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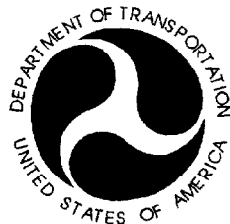
REPORT NUMBER: NCAP-TRC-98-001

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

**1999 FORD RANGER
2-DOOR PICKUP**

NHTSA NUMBER: MX0204

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

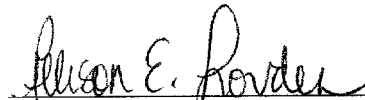


**November 25, 1998
FINAL REPORT**

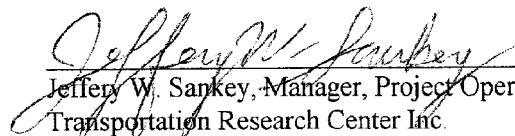
**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
400 Seventh Street, S. W.
Room No. 5313 NPS-10
Washington, DC 20590**

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-98-C-12001. This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings, and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By:


Allison E. Loudon, Project Engineer

Approved By:


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

Approval Date:

12/23/98

FINAL REPORT ACCEPTANCE BY:

Accepted By: _____

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15. Supplemental Notes																																	
16. Abstract This 55/28 kph 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 1999 Ford Ranger 2-door pickup 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 November 25, 1998. The impact velocity of the Moving Deformable Barrier (MDB) was 62.0 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 vehicles post-test maximum crush was 515 mm at Level 2. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th> <th><u>Front SID</u></th> <th></th> <th><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td><u>35</u></td> <td>g's</td> <td><u>N/A</u></td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td><u>43</u></td> <td>g's</td> <td><u>N/A</u></td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td><u>56</u></td> <td>g's</td> <td><u>N/A</u></td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td><u>50</u></td> <td>g's</td> <td><u>N/A</u></td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td><u>81</u></td> <td>g's</td> <td><u>N/A</u></td> <td>g's</td> </tr> </tbody> </table> 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 open during the side impact event. There was not a rear SID seating position.					<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	<u>35</u>	g's	<u>N/A</u>	g's	Left Lower Rib Acceleration:	<u>43</u>	g's	<u>N/A</u>	g's	Lower Spine Acceleration:	<u>56</u>	g's	<u>N/A</u>	g's	Thoracic Trauma Index, (TTI):	<u>50</u>	g's	<u>N/A</u>	g's	Pelvis Acceleration (PEV):	<u>81</u>	g's	<u>N/A</u>	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
LENGTH				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons	0.9	tonnes	t
	(2000 lb)			
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C1310/286.

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

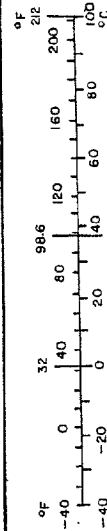


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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY 99 New Car Assessment Program Side Impact Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-98-C-12001. The purpose of this test was to generate comparative side impact performance in a 1999 Ford Ranger 2-door pickup. 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 Ford Ranger 2-door pickup was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 62.0 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 November 25, 1998. 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.

One restrained Side Impact Dummy (SID) was placed in the driver (Pos. #1) designated seating position according to the instructions specified in the OCWS Side Impact Laboratory Test Procedure which is dated July 1997. The SID was certified prior to this test. The side impact test was documented by one real-time camera and 8 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SID was instrumented with the following accelerometers:

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

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 31 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)	50	N/A
PEV (g)	81	N/A

Data Acquisition Explanations

The left side sill at the front seat Y-axis data channel, LFSYG1, lost data at approximately 29 milliseconds. This also affected the velocity calculation.

The left front door on the centerline Y-axis data channel, LFCYG1, overranged at approximately 15 milliseconds. This also affected the velocity and displacement calculation.

The mid-rear of the left front door Y-axis data channel, LFMYG1, overranged at approximately 7 milliseconds. This also affected the velocity and displacement calculations.

The vehicle's left lower A-post Y-axis data channel, LLAYG1, overranged at 3.7 milliseconds. It also lost data after 25 milliseconds. This also affected the velocity calculation.

SECTION 3

VEHICLE TEST DATA

DATA SHEET 1

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999 Ford Ranger 2-door pickup
 Vehicle Body Color: White VIN: 1FTYR10C1XUA44617
 Vehicle NHTSA No.: MX0204 Month & Year of Manufacture: 10/98
 Engine Data: 4 Cylinders; - CID; 2.5 Liters; - cc
 Engine Placement: X Longitudinal; or - Lateral
 Transmission: 5 Speed; X Manual; - Automatic; - Overdrive
 Final Drive: X Rear Wheel Drive; - Front Wheel Drive; - Four-Wheel
 Odometer Reading: 113 km
 Options: - A/C; X Power steering; X Pwr. brakes; - Pwr. windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity): 241 kPa FRONT
241 kPa REAR
 Recommended Tire Size: P205/75R14
 Tires on Test Vehicle: P205/75R14 Manufacturer: Firestone
 Vehicle Capacity Data:
 Number of Occupants: 3 Front; - Rear; - 3rd seat; 3 Total
 Type of Front Seats: - Bucket; - Bench; X 60/40 Split bench
 Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
 Vehicle Max Capacity Loading = 601.0 kg (A)
 No. of Occupants x 68.04 kg. = 204.1 kg (B)
 Vehicle Cargo Capacity = 396.9 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>408.7</u>	kg	Left Rear	=	<u>287.6</u>	kg
Right Front	=	<u>387.8</u>	kg	Right Rear	=	<u>274.4</u>	kg
TOTAL FRONT	=	<u>796.5</u>	kg	TOTAL REAR	=	<u>562.0</u>	kg
% of Total Weight	=	<u>58.6</u>	%	% of Total Weight	=	<u>41.4</u>	%
TOTAL WEIGHT	=	<u>1,358.5</u>	kg				

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight With Max. Fluids = 1,358.5 kg (A)
 Maximum Cargo Carrying Capacity Of Test Vehicle = 136.1 kg (B)
 Weight Of Instrumented Side Impact Dummies (1 Or 2 X 79.0 kg) = 79.0 kg (C)
 TEST VEHICLE TARGET WEIGHT: = 1,573.6 kg (A+B+C)

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

Left Front	=	<u>453.1</u>	kg	Left Rear	=	<u>383.3</u>	kg
Right Front	=	<u>389.6</u>	kg	Right Rear	=	<u>362.9</u>	kg
TOTAL FRONT	=	<u>842.7</u>	kg	TOTAL REAR	=	<u>746.2</u>	kg
% of Total Weight	=	<u>53.0</u>	%	% of Total Weight	=	<u>47.0</u>	%
TOTAL WEIGHT	=	<u>1,588.9</u>	kg				

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

Left Front	=	<u>434.5</u>	kg	Left Rear	=	<u>361.5</u>	kg
Right Front	=	<u>414.5</u>	kg	Right Rear	=	<u>356.5</u>	kg
TOTAL FRONT	=	<u>849.0</u>	kg	TOTAL REAR	=	<u>718.0</u>	kg
% of Total Weight	=	<u>54.2</u>	%	% of Total Weight	=	<u>45.8</u>	%
TOTAL WEIGHT	=	<u>1,567.0</u>	kg				

TEST VEHICLE ATTITUDE (ALL DIMENSIONS IN MILLIMETERS):

AS DELIVERED:

Left Front 792 Right Front 804 Left Rear 825 Right Rear 835

FULLY LOADED:

Left Front 780 Right Front 809 Left Rear 785 Right Rear 800

READY FOR TEST:

Left Front 788 Right Front 796 Left Rear 787 Right Rear 800

TEST VEHICLE WHEELBASE: 2,835 millimeters

C.G. = 1,299.0 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4,655 millimeters
 Left Side = 4,655 millimeters
 Centerline = 4,783 millimeters

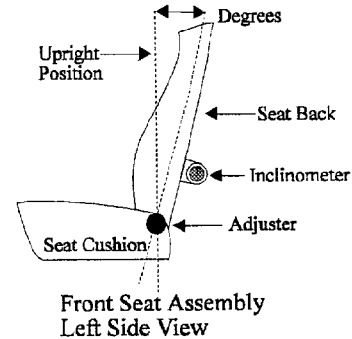
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

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: ----- millimeters

Total Number Of Adjustment Positions Or Detents: N/A

FRONT SEAT BACK ADJUSTMENT POSITION: The inclinometer is placed 13 inches above back pivot point on rear outboard seat frame.

Seat Back Torso Angle: 21.5 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:

46.2 liters (fuel tank usable capacity)

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

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

Wheelbase = 2,835 millimeters

Impact point is 477.5 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 467.5 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 1999 Ford Ranger
Body Style: 2-door pickup VIN: 1FTYR10C1XUA44617
NHTSA No.: MX0204 Test Date: November 25, 1998
Overall Length = 4,783 millimeters; Overall Width = 1,744 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 434.5 kg Left Rear = 361.5 kg
Right Front = 414.5 kg Right Rear = 356.5 kg
TOTAL FRONT = 849.0 kg TOTAL REAR = 718.0 kg
TOTAL VEHICLE WEIGHT 1,567.0 kg
Wheelbase = 2,835 millimeters
Longitudinal C.G. From Center Of Front Axle = 1,299.0 millimeters
Impact Angle With Respect To Impactor = 90 degrees

ACTUAL IMPACT POINT:

Actual Impact Point is 10 mm forward of nominal impact ref. line (Lateral)
Actual Impact Point is 5 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (400 mm above ground) = 493 millimeters
2. LEVEL 2 (757 mm above ground) = 515 millimeters
3. LEVEL 3 (770 mm above ground) = 513 millimeters
4. LEVEL 4 (1,085 mm above ground) = 362 millimeters
5. LEVEL 5 (4,628 mm above ground) = 206 millimeters
Maximum Post-Test Intrusion = 515 millimeters

OCCUPANTS:

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

INSTRUMENTATION:

Number Of Vehicle Data Channels: = 31
Number Of Cameras: Onboard = 2
Offboard = 7
TOTAL = 9

DATA SHEET 3

MOVING DEFORMABLE BARRIER(MDB) SUMMARY

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

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	=	<u>1,251</u>	millimeters
Overall Length of Mdb (Incl. honeycomb impact face)	=	<u>4,115</u>	millimeters
Wheelbase of Framework Carriage	=	<u>2,591</u>	millimeters
Tread of Framework Carriage (Front & Rear)	=	<u>1,880</u>	millimeters
C.G. Location Rearward of Front Axle	=	<u>1,104</u>	millimeters

MDB WEIGHT:

Left Front	=	<u>366.0</u>	kg	Left Rear	=	<u>314.0</u>	kg
Right Front	=	<u>414.5</u>	kg	Right Rear	=	<u>265.0</u>	kg
TOTAL FRONT	=	<u>780.5</u>	kg	TOTAL REAR	=	<u>579.0</u>	kg
TOTAL MDB WEIGHT	=	<u>1,359.5</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L)	=	<u>90</u>	degrees				
Impact Speed	=	<u>62.0</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>98.2</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>80.6</u>	millimeters
3. Row C at Mid Level ¹	=	<u>N/A</u>	millimeters
4. Row D at Top of Stack Level	=	<u>175.5</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels = 5

¹ Row C on the barrier face was not measured.

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>Side window</u>	<u>N/A</u>
Upper Torso:	<u>N/A</u>	<u>N/A</u>
Lower Torso:	<u>N/A</u>	<u>N/A</u>
Left Knee:	<u>Steering column</u>	<u>N/A</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: 5 mm above target

Horizontal: 10 mm forward of target

ARM REST LOCATIONS:

Front: 198 mm below the bottom of the window

Rear: N/A

SEAT MOVEMENT:

Front: Seat was pushed against center console

Rear: None

GLAZING DAMAGE:

Windshield: None

Window: Left driver window and left rear passenger window shattered at impact

PILLAR PERFORMANCE:

No visible tears or separations

SILL SEPARATION:

None

OTHER NOTABLE IMPACT EFFECTS:

The driver and passenger frontal airbags did not deploy. The vehicle rotated up on two wheels and almost flipped over.

DATA SHEET 4 (continued)

POST-TEST OBSERVATIONS

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

AIRBAG DEPLOYMENT STATUS:

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

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

TEST NUMBER: 981125 DRIVER DUMMY SERIAL NUMBER: 051
 POSITIVE DIRECTION NEGATIVE DIRECTION

LEFT UPPER RIB ACCELERATION
 LATERAL (P) 35.2 g @ 48.1 ms -5.0 g @ 138.1 ms
 LATERAL (R) 35.7 g @ 48.1 ms -5.2 g @ 138.1 ms

LEFT LOWER RIB ACCELERATION
 LATERAL (P) 43.0 g @ 45.0 ms -5.2 g @ 85.0 ms
 LATERAL (R) 41.3 g @ 45.6 ms -5.0 g @ 91.2 ms
 TTI d (P) 49.7
 TTI d (R) 49.4

LOWER SPINE ACCELERATION
 LATERAL (P) 56.3 g @ 41.2 ms -18.9 g @ 56.9 ms
 LATERAL (R) 57.4 g @ 41.2 ms -17.4 g @ 56.9 ms

PELVIS ACCELERATION
 LATERAL (P) 80.8 g @ 33.1 ms -14.2 g @ 57.5 ms
 LATERAL (R) 79.3 g @ 33.1 ms -14.3 g @ 56.9 ms

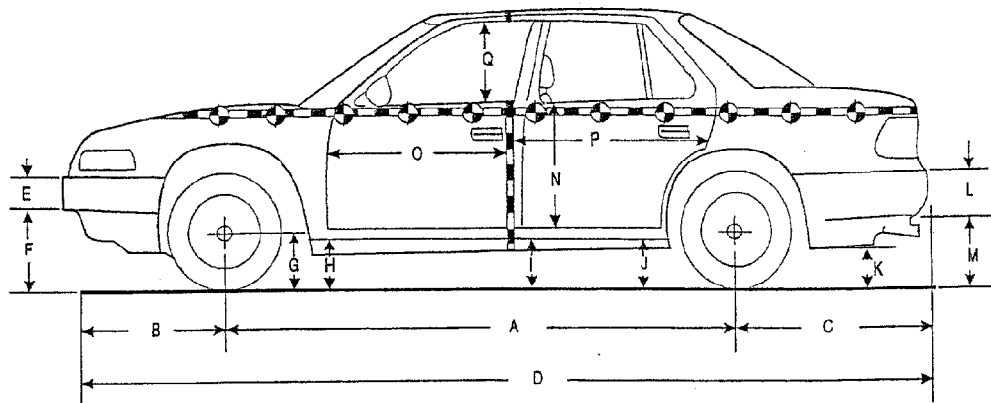
POSITIVE DIRECTION NEGATIVE DIRECTION
 LONGITUDINAL: REARWARD LONGITUDINAL: FORWARD
 LATERAL: RIGHTWARD LATERAL: LEFTWARD
 VERTICAL: UPWARD VERTICAL: DOWNWARD

DATA SHEET 6

VEHICLE PRE- AND POST-TEST MEASUREMENTS

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204



LEFT SIDE VIEW

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

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2835	2835	2790	45
B	861	861	924	-63
C	1090	1090	1020	70
D	4783	4783	4734	49
E	375	375	375	0
F	342	400	608	-208
G	310	310	305	5
H	367	350	373	-23
I	445	413	440	-27
J1	384	352	397	-45
J2	450	416	472	-56
K	440	400	457	-57
L	150	150	150	0
M	447	415	448	-33
N	N/A	N/A	N/A	0
O	725	725	745	-20
P	N/A	N/A	N/A	0
Q	442	442	445	-3
R	4655	4655	4690	-35
S	4655	4655	4565	90
T	1310	1310	1191	119

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

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

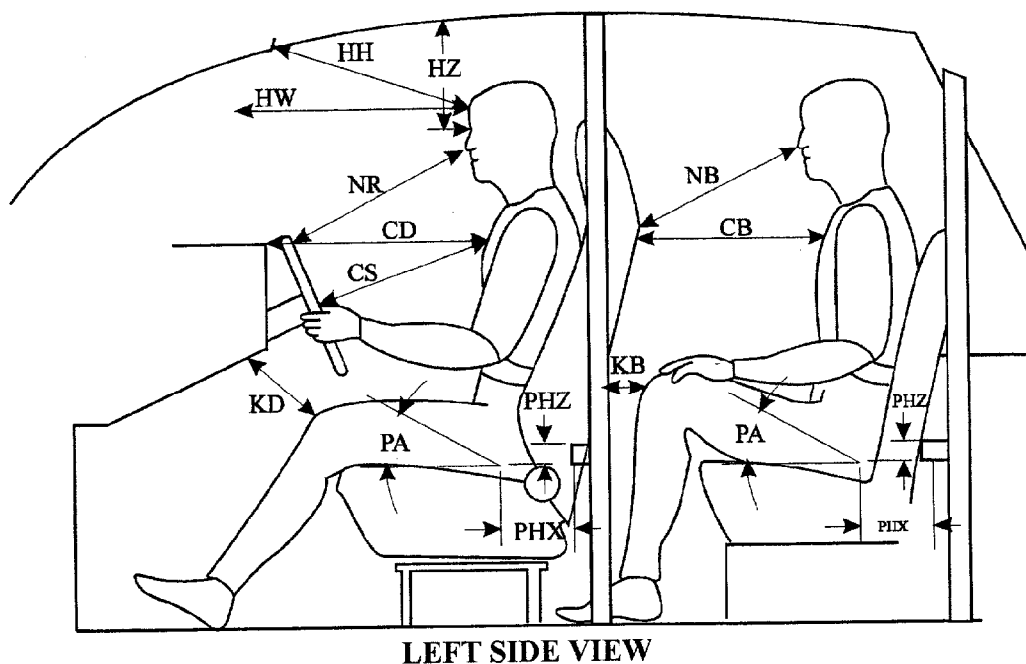
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204



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

	DRIVER ID #051	LEFT REAR PASS. ID#N/A
HH	481	N/A
HW	579	N/A
HZ	192	N/A
NR/NB	391	N/A
CD/CB	521	N/A
CS	322	N/A
KDL(KDA°)/KBL(KDA°)	81/22.9°	N/A
KDR(KBA°)/KBR(KBA°)	65/22.9°	N/A
PA°	24.7°	N/A
PHX	320	N/A
PHZ	122	N/A

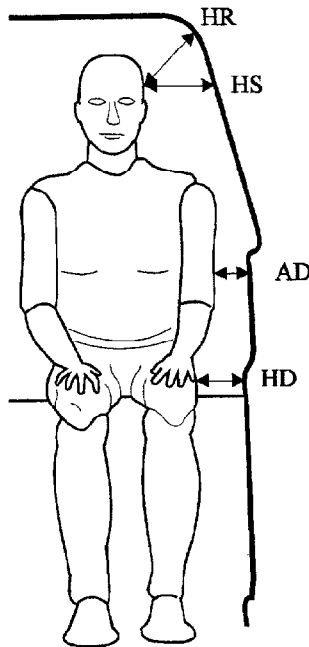
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.
The was not a seating position for the rear passenger.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204



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

	DRIVER ID #051		PASSENGER, ID #N/A	
HR	191		N/A	
HS	254		N/A	
AD*	LOWER: 88	UPPER: 86	LOWER: N/A	UPPER: N/A
HD	126		N/A	

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

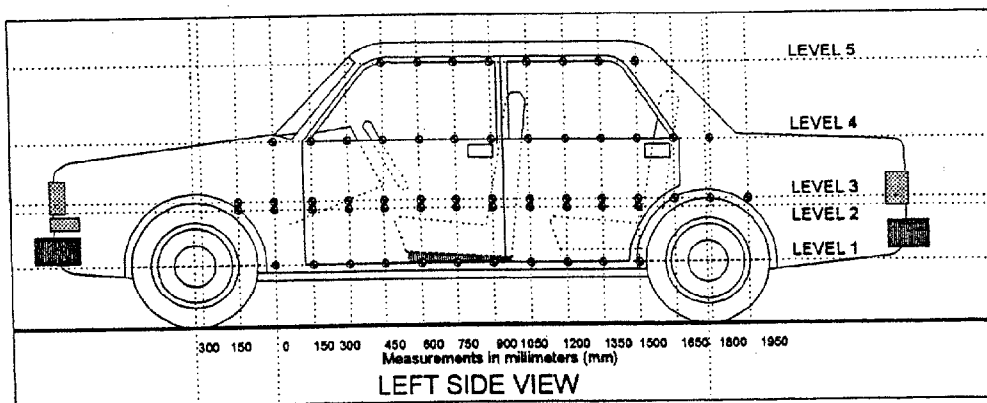
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204



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

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

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1628</u>	millimeters
Level 4 @ Window Sill	=	<u>1085</u>	millimeters
Level 3 @ Mid Door	=	<u>770</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>757</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>400</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

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	471	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	433	431	434	438	437
	Post	N/A	485	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	737	805	825	840	865
	Crush	N/A	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	304	374	391	402	428
Level 2 H-Point	Pre	N/A	N/A	402	378	N/A	N/A	N/A	N/A	368	370	368	360	359	358	358	358	358
	Post	N/A	N/A	443	445	N/A	N/A	N/A	N/A	531	570	643	660	681	710	722	722	722
	Crush	N/A	N/A	41	67	N/A	N/A	N/A	N/A	163	200	275	300	322	352	364	364	364
Level 3 Mid-Door	Pre	N/A	N/A	402	380	N/A	N/A	N/A	N/A	372	366	368	360	358	358	358	358	358
	Post	N/A	N/A	446	447	N/A	N/A	N/A	N/A	530	565	633	660	671	703	720	720	720
	Crush	N/A	N/A	44	67	N/A	N/A	N/A	N/A	143	158	199	265	300	313	345	362	362
Level 4 Window Sill	Pre	N/A	488	462	449	440	425	420	416	410	415	413	413	410	410	410	410	410
	Post	N/A	495	486	492	507	525	535	555	461	565	587	606	625	630	630	630	630
	Crush	N/A	7	24	43	67	100	115	139	151	150	174	193	215	220	220	220	220
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	614	627	627
	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	820	812	812
	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	206	185	185

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

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

Location	Height	(mm) From Impact Point														
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	Pre	438	437	438	433	443	443	433	N/A	N/A	N/A	N/A	N/A	N/A		
	Post	878	885	890	902	936	910	850	N/A	N/A	N/A	N/A	N/A	N/A		
	Crush	440	448	452	469	493	467	417	N/A	N/A	N/A	N/A	N/A	N/A		
Level 2 H-Point	Pre	356	353	356	355	365	357	360	360	350	N/A	N/A	N/A	N/A	369	
	Post	751	765	782	790	825	872	809	690	672	N/A	N/A	N/A	N/A	543	
	Crush	395	412	426	435	460	515	449	330	322	N/A	N/A	N/A	N/A	174	
Level 3 Mid-Door	Pre	356	358	356	354	364	357	360	360	350	N/A	N/A	N/A	N/A	368	
	Post	733	758	777	780	823	870	805	680	672	N/A	N/A	N/A	N/A	535	
	Crush	377	400	421	426	459	513	445	320	322	N/A	N/A	N/A	N/A	167	
Level 4 Window Sill	Pre	411	410	408	410	413	415	415	420	408	410	420	420	420	420	
	Post	647	657	685	697	725	777	703	666	643	621	590	556	549		
	Crush	236	247	277	287	312	362	288	246	235	211	170	136	129		
Level 5 Window Top	Pre	620	620	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Post	836	854	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Crush	216	234	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

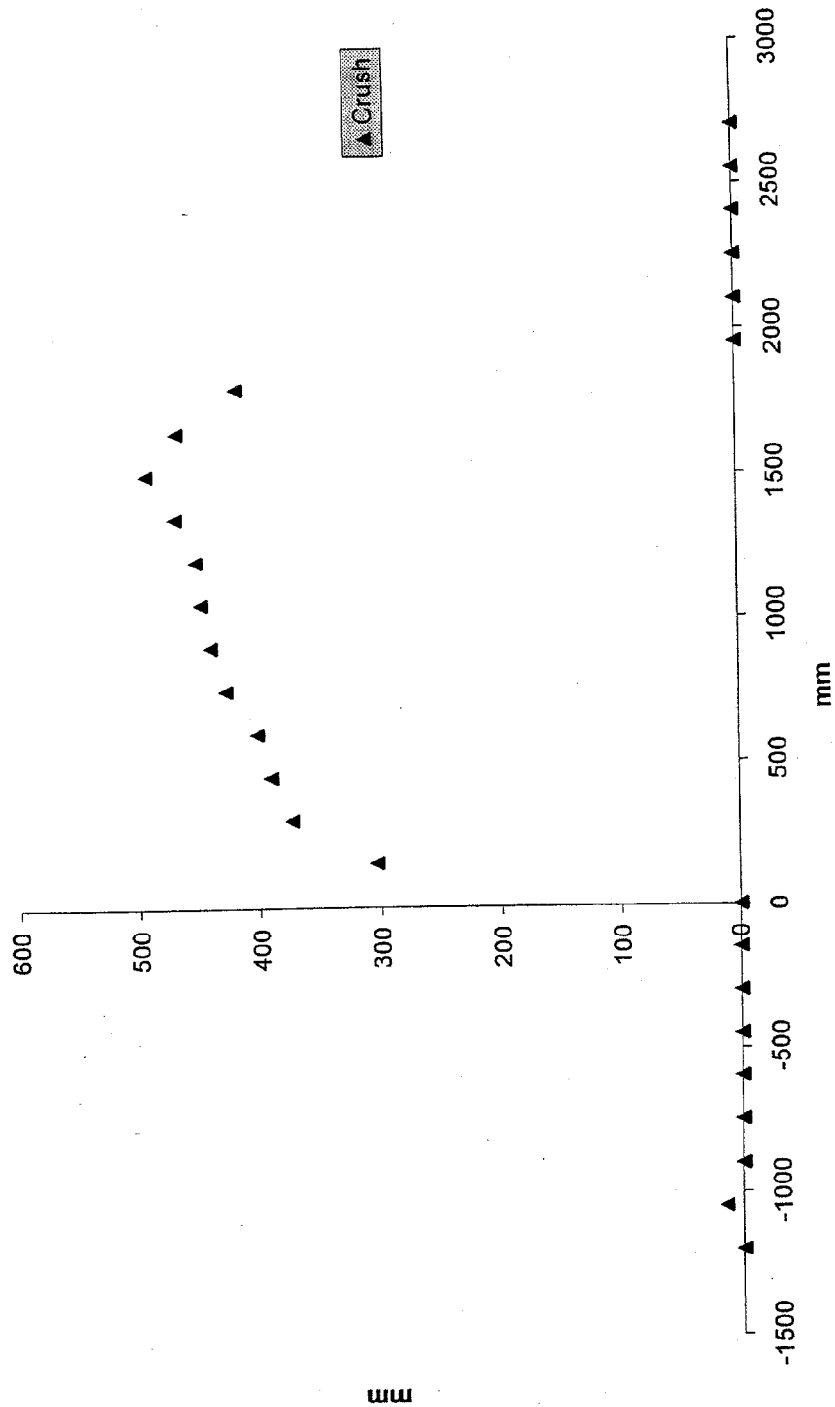
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

Side Profile Level 1 400 mm Above Ground

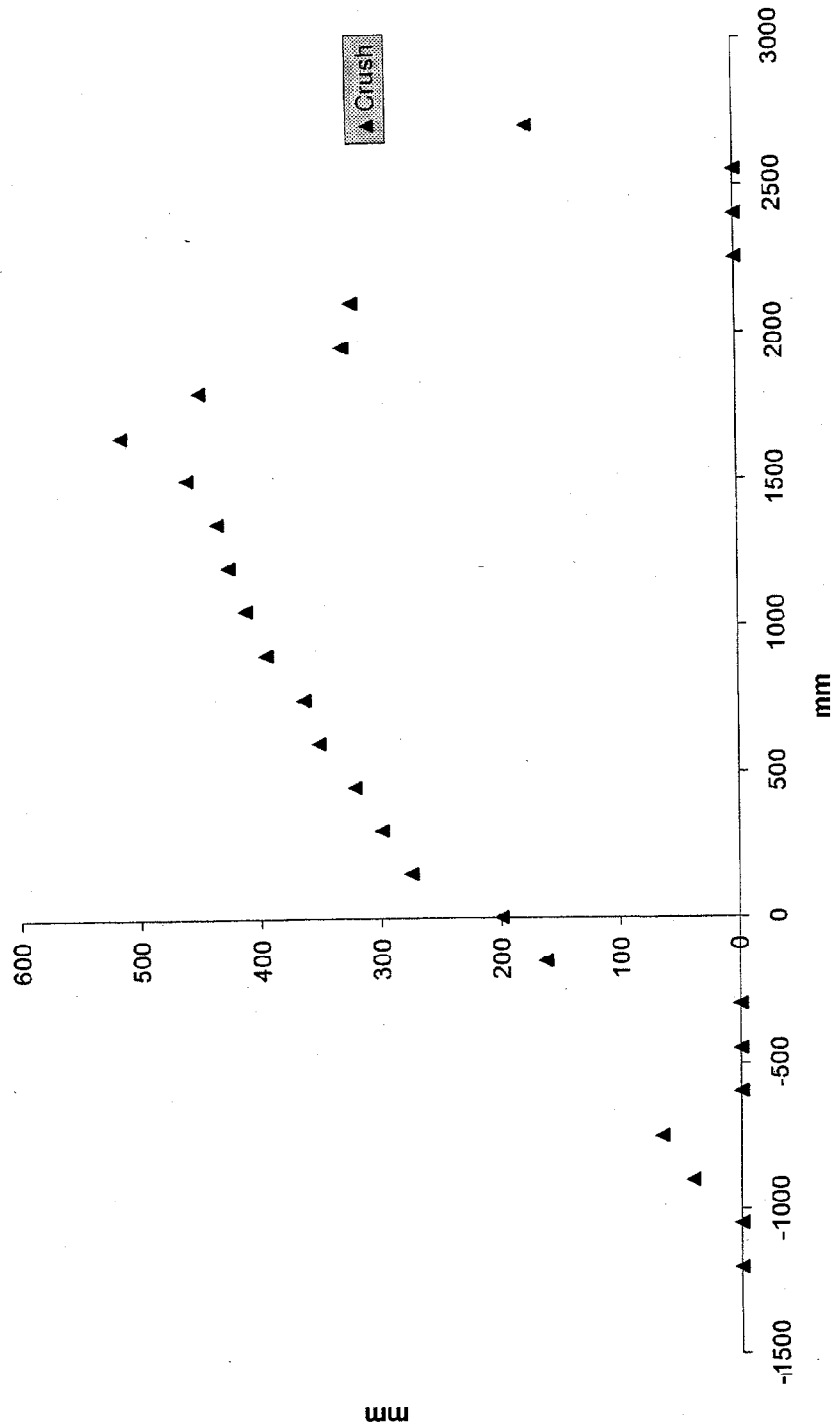


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

Side Profile Level 2 757 mm Above Ground



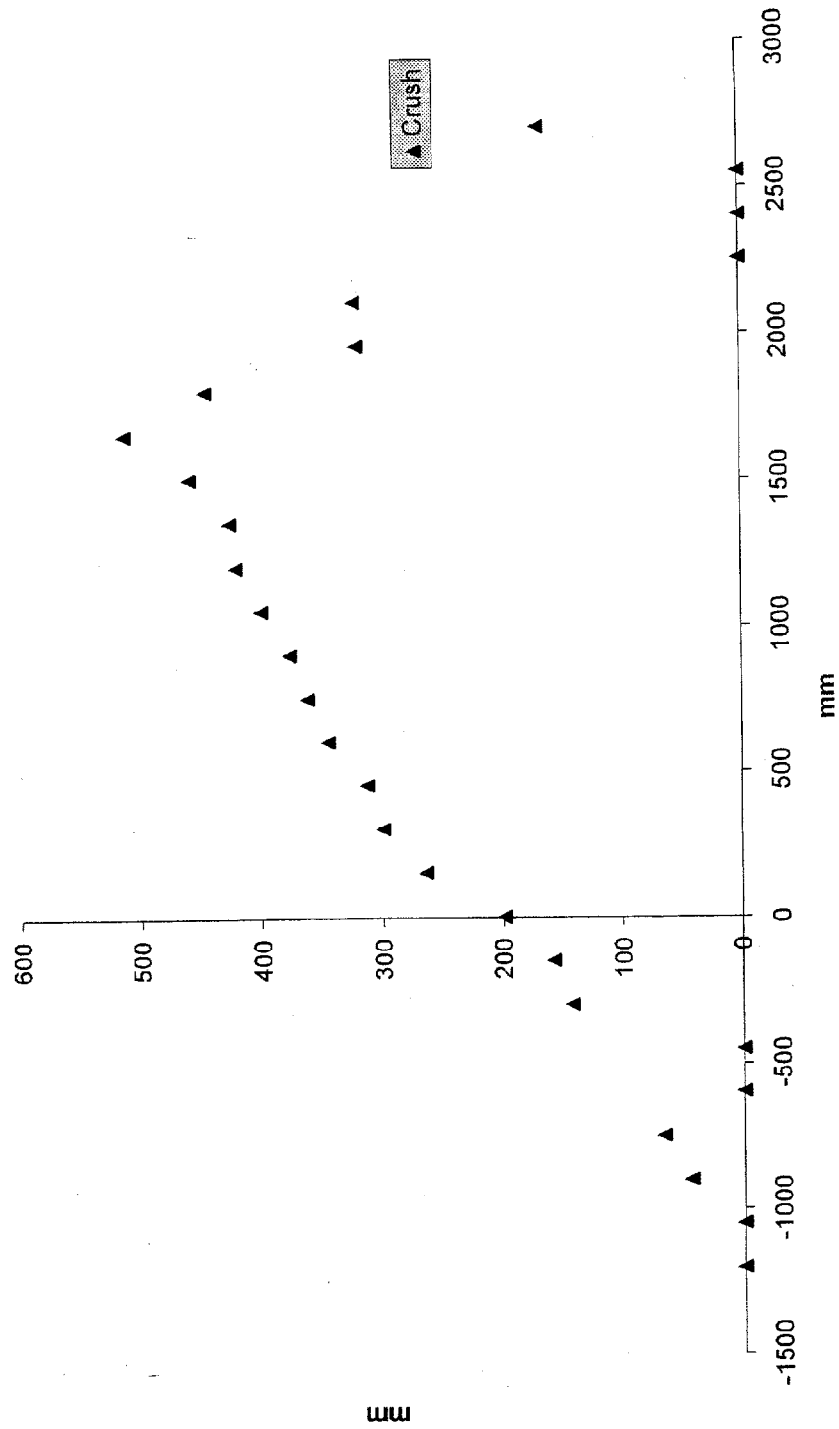
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

NHTSA No.: MX0204

Vehicle: 1999 Ford Ranger 2-door pickup

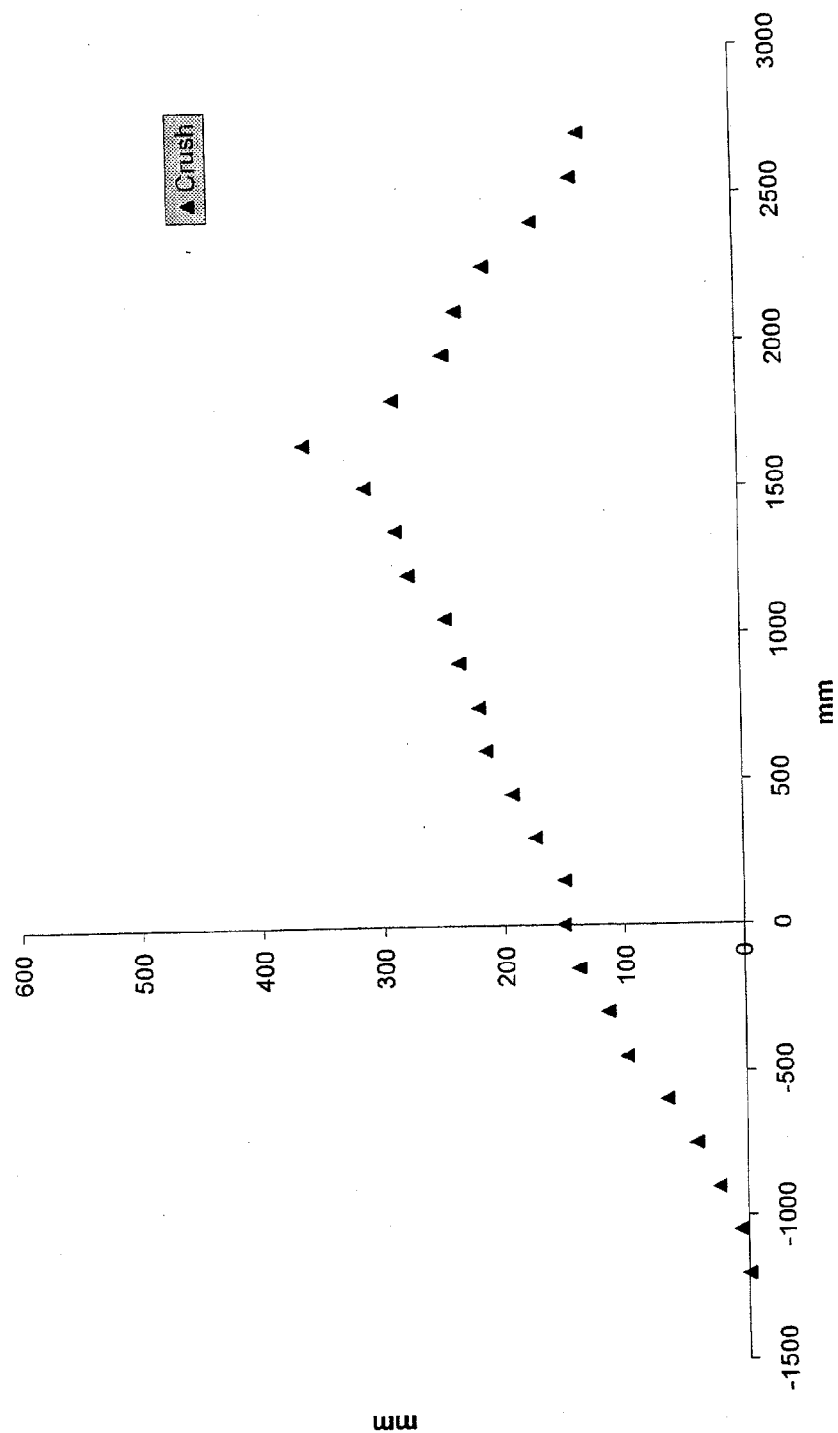
Side Profile Level 3 770 mm Above Ground



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

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

Side Profile Level 4 1085 mm Above Ground



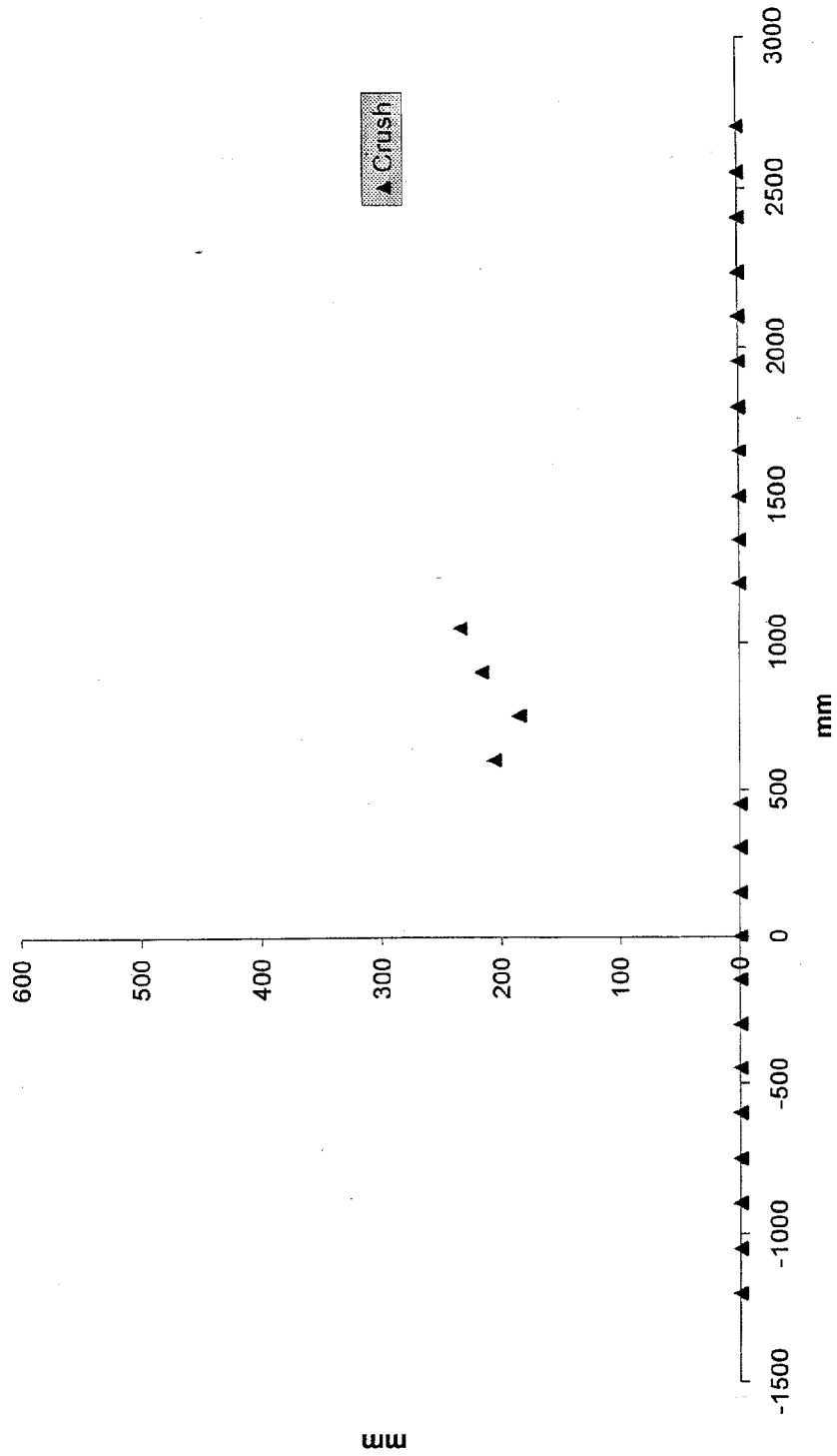
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

NHTSA No.: MX0204

Vehicle: 1999 Ford Ranger 2-door pickup

Side Profile Level 5 4628 mm Above Ground



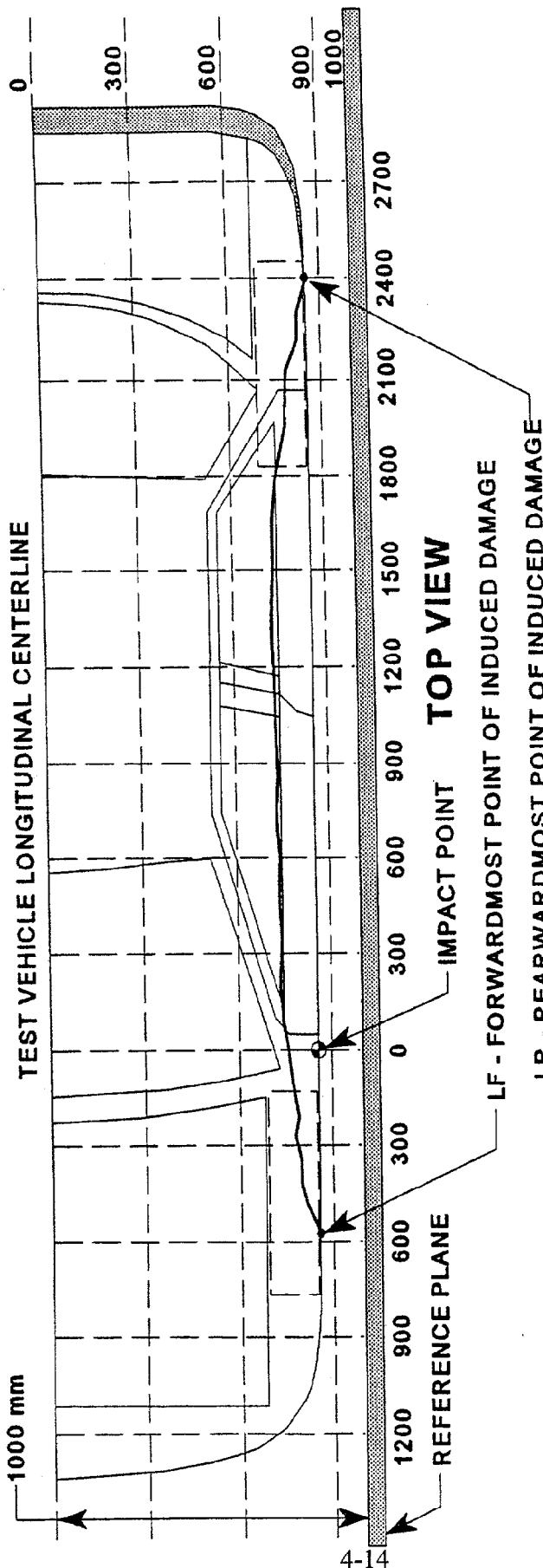
DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

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



MEASUREMENT CONVENTIONS:

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)	443.0	402.0	41.0
2 -180	531.0	368.0	163.0
3 540	834.0	436.4	397.6
4 1260	894.8	436.0	458.8
5 1980	686.4	358.0	328.4
6 (LR = 2700 mm)	543.0	369.0	174.0

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

(Grid as looking at MDB from front)

NHTSA No.: MX0204

Vehicle: 1999 Ford Ranger 2-door pickup

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	68.0	54.6	78.9	105.8	91.6	84.4	56.5	56.5	57.7	49.4	52.6	58.6	70.5	81.8	104.7	142.2	175.5
Mid Level Level 3 *	685	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
Top Bumper Level Level 2	560	44.1	39.9	27.1	29.0	34.2	35.2	36.2	35.7	36.8	42.0	43.4	44.0	49.7	47.3	53.0	66.5	80.6
Mid Bumper Level Level 1	432	67.1	123.6	44.6	37.8	39.1	41.0	42.1	39.7	39.7	39.1	43.1	44.5	46.2	51.2	62.1	81.7	98.2

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

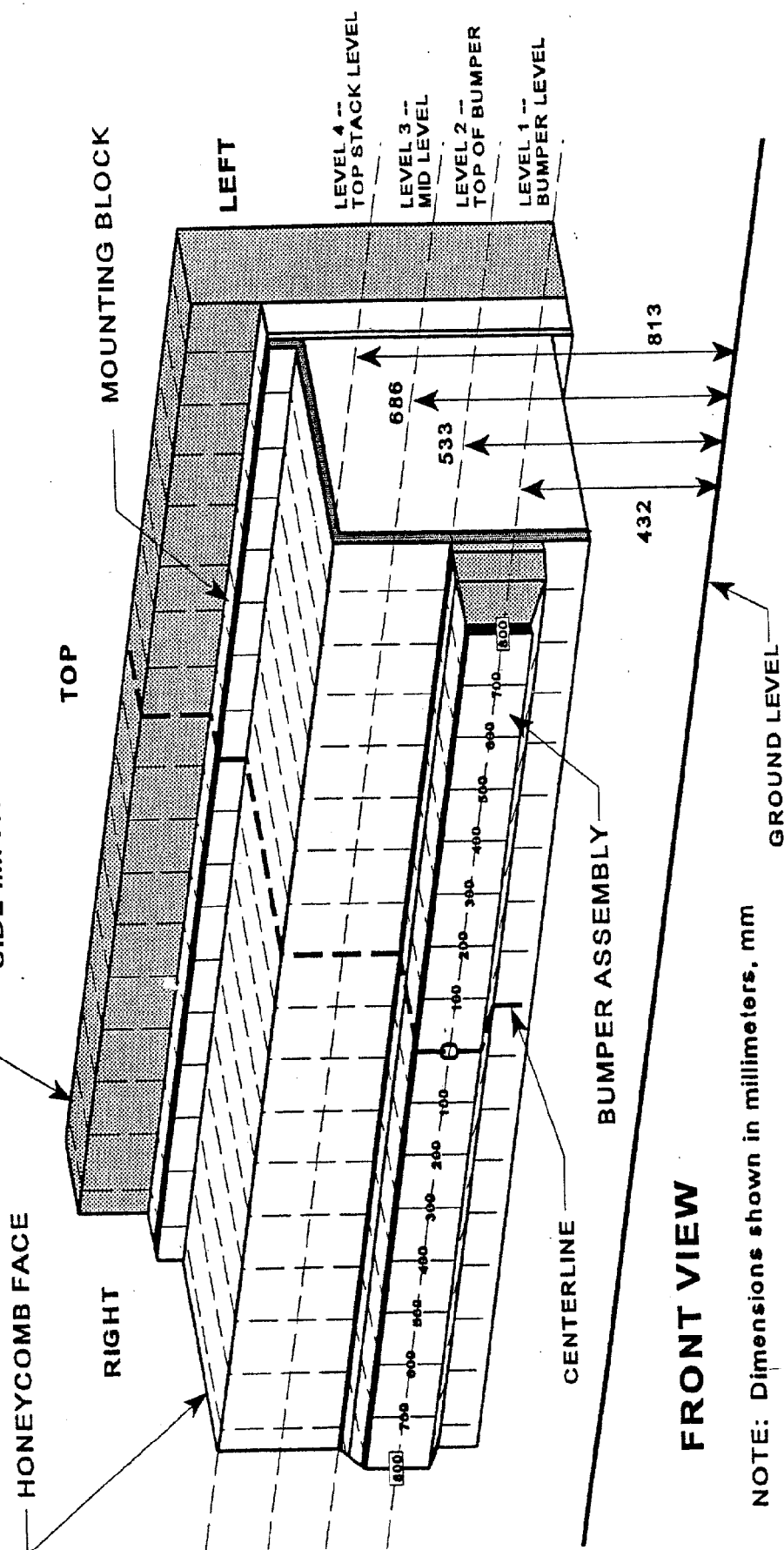
* These measurements did not get taken.

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

SIDE IMPACT BARRIER FRAME ASSEMBLY



FRONT VIEW

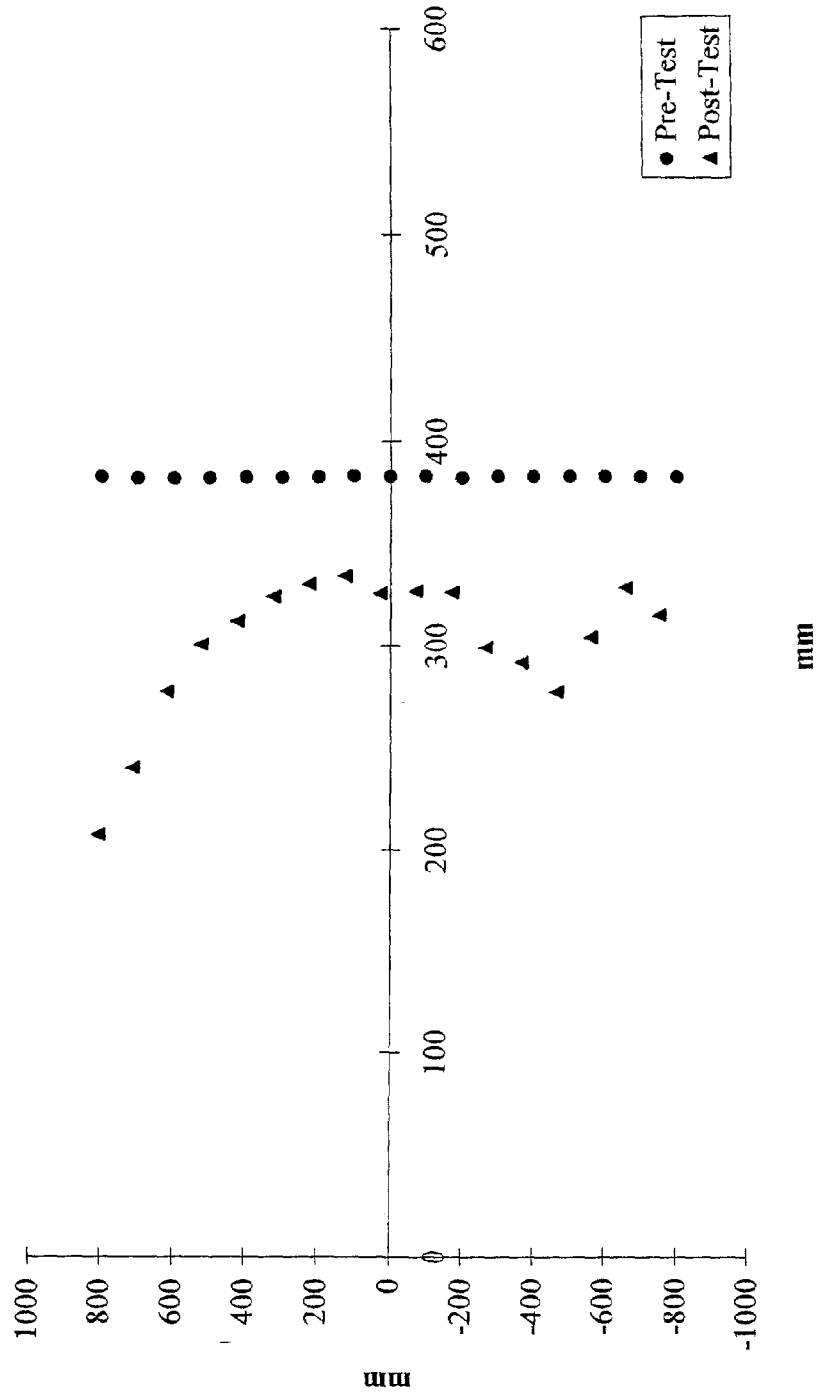
NOTE: Dimensions shown in millimeters, mm

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

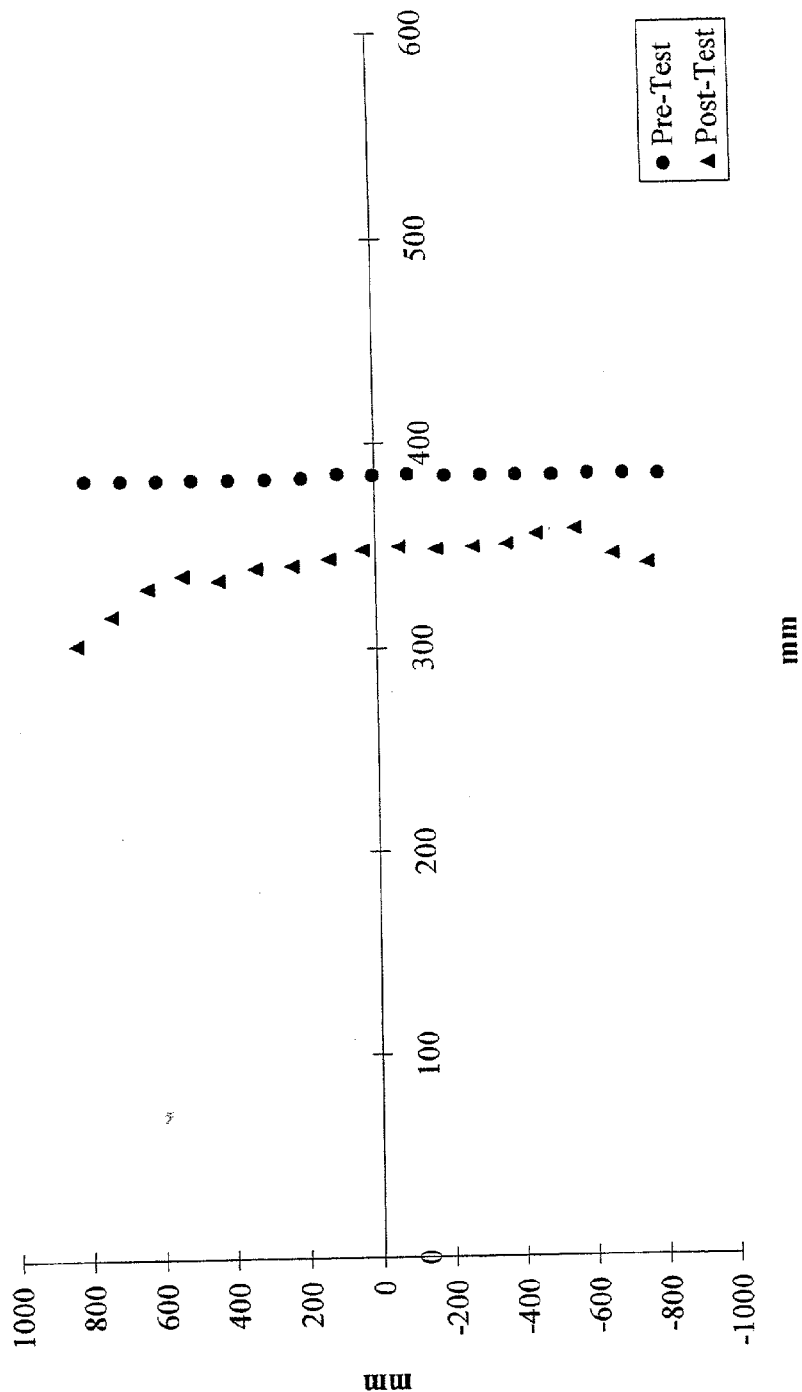
Deformable Barrier Face Profile 1-17



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

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

Deformable Barrier Face Profile 18-34



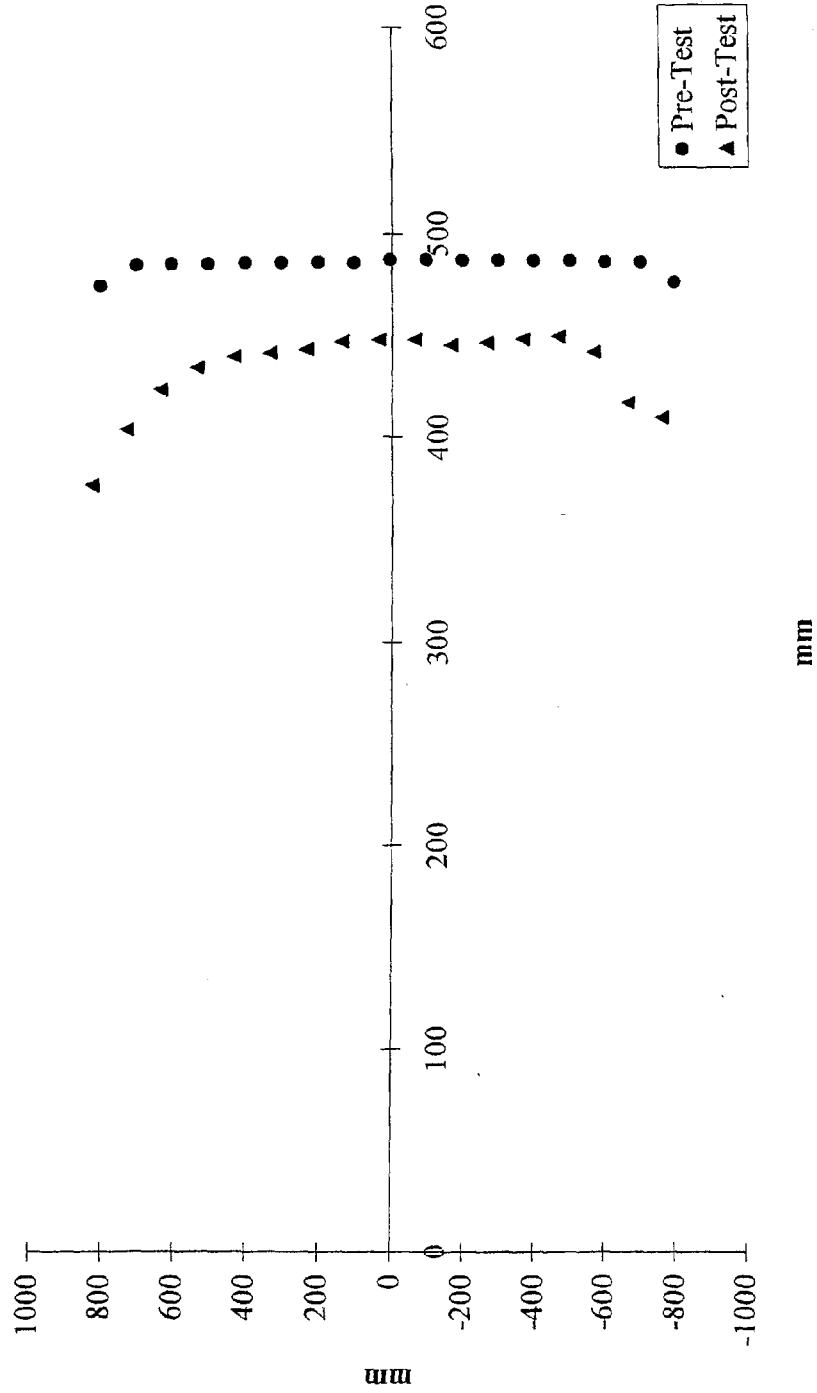
DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

Deformable Barrier Face Profile 35-51



DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

Deformable Barrier Face Profile

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
1	382.8	-798.1	258.4	1	314.8	-747.7	235.6	1	68.0	-50.4	22.8
2	382.7	-697.6	257.8	2	328.1	-653.7	239.3	2	54.6	-43.9	18.5
3	382.9	-597.3	259	3	304	-556.7	230.1	3	78.9	-40.6	28.9
4	383	-497.7	260.3	4	277.2	-461.3	220.2	4	105.8	-36.4	40.1
5	382.9	-397.1	261.1	5	291.3	-363.2	225.7	5	91.6	-33.9	35.4
6	383.1	-296.9	261.6	6	298.7	-262.7	226.4	6	84.4	-34.2	35.2
7	382.4	-197.4	261.3	7	325.9	-168.4	234.6	7	56.5	-29.0	26.7
8	383	-97.1	263.2	8	326.5	-69	235.1	8	56.5	-28.1	28.1
9	383.1	2	264.1	9	325.4	29.9	236.4	9	57.7	-27.9	27.7
10	383.4	100.7	263	10	334	126.1	236.2	10	49.4	-25.4	26.8
11	382.7	198.7	265.9	11	330.1	225.3	239.8	11	52.6	-26.6	26.1
12	382.5	298.9	266.2	12	323.9	324.4	241.8	12	58.6	-25.5	24.4
13	382.5	399.2	266.4	13	312	424.3	242.1	13	70.5	-25.1	24.3
14	382.4	500.2	267.1	14	300.6	524.8	242.5	14	81.8	-24.6	24.6
15	382.1	598.7	268.4	15	277.4	620.4	240.8	15	104.7	-21.7	27.6
16	382.4	699.9	269.9	16	240.2	714.2	234.5	16	142.2	-14.3	35.4
17	382.9	800.6	269.3	17	207.4	809	226.4	17	175.5	-8.4	42.9
18	383.5	-791.5	-20.8	18	339.4	-758.9	-18.1	18	44.1	-32.6	-2.7
19	384	-693.1	-19	19	344.1	-662.2	-20.7	19	39.9	-30.9	1.7
20	384.1	-592.7	-19	20	357	-554.4	-31.9	20	27.1	-38.3	12.9
21	383.6	-492.6	-17.4	21	354.6	-446.5	-32.7	21	29.0	-46.1	15.3
22	384	-392.3	-16	22	349.8	-363	-24.6	22	34.2	-29.3	8.6

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

Deformable Barrier Face Profile Cont'd.

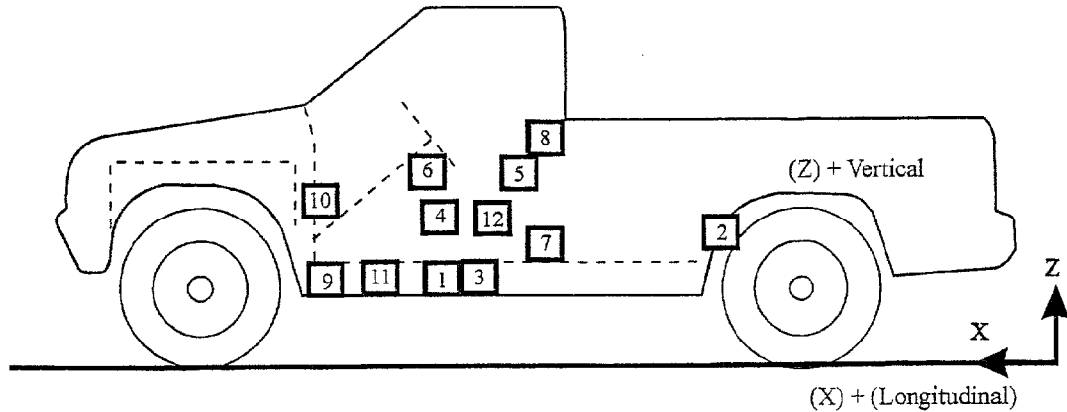
Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
23	383.8	-292.7	-16.7	23	348.6	-268.9	-25.1	23	35.2	-23.8	8.4
24	384	-192.9	-16	24	347.8	-165.8	-27.5	24	36.2	-27.1	11.5
25	384.8	-91.5	-14.4	25	349.1	-64	-25.3	25	35.7	-27.5	10.9
26	384.4	5.7	-14.6	26	347.6	34.5	-20.9	26	36.8	-28.8	6.3
27	385.2	102	-11.7	27	343.2	129.1	-18.6	27	42.0	-27.1	6.9
28	383.5	201.1	-14.7	28	340.1	229.9	-18.5	28	43.4	-28.8	3.8
29	382.9	301	-12.5	29	338.9	330.5	-17.8	29	44.0	-29.5	5.3
30	383.1	401.5	-10.7	30	333.4	432	-22.7	30	49.7	-30.5	12.0
31	383.2	502.5	-9.9	31	335.9	531.5	-15.2	31	47.3	-29.0	5.3
32	383.1	601.2	-9.3	32	330.1	630	-16	32	53.0	-28.8	6.7
33	383.3	701.4	-7.9	33	316.8	729.9	-14.6	33	66.5	-28.5	6.7
34	383.4	802	-7.2	34	302.8	829.9	-16	34	80.6	-27.9	8.8
35	476.4	-789.8	-135.4	35	409.3	-754.8	-130.8	35	67.1	-35.0	-4.6
36	486.3	-694.4	-135	36	416.8	-659.5	-125.9	36	69.5	-34.9	-9.1
37	486.5	-592.8	-133.2	37	441.9	-561.3	-124.1	37	44.6	-31.5	-9.1
38	487.2	-493.8	-133.4	38	449.4	-462.8	-124.2	38	37.8	-31.0	-9.2
39	487.2	-393.3	-133.5	39	448.1	-362.9	-124.7	39	39.1	-30.4	-8.8
40	487.4	-293.5	-132.3	40	446.4	-263	-124	40	41.0	-30.5	-8.3
41	487.4	-193.5	-131.7	41	445.3	-163.5	-124.6	41	42.1	-30.0	-7.1
42	487.7	-92.9	-131.9	42	448	-62.3	-125.1	42	39.7	-30.6	-6.8
43	487.6	7.5	-132.7	43	447.9	38.1	-126.1	43	39.7	-30.6	-6.6
44	486.1	106	-132.3	44	447	139.1	-126.7	44	39.1	-33.1	-5.6

DATA SHEET 13

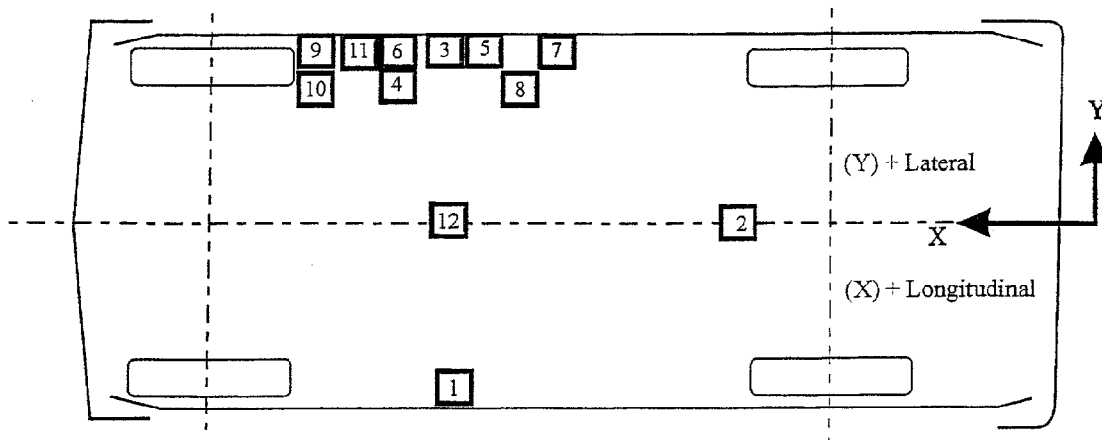
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204



Side View



Bottom View

- 1-Right Front Side Sill
- 2- Rear Floorpan Above Axle
- 3- Left Front Side Sill
- 4- Left Front Door on Centerline
- 5-Left Front Door Mid Rear
- 6-Left Front Door Upper Centerline

- 7-Left Side Lower B-pillar
- 8-Left Side Middle B-pillar
- 9-Left Side Lower A-pillar
- 10-Left Side Middle A-pillar
- 11-Left Side Front Seat Track at H-point
- 12-Vehicle Center of Gravity

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Ford Ranger 2-door pickup NHTSA No.: MX0204

TEST NUMBER: 981125
No. LOCATION

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

	X	Y	Z			
1 RIGHT SIDE SILL	PRE 2870 in	-580 in	460 in			
AT FRONT SEAT	POST 2950 in	-580 in	445 in			
LONGITUDINAL				7.6 g	@ 43.6 ms	9.1 g @ 19.9 ms
LATERAL				33.2 g	@ 29.2 ms	9.0 g @ 65.4 ms
VERTICAL				32.0 g	@ 8.4 ms	16.1 g @ 2.8 ms
RESULTANT				34.2 g	@ 29.4 ms	
2 REAR FLOORPAN	PRE 1088 in	0 in	668 in			
ABOVE AXLE	POST 1050 in	0 in	1432 in			
LONGITUDINAL				13.2 g	@ 23.0 ms	8.8 g @ 55.2 ms
LATERAL				24.6 g	@ 18.2 ms	2.9 g @ 269.3 ms
VERTICAL				24.0 g	@ 35.2 ms	25.6 g @ 23.0 ms
RESULTANT				31.8 g	@ 23.0 ms	
3 LEFT SIDE SILL	PRE 2870 in	585 in	445 in			
AT FRONT SEAT	POST 2465 in	545 in	NA			
LATERAL ¹				1038.3 g	@ 33.0 ms	11.3 g @ 9.2 ms
4 LEFT FRONT DOOR	PRE 2770 in	762 in	787 in			
ON CENTERLINE	POST 2644 in	630 in	NA			
LATERAL ¹				178.1 g	@ 8.9 ms	209.0 g @ 22.0 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle:		1999 Ford Ranger 2-door pickup			NHTSA No.: MX0204		
TEST NUMBER: 981125		X		Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
No. LOCATION							
5 LEFT FRONT DOOR MIDREAR LATERAL ¹	PRE	2320 in	762 in	783 in			
	POST	2220 in	632 in	NA	183.8 g @ 7.4 ms	69.7 g @ 13.4 ms	
6 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	PRE	2770 in	762 in	1053 in			
	POST	2644 in	730 in	NA	107.4 g @ 12.3 ms	50.9 g @ 29.4 ms	
7 LOWER B-POST LATERAL	PRE	2557 in	704 in	715 in			
	POST	2285 in	595 in	NA	151.9 g @ 6.9 ms	72.2 g @ 12.6 ms	
8 MIDDLE B-POST LATERAL	PRE	2270 in	705 in	1000 in			
	POST	2175 in	595 in	NA	134.5 g @ 7.0 ms	17.9 g @ 12.4 ms	
9 LOWER A-POST LATERAL ¹	PRE	3290 in	704 in	517 in			
	POST	3200 in	667 in	NA	145.4 g @ 7.7 ms	922.7 g @ 29.0 ms	

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle:		1999 Ford Ranger 2-door pickup		NHTSA No.: MX0204	
TEST NUMBER: 981125					
No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
10 MIDDLE A-POST	PRE 3293 in	705 in	1028 in		
	POST 3165 in	751 in	NA		
LATERAL				42.8 g @ 7.6 ms	3.9 g @ 67.9 ms
11 FRONT SEAT TRACK	PRE 2595 in	635 in	460 in		
	POST 2665 in	545 in	NA		
LATERAL				225.9 g @ 4.8 ms	136.1 g @ 11.8 ms
12 VEHICLE CENTER OF GRAVITY	PRE 2870 in	0 in	613 in		
	POST 2790 in	0 in	620 in		
LONGITUDINAL				12.8 g @ 4.2 ms	10.9 g @ 51.4 ms
LATERAL				43.2 g @ 3.8 ms	9.1 g @ 65.6 ms
VERTICAL				24.9 g @ 4.0 ms	40.7 g @ 32.1 ms
RESULTANT				51.3 g @ 3.8 ms	

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

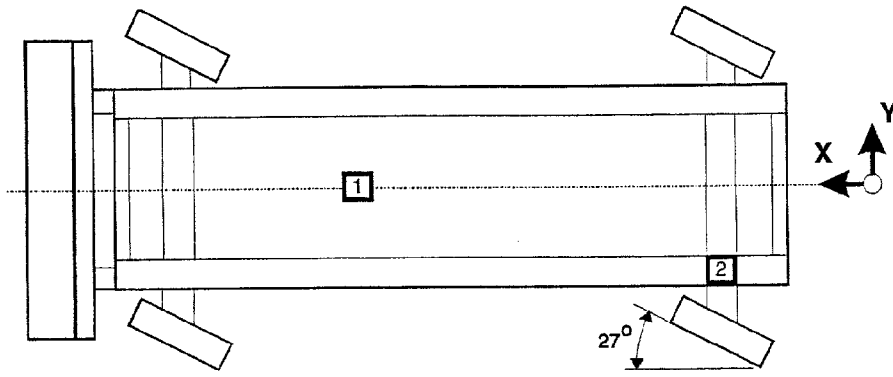
¹ See DATA ACQUISITION EXPLANATIONS

DATA SHEET 14

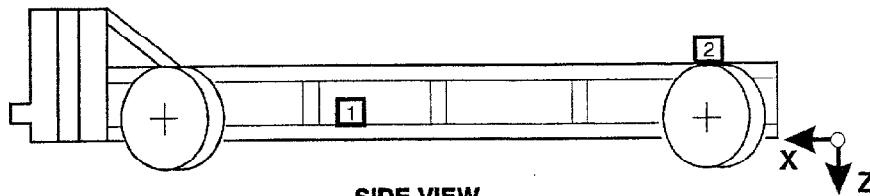
MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204



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				19.8	39.5	2.6	120.6
	Lateral Y				4.9	59.1	7.1	41.4
	Vertical Z				8.1	27.3	5.6	17.9
	Resultant R				21.1	39.6		
2	Rear Frame Member	385	-635	610				
	Longitudinal X				23.7	30.2	2.3	96.6
	Lateral Y				4.6	11.8	3.5	119.0

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

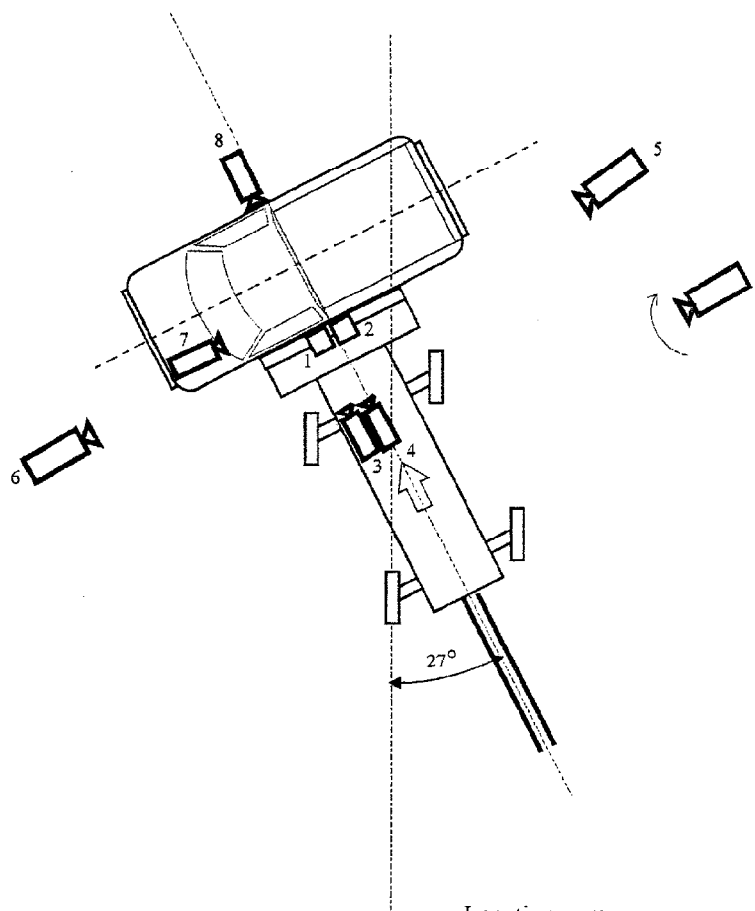
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204



Camera Number	Location	Location, mm			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Overhead wide	1,142	1,811	10,866	13	992
2	Overhead tight	1,142	1,378	10,866	13	1002
3	Onboard MDB left side	2,489	901	787	25	980
4	Onboard MDB center	1,791	0	1,410	13	1005
5	Right side	7,468	-305	1066	13	940
6	Left side	-4,724	0	1066	13	1000
7	Onboard vehicle front	-495	-508	1,372	8	998
8	Onboard side front door	-1,766	762	1,181	8	995
9	Real-time Panning	N/A	N/A	N/A	16	24

+X: Rearward from impact point
 +Y: Toward right from impact point
 +Z: Upward from ground level

SECTION 5
VEHICLE FUEL SYSTEM INTEGRITY

DATA SHEET 16

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA NO.: MX0204 TEST DATE: November 25, 1998

Vehicle Mfgr./Make/Model : 1999 Ford Ranger Pickup

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)
 ☒ 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
0 g	142 g
0 g	28 g/1 min.

SOLVENT SPILLAGE DETAILS :

None

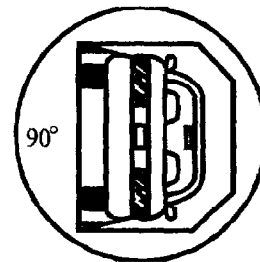
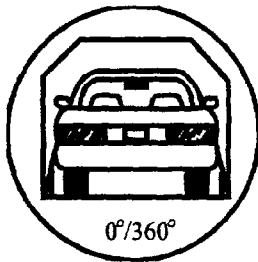
DATA SHEET 17

ROLLOVER DATA

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

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

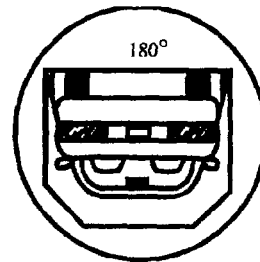
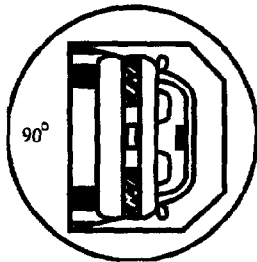
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

90 - 180 Degrees



1. 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

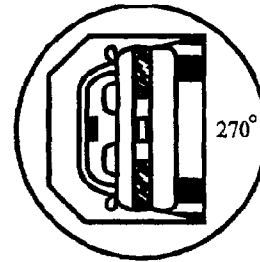
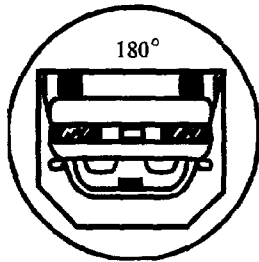
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

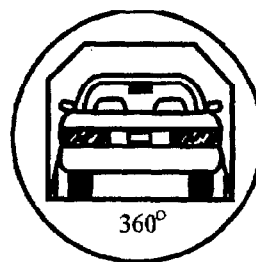
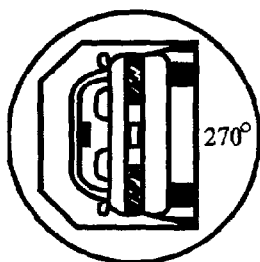
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Ford Ranger 2-door pickup

NHTSA No.: MX0204

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-29	Impact Event	A-31

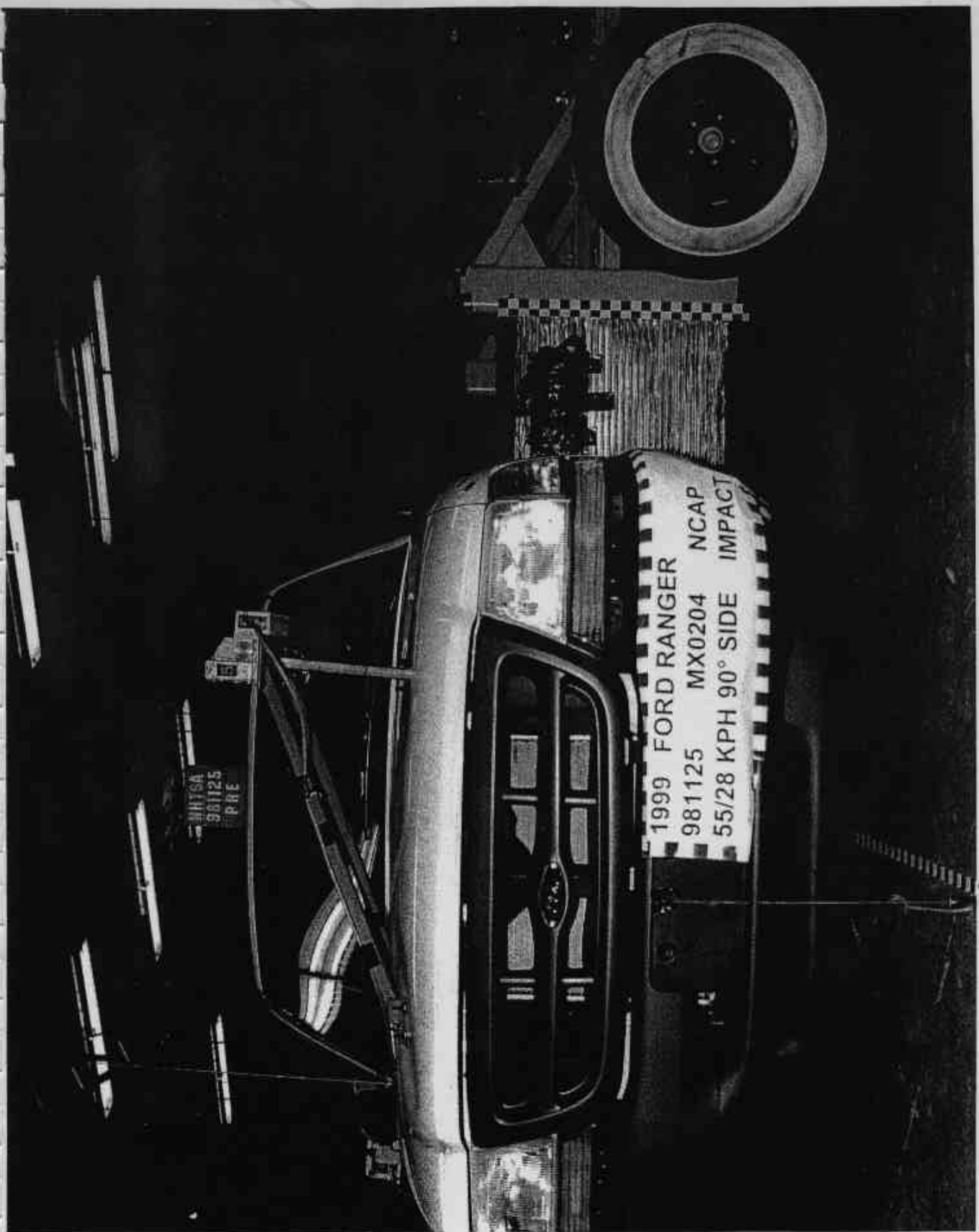


Figure A-1 Pre-Test Front View of Test Vehicle

A-3

981125

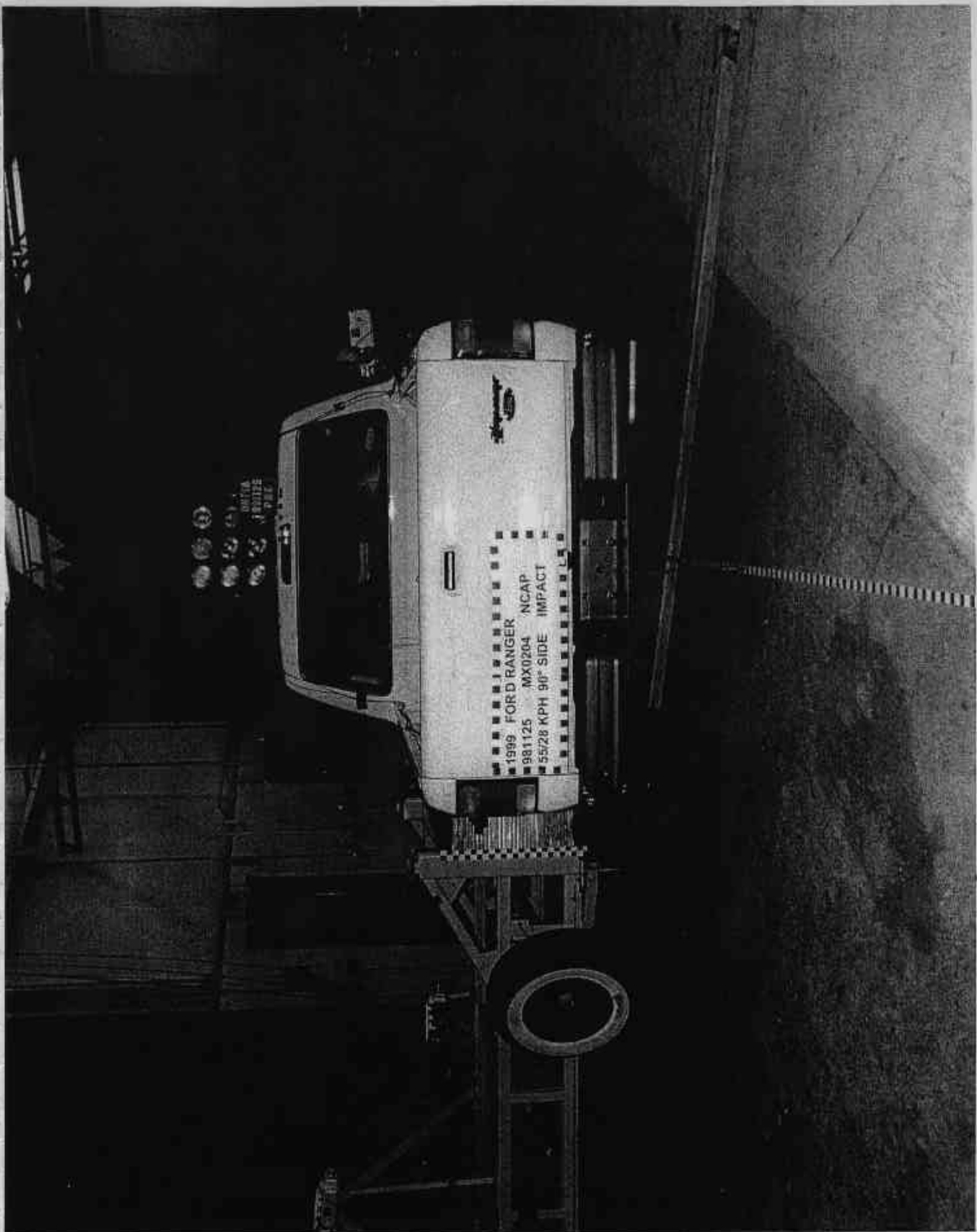


Figure A-3 Pre-Test Rear View of Test Vehicle
A-5

981125



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

981125

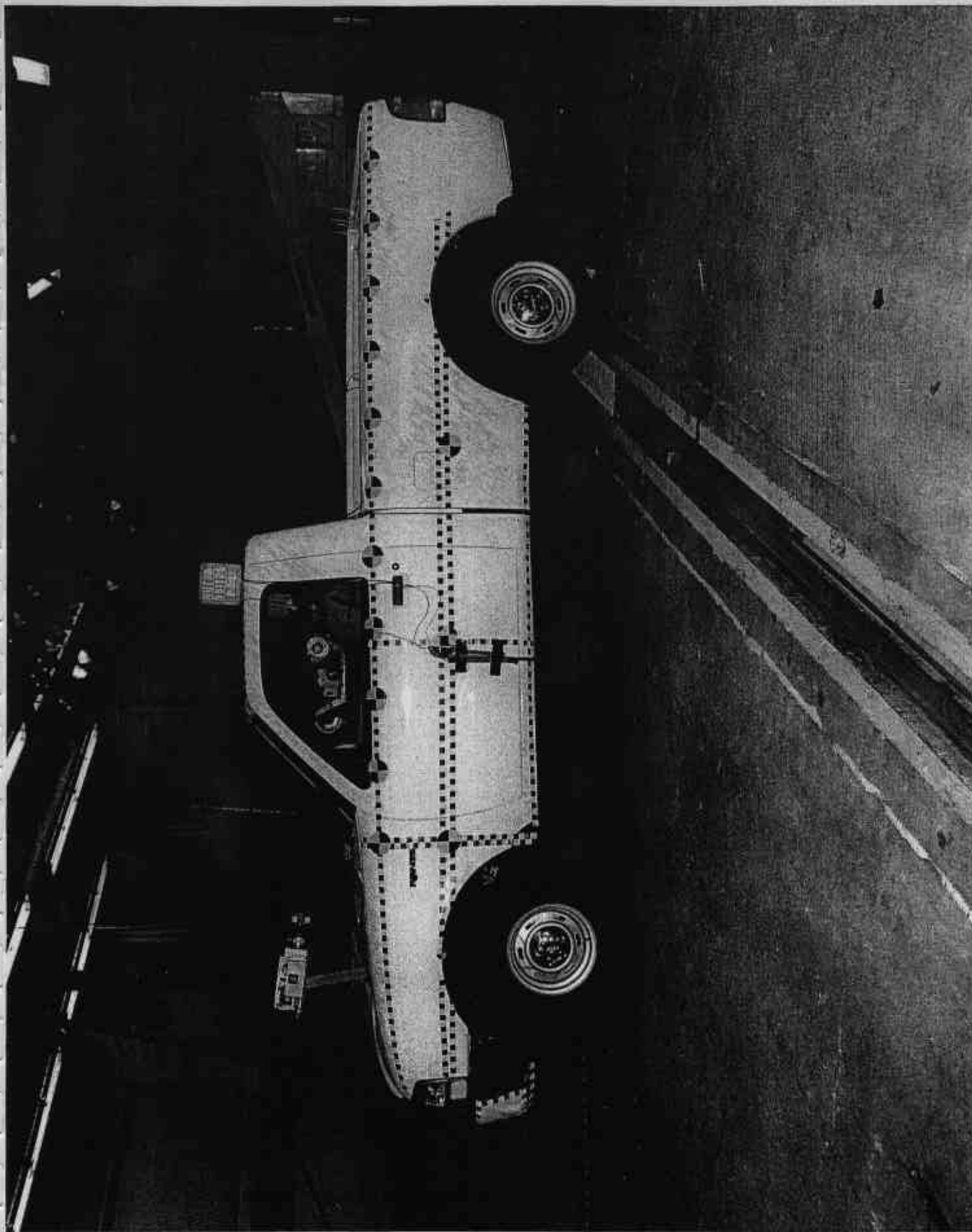


Figure A-5 Pre-Test Impacted Side View of Test Vehicle
A-7

981125



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

981125

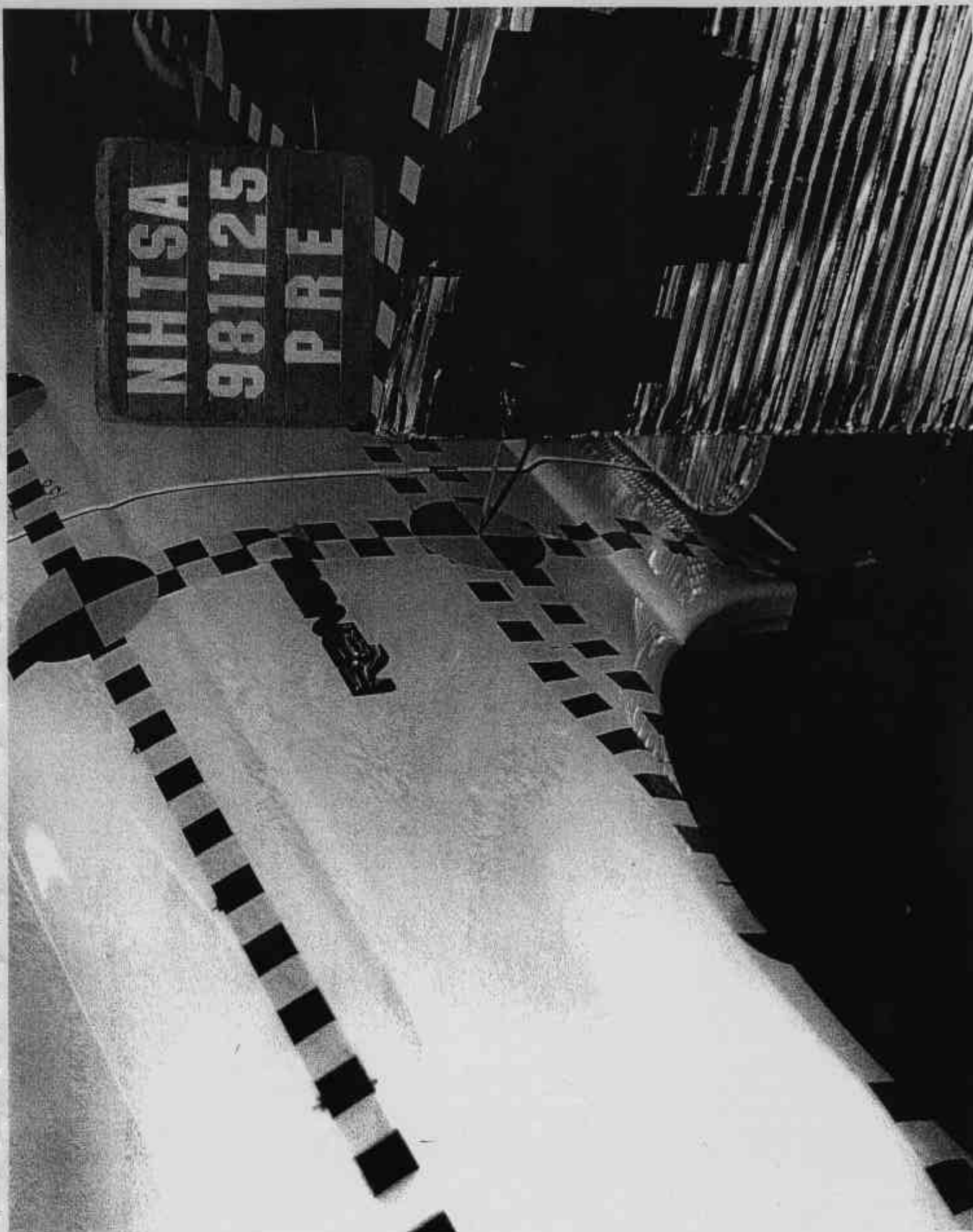


Figure A-7 Pre-Test Impact Point Alignment - View 1

A-9

981125

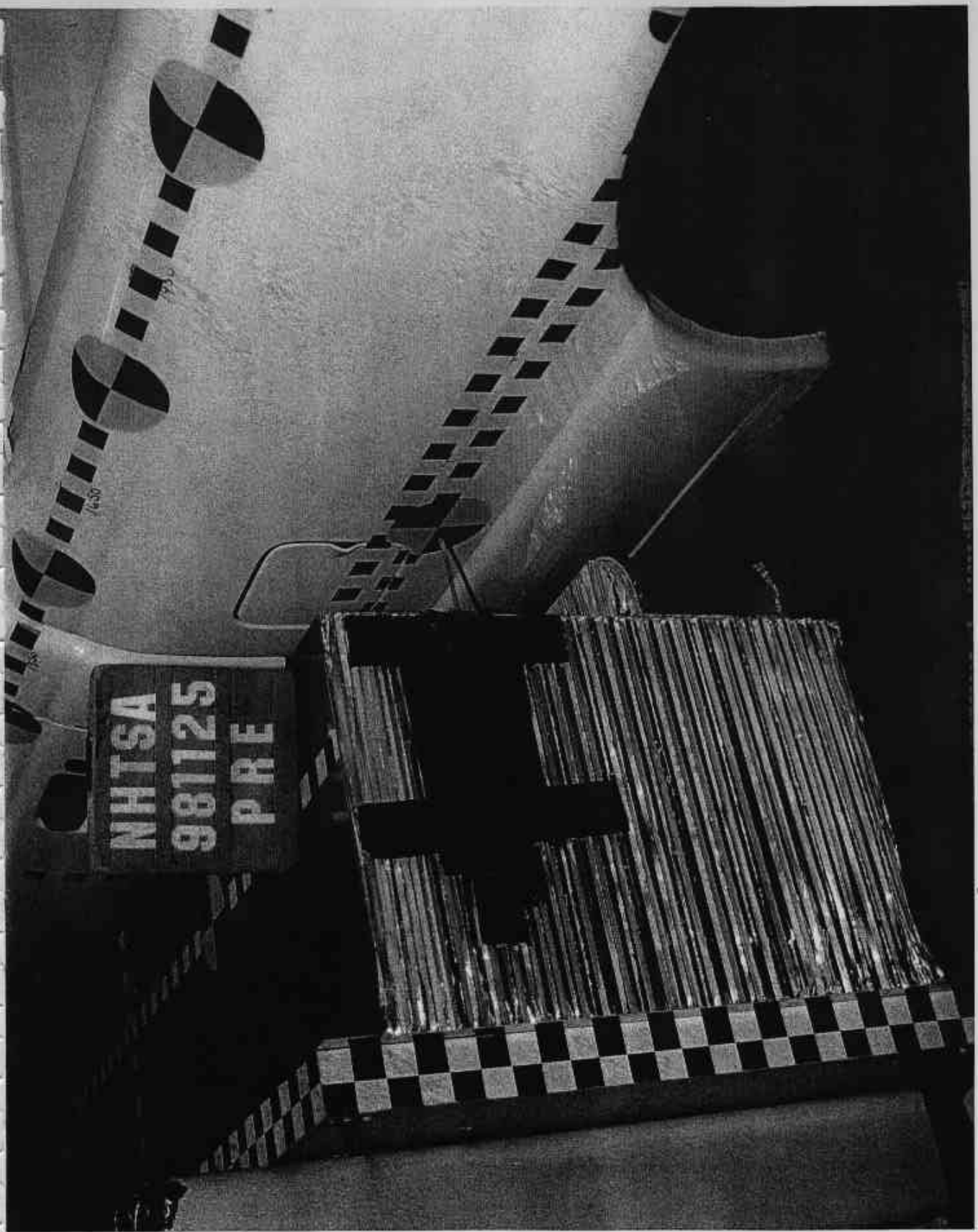


Figure A-8 Pre-Test Impact Point Alignment - View 2

A-10

981125

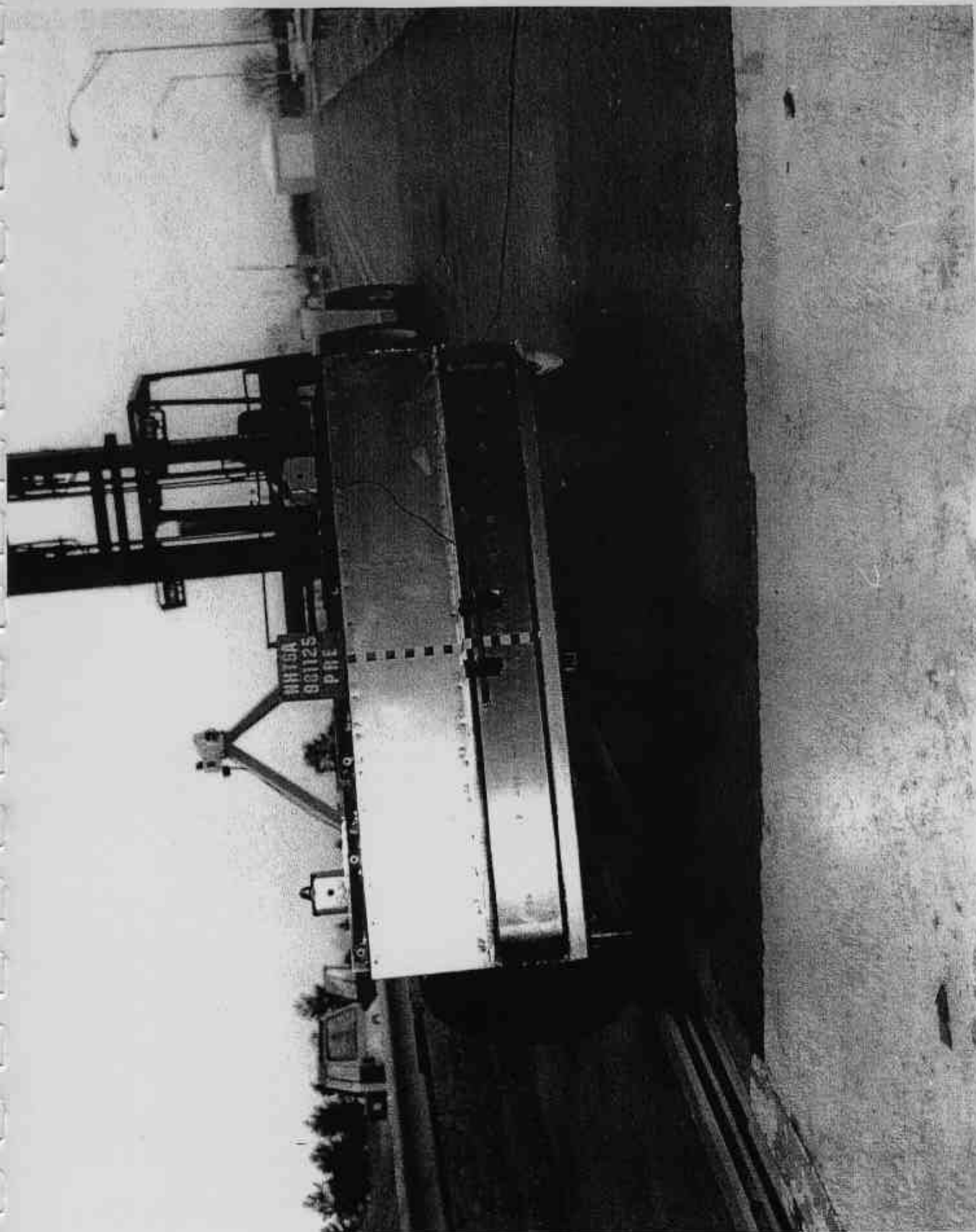


Figure A-9 Pre-Test Frontal View of Impactor Face
A-11

981125



Figure A-10 Post-Test Frontal View of Impactor Face
A-12

981125

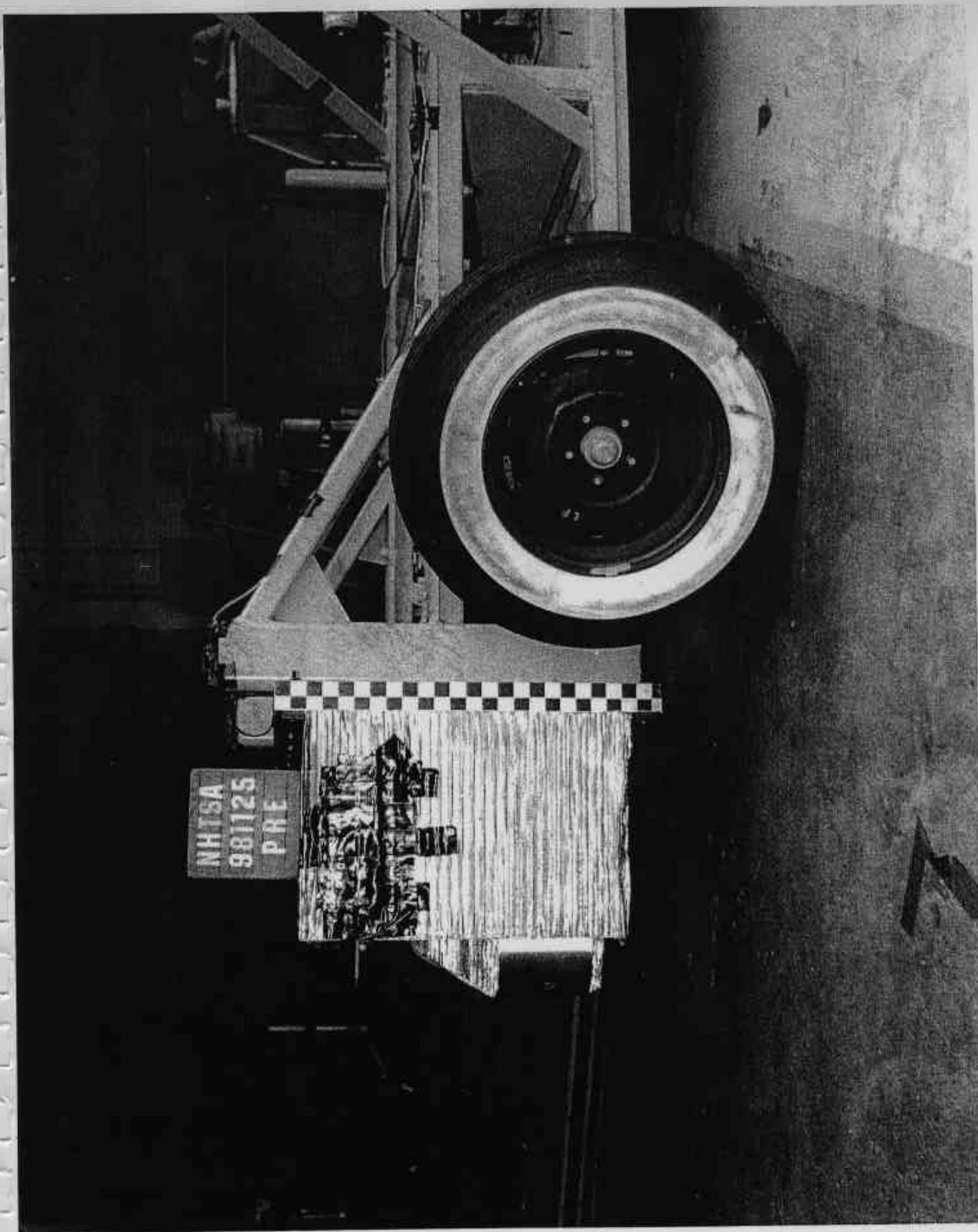


Figure A-11 Pre-Test Left Side View of Impactor Face
A-13

981125

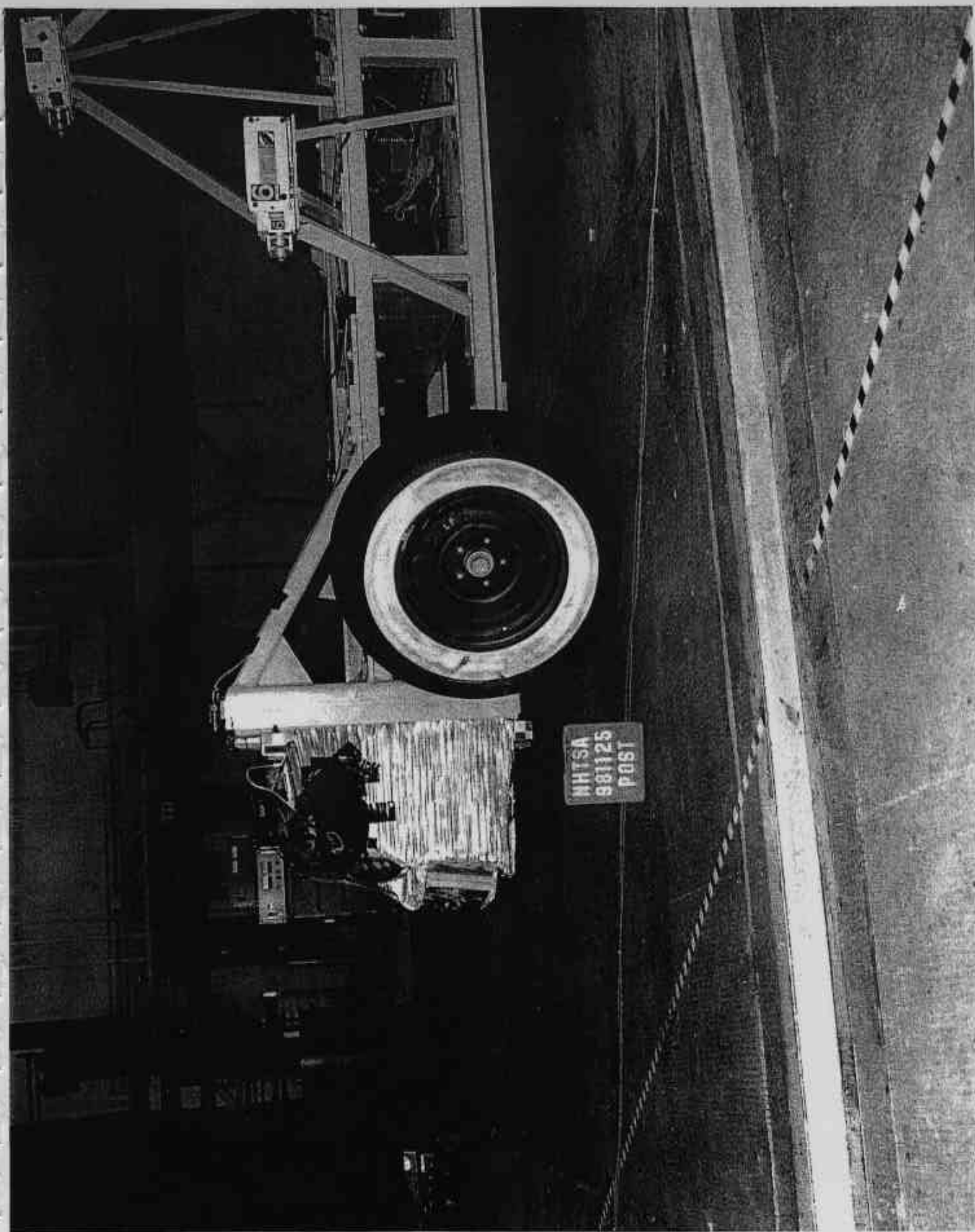


Figure A-12 Post-Test Left Side View of Impactor Face
A-14

981125



Figure A-13 Pre-Test Right Side View of Impactor Face
A-15

981125

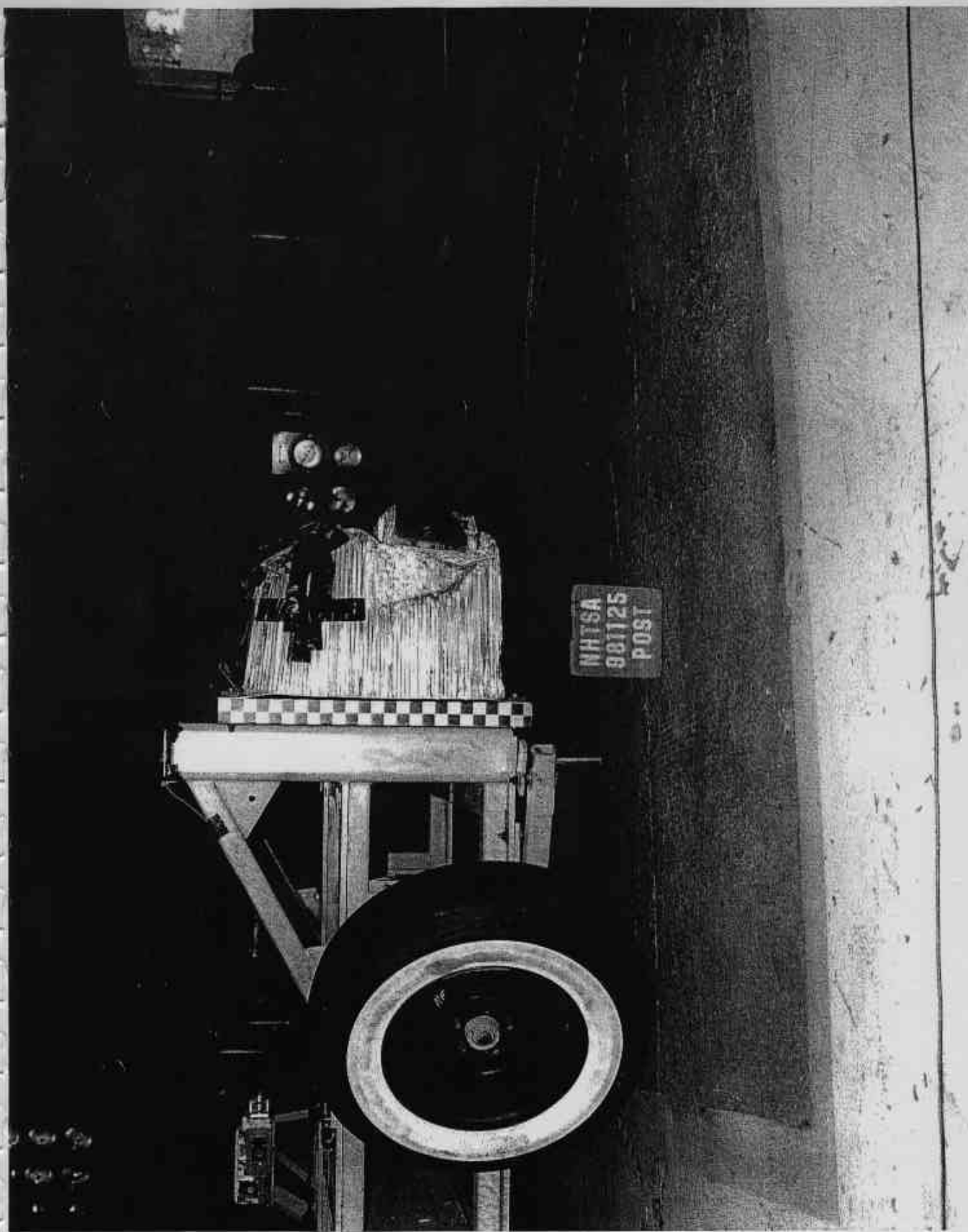


Figure A-14 Post-Test Right Side View of Impactor Face
A-16

981125

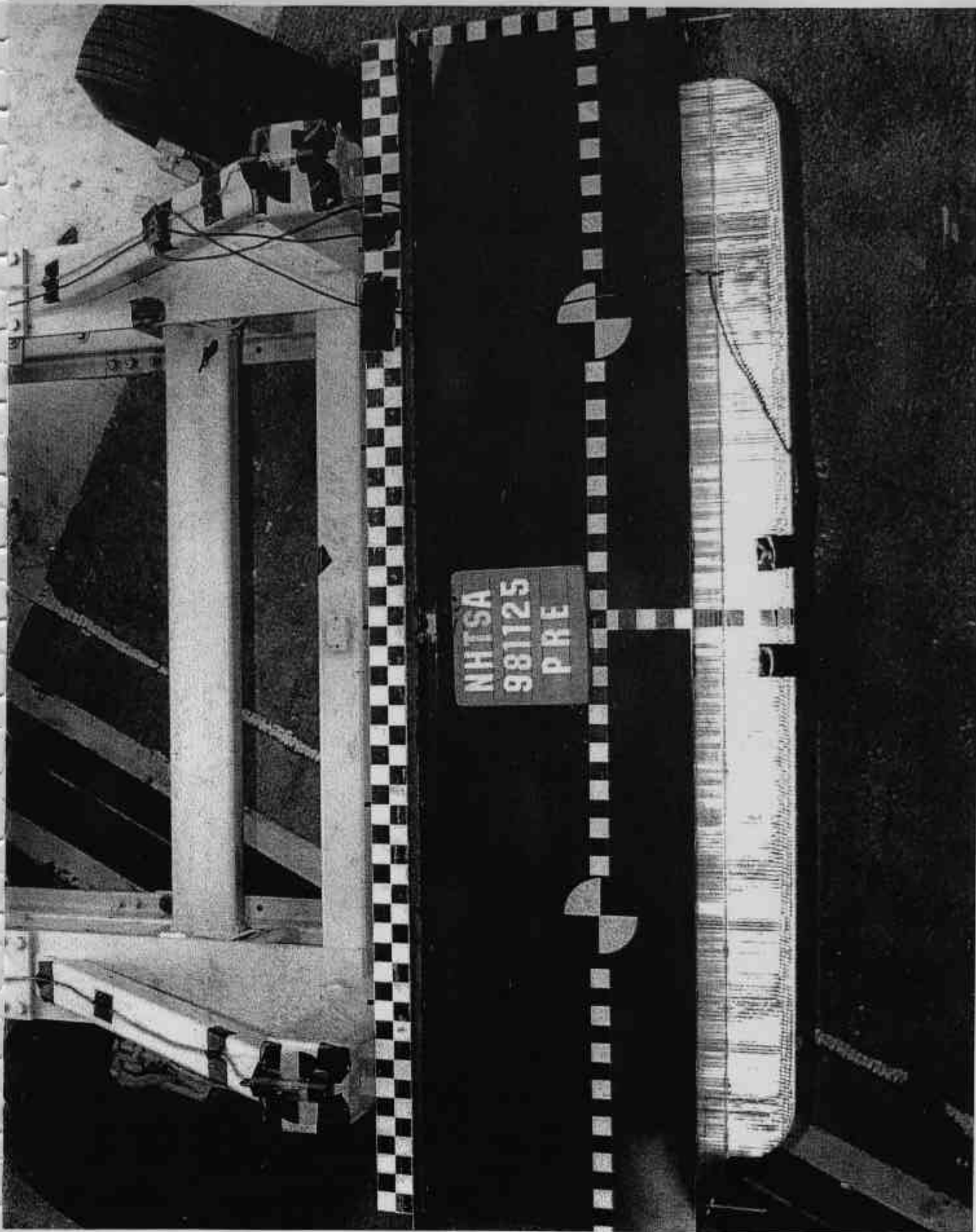


Figure A-15 Pre-Test Top View of Impactor Face
A-17

981125

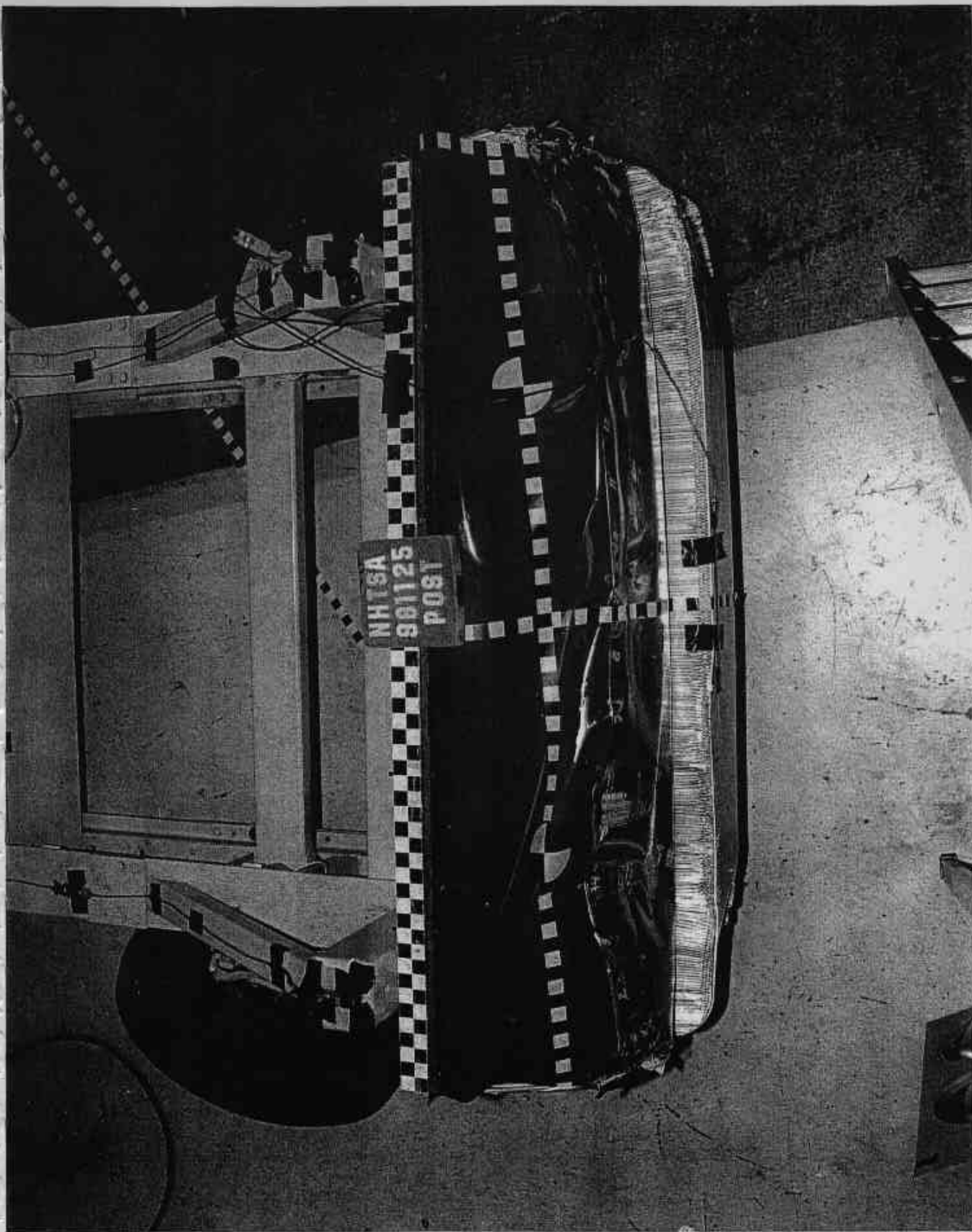


Figure A-16 Post-Test Top View of Impactor Face
A-18

981125

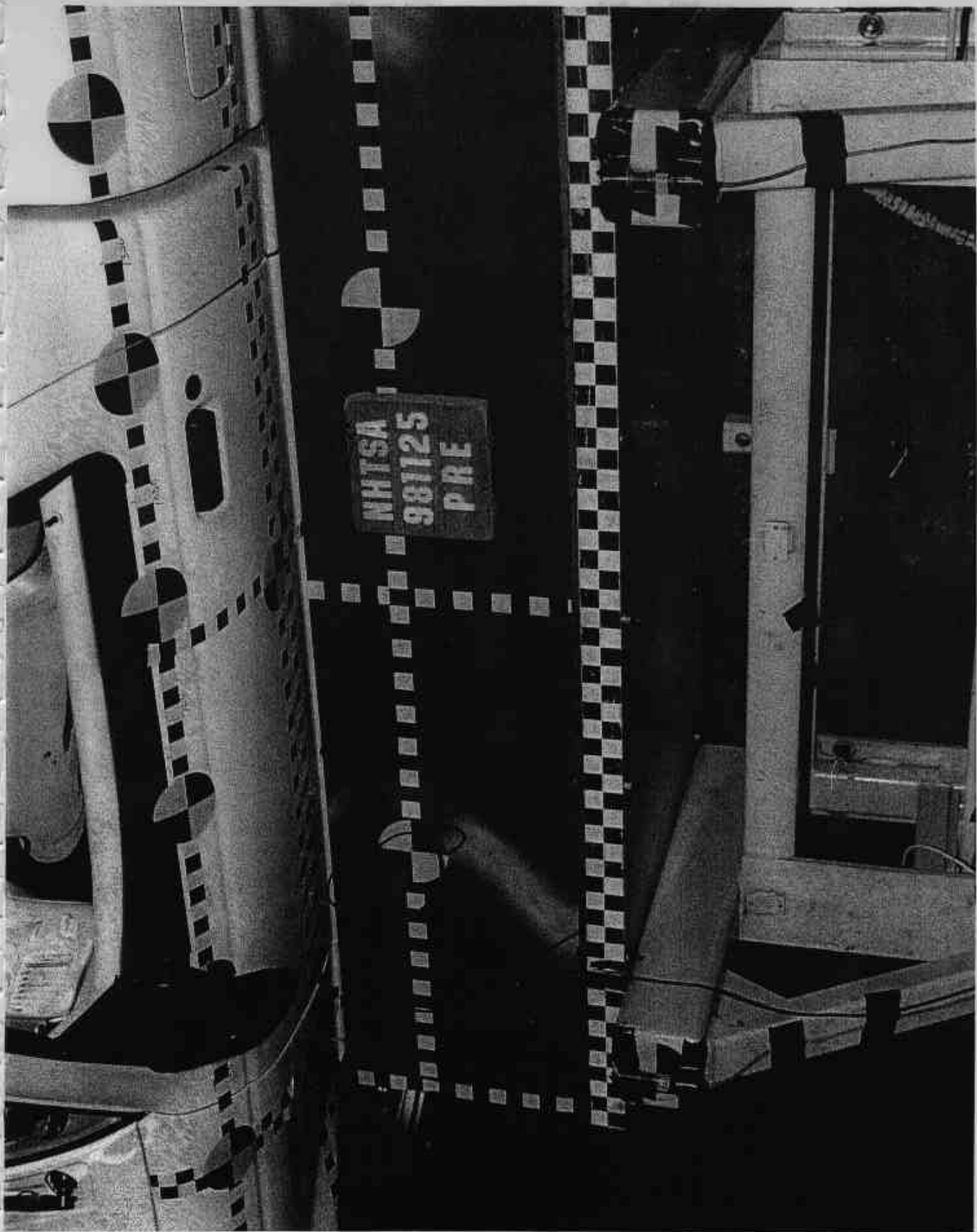


Figure A-17 Pre-Test Overhead View of MDB Aligned with Vehicle

A-19

981125



Figure A-18 Post-Test Overhead View of Vehicle
A-20

981125

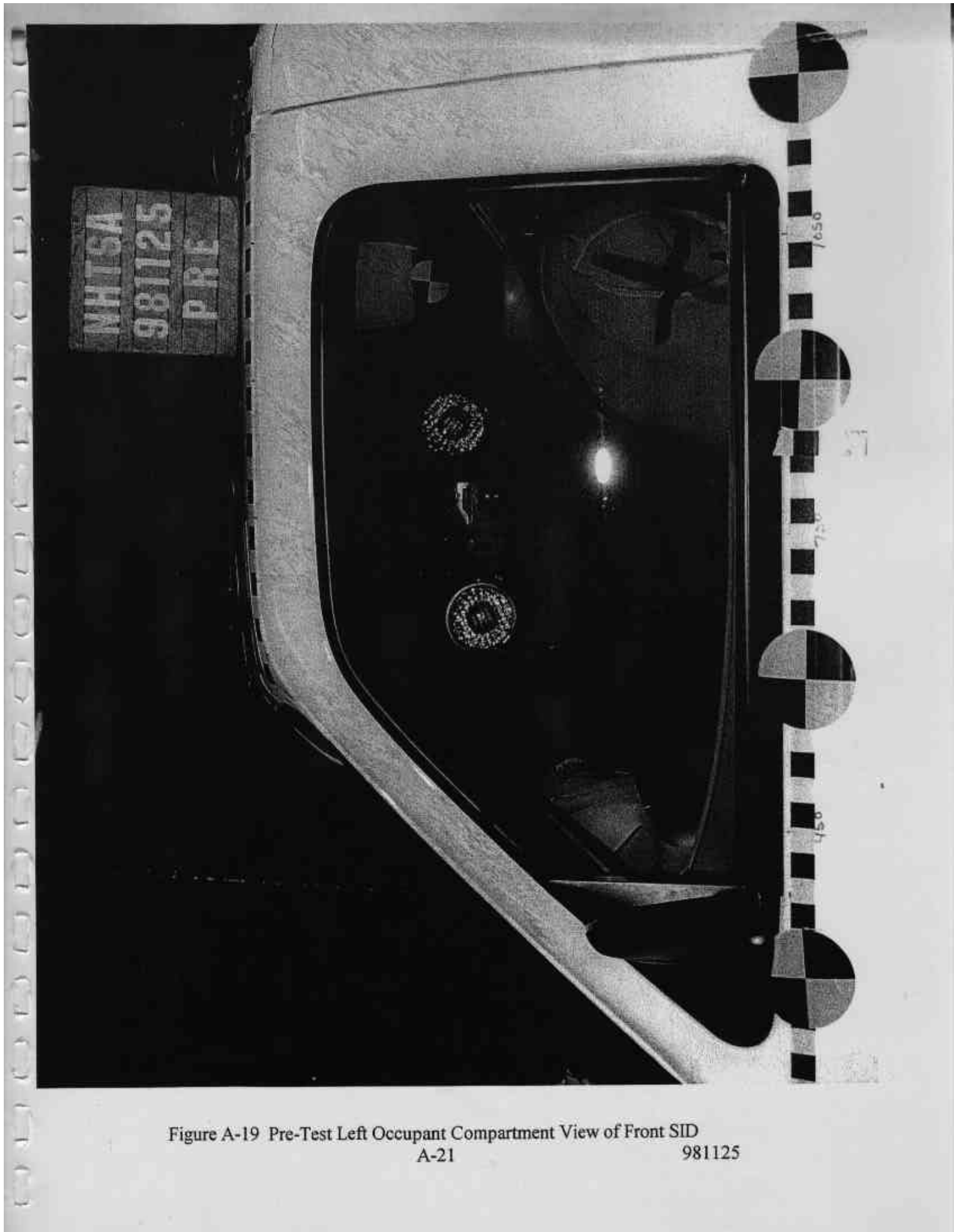


Figure A-19 Pre-Test Left Occupant Compartment View of Front SID
A-21 981125

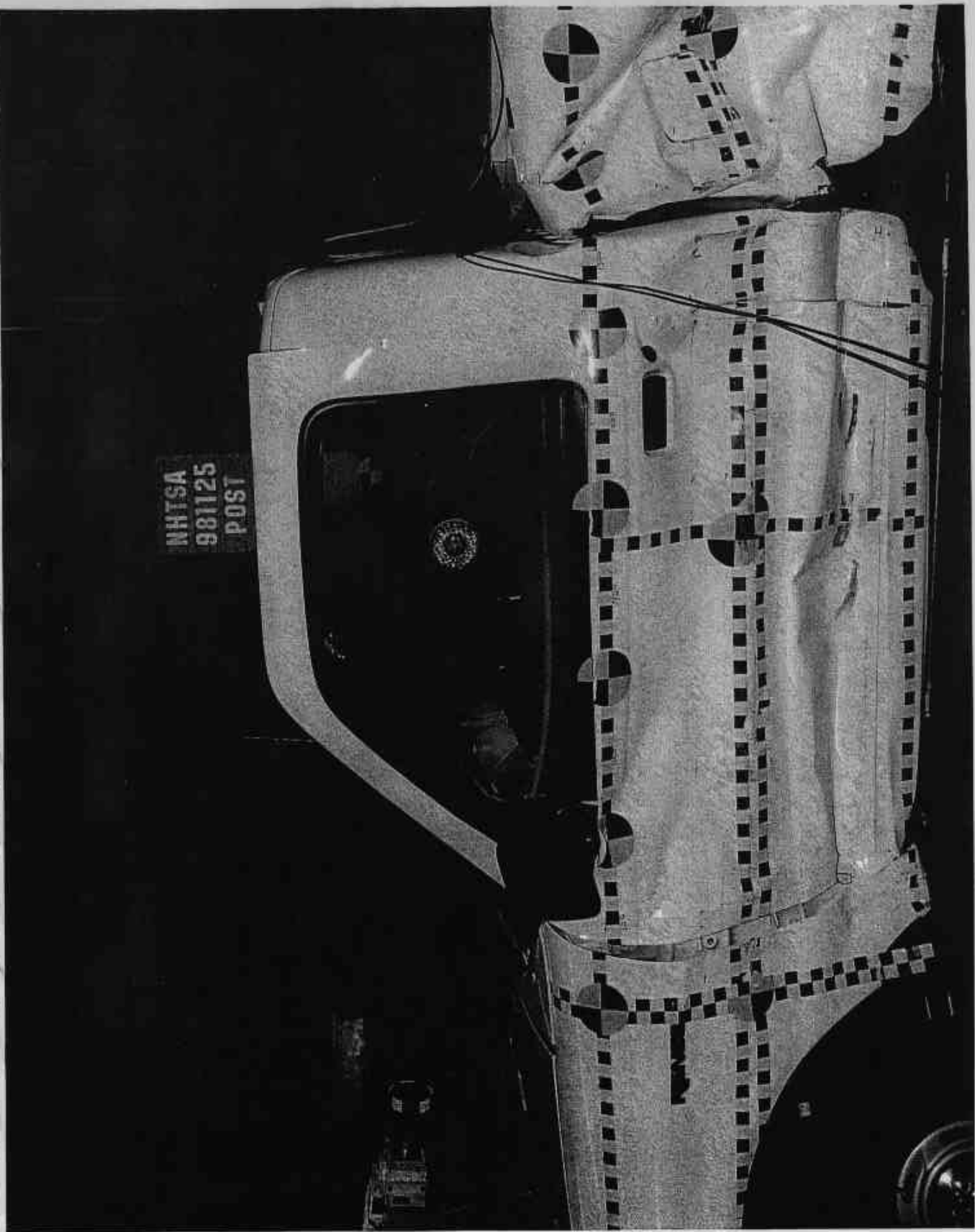


Figure A-20 Post-Test Left Occupant Compartment View of Front SID

A-22

981125

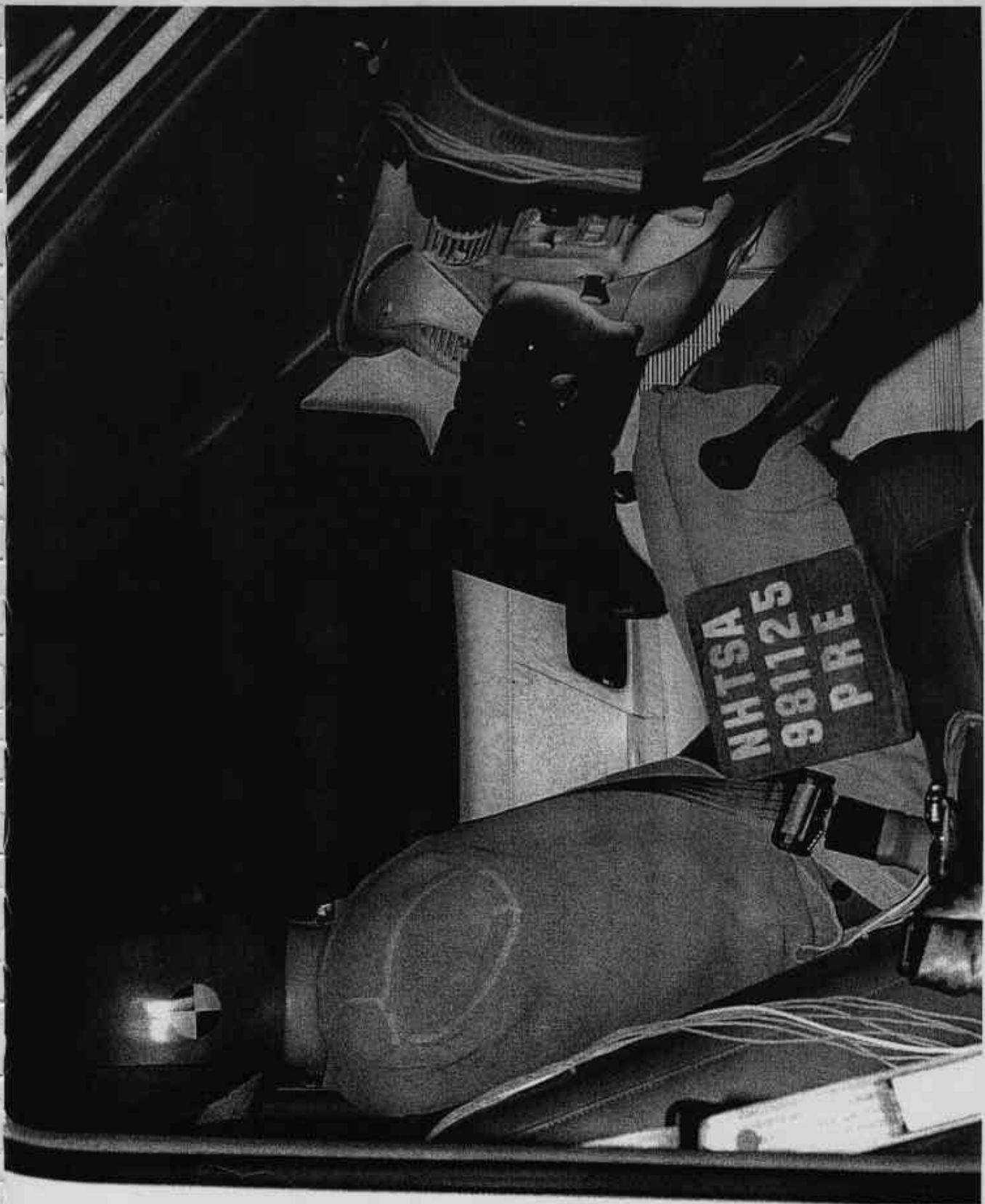


Figure A-21 Pre-Test Right Occupant Compartment View of Front SID

A-23

981125

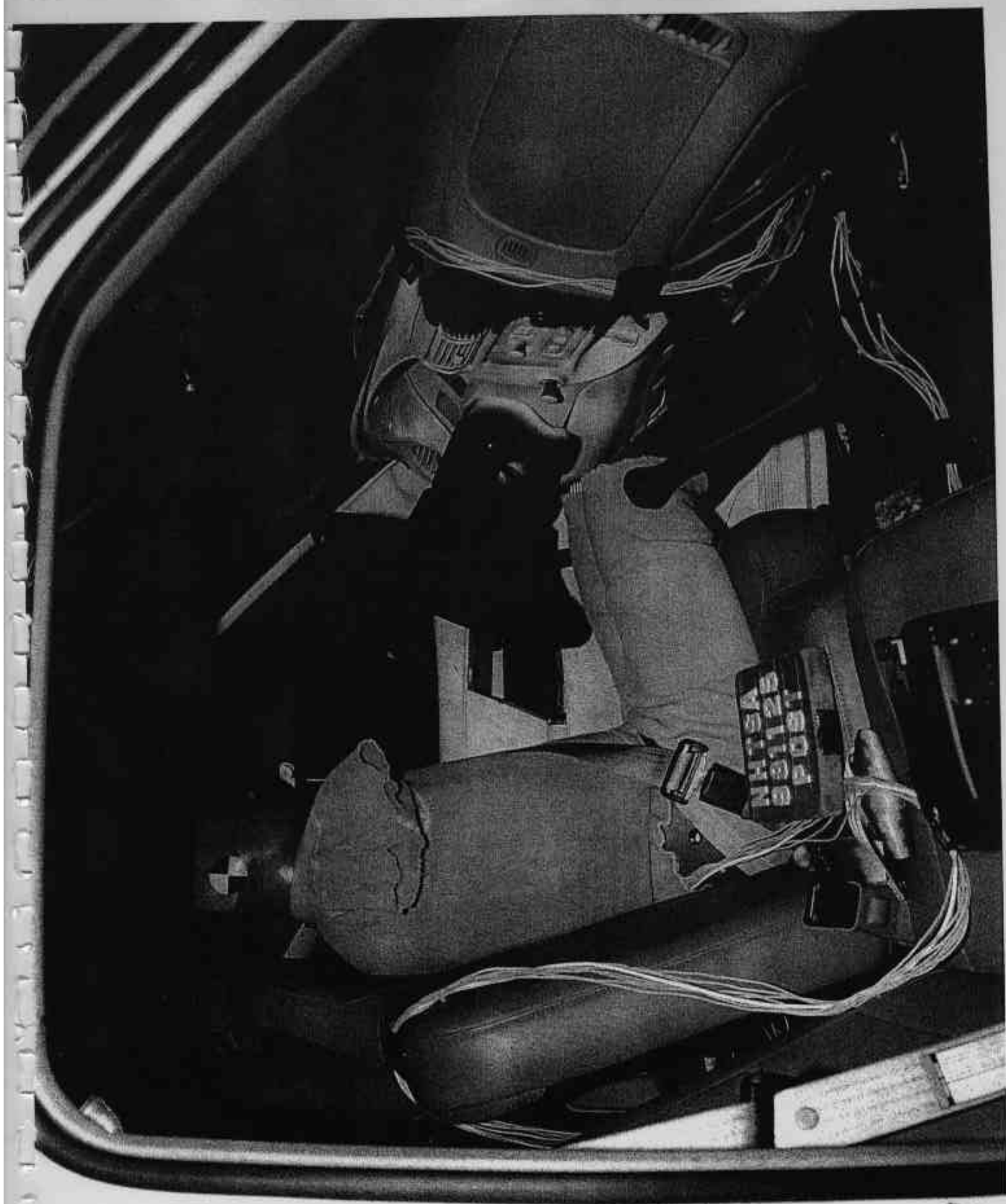


Figure A-22 Post-Test Right Occupant Compartment View of Front SID
A-24 981125

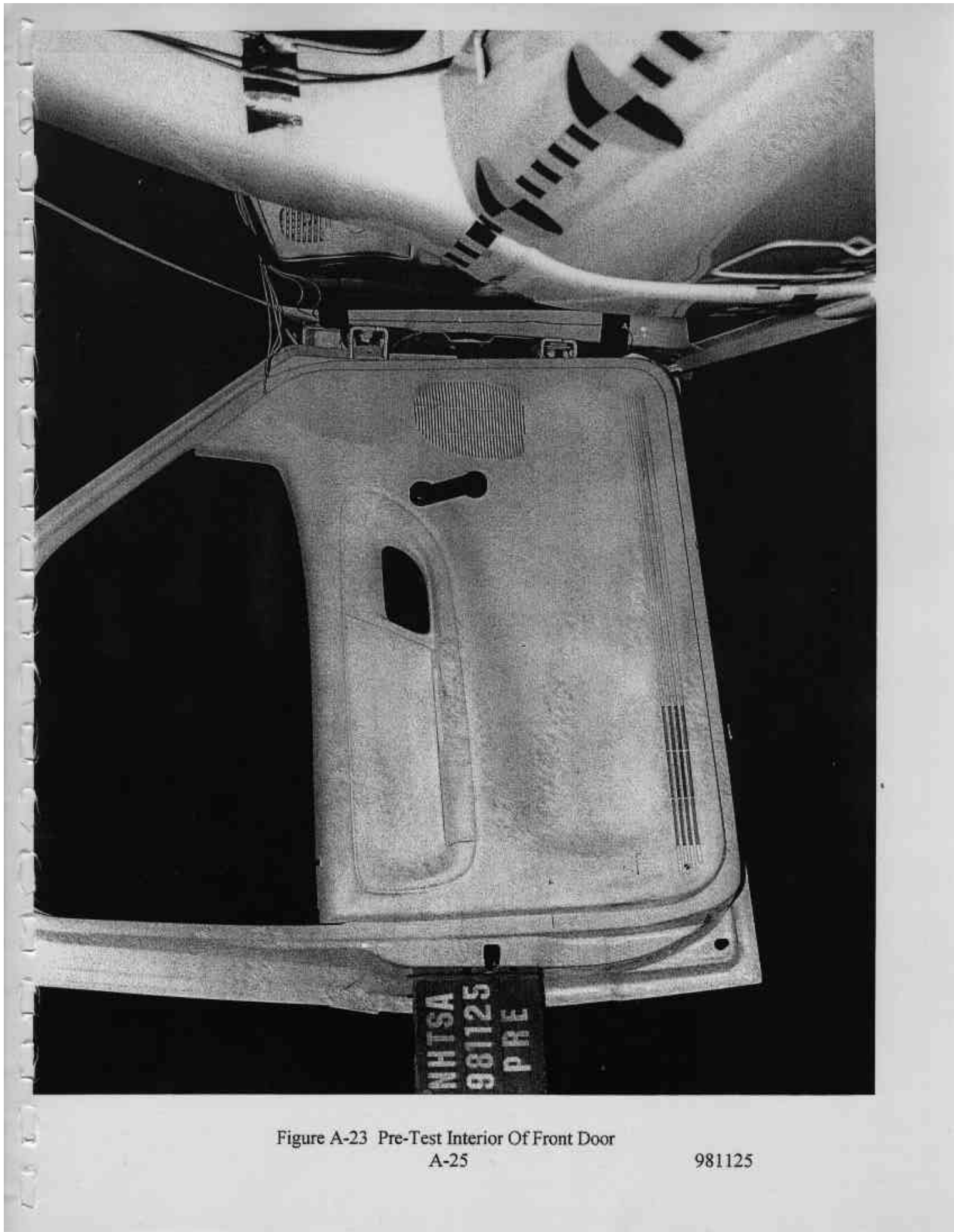


Figure A-23 Pre-Test Interior Of Front Door
A-25

981125

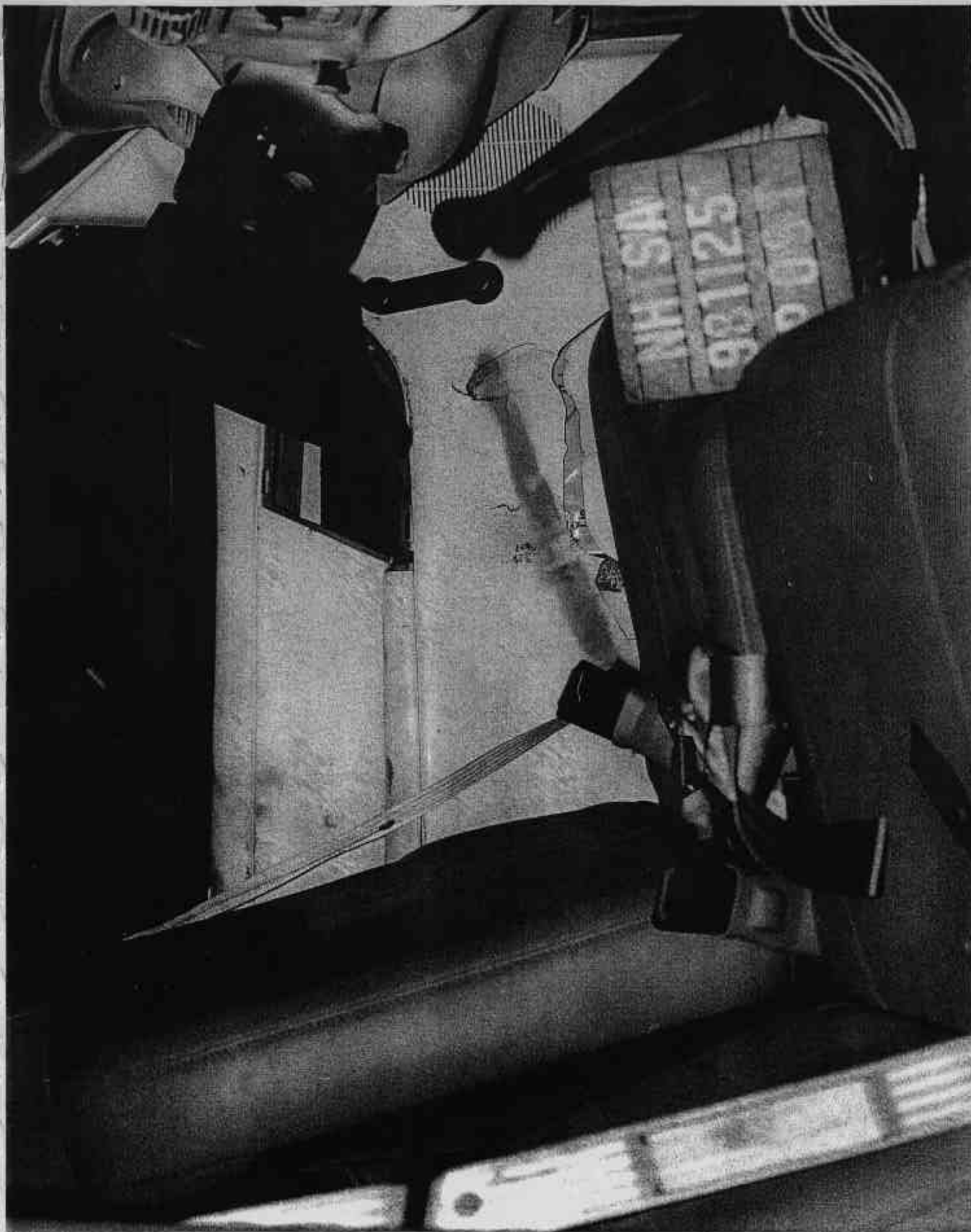


Figure A-24 Post-Test Interior of Front Door Showing SID Impact Locations
A-26 981125

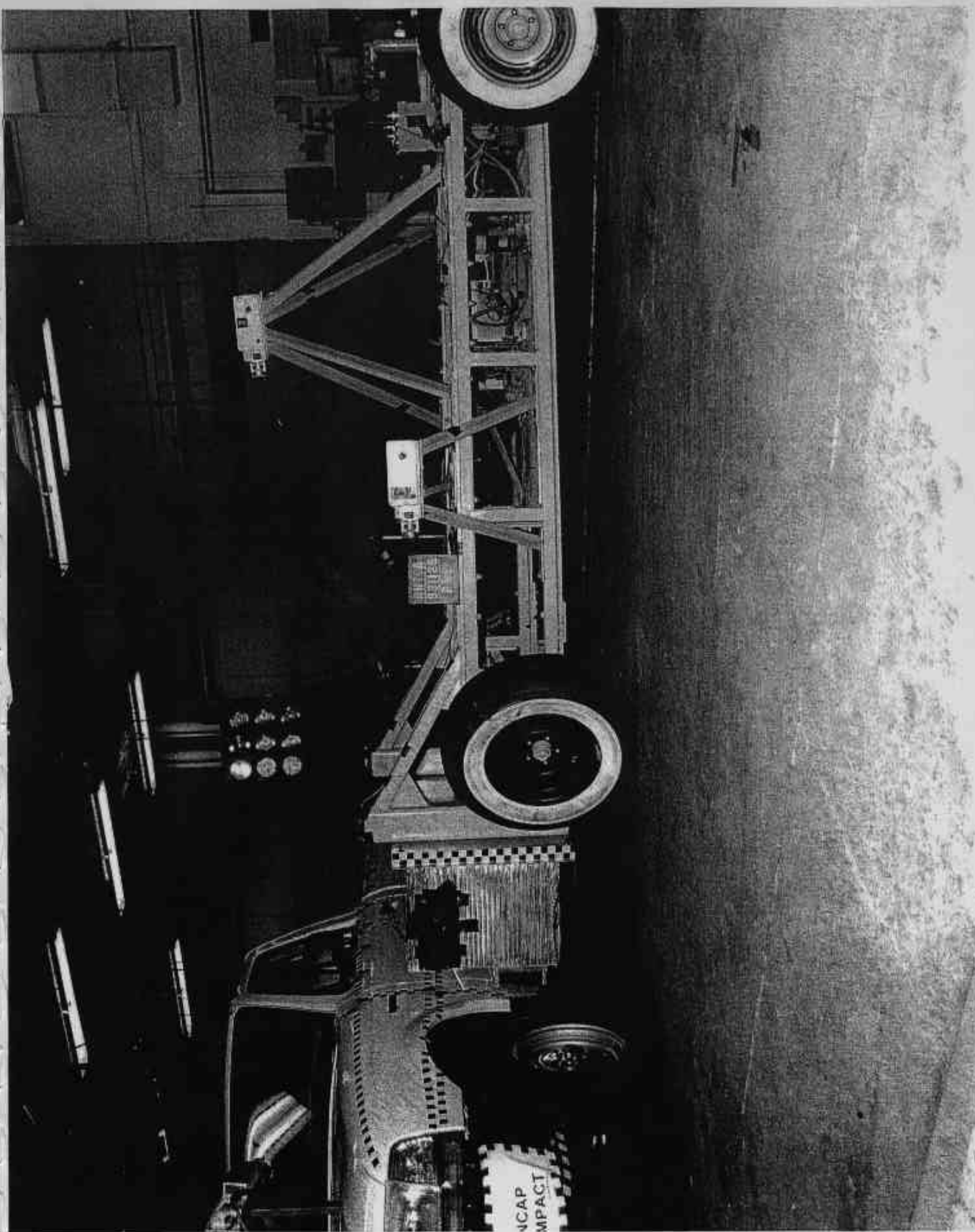


Figure A-25 Pre-Test Left Side View of MDB With Impactor Face in Position
A-27 981125

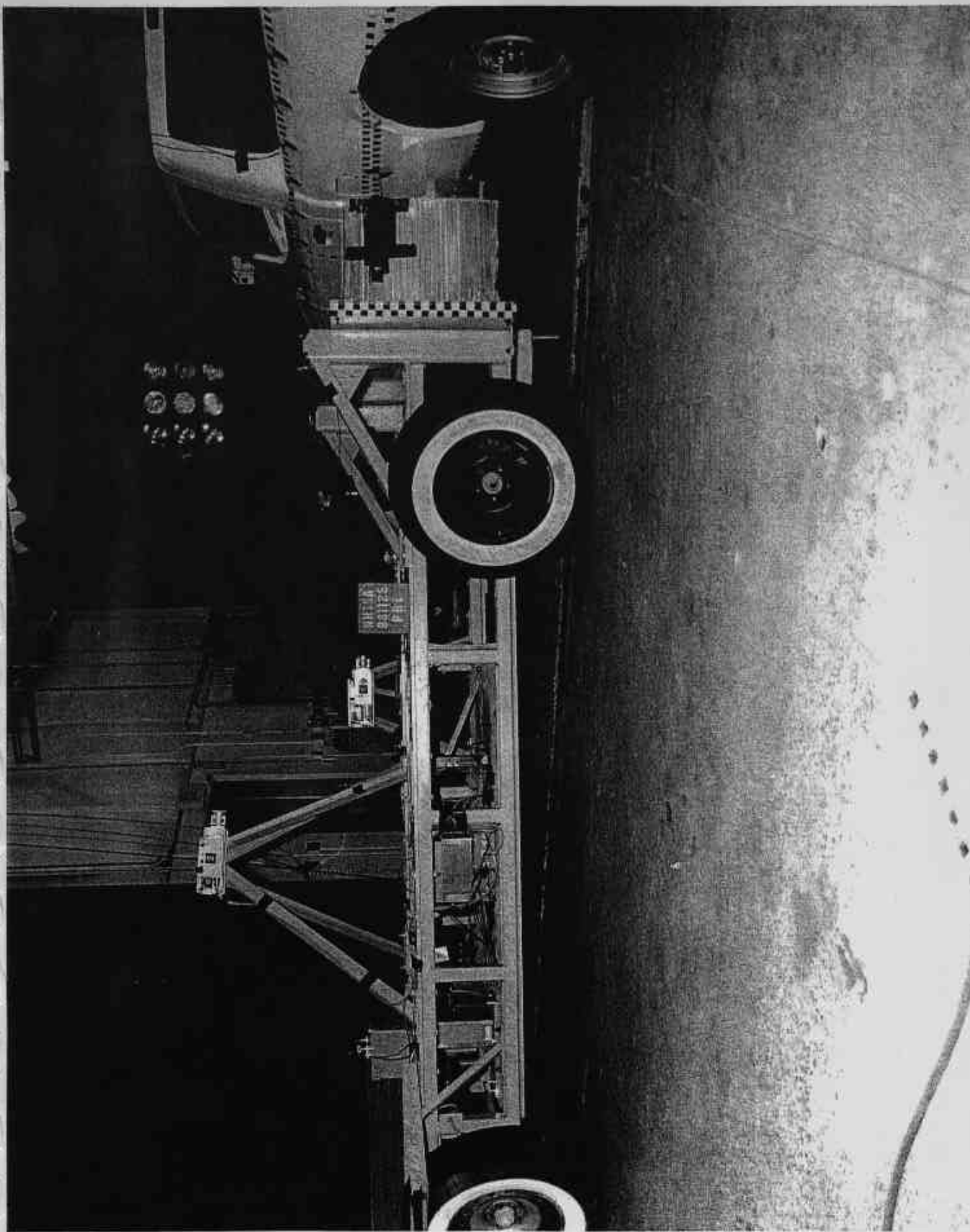


Figure A-26 Pre-Test Right Side View of MDB With Impactor Face in Position
A-28 981125

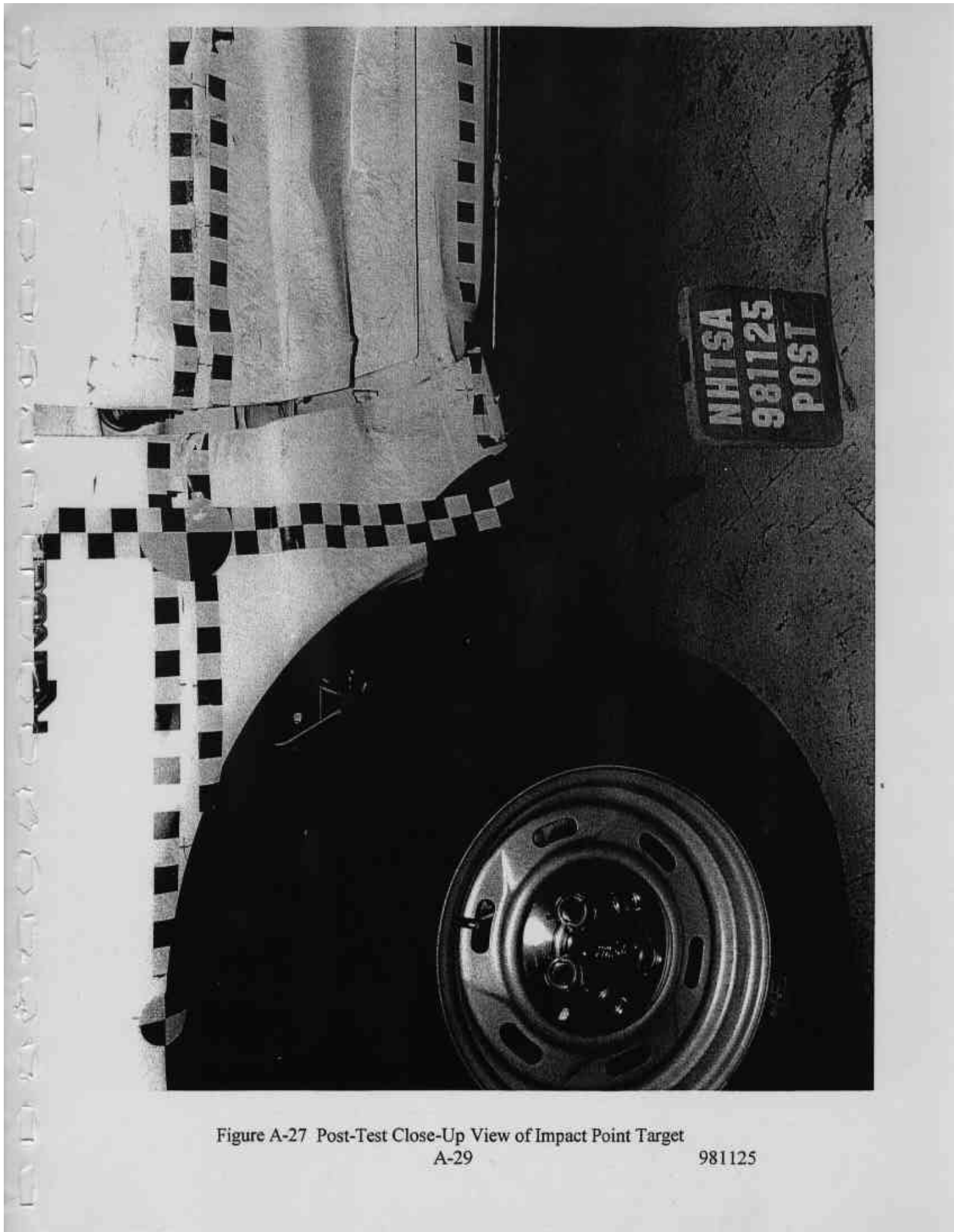


Figure A-27 Post-Test Close-Up View of Impact Point Target
A-29

981125

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE 10/98	GVWR 4370LB / 1959KG	REAR GVWR 2550LB	WITH
FRONT GVWR 2200LB	1156KG	P205/75R14SE	TIRES
997KG	WITH	14X5.5J	RIMS
P205/75R14SE	TIRES	PSI COLD	
14X5.5J	RIMS		
AT 241	1P4/35	AT 241	1P4/35

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

VIN: 1FTYR10C1XUA44617



EXT. PNT: YZ
 WB. BRK: 112 B
 INT. TR: H2
 TP/PS: 7
 R AXLE: 86
 TR SPR: M A3
 DSO: UTC
 157047740

Figure A-28 Pre-Test Vehicle Certification Label View
 A-30

981125

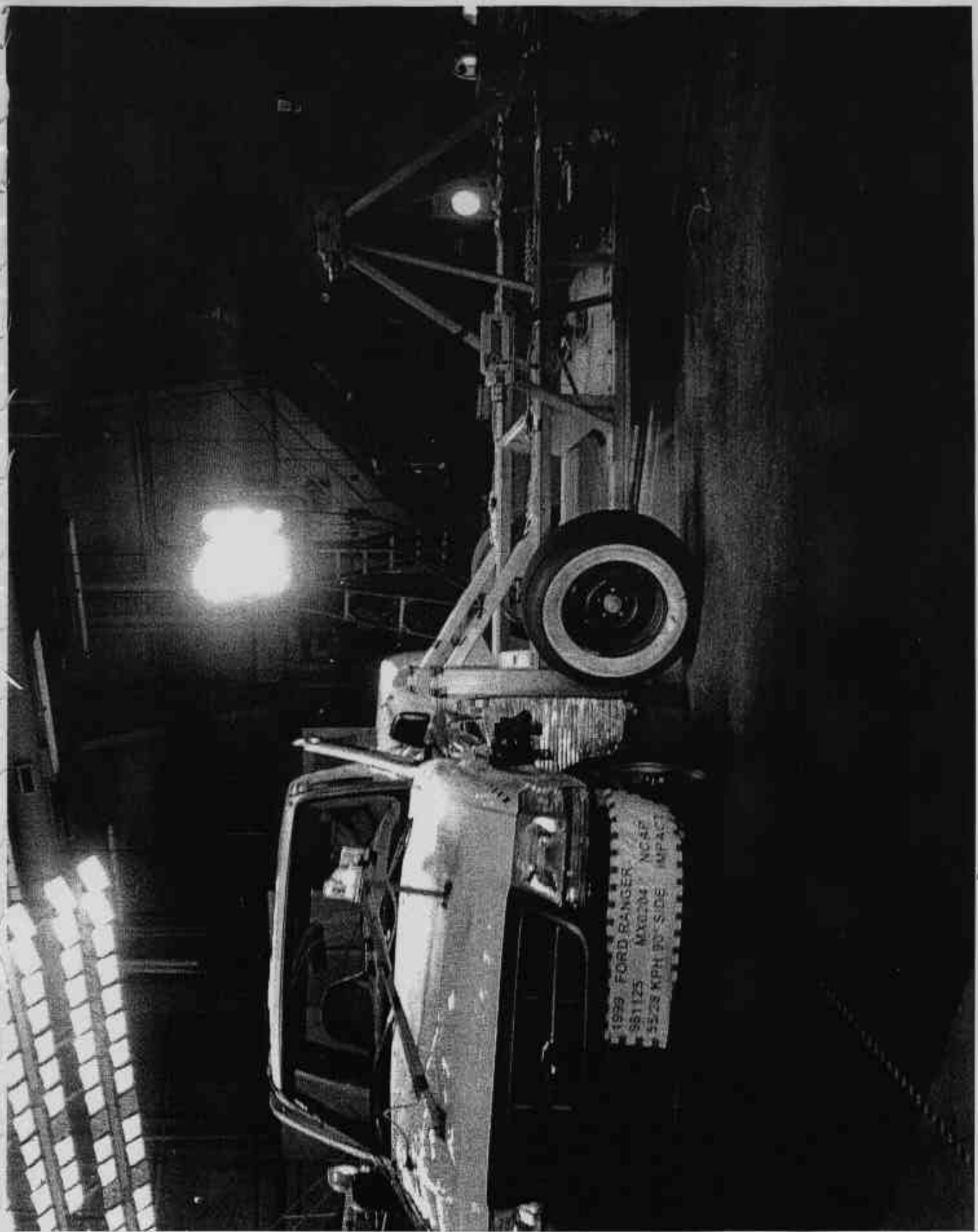


Figure A-29 Impact Event
A-31

981125

Appendix B

Data Plots

Table of Data Plots

Driver Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
14	DRIVER UPPER RIB Y-AXIS ACCELERATION	B-20
15	DRIVER UPPER RIB Y-AXIS VELOCITY	B-21
16	DRIVER LOWER RIB Y-AXIS ACCELERATION	B-22
17	DRIVER LOWER RIB Y-AXIS VELOCITY	B-23
18	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-24
19	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-25
20	DRIVER LOWER SPINE Y-AXIS ACCELERATION (FILTER CLASS 180)	B-26
21	DRIVER LOWER SPINE Y-AXIS VELOCITY (FILTER CLASS 180)	B-27
22	DRIVER PELVIS Y-AXIS ACCELERATION	B-28
23	DRIVER PELVIS Y-AXIS VELOCITY	B-29

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
47	RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION	B-54
48	RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY	B-55
49	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION	B-56
50	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-57
51	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION	B-58
52	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY	B-59
53	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION	B-60
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65	REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION	B-72
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67	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION	B-74
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98	MIDDLE B-POST Y-AXIS ACCELERATION	B-105
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105	VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY	B-112
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107	VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY	B-114
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MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

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112	MDB CENTER OF GRAVITY X-AXIS VELOCITY	B-120
113	MDB CENTER OF GRAVITY Y-AXIS ACCELERATION-	B-121
114	MDB CENTER OF GRAVITY Y-AXIS VELOCITY	B-122
115	MDB CENTER OF GRAVITY Z-AXIS ACCELERATION	B-123

116	MDB CENTER OF GRAVITY Z-AXIS VELOCITY	B-124
117	MDB CENTER OF GRAVITY RESULTANT ACCELERATION	B-125
118	MDB REAR X-AXIS ACCELERATION	B-126
119	MDB REAR X-AXIS VELOCITY	B-127
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Driver Dummy Instrumentation Plots

Acceleration Data - FIR Filtered

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124	DRIVER UPPER RIB Y-AXIS ACCELERATION	B-133
125	DRIVER UPPER RIB Y-AXIS VELOCITY	B-134
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127	DRIVER LOWER RIB Y-AXIS VELOCITY	B-136
128	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-137
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130	DRIVER PELVIS Y-AXIS ACCELERATION	B-139
131	DRIVER PELVIS Y-AXIS VELOCITY	B-140

Driver Dummy Instrumentation Plots

Acceleration Data - FIR Filtered - Redundant

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141	DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-151
142	DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-152
143	DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-153
144	DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-154
145	DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-155
146	DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION	B-156
147	DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY	B-157

Driver Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

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

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

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

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

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

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

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

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

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

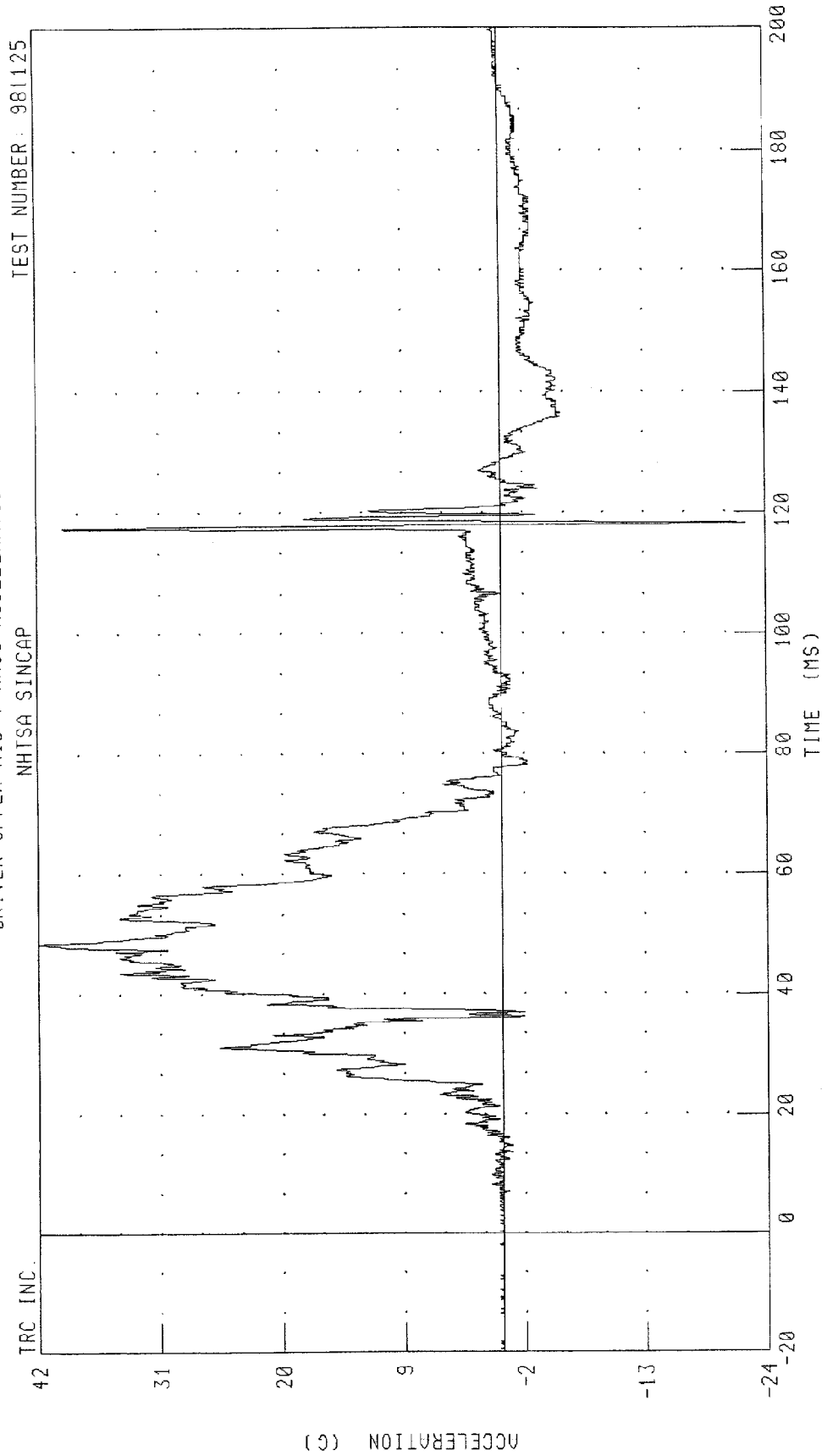
Driver's Neck Z-Axis Force, NEKZF1, Was Not Recorded
(neck axis load cells were not used)

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

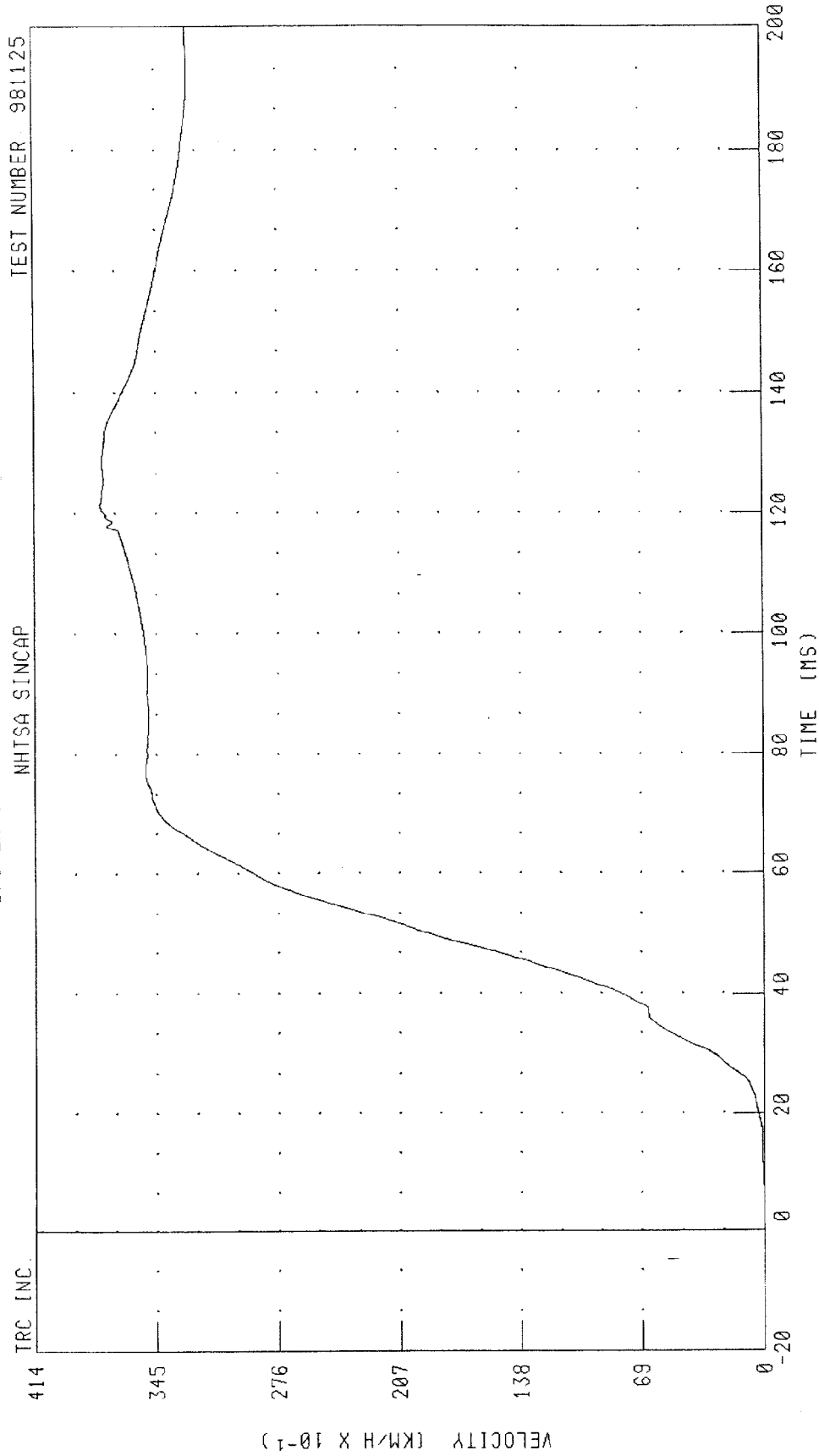
Driver's Neck Y-Axis Moment, NEKYM1, Was Not Recorded
(6 axis neck load cells were not used)

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER UPPER RIB Y-AXIS ACCELERATION

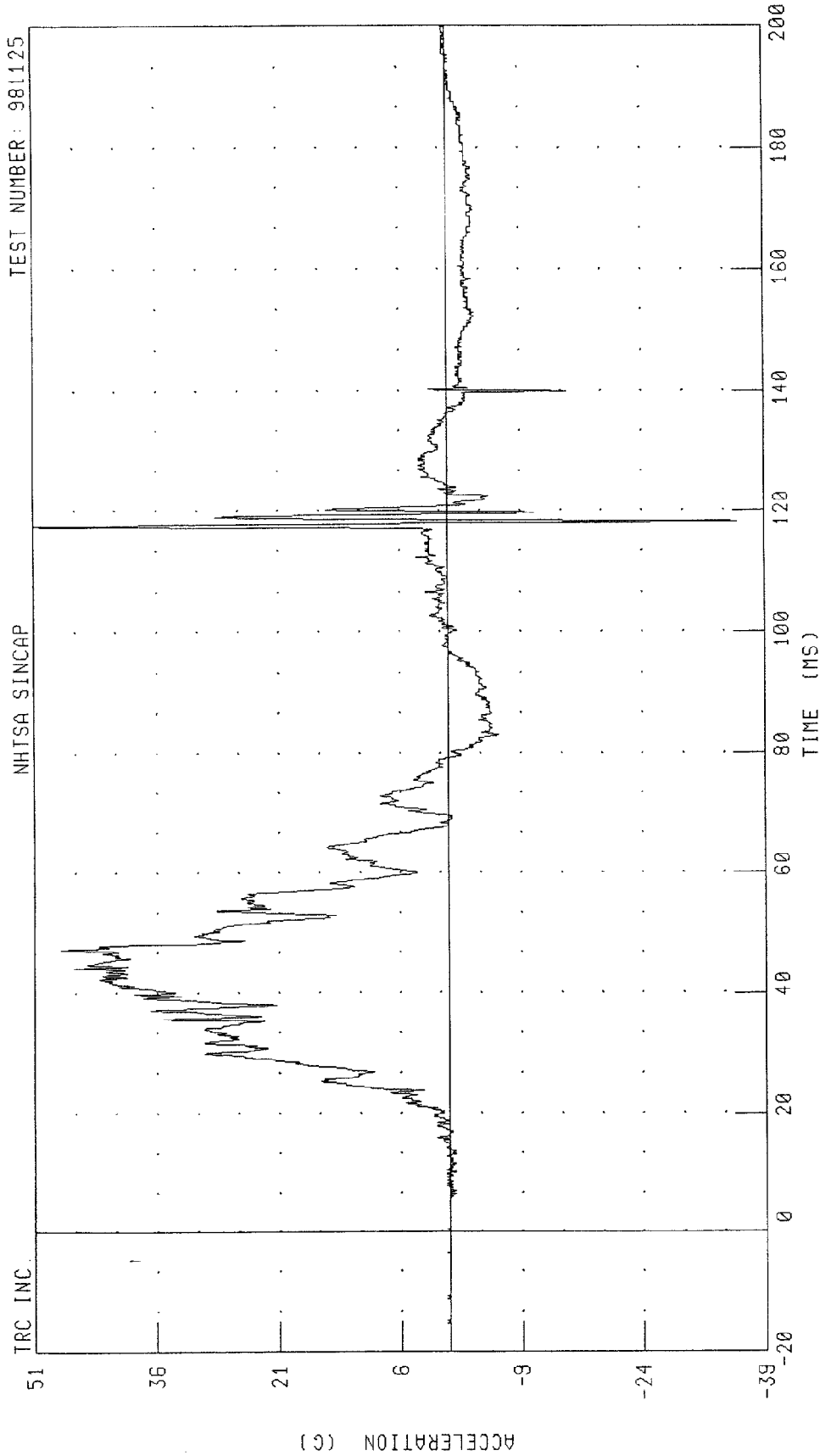


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER UPPER RIB Y-AXIS VELOCITY



CHANNEL: LURVU1 FILTER: CH. CLASS 1000

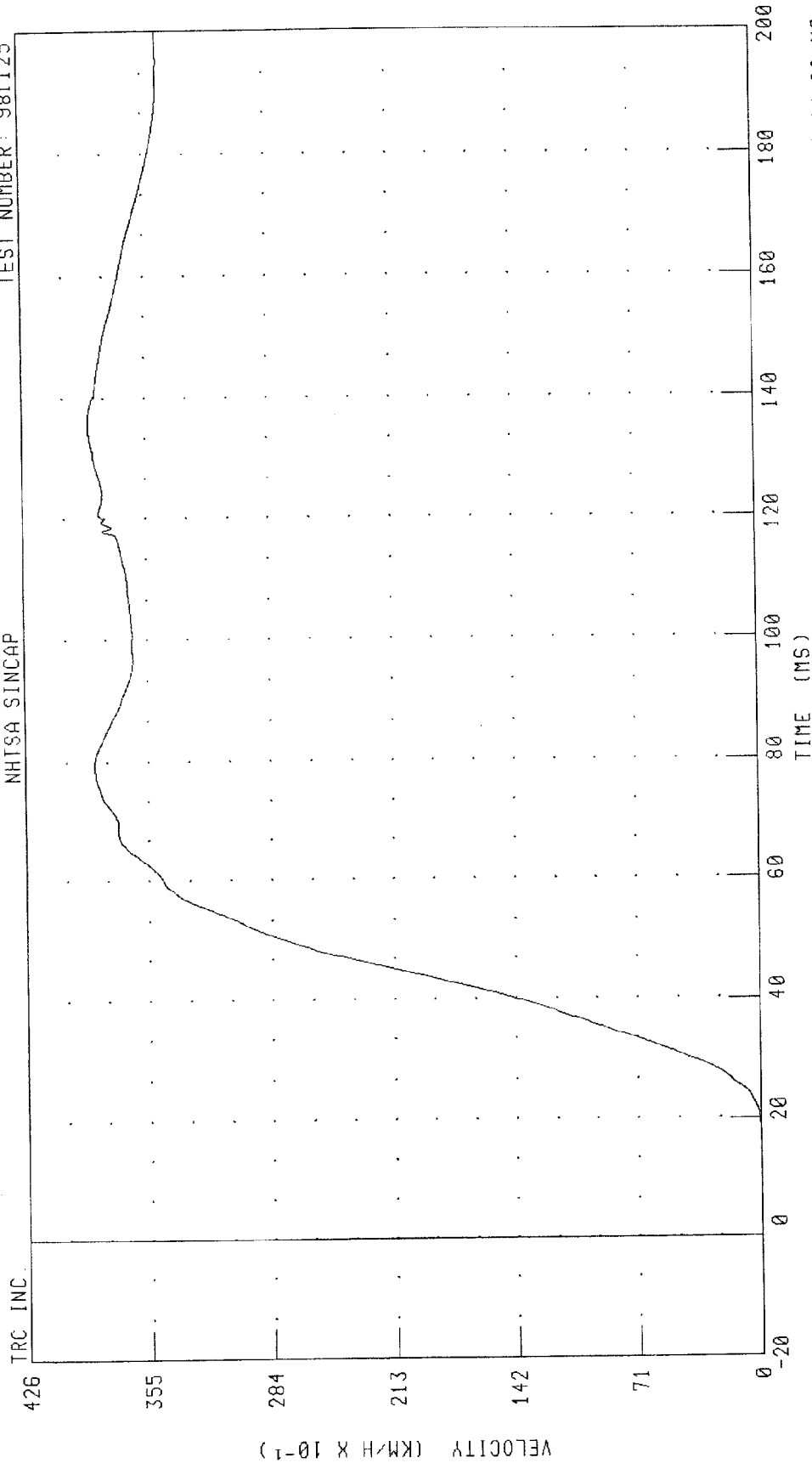
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER LOWER RIB Y-AXIS ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

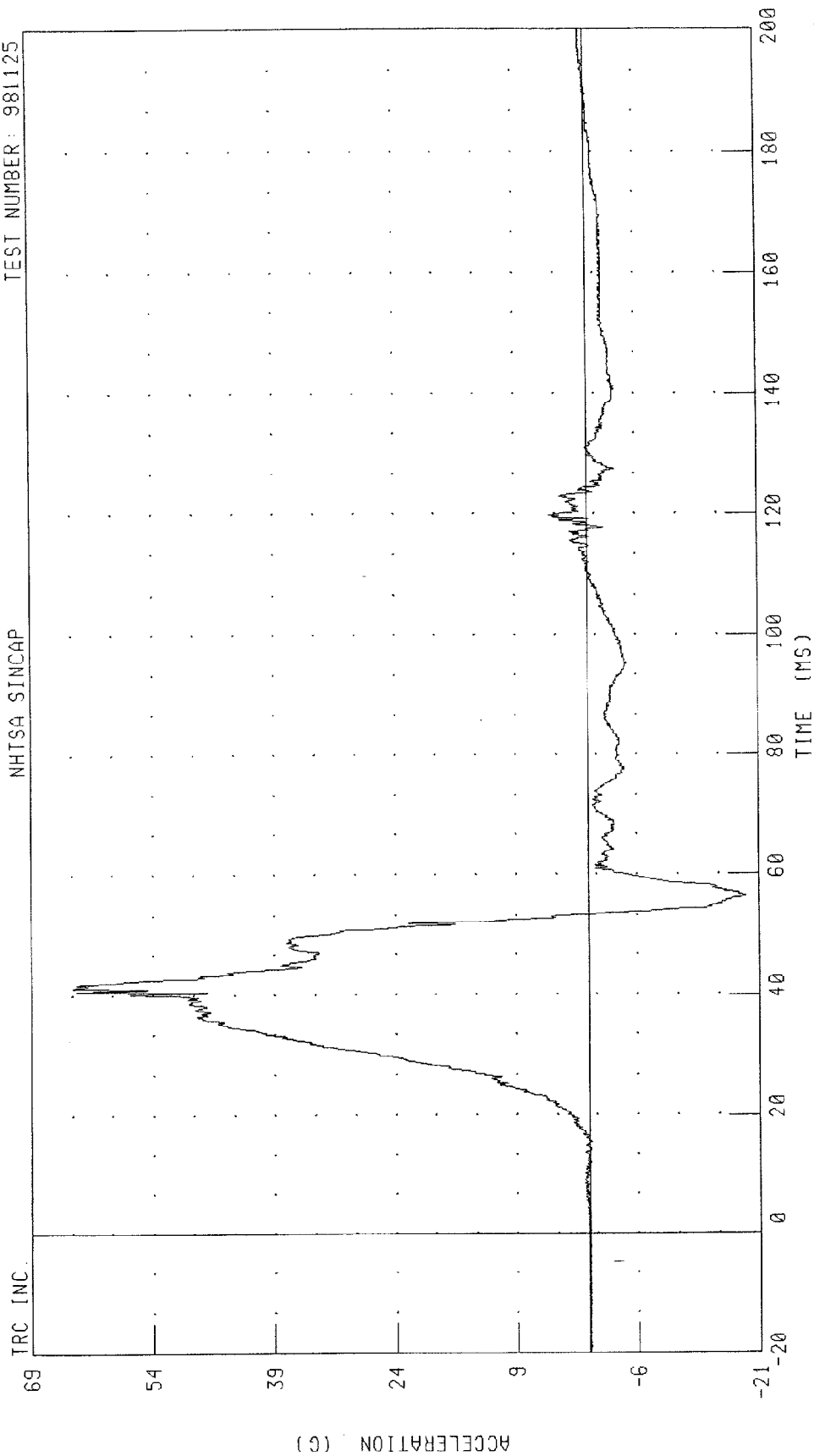


PEAK DATA: 38.78 KM/H @ 136.24 MS, -0.05 KM/H @ 14.08 MS

CHANNEL: LLRYU1 FILTER: CH. CLASS 1000

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

TEST NUMBER: 981125

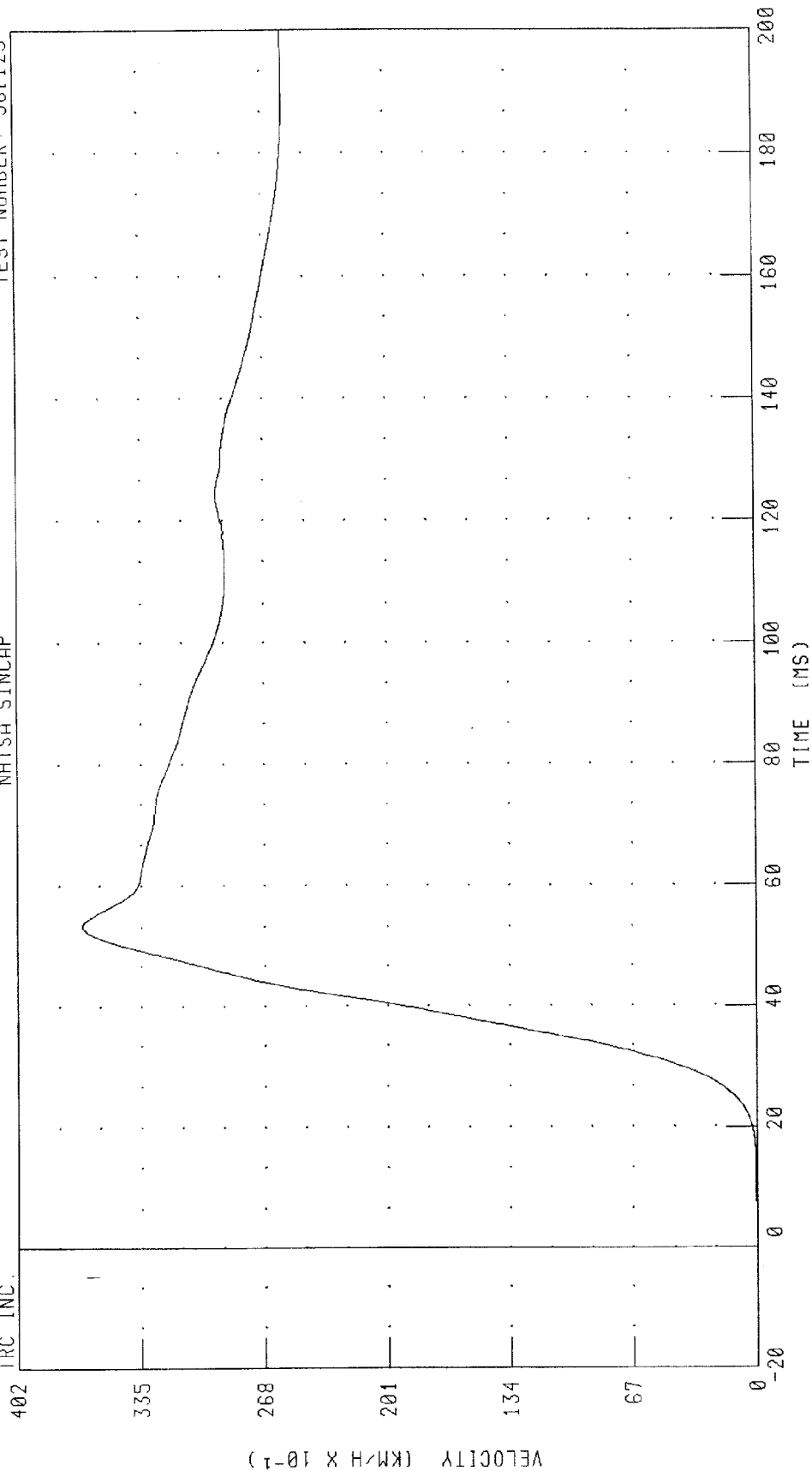


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

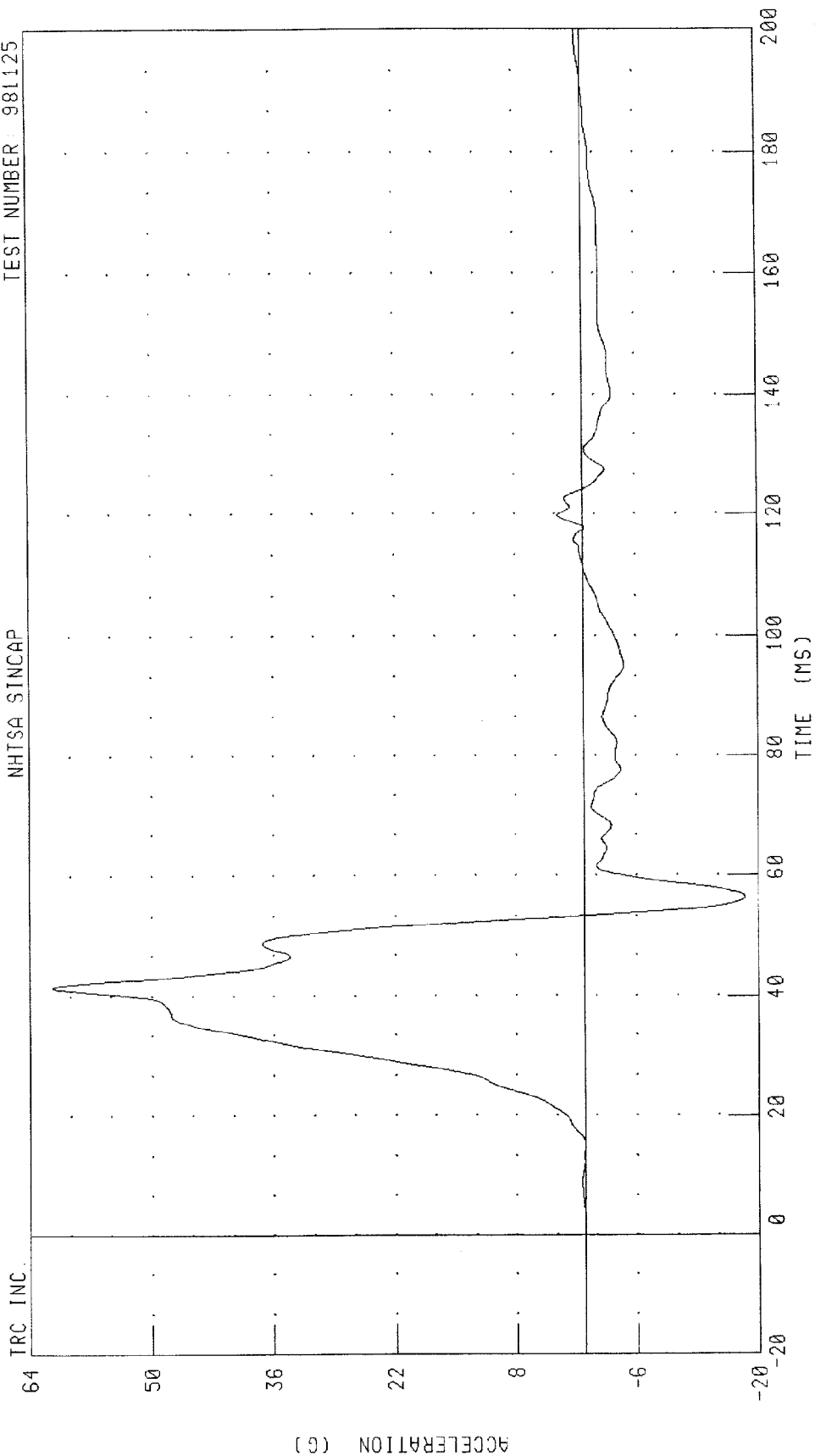


PEAK DATA: 36.69 KM/H @ 53.52 MS; 0.00 KM/H @ 0.56 MS

CHANNEL: T12YU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 DRIVER LOWER SPINE Y-AXIS ACCELERATION
 NHTSA STINCAP

TEST NUMBER: 981125



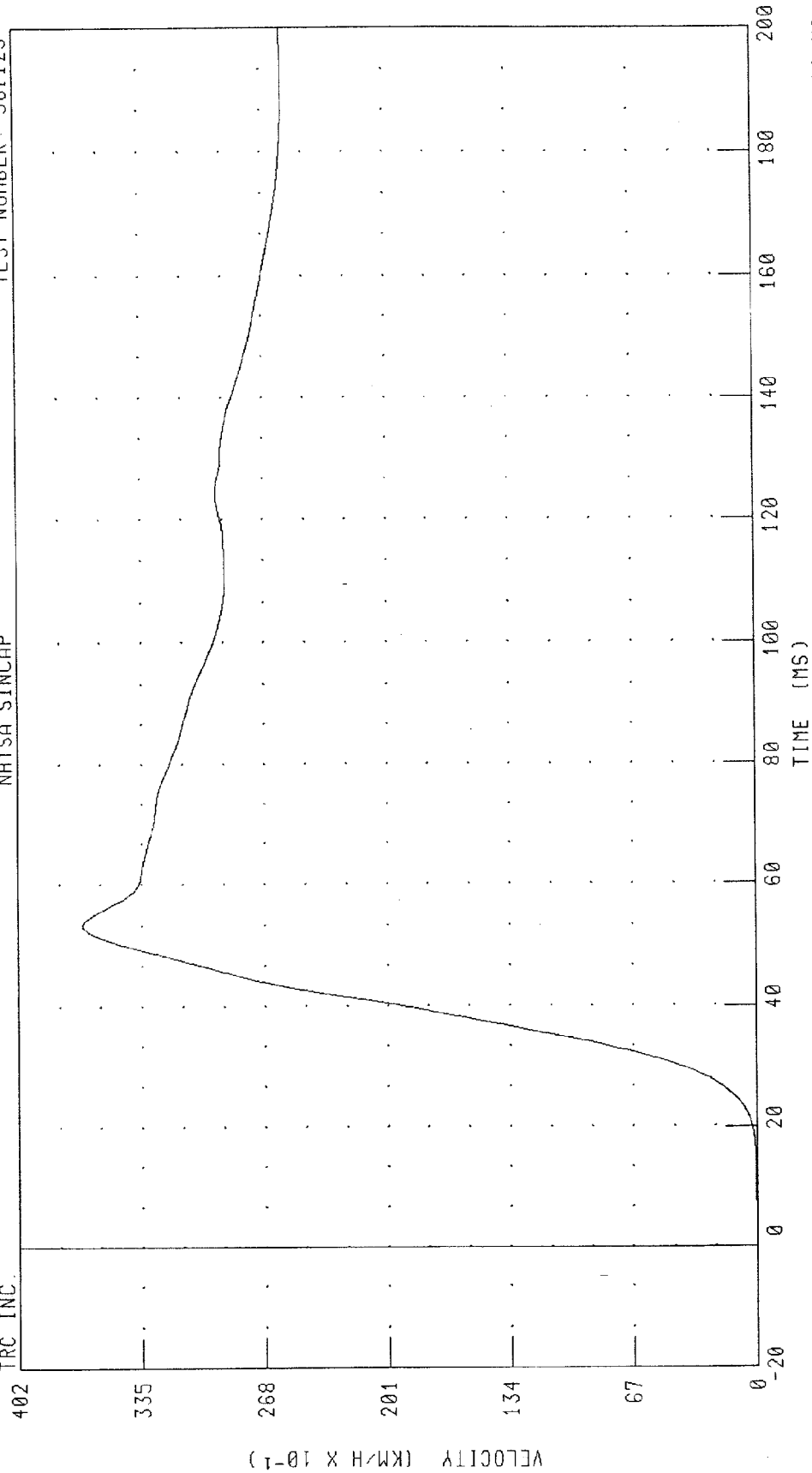
CHANNEL: T12YG1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

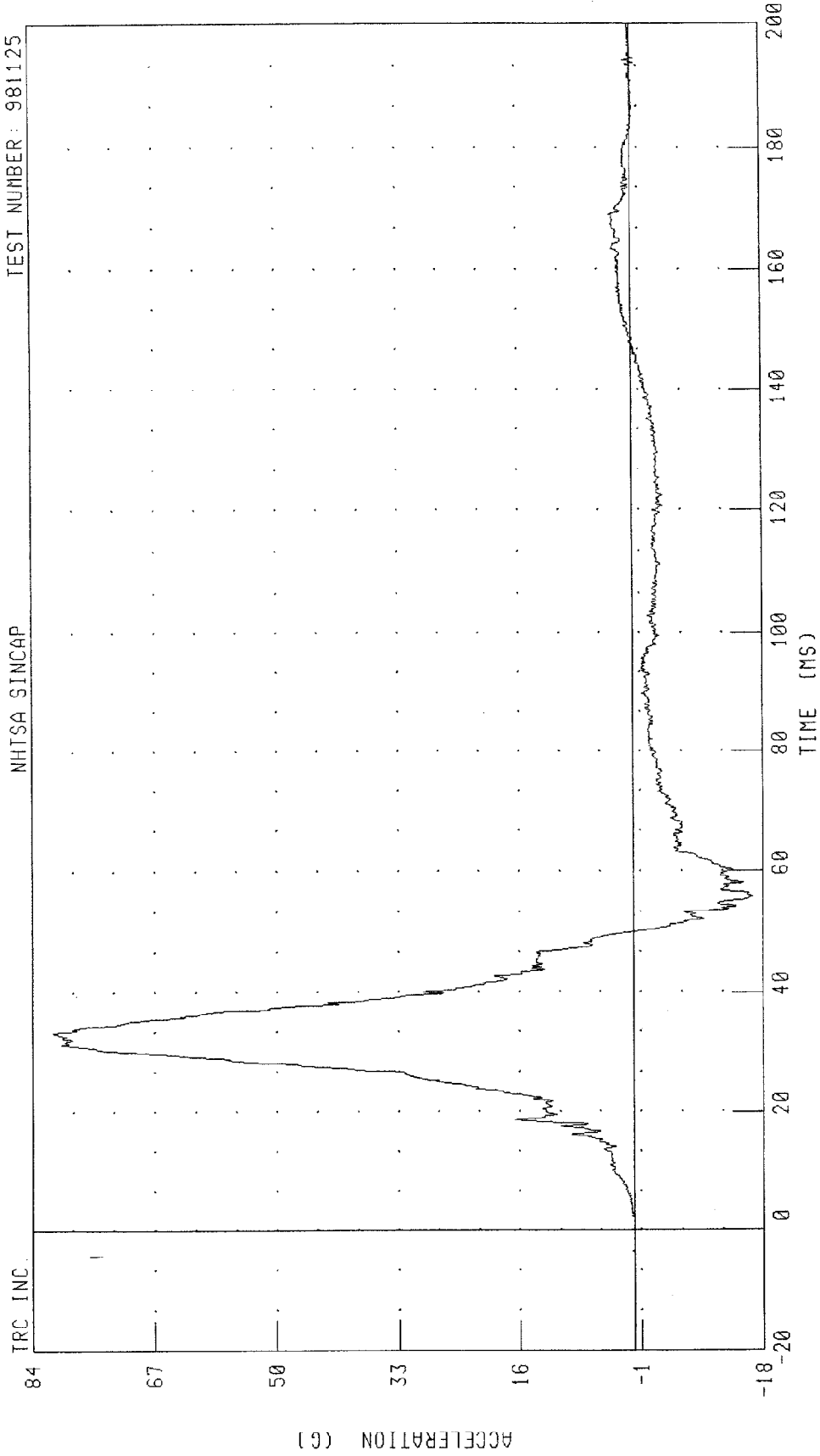


PEAK DATA: 36.68 KM/H @ 53.44 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: T12YV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 DRIVER PELVIS Y-AXIS ACCELERATION
 NHTSA SINCAP

TEST NUMBER: 981125

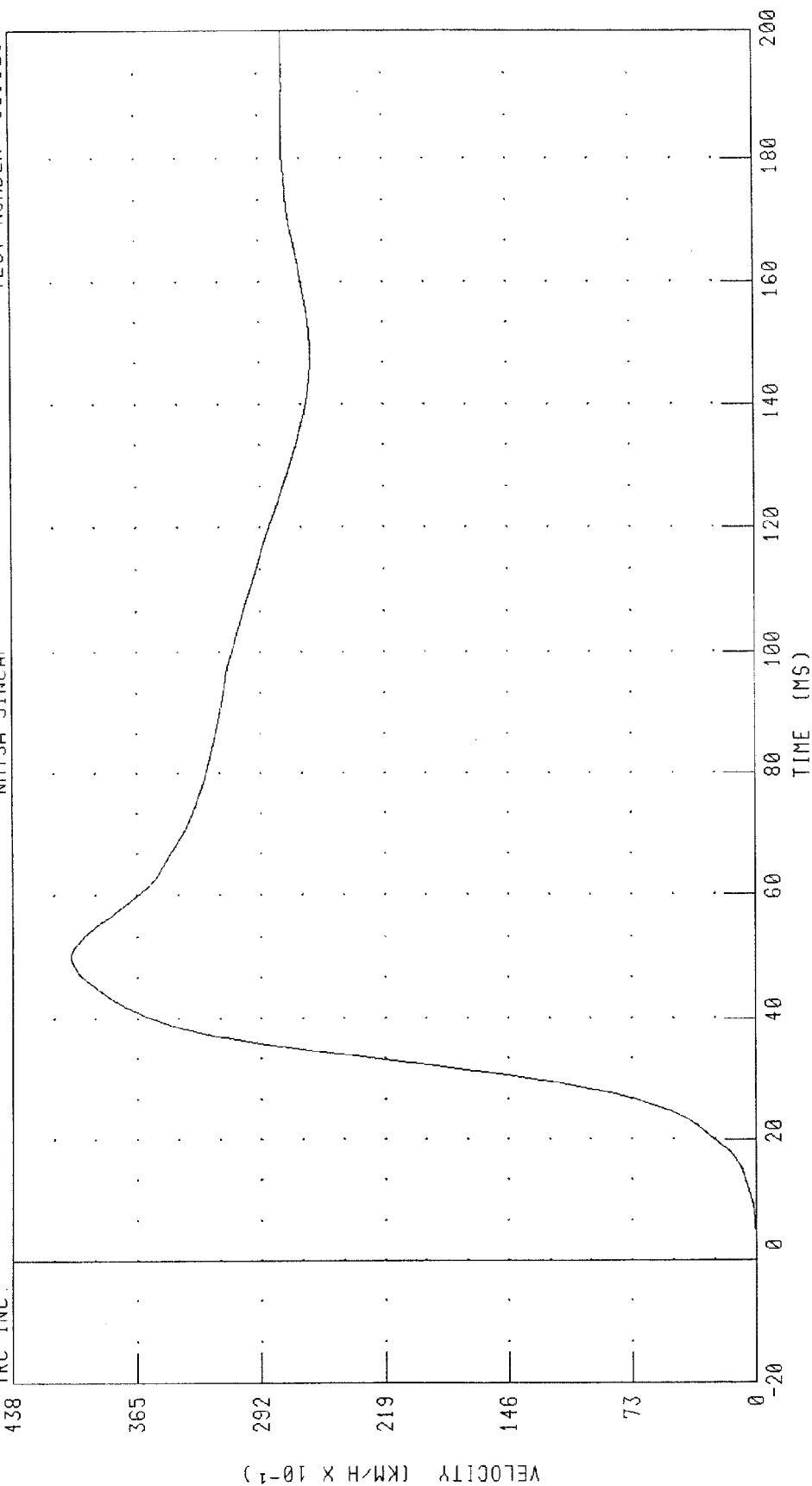


CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

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

TEST NUMBER: 981125

TRC INC.



PEAK DATA: 40.36 KM/H @ 50.08 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: PEVYU1 FILTER: CH. CLASS 1000

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

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

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

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

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

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

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

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

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

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

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

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

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

**Left Rear Passenger's Upper Rib Y-Axis Data Channel,
LURYG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Upper Rib Y-Axis Velocity Channel,
LURYV4, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Lower Rib Data Channel,
LLRYG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Lower Rib Velocity Channel,
LLRYV4, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Data Channel,
T12YG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Velocity Channel,
T12YV4, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Data Channel,
T12YG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Velocity Channel,
T12YV4, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Pelvis Data Channel,
PEVYG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Pelvis Velocity Channel,
PEVYV4, Was Not Calculated**
(rear dummy was not used)

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

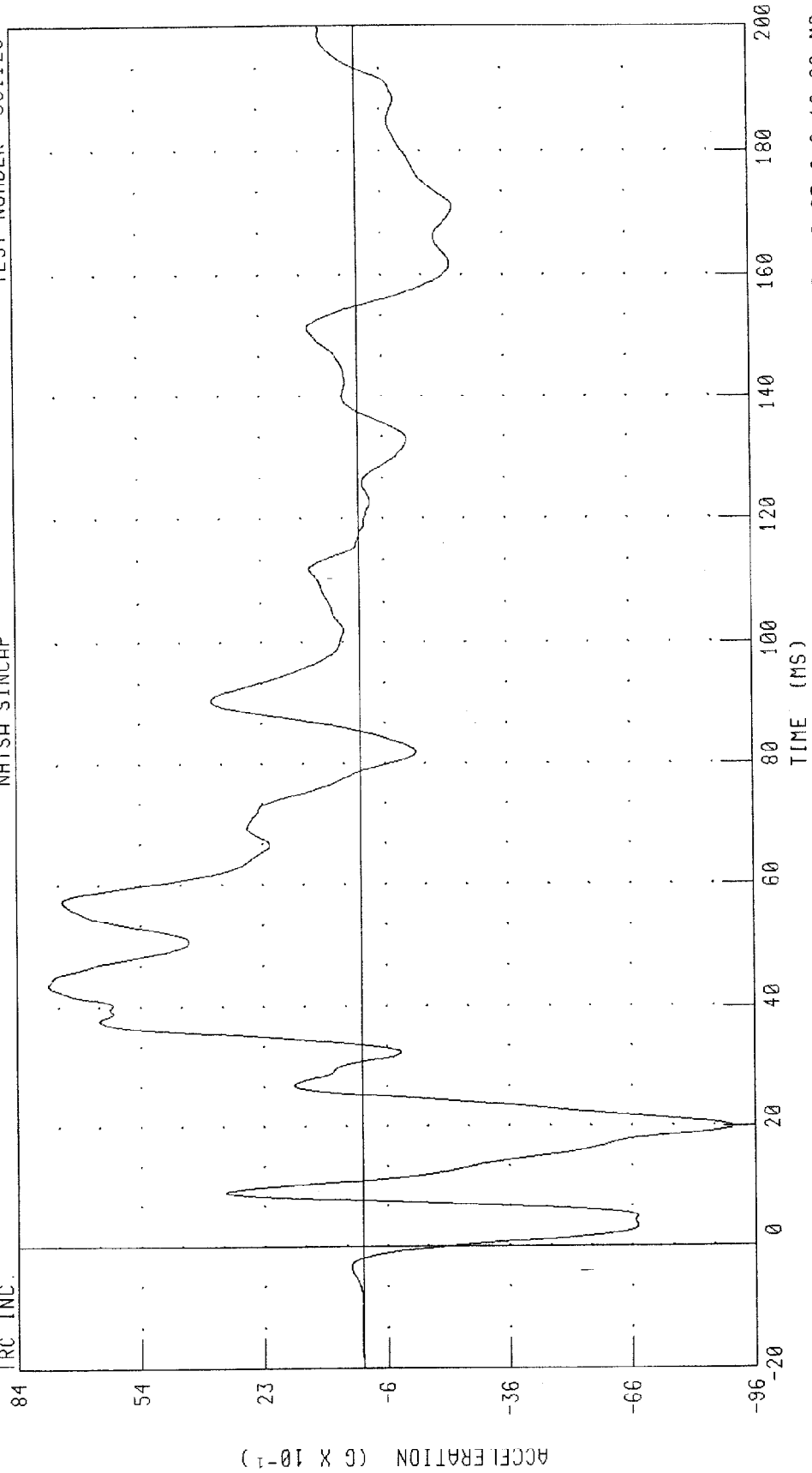
Integration Data - Filter Class 180

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



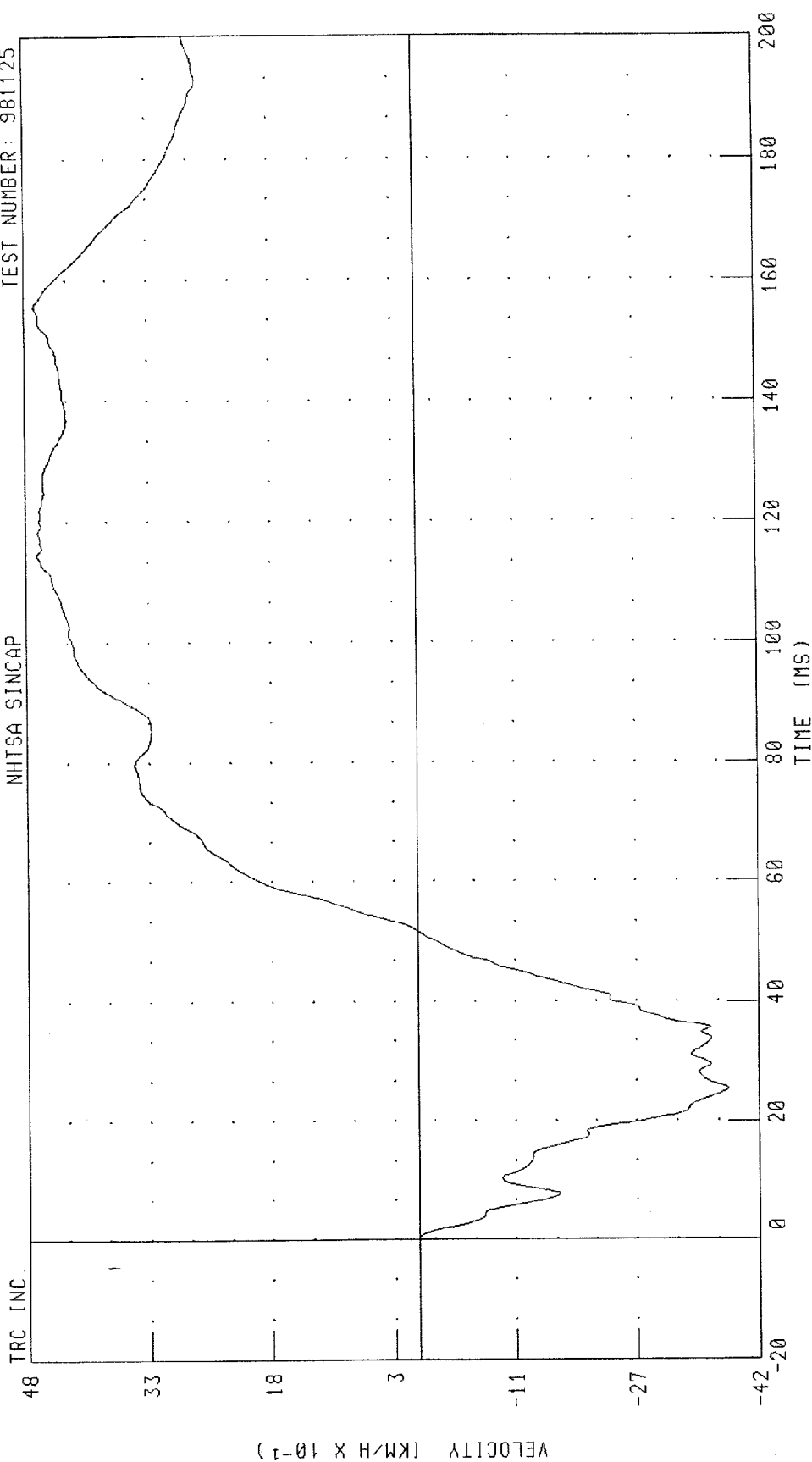
PEAK DATA: 7.64 G @ 43.60 MS, -9.05 G @ 19.92 MS

CHANNEL: RFSXC1 FILTER: CH. CLASS 60

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

TEST NUMBER: 981125

NHTSA SINCAP

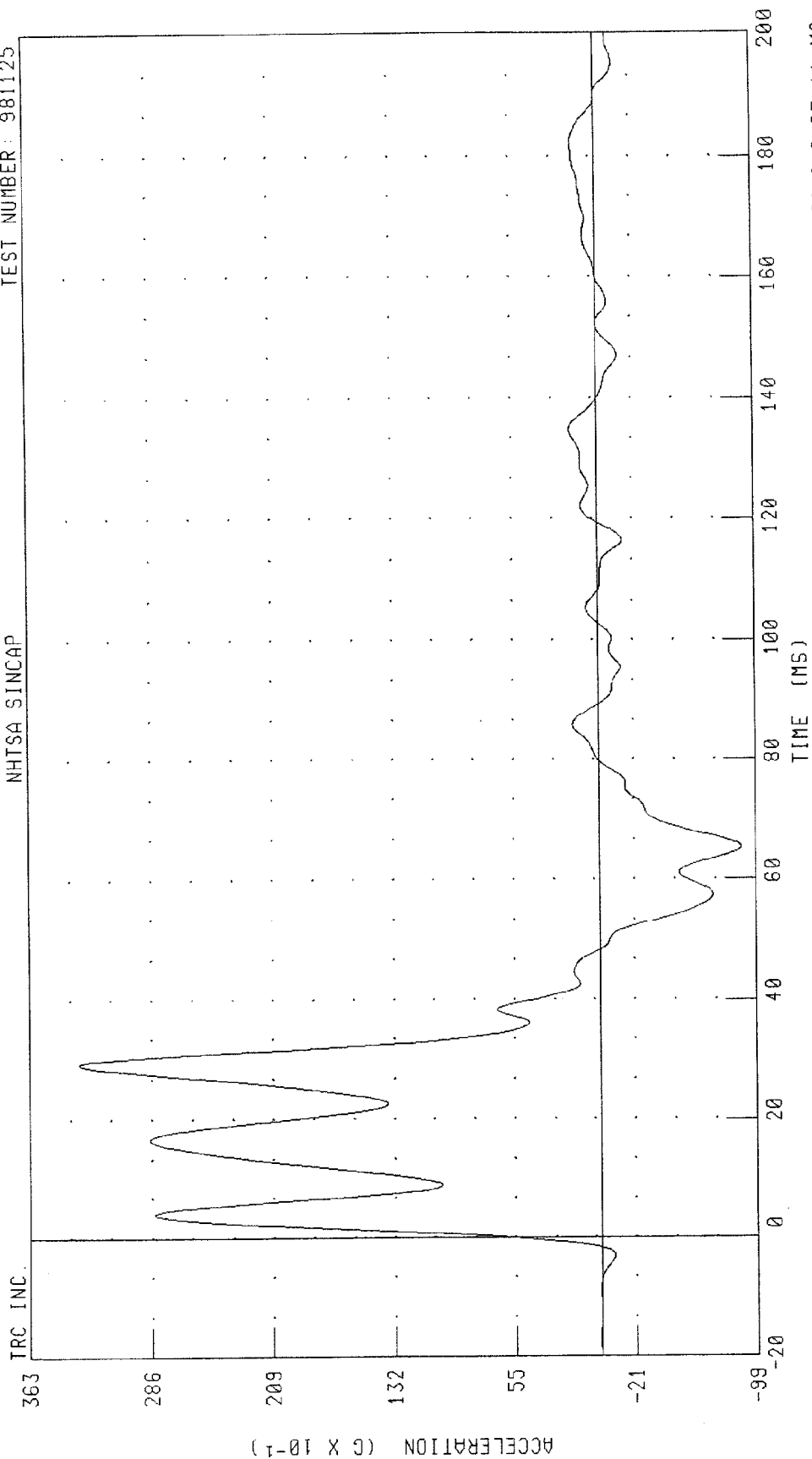


PEAK DATA: 4.68 KM/H @ 155.52 MS; -3.82 KM/H @ 25.28 MS

CHANNEL: RFSXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION
 NHTSA SINCAP

TEST NUMBER: 981125



PEAK DATA: 33.16 G @ 29.20 MS; -9.00 G @ 65.44 MS

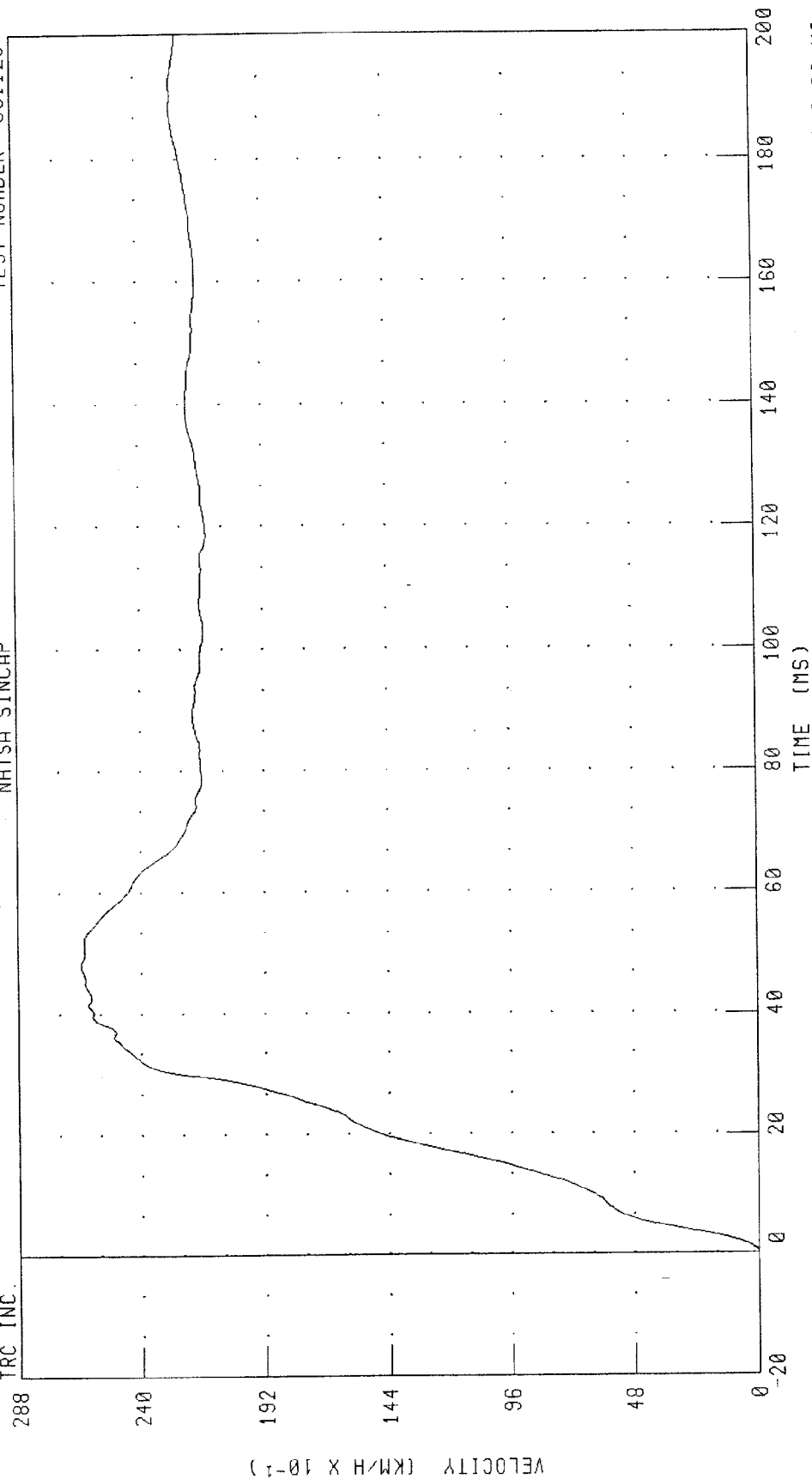
CHANNEL: RFSYG1 FILTER: CH. CLASS 60

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



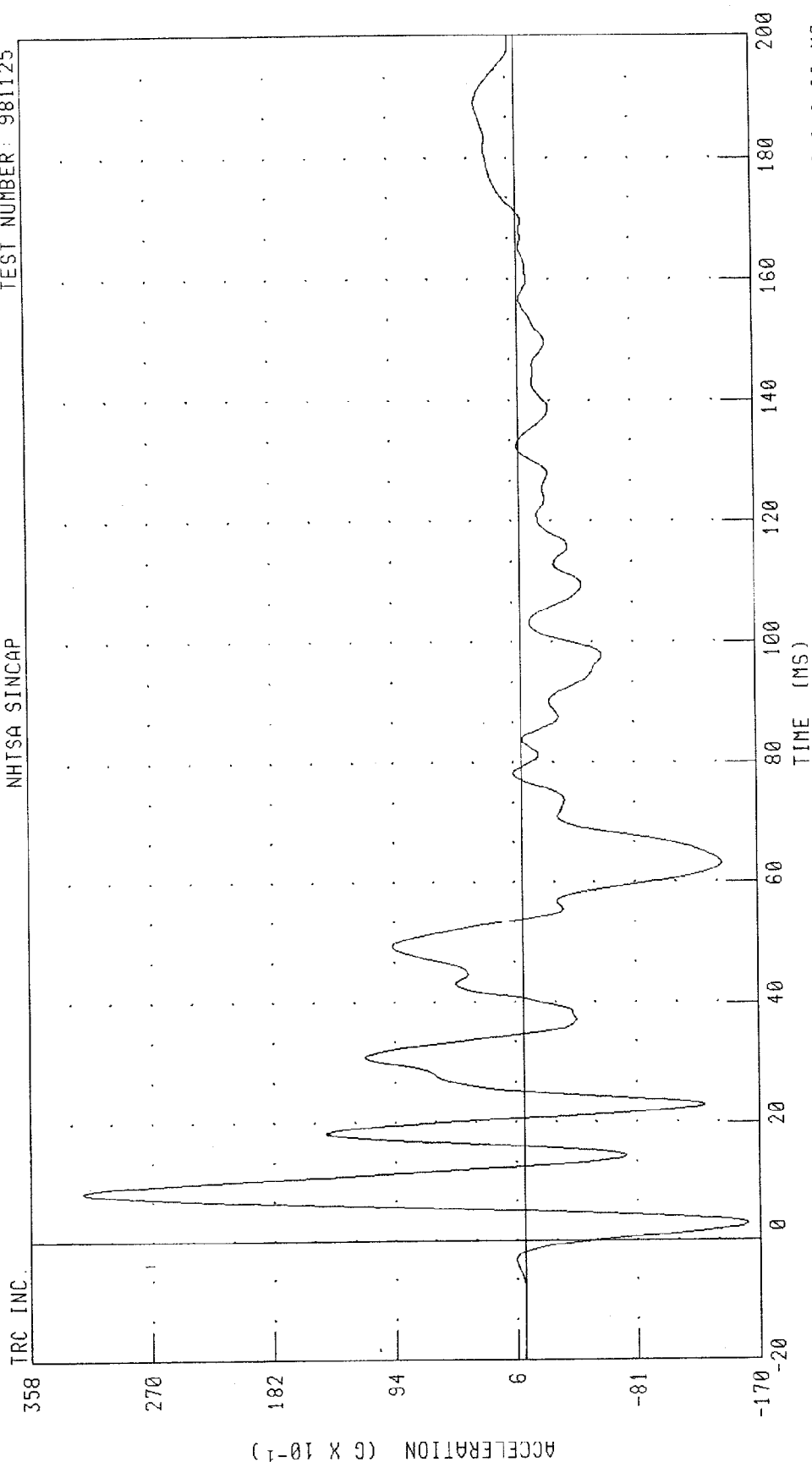
PEAK DATA: 26.33 KM/H @ 48.16 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: RFSYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 981125

NHTSA SINCAP



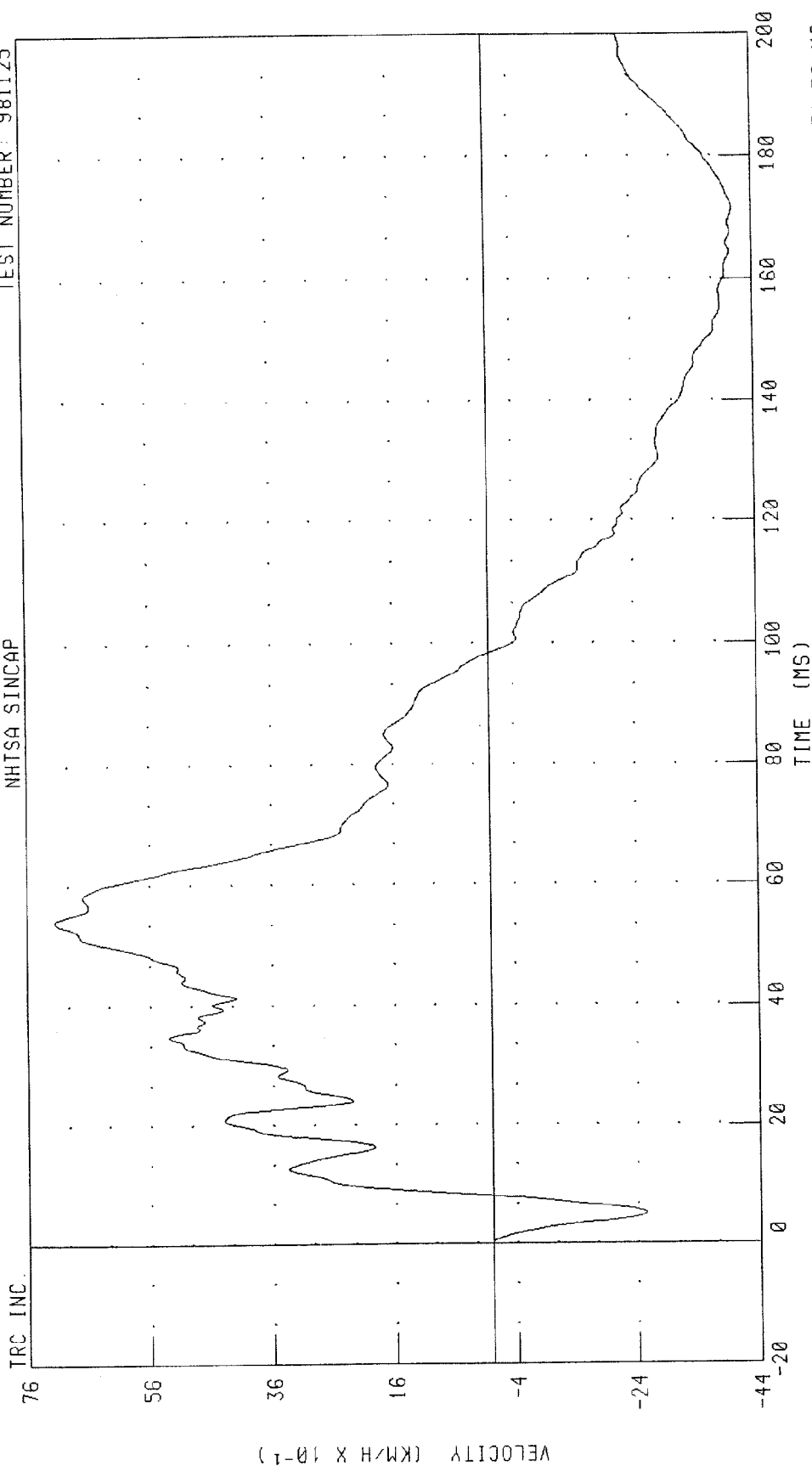
PEAK DATA: 32.01 G @ 8.40 MS, -16.11 G @ 2.80 MS

CHANNEL: RFSZC1 FILTER: CH. CLASS 60

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

TEST NUMBER: 981125

NHTSA SINCAP

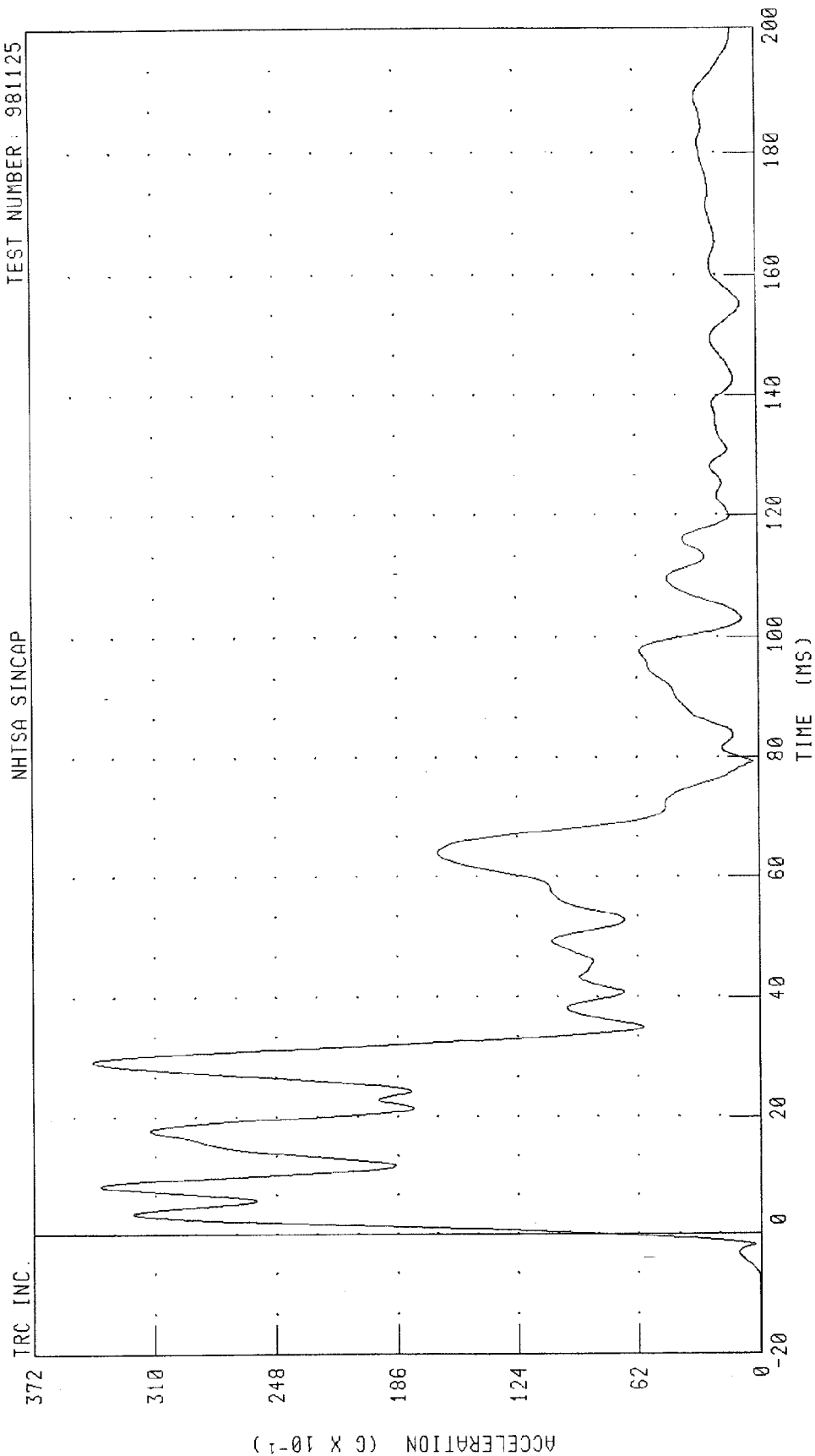


CHANNEL: RFSZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP



CHANNEL: RFSRG1 FILTER: CH. CLASS 60

PEAK DATA: 34.16 G @ 29.36 MS, 0.02 G @ -11.28 MS

**Vehicle Right Side Sill At The Rear Seat X-Axis
Data Channel, RRSXG1, Was Not Installed**

**Vehicle Right Side Sill At The Rear Seat X-Axis
Velocity Channel, RRSXV1, Was Not Calculated**

**Vehicle Right Side Sill At The Rear Seat Y-Axis
Data Channel, RRSYG1, Was Not Calculated**

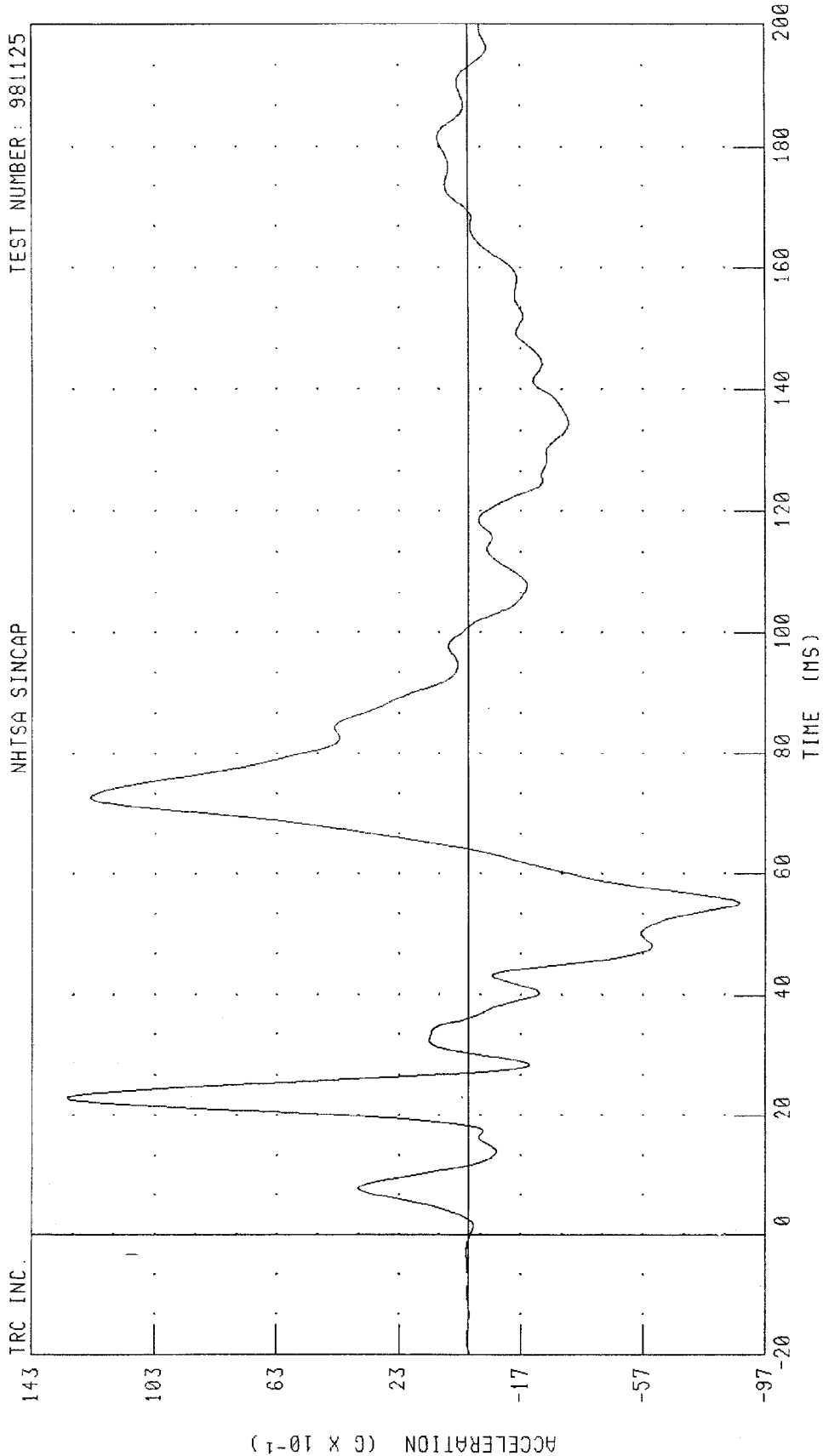
**Vehicle Right Side Sill At The Rear Seat Y-Axis
Velocity Channel, RRSYV1, Was Not Calculated**

**Vehicle Right Side Sill At The Rear Seat Z-Axis
Data Channel, RRSZG1, Was Not Installed**

**Vehicle Right Side Sill At The Rear Seat Z-Axis
Velocity Channel, RRSZV1, Was Not Calculated**

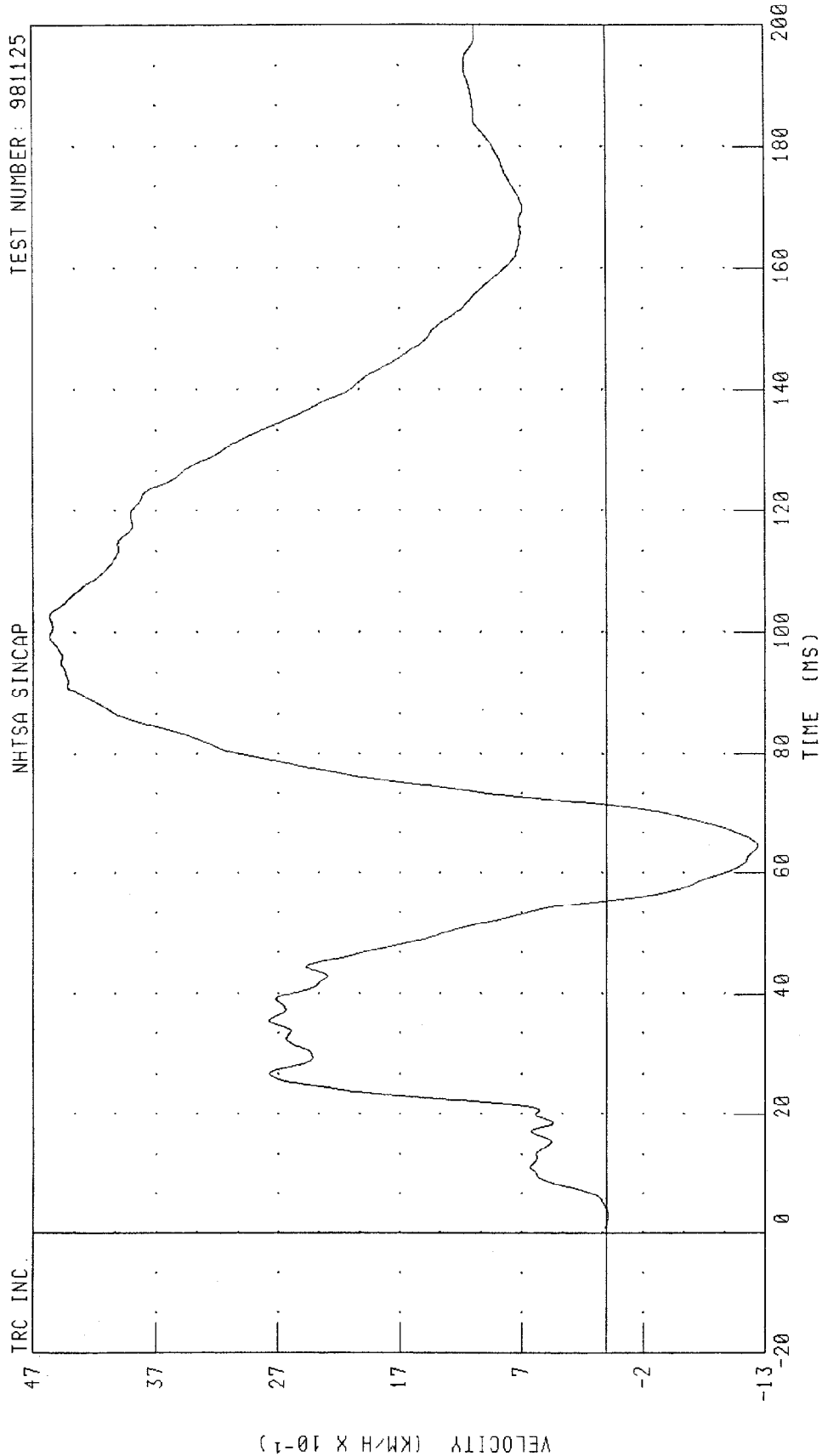
**Vehicle Right Side Sill At The Rear Seat Resultant
Acceleration, RRSRG1, Was Not Calculated**

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



CHANNEL: RDKXC1 FILTER: CH. CLASS 60 PEAK DATA: 13.16 G @ 23.04 MS; -8.85 G @ 55.20 MS

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



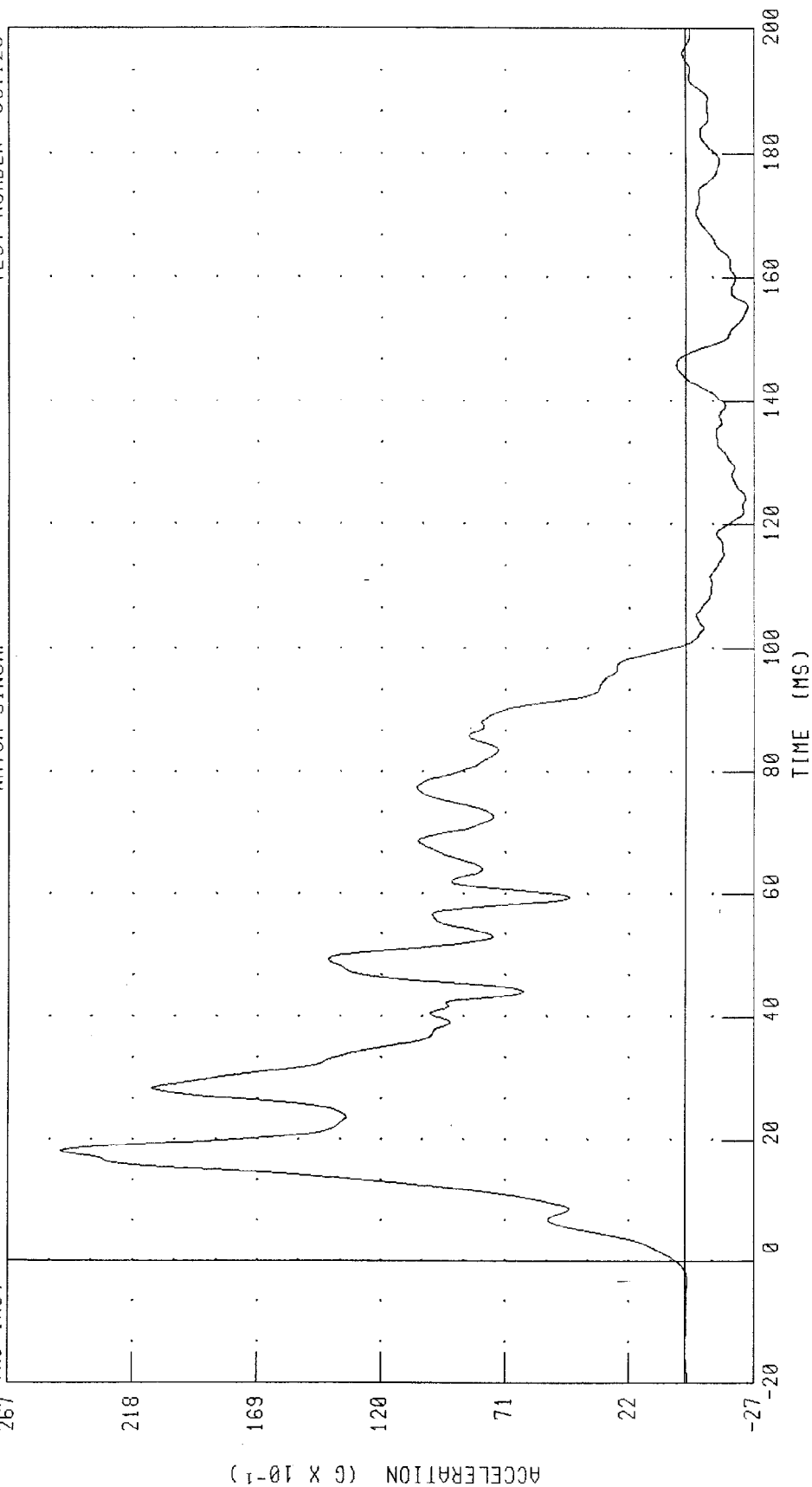
CHANNEL: RDKXV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 981125

NHTSA SINCAP

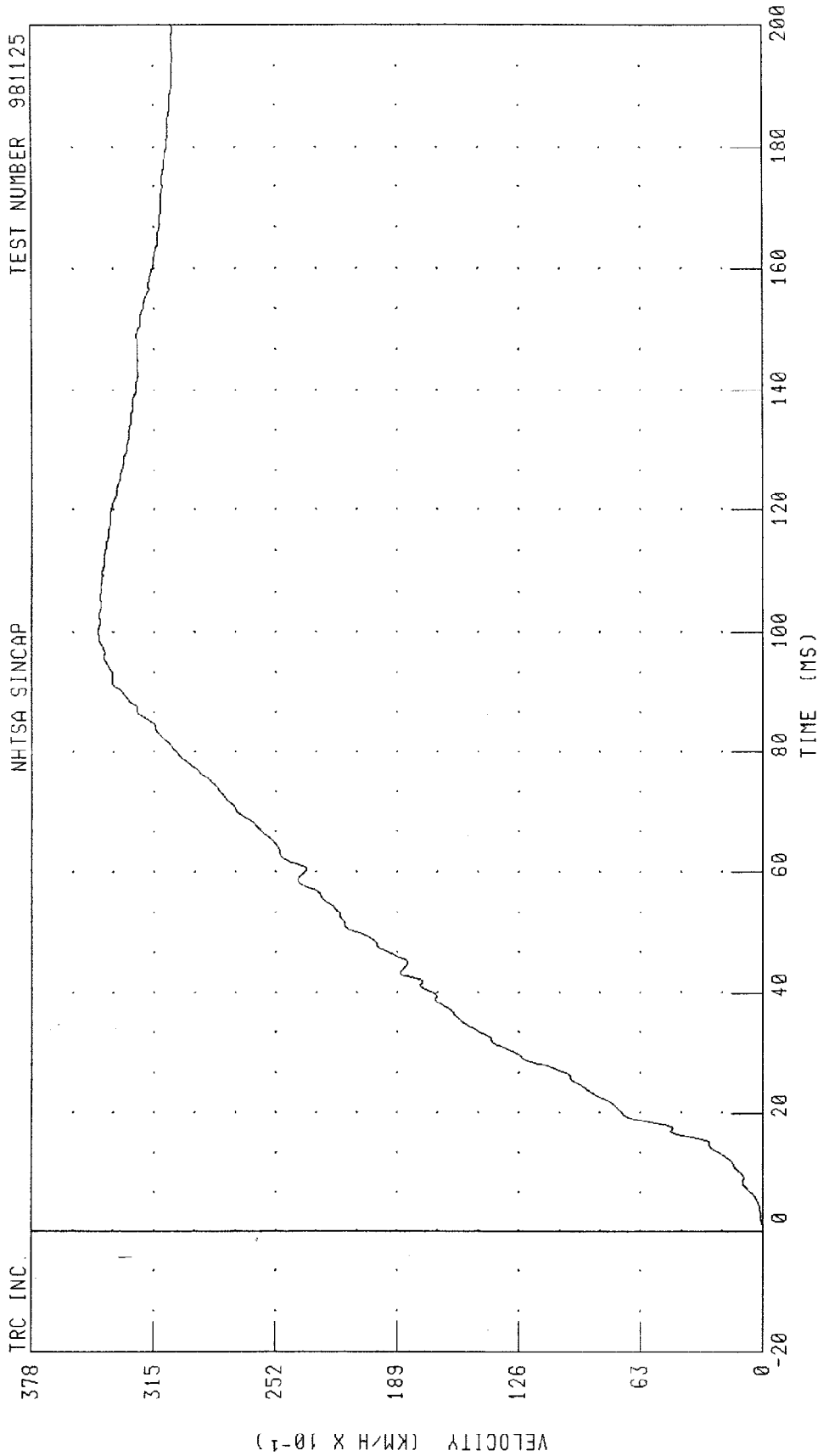
TRC INC.



PEAK DATA: 24.64 G @ 18.16 MS, -2.47 G @ 155.28 MS

CHANNEL: RDKY61 FILTER: CH. CLASS 60

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



PEAK DATA: 34.40 KM/H @ 100.24 MS; 0.00 KM/H @ 0.08 MS

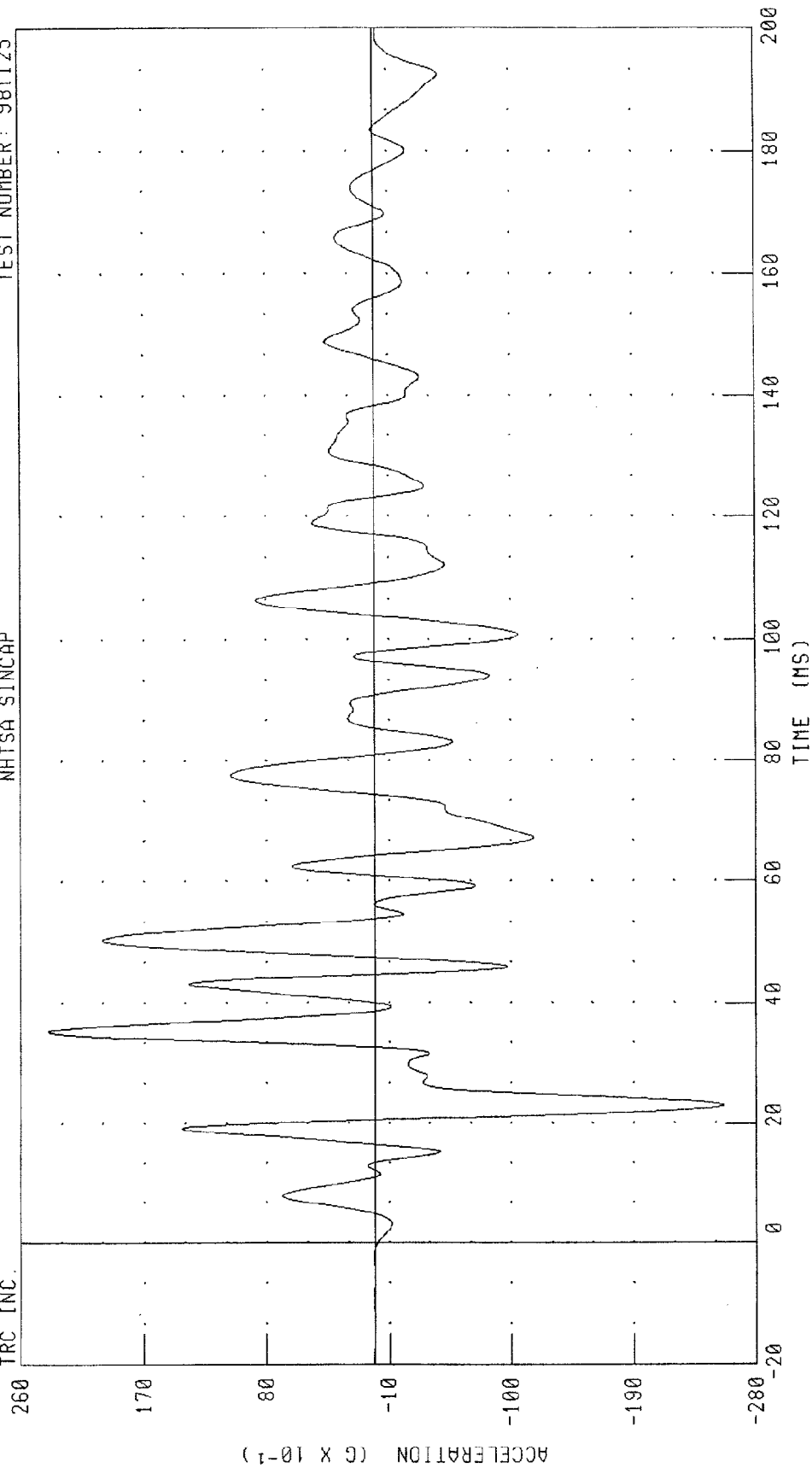
CHANNEL: RDKYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

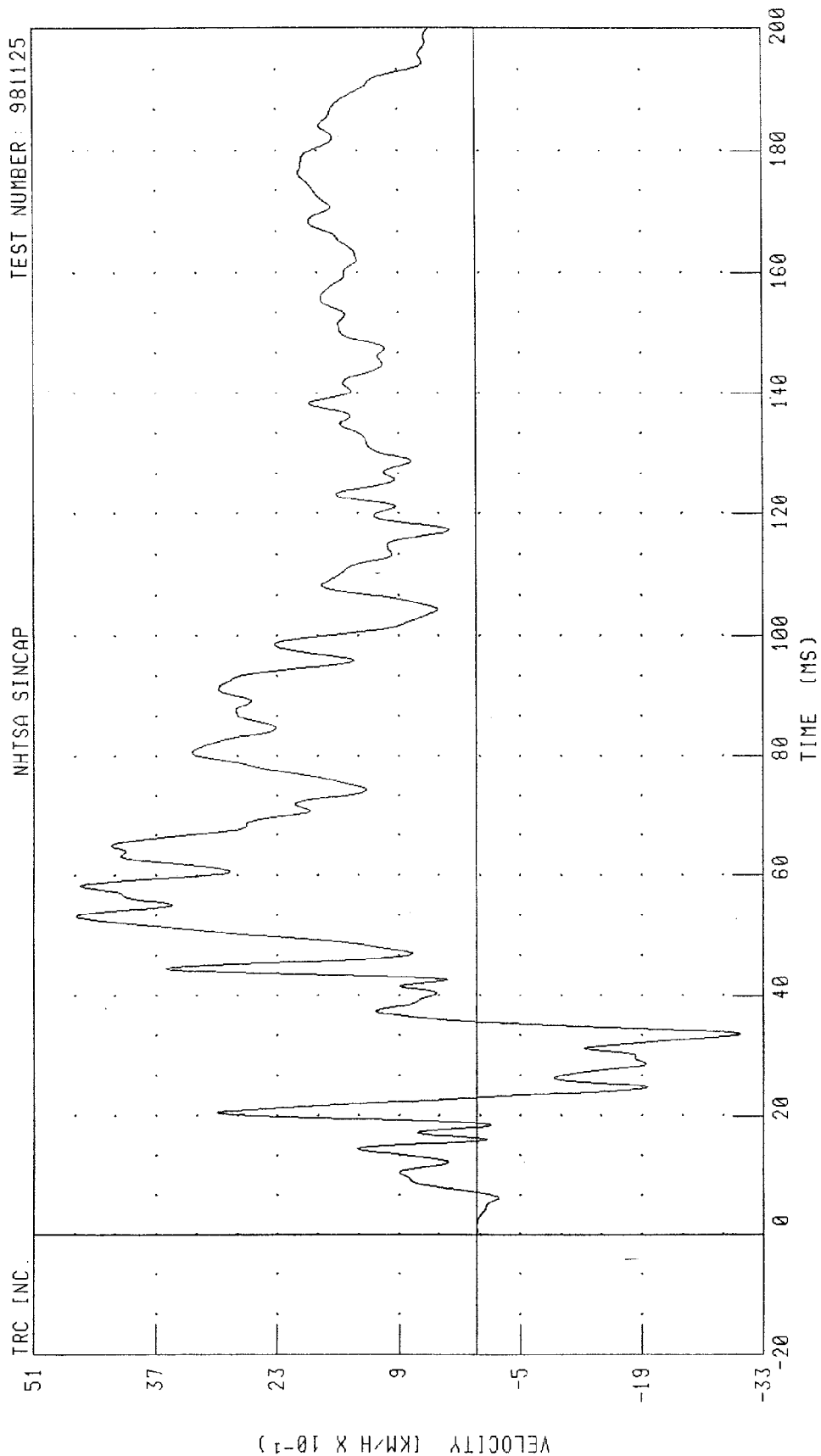


PEAK DATA: 24.00 G @ 35.20 MS; -25.61 G @ 22.96 MS

FILTER: CH. CLASS 60

CHANNEL: RDKZG1

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



PEAK DATA: 4.62 KM/H @ 53.28 MS; -3.03 KM/H @ 33.52 MS

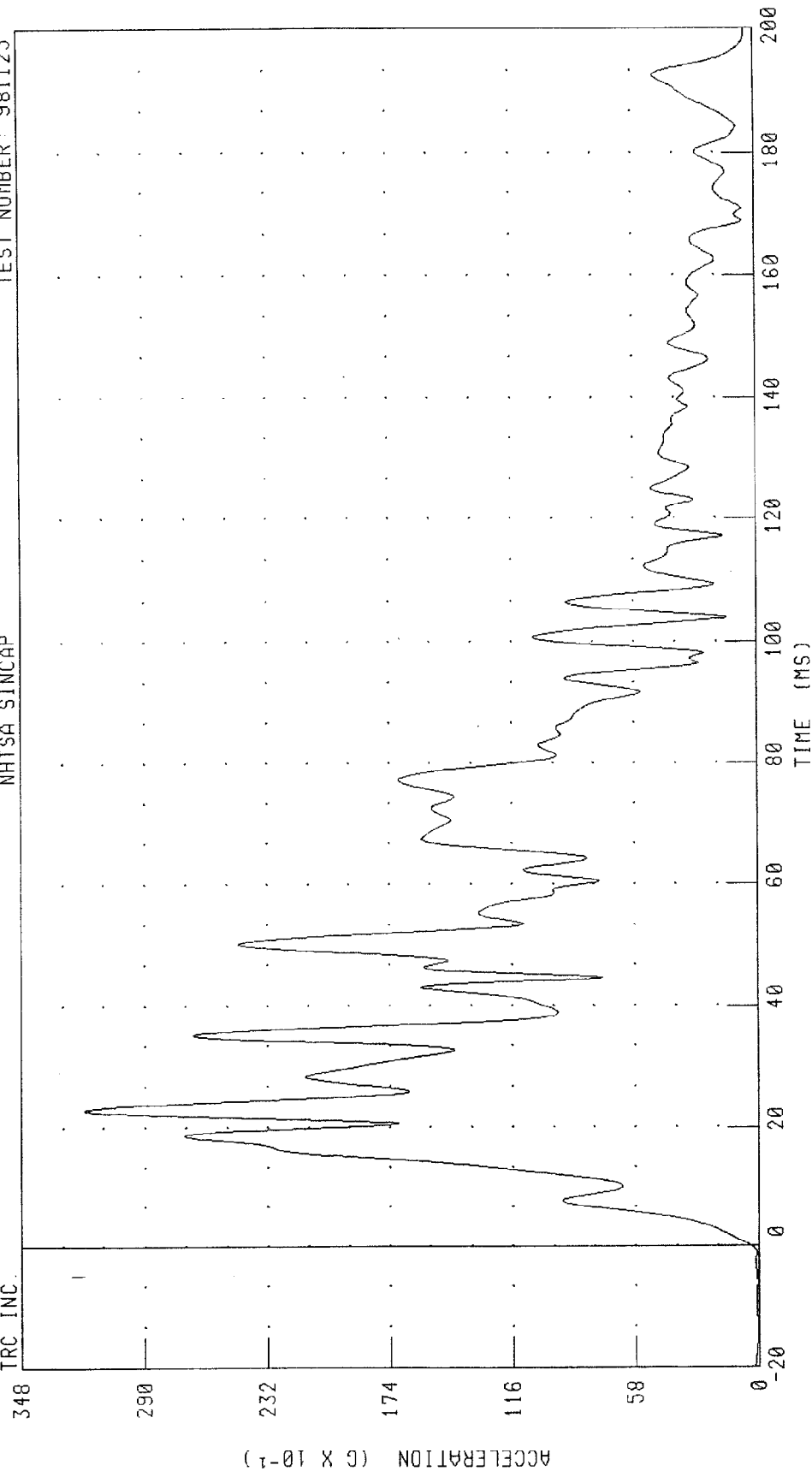
CHANNEL: RDKZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 31.84 G @ 22.96 MS, 0.05 G @ -15.12 MS

CHANNEL: RDKRC1 FILTER: CH. CLASS 60

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

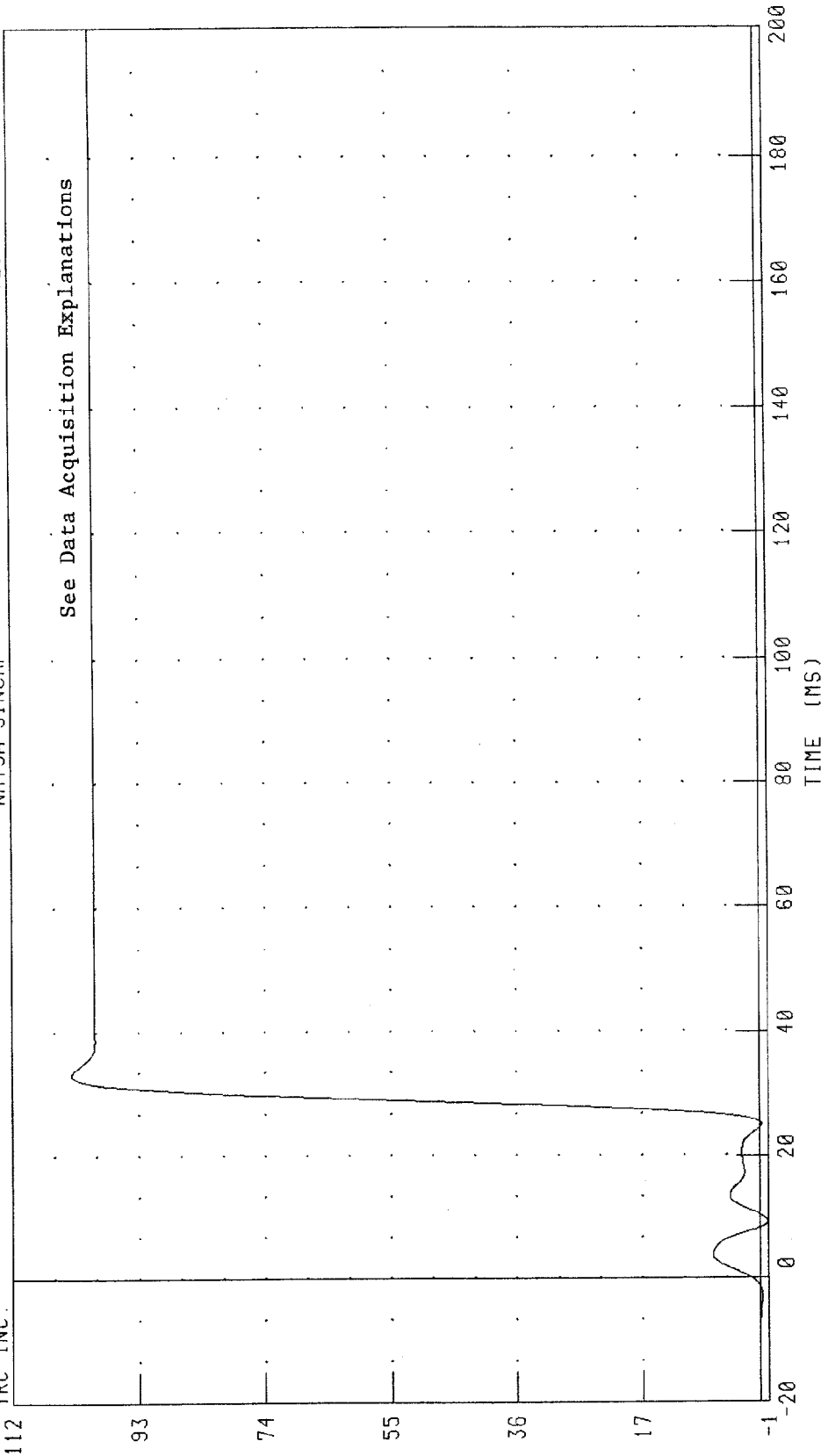
TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

See Data Acquisition Explanations

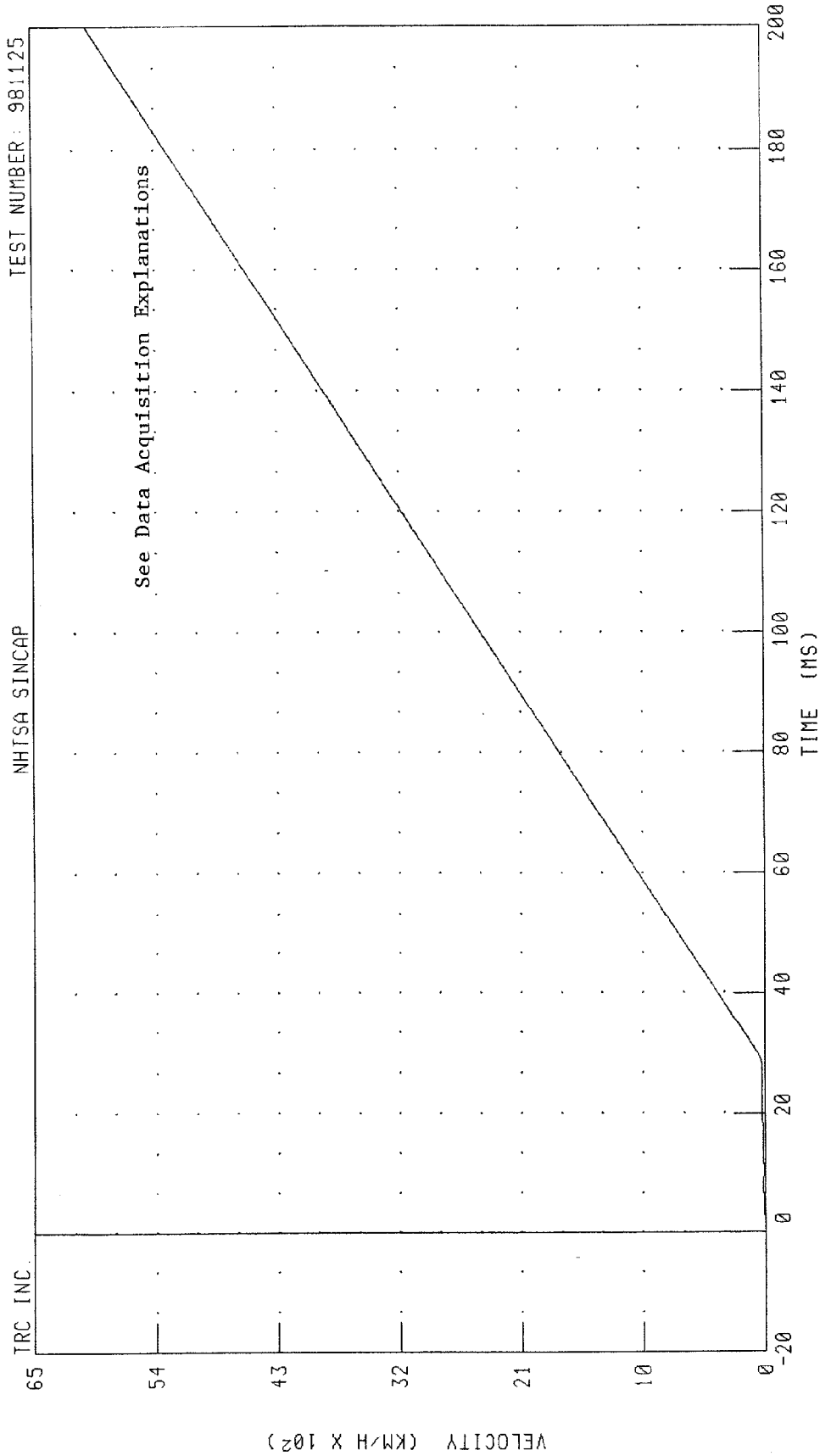
ACCELERATION (G X 10¹)



CHANNEL: LFSYC1 FILTER: CH. CLASS 60

PEAK DATA: 1038.28 G @ 33.04 MS; -11.26 G @ 9.20 MS

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



CHANNEL: LFSYV1 FILTER: CH. CLASS 180

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

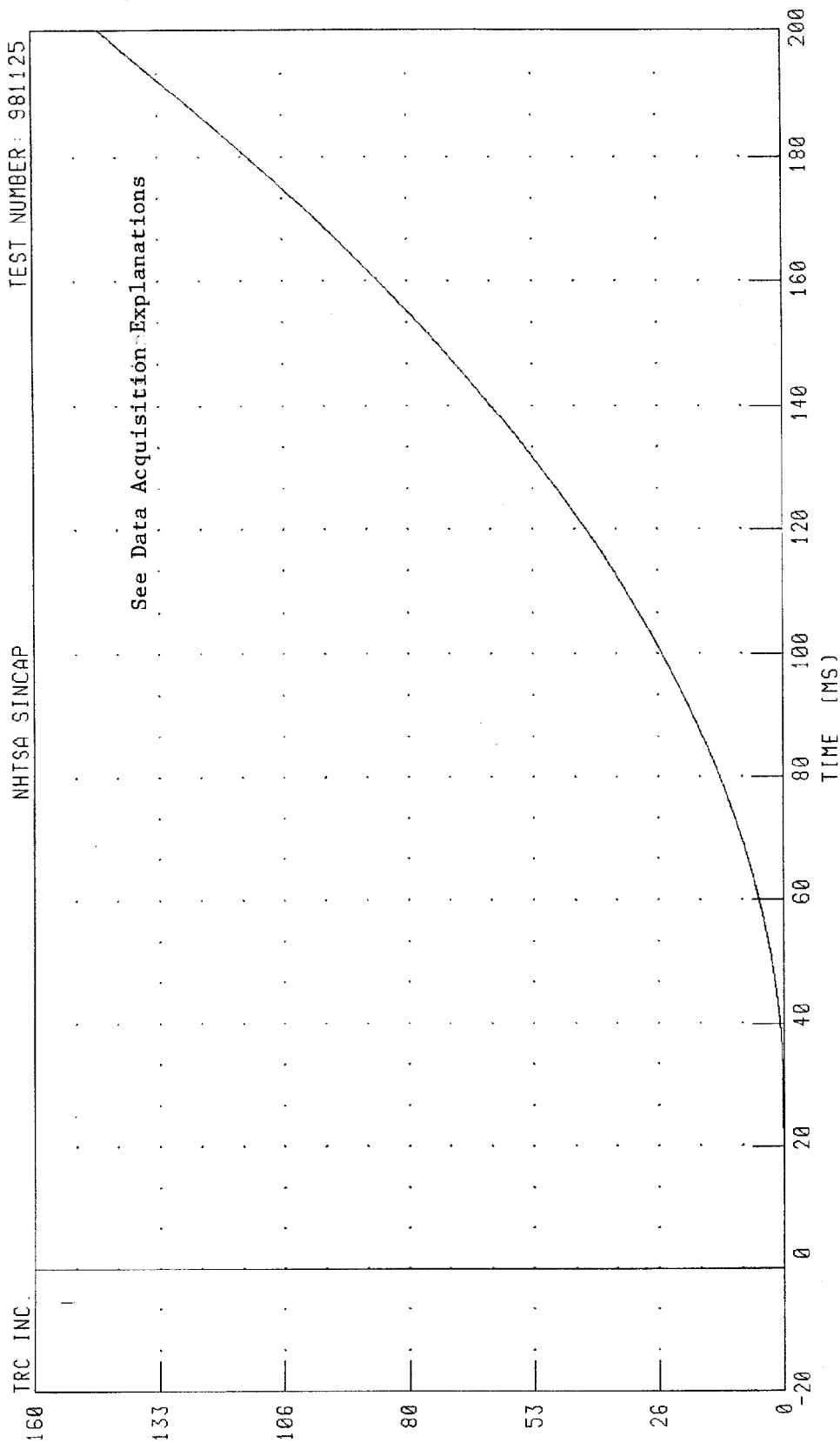
NHTSA SINCAP

TEST NUMBER: 981125

TRC INC.

See Data Acquisition Explanations

DISPLACEMENT (MM X 10³)



CHANNEL: LFSYD1 FILTER: CH. CLASS 180

PEAK DATA: 146102.22 MM @ 200.00 MS, 0.00 MM @ 0.00 MS

**Vehicle Left Rear Seat Y-Axis Data Channel,
LRSYG1, Was Not Installed**

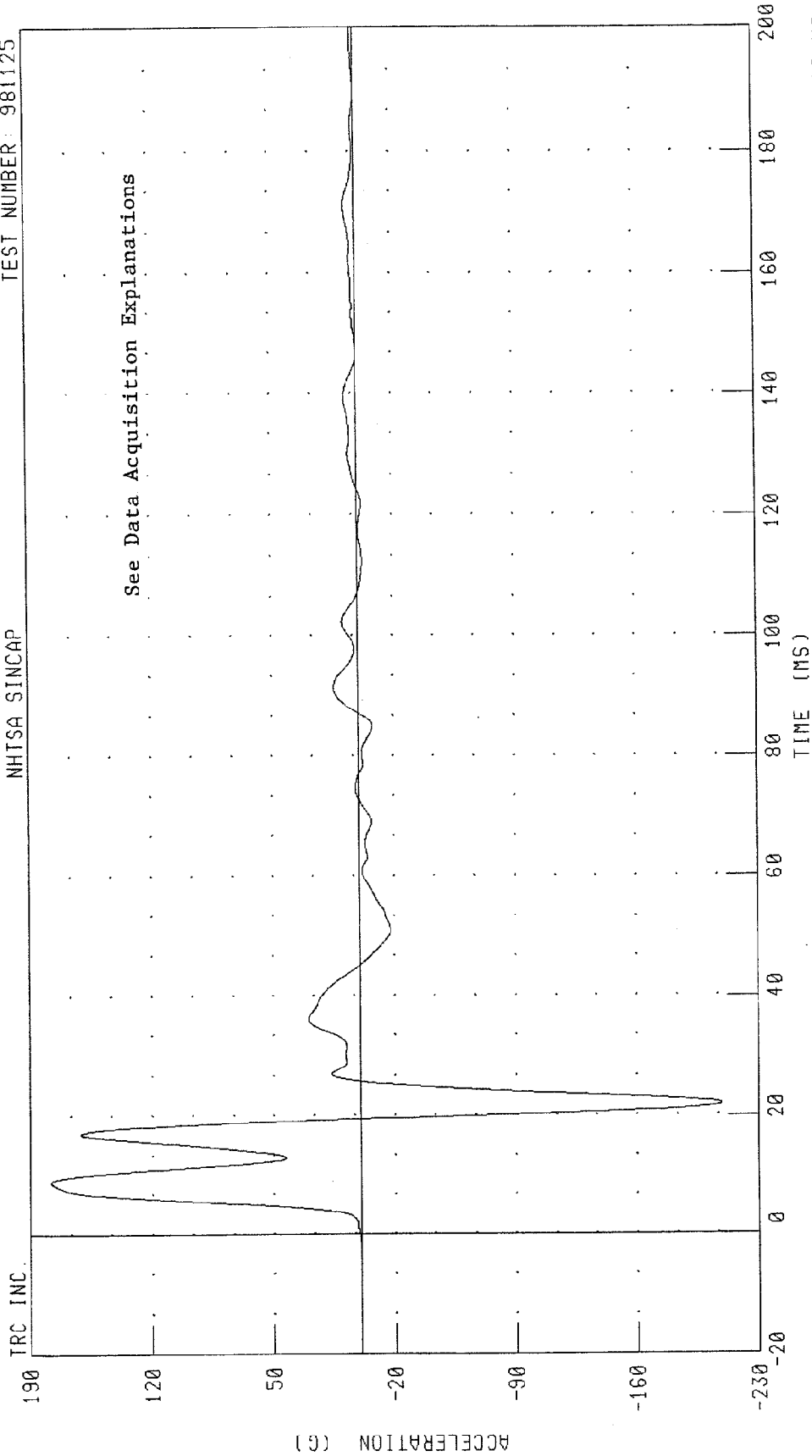
**Vehicle Left Rear Seat Y-Axis Velocity Channel,
LRSYV1, Was Not Calculated**

**Vehicle Left Rear Seat Y-Axis Displacement Channel,
LRSYD1, Was Not Calculated**

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

TEST NUMBER: 981125

NHTSA SINCAP



PEAK DATA: 178.10 G @ 8.88 MS; -209.01 G @ 22.00 MS

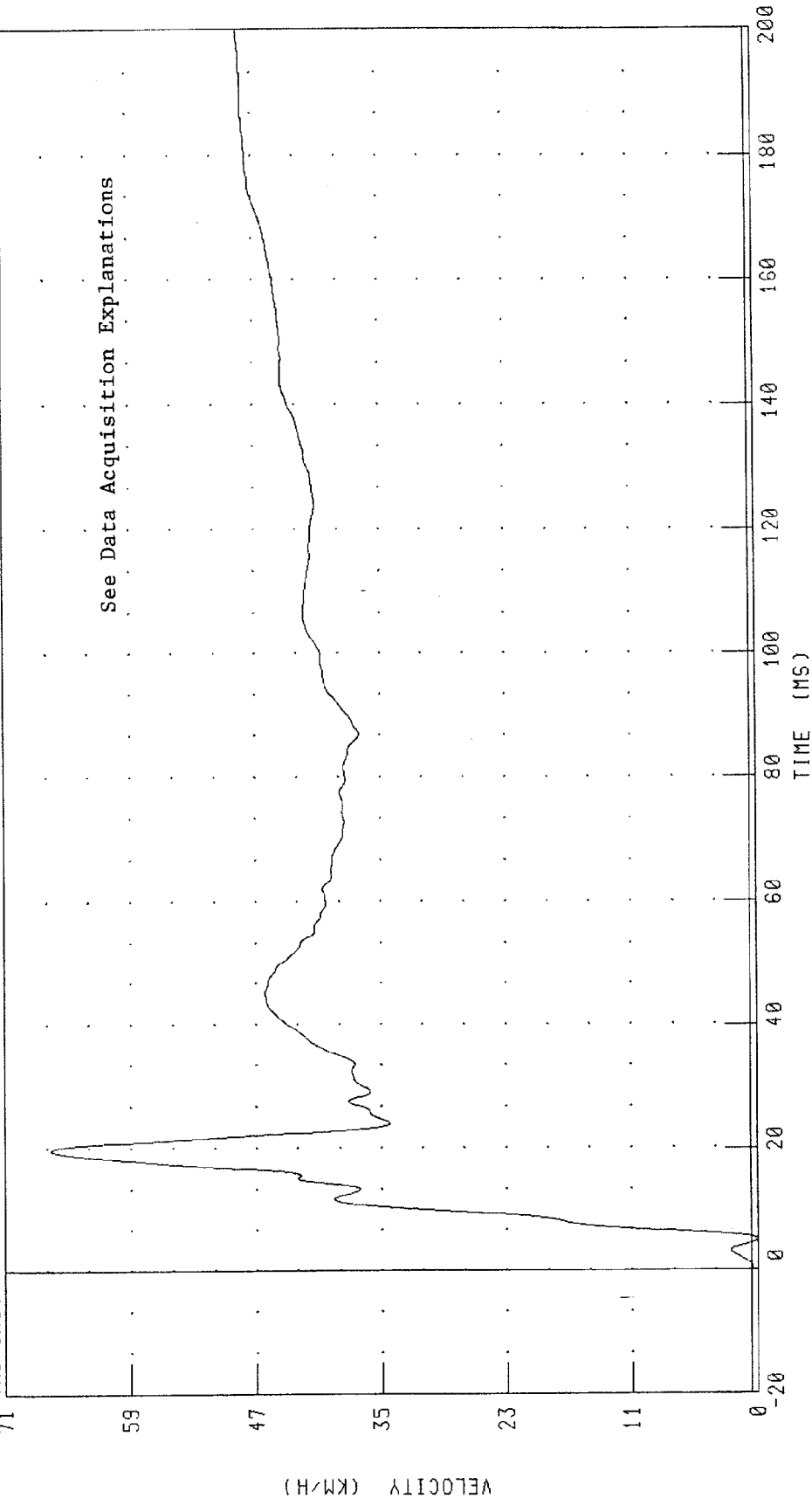
CHANNEL: LFCYGI FILTER: CH. CLASS 60

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 67.03 KM/H @ 19.76 MS; -0.62 KM/H @ 4.96 MS

CHANNEL: LFCYV1 FILTER: CH. CLASS 180

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

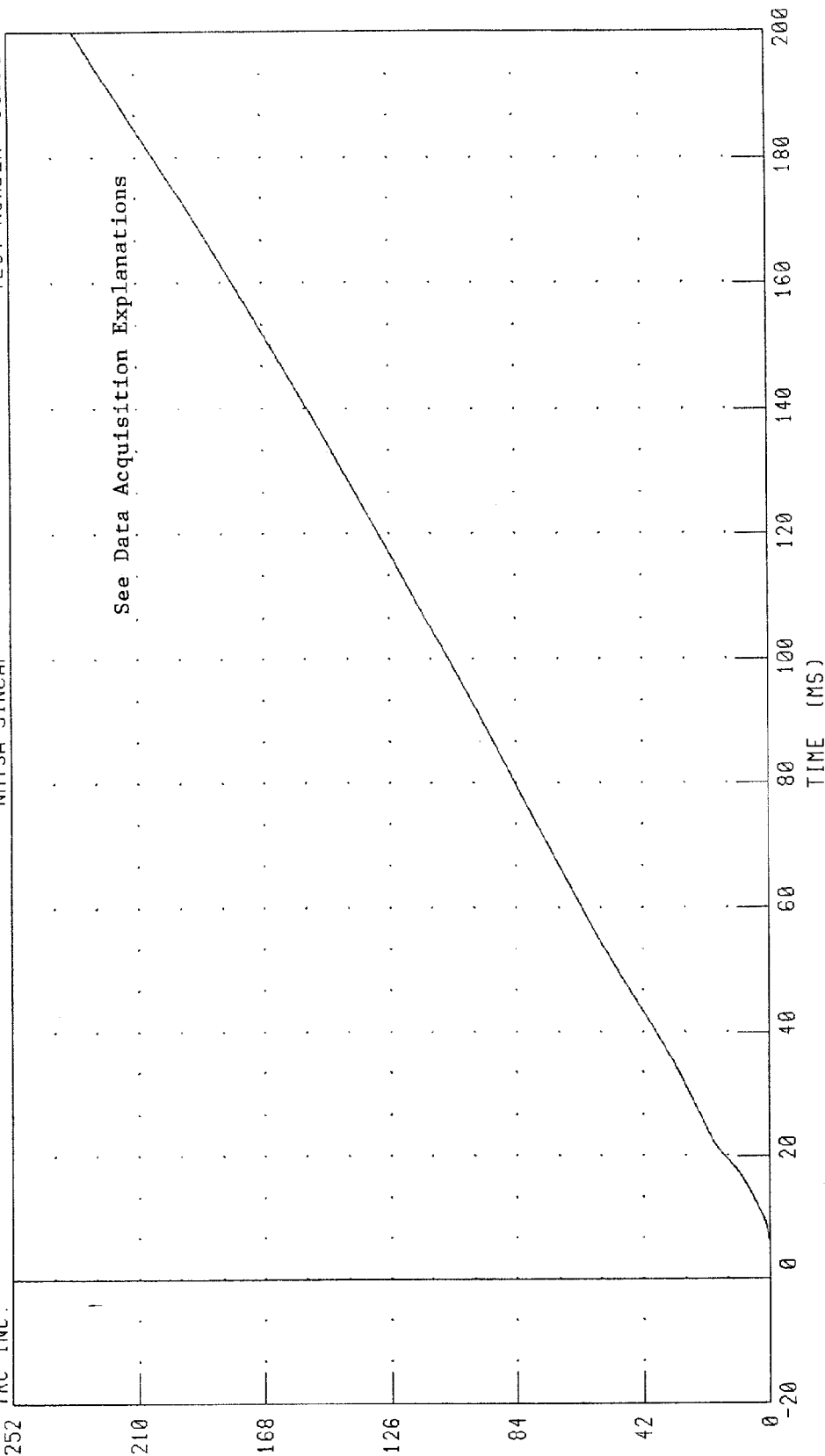
TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

See Data Acquisition Explanations

DISPLACEMENT (MM X 10¹)



PEAK DATA: 2307.69 MM @ 200.00 MS; -0.02 MM @ 1.04 MS

CHANNEL: LFCYD1 FILTER: CH CLASS 180

**Vehicle Right Rear Occupant Compartment Y-Axis
Data Channel, RRTYG1, Was Not Installed**

**Vehicle Right Rear Occupant Compartment Y-Axis
Velocity Channel, RRTYV1, Was Not Calculated**

**Vehicle Right Rear Occupant Compartment Y-Axis
Displacement Channel, RRTYD1, Was Not Calculated**

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

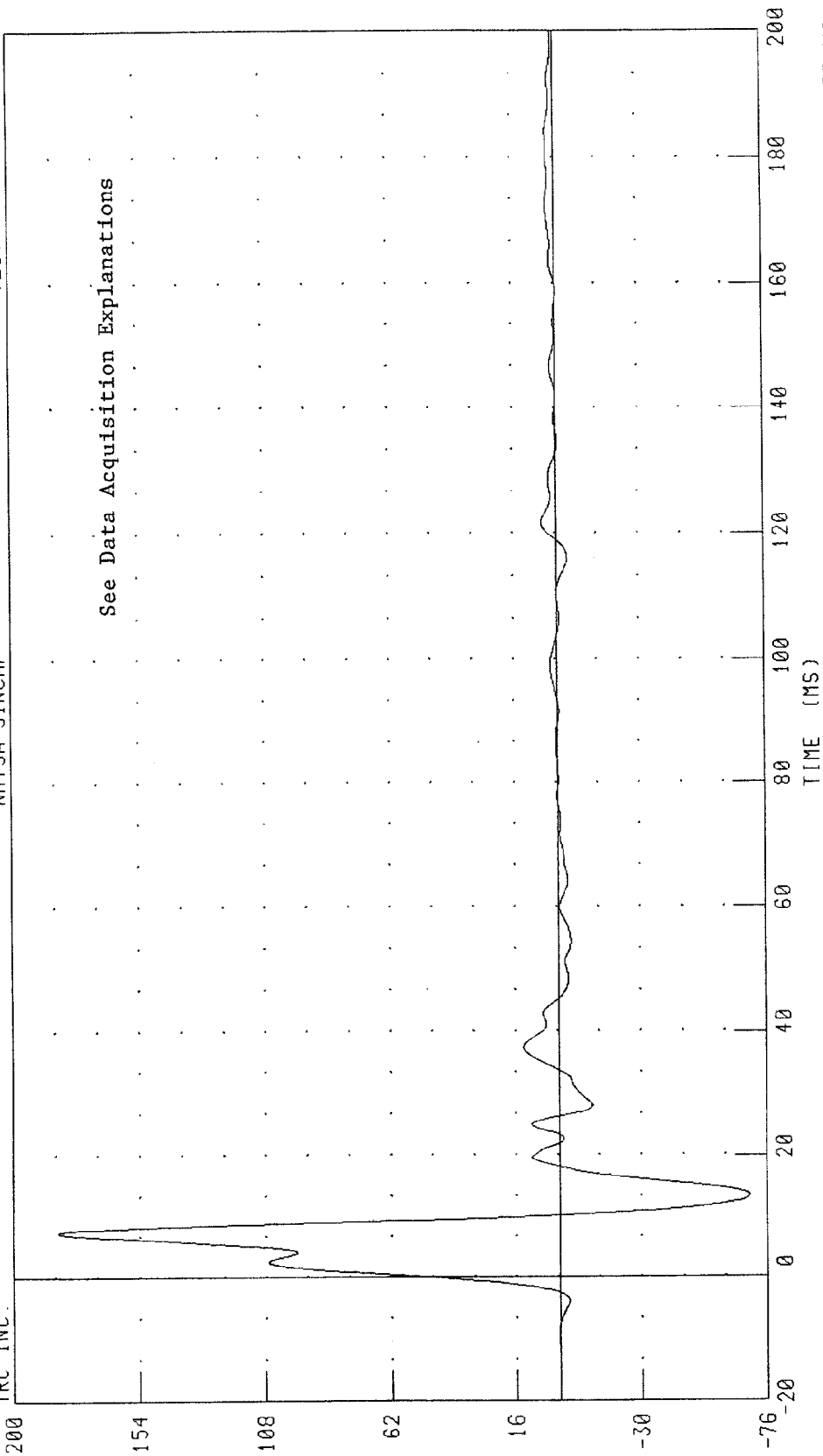
TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

See Data Acquisition Explanations

ACCELERATION (G)



TIME (MS)

PEAK DATA: 183.78 G @ 7.44 MS, -69.67 G @ 13.36 MS

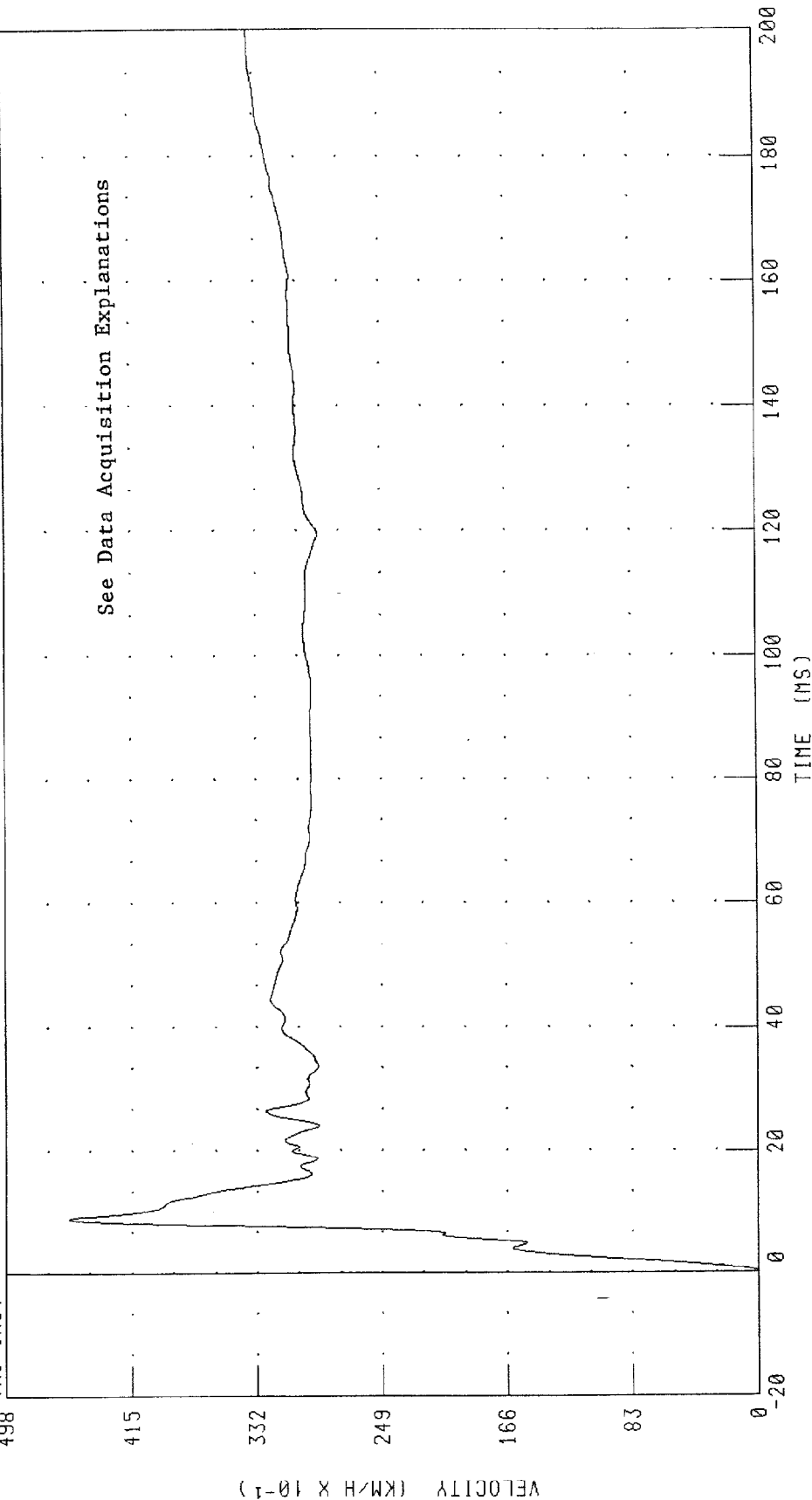
CHANNEL: LFMYG1 FILTER: CH. CLASS 60

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

TEST NUMBER 981125

NHTSA SINCAP

TRC INC.



CHANNEL: LFMVY1 FILTER: CH. CLASS 180

PEAK DATA: 45.70 KM/H @ 9.04 MS, 0.00 KM/H @ 0.00 MS

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

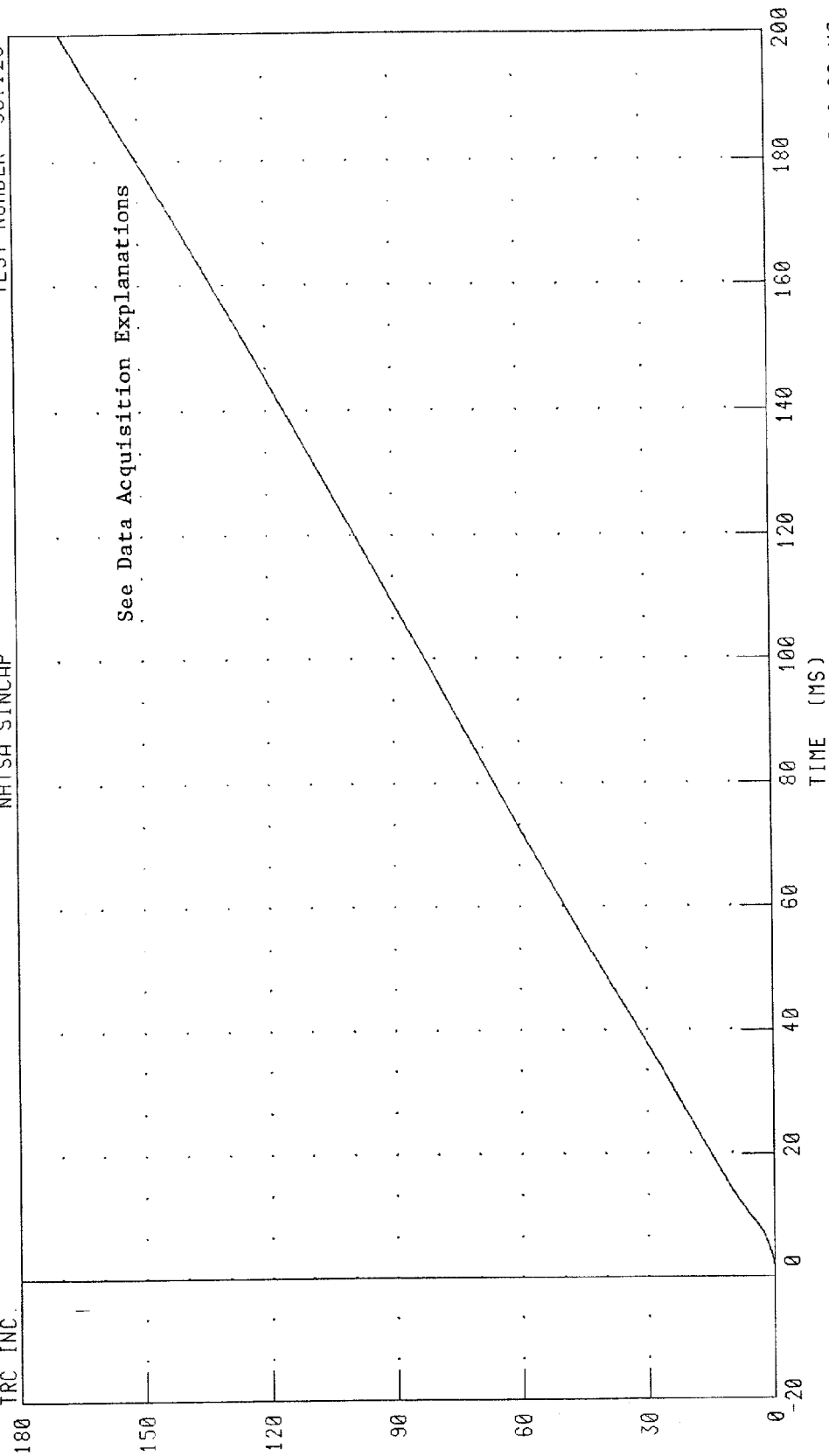
TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

See Data Acquisition Explanations

DISPLACEMENT (MM X 10¹)



PEAK DATA: 1686.07 MM @ 200.00 MS; 0.00 MM @ 0.00 MS

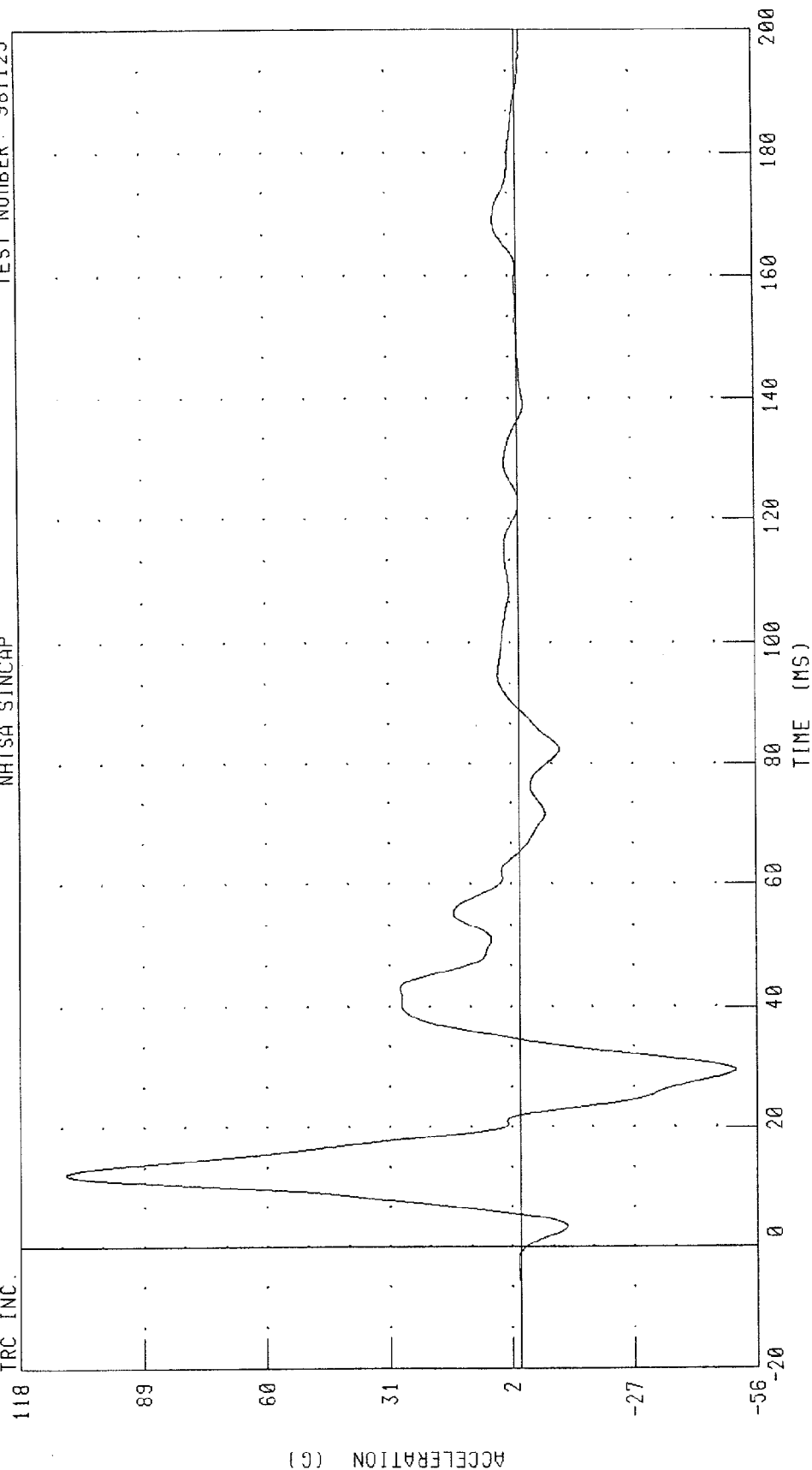
CHANNEL: LFMYD1 FILTER: CH. CLASS 180

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 107.37 G @ 12.32 MS, -50.93 G @ 29.44 MS

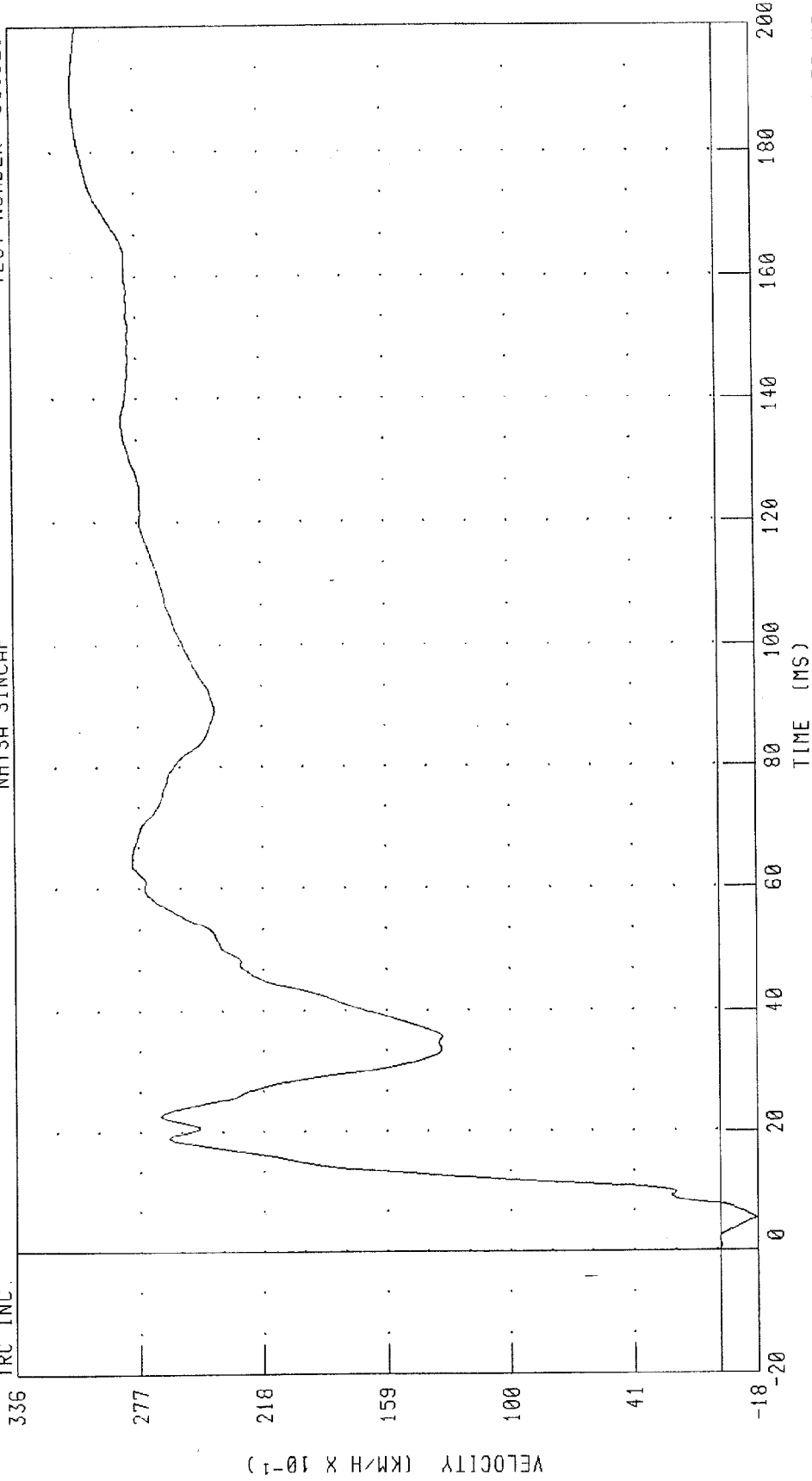
CHANNEL: LFUYG1 FILTER: CH. CLASS 60

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 30.68 KM/H @ 189.76 MS; -1.68 KM/H @ 5.36 MS

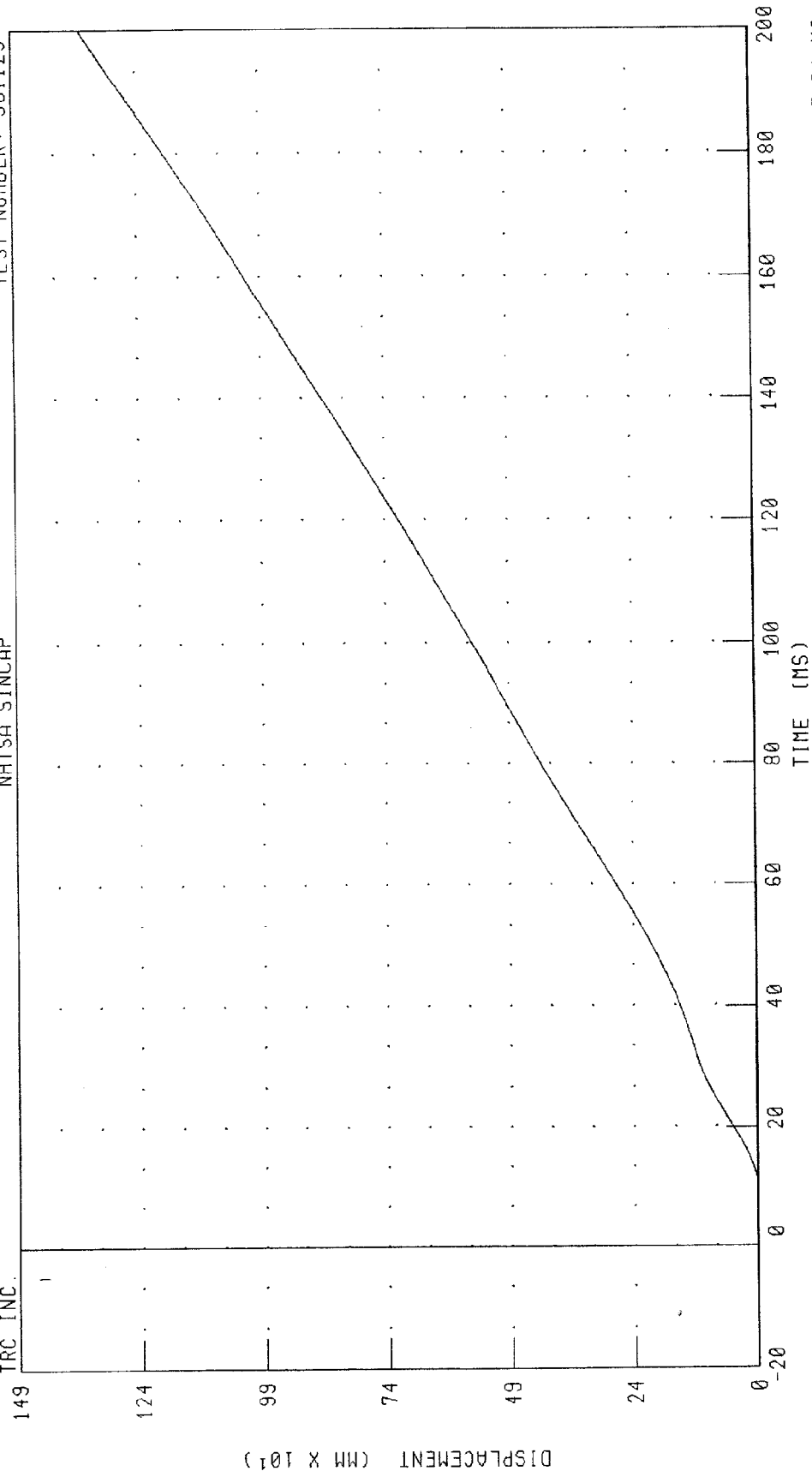
CHANNEL: LFUYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 1363.11 MM @ 200.00 MS, -1.40 MM @ 7.84 MS

CHANNEL: LFUYD1 FILTER: CH. CLASS 180

**Vehicle Mid-Rear Of The Left Rear Door Y-Axis
Data Channel, LRMYG1, Was Not Installed**

**Vehicle Mid-Rear Of The Left Rear Door Y-Axis
Velocity Channel, LRMV1, Was Not Calculated**

**Vehicle Mid-Rear Of The Left Rear Door Y-Axis
Displacement Channel, LRMYD1, Was Not Calculated**

**Vehicle Left Rear Door Upper Centerline Y-Axis
Data Channel, LRUYG1, Was Not Installed**

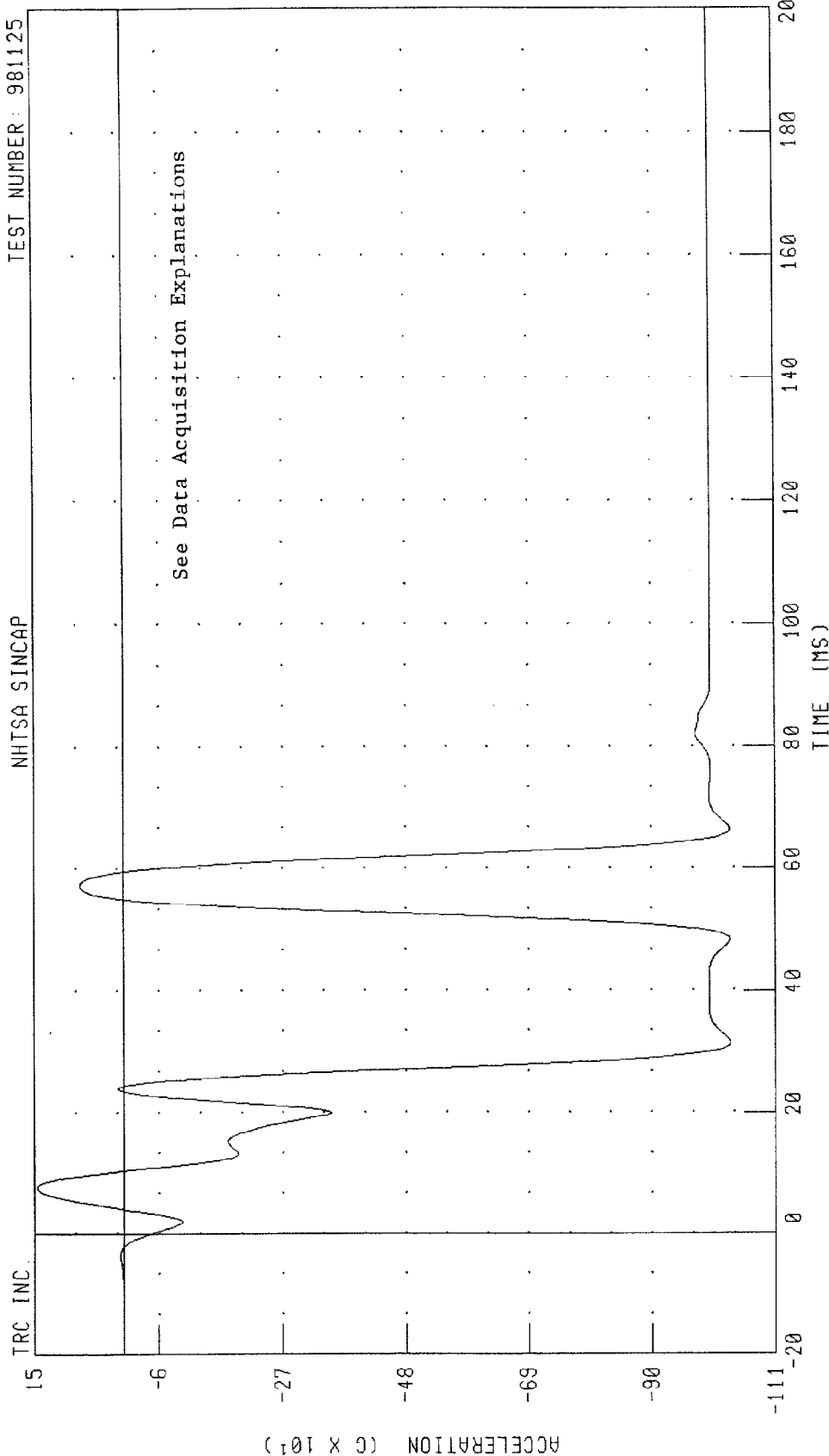
**Vehicle Left Rear Door Upper Centerline Y-Axis
Velocity Channel, LRUYV1, Was Not Calculated**

**Vehicle Left Rear Door Upper Centerline Y-Axis
Displacement Channel, LRUYD1, Was Not Calculated**

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
LEFT LOWER A-POST Y-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP



PEAK DATA: 145.36 G @ 7.68 MS; -1034.14 G @ 31.28 MS

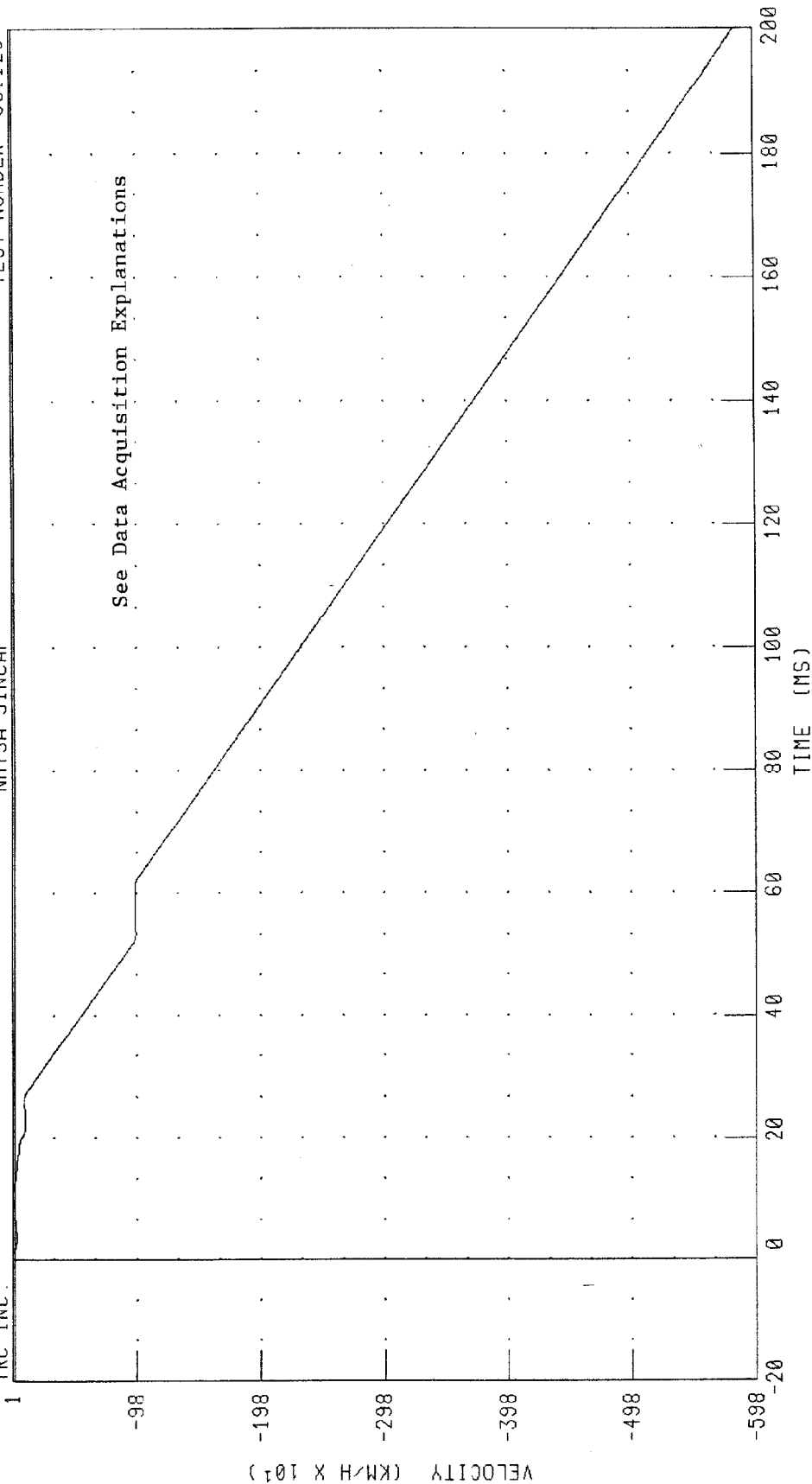
CHANNEL: L1AYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
LEFT LOWER A-POST Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

1 TRC INC.



PEAK DATA: 14.97 KM/H @ 10.80 MS, -5833.41 KM/H @ 200.00 MS

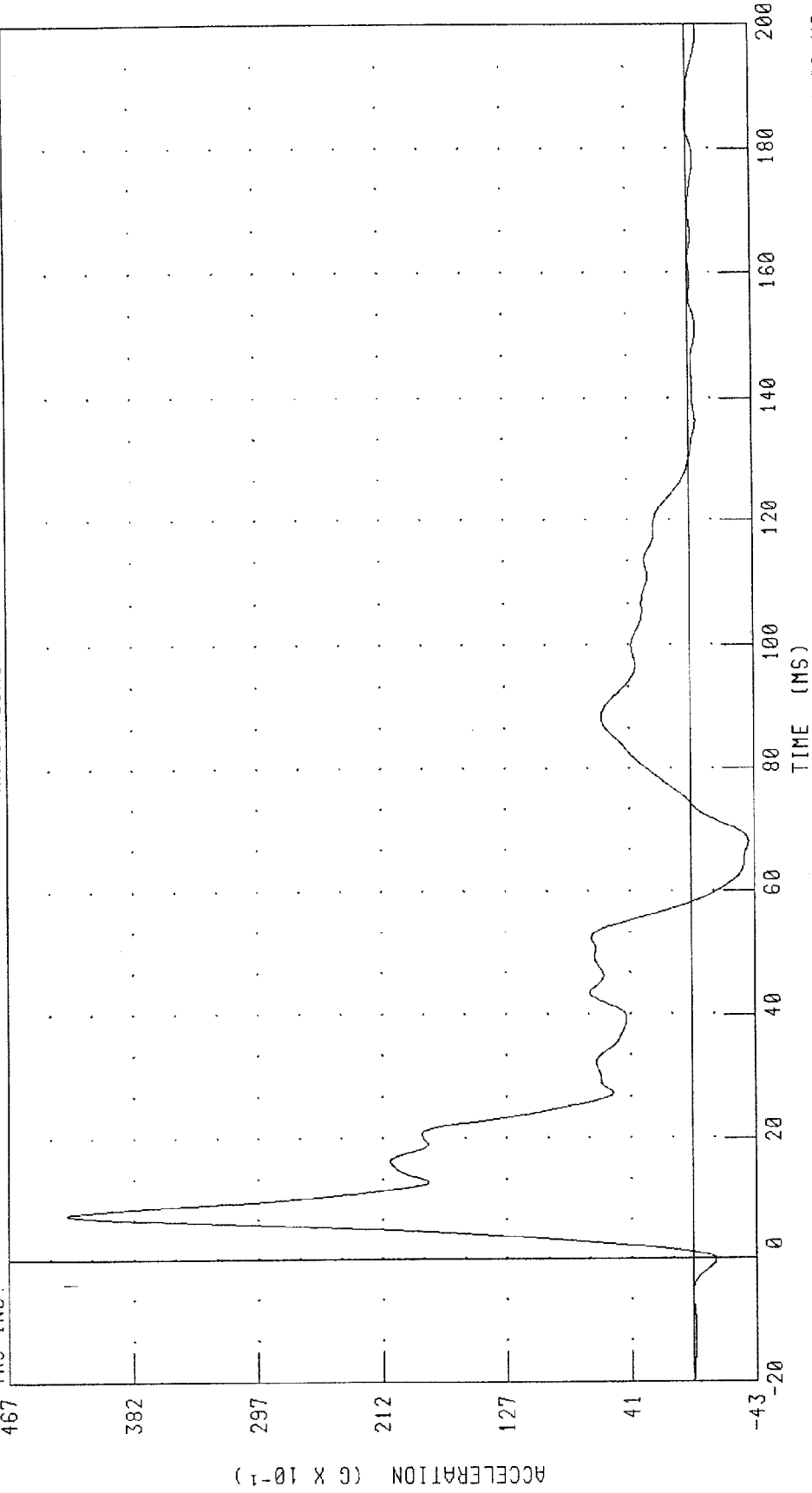
CHANNEL: LLAYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
LEFT MIDDLE A-POST Y-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



CHANNEL: LMAYC1 FILTER: CH. CLASS 60

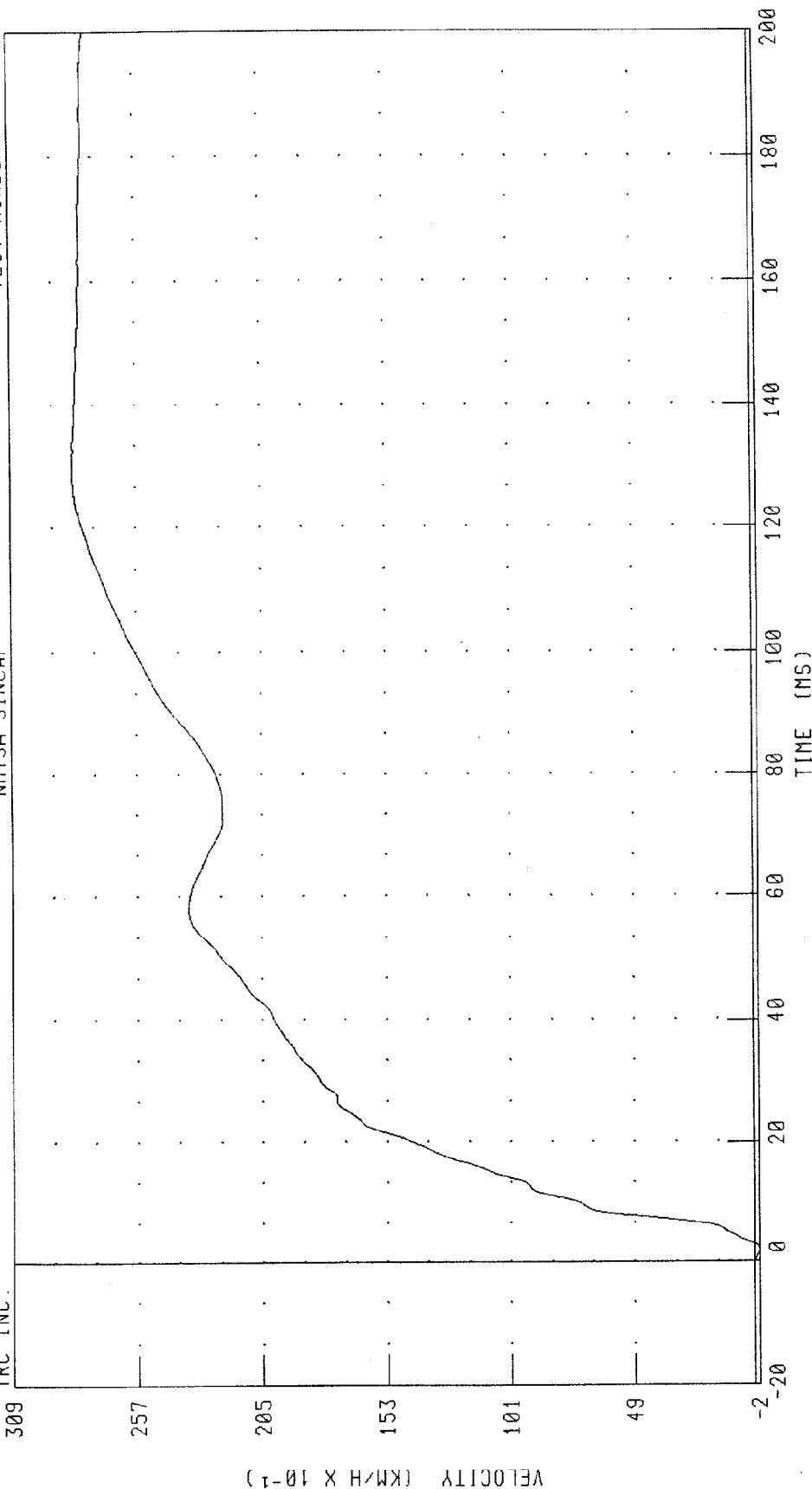
981125

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
LEFT MIDDLE A-POST Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

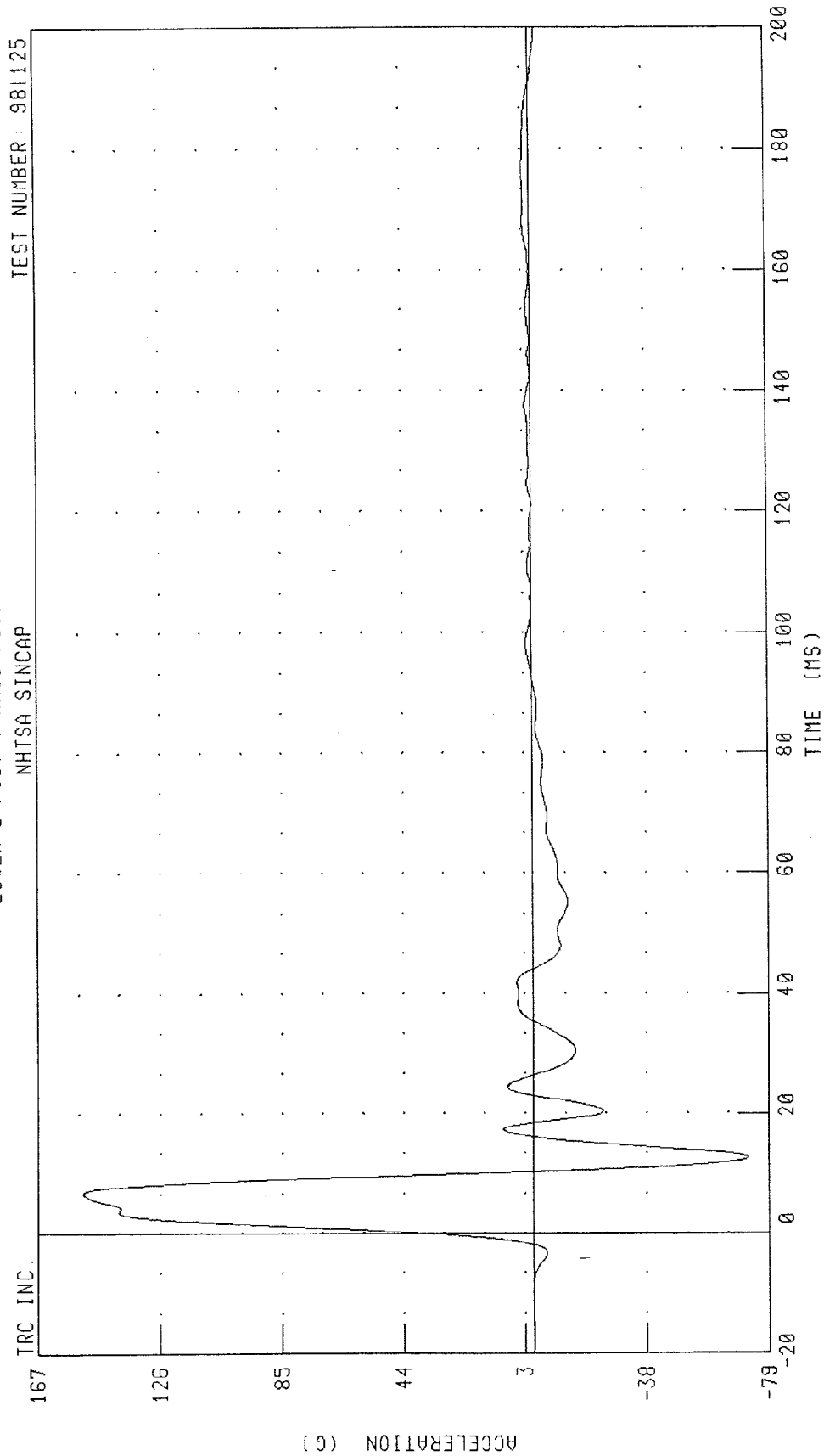
TRC INC.



PEAK DATA: 28.41 KM/H @ 130.64 MS; -0.21 KM/H @ 2.00 MS

CHANNEL: LMAYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
LOWER B-POST Y-AXIS ACCELERATION



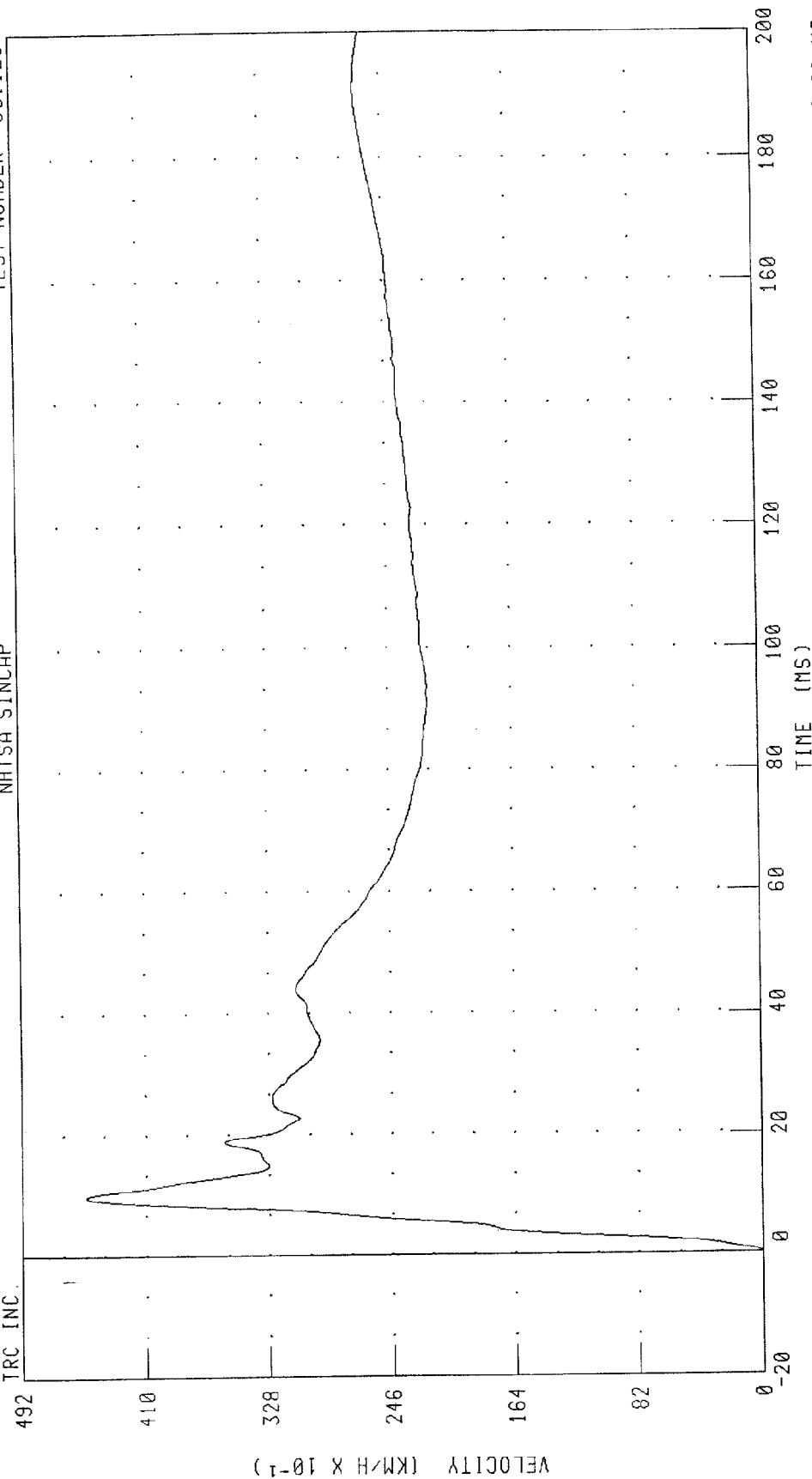
CHANNEL: LLBYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
LOWER B-POST Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

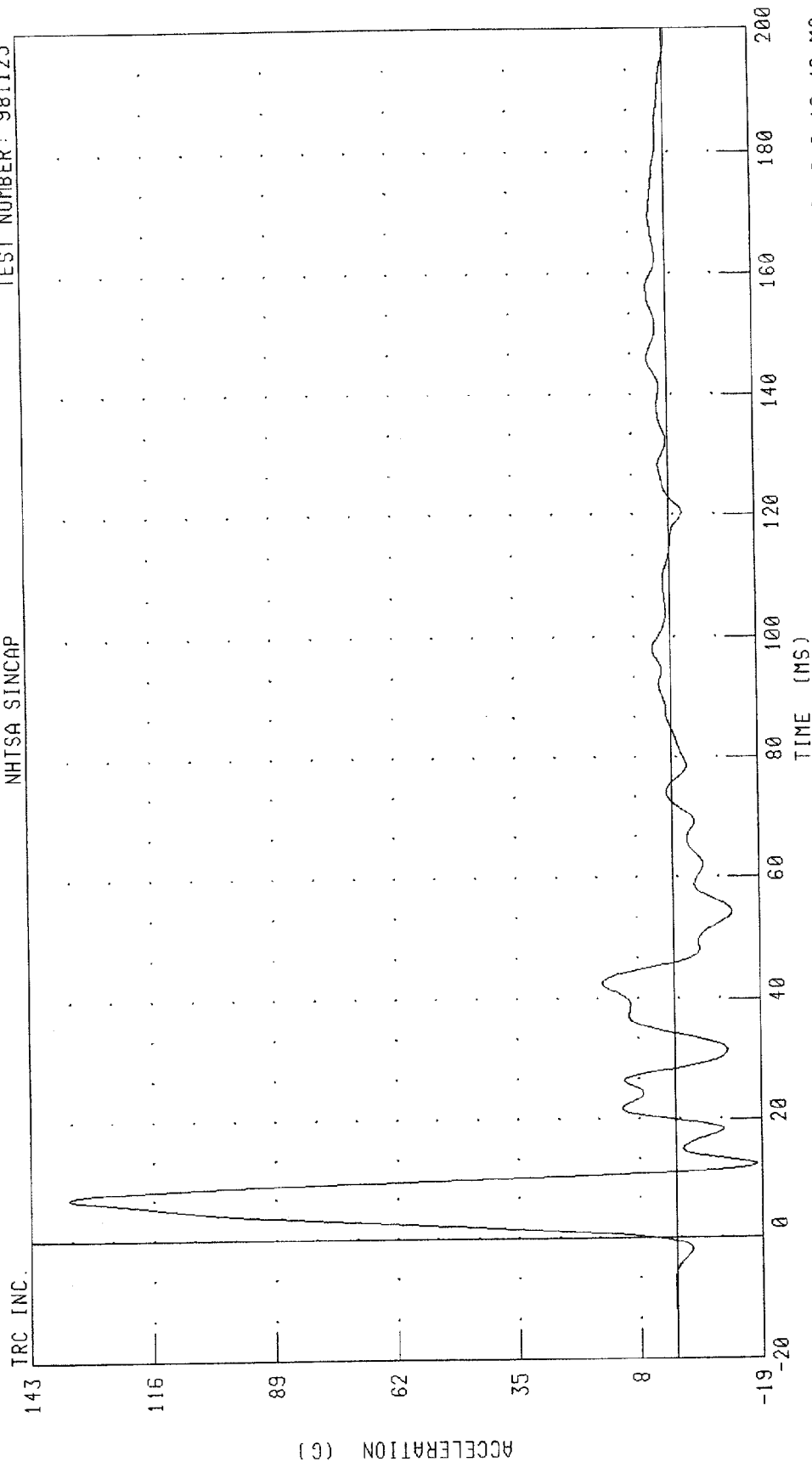


PEAK DATA: 44.92 KM/H @ 9.92 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LLBYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 981125



PEAK DATA: 134.53 G @ 7.04 MS; -17.94 G @ 12.40 MS

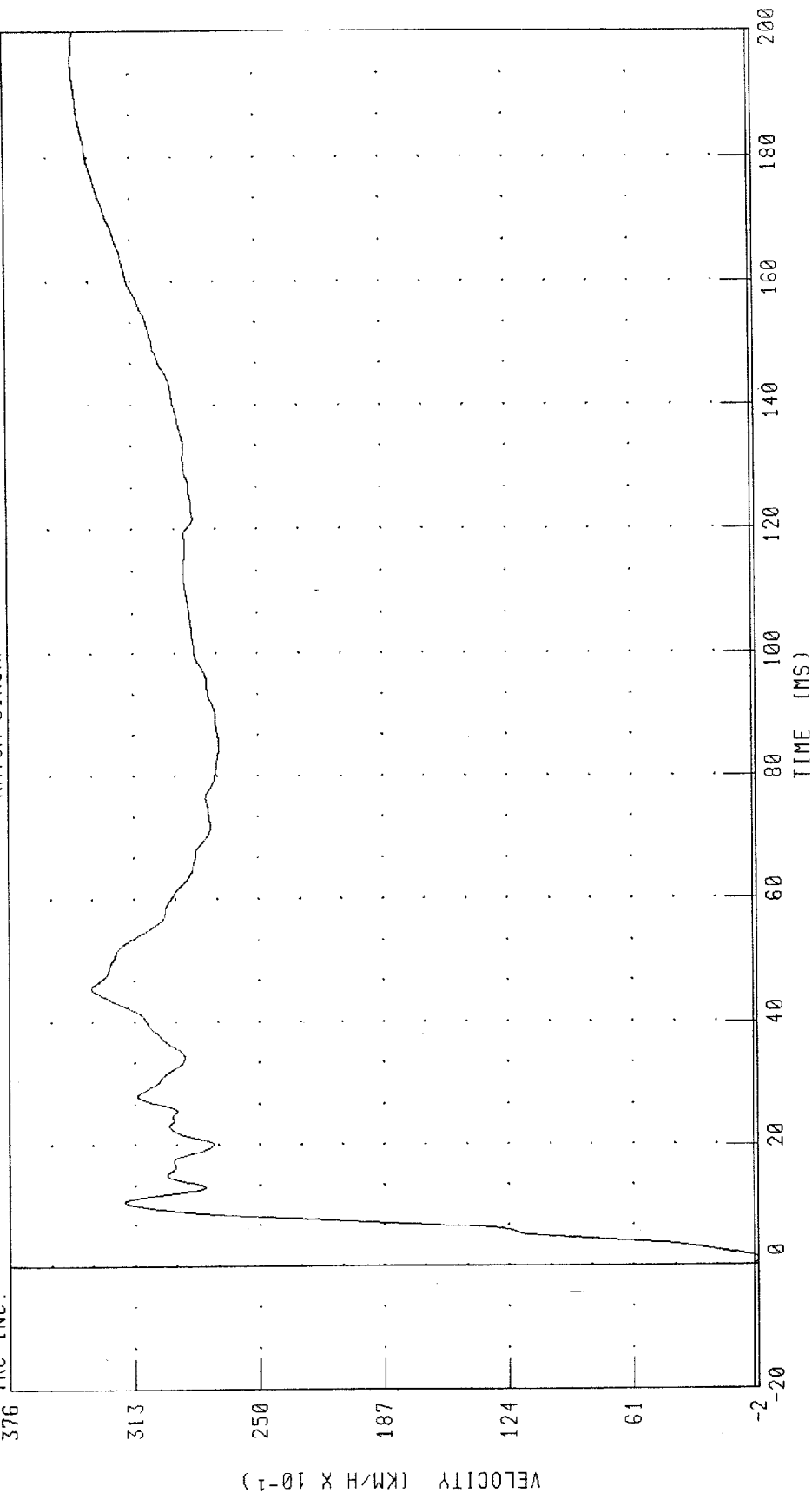
CHANNEL: LMBYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
MIDDLE B-POST Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 34.18 KM/H @ 195.52 MS; -0.24 KM/H @ 0.96 MS

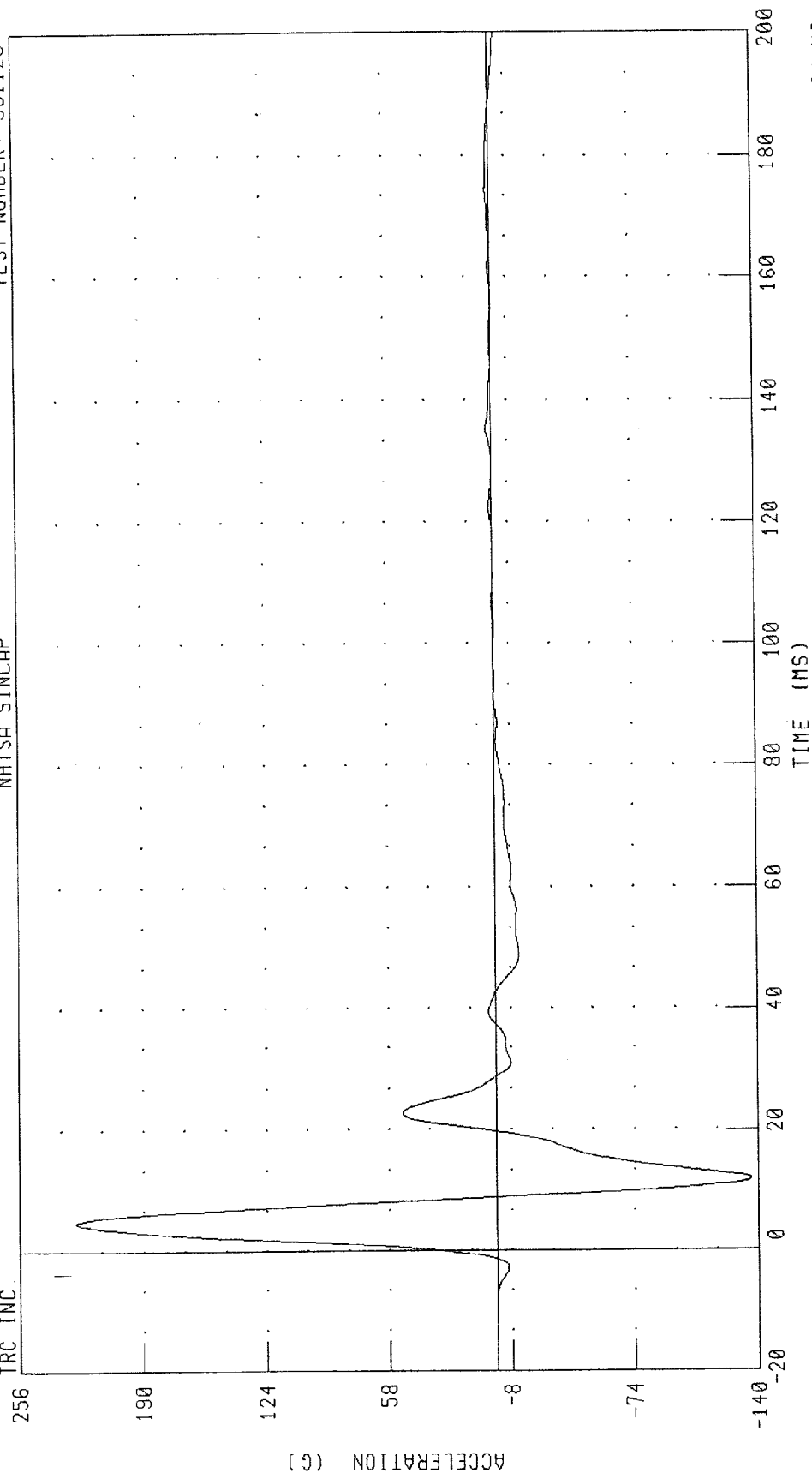
CHANNEL: LMBYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 FRONT SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 225.87 G @ 4.80 MS, -136.14 G @ 11.84 MS

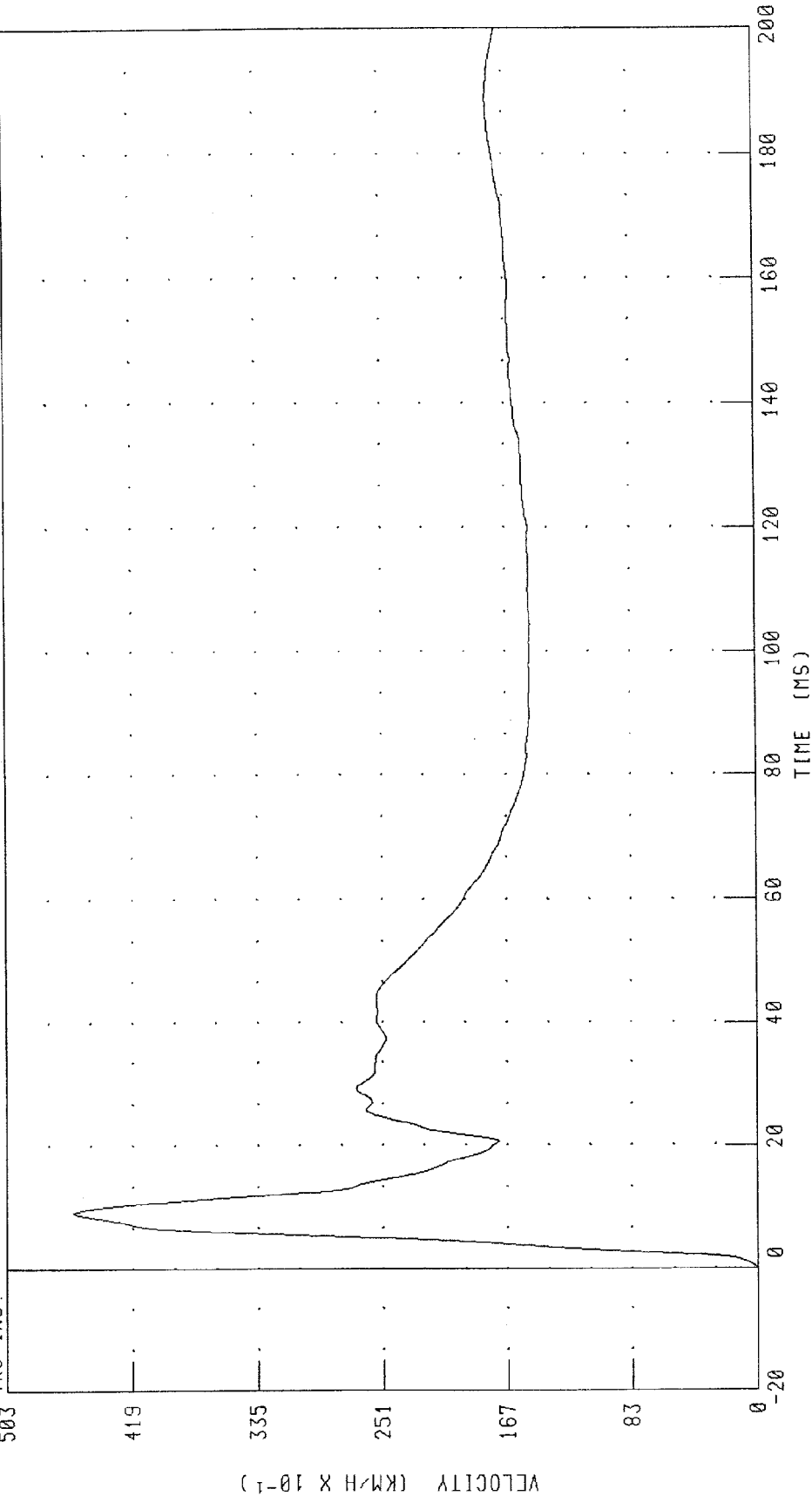
CHANNEL: LFTYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
FRONT SEAT TRACK Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



CHANNEL: LFTYV1 FILTER: CH. CLASS 180

PEAK DATA: 45.98 KM/H @ 9.36 MS; 0.00 KM/H @ 0.00 MS

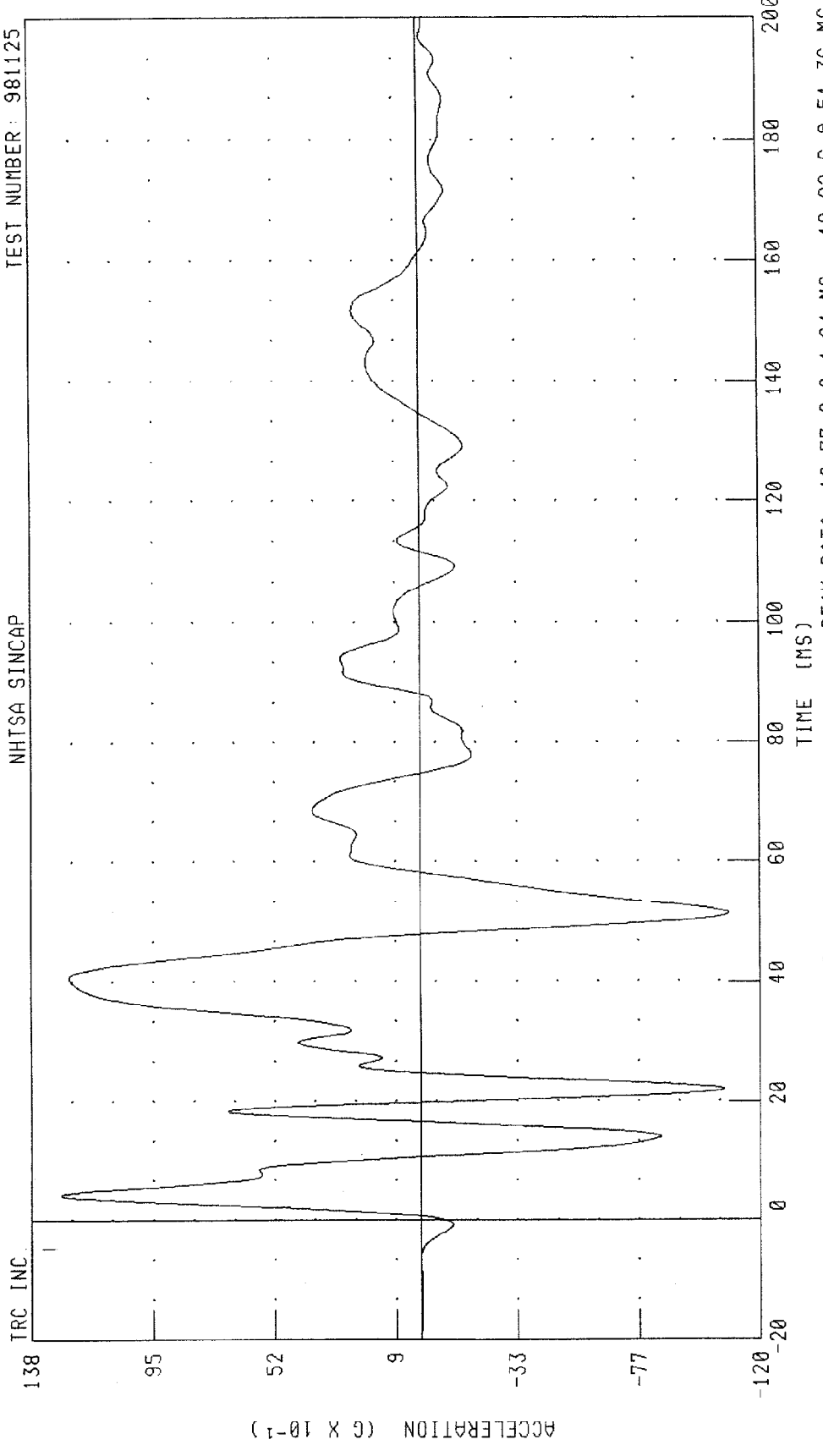
**Vehicle Rear Seat Track Y-Axis Data Channel,
LRTYG1, Was Not Installed**

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

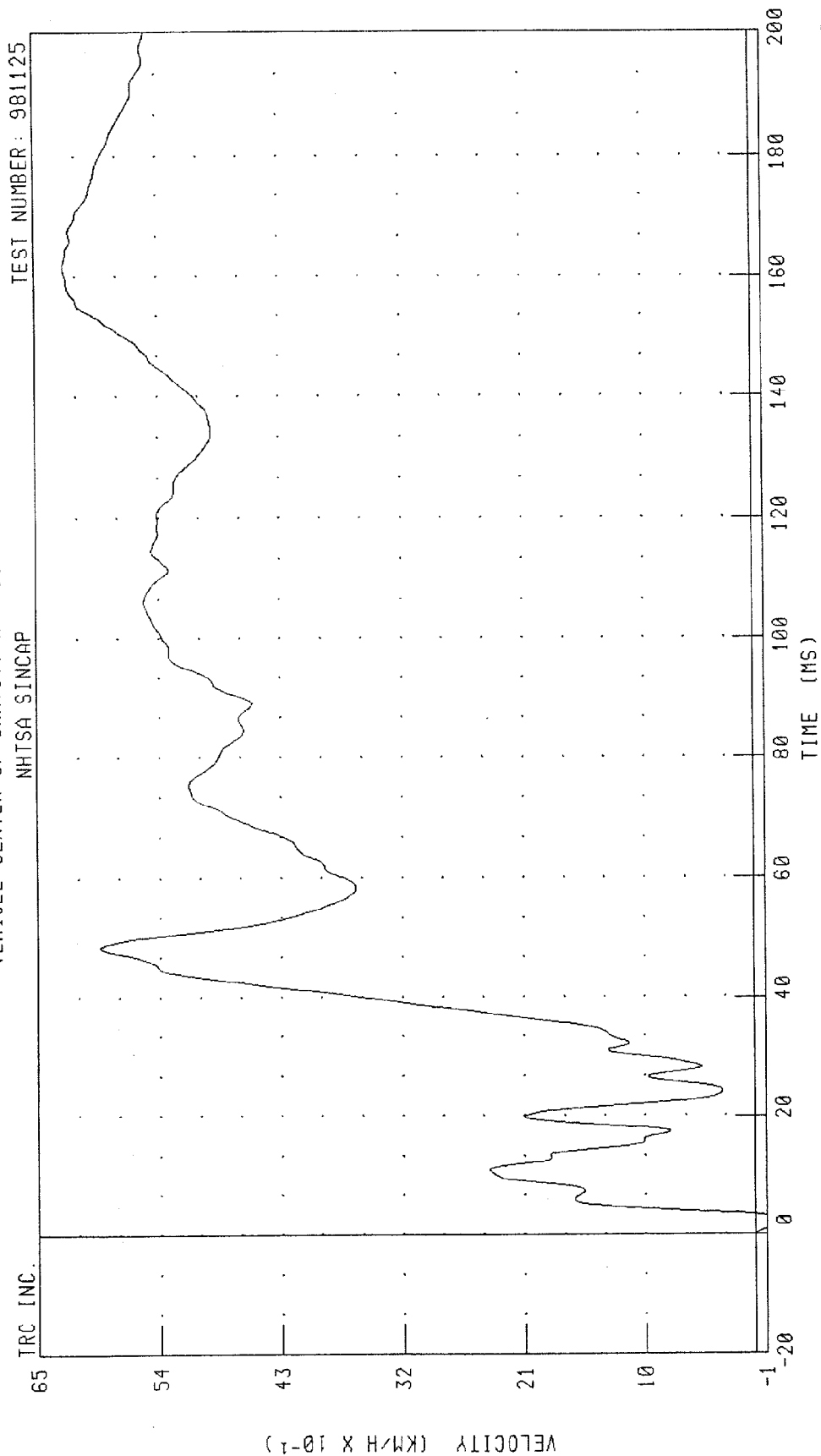
TEST NUMBER: 981125

NHTSA SINCAP



CHANNEL: VCCXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY



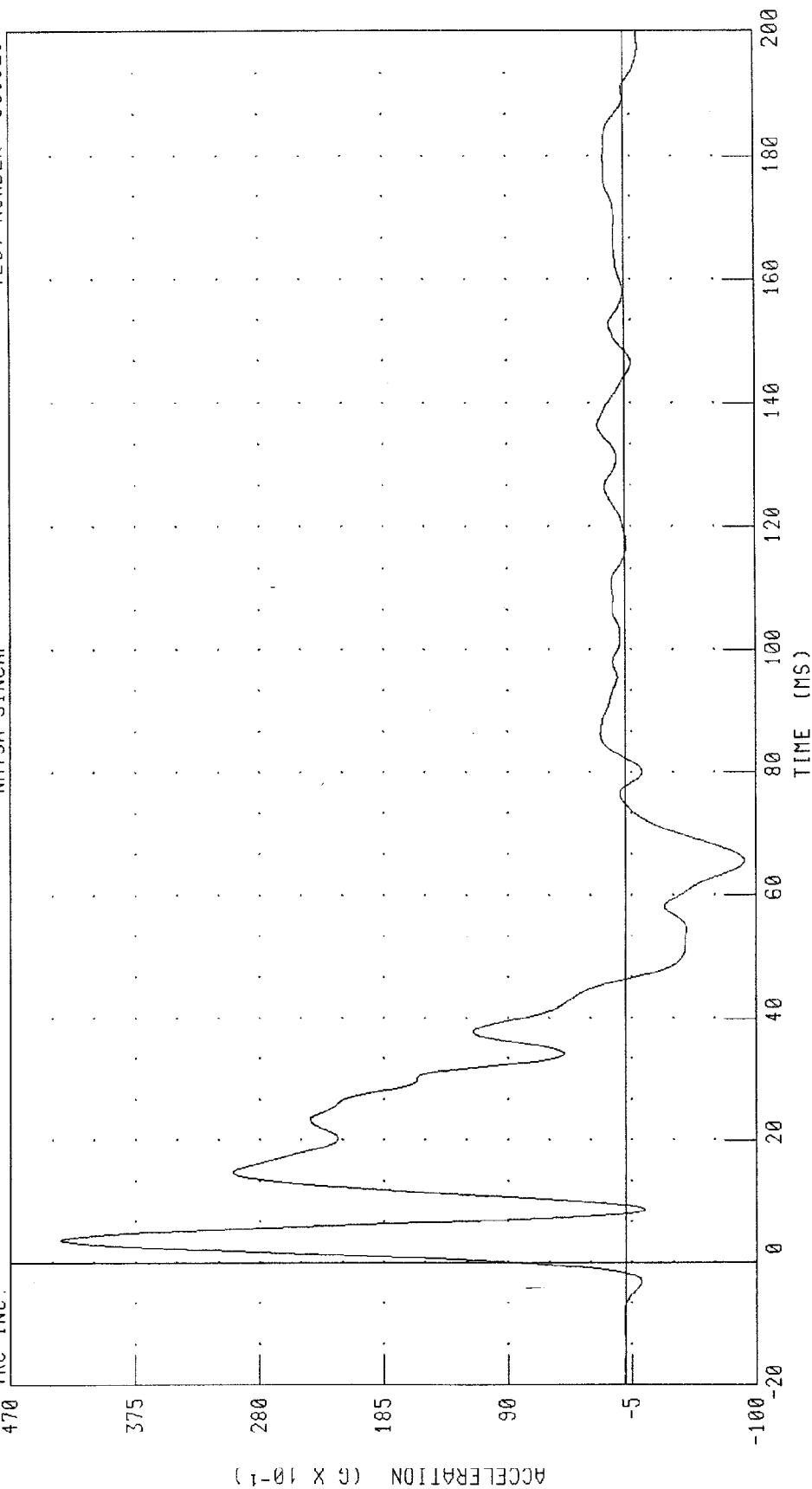
CHANNEL: VCCXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 43.23 G @ 3.76 MS, -9.13 G @ 65.60 MS

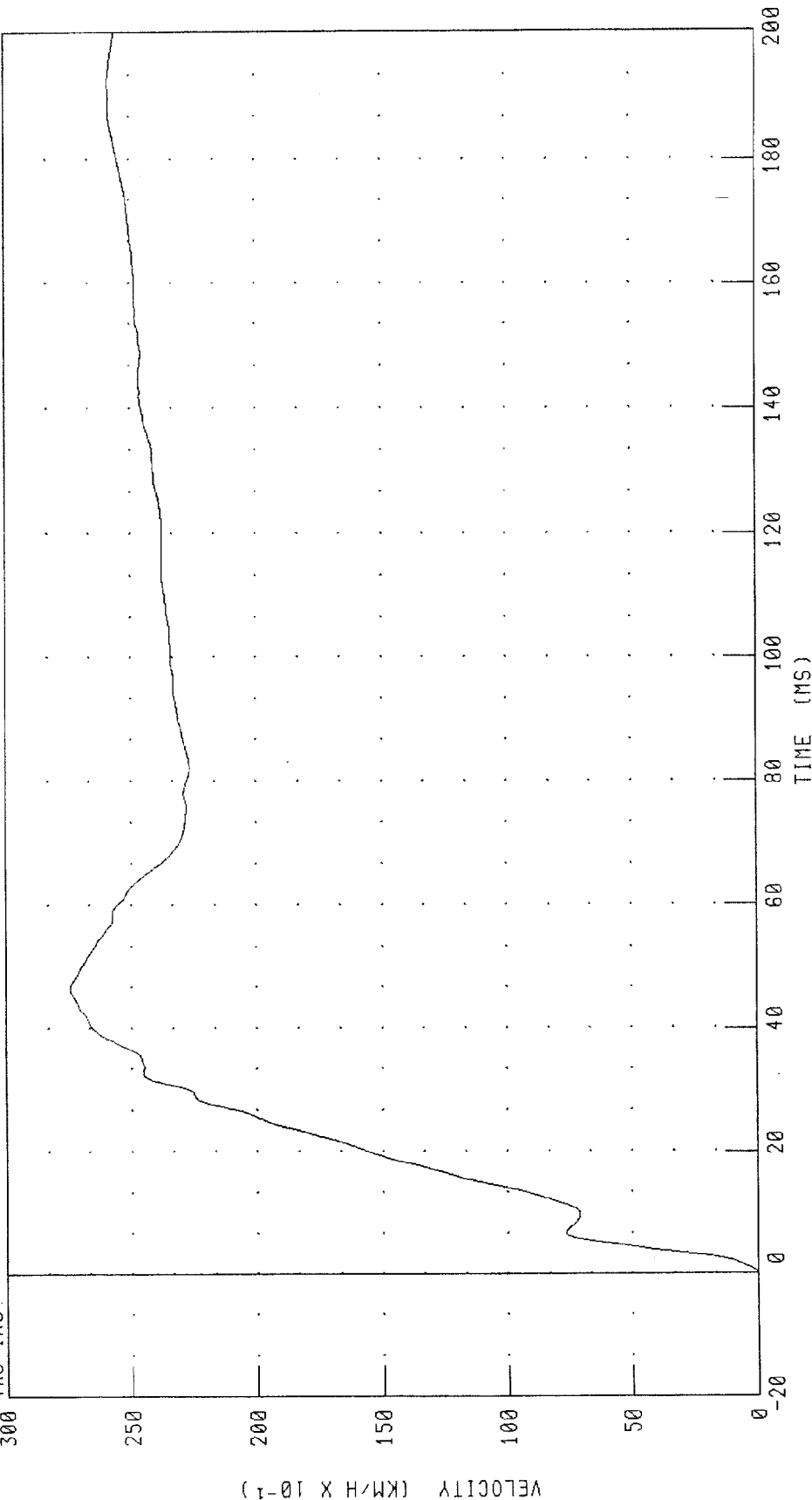
CHANNEL: VCCYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 27.44 KM/H @ 46.48 MS; 0.00 KM/H @ 0.00 MS

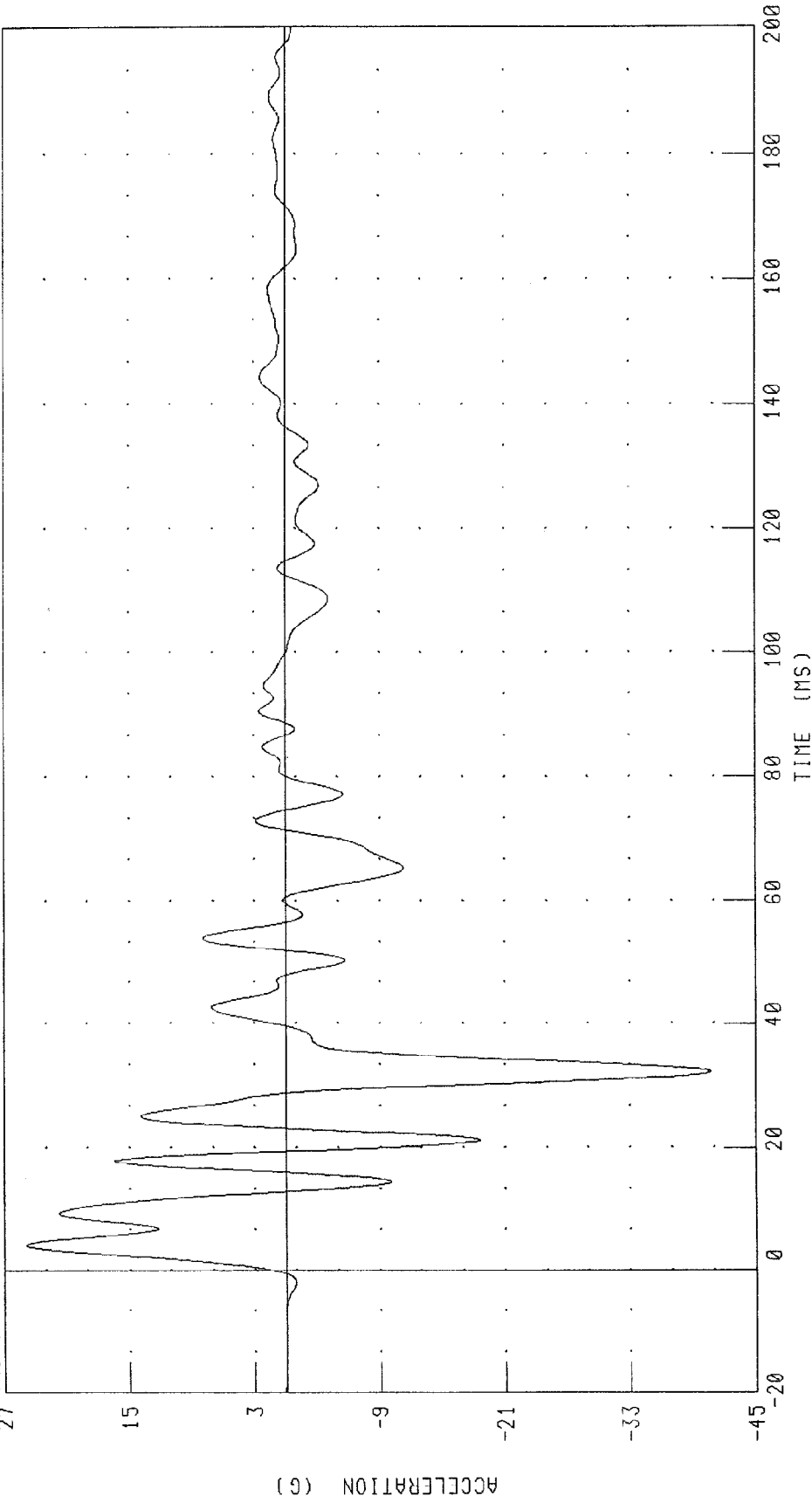
CHANNEL: VCGYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 24.90 G @ 4.00 MS, -40.73 G @ 32.08 MS

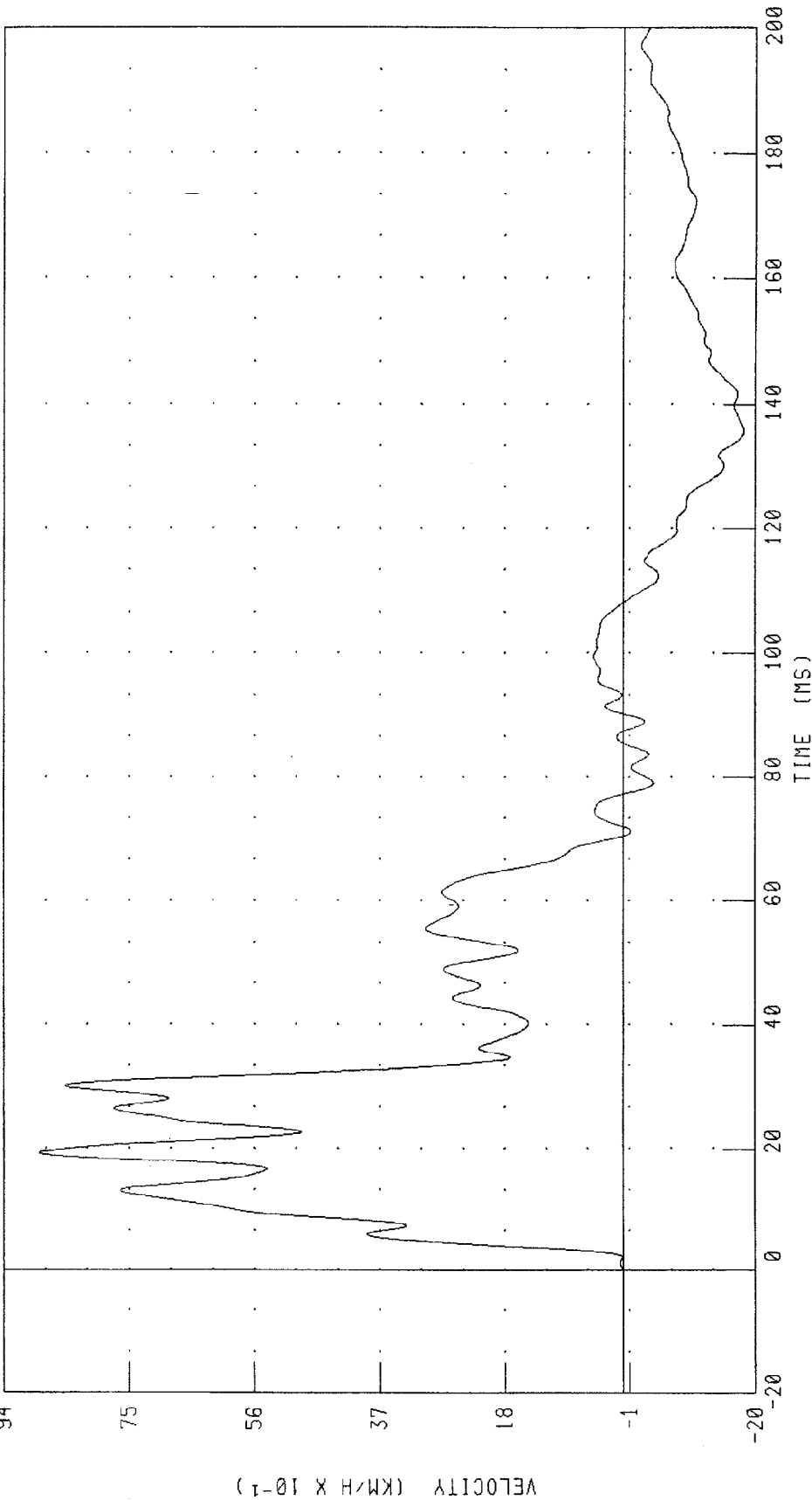
CHANNEL: VCCZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

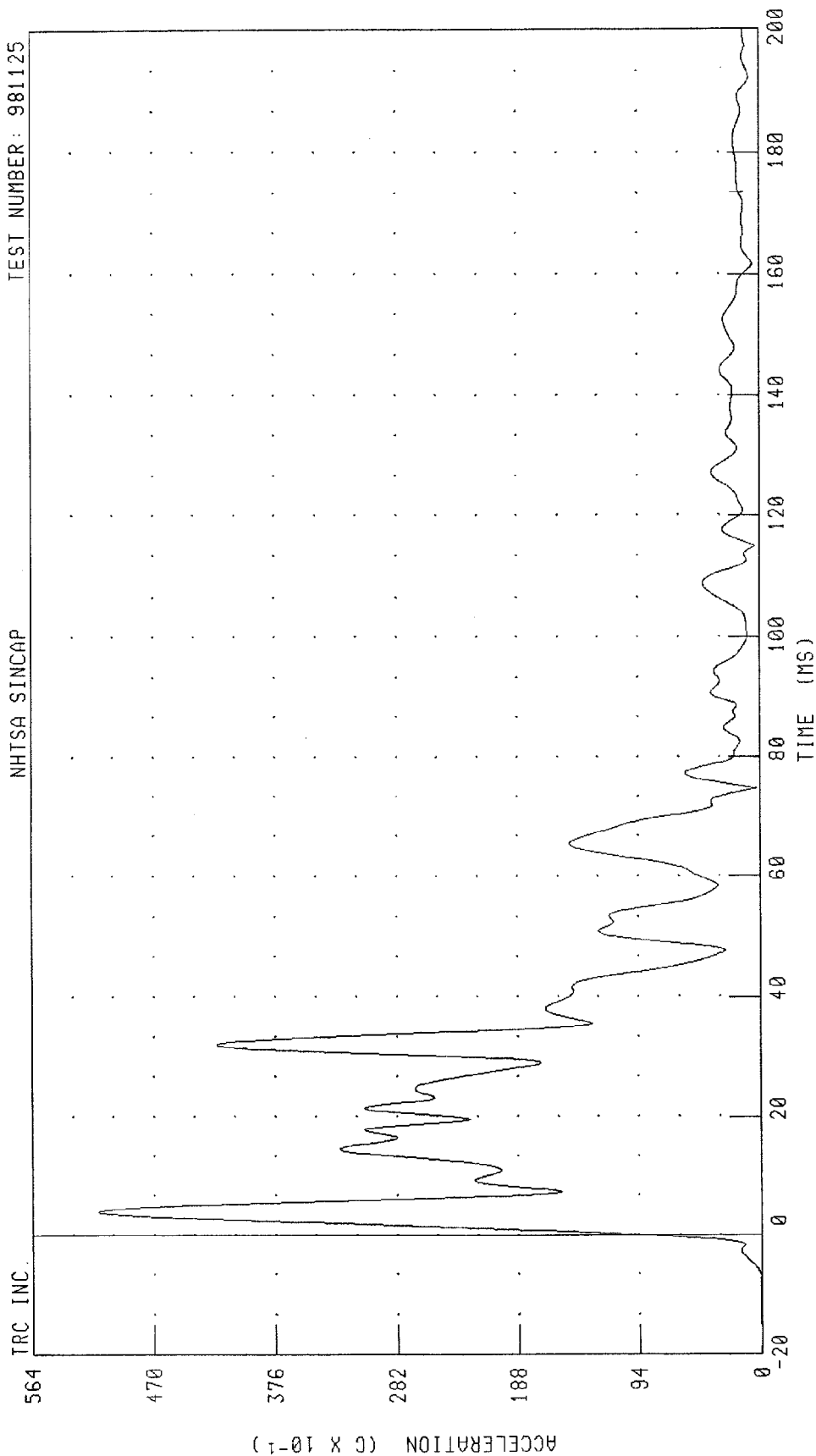


PEAK DATA: 8.86 KM/H @ 19.36 MS; -1.83 KM/H @ 135.76 MS

CHANNEL: VCCZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION
 NHTSA SINCAP

TEST NUMBER: 981125



PEAK DATA: 51.30 G @ 3.84 MS; 0.02 G @ -18.00 MS

CHANNEL: VCGRG1 FILTER: CH. CLASS 60

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

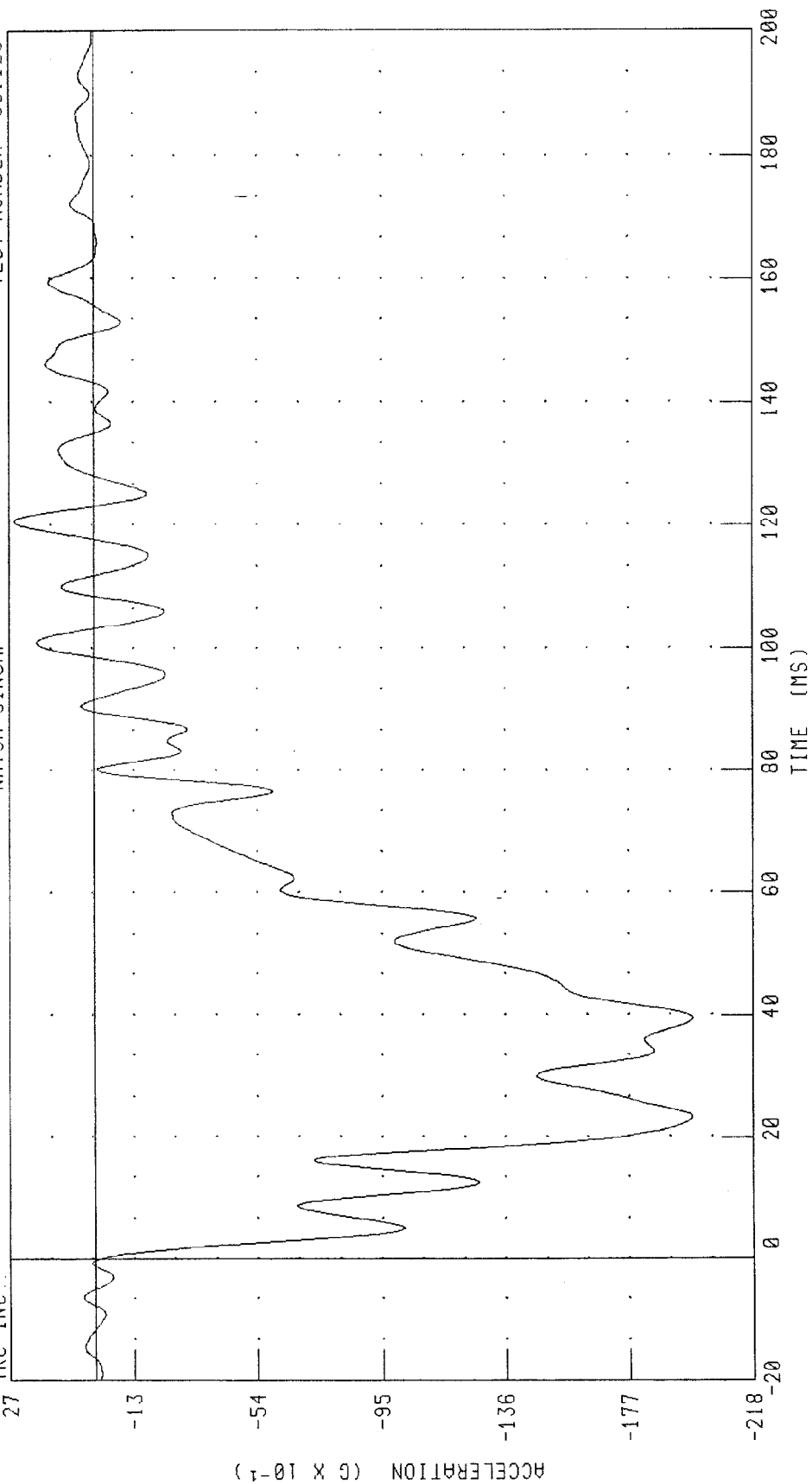
Integration Data - Filter Class 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER 981125

NHTSA SINCAP

TRC INC



CHANNEL: BCCXG1 FILTER: CH. CLASS 60

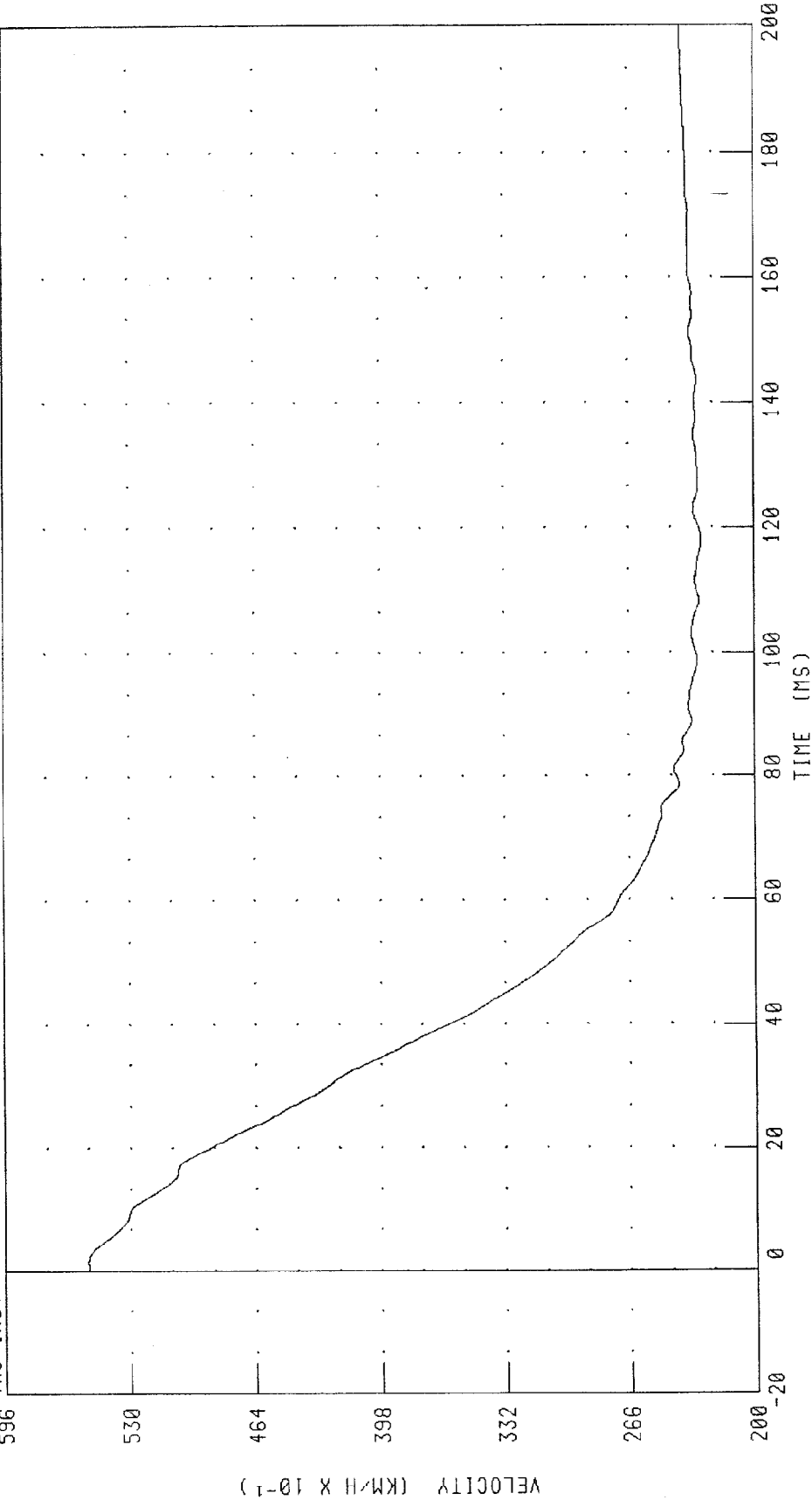
PEAK DATA: 2.63 G @ 120.64 MS, -19.81 G @ 39.52 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC



PEAK DATA: 55.23 KM/H @ 1.36 MS; 22.79 KM/H @ 117.44 MS

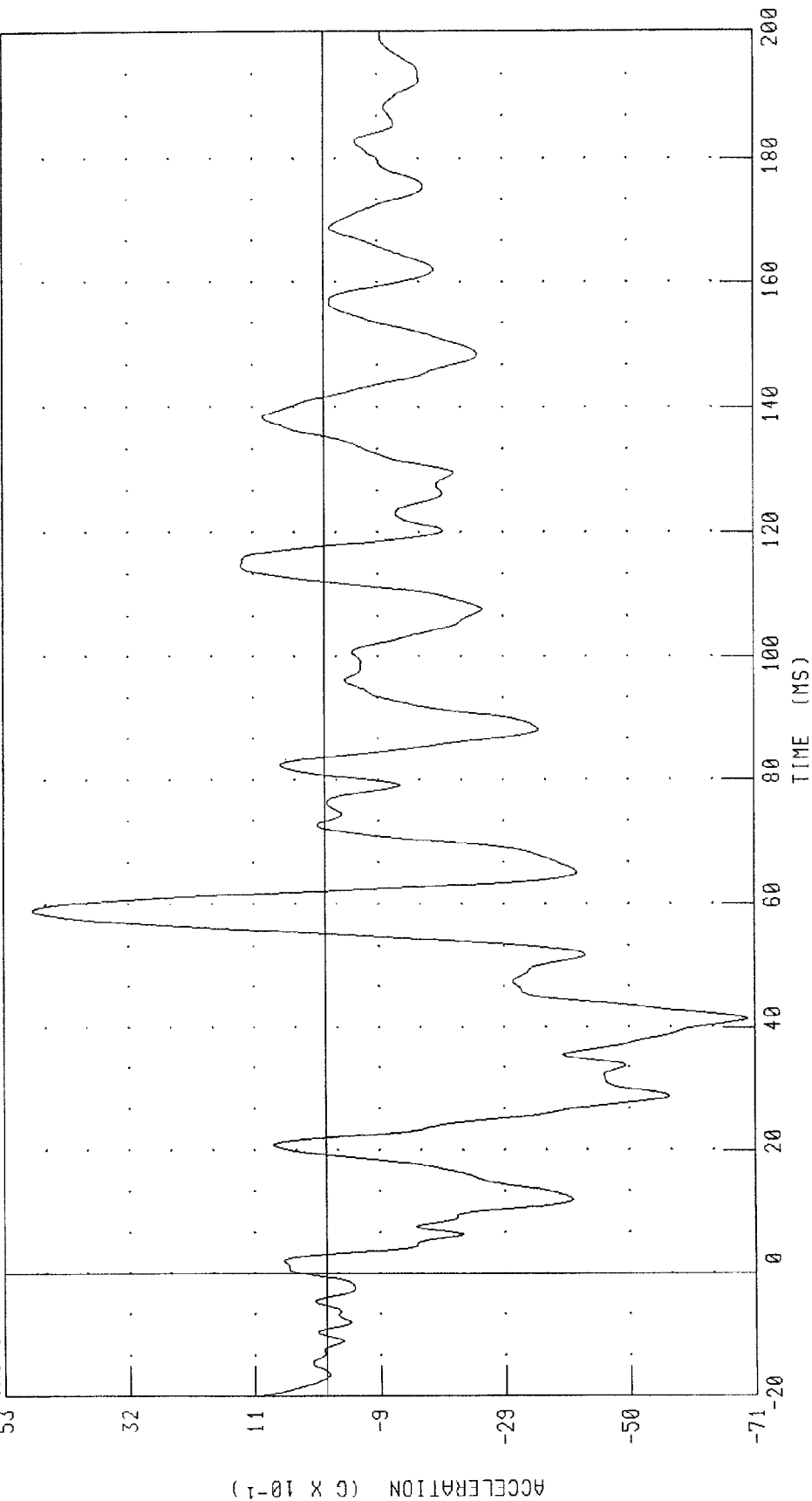
CHANNEL: BCGXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 4.91 G @ 59.12 MS, -7.07 G @ 41.44 MS

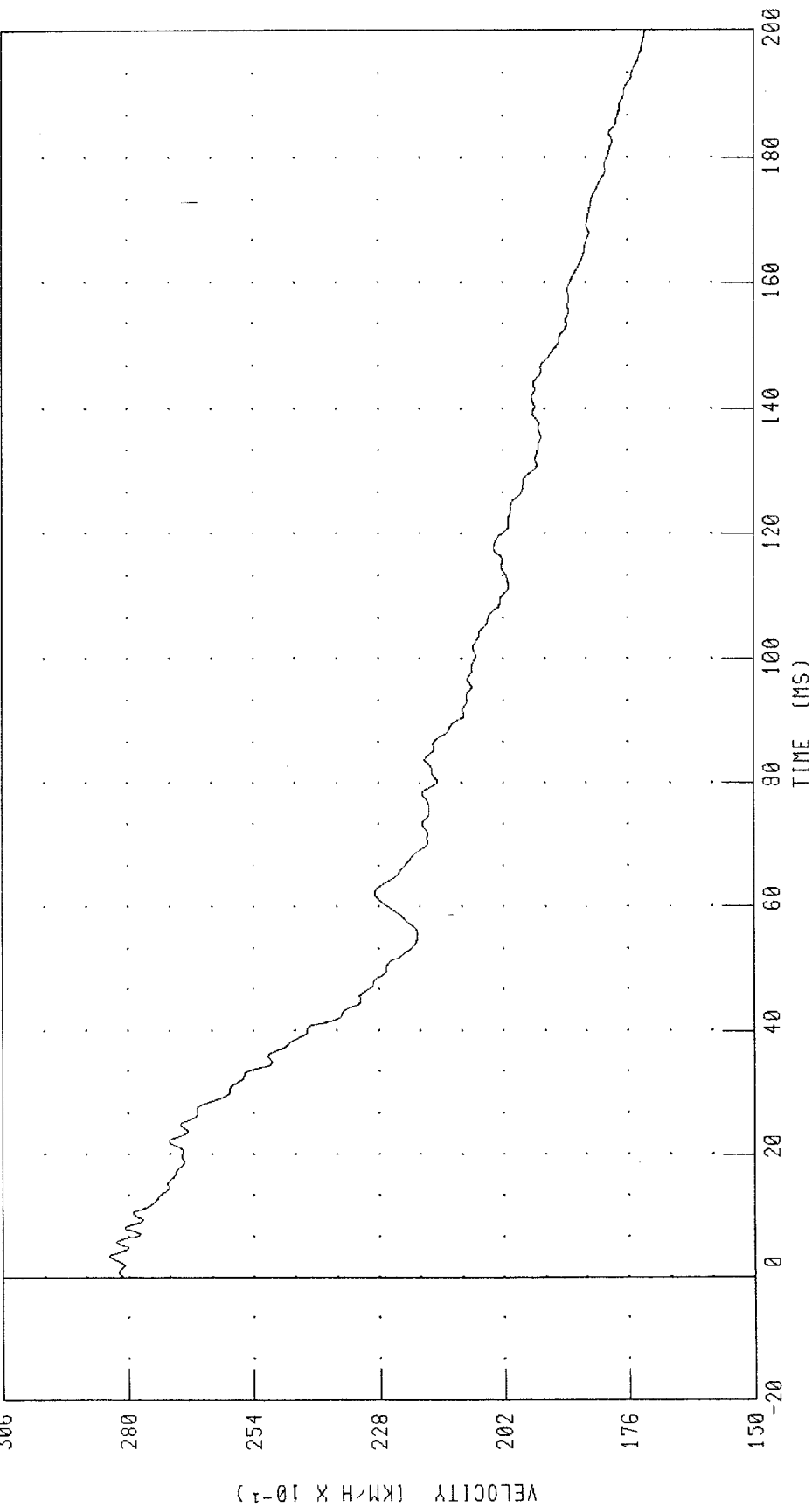
CHANNEL: BCCYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 28.41 KM/H @ 3.36 MS; 17.25 KM/H @ 200.00 MS

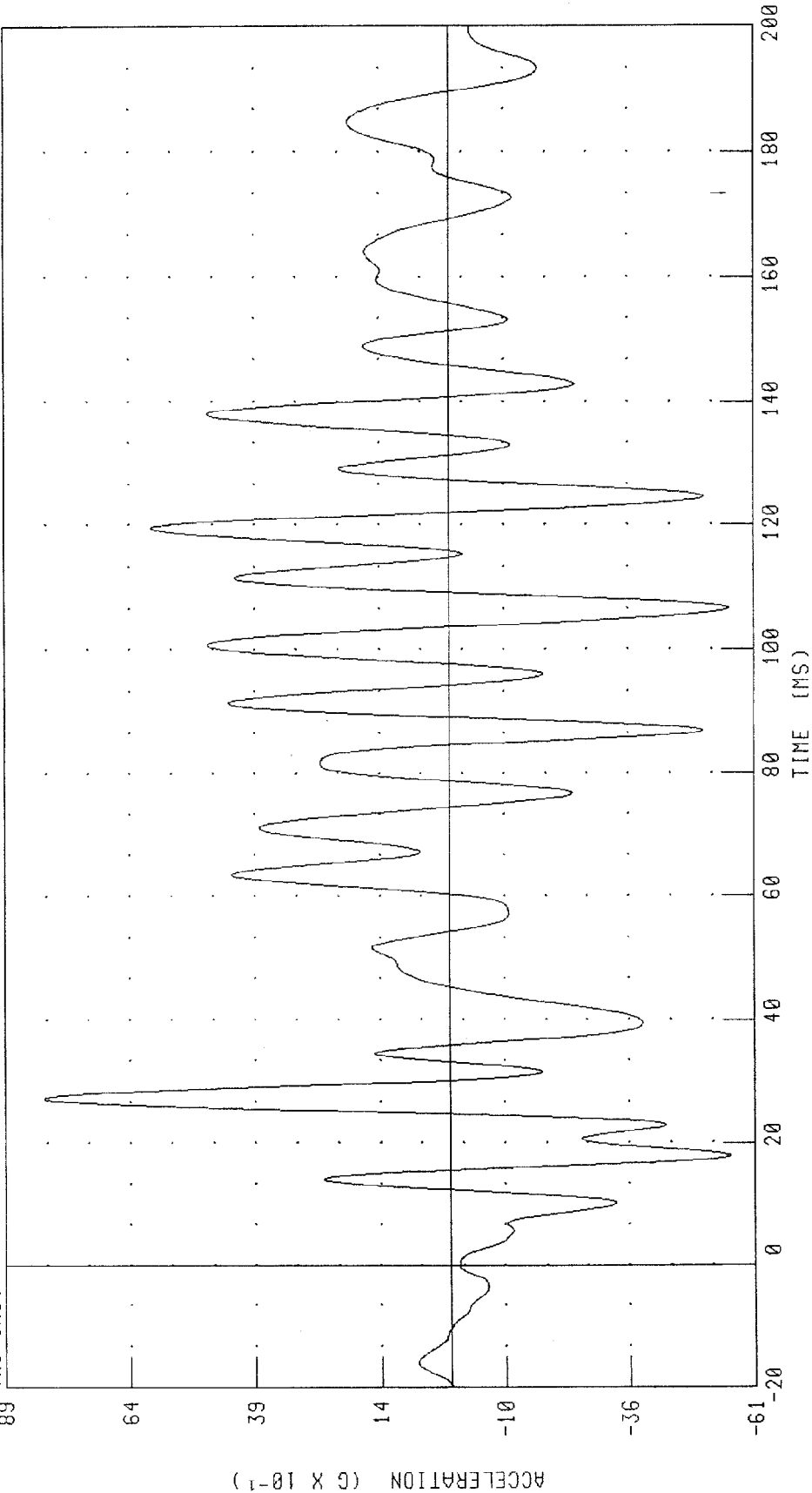
CHANNEL: BCCYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 8.12 G @ 27.28 MS, -5.62 G @ 17.92 MS

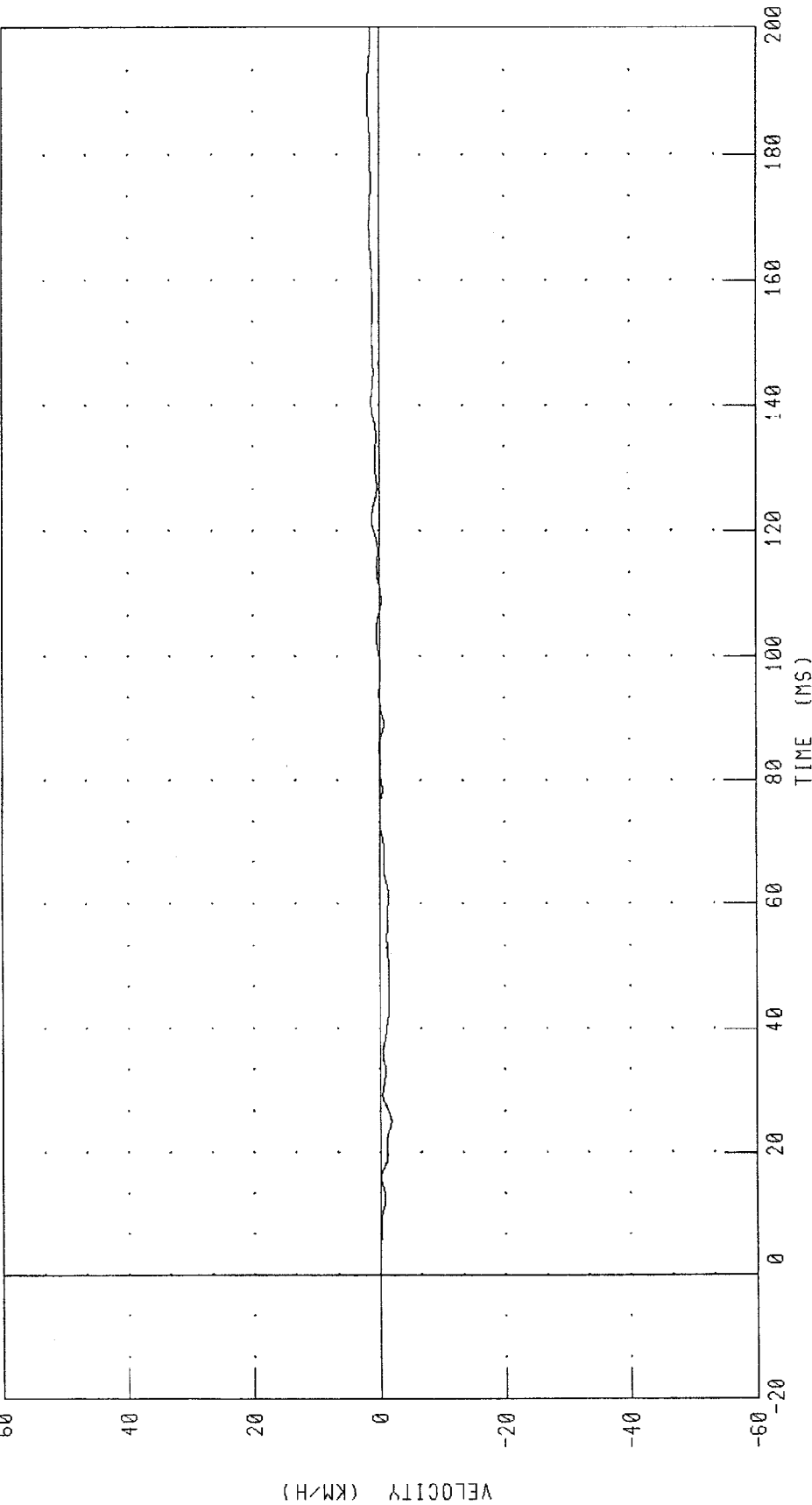
CHANNEL: BCCZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



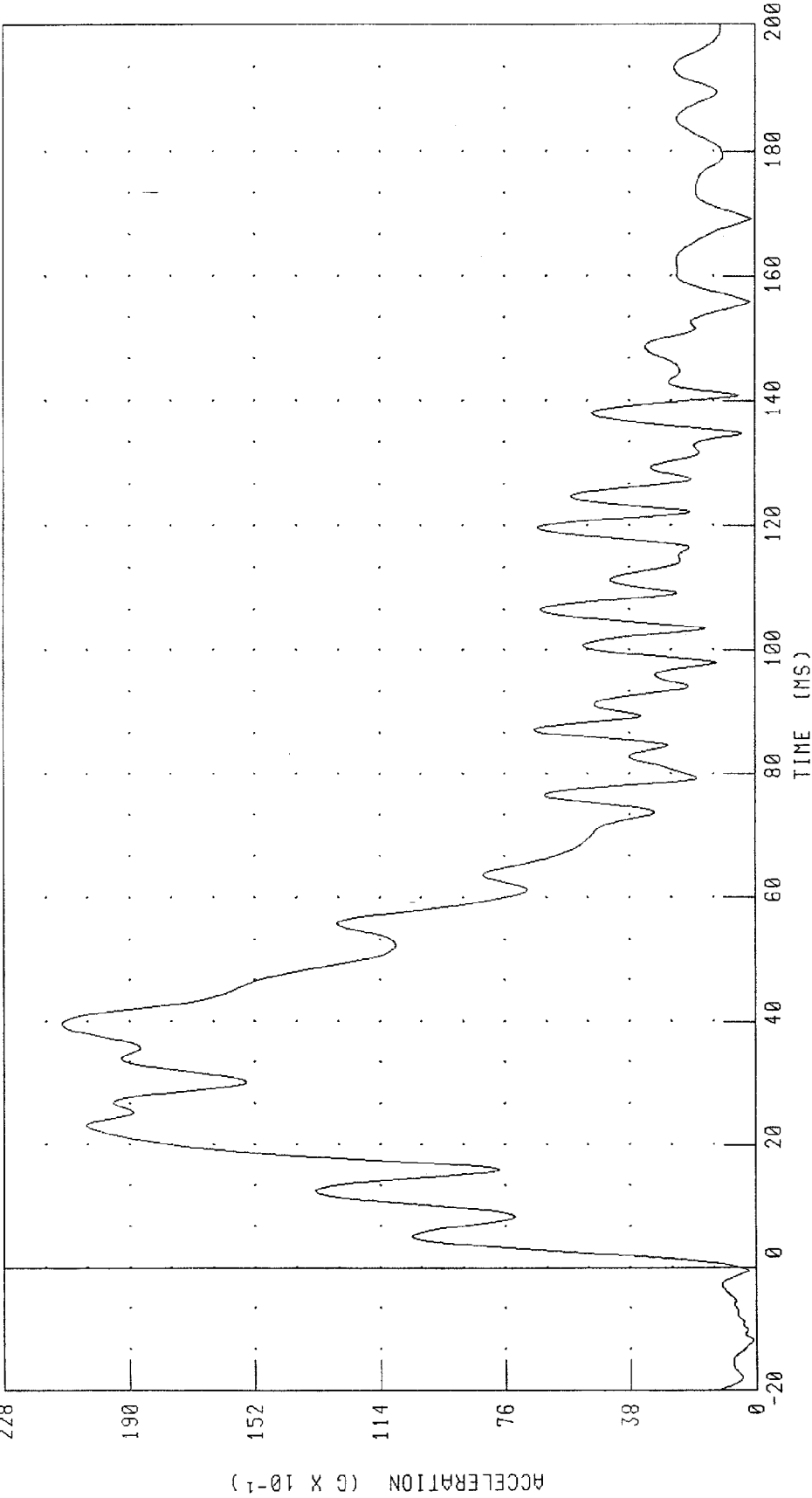
CHANNEL: BCGZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 21.05 G @ 39.60 MS, 0.08 G @ -11.84 MS

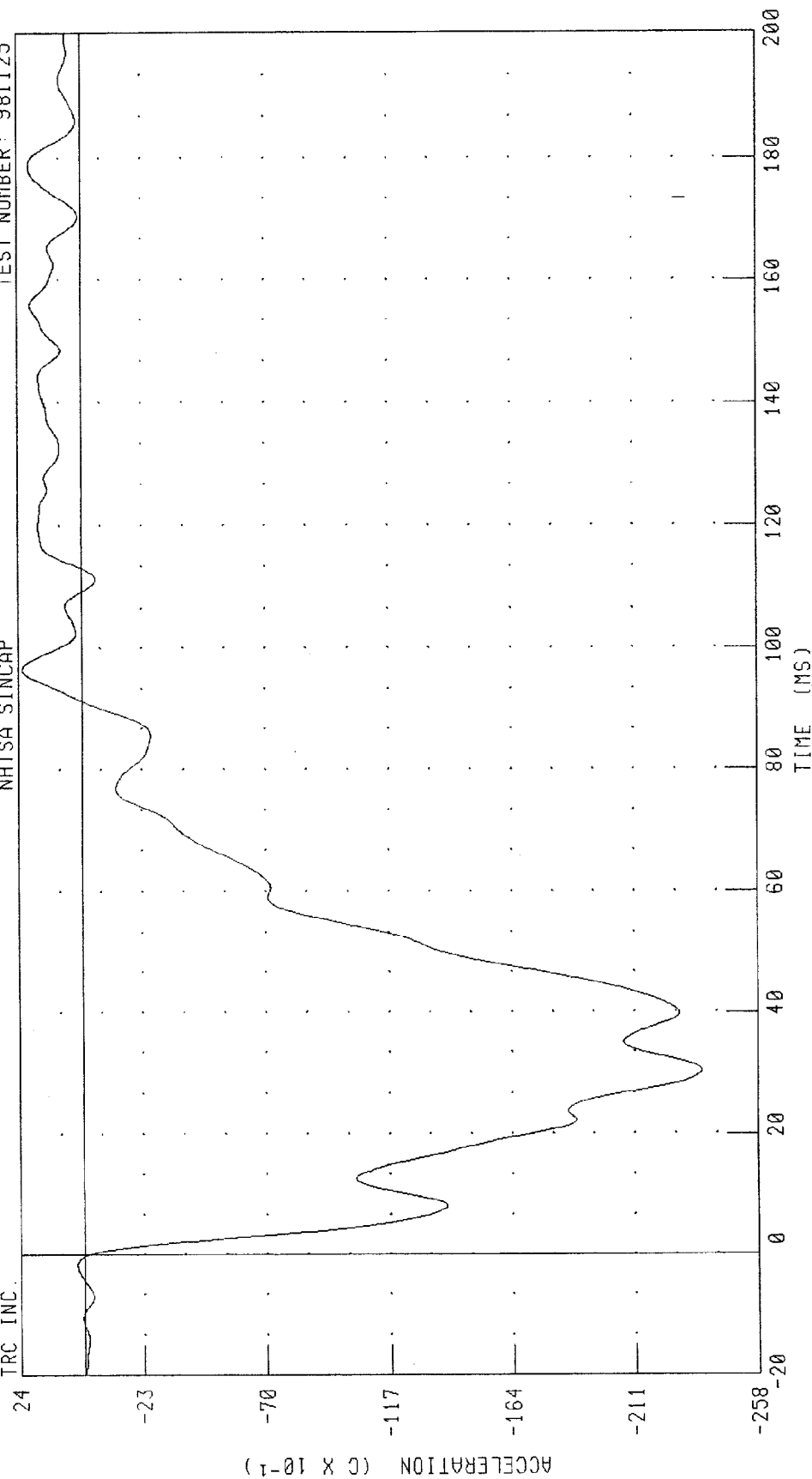
CHANNEL: BCCRG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
MOVING DEFORMABLE BARRIER REAR X-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 2.25 C @ 96.64 MS; -23.66 C @ 30.24 MS

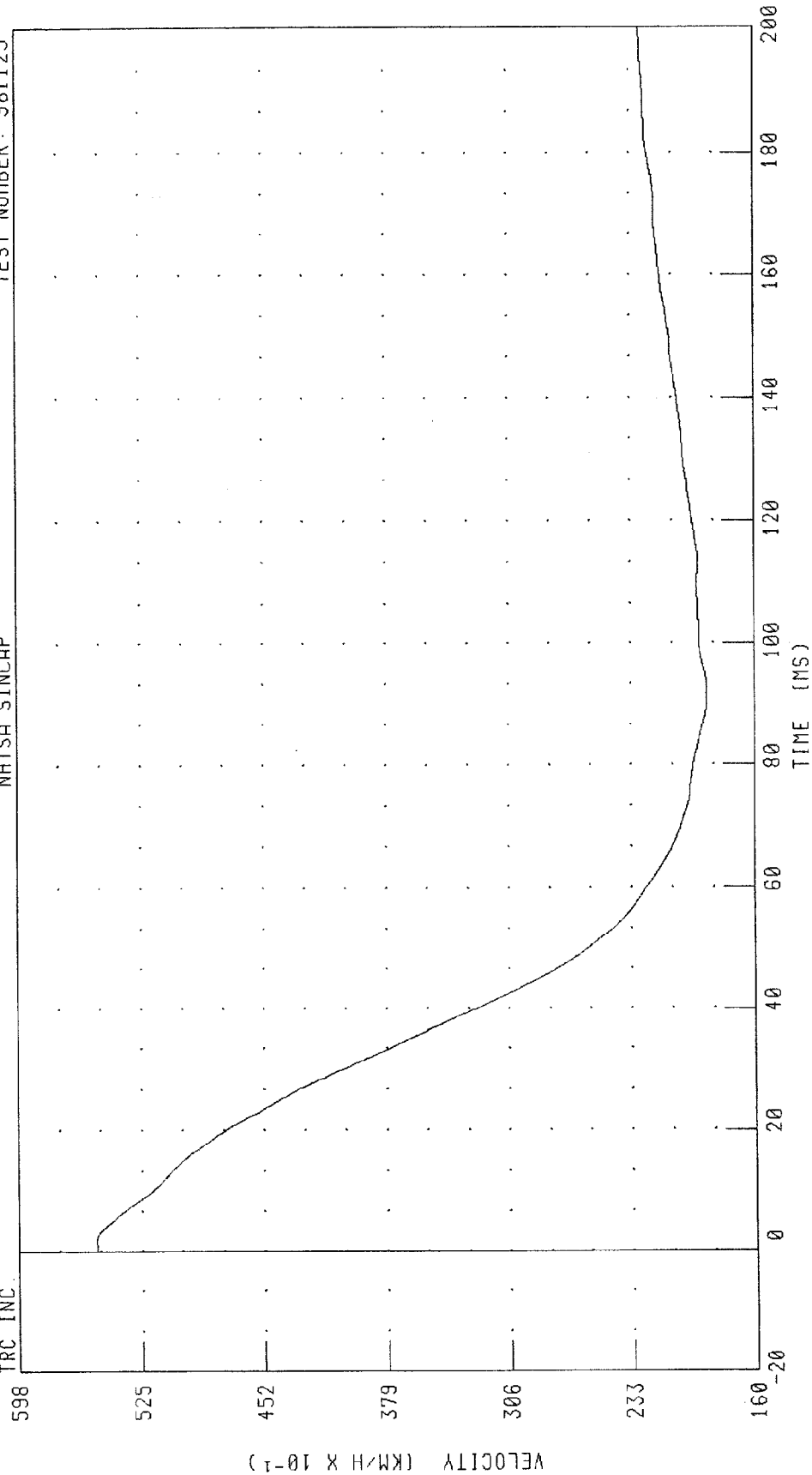
CHANNEL: LRRXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
MOVING DEFORMABLE BARRIER REAR X-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

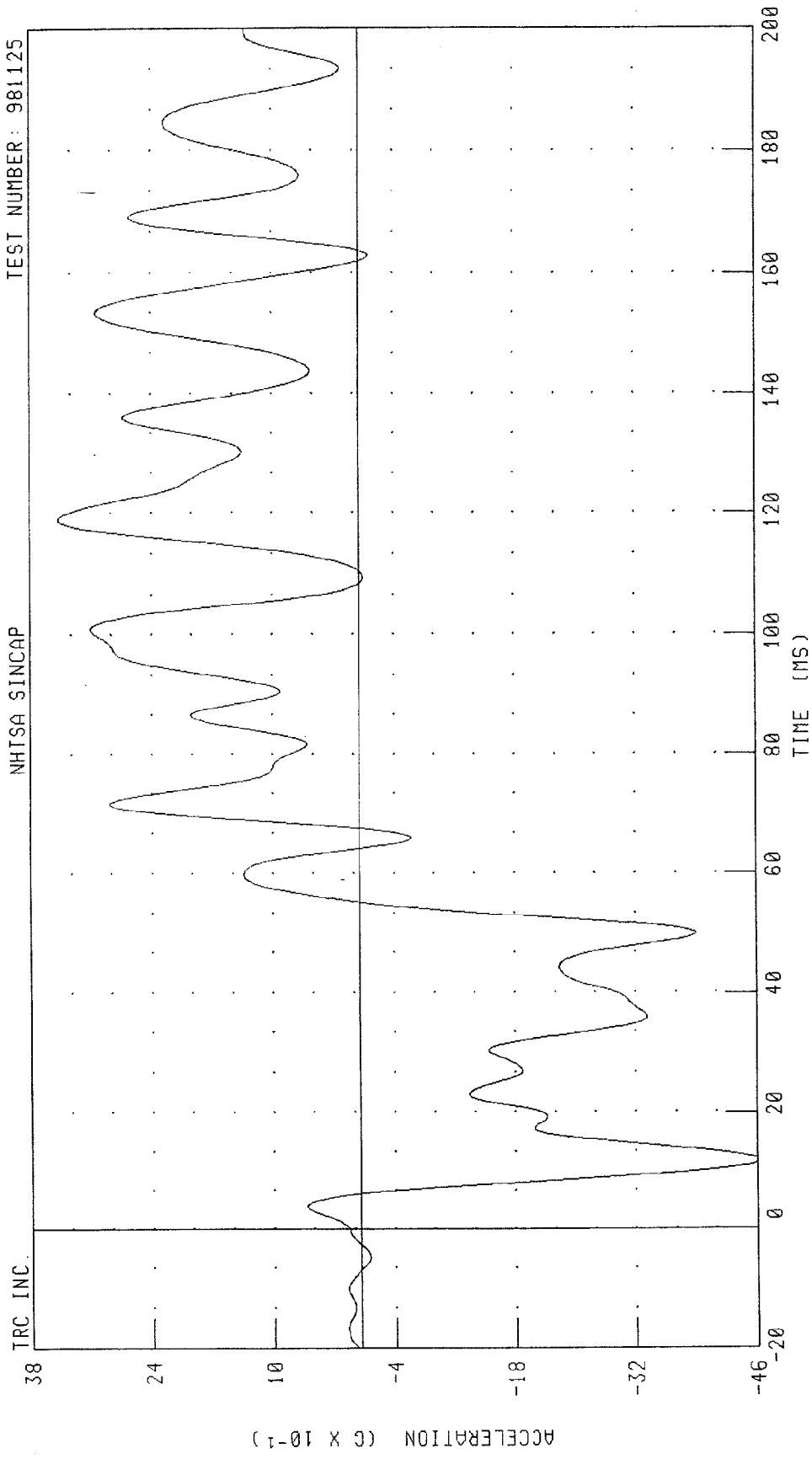


PEAK DATA: 55.21 KM/H @ 1.76 MS, 18.81 KM/H @ 90.88 MS

CHANNEL: LRRXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 MOVING DEFORMABLE BARRIER REAR Y-AXIS ACCELERATION
 NHTSA SINCAP

TEST NUMBER: 981125



PEAK DATA: 3.47 G @ 118.96 MS, -4.62 G @ 11.84 MS

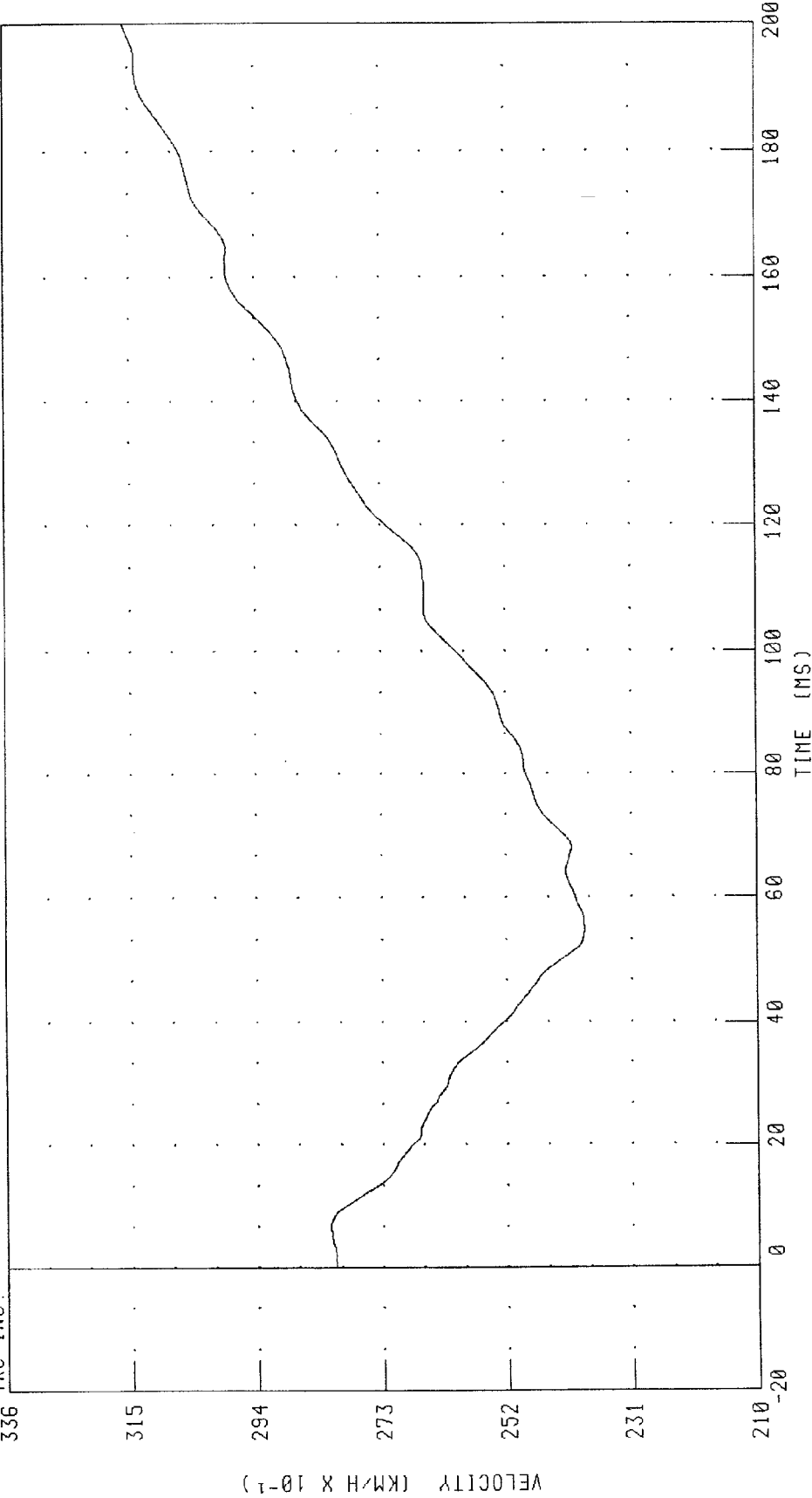
CHANNEL: LRRYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
MOVING DEFORMABLE BARRIER REAR Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 31.61 KM/H @ 200.00 MS; 23.89 KM/H @ 54.96 MS

FILTER: CH. CLASS 180

CHANNEL: LRRYV1

**Moving Deformable Barrier Right Contact Switch,
MDBR, Was Not Used**

**Moving Deformable Barrier Left Contact Switch,
MDBL, Was Not Used**

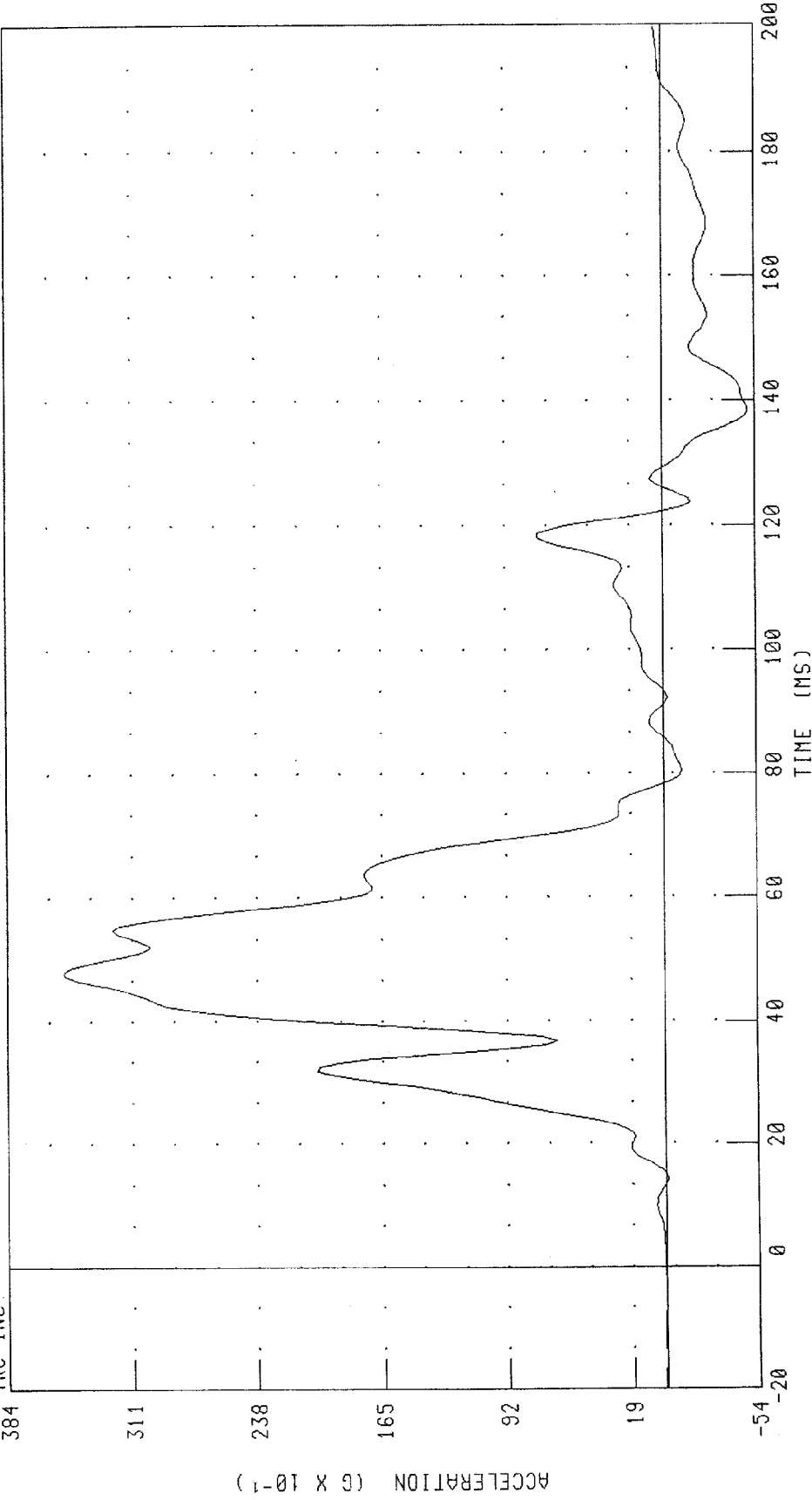
Driver Dummy Instrumentation Plots

Acceleration Data - FIR Filtered

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 DRIVER UPPER RIB Y-AXIS ACCELERATION
 NHTSA SINCAP

TEST NUMBER: 981125

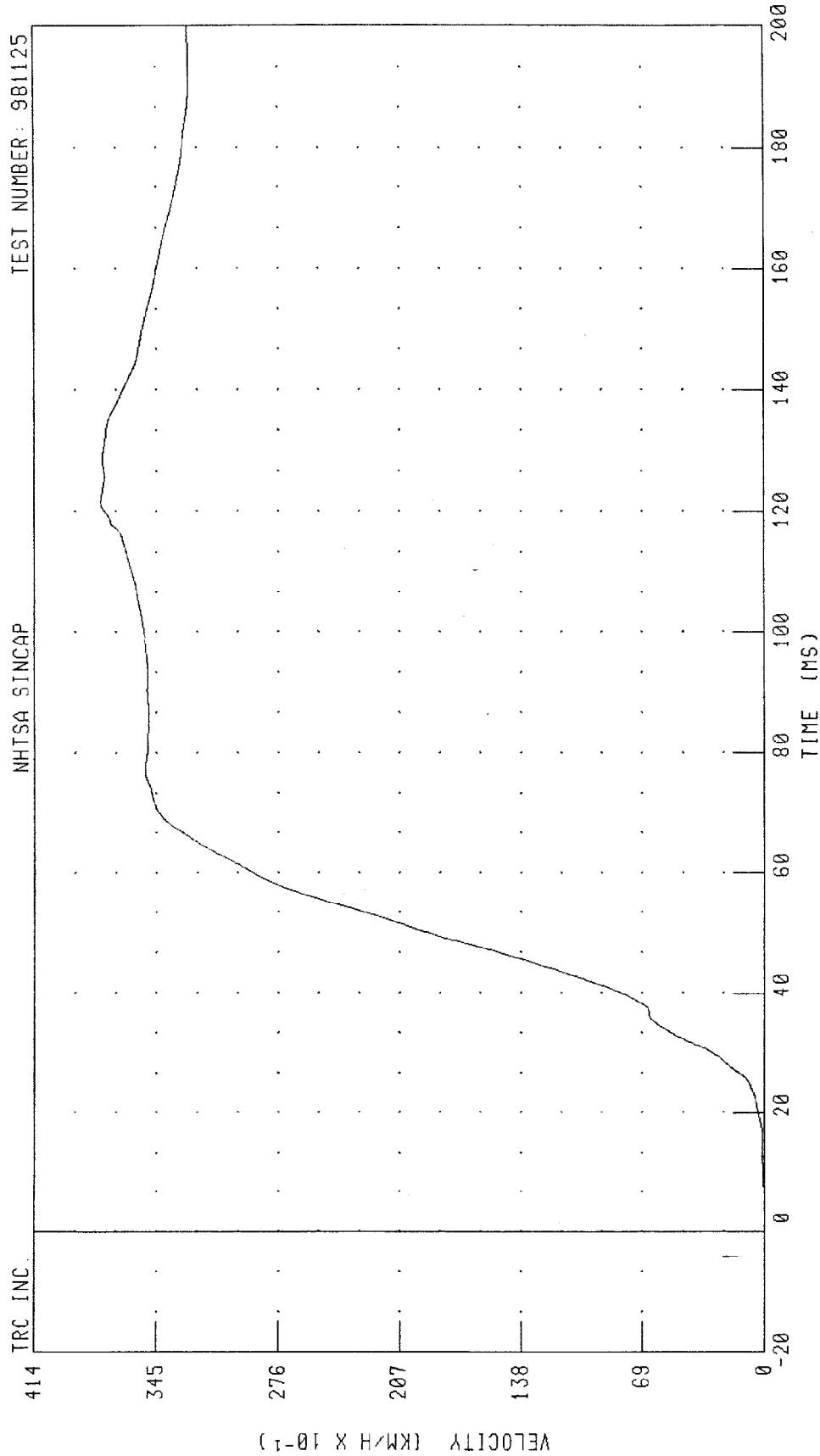
TRC INC.



PEAK DATA: 35.17 G @ 48.13 MS, -4.99 G @ 138.13 MS

CHANNEL: LURYG1 FILTER: FIR 100

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



PEAK DATA: 37.65 KM/H @ 121.52 MS; 0.00 KN/H @ 0.00 MS

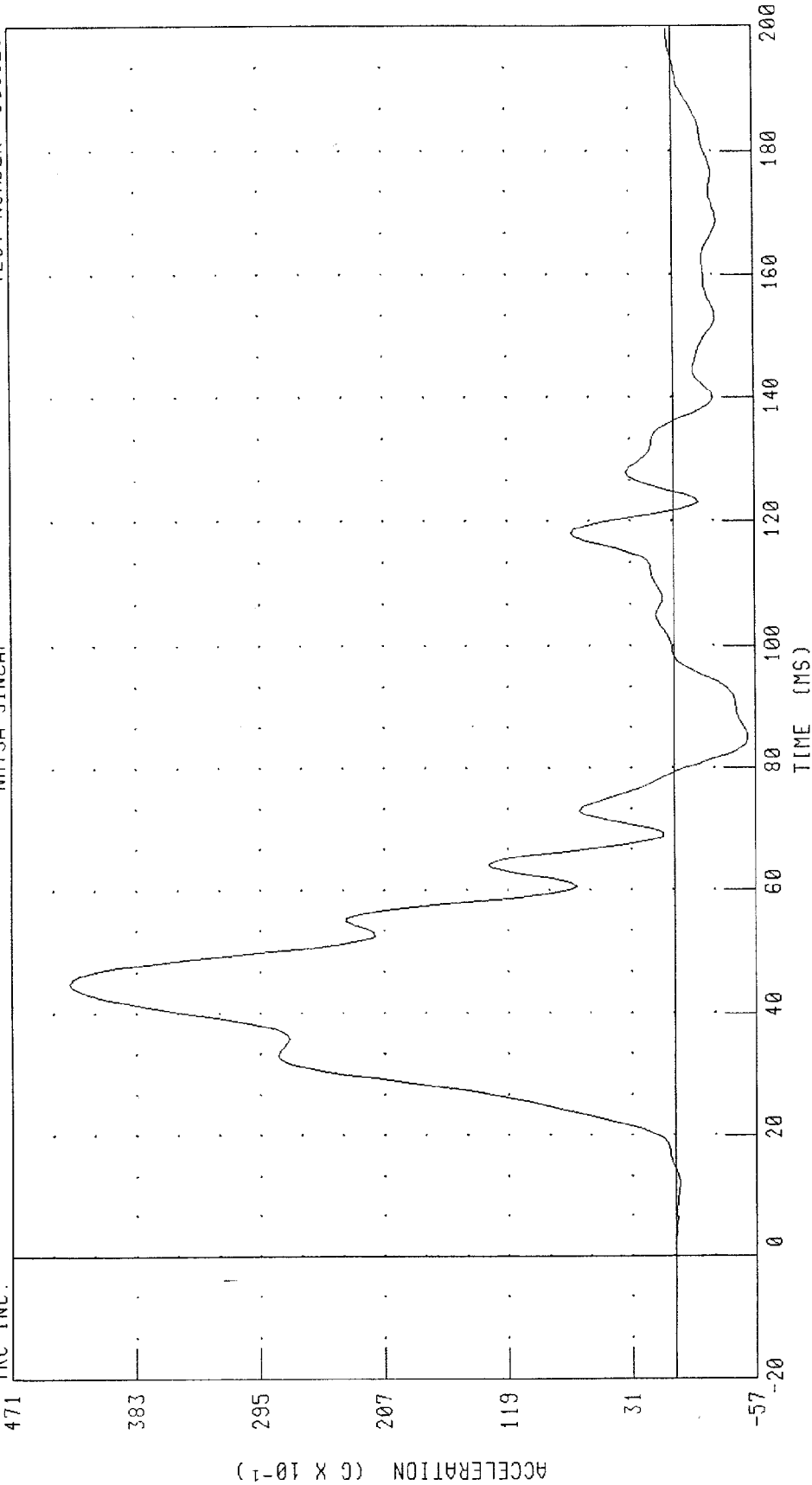
CHANNEL: LURYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 42.99 G @ 45.00 MS, -5.22 G @ 85.00 MS

CHANNEL: LLYC1 FILTER: FIR 100

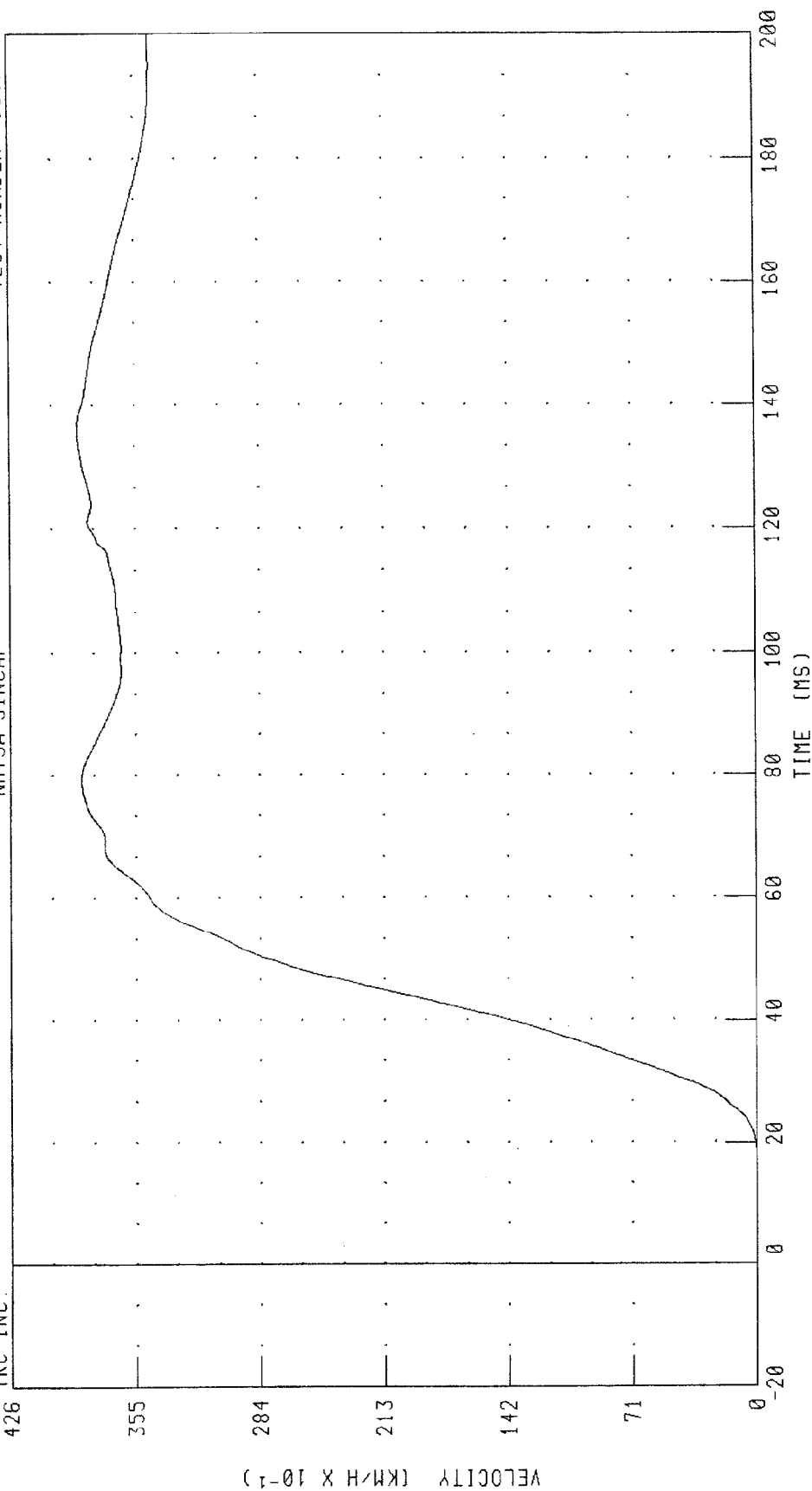
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER

DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

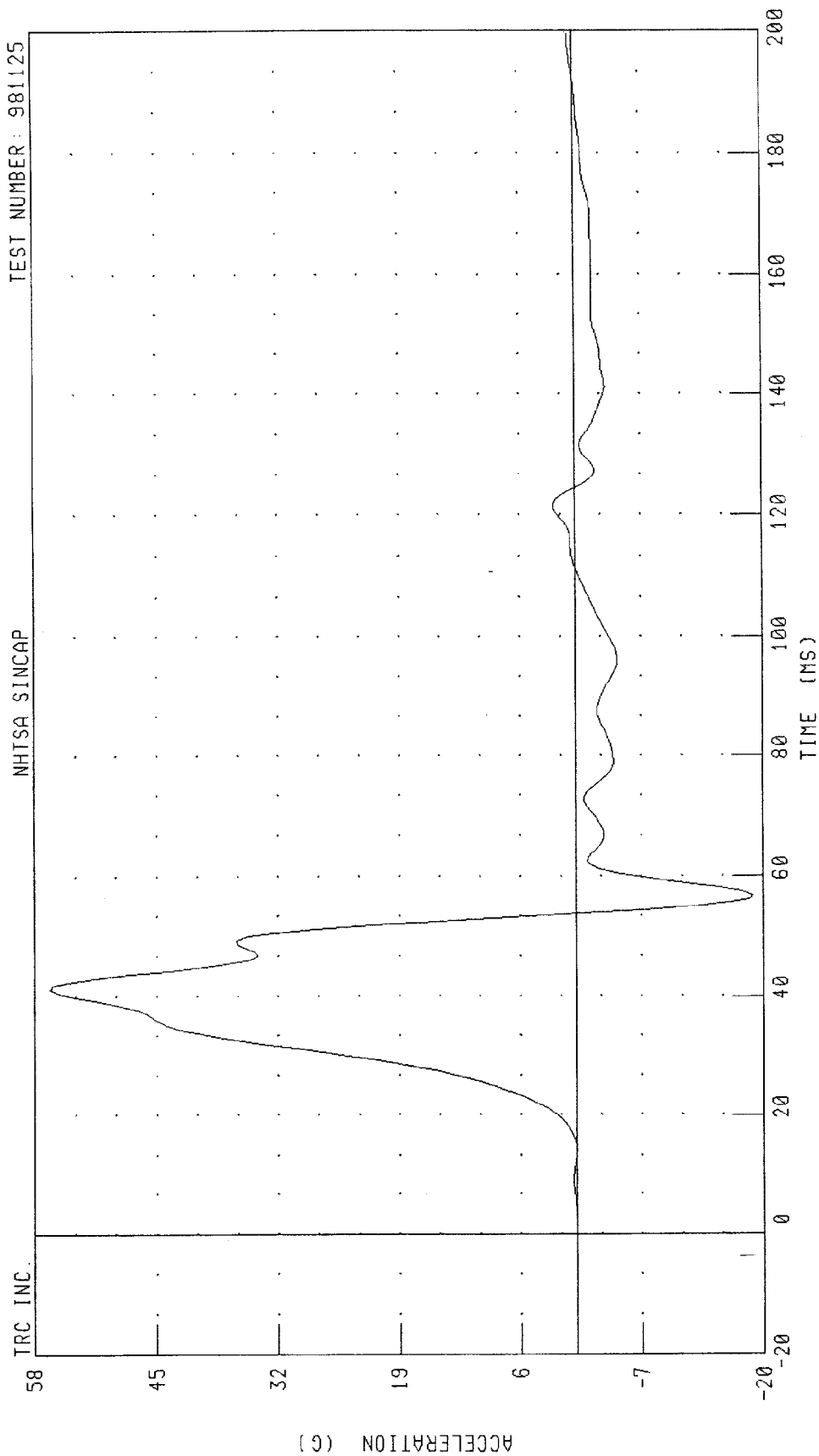
TRC INC.



PEAK DATA: 38.77 KM/H @ 136.00 MS; -0.05 KM/H @ 14.32 MS

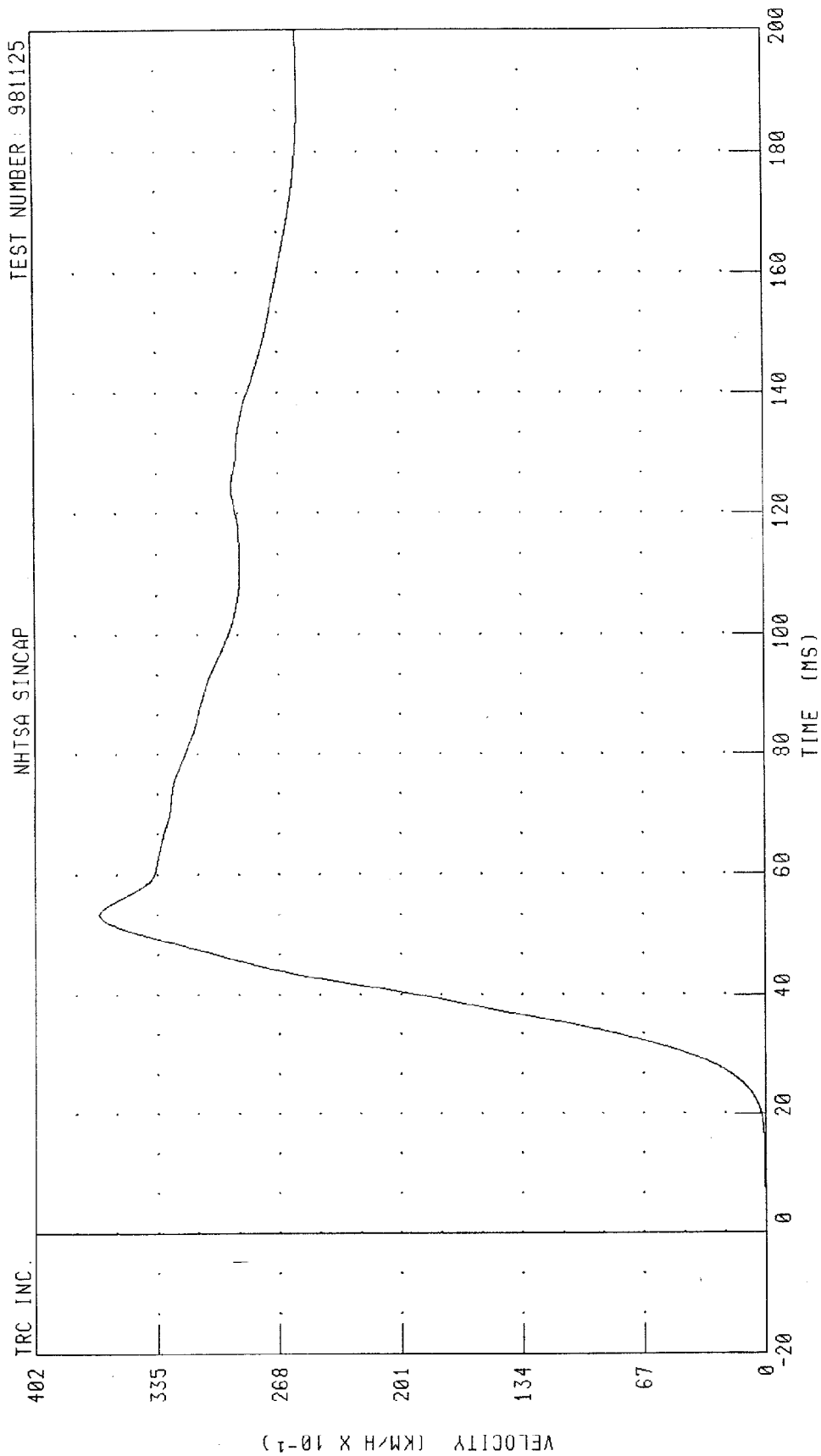
CHANNEL: LLRYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER LOWER SPINE Y-AXIS ACCELERATION



CHANNEL: T12YC1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 DRIVER LOWER SPINE Y-AXIS VELOCITY

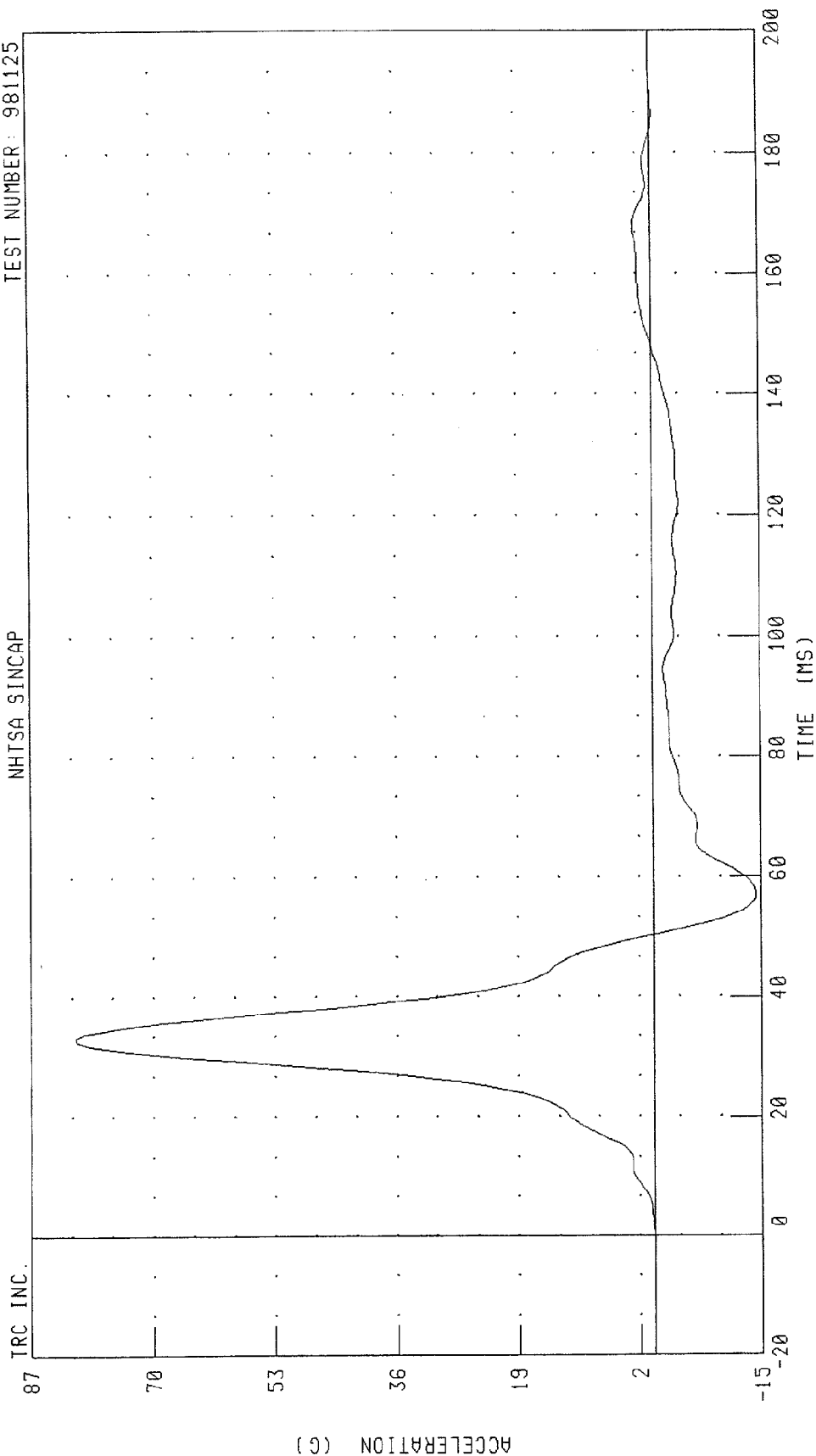


PEAK DATA: 36.68 KM/H @ 53.44 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: T12YV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 DRIVER PELVIS Y-AXIS ACCELERATION
 NHTSA SINCAP

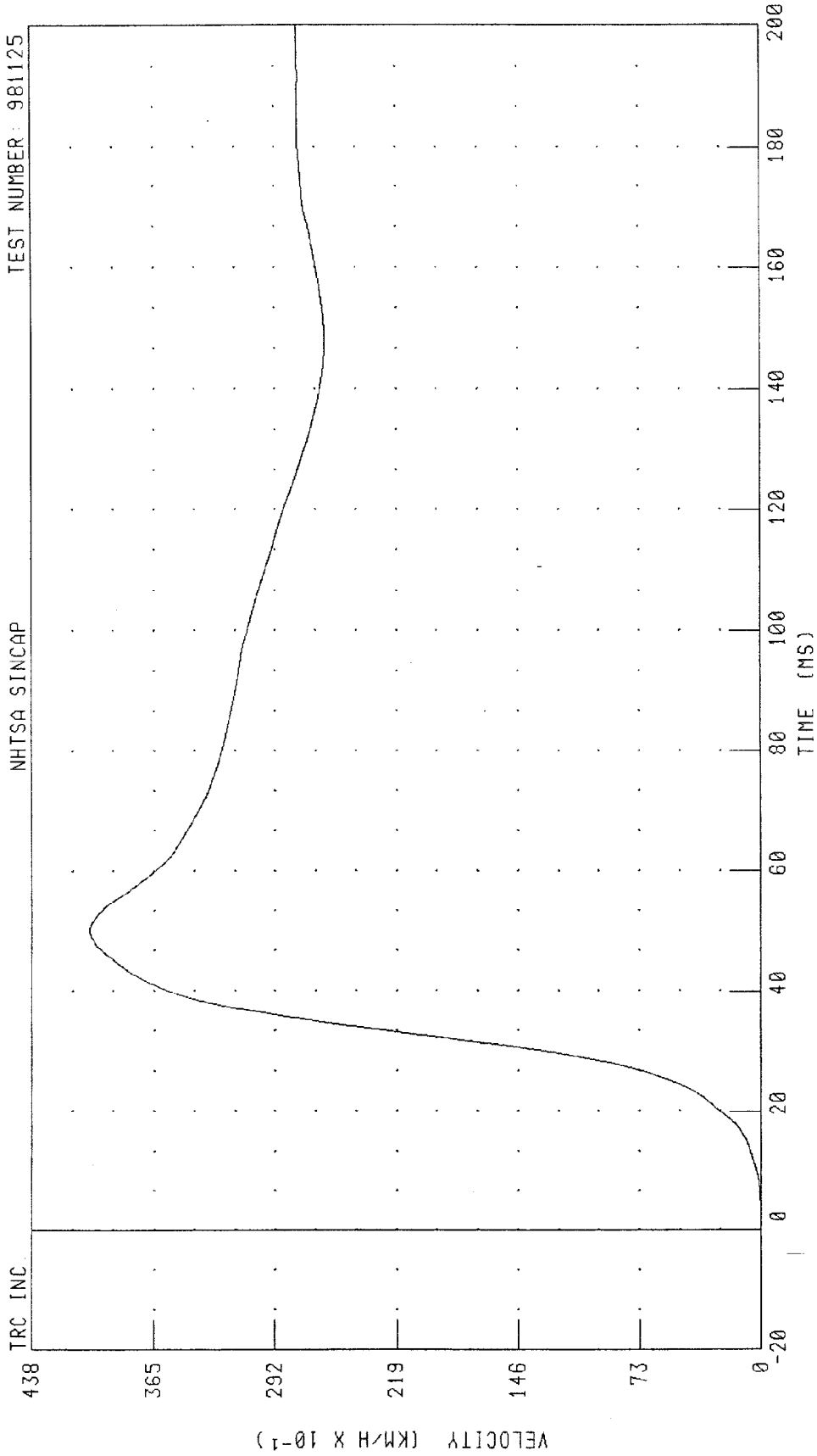
TEST NUMBER: 981125



PEAK DATA: 80.78 G @ 33.13 MS, -14.25 G @ 57.50 MS

CHANNEL: PEVY61 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER PELVIS Y-AXIS VELOCITY



CHANNEL: PEVYV1 FILTER: CH. CLASS 180

PEAK DATA: 40.36 KM/H @ 50.08 MS; 0.00 KM/H @ 0.00 MS

**Left Rear Passenger's Upper Rib Y-Axis Data Channel,
LURYG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Upper Rib Y-Axis Velocity Channel,
LURYV4, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Lower Rib Y-Axis Data Channel,
LLRYG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Lower Rib Y-Axis Velocity Channel,
LLRYV4, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Y-Axis Data Channel,
T12YG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Y-Axis Velocity Channel,
T12YV4, Was Not Calculated**
(rear dummy was not used)

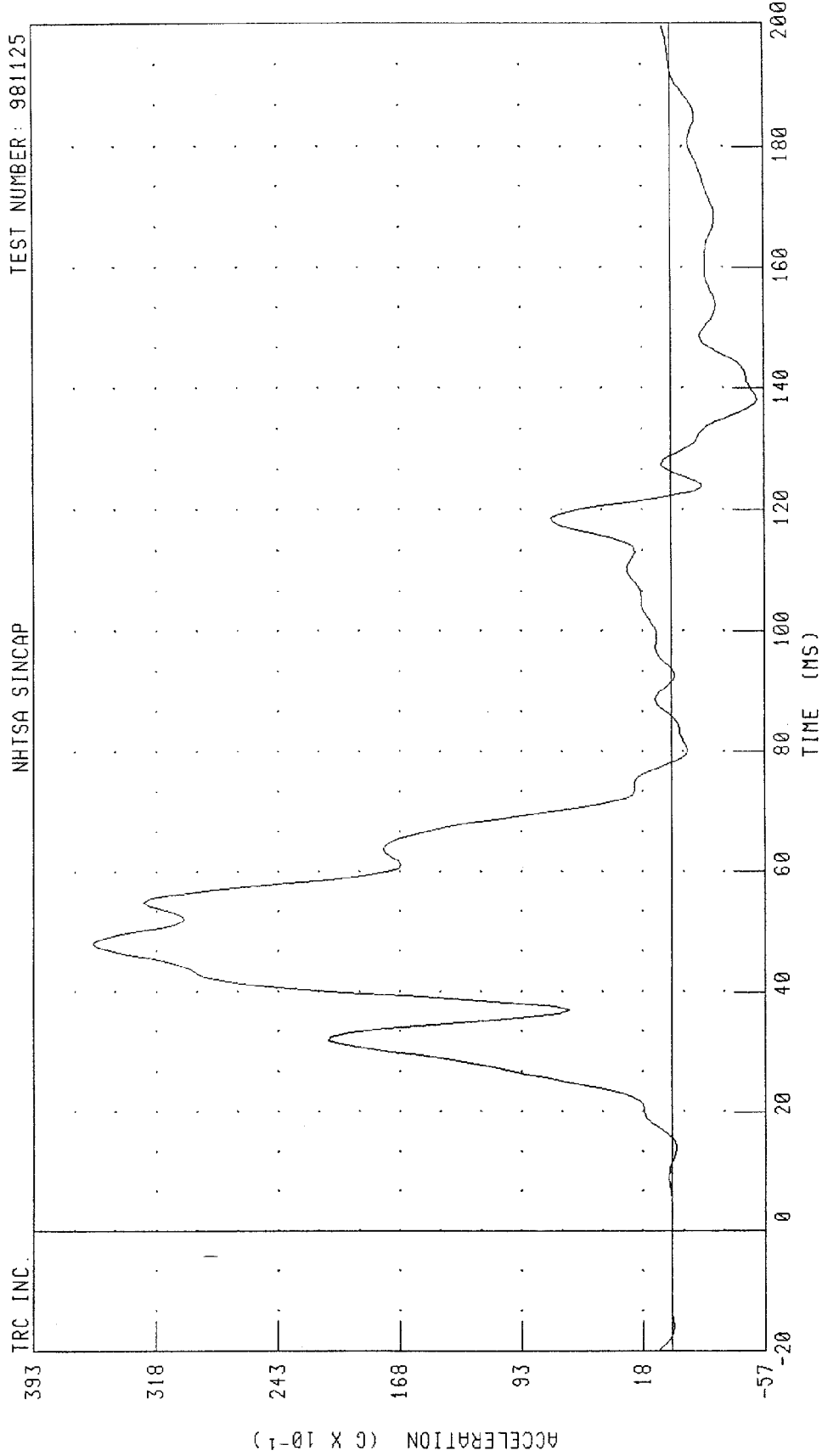
**Left Rear Passenger's Pelvis Y-Axis Data Channel,
PEVYG4, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Pelvis Y-Axis Velocity Channel,
PEVYV4, Was Not Calculated**
(rear dummy was not used)

Driver Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION
NHTSA SINCAP

TEST NUMBER: 981125



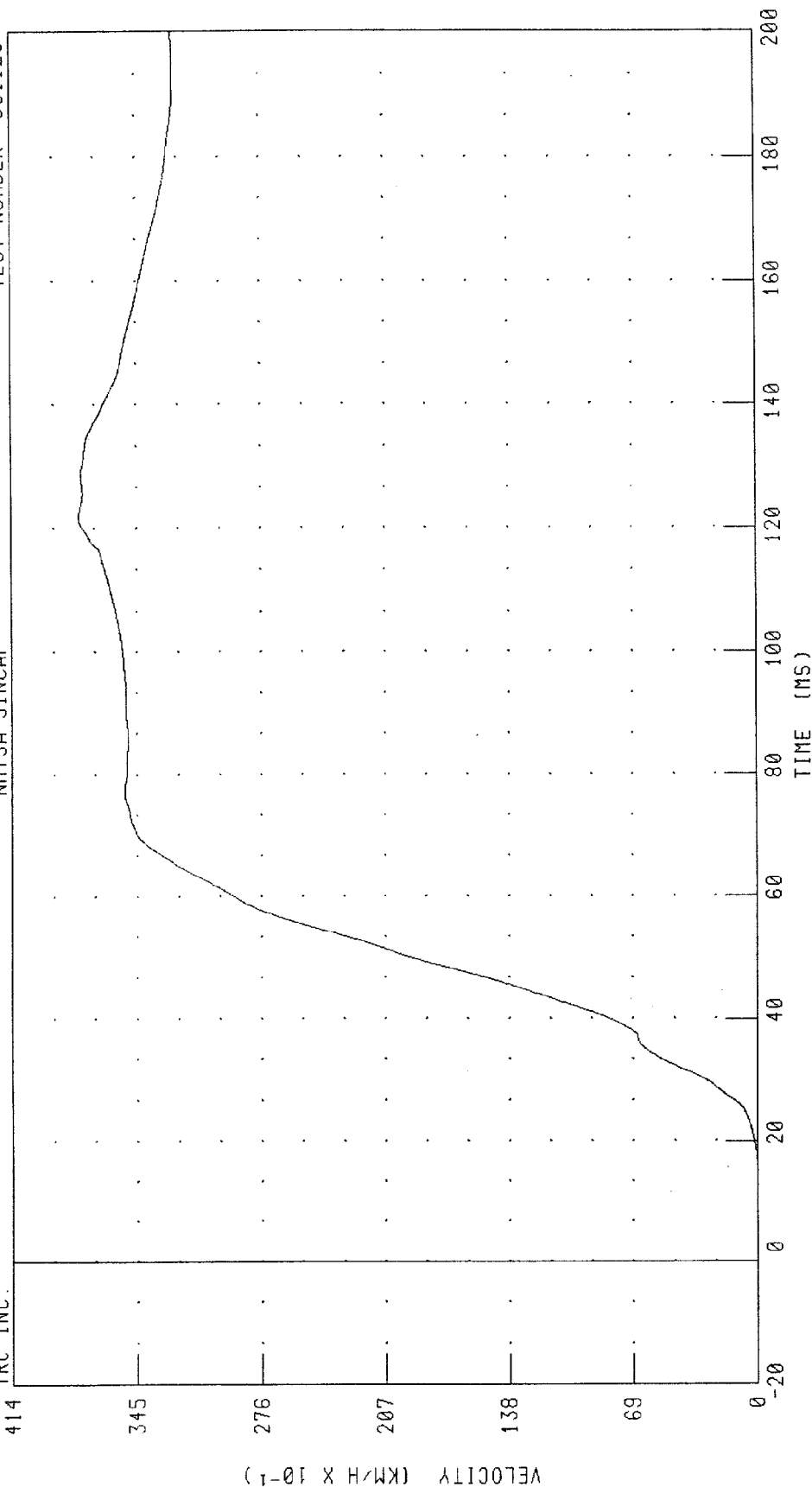
CHANNEL: LURYR1 FILTER: FIR 100

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 37.69 KM/H @ 121.60 MS, 0.00 KM/H @ 1.60 MS

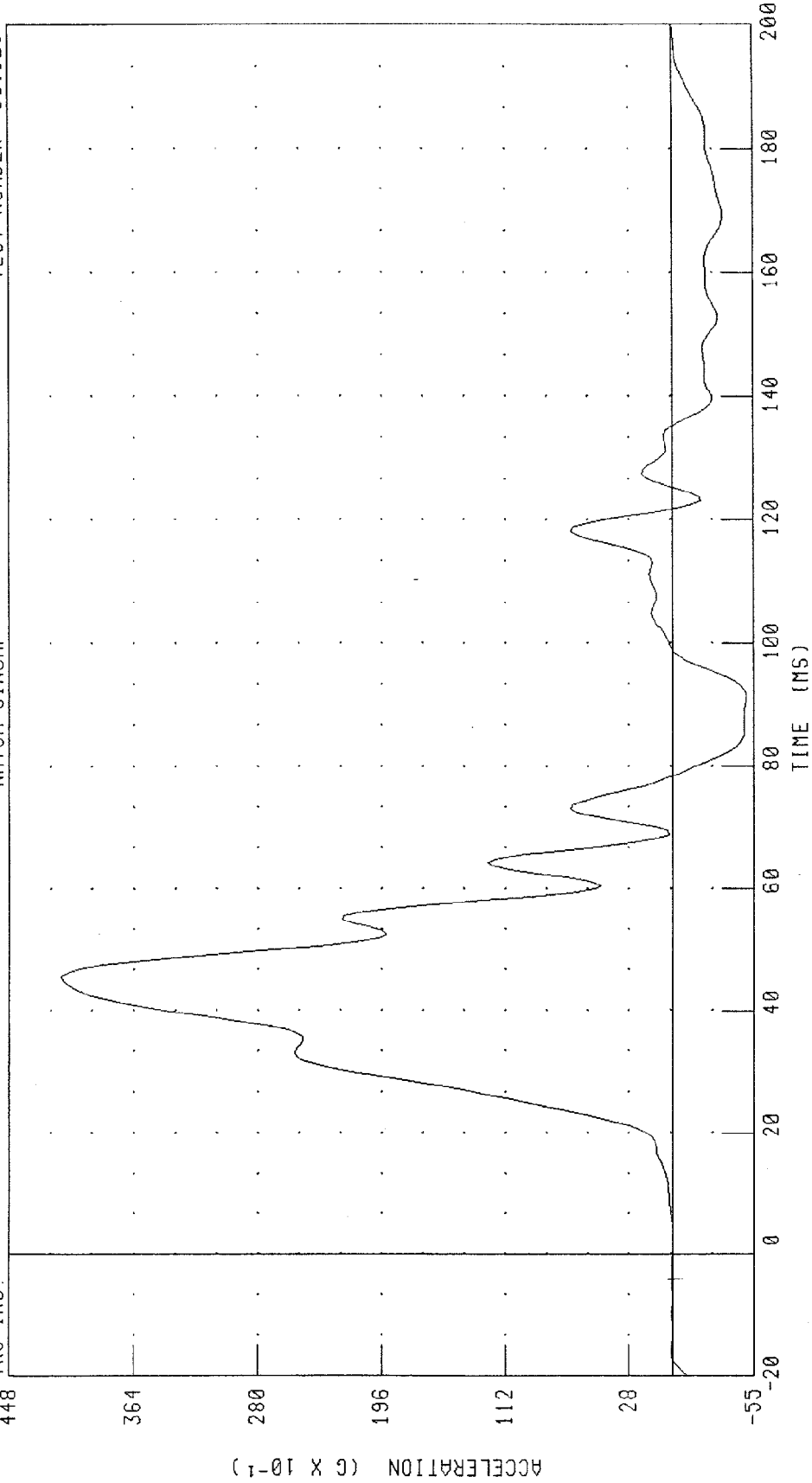
CHANNEL: LURYVI FILTER: CH. CLASS 180

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

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.

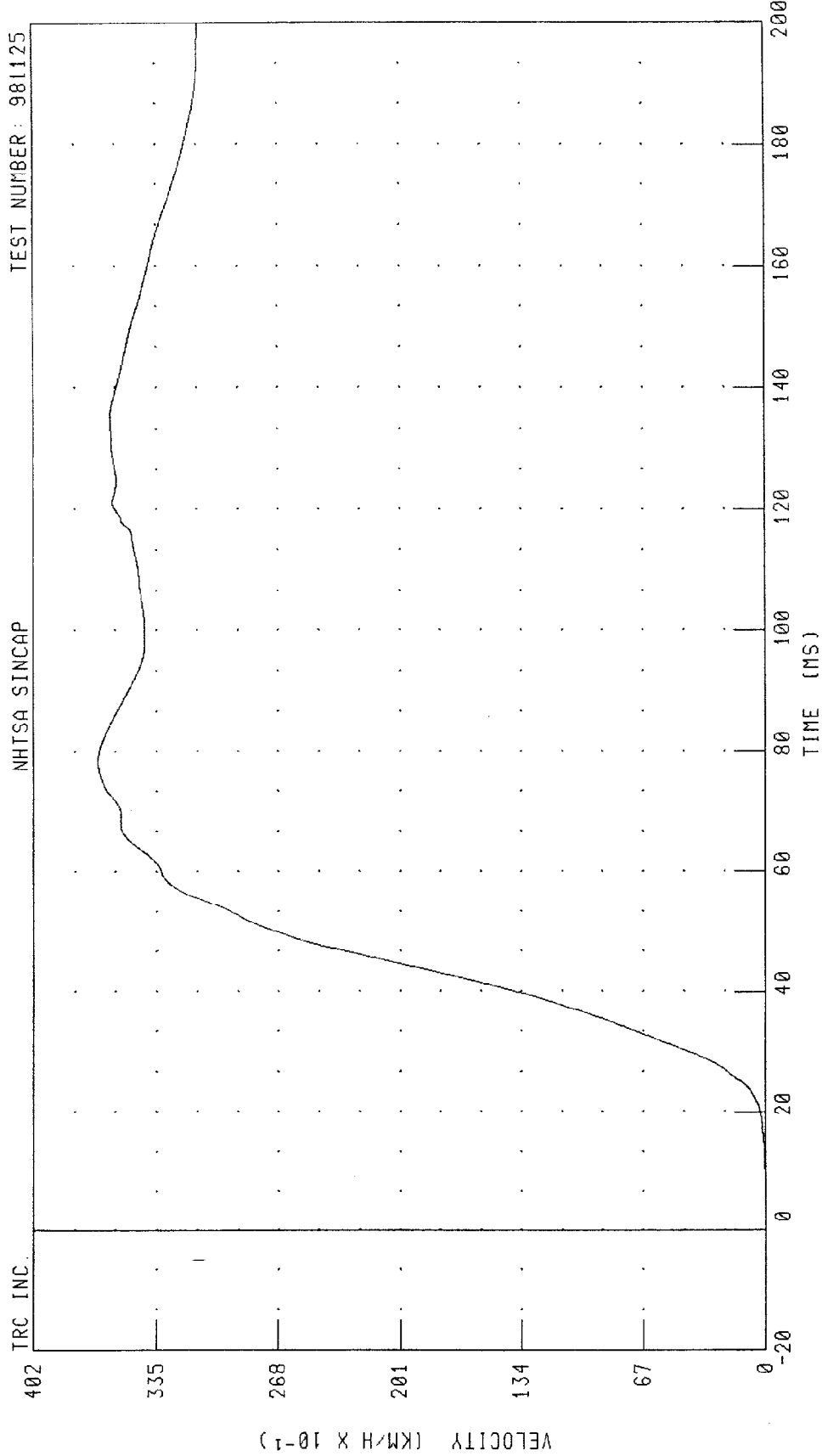


PEAK DATA: 41.33 G @ 45.62 MS, -5.02 G @ 91.25 MS

FILTER: FIR 100

CHANNEL: LLRYR1

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



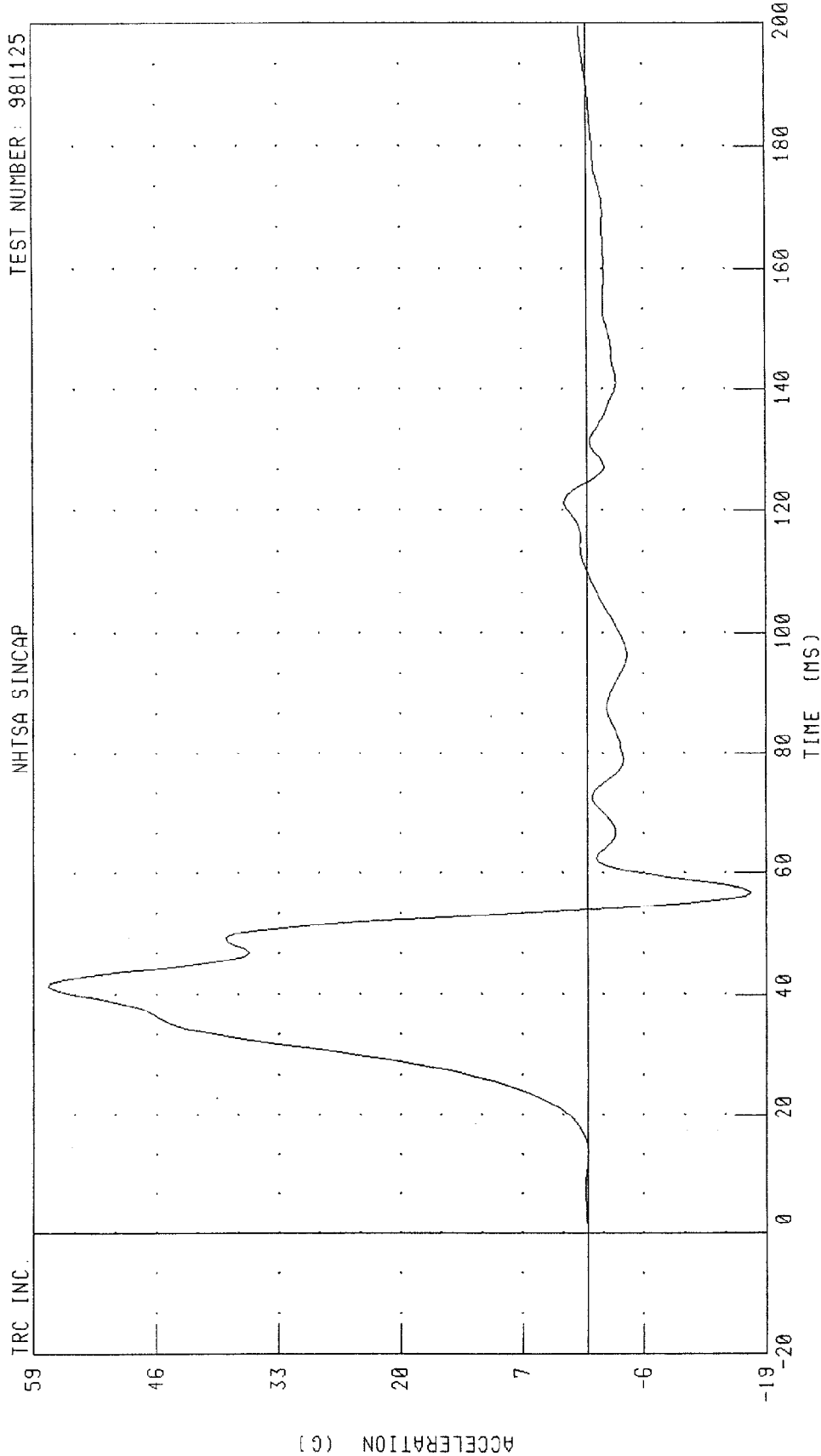
PEAK DATA: 36.69 KM/H @ 78.56 MS, -0.01 KM/H @ 3.60 MS

CHANNEL: LLRYVI FILTER: CH. CLASS 180

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

TEST NUMBER: 981125

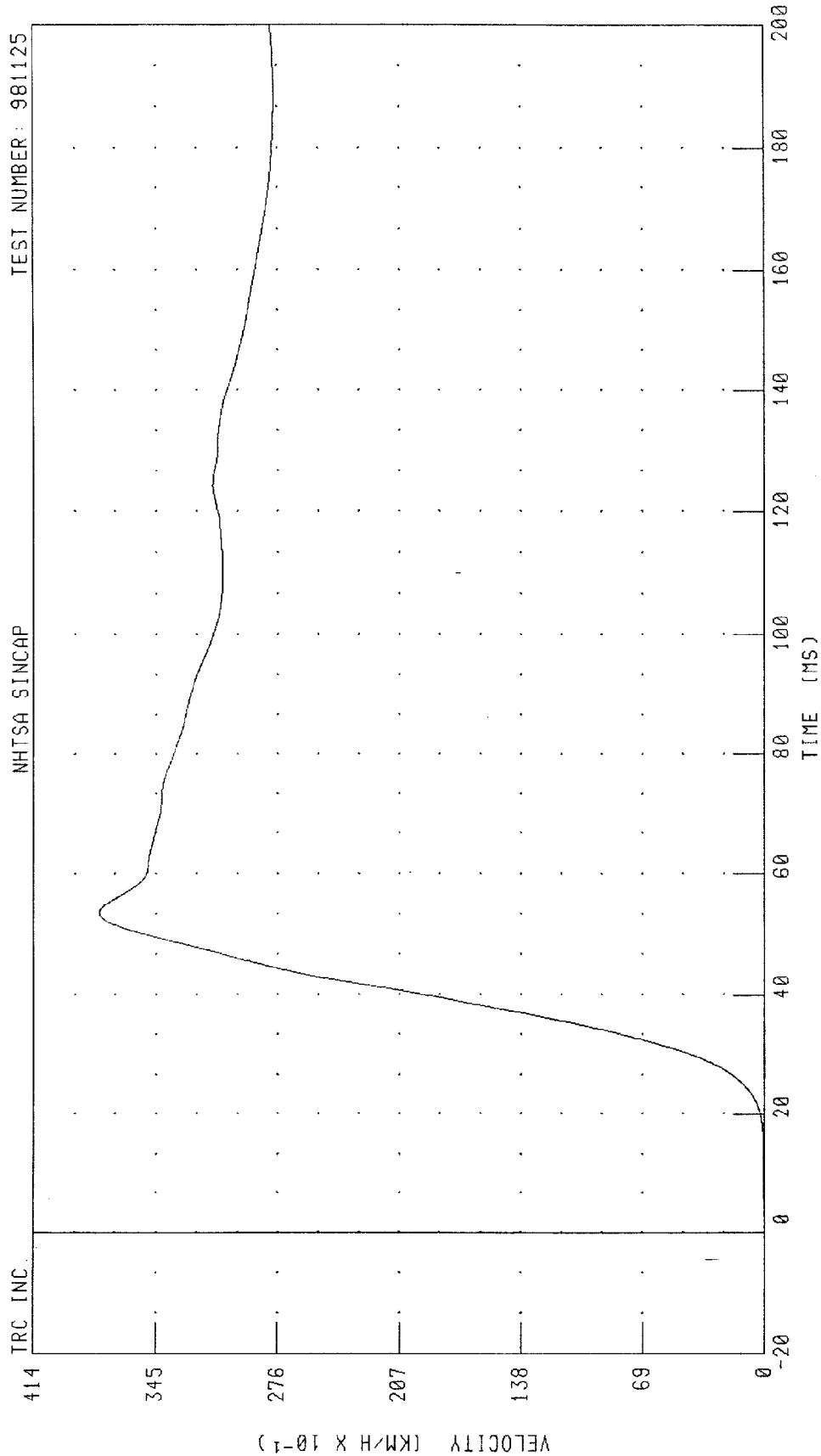
NHTSA SINCAP



PEAK DATA: 57.44 G @ 41.25 MS, -17.35 G @ 56.87 MS

CHANNEL: T12YR1 FILTER: FIR 100

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



PEAK DATA: 37.71 KM/H @ 53.60 MS; 0.00 KM/H @ 0.00 MS

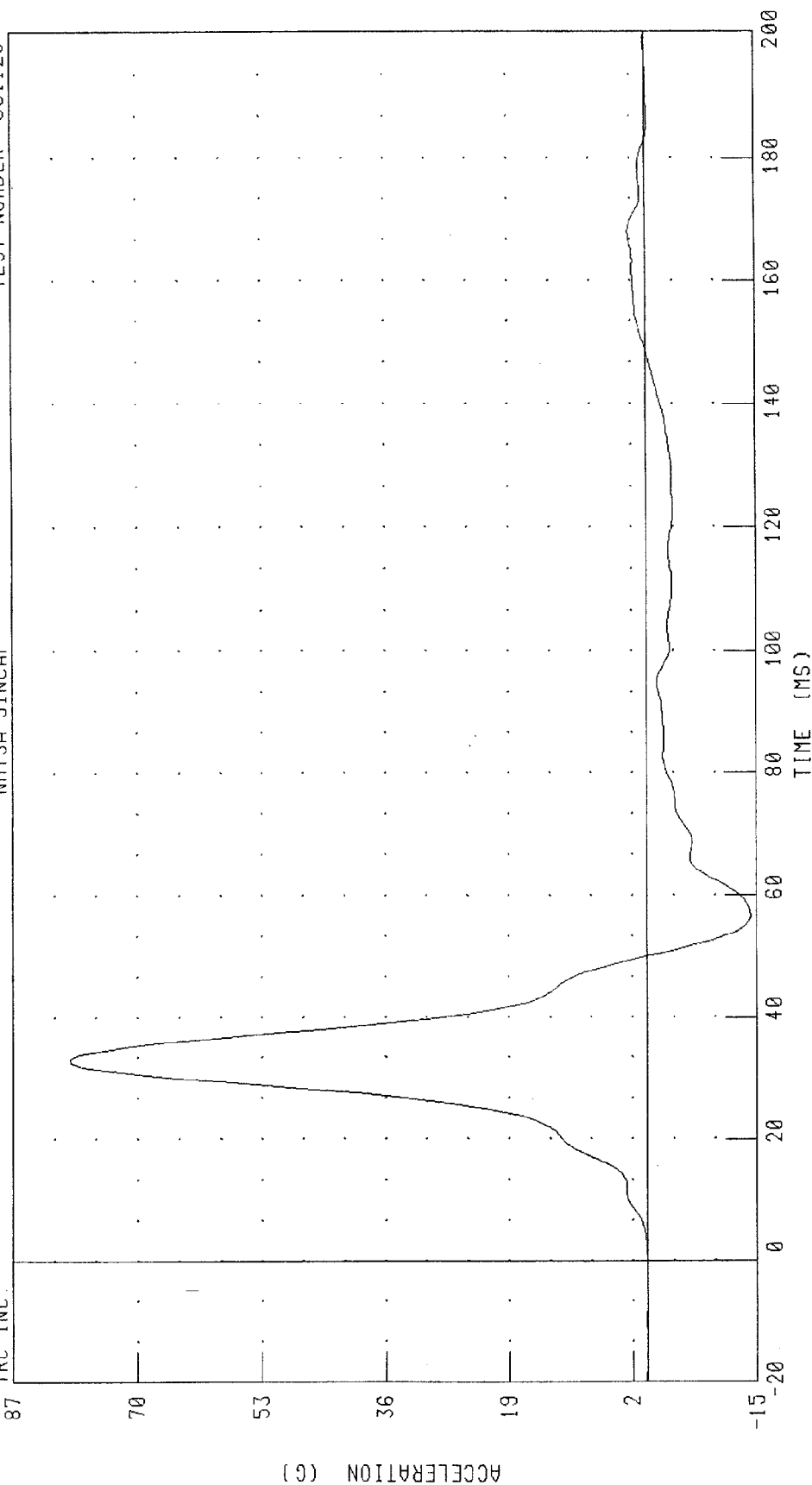
CHANNEL: T12YVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 79.29 G @ 33.13 MS, -14.27 G @ 56.87 MS

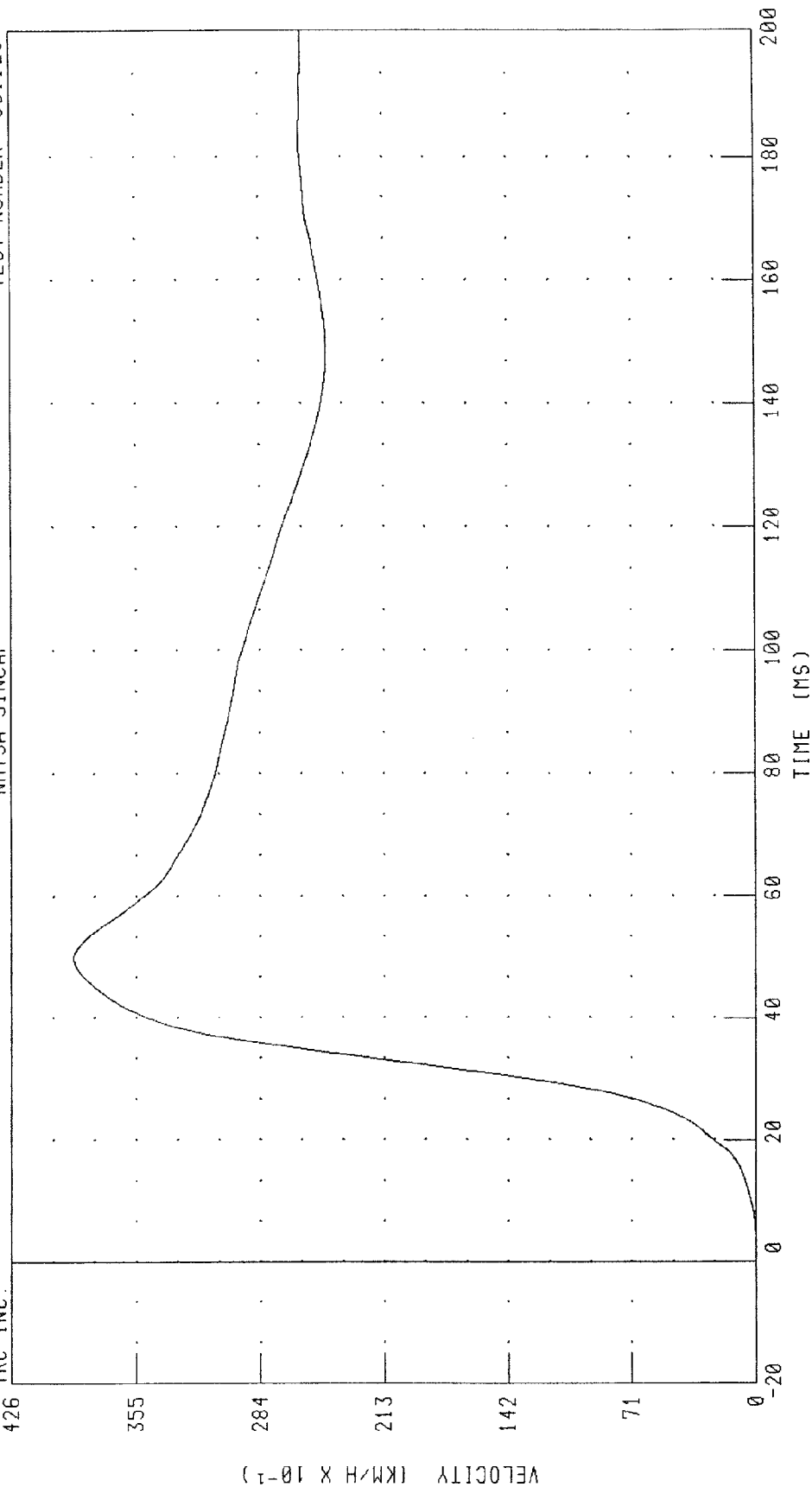
CHANNEL: PEVYR1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 FORD RANGER
 DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 981125

NHTSA SINCAP

TRC INC.



PEAK DATA: 39.06 KM/H @ 49.84 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: PEVYVI FILTER: CH. CLASS 180

**Left Rear Passenger's Upper Rib Redundant Y-Axis
Data Channel, LURYRD, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Upper Rib Redundant Y-Axis
Velocity Channel, LURYVD, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Lower Rib Redundant Y-Axis
Data Channel, LLRYRD, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Lower Rib Redundant Y-Axis
Velocity Channel, LLRYVD, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Redundant Y-Axis
Data Channel, T12YRD, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Lower Spine Redundant Y-Axis
Velocity Channel, T12YVD, Was Not Calculated**
(rear dummy was not used)

**Left Rear Passenger's Pelvis Redundant Y-Axis Data Channel,
PEVYRD, Was Not Recorded**
(rear dummy was not used)

**Left Rear Passenger's Pelvis Redundant Y-Axis Velocity Channel,
PEVYVD, Was Not Calculated**
(rear dummy was not used)

Driver Dummy Contact Switches

Driver's Shoulder Switch, SHLD1, Was Not Used

Driver's Pelvis Switch, PEV1, Was Not Used

Left Rear Passenger's Shoulder Switch, SHLD4, Was Not Used

Left Rear Passenger's Pelvis Switch, PEV4, Was Not Used

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE-TEST AND POST-TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 11/19/98 & 12/15/98 TRC sequential test number: STL5108
Laboratory Technician: B. Crabtree; K. Watkins

Test Parameter	Specification	SID 051		SID	
		Pre-	Post-	Pre-	Post-
		Test	Test	Test	Test
SH - seated height (mm)	889-909	904.2	903.2	N/A	N/A
RH - Rib Height (mm)	502-520	510.5	510.5	N/A	N/A
HP - Hip Pivot Height (mm)	99 ref	99.1	99.3	N/A	N/A
RD - Rib from Back Line (mm)	229-241	236.2	236.2	N/A	N/A
KV - Knee Pivot from Back Line (mm)	511-526	523.2	524.2	N/A	N/A
SW - Knee Pivot to Floor (mm)	490-505	490.2	491.2	N/A	N/A
HW - Hip Width (mm)	356-391	363.2	363.2	N/A	N/A
THORAX IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.7	N/A	N/A
Relative Humidity (%)	10-70	33	22	N/A	N/A
Probe Speed (m/s)	4.27-4.33	4.28	4.33	N/A	N/A
Upper Rib (g's)	37-46	41.4	37.6	N/A	N/A
Lower Rib (g's)	37-46	41.8	37.6	N/A	N/A
Lower Spine (g's)	15-22	19.7	17.9	N/A	N/A
PELVIS IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.1	N/A	N/A
Relative Humidity (%)	10-70	33	22	N/A	N/A
Probe Speed (m/s)*	4.27-4.33	4.28	4.29	N/A	N/A
Pelvis (g's)*	40-60	58.2	53.8	N/A	N/A

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 SN051 VECTOR

24-11-98

TRC INC. TEST NO: ED5108 572F SN051 EXT.DIMENSION CAL08

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		33.0 %
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	523.2 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	490.2 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	510.5 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 Kevin Watkins

RUN NUMBER: 112498.1509

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

19-NOV-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5108

572F SN51 LEFT THORAX CAL08

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.28 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-41.4 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-41.8 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.7 G

TEST MEETS SPECIFICATIONS

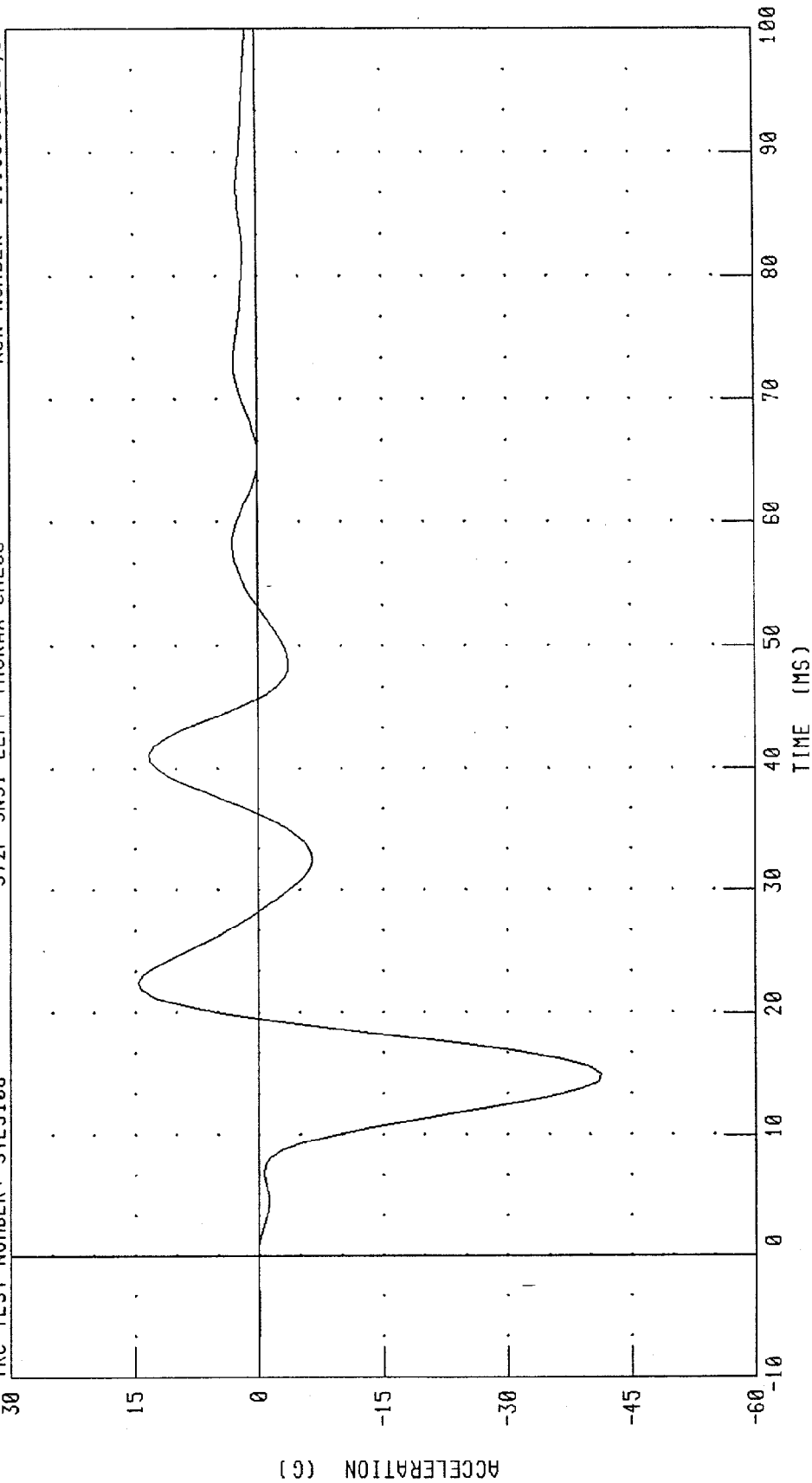
TECHNICIAN

B. alt

RUN NUMBER: 111998.1504;1

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

TRC TEST NUMBER: STL5108 572F SN51 LEFT THORAX CAL08 RUN NUMBER: 111998.1504;1



PEAK DATA: 14.72 G @ 22.50 MS, -41.40 G @ 15.00 MS

CHANNEL: LURYC FILTER: FIR 100

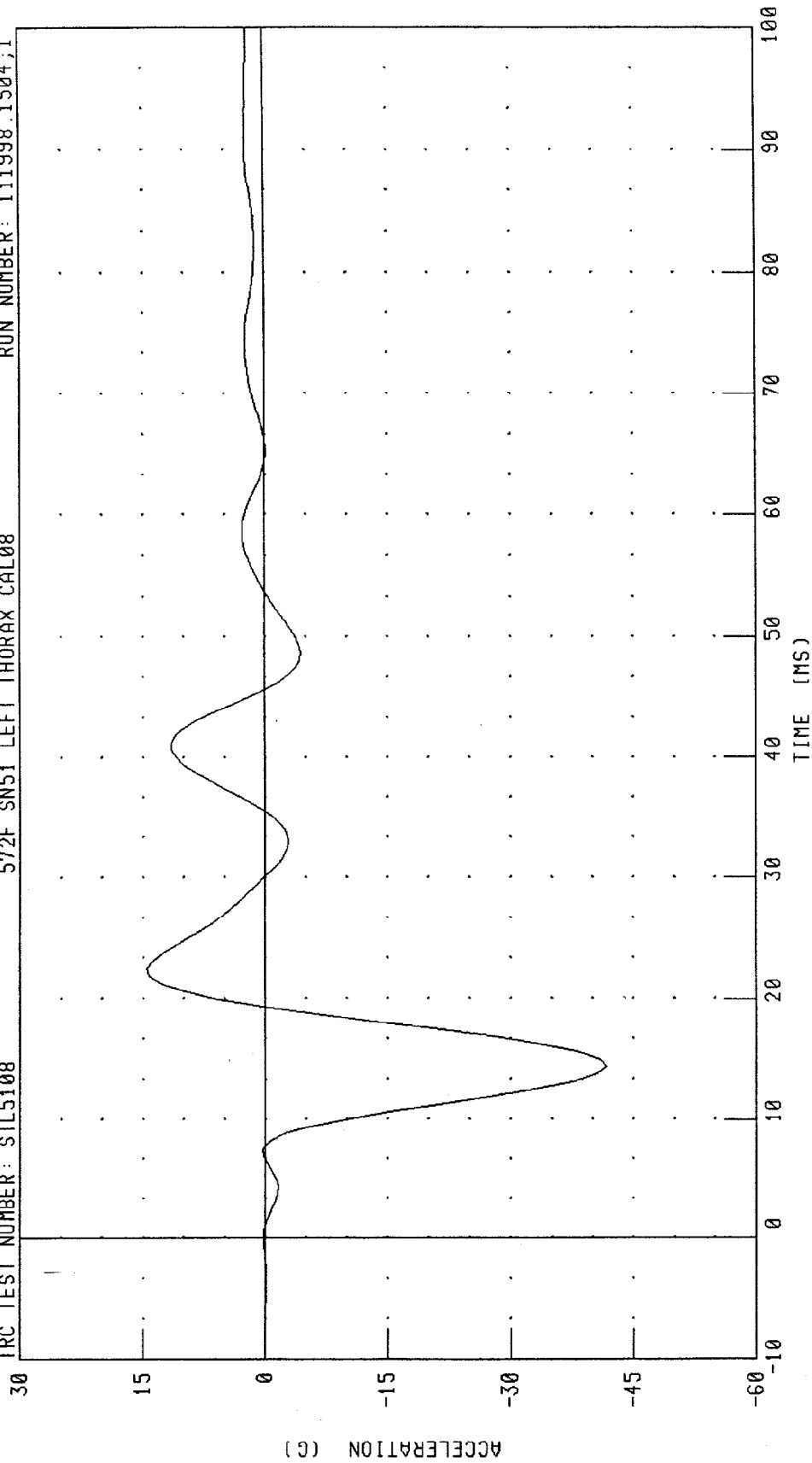
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL5108

572F SN51 LEFT THORAX CAL08

RUN NUMBER: 111998.1504;1



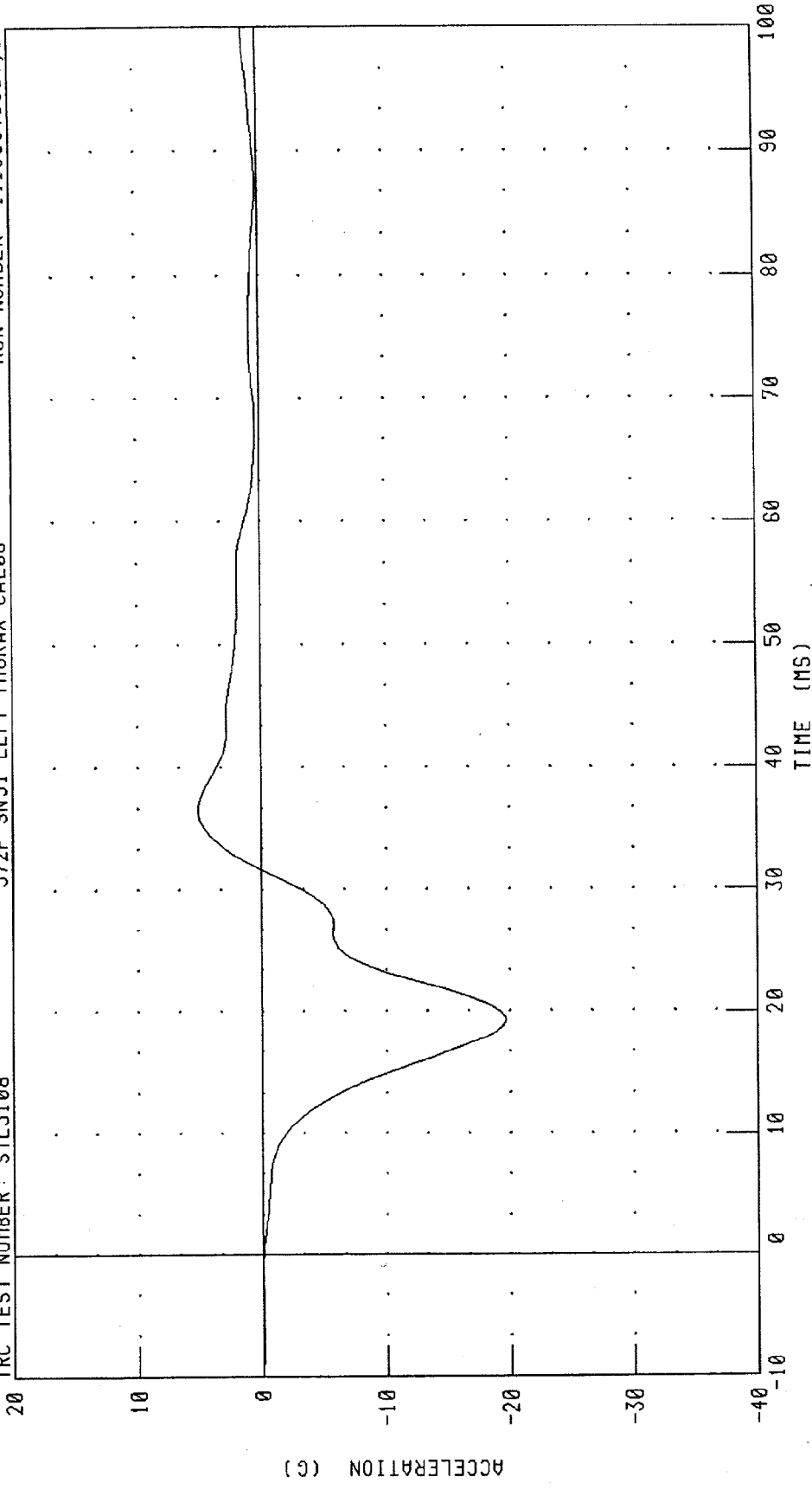
CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 14.48 G @ 22.50 MS; -41.76 G @ 14.37 MS

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

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL5108 572F SN51 LEFT THORAX CAL08 RUN NUMBER: 111998.1504,1



CHANNEL: T12YC FILTER: FIR 100 PEAK DATA: 5.11 G @ 36.88 MS; -19.66 G @ 19.38 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

23-NOV-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5108C

572F SN51 LEFT PELVIS CAL08

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.28 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-58.2 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.7 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

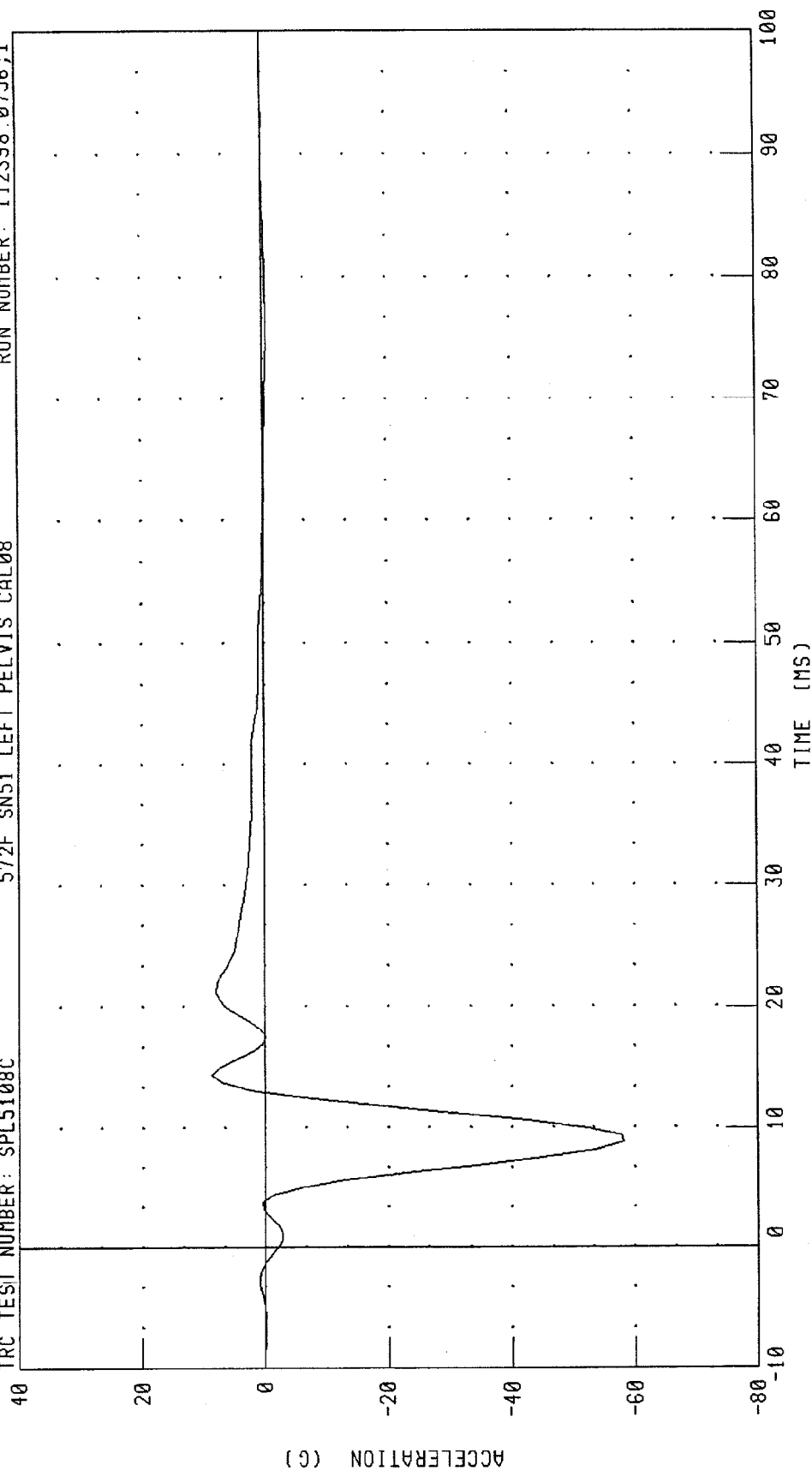
TECHNICIAN Ray Calt

RUN NUMBER: 112398.0755;1

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

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5108C 572F SN51 LEFT PELVIS CAL08 RUN NUMBER: 112398.0756;1



PEAK DATA: 8.71 G @ 14.37 MS, -58.17 G @ 8.75 MS

CHANNEL: PEVYC FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

19-NOV-98

TRC INC.

572F SN51 DAMPER TEST CAL08

TEST NUMBERS: DP5108A,DP5108B,DP5108C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	33.0 %
VELOCITY	FORCE	856 - 1146 N	914 N
3.07 M/S	DISPLACEMENT	30.2 - 35.2 MM	33.3 MM
VELOCITY	FORCE	1733 - 2100 N	1798 N
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	36.5 MM
VELOCITY	FORCE	3703 - 4402 N	4254 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	39.4 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN By C. H.

RUN NUMBER: 111998.1233;2

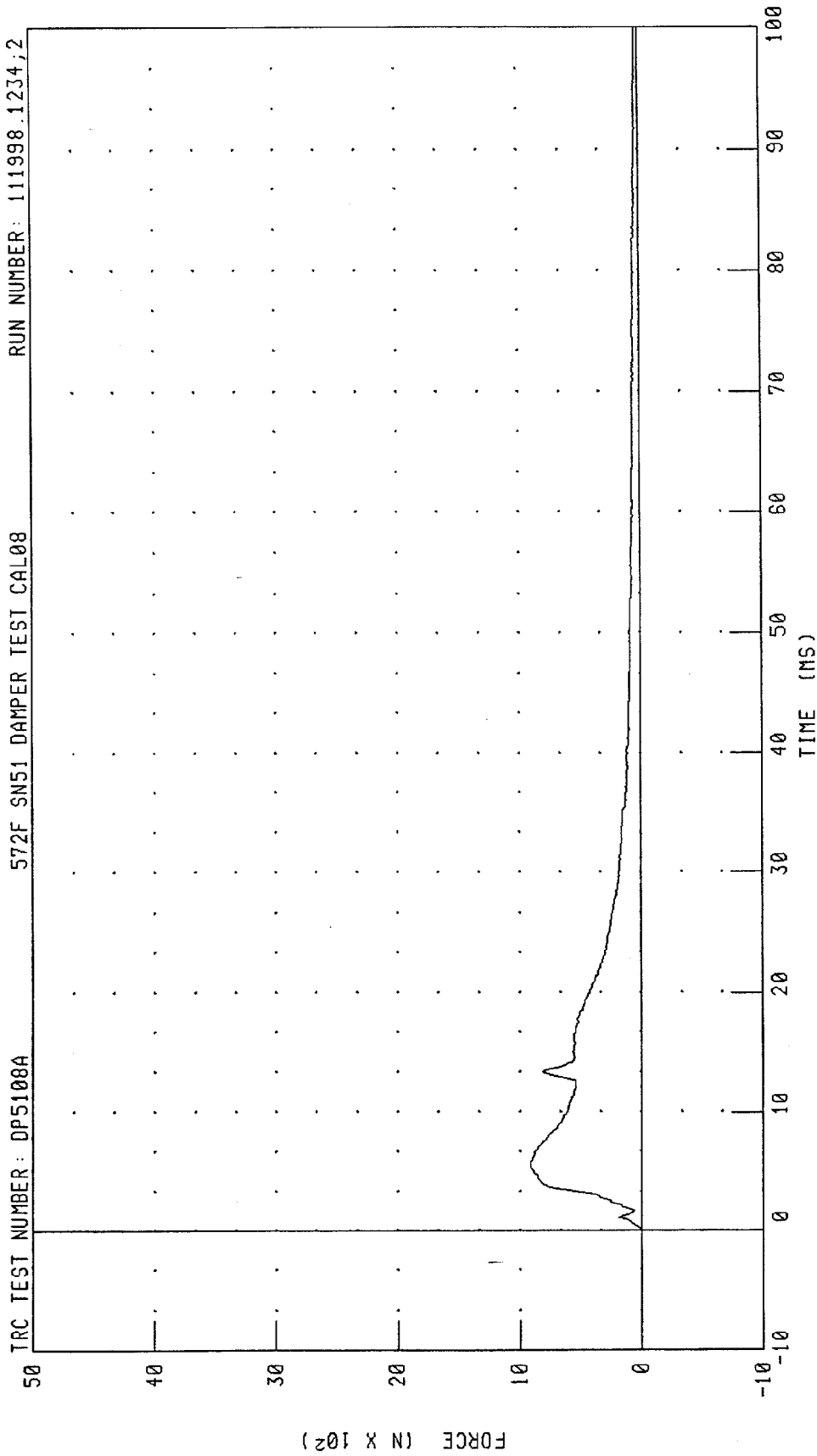
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5108A

572F SN51 DAMPER TEST CAL08

RUN NUMBER: 111998.1234;2



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 914.45 N @ 5.76 MS; -4.28 N @ -8.64 MS

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

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL08

RUN NUMBER: 111998.1234;2

TRC TEST NUMBER: DP5108A

50

40

30

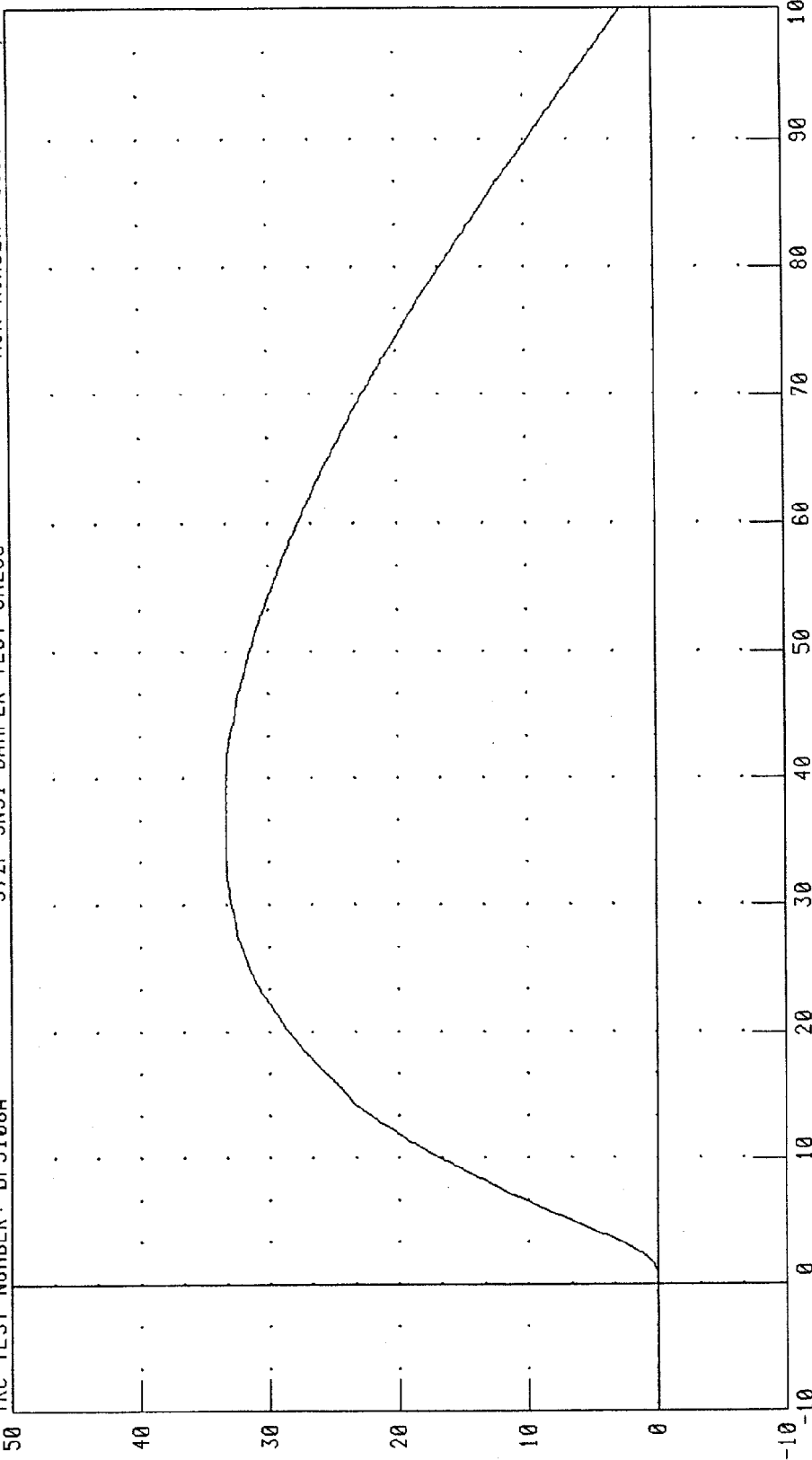
20

10

0

-10

DISPLACEMENT (MM)



TIME (MS)

PEAK DATA: 33.32 MM @ 33.20 MS; 0.00 MM @ -10.00 MS

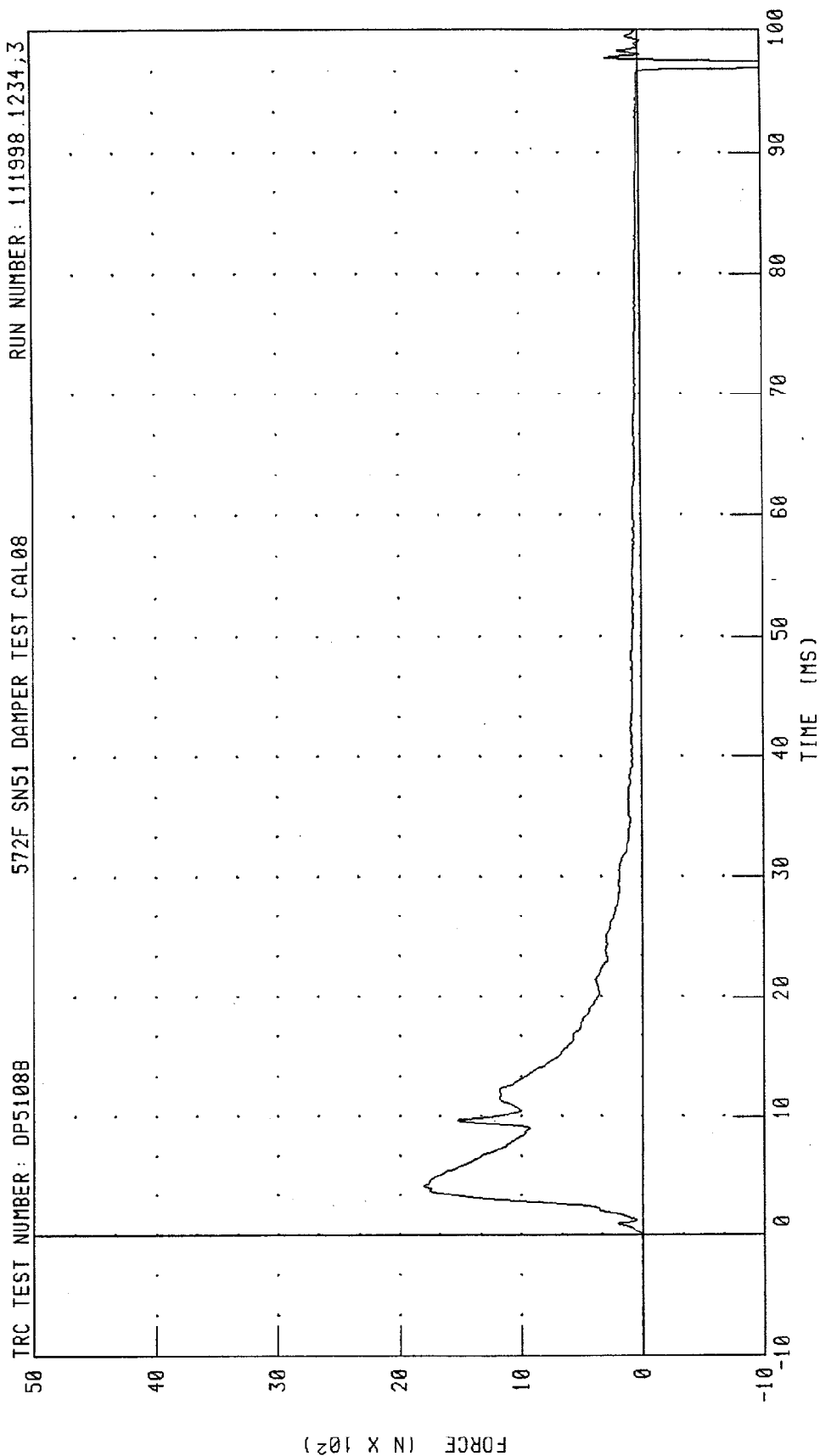
FILTER: CH. CLASS 1000

CHANNEL: CSTYD

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

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP51088 572F SN51 DAMPER TEST CAL08 RUN NUMBER: 111998.1234.3



PEAK DATA: 1797.86 N @ 4.16 MS; -1813.54 N @ 97.28 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL08

TRC TEST NUMBER: DP5108B

50

40

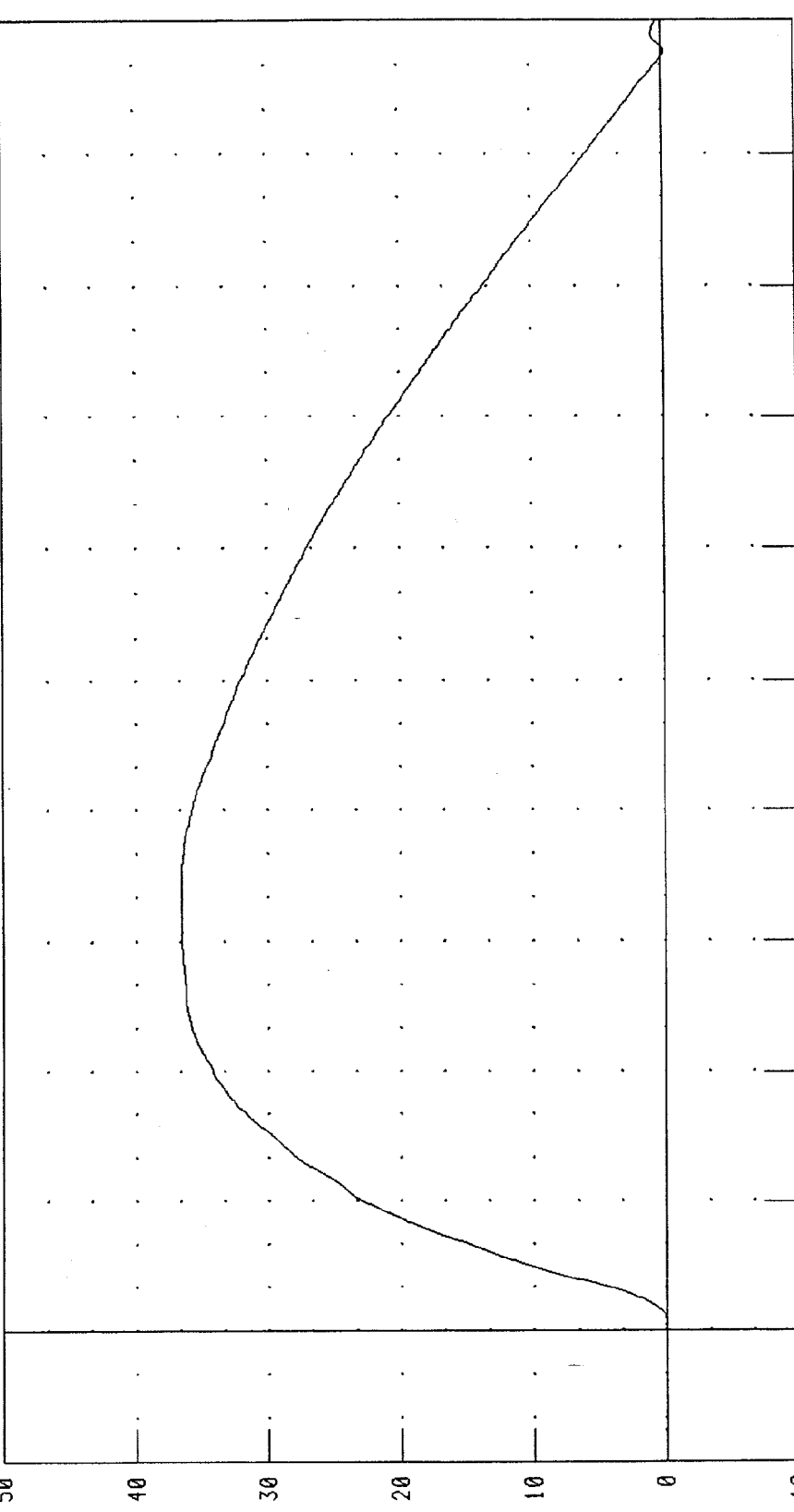
30

20

10

0

-10



TIME (MS)

PEAK DATA: 36.55 MM @ 29.52 MS, -0.20 MM @ 97.60 MS

FILTER: CH. CLASS 1000

CHANNEL: CSTYD

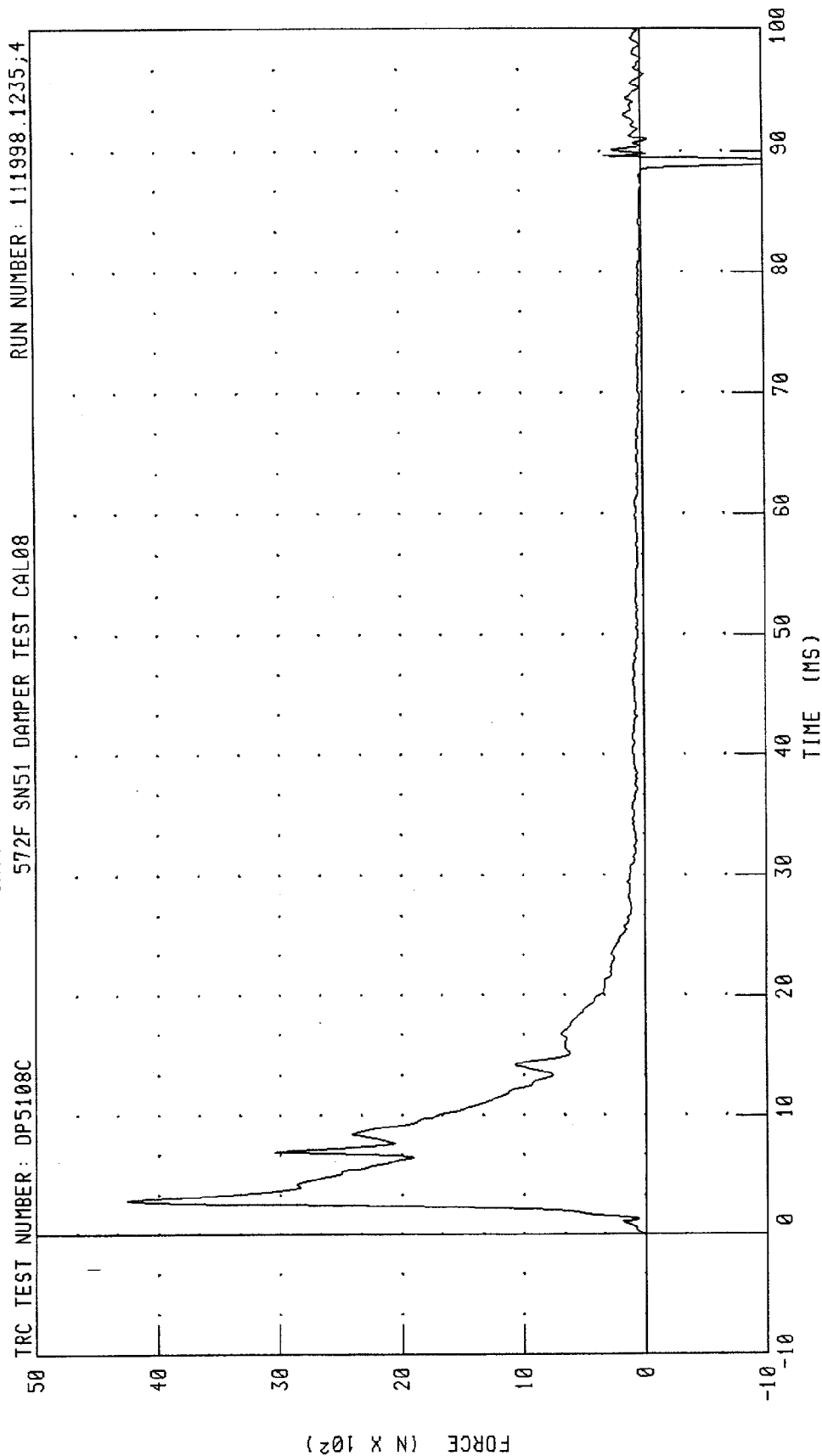
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5108C

572F SN51 DAMPER TEST CAL08

RUN NUMBER: 111998.1235;4



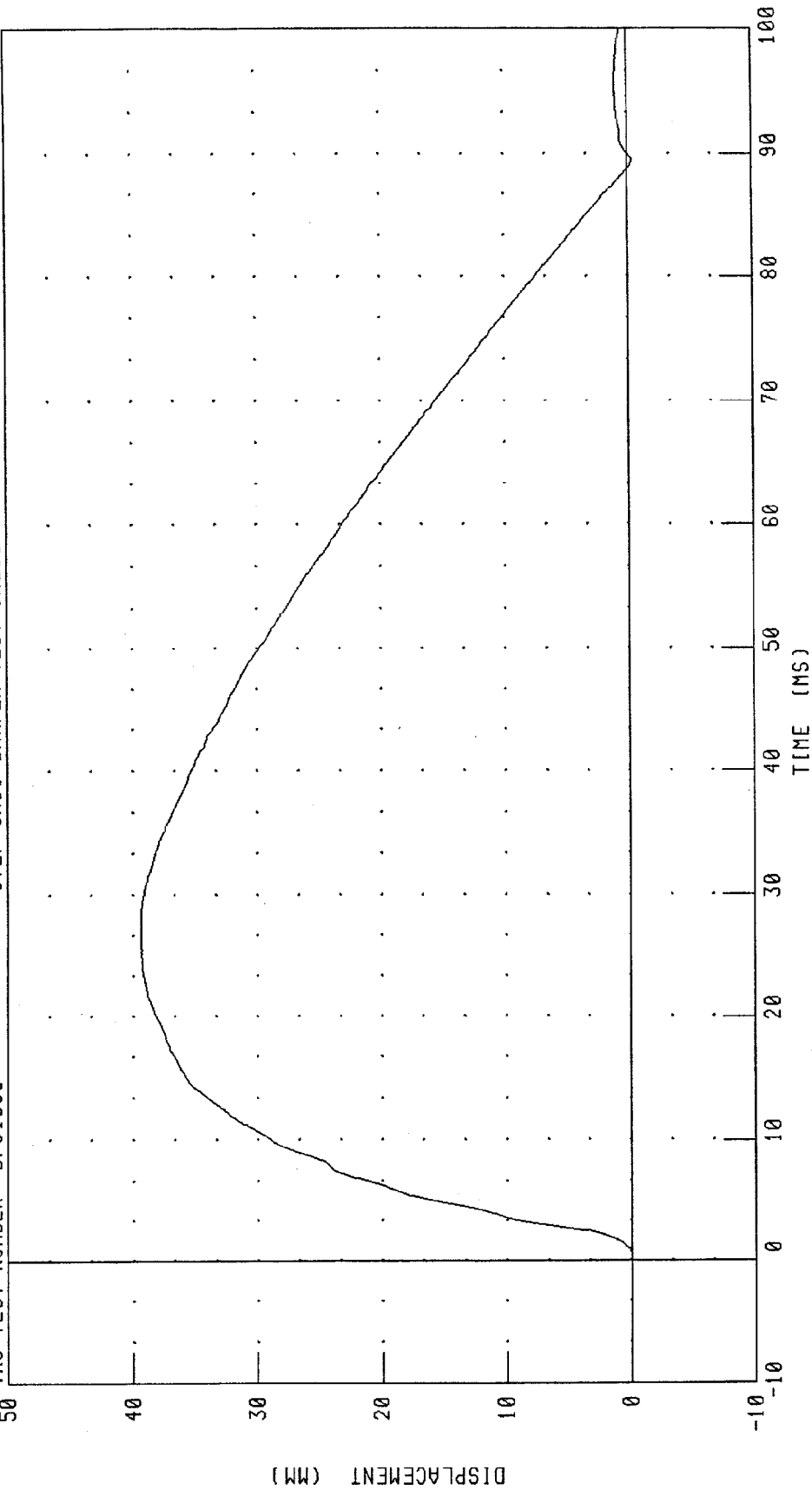
PEAK DATA: 4253.81 N @ 2.88 MS; -2089.36 N @ 89.12 MS

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: DP5108C 572F SN51 DAMPER TEST CAL08 RUN NUMBER: 111998.1235;4



PEAK DATA: 39.39 MM @ 26.32 MS, -0.39 MM @ 89.36 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

Calibration Test Results

Post-Test

SID: 051

Configured for Left Side Impact

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

TRANSPORTATION RESEARCH CENTER INC.
SIDE IMPACT DUMMY
EXTERNAL DIMENSIONS
LEFT SIDE CONFIGURATION
SN SN051 VECTOR

24-11-98

TRC INC. TEST NO: ED5109 572F SN051 EXT.DIMENSION CAL09

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		33.0 %
SH	SEATED HEIGHT	889 - 909 MM	903.2 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.3 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	524.2 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	491.2 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	510.5 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

Kevin W. Watkins

RUN NUMBER: 112498.1509

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

16-DEC-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5109A

572F SN51 LEFT THORAX CAL09

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 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	-37.6 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-37.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-17.9 G

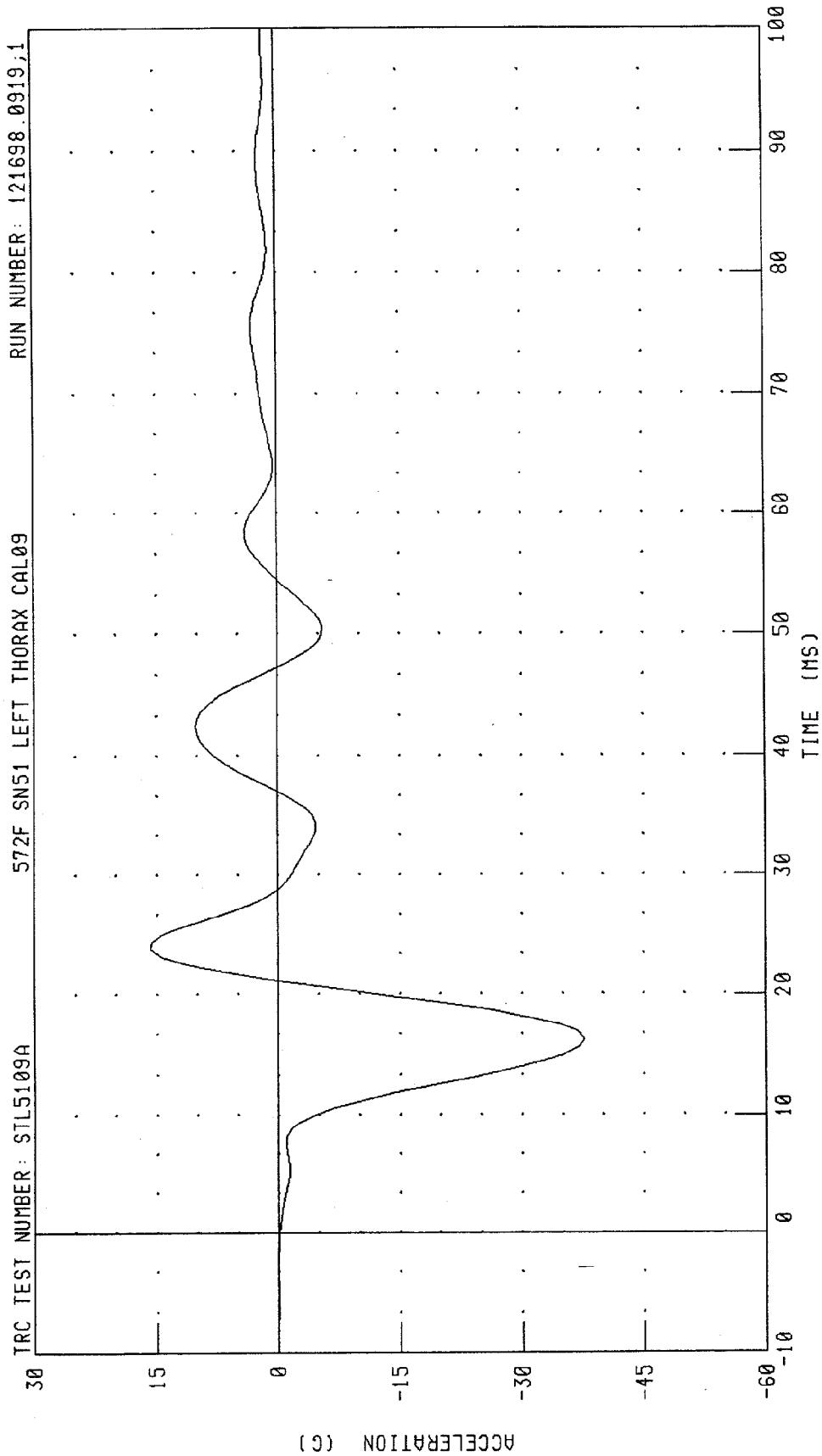
TEST MEETS SPECIFICATIONS

TECHNICIAN

Kevin Watkins

RUN NUMBER: 121698.0919;1

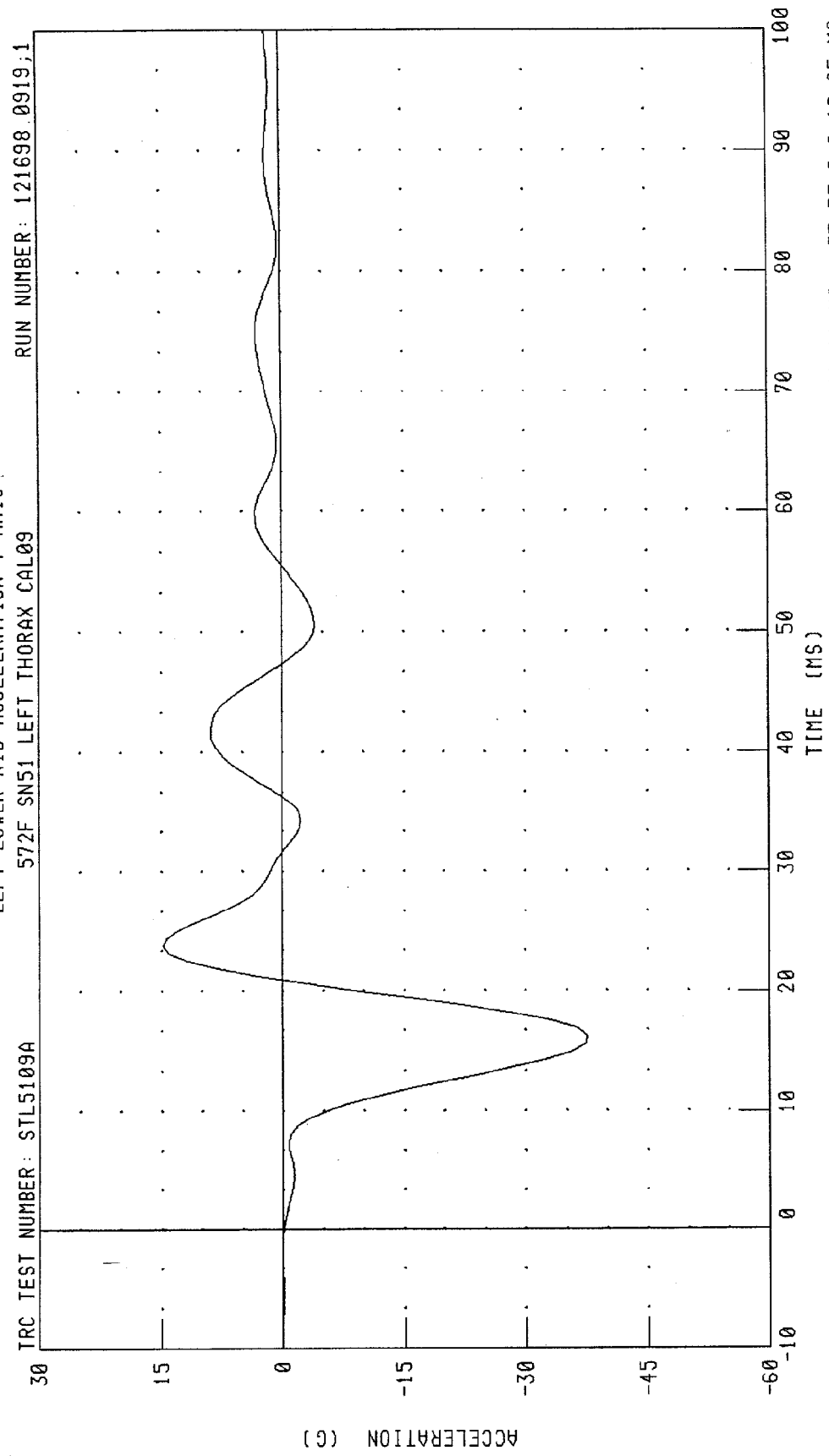
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LEFT UPPER RIB ACCELERATION Y AXIS



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 15.80 G @ 23.75 MS; -37.63 G @ 16.25 MS

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



CHANNEL: LLRYG FILTER: FIR 100

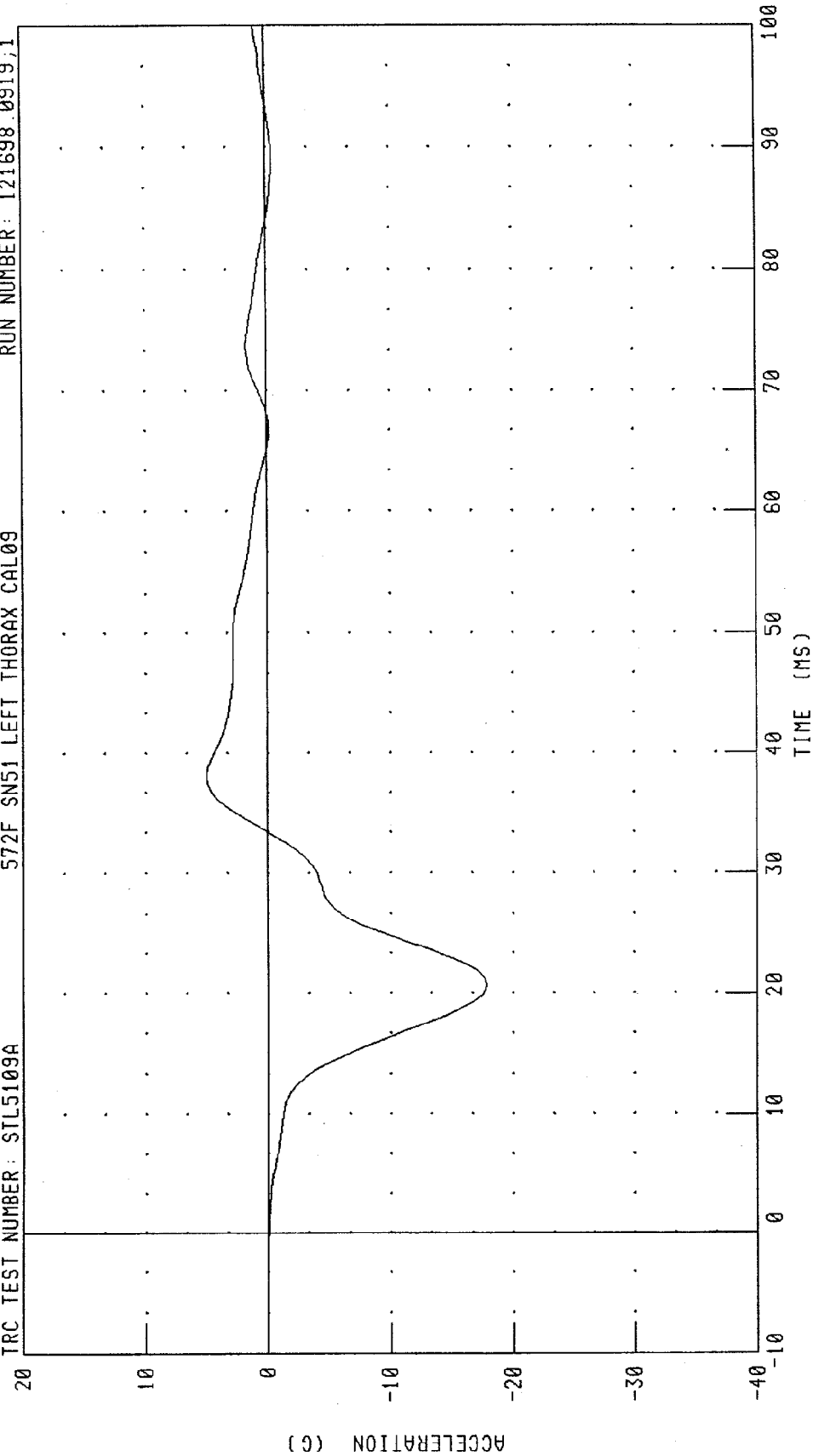
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL5109A

572F SN51 LEFT THORAX CAL09

RUN NUMBER: 121698.0919;1



CHANNEL: T12YC FILTER: FIR 100

PEAK DATA: 5.02 G @ 38.13 MS; -17.87 G @ 20.62 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

16-DEC-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5109

572F SN51 LEFT PELVIS CAL09

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	-53.8 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: 121698.0851;1

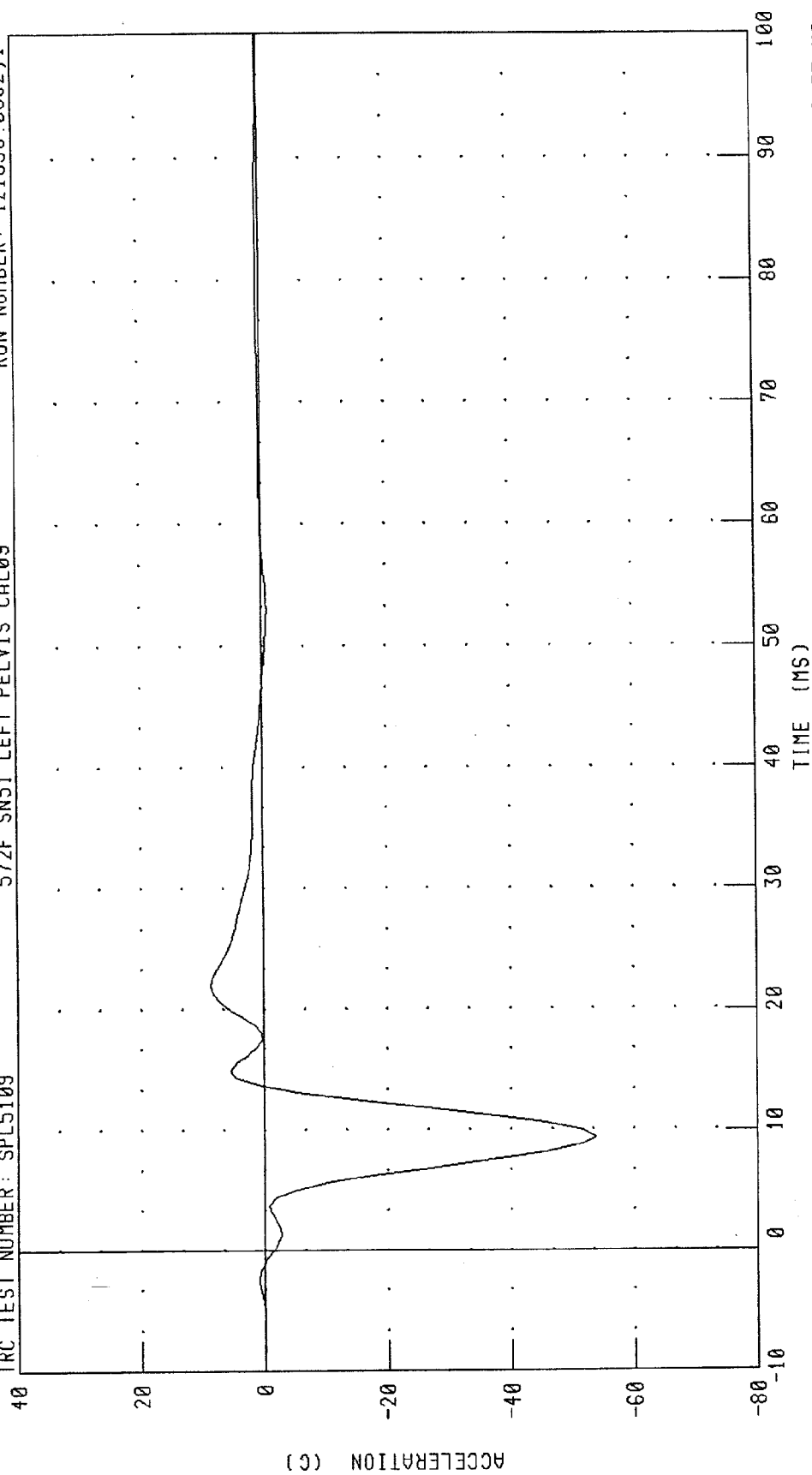
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN51 LEFT PELVIS CAL09

RUN NUMBER: 121698.0852;1

TRC TEST NUMBER: SPL5109



CHANNEL: PEVYC FILTER: FIR 100

PEAK DATA: 8.73 G @ 21.88 MS; -53.81 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

15-DEC-98

TRC INC.

TEST NO: ABD5109B

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	7.91 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	112.94 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	168.21 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	239.13 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	349.67 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Bj cult

RUN NUMBER: 121598.1500;1

PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN51

RUN NUMBER: 121598.1503;1

TRC TEST NUMBER: ABD5109B

540

450

360

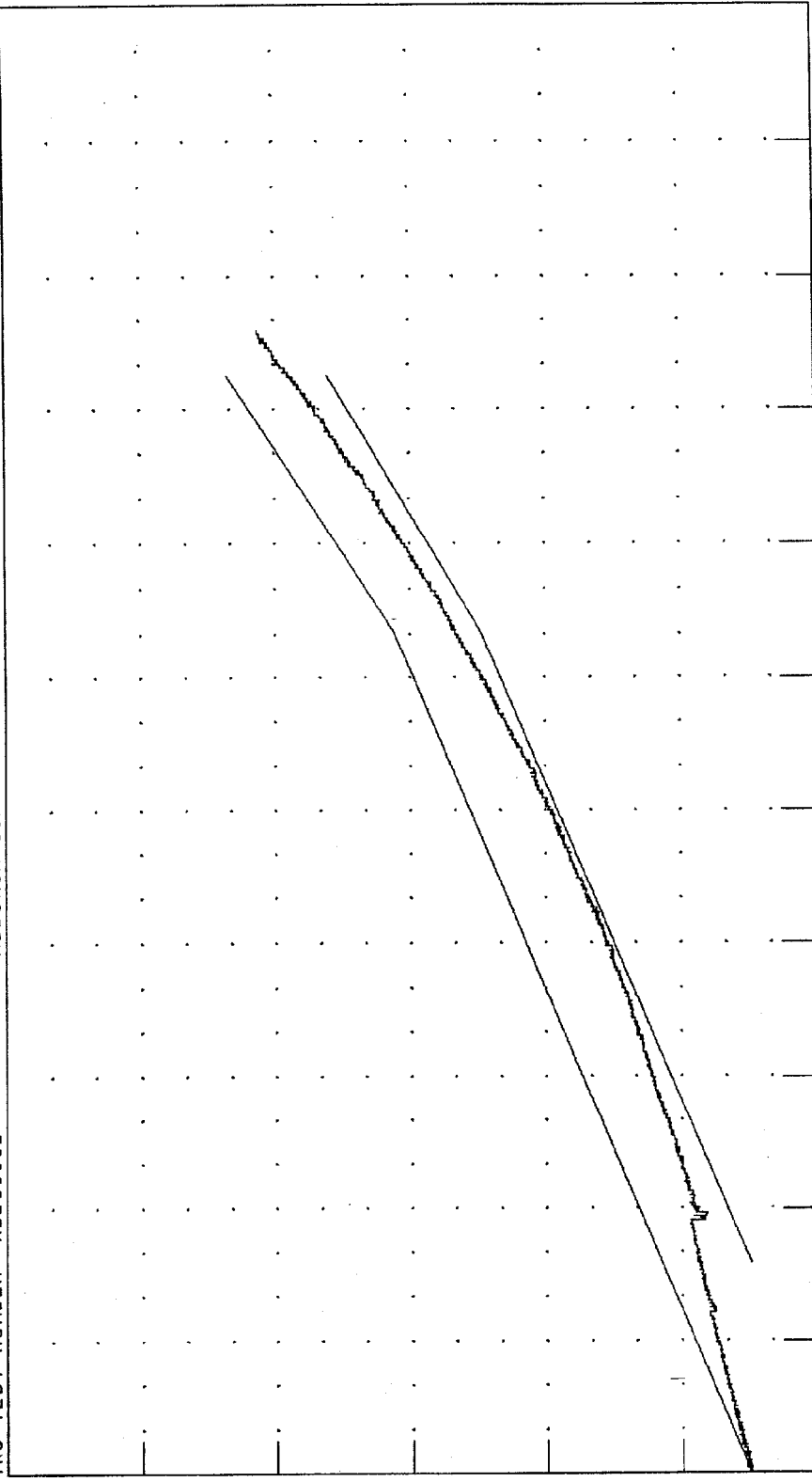
270

180

90

0

FORCE (N)



DISPLACEMENT (MM X 10⁻¹)

PEAK DATA:

34.39 MM @ 4.37 S; 0.00 MM @ 0.00 S
371.19 N @ 4.36 S; 44.46 N @ 0.00 S

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

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

14-12-98

LF5109

TEST NO: TRC INC.

572B SN051 LUMBAR FLEX CAL 09

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	120.10 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	160.13 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	209.06 N
NET RETURN ANGLE	< 12 DEG.	2.98 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

B. cult

RUN NUMBER: 121498.1355

APPENDIX D

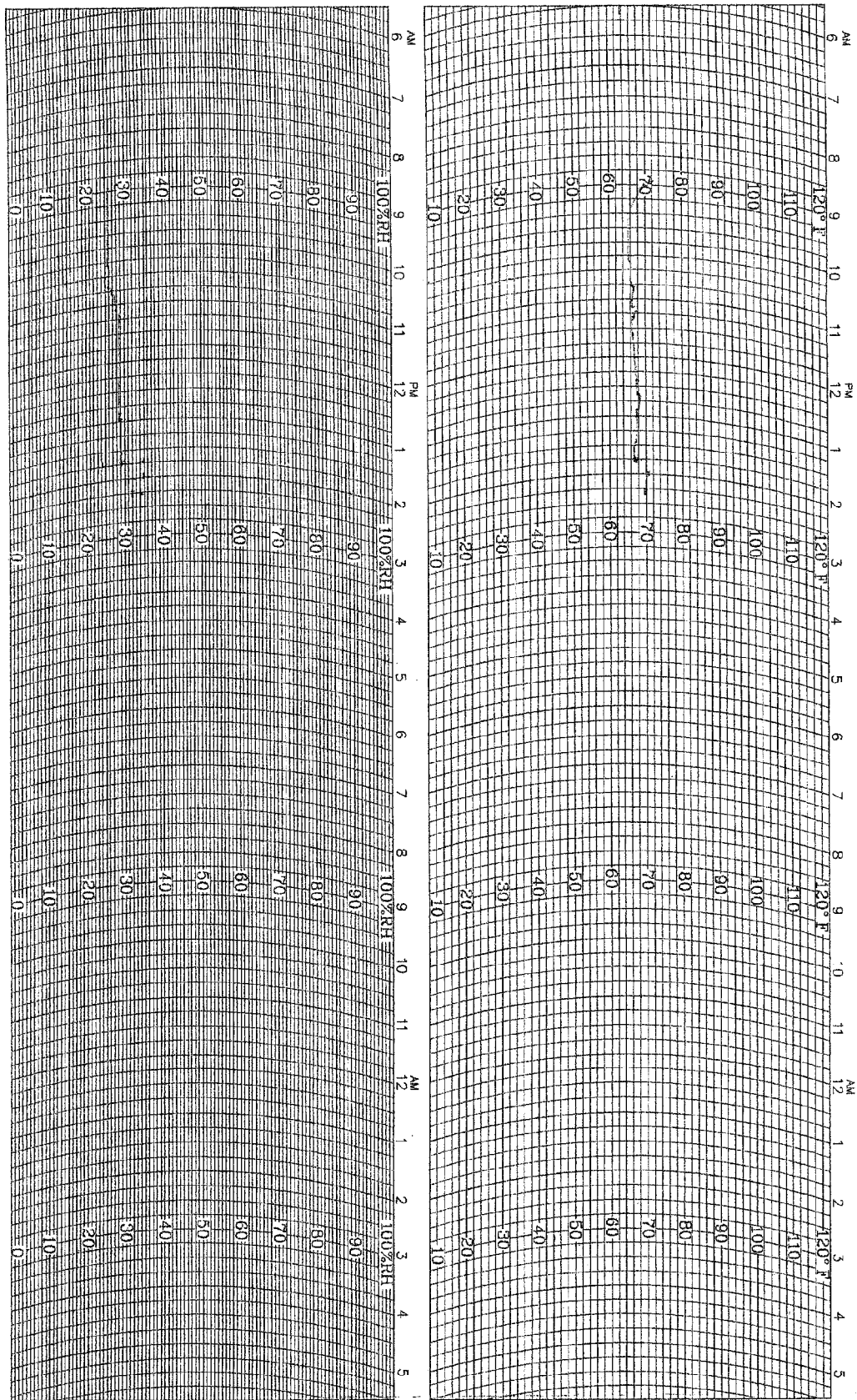
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID INSTRUMENTATION

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

VEHICLE AND MDB INSTRUMENTATION

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Right Front Sill (X)	J22677	Endevco	08/98
Right Front Sill (Y)	J22660	Endevco	07/98
Right Front Sill (Z)	J21632	Endevco	09/98
Right Rear Sill (X)	-----	-----	-----
Right Rear Sill (Y)	-----	-----	-----
Right Rear Sill (Z)	-----	-----	-----
Rear Floorpan Above Axle (X)	CY63H	Endevco	07/98
Rear Floorpan Above Axle (Y)	J22672	Endevco	08/98
Rear Floorpan Above Axle (Z)	J21764	Endevco	10/98
Left Rear Sill (Y)	-----	-----	-----
Left Front Sill (Y)	J22449	Endevco	10/98
Left Front Door Centerline	J21688	Endevco	08/98
Right Rear Seat Occupant Comp. (Y)	-----	-----	-----
Left Front Door Mid-Rear	J22657	Endevco	07/98
Left Front Door Upper Centerline	J19557	Endevco	10/98
Left Rear Door Mid-Rear	-----	-----	-----
Left Rear Door Upper Centerline	-----	-----	-----
Lower Left B-Pillar (Y)	J20003	Endevco	11/98
Middle Left B-Pillar (Y)	J10923	Endevco	11/98
Lower Left A-Pillar (Y)	J24471	Endevco	06/98
Middle Left A-Pillar (Y)	J22739	Endevco	08/98
Front Seat Track (Y)	J21747	Endevco	10/98
Rear Seat Track (Y)	-----	-----	-----
Vehicle CG (X)	J22706	Endevco	08/98
Vehicle CG (Y)	J22836	Endevco	08/98
Vehicle CG (Z)	J22678	Endevco	07/98
MDB CG (X)	J22537	Endevco	10/98
MDB CG (Y)	J22167	Endevco	10/98
MDB CG (Z)	J21589	Endevco	10/98
MDB Rear Frame Member (X)	J22653	Endevco	08/98
MDB Rear Frame Member (Y)	J21943	Endevco	10/98



Weather Measure
WEATHERtronic
 Division of QUALIMETRICS, Inc.

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

HYGROTHERMOGRAPH
 1 DAY

CHART NO. W699123
 C311-D-HF
 ECN 2717
 6-9-87

STATION _____ DATE ON 11/25 DATE OFF _____

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