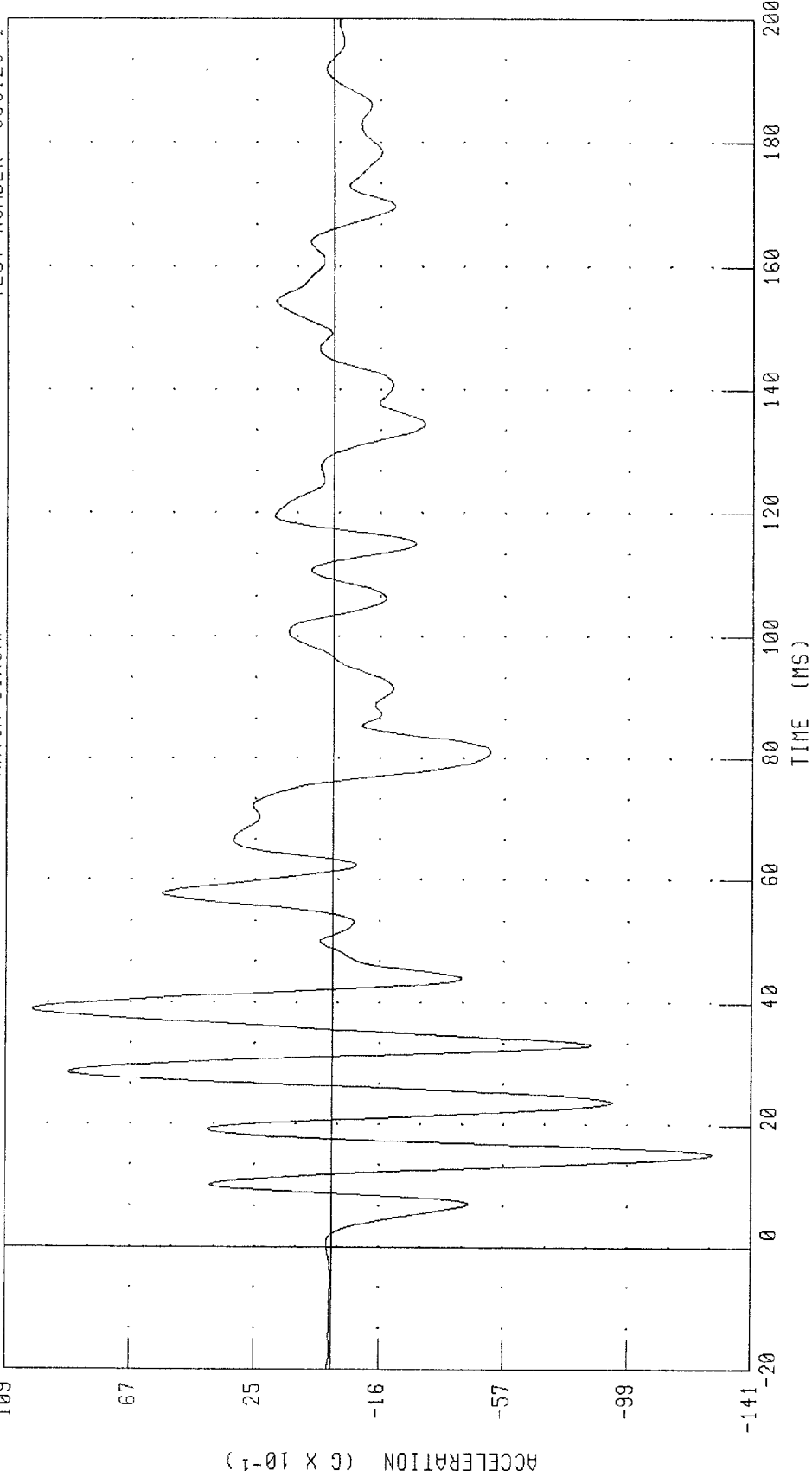
CHANNEL: RDKYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 990129-1

NHTSA\_SINCAP

TRC INC.



CHANNEL: RDKZG1 FILTER: CH. CLASS 60

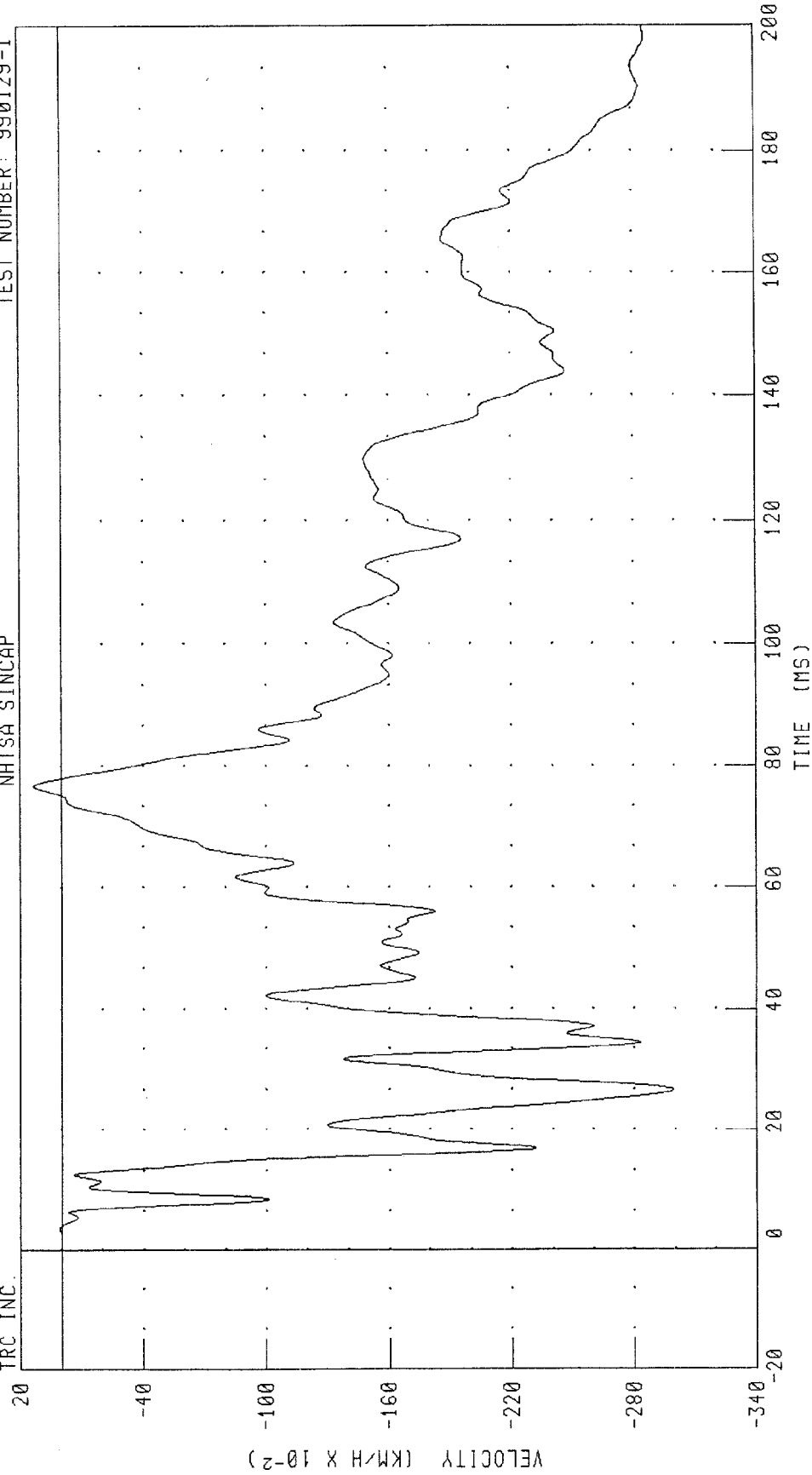
PEAK DATA: 10.13 G @ 38.96 MS; -12.88 G @ 15.20 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



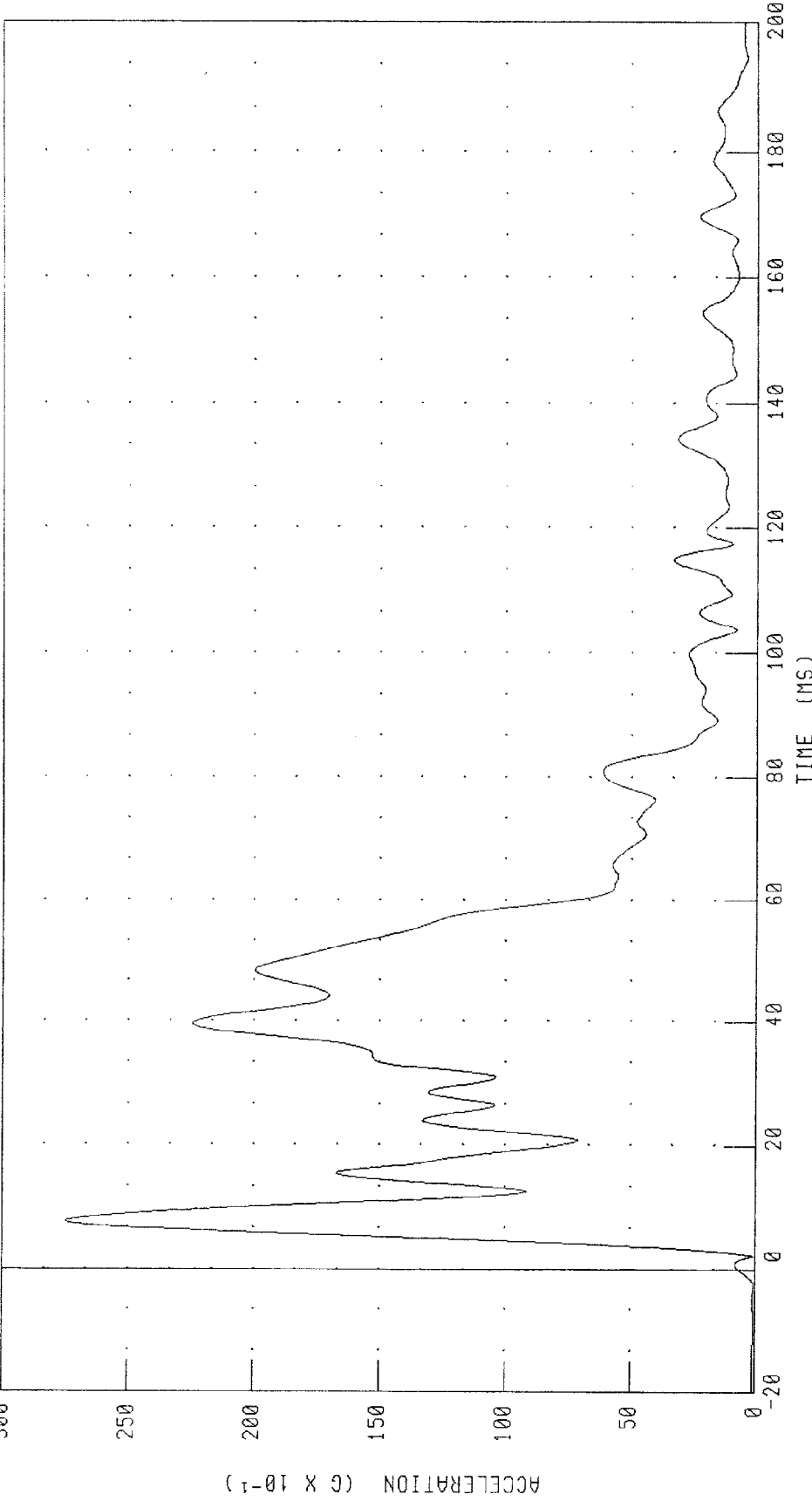
CHANNEL: RDKZV1 FILTER: CH. CLASS 180 PEAK DATA: 0.13 KM/H @ 76.72 MS; -2.99 KM/H @ 26.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC



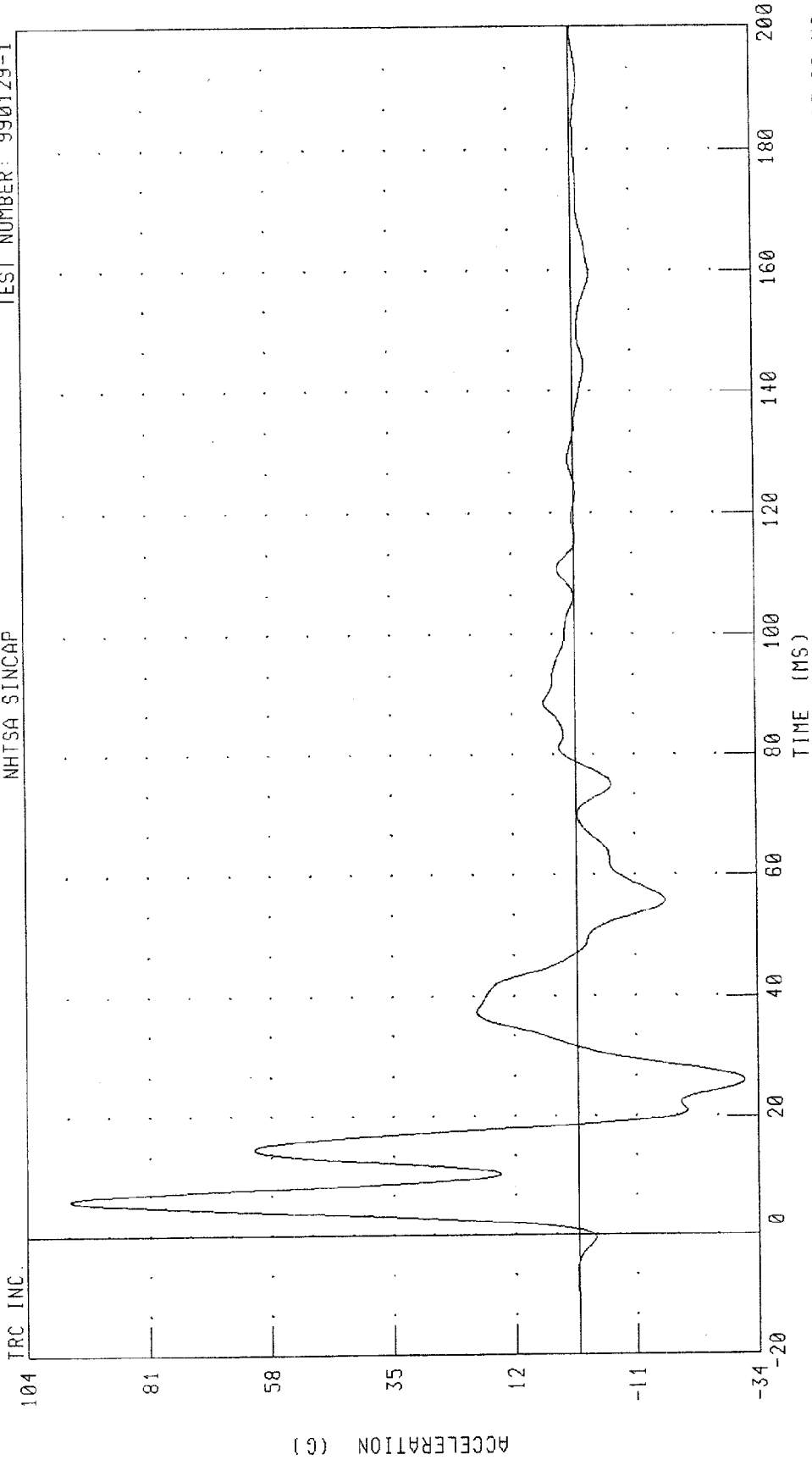
PEAK DATA: 27.48 G @ 7.68 MS; 0.06 G @ -2.72 MS

CHANNEL: RDKRC1 FILTER: CH. CLASS 60

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

TEST NUMBER: 990129-1

NHTSA SINCAP

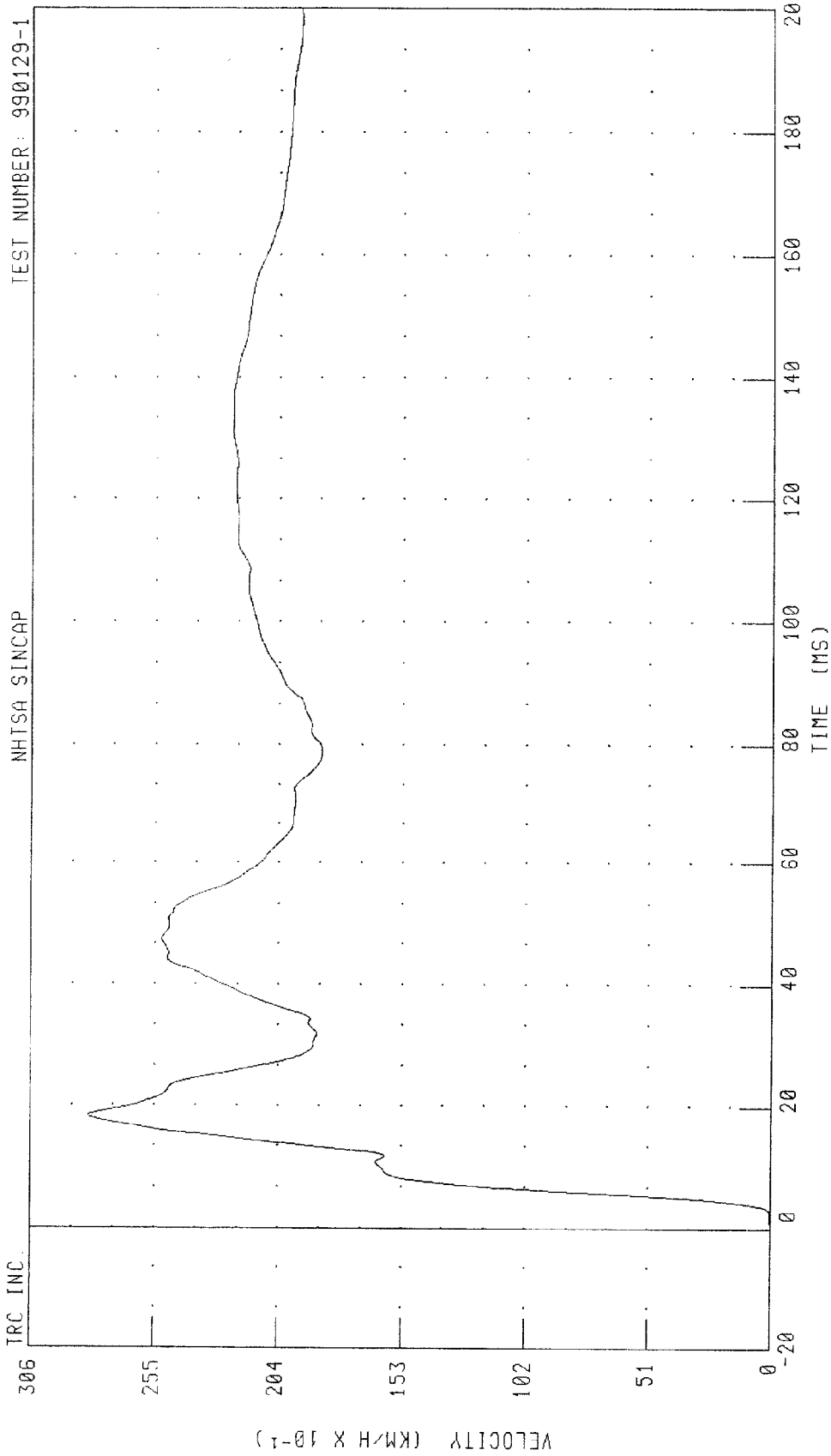


TRC INC.

PEAK DATA: 96.06 G @ 5.84 MS; -31.46 G @ 25.92 MS

CHANNEL: LFSY01 FILTER: CH. CLASS 60

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

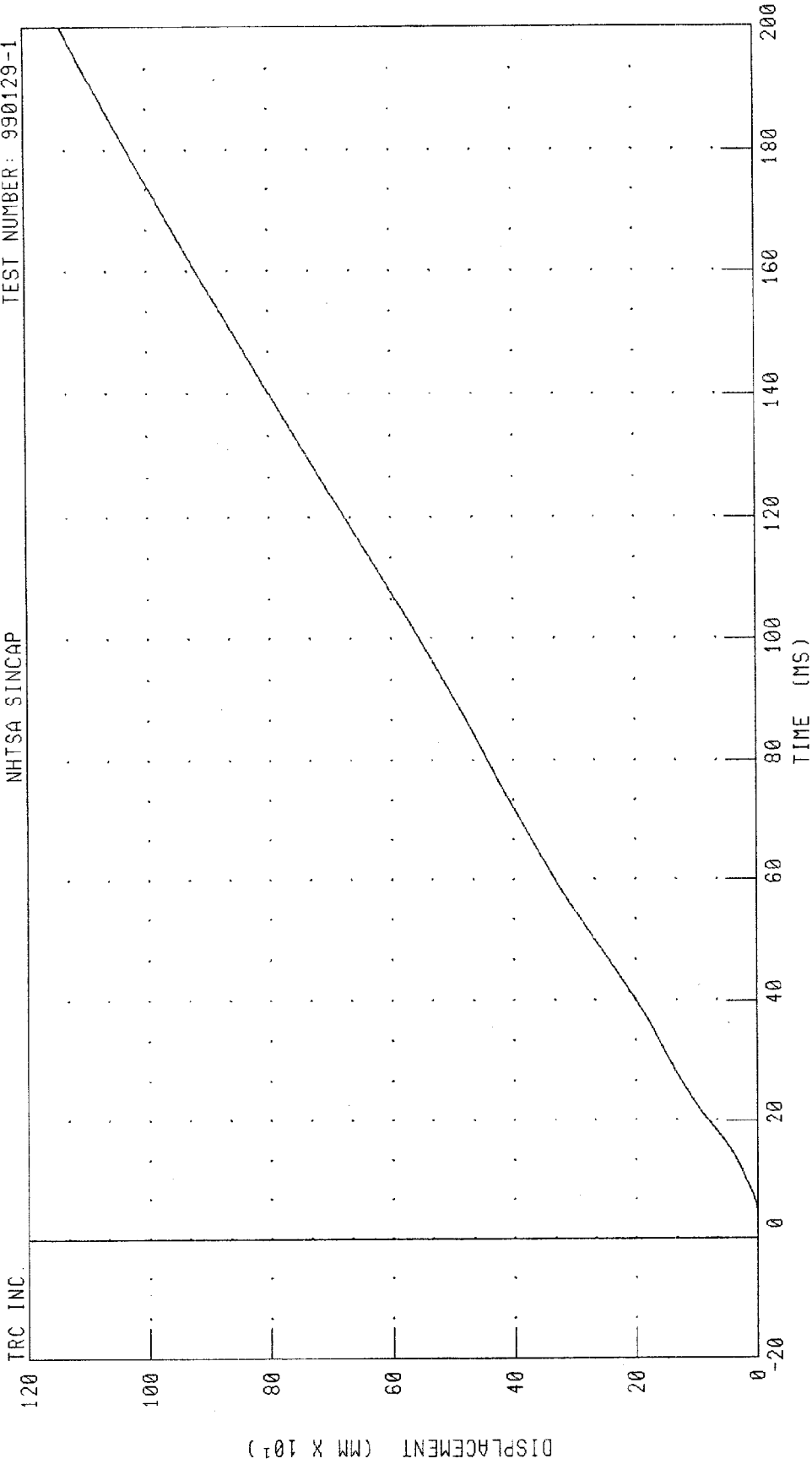


PEAK DATA: 28.25 KM/H @ 18.40 MS; 0.00 KM/H @ 0.00 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

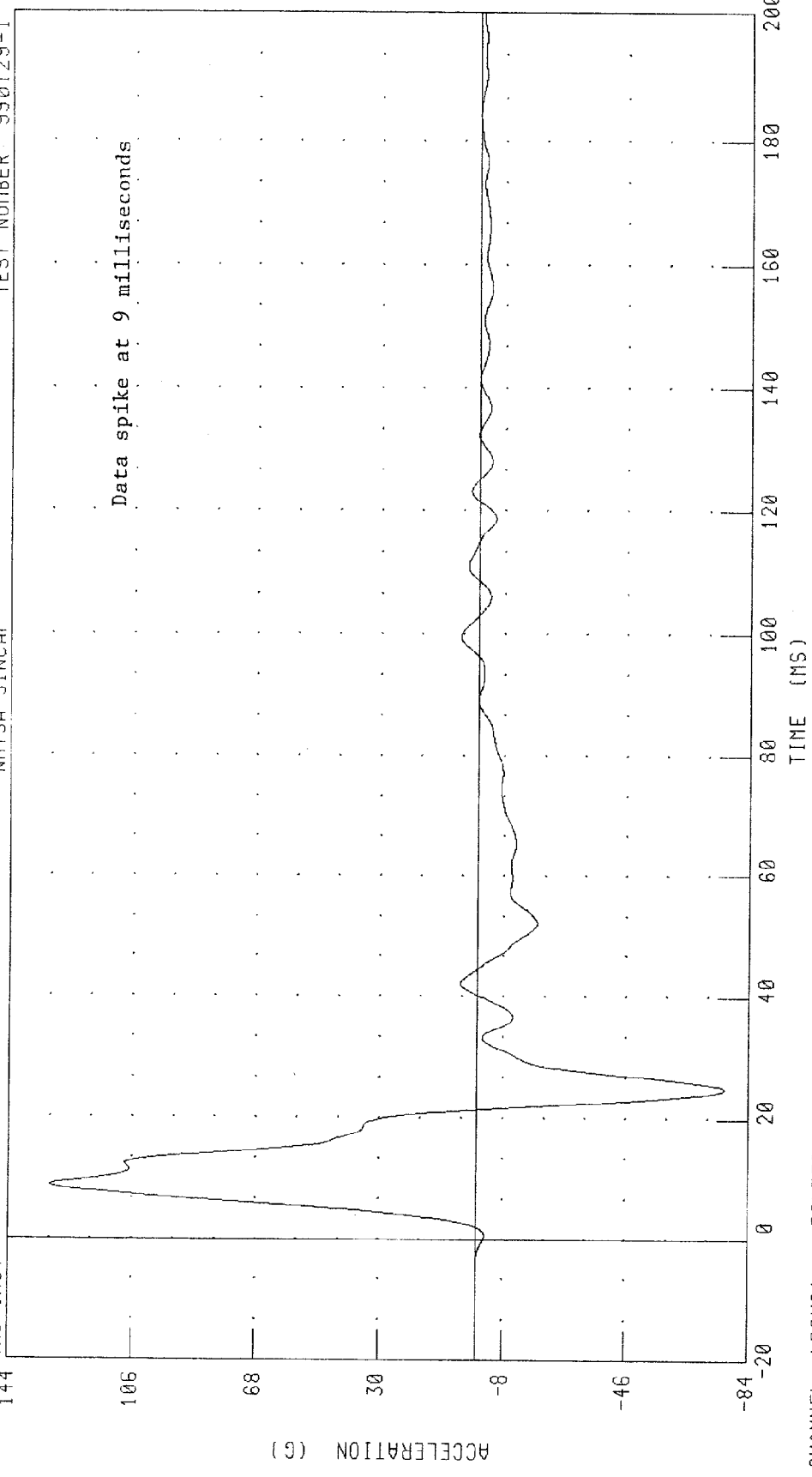


CHANNEL: LFSYD1 FILTER: CH. CLASS 180

PEAK DATA: 1141.09 MM @ 200.00 MS; 0.00 MM @ 0.00 MS

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

TRC INC. NHTSA SINCAP TEST NUMBER: 990129-1



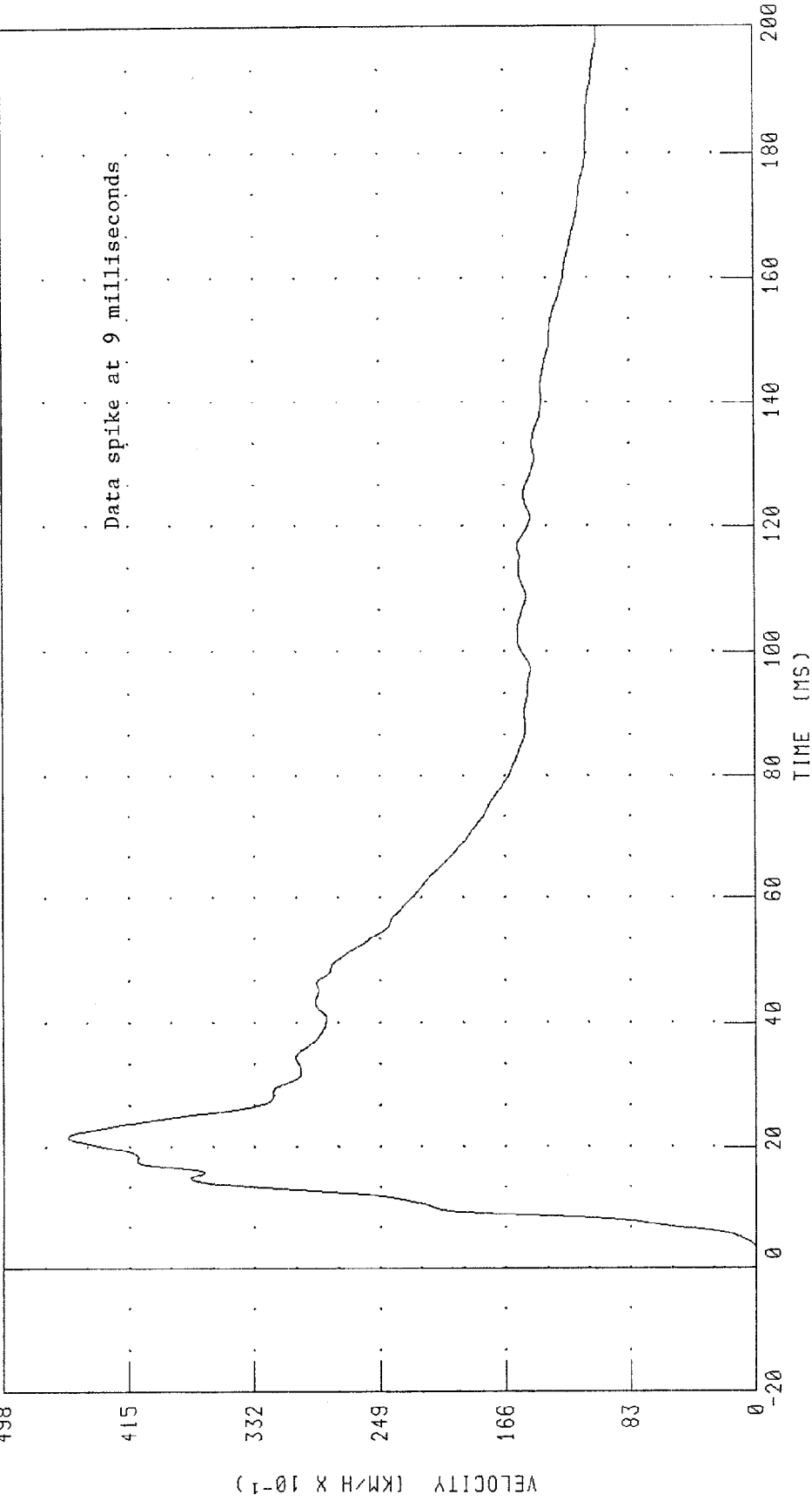
CHANNEL: LRSYG1 FILTER: CH CLASS 60 PEAK DATA: 131.34 G @ 8.88 MS; -76.52 G @ 24.88 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



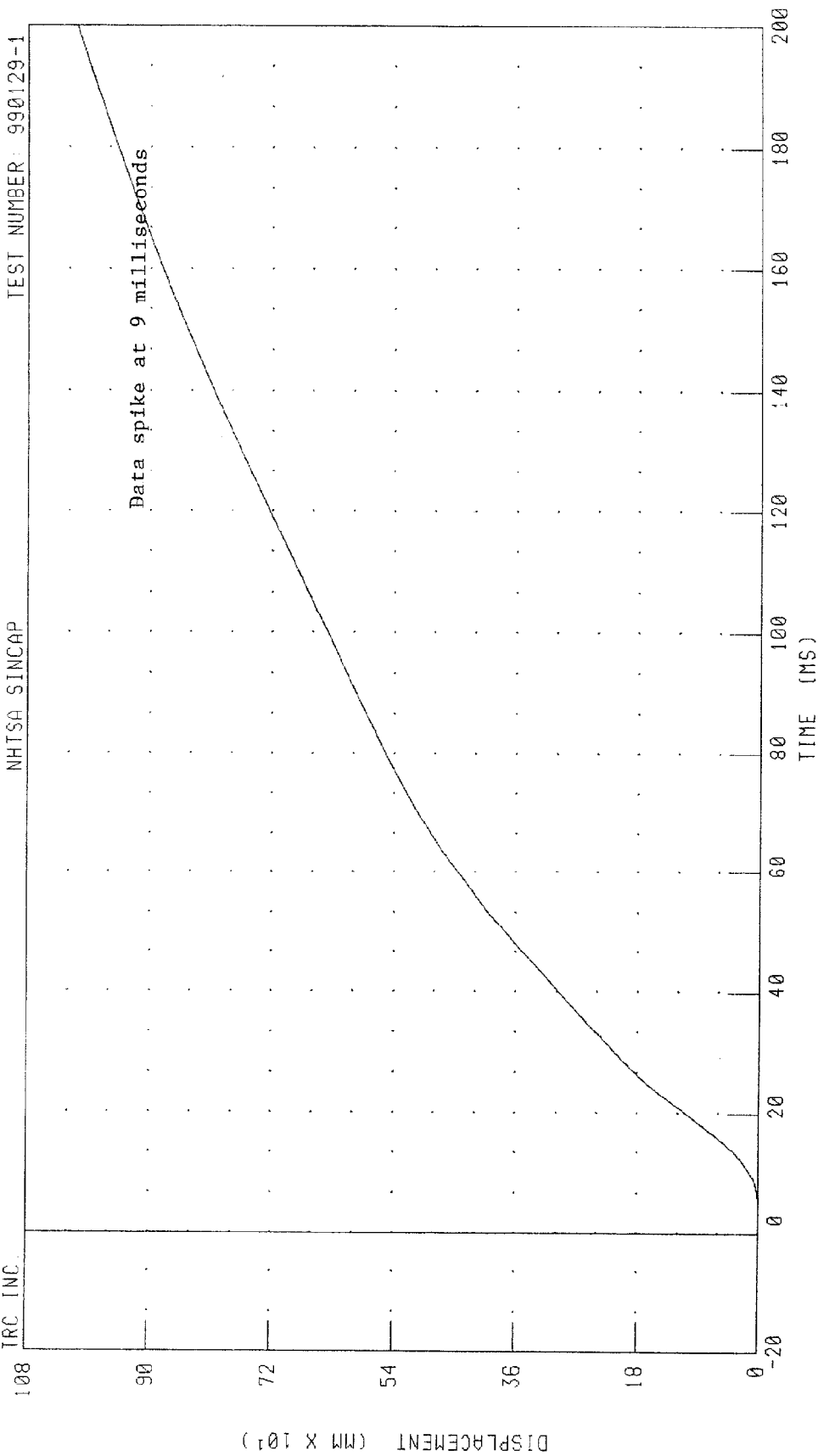
CHANNEL: LRSYV1 FILTER: CH. CLASS 180 PEAK DATA: 45.56 KM/H @ 21.68 MS; 0.00 KM/H @ 2.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT SIDE SILL AT REAR SEAT Y-AXIS DISPLACEMENT

TEST NUMBER: 990129-1

NHTSA SINCAP

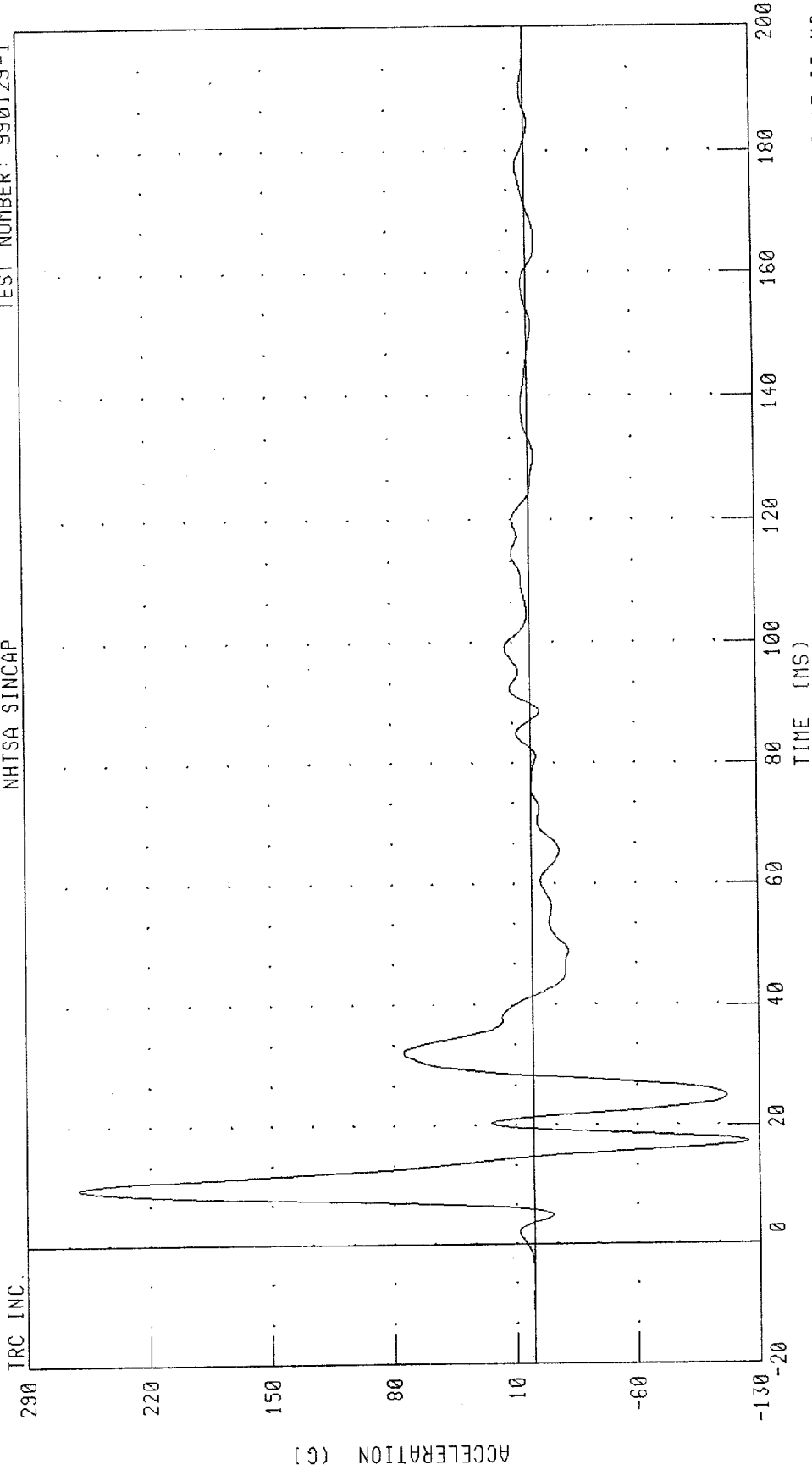
TRC INC.



CHANNEL: LRSYD1 FILTER: CH. CLASS 180 PEAK DATA: 1008.07 MM @ 200.00 MS; 0.00 MM @ 2.80 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT FRONT DOOR ON CENTERLINE Y-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1



CHANNEL: LFCYG1 FILTER: CH. CLASS 60

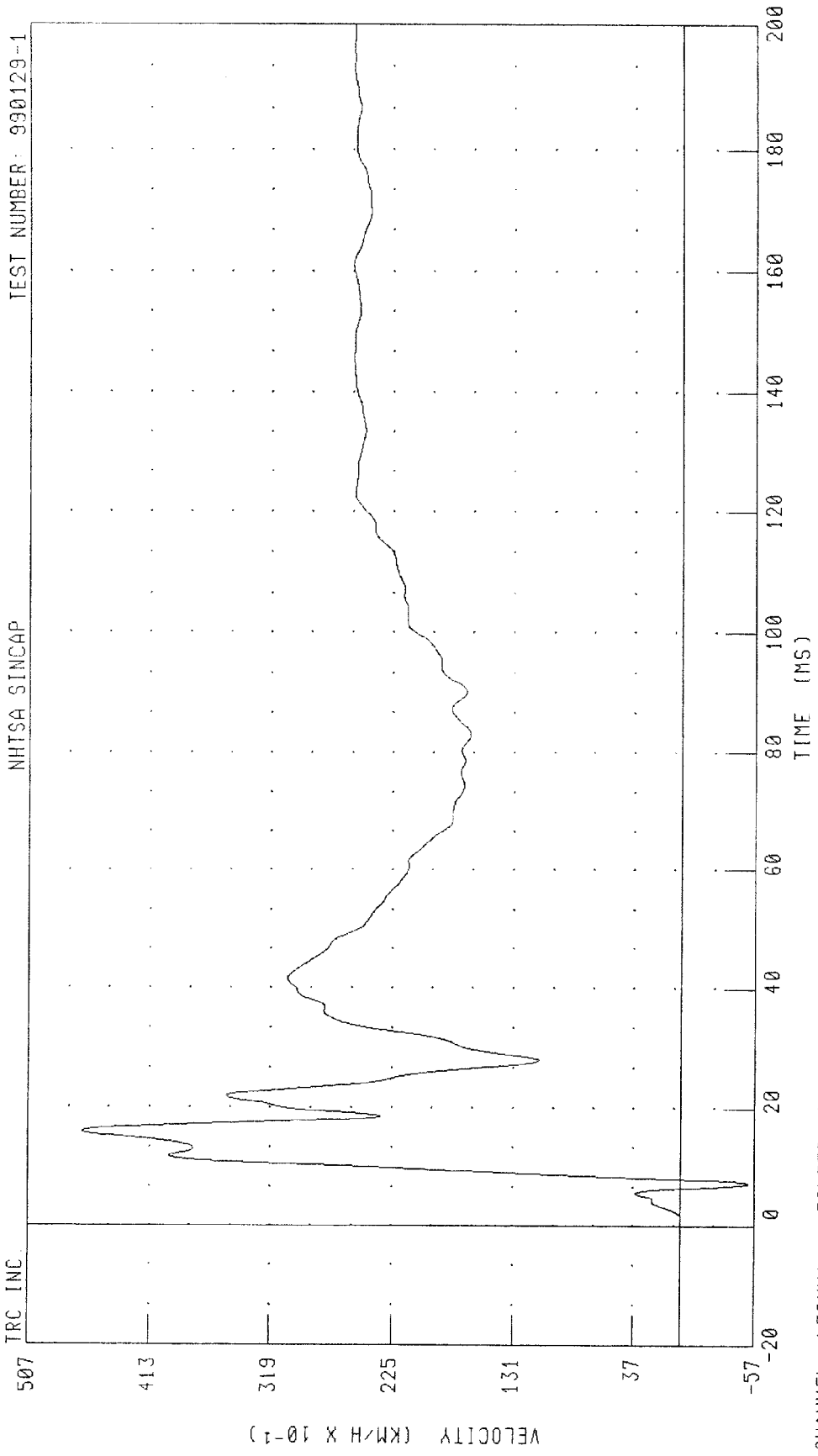
PEAK DATA: 260.88 G @ 9.68 MS, -123.72 G @ 17.28 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 46.53 KM/H @ 16.00 MS, -5.26 KM/H @ 7.36 MS

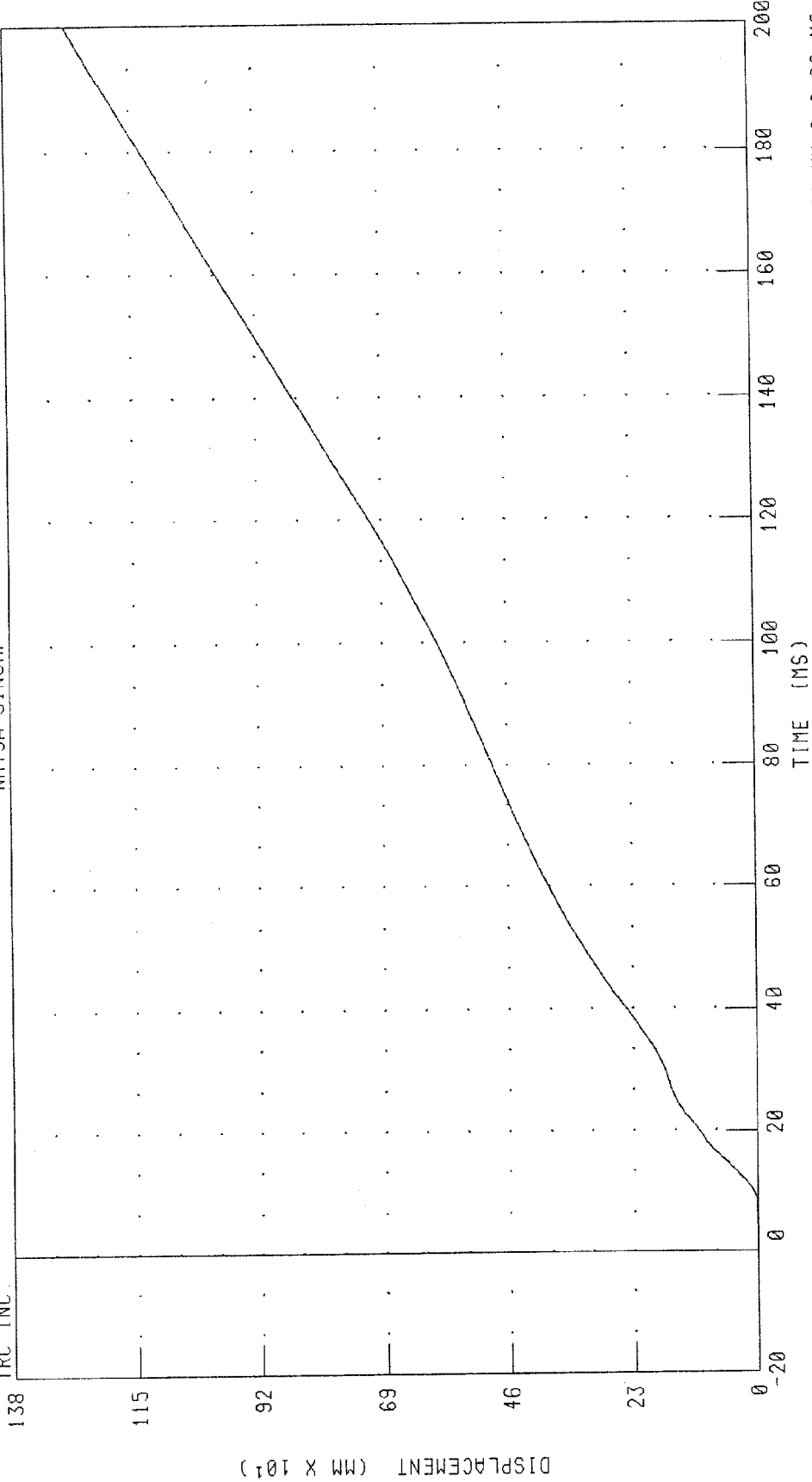
CHANNEL: LFCYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

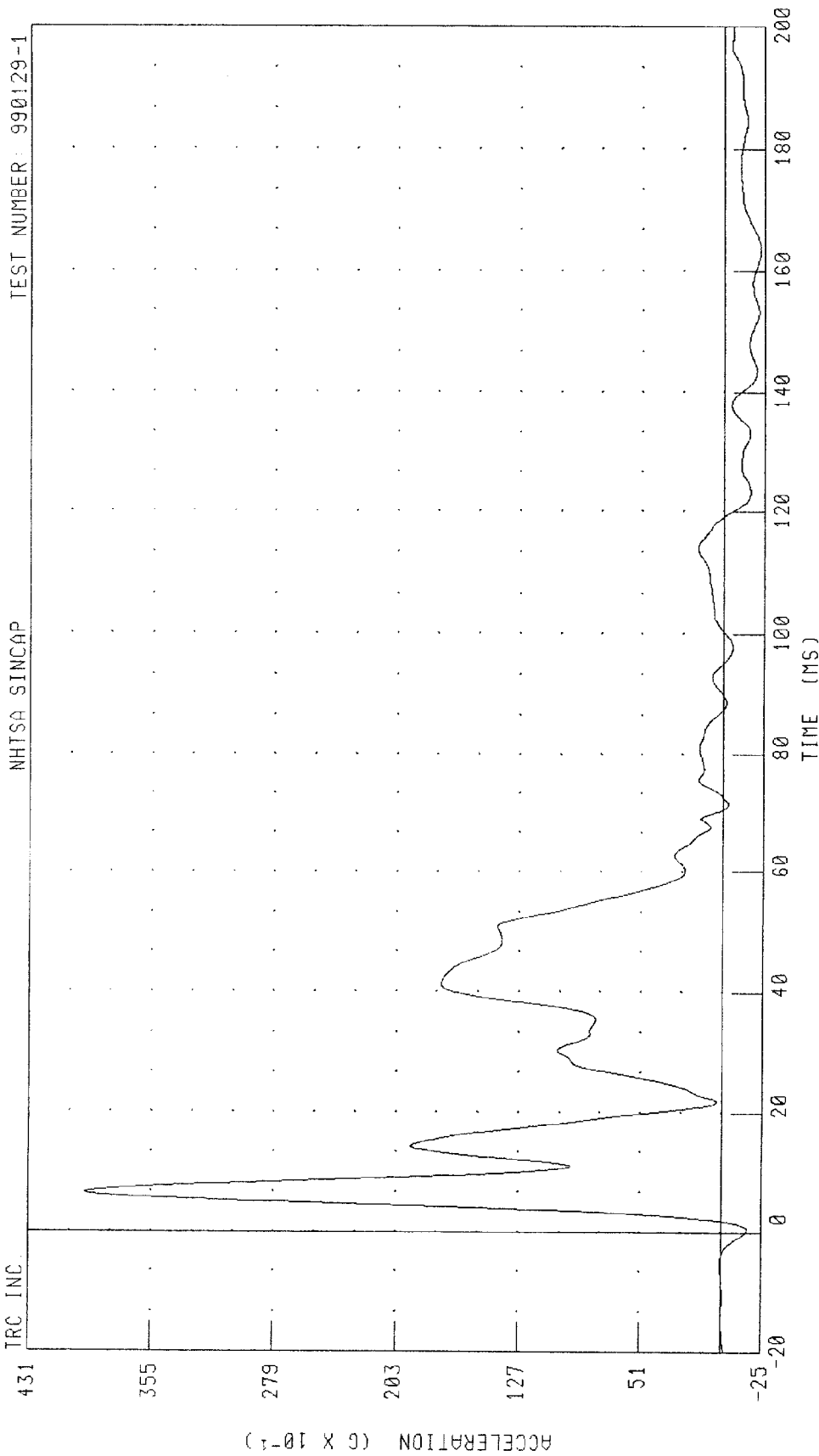


CHANNEL: LFCYD1 FILTER: CH. CLASS 180

PEAK DATA: 1269.36 MM @ 200.00 MS, 0.00 MM @ 0.00 MS

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

TRC INC. NHTSA SINCAP TEST NUMBER: 990129-1

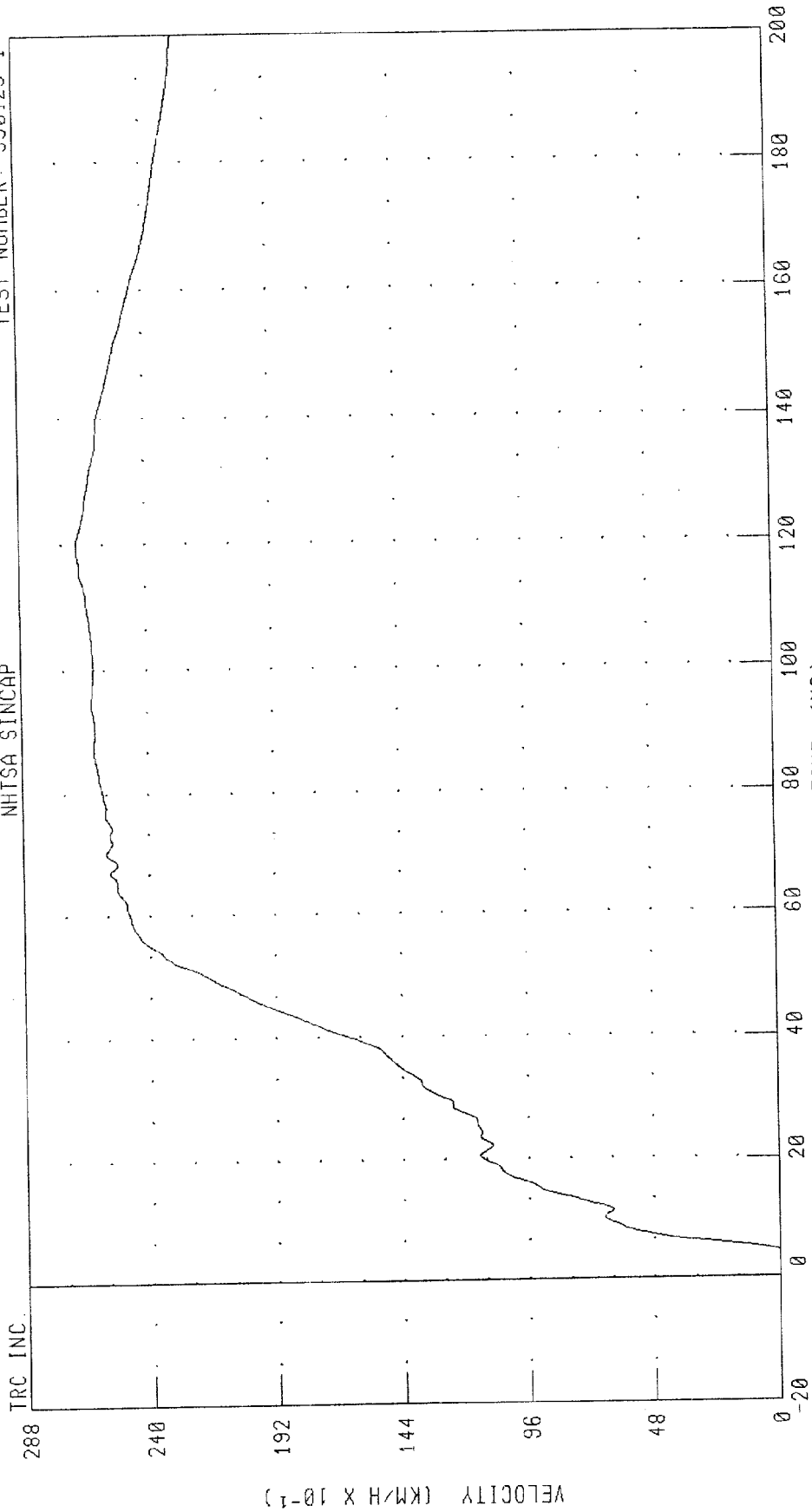


CHANNEL: RRTYG1 FILTER: CH. CLASS 60 PEAK DATA: 39.63 G @ 6.48 MS; -2.28 G @ 163.28 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY  
NHTSA SINCAP

TEST NUMBER: 990129-1

TRC INC.

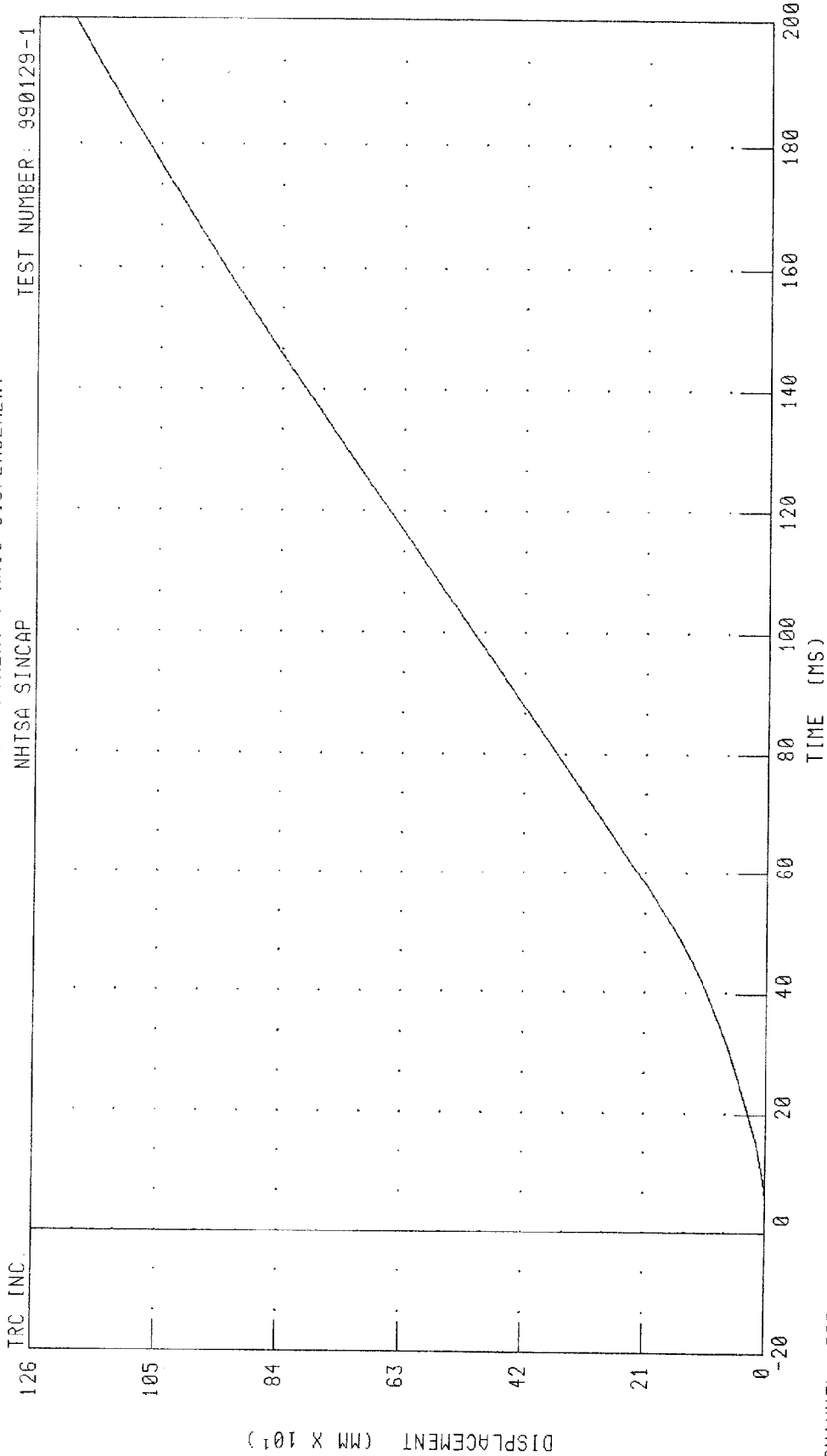


TIME (MS)

PEAK DATA: 26.62 KM/H @ 120.16 MS; -0.05 KM/H @ 4.16 MS

CHANNEL: RRTYV1 FILTER: CH. CLASS 180

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



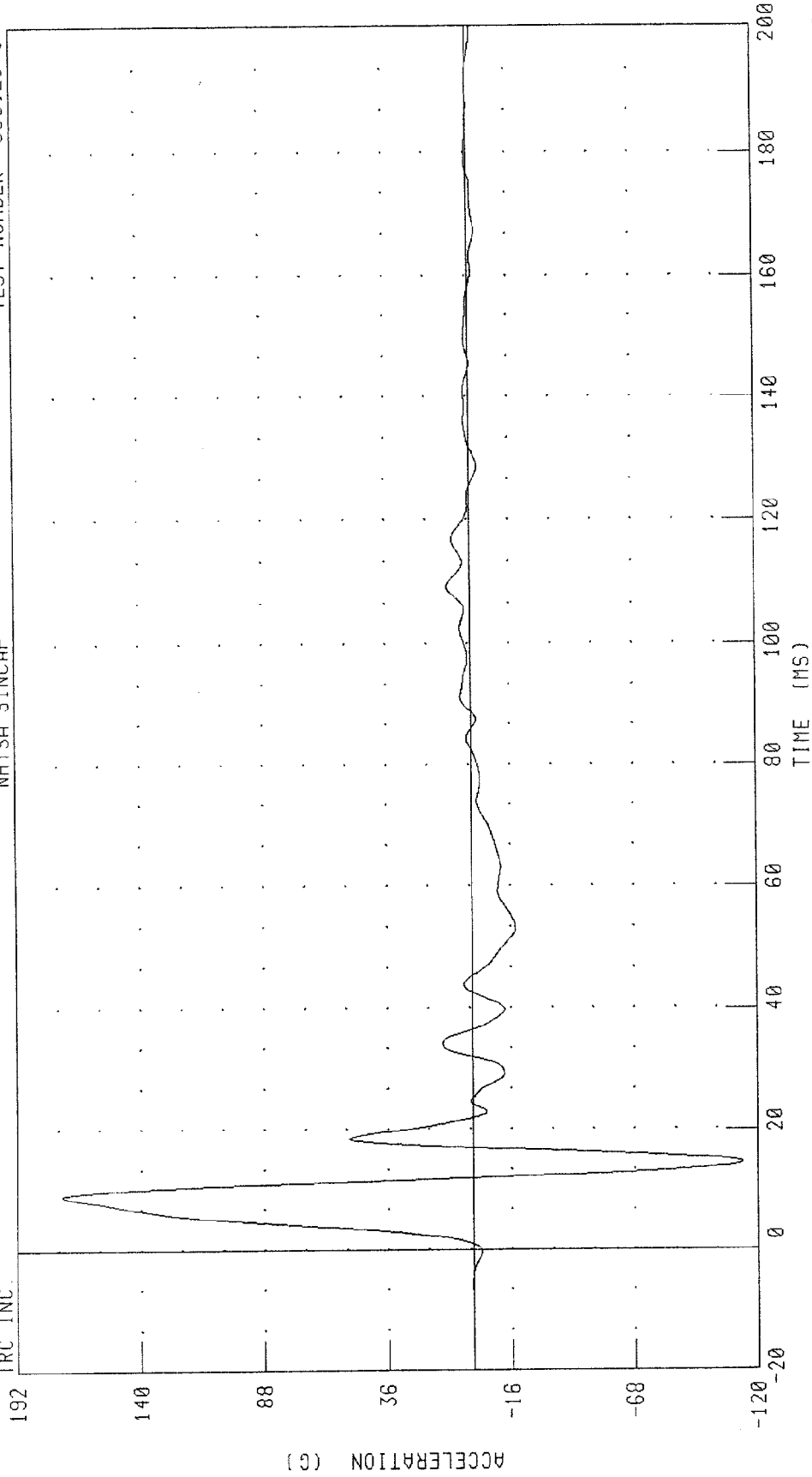
CHANNEL: RRTY01 FILTER: CH. CLASS 180 PEAK DATA: 1198.87 MM @ 200.00 MS, -0.01 MM @ 4.56 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

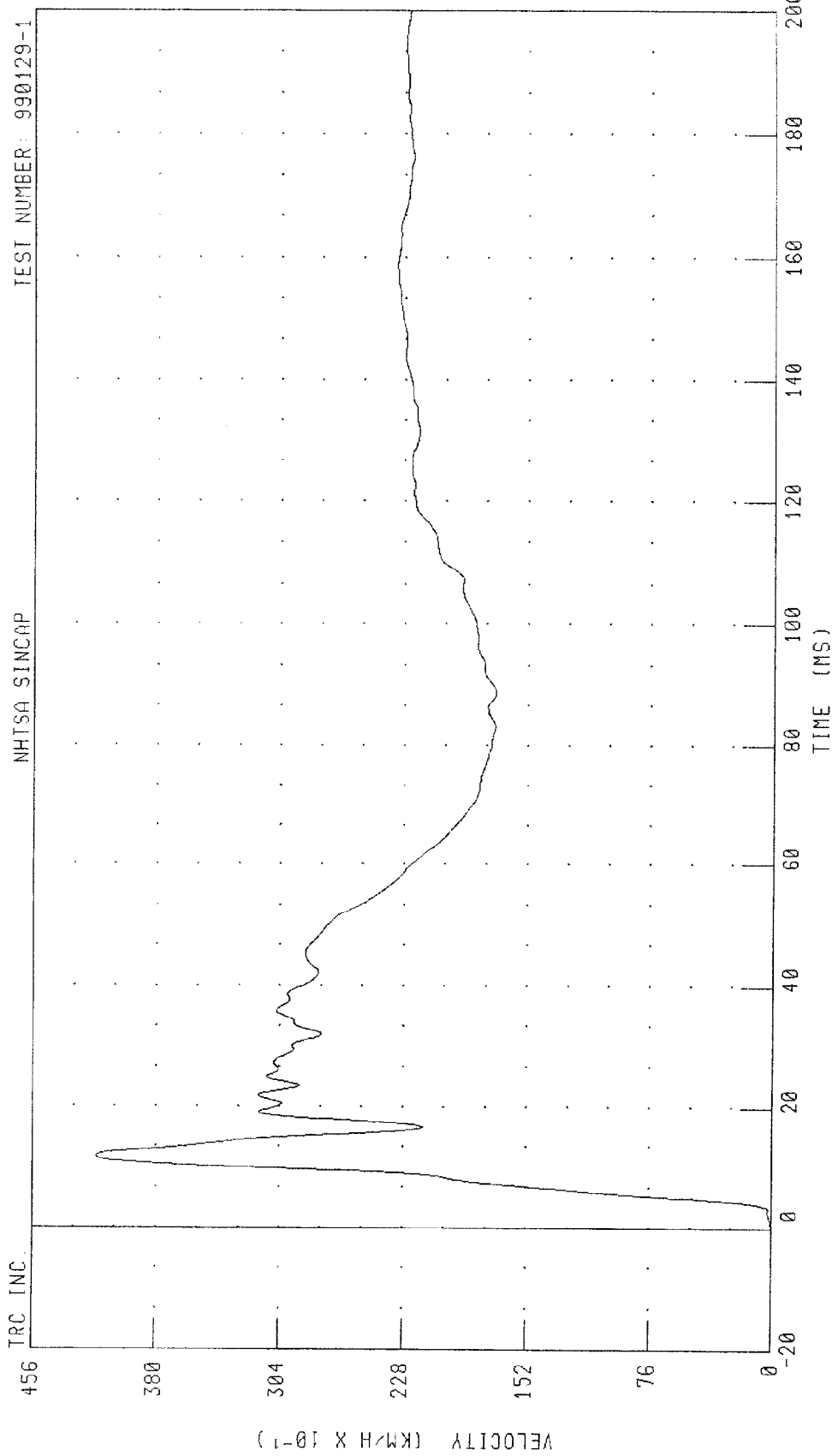
TRC INC.



CHANNEL: LFMYG1 FILTER: CH. CLASS 60

PEAK DATA: 173.14 G @ 9.20 MS, -113.52 G @ 14.48 MS

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

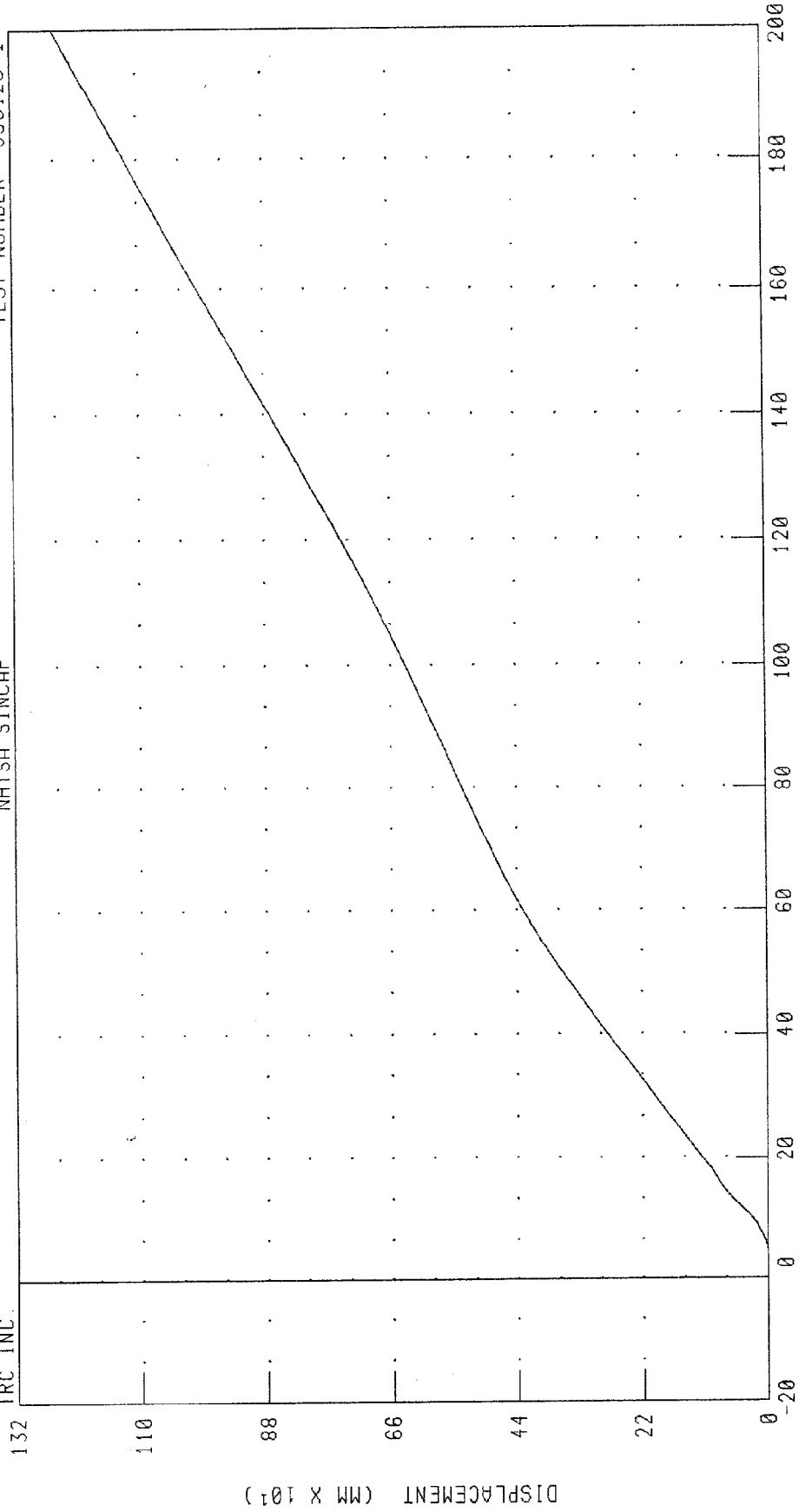


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MID-REAR OF LEFT FRONT DOOR Y-AXIS DISPLACEMENT

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



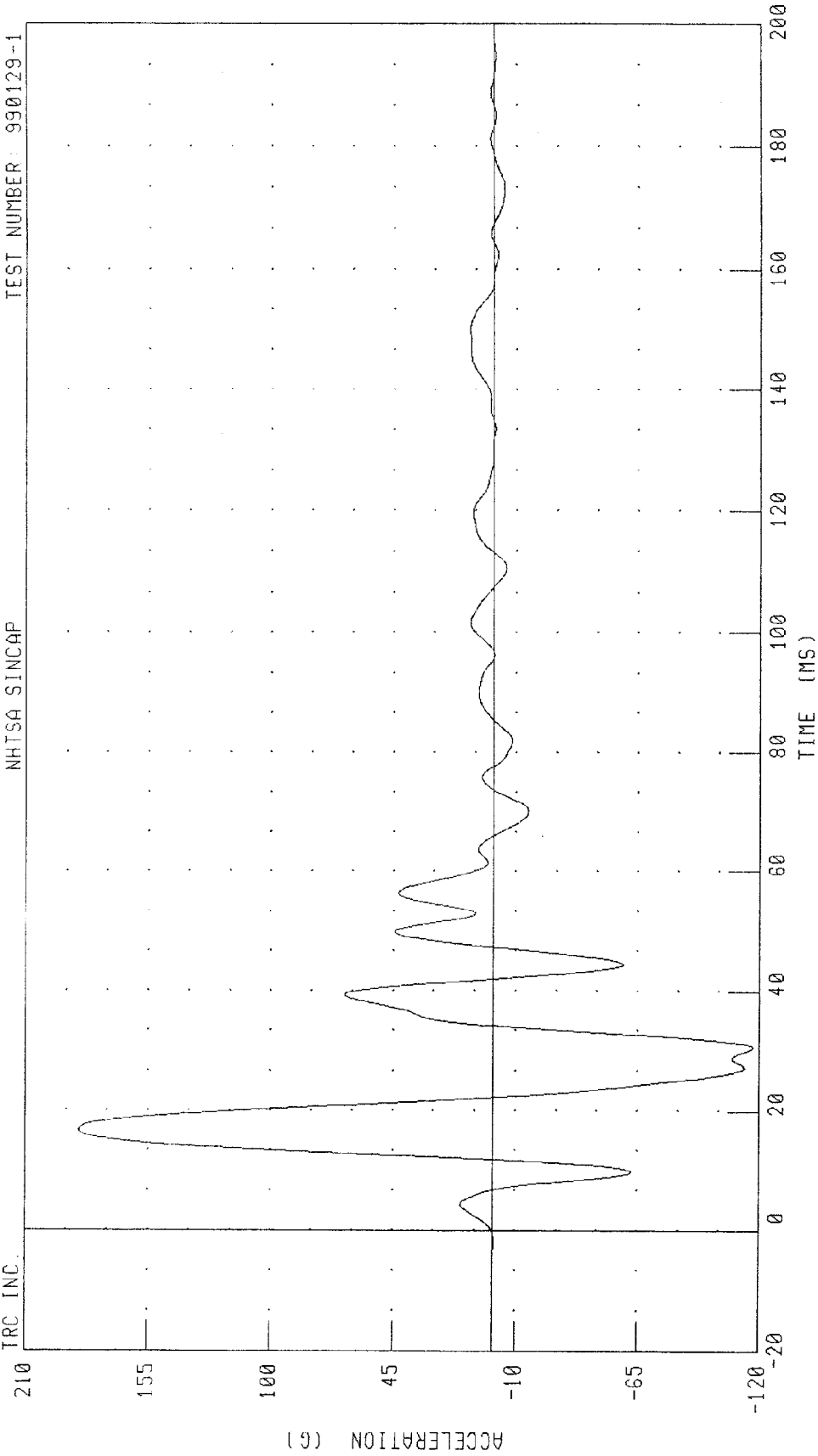
CHANNEL: LFMYD1 FILTER: CH. CLASS 180 PEAK DATA: 1247.52 MM @ 200.00 MS; 0.00 MM @ 0.00 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



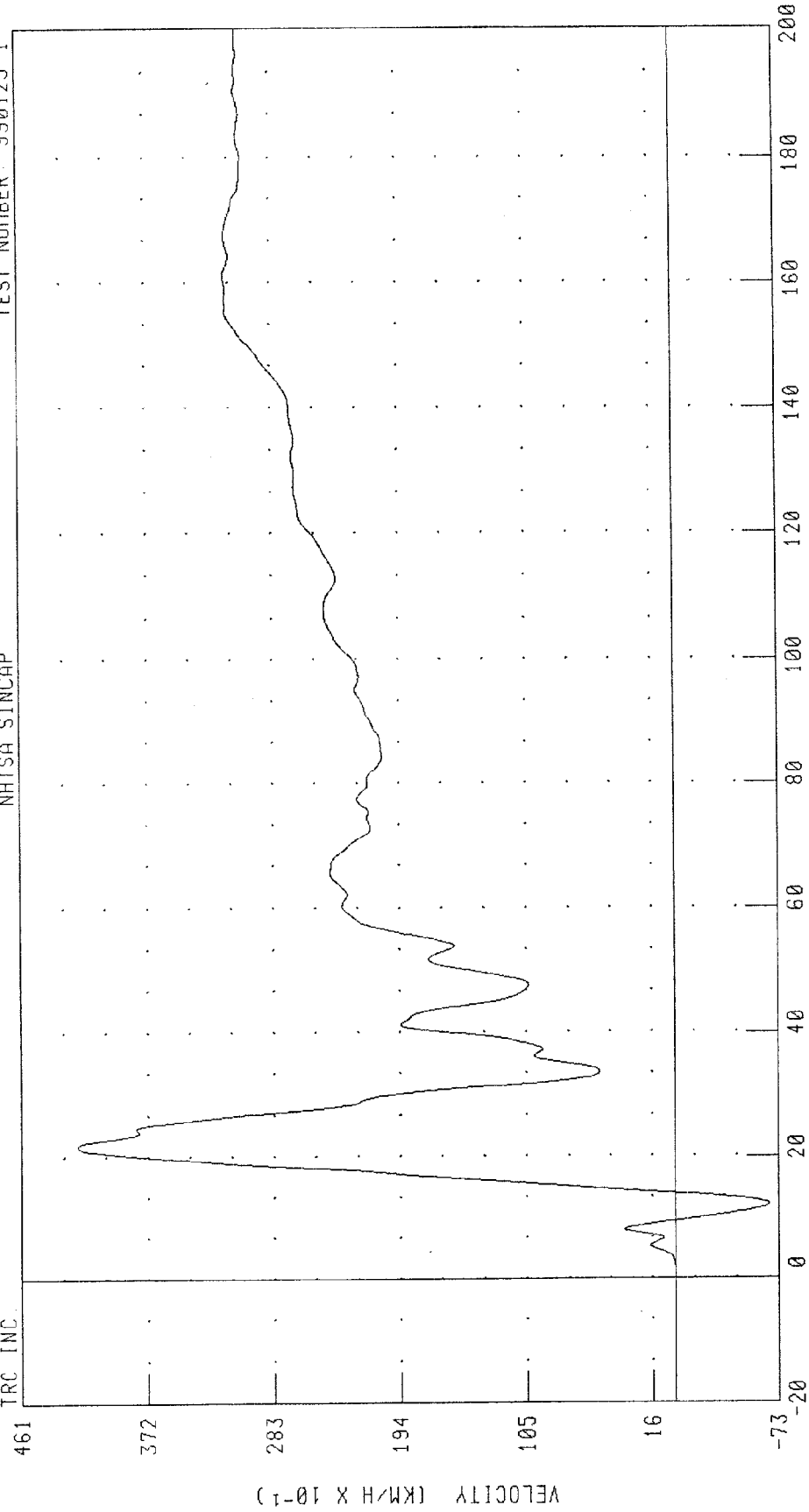
CHANNEL: LFUYG1 FILTER: CH. CLASS 60 PEAK DATA: 186.18 G @ 16.64 MS; -117.03 G @ 30.64 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS VELOCITY

TEST NUMBER 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 42.15 KM/H @ 21.84 MS; -6.65 KM/H @ 12.16 MS

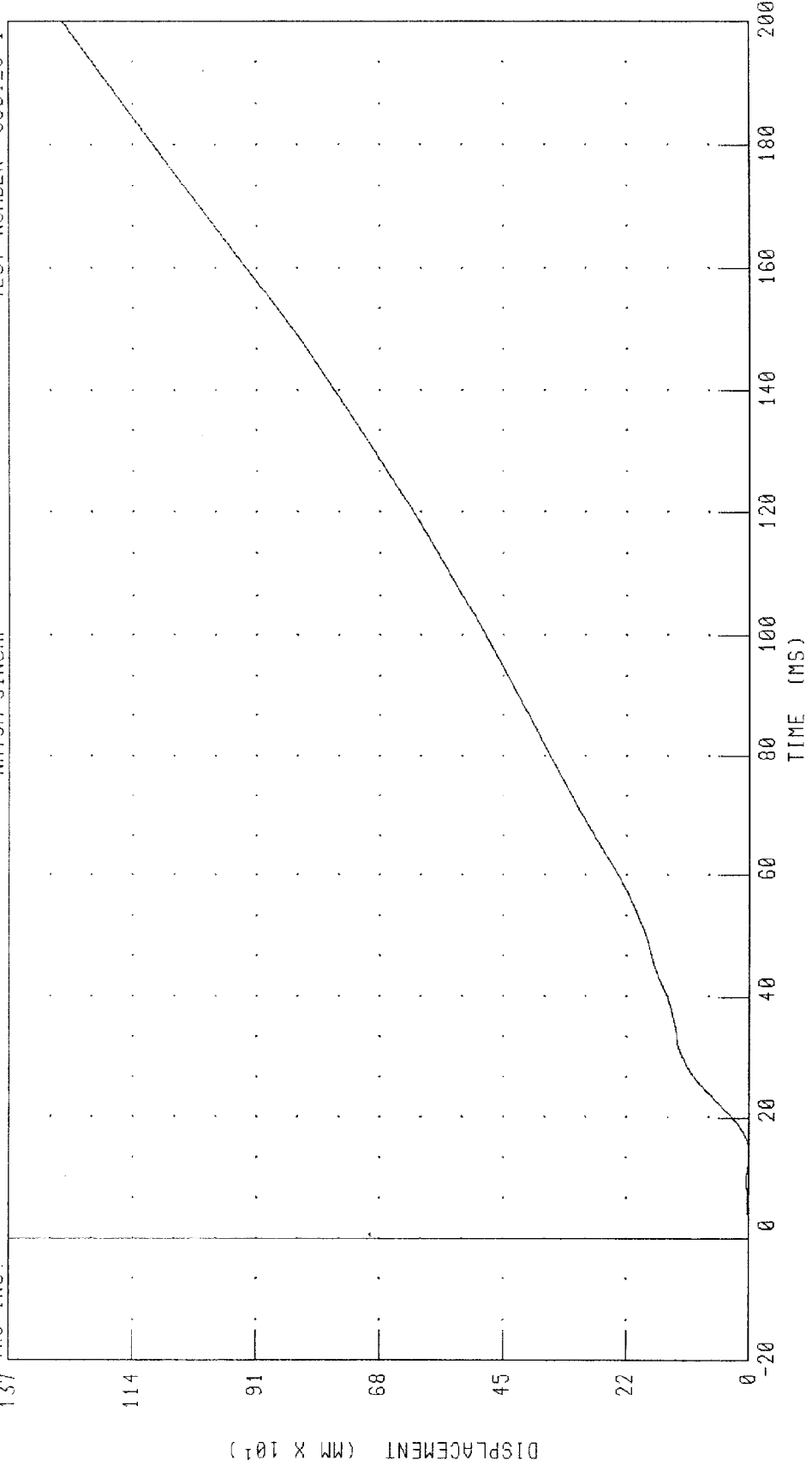
CHANNEL: LFUYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 990129-1

NHTSA\_SINCAP

TRC INC.



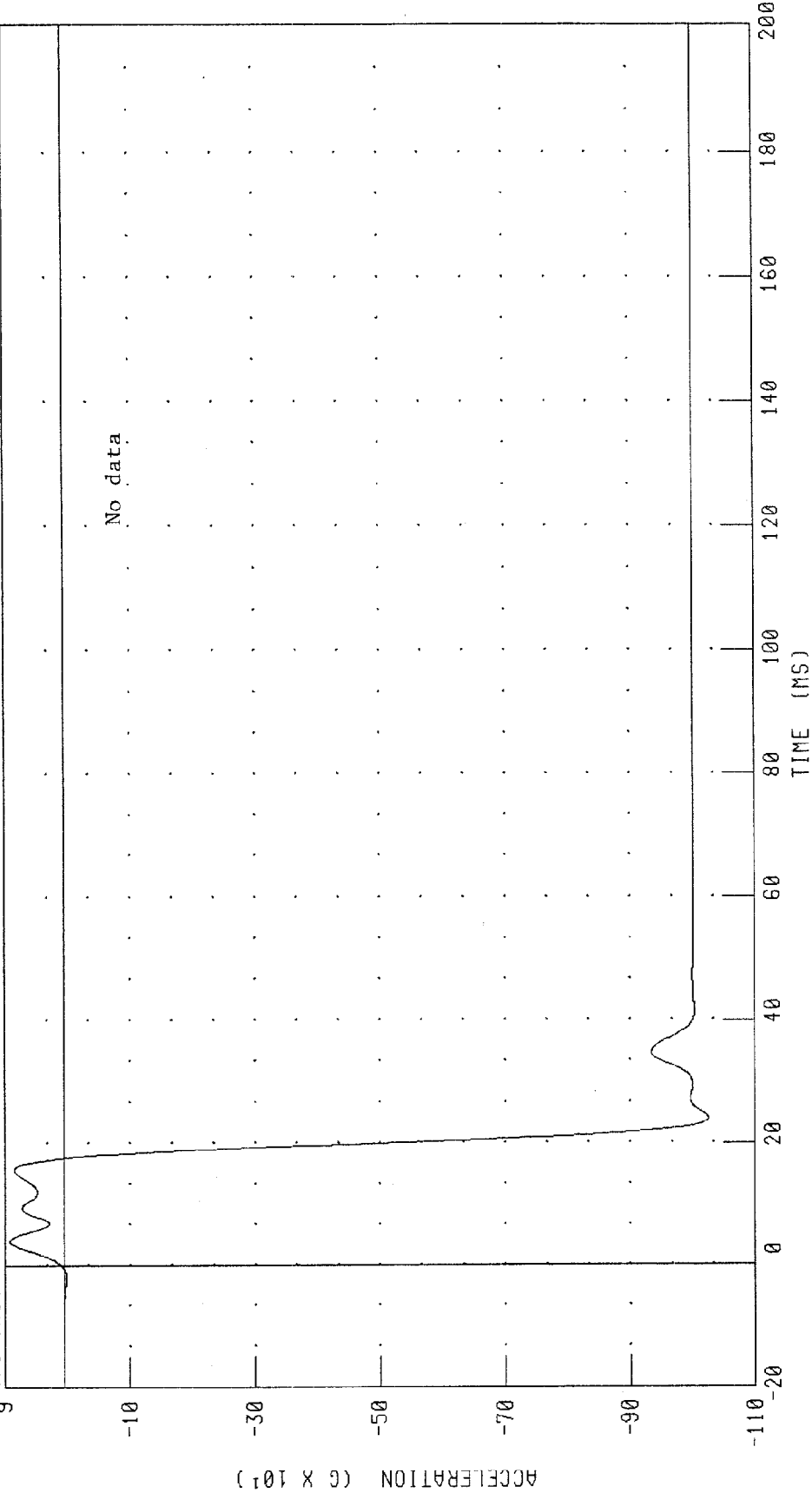
CHANNEL: LFUYD1 FILTER: CH. CLASS 180 PEAK DATA: 1278.41 MM @ 200.00 MS; -2.39 MM @ 13.92 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR DOOR MIDREAR Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

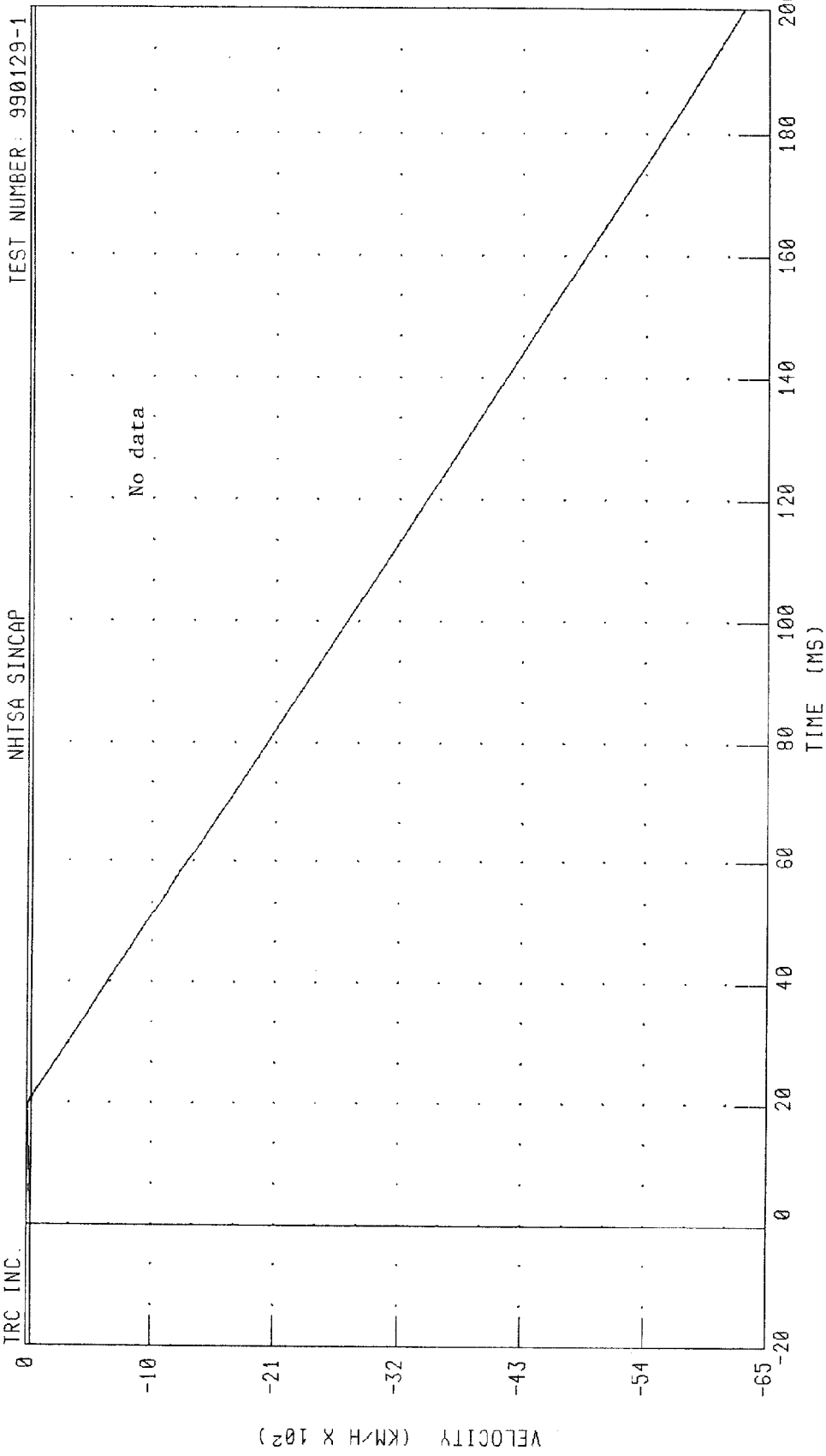
TRC INC.



CHANNEL: LRNYG1 FILTER: CH. CLASS 60

PEAK DATA: 87.12 G @ 3.76 MS; -1030.61 G @ 24.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR DOOR MIDREAR Y-AXIS VELOCITY

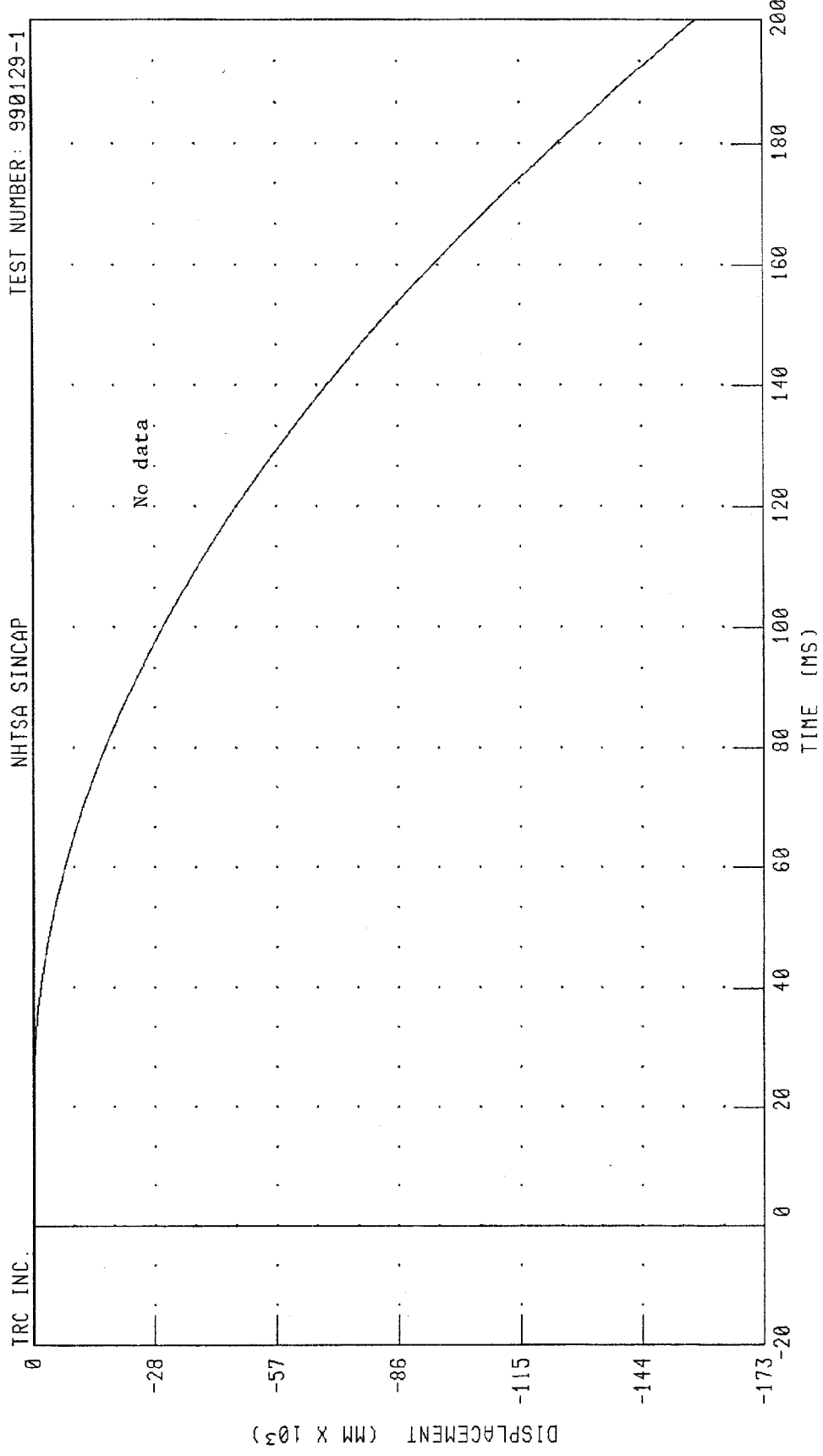


CHANNEL: LRMV1 FILTER: CH. CLASS 180 PEAK DATA: 31.77 KM/H @ 18.80 MS; -6350.80 KM/H @ 200.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR DOOR MIDREAR Y-AXIS DISPLACEMENT

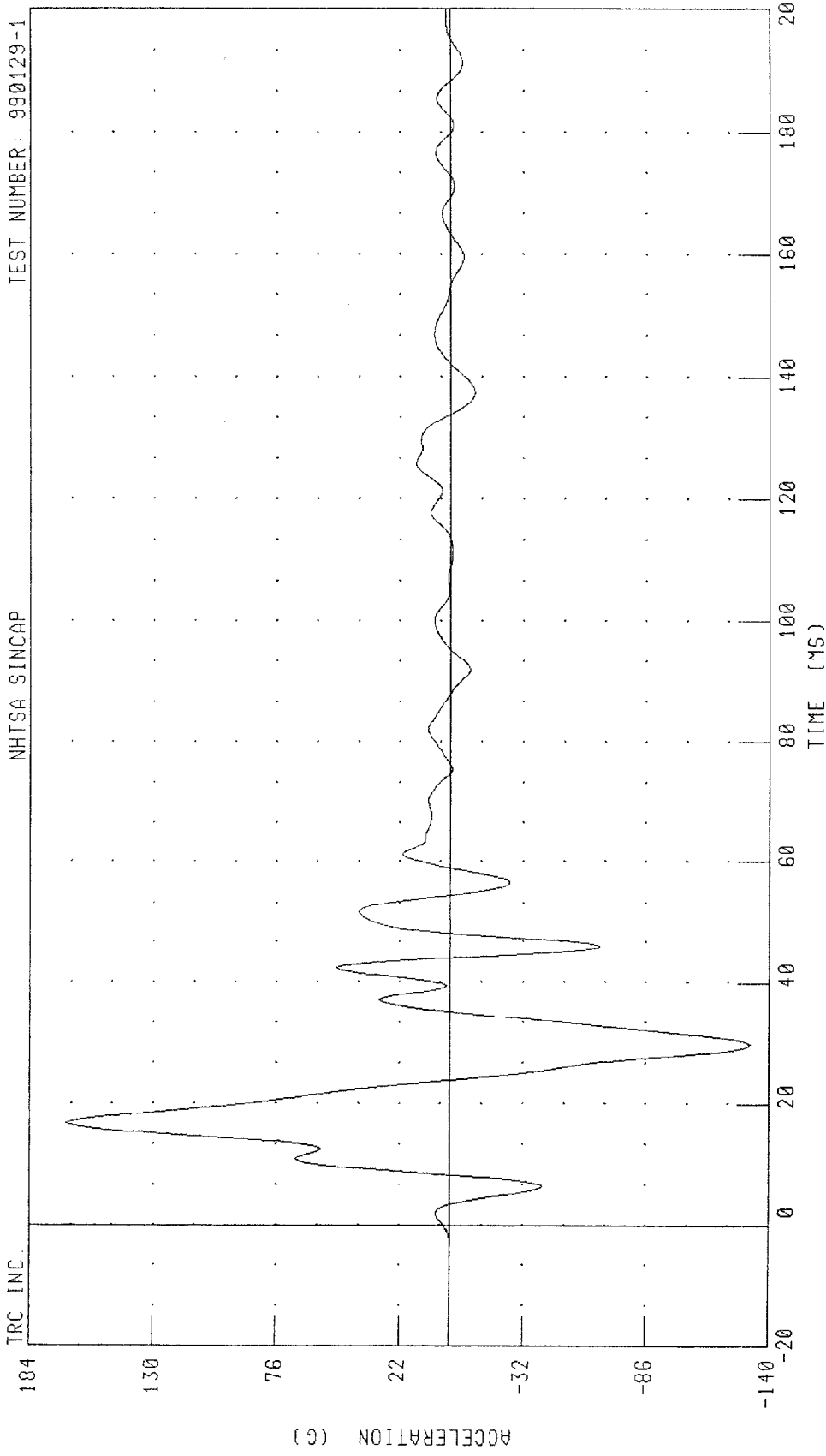
TEST NUMBER: 990129-1

NHTSA SINCAP



CHANNEL: LRMYD1 FILTER: CH. CLASS 180 PEAK DATA: 97.01 MM @ 20.88 MS; -157643.30 MM @ 200.00 MS

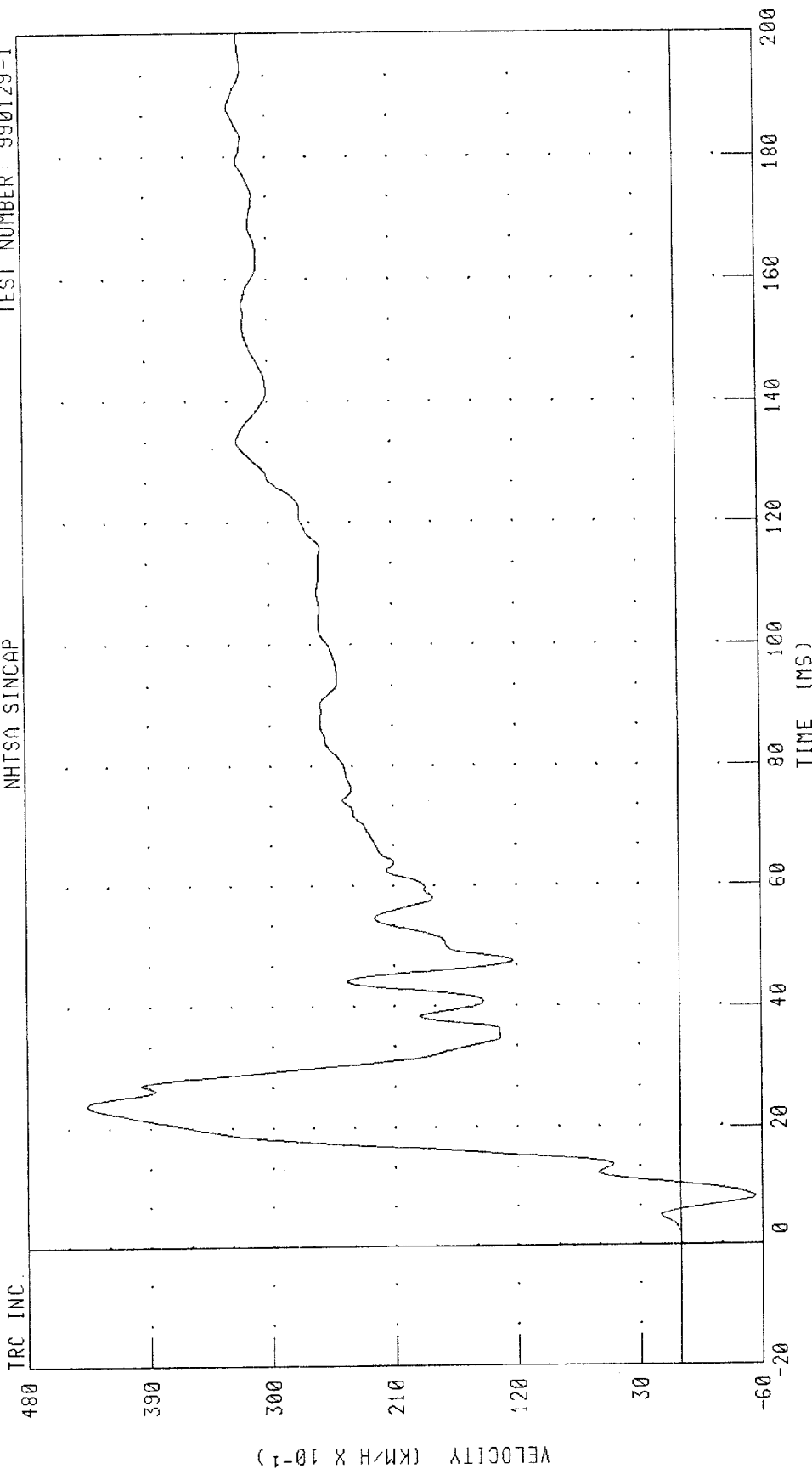
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS ACCELERATION



CHANNEL: LRUYG1 FILTER: CH. CLASS 60 PEAK DATA: 168.23 G @ 16.88 MS; -131.63 G @ 29.68 MS

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

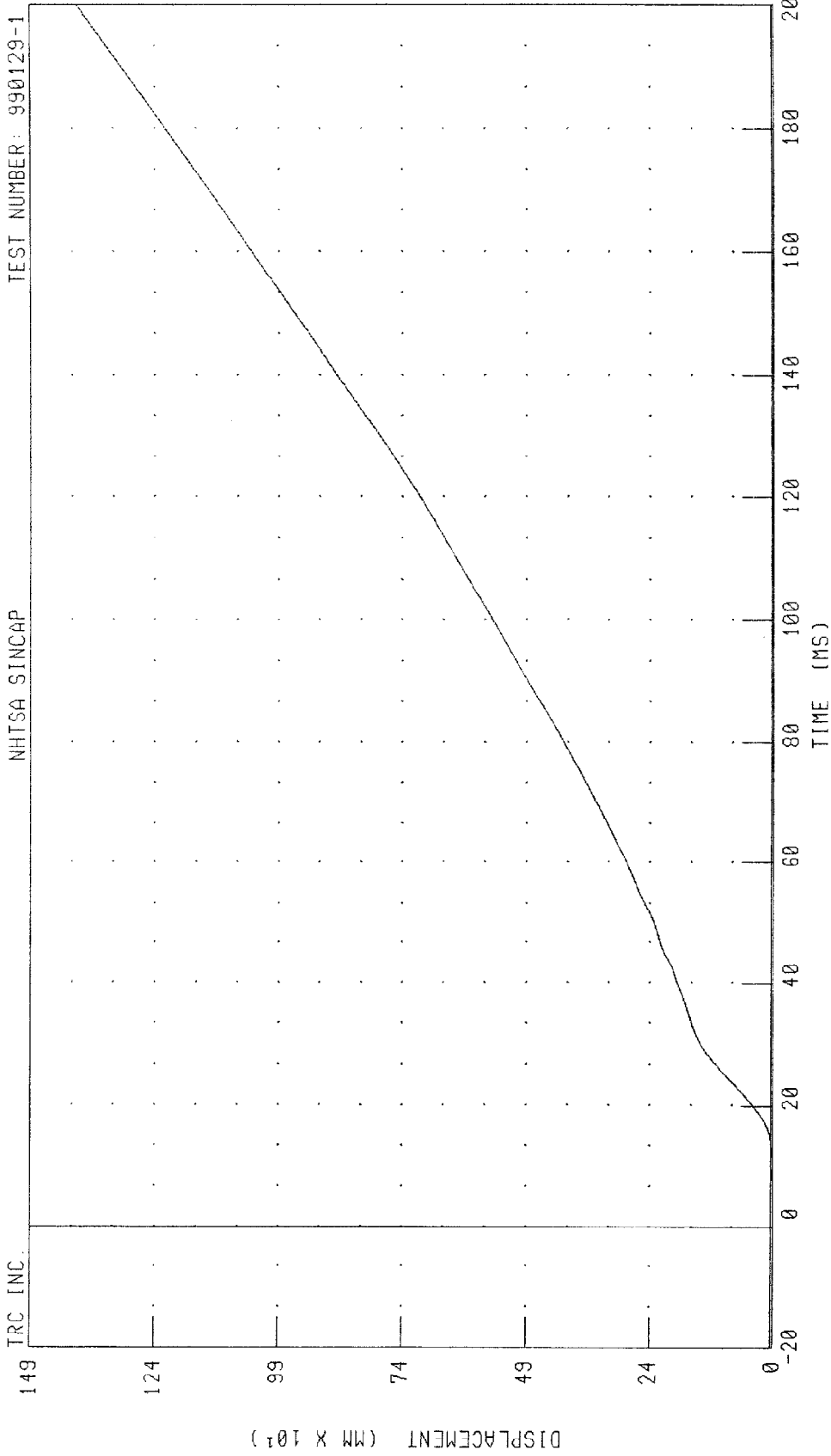
TRC INC. NHTSA SINCAP TEST NUMBER 990129-1



PEAK DATA: 43.64 KM/H @ 23.84 MS; -5.50 KM/H @ 8.40 MS

CHANNEL: LRUYY1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU R00E0  
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT

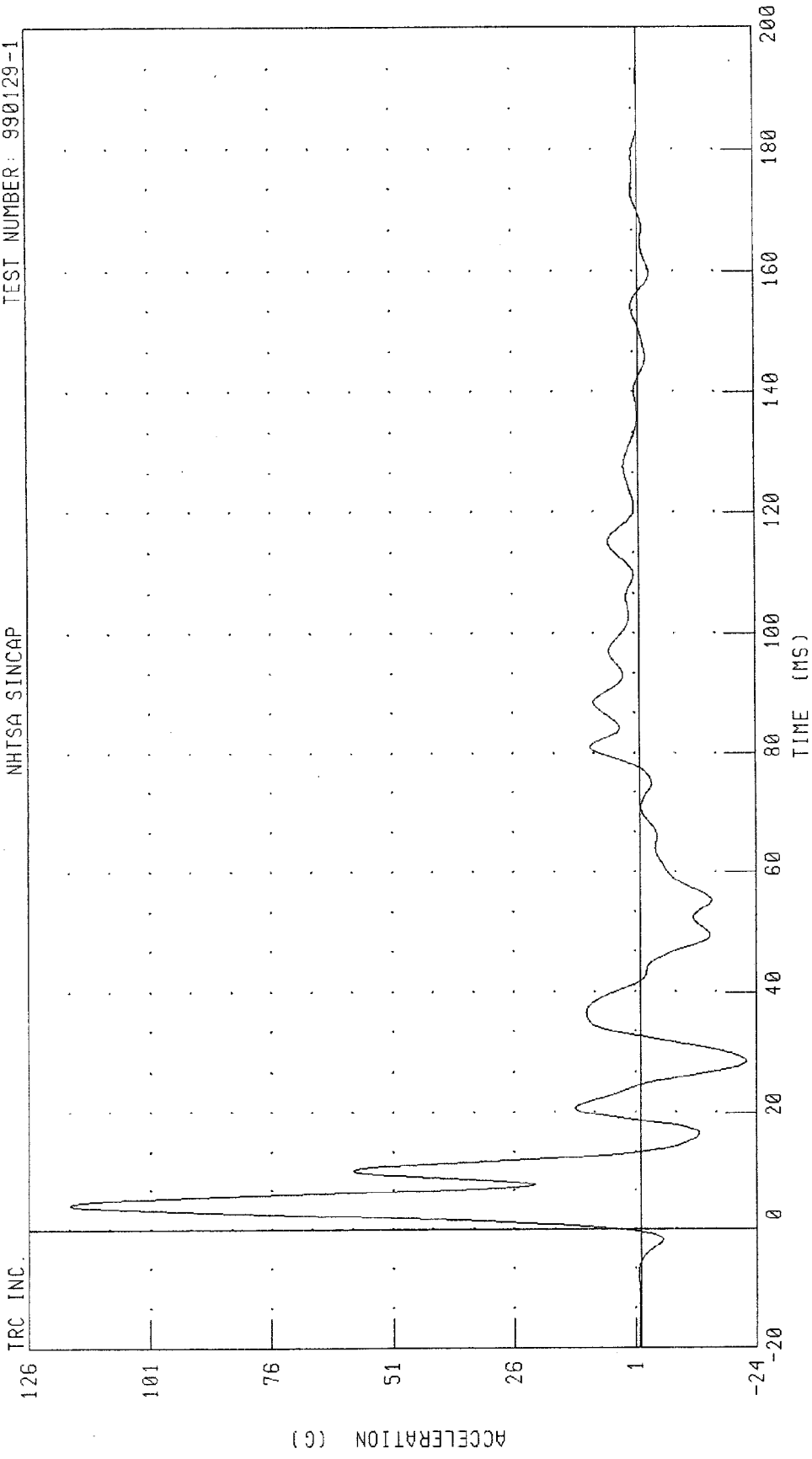


CHANNEL: LRUVD1 FILTER: CH. CLASS 180 PEAK DATA: 1403.06 MM @ 200.00 MS; -3.35 MM @ 10.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT LOWER A-POST Y-AXIS ACCELERATION

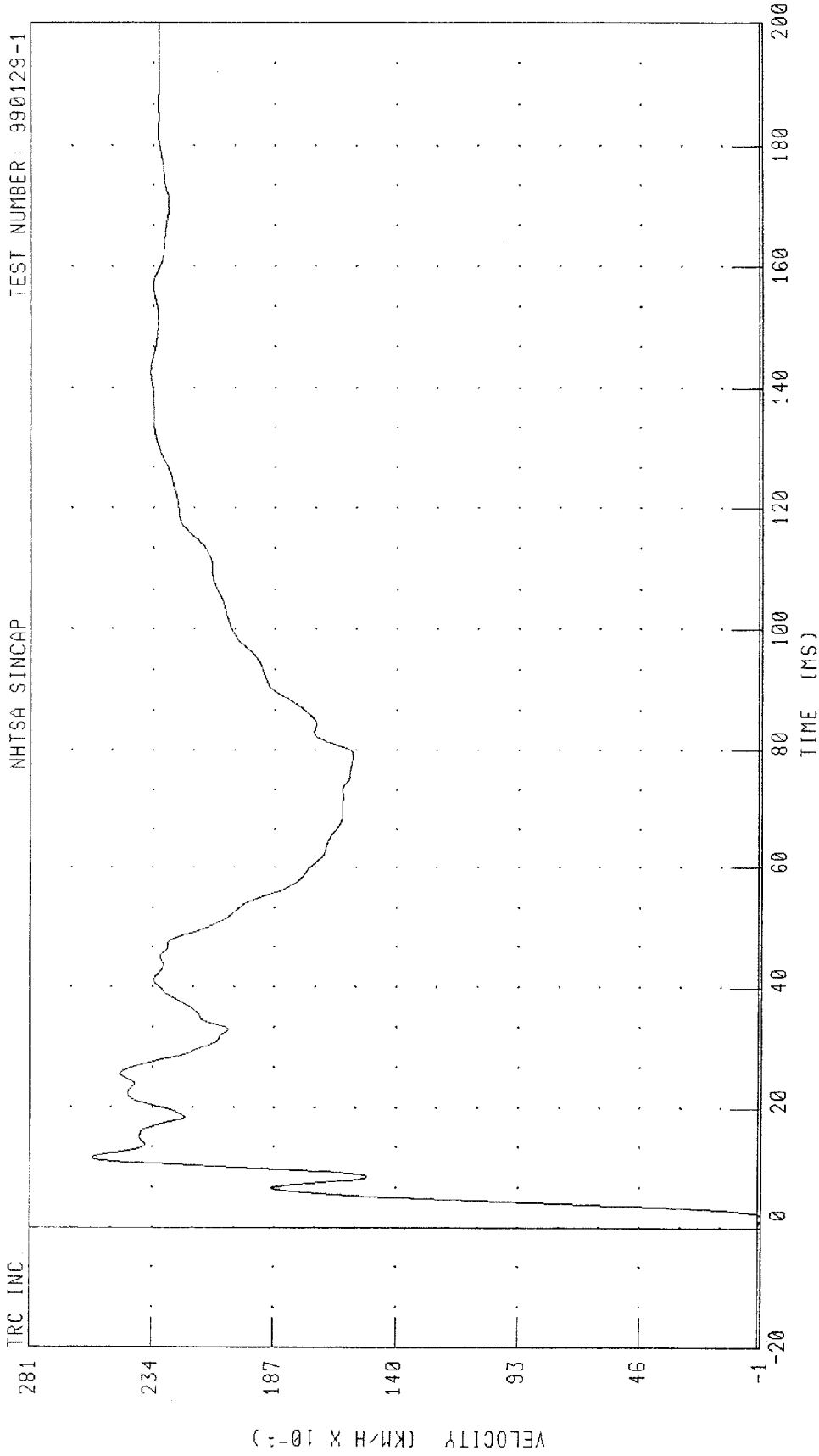
TEST NUMBER: 990129-1

NHTSA SINCAP



CHANNEL: LLAYG1 FILTER: CH. CLASS 60 PEAK DATA: 117.65 G @ 4.16 MS, -21.90 G @ 28.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT LOWER A-POST Y-AXIS VELOCITY



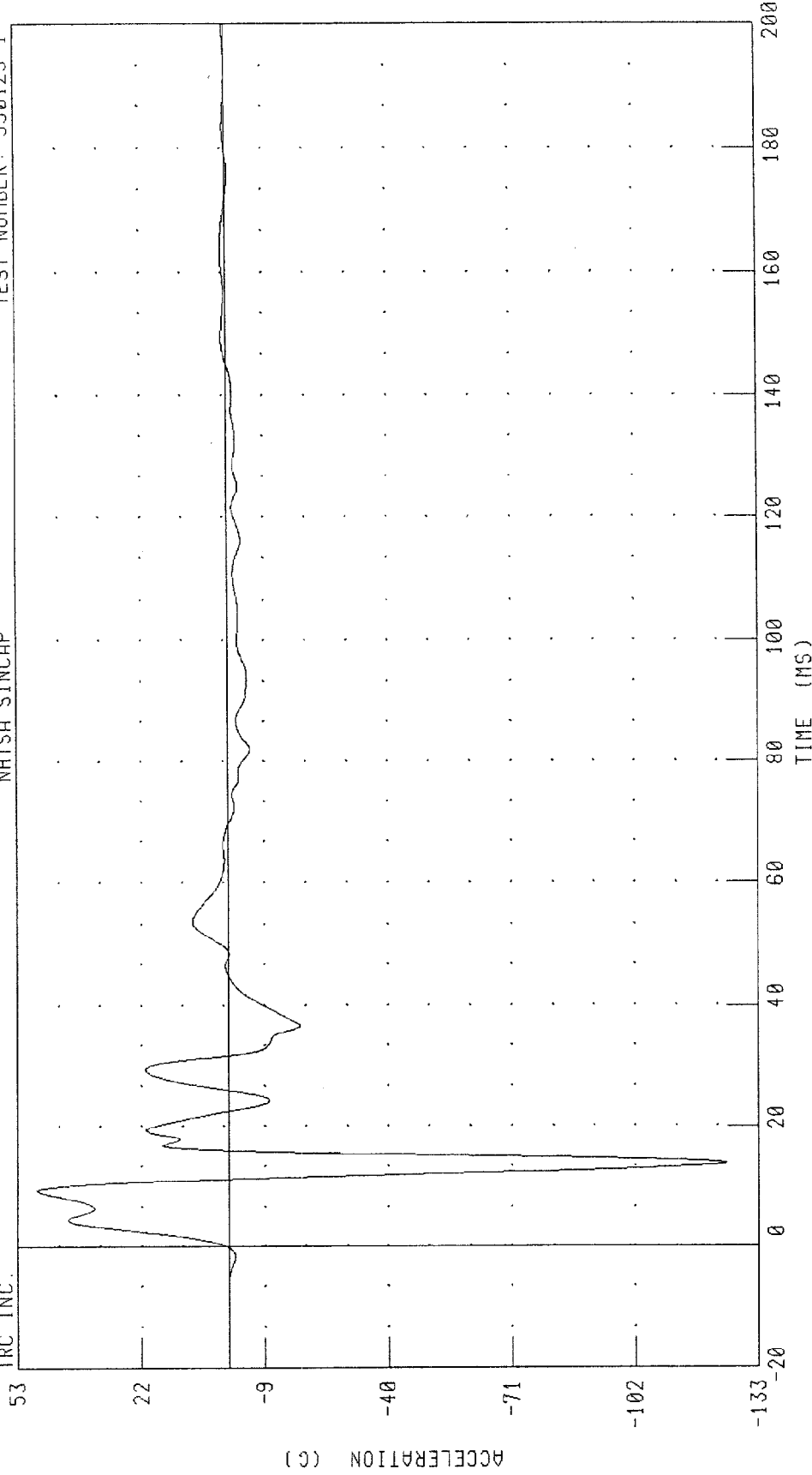
CHANNEL: LLAYV1 FILTER: CH. CLASS 180 PEAK DATA: 25.69 KM/H @ 11.68 MS; -0.18 KM/H @ 1.92 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT MIDDLE A-POST Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 48.21 G @ 9.44 MS, -124.93 G @ 13.84 MS

CHANNEL: LMAYG1 FILTER: CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT MIDDLE A-POST Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC

153

111

69

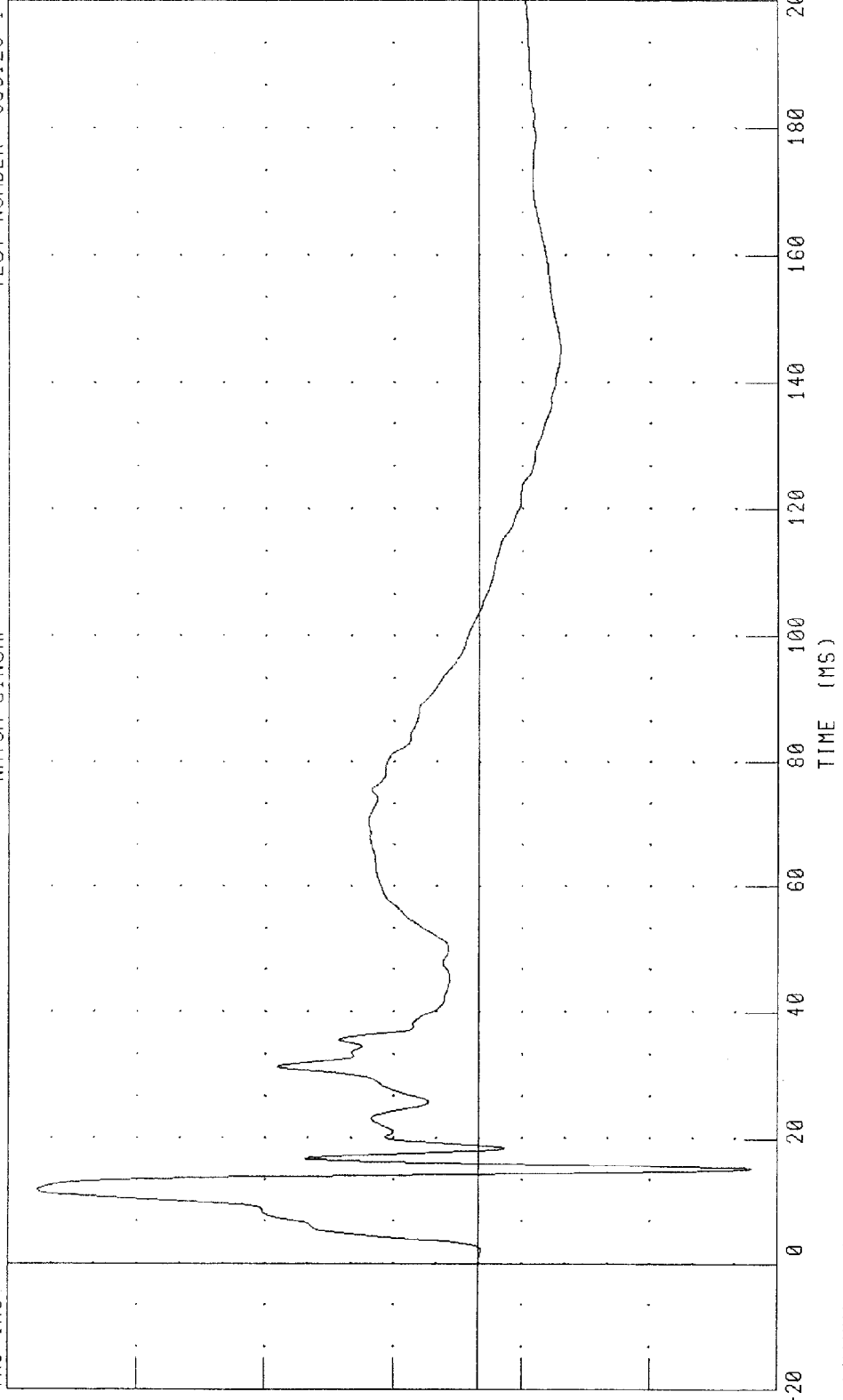
27

-14

-56

-98

VELOCITY (KM/H X 10<sup>-1</sup>)

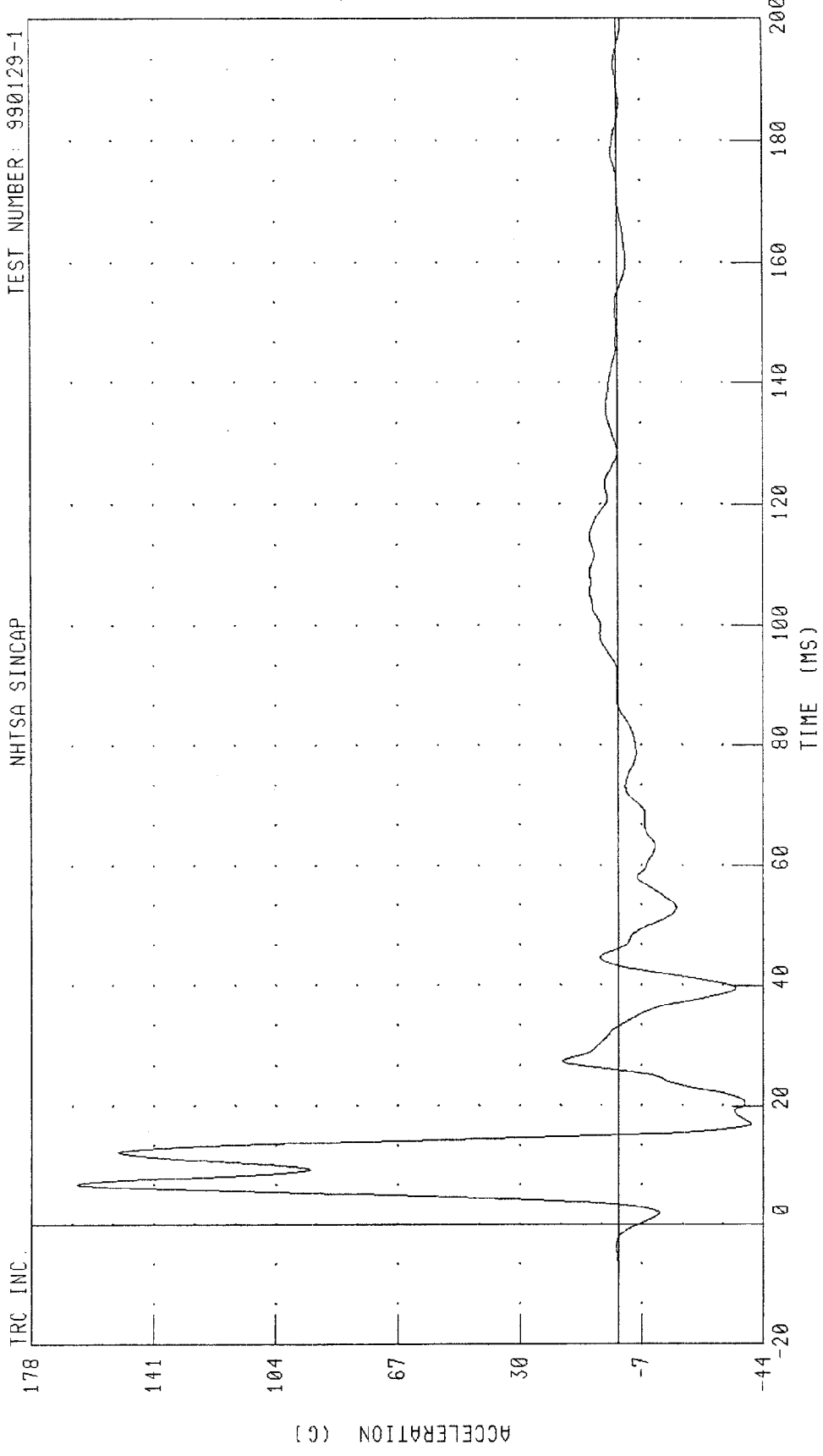


TIME (MS)

PEAK DATA: 14.47 KM/H @ 11.68 MS; -8.95 KM/H @ 15.12 MS

CHANNEL: LMAYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LOWER B-POST Y-AXIS ACCELERATION



PEAK DATA: 164.17 G @ 6.80 MS, -40.35 G @ 16.96 MS

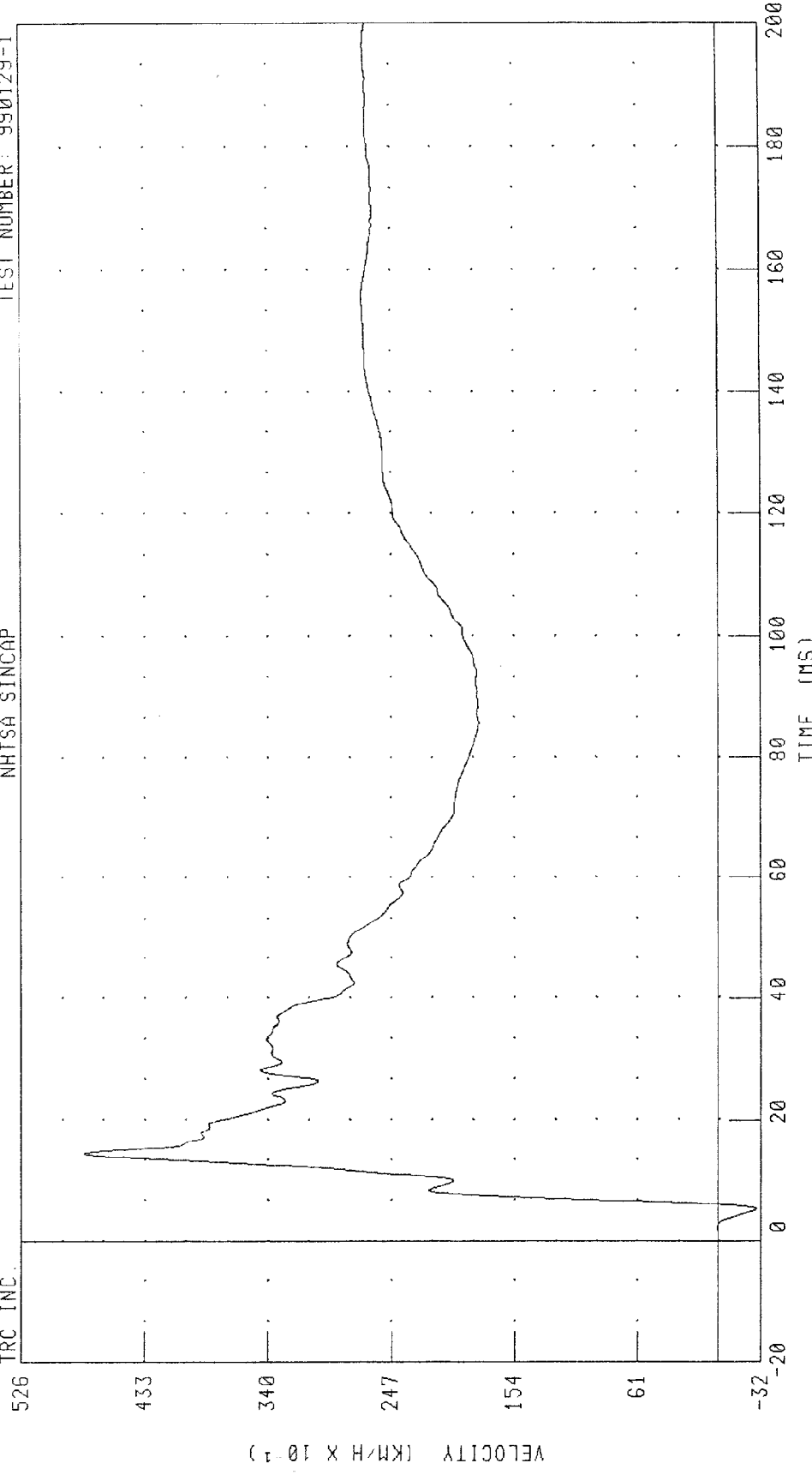
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO

LOWER B-POST Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

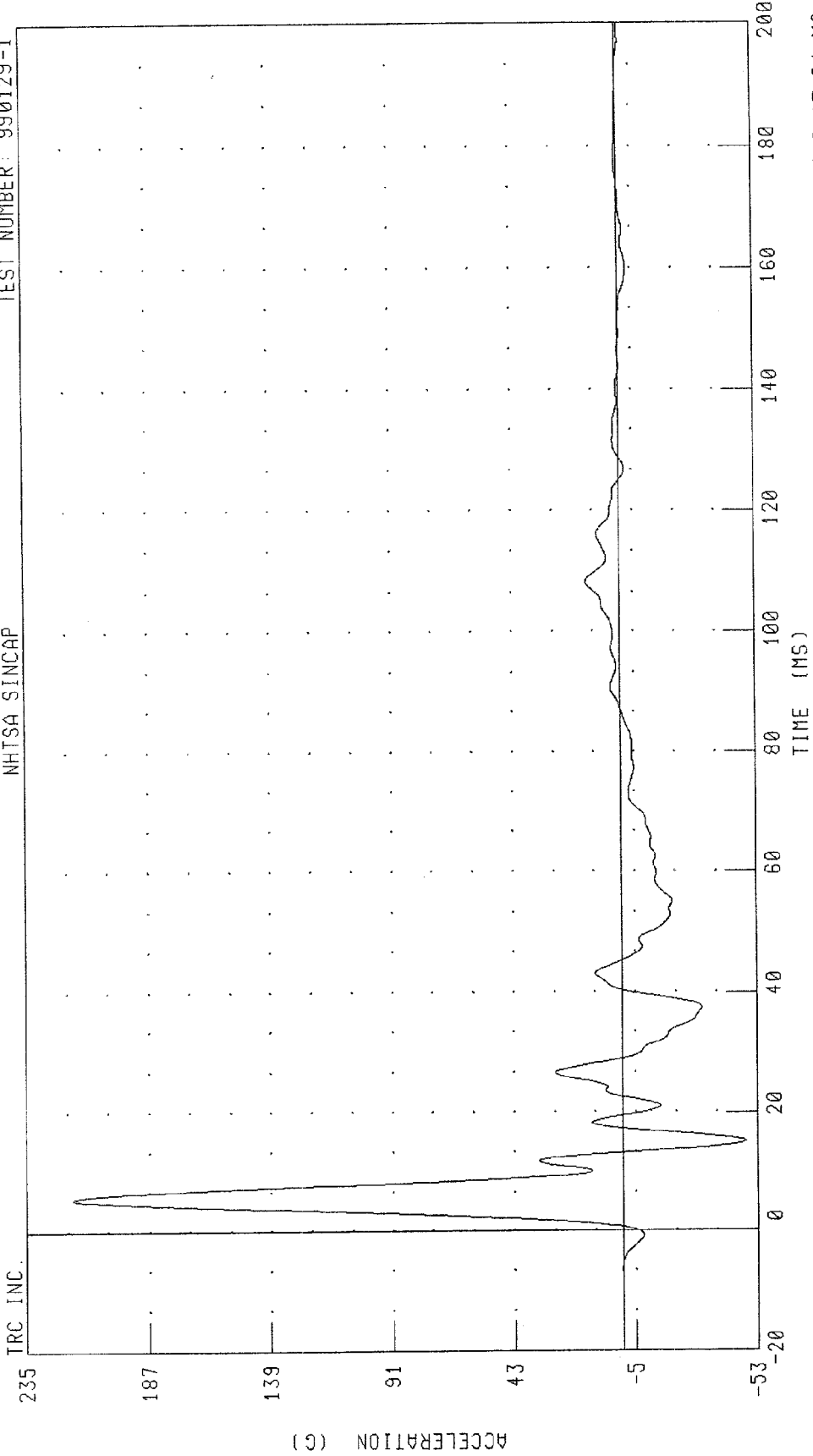


PEAK DATA: 47.86 KM/H @ 14.40 MS; -2.92 KM/H @ 5.28 MS

CHANNEL: LLBYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MIDDLE B-POST Y-AXIS ACCELERATION  
NHTSA SINCAP

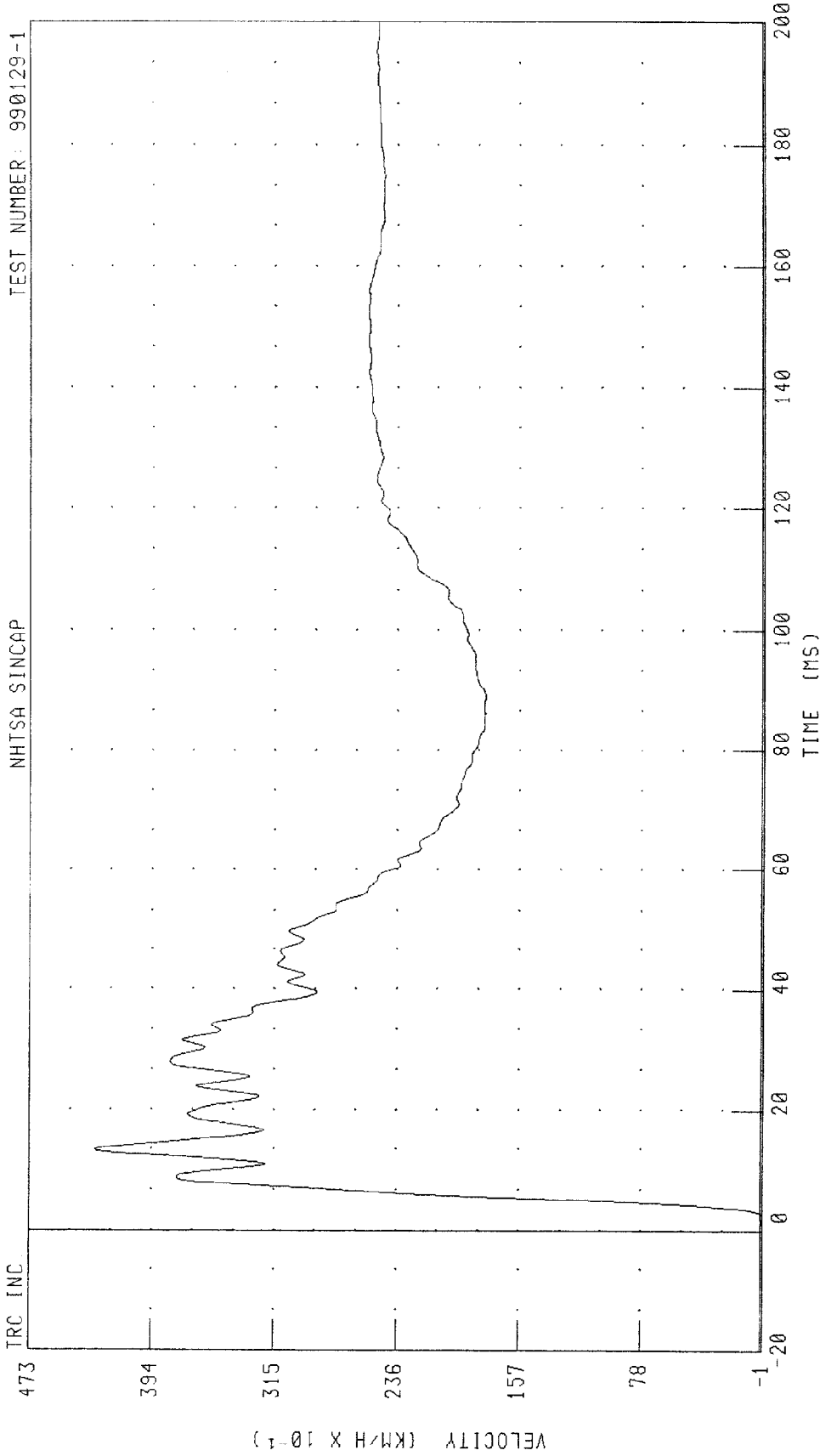
TEST NUMBER: 990129-1



CHANNEL: LMBYC1 FILTER: CH. CLASS 60

PEAK DATA: 217.01 G @ 5.52 MS; -48.38 G @ 15.04 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MIDDLE B-POST Y-AXIS VELOCITY

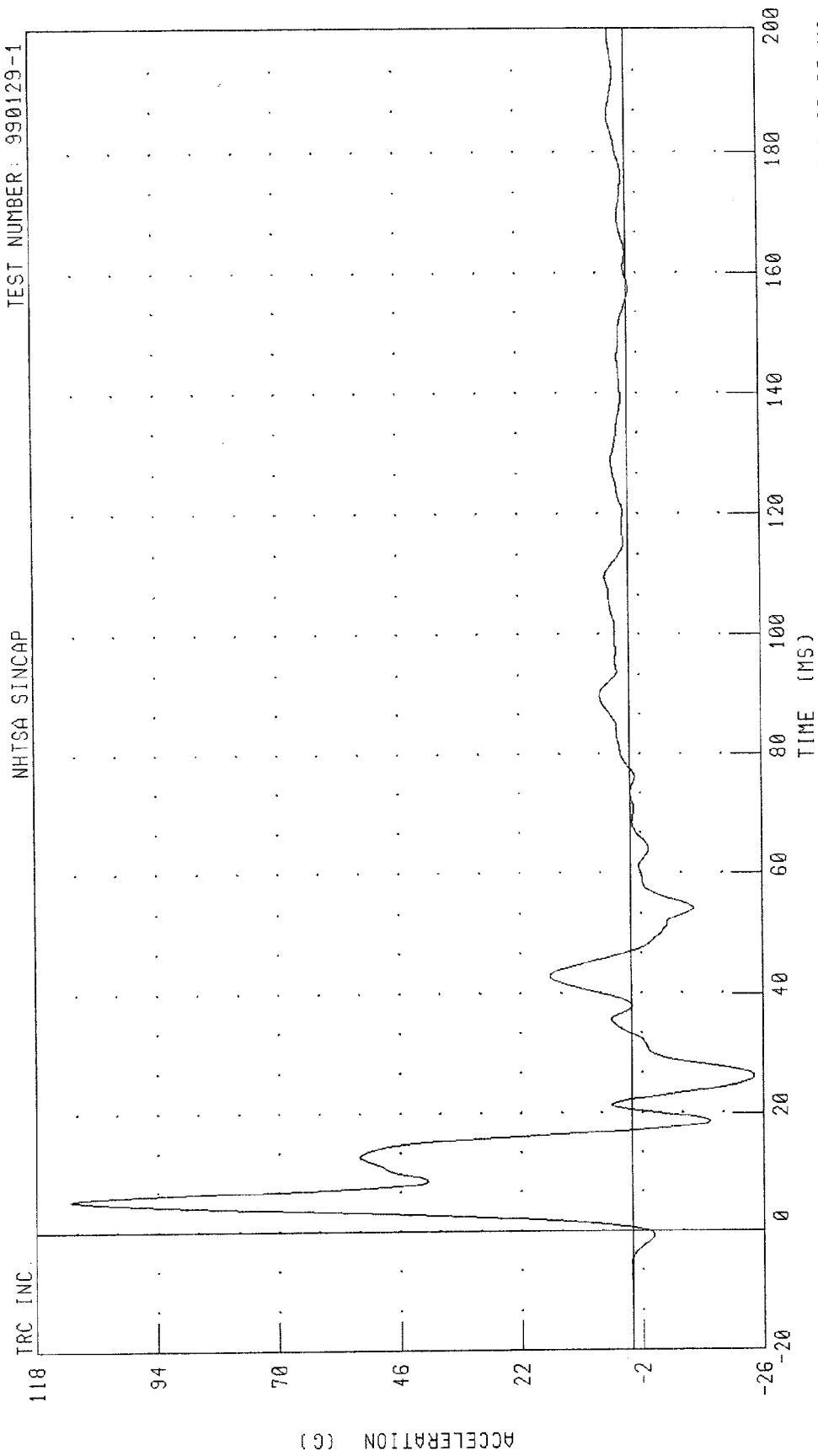


CHANNEL: LMBYV1 FILTER: CH. CLASS 180  
PEAK DATA: 43.06 KM/H @ 13.20 MS; -0.13 KM/H @ 2.32 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
FRONT SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

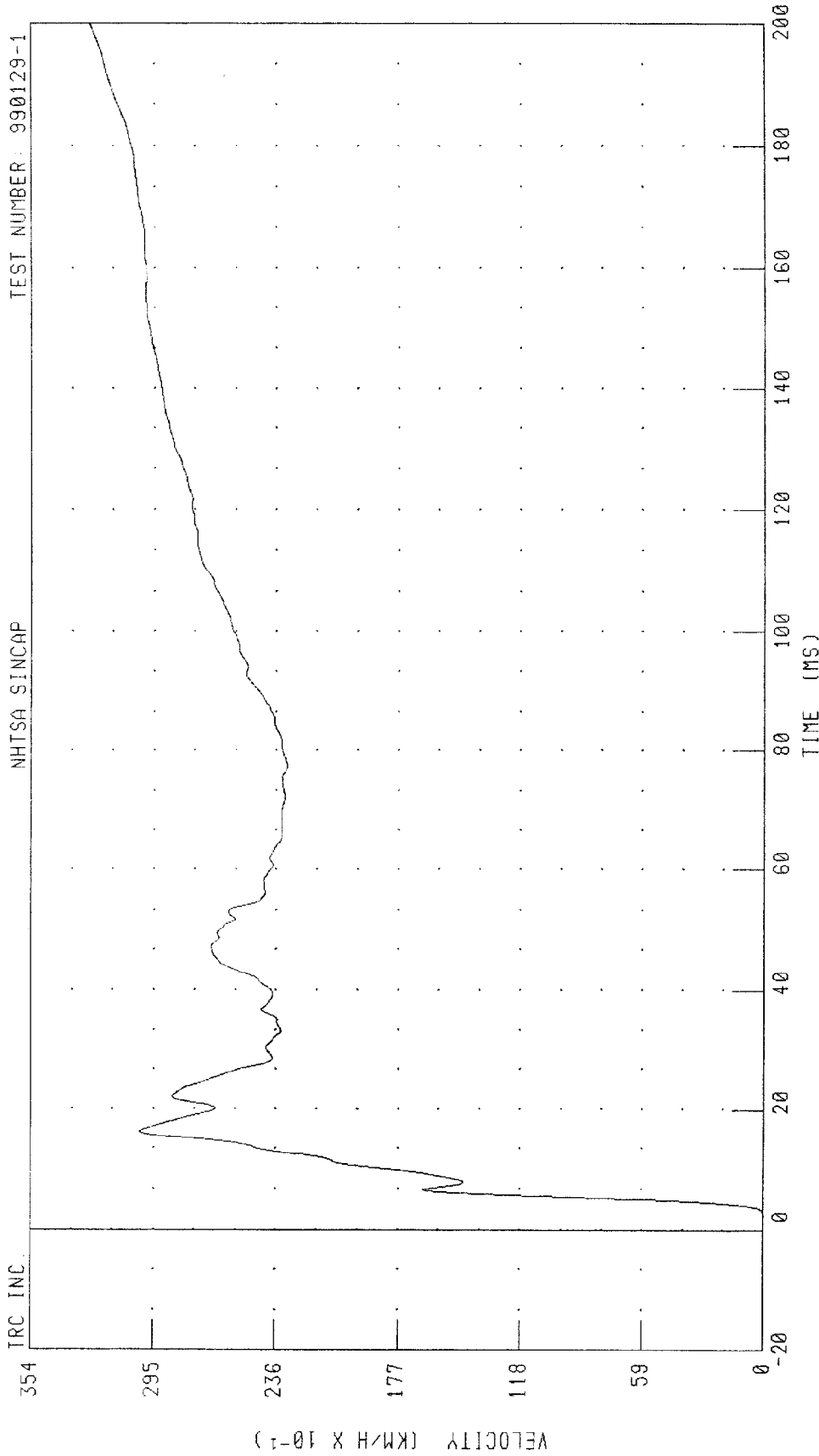
NHTSA SINCAP



CHANNEL: LFTYG1 FILTER: CH. CLASS 60

PEAK DATA: 111.35 G @ 5.20 MS, -24.26 G @ 26.08 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
FRONT SEAT TRACK Y-AXIS VELOCITY



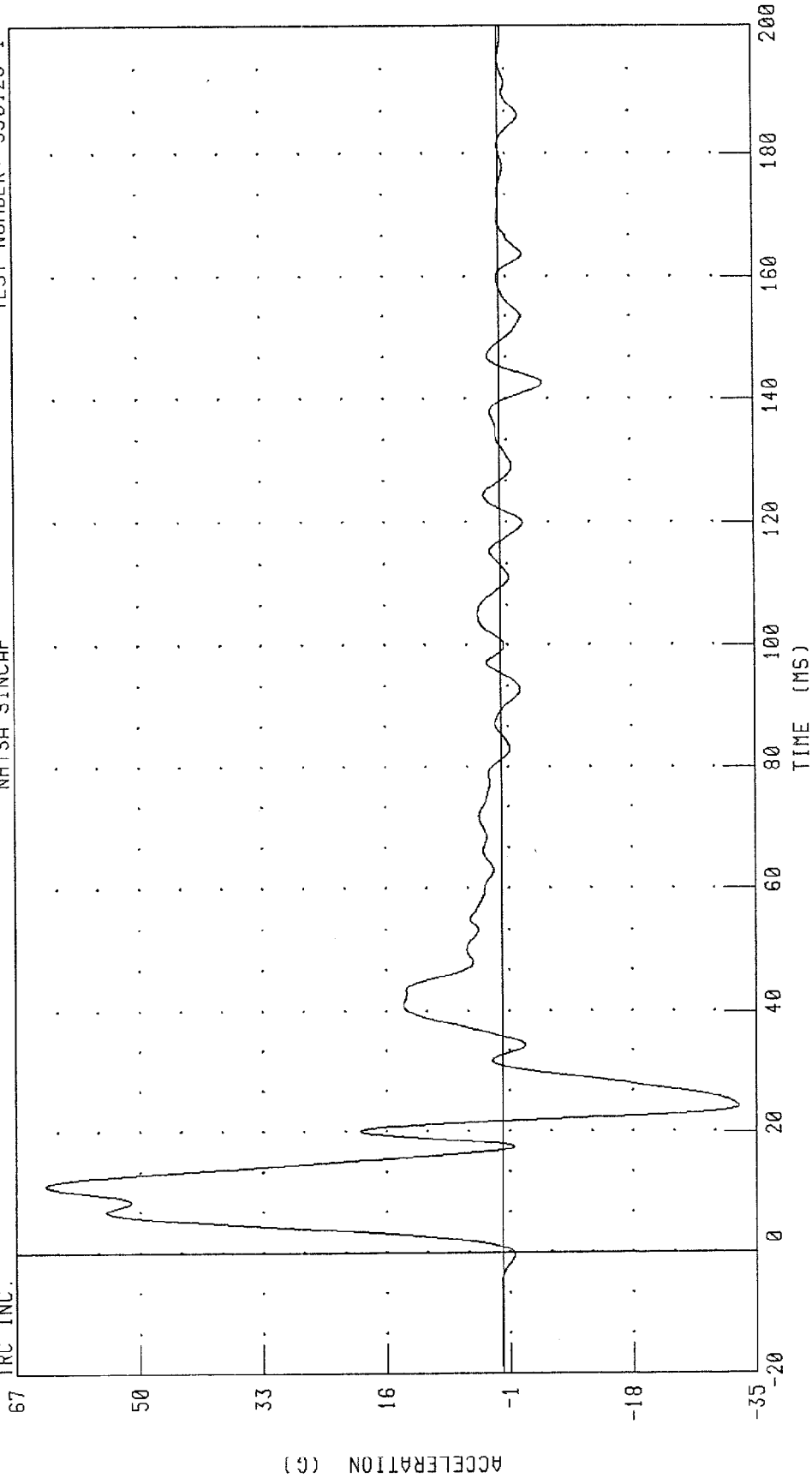
CHANNEL: LFTYV1 FILTER: CH. CLASS 180  
PEAK DATA: 32.59 KM/H @ 200.00 MS, -0.02 KM/H @ 2.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
REAR SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 62.97 G @ 11.20 MS; -32.63 G @ 24.16 MS

CHANNEL: LRTYG1 FILTER: CH. CLASS 60

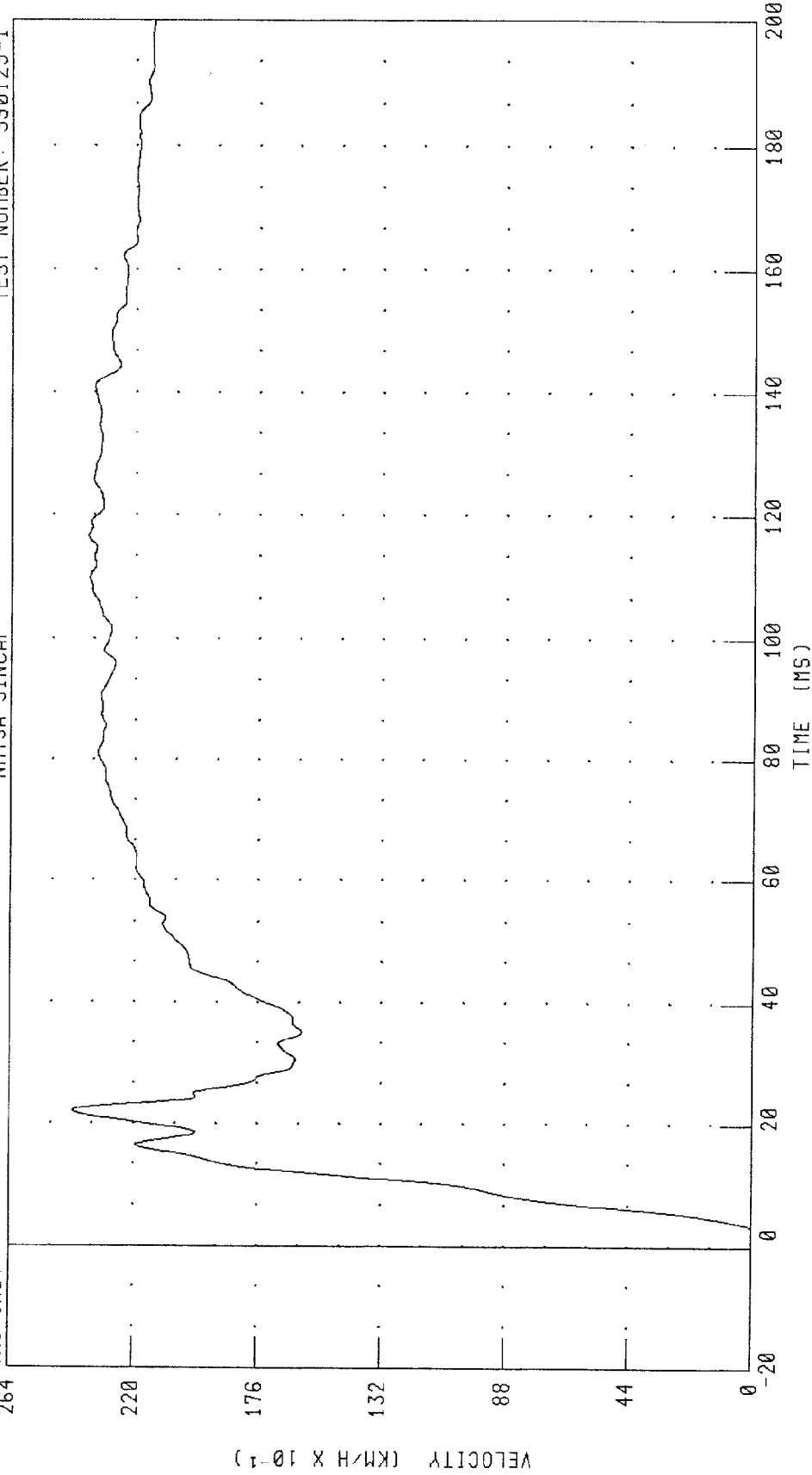
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO

REAR SEAT TRACK Y-AXIS VELOCITY

TRC INC.

NHTSA SINCAP

TEST NUMBER: 990129-1



CHANNEL: LRTYV1 FILTER: CH. CLASS 180

PEAK DATA: 24.15 KM/H @ 22.16 MS, -0.05 KM/H @ 2.64 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

194

145

96

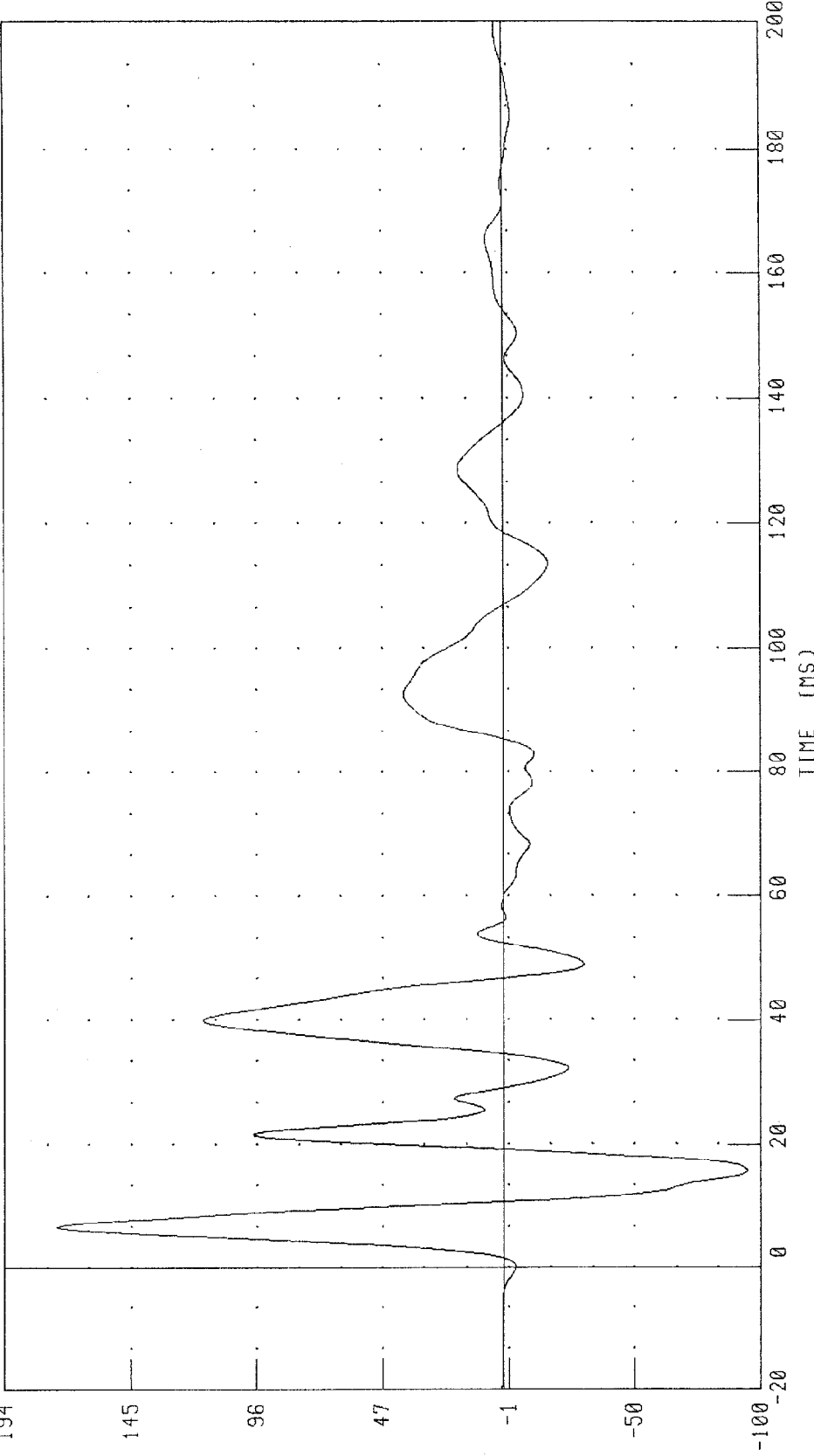
47

-1

-50

-100

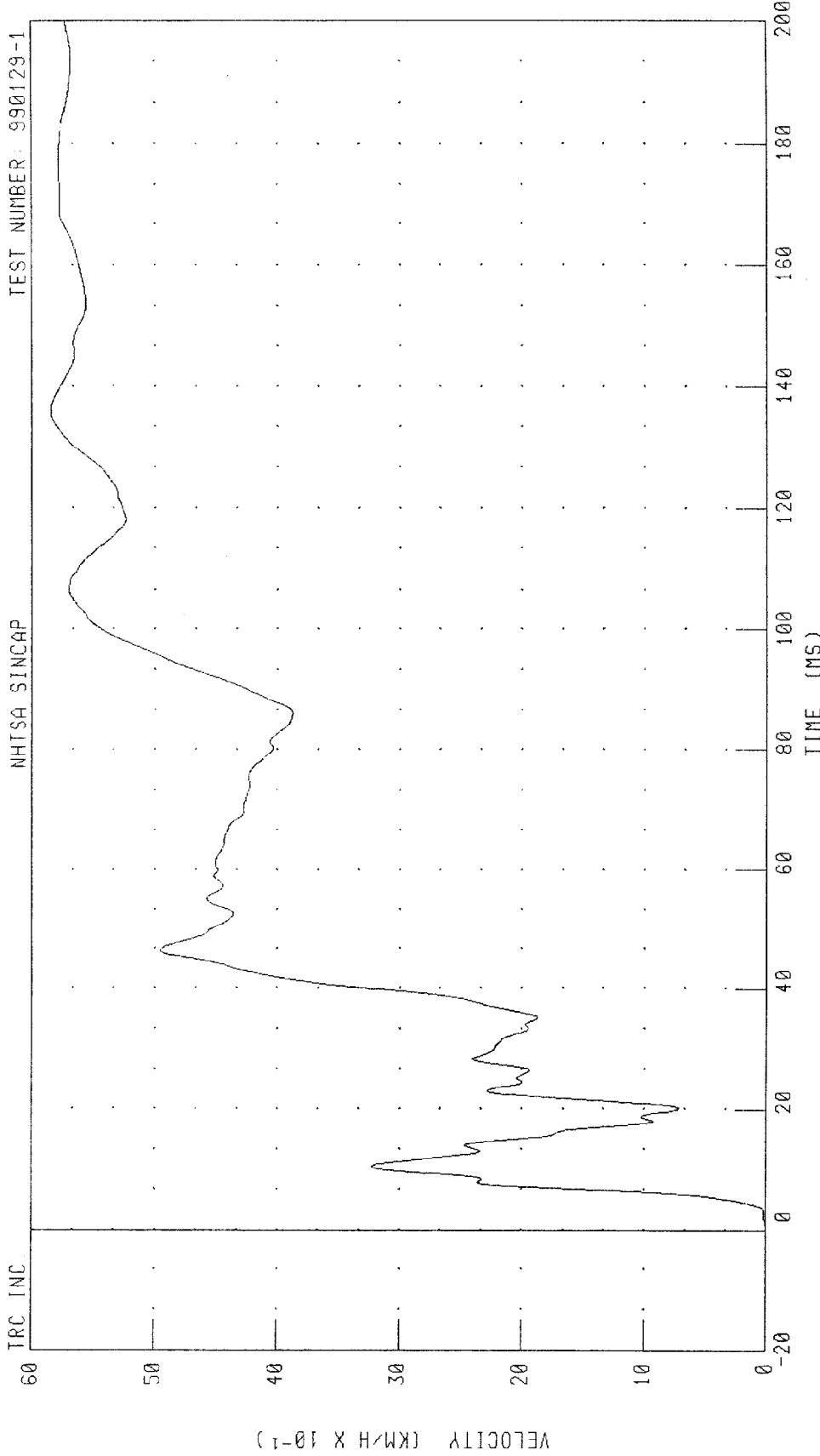
ACCELERATION (G X 10<sup>-1</sup>)



PEAK DATA: 17.40 G @ 6.72 MS; -9.49 G @ 15.60 MS

CHANNEL: VCCXG1 FILTER: CH. CLASS 60

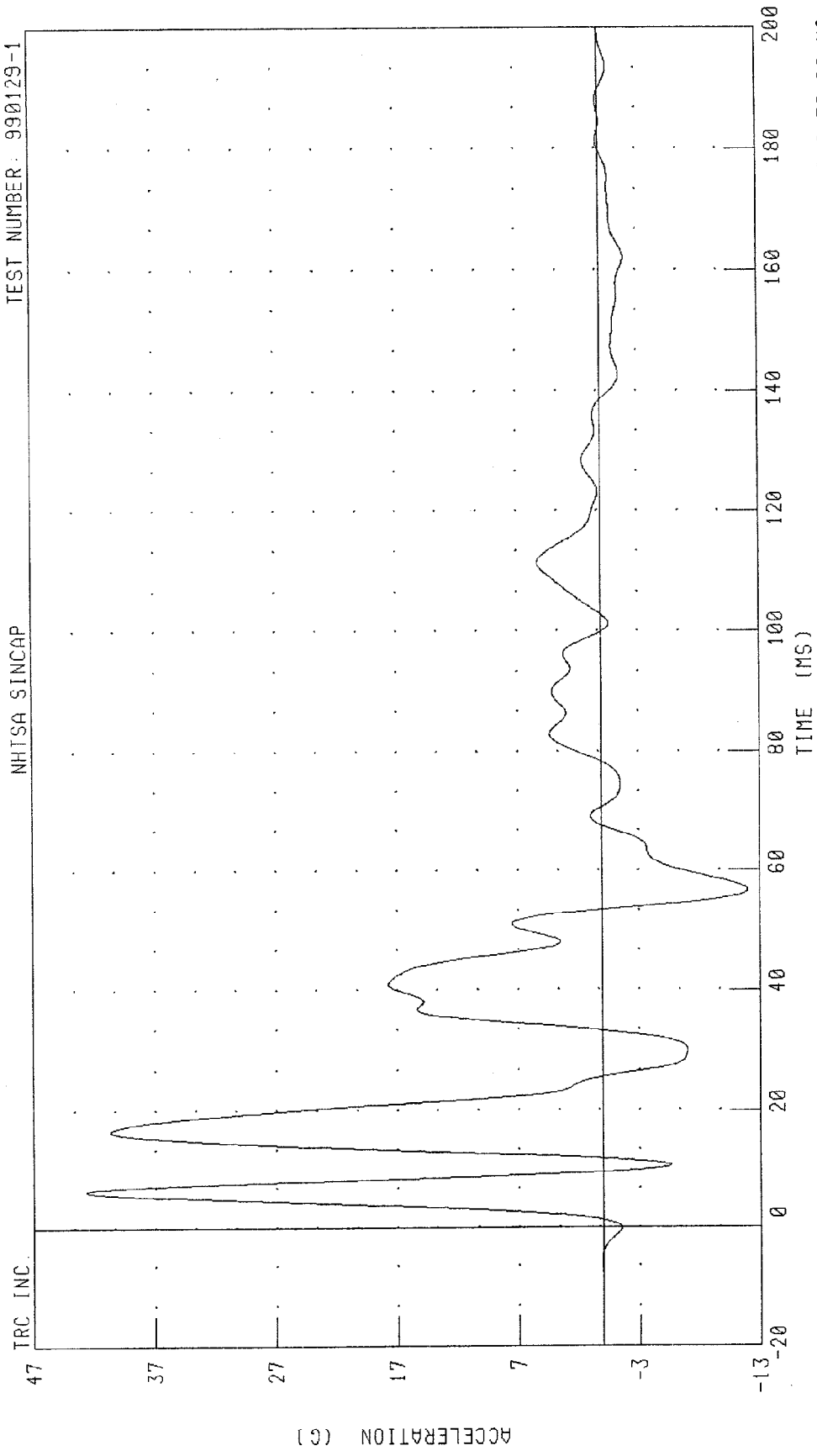
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY



CHANNEL: VCGXV1 FILTER: CH. CLASS 180 PEAK DATA: 5.84 KM/H @ 135.44 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1



PEAK DATA: 42.69 G @ 6.16 MS; -12.03 G @ 56.80 MS

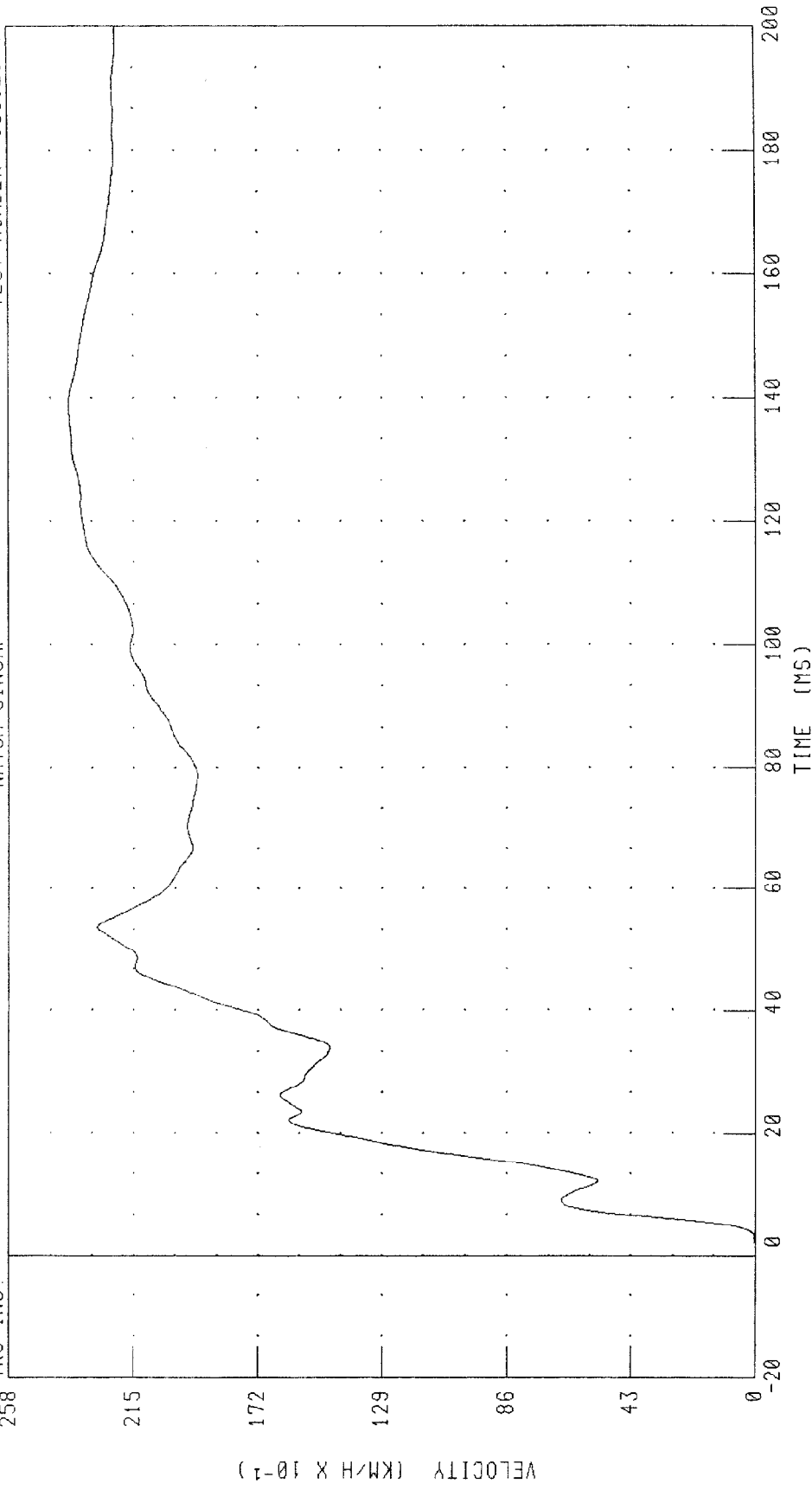
CHANNEL: VCCYG1 FILTER: CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: VCGYV1 FILTER: CH. CLASS 180

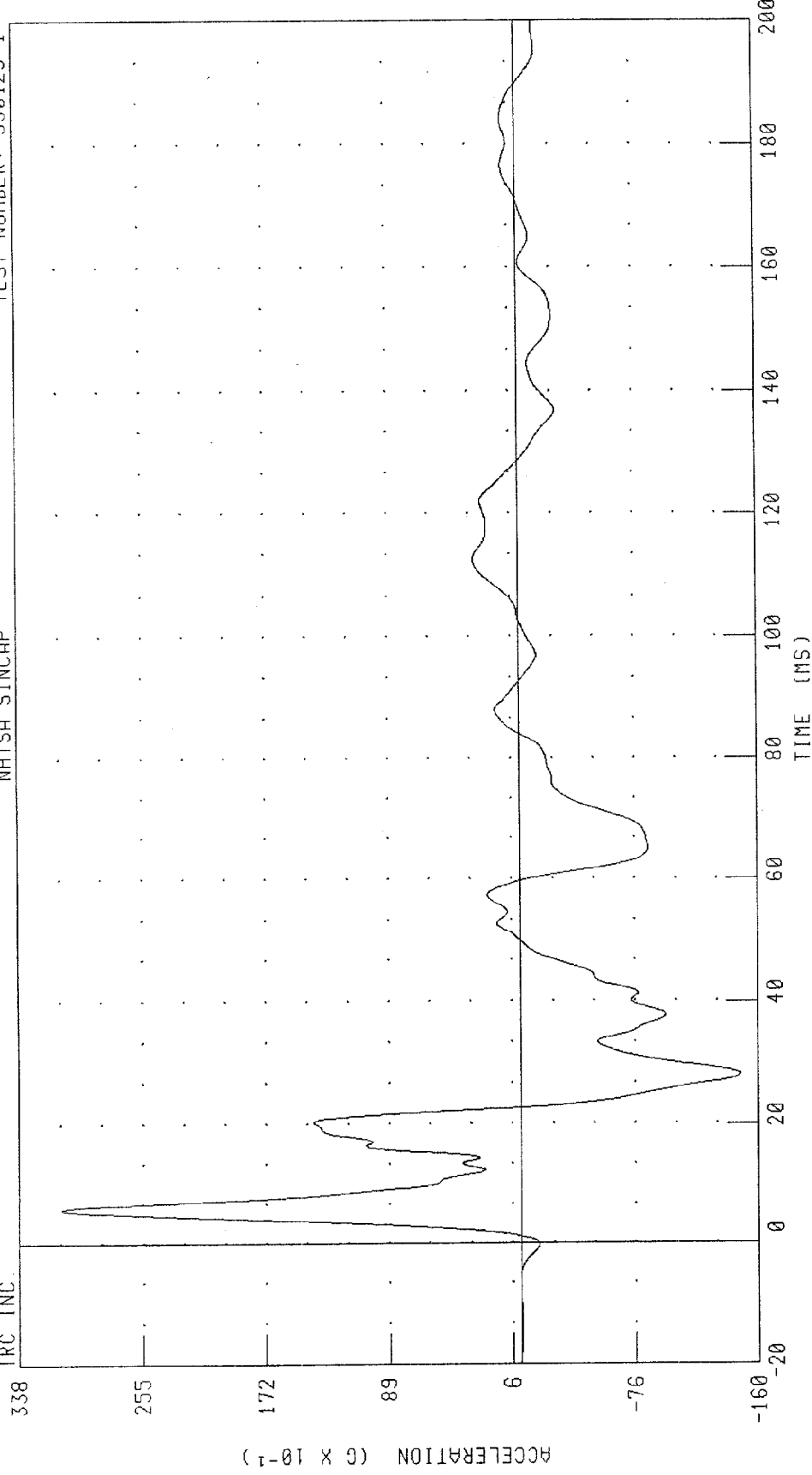
PEAK DATA: 23.75 KM/H @ 138.80 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 30.97 G @ 5.76 MS; -14.81 G @ 28.00 MS

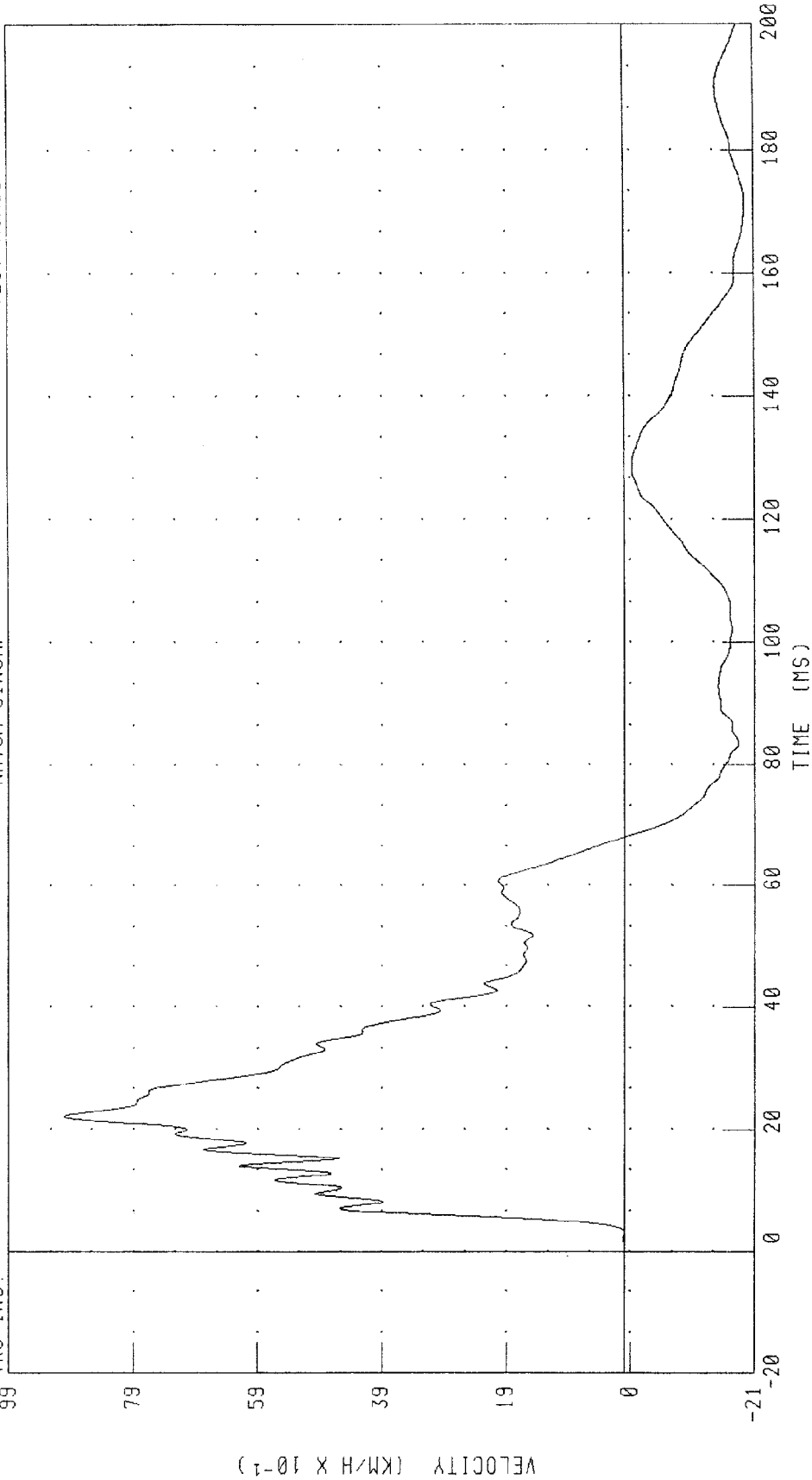
CHANNEL: VCCZG1 FILTER: CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: VCGZV1 FILTER: CH. CLASS 180

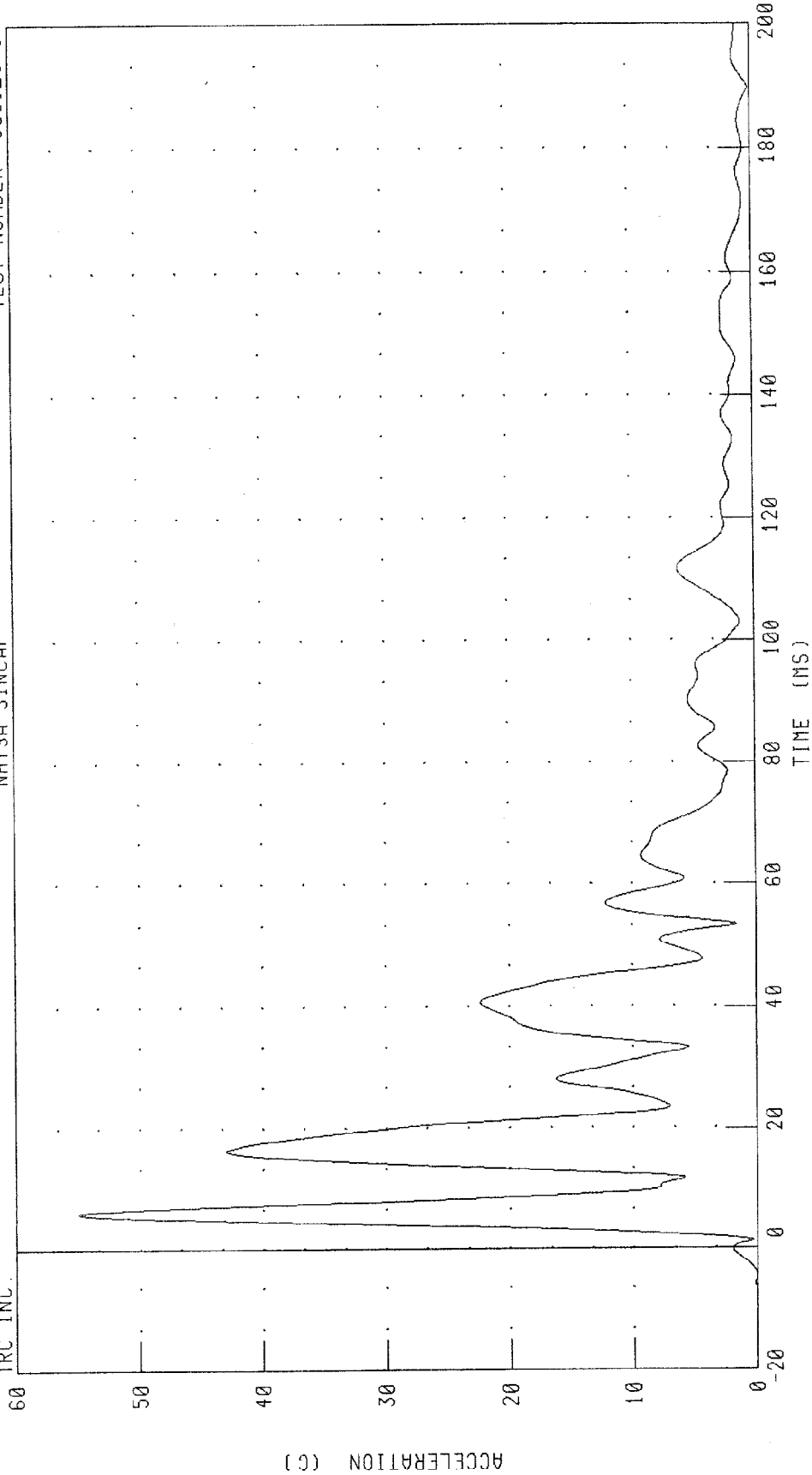
PEAK DATA: 9.01 KM/H @ 22.08 MS, -1.95 KM/H @ 172.40 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 54.92 G @ 6.08 MS; 0.03 G @ -18.32 MS

CHANNEL: VCGRG1 FILTER: CH. CLASS 60

CH. CLASS 60

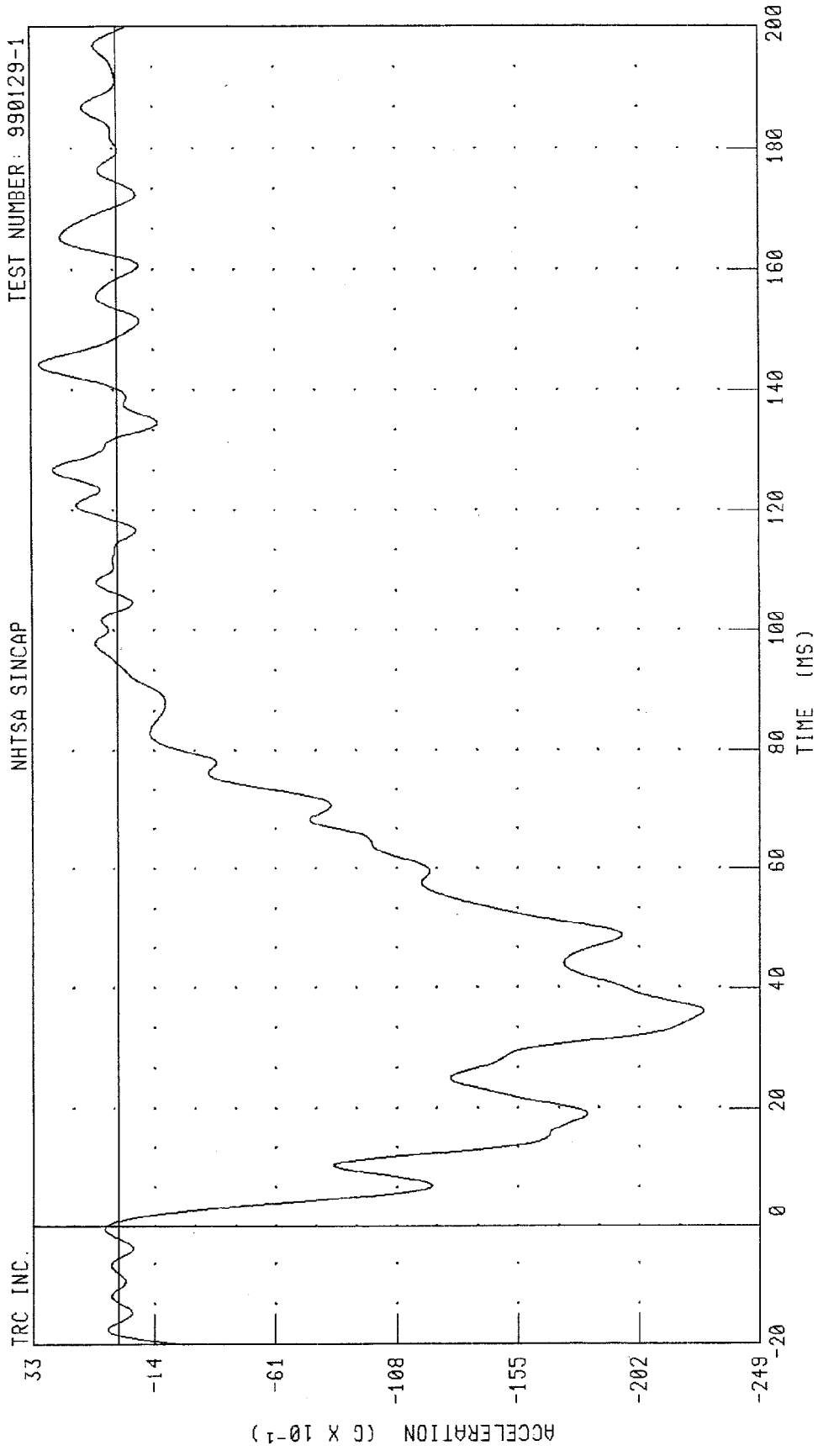
**MDB Instrumentation Plots**

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1



CHANNEL: BCCXG1 FILTER: CH. CLASS 60 PEAK DATA: 3.00 G @ 144.40 MS; -22.72 G @ 36.16 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

600

525

450

375

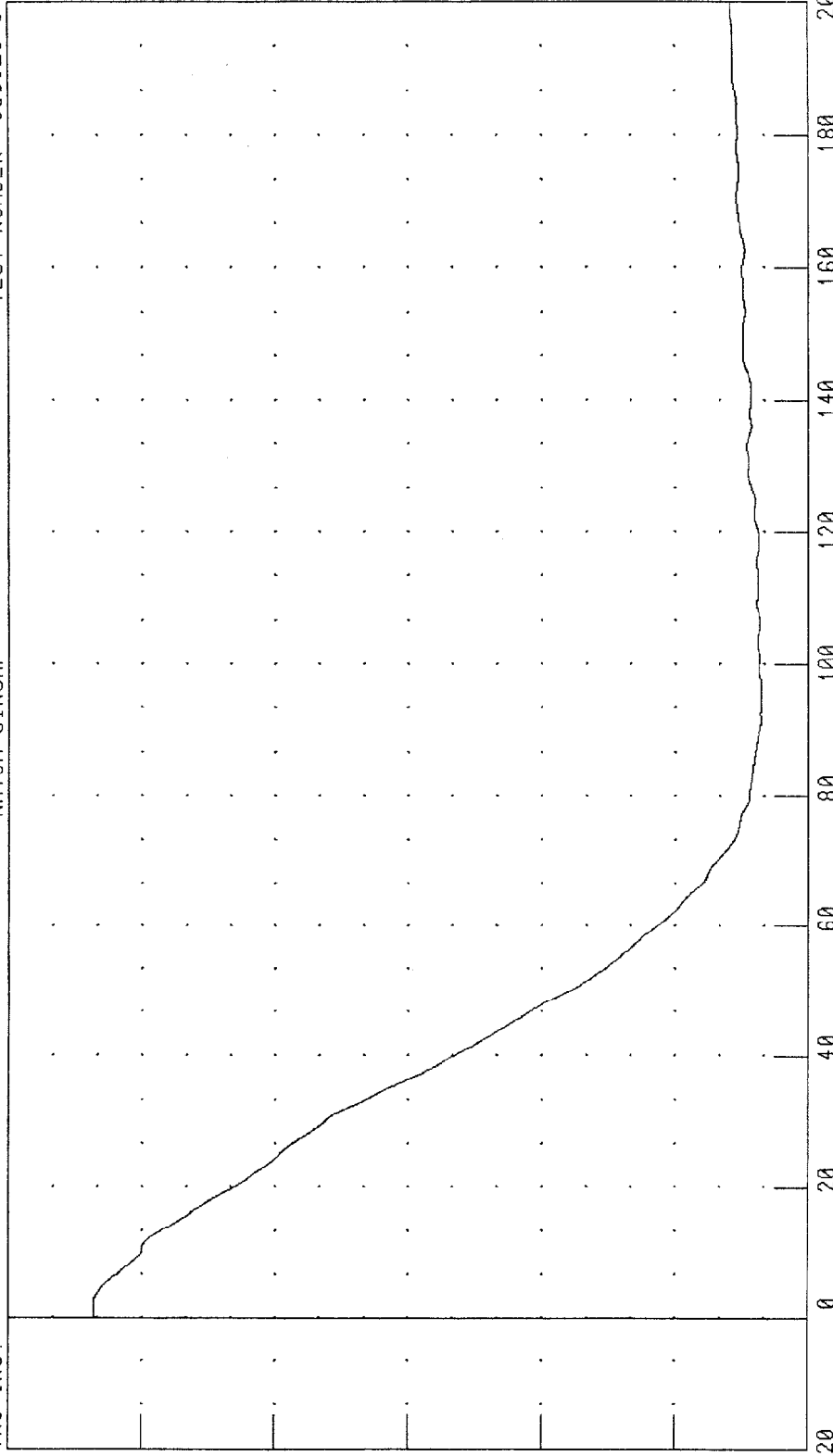
300

225

150

-20

VELOCITY (KM/H X 10<sup>-1</sup>)



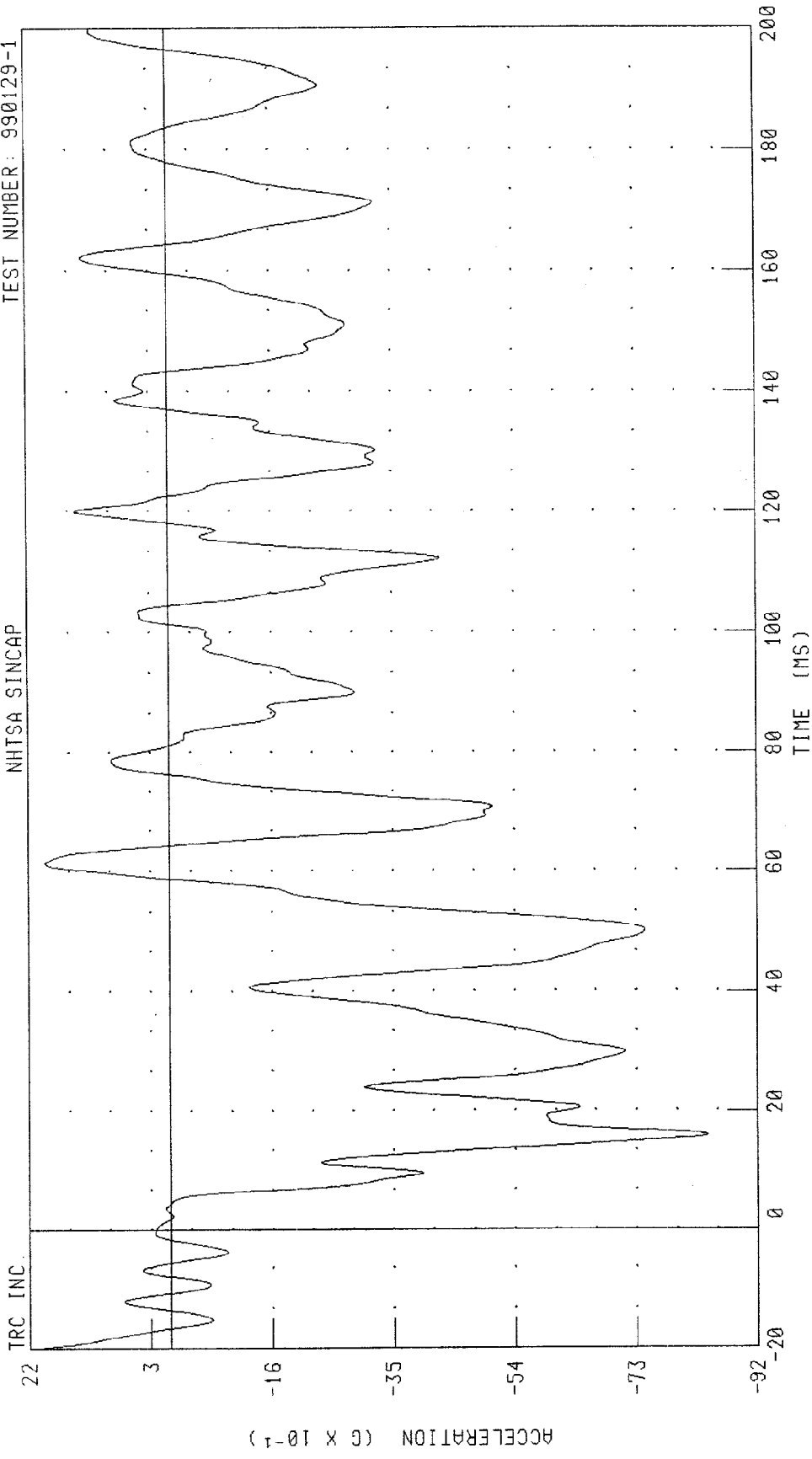
TIME (MS)

PEAK DATA: 55.22 KM/H @ 1.76 MS, 17.66 KM/H @ 94.16 MS

CHANNEL: BCCXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1



PEAK DATA: 2.04 G @ -20.00 MS; -8.41 G @ 15.84 MS

CHANNEL: BCCYG1 FILTER: CH. CLASS 60

ACCELERATION (G X 10<sup>-1</sup>)

TIME (MS)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC [INC]

306

275

VELOCITY (KM/H X 10<sup>-1</sup>)

244

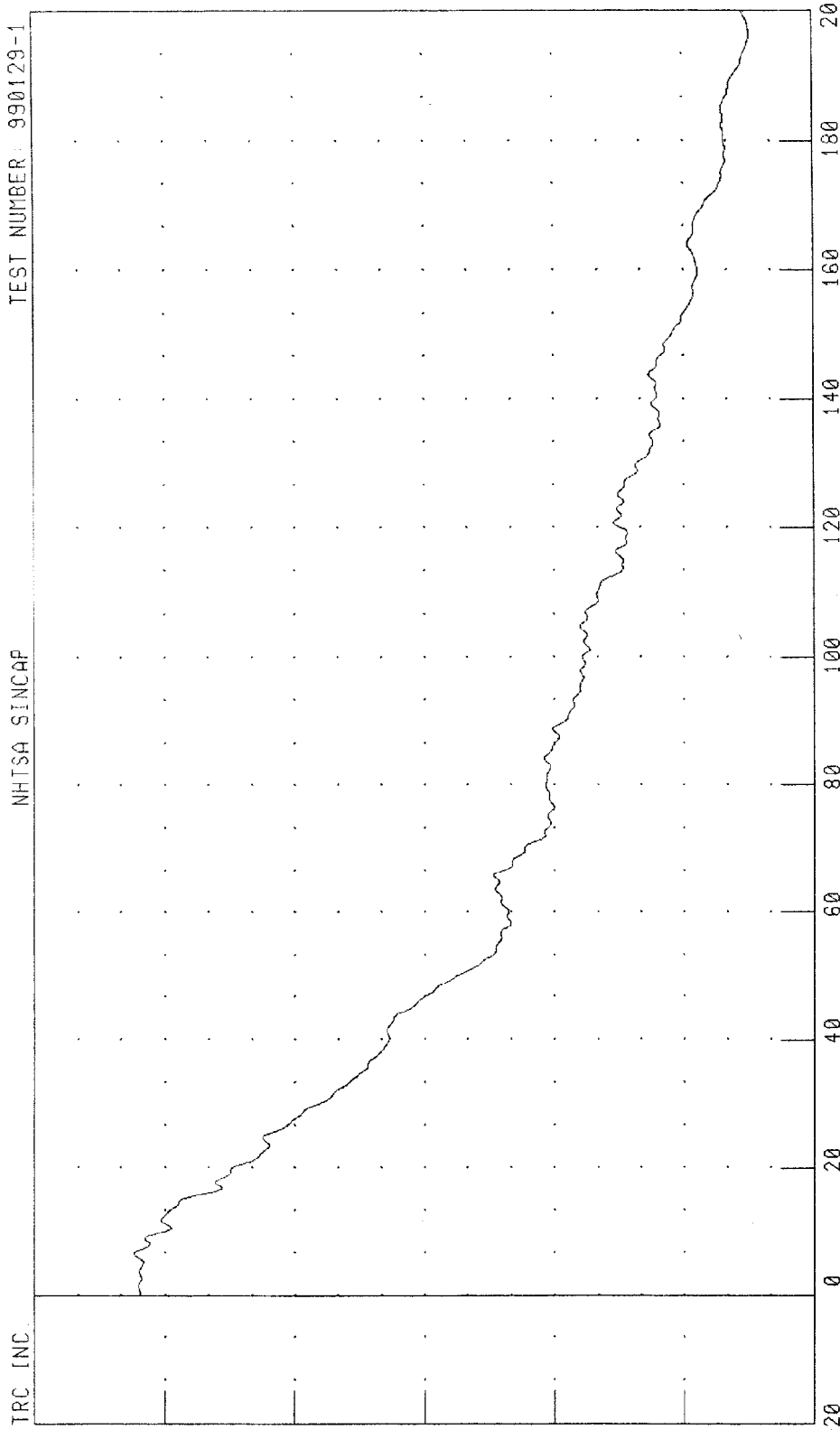
213

182

151

120

-20



TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

CHANNEL: BCCYV1 FILTER: CH. CLASS 180

PEAK DATA: 28.25 KM/H @ 6.56 MS; 13.48 KM/H @ 196.32 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

71

47

ACCELERATION (G X 10<sup>-1</sup>)

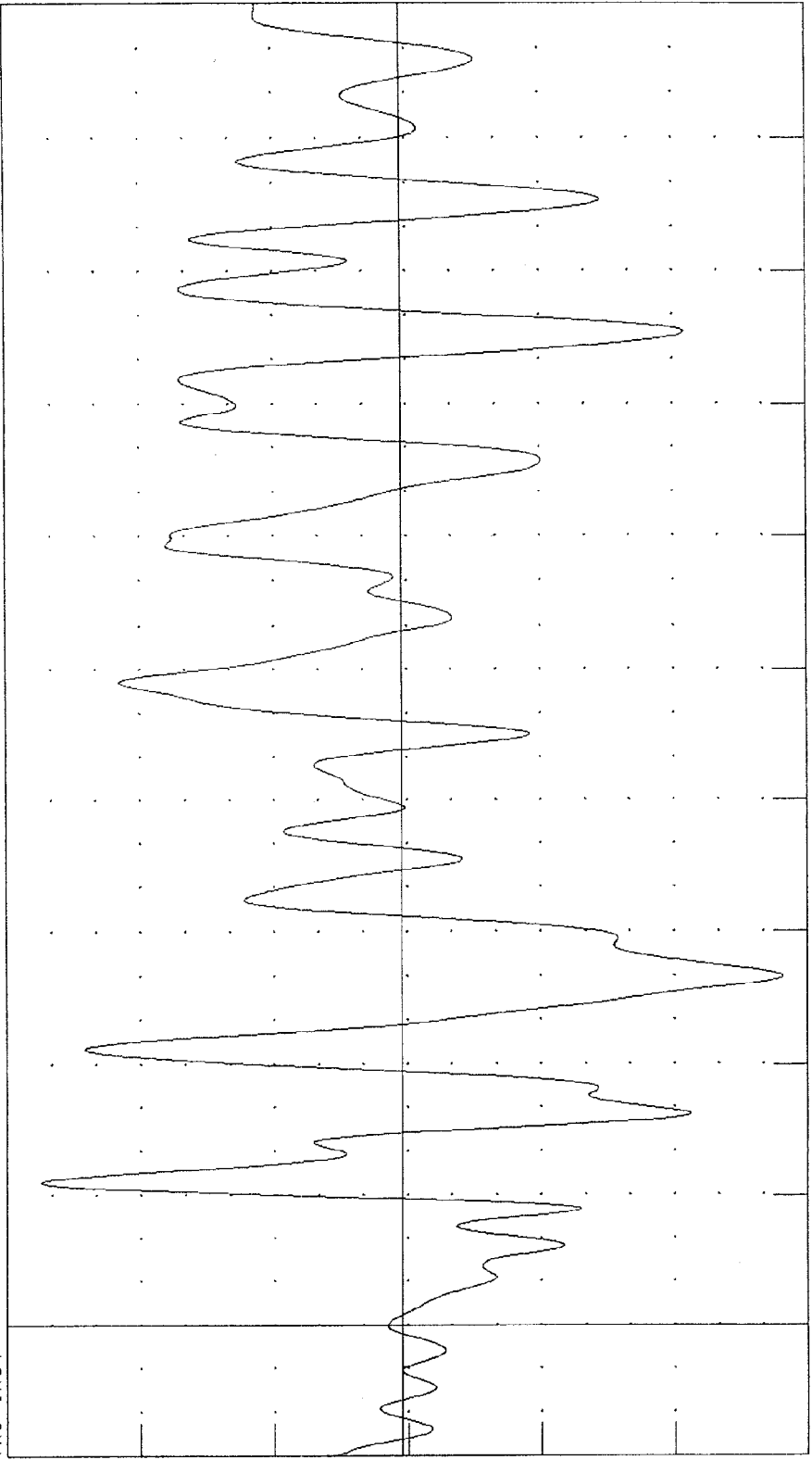
22

-1

-25

-49

-73



TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

-20

PEAK DATA: 6.49 G @ 22.00 MS; -6.86 G @ 53.28 MS

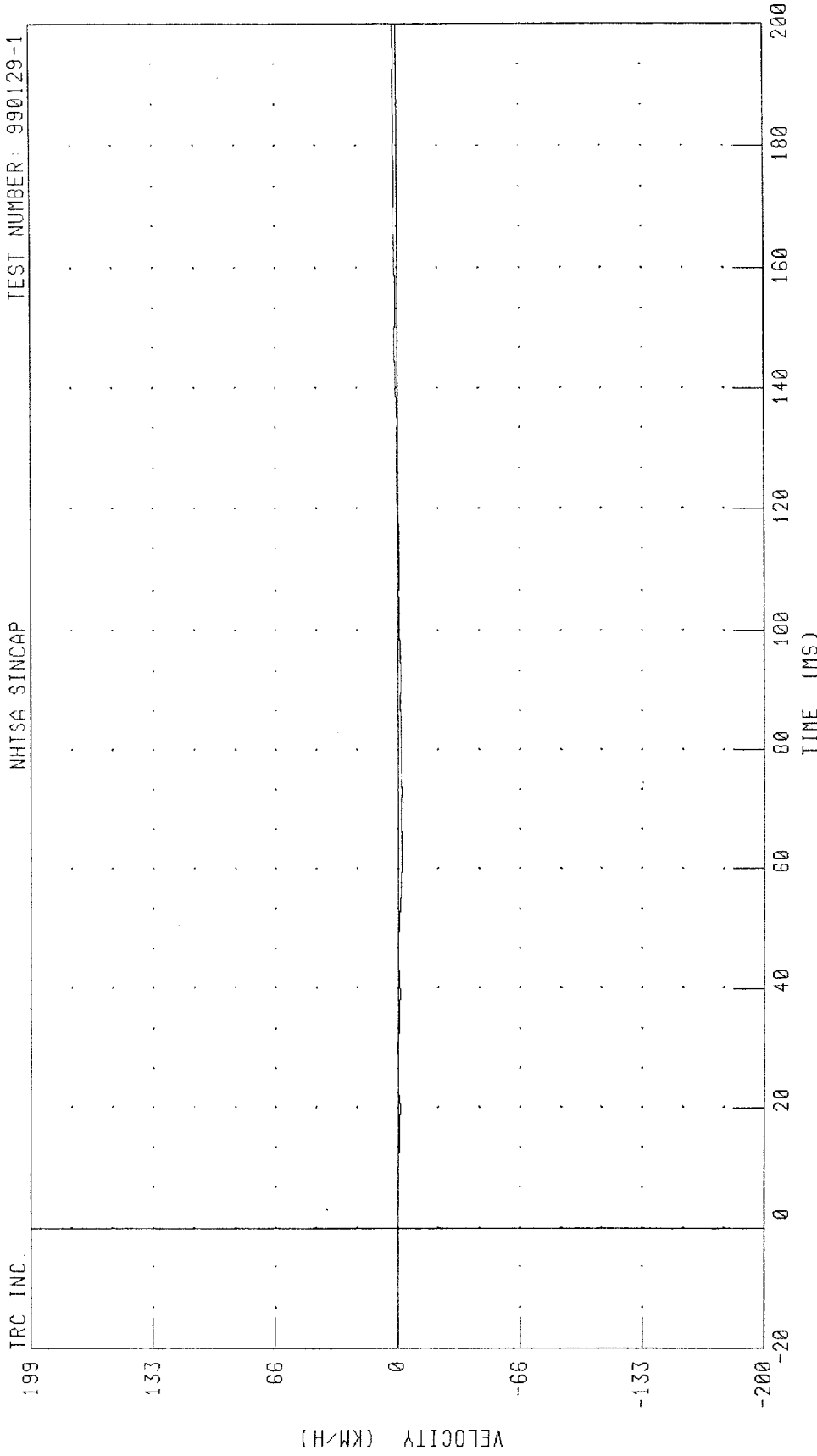
CHANNEL: BCGZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODED  
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: BCCZV1 FILTER: CH. CLASS 180

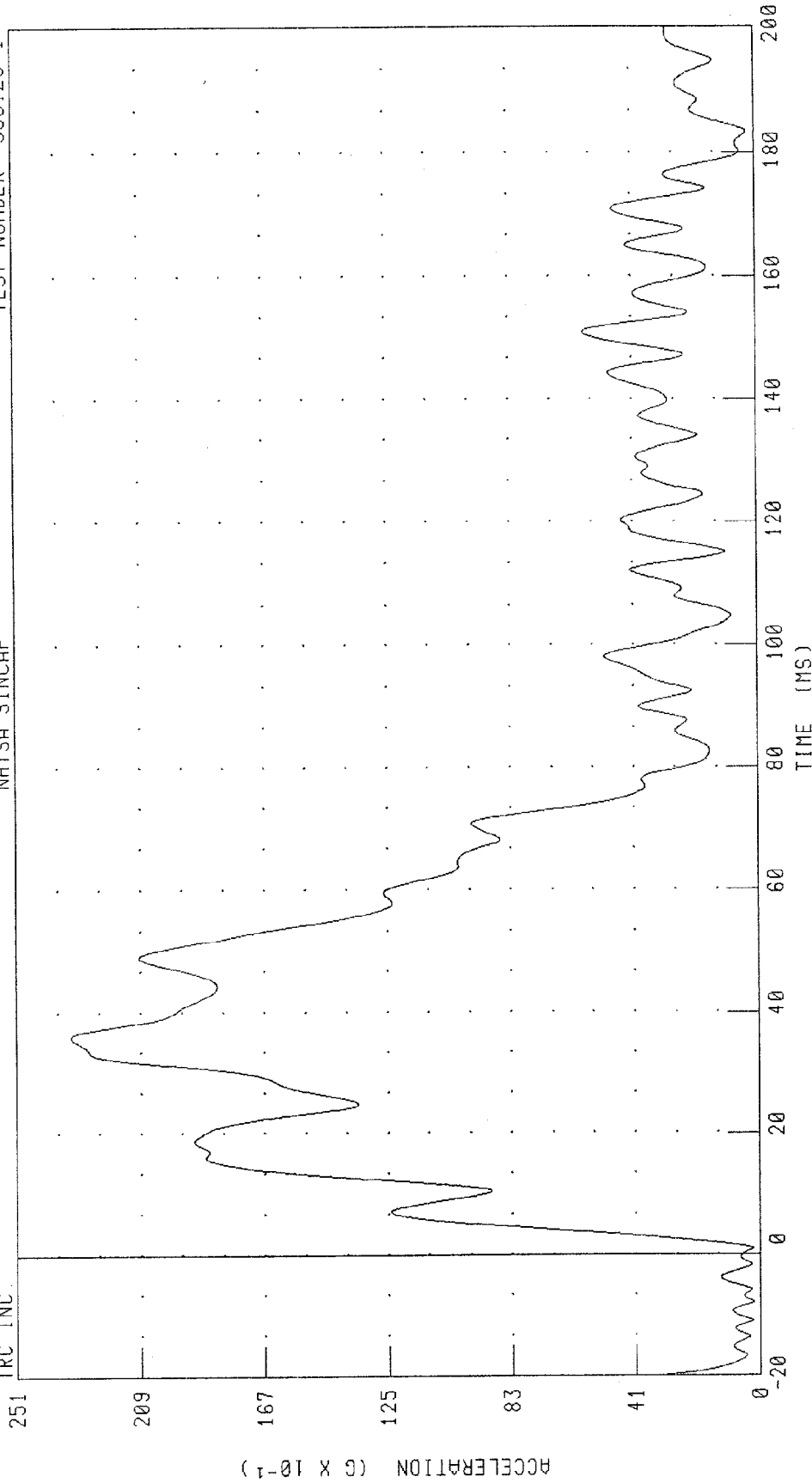
PEAK DATA: 2.07 KM/H @ 200.00 MS; -2.61 KM/H @ 62.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 23.36 G @ 36.08 MS; 0.22 G @ -7.92 MS

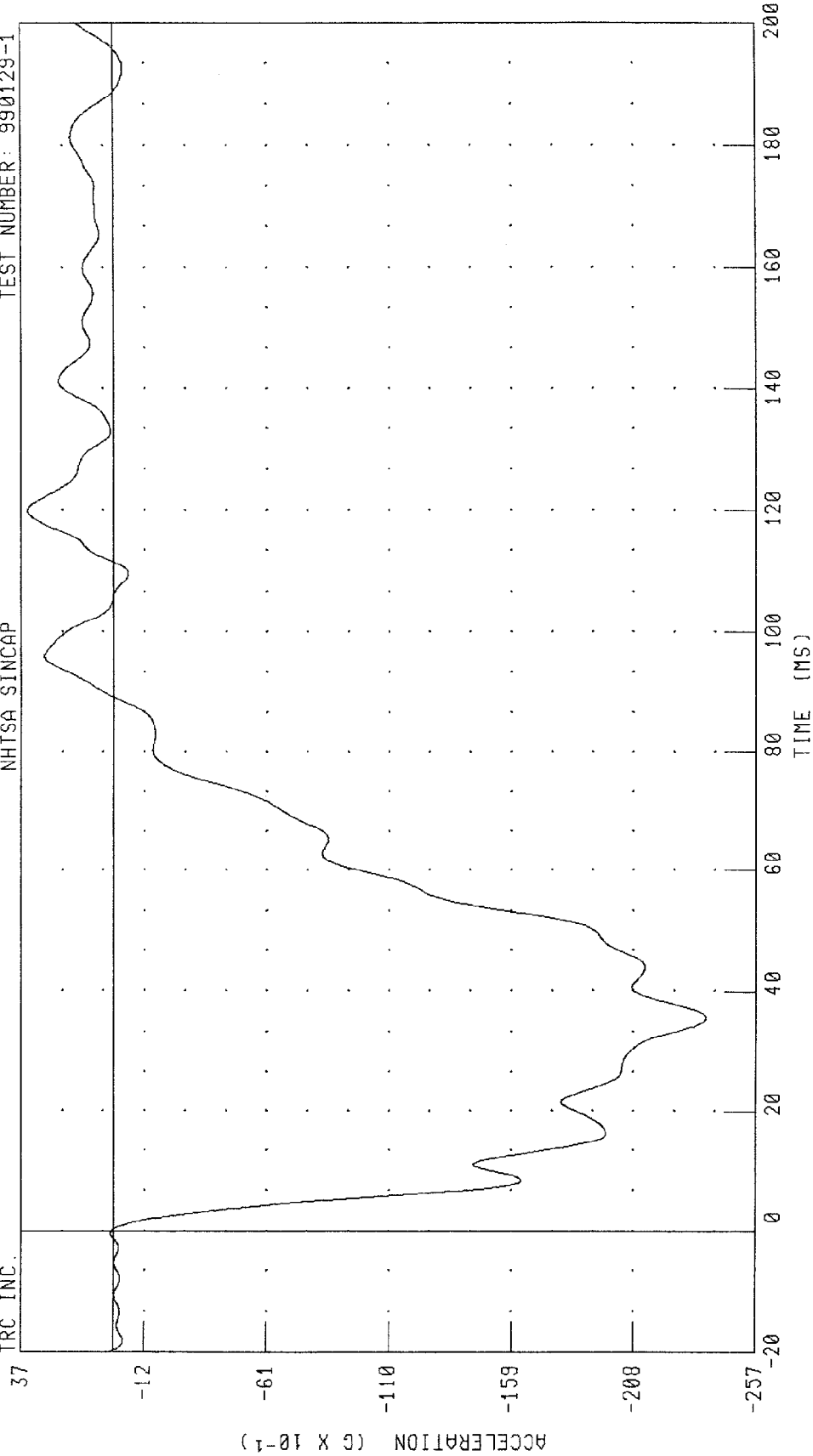
CHANNEL: BCCRG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER REAR X-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: LRRXG1 FILTER: CH. CLASS 60

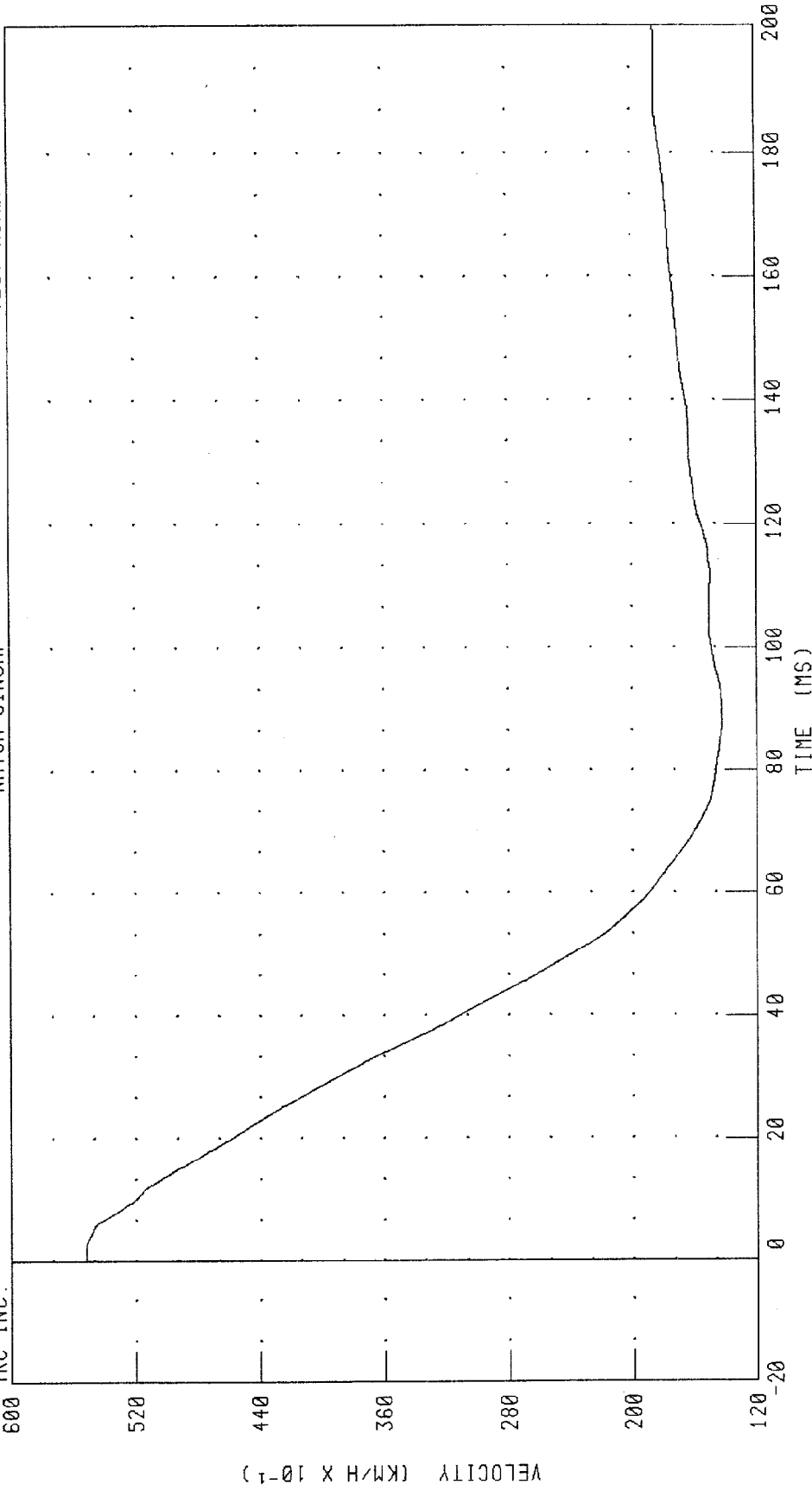
PEAK DATA: 3.45 G @ 119.92 MS, -23.73 G @ 35.68 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER REAR X-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 55.21 KM/H @ 1.52 MS, 14.20 KM/H @ 88.72 MS

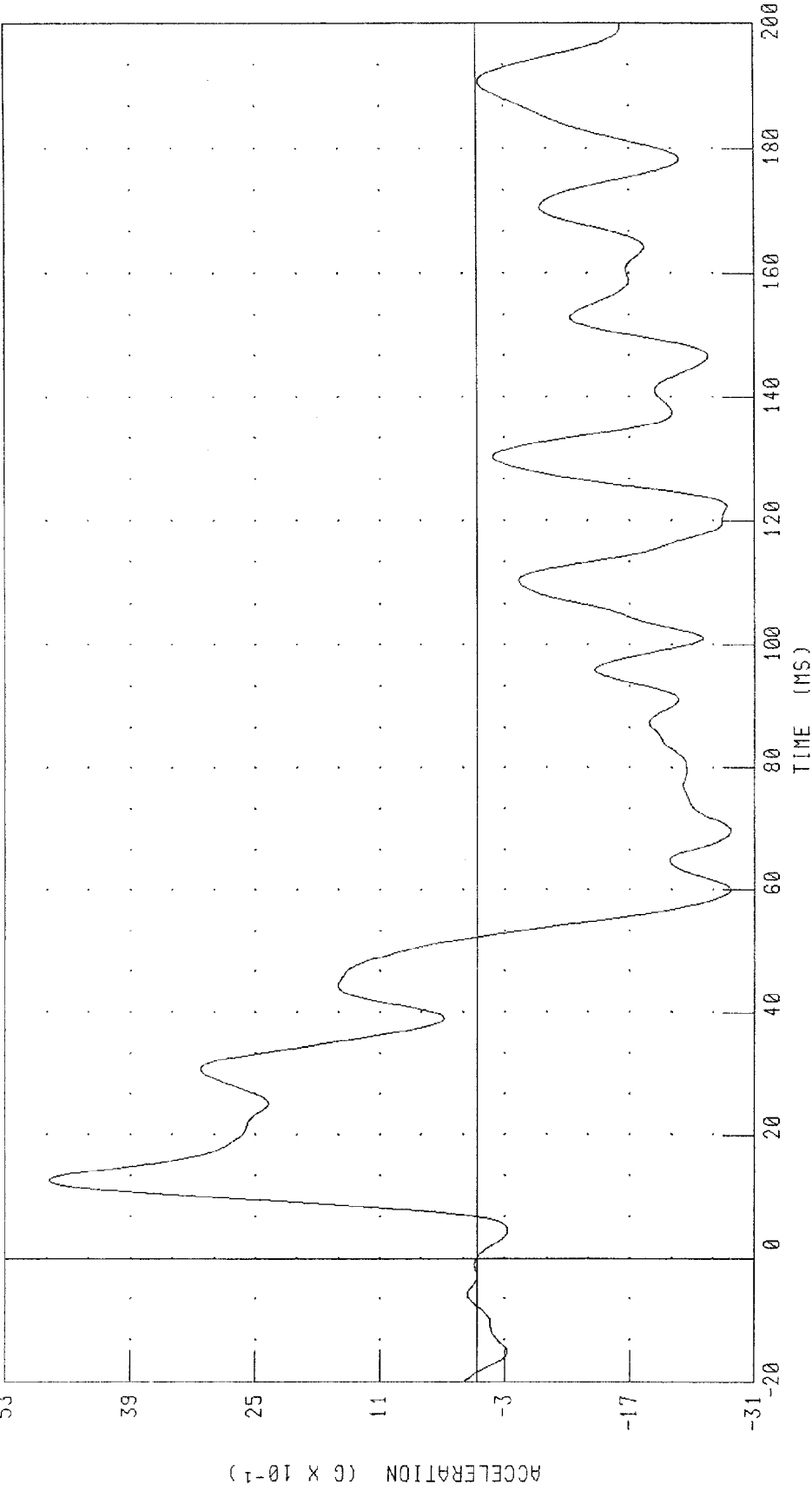
CHANNEL: LRRXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER REAR Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 4.81 G @ 12.64 MS; -2.83 G @ 70.00 MS

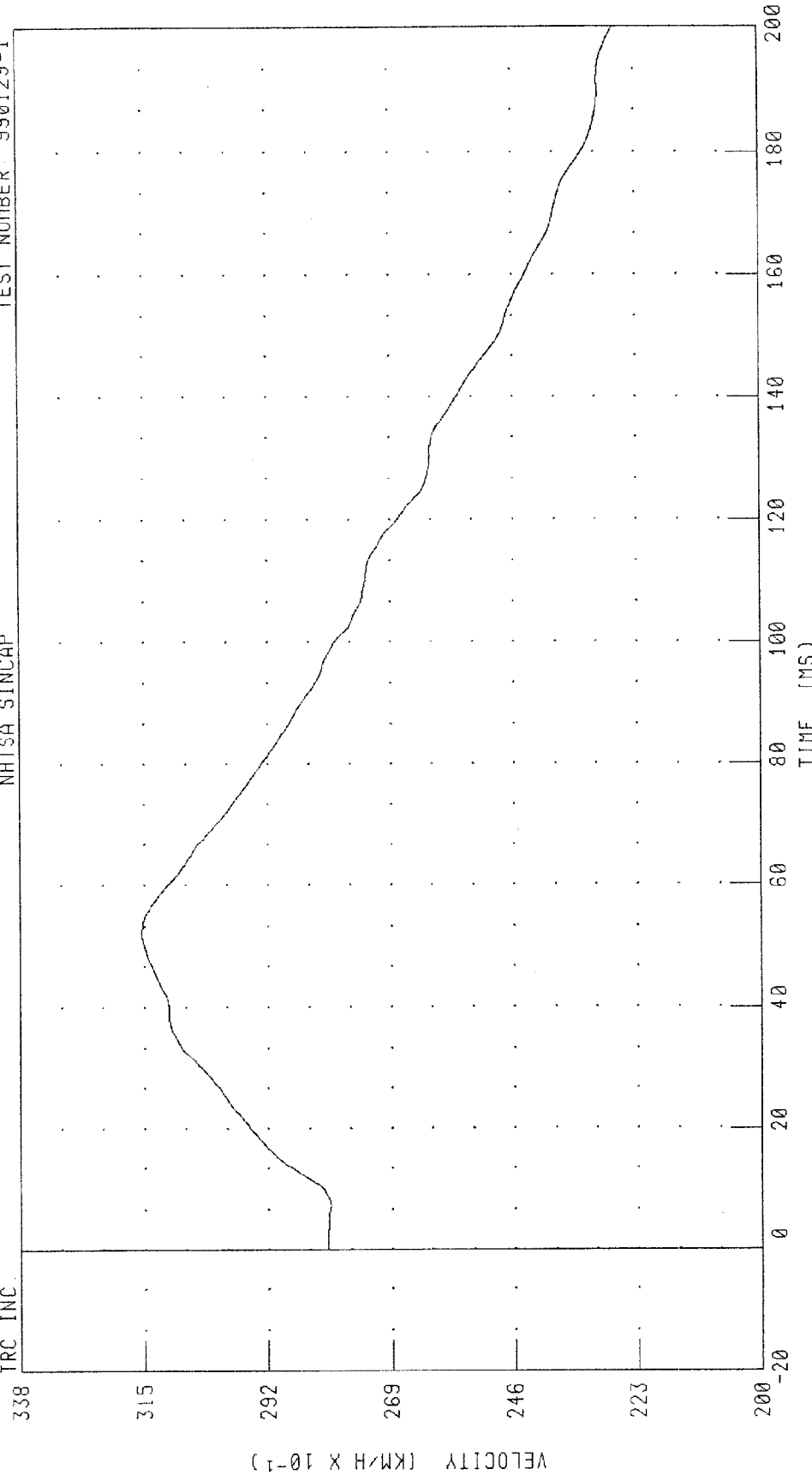
CHANNEL: LRRY01 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOVING DEFORMABLE BARRIER REAR Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

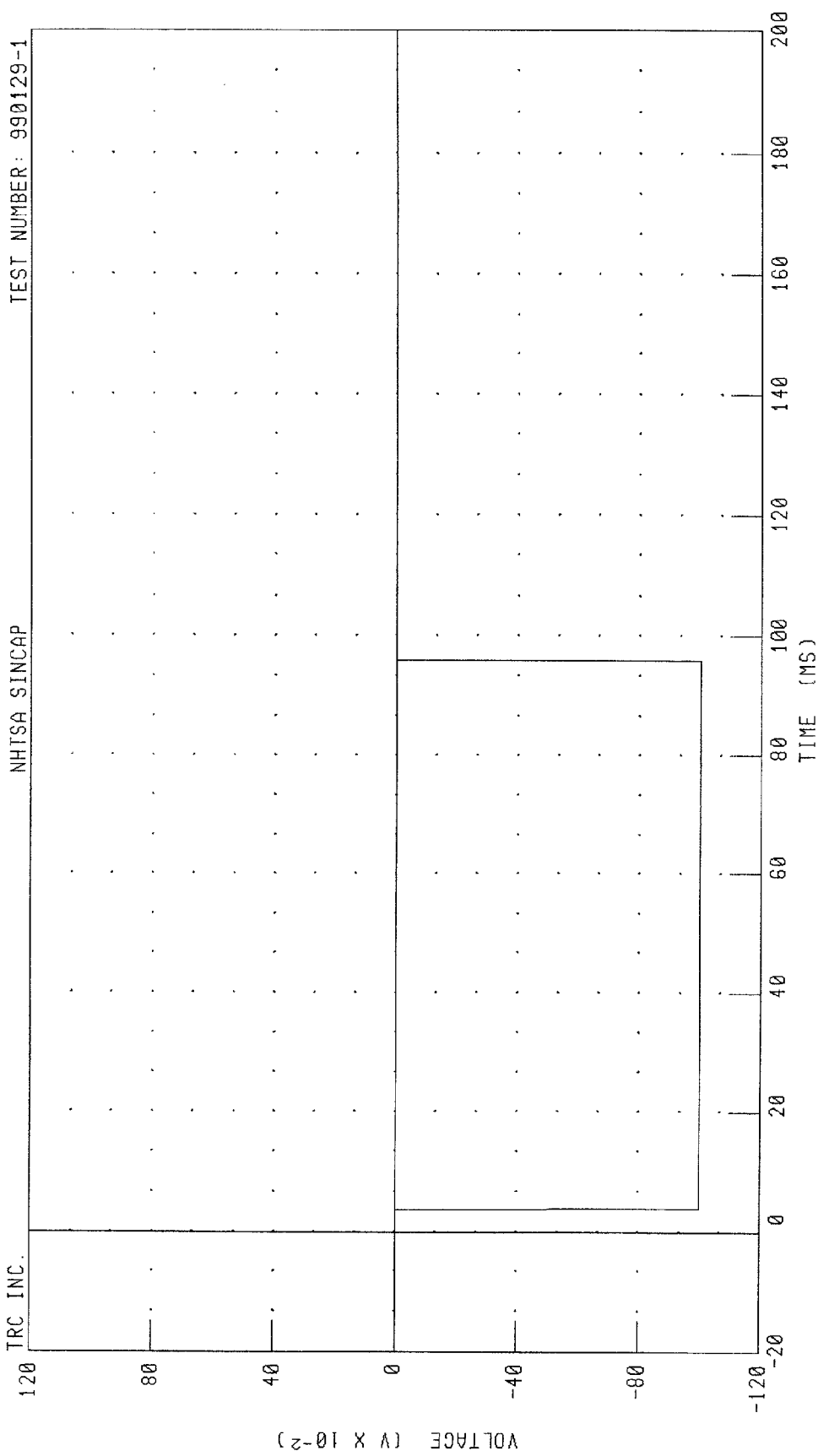
TRC INC.



CHANNEL: LRRYV1 FILTER: CH. CLASS 180 PEAK DATA: 31.54 KM/H @ 52.08 MS, 22.68 KM/H @ 200.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MDB RIGHT CONTACT SWITCH  
NHTSA\_SINCAP

TEST NUMBER: 990129-1



PEAK DATA: 0.00 V @ 200.00 MS; -1.00 V @ 3.84 MS

CHANNEL: MDBR1 FILTER: CH. CLASS 1000

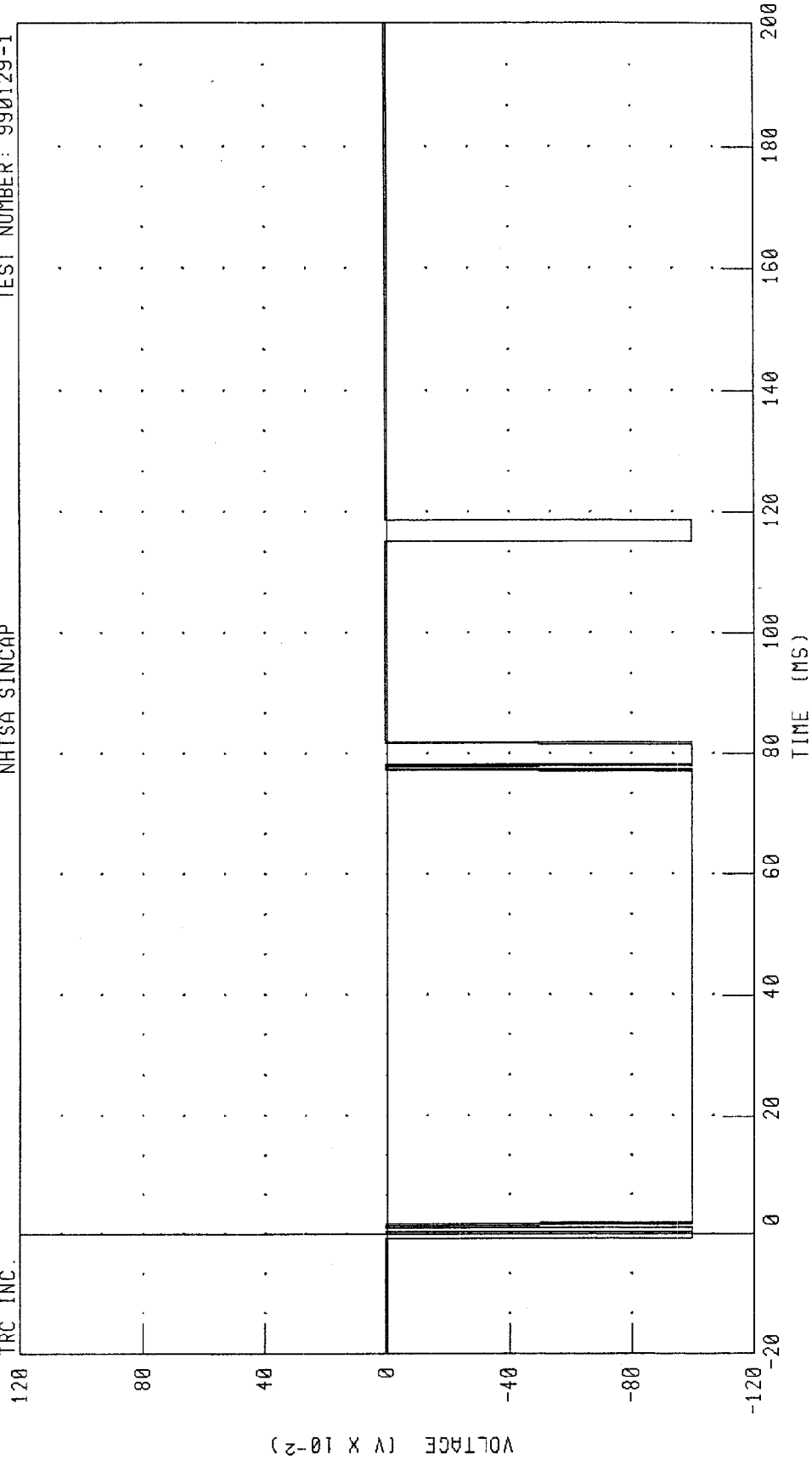
TRC INC.

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
MOB LEFT CONTACT SWITCH

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: MDBL1 FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 200.00 MS; -1.00 V @ -0.72 MS

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

438

353

ACCELERATION (G X 10<sup>-1</sup>)

268

183

98

13

-72  
-20

0 20 40 60 80 100 120 140 160 180 200  
TIME (MS)

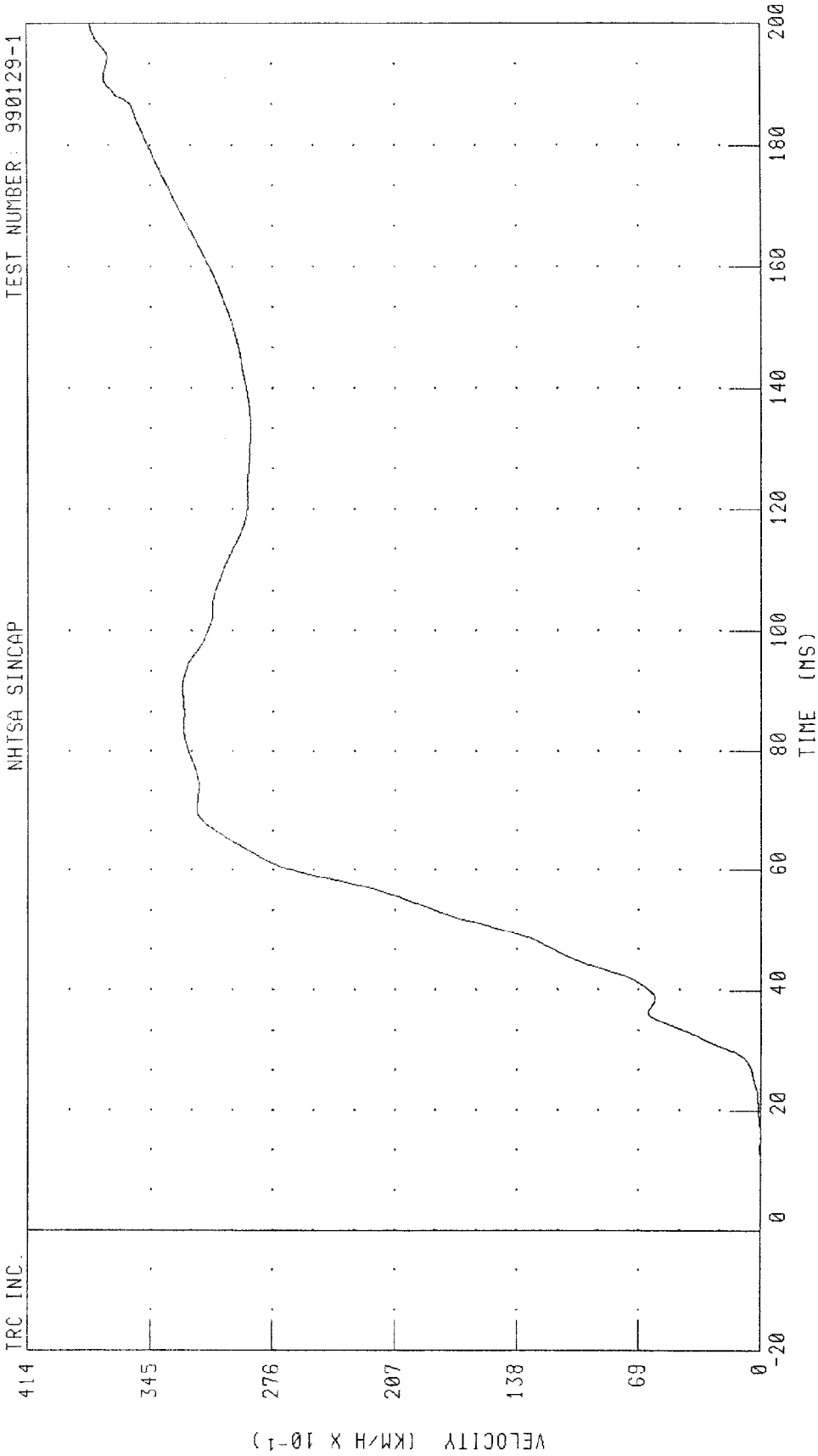
CHANNEL: LURYG1 FILTER: FIR 100

PEAK DATA: 39.92 G @ 58.13 MS; -6.58 G @ 96.88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER UPPER RIB Y-AXIS VELOCITY  
NHTSA SINCAP

TEST NUMBER: 990129-1

TRC INC.



CHANNEL: LURYV1 FILTER: CH. CLASS 180

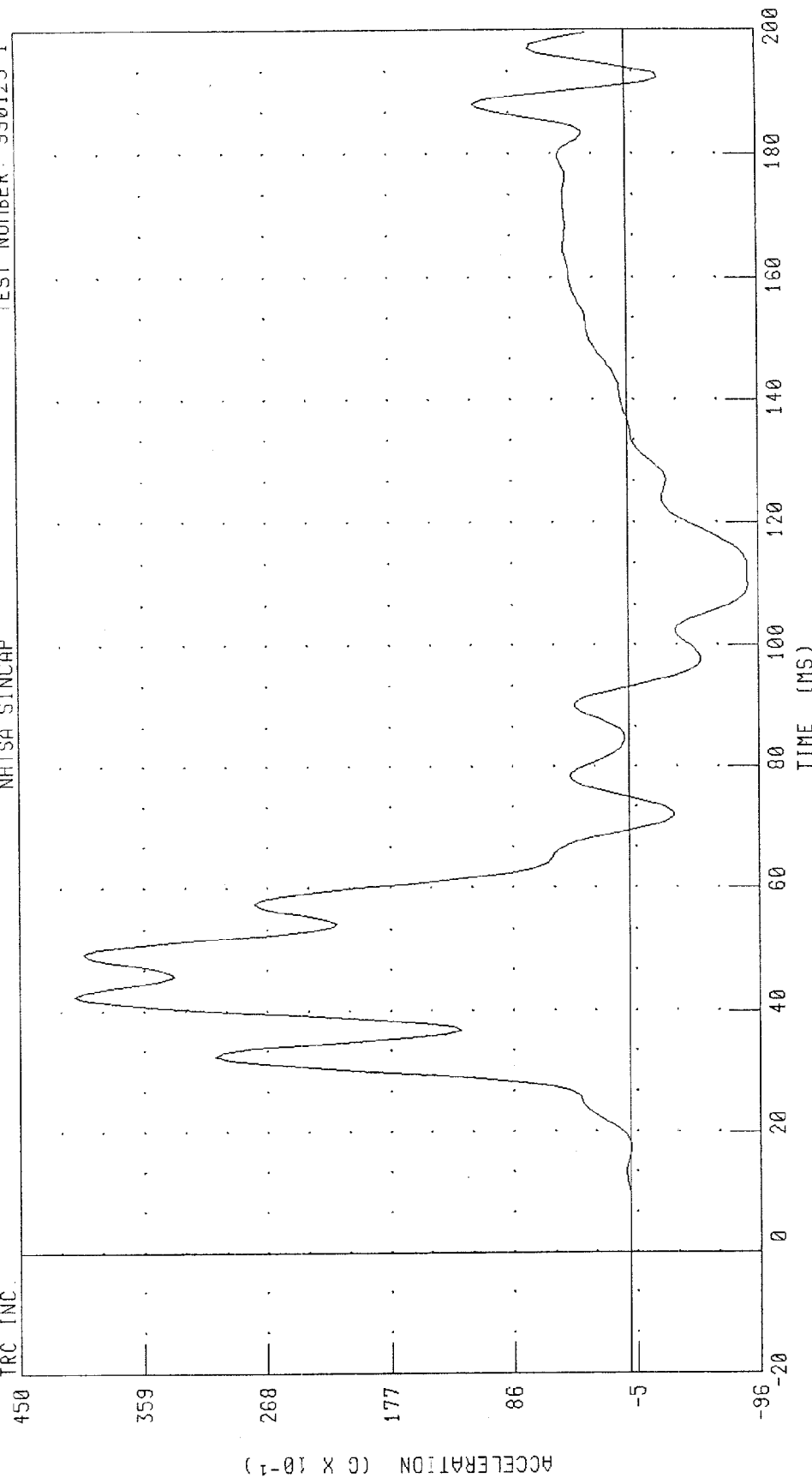
PEAK DATA: 37.88 KM/H @ 200.00 MS; 0.00 KM/H @ 4.32 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



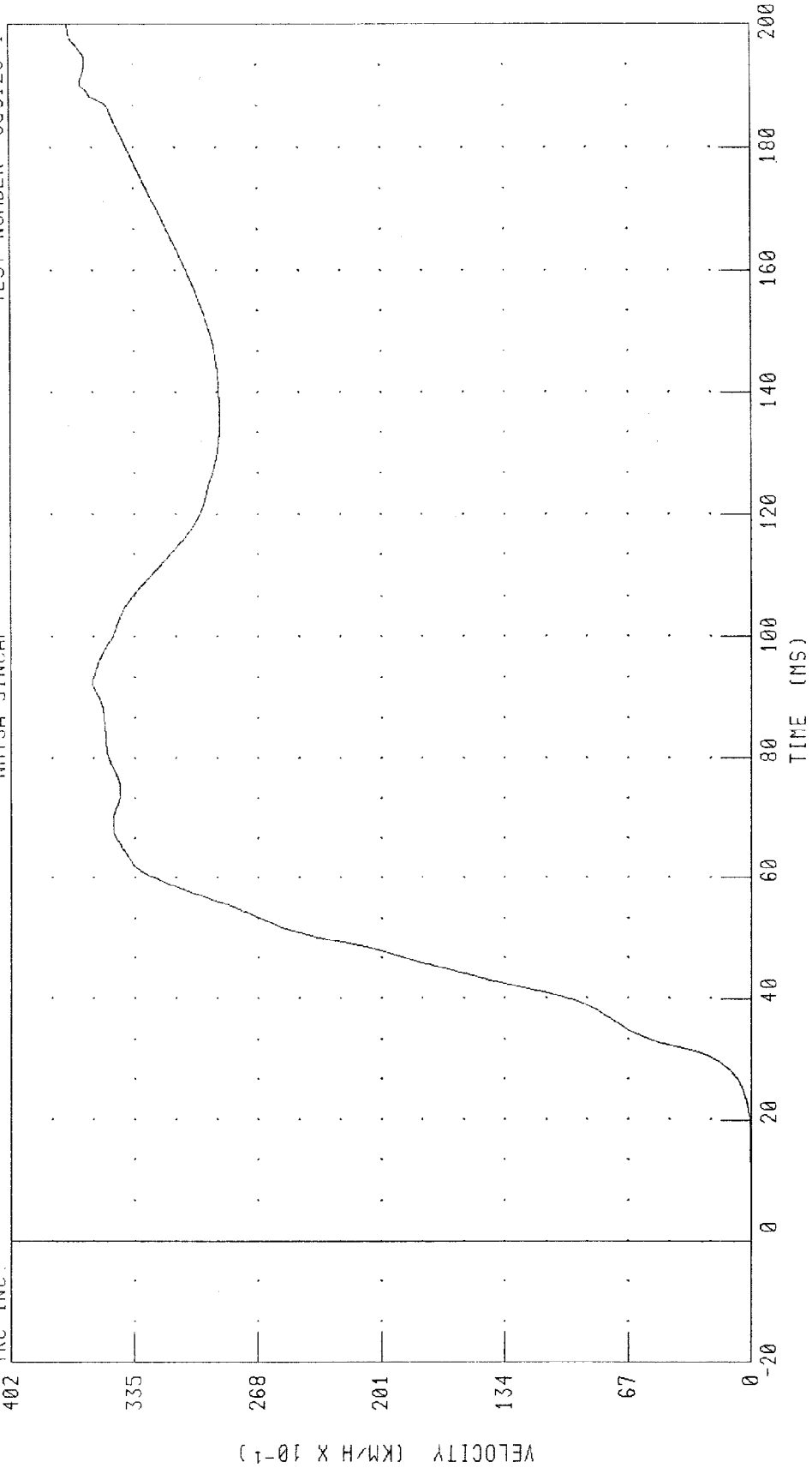
CHANNEL: LLRYC1 FILTER: FIR 100 PEAK DATA: 40.98 G @ 42.50 MS; -8.80 G @ 110.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

IRC INC.

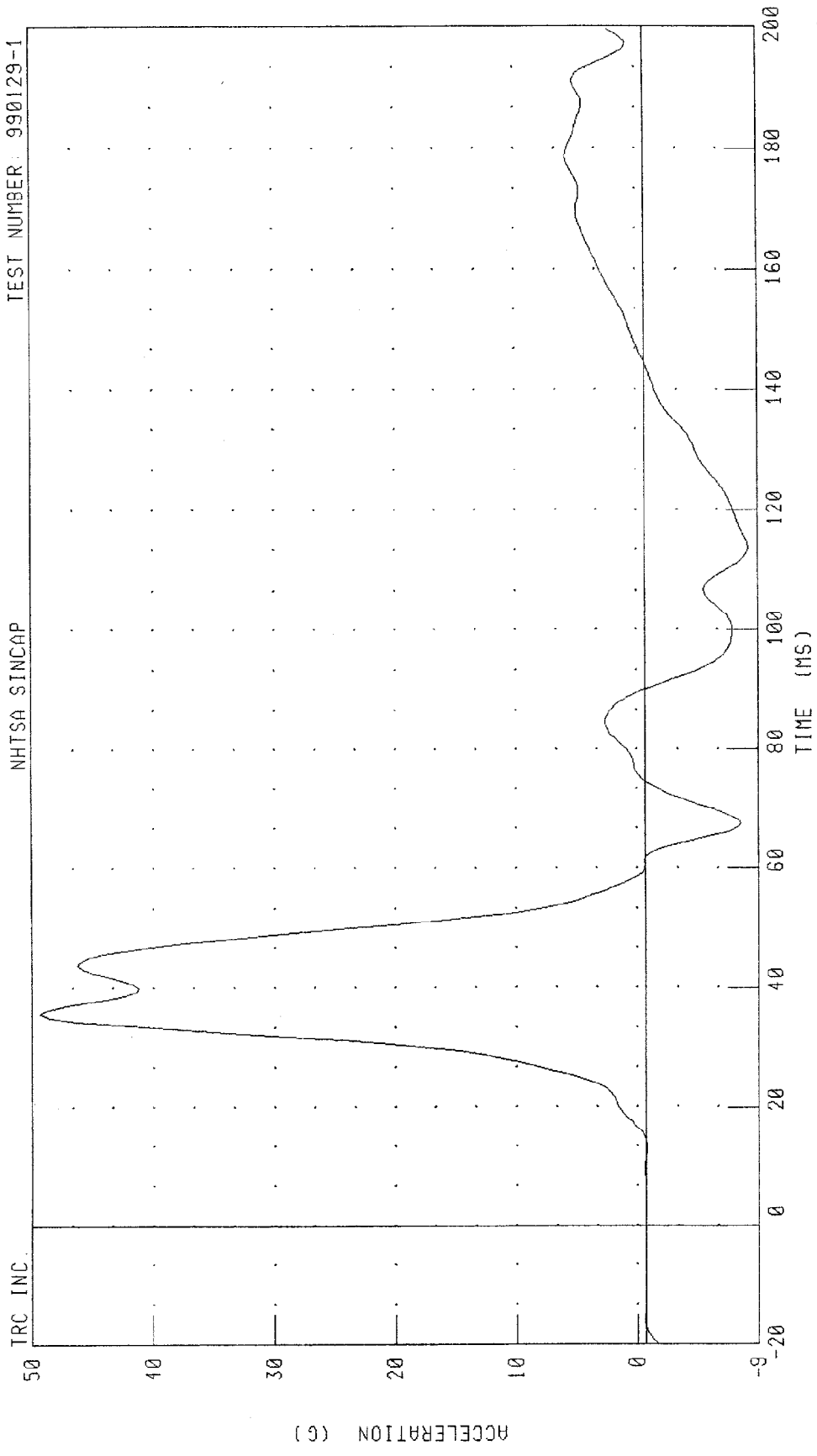


CHANNEL: LLRYV1 FILTER: CH. CLASS 180

PEAK DATA: 37.03 KM/H @ 200.00 MS; 0.00 KM/H @ 0.00 MS

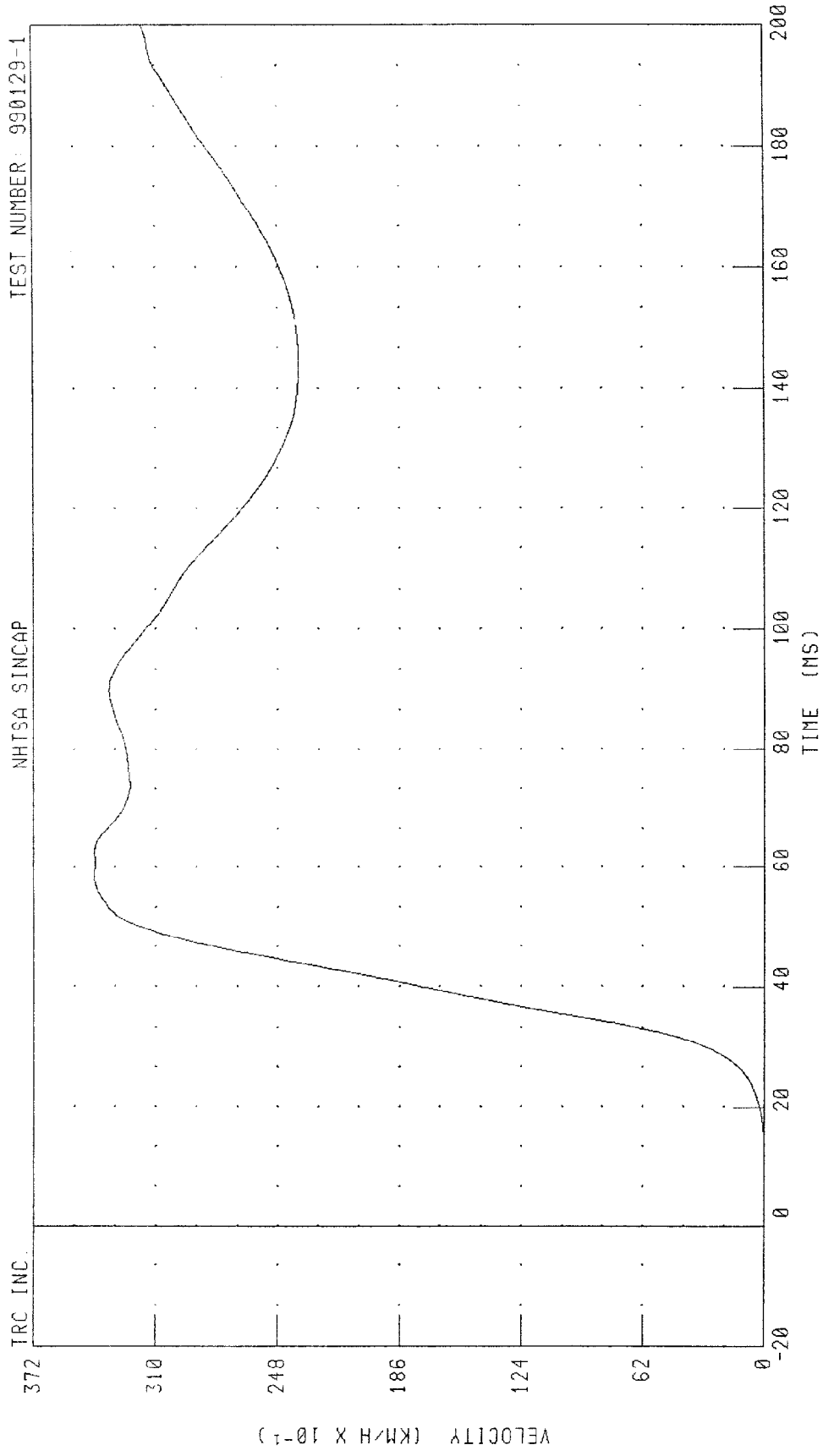
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER SPINE Y-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1



CHANNEL: T12YG1 FILTER: FIR 100 PEAK DATA: 50.02 G @ 35.63 MS; -8.51 G @ 113.75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER LOWER SPINE Y-AXIS VELOCITY  
NHTSA SINCAP



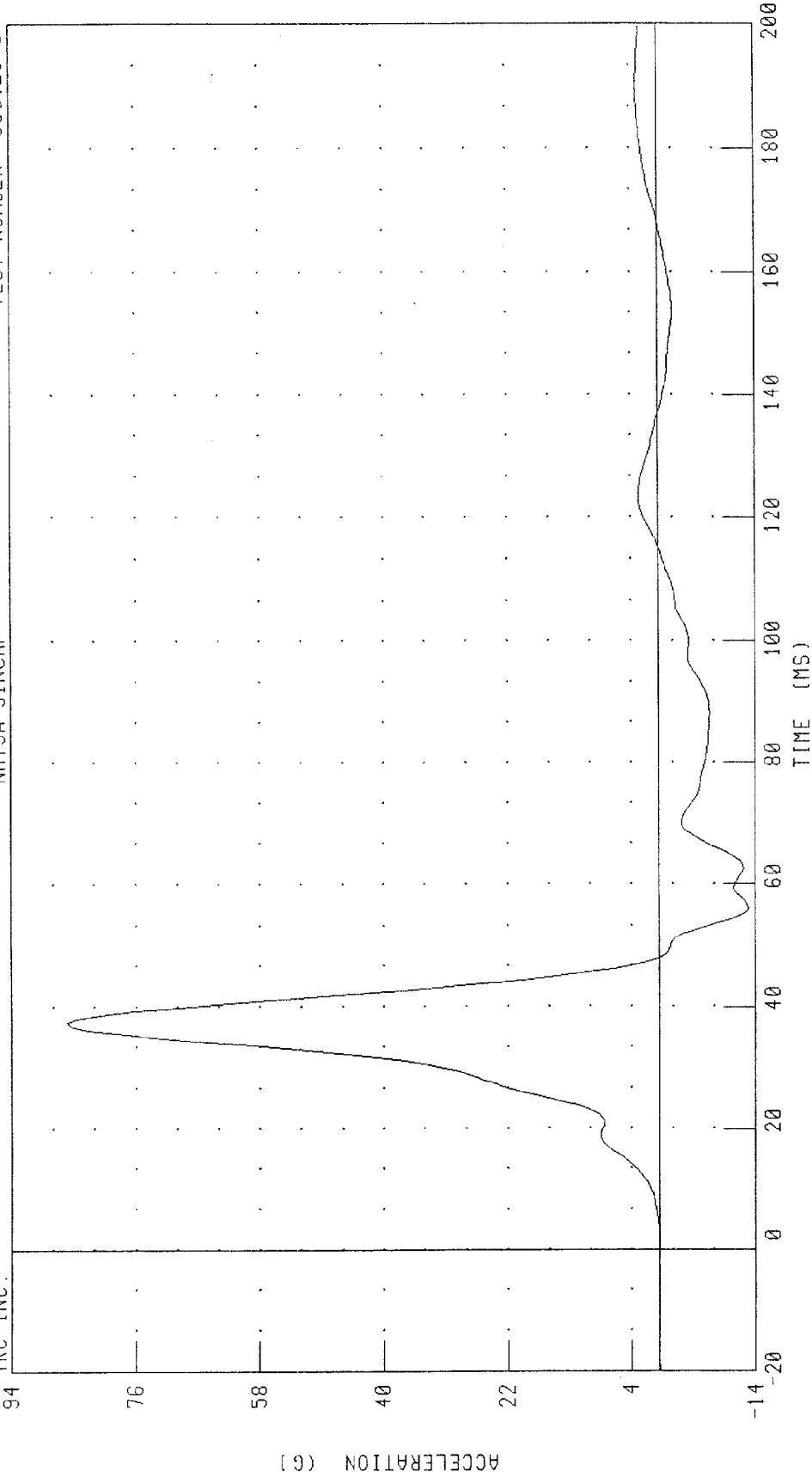
CHANNEL: T12YV1 FILTER: CH. CLASS 180 PEAK DATA: 34.11 KM/H @ 58.48 MS; 0.00 KM/H @ 1.92 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZU RODEO  
DRIVER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

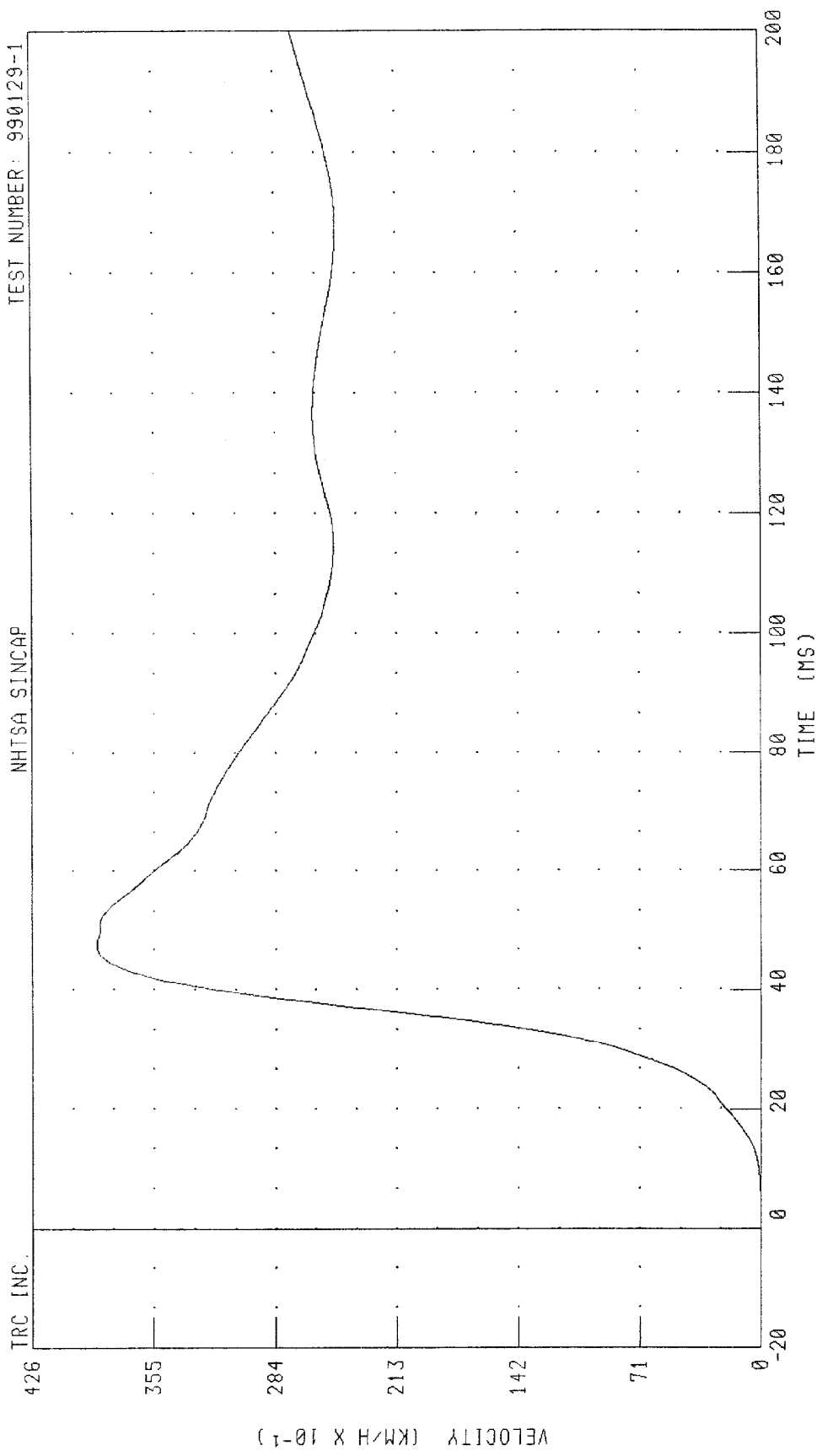


CHANNEL: PEVYG1 FILTER: FIR 100

PEAK DATA: 85.94 G @ 37.50 MS, -13.05 C @ 56.25 MS

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

TEST NUMBER: 990129-1



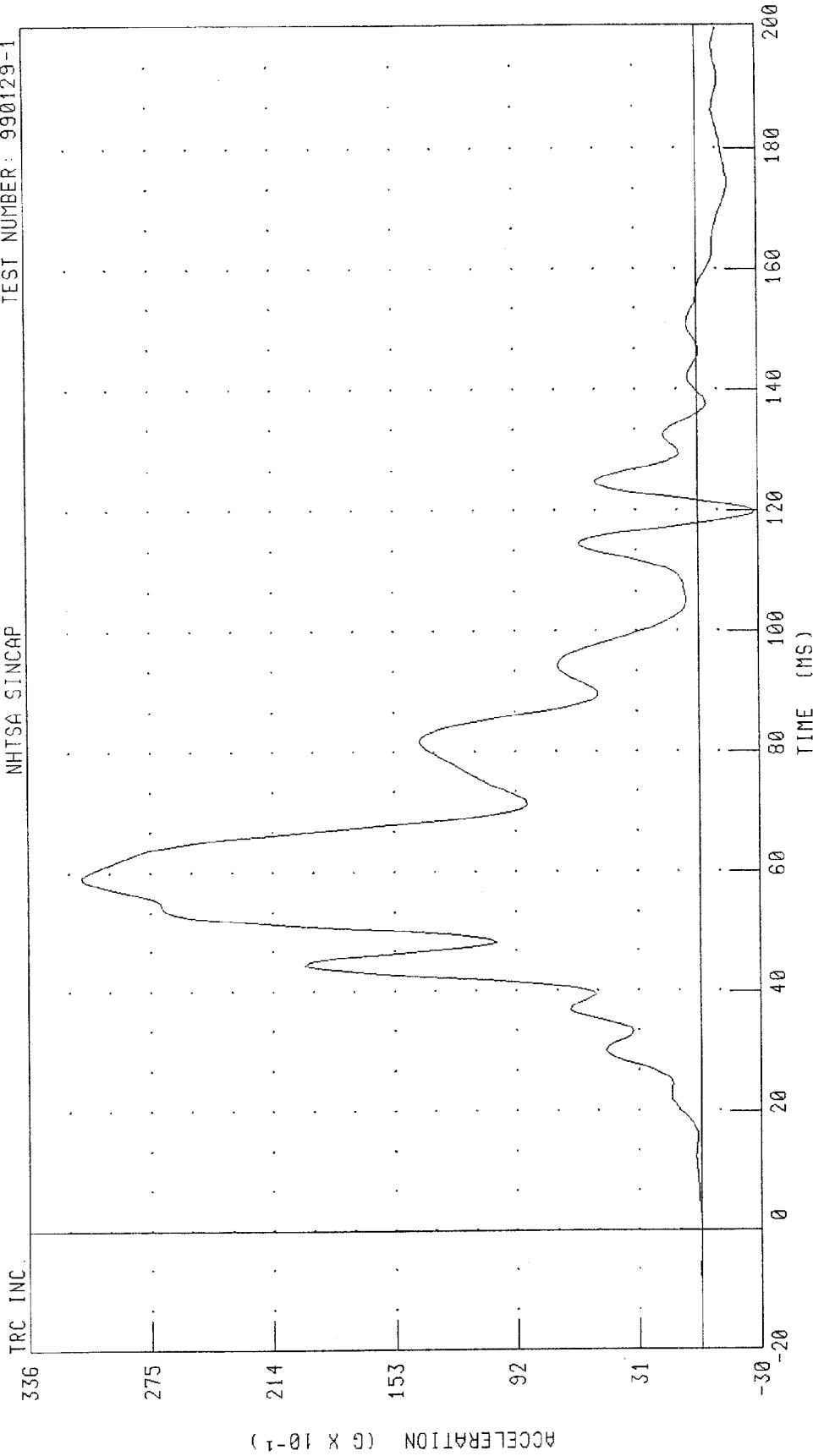
CHANNEL: PEYV1 FILTER: CH. CLASS 180

PEAK DATA: 38.85 KM/H @ 47.44 MS; 0.00 KM/H @ 0.00 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP



CHANNEL: LURYG4 FILTER: FIR 100

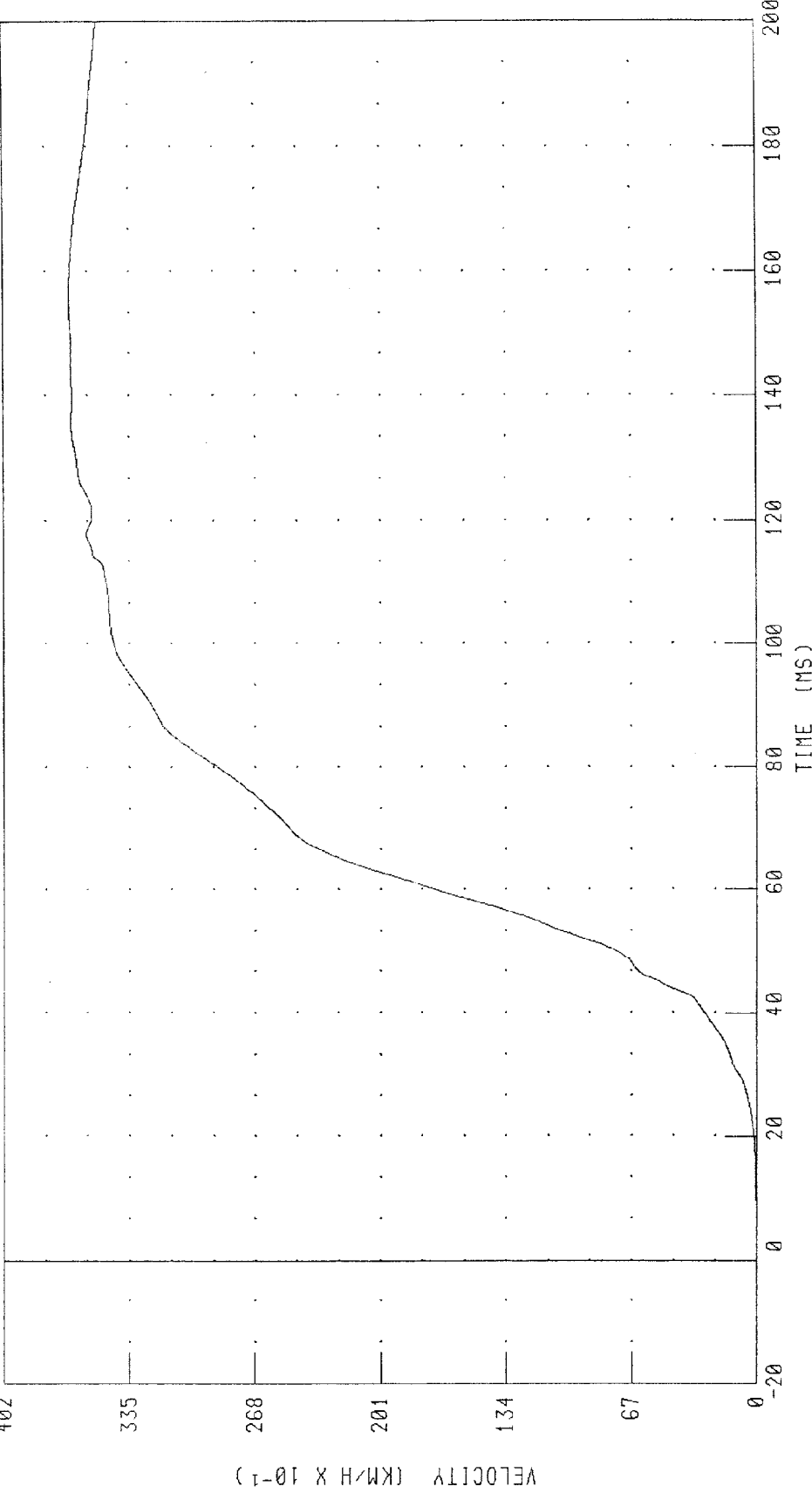
PEAK DATA: 30.91 G @ 59.38 MS; -2.81 G @ 120.00 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC



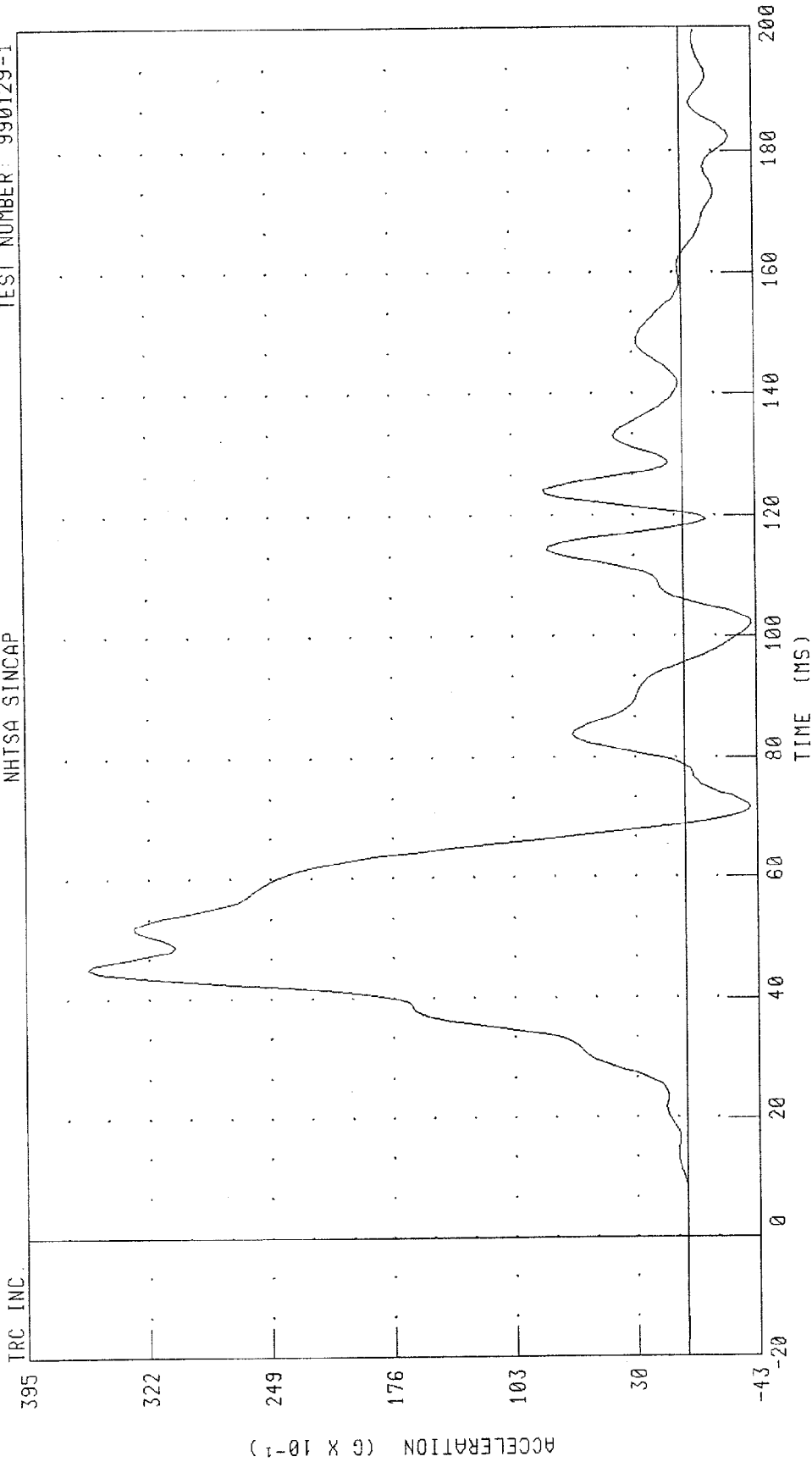
PEAK DATA: 36.68 KM/H @ 157.68 MS; 0.00 KM/H @ 0.64 MS

CHANNEL: LURYV4 FILTER: CH. CLASS 180

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

TEST NUMBER: 990129-1

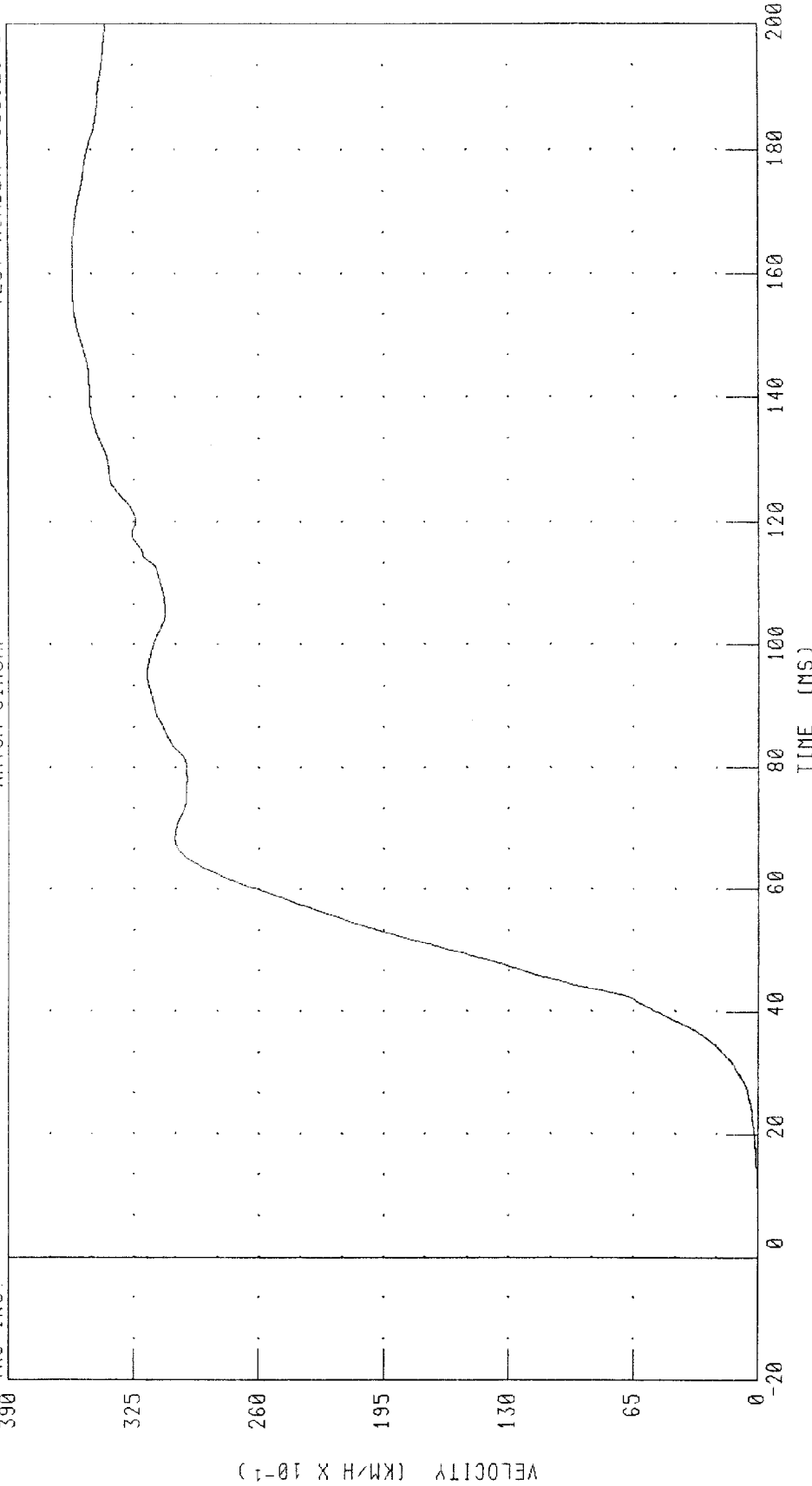
NHTSA SINCAP



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY  
NHTSA SINCAP

TEST NUMBER: 990129-1

TRC INC.



CHANNEL: LLRYV4 FILTER: CH. CLASS 180

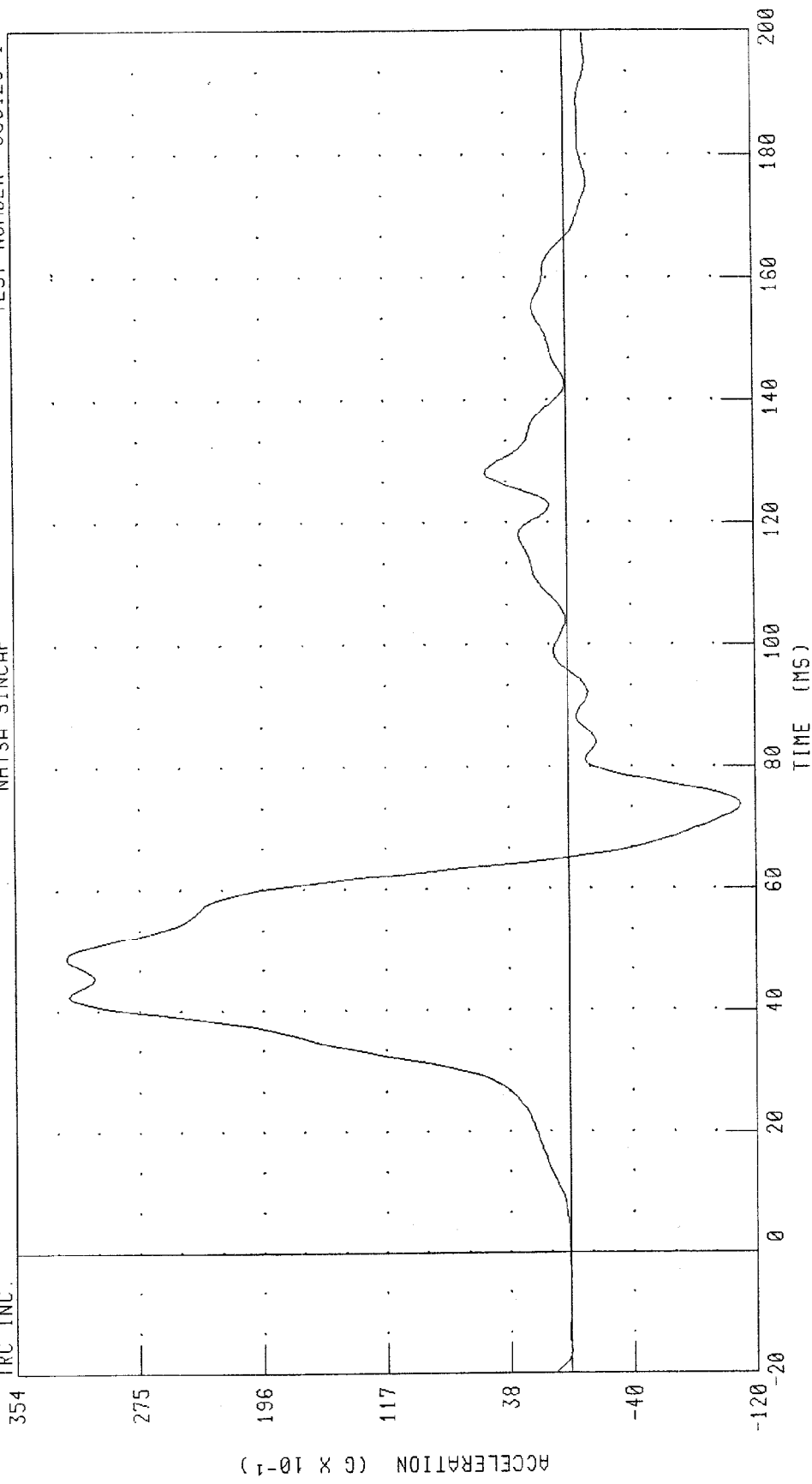
PEAK DATA: 35.68 KM/H @ 162.08 MS; 0.00 KM/H @ 0.88 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 32.20 G @ 48.75 MS; -11.05 G @ 73.75 MS

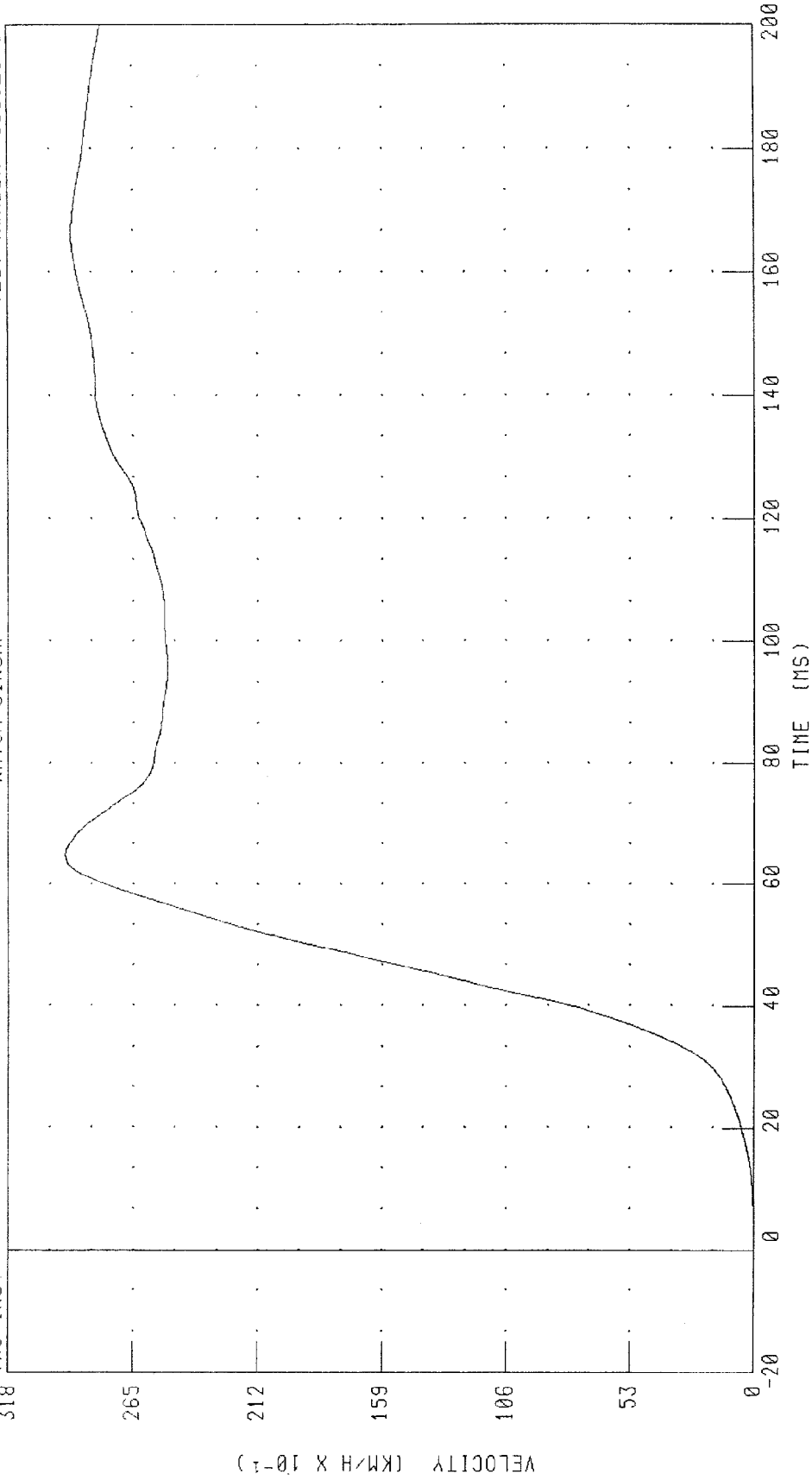
CHANNEL: T12YG4 FILTER: FIR 100

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

TEST NUMBER: 990129-1

NHTSA SINCAP

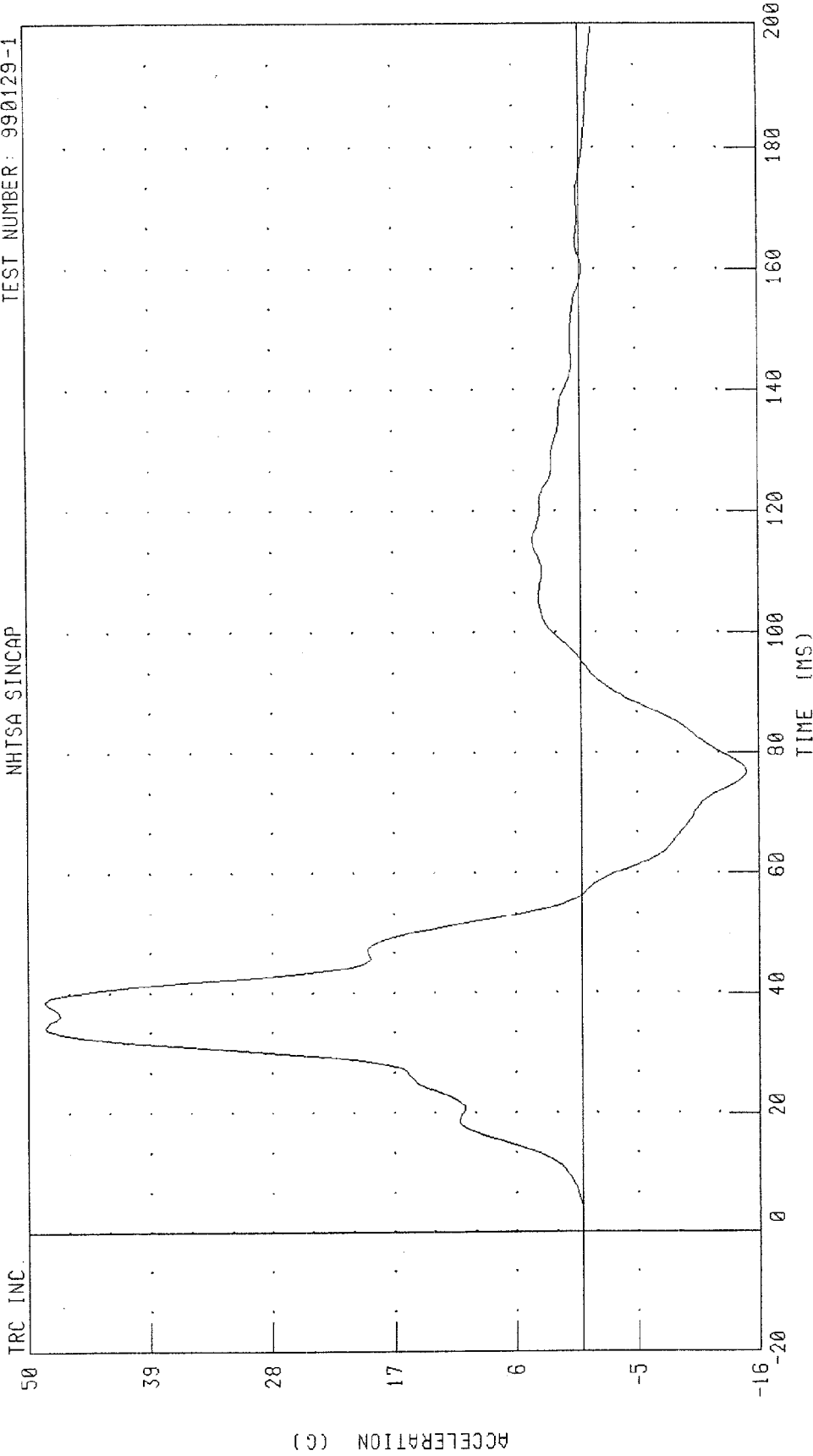
TRC INC.



CHANNEL: T12YV4 FILTER: CH. CLASS 180 PEAK DATA: 29.37 KM/H @ 64.80 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1



CHANNEL: PEVYC4 FILTER: FIR 100

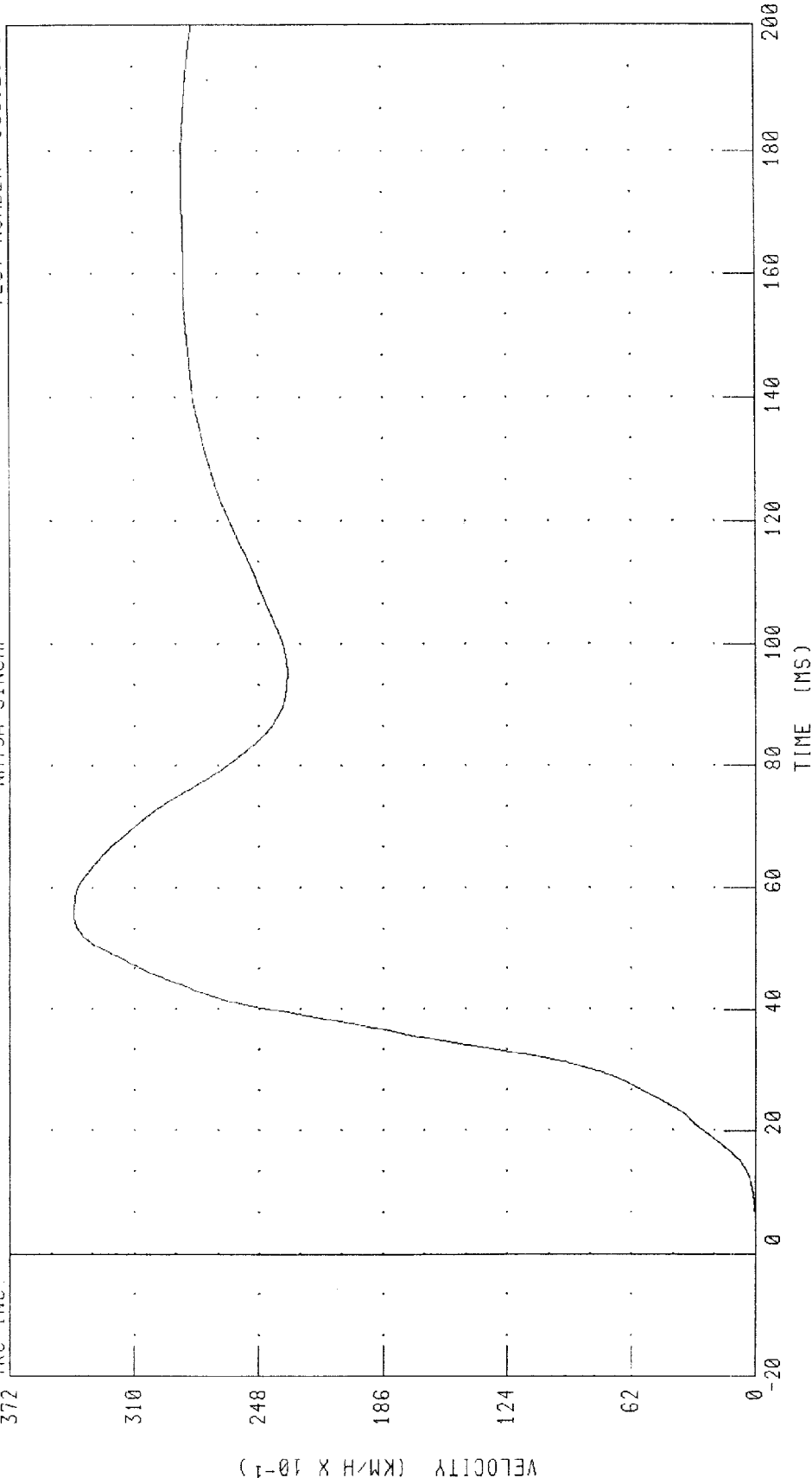
PEAK DATA: 48.51 G @ 38.75 MS; -14.91 G @ 76.88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: PEVYV4 FILTER: CH. CLASS 180

PEAK DATA: 34.01 KM/H @ 55.84 MS; 0.00 KM/H @ 0.88 MS

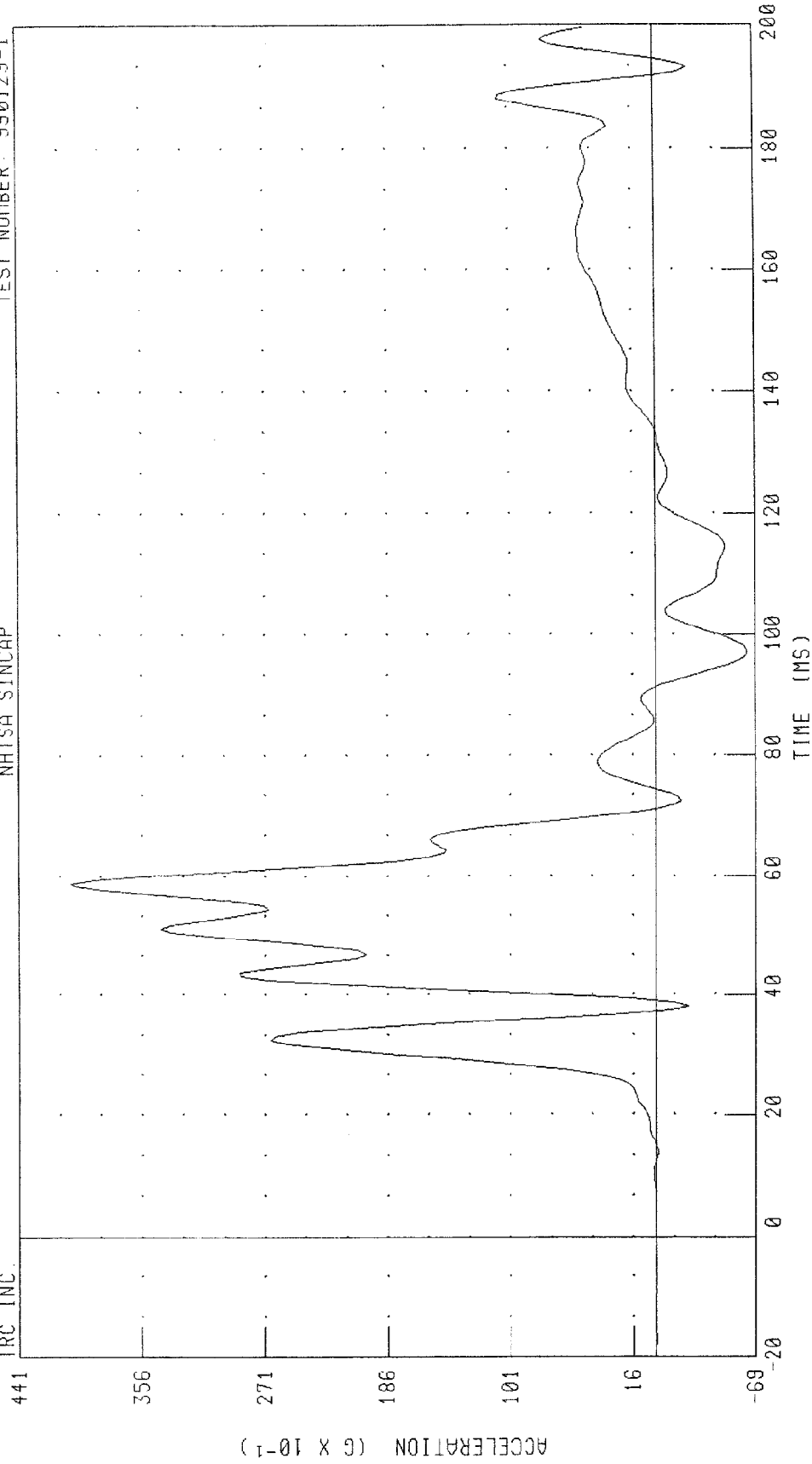
**Driver and Passenger Dummy Instrumentation Plots**  
Acceleration Data - FIR Filtered - Redundant

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 40.51 G @ 58.75 MS; -6.34 G @ 97.50 MS

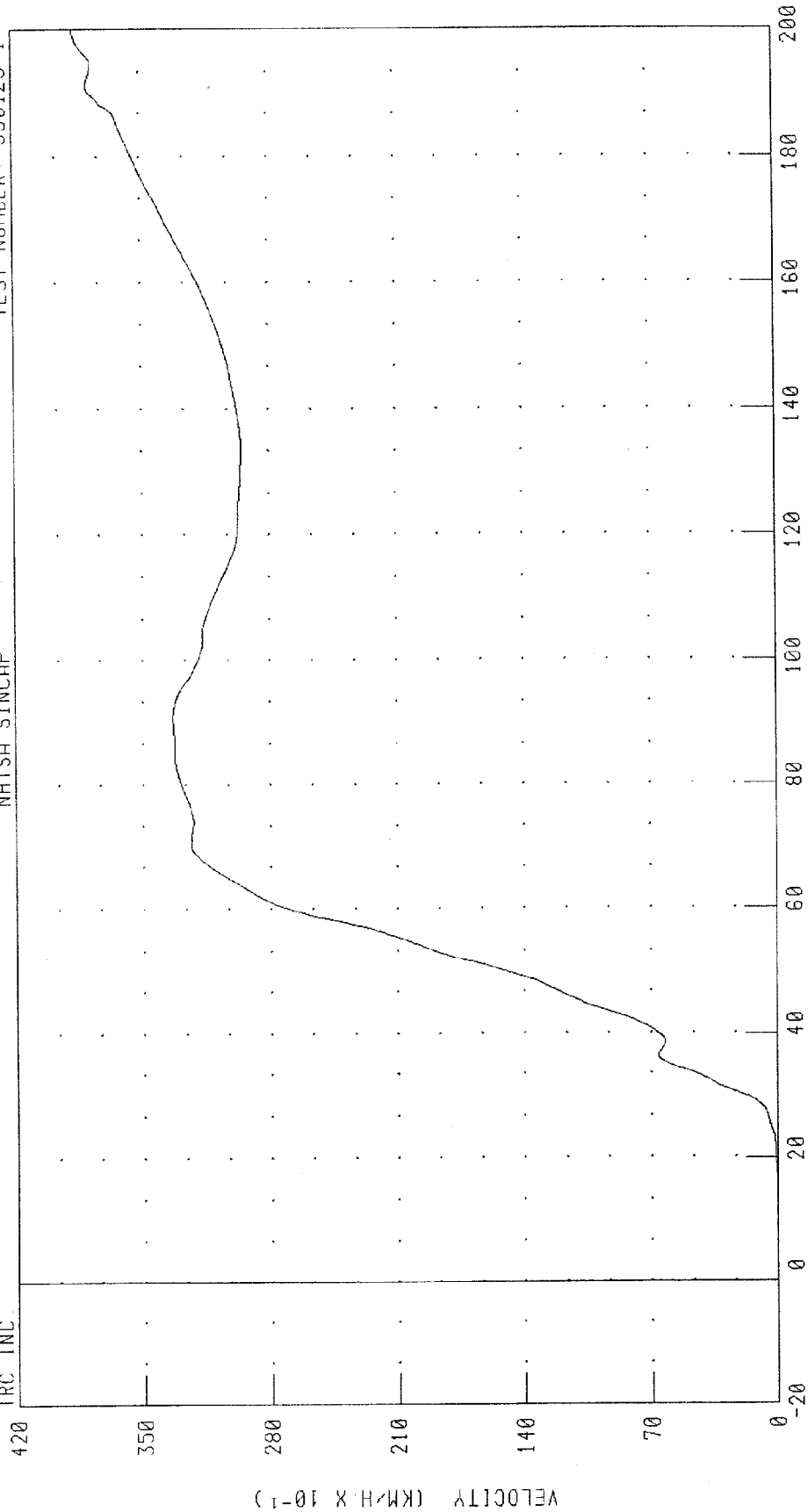
CHANNEL: LURYR1 FILTER: FIR 100

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC



PEAK DATA: 38.69 KM/H @ 200.00 MS; 0.00 KM/H @ 2.64 MS

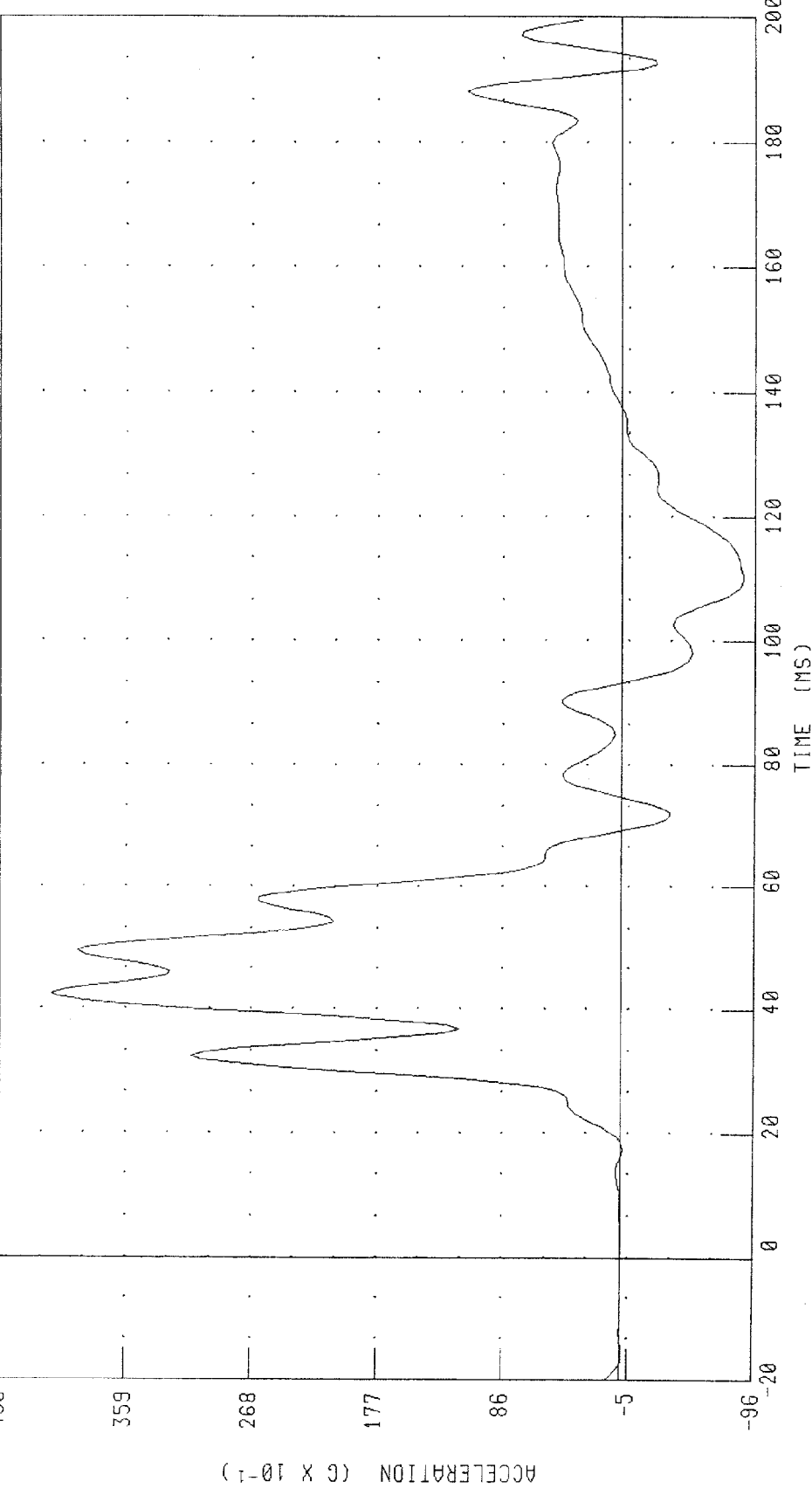
CHANNEL: LURYVI FILTER: CH. CLASS 180

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: LLRYR1 FILTER: FIR 100 PEAK DATA: 41.28 G @ 42.50 MS, -8.76 G @ 110.00 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.

408

340

272

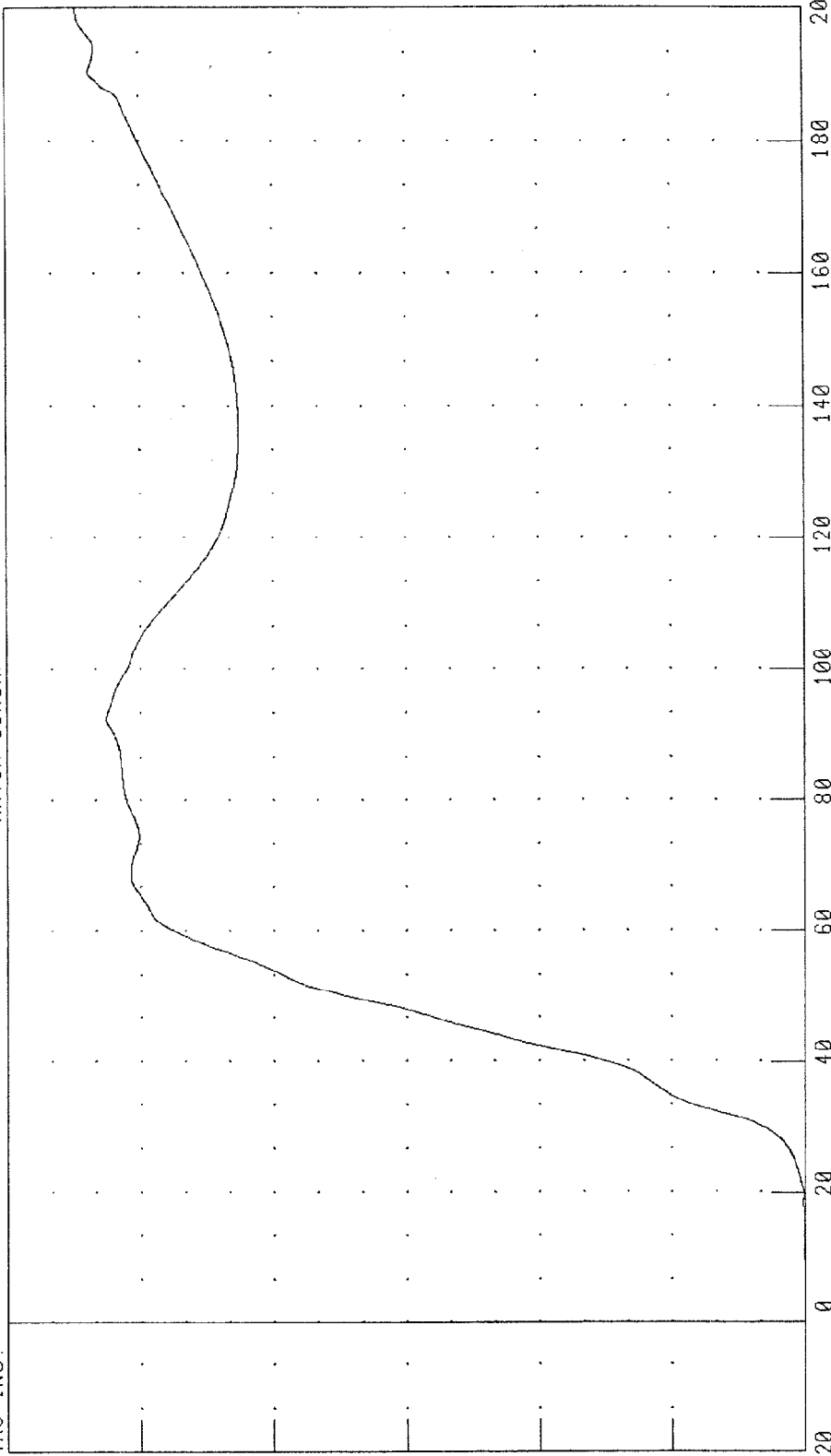
204

136

68

0

VELOCITY (KM/H X 10<sup>-1</sup>)



TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

-20

PEAK DATA: 37.17 KM/H @ 200.00 MS; 0.00 KM/H @ 0.00 MS

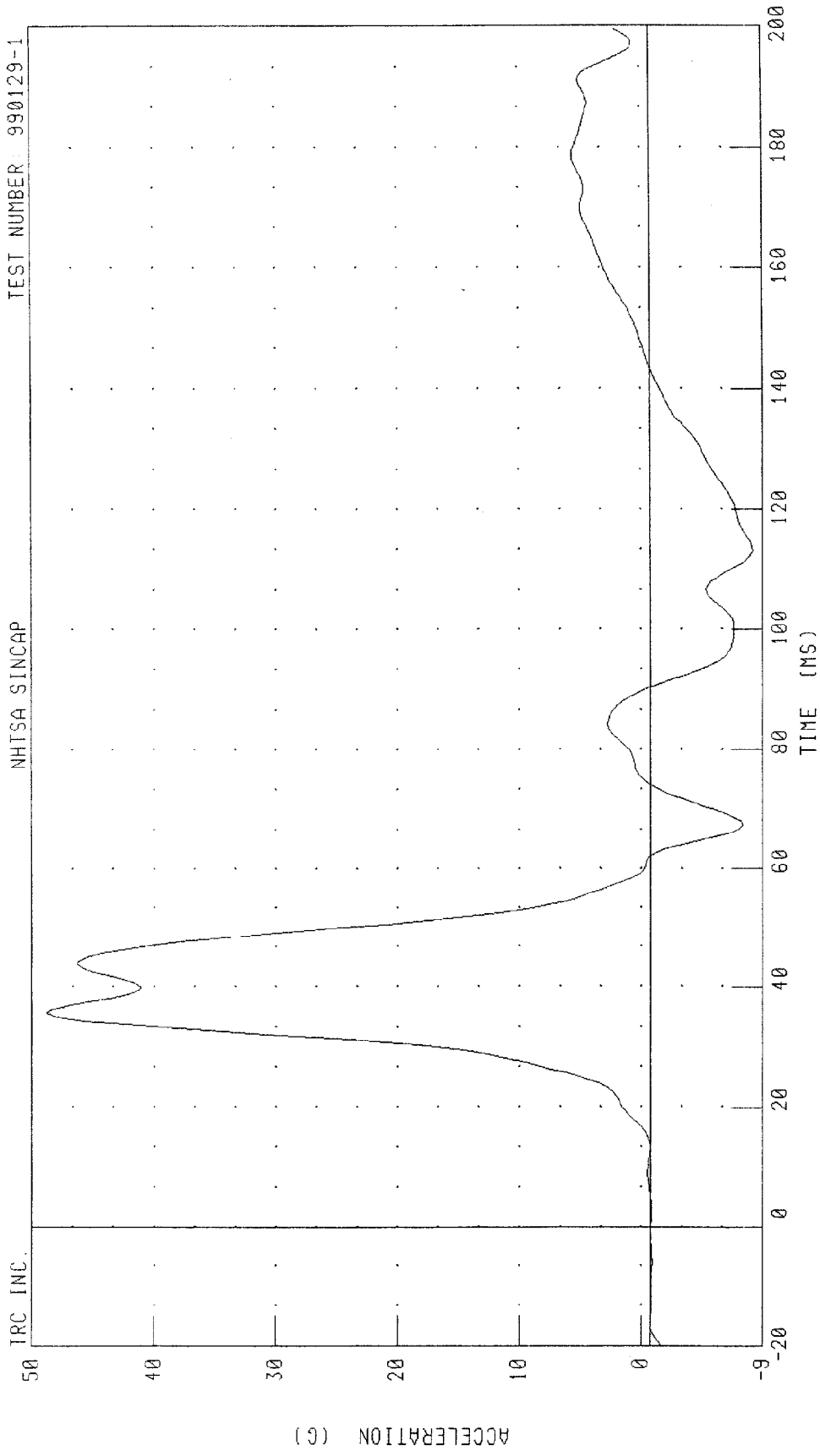
CHANNEL: LLLYYI FILTER: CH. CLASS 180

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 49.63 G @ 35.63 MS; -8.40 G @ 113.13 MS

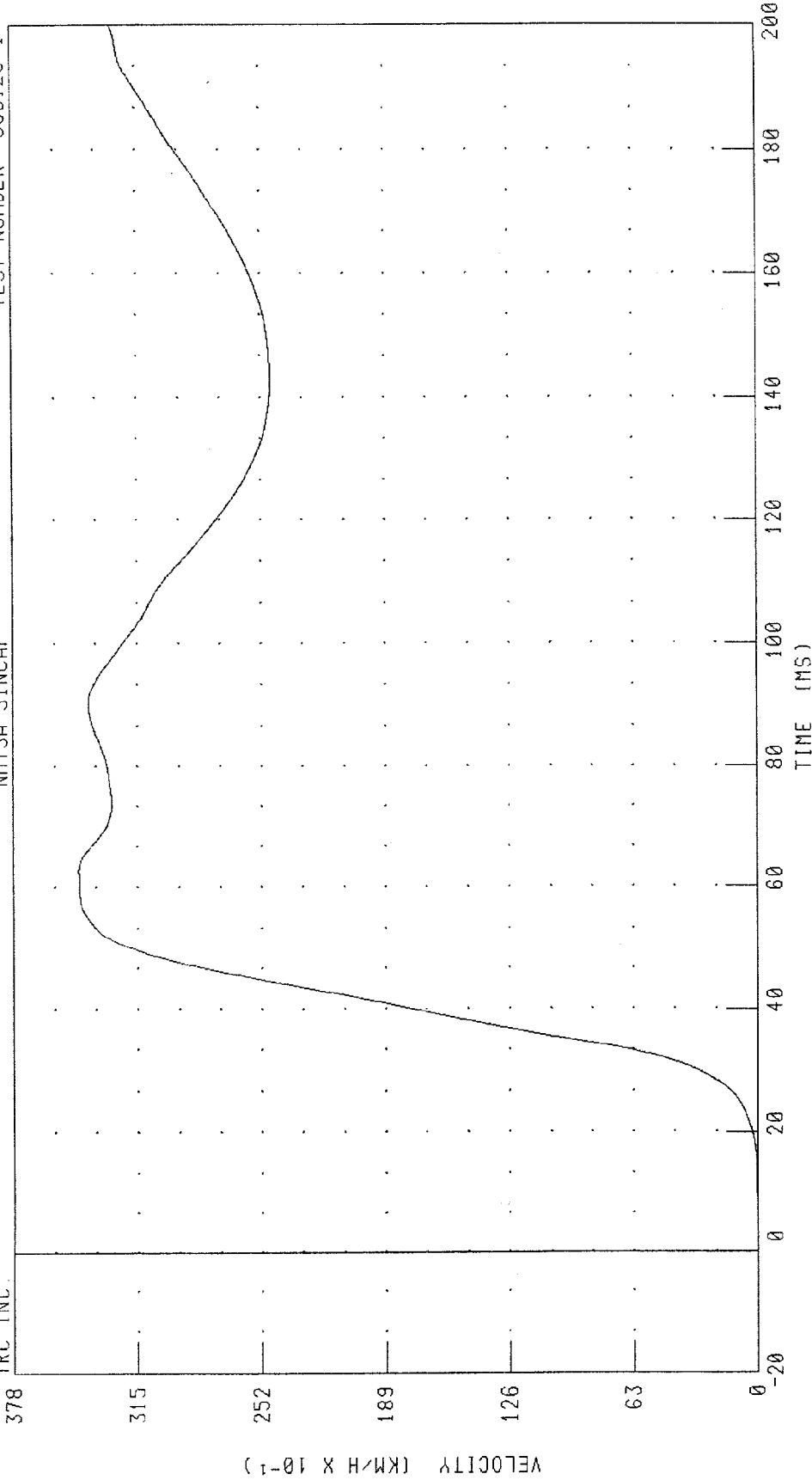
CHANNEL: T12YR1 FILTER: FIR 100

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

TEST NUMBER: 980129-1

NHTSA SINCAP

TRC INC.



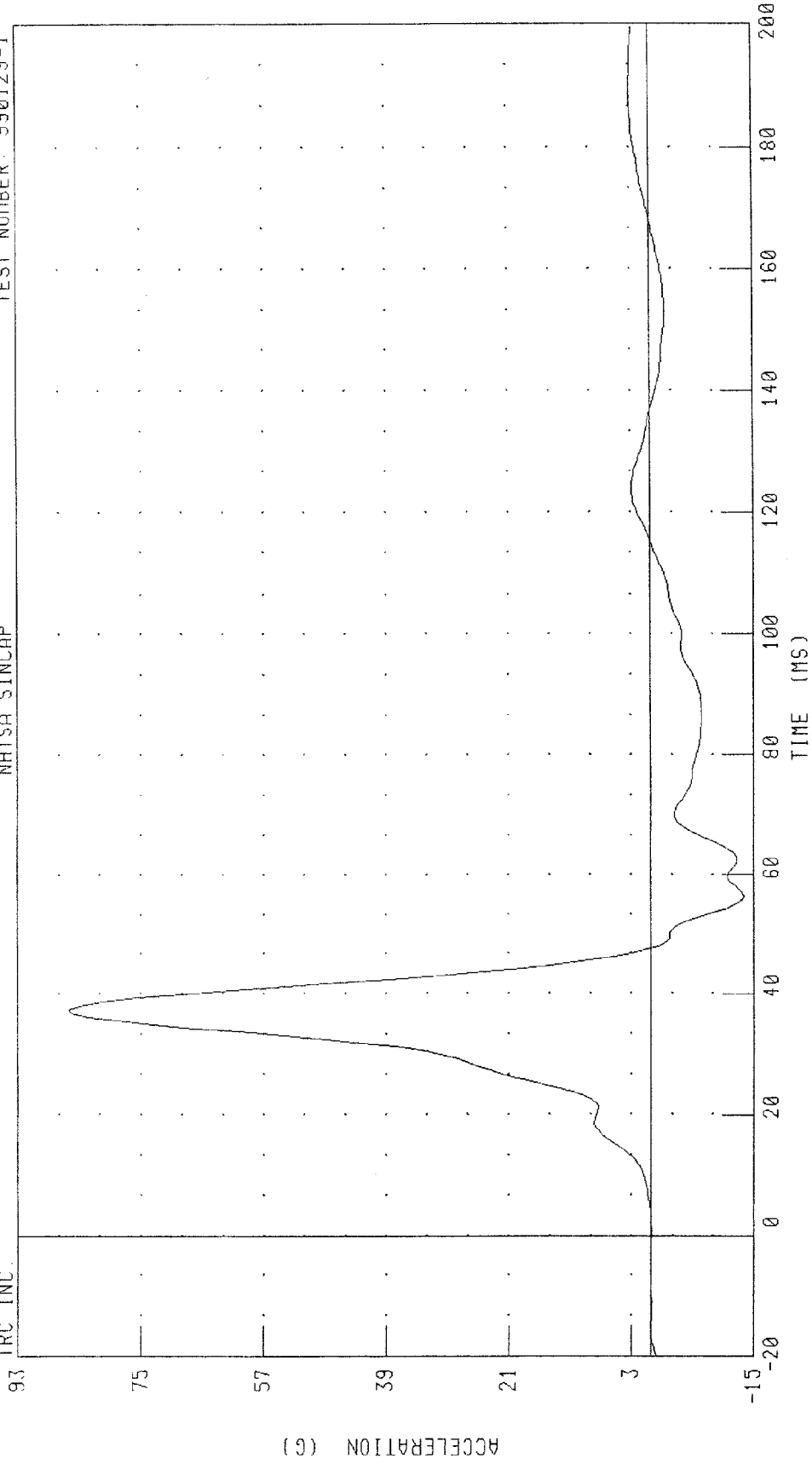
PEAK DATA: 34.48 KM/H @ 62.80 MS, -0.01 KM/H @ 5.12 MS

CHANNEL: T12YVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION  
NHTSA SINCAP

TEST NUMBER: 990129-1

TRC INC.



CHANNEL: PEVYR1 FILTER: FIR 100

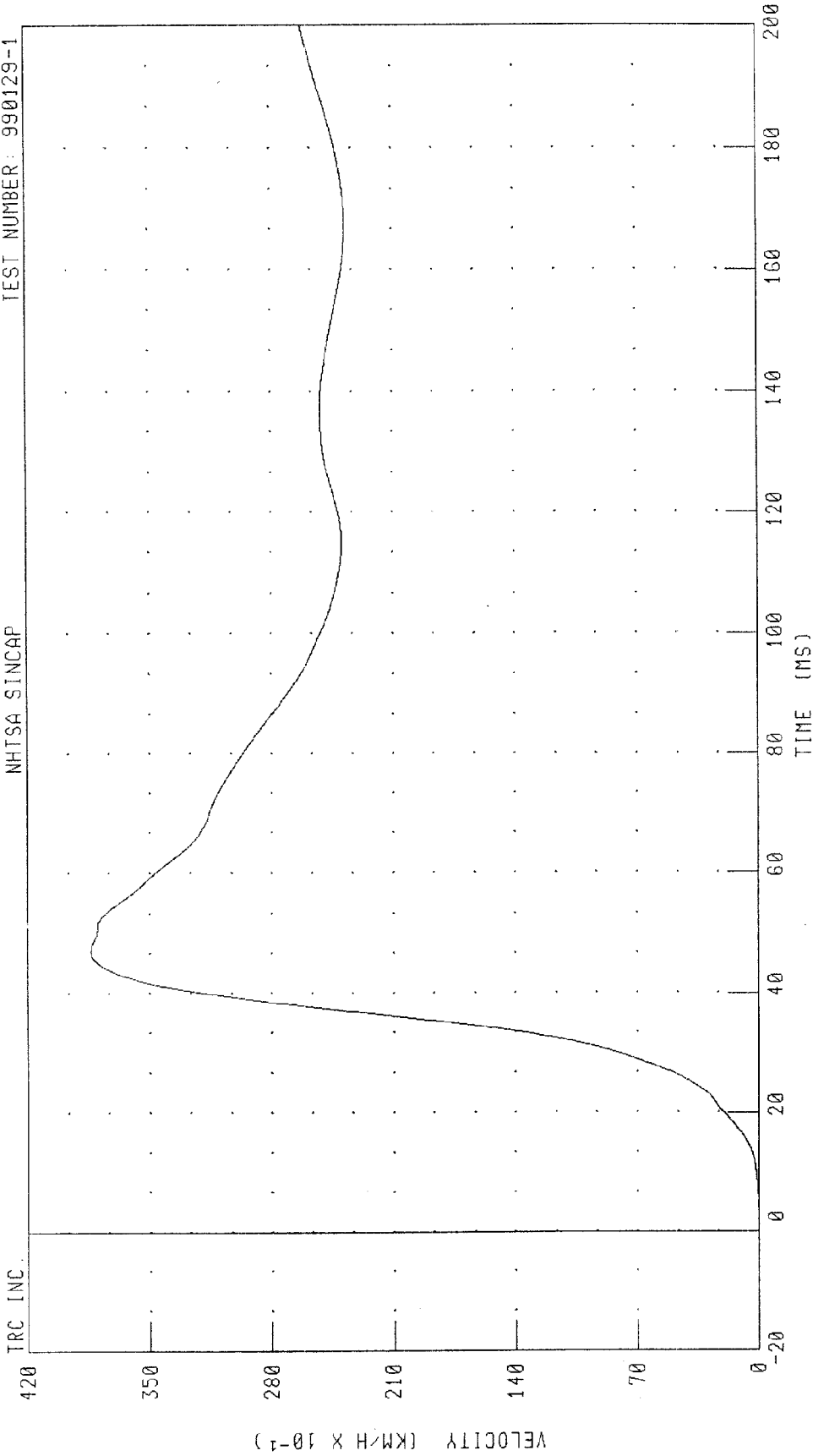
PEAK DATA: 85.58 G @ 37.50 MS, -13.66 G @ 56.25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

TEST NUMBER : 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL : PEVYVI FILTER : CH. CLASS 180

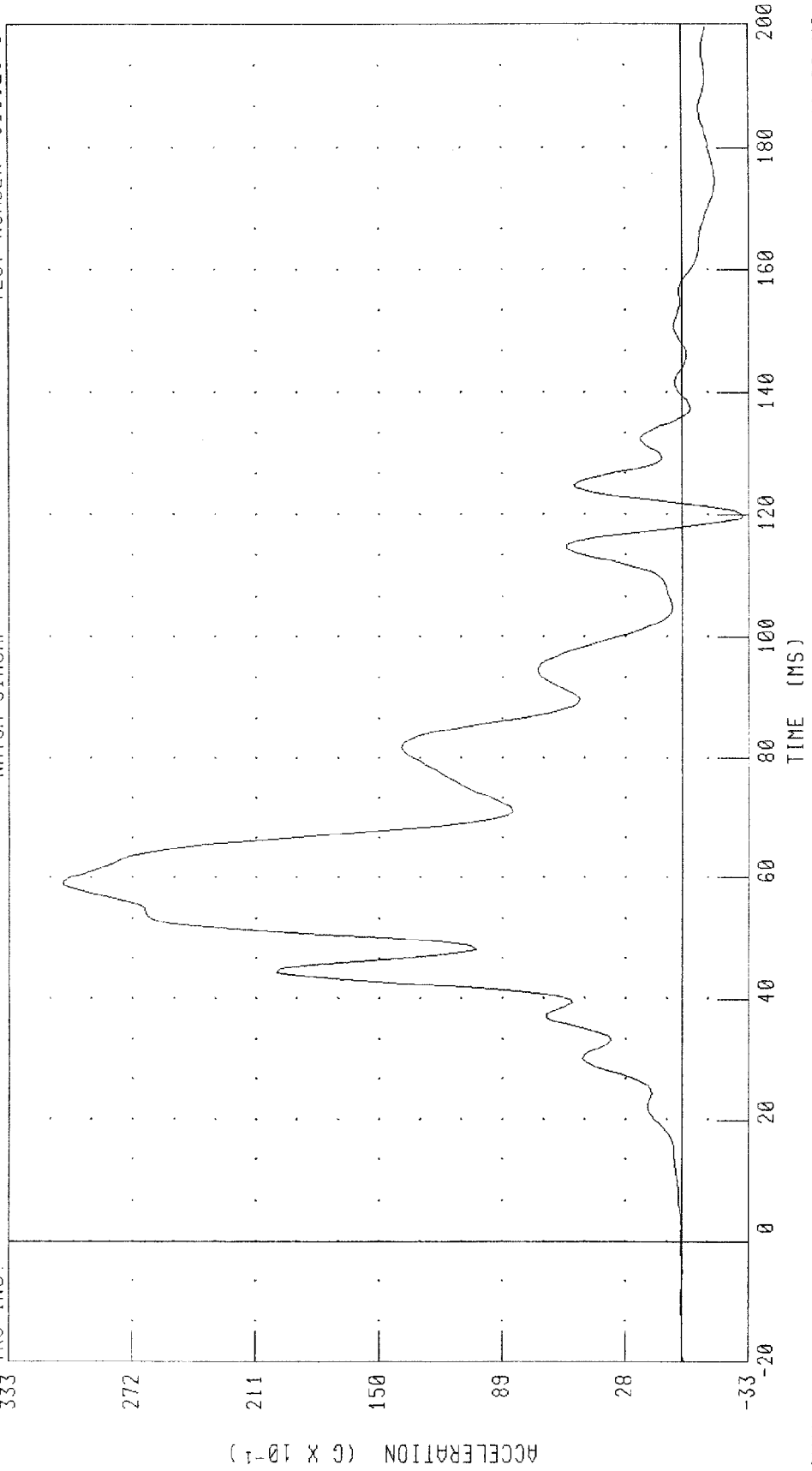
PEAK DATA : 38.37 KM/H @ 47.04 MS ; 0.00 KM/H @ 0.64 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 30.64 G @ 58.75 MS; -3.06 G @ 120.00 MS

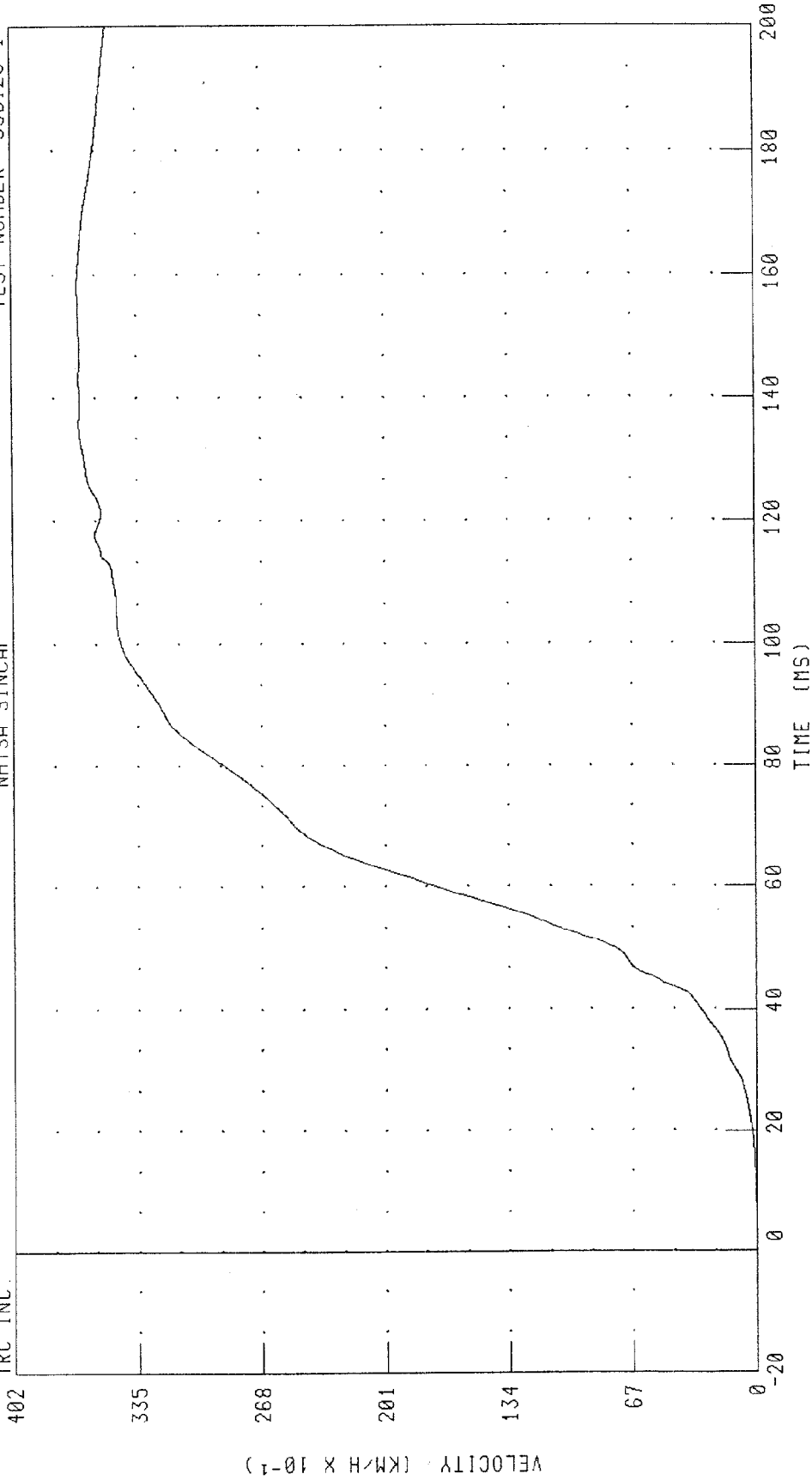
CHANNEL: LURYR4 FILTER: FIR 100

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



PEAK DATA: 36.68 KM/H @ 158.40 MS, 0.00 KM/H @ 0.00 MS

FILTER: CH. CLASS 180

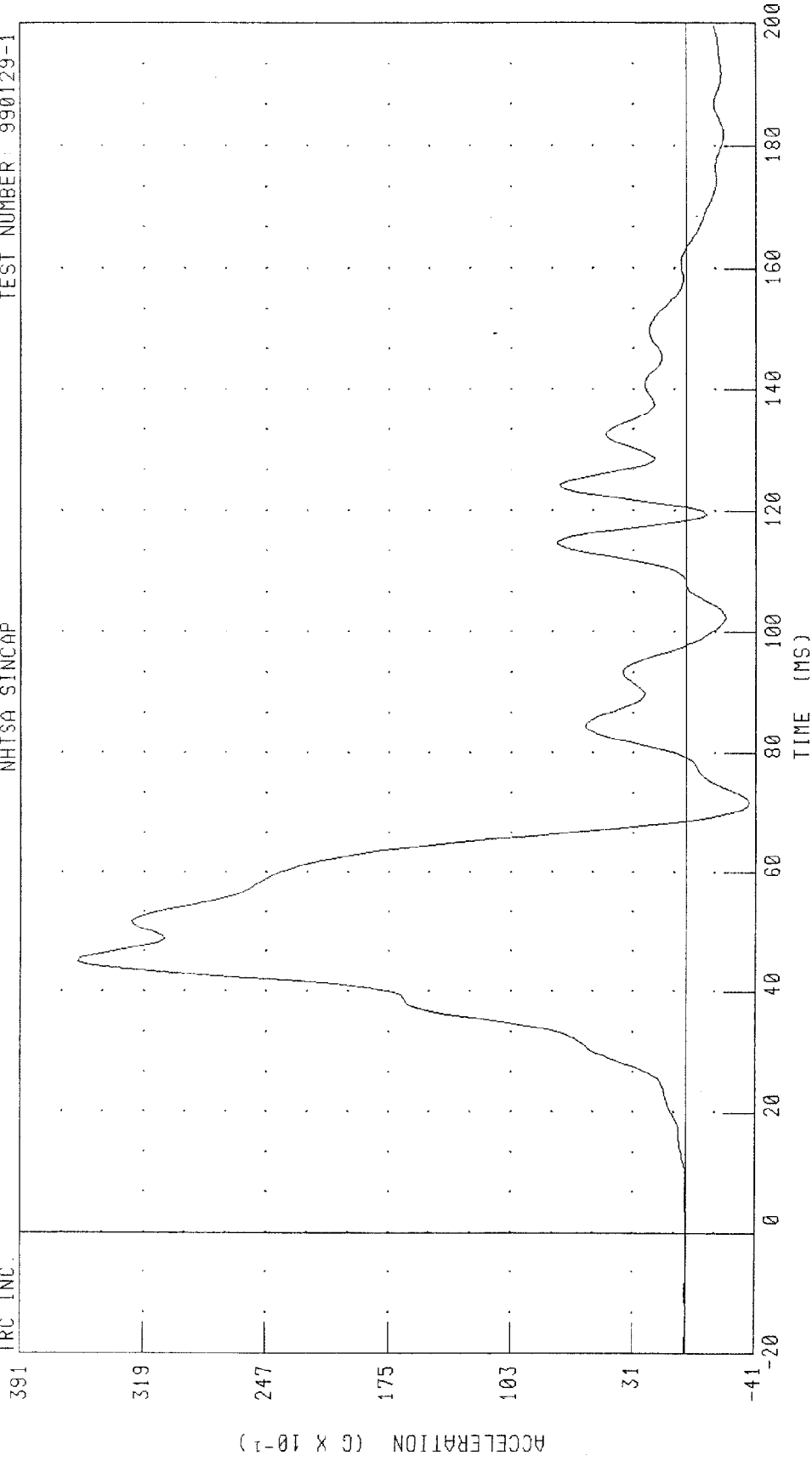
CHANNEL: LURYVJ

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



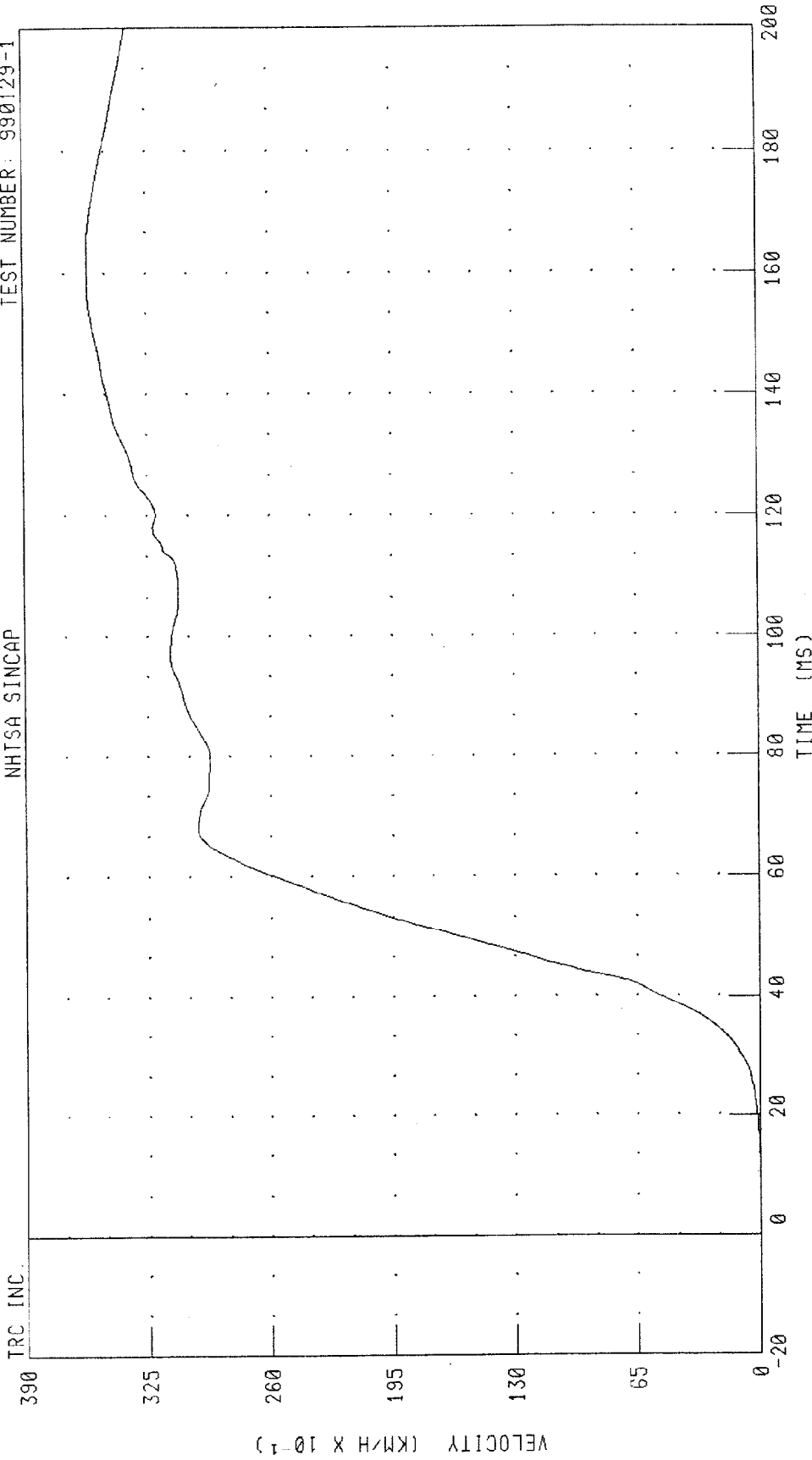
PEAK DATA: 35.78 G @ 45.00 MS, -3.75 G @ 71.88 MS

CHANNEL: LLRYR4 FILTER: FIR 100

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

TEST NUMBER: 990129-1

NHTSA SINCAP



PEAK DATA: 35.63 KM/H @ 162.00 MS; 0.00 KM/H @ 0.40 MS

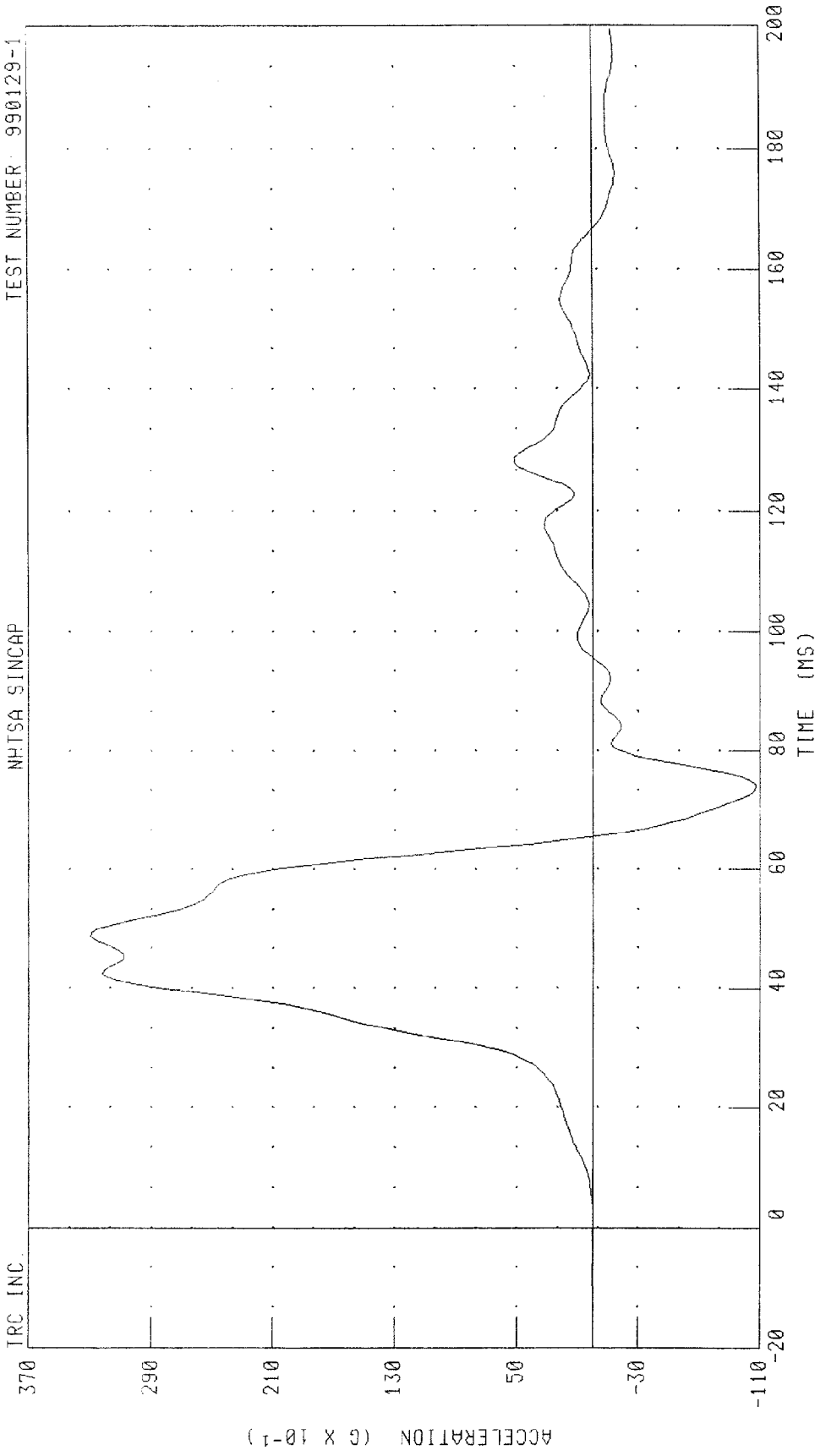
CHANNEL: LLRYVJ FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



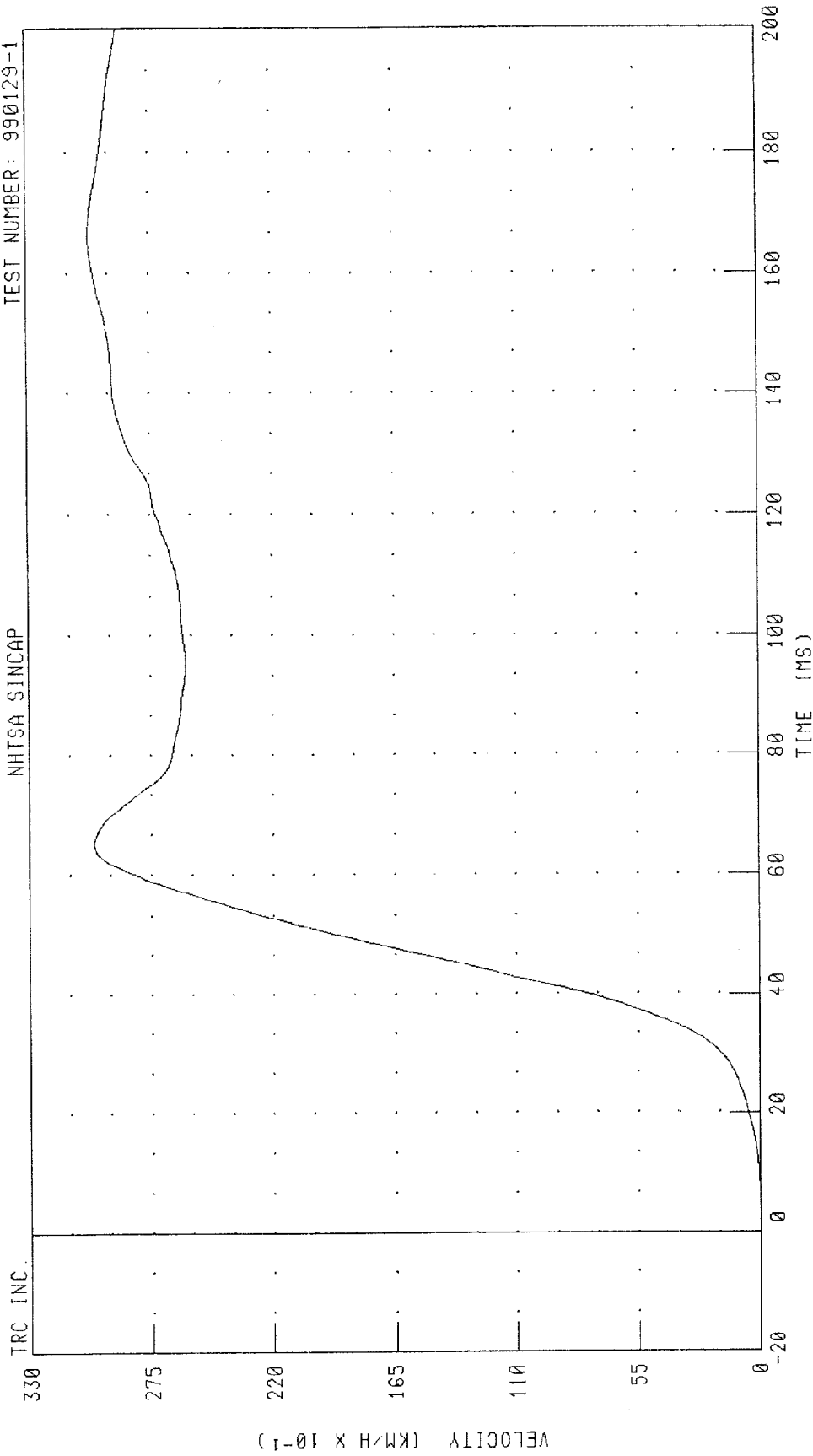
PEAK DATA: 32.94 G @ 48.75 MS; -10.76 G @ 73.75 MS

CHANNEL: T12YR4 FILTER: FIR 100

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

TEST NUMBER: 990129-1

NHTSA SINCAP



CHANNEL: T12YVJ FILTER: CH. CLASS 180

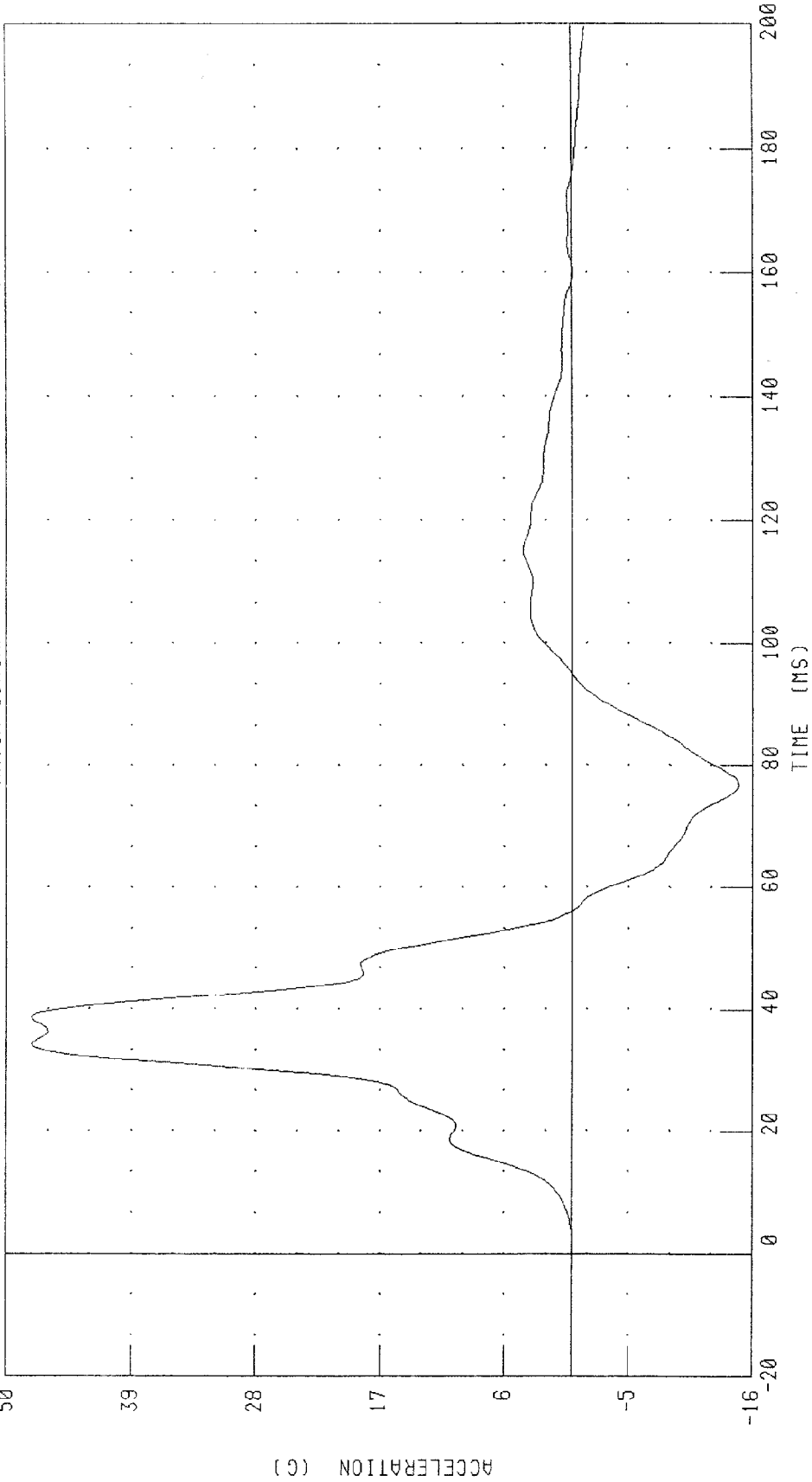
PEAK DATA: 30.21 KM/H @ 166.40 MS, 0.00 KM/H @ 4.64 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: PEVYR4 FILTER: FIR 100

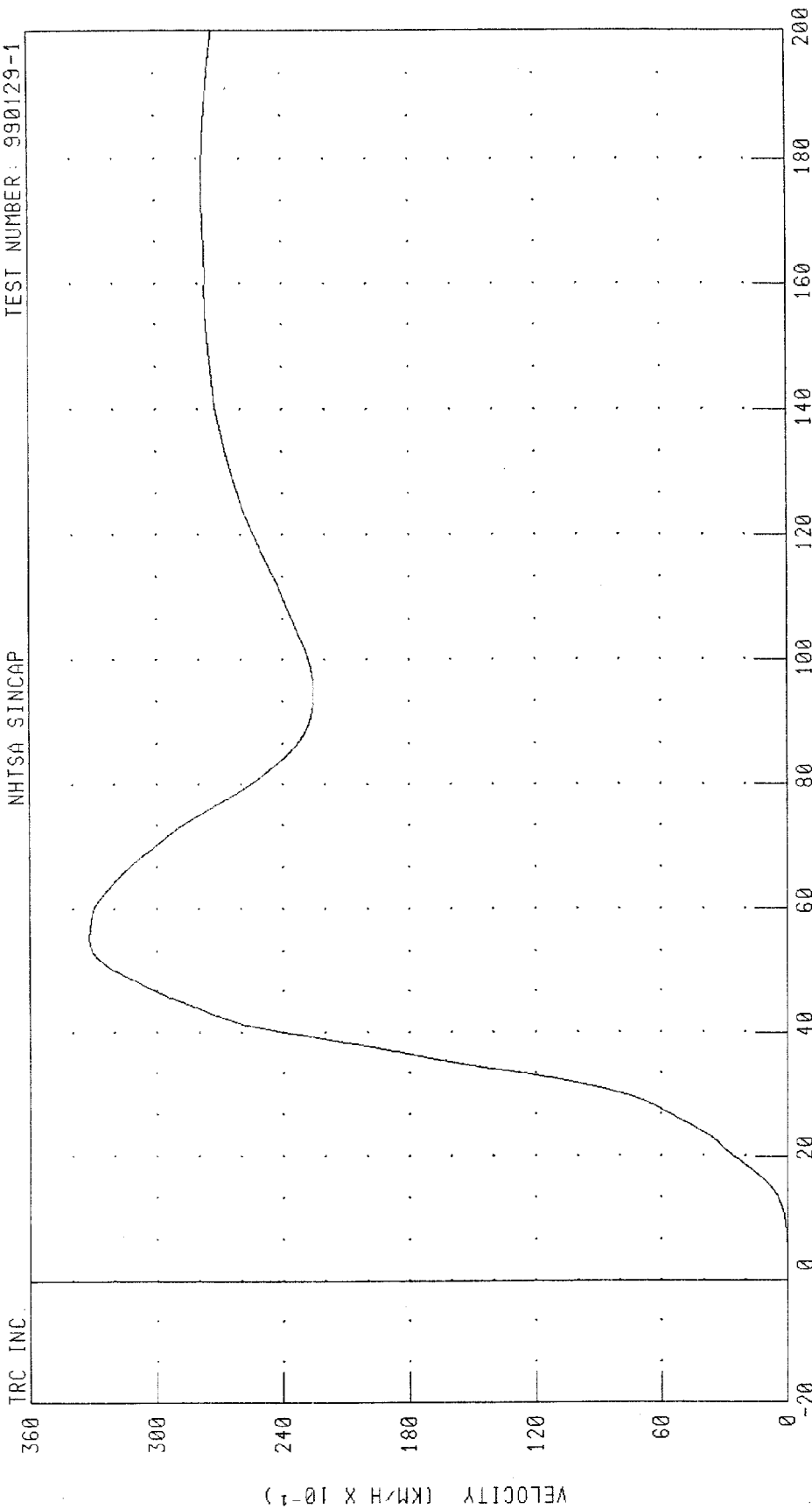
PEAK DATA: 47.80 G @ 38.75 MS, -14.81 G @ 76.88 MS

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

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



TIME (MS)

PEAK DATA: 33.20 KM/H @ 55.52 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: PEVVJ FILTER: CH. CLASS 180

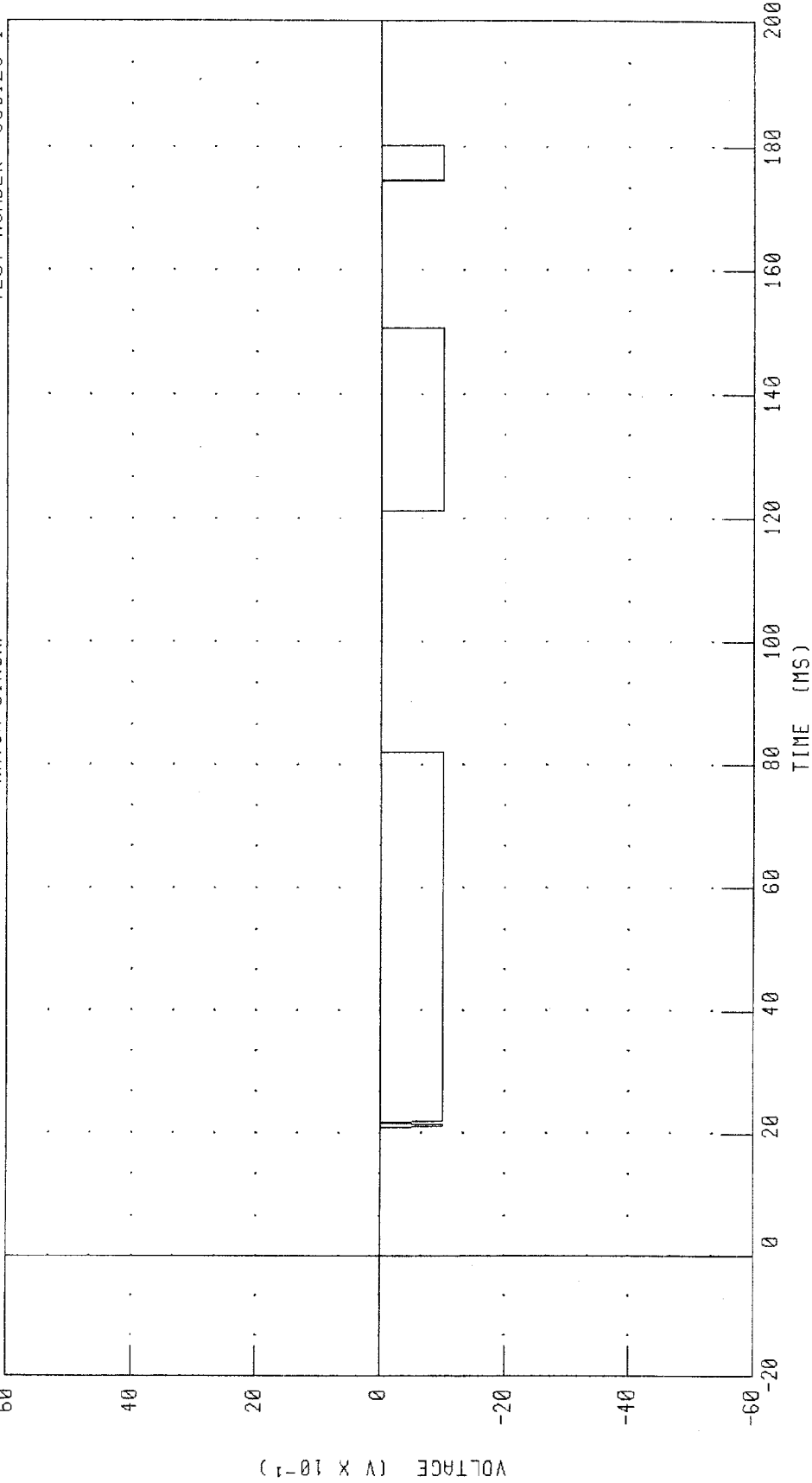
## **Driver and Passenger Dummy Contact Switches**

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
DRIVER SHOULDER CONTACT SWITCH

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



CHANNEL: SHLD1 FILTER: CH. CLASS 1000

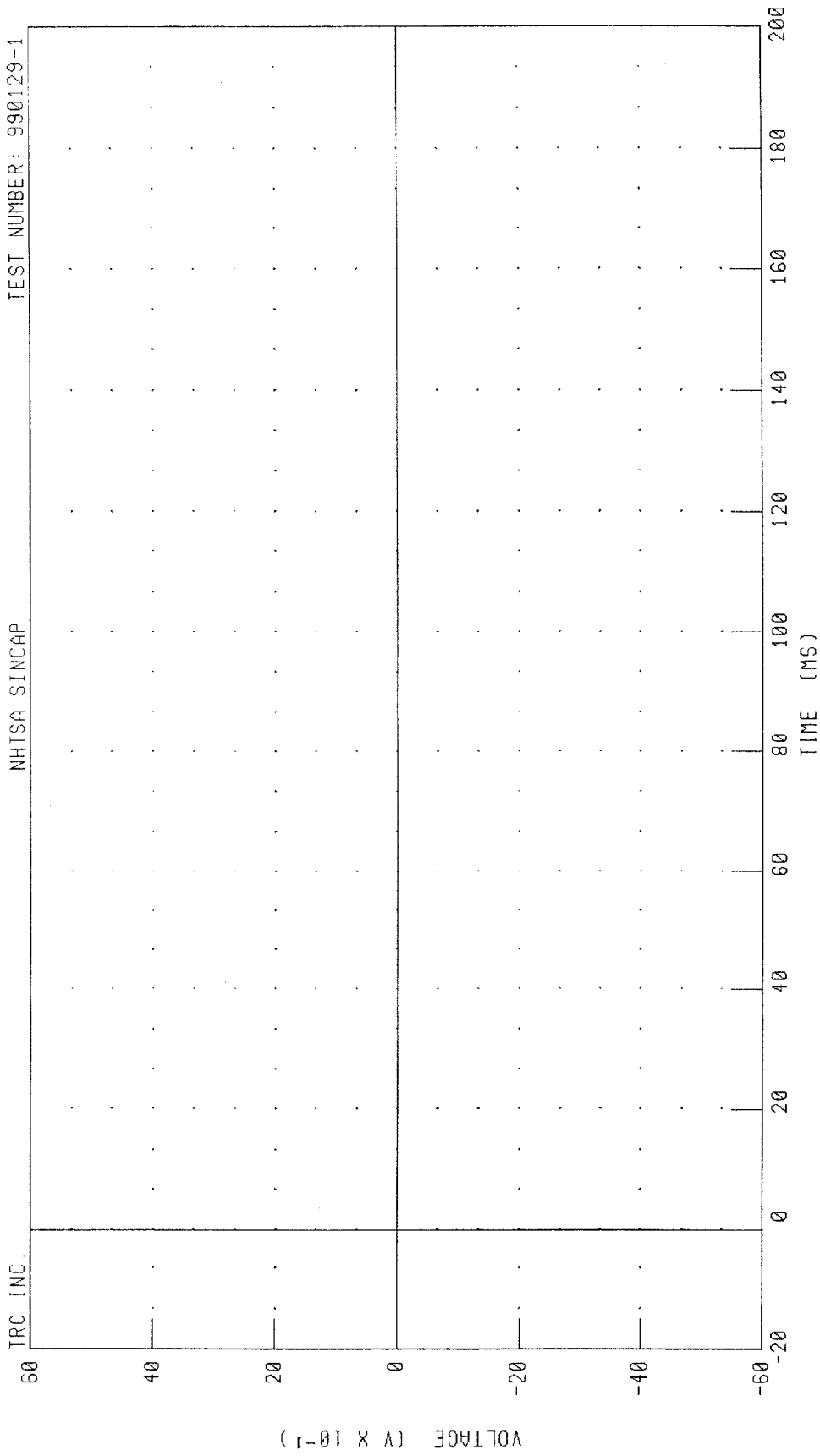
PEAK DATA: 0.00 V @ 200.00 MS; -1.00 V @ 21.12 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO

DRIVER PELVIS CONTACT SWITCH

NHTSA SINCAP

TEST NUMBER: 990129-1



CHANNEL: PEV1 FILTER: CH. CLASS 1000

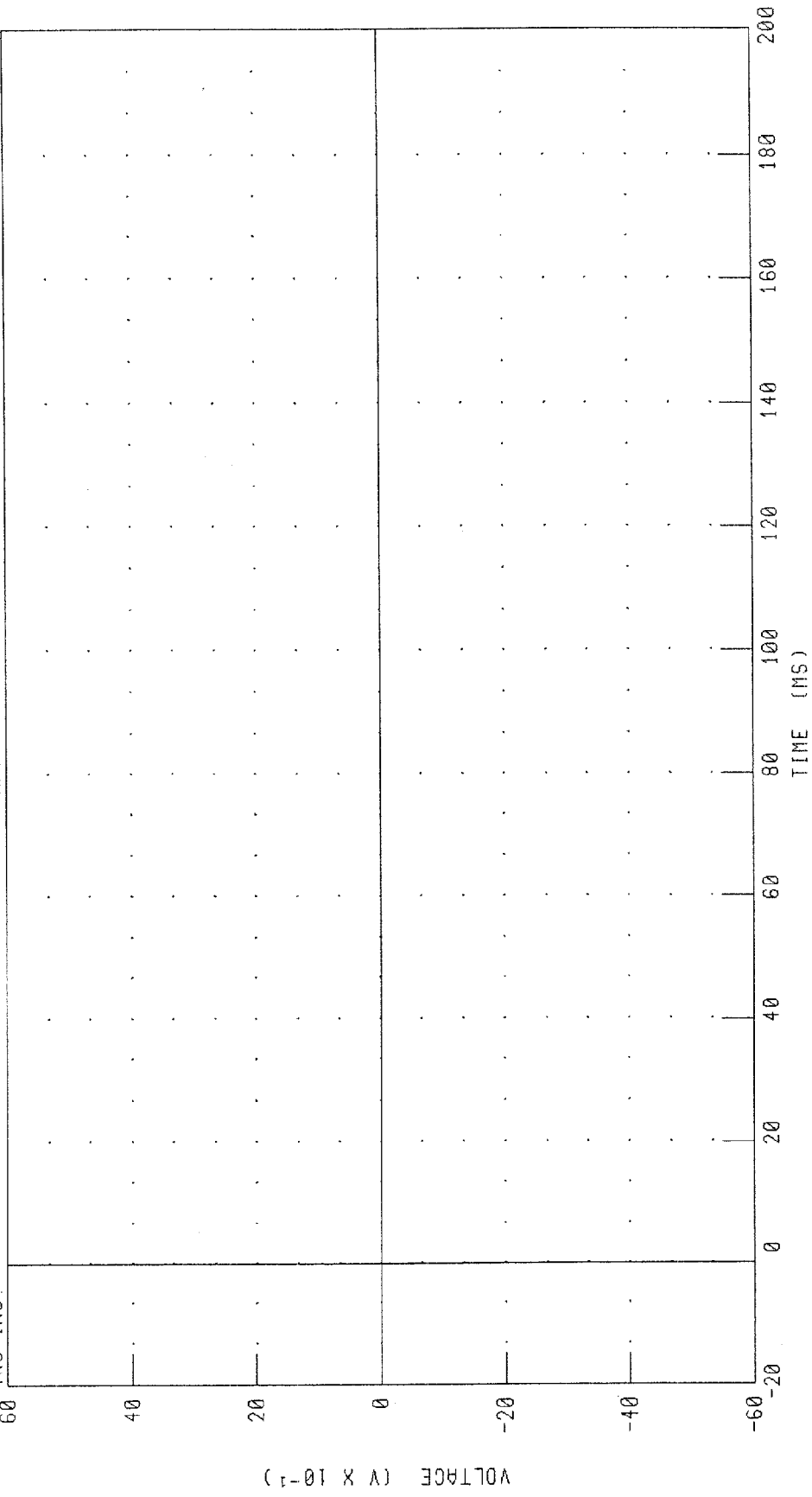
PEAK DATA: 0.00 V @ 200.00 MS; 0.00 V @ -20.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER SHOULDER CONTACT SWITCH

TEST NUMBER: 990129-1

NHTSA SINCAP

TRC INC.



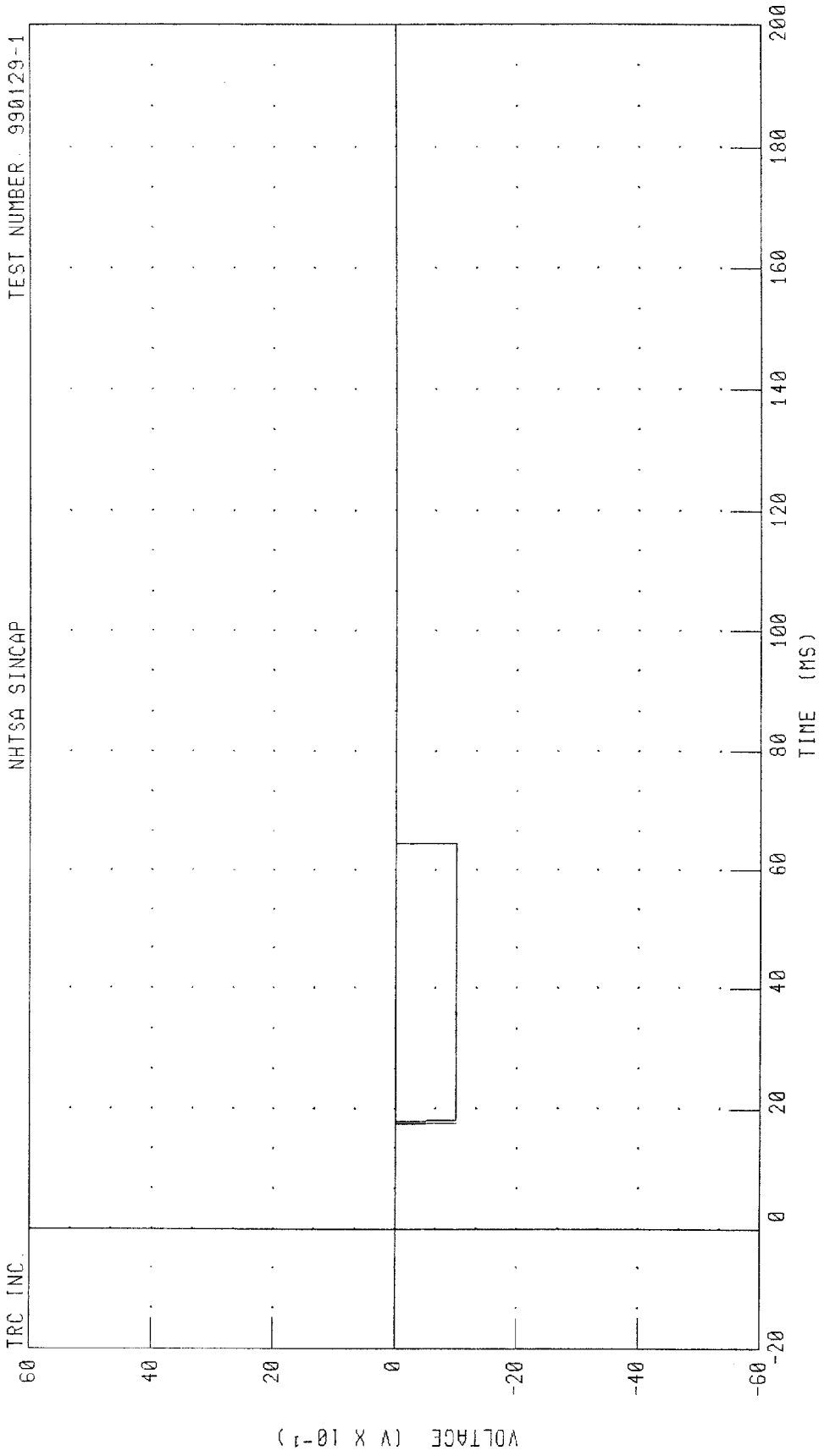
PEAK DATA: 0.00 V @ 200.00 MS; 0.00 V @ -20.00 MS

CHANNEL: SHLD2 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 ISUZU RODEO  
PASSENGER PELVIS CONTACT SWITCH

TRC INC. TEST NUMBER 990129-1

NHTSA SINCAP



CHANNEL: PEV2 FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 200.00 MS; -1.00 V @ 17.68 MS

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

**SUMMARY  
SID PRE-TEST AND POST-TEST CALIBRATION**

**CONFIGURED FOR LEFT SIDE IMPACT**

Date: 01/25/99 & 02/02/99 TRC sequential test number: ED5112 & ED5113  
 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	904.2	896.6	899.2
RH - Rib Height (mm)	502-520	501.6	508.0	505.5	508.0
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	233.7	238.8	236.2
KV - Knee Pivot from Back Line (mm)	511-526	520.7	520.7	520.7	518.2
SW - Knee Pivot to Floor (mm)	490-505	502.9	492.8	497.8	495.3
HW - Hip Width (mm)	356-391	373.4	363.2	378.5	368.3
<b>THORAX IMPACTS</b>					
Temperature (°C)	18.9-25.5	21.1	21.1	21.1	21.1
Relative Humidity (%)	10-70	20	22	20	22
Probe Speed (m/s)	4.27-4.33	4.29	4.33	4.29	4.30
Upper Rib (g's)	37-46	38	37.7	42.0	41.8
Lower Rib (g's)	37-46	39.5	38.6	40.2	40.6
Lower Spine (g's)	15-22	19.4	19.7	19.3	19.1
<b>PELVIS IMPACTS</b>					
Temperature (°C)	18.9-25.5	21.1	21.1	21.1	21.1
Relative Humidity (%)	10-70	20	22	20	22
Probe Speed (m/s)*	4.27-4.33	4.29	4.31	4.30	4.29
Pelvis (g's)*	40-60	54.4	57.4	51.2	47.9

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

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 Cabt

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

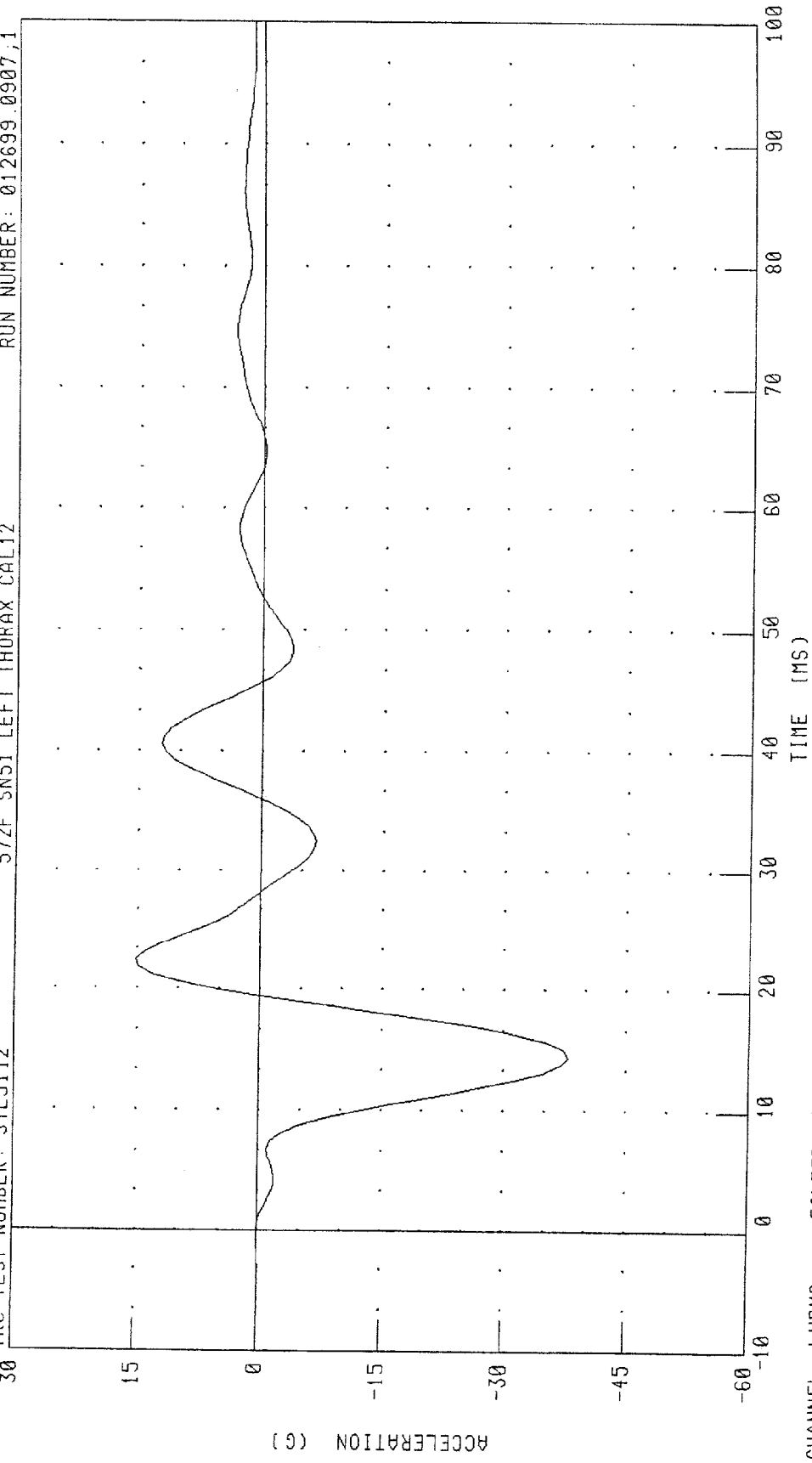
TEST MEETS SPECIFICATIONS

TECHNICIAN *B. Calt*

RUN NUMBER: 012699.0907;1

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

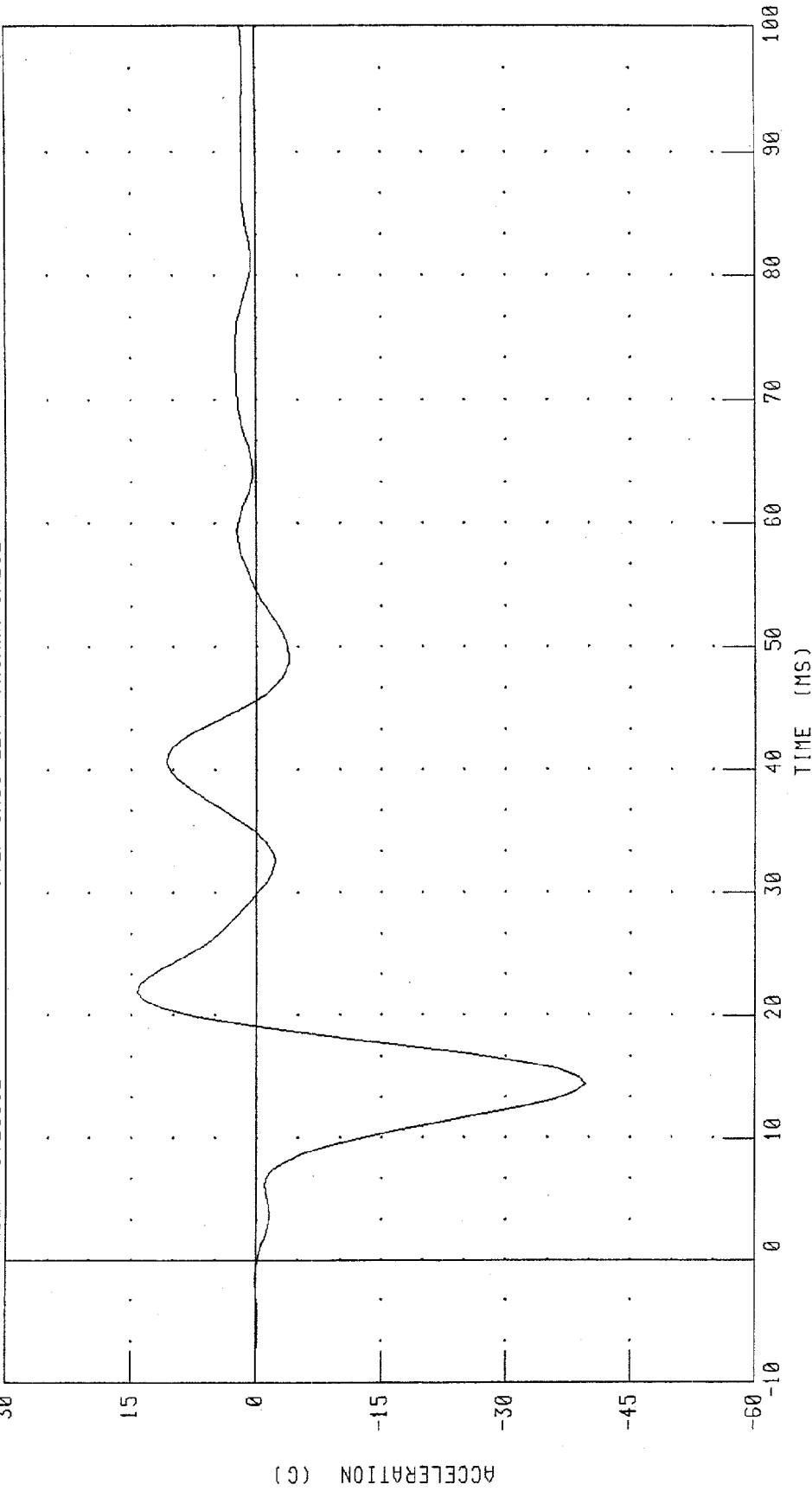
TRC TEST NUMBER: STLS112      572F SN51 LEFT THORAX CAL12      RUN NUMBER: 012699.0907,1



CHANNEL: LURYG      FILTER: FIR 100      PEAK DATA: 15.12 G @ 22.50 MS, -37.96 G @ 14.37 MS

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

IRC TEST NUMBER: 51L5112      572F SN51 LEFT THORAX CAL12      RUN NUMBER: 012699.0907;1



CHANNEL: LLRYC      FILTER: FIR 100

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

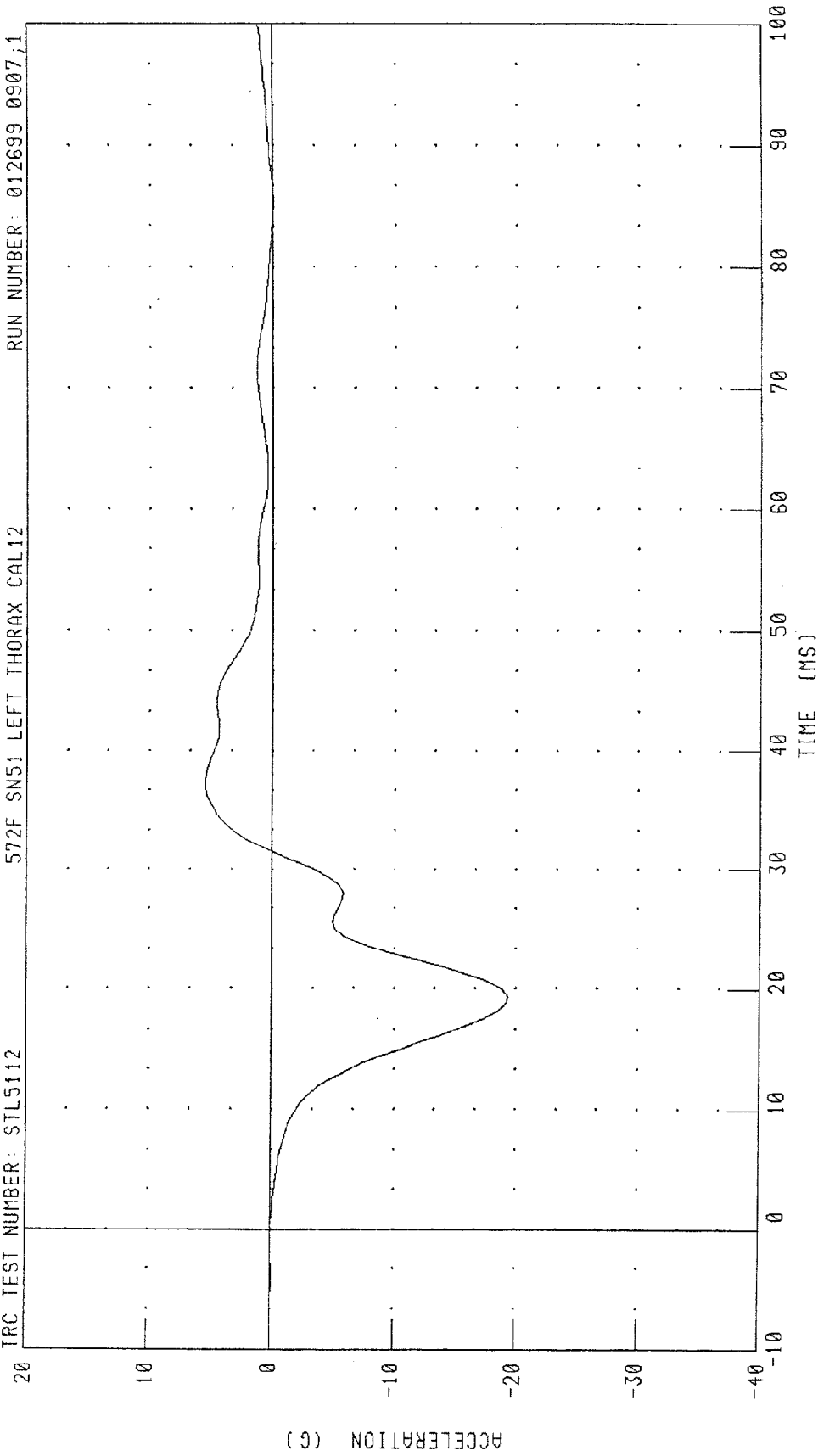
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL5112

572F SN51 LEFT THORAX CAL12

RUN NUMBER: 012699.0907;1



CHANNEL: T12YC

FILTER: FIR 100

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

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 Ray Calt

RUN NUMBER: 012699.0902;1

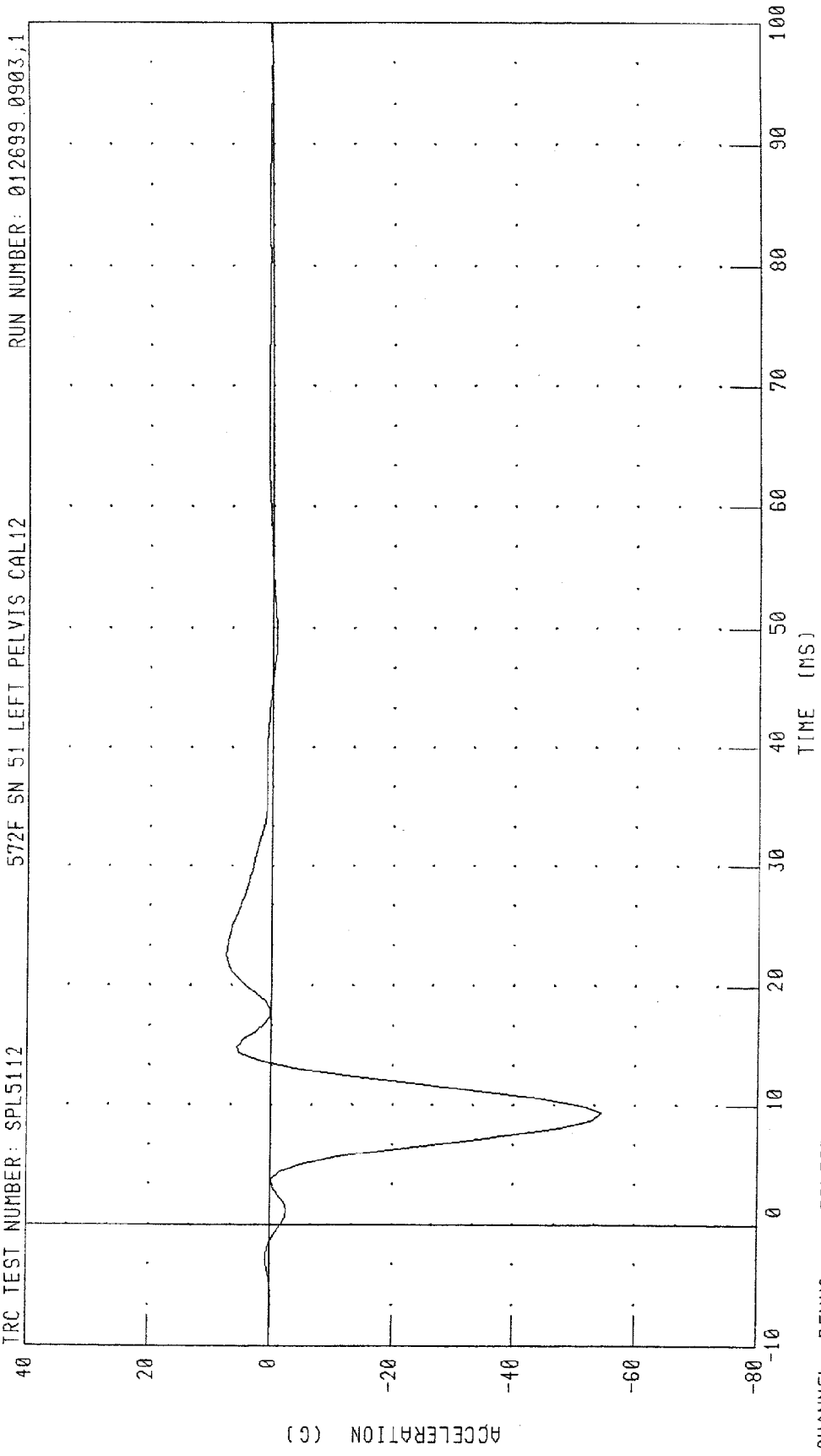
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

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 G @ 22.50 MS; -54.40 G @ 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

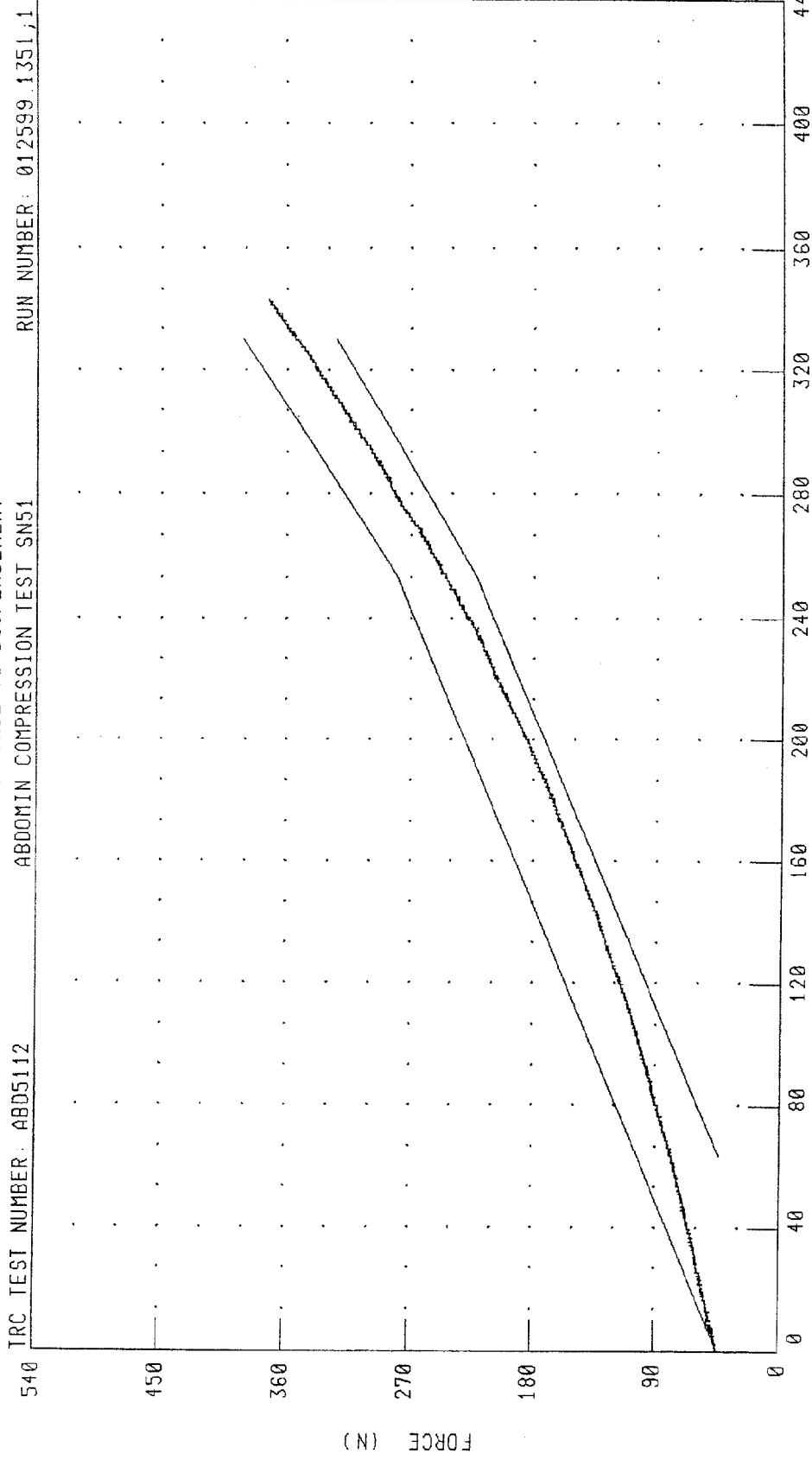
DUMMY MEETS SPECIFICATIONS

TECHNICIAN

*By cult*

RUN NUMBER: 012599.1351;1

PART 572-B HYBRID II ABDOMEN CALIBRATION  
 ABDOMEN FORCE VS DISPLACEMENT  
 ABDOMIN COMPRESSION TEST SN51



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

DISPLACEMENT (MM X 10<sup>-1</sup>)

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 Collet

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
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

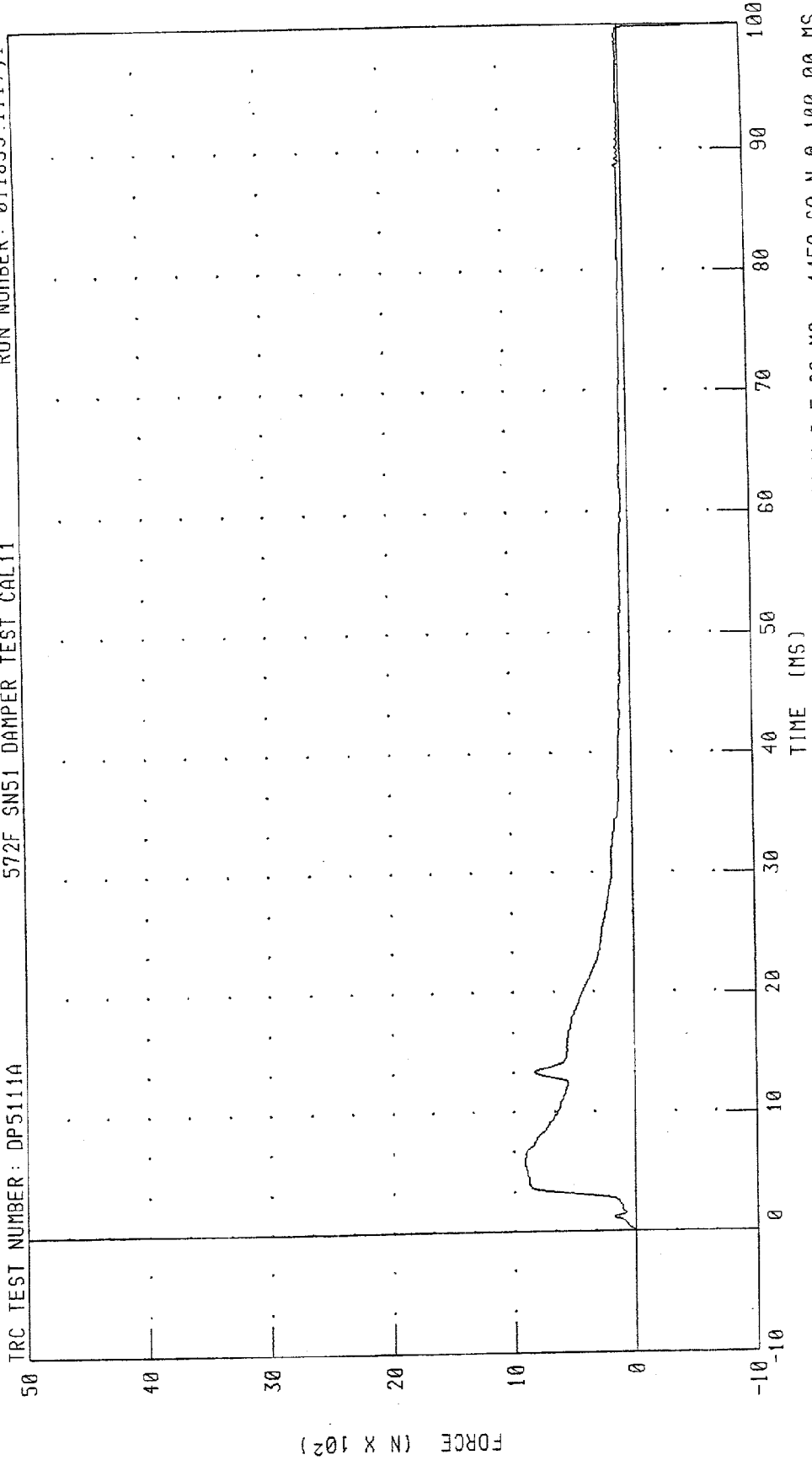
*By Call*

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 RUN NUMBER: 011899.1117;1

572F\_SNS1\_DAMPER\_TEST\_CAL11



CHANNEL: DAMPF FILTER: CH. CLASS 1000 PEAK DATA: 916.34 N @ 5.68 MS; -1458.68 N @ 100.00 MS

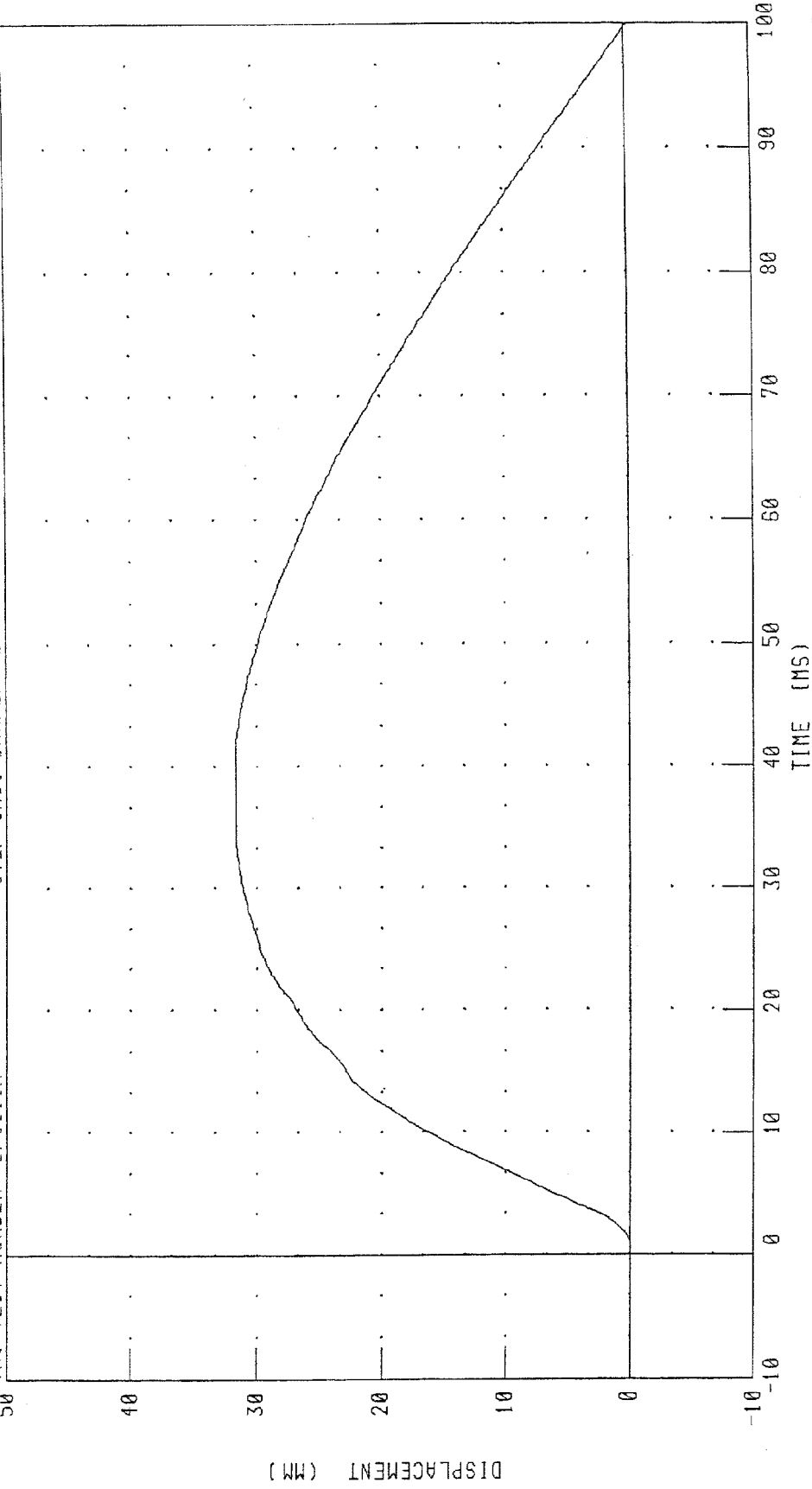
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5111A

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1117,1



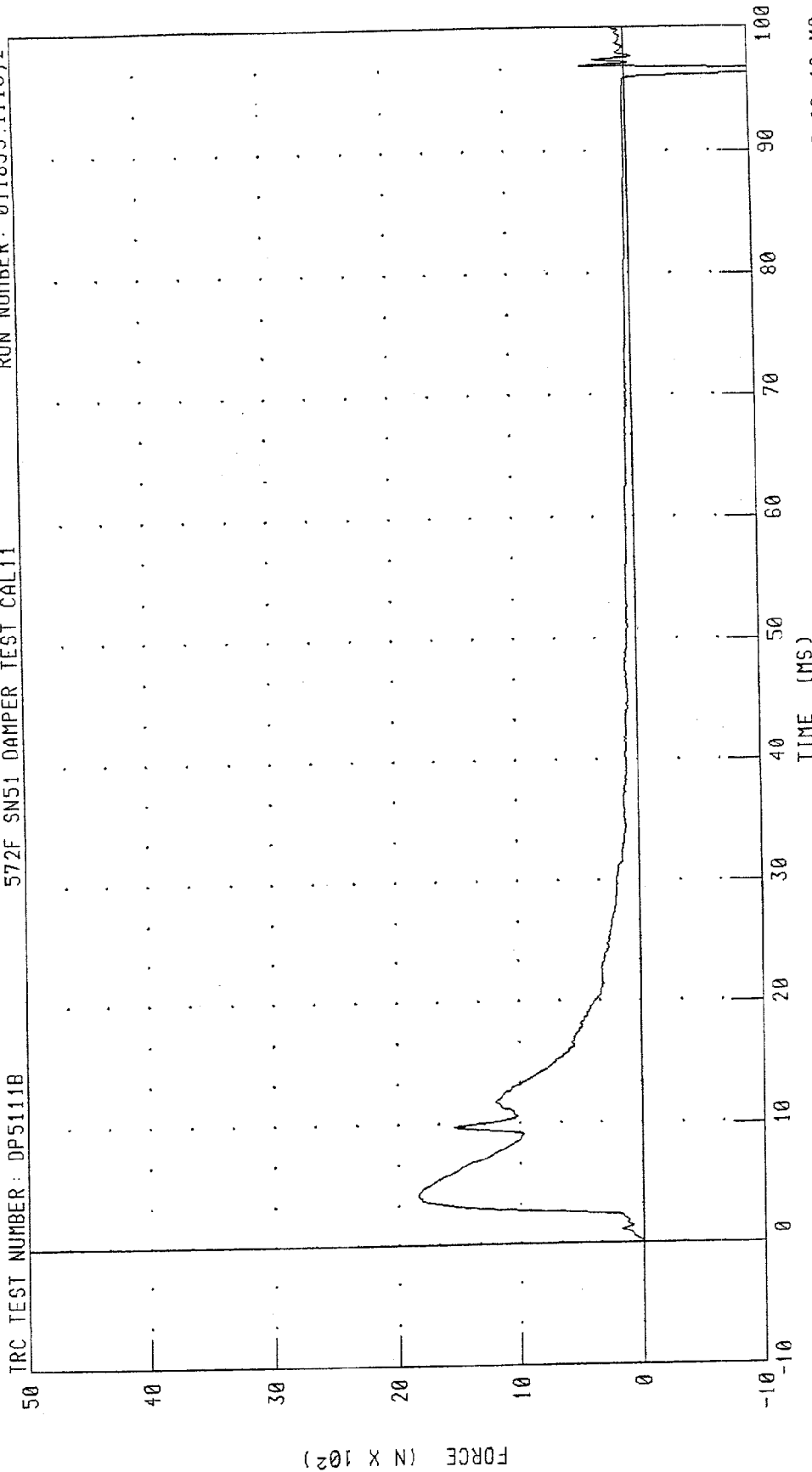
CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

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

TRC TEST NUMBER: DP5111B RUN NUMBER: 011899.1118;2

572F SN51 DAMPER TEST CAL11



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

CHANNEL: DAMPF FILTER: CH. CLASS 1000

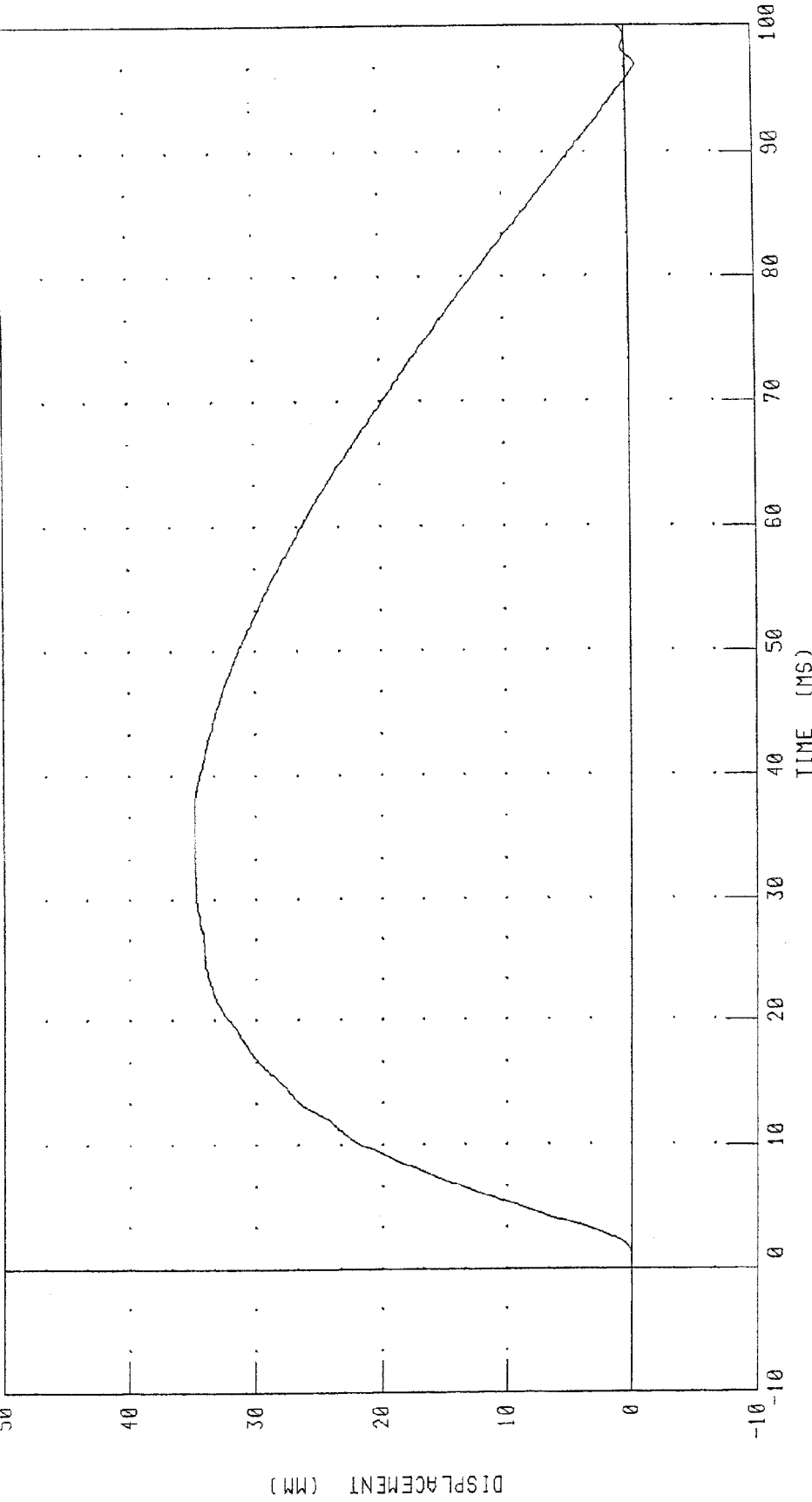
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5111B

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1118;2

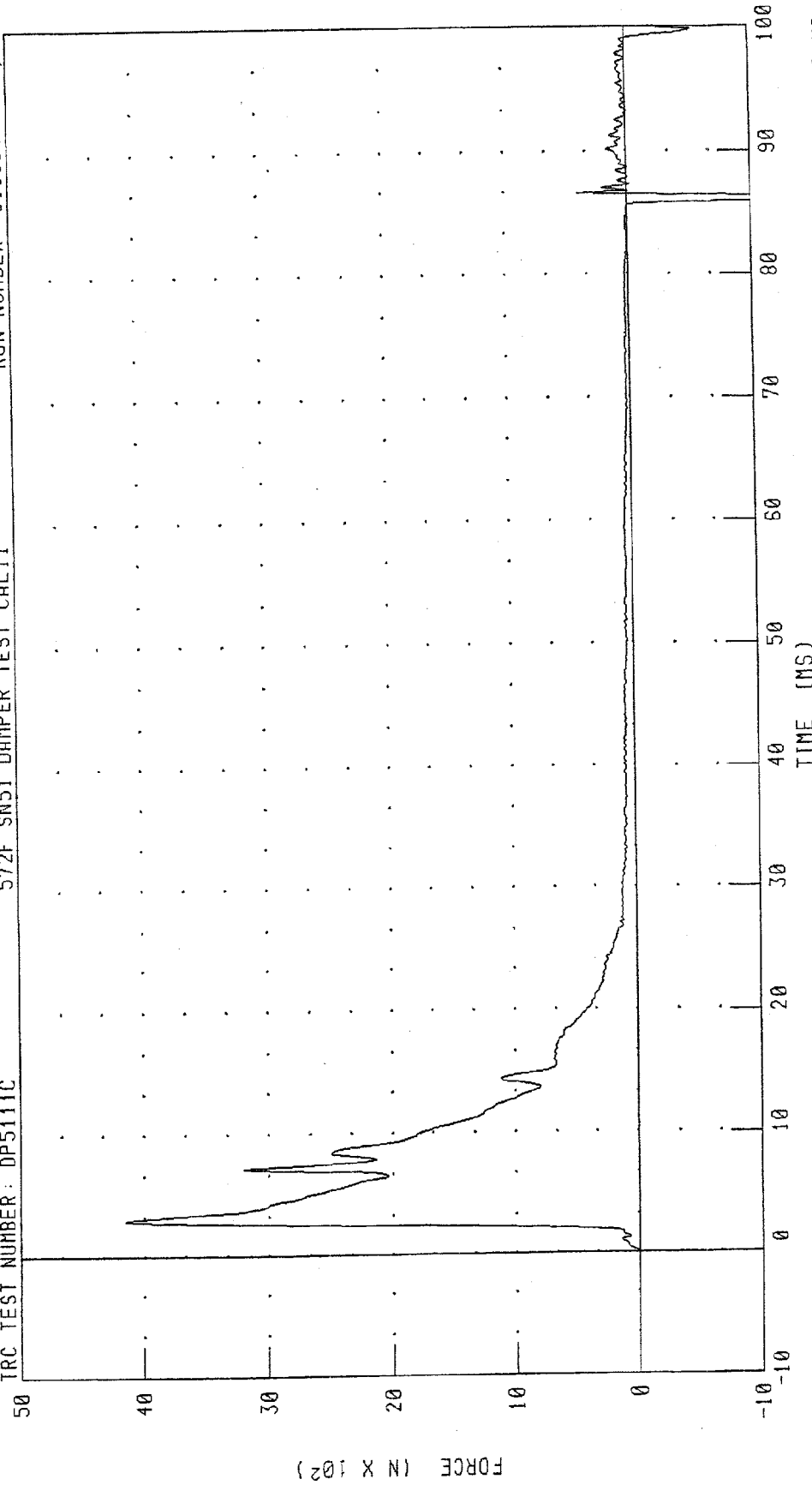


CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

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

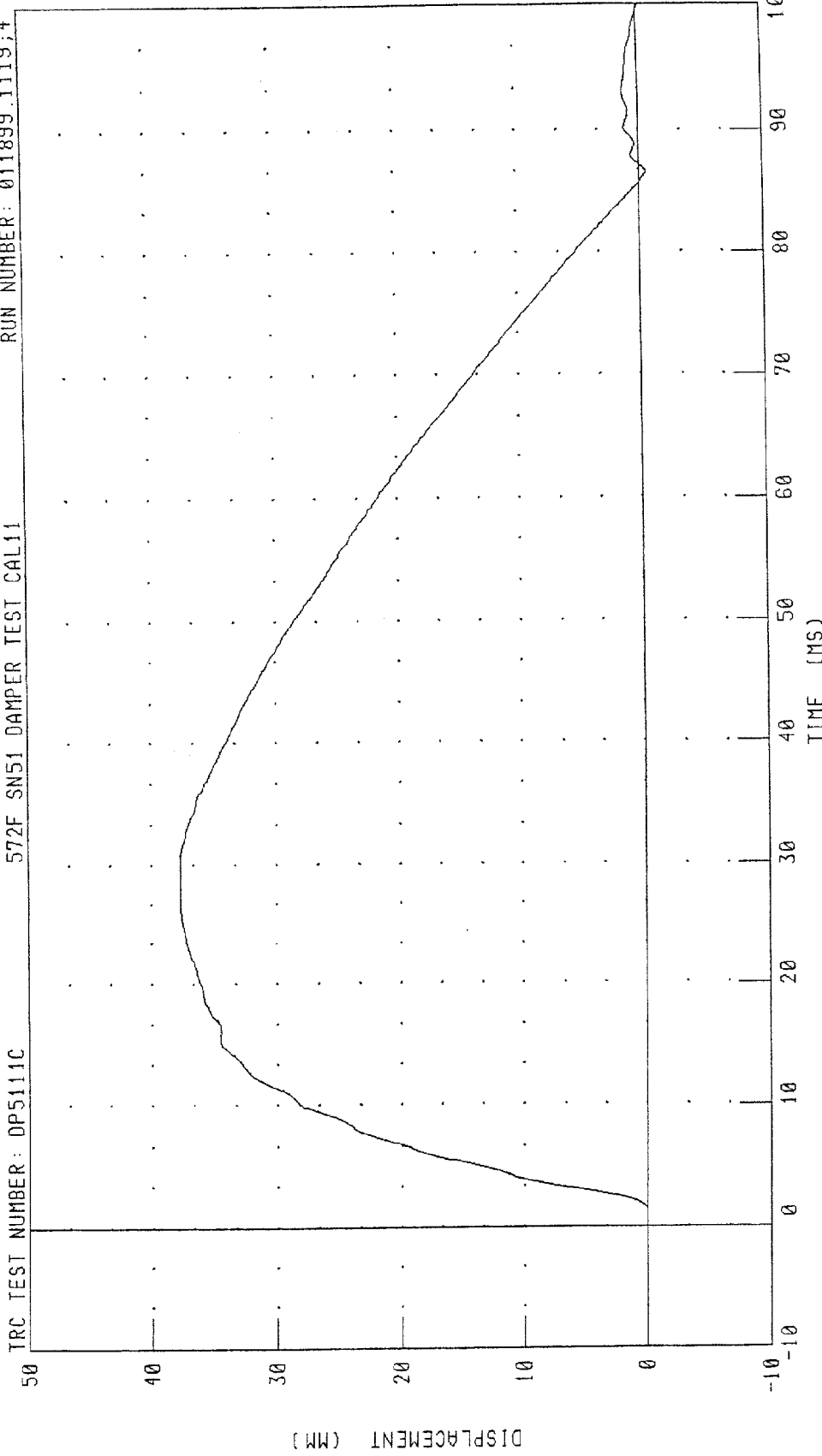
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1119.4

TRC TEST NUMBER: DP5111C



CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

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

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 cult*

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

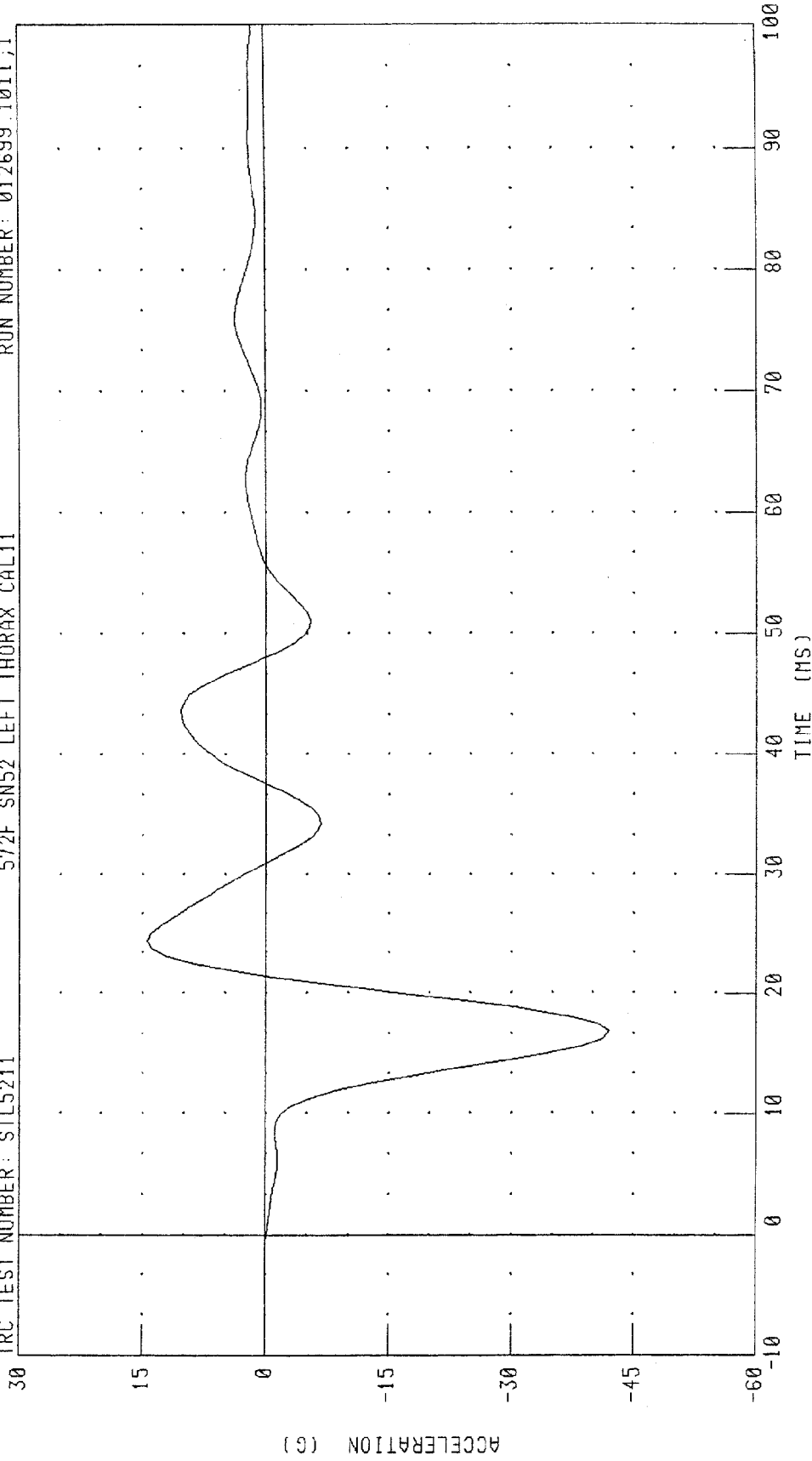
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

RUN NUMBER: 012699.1011,1

572F SN52 LEFT THORAX CAL11

TRC TEST NUMBER: STL5211



PEAK DATA: 14.46 G @ 24.38 MS; -42.01 G @ 16.87 MS

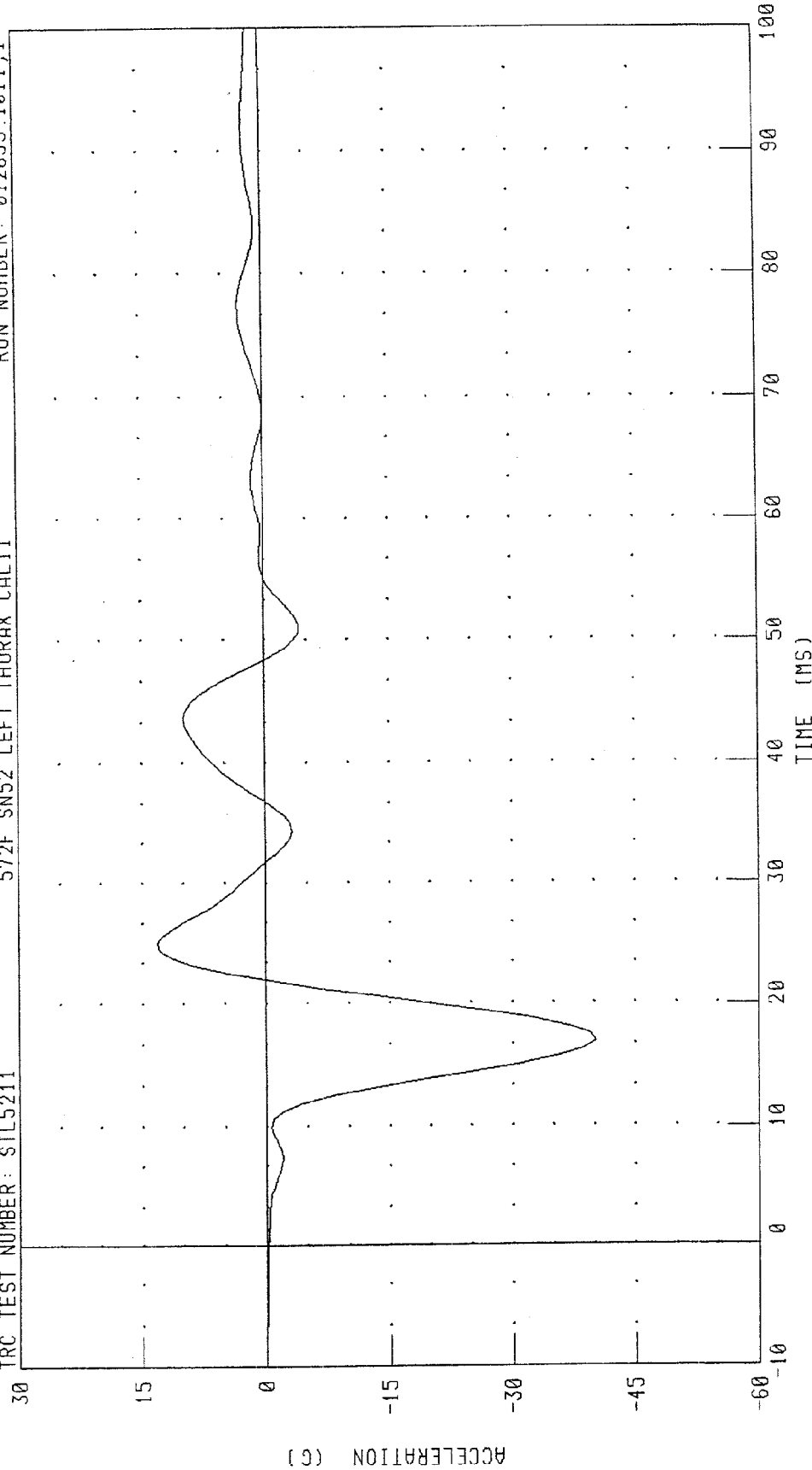
CHANNEL: LURYG FILTER: FIR 100

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

RUN NUMBER: 012699.1011;1

TRC TEST NUMBER: STL5211

572F SN52 LEFT THORAX CAL11



PEAK DATA: 13.17 G @ 25.00 MS; -40.16 G @ 16.87 MS

CHANNEL: LLRYG FILTER: FIR 100

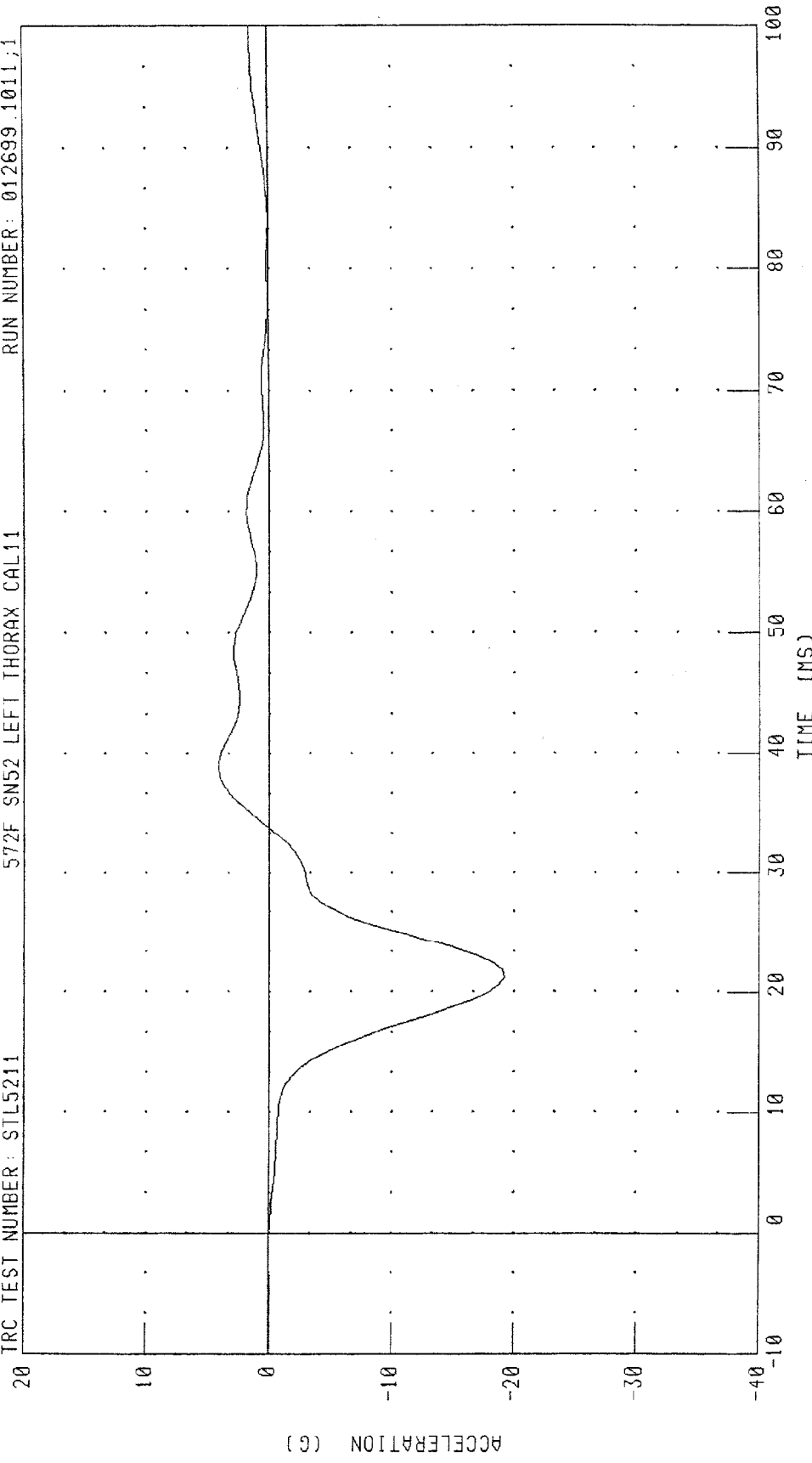
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL5211

572F SN52 LEFT THORAX CAL11

RUN NUMBER: 012699.1011;1



CHANNEL: T12YG FILTER: FIR 100

PEAK DATA: 4.11 G @ 38.75 MS; -19.29 G @ 21.25 MS

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. H.

RUN NUMBER: 012699.1020;1

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

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5211

572F SN52 LEFT PELVIS CAL11

RUN NUMBER: 012699.1020,1

40

20

0

-20

-40

-60

-80

ACCELERATION (G)

100

TIME (MS)

0

10

20

30

40

50

60

70

80

90

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

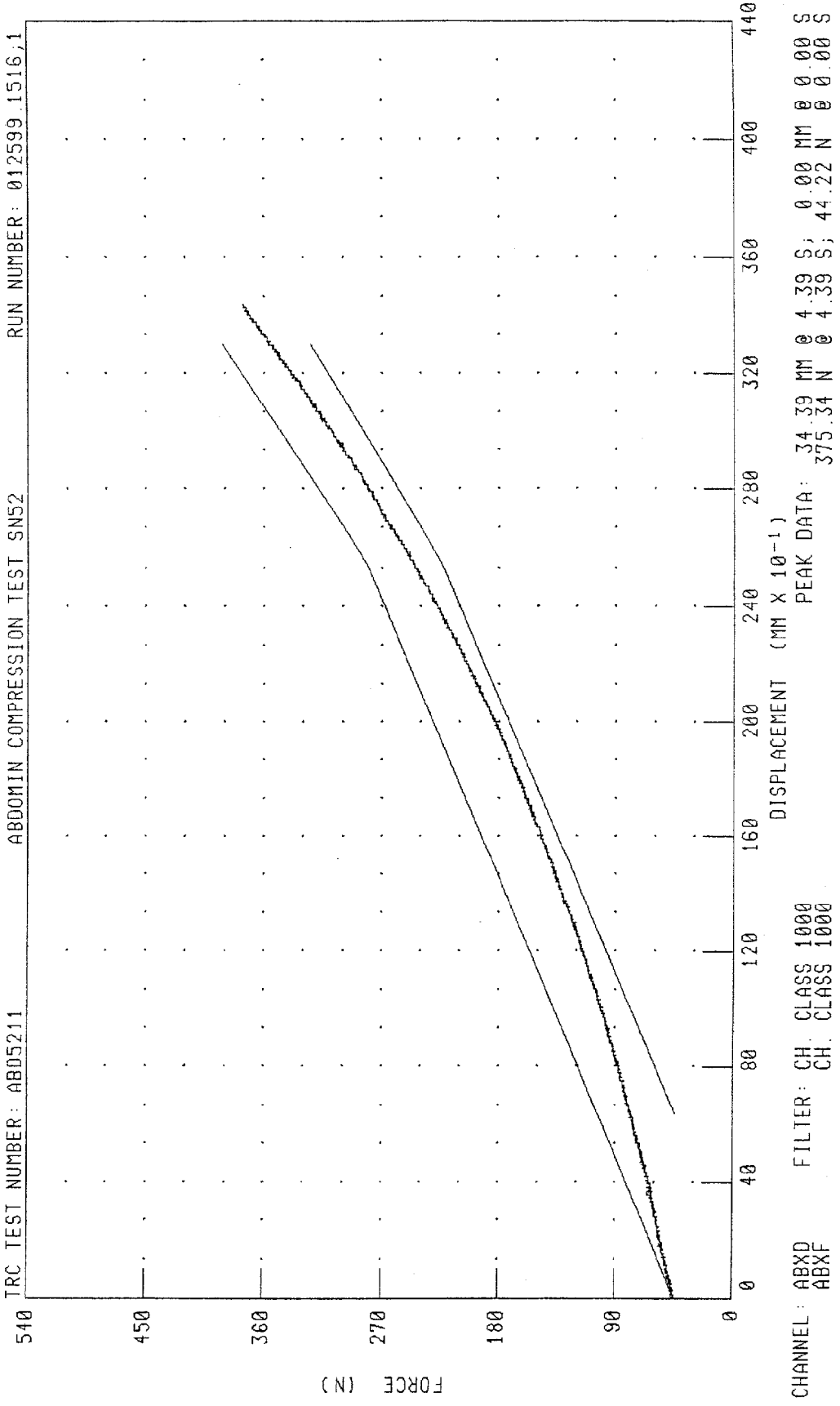
DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Bj alt*

RUN NUMBER: 012599.1516;1

PART 572-B HYBRID II ABDOMEN CALIBRATION  
ABDOMEN FORCE VS DISPLACEMENT  
ABDOMIN COMPRESSION TEST SN52

TRC TEST NUMBER: ABD5211  
RUN NUMBER: 012599.1516,1



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

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. J. 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

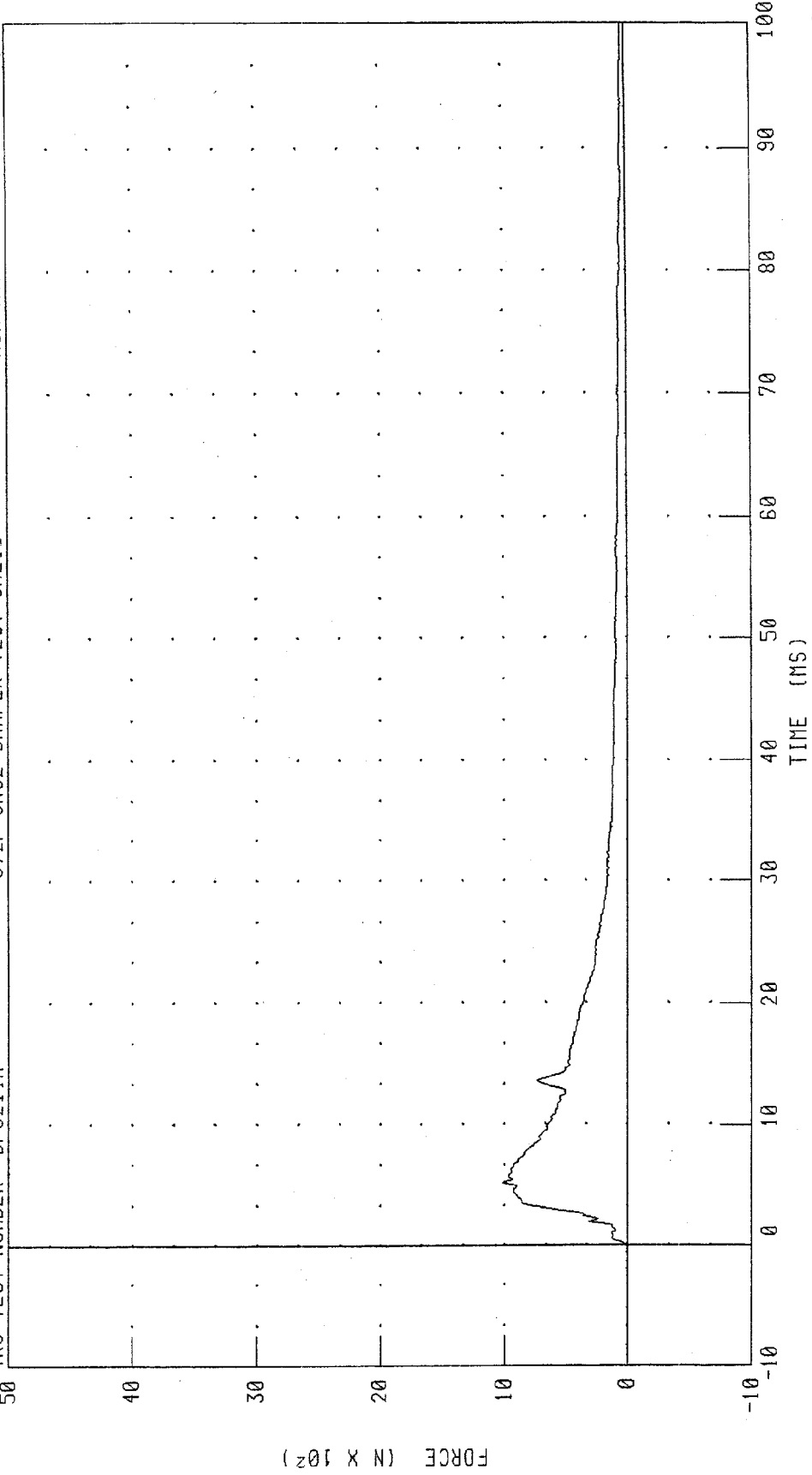
TECHNICIAN Bj celt

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 RUN NUMBER: 012699.0050,1

572F SN52 DAMPER TEST CAL11



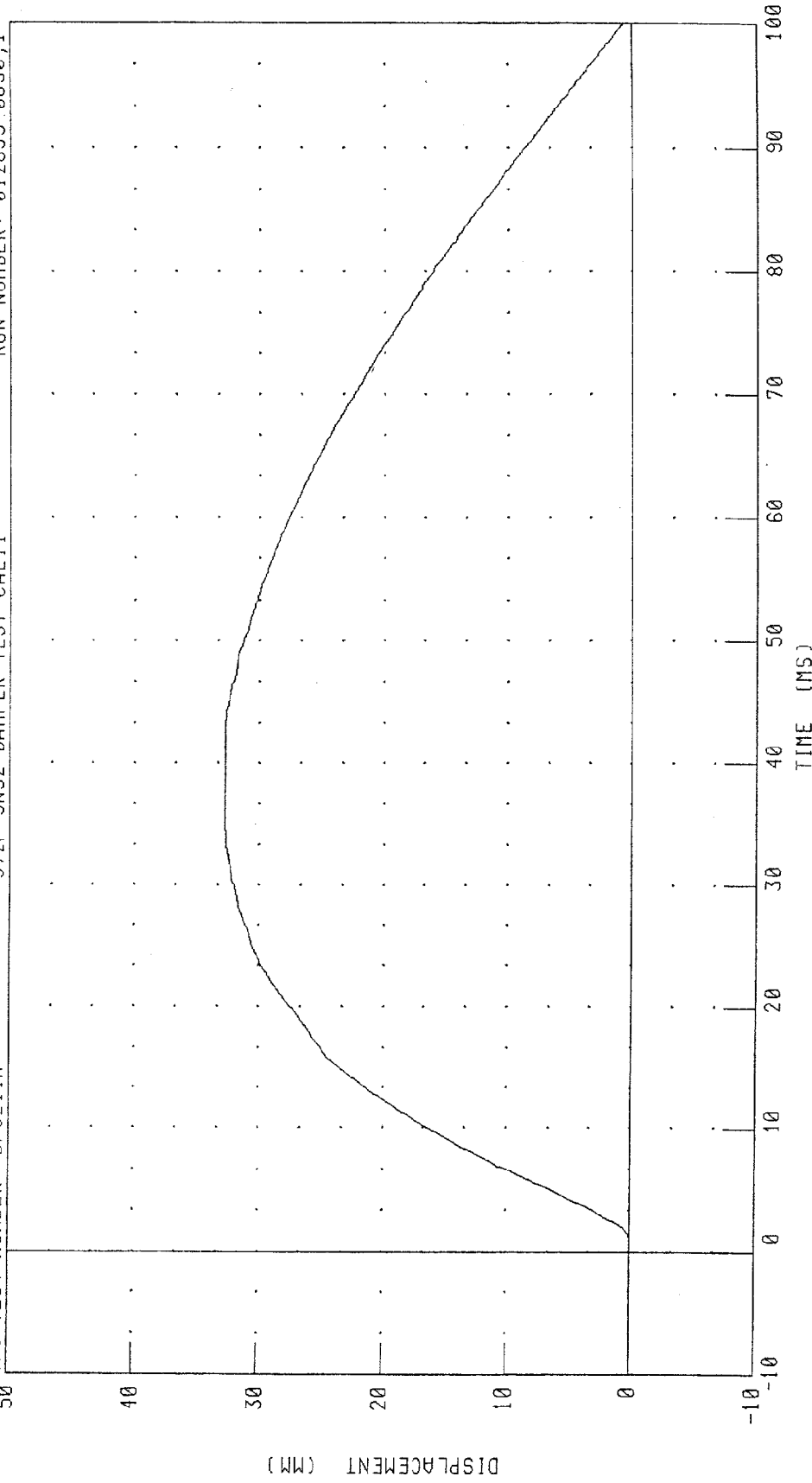
CHANNEL: DAMPF FILTER: CH. CLASS 1000 PEAK DATA: 1010.99 N @ 5.20 MS; -0.59 N @ -9.92 MS

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

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL11 RUN NUMBER: 012699 0850,1

TRC TEST NUMBER: DP5211A



CHANNEL: CSTYD FILTER: CH. CLASS 1000

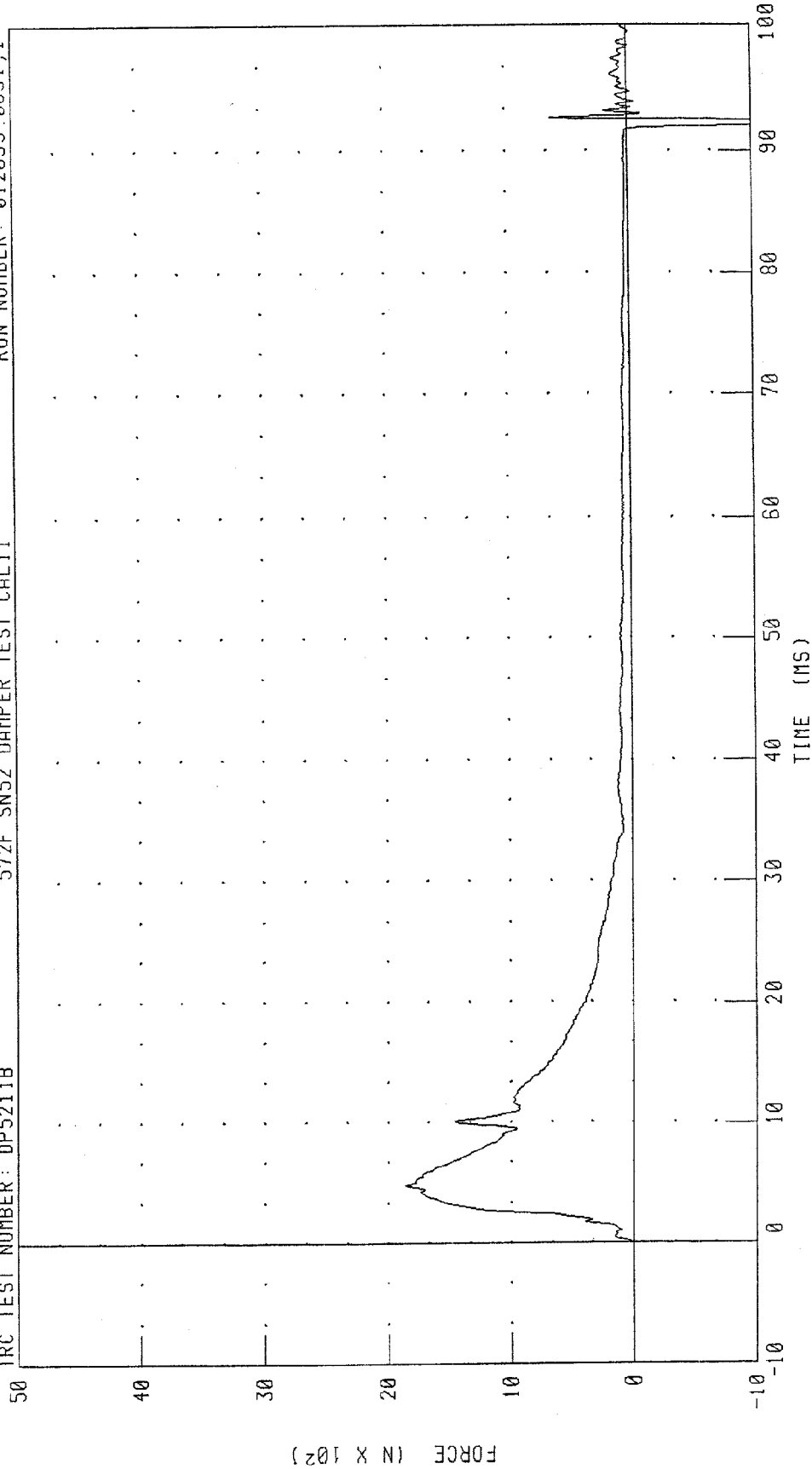
PEAK DATA: 32.78 MM @ 35.04 MS; -0.03 MM @ -9.76 MS

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

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5211B RUN NUMBER: 012699.0851,1

572F SN52 DAMPER TEST CAL11



CHANNEL: DAMPF FILTER: CH. CLASS 1000

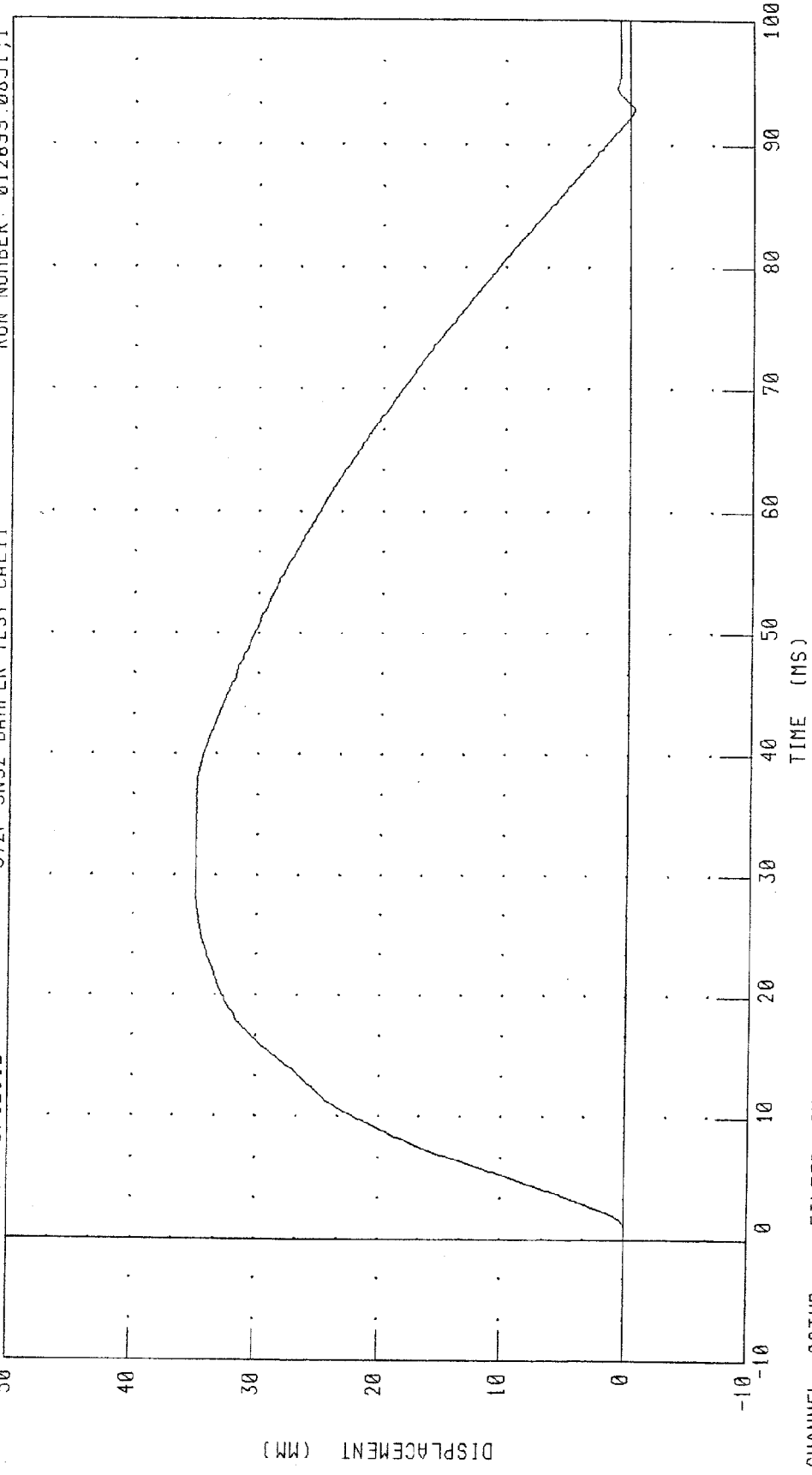
PEAK DATA: 1857.15 N @ 4.80 MS, -2594.80 N @ 92.24 MS

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

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5211B

RUN NUMBER: 012699.0851,1



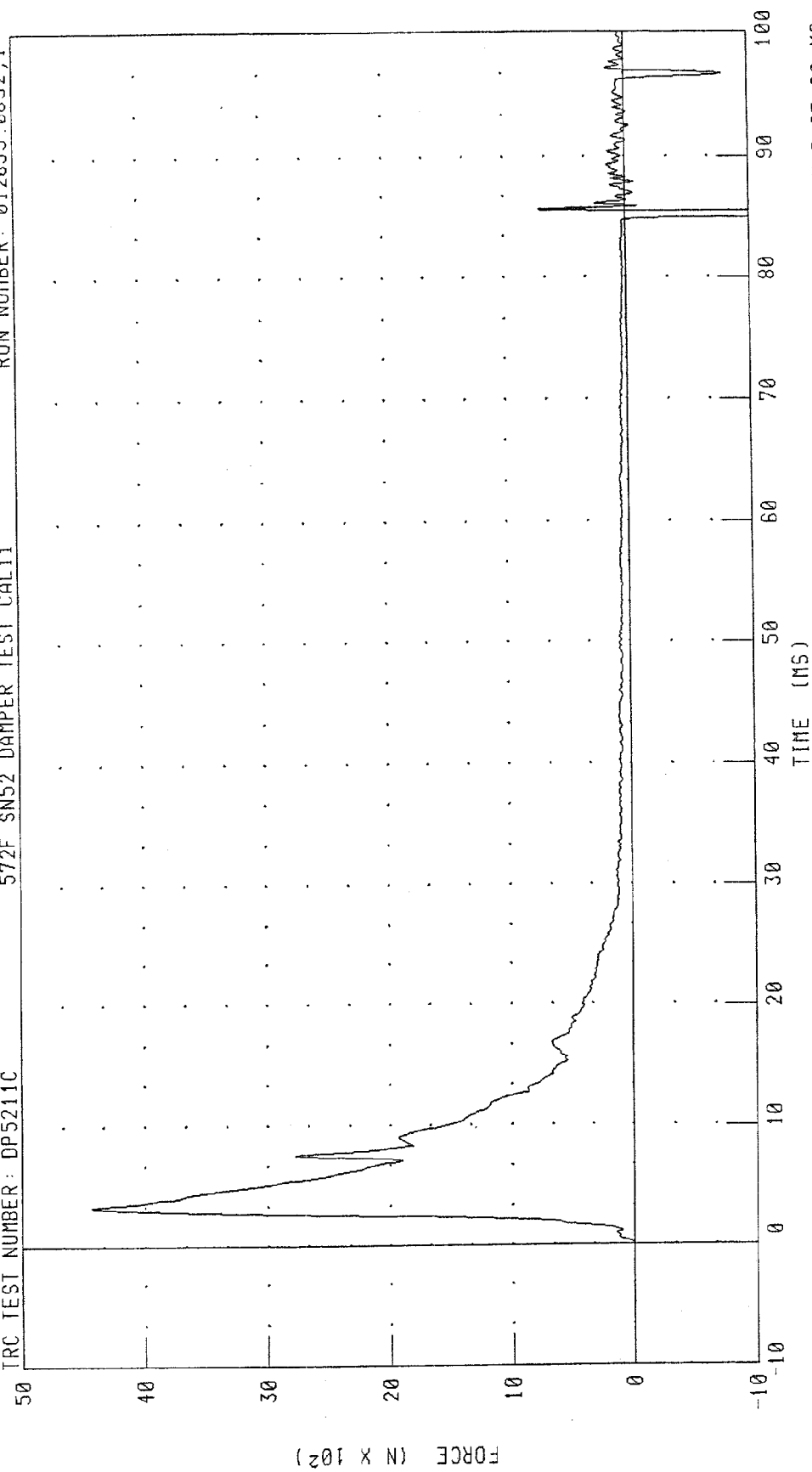
CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

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

TRC TEST NUMBER: DP5211C RUN NUMBER: 012699.0852;1

572F SN52 DAMPER TEST CAL11



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

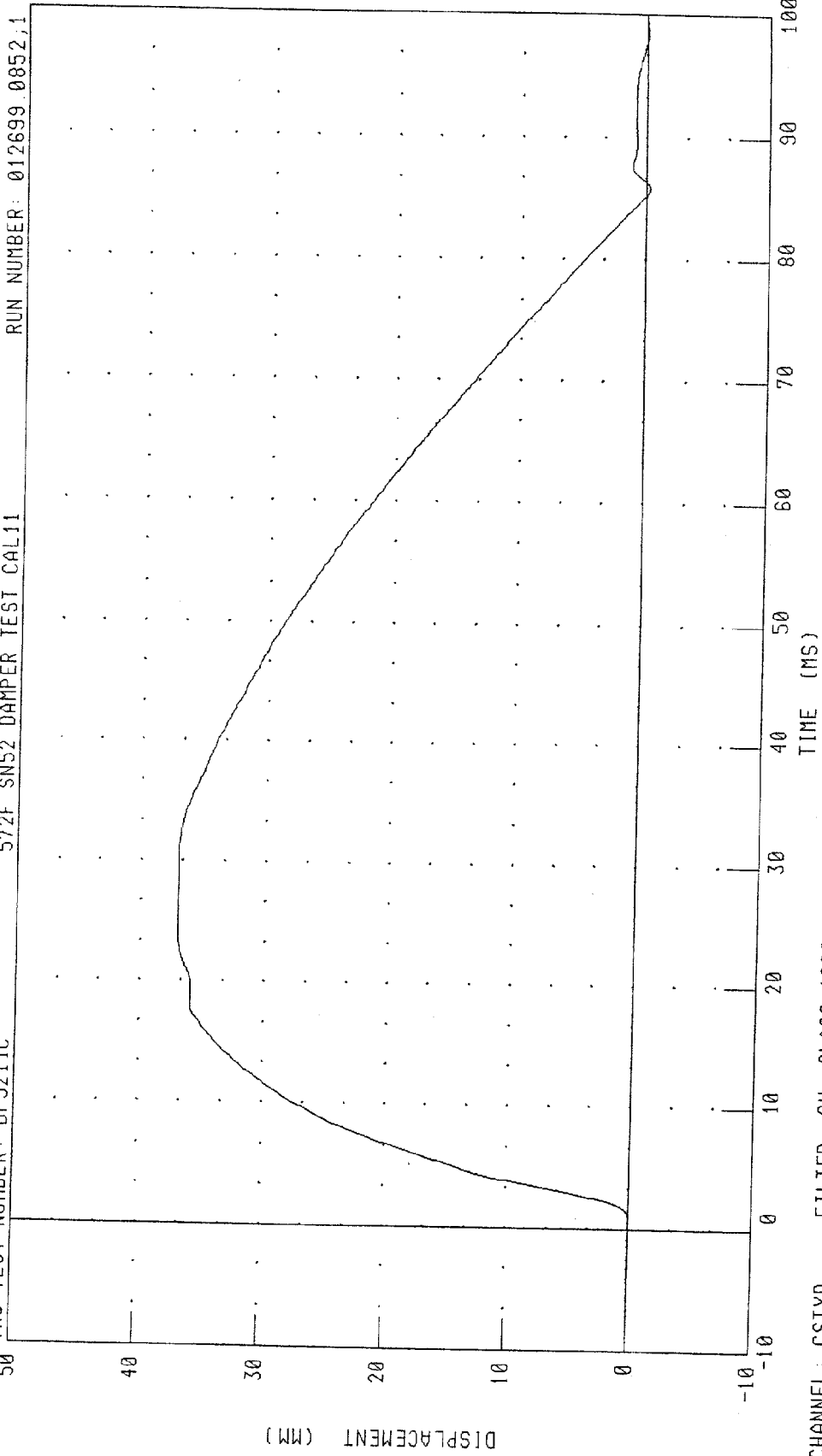
CHANNEL: DAMPF FILTER: CH. CLASS 1000

PART 572-F S.I.O. 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



CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

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 SNO51 VECTOR

02-FEB-99

TRC INC.      TEST NO: ED5113      572F SNO51 EXT.DIMENSION CAL13

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	904.2 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	492.8 MM
HW	HIP WIDTH	356 - 391 MM	363.2 MM

DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	508.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	233.7 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 B. Calt

RUN NUMBER: 020399.1052

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

03-FEB-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5113A

572F SN51 LEFT THORAX CAL13

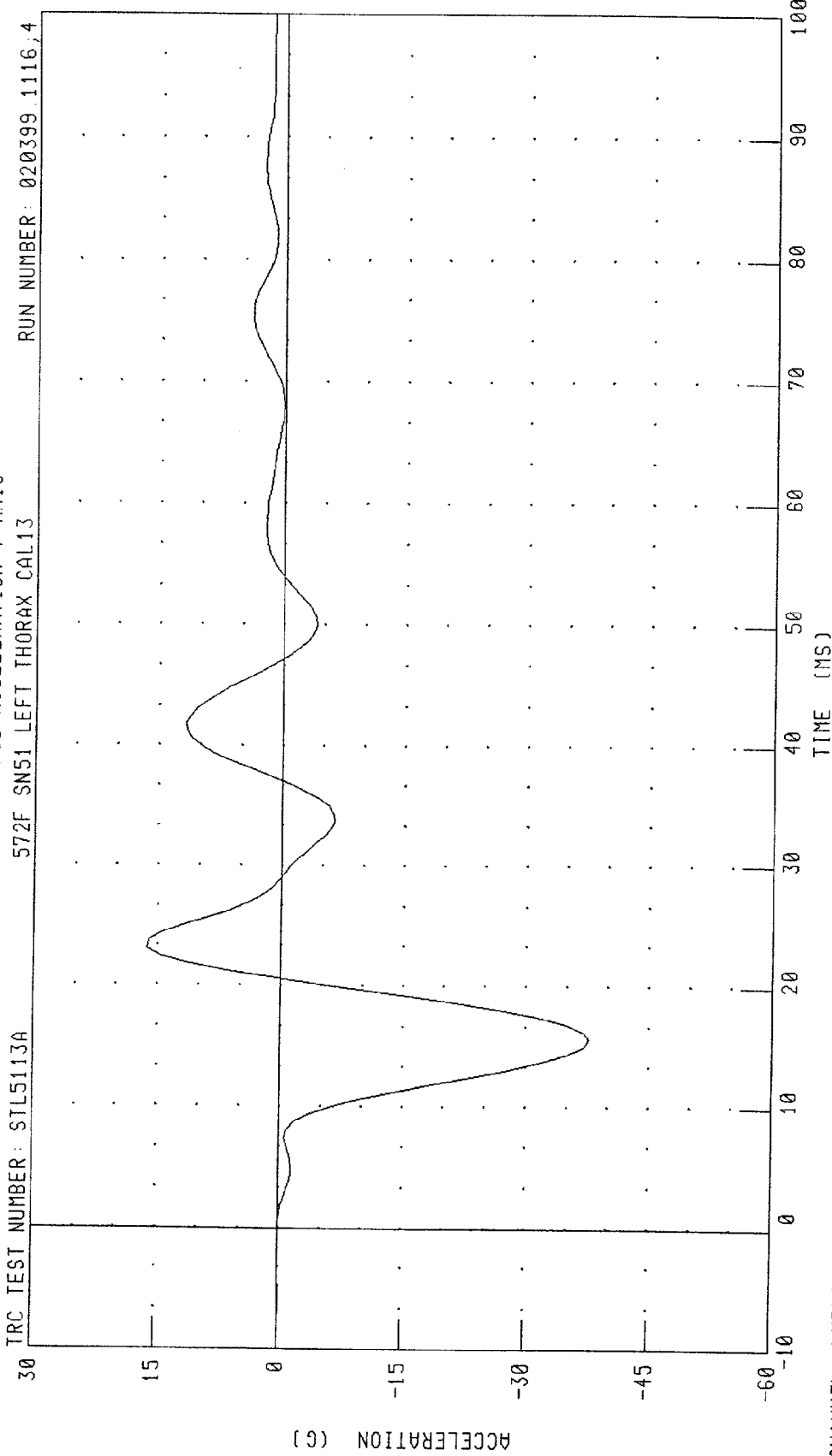
TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.33 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-37.7 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-38.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.7 G

TEST MEETS SPECIFICATIONS

TECHNICIAN Kevin Watkins

RUN NUMBER: 020399.1115;4

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



CHANNEL: LURYG      FILTER: FIR 100      PEAK DATA: 16.29 G @ 23.13 MS; -37.68 G @ 15.63 MS

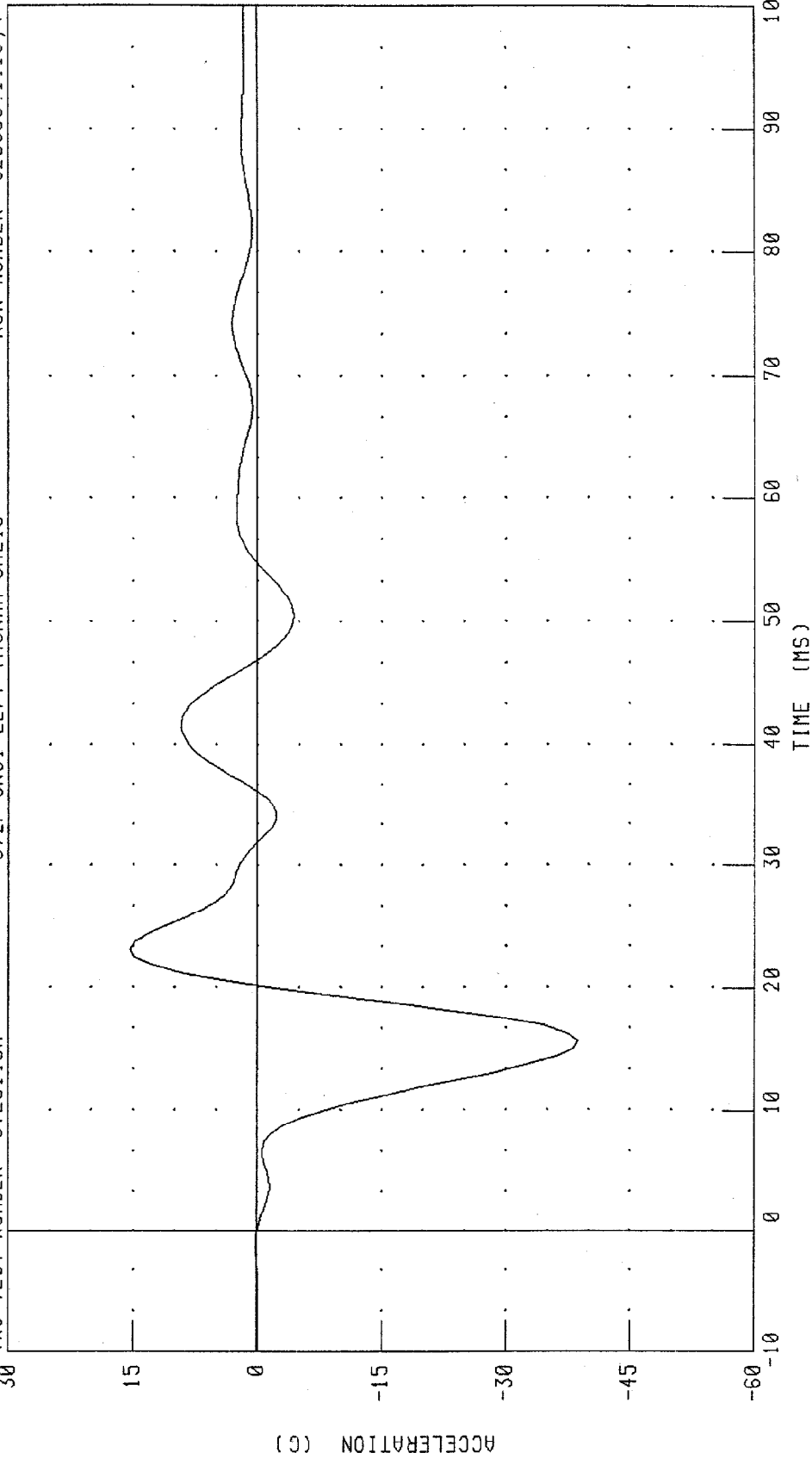
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)  
LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: SIL5113A

572F SN51 LEFT THORAX CAL13

RUN NUMBER: 020399.1116,4

30

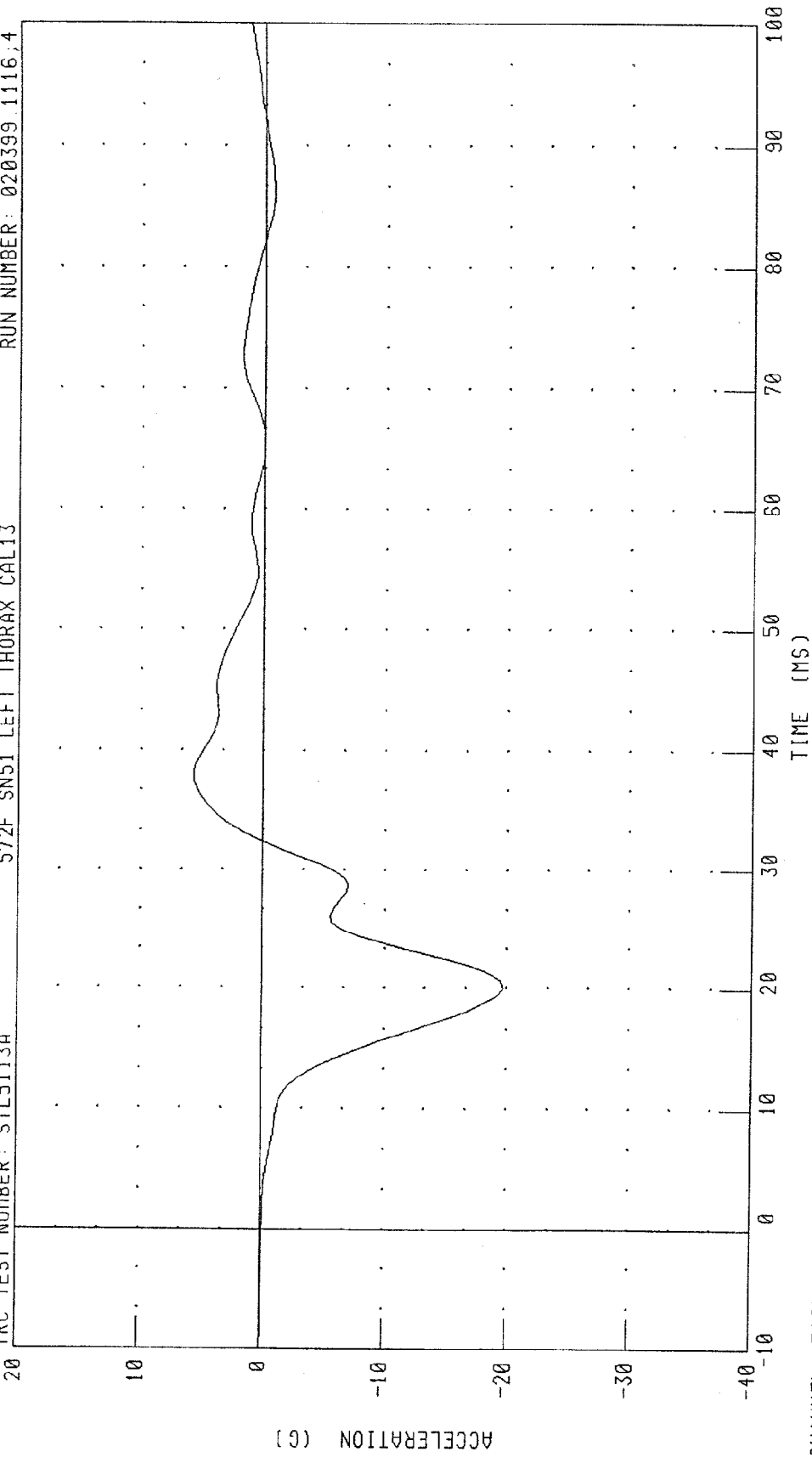


CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 15.44 G @ 23.13 MS; -38.64 G @ 15.63 MS

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

TRC TEST NUMBER: STL5113A      572F SN51 LEFT THORAX CAL13      RUN NUMBER: 020399 1116,4



CHANNEL: T12YG      FILTER: FIR 100      PEAK DATA: 5.73 G @ 38.13 MS; -19.69 G @ 20.00 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

03-FEB-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5113

572F SN 51 LEFT PELVIS CAL13

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-57.4 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Kevin Watkins*

RUN NUMBER: 020399.1108;1

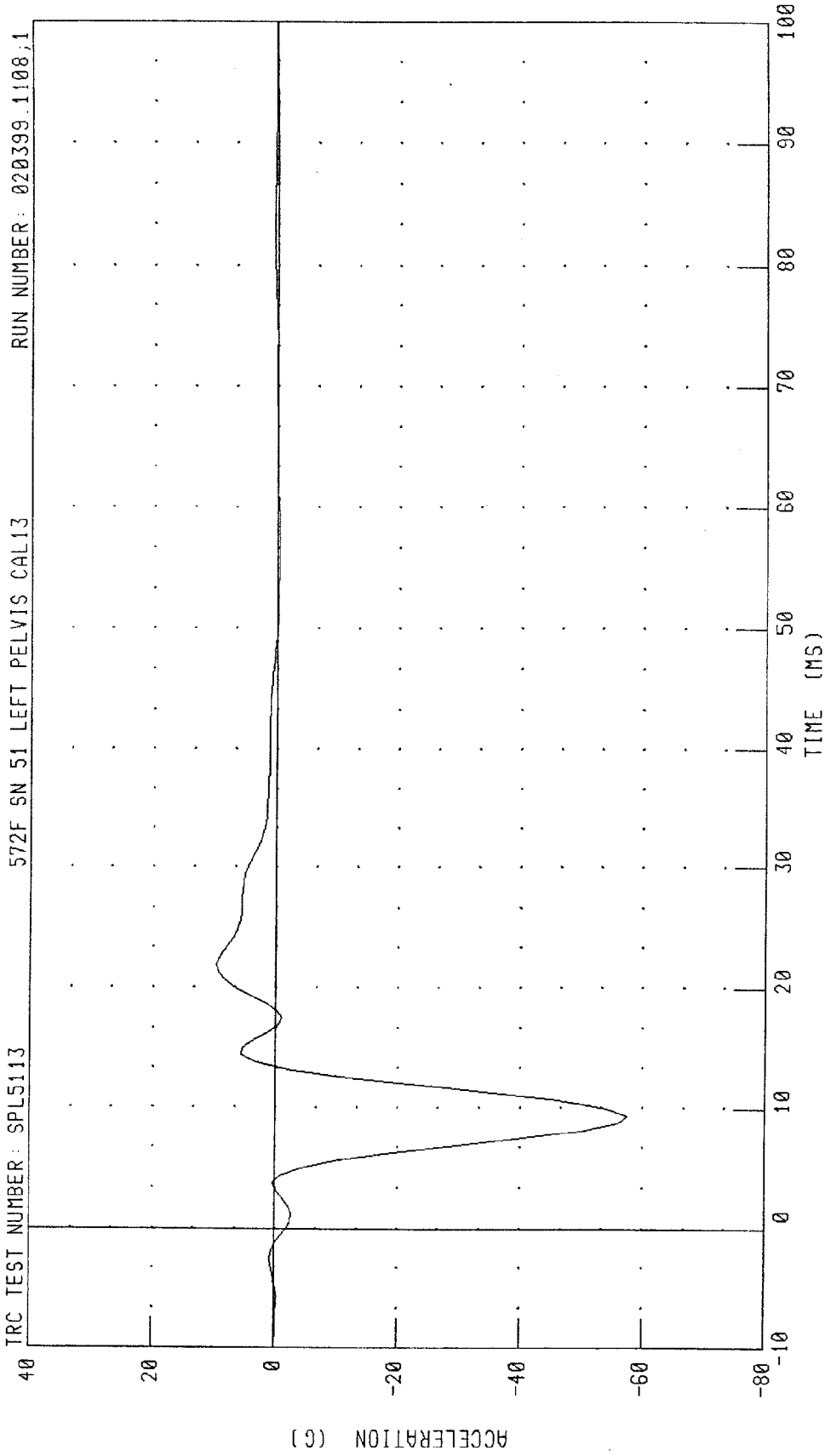
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5113

572F SN 51 LEFT PELVIS CAL13

RUN NUMBER: 020399.1108;1



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 9.69 G @ 21.88 MS, -57.44 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

03-FEB-99

TRC INC.

TEST NO: ABD5113B

ABDOMIN COMPRESSION TEST SN51

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.74 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	123.26 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	183.91 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	260.70 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	377.59 N

DUMMY MEETS SPECIFICATIONS

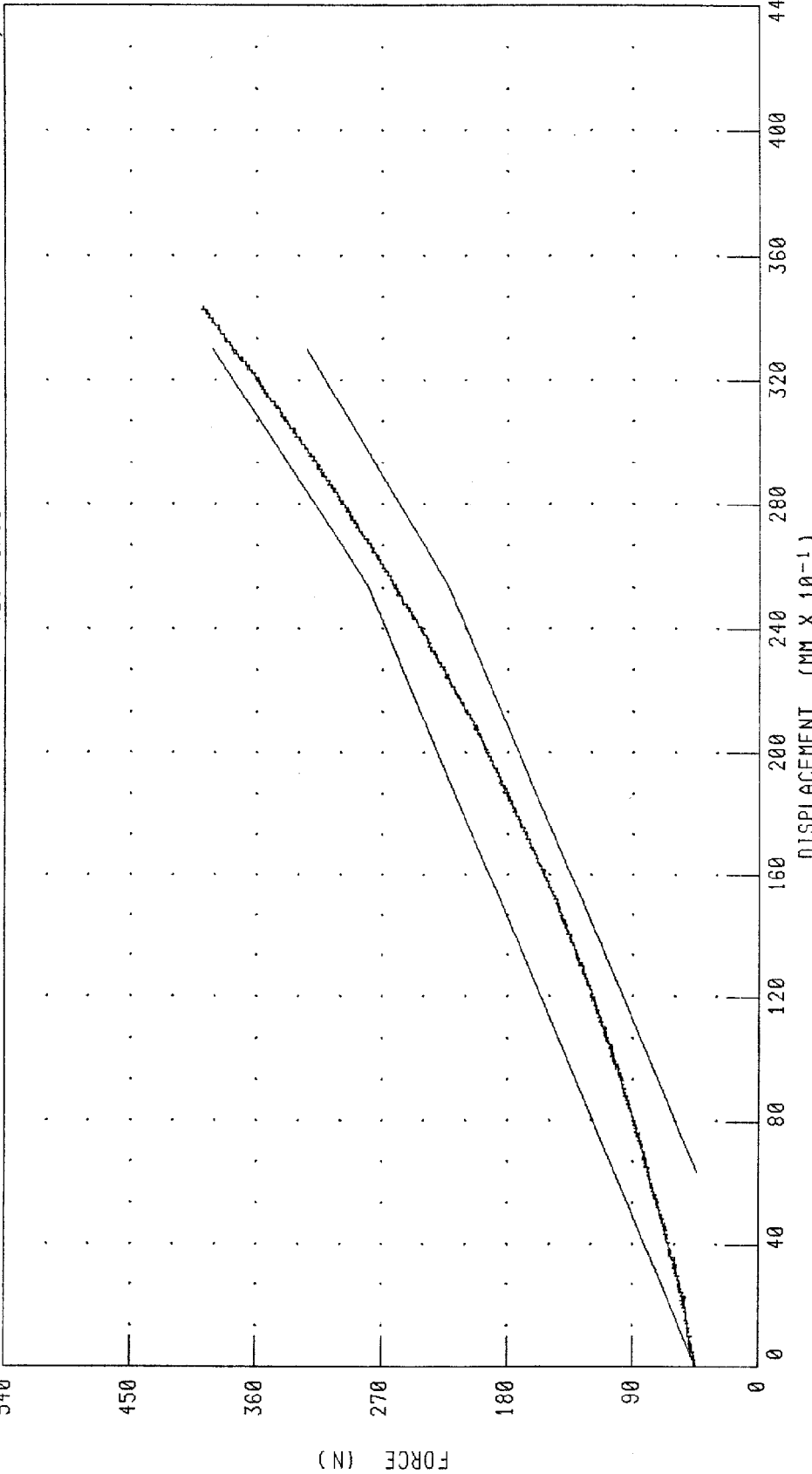
TECHNICIAN

*Ryalt*

RUN NUMBER: 020399.0810;1

PART 572-B HYBRID I1 ABDOMEN CALIBRATION  
 ABDOMEN FORCE VS DISPLACEMENT  
 ABDOMIN COMPRESSION TEST SN51

TRC TEST NUMBER: ABD5113B RUN NUMBER: 020399.0811;1



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

PEAK DATA: 34.39 MM @ 4.41 S; -0.13 MM @ 0.00 S  
 399.60 N @ 4.41 S; 44.02 N @ 0.00 S

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

02-FEB-99

TRC INC. TEST NO: LF5113

572F SN051 LUMBAR FLEX. CAL13

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
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	195.71 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

*By cult*

RUN NUMBER: 020399.1035

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

*Ryalt*

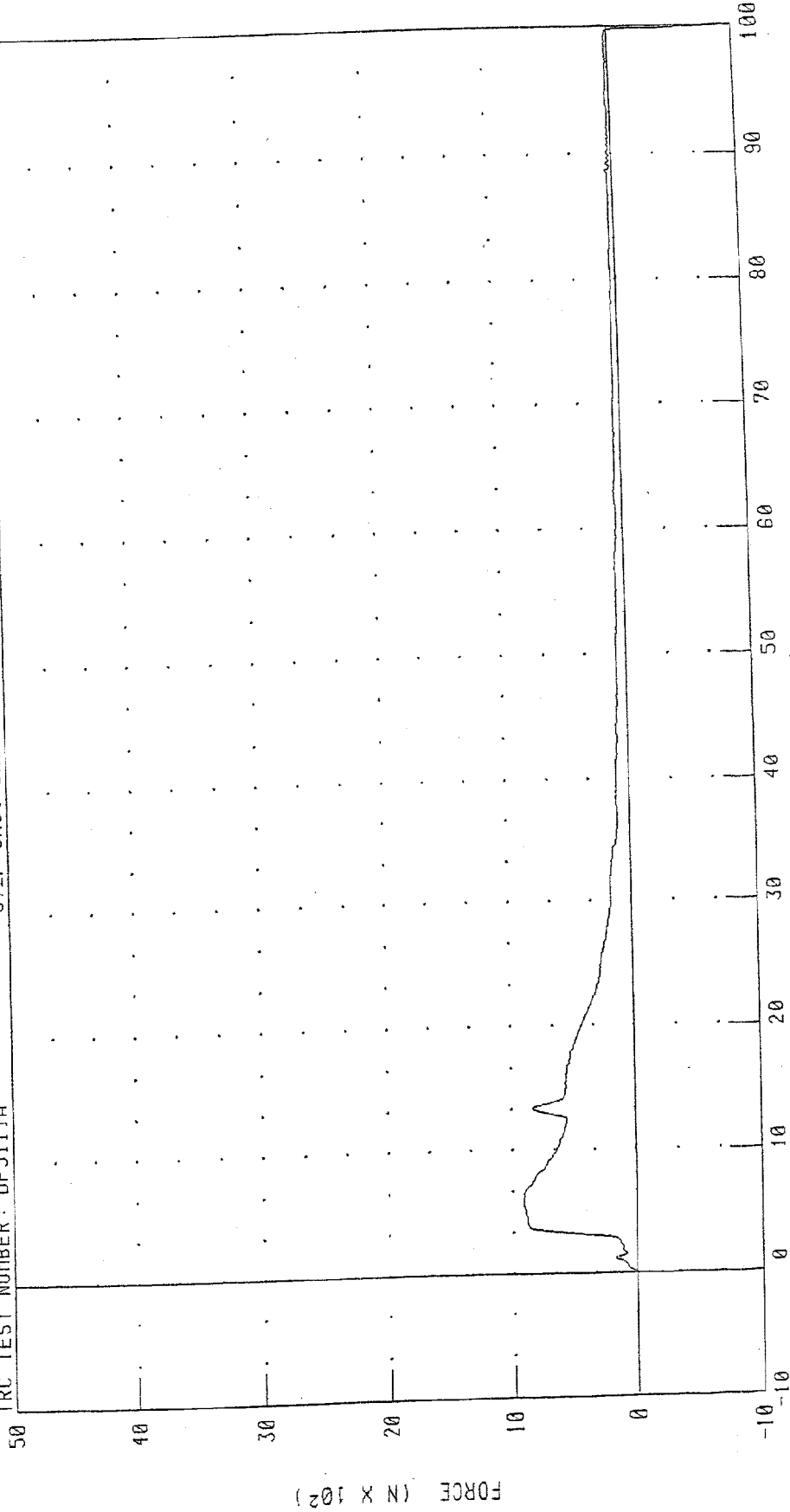
RUN NUMBER: 011899.1111;1

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

RUN NUMBER: 011899.1117;1

572F SN51 DAMPER TEST CALI1

TRC TEST NUMBER: DP51111A



PEAK DATA: 916.34 N @ 5.60 MS; -1458.68 N @ 100.00 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

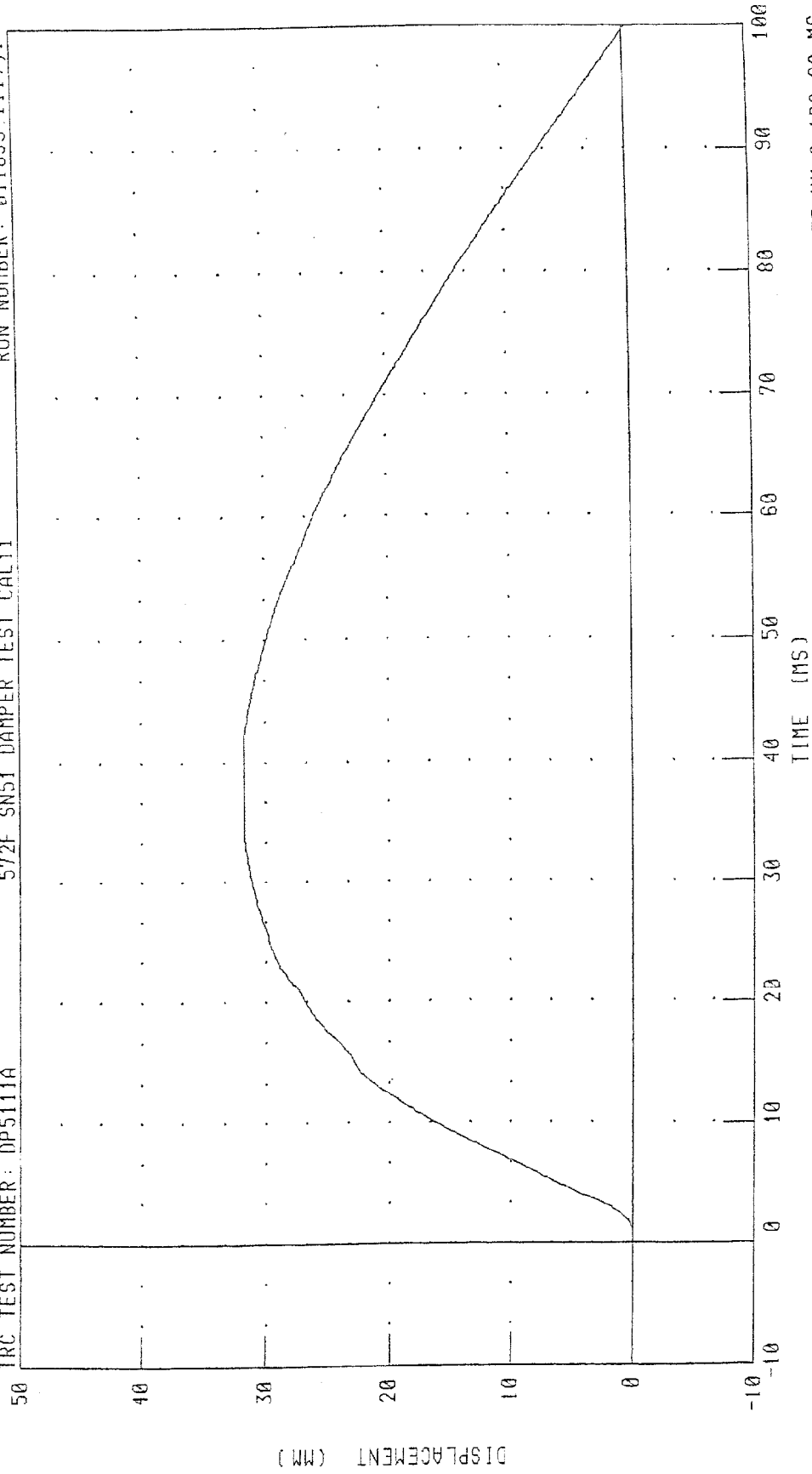
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: DP5111A

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1117.1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

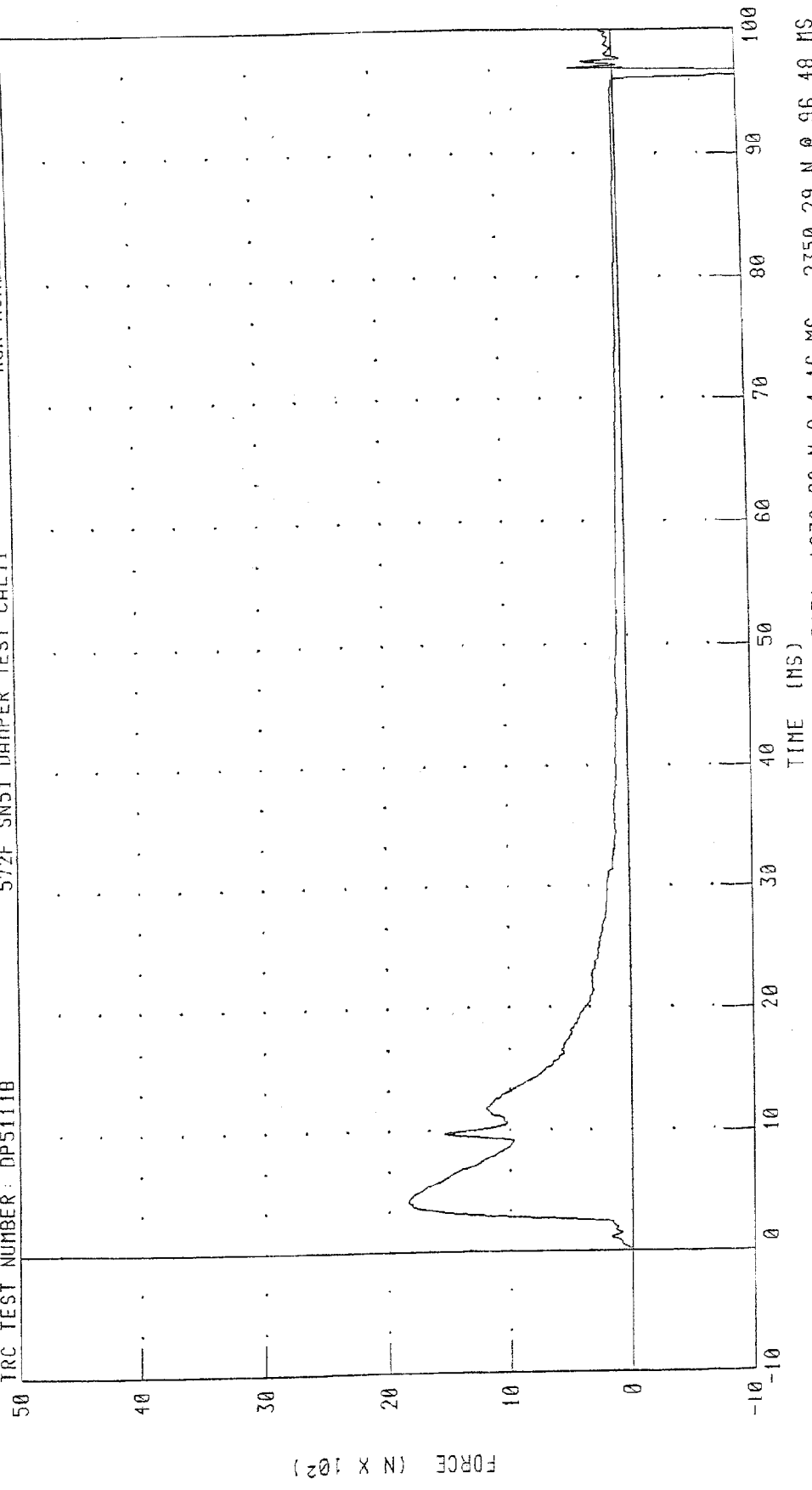
PEAK DATA: 31.65 MM @ 34.80 MS; -0.35 MM @ 100.00 MS

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

RUN NUMBER: 011899.1118,2

572F SN51 DAMPER TEST CAL11

IRC TEST NUMBER: DP5111B



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

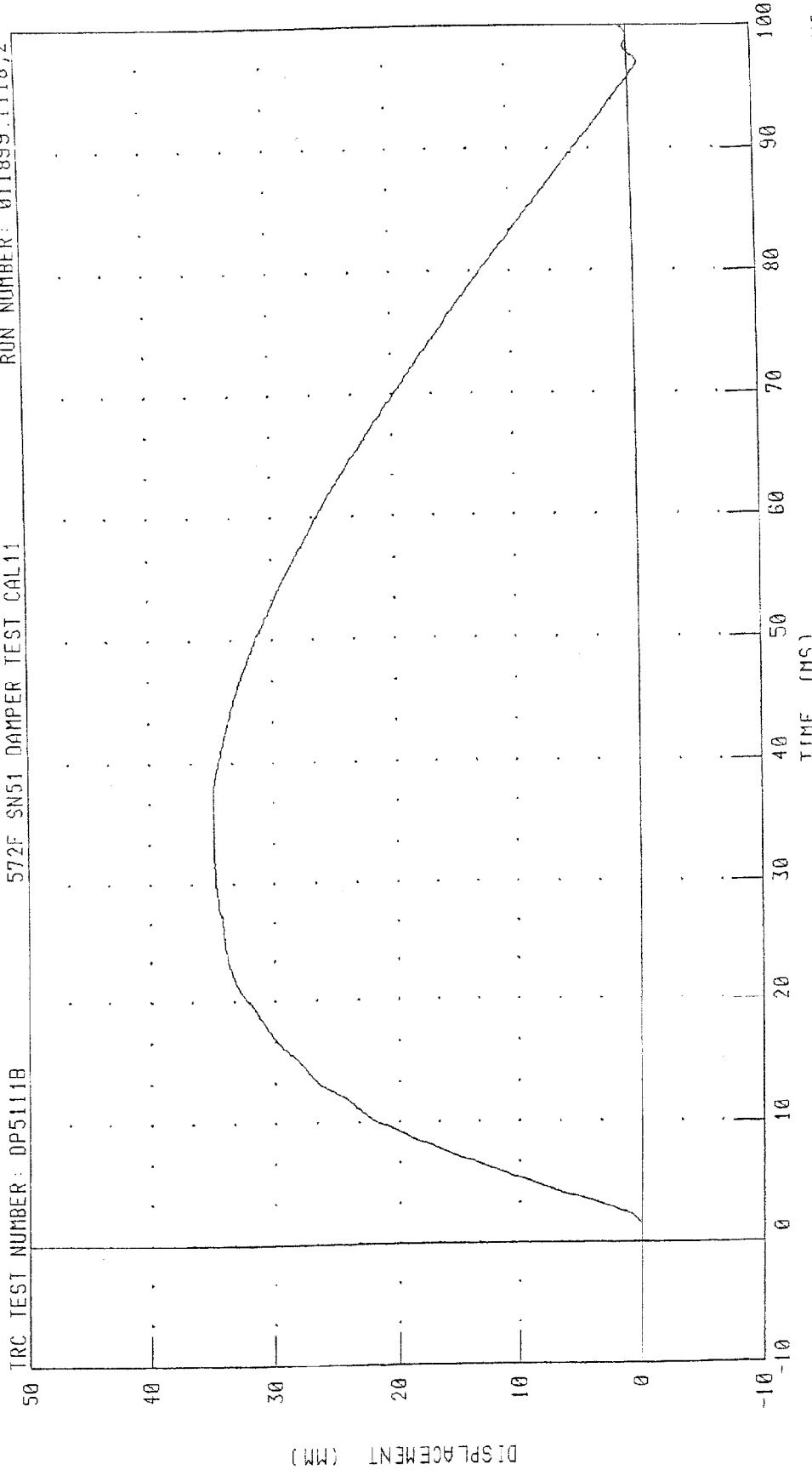
CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5111B

RUN NUMBER: 011899.1118.2



CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

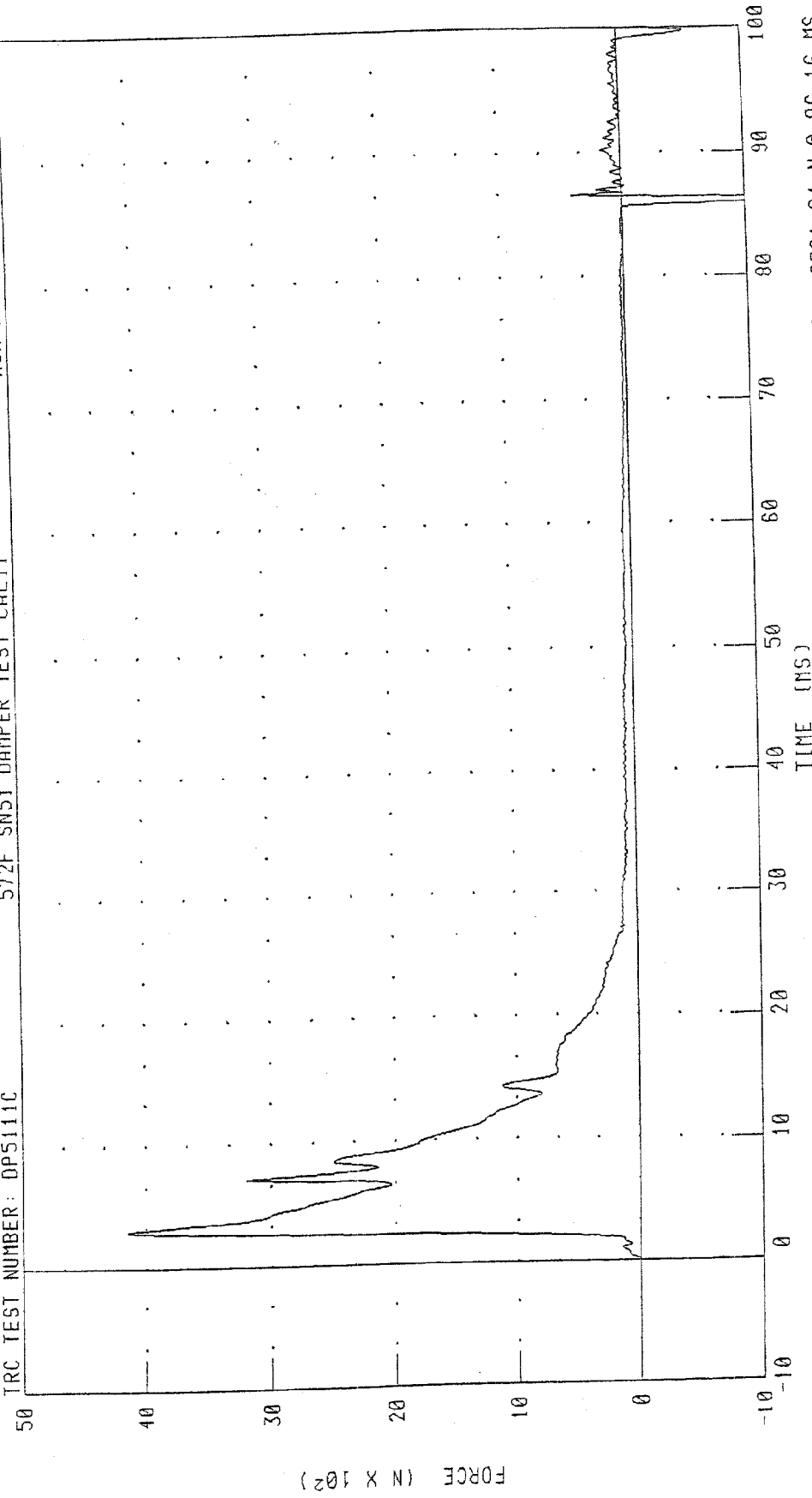
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111C

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1119;4



CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

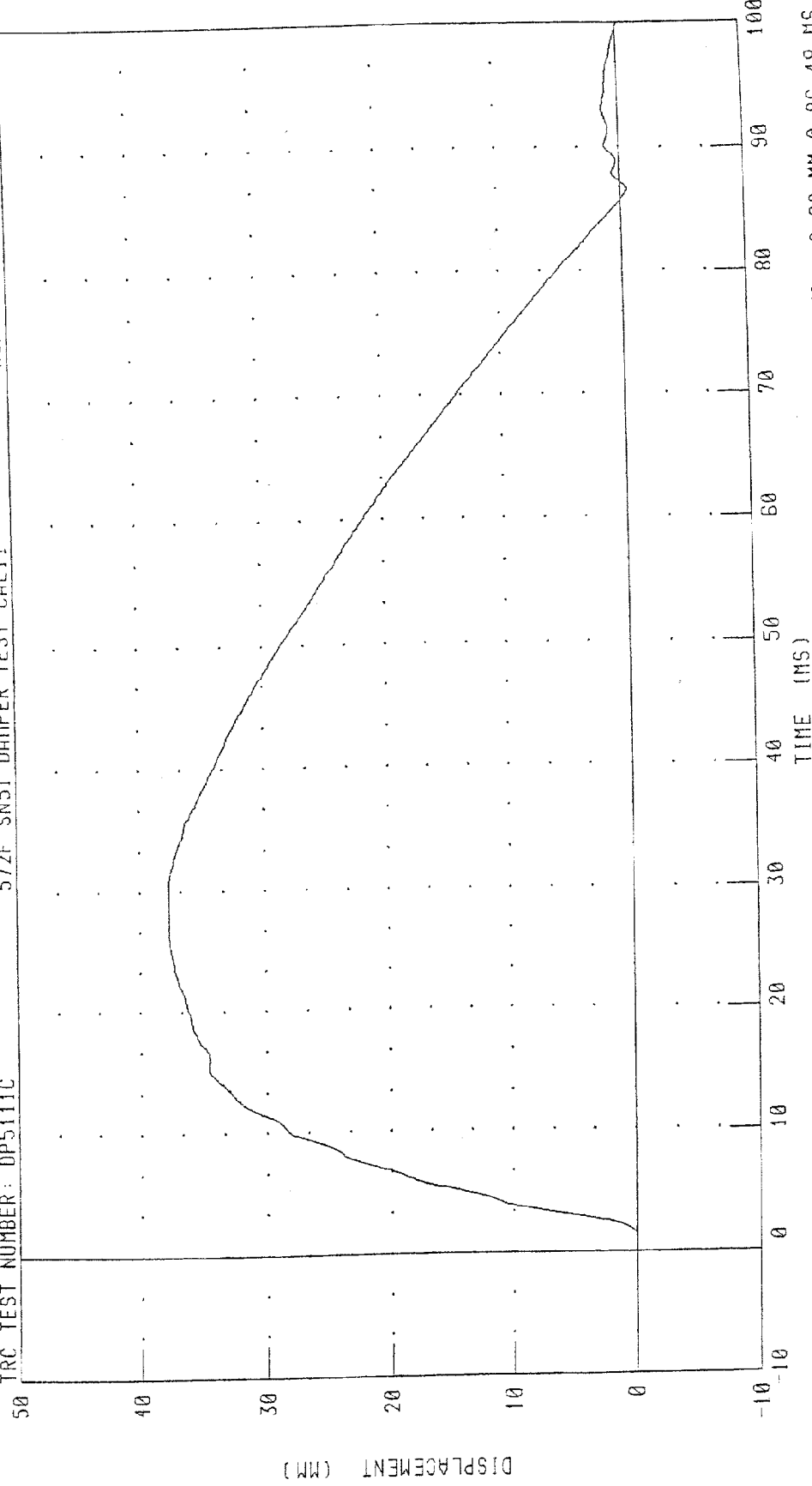
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1119.4

TRC TEST NUMBER: DP5111C



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

CHANNEL: CSTDYD 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 SN052 VECTOR

02-FEB-99

TRC INC. TEST NO: ED5212 572F SN052 EXT.DIMENSION CAL12

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	899.2 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	495.3 MM
HW	HIP WIDTH	356 - 391 MM	368.3 MM

DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	508.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	175.3 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	175.3 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Byg Cabot

RUN NUMBER: 020399.1045

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

03-FEB-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5212

572F SN52 LEFT THORAX CAL12

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.30 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-41.8 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-40.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.1 G

TEST MEETS SPECIFICATIONS

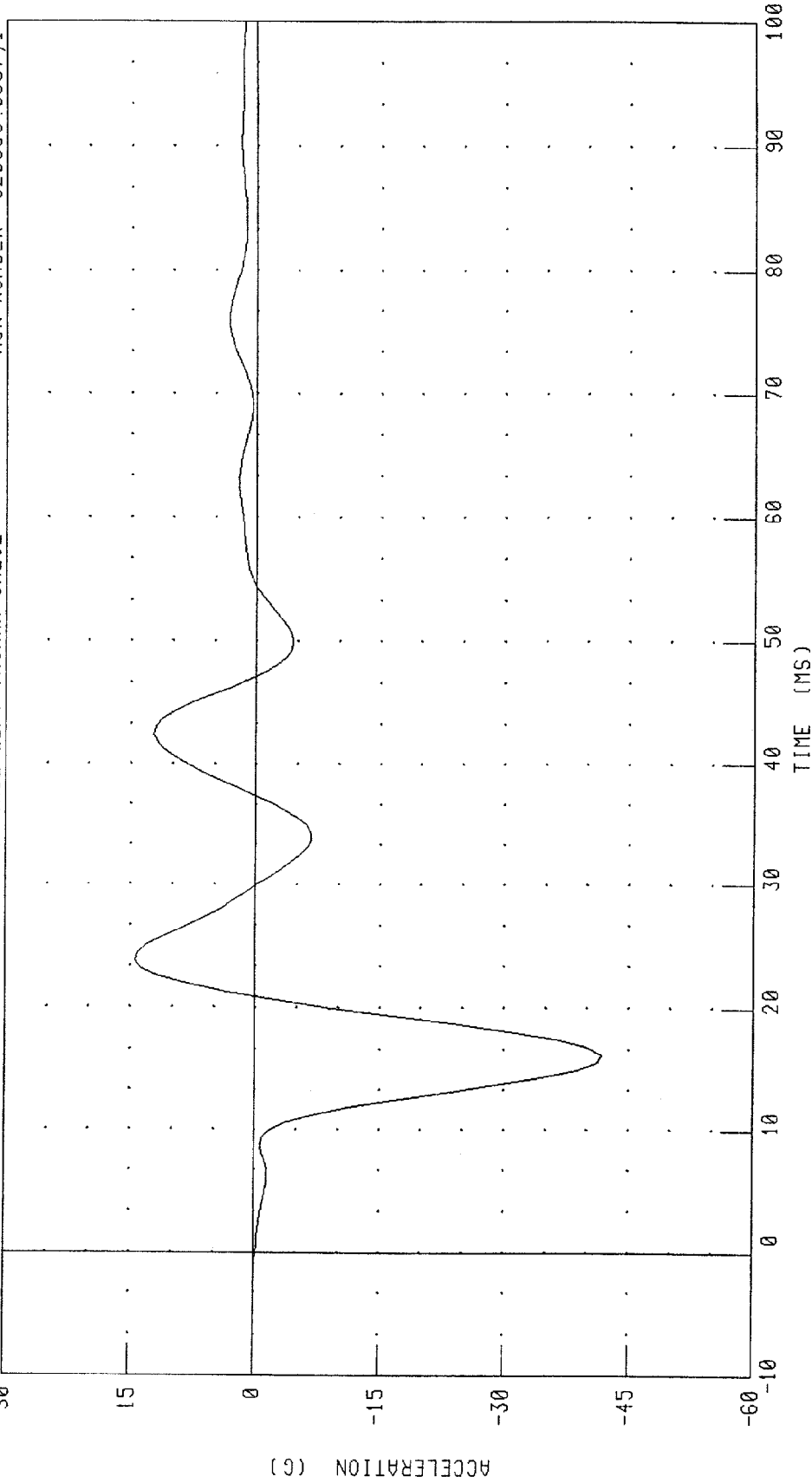
TECHNICIAN

*Bj alt*

RUN NUMBER: 020399.0907;1

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

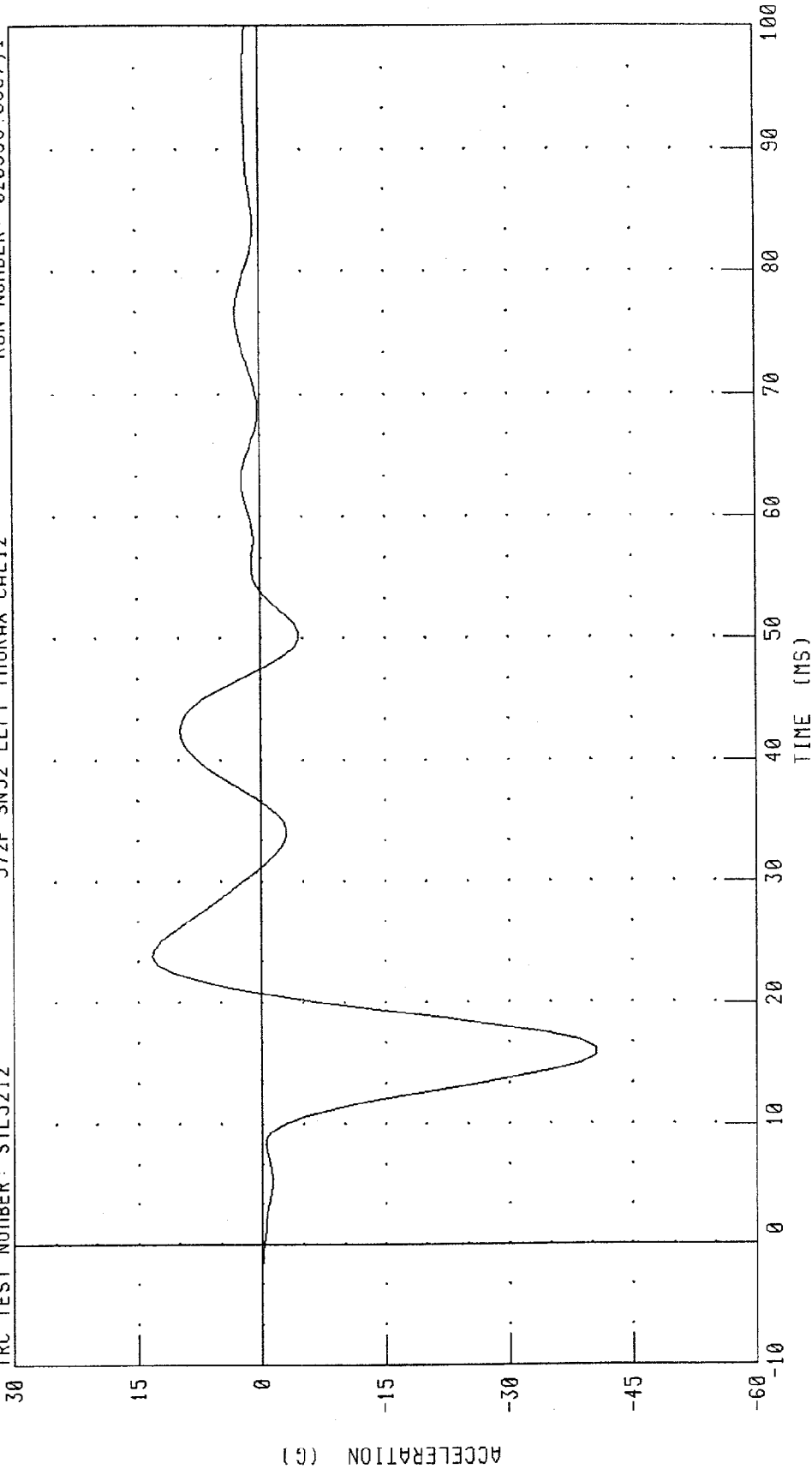
TRC TEST NUMBER: STL5212      572F SNS2 LEFT THORAX CAL12      RUN NUMBER: 020399.0907;1



CHANNEL: LURYG      FILTER: FIR 100      PEAK DATA: 14.42 G @ 23.75 MS, -41.78 G @ 16.25 MS

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

TRC TEST NUMBER: STL5212      RUN NUMBER: 020399 0907;1  
572F SN52 LEFT THORAX CAL12



CHANNEL: LLRYG      FILTER: FIR 100      PEAK DATA: 13.23 G @ 23.75 MS; -40.65 G @ 15.63 MS

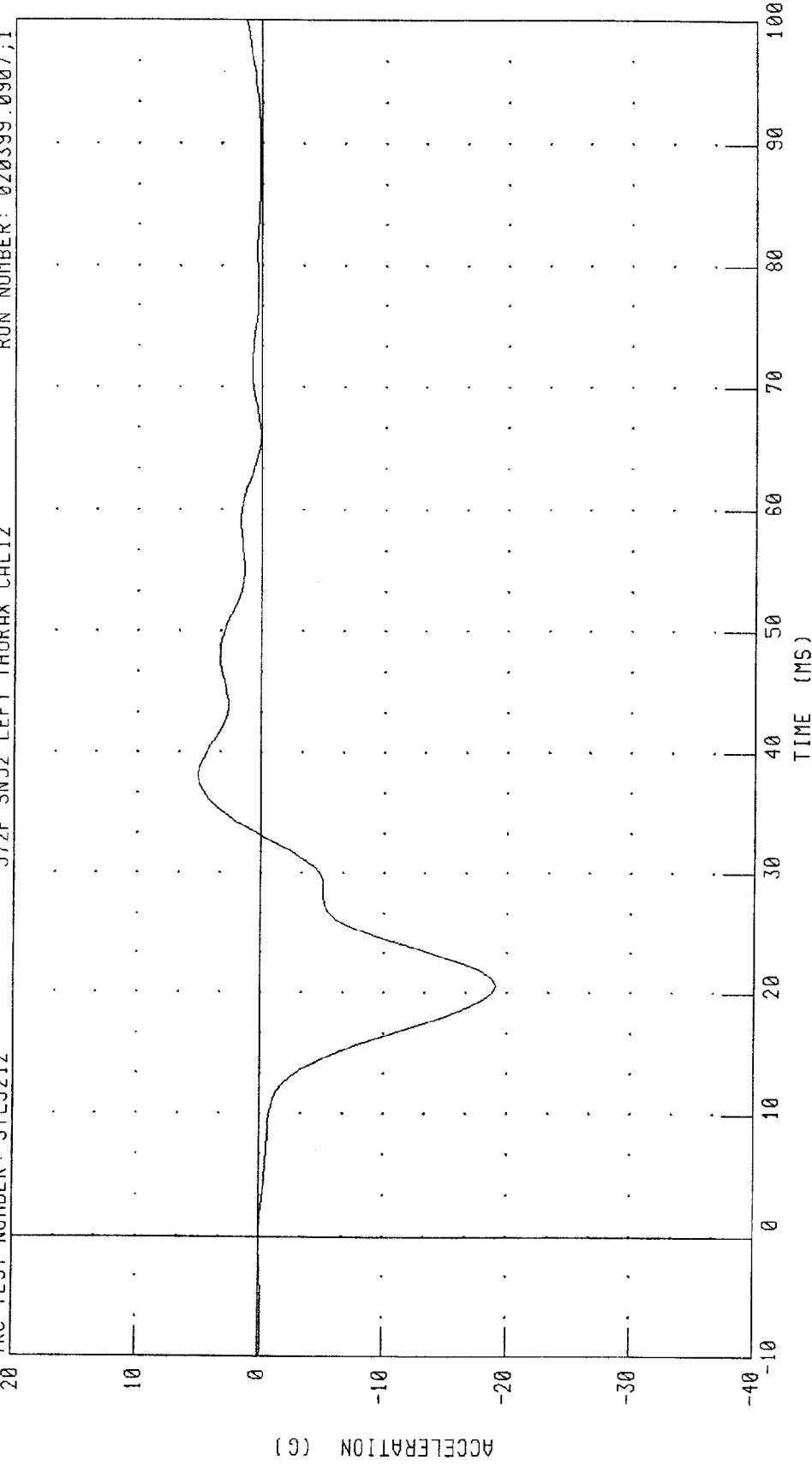
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STLS212

572F SN52 LEFT THORAX CAL12

RUN NUMBER: 020399.0907;1



CHANNEL: T12YG FILTER: FIR 100

PEAK DATA: 5.10 G @ 38.13 MS; -19.06 G @ 20.62 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

03-FEB-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5212

572F SN052 LEFT PELVIS CAL12

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-47.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.9 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

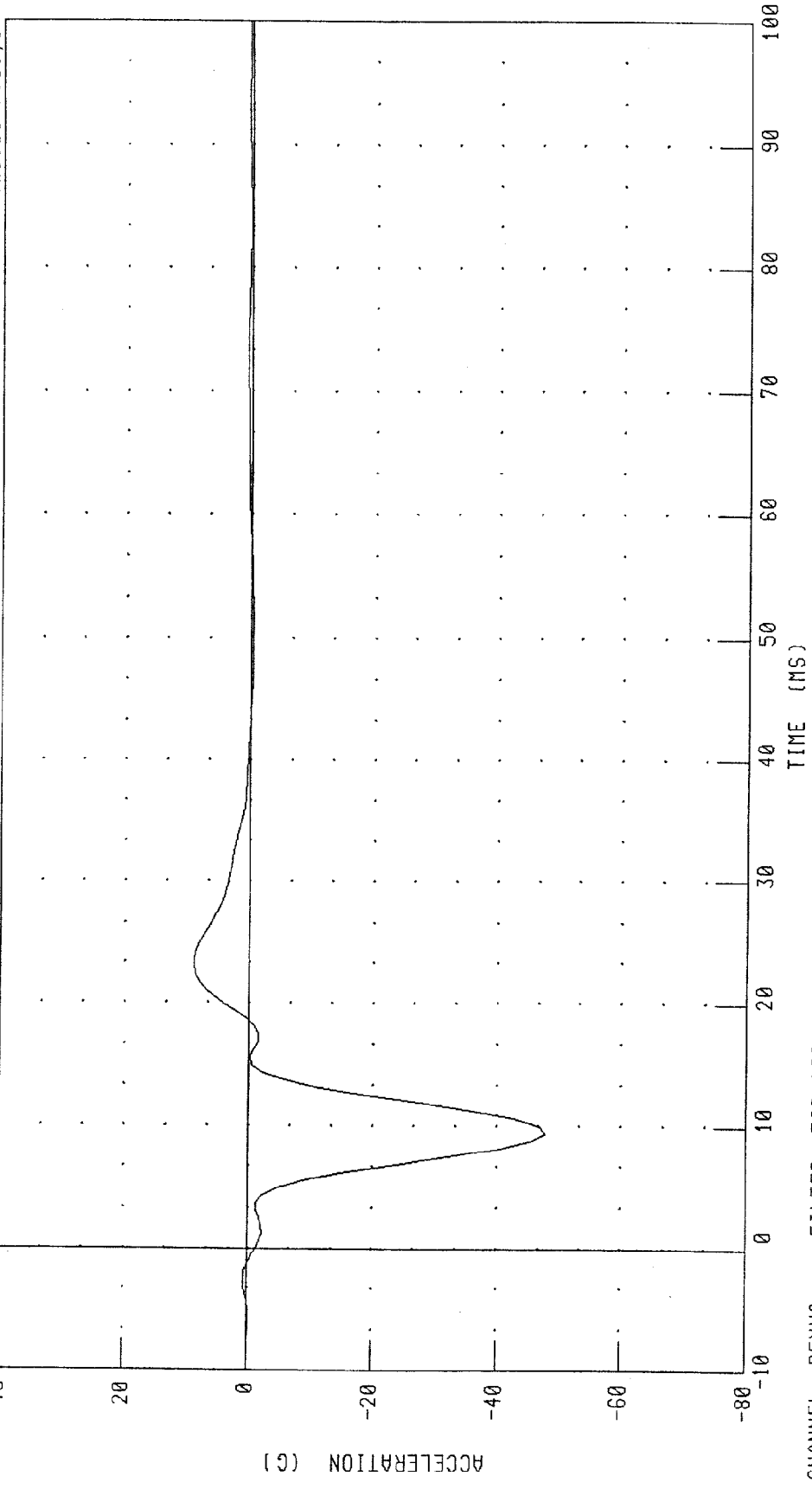
TECHNICIAN *By cult*

RUN NUMBER: 020399.0853;1

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

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5212 572F SN052 LEFT PELVIS CAL12 RUN NUMBER: 020399 0853;1



CHANNEL: PEVYG FILTER: FIR 100 PEAK DATA: 8.93 G @ 23.13 MS, -47.89 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

02-FEB-99

TRC INC.

TEST NO: ABD5212A

ABDOMIN COMPRESSION TEST SN52

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
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	116.90 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	171.19 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	247.49 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	354.12 N

DUMMY MEETS SPECIFICATIONS

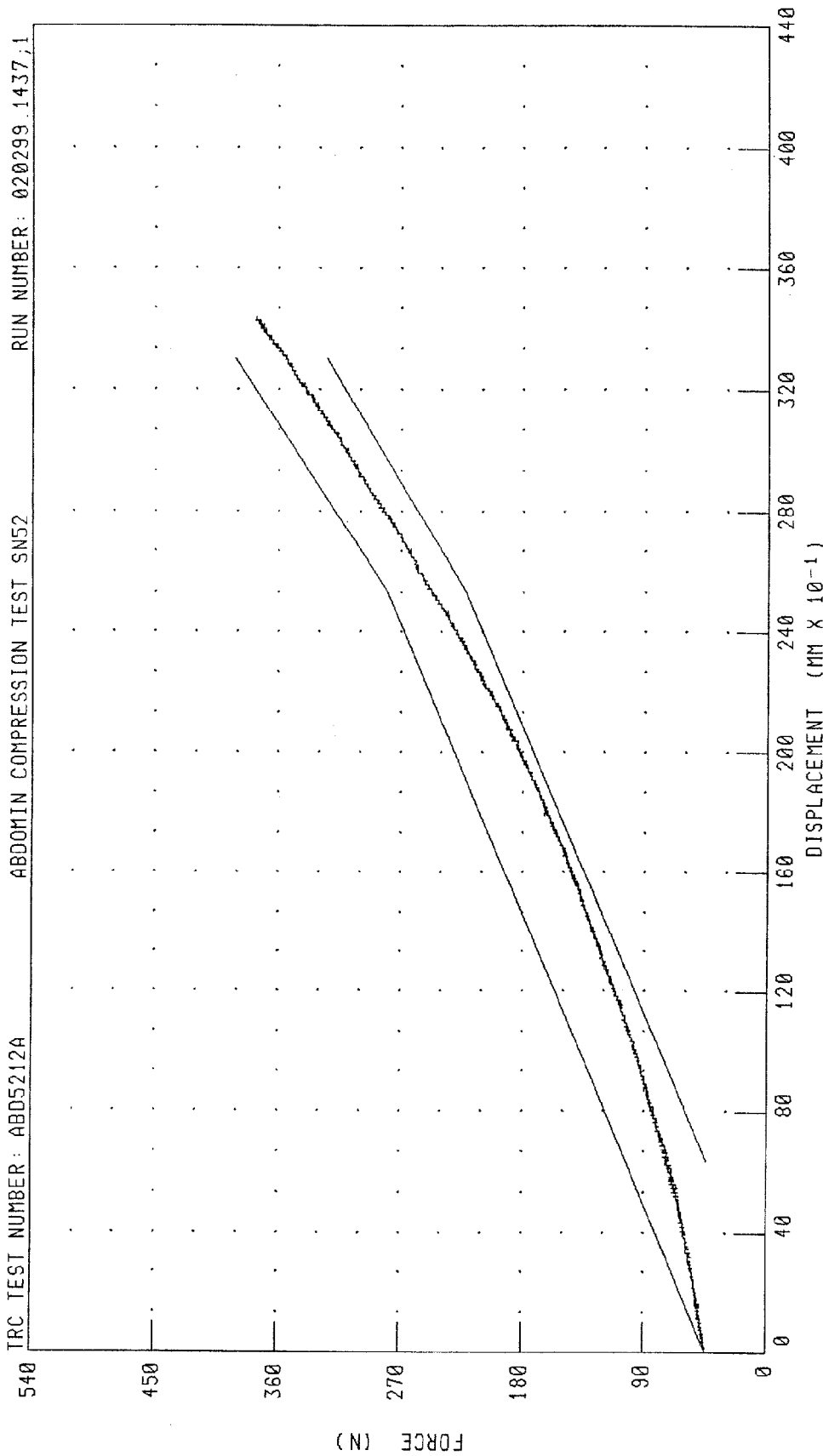
TECHNICIAN

*Ry Cull*

RUN NUMBER: 020299.1437;1

PART 572-B HYBRID II ABDOMEN CALIBRATION  
ABDOMEN FORCE VS DISPLACEMENT  
ABDOMIN COMPRESSION TEST SN52

TRC TEST NUMBER: ABD5212A RUN NUMBER: 020299.1437,1



CHANNEL: ABXD FILTER: CH. CLASS 1000  
ABXF CH. CLASS 1000  
PEAK DATA: 34.39 MM @ 4.40 S; 0.00 MM @ 0.00 S  
377.11 N @ 4.39 S; 44.02 N @ 0.00 S

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

02-FEB-99

TRC INC.

TEST NO: LF5212

572F SN052 LUMBAR FLEX. CAL12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	137.89 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	191.26 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	222.40 N
NET RETURN ANGLE	< 12 DEG.	4.60 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

*By Calt*

RUN NUMBER: 020399.1038

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

*B. J. Calt*

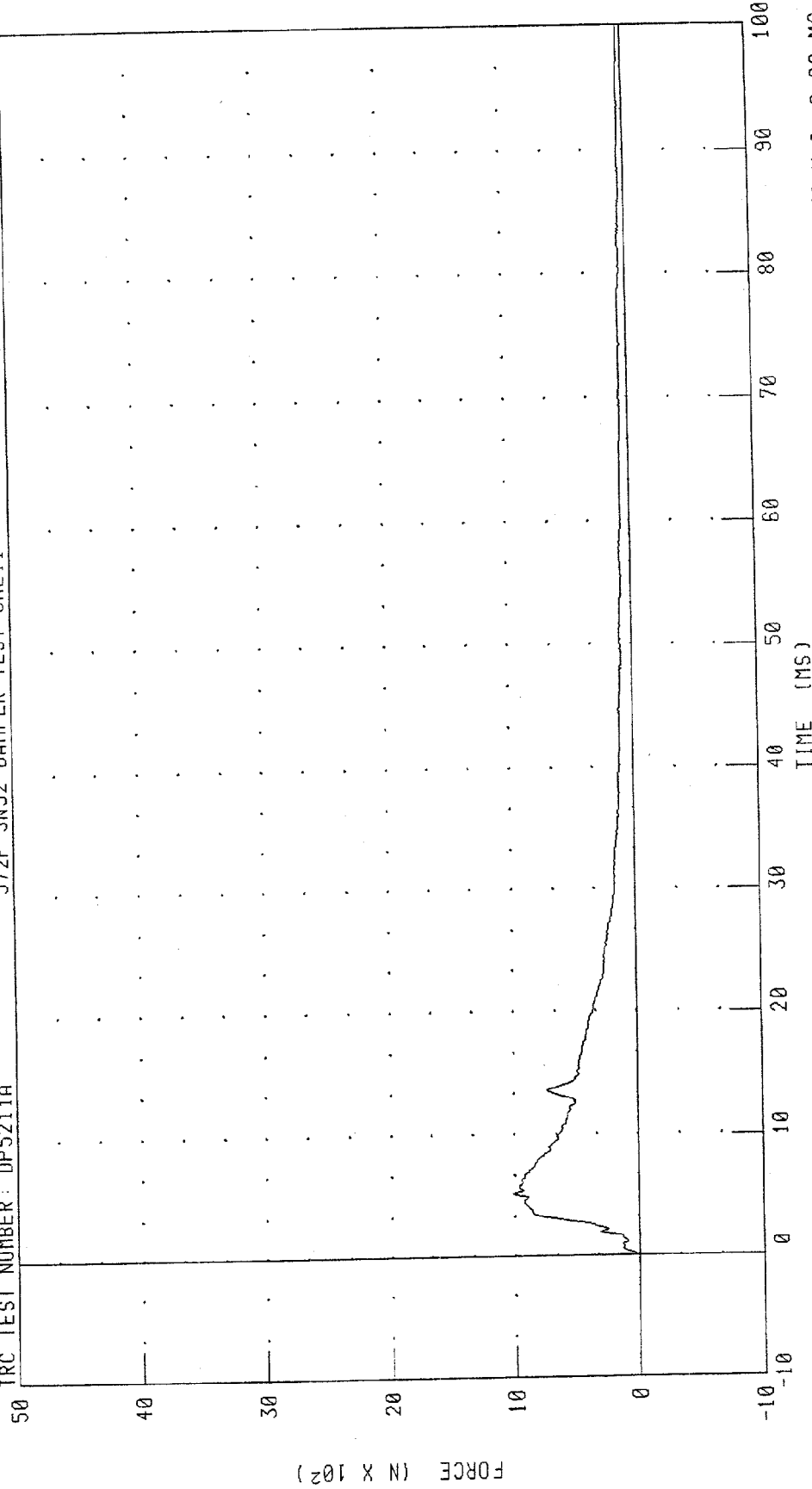
RUN NUMBER: 012699.0849;1

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

SHOCK ABSORBER RESISTIVE FORCE

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

IRC TEST NUMBER: DP5211A



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 1010.99 N @ 5.20 MS, -0.59 N @ -9.92 MS

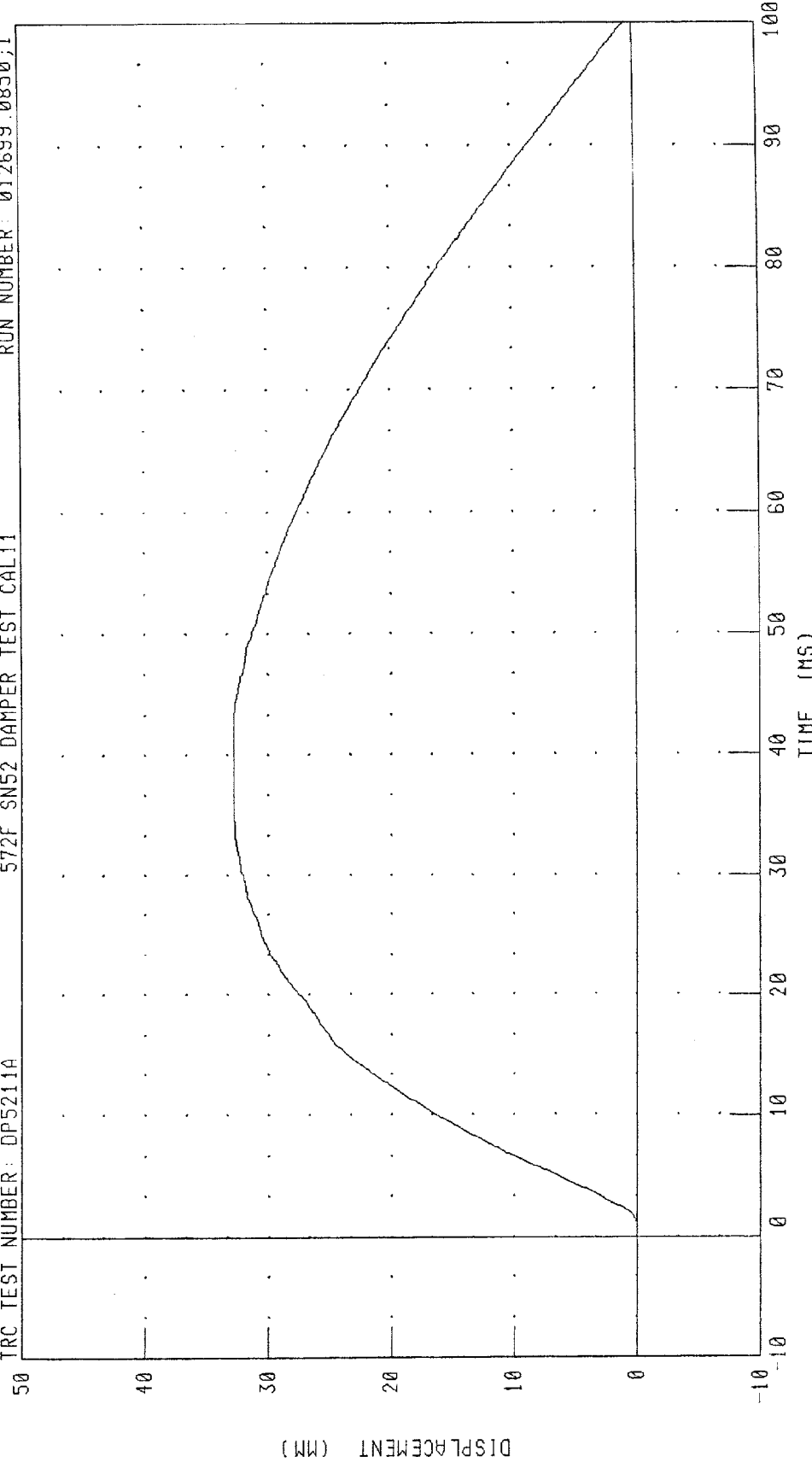
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CALI1

RUN NUMBER: 012699.0850;1

TRC TEST NUMBER: DP5211A



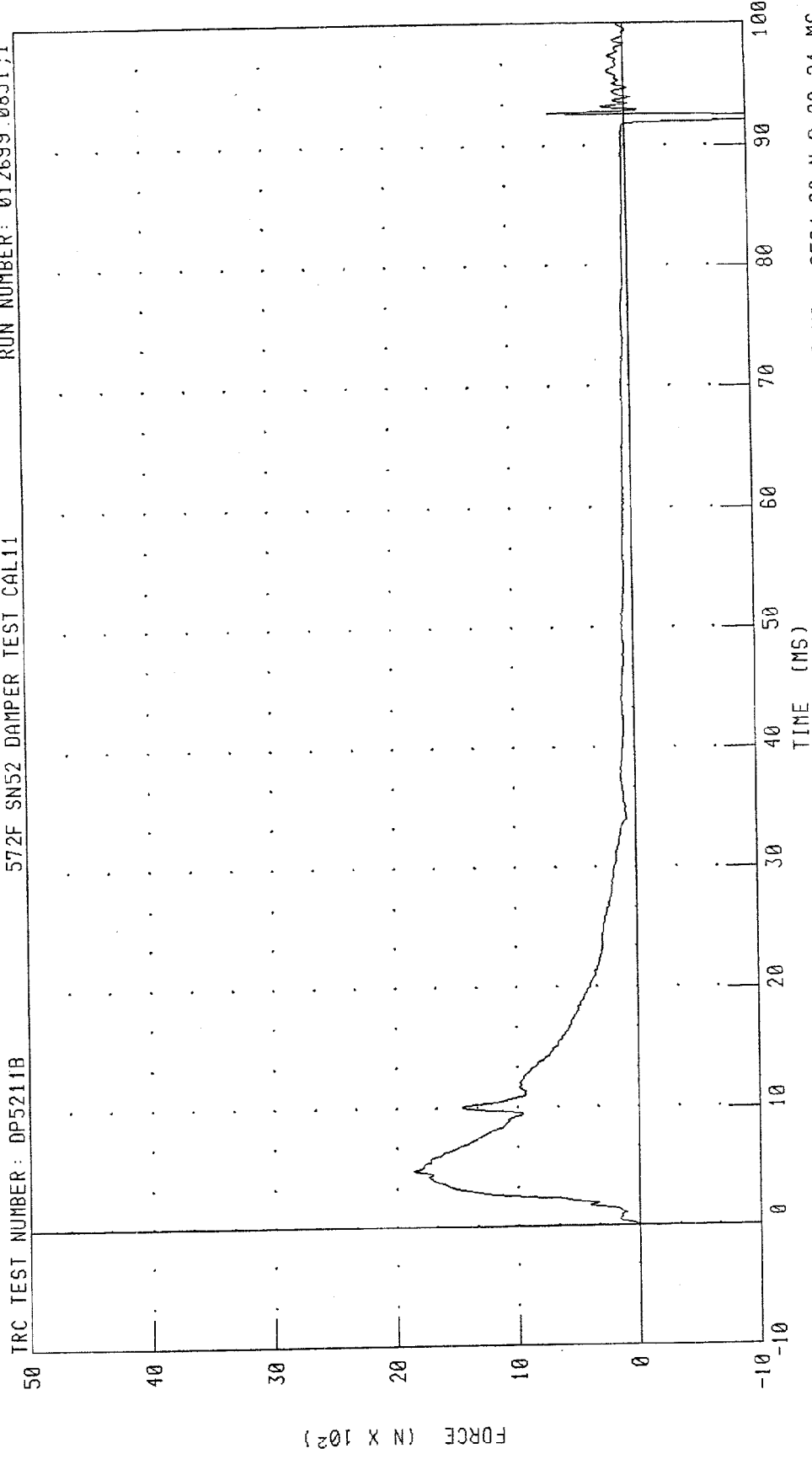
CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

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

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL11 RUN NUMBER: 012699.0851;1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

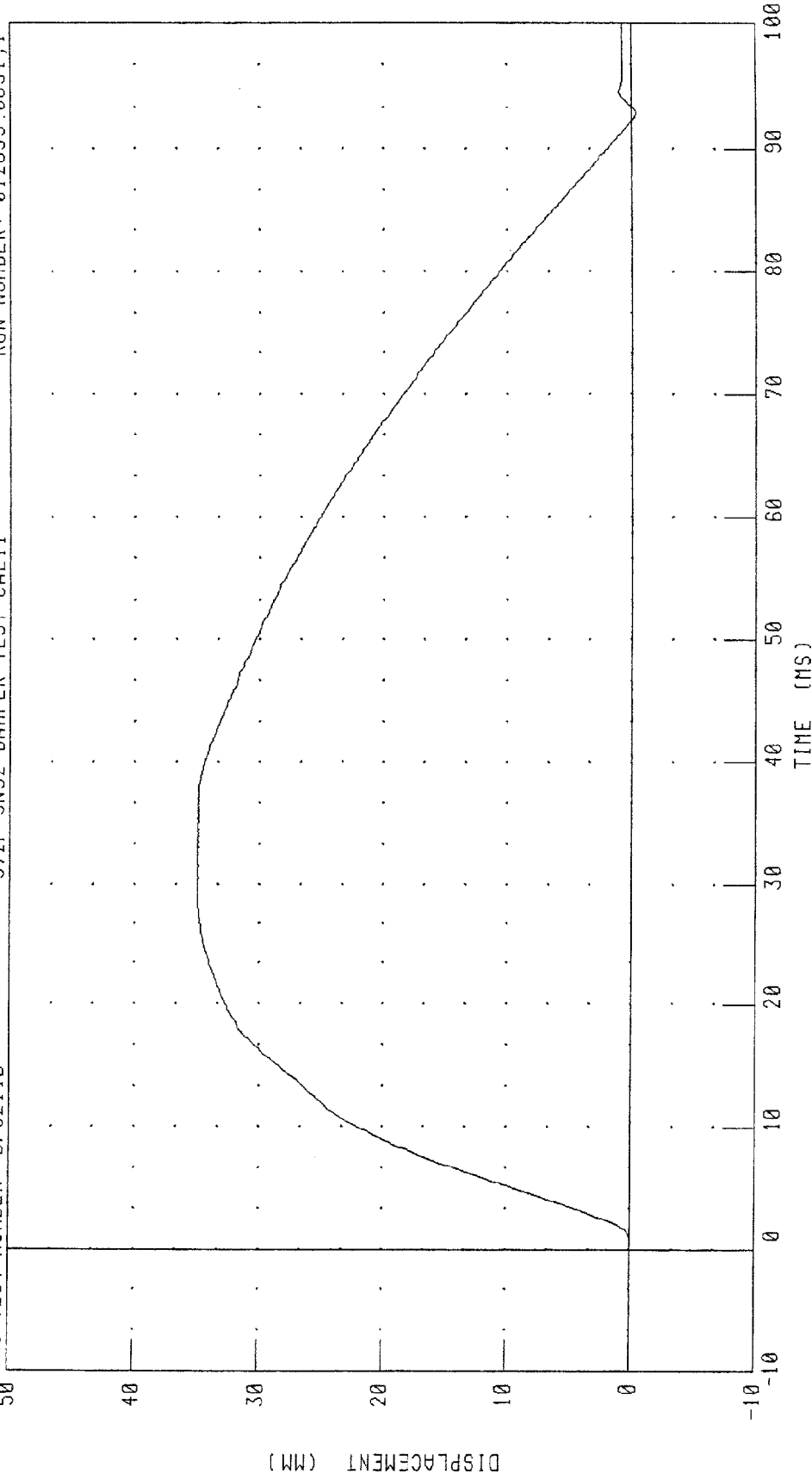
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5211B

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699.0851;1



CHANNEL: CSTYD FILTER: CH. CLASS 1000 PEAK DATA: 34.95 MM @ 28.32 MS; -0.35 MM @ 92.80 MS

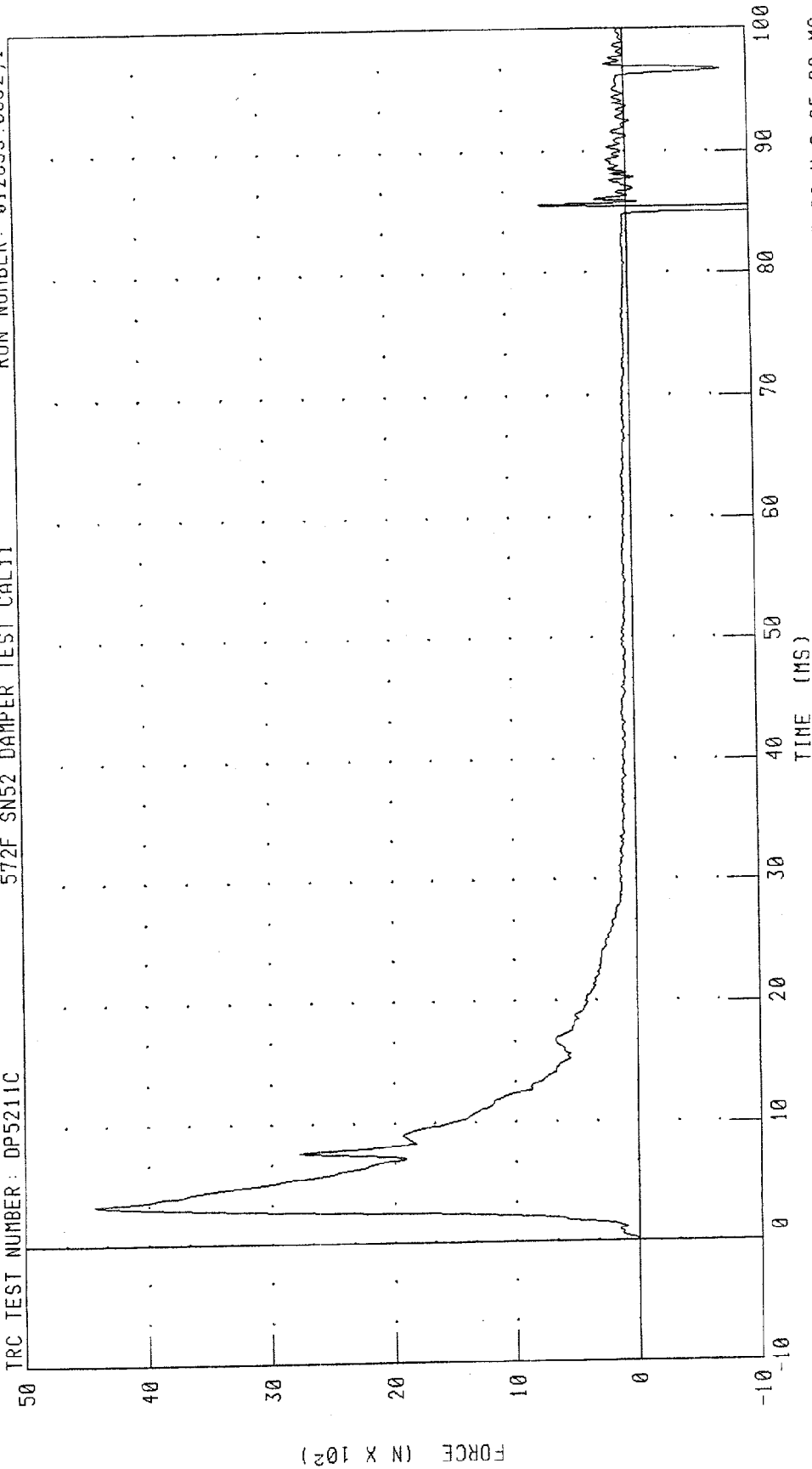
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699.0852,1

TRC TEST NUMBER: DP5211C



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

CHANNEL: DAMPF FILTER: CH. CLASS 1000

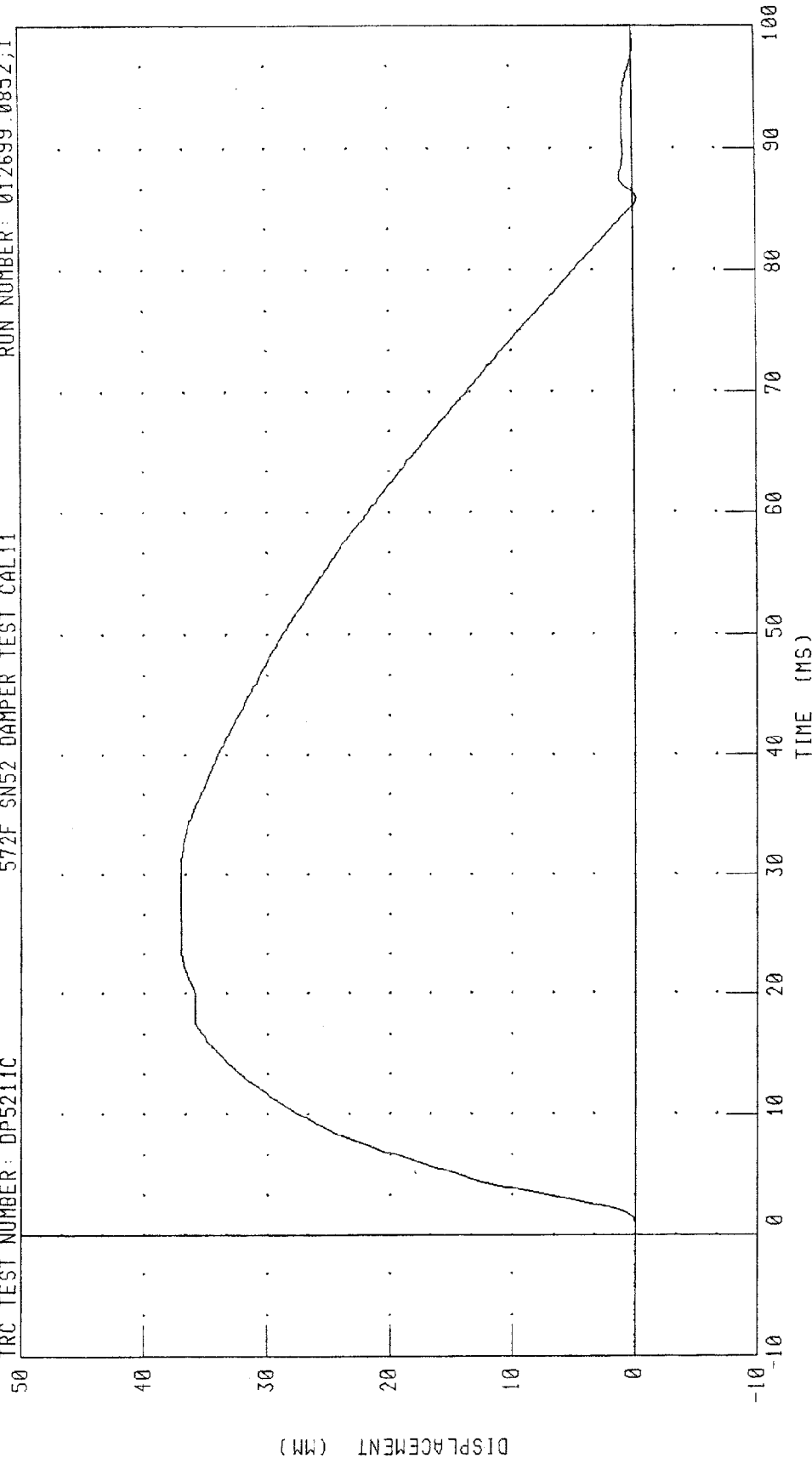
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

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: CSTYD FILTER: CH. CLASS 1000

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

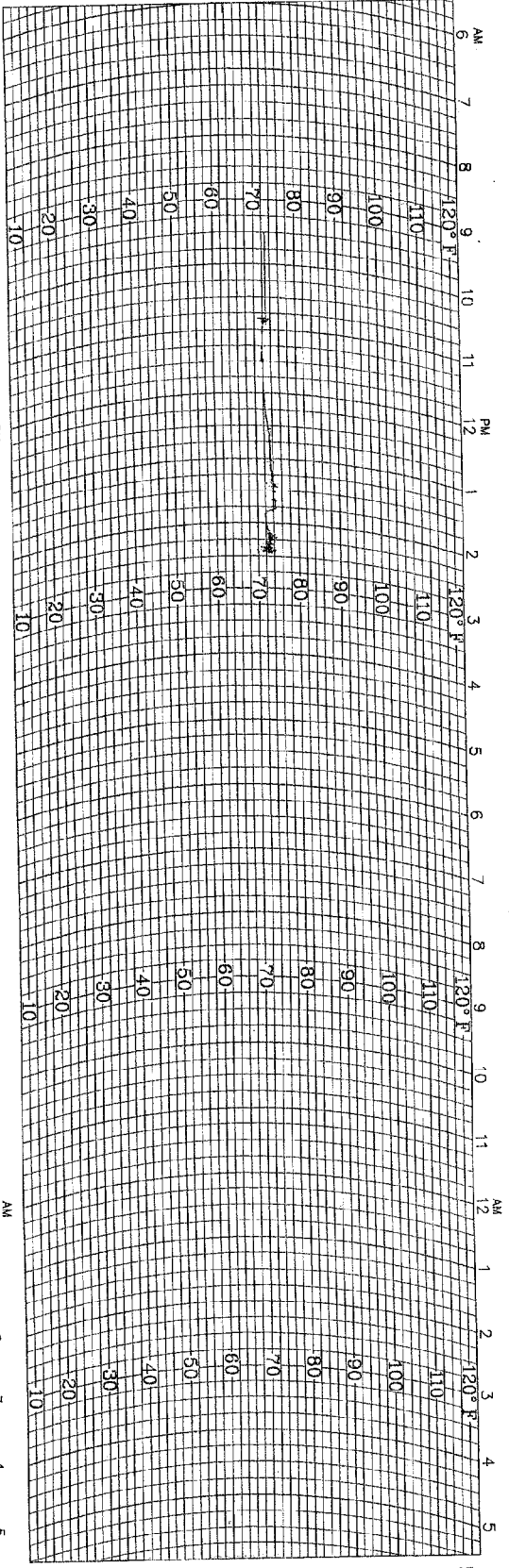
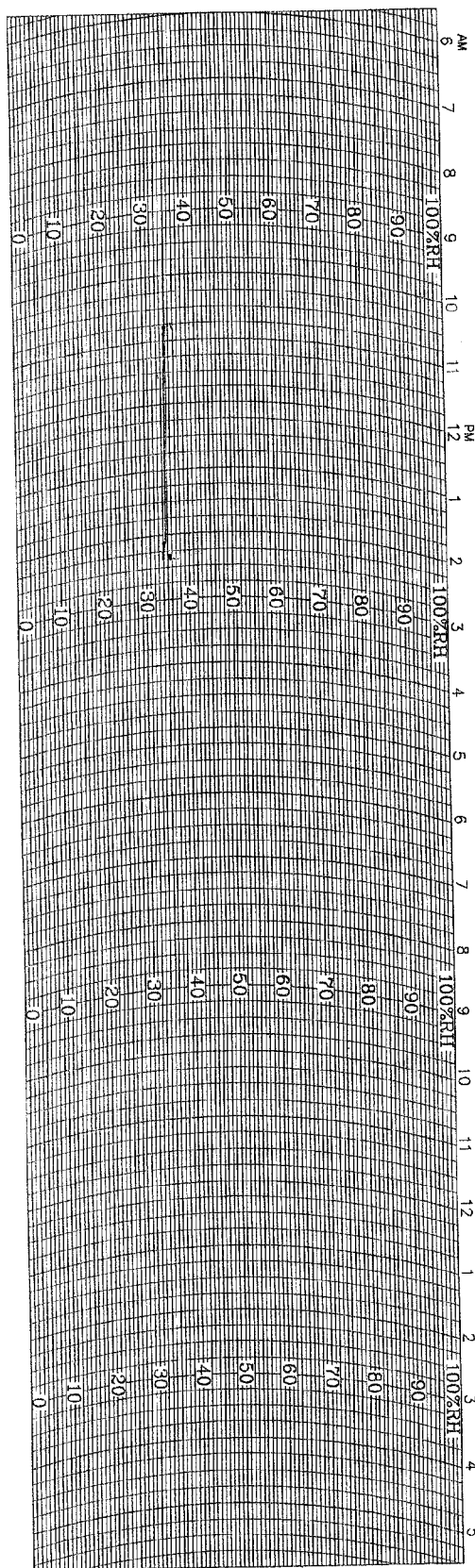
SID INSTRUMENTATION

DRIVER SID NO.: 052			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Head X	J19976	Endevco	12/98
Head Y	J21941	Endevco	12/98
Head Z	J21532	Endevco	12/98
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

REAR SID NO.: 051			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Head X	J26499	Endevco	12/98
Head Y	J26491	Endevco	12/98
Head Z	J26498	Endevco	12/98
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

VEHICLE AND MDB INSTRUMENTATION

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Right Front Sill (X)	J25463	Endevco	12/98
Right Front Sill (Y)	J23898	Endevco	11/98
Right Front Sill (Z)	J21600	Endevco	09/98
Right Rear Sill (X)	J25464	Endevco	12/98
Right Rear Sill (Y)	J25820	Endevco	12/98
Right Rear Sill (Z)	J25015	Endevco	10/98
Rear Floorpan Above Axle (X)	J26484	Endevco	01/99
Rear Floorpan Above Axle (Y)	J25527	Endevco	12/98
Rear Floorpan Above Axle (Z)	J21823	Endevco	12/98
Left Rear Sill (Y)	J23908	Endevco	08/98
Left Front Sill (Y)	J25462	Endevco	12/98
Left Front Door Centerline	ACCJ4	Endevco	08/98
Right Rear Seat Occupant Comp. (Y)	J25016	Endevco	01/99
Left Front Door Mid-Rear	J23899	Endevco	11/98
Left Front Door Upper Centerline	J19577	Endevco	11/98
Left Rear Door Mid-Rear	J22739	Endevco	12/98
Left Rear Door Upper Centerline	J25410	Endevco	12/98
Lower Left B-Pillar (Y)	J25023	Endevco	10/98
Middle Left B-Pillar (Y)	J21533	Endevco	10/98
Lower Left A-Pillar (Y)	96G01-Z05	Entran	08/98
Middle Left A-Pillar (Y)	96G01-Z02	Entran	10/98
Front Seat Track (Y)	96G01-Z11	Entran	04/98
Rear Seat Track (Y)	J23983	Endevco	08/98
Vehicle CG (X)	J26513	Endevco	08/98
Vehicle CG (Y)	J22740	Endevco	08/98
Vehicle CG (Z)	J26515	Endevco	01/99
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	08/98
MDB Rear Frame Member (Y)	J21803	Endevco	11/98



**Weather Measure**  
**WEATHERtronic**  
 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 01-29-99 DATE OFF V.O.