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**Report Number: 214-TRC-03-001**

**Safety Compliance Testing For FMVSS 214**  
**Side Impact Protection**

**Mazda Motor Corporation**  
**2003 Mazda Protegé 5 4-door Hatchback**

**NHTSA Number: C35402**

**Transportation Research Center Inc.**  
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**February 27, 2003**  
**Final Report**

**U. S. Department Of Transportation**  
**National Highway Traffic Safety Administration**  
**Enforcement**  
**Office of Vehicle Safety Compliance**  
**400 Seventh Street, S. W.**  
**Room No. 6111 (NVS-220)**  
**Washington, DC 20590**

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Approval Date:

2/27/03

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:



Acceptance Date:

3/4/03

1. Report No. 214-TRC-03-001	2. Government Accession No.	3. Recipient's Catalog No.																															
4. Title and Subtitle Final Report of FMVSS 214 Compliance Side Impact Testing of a 2003 Mazda Protegé 5 4-door Hatchback NHTSA No.: C35402		5. Report Date 02/27/03																															
		6. Performing Organization Code TRC Inc.																															
7. Author(s) Virginia L. Watters, Project Manager Transportation Research Center Inc.		8. Performing Organization Report No.  030212-1																															
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		10. Work Unit No. (TRAIS)																															
		11. Contract or Grant No. DTNH22-02-D-11114																															
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, S.W., Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Report February 2003																															
		14. Sponsoring Agency Code  NVS-220																															
15. Supplemental Notes																																	
16. Abstract This 48/24 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2003 Mazda Protegé 5 4-door hatchback in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on February 12, 2003. The impact velocity of the Moving Deformable Barrier (MDB) was 52.9 km/h, and the ambient temperature at the struck (driver's side) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was undetermined. The test or target vehicle's performance is given below:																																	
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17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)		18. Distribution Statement Copies of this report are available from: NHTSA Technical Information Services (TIS) Room 5108 (NPO-230), 400 Seventh Street, S.W. Washington, DC 20590 Telephone No. (202) 366-4946 Attn: Robert Hornicle																															
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. Number of Pages 328	22. Price																														

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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. DTNH22-02-D-11114. The purpose of this test was to evaluate side impact protection in a 2003 Mazda Protegé 5 4-door hatchback. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 2001).

## Section 2

### Summary of Side Impact Test

A 2003 Mazda Protegé 5 4-door hatchback was impacted on the 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 52.9 km/h (32.9 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 February 12, 2003. Pre-test 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-06, dated July 2001). 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 (T<sub>12</sub>) 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)	59.2	51.4
PEV (g)	64.5	74.0

### Data Acquisition Explanations

The target vehicle's left side sill at front seat Y-axis acceleration data channel, LFSYG1, recorded questionable data throughout the event. This also affected the integrated velocity and displacement data channels.

The target vehicle's left front door upper centerline Y-axis acceleration data channel, LFUYG1, went open at approximately 22 milliseconds and recorded no valid data after that. This also affected the integrated velocity and displacement data channels.

The target vehicle's left middle B-post Y-axis acceleration data channel, LMBYG1, exceeded its full-scale value at approximately 50 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

The target vehicle's left middle A-post Y-axis acceleration data channel, LMAYG1, exceeded its full-scale value at approximately 22 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

**Section 3**

**Summary of Test Results**

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2003 Mazda Protegé 5  
Vehicle Body Style/Color: 4-door hatchback/Sunlight Silver Metallic  
VIN: JM1BJ245931111149  
Vehicle NHTSA No.: C35402 Build Date: 07/03  
Engine Data: 4 Cylinders;      CID; 2 Liters;      cc  
Placement:      Longitudinal; or X Lateral; or      Horizontal  
Transmission: 5 Speed; X Manual;      Automatic; X O/D  
Final Drive:      RWD; X FWD;      Four-Wheel Drive  
Odometer Reading: 86 km  
Options: X A/C; X Power steering; X Pwr. brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)\* 220 kPa Front; 220 kPa Rear  
Recommended Tire Size: P195/50R16 83V  
Tires on Test Vehicle: P195/50R16 Manufacturer: Dunlop Sport 5000

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 0 3rd seat; 5 Total  
Type of Front Seats: X Bucket;      Bench;      Split bench  
Type of Front Seat Back:      Fixed; X Adjustable with X Lever or      Knob  
Vehicle Max. Capacity Loading = 385.0 kg (A)  
No. of Occupants x 68.04 kg. = 340.2 kg (B)  
Vehicle Cargo Capacity (A-B) = 44.8 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u>369.5</u> kg	Left Rear	=	<u>258.0</u> kg
Right Front	=	<u>377.5</u> kg	Right Rear	=	<u>248.5</u> kg
Total Front	=	<u>747.0</u> kg	Total Rear	=	<u>506.5</u> kg
Front % of Total Weight	=	<u>59.6</u> %	Rear % of Total Weight	=	<u>40.4</u> %
Total Weight	=	<u>1253.5</u> kg			

\* Tire pressure used in test.

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight With Max. Fluids	=	<u>1253.5</u> kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>44.8</u> kg (B)
Weight of Instrumented Side Impact Dummies (2 X <u>84.0</u> kg)	=	<u>168.0</u> kg (C)
Test Vehicle Target Weight:	=	<u>1466.3</u> kg (A+B+C)

Fully Loaded Test Vehicle (UDW + 2 SID(s) + Cargo):

Left Front	=	<u>428.0</u> kg	Left Rear	=	<u>345.0</u> kg
Right Front	=	<u>384.0</u> kg	Right Rear	=	<u>309.5</u> kg
Total Front	=	<u>812.0</u> kg	Total Rear	=	<u>654.5</u> kg
Front % of Total Weight	=	<u>55.4</u> %	Rear % of Total Weight	=	<u>44.6</u> %
Total Weight	=	<u>1466.5</u> kg			

As Tested Weight of Test Vehicle (2 SID(s) + Cargo + Equipment & Instrumentation):

Left Front	=	<u>407.8</u> kg	Left Rear	=	<u>332.2</u> kg
Right Front	=	<u>396.6</u> kg	Right Rear	=	<u>325.4</u> kg
Total Front	=	<u>804.4</u> kg	Total Rear	=	<u>657.6</u> kg
Front % of Total Weight	=	<u>55.0</u> %	Rear % of Total Weight	=	<u>45.0</u> %
Total Weight	=	<u>1462.0</u> kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>655</u>	Right Front <u>646</u>	Right Front <u>636</u>
Left Front <u>652</u>	Left Front <u>628</u>	Left Front <u>631</u>
Right Rear <u>660</u>	Right Rear <u>624</u>	Right Rear <u>609</u>
Left Rear <u>658</u>	Left Rear <u>608</u>	Left Rear <u>608</u>

Test Vehicle Wheelbase: 2610 mm

C.G. = 1174.0 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side	=	<u>4192</u> mm
Left Side	=	<u>4184</u> mm
Centerline	=	<u>4308</u> mm

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2003 Mazda Protegé 4-door hatchback

NHTSA No.: C35402

Front Seat Cushion Placement: Mid (8<sup>th</sup> latch position rearward of most forward position)

Total Length of Fore/Aft Adjustment Travel: 240 mm

Total Number of Adjustment Positions or Detents: 17

Front Seat Back Adjustment Position: The back was adjusted to the 5<sup>th</sup> latch rearward of the first detent.

Seat Back Torso Angle: 14.5 degrees

Second Position Seat Placement: Not adjustable

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

Seat Back Adjustment Position: Not adjustable

Adjustable Steering Column Position: Mid (67.6° angle within tilt range of 70.3° - 65.0°)

Window Positions:

Right Front: Open

Right Rear: Open

Left Front: Closed

Left Rear: Closed

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:

55.0 liters (fuel tank usable capacity)

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

Location of Impact Point On Test Vehicle Side To Be Impacted:

Wheelbase = 2610 millimeters

Intended impact point is 365 millimeters rearward of front axle centerline  
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 372 millimeters rearward of front axle centerline

Remarks:

Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2003/Mazda/Protegé 5 Body Style: 4-door hatchback  
VIN: JM1BJ24593111114 Build Date: 07/02  
NHTSA No.: C35402 Test Date: 2/12/03

Vehicle Overall Length = 4308 mm Overall Width = 1687 mm

Vehicle Test Weight (Pre-Test):

Left Front	=	<u>407.8</u>	kg	Left Rear	=	<u>332.2</u>	kg
Right Front	=	<u>396.6</u>	kg	Right Rear	=	<u>325.4</u>	kg
Total Front	=	<u>804.4</u>	kg	Total Rear	=	<u>657.6</u>	kg
Total Weight	=	<u>1462.0</u>	kg				
Wheelbase	=	<u>2610</u>	mm				

Longitudinal C.G. From Center Of Front Axle = 1174 mm

Impact Angle With Respect To Impactor = 270 degrees

Impact Point:

Actual Impact Point is 7 mm right of nominal impact ref. line (Lateral)

Actual Impact Point is 1 mm up from nominal impact point (Vertical)

Maximum Exterior Static Crush:<sup>1</sup>

1. Level 1 (	<u>218</u>	mm above ground) =	<u>---</u>	mm
2. Level 2 (	<u>479</u>	mm above ground) =	<u>---</u>	mm
3. Level 3 (	<u>617</u>	mm above ground) =	<u>---</u>	mm
4. Level 4 (	<u>865</u>	mm above ground) =	<u>---</u>	mm
5. Level 5 (	<u>1359</u>	mm above ground) =	<u>---</u>	mm

Maximum Post-Test Intrusion = --- mm

Occupants:

Front Passenger

Rear Passenger

Dummy Identification SID 065 SID 066

Restraints Used 3-pt seat belt 3-pt seat belt

Instrumentation:

Number of Vehicle Data Channels: = 26

Number of Cameras: Onboard = 3 Offboard = 7 Total = 10

<sup>1</sup> Exterior crush data not available because struck side doors were opened after the test before post-test measurements were taken.

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, S/N: 049A0602-2, 058B0502

Position Of Impactor (MDB) On Monorail:

Crabbed 27° to the Left

MDB Specifications:

Overall Width of Framework Carriage = 1251 mm  
Overall Length of MDB (Incl. honeycomb impact face) = 4014 mm  
Wheelbase of Framework Carriage = 2591 mm  
Track of Framework Carriage (Front & Rear) = 1881 mm  
C.G. Location Rearward of Front Axle = 1115.0 mm

MDB Weight:

Left Front = 408.8 kg      Left Rear = 275.0 kg  
Right Front = 368.8 kg      Right Rear = 312.8 kg  
Total Front = 777.6 kg      Total Rear = 587.8 kg  
Total MDB Weight = 1365.4 kg  
Impact Angle (MDB C/L to Target Vehicle C/L) = 90 degrees  
Impact Speed = 52.9 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level = 78 millimeters  
2. Row B at Top of Bumper Level = 66 millimeters  
3. Row C at Mid Level = 100 millimeters  
4. Row D at Top of Stack Level = 130 millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Visible Dummy Contact Points:

	<u>Left Front SID</u>	<u>Left Rear SID</u>
Head:	<u>Left shoulder, head restraint</u>	<u>C-pillar, head restraint</u>
Upper Torso:	<u>Door</u>	<u>Door</u>
Lower Torso:	<u>Door</u>	<u>Door</u>
Left Knee:	<u>Door</u>	<u>Door</u>
Right Knee:	<u>Left knee</u>	<u>Left knee</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed shut &amp; latched</u>	<u>Latched &amp; operational</u>
Rear:	<u>Jammed shut &amp; latched</u>	<u>Latched &amp; operational</u>

MDB Distance From Target Impact Point:

Vertical: 1 mm up from target  
Horizontal: 7 mm right from target

Arm Rest Locations:

Front: 217 mm below the bottom of the window  
Rear: 237 mm below the bottom of the window

Seat Movement:

Front: No seat track movement; seat back bent inboard  
Rear: No seat track movement; seat back bent inboard

Glazing Damage:

Windshield: Broken on driver's side  
Window: Both left side door windows broke

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

\_\_\_\_\_

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID Instrumentation Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

DRIVER DUMMY SERIAL NUMBER: 065

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	51.9 g	@ 35.6 ms	18.2 g	@ 69.4 ms
LATERAL (R)	51.7 g	@ 35.6 ms	18.4 g	@ 69.4 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	50.3 g	@ 30.0 ms	15.5 g	@ 70.0 ms
LATERAL (R)	50.5 g	@ 30.0 ms	15.9 g	@ 70.0 ms
TTI d (P)	59.2			
TTI d (R)	58.5			

LOWER SPINE ACCELERATION

LATERAL (P)	66.5 g	@ 35.0 ms	14.2 g	@ 63.1 ms
LATERAL (R)	65.3 g	@ 34.4 ms	14.1 g	@ 63.1 ms

PELVIS ACCELERATION

LATERAL (P)	64.5 g	@ 31.3 ms	9.1 g	@ 52.5 ms
LATERAL (R)	64.5 g	@ 31.3 ms	9.1 g	@ 52.5 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: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

PASSENGER DUMMY SERIAL NUMBER: 066

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (F)	45.6 g	@ 42.5 ms	6.2 g	@ 118.8 ms
LATERAL (R)	44.1 g	@ 42.5 ms	7.1 g	@ 118.8 ms

LEFT LOWER RIB ACCELERATION

LATERAL (F)	49.1 g	@ 43.1 ms	9.4 g	@ 118.1 ms
LATERAL (R)	47.4 g	@ 43.1 ms	9.7 g	@ 118.1 ms
TTI d (P)	51.4			
TTI d (R)	50.4			

LOWER SPINE ACCELERATION

LATERAL (F)	53.7 g	@ 49.4 ms	8.0 g	@ 122.5 ms
LATERAL (R)	53.3 g	@ 49.4 ms	8.3 g	@ 122.5 ms

PELVIS ACCELERATION

LATERAL (P)	74.0 g	@ 45.6 ms	5.3 g	@ 103.1 ms
LATERAL (R)	73.5 g	@ 45.6 ms	5.3 g	@ 103.1 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD  
LATERAL: RIGHTWARD  
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

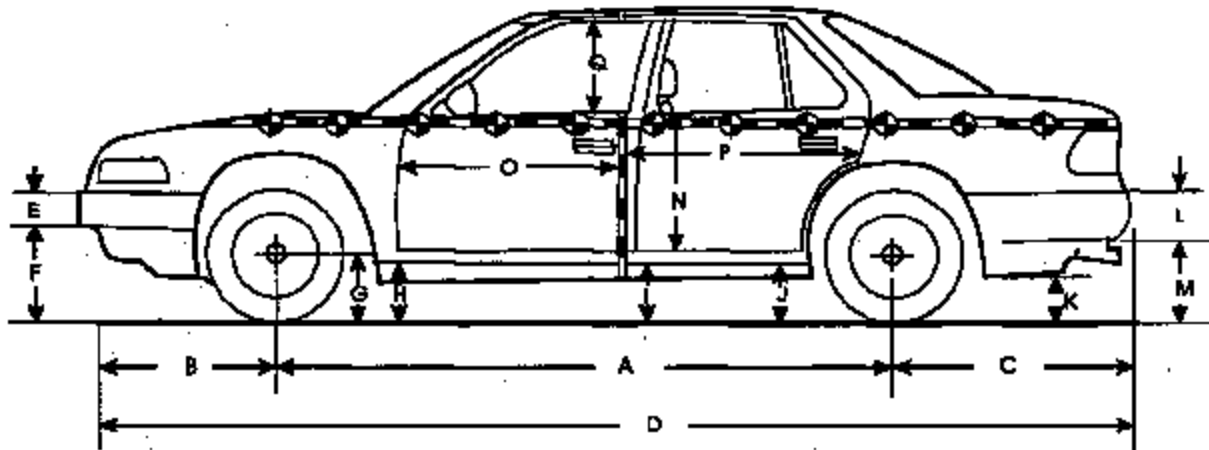
LONGITUDINAL: REARWARD  
LATERAL: LEFTWARD  
VERTICAL: UPWARD

## Data Sheet 6

### Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Left Side View

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

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2610	2610	2581	29
B	875	875	873	2
C	850	850	860	-10
D	4308	4308	4307	1
E	340	340	340	0
F	232	223	236	-13
G	281	281	285	-4
H	191	170	188 <sup>1</sup>	-18 <sup>1</sup>
I	206	171	192 <sup>1</sup>	-21 <sup>1</sup>
J1	202	159	150	9
J2	207	165	178 <sup>1</sup>	-13 <sup>1</sup>
K	275	229	210	19
L	253	253	253	0
M	325	275	248	27
N	670	670	590	80
O	670	670	— <sup>2</sup>	— <sup>2</sup>
P	1355	1355	— <sup>2</sup>	— <sup>2</sup>
Q	450	450	— <sup>2</sup>	— <sup>2</sup>
R	4192	4192	4180	12
S	4184	4184	4165	19
T	1306	1306	1545	-239

D = Length at centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

F = Width at B-pillar

J1 = To Pinch Weld

J2 = To Side

<sup>1</sup> Approximate location was re-established after molding with measurement point came off during crush.

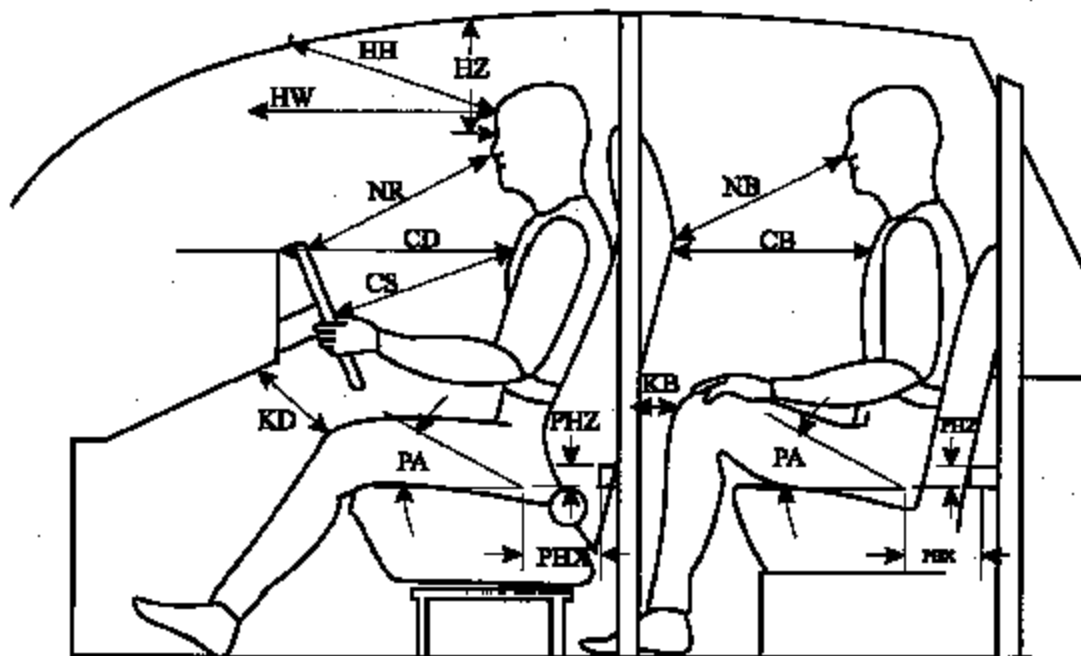
<sup>2</sup> No valid measurement could be taken because door was damaged during opening, before measurements were taken.

Data Sheet 7

SID Longitudinal Clearance Dimensions

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Left Side View

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

Measurement	Driver SID # 65	Left Rear Pass. SID # 66
HH	301	N/A
HW	542	N/A
HZ	165	184
NR/NB	422	613
CD/CB	515	571
CS	321	N/A
KDL(KDA°)/KBL(KBA°)	133(31.2°)	250(21.3°)
KDR(KDA°)/KBR(KBA°)	124(29.4°)	235(31.3°)
PA°	23.3°	23.7°
PHX	219	275
PHZ	128	324

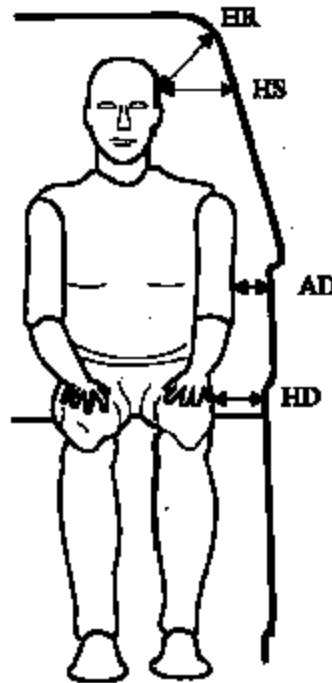
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



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

Measurement	Driver SID # 65	Left Rear Pass. SID # 66
HR	169	198
HS	275	305
AD*	Lower: 96      Upper: 78	Lower: 99      Upper: 95
HD	128	162

\* 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.

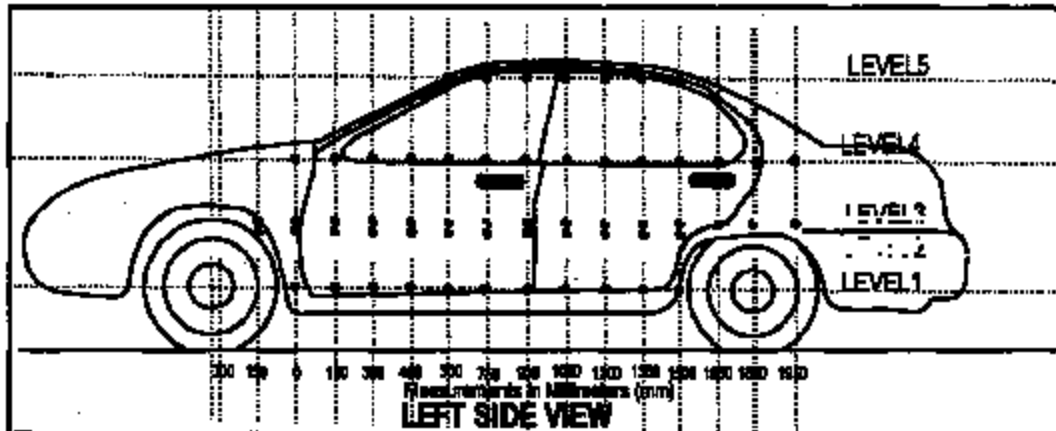
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



- 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>1359</u>	mm
Level 4 @ Window Sill	=	<u>865</u>	mm
Level 3 @ Mid Door	=	<u>617</u>	mm
Level 2 @ Occupant H-Point	=	<u>479</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>218</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Location	Height	(mm) From Impact Point														
		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	
Level 1 Side Sill	218	Pre <sup>1</sup>	---	697	665	---	---	---	---	675	670	672	---	---	672	
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
Level 2 H-Point	479	Pre <sup>1</sup>	---	721	684	---	---	---	---	658	648	658	658	658		
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
Level 3 Mid-Door	617	Pre <sup>1</sup>	---	726	702	658	---	---	650	658	653	654	655	653		
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
Level 4 Window Sill	865	Pre <sup>1</sup>	---	830	790	768	746	735	726	719	710	707	704	700		
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
Level 5 Window Top	1359	Pre <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	940		
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Location	Height	(mm) From Impact Point														
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	218	Pre <sup>1</sup>	673	673	673	678	674	683	683	---	---	---	---	---	700	
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
Level 2 H-Point	479	Pre <sup>1</sup>	660	658	656	657	661	663	666	---	---	---	---	---	---	
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
Level 3 Mid-Door	617	Pre <sup>1</sup>	656	653	653	652	656	662	662	660	---	---	---	---	---	
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	
Level 4 Window Sill	865	Pre <sup>1</sup>	698	694	691	692	696	695	700	703	710	720	730	743		
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
Level 5 Window Top	1359	Pre <sup>1</sup>	925	921	920	923	923	921	925	932	940	963	983	---		
		Post <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush <sup>1</sup>	---	---	---	---	---	---	---	---	---	---	---	---		

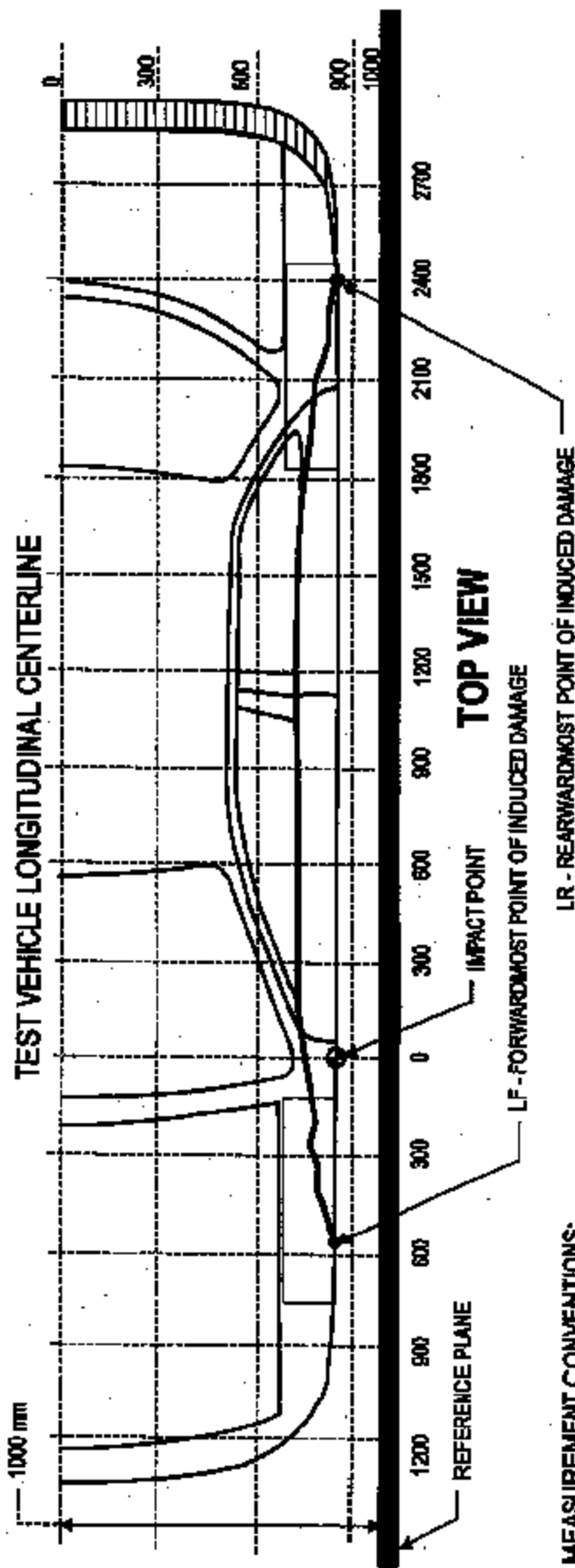
<sup>1</sup> No post crush measurements or crush differences are available because struck side doors were opened before post-test measurements were taken.

## Vehicle Damage Profile Distances

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

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

**MEASUREMENT CONVENTIONS:**

Forward of the impact point (towards front of vehicle) is considered negative (-)

Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DPD Measurements	Post-Test (mm) <sup>1</sup>	Pre-Test (mm)	Static Crush (mm) <sup>1</sup>
6: LF = -300 mm (Level 4)	---	735	---
5: 300 mm (Level 4)	---	710	---
4: 900 mm (Level 4)	---	698	---
3: 1500 mm (Level 4)	---	696	---
2: 2100 mm (Level 4)	---	703	---
1: LR = 2400 mm (Level 4)	---	720	---

<sup>1</sup> Struck side doors were opened before post-test measurements were taken. Full length of induced damage was -200 to 2270 mm.

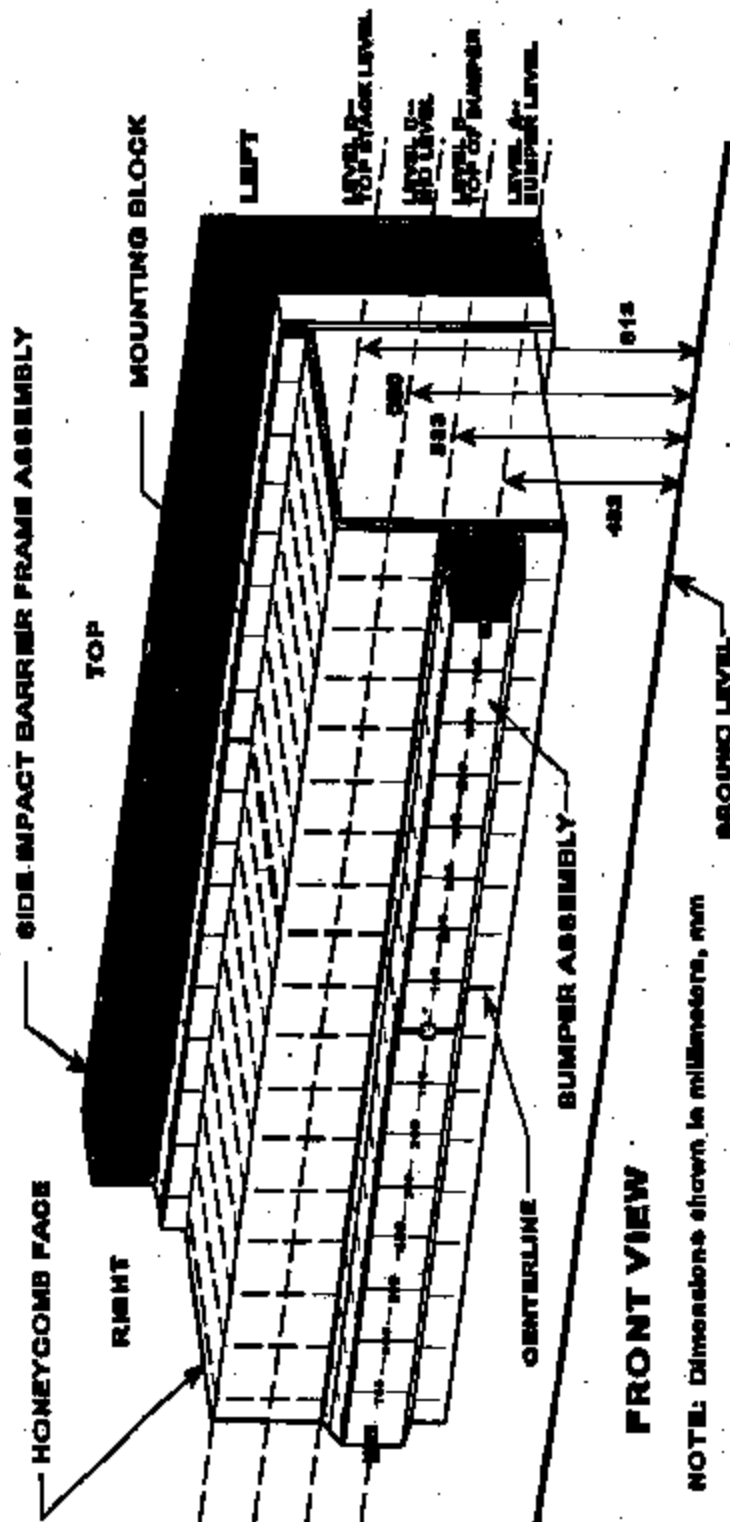
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



**FRONT VIEW**

NOTE: Dimensions shown in millimeters, mm

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C3540Z

Location	Height At CL	Distance Right of Center (mm)								Distance Left of Center (mm)								
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level - Level D	814	-35	2	5	4	3	1	1	-1	1	1	-1	-1	1	-1	-1	-2	-130
Mid Level - Level C	685	-36	-2	2	1	0	-5	-5	-1	-2	0	1	-1	-2	-10	-57	-100	
Top Bumper Level - Level B	560	-66	-34	-10	-6	-6	-6	-3	-1	-1	-2	0	0	0	-6	-27	-33	
Mid Bumper Level - Level A	432	-50	-49	-48	-48	-50	-38	-33	-27	-28	-28	-33	-29	-36	-52	-72	-78	

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

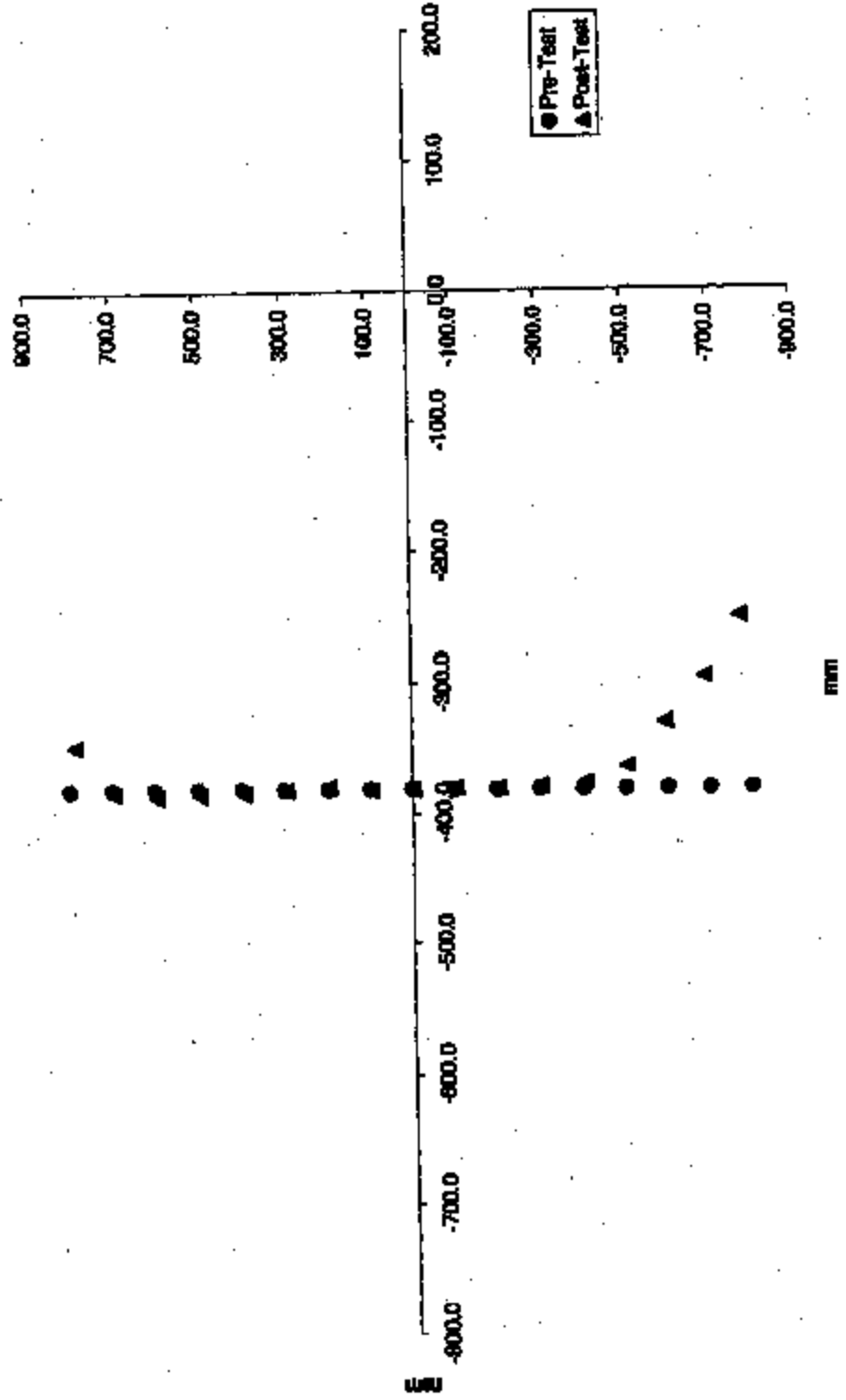
Data Sheet 12 (Continued)

Exterior Static Crush For Inspector Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level D - Deformable Barrier Face Profile 1-17



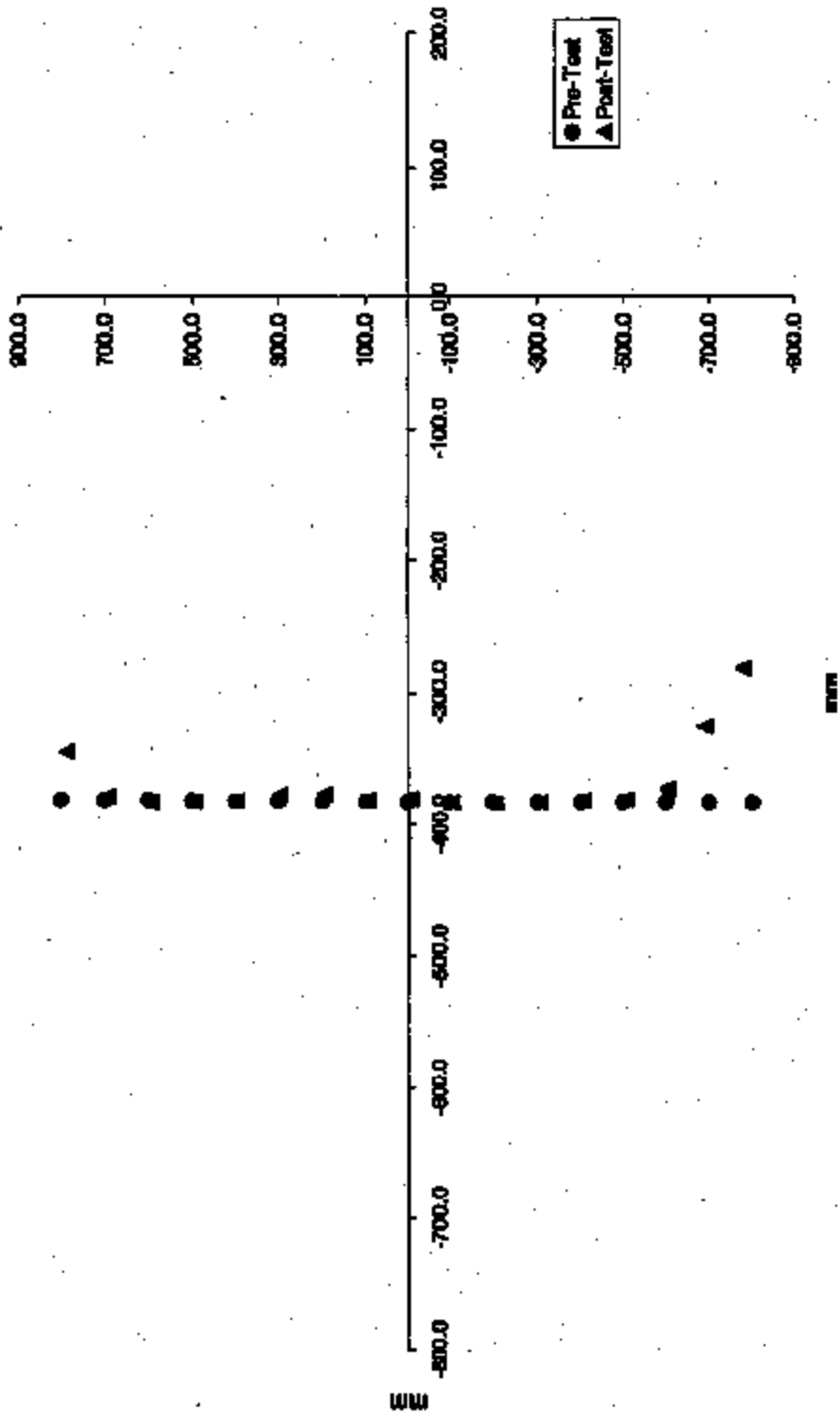
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level C - Deformable Barrier Face Profile 1B-34



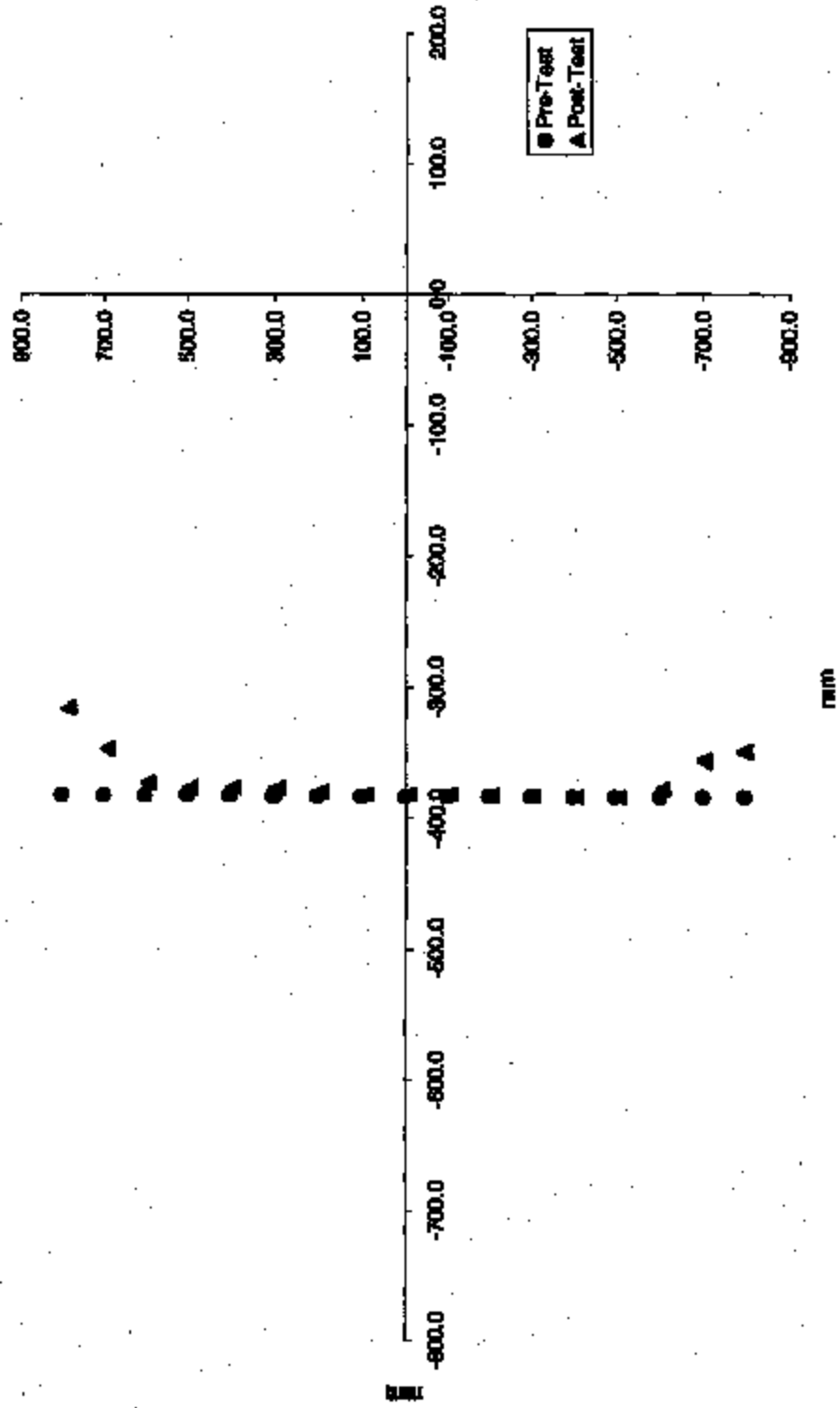
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

**Level B - Deformable Barrier Face Profile 35-51**



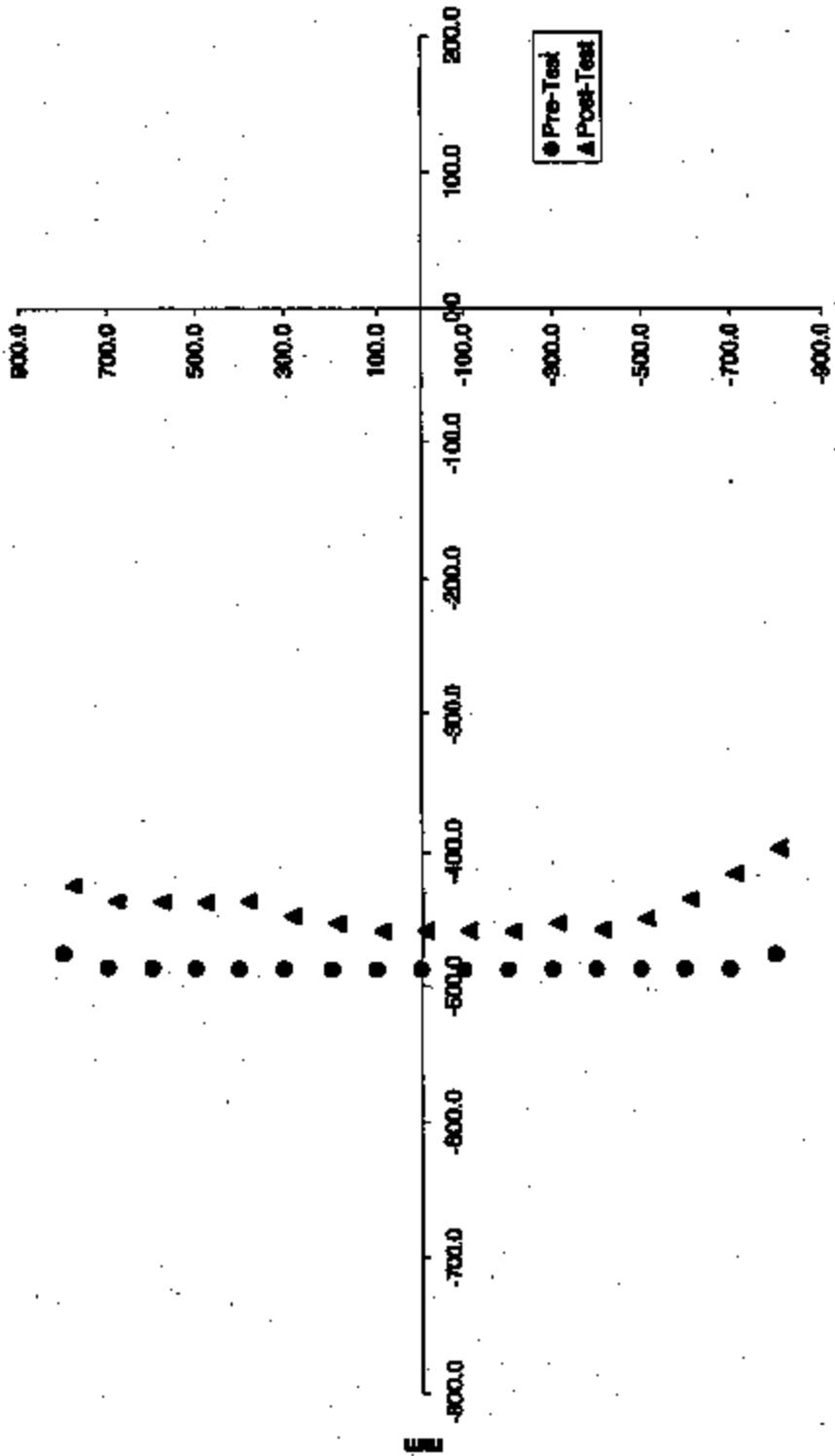
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level A - Deformable Barrier Face Profile 52-68



mm

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile

Level D - Top Stack

Index	Pre-Test		
	Xmm	Ymm	Zmm
1	-381	801	-39
2	-381	701	-40
3	-381	600	-40
4	-381	500	-41
5	-381	400	-41
6	-381	301	-41
7	-381	200	-42
8	-382	100	-42
9	-382	0	-43
10	-382	-100	-43
11	-382	-199	-44
12	-382	-300	-44
13	-382	-400	-44
14	-382	-500	-45
15	-382	-600	-45
16	-383	-700	-46
17	-383	-800	-46

Post-Test

Index	Post-Test		
	Xmm	Ymm	Zmm
1	-346	790	-53
2	-383	698	-53
3	-386	598	-52
4	-385	497	-50
5	-384	397	-49
6	-382	298	-47
7	-380	197	-46
8	-382	97	-44
9	-382	4	-43
10	-381	-103	-41
11	-381	-203	-39
12	-380	-303	-38
13	-378	-403	-38
14	-365	-502	-38
15	-331	-595	-44
16	-296	-688	-50
17	-252	-776	-58

Difference

Index	Difference		
	Xmm	Ymm	Zmm
1	-35	12	14
2	2	3	13
3	5	3	11
4	4	3	9
5	3	3	7
6	1	3	5
7	-1	3	3
8	1	3	2
9	1	3	0
10	-1	3	-2
11	-1	4	-4
12	-2	4	-6
13	-4	4	-7
14	-17	2	-7
15	-51	-5	-2
16	-86	-12	4
17	-130	-24	12

Data Sheet 12 (Continued)  
 Exterior Static Crush For Impactor Face  
 Deformable Barrier Face Profile Cont'd

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-381	802	-167
19	-381	701	-168
20	-381	601	-169
21	-381	501	-169
22	-382	401	-170
23	-382	302	-171
24	-382	202	-171
25	-382	100	-171
26	-382	0	-172
27	-383	-99	-172
28	-382	-199	-172
29	-382	-299	-173
30	-382	-399	-173
31	-382	-499	-173
32	-382	-598	-174
33	-383	-699	-175
34	-383	-800	-176

Post-Test

Index	Xmm	Ymm	Zmm
18	-345	789	-181
19	-379	695	-182
20	-383	595	-180
21	-383	496	-179
22	-382	396	-178
23	-377	296	-176
24	-377	196	-175
25	-381	95	-173
26	-380	-5	-171
27	-383	-104	-170
28	-383	-204	-168
29	-383	-305	-167
30	-382	-405	-165
31	-381	-505	-164
32	-373	-603	-165
33	-326	-690	-174
34	-283	-780	-183

Difference

Index	Xmm	Ymm	Zmm
18	-36	13	14
19	-2	6	13
20	2	5	11
21	1	5	10
22	0	5	8
23	-5	5	6
24	-5	5	3
25	-1	5	1
26	-2	5	-1
27	0	5	-2
28	1	5	-4
29	0	5	-6
30	-1	6	-8
31	-2	6	-9
32	-10	5	-9
33	-57	-8	-1
34	-100	-20	7

Data Sheet 12 (Continued)

Exterior Static Crush For Impact Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper

Index	Pre-Test		
	Xmm	Ymm	Zmm
35	-381	802	-294
36	-382	701	-294
37	-382	602	-294
38	-382	501	-296
39	-382	402	-295
40	-382	302	-295
41	-382	202	-296
42	-383	101	-297
43	-383	1	-298
44	-383	-99	-298
45	-383	-199	-298
46	-383	-298	-299
47	-383	-399	-299
48	-383	-499	-300
49	-383	-599	-301
50	-383	-699	-301
51	-383	-799	-301

Post-Test

Index	Post-Test		
	Xmm	Ymm	Zmm
35	-316	785	-295
36	-348	689	-301
37	-372	593	-304
38	-376	493	-304
39	-376	394	-302
40	-376	294	-299
41	-379	194	-299
42	-381	93	-298
43	-381	-7	-297
44	-381	-107	-295
45	-382	-207	-294
46	-382	-306	-292
47	-384	-407	-290
48	-383	-506	-289
49	-377	-607	-288
50	-356	-704	-284
51	-350	-800	-286

Difference

Index	Difference		
	Xmm	Ymm	Zmm
35	-66	17	1
36	-34	12	7
37	-9	9	10
38	-6	8	9
39	-6	8	7
40	-6	8	4
41	-3	8	3
42	-1	8	1
43	-1	8	-1
44	-2	8	-4
45	-1	8	-5
46	0	8	-7
47	0	8	-8
48	0	8	-10
49	-6	8	-12
50	-27	5	-17
51	-33	1	-16

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35492

Deformable Barrier Face Profile Cont'd.

Level A - Mid Bumper

Pre-Test			
Index	Xmm	Ymm	Zmm
52	-474	801	-418
53	-485	702	-418
54	-485	602	-419
55	-486	502	-420
56	-486	403	-421
57	-486	302	-422
58	-487	202	-422
59	-487	102	-424
60	-487	2	-424
61	-487	-98	-425
62	-487	-198	-425
63	-487	-297	-426
64	-487	-398	-426
65	-487	-498	-427
66	-487	-597	-428
67	-487	-698	-428
68	-476	-795	-430

Post-Test

Index	Xmm	Ymm	Zmm
52	-424	780	-441
53	-436	681	-440
54	-437	581	-439
55	-438	481	-436
56	-436	382	-434
57	-448	283	-435
58	-454	190	-437
59	-460	90	-438
60	-459	-10	-437
61	-459	-110	-434
62	-459	-211	-436
63	-454	-310	-433
64	-458	-410	-433
65	-450	-510	-431
66	-435	-609	-428
67	-415	-707	-424
68	-398	-804	-422

Difference

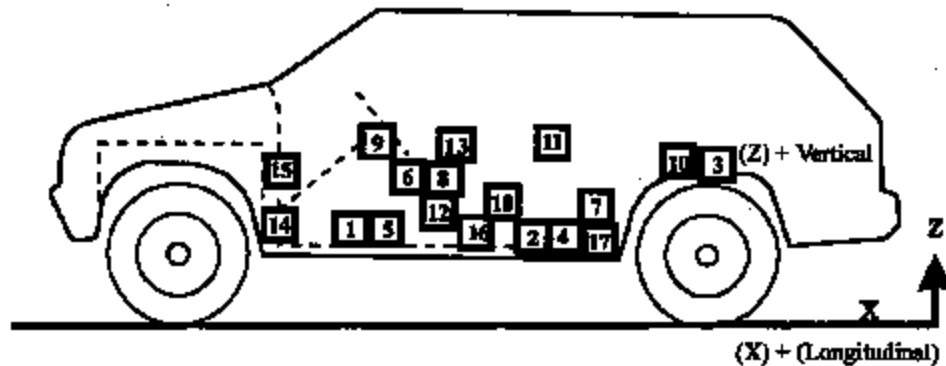
Index	Xmm	Ymm	Zmm
52	-50	21	22
53	-49	21	22
54	-48	21	20
55	-48	21	16
56	-50	21	13
57	-38	19	13
58	-33	12	15
59	-27	12	14
60	-28	12	13
61	-28	12	9
62	-28	12	10
63	-33	13	7
64	-29	13	6
65	-36	13	4
66	-52	12	0
67	-72	9	-4
68	-78	9	-8

Data Sheet 13

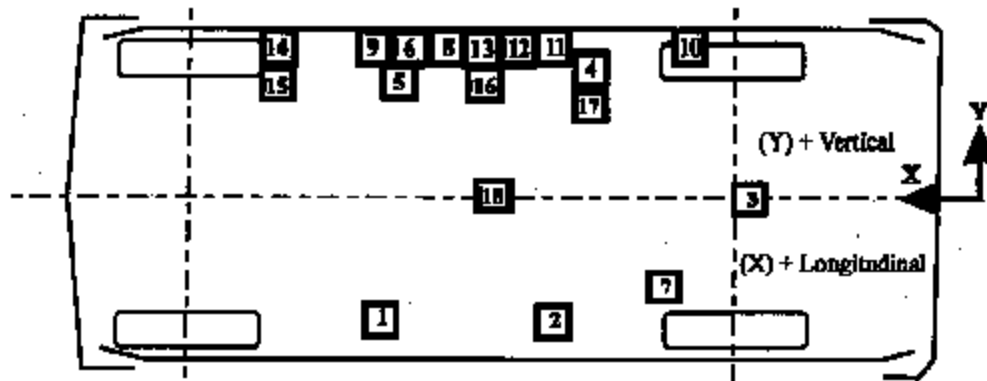
Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Side View



Bottom View

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

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

TEST NO.	LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1	RIGHT SIDE SILL AT FRONT SEAT	2660 mm	670 mm	-256 mm		
	LONGITUDINAL				25.6 g @ 31.8 ms	4.8 g @ 26.1 ms
	LATERAL				21.1 g @ 9.2 ms	2.3 g @ 293.6 ms
	VERTICAL				2.7 g @ 125.3 ms	5.4 g @ 8.8 ms
	RESULTANT				27.3 g @ 31.8 ms	
2	RIGHT SIDE SILL AT REAR SEAT	1670 mm	660 mm	-257 mm		
	LONGITUDINAL				3.6 g @ 47.5 ms	5.3 g @ 33.9 ms
	LATERAL				19.2 g @ 23.5 ms	2.2 g @ 125.3 ms
	VERTICAL				4.3 g @ 37.8 ms	4.9 g @ 13.0 ms
	RESULTANT				19.5 g @ 23.4 ms	
3	REAR FLOORPAN ABOVE AXLE	880 mm	0 mm	-451 mm		
	LONGITUDINAL				1.5 g @ 130.2 ms	7.2 g @ 29.2 ms
	LATERAL				20.1 g @ 35.0 ms	2.3 g @ 160.7 ms
	VERTICAL				10.1 g @ 21.7 ms	8.1 g @ 25.5 ms
	RESULTANT				21.6 g @ 33.9 ms	
4	LEFT SIDE SILL AT REAR SEAT	1694 mm	-660 mm	-273 mm		
	LATERAL				36.7 g @ 6.3 ms	4.7 g @ 172.6 ms
5	LEFT SIDE SILL AT FRONT SEAT	2669 mm	-670 mm	-216 mm		
	LATERAL				20.6 g @ 15.4 ms	37.9 g @ 8.2 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

TEST NO.	LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
6	LEFT FRONT DOOR ON CENTERLINE LATERAL	2415 mm	-746 mm	-590 mm	196.5 g @ 8.8 ms	92.0 g @ 26.9 ms
7	RIGHT REAR OCCUPANT COMPARTMENT LATERAL	1570 mm	625 mm	-327 mm	20.0 g @ 23.4 ms	2.3 g @ 125.5 ms
8	LEFT FRONT DOOR MIDREAR LATERAL	2070 mm	-720 mm	-590 mm	130.2 g @ 7.1 ms	49.8 g @ 22.8 ms
9	LEFT FRONT DOOR UPPER CENTERLINE LATERAL 1	2415 mm	-715 mm	-845 mm	-----	-----
10	LEFT REAR SIDE PANEL MIDREAR LATERAL	1190 mm	-715 mm	-579 mm	52.8 g @ 7.5 ms	32.1 g @ 174.5 ms
11	LEFT REAR SIDE PANEL UPPER CENTERLINE LATERAL	1420 mm	-705 mm	-877 mm	205.1 g @ 24.6 ms	133.5 g @ 35.3 ms
12	LEFT LOWER B-POST LATERAL	1800 mm	-690 mm	-343 mm	117.0 g @ 5.5 ms	18.0 g @ 31.4 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

No. LOCATION

POSITIVE DIRECTION

NEGATIVE DIRECTION

X

Y

Z

13	LEFT MIDDLE B-POST LATERAL <sup>1</sup>	1865 mm	-700 mm	-829 mm	-----	-----	-----	-----	-----
14	LEFT LOWER A-POST LATERAL	2905 mm	-760 mm	-385 mm	123.6 g	@	3.9 ms	32.7 g	@ 28.5 ms
15	LEFT MIDDLE A-POST LATERAL <sup>1</sup>	2905 mm	-750 mm	-620 mm	-----	@	-----	-----	@
16	LEFT FRONT SEAT TRACK LATERAL	2239 mm	-670 mm	-226 mm	61.6 g	@	6.1 ms	24.2 g	@ 30.6 ms
17	LEFT REAR SEAT TRACK LATERAL	1493 mm	-625 mm	-340 mm	20.9 g	@	11.4 ms	2.3 g	@ 173.8 ms
18	VEHICLE CENTER OF GRAVITY	2257 mm	0 mm	-354 mm					
	LONGITUDINAL				3.0 g	@	45.2 ms	8.7 g	@ 23.6 ms
	LATERAL				24.4 g	@	18.7 ms	4.3 g	@ 125.2 ms
	VERTICAL				14.4 g	@	7.0 ms	6.5 g	@ 28.1 ms
	RESULTANT				25.6 g	@	18.8 ms		

MEASUREMENT REFERENCE: X: + FORWARD FROM REAR BUMPER

Y: + RIGHTWARD FROM VEHICLE CENTERLINE

Z: + DOWNWARD FROM GROUND LEVEL

For acceleration data sign convention, see Report Sign Convention in Appendix D.

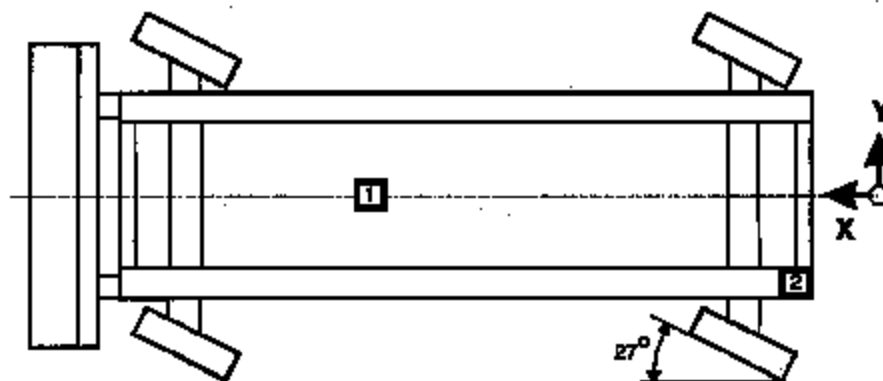
<sup>1</sup> See Data Acquisition Explanations

Data Sheet 14

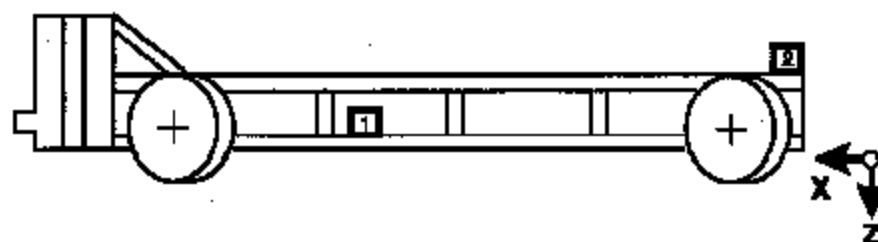
MDB Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



TOP VIEW



SIDE VIEW

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1853	0	-519				
	Longitudinal X				1.7	146.4	-19.6	41.2
	Lateral Y				9.7	11.1	-7.4	36.5
	Vertical Z				4.3	39.0	-2.8	119.0
	Resultant R				19.9	40.8	0.1	-10.6
2	Rear Frame Member	411	-738	-628				
	Longitudinal X				2.2	132.2	-21.0	35.3
	Lateral Y				3.2	23.8	-2.1	56.2

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

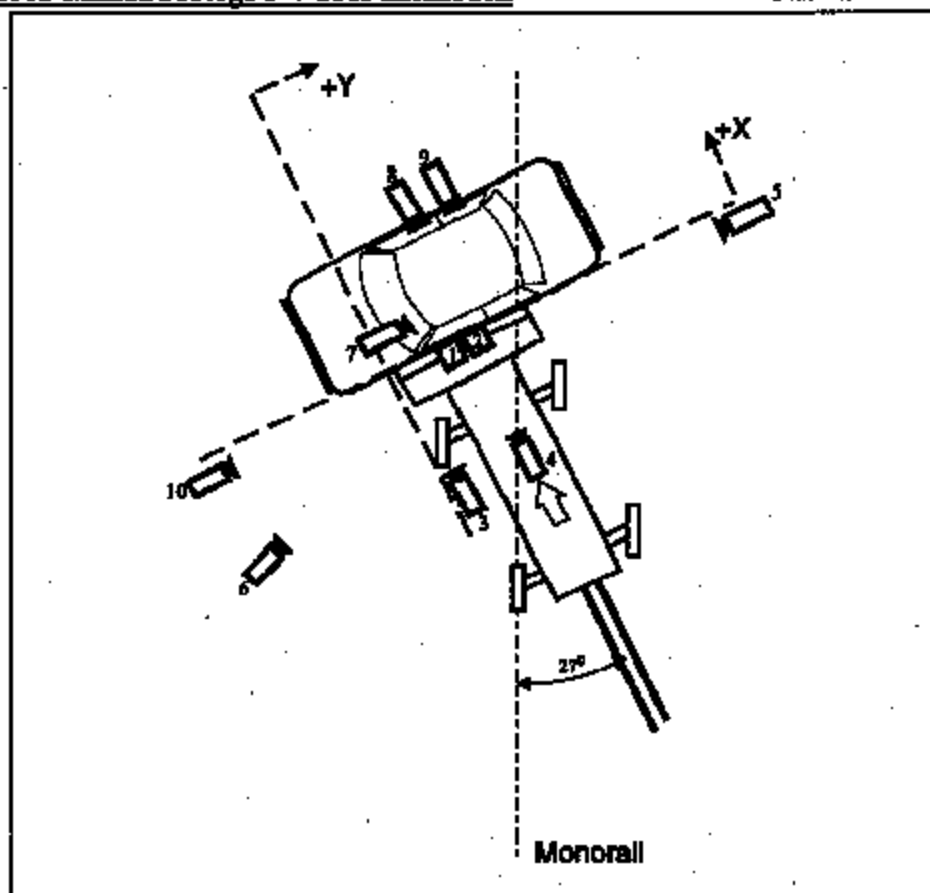
All measurements accurate to within  $\pm 3$  mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Impact Area

Camera Number	Location	Location, mm			Angle (deg)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	260	2260	5750	-80.1	13	— <sup>1</sup>
2	Overhead tight	0	1915	5754	-88.3	25	1000
3	Onboard MDB left side	-1750	-40	780	0.0	13	1005
4	Onboard MDB center	-2500	880	1397	-6.8	25	1025
5	Right side of MDB	-36	11850	1119	-0.1	13	1010
6	Left side of MDB	-3000	-4430	1223	-2.3	13	885
7	Onboard vehicle front	525	450	1150	-3.8	8	630
8	Onboard side front door	1639	805	1010	-4.6	8	— <sup>2</sup>
9	Onboard side rear door	1635	1820	1030	-2.2	8	405
10	Real-time Panning	-259	-5050	1105	-4.3	13	

+X: Forward (referenced to MDB) from impact point

+Y: Rightward (referenced to MDB) from impact point

+Z: Downward from ground level

<sup>1</sup> No LED's; unable to time.

<sup>2</sup> Camera ran too slow to time.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C35402

Test Date: 02/25/03

Vehicle Year/Make/Model/Body Style: 2003 Mazda Protegé 5 4-door hatchback

\*\*\*\*\*

Test Vehicle Impact Type :

- Frontal (48.28 km/h)
- Oblique (48.28 km/h) with \_\_\_\_\_° barrier  
face first contacting the (driver/passenger) side
- Rear Moving Barrier (48.28 km/h)
- Lateral Moving Barrier (32.19 km/h)
- Side Impact Moving Deformable Barrier  
(52.9 km/h) contacting the driver's side side

Fuel Spillage Measurement:

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

Actual	Maximum Allowed
0 g	28 g
0 g	142 g
0 g	28 g/1 minute

Solvent Spillage Details :

None

Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

0 - 90 Degrees



1. Determination of Solvent Collection Time Period:

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

2. 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
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

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

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

4. Solvent Spillage Location(s):

None

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

90 - 180 Degrees



1. Determination of Solvent Collection Time Period:

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

2. 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
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

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

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

4. Solvent Spillage Location(s):

None

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

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

2. 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
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

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

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

4. Solvent Spillage Location(s):

None

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time        2   minutes        0   seconds  
(Spec. Range = 1 to 3 minutes)  
FMVSS 301 Position Hold Time +        5   minutes        0   seconds  
Total        7   minutes        0   seconds  
Next whole minute interval        7   minutes

2. 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
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

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

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

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

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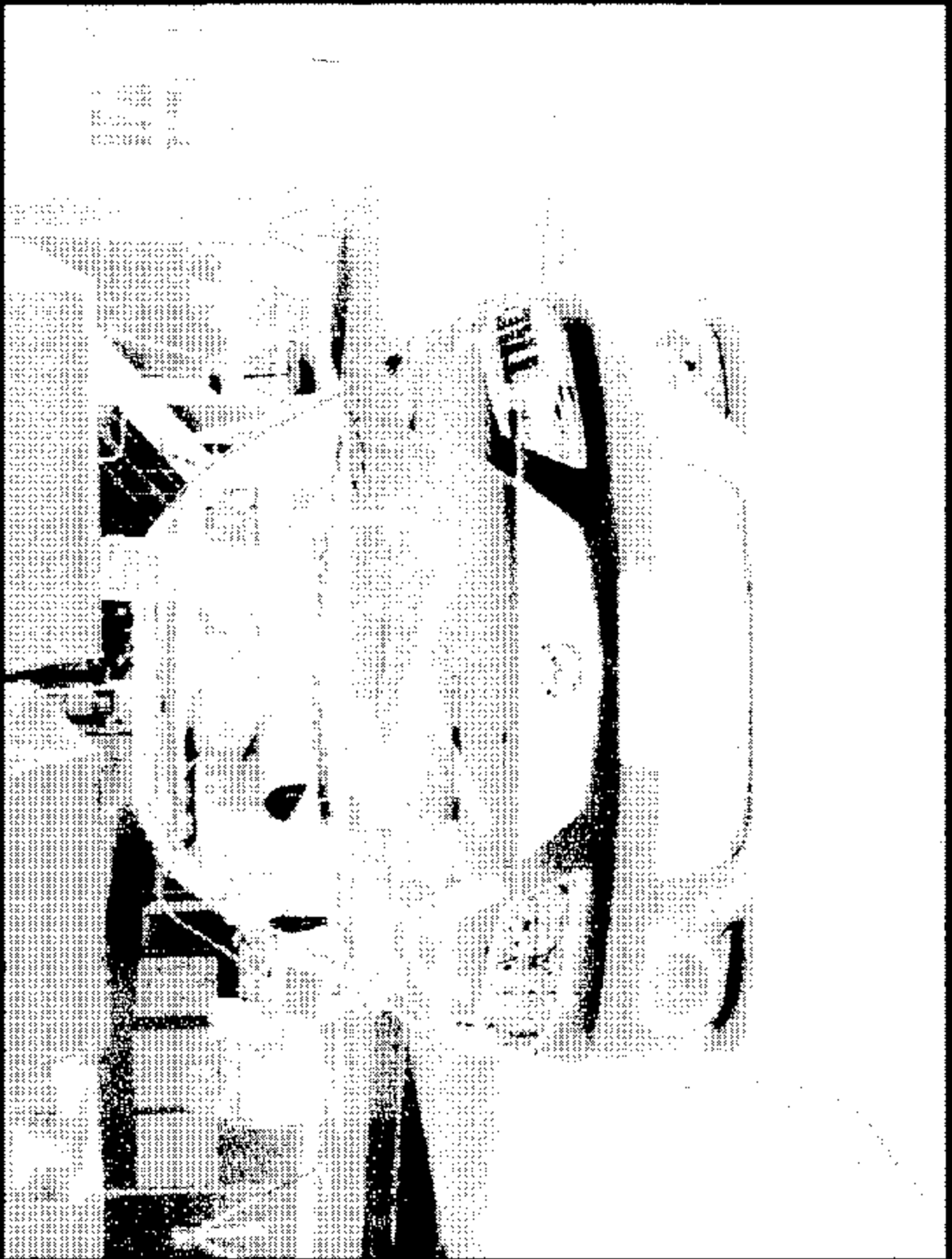


Figure A-1 Pre-Test Front View of Test Vehicle



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

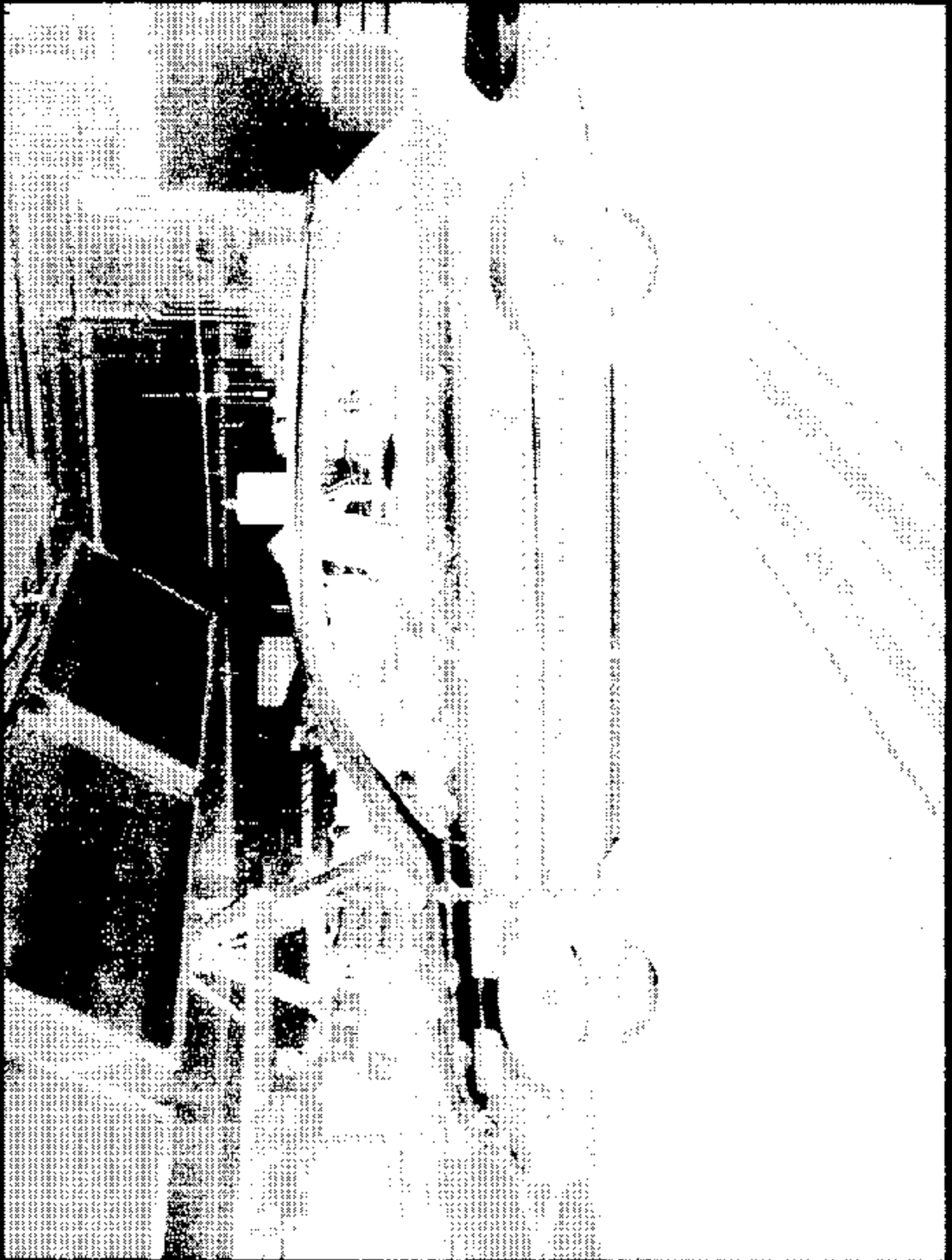


Figure A-3 Pre-Test Impacted Side View of Test Vehicle

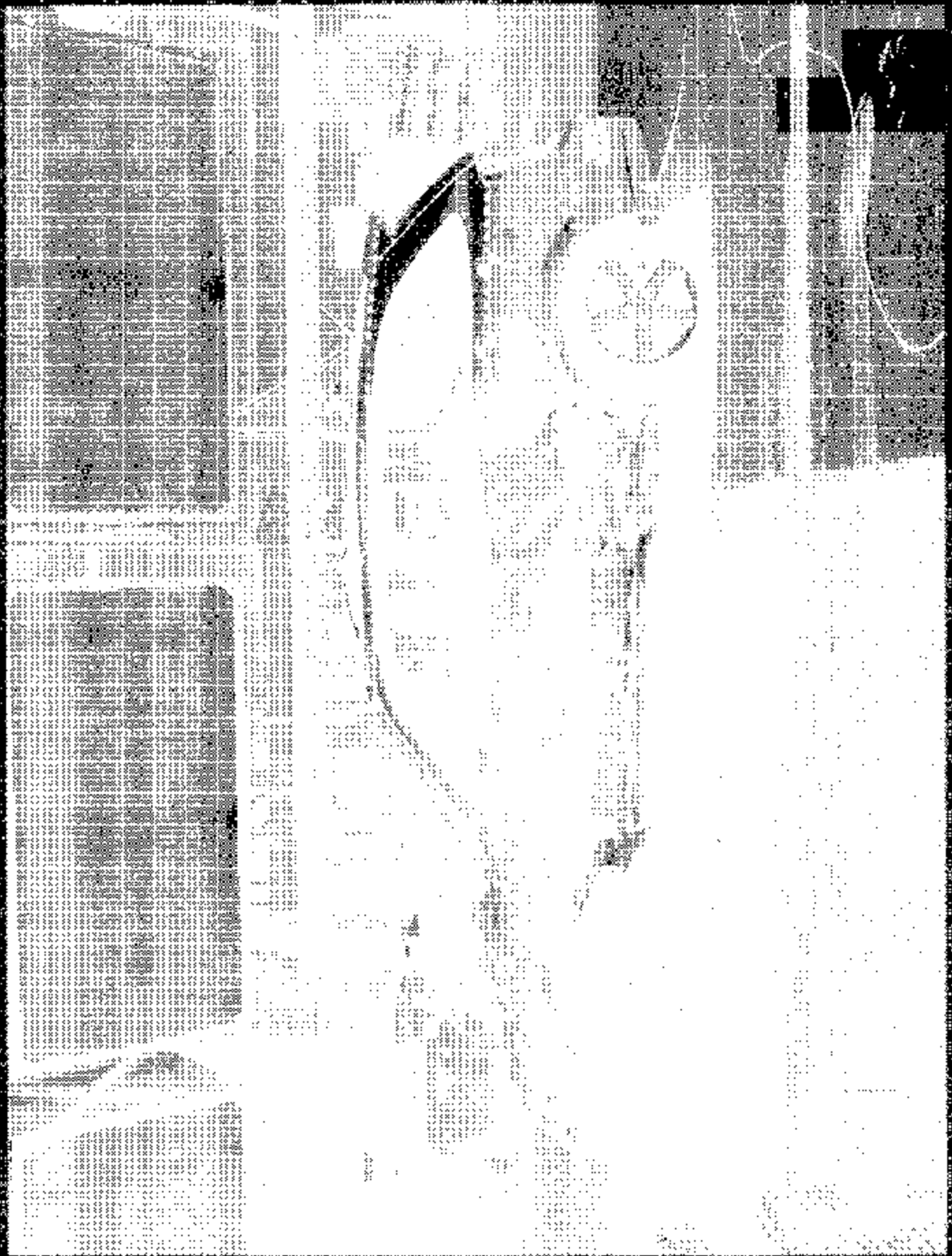
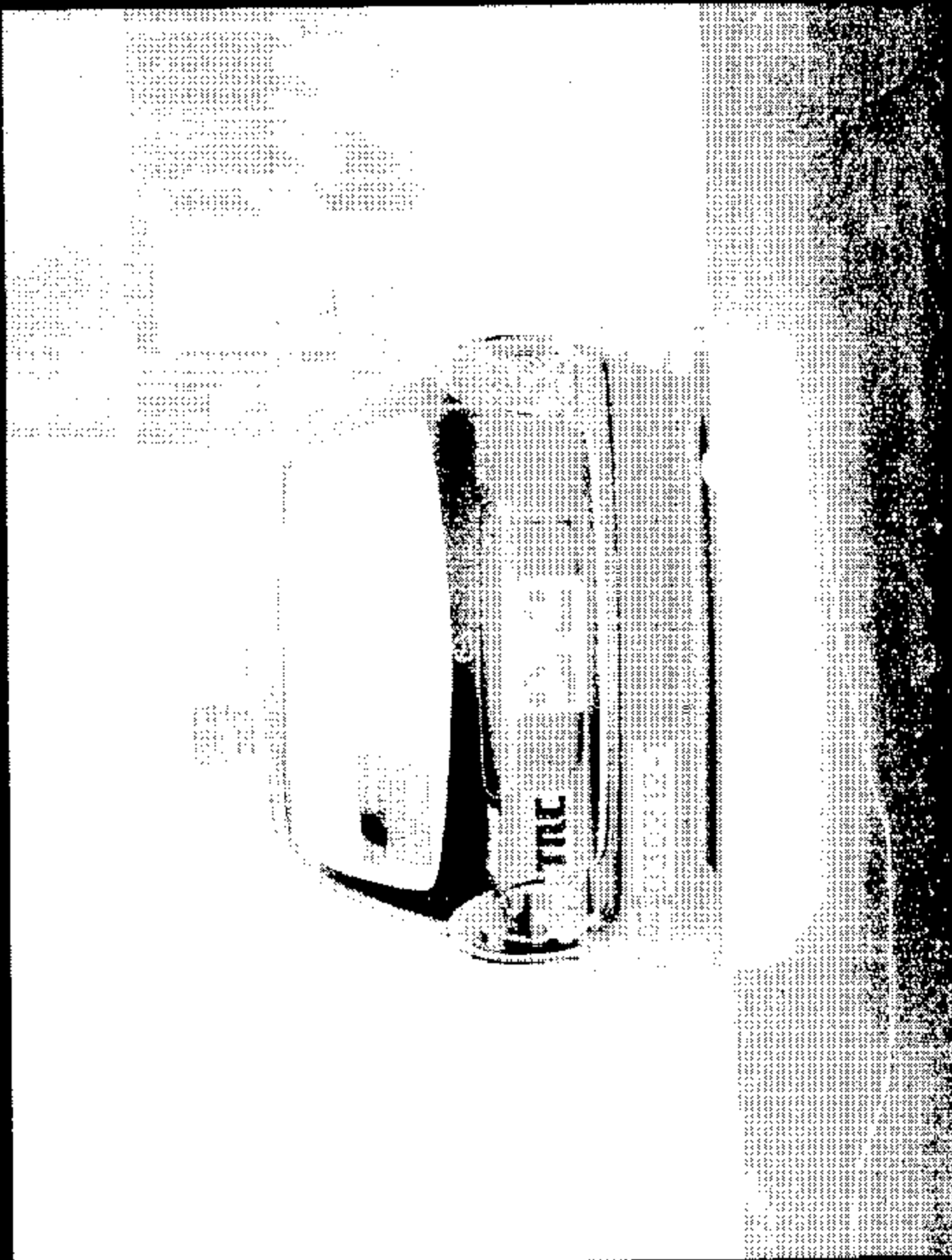


Figure A-4 Post-Test Impacted Side View of Test Vehicle



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



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

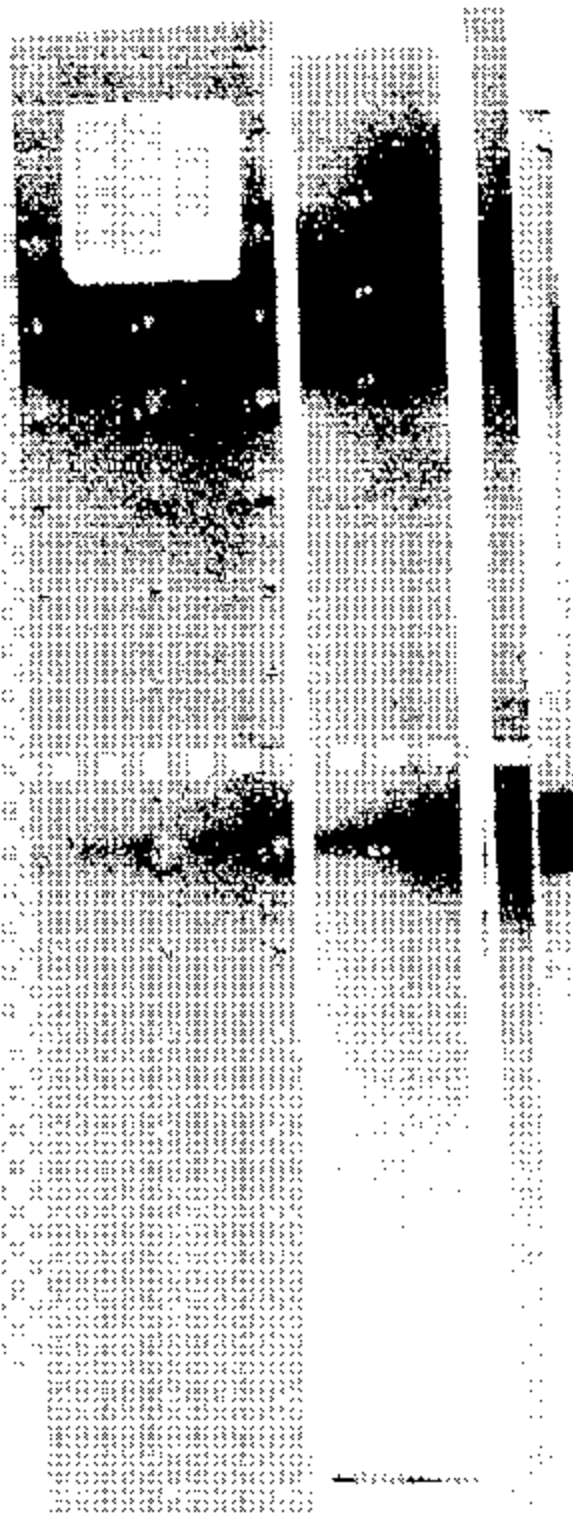


Figure A-7 Pre-Test Frontal View of Impactor Face



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

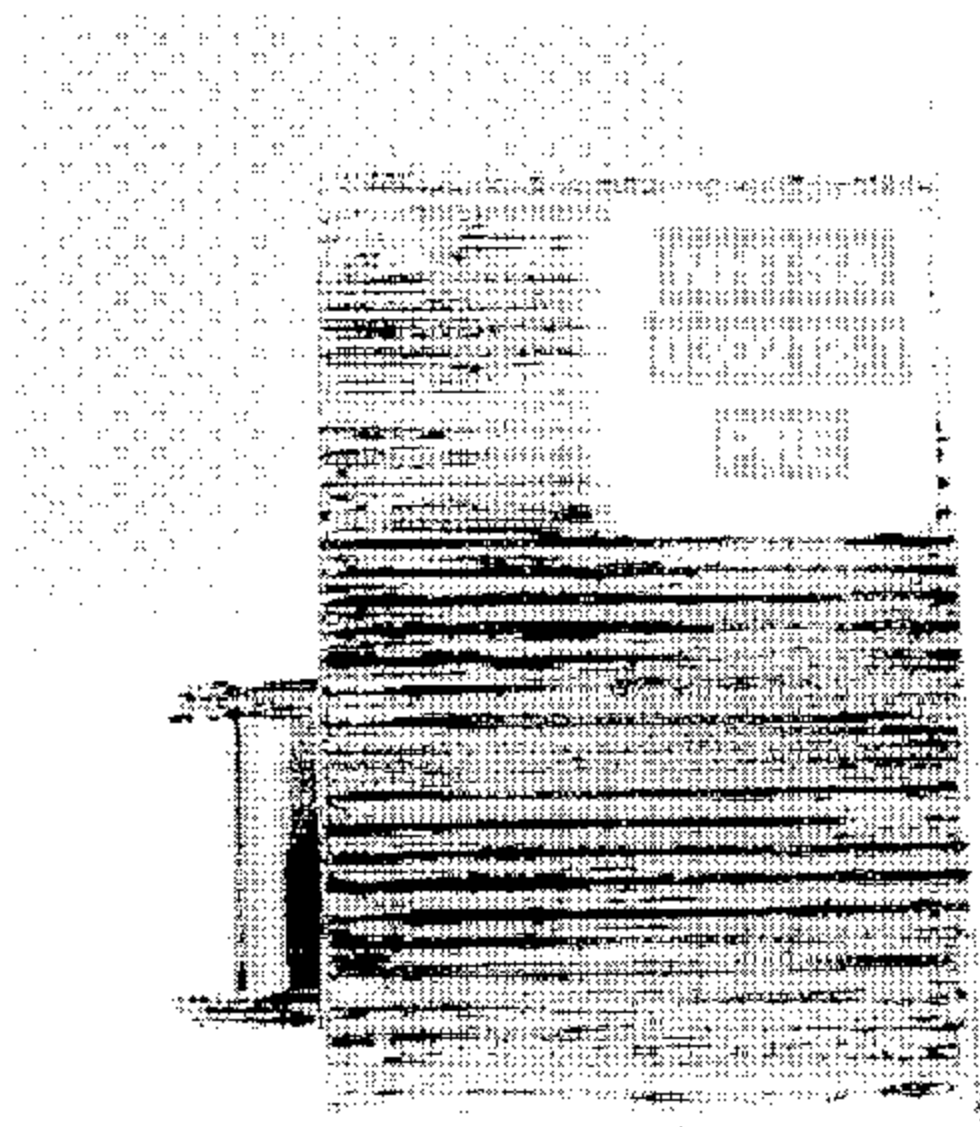


Figure A-9 Pre-Test Left Side View of Impactor Face

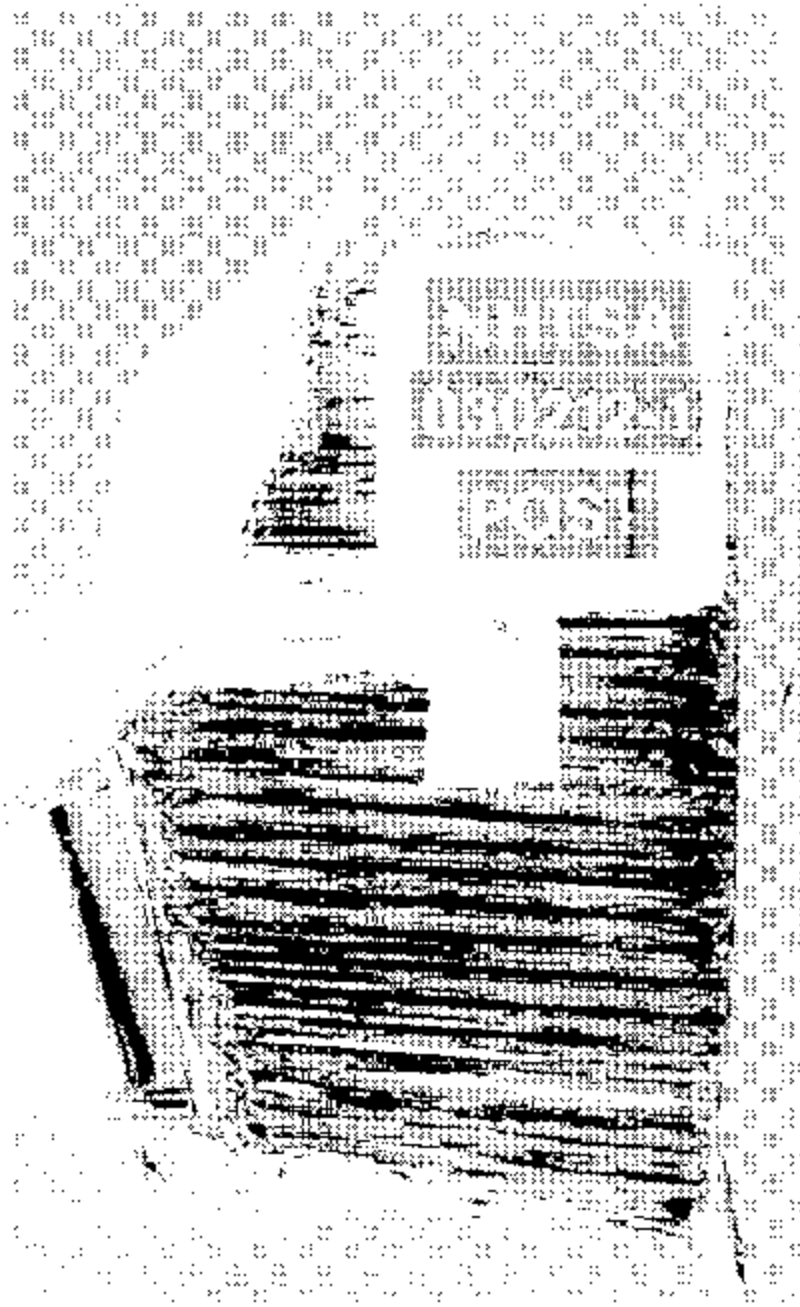


Figure A-16 Post-Test Left Side View of Impactor Face

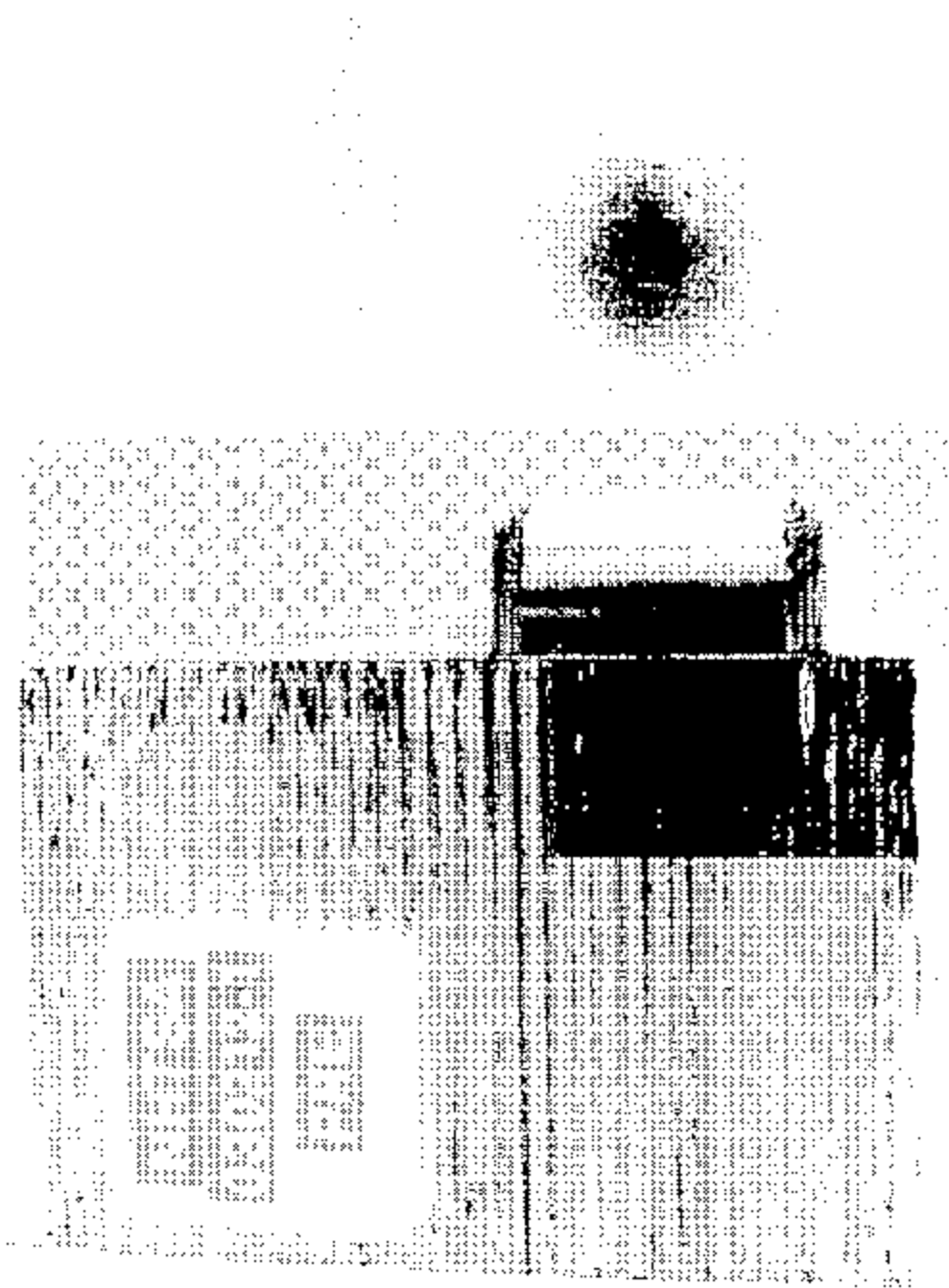


Figure A-11 Pre-Test Right Side View of Impactor Face

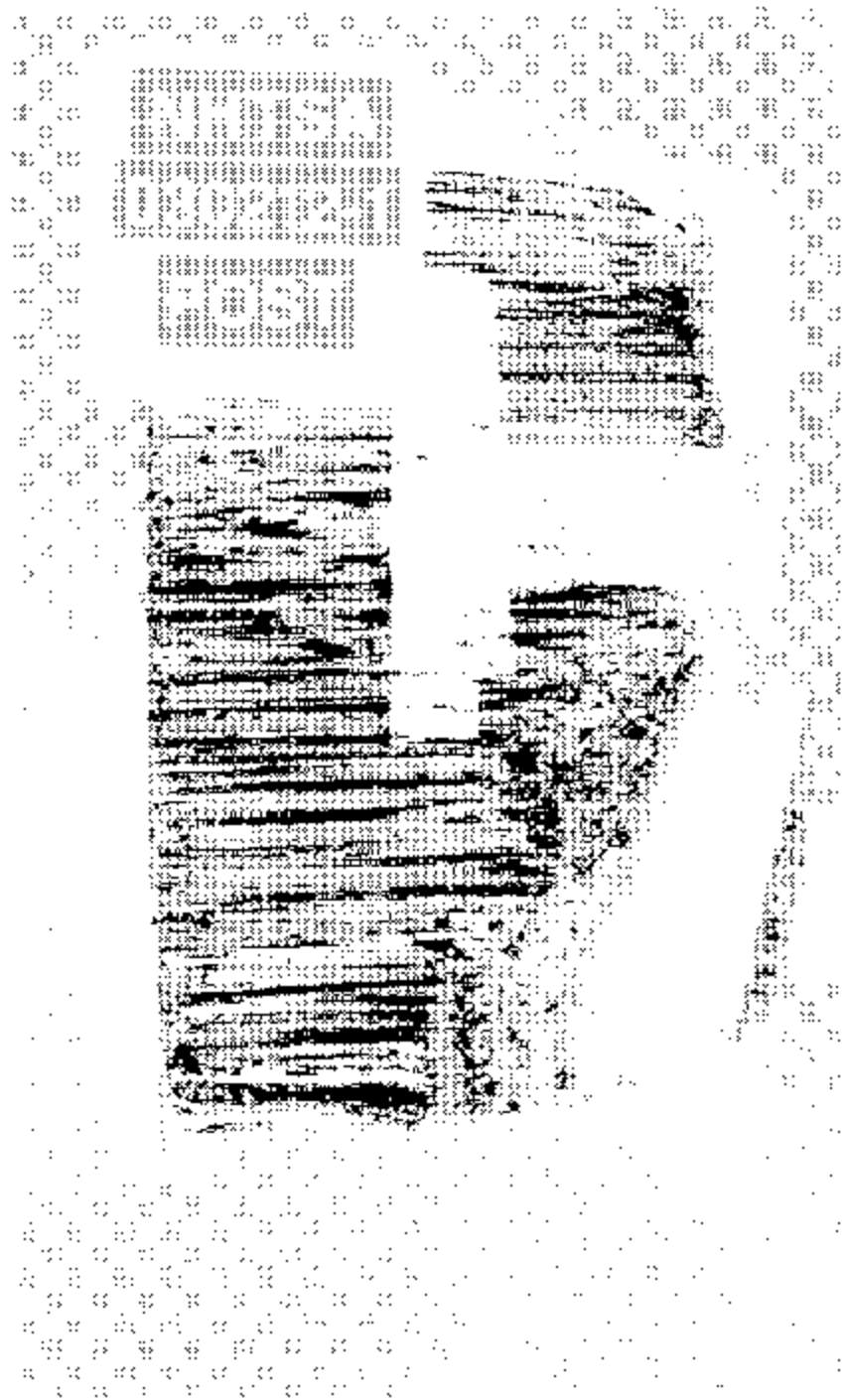
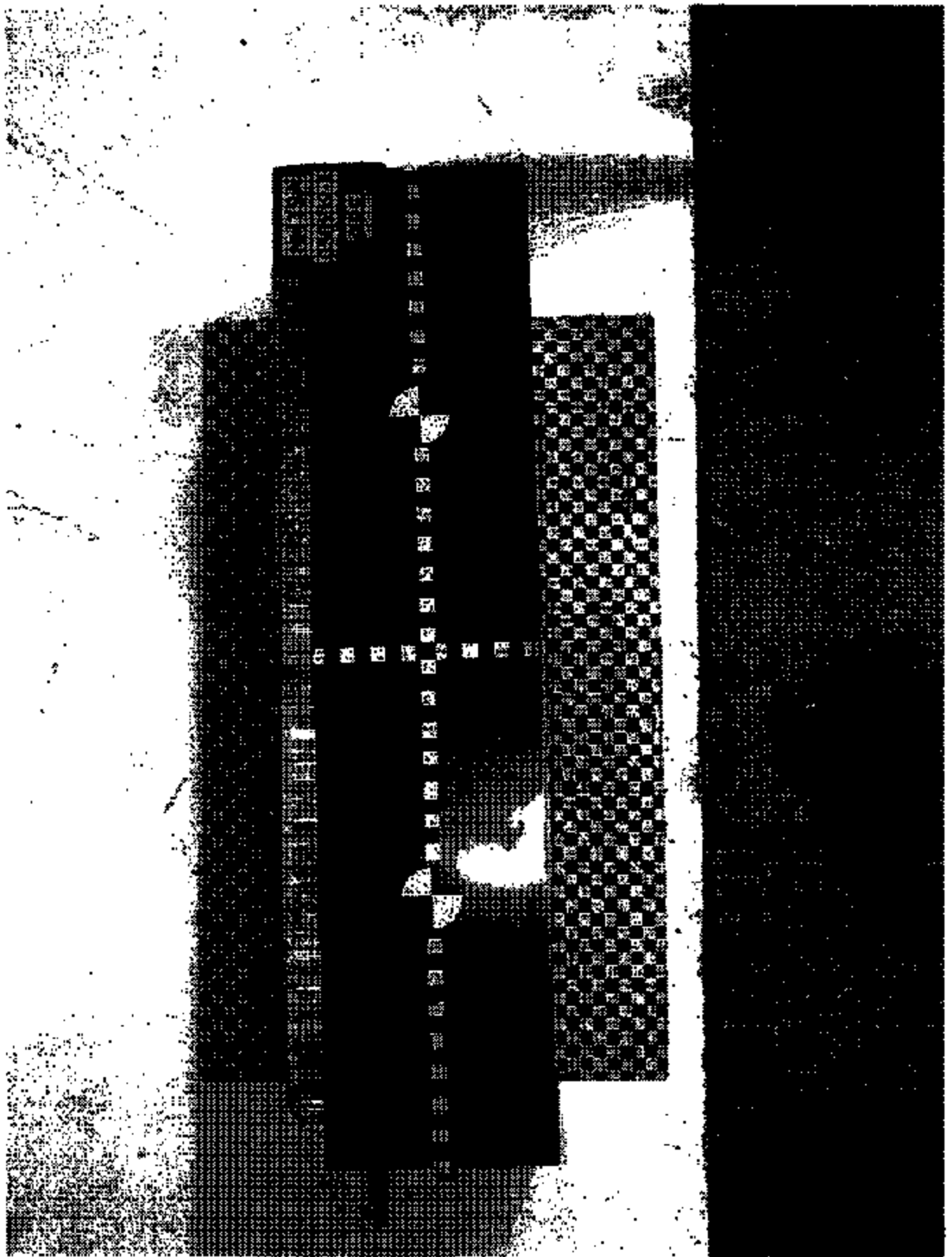


Figure A-12 Post-Test Right Side View of Impactor Face



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

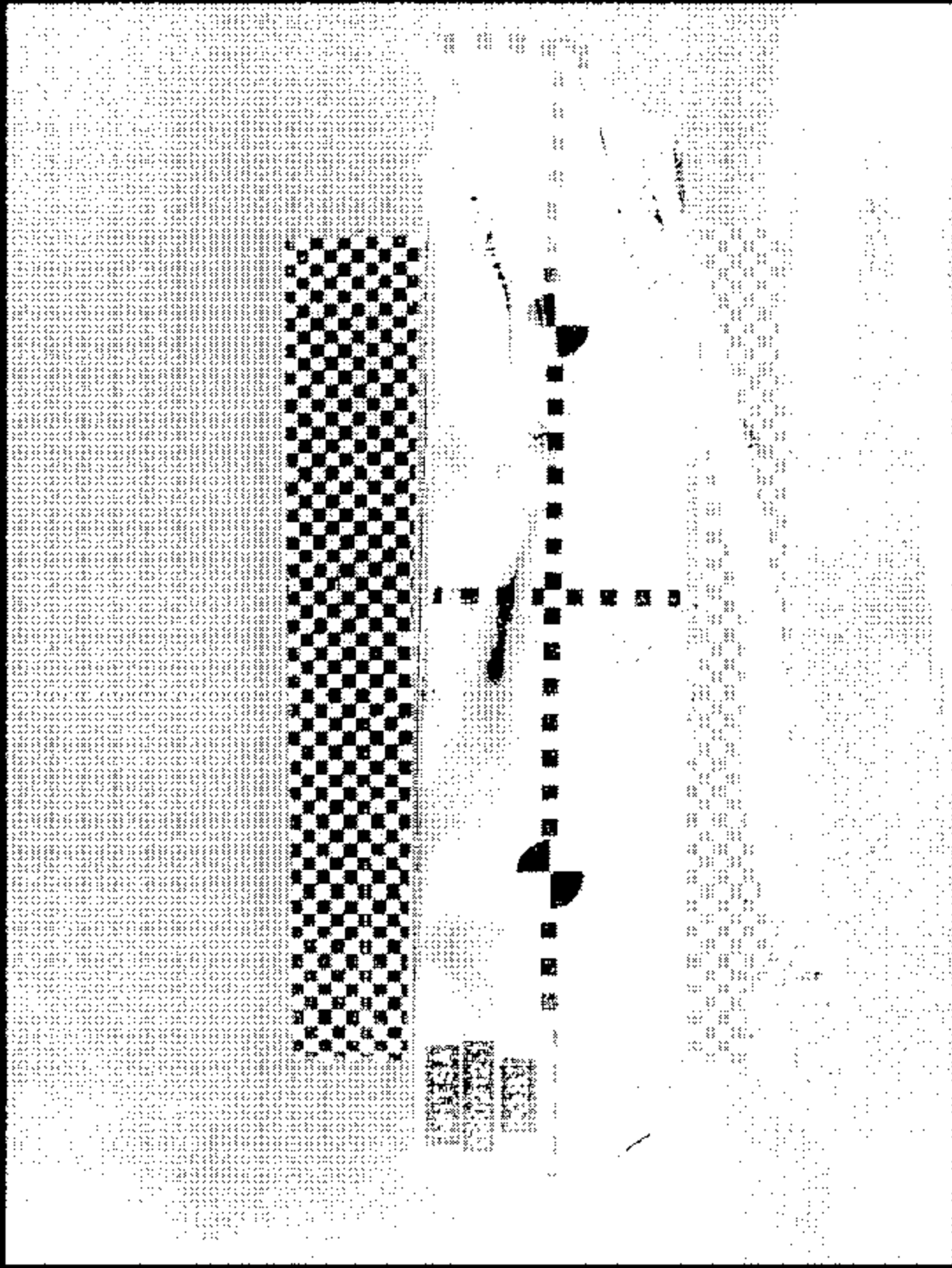
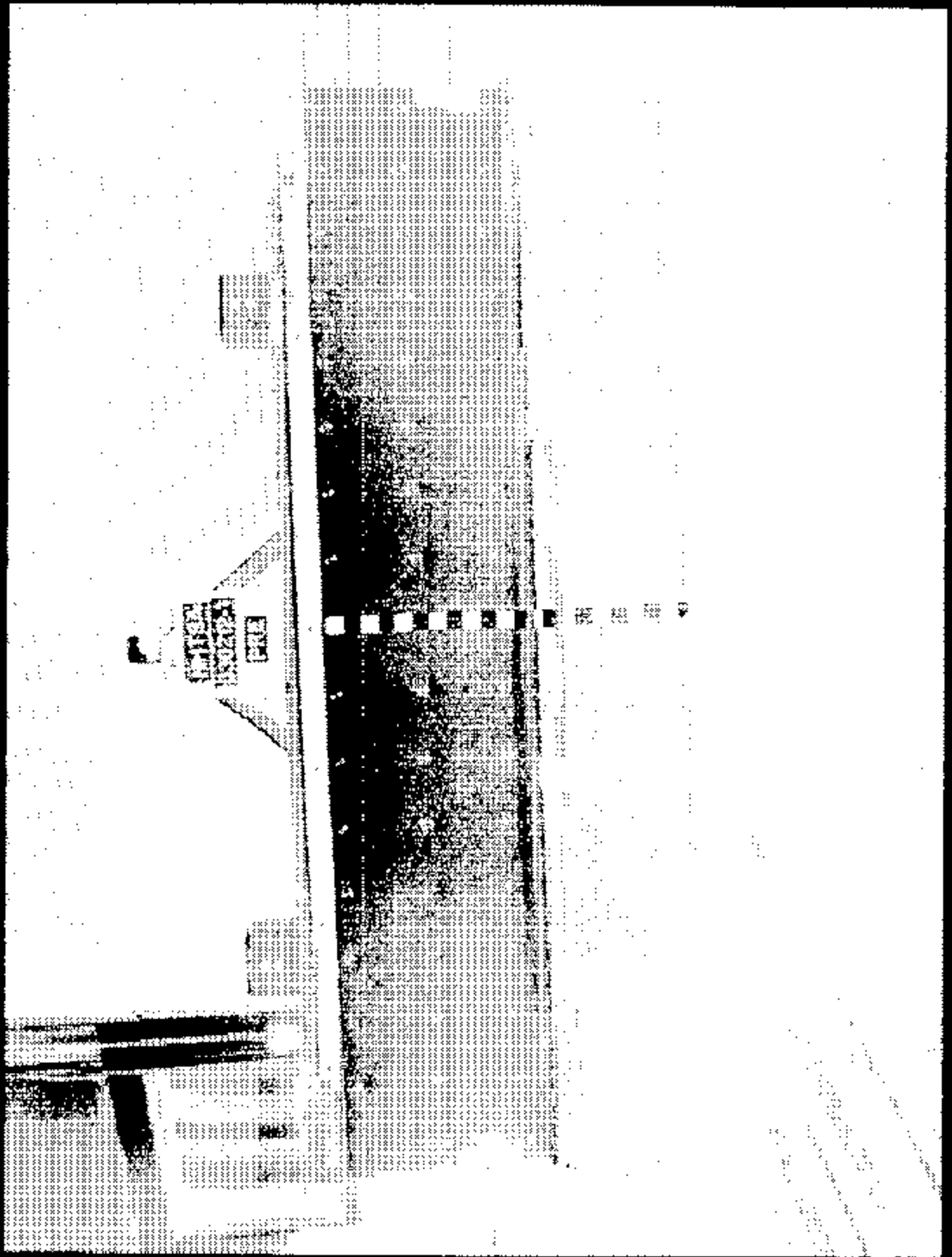


Figure A-14 Post-Test Top View of Impactor Face



**Figure A-15 Pre-Test View of MDR Showing Contact Switches in Place**



Figure A-16 Pre-Test Overhead View of MDB Aligned with Vehicle



**Figure A-17 Post-Test Overhead View of MDB and Vehicle**



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



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

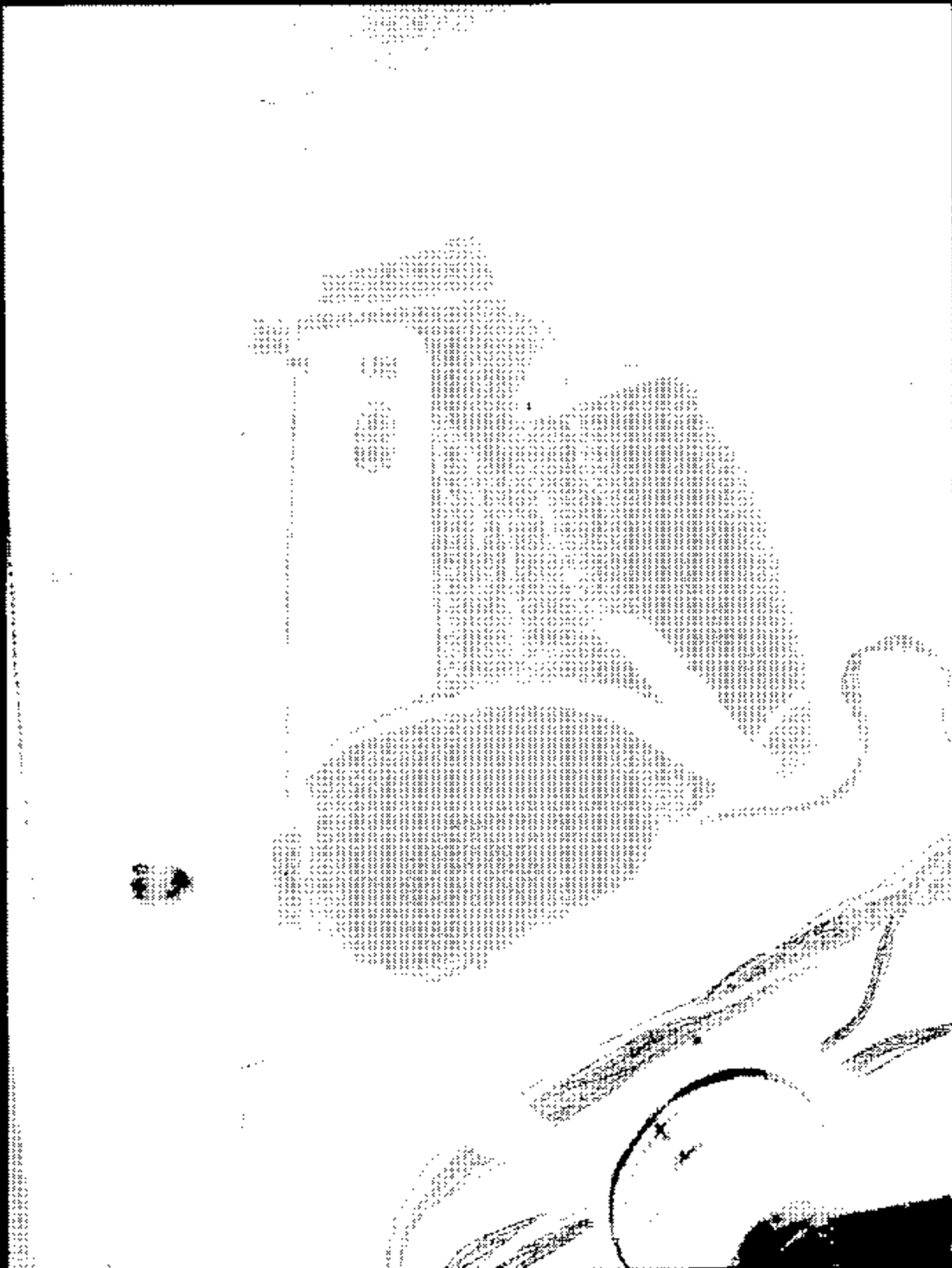
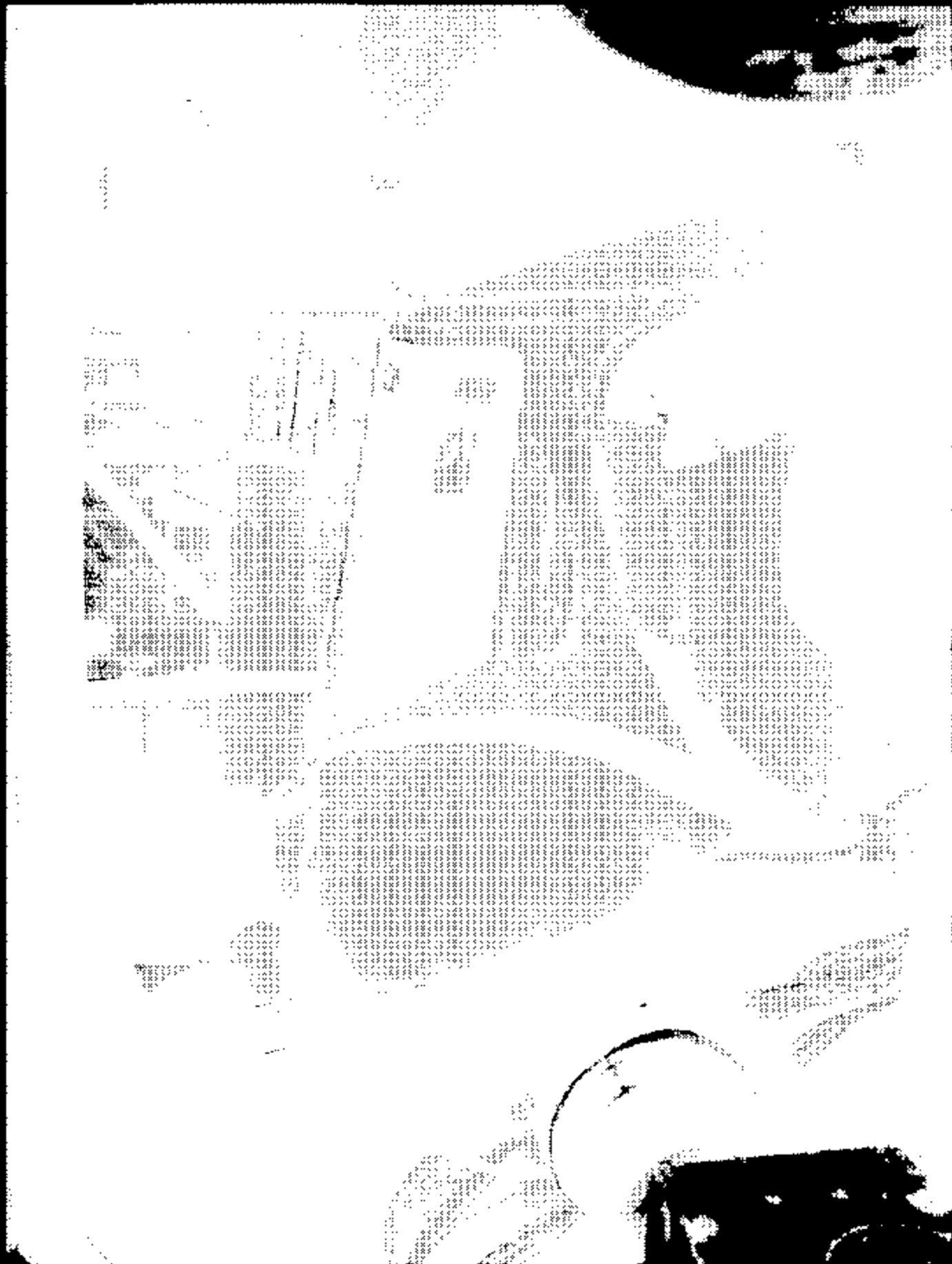


Figure A-20 Pre-Test Right Occupant Compartment View of Rear SID



**Figure A-21 Post-Test Right Occupant Compartment View of Rear SID**



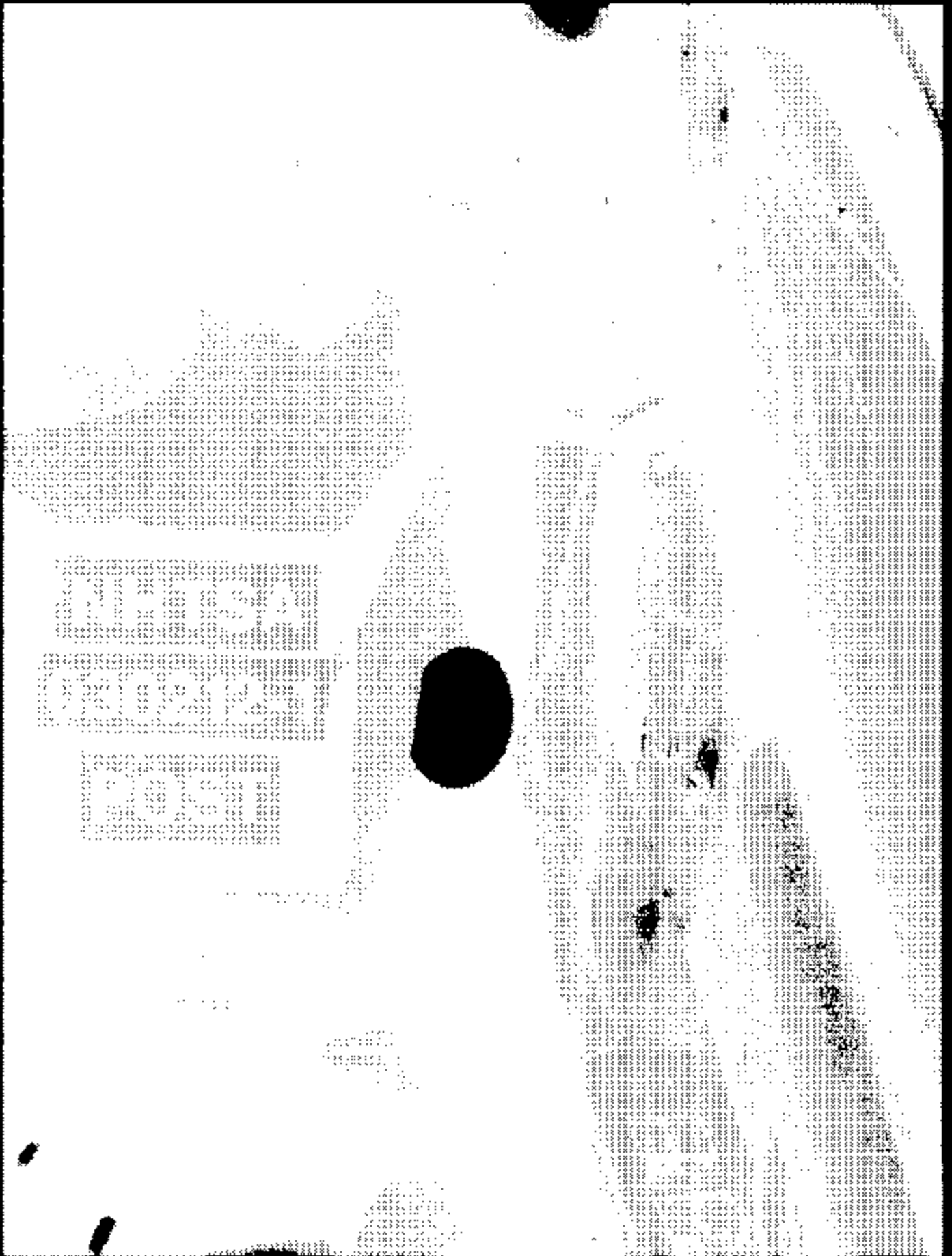
Figure A-22 Pre-Test Left View of Front SID



**Figure A-23 Pre-Test Left View of Front SID and Belt Position**



Figure A-24 Pre-Test Left View of Front SID and Door Clearance



**Figure A-25 Post-Test Left View of Front SID and Door Clearance**

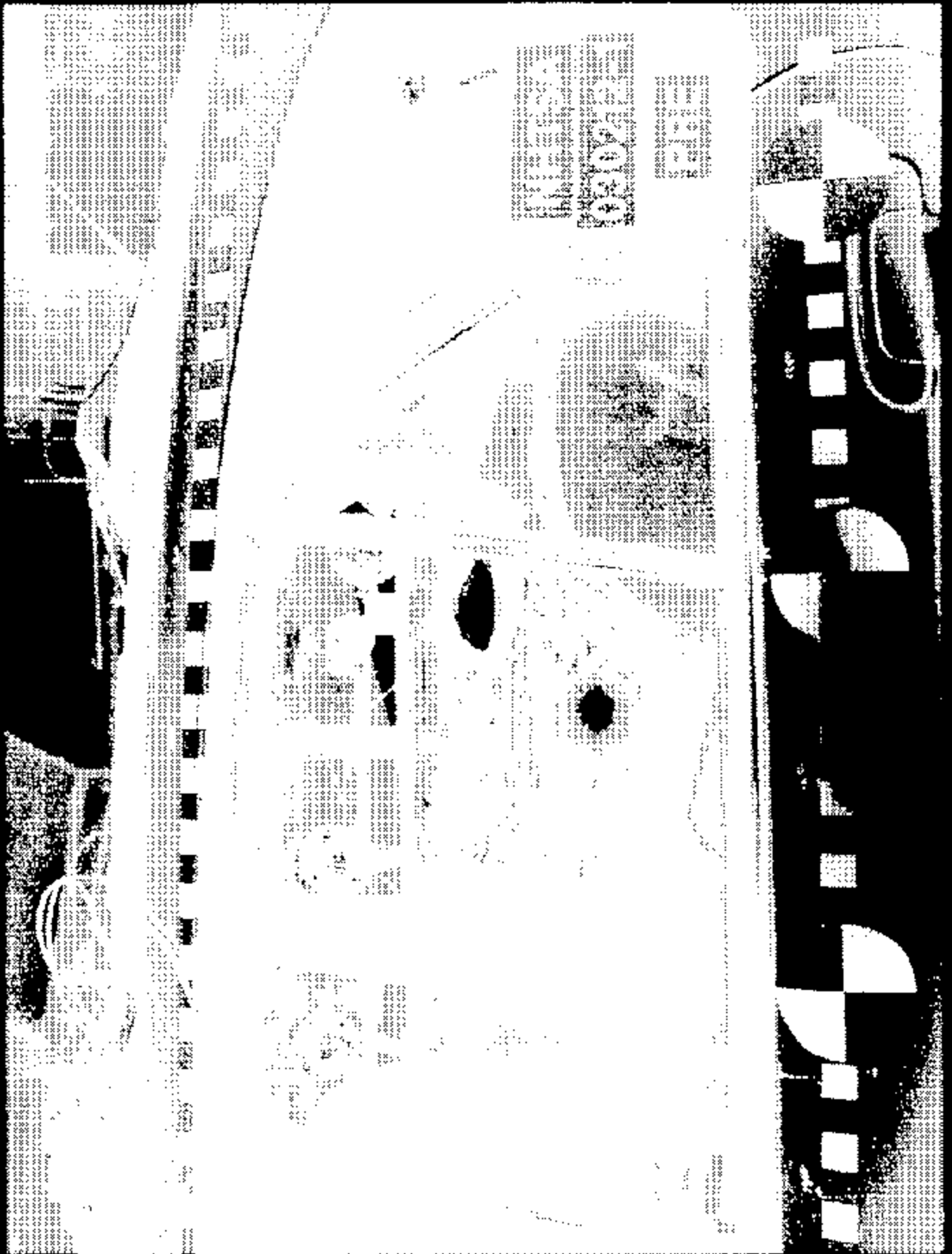
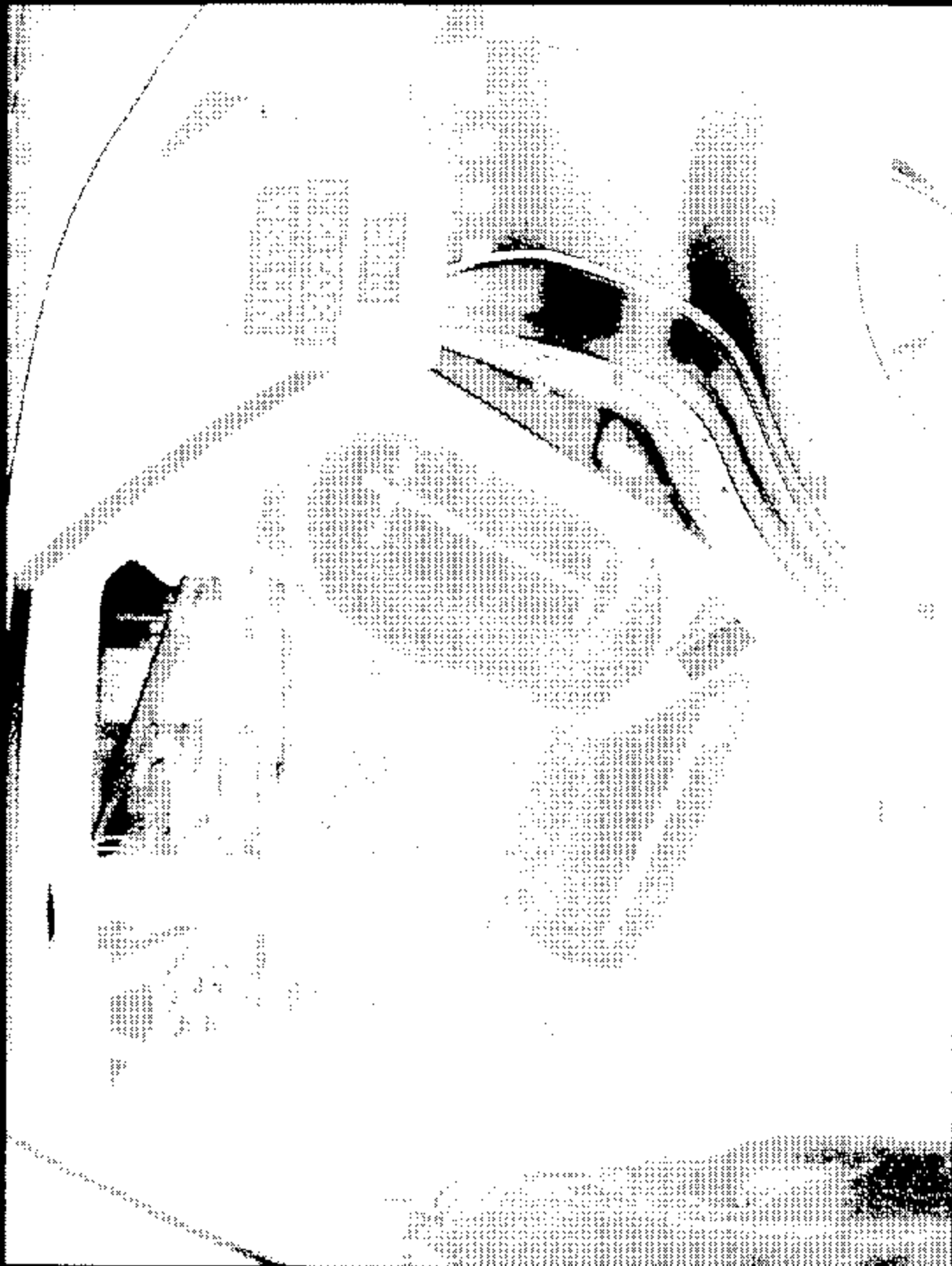
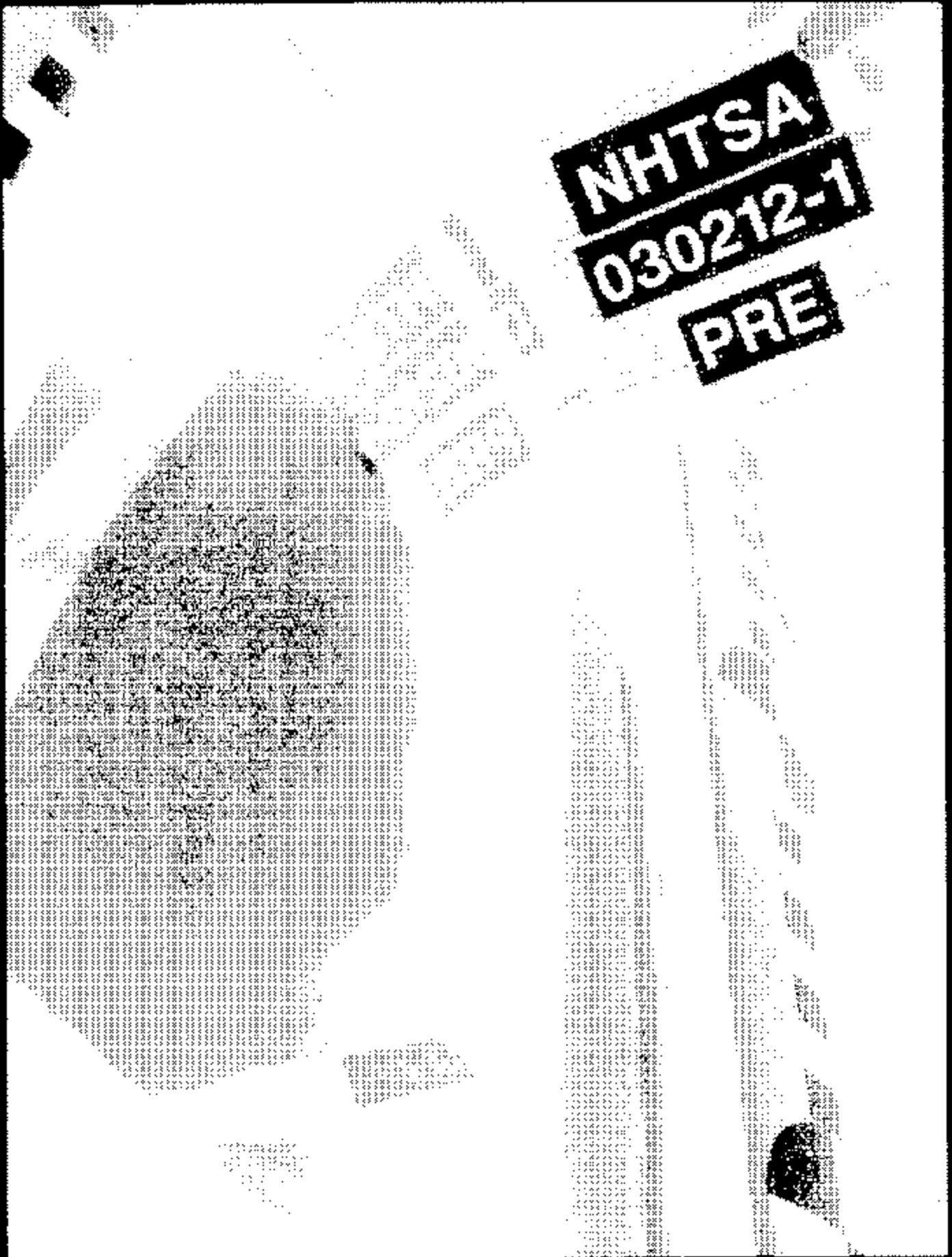


Figure A-26 Pre-Test Left View of Rear SID



**Figure A-27 Pre-Test Left View of Rear SID and Belt Position**



**Figure A-28 Pre-Test Left View of Rear SID and Door Clearance**



**Figure A-29 Post-Test Left View of Rear SID and Door Clearance**



Figure A-30 Pre-Test Interior of Front Door



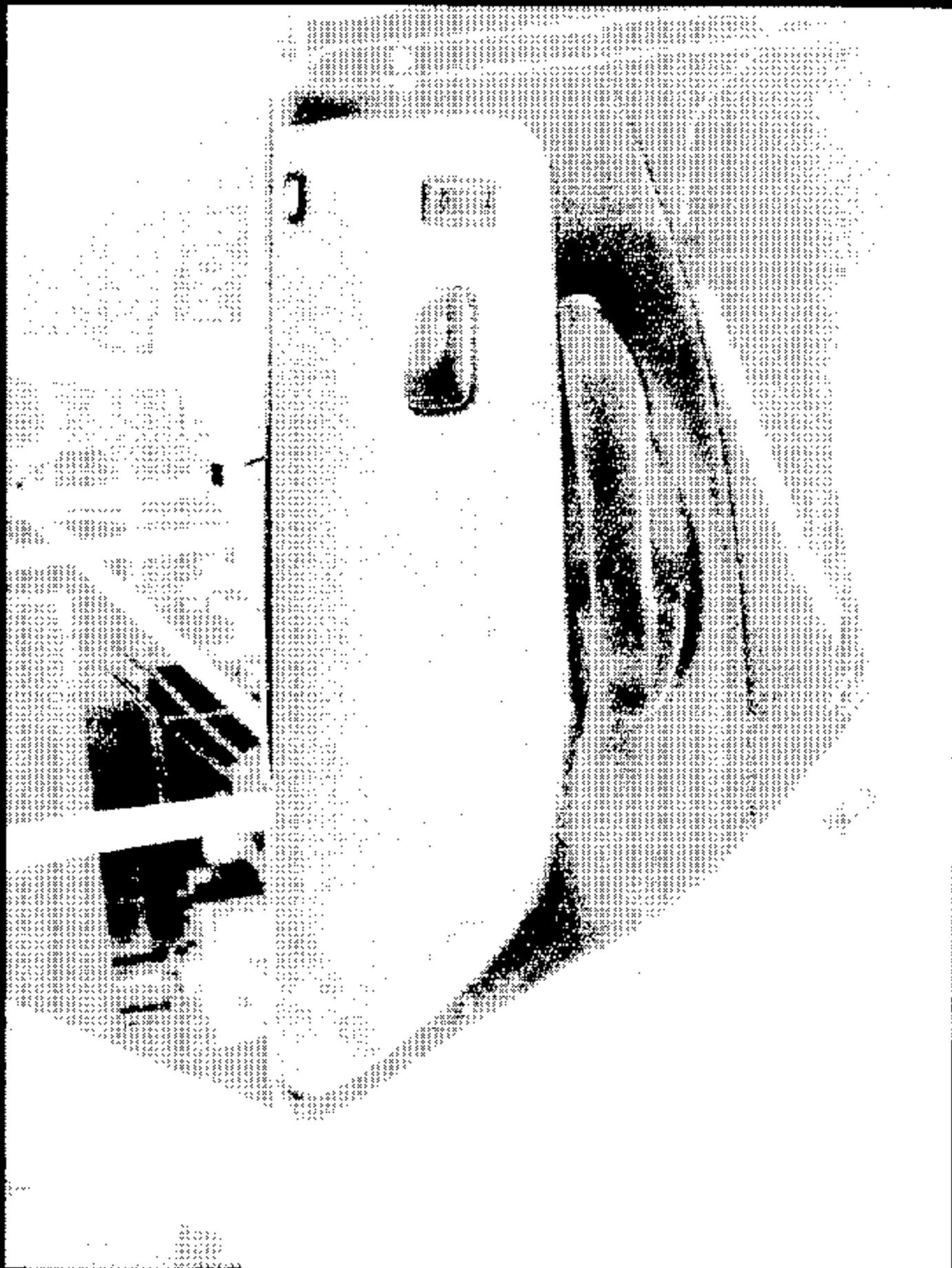
**Figure A-31 Post-Test Interior of Front Door Showing SID Impact Locations**

NHTSA  
03-12-1  
FOSTD

Figure A-32 Post-Test Front SID Contact



Figure A-33 Pre-Test Interior of Rear Panel



**Figure A-34 Post-Test Interior of Rear Panel Showing SID Impact Locations**

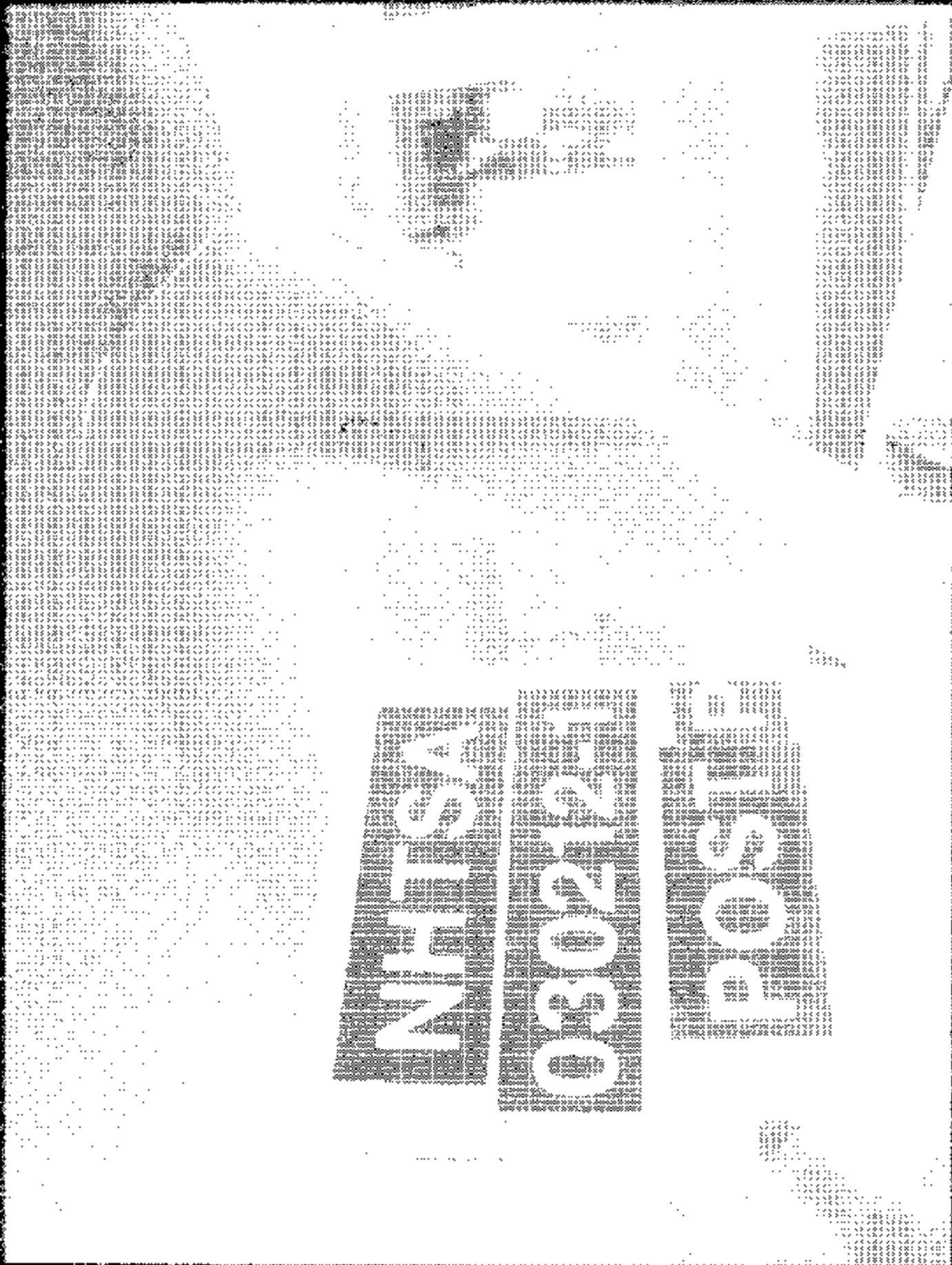


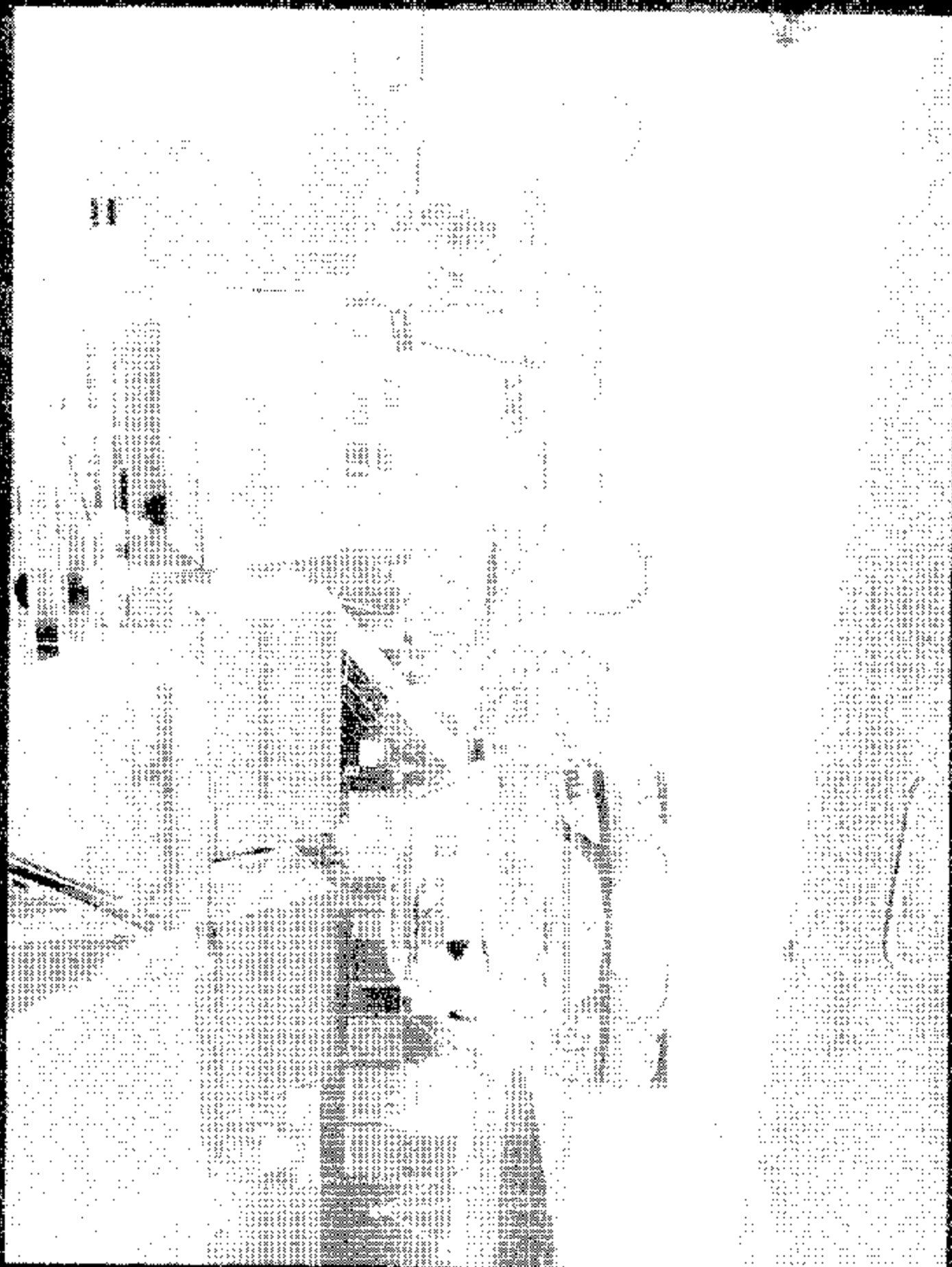
Figure A-35 Post-Test Rear SID Contact - View 1

**NHTSA**

**030212-1**

**POST**

Figure A-36 Post-Test Rear SID Contact - View 2



**Figure A-37 Pre-Test Left Side View of MDB with Impactor Face in Position**

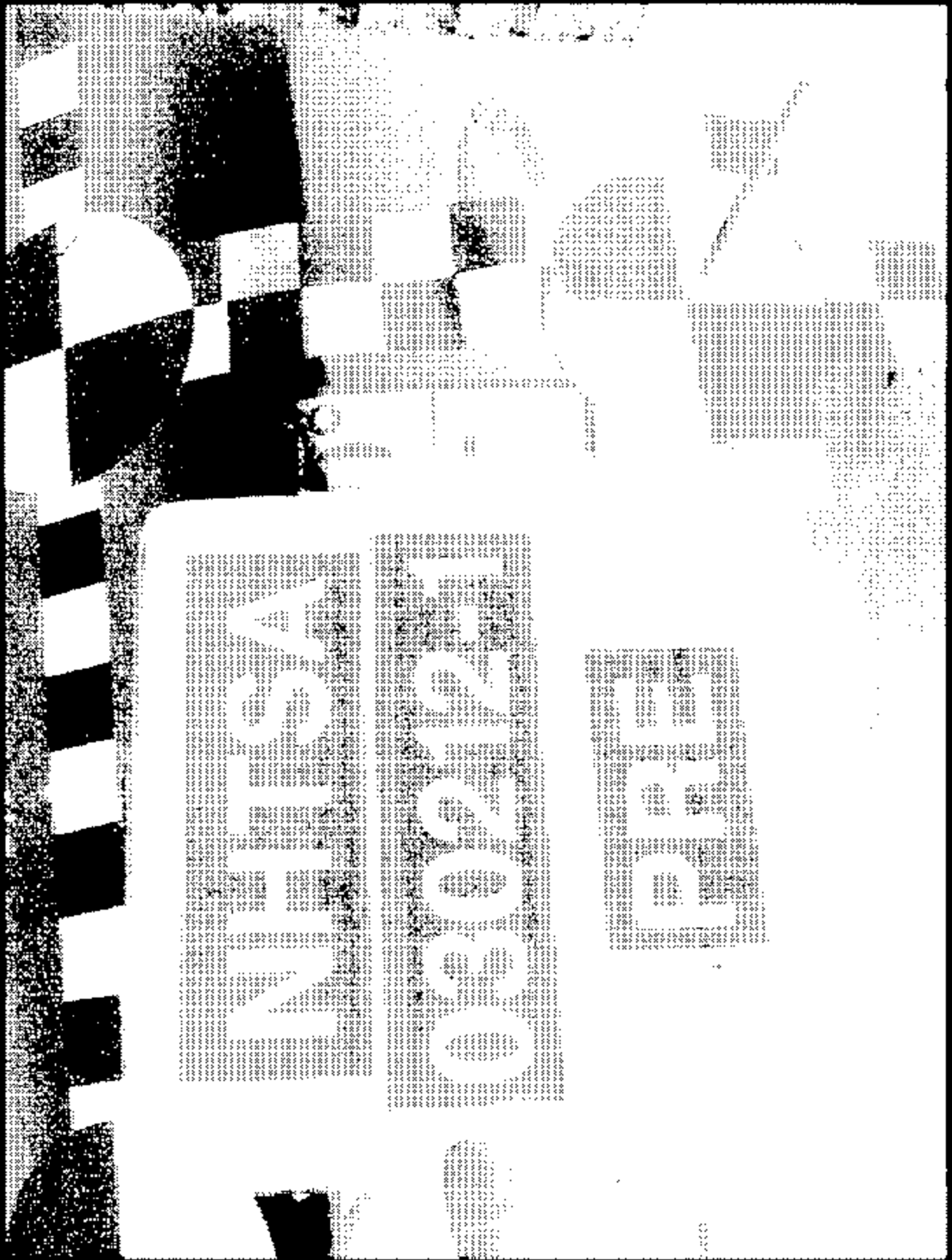
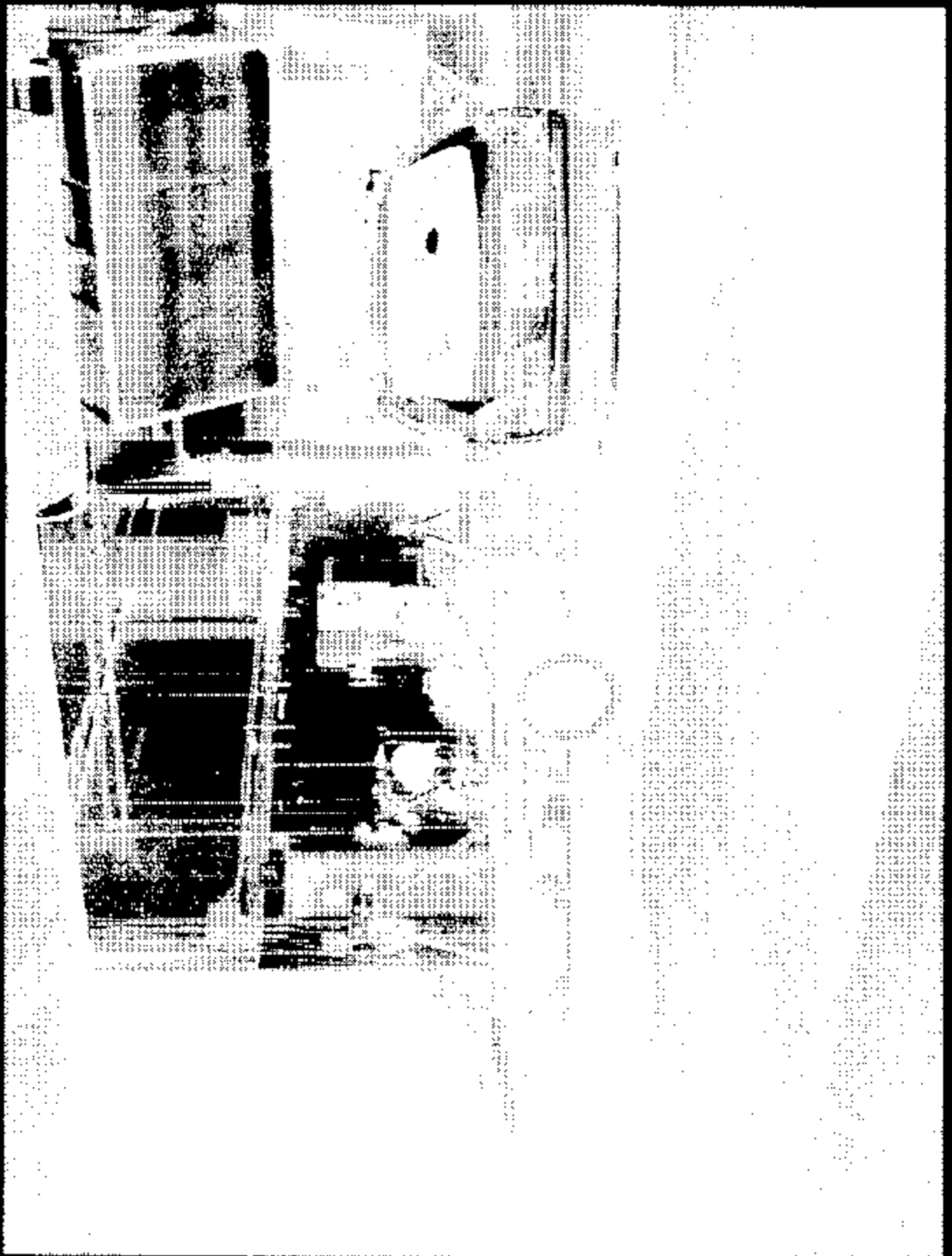


Figure A-38 Pre-Test Primary Impact Point View



Figure A-39 Post-Test Primary Impact Point View



**Figure A-40 Pre-Test Right Side View of MDB with Impactor Face in Position**

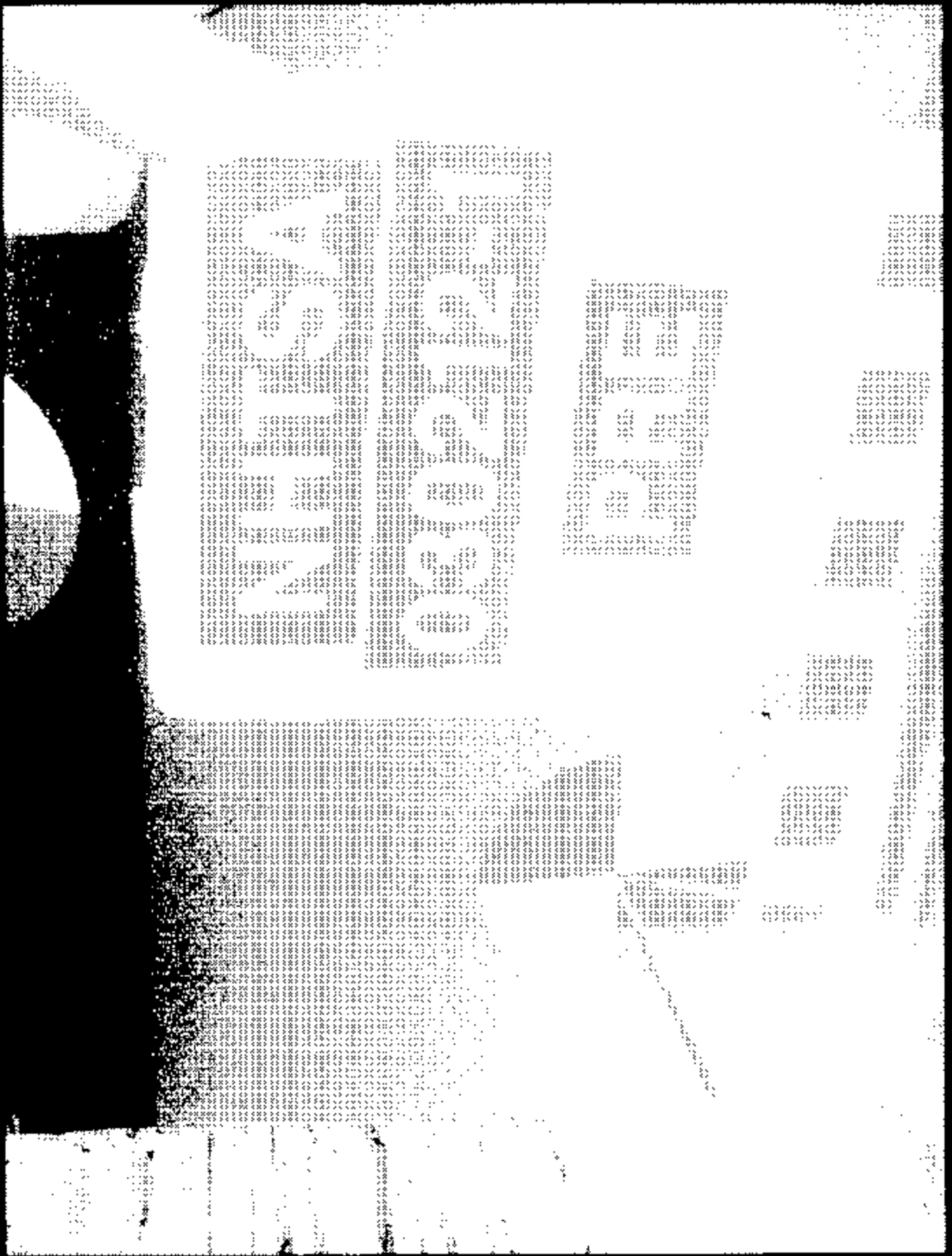


Figure A-41 Pre-Test Secondary Impact Point View

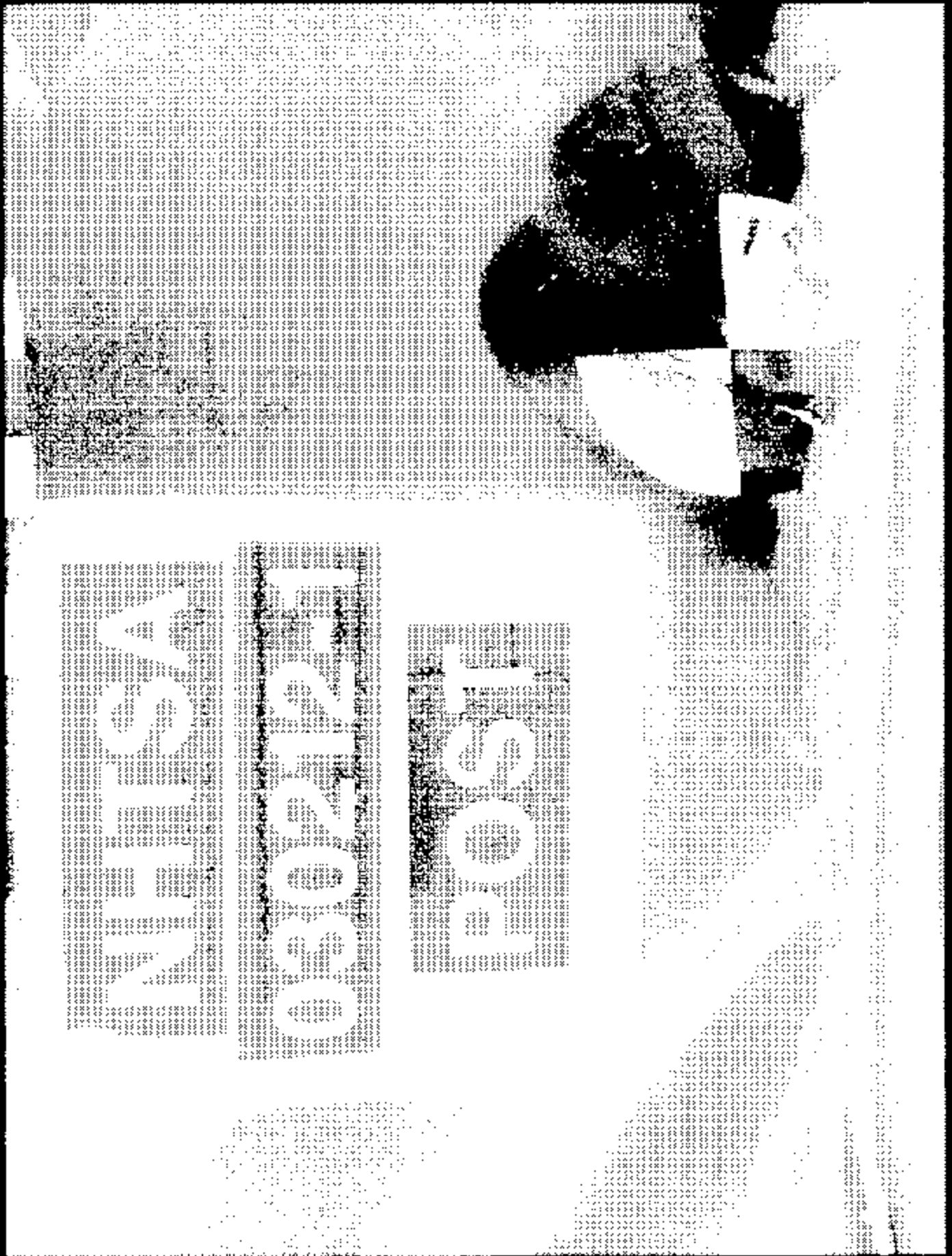


Figure A-42 Post-Test Secondary Impact Point View

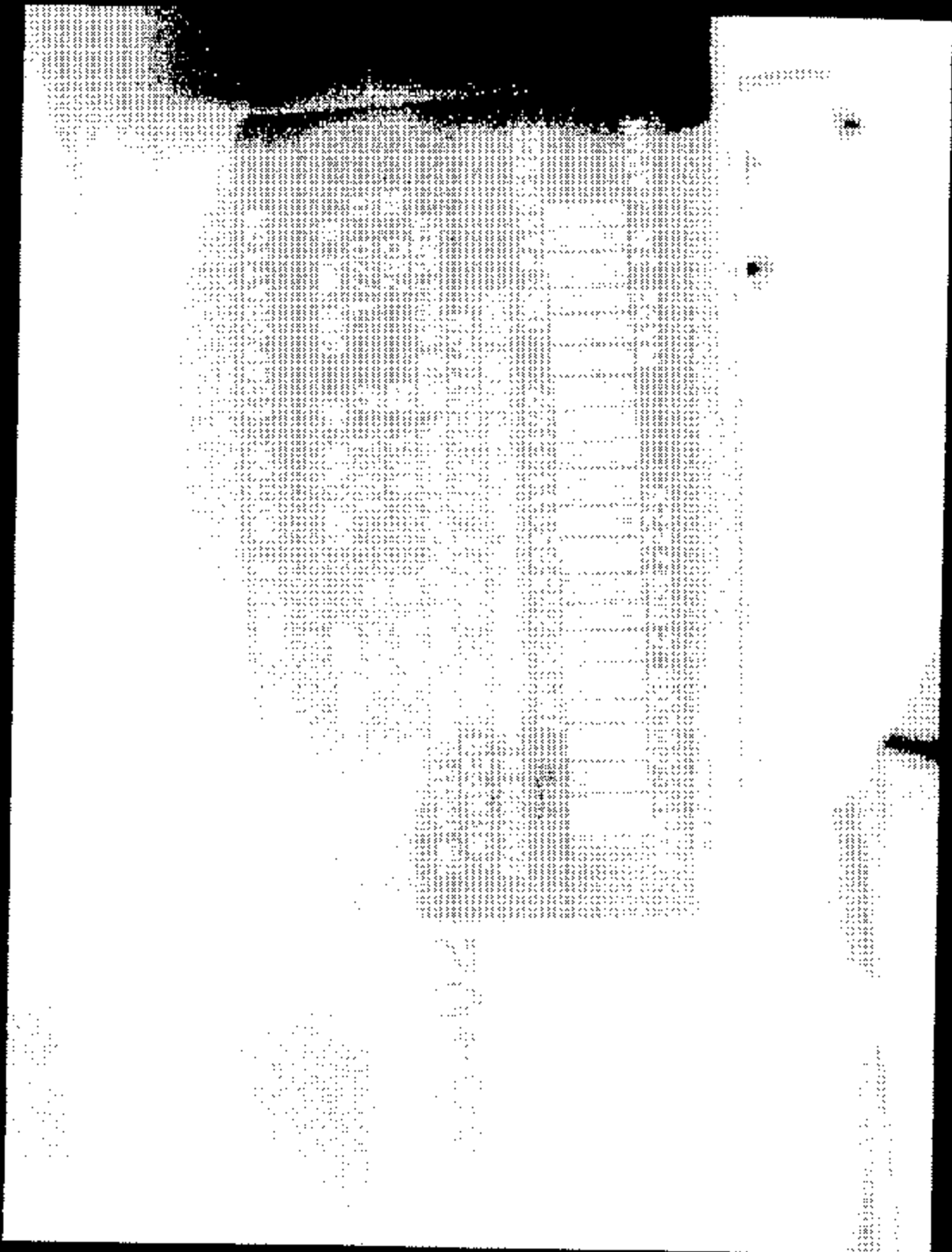


Figure A-43 Pre-Test Vehicle Certification Label View

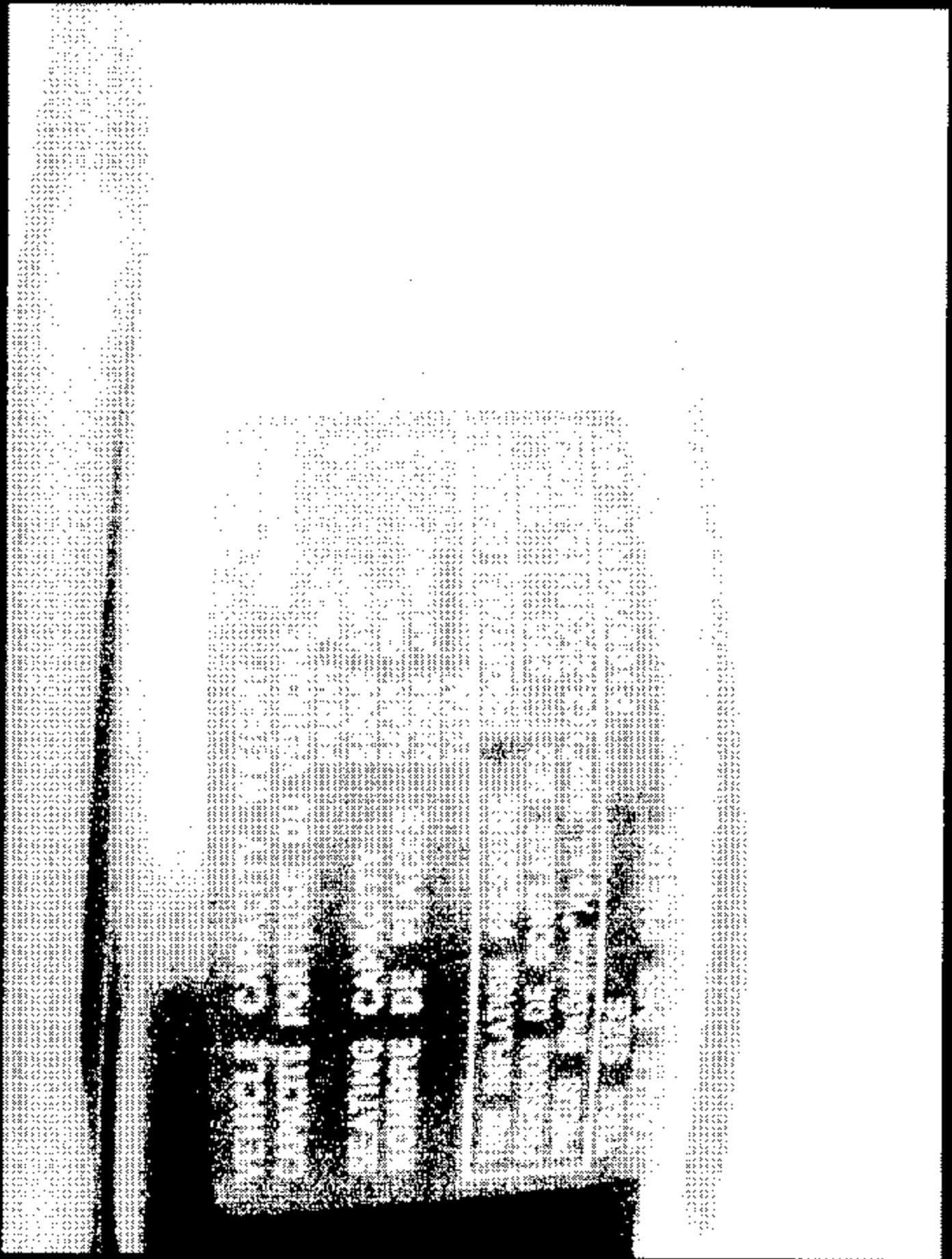


Figure A-44 Pre-Test Vehicle Recommended Tire Pressure Label View

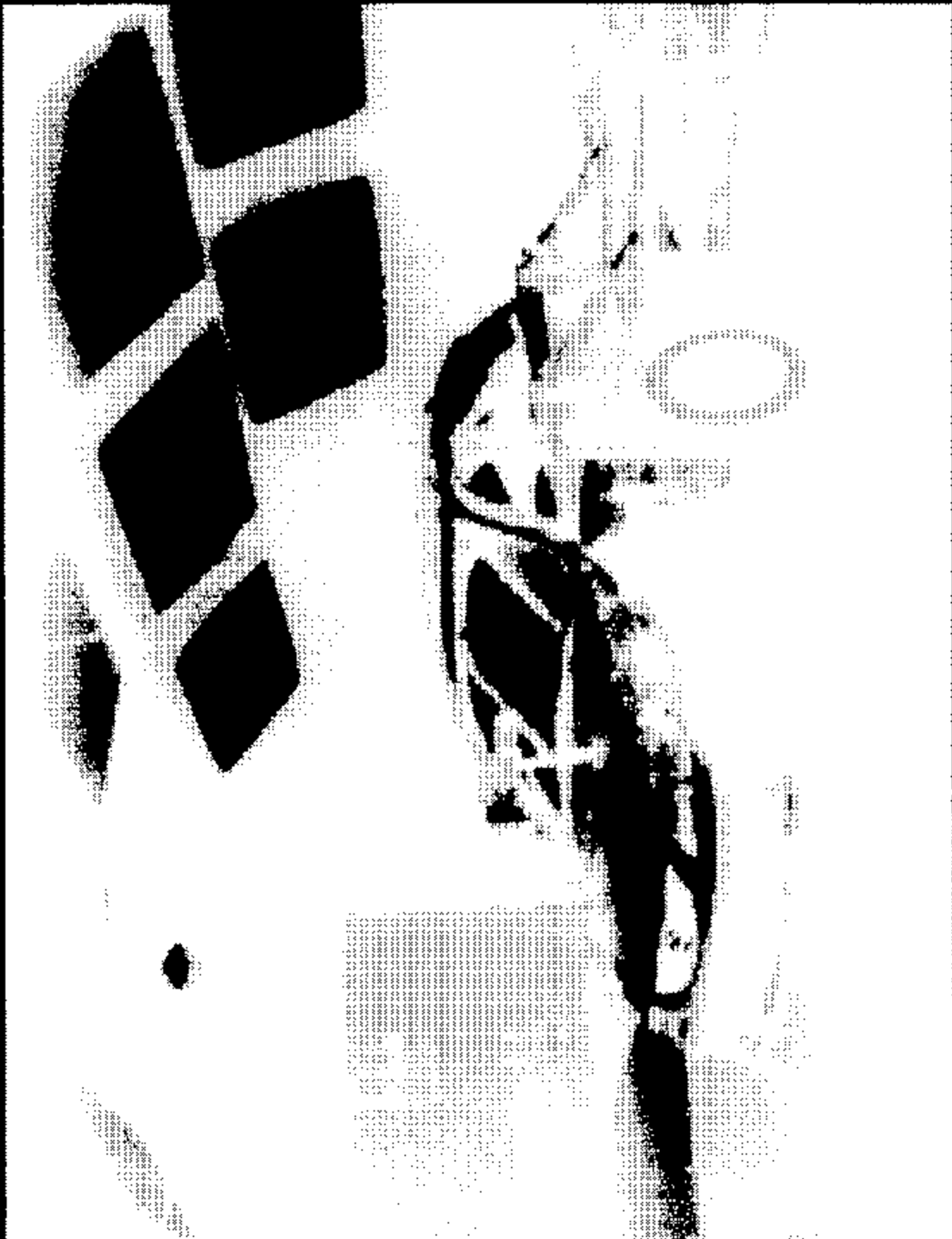


Figure A-45 Impact Event



Figure A-46 Pre-Test Fuel Cap



Figure A-47 Post-Text Fuel Cap



Figure A-48 FMVSS 301 Rollover View at 90°

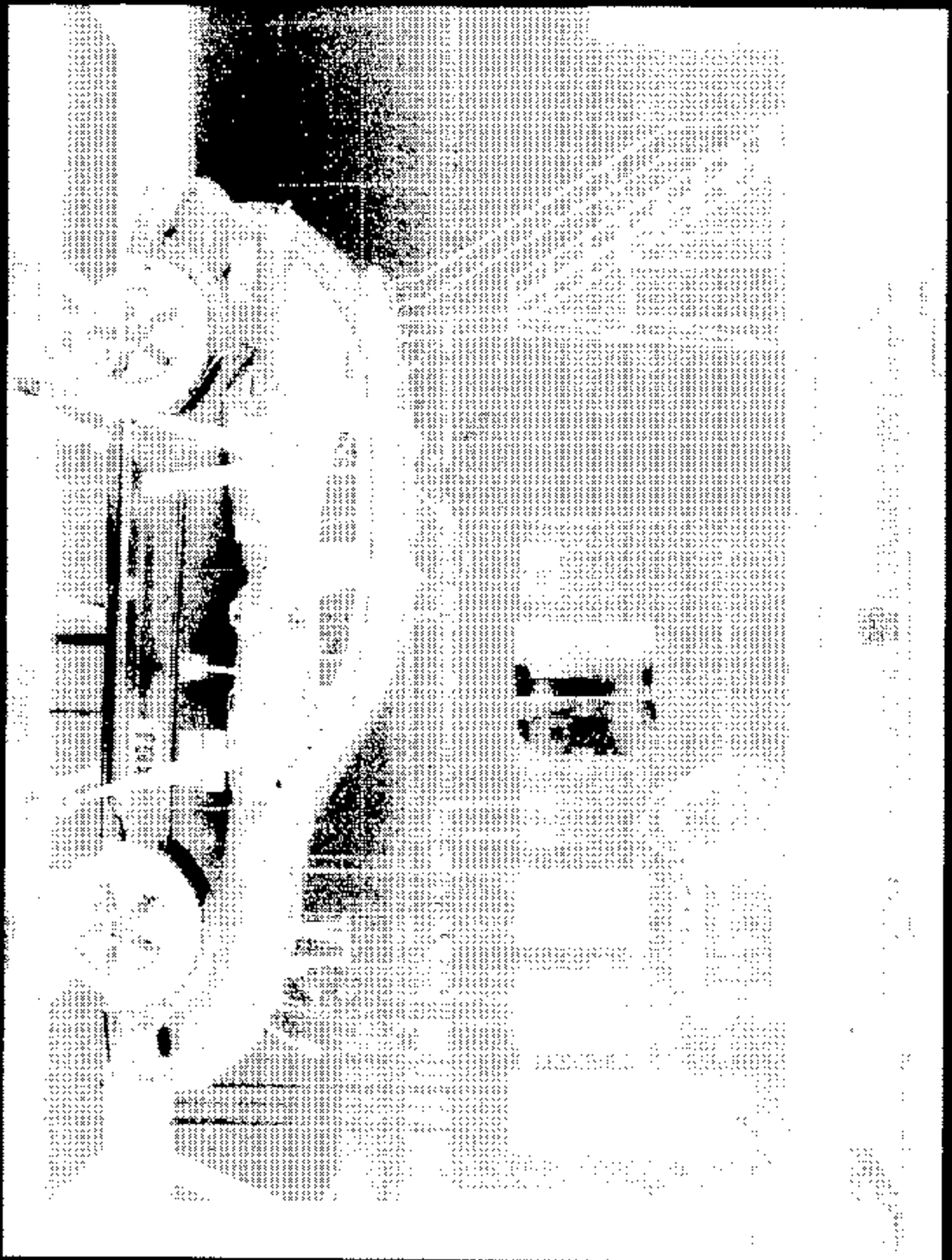


Figure A-49 FMVSS 301 Rotolover View at 180°

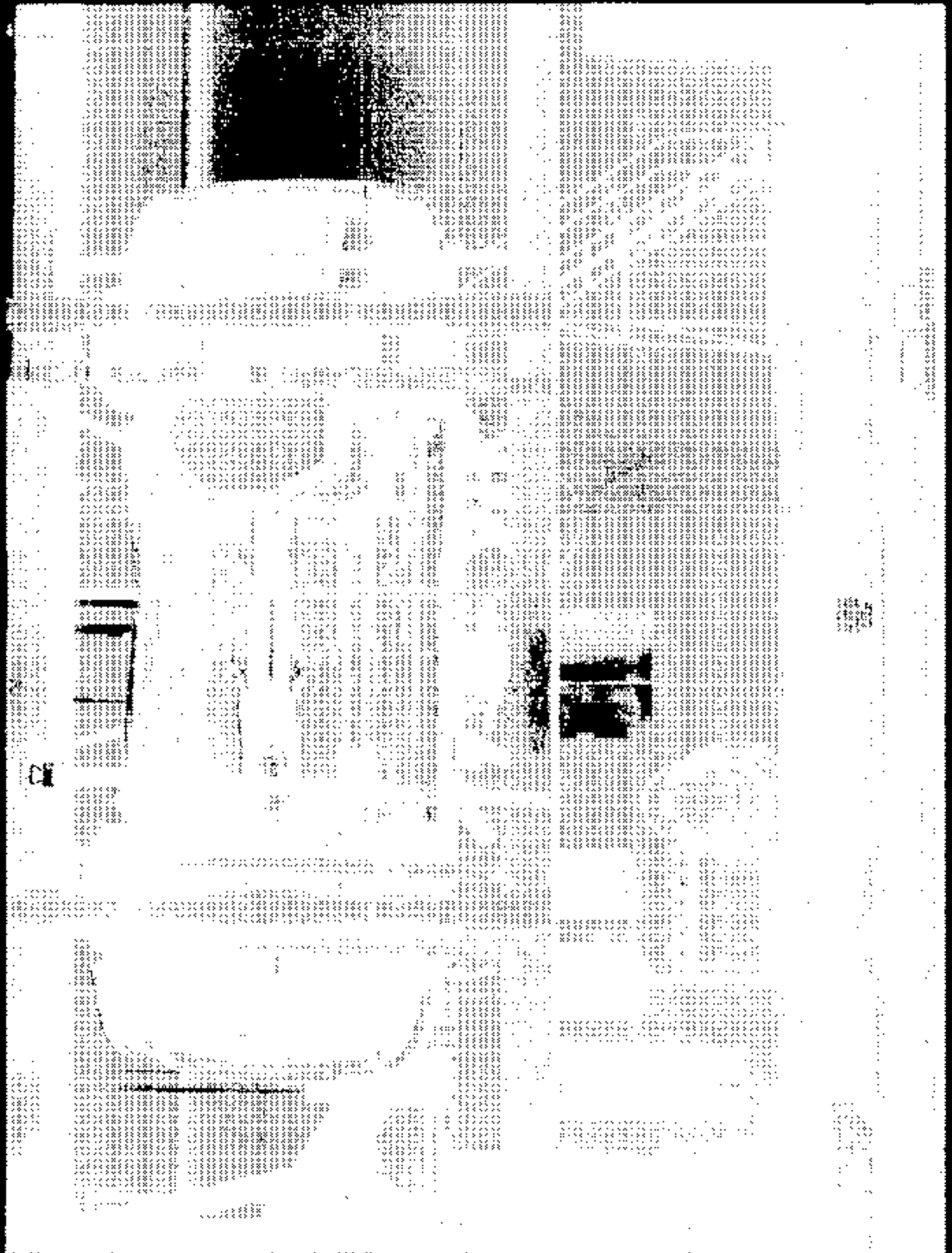


Figure A-50 FMVSS 301 Rollover View at 270°

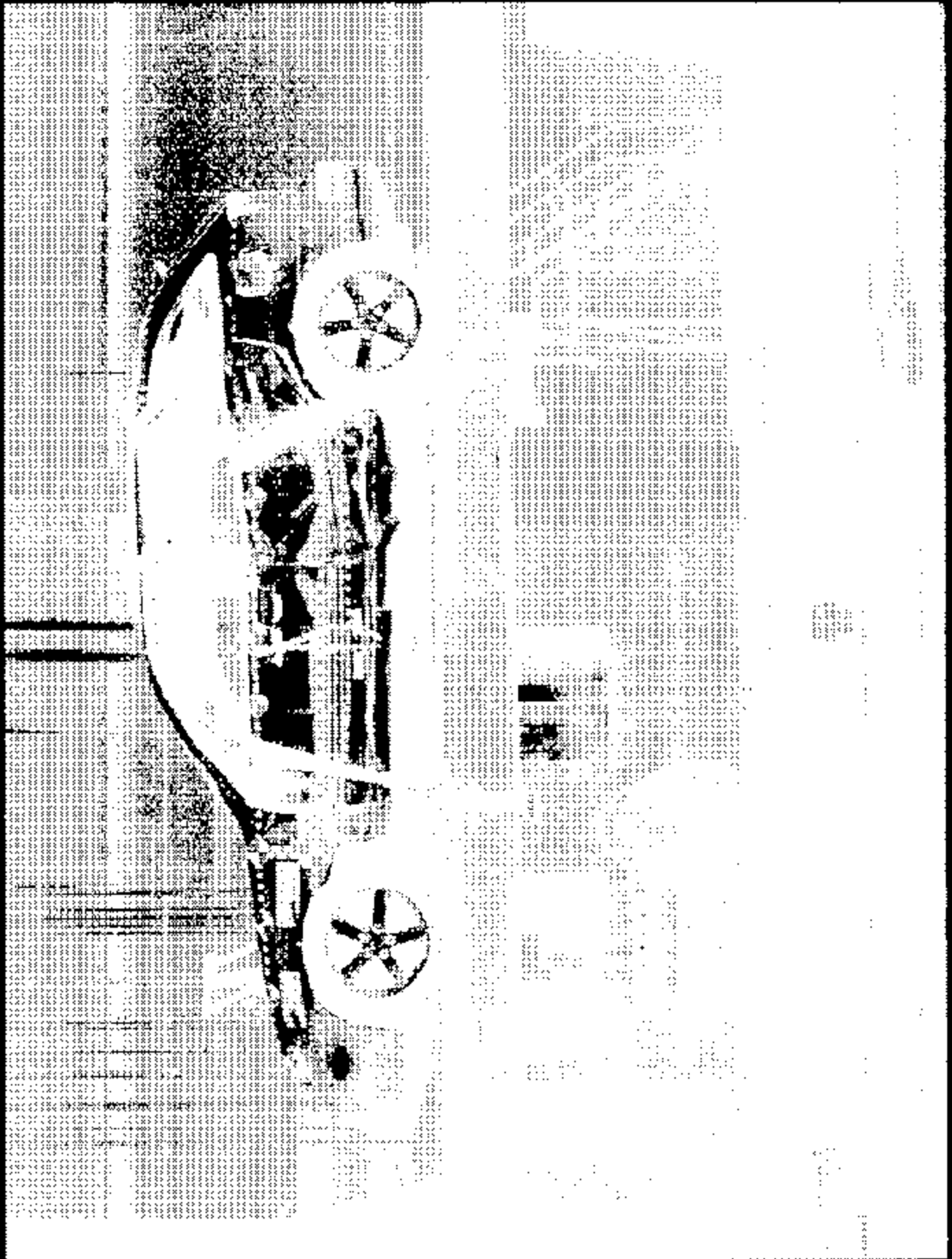


Figure A-51 FMVSS 301 Rollover View at 360°

**Appendix B**

**Data Plots**

Table of Data Plots  
**Driver and Passenger Dummy Instrumentation Plots**  
**Acceleration Data - Filter Class 1000**  
**Integration Data - Filter Class 180**

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2	Driver Upper Rib Y-Axis Velocity	B-10
3	Driver Lower Rib Y-Axis Acceleration	B-11
4	Driver Lower Rib Y-Axis Velocity	B-12
5	Driver Lower Spine Y-Axis Acceleration	B-13
6	Driver Lower Spine Y-Axis Velocity	B-14
7	Driver Pelvis Y-Axis Acceleration	B-15
8	Driver Pelvis Y-Axis Velocity	B-16
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10	Left Rear Passenger Upper Rib Y-Axis Velocity	B-18
11	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-19
12	Left Rear Passenger Lower Rib Y-Axis Velocity	B-20
13	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-21
14	Left Rear Passenger Lower Spine Y-Axis Velocity	B-22
15	Left Rear Passenger Pelvis Y-Axis Acceleration	B-23
16	Left Rear Passenger Pelvis Y-Axis Velocity	B-24

**Driver and Passenger Dummy Instrumentation Plots**  
**Acceleration Data - Filter Class 1000 - Redundant**  
**Integration Data - Filter Class 180 - Redundant**

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
17	Driver Upper Rib Y-Axis Redundant Acceleration	B-26
18	Driver Upper Rib Y-Axis Redundant Velocity	B-27
19	Driver Lower Rib Y-Axis Redundant Acceleration	B-28
20	Driver Lower Rib Y-Axis Redundant Velocity	B-29
21	Driver Lower Spine Y-Axis Redundant Acceleration	B-30
22	Driver Lower Spine Y-Axis Redundant Velocity	B-31
23	Driver Pelvis Y-Axis Redundant Acceleration	B-32

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

24	Driver Pelvis Y-Axis Redundant Velocity	B-33
25	Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration	B-34
26	Left Rear Passenger Upper Rib Y-Axis Redundant Velocity	B-35
27	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-36
28	Left Rear Passenger Lower Rib Y-Axis Redundant Velocity	B-37
29	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-38
30	Left Rear Passenger Lower Spine Y-Axis Redundant Velocity	B-39
31	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-40
32	Left Rear Passenger Pelvis Y-Axis Redundant Velocity	B-41

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>
33	Right Side Sill At Front Seat X-Axis Acceleration	B-43
34	Right Side Sill At Front Seat X-Axis Velocity	B-44
35	Right Side Sill At Front Seat Y-Axis Acceleration	B-45
36	Right Side Sill At Front Seat Y-Axis Velocity	B-46
37	Right Side Sill At Front Seat Z-Axis Acceleration	B-47
38	Right Side Sill At Front Seat Z-Axis Velocity	B-48
39	Right Side Sill At Front Seat Resultant Acceleration	B-49
40	Right Side Sill At Rear Seat X-Axis Acceleration	B-50
41	Right Side Sill At Rear Seat X-Axis Velocity	B-51
42	Right Side Sill At Rear Seat Y-Axis Acceleration	B-52
43	Right Side Sill At Rear Seat Y-Axis Velocity	B-53
44	Right Side Sill At Rear Seat Z-Axis Acceleration	B-54
45	Right Side Sill At Rear Seat Z-Axis Velocity	B-55
46	Right Side Sill At Rear Seat Resultant Acceleration	B-56
47	Rear Floorpan Above Axle X-Axis Acceleration	B-57
48	Rear Floorpan Above Axle X-Axis Velocity	B-58

Table of Data Plots (Continued)  
 Test Vehicle Instrumentation Plots (Continued)  
 Acceleration Data - Filter Class 60  
 Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
49	Rear Floorpan Above Axle Y-Axis Acceleration	B-59
50	Rear Floorpan Above Axle Y-Axis Velocity	B-60
51	Rear Floorpan Above Axle Z-Axis Acceleration	B-61
52	Rear Floorpan Above Axle Z-Axis Velocity	B-62
53	Rear Floorpan Above Axle Resultant Acceleration	B-63
54	Left Side Sill At Front Seat Y-Axis Acceleration	B-64
55	Left Side Sill At Front Seat Y-Axis Velocity	B-65
56	Left Side Sill At Front Seat Y-Axis Displacement	B-66
57	Left Side Sill At Rear Seat Y-Axis Acceleration	B-67
58	Left Side Sill At Rear Seat Y-Axis Velocity	B-68
59	Left Side Sill At Rear Seat Y-Axis Displacement	B-69
60	Left Front Door on Centerline Y-Axis Acceleration	B-70
61	Left Front Door on Centerline Y-Axis Velocity	B-71
62	Left Front Door on Centerline Y-Axis Displacement	B-72
63	Right Rear Occupant Compartment Y-Axis Acceleration	B-73
64	Right Rear Occupant Compartment Y-Axis Velocity	B-74
65	Right Rear Occupant Compartment Y-Axis Displacement	B-75
66	Mid-Rear of Left Front Door Y-Axis Acceleration	B-76
67	Mid-Rear of Left Front Door Y-Axis Velocity	B-77
68	Mid-Rear of Left Front Door Y-Axis Displacement	B-78
69	Left Front Door Upper Centerline Y-Axis Acceleration	B-79
70	Left Front Door Upper Centerline Y-Axis Velocity	B-80
71	Left Front Door Upper Centerline Y-Axis Displacement	B-81
72	Mid-Rear of Left Rear Door Y-Axis Acceleration	B-82
73	Mid-Rear of Left Rear Door Y-Axis Velocity	B-83
74	Mid-Rear of Left Rear Door Y-Axis Displacement	B-84
75	Left Rear Door Upper Centerline Y-Axis Acceleration	B-85
76	Left Rear Door Upper Centerline Y-Axis Velocity	B-86

Table of Data Plots (Continued)  
**Test Vehicle Instrumentation Plots (Continued)**  
**Acceleration Data - Filter Class 60**  
**Integration Data - Filter Class 180**

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
77	Left Rear Door Upper Centerline Y-Axis Displacement	B-87
78	Left Lower A-Post Y-Axis Acceleration	B-88
79	Left Lower A-Post Y-Axis Velocity	B-89
80	Left Middle A-Post Y-Axis Acceleration	B-90
81	Left Middle A-Post Y-Axis Velocity	B-91
82	Left Lower B-Post Y-Axis Acceleration	B-92
83	Left Lower B-Post Y-Axis Velocity	B-93
84	Left Middle B-Post Y-Axis Acceleration	B-94
85	Left Middle B-Post Y-Axis Velocity	B-95
86	Left Front Seat Track Y-Axis Acceleration	B-96
87	Left Front Seat Track Y-Axis Velocity	B-97
88	Left Rear Seat Track Y-Axis Acceleration	B-98
89	Left Rear Seat Track Y-Axis Velocity	B-99
90	Vehicle Center Of Gravity X-Axis Acceleration	B-100
91	Vehicle Center Of Gravity X-Axis Velocity	B-101
92	Vehicle Center Of Gravity Y-Axis Acceleration	B-102
93	Vehicle Center Of Gravity Y-Axis Velocity	B-103
94	Vehicle Center Of Gravity Z-Axis Acceleration	B-104
95	Vehicle Center Of Gravity Z-Axis Velocity	B-105
96	Vehicle Center Of Gravity Resultant Acceleration	B-106

**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>
97	MDB Center Of Gravity X-Axis Acceleration	B-108
98	MDB Center Of Gravity X-Axis Velocity	B-109
99	MDB Center Of Gravity Y-Axis Acceleration	B-110
100	MDB Center Of Gravity Y-Axis Velocity	B-111

Table of Data Plots (Continued)  
 MDB Instrumentation Plots (Continued)  
 Acceleration Data - Filter Class 60  
 Integration Data - Filter Class 180

101	MDB Center Of Gravity Z-Axis Acceleration	B-112
102	MDB Center Of Gravity Z-Axis Velocity	B-113
103	MDB Center Of Gravity Resultant Acceleration	B-114
104	MDB Left Rear X-Axis Acceleration	B-115
105	MDB Left Rear X-Axis Velocity	B-116
106	MDB Left Rear Y-Axis Acceleration	B-117
107	MDB Left Rear Y-Axis Velocity	B-118
108	MDB Right Side Contact Switch	B-119
109	MDB Left Side Contact Switch	B-120

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

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
110	Driver Upper Rib Y-Axis Acceleration	B-122
111	Driver Lower Rib Y-Axis Acceleration	B-123
112	Driver Lower Spine Y-Axis Acceleration	B-124
113	Driver Pelvis Y-Axis Acceleration	B-125
114	Passenger Upper Rib Y-Axis Acceleration	B-126
115	Passenger Lower Rib Y-Axis Acceleration	B-127
116	Passenger Lower Spine Y-Axis Acceleration	B-128
117	Passenger Pelvis Y-Axis Acceleration	B-129

Table of Data Plots (Continued)  
Driver and Passenger Dummy Instrumentation Plots  
Acceleration Data - FIR Filtered - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
118	Driver Upper Rib Y-Axis Redundant Acceleration	B-131
119	Driver Lower Rib Y-Axis Redundant Acceleration	B-132
120	Driver Lower Spine Y-Axis Redundant Acceleration	B-133
121	Driver Pelvis Y-Axis Redundant Acceleration	B-134
122	Passenger Upper Rib Y-Axis Redundant Acceleration	B-135
123	Passenger Lower Rib Y-Axis Redundant Acceleration	B-136
124	Passenger Lower Spine Y-Axis Redundant Acceleration	B-137
125	Passenger Pelvis Y-Axis Redundant Acceleration	B-138

**Driver and Passenger Dummy Instrumentation Plots**

**Acceleration Data - Filter Class 1000**

**Integration Data - Filter Class 180**

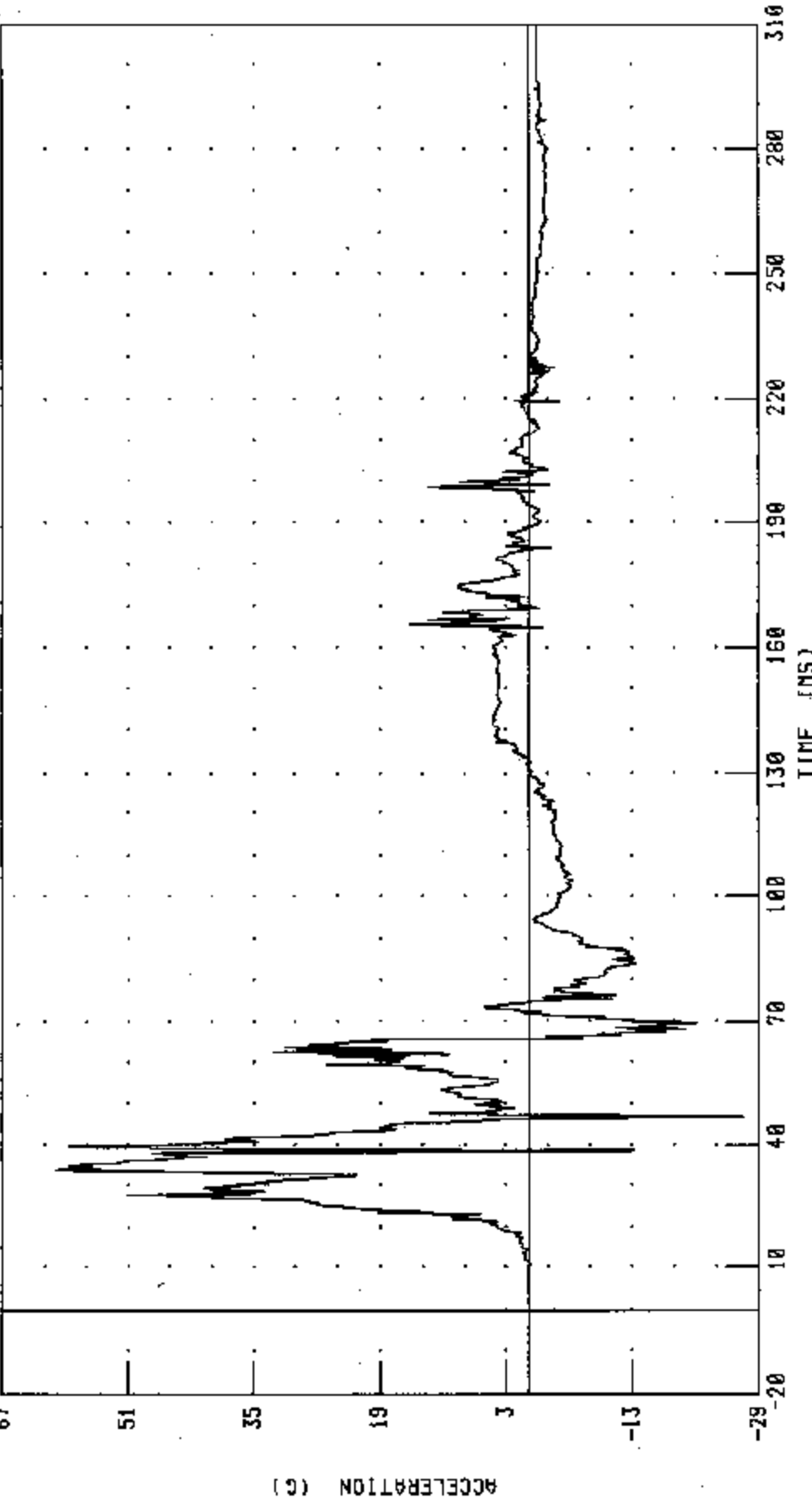
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

FVSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL: LURYG1 FILTER: CH. CLASS 1000

PEAK DATA: 60.39 G @ 33.84 MS, -27.16 G @ 45.64 MS

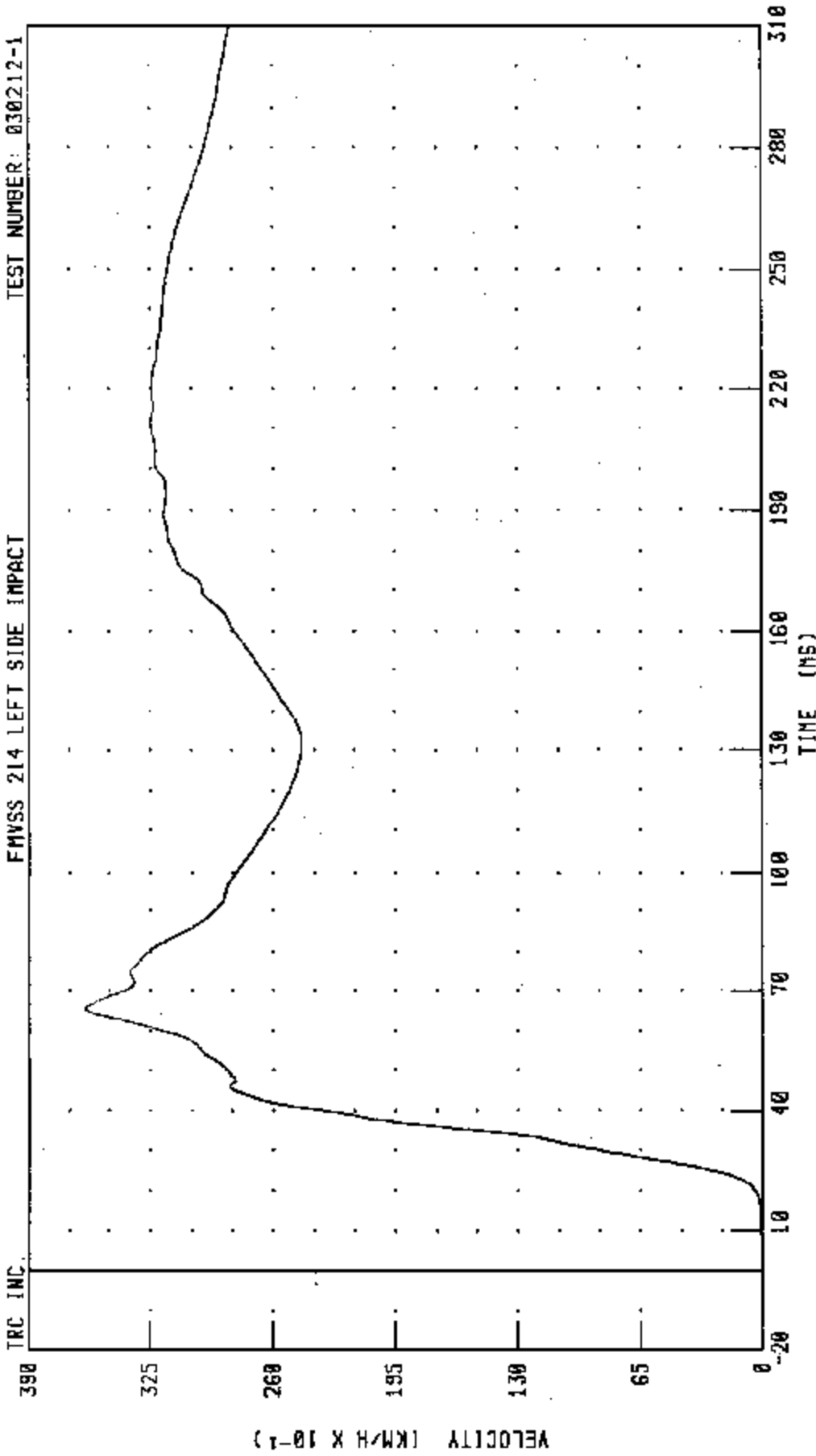
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER UPPER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

TEST NUMBER: 030212-1



CHANNEL: LURYV1 FILTER: CH. CLASS 180

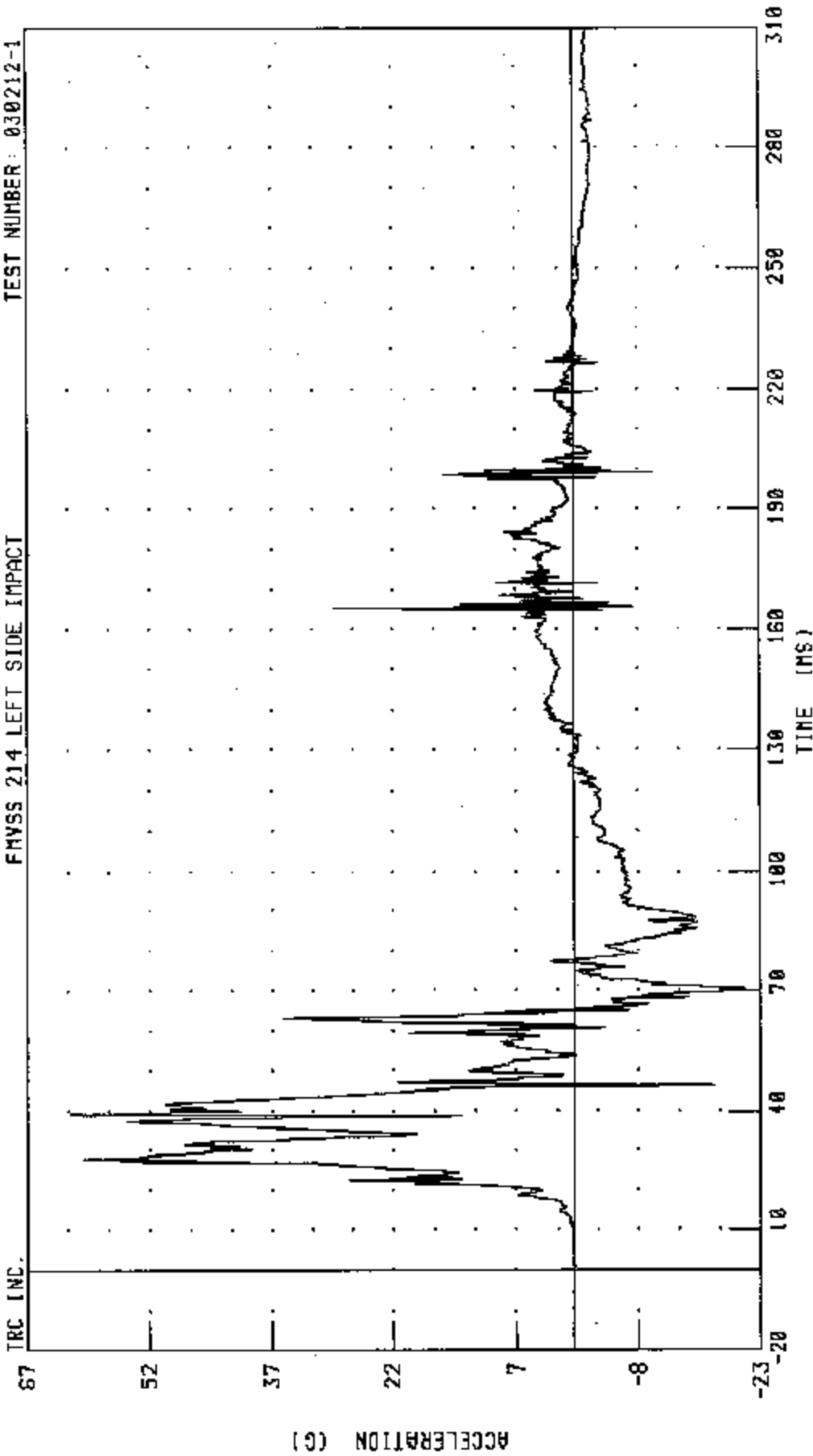
PEAK DATA: 35.95 KM/H @ 65.92 MS; 0.00 KM/H @ 2.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER LOWER RIB Y-AXIS ACCELERATION

FHYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: LLRYG1 FILTER: CH. CLASS 1000

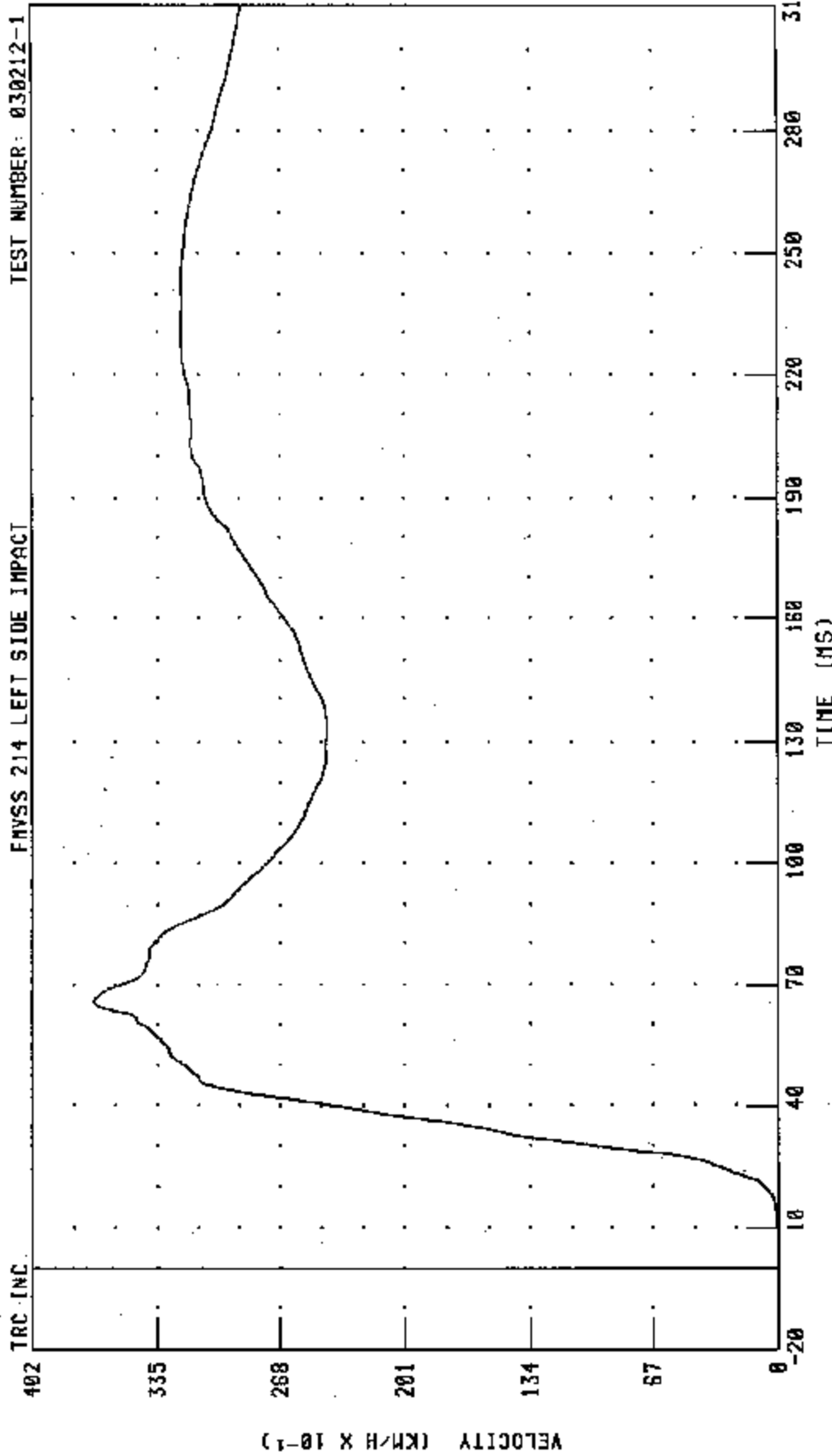
PEAK DATA: 61.81 G @ 39.28 MS, -21.17 G @ 70.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER LOWER RIB Y-AXIS VELOCITY

FNYS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



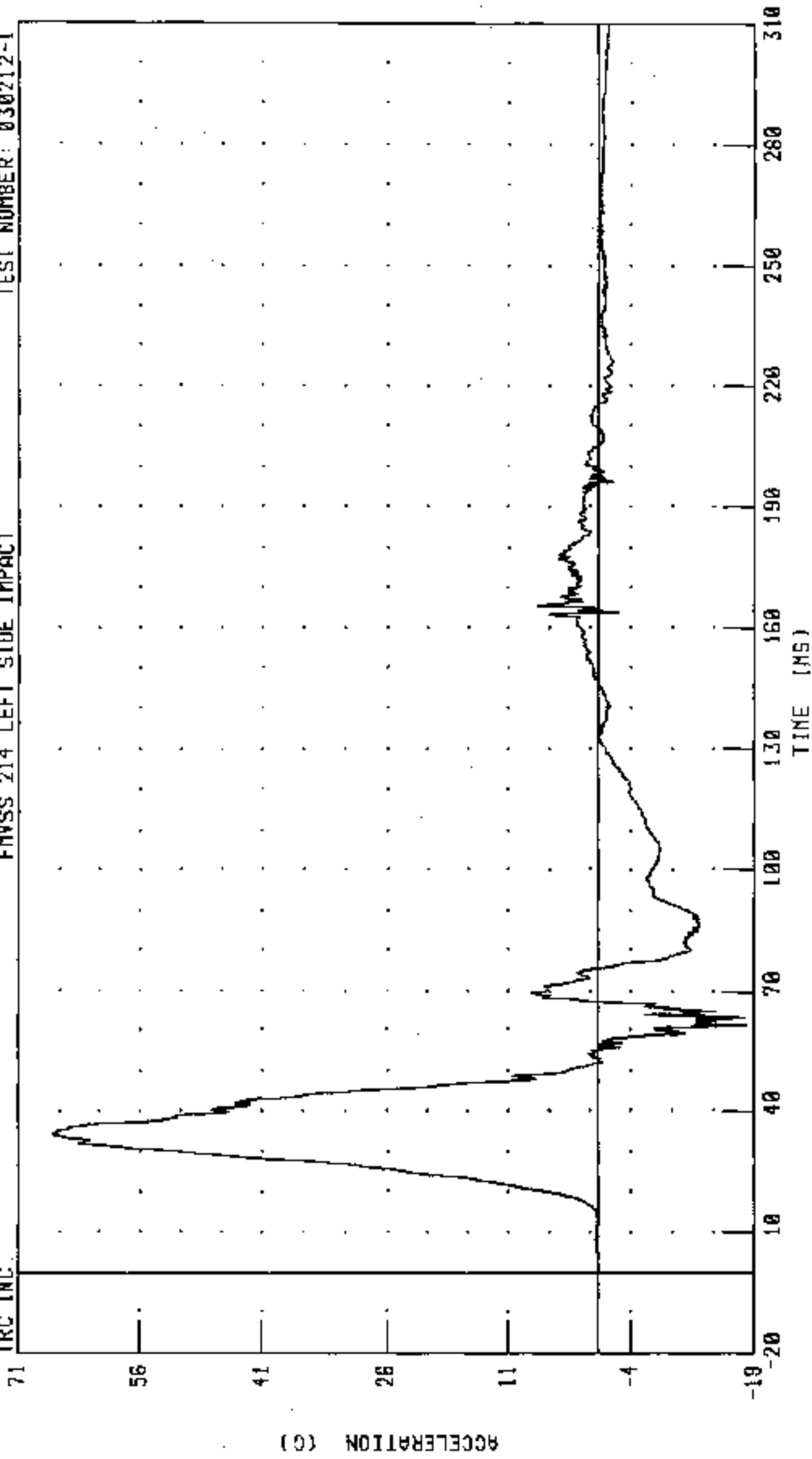
CHANNEL: LRYV1 FILTER: CH. CLASS 180 PEAK DATA: 36.91 KM/H @ 65.60 MS; 0.00 KM/H @ 1.20 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER LOWER SPINE Y-AXIS ACCELERATION

TRC INC.

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 66.07 G @ 34.80 MS; -18.12 G @ 61.04 MS

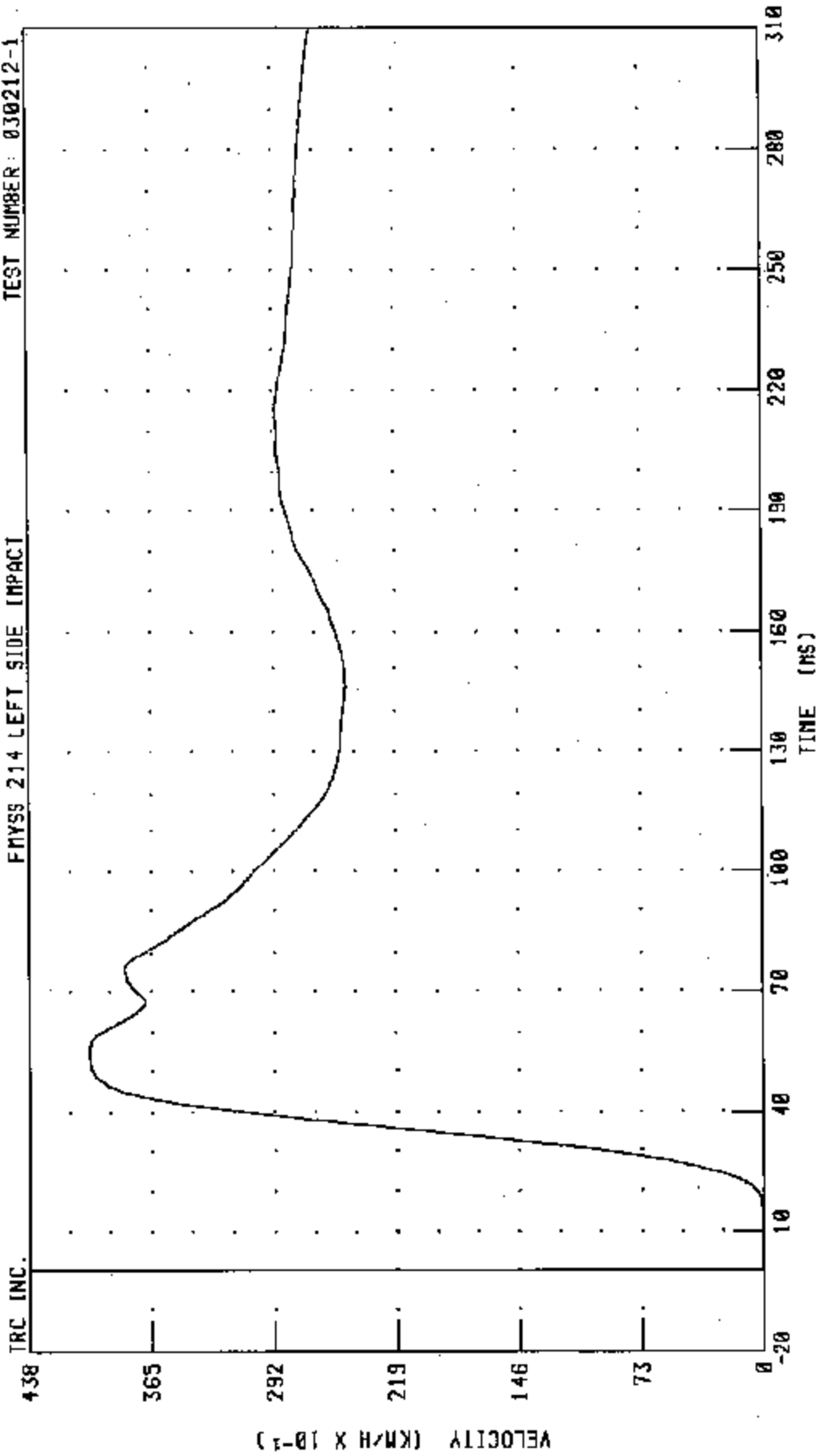
CHANNEL: T12Y61 FILTER: CH. CLASS 1000

48/24 XPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER LOWER SPINE Y-AXIS VELOCITY

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

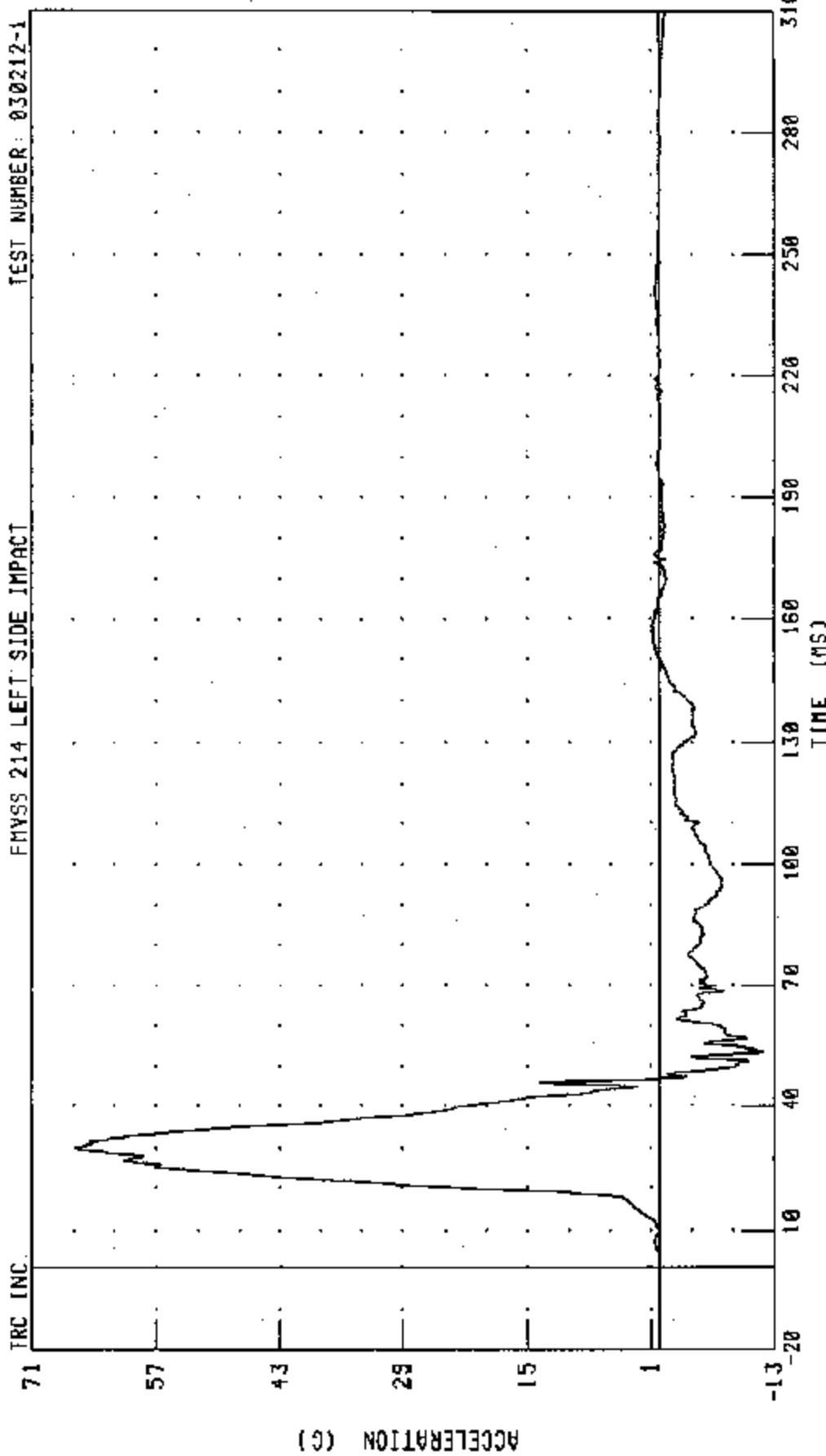


CHANNEL: T12YV1 FILTER: CH. CLASS 100 PEAK DATA: 40.19 KM/H @ 55.44 MS; 0.00 KM/H @ 0.00 MS

TRC INC.

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER PELVIS Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: PEYYG1 FILTER: CH. CLASS 1000 PEAK DATA: 66.21 G @ 30.32 MS, -11.85 G @ 165.20 MS

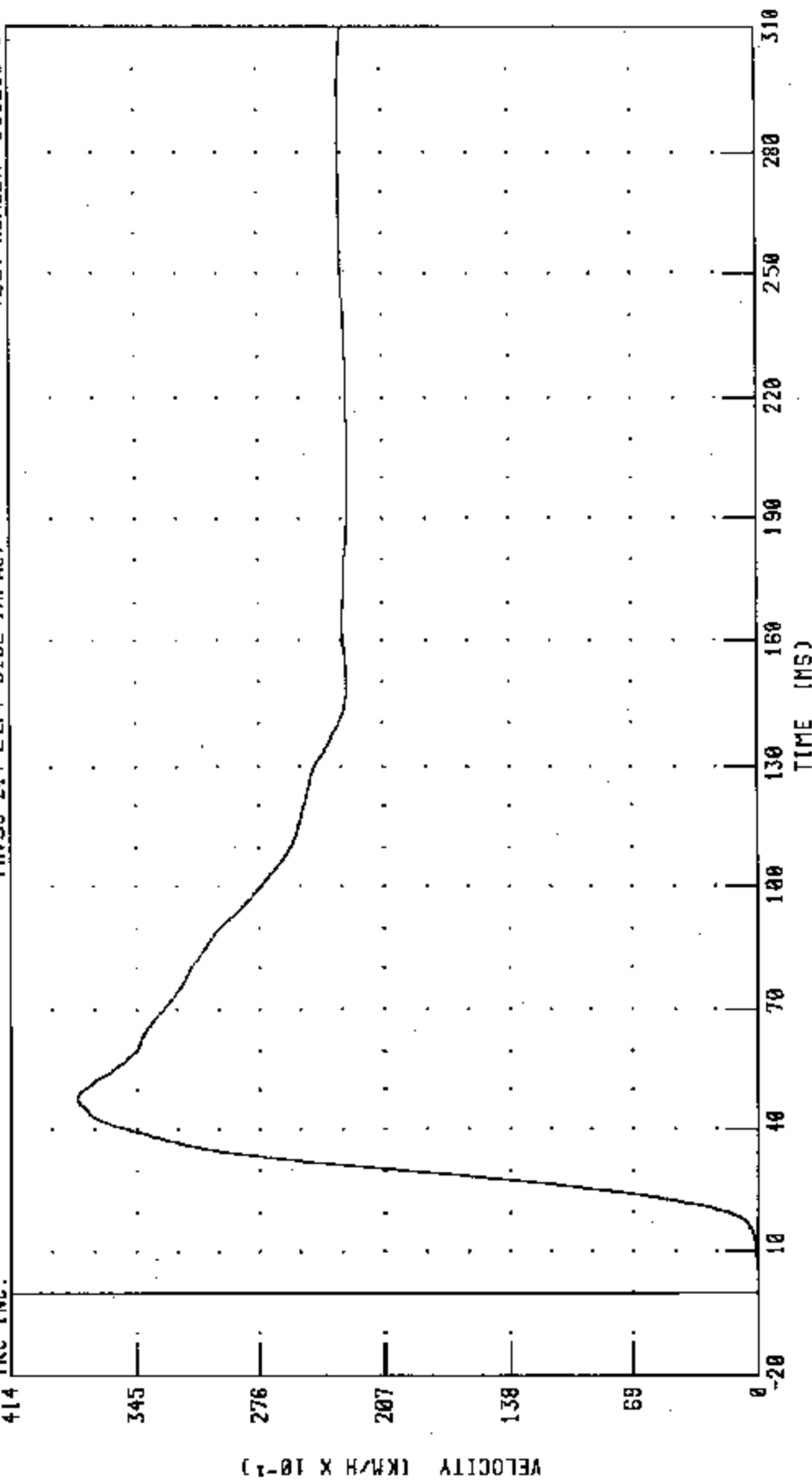
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER PELVIS Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

414 TRC INC.



CHANNEL: PEVYV1 FILTER: CH. CLASS 180

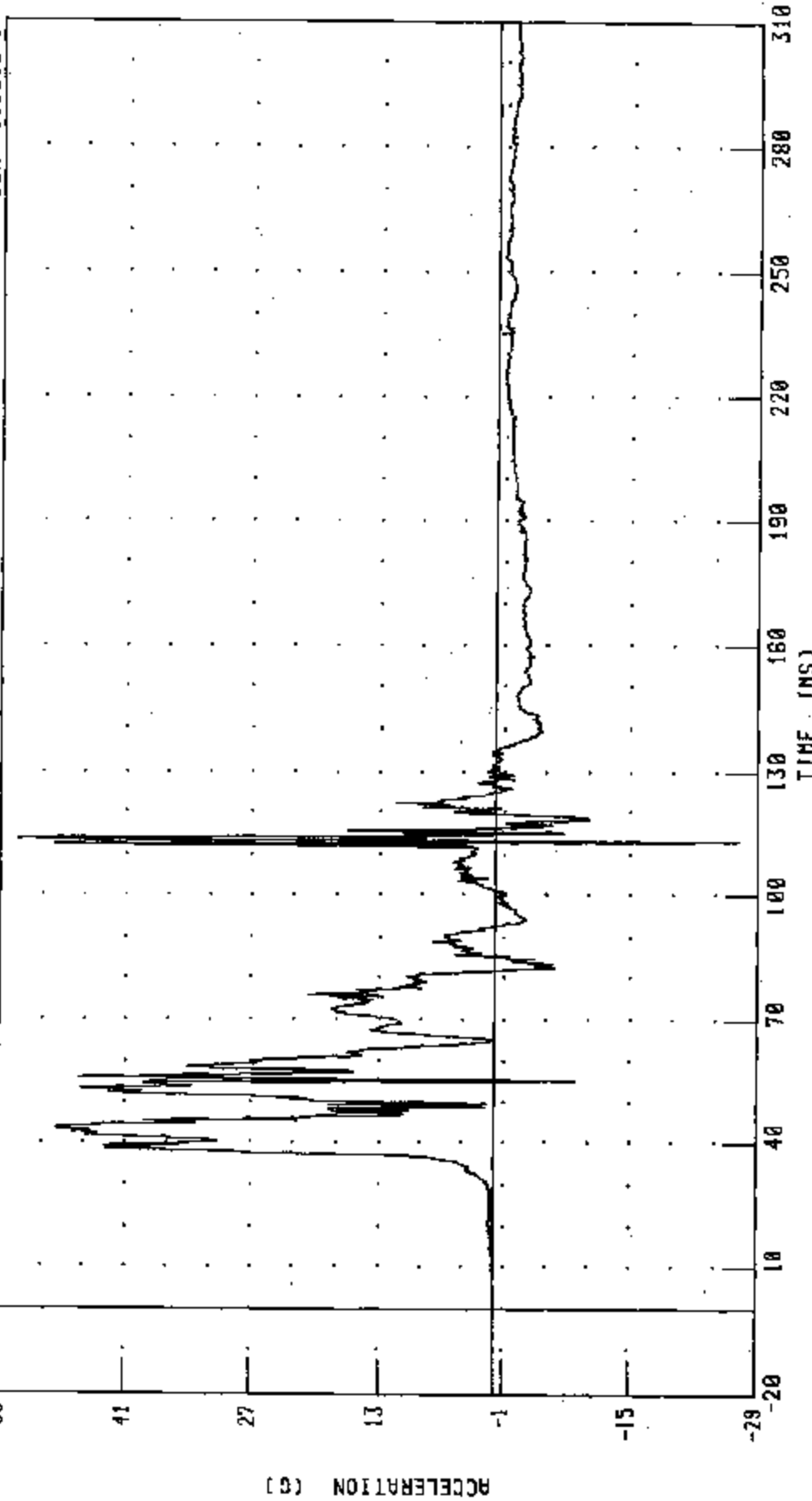
PEAK DATA: 37.76 KM/H @ 47.60 MS, 0.00 KM/H @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

55 TRC INC.

FRVSS 214 LEFT SIDE IMPACT

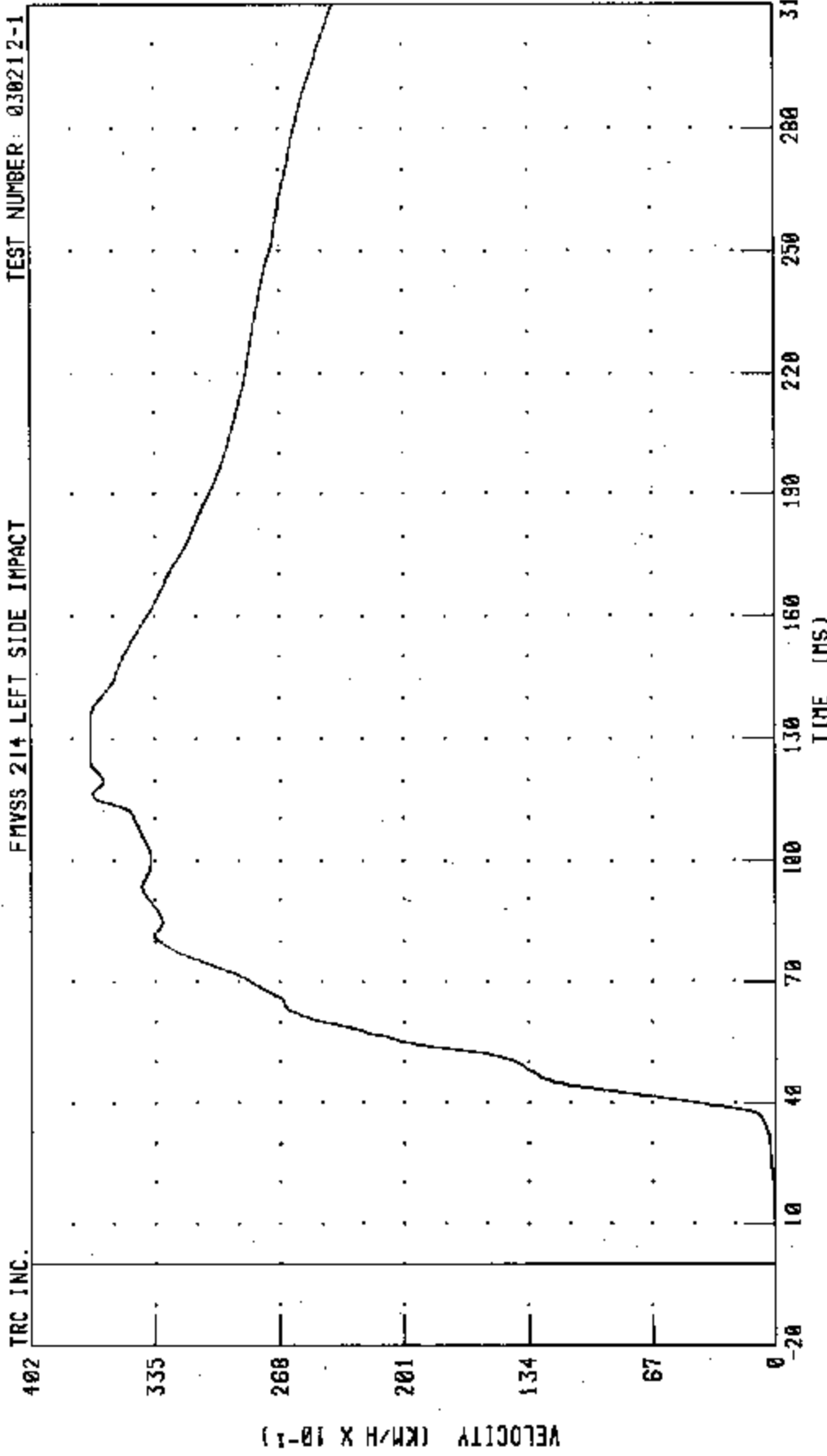
TEST NUMBER: 030212-1



PEAK DATA: 53.08 G @ 113.76 MS; -26.83 G @ 113.28 MS

CHANNEL: LURYC4 FILTER: CH. CLASS 1000

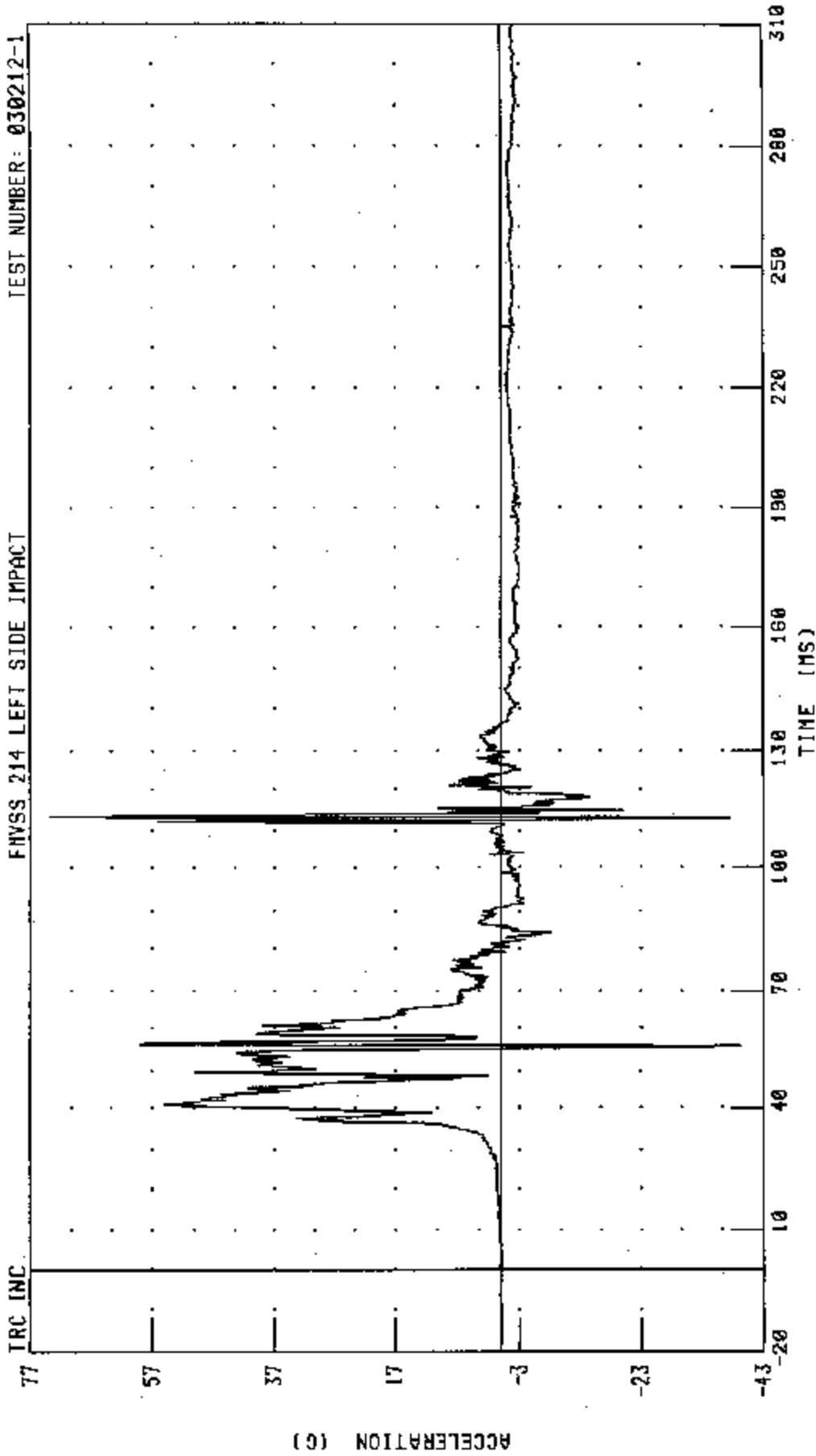
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY



CHANNEL: LURYY4 FILTER: CH. CLASS 100 PEAK DATA: 36.99 KM/H @ 124.96 MS, 0.00 KM/H @ 0.88 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

TRC INC. FVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1

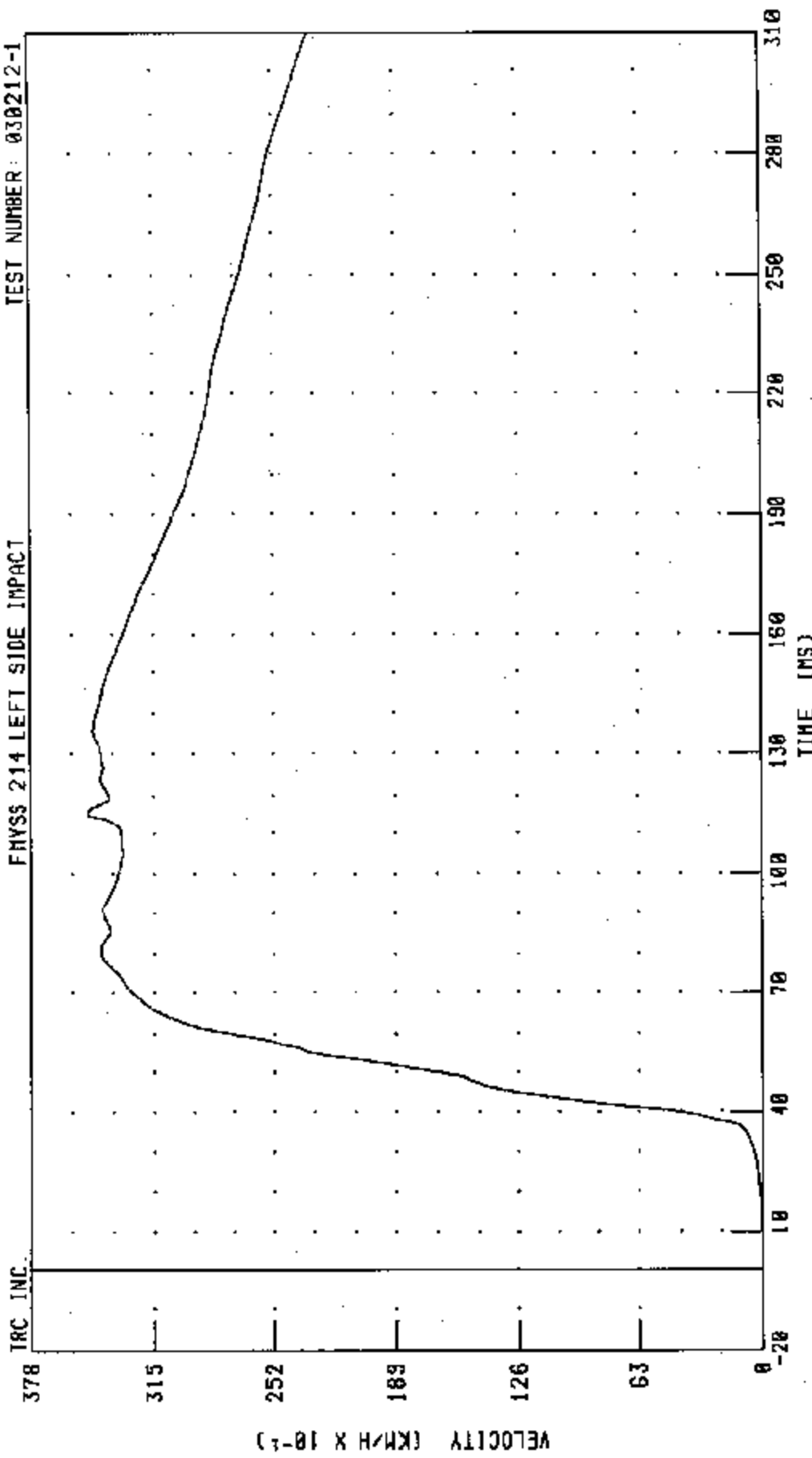


CHANNEL: LRYC4 FILTER: CH. CLASS 1000 PEAK DATA: 73.76 G @ 113.84 MS; -39.35 G @ 55.92 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 030212-1

FMYSS 214 LEFT SIDE IMPACT

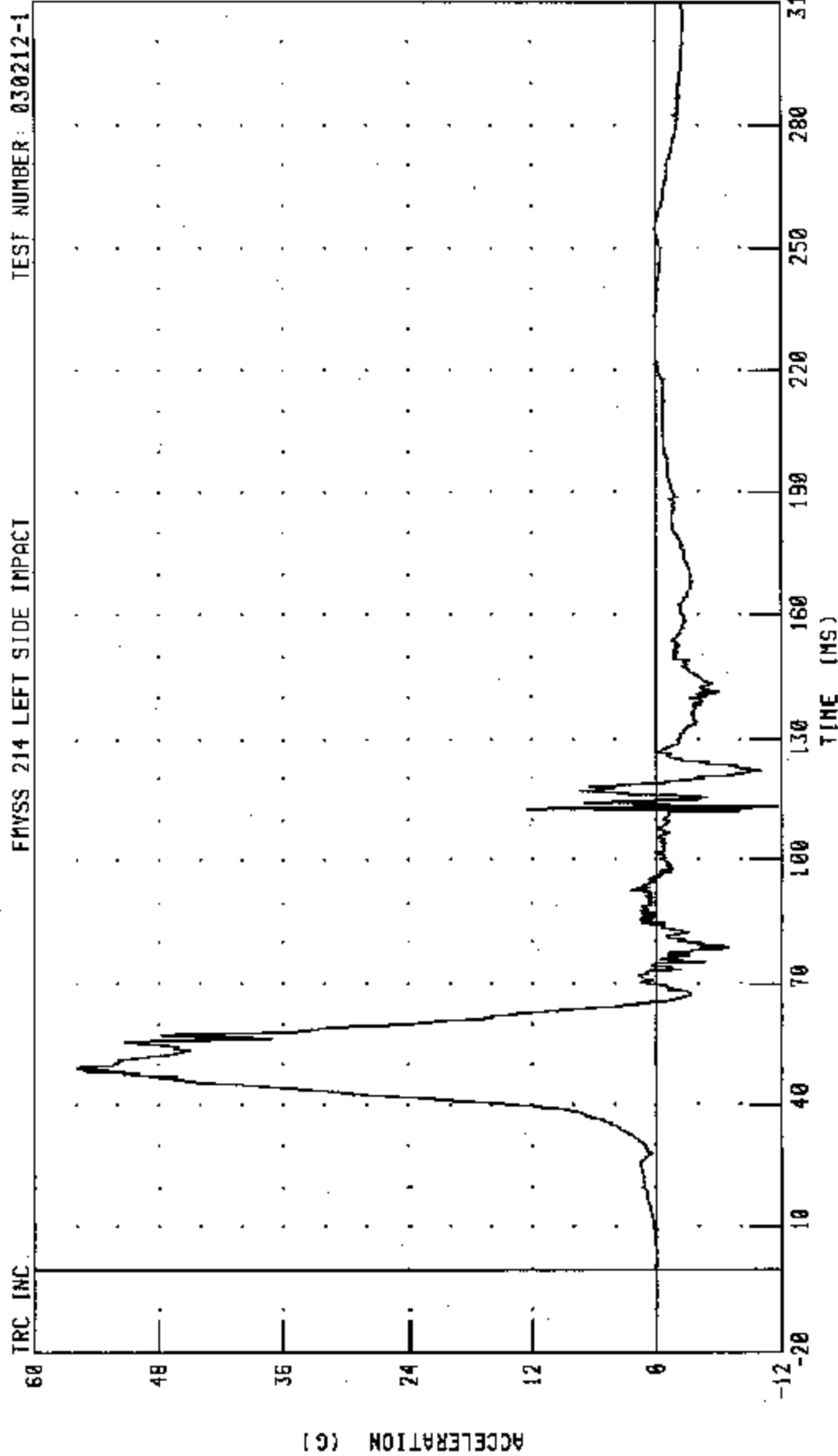


PEAK DATA: 34.90 KM/H @ 115.12 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: LLRY4 FILTER: CH. CLASS 180

TRC INC.

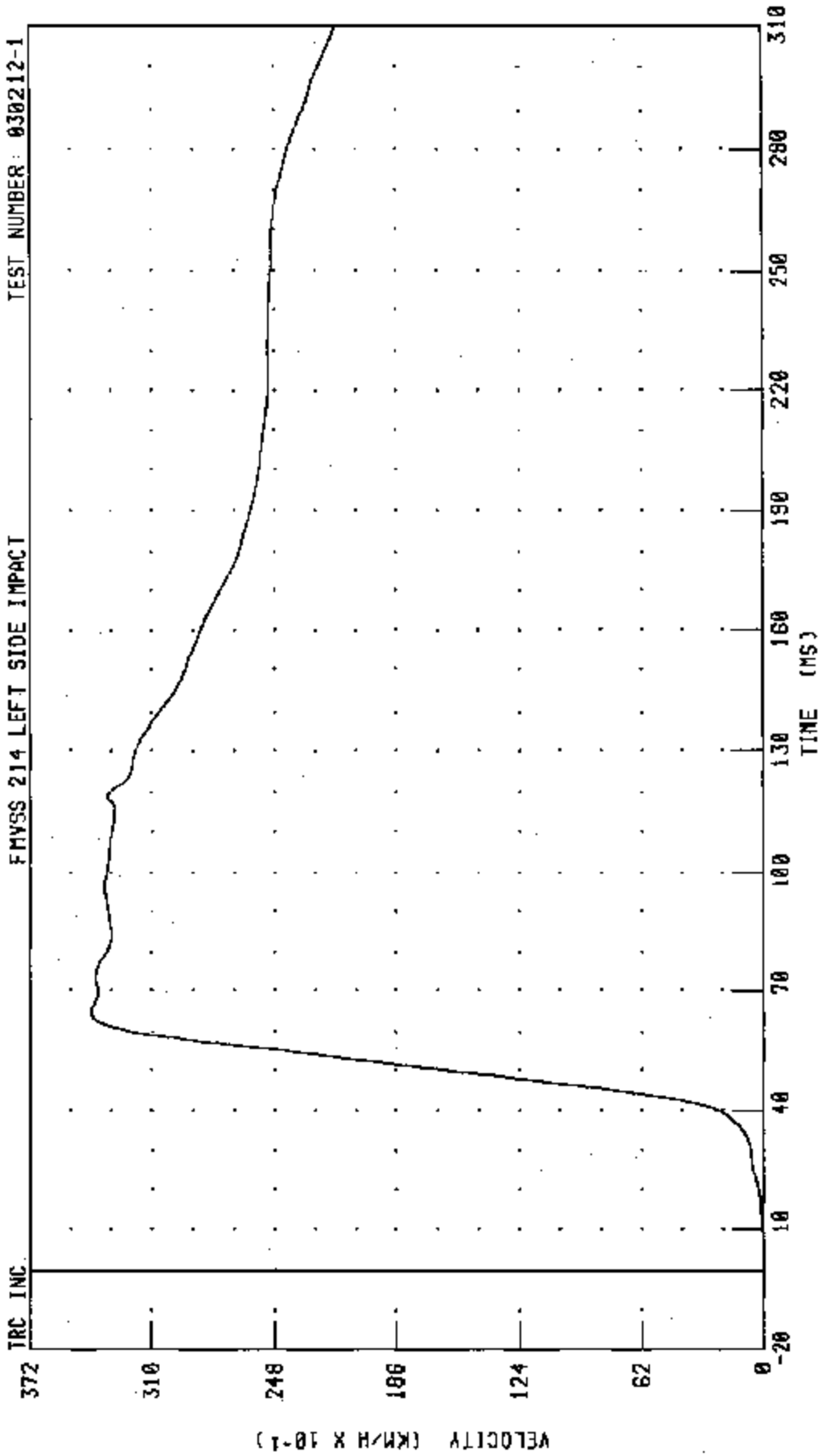
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION



CHANNEL: T12YC4 FILTER: CH. CLASS 1000 PEAK DATA: 56.01 G @ 49.20 MS; -11.65 G @ 113.20 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

TRC INC. FMYSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



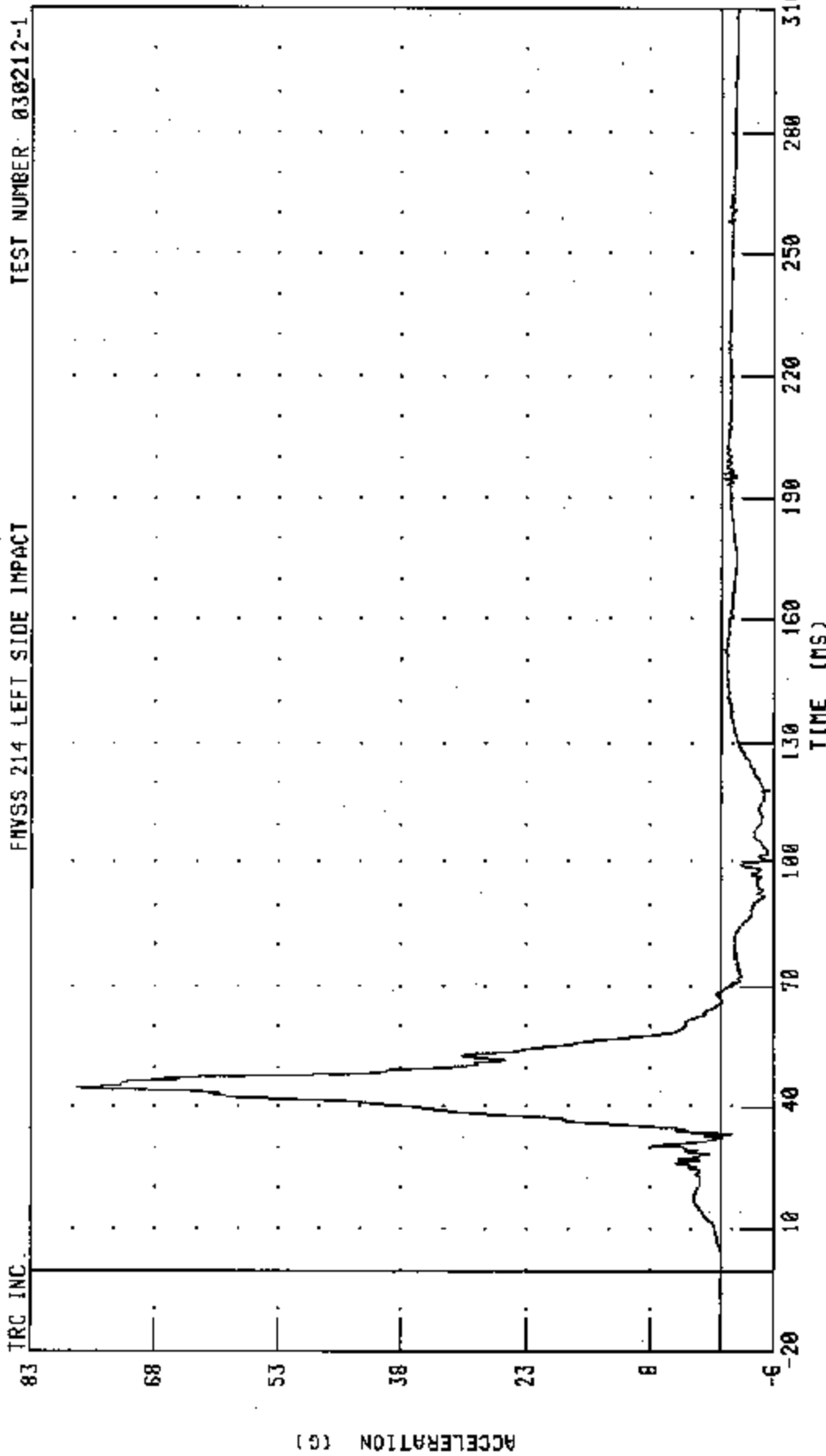
CHANNEL: T12YV4 FILTER: CH. CLASS 100

PEAK DATA: 34.07 KM/H @ 65.28 MS; 0.00 KM/H @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

FNVS 214 LEFT SIDE IMPACT



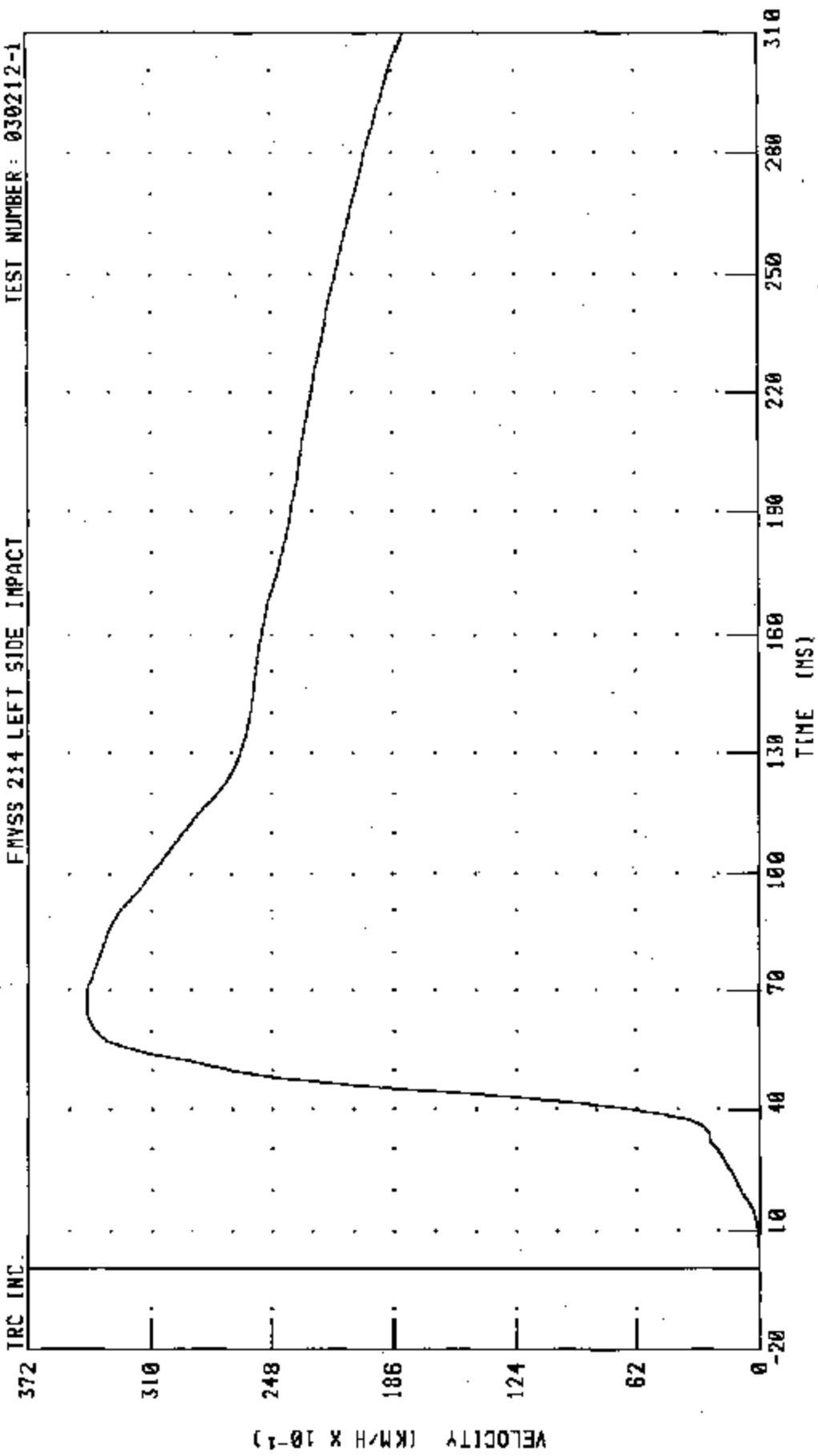
CHANNEL: PEY64 FILTER: CH. CLASS 1000 PEAK DATA: 78.22 G @ 44.72 MS, -5.80 G @ 118.08 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 030212-1

FMYSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL: PEVYV4 FILTER: CH. CLASS 180 PEAK DATA: 34.25 KM/H @ 68.00 MS; 0.00 KM/H @ 0.00 MS

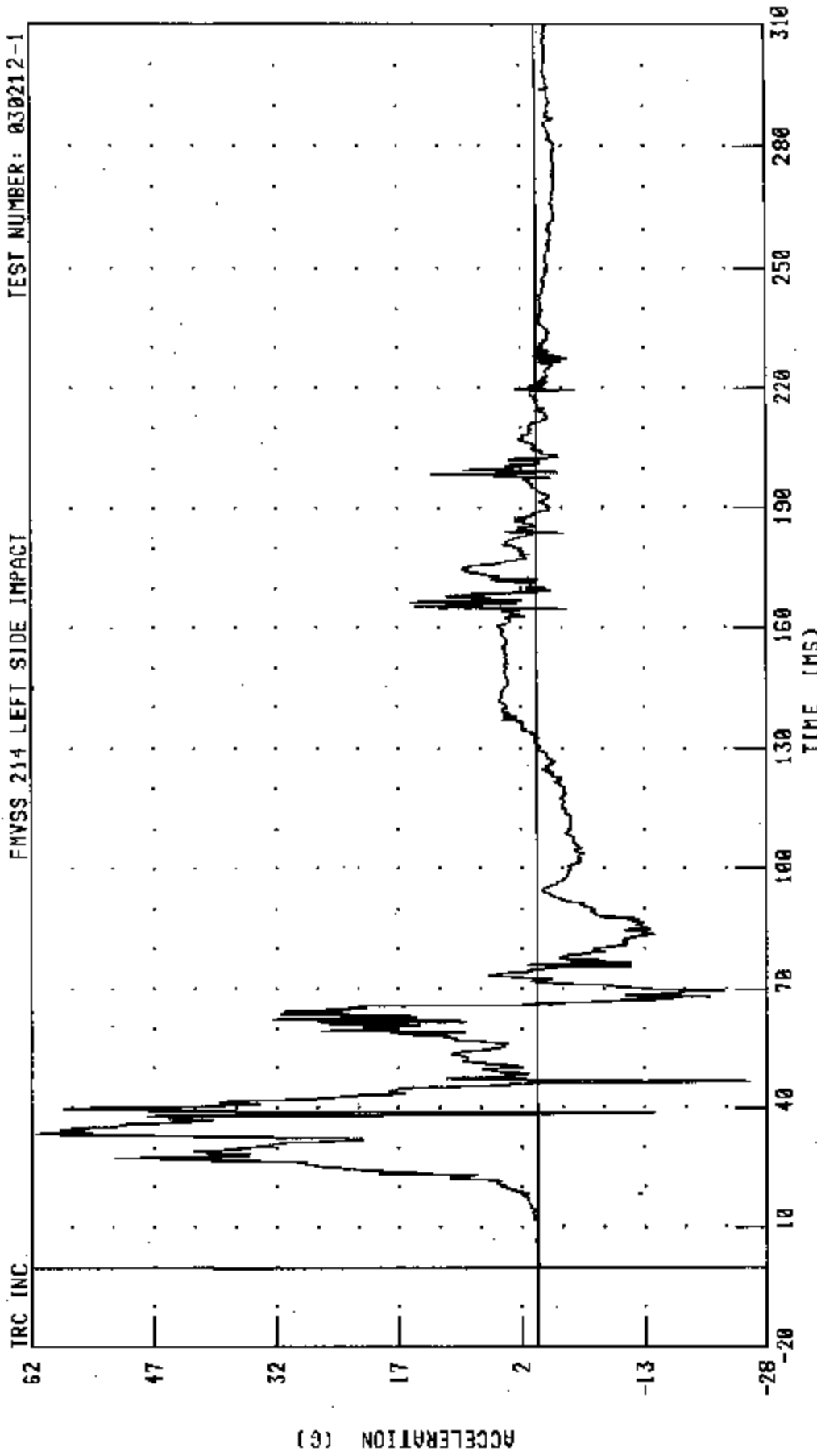
Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



TRC INC.

PEAK DATA: 61.34 G @ 33.92 MS, -25.82 C @ 46.64 MS

CHANNEL: LURYR1 FILTER: CH. CLASS 1000

ACCELERATION (G)

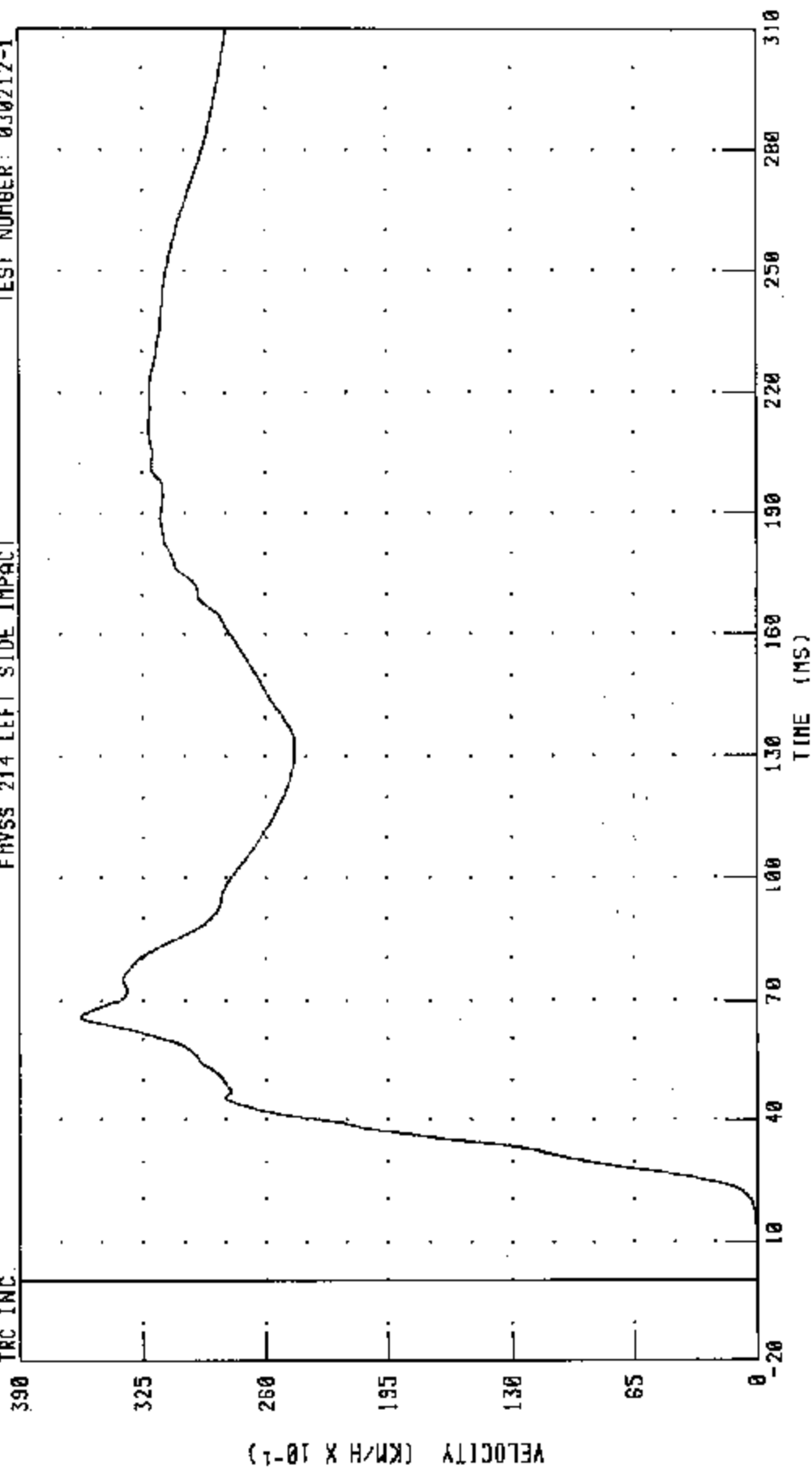
030212-1

B-26

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY  
FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.



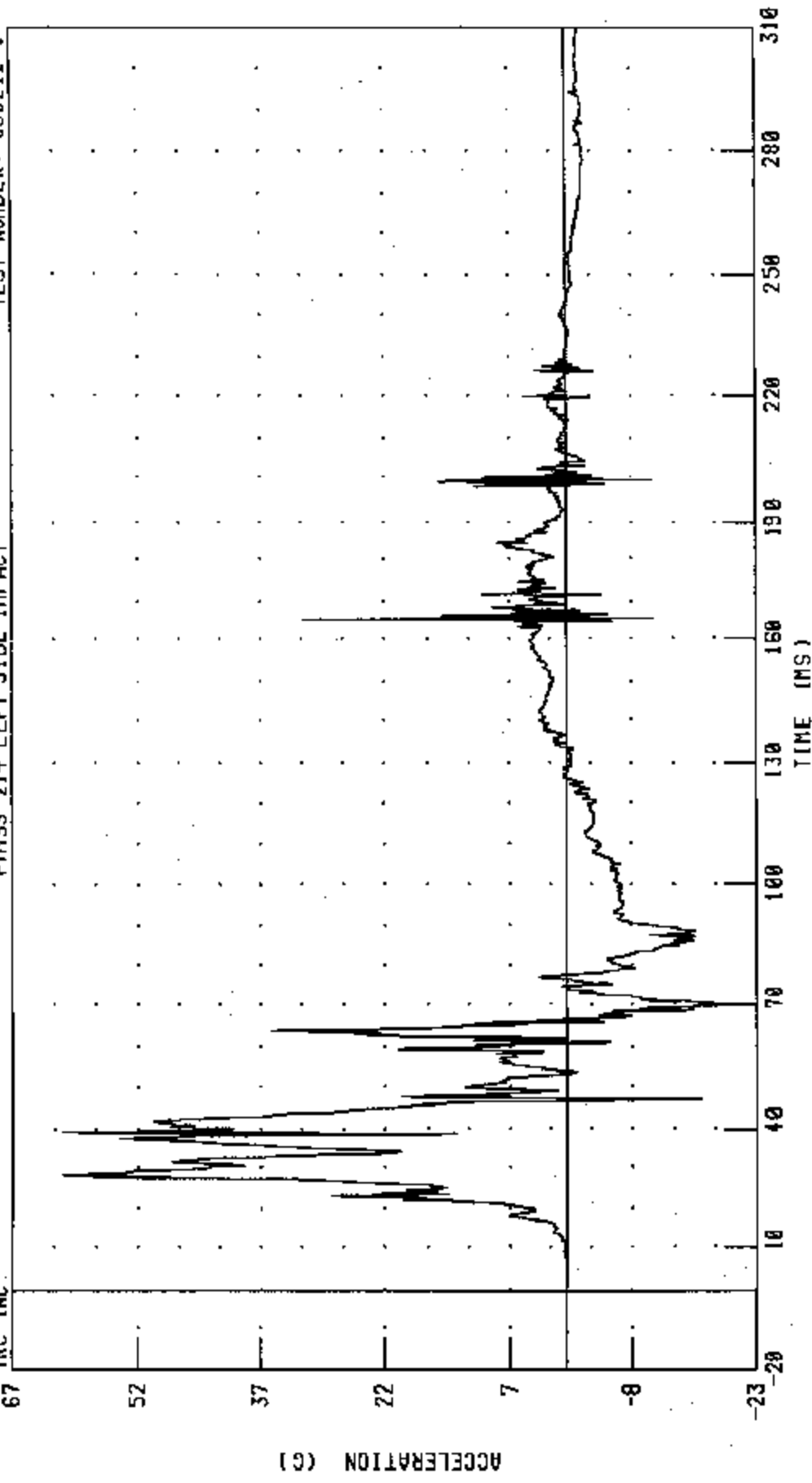
CHANNEL: LURYVI FILTER: CH. CLASS 180  
PEAK DATA: 35.82 KM/H @ 66.08 MS; 0.00 KM/H @ 1.12 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 030212-1

FHSS 214 LEFT SIDE IMPACT

TRC INC.



ACCELERATION (G)

CHANNEL: LLRYN1 FILTER: CH. CLASS 1000  
PEAK DATA: 61.04 G @ 39.28 MS; -21.02 G @ 70.24 MS  
TIME (MS)

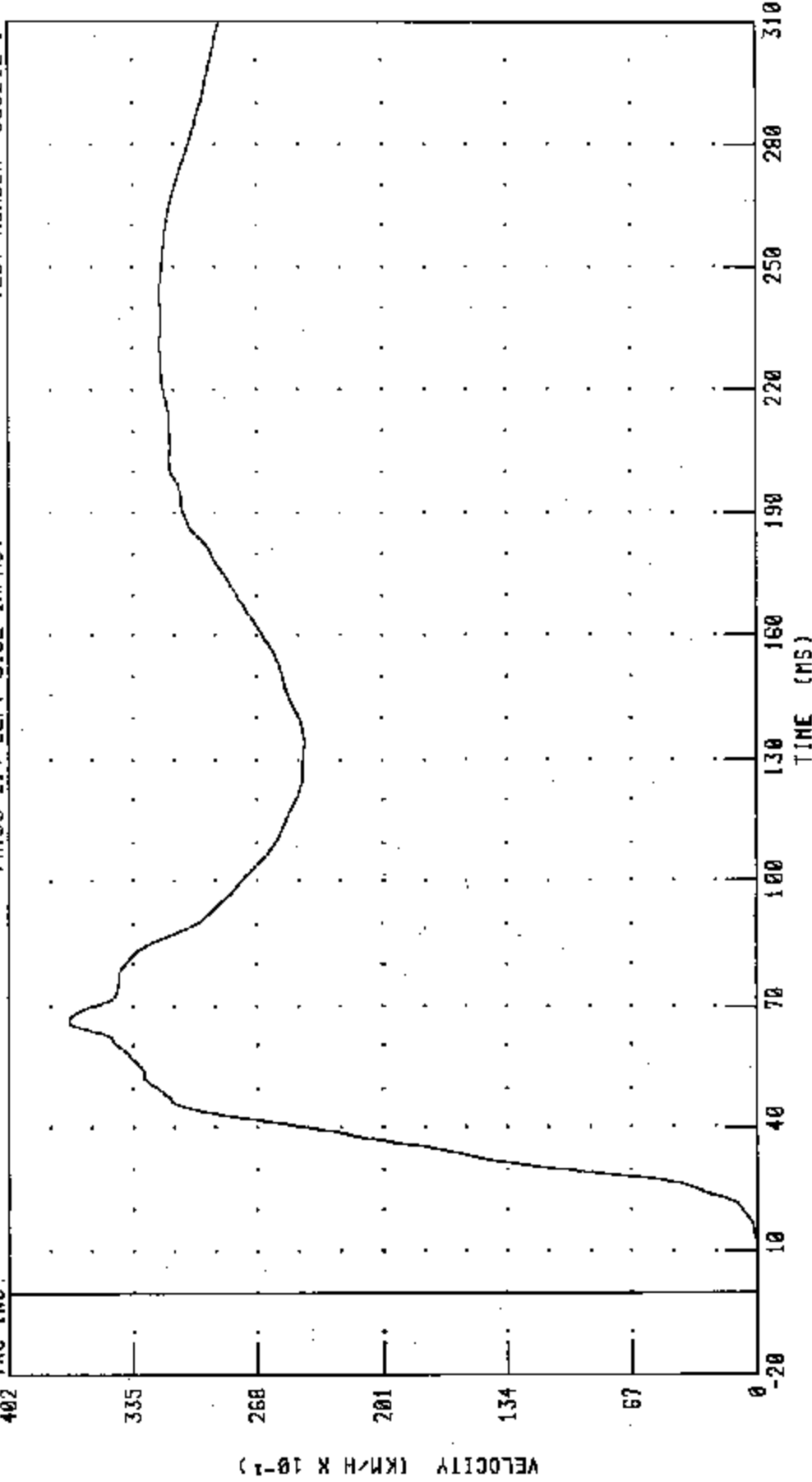
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY

FVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.



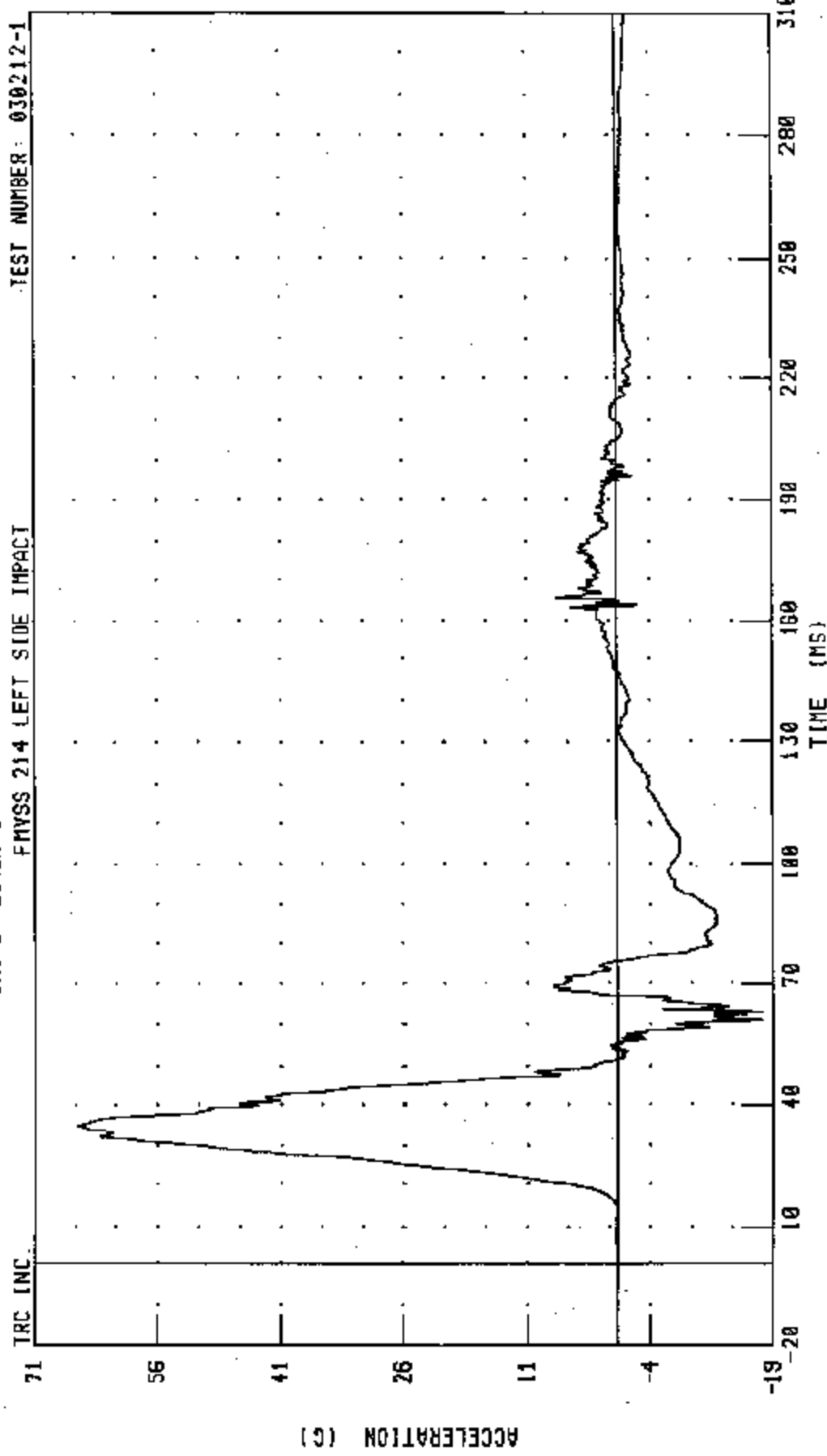
TIME (MS)

PEAK DATA: 37.00 KM/H @ 65.92 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: LLRYI FILTER: CH. CLASS 190

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 65.88 G @ 34.64 MS; -17.79 G @ 63.04 MS

CHANNEL: T12YR1 FILTER: CH. CLASS 1000

ACCELERATION (G)

030212-1

B-30

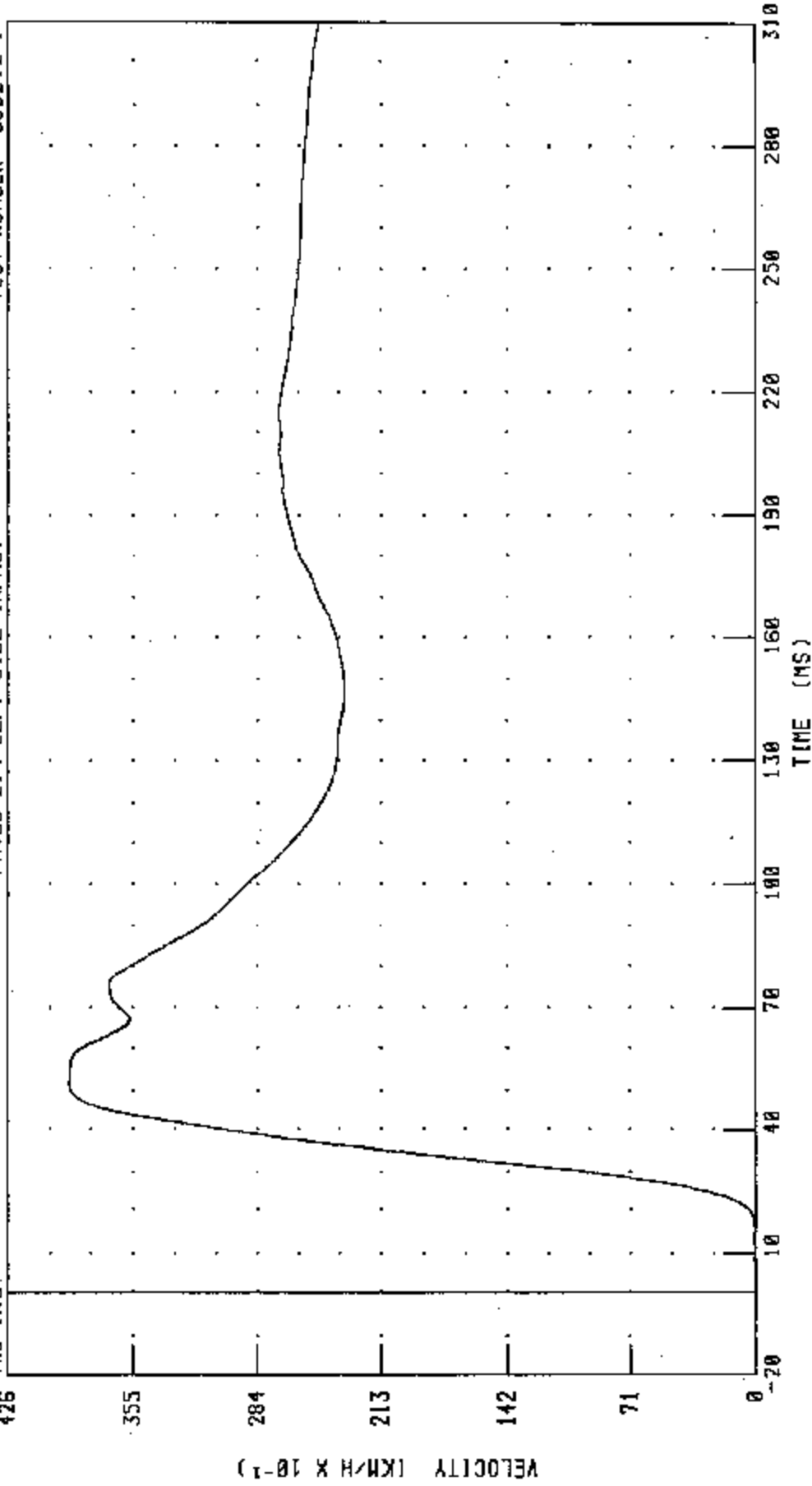
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

FVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

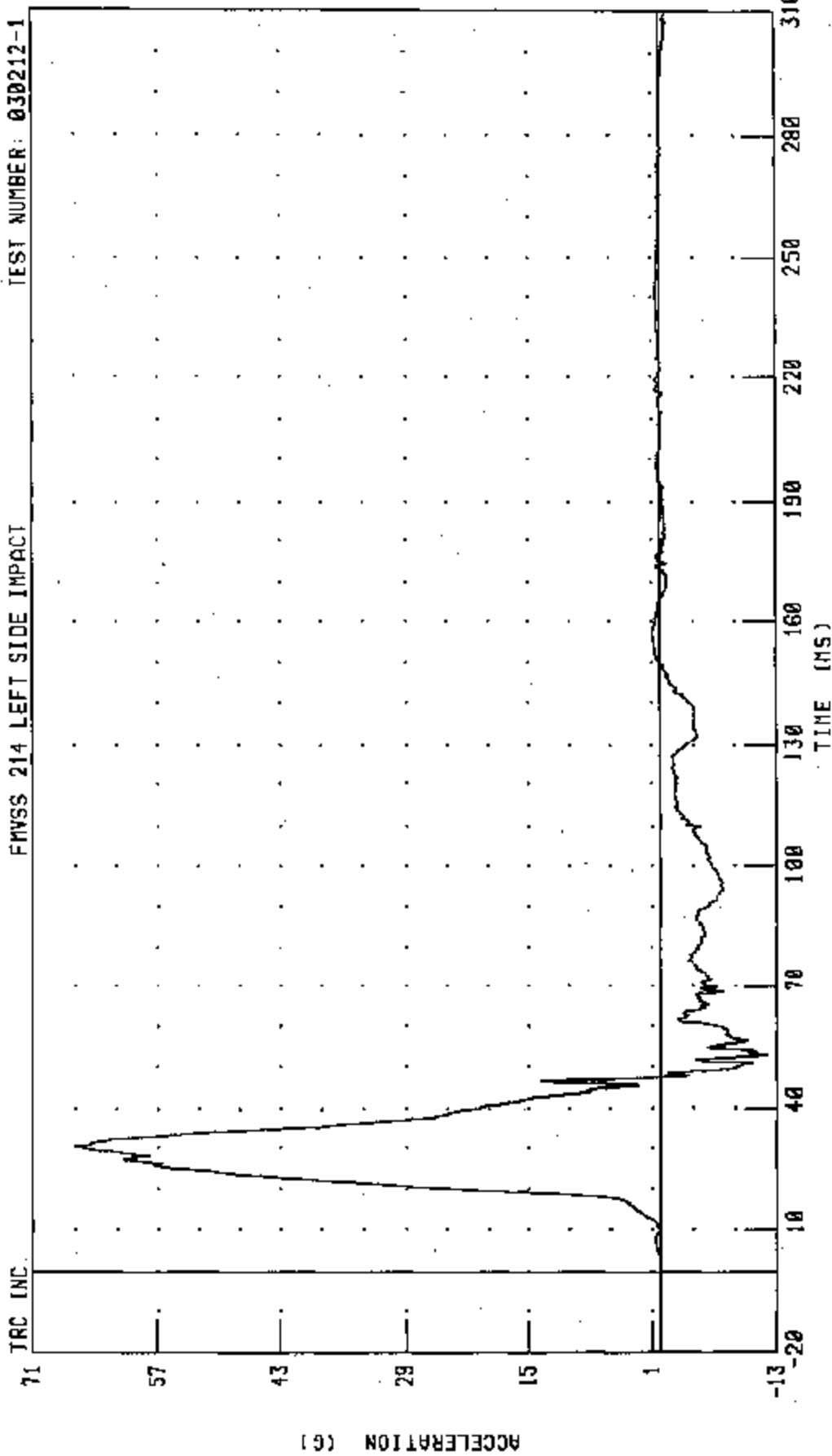
TRC INC.



CHANNEL: T12YVI FILTER: CH. CLASS 180 PEAK DATA: 39.10 KM/H @ 51.68 MS; 0.00 KM/H @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 66.43 G @ 30.32 MS; -11.93 G @ 53.28 MS

CHANNEL: PEVYRI FILTER: CH. CLASS 1000

TRC INC.

ACCELERATION (G)

030212-1

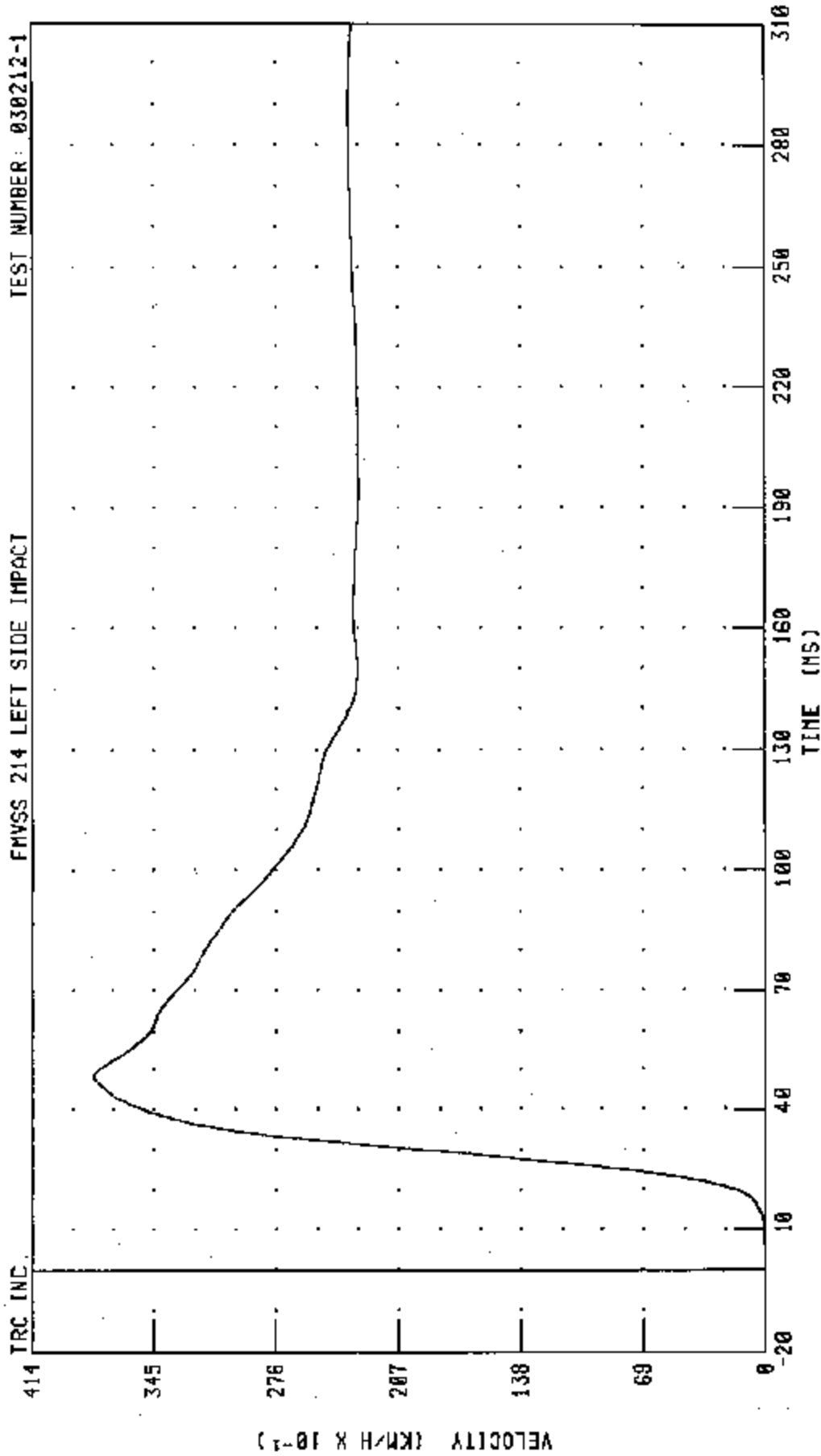
B-32

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

FVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

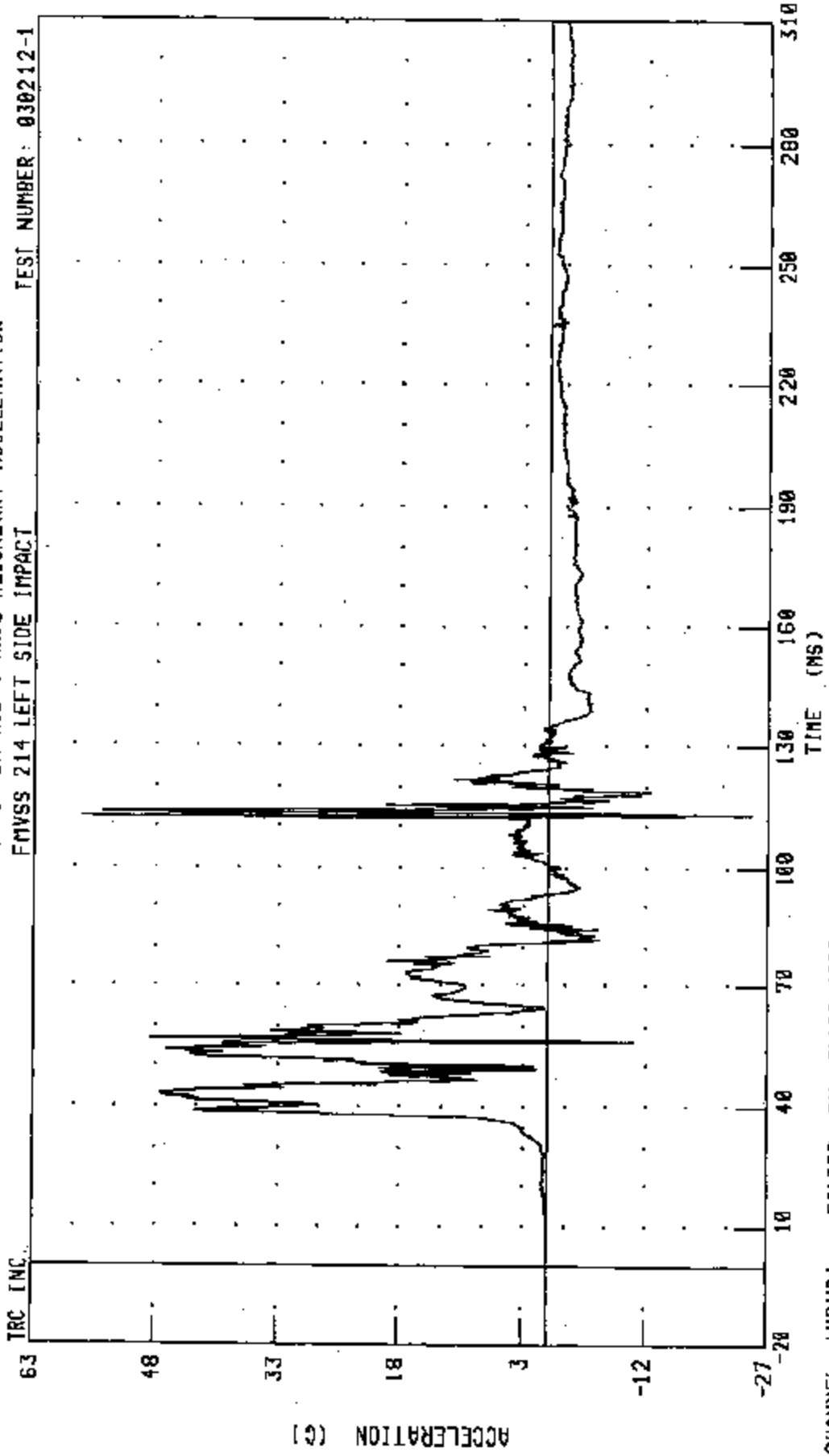


PEAK DATA: 37.94 KM/H @ 47.60 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: PEYVI FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



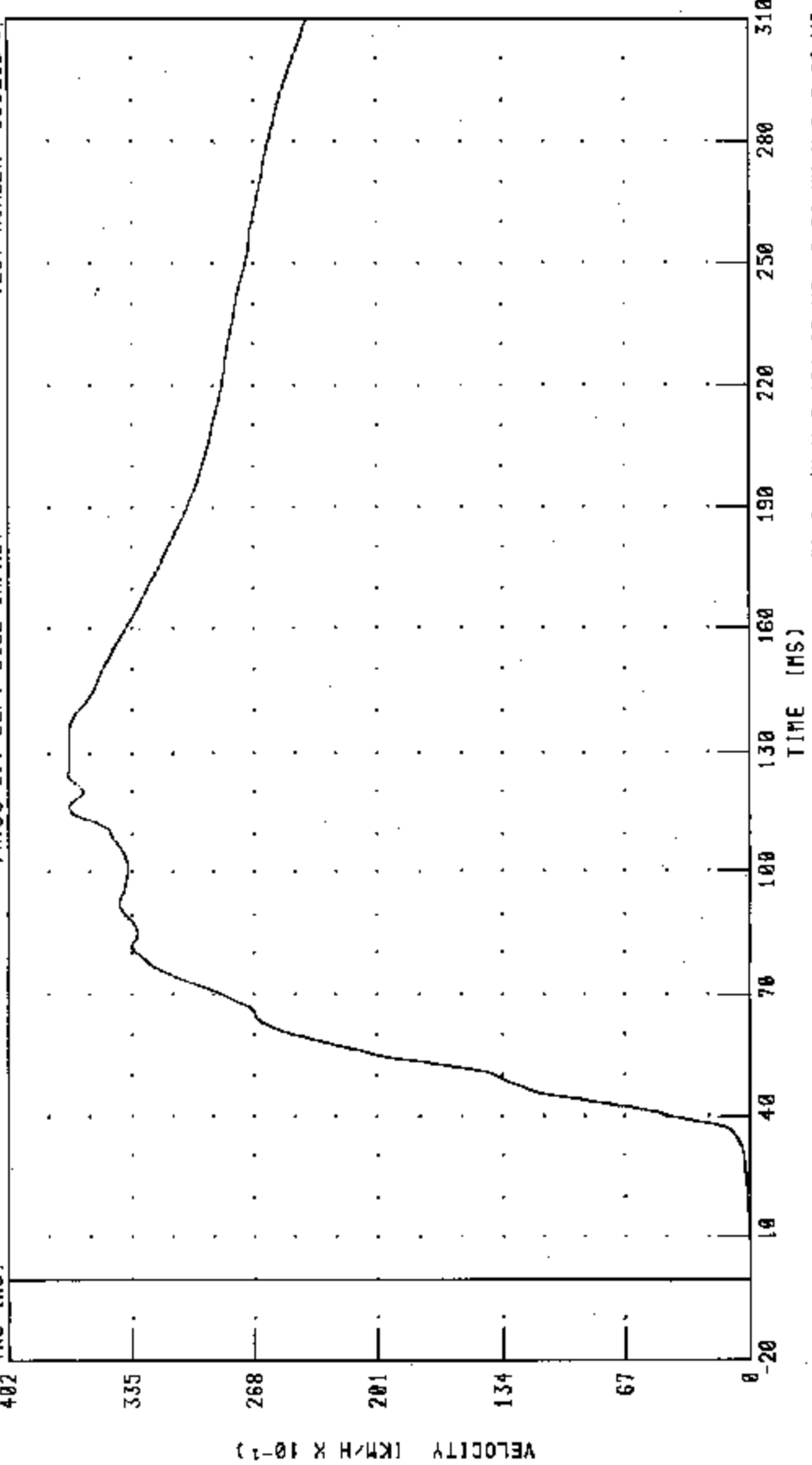
CHANNEL: LURYR4 FILTER: CH. CLASS 1000 PEAK DATA: 57.13 G @ 112.56 MS, -24.84 G @ 113.28 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

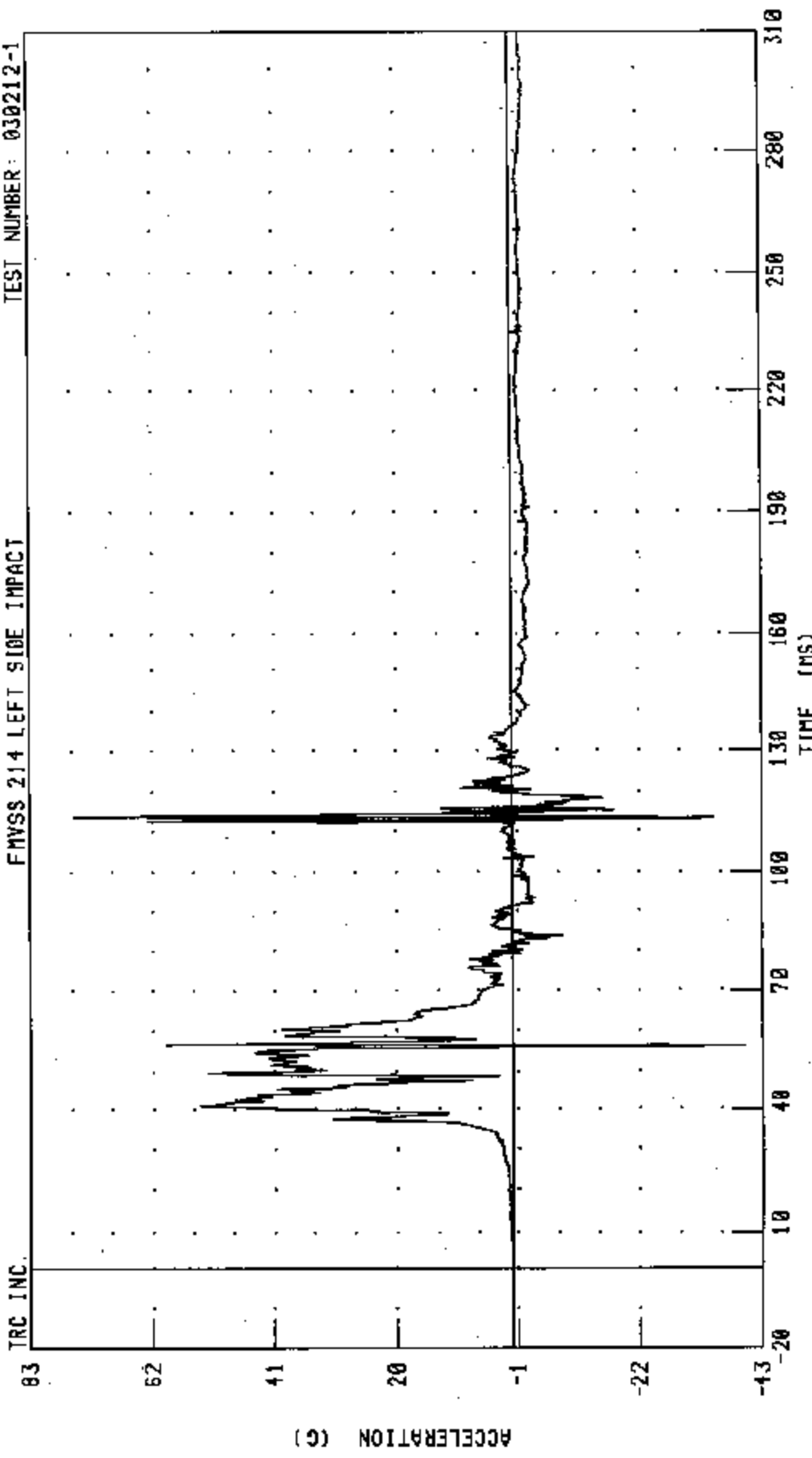
TRC INC.



CHANNEL: LURYVJ FILTER: CH. CLASS 180 PEAK DATA: 36.91 KM/H @ 124.80 MS; 0.00 KM/H @ 0.00 MS

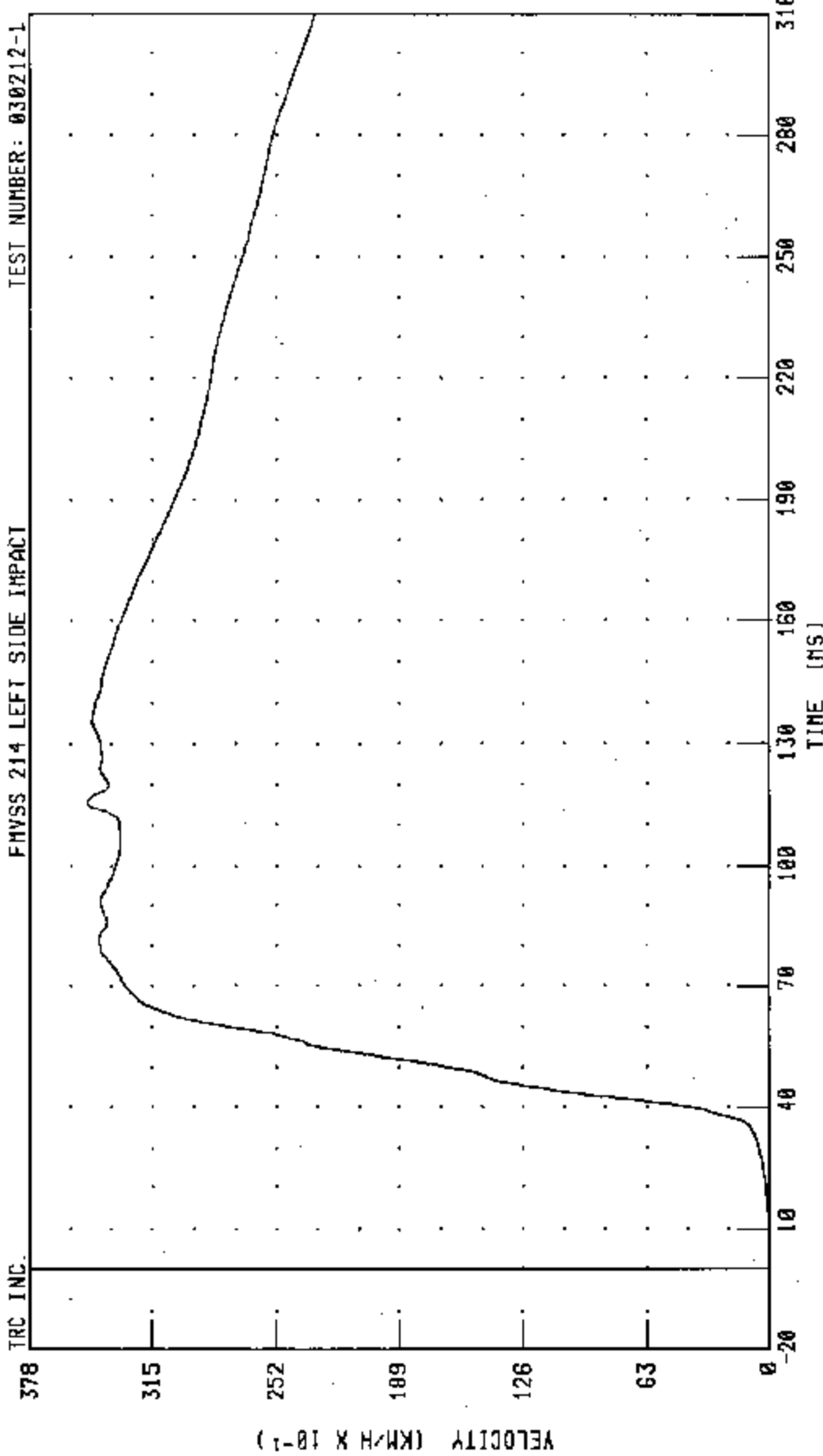
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



CHANNEL: LLRYR4 FILTER: CH. CLASS 1000 PEAK DATA: 75.48 G @ 113.84 MS, -39.80 G @ 55.92 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY



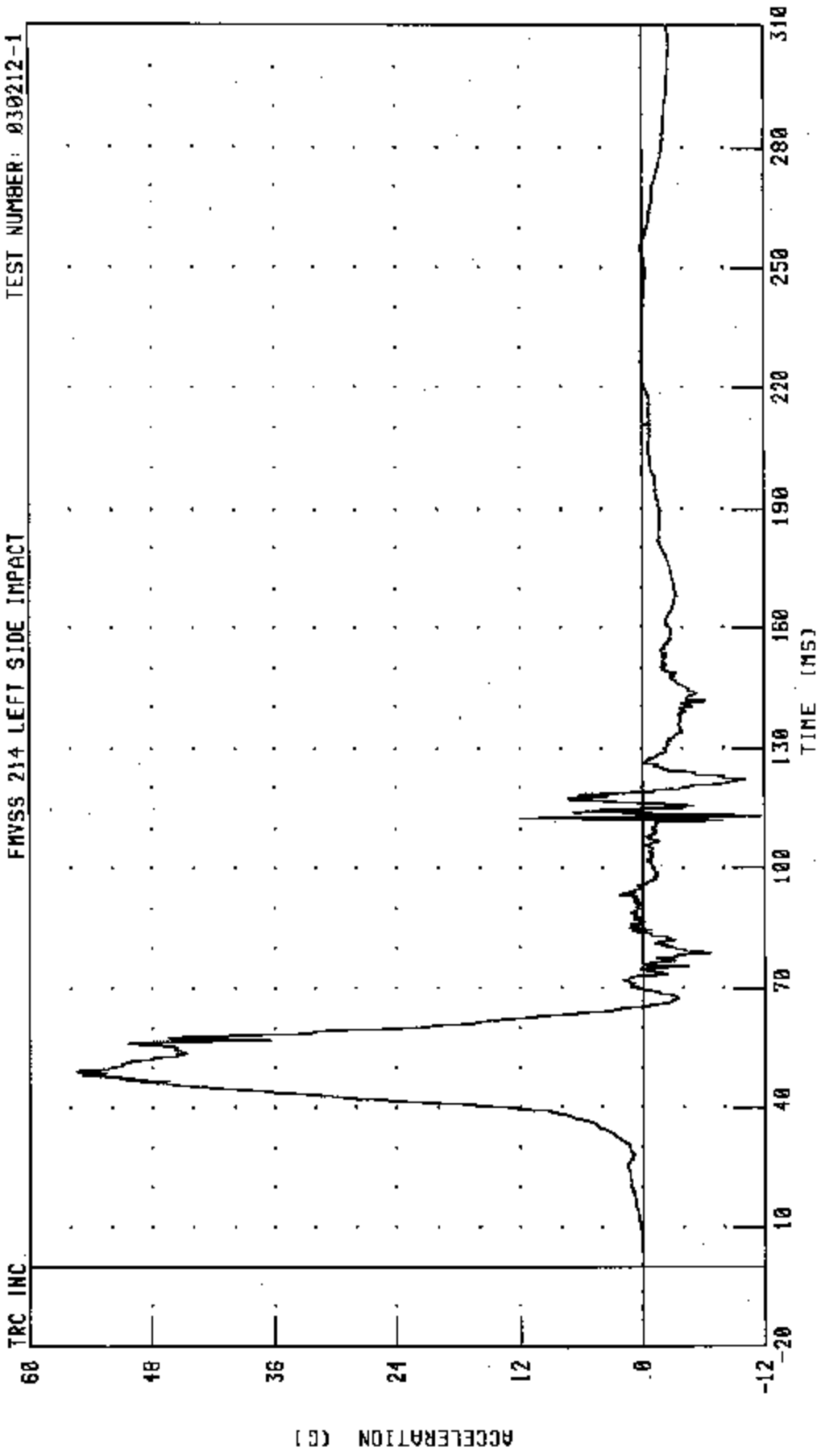
CHANNEL: LLRYVJ FILTER: CH. CLASS 180 PEAK DATA: 34.90 KM/H @ 115.28 MS, 0.00 KM/H @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 55.49 G @ 49.28 MS; -11.68 G @ 113.28 MS

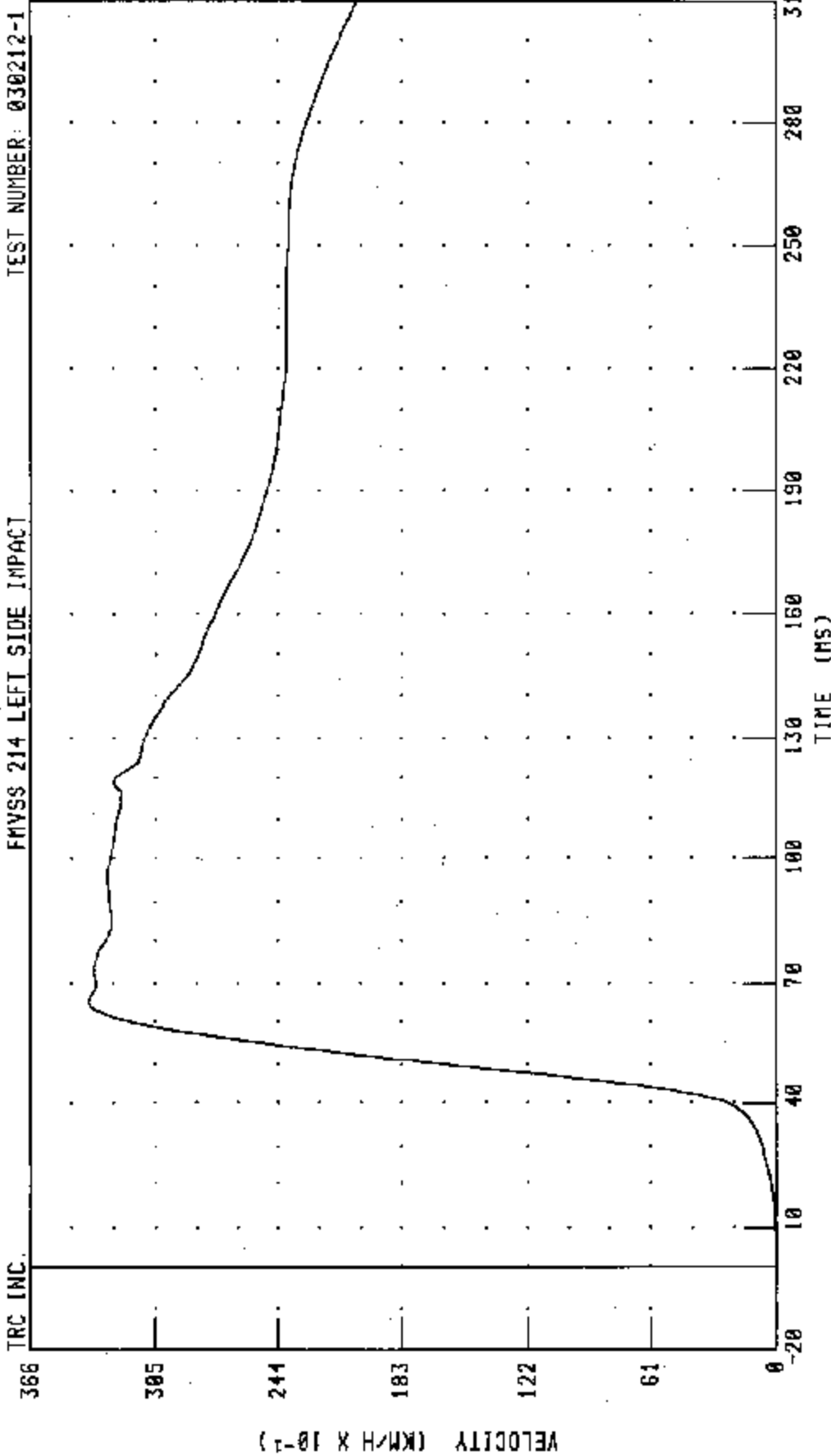
CHANNEL: T12YR4 FILTER: CH. CLASS 1000

ACCELERATION (G)

030212-1

B-38

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY



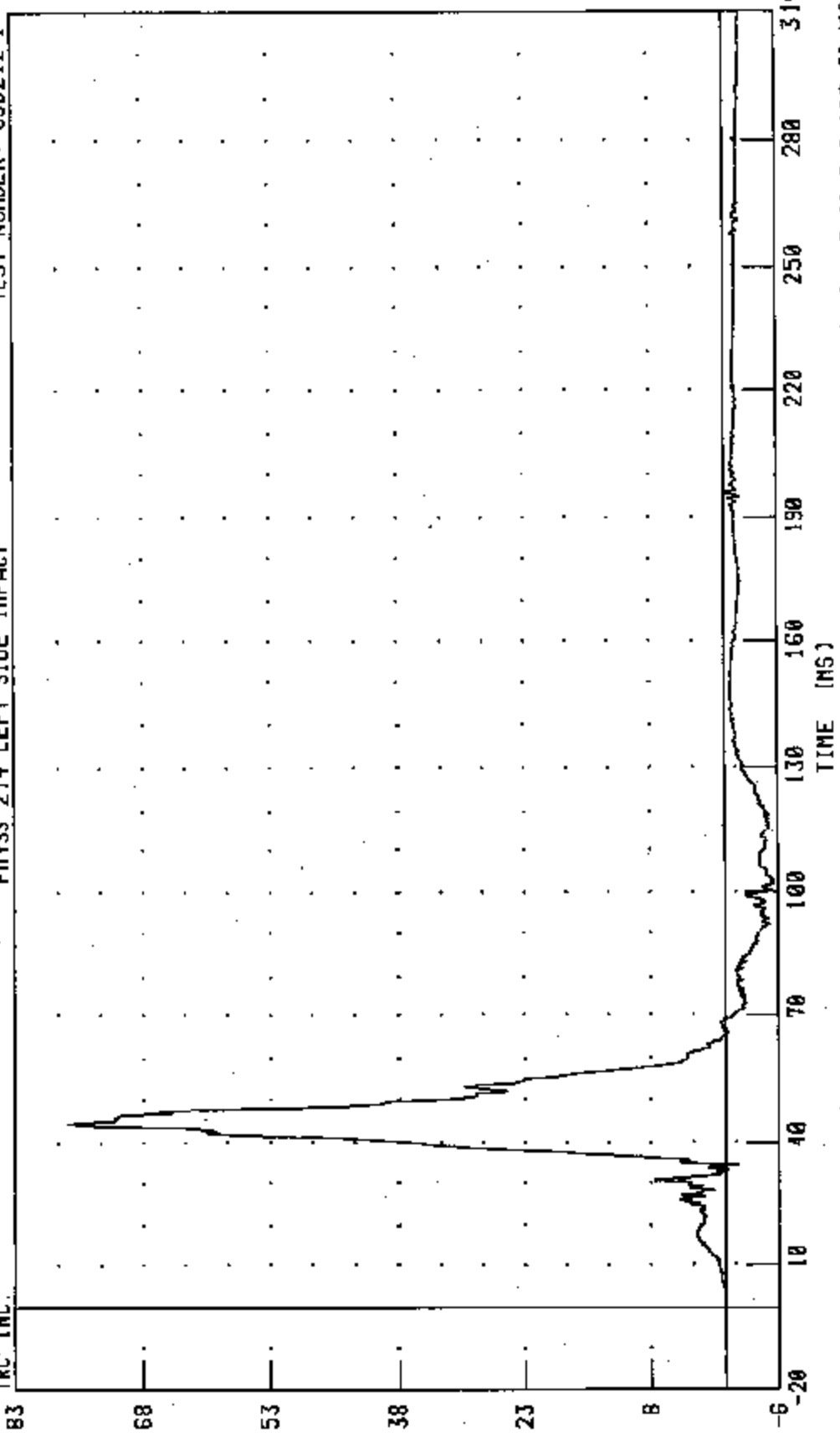
CHANNEL: T12YVJ FILTER: CH. CLASS 180 PEAK DATA: 33.71 KM/H @ 65.20 MS; 0.00 KM/H @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 030212-1

FHYSS 214 LEFT SIDE IMPACT

TRC INC.



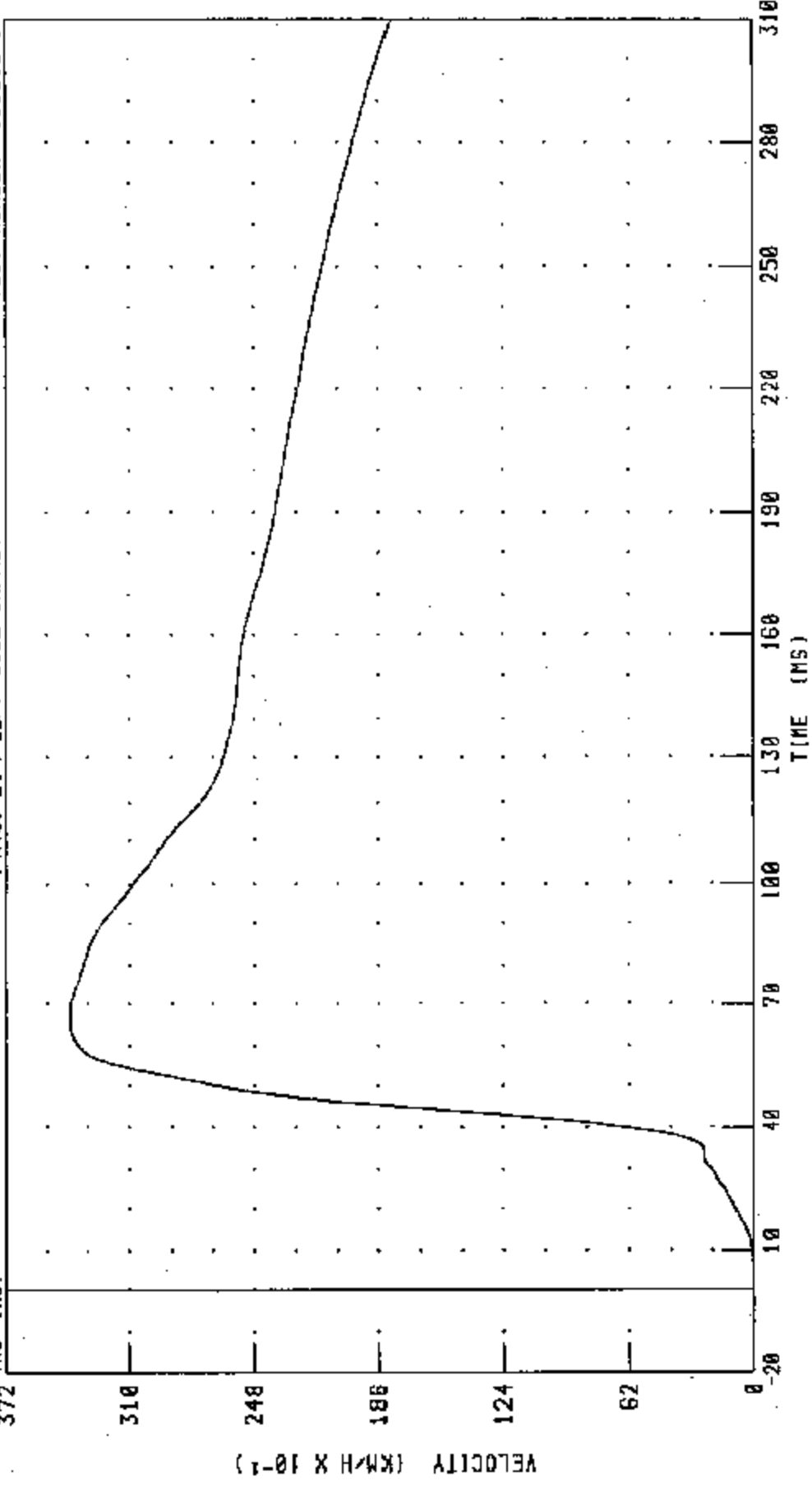
ACCELERATION (G)

CHANNEL: PEYR4 FILTER: CH. CLASS 1000

PEAK DATA: 77.67 G @ 44.72 MS; -5.68 G @ 102.08 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

TRC INC. FVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



CHANNEL: PEVYUJ FILTER: CH. CLASS 180 PEAK DATA: 33.96 KM/H @ 68.88 MS, 0.00 KM/H @ 0.00 MS

Test Vehicle Instrumentation Plots

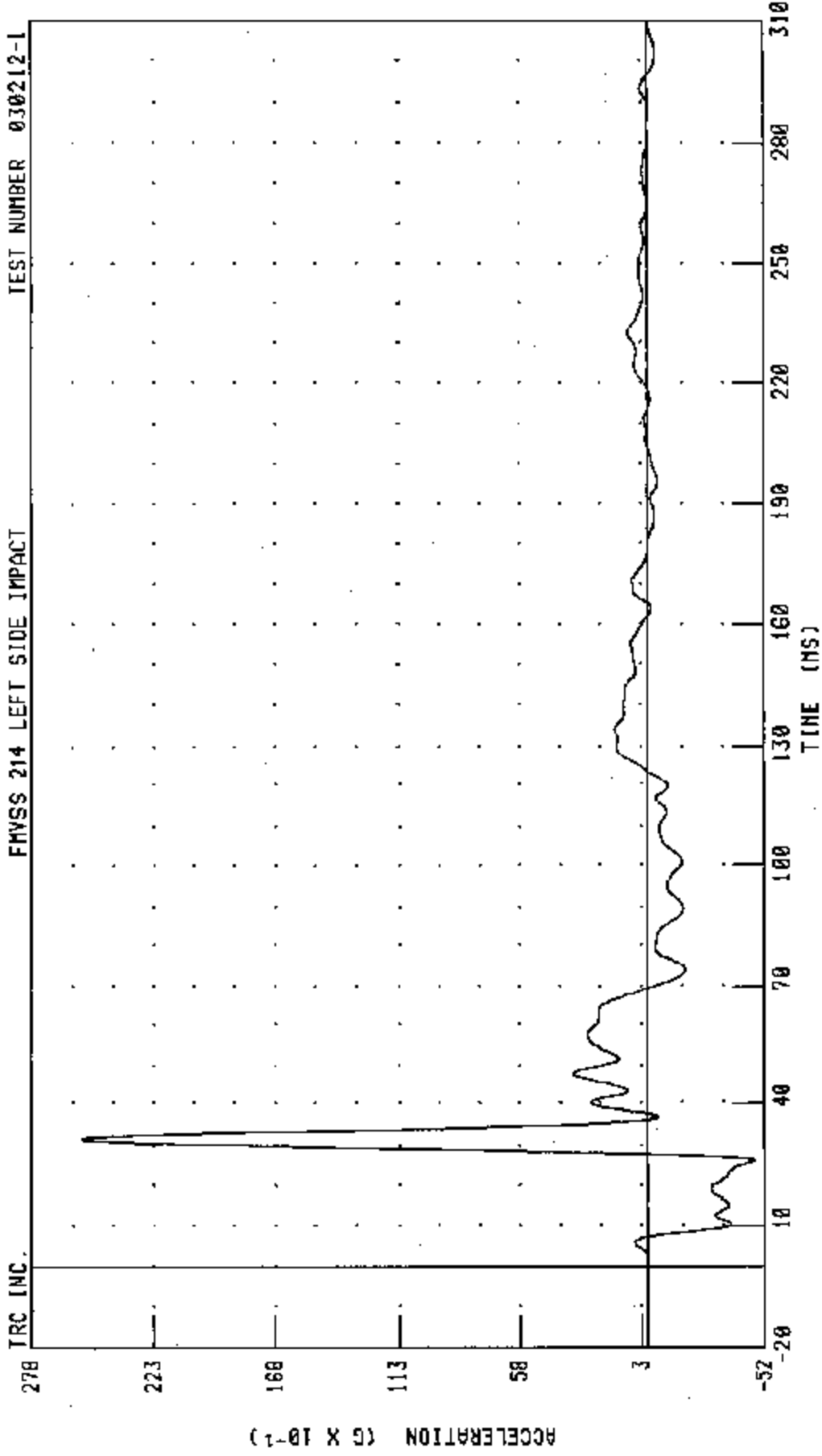
Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA6 PROTEGE 5

RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



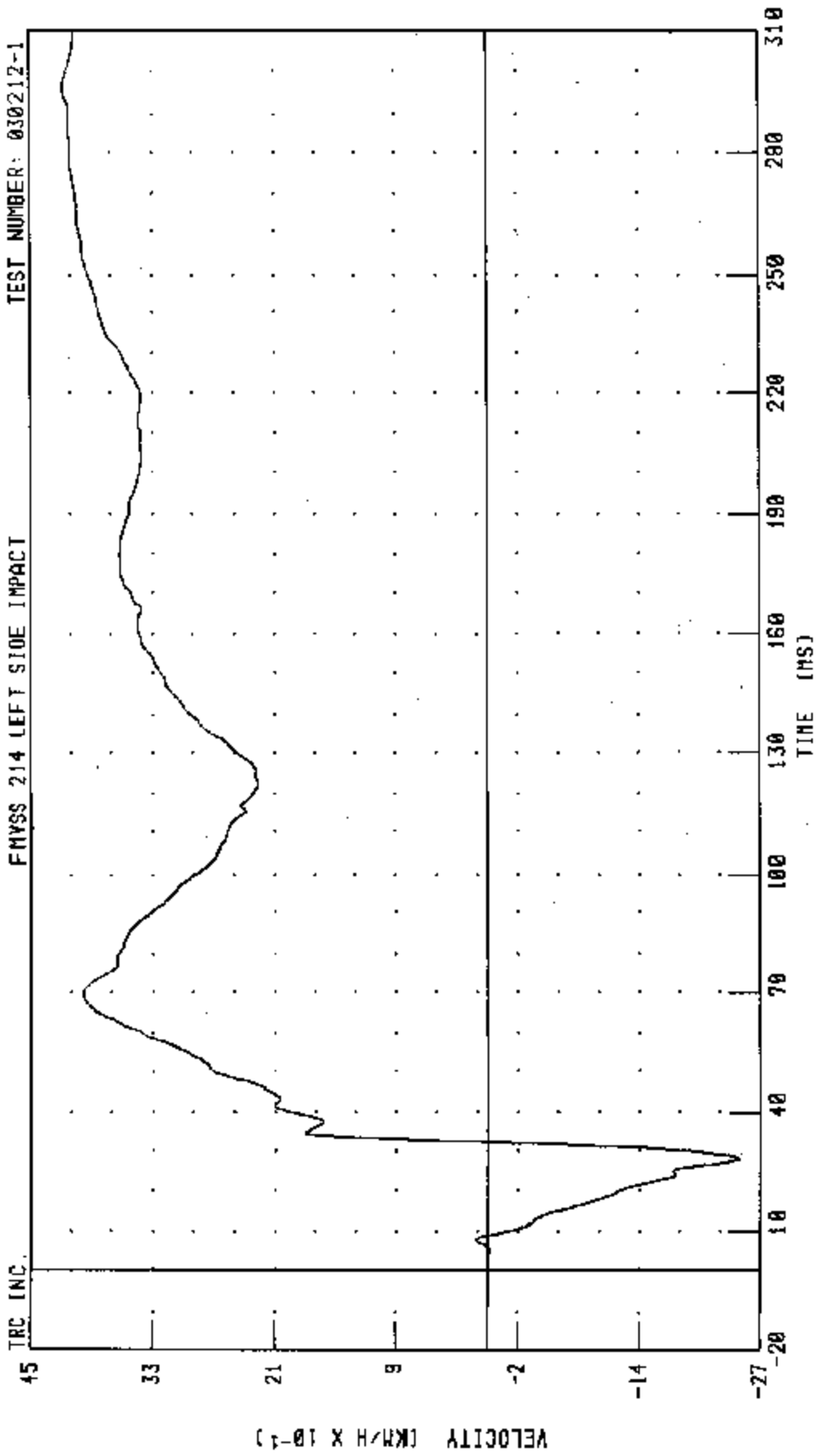
CHANNEL: RFSXG1 FILTER: CH. CLASS 60 PEAK DATA: 25.59 G @ 31.84 MS, -4.79 G @ 26.08 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



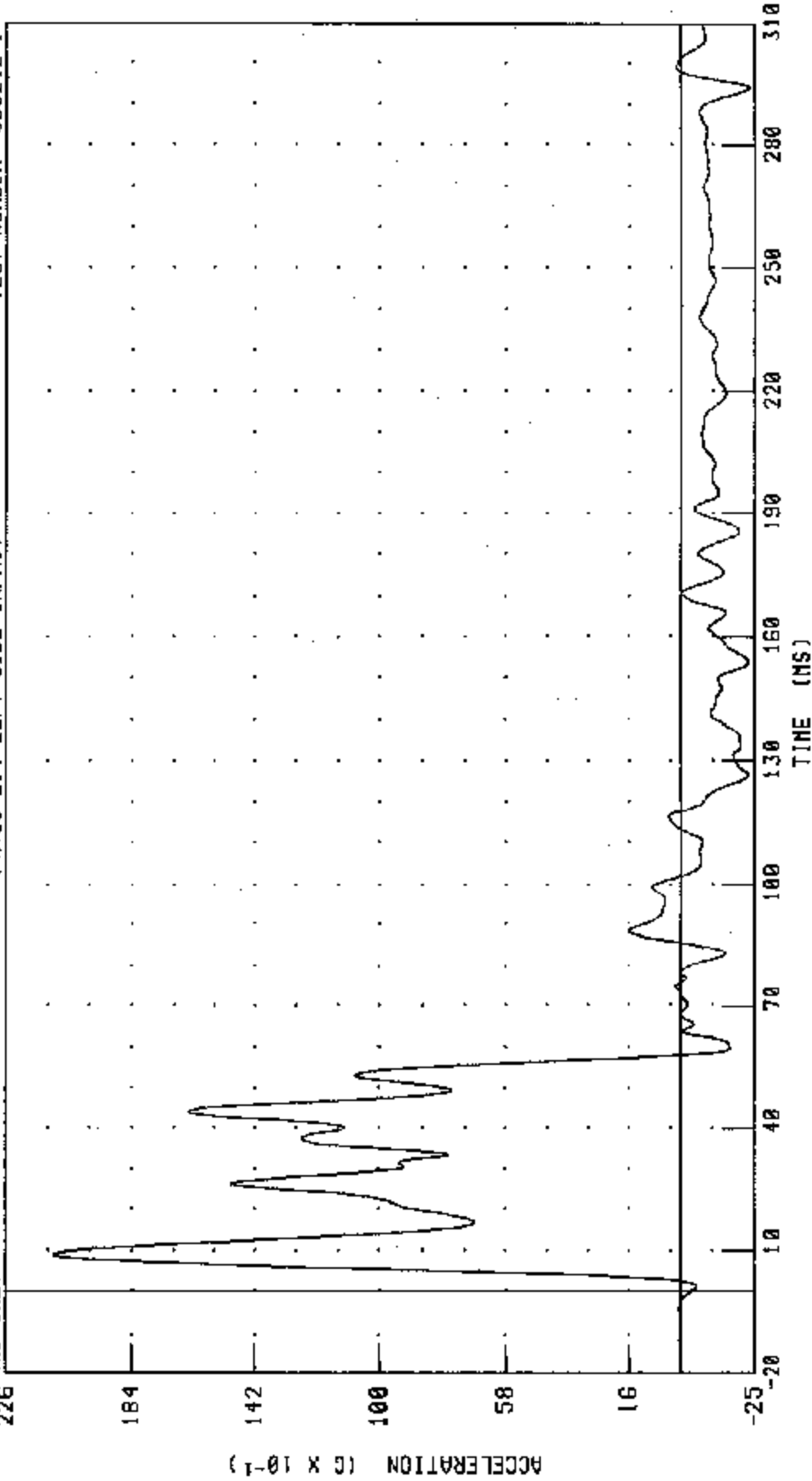
TRC INC.

CHANNEL: RFSXV1 FILTER: CH. CLASS 180 PEAK DATA: 4.17 KM/H @ 295.60 MS; -2.49 KM/H @ 28.24 MS

CHASSIS: RFSXV1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

TRC INC. FMYSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



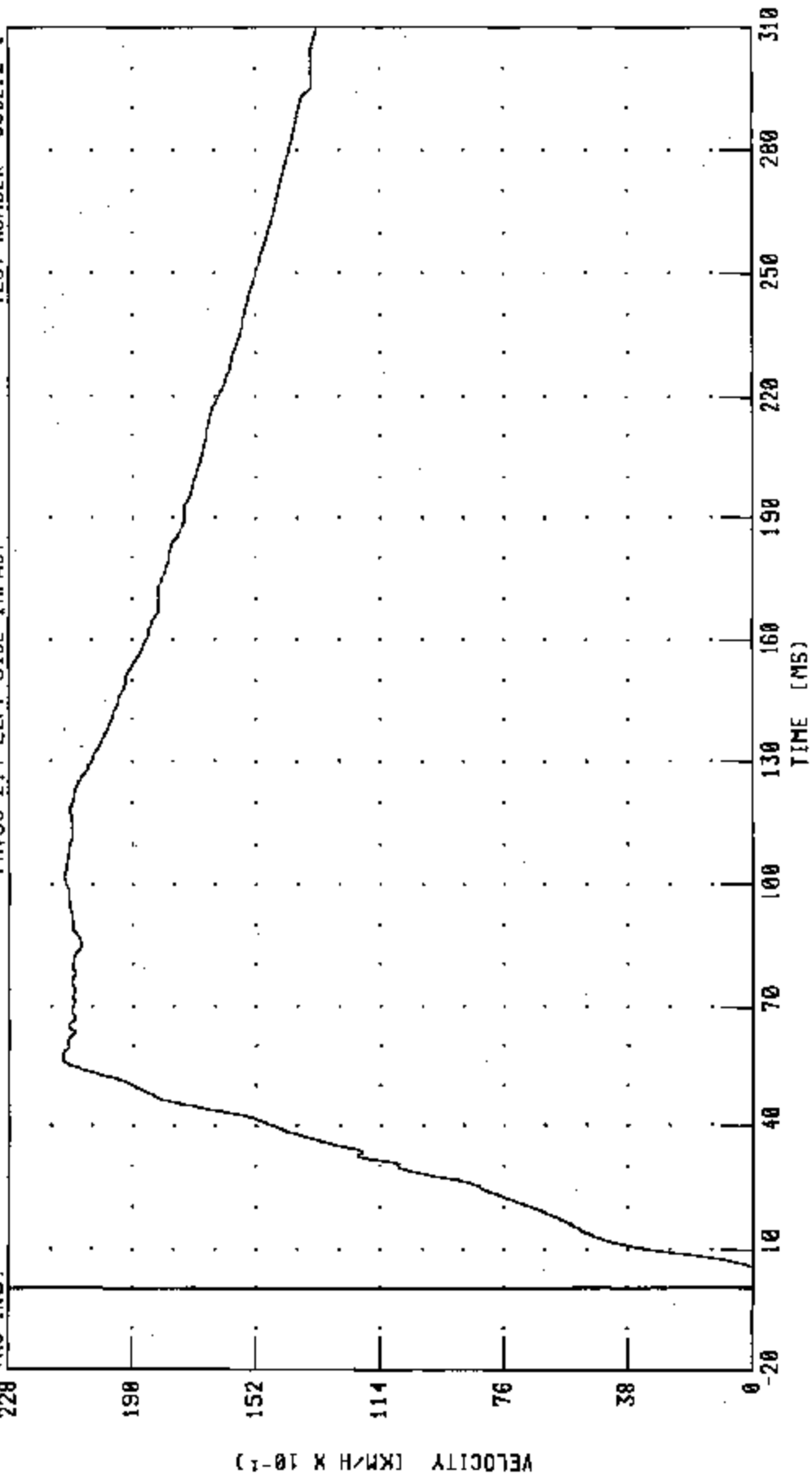
CHANNEL: RFSY01 FILTER: CH. CLASS 60 PEAK DATA: 21.10 G @ 9.20 MS; -2.34 G @ 293.84 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

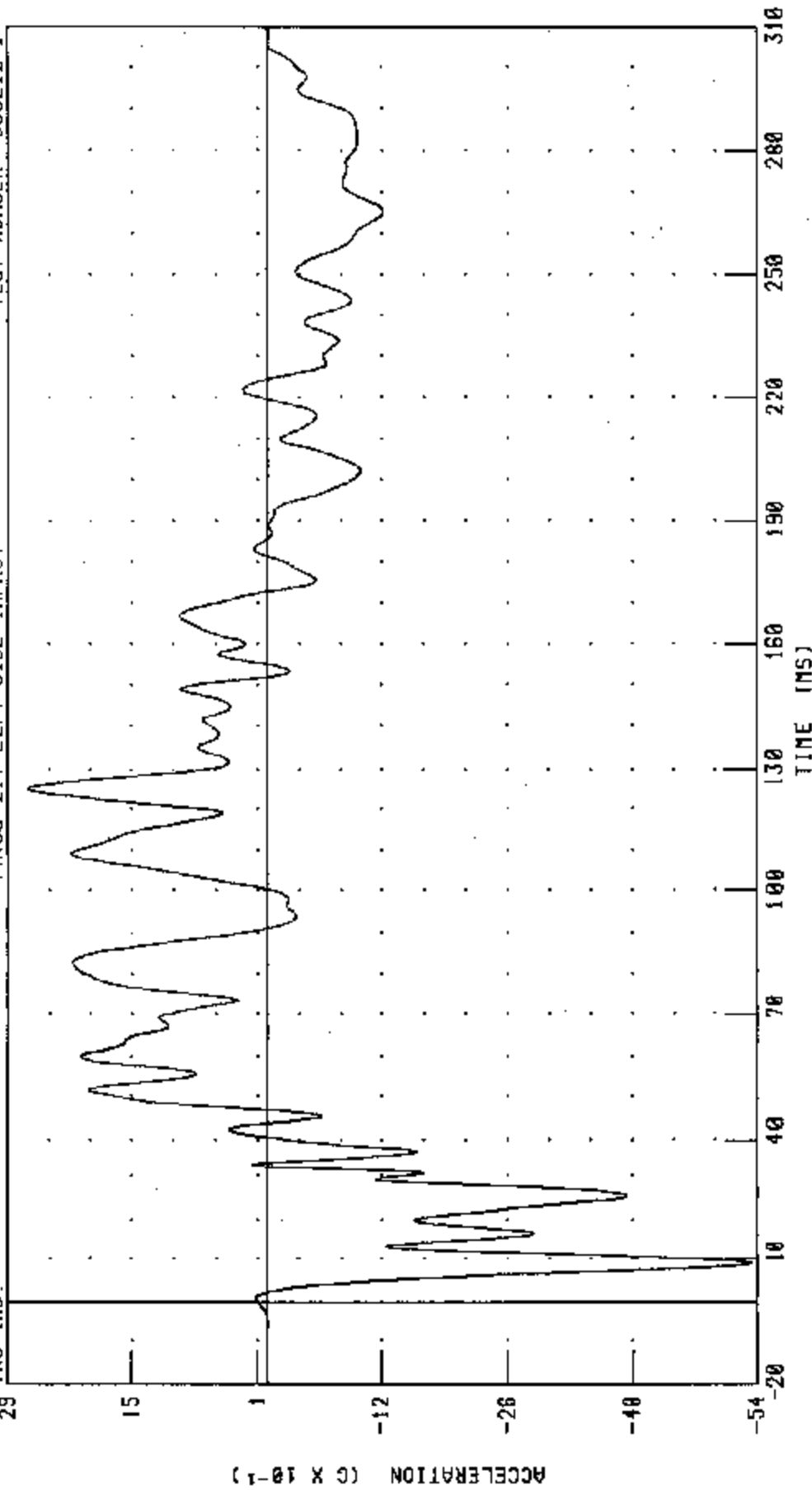
TRC INC.



CHANNEL: RFSV1 FILTER: CH. CLASS 100 PEAK DATA: 21.18 KM/H @ 57.20 MS; -0.01 KM/H @ 4.24 MS

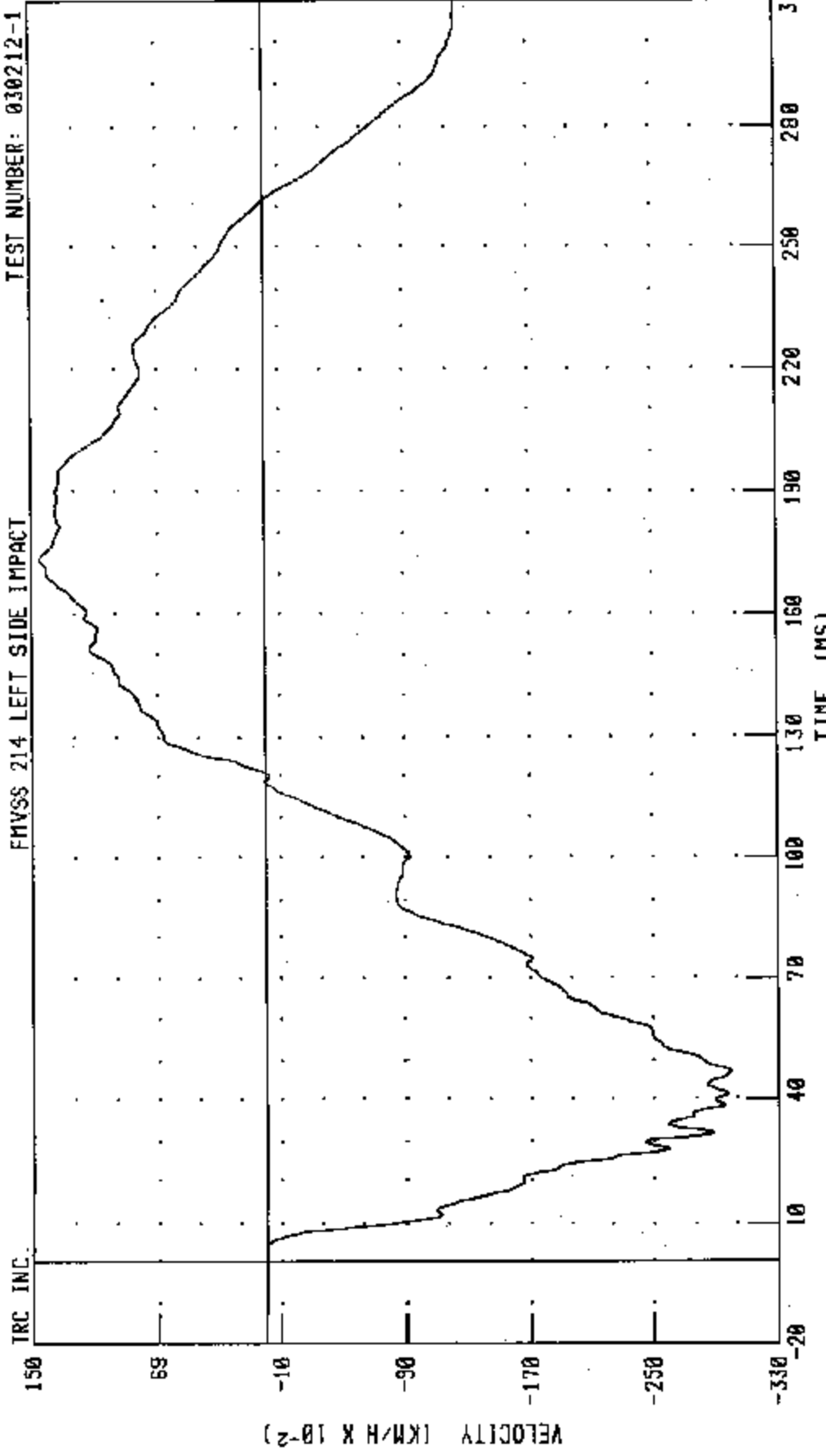
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION

TRC INC.  
FMVSS 214 LEFT SIDE IMPACT  
TEST NUMBER: 030212-1



CHANNEL: RFSZG1 FILTER: CH. CLASS 60 PEAK DATA: 2.68 G @ 125.28 MS, -5.44 G @ 8.80 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY



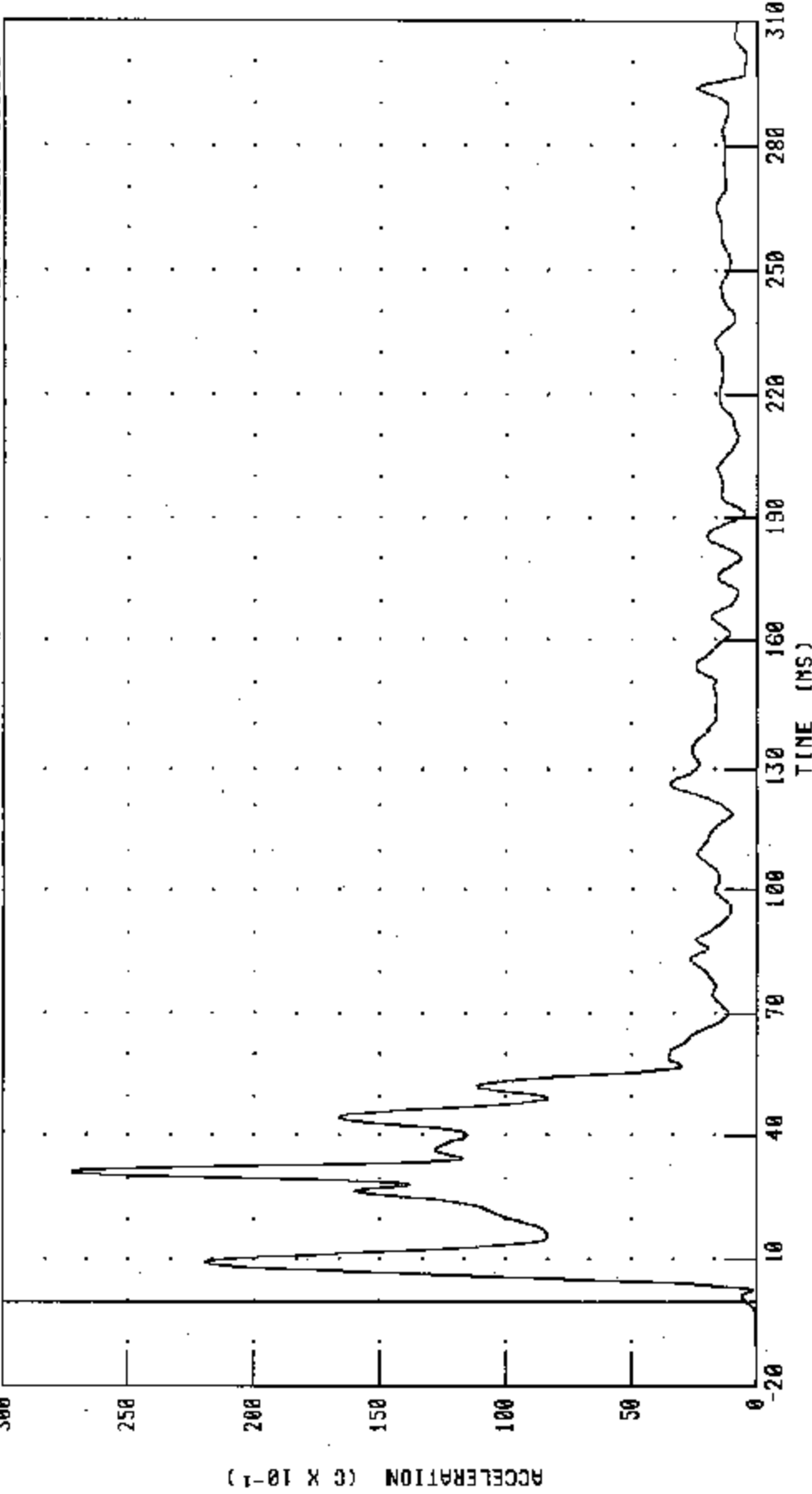
CHANNEL: RFSZV1 FILTER: CH. CLASS 180 PEAK DATA: 1.45 KM/H @ 173.20 MS; -2.99 KM/H @ 46.96 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

TEST NUMBER: 030212-1

FWSS 214 LEFT SIDE IMPACT

TRC INC.



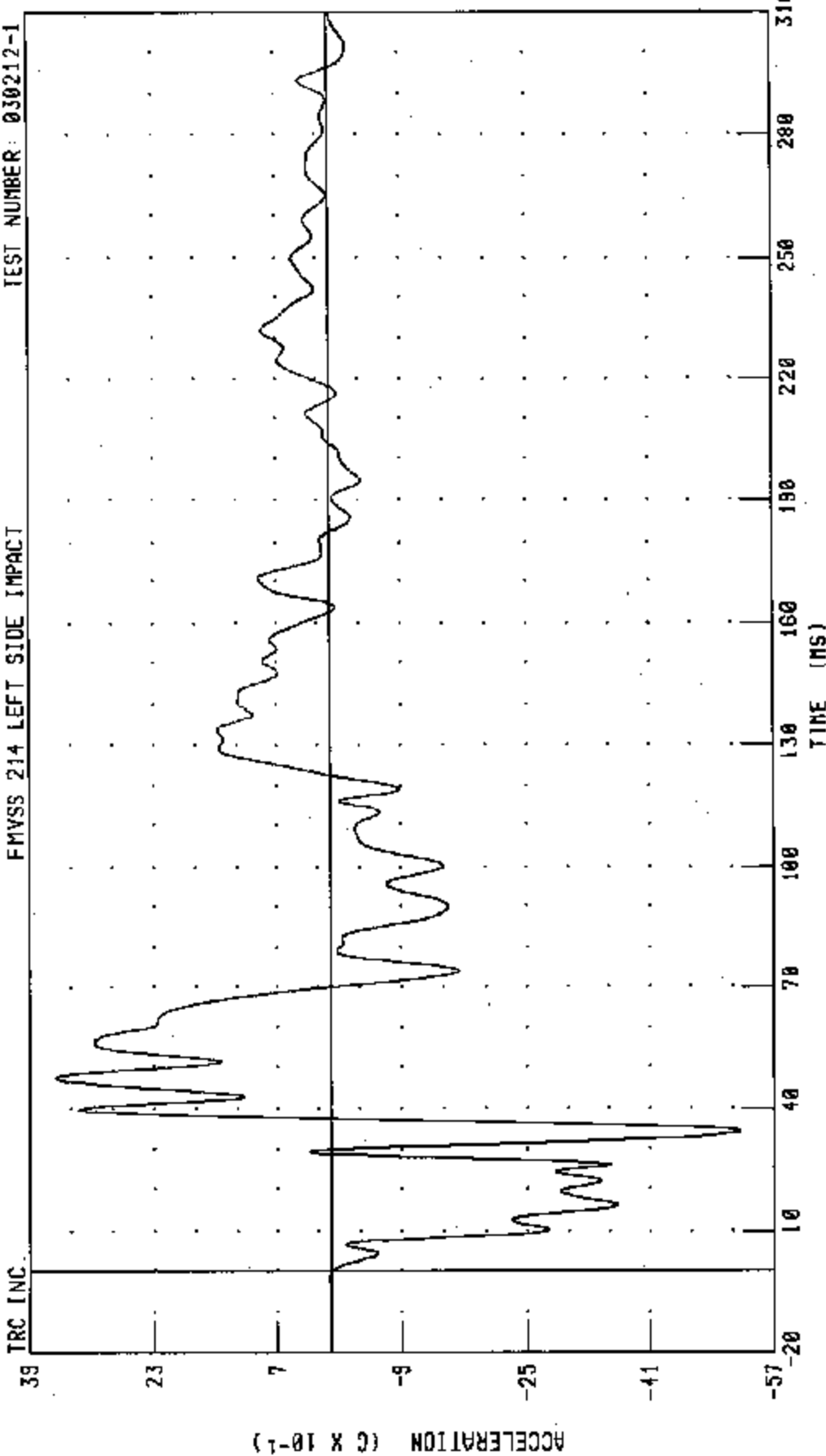
CHANNEL: RFSRG1 FILTER: CH. CLASS 60 PEAK DATA: 27.27 G @ 31.76 MS, 0.01 G @ -18.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: RRSXG1 FILTER: CH CLASS 60

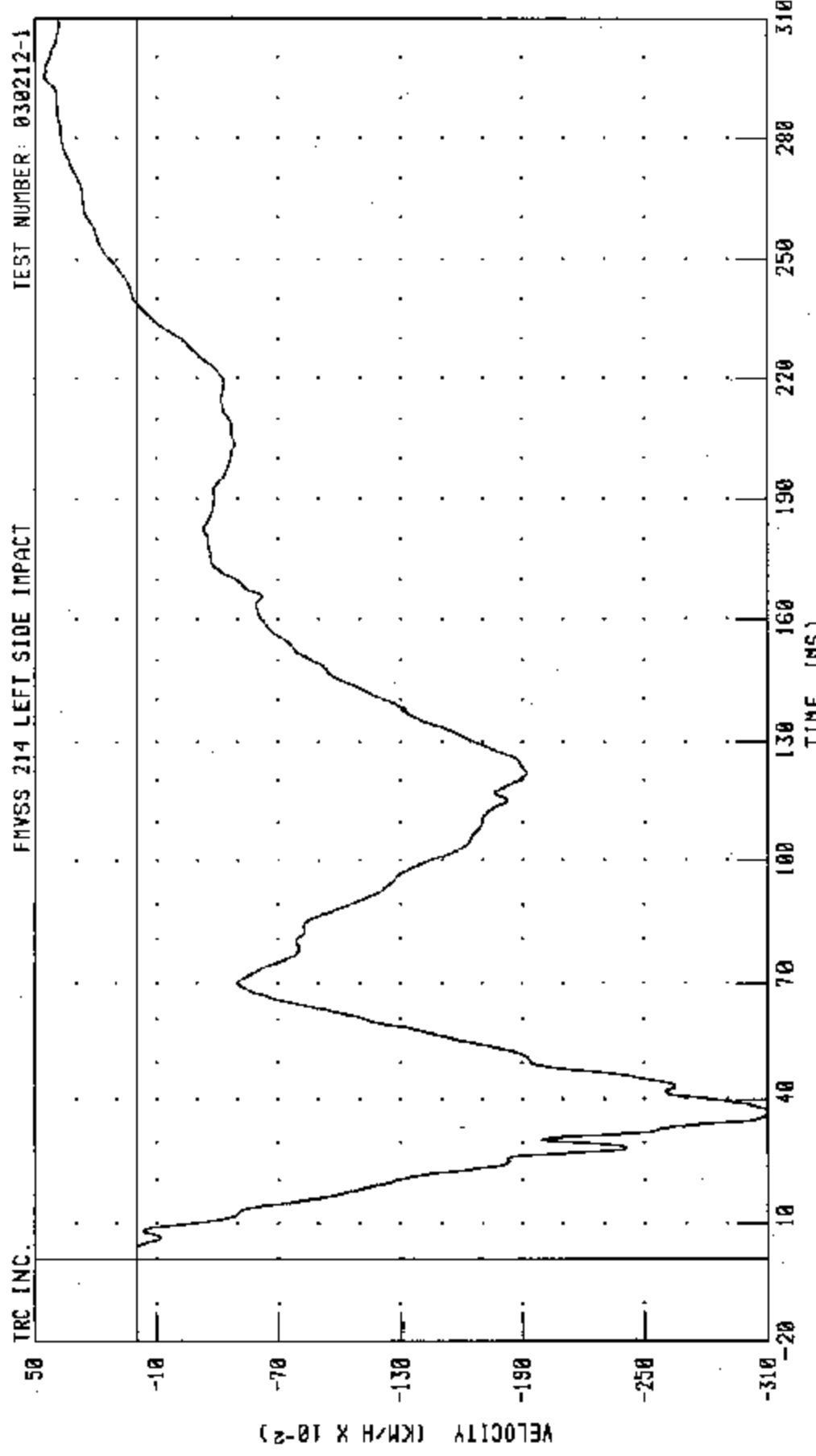
PEAK DATA: 3.56 G @ 47.52 MS; -5.27 G @ 33.92 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 0.46 KM/H @ 295.20 MS, -3.12 KM/H @ 37.28 MS

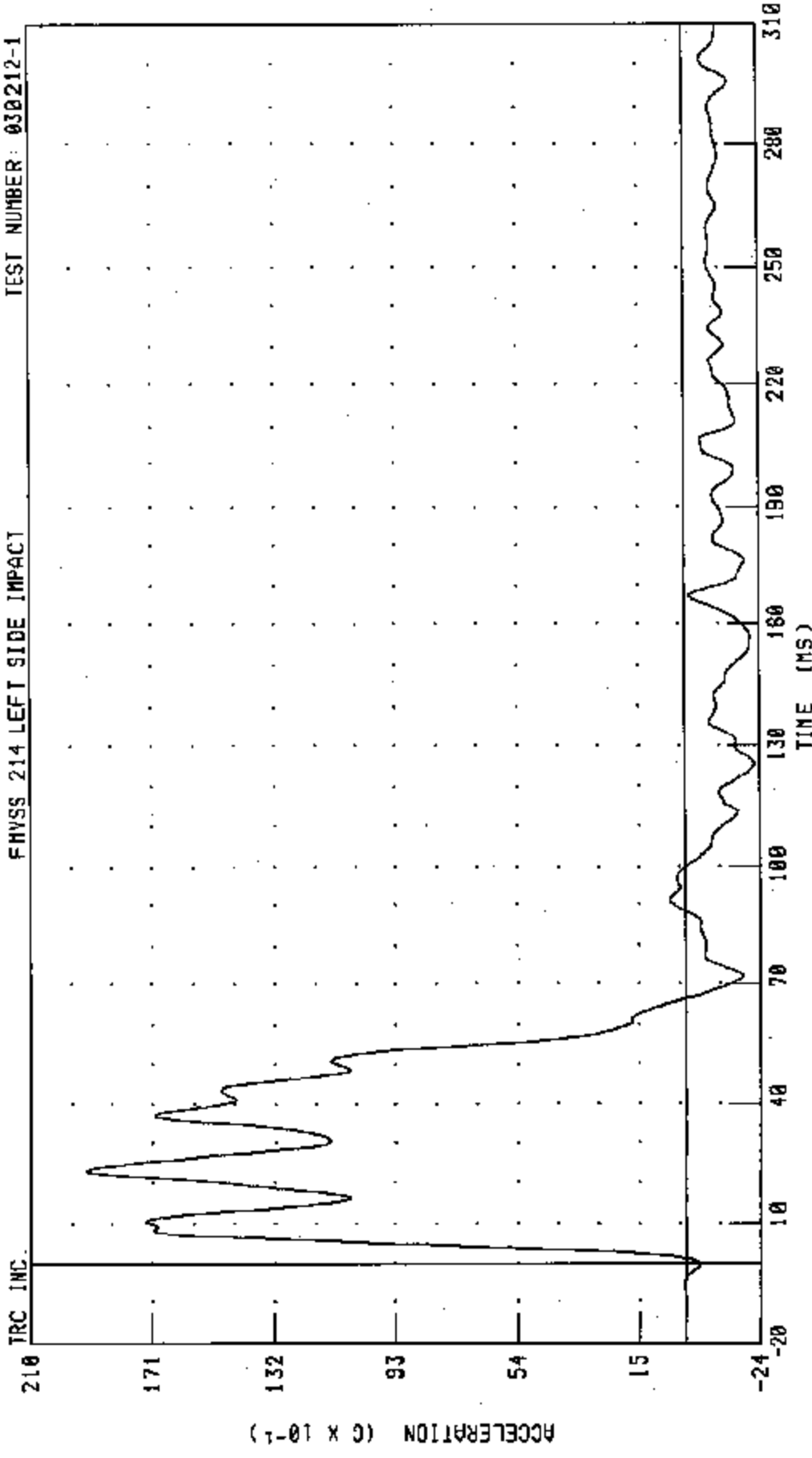
CHANNEL: RRSXV1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

FHVSS 214 LEFT SIDE IMPACT



PEAK DATA: 19.24 G @ 23.52 MS; -2.24 G @ 125.28 MS

CHANNEL: RRSYGI FILTER: CH CLASS 60

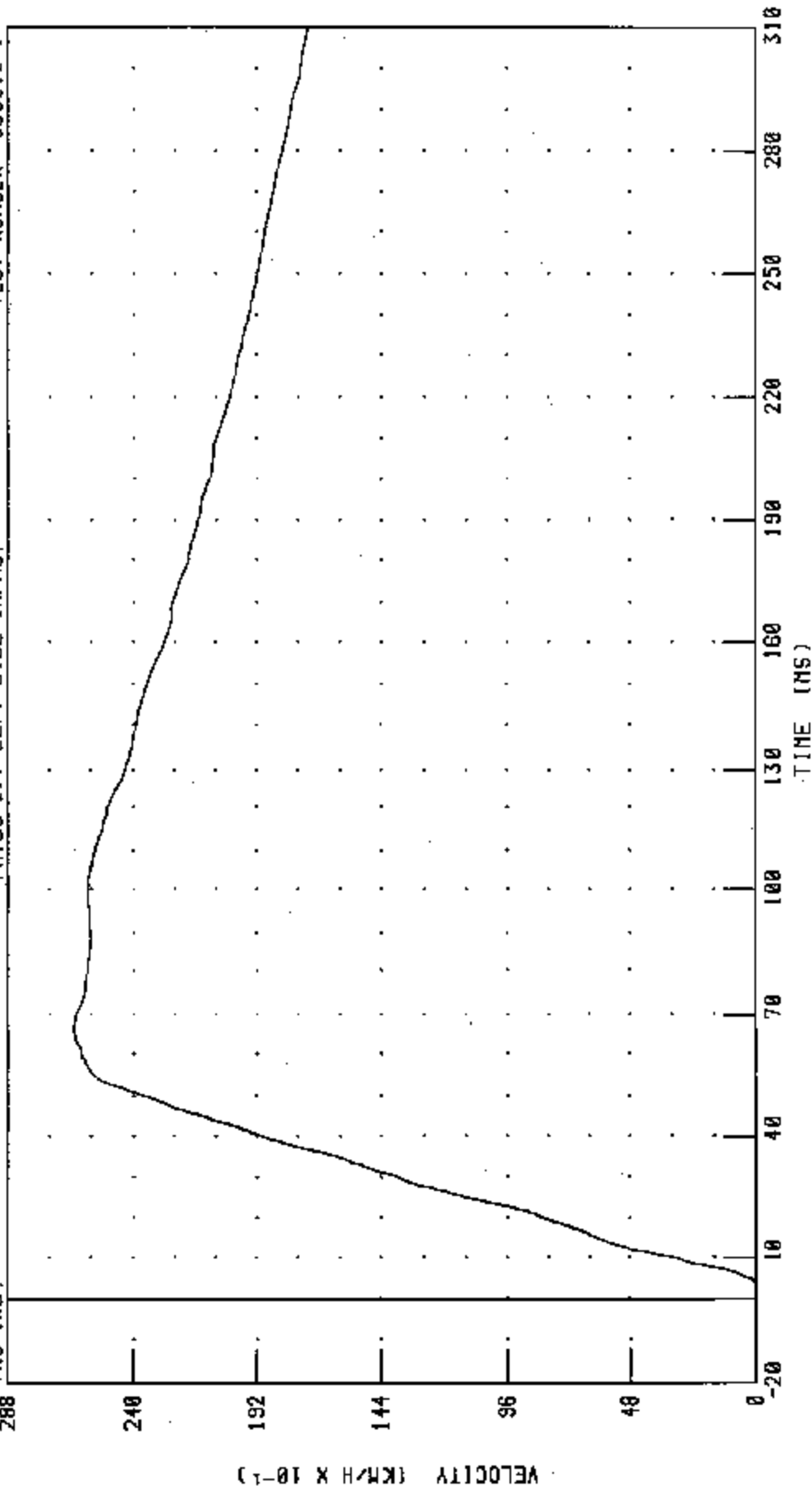
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

288 TRC INC.

FVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



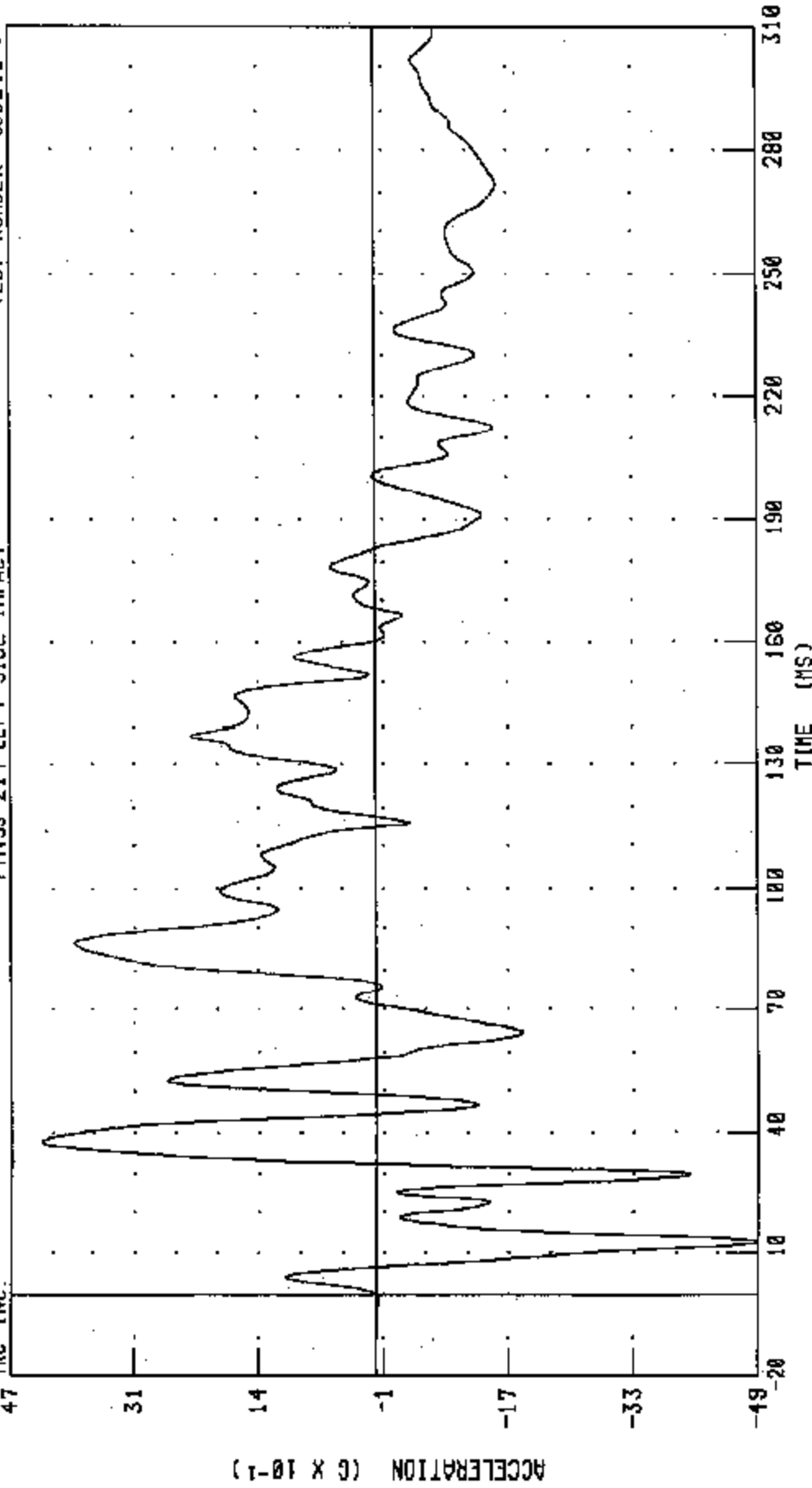
CHANNEL: RRSYV1 FILTER: CH. CLASS 180 PEAK DATA: 26.31 KM/H @ 66.48 MS; -0.01 KM/H @ 2.88 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL: RRSZ01 FILTER: CH. CLASS 60 PEAK DATA: 4.31 G @ 37.84 MS; -4.85 G @ 13.04 MS

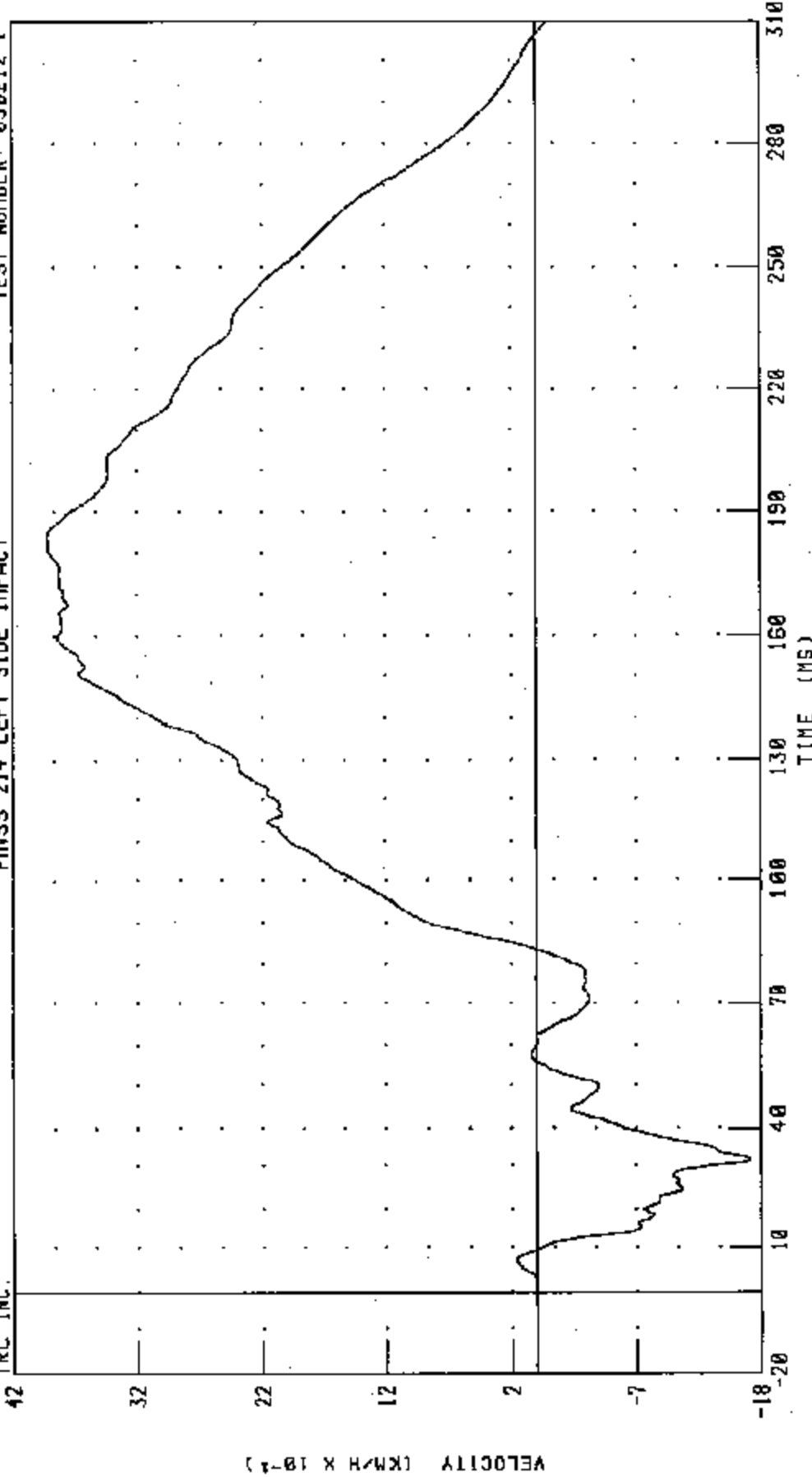
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.



PEAK DATA: 3.93 KM/H @ 183.92 MS; -1.72 KM/H @ 31.76 MS

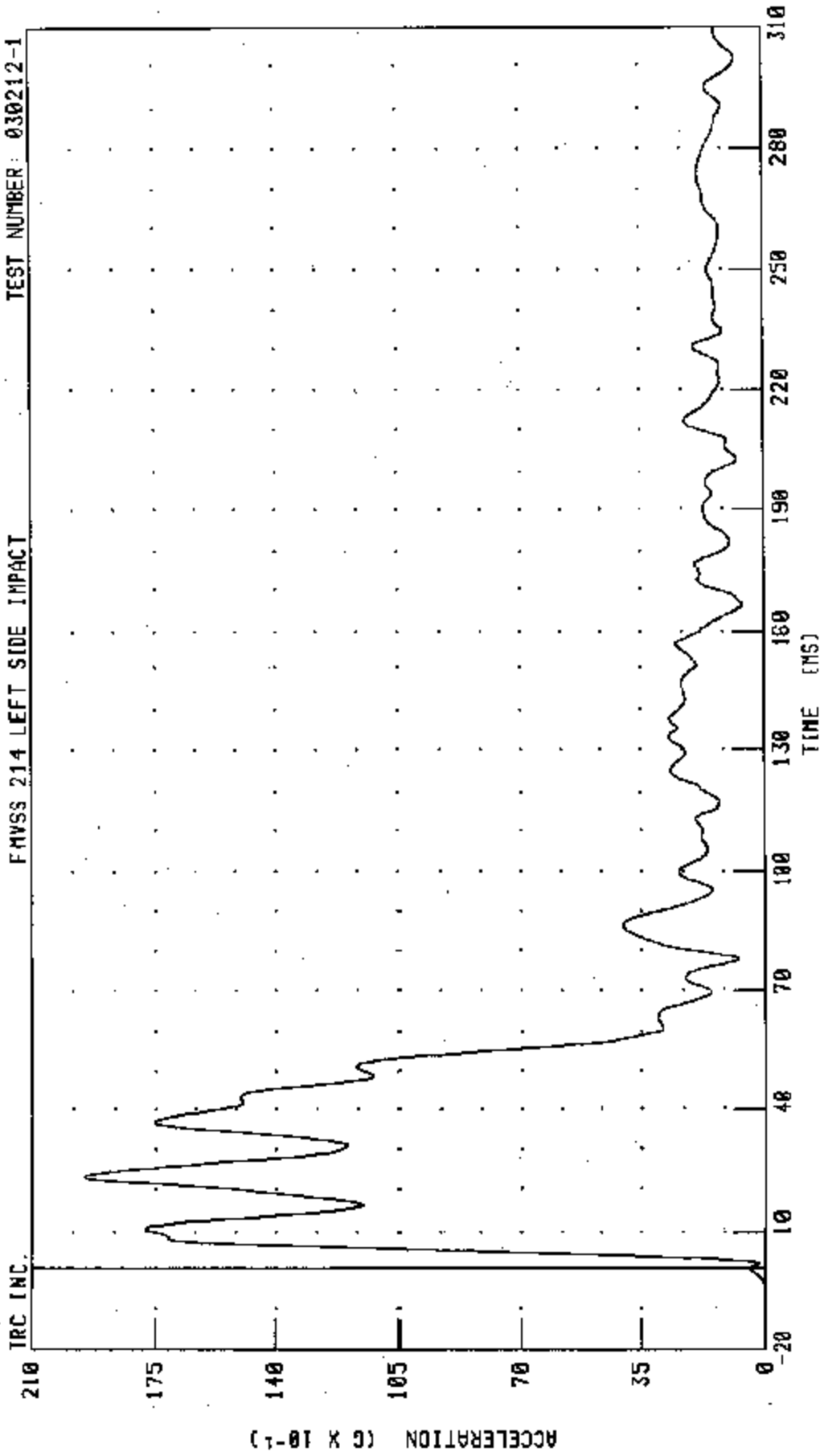
CHANNEL: RRSZYI FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

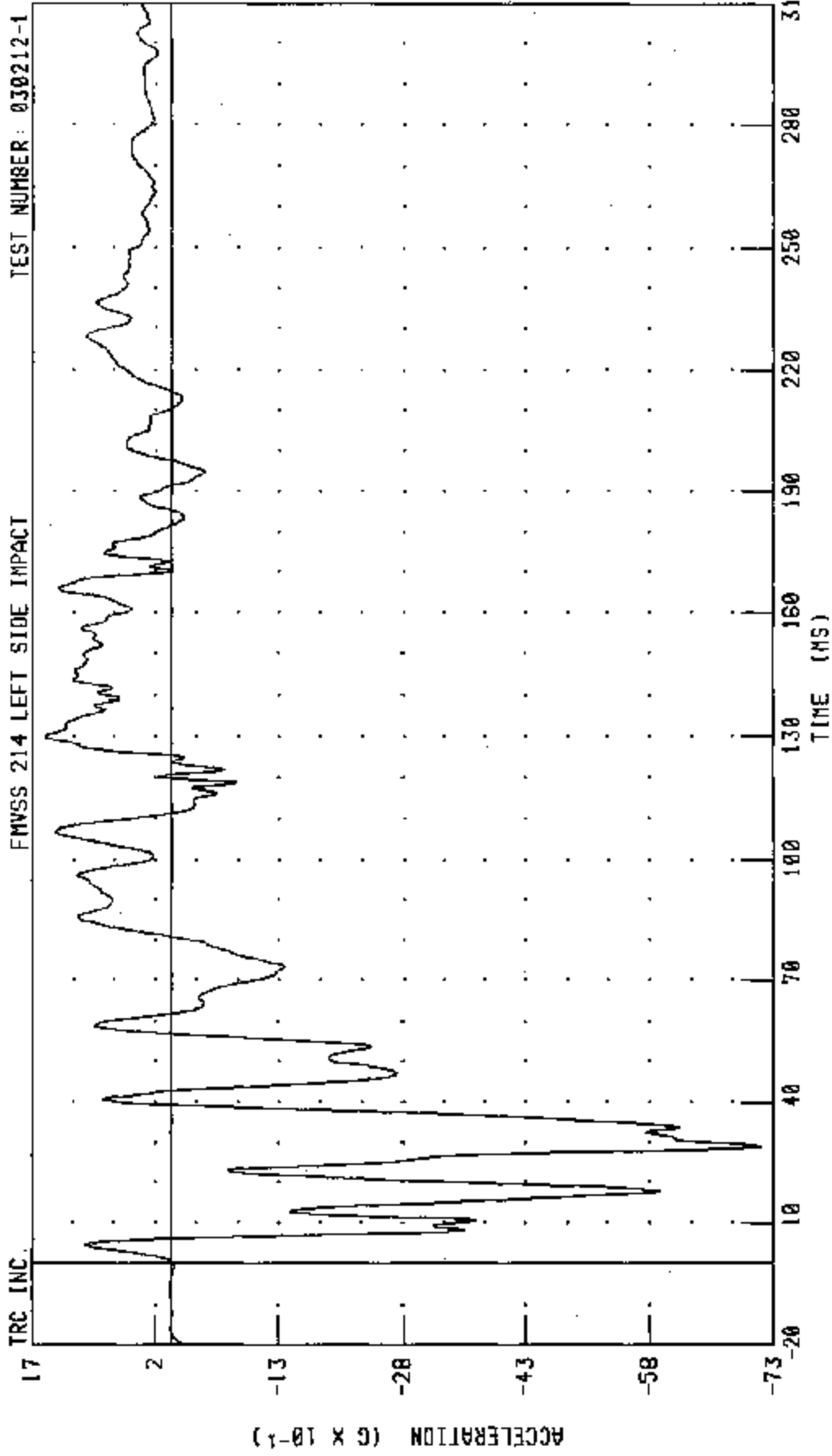
TEST NUMBER: 030212-1



CHANNEL: RRSRG1 FILTER: CH. CLASS 60 PEAK DATA: 19.53 G @ 23.44 MS; 0.01 G @ -17.28 MS

TRC INC.

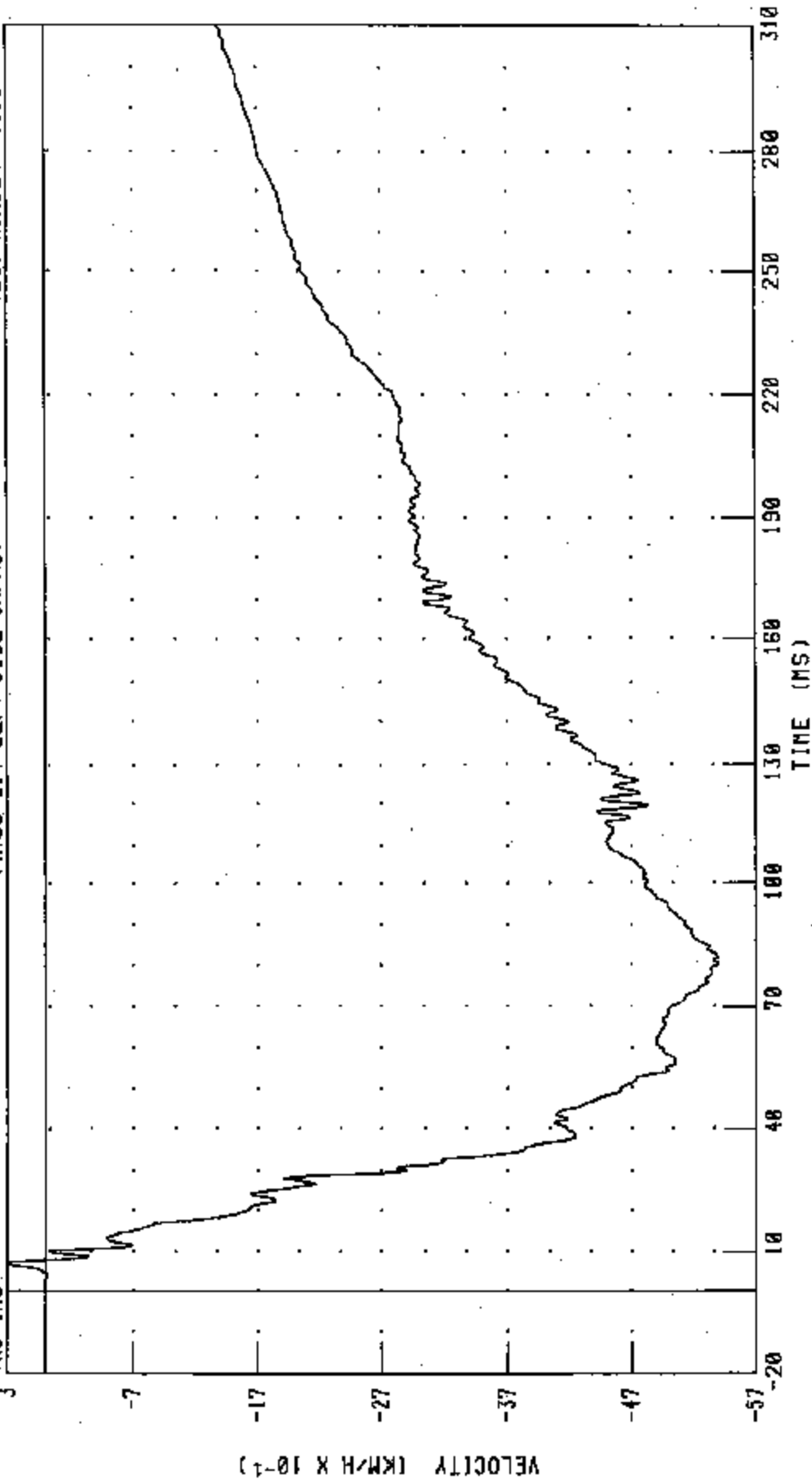
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



CHANNEL: RDKXG1 FILTER: CH. CLASS 60 PEAK DATA: 1.55 G @ 130.16 MS; -7.15 G @ 29.20 MS

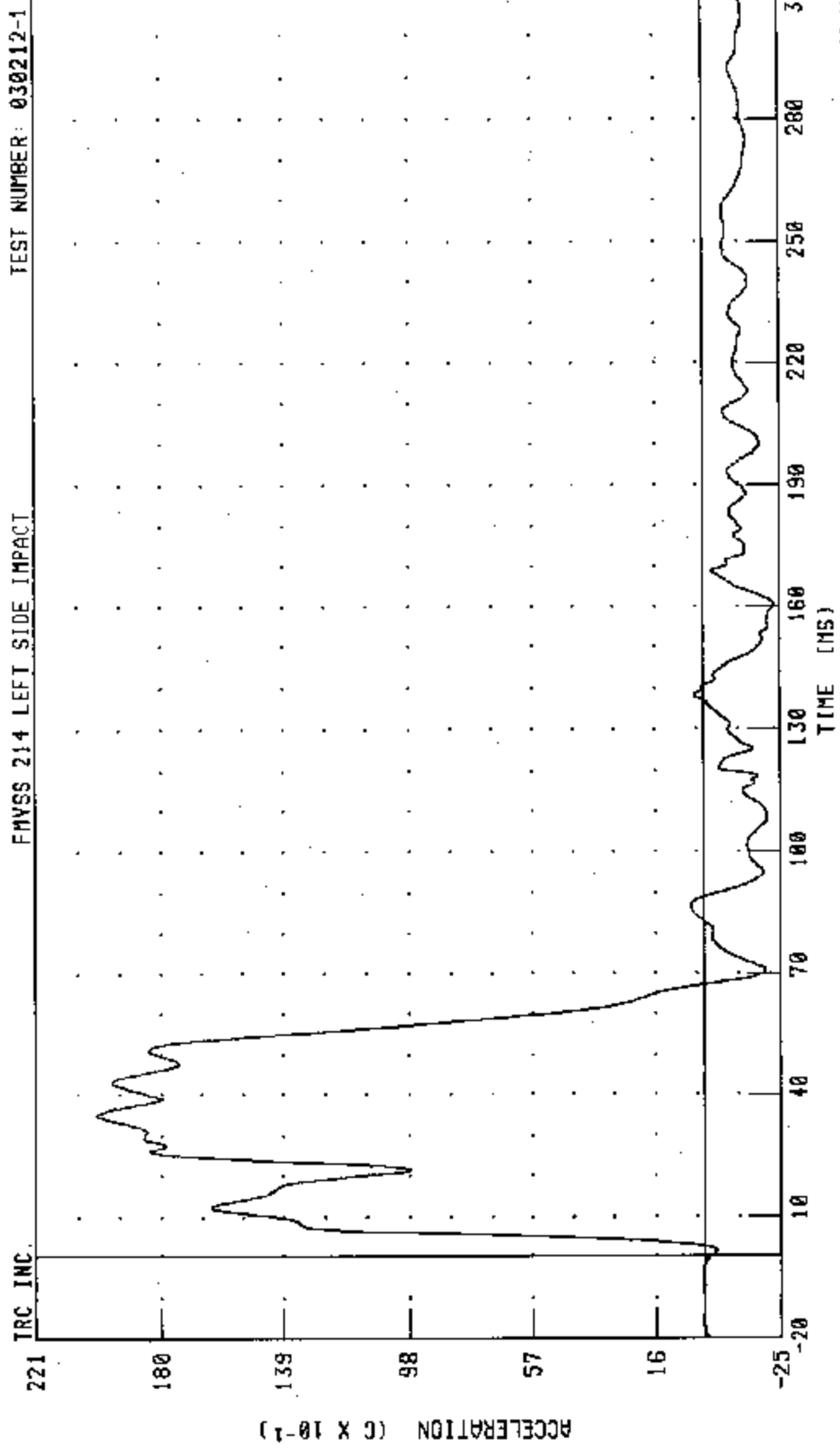
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY

TRC INC. TEST NUMBER: 030212-1  
FWSS 214 LEFT SIDE IMPACT



CHANNEL: RDKXV1 FILTER: CH. CLASS 180 PEAK DATA: 0.32 KM/H @ 6.96 MS, -5.41 KM/H @ 80.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT



TEST NUMBER: 030212-1

CHANNEL: RDKYGI FILTER: CH. CLASS 60 PEAK DATA: 20.11 G @ 34.96 MS; -2.32 G @ 160.72 MS

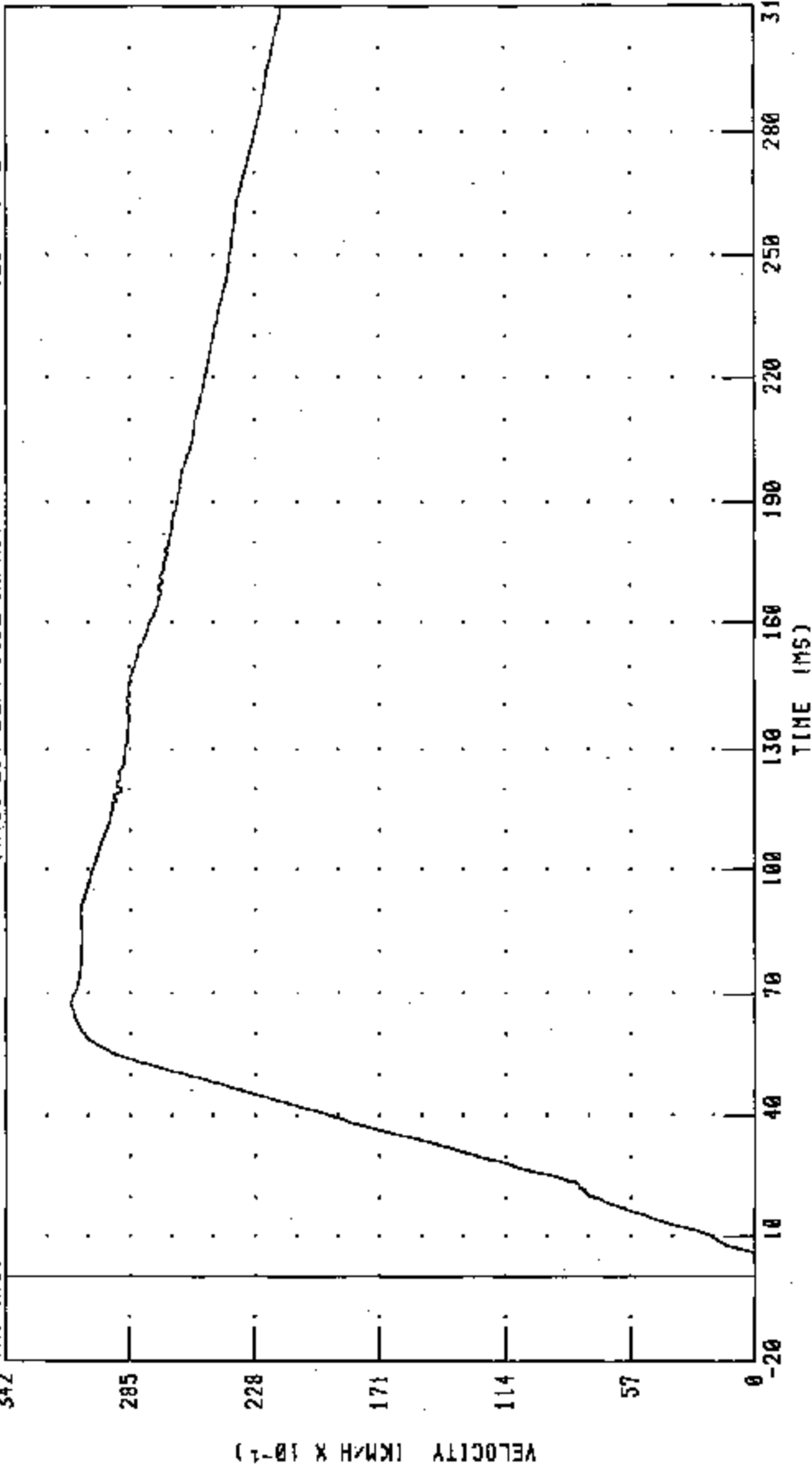
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC. 342



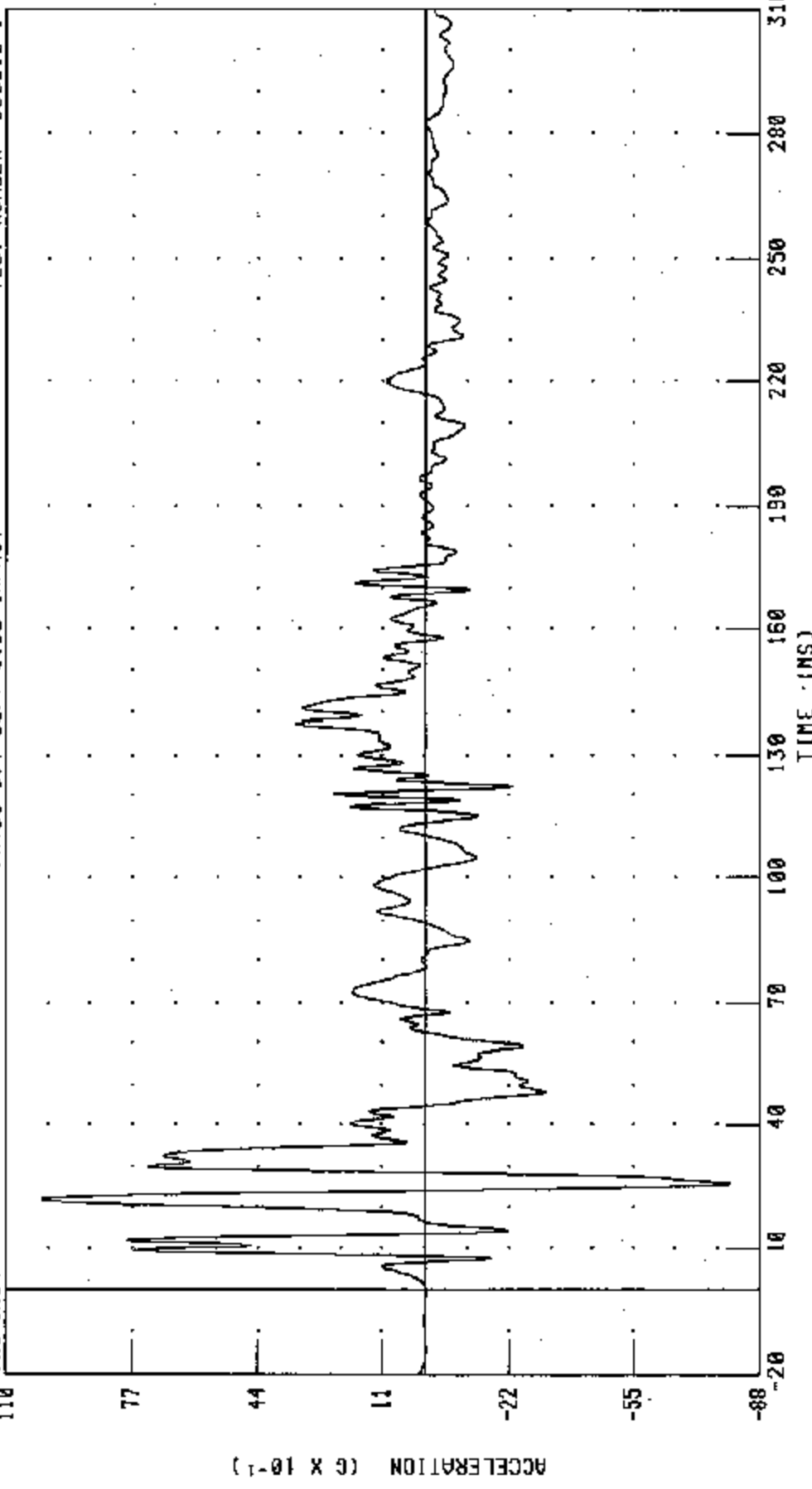
CHANNEL: RDKYV1 FILTER: CH. CLASS 180 PEAK DATA: 31.20 KM/H @ 67.28 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: RDKYV1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION

TEST NUMBER: 030212-1

TRC INC. FNVSS 214 LEFT SIDE IMPACT



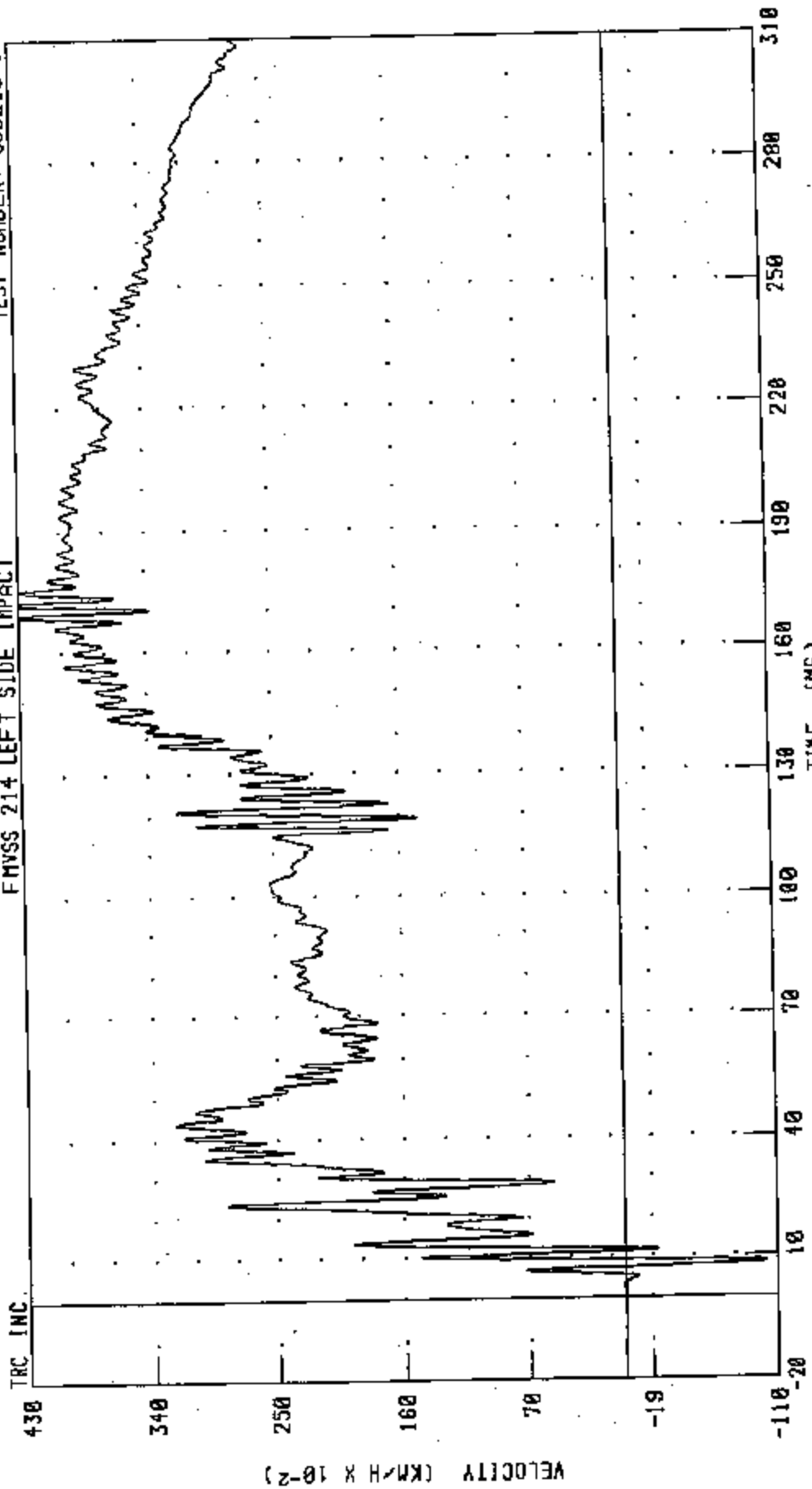
CHANNEL: R0KZG1 FILTER: CH. CLASS 60 PEAK DATA: 10.07 G @ 21.68 MS; -8.05 G @ 25.52 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY

TEST NUMBER: 030212-1

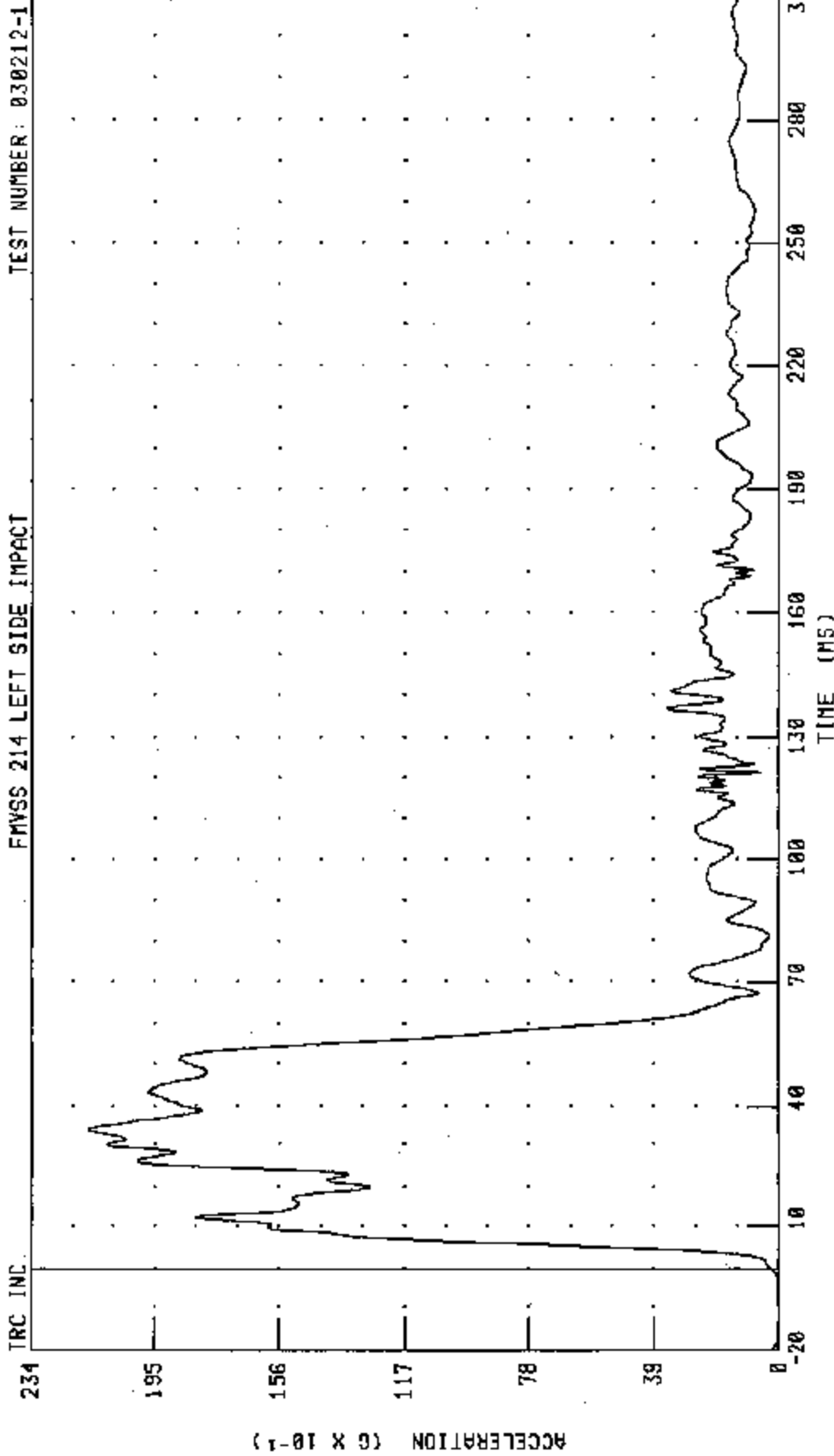
FMVSS 214 LEFT SIDE IMPACT



PEAK DATA: 4.40 KM/H @ 172.16 MS, -1.02 KM/H @ 8.40 MS

CHANNEL: RDKZY1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

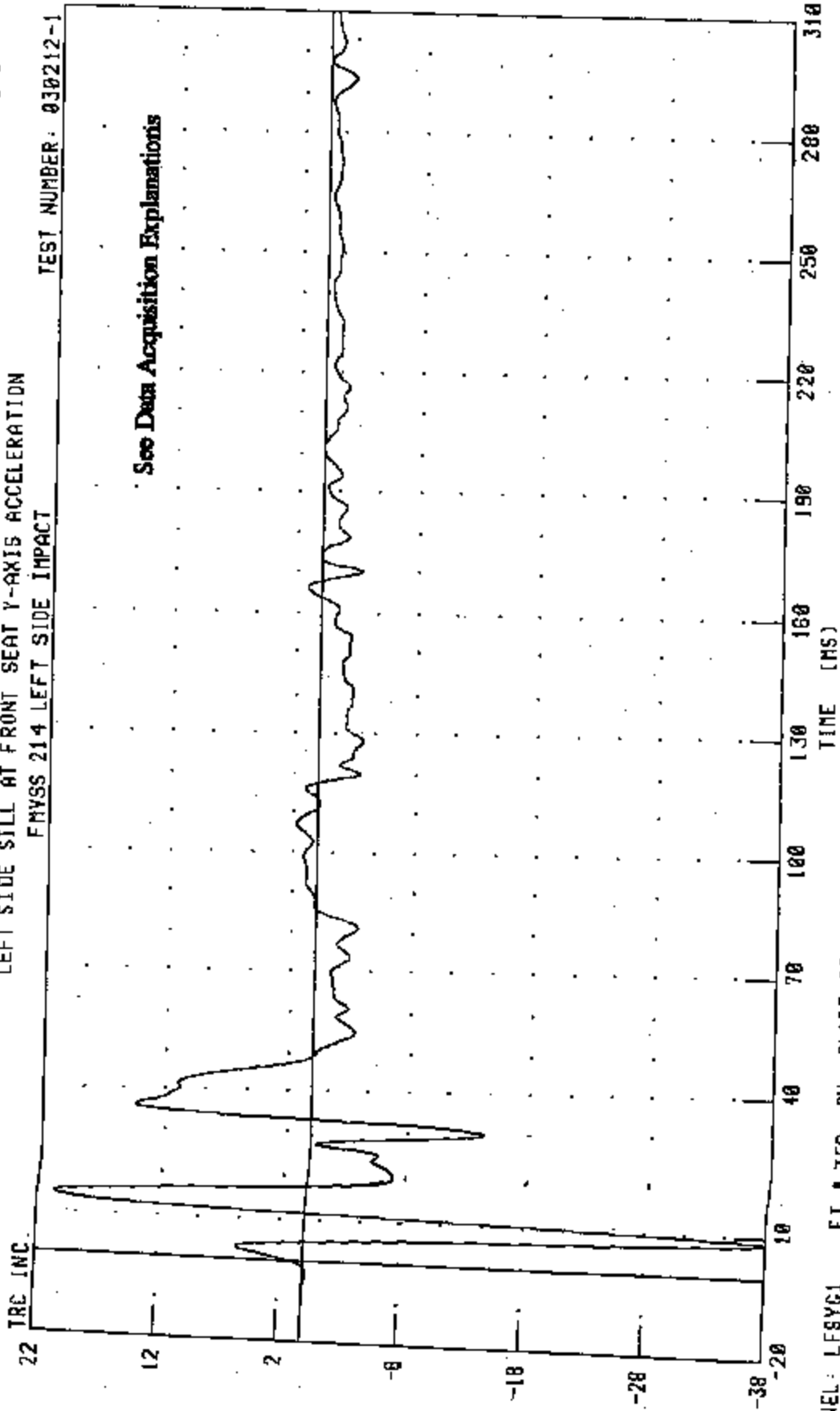


CHANNEL: RDKRG1 FILTER: CH. CLASS 60 PEAK DATA: 21.59 G @ 33.92 MS; 0.01 G @ -10.88 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT SIDE STILL AT FRONT SEAT Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

See Data Acquisition Explanations



CHANNEL: LFSYG1 FILTER: CH. CLASS 60

PEAK DATA: 20.60 G @ 15.36 MS; -37.85 G @ 15.16 MS

ACCELERATION (G)

B-64

030212-1

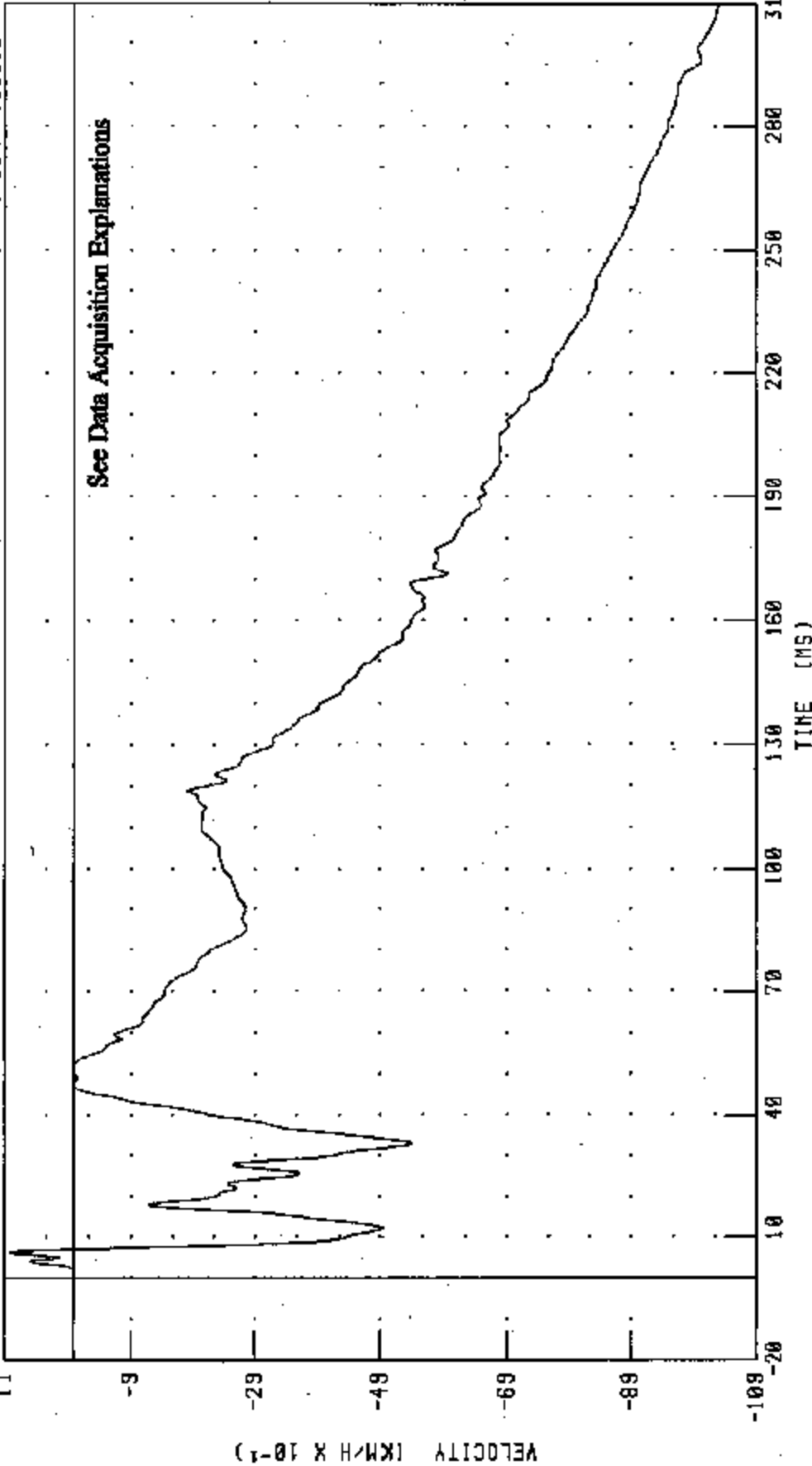
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

1.1



PEAK DATA: 1.01 KM/H @ 6.56 MS; -10.32 KM/H @ 310.00 MS

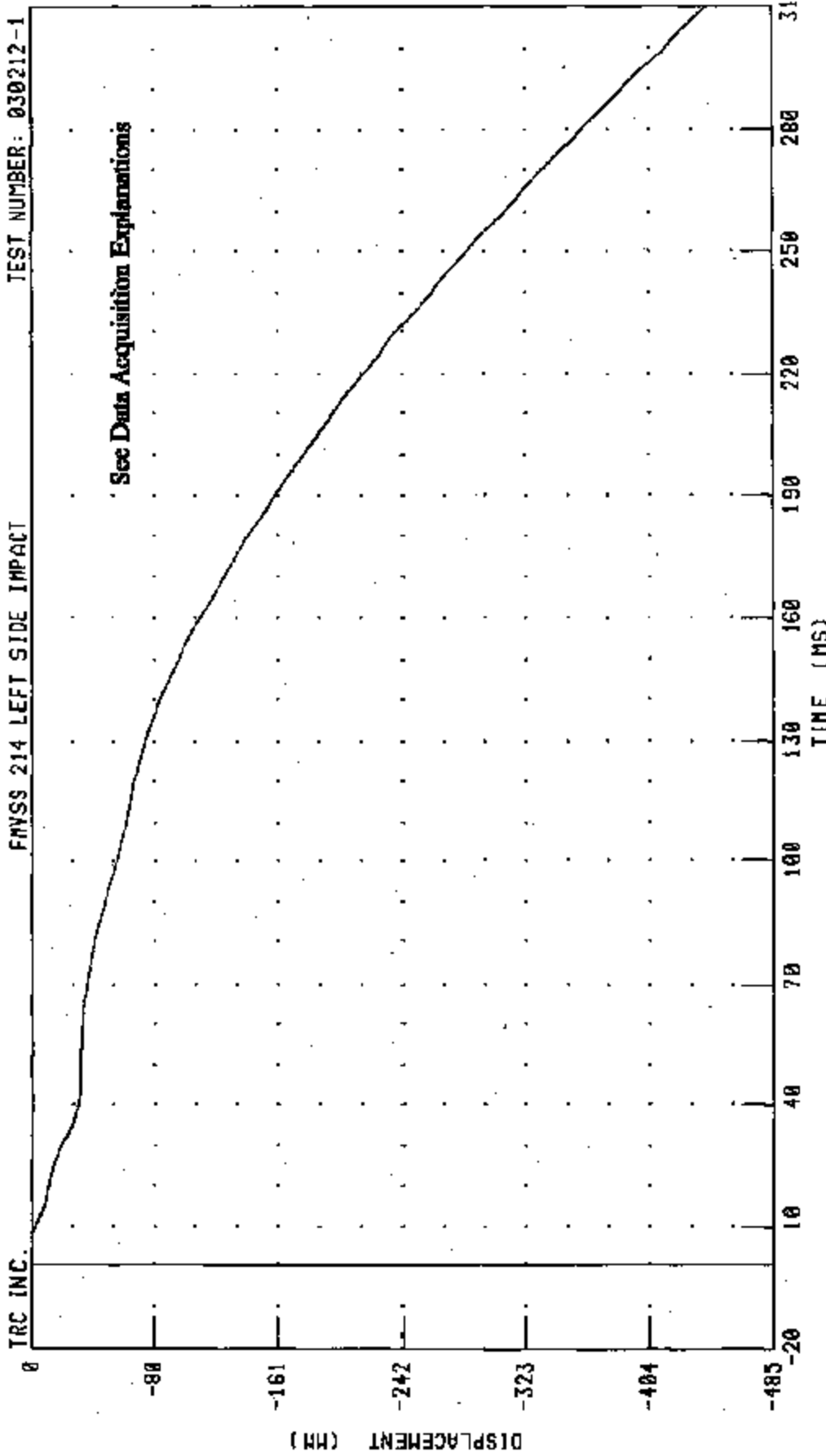
CHANNEL: LFSYV1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT SIDE SILL AT FRONT SEAT Y-AXIS DISPLACEMENT

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: LFSYD1 FILTER: CH. CLASS 180

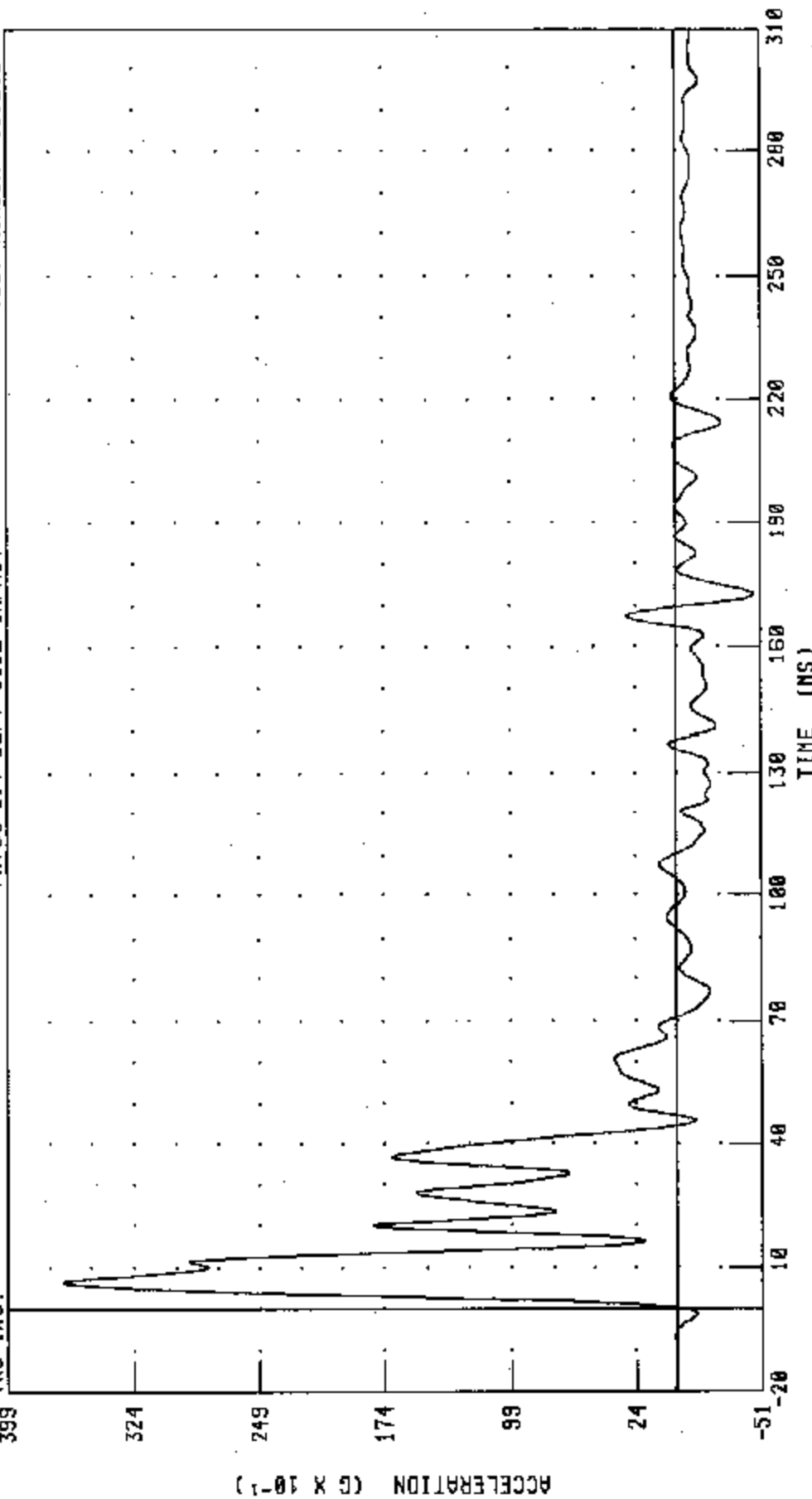
PEAK DATA: 0.66 MM @ 7.36 MS; -442.48 MM @ 310.00 MS

48/24 XPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

FHVSS 214 LEFT SIDE IMPACT

TRC INC.

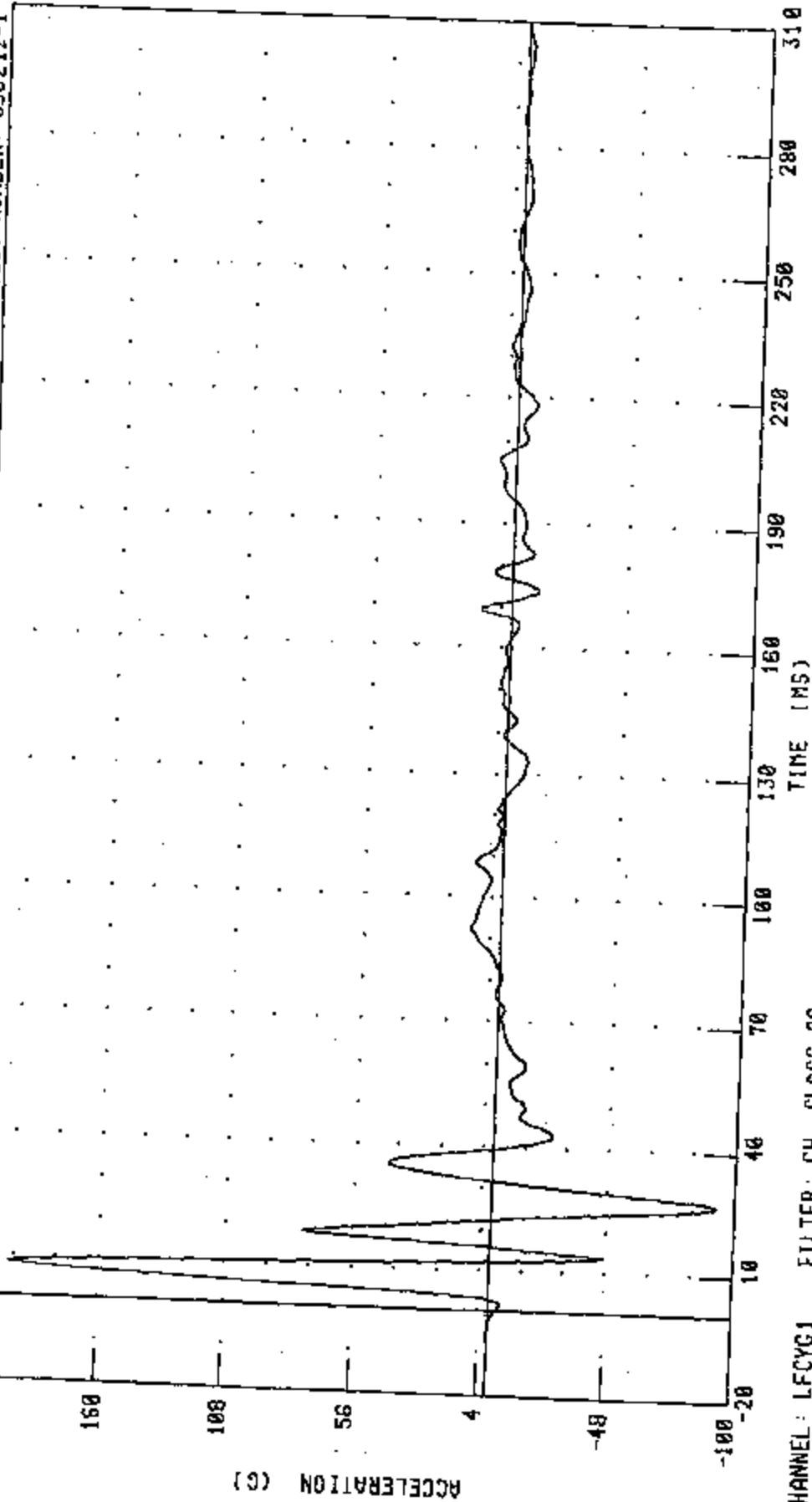


CHANNEL: LRSYG1 FILTER: CH. CLASS 60 PEAK DATA: 38.70 G @ 6.32 MS, -4.65 G @ 172.64 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
LEFT FRONT DOOR ON CENTERLINE Y-AXIS ACCELERATION

212 IRC INC.

FVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



CHANNEL: LFCYG1 FILTER: CH. CLASS 60

PEAK DATA: 196.50 G @ 8.80 MS, -91.95 G @ 26.88 MS

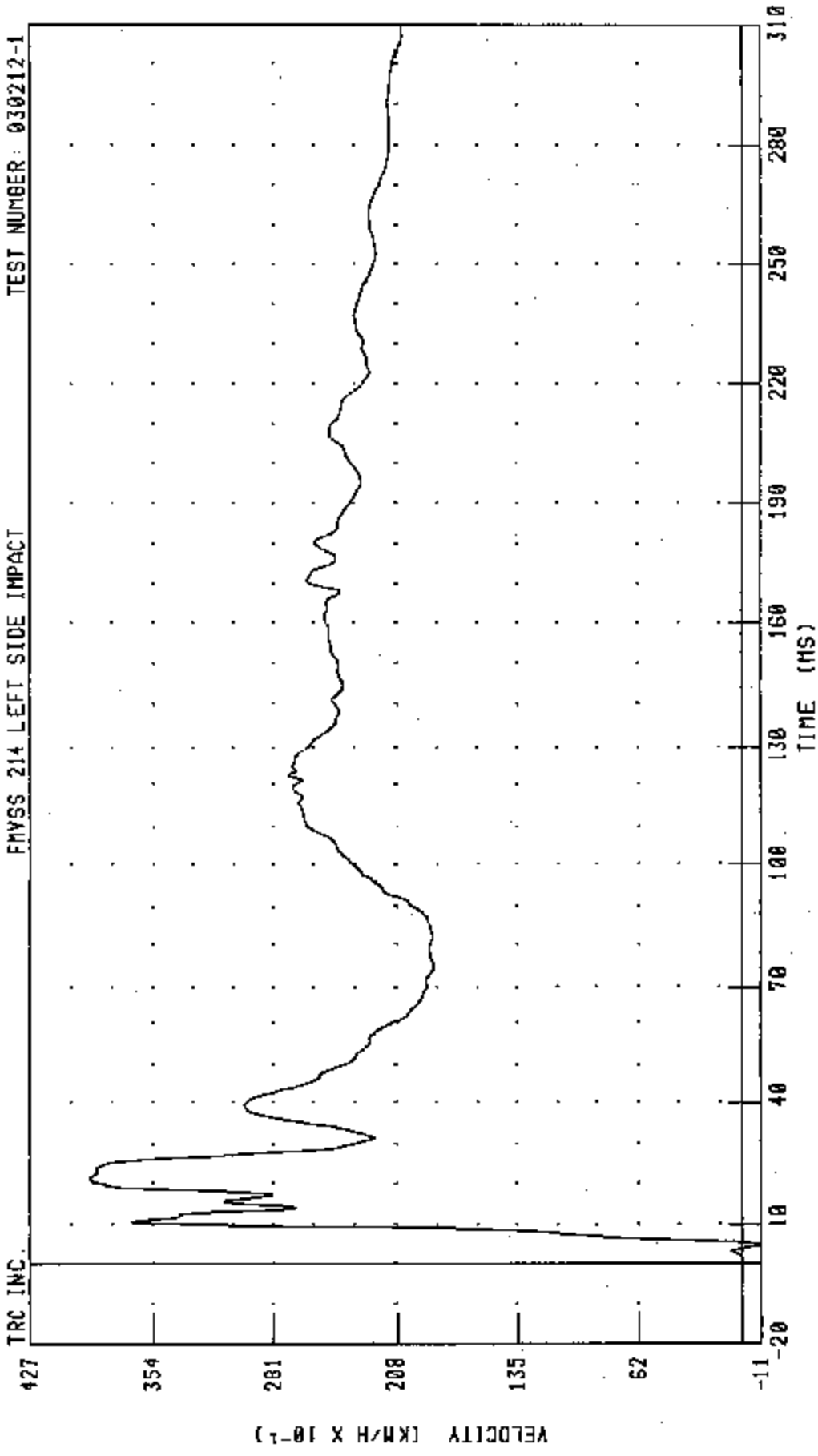
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT FRONT DOOR ON CENTERLINE Y-AXIS VELOCITY

TRC INC.

TEST NUMBER: 030212-1

FMYSS 214 LEFT SIDE IMPACT



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

PEAK DATA: 39.22 KM/H @ 21.12 MS; -1.07 KM/H @ 4.56 MS

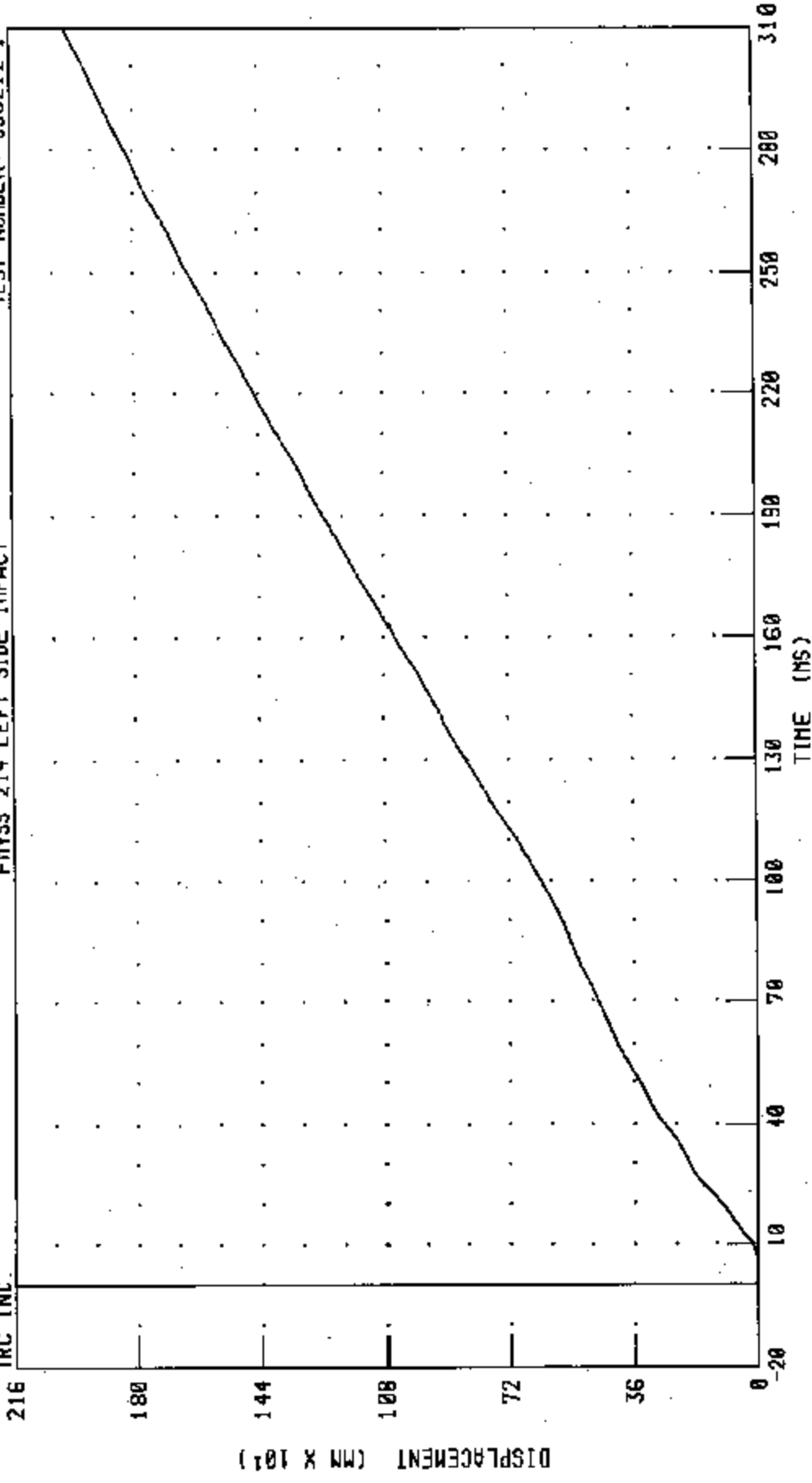
CHANNEL: LFCV1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT FRONT DOOR ON CENTERLINE Y-AXIS DISPLACEMENT

TEST NUMBER: 030212-1

FHYSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL: LFCYD1 FILTER: CH. CLASS 180  
PEAK DATA: 1999.35 MM @ 310.00 MS, -0.06 MM @ 5.12 MS

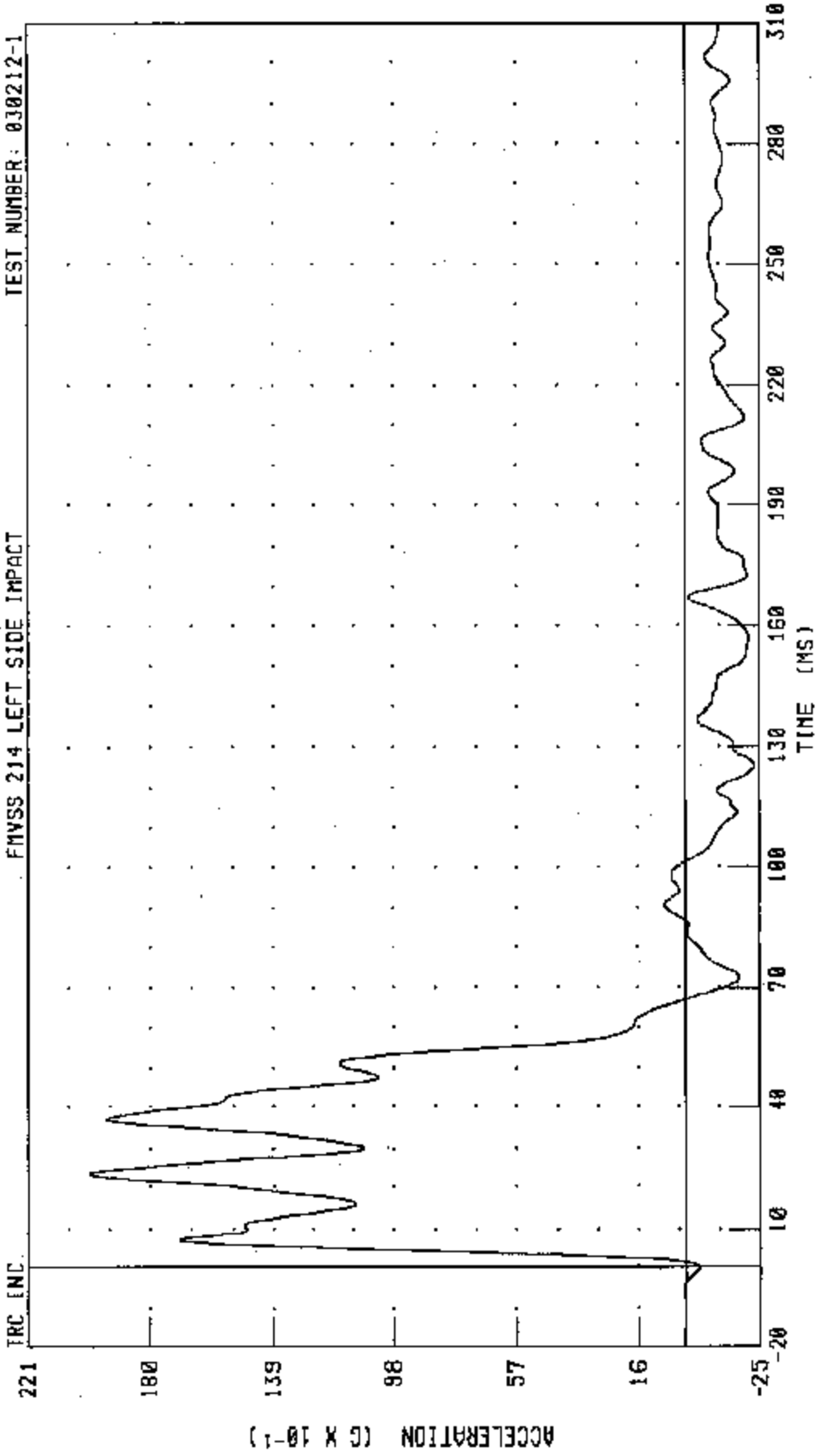
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



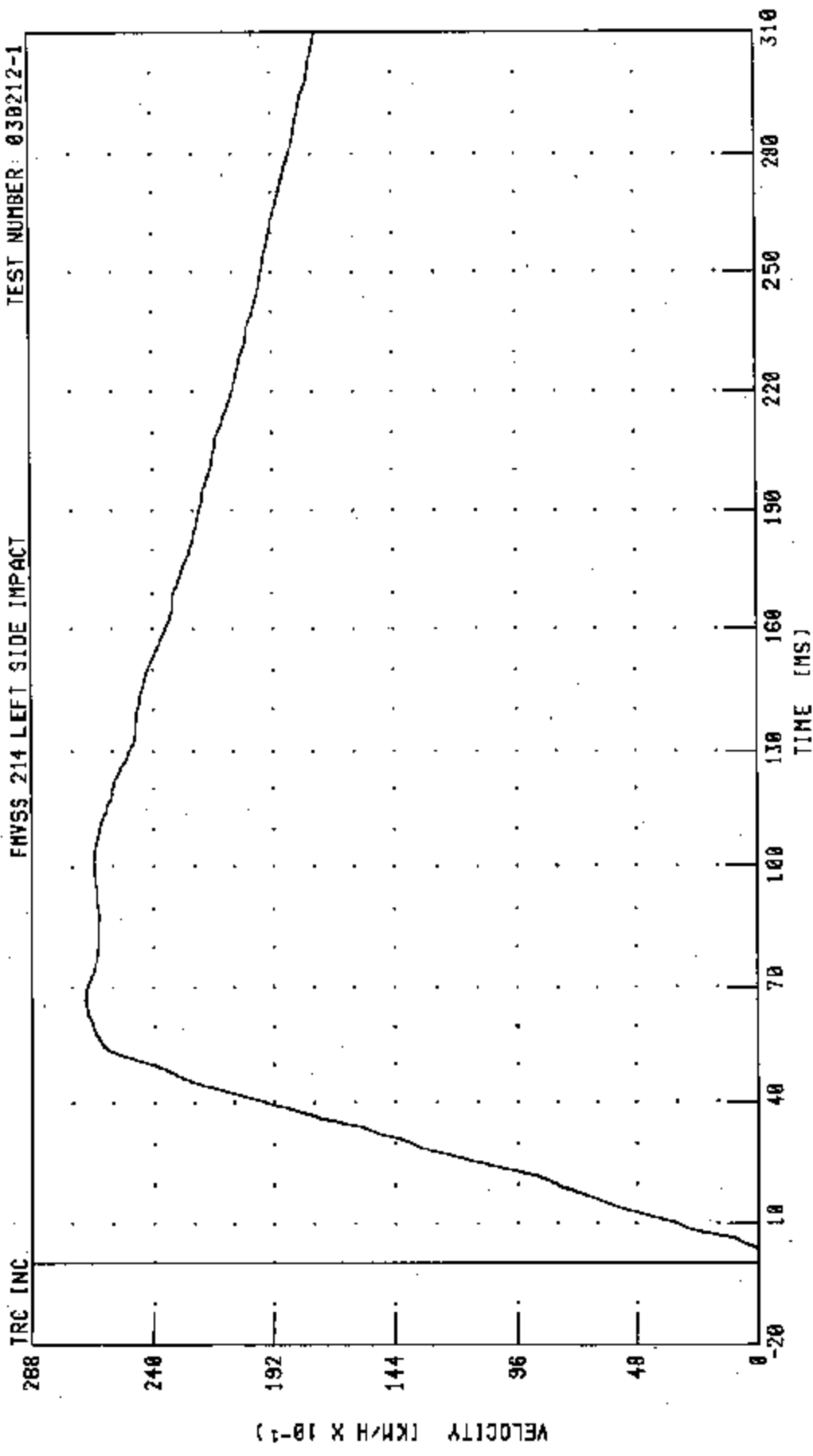
PEAK DATA: 20.05 G @ 23.36 MS; -2.33 G @ 125.52 MS

CHANNEL: RRTYG1 FILTER: CH. CLASS 60

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
- RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY

TEST NUMBER: 03B212-1

FVSS 214 LEFT SIDE IMPACT

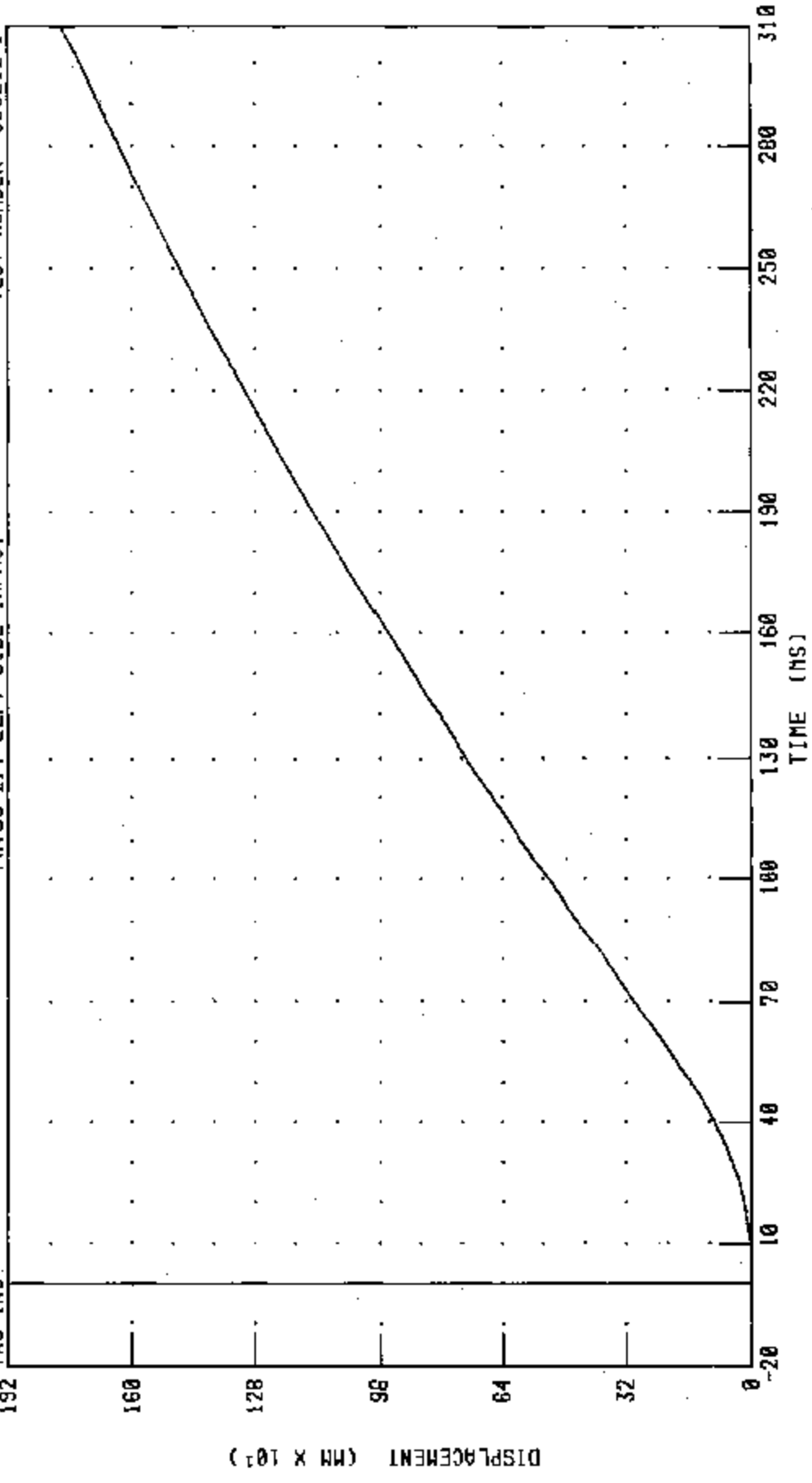


CHANNEL: RRTYV1 FILTER: CH. CLASS 180  
PEAK DATA: 26.68 KM/H @ 66.56 MS, -0.01 KM/H @ 2.80 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT  
FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.



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

TIME (MS)

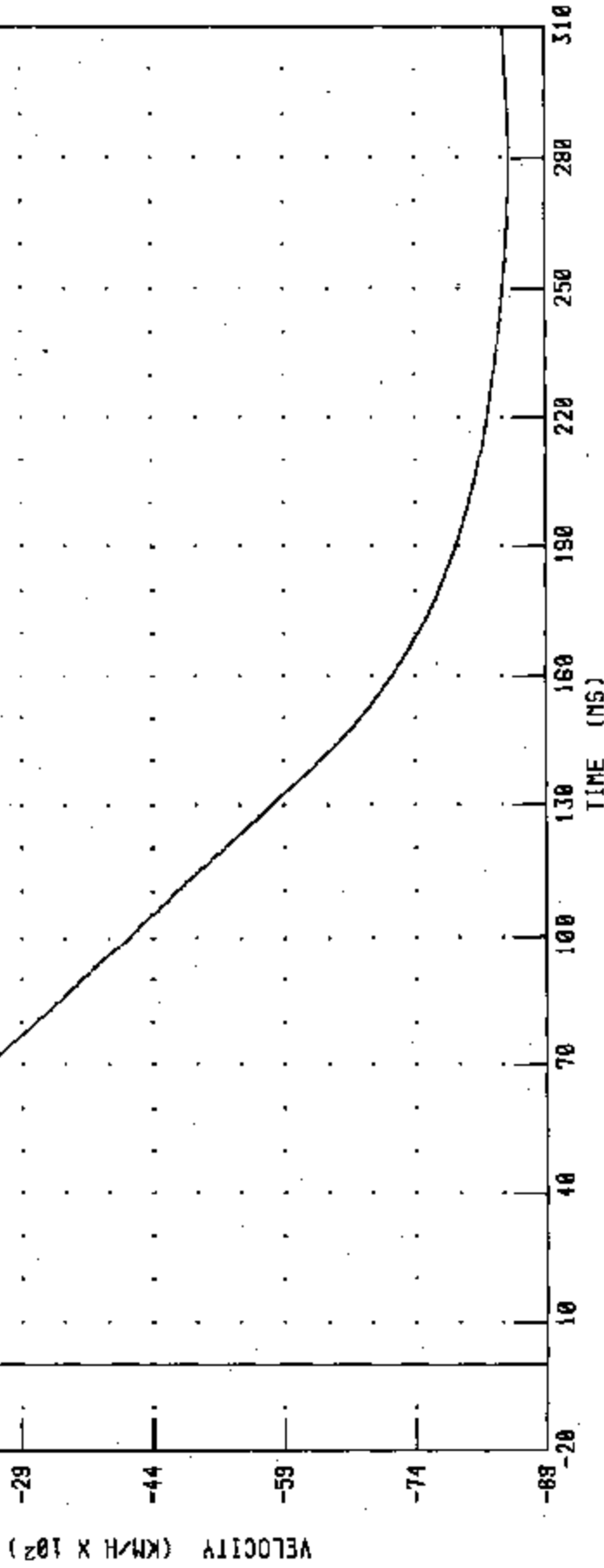
PEAK DATA: 1783.92 MM @ 310.00 MS, 0.00 MM @ 3.20 MS

CHANNEL: RRTYD1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1

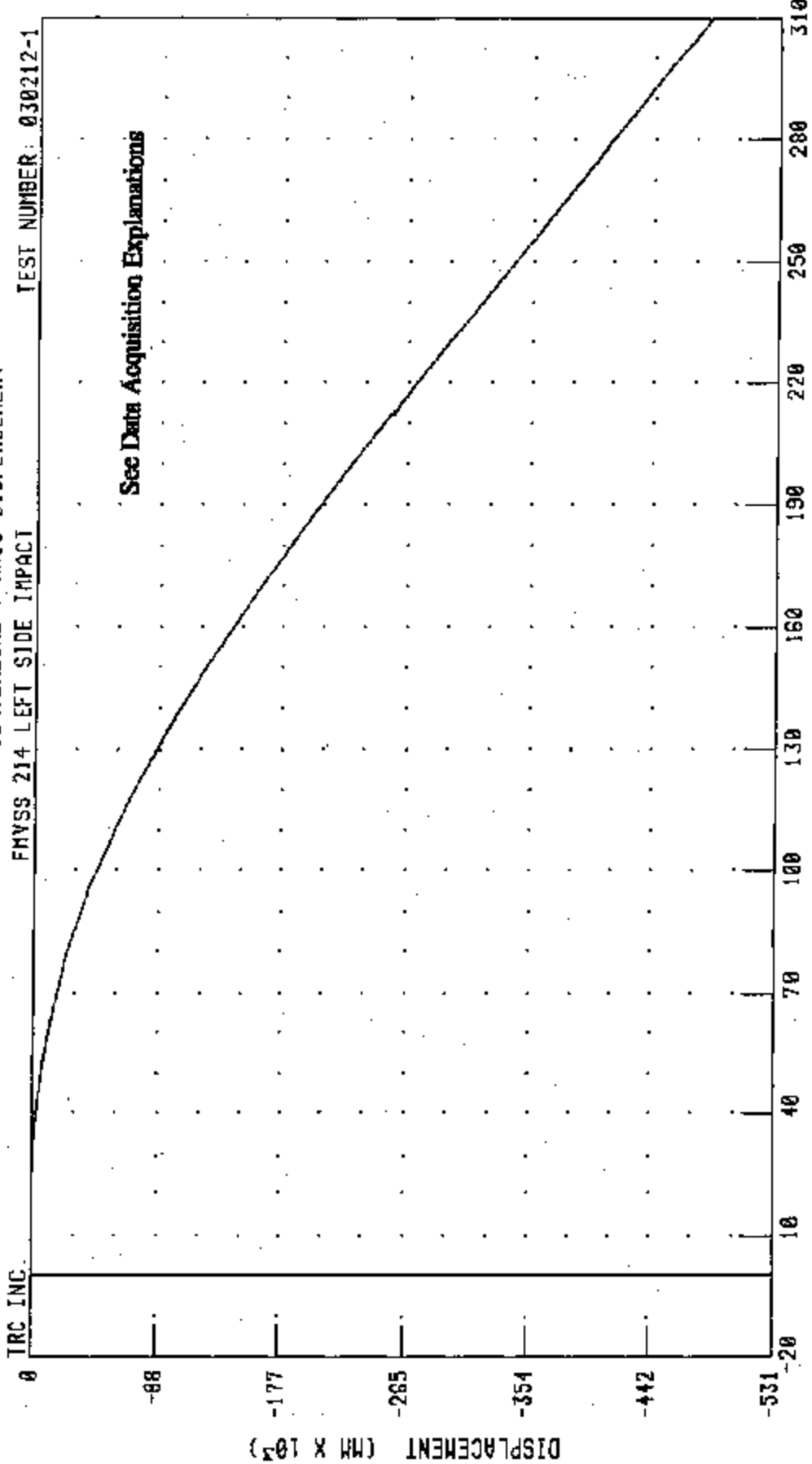
See Data Acquisition Explanations



CHANNEL: LFUYV1 FILTER: CH. CLASS 100 PEAK DATA: 47.08 KM/H @ 21.12 MS, -8528.00 KM/H @ 279.04 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



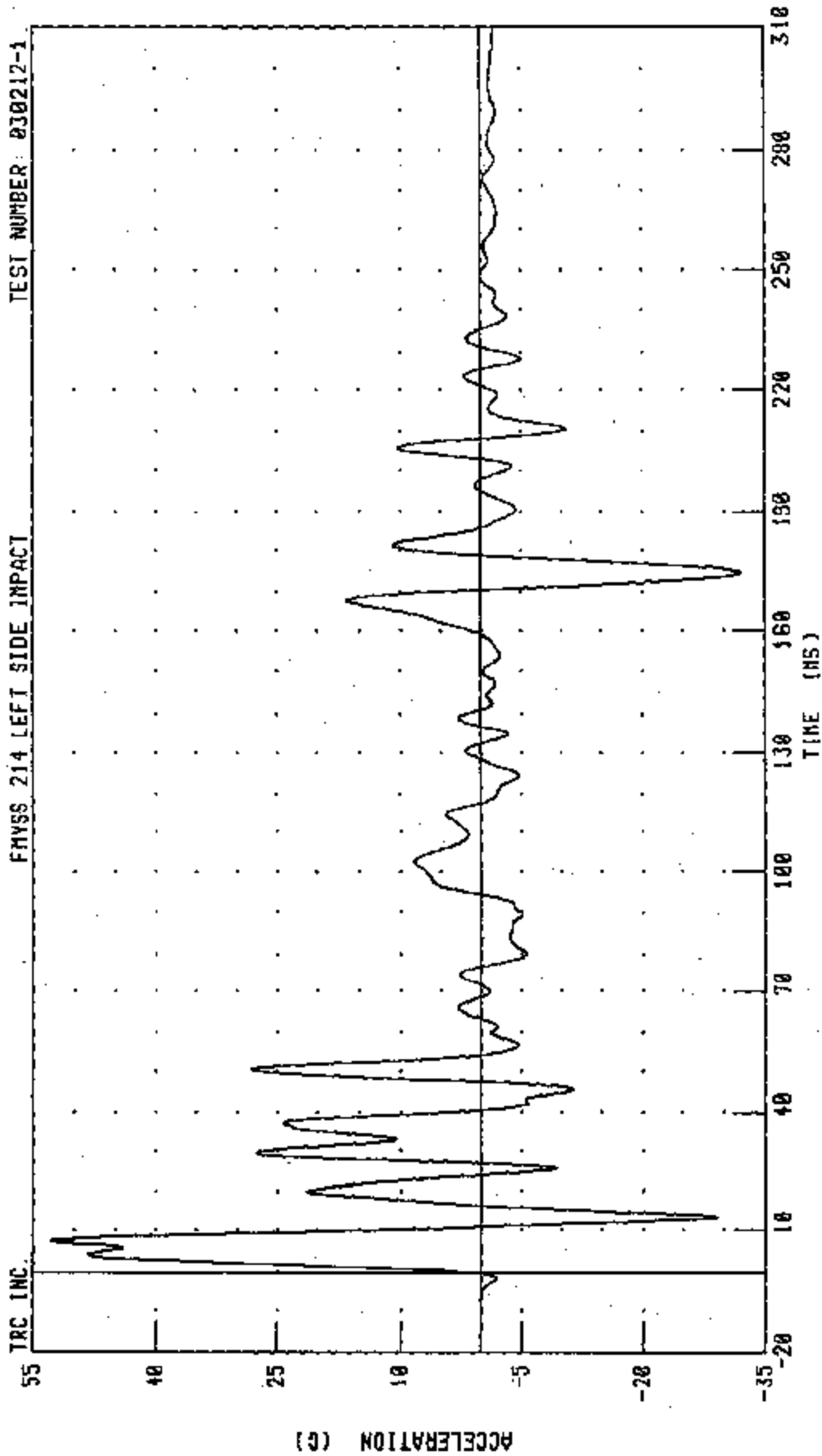
CHANNEL: LFUYDI FILTER: CH. CLASS 180  
PEAK DATA: 74.89 MM @ 22.72 MS; -483359.84 MM @ 310.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR DOOR MID-REAR Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

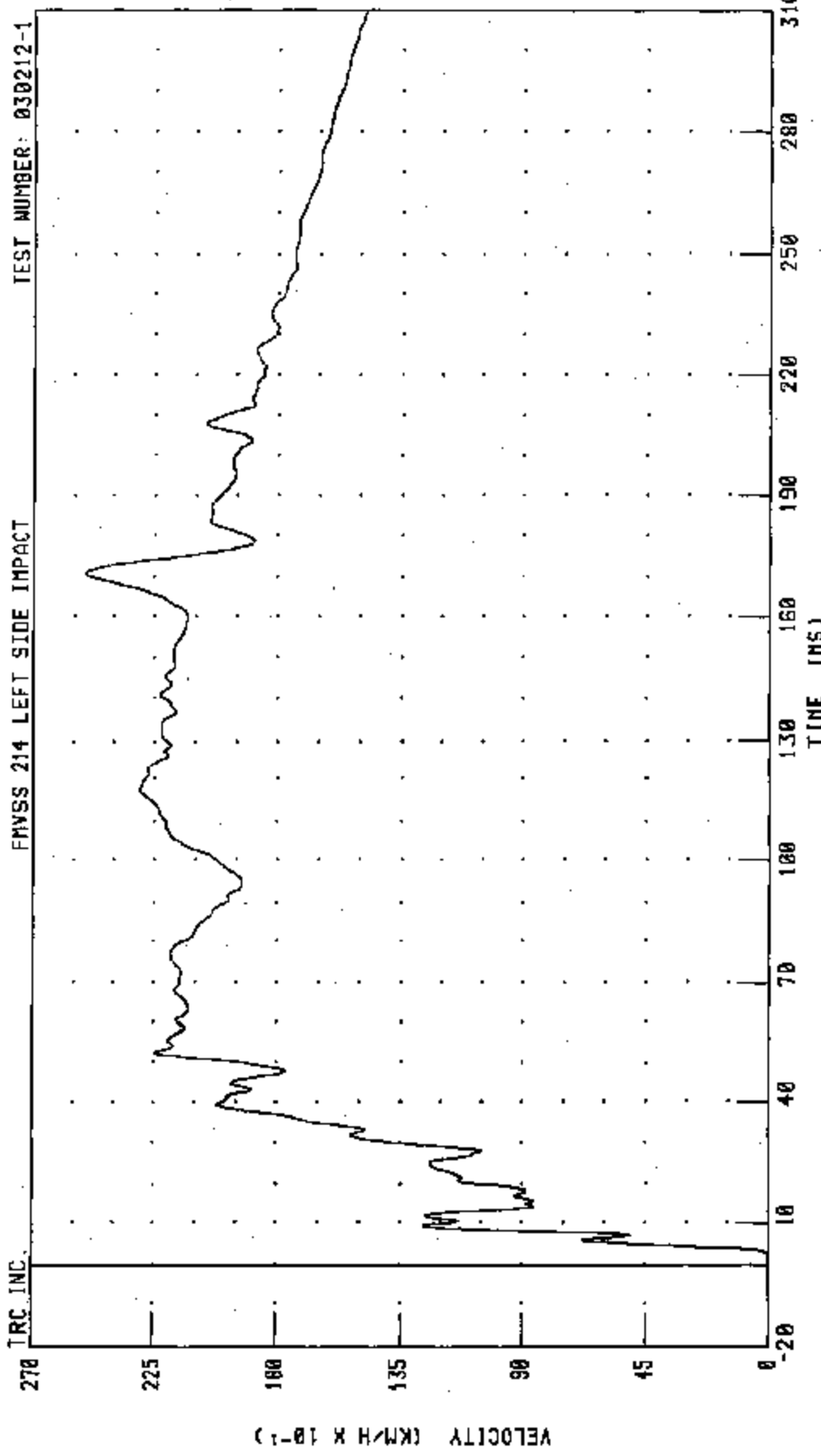
FHYSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL: LRMVCI FILTER: CH CLASS 60 PEAK DATA: 52.81 G @ 7.52 MS, -32.14 G @ 174.48 MS

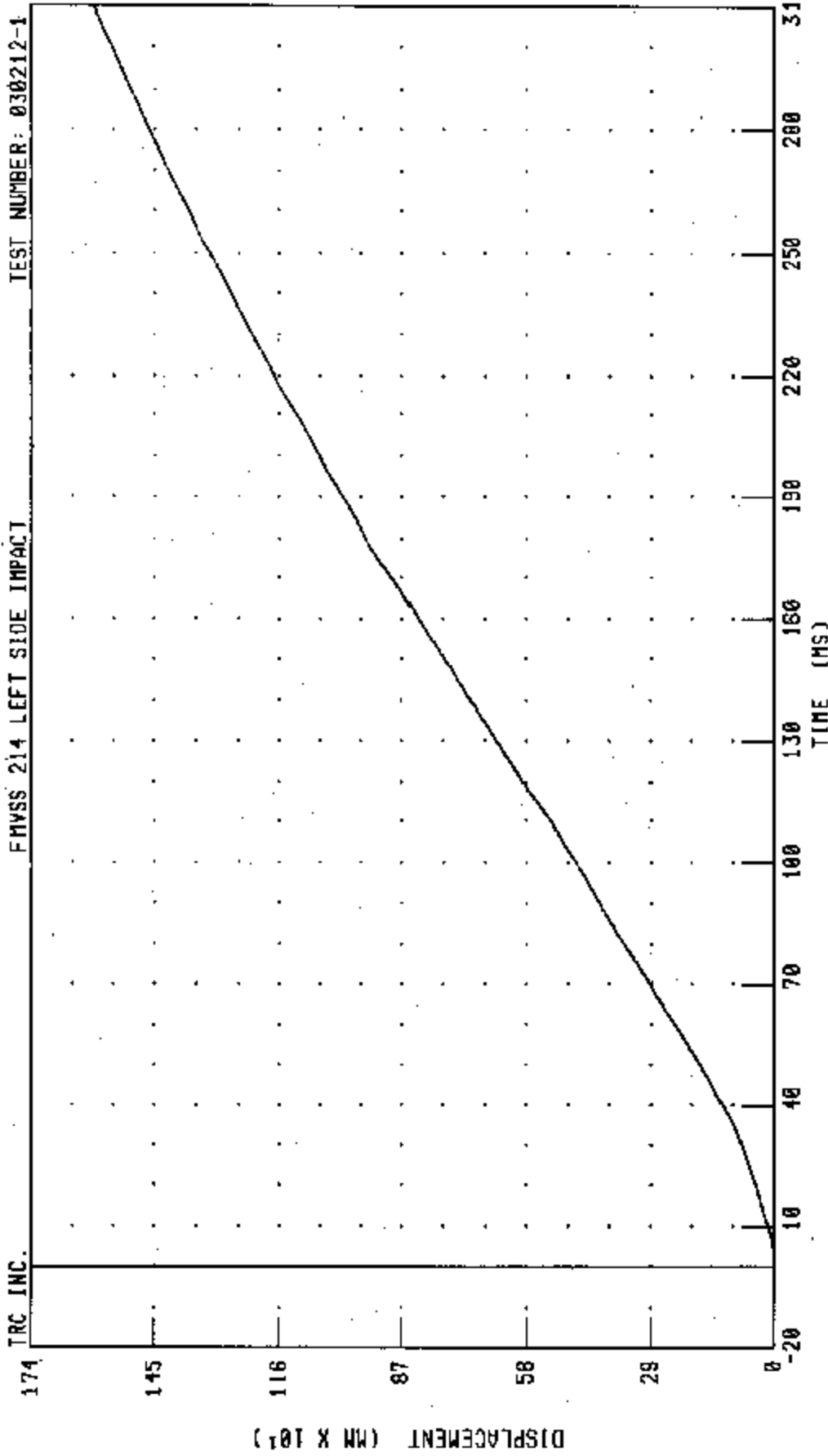
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
LEFT REAR DOOR MID-REAR Y-AXIS VELOCITY



CHANNEL: LRNYV1 FILTER: CH. CLASS 100 PEAK DATA: 25.06 KM/H @ 170.80 MS; 0.00 KM/H @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR DOOR MID-REAR Y-AXIS DISPLACEMENT

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



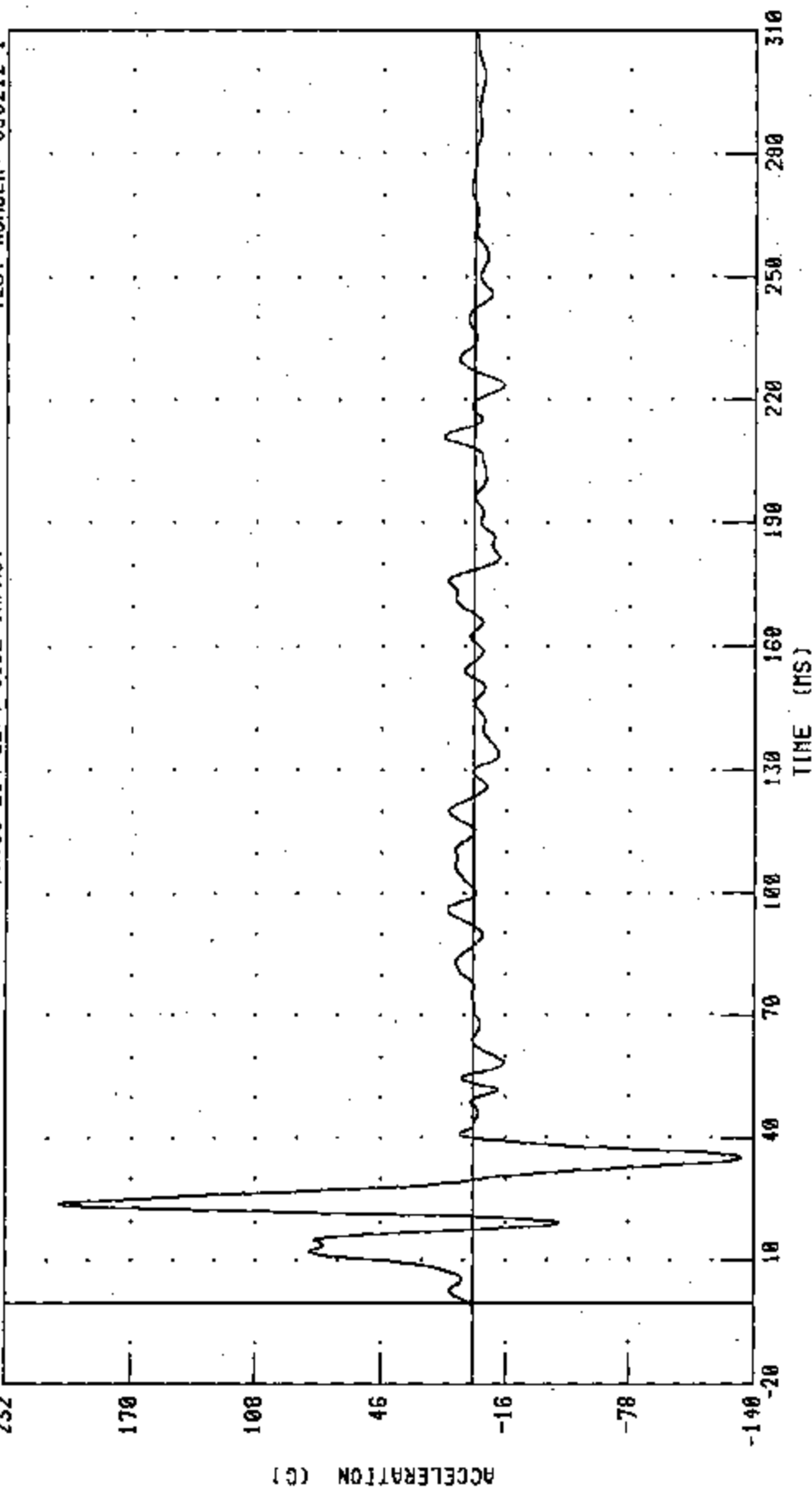
CHANNEL: LRMYD1 FILTER: CH. CLASS 180 PEAK DATA: 1591.95 MM @ 310.00 MS; 0.00 MM @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS ACCELERATION

TRC INC.

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

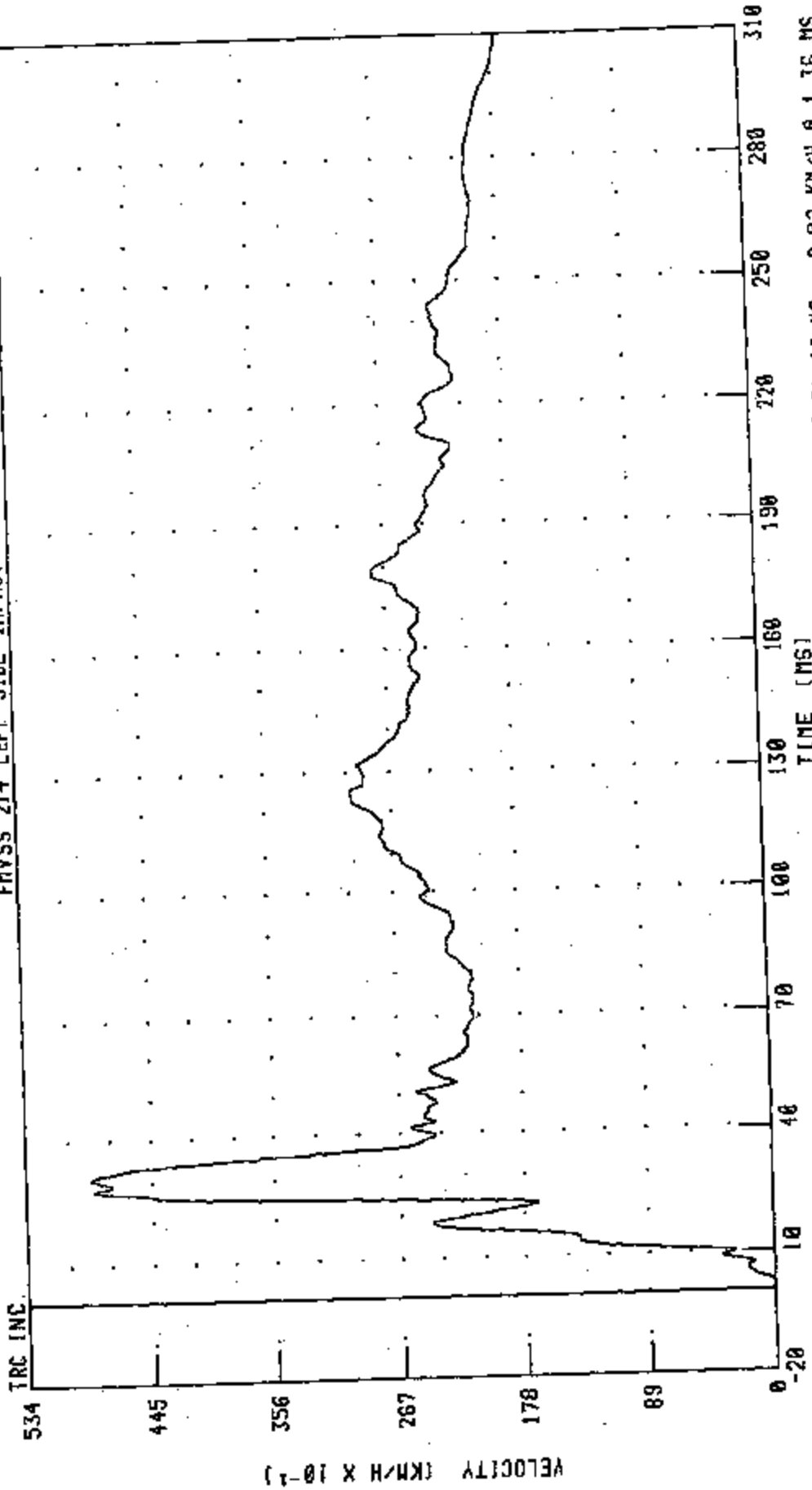


CHANNEL: LRU1G1 FILTER: CH. CLASS 60

PEAK DATA: 205.11 G @ 24.56 MS, -133.54 G @ 35.28 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS VELOCITY  
FRYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

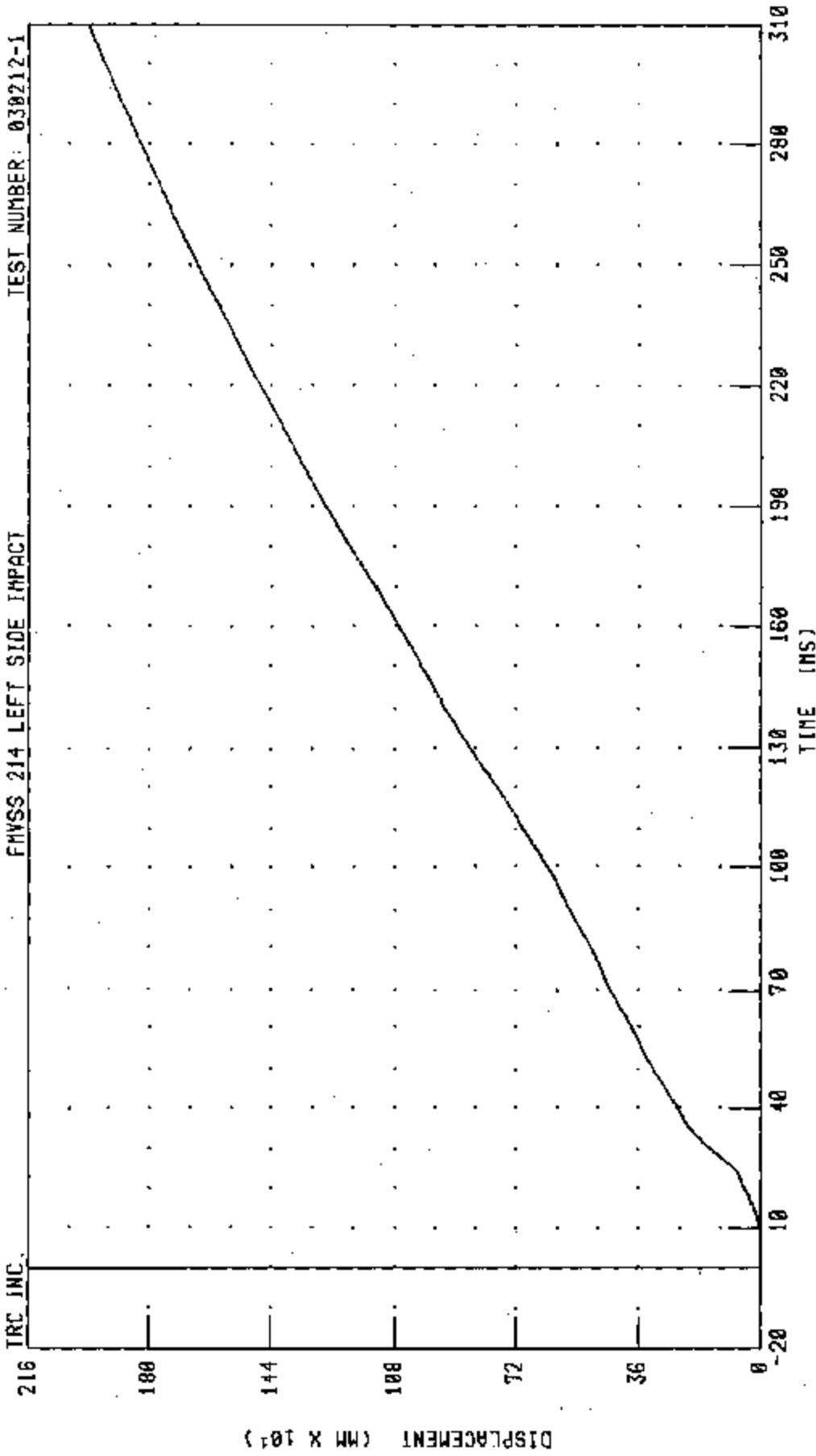


PEAK DATA: 48 79 KM/H @ 31.12 MS; -0.02 KM/H @ 1.36 MS

CHANNEL: LRUYV1 FILTER: CH. CLASS 180

030212-1

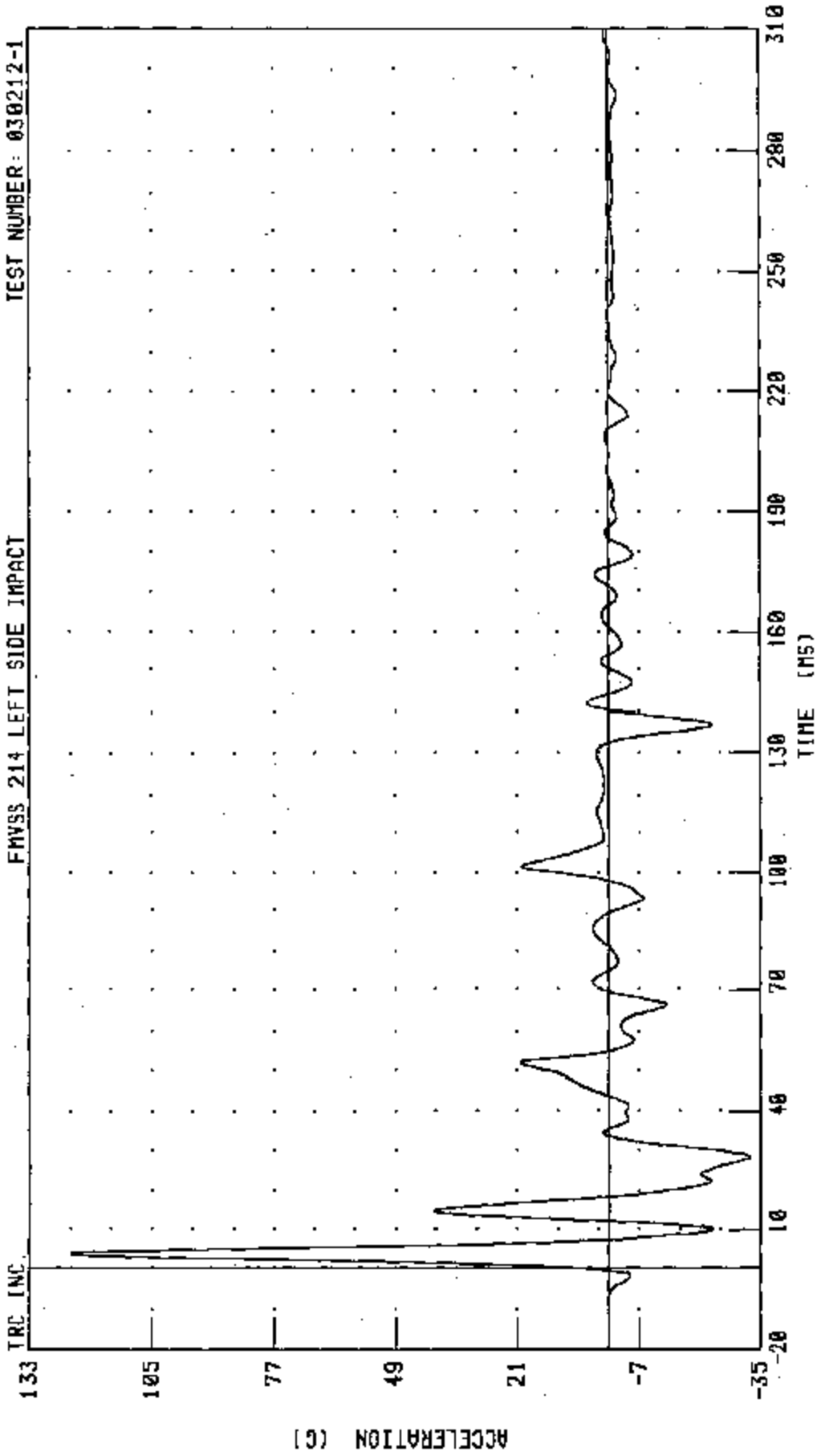
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT



CHANNEL: LRUVDI FILTER: CH. CLASS 180 PEAK DATA: 1980.22 MM @ 310.00 MS, -0.01 MM @ 1.76 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT LOWER A-POST Y-AXIS ACCELERATION

FWSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



CHANNEL: L1AYG1 FILTER: CH. CLASS 60 PEAK DATA: 123.61 G @ 3.92 MS, -32.66 G @ 28.48 MS

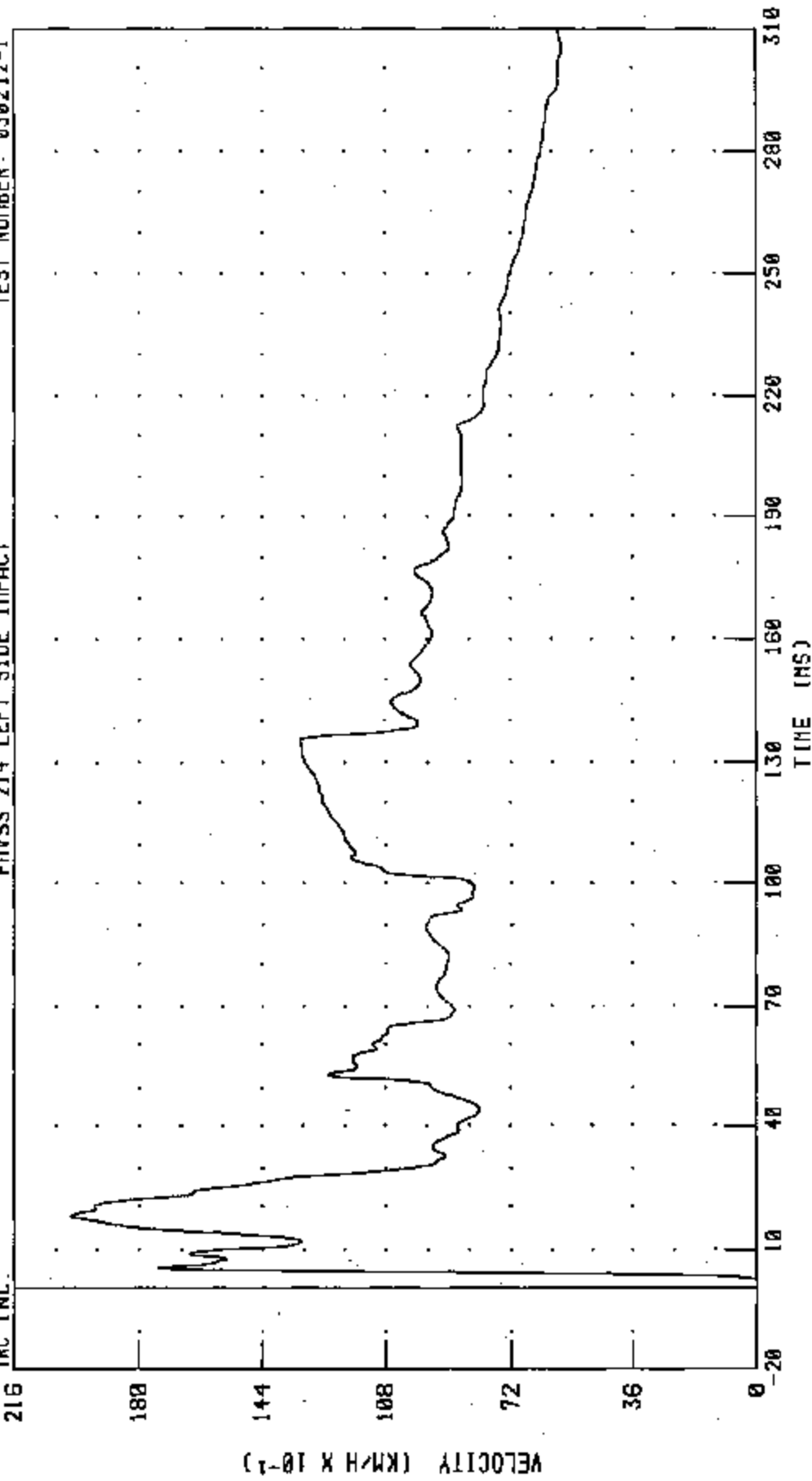
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT LOWER A-POST Y-AXIS VELOCITY

FHYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.



VELOCITY (KM/H X 10^-1)

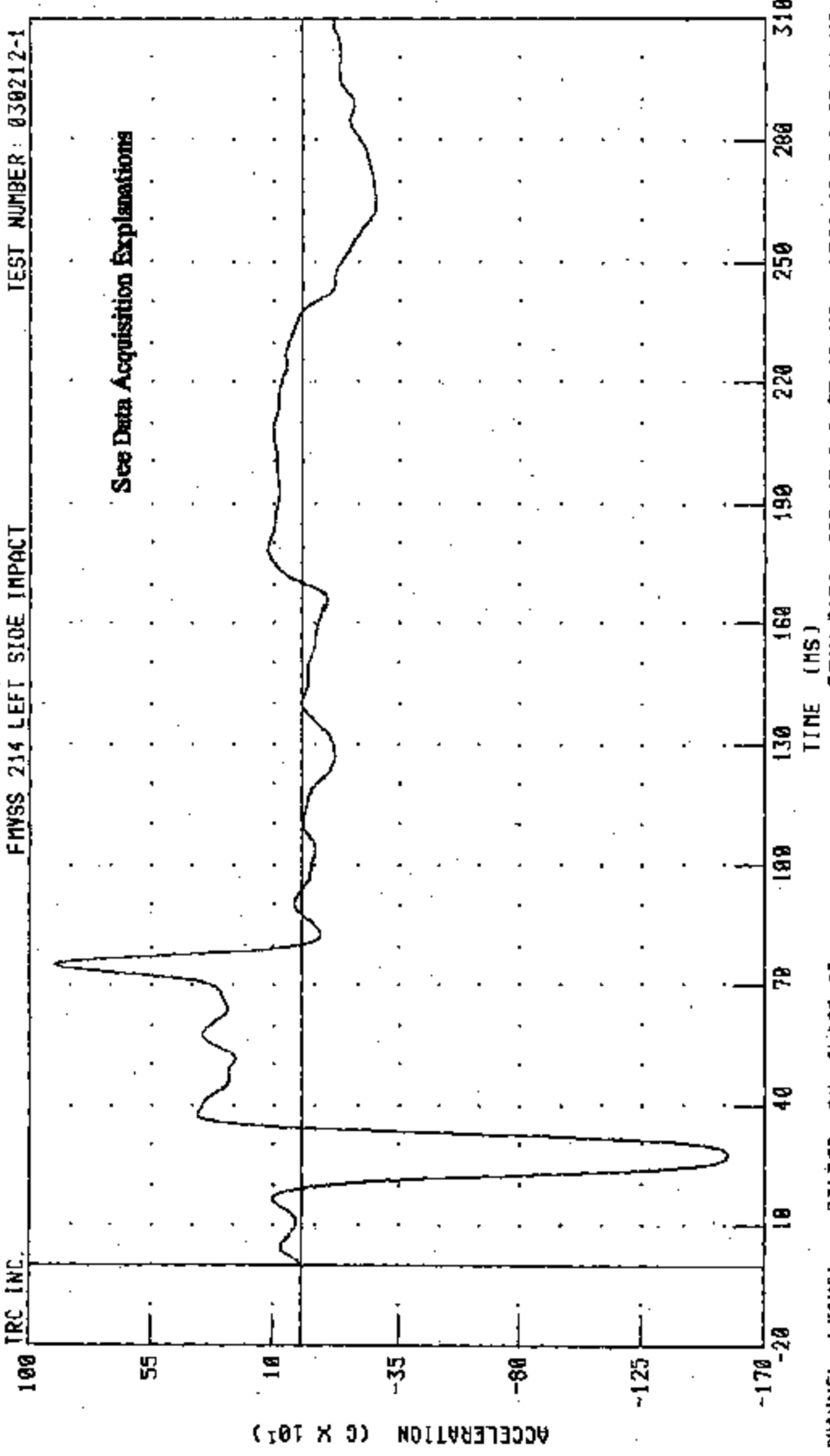
PEAK DATA: 19.95 KM/H @ 17.84 MS, -0.05 KM/H @ 1.68 MS

TIME (MS)

CHANNEL: LLAYV1 FILTER: CH. CLASS 180

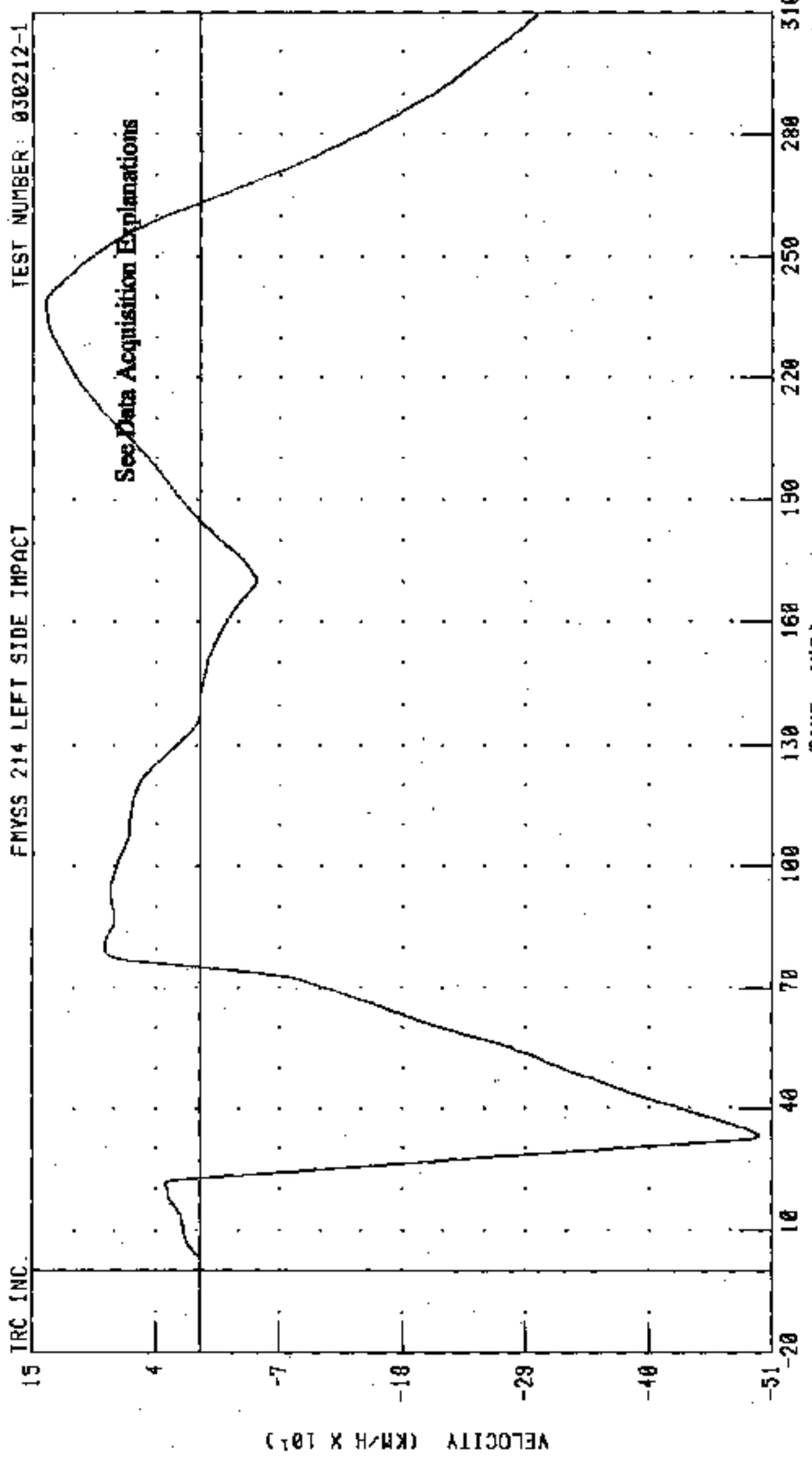
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT MIDDLE A-POST Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: L MAYG1 FILTER: CH. CLASS 80 PEAK DATA: 909.45 G @ 75.12 MS; -1562.48 G @ 27.44 MS

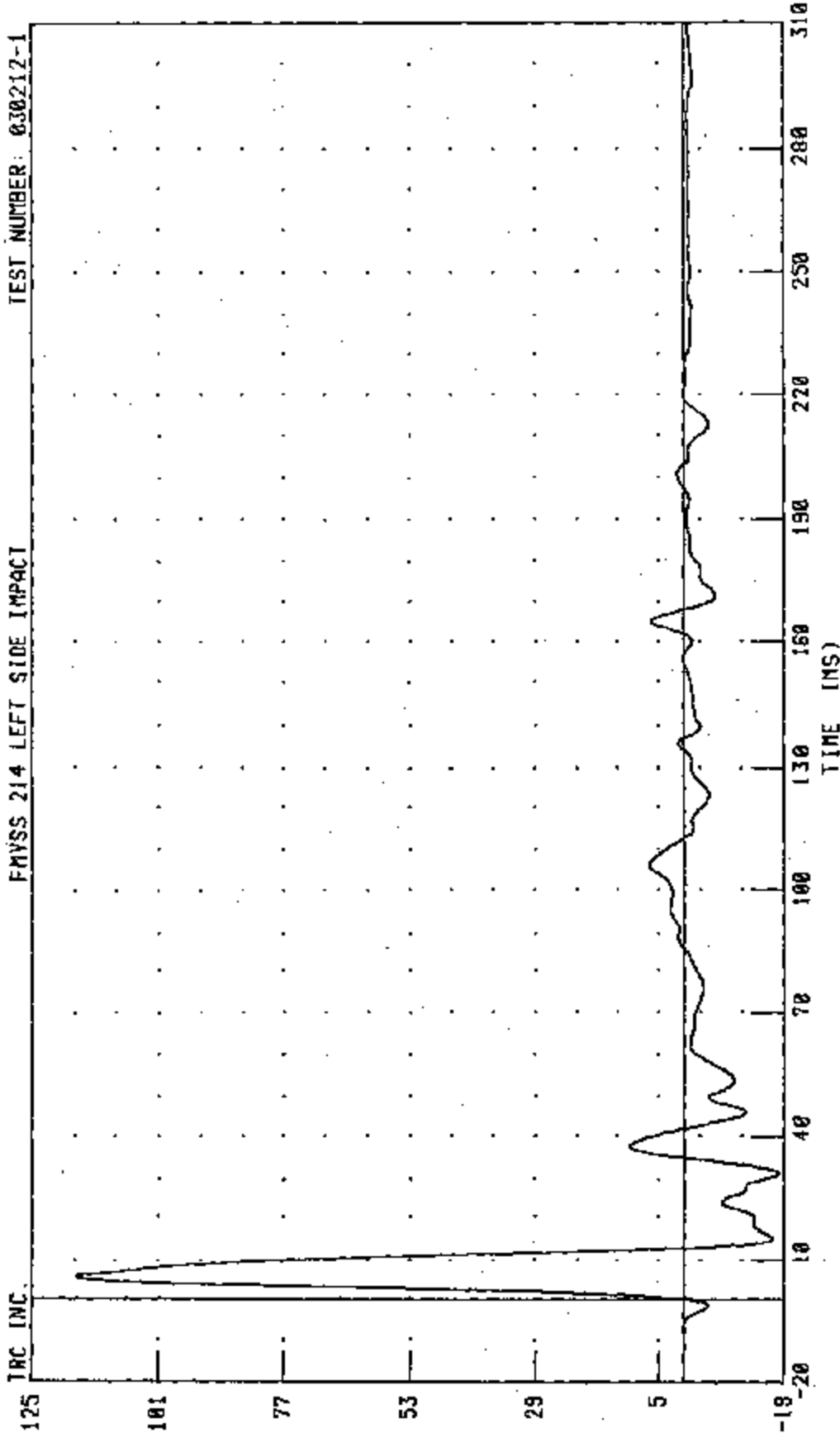
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT MIDDLE A-POST Y-AXIS VELOCITY  
FMYSS 214 LEFT SIDE IMPACT  
TEST NUMBER: 030212-1



CHANNEL: LMAYVI FILTER: CH CLASS 180  
PEAK DATA: 138.10 KM/H @ 238.80 MS, -498.49 KM/H @ 33.12 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT LOWER B-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



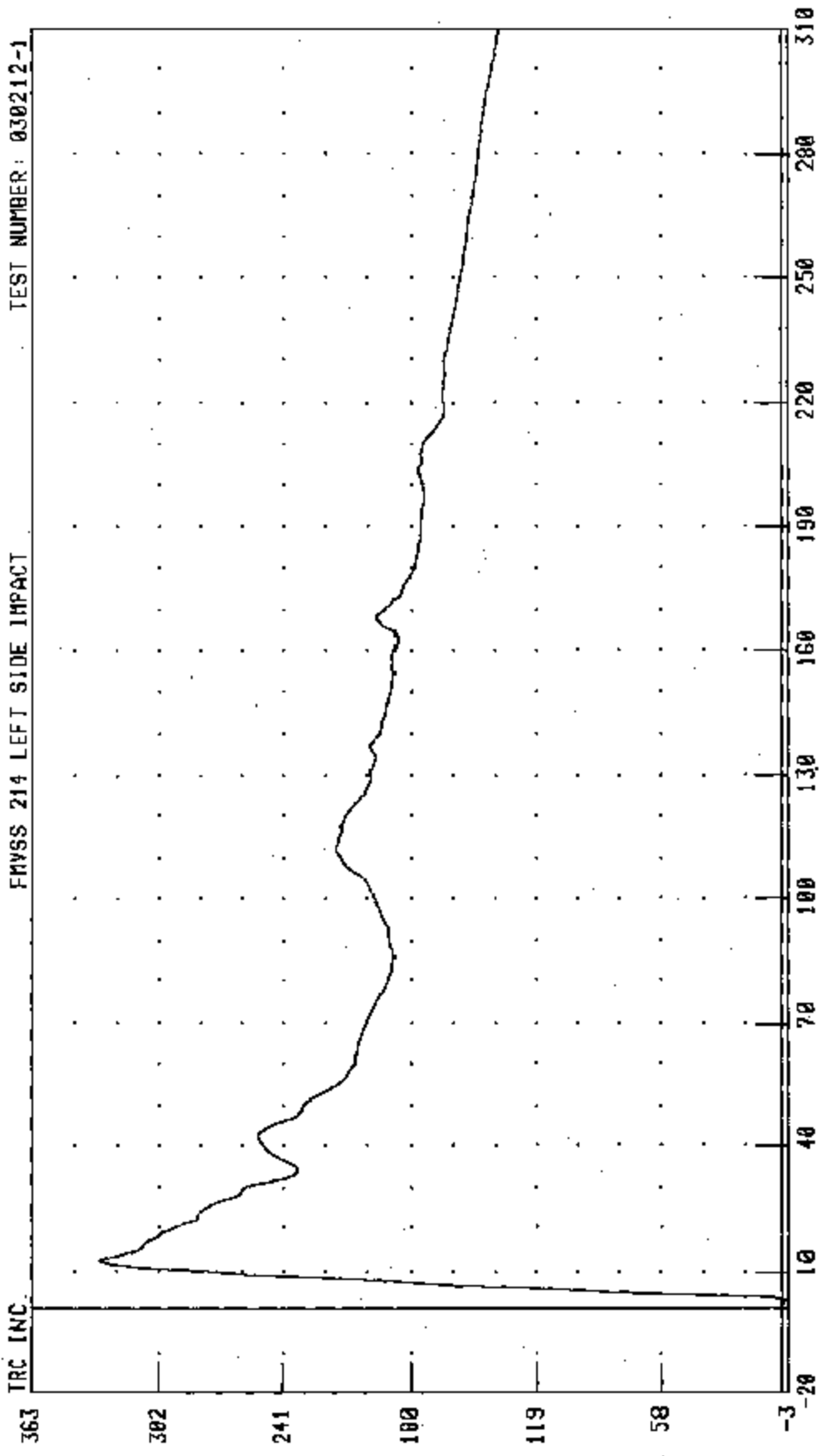
CHANNEL: LLBYG1 FILTER: CH. CLASS 60

PEAK DATA: 117.00 G @ 5.52 MS, -18.81 G @ 31.44 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT LOWER B-POST Y-AXIS VELOCITY

TRC INC. TEST NUMBER: 030212-1

FRYSS 214 LEFT SIDE IMPACT



TIME (MS)

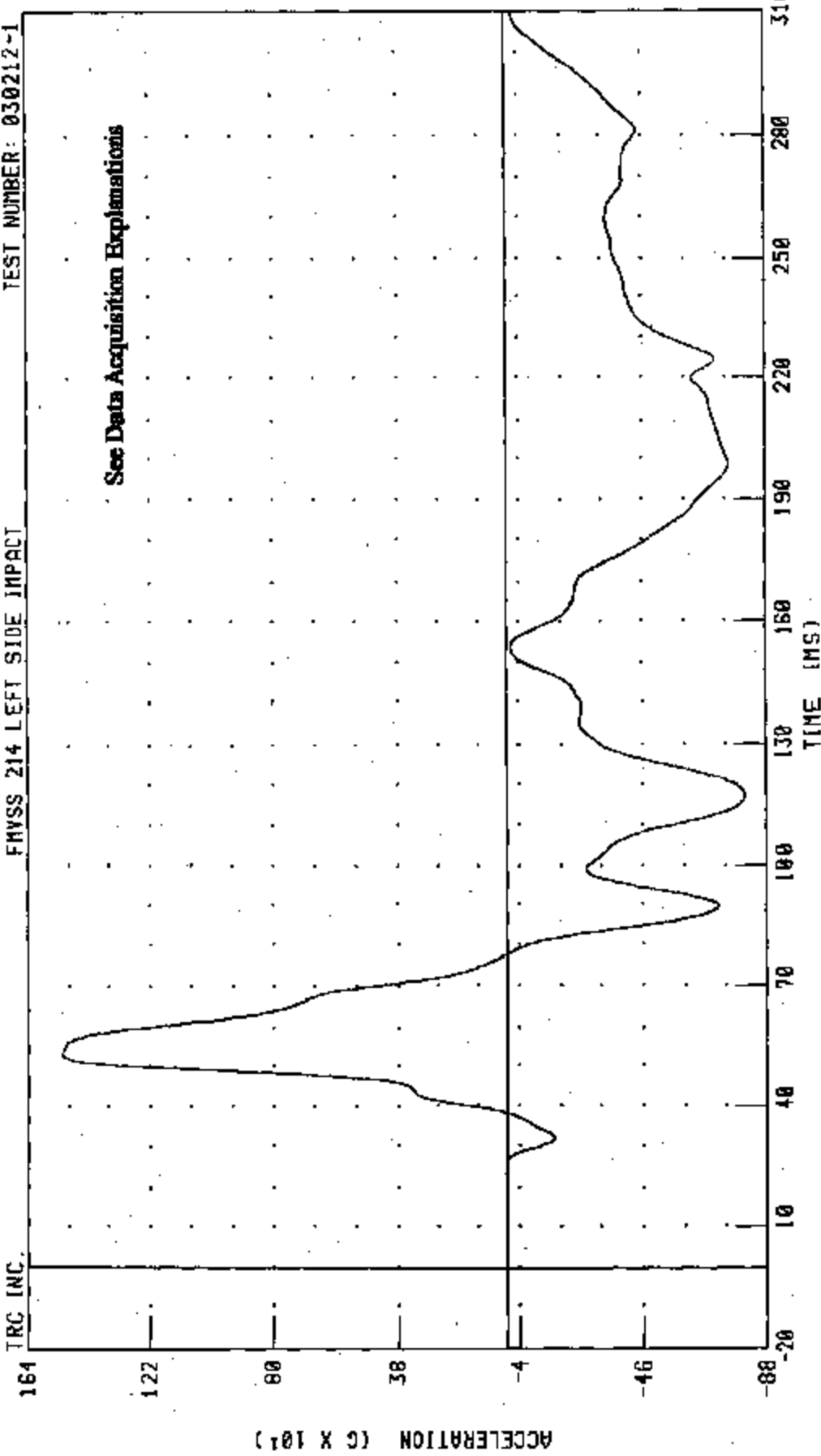
PEAK DATA: 33.10 KM/H @ 12.96 MS; -0.28 KM/H @ 2.24 MS

CHANNEL: LLBYV1 FILTER: CH. CLASS 180

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

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT MIDDLE B-POST Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

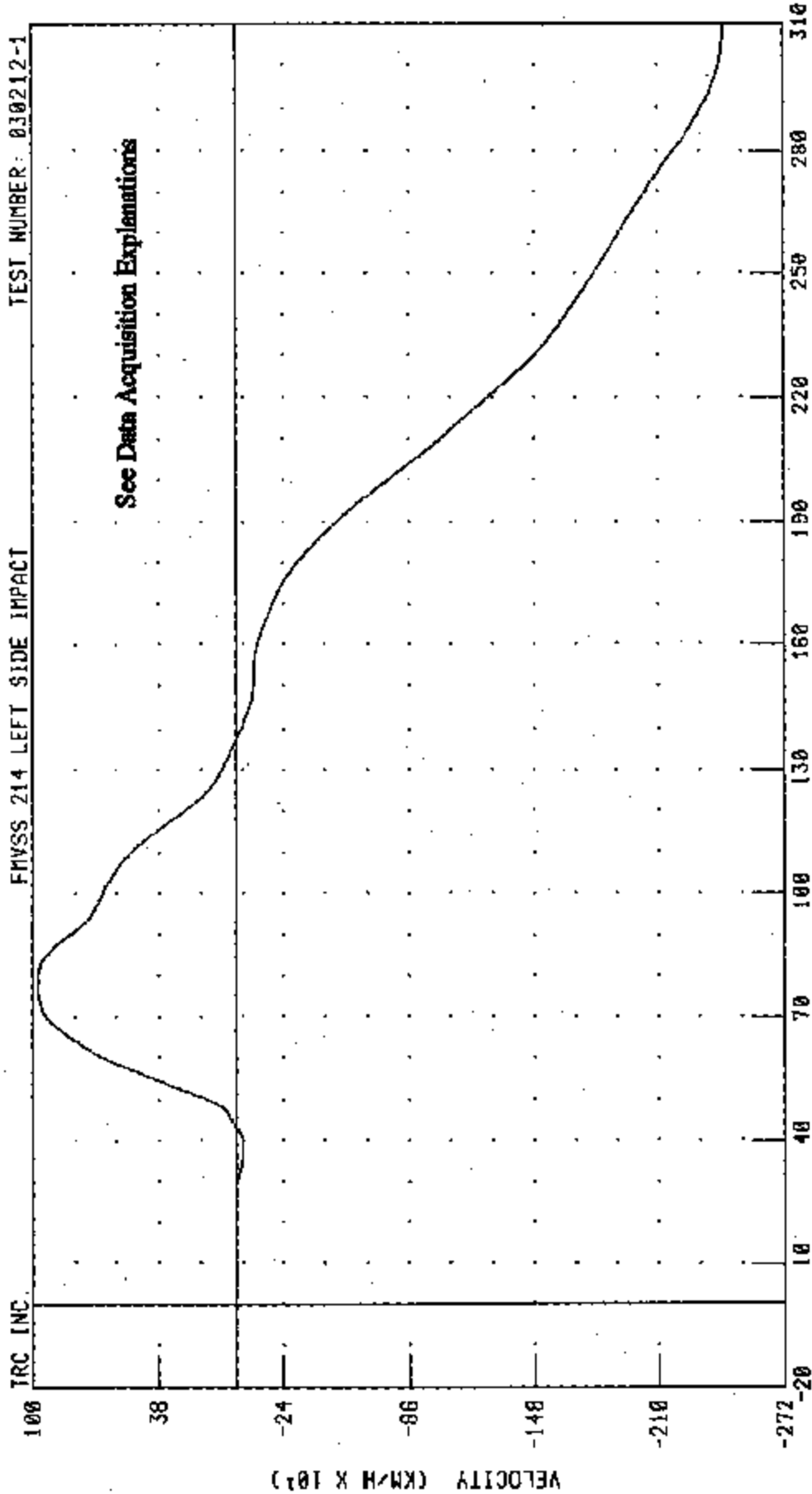
TEST NUMBER: 030212-1



CHANNEL: LMBYCI FILTER: CH, CLASS 60 PEAK DATA: 1522.97 G @ 53.52 MS, -885.06 G @ 117.52 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
LEFT MIDDLE B-POST Y-AXIS VELOCITY  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



TIME (MS)

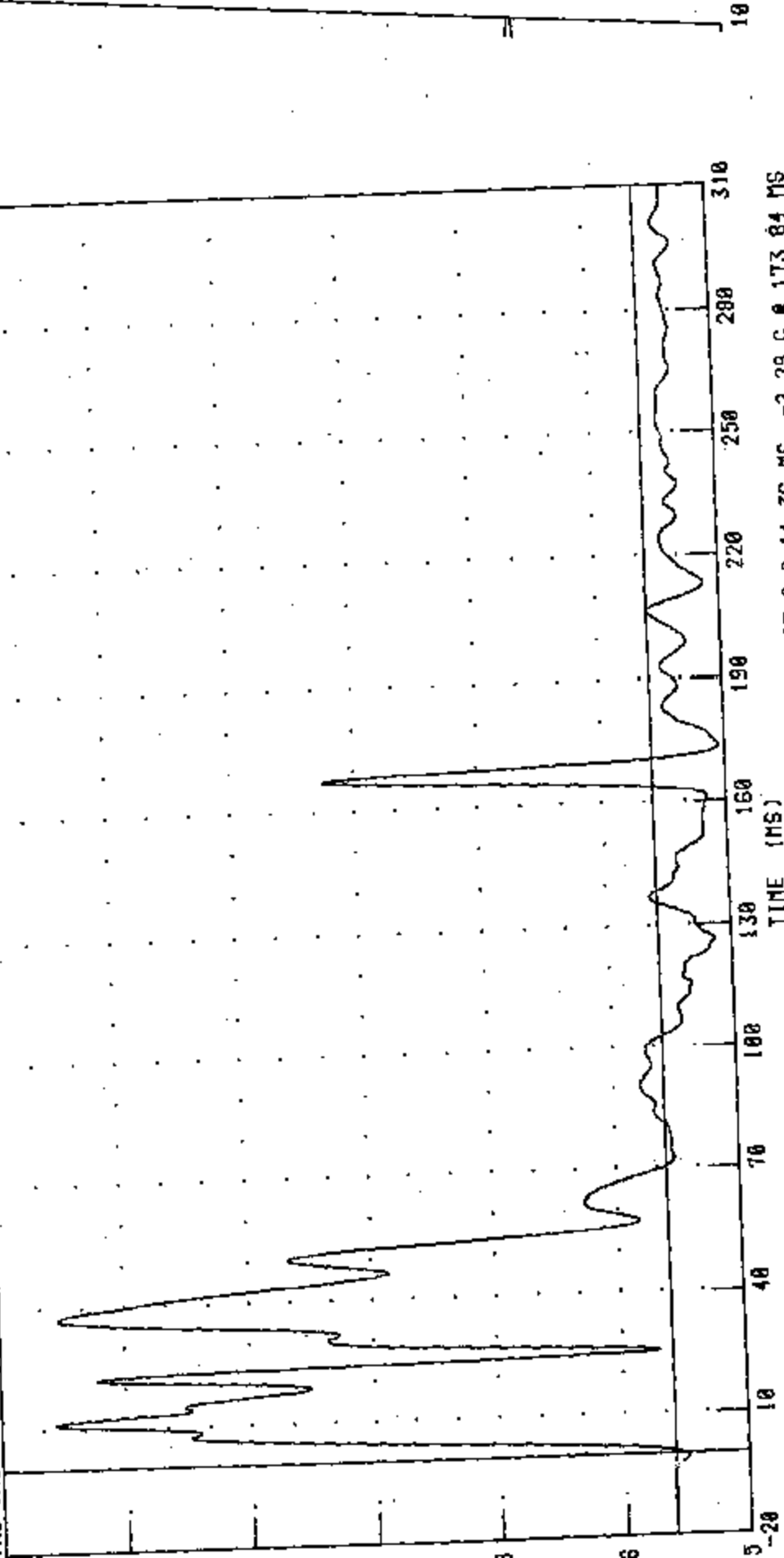
PEAK DATA: 977.39 KM/H @ 77.92 MS; -2427.35 KM/H @ 310.00 MS

CHANNEL: LMBYV1 FILTER: CH CLASS 100

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR SEAT TRACK Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.

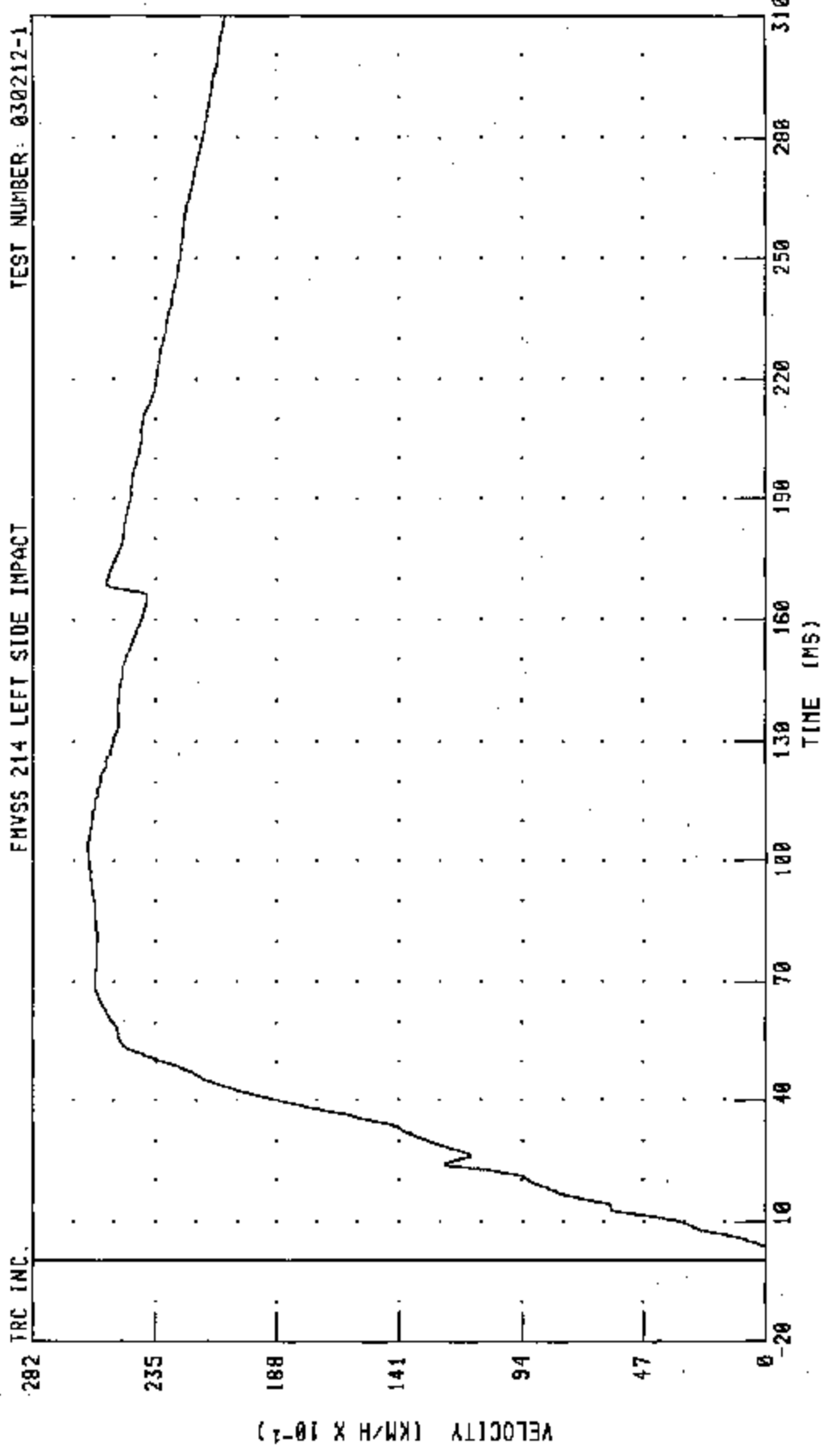


L: LRTY01 FILTER: CH. CLASS 60

S

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR SEAT TRACK Y-AXIS VELOCITY  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



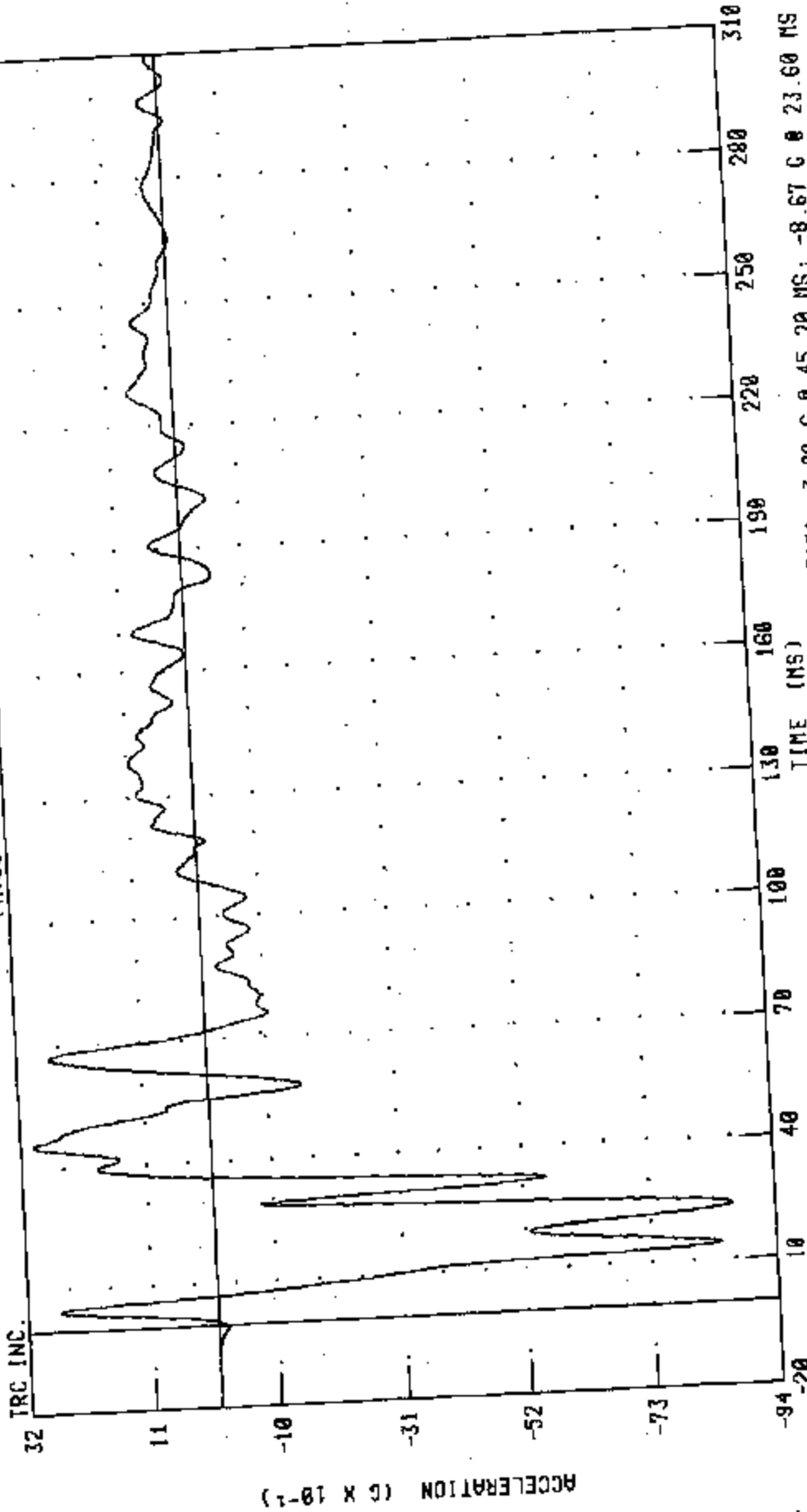
TRC INC.

TIME (MS)

CHANNEL: LRTYV1 FILTER: CH. CLASS 180 PEAK DATA: 26.08 KM/H @ 103.04 MS, -0.02 KM/H @ 2.56 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



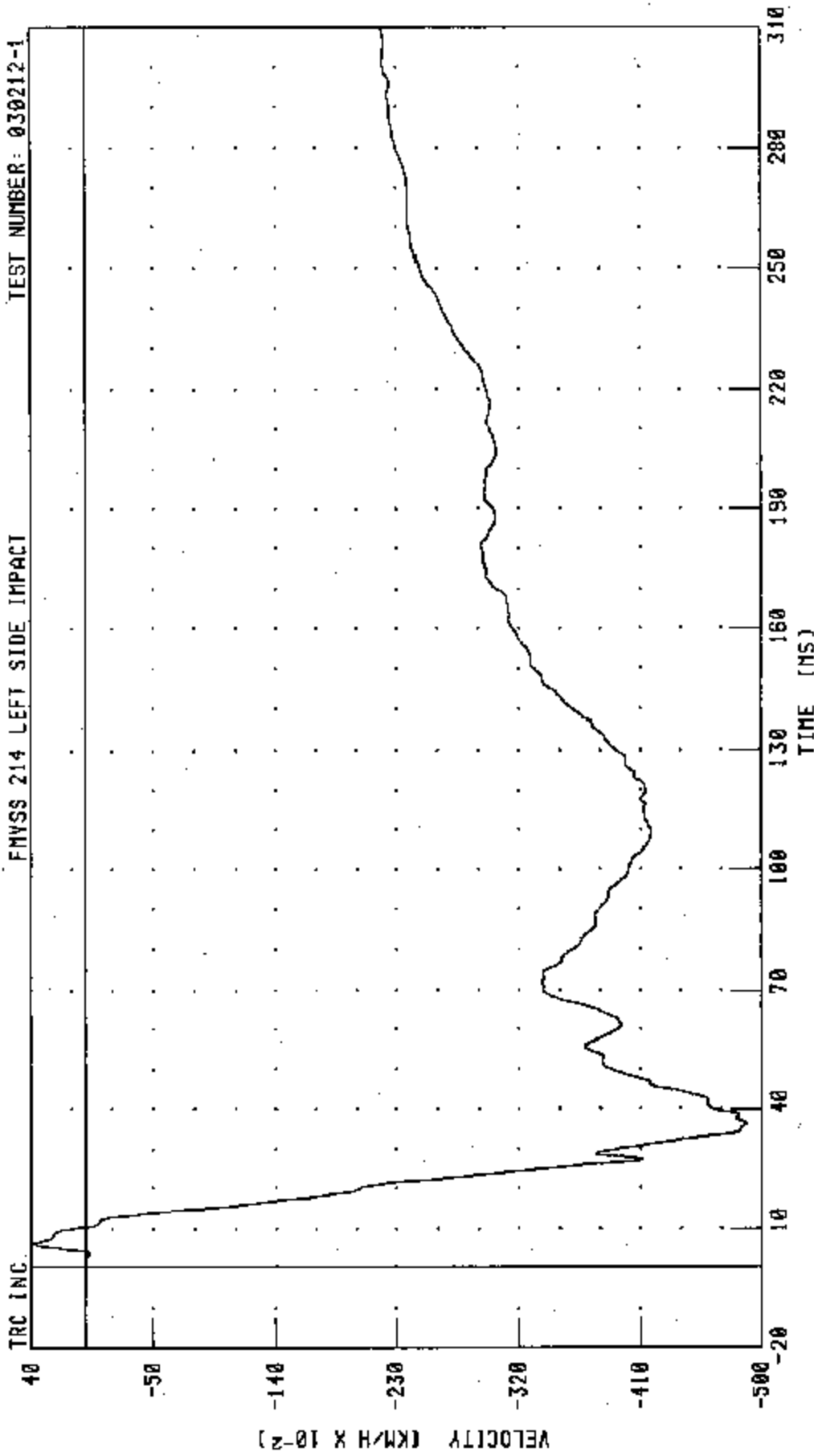
PEAK DATA: 3.00 G @ 45.20 MS; -8.67 G @ 23.60 MS

CHANNEL: VCCXG1 FILTER: CH. CLASS 60

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 030212-1

FVSS 214 LEFT SIDE IMPACT

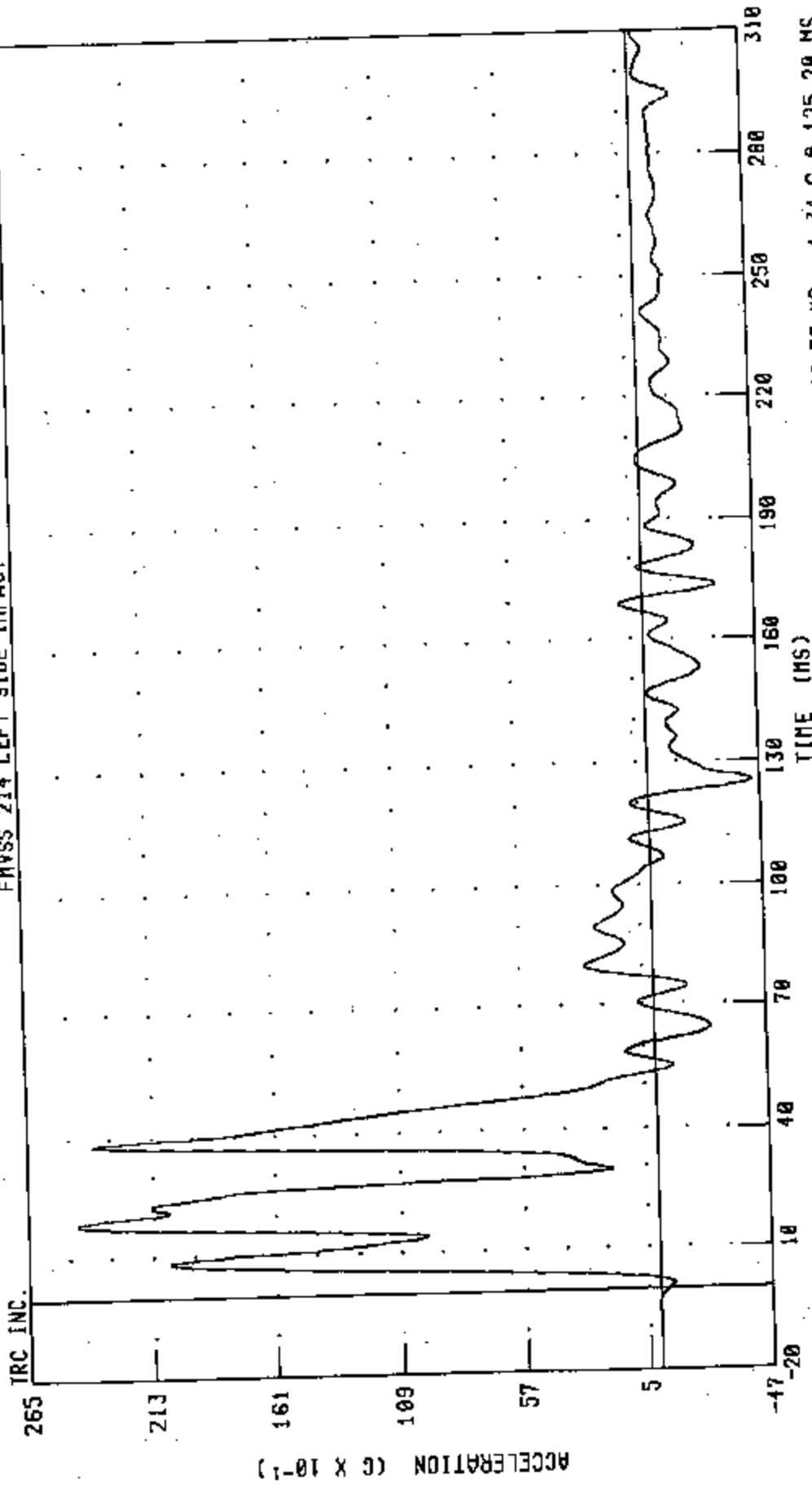


PEAK DATA: 0.38 KM/H @ 6.08 MS; -4.89 KM/H @ 36.48 MS

CHANNEL: VCCXV1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION  
FWVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 24.42 G @ 18.72 MS; -4.34 G @ 125.20 MS

CHANNEL: VCCY01 FILTER: CH. CLASS 60

TRC INC.

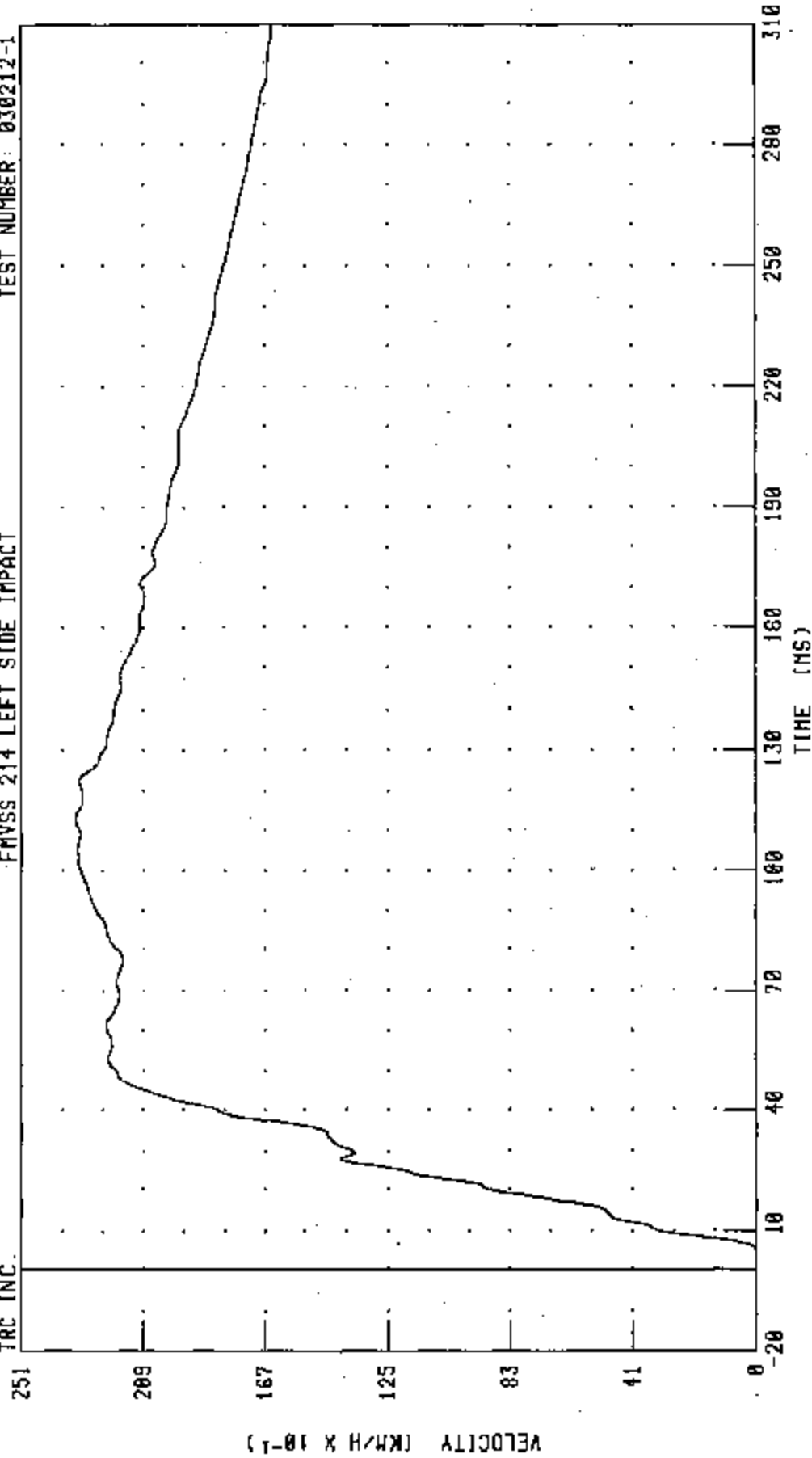
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.

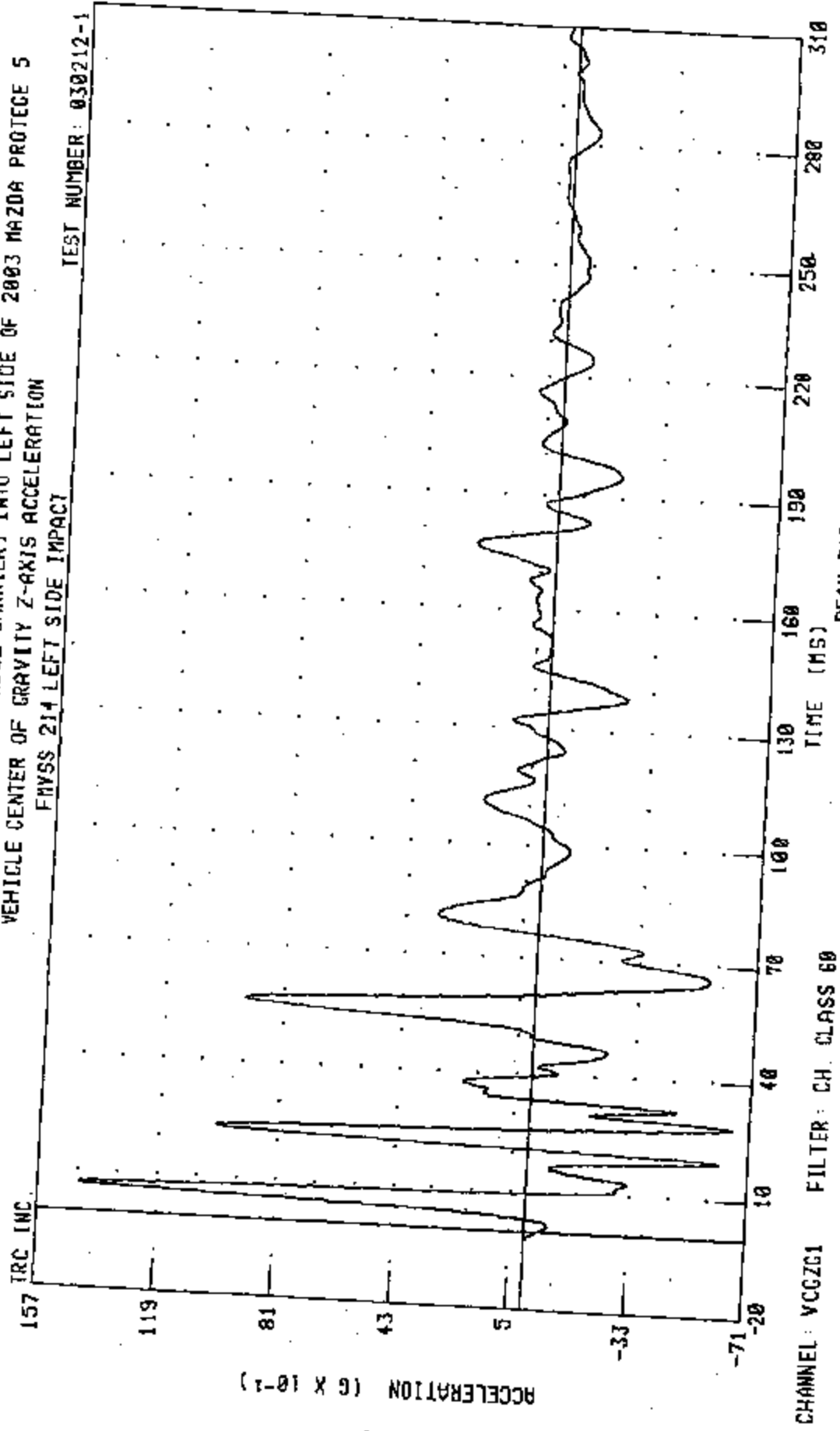


PEAK DATA: 23.36 KM/H @ 113.04 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: YCCYV1 FILTER: CH. CLASS 100

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 14.39 G @ 6.96 MS, -6.52 G @ 28.08 MS

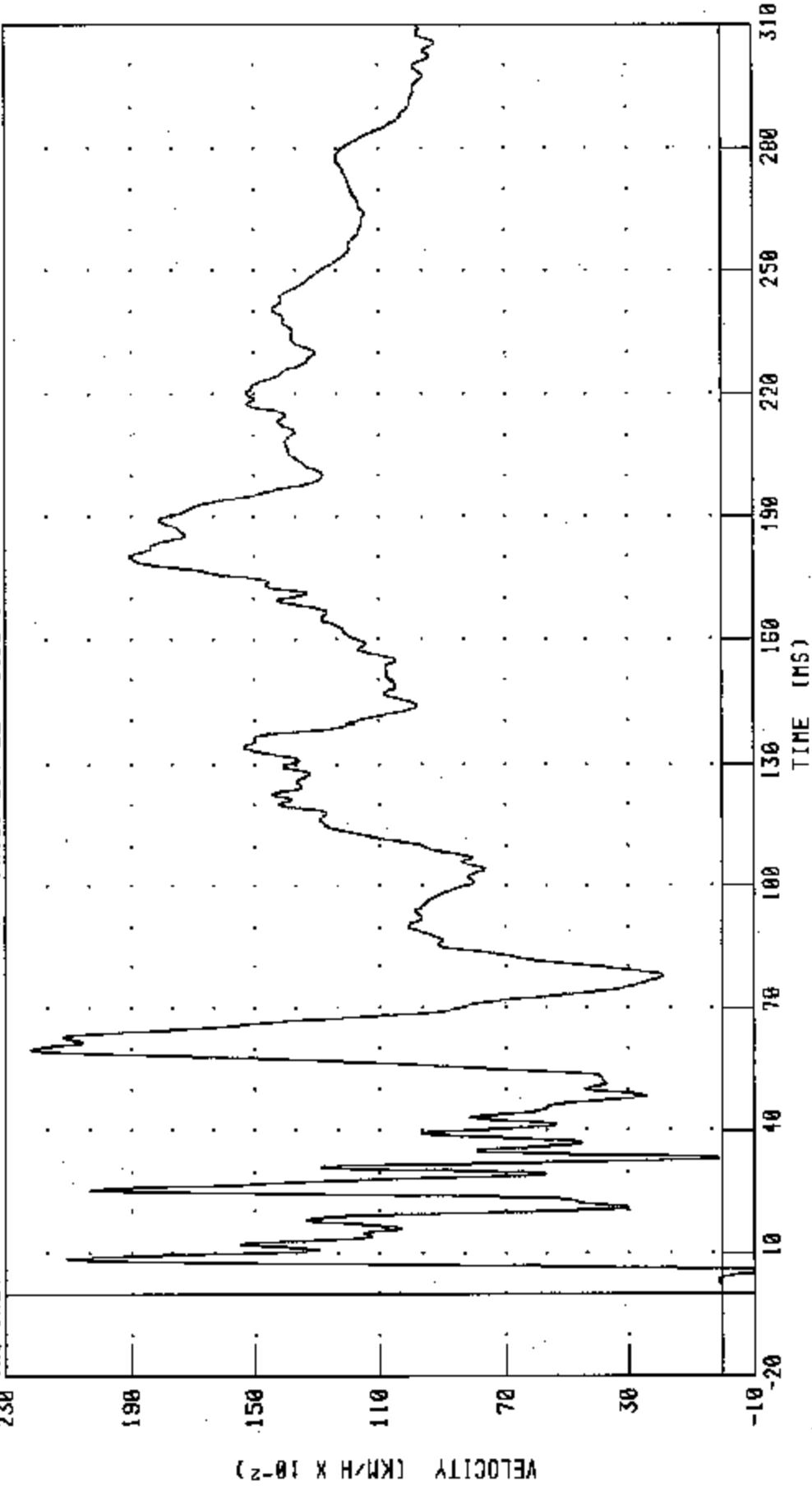
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.



PEAK DATA: 2.22 KM/H @ 59.92 MS; -0.16 KM/H @ 5.36 MS

CHANNEL: VCCZV1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

276

230

184

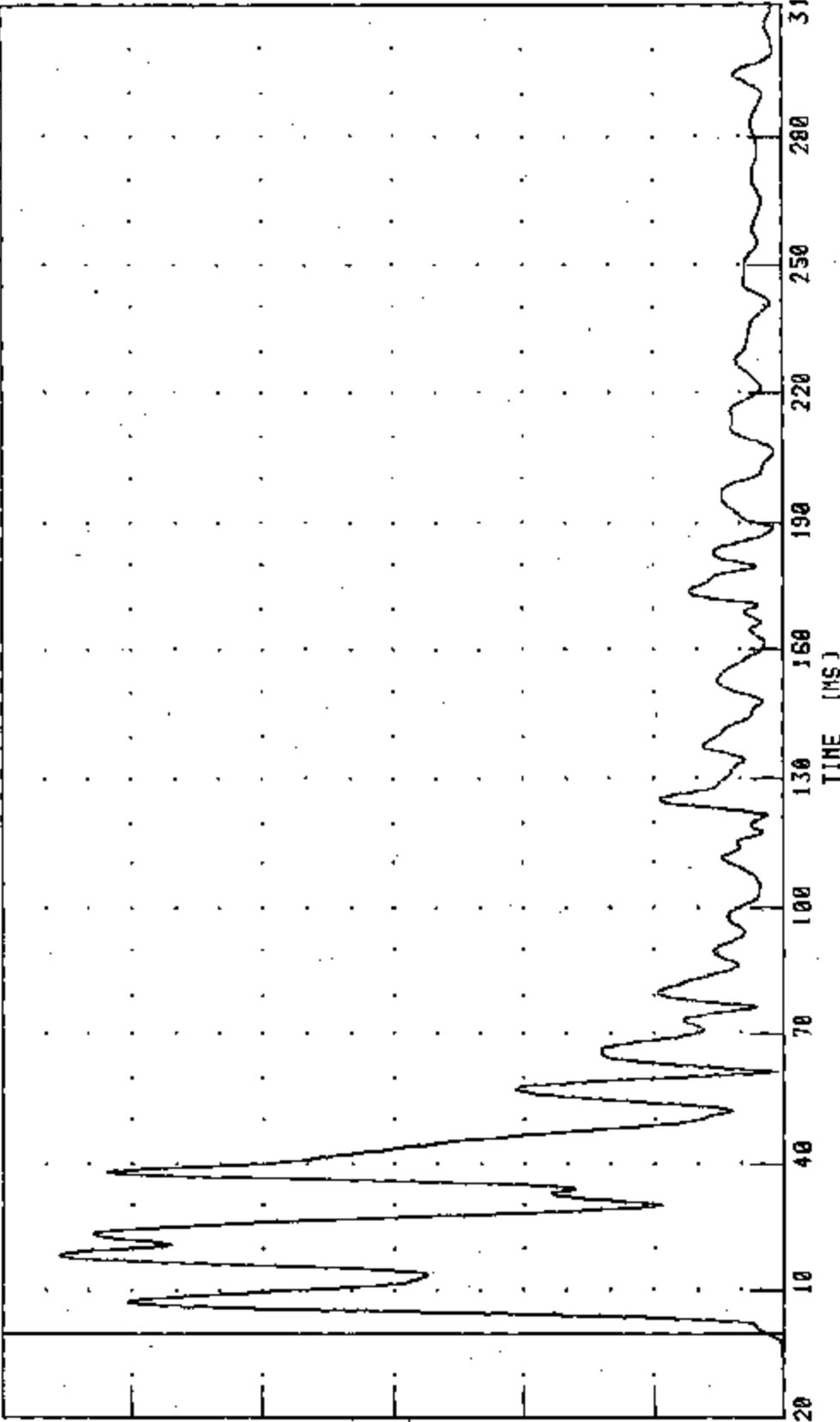
138

92

46

0

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



CHANNEL: YCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 25.58 G @ 18.80 MS; 0.00 G @ -15.68 MS

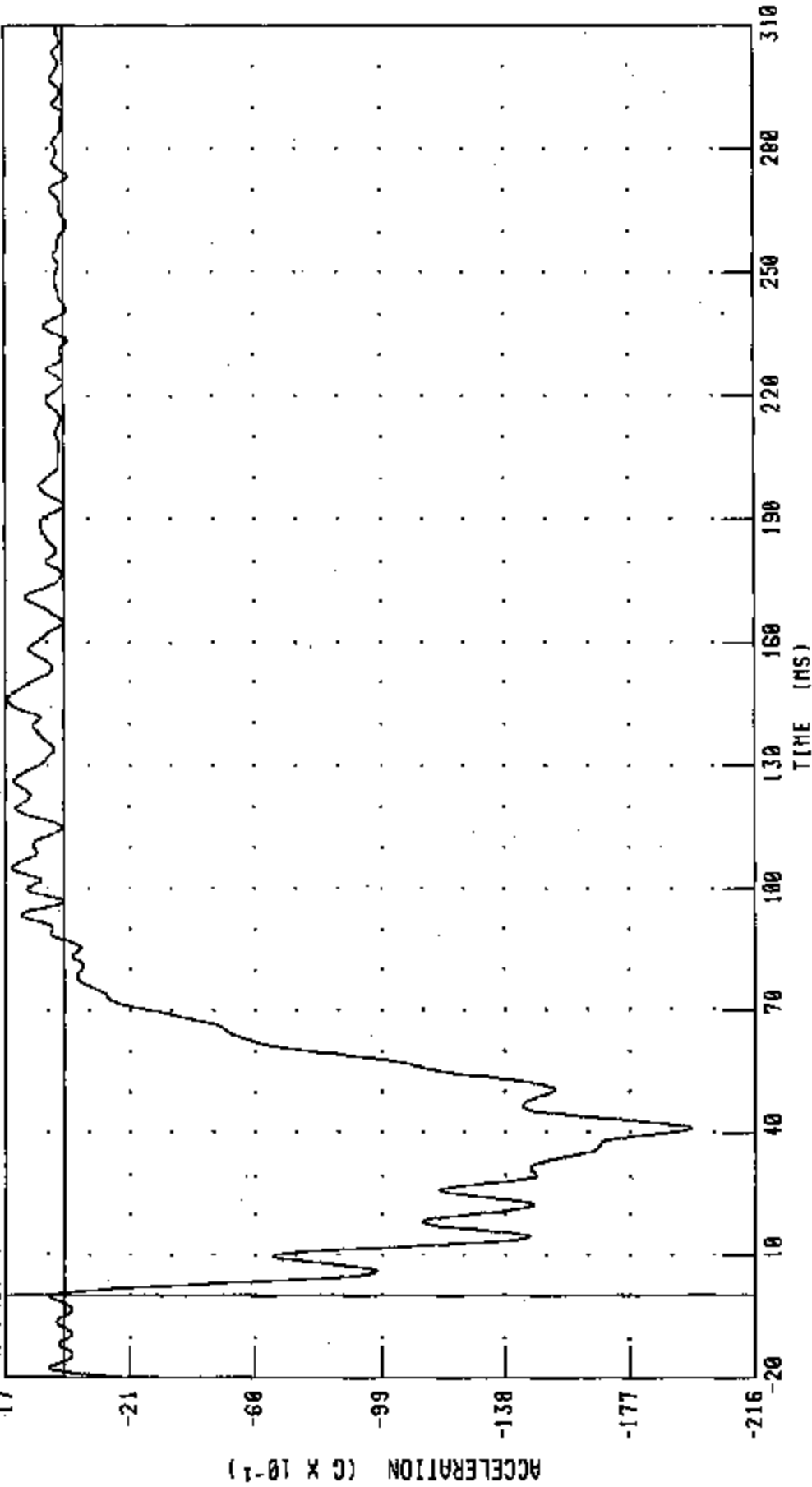
**MDB Instrumentation Plots**  
**Acceleration Data - Filter Class 60**  
**Integration Data - Filter Class 180**

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
MOB CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL: B0CXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.72 G @ 146.40 MS; -19.58 G @ 41.20 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

MOB CENTER OF GRAVITY X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.

520

460

400

340

280

220

160

-20

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

TIME (MS)

310

280

250

220

190

160

130

100

70

40

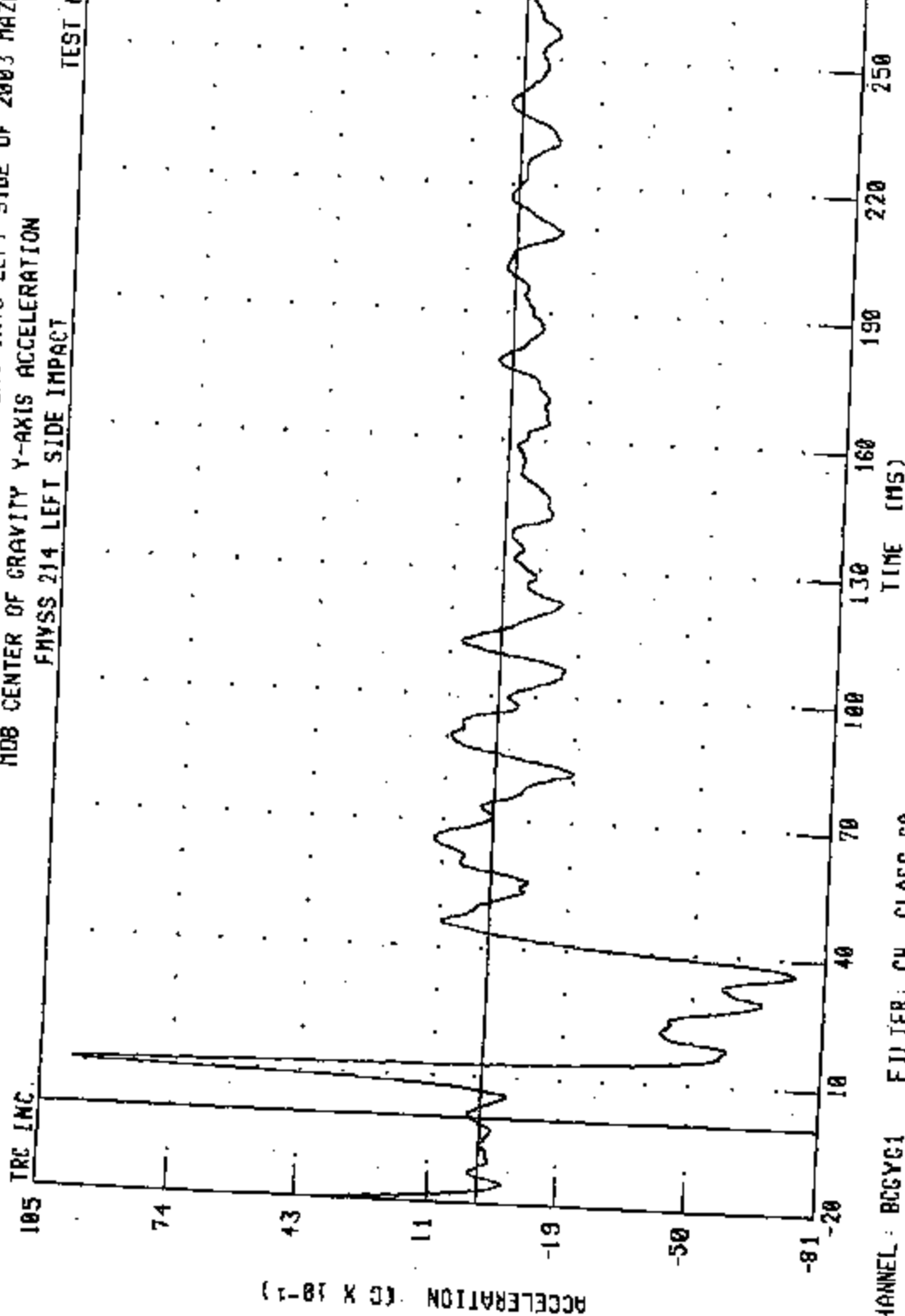
10

CHANNEL: BCCXY1 FILTER: CH. CLASS 100 PEAK DATA: 47.30 KM/H @ 1.52 MS; 18.06 KM/H @ 87.44 MS

CHANNEL: BCCXY1 FILTER: CH. CLASS 100

18/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
MOB CENTER OF GRAVITY Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: BCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 9.73 G @ 11.12 MS, -7.41 G @ 36.48 MS

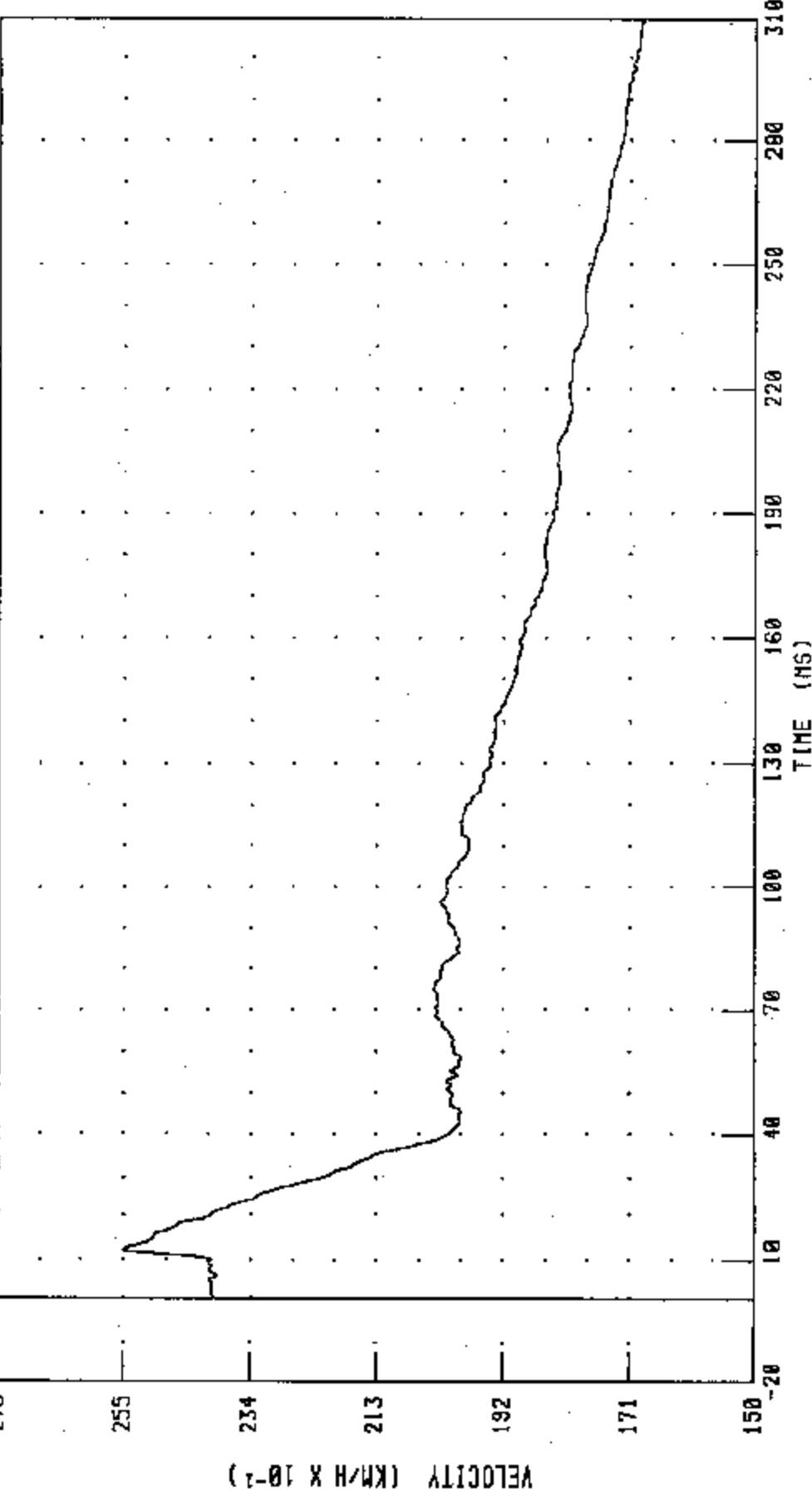
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

MDB CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL: 8CCYV1 FILTER: CH. CLASS 180

PEAK DATA: 25.50 KM/H @ 12.56 MS, 16.87 KM/H @ 310.00 MS

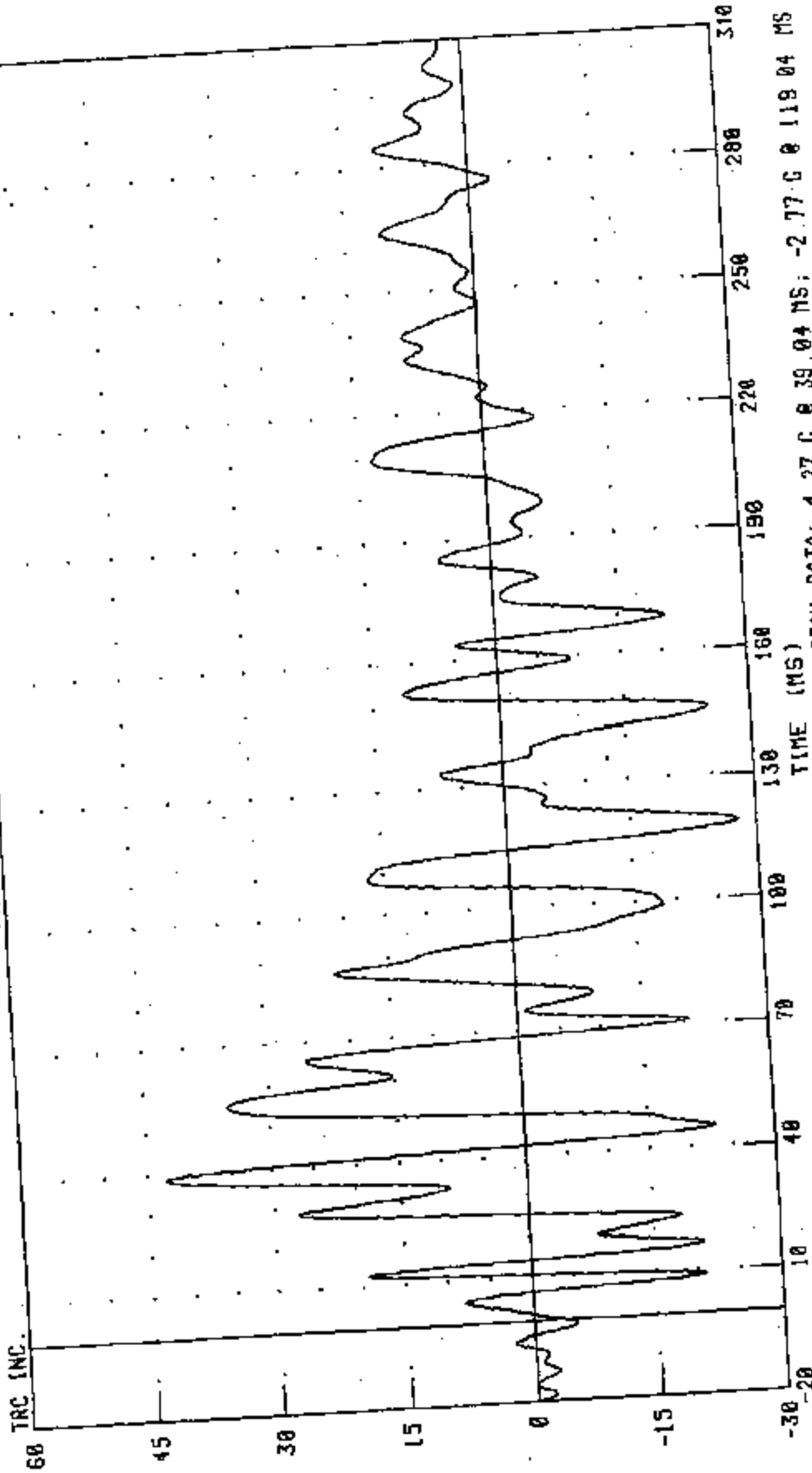
2003 MAZDA PROTEGE 5

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF

MOB CENTER OF GRAVITY Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 4.27 G @ 39.04 MS; -2.77 G @ 119.04 MS

CHANNEL: BCCZG1 FILTER: CH. CLASS 60

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

B-112

030212-1

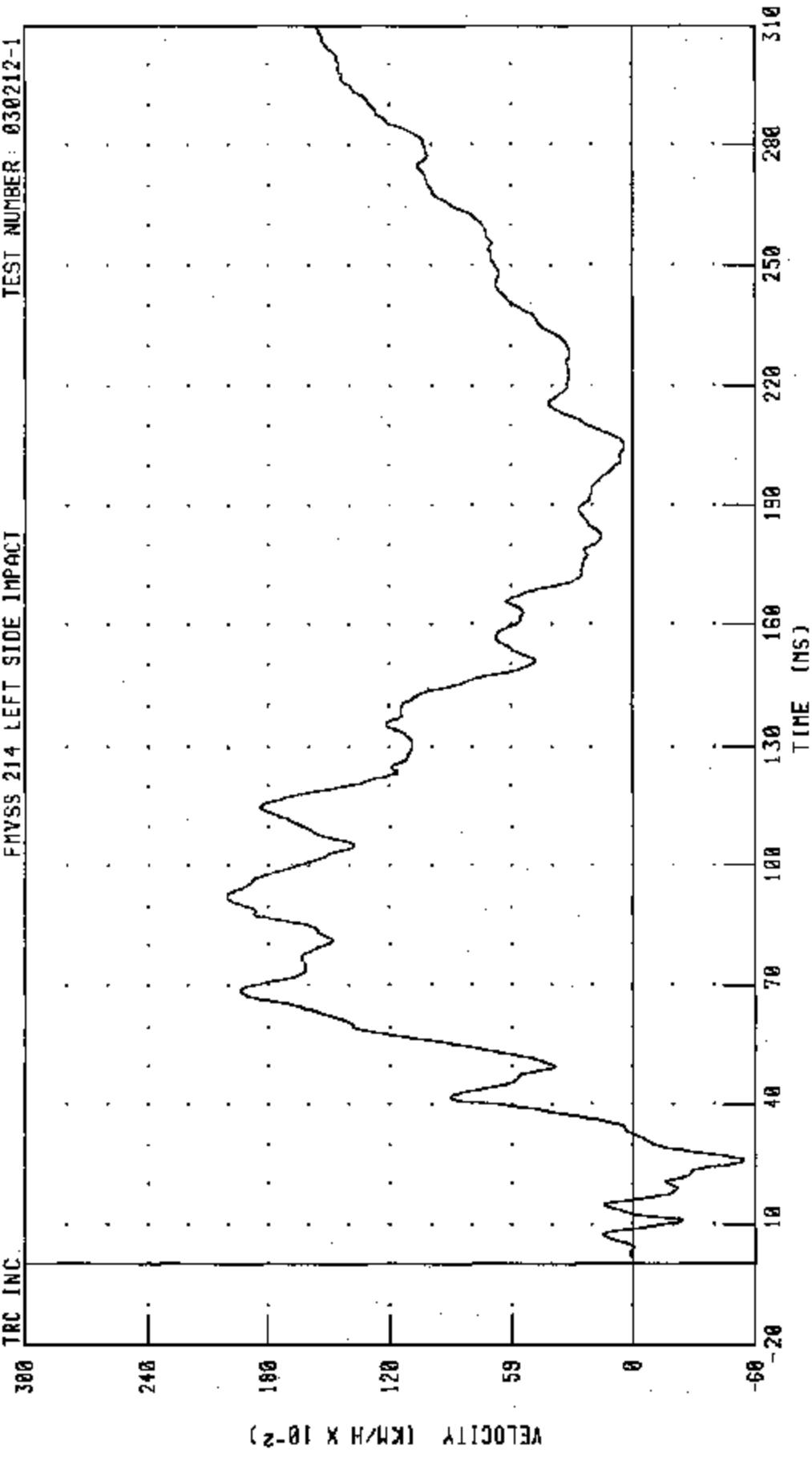
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5.

MOB CENTER OF GRAVITY Z-AXIS VELOCITY

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



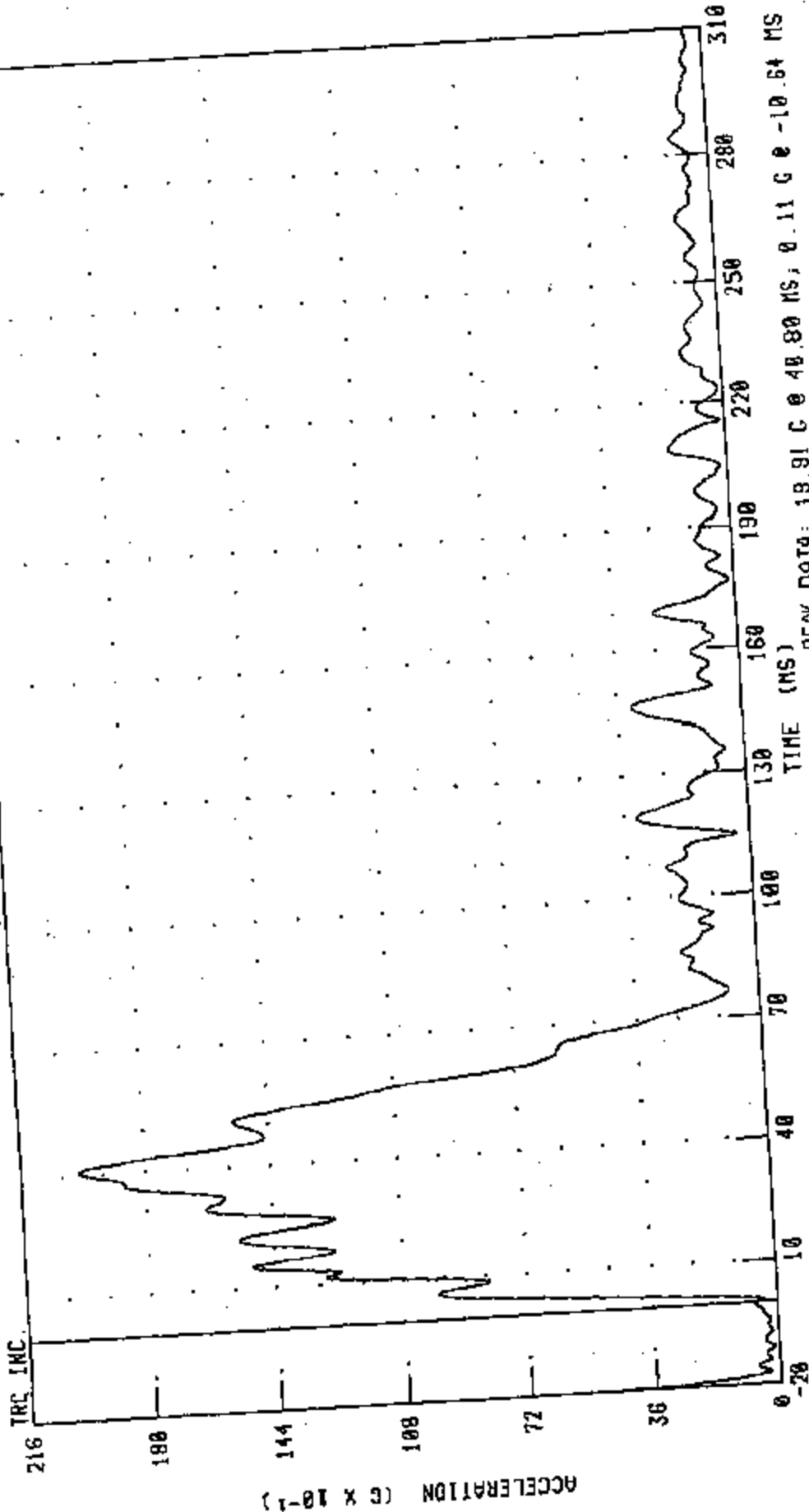
CHANNEL: BCCZY1 FILTER: CH. CLASS 180 PEAK DATA: 2.01 KM/H @ 92.72 MS; -0.54 KM/H @ 25.84 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

TEST NUMBER: 030212-1

NO8 CENTER OF GRAVITY RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

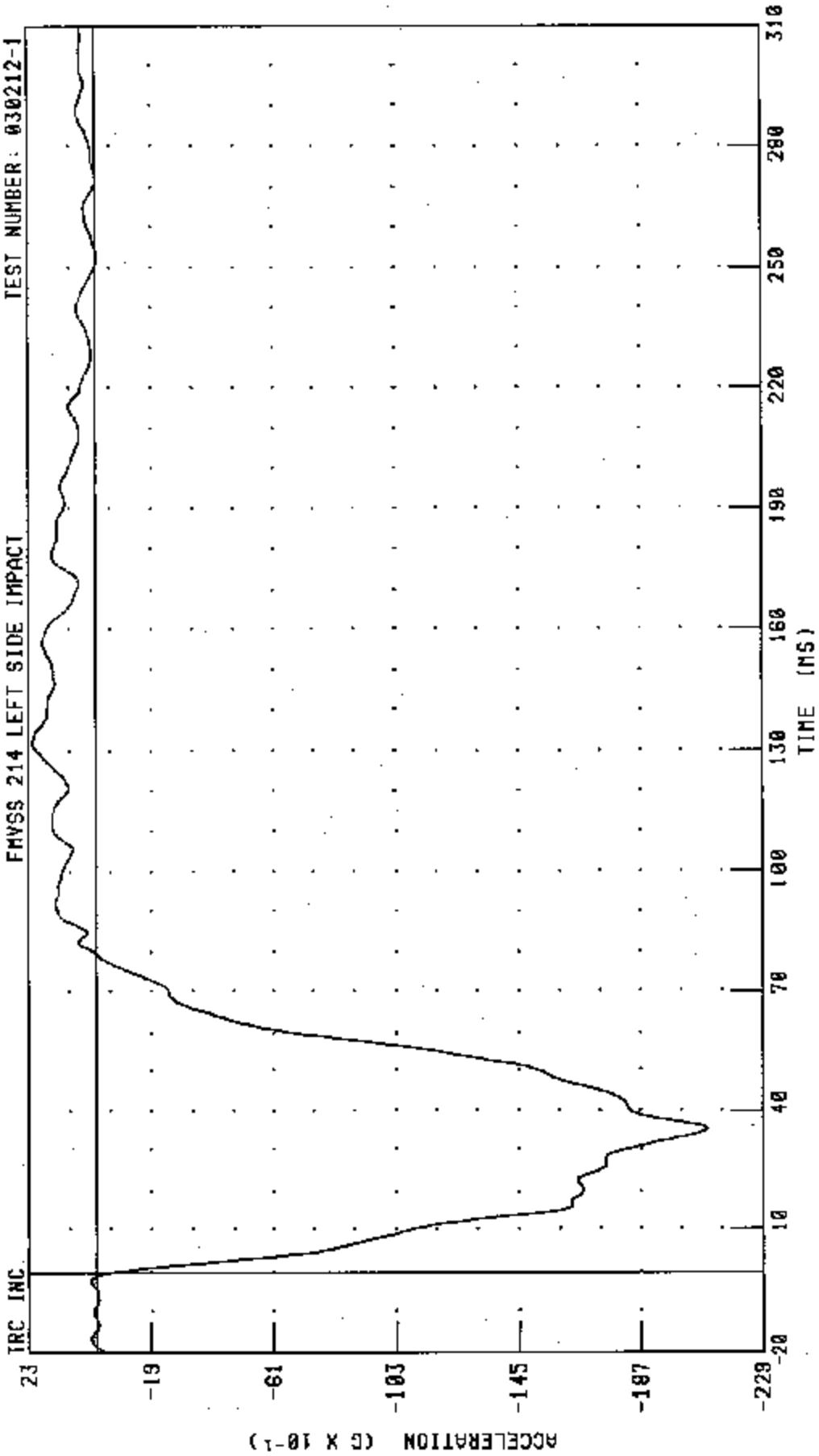


PEAK DATA: 18.91 G @ 48.80 MS, 0.11 G @ -10.64 MS

CHANNEL: BCCRG1 FILTER: CH. CLASS 60

030212-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZDA PROTEGE S  
MOB LEFT REAR X-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT  
TEST NUMBER: 030212-1



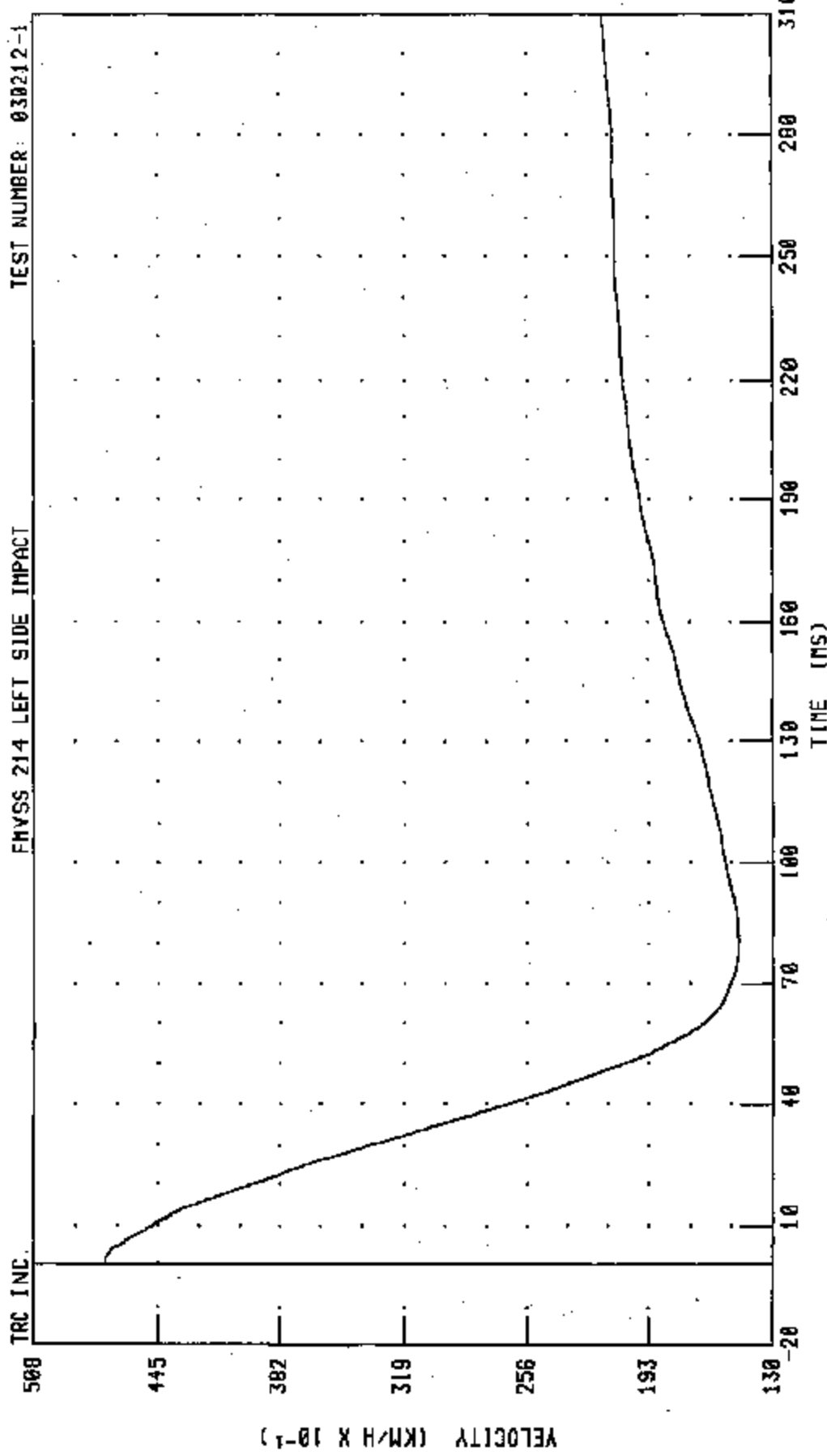
CHANNEL: LRRXG1 FILTER: CH. CLASS 60 PEAK DATA: 2.18 G @ 132.24 MS, -21.01 G @ 35.28 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

MOB LEFT REAR X-AXIS VELOCITY

FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 47.20 KM/H @ 1.04 MS; 14.65 KM/H @ 01.04 MS

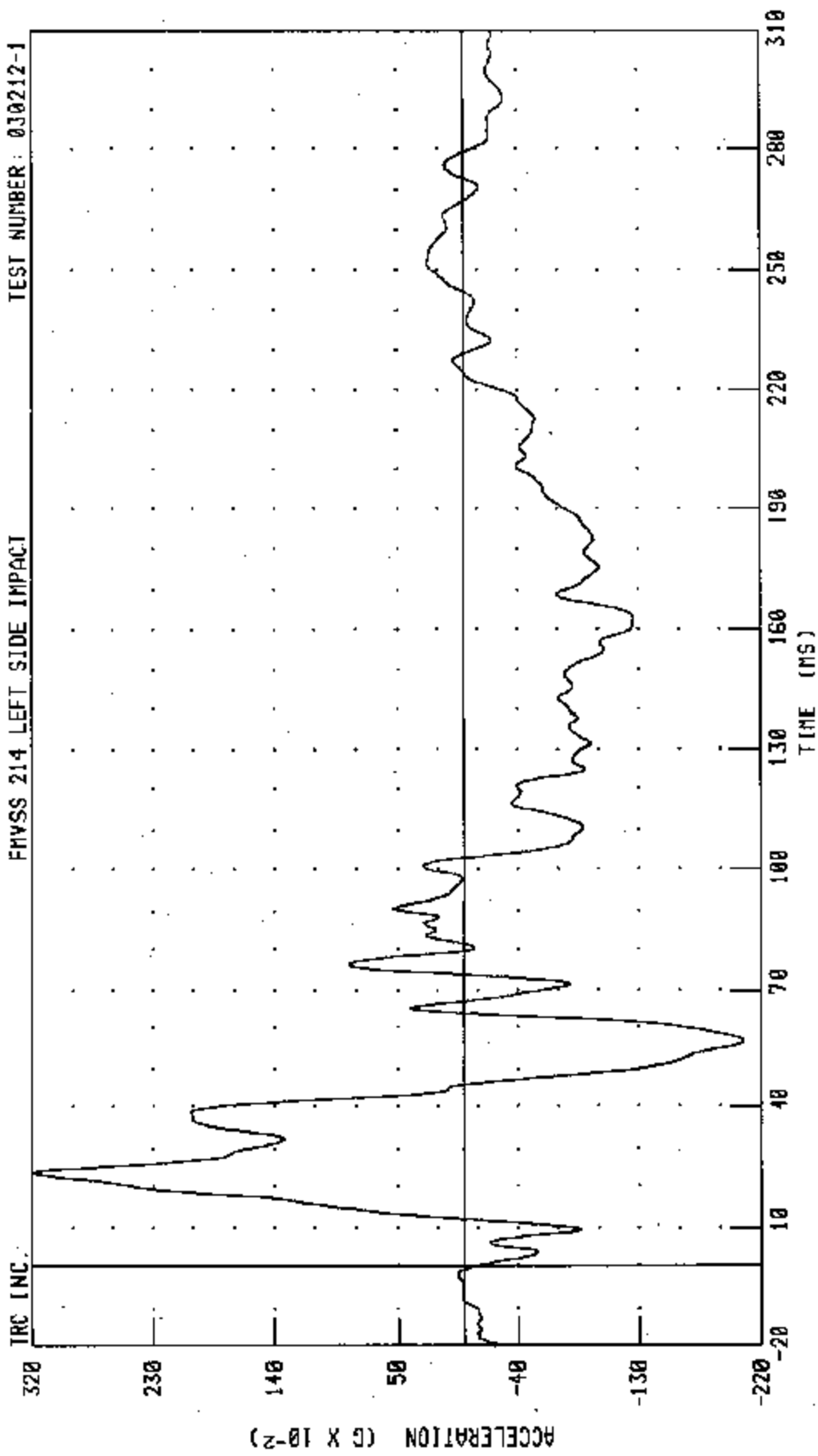
CHANNEL: LRRXV1 FILTER: CH. CLASS 180

TRC INC.

VELOCITY ( $\text{KM/H} \times 10^{-1}$ )

TIME (MS)

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S  
M08 LEFT REAR Y-AXIS ACCELERATION  
TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



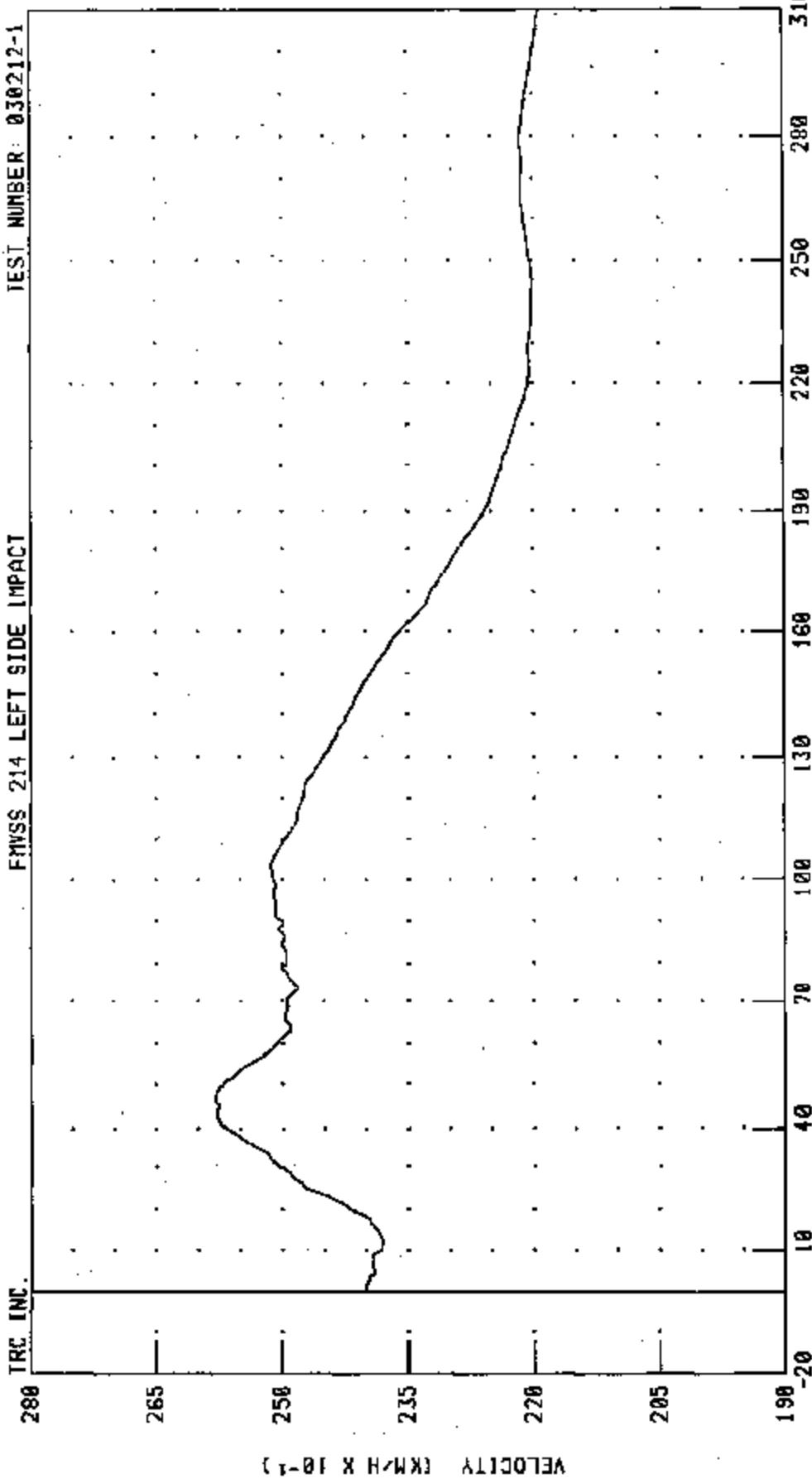
CHANNEL: LRRY01 FILTER: CH. CLASS 60 PEAK DATA: 3.19 G @ 23.76 MS; -2.07 G @ 56.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

108 LEFT REAR Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



TIME (MS)

PEAK DATA: 25.90 KM/H @ 46.56 MS; 21.92 KM/H @ 310.00 MS

CHANNEL: LRRYV1 FILTER: CH. CLASS 180

TRC. INC.

280

265

250

235

220

205

190

-20

40

70

100

130

160

190

220

250

280

310

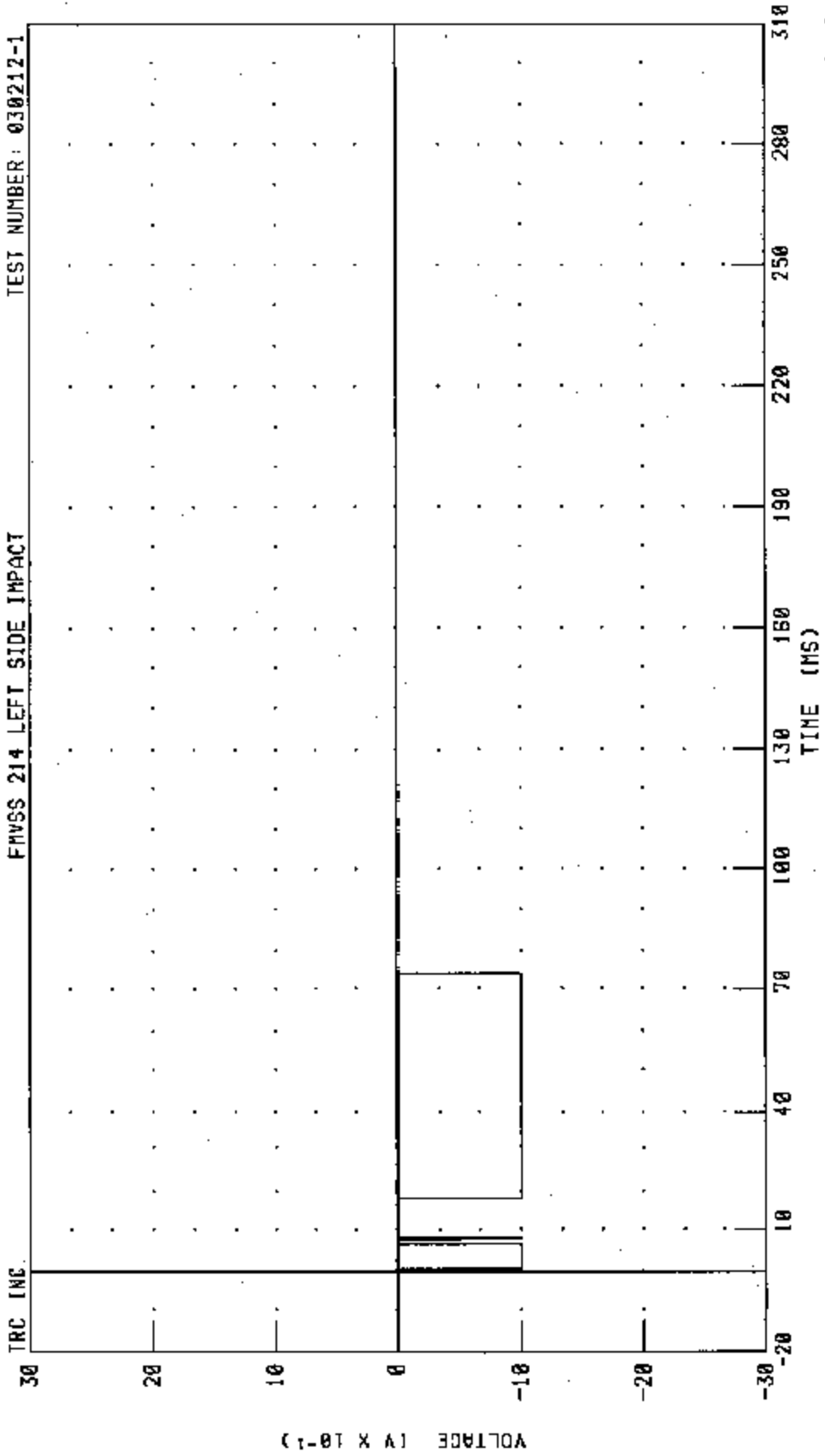
VELOCITY (KM/H X 10<sup>-1</sup>)

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

ND8 RIGHT SIDE CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



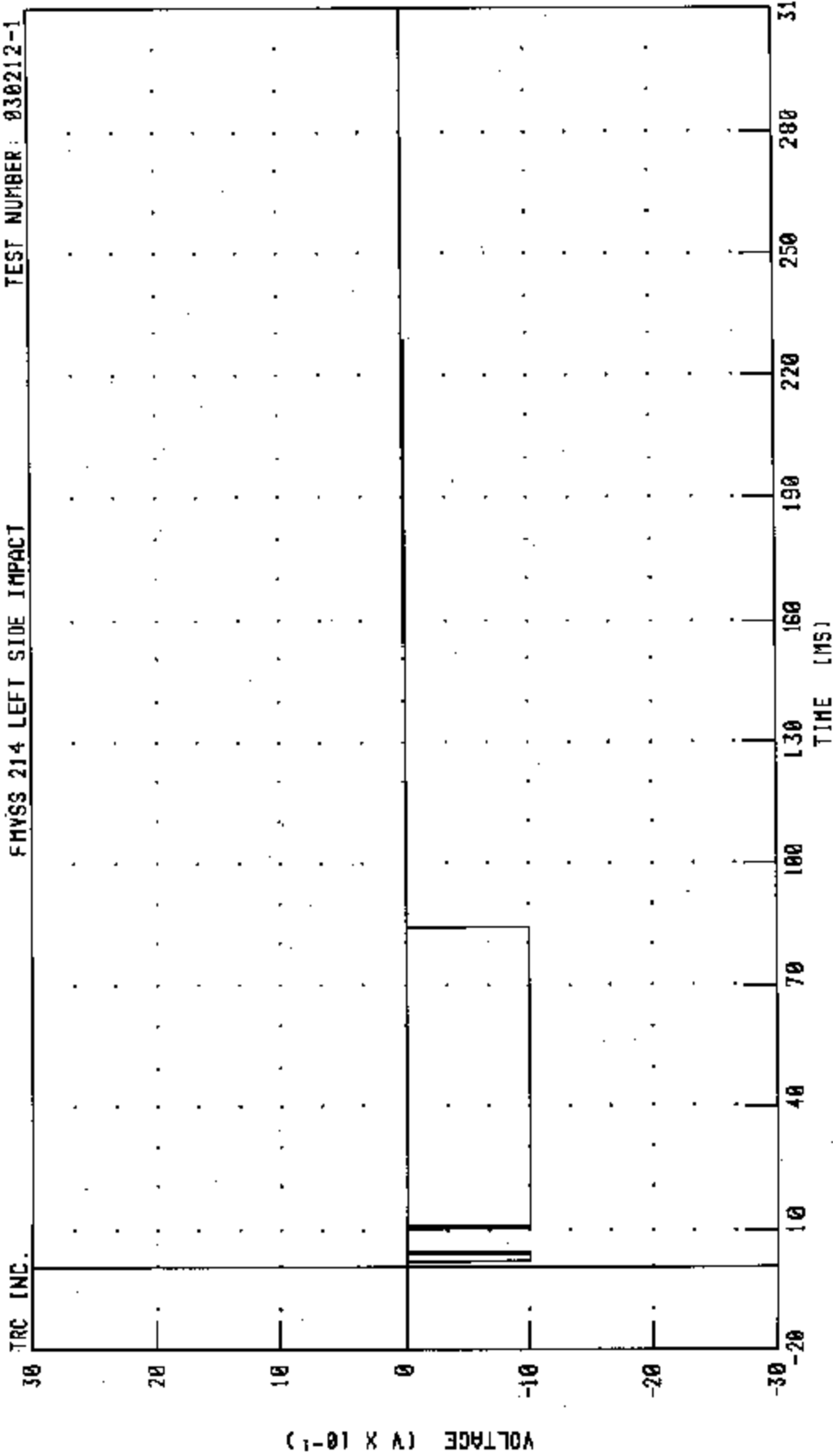
PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 0.88 MS

CHANNEL: ND8R1 FILTER: CH. CLASS 1000

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

MOB LEFT SIDE CONTACT SWITCH  
FHYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



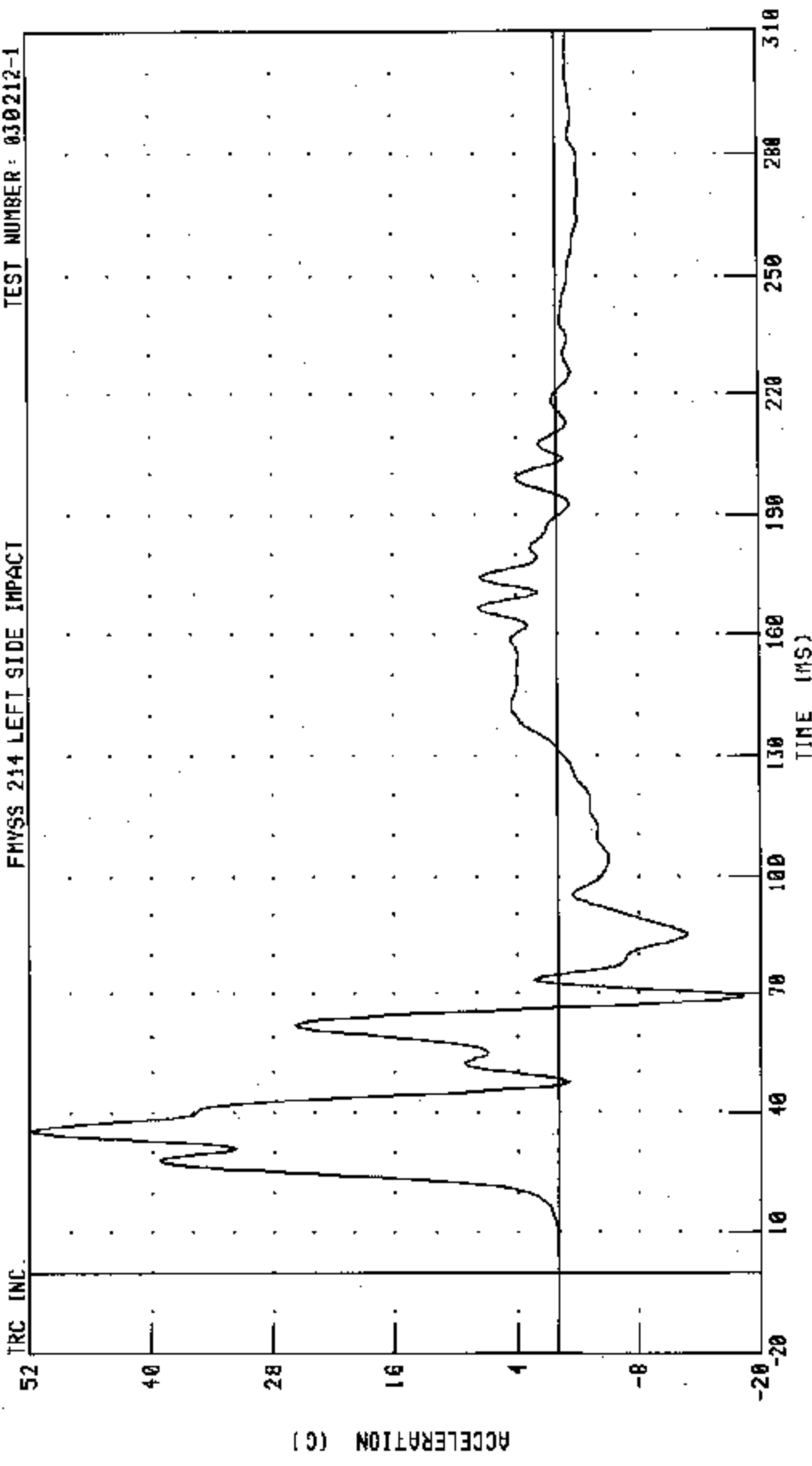
PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 1.44 MS

CHANNEL: MDL1 FILTER: CH CLASS 1000

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

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER UPPER RIB Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 51.91 G @ 35.63 MS, -18.24 G @ 69.38 MS

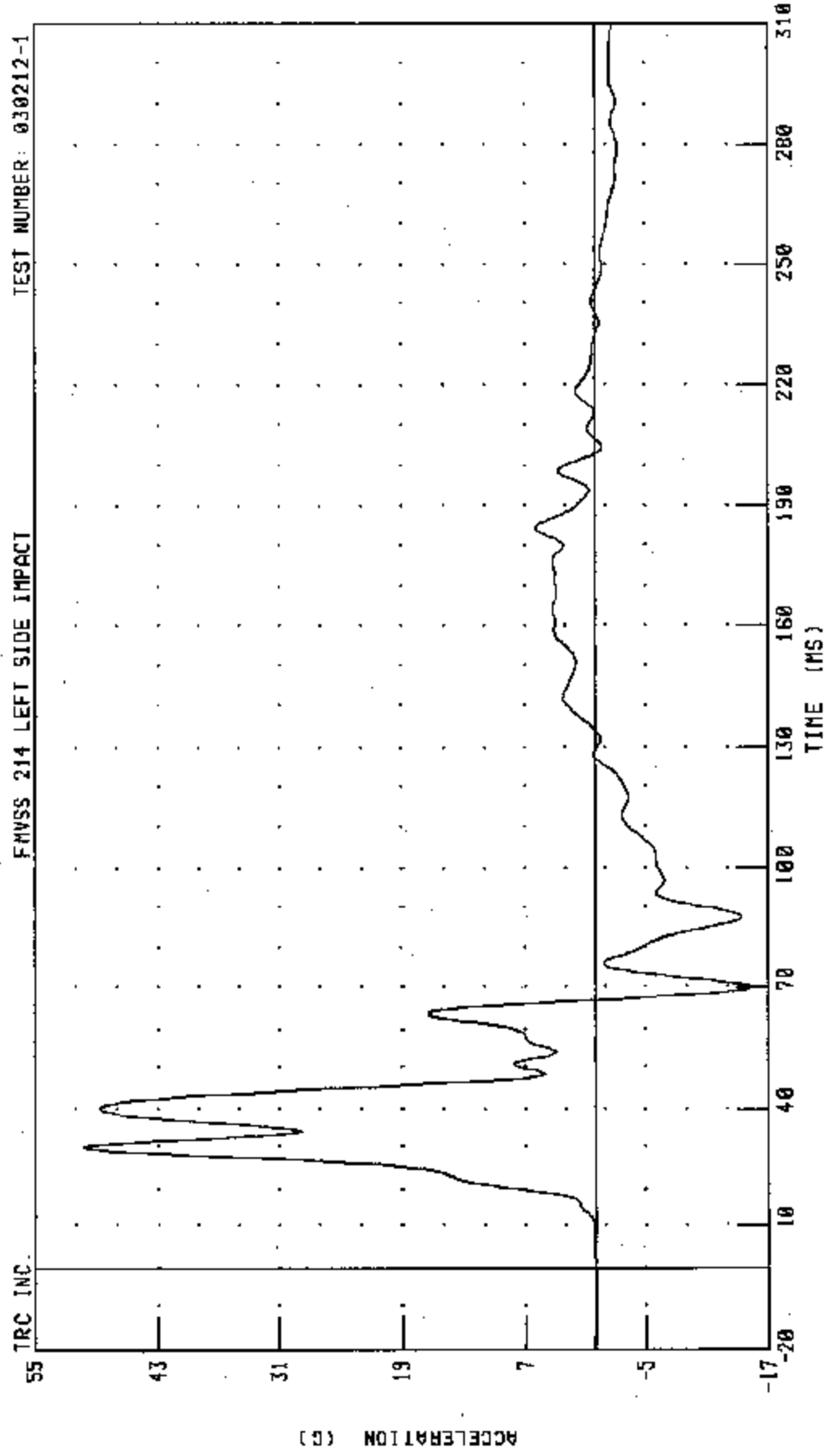
CHANNEL: LURYG1 FILTER: FIR 100

ACCELERATION (G)

030212-1

B-122

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER LOWER RIB Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



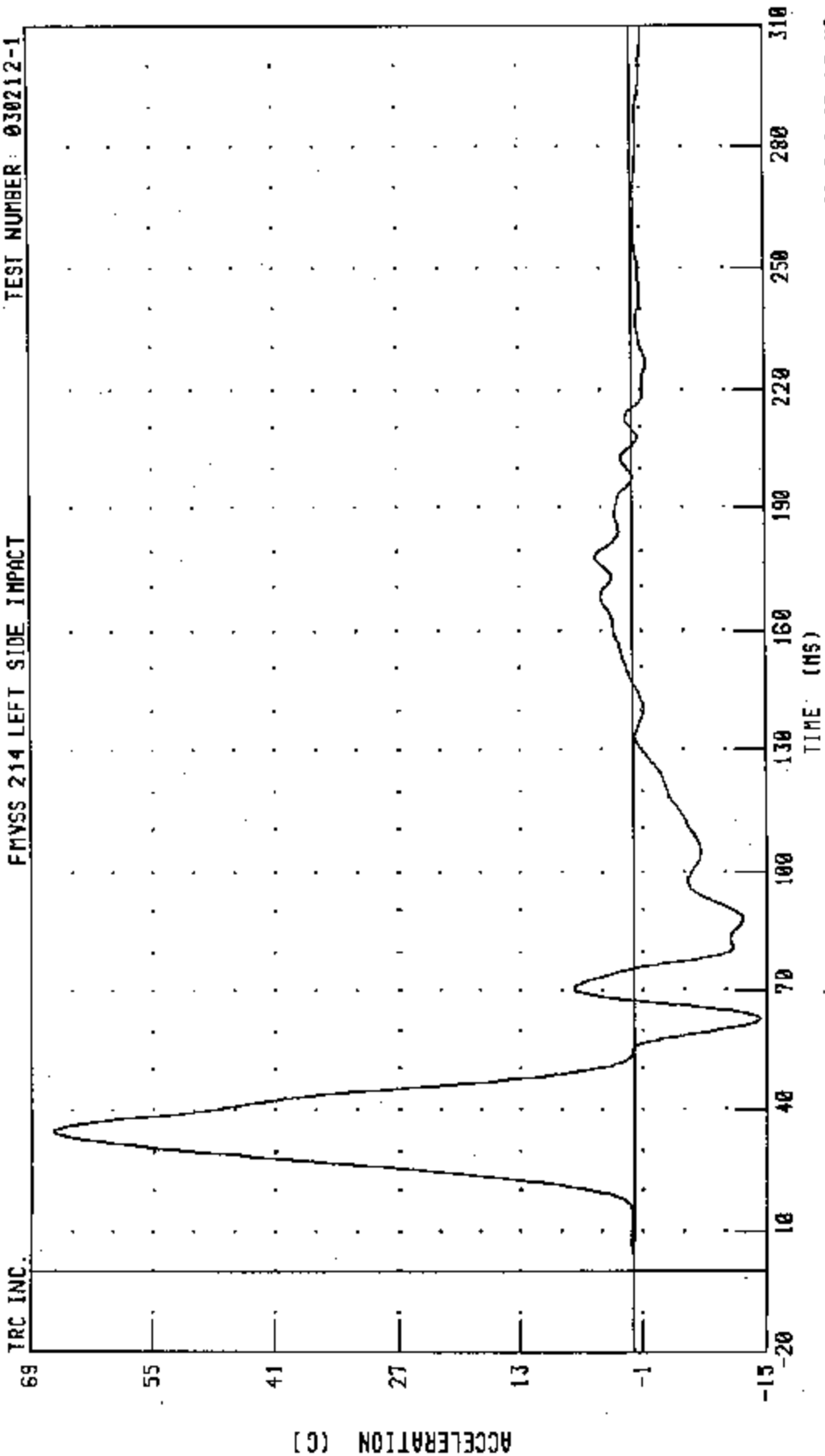
CHANNEL: LLY61 FILTER: FIR 100 PEAK DATA: 50.25 C @ 30.00 MS; -15.47 C @ 70.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER LOWER SPINE Y-AXIS ACCELERATION

FMYSS 214 LEFT SIDE IMPACT

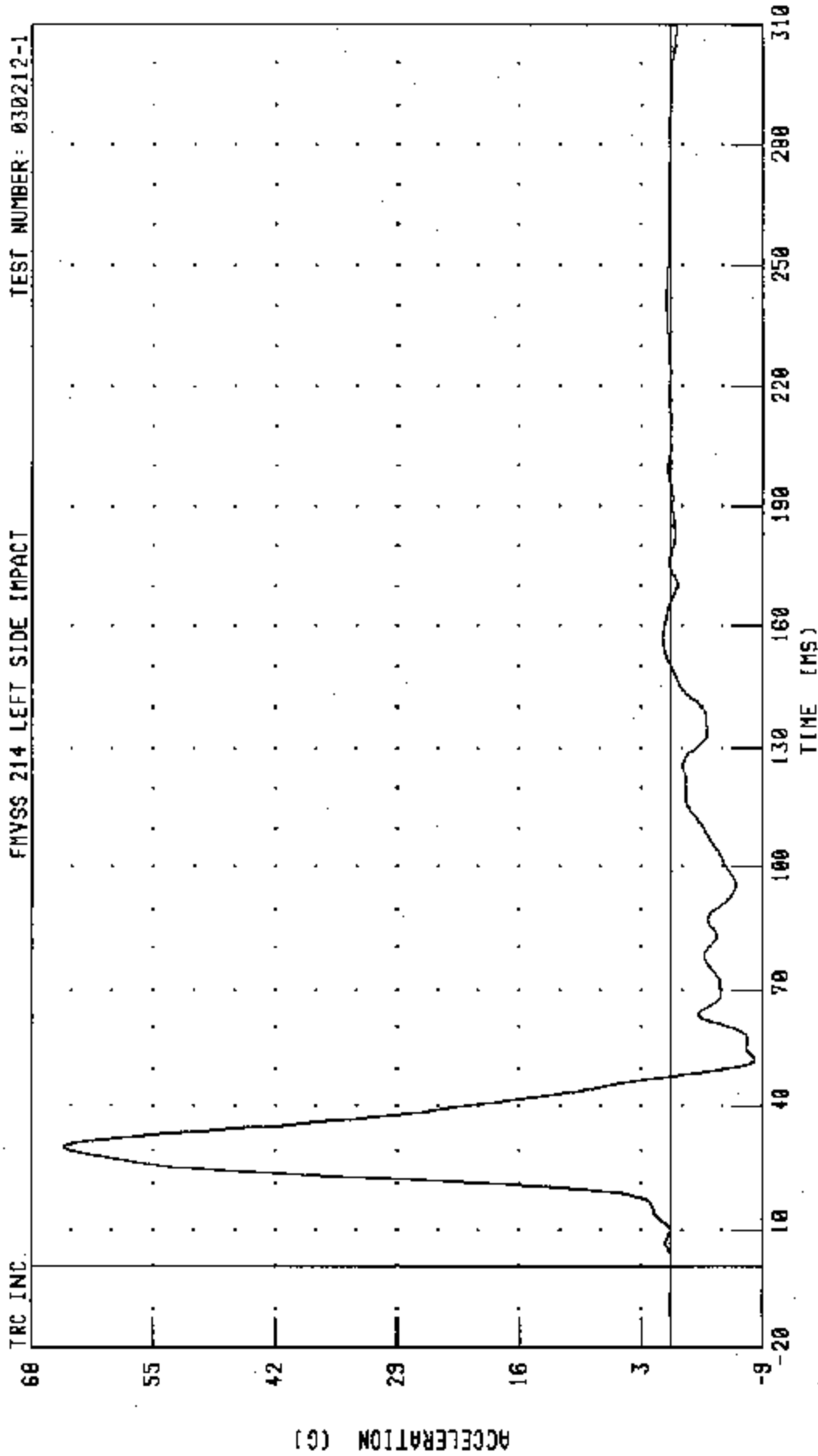
TEST NUMBER: 030212-1



CHANNEL: T12YG1 FILTER: FIR 100 PEAK DATA: 66.54 G @ 35.00 MS; -14.20 G @ 63.13 MS

ACCELERATION (G)

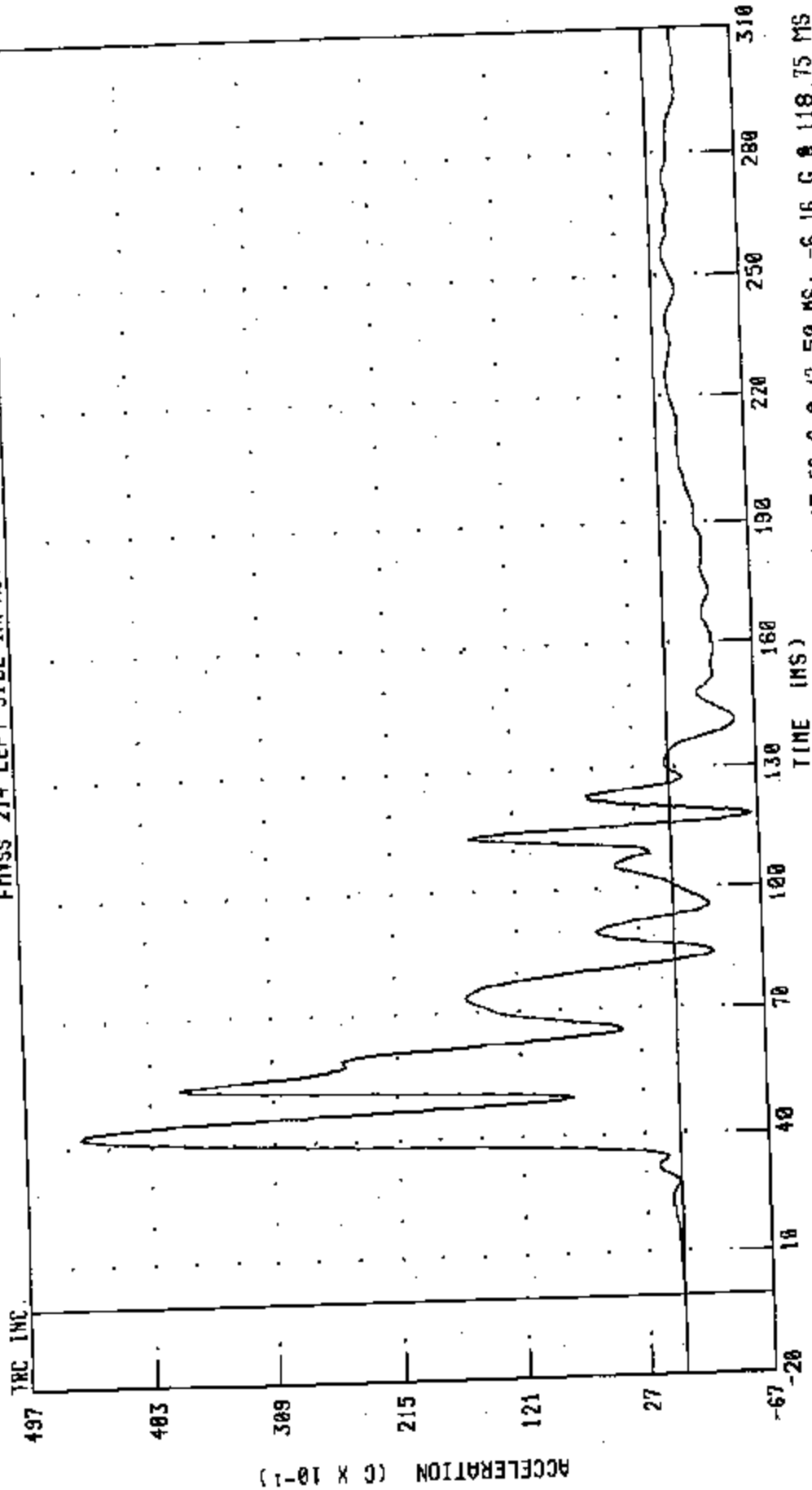
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER PELVIS Y-AXIS ACCELERATION  
FMYSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



CHANNEL: PEVYC1 FILTER: FIR 100 PEAK DATA: 64.45 G @ 31.25 MS; -9.05 G @ 52.50 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION  
FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

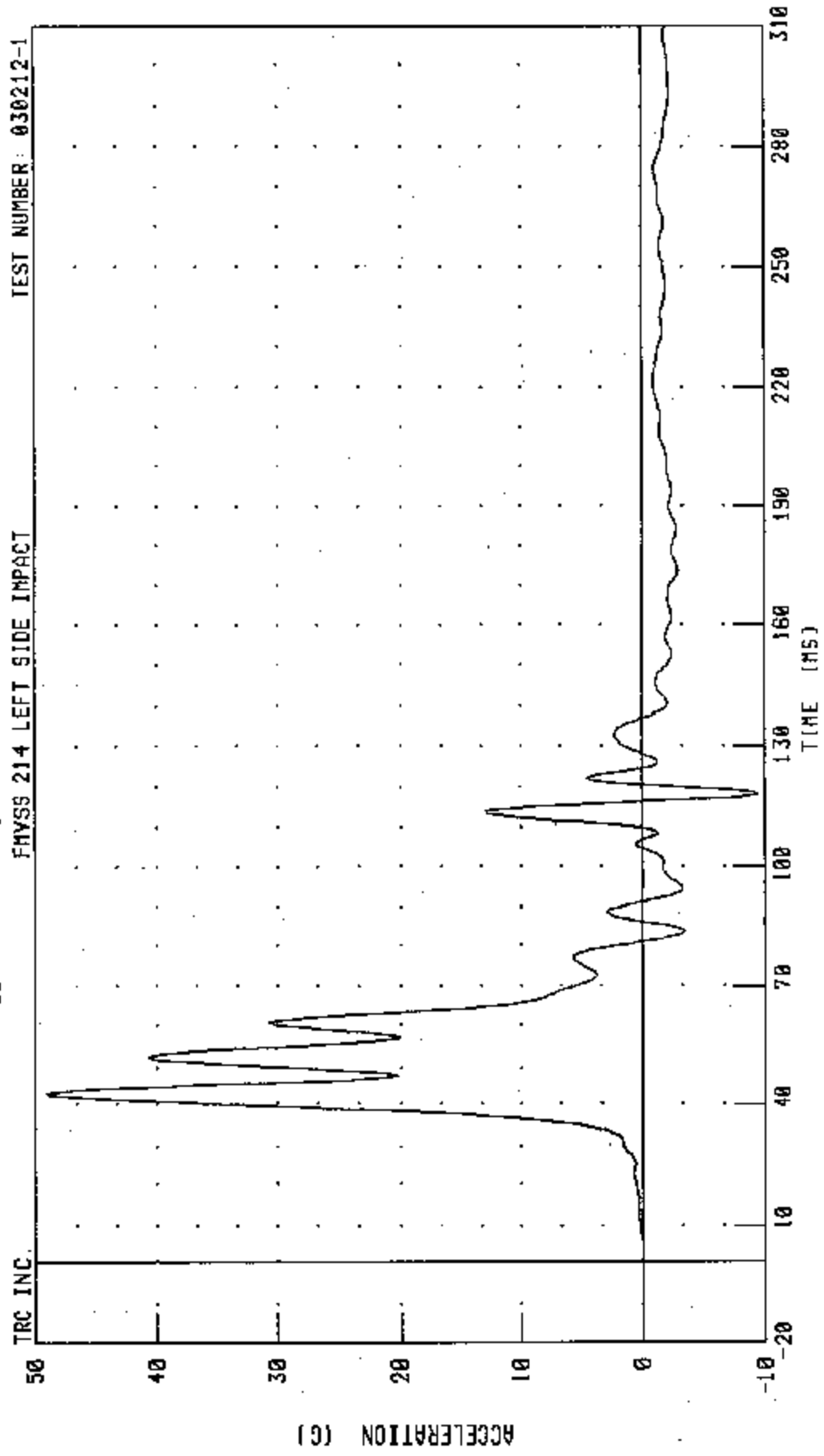


PEAK DATA: 45.58 G @ 42.50 MS; -6.16 G @ 118.75 MS

CHANNEL: LURY04 FILTER: FIR 100

030212-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1

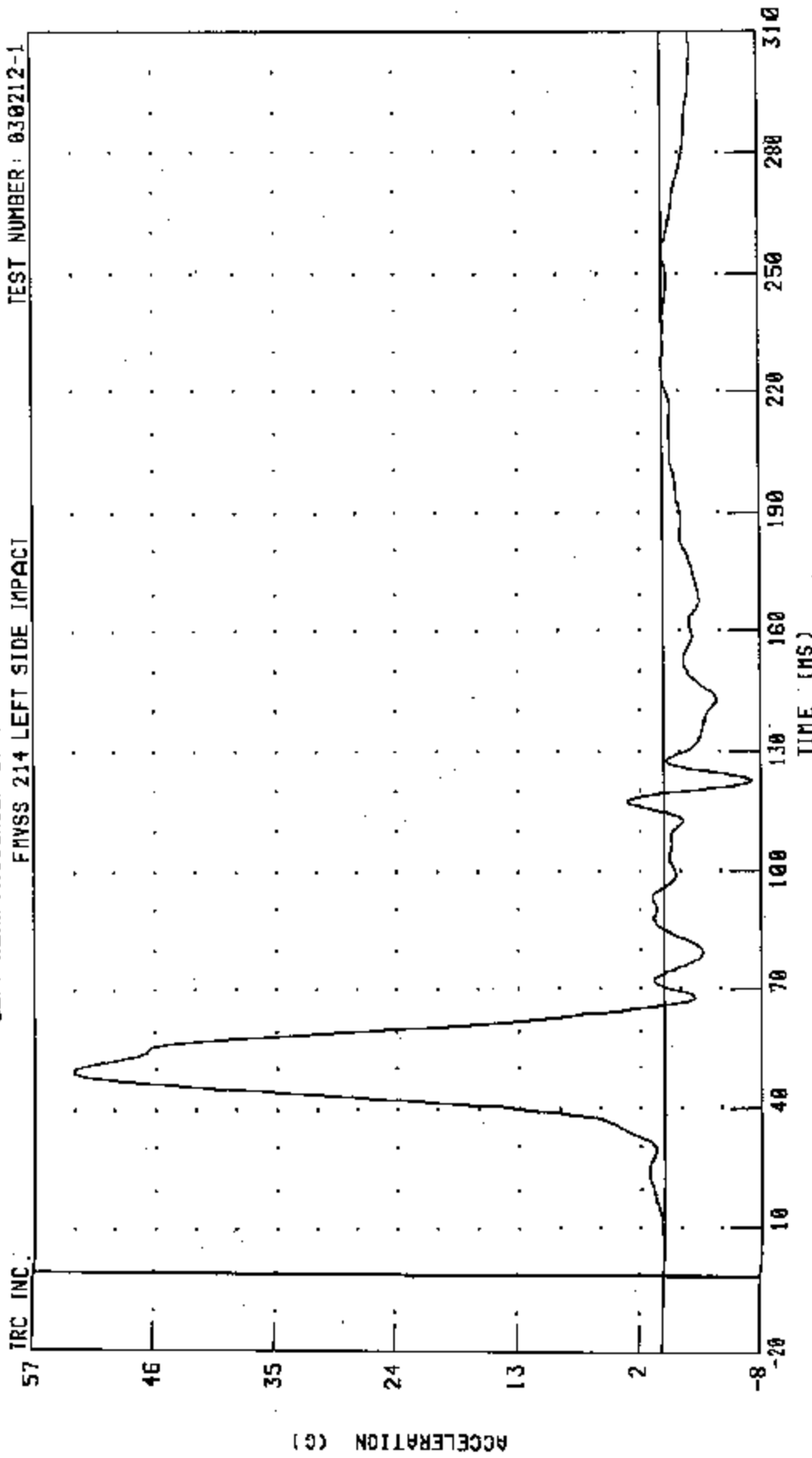


CHANNEL: LLRYG4 FILTER: FIR 100 PEAK DATA: 49.08 G @ 43.13 MS, -9.42 G @ 118.13 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

FVSS 214 LEFT SIDE IMPACT



PEAK DATA: 53.72 G @ 49.37 MS; -8.03 G @ 122.50 MS

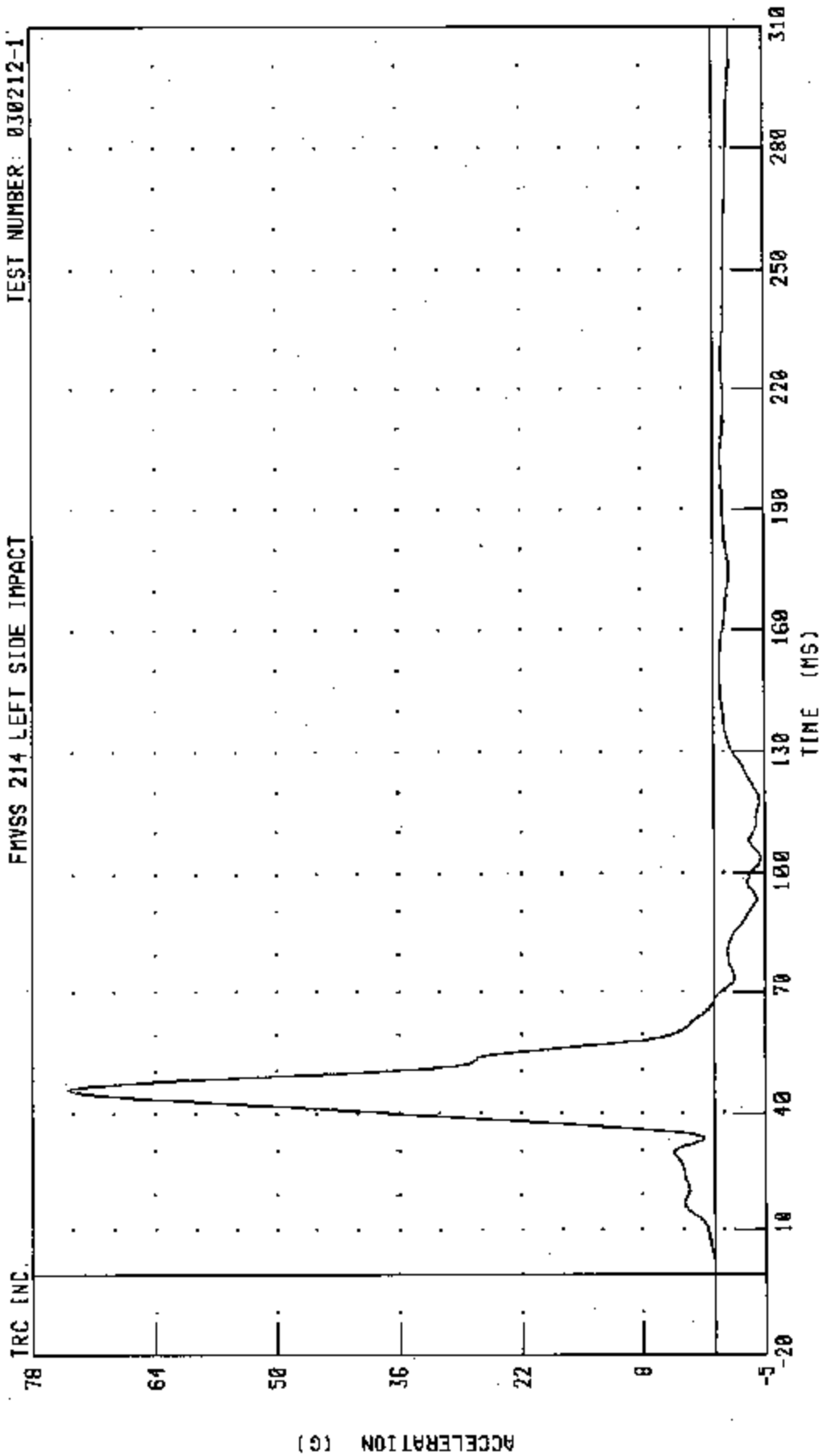
CHANNEL: T12YG4 FILTER: FIR 100

ACCELERATION (G)

TIME (MS)

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: PEY64 FILTER: FIR 100

PEAK DATA: 74.03 G @ 45.62 MS; -5.34 G @ 103.13 MS

**Driver and Passenger Dummy Instrumentation Plots**

**Acceleration Data - FIR Filtered - Redundant**

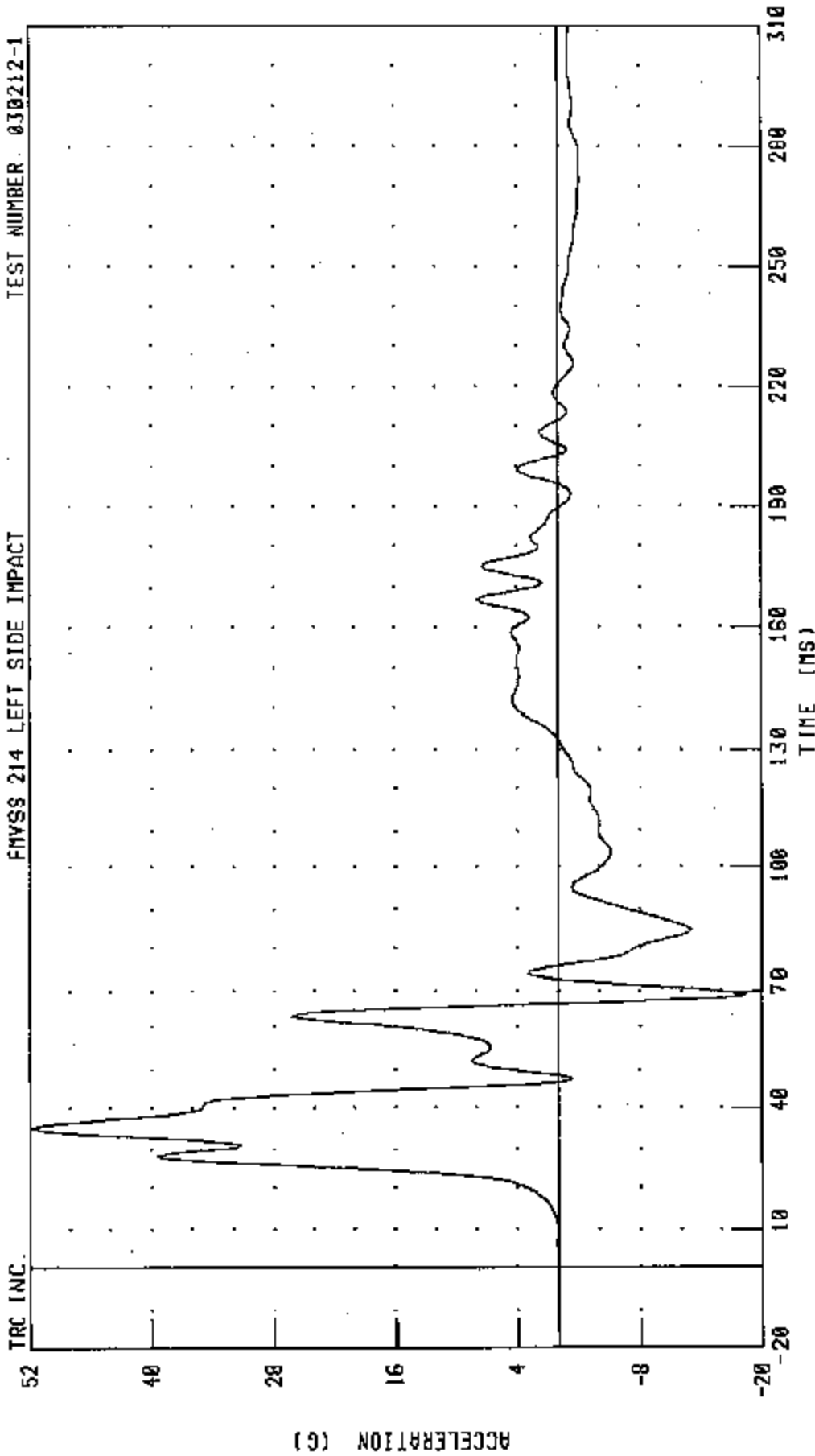
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

TRC INC.



030212-1

B-131

CHANNEL: LURYR1 FILTER: FIR 100

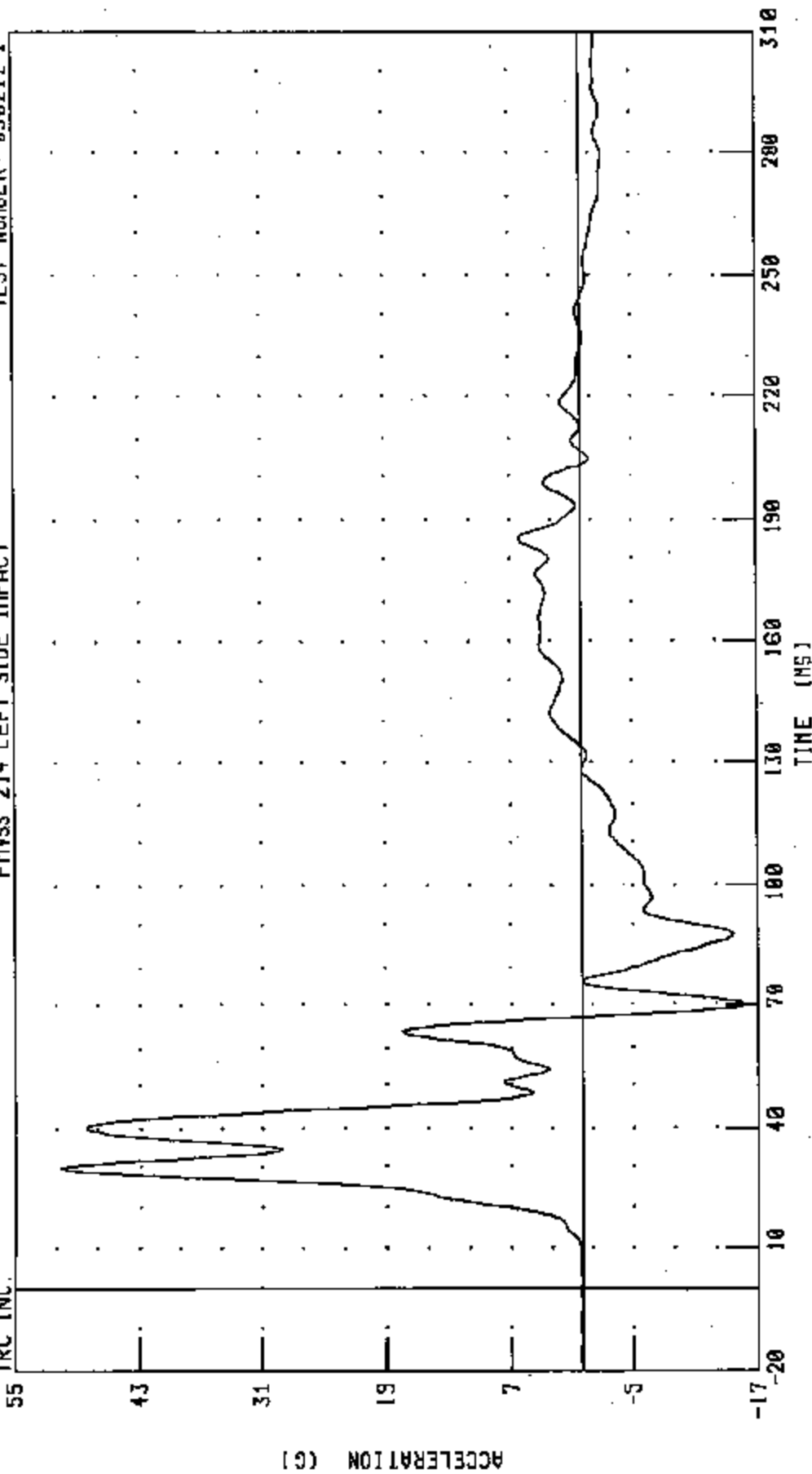
TIME (MS)

PEAK DATA: 51.72 G @ 35.63 MS; -10.44 G @ 69.38 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.

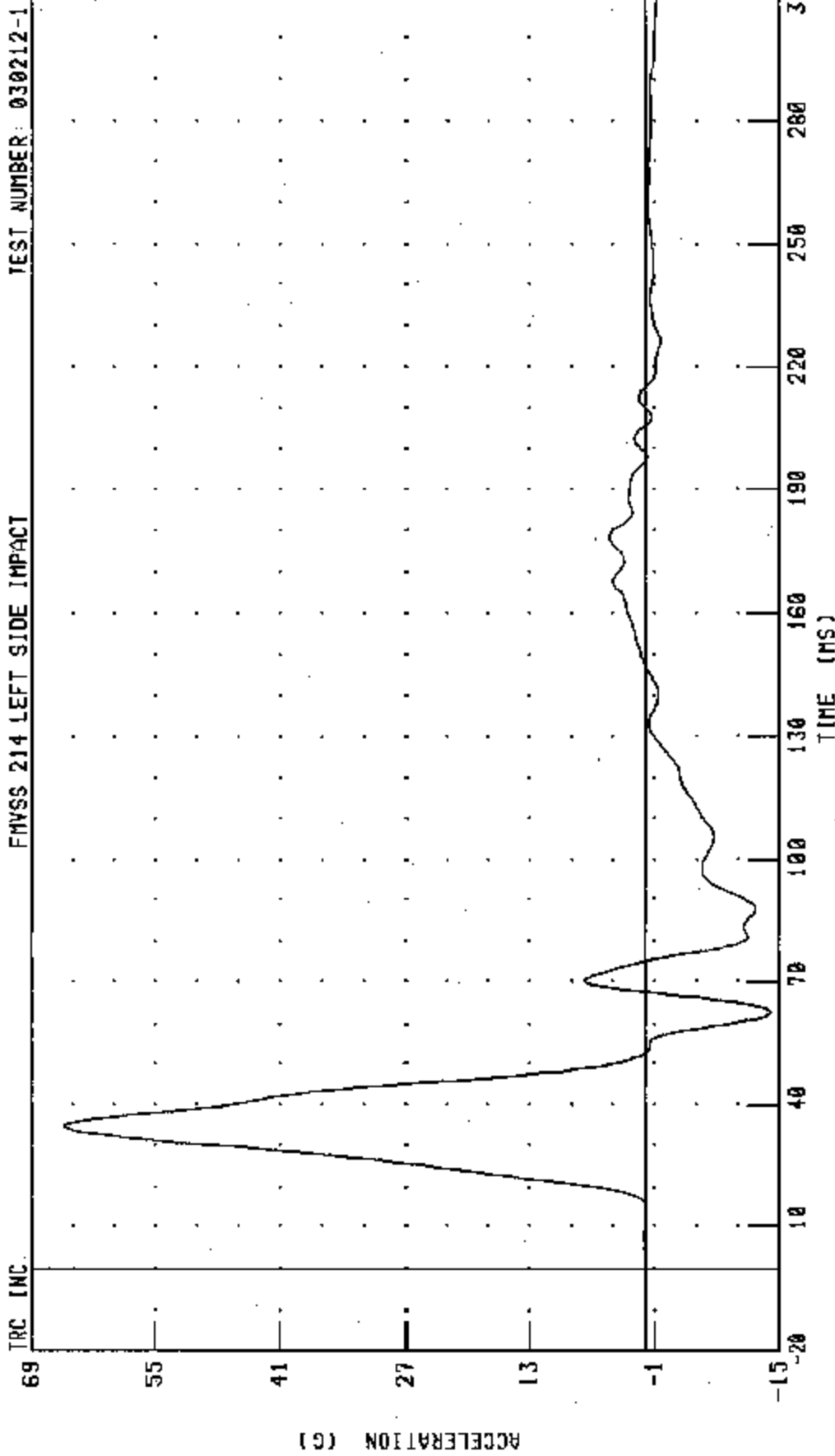


PEAK DATA: 50.54 G @ 30.00 MS; -15.93 G @ 70.00 MS

CHANNEL: LLRYR1 FILTER: FIR 100

ACCELERATION (G)

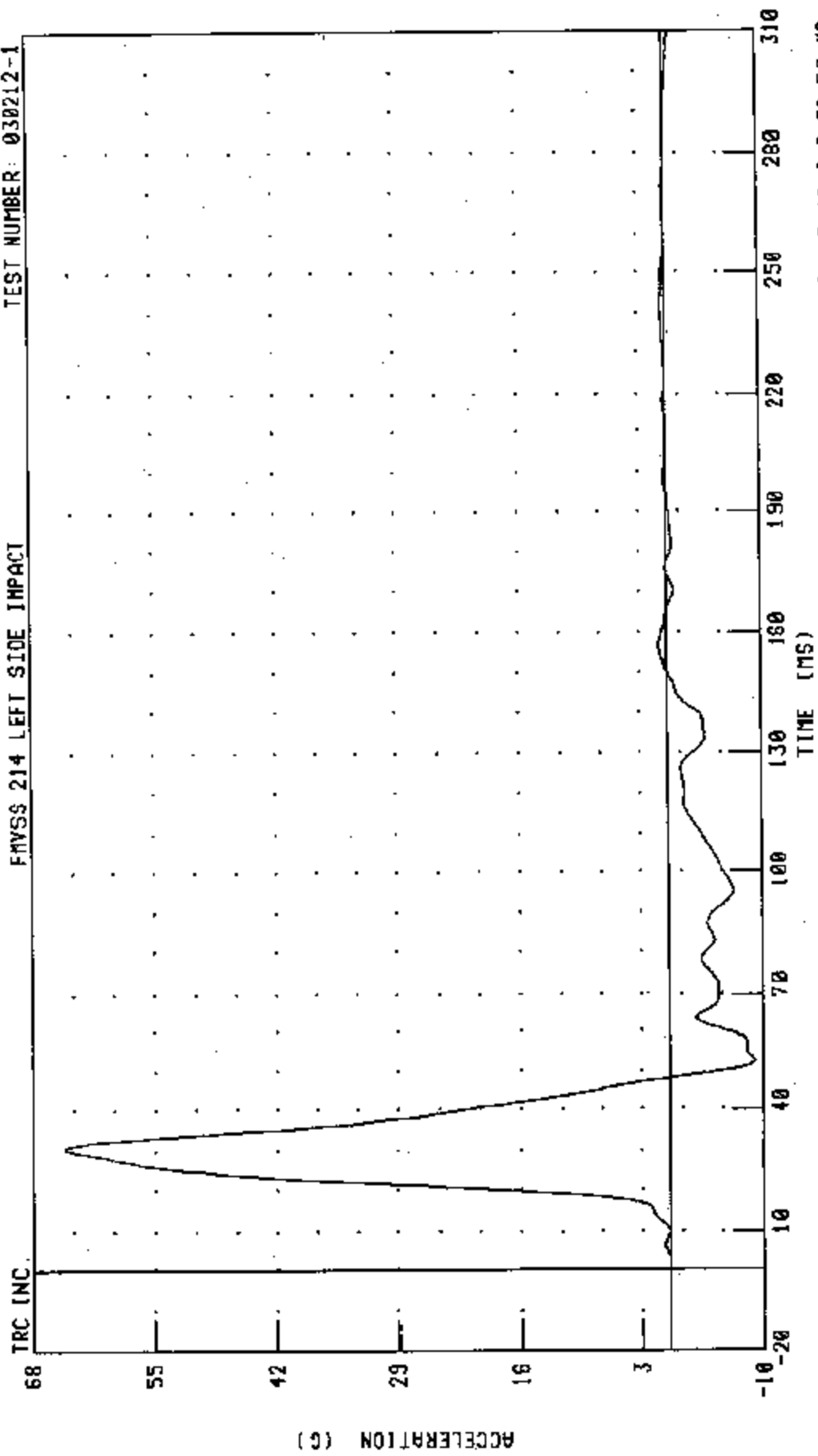
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT



CHANNEL: T12YR1 FILTER: FIR 100 PEAK DATA: 65.29 G @ 34.38 MS; -14.09 G @ 63.13 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



PEAK DATA: 64.55 G @ 31.25 MS; -9.10 G @ 52.50 MS

CHANNEL: PEYRI FILTER: FIR 100

ACCELERATION (G)

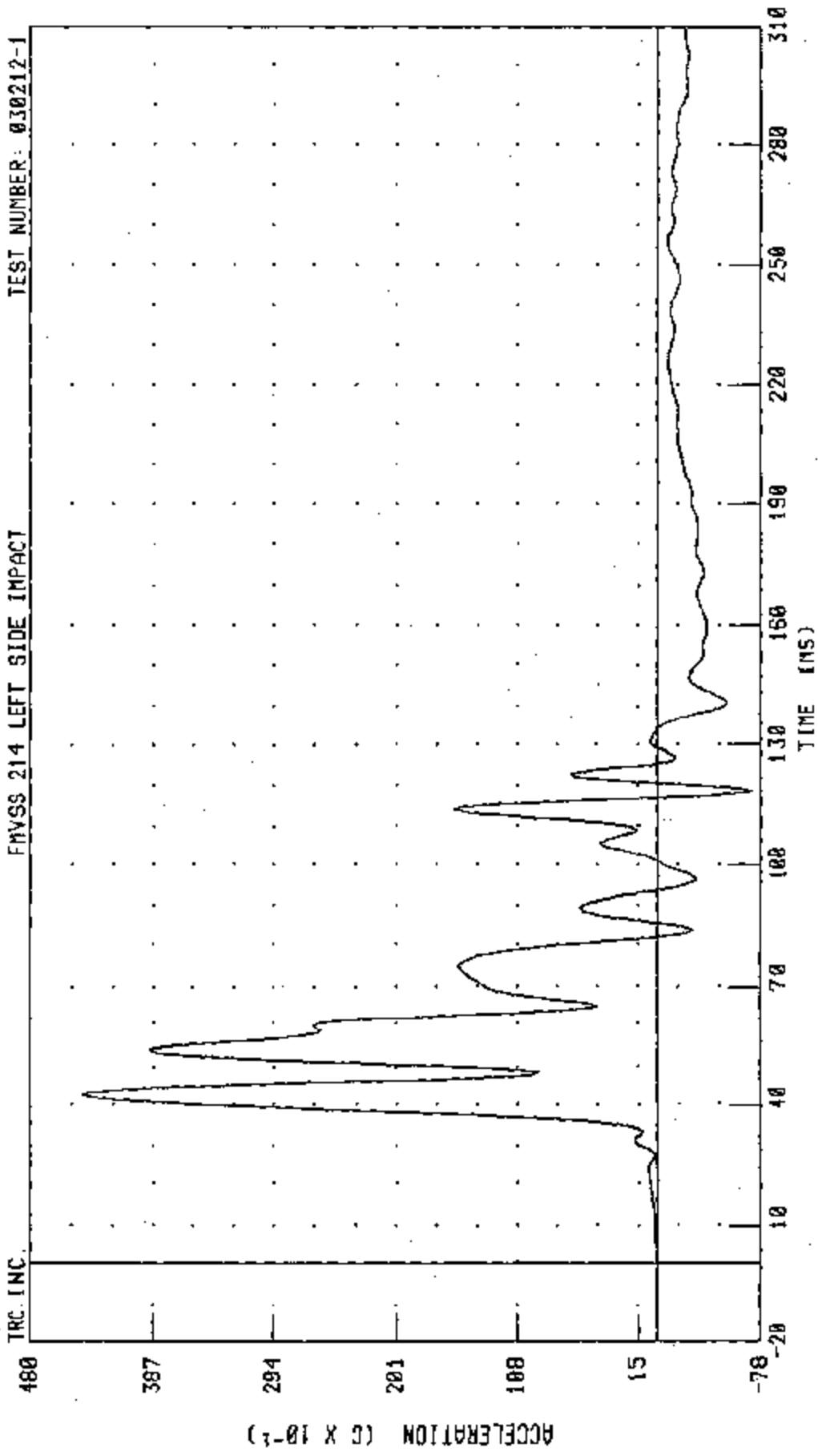
030212-1

B-134

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

TRC, INC. TEST NUMBER: 030212-1

FVSS 214 LEFT SIDE IMPACT



CHANNEL: LURYR4 FILTER: FIR 100 PEAK DATA: 44.87 G @ 42.50 MS, -7.10 G @ 118.75 MS

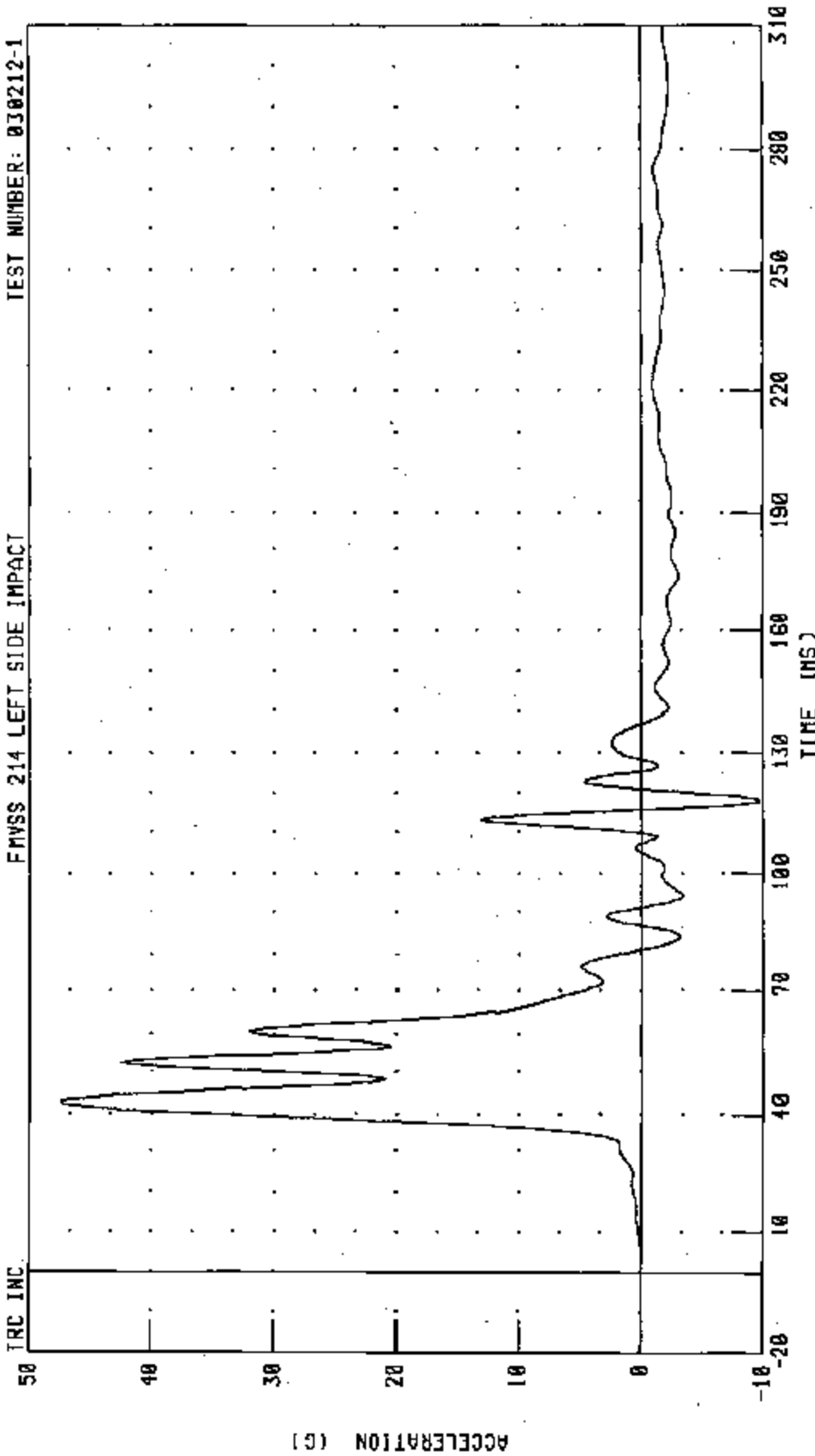
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

TRC INC.



PEAK DATA: 47.42 G @ 43.13 MS; -9.75 G @ 118.13 MS

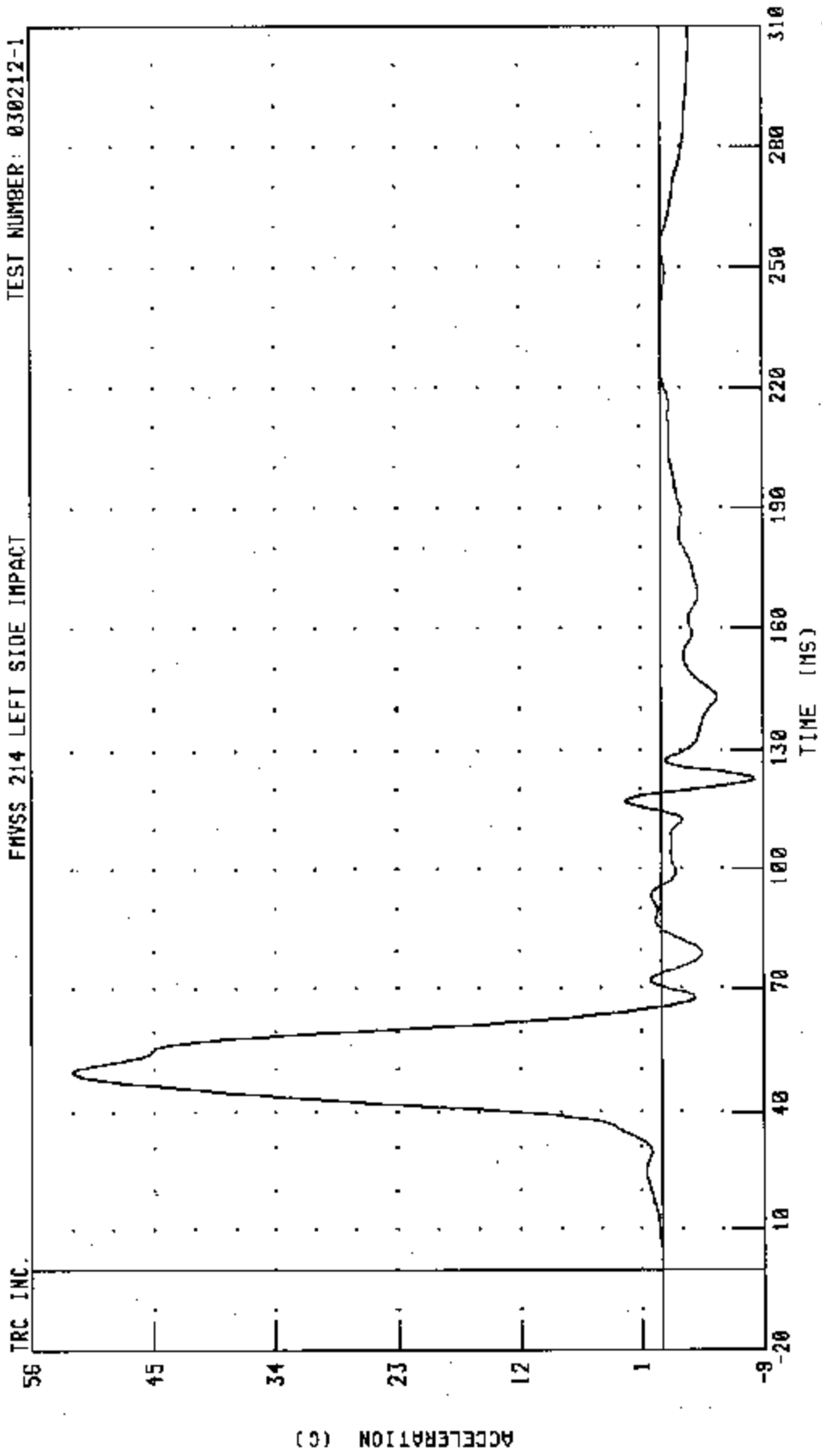
CHANNEL: LLRYR4 FILTER: FIR 100

ACCELERATION (G)

030212-1

B-136

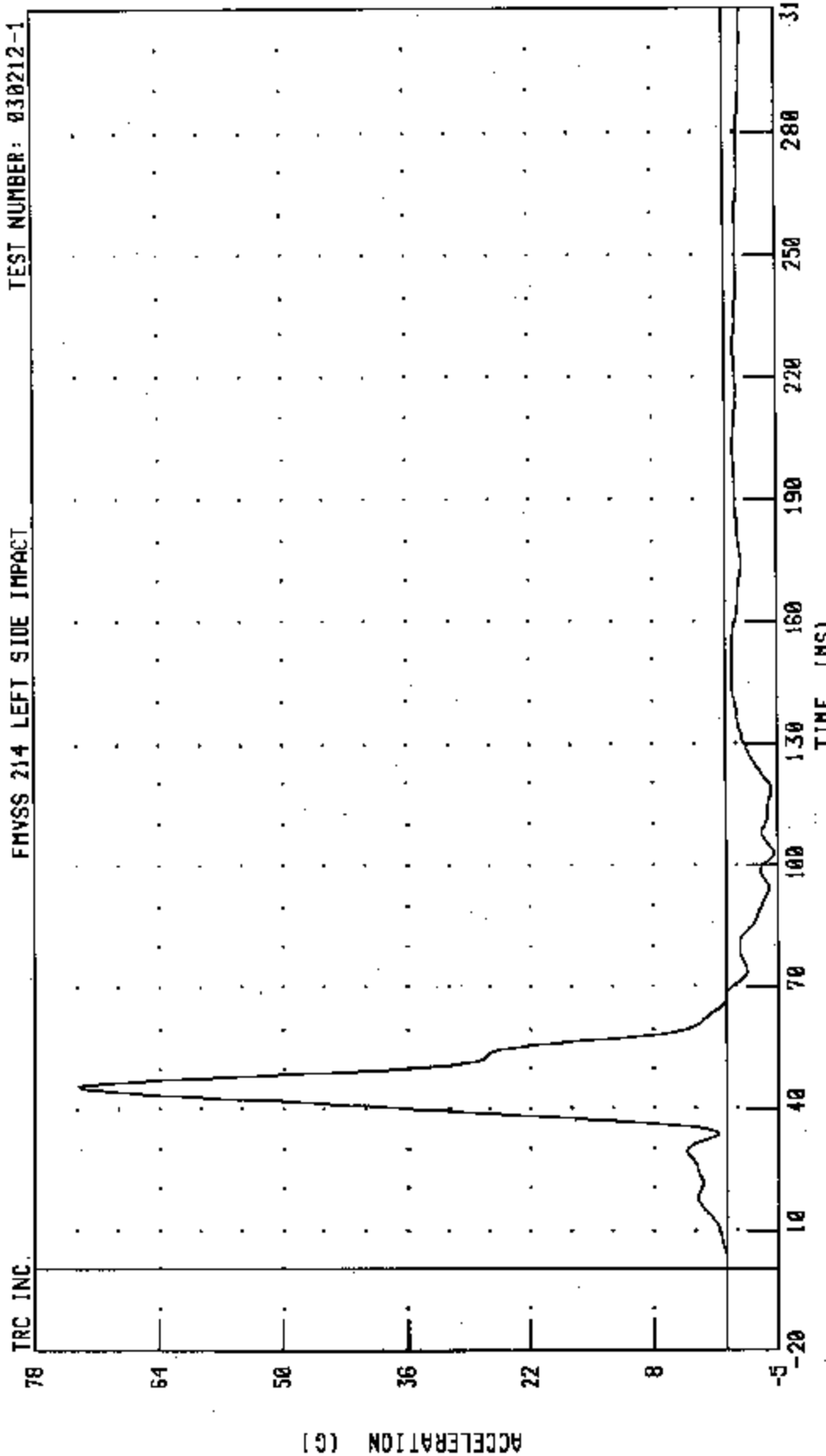
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



CHANNEL: T12YR4 FILTER: FIR 100 PEAK DATA: 53.32 G @ 49.37 MS; -0.31 G @ 122.50 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5  
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION  
FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: PEVYR4 FILTER: FIR 100 PEAK DATA: 73.46 G @ 45.62 MS; -5.32 G @ 103.13 MS

Appendix C

**SID Configuration And Performance Verification Data**

Summary  
SID Pre-Test And Post-Test Calibration

Configured For Left Side Impact

Date: January 21 – February 14, 2003

TRC Inc. Test Number: 065CAL02 & 03; 066CAL02 & 03

Laboratory Technician: Jack Willeke

Test Parameter	Specification	SID 65		SID 66	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - seated height (mm)	889-909	895	893	893	896
RH - Rib Height (mm)	502-520	509	510	511	510
HP - Hip Pivot Height (mm) <sup>1</sup>	99 ref	—	—	—	—
RD - Rib from Back Line (mm)	229-241	236	237	235	236
KV - Knee Pivot from Back Line (mm)	511-526	516	515	520	521
SW - Knee Pivot to Floor (mm)	490-505	498	499	499	498
HW - Hip Width (mm)	356-391	371	372	387	388
<b>Thorax Impacts</b>					
Temperature (°C)	18.9-25.5	22.2	21.1	21.7	21.1
Relative Humidity (%)	10-70	29	31	25	31
Probe Speed (m/s)	4.27-4.33	4.29	4.29	4.29	4.29
Upper Rib (g's)	37-46	39.7	42.3	37.2	39.2
Lower Rib (g's)	37-46	38.8	39.6	40.5	38.9
Lower Spine (g's)	15-22	18.1	19.1	20.3	20.9
<b>Pelvis Impacts</b>					
Temperature (°C)	18.9-25.5	22.2	21.1	21.7	21.1
Relative Humidity (%)	10-70	28	31	29	31
Probe Speed (m/s)	4.27-4.33	4.29	4.29	4.29	4.29
Pelvis (g's)	40-60	54.1	46.6	46.8	52.5

<sup>1</sup> Dimension not recorded.

**Calibration Test Results**

**Pre-Test**

**SID: 065**

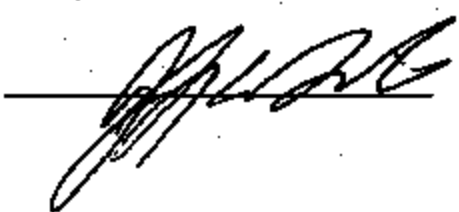
**Configured for Left Side Impact**

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

**Transportation Research Center Inc.**  
**572F SID Dummy**  
**External Dimensions**  
**Serial No. 065 Calibration No. 02**

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	895 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	516 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.8 - 391.2 mm	371 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	509 mm	Yes
Rib From Backline	RD	228.8 - 241.3 mm	238 mm	Yes
Top Rib Width From CL	RW-1	165.1 - 180.3 mm	175 mm	Yes
Bottom Rib Width From CL	RW-2	165.1 - 180.3 mm	176 mm	Yes
Difference Between Top & Bottom Rib Width from CL		≤ 2.5 mm	1.0 mm	No

Technician



Approved



**TRC**

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL06502

572F SID SN065 L.THORAX CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	39.7 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	38.8 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	18.1 G

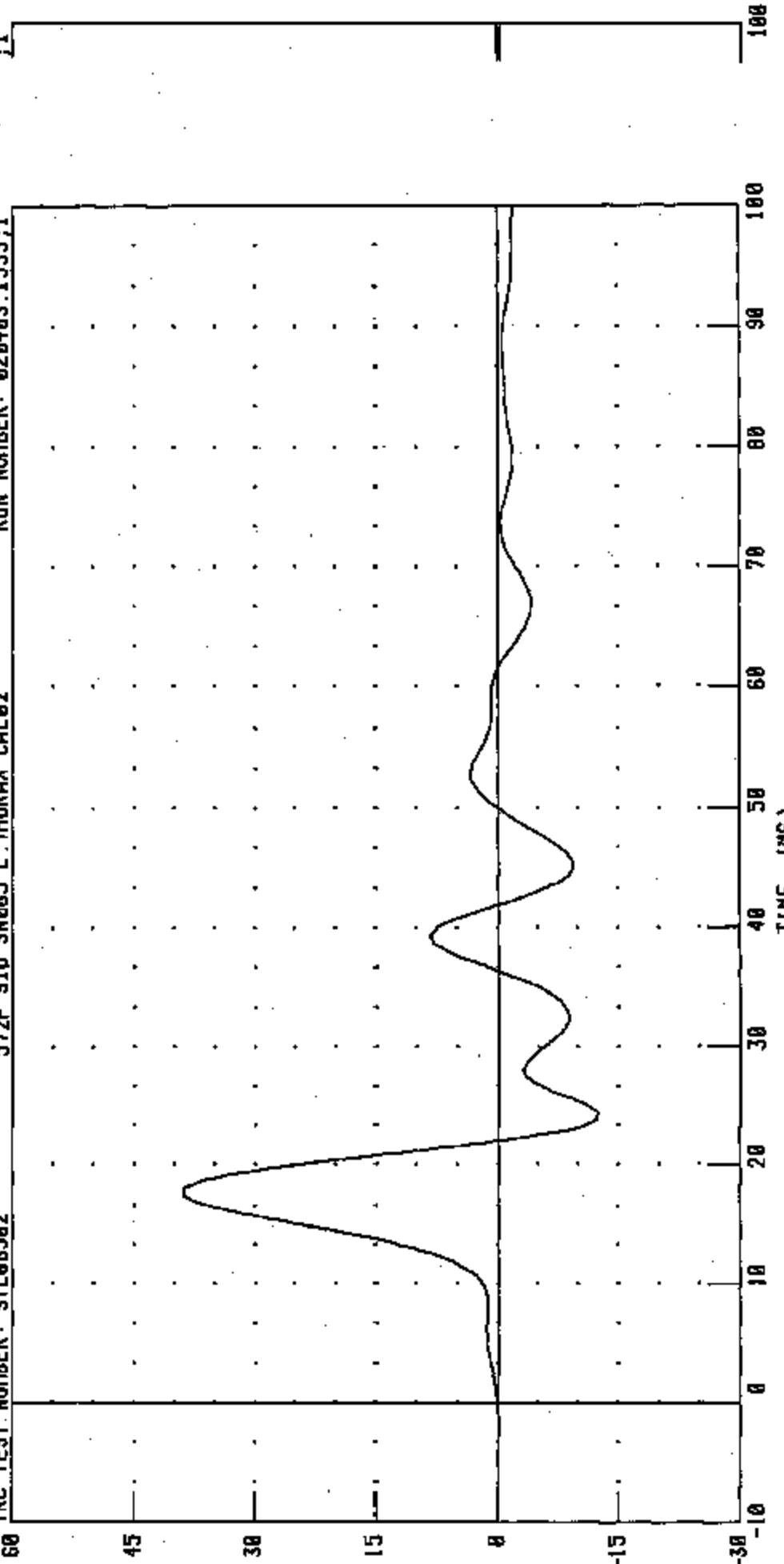
TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 020403.1533;1

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

TRC TEST NUMBER: STL06502      572F SID SN065 L THORAX CAL02      RUN NUMBER: 020403.1533;1

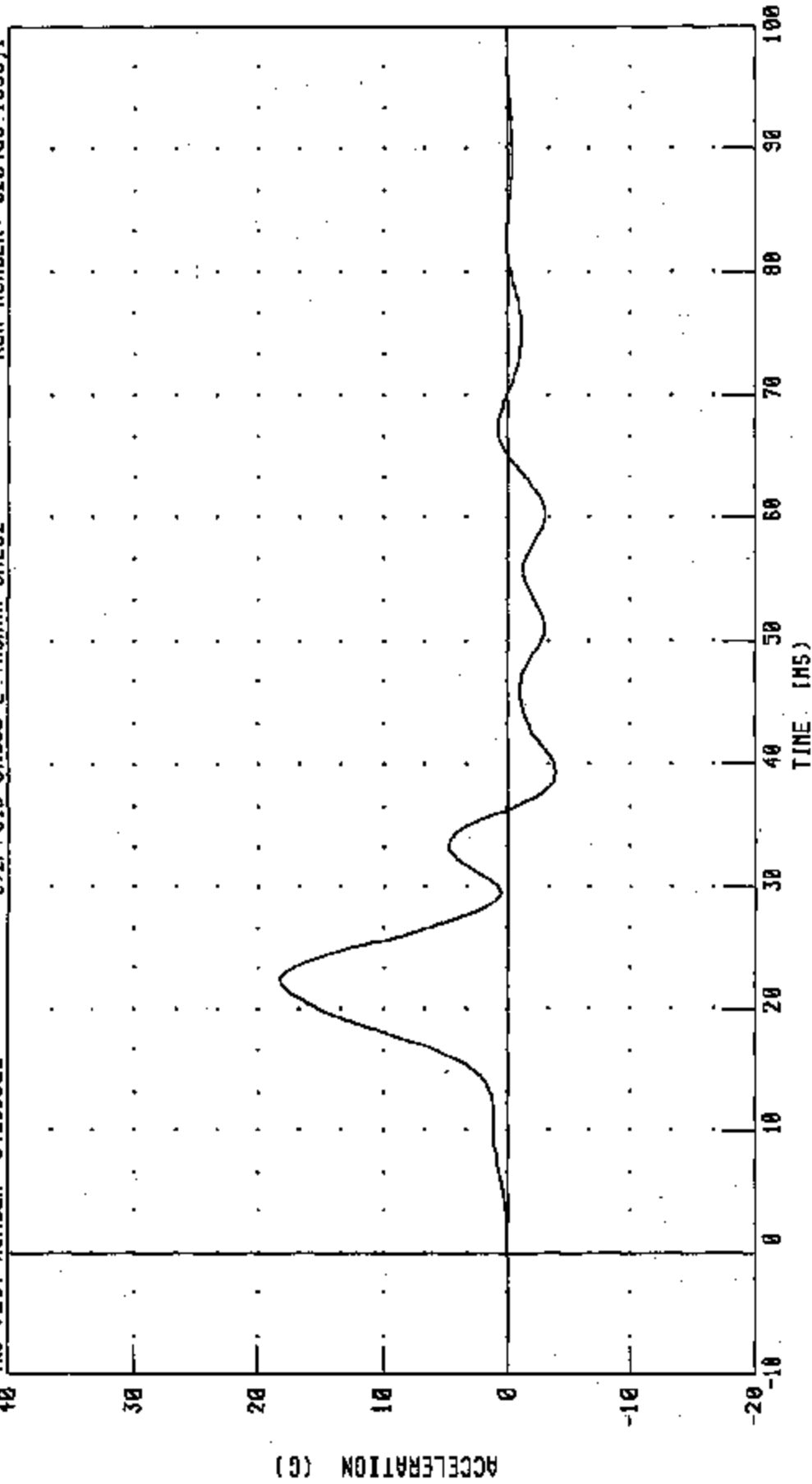


2 MS

CHANNEL: LCRYC      FILTER: FIR 100      PEAK DATA: 38.85 G @ 17.58 MS; -12.52 G @ 24.38 MS

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

TRC TEST NUMBER: STL06502      572F.91D SN065 L THORAX CAL02      RUN NUMBER: 020403.1533.1



CHANNEL: T12YC      FILTER: FIR 100      PEAK DATA: 18.14 G @ 22.50 MS, -3.94 G @ 39.38 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

03-FEB-03

TBC INC.

572F SN065 DAMPER TEST CAL02

TEST NUMBERS: DP06502A, DP06502B, DP06502C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	667 - 925 N	791 N
2.71 M/S	DISPLACEMENT	29.7 - 34.5 MM	31.1 MM
VELOCITY	FORCE	1706 - 2072 N	1715 N
4.24 M/S	DISPLACEMENT	31.6 - 37.2 MM	36.5 MM
VELOCITY	FORCE	3784 - 4495 N	4243 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.2 MM

DAMPER SETTING = 5.5

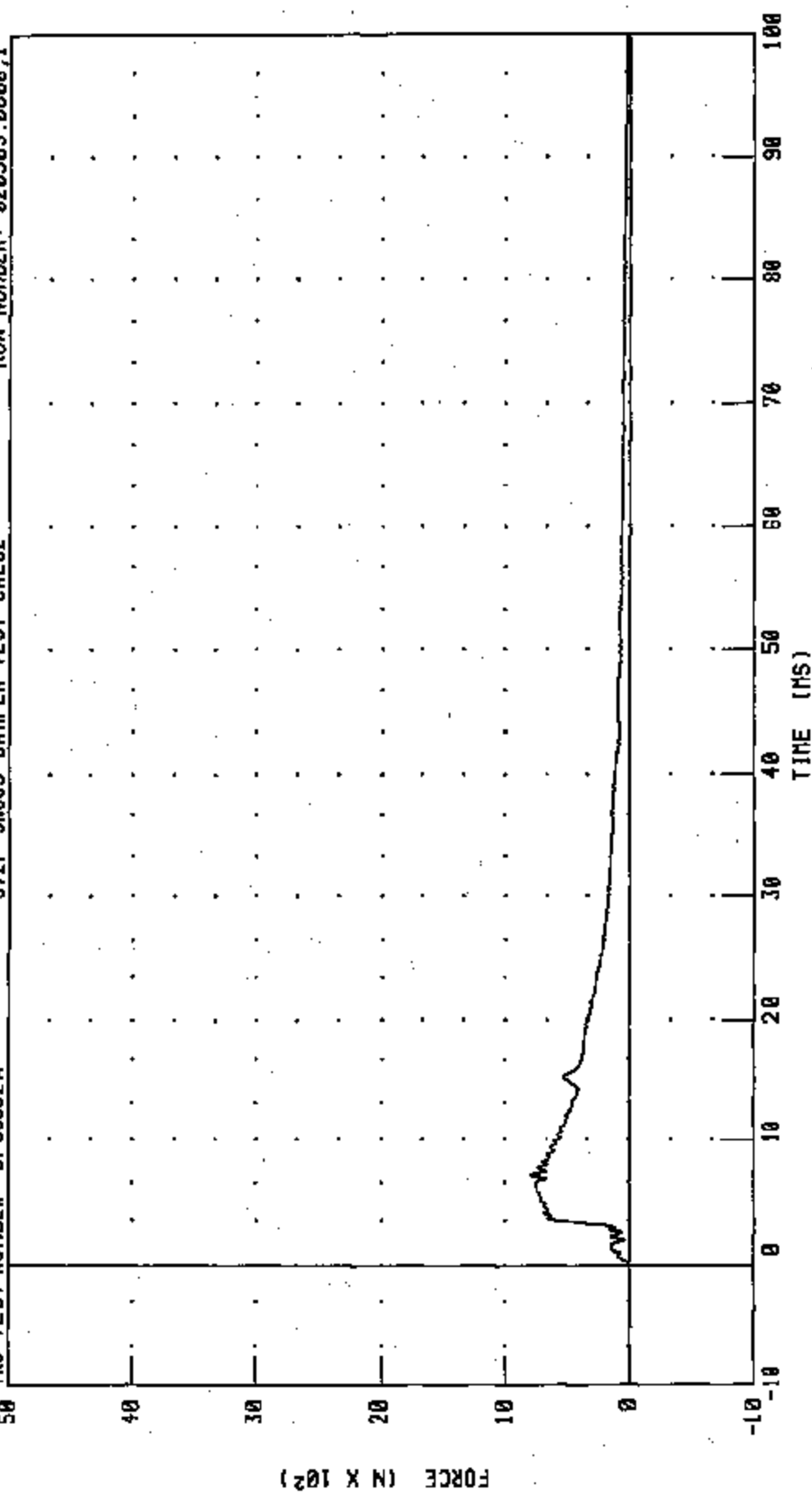
TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 020303.0805;1

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

TRC TEST NUMBER: DP06502A 572F 5085 DAMPER TEST CAL02 RUN NUMBER: 020303.D806.1



CHANNEL: DAMPF FILTER: CH. CLASS 1000 PEAK DATA: 790.76 N @ 7.36 MS, -1.99 N @ -6.96 MS

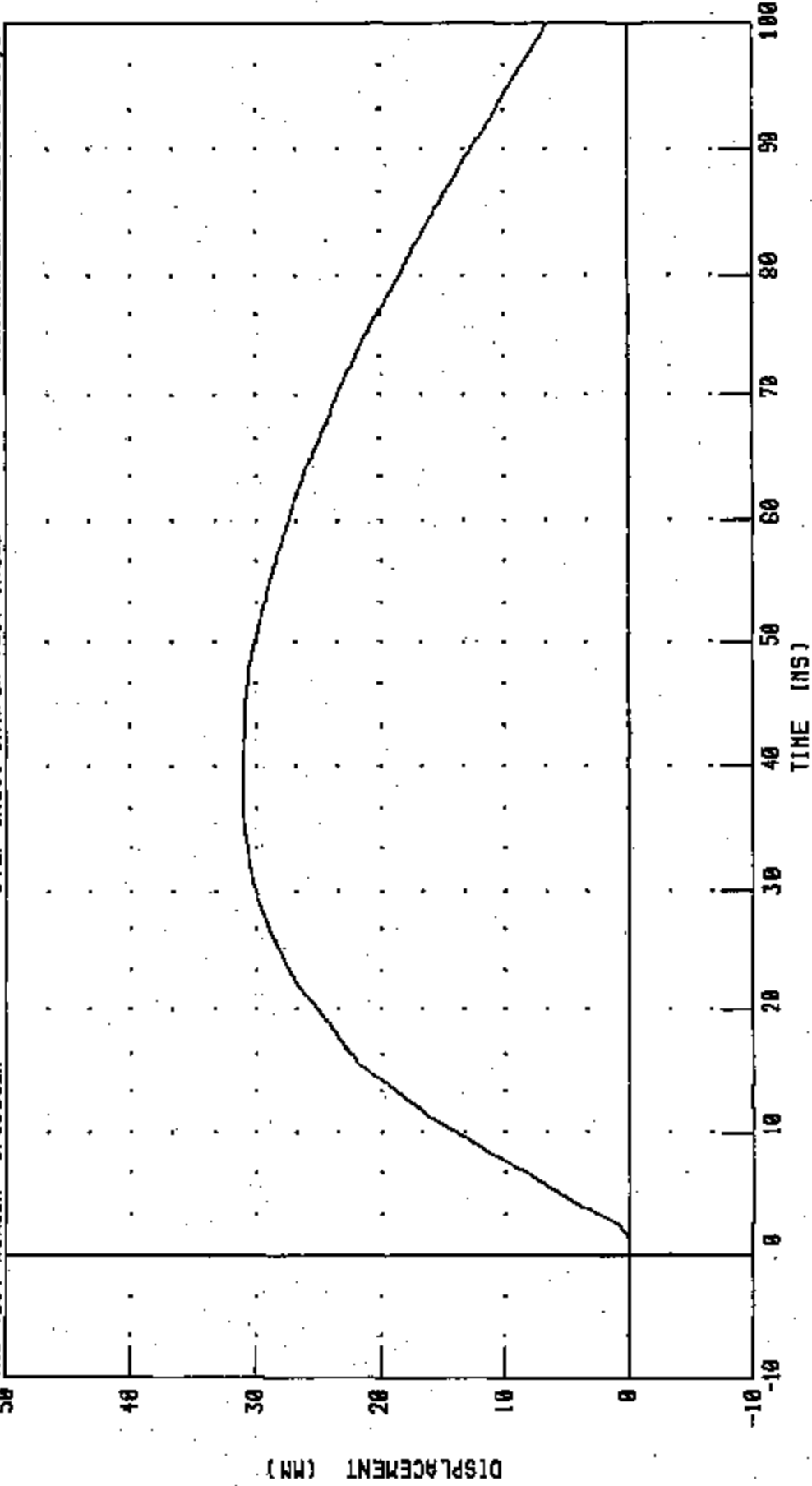
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

50 IRC TEST NUMBER: DP06502A

572F SN065 DAMPER TEST CAL02

RUN NUMBER: 020303.D006;1



CHANNEL: CSTYD FILTER: CH. CLASS 1000 PEAK DATA: 31.08 MM @ 37.76 MS; 0.00 MM @ -8.00 MS

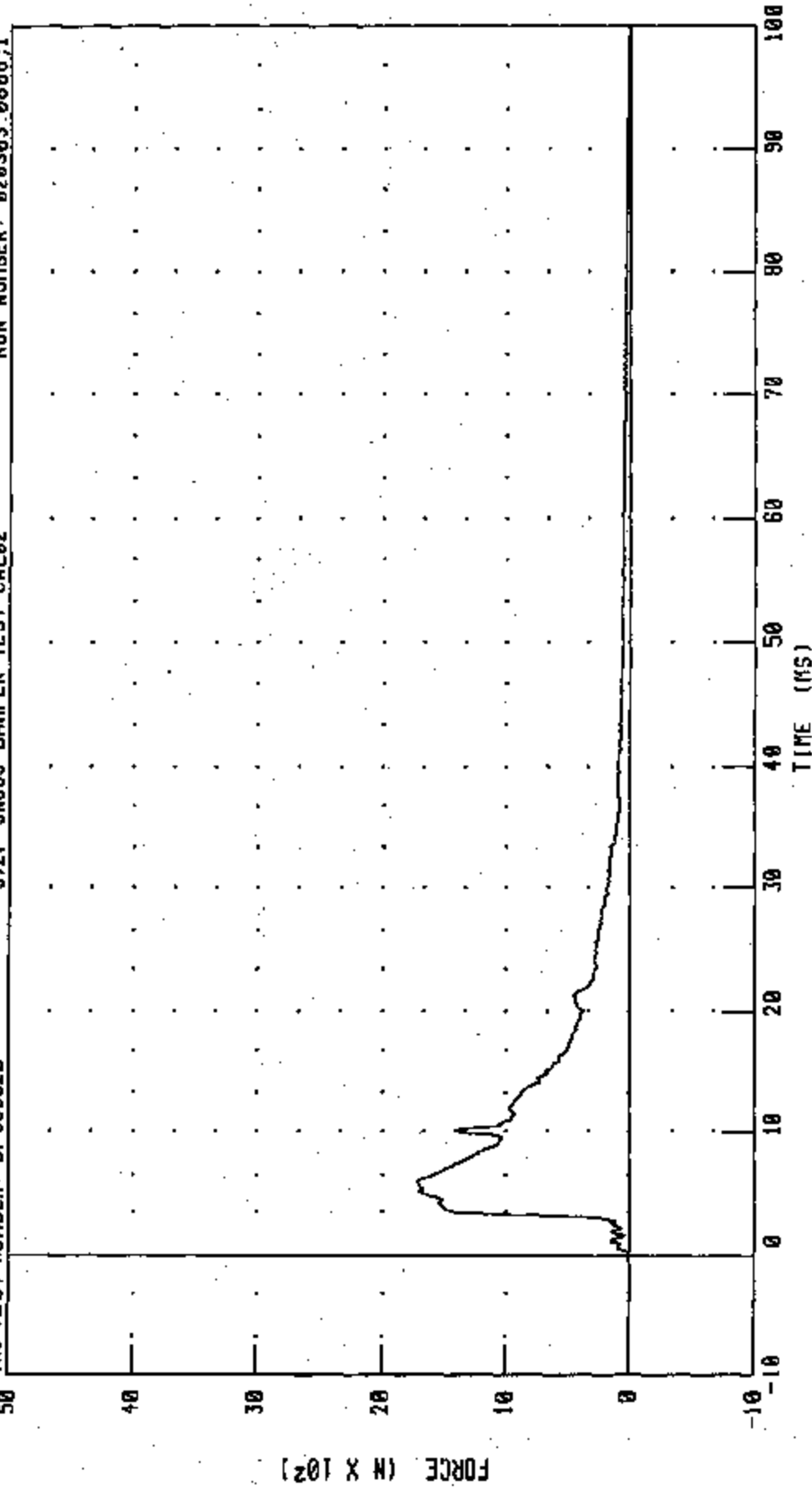
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06502B

572F SN065 DAMPER TEST CAL02

RUN NUMBER: 020303 0806.1



PEAK DATA: 1714.69 N @ 6.16 MS; -1.52 N @ -8.24 MS

CHANNEL: DAMPE FILTER: CH. CLASS 1000

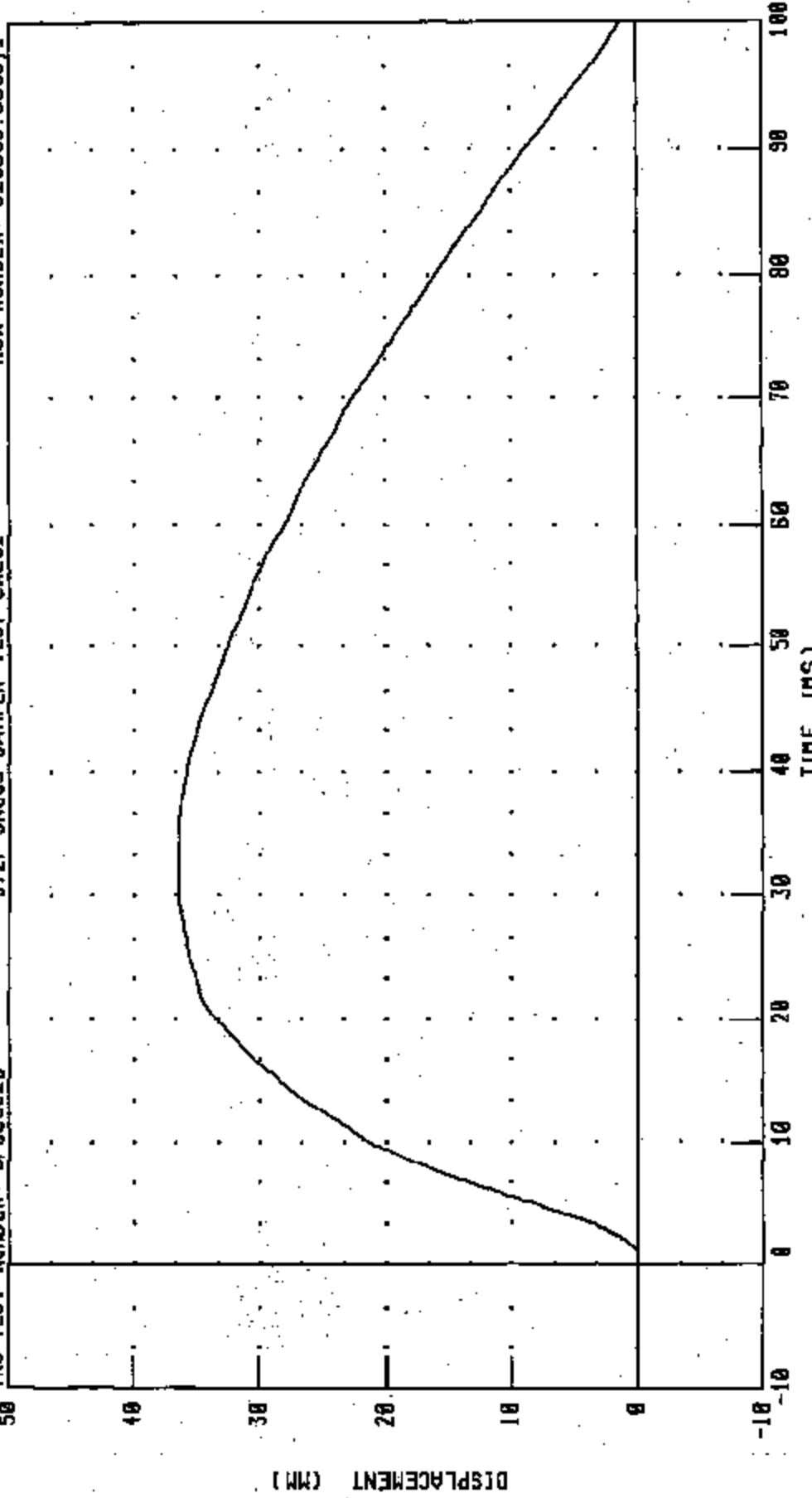
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN065 DAMPER TEST CAL02

TRC TEST NUMBER: DP06502B

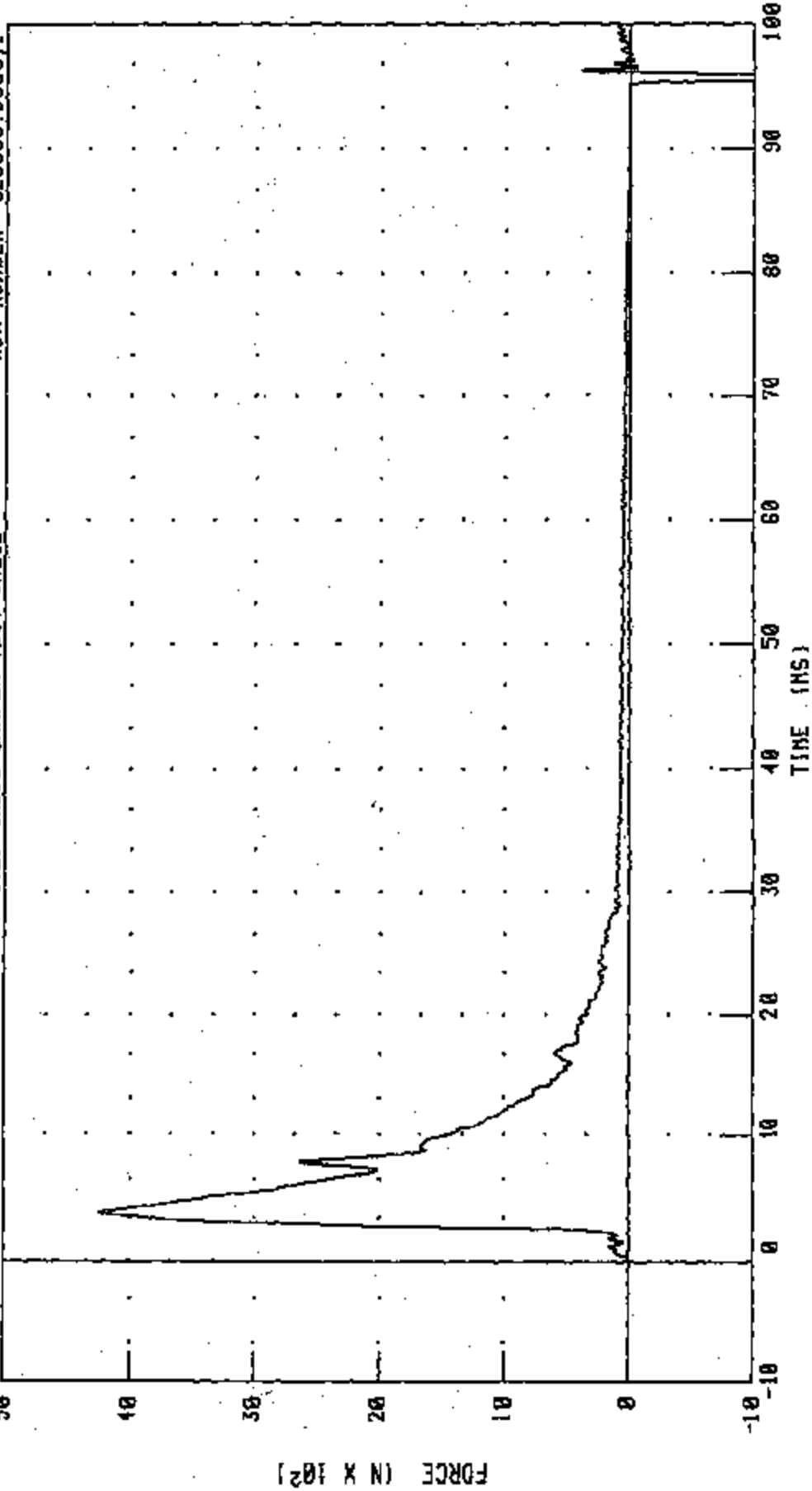
RUN NUMBER: 020303.0806;1



CHANNEL: CSTYD FILTER: CH. CLASS 1000 PEAK DATA: 36.48 MM @ 31.44 MS, -0.01 MM @ -2.00 MS

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

TRC TEST NUMBER: DP0502C 572F SM65 DAMPER TEST CAL02 RUN NUMBER: 020303.0006;1

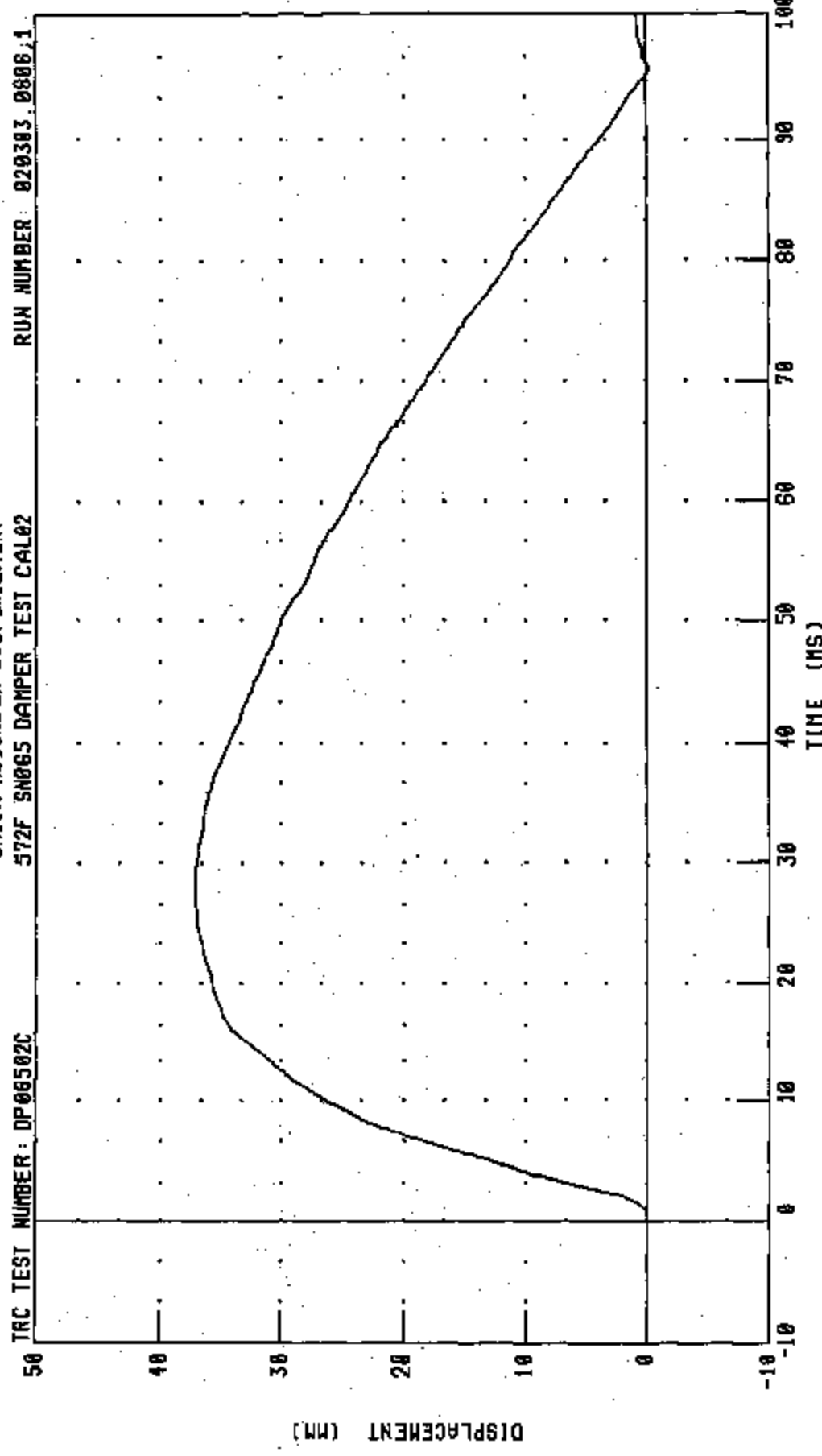


CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 4243.19 N @ 3.76 MS, -1446.15 N @ 95.60 MS

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)  
SHOCK ABSORBER DISPLACEMENT  
572F SN065 DAMPER TEST CAL02

TRC TEST NUMBER: DP06502C RUN NUMBER: 020303 0806.1



CHANNEL: CSTYD FILTER: CH CLASS 1000  
PEAK DATA: 37.18 MM @ 28.80 MS; -0.26 MM @ 95.68 MS

**TRANSPORTATION RESEARCH CENTER INC.**

**LUMBAR FLEXION TEST**

**SID PART 572B**

**CAL DATE: 21-Jan-03**

**TRC, INC.**

**TEST NO: 065C02LF1**

**572B SN 065 TORSO FLEX CAL 02**

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	17 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	149 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	201 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	255 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	5 DEG.

**TEST MEETS SPECIFICATIONS**

**TECHNICIAN** 

# Transportation Research Center Inc.

572B Abdomen Compression Test

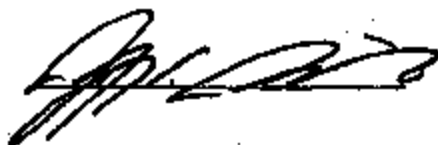
SID Serial No. 065 Calibration No. 02 - 1

Test Date 01/22/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.9 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



01.22.2003 10:35:22 652

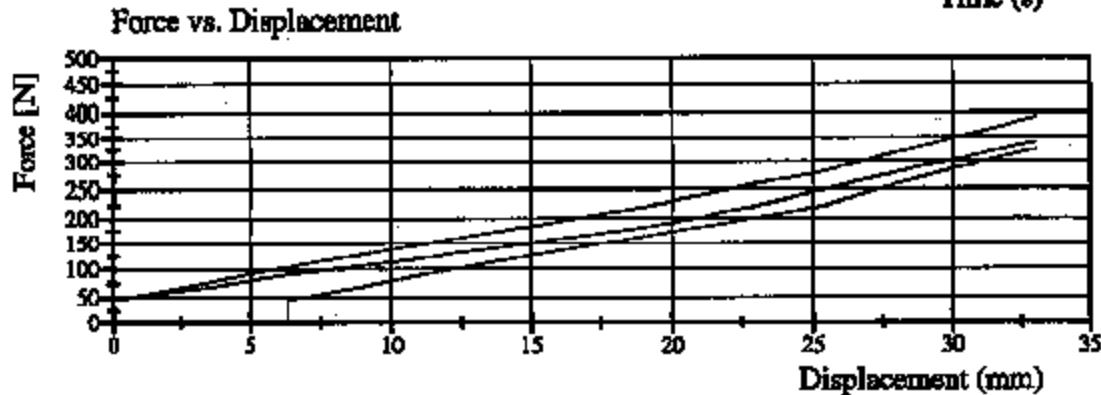
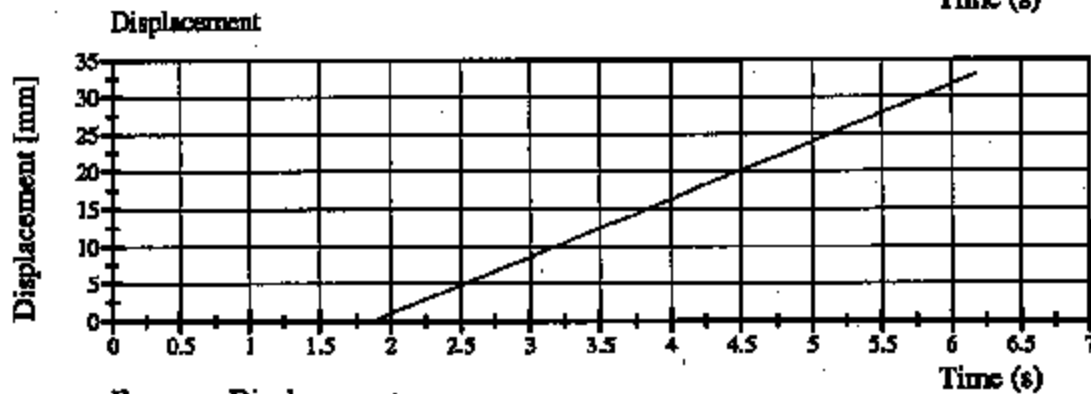
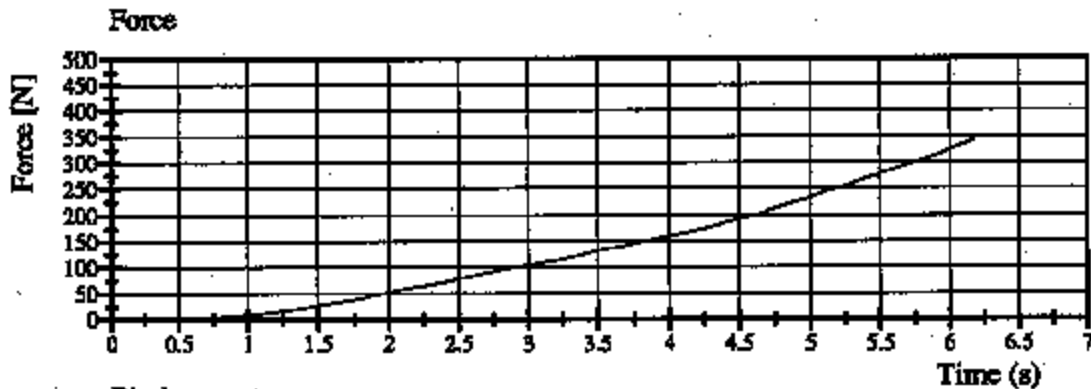
**TRC**

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 02 - 1

Test Date 01/22/2003



01.22.2003 10:35:23 652



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL06502

572F SN065 LEFT PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	28.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	54.1 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 020403.1542;1

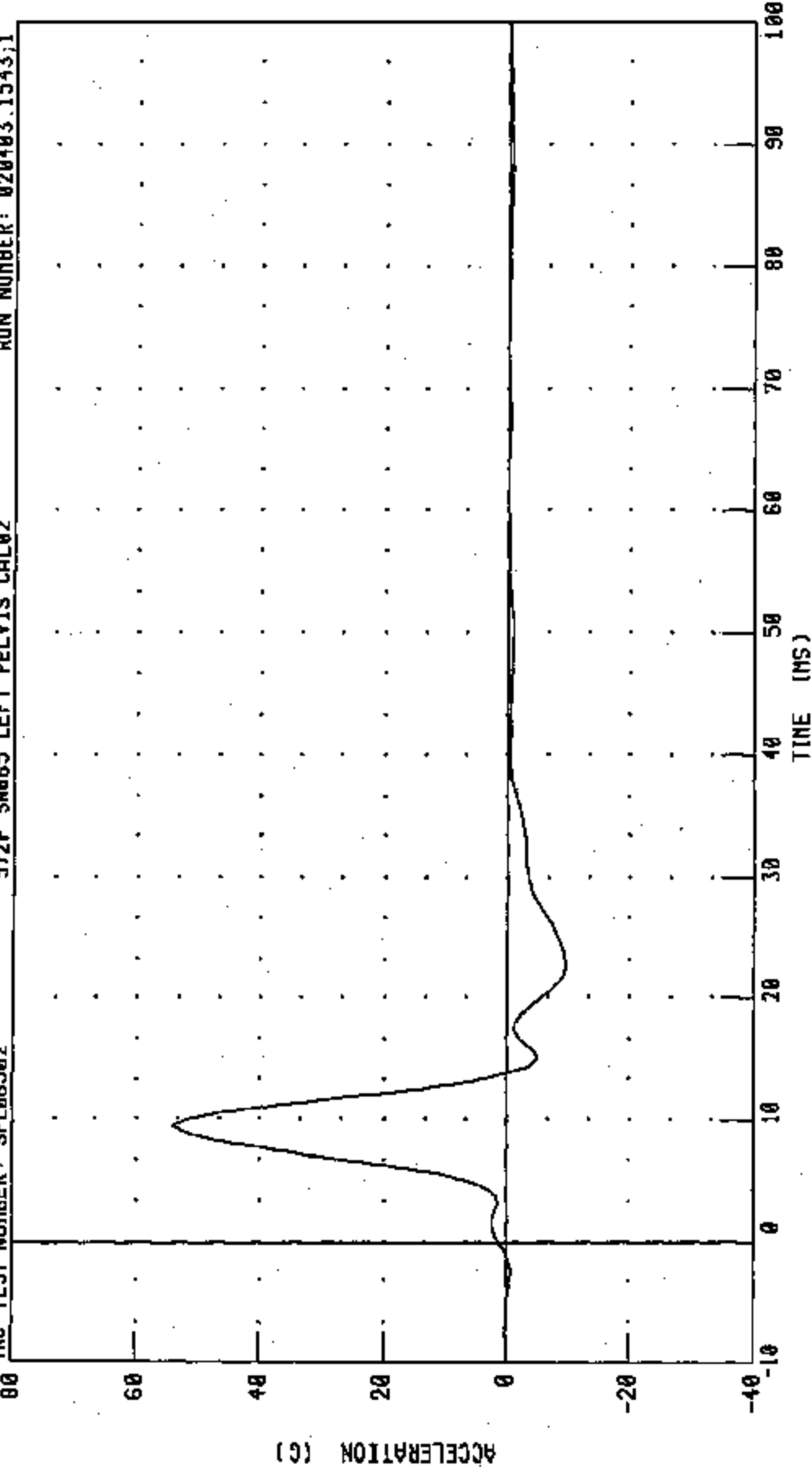
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN065 LEFT PELVIS CAL02

TRC TEST NUMBER: SPL06502

RUN NUMBER: 020403.1543.1



PEAK DATA: 54.13 G @ 9.37 MS, -9.59 G @ 23.13 MS

CHANNEL: PEVYC FILTER: FIR 100

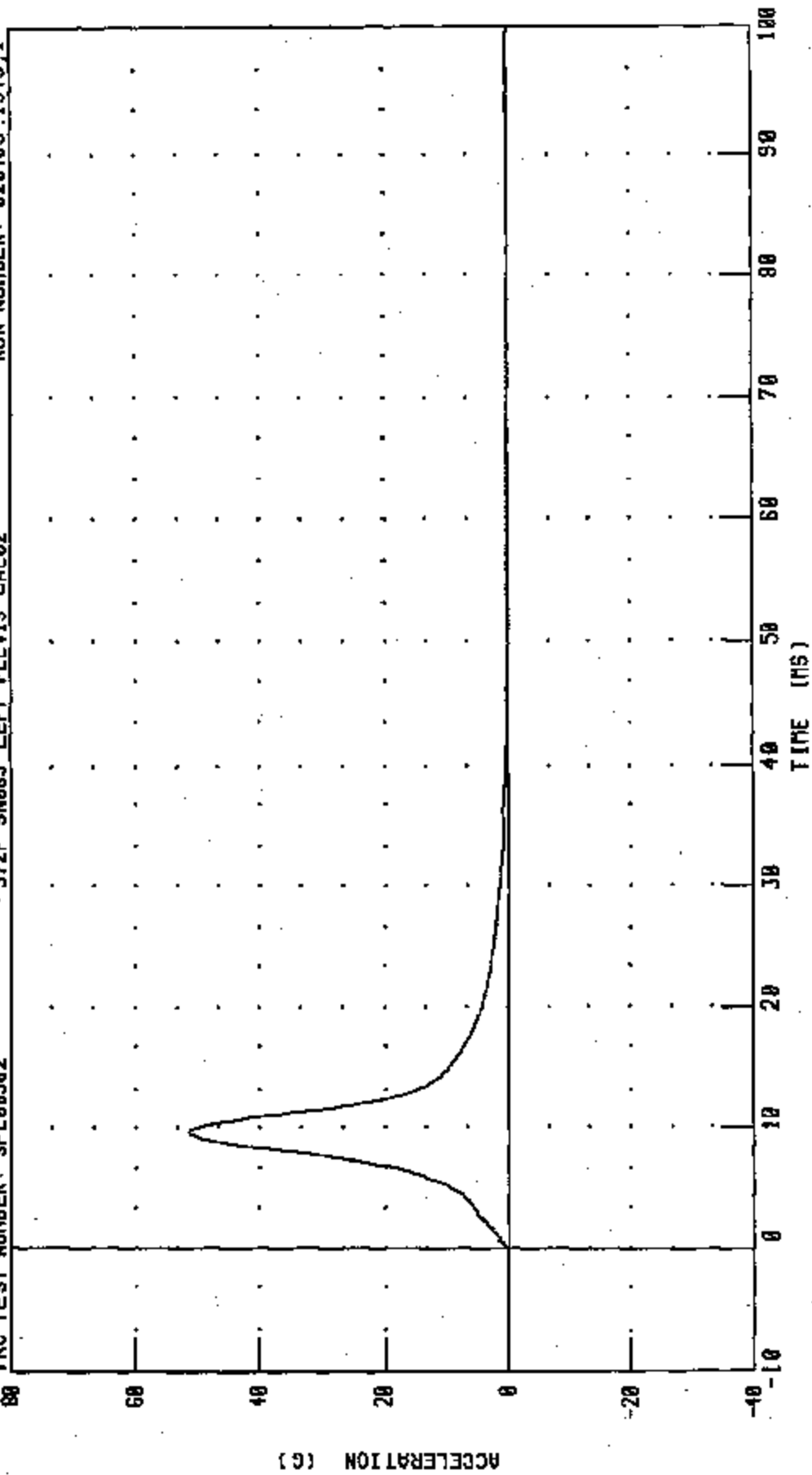
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06502

572F SN065 LEFT PELVIS CAL02

RUN NUMBER: 020403.1543.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 51.50 G @ 9.68 MS; -0.19 G @ 51.52 MS

**Calibration Test Results**

**Pre-Test**

**SID: 066**

**Configured for Left Side Impact**

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

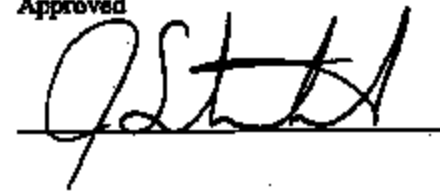
**Transportation Research Center Inc.**  
**572F SID Dummy**  
**External Dimensions**  
**Serial No. 066 Calibration No. 02**

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	893 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	520 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.8 - 391.2 mm	387 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	511 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	235 mm	Yes
Top Rib Width From C/L	RW-1	185.1 - 180.3 mm	175 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	174 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		≤ 2.5 mm	1.0 mm	Yes

Technician



Approved




TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

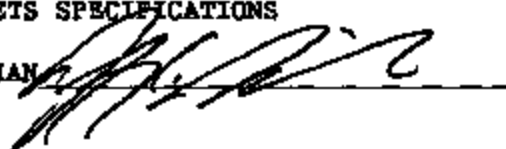
TRC INC.

TEST NO: STL06602

572F SID SN066 L.THORAX CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	37.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	40.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	20.3 G

TEST RESULTS SPECIFICATIONS

TECHNICIAN 

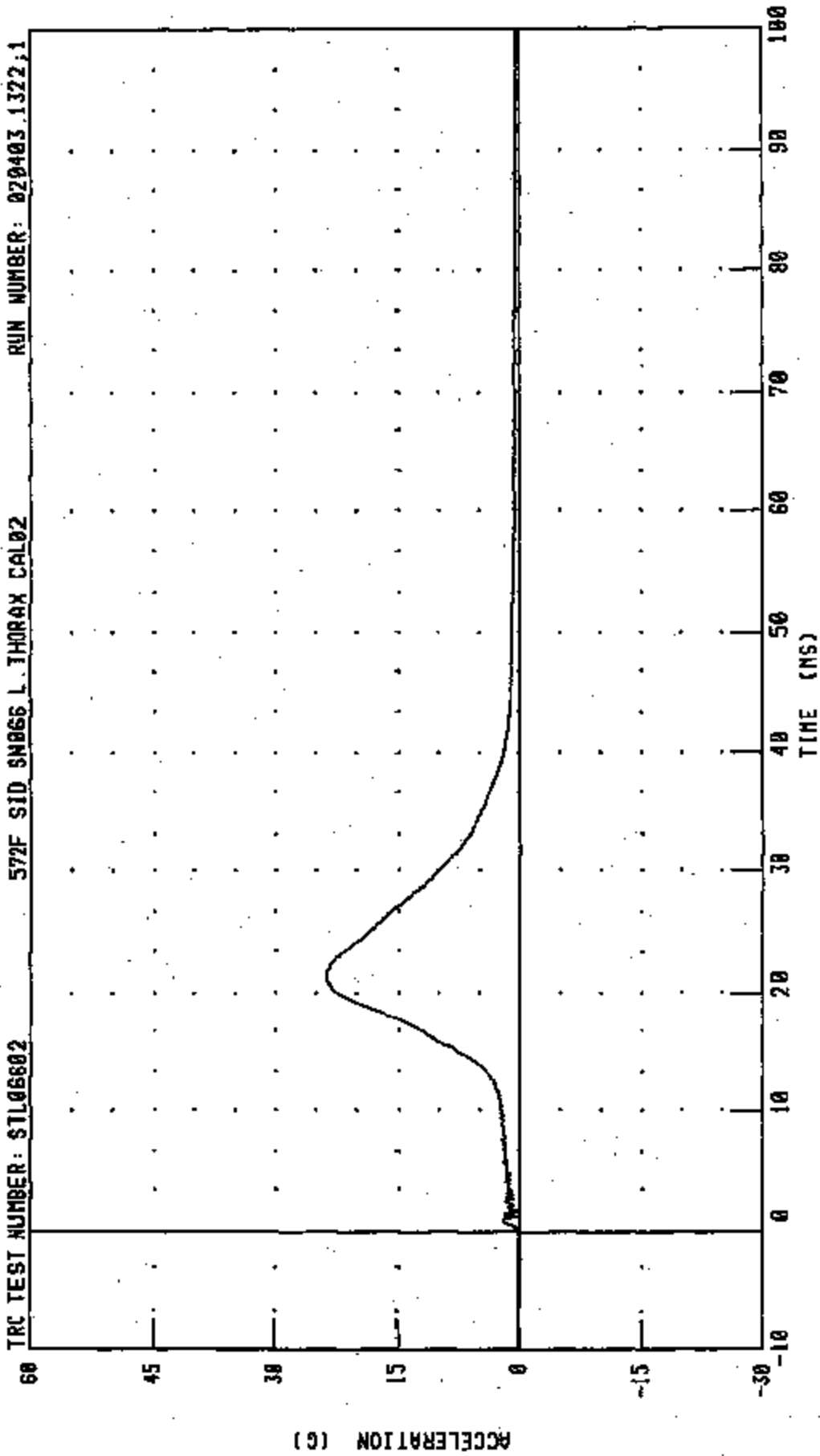
RUN NUMBER: 020403.1322;1

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

PENDULUM ACCELERATION

TRC TEST NUMBER: 572F SID SMO66 L THORAX CAL02

RUN NUMBER: 020403.1322.1



PEAK DATA: 23.67 G @ 21.20 NS; 0.02 G @ -8.96 NS

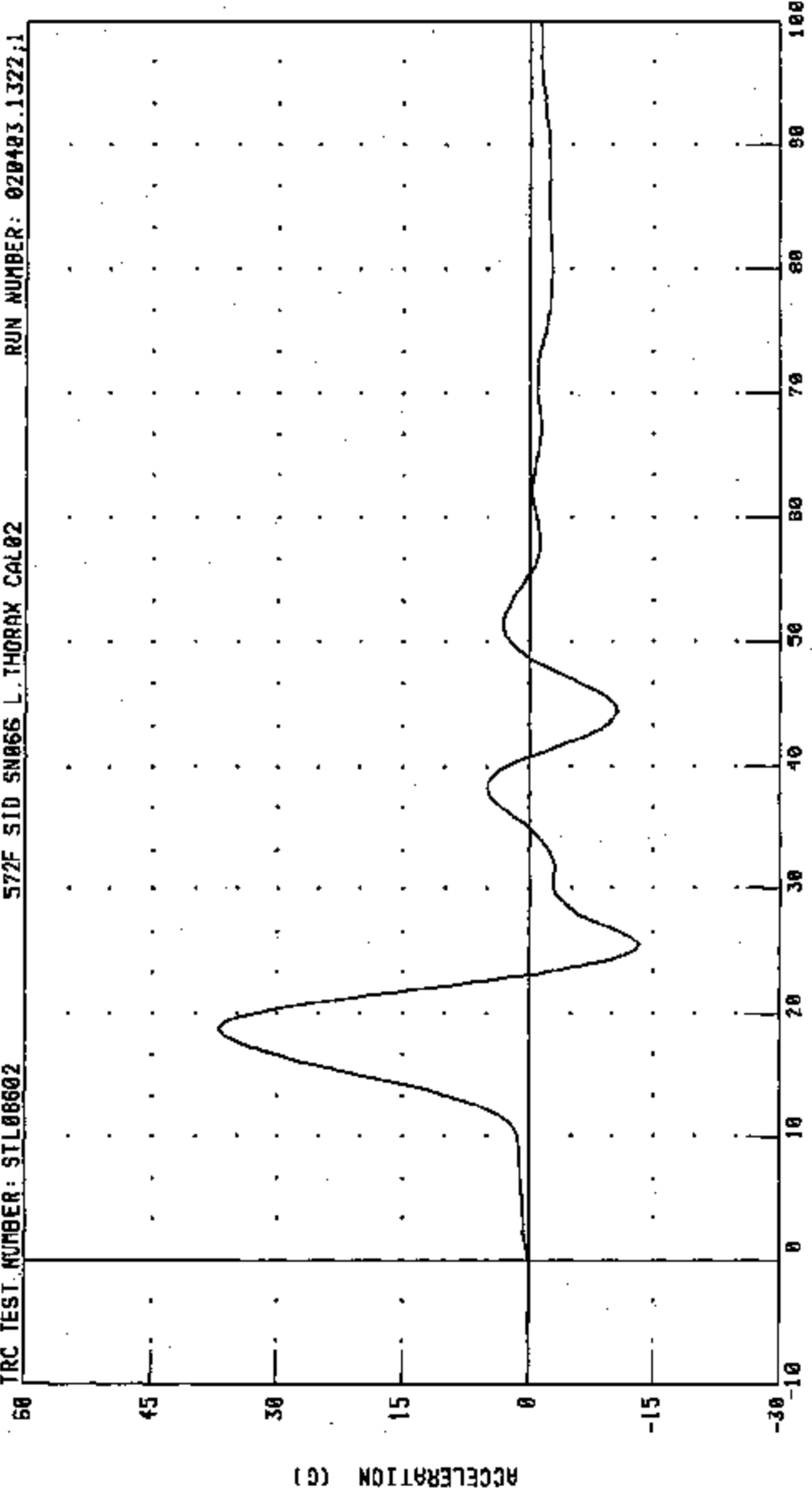
CHANNEL: PENXC FILTER: CH. CLASS 1000

ACCELERATION (G)

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

TRC TEST NUMBER: STL06602 RUN NUMBER: 020483.1322;1

572F SID SN066 L.THORAX CAL02

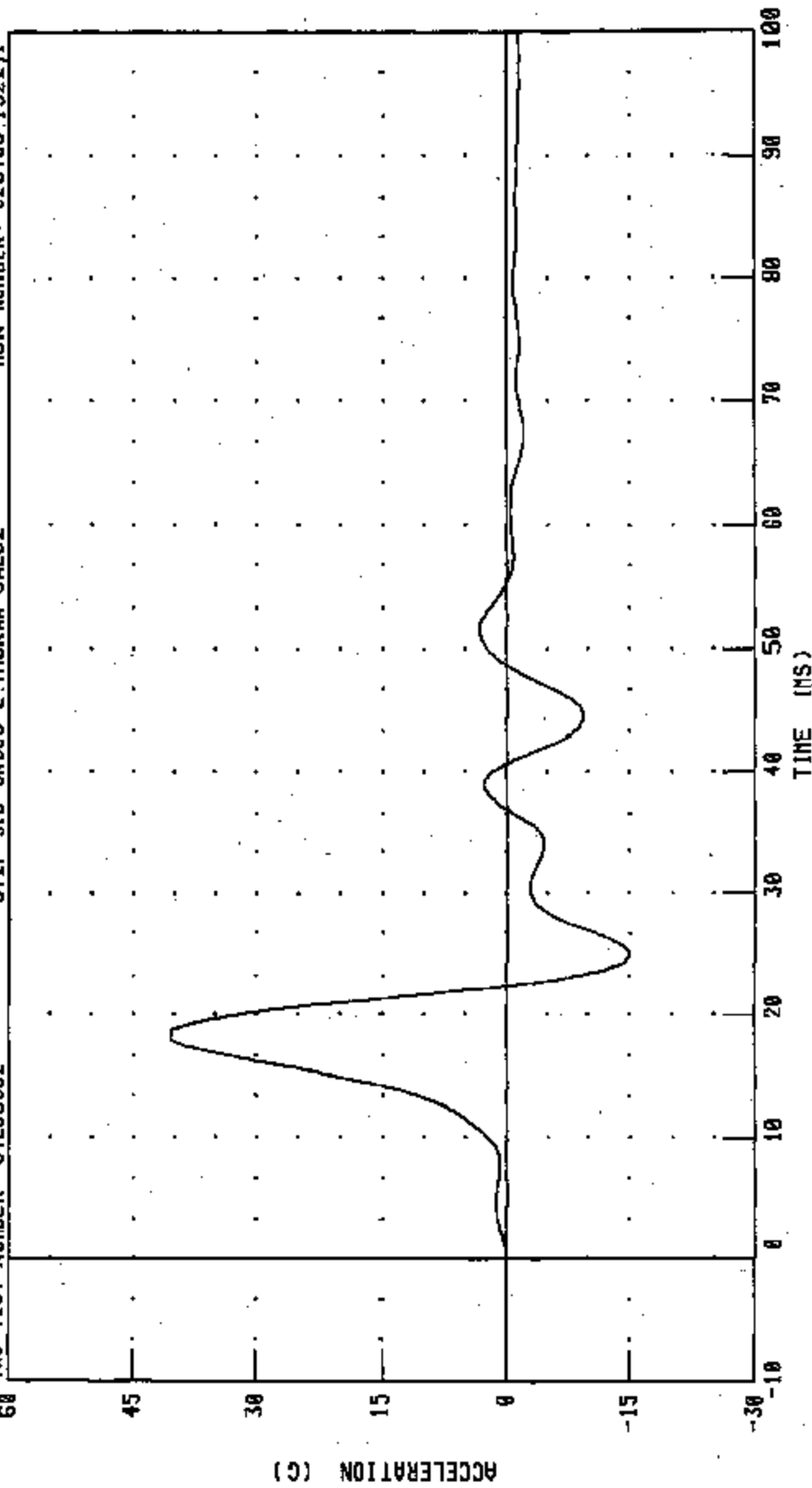


CHANNEL: LURYC FILTER: FIR 100 PEAK DATA: 37.25 G @ 18.75 MS, -13.21 G @ 25.63 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)  
LEFT LOWER RIB ACCELERATION Y AXIS  
572F SID SN066 L THORAX CAL02

TRC TEST NUMBER: ST186682

RUN NUMBER: 820403.1322;1



CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 40.51 G @ 18.13 MS; -15.00 G @ 25.00 MS

ACCELERATION (G)

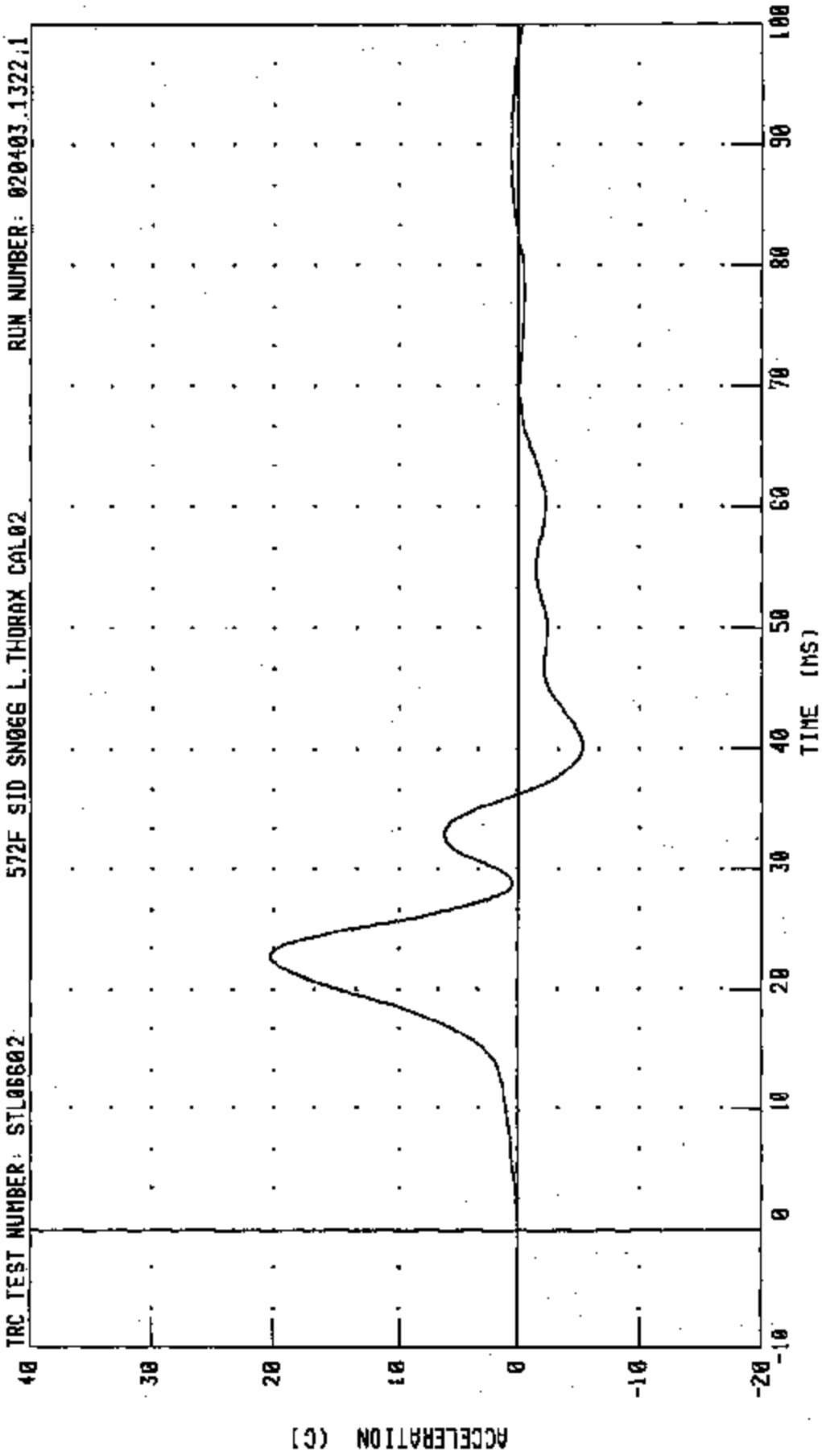
TIME (MS)

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

LOWER SPINE ACCELERATION Y AXIS

572F SID SN066 L.THORAX CAL02 RUN NUMBER: 020403.1322.1

TRC TEST NUMBER: ST106602



CHANNEL: T12YG FILTER: FIR 100 PEAK DATA: 20.30 G @ 22.50 MS; -5.28 G @ 40.63 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

03-FEB-03

TRC INC.

572F SN066 DAMPER TEST CAL02

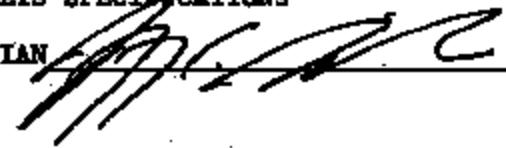
TEST NUMBERS: DP06602A, DP06602B, DP06602C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	667 - 925 N	797 N
2.70 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.9 MM
VELOCITY	FORCE	1733 - 2100 N	1877 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	35.9 MM
VELOCITY	FORCE	3703 - 4402 N	4387 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.8 MM

DAMPER SETTING - 5.0

TEST MEETS SPECIFICATIONS

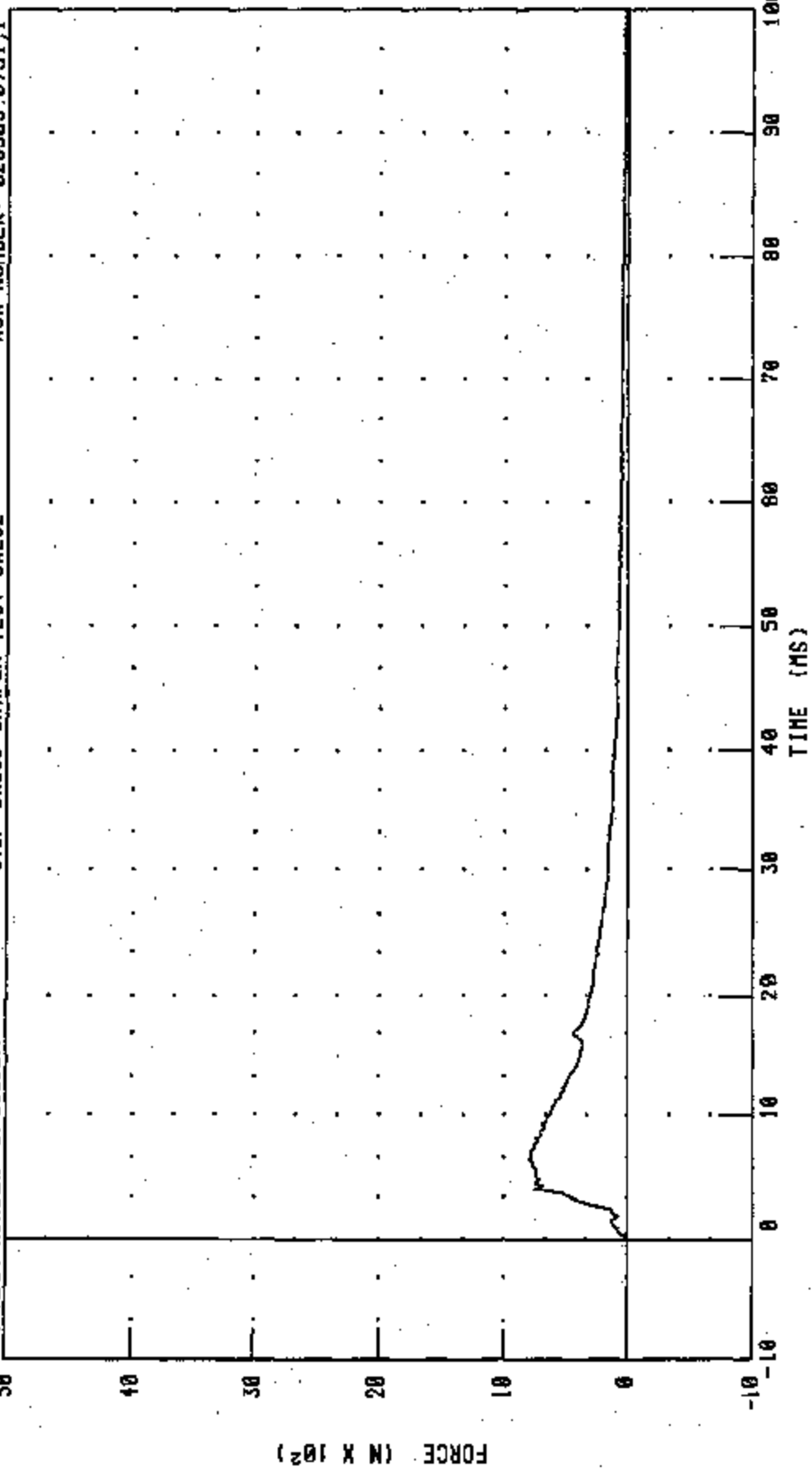
TECHNICIAN



RUN NUMBER: 020303.0731;1

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

TAC TEST NUMBER: DP06602A RUN NUMBER: 020303.0731.1  
572F SN068 DAMPER TEST CAL02



CHANNEL: DAMPF FILTER: CH. CLASS 1000 PEAK DATA: 796.77 N @ 6.48 MS, -2.00 N @ -10.00 MS

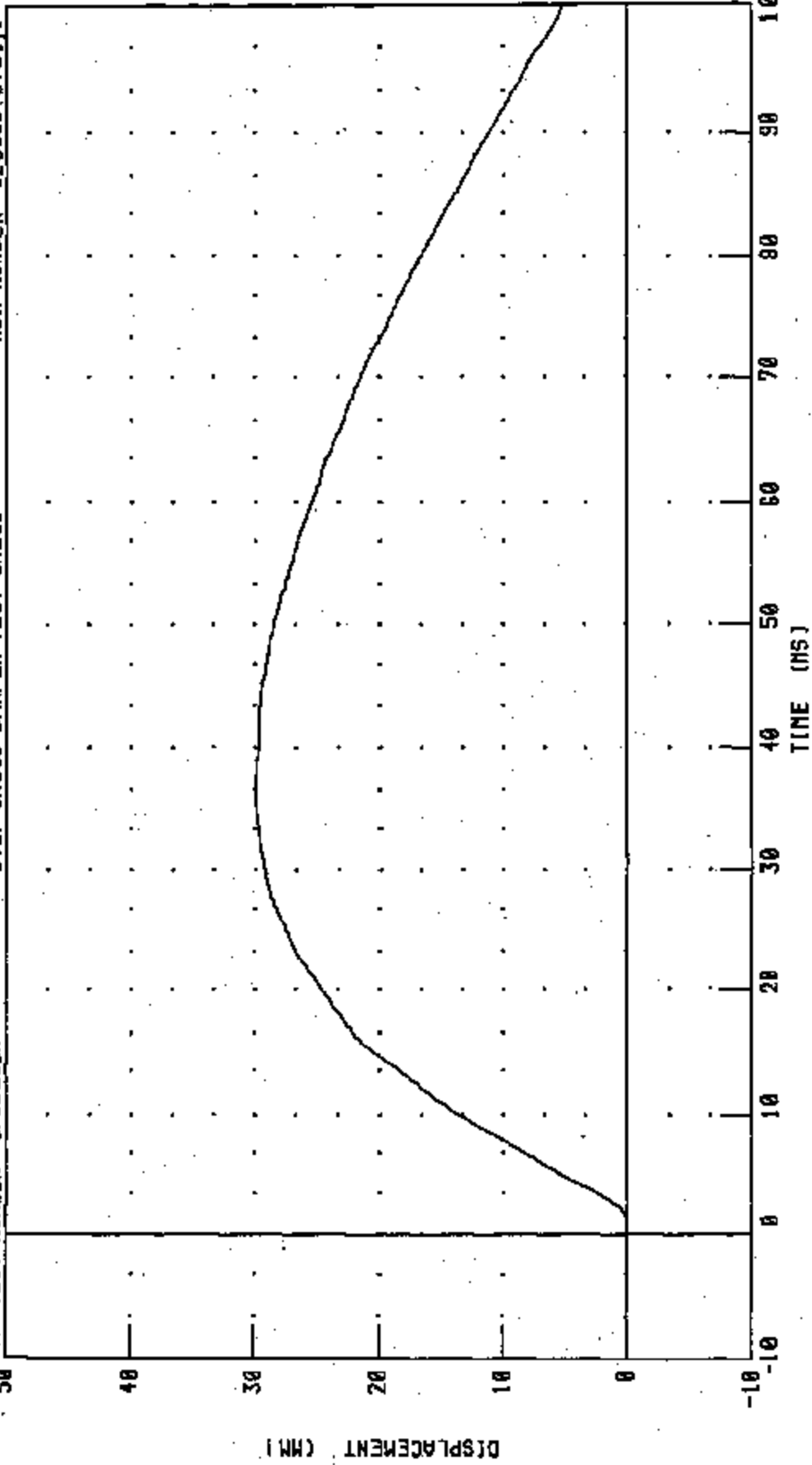
PART 572-F 5.1.0. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP06602A

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303.0731.1



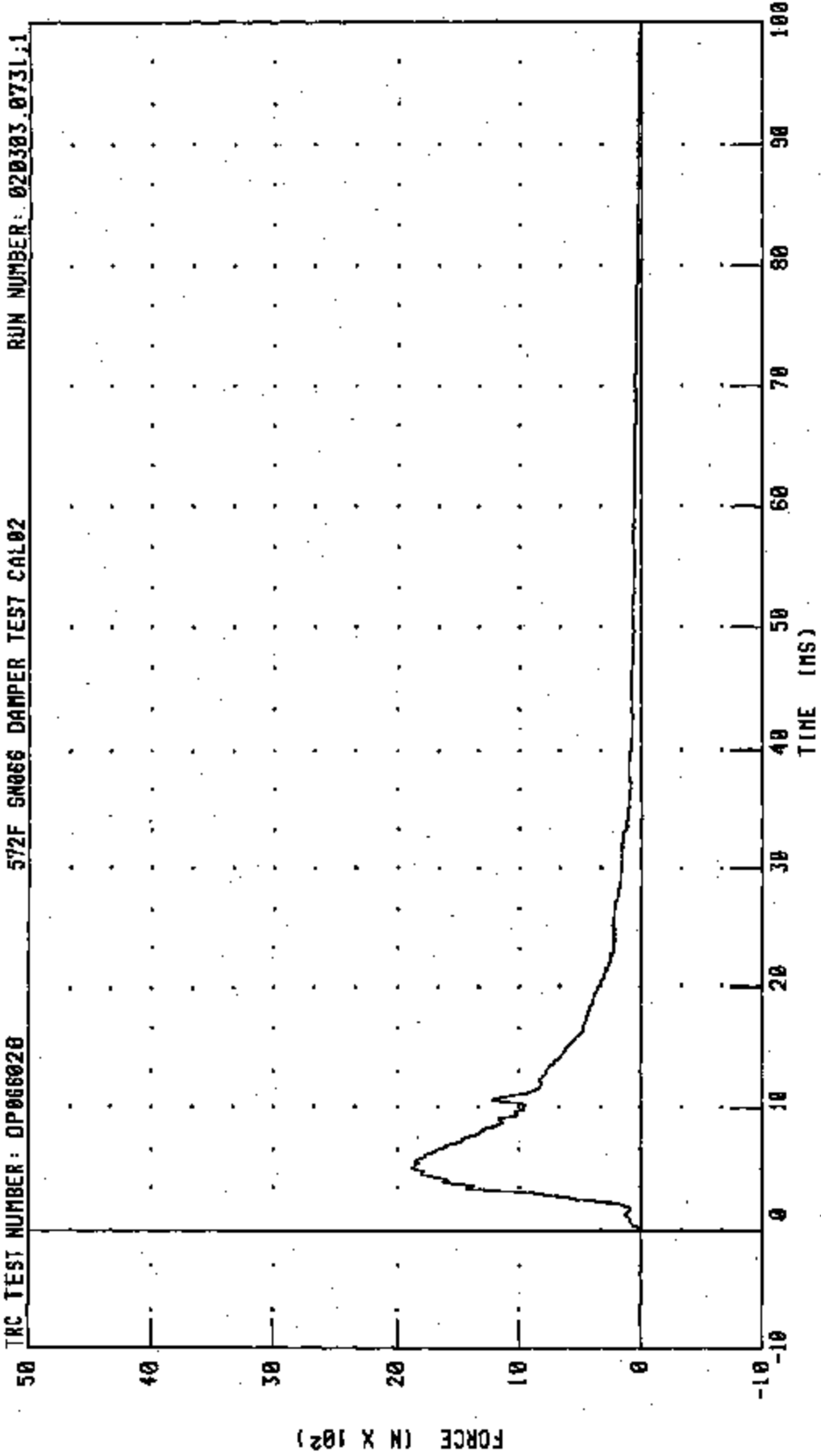
CHANNEL: CSTYD FILTER: CH. CLASS 1000 PEAK DATA: 29.94 MM @ 36.24 MS, 0.00 MM @ -4.40 MS

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

TRC TEST NUMBER: DP066020

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303.0731.1



CHANNEL: DAMPF FILTER: CH. CLASS 1000 PEAK DATA: 1876.76 N @ 5.12 MS, -2.32 N @ -8.96 MS

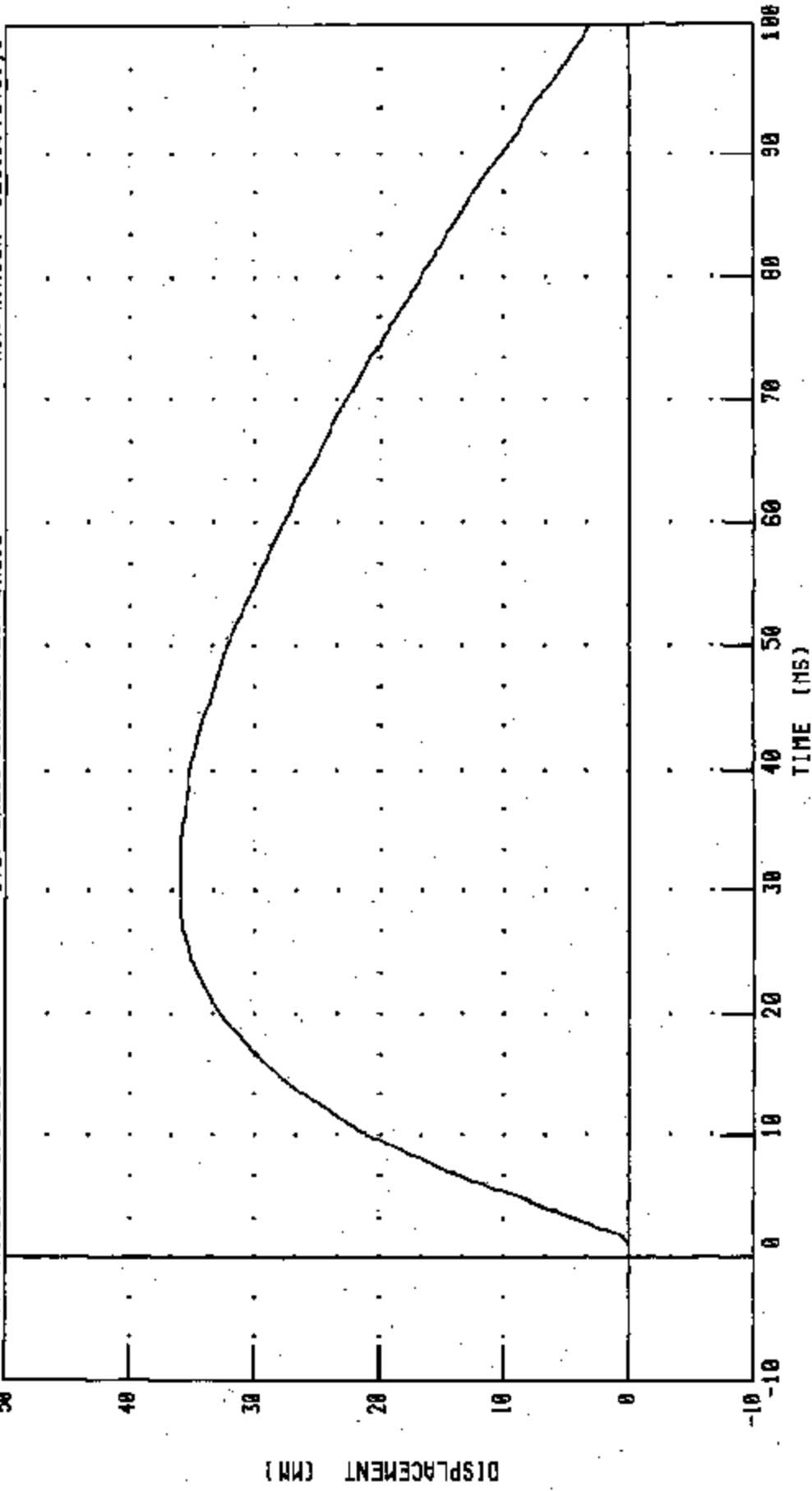
PART 572-F S.I.O. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP06602B

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303.0731,1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 35.84 MM @ 31.12 MS; 0.00 MM @ -7.68 MS

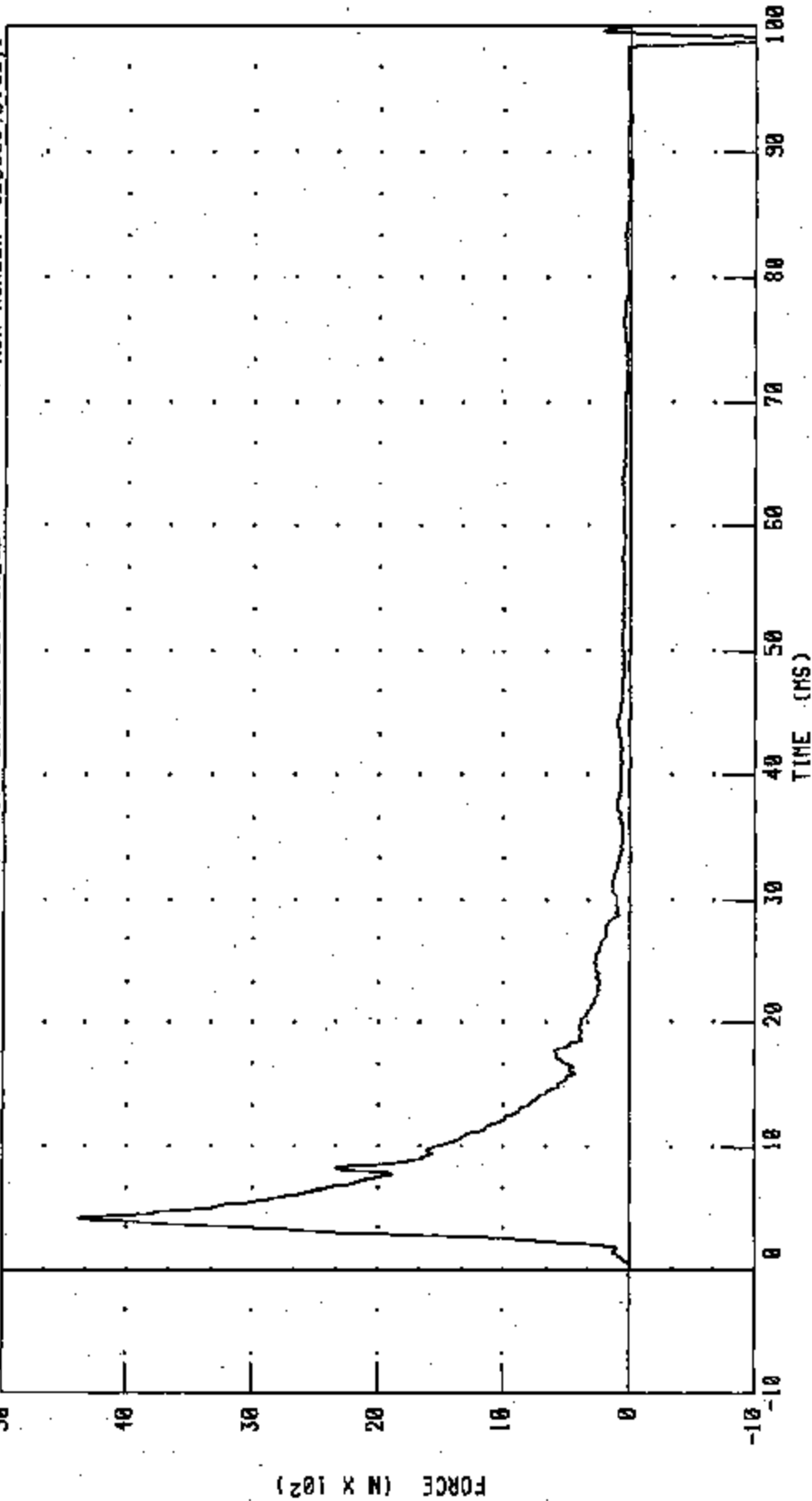
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F 5N066 DAMPER TEST CAL02

TRC TEST NUMBER: DP08602C

RUN NUMBER: 020303.0732.1



TIME (MS)

PEAK DATA: 4387.36 N @ 4.16 MS; -1635.86 N @ 98.88 MS

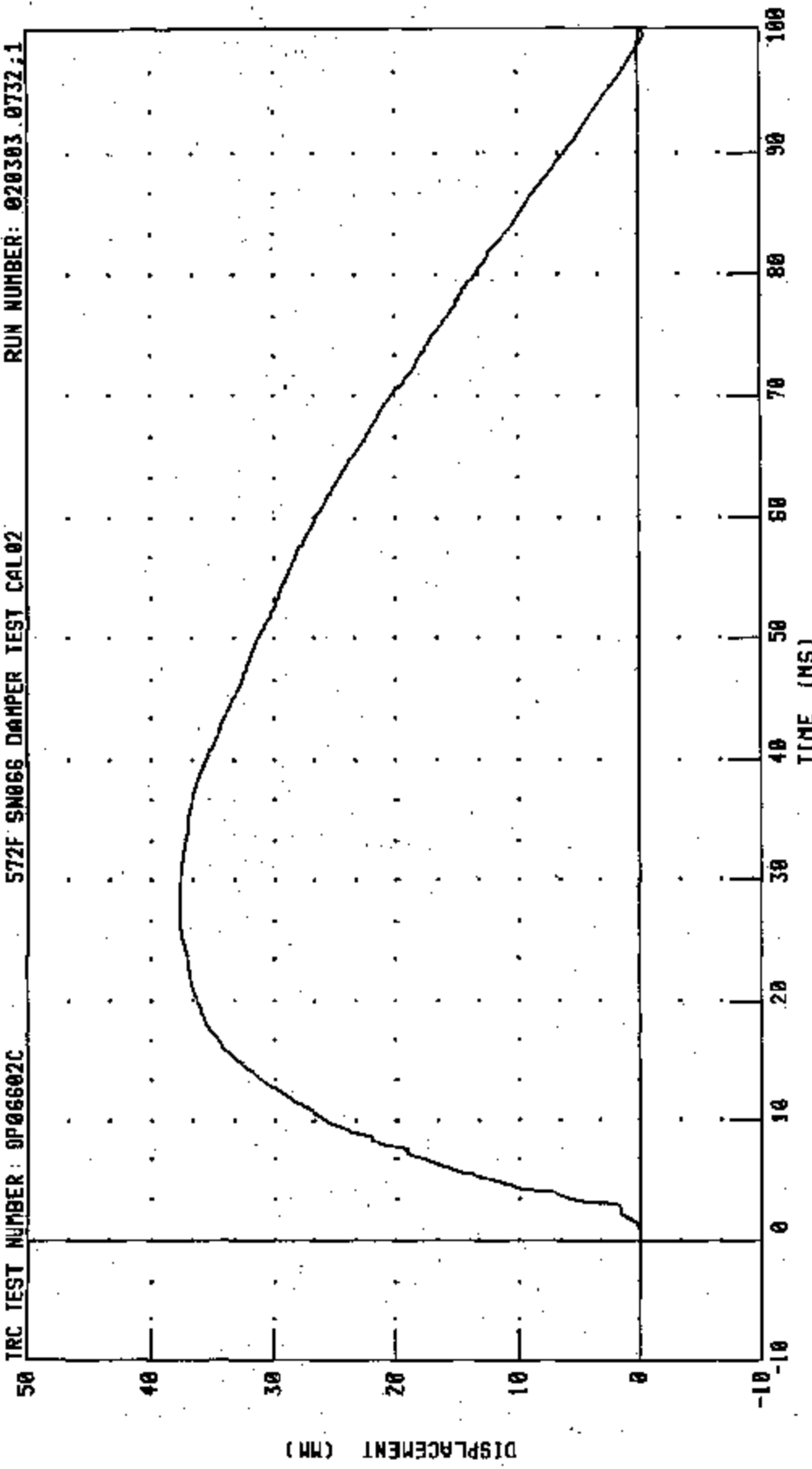
CHANNEL: DAMPF FILTER: CH. CLASS 1000

FORCE (N X 10<sup>2</sup>)

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

TRC TEST NUMBER: 9P06602C RUN NUMBER: 020303.0732.1

572F SN066 DAMPER TEST CAL02



CHANNEL: CSTYO FILTER: CH. CLASS 1000 PEAK DATA: 37.76 MM @ 27.76 MS, -0.52 MM @ 99.36 MS

**TRANSPORTATION RESEARCH CENTER INC.**

**LUMBAR FLEXION TEST**

**SID PART 572B**

**CAL DATE: 03-Feb-03**

**TRC, INC.**

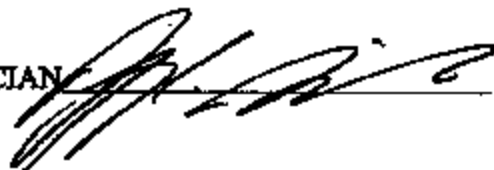
**TEST NO: LF06602**

**572B SN 066 TORSO FLEX CAL 02**

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	46 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	137.1 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	189.1 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	241.1 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	6 Deg

**TEST MEETS SPECIFICATIONS**

**TECHNICIAN**



# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 02 - 1

Test Date 01/30/2003

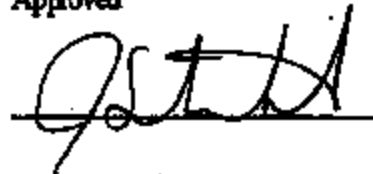
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.1 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



01.30.2003 15:18:25 9

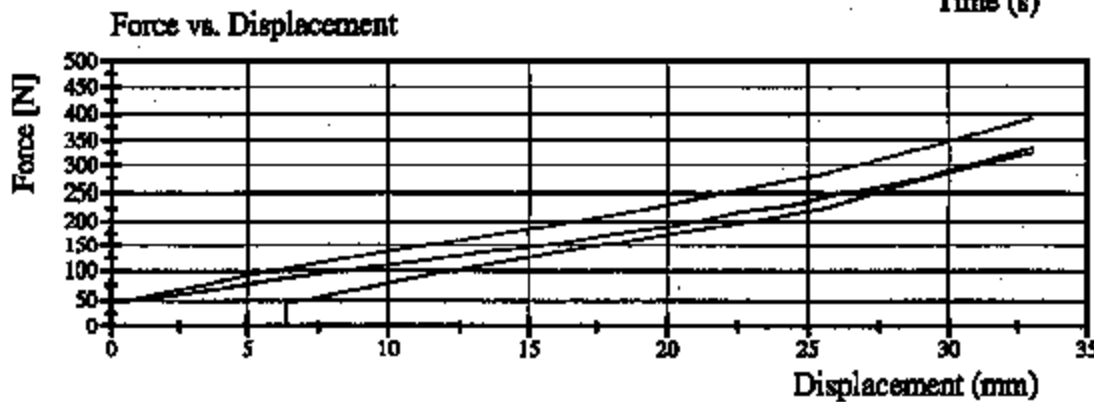
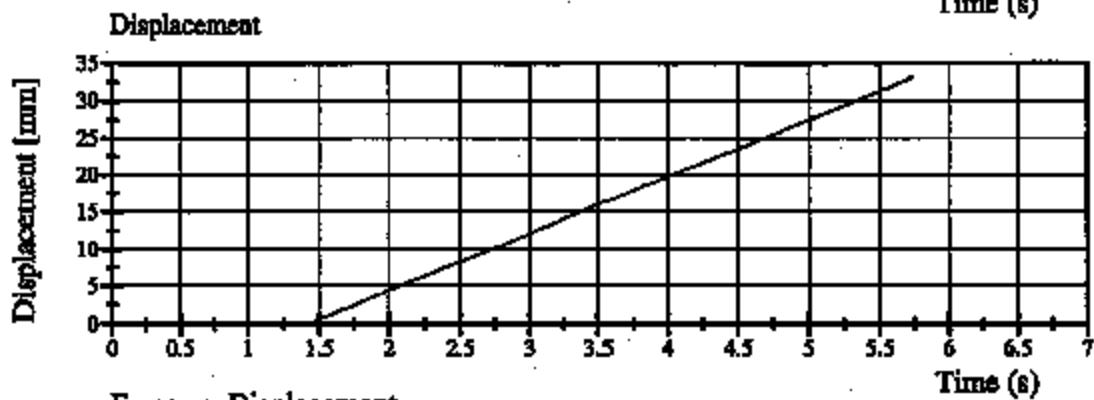
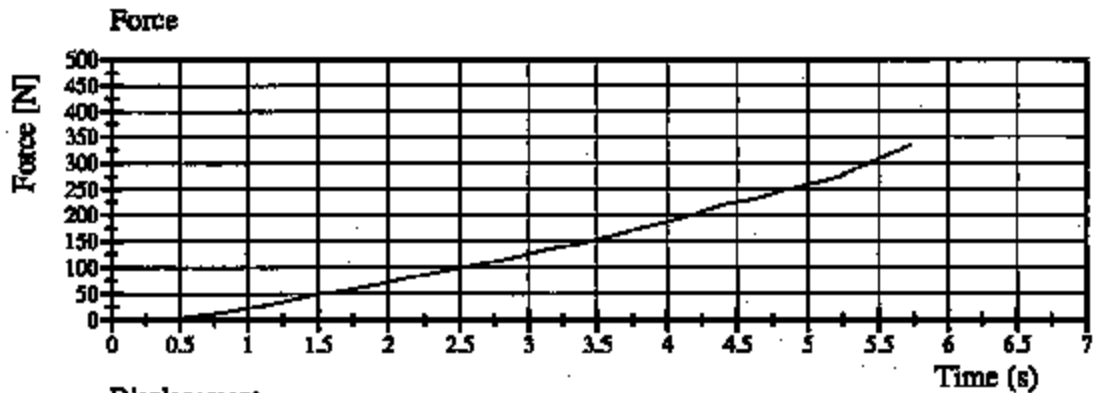
**TRE**

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 02 - 1

Test Date 01/30/2003



01.30.2003 15:18:25 9



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

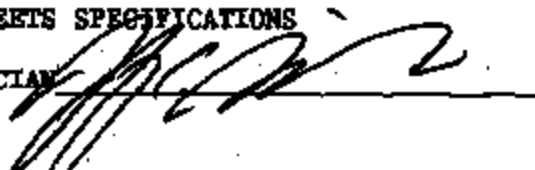
TEST NO: SPL06602

572F SN066 LEFT PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	46.8 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.1 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

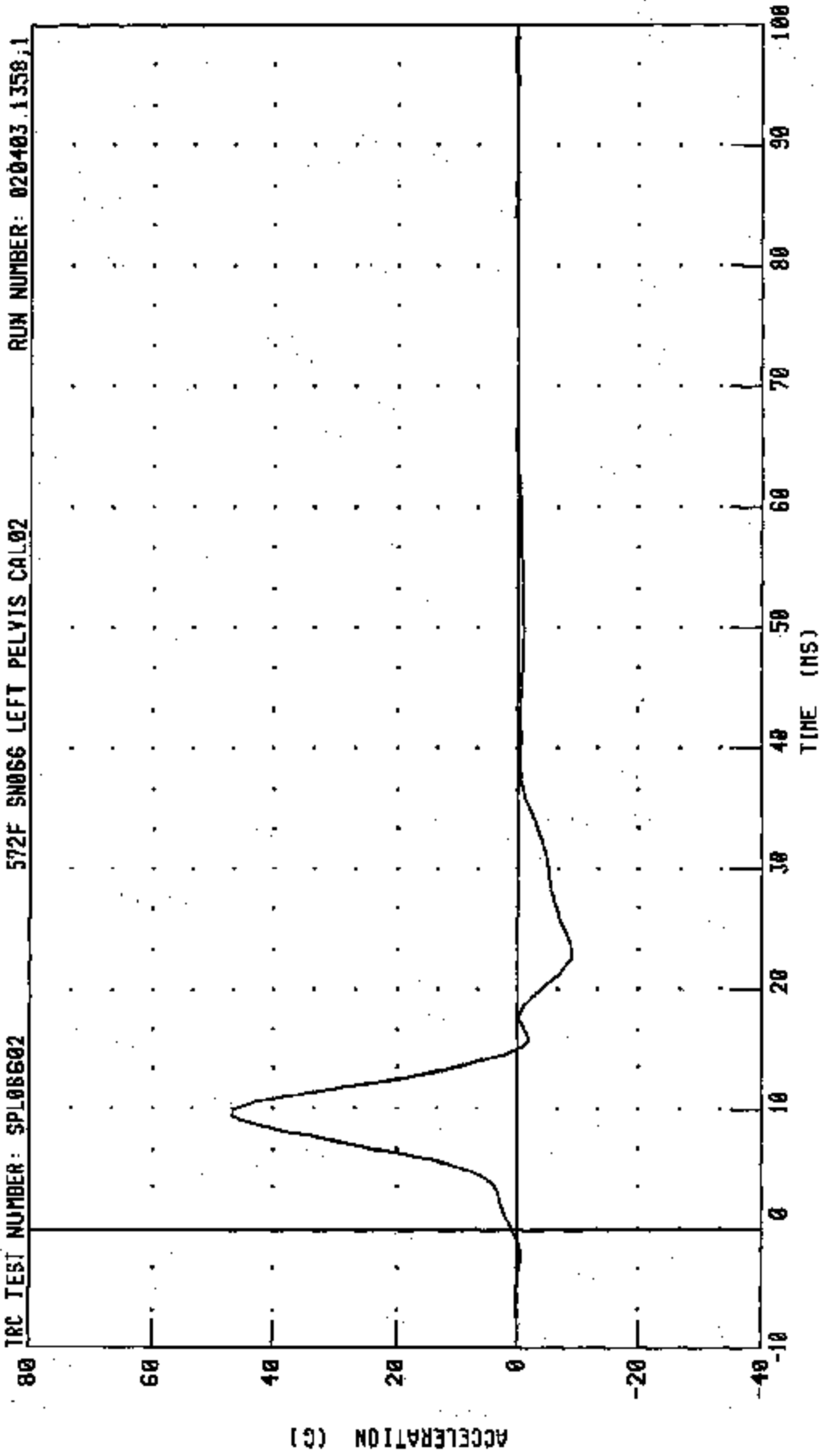


RUN NUMBER: 020403.1358;1

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

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL06602      572F SN066 LEFT PELVIS CAL02      RUN NUMBER: 020403.1350.1

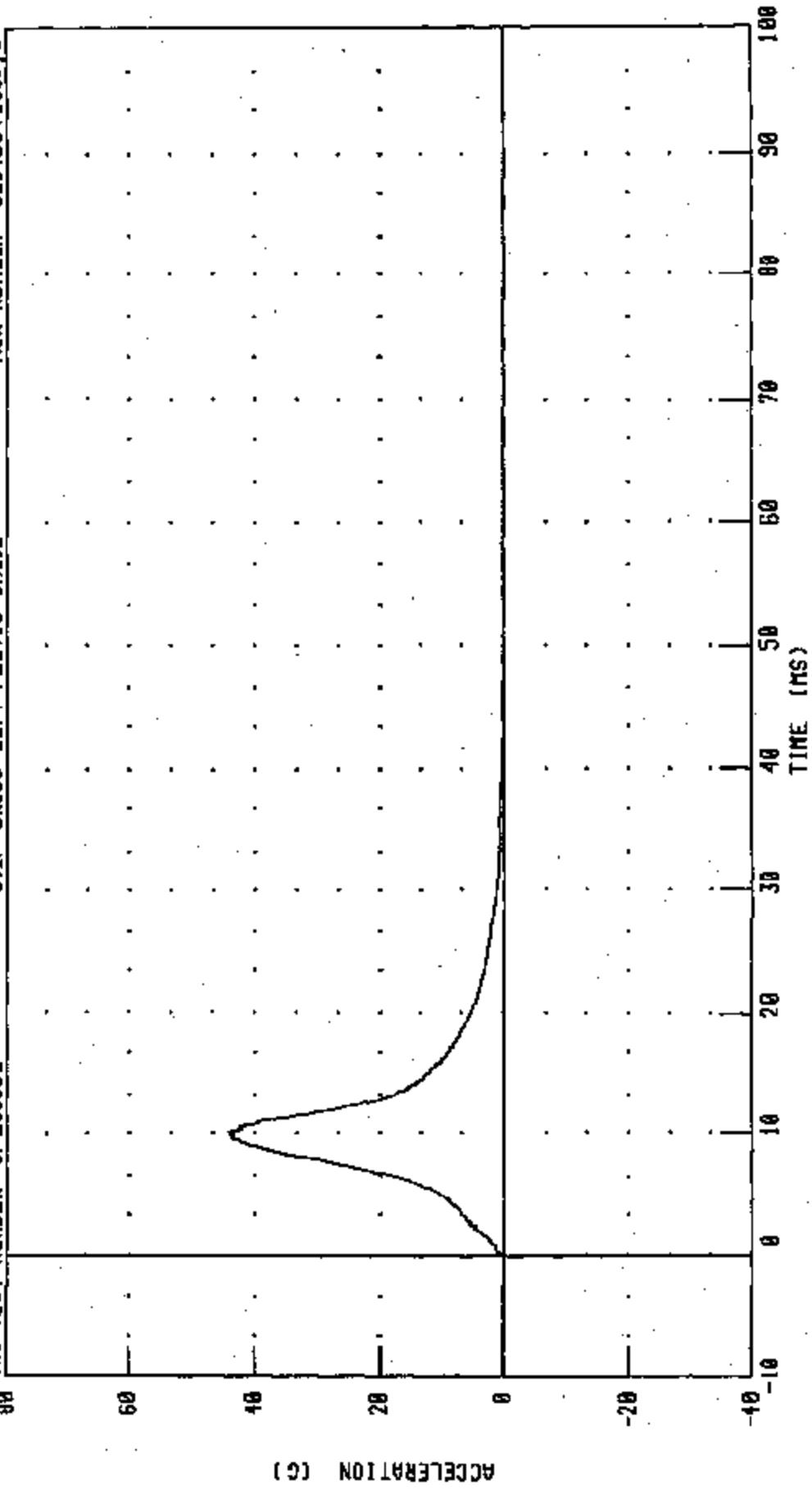


CHANNEL: PEVYC      FILTER: FIR 100      PEAK DATA: 46.84 G @ 9.37 MS; -9.03 G @ 23.13 MS

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

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06602      572F SN066 LEFT PELVIS CAL02      RUN NUMBER: 020403.1358;1



CHANNEL: PENXC      FILTER: CH. CLASS 1000      PEAK DATA: 44.12 G @ 10.16 MS; -0.22 G @ 61.36 MS

**Calibration Test Results**

**Post-Test**

**SID: 065**

**Configured for Left Side Impact**

<b>External Dimensions:</b>	<b>The dummy passed all external dimension requirements.</b>
<b>Lateral Thorax Impact Test:</b>	<b>The lateral thorax passed all impact test requirements.</b>
<b>Thoracic Shock Absorber:</b>	<b>The thoracic shock absorber was not retested at this time.</b>
<b>Lumbar Flexion Test:</b>	<b>The dummy met the lumbar flexion test requirements.</b>
<b>Abdominal Compression Test:</b>	<b>The abdomen met the compression test requirements.</b>
<b>Pelvis Impact Test:</b>	<b>The lateral pelvis passed all impact test requirements.</b>

Transportation Research Center Inc.

572F SID Dummy

External Dimensions

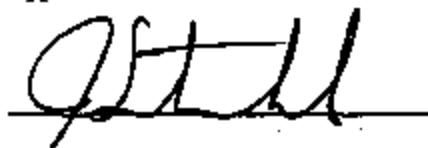
Serial No. 065 Calibration No. 03

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 908.3 mm	893 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	515 mm	Yes
Knee Pivot From Floor	KV	480.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	372 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	510 mm	Yes
Rib From Backline	RD	228.8 - 241.3 mm	237 mm	Yes
Top Rib Width From CL	RW-1	185.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From CL	RW-2	185.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from CL		← 2.5 mm	1.0 mm	No

Technician



Approved



**TRE**

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STLO6503

572F SID SNO65 L.THORAX CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	42.3 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	39.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	19.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 021403.1048;1

**TRANSPORTATION RESEARCH CENTER INC.**

**LUMBAR FLEXION TEST**

**SID PART 572B**

**CAL DATE: 14-Feb-03**

**TRC, INC.**

**TEST NO: 065C03LF1**

**572B SN 065 TORSO FLEX CAL 03**

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	142.3 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	186.8 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	240.2 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	7 Deg

**TEST MEETS SPECIFICATIONS**

**TECHNICIAN**



# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 03 - 1

Test Date 02/14/2003

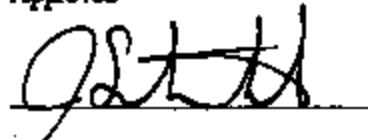
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.0 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

## Comments:

Technician



Approved



02.14.2003 12:51:30 21

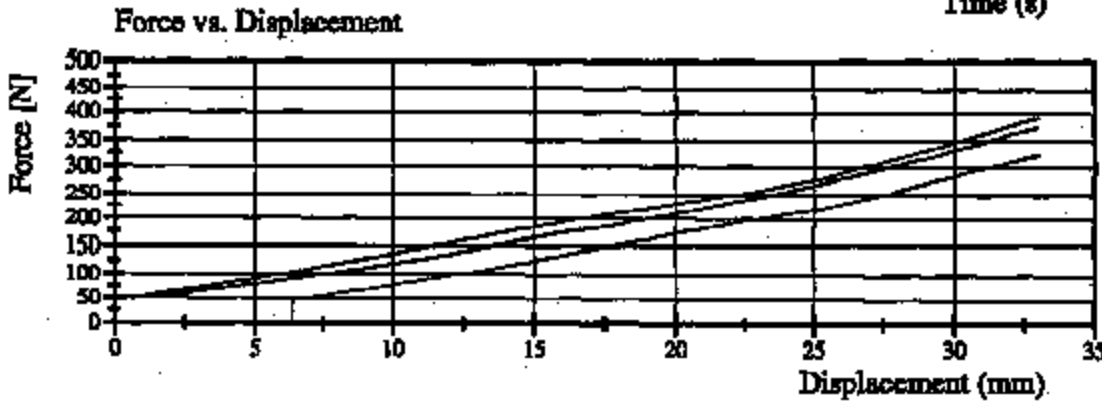
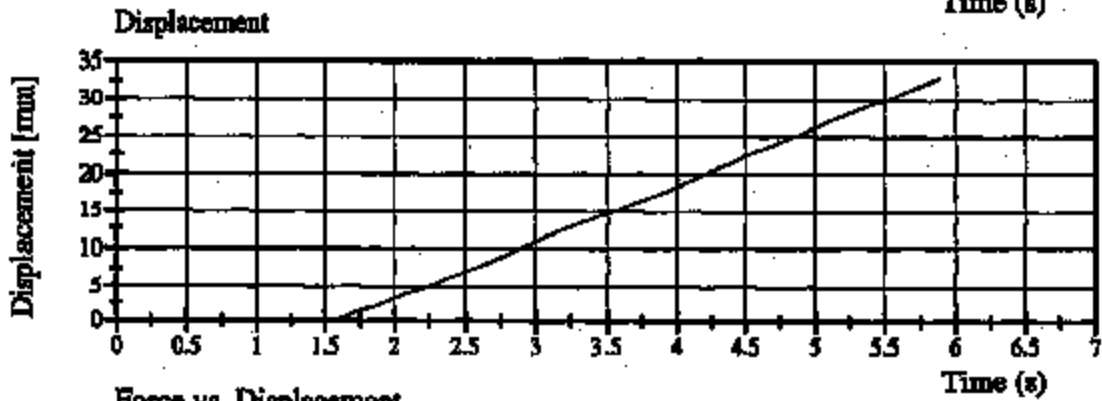
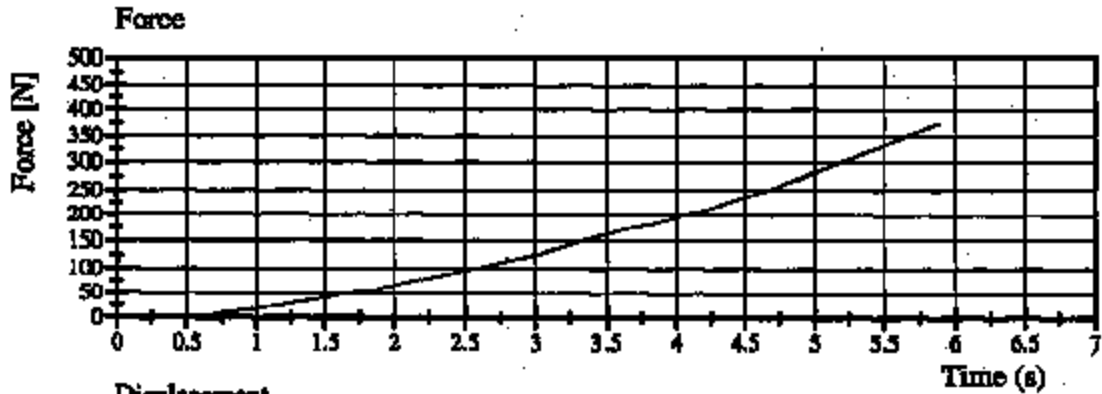


# Transportation Research Center Inc.

## 572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 03 - 1

Test Date 02/14/2003



02.14.2003 12:51:32 21



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL06503

572F SM065 LEFT PELVIS CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	46.6 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 021403.1031;1

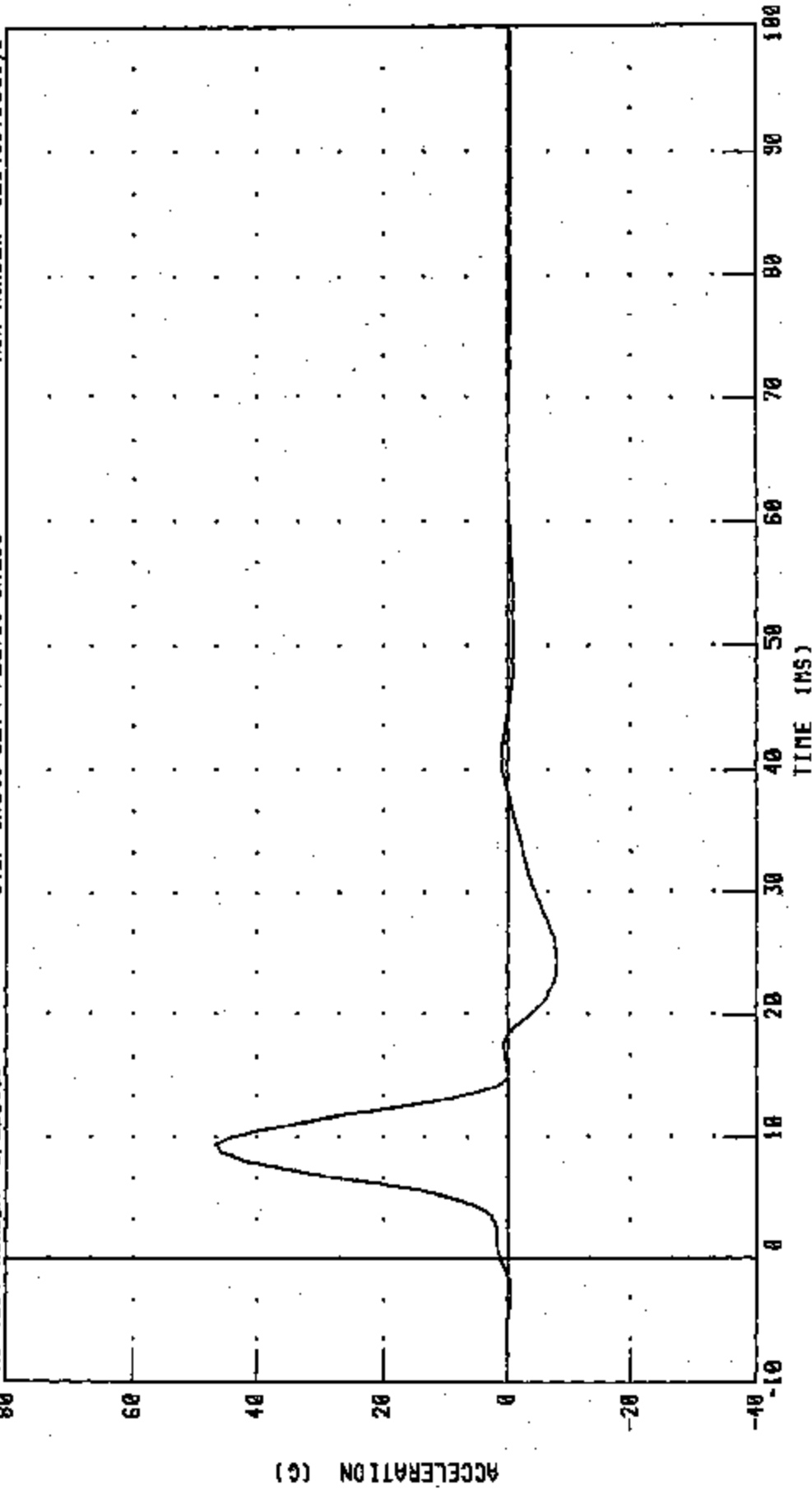
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F 5N065 LEFT PELVIS CAL03

TRC TEST NUMBER: SPL06503

RUN NUMBER: 021403.1031,1



CHANNEL: PEYYC FILTER: FIR 100

PEAK DATA: 46.63 G @ 9.37 MS; -8.12 G @ 24.38 MS

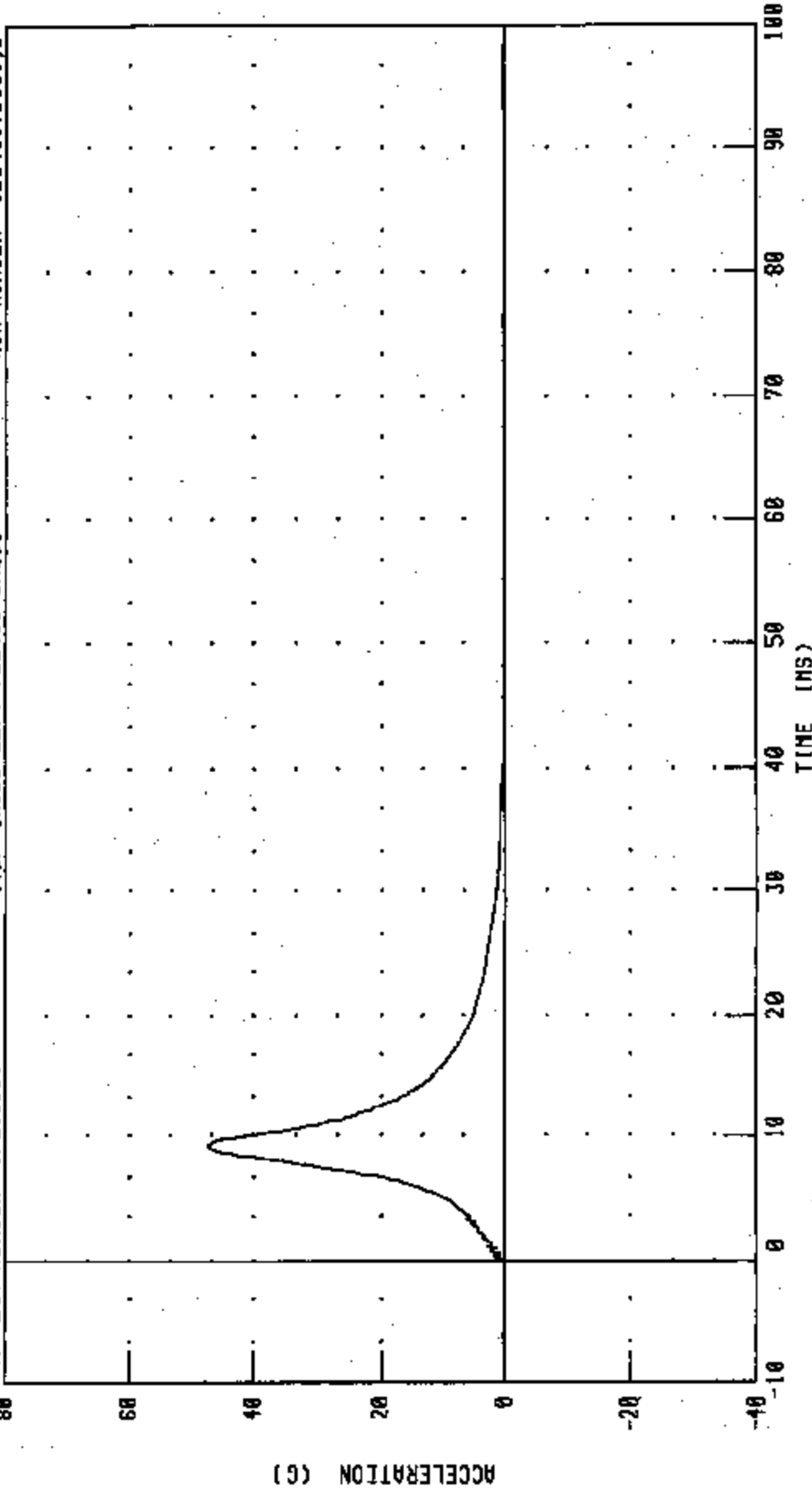
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06503

572F 5N065 LEFT PELVIS CAL03

RUN NUMBER: 021483.1031,1



PEAK DATA: 47.36 C @ 9.20 MS; -0.17 C @ 70.56 MS

CHANNEL: PENXC FILTER: CH. CLASS 1000

Calibration Test Results

Post-Test

SID: 066

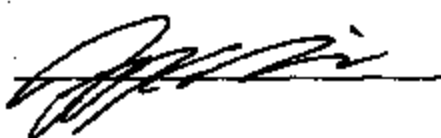
Configured for Left Side Impact

<b>External Dimensions:</b>	The dummy passed all external dimension requirements.
<b>Lateral Thorax Impact Test:</b>	The lateral thorax passed all impact test requirements.
<b>Thoracic Shock Absorber:</b>	The thoracic shock absorber was not retested at this time.
<b>Lumber Flexion Test:</b>	The dummy met the lumber flexion test requirements.
<b>Abdominal Compression Test:</b>	The abdomen met the compression test requirements.
<b>Pelvis Impact Test:</b>	The lateral pelvis passed all impact test requirements.

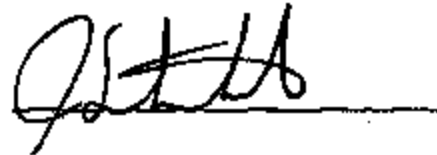
**Transportation Research Center Inc.**  
**572F SID Dummy**  
**External Dimensions**  
**Serial No. 066 Calibration No. 03**

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	898 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	521 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.8 - 391.2 mm	388 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	510 mm	Yes
Rib From Backline	RD	228.8 - 241.3 mm	238 mm	Yes
Top Rib Width From CL	RW-1	185.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From CL	RW-2	165.1 - 180.3 mm	174 mm	Yes
Difference Between Top & Bottom Rib Width from CL		← 25 mm	0.0 mm	Yes

Technician



Approved



**TRE**

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL06603

572F SID SMO66 L. THORAX CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	39.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	38.9 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	20.9 G

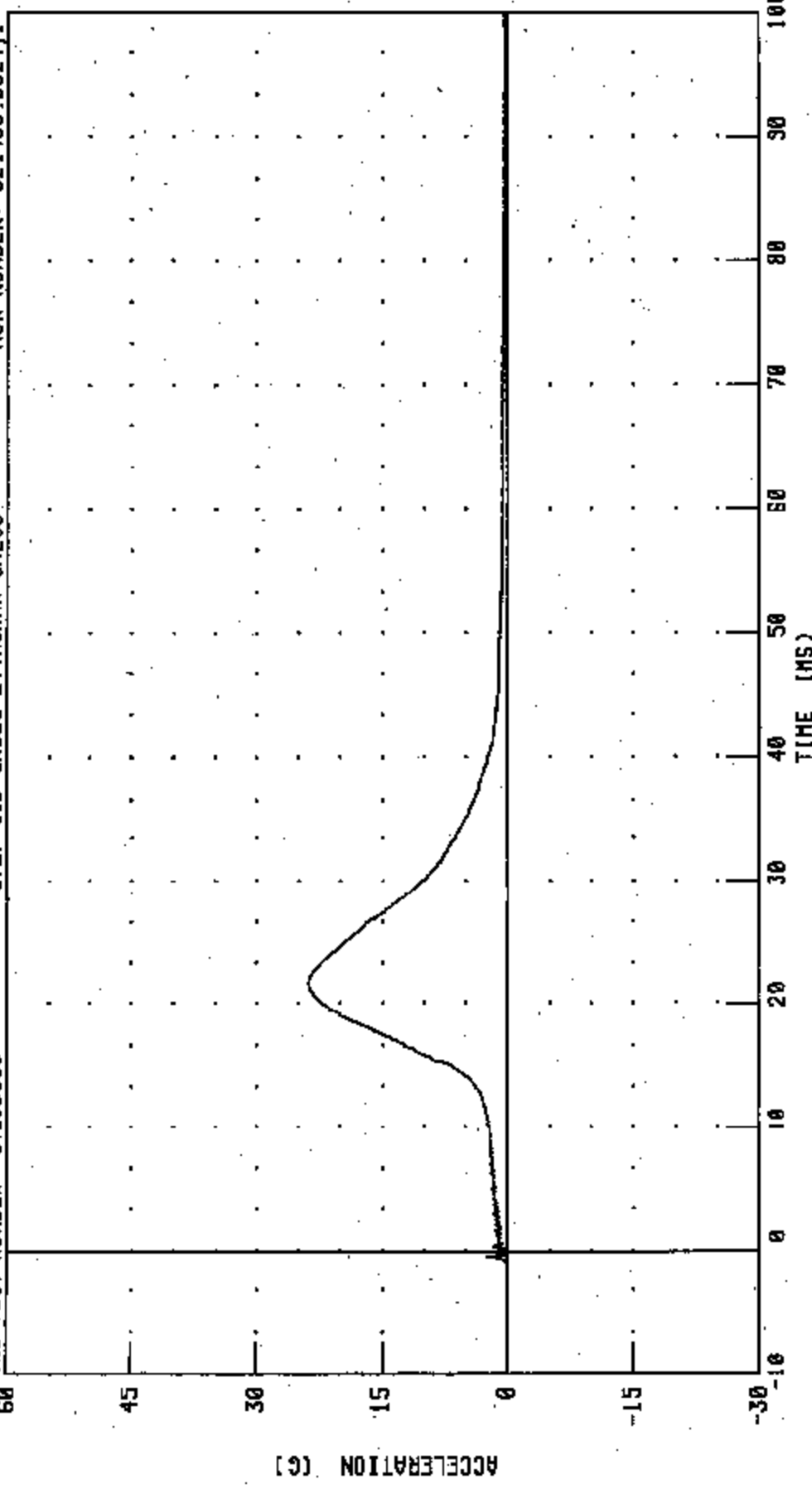
TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 021403.0924;1

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

TRC TEST NUMBER: ST106603      572F SID SN066 L.THORAX CAL03      RUN NUMBER: 021403.B924.1



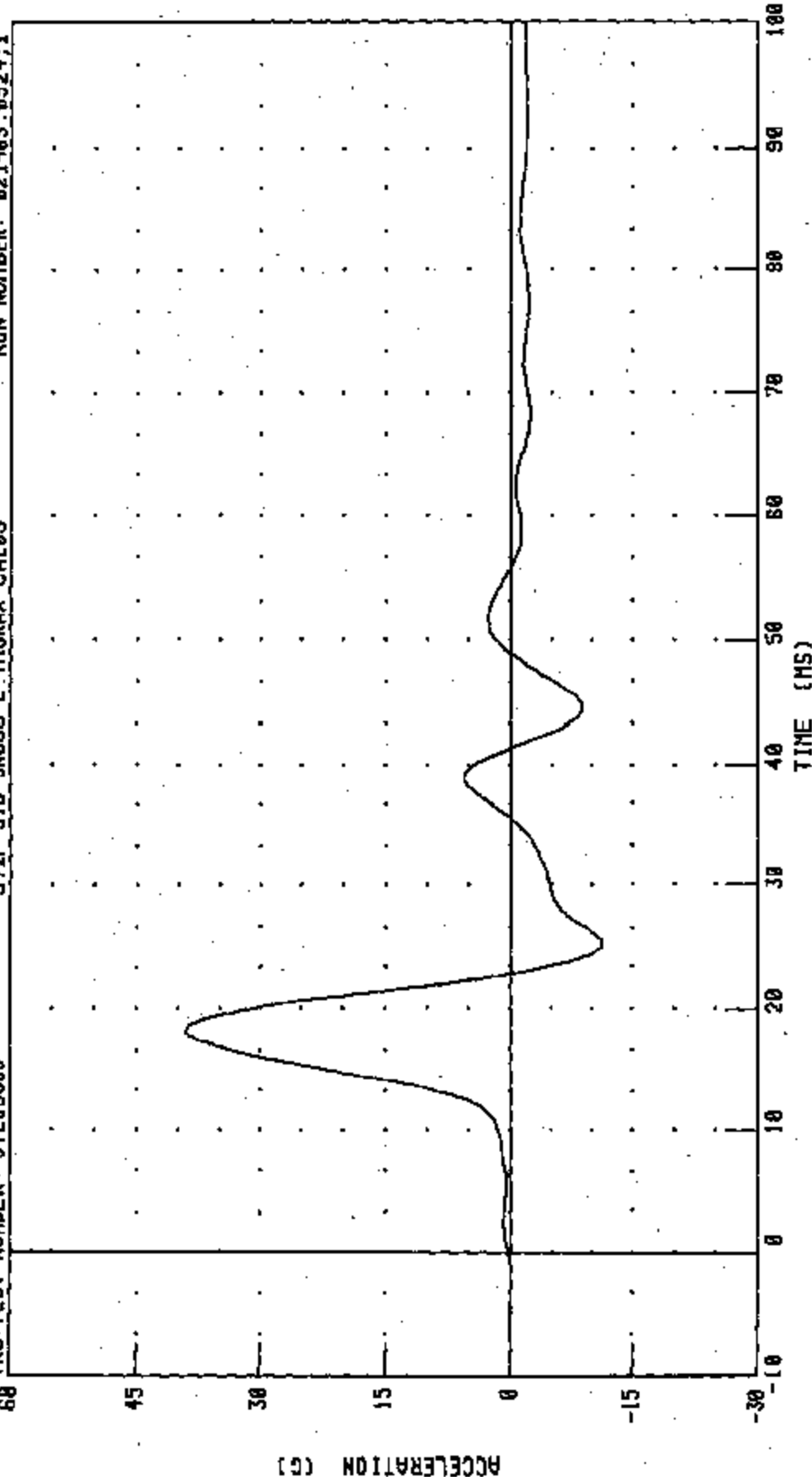
CHANNEL: PENXG      FILTER: CH. CLASS 1000      PEAK DATA: 23.81 G @ 21.60 MS; 0.00 G @ -4.40 MS

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

TRC TEST NUMBER: STL06603

572F S1D 3N066 L THORAX CAL03

RUN NUMBER: 021403.0924;1

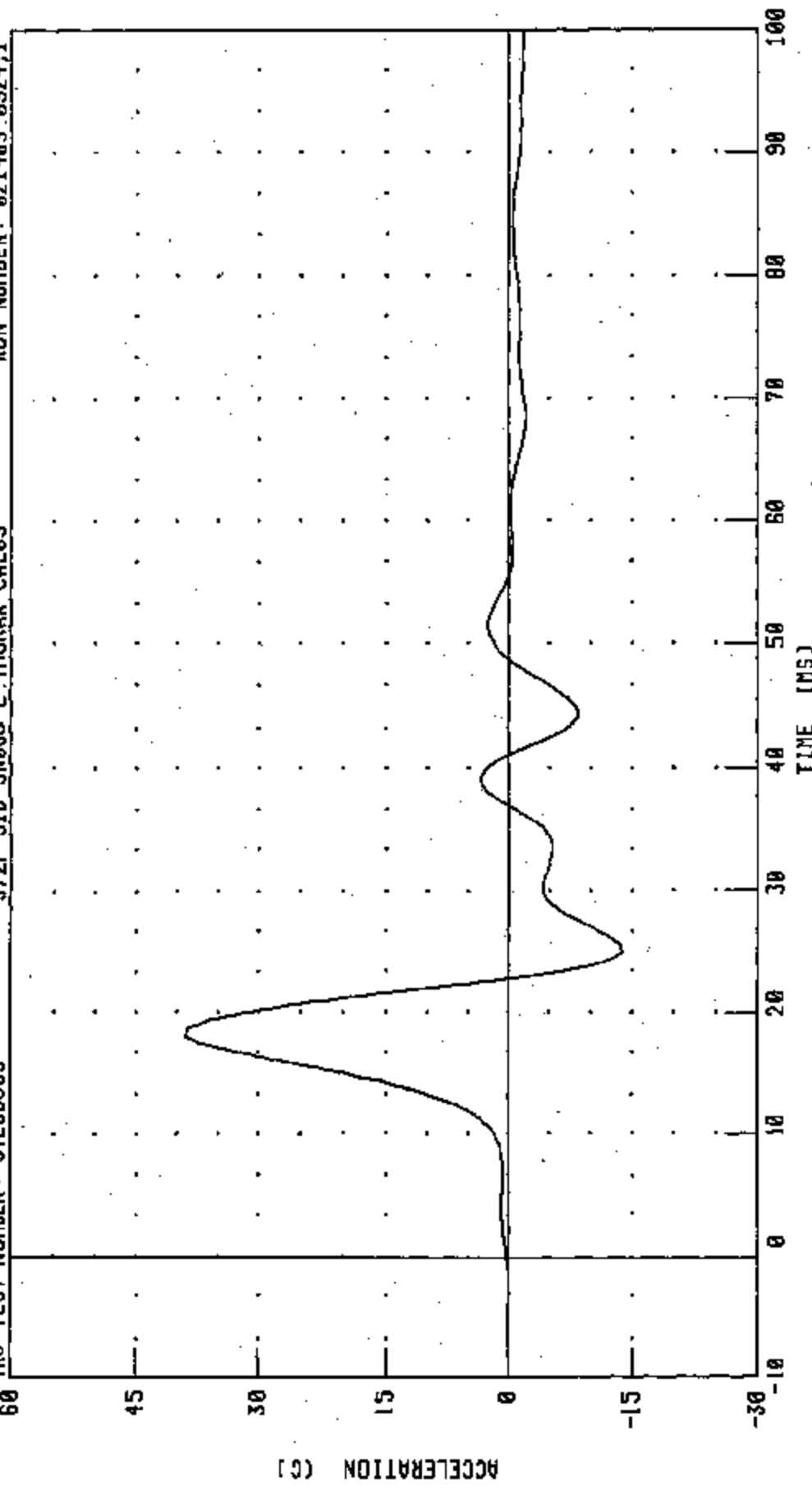


CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 39.22 G @ 18.13 MS, -11.24 G @ 25.00 MS

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

TRC TEST NUMBER: S1L06603      572F SID SN066 L THORAX CAL03      RUN NUMBER: 021403 0924,1

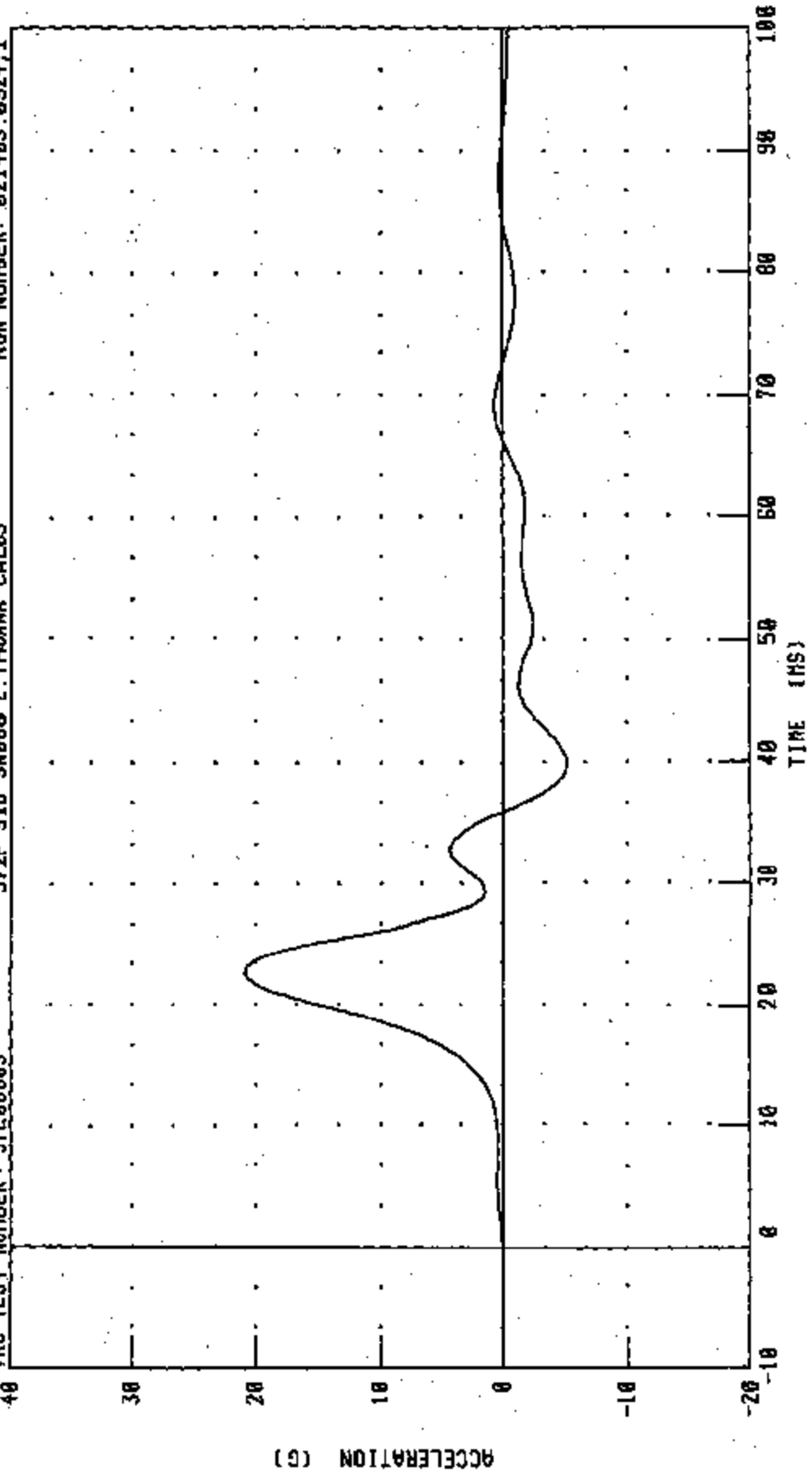


CHANNEL: LLRYC      FILTER: FIR 100      PEAK DATA: 30.89 G @ 18.13 MS, -13.89 G @ 25.00 MS

PART 572-F S.I.O. THORAX CALIBRATION - (LEFT SIDE IMPACT)  
LOWER SPINE ACCELERATION Y AXIS  
572F SID SIB66 L.THORAX CAL03

RUN NUMBER: 021403.0924;1

TRC TEST NUMBER: STL06603



PEAK DATA: 20.88 G @ 22.50 MS; -5.17 G @ 40.00 MS

CHANNEL: T12YC FILTER: FIR 100

**TRANSPORTATION RESEARCH CENTER INC.**

**LUMBAR FLEXION TEST**

**SID PART 572B**

**CAL DATE: 14-Feb-03**

**TRC, INC.**

**TEST NO: LF06603**

**572B SN 066 TORSO FLEX CAL 03**

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	124.6 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	191.3 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	244.7 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	7 Deg

**TEST MEETS SPECIFICATIONS**

TECHNICIAN 

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 03 - 1

Test Date 02/14/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.1 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



02.14.2003 13:52:30 12

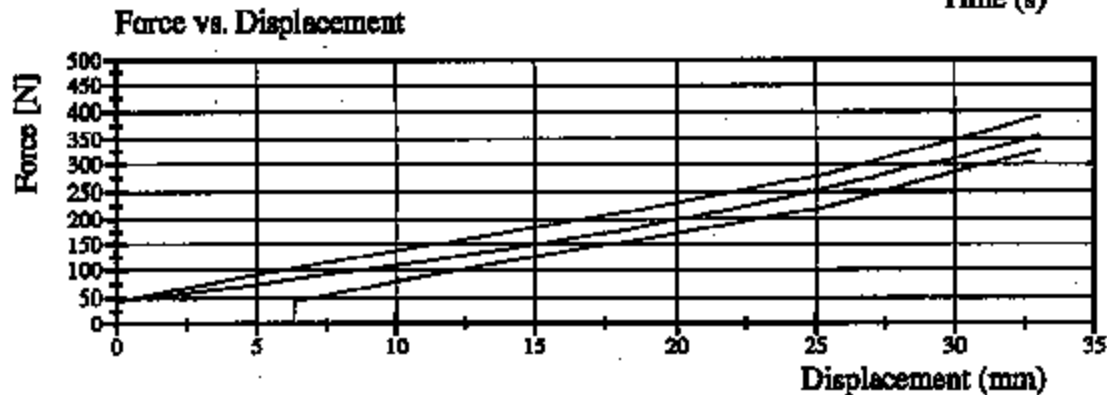
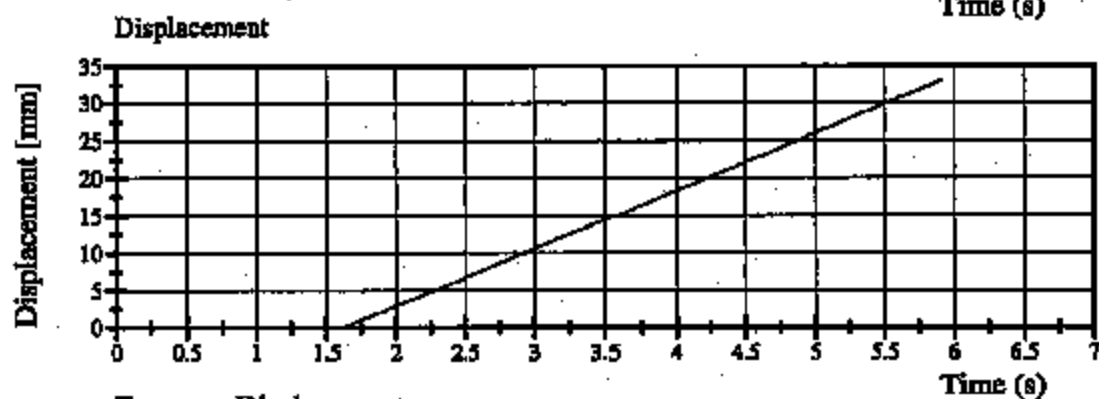
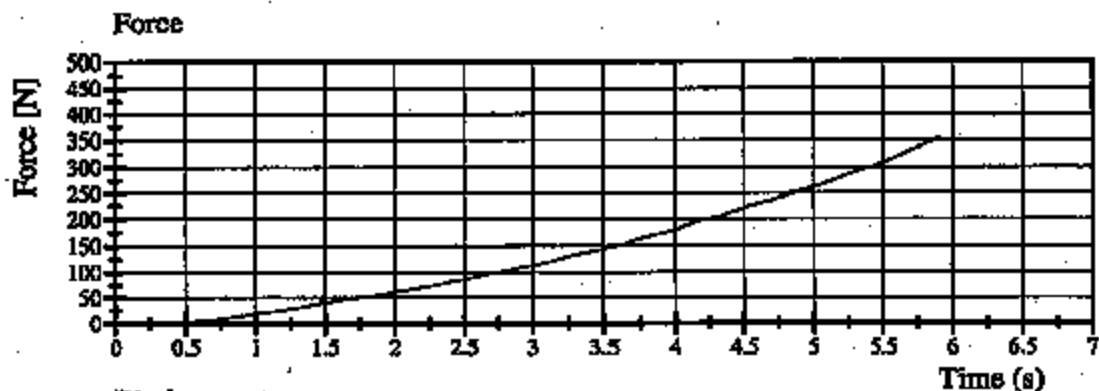
**TRE**

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 03 - 1

Test Date 02/14/2003



02.14.2003 13:52:31 12



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL06603

5727 SN066 LEFT PELVIS CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	52.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

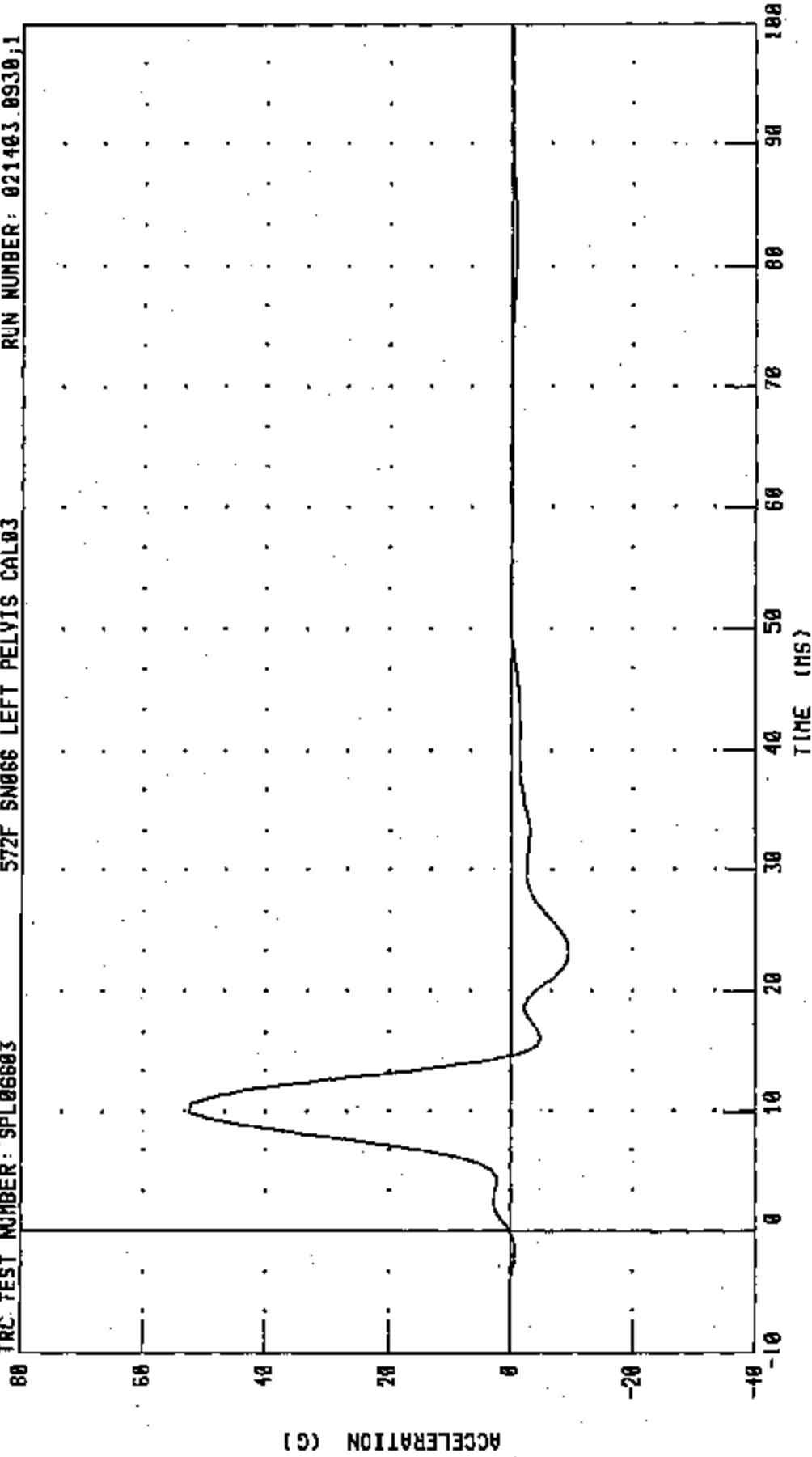
TECHNICIAN 

RUN NUMBER: 021403.0929;1

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

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL06603 572F 5N866 LEFT PELVIS CALB3 RUN NUMBER: 021403.0930;1



PEAK DATA: 52.49 G @ 10.00 MS; -9.46 G @ 23.13 MS

CHANNEL: PEVYG FILTER: FIR 100

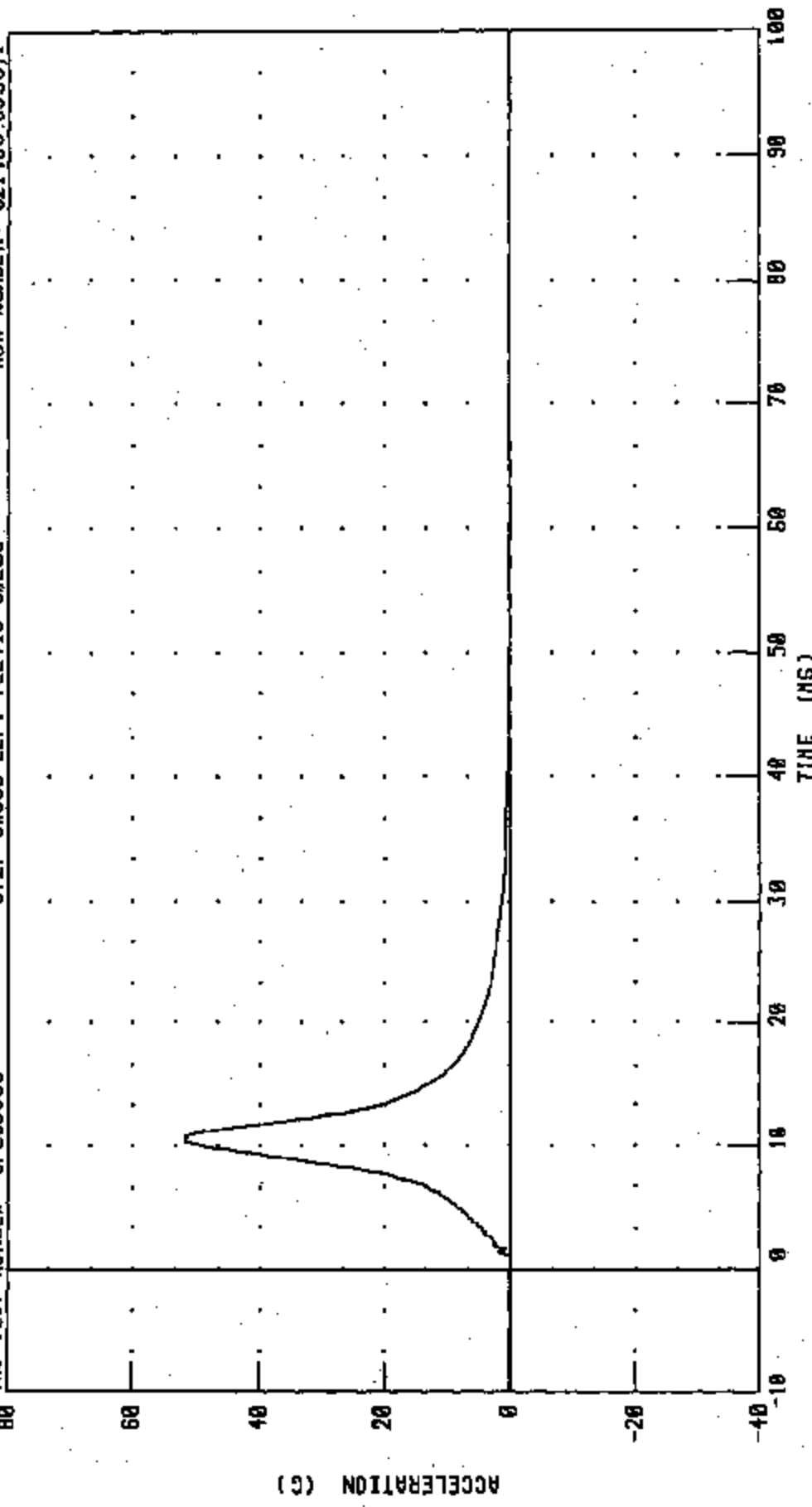
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06603

572F SN066 LEFT PELVIS CAL03

RUN NUMBER: 021403.0930.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 51.84 G @ 10.48 MS; -0.15 G @ 62.64 MS

Transportation Research Center Inc.

SID Pre-Use Inspection

Type: DOT SID S/N: 065

Mfr: Denton

Test Date: 02/12/03

Proj./Seg. No.: 20020455/0100

Test Eng.: Virginia Watters

ITEM	PRE-USE	
<b>HEAD:</b>		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left)	(Right) X
<b>NECK:</b>		
Rubber Condition and Separation From End Caps	X	
<b>THORAX:</b>		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
<b>PELVIS:</b>		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
<b>LEGS AND FEET:</b>		
Femur Load Cell Bolts (40 lb/lbs)	X	
Breakaway Femur Bolts (5-6 lb/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
<b>OTHER:</b>		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: John Clarridge

Date: 02/11/03

Type: DOT SID S/N: 066

Mfr: Denton

Test Date: 02/12/03

Proj./Seg. No.: 20020455/0100

Test Eng.: Virginia Watters

ITEM	PRE-USE	
<b>HEAD:</b>		
Head Ballast Condition		
Accel. Mount Bolts and Cables		
Skull Cap Bolts		X
Head Skin Condition		
Accel. Cable Exit (left or right)	(Left)	(Right) X
<b>NECK:</b>		
Rubber Condition and Separation From End Caps		X
<b>THORAX:</b>		
Stacked Shoulder Forcax and Bolts		X
* Rib Cage Spring and Support Assembly		X
* Rib Cage Bolts		X
* Damper Rear Attachment Ring, Pivot Pins, and Bracket		X
* Location and Adjustment of Chest Pot Bracket and Collars		X
* Chest Pot Rod End Nuts and Eyebolt		X
Arm Foam Orientation		X
Thoras/Lumber Spine Bolts		X
<b>PELVIS:</b>		
Tightness and Alignment of H-Point Tool Insert		X
* Hips Range of Motion and 1-2g Adjustment (before calibration only)		X
Upper Femur Bolt Adjustment and Position		X
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
<b>LEGS AND FEET:</b>		
Femur Load Cell Bolts (40 ft/lbs)		X
Breakaway Femur Bolts (5-6 ft/lbs)		X
Knee Joint Function and Range of Motion		X
Leg Skin Condition and Position		X
Ankle Range of Motion		X
Foot Condition		X
<b>OTHER:</b>		
Cleanliness		X
Target Position		X
Clothes		X
Shoes		X
Knee & Ankle One G Joint Adjustments		X

Inspection Completed By: John Clarridge

Date: 02/11/03

**TRANSPORTATION RESEARCH CENTER INC.**

**SID Post-Use Inspection**

S/N: DOT 065

Mfg: Denton

Test Date: 2/12/03

Proj./Seg. No.: 20020455/0100

Test Eng.: Virginia Watters

ITEM	POST-USE
<b>HEAD: Driver</b>	
Head Skin Condition	X
Head Ballast Condition	X
<b>NECK:</b>	
Rubber Condition and Separation From End Caps	X
<b>THORAX:</b>	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
<b>PELVIS:</b>	
Iliac Crest bone	X
Pleah Condition	X
Hip Range of Motion	X
<b>LEGS AND FEET:</b>	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.

Inspection Completed By: John Clarridge

Date: 2/13/03

**TRANSPORTATION RESEARCH CENTER INC.**

**SID Post-Use Inspection**

S/N: DOT 066

Mfg: Denton

Test Date: 2/12/03

Proj./Seg. No.: 20020455/0100

Test Eng.: Virginia Watters

ITEM	POST-USE
<b>HEAD: Passenger</b>	
Head Skin Condition	X
Head Ballast Condition	X
<b>NECK:</b>	
Rubber Condition and Separation From End Caps	X
<b>THORAX:</b>	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
<b>PELVIS:</b>	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
<b>LEGS AND FEET:</b>	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.

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Inspection Completed By: John Claridge

Date: 2/13/03

Appendix D

**Test Equipment List and Calibration Information**

Sign Convention  
SAE J211 MAR95

Accelerometers:

+X: Forward  
+Y: Rightward  
+Z: Downward

Potentiometers:

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

Rotation potentiometers:

+About the X-axis: Left foot-eversion  
Right foot-inversion  
+About the Y-axis: Left/right foot-dorsiflexion  
+About the Z-axis: Left foot-internal  
Right foot-external

Load cells:

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

Neck load cells:

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

Tibia load cells:

+X force: Ankle forward, knee rearward  
+Y force: Ankle rightward, knee leftward  
+Z force: Tension  
+X moment: Bottom of tibia moving leftward  
+Y moment: Bottom of tibia moving rearward

Sign Convention. Cont'd.  
SAE J211 MAR95

Lumbar load cells: +X force: Chest rearward, pelvis forward  
+Y force: Chest leftward, pelvis rightward  
+Z force: Chest upward, pelvis downward  
+X moment: Left shoulder toward left hip  
+Y moment: Sternum toward front of legs  
+Z moment: Right shoulder forward, left shoulder rearward

Frequency Response Classes  
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
<b>Vehicle Structural Accelerations for use in:</b>	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
<b>Barrier Face Forces</b>	60
<b>Belt Restraint System Loads</b>	60
<b>Anthropomorphic Test Device</b>	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
<b>Sled Accelerations</b>	60
<b>Steering Column Loads</b>	600
<b>Head form Accelerations</b>	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report: occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

Channel Report

Name of Test 030212-1

System MINDAU

Name of DAU DAU6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Rangy	Pol. Cal.	Group	Mfg.	Model
6001	P23322	BCGXG1	MDB CENTER OF GRAVITY	FWD	597.57256 S	+ 1/22/2003	-1	Enderco	7264C-2K-2-180
6002	P24561	BCGYG1	MDB CENTER OF GRAVITY	RT	596.73659 S	+ 11/22/2002	-1	Enderco	7264C-2K-2-180
6009	P24531	BCGZG1	MDB CENTER OF GRAVITY	LP	593.27238 S	- 11/21/2002	-1	Enderco	7264C-2K-2-180
6007	P23929	LRRXG1	MDB LT RR X-AXIS	FWD	594.45924 S	+ 9/4/2002	-1	Enderco	7264C-2K-2-180
6008	P24590	LRRYG1	MDB LT RR Y-AXIS	LT	601.61684 S	- 11/21/2002	-1	Enderco	7264C-2K-2-180

# Channel Report

2/12/2003 10:52:49 AM

Chan.#	Sensor #	Mnemonic	Description	System	MINIDAU	Name of DAU	DAU7	Pol.	Cal.	Group	Mfg.	Model
7001	P23068	LURYG1	Left Upper Rib Y					+	12/19/2002	OK	Endevco	7264C-2K-2-180
7002	P23067	LURYR1	Left Upper Rib Red Y					+	12/19/2002	OK	Endevco	7264C-2K-2-180
7003	P23389	LLRYG1	Left Lower Rib Y					+	12/19/2002	OK	Endevco	7264C-2K-2-180
7004	P23395	LLRYR1	Left Lower Rib Red Y					+	12/19/2002	OK	Endevco	7264C-2K-2-180
7005	P14826	T12YG1	Lower Spine Y					-	12/19/2002	OK	Endevco	7264C-2K-2-180
7006	P23069	T12YR1	Lower Spine Red Y					-	12/19/2002	OK	Endevco	7264C-2K-2-180
7007	P23397	PEVYG1	Pelvis Accel Y					-	12/19/2002	OK	Endevco	7264C-2K-2-180
7008	P23061	PEVYR1	Pelvis Accel Red Y					-	12/19/2002	OK	Endevco	7264C-2K-2-180
7009	P24511	LURYG4	Left Upper Rib Y					+	11/21/2002	OK	Endevco	7264C-2K-2-180
7010	P21652	LURYR4	Left Upper Rib Red Y					+	11/21/2002	OK	Endevco	7264C-2K-2-180
7011	P24508	LLRYG4	Left Lower Rib Y					+	11/21/2002	OK	Endevco	7264C-2K-2-180
7012	P24627	LLRYR4	Left Lower Rib Red Y					+	11/21/2002	OK	Endevco	7264C-2K-2-180
7013	P21635	T12YG4	Lower Spine Y					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7014	P24564	T12YR4	Lower Spine Red Y					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7015	P24393	PEVYG4	Pelvis Accel Y					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7016	P24559	PEVYR4	Pelvis Accel Red Y					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7017	P25265	RFSXG1	RGT SIDE SILL FRNT ST X					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7018	P19123	RFSYG1	RGT SIDE SILL FRNT ST Y					-	11/22/2002	OK	Endevco	7264C-2K-2-180
7019	P24566	RFSZG1	RGT SIDE SILL FRNT ST Z					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7020	P23495	RRSXG1	RGT SIDE SILL RR ST X					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7021	P24444	RRSYG1	RGT SIDE SILL RR ST Y					-	11/22/2003	OK	Endevco	7264C-2K-2-180
7022	P24480	RRSZG1	RGT SIDE SILL RR ST Z					-	11/22/2002	OK	Endevco	7264C-2K-2-180
7023	P24592	RDXG1	RR FLR PAN ABV AXLE X					-	11/21/2002	OK	Endevco	7264C-2K-2-180
7024	P24716	RDKYG1	RR FLR PAN ABV AXLE Y					+	11/20/2002	OK	Endevco	7264C-2K-2-180
7025	P24717	RDEZG1	RR FLR PAN ABV AXLE Z					+	11/20/2002	OK	Endevco	7264C-2K-2-180
7026	P24543	LRSYG1	LFT SIDE SILL RR ST Y					+	11/20/2002	OK	Endevco	7264C-2K-2-180
7027	P25311	LFSYG1	LFT SIDE SILL FRNT ST Y					+	11/20/2002	OK	Endevco	7264C-2K-2-180
7028	P25393	LFCYG1	LFT FRNT DOOR CTRLN Y					+	11/20/2002	OK	Endevco	7264C-2K-2-180
7029	P24580	RRTYG1	RGT RR OCP COMP Y					+	11/21/2002	OK	Endevco	7264C-2K-2-180
7030	P25405	LFRYG1	LFT FRNT DOOR MDRR Y					+	11/21/2002	OK	Endevco	7264C-2K-2-180
7031	P25056	LFUYG1	LFT FRNT DOOR UPPER C/L					+	12/3/2002	OK	Endevco	7264C-2K-2-180
7032	P23303	LRMYG1	LFT RR DORR MDRR Y					+	11/22/2003	OK	Endevco	7264C-2K-2-180

Channel Report

2/12/2003 10:52:49 AM

Name of Test 030212-1

System MINIDAU

Name of DAU DAU8

Chan. #	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal.	Group	Mfg.	Model
8001	P24434	LKUYG1	LT RR DR UPPER CL Y	RT	1523.8095	+	OK -1	Endevco	7264C-2K-2-180
8002	J18104	LLBYG1	LFT LOWER B-POST Y	RT	1508.4111	+	OK -1	Endevco	7264-2000T
8003	P24515	LUBYG1	LFT MID B-POST Y	RT	1485.7375	+	OK -1	Endevco	7264C-2K-2-180
8004	P25321	LLAYG1	LFT LOWER A-POST Y	LT	1457.7757	-	OK -1	Endevco	7264C-2K-2-180
8005	P24389	LUAYG1	LFT MID A-POST Y	LT	1475.8445	-	OK -1	Endevco	7264C-2K-2-180
8006	J20025	LFTYG1	LFT FRNT ST TRK Y	RT	1479.4267	+	OK -1	Endevco	7264-2000TZ
8007	P24648	LRTYG1	LFT RR ST TR Y	LT	1467.0066	-	OK -1	Endevco	7264C-2K-2-180
8008	P25329	VCGXG1	VEH C/G X	FWD	995.95393	+	OK -1	Endevco	7264C-2K-2-180
8009	P24652	VCGYG1	VEH C/G Y	LT	995.21828	-	OK -1	Endevco	7264C-2K-2-180
8010	P23848	VCGZG1	VEH C/G Z	UP	1000.8601	-	OK -1	Endevco	7264C-2K-2-180

# Digital and System Channel Report

2003-02-12 10:52:35

Name of Test 030212-1  
 enable Channel Short Name  
 d DIG6  
 Yes 6501

System MINIDAU  
 Name of DAU DAU6  
 Data File DAT66501  
 Module Type KJM3710 Controller

Bit position	Bit	short	long	descriptio
MSB - bit 15	1	MDBR1		
bit 14	1	MDBL1		
bit 13	0			
bit 12	0			
bit 11	0			
bit 10	0			
bit 09	0			
bit 08	0			
bit 07	0			
bit 06	0			
bit 05	0			
bit 04	0			
bit 03	0			
bit 02	0			
bit 01	0			
LSB - bit 00	0			

065m SID Type SID Description Name Model Name Manufacturer Serial/VV/VTU Fullscale Caldate Pos Output Flip

Channel	Location	Type	SID	Description	Name	Model	Manufacturer	Serial/VV/VTU	Fullscale	Caldate	Pos Output	Flip
IHRDXG	Head Acsel X				7264-2000TZ J26885	7264-2000TZ	Radco	002369	2000	7/11/02	Rwd	1
IHRDYG	Head Acsel Y				7264-2000TZ J26864	7264-2000TZ	Radco	002404	2000	7/11/02	L.R	1
IHRDZG	Head Acsel Z				7264-2000TZ J27959	7264-2000TZ	Radco	002593	2000	7/11/02	Up	1
INBKXP	Neck Force X				1716A-458-FX	1716A	Denton	000019162M	N	8896.4	HM F/L Cat Rr	1
INBKYP	Neck Force Y				1716A-458-FY	1716A	Denton	0000184704	N	8896.4	HM L/L Cat Rr	0
INBKZF	Neck Force Z				1716A-458-FZ	1716A	Denton	0000096481	N	13344.6	HM Up Cat Da	0
INBKXM	Neck Moment X				1716A-458-MX	1716A	Denton	0006005664	Nm	282.5	Rt Bat to RI SHd	1
INBKYM	Neck Moment Y				1716A-458-MY	1716A	Denton	0005993997	Nm	282.5	Chan to Strum	0
INBKZM	Neck Moment Z				1716A-458-MZ	1716A	Denton	0008454159	Nm	282.5	Chan to LA SHd	0
LURYG	Left Upper Rib Y				7264C-2K-2-18 P25068	7264C-2K-2-18	Radco	001721	2000	12/18/02	Rgt	0
LURYA	Left Upper Rib Red Y				7264C-2K-2-18 P25067	7264C-2K-2-18	Radco	001623	2000	12/18/02	Rgt	0
LLRYG	Left Lower Rib Y				7264C-2K-2-18 P25389	7264C-2K-2-18	Radco	001642	2000	12/18/02	Rgt	0
LLRYR	Left Lower Rib Red Y				7264C-2K-2-18 P25395	7264C-2K-2-18	Radco	002028	2000	12/18/02	Rgt	0
TLTYG	Lower Spine Y				7264C-2K-2-18 P14826	7264C-2K-2-18	Radco	001991	2000	12/18/02	L.R	1
TLTYR	Lower Spine Red Y				7264C-2K-2-18 P25069	7264C-2K-2-18	Radco	001692	2000	12/18/02	L.R	1
PHVYG	Pelvis Acsel Y				7264C-2K-2-18 P25397	7264C-2K-2-18	Radco	001827	2000	12/18/02	L.R	1
PHVYR	Pelvis Acsel Red Y				7264C-2K-2-18 P25061	7264C-2K-2-18	Radco	001798	2000	12/18/02	L.R	1

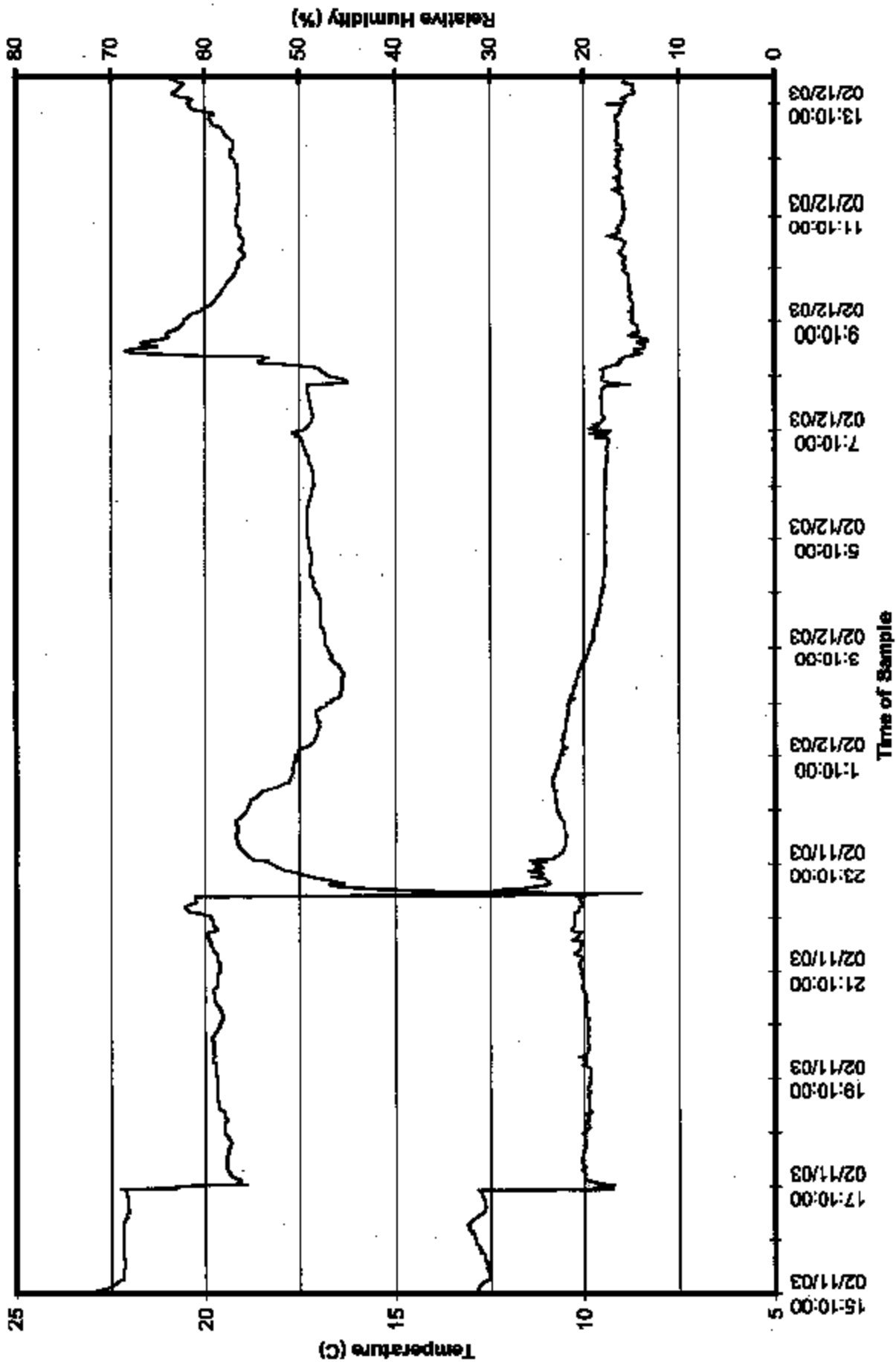
| indicates channel not used or not installed in dummy for this test.

Dummy 066a Type SID Description NHTSA - 066a SID-LEFT IMP. CONFG. CAL DUB 5-21-03(DKS 2-4-03)J211

Channel	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Calculate	Pre Output	Filter
HBDXG	Head Accel X	7264-2000TZ	J28754	Enderco	0.02834	2000	7/10/02	Rwd	1
HBDYG	Head Accel Y	7264-2000TZ	J27345	Enderco	0.02781	2000	7/11/02	LA	1
HBDZG	Head Accel Z	7264-2000TZ	J27116	Enderco	0.02547	2000	7/10/02	Up	1
INBKXF	Neck Force X	1716A	1716A-858-FX	Denton	0.000191628	8896.4	1/17/03	Hd Fd, Cat R	1
INBKYP	Neck Force Y	1716A	1716A-858-FY	Denton	0.000184704	8896.4	1/17/03	Hd Ld, Cat R	0
INBKZF	Neck Force Z	1716A	1716A-858-FZ	Denton	0.000096421	13344.6	1/17/03	Hd Up, Cat Dm	0
INBKXM	Neck Moment X	1716A	1716A-858-MX	Denton	0.006005664	282.5	1/17/03	Rt Bar to Rt SHd	1
INBKYM	Neck Moment Y	1716A	1716A-858-MY	Denton	0.005933097	282.5	1/17/03	Chn to Strm	0
INBKZM	Neck Moment Z	1716A	1716A-858-MZ	Denton	0.008454159	282.5	1/17/03	Chn to Lt SHd	0
LURYG	Left Upper Rib Y	7264C-2K-2-18	P24511	Enderco	0.0173	2000	1/21/02	Rgt	0
LURYR	Left Upper Rib Red Y	7264C-2K-2-18	P21652	Enderco	0.02198	2000	1/21/02	Rgt	0
LLRYG	Left Lower Rib Y	7264C-2K-2-18	P24508	Enderco	0.01723	2000	1/21/02	Rgt	0
LLRYR	Left Lower Rib Red Y	7264C-2K-2-18	P24627	Enderco	0.01823	2000	1/21/02	Rgt	0
LUZYG	Lower Spine Y	7264C-2K-2-18	P21635	Enderco	0.01873	2000	1/21/02	LA	1
LUZYR	Lower Spine Red Y	7264C-2K-2-18	P24564	Enderco	0.01879	2000	1/21/02	LA	1
PBVYG	Pelvis Accel Y	7264C-2K-2-18	P24593	Enderco	0.01963	2000	1/21/02	LA	1
PBVYR	Pelvis Accel Red Y	7264C-2K-2-18	P24559	Enderco	0.0172	2000	1/21/02	LA	1

| indicates channel not used or not installed in dummy for this test.

FMVSS 214 Side Impact Protection C35402 / 030212-1



**SIDE IMPACTOR BARRIER CERTIFICATION**

Date: July 11, 2002

To: Transportation Research  
Ship & Rec Bldg 50  
10820 St. Route 347  
East Liberty, OH 43319-0367

**PURCHASE ORDER INFORMATION**

Customer P.O. Number: 018767  
Work Order Number: 13552  
Quantity: 05 pieces

**CORE INFORMATION**

Core Type: PAMG-3/8-1.6-001-P-5052-T  
Measured Cell Size: 0.375 inches  
Measured Density: 1.6 pcf

Unit Numbers:  
050C0602 - 01 pc.  
050A0602 - 01 pc.  
049A0602 - 01 pc.  
048C0602 - 01 pc.  
035C0602 - 01 pc.

This is to certify that the aluminum honeycomb core supplied, under the unit numbers provided, meets the crush requirements of 45 psi +/- 2.5 psi as per DWG# DSL-1285.

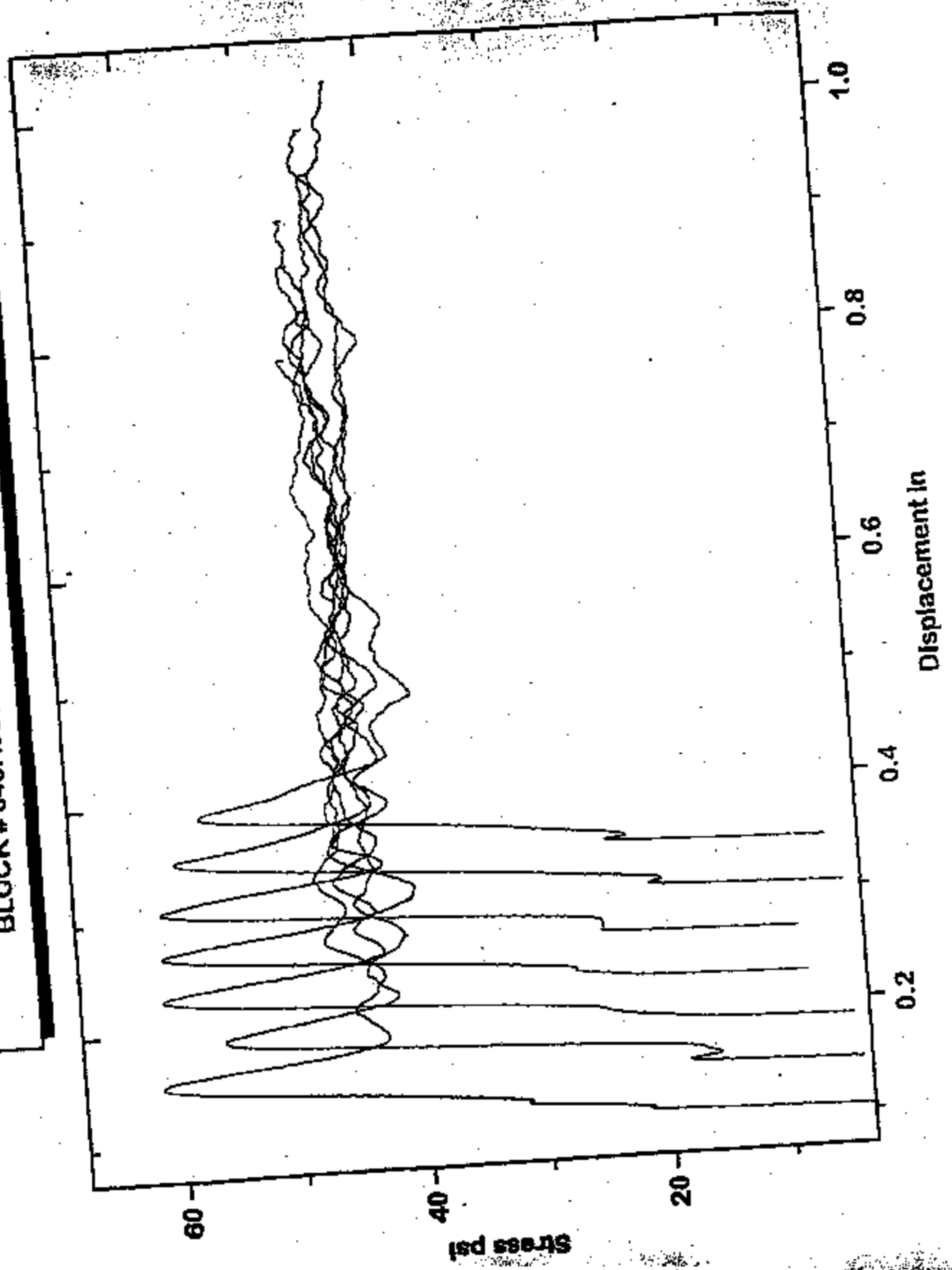
  
Quality Control Representative  
Karl D. Zwaanstra

Crush Data45 psi +/- 2.5 psi per DWG # DSL-1285

Block Number: 049A0602

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	46.16	46.20	46.90
2	45.19	44.51	45.39
3	45.18	44.59	45.82
4	44.12	45.03	46.00
5	44.61	44.57	45.10
6	43.71	42.95	43.74
7	43.36	43.10	44.13

BLOCK # 049A0602 Sample ID: IN224645



**SIDE IMPACTOR BARRIER CERTIFICATION**

Date: July 11, 2002

To: Transportation Research  
Ship & Rec Bldg 50  
10820 St. Route 347  
East Liberty, OH 43319-0367

**PURCHASE ORDER INFORMATION**

Customer P.O. Number: 018767  
Work Order Number: 13552  
Quantity: 05 pieces

**CORE INFORMATION**

Core Type: PCGA-1/4-5.2-P-3003-T  
Measured Cell Size: 0.250 inches  
Measured Density: 5.2 pcf

Unit Numbers: 035A0602 - 03 pcs.  
058B0502 - 02 pcs.

This is to certify that the aluminum honeycomb core supplied, under the unit numbers provided, meets the crush requirements of 232 - 250 psi as per DWG# DSL-1285.

  
Quality Control Representative  
Kari D. Zwaanstra



Crash Data  
232 - 250 nd per DWG # DSL-1285

**Block Number: 058B0502**

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	234.88	233.03	238.26
2	245.89	246.74	234.83
3	244.45	242.80	244.84
4	233.66	232.58	232.66
5	241.14	241.30	238.97
6	241.47	241.27	241.95
7	241.53	238.17	235.74

BLOCK # 05BB0502 Sample ID: IN224430

