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REPORT NUMBER: 214-TRC-99-003

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION**

**1999 SUZUKI VITARA
MULTI-PURPOSE VEHICLE**

NHTSA NUMBER: CX0506

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



**March 16, 1999
FINAL REPORT**

**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Compliance
400 Seventh Street, S. W.
Room No. 6115 (NSA-30)
Washington, DC 20590**

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Prepared By: Jason D. Jenkins 04/22/99
Jason D. Jenkins, Project Engineer

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

Approval Date: 4/22/99

FINAL REPORT ACCEPTANCE BY:

Accepted By: J. M. [Signature]

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16. Abstract This 48/24 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject 1999 Suzuki Vitara multi-purpose vehicle in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-04 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted at Transportation Research Center Inc. in East Liberty, Ohio, on March 16, 1999. The impact velocity of the Moving Deformable Barrier (MDB) was 52.8 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 24° C. The target vehicle's post-test maximum crush was 310 mm at Level 3. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Front SID</u></th> <th></th> <th style="text-align: center;"><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td style="text-align: center;">37</td> <td>g's</td> <td style="text-align: center;">35</td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td style="text-align: center;">33</td> <td>g's</td> <td style="text-align: center;">34</td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td style="text-align: center;">52</td> <td>g's</td> <td style="text-align: center;">26</td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td style="text-align: center;">45</td> <td>g's</td> <td style="text-align: center;">30</td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">64</td> <td>g's</td> <td style="text-align: center;">28</td> <td>g's</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.				<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	37	g's	35	g's	Left Lower Rib Acceleration:	33	g's	34	g's	Lower Spine Acceleration:	52	g's	26	g's	Thoracic Trauma Index, (TTI):	45	g's	30	g's	Pelvis Acceleration (PEV):	64	g's	28	g's
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17. Key Words Compliance Testing Side Impact Protection FMVSS 214 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
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

* 1 m = 2.54 exactly. For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SO Catalog No. C13.10.236.

Approximate Conversions from Metric Measures

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

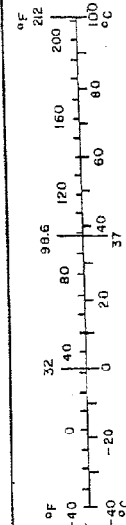


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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-97-C-21033. The purpose of this test was to evaluate side impact protection in a 1999 Suzuki Vitara multi-purpose vehicle. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-04, dated September 1, 1995).

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 1999 Suzuki Vitara multi-purpose vehicle 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 52.8 km/h (32.8 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 March 16, 1999. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in appendix A.

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

The SIDs were instrumented with the following accelerometers:

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

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 42 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)	45	30
PEV (g)	64	28

Data Acquisition Explanations

The vehicle's left side sill at rear seat Y-axis data channel, LRSYG1, lost data at approximately 14 milliseconds and failed to return to zero. This also affected the velocity calculation.

The vehicle's lower A-post Y-axis acceleration data channel, LLAYG1, recorded questionable data after approximately 10 milliseconds. This affected the velocity calculation.

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999 Suzuki Vitara multi-purpose vehicle
 Vehicle Body Color: White VIN: JS3TD62V1X4103994
 Vehicle NHTSA No.: CX0506 Month & Year of Manufacture: 07/98
 Engine Data: 6 Cylinders; - CID; 2.5 Liters; - cc
 Engine Placement: X Longitudinal; or - Lateral; or - Horizontal
 Transmission: 5 Speed; - Manual; X Automatic; - Overdrive
 Final Drive: - Rear Wheel Drive; - Front Wheel Drive; X Four-Wheel
 Odometer Reading: 180 km
 Options: X A/C; X Power steering; X Pwr. brakes; X Pwr. windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity): 180 kPa FRONT
180 kPa REAR
 Recommended Tire Size: P235/60R16
 Tires on Test Vehicle: P235/60R16 Manufacturer: Bridgestone
 Vehicle Capacity Data:
 Number of Occupants: 2 Front; 2 Rear; - 3rd seat; 4 Total
 Type of Front Seats: X Bucket; - Bench; - Split bench
 Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
 Vehicle Max Capacity Loading = 357.0 kg (A)
 No. of Occupants x 68.04 kg. = 272.2 kg (B)
 Vehicle Cargo Capacity = 84.8 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>394.6</u>	kg	Left Rear	=	<u>330.2</u>	kg
Right Front	=	<u>385.6</u>	kg	Right Rear	=	<u>338.8</u>	kg
TOTAL FRONT	=	<u>780.2</u>	kg	TOTAL REAR	=	<u>669.0</u>	kg
% of Total Weight	=	<u>53.8</u>	%	% of Total Weight	=	<u>46.2</u>	%
TOTAL WEIGHT	=	<u>1,449.2</u>	kg				

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight With Max. Fluids = 1,449.2 kg (A)
 Maximum Cargo Carrying Capacity Of Test Vehicle = 84.8 kg (B)
 Weight Of Instrumented Side Impact Dummies (1 Or 2 X 79.0 kg) = 158.0 kg (C)
 TEST VEHICLE TARGET WEIGHT: = 1,692.0 kg (A+B+C)

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

Left Front	=	<u>444.1</u>	kg	Left Rear	=	<u>445.4</u>	kg
Right Front	=	<u>376.0</u>	kg	Right Rear	=	<u>433.2</u>	kg
TOTAL FRONT	=	<u>820.1</u>	kg	TOTAL REAR	=	<u>878.6</u>	kg
% of Total Weight	=	<u>48.3</u>	%	% of Total Weight	=	<u>51.7</u>	%
TOTAL WEIGHT	=	<u>1,698.7</u>	kg				

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

Left Front	=	<u>400.5</u>	kg	Left Rear	=	<u>430.5</u>	kg
Right Front	=	<u>431.8</u>	kg	Right Rear	=	<u>423.7</u>	kg
TOTAL FRONT	=	<u>832.3</u>	kg	TOTAL REAR	=	<u>854.2</u>	kg
% of Total Weight	=	<u>49.4</u>	%	% of Total Weight	=	<u>50.6</u>	%
TOTAL WEIGHT	=	<u>1,686.5</u>	kg				

TEST VEHICLE ATTITUDE (ALL DIMENSIONS IN MILLIMETERS):

AS DELIVERED:

Left Front 790 Right Front 790 Left Rear 786 Right Rear 784

FULLY LOADED:

Left Front 774 Right Front 787 Left Rear 737 Right Rear 747

READY FOR TEST:

Left Front 774 Right Front 775 Left Rear 742 Right Rear 746

TEST VEHICLE WHEELBASE: 2,485 millimeters

C.G. = 1,259 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 3,846 millimeters
 Left Side = 3,846 millimeters
 Centerline = 4,046 millimeters

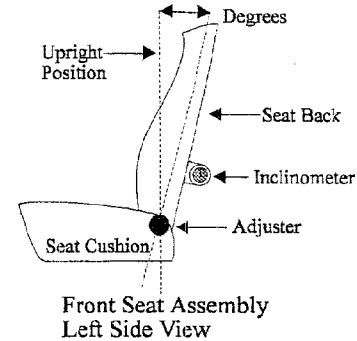
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

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: 202 millimeters

Total Number Of Adjustment Positions Or Detents: 14

FRONT SEAT BACK ADJUSTMENT POSITION: The back adjusted to the 6th latch position from the forward most free position.

Seat Back Torso Angle: 22 degrees

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: The back adjusted to the 5th latch position.

ADJUSTABLE STEERING COLUMN POSITION: Mid-position – detent “4”

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

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

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

65.9 liters (fuel tank usable capacity)

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

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

Wheelbase = 2,485 millimeters

Impact point is 302.5 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 309.5 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 1999 Suzuki Vitara
 Body Style: multi-purpose vehicle VIN: JS3TD62V1X4103994
 NHTSA No.: CX0506 Test Date: March 16, 1999
 Overall Length = 4,046 millimeters; Overall Width = 1,780 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 400.5 kg Left Rear = 430.5 kg
 Right Front = 431.8 kg Right Rear = 423.7 kg
 TOTAL FRONT = 832.3 kg TOTAL REAR = 854.2 kg
 TOTAL WEIGHT = 1,686.5 kg
 Wheelbase = 2,485 millimeters
 Longitudinal C.G. From Center Of Front Axle = 1,259 millimeters
 Impact Angle With Respect To Impactor = 90 degrees

ACTUAL IMPACT POINT:

Actual Impact Point is 7 mm rearward of nominal impact ref. line (Lateral)
 Actual Impact Point is 4 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (360 mm above ground) = 263 millimeters
 2. LEVEL 2 (729 mm above ground) = 306 millimeters
 3. LEVEL 3 (750 mm above ground) = 310 millimeters
 4. LEVEL 4 (1030 mm above ground) = 203 millimeters
 5. LEVEL 5 (1,637 mm above ground) = 76 millimeters
 Maximum Post-Test Intrusion = 310 millimeters

OCCUPANTS:

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

INSTRUMENTATION:

Number Of Vehicle Data Channels: = 42
 Number Of Cameras: Onboard = 3
 Offboard = 7
 TOTAL = 10

DATA SHEET 3

MOVING DEFORMABLE BARRIER(MDB) SUMMARY

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

MDB FACE MANUFACTURER AND SERIAL NUMBER:

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

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to the left

MDB DETAILS:

Overall Width of Framework Carriage = 1,251 millimeters

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

Wheelbase of Framework Carriage = 2,591 millimeters

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

C.G. Location Rearward of Front Axle = 1,104 millimeters

MDB WEIGHT:

Left Front = 352.4 kg Left Rear = 325.7 kg

Right Front = 426.4 kg Right Rear = 252.7 kg

TOTAL FRONT = 778.8 kg TOTAL REAR = 578.4 kg

TOTAL MDB WEIGHT = 1,357.2 kg

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

Impact Speed = 52.8 km/h

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level = 95.0 millimeters

2. Row B at Top of Bumper Level = 67.1 millimeters

3. Row C at Mid Level = 62.8 millimeters

4. Row D at Top of Stack Level = 141.0 millimeters

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>B-Pillar/Head Rest</u>	<u>C-pillar/head rest</u>
Upper Torso:	<u>N/A</u>	<u>N/A</u>
Lower Torso:	<u>N/A</u>	<u>N/A</u>
Left Knee:	<u>Door panel</u>	<u>Door panel/seat back</u>
Right Knee:	<u>Steering Wheel</u>	<u>Seat back</u>

DOOR OPENING:

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

MDB DISTANCE FROM TARGET IMPACT POINT:

Vertical: 4 mm above target

Horizontal: 7 mm rearward of target

ARM REST LOCATIONS:

Front: 85 mm below the bottom of the window

Rear: 67 mm below the bottom of the window

SEAT MOVEMENT:

Front: None

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.

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

TEST NUMBER: 990316

DRIVER DUMMY SERIAL NUMBER: 051

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	37.2 g	@ 48.1 ms	10.2 g	@ 41.9 ms
LATERAL (R)	37.4 g	@ 48.1 ms	10.7 g	@ 41.9 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	32.7 g	@ 48.8 ms	8.1 g	@ 100.0 ms
LATERAL (R)	32.3 g	@ 48.8 ms	8.5 g	@ 100.0 ms
TTI d (P)	44.6			
TTI d (R)	45.0			

LOWER SPINE ACCELERATION

LATERAL (P)	52.1 g	@ 32.5 ms	14.7 g	@ 80.6 ms
LATERAL (R)	52.6 g	@ 32.5 ms	14.2 g	@ 80.6 ms

PELVIS ACCELERATION

LATERAL (P)	64.4 g	@ 31.3 ms	17.9 g	@ 71.9 ms
LATERAL (R)	63.8 g	@ 31.3 ms	18.1 g	@ 71.9 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

DATA SHEET 5 (continued)

SID INSTRUMENTATION DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

TEST NUMBER: 990316

PASSENGER DUMMY SERIAL NUMBER: 052

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	35.1 g	@ 62.5 ms	2.8 g	@ 194.4 ms
LATERAL (R)	35.1 g	@ 62.5 ms	2.7 g	@ 194.4 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	33.7 g	@ 62.5 ms	2.5 g	@ 186.3 ms
LATERAL (R)	33.0 g	@ 62.5 ms	2.4 g	@ 187.5 ms
TTI d (P)	30.3			
TTI d (R)	30.5			

LOWER SPINE ACCELERATION

LATERAL (P)	25.5 g	@ 61.2 ms	3.0 g	@ 93.8 ms
LATERAL (R)	25.9 g	@ 61.2 ms	3.3 g	@ 93.8 ms

PELVIS ACCELERATION

LATERAL (P)	28.2 g	@ 52.5 ms	7.5 g	@ 78.8 ms
LATERAL (R)	27.3 g	@ 52.5 ms	7.7 g	@ 78.8 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

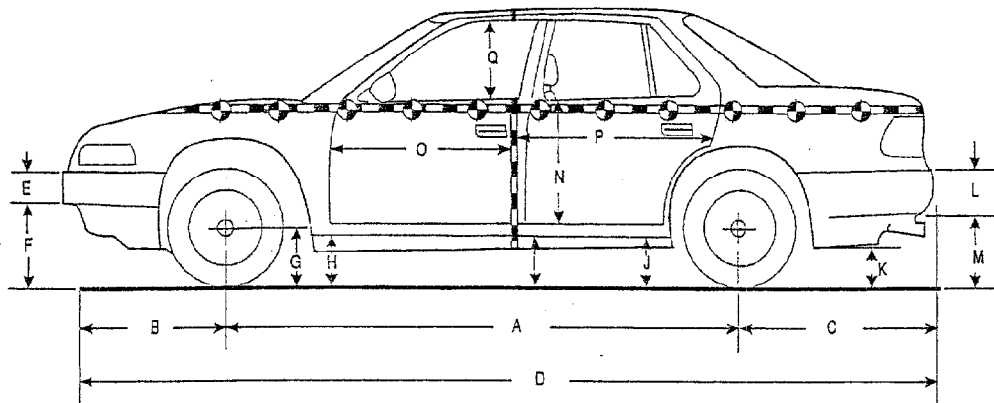
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

DATA SHEET 6

VEHICLE PRE- AND POST-TEST MEASUREMENTS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



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	2485	2485	2470	15
B	760	760	750	10
C	810	810	788	22
D	4046	4046	4035	11
E	230	230	230	0
F	370	369	378	-9
G	330	325	320	5
H	295	281	260	21
I	320	284	280	4
J1	302	255	241	14
J2	310	272	350	-78
K	307	265	281	-16
L	180	180	180	0
M	445	405	418	-13
N	738	738	805	-67
O	610	610	587	23
P	1275	1275	1227	48
Q	475	475	471	4
R	3846	3846	3870	-24
S	3846	3846	3792	54
T	1926	1926	1650	276

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

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

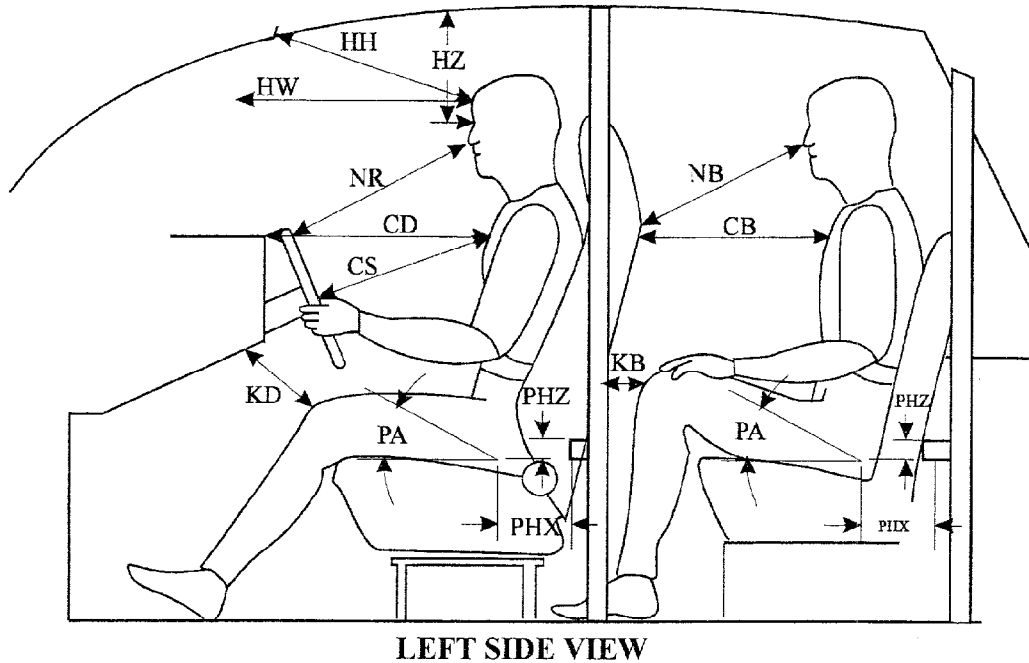
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



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

	DRIVER ID #051	LEFT REAR PASS. ID#052
HH	492	N/A
HW	673	N/A
HZ	230	N/A
NR/NB	466	545
CD/CB	603	452
CS	372	N/A
KDL(KDA°)/KBL(KDA°)	78/19°	0/14°
KDR(KBA°)/KBR(KBA°)	88/16°	5/6°
PA°	24.7°	24.7°
PHX	149	215
PHZ	61	187

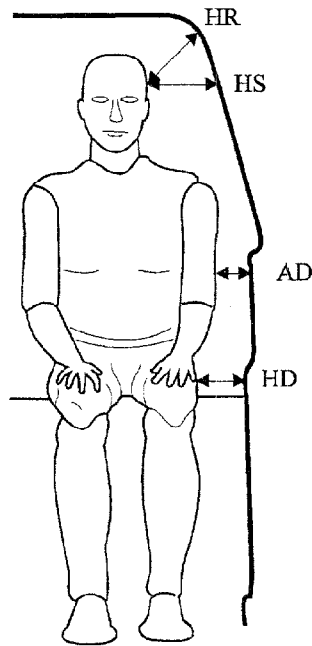
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



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

	DRIVER ID #051	LEFT REAR PASS. ID #052
HR	187	186
HS	223	275
AD*	LOWER: 74 UPPER: 98	LOWER: 111 UPPER: 105
HD	105	155

* 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.

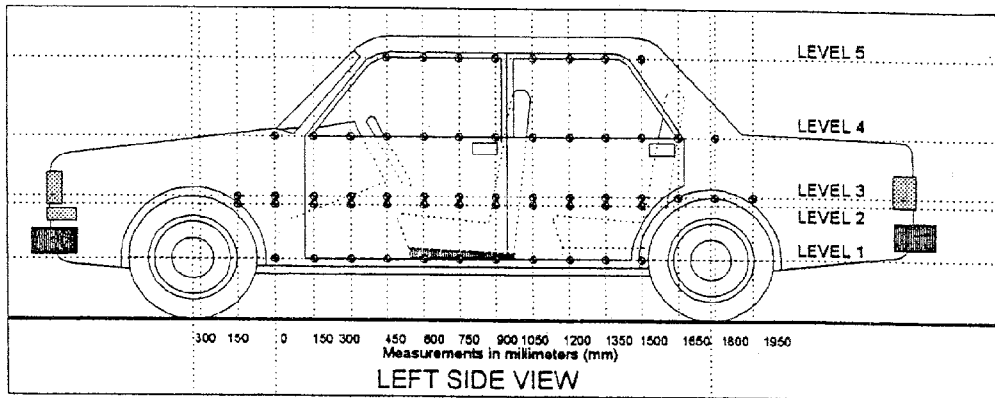
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



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

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

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1,637</u>	millimeters
Level 4 @ Window Sill	=	<u>1,030</u>	millimeters
Level 3 @ Mid Door	=	<u>750</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>729</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>360</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Location	Height	(mm) From Impact Point																
		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750			
Level 1 Side Sill	360	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	355	381	390	387	390
		Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	566	595	629	635	636
		Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	211	214	239	248	246
Level 2 H-Point	729	Pre	N/A	N/A	N/A	406	341	N/A	N/A	N/A	N/A	N/A	335	378	375	375	373	380
		Post	N/A	N/A	N/A	420	367	N/A	N/A	N/A	N/A	N/A	457	537	622	642	645	649
		Crush	N/A	N/A	N/A	14	26	N/A	N/A	N/A	N/A	N/A	122	159	247	267	272	269
Level 3 Mid-Door	750	Pre	N/A	N/A	N/A	410	351	N/A	N/A	N/A	N/A	N/A	341	379	375	381	382	390
		Post	N/A	N/A	N/A	425	369	N/A	N/A	N/A	N/A	N/A	459	533	605	644	650	652
		Crush	N/A	N/A	N/A	15	18	N/A	N/A	N/A	N/A	N/A	118	154	230	263	268	262
Level 4 Window Sill	1030	Pre	N/A	N/A	N/A	N/A	489	470	452	451	442	430	416	418	410	410	416	
		Post	N/A	N/A	N/A	N/A	503	485	485	485	490	495	525	548	579	570	570	
		Crush	N/A	N/A	N/A	N/A	14	15	33	34	48	65	109	130	169	154	154	
Level 5 Window Top	1637	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	661
		Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	715
		Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	54

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

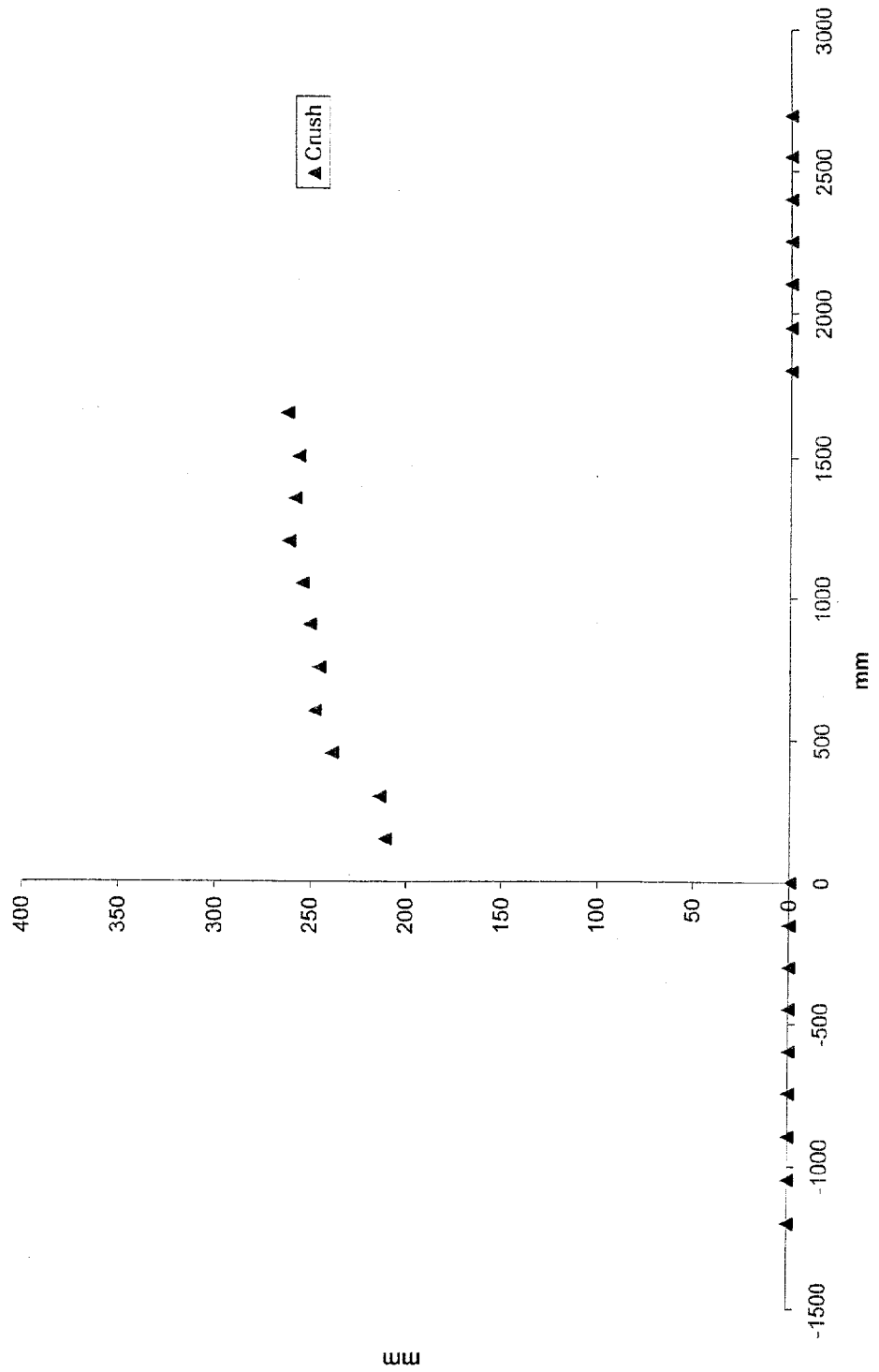
Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Location	Height	(mm) From Impact Point														
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	Pre	390	390	390	391	391	378	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Post	641	645	652	650	648	641	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Crush	251	255	262	259	257	263	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Level 2 H-Point	Pre	378	378	378	378	370	369	358	N/A	N/A	N/A	N/A	371	398		
	Post	659	665	680	684	672	653	575	N/A	N/A	N/A	N/A	416	414		
	Crush	281	287	302	306	302	284	217	N/A	N/A	N/A	N/A	45	16		
Level 3 Mid-Door	Pre	383	382	382	383	377	380	373	331	N/A	N/A	329	382	400		
	Post	661	665	681	684	687	665	597	450	N/A	N/A	382	418	416		
	Crush	278	283	299	301	310	285	224	119	N/A	N/A	53	36	16		
Level 4 Window Sill	Pre	410	396	407	406	398	401	401	389	405	414	414	418	435		
	Post	589	585	610	440	640	600	538	502	497	475	455	445	457		
	Crush	179	189	203	34	242	199	137	113	92	61	41	27	22		
Level 5 Window Top	Pre	626	645	641	637	634	633	642	642	655	655	665	670	N/A		
	Post	702	703	700	698	687	690	680	691	693	702	693	702	N/A		
	Crush	76	58	59	61	53	57	38	49	38	47	28	32	N/A		

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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Side Profile Level 1 360 mm Above Ground



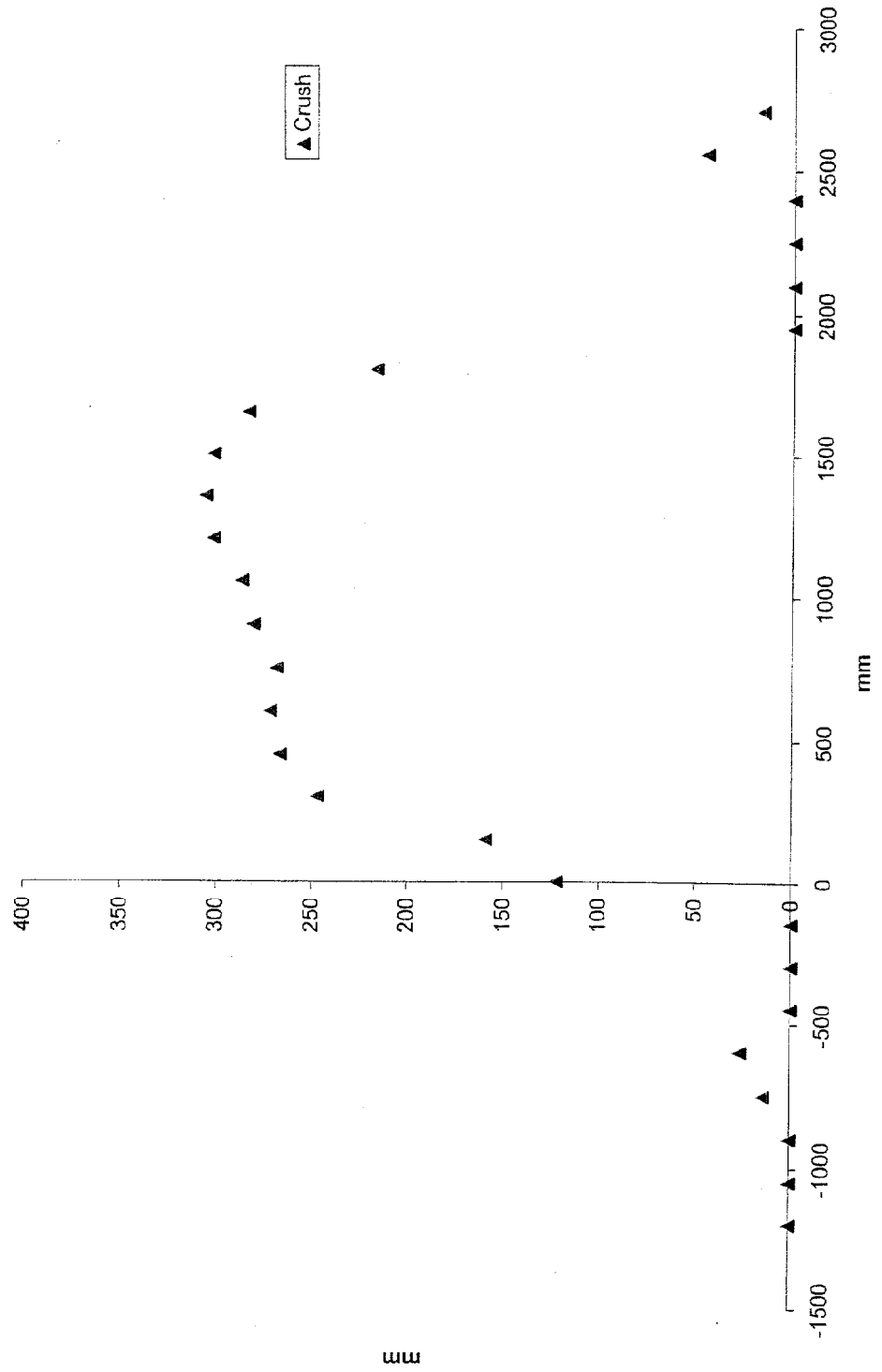
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

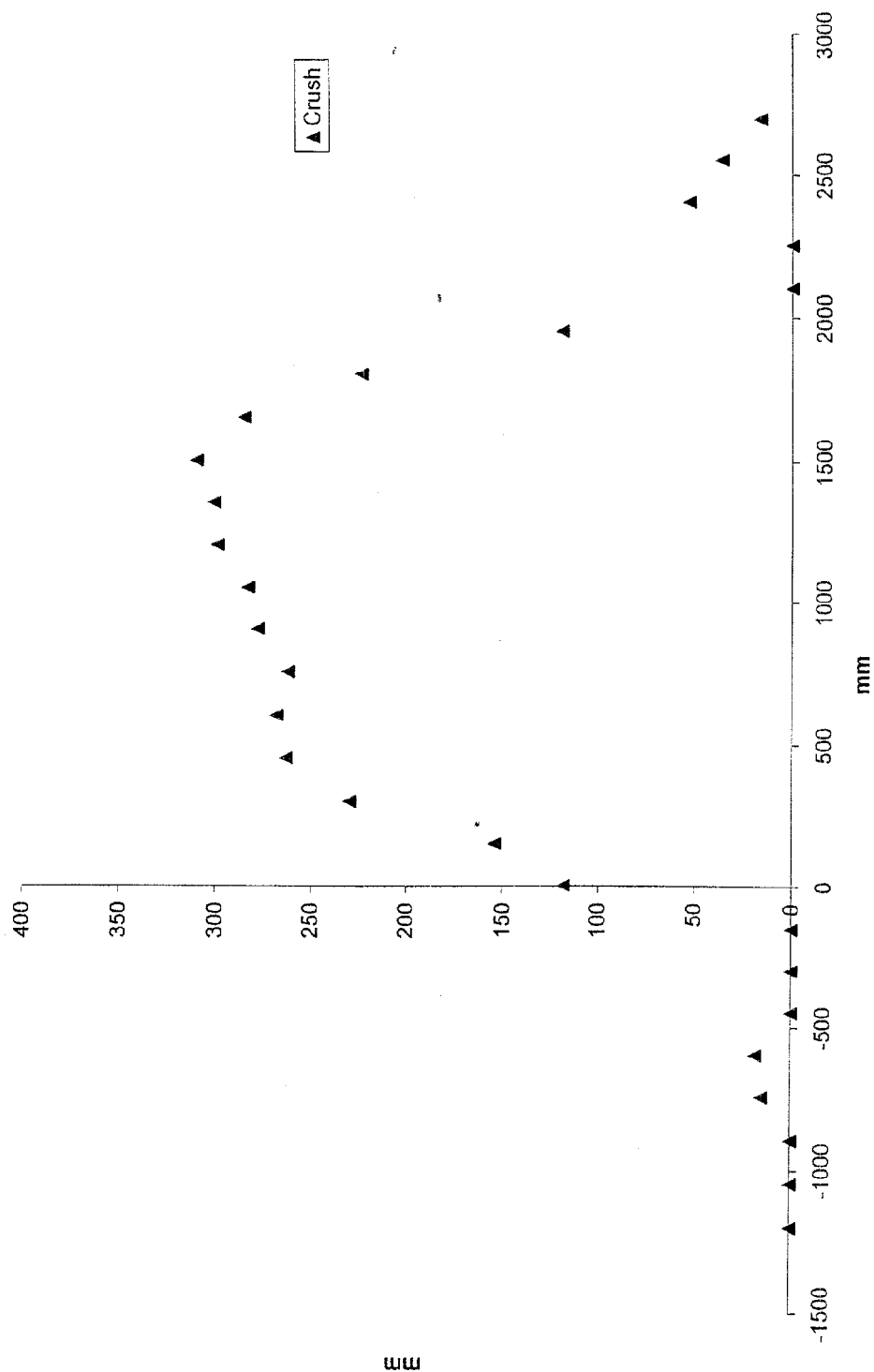
Side Profile Level 2 729 mm Above Ground



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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Side Profile Level 3 750 mm Above Ground



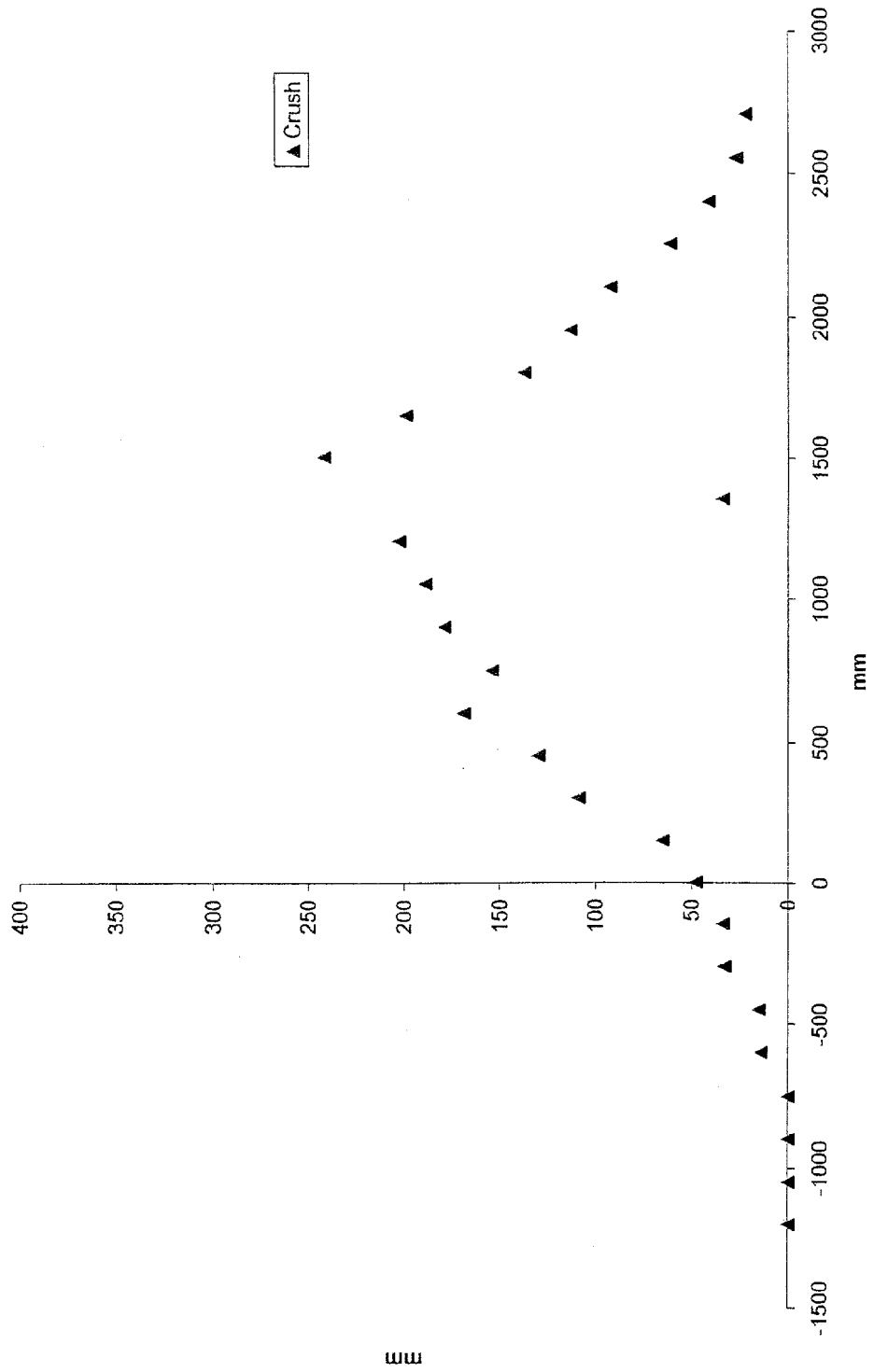
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

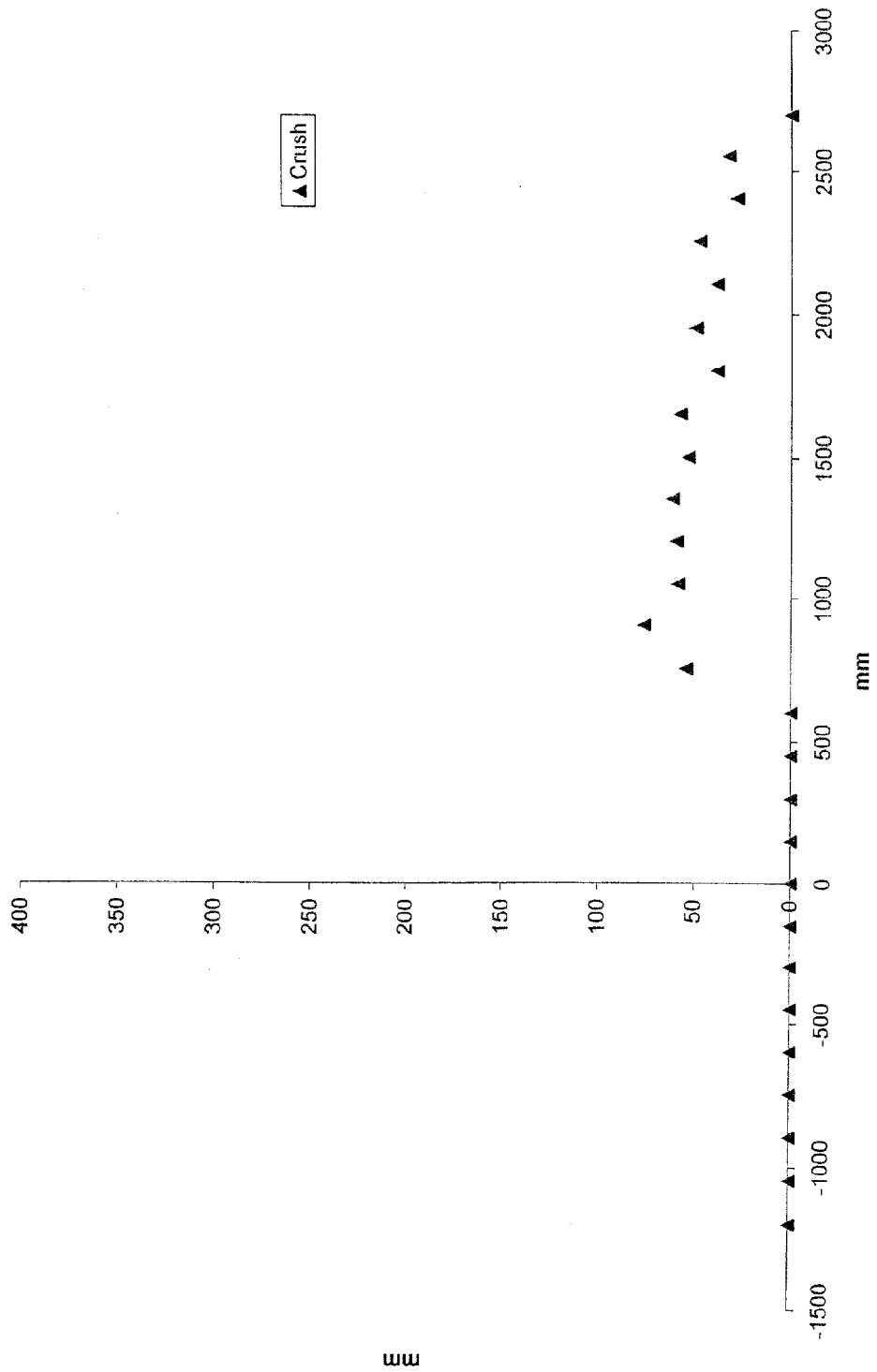
Side Profile Level 4 1030 mm Above Ground



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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Side Profile Level 5 1637 mm Above Ground



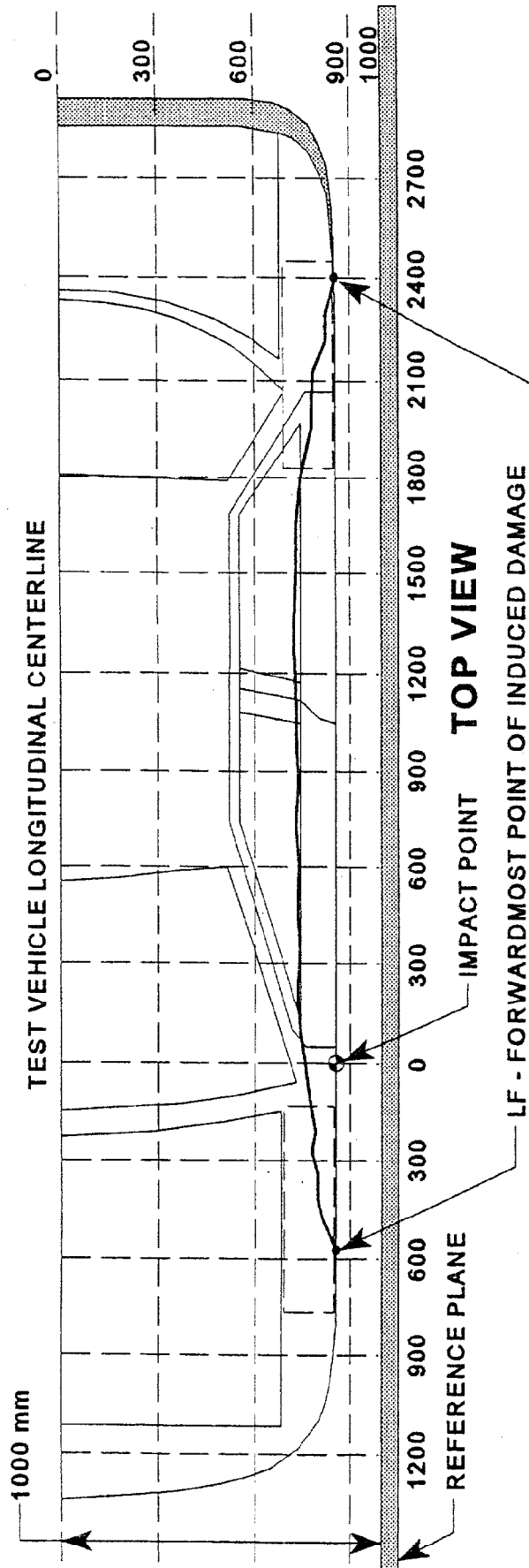
DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

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



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

DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
1 (LF = -750 mm)	425	410	15
2 -60	274	201	73
3 630	651	384	267
4 1320	684	383	301
5 2010	270	199	71
6 (LR = 2700 mm)	416	400	16

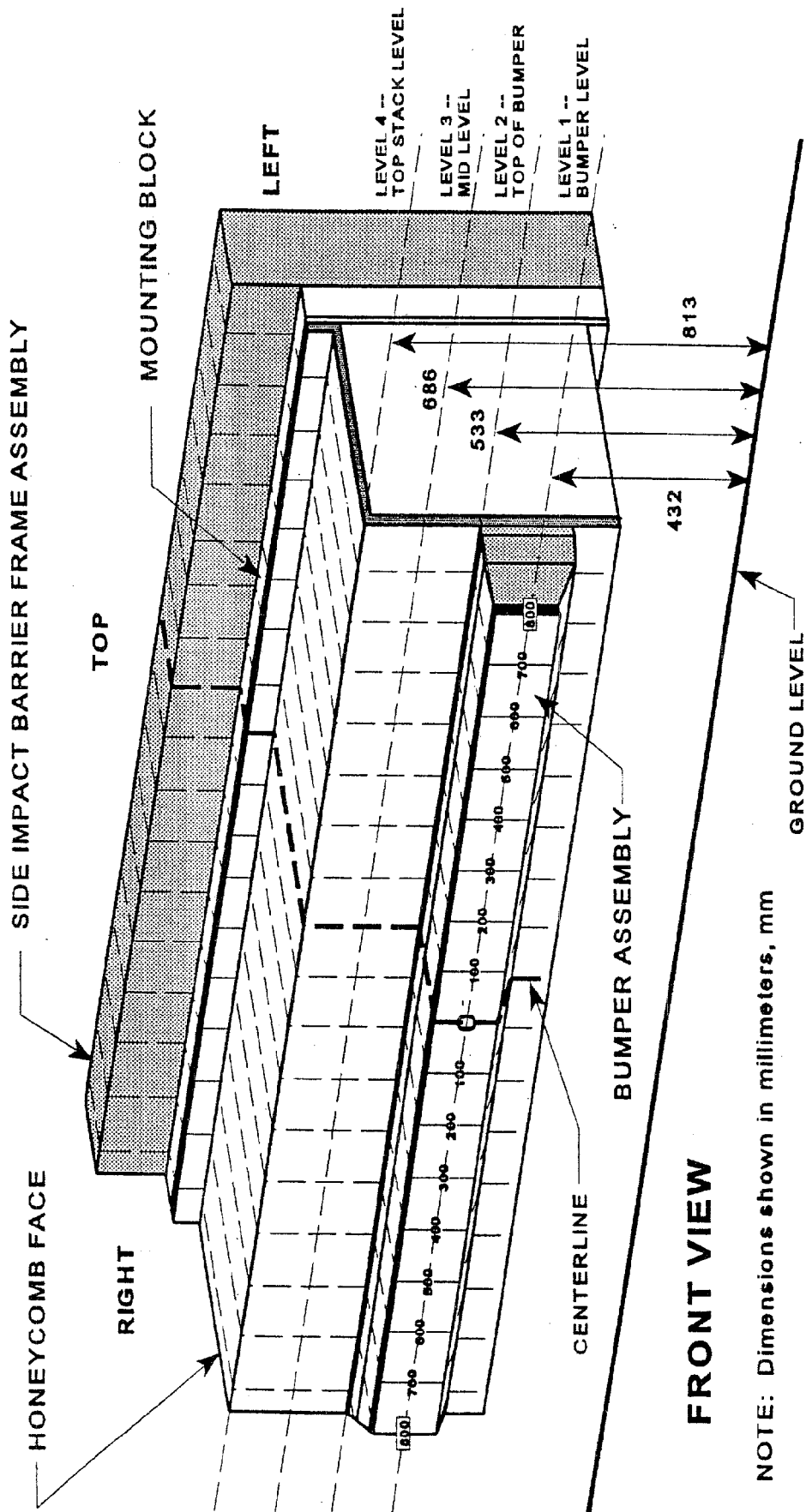
DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

(Grid as looking at MDB from front)

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



FRONT VIEW

NOTE: Dimensions shown in millimeters, mm

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Table 12 Exterior Static Crush for Impactor Face

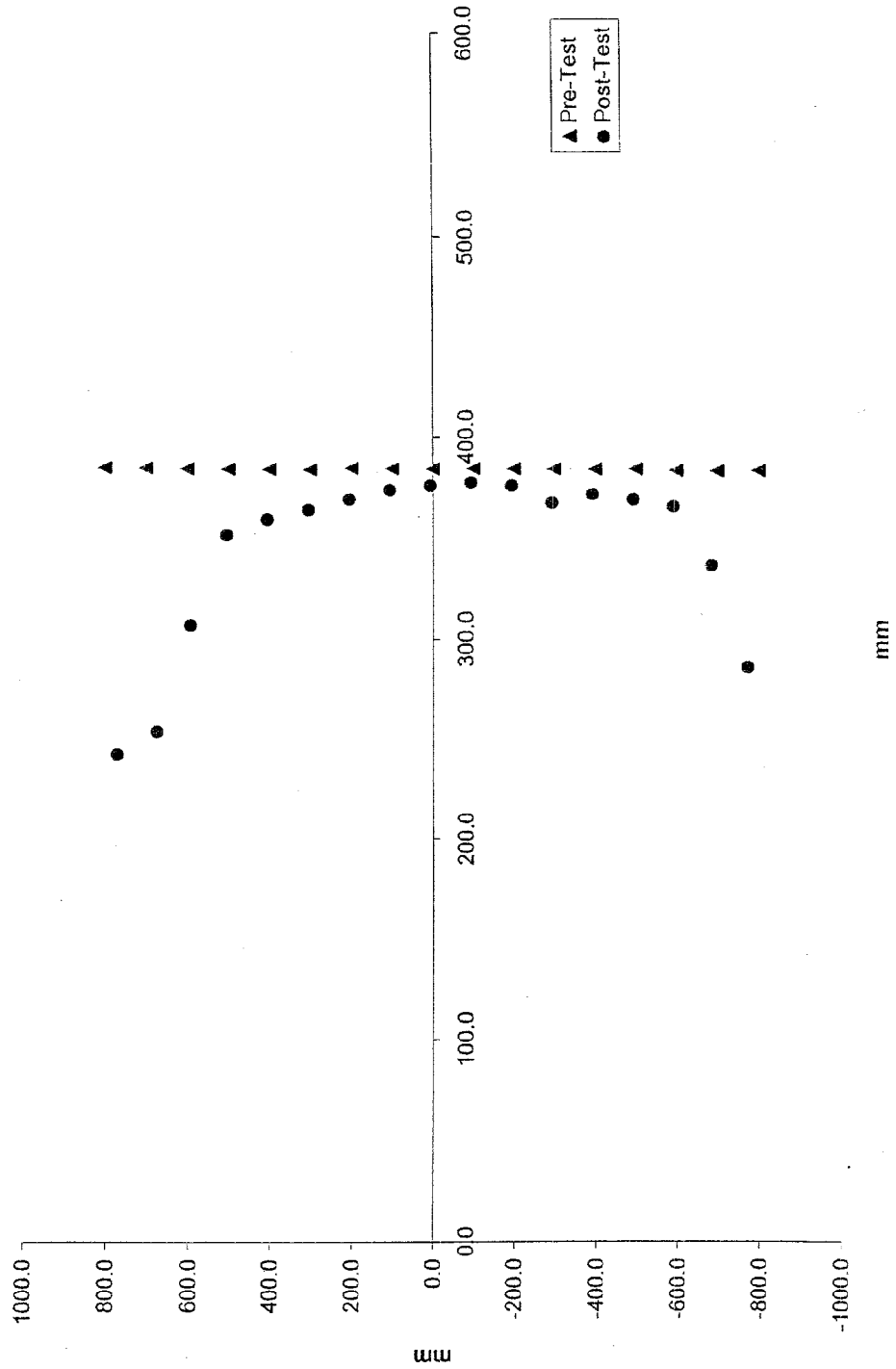
		Height At	Distance Right of Center (mm)									Distance Left of Center (mm)							
			800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
Location	CL																		
Top Stack Level																			
Level 4	810	96.1	46	17.8	14.9	12.2	16.4	8.1	6.7	8.1	10.6	15.4	19.8	24.4	32.1	76.5	130	141	
Mid Level																			
Level 3	685	56.2	4.6	-4	-4.2	-3.4	-3.5	-2.8	-1.7	-0.8	0.9	4	10.7	8.3	3.5	9.3	57.5	62.8	
Top Bumper Level																			
Level 2	560	62.5	32.6	13.5	5.3	5.7	4.9	8	10.4	12.1	14.1	17.5	20.6	24.1	31.2	39.1	54.5	67.1	
Mid Bumper Level																			
Level 1	432	73	56.7	31	13.6	7.8	7.3	9.9	-475	14	18.8	23.1	27.4	33.6	42.3	58.8	81.6	95	

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

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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

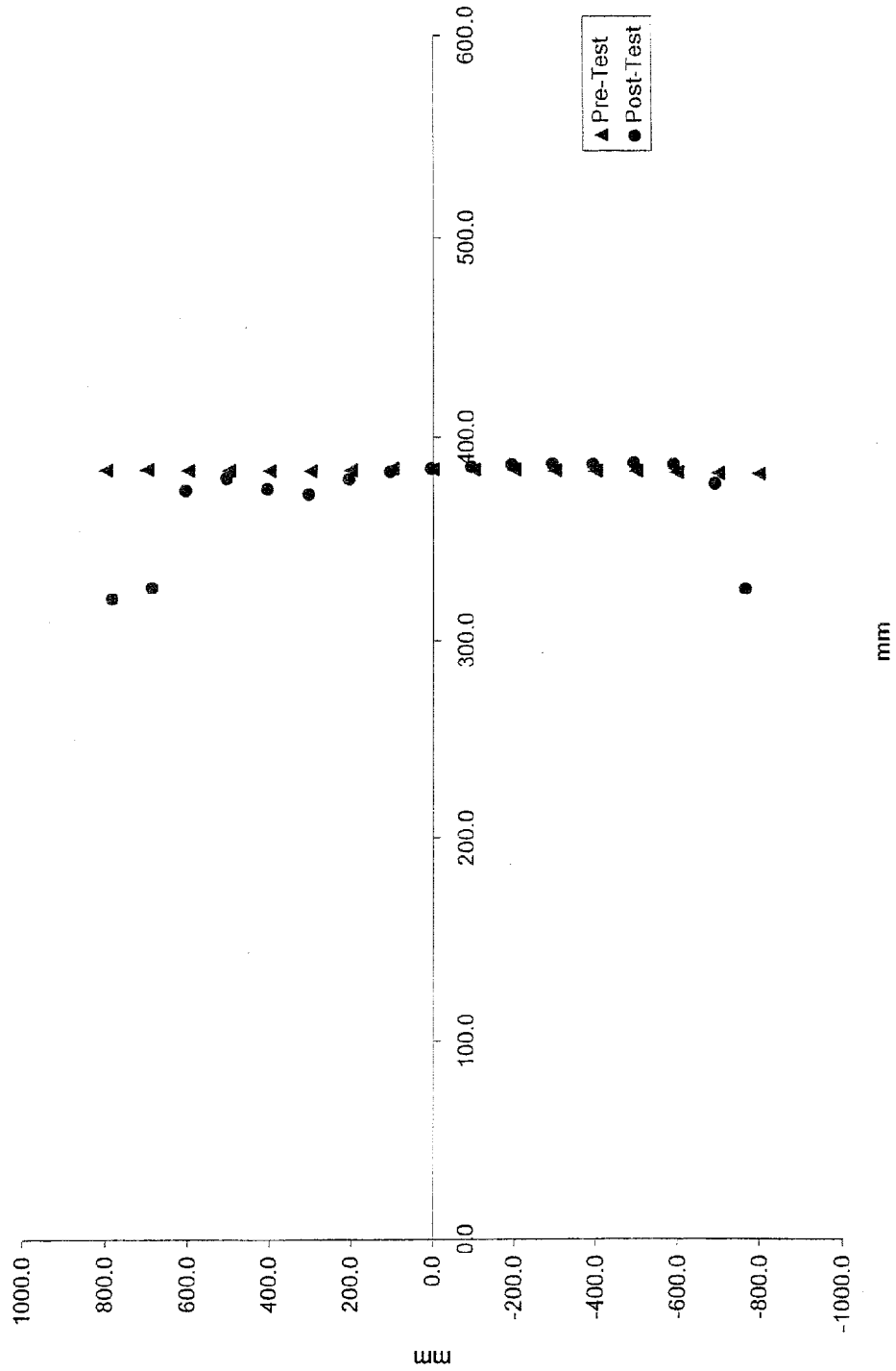
Deformable Barrier Face Profile 1-17



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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

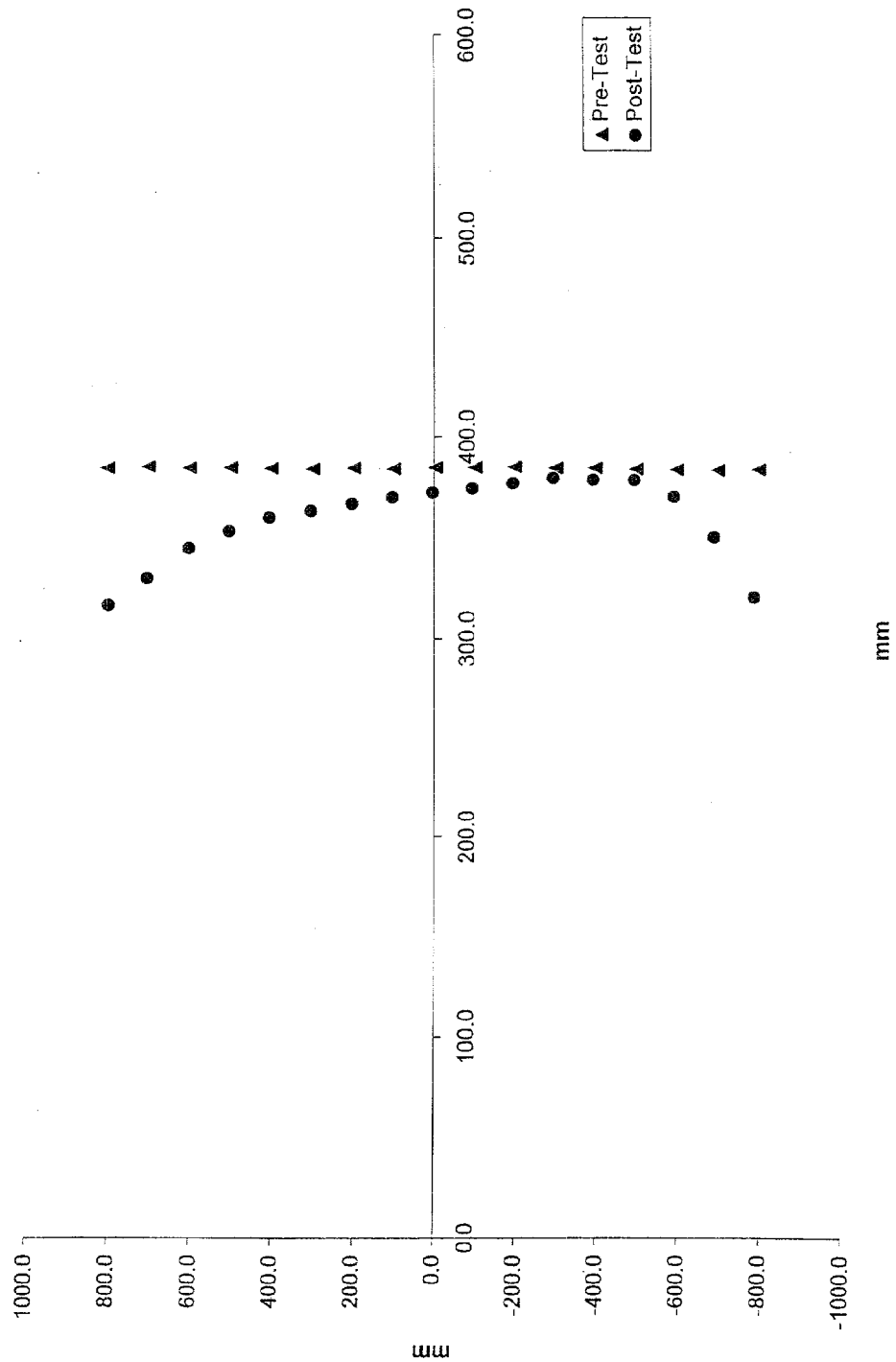
Deformable Barrier Face Profile 18-34



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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

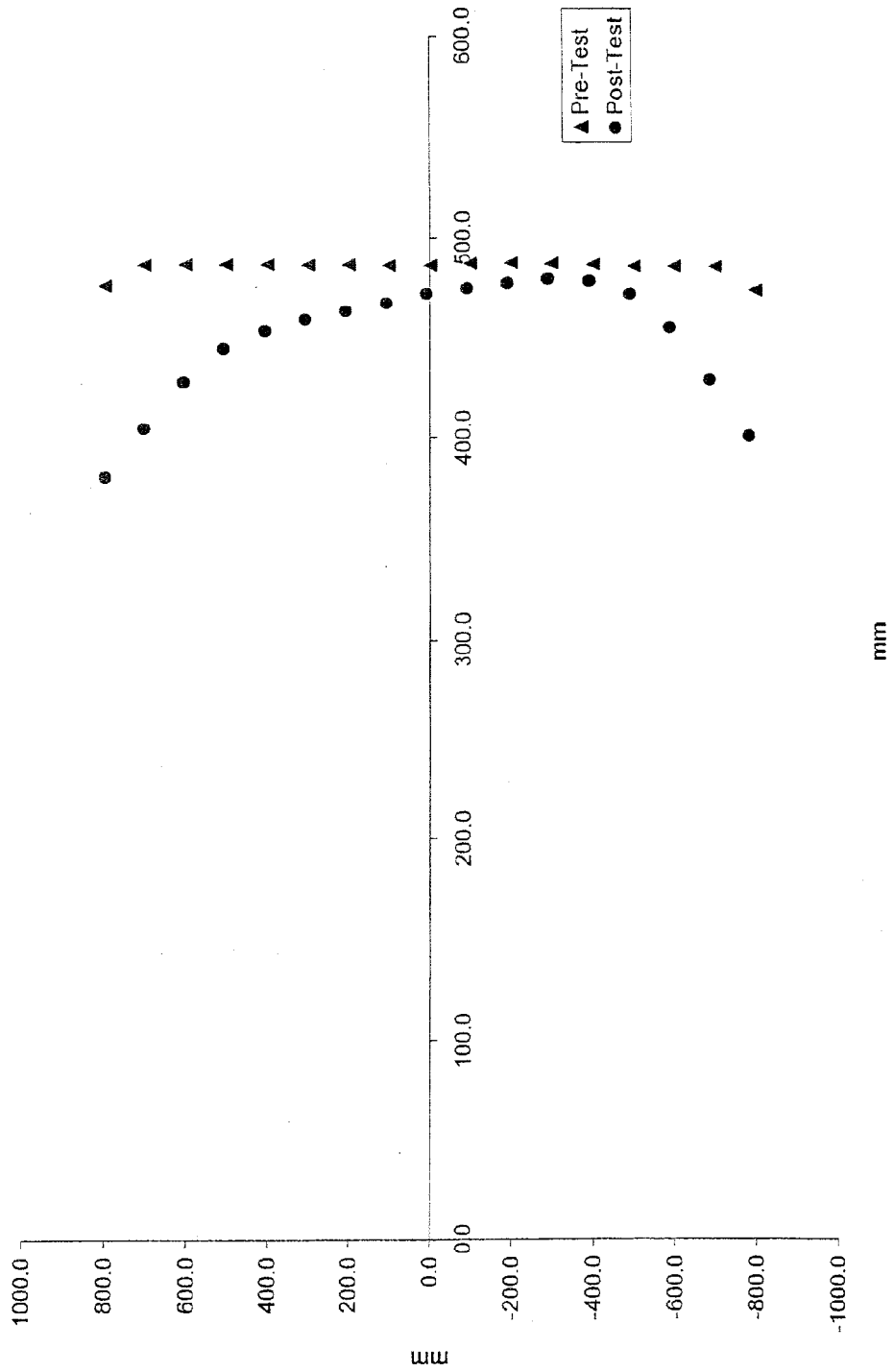
Deformable Barrier Face Profile 35-51



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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Deformable Barrier Face Profile 52-68



DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Deformable Barrier Face Profile

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
1	382.1	-798.4	273.5	1	286.0	-771.7	247.6	1	96.1	-26.7	25.9
2	382.0	-698.2	273.9	2	336.0	-686.3	258.4	2	46.0	-11.9	15.5
3	382.2	-597.8	273.3	3	364.4	-591.7	262.6	3	17.8	-6.1	10.7
4	382.8	-497.5	273.4	4	367.9	-490.7	262.1	4	14.9	-6.8	11.3
5	382.9	-397.7	273.5	5	370.7	-391.6	263.0	5	12.2	-6.1	10.5
6	383.0	-297.4	273.4	6	366.6	-291.8	263.2	6	16.4	-5.6	10.2
7	383.2	-198.2	273.5	7	375.1	-193.1	264.5	7	8.1	-5.1	9.0
8	383.6	-98.7	273.5	8	376.9	-92.8	264.2	8	6.7	-5.9	9.3
9	383.6	0.6	273.1	9	375.5	6.7	264.1	9	8.1	-6.1	9.0
10	383.8	100.8	273.0	10	373.2	107.1	263.8	10	10.6	-6.3	9.2
11	384.0	200.7	272.3	11	368.6	207.1	263.3	11	15.4	-6.4	9.0
12	383.4	301.3	272.6	12	363.6	306.5	261.5	12	19.8	-5.2	11.1
13	383.5	400.9	272.1	13	359.1	405.7	259.7	13	24.4	-4.8	12.4
14	383.7	501.0	271.6	14	351.6	505.1	258.0	14	32.1	-4.1	13.6
15	383.9	600.5	271.0	15	307.4	592.8	243.5	15	76.5	7.7	27.5
16	384.4	701.1	271.0	16	254.4	675.0	222.8	16	130.0	26.1	48.2
17	384.5	800.3	270.3	17	243.5	772.0	219.3	17	141.0	28.3	51.0
18	381.9	-797.0	119.6	18	325.7	-765.1	109.1	18	56.2	-31.9	10.5
19	382.3	-697.9	120.0	19	377.7	-691.1	113.7	19	4.6	-6.8	6.3
20	382.5	-597.5	119.6	20	386.5	-591.6	112.5	20	-4.0	-5.9	7.1
21	383.0	-497.3	120.3	21	387.2	-491.9	112.9	21	-4.2	-5.4	7.4
22	383.1	-397.2	119.6	22	386.5	-391.8	112.2	22	-3.4	-5.4	7.4
23	383.3	-297.0	119.8	23	386.8	-292.2	112.4	23	-3.5	-4.8	7.4
24	383.7	-197.4	119.3	24	386.5	-192.2	111.9	24	-2.8	-5.2	7.4
25	383.8	-98.4	119.4	25	385.5	-93.0	112.0	25	-1.7	-5.4	7.4
26	383.9	1.8	119.8	26	384.7	6.3	110.7	26	-0.8	-4.5	9.1
27	384.3	101.9	120.9	27	383.4	106.5	111.2	27	0.9	-4.6	9.7
28	383.8	201.5	118.9	28	379.8	206.2	110.8	28	4.0	-4.7	8.1
29	383.3	300.4	119.4	29	372.6	305.5	109.6	29	10.7	-5.1	9.8

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

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NIHTSA No.: CX0506

Deformable Barrier Face Profile Cont'd.

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
30	383.2	400.7	118.8	30	374.9	406.4	108.9	30	8.3	-5.7	9.9
31	383.6	500.3	118.6	31	380.1	505.8	108.5	31	3.5	-5.5	10.1
32	383.6	600.1	118.5	32	374.3	605.6	107.8	32	9.3	-5.5	10.7
33	383.9	699.8	117.9	33	326.4	688.3	89.5	33	57.5	11.5	28.4
34	383.8	800.0	117.4	34	321.0	784.8	104.1	34	62.8	15.2	13.3
35	383.0	-797.2	-24.7	35	320.5	-786.0	-21.4	35	62.5	-11.2	-3.3
36	382.6	-697.3	-22.2	36	350.0	-689.6	-24.7	36	32.6	-7.7	2.5
37	382.9	-597.6	-22.0	37	369.4	-591.7	-25.0	37	13.5	-5.9	3.0
38	383.1	-497.6	-22.1	38	377.8	-492.3	-25.3	38	5.3	-5.3	3.2
39	383.8	-396.8	-21.7	39	378.1	-391.2	-26.9	39	5.7	-5.6	5.2
40	383.8	-298.2	-20.3	40	378.9	-292.6	-26.1	40	4.9	-5.6	5.8
41	384.4	-197.8	-20.7	41	376.4	-192.9	-26.2	41	8.0	-4.9	5.5
42	384.2	-100.2	-21.2	42	373.8	-93.4	-26.0	42	10.4	-6.8	4.8
43	384.1	-2.5	-22.8	43	372.0	5.1	-25.3	43	12.1	-7.6	2.5
44	383.6	100.1	-22.2	44	369.5	105.2	-26.8	44	14.1	-5.1	4.6
45	384.0	200.0	-22.3	45	366.5	204.6	-27.5	45	17.5	-4.6	5.2
46	383.6	299.6	-23.4	46	363.0	304.7	-27.0	46	20.6	-5.1	3.6
47	383.8	400.4	-24.6	47	359.7	405.6	-27.2	47	24.1	-5.2	2.6
48	384.2	500.0	-25.0	48	353.0	504.0	-29.2	48	31.2	-4.0	4.2
49	383.9	599.7	-24.3	49	344.8	601.6	-26.9	49	39.1	-1.9	2.6
50	384.5	699.8	-25.9	50	330.0	704.4	-28.0	50	54.5	-4.6	2.1
51	383.9	799.5	-26.7	51	316.8	799.1	-26.9	51	67.1	0.4	0.2
52	473.7	-795.7	-126.7	52	400.7	-780.0	-125.1	52	73.0	-15.7	-1.6
53	485.2	-697.9	-126.6	53	428.5	-684.7	-126.1	53	56.7	-13.2	-0.5
54	485.4	-598.1	-125.2	54	454.4	-588.3	-126.6	54	31.0	-9.8	1.4
55	485.4	-498.3	-126.7	55	471.8	-489.4	-129.1	55	13.6	-8.9	2.4
56	486.2	-399.3	-126.3	56	478.4	-390.1	-129.0	56	7.8	-9.2	2.7
57	486.6	-299.0	-127.3	57	479.3	-289.7	-130.4	57	7.3	-9.3	3.1
58	487.0	-199.1	-126.3	58	477.1	-189.7	-130.0	58	9.9	-9.4	3.7

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

Deformable Barrier Face Profile Cont'd.

Index	Pre-Test		
	Xmm	Ymm	Zmm
59	486.9	-98.8	-128.1
60	485.9	-1.2	-127.8
61	486.0	99.1	-128.8
62	486.3	198.6	-129.4
63	486.2	299.0	-129.7
64	486.5	398.4	-130.4
65	486.5	499.2	-131.2
66	486.4	598.7	-132.4
67	486.2	699.6	-132.4
68	475.8	796.0	-133.9

Index	Post-Test		
	Xmm	Ymm	Zmm
59	474.7	-89.3	-132.7
60	471.9	8.8	-130.6
61	467.2	107.2	-134.6
62	463.2	206.9	-136.2
63	458.8	307.2	-137.6
64	452.9	406.3	-139.5
65	444.2	506.8	-141.3
66	427.6	604.8	-142.2
67	404.6	703.0	-142.6
68	380.8	797.5	-144.6

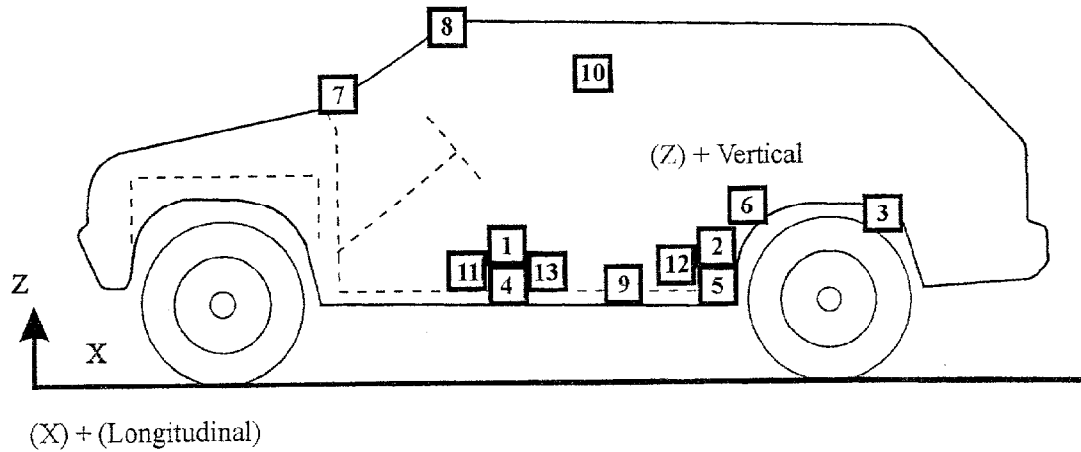
Index	Difference		
	Xmm	Ymm	Zmm
59	12.2	-9.5	4.6
60	14.0	-10.0	2.8
61	18.8	-8.1	5.8
62	23.1	-8.3	6.8
63	27.4	-8.2	7.9
64	33.6	-7.9	9.1
65	42.3	-7.6	10.1
66	58.8	-6.1	9.8
67	81.6	-3.4	10.2
68	95.0	-1.5	10.7

DATA SHEET 13

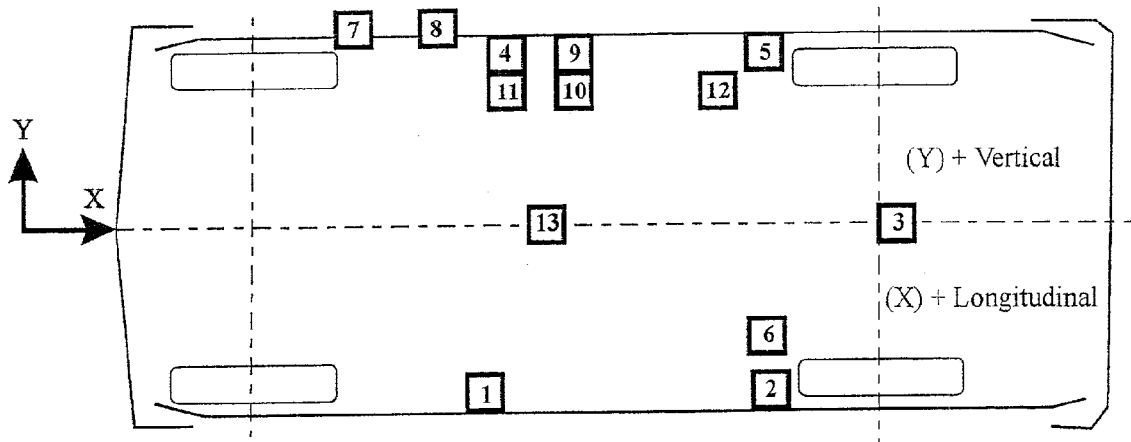
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



Side View



Bottom View

- | | |
|---|--|
| <ul style="list-style-type: none"> 1-Right Front Sill 2-Right Rear Sill 3-Rear Floorpan Sill 4-Left Front Sill 5-Left Rear Sill 6-Right Rear Seat 7-Left Side Lower A-pillar | <ul style="list-style-type: none"> 8-Left Side Upper A-pillar 9-Left Side Lower B-pillar 10-Left Side Upper B-pillar 11-Left Side Front Seat Track at H-point 12-Left Side Rear Seat Track at H-point 13-Vehicle Center of Gravity |
|---|--|

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle:	1999 Suzuki Vitara multi-purpose vehicle	NHTSA No.:	CX0506
----------	--	------------	--------

TEST NUMBER: 990316

No. LOCATION

POSITIVE DIRECTION NEGATIVE DIRECTION

1 RIGHT SIDE SILL	PRE	2621 mm	675 mm	370 mm					
AT FRONT SEAT	POST	2650 mm	675 mm	375 mm					
LONGITUDINAL					3.8 g	@	31.4 ms	7.1 g	@ 10.0 ms
LATERAL					30.2 g	@	41.7 ms	3.2 g	@ 80.6 ms
VERTICAL					5.8 g	@	68.9 ms	9.1 g	@ 45.2 ms
RESULTANT					30.4 g	@	41.8 ms		
2 RIGHT SIDE SILL	PRE	1725 mm	700 mm	342 mm					
AT REAR SEAT	POST	1747 mm	688 mm	370 mm					
LONGITUDINAL					3.8 g	@	38.2 ms	7.1 g	@ 9.8 ms
LATERAL					23.3 g	@	43.2 ms	4.0 g	@ 126.9 ms
VERTICAL					5.1 g	@	35.6 ms	9.1 g	@ 15.4 ms
RESULTANT					23.5 g	@	43.2 ms		
3 REAR FLOORPAN	PRE	1095 mm	-15 mm	648 mm					
ABOVE AXLE	POST	1105 mm	-15 mm	658 mm					
LONGITUDINAL					5.4 g	@	44.8 ms	9.8 g	@ 25.4 ms
LATERAL					23.6 g	@	8.7 ms	2.9 g	@ 127.7 ms
VERTICAL					14.1 g	@	30.7 ms	11.7 g	@ 11.8 ms
RESULTANT					23.8 g	@	8.5 ms		
4 LEFT SIDE SILL	PRE	2635 mm	-675 mm	480 mm					
AT FRONT SEAT	POST	2463 mm	-560 mm	395 mm					
LATERAL					89.5 g	@	6.5 ms	41.0 g	@ 23.0 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle:		1999 Suzuki Vitara multi-purpose vehicle			NHTSA No.:		CX0506
TEST NUMBER: No. LOCATION	990316	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION	
5 LEFT SIDE SILL AT REAR SEAT LATERAL ¹	PRE	1746 mm	-700 mm	424 mm			
	POST	1680 mm	-460 mm	450 mm			
6 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	PRE	1490 mm	670 mm	562 mm			
	POST	1475 mm	670 mm	554 mm	28.0 g	@ 8.4 ms	5.1 g @ 15.0 ms
7 LOWER A-POST LATERAL ¹	PRE	3025 mm	-768 mm	565 mm			
	POST	2950 mm	-642 mm	605 mm	148.5 g	@ 5.2 ms	220.3 g @ 31.3 ms
8 UPPER A-POST LATERAL	PRE	3025 mm	-728 mm	955 mm			
	POST	2955 mm	-700 mm	975 mm	40.9 g	@ 16.1 ms	12.5 g @ 24.5 ms
9 LOWER B-POST LATERAL	PRE	2010 mm	-680 mm	620 mm			
	POST	1950 mm	-493 mm	680 mm	191.1 g	@ 5.9 ms	113.9 g @ 13.4 ms

DATA SHEET 13 (continued)
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle NHTSA No.: CX0506

TEST NUMBER: No. LOCATION	X			Y			Z			POSITIVE DIRECTION		NEGATIVE DIRECTION	
	PRE	1990 mm	POST	1940 mm	-675 mm	-588 mm	1032 mm	1100 mm	123.5 g	@	7.0 ms	48.4 g	@ 16.5 ms
LATERAL													
11 FRONT SEAT TRACK	PRE	2217 mm	POST	2070 mm	-675 mm	-570 mm	400 mm	425 mm	169.0 g	@	8.6 ms	26.1 g	@ 13.9 ms
LATERAL													
12 REAR SEAT TRACK	PRE	1395 mm	POST	1350 mm	-690 mm	-610 mm	703 mm	762 mm	65.1 g	@	29.4 ms	50.1 g	@ 34.7 ms
LATERAL													
13 VEHICLE CENTER OF GRAVITY	PRE	2375 mm	POST	2425 mm	-40 mm	-40 mm	578 mm	680 mm	34.0 g	@	24.2 ms	21.1 g	@ 8.6 ms
LONGITUDINAL									35.6 g	@	39.4 ms	5.5 g	@ 50.8 ms
LATERAL									40.8 g	@	25.2 ms	37.8 g	@ 10.2 ms
VERTICAL									50.8 g	@	24.9 ms		
RESULTANT													

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

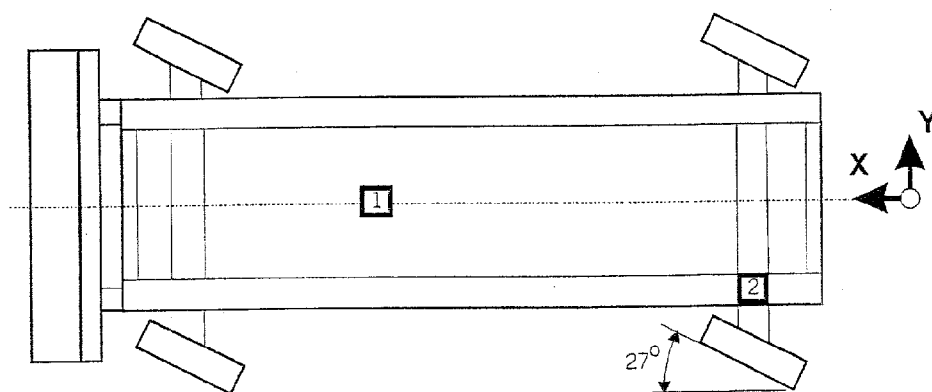
1 See DATA ACQUISITION EXPLANATIONS

DATA SHEET 14

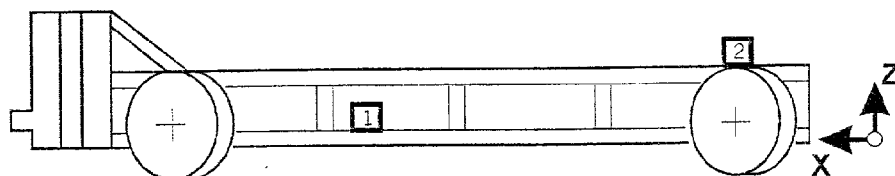
MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



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	1835	0	502				
	Longitudinal X				1.6	153.8	19.0	44.0
	Lateral Y				12.2	20.8	16.9	25.0
	Vertical Z				9.8	25.1	10.2	38.6
	Resultant R				26.6	24.9		
2	Rear Frame Member	385	-638	621				
	Longitudinal X				1.9	127.8	18.4	43.6
	Lateral Y				3.2	13.8	2.7	155.4

*Reference: X=Rear Bumper (+ Forward)

Y=Vehicle Centerline (+ To Right)

Z=Ground Level (+ Up)

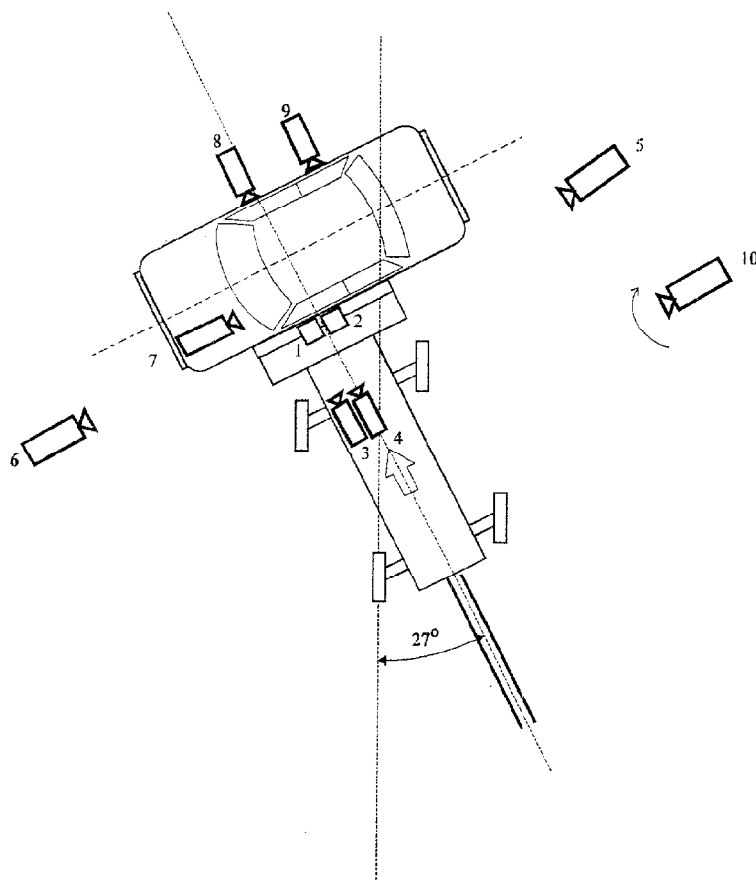
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506



Camera Number	Location	Location, mm			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Overhead wide	0	1829	787	13	1002
2	Overhead tight	914	0	1372	25	1000
3	Onboard MDB left side	4547	1397	800	25	960
4	Onboard MDB center	7010	483	787	13	978
5	Left side	-305	-381	2896	13	1002
6	Right side	-1,321	4,674	813	13	1008
7	Onboard vehicle front	-305	-508	1,346	8	995
8	Onboard side front door	940	-1727	1207	8	992
9	Onboard side rear door	1765	-1702	1257	8	1002
10	Real-time Panning	N/A	N/A	N/A	16	24

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

SECTION 5
VEHICLE FUEL SYSTEM INTEGRITY

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

TEST DATE: March 16, 1999

FUEL SPILLAGE MEASUREMENT:

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

None

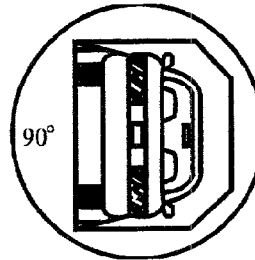
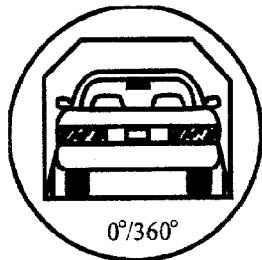
DATA SHEET 17

FMVSS 301 ROLLOVER DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

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

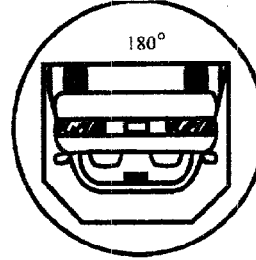
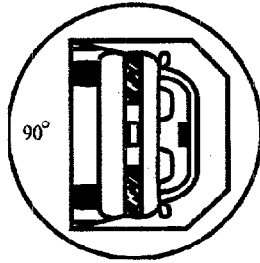
DATA SHEET 17 (continued)

FMVSS 301 ROLLOVER DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

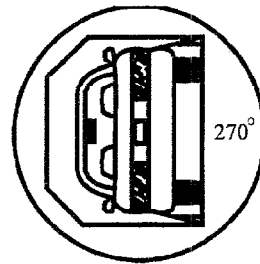
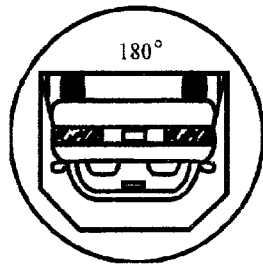
DATA SHEET 17 (continued)

FMVSS 301 ROLLOVER DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

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

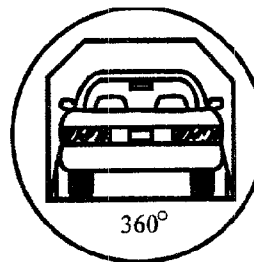
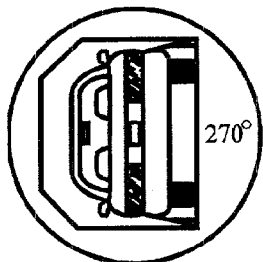
DATA SHEET 17 (continued)

FMVSS 301 ROLLOVER DATA

Vehicle: 1999 Suzuki Vitara multi-purpose vehicle

NHTSA No.: CX0506

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Appendix A

Photographs

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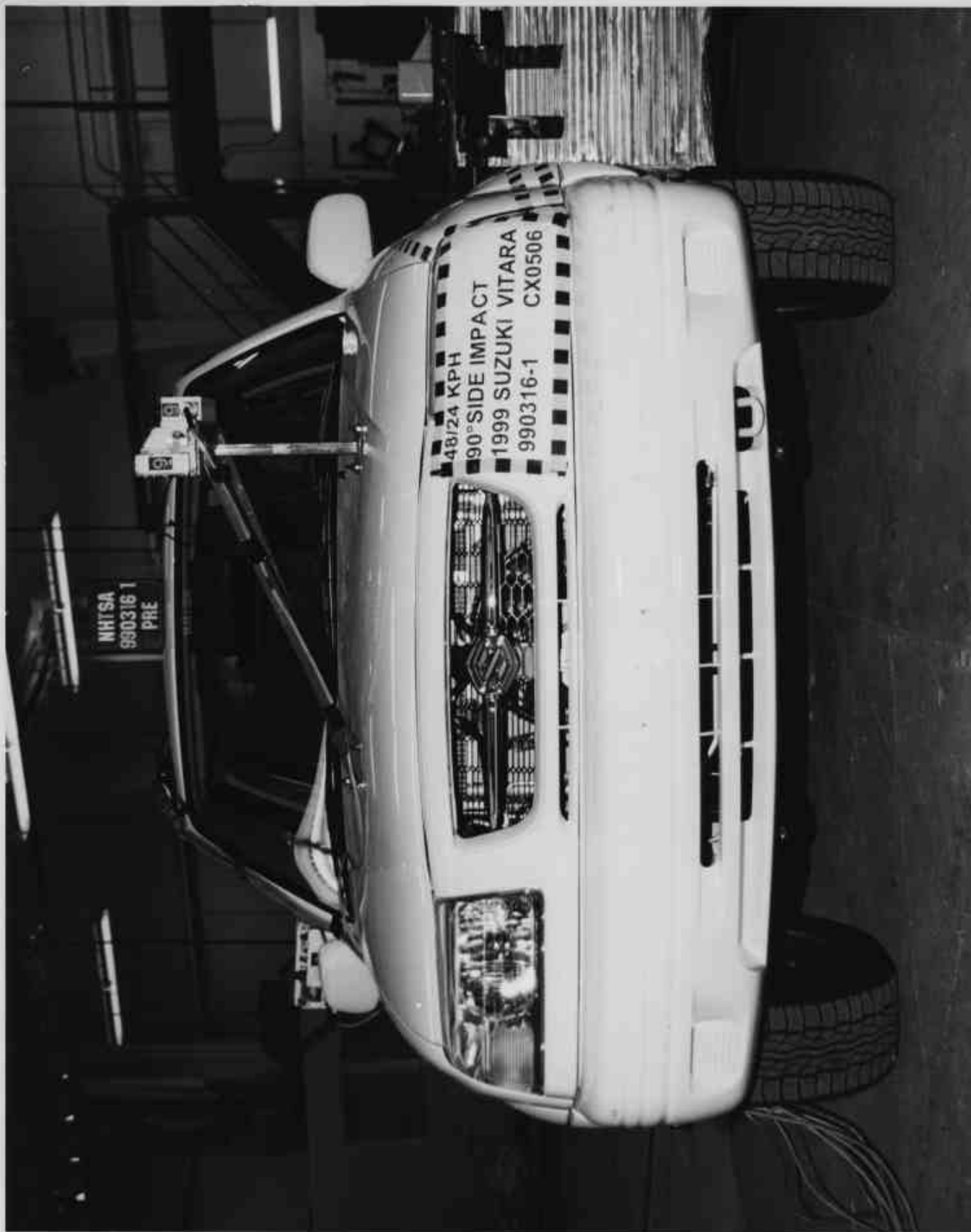


Figure A-1 Pre-Test Front View of Test Vehicle
A-4

990316

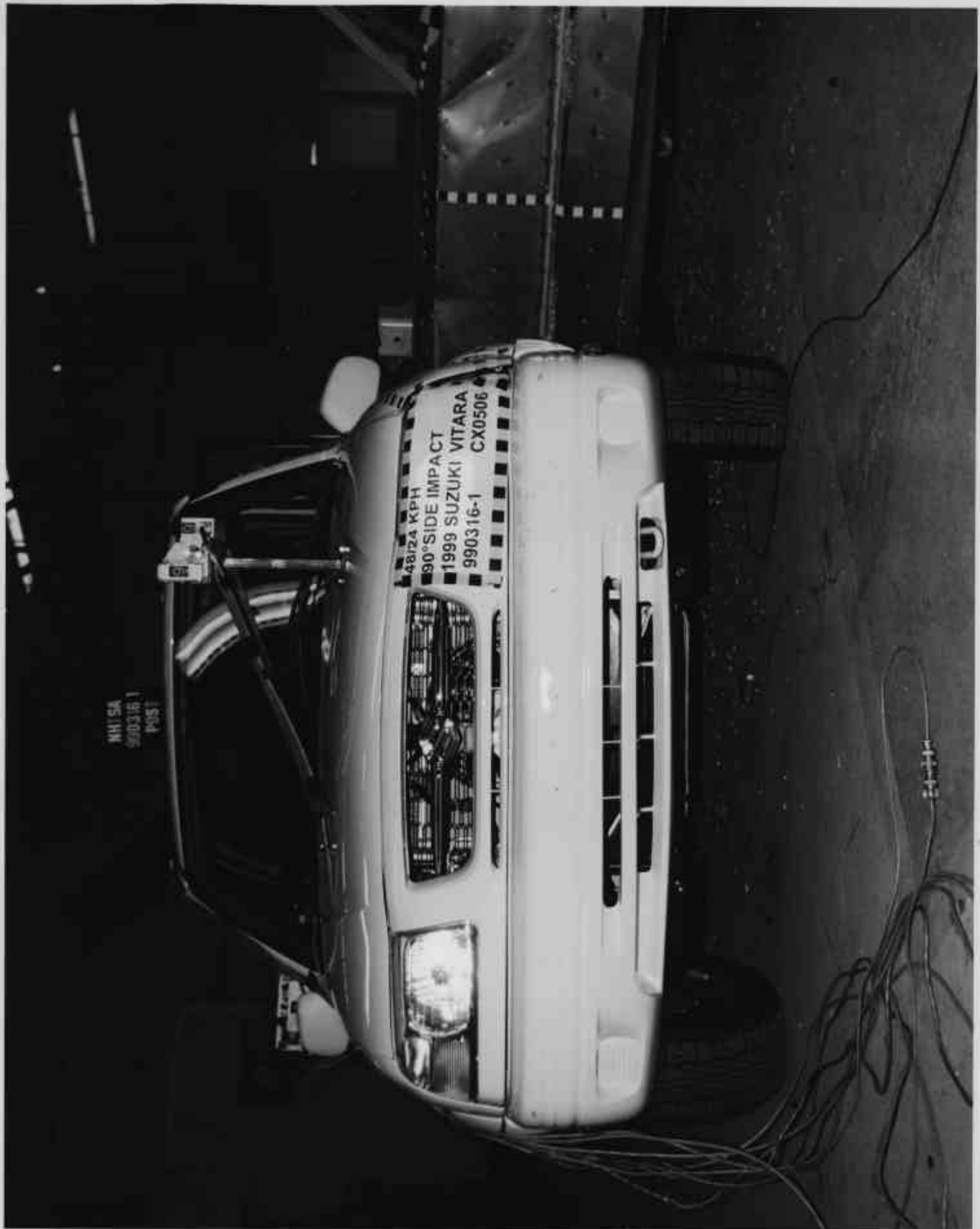


Figure A-2 Post-Test Front View of Test Vehicle
A-5

990316



Figure A-3 Pre-Test Front Three Quarter View of Test Vehicle

A-6

990316



Figure A-4 Post-Test Front Three Quarter View of Test Vehicle
A-7

990316

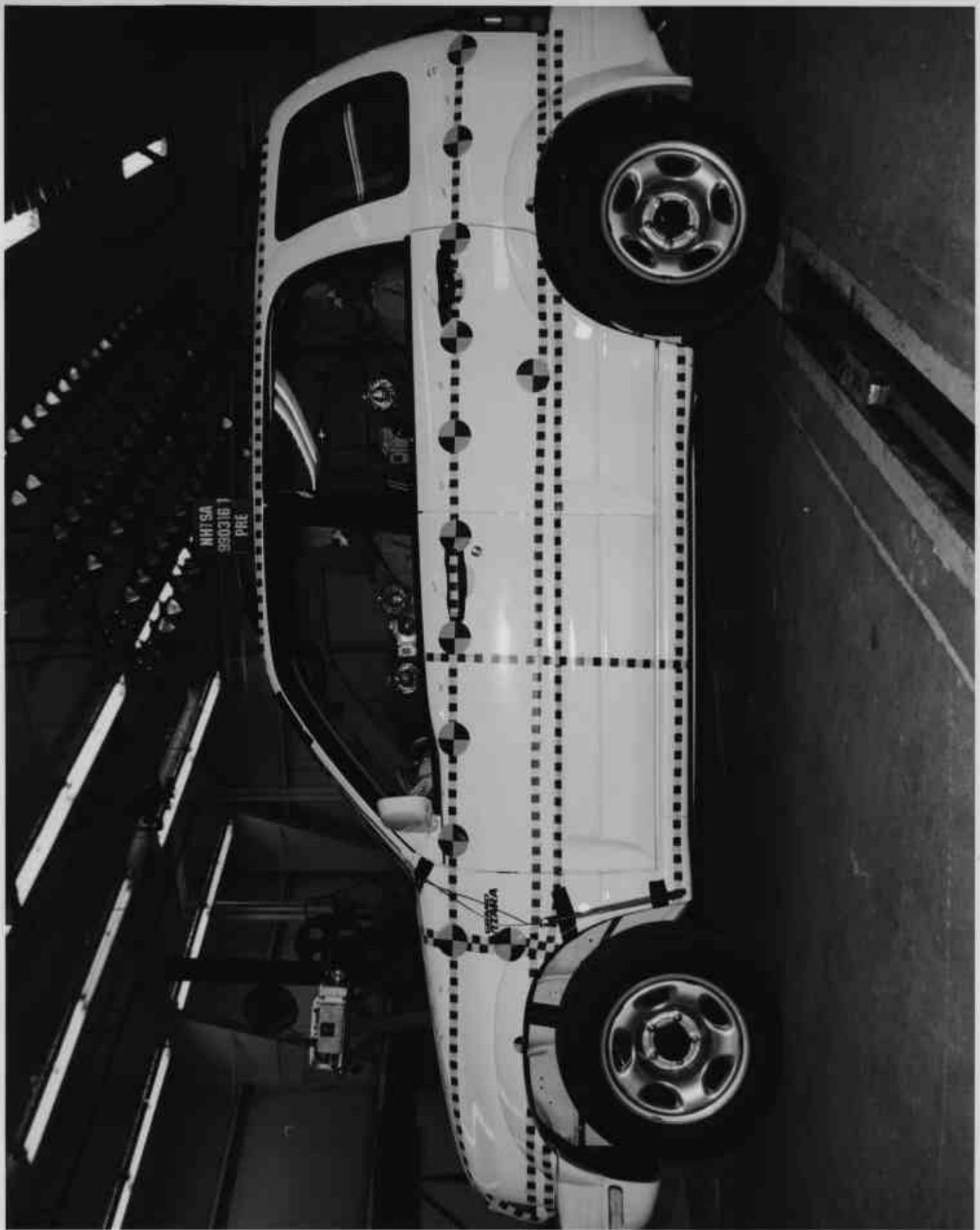


Figure A-5 Pre-Test Impacted Side View of Test Vehicle
A-8

990316

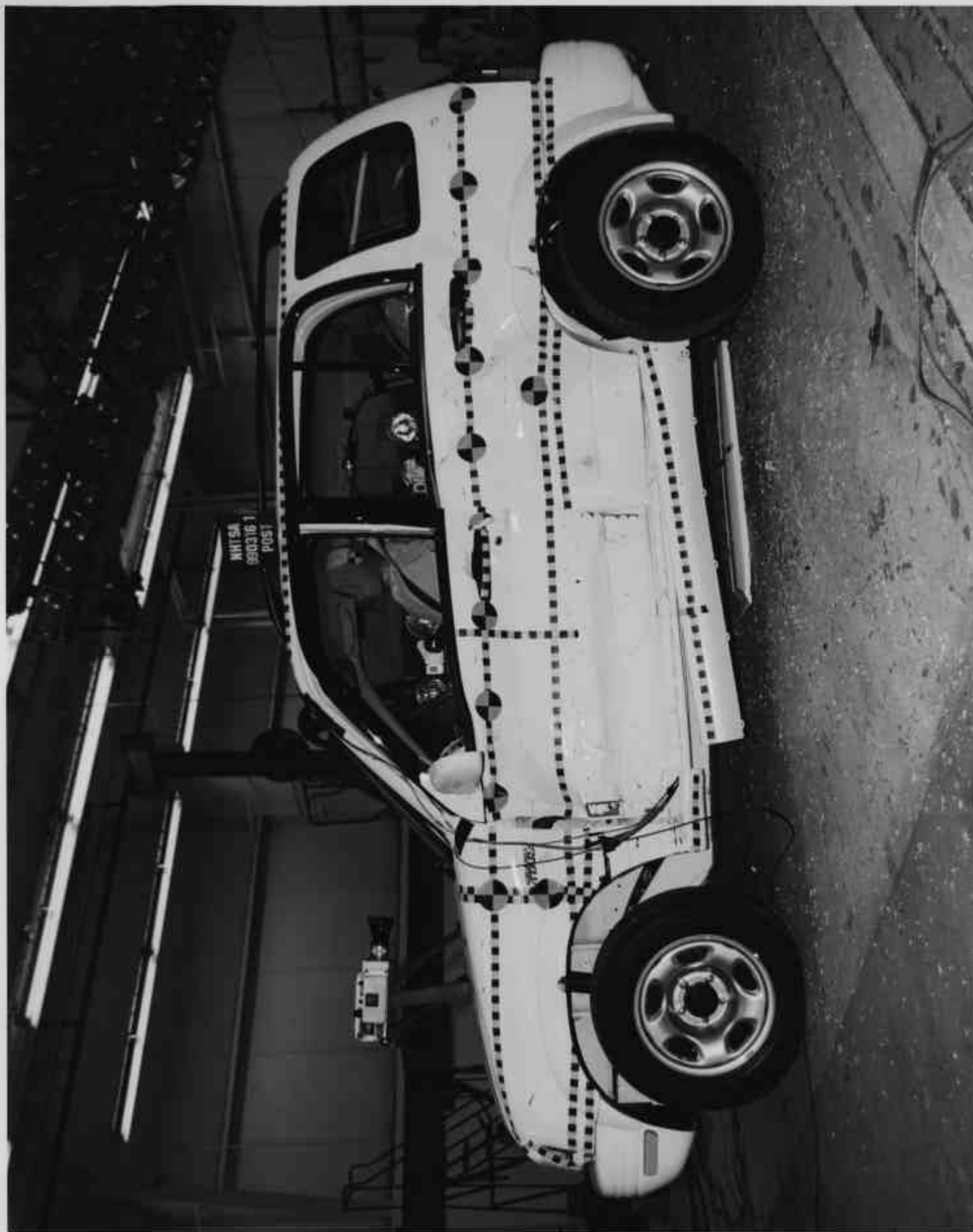


Figure A-6 Post-Test Impacted Side View of Test Vehicle
A-9

990316



Figure A-7 Pre-Test Rear Three Quarter View of Test Vehicle

A-10

990316



Figure A-8 Post-Test Rear Three Quarter View of Test Vehicle
A-11

990316



Figure A-9 Pre-Test Rear View of Test Vehicle
A-12

990316



Figure A-10 Post-Test Rear View of Test Vehicle
A-13

990316



Figure A-11 Pre-Test Moving Deformable Barrier Left Side View
A-14

990316

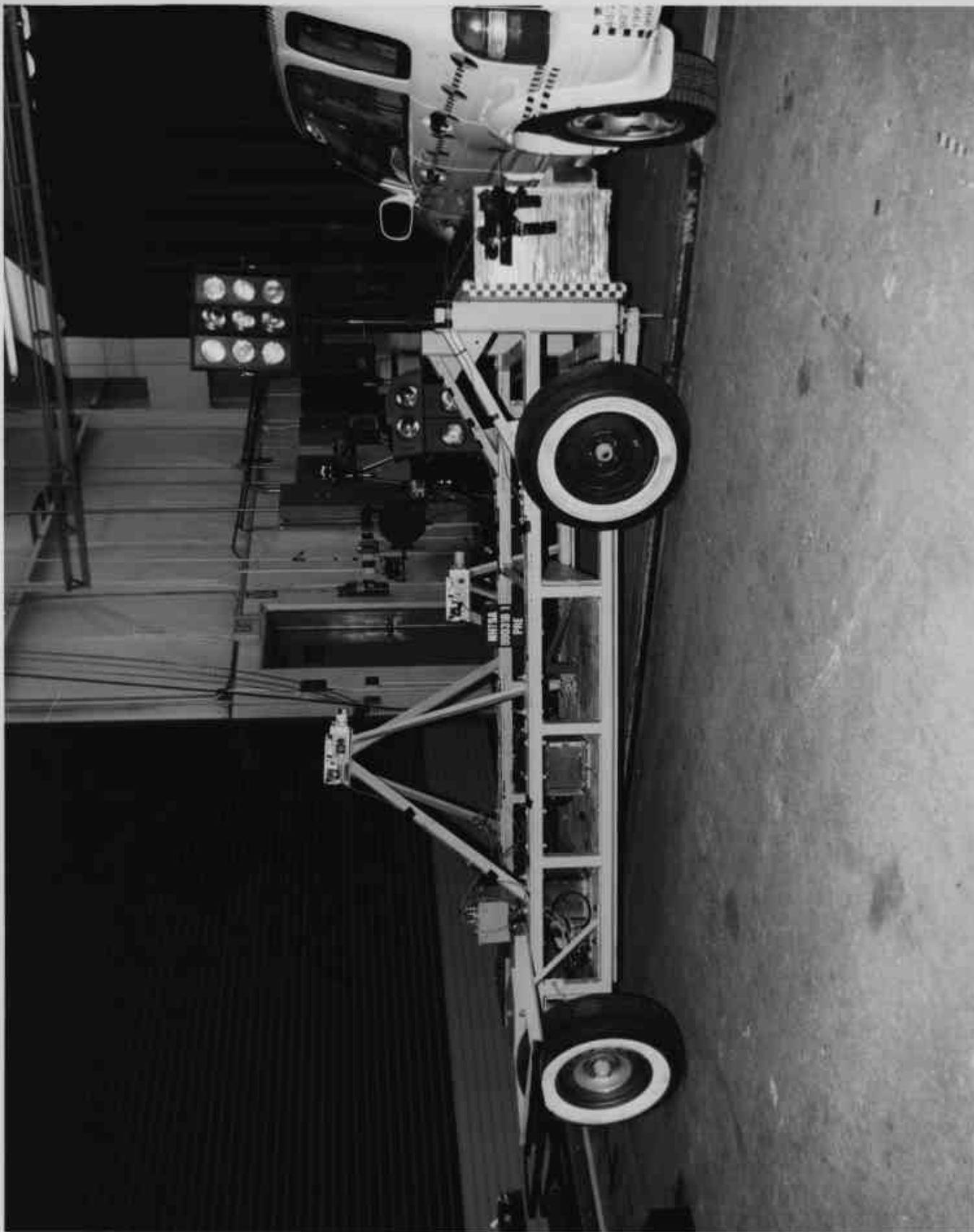


Figure A-12 Pre-Test Moving Deformable Barrier Right Side View
A-15

990316

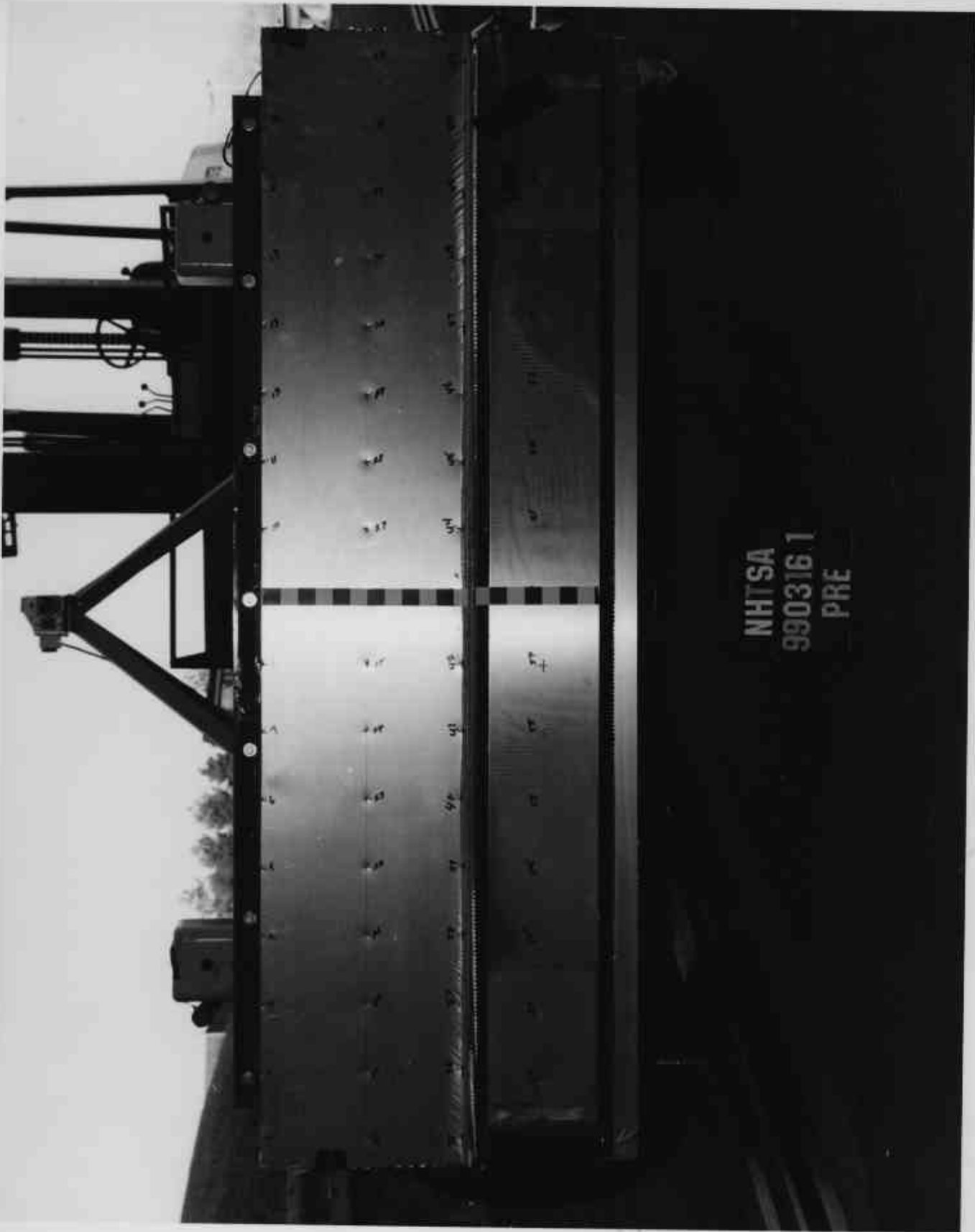


Figure A-13 Pre-Test Frontal View of Impactor Face
A-16

990316

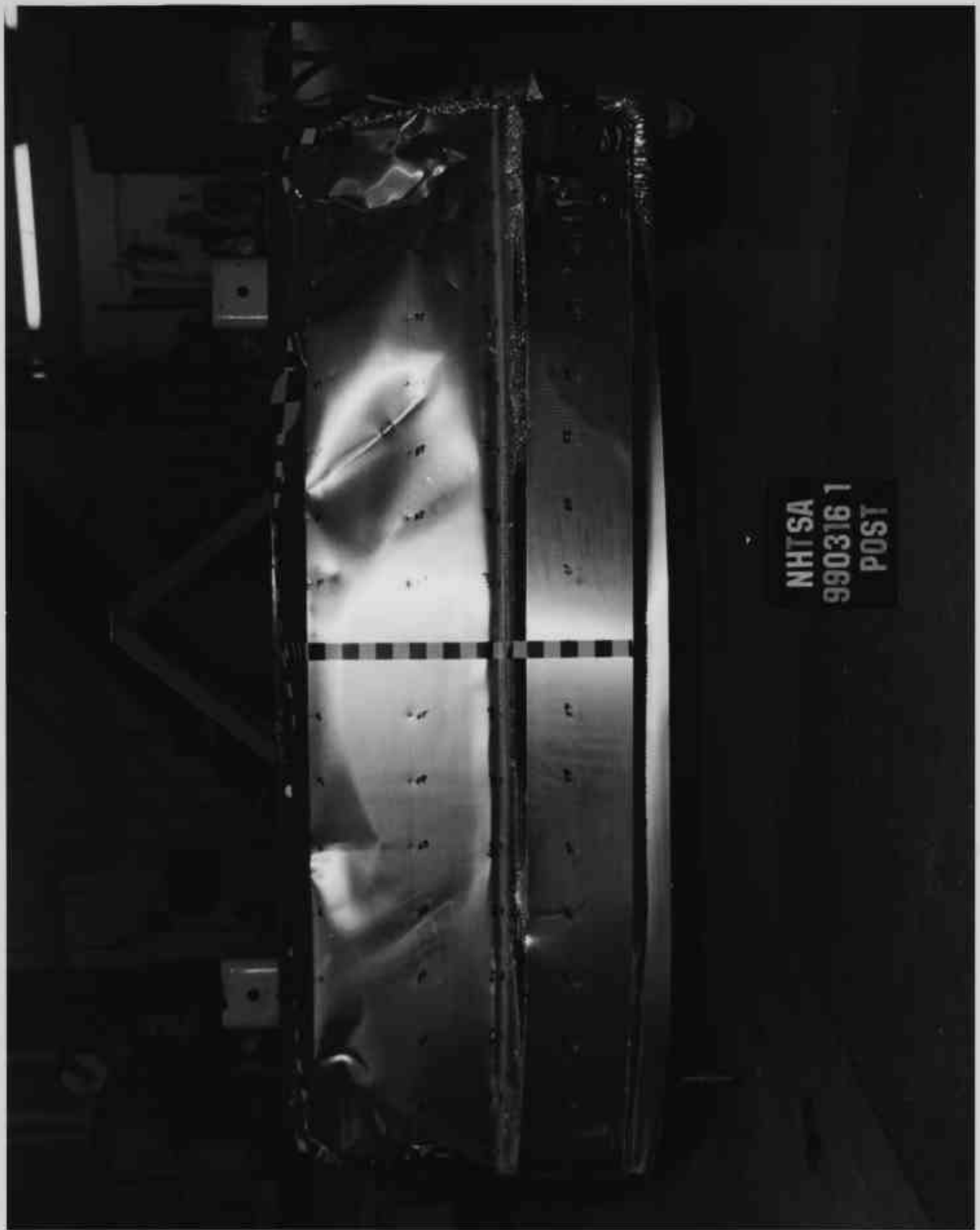


Figure A-14 Post-Test Frontal View of Impactor Face
A-17

990316

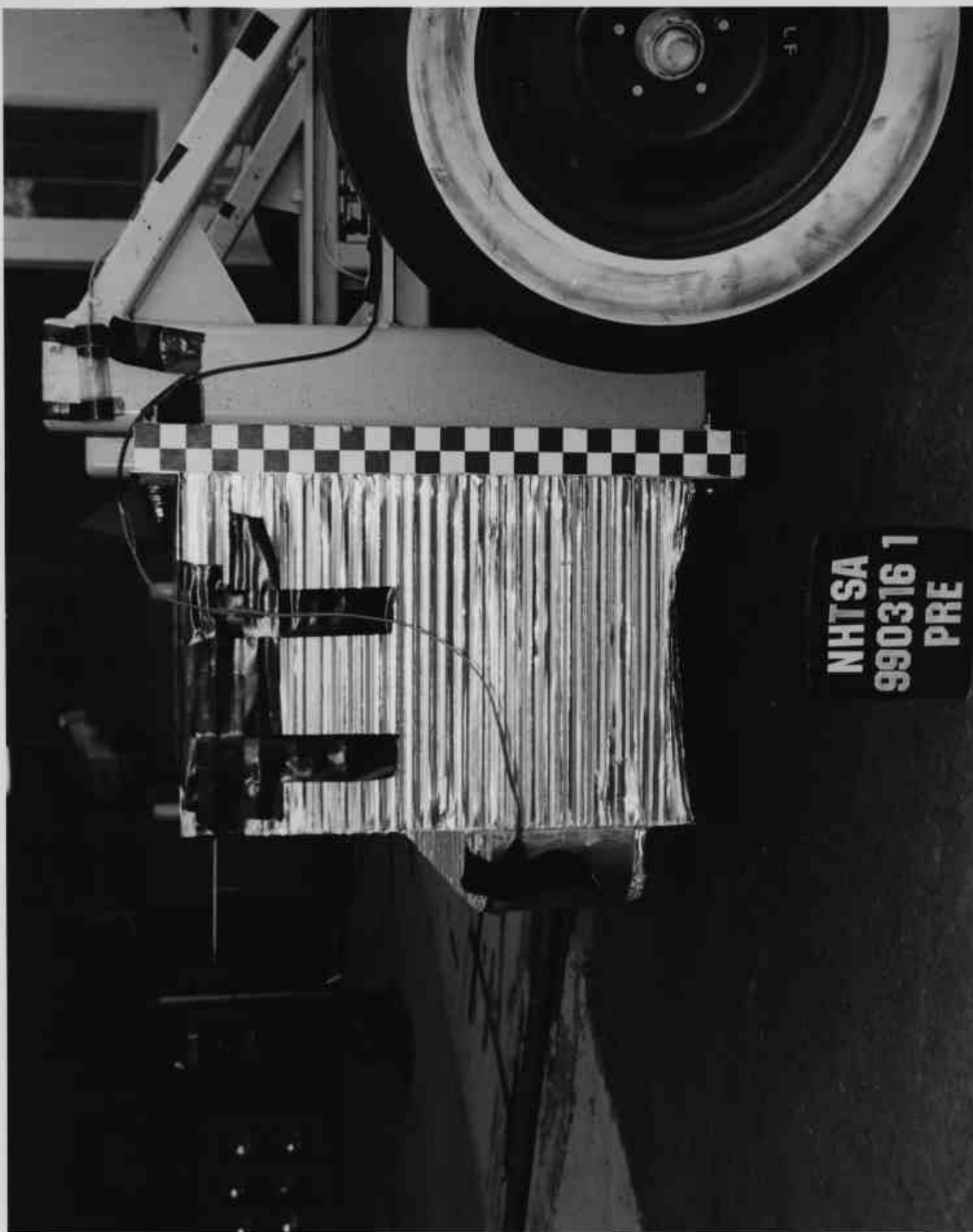


Figure A-15 Pre-Test Left Side View of Impactor Face
A-18

990316



Figure A-16 Post-Test Left Side View of Impactor Face
A-19

990316



Figure A-17 Pre-Test Right Side View of Impactor Face
A-20

990316



Figure A-18 Post-Test Right Side View of Impactor Face
A-21

990316

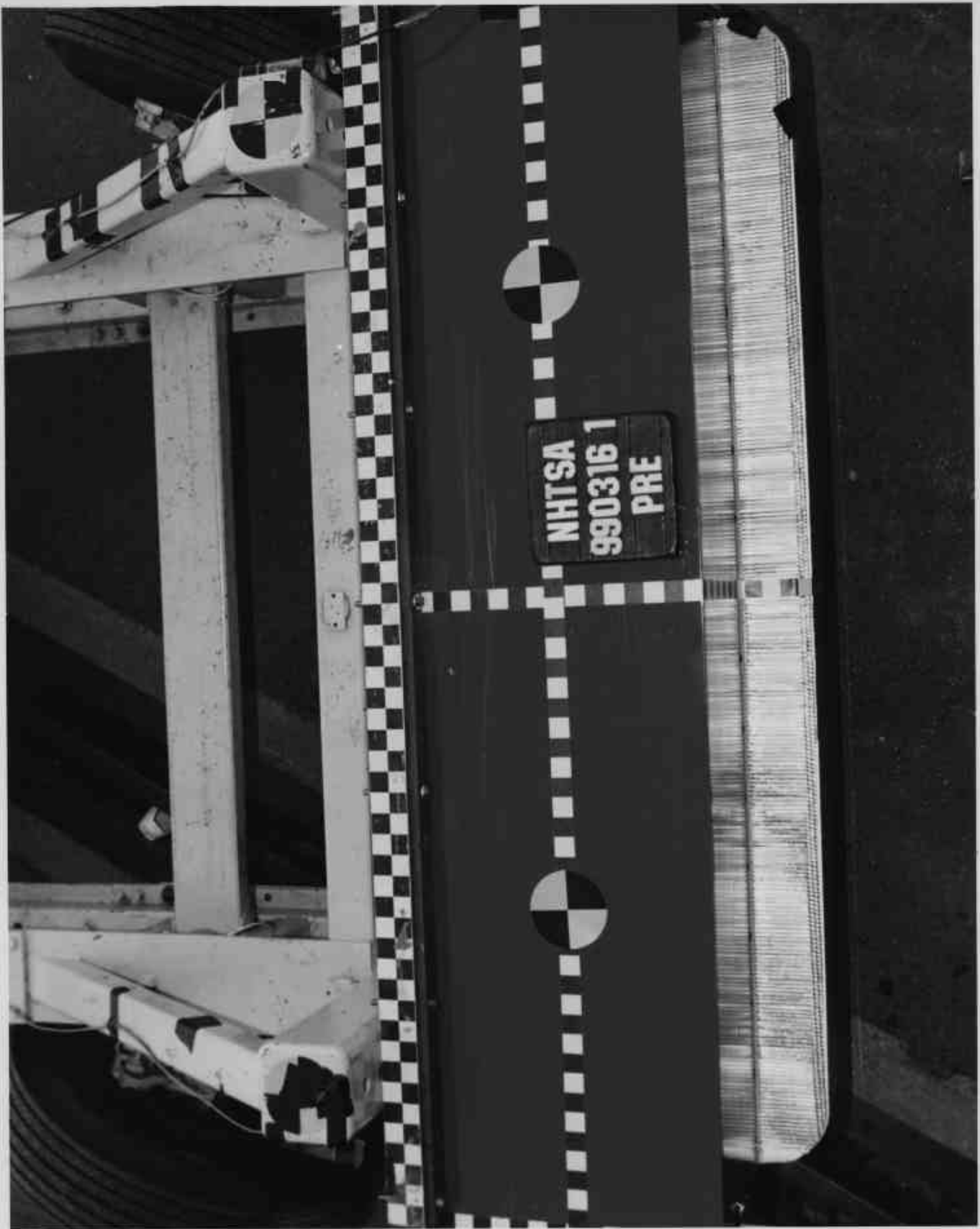


Figure A-19 Pre-Test Top View of Impactor Face
A-22

990316

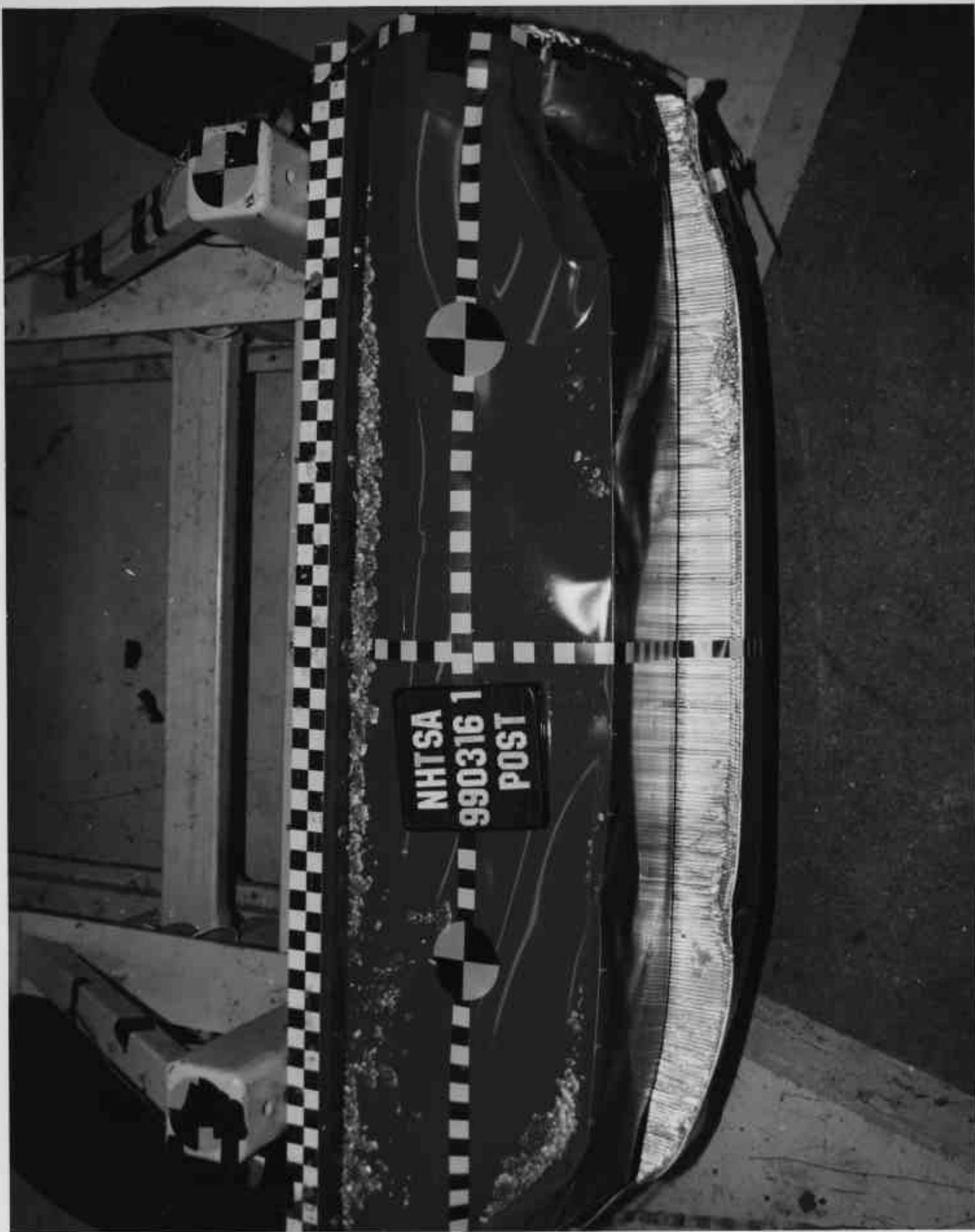


Figure A-20 Post-Test Top View of Impactor Face
A-23

990316

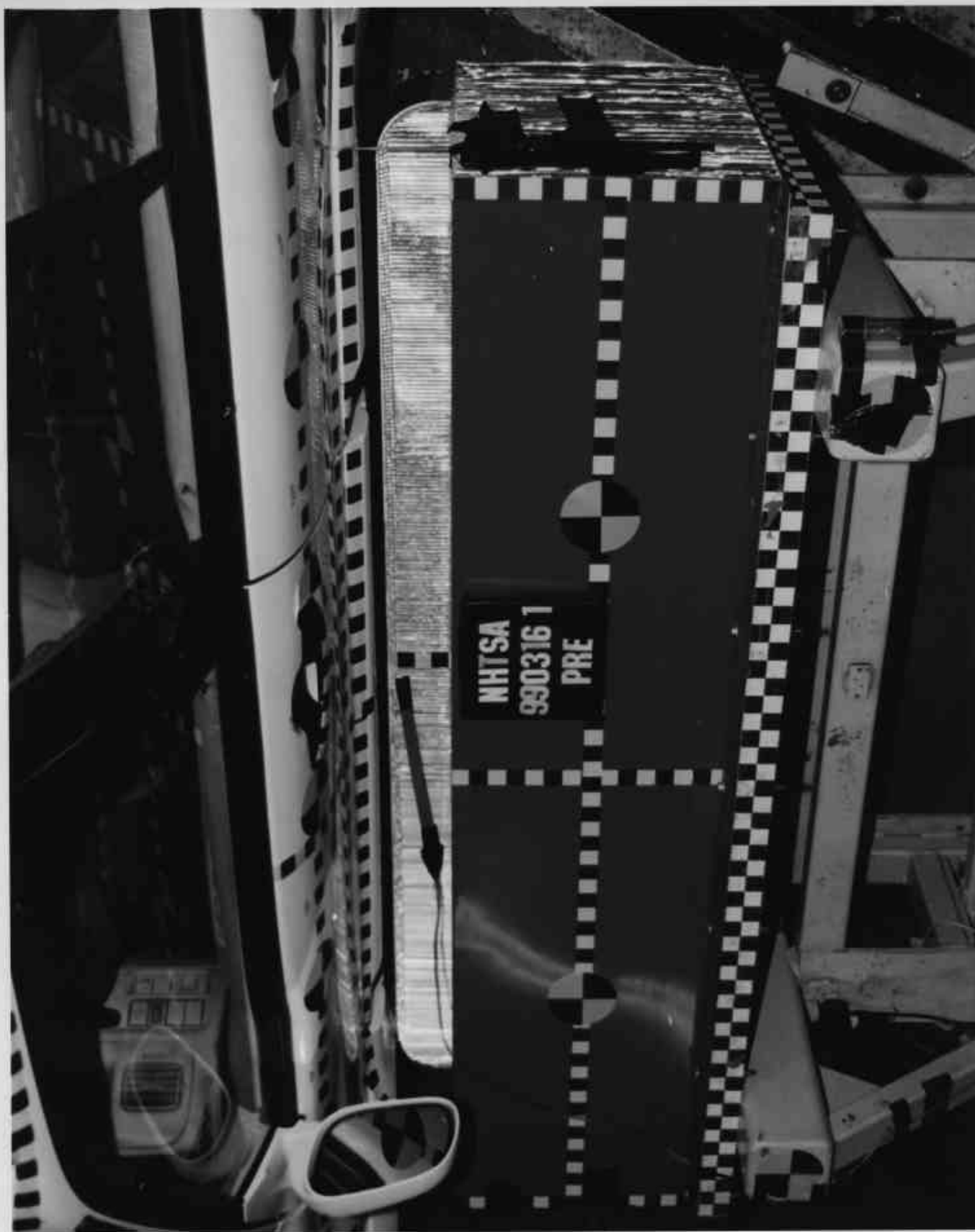


Figure A-21 Pre-Test Overhead View of MDB Aligned and Vehicle
A-24 990316



Figure A-22 Pre-Test Left Side View of MDB with Impactor Face in Position
A-25 990316



Figure A-23 Post-Test Left Side View of MDB and Vehicle
A-26

990316



Figure A-24 Pre-Test Primary Impact Point View
A-27

990316



Figure A-25 Post-Test Primary Impact Point View
A-28

990316



Figure A-26 Pre-Test Right Side View of MDB with Impactor Face in Position
A-29 990316



Figure A-27 Post-Test Right Side View of MDB and Vehicle
A-30

990316



Figure A-28 Pre-Test Secondary Impact Point View
A-31

990316



Figure A-29 Post-Test Secondary Impact Point View
A-32

990316



Figure A-30 Pre-Test Right Occupant Compartment View of Front SID

A-33

990316



Figure A-31 Post-Test Right Occupant Compartment View of Front SID

A-34

990316



Figure A-32 Pre-Test Right Occupant Compartment View of Rear SID

A-35

990316



Figure A-33 Post-Test Right Occupant Compartment View of Rear SID
A-36 990316

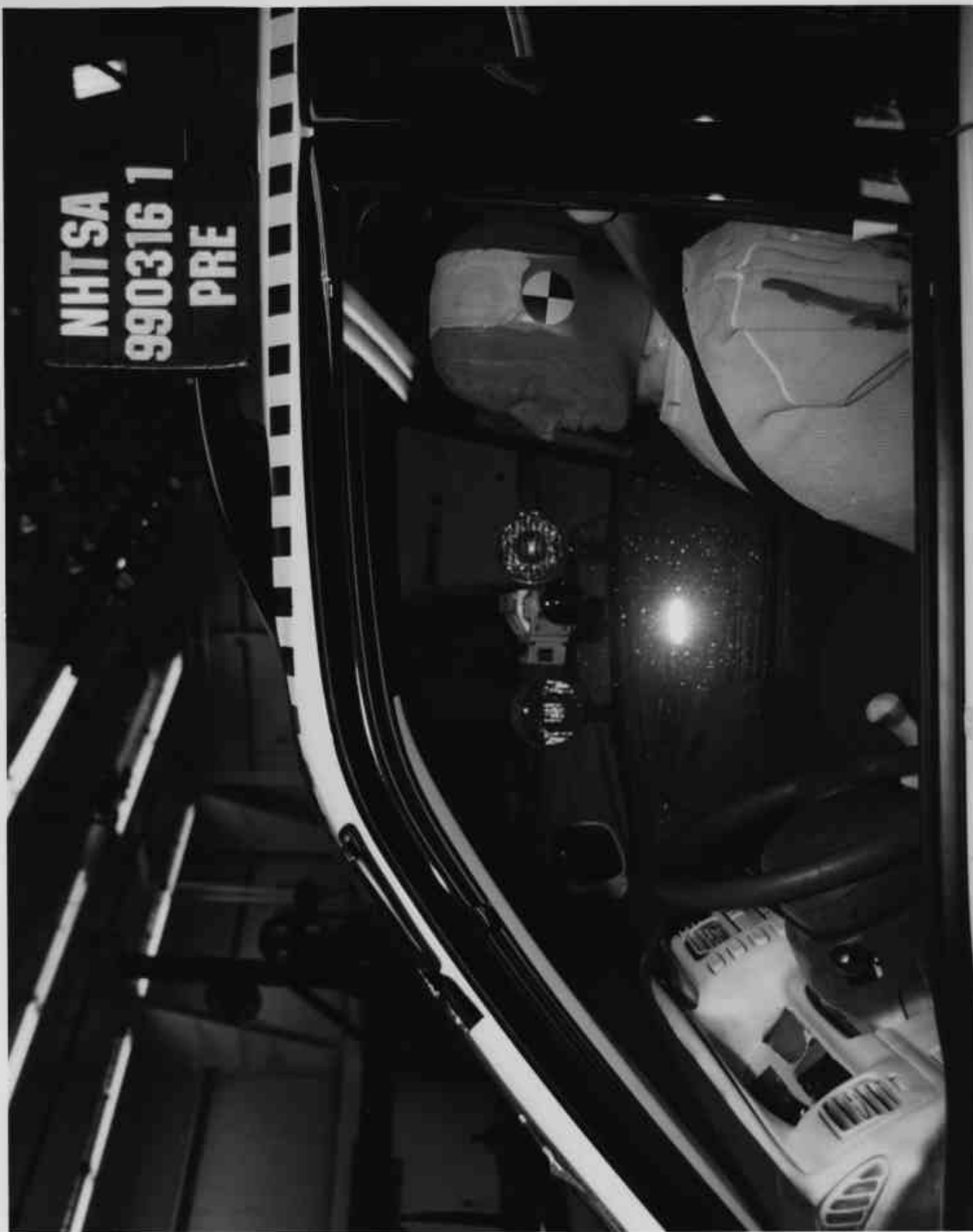


Figure A-34 Pre-Test Left Occupant Compartment View of Front SID - View 1
A-37 990316



Figure A-35 Post-Test Left Occupant Compartment View of Front SID - View 1
A-38 990316

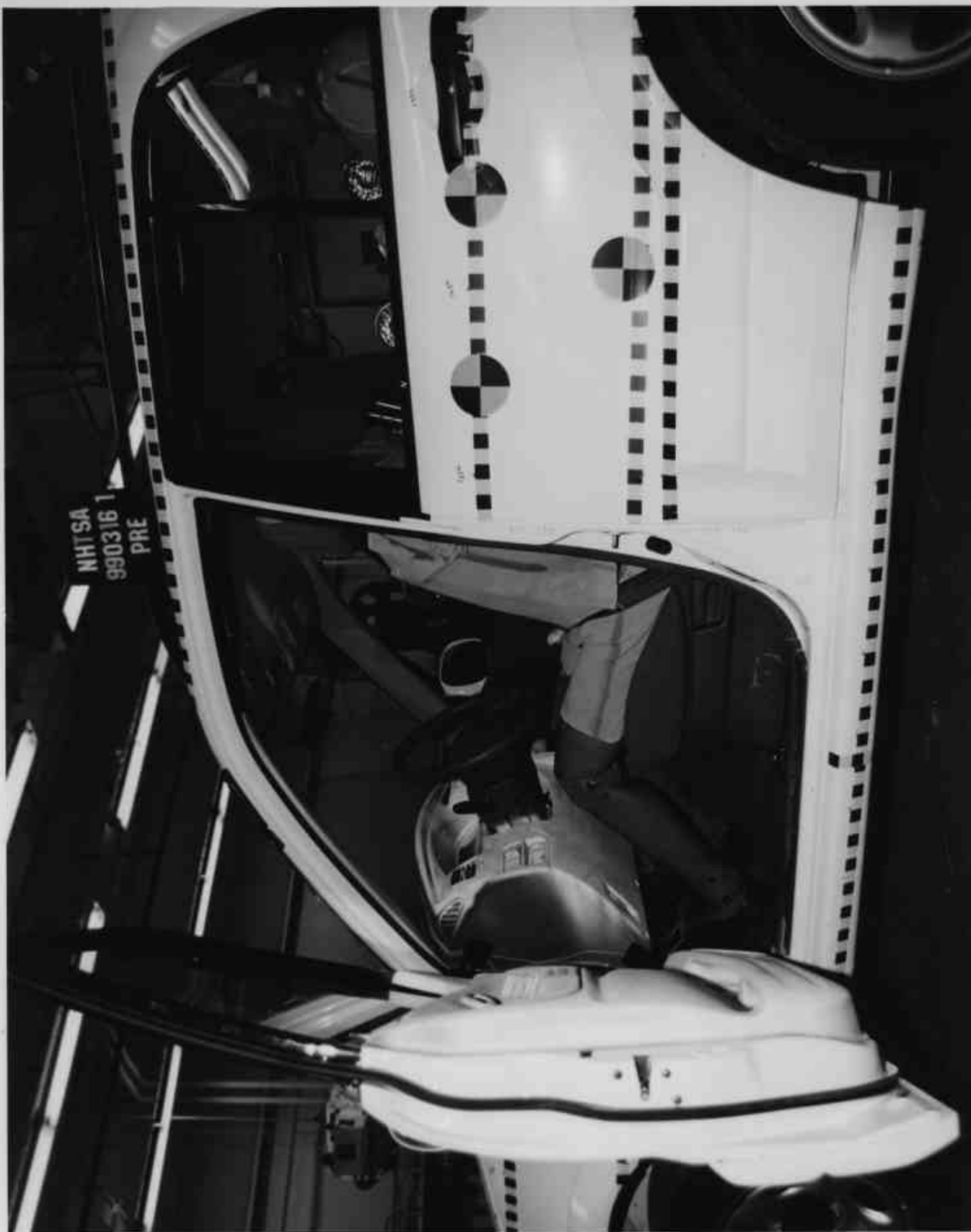


Figure A-36 Pre-Test Left Occupant Compartment View of Front SID - View 2
A-39 990316



Figure A-37 Pre-Test Left Occupant Compartment View of Front SID - View 3
A-40 990316



Figure A-38 Pre-Test Left Occupant Compartment View of Rear SID - View 1
A-41 990316



Figure A-39 Post-Test Left Occupant Compartment View of Rear SID - View 1
A-42 990316



Figure A-40 Pre-Test Left Occupant Compartment View of Rear SID - View 2
A-43 990316



Figure A-41 Pre-Test Left Occupant Compartment View of Rear SID - View 3
A-44 990316



Figure A-42 Pre-Test Interior of Front Door
A-45

990316



Figure A-43 Post-Test Interior of Front Door Showing SID Impact Locations
A-46 990316

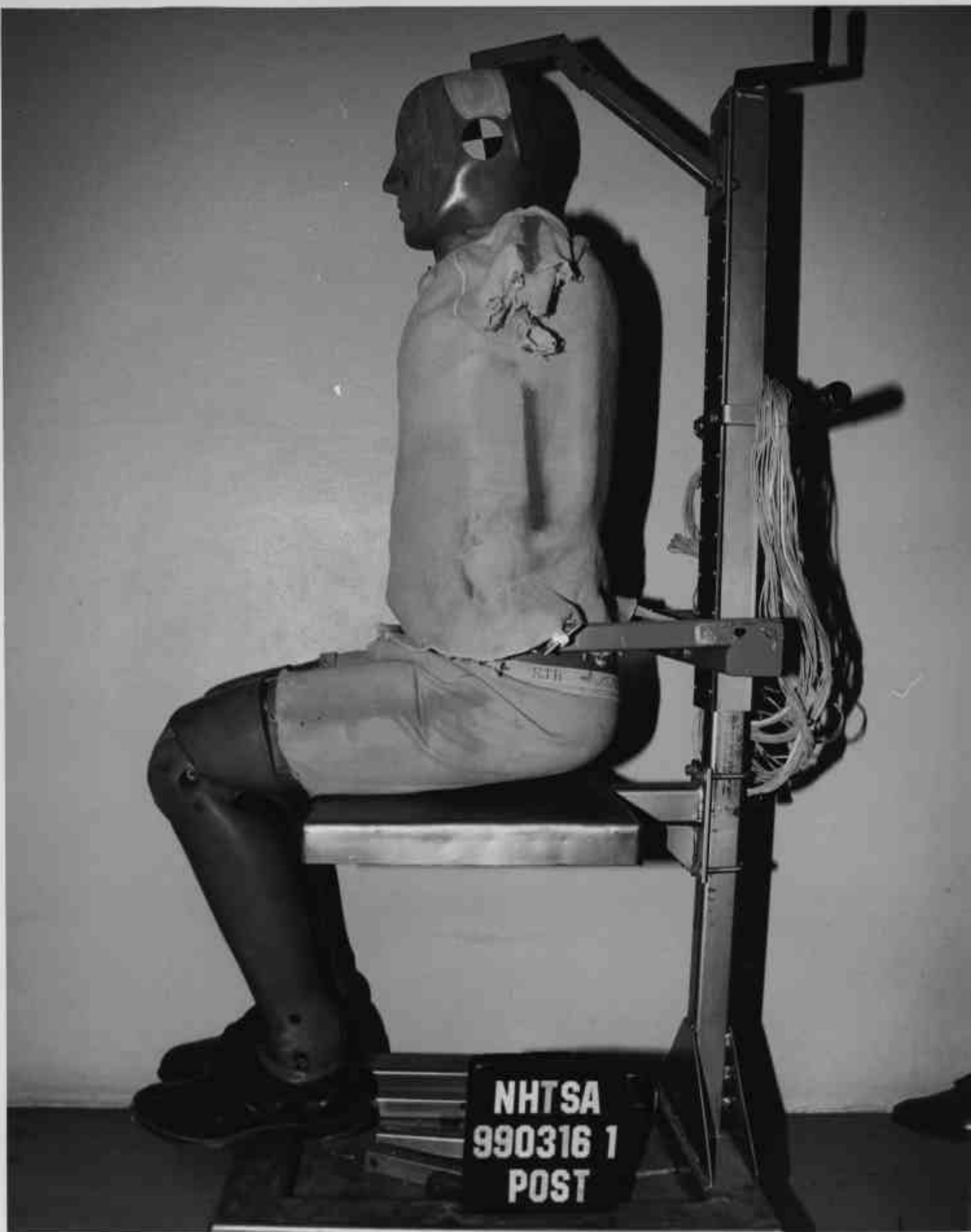


Figure A-44 Post-Test Front SID Contact
A-47

990316



Figure A-45 Post-Test Interior of Rear Panel Showing SID Impact Locations
A-48 990316

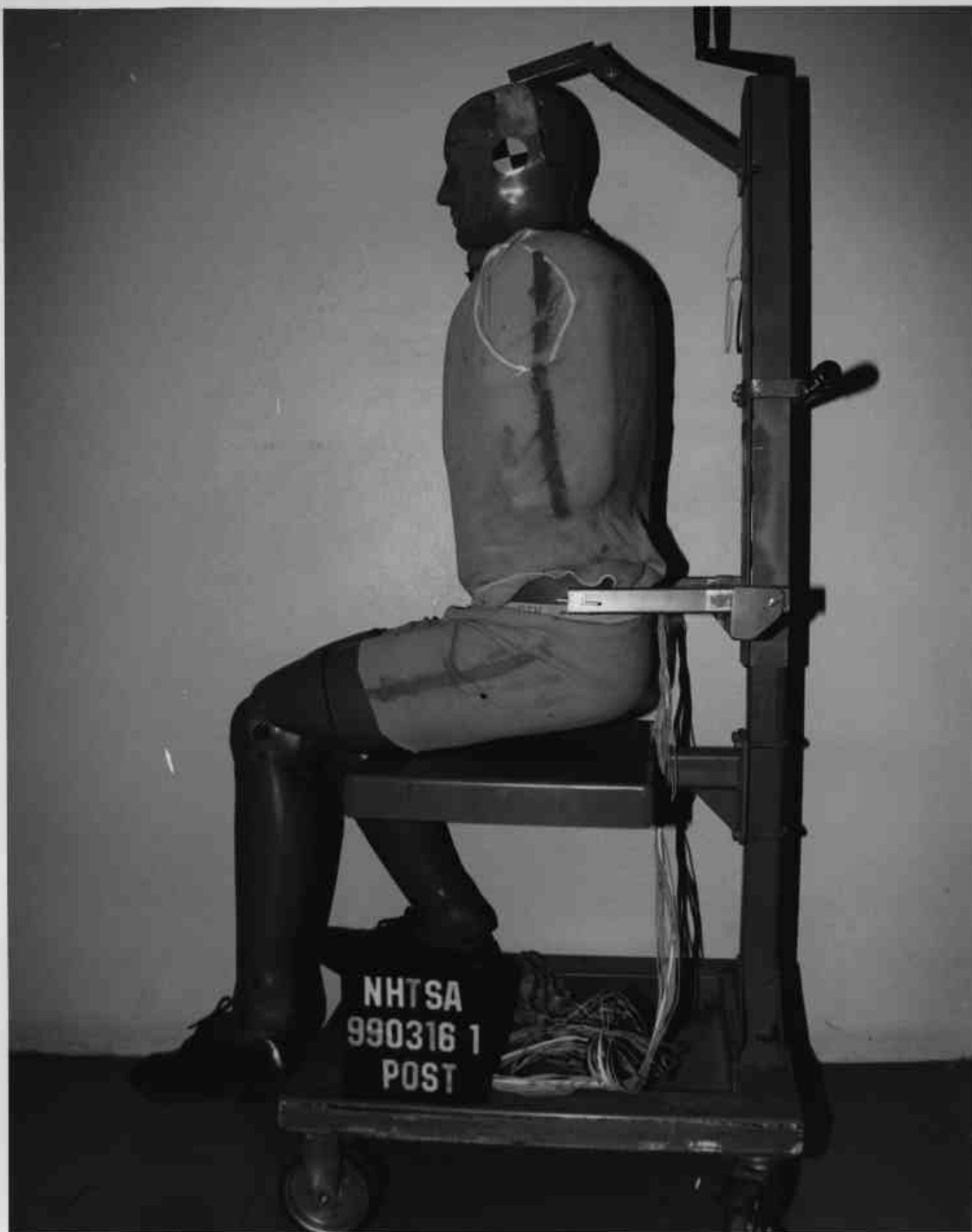


Figure A-46 Post-Test Rear SID Contact - View 1
A-49

990316



Figure A-47 Post-Test Rear SID Contact - View 2
A-50

990316

284
-
278

MFD BY SUZUKI MOTOR CORPORATION JAPAN

GVWR:	4123lb(1870kg)	07	/	98
GAWR FRONT	1985lb(900kg)			
REAR	2337lb(1060kg)			

TIRE SIZE FRONT P235/60R16 REAR P235/60R16
MAX COLD TIRE PRESS.
FRONT 26PSI(180KPa) REAR 26PSI(180KPa)
RIM SIZE FRONT AND REAR 16x7JJ

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

JS3TD62V1K4103994
MULTI-PURPOSE PASSENGER VEHICLE

Figure A-48 Pre-Test Vehicle Certification Label View
A-51

990316

TIRE PLACARD

	FRONT	REAR
TIRES	P235/60R16	P235/60R16
RIMS	16X7 J	16X7 JJ
INFLATION PRESSURE COLD kPa/PSI	180/26 180/26	

65D40

Figure A-49 Pre-Test Vehicle Recommended Tire Pressure Label View

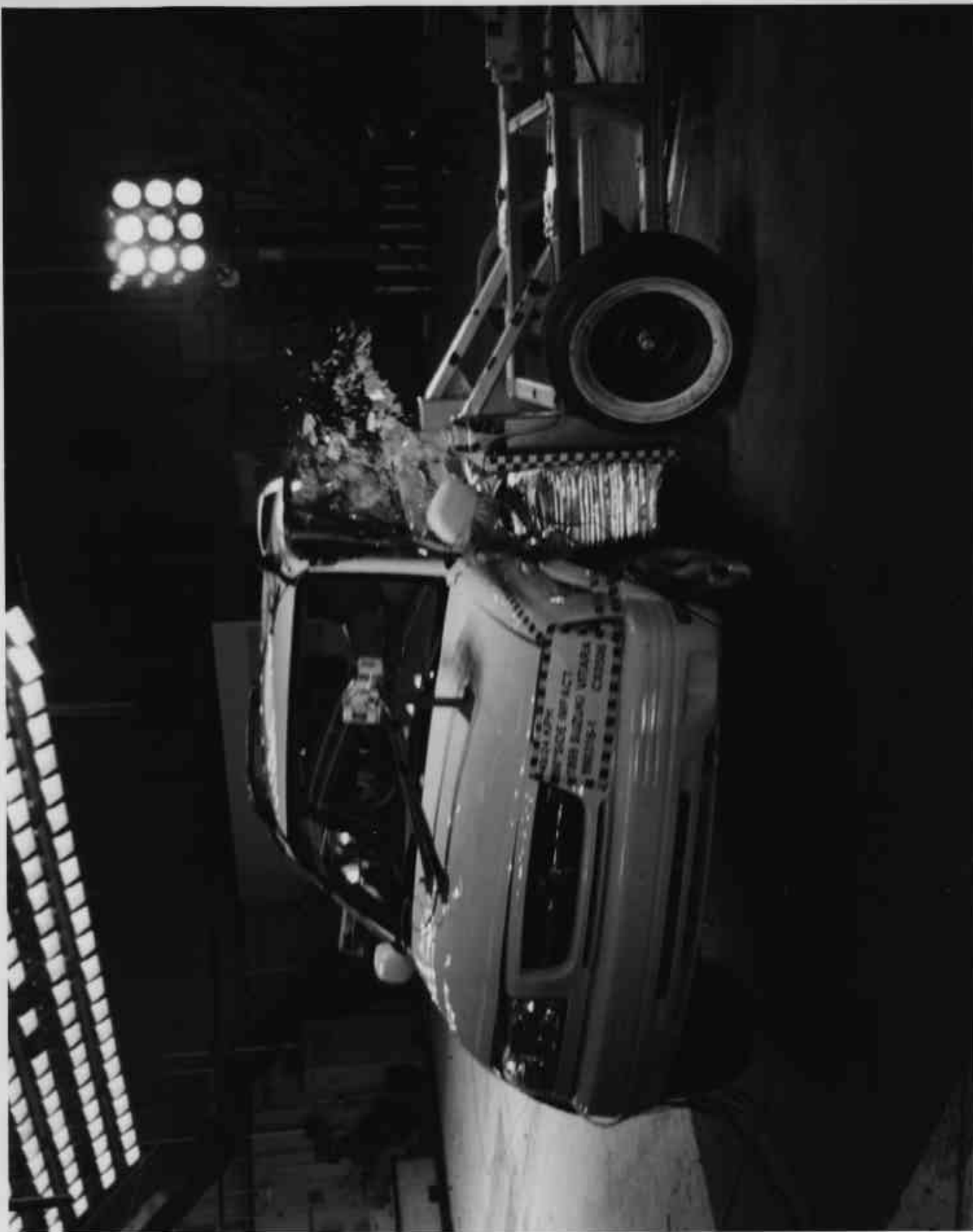


Figure A-50 Impact Event
A-53

990316



Figure A-51 Pre-Test Fuel Cap
A-54

990316



Figure A-52 Post-Test Fuel Cap
A-55

990316

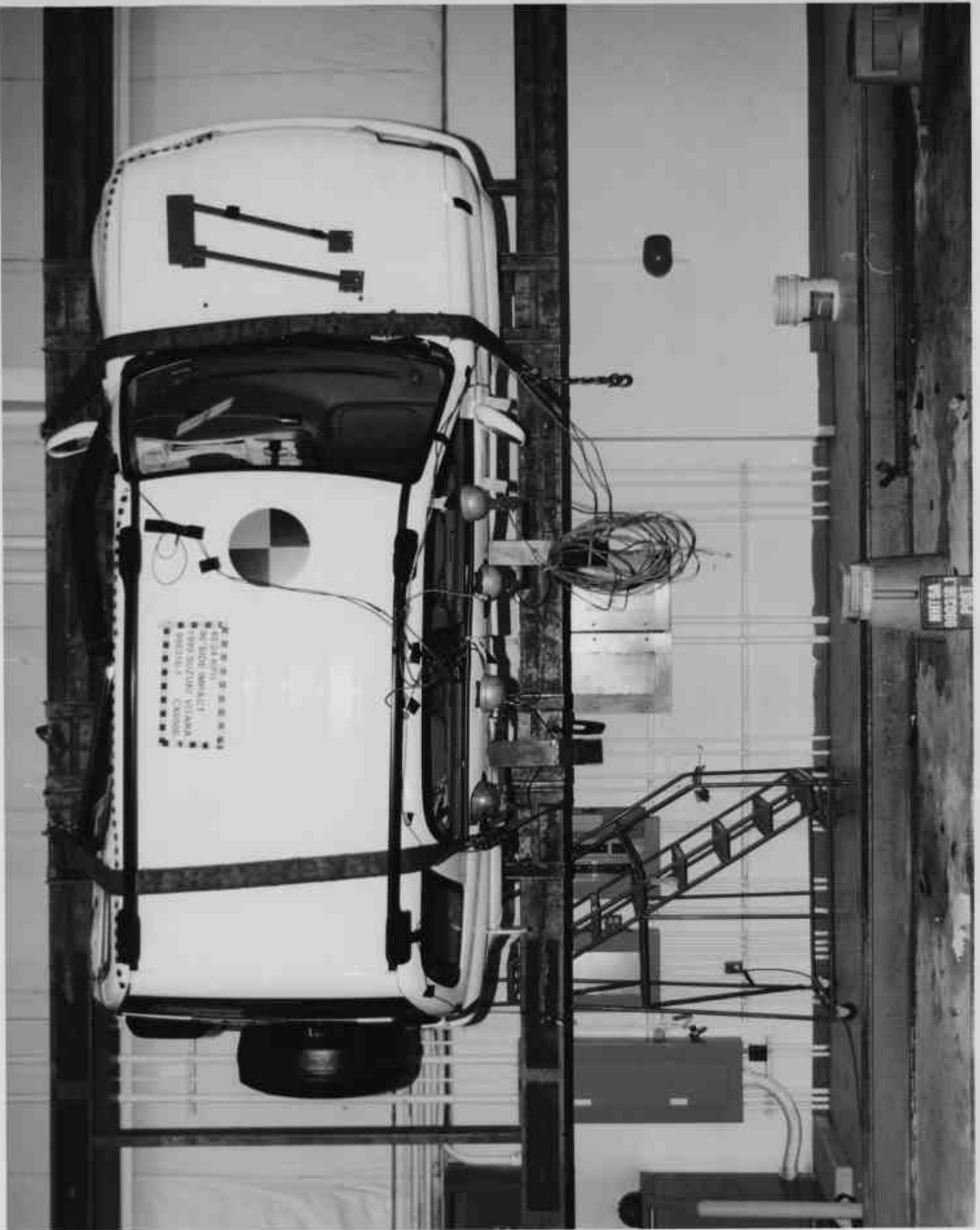


Figure A-53 FMVSS 301 Rollover View at 90°
A-56

990316

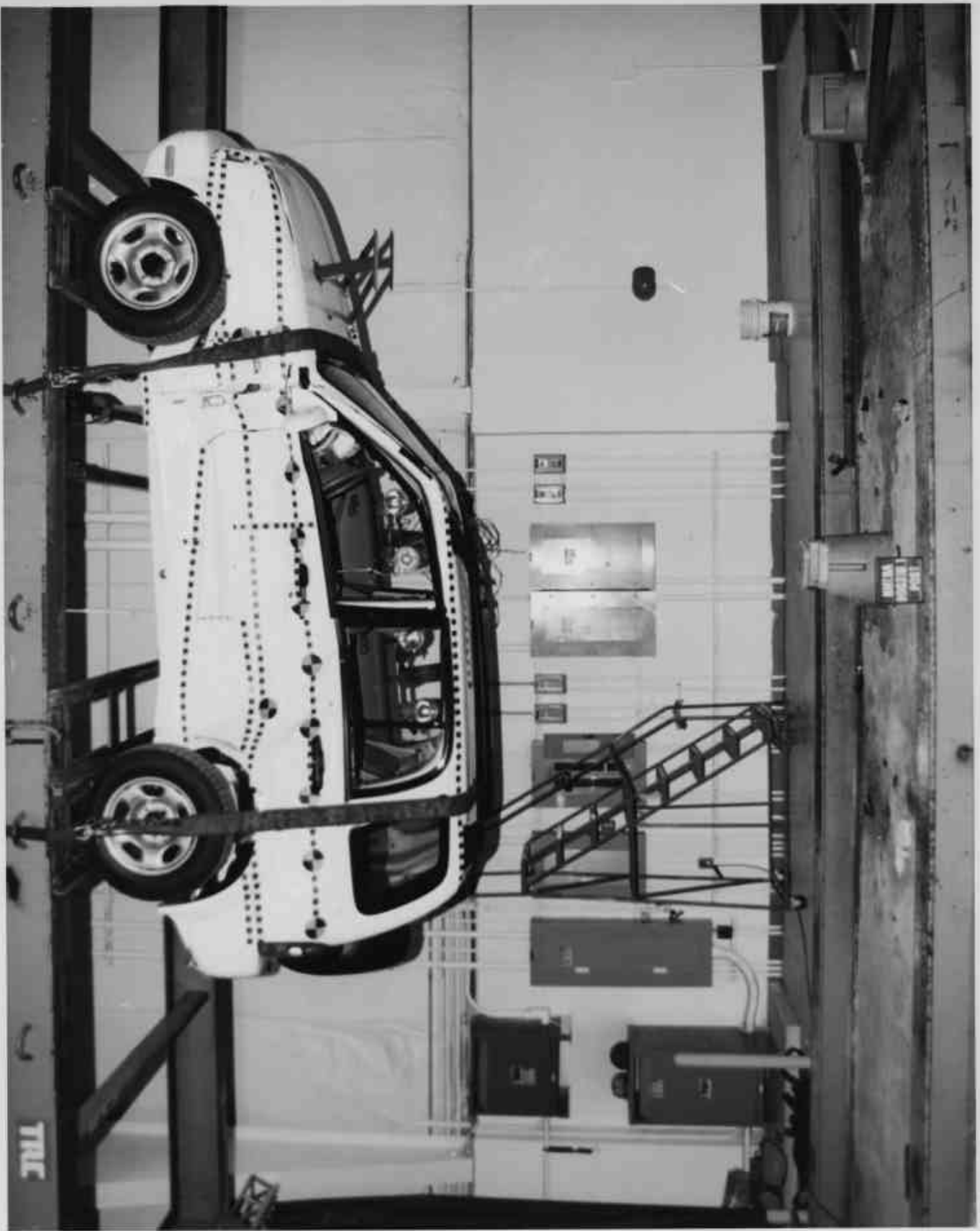


Figure A-54 FMVSS 301 Rollover View at 180°
A-57

990316

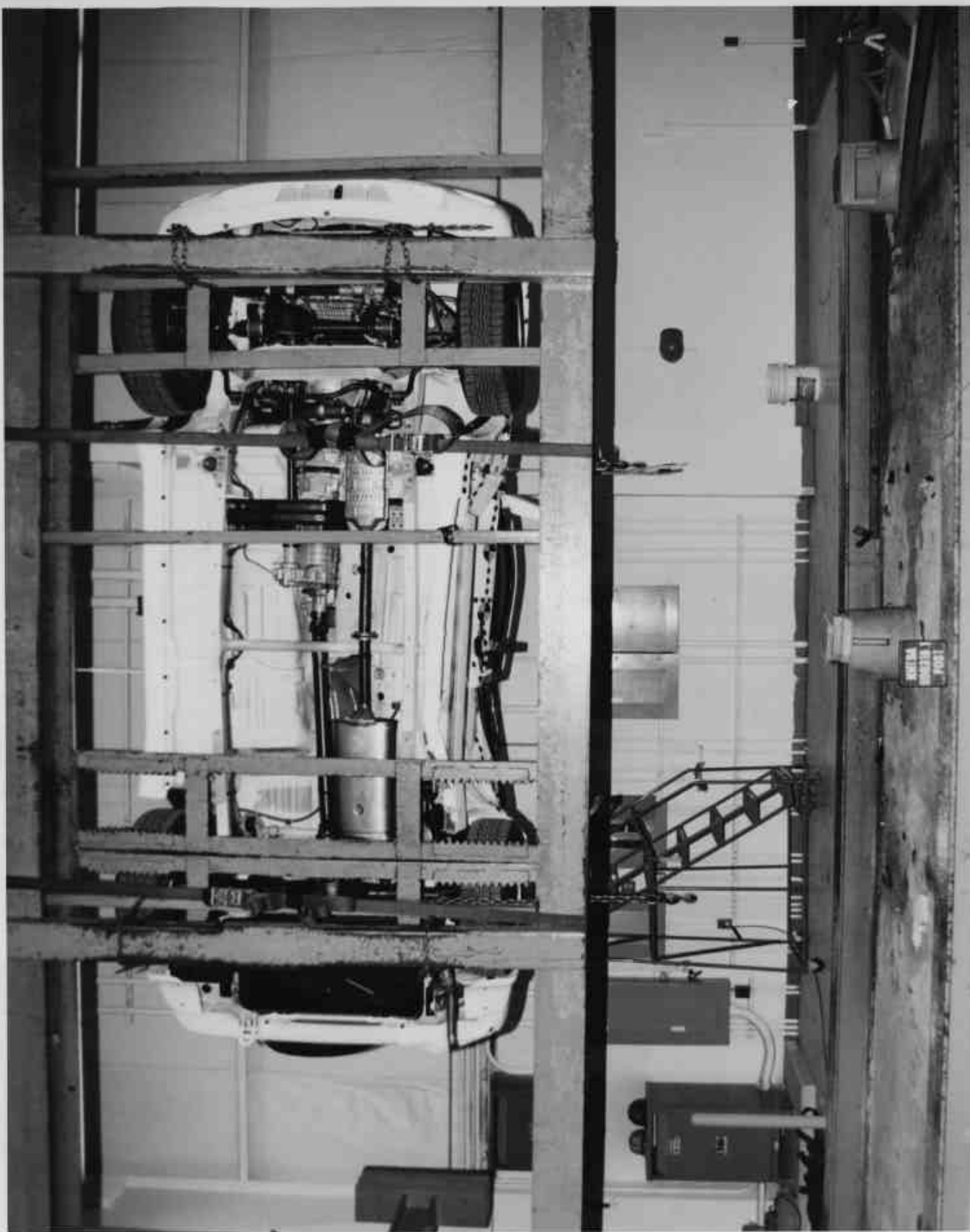


Figure A-55 FMVSS 301 Rollover View at 270°
A-58

990316



Figure A-56 FMVSS 301 Rollover View at 360°
A-59

990316

Appendix B

Data Plots

Table of Data Plots

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	DRIVER UPPER RIB Y-AXIS ACCELERATION	B-7
2	DRIVER UPPER RIB Y-AXIS VELOCITY	B-8
3	DRIVER LOWER RIB Y-AXIS ACCELERATION	B-9
4	DRIVER LOWER RIB Y-AXIS VELOCITY	B-10
5	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-11
6	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-12
7	DRIVER PELVIS Y-AXIS ACCELERATION	B-13
8	DRIVER PELVIS Y-AXIS VELOCITY	B-14
9	LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION	B-15
10	LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY	B-16
11	LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION	B-17
12	LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY	B-18
13	LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION	B-19
14	LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY	B-20
15	LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION	B-21
16	LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY	B-22

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>
17	RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION	B-24
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19	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION	B-26
20	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-27
21	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION	B-28
22	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY	B-29
23	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION	B-30
24	RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION	B-31
25	RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY	B-32
26	RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION	B-33

27	RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY	B-34
28	RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION	B-35
29	RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY	B-36
30	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION	B-37
31	REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION	B-38
32	REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY	B-39
33	REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION	B-40
34	REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY	B-41
35	REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION	B-42
36	REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY	B-43
37	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION	B-44
38	LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION	B-45
39	LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-46
40	LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION	B-47
41	LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY	B-48
44	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION	B-51
45	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY	B-52
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55	LOWER A-POST Y-AXIS VELOCITY	B-62
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57	UPPER A-POST Y-AXIS VELOCITY	B-64
58	LOWER B-POST Y-AXIS ACCELERATION	B-65
59	LOWER B-POST Y-AXIS VELOCITY	B-66
60	UPPER B-POST Y-AXIS ACCELERATION	B-67
61	UPPER B-POST Y-AXIS VELOCITY	B-68
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63	FRONT SEAT TRACK Y-AXIS VELOCITY	B-70
64	REAR SEAT TRACK Y-AXIS ACCELERATION	B-71
65	REAR SEAT TRACK Y-AXIS VELOCITY	B-72
66	VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION	B-73
67	VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY	B-74
68	VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION	B-75
69	VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY	B-76
70	VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION	B-77
71	VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY	B-78
72	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION	B-79

MDB Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
73	MDB CENTER OF GRAVITY X-AXIS ACCELERATION	B-81
74	MDB CENTER OF GRAVITY X-AXIS VELOCITY	B-82
75	MDB CENTER OF GRAVITY Y-AXIS ACCELERATION	B-83
76	MDB CENTER OF GRAVITY Y-AXIS VELOCITY	B-84
77	MDB CENTER OF GRAVITY Z-AXIS ACCELERATION	B-85
78	MDB CENTER OF GRAVITY Z-AXIS VELOCITY	B-86
79	MDB CENTER OF GRAVITY RESULTANT ACCELERATION	B-87
80	MDB REAR X-AXIS ACCELERATION	B-88
81	MDB REAR X-AXIS VELOCITY	B-89
82	MDB REAR Y-AXIS ACCELERATION	B-90
83	MDB REAR Y-AXIS VELOCITY	B-91

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
84	DRIVER UPPER RIB Y-AXIS ACCELERATION	B-93
85	DRIVER UPPER RIB Y-AXIS VELOCITY	B-94
86	DRIVER LOWER RIB Y-AXIS ACCELERATION	B-95
87	DRIVER LOWER RIB Y-AXIS VELOCITY	B-96
88	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-97
89	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-98
90	DRIVER PELVIS Y-AXIS ACCELERATION	B-99
91	DRIVER PELVIS Y-AXIS VELOCITY	B-100
92	PASSENGER UPPER RIB Y-AXIS ACCELERATION	B-101
93	PASSENGER UPPER RIB Y-AXIS VELOCITY	B-102
94	PASSENGER LOWER RIB Y-AXIS ACCELERATION	B-103
95	PASSENGER LOWER RIB Y-AXIS VELOCITY	B-104
96	PASSENGER LOWER SPINE Y-AXIS ACCELERATION	B-105
97	PASSENGER LOWER SPINE Y-AXIS VELOCITY	B-106
98	PASSENGER PELVIS Y-AXIS ACCELERATION	B-107
99	PASSENGER PELVIS Y-AXIS VELOCITY	B-108

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered - Redundant

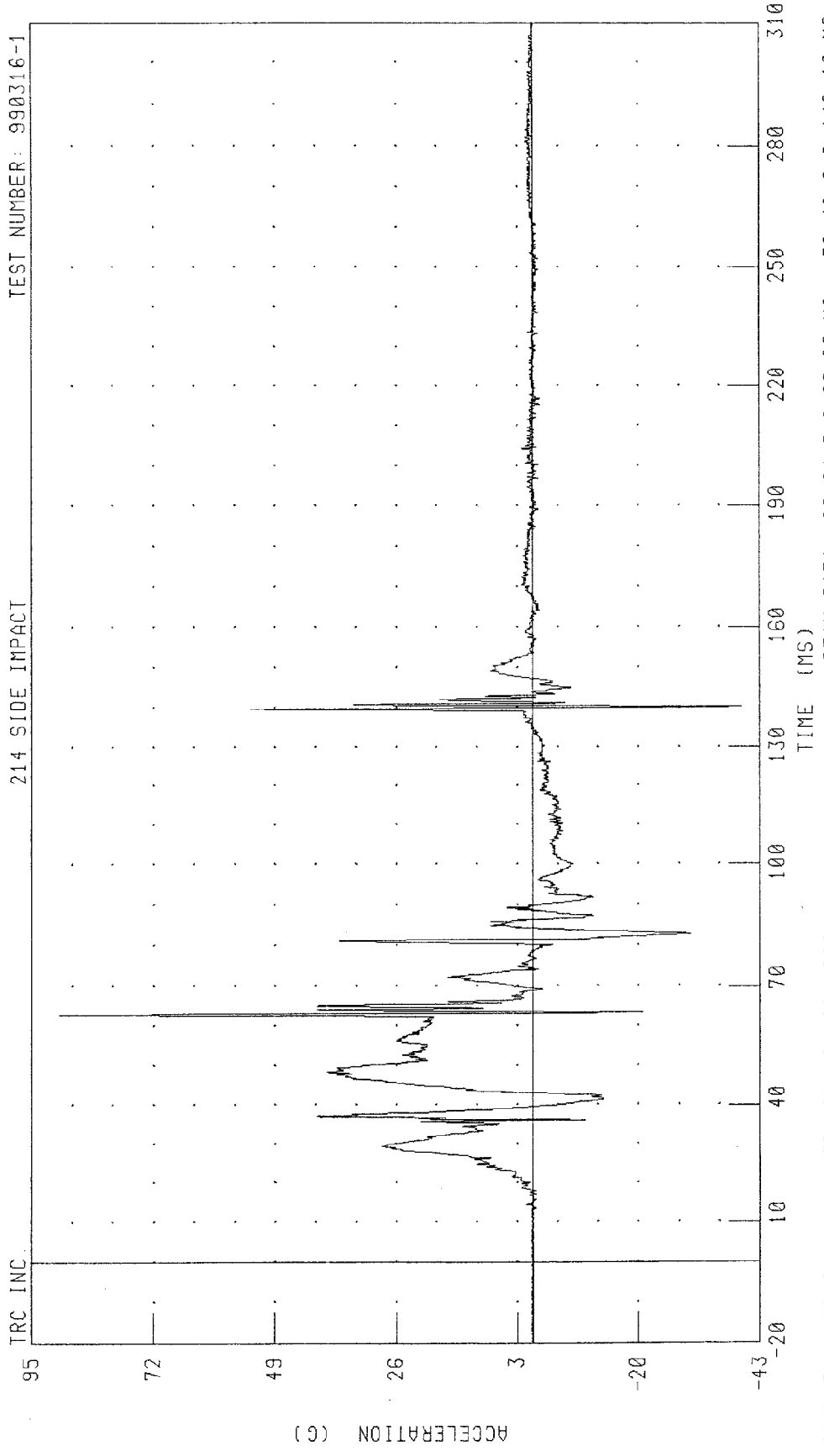
<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
100	DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION	B-110
101	DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-111
102	DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-112
103	DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-113
104	DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-114
105	DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-115
106	DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION	B-116
107	DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY	B-117
108	PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION	B-118
109	PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-119
110	PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-120
111	PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-121
112	PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-122
113	PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-123
114	PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION	B-124
115	PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY	B-125

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
DRIVER UPPER RIB Y-AXIS ACCELERATION



CHANNEL: LURYG1 FILTER: CH. CLASS 1000 PEAK DATA: 89.84 G @ 62.80 MS, -39.42 G @ 140.16 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

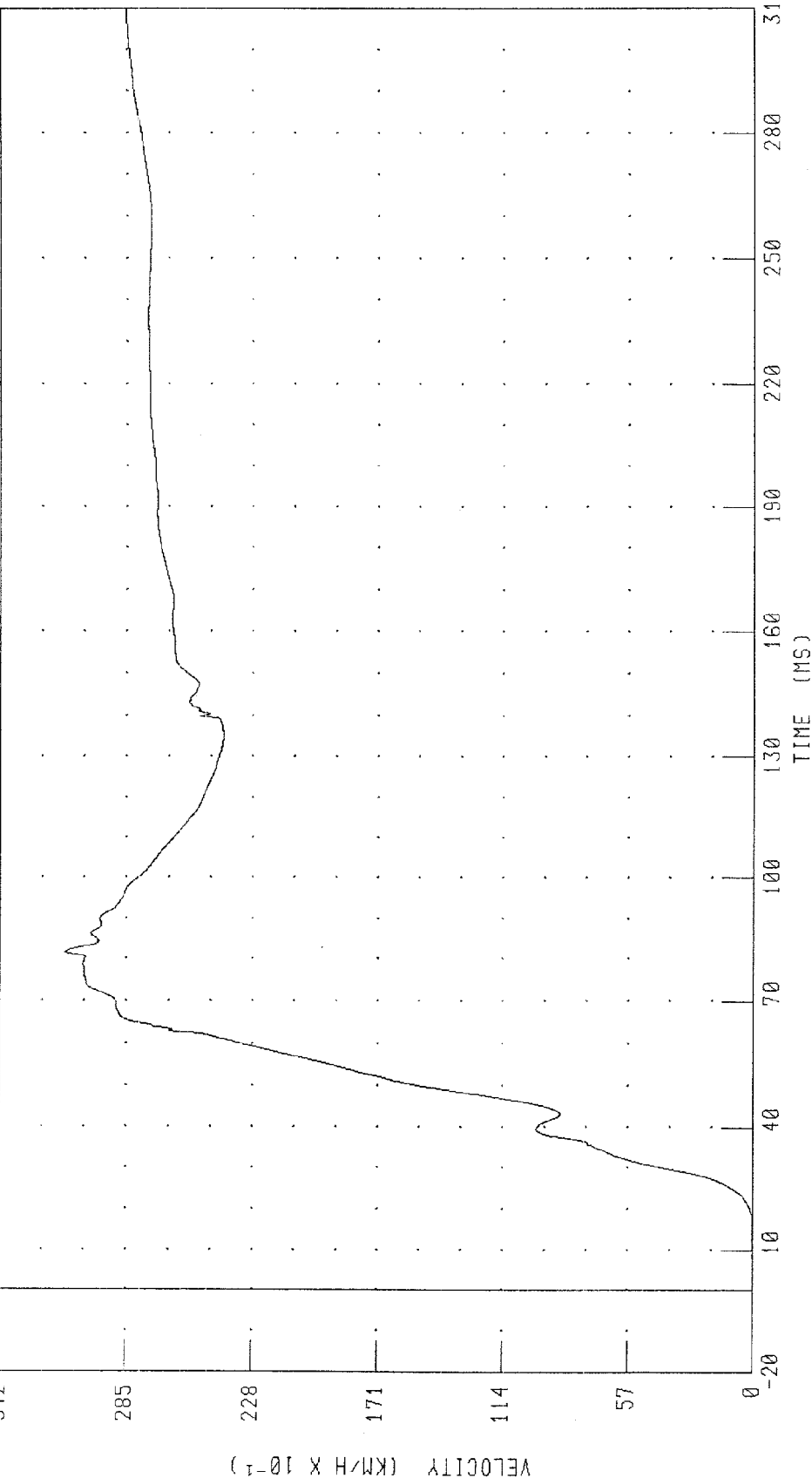
DRIVER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

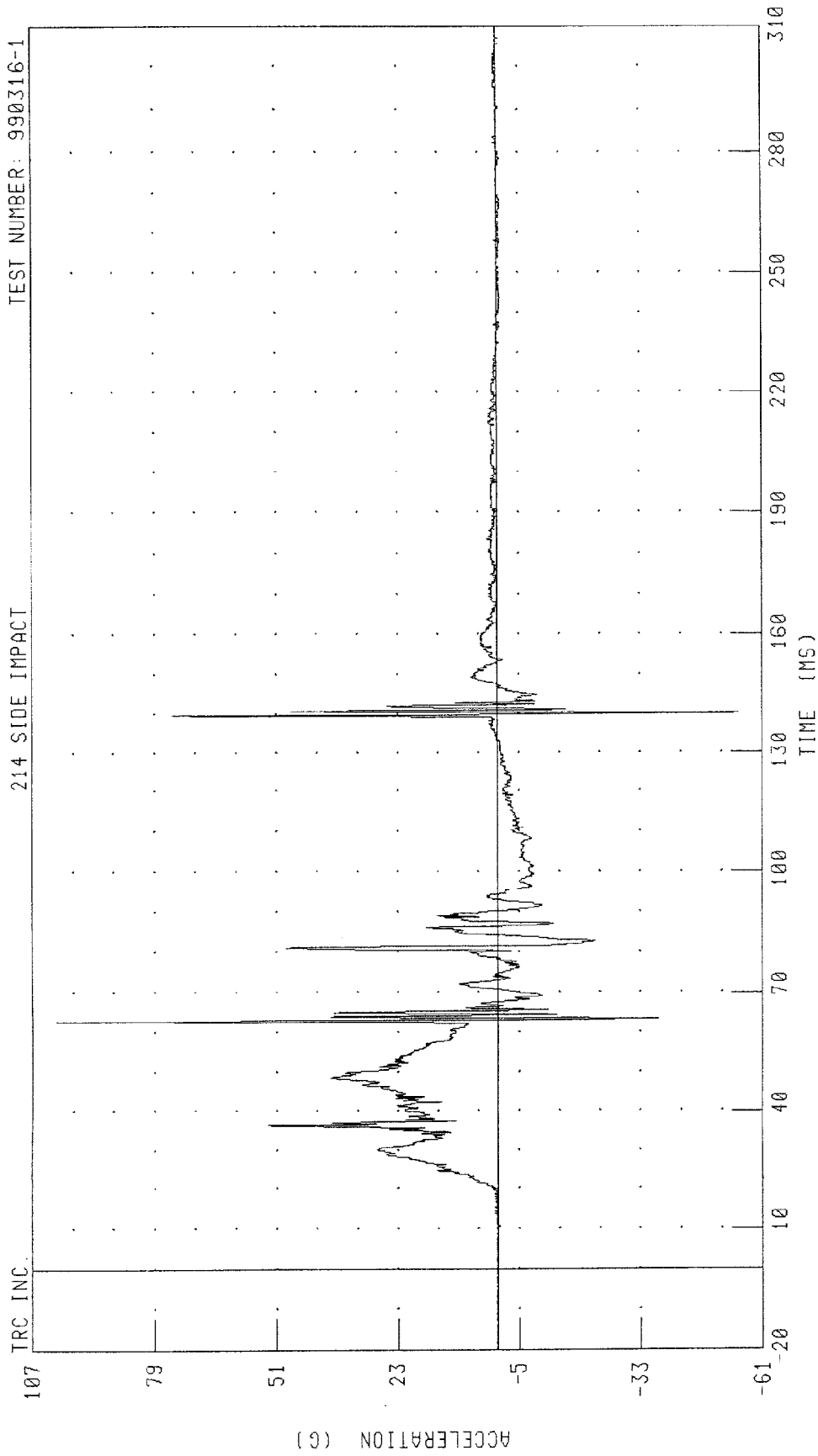
342



CHANNEL: LURYU1 FILTER: CH. CLASS 1000

PEAK DATA: 31.28 KM/H @ 81.60 MS; 0.00 KM/H @ 0.88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER RIB Y-AXIS ACCELERATION

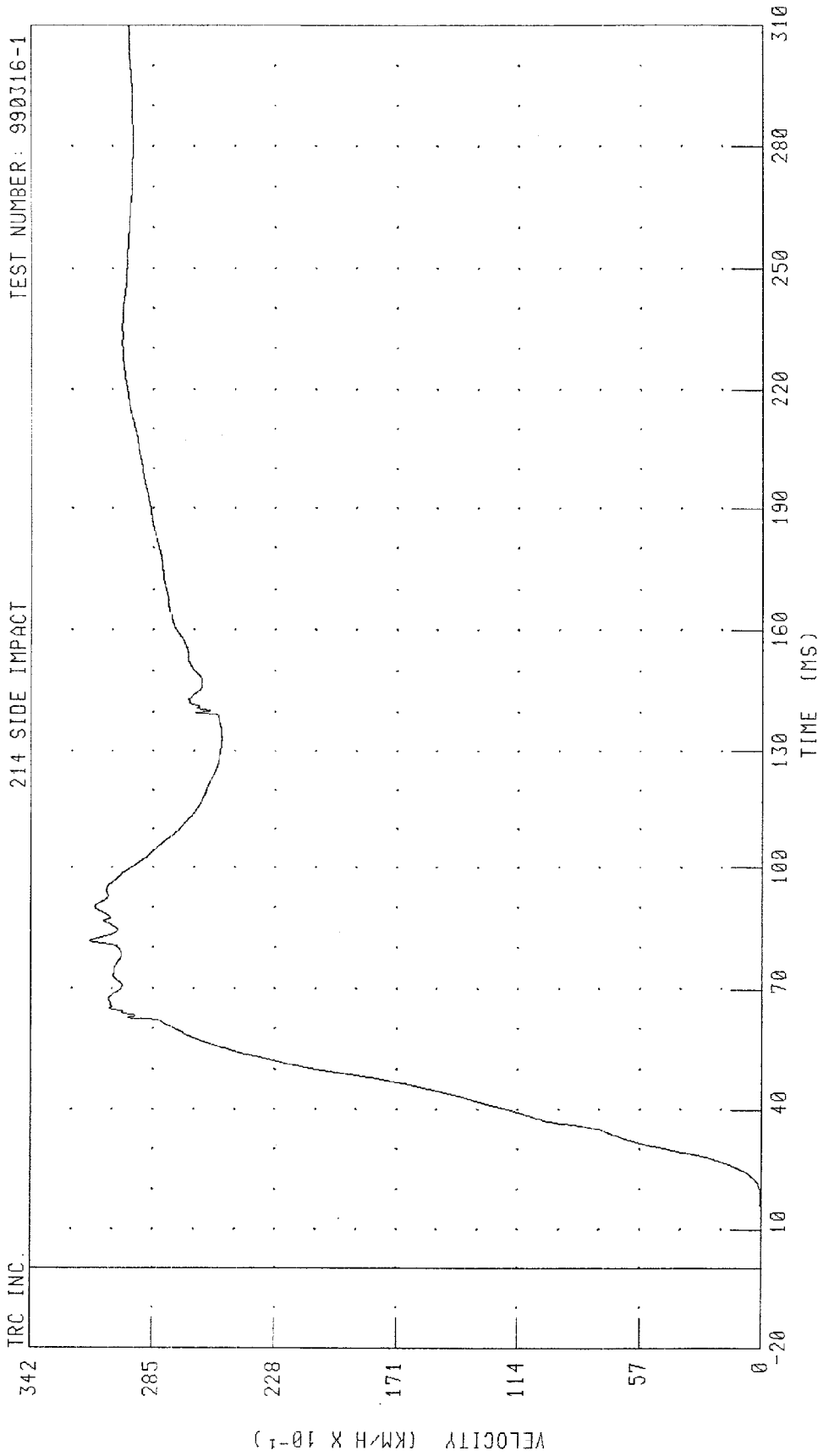


PEAK DATA: 101.52 G @ 62.72 MS; -55.63 G @ 140.16 MS

CHANNEL: LLRYG1 FILTER: CH CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER RIB Y-AXIS VELOCITY
 214 SIDE IMPACT

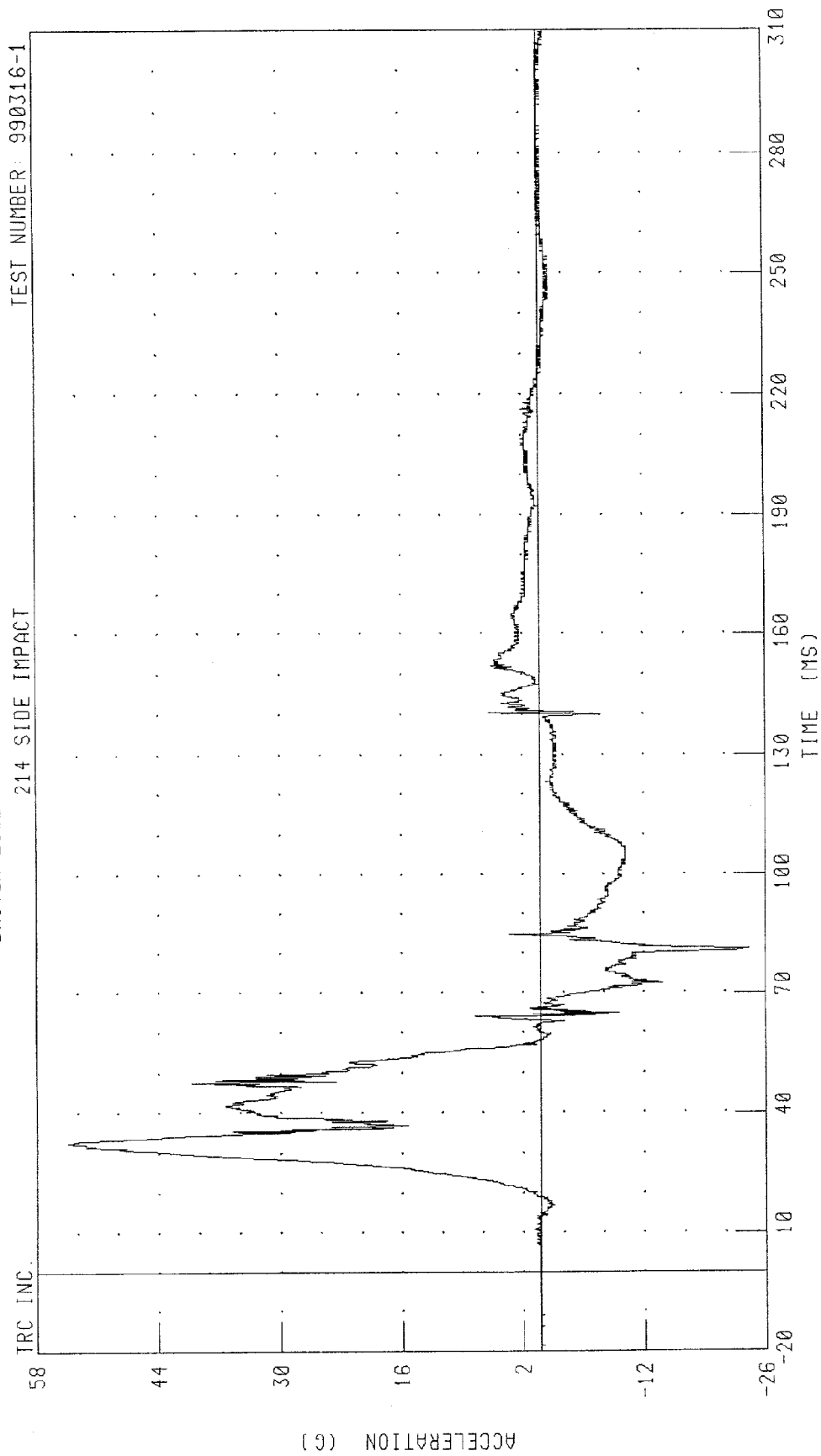
TEST NUMBER: 990316-1



CHANNEL: LLRYU1 FILTER: CH. CLASS 1000

PEAK DATA: 31.48 KM/H @ 81.60 MS, -0.01 KM/H @ 11.04 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER SPINE Y-AXIS ACCELERATION



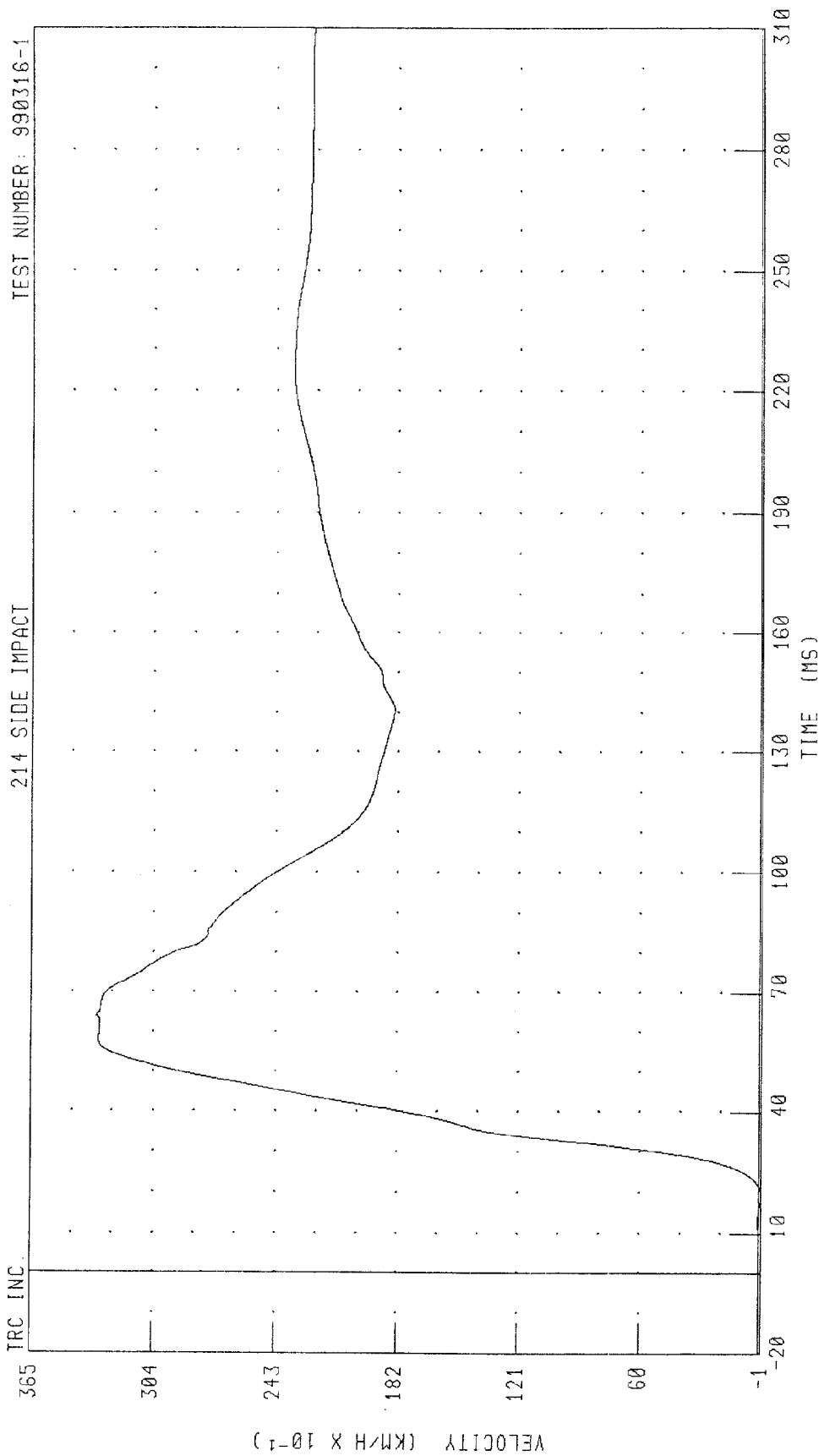
PEAK DATA: 54.47 G @ 32.80 MS; -24.07 G @ 81.04 MS

CHANNEL: T12YG1 FILTER: CH CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 990316-1

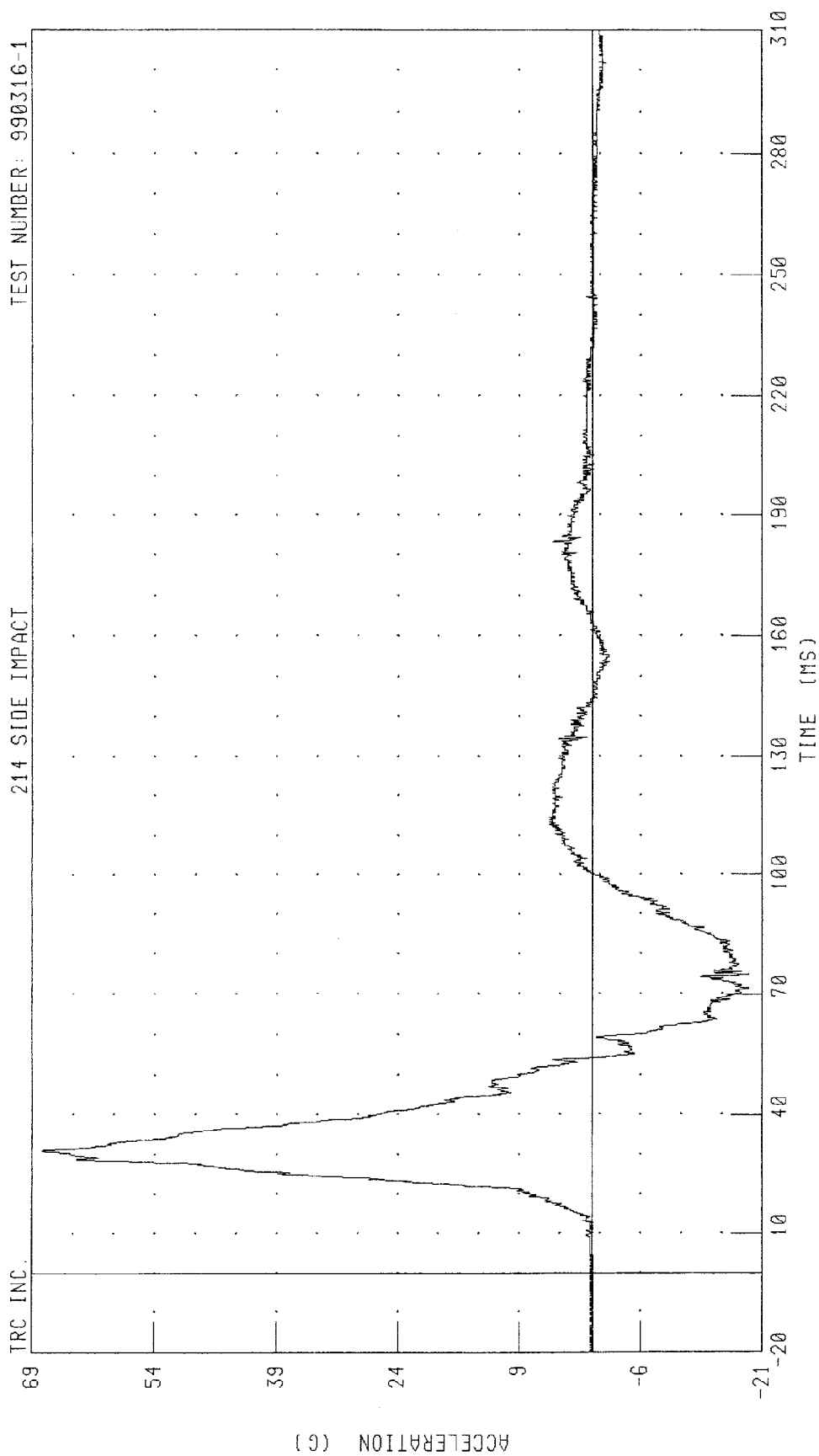
214 SIDE IMPACT



PEAK DATA: 33.24 KM/H @ 64.16 MS; -0.11 KM/H @ 19.12 MS

CHANNEL: T12YU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER PELVIS Y-AXIS ACCELERATION



PEAK DATA: 67.92 G @ 31.04 MS, -19.31 G @ 71.44 MS

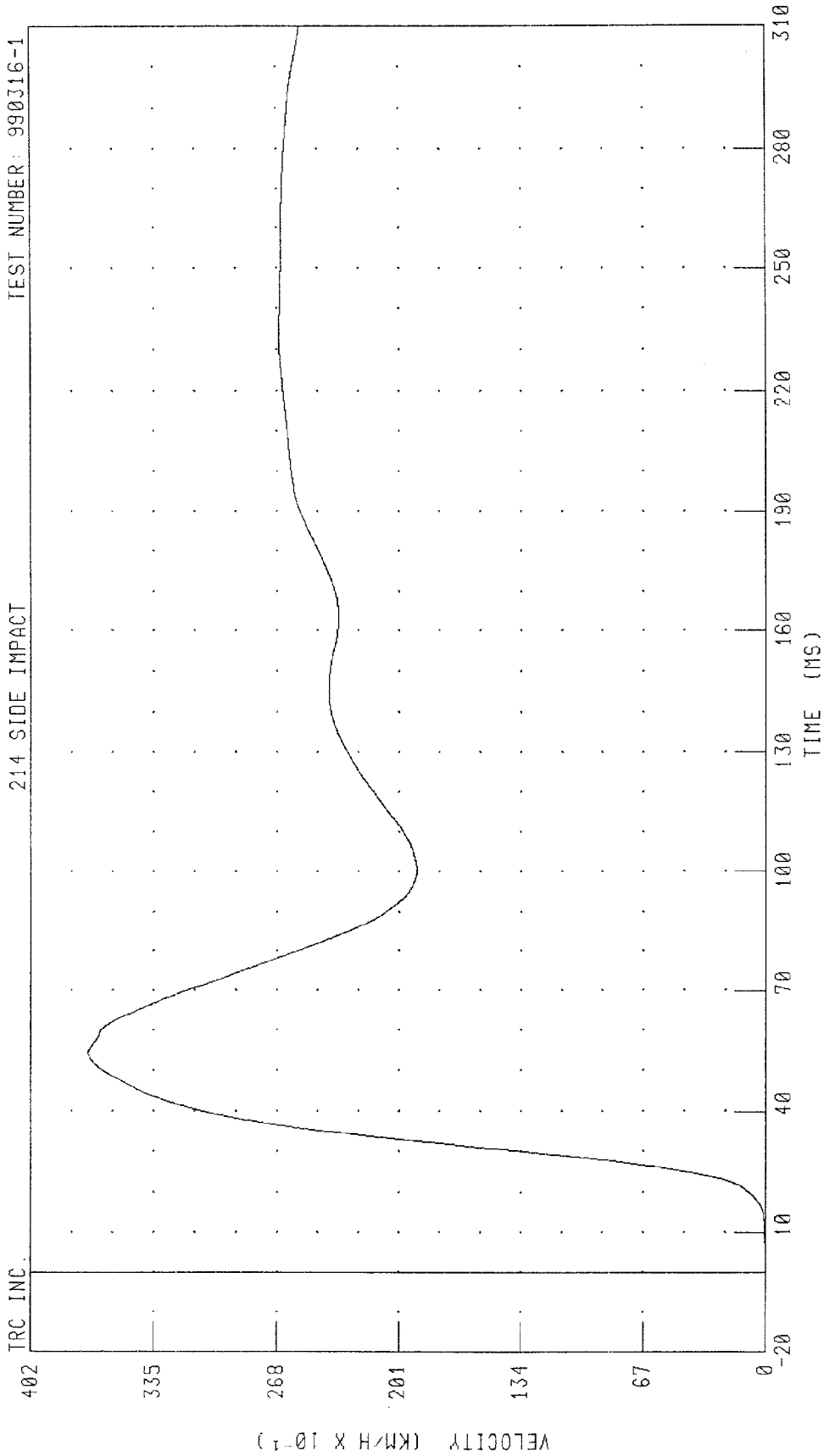
CHANNEL: PEVY61 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

DRIVER PELVIS Y-AXIS VELOCITY

214 SIDE IMPACT

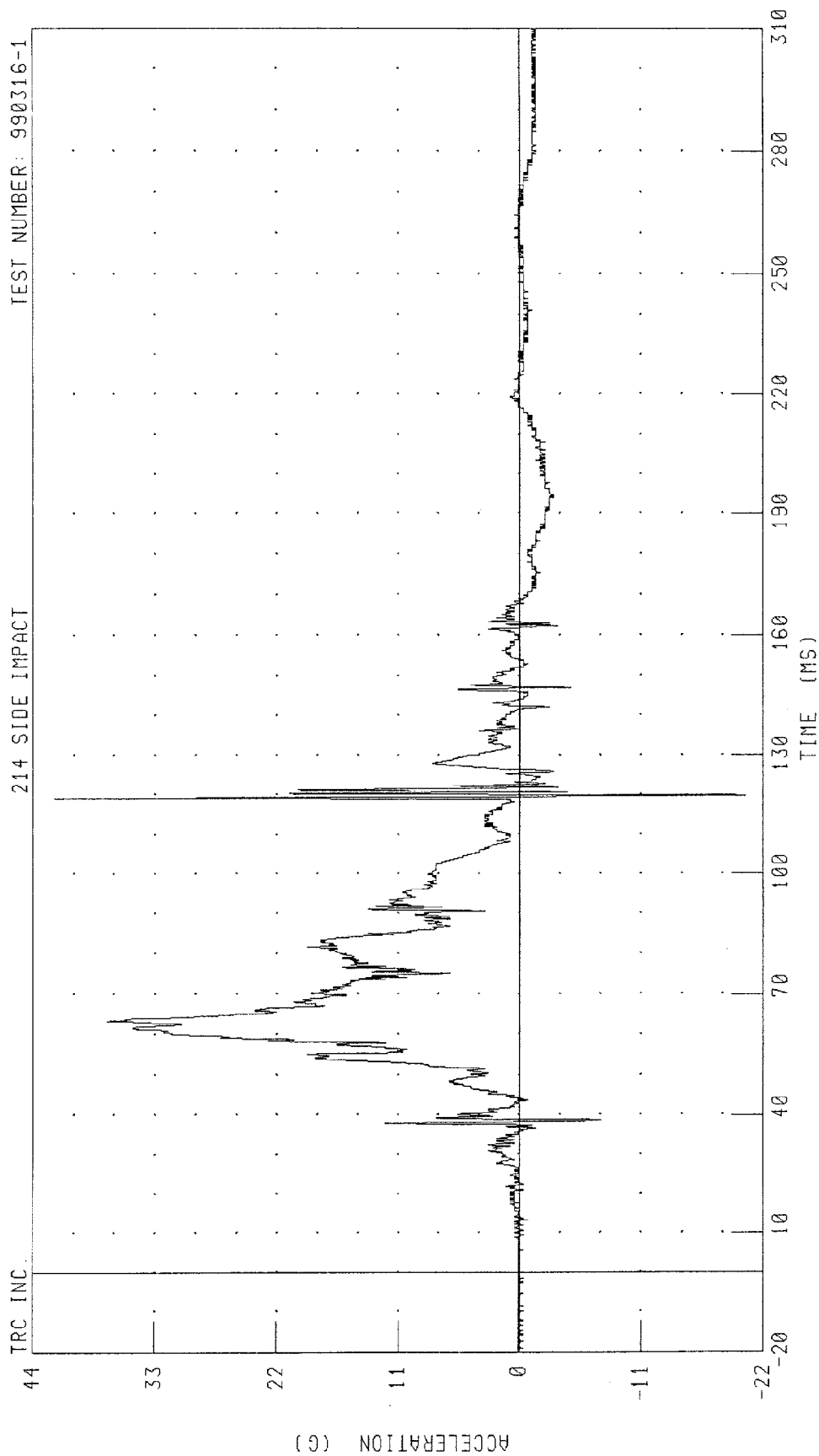
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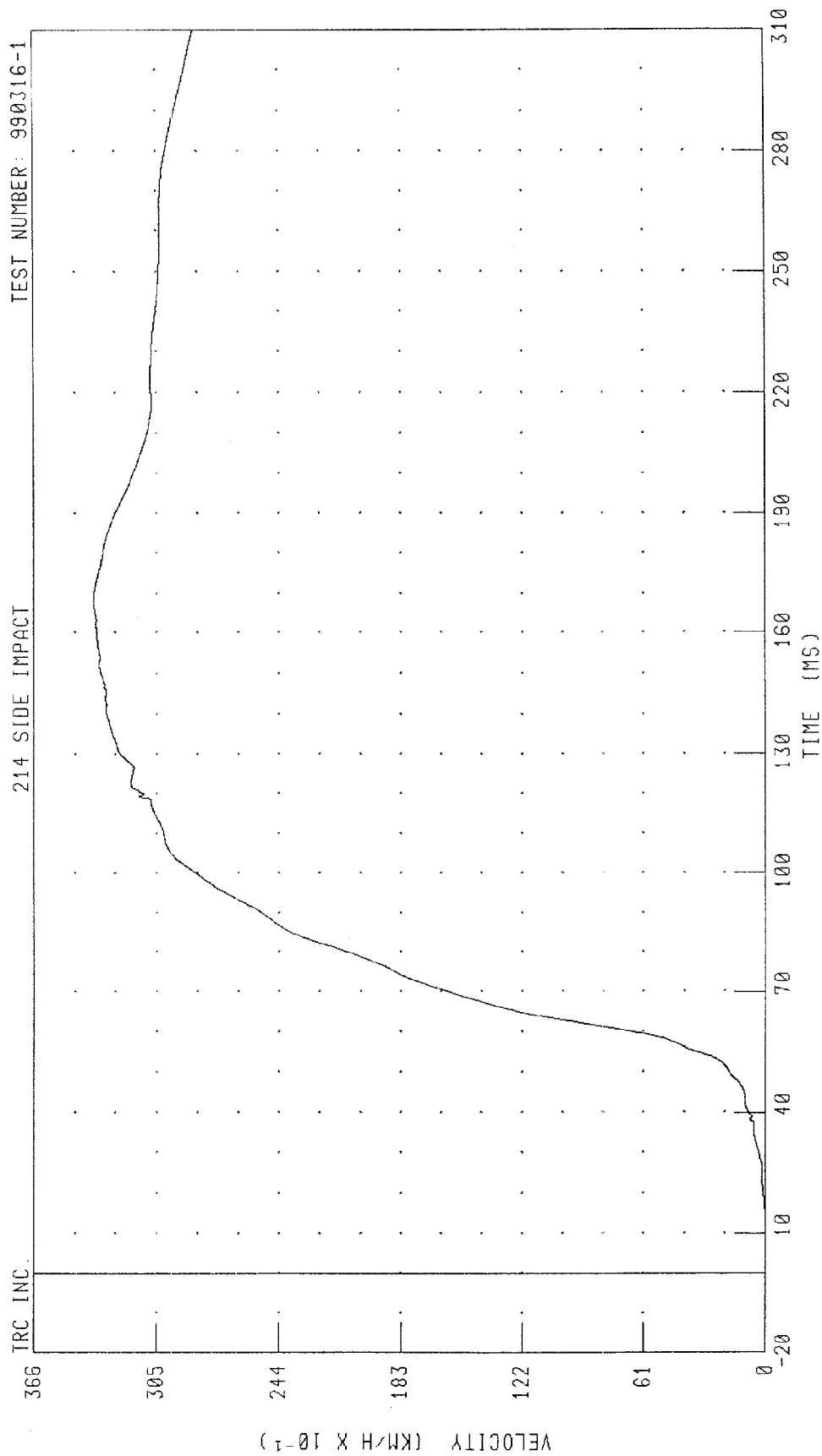
CHANNEL: PEVYU1 FILTER: CH. CLASS 1000

PEAK DATA: 37.09 KM/H @ 54.32 MS; 0.00 KM/H @ 4.32 MS

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



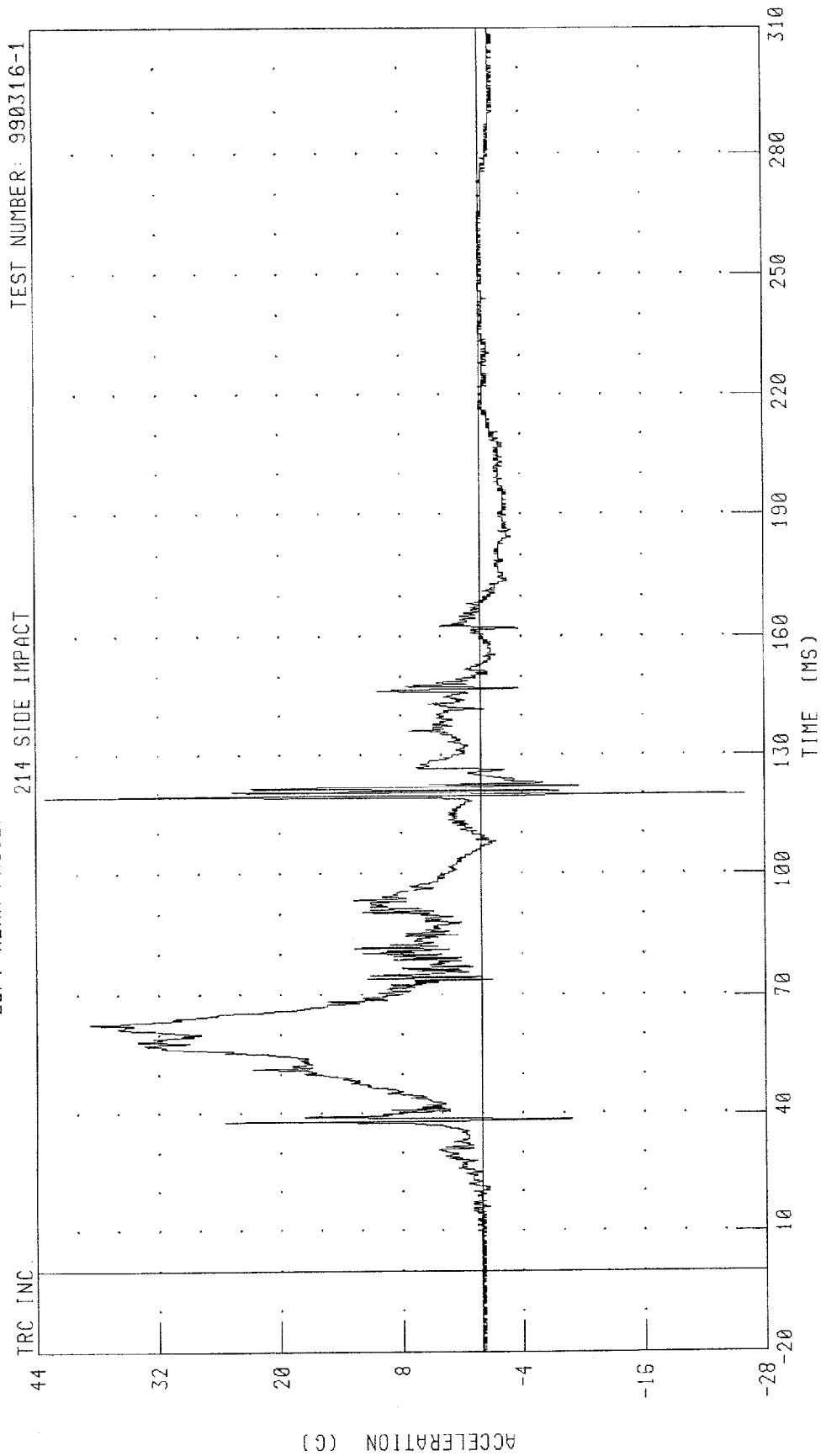
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY



PEAK DATA: 33.63 KM/H @ 168.48 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LURYU4 FILTER: CH. CLASS 1000

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



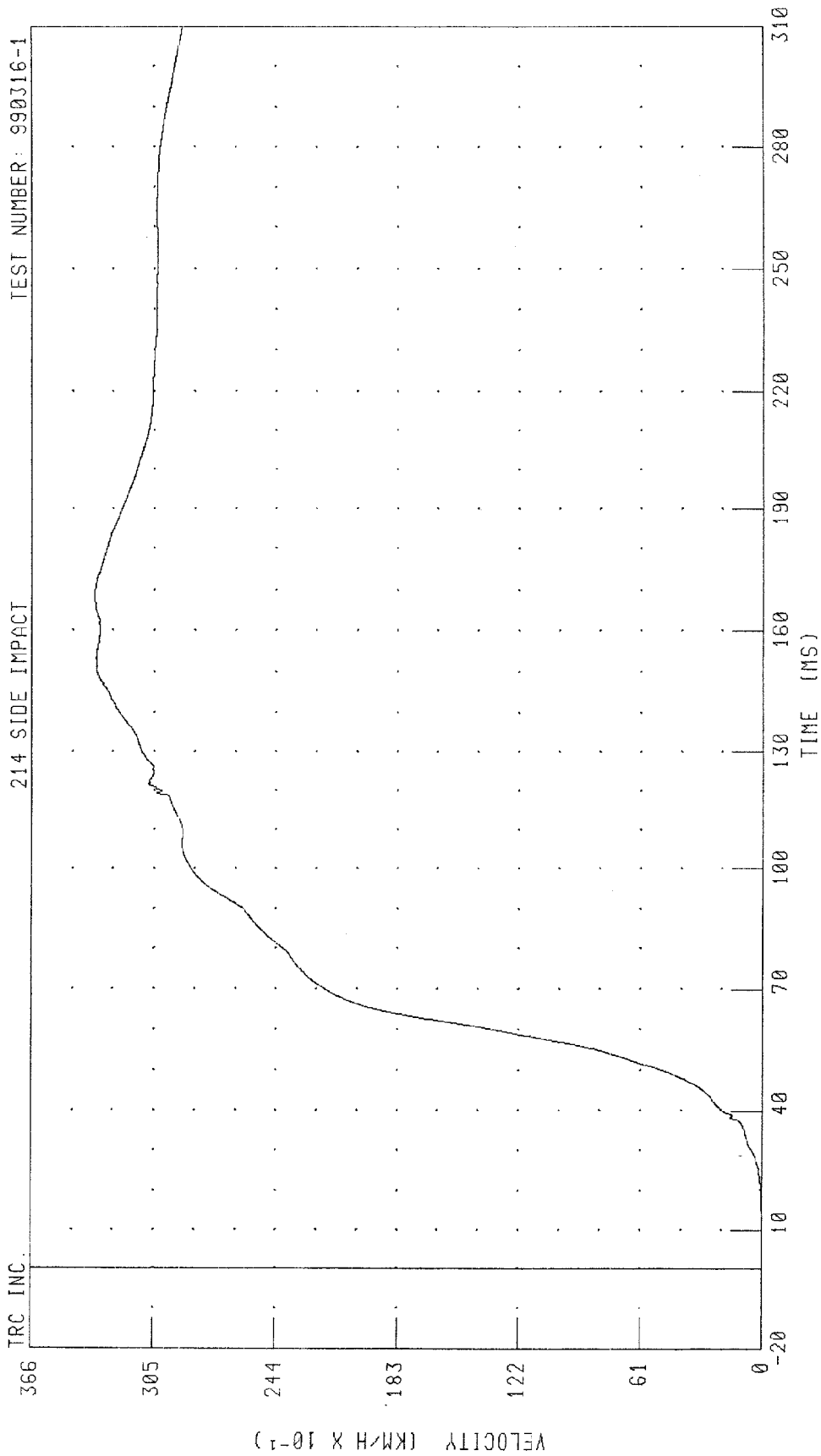
PEAK DATA: 43.07 G @ 119.20 MS; -26.00 G @ 119.76 MS

CHANNEL: LLRYC4 FILTER: CH. CLASS 1000

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

TEST NUMBER: 990316-1

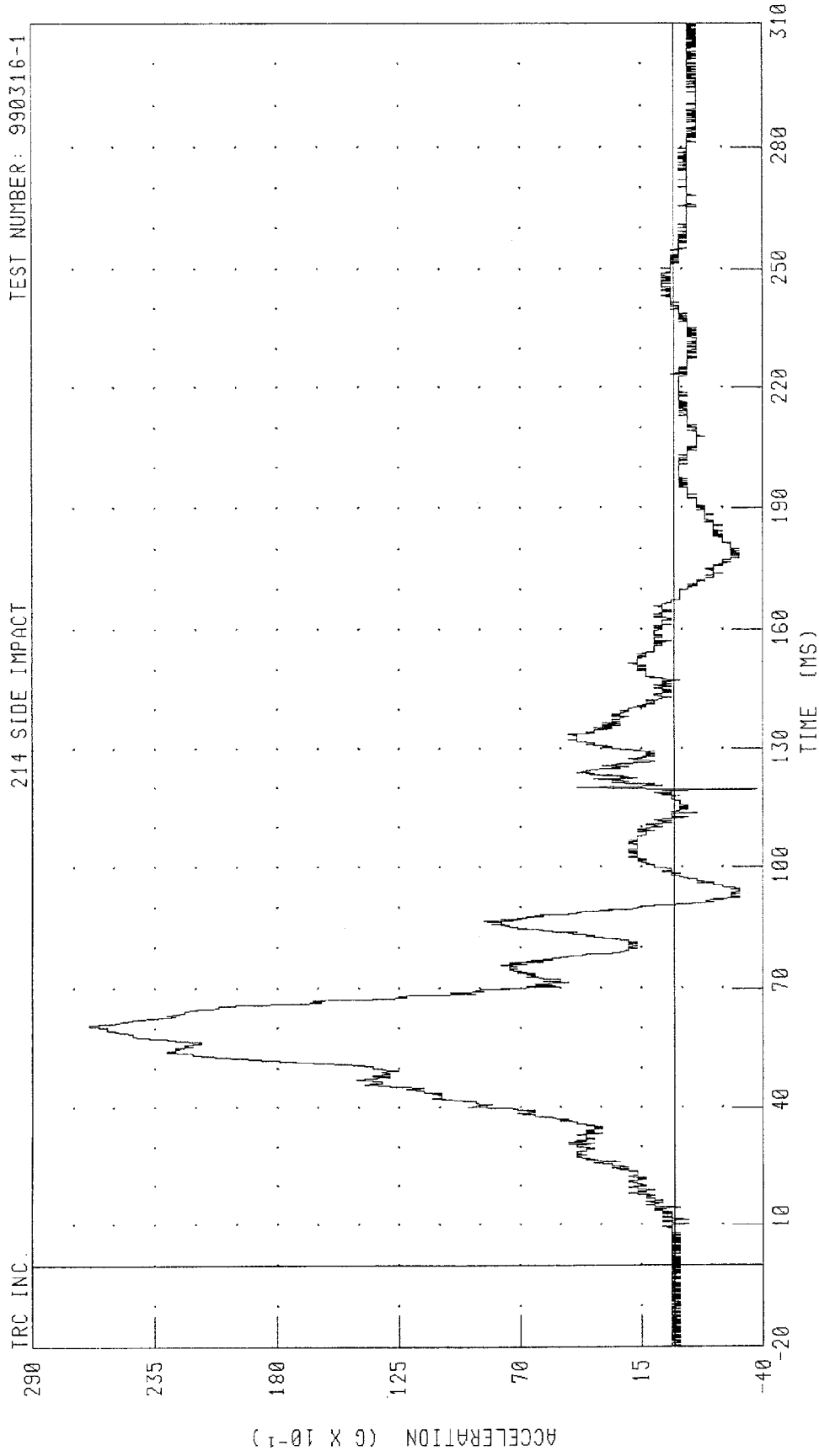
214 SIDE IMPACT



PEAK DATA: 33.46 KM/H @ 168.88 MS, -0.01 KM/H @ 6.52 MS

CHANNEL: LLRYU4 FILTER: CH. CLASS 1000

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



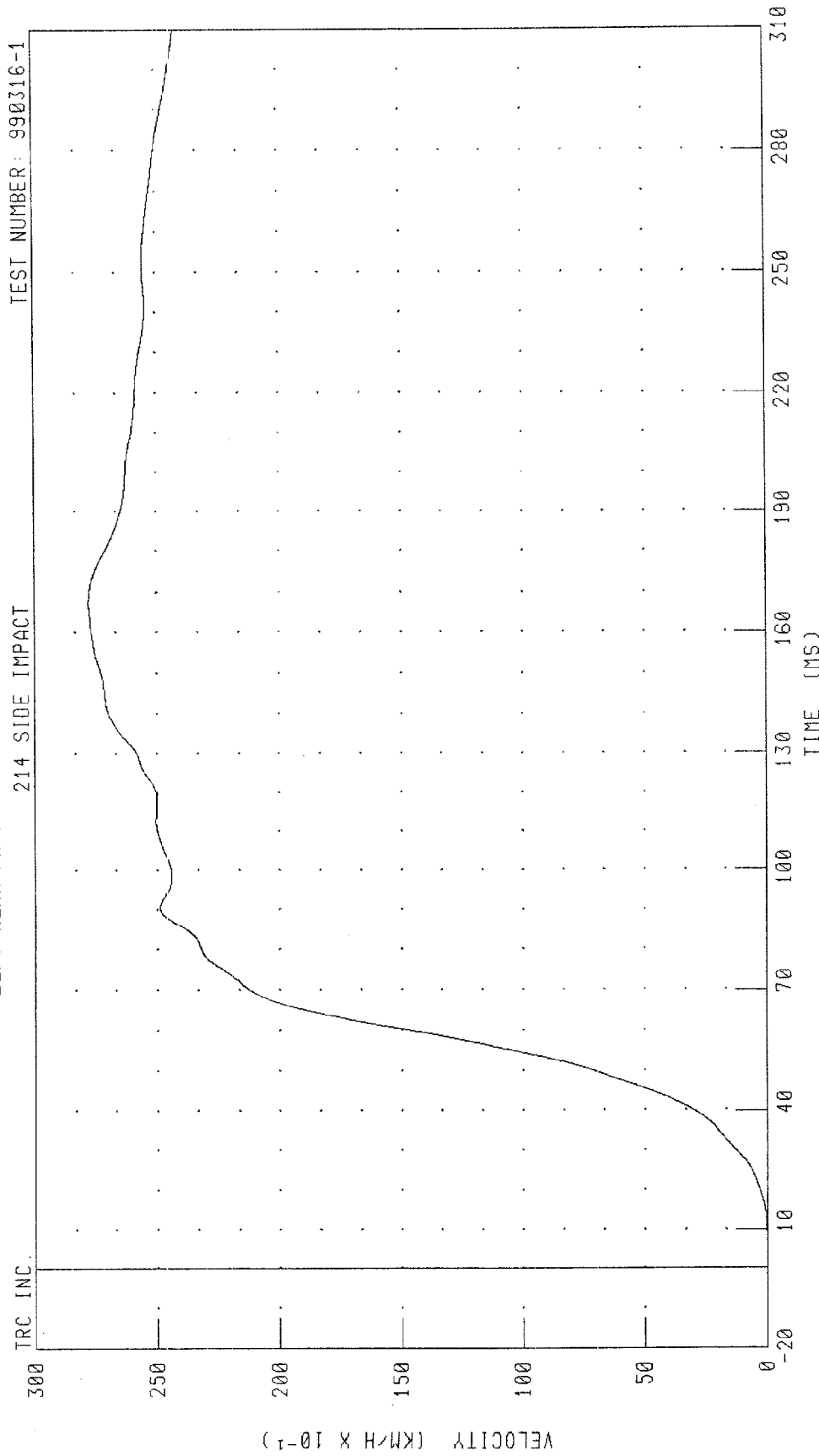
PEAK DATA: 26.44 G @ 60.48 MS, -3.71 G @ 119.60 MS

CHANNEL: T12YC4 FILTER: CH. CLASS 1000

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

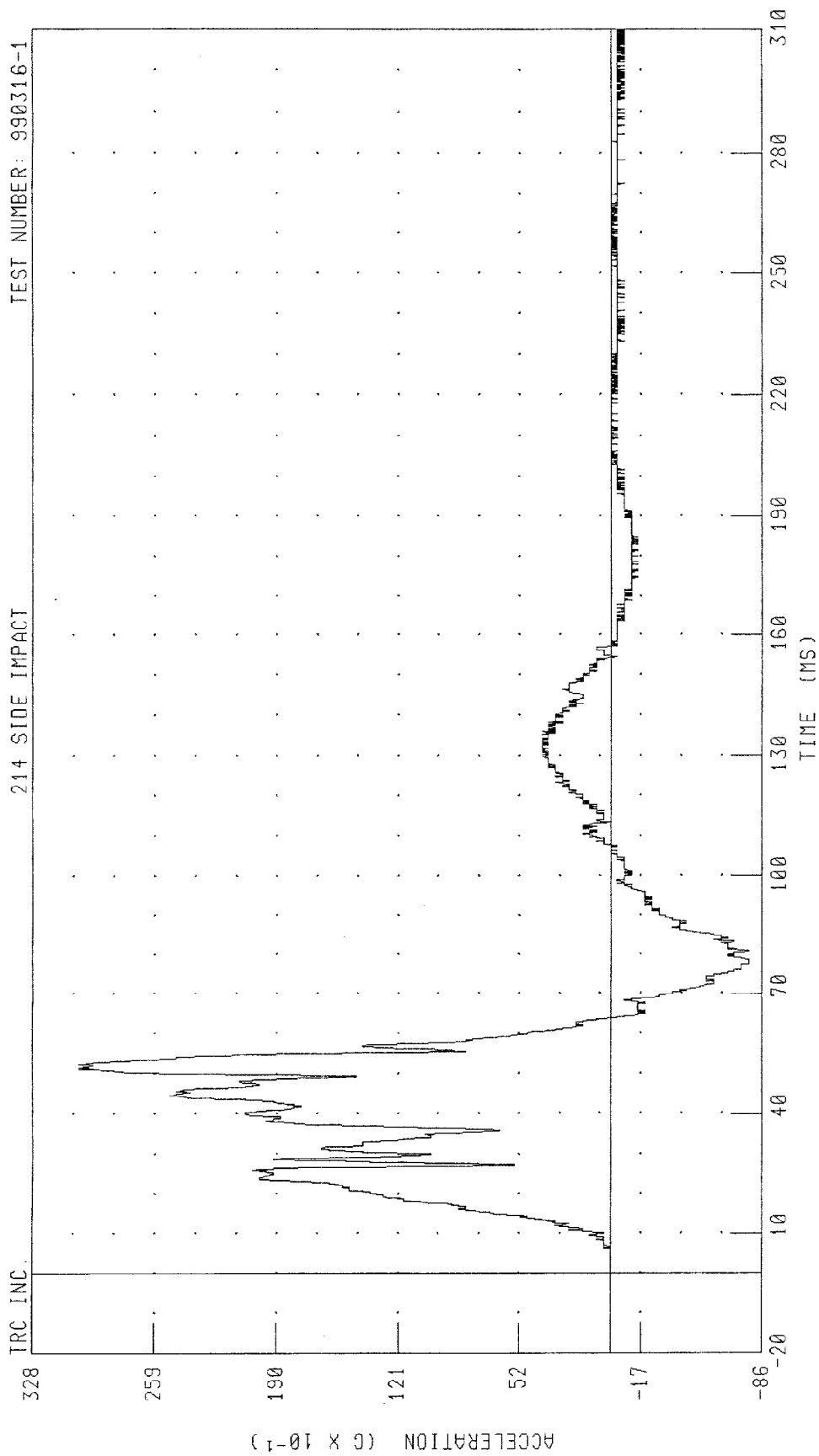


PEAK DATA: 27.79 KM/H @ 167.36 MS; 0.00 KM/H @ 1.12 MS

FILTER: CH. CLASS 1000

CHANNEL: T12VU4

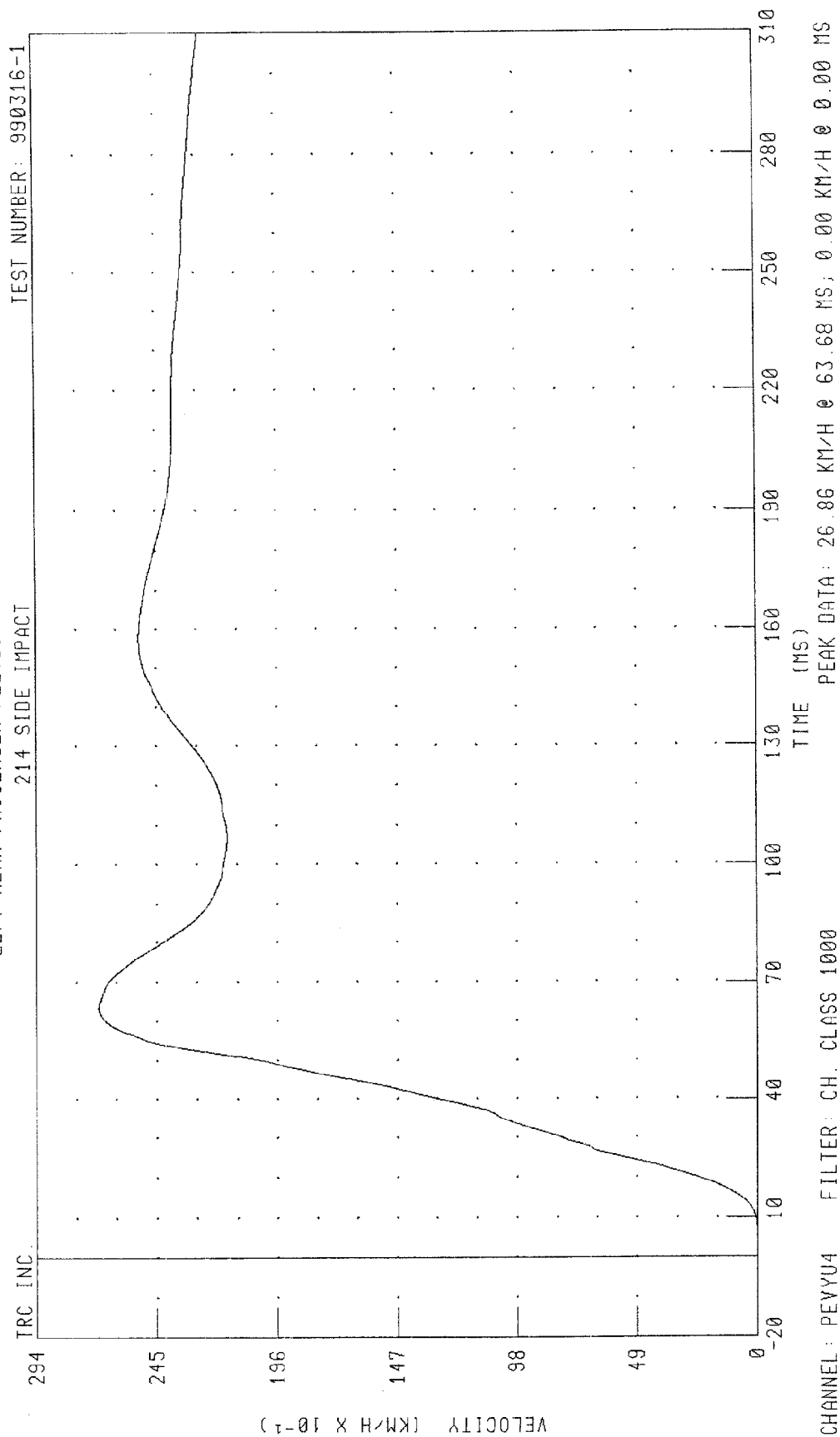
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION
 214 SIDE IMPACT



PEAK DATA: 30.16 G @ 51.20 MS; -7.83 G @ 77.52 MS

CHANNEL: PEVYG4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY



Test Vehicle Instrumentation Plots

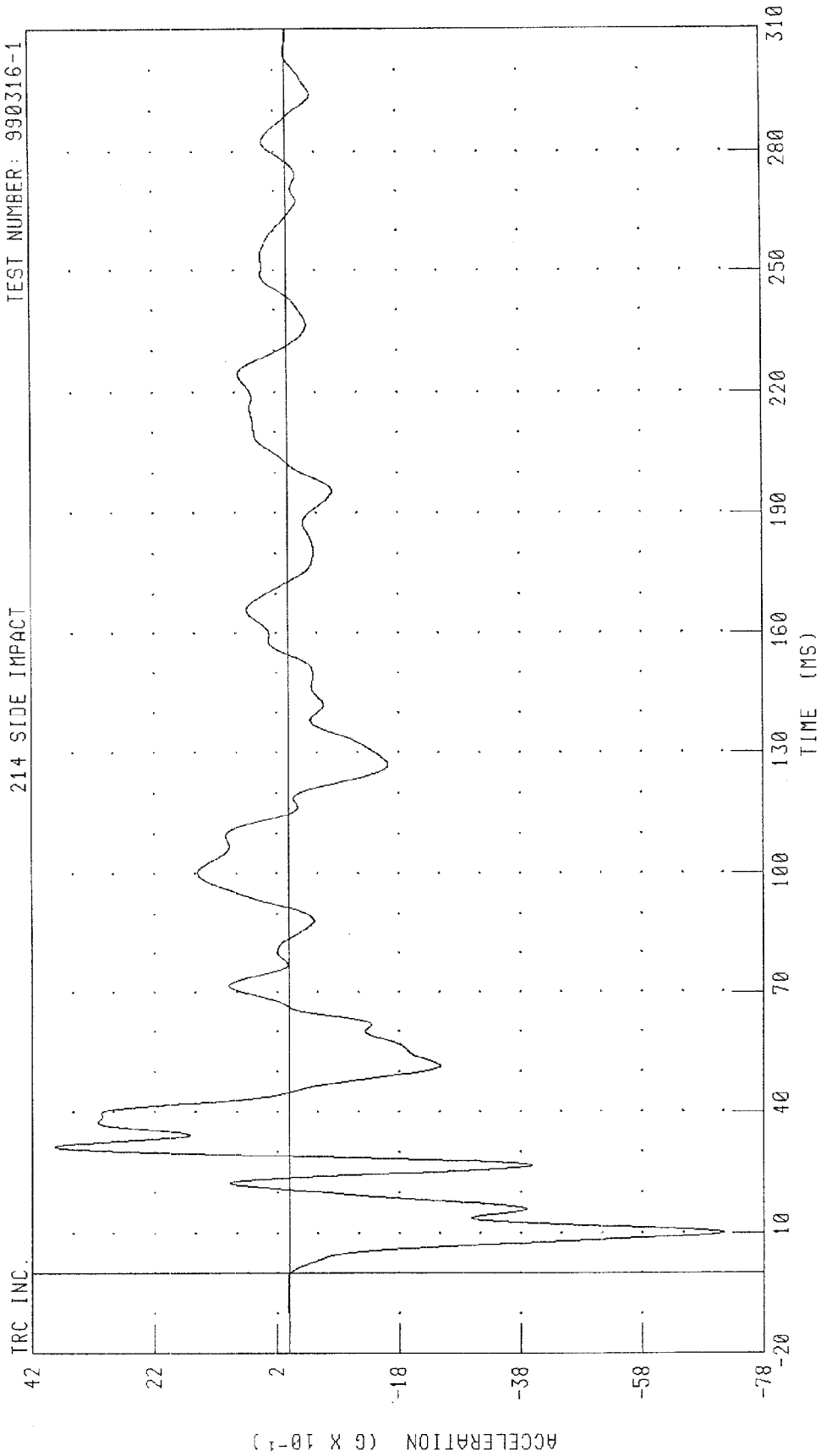
Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

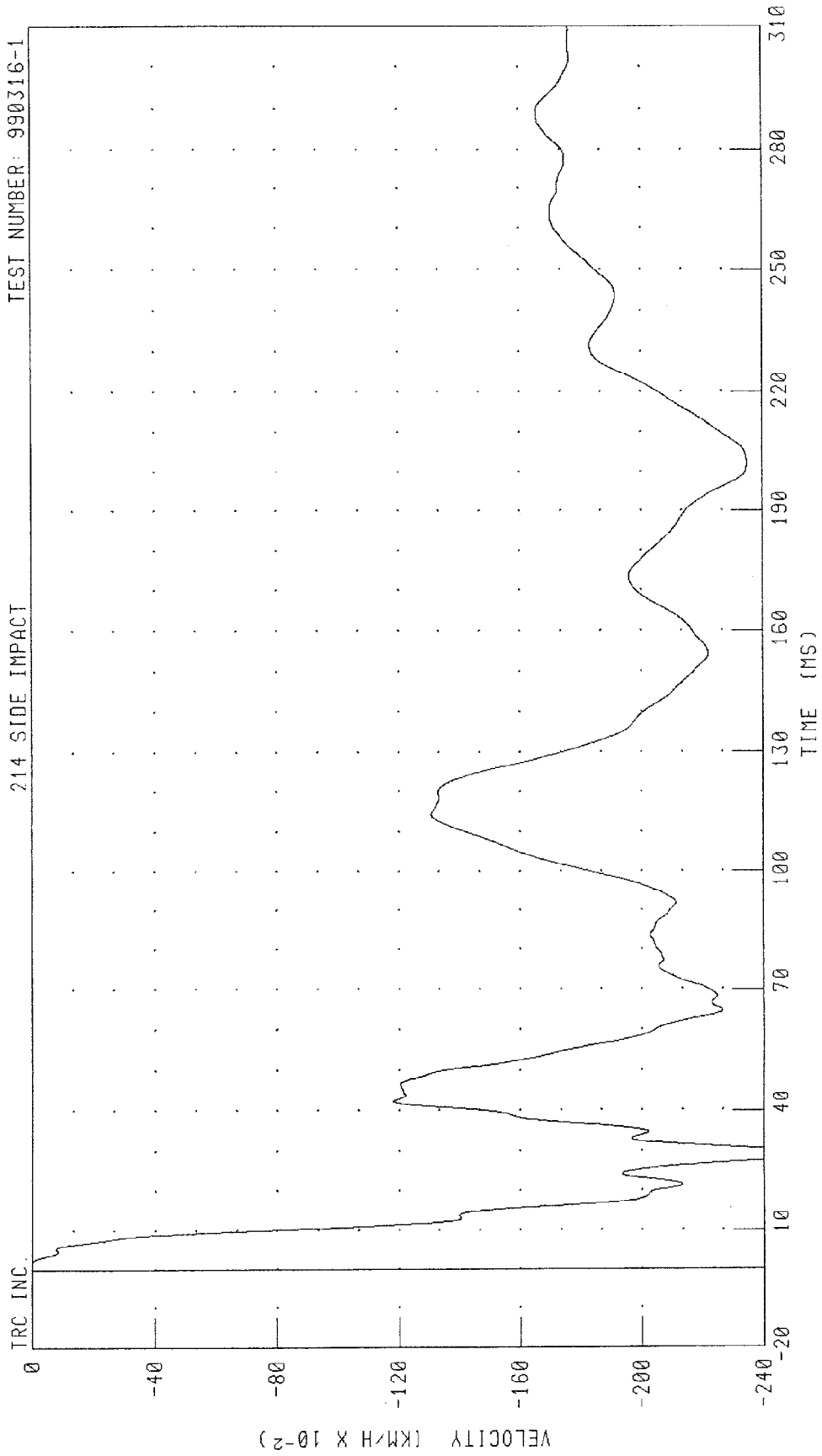


PEAK DATA: 3.84 G @ 31.44 MS; -7.11 G @ 10.00 MS

CHANNEL: RFSXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 990316-1



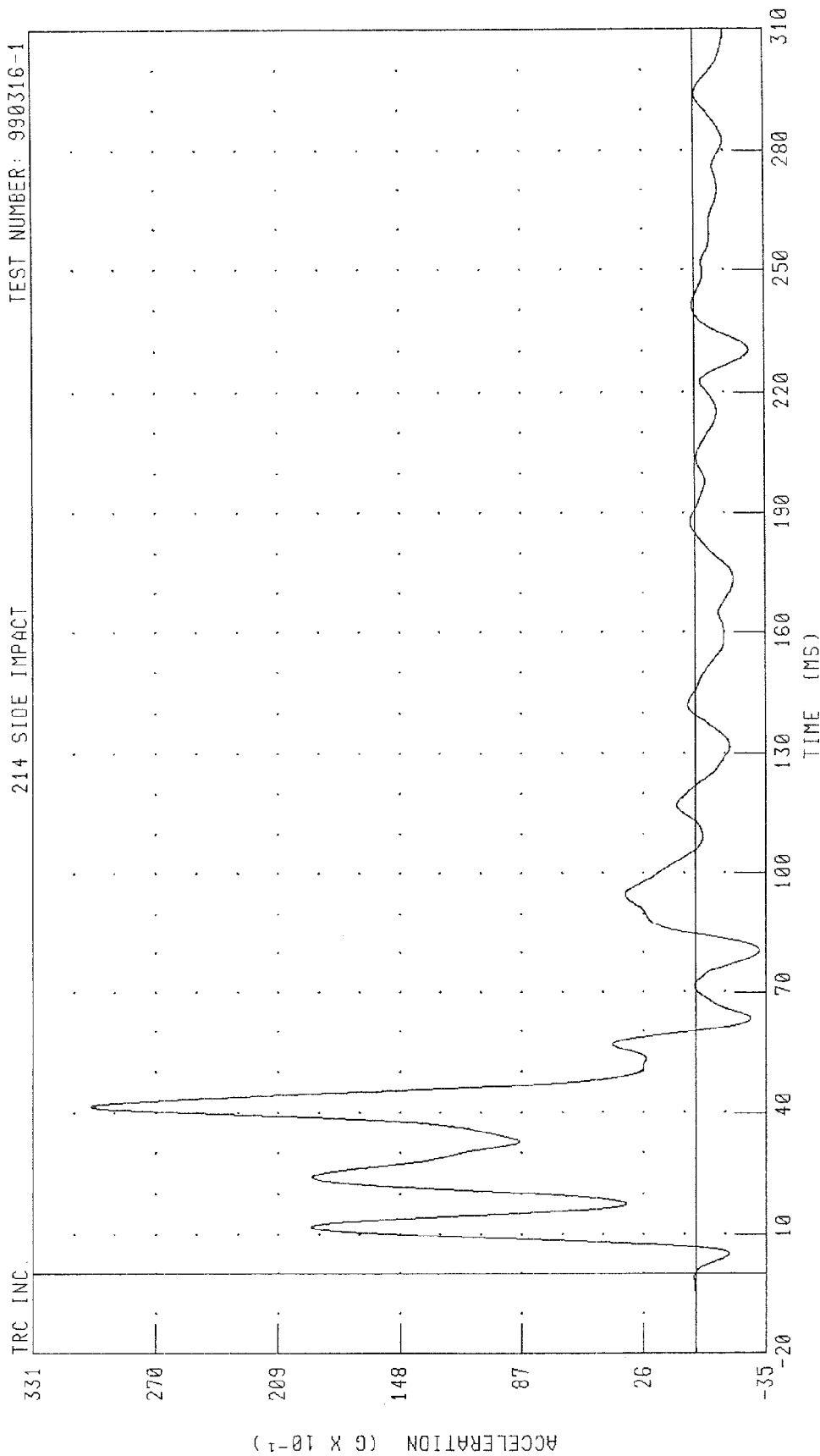
PEAK DATA: 0.00 KM/H @ 1.44 MS; -2.59 KM/H @ 28.88 MS

CHANNEL: RFSXV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 990316-1

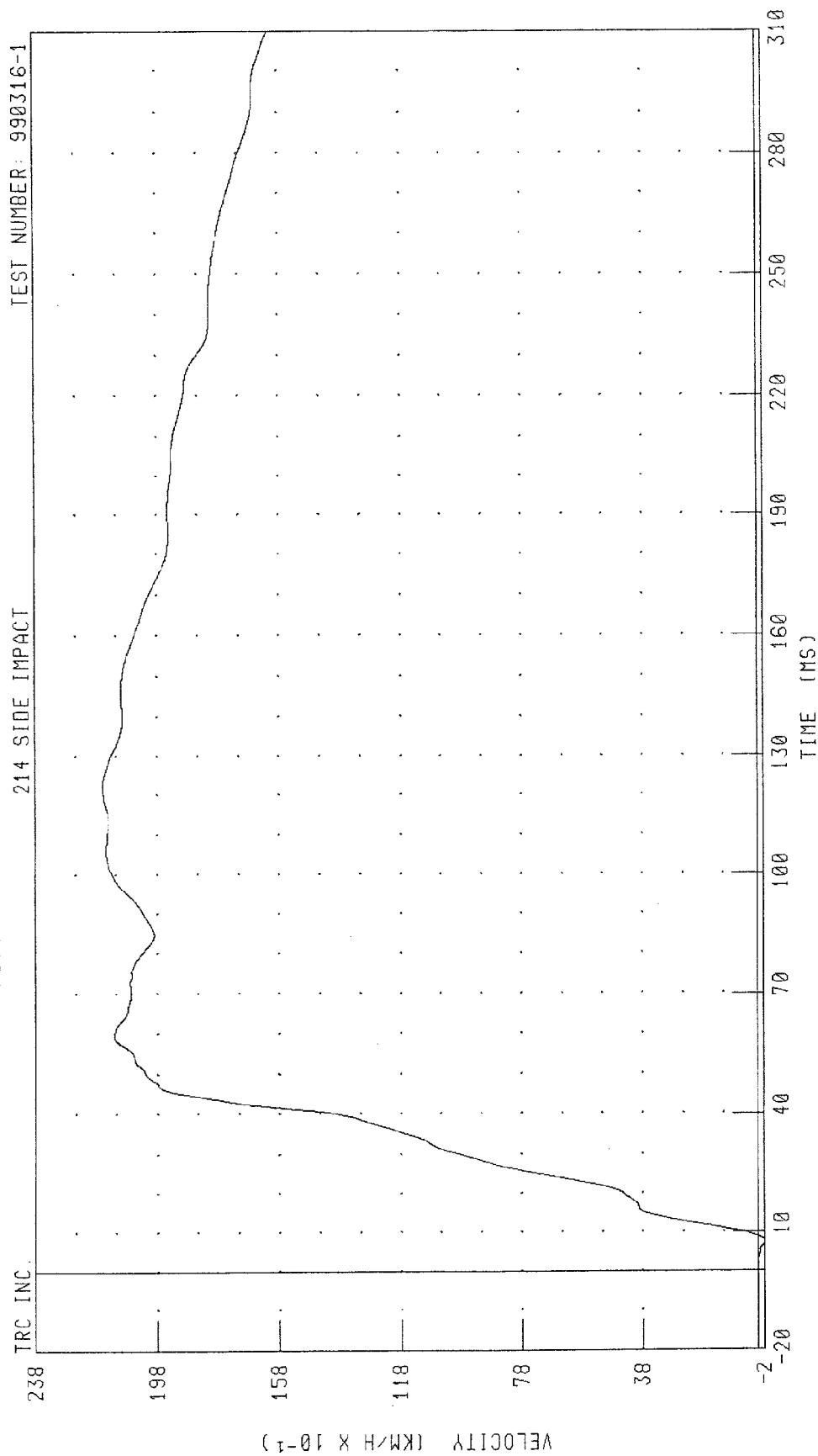
214 SIDE IMPACT



PEAK DATA: 30.23 G @ 41.68 MS; -3.19 G @ 80.56 MS

CHANNEL: RFSYG1 FILTER: CH. CLASS 60

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



PEAK DATA: 21.57 KM/H @ 122.80 MS; -0.25 KM/H @ 7.44 MS

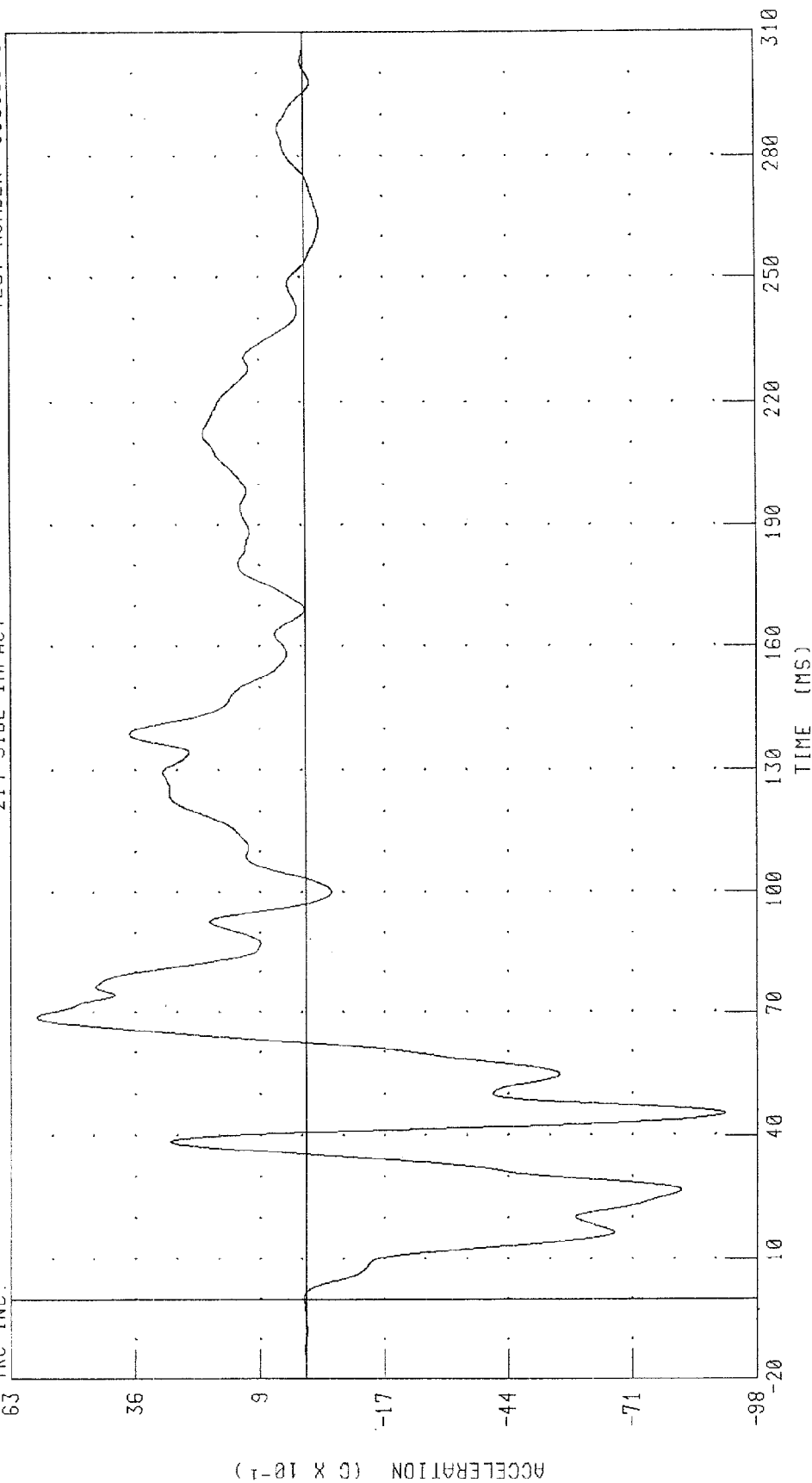
CHANNEL: RFSYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 RIGHT SIDE STILL AT FRONT SEAT Z-AXIS ACCELERATION

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

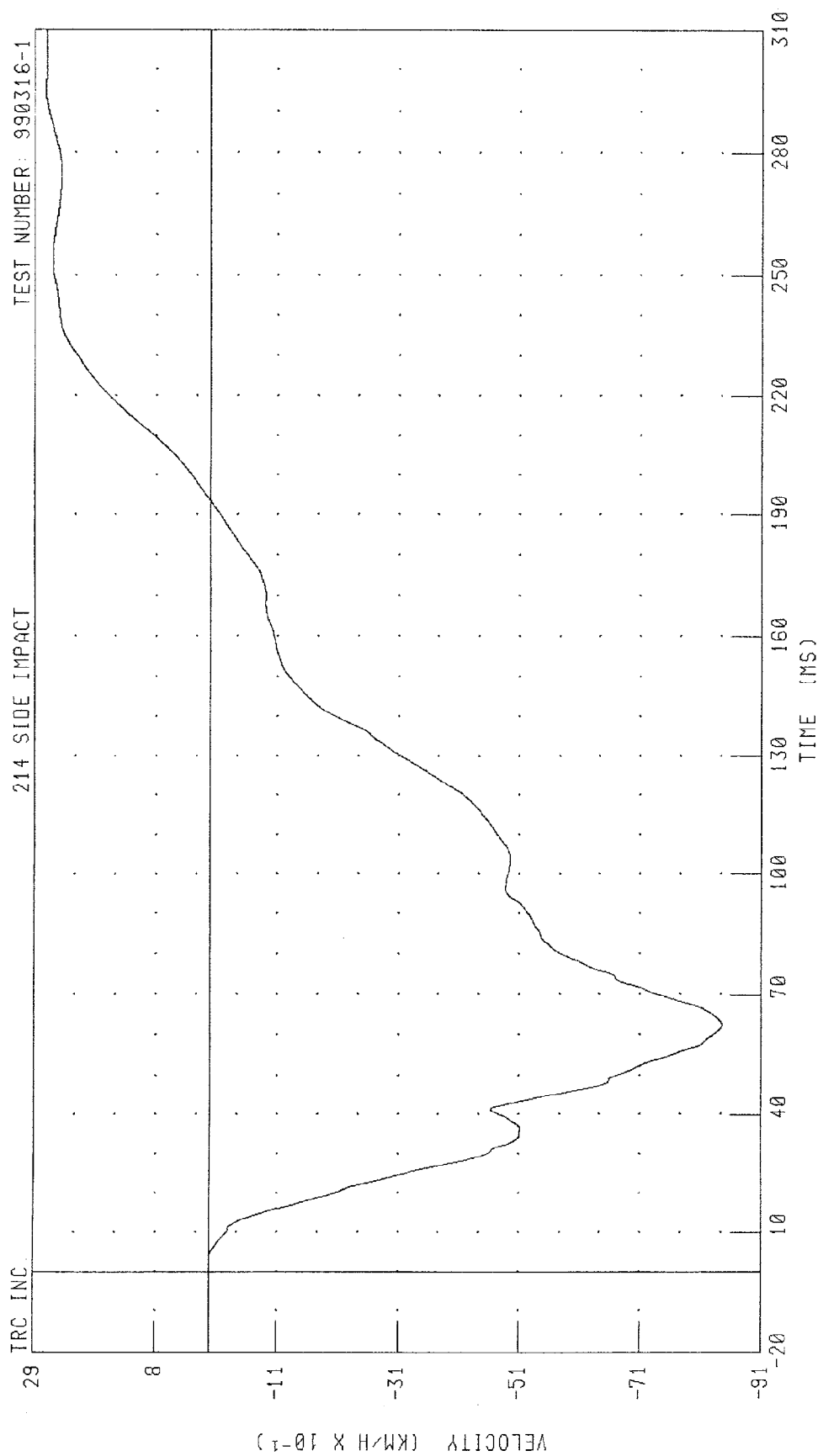


CHANNEL: RFSZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.83 G @ 68.88 MS; -9.11 G @ 45.20 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 990316-1

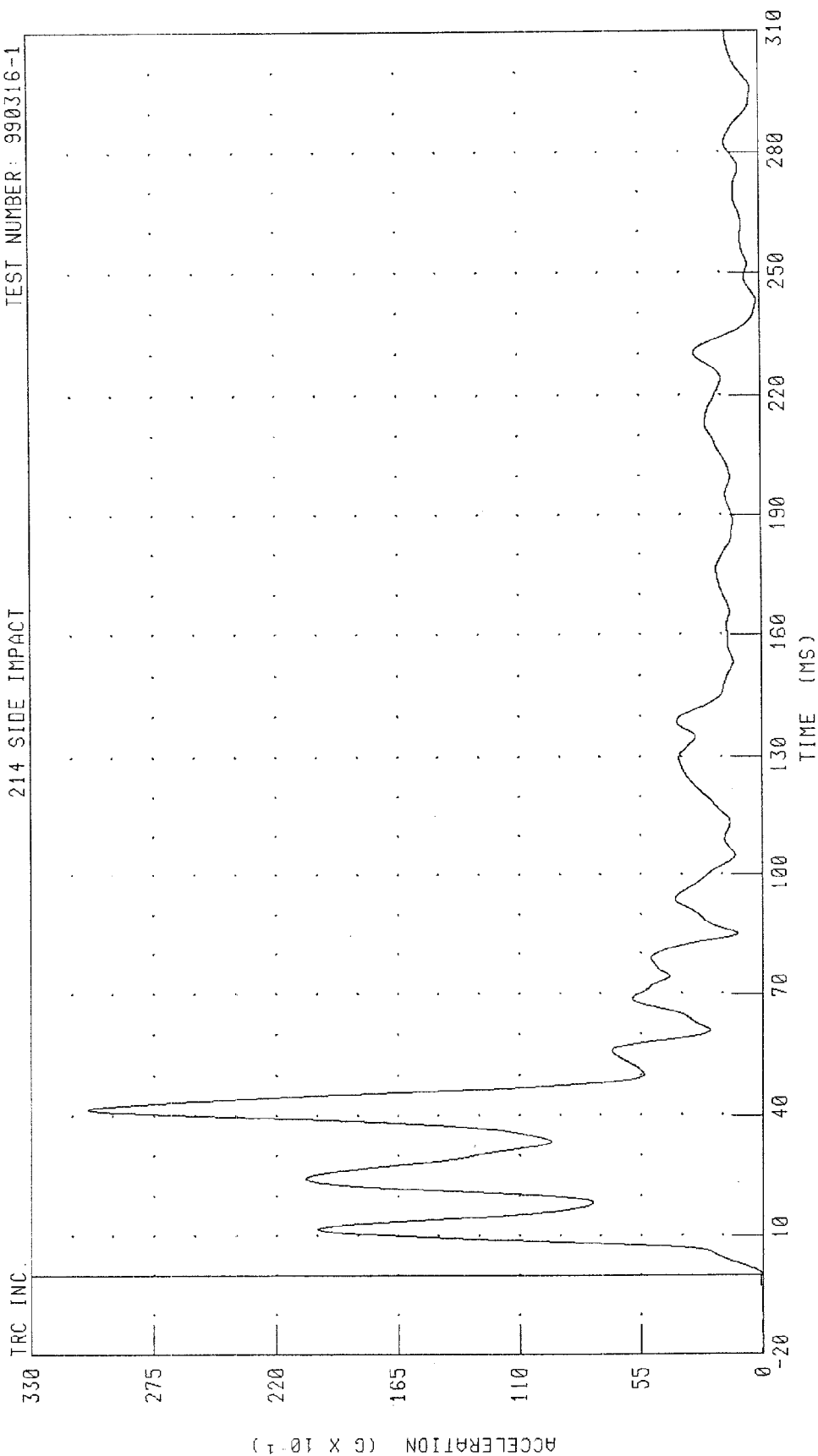


PEAK DATA: 2.72 KM/H @ 295.84 MS; -8.46 KM/H @ 62.48 MS

CHANNEL: RFSZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990316-1

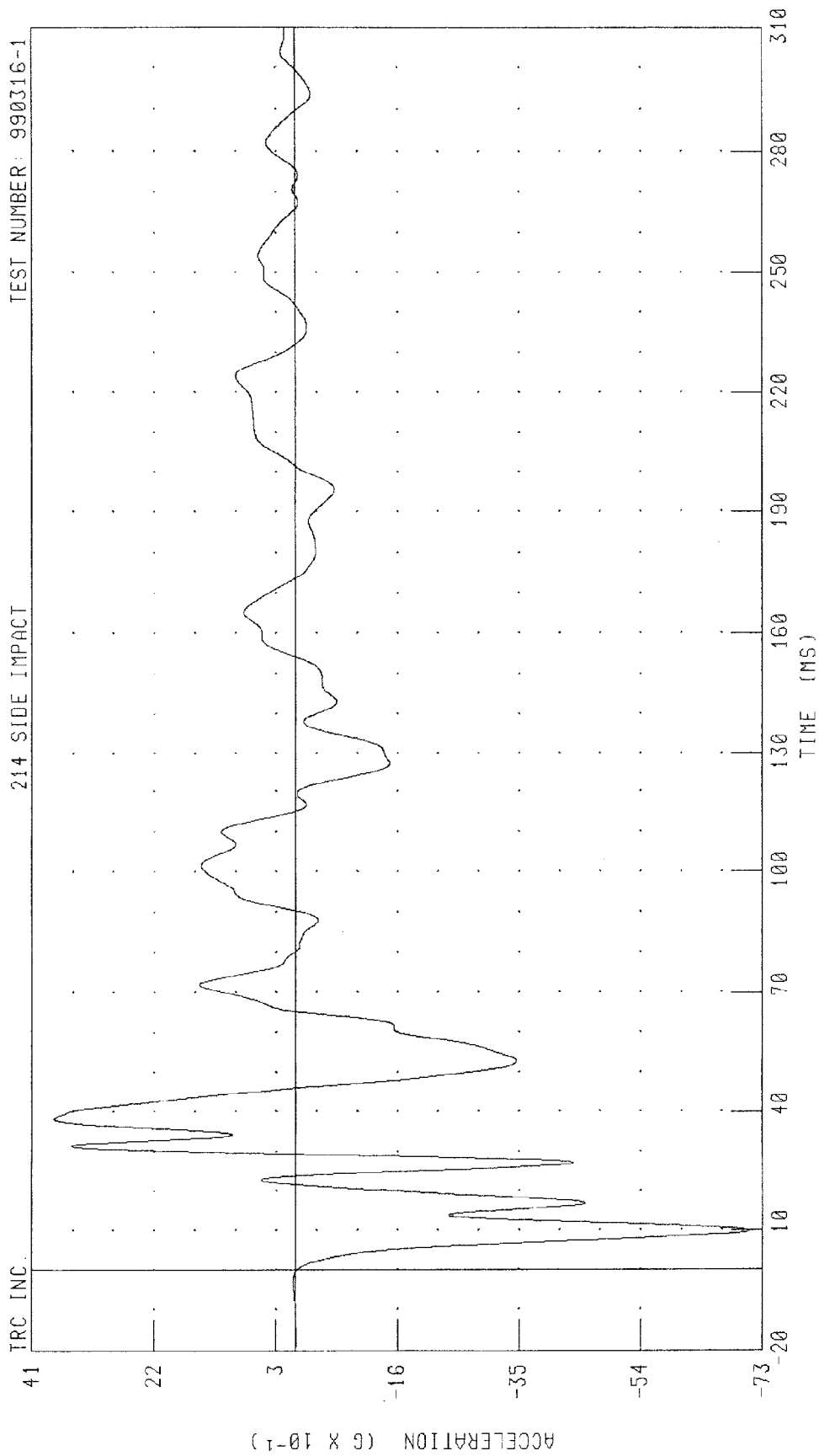


PEAK DATA: 30.43 G @ 41.76 MS; 0.01 G @ -17.20 MS

CHANNEL: RFSRC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION



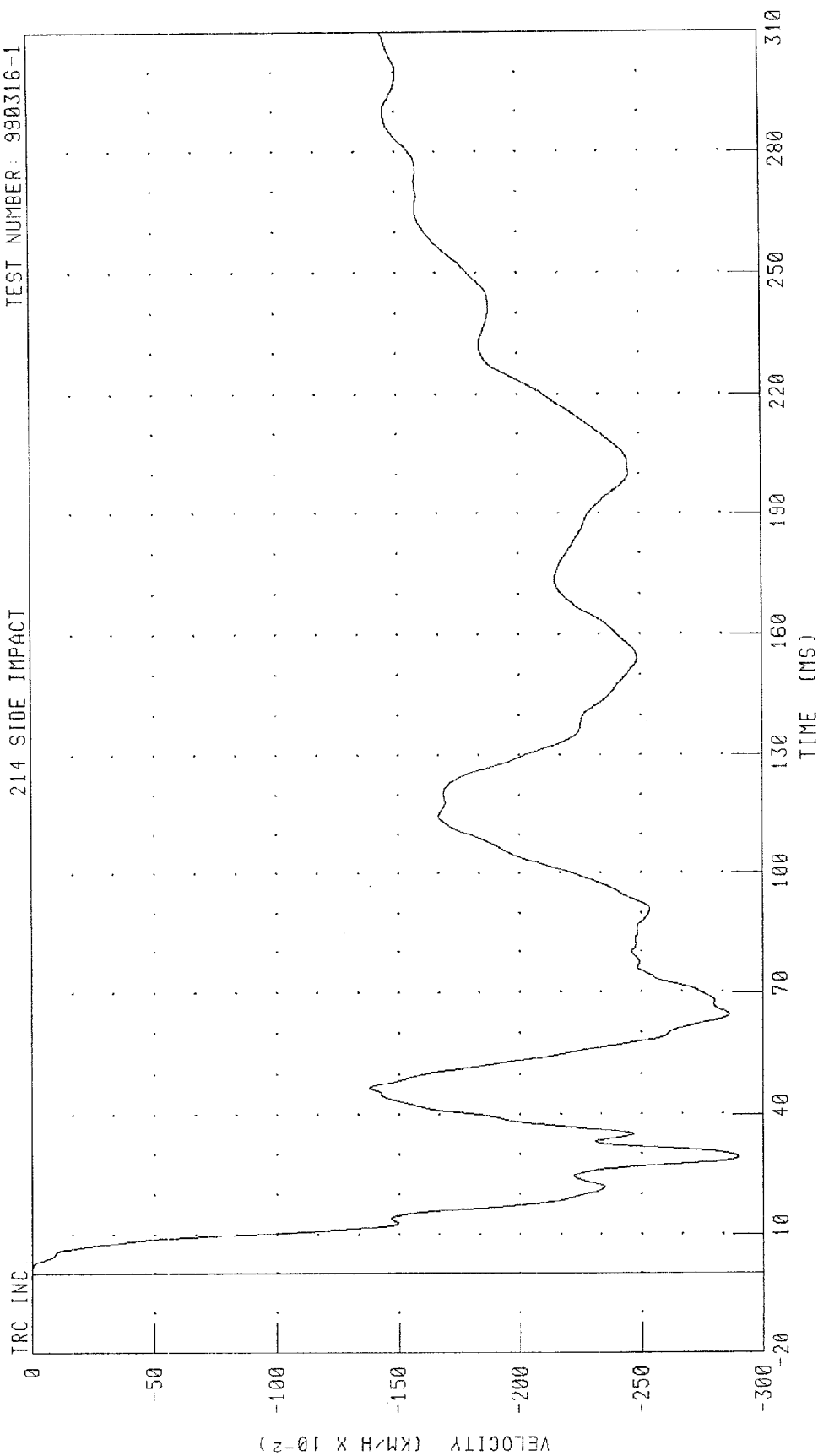
PEAK DATA: 3.76 G @ 38.24 MS; -7.09 G @ 9.76 MS

CHANNEL: RRSXG1 FILTER: CH. CLASS 60

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

TEST NUMBER: 990316-1

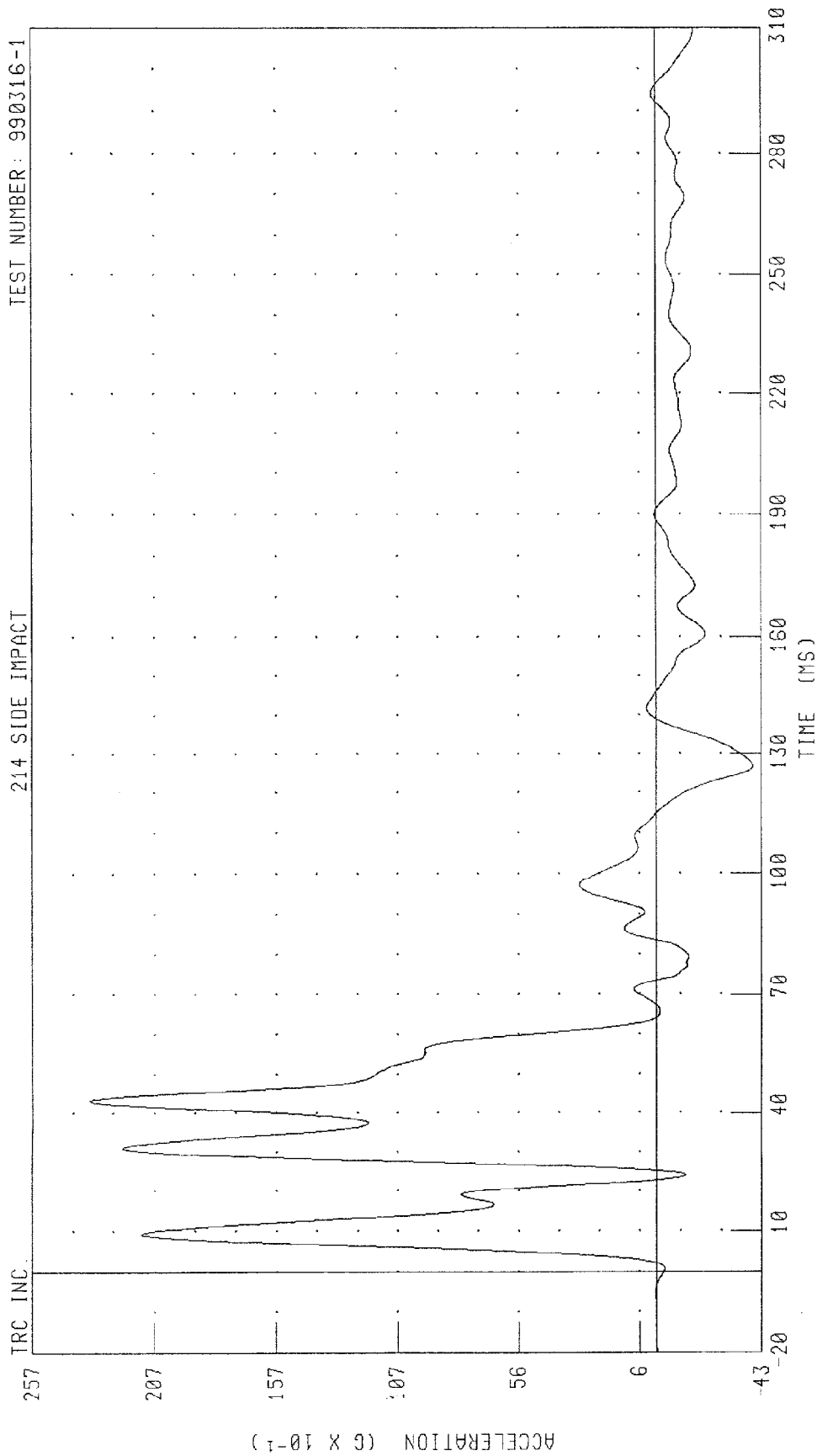
214 SIDE IMPACT



PEAK DATA: 0.00 KM/H @ 0.00 MS, -2.90 KM/H @ 29.20 MS

CHANNEL: RRSXV1 FILTER: CH. CLASS 180

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

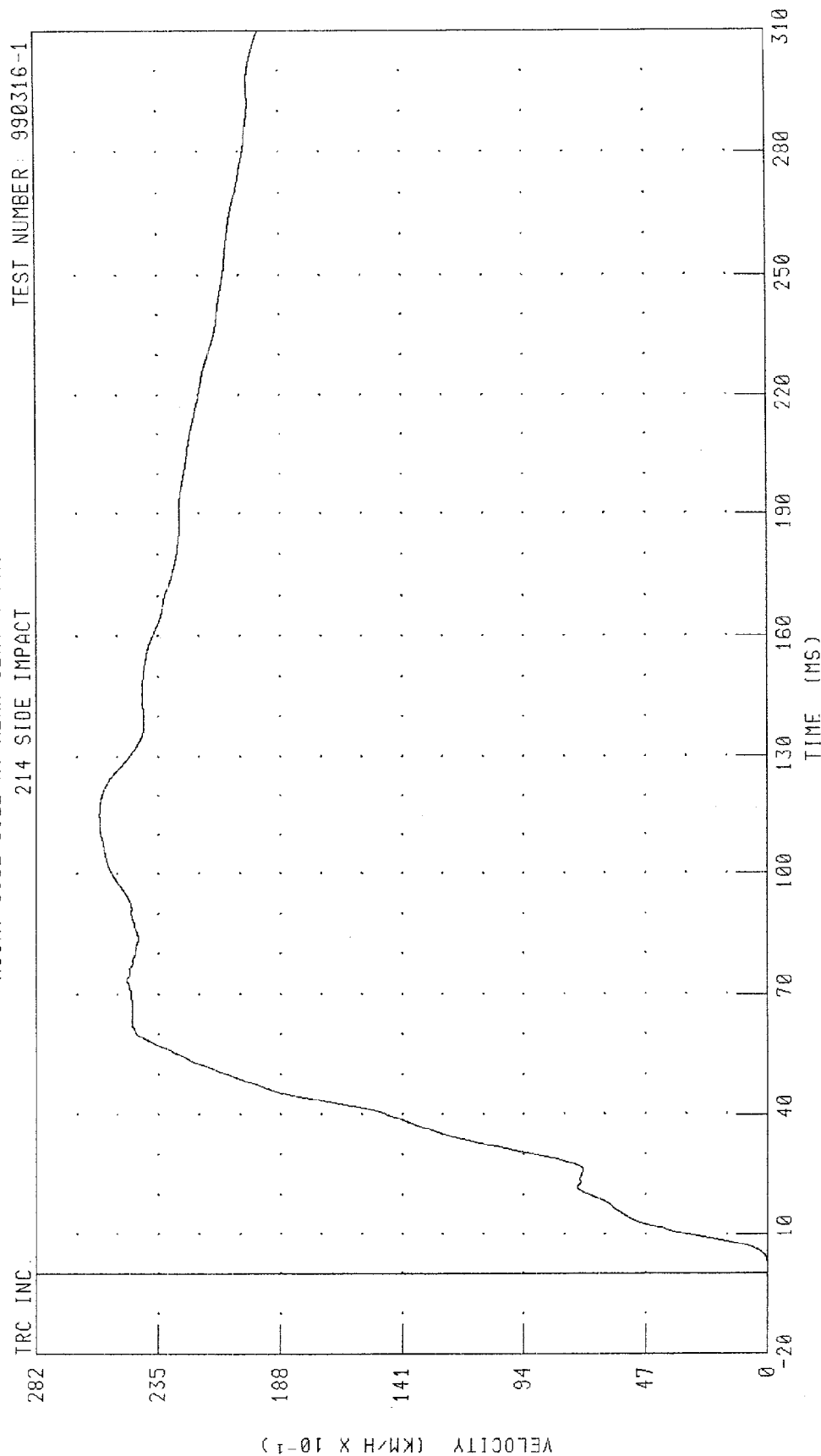


CHANNEL: RRSYG1 FILTER: CH. CLASS 60

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

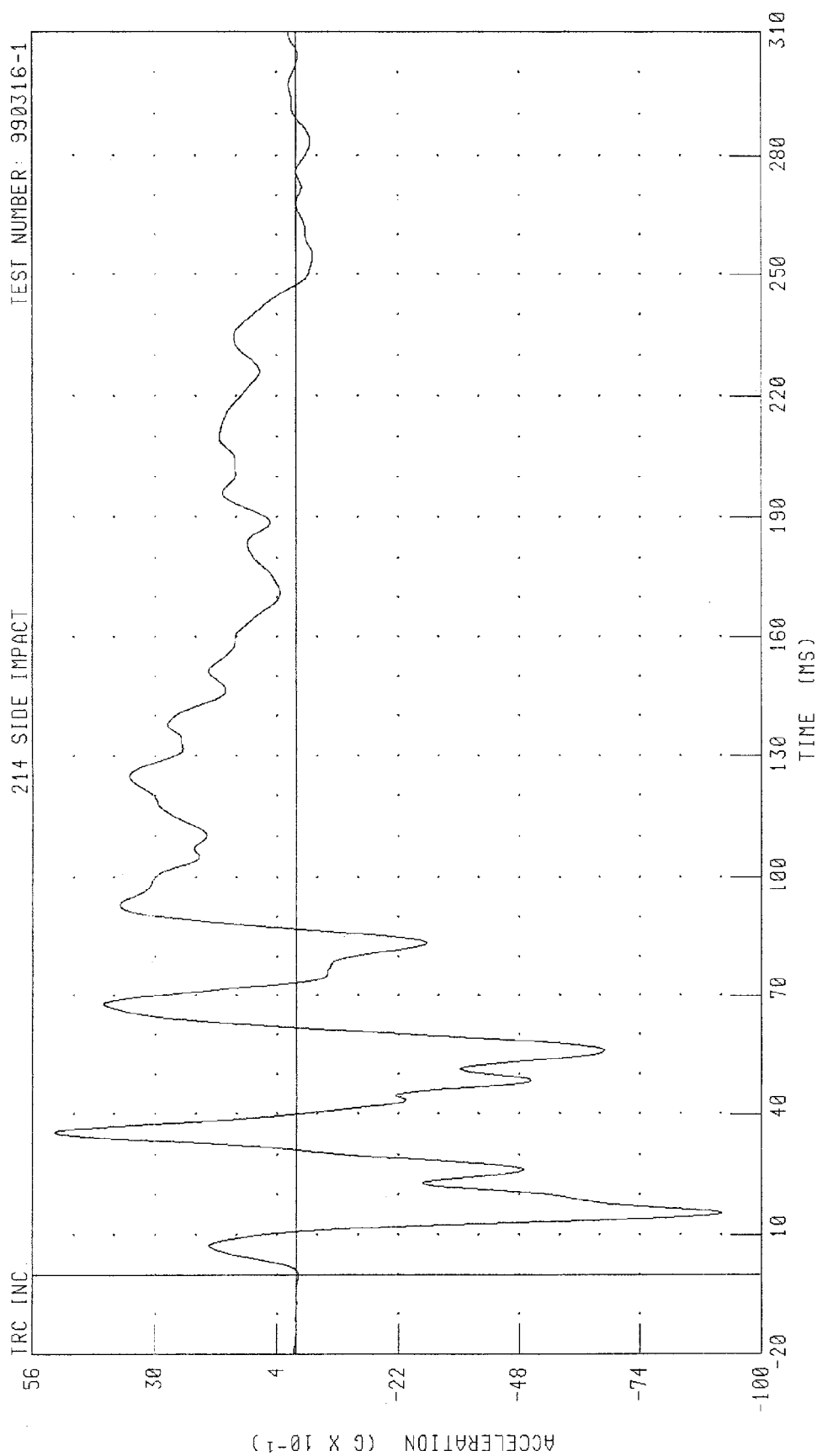


PEAK DATA: 25.77 KM/H @ 115.04 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: RRSYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION



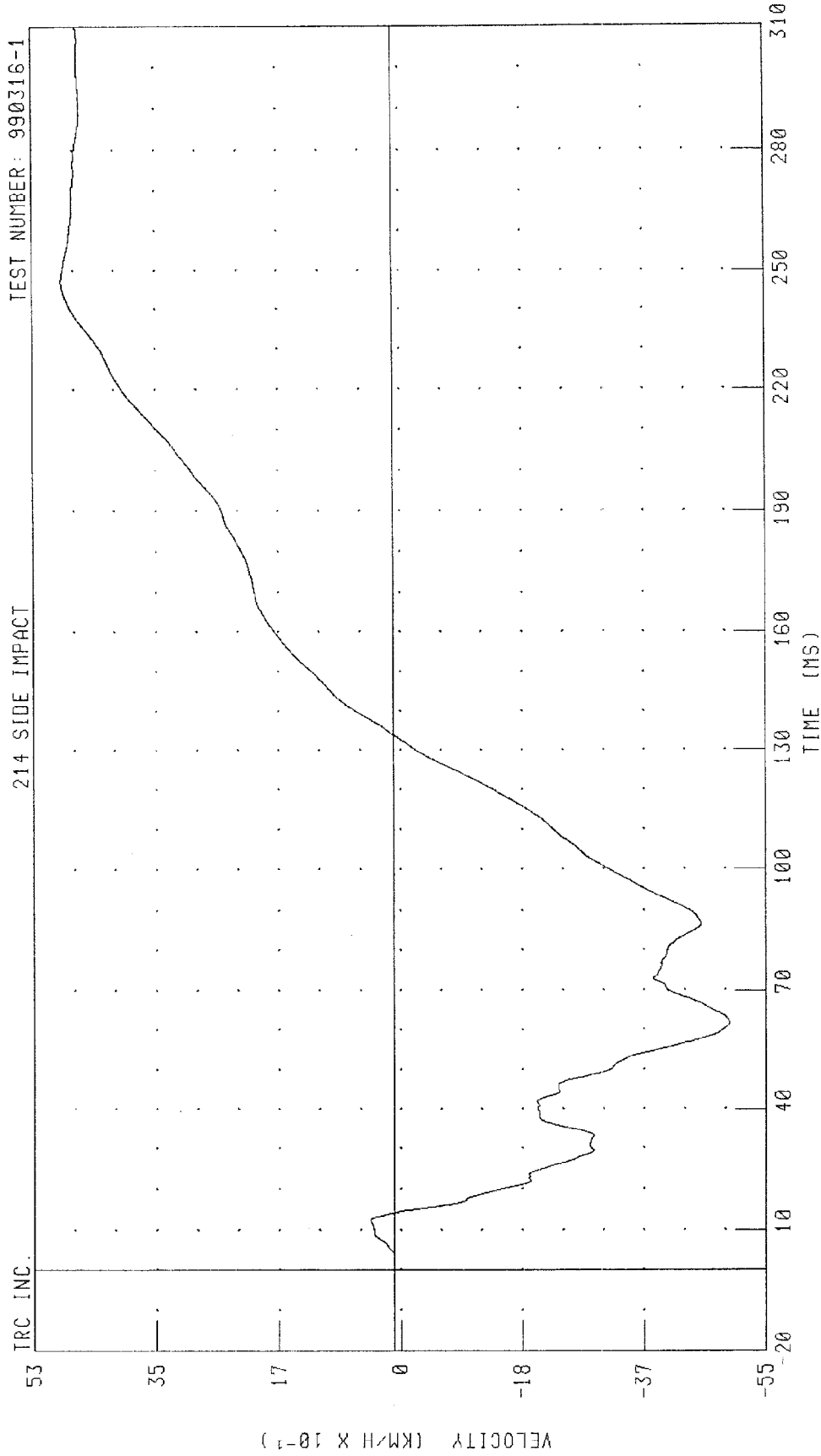
PEAK DATA: 5.14 G @ 35.60 MS; -9.14 G @ 15.44 MS

CHANNEL: RRSZG1 FILTER: CH CLASS 60

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

TEST NUMBER: 990316-1

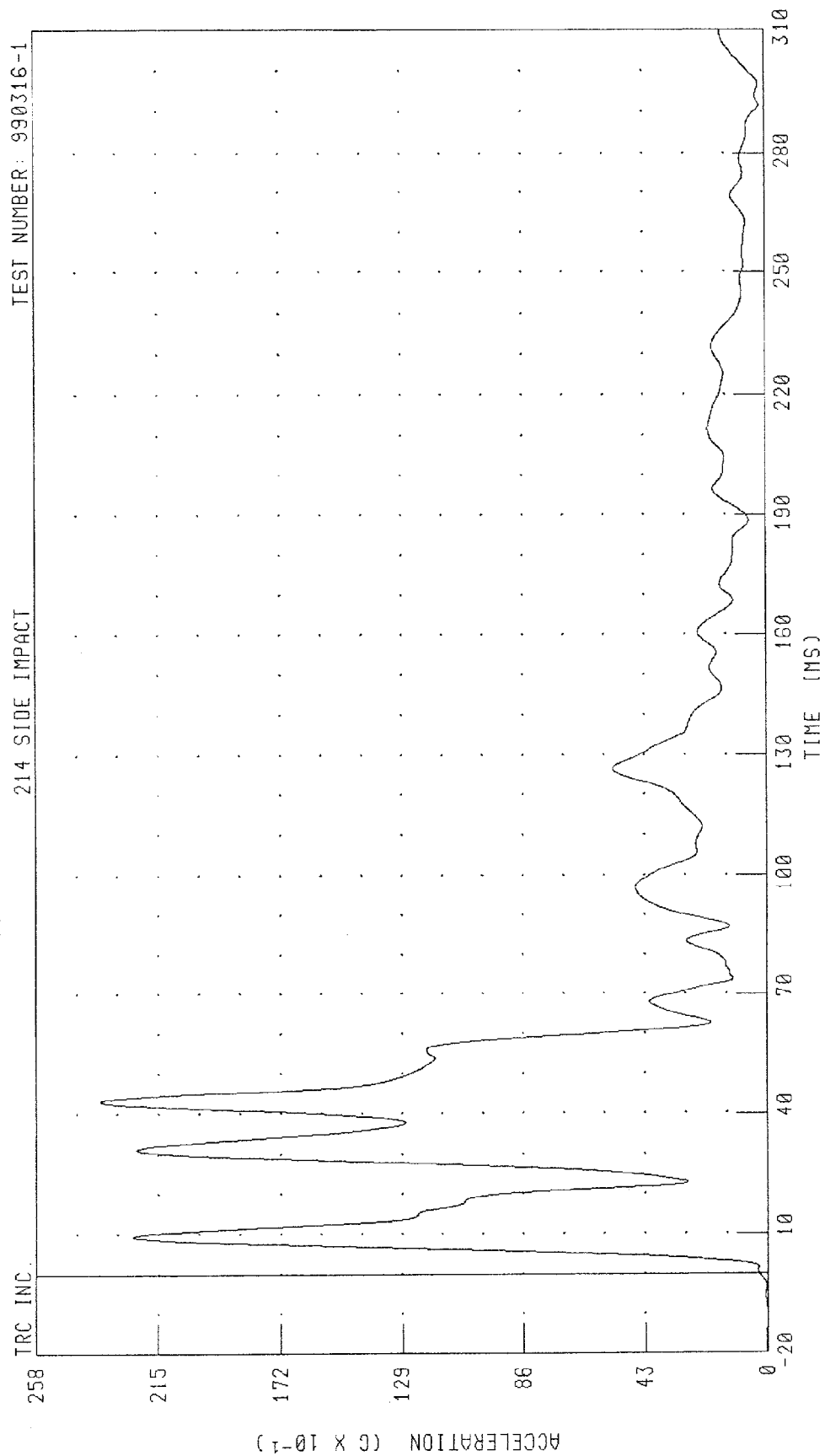
214 SIDE IMPACT



PEAK DATA: 4.87 KM/H @ 247.20 MS, -4.96 KM/H @ 61.76 MS

CHANNEL: RRSZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION



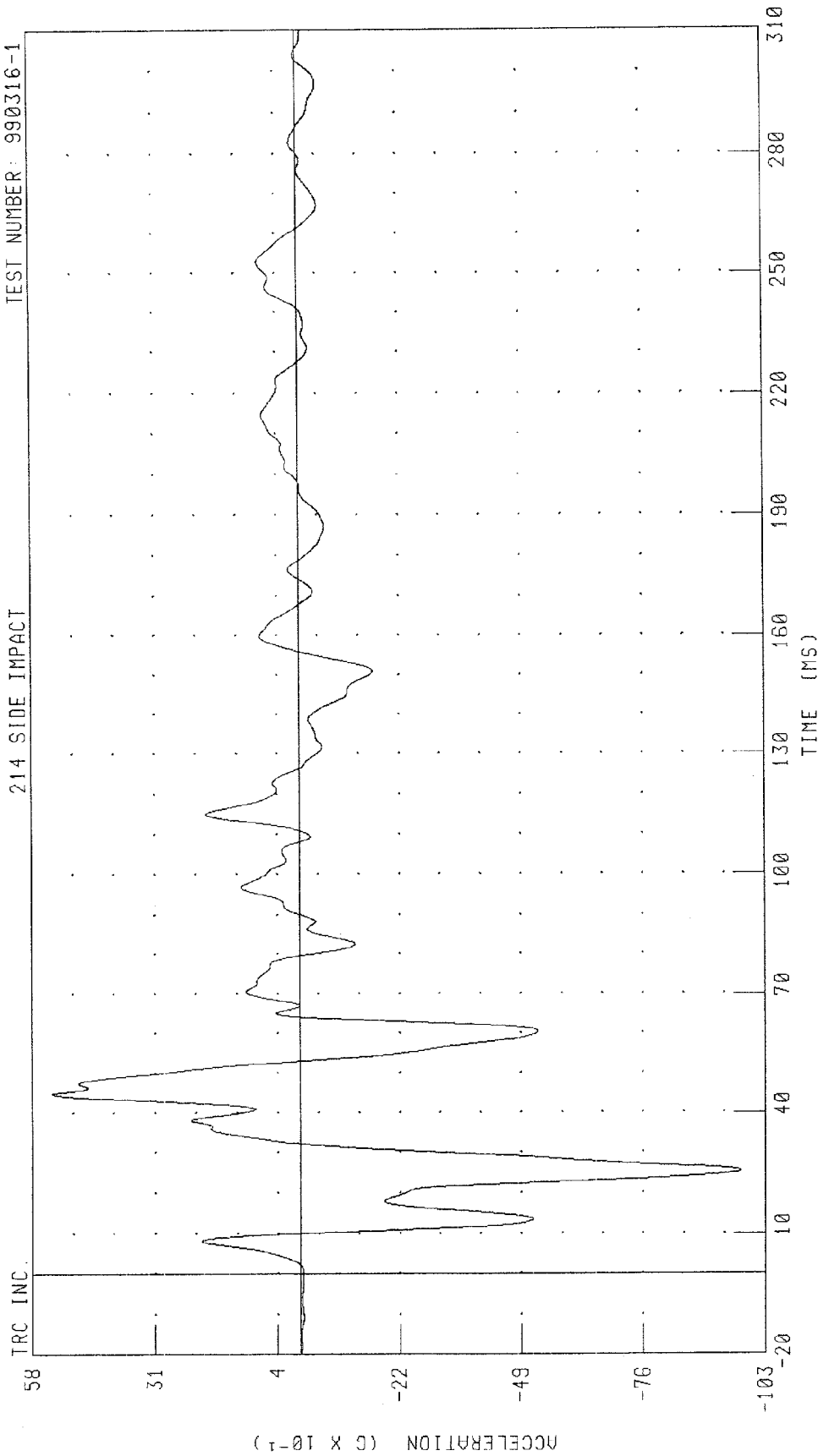
PEAK DATA: 23.54 G @ 43.20 MS; 0.00 G @ -11.36 MS

CHANNEL: RRSRC1 FILTER: CH. CLASS 60

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

TEST NUMBER: 990316-1

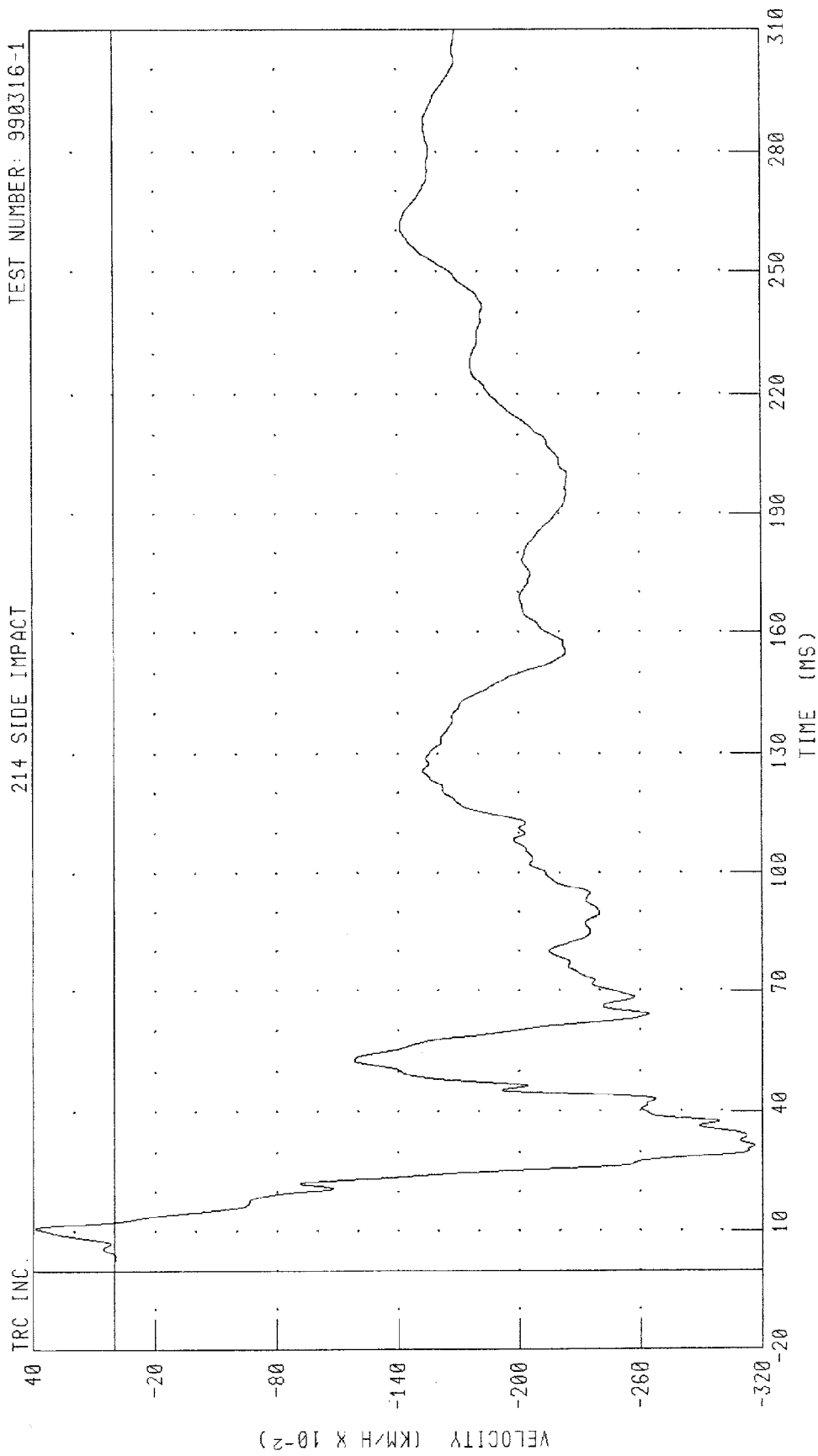
214 SIDE IMPACT



PEAK DATA: 5.45 G @ 44.80 MS; -9.76 G @ 25.36 MS

CHANNEL: RDKXC1 FILTER: CH. CLASS 60

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



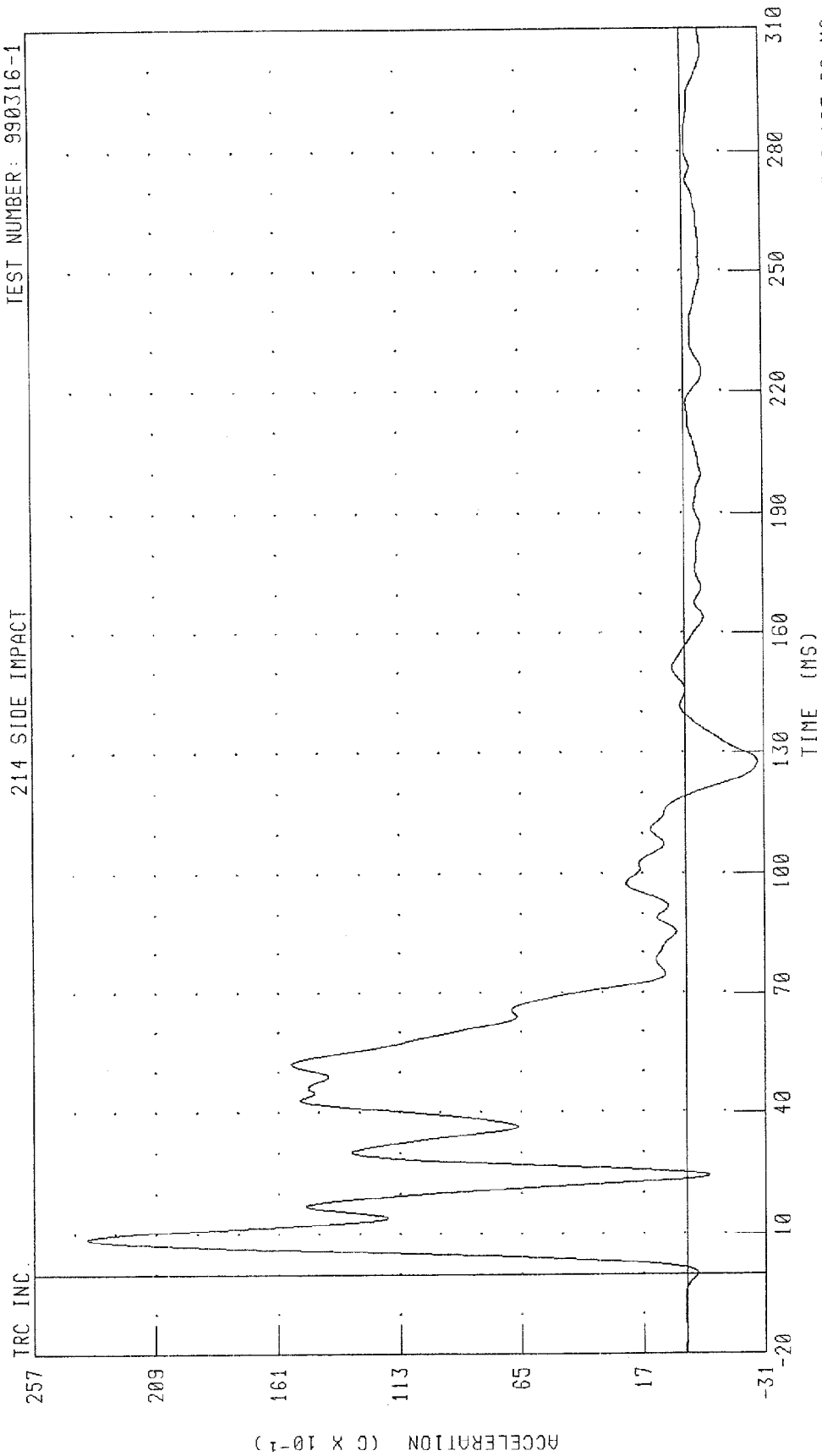
PEAK DATA: 0.39 KM/H @ 10.80 MS, -3.16 KM/H @ 31.68 MS

CHANNEL: RDXV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 990316-1

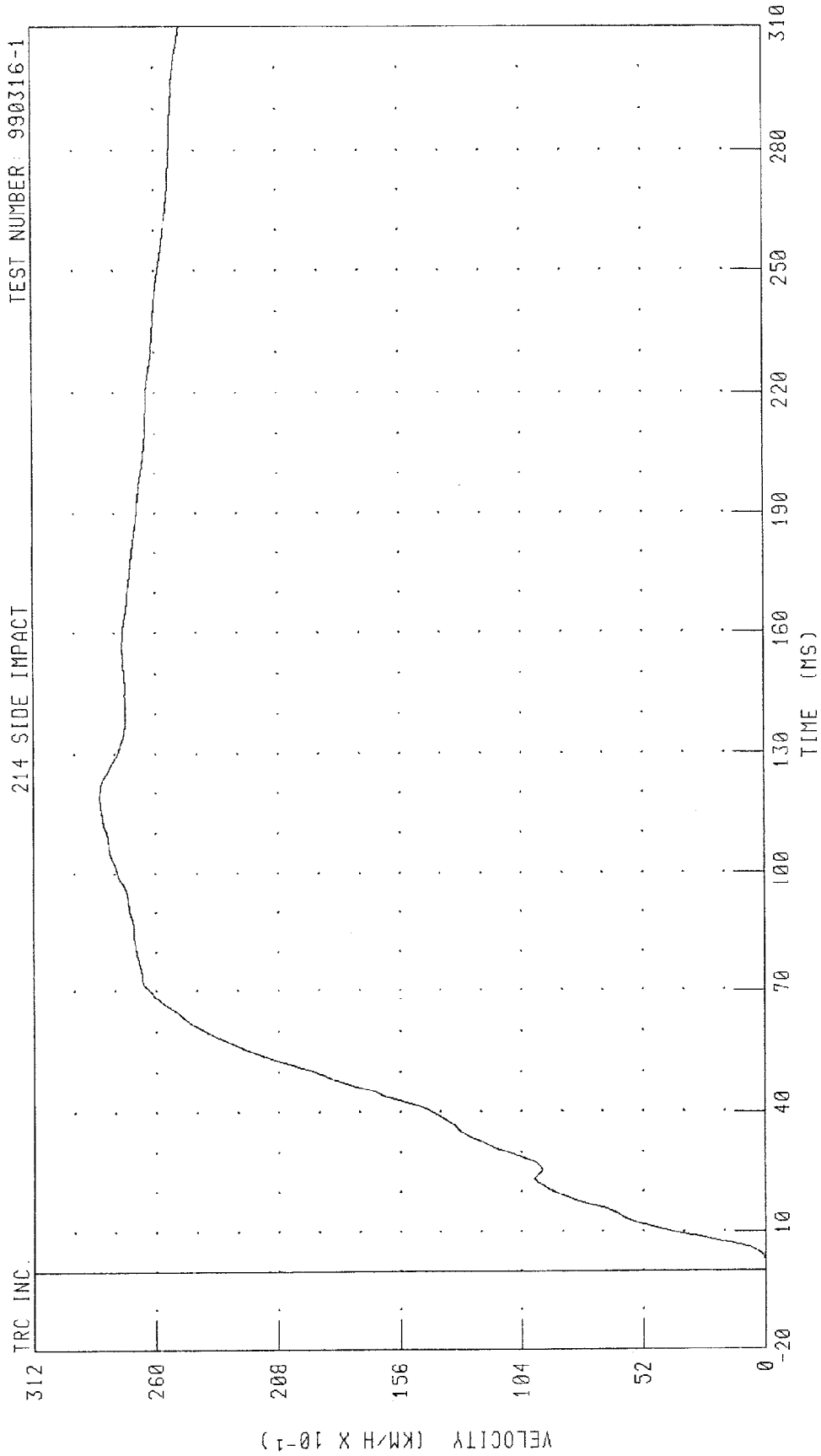
214 SIDE IMPACT



PEAK DATA: 23.61 G @ 8.72 MS, -2.85 G @ 127.68 MS

CHANNEL: RDKYC1 FILTER: CH. CLASS 60

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



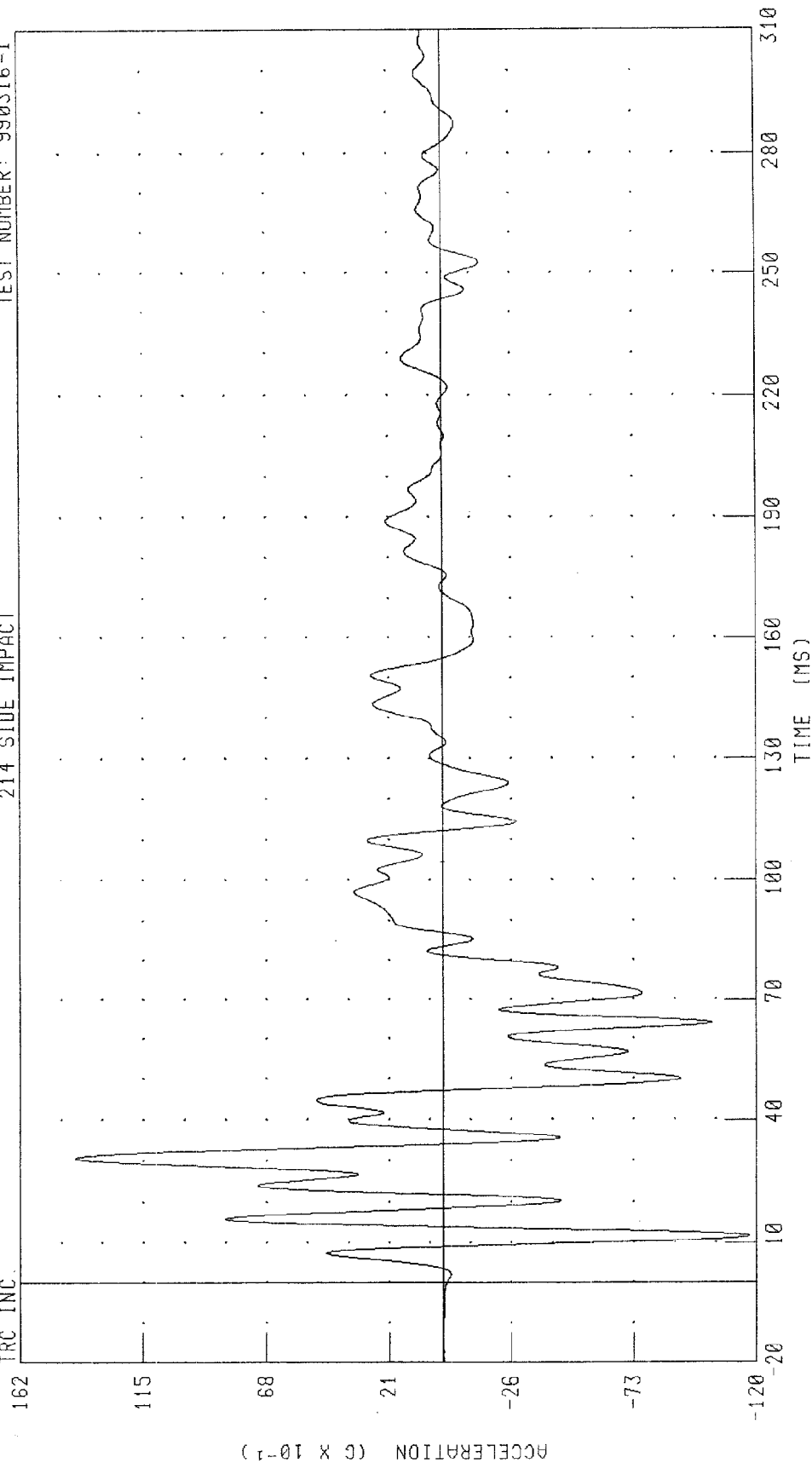
CHANNEL: RDKYV1 FILTER: CH. CLASS 180

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

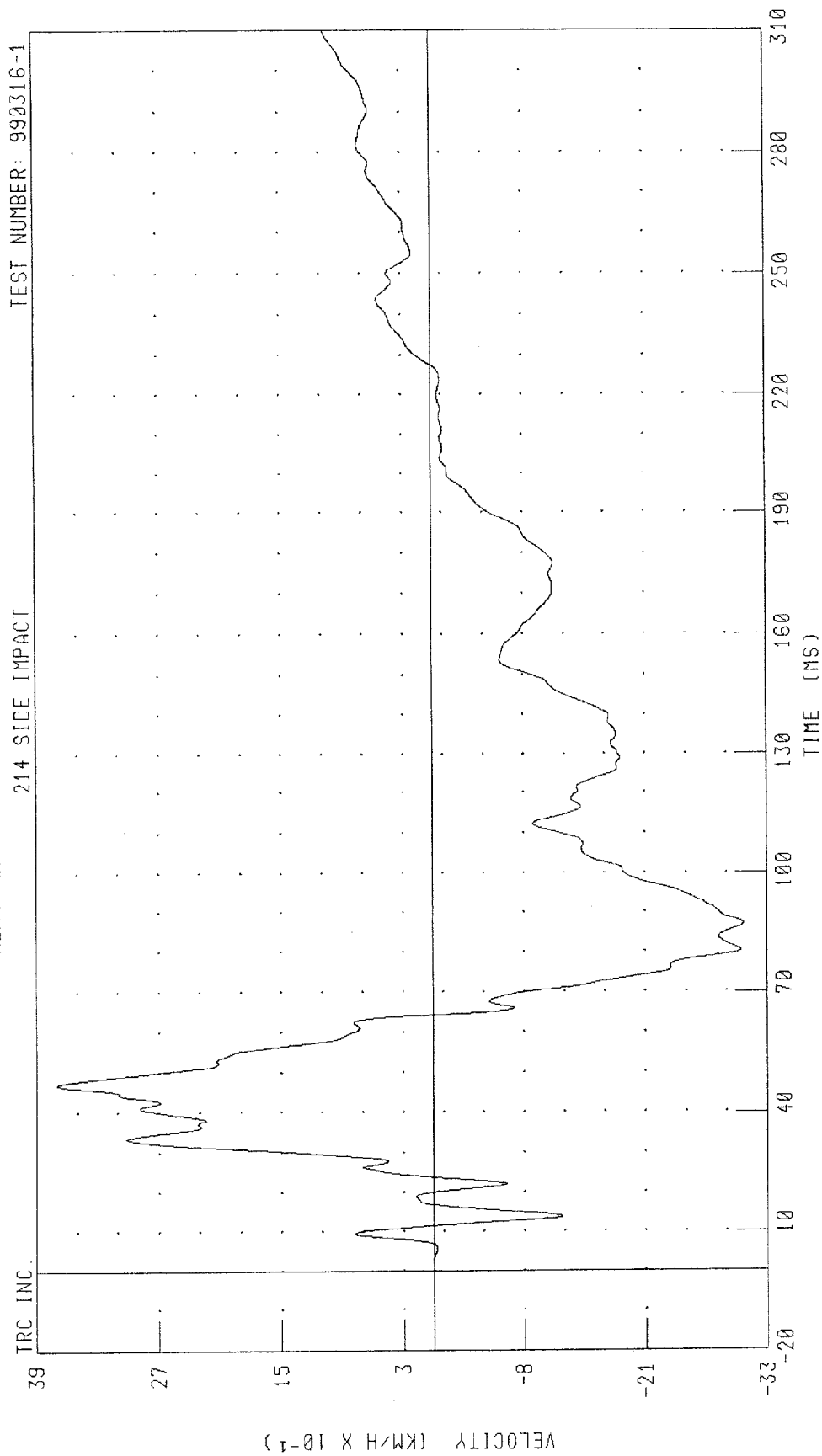
TRC INC.



PEAK DATA: 14.12 G @ 30.72 MS, -11.74 G @ 11.76 MS

CHANNEL: ROKZG1 FILTER: CH. CLASS 60

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

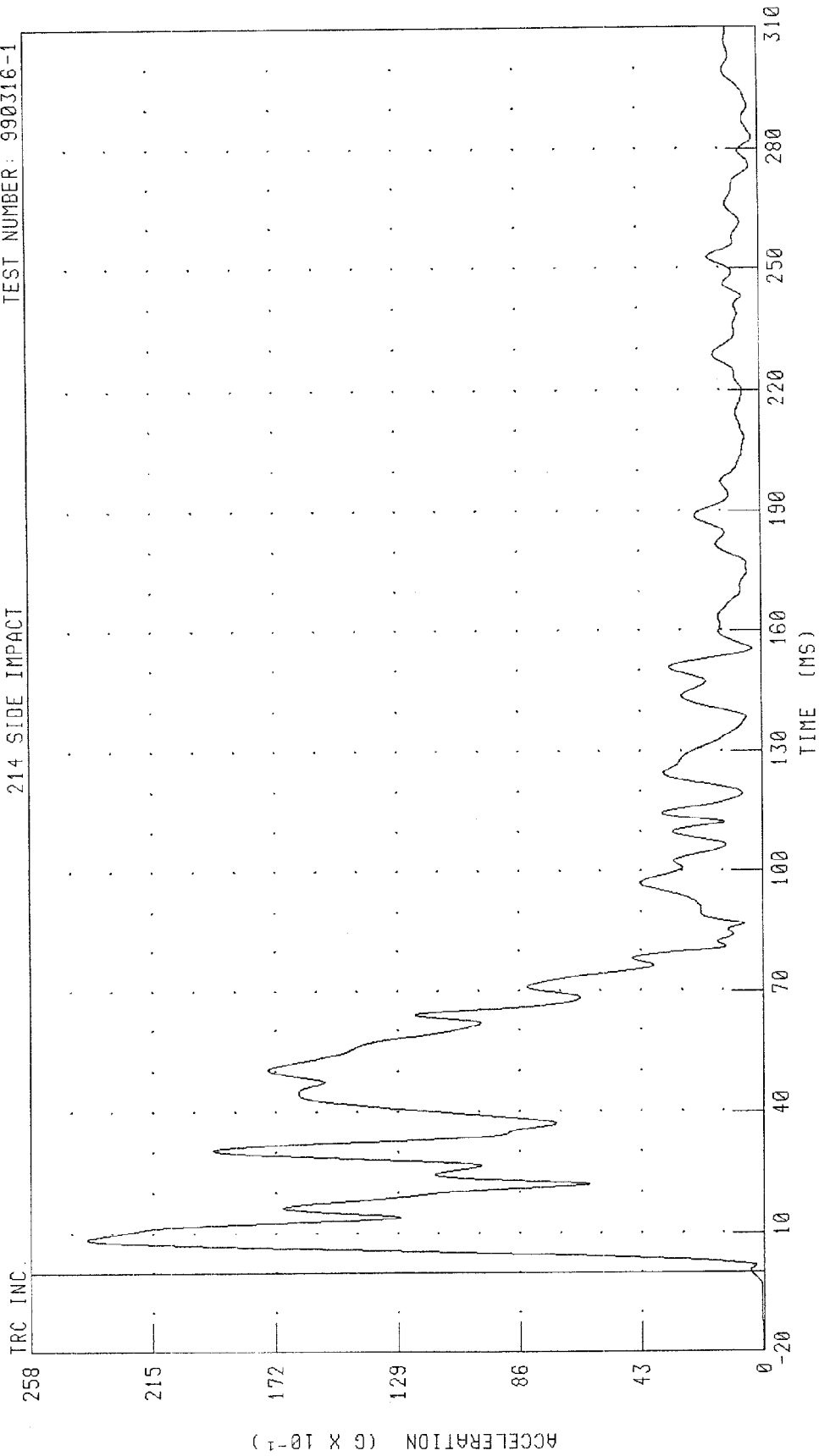


PEAK DATA: 3.70 KM/H @ 47.20 MS; -3.08 KM/H @ 87.04 MS

CHANNEL: RDKZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990316-1

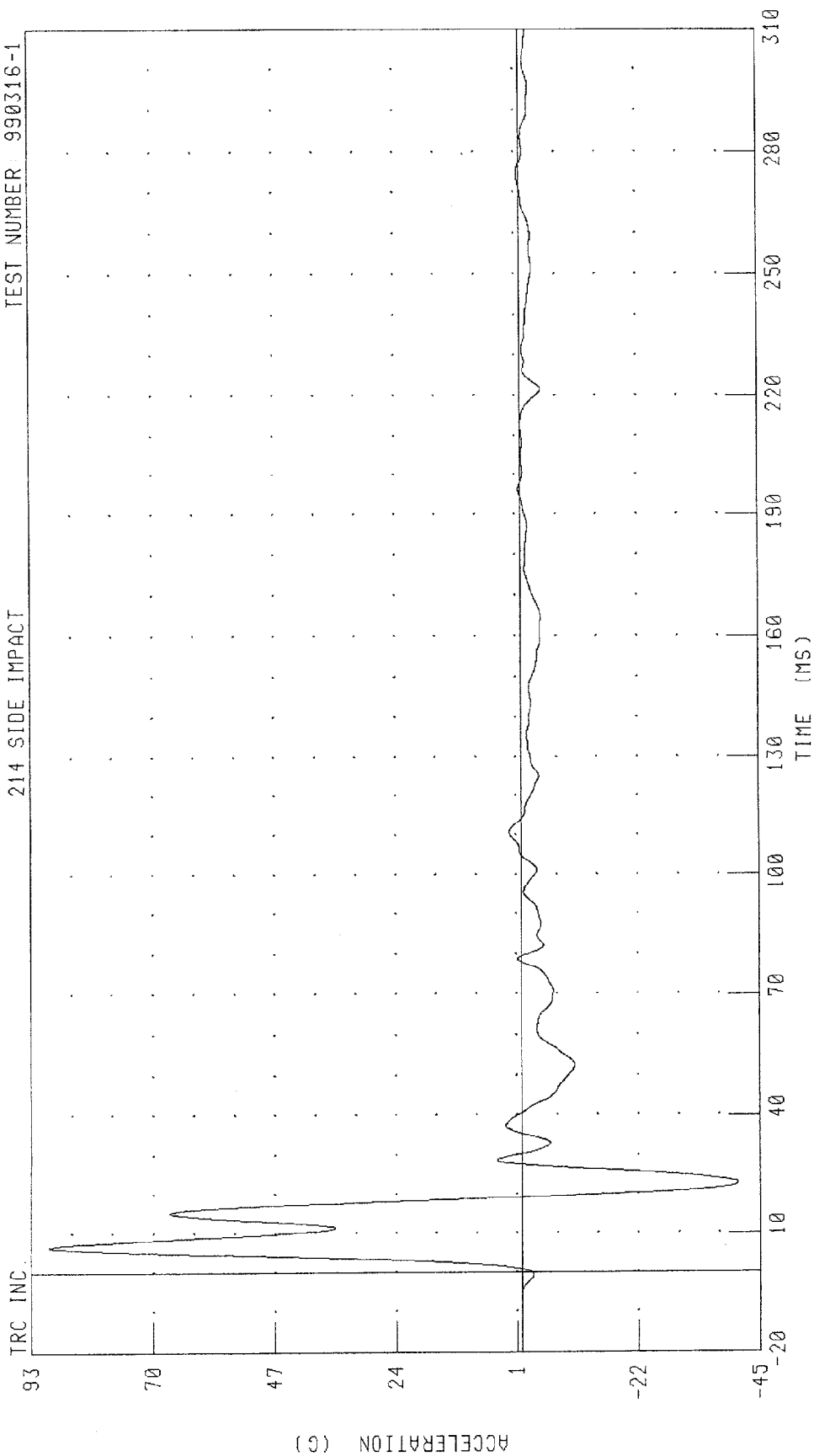


PEAK DATA: 23.80 G @ 8.48 MS, 0.02 G @ -16.24 MS

CHANNEL: RDKRC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION
214 SIDE IMPACT

TEST NUMBER: 990316-1



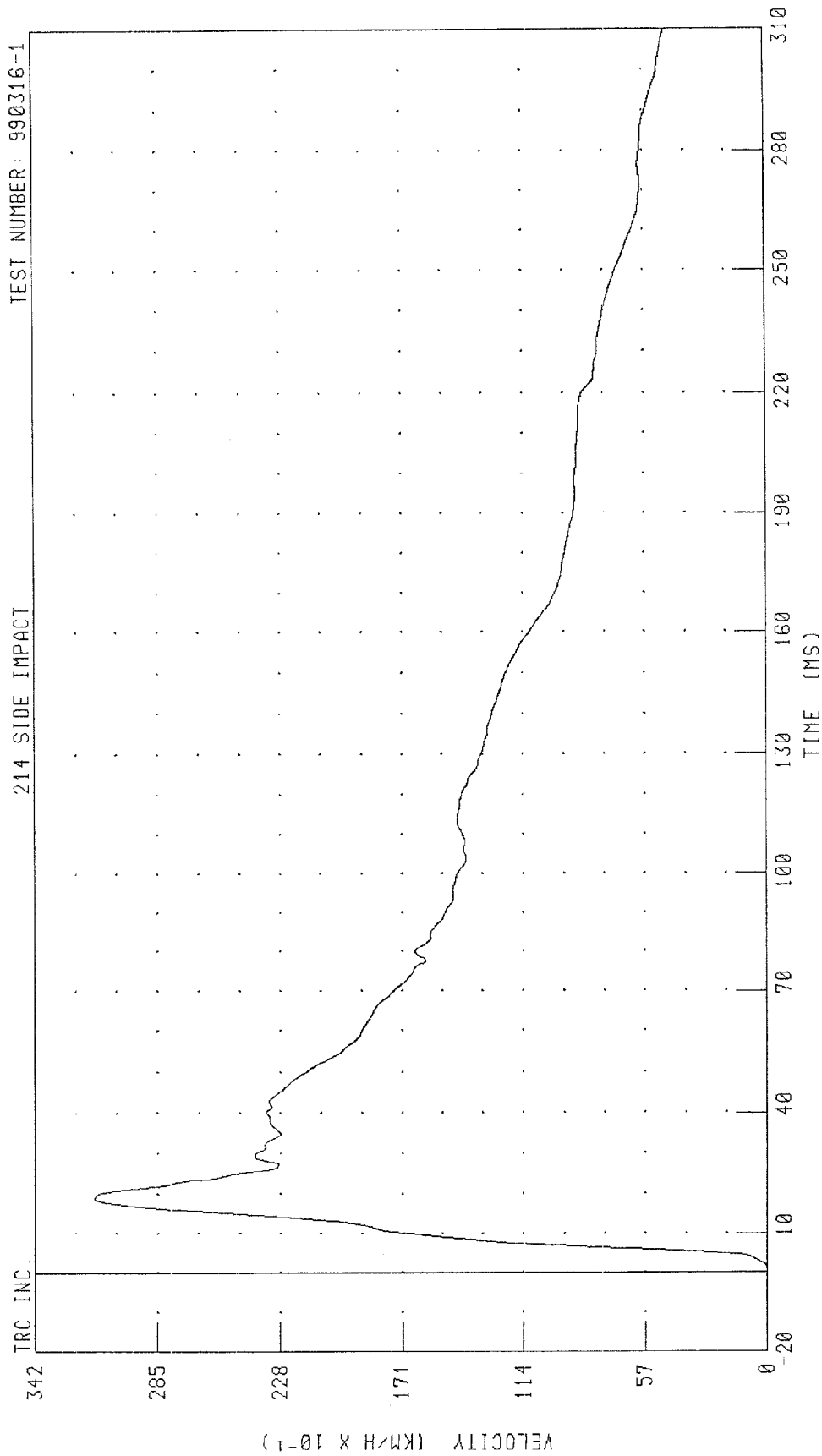
PEAK DATA: 89.46 G @ 6.48 MS; -41.02 G @ 22.96 MS

CHANNEL: LFSYC1 FILTER: CH. CLASS 60

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

TEST NUMBER: 990316-1

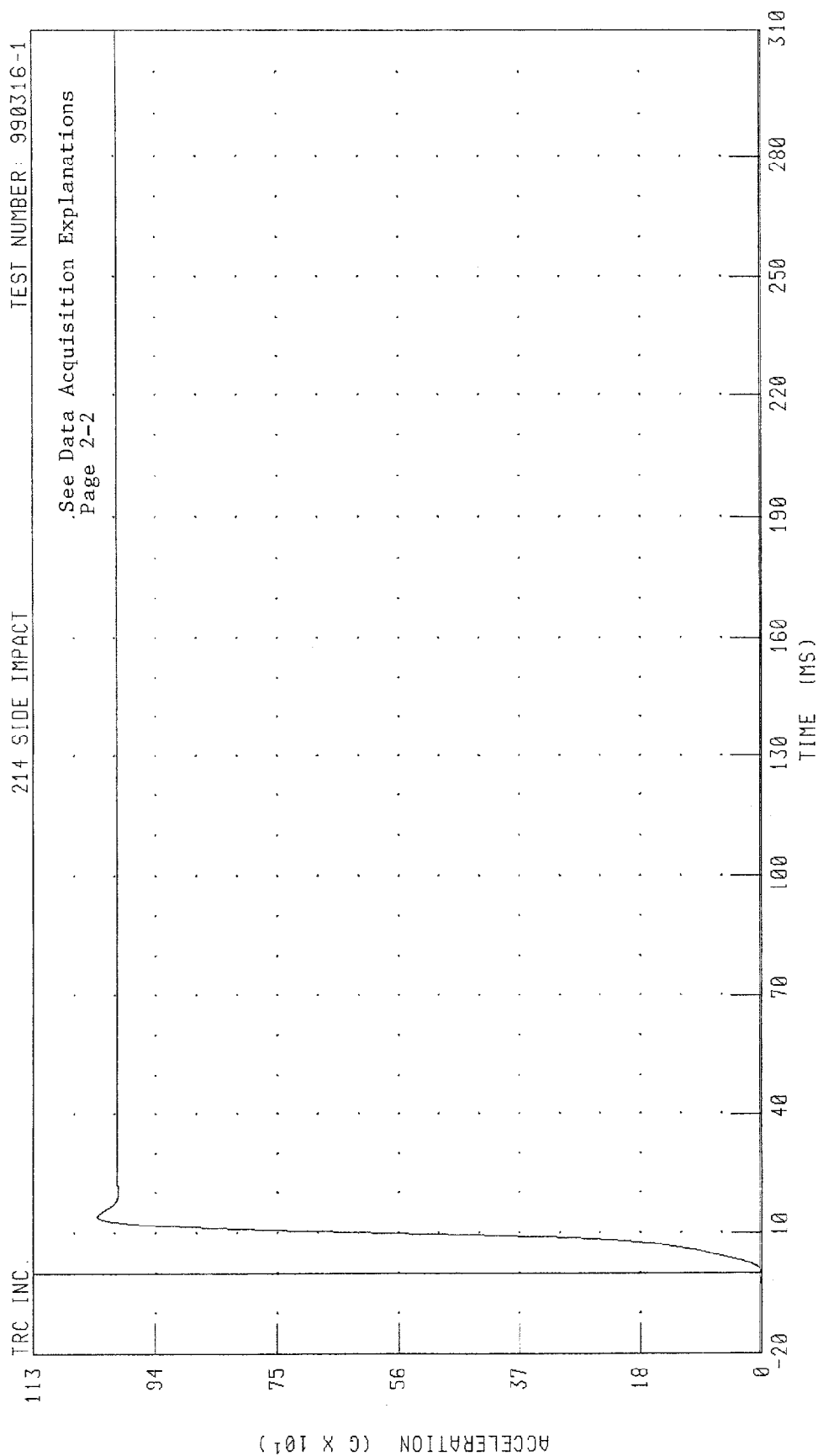
214 SIDE IMPACT



PEAK DATA: 31.44 KM/H @ 18.88 MS; 0.00 KM/H @ 0.72 MS

CHANNEL: LFSYV1 FILTER: CH. CLASS 180

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



CHANNEL: LRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 1036.86 G @ 14.08 MS, -3.16 G @ -0.32 MS

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

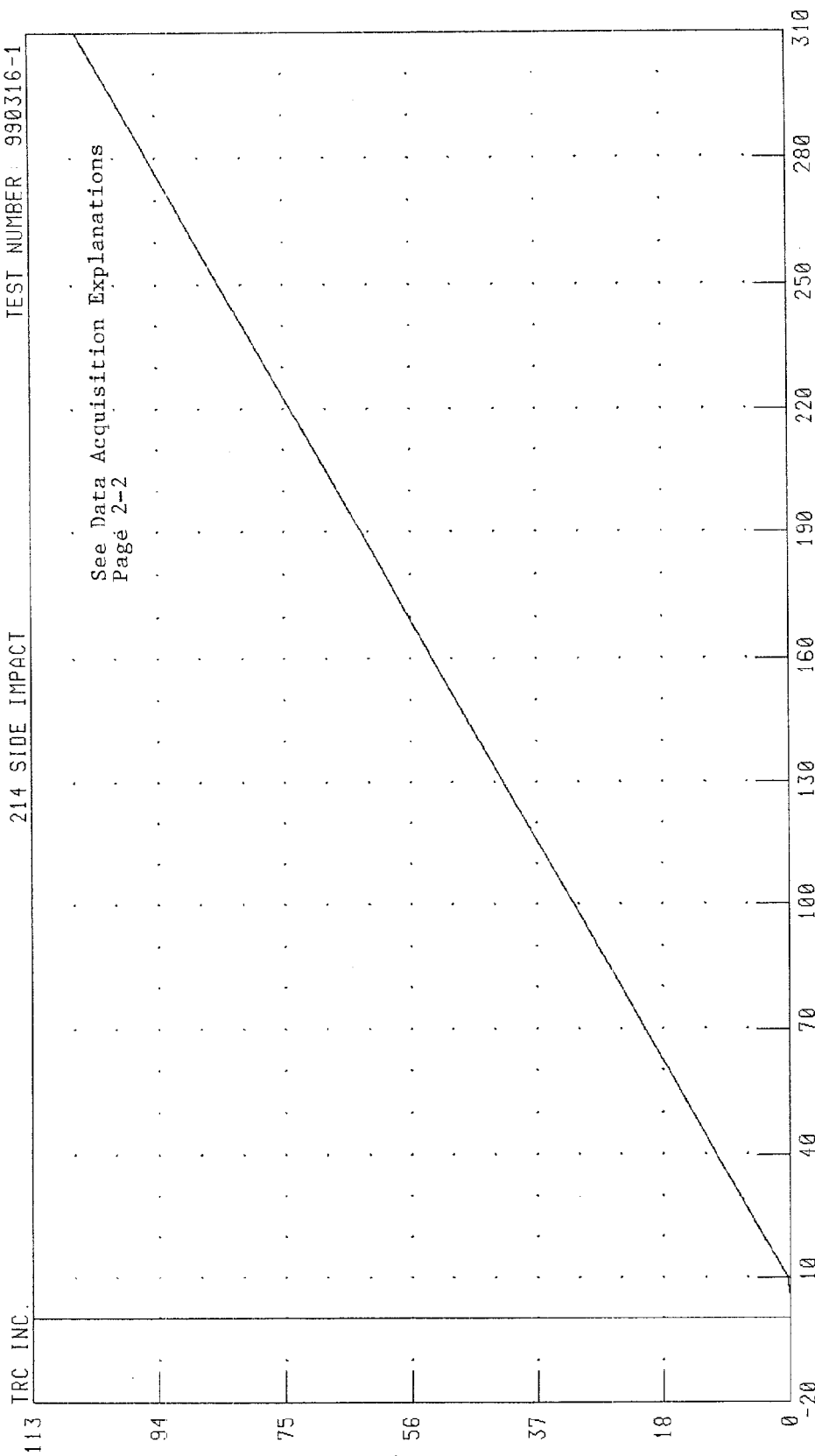
See Data Acquisition Explanations
Page 2-2

VELOCITY (KM/H X 10²)

TIME (MS)

PEAK DATA: 10691.75 KM/H @ 310.00 MS; -0.06 KM/H @ 2.72 MS

CHANNEL: LRSYV1 FILTER: CH. CLASS 180



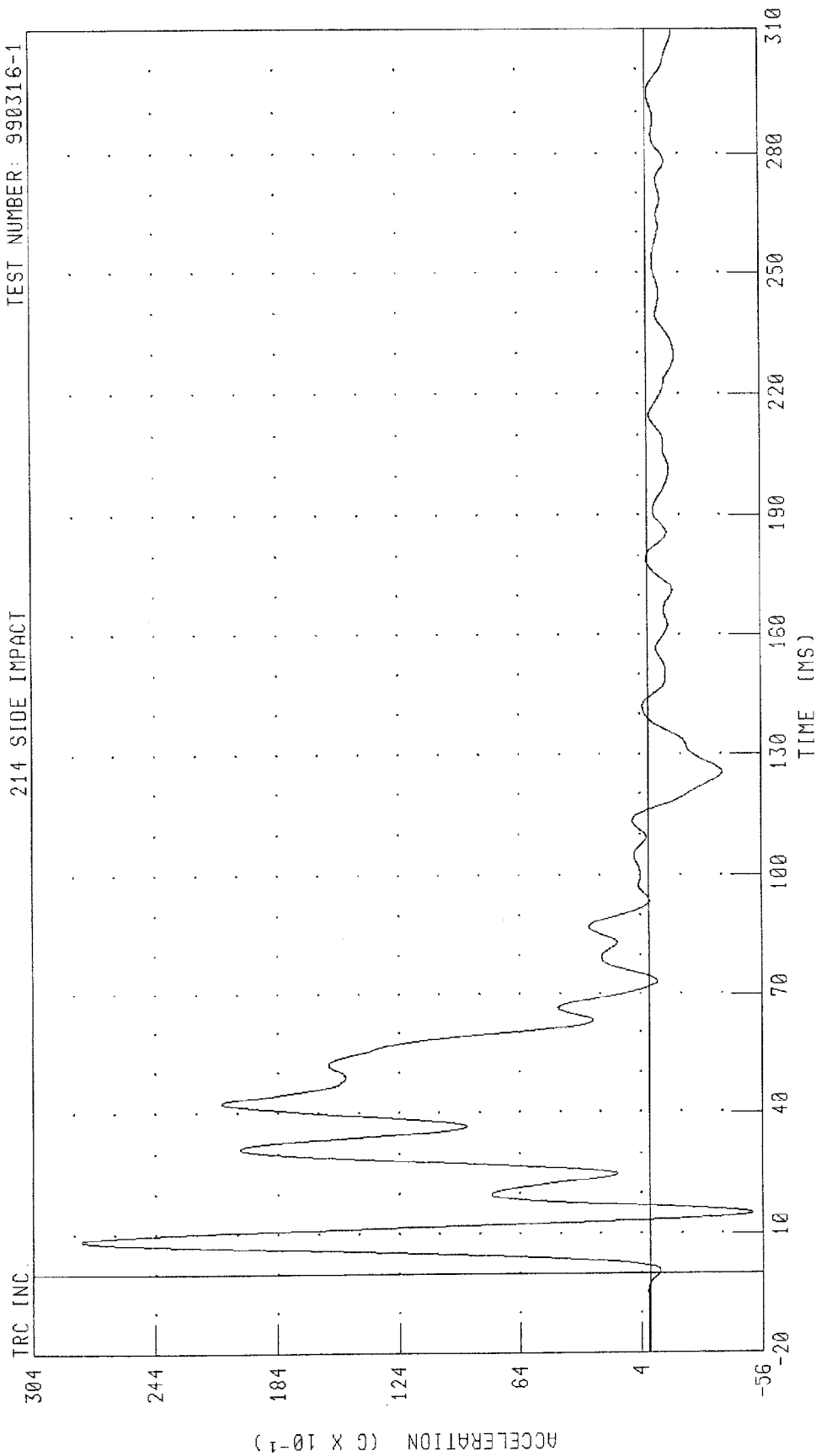
**Vehicle's Left Front Door on Centerline Y-Axis
Data Channel, LFCYG1, Was Not Installed**

**Vehicle's Left Front Door on Centerline Y-Axis
Velocity, LFCYV1, Was Not Calculated**

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

TEST NUMBER: 990316-1

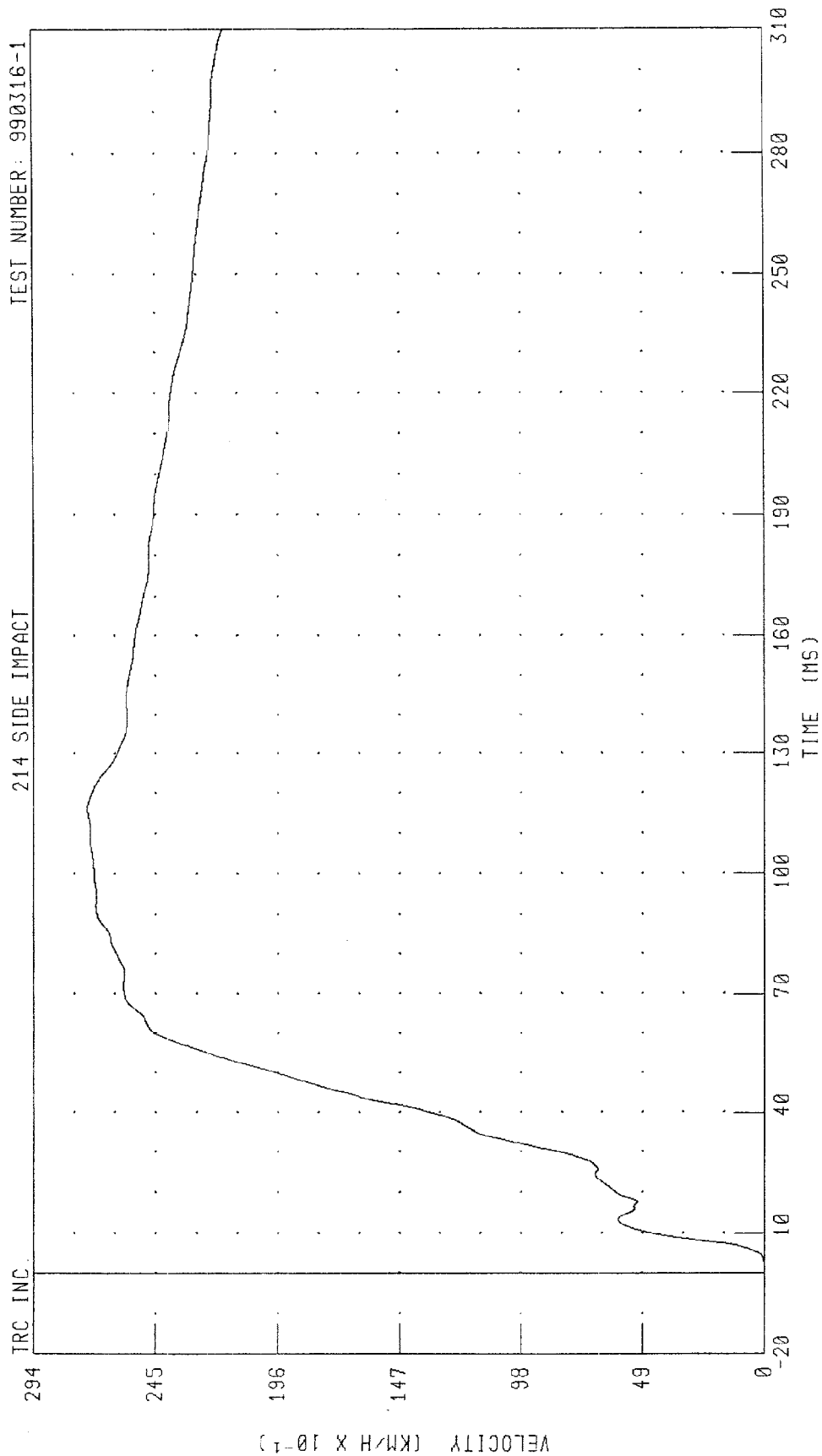
214 SIDE IMPACT



PEAK DATA: 28.04 G @ 8.40 MS, -5.10 G @ 15.04 MS

CHANNEL: RRTYG1 FILTER: CH. CLASS 60

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



PEAK DATA: 27.24 KM/H @ 116.16 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: RRTYV1 FILTER: CH. CLASS 180

**Vehicle's Mid Rear of Left Front Door Y-Axis
Data Channel, LFMYG1, Was Not Installed**

**Vehicle's Mid Rear of Left Front Door Y-Axis
Velocity, LFMYV1, Was Not Calculated**

**Vehicle's Left Front Door Upper Centerline Y-Axis
Data Channel, LFUYG1, Was Not Installed**

**Vehicle's Left Front Door Upper Centerline Y-Axis
Velocity, LFUYV1, Was Not Calculated**

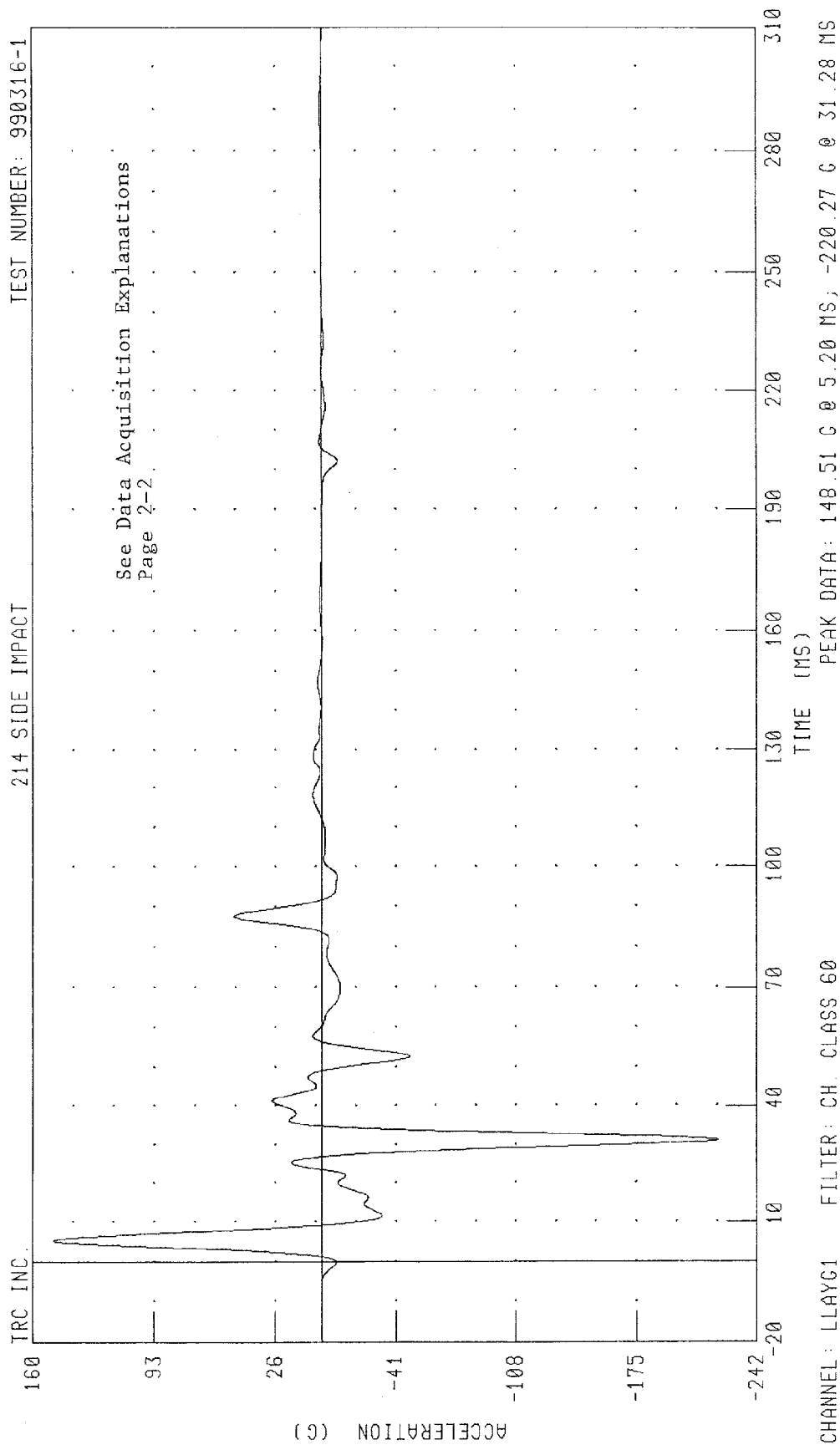
**Vehicle's Mid Rear of Left Rear Door Y-Axis
Data Channel, LRMYG1, Was Not Installed**

**Vehicle's Mid Rear of Left Rear Door Y-Axis
Velocity, LRMV1, Was Not Calculated**

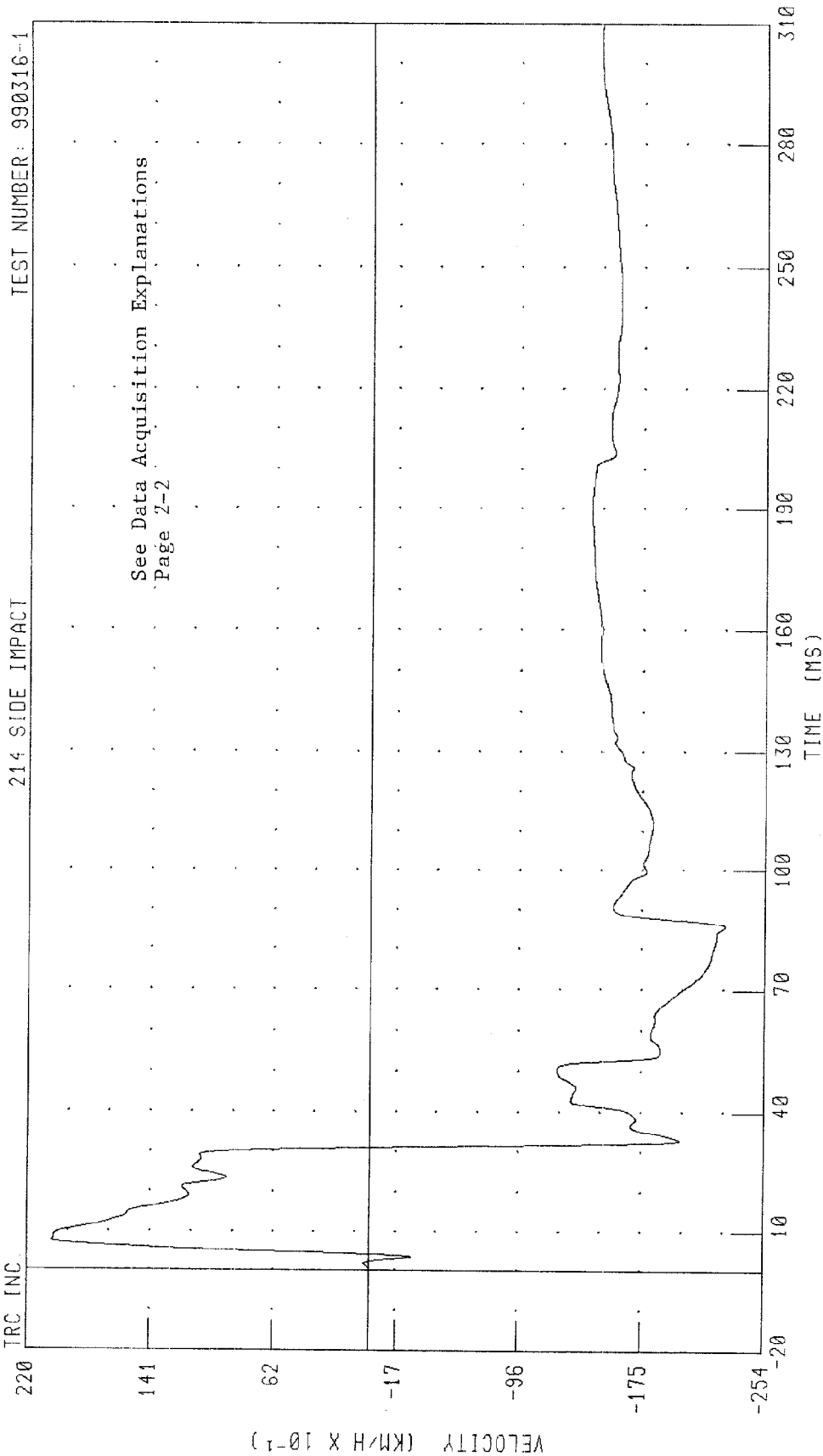
**Vehicle's Left Rear Door Upper Centerline Y-Axis
Data Channel, LRUYG1, Was Not Installed**

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 LOWER A-POST Y-AXIS ACCELERATION



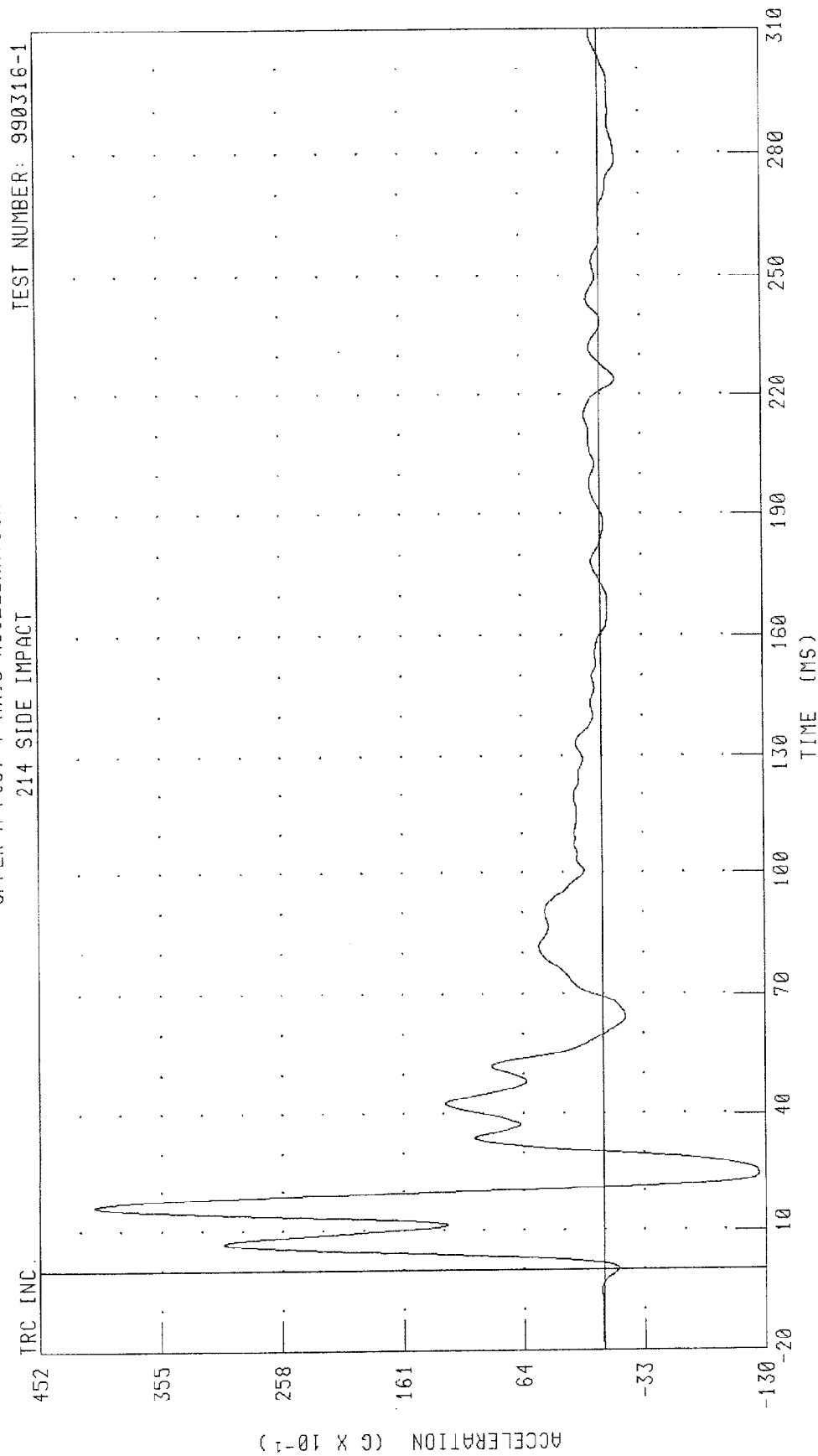
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 LOWER A-POST Y-AXIS VELOCITY



CHANNEL: LLAYV1 FILTER: CH. CLASS 180

PEAK DATA: 20.41 KM/H @ 7.52 MS; -22.87 KM/H @ 85.68 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 UPPER A-POST Y-AXIS ACCELERATION
 214 SIDE IMPACT



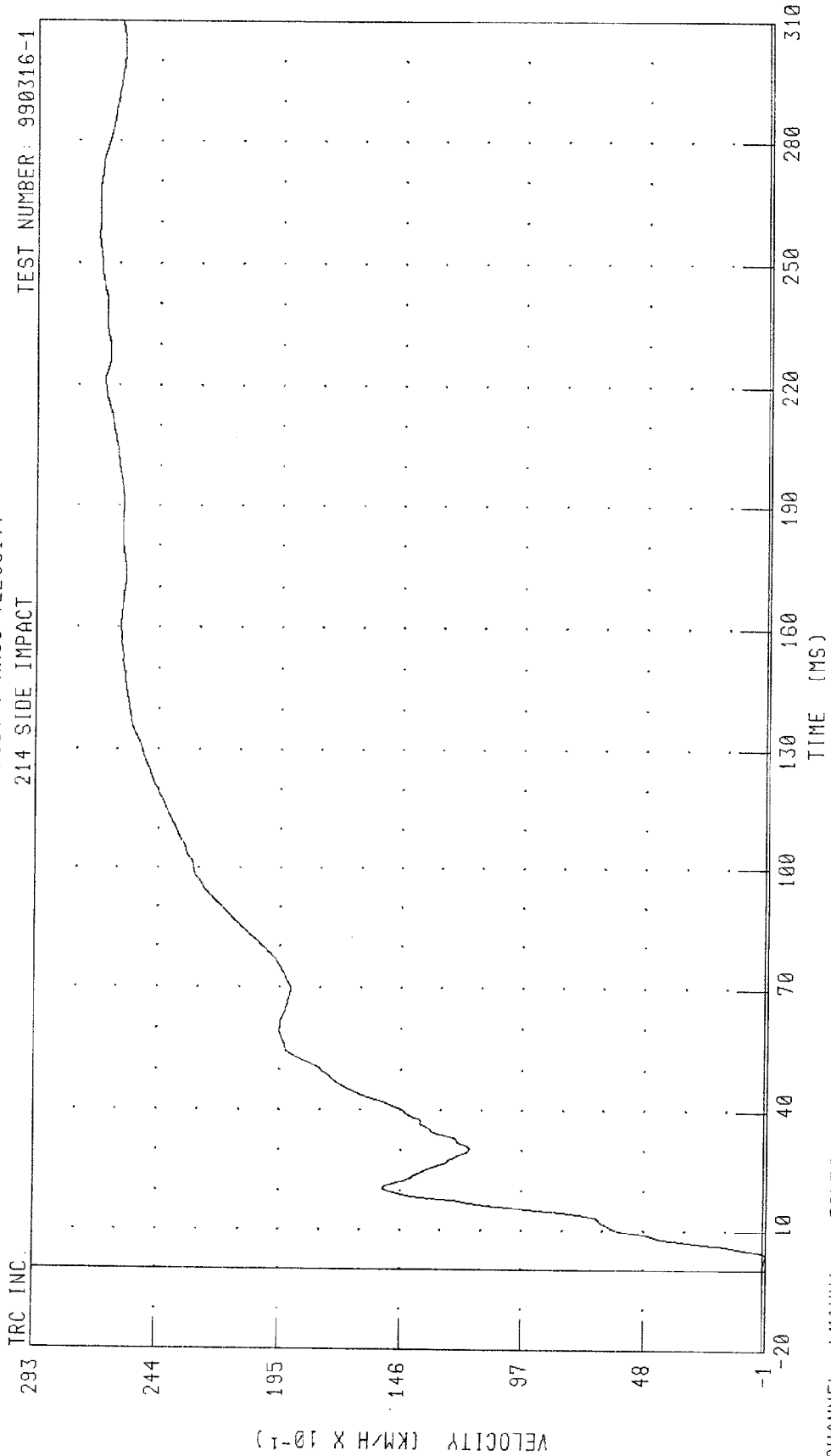
PEAK DATA: 40.88 G @ 16.08 MS; -12.51 G @ 24.48 MS

CHANNEL: LMAYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

UPPER A-POST Y-AXIS VELOCITY

214 SIDE IMPACT TEST NUMBER: 990316-1

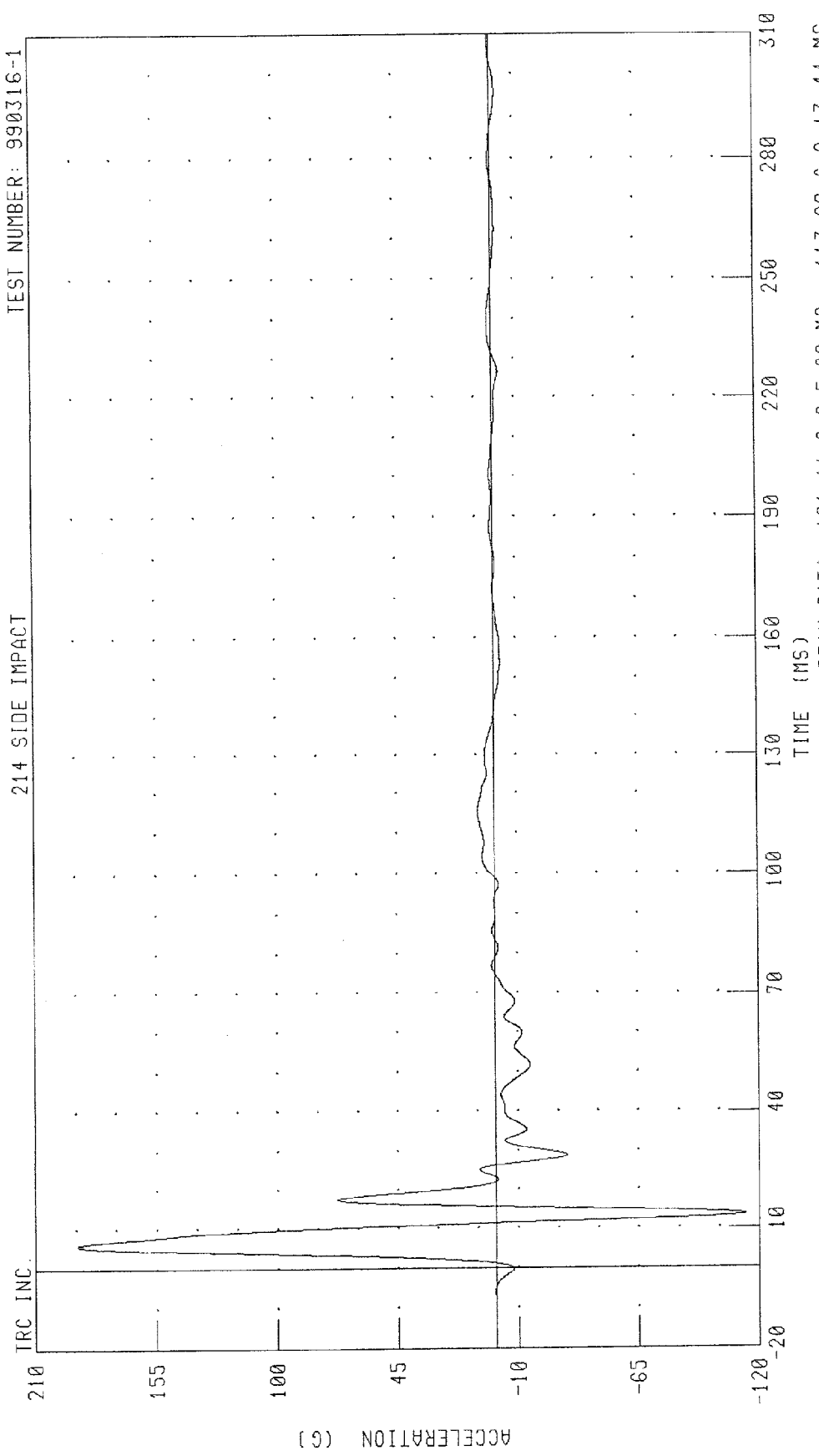


CHANNEL: LMAYV1 FILTER: CH. CLASS 180

PEAK DATA: 26.85 KM/H @ 256.96 MS; -0.10 KM/H @ 3.44 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
LOWER B-POST Y-AXIS ACCELERATION
214 SIDE IMPACT

TEST NUMBER: 990316-1



PEAK DATA: 191.11 G @ 5.92 MS; -113.88 G @ 13.44 MS

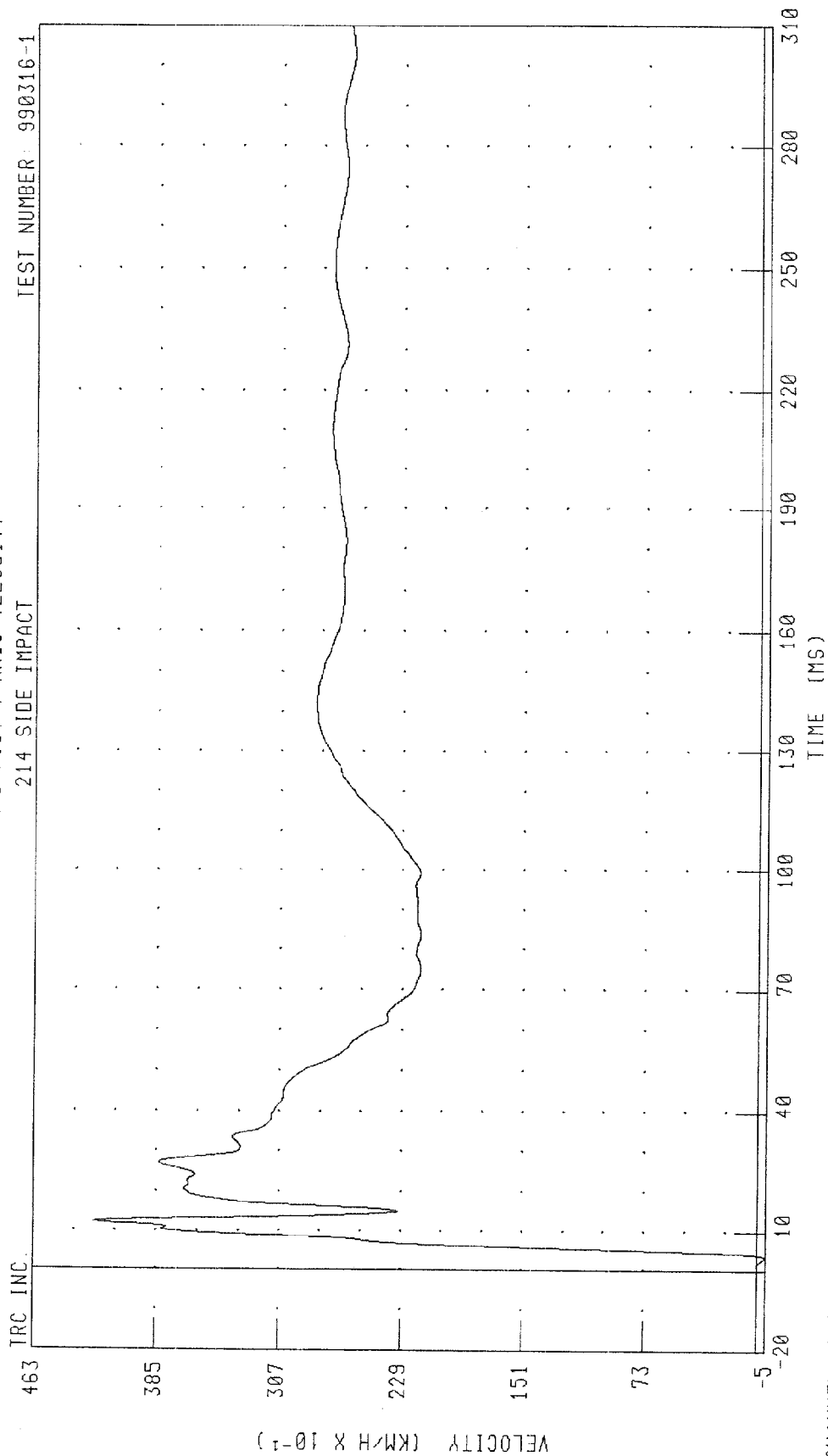
CHANNEL: LLBYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

LOWER B-POST Y-AXIS VELOCITY

214 SIDE IMPACT

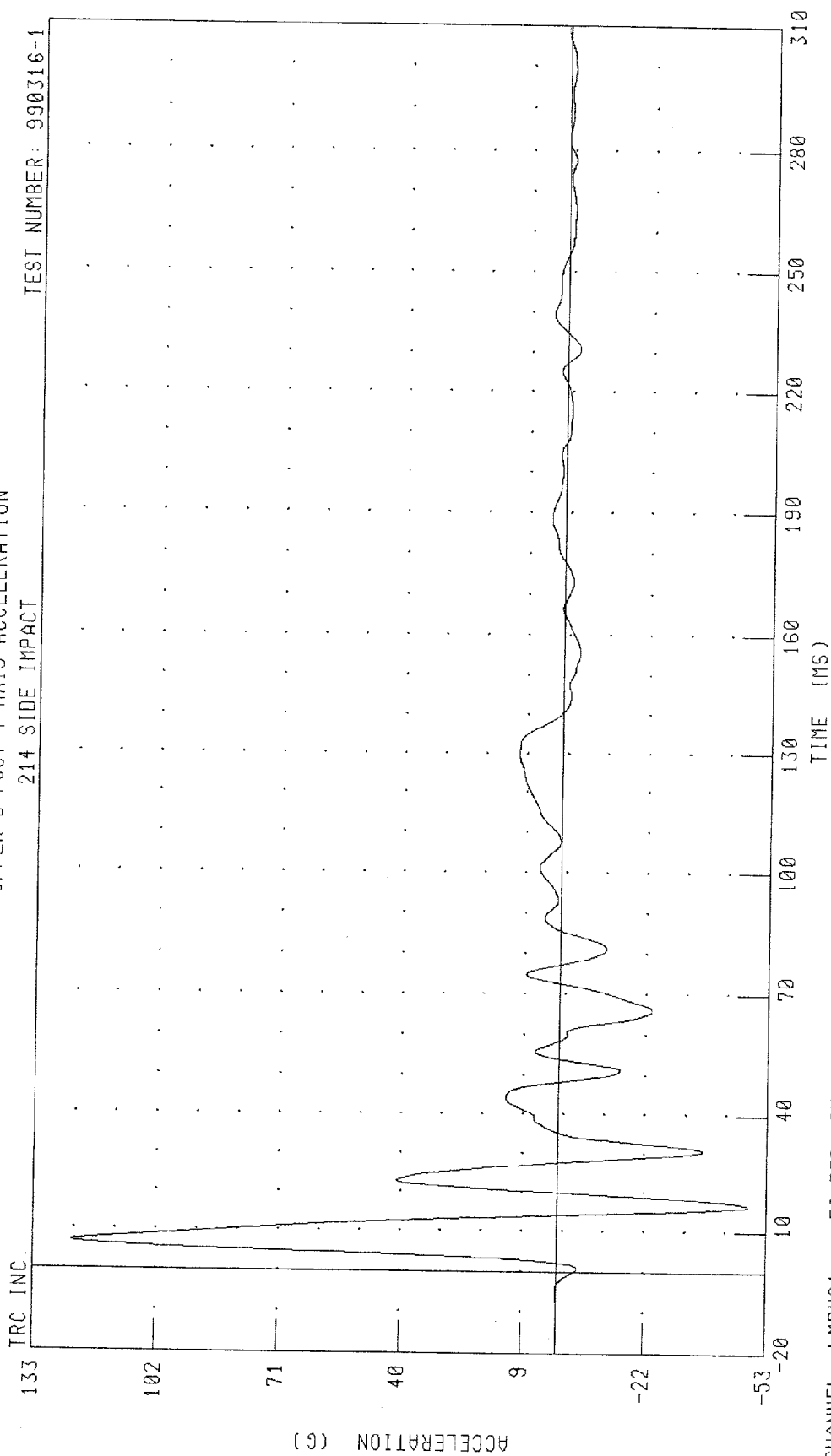
TEST NUMBER: 990316-1



PEAK DATA: 42.46 KM/H @ 12.32 MS, -0.47 KM/H @ 3.36 MS

CHANNEL: LLBYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
UPPER B-POST Y-AXIS ACCELERATION



CHANNEL: LMBY61 FILTER: CH. CLASS 60

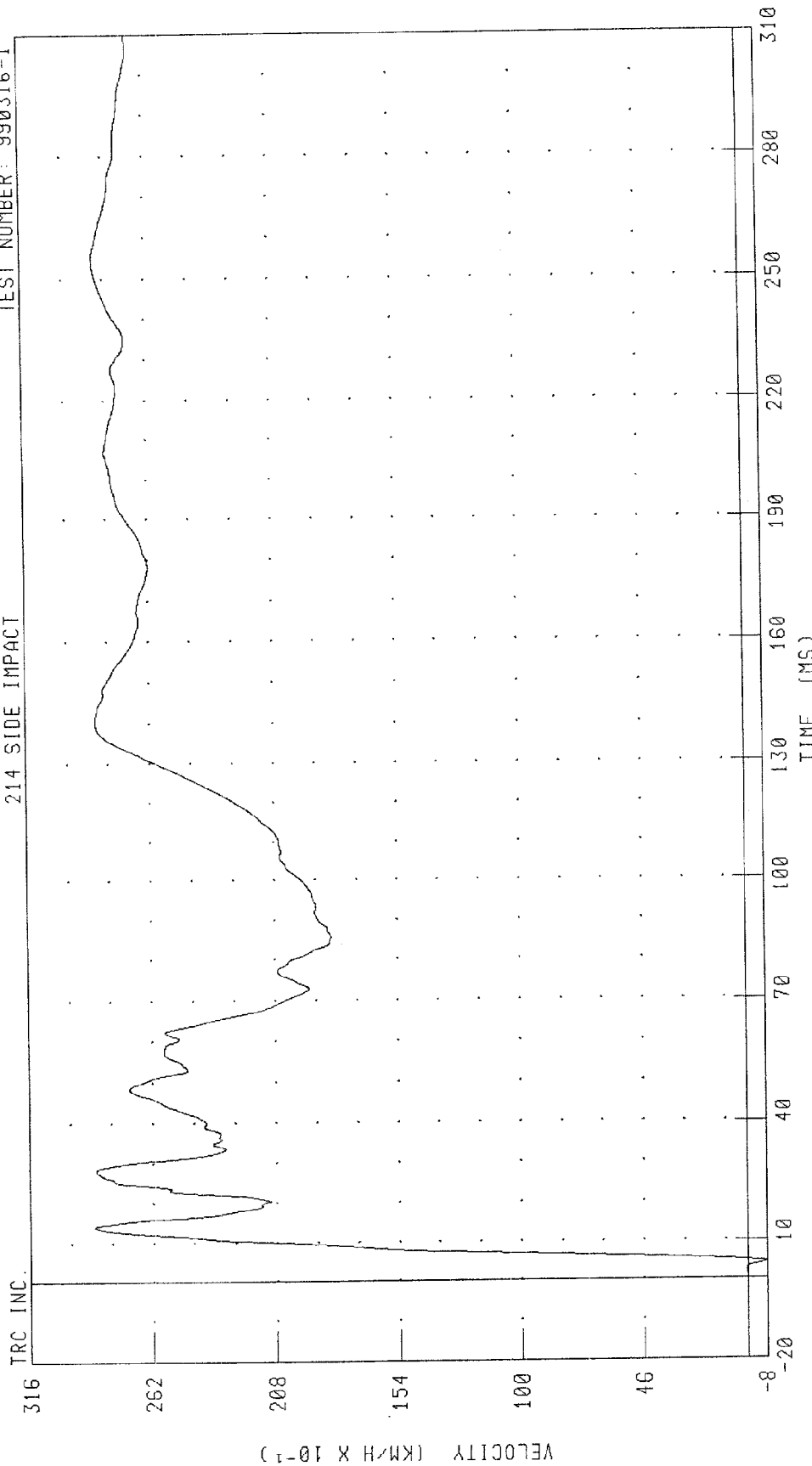
PEAK DATA: 123.46 G @ 7.04 MS; -48.38 G @ 16.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1989 SUZUKI VITARA

UPPER B-POST Y-AXIS VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT

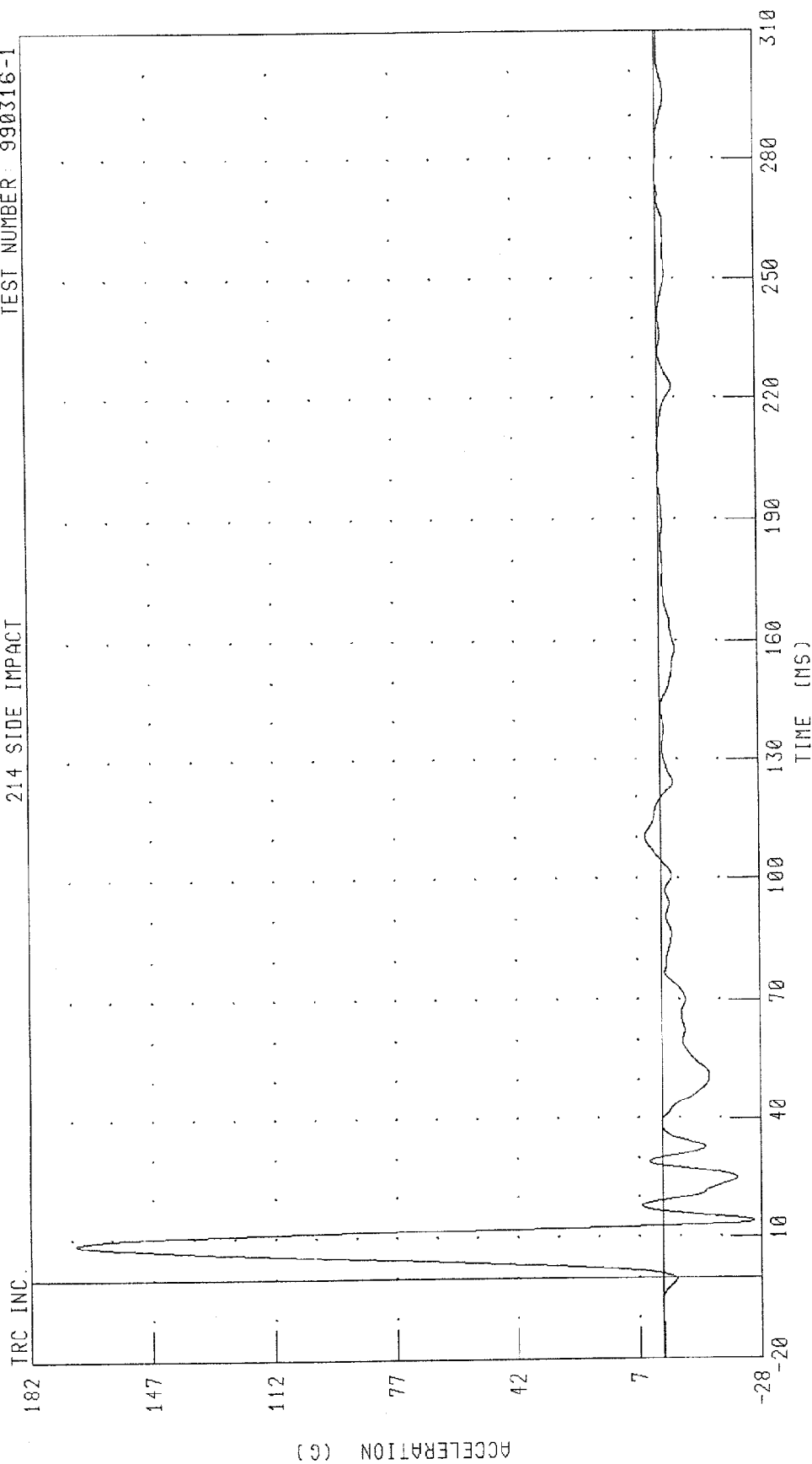


PEAK DATA: 28.76 KM/H @ 14.16 MS; -0.75 KM/H @ 4.32 MS

CHANNEL: LMBYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 FRONT SEAT TRACK Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990316-1



PEAK DATA: 168.99 G @ 8.64 MS; -26.06 G @ 13.92 MS

CHANNEL: LFTYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
FRONT SEAT TRACK Y-AXIS VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

468

390

VELOCITY (KM/H X 10⁻¹)

312

234

156

78

0

-20

TIME (MS)

310

280

250

220

190

160

130

100

70

40

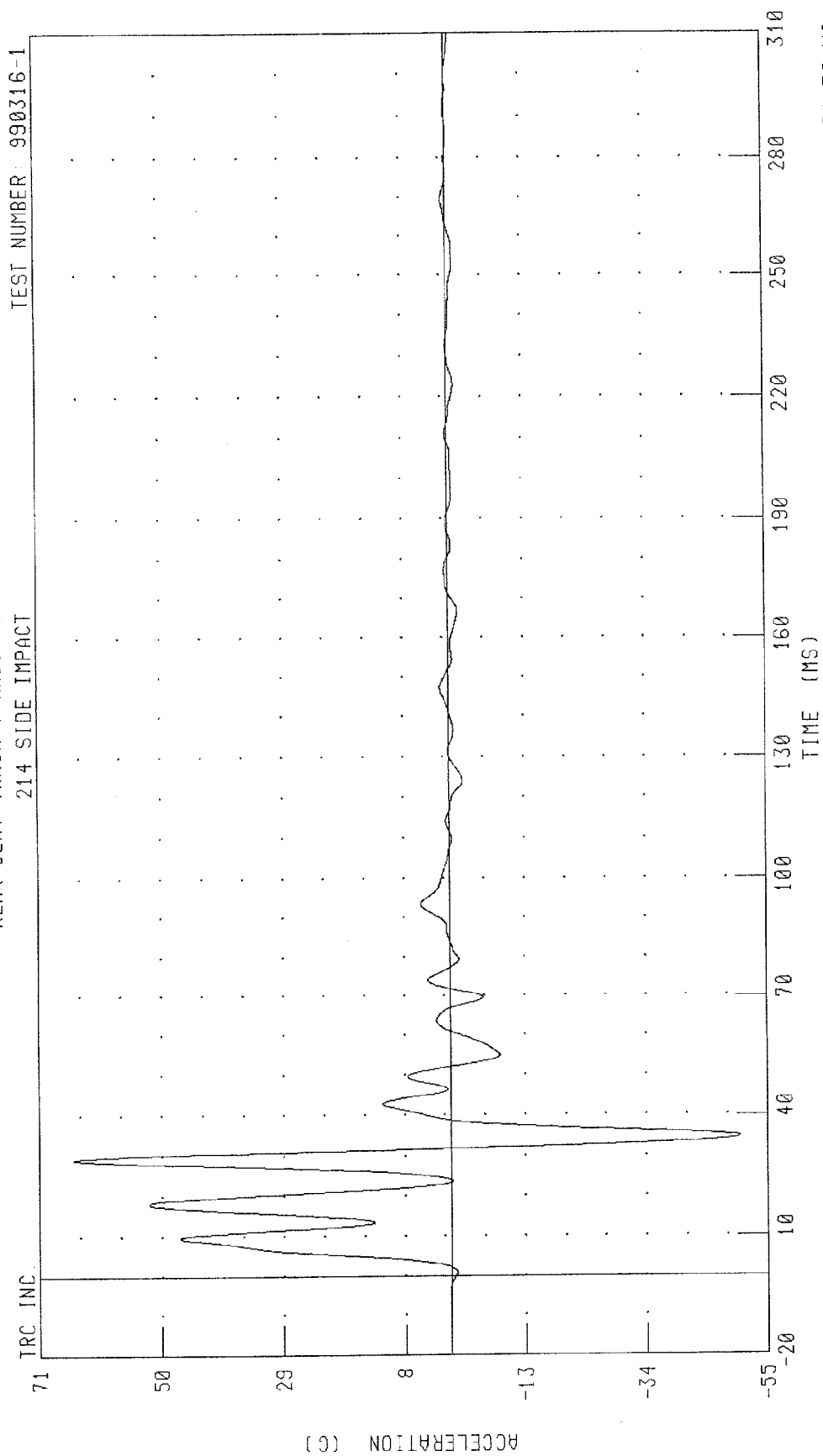
10

990316

CHANNEL: LFTYV1 FILTER: CH. CLASS 180

PEAK DATA: 42.62 KM/H @ 12.00 MS, -0.08 KM/H @ 2.16 MS

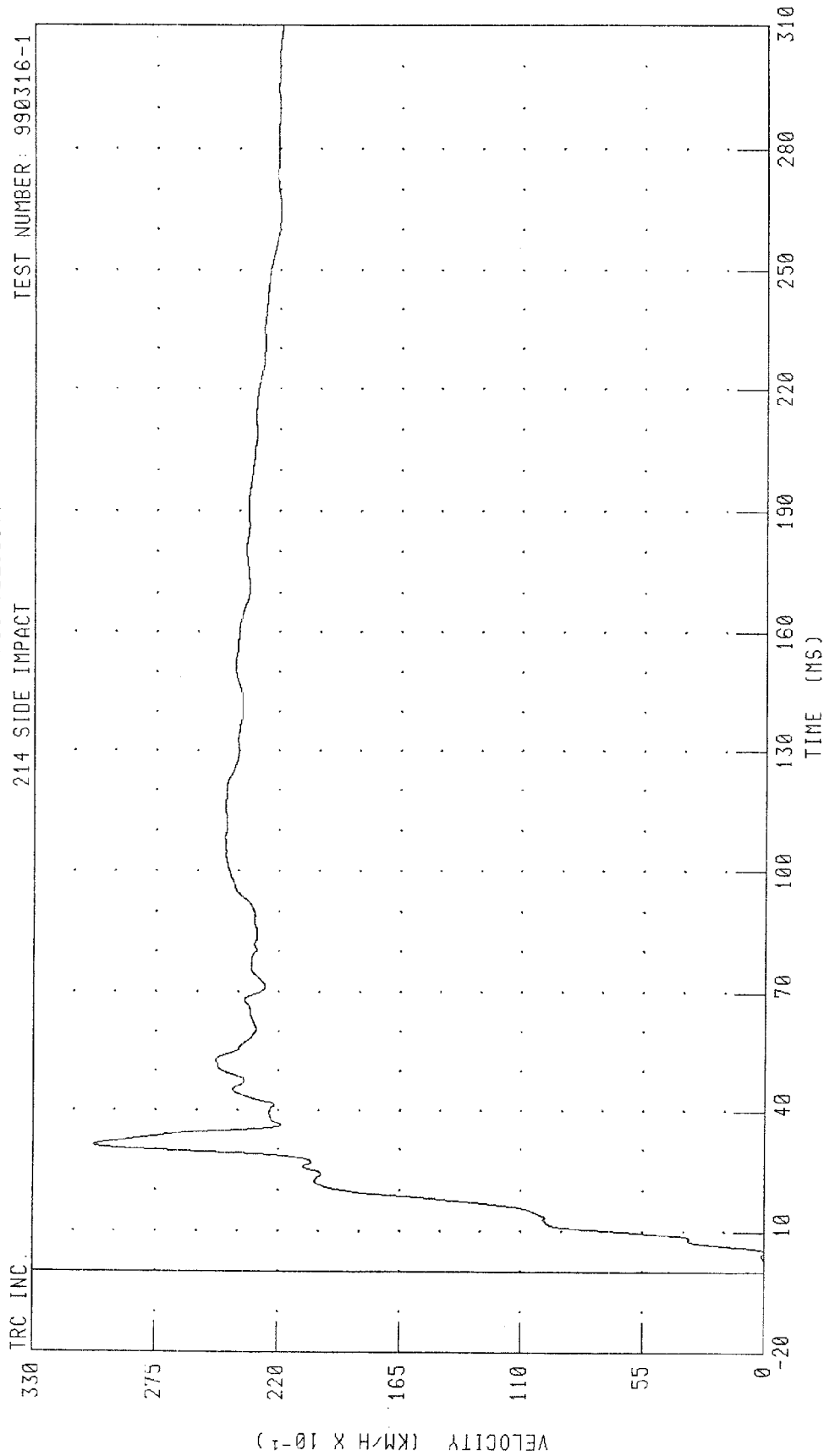
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 REAR SEAT TRACK Y-AXIS ACCELERATION



CHANNEL: LRTYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 REAR SEAT TRACK Y-AXIS VELOCITY
 214 SIDE IMPACT

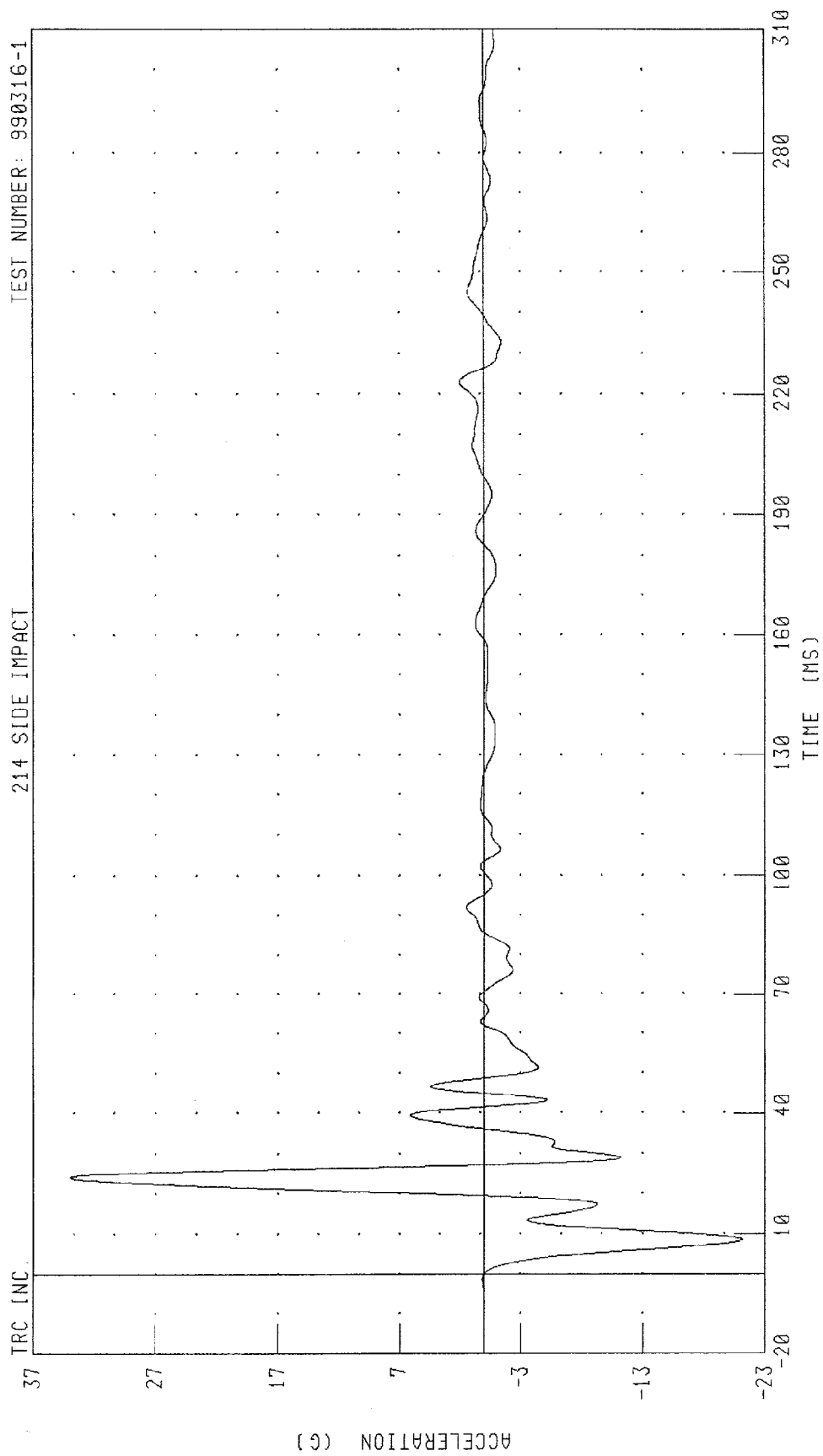
TEST NUMBER: 990316-1



PEAK DATA: 30.26 KM/H @ 31.28 MS, -0.08 KM/H @ 5.04 MS

CHANNEL: LRTYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION
 214 SIDE IMPACT

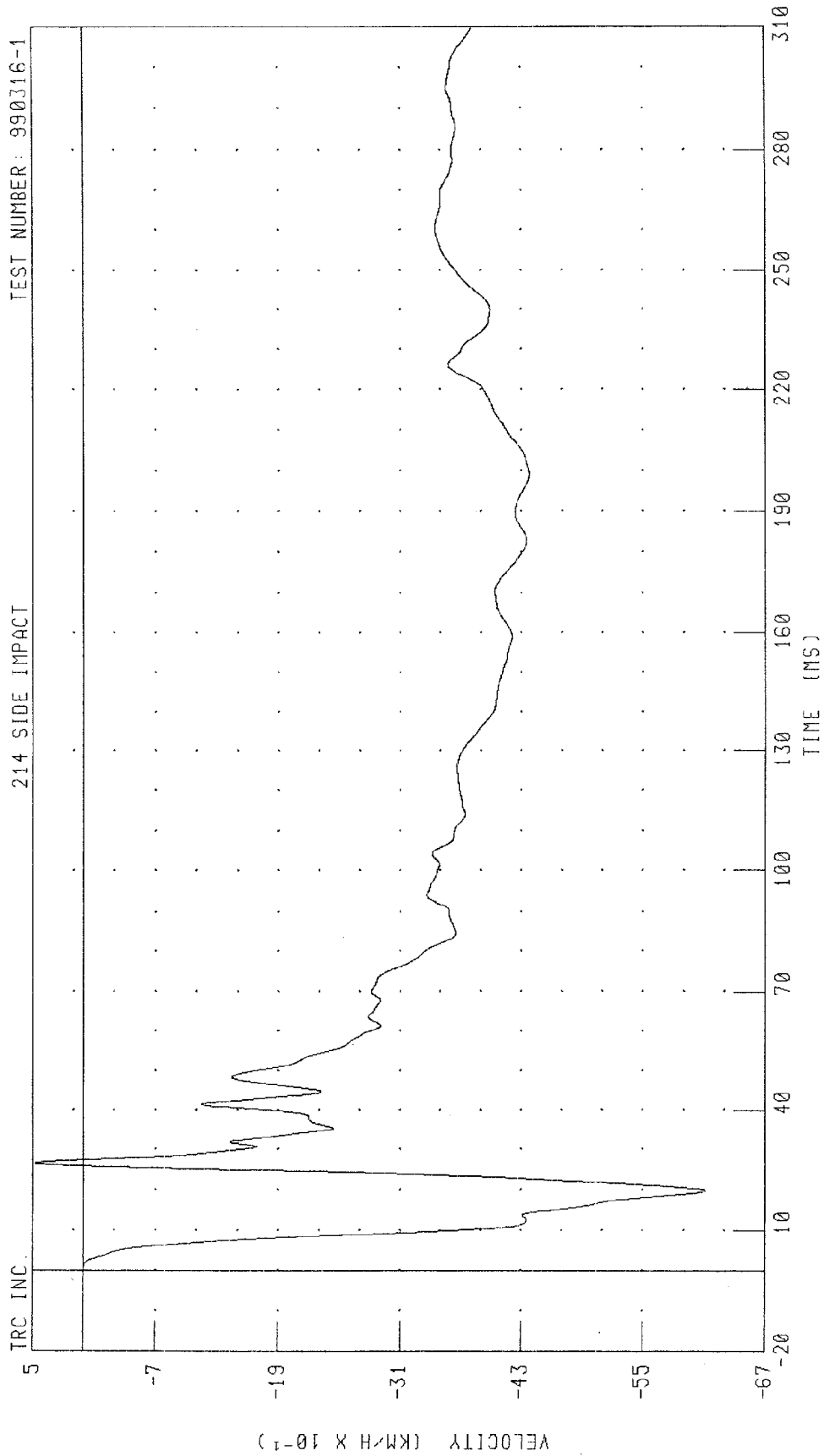


CHANNEL: VCCXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 990316-1

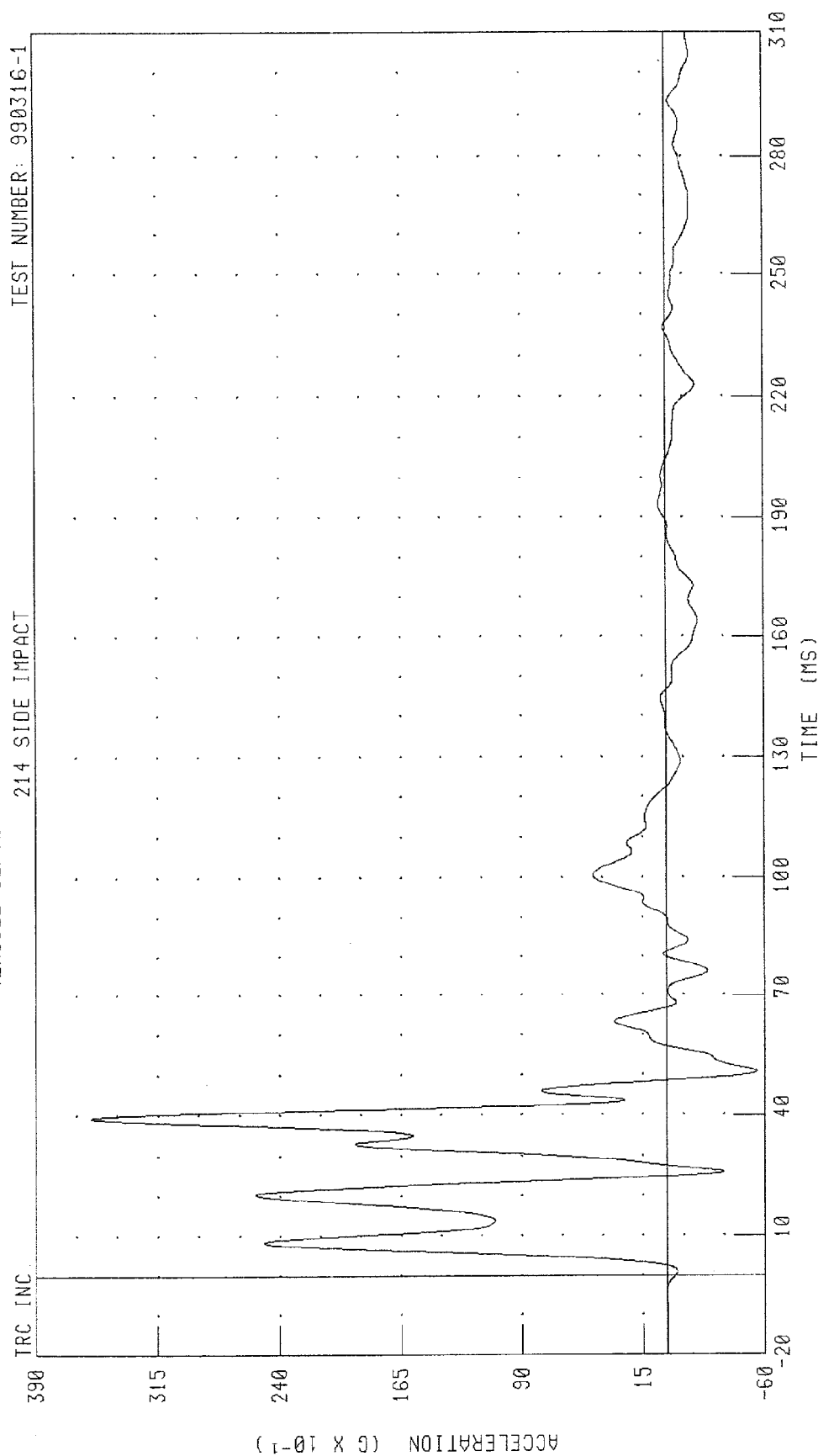
214 SIDE IMPACT



PEAK DATA: 0.47 KM/H @ 26.56 MS; -6.11 KM/H @ 19.76 MS

CHANNEL: VCCXV1 FILTER: CH. CLASS 180

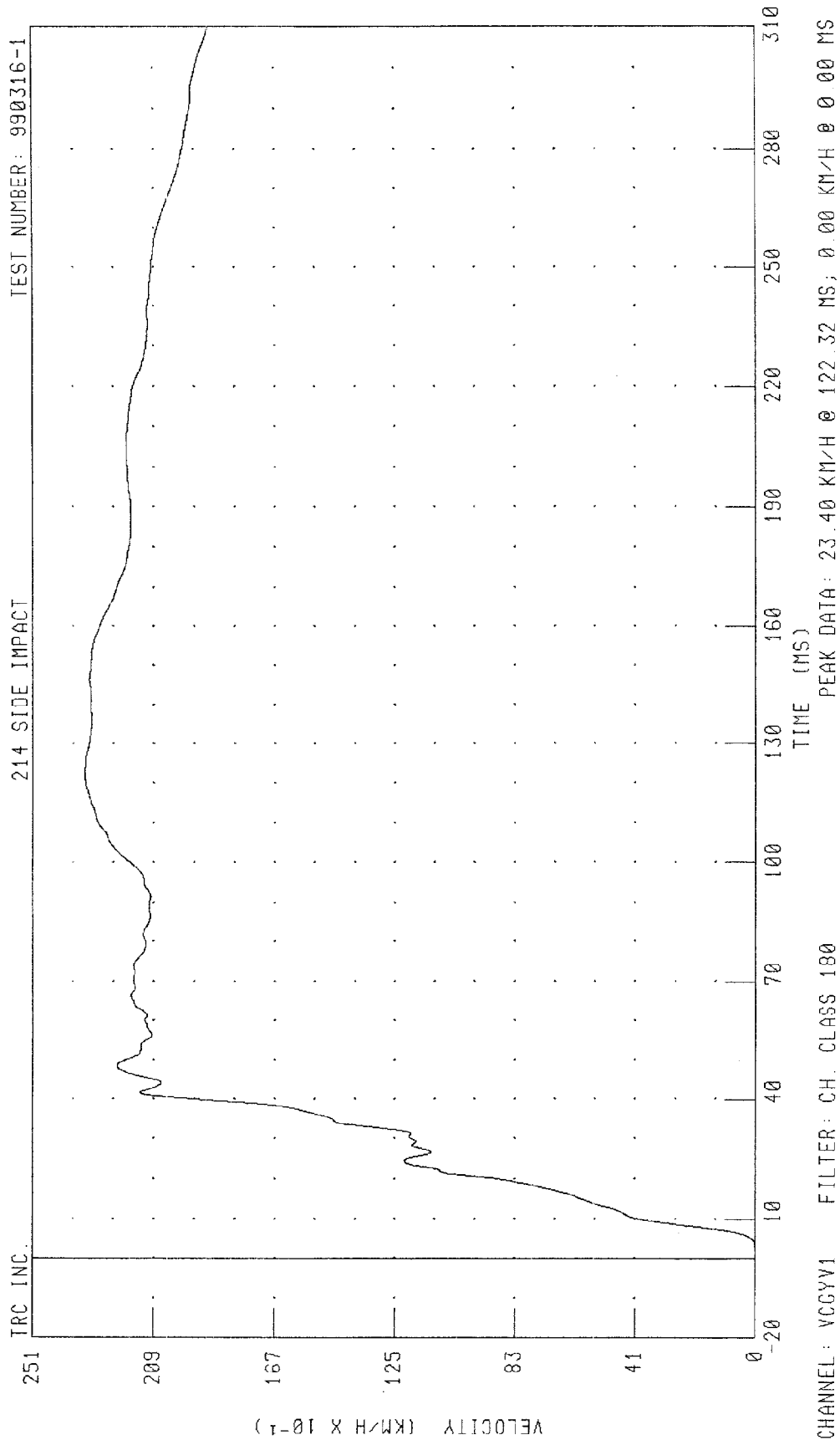
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION



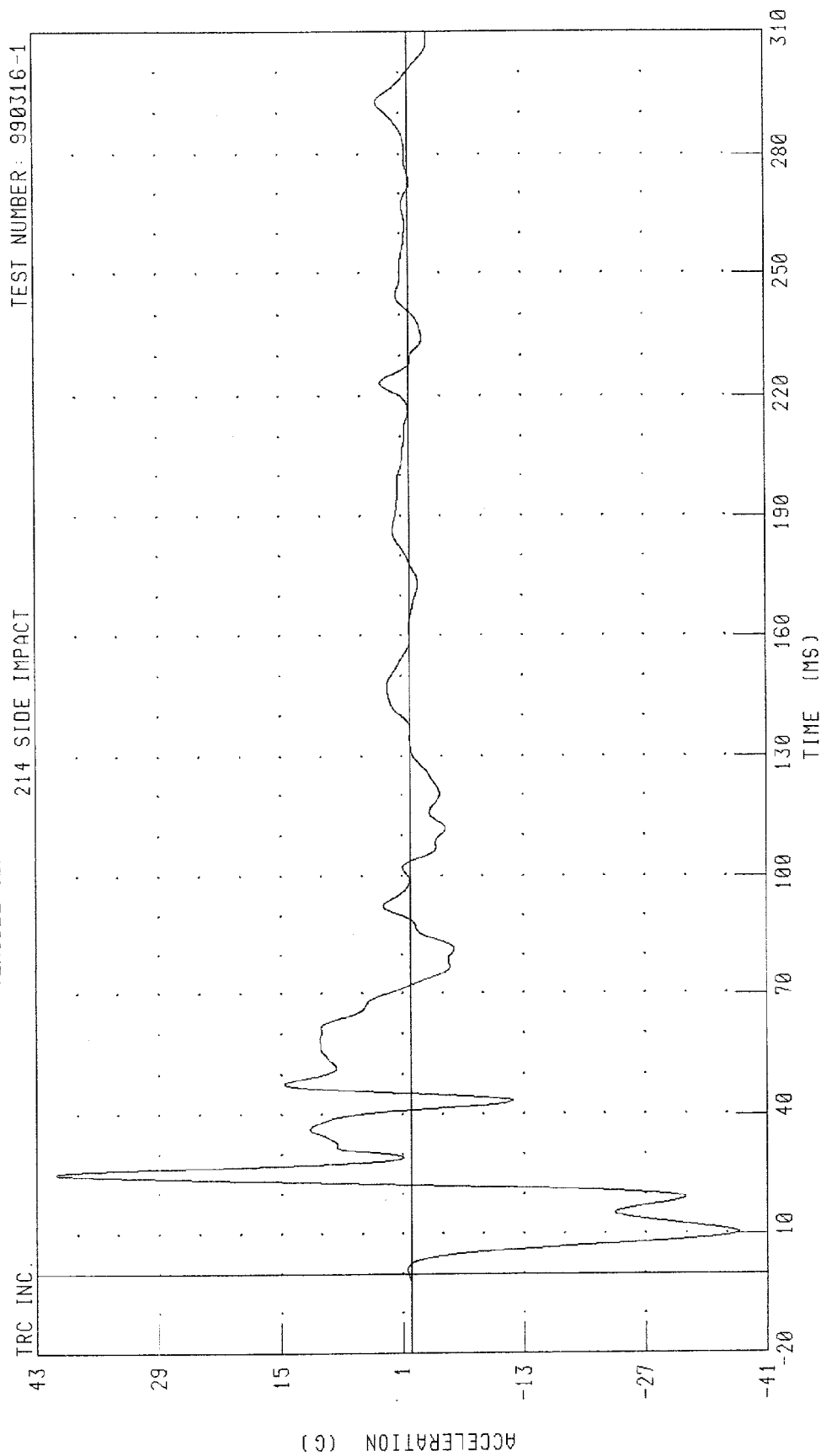
PEAK DATA: 35.61 G @ 39.44 MS; -5.54 G @ 50.80 MS

CHANNEL: VCCYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

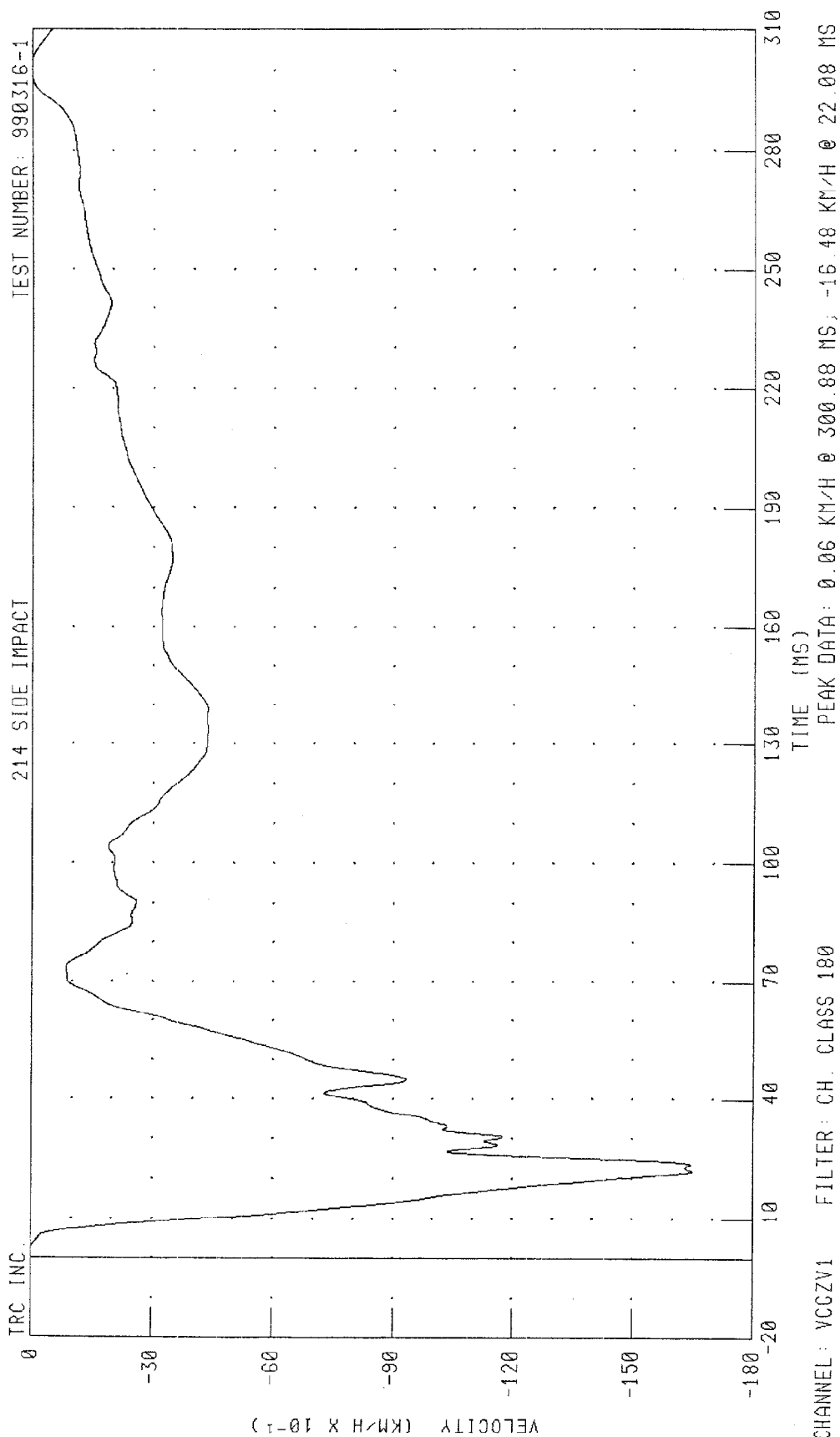


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

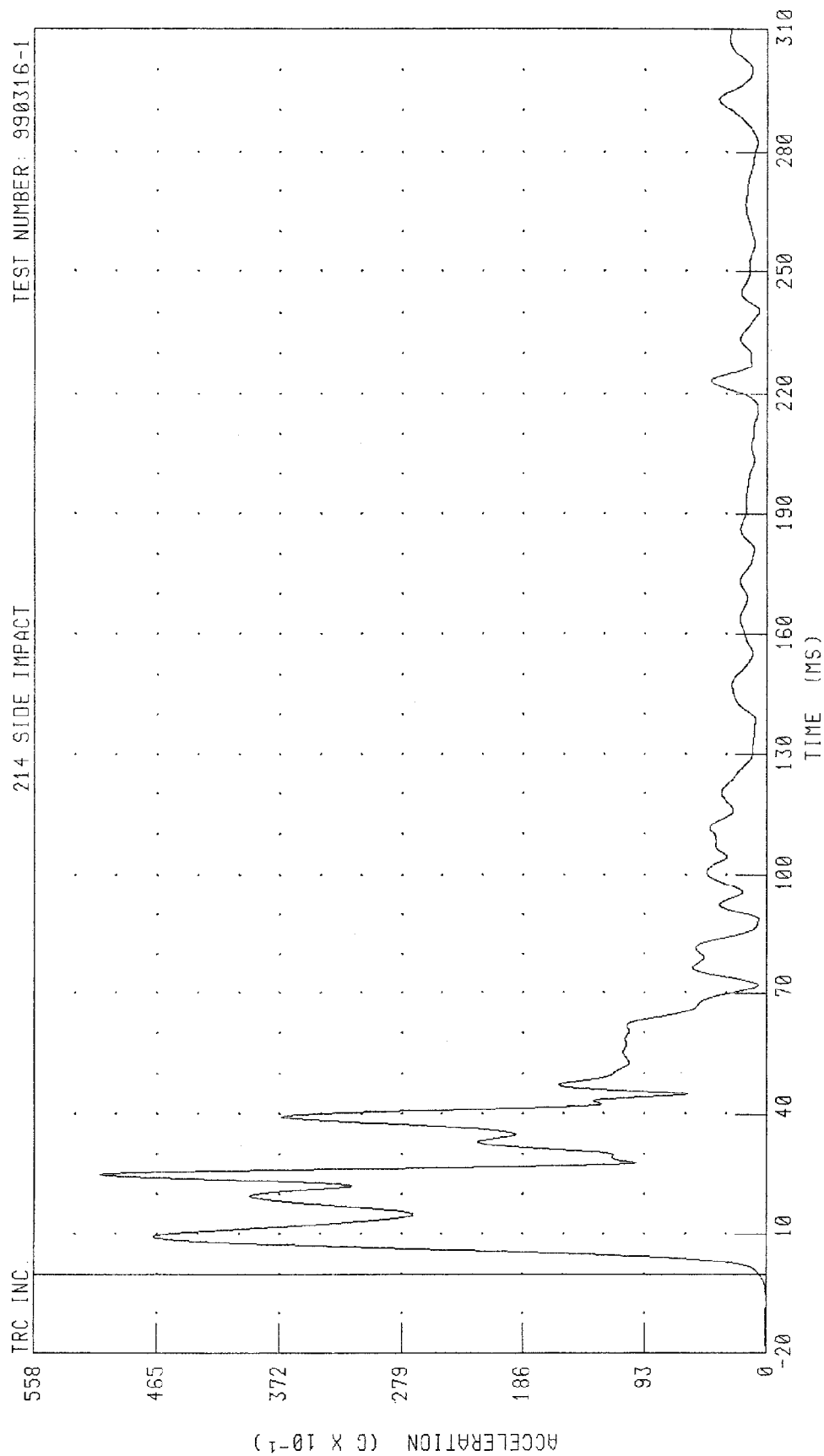


CHANNEL: VCGZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION



PEAK DATA: 50.81 G @ 24.88 MS; 0.01 G @ -19.52 MS

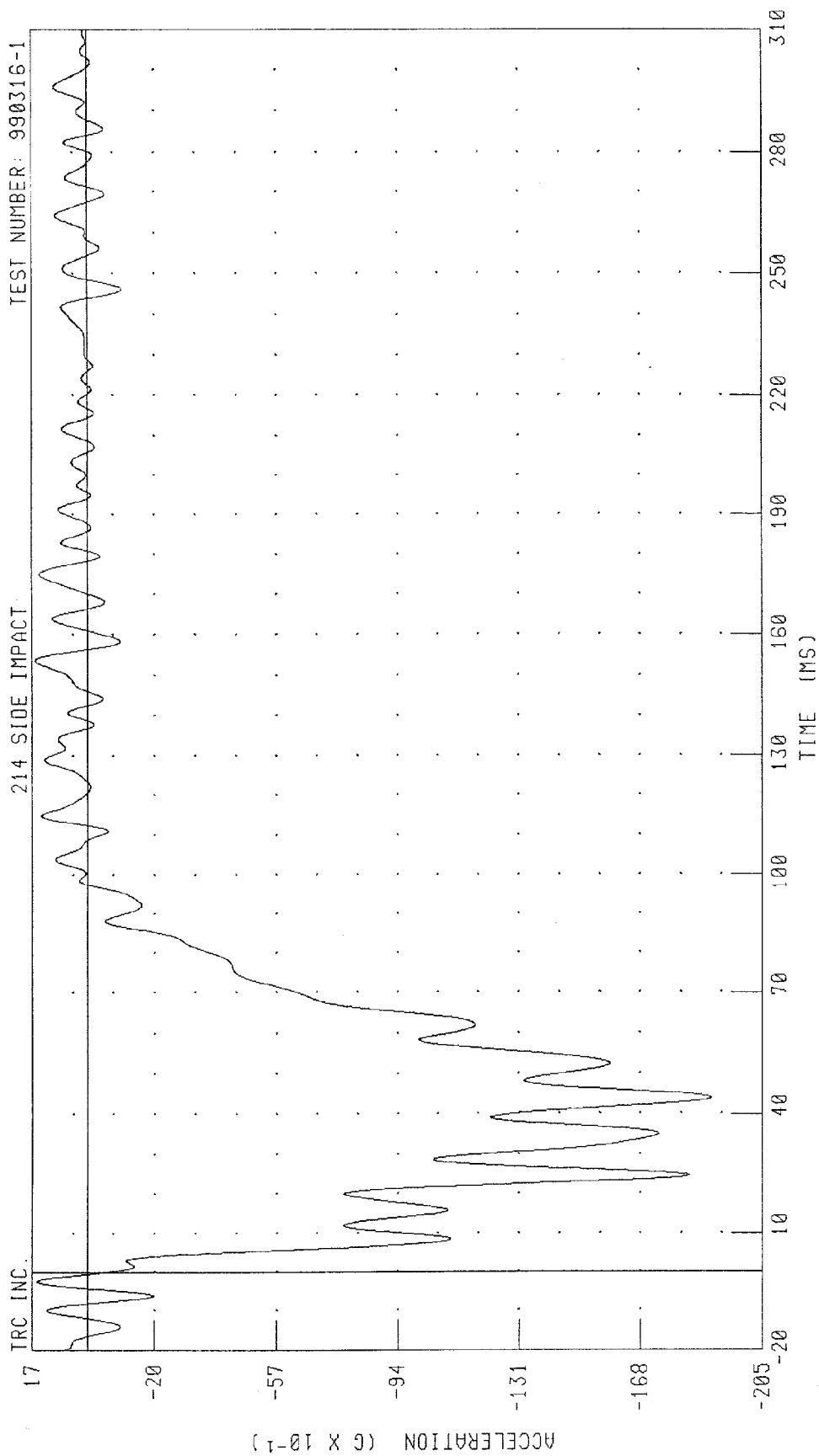
CHANNEL: VCGRG1 FILTER: CH. CLASS 60

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION



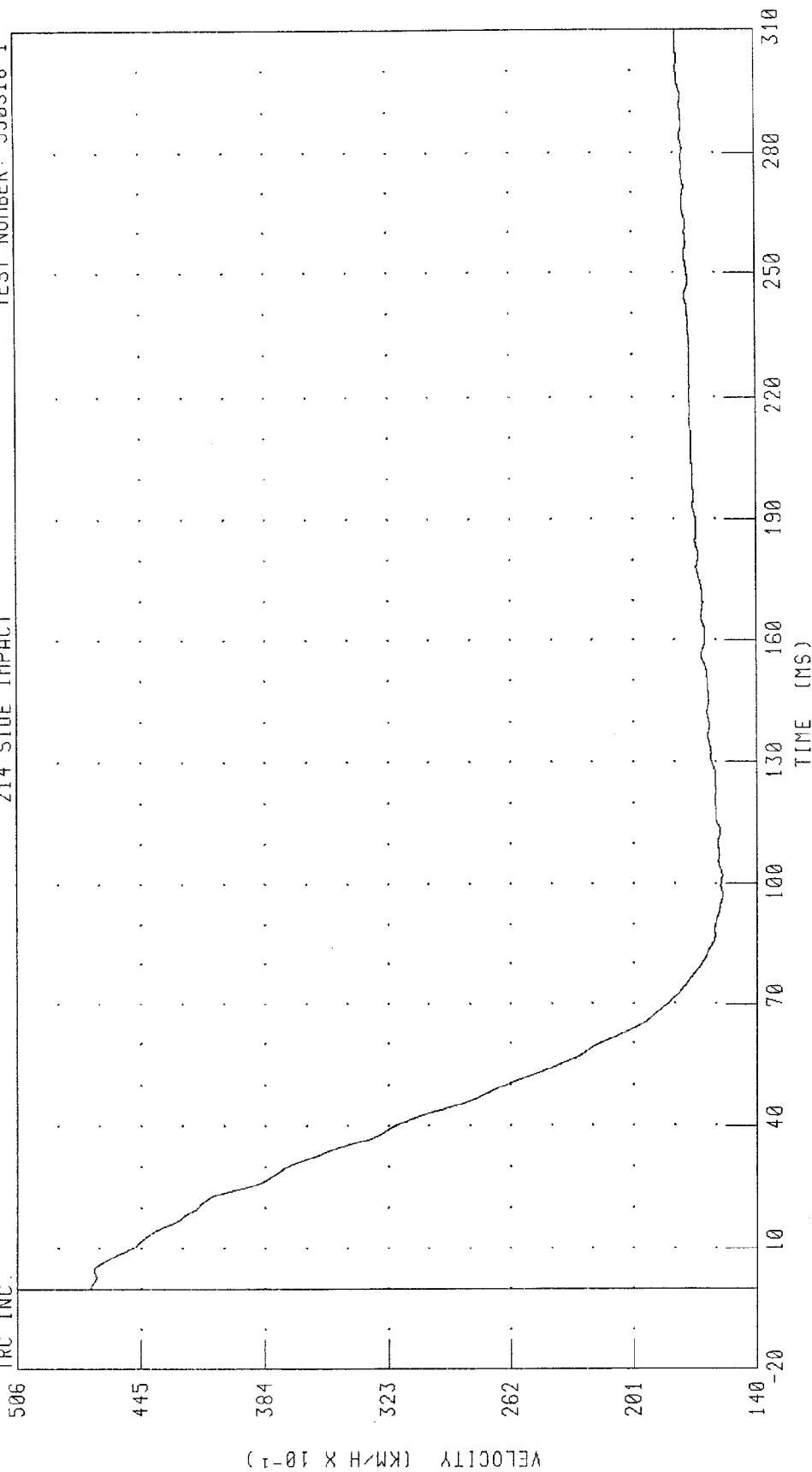
CHANNEL: BCCXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 KIA SEPHIA
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

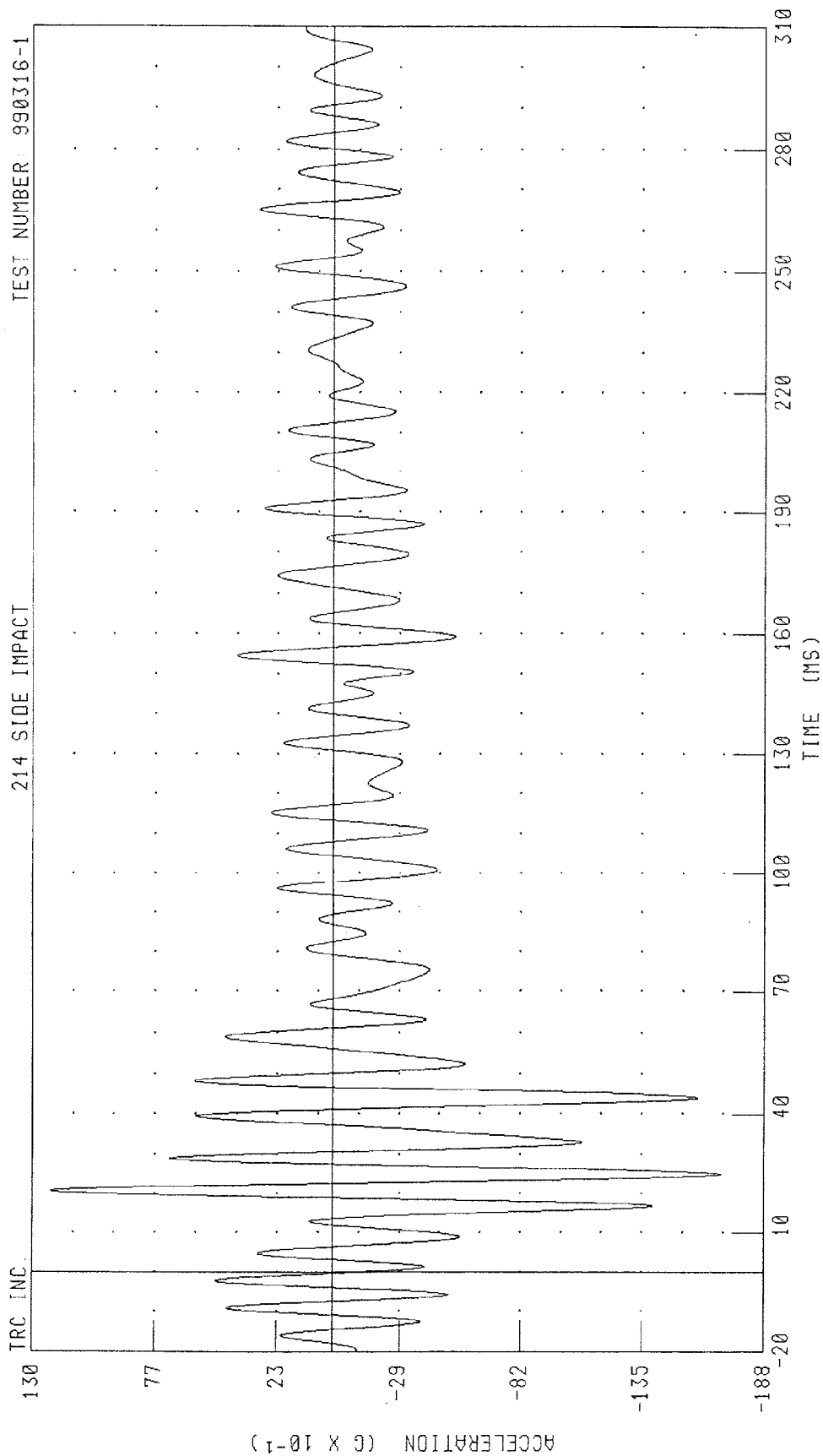


PEAK DATA: 47.00 KM/H @ 0.00 MS; 15.69 KM/H @ 97.12 MS

FILTER: CH. CLASS 180

CHANNEL: BCGXV1

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION



CHANNEL: BCGYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

256

230

VELOCITY (KM/H X 10⁻¹)

204

178

152

126

100
-20

TIME (MS)

310

280

250

220

190

160

130

100

70

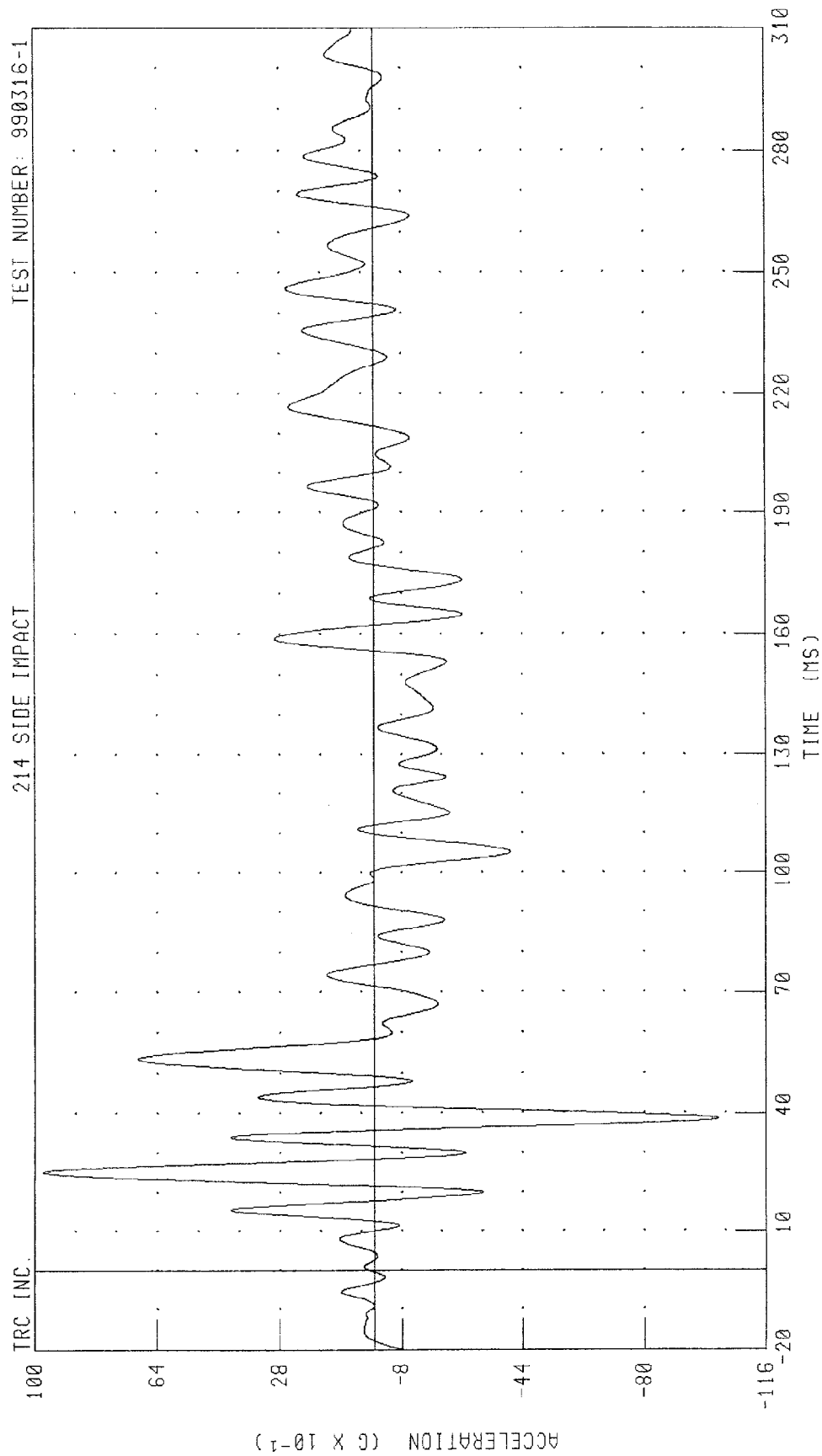
40

10

PEAK DATA: 24.00 KM/H @ 0.00 MS; 12.08 KM/H @ 306.56 MS

CHANNEL: BCGYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION

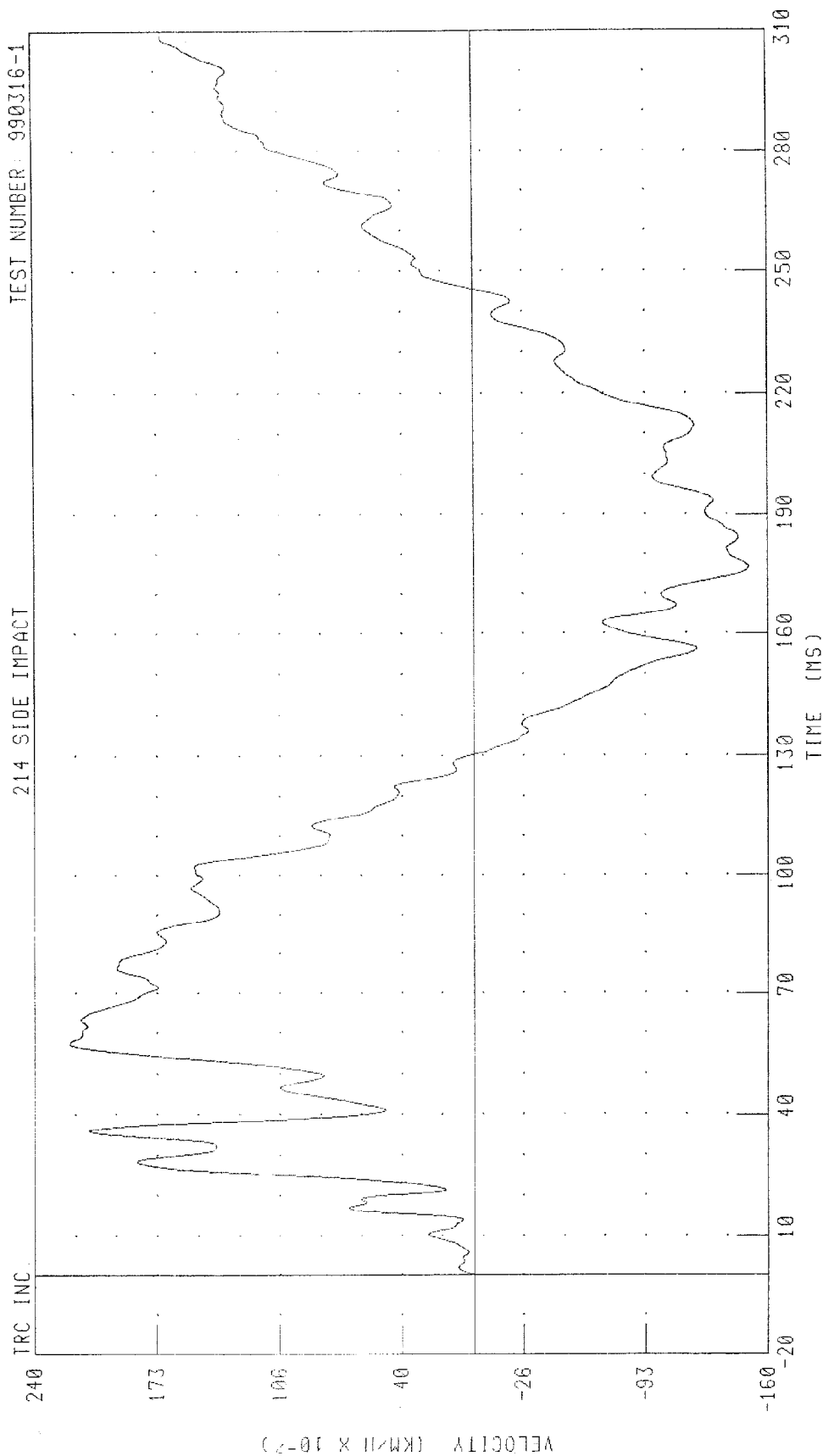


CHANNEL: BCCZG1 FILTER: CH. CLASS 60

PEAK DATA: 9.77 G @ 25.12 MS; -10.21 G @ 38.64 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS VELOCITY
 214 SIDE IMPACT

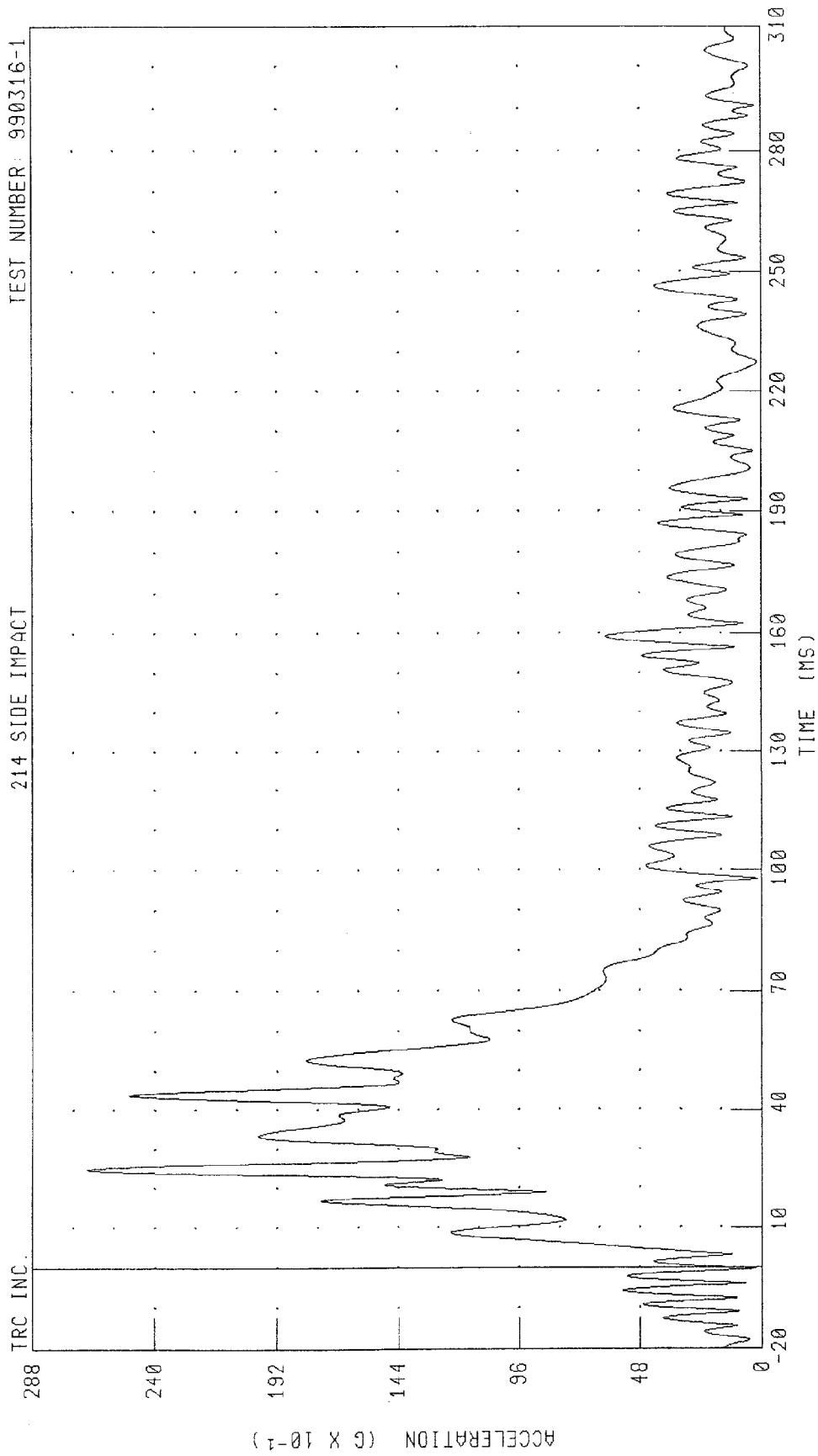
TEST NUMBER: 990316-1



PEAK DATA: 2 21 KM/H @ 57.44 MS, -1.50 KM/H @ 176.80 MS

CHANNEL: BCCZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

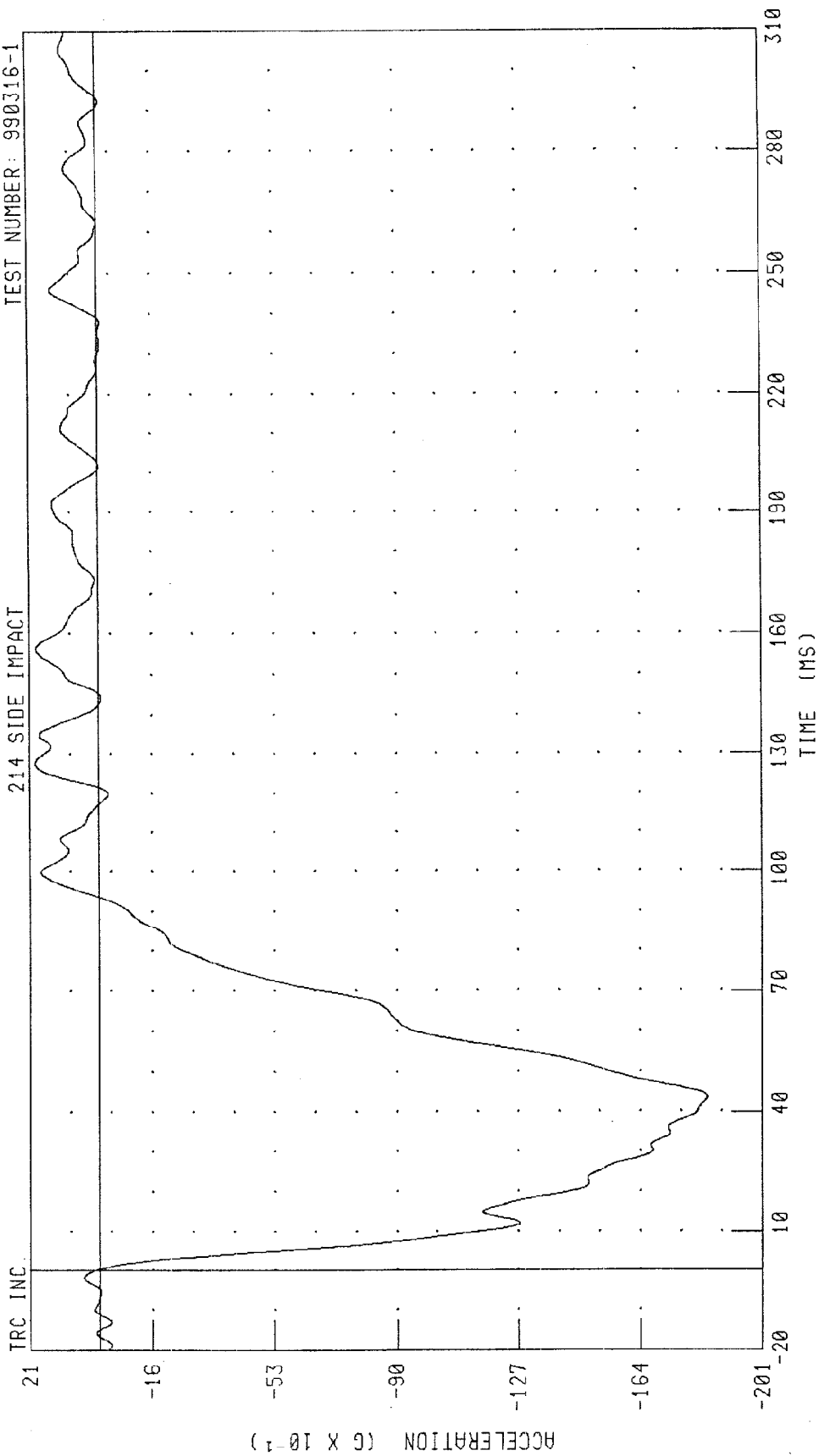


PEAK DATA: 26.64 G @ 24.88 MS; 0.15 G @ 227.52 MS

CHANNEL: BCGRG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 MOVING DEFORMABLE BARRIER REAR X-AXIS ACCELERATION
 214 SIDE IMPACT

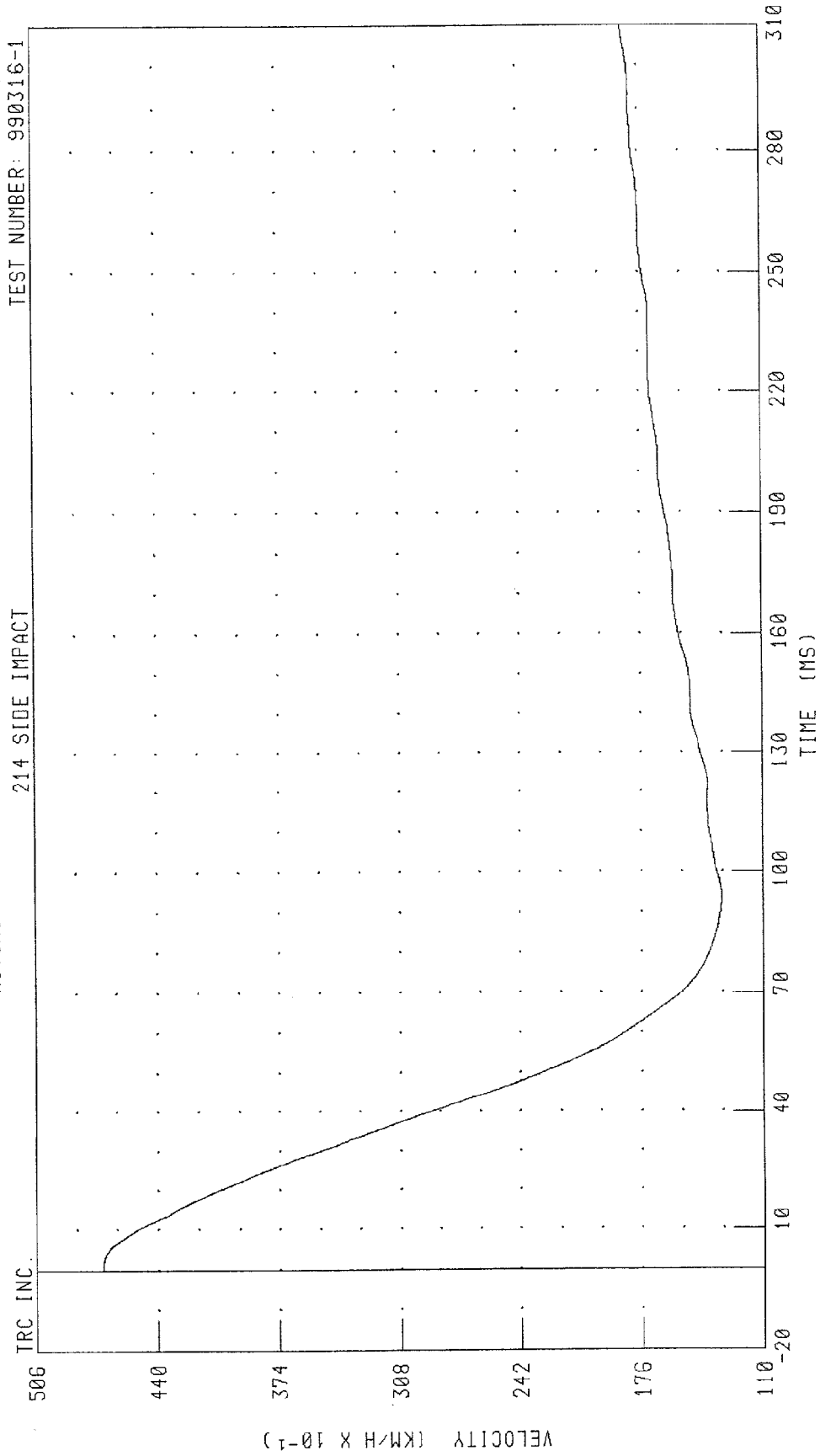
TEST NUMBER: 990316-1



PEAK DATA: 1.92 G @ 127.76 MS; -18.43 G @ 43.60 MS

CHANNEL: LRRXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
MOVING DEFORMABLE BARRIER REAR X-AXIS VELOCITY

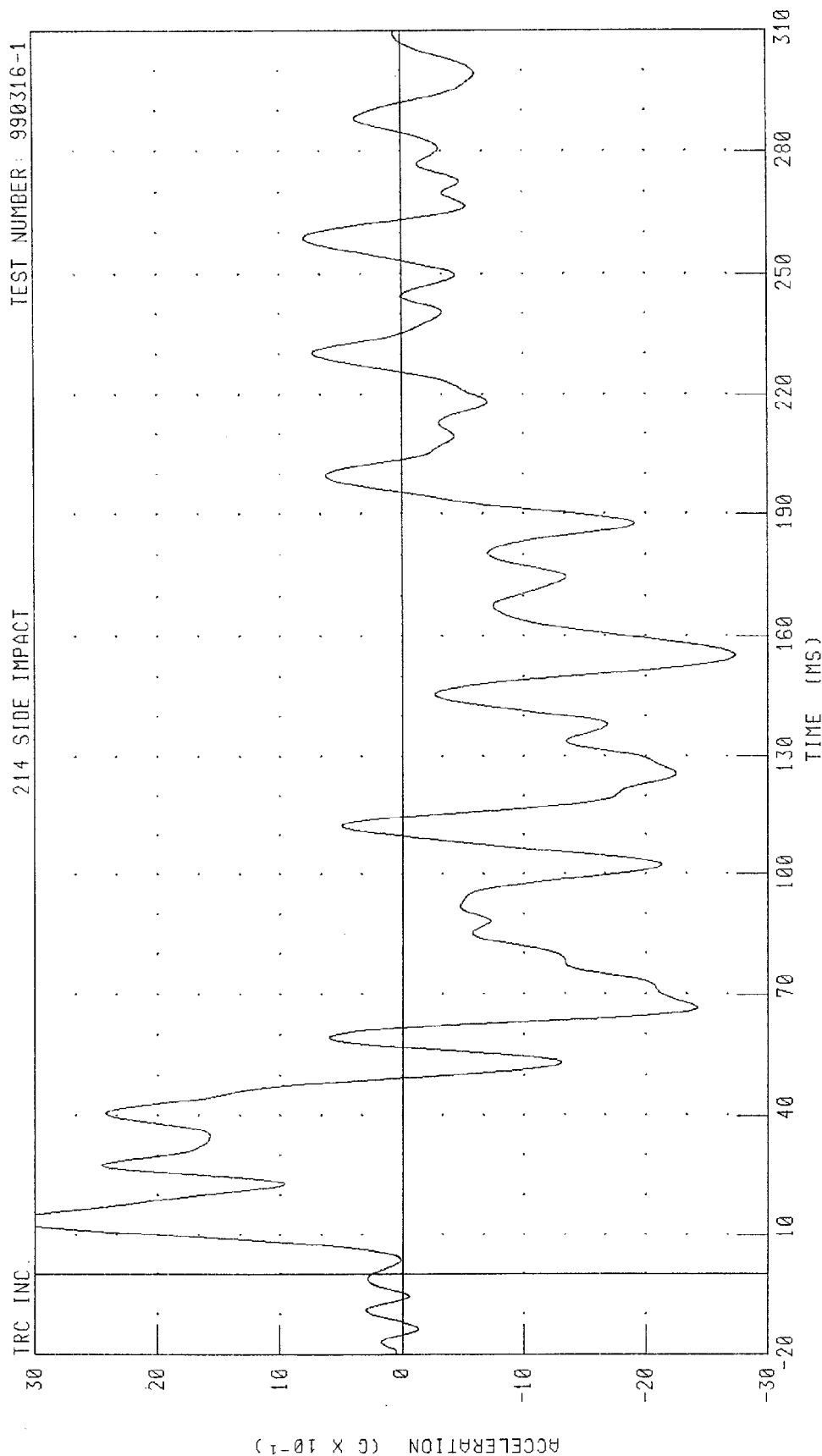


PEAK DATA: 47.00 KM/H @ 0.00 MS, 13.23 KM/H @ 93.76 MS

CHANNEL: LRRXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 MOVING DEFORMABLE BARRIER REAR Y-AXIS ACCELERATION
 214 SIDE IMPACT

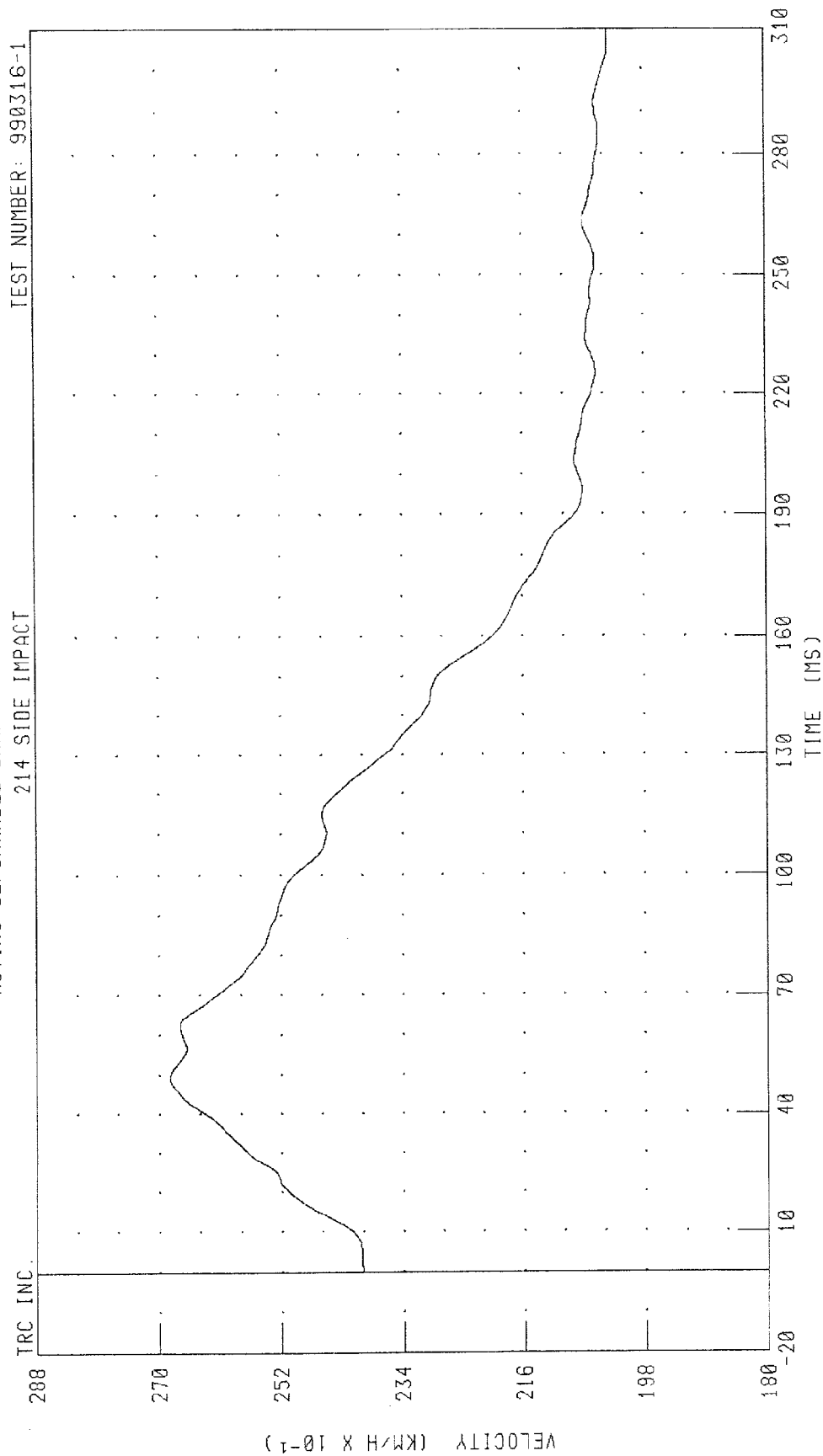
TEST NUMBER: 990316-1



PEAK DATA: 3.19 G @ 13.76 MS, -2.74 G @ 155.36 MS

CHANNEL: LRRYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
MOVING DEFORMABLE BARRIER REAR Y-AXIS VELOCITY



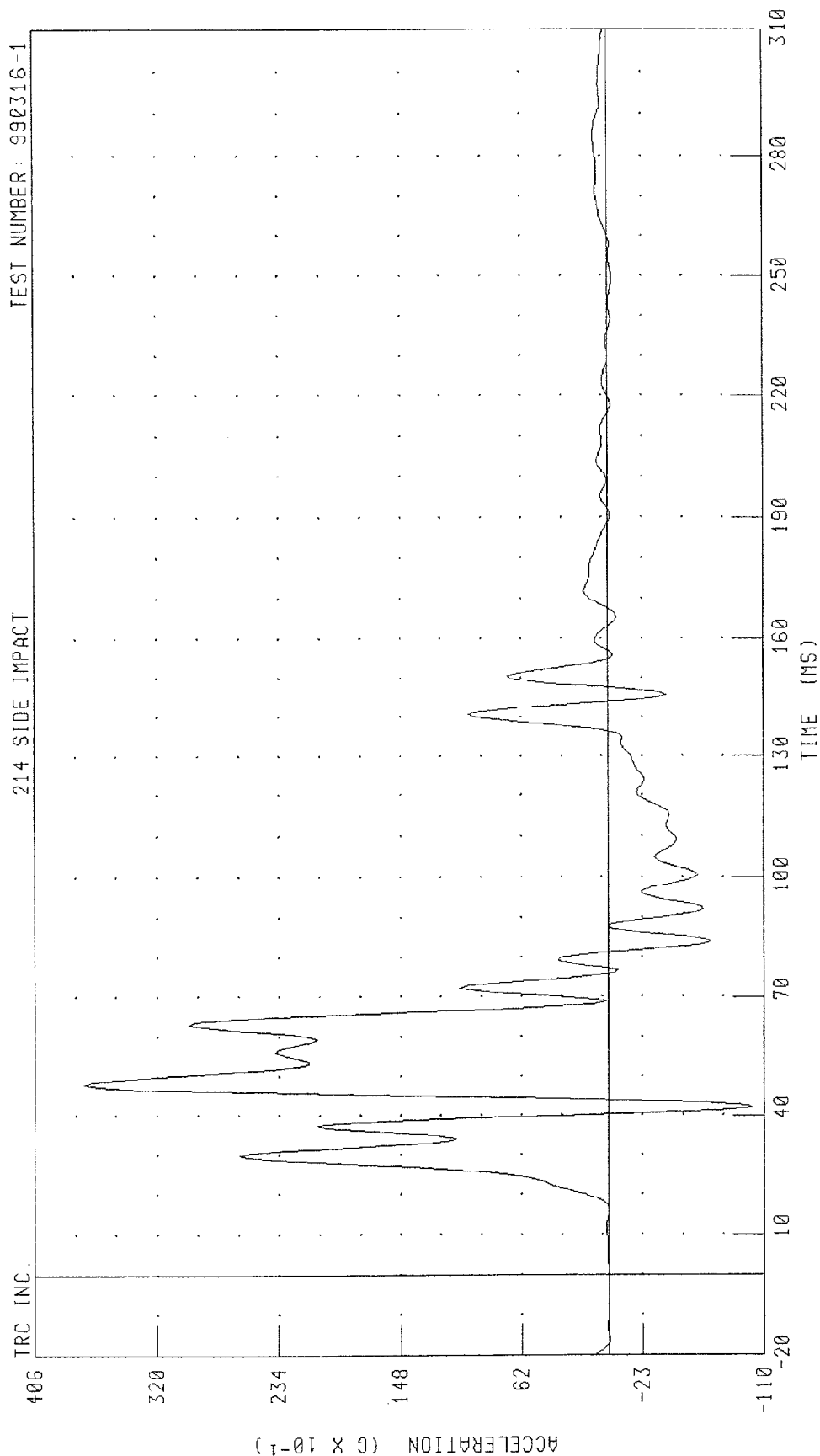
PEAK DATA: 26.84 KM/H @ 49.28 MS; 20.31 KM/H @ 307.04 MS

CHANNEL: LRRYV1 FILTER: CH. CLASS 180

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
DRIVER UPPER RIB Y-AXIS ACCELERATION
214 SIDE IMPACT

TEST NUMBER: 990316-1



PEAK DATA: 37.16 G @ 48.13 MS; -10.24 G @ 41.87 MS

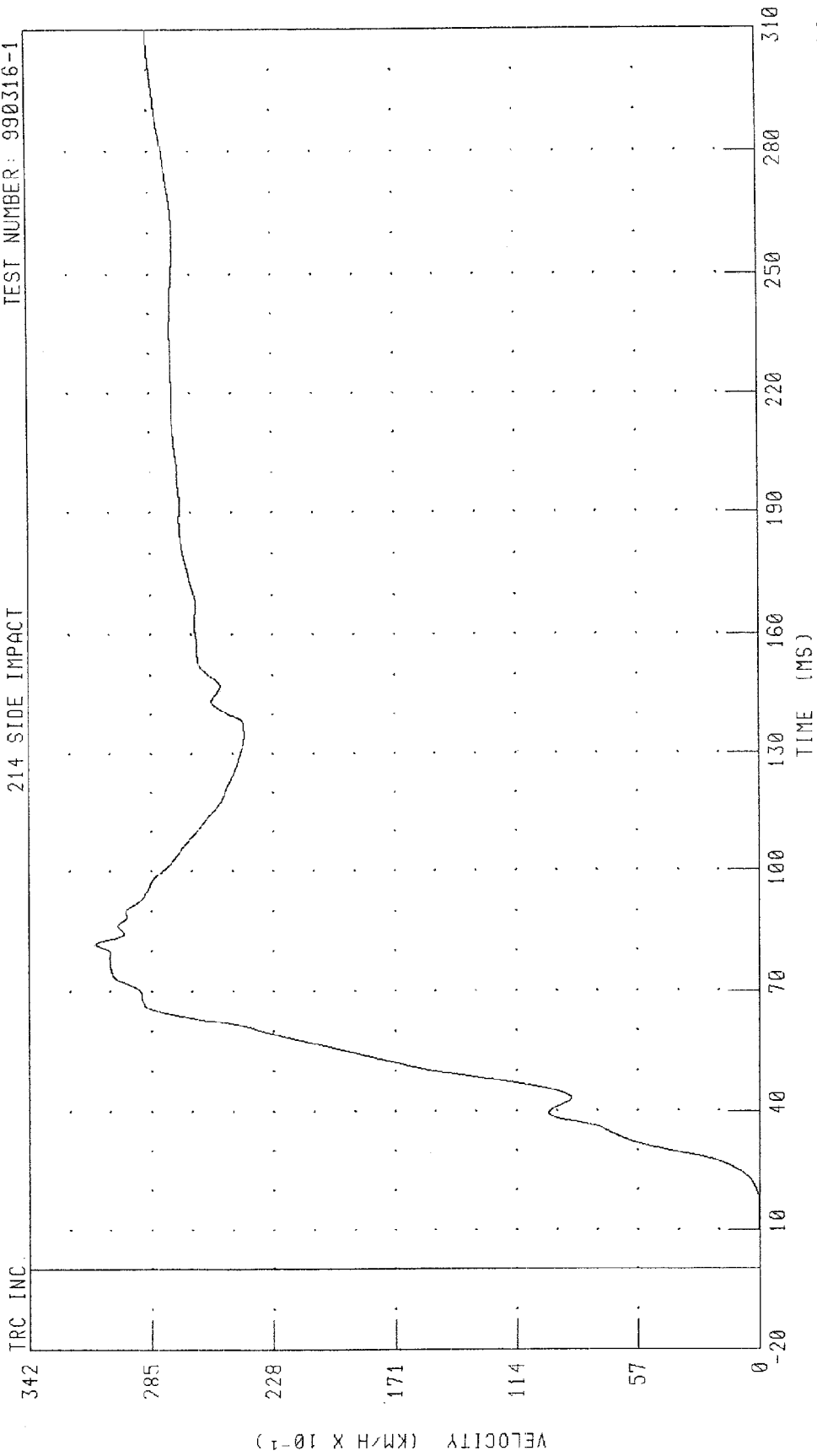
CHANNEL: LURYG1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

DRIVER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT



PEAK DATA: 31.11 KM/H @ 81.76 MS; 0.00 KM/H @ 0.00 MS

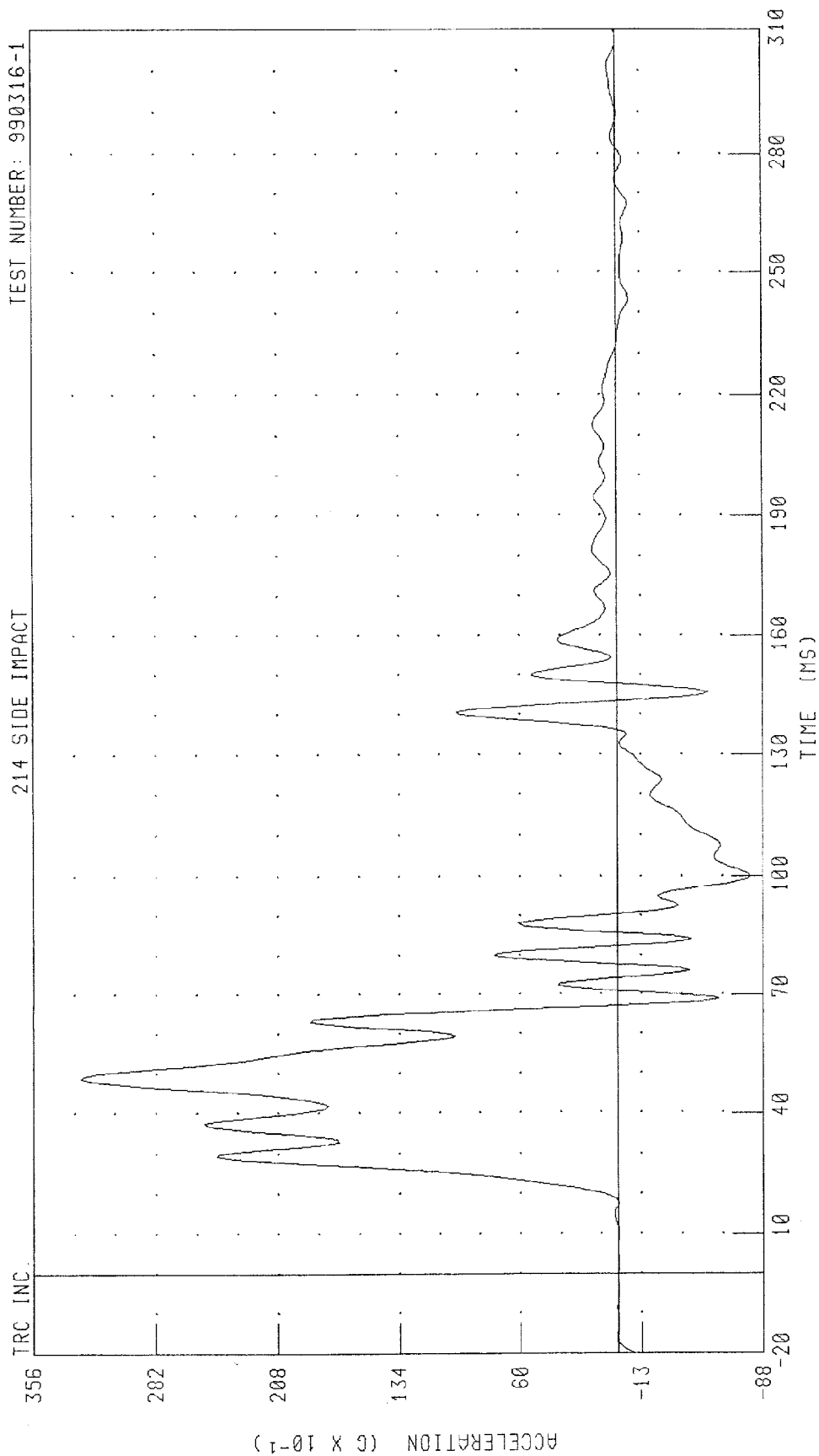
CHANNEL: LURYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990316-1

214 SIDE IMPACT

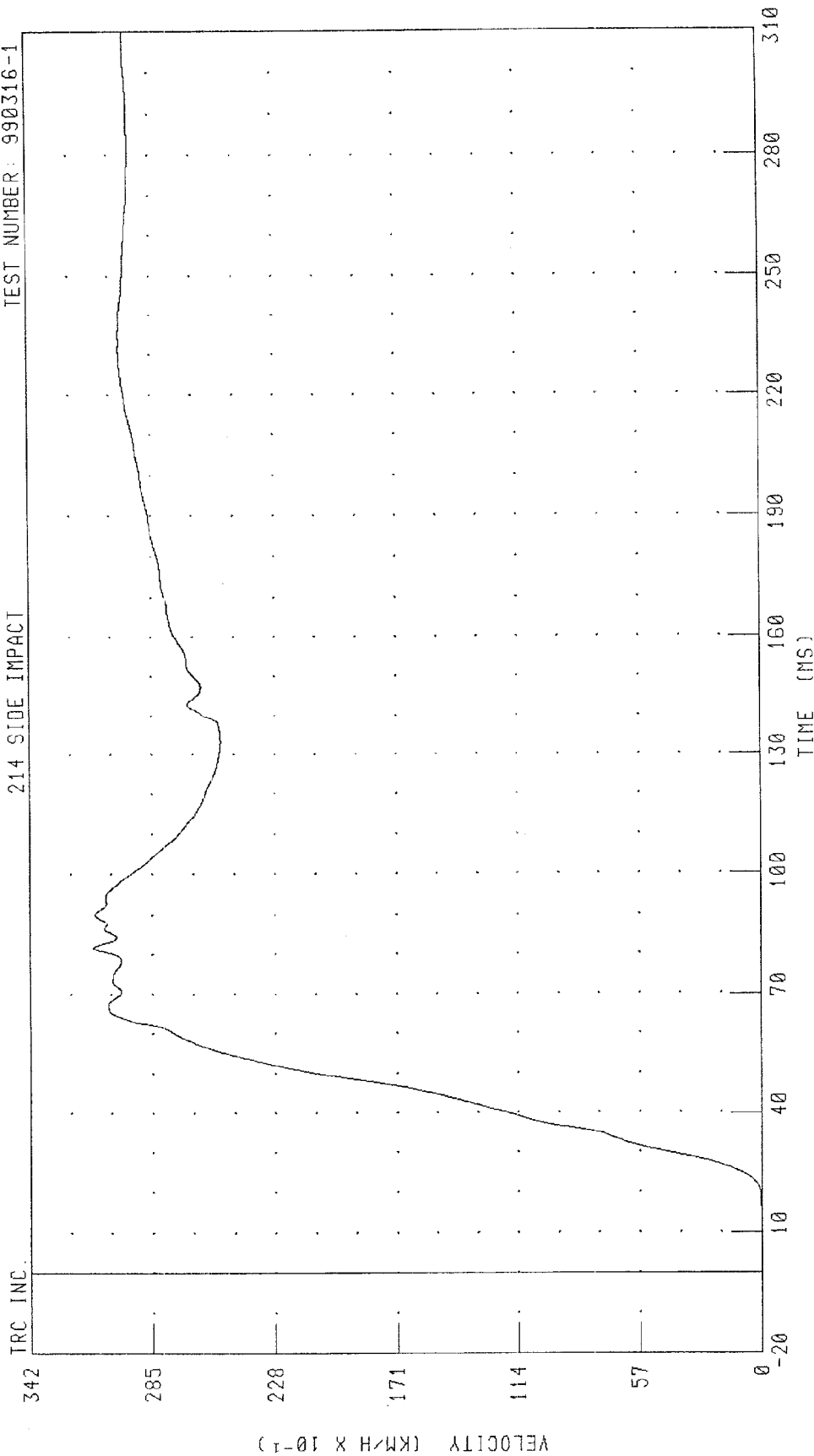


PEAK DATA: 32.71 G @ 48.75 MS; -8.06 G @ 100.00 MS

CHANNEL: LLRYG1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER RIB Y-AXIS VELOCITY
 214 SIDE IMPACT

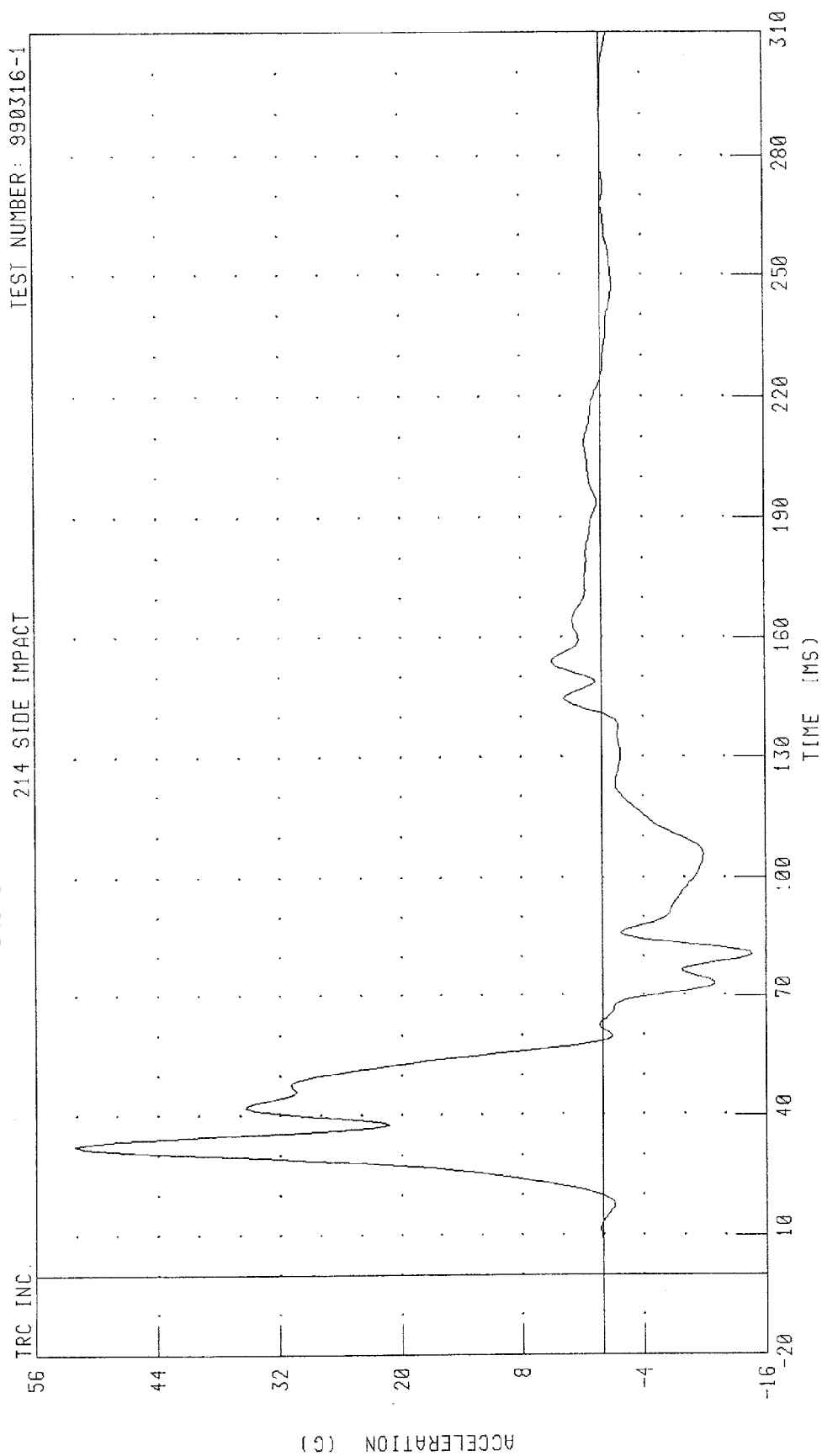
TEST NUMBER: 990316-1



PEAK DATA: 31.27 KM/H @ 81.76 MS; -0.01 KM/H @ 11.12 MS

CHANNEL: LLRYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER SPINE Y-AXIS ACCELERATION

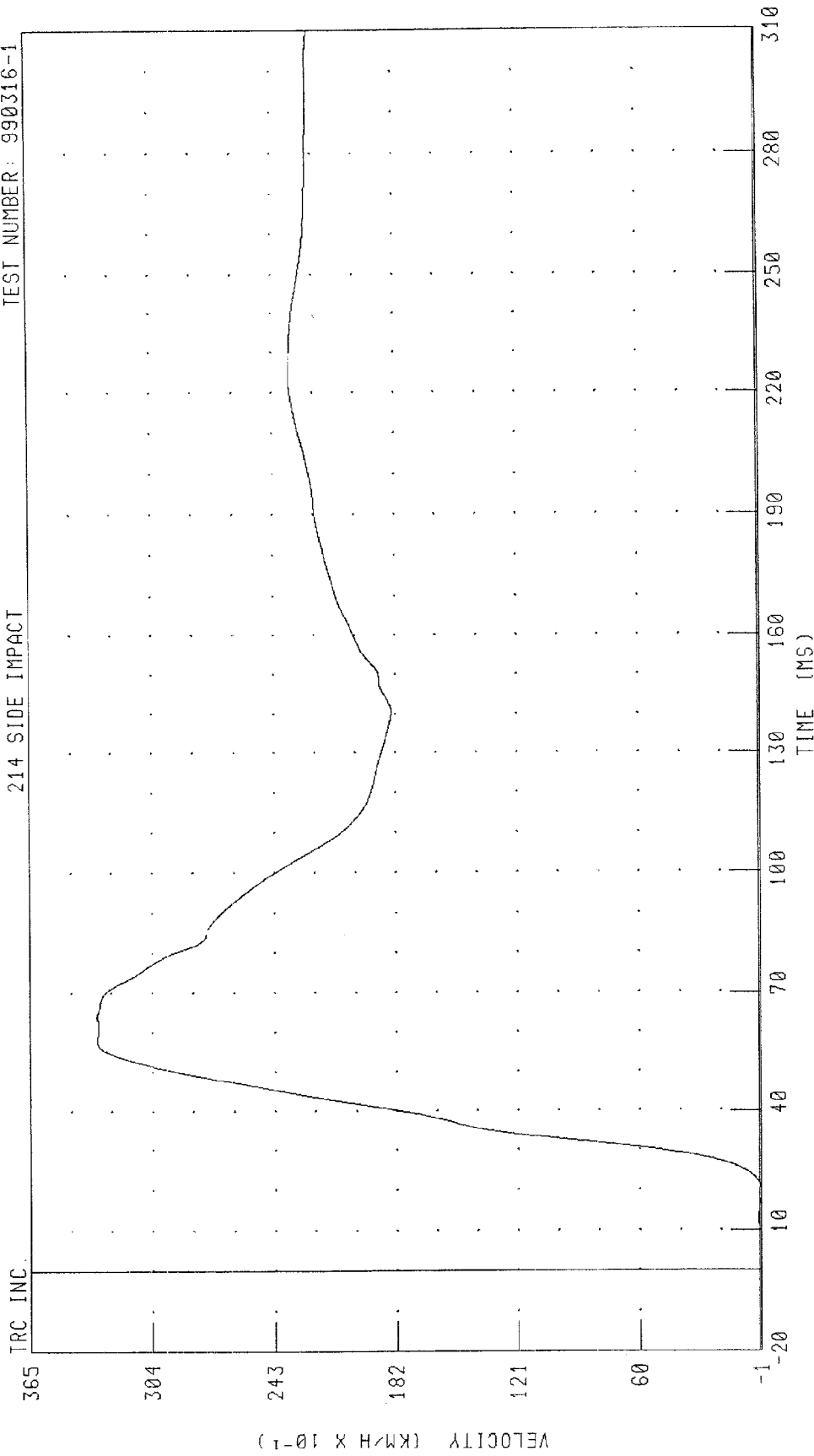


PEAK DATA: 52 13 G @ 32.50 MS; -14.69 G @ 80.63 MS

CHANNEL: T12YC1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER SPINE Y-AXIS VELOCITY
 214 SIDE IMPACT

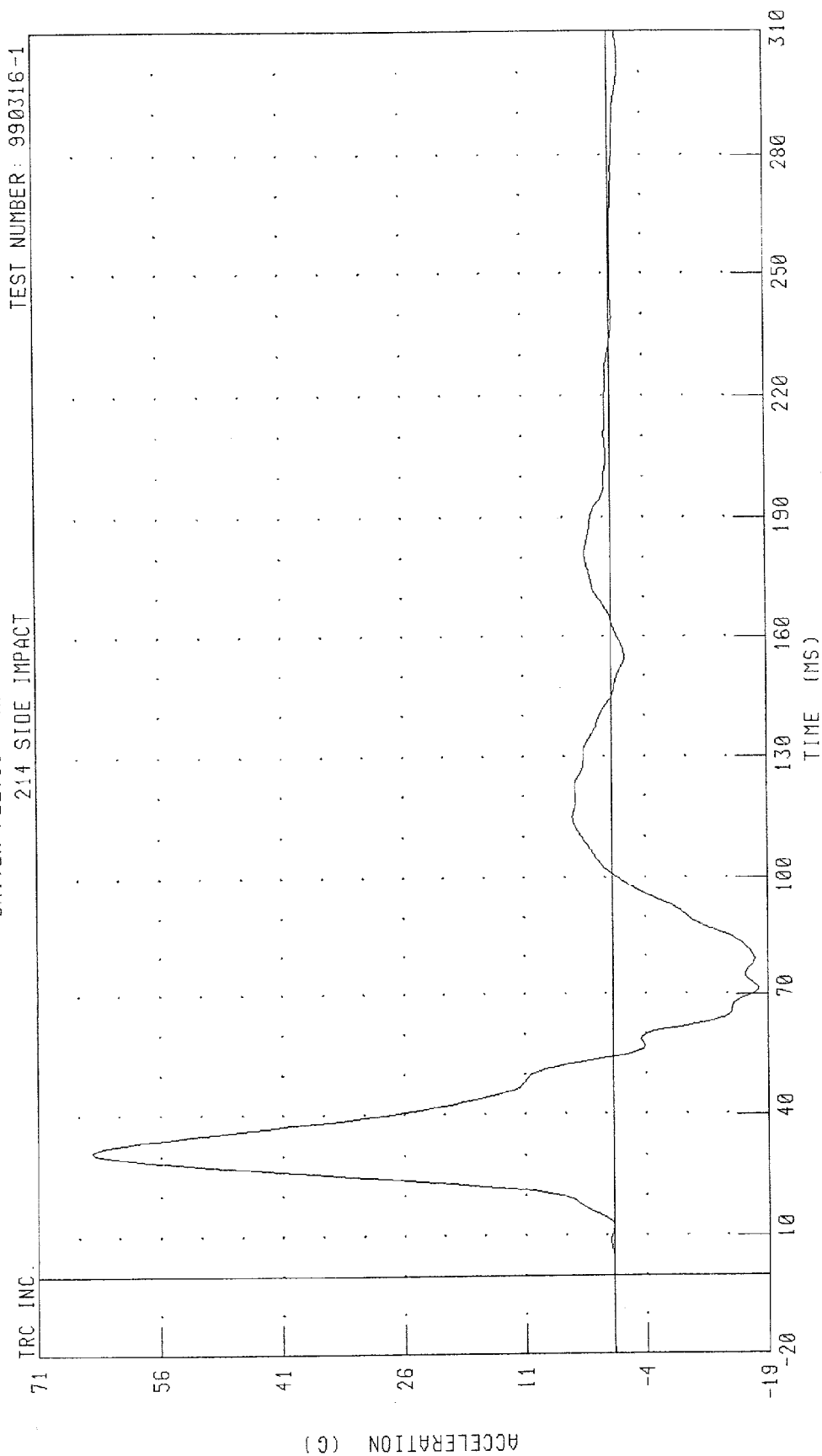
TEST NUMBER: 990316-1



PEAK DATA: 33 18 KM/H @ 64.24 MS; -0.11 KM/H @ 19.20 MS

CHANNEL: T12YV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER PELVIS Y-AXIS ACCELERATION



PEAK DATA: 64.43 G @ 31.25 MS; -17.87 G @ 71.88 MS

CHANNEL: PEVYG1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER PELVIS Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 990316-1

TRC INC.

402

335

VELOCITY (KM/H X 10⁻¹)

268

201

134

67

0

-20

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

PEAK DATA: 37.06 KM/H @ 54.32 MS; 0.00 KM/H @ 3.92 MS

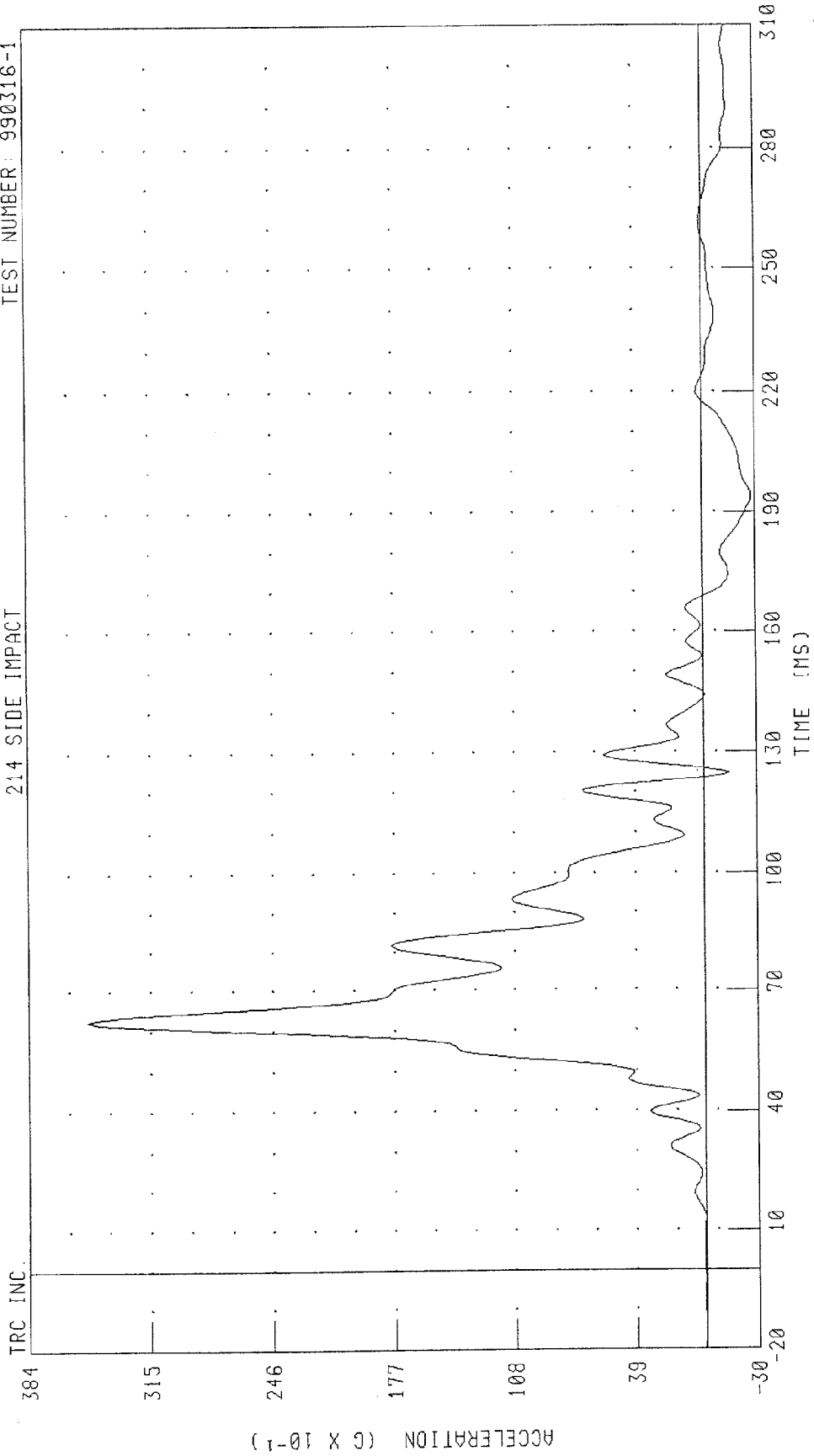
FILTER: CH. CLASS 180

CHANNEL: PEVYVI

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

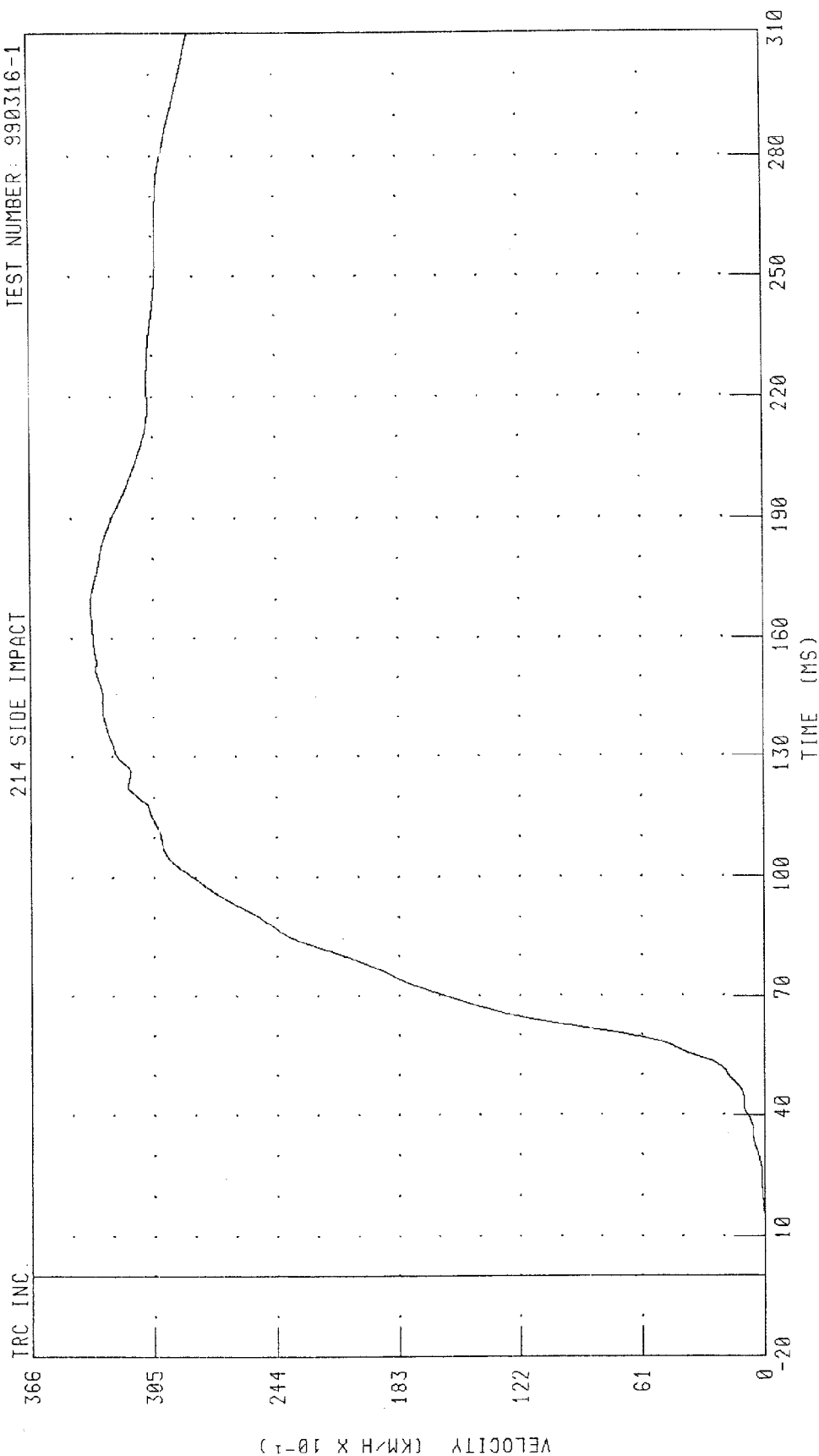


PEAK DATA: 35.10 G @ 62.50 MS; -2.79 G @ 194.38 MS

CHANNEL: LURYG4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY
 214 SIDE IMPACT

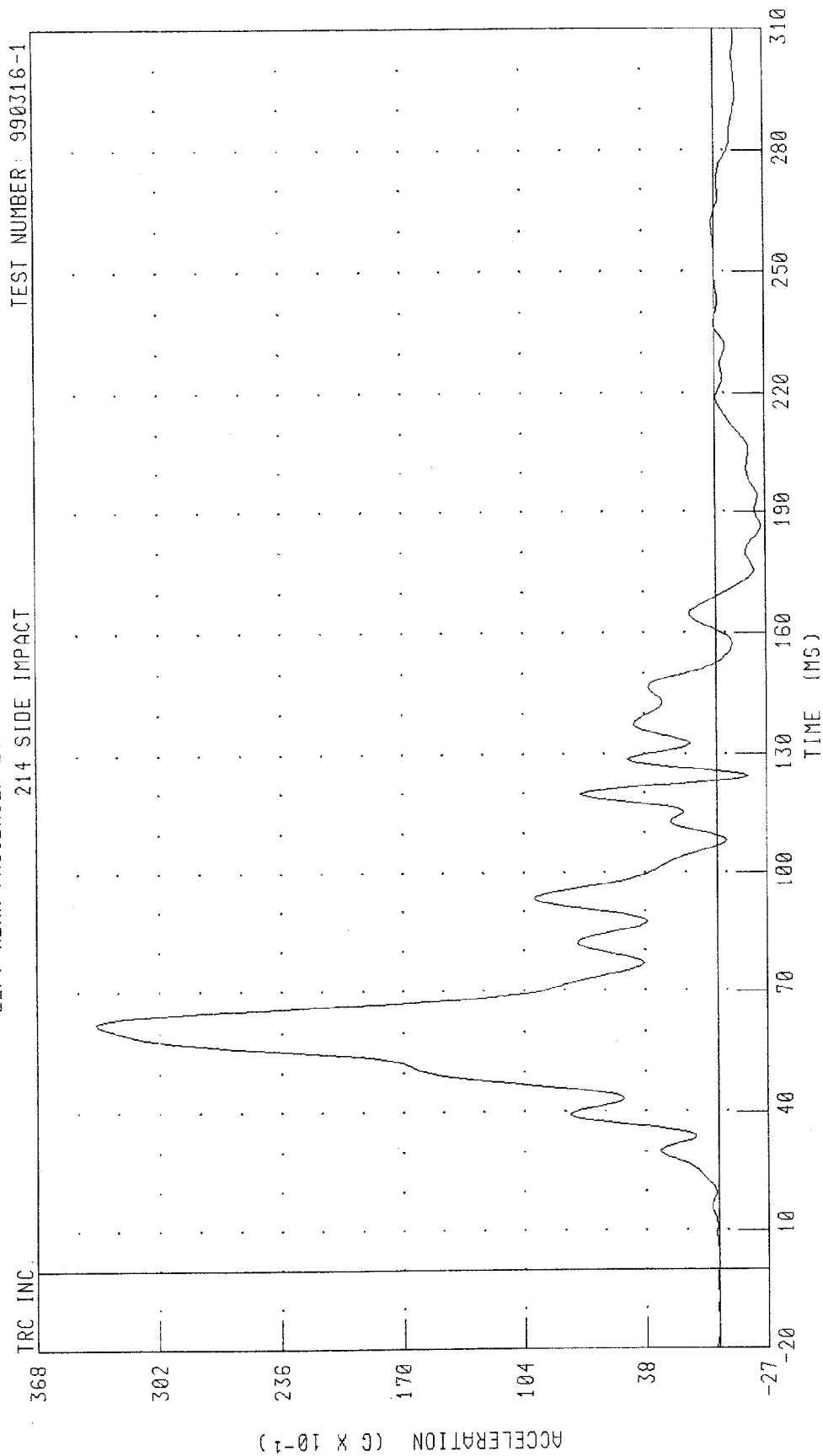
TEST NUMBER: 990316-1



PEAK DATA: 33.63 KM/H @ 168.32 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LURYV4 FILTER: CH. CLASS 180

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

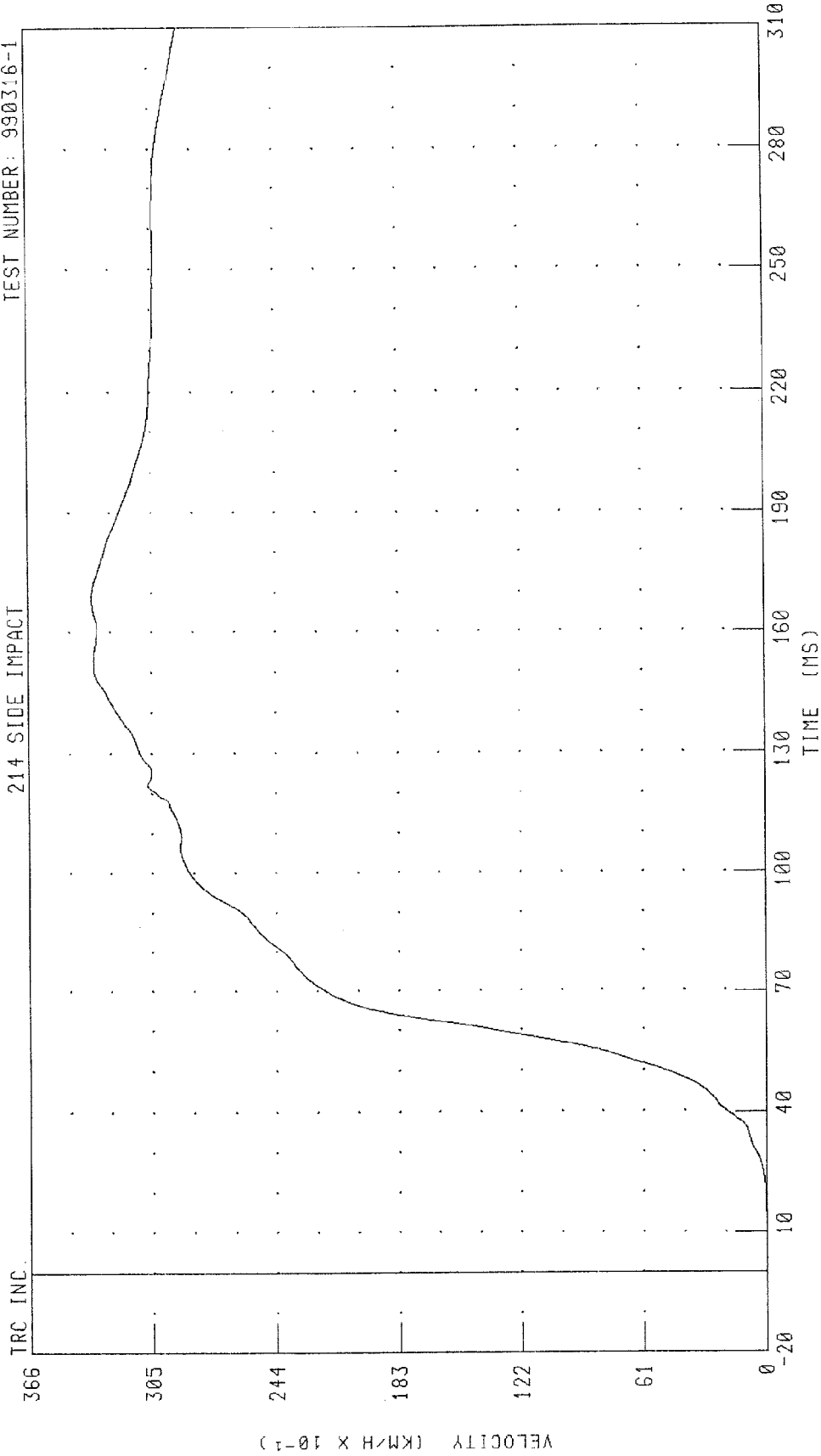


CHANNEL: LLRYC4 FILTER: FIR 100

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

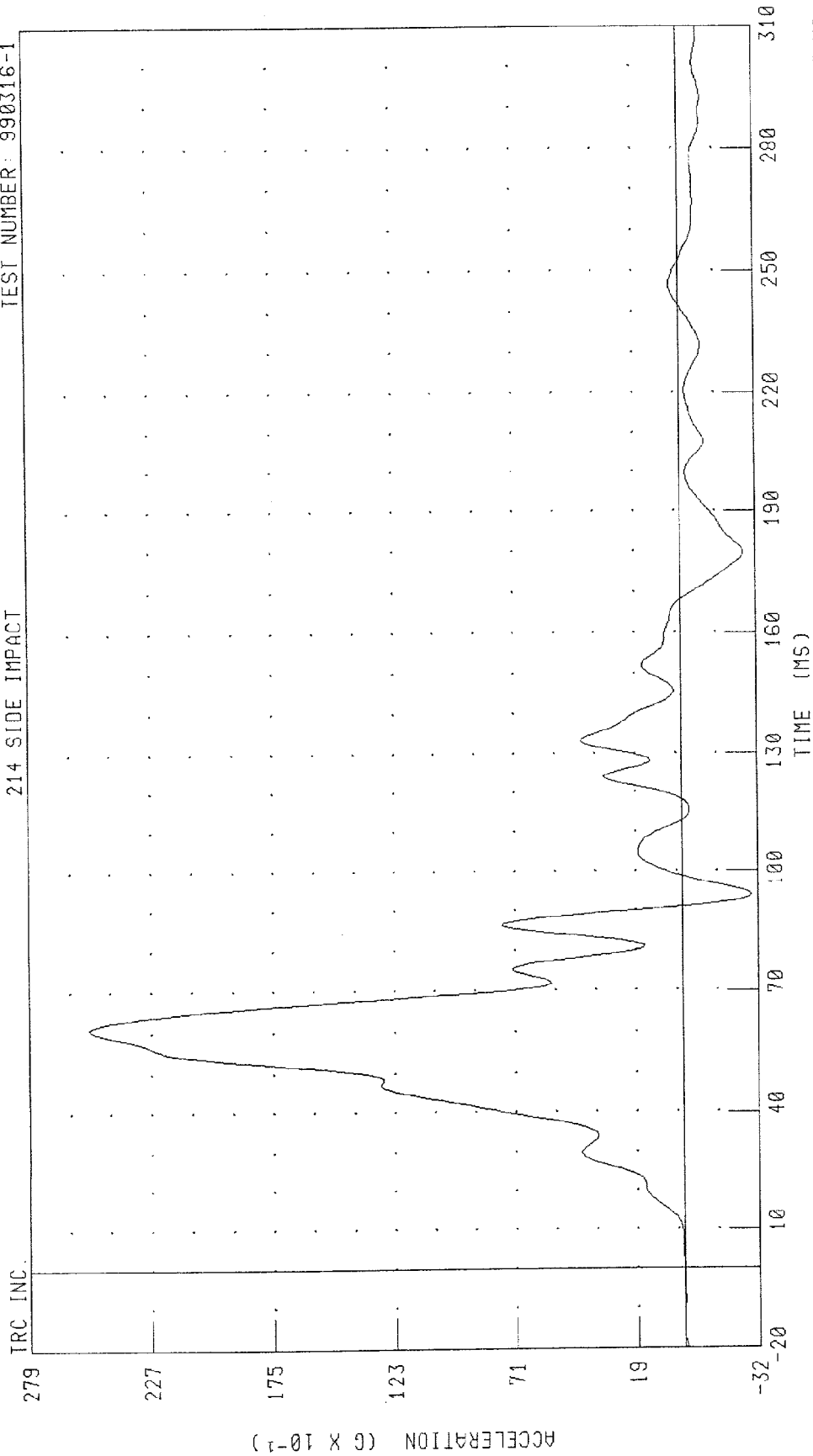


CHANNEL: LLRYV4 FILTER: CH. CLASS 180

PEAK DATA: 33.46 KM/H @ 158.80 MS, -0.01 KM/H @ 6.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION
214 SIDE IMPACT

TEST NUMBER: 990316-1



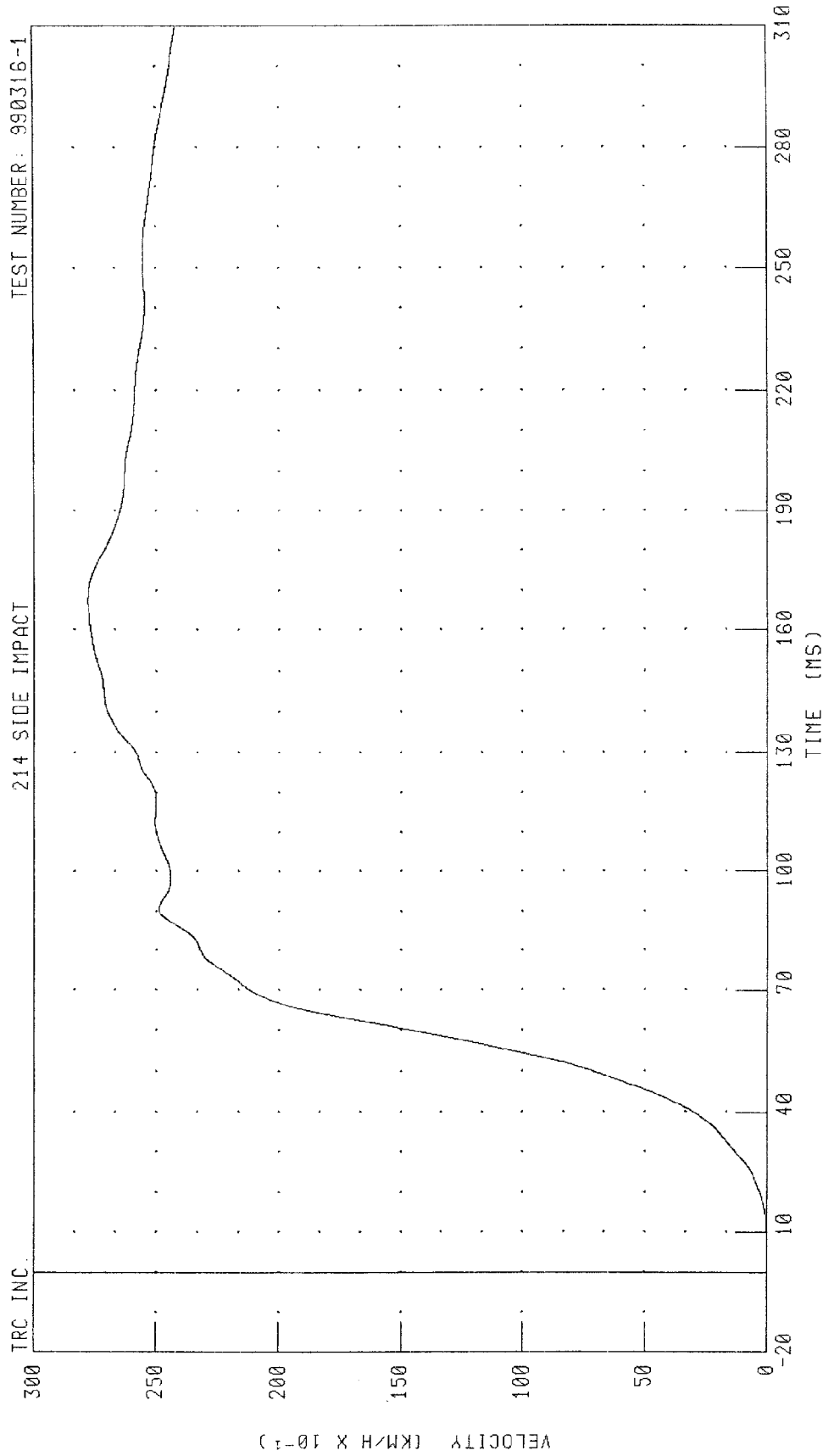
PEAK DATA: 25.45 G @ 61.25 MS, -2.96 G @ 93.75 MS

CHANNEL: T12Y64 FILTER: FIR 100

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

TEST NUMBER: 990316-1

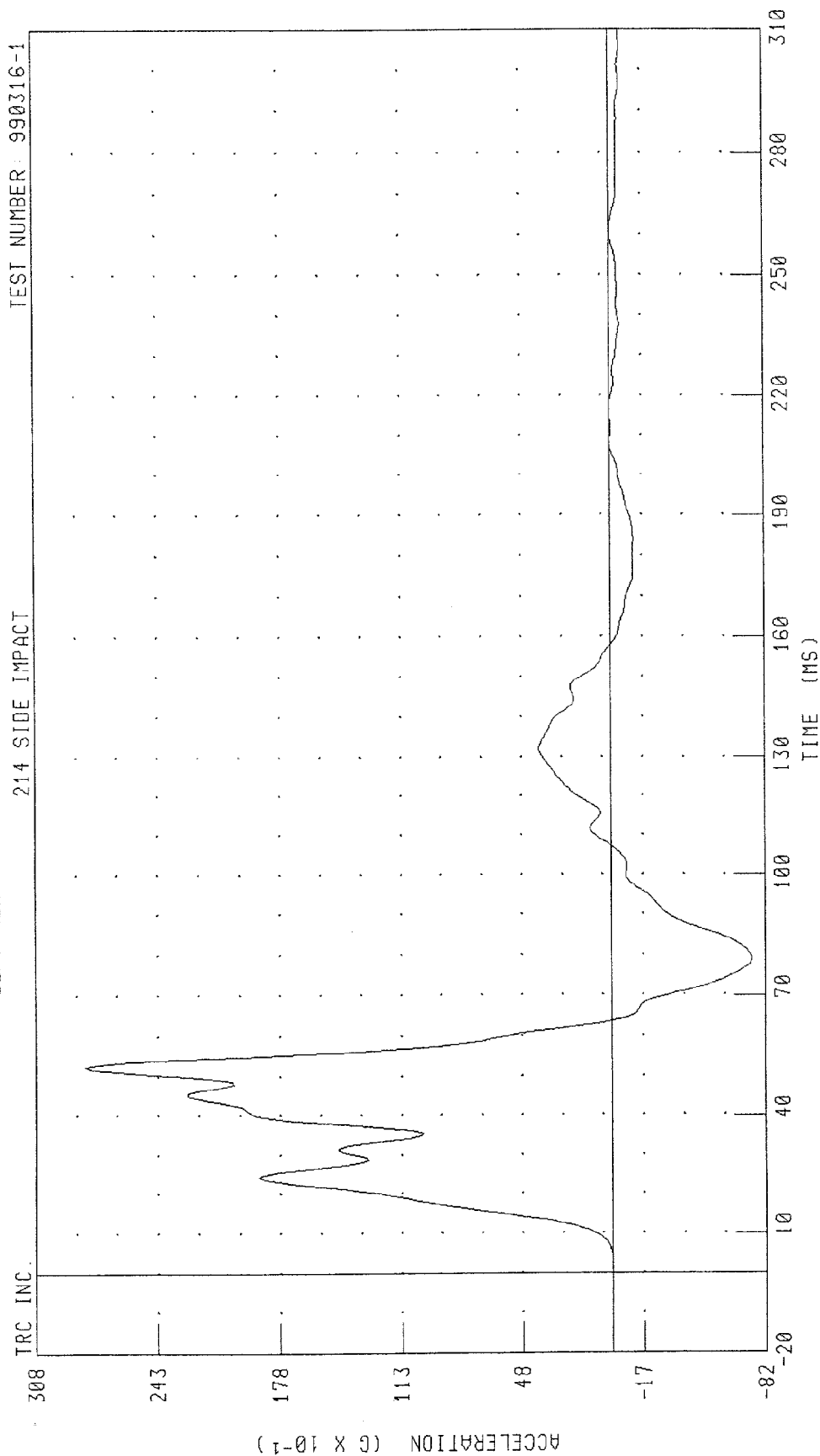
214 SIDE IMPACT



PEAK DATA: 27.79 KM/H @ 167.28 MS; 0.00 KM/H @ 1.20 MS

CHANNEL: T12YV4 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION



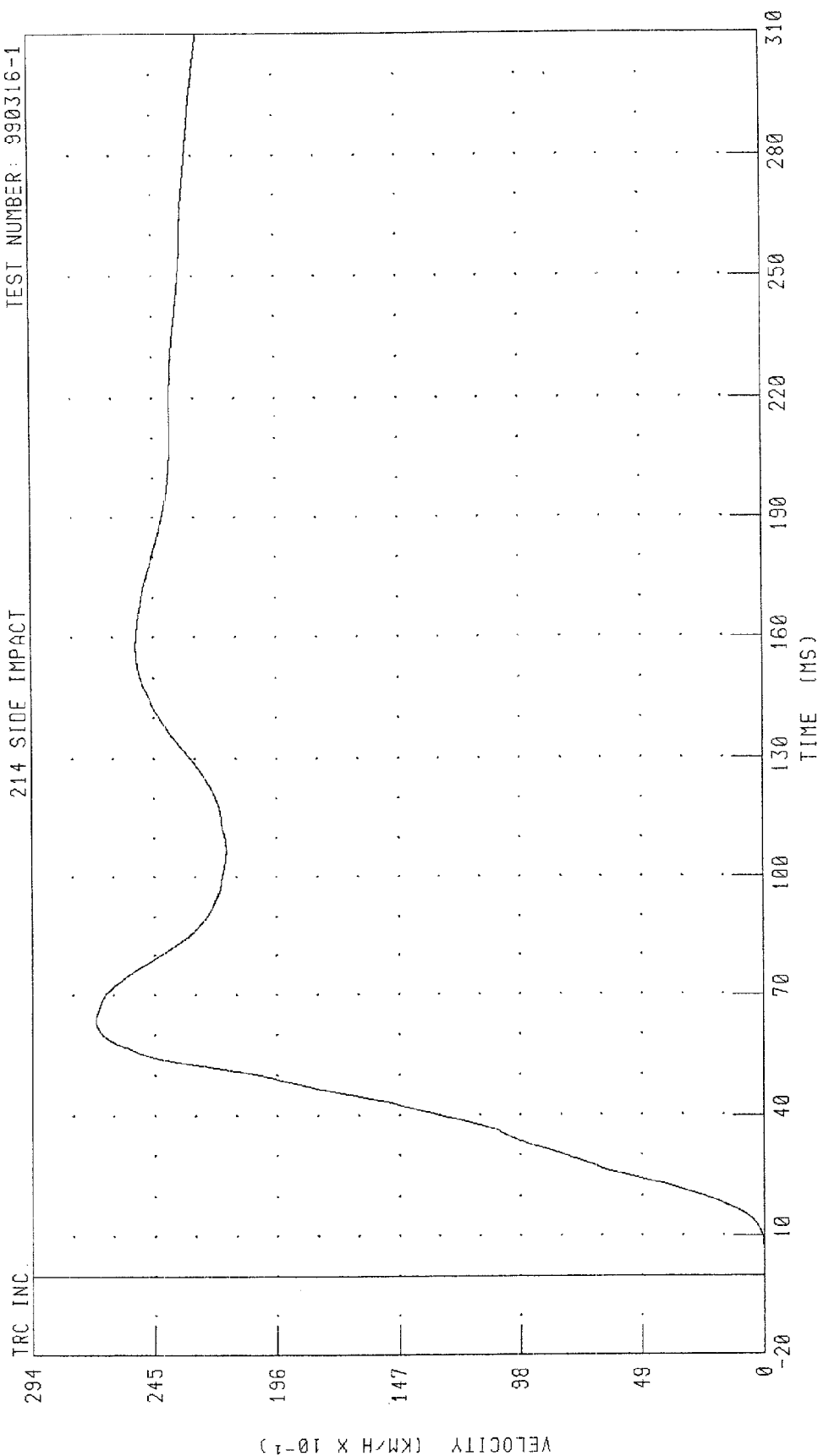
PEAK DATA: 28.20 G @ 52.50 MS; -7.50 G @ 78.75 MS

CHANNEL: PEVYG4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT



PEAK DATA: 26.86 KM/H @ 63.76 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: PEVYV4 FILTER: CH. CLASS 180

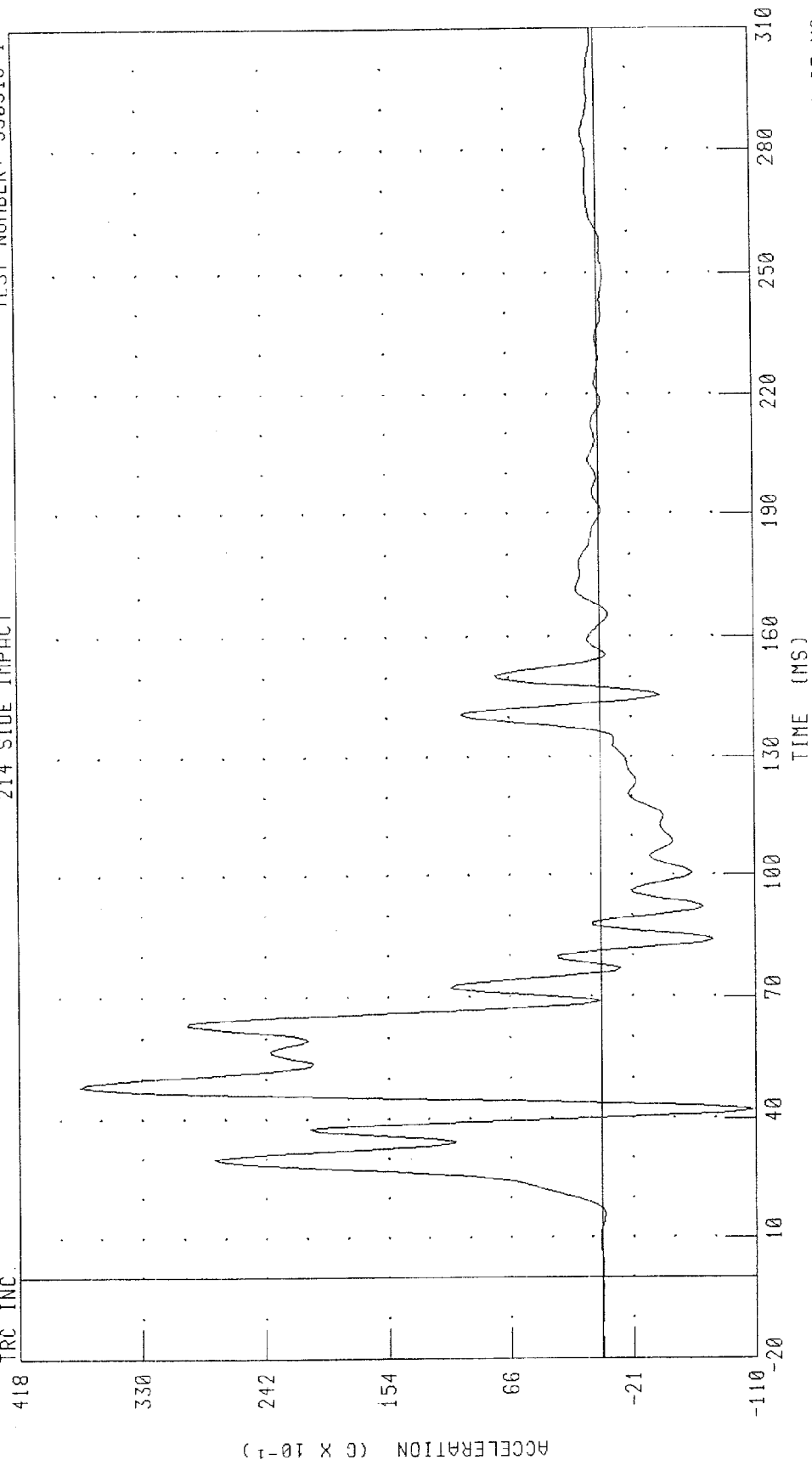
Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

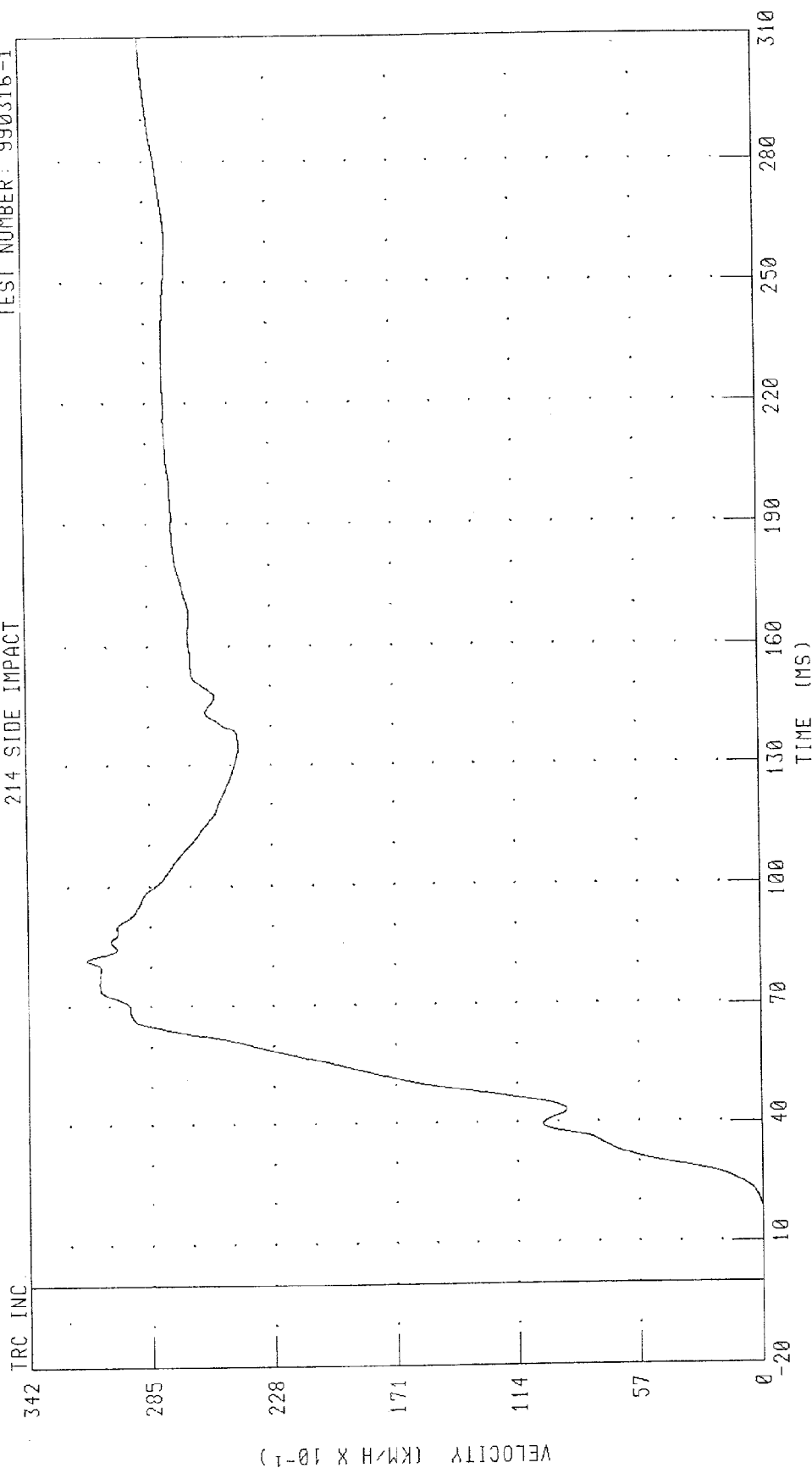


CHANNEL: LURYR1 FILTER: FIR 100

PEAK DATA: 37.40 G @ 48.13 MS; -10.73 G @ 41.87 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY
 214 SIDE IMPACT

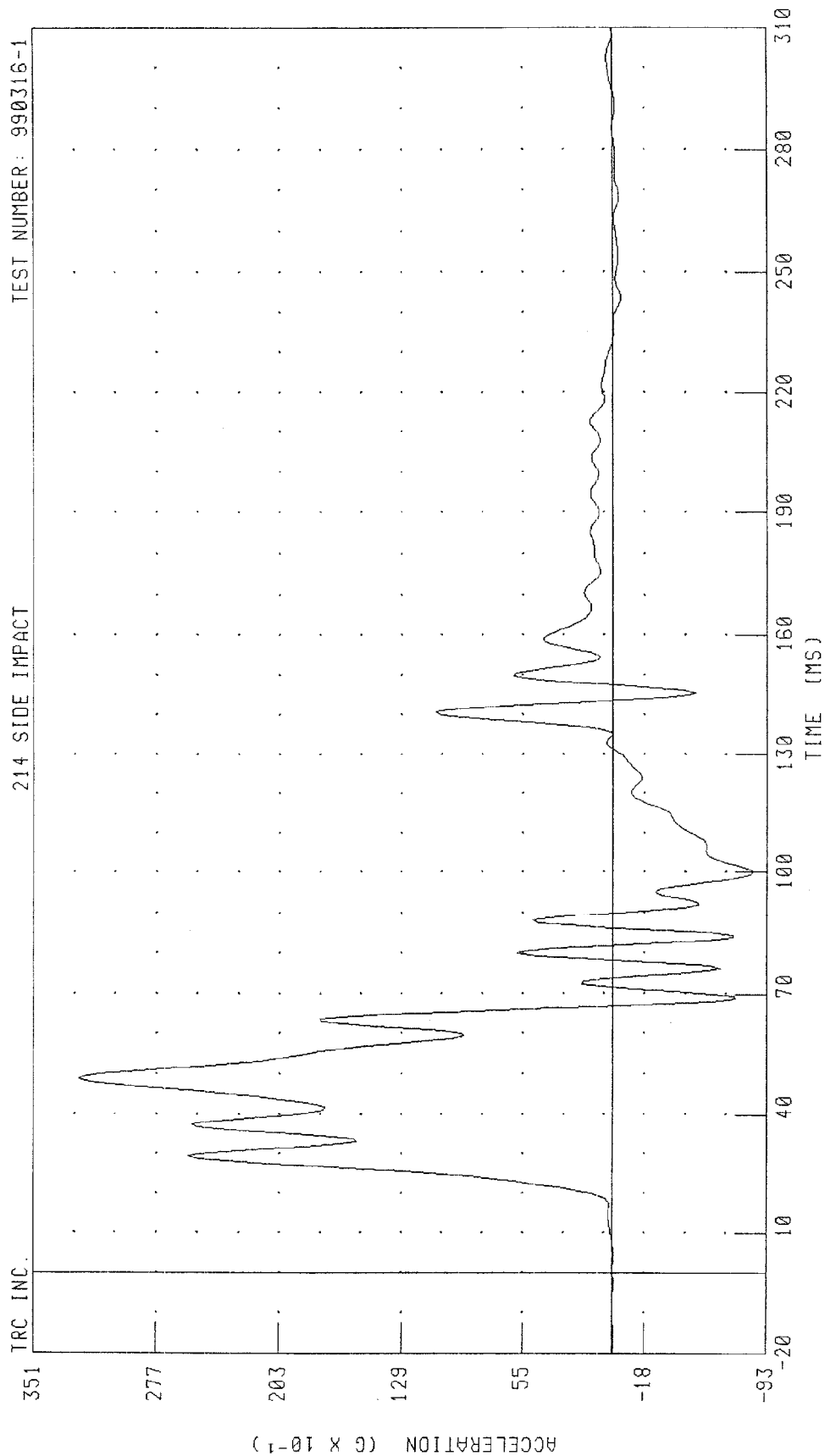
TEST NUMBER: 990316-1



PEAK DATA: 31.46 KM/H @ 81.76 MS, -0.01 KM/H @ 5.76 MS

CHANNEL: LURYVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION
 214 SIDE IMPACT

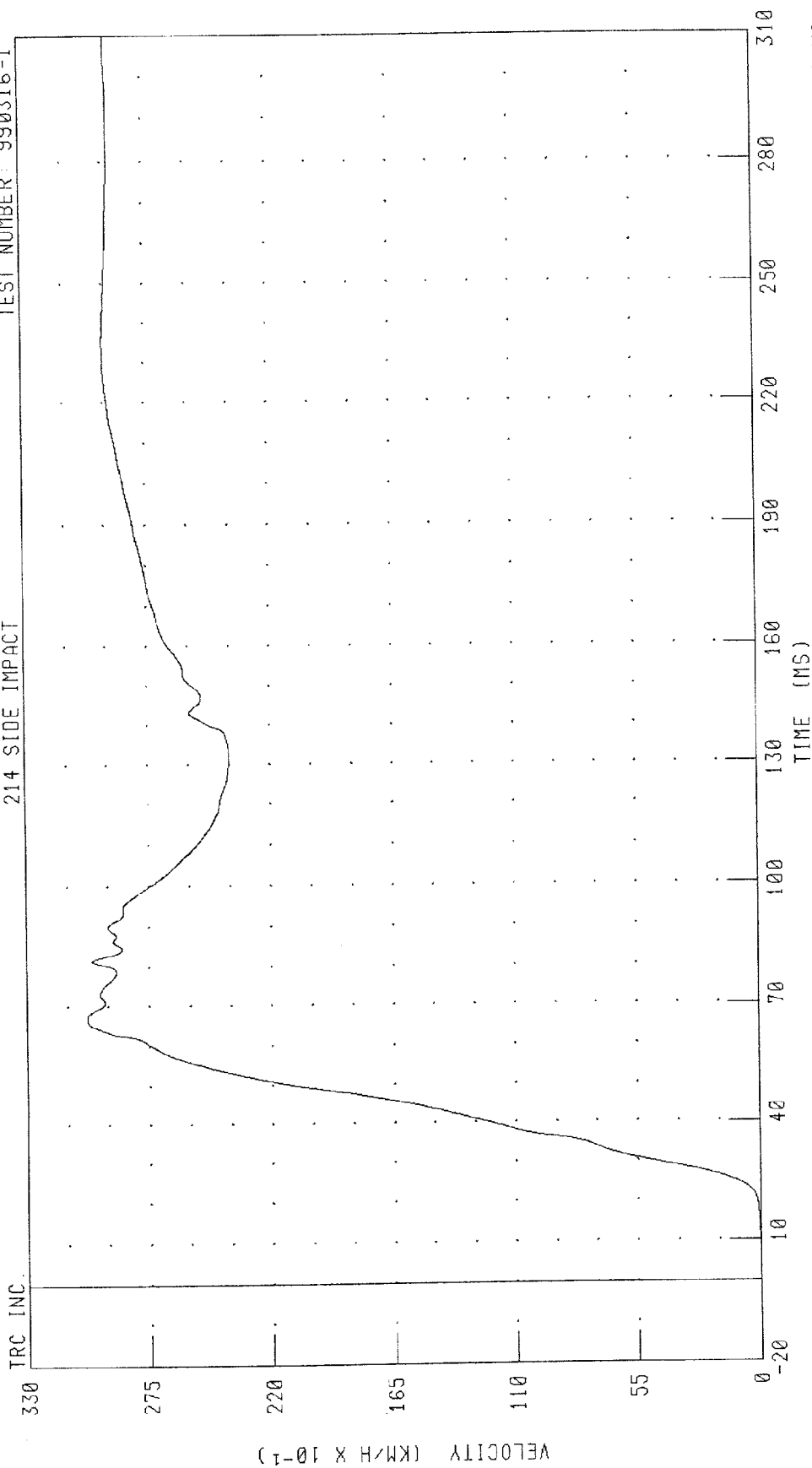


PEAK DATA: 32.35 G @ 48.75 MS, -8.49 G @ 100.00 MS

CHANNEL: LLRYR1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY
 214 SIDE IMPACT

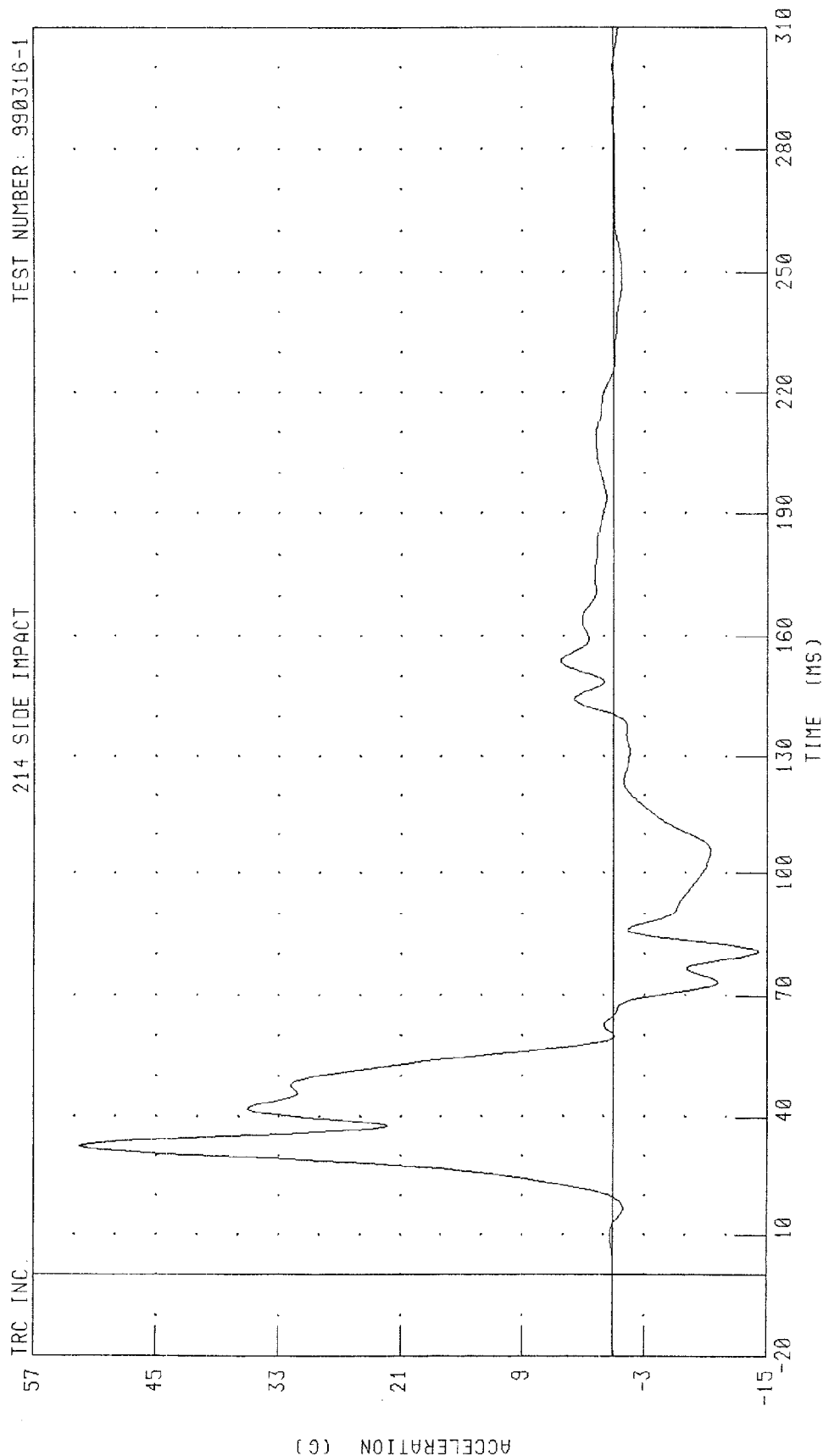
TEST NUMBER: 990316-1



PEAK DATA: 30.28 KM/H @ 67.36 MS; 0.00 KM/H @ 6.72 MS

CHANNEL: LLRYVI FILTER: CH. CLASS 180

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



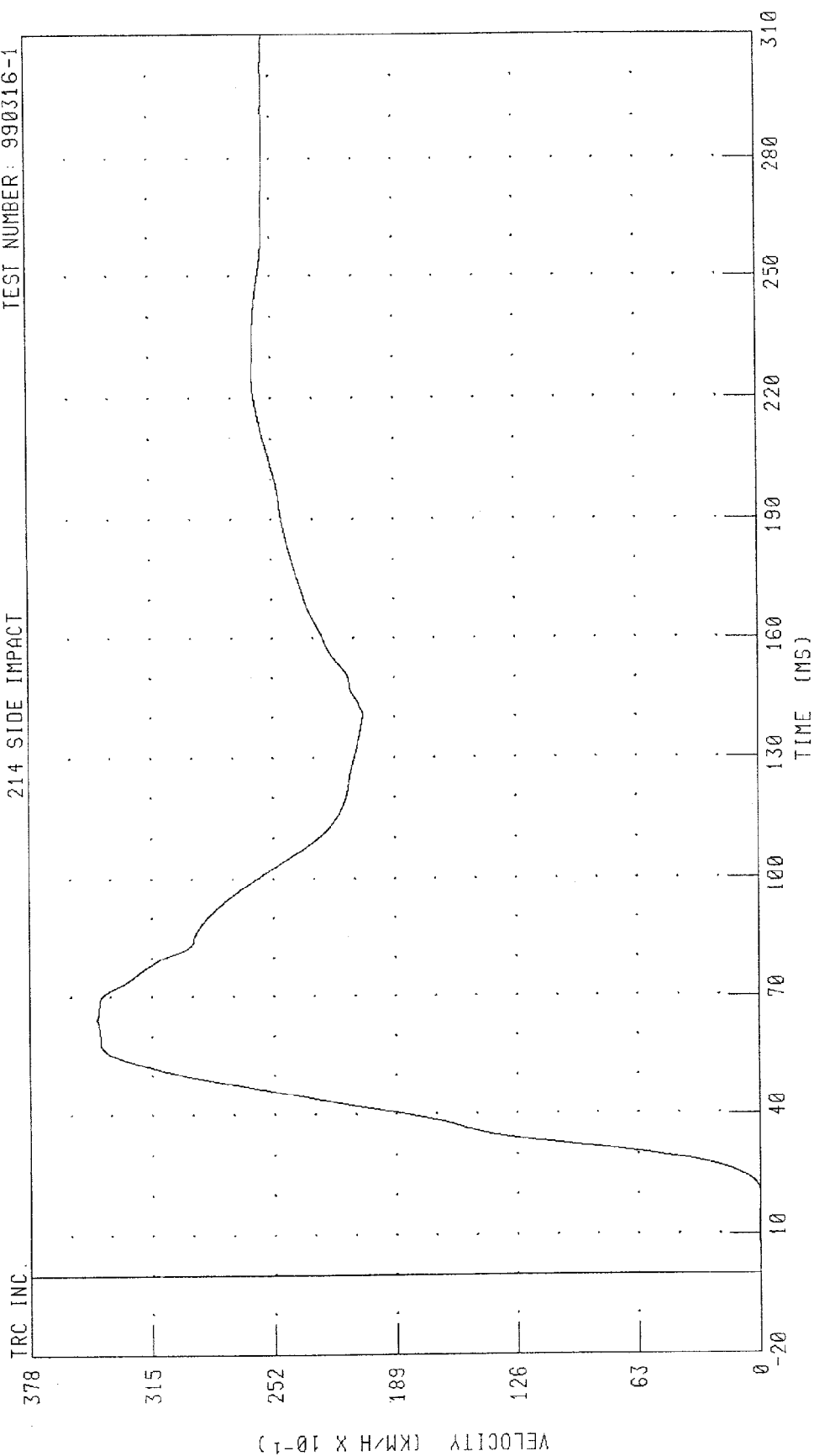
CHANNEL: T12YR1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA

DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 990316-1

214 SIDE IMPACT

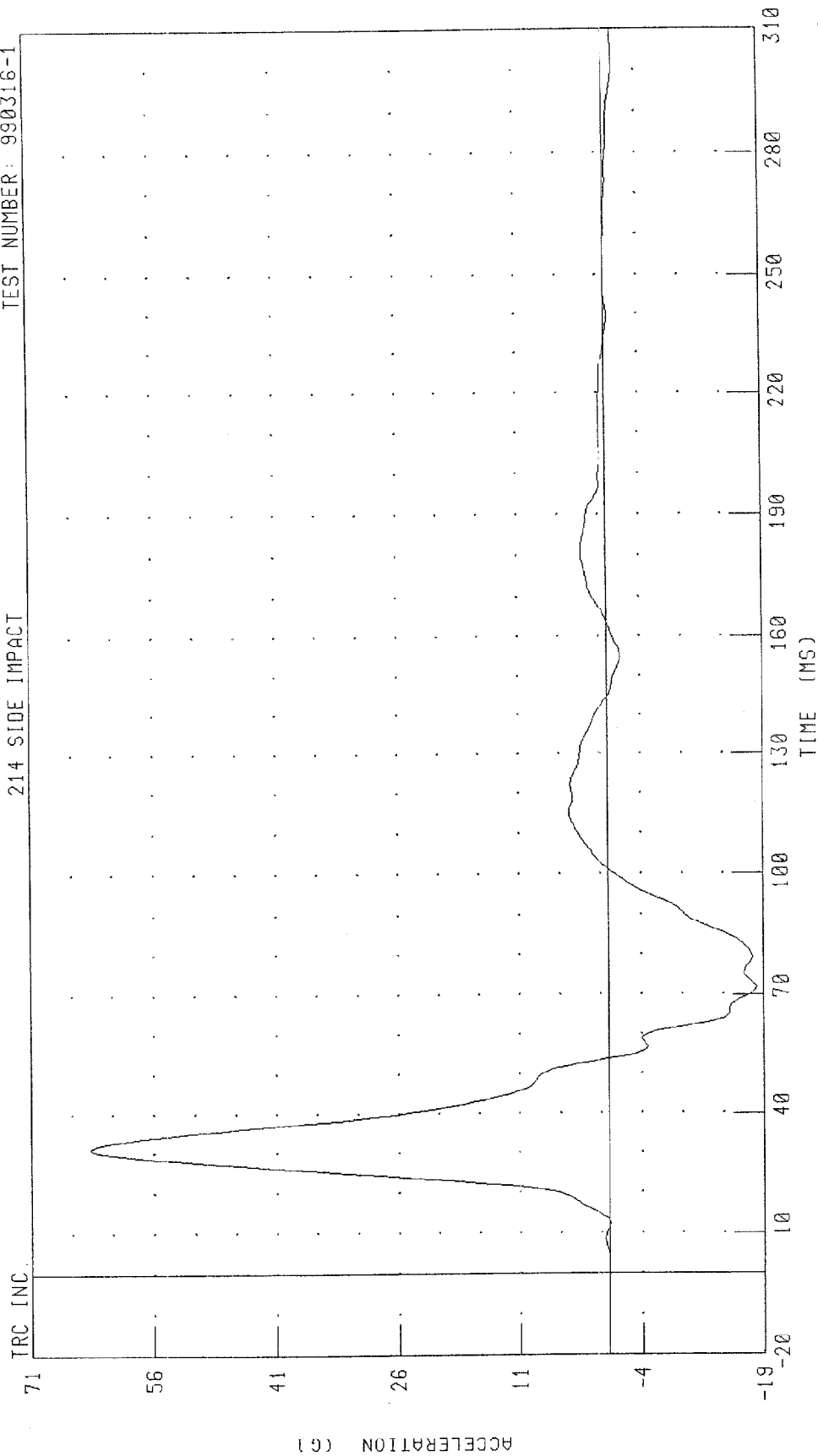


PEAK DATA: 34.33 KM/H @ 64.32 MS; -0.06 KM/H @ 19.04 MS

CHANNEL: T12YVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION
 214 SIDE IMPACT

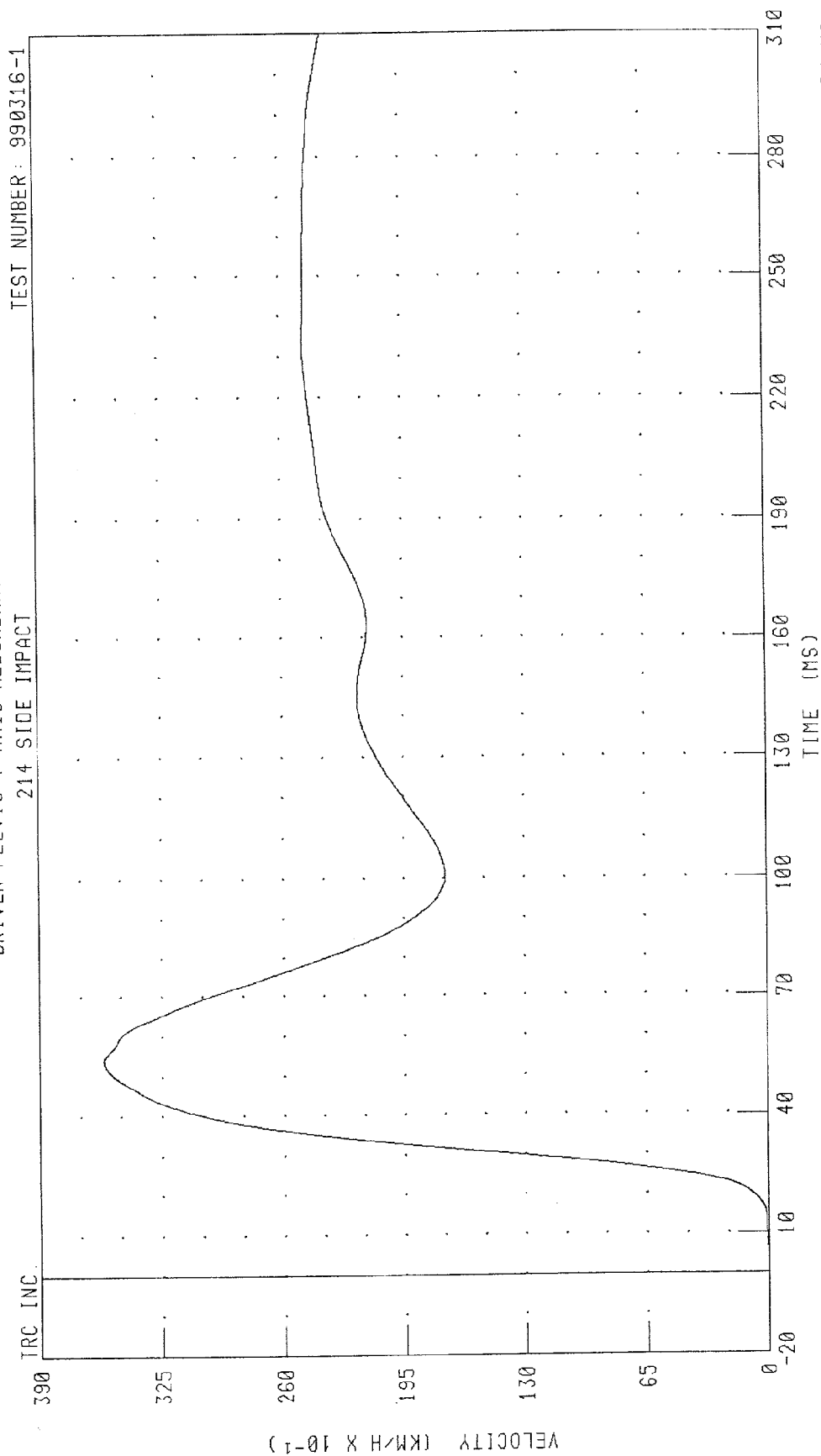
TEST NUMBER: 990316-1



CHANNEL: PEVYR1 FILTER: FIR 100

PEAK DATA: 63.82 G @ 31.25 MS; -18.06 G @ 71.88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY



PEAK DATA: 35.58 KM/H @ 54.08 MS; 0.00 KM/H @ 1.04 MS

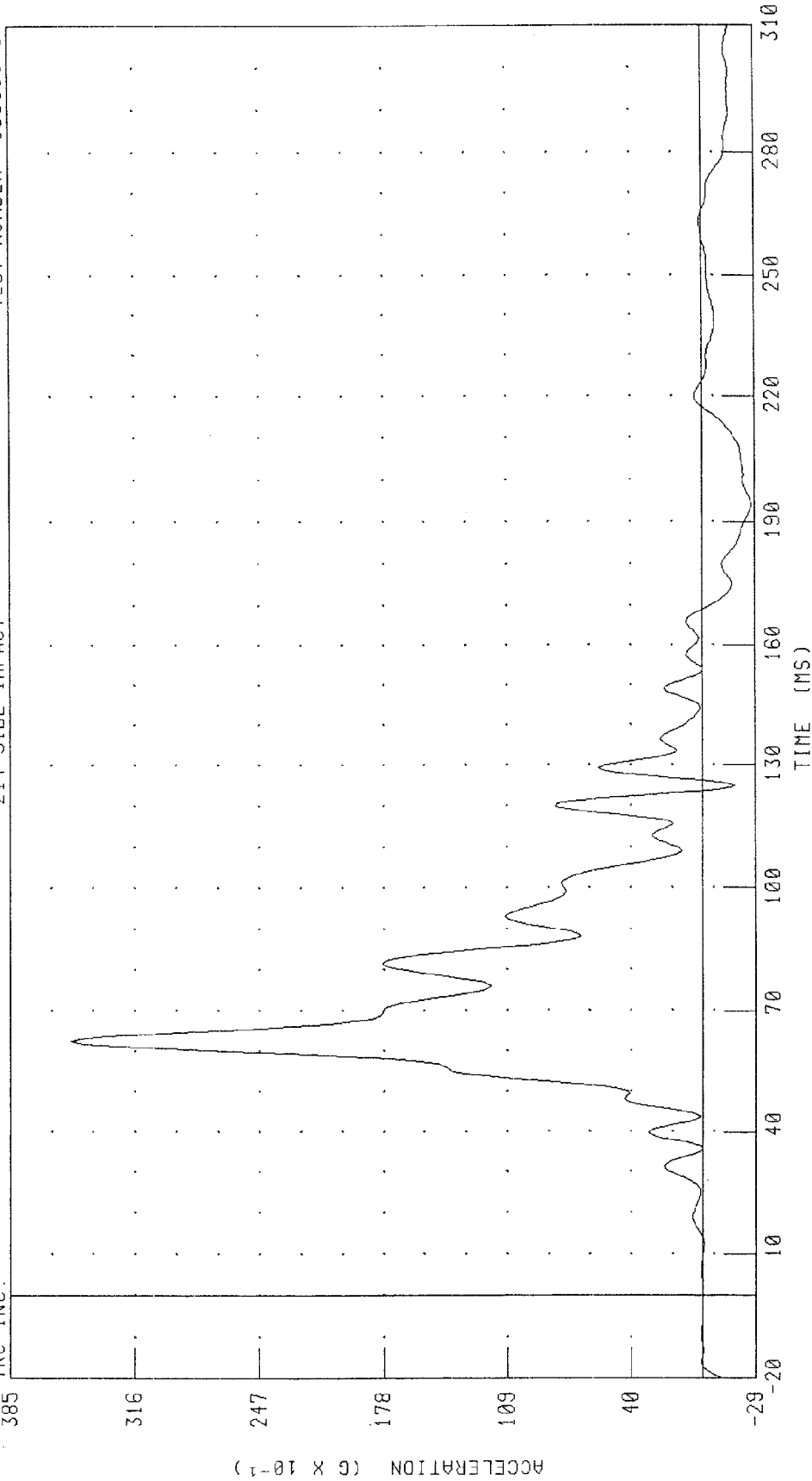
CHANNEL: PEVYVI FILTER: CH. CLASS 180

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.



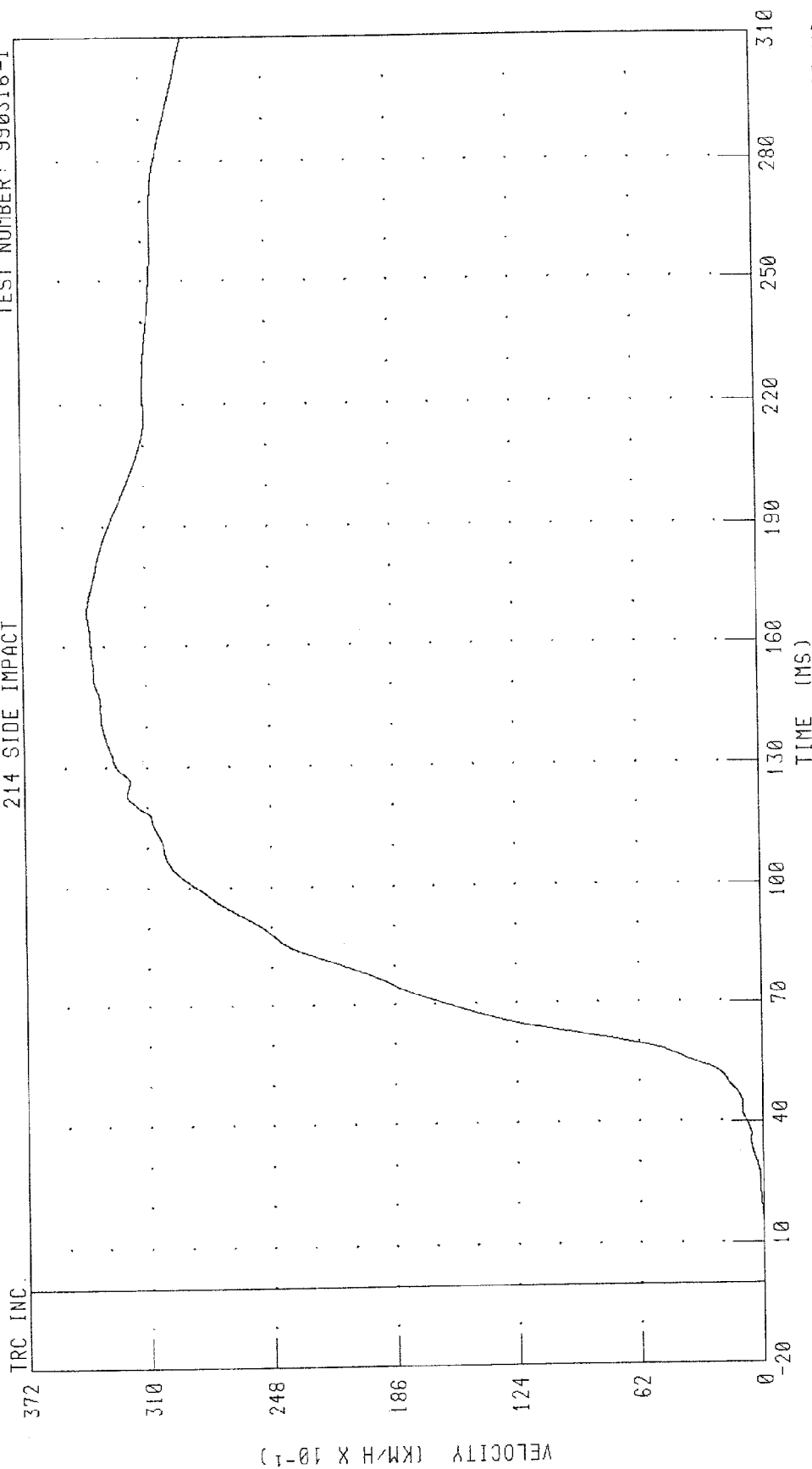
CHANNEL: LURYR4 FILTER: FIR 100

990316

B-118

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 990316-1



PEAK DATA: 33.94 KM/H @ 168.64 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LURYVJ FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUZUKI VITARA
 LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990316-1

TRC INC.

358

294

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

230

166

102

38

-26

-20

TIME (MS)

310

280

250

220

190

160

130

100

70

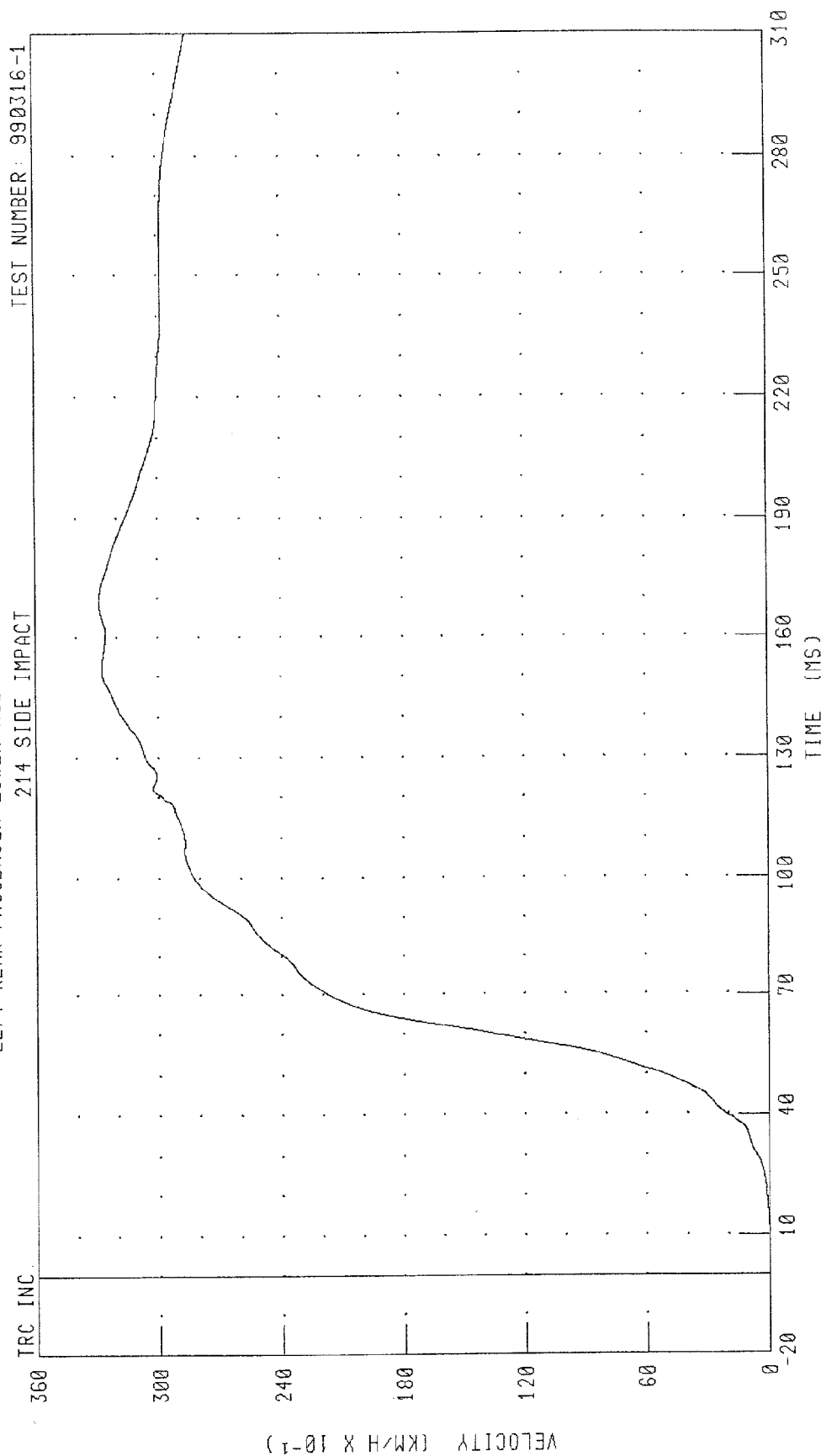
40

10

CHANNEL: LLRYR4 FILTER: FIR 100

PEAK DATA: 32.96 G @ 62.50 MS, -2.41 G @ 187.50 MS

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



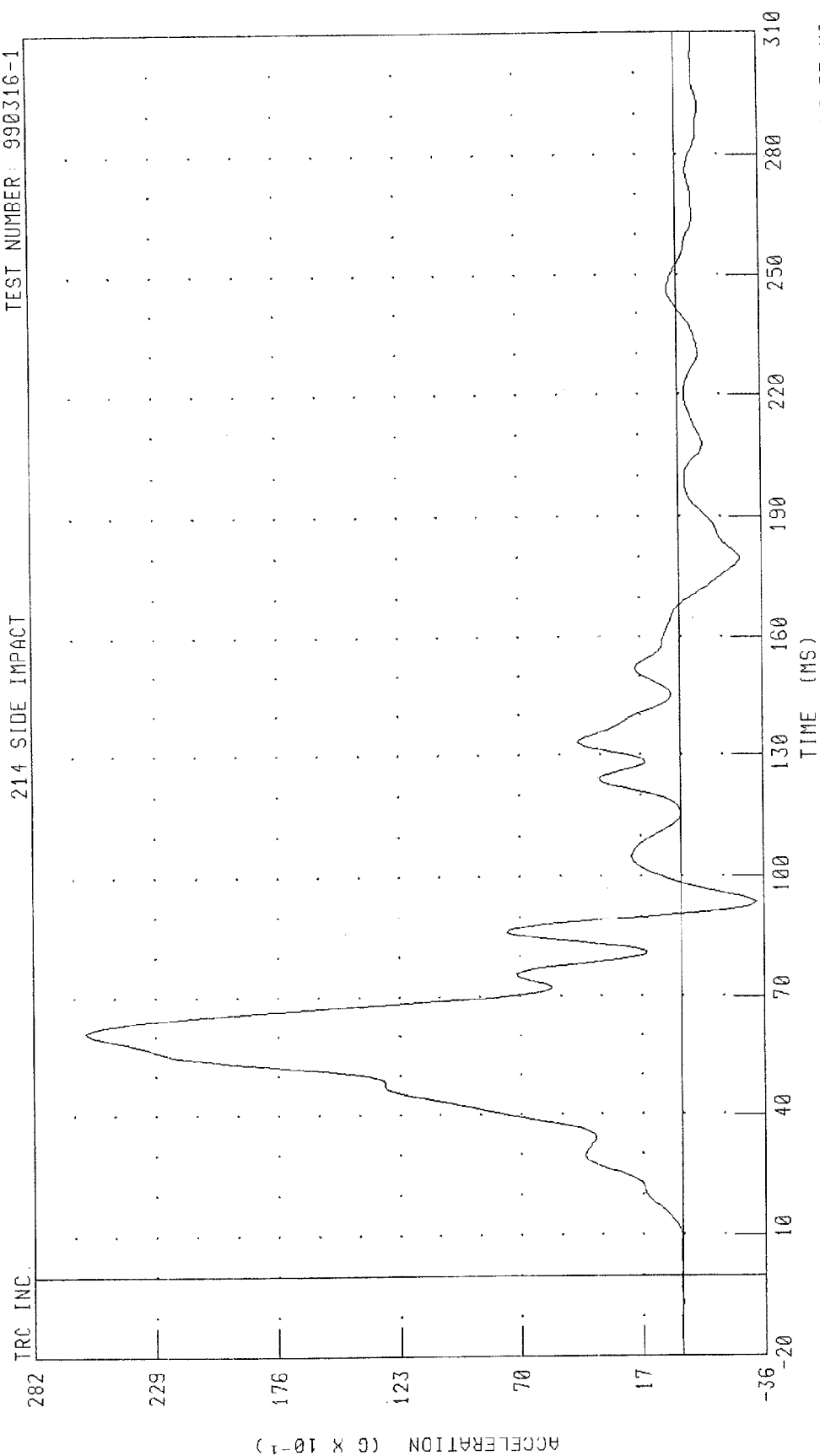
PEAK DATA: 32.87 KM/H @ 169.20 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LLRYVJ FILTER: CH. CLASS 180

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

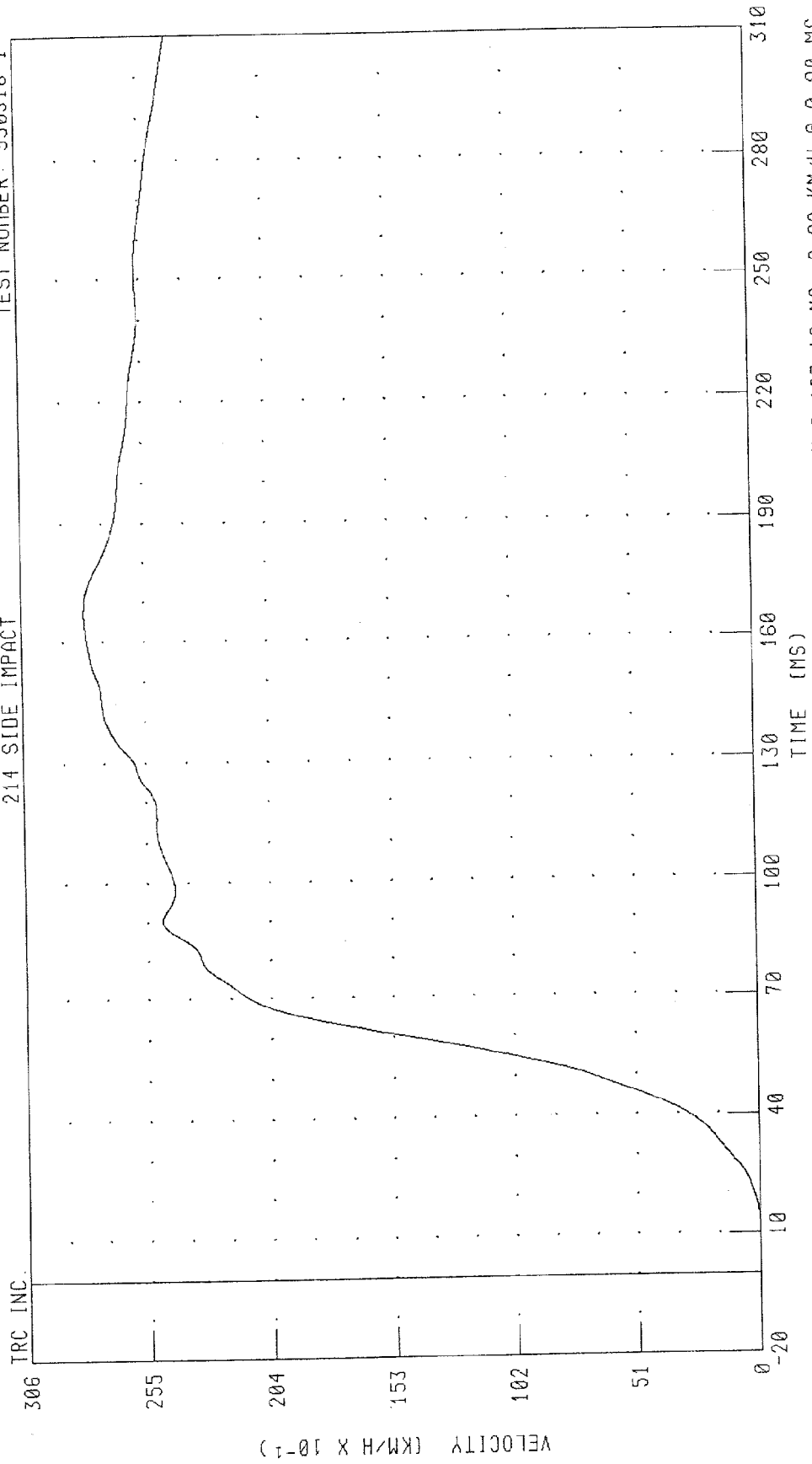


CHANNEL: T12YR4 FILTER: FIR 100

PEAK DATA: 25.90 G @ 61.25 MS, -3.27 G @ 93.75 MS

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

TEST NUMBER: 990316-1
214 SIDE IMPACT



PEAK DATA: 28.00 KM/H @ 167.12 MS; 0.00 KM/H @ 0.80 MS

CHANNEL: T12YVJ FILTER: CH. CLASS 180

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

TEST NUMBER: 990316-1

214 SIDE IMPACT

TRC INC.

300

236

172

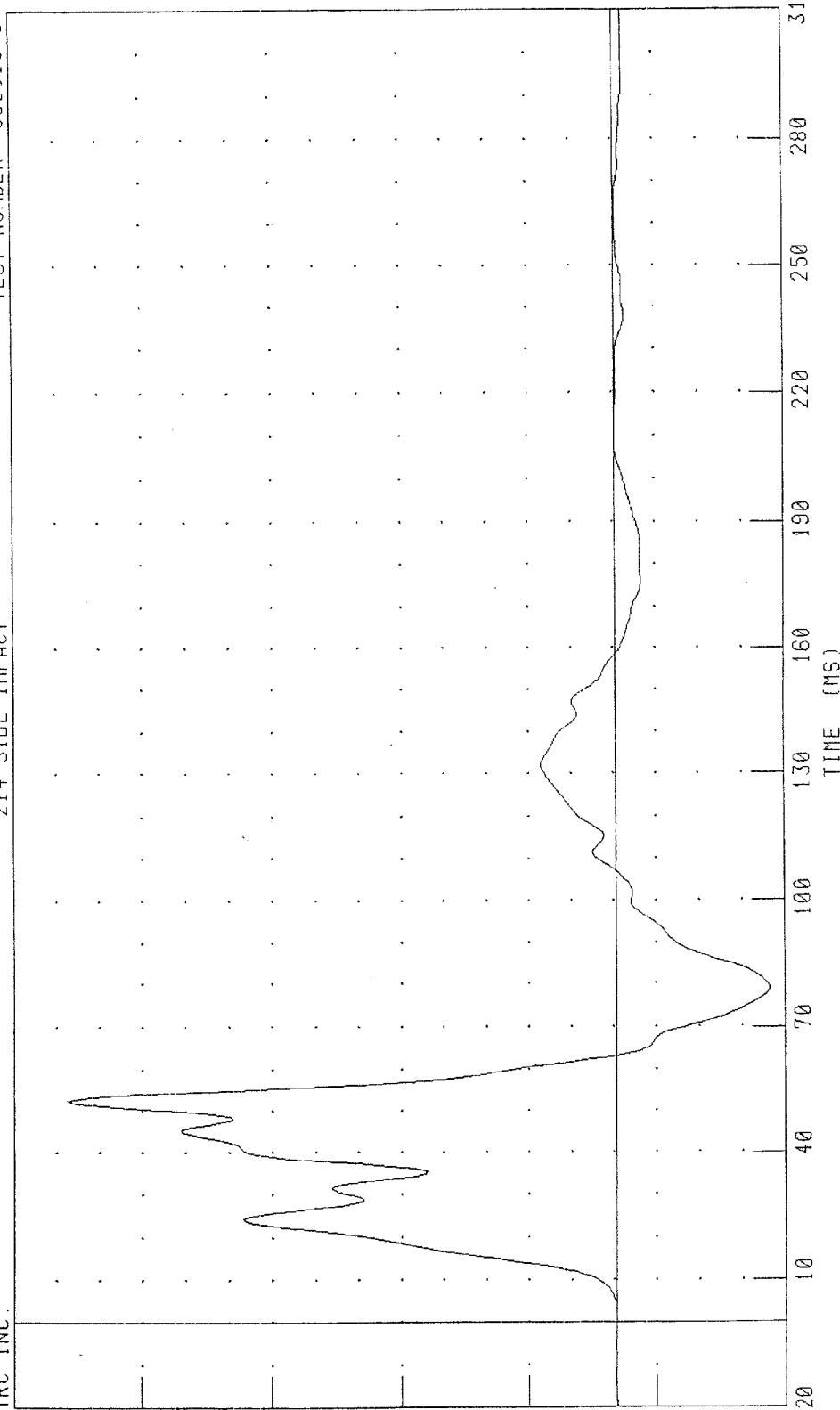
108

44

-19

-84

ACCELERATION (G X 10⁻¹)



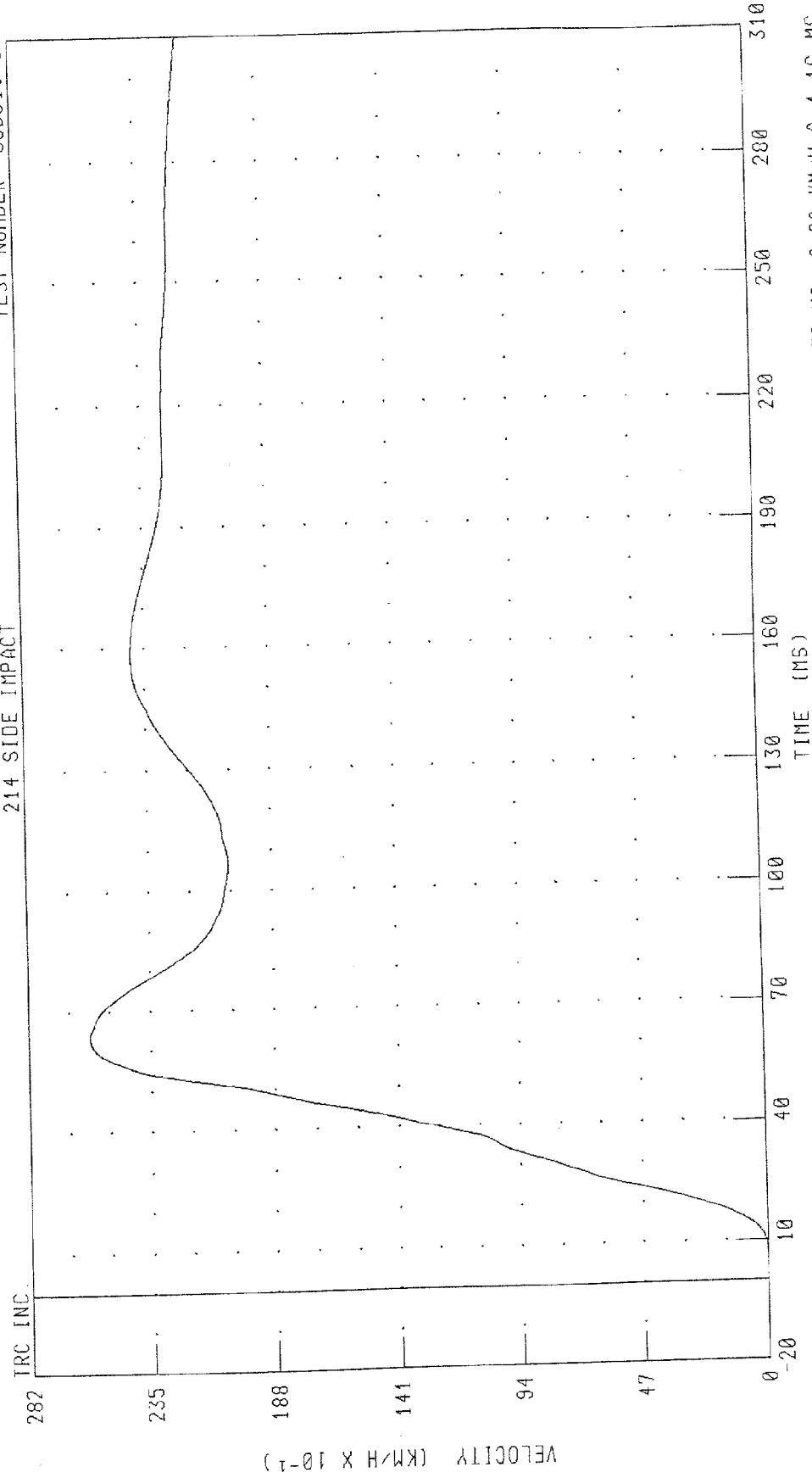
CHANNEL: PEVVR4 FILTER: FIR 100

PEAK DATA: 27.31 G @ 52.50 MS; -7.66 G @ 78.75 MS

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

TEST NUMBER: 990316-1

214 SIDE IMPACT



CHANNEL: PEVYVJ FILTER: CH. CLASS 180

PEAK DATA: 25.84 KM/H @ 63.52 MS, 0.00 KM/H @ 4.16 MS

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE-TEST AND POST-TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 03/15/99 & 04/09/99 TRC sequential test number: ED5114 & ED5213
Laboratory Technician: B. Crabtree, K. Watkins

Test Parameter	Specification	SID 051		SID 052	
		Pre-	Post-	Pre-	Post-
		Test	Test	Test	Test
SH - seated height (mm)	889-909	902.2	904.6	901.2	900.2
RH - Rib Height (mm)	502-520	508.0	512.0	510.0	514.0
HP - Hip Pivot Height (mm)	99 ref	100.1	99.0	100.1	99.0
RD - Rib from Back Line (mm)	229-241	233.7	234.8	236.2	239.4
KV - Knee Pivot from Back Line (mm)	511-526	518.8	516.4	517.6	519.6
SW - Knee Pivot to Floor (mm)	490-505	491.6	491.6	495.3	493.3
HW - Hip Width (mm)	356-391	363.2	363.2	368.3	366.5
THORAX IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.1	21.7	21.1
Relative Humidity (%)	10-70	22	20	22	22
Probe Speed (m/s)	4.27-4.33	4.30	4.31	4.31	4.31
Upper Rib (g's)	37-46	40.4	39.5	42.1	42.7
Lower Rib (g's)	37-46	41.1	41.0	40.6	42.4
Lower Spine (g's)	15-22	19.6	18.7	19.2	20.1
PELVIS IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.1	21.7	21.1
Relative Humidity (%)	10-70	22	22	22	22
Probe Speed (m/s)	4.27-4.33	4.29	4.31	4.29	4.31
Pelvis (g's)	40-60	51.7	54.9	55.4	50.9

Calibration Test Results

Pre-Test

SID: 051

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorbers:	The thorax passed all shock absorber requirements.
Abdominal Compression Tests:	The abdomen met the compression test requirements.
Lumbar Flexion Tests:	The dummy met the lumbar flexion test requirements.

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

15-MAR-99

TRC INC. TEST NO: ED5114 572F SN051 EXT.DIMENSION CAL14

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	902.2 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	100.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	518.8 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	491.6 MM
HW	HIP WIDTH	356 - 391 MM	363.2 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	508.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	233.7 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	177.8 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	177.8 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By C. H.

RUN NUMBER: 020399.1052

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

15-MAR-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5114

572F SN51 LEFT THORAX CAL14

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.30 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-40.4 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-41.1 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.6 G

TEST MEETS SPECIFICATIONS

TECHNICIAN B. Calt

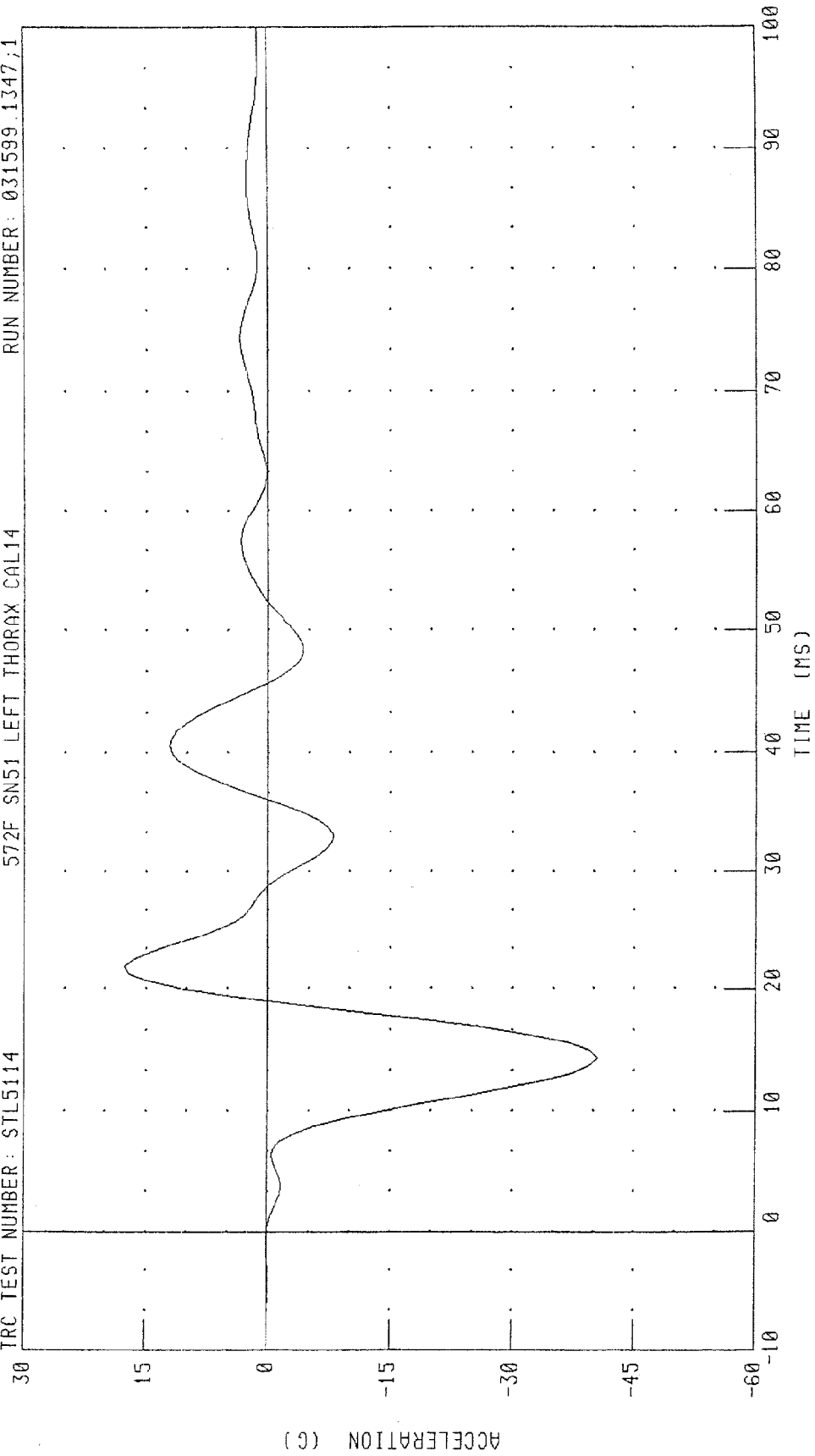
RUN NUMBER: 031599.1347;1

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

TRC TEST NUMBER: STL5114

572F SN51 LEFT THORAX CAL14

RUN NUMBER: 031599.1347;1



CHANNEL: LURYG FILTER: FIR 100

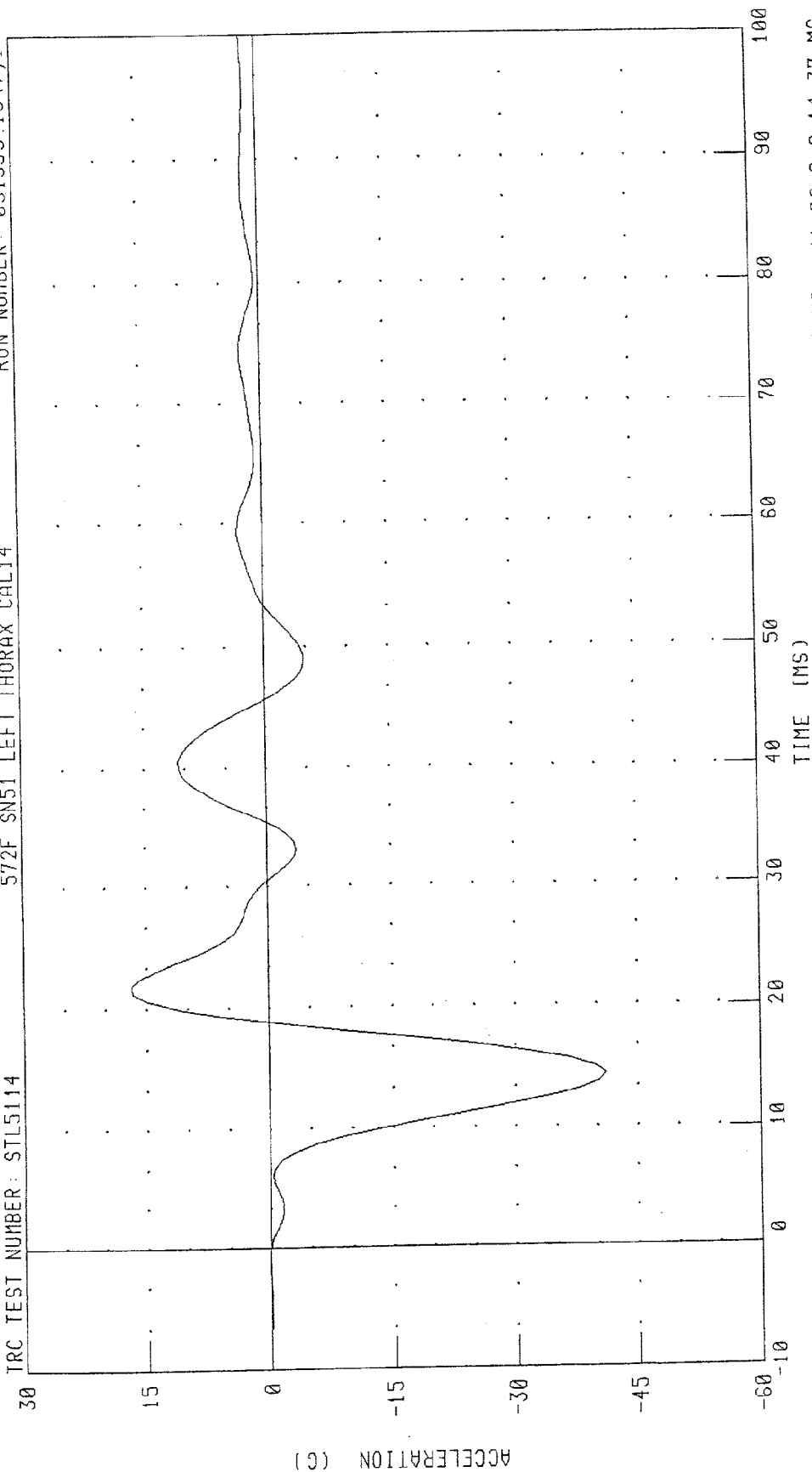
PEAK DATA: 17.59 G @ 21.88 MS; -40.40 G @ 14.37 MS

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

TRC TEST NUMBER: STL5114

572F SN51 LEFT THORAX CAL14

RUN NUMBER: 031599.1347,1



PEAK DATA: 16.87 G @ 21.88 MS, -41.08 G @ 14.37 MS

CHANNEL: LLRYG FILTER: FIR 100

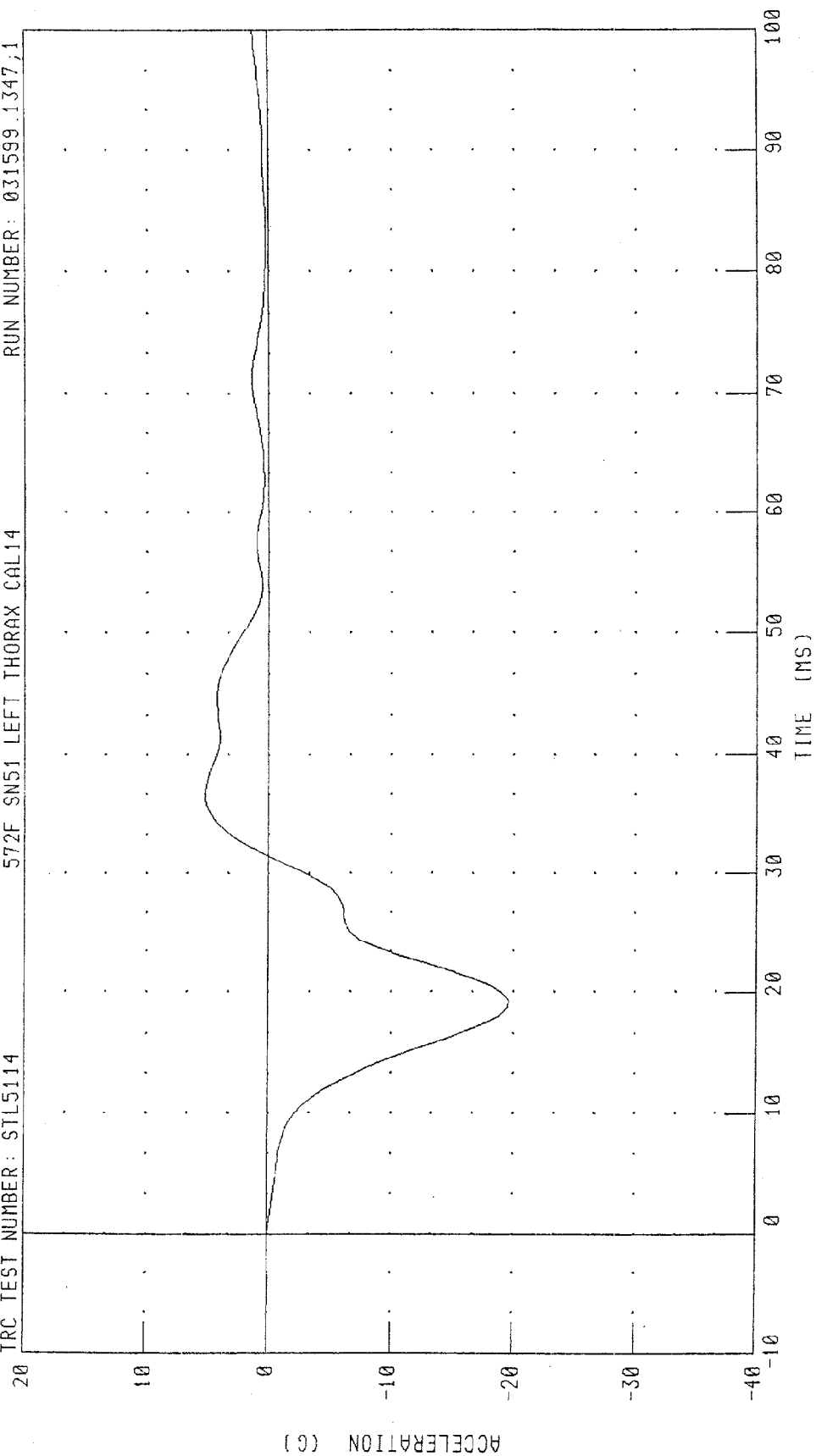
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL5114

572F SN51 LEFT THORAX CAL14

RUN NUMBER: 031599.1347;1



CHANNEL: T12YC FILTER: FIR 100

PEAK DATA: 5.24 G @ 36.88 MS; -19.58 G @ 19.38 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

15-MAR-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5114

572F SN 51 LEFT PELVIS CAL14

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	-51.7 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.9 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Bryant

RUN NUMBER: 031599.1351;1

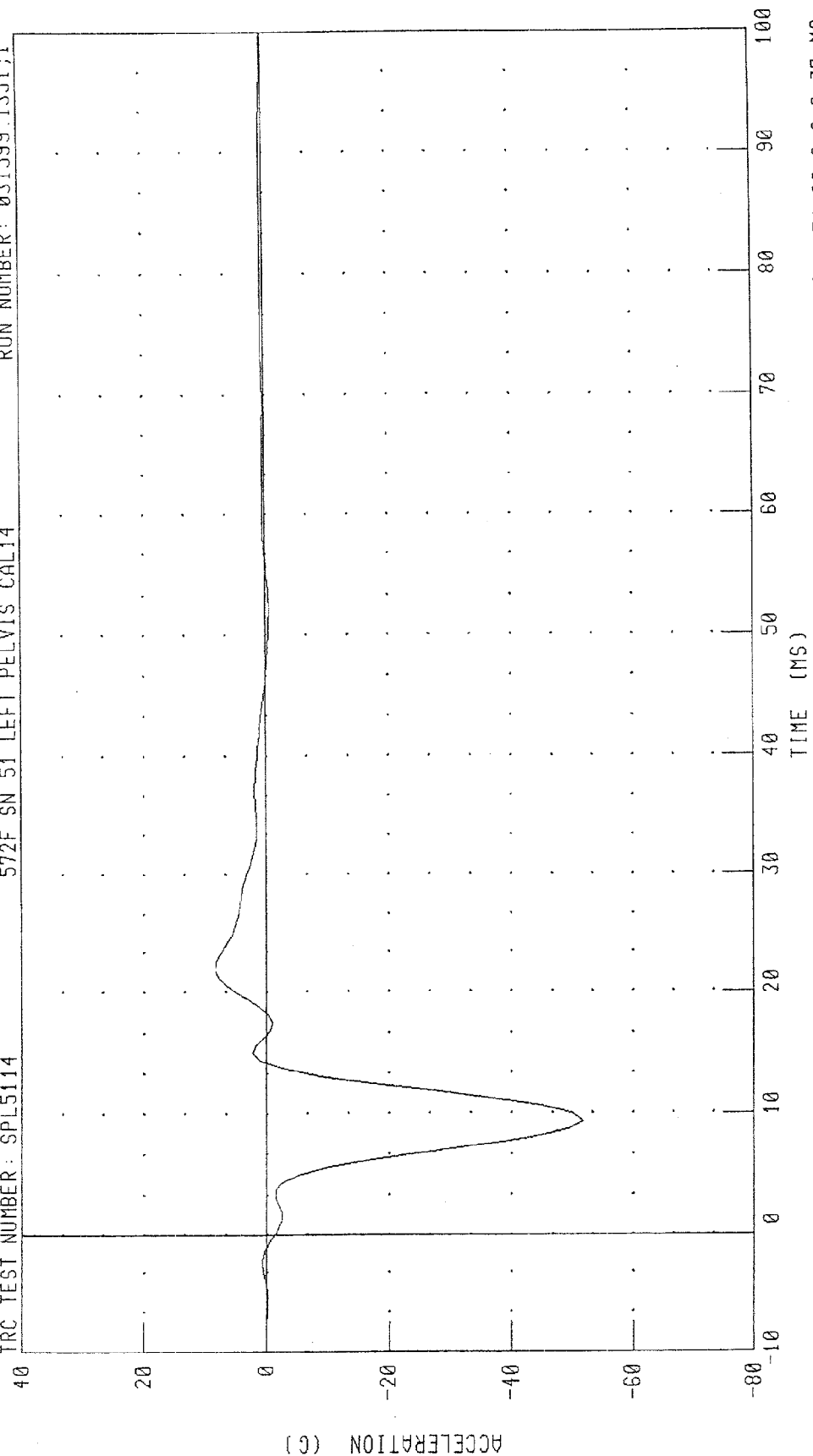
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN 51 LEFT PELVIS CAL14

TRC TEST NUMBER: SPL5114

RUN NUMBER: 031599.135L,1



PEAK DATA: 8.31 G @ 21.88 MS; -51.69 G @ 9.37 MS

CHANNEL: PEVYG FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

15-MAR-99

TRC INC.

TEST NO: LF5114

572F SN051 LUMBAR FLEX. CAL14

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	111.20 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	164.58 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	213.50 N
NET RETURN ANGLE	< 12 DEG.	4.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *[Signature]*

RUN NUMBER: 031599.1051

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572F

15-MAR-99

TRC INC.

TEST NO: ABD5114A

ABDOMEN 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	7.82 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	118.88 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	175.62 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	248.99 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	362.46 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 050499.1459;3

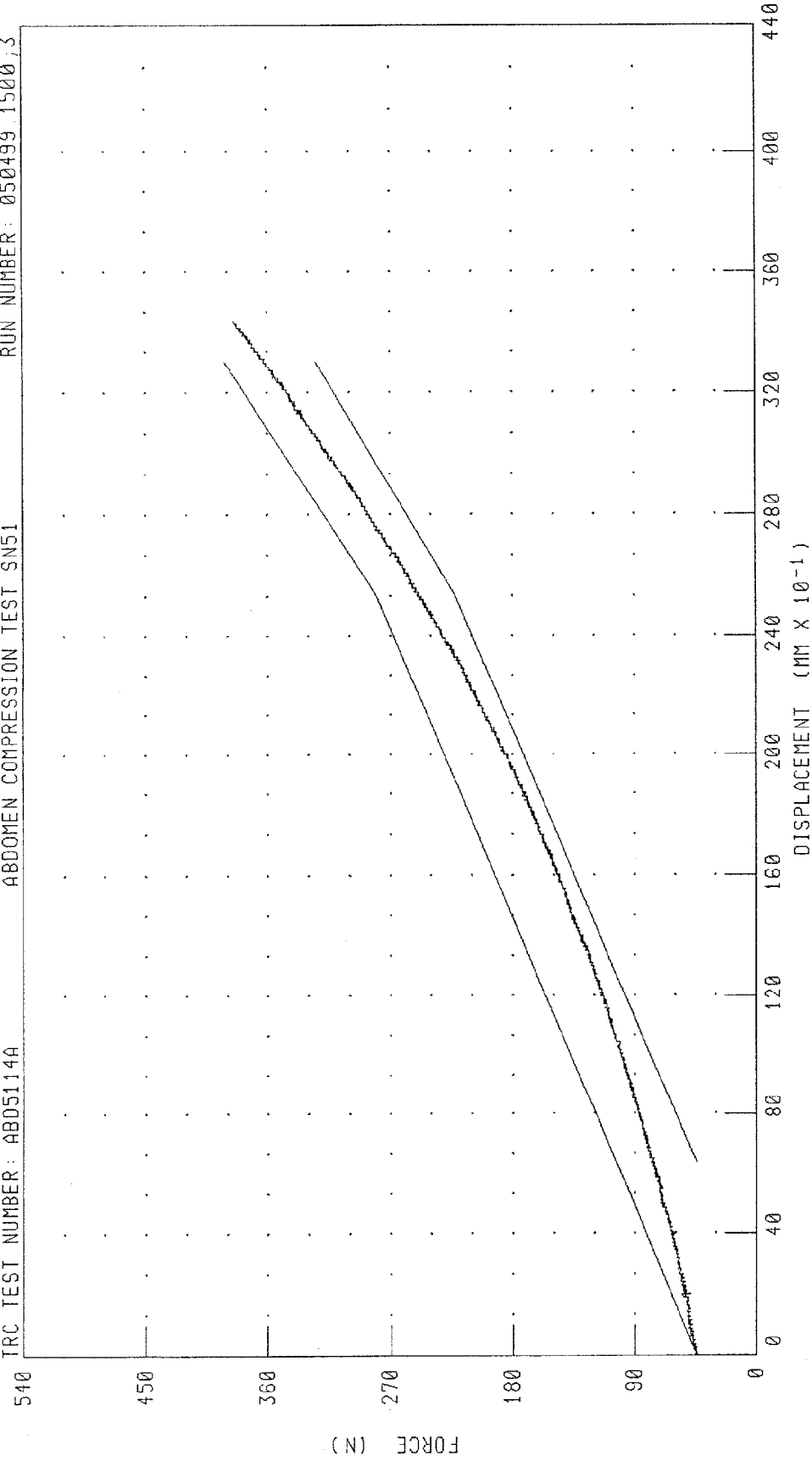
PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMEN COMPRESSION TEST SN51

TRC TEST NUMBER: ABD5114A

RUN NUMBER: 050499.1500.3



CHANNEL: ABXD
ABXF

FILTER: CH. CLASS 1000
CH. CLASS 1000

PEAK DATA:

34.39 MM @ 4.39 S;
384.47 N @ 4.39 S;

0.00 MM @ 0.00 S
0.00 N @ 0.00 S

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

15-MAR-99

TRC INC.

572F SN51 DAMPER TEST CAL14

TEST NUMBERS: DP5114A,DP5114B,DP5114C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	22.0 %
VELOCITY	FORCE	856 - 1146 N	940 N
	DISPLACEMENT	30.2 - 35.2 MM	32.1 MM
3.07 M/S	FORCE	1733 - 2100 N	1836 N
	DISPLACEMENT	31.6 - 37.2 MM	35.8 MM
VELOCITY	FORCE	3784 - 4495 N	4164 N
	DISPLACEMENT	33.3 - 39.6 MM	39.4 MM
6.12 M/S	FORCE		
	DISPLACEMENT		

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN Ryalt

RUN NUMBER: 031599.1238;1

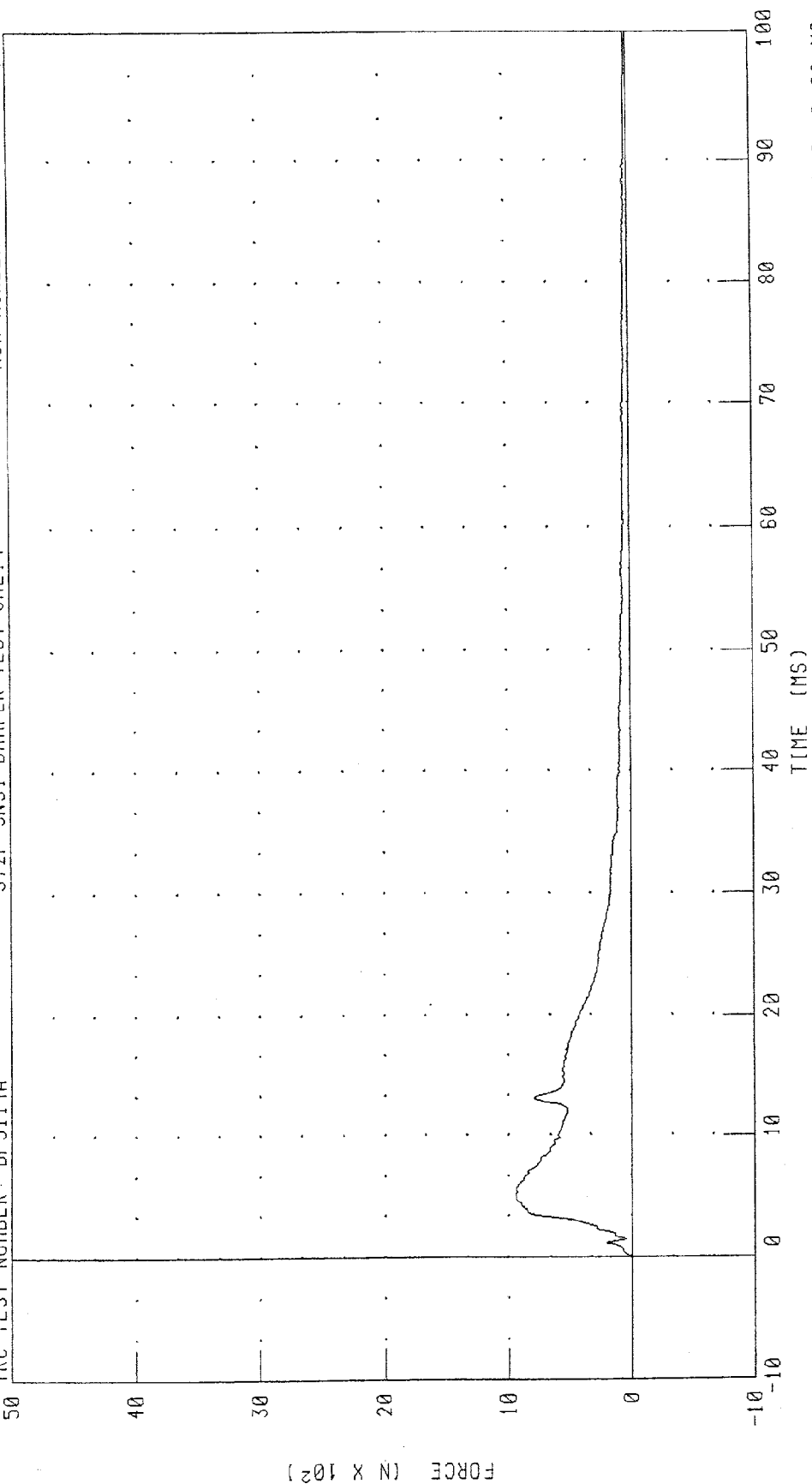
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN51 DAMPER TEST CAL14

IRC TEST NUMBER: DP5114A

RUN NUMBER: 031599.1238,1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 940.44 N @ 5.52 MS; -2.73 N @ -9.68 MS

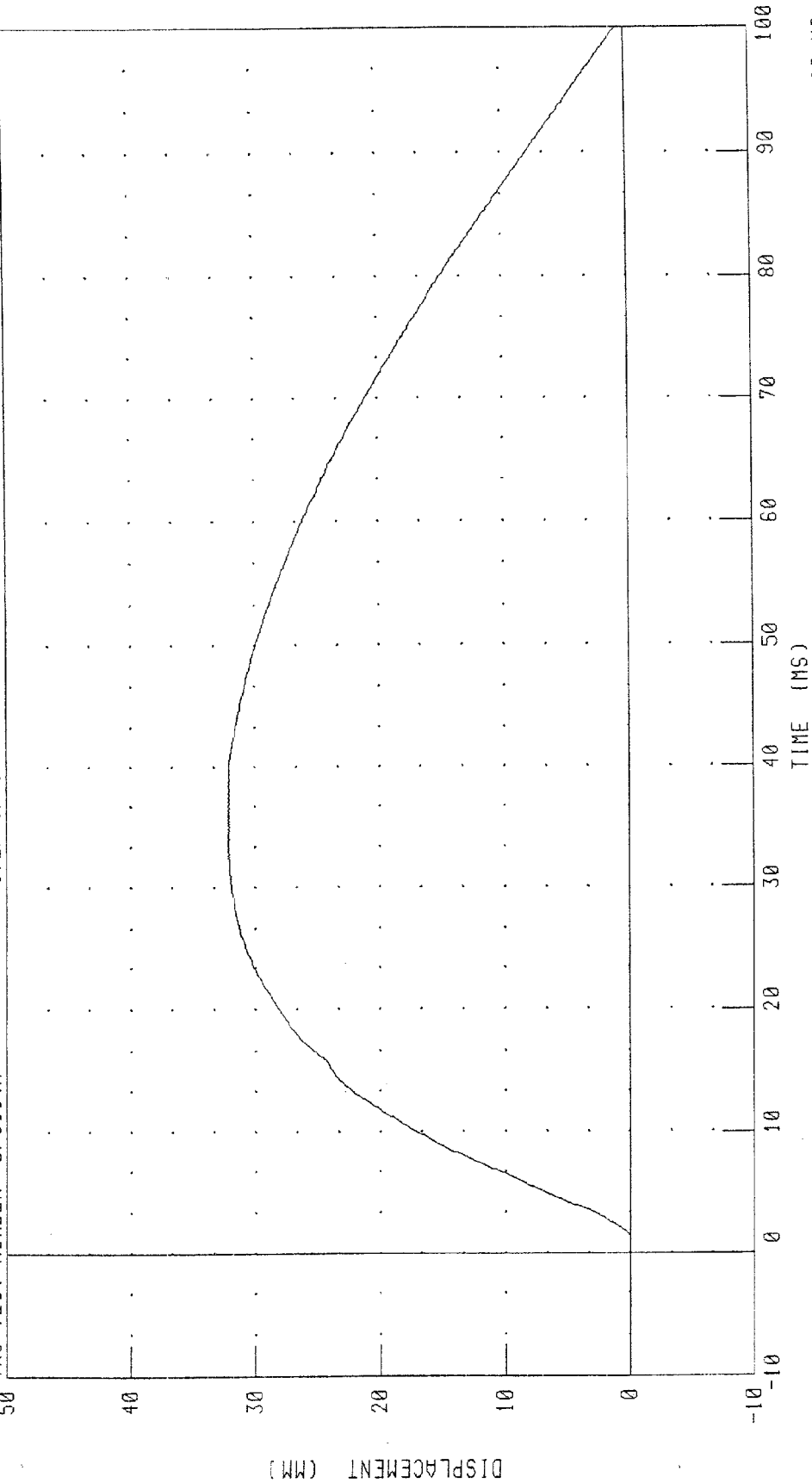
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5114A

572F SN51 DAMPER TEST CAL14

RUN NUMBER: 031599.1238,1



PEAK DATA: 32.12 MM @ 32.48 MS; -0.04 MM @ -8.00 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

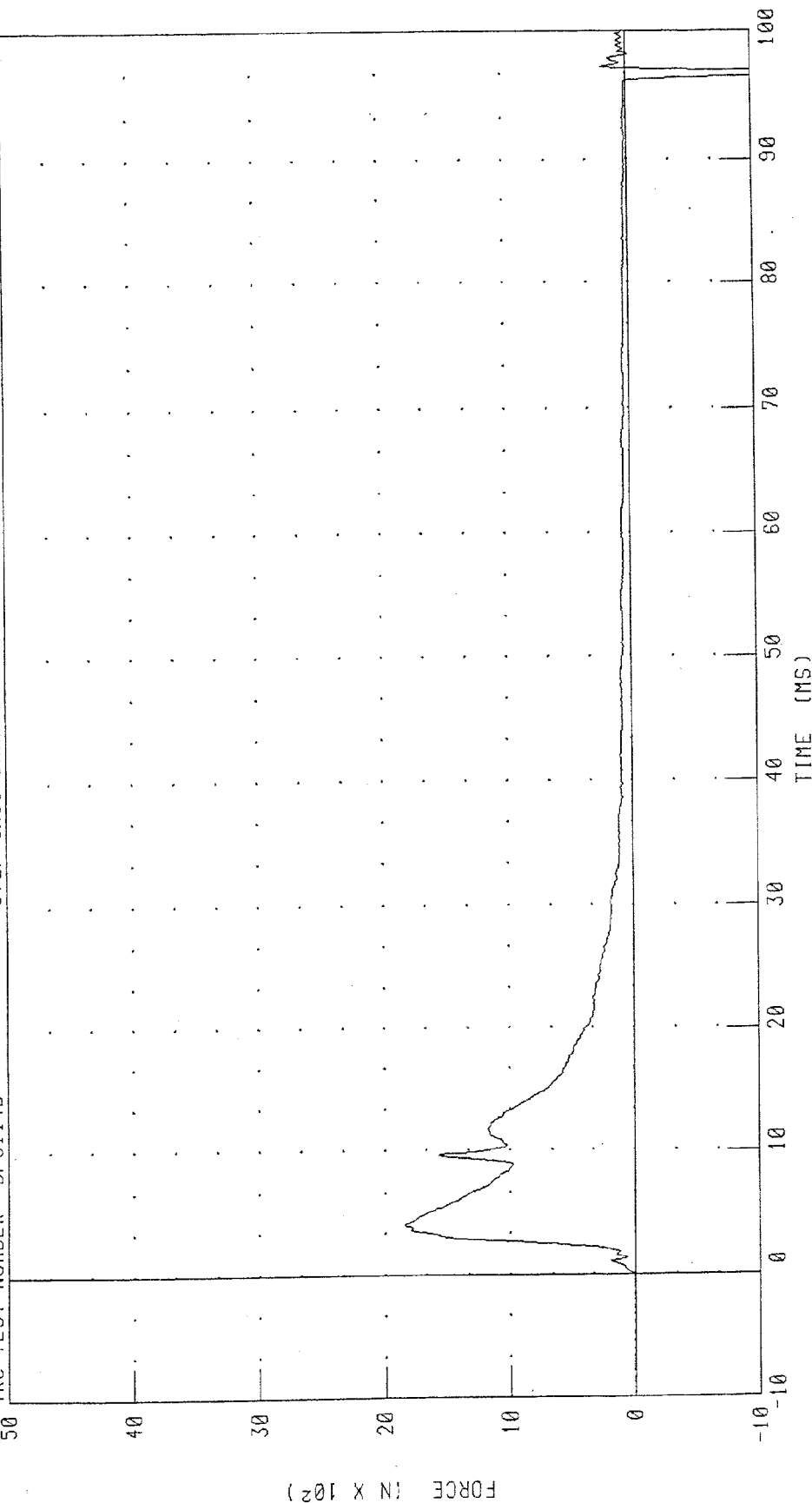
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5114B

572F SN51 DAMPER TEST CAL14

RUN NUMBER: 031599.1239;2



CHANNEL: DAMPF FILTER: CH. CLASS 1000

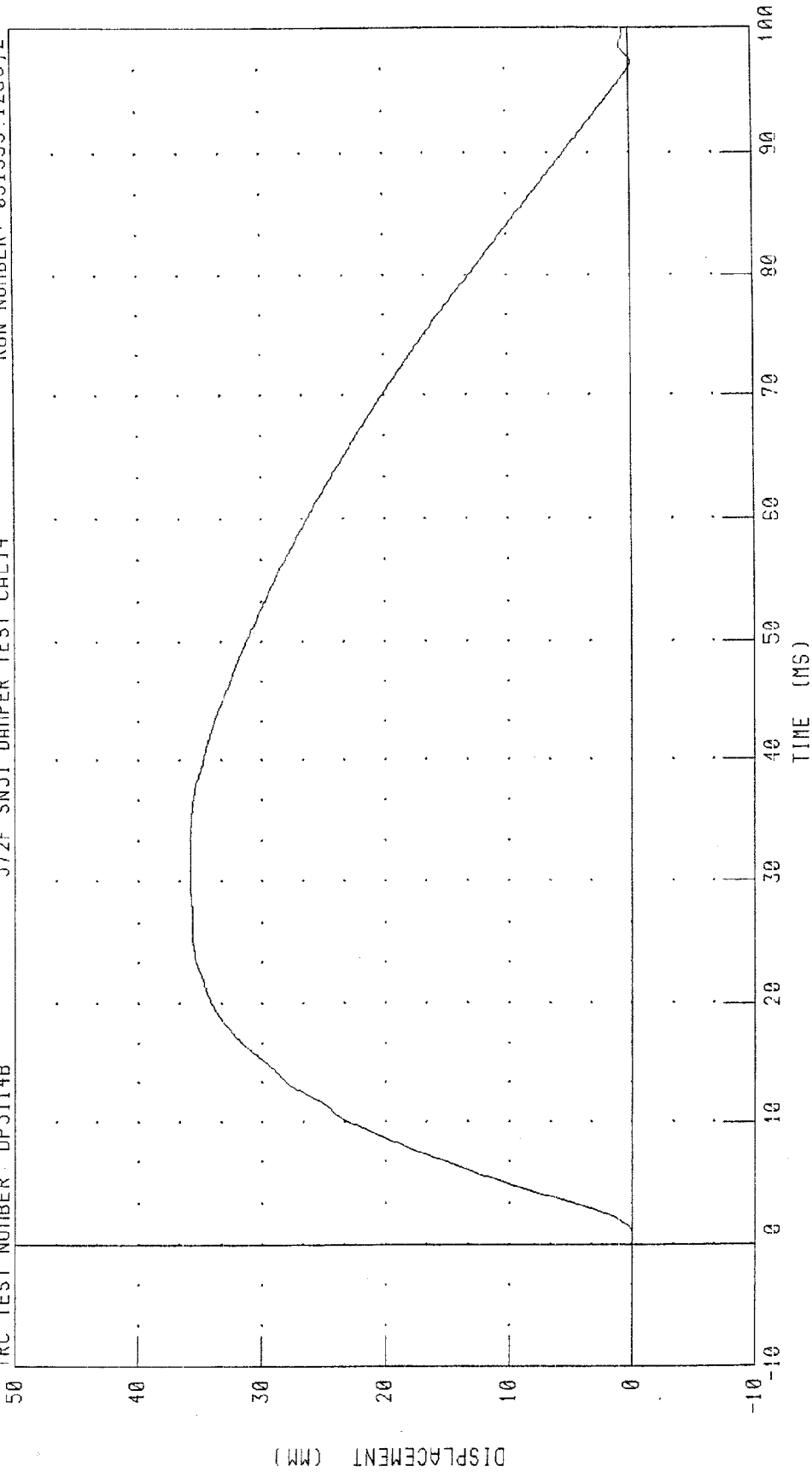
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5114B

572F SN51 DAMPER TEST CAL14

RUN NUMBER: 031599.1239,2



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 35.82 MM @ 29.44 MS, -0.22 MM @ 97.20 MS

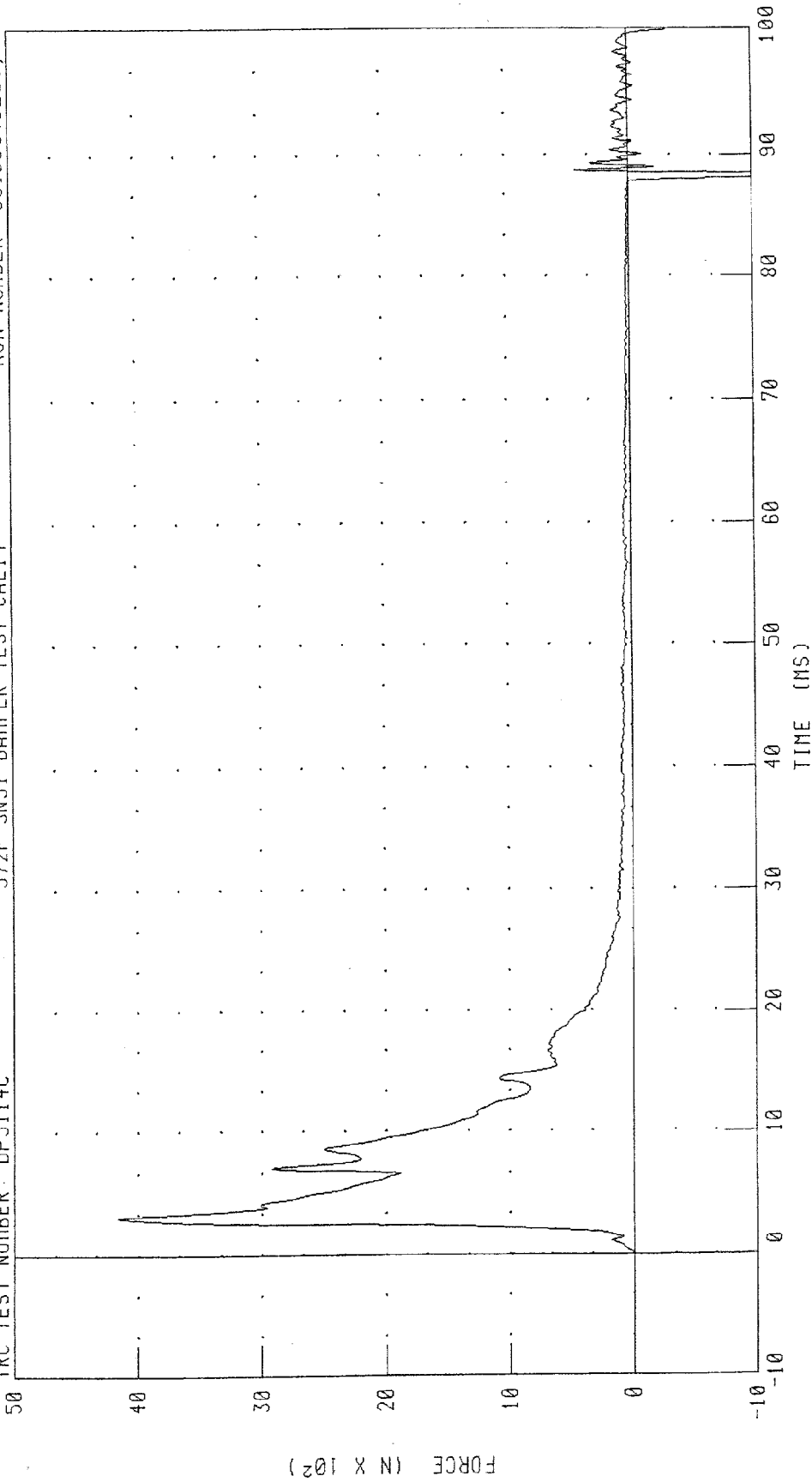
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5114C

572F SN51 DAMPER TEST CAL14

RUN NUMBER: 031599.1239;1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 4164.39 N @ 3.12 MS; -2164.12 N @ 88.32 MS

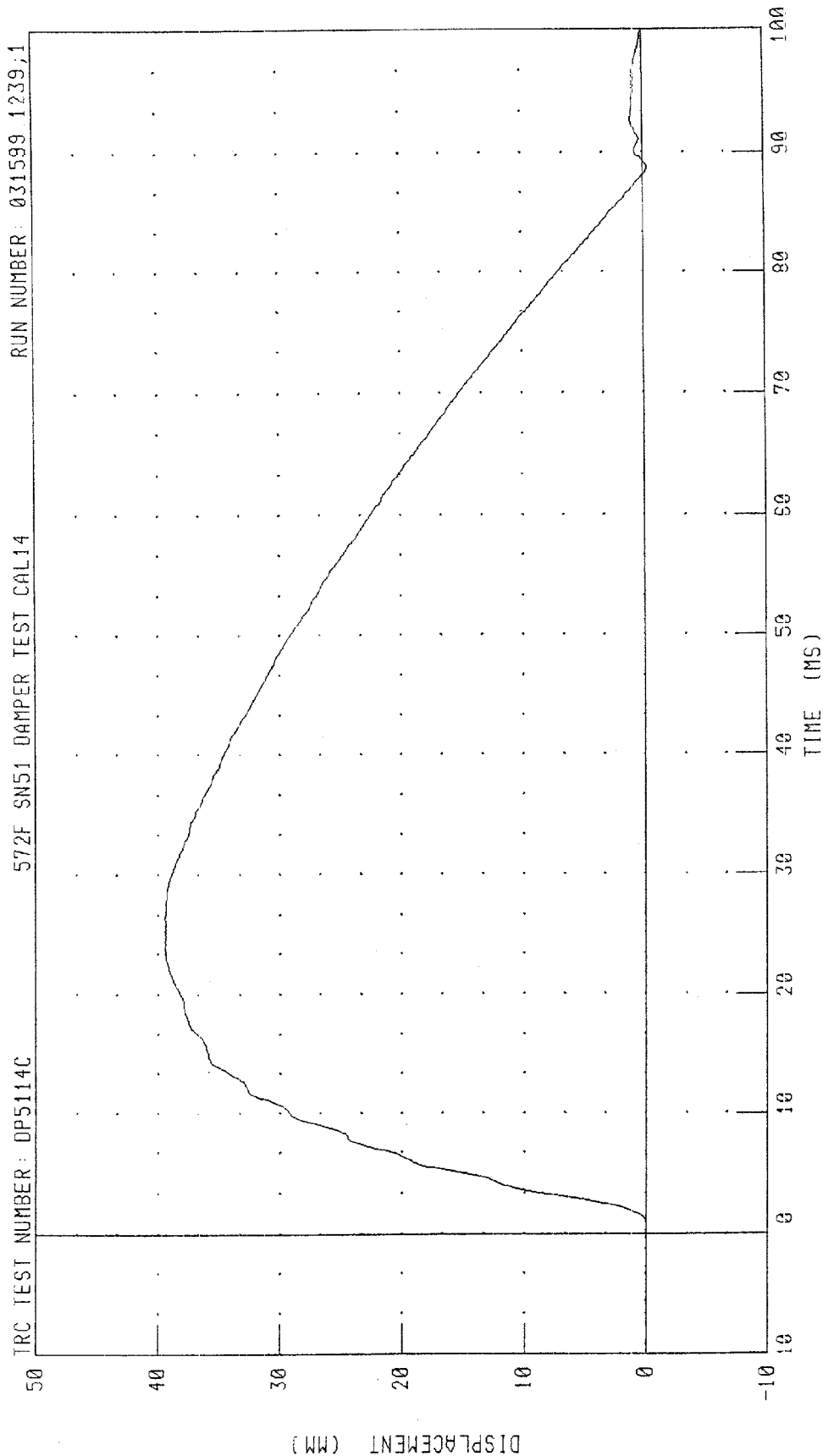
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5114C

572F SN51 DAMPER TEST CAL14

RUN NUMBER: 031599 1239;1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

Calibration Test Results

Pre-Test

SID: 052

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorbers:	The thorax passed all shock absorber requirements.
Abdominal Compression Tests:	The abdomen met the compression test requirements.
Lumbar Flexion Tests:	The dummy met the lumbar flexion test requirements.

TRANSPORTATION RESEARCH CENTER INC.
 SIDE IMPACT DUMMY
 EXTERNAL DIMENSIONS
 LEFT SIDE CONFIGURATION
 SN SNO52 VECTOR

15-MAR-99

TRC INC. TEST NO: ED5213 572F SNO52 EXT.DIMENSION CAL13

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	901.2 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	100.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	517.6 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	495.3 MM
HW	HIP WIDTH	356 - 391 MM	368.3 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	510.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	174.2 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	174.2 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bj. Calt

RUN NUMBER: 020399.1045

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

15-MAR-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5213

572F SN52 LEFT THORAX CAL13

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	4.31 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-42.1 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-40.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.2 G

TEST MEETS SPECIFICATIONS

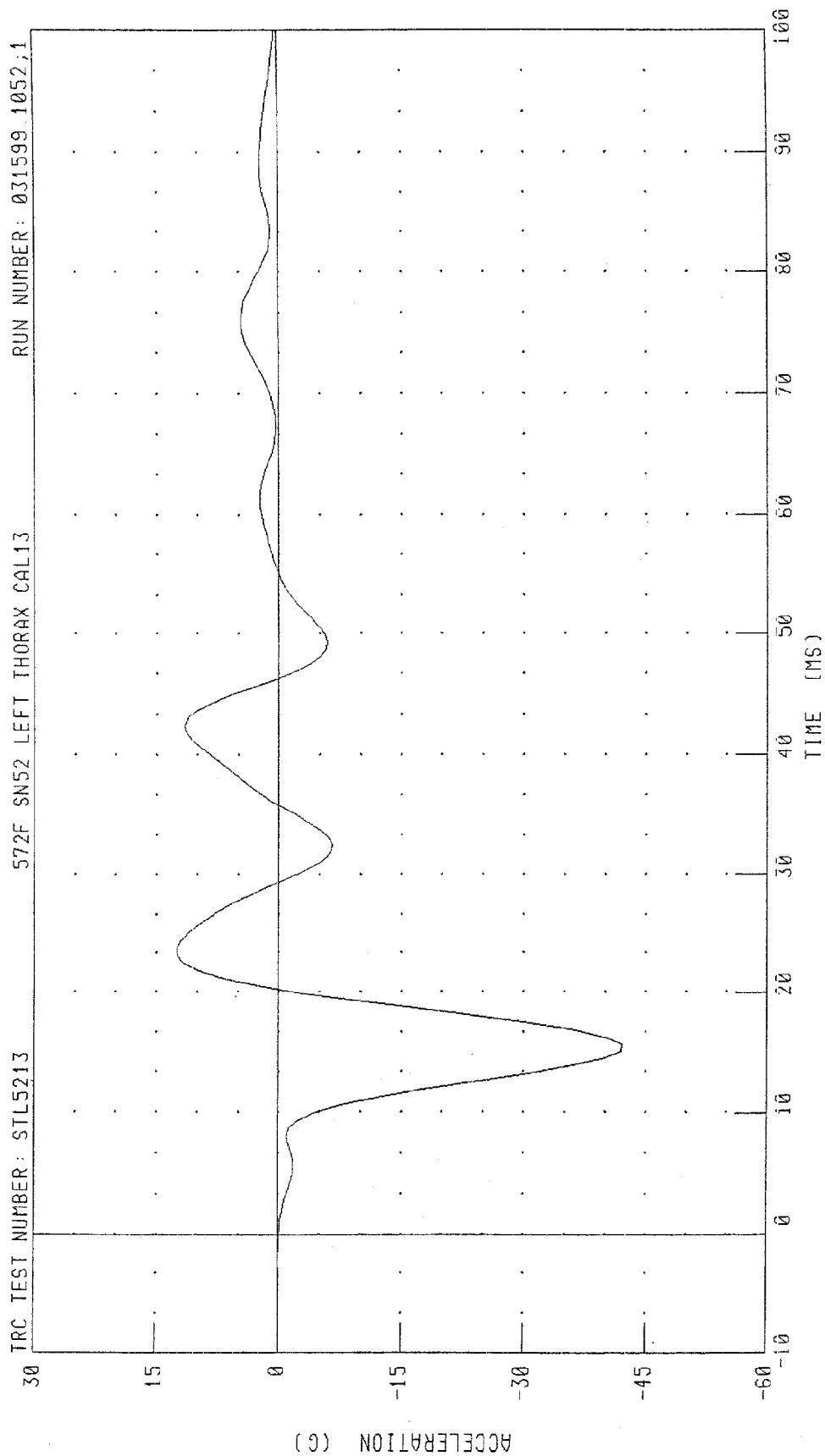
TECHNICIAN

B. J. Calk

RUN NUMBER: 031599.1052;1

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

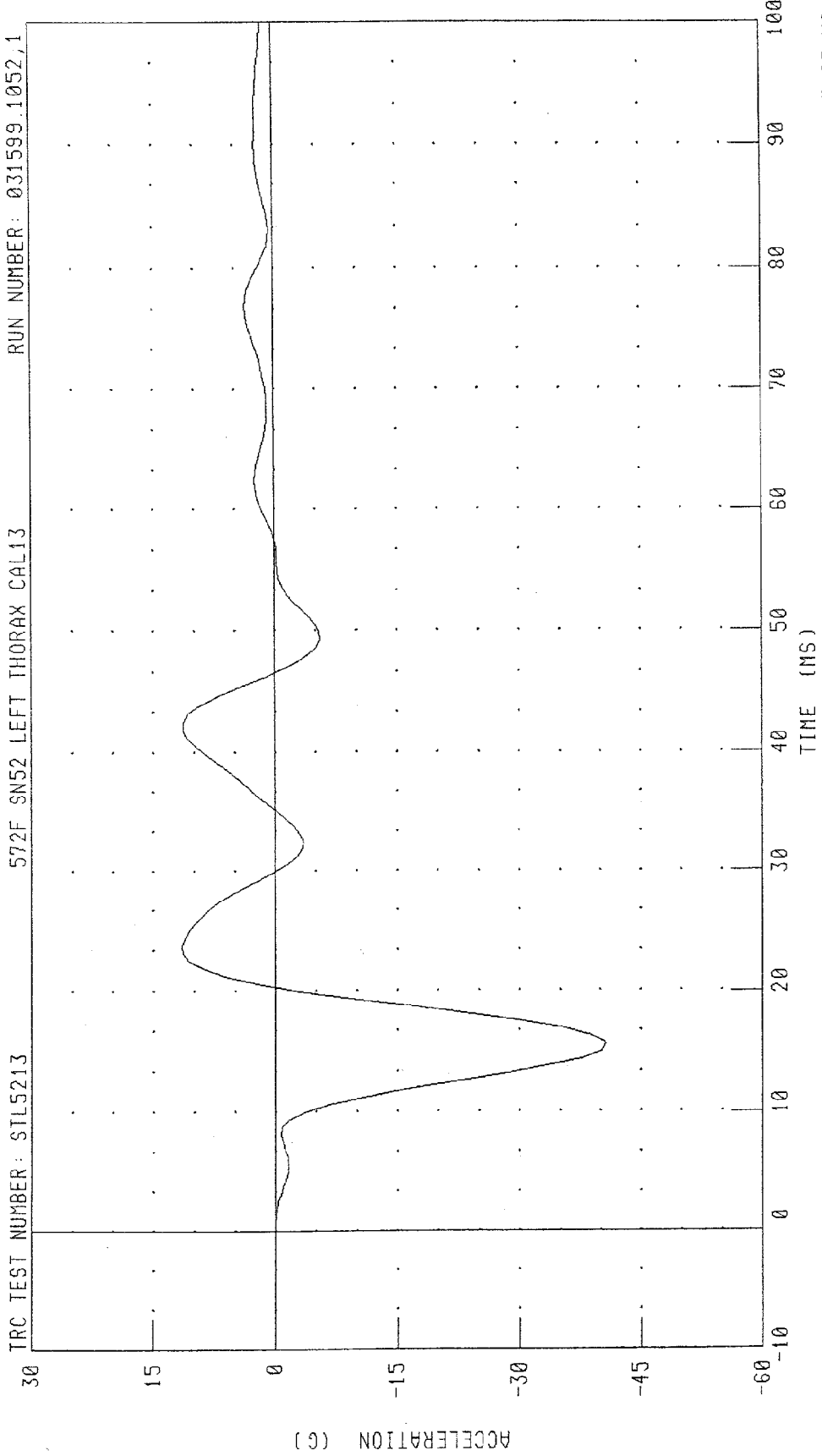
LEFT UPPER RIB ACCELERATION Y AXIS



CHANNEL: LURYG FILTER: FIR 100

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

LEFT LOWER RIB ACCELERATION Y AXIS

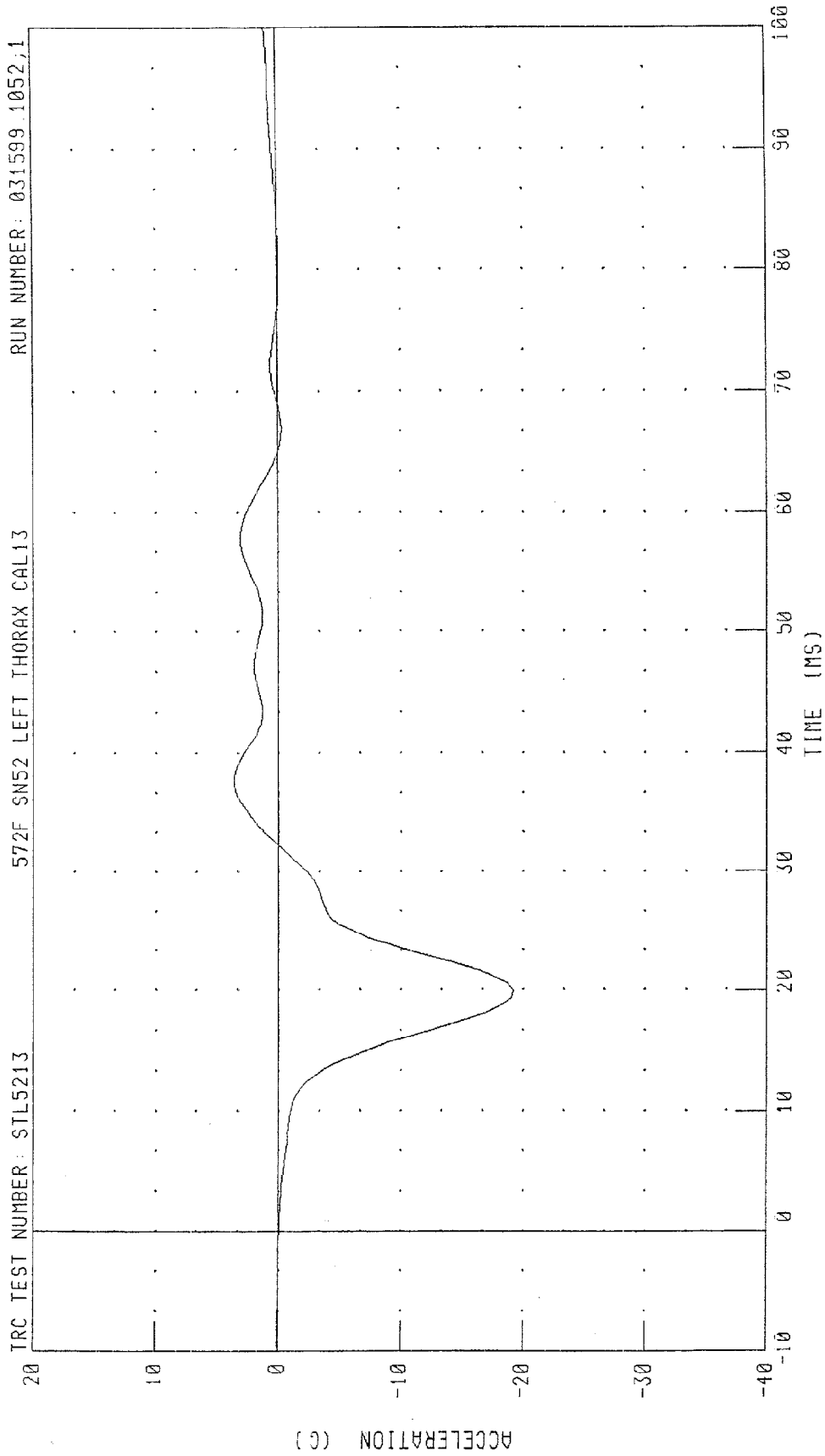


CHANNEL: LLRYC FILTER: FIR 100

PEAK DATA: 11.48 G @ 23.75 MS, -40.60 G @ 15.63 MS

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

LOWER SPINE ACCELERATION Y AXIS



CHANNEL: T12YC FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

15-MAR-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5213

572F SN052 LEFT PELVIS CAL13

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	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-55.4 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

B. Calt

RUN NUMBER: 031599.1042;1

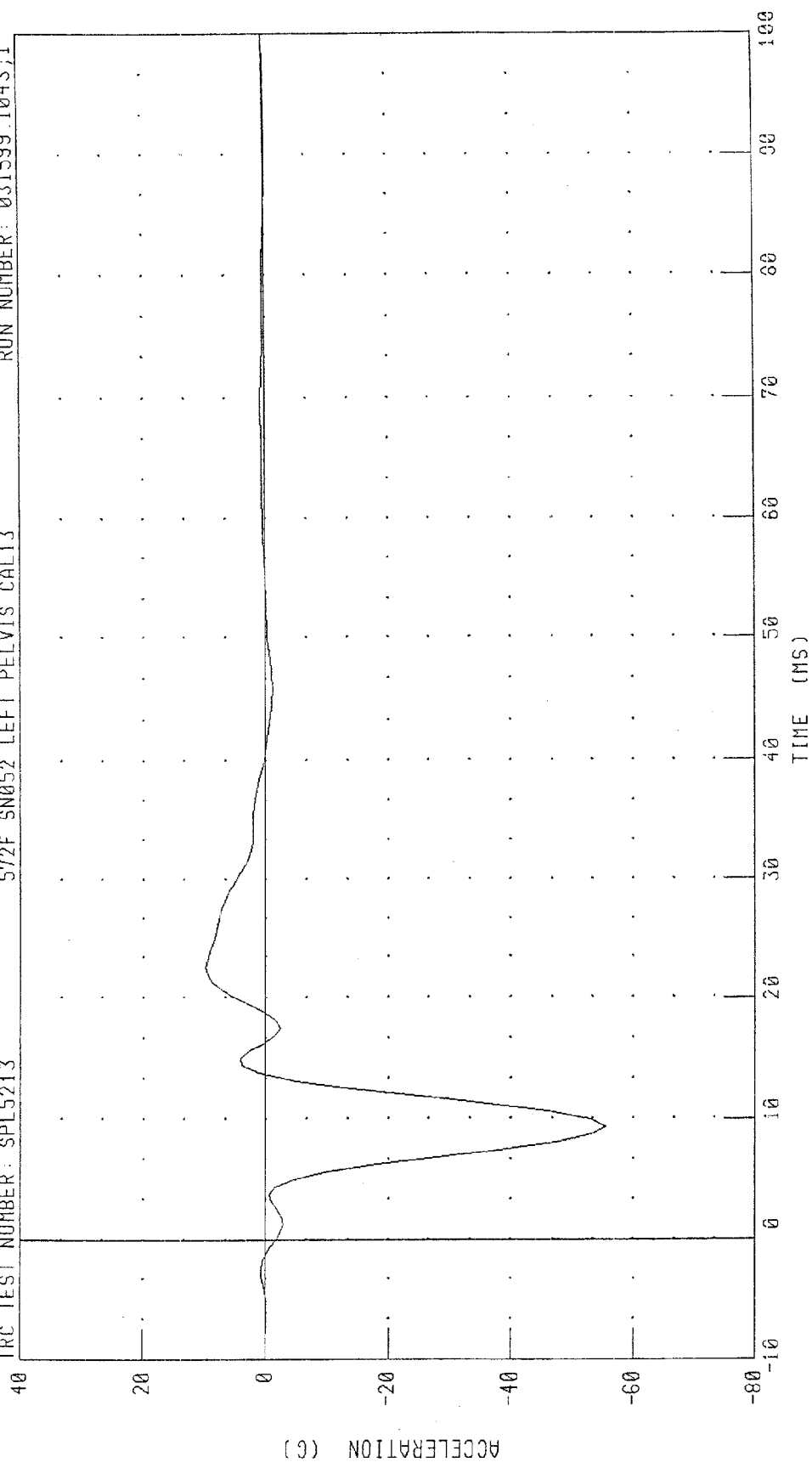
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5213

572F SN052 LEFT PELVIS CAL13

RUN NUMBER: 031599.1043,1



CHANNEL: PEVYC FILTER: FIR 100

PEAK DATA: 9.83 0 0 22.50 MS; -55.43 0 0 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

15-MAR-99

TRC INC. TEST NO: LF5213

572F SN052 LUMBAR FLEX CAL13

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	146.78 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	204.61 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	249.09 N
NET RETURN ANGLE	< 12 DEG.	7.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bj celt

RUN NUMBER: 031599.0826

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572F

15-MAR-99

TRC INC.

TEST NO: ABD5213A

ABDOMEN COMPRESSION TEST SN52

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.77 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	122.81 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	182.97 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	262.69 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	374.70 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bj Cht

RUN NUMBER: 050499.1452;2

PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMEN COMPRESSION TEST SN52

RUN NUMBER: 050499 1452;2

TRC TEST NUMBER: ABD5213A

540

450

360

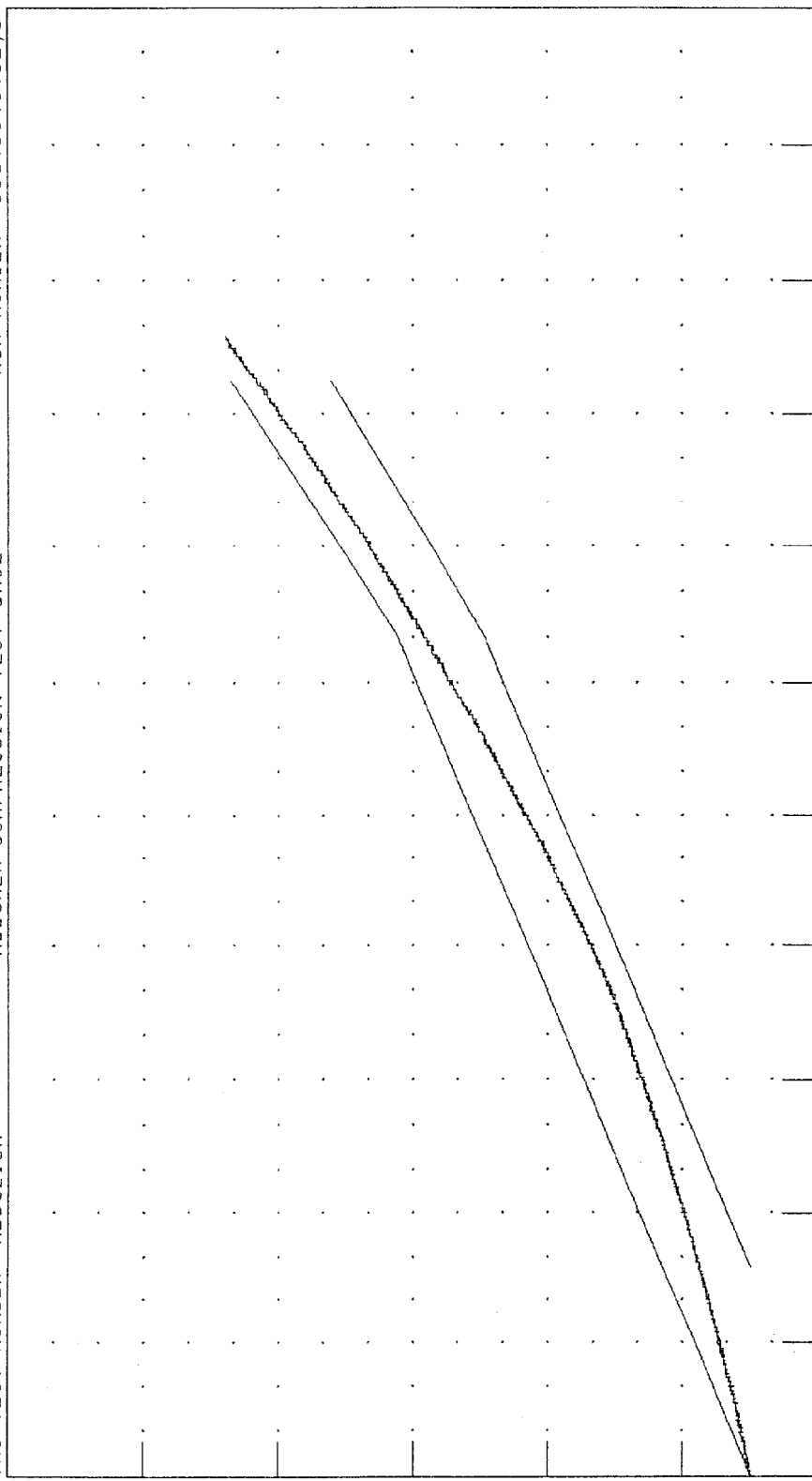
270

180

90

0

FORCE (N)



DISPLACEMENT (MM X 10⁻¹)

CHANNEL: ABXD
ABXF

FILTER: CH. CLASS 1000
CH. CLASS 1000

PEAK DATA: 34.39 MM @ 4.39 S; 0.00 MM @ 0.00 S
395.73 N @ 4.39 S; 44.06 N @ 0.00 S

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

26-JAN-99

TRC INC.

572F SN52 DAMPER TEST CAL11

TEST NUMBERS: DP5211A,DP5211B,DP5211C

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

DAMPER SETTING = 9.0

TEST MEETS SPECIFICATIONS

TECHNICIAN

B. C. L.

RUN NUMBER: 012699.0849;1

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

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL11

TRC TEST NUMBER: DP5211A

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FORCE (N X 10²)

RUN NUMBER: 012699.0850;1

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TIME (MS)

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

CHANNEL: DAMPF

FILTER: CII. CLASS 1000

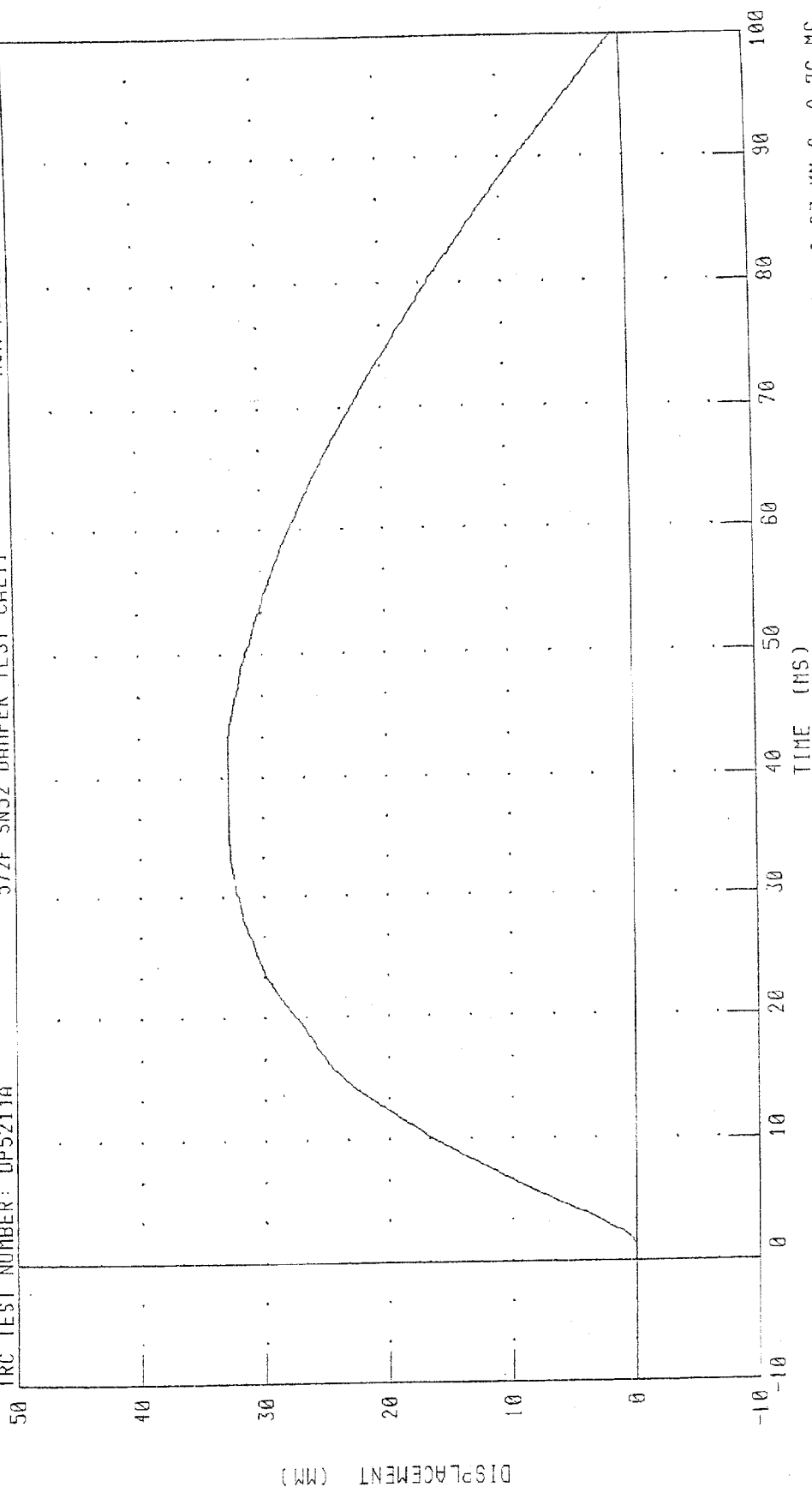
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012099.0850;1

TRC TEST NUMBER: DP5211A



CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

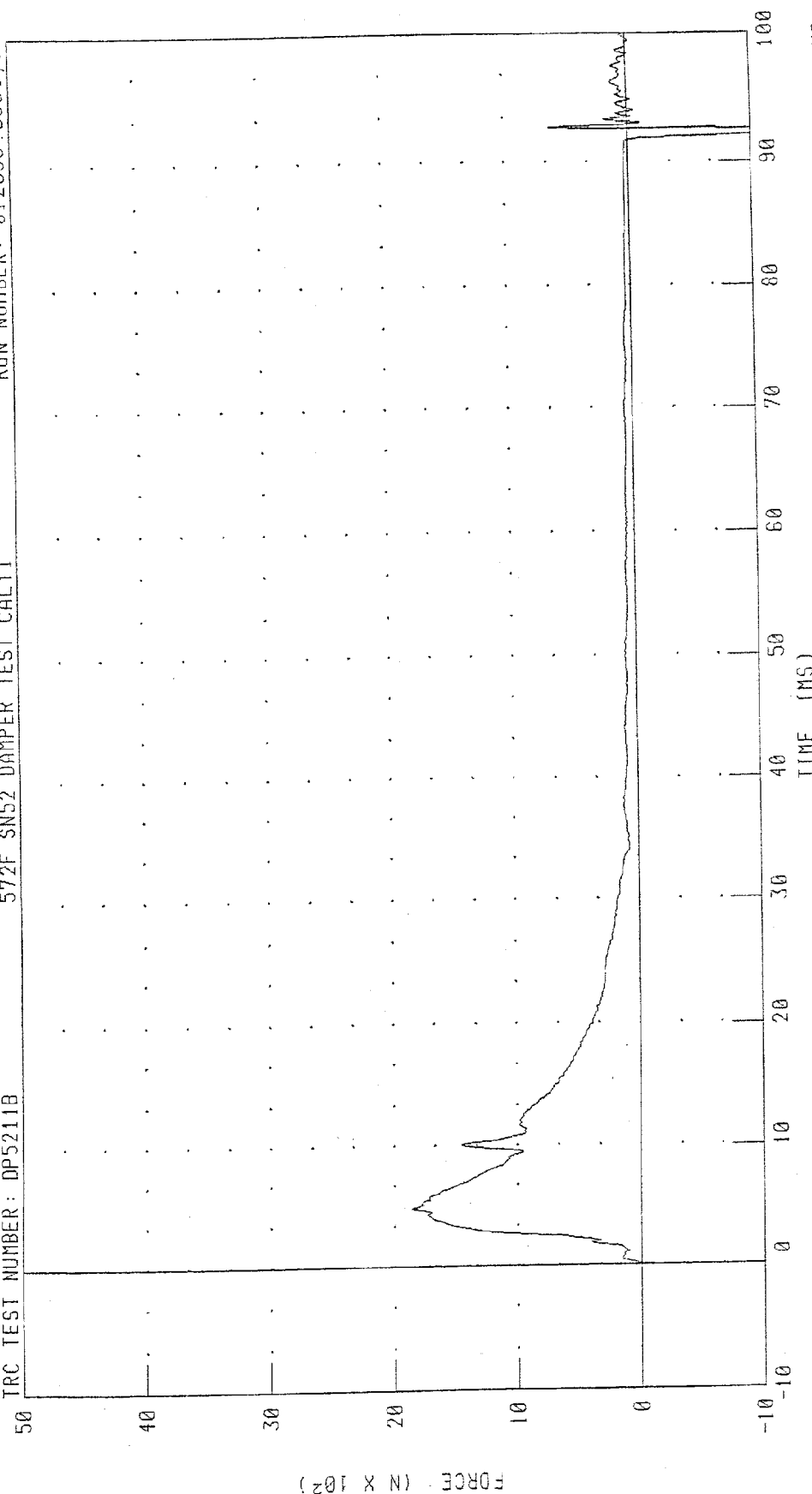
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5211B

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699 0851,1



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

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

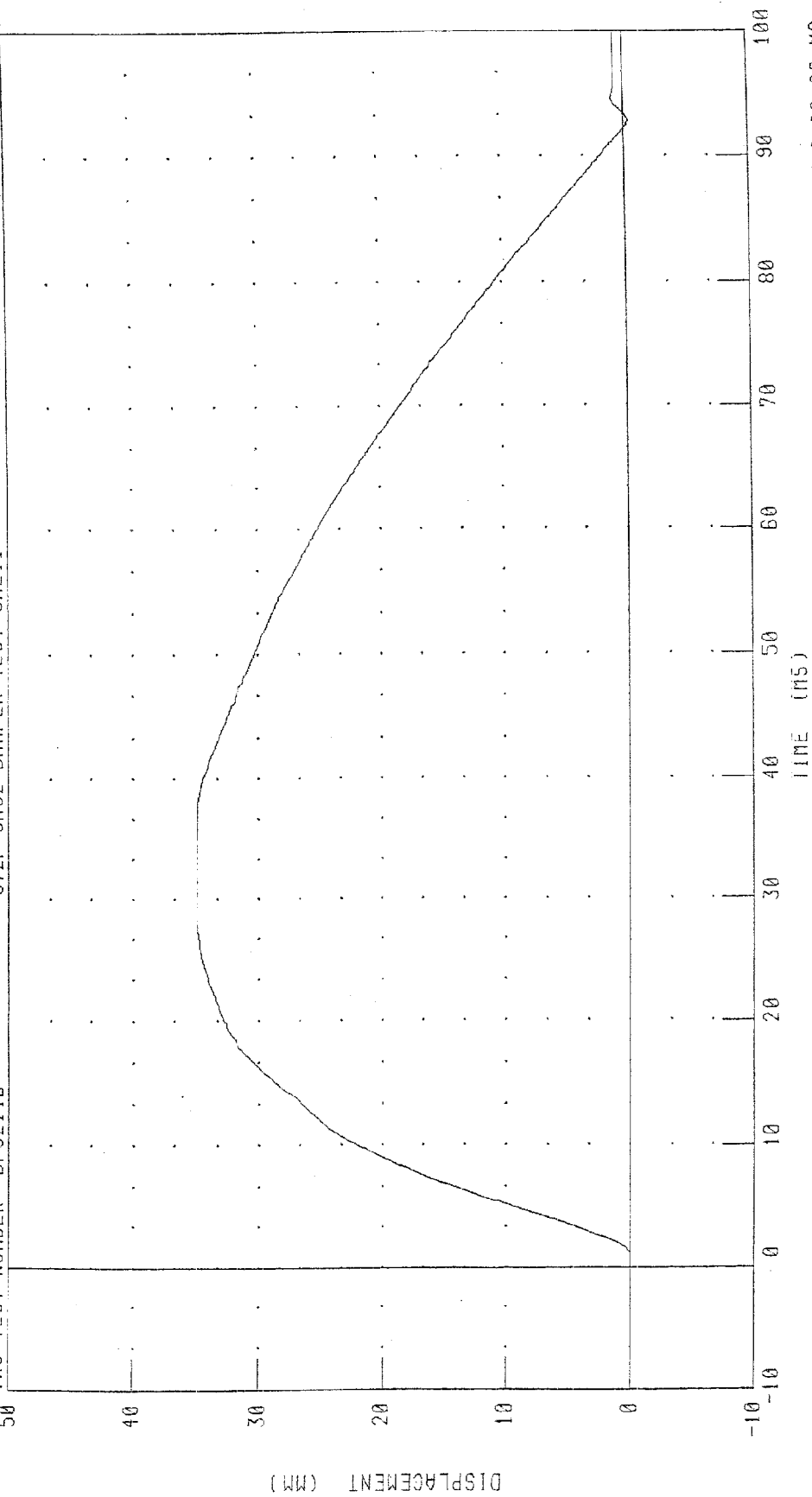
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5211B

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699.0851,1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

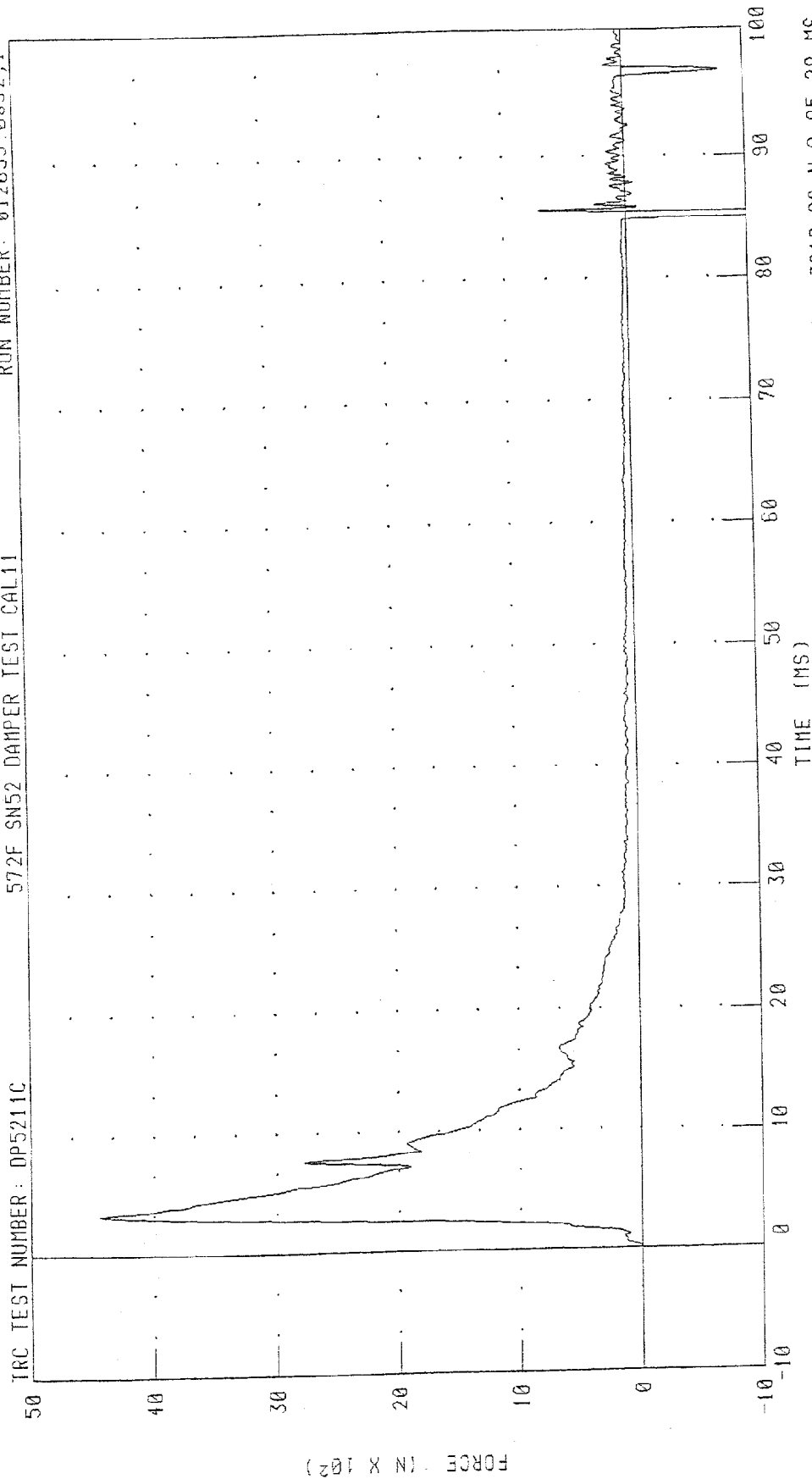
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

RUN NUMBER: 012699.0852,1

572F SN52 DAMPER TEST CAL11

IRC TEST NUMBER: DP5211C



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

FILTER: CH. CLASS 1000

CHANNEL: DAMPF

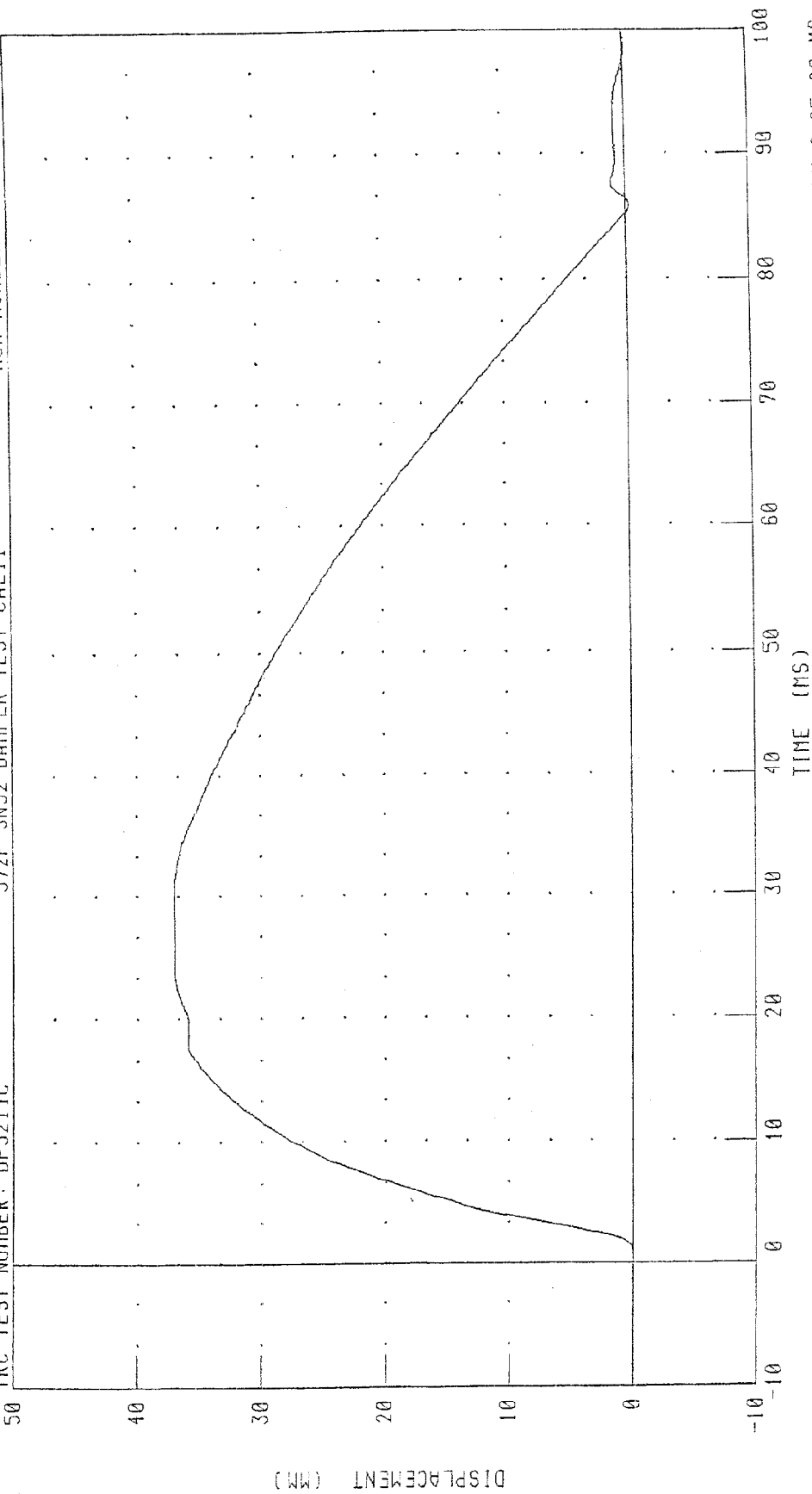
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5211C

572F SN52 DAMPER TEST CAL11

RUN NUMBER: 012699 0852;1



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

CHANNEL: CSTYD FILTER: CH CLASS 1000

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.
Thoracic Shock Absorbers:	The thorax passed all impact test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.

TRANSPORTATION RESEARCH CENTER INC.
SIDE IMPACT DUMMY
EXTERNAL DIMENSIONS
LEFT SIDE CONFIGURATION
SN SNO51 VECTOR

09-APR-99

TRC INC. TEST NO: ED5115 572F SNO51 EXT.DIMENSION CAL15

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	904.6 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99. MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	516.4 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	491.5 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	512.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	234.3 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	177.3 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	177.3 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Bj alt

RUN NUMBER: 020399.1052

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

11-APR-99

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: STL5115

572F SN51 LEFT THORAX CAL15

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-39.5 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-41.0 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-18.7 G

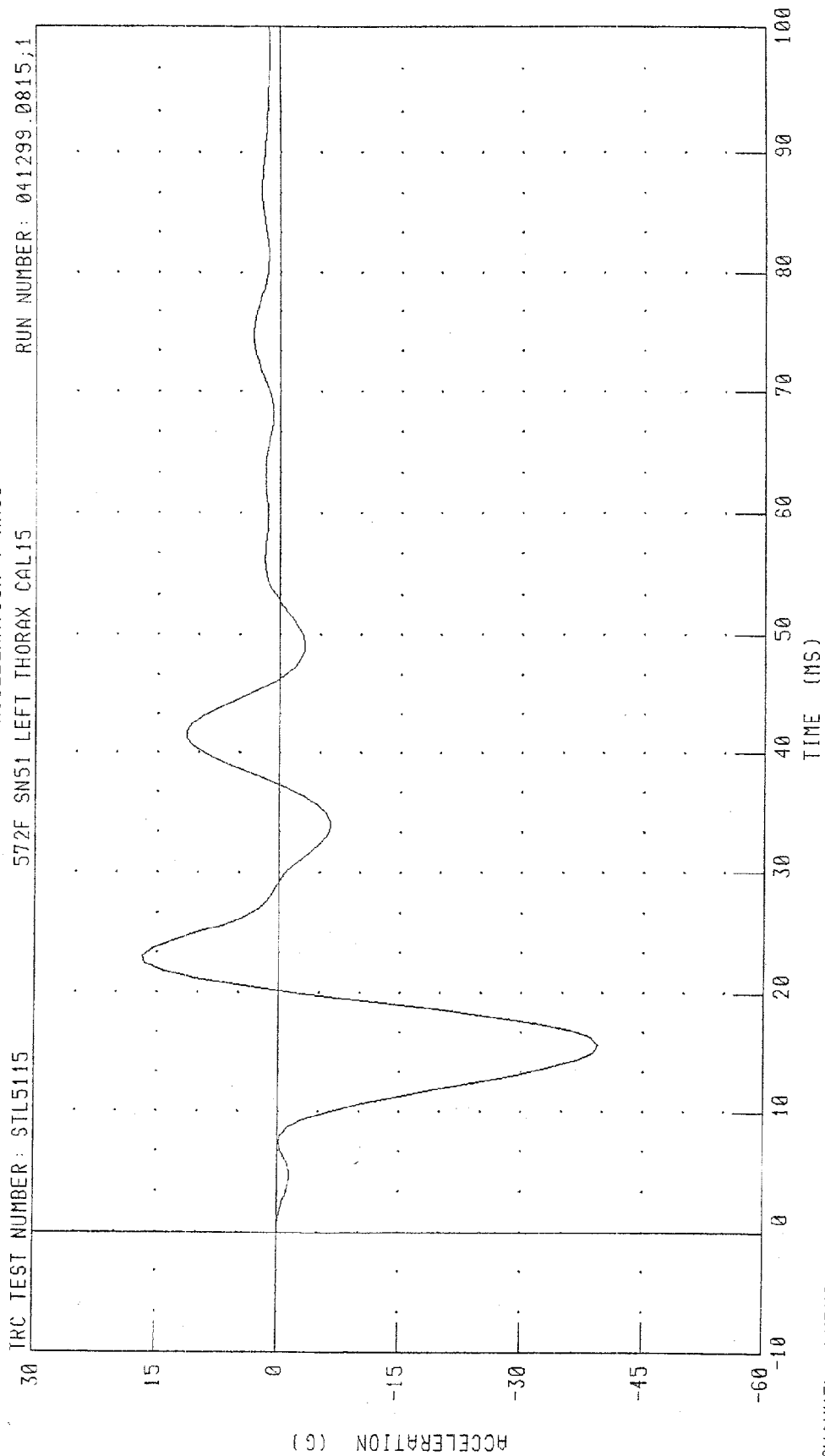
TEST MEETS SPECIFICATIONS

TECHNICIAN

By [Signature]

RUN NUMBER: 041299.0815;1

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

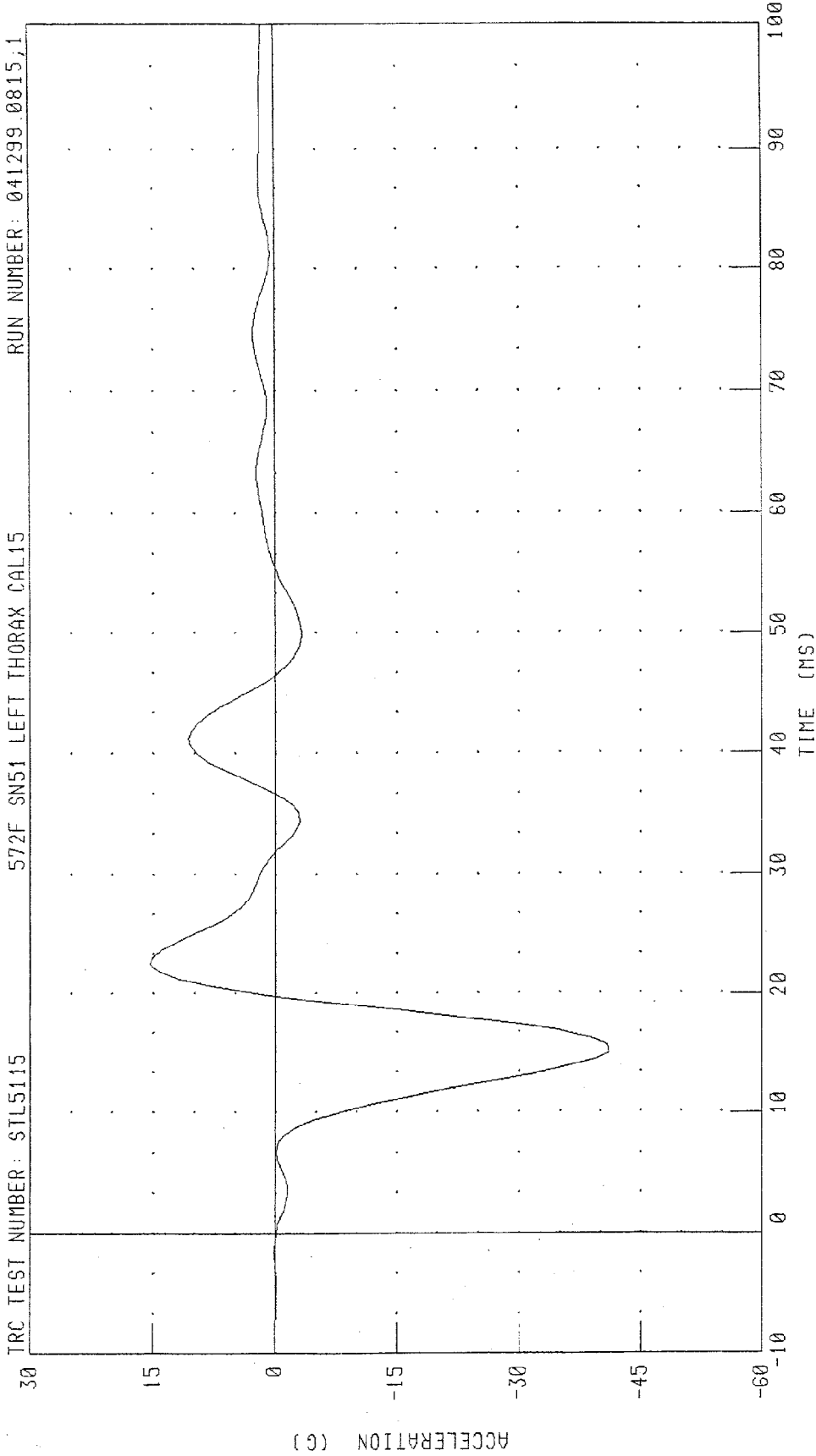


CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 16.77 G @ 23.13 MS; -39.49 G @ 15.63 MS

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

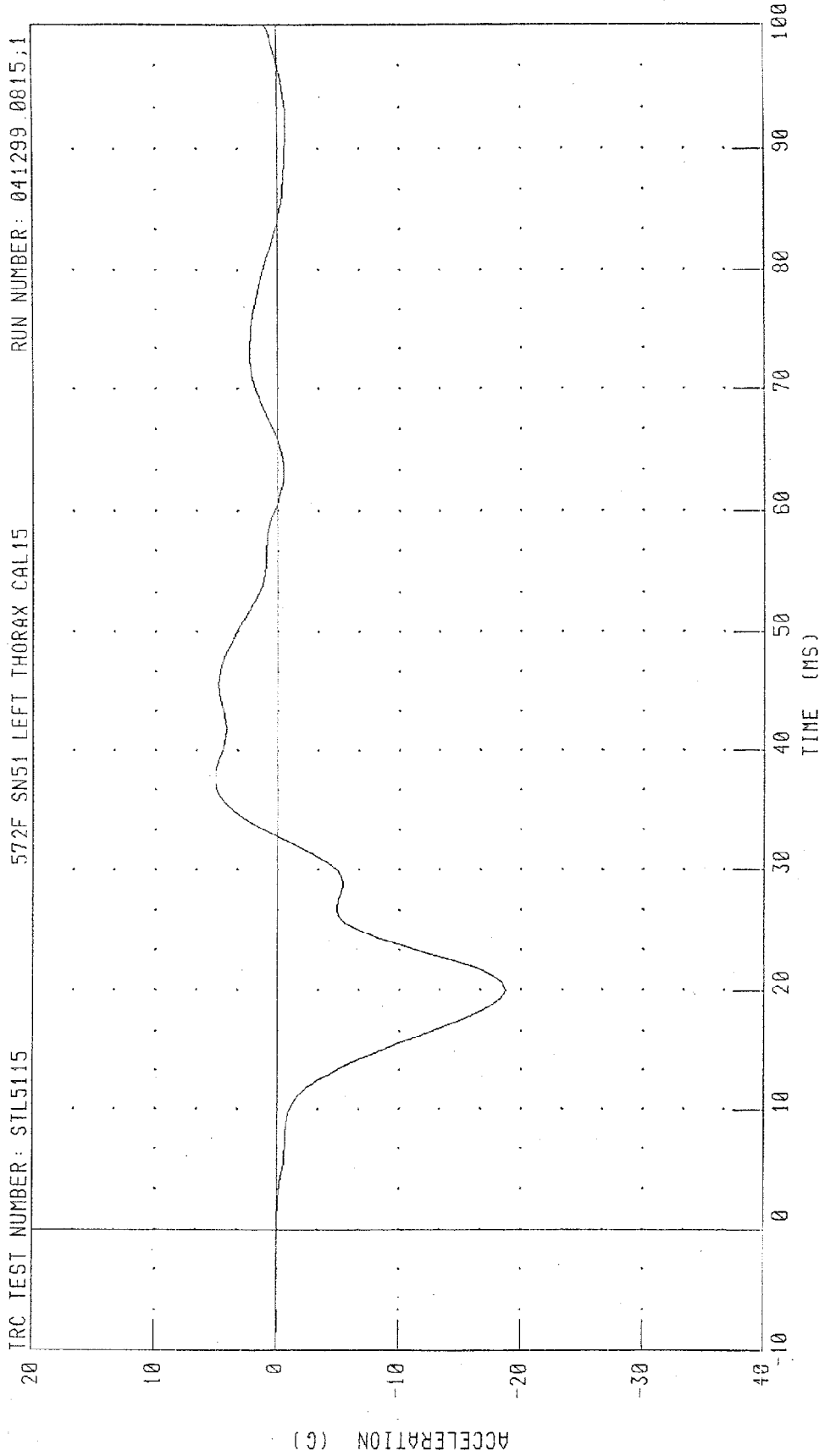
LEFT LOWER RIB ACCELERATION Y AXIS



PEAK DATA: 15.37 G @ 22.50 MS, -41.05 G @ 15.00 MS

CHANNEL: LLRYG FILTER: FIR 100

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LOWER SPINE ACCELERATION Y AXIS
 572F SN51 LEFT THORAX CAL15



PEAK DATA: 5.15 G @ 37.50 MS; -18.73 G @ 20.00 MS

CHANNEL: T12YC FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

11-APR-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5115

572F SN 51 LEFT PELVIS CAL15

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-54.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

By Calit

RUN NUMBER: 041299.0823;1

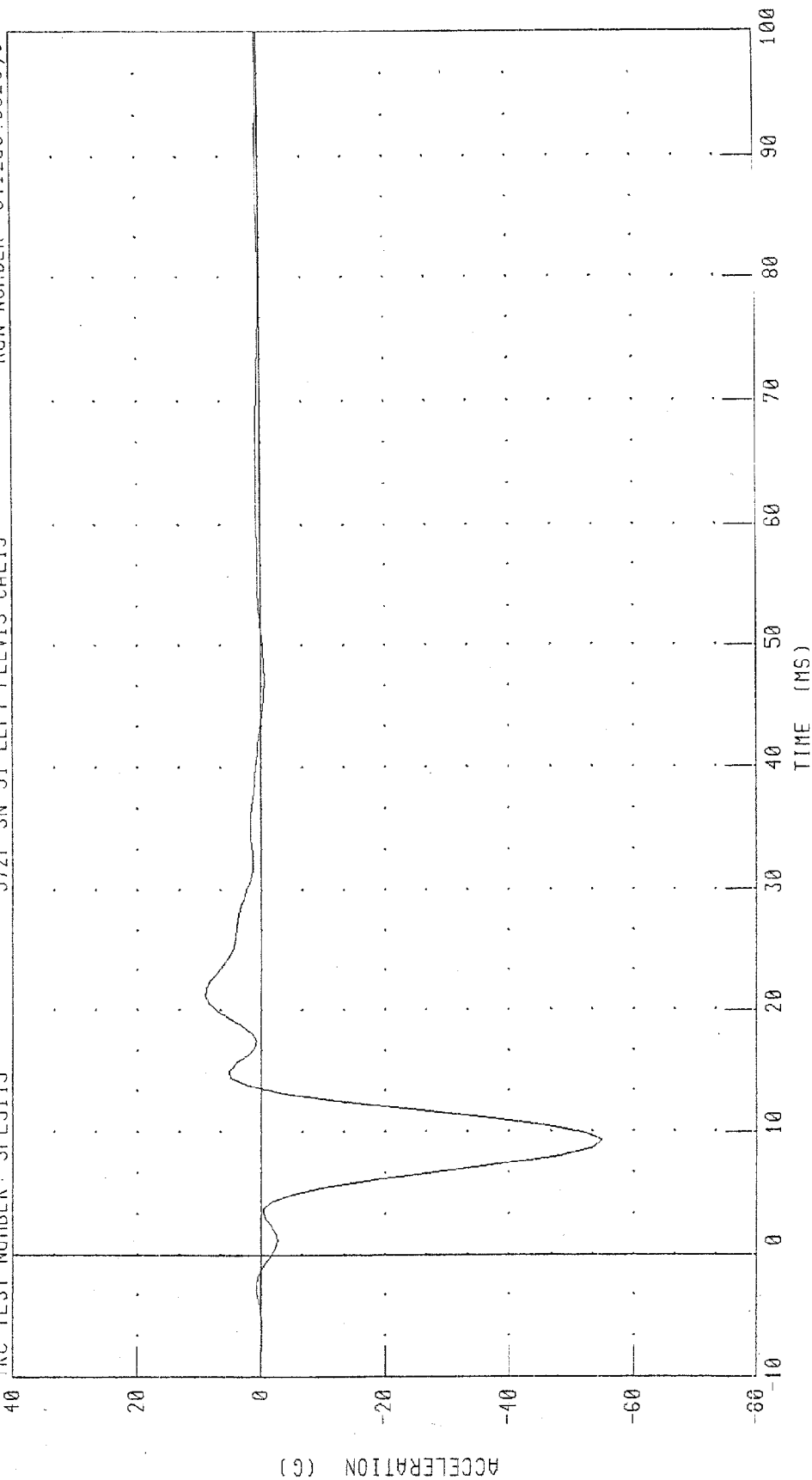
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN 51 LEFT PELVIS CAL15

TRC TEST NUMBER: SPL5115

RUN NUMBER: 041299.0823.1



PEAK DATA: 9.12 G @ 21.25 MS, -54.89 G @ 9.37 MS

CHANNEL: PEVYC FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

09-APR-99

TRC INC. TEST NO: LF5115

572F SN051 LUMBAR FLEX CAL15

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	33 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	137.89 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	195.71 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	231.30 N
NET RETURN ANGLE	< 12 DEG.	0.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

B. E. Holt

RUN NUMBER: 050499.1342

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572F

09-APR-99

TRC INC.

TEST NO: ABD5115

ABDOMEN 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	7.79 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	128.63 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	185.85 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	263.62 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	381.50 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

B. J. C. L. T.

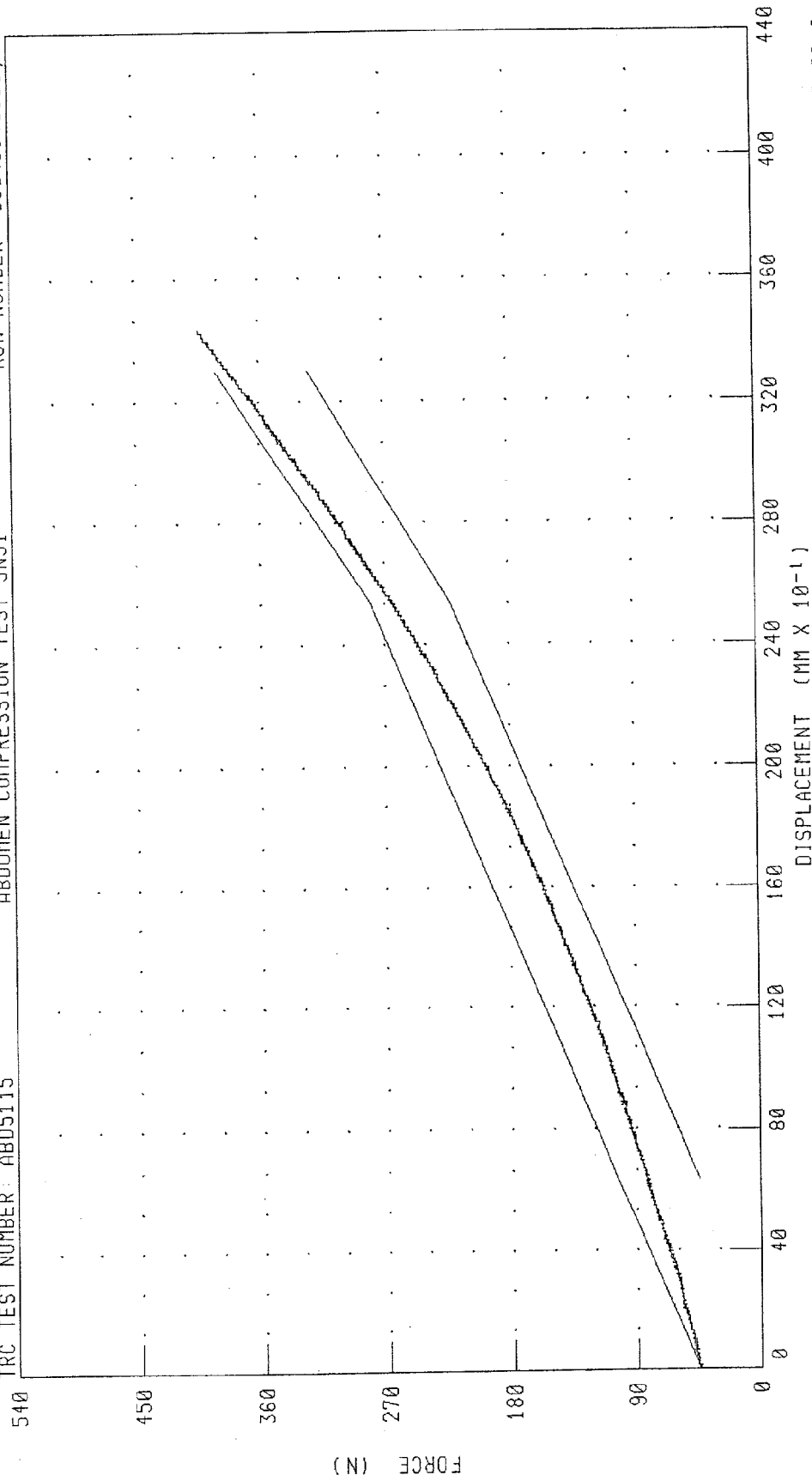
RUN NUMBER: 050499.1502;2

PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT
ABDOMEN COMPRESSION TEST SN51

RUN NUMBER: 050499.1503,2

TRC TEST NUMBER: ABD5115



PEAK DATA: 34.39 MM @ 4.40 S; 0.00 MM @ 0.00 S
404.00 N @ 4.40 S; 43.03 N @ 0.01 S

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

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

09-APR-99

TRC INC.

572F SN51 DAMPER TEST CAL15

TEST NUMBERS: DP5115A,DP5115B,DP5115C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	22.0 %
VELOCITY	FORCE	838 - 1125 N	958 N
3.06 M/S	DISPLACEMENT	30.2 - 35.2 MM	32.8 MM
VELOCITY	FORCE	1733 - 2100 N	1769 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	36.6 MM
VELOCITY	FORCE	3784 - 4495 N	4364 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	39.6 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN B. C. C.

RUN NUMBER: 040999.1310;1

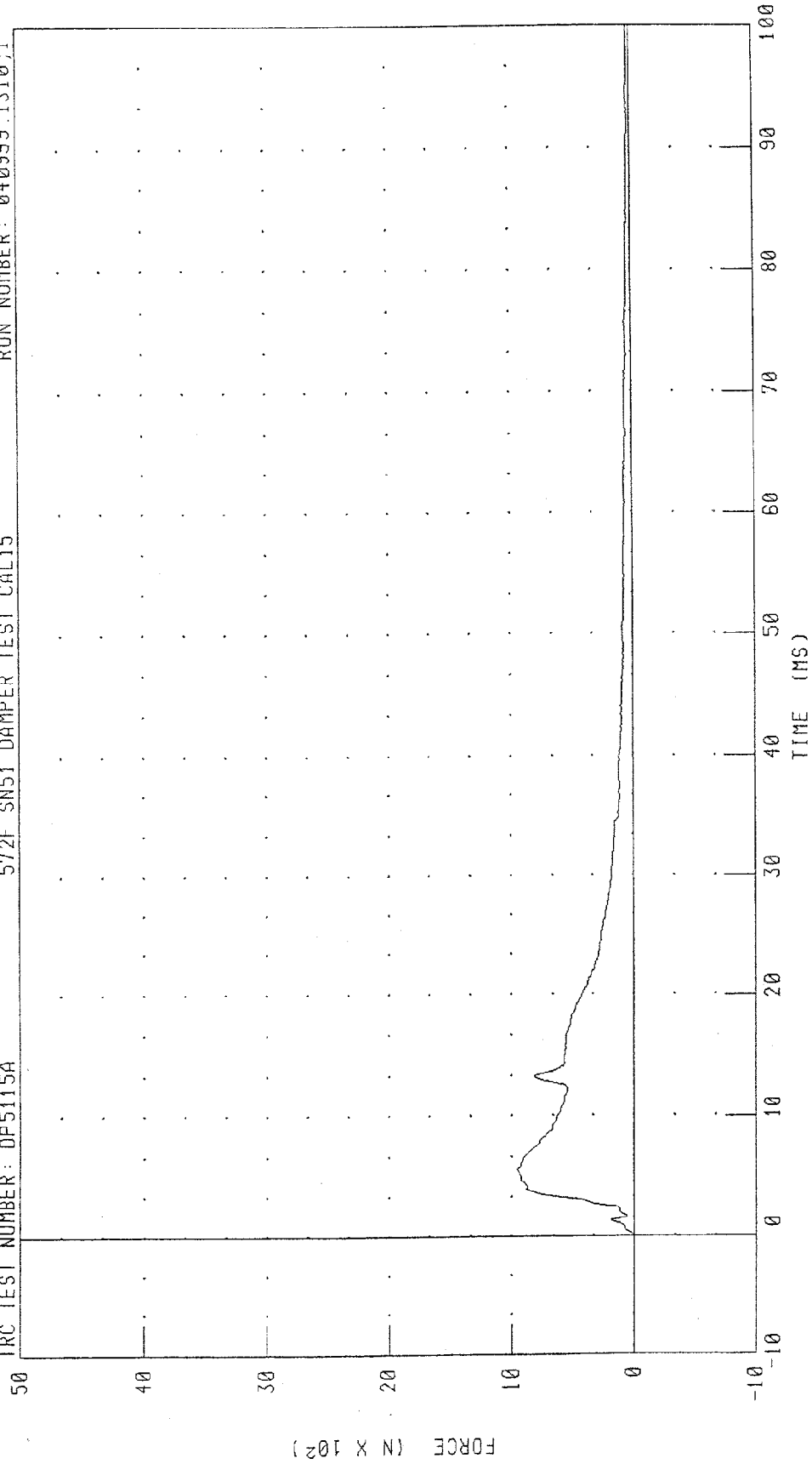
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DF5115A

572F SN51 DAMPER TEST CAL15

RUN NUMBER: 040999.1310.1



CHANNEL: DAMP FILTER: CH. CLASS 1000

PEAK DATA: 958.15 N @ 5.60 MS; -4.57 N @ -9.44 MS

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

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5115A

572F SN51 DAMPER TEST CAL15

RUN NUMBER: 040999 1310;1

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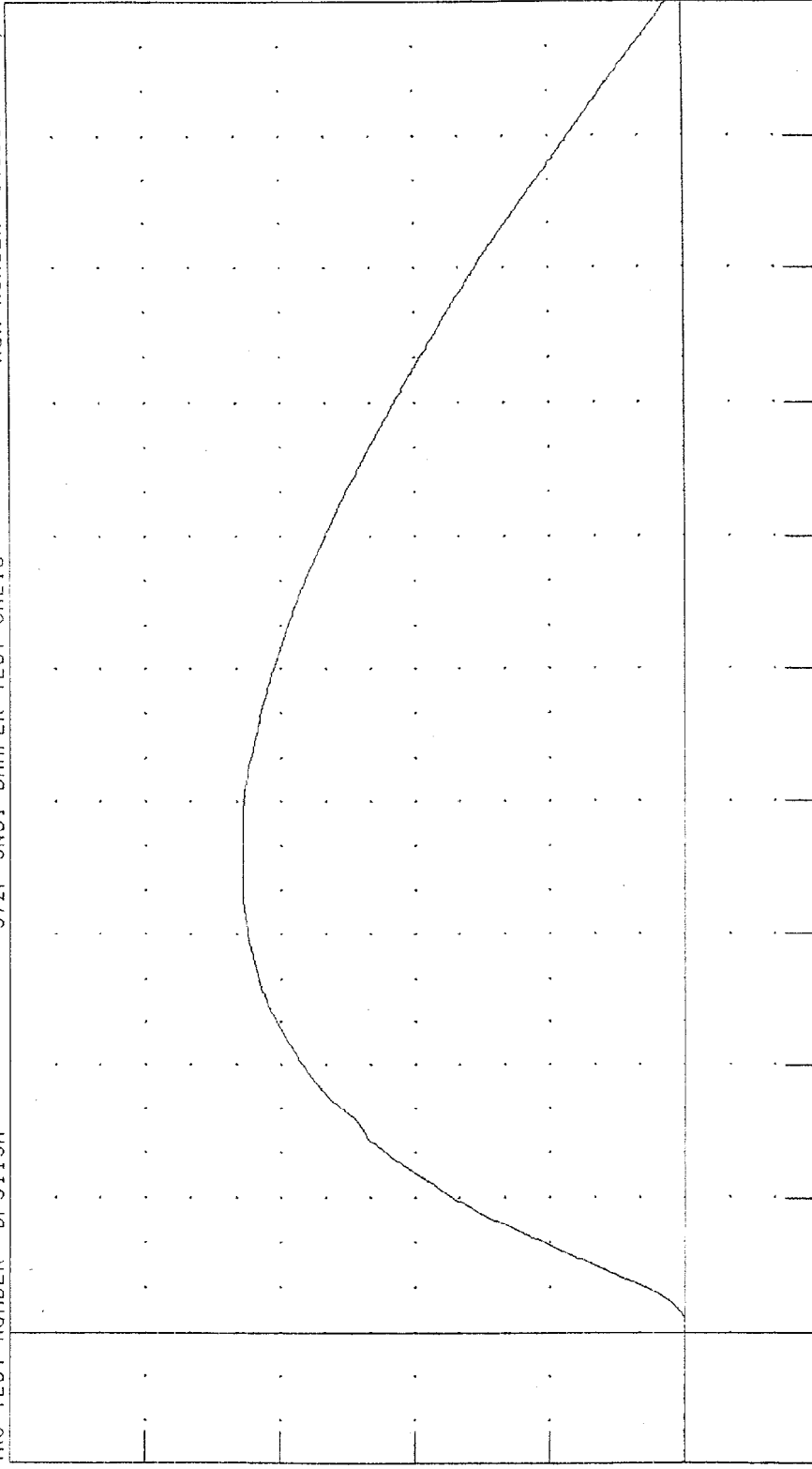
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DISPLACEMENT (MM)



TIME (MS)

PEAK DATA: 32.84 MM @ 32.88 MS; -0.01 MM @ -10.00 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

SHOCK ABSORBER RESISTIVE FORCE

572F SN51 DAMPER TEST CAL15

TRC TEST NUMBER: DP5115B

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

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL15

TRC TEST NUMBER: DP5115B

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DISPLACEMENT (MM)

40

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TIME (MS)

PEAK DATA: 36.59 MM @ 29.84 MS, -0.27 MM @ 96.64 MS

CHANNEL: CSTYD

FILTER: CH. CLASS 1000

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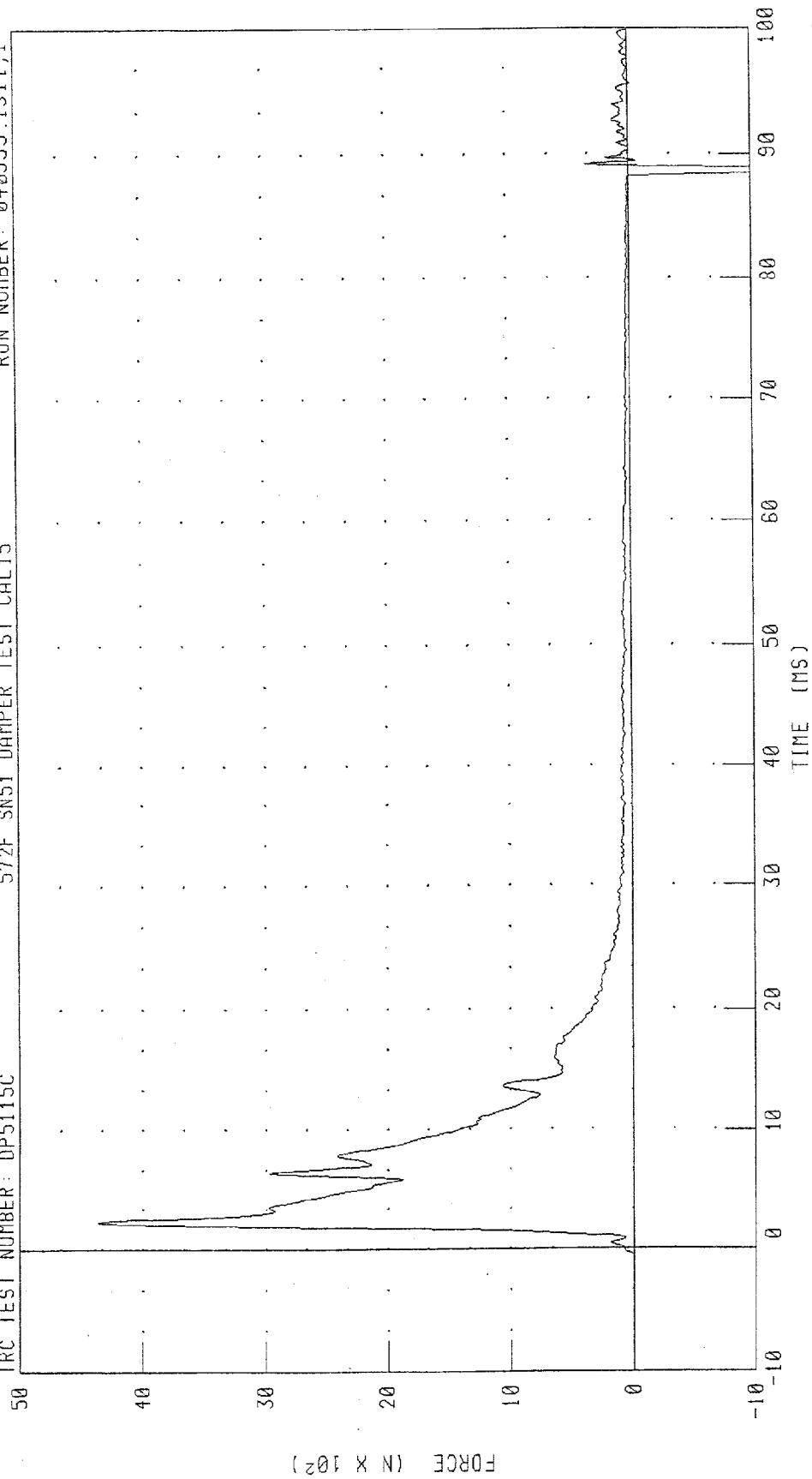
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN51 DAMPER TEST CAL15

TRC TEST NUMBER: DP5115C

RUN NUMBER: 040999.1311;1



PEAK DATA: 4363.69 N @ 2.24 MS, -2038.13 N @ 88.72 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL15

TRC TEST NUMBER: DP5115C

50

40

30

20

10

0

-10

DISPLACEMENT (MM)

0

10

20

30

40

50

TIME (MS)

0

10

20

30

40

50

60

70

80

90

100

RUN NUMBER: 040999.1311;1

CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 39.58 MM @ 24.24 MS; -0.31 MM @ 89.04 MS

Calibration Test Results

Post-Test

SID: 052

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorbers:	The thorax passed all shock absorber requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.

TRANSPORTATION RESEARCH CENTER INC.
 SIDE IMPACT DUMMY
 EXTERNAL DIMENSIONS
 LEFT SIDE CONFIGURATION
 SN SN052 VECTOR

09-APR-99

TRC INC. TEST NO: ED5214 572F SN052 EXT.DIMENSION CAL14

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	900.2 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99. MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	519.6 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	493.3 MM
HW	HIP WIDTH	356 - 391 MM	366.5 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	514.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	239.4 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	174.2 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	174.2 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Ray Cull

RUN NUMBER: 020399.1045

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

09-APR-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5214

572F SN52 LEFT THORAX CAL14

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-42.7 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-42.4 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-20.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN

By cult

RUN NUMBER: 040999.1521;1

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

LEFT UPPER RIB ACCELERATION Y AXIS

572F SN52 LEFT THORAX CAL14

TRC TEST NUMBER: STL5214

30

15

0

-15

-30

-45

-60

TIME (MS)

0 10 20 30 40 50 60 70 80 90 100

PEAK DATA: 16.81 G @ 22.50 MS, -42.72 G @ 15.63 MS

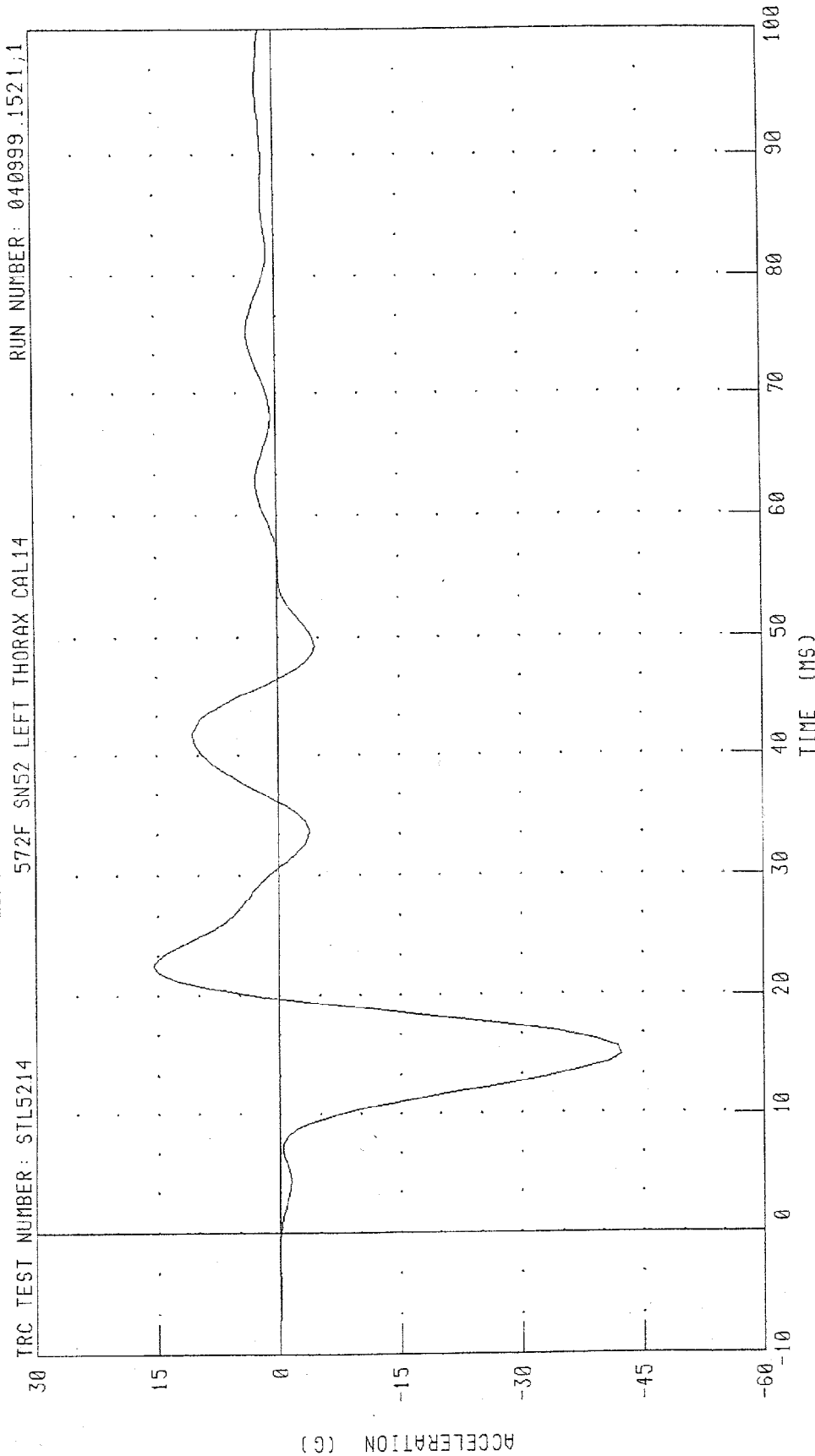
CHANNEL: LURYG FILTER: FIR 100

990316

C-60

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

LEFT LOWER RIB ACCELERATION Y AXIS



TRC TEST NUMBER: STL5214

572F SN52 LEFT THORAX CAL14

RUN NUMBER: 040999.1521,1

CHANNEL: LLRYC FILTER: FIR 100

PEAK DATA: 15.49 G @ 22.50 MS; -42.37 G @ 15.00 MS

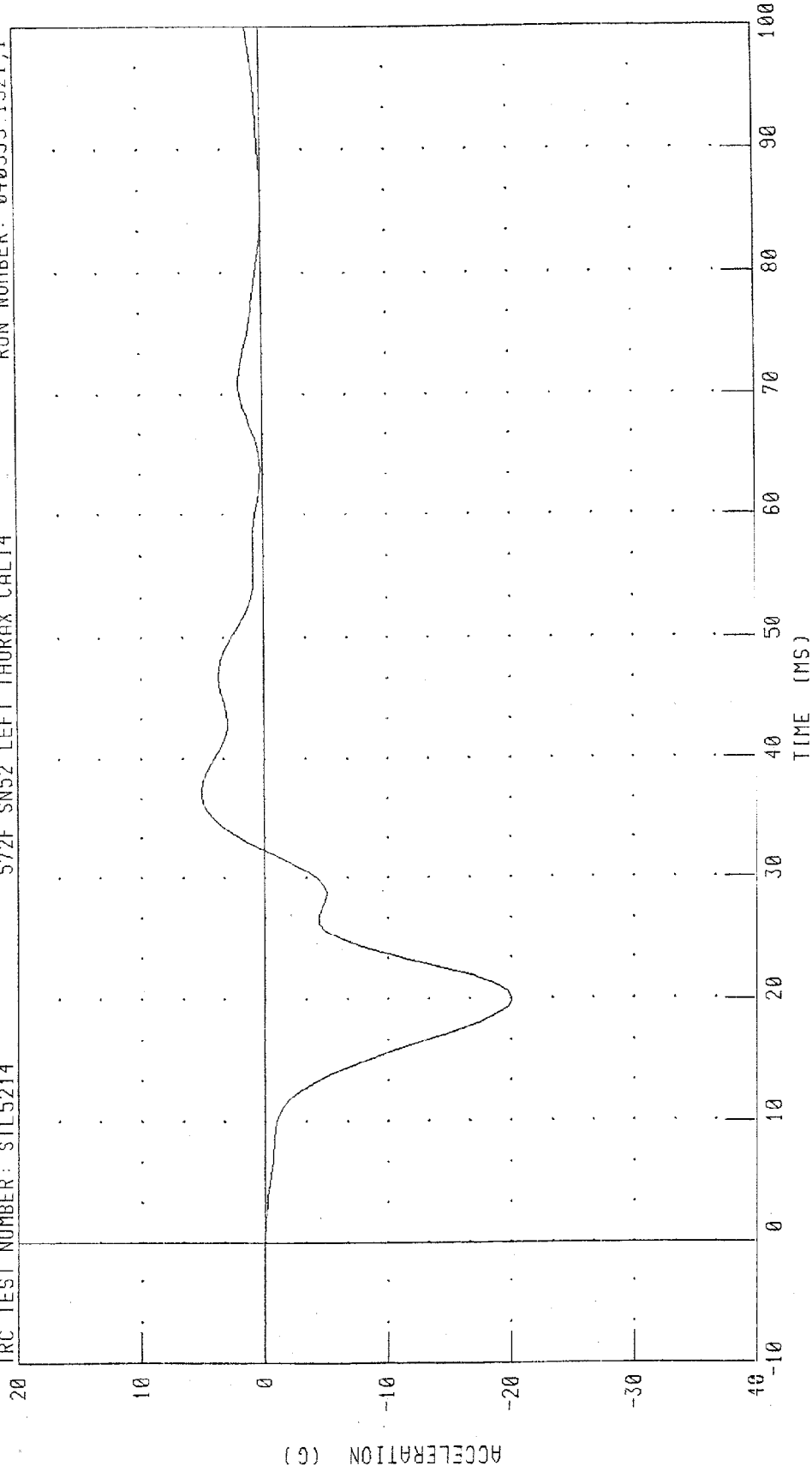
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

572F SN52 LEFT THORAX CAL14

TRC TEST NUMBER: STL5214

RUN NUMBER: 040999.1521,1



PEAK DATA: 5.14 G @ 37.50 MS; -20.13 G @ 20.00 MS

CHANNEL: T12YG FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

09-APR-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5214

572F SN052 LEFT PELVIS CAL14

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-50.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.7 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Ben Calt

RUN NUMBER: 040999.1519;1

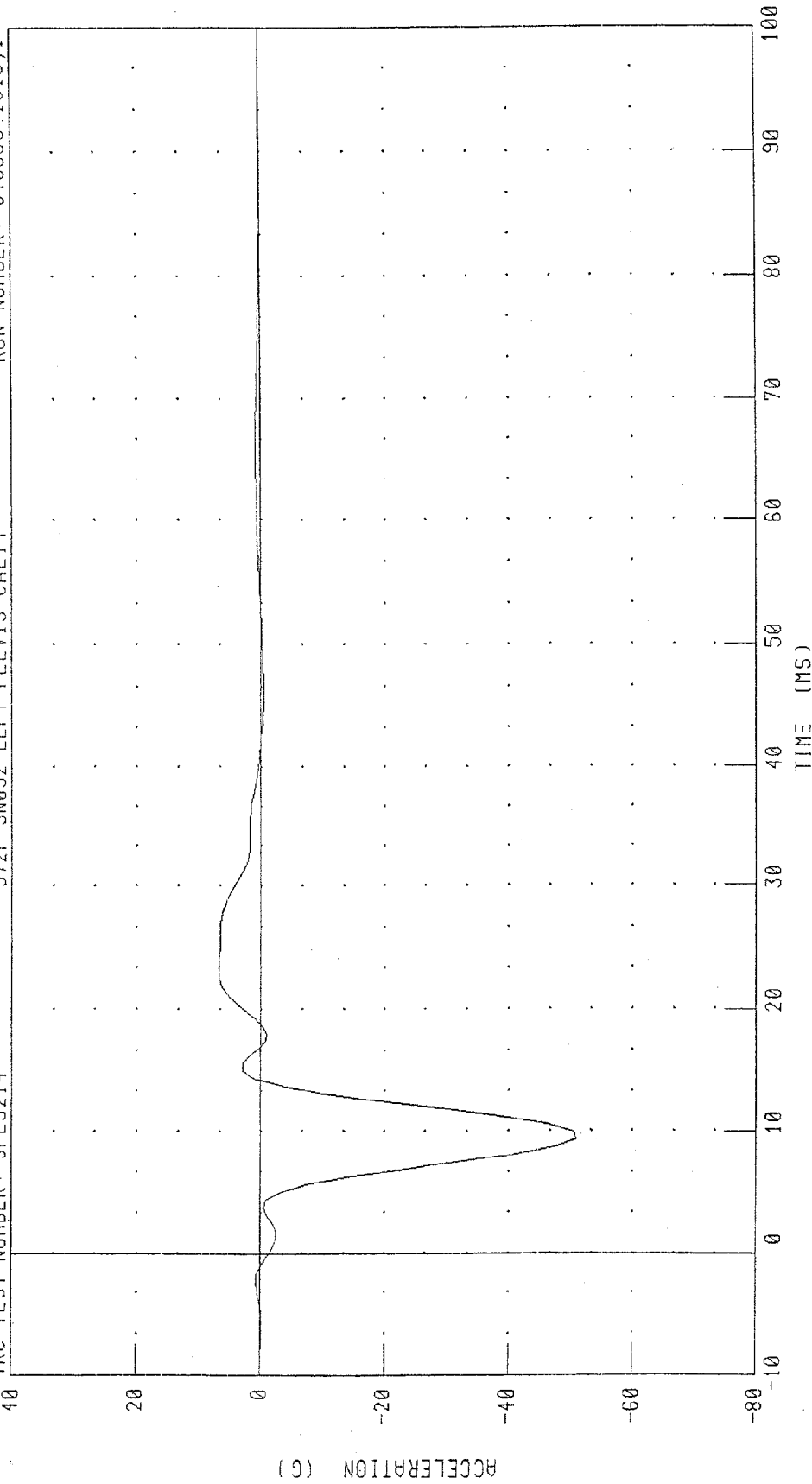
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN052 LEFT PELVIS CAL14

TRC TEST NUMBER: SPL5214

RUN NUMBER: 040999.1519;1



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 6.81 G @ 23.13 MS, -50.88 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572F

09-APR-99

TRC INC.

TEST NO: LF5214

572F SN052 LUMBAR FLEX CAL14

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	33 %
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	169.02 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	240.19 N
NET RETURN ANGLE	< 12 DEG.	4.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By clt

RUN NUMBER: 050499.1350

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572F

09-APR-99

TRC INC.

TEST NO: ABD5214

ABDOMEN COMPRESSION TEST SN52

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.78 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	122.28 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	182.44 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	257.76 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	369.28 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By C. H.

RUN NUMBER: 050499.1358;2

PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMEN COMPRESSION TEST SN52

RUN NUMBER: 050499.1402,2

TRC TEST NUMBER: ABD5214

540

450

360

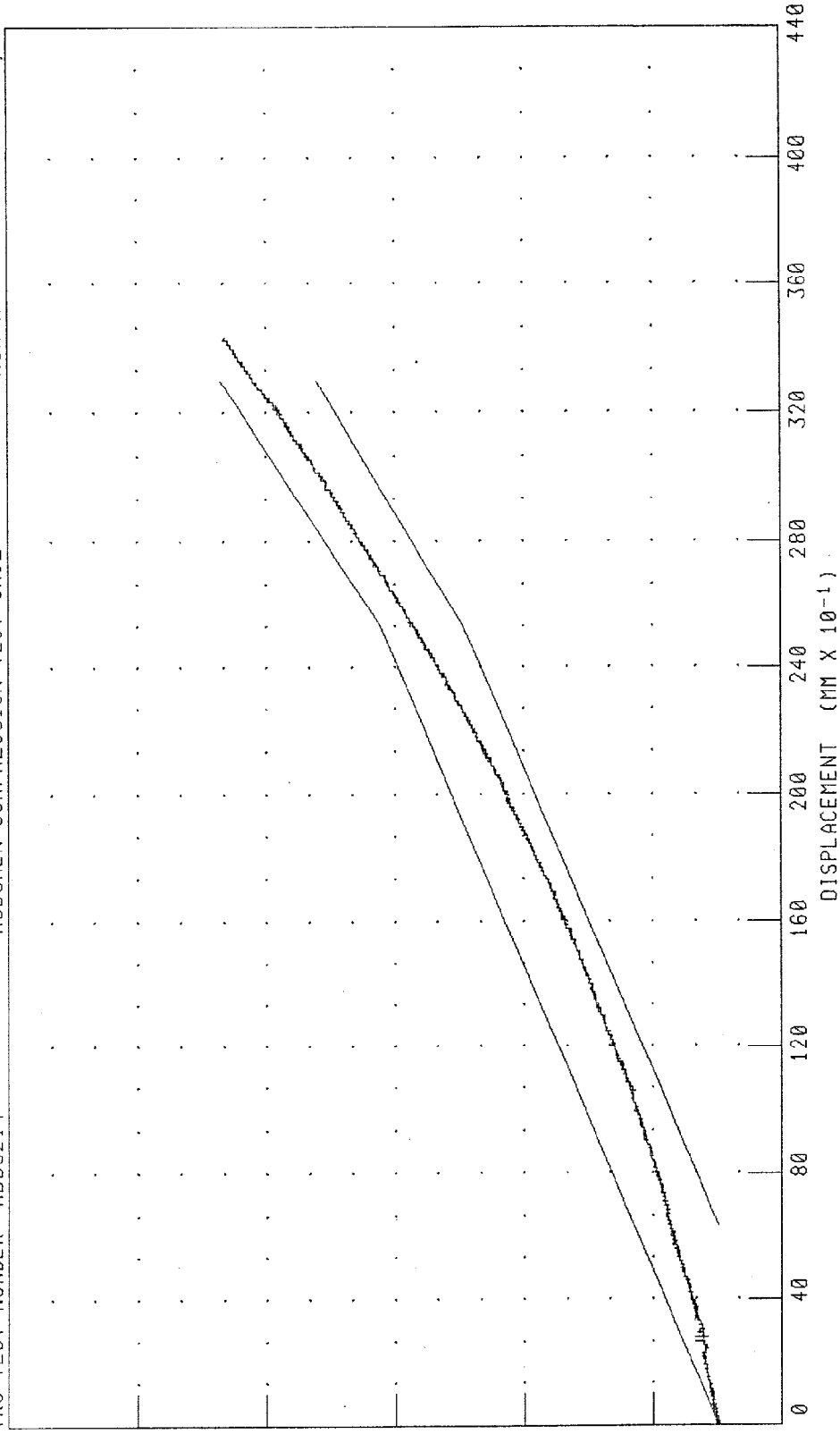
270

180

90

0

FORCE (N)



DISPLACEMENT (MM X 10⁻¹)

CHANNEL: ABXD
ABXF

FILTER: CH. CLASS 1000
CH. CLASS 1000

PEAK DATA: 34.39 MM @ 4.40 S; 0.00 MM @ 0.00 S
389.82 N @ 4.40 S; 43.04 N @ 0.01 S

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

09-APR-99

TRC INC.

572F SN52 DAMPER TEST CAL14

TEST NUMBERS: DP5214A,DP5214B,DP5214C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	22.0 %
VELOCITY	FORCE	856 - 1146 N	1002 N
3.08 M/S	DISPLACEMENT	30.2 - 35.2 MM	32.8 MM
VELOCITY	FORCE	1733 - 2100 N	1882 N
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	35.6 MM
VELOCITY	FORCE	3784 - 4495 N	4420 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.3 MM

DAMPER SETTING = 9.0

TEST MEETS SPECIFICATIONS

TECHNICIAN

By cult

RUN NUMBER: 040999.1353;2

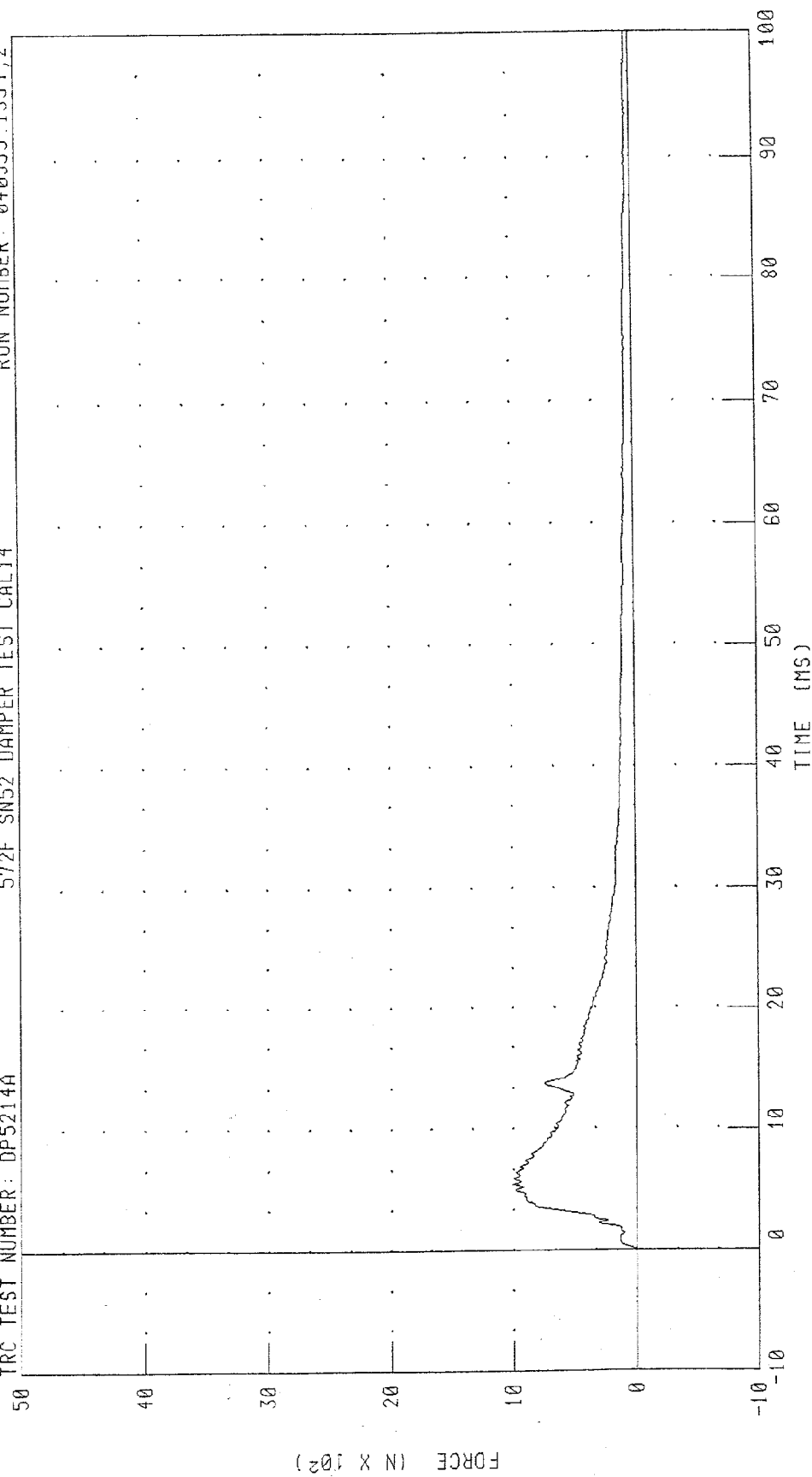
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5214A

572F SN52 DAMPER TEST CAL14

RUN NUMBER: 040999.1354;2



PEAK DATA: 1001.54 N @ 5.52 MS; -0.27 N @ -10.00 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL14

TRC TEST NUMBER: DP5214A

50

DISPLACEMENT (MM)

40

30

20

10

0

-10

0

10

20

30

40

50

60

70

80

90

100

TIME (MS)

PEAK DATA: 32.78 MM @ 36.00 MS; -0.04 MM @ -7.92 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

990316

C-70

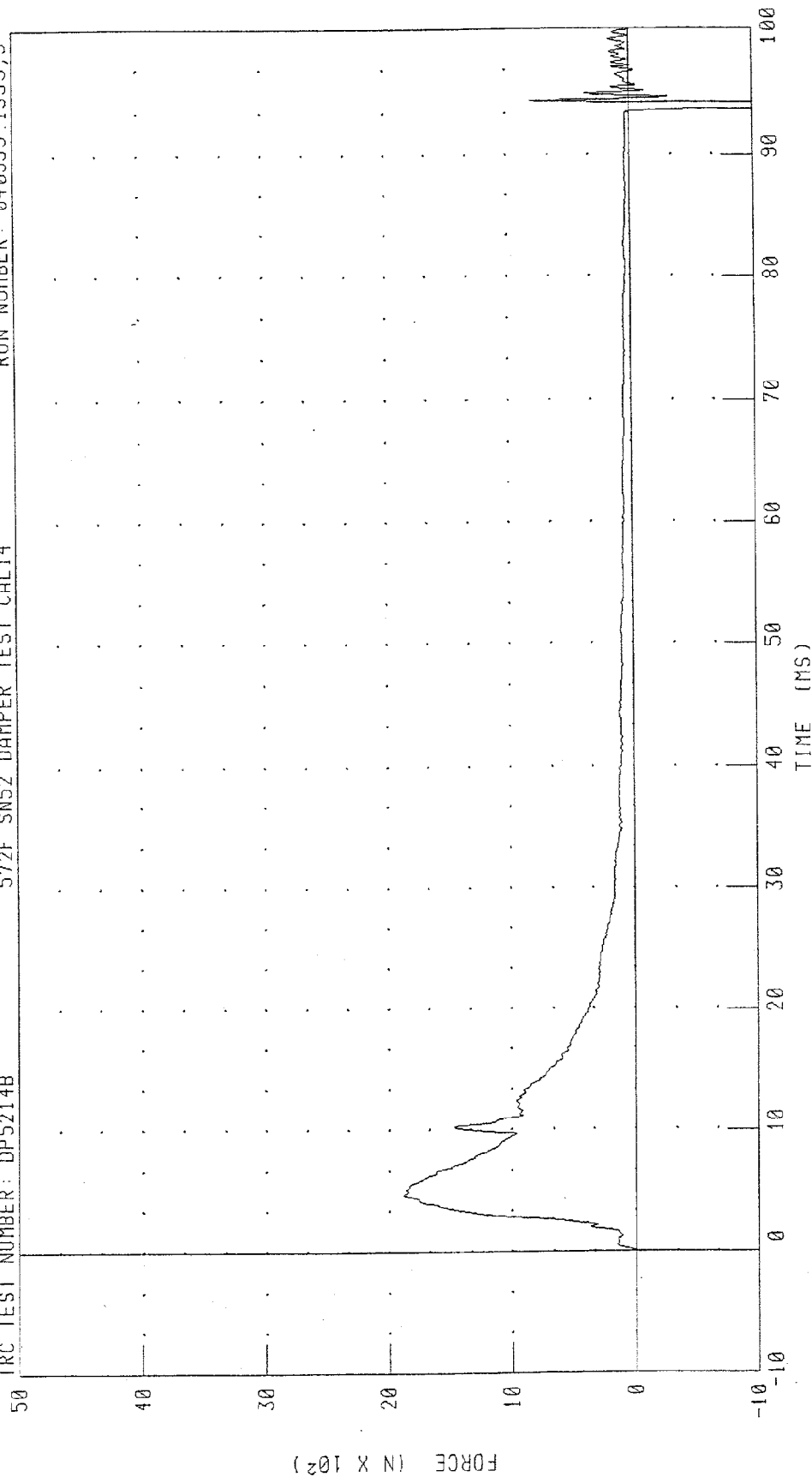
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5214B

572F SN52 DAMPER TEST CAL14

RUN NUMBER: 040999.1355,3



PEAK DATA: 1881.62 N @ 4.72 MS, -2721.83 N @ 94.00 MS

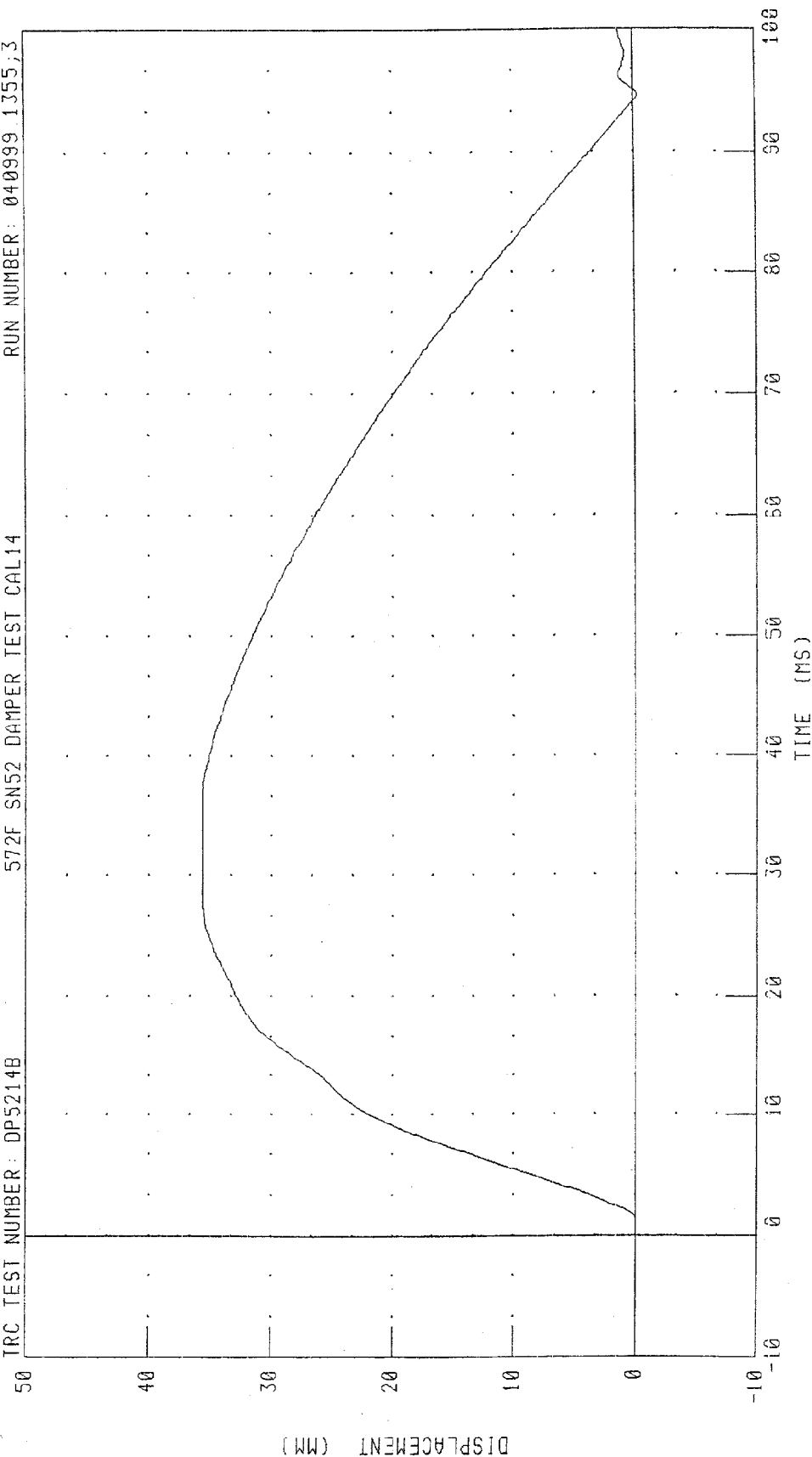
CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL14 RUN NUMBER: 040999 1355;3

TRC TEST NUMBER: DP5214B



PEAK DATA: 35.63 MM @ 28.00 MS; -0.34 MM @ 94.56 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

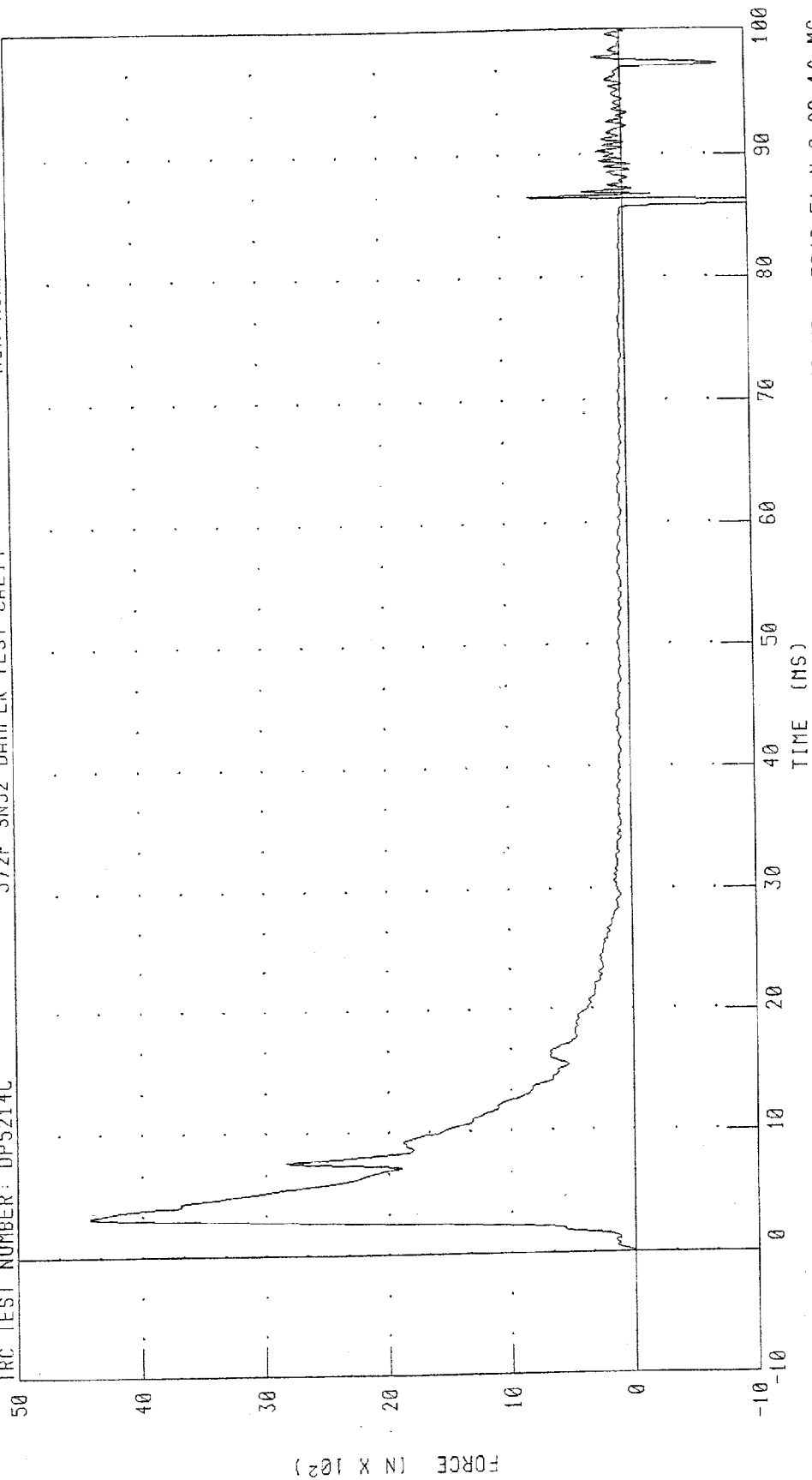
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL14

RUN NUMBER: 040999.1355,1

TRC TEST NUMBER: DP5214C



PEAK DATA: 4419.76 N @ 3.20 MS, -3042.51 N @ 86.16 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

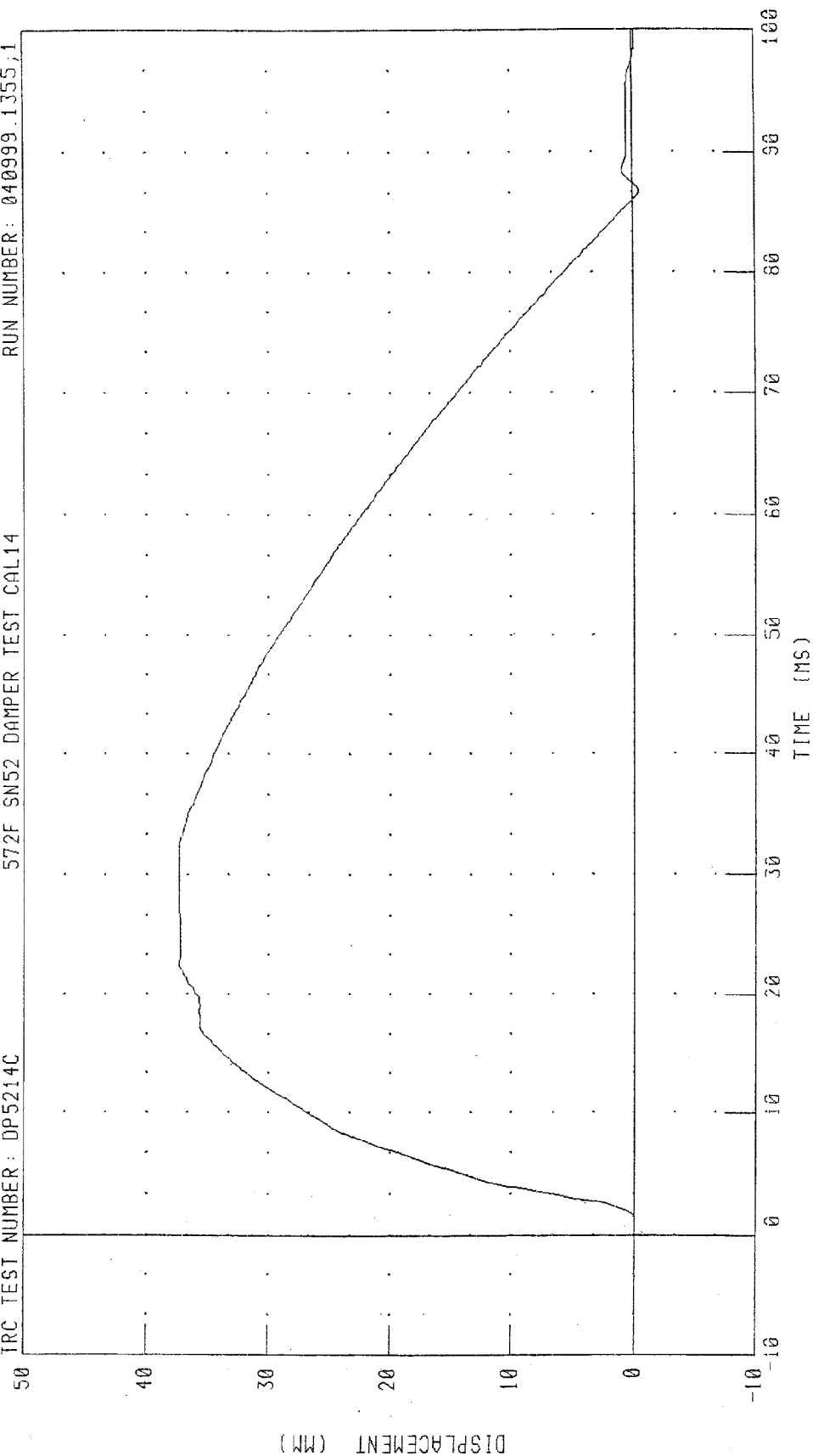
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: DP5214C

572F SN52 DAMPER TEST CAL14

RUN NUMBER: 040999.1355;1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 37.34 MM @ 27.20 MS; -0.53 MM @ 86.72 MS

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

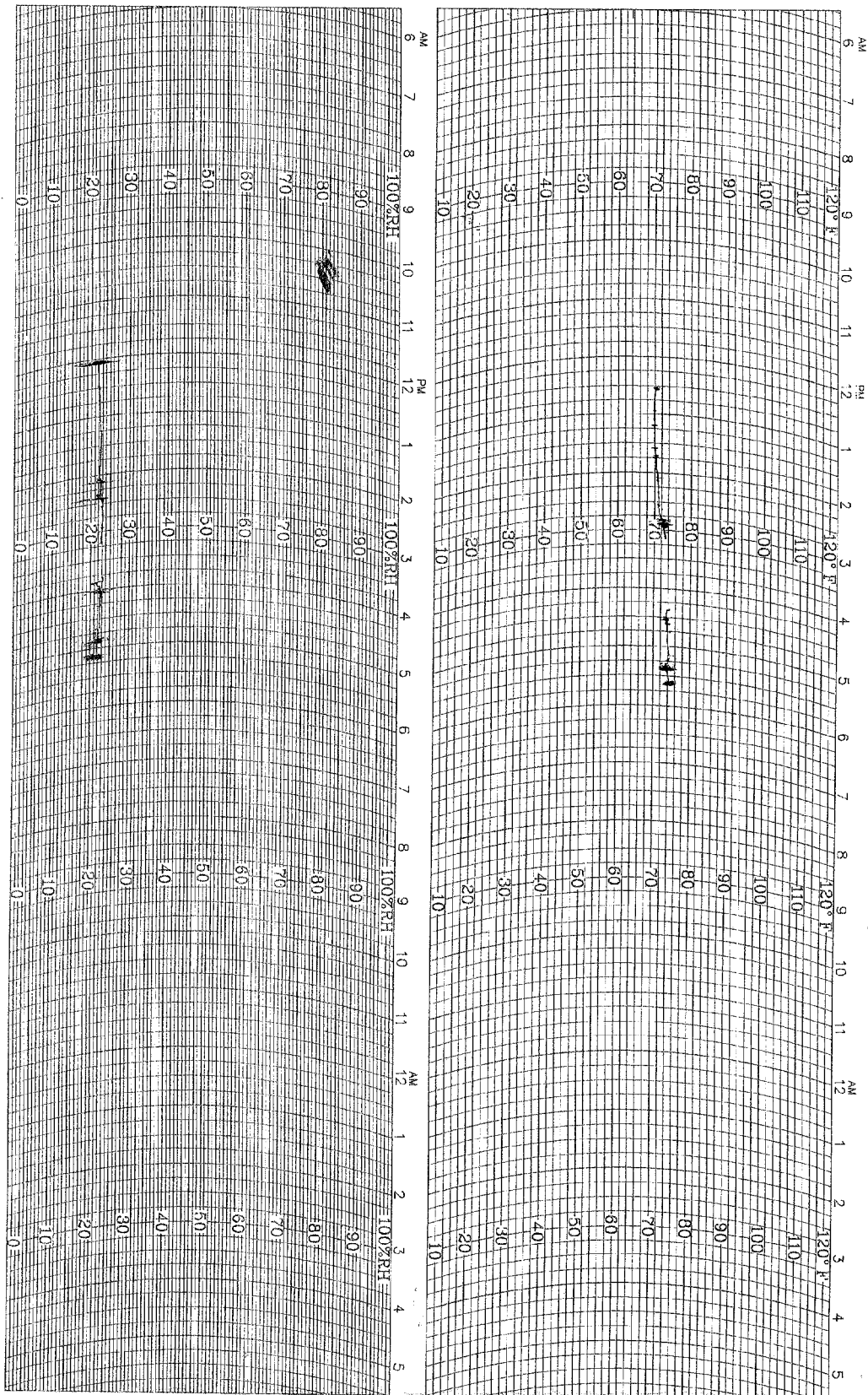
SID INSTRUMENTATION

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

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

VEHICLE AND MDB INSTRUMENTATION

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Right Front Sill (X)	J25048	Endevco	10/98
Right Front Sill (Y)	J22660	Endevco	02/99
Right Front Sill (Z)	J22740	Endevco	02/99
Right Rear Sill (X)	J27726	Endevco	02/99
Right Rear Sill (Y)	J27658	Endevco	02/99
Right Rear Sill (Z)	J27729	Endevco	02/99
Rear Floorpan Above Axle (X)	J27659	Endevco	02/99
Rear Floorpan Above Axle (Y)	J27850	Endevco	02/99
Rear Floorpan Above Axle (Z)	J27657	Endevco	02/99
Left Rear Sill (Y)	J25019	Endevco	01/99
Left Front Sill (Y)	J26538	Endevco	10/98
Right Rear Seat Occupant Comp. (Y)	J27800	Endevco	02/99
Lower Left B-Pillar (Y)	J26511	Endevco	03/99
Upper Left B-Pillar (Y)	J26523	Endevco	01/99
Lower Left A-Pillar (Y)	J26525	Endevco	03/99
Upper Left A-Pillar (Y)	J22657	Endevco	03/99
Front Seat Track (Y)	J25465	Endevco	12/98
Rear Seat Track (Y)	J25018	Endevco	10/98
Vehicle CG (X)	J27656	Endevco	02/99
Vehicle CG (Y)	J27669	Endevco	02/99
Vehicle CG (Z)	J27667	Endevco	02/99
MDB CG (X)	J22706	Endevco	02/99
MDB CG (Y)	AMT99	Endevco	10/98
MDB CG (Z)	J25991	Endevco	12/98
MDB Rear Frame Member (X)	J22677	Endevco	02/99
MDB Rear Frame Member (Y)	J21765	Endevco	02/99



WeatherMeasure
WEATHERtronics
Division of QUALMETRICS, Inc.

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

HYGROTHERMOGRAPH
1 DAY

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

STATION _____ DATE ON 3-16 DATE OFF Test 1

D-4

990316