

637559

**Report Number: 214-TRC-04-002**

**Safety Compliance Testing For FMVSS 214**

**Side Impact Protection**

**GM-Daewoo Auto and Technologies  
2004 Suzuki Forenza 4-door sedan**

**NHTSA Number: C40512**

**Transportation Research Center Inc.  
10820 State Route 347  
P. O. Box B-67  
East Liberty, OH 43319**



**Test Date: August 17, 2004  
Final Report: August 30, 2004**

**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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Test Performed By: Shultz, Supervisor

Report Approved By: 

Walter Dudek, Project Manager  
Transportation Research Center Inc.

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Accepted By: 

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| 1. Report No.<br>214-TRC-04-002                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2. Government Accession No.                                                                                                                                                                                                                             | 3. Recipient's Catalog No.                     |          |           |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
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| 4. Title and Subtitle<br>Final Report of FMVSS 214 Compliance Side<br>Impact Testing of a 2004 Suzuki Forenza sedan,<br>NHTSA No.: C40512                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5. Report Date<br>August 30, 2004                                                                                                                                                                                                                       | 6. Performing Organization Code<br>TRC Inc.    |          |           |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| 7. Author(s)<br>Walter Dudek, Project Manager<br>Transportation Research Center Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8. Performing Organization Report No.<br>040817                                                                                                                                                                                                         |                                                |          |           |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| 9. Performing Organization Name and Address<br>Transportation Research Center Inc.<br>10820 State Route 347<br>East Liberty, OH 43319                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10. Work Unit No. (TRAIS)                                                                                                                                                                                                                               | 11. Contract or Grant No.<br>DTNH22-02-D-11114 |          |           |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
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| 15. Supplemental Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                         |                                                |          |           |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| 16. Abstract<br><p>This 48/24 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2004 Suzuki Forenza sedan 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 August 17, 2004.</p> <p>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 307 mm at Level 2.</p> <p>The test or target vehicle's performance is given below:</p> <table border="1"> <thead> <tr> <th></th> <th>Front SID</th> <th></th> <th>Rear SID</th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td>57.1</td> <td>g's</td> <td>54.2</td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td>42.5</td> <td>g's</td> <td>62.0</td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td>65.2</td> <td>g's</td> <td>56.3</td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td>61.2</td> <td>g's</td> <td>59.1</td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td>72.5</td> <td>g's</td> <td>88.5</td> <td>g's</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.</p> |                                                                                                                                                                                                                                                         |                                                |          | Front SID |  | Rear SID |  | Left Upper Rib Acceleration: | 57.1 | g's | 54.2 | g's | Left Lower Rib Acceleration: | 42.5 | g's | 62.0 | g's | Lower Spine Acceleration: | 65.2 | g's | 56.3 | g's | Thoracic Trauma Index, (TTI): | 61.2 | g's | 59.1 | g's | Pelvis Acceleration (PEV): | 72.5 | g's | 88.5 | g's |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Front SID                                                                                                                                                                                                                                               |                                                | Rear SID |           |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| Left Upper Rib Acceleration:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 57.1                                                                                                                                                                                                                                                    | g's                                            | 54.2     | g's       |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| Left Lower Rib Acceleration:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 42.5                                                                                                                                                                                                                                                    | g's                                            | 62.0     | g's       |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| Lower Spine Acceleration:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 65.2                                                                                                                                                                                                                                                    | g's                                            | 56.3     | g's       |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| Thoracic Trauma Index, (TTI):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 61.2                                                                                                                                                                                                                                                    | g's                                            | 59.1     | g's       |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| Pelvis Acceleration (PEV):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 72.5                                                                                                                                                                                                                                                    | g's                                            | 88.5     | g's       |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
| 17. Key Words<br>Compliance Testing<br>Side Impact Protection<br>FMVSS 214<br>Side Impact Dummy (SID)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 18. Distribution Statement<br>Copies of this report are available from:<br>NHTSA Technical Information Services (TIS)<br>Room 5108 (NPO-230), 400 Seventh Street, S.W.<br>Washington, DC 20590<br>Telephone No. (202) 366-4946<br>Attn: Robert Hornicle |                                                |          |           |  |          |  |                              |      |     |      |     |                              |      |     |      |     |                           |      |     |      |     |                               |      |     |      |     |                            |      |     |      |     |
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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 2004 Suzuki Forenza sedan. 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 2004 Suzuki Forenza sedan 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. 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 August 17, 2004. 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 44 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following tables summarize the results of the test.

| Injury Criteria | Front SID | Rear SID |
|-----------------|-----------|----------|
| TTI (g)         | 61.2      | 59.1     |
| PEV (g)         | 72.5      | 88.5     |

### Data Acquisition Explanations

The vehicle's left side sill at front seat Y-axis acceleration channel, LFSYG1, did not record any data between approximately 16 and 37 milliseconds. No useful data was recorded after that. The velocity and displacement were also affected.

The vehicle's left middle A-post Y-axis acceleration channel, LMAYG1, exceeded full-scale at approximately 36 milliseconds and recorded no useful data after that. The velocity was also affected.

The vehicle's left rear seat track Y-axis acceleration channel, LRTYG1, recorded questionable data after approximately 50 milliseconds. The velocity was also affected.



Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2004 Suzuki Forenza  
Vehicle Body Style/Color: 4-door/Fantasy Black VIN: KLSJD52Z24K970966  
Vehicle NHTSA No.: C40512 Build Date: 12/03  
Engine Data: 4 Cylinders; CID; 2.0 L Liters; cc  
Placement: - Longitudinal; or X Lateral; or - Horizontal  
Transmission: 5 Speed; X Manual; - Automatic; - Overdrive  
Final Drive: - RWD; X FWD; - Four-Wheel Drive  
Odometer Reading: 91 miles  
Options: X A/C; X Power steering; X Power brakes; X Power windows  
Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)\* 210 kPa Front; 210 kPa Rear

Recommended Tire Size: 195/55R15

Tires on Test Vehicle: P195/55R15 Manufacturer: Hankook

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; - 3rd seat; 5 Total  
Type of Front Seats: X Bucket; - Bench; - Split bench  
Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob  
Vehicle Max. Capacity Loading = 396 kg (A)  
No. of Occupants x 68.04 kg. = 340 kg (B)  
Vehicle Cargo Capacity (A-B) = 56 kg

Test Vehicle Delivered Weight With Maximum Fluids:

|                         |   |                 |                        |   |                 |
|-------------------------|---|-----------------|------------------------|---|-----------------|
| Left Front              | = | <u>386.5</u> kg | Left Rear              | = | <u>245.5</u> kg |
| Right Front             | = | <u>394.5</u> kg | Right Rear             | = | <u>240.5</u> kg |
| Total Front             | = | <u>781.0</u> kg | Total Rear             | = | <u>486.0</u> kg |
| Front % of Total Weight | = | <u>61.6</u> %   | Rear % of Total Weight | = | <u>38.4</u> %   |
| Total Weight            | = | <u>1267</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>1267.0</u> kg (A)     |
| Maximum Cargo Carrying Capacity of Test Vehicle                 | = | <u>56.0</u> kg (B)       |
| Weight of Instrumented Side Impact Dummies (2 X <u>83.0</u> kg) | = | <u>166.0</u> kg (C)      |
| Test Vehicle Target Weight:                                     | = | <u>1489.0</u> kg (A+B+C) |

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

|                         |   |                  |                        |   |                 |
|-------------------------|---|------------------|------------------------|---|-----------------|
| Left Front              | = | <u>432.0</u> kg  | Left Rear              | = | <u>359.0</u> kg |
| Right Front             | = | <u>396.0</u> kg  | Right Rear             | = | <u>312.0</u> kg |
| Total Front             | = | <u>828.0</u> kg  | Total Rear             | = | <u>671.0</u> kg |
| Front % of Total Weight | = | <u>55.2</u> %    | Rear % of Total Weight | = | <u>44.8</u> %   |
| Total Weight            | = | <u>1499.0</u> kg |                        |   |                 |

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

|                         |   |                  |                        |   |                 |
|-------------------------|---|------------------|------------------------|---|-----------------|
| Left Front              | = | <u>439.4</u> kg  | Left Rear              | = | <u>330.6</u> kg |
| Right Front             | = | <u>411.2</u> kg  | Right Rear             | = | <u>303.2</u> kg |
| Total Front             | = | <u>850.6</u> kg  | Total Rear             | = | <u>633.8</u> kg |
| Front % of Total Weight | = | <u>57.3</u> %    | Rear % of Total Weight | = | <u>42.7</u> %   |
| Total Weight            | = | <u>1484.4</u> kg |                        |   |                 |

Test Vehicle Attitude (all dimensions in millimeters):

| As Delivered           | Fully Loaded           | Ready For Test         |
|------------------------|------------------------|------------------------|
| Right Front <u>649</u> | Right Front <u>634</u> | Right Front <u>637</u> |
| Left Front <u>645</u>  | Left Front <u>617</u>  | Left Front <u>630</u>  |
| Right Rear <u>653</u>  | Right Rear <u>604</u>  | Right Rear <u>624</u>  |
| Left Rear <u>650</u>   | Left Rear <u>588</u>   | Left Rear <u>615</u>   |

Test Vehicle Wheelbase: 2600 mm

C.G. = 1110 mm rearward of front wheel centerline

Total Vehicle Length:

|            |   |                |
|------------|---|----------------|
| Right Side | = | <u>4385</u> mm |
| Left Side  | = | <u>4385</u> mm |
| Centerline | = | <u>4500</u> mm |

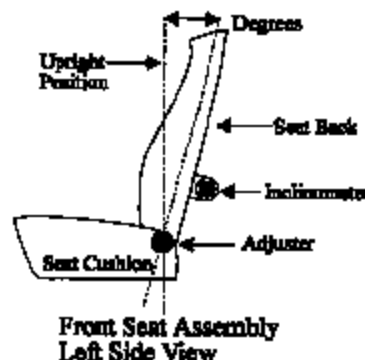
Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

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



Front Seat Cushion Placement: 10<sup>th</sup> detent rearward of full forward (11<sup>th</sup> of 20 total)

Total Length of Fore/Aft Adjustment Travel: 230 mm

Total Number of Adjustment Positions or Detents: 20

Front Seat Back Adjustment Position: The back was adjusted to 18.9° measured on the seat back frame

Seat Back Torso Angle: 25.2 degrees

Second Position Seat Placement: fixed

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

Seat Back Adjustment Position: N/A

Adjustable Steering Column Position: Adjusted to the middle of the geometric range of travel

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:

54.1 liters (fuel tank usable capacity)

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

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

Wheelbase = 2600 millimeters

Intended impact point is 360 mm millimeters rearward of front axle centerline  
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 363 millimeters rearward of front axle centerline

## Data Sheet 2

### Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2004/Suzuki/Forenza

Body Style: 4-door sedan

VIN: KL5JD52Z24K970966

NHTSA No.: C40512

Build Date: 12/03

Test Date: 08/17/04

Vehicle Overall Length = 4500 mm

Overall Width = 1720 mm

#### Vehicle Test Weight (Pre-Test):

|              |   |               |    |            |   |              |    |
|--------------|---|---------------|----|------------|---|--------------|----|
| Left Front   | = | <u>439.4</u>  | kg | Left Rear  | = | <u>330.6</u> | kg |
| Right Front  | = | <u>411.2</u>  | kg | Right Rear | = | <u>303.2</u> | kg |
| Total Front  | = | <u>850.6</u>  | kg | Total Rear | = | <u>633.8</u> | kg |
| Total Weight | = | <u>1484.4</u> | kg |            |   |              |    |
| Wheelbase    | = | <u>2600</u>   | mm |            |   |              |    |

Longitudinal C.G. From Center Of Front Axle = 1110 mm

Impact Angle With Respect To Impactor = 90 degrees

#### Impact Point:

Actual Impact Point is 3 mm right of nominal impact ref. line (Lateral)

Actual Impact Point is 0 mm up from nominal impact point (Vertical)

#### Maximum Exterior Static Crush:

|              |             |                    |            |    |
|--------------|-------------|--------------------|------------|----|
| 1. Level 1 ( | <u>280</u>  | mm above ground) = | <u>193</u> | mm |
| 2. Level 2 ( | <u>495</u>  | mm above ground) = | <u>307</u> | mm |
| 3. Level 3 ( | <u>635</u>  | mm above ground) = | <u>291</u> | mm |
| 4. Level 4 ( | <u>900</u>  | mm above ground) = | <u>278</u> | mm |
| 5. Level 5 ( | <u>1395</u> | mm above ground) = | <u>109</u> | mm |

Maximum Post-Test Intrusion = 307 mm

#### Occupants:

##### Front Passenger

##### Rear Passenger

Dummy Identification #066

#028

Restraints Used 3-point seat belt

3-point seat belt

#### Instrumentation:

Number of Vehicle Data Channels: = 21

Number of Cameras: Onboard = 3 Offboard = 6 Total = 9

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, 047A0504 016A0604

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 = 1102 mm

MDB Weight:

Left Front = 411.0 kg      Left Rear = 269.2 kg

Right Front = 371.2 kg      Right Rear = 310.0 kg

Total Front = 782.2 kg      Total Rear = 579.2 kg

Total MDB Weight = 1361.4 kg

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

Impact Speed<sup>1</sup> = 52.9 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level = 137 millimeters

2. Row B at Top of Bumper Level = 93 millimeters

3. Row C at Mid Level = 100 millimeters

4. Row D at Top of Stack Level = 156 millimeters

Instrumentation:

Number of MDB Data Channels = 5

<sup>1</sup> Impact speed reported is barrier cable speed at moving deformable barrier release.

Data Sheet 4

Post-Test Observations

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

Visible Dummy Contact Points:

Left Front SID

Head: B-pillar  
Upper Torso: Door panel  
Lower Torso: Door panel  
Left Knee: Door panel  
Right Knee: None

Left Rear SID

Headliner and C-pillar  
Door panel  
Door panel  
Door panel  
None

Door Opening:

Left Side

Front: Jammed and latched  
Rear: Jammed and latched

Right Side

Easy  
Easy

MDB Distance From Target Impact Point:

Vertical: 0 mm from target

Horizontal: 3 mm right from target

Arm Rest Locations:

Front: 243 mm below the bottom of the window  
Rear: 290 mm below the bottom of the window

Seat Movement:

Front: None  
Rear: N/A

Glazing Damage:

Windshield: Front windshield broken on left side.  
Window: Impacted side windows broken.

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

None

Section 4

Occupant and Vehicle Information



Data Sheet 5

SID Instrumentation Data

Vehicle: 2004 Suzuki Forenza sedan

NHTSA No.: C40512

TEST NUMBER: 040817

DRIVER DUMMY SERIAL NUMBER: 066

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

LEFT UPPER RIB ACCELERATION

|             |        |           |        |           |
|-------------|--------|-----------|--------|-----------|
| LATERAL (P) | 57.1 g | @ 27.5 ms | 11.9 g | @ 87.5 ms |
| LATERAL (R) | 59.4 g | @ 27.5 ms | 12.5 g | @ 87.5 ms |

LEFT LOWER RIB ACCELERATION

|             |        |           |        |           |
|-------------|--------|-----------|--------|-----------|
| LATERAL (P) | 42.5 g | @ 36.9 ms | 13.3 g | @ 89.4 ms |
| LATERAL (R) | 43.3 g | @ 27.5 ms | 13.5 g | @ 89.4 ms |
| TTI d (P)   | 61.2   |           |        |           |
| TTI d (R)   | 62.0   |           |        |           |

LOWER SPINE ACCELERATION

|             |        |           |        |           |
|-------------|--------|-----------|--------|-----------|
| LATERAL (P) | 65.2 g | @ 31.9 ms | 15.1 g | @ 63.1 ms |
| LATERAL (R) | 64.6 g | @ 31.9 ms | 15.0 g | @ 94.4 ms |

PELVIS ACCELERATION

|             |        |           |        |           |
|-------------|--------|-----------|--------|-----------|
| LATERAL (P) | 72.5 g | @ 29.4 ms | 11.3 g | @ 84.4 ms |
| LATERAL (R) | 72.4 g | @ 29.4 ms | 11.3 g | @ 84.4 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: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

TEST NUMBER: 040817

PASSENGER DUMMY SERIAL NUMBER: 020

POSITIVE  
DIRECTION

NEGATIVE  
DIRECTION

LEFT UPPER RIB ACCELERATION

|             |        |           |        |           |
|-------------|--------|-----------|--------|-----------|
| LATERAL (P) | 54.2 g | @ 47.5 ms | 15.5 g | @ 96.3 ms |
| LATERAL (R) | 52.9 g | @ 47.5 ms | 18.2 g | @ 96.3 ms |

LEFT LOWER RIB ACCELERATION

|             |        |           |        |           |
|-------------|--------|-----------|--------|-----------|
| LATERAL (P) | 62.0 g | @ 46.3 ms | 22.3 g | @ 96.3 ms |
| LATERAL (R) | 60.6 g | @ 45.6 ms | 23.9 g | @ 96.3 ms |
| TTI d (P)   | 59.1   |           |        |           |
| TTI d (R)   | 58.1   |           |        |           |

LOWER SPINE ACCELERATION

|             |        |           |        |            |
|-------------|--------|-----------|--------|------------|
| LATERAL (P) | 56.3 g | @ 44.4 ms | 12.9 g | @ 100.6 ms |
| LATERAL (R) | 55.6 g | @ 44.4 ms | 13.1 g | @ 100.6 ms |

PELVIS ACCELERATION

|             |        |           |        |           |
|-------------|--------|-----------|--------|-----------|
| LATERAL (P) | 88.5 g | @ 38.1 ms | 12.3 g | @ 76.9 ms |
| LATERAL (R) | 86.5 g | @ 38.1 ms | 12.0 g | @ 76.9 ms |

POSITIVE DIRECTION

LONGITUDINAL: FORWARD  
LATERAL: RIGHTWARD  
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

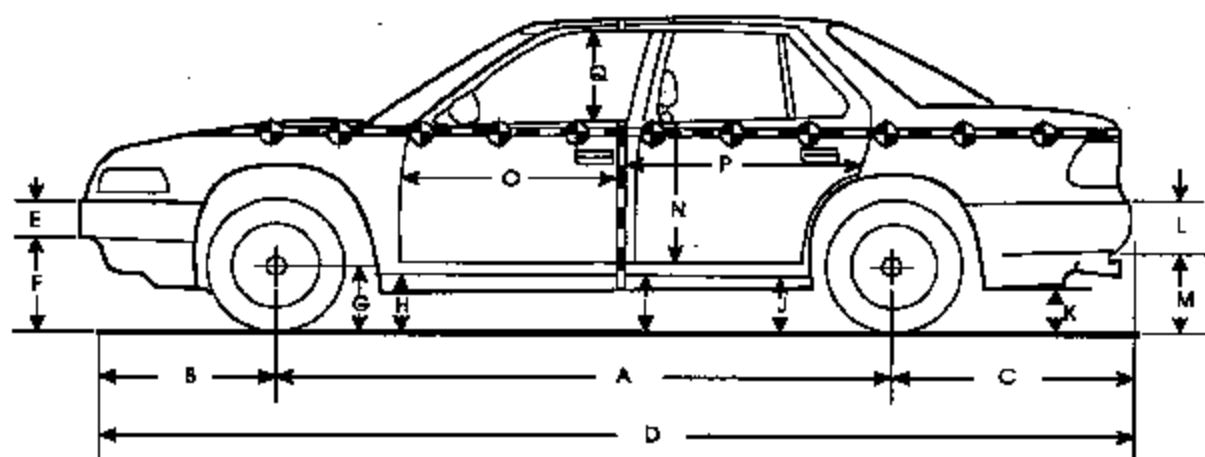
LONGITUDINAL: REARWARD  
LATERAL: LEFTWARD  
VERTICAL: UPWARD

# Data Sheet 6

## Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



Left Side View

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

|    | Pre-Test<br>(as delivered) | Pre-Test<br>(as tested) | Post-Test<br>(as tested) | Change |
|----|----------------------------|-------------------------|--------------------------|--------|
| A  | 2600                       | 2600                    | 2574                     | 26     |
| B  | 880                        | 880                     | 887                      | -7     |
| C  | 1020                       | 1020                    | 1025                     | -5     |
| D  | 4500                       | 4500                    | 4483                     | 17     |
| E  | 145                        | 145                     | 145                      | 0      |
| F  | 403                        | 386                     | 415                      | -29    |
| G  | 280                        | 275                     | 275                      | 0      |
| H  | 255                        | 253                     | 265                      | -12    |
| I  | 265                        | 253                     | 275                      | -22    |
| J1 | 197                        | 165                     | 160                      | 5      |
| J2 | 269                        | 237                     | 259                      | -22    |
| K  | 323                        | 279                     | 279                      | 0      |
| L  | 185                        | 185                     | 185                      | 0      |
| M  | 422                        | 277                     | 379                      | -102   |
| N  | 720                        | 720                     | 608                      | 112    |
| O  | 690                        | 690                     | 679                      | 11     |
| P  | 1292                       | 1292                    | 1225                     | 67     |
| Q  | 420                        | 420                     | 410                      | 10     |
| R  | 4385                       | 4385                    | 4389                     | -4     |
| S  | 4385                       | 4385                    | 4363                     | 22     |
| T  | 1320                       | 1320                    | 1169                     | 151    |

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

E&L = Bumper Thickness  
J1 = To Pinch Weld

R = Right Side Length  
J2 = To Sill

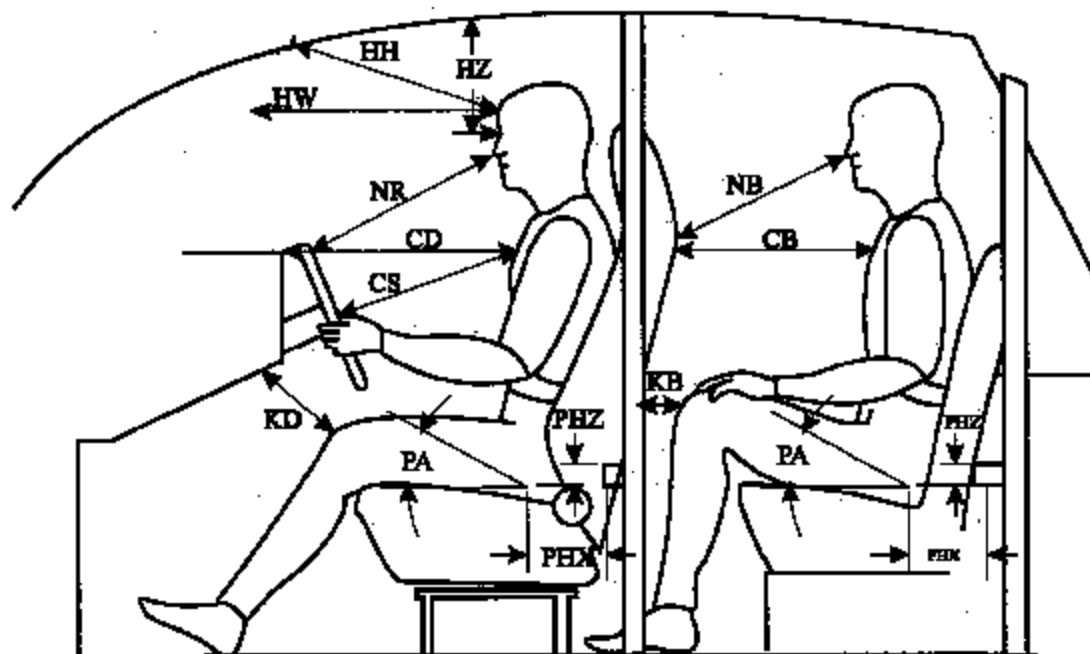
S = Left Side Length

# Data Sheet 7

## SID Longitudinal Clearance Dimensions

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



Left Side View

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

| Measurement         | Driver SID # 066 | Left Rear Pass. SID # 028 |
|---------------------|------------------|---------------------------|
| HH                  | 418              | N/A                       |
| HW                  | 677              | N/A                       |
| HZ                  | 188              | 160                       |
| NR/NB               | 526              | 615                       |
| CD/CB               | 575              | 546                       |
| CS                  | 408              | N/A                       |
| KDL(KDA°)/KBL(KBA°) | 113/(36.5°)      | 157/(36.7°)               |
| KDR(KDA°)/KBR(KBA°) | 102/(36.1°)      | 148/(36.2°)               |
| PA°                 | 23.2°            | 24°                       |
| PHX                 | 153              | 225                       |
| PHZ                 | 169              | 310                       |

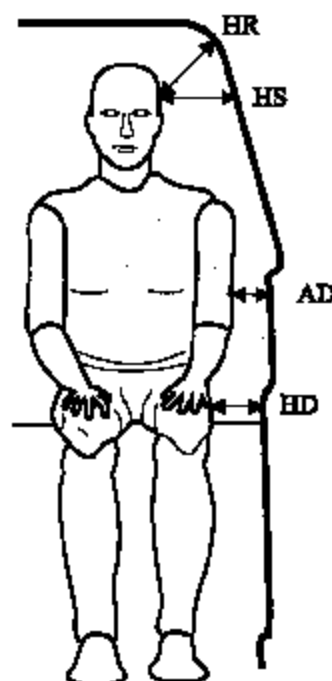
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



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

| Measurement | Driver SID # 066 |           | Left Rear Pass. SID # 028 |           |
|-------------|------------------|-----------|---------------------------|-----------|
| HR          | 160              |           | 185                       |           |
| HS          | 295              |           | 295                       |           |
| AD*         | Lower: 102       | Upper: 96 | Lower: 117                | Upper: 96 |
| HD          | 152              |           | 190                       |           |

\* 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.

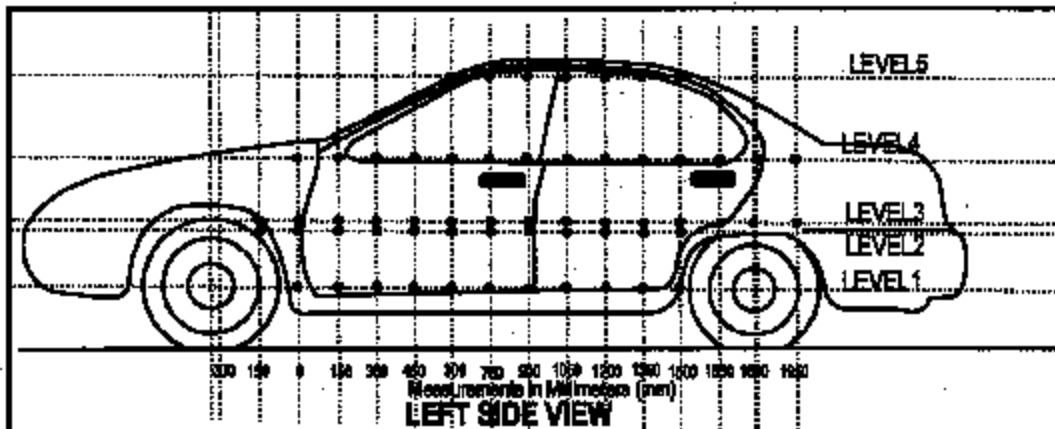
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



- 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>1395</u> | mm |
| Level 4 @ Window Sill                                    | = | <u>900</u>  | mm |
| Level 3 @ Mid Door                                       | = | <u>635</u>  | mm |
| Level 2 @ Occupant H-Point                               | = | <u>495</u>  | mm |
| Level 1 @ Axle Centerline Height<br>(or Sill Top Height) | = | <u>280</u>  | mm |

## Data Sheet 10

Vehicle Exterior Crush Profiles - All LevelsVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512

| Location                  | Height |       | (mm) From Impact Point |       |      |      |      |      |      |      |     |     |     |     |     |      |
|---------------------------|--------|-------|------------------------|-------|------|------|------|------|------|------|-----|-----|-----|-----|-----|------|
|                           |        |       | -1200                  | -1050 | -900 | -750 | -600 | -450 | -300 | -150 | 0   | 150 | 300 | 450 | 600 | 750  |
| Level 1<br>Side Sill      | 280    | Pre   | ---                    | ---   | ---  | ---  | ---  | ---  | ---  | ---  | --- | 693 | 691 | 690 | 690 | 685  |
|                           |        | Post  | ---                    | ---   | ---  | ---  | ---  | ---  | ---  | ---  | --- | 770 | 831 | 831 | 823 | 851  |
|                           |        | Crush | ---                    | ---   | ---  | ---  | ---  | ---  | ---  | ---  | --- | 77  | 140 | 141 | 133 | 166  |
| Level 2<br>H-Point        | 495    | Pre   | ---                    | ---   | 730  | 688  | ---  | ---  | ---  | ---  | 654 | 669 | 670 | 663 | 663 | 662  |
|                           |        | Post  | ---                    | ---   | 748  | 710  | ---  | ---  | ---  | ---  | 773 | 800 | 889 | 918 | 935 | 949  |
|                           |        | Crush | ---                    | ---   | 18   | 22   | ---  | ---  | ---  | ---  | 119 | 131 | 219 | 255 | 272 | 287  |
| Level 3<br>Mid-Door       | 635    | Pre   | ---                    | ---   | 737  | 703  | 660  | ---  | ---  | 640  | 663 | 660 | 660 | 652 | 650 | 648  |
|                           |        | Post  | ---                    | ---   | 751  | 725  | 691  | ---  | ---  | 711  | 770 | 769 | 853 | 868 | 886 | 885  |
|                           |        | Crush | ---                    | ---   | 14   | 22   | 31   | ---  | ---  | 71   | 107 | 109 | 193 | 216 | 236 | 237  |
| Level 4<br>Window<br>Sill | 900    | Pre   | ---                    | ---   | ---  | ---  | 792  | 767  | 745  | 732  | 723 | 715 | 710 | 703 | 698 | 690  |
|                           |        | Post  | ---                    | ---   | ---  | ---  | 810  | 793  | 779  | 769  | 769 | 770 | 794 | 840 | 862 | 872  |
|                           |        | Crush | ---                    | ---   | ---  | ---  | 18   | 26   | 34   | 37   | 46  | 55  | 84  | 137 | 164 | 182  |
| Level 5<br>Window<br>Top  | 1395   | Pre   | ---                    | ---   | ---  | ---  | ---  | ---  | ---  | ---  | --- | --- | --- | --- | --- | 963  |
|                           |        | Post  | ---                    | ---   | ---  | ---  | ---  | ---  | ---  | ---  | --- | --- | --- | --- | --- | 1015 |
|                           |        | Crush | ---                    | ---   | ---  | ---  | ---  | ---  | ---  | ---  | --- | --- | --- | --- | --- | 52   |

## Data Sheet 10 (Continued)

## Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

| Location                  | Height |       | (mm) From Impact Point |      |      |                  |                  |                  |                  |      |      |      |      |      |      |
|---------------------------|--------|-------|------------------------|------|------|------------------|------------------|------------------|------------------|------|------|------|------|------|------|
|                           |        |       | 900                    | 1050 | 1200 | 1350             | 1500             | 1650             | 1800             | 1950 | 2100 | 2250 | 2400 | 2550 | 2700 |
| Level 1<br>Side Sill      | 280    | Pre   | 684                    | 683  | 683  | 682              | 683              | 683              | 677              | —    | —    | —    | —    | —    | —    |
|                           |        | Post  | 860                    | 865  | 876  | 875              | 831              | 813              | 753              | —    | —    | —    | —    | —    | —    |
|                           |        | Crush | 176                    | 182  | 193  | 193              | 148              | 130              | 76               | —    | —    | —    | —    | —    | —    |
| Level 2<br>H-Point        | 495    | Pre   | 660                    | 660  | 660  | 663              | 663              | 663              | 662              | —    | —    | —    | —    | 663  | 700  |
|                           |        | Post  | 950                    | 954  | 960  | 970              | 963              | 945              | 880              | —    | —    | —    | —    | 683  | 715  |
|                           |        | Crush | 290                    | 294  | 300  | 307              | 300              | 282              | 218              | —    | —    | —    | —    | 20   | 15   |
| Level 3<br>Mid-Door       | 635    | Pre   | 645                    | 645  | 643  | 642              | 643              | 643              | 643              | 651  | 632  | —    | 645  | 680  | 693  |
|                           |        | Post  | 892                    | 901  | 919  | 925 <sup>1</sup> | 934 <sup>1</sup> | 930 <sup>1</sup> | 900 <sup>1</sup> | 819  | 711  | —    | 679  | 700  | 709  |
|                           |        | Crush | 247                    | 256  | 276  | 283              | 291              | 287              | 249              | 168  | 79   | —    | 34   | 20   | 16   |
| Level 4<br>Window<br>Sill | 900    | Pre   | 685                    | 683  | 680  | 675              | 676              | 680              | 680              | 680  | 688  | 695  | 703  | 710  | 724  |
|                           |        | Post  | 880                    | 890  | 958  | 935              | 929              | 920              | 876              | 785  | 723  | 747  | 745  | 741  | 745  |
|                           |        | Crush | 195                    | 207  | 278  | 260              | 253              | 240              | 196              | 105  | 35   | 52   | 42   | 31   | 21   |
| Level 5<br>Window<br>Top  | 1395   | Pre   | 945                    | 937  | 935  | 937              | 931              | 930              | 937              | 945  | —    | —    | —    | —    | —    |
|                           |        | Post  | 1012                   | 1021 | 1039 | 1046             | 1029             | 1013             | 999              | 995  | —    | —    | —    | —    | —    |
|                           |        | Crush | 67                     | 84   | 104  | 109              | 98               | 83               | 62               | 50   | —    | —    | —    | —    | —    |

<sup>1</sup> Original mark missing, measurement taken on underling trim piece.



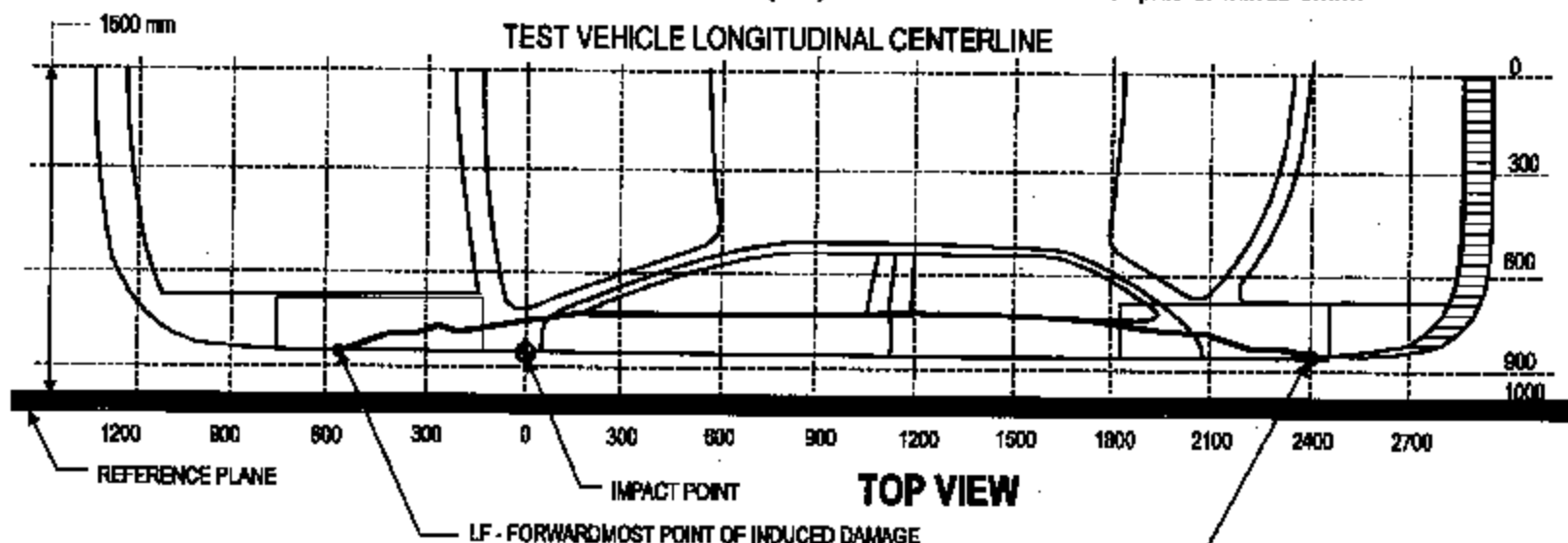
# Data Sheet 11

## Vehicle Damage Profile Distances

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

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) | Pre-Test (mm) | Static Crush (mm) |
|---------------------------|----------------|---------------|-------------------|
| 6: LF = -150 mm (Level 3) | 711            | 640           | 71                |
| 5: 300 mm (Level 2)       | 889            | 670           | 219               |
| 4: 750 mm (Level 2)       | 949            | 662           | 287               |
| 3: 1200 mm (Level 2)      | 960            | 660           | 300               |
| 2: 1650 mm (Level 3)      | 940            | 643           | 287               |
| 1: LR = 2100 mm (Level 3) | 711            | 632           | 79                |

Full length of induced damage was 2250 mm.

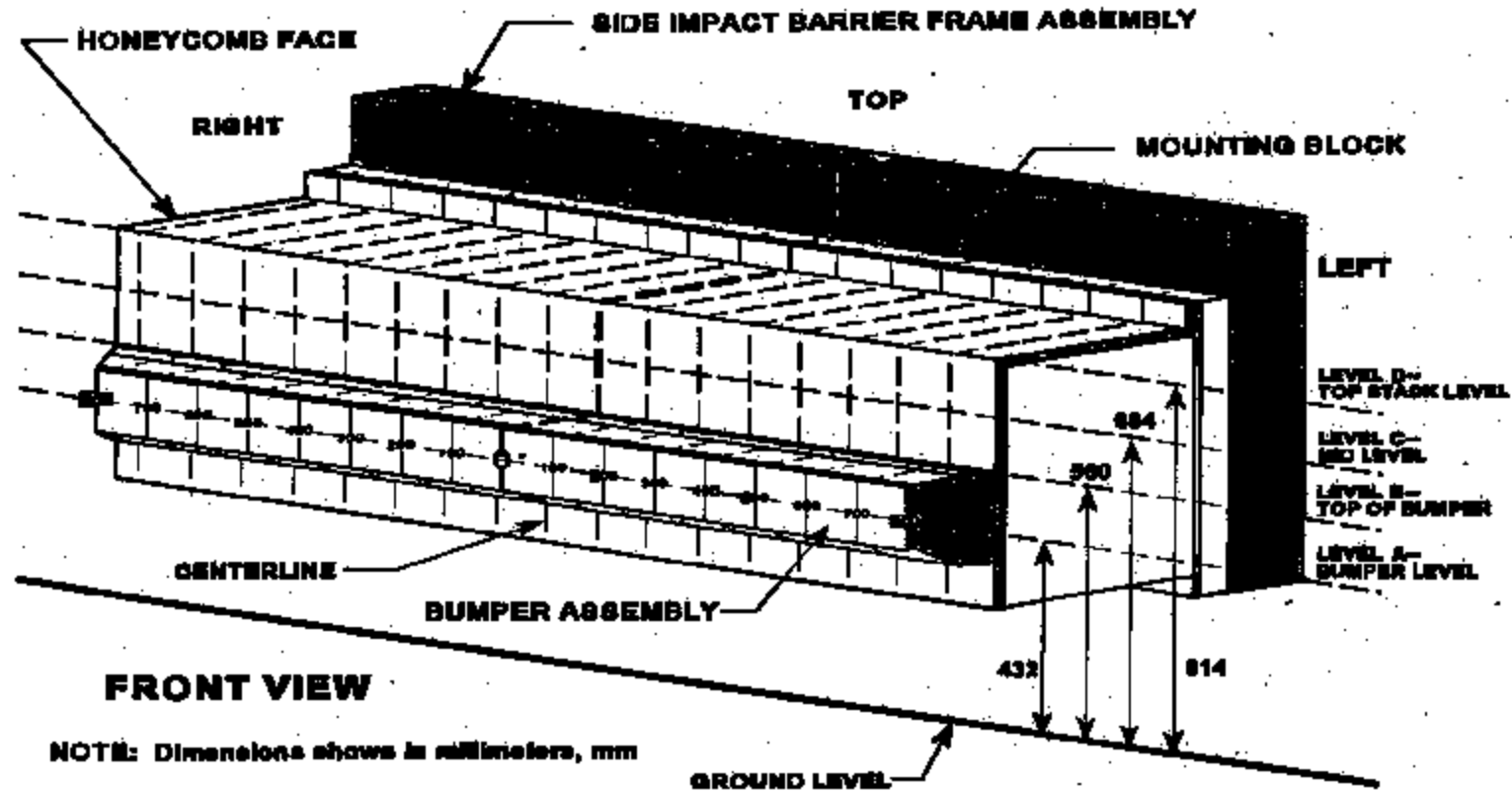
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



## Data Sheet 12 (Continued)

Exterior Static Crush For Impactor FaceVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512Exterior Static Crush For Impactor Face

|                                          |                 | Distance Right of Center (mm) |     |     |     |     |     |     |     |     | Distance Left of Center (mm) |     |     |     |     |     |      |      |  |
|------------------------------------------|-----------------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------------------------------|-----|-----|-----|-----|-----|------|------|--|
| Location                                 | Height<br>At CL | 800                           | 700 | 600 | 500 | 400 | 300 | 200 | 100 | 0   | 100                          | 200 | 300 | 400 | 500 | 600 | 700  | 800  |  |
| Top Stack Level<br>- Level D             | 815             | -12                           | 12  | 11  | 8   | 6   | -4  | -9  | -6  | -5  | -3                           | -5  | -7  | -13 | -33 | -67 | -116 | -156 |  |
| Mid Level<br>Level C                     | 687             | 10                            | 9   | 6   | 4   | 2   | 0   | -8  | -2  | -4  | -5                           | -5  | -8  | -9  | -13 | -35 | -85  | -100 |  |
| Top Bumper <sup>1</sup><br>Level-Level B | 560             | -16                           | -10 | -6  | -6  | -8  | -11 | -14 | -14 | -17 | -22                          | -25 | -29 | -32 | -39 | -56 | -79  | -93  |  |
| Mid Bumper<br>Level - Level A            | 432             | -64                           | -49 | -40 | -35 | -36 | -43 | -40 | -40 | -42 | -46                          | -50 | -53 | -57 | -68 | -86 | -120 | -137 |  |

All measurements are in millimeters and have a tolerance of  $\pm 3$ mm.<sup>1</sup> Pre- and post-test top bumper measurements are collected at 560 mm to reduce the number of inaccessible measurement points caused by bumper element deformation post-test.

## Data Sheet 12 (Continued)

Exterior Static Crush For Impactor FaceVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512Deformable Barrier Face Profile

## Level D - Top Stack

## Pre-Test

| Index | Xmm  | Ymm  | Zmm |
|-------|------|------|-----|
| 1     | -381 | 800  | -39 |
| 2     | -381 | 700  | -39 |
| 3     | -382 | 599  | -40 |
| 4     | -382 | 500  | -40 |
| 5     | -382 | 400  | -41 |
| 6     | -382 | 300  | -42 |
| 7     | -382 | 200  | -43 |
| 8     | -382 | 100  | -42 |
| 9     | -383 | -1   | -44 |
| 10    | -383 | -101 | -44 |
| 11    | -383 | -200 | -45 |
| 12    | -383 | -301 | -46 |
| 13    | -383 | -400 | -46 |
| 14    | -382 | -500 | -47 |
| 15    | -383 | -600 | -47 |
| 16    | -382 | -700 | -48 |
| 17    | -382 | -799 | -48 |

## Post-Test

| Index | Xmm  | Ymm  | Zmm |
|-------|------|------|-----|
| 1     | -369 | 785  | -58 |
| 2     | -393 | 690  | -55 |
| 3     | -393 | 589  | -55 |
| 4     | -390 | 490  | -54 |
| 5     | -387 | 390  | -55 |
| 6     | -379 | 290  | -55 |
| 7     | -374 | 190  | -55 |
| 8     | -377 | 90   | -54 |
| 9     | -377 | -10  | -55 |
| 10    | -379 | -110 | -55 |
| 11    | -378 | -210 | -55 |
| 12    | -376 | -310 | -55 |
| 13    | -369 | -410 | -55 |
| 14    | -350 | -507 | -57 |
| 15    | -315 | -600 | -60 |
| 16    | -266 | -686 | -67 |
| 17    | -226 | -772 | -69 |

## Difference

| Index | Xmm | Ymm | Zmm |
|-------|-----|-----|-----|
| 1     | -12 | 15  | 19  |
| 2     | 12  | 10  | 16  |
| 3     | 11  | 10  | 15  |
| 4     | 8   | 10  | 15  |
| 5     | 6   | 10  | 14  |
| 6     | 4   | 10  | 13  |
| 7     | 9   | 9   | 12  |
| 8     | 6   | 10  | 12  |
| 9     | 5   | 9   | 11  |
| 10    | 3   | 10  | 11  |
| 11    | 5   | 10  | 10  |
| 12    | 7   | 10  | 10  |
| 13    | 13  | 9   | 9   |
| 14    | 33  | 7   | 10  |
| 15    | 67  | 0   | 13  |
| 16    | 116 | -15 | 19  |
| 17    | 156 | -27 | 21  |

## Data Sheet 12 (Continued)

Exterior Static Crush For Impactor FaceVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512Deformable Barrier Face Profile Cont'd.

## Level C - Mid Level

## Pre-Test

| Index | Xmm  | Ymm  | Zmm  |
|-------|------|------|------|
| 18    | -382 | 800  | -169 |
| 19    | -382 | 700  | -169 |
| 20    | -382 | 600  | -170 |
| 21    | -382 | 500  | -170 |
| 22    | -382 | 400  | -171 |
| 23    | -382 | 300  | -171 |
| 24    | -382 | 200  | -172 |
| 25    | -383 | 100  | -173 |
| 26    | -383 | -1   | -172 |
| 27    | -383 | -101 | -174 |
| 28    | -383 | -200 | -174 |
| 29    | -383 | -300 | -176 |
| 30    | -383 | -401 | -176 |
| 31    | -383 | -500 | -176 |
| 32    | -383 | -601 | -176 |
| 33    | -382 | -701 | -177 |
| 34    | -383 | -800 | -178 |

## Post-Test

| Index | Xmm  | Ymm  | Zmm  |
|-------|------|------|------|
| 18    | -392 | 789  | -185 |
| 19    | -390 | 689  | -185 |
| 20    | -388 | 590  | -185 |
| 21    | -386 | 489  | -185 |
| 22    | -384 | 389  | -185 |
| 23    | -382 | 289  | -185 |
| 24    | -374 | 189  | -185 |
| 25    | -380 | 89   | -185 |
| 26    | -379 | -10  | -184 |
| 27    | -378 | -111 | -184 |
| 28    | -378 | -211 | -184 |
| 29    | -376 | -312 | -184 |
| 30    | -374 | -412 | -184 |
| 31    | -369 | -513 | -184 |
| 32    | -348 | -610 | -185 |
| 33    | -298 | -696 | -192 |
| 34    | -282 | -789 | -184 |

## Difference

| Index | Xmm  | Ymm | Zmm |
|-------|------|-----|-----|
| 18    | 10   | 11  | 16  |
| 19    | 9    | 11  | 16  |
| 20    | 6    | 11  | 15  |
| 21    | 4    | 11  | 15  |
| 22    | 2    | 11  | 14  |
| 23    | 0    | 11  | 14  |
| 24    | -8   | 11  | 13  |
| 25    | -2   | 11  | 12  |
| 26    | -4   | 10  | 12  |
| 27    | -5   | 11  | 10  |
| 28    | -5   | 11  | 10  |
| 29    | -8   | 11  | 8   |
| 30    | -9   | 12  | 8   |
| 31    | -13  | 12  | 8   |
| 32    | -35  | 10  | 8   |
| 33    | -85  | -5  | 15  |
| 34    | -100 | -11 | 7   |

## Data Sheet 12 (Continued)

Exterior Static Crush For Impactor FaceVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512Deformable Barrier Face Profile Cont'd.

## Level B - Top of Bumper

## Pre-Test

| Index | Xmm  | Ymm  | Zmm  |
|-------|------|------|------|
| 35    | -382 | 800  | -294 |
| 36    | -382 | 700  | -295 |
| 37    | -382 | 601  | -295 |
| 38    | -382 | 501  | -296 |
| 39    | -382 | 401  | -297 |
| 40    | -383 | 300  | -297 |
| 41    | -383 | 200  | -298 |
| 42    | -383 | 101  | -298 |
| 43    | -383 | 1    | -299 |
| 44    | -384 | -100 | -299 |
| 45    | -383 | -199 | -300 |
| 46    | -383 | -300 | -300 |
| 47    | -383 | -399 | -302 |
| 48    | -383 | -499 | -302 |
| 49    | -383 | -599 | -303 |
| 50    | -383 | -699 | -303 |
| 51    | -383 | -800 | -304 |

## Post-Test

| Index | Xmm  | Ymm  | Zmm  |
|-------|------|------|------|
| 35    | -366 | 789  | -304 |
| 36    | -372 | 689  | -306 |
| 37    | -376 | 589  | -307 |
| 38    | -376 | 489  | -308 |
| 39    | -374 | 389  | -308 |
| 40    | -372 | 289  | -307 |
| 41    | -369 | 189  | -306 |
| 42    | -369 | 89   | -307 |
| 43    | -365 | -11  | -306 |
| 44    | -361 | -110 | -306 |
| 45    | -358 | -211 | -305 |
| 46    | -354 | -310 | -304 |
| 47    | -352 | -410 | -303 |
| 48    | -344 | -511 | -303 |
| 49    | -327 | -610 | -300 |
| 50    | -304 | -706 | -294 |
| 51    | -291 | -805 | -303 |

## Difference

| Index | Xmm | Ymm | Zmm |
|-------|-----|-----|-----|
| 35    | -16 | 12  | 10  |
| 36    | -10 | 12  | 11  |
| 37    | -6  | 12  | 12  |
| 38    | -6  | 12  | 13  |
| 39    | -8  | 12  | 12  |
| 40    | -11 | 11  | 10  |
| 41    | -14 | 11  | 8   |
| 42    | -14 | 12  | 9   |
| 43    | -17 | 11  | 7   |
| 44    | -22 | 10  | 7   |
| 45    | -25 | 11  | 5   |
| 46    | -29 | 10  | 4   |
| 47    | -32 | 11  | 1   |
| 48    | -39 | 12  | 1   |
| 49    | -56 | 11  | -4  |
| 50    | -79 | 8   | -8  |
| 51    | -93 | 6   | -1  |

## Data Sheet 12 (Continued)

Exterior Static Crush For Impactor FaceVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512Deformable Barrier Face Profile Cont'd.

## Level A - Mid Bumper

## Pre-Test

| Index | Xmm  | Ymm  | Zmm  |
|-------|------|------|------|
| 52    | -475 | 798  | -422 |
| 53    | -485 | 700  | -423 |
| 54    | -485 | 601  | -423 |
| 55    | -485 | 501  | -423 |
| 56    | -486 | 401  | -424 |
| 57    | -486 | 300  | -425 |
| 58    | -486 | 200  | -425 |
| 59    | -486 | 100  | -426 |
| 60    | -486 | 0    | -427 |
| 61    | -486 | -100 | -427 |
| 62    | -486 | -201 | -428 |
| 63    | -486 | -300 | -429 |
| 64    | -486 | -400 | -429 |
| 65    | -486 | -501 | -430 |
| 66    | -486 | -600 | -430 |
| 67    | -486 | -701 | -431 |
| 68    | -476 | -797 | -431 |

## Post-Test

| Index | Xmm  | Ymm  | Zmm  |
|-------|------|------|------|
| 52    | -411 | 779  | -440 |
| 53    | -436 | 683  | -443 |
| 54    | -445 | 584  | -443 |
| 55    | -450 | 484  | -442 |
| 56    | -450 | 384  | -441 |
| 57    | -443 | 284  | -439 |
| 58    | -446 | 184  | -438 |
| 59    | -446 | 85   | -437 |
| 60    | -444 | -16  | -438 |
| 61    | -440 | -116 | -437 |
| 62    | -436 | -217 | -436 |
| 63    | -433 | -317 | -434 |
| 64    | -429 | -416 | -434 |
| 65    | -418 | -516 | -433 |
| 66    | -400 | -614 | -431 |
| 67    | -366 | -709 | -429 |
| 68    | -338 | -802 | -425 |

## Difference

| Index | Xmm  | Ymm | Zmm |
|-------|------|-----|-----|
| 52    | -64  | 19  | 18  |
| 53    | -49  | 17  | 21  |
| 54    | -40  | 17  | 20  |
| 55    | -35  | 16  | 18  |
| 56    | -36  | 17  | 17  |
| 57    | -43  | 16  | 15  |
| 58    | -40  | 16  | 13  |
| 59    | -40  | 16  | 11  |
| 60    | -42  | 16  | 11  |
| 61    | -46  | 16  | 10  |
| 62    | -50  | 16  | 8   |
| 63    | -53  | 16  | 5   |
| 64    | -57  | 16  | 4   |
| 65    | -68  | 15  | 3   |
| 66    | -86  | 14  | 1   |
| 67    | -120 | 8   | -3  |
| 68    | -137 | 5   | -6  |

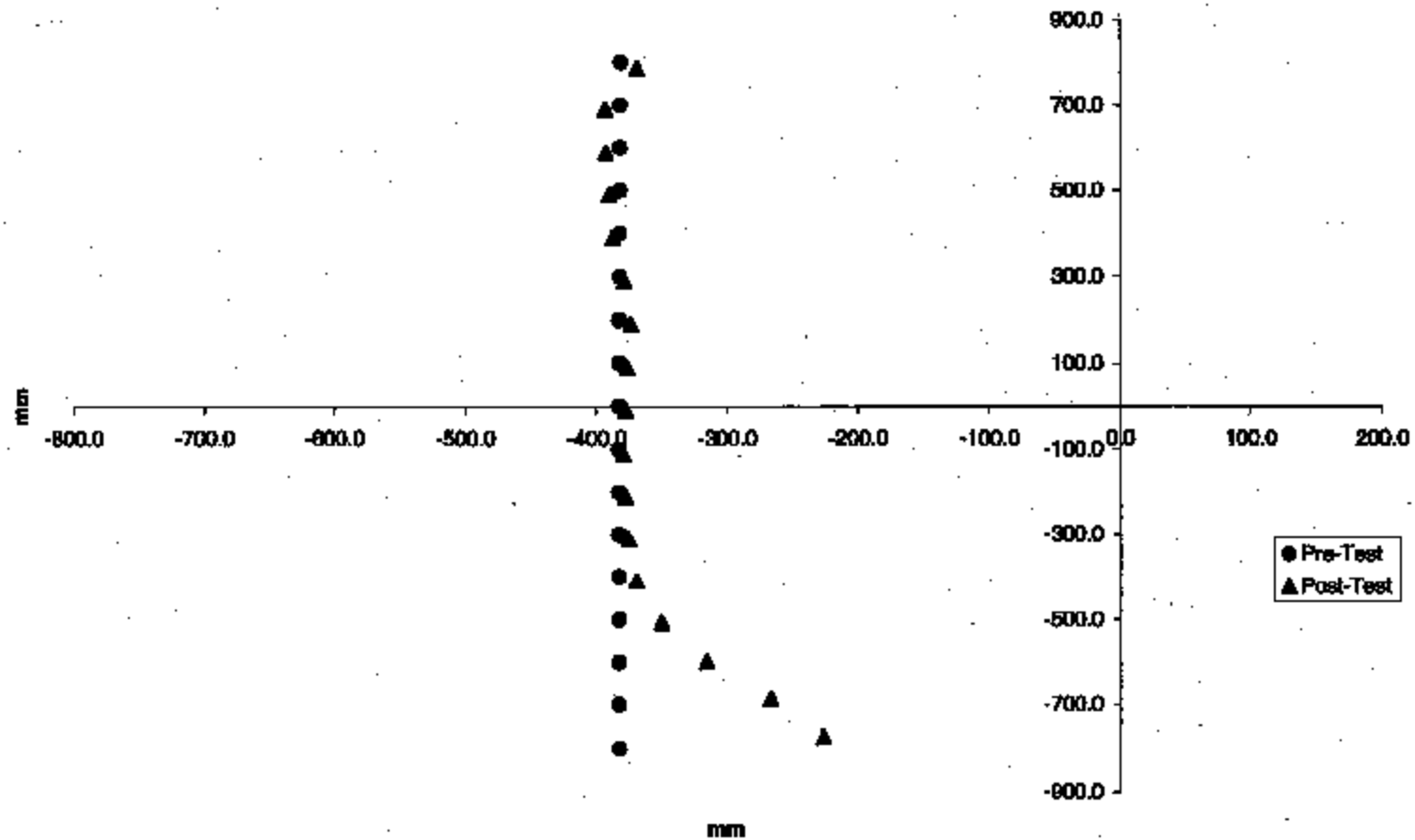
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

**Level D - Deformable Barrier Face Profile 1-17**





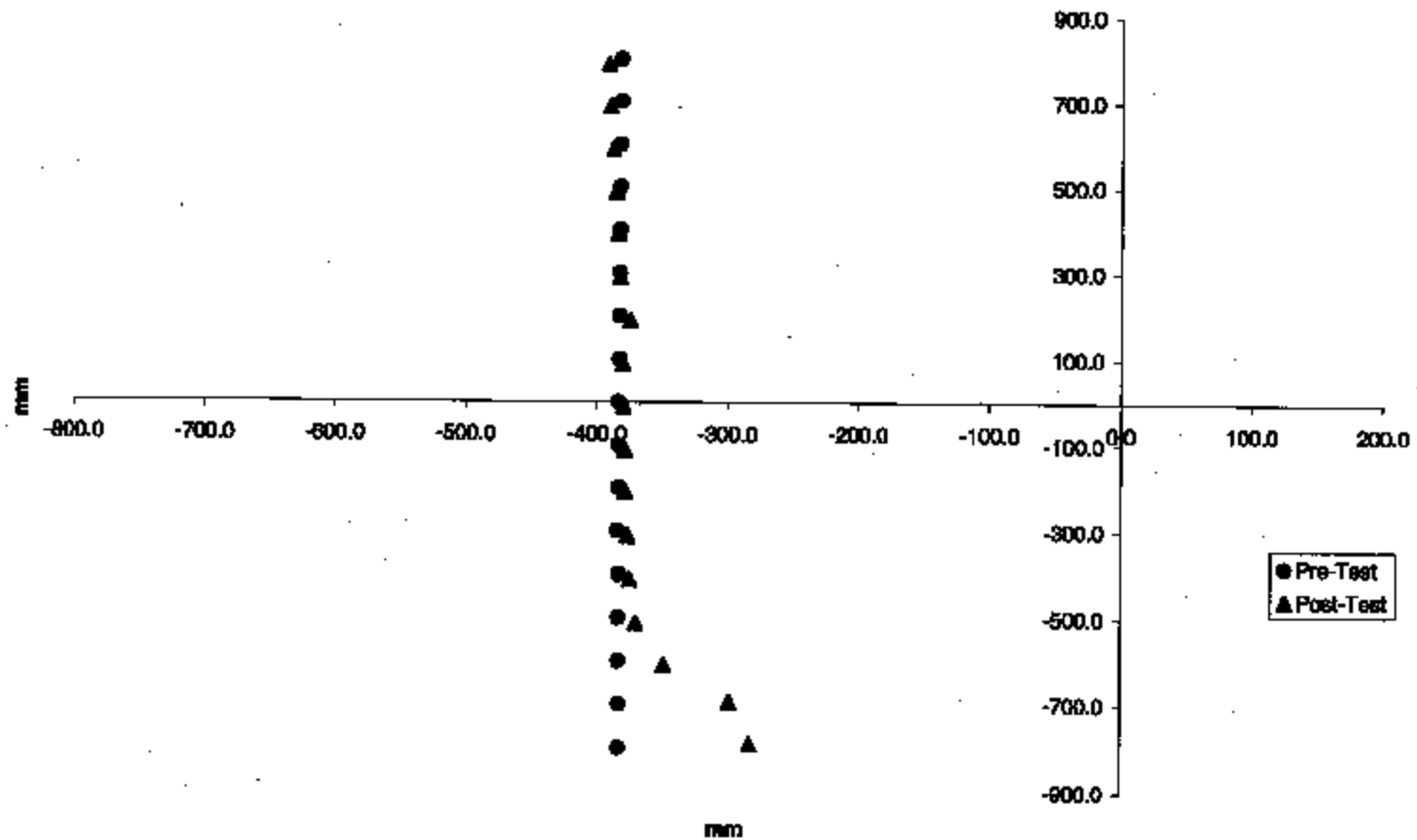
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

**Level C - Deformable Barrier Face Profile 18-34**



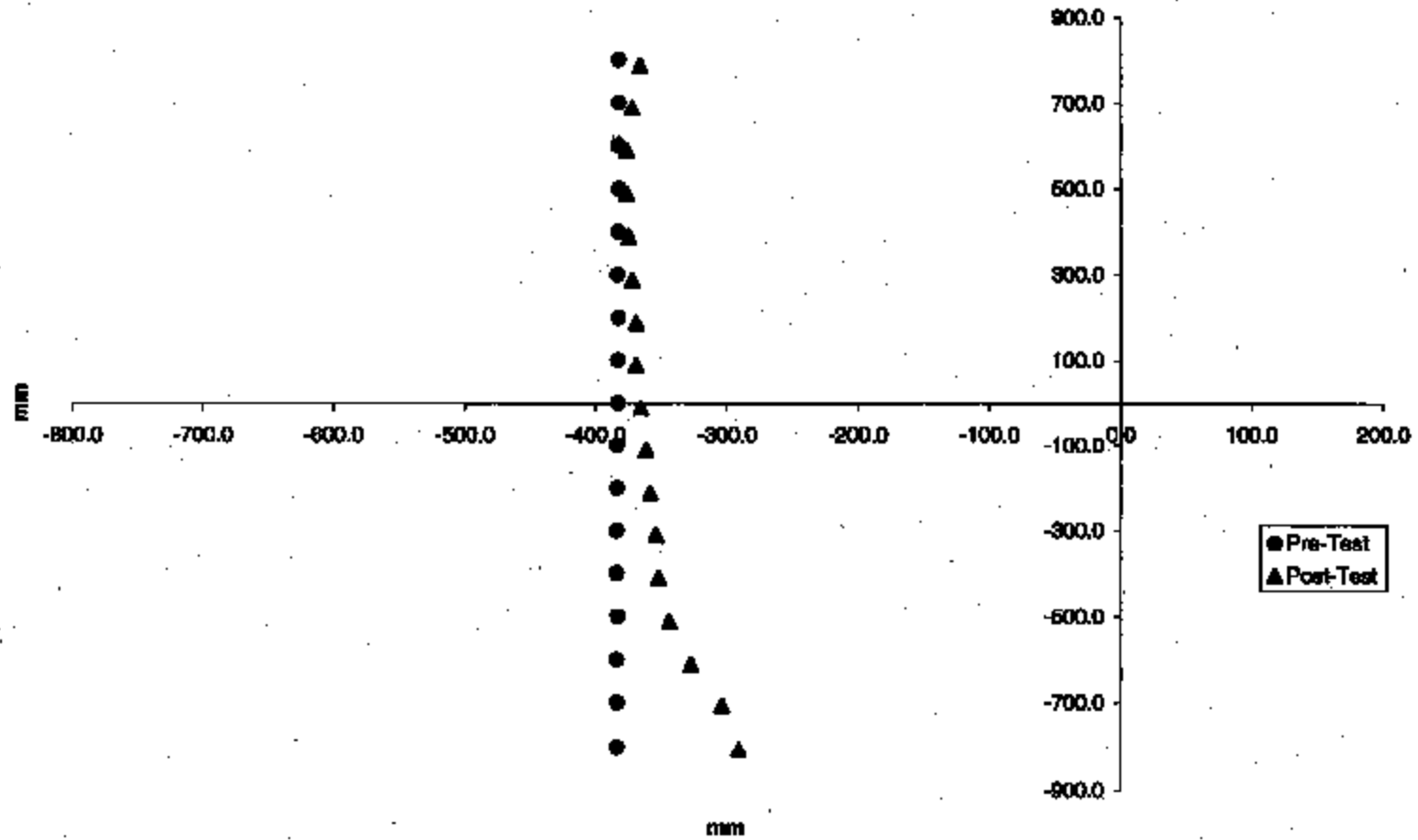
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

Level B - Deformable Barrier Face Profile 35-51



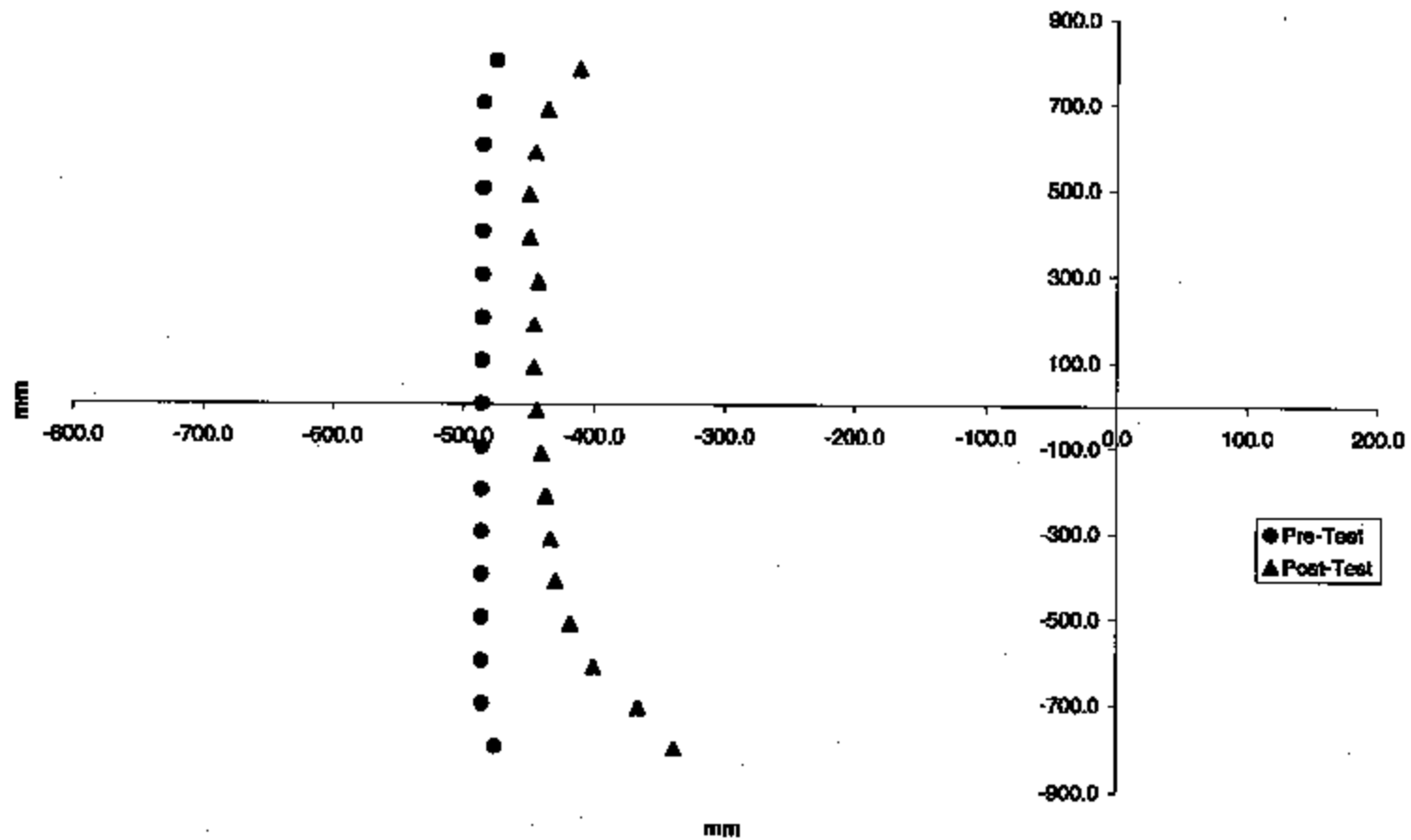
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

**Level A - Deformable Barrier Face Profile 52-68**

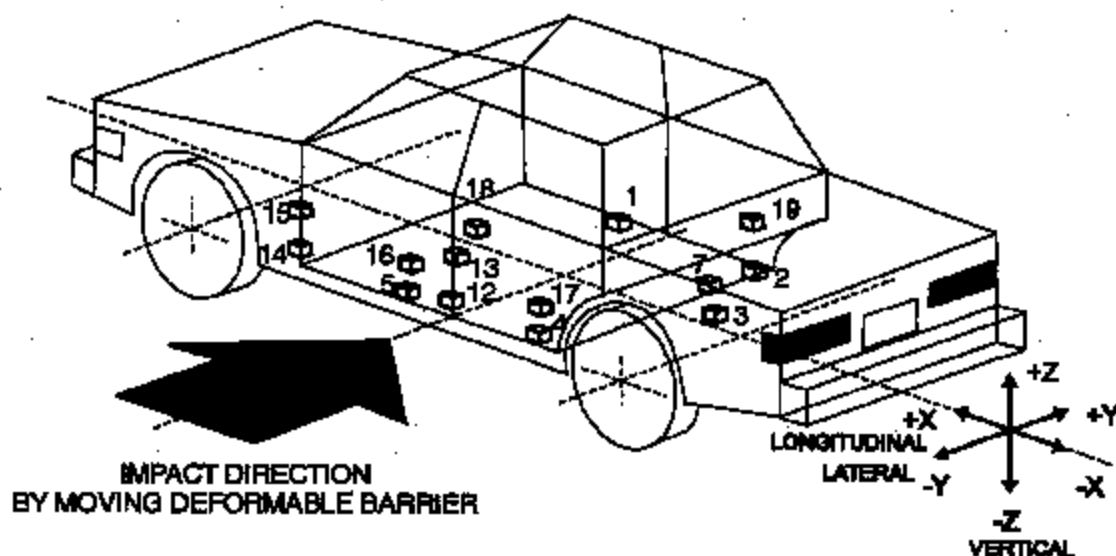


Data Sheet 13

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



- 1-Right Front Side Sill
- 2-Right Side Sill at Rear Seat
- 3-Rear Floorpan above Axle
- 4-Left Side Sill at Rear Seat
- 5-Left Front Side Sill
- 7-Right Rear Occupant Compartment
- 12-Left Side Lower B-pillar

- 13-Left Side Middle B-pillar
- 14-Left Side Lower A-pillar
- 15-Left Side Middle A-pillar
- 16-Left Side Front Seat Track at H-point
- 17-Left Rear Seat Track at H-point
- 18-Vehicle Center of Gravity

## Data Sheet 13 (Continued)

## Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512

TEST NUMBER: 040817

No. LOCATION

X

Y

Z

POSITIVE  
DIRECTIONNEGATIVE  
DIRECTION

|                                    |         |         |         |        |            |        |            |
|------------------------------------|---------|---------|---------|--------|------------|--------|------------|
| 1 RIGHT SIDE SILL<br>AT FRONT SEAT | 2960 mm | 675 mm  | -285 mm |        |            |        |            |
| LONGITUDINAL                       |         |         |         | 3.0 g  | @ 54.3 ms  | 5.1 g  | @ 12.4 ms  |
| LATERAL                            |         |         |         | 18.6 g | @ 17.5 ms  | 2.5 g  | @ 150.5 ms |
| VERTICAL                           |         |         |         | 3.3 g  | @ 45.7 ms  | 4.9 g  | @ 19.1 ms  |
| RESULTANT                          |         |         |         | 19.4 g | @ 17.6 ms  |        |            |
| 2 RIGHT SIDE SILL<br>AT REAR SEAT  | 1910 mm | 665 mm  | -264 mm |        |            |        |            |
| LONGITUDINAL                       |         |         |         | 2.3 g  | @ 53.8 ms  | 6.2 g  | @ 13.2 ms  |
| LATERAL                            |         |         |         | 22.0 g | @ 35.0 ms  | 4.1 g  | @ 149.0 ms |
| VERTICAL                           |         |         |         | 5.8 g  | @ 35.5 ms  | 6.7 g  | @ 24.5 ms  |
| RESULTANT                          |         |         |         | 23.4 g | @ 35.1 ms  |        |            |
| 3 REAR FLOORPAN<br>ABOVE AXLE      | 1020 mm | 0 mm    | -306 mm |        |            |        |            |
| LONGITUDINAL                       |         |         |         | 3.0 g  | @ 110.4 ms | 17.9 g | @ 18.0 ms  |
| LATERAL                            |         |         |         | 21.5 g | @ 33.2 ms  | 2.5 g  | @ 171.4 ms |
| VERTICAL                           |         |         |         | 7.1 g  | @ 29.4 ms  | 7.1 g  | @ 22.6 ms  |
| RESULTANT                          |         |         |         | 24.0 g | @ 17.6 ms  |        |            |
| 4 LEFT SIDE SILL<br>AT REAR SEAT   | 1895 mm | -662 mm | -268 mm |        |            |        |            |
| LATERAL                            |         |         |         | 71.1 g | @ 14.6 ms  | 24.1 g | @ 10.6 ms  |

## Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512

TEST NUMBER: 040817

No. LOCATION

X

Y

Z

POSITIVE  
DIRECTIONNEGATIVE  
DIRECTION5 LEFT SIDE SILL  
AT FRONT SEAT  
LATERAL<sup>1</sup>

2960 mm

-675 mm

-251 mm

---

---

---

---

7 RIGHT REAR OCCUPANT  
COMPARTMENT  
LATERAL

1767 mm

444 mm

-375 mm

21.4 g

@ 34.6 ms

2.5 g

@ 150.5 ms

12 LEFT LOWER B-POST  
LATERAL

2070 mm

-705 mm

-580 mm

269.0 g

@ 6.0 ms

141.1 g

@ 11.6 ms

13 LEFT MIDDLE B-POST  
LATERAL

2073 mm

-705 mm

-820 mm

206.6 g

@ 5.4 ms

67.8 g

@ 12.4 ms

14 LEFT LOWER A-POST  
LATERAL

3100 mm

-750 mm

-404 mm

124.0 g

@ 3.2 ms

43.5 g

@ 8.7 ms

15 LEFT MIDDLE A-POST  
LATERAL<sup>1</sup>

3090 mm

-740 mm

-752 mm

---

---

---

---

16 LEFT FRONT SEAT TRACK  
LATERAL

2295 mm

-650 mm

-105 mm

30.4 g

@ 15.3 ms

9.9 g

@ 47.5 ms

17 LEFT REAR SEAT TRACK  
LATERAL<sup>1</sup>

1425 mm

-610 mm

-170 mm

26.1 g

@ 26.1 ms

3.4 g

@ 89.9 ms

## Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2004 Suzuki Forenza 4-door sedanNHTSA No.: C40512

TEST NUMBER: 040817

No. LOCATION

X

Y

Z

POSITIVE  
DIRECTIONNEGATIVE  
DIRECTION

18 VEHICLE CENTER

2485 mm

0 mm

-428 mm

OF GRAVITY

LONGITUDINAL

15.2 g @ 19.7 ms

17.1 g @ 26.4 ms

LATERAL

90.5 g @ 20.9 ms

14.5 g @ 32.4 ms

VERTICAL

50.5 g @ 23.0 ms

64.8 g @ 28.4 ms

RESULTANT

97.9 g @ 21.0 ms

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.

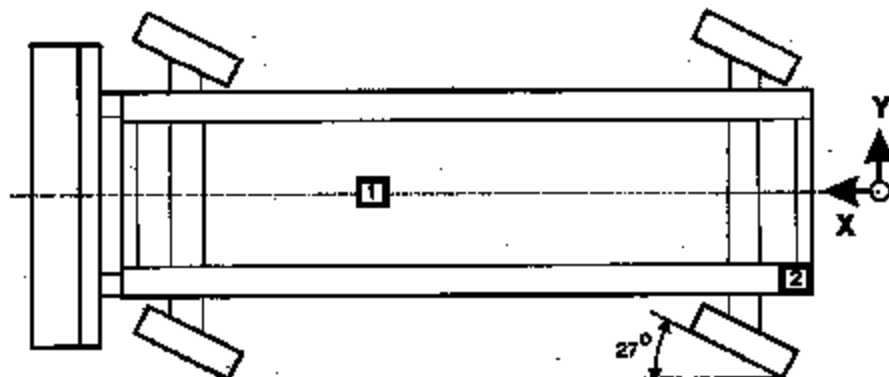
<sup>1</sup> See DATA ACQUISITION EXPLANATIONS on page 2-3

# Data Sheet 14

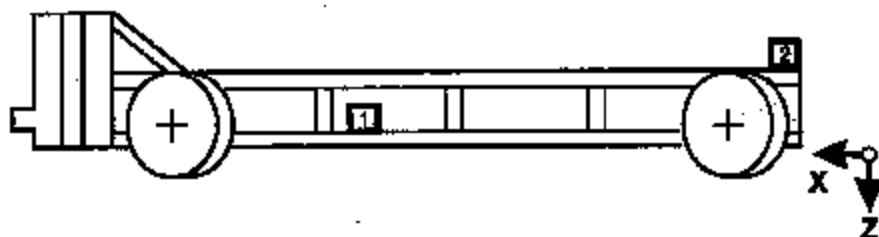
## MDB Accelerometer Locations and Data Summary

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



TOP VIEW



SIDE VIEW

| Accel.<br>No. | Location              | Coordinates<br>(millimeters) |      |      | Positive Direction |              | Negative Direction |              |
|---------------|-----------------------|------------------------------|------|------|--------------------|--------------|--------------------|--------------|
|               |                       | X*                           | Y*   | Z*   | Max.<br>(g)        | Time<br>(ms) | Max.<br>(g)        | Time<br>(ms) |
| 1             | MDB Center of Gravity | 1855                         | 0    | -520 |                    |              |                    |              |
|               | Longitudinal X        |                              |      |      | 2.7                | -20.0        | 22.1               | 42.6         |
|               | Lateral Y             |                              |      |      | 2.4                | 58.4         | 8.6                | 29.7         |
|               | Vertical Z            |                              |      |      | 4.9                | 40.7         | 6.5                | 23.4         |
|               | Resultant R           |                              |      |      | 22.5               | 42.5         |                    |              |
| 2             | Rear Frame Member     | 412                          | -677 | -625 |                    |              |                    |              |
|               | Longitudinal X        |                              |      |      | 1.8                | 133.4        | 21.8               | 34.9         |
|               | Lateral Y             |                              |      |      | 3.8                | 22.8         | 1.6                | 152.9        |

\*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

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

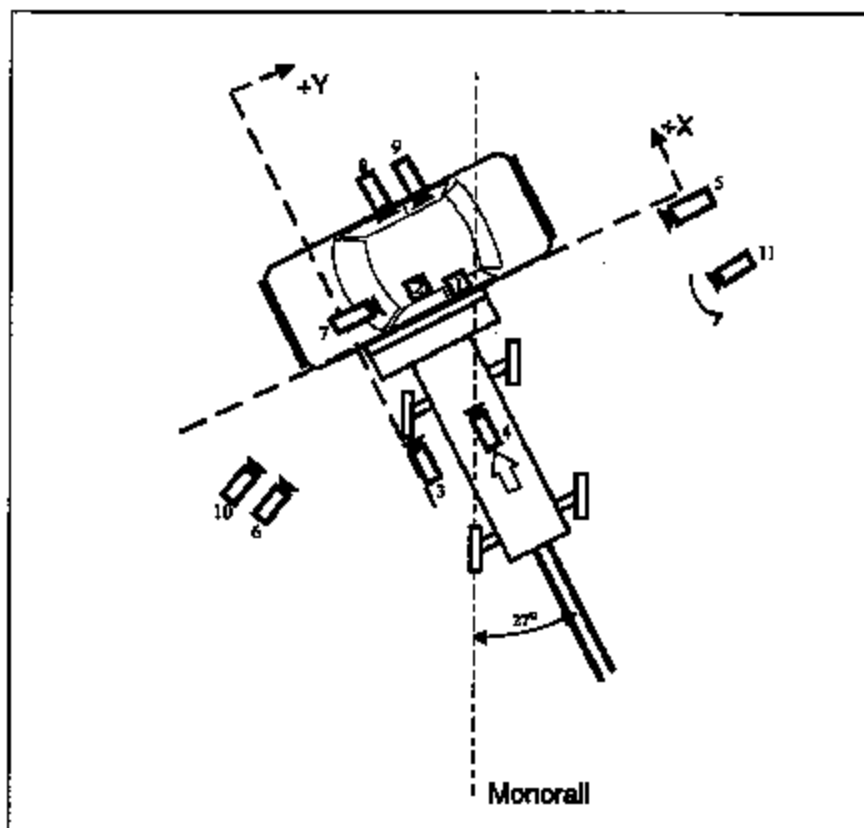


# Data Sheet 15

## High-Speed Camera Locations and Data Summary

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512



Impact  
Area

| Camera<br>Number | Location                | Location, mm |       |       | Angle<br>(deg.) | Lens<br>(mm) | Speed<br>(fps)   |
|------------------|-------------------------|--------------|-------|-------|-----------------|--------------|------------------|
|                  |                         | X            | Y     | Z     |                 |              |                  |
| 1                | Overhead wide           | 250          | 2150  | -5750 | -82.2           | 8.5          | 920              |
| 2                | Overhead tight          | 370          | 1800  | -5750 | -88.8           | 17           | 1000             |
| 3                | Onboard MDB left side   | -1750        | -40   | -720  | -0.3            | 13           | 1000             |
| 4                | Onboard MDB center      | -2480        | 830   | -1353 | -4.9            | 25           | 1000             |
| 5                | Right side of MDB       | -680         | 11330 | -1225 | 0.2             | 13           | 1000             |
| 6                | Left side of MDB        | -2530        | -5330 | -1095 | -4.2            | 13           | N/A <sup>1</sup> |
| 7                | Onboard vehicle front   | 560          | 20    | -1100 | -8.8            | 8            | 1000             |
| 8                | Onboard side front door | 1640         | 660   | -1090 | -7.3            | 8            | 1000             |
| 9                | Onboard side rear door  | 1450         | 1250  | 1069  | 1049            | 8            | N/A <sup>2</sup> |
| 10               | Real-time Panning-Video | N/A          | N/A   | N/A   | N/A             | Zoom         | 24               |

+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 LEDs

<sup>2</sup> Camera did not run.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C40512

Test Date: 08/17/04

Vehicle Year/Make/Model/Body Style: 2004 Suzuki Forenza 4-door sedan

\*\*\*\*\*

Test Vehicle Impact Type :

|               |                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------|
| <u>      </u> | Frontal (48.28 km/h)                                                                                          |
| <u>      </u> | Oblique (48.28 km/h) with <u>      </u> ° barrier<br>face first contacting the <u>(driver/passenger)</u> side |
| <u>      </u> | Rear Moving Barrier (48.28 km/h)                                                                              |
| <u>      </u> | Lateral Moving Barrier (32.19 km/h)                                                                           |
| <u>  X  </u>  | Side Impact Moving Deformable Barrier<br>(32.9 mph) contacting the <u>driver's</u> 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<br>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: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

0 - 90 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time      1 minutes      30 seconds  
(Spec. Range = 1 to 3 minutes)  
FMVSS 301 Position Hold Time +      5 minutes      0 seconds  
Total      6 minutes      30 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

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

90 - 180 Degrees



1. Determination of Solvent Collection Time Period:

|                                    |                  |                   |
|------------------------------------|------------------|-------------------|
| Rollover Fixture 90° Rotation Time | <u>1</u> minutes | <u>30</u> seconds |
| (Spec. Range = 1 to 3 minutes)     |                  |                   |
| FMVSS 301 Position Hold Time +     | <u>5</u> minutes | <u>0</u> seconds  |
| Total                              | <u>6</u> minutes | <u>30</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: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time      1 minutes      30 seconds  
(Spec. Range = 1 to 3 minutes)  
FMVSS 301 Position Hold Time +      5 minutes      0 seconds  
Total      6 minutes      30 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

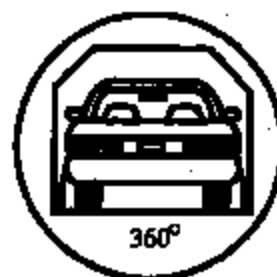
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Suzuki Forenza 4-door sedan

NHTSA No.: C40512

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

|                                    |          |         |           |         |
|------------------------------------|----------|---------|-----------|---------|
| Rollover Fixture 90° Rotation Time | <u>1</u> | minutes | <u>30</u> | seconds |
| (Spec. Range = 1 to 3 minutes)     |          |         |           |         |
| FMVSS 301 Position Hold Time +     | <u>5</u> | minutes | <u>0</u>  | seconds |
| Total                              | <u>6</u> | minutes | <u>30</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

Appendix A

Photographs



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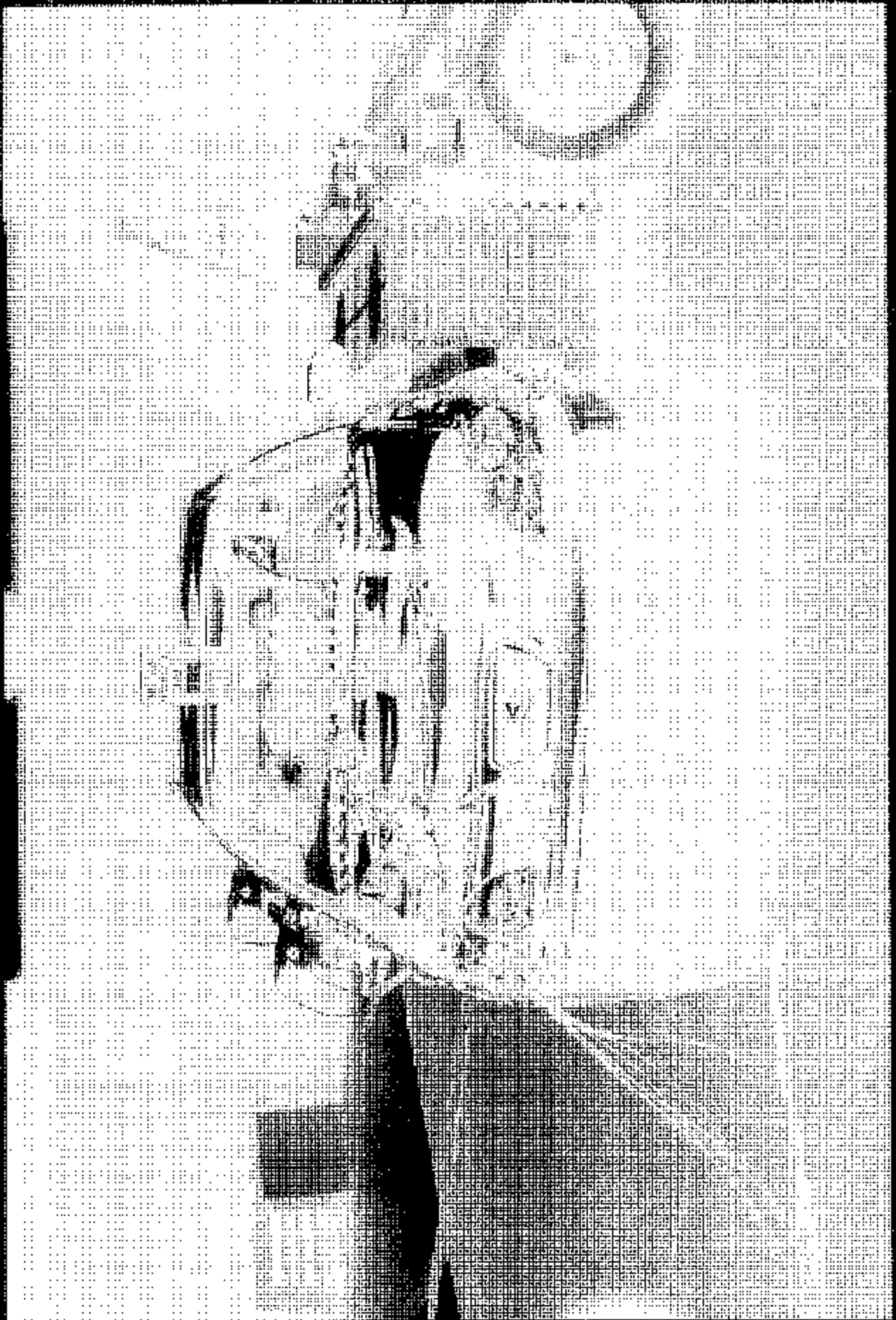


Figure A-1 Pre-Test Front View of Test Vehicle

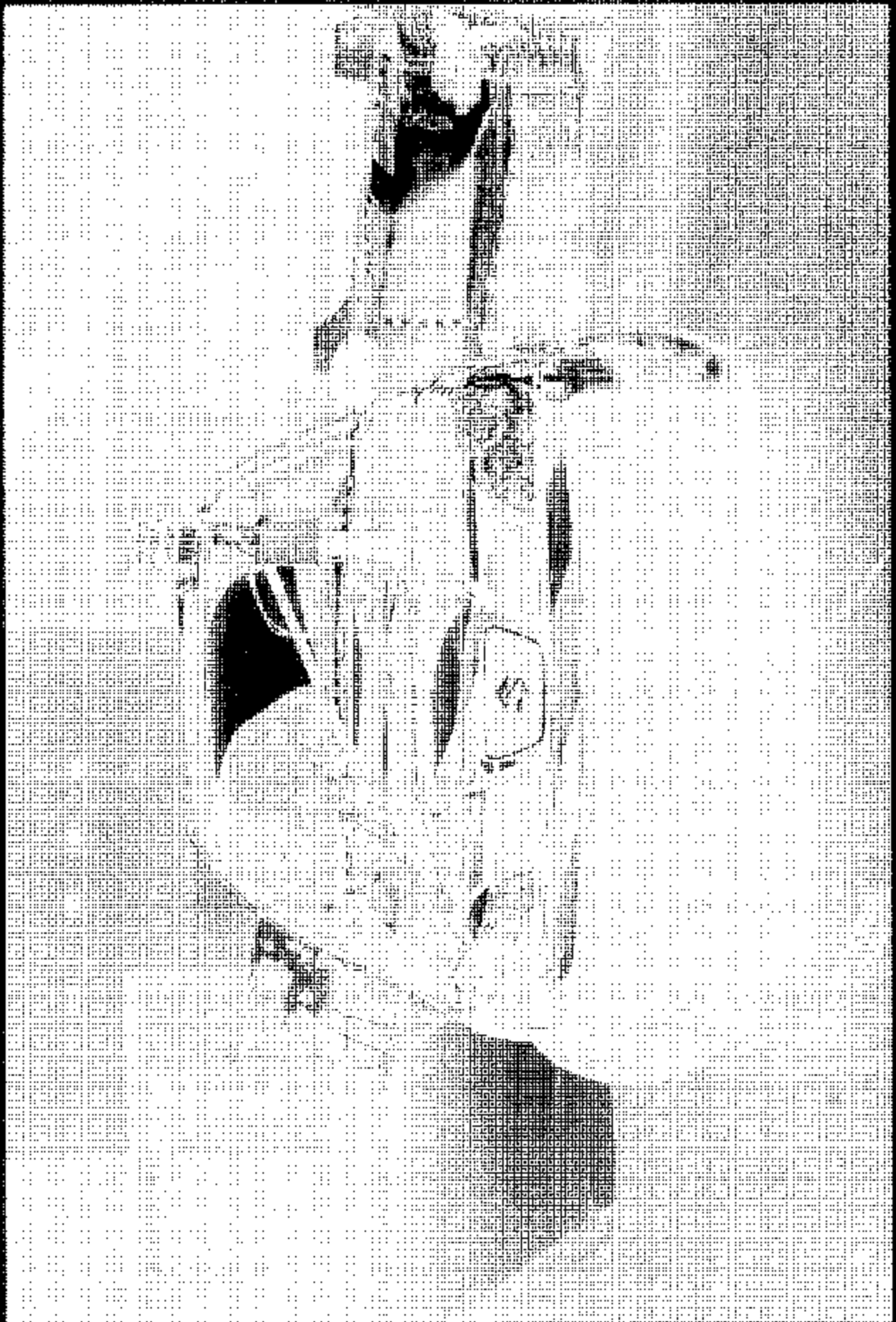


Figure A-2 Post-Test Front View of Test Vehicle

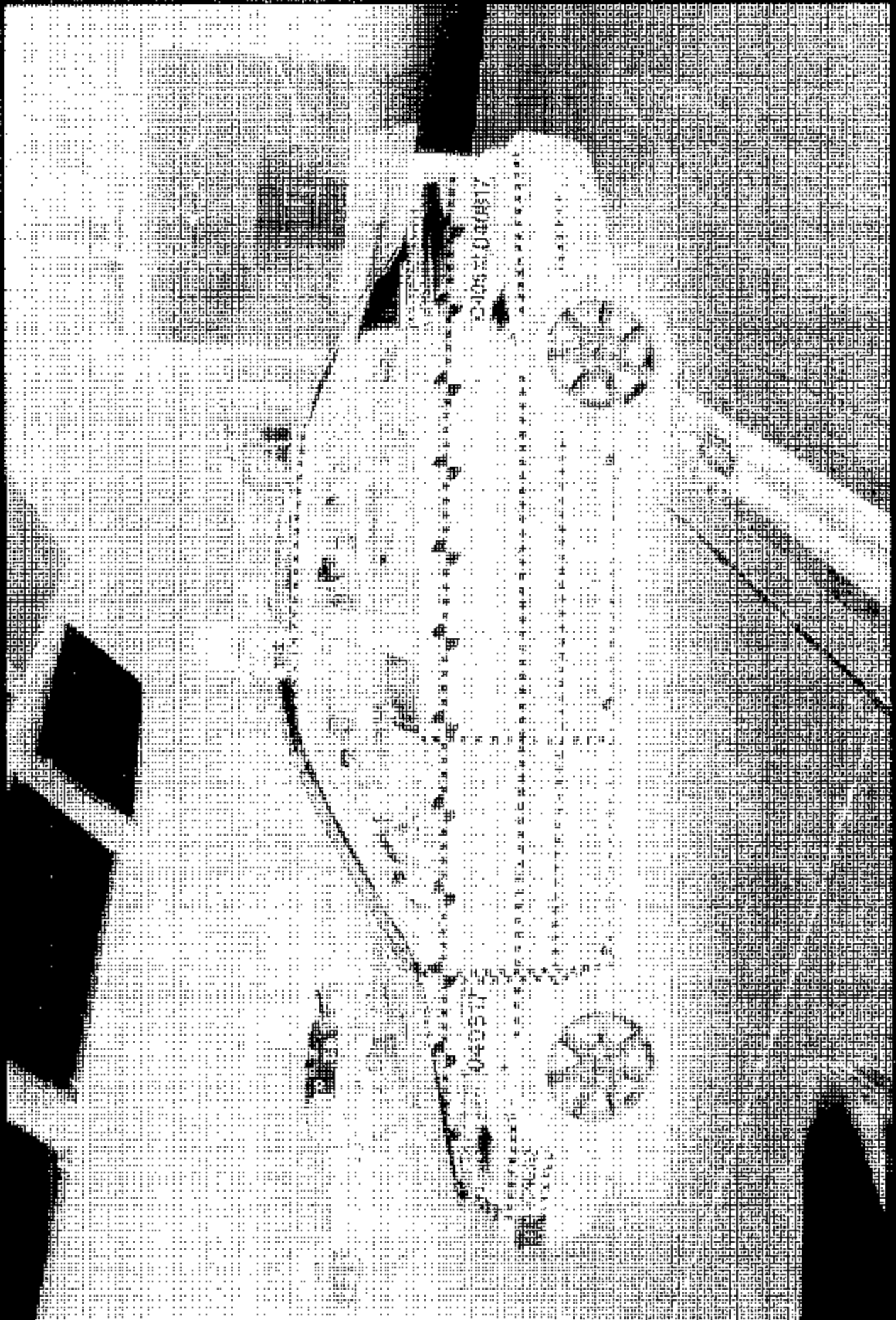


Figure A-3 Pre-Test Impacted Side View of Test Vehicle

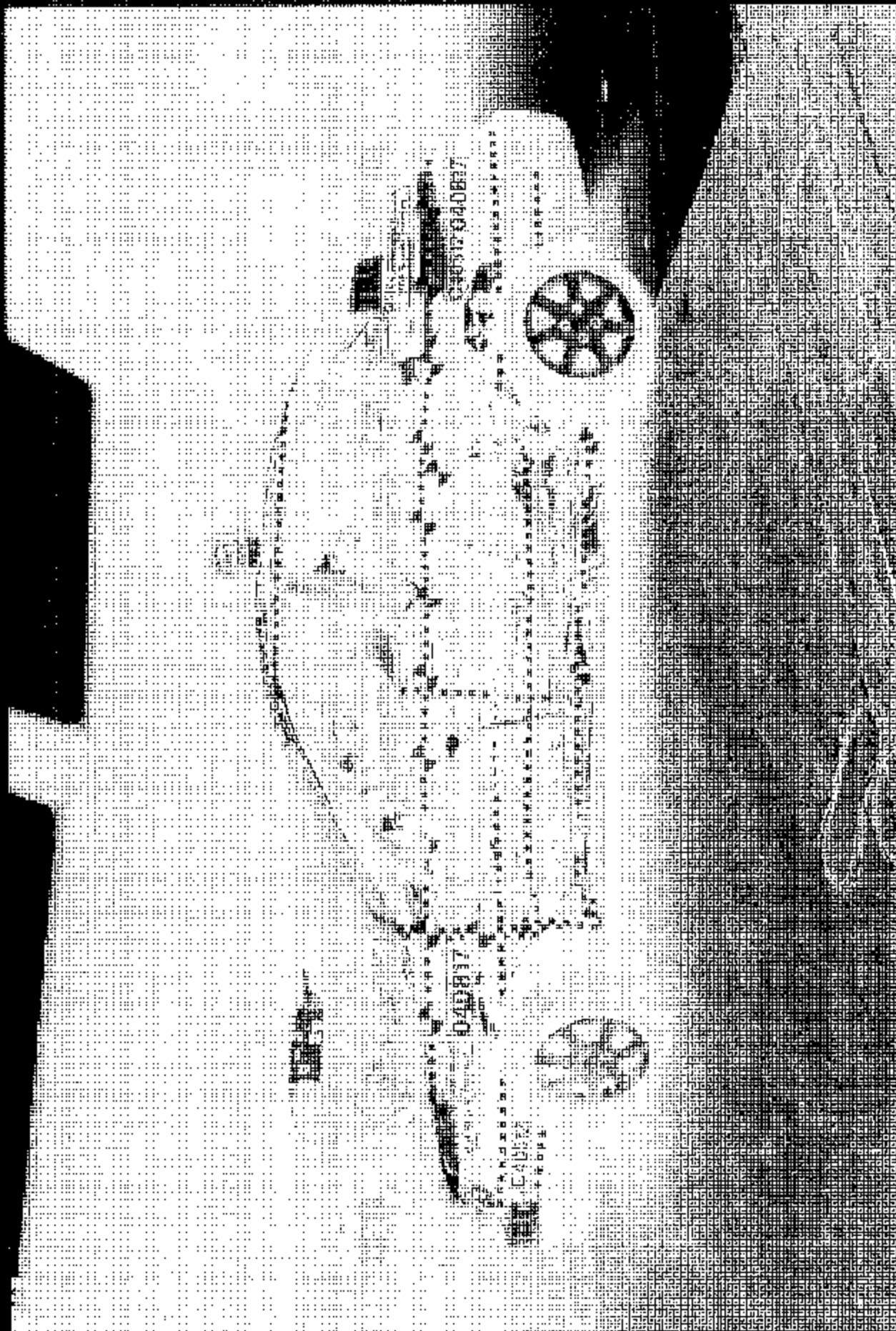


Figure A-4 Post-Test Impacted Side View of Test Vehicle

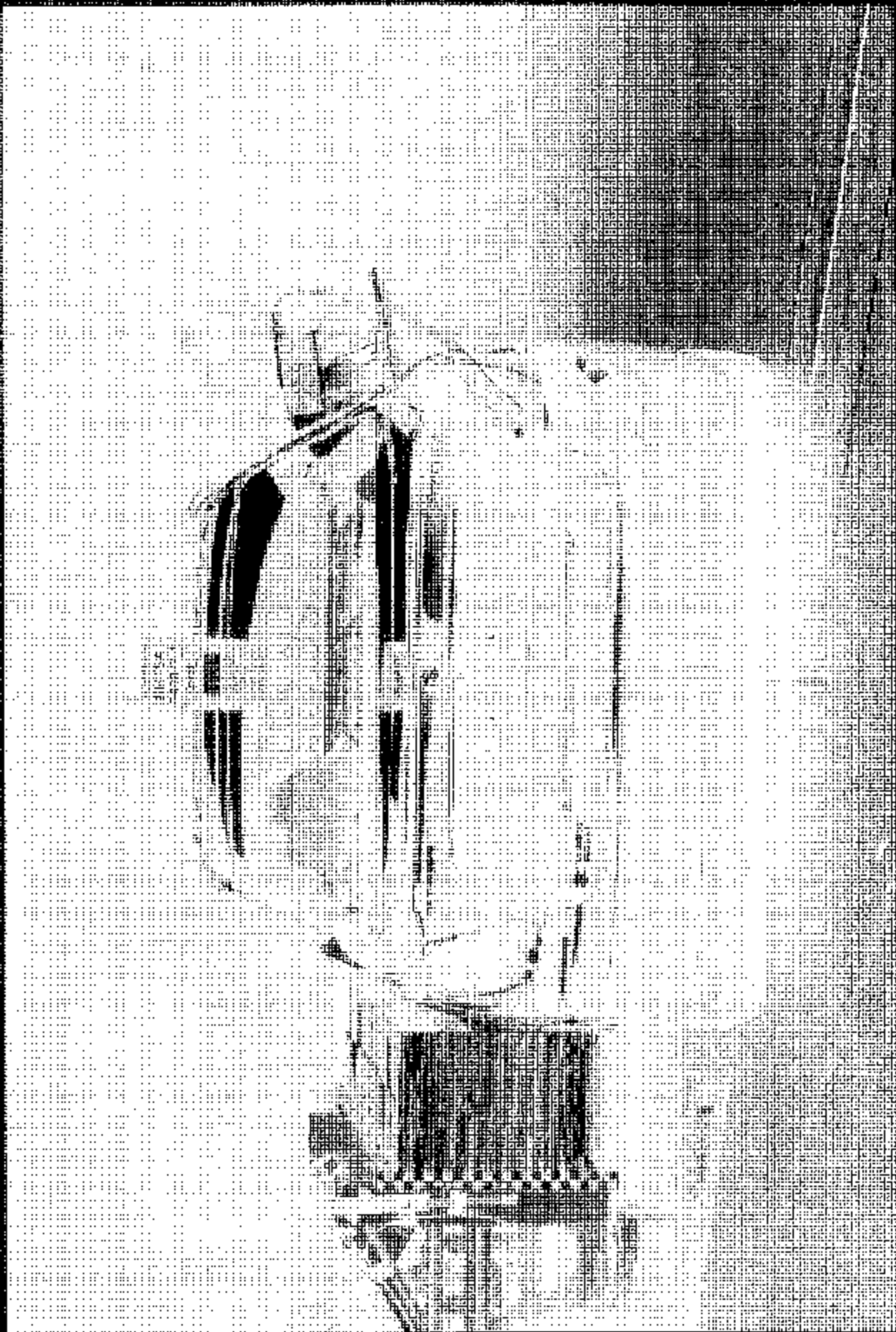


Figure A-5 Pre-Test Rear View of Test Vehicle

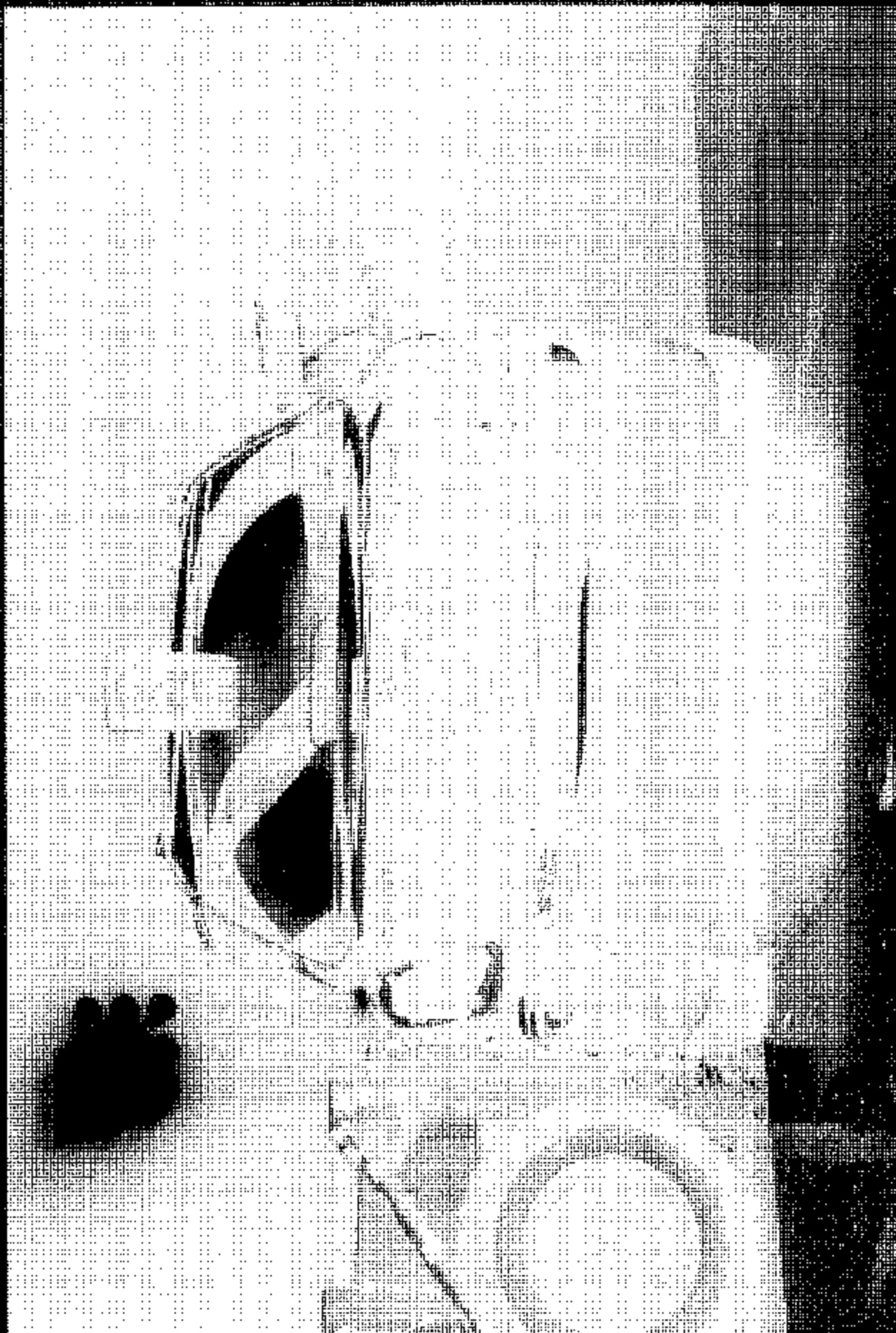


Figure A-6 Post-Test Rear View of Test Vehicle



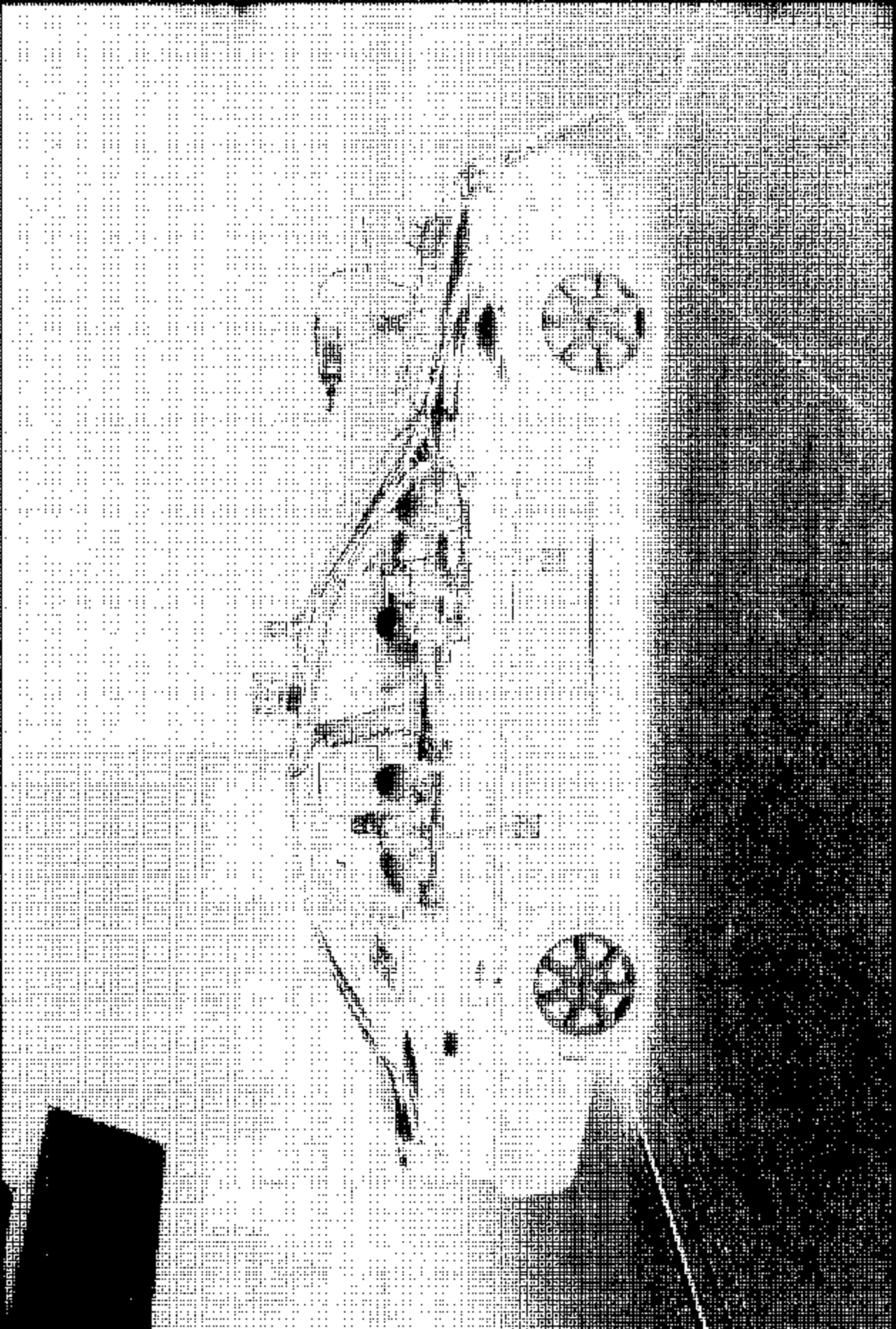


Figure A-7 Pre-Test Non-Struck Side View of Test Vehicle

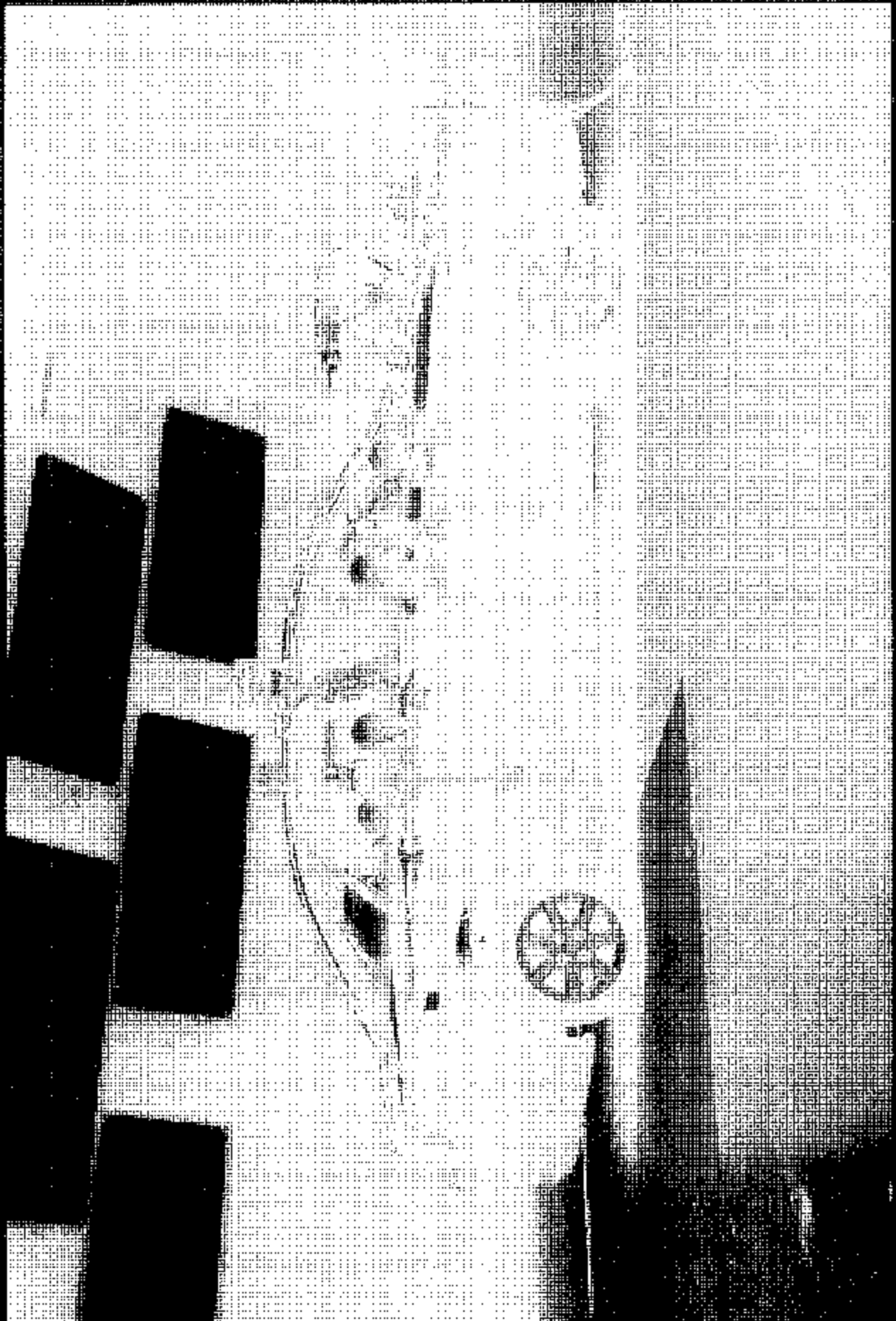


Figure A-8 Post-Test Non-Struck Side View of Test Vehicle

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

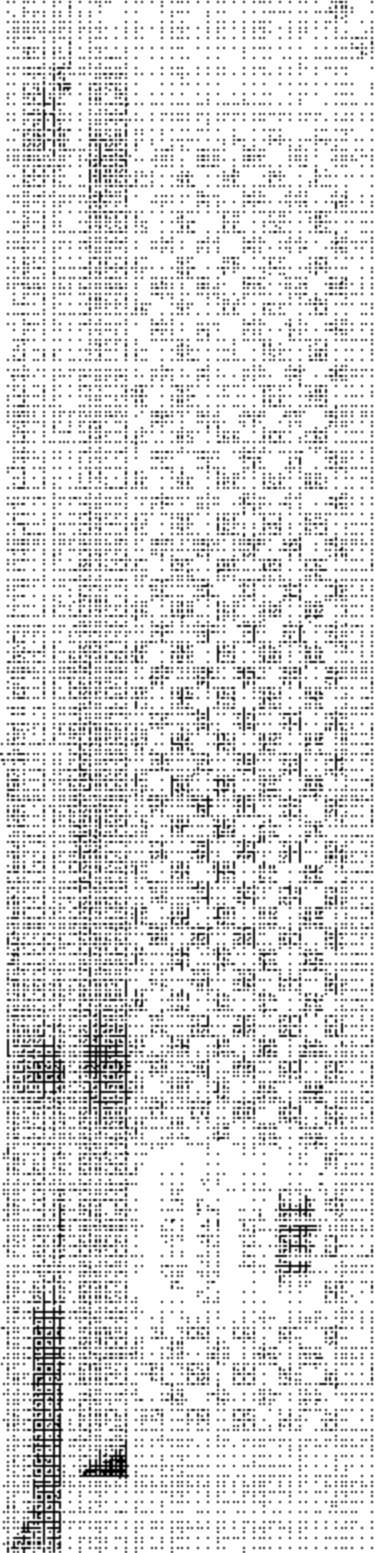
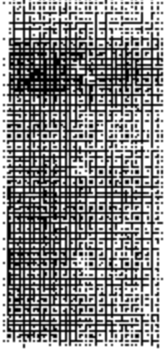


Figure A-9 Pre-Test Frontal View of Impactor Face

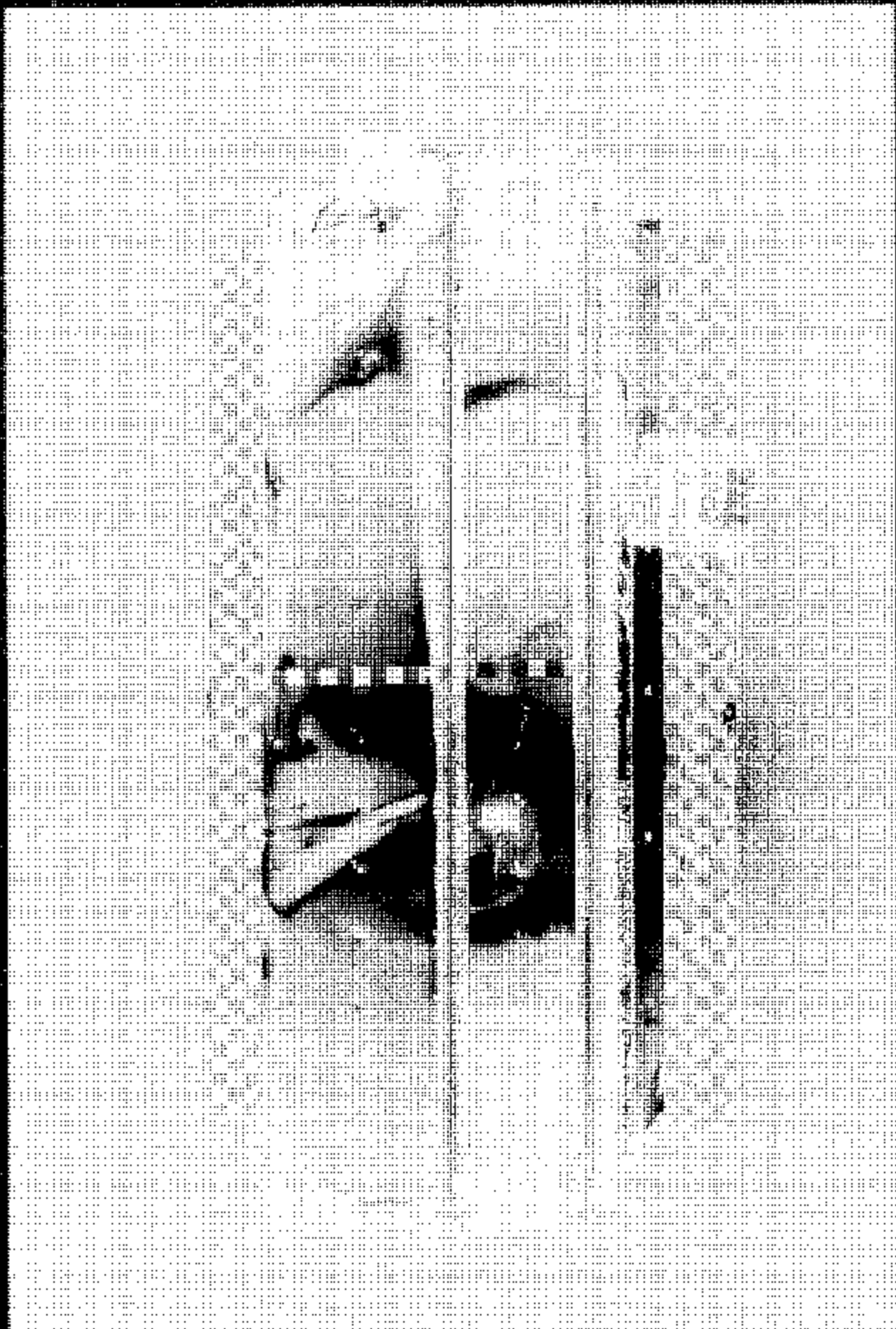


Figure A-10 Post-Test Frontal View of Impactor Face

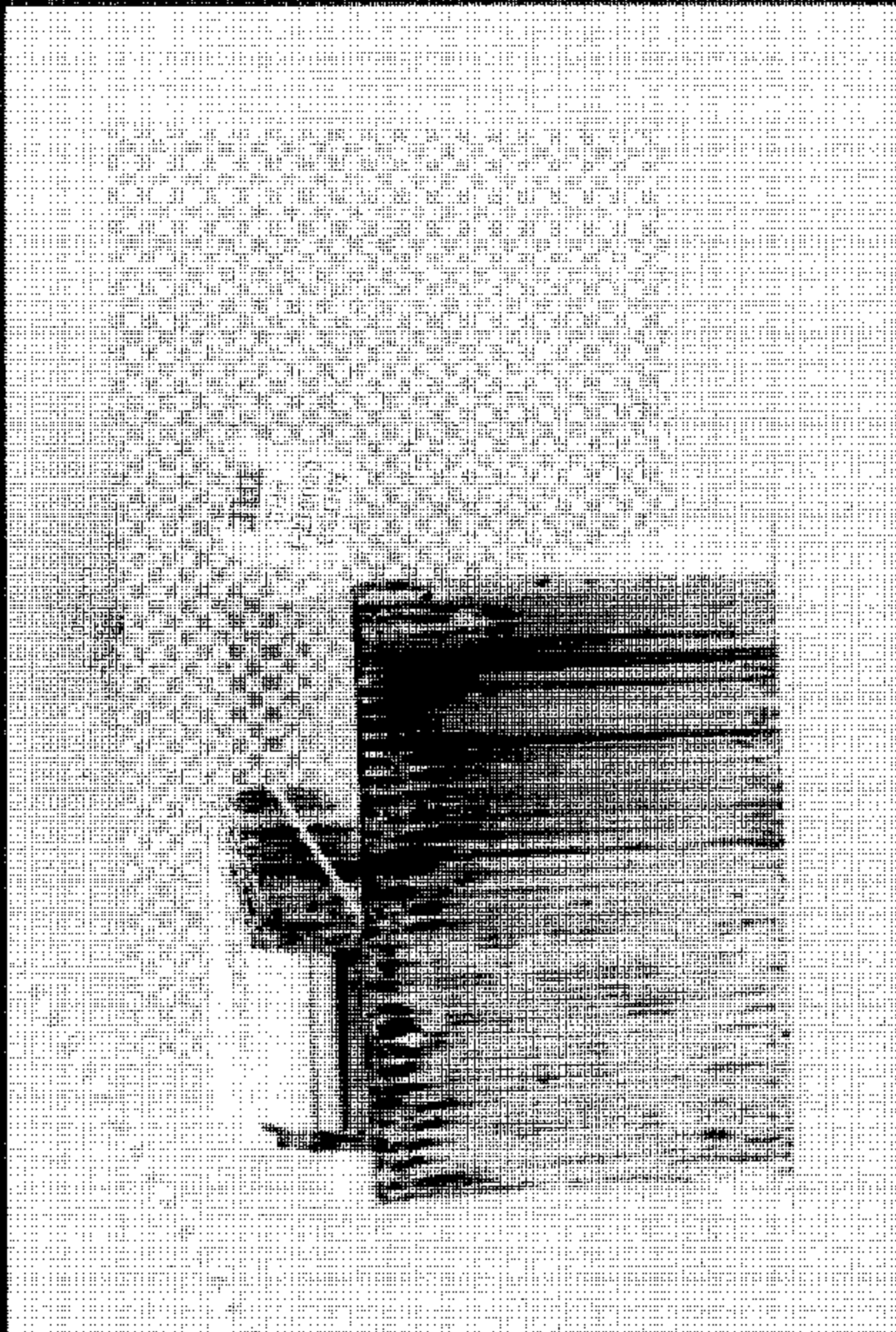


Figure A-11 Pre-Test Left Side View of Impactor Face

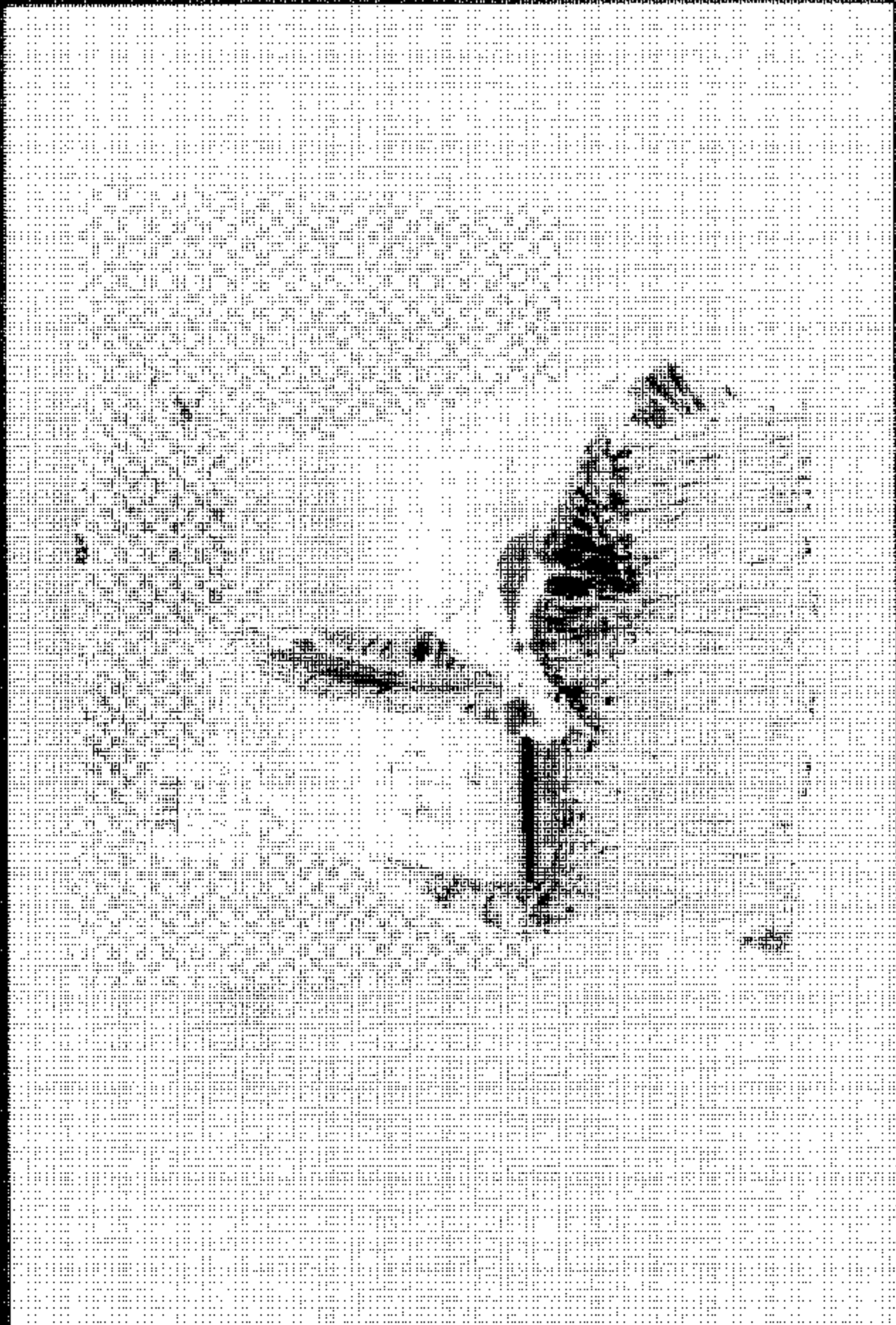


Figure A-12 Post-Test Left Side View of Impactor Face  
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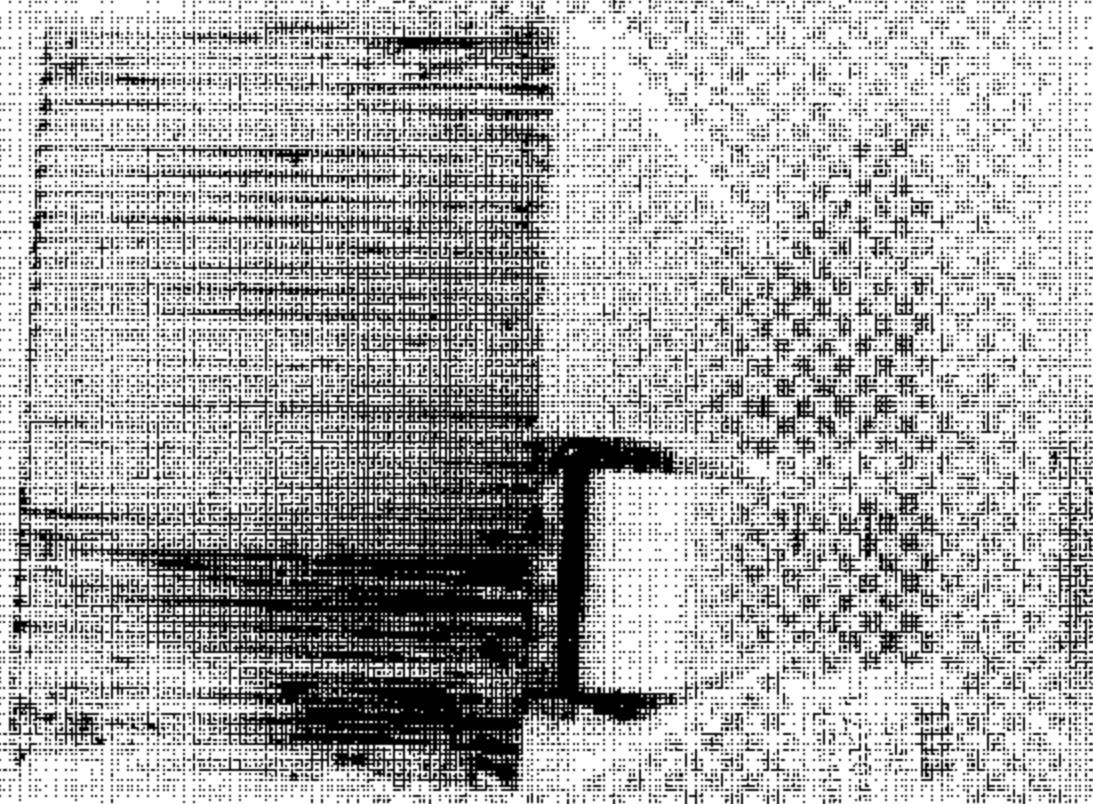


Figure A-13 Pre-Test Right Side View of Impactor Face

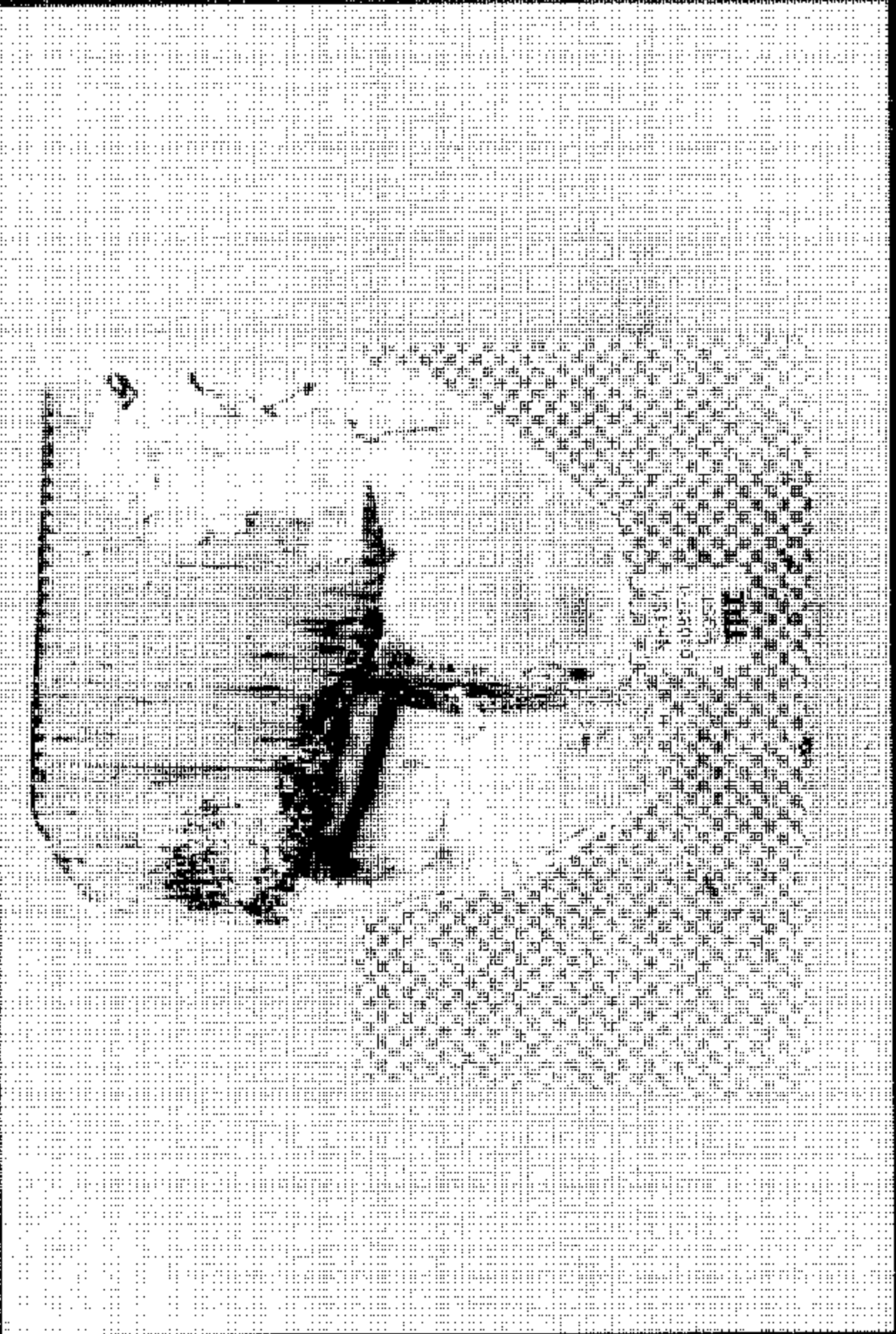


Figure A-14 Post-Test Right Side View of Impactor Face

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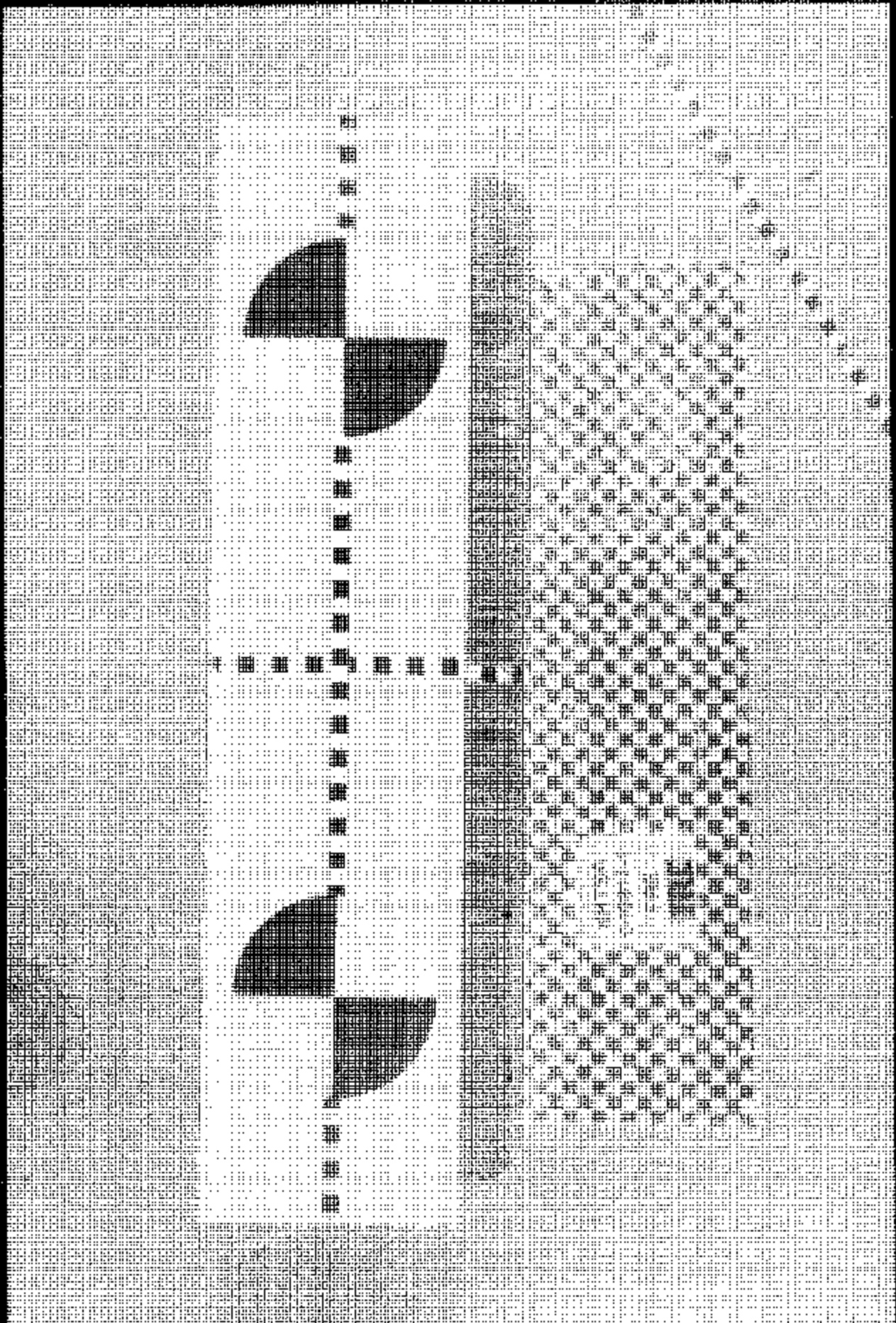


Figure A-15 Pre-Test Top View of Impactor Face  
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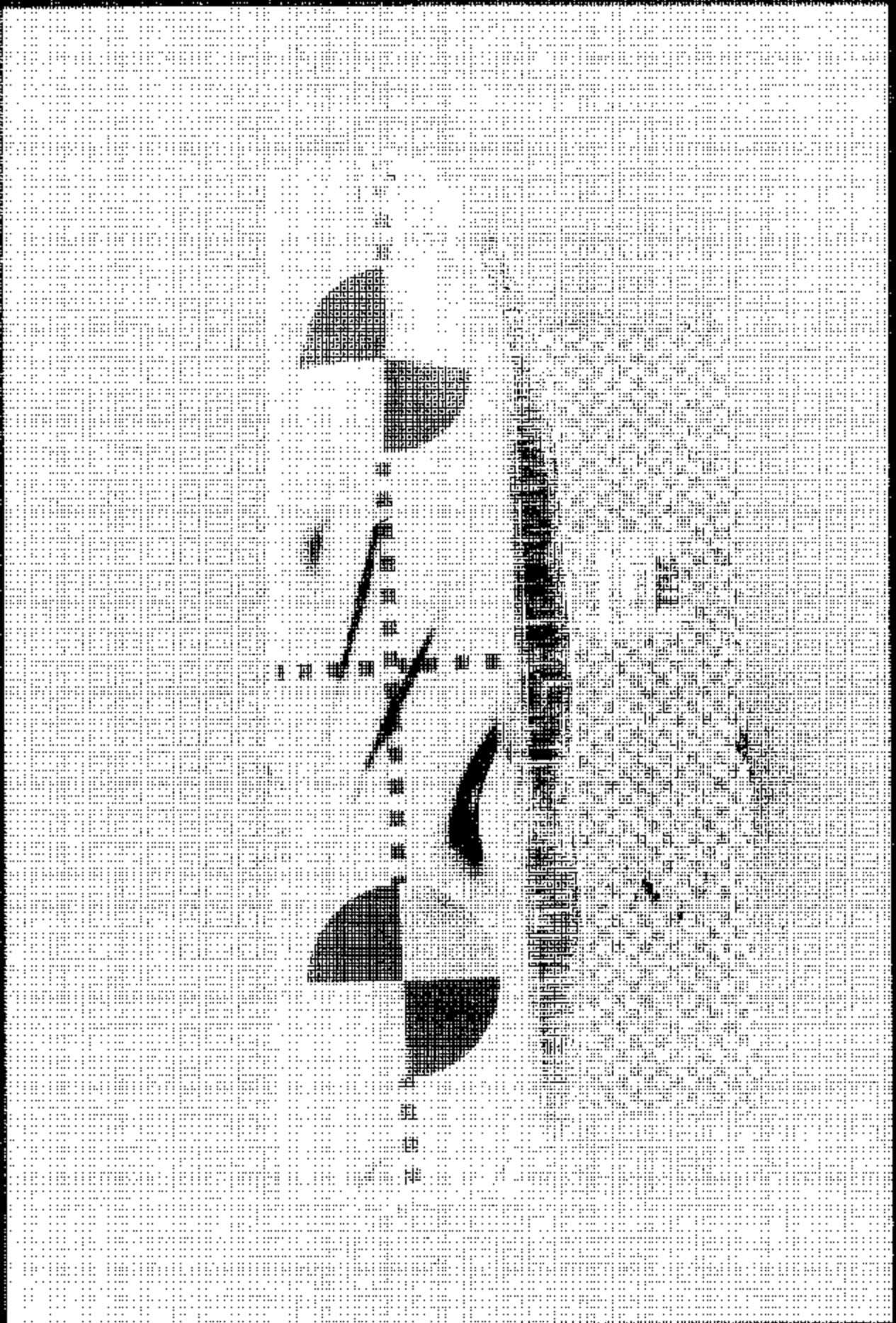


Figure A-16 Post-Test Top View of Impactor Face

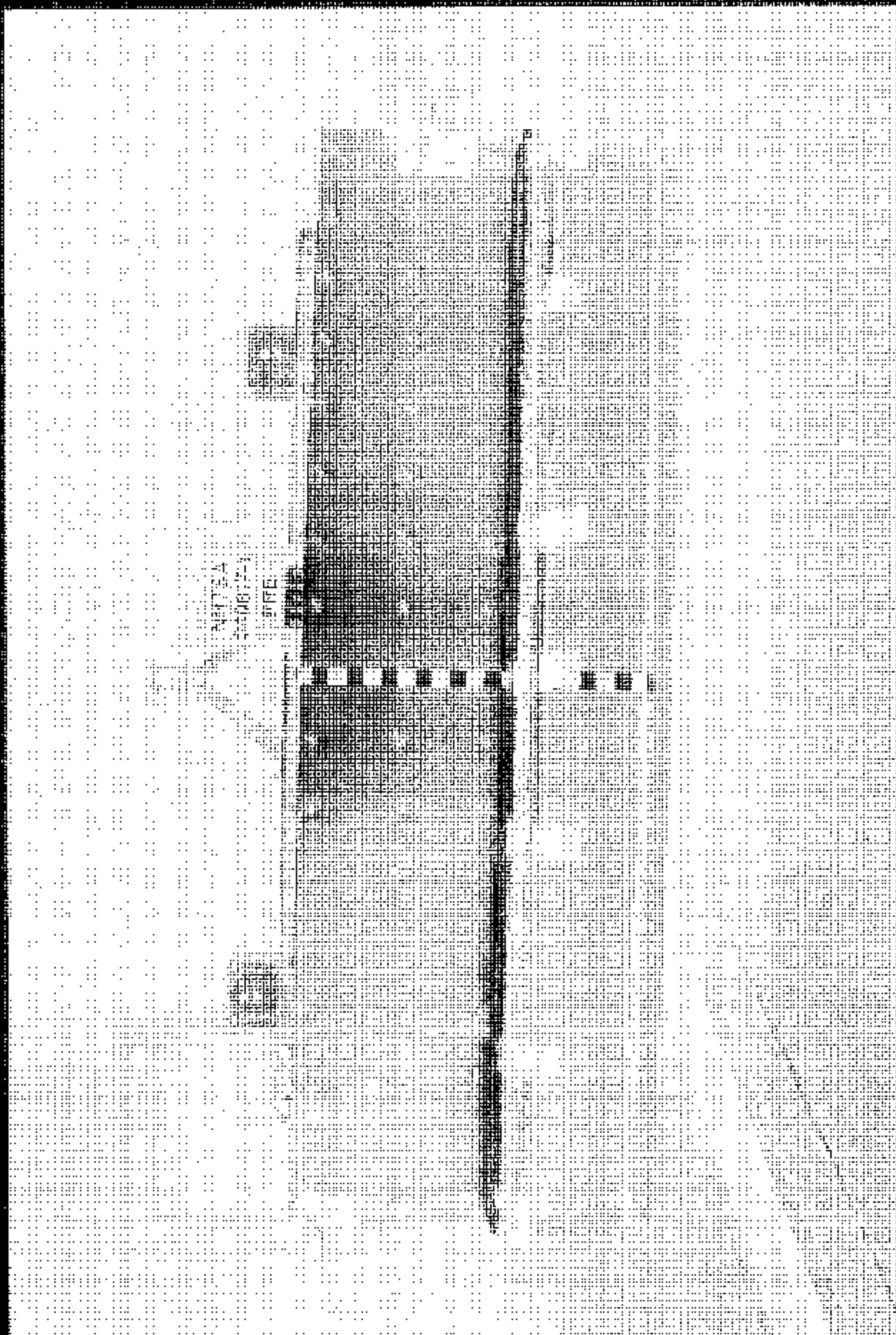


Figure A-17 Pre-Test View of MDB Showing Contact Switches in Place

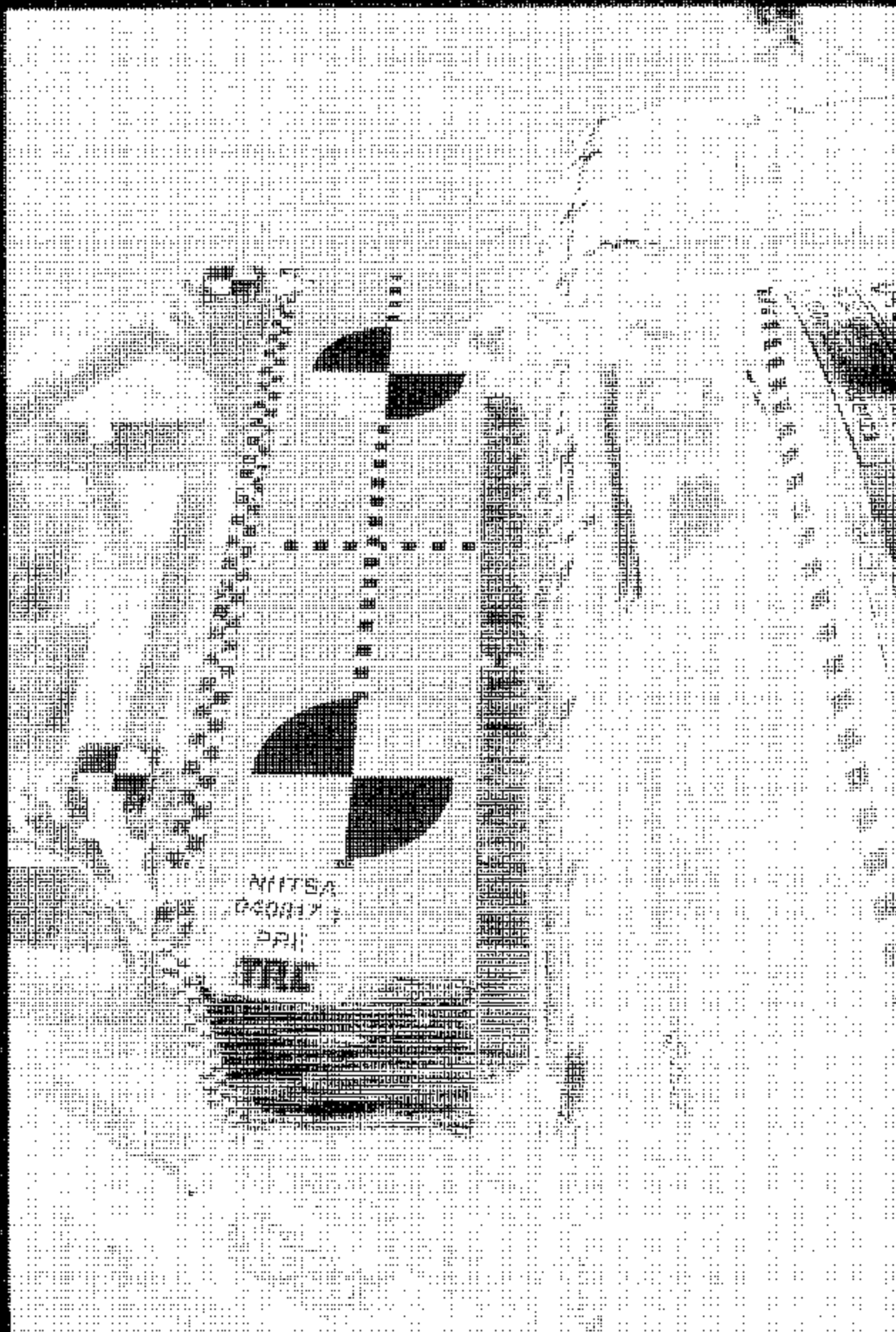


Figure A-18 Pre-Test Overhead View of MDB Aligned with Vehicle

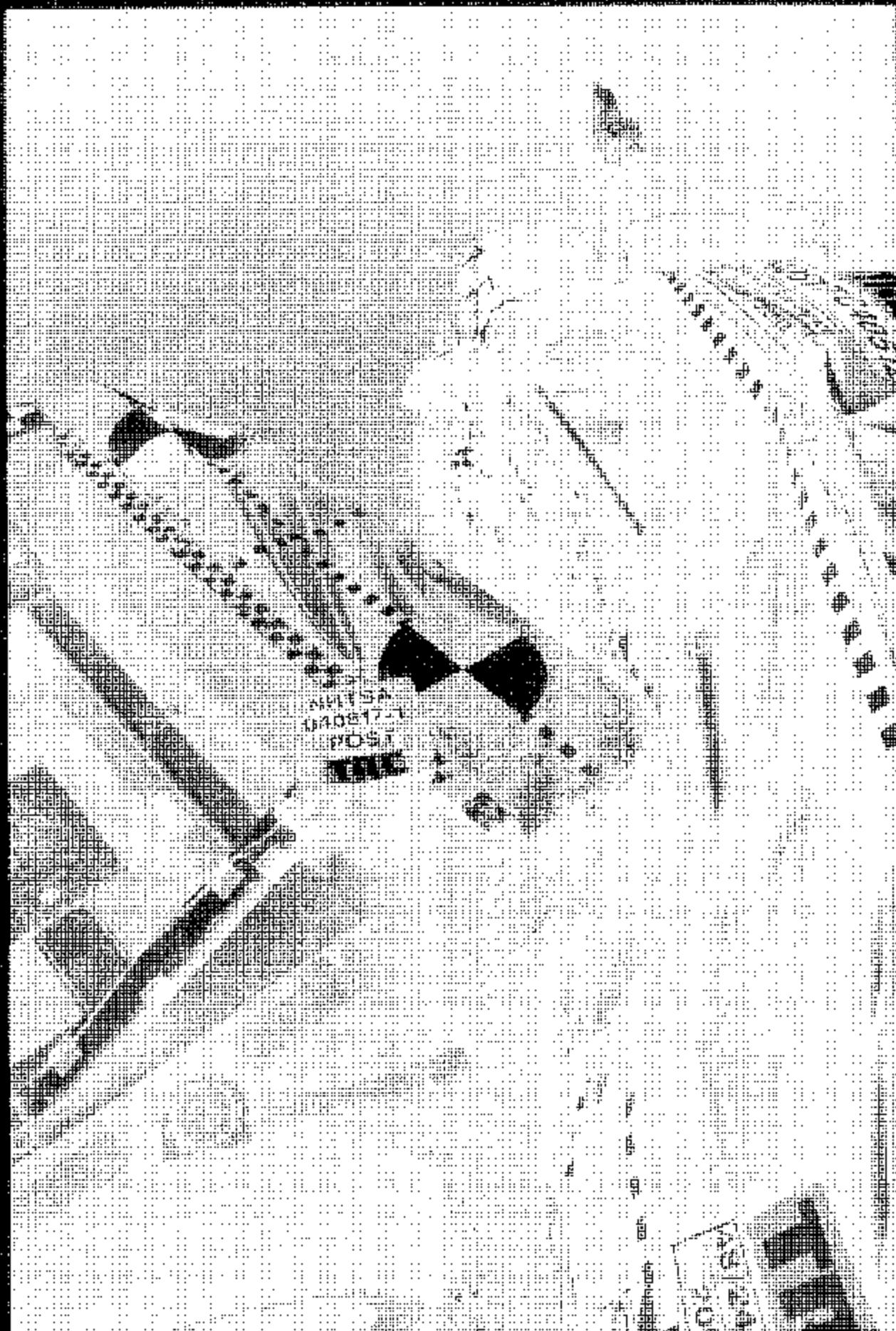


Figure A-19 Post-Test Overhead View of Vehicle  
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Figure A-20 Pre-Test Right Occupant Compartment View of Front SID



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



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

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

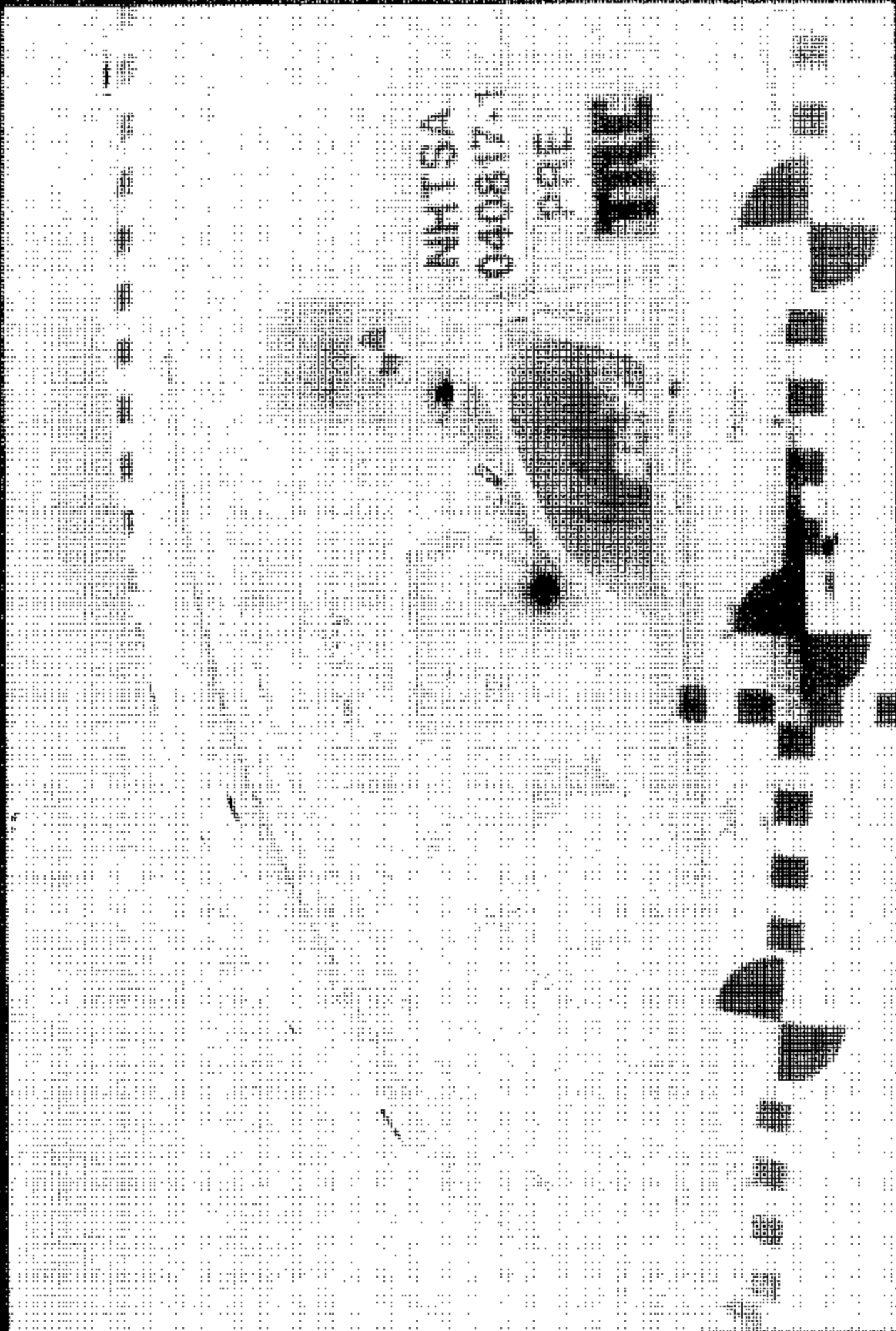


Figure A-24 Pre-Test Left View of Front SID  
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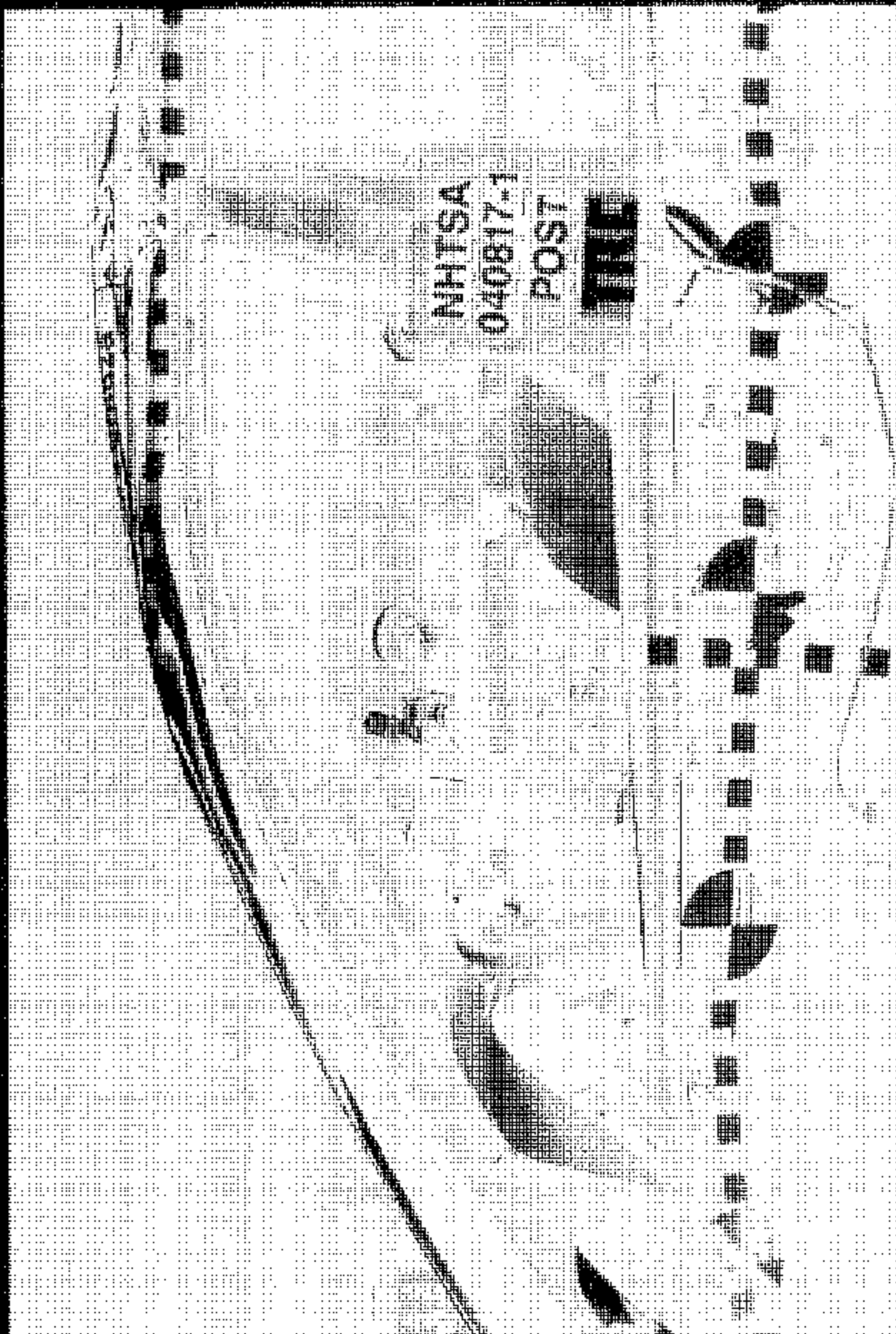


Figure A-25 Post-Test Left View of Front SID

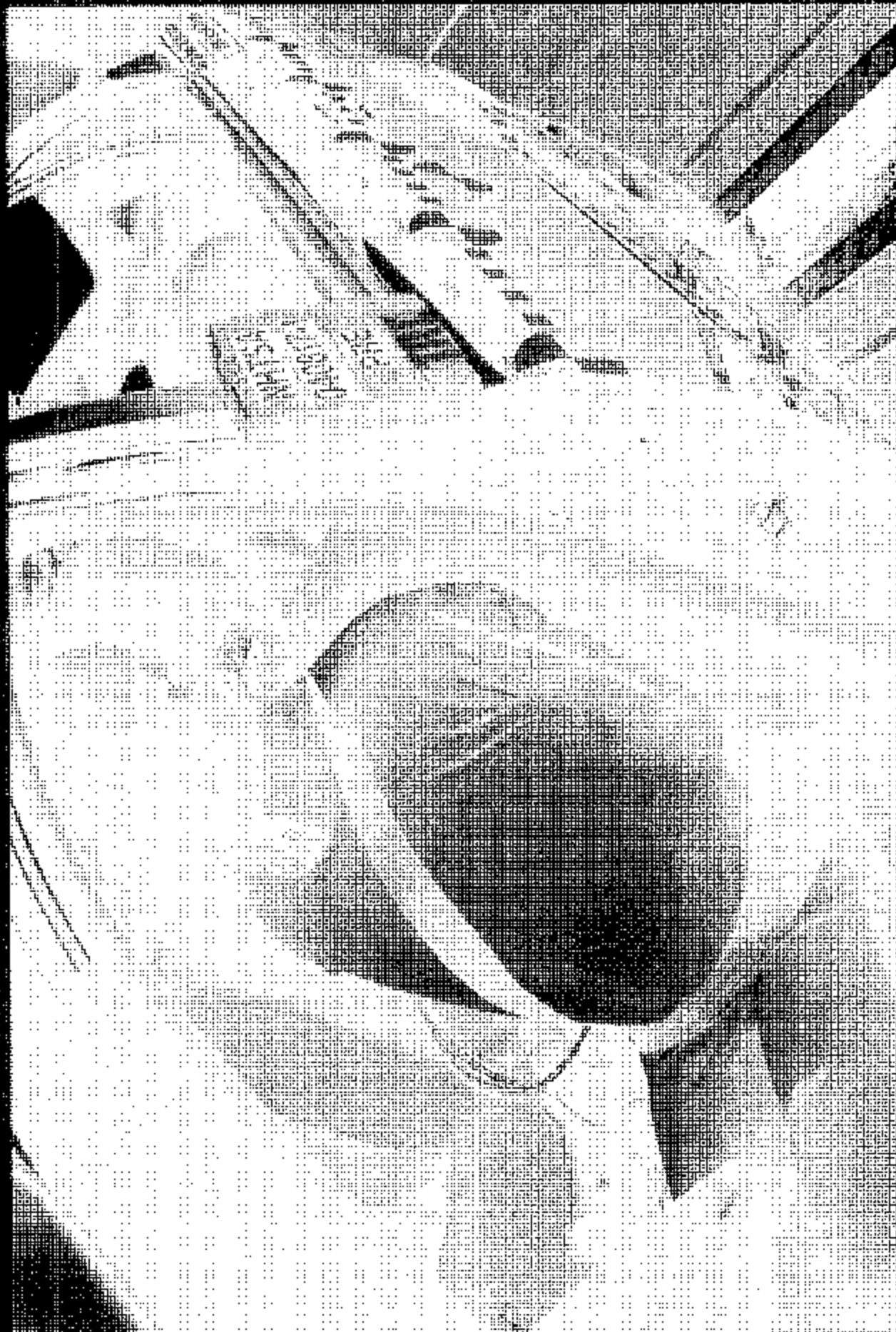


Figure A-26 Pre-Test Left View of Front SID and Belt Position

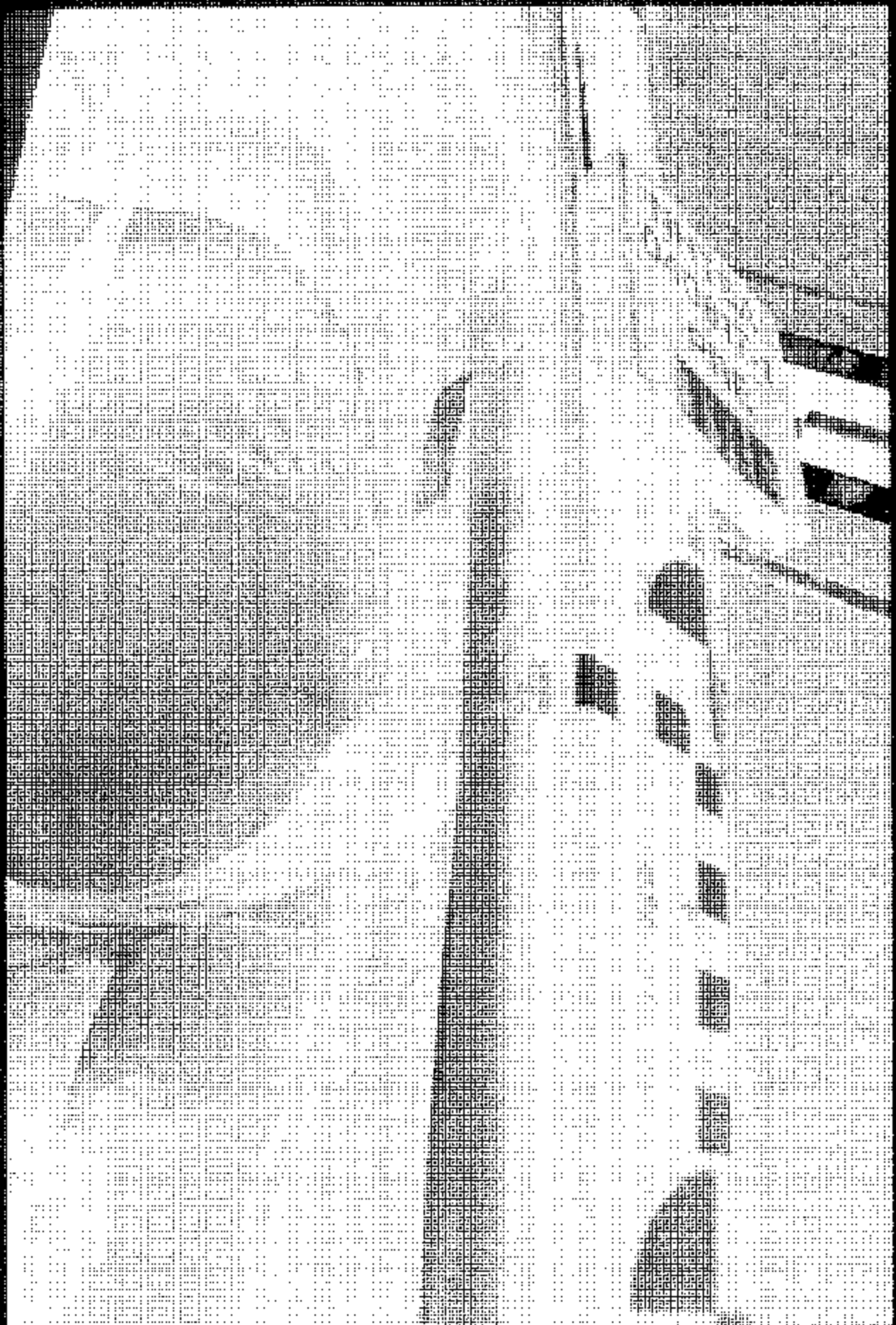


Figure A-27 Pre-Test View of Front SID and Door Clearance

NHTSA  
040817-1  
POST

TIME

Figure A-28 Post-Test View of Front SID and Door Clearance

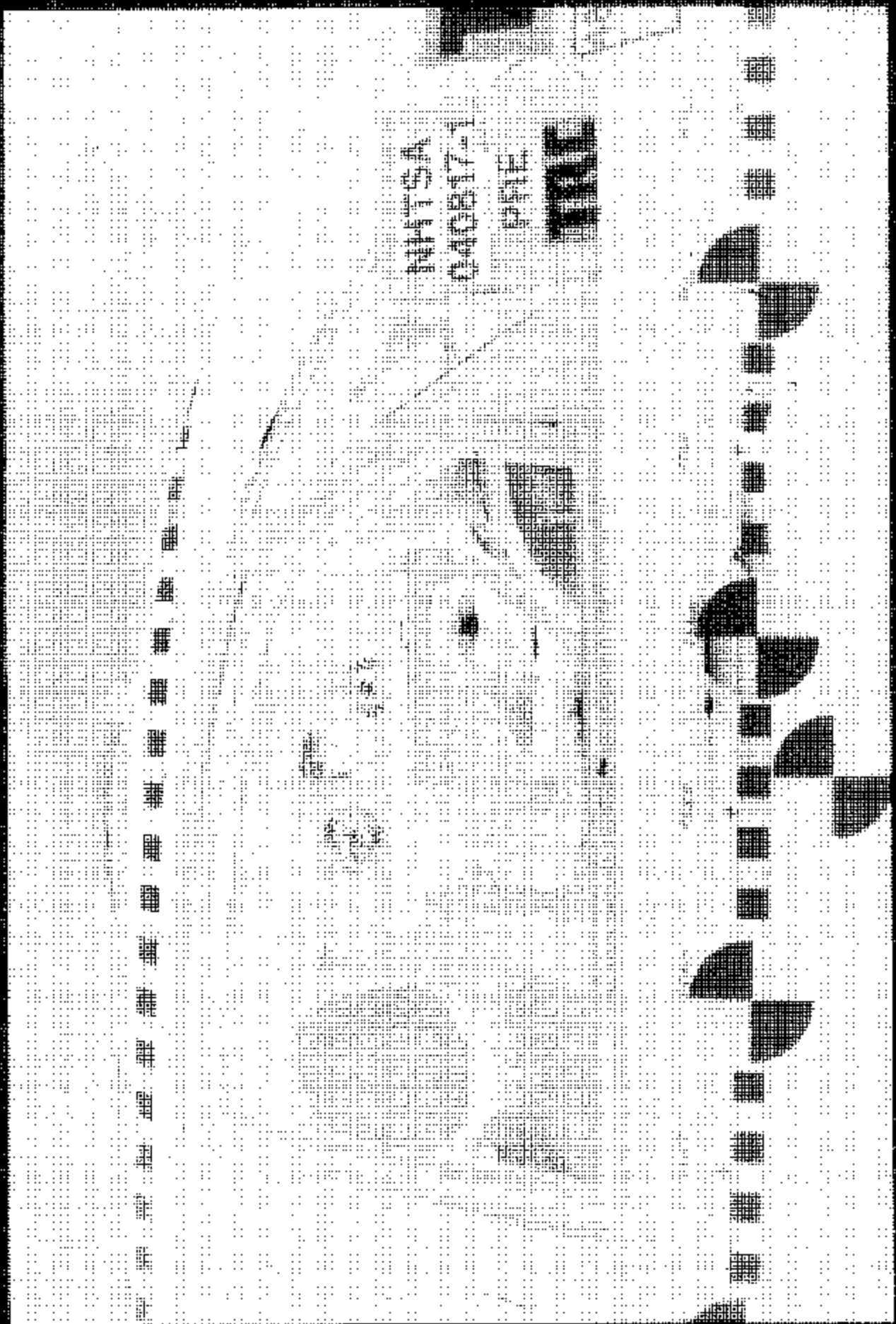


Figure A-29 Pre-Test Left View of Rear SID

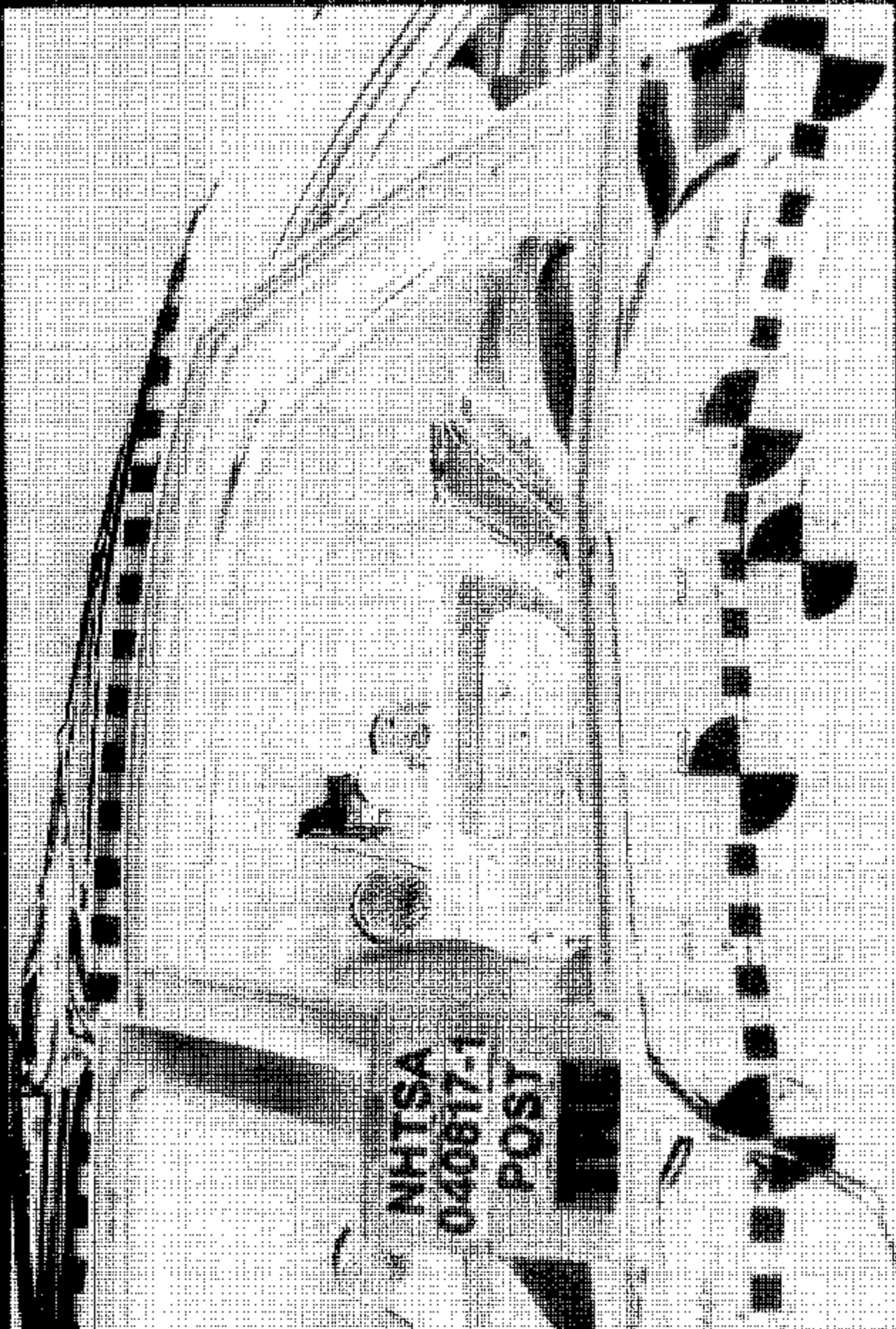


Figure A-30 Post-Test Left View of Rear SID





Figure A-31 Pre-Test Angled View of Rear SID



Figure A-32 Post-Test Angled View of Rear SID  
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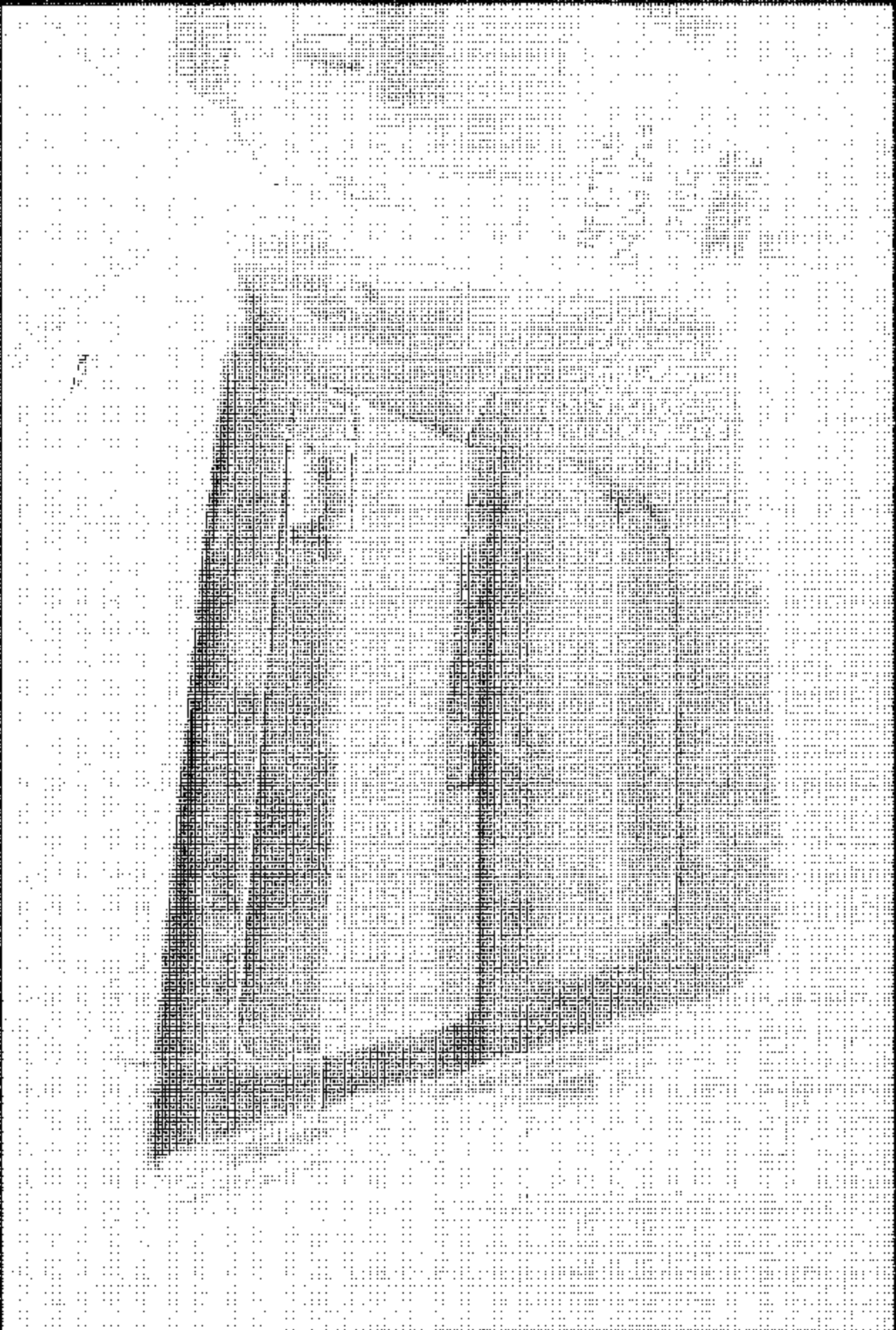


Figure A-33 Pre-Test Interior of Front Door



**Figure A-34 Post-Test Interior of Front Door Showing SID Impact Locations**



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

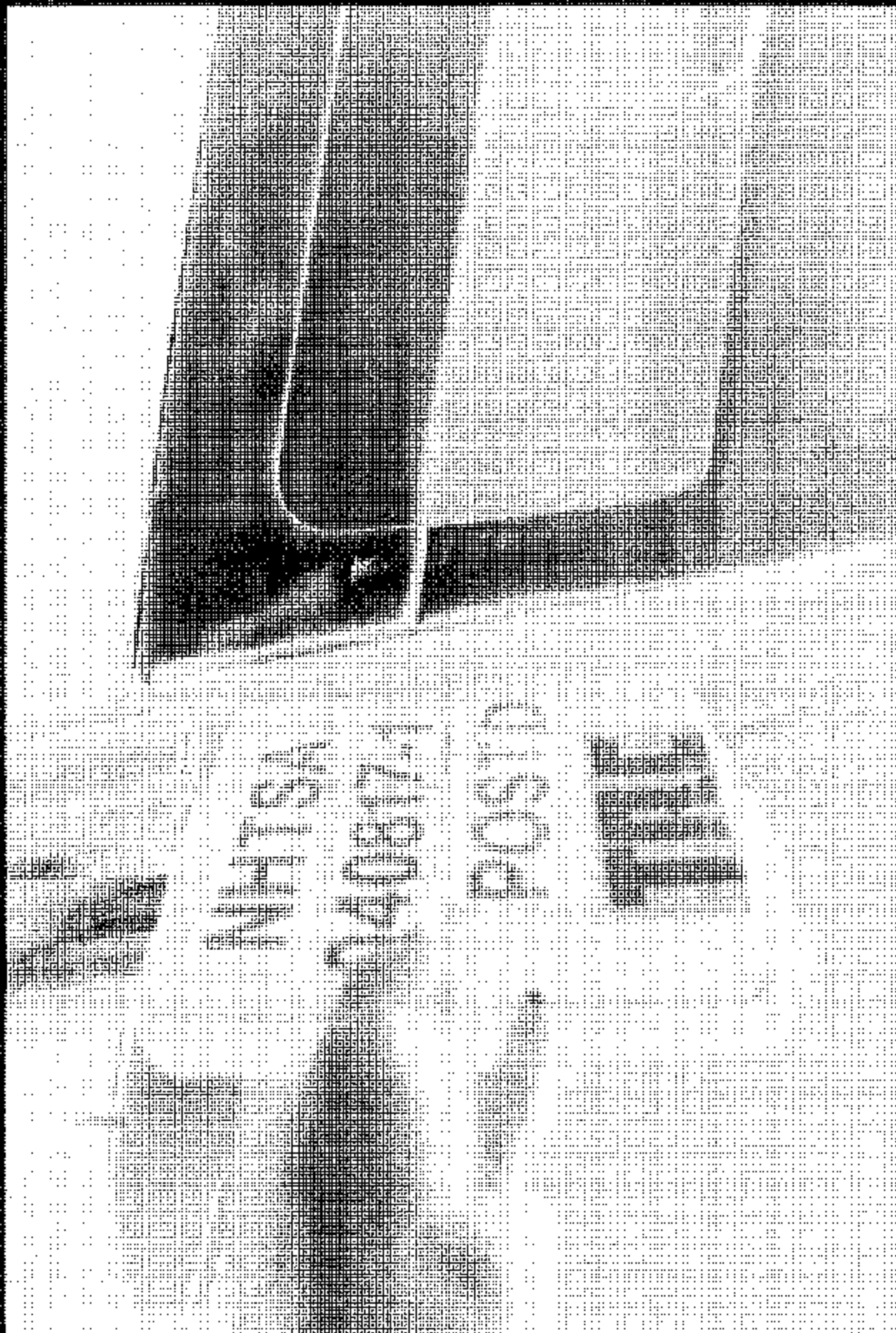


Figure A-36 Post-Test Front SID Contact - View 2



Figure A-37 Post-Test Front SID Contact - View 3

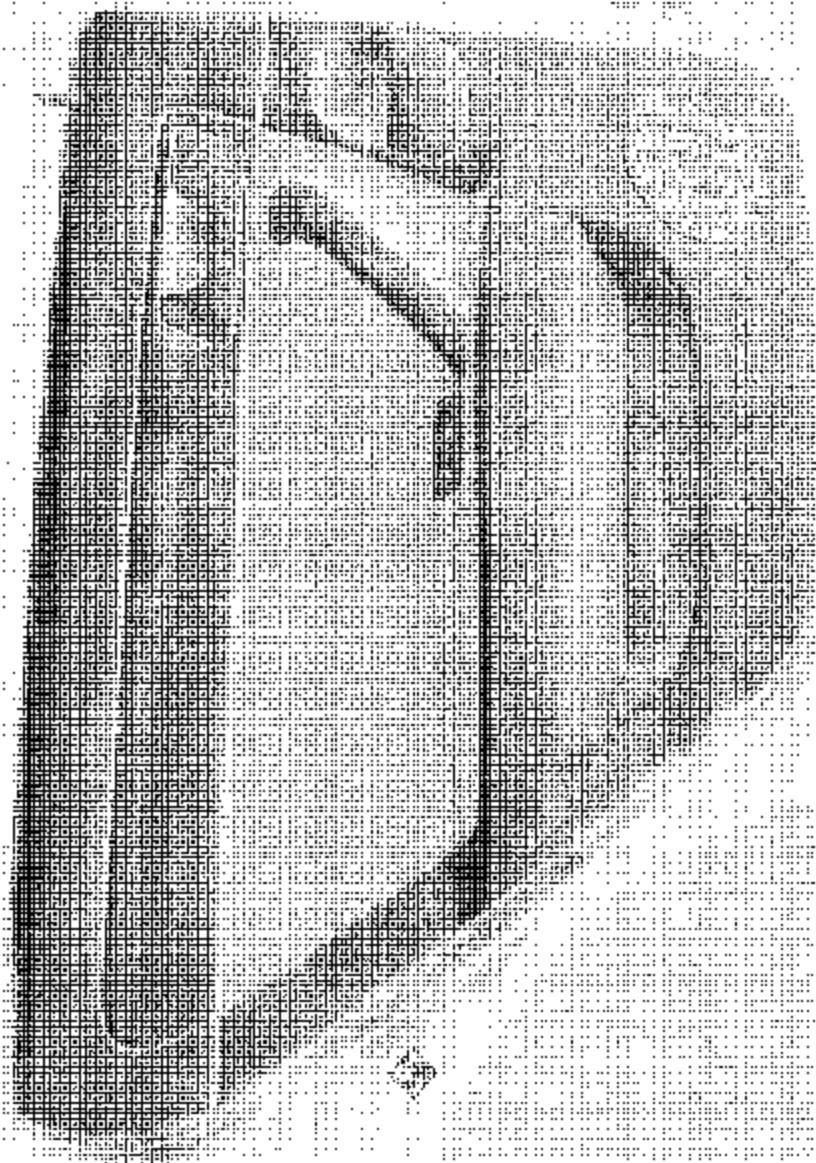


Figure A-38 Pre-Test Interior of Rear Panel





Figure A-39 Post-Test Interior of Rear Panel Showing SID Impact Locations

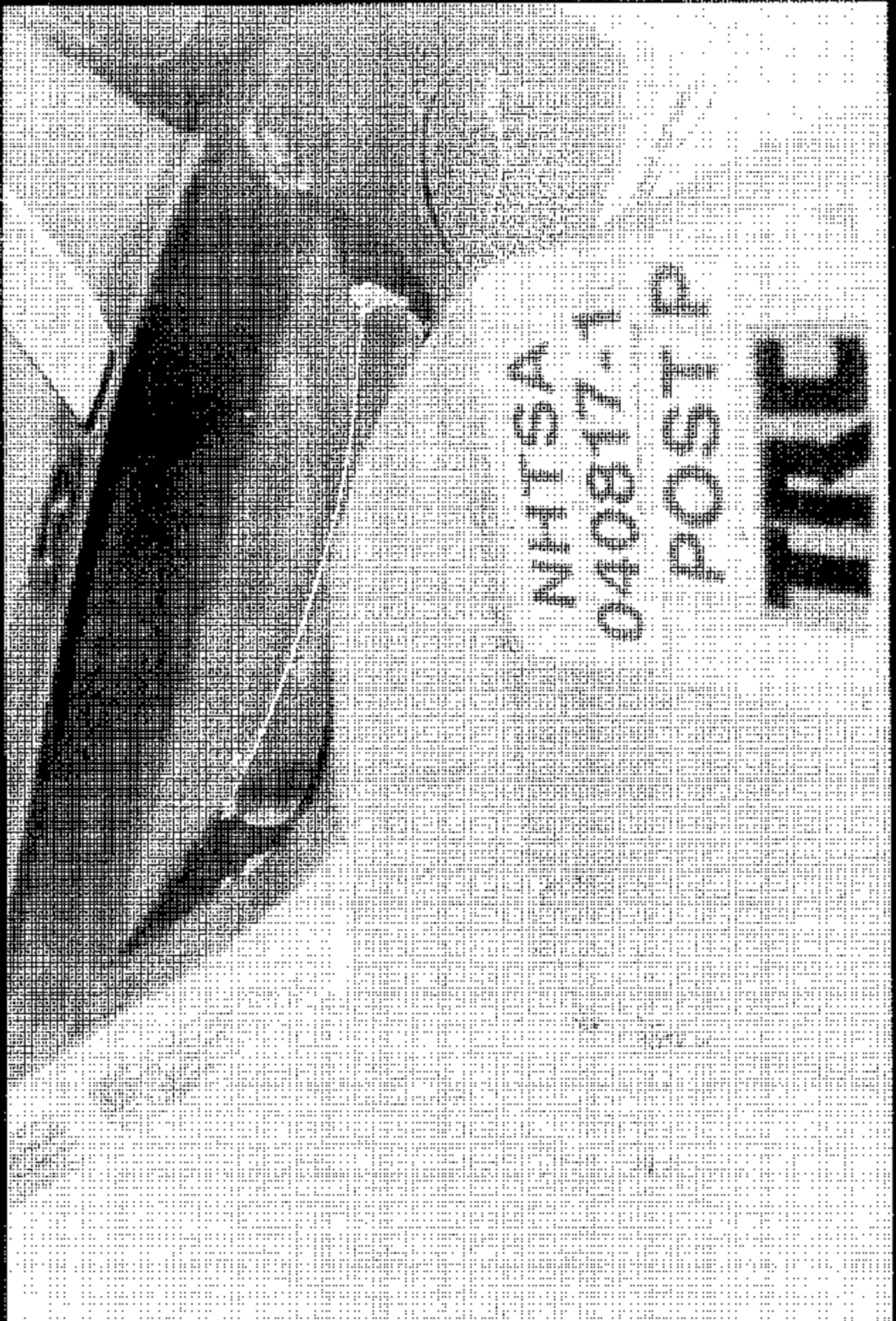


Figure A-40 Post-Test Rear SID Contact - View 1

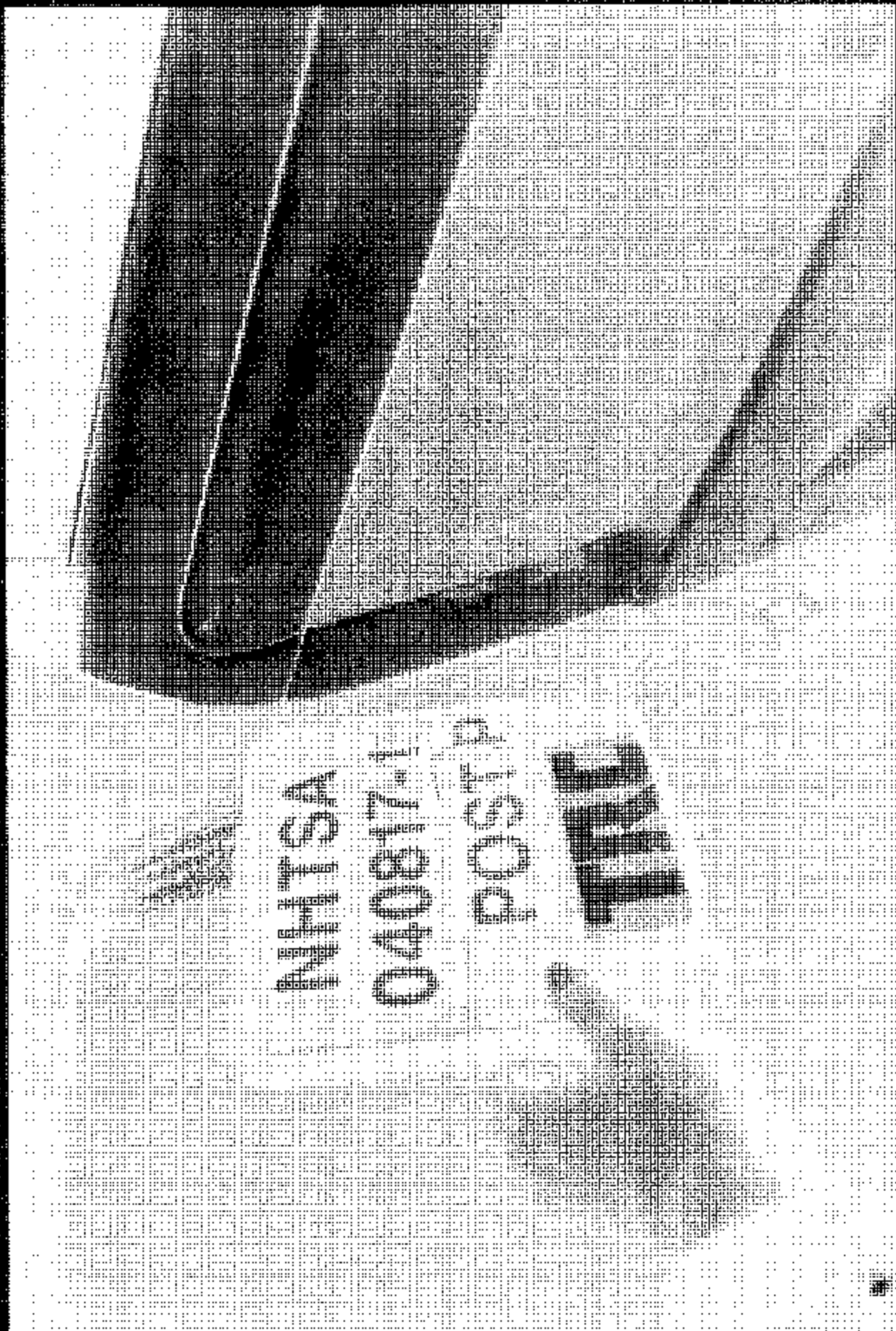


Figure A-41 Post-Test Rear SID Contact - View 2



Figure A-42 Post-Test Rear SID Contact - View 3

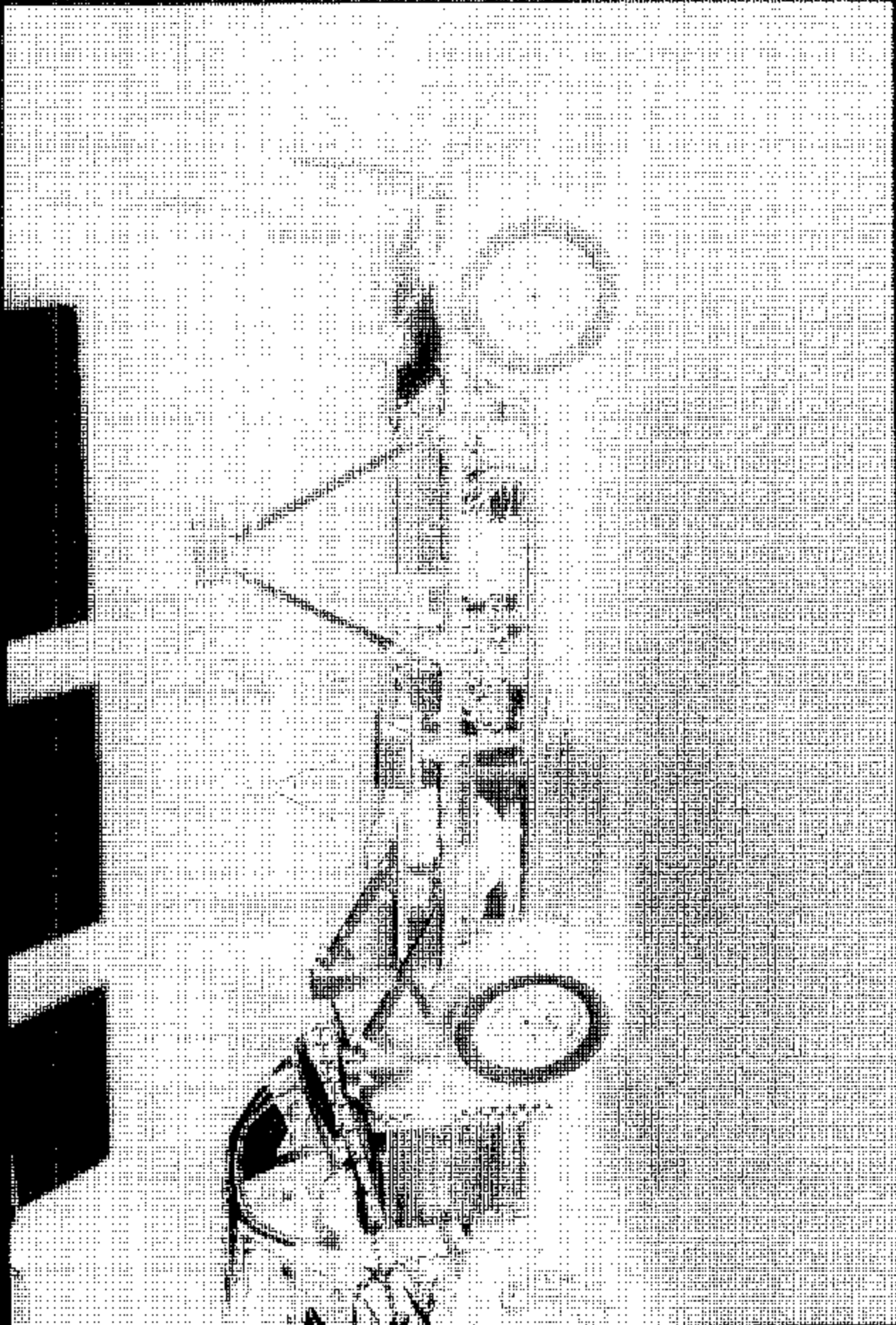


Figure A-43 Pre-Test Left Side View of MDB With Impactor Face in Position



Figure A-44 Pre-Test Primary Impact Point View  
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Figure A-45 Post-Test Primary Impact Point View  
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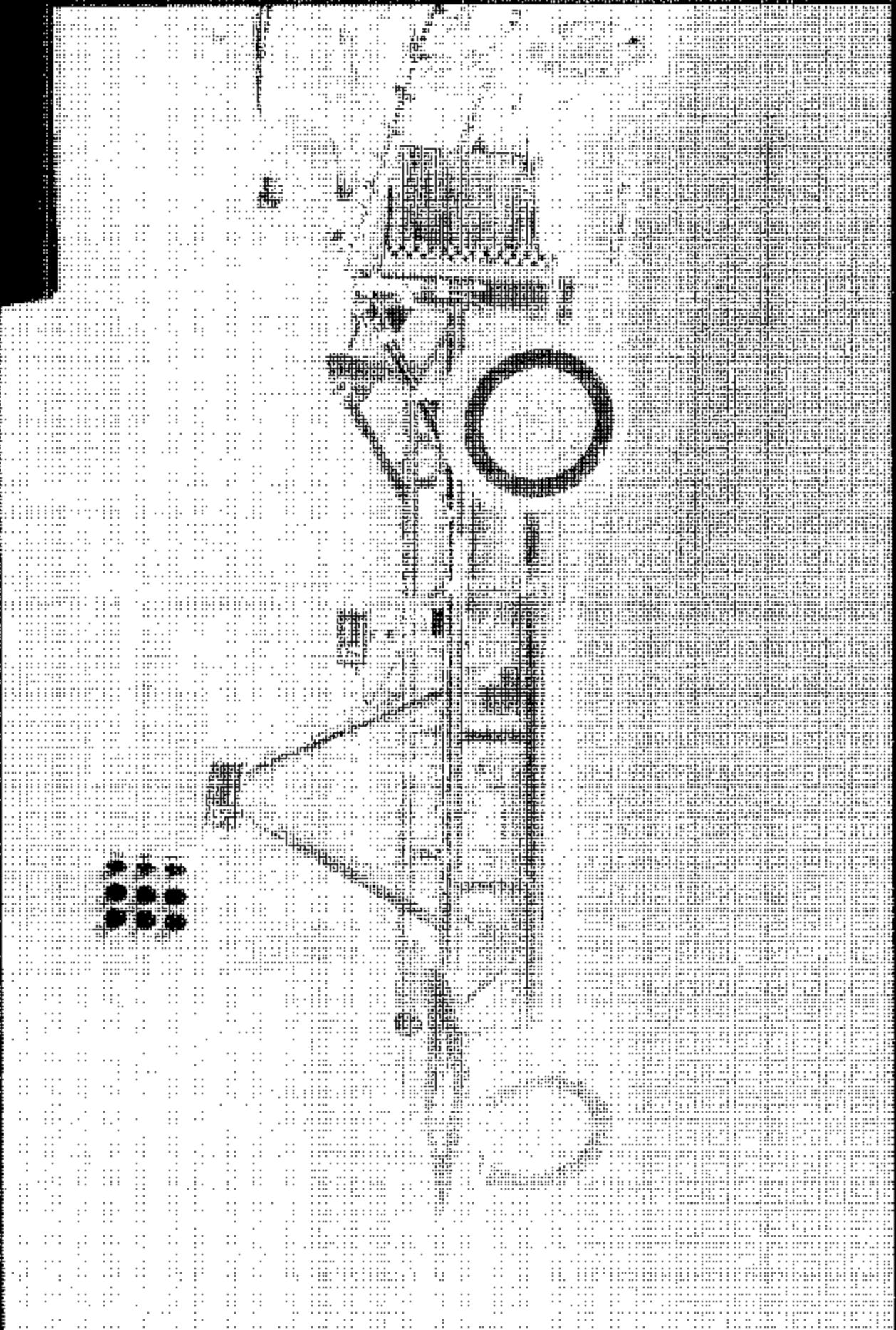


Figure A-46 Pre-Test Right Side View of MDB With Impactor Face in Position





Figure A-47 Pre-Test Secondary Impact Point View



Figure A-48 Post-Test Secondary Impact Point View



Figure A-49 Pre-Test Vehicle Certification Label View



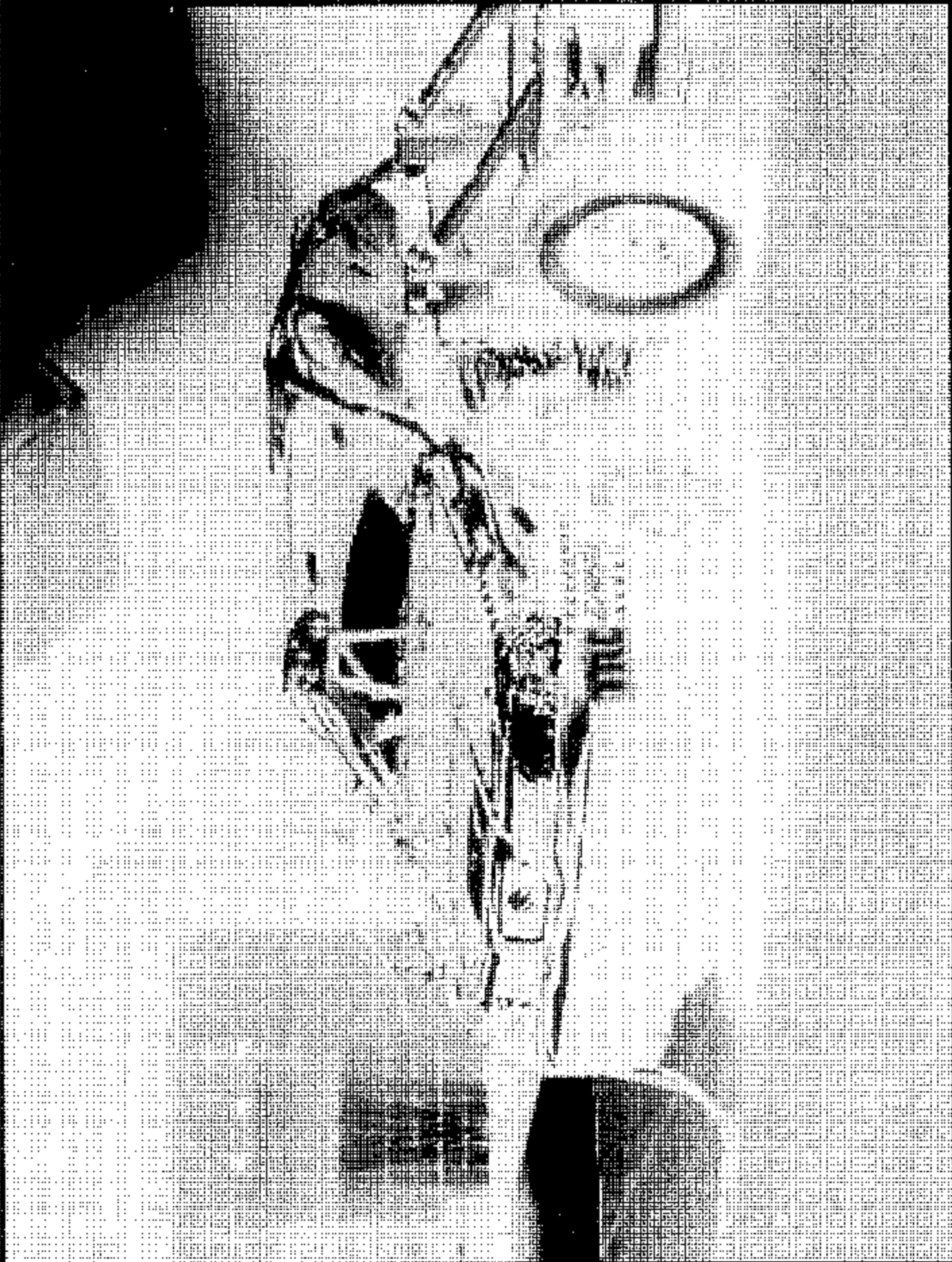


Figure A-51 Impact Event  
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Figure A-52 Pre-Test Fuel Cap  
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Figure A-53 Post-Test Fuel Cap  
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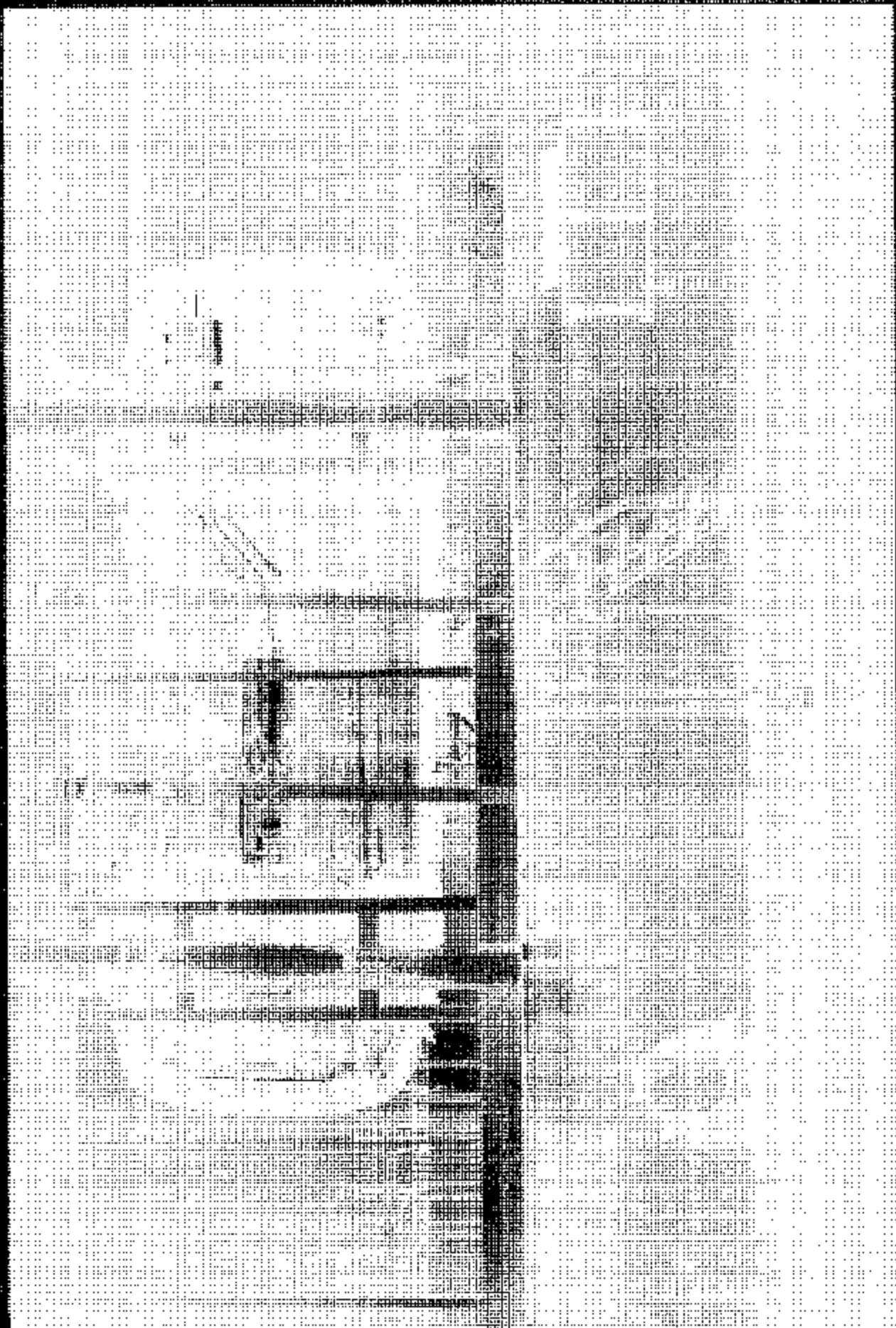


Figure A-54 FMVSS 301 Rollover View at 90°



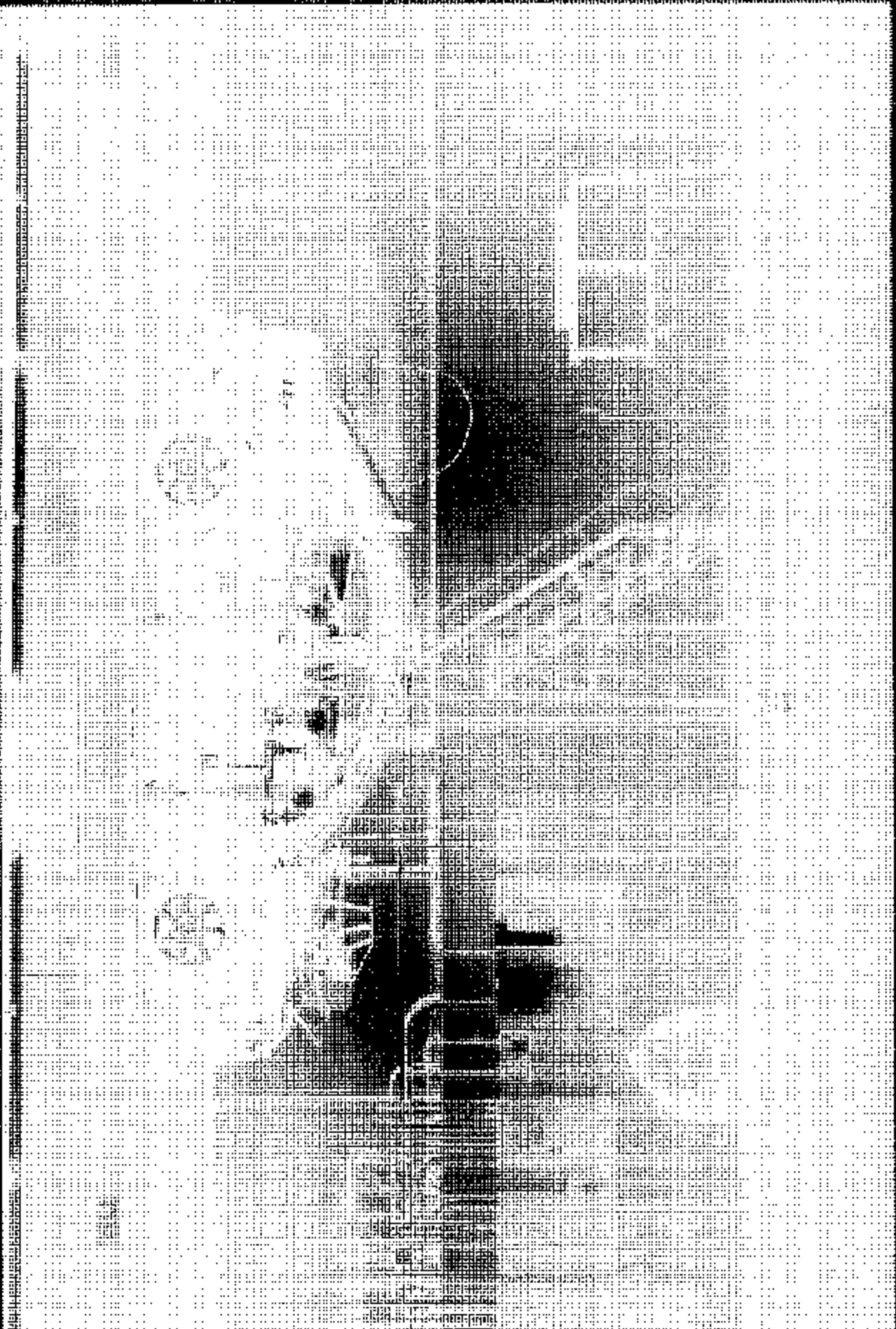


Figure A-55 FMVSS 301 Rollover View at 180°  
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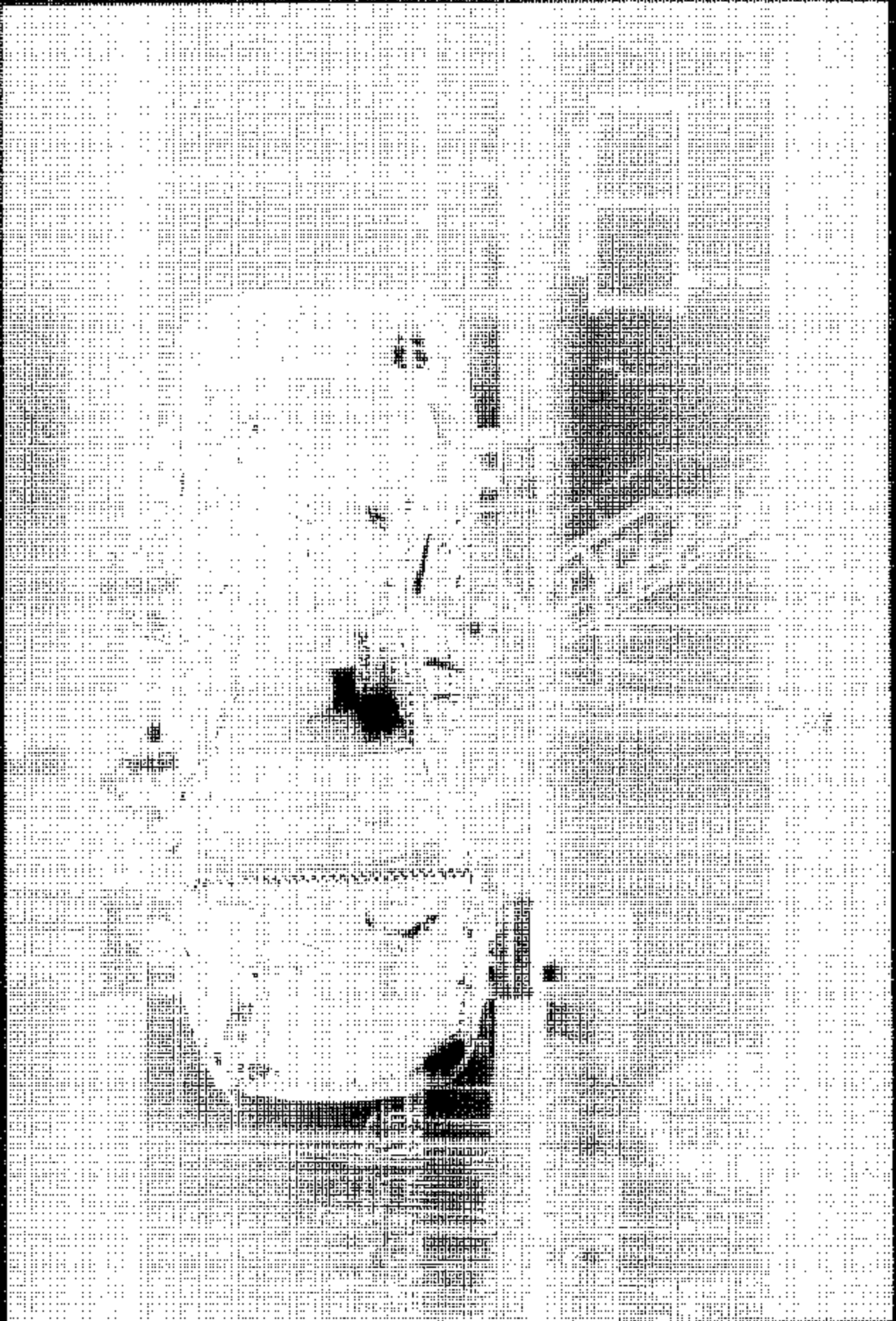


Figure A-56 FMVSS 301 Rollover View at 270°

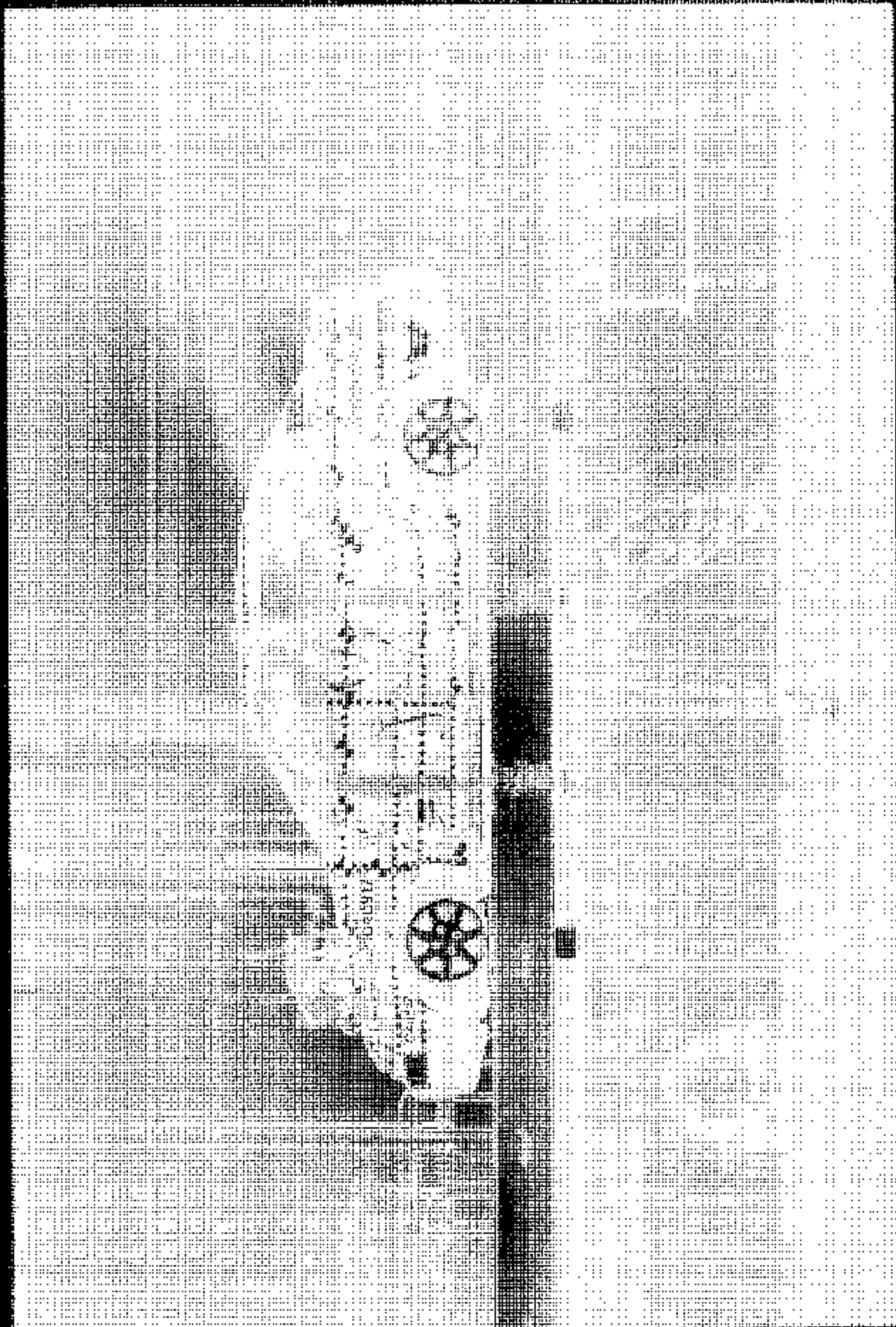


Figure A-57 KMOVSS 301 Rollover View at 360°

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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-9         |
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| 4               | Driver Lower Rib Y-Axis Velocity                    | B-11        |
| 5               | Driver Lower Spine Y-Axis Acceleration              | B-12        |
| 6               | Driver Lower Spine Y-Axis Velocity                  | B-13        |
| 7               | Driver Pelvis Y-Axis Acceleration                   | B-14        |
| 8               | Driver Pelvis Y-Axis Velocity                       | B-15        |
| 9               | Left Rear Passenger Upper Rib Y-Axis Acceleration   | B-16        |
| 10              | Left Rear Passenger Upper Rib Y-Axis Velocity       | B-17        |
| 11              | Left Rear Passenger Lower Rib Y-Axis Acceleration   | B-18        |
| 12              | Left Rear Passenger Lower Rib Y-Axis Velocity       | B-19        |
| 13              | Left Rear Passenger Lower Spine Y-Axis Acceleration | B-20        |
| 14              | Left Rear Passenger Lower Spine Y-Axis Velocity     | B-21        |
| 15              | Left Rear Passenger Pelvis Y-Axis Acceleration      | B-22        |
| 16              | Left Rear Passenger Pelvis Y-Axis Velocity          | B-23        |

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 1000 - Redundant

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| 21              | Driver Lower Spine Y-Axis Redundant Acceleration | B-29        |
| 22              | Driver Lower Spine Y-Axis Redundant Velocity     | B-30        |
| 23              | Driver Pelvis Y-Axis Redundant Acceleration      | B-31        |

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Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

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

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

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| 35              | Right Side Sill At Front Seat Y-Axis Acceleration    | B-44        |
| 36              | Right Side Sill At Front Seat Y-Axis Velocity        | B-45        |
| 37              | Right Side Sill At Front Seat Z-Axis Acceleration    | B-46        |
| 38              | Right Side Sill At Front Seat Z-Axis Velocity        | B-47        |
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| 42              | Right Side Sill At Rear Seat Y-Axis Acceleration     | B-51        |
| 43              | Right Side Sill At Rear Seat Y-Axis Velocity         | B-52        |
| 44              | Right Side Sill At Rear Seat Z-Axis Acceleration     | B-53        |
| 45              | Right Side Sill At Rear Seat Z-Axis Velocity         | B-54        |
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 Test Vehicle Instrumentation Plots (Continued)  
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 Integration Data - Filter Class 180

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| 68              | Left Lower B-Post Y-Axis Velocity                   | B-77        |
| 69              | Left Middle B-Post Y-Axis Acceleration              | B-78        |
| 70              | Left Middle B-Post Y-Axis Velocity                  | B-79        |
| 71              | Left Front Seat Track Y-Axis Acceleration           | B-80        |
| 72              | Left Front Seat Track Y-Axis Velocity               | B-81        |
| 73              | Left Rear Seat Track Y-Axis Acceleration            | B-82        |
| 74              | Left Rear Seat Track Y-Axis Velocity                | B-83        |

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> |
|-----------------|--------------------------------------------------|-------------|
| 75              | Vehicle Center Of Gravity X-Axis Acceleration    | B-84        |
| 76              | Vehicle Center Of Gravity X-Axis Velocity        | B-85        |
| 77              | Vehicle Center Of Gravity Y-Axis Acceleration    | B-86        |
| 78              | Vehicle Center Of Gravity Y-Axis Velocity        | B-87        |
| 79              | Vehicle Center Of Gravity Z-Axis Acceleration    | B-88        |
| 80              | Vehicle Center Of Gravity Z-Axis Velocity        | B-89        |
| 81              | Vehicle Center Of Gravity Resultant Acceleration | B-90        |

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> |
|-----------------|----------------------------------------------|-------------|
| 82              | MDB Center Of Gravity X-Axis Acceleration    | B-92        |
| 83              | MDB Center Of Gravity X-Axis Velocity        | B-93        |
| 84              | MDB Center Of Gravity Y-Axis Acceleration    | B-94        |
| 85              | MDB Center Of Gravity Y-Axis Velocity        | B-95        |
| 86              | MDB Center Of Gravity Z-Axis Acceleration    | B-96        |
| 87              | MDB Center Of Gravity Z-Axis Velocity        | B-97        |
| 88              | MDB Center Of Gravity Resultant Acceleration | B-98        |
| 89              | MDB Left Rear X-Axis Acceleration            | B-99        |
| 90              | MDB Left Rear X-Axis Velocity                | B-100       |
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| 92              | MDB Left Rear Y-Axis Velocity                | B-102       |
| 93              | MDB Right Side Contact Switch                | B-103       |
| 94              | MDB Left Side Contact Switch                 | B-104       |



Driver and Passenger Dummy Instrumentation Plots  
Acceleration Data - FIR Filtered

| <u>Plot No.</u> | <u>Data Plot Title</u>                              | <u>Page</u> |
|-----------------|-----------------------------------------------------|-------------|
| 95              | Driver Upper Rib Y-Axis Acceleration                | B-106       |
| 96              | Driver Lower Rib Y-Axis Acceleration                | B-107       |
| 97              | Driver Lower Spine Y-Axis Acceleration              | B-108       |
| 98              | Driver Pelvis Y-Axis Acceleration                   | B-109       |
| 99              | Left Rear Passenger Upper Rib Y-Axis Acceleration   | B-110       |
| 100             | Left Rear Passenger Lower Rib Y-Axis Acceleration   | B-111       |
| 101             | Left Rear Passenger Lower Spine Y-Axis Acceleration | B-112       |
| 102             | Left Rear Passenger Pelvis Y-Axis Acceleration      | B-113       |

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> |
|-----------------|---------------------------------------------------------------|-------------|
| 103             | Driver Upper Rib Y-Axis Redundant Acceleration                | B-115       |
| 104             | Driver Lower Rib Y-Axis Redundant Acceleration                | B-116       |
| 105             | Driver Lower Spine Y-Axis Redundant Acceleration              | B-117       |
| 106             | Driver Pelvis Y-Axis Redundant Acceleration                   | B-118       |
| 107             | Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration   | B-119       |
| 108             | Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration   | B-120       |
| 109             | Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration | B-121       |
| 110             | Left Rear Passenger Pelvis Y-Axis Redundant Acceleration      | B-122       |

Driver and Passenger Dummy Instrumentation Plots

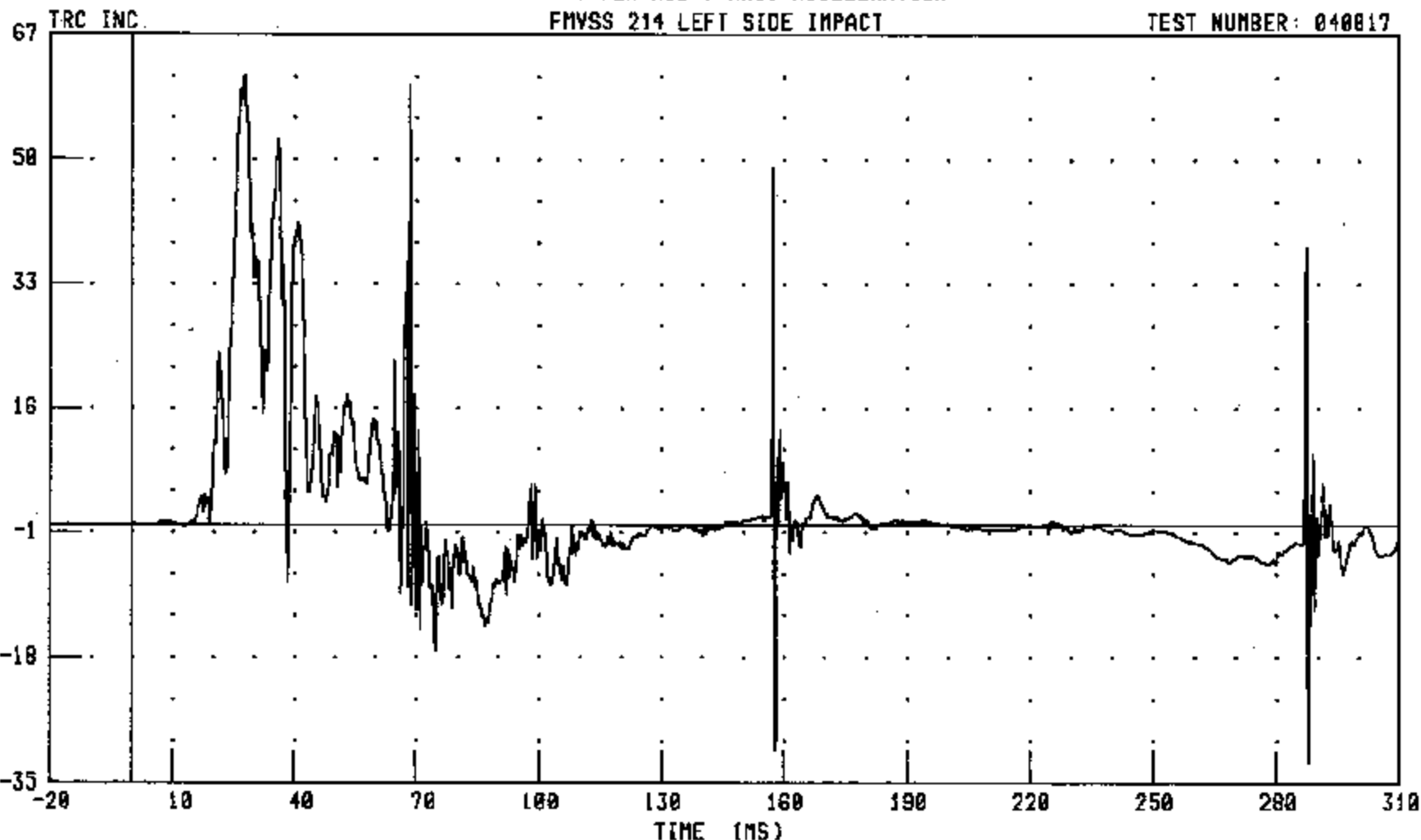
Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYG1 FILTER: CH. CLASS 1000

PEAK DATA: 61.44 G @ 27.60 MS; -32.18 G @ 287.84 MS

B-8

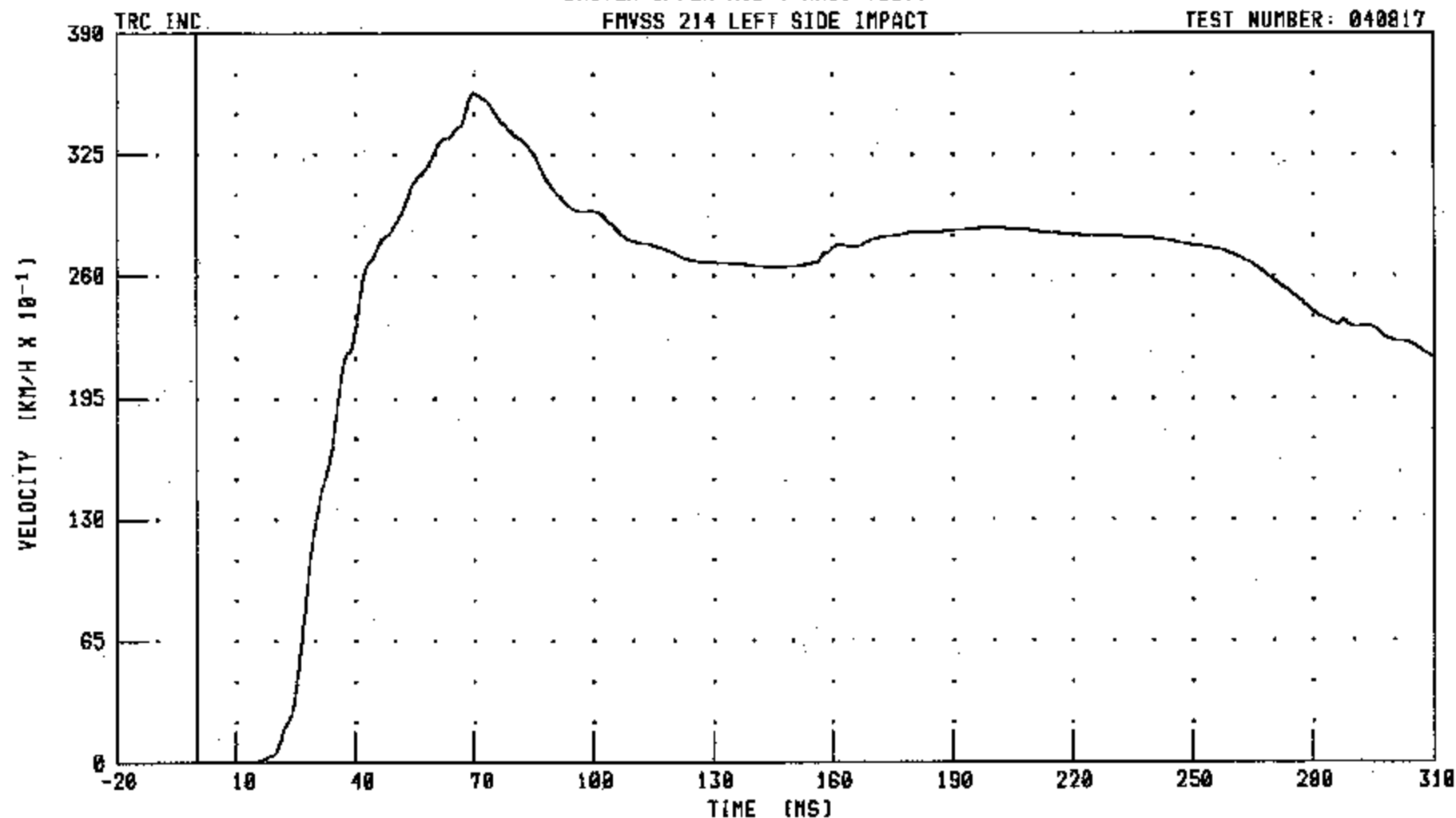
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER UPPER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYV1 FILTER: CH, CLASS 180

PEAK DATA: 35.79 KM/H @ 70.00 MS, 0.00 KM/H @ 0.00 MS

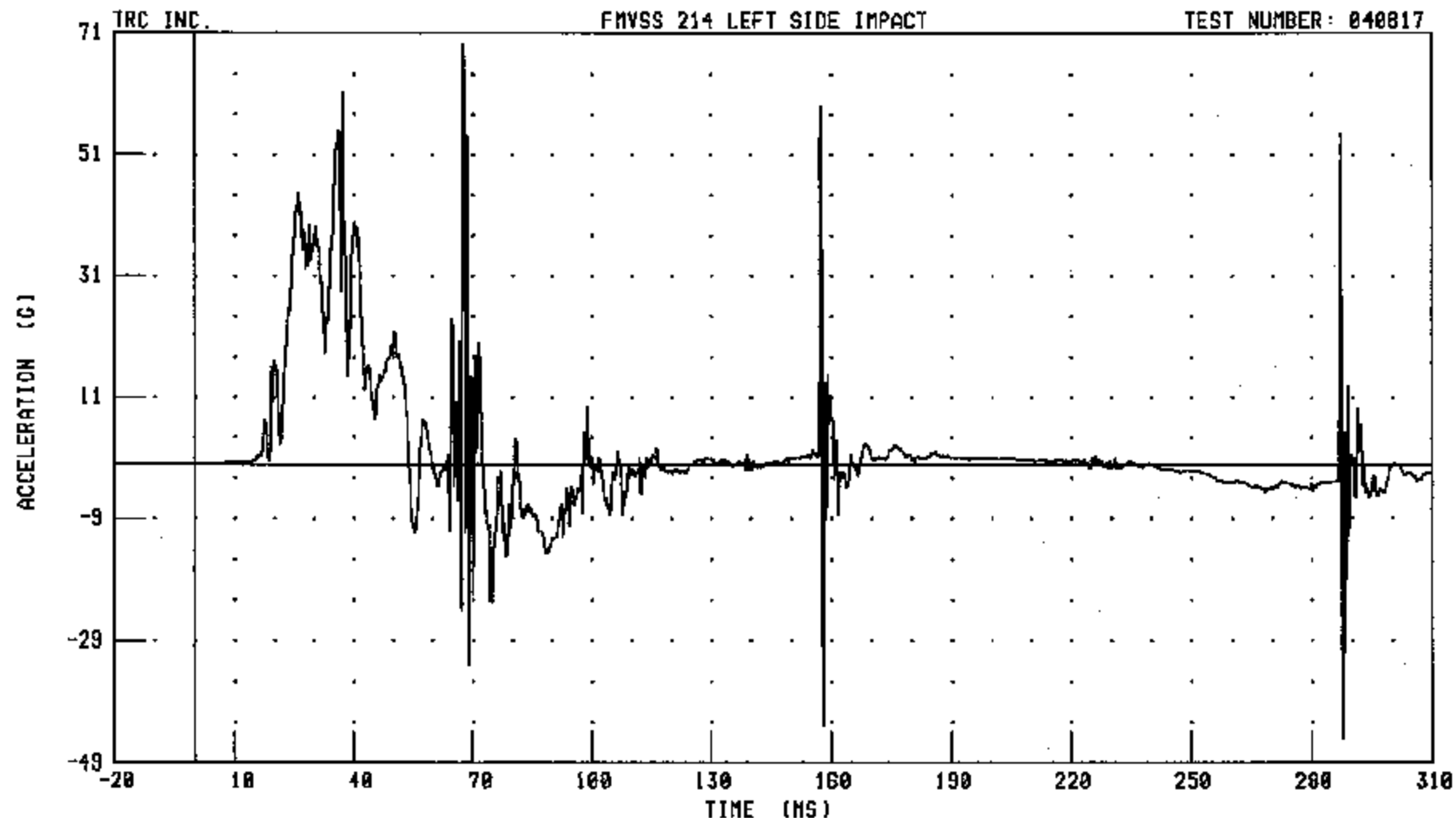
B-9

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYG1 FILTER: CH. CLASS 1000

B-10

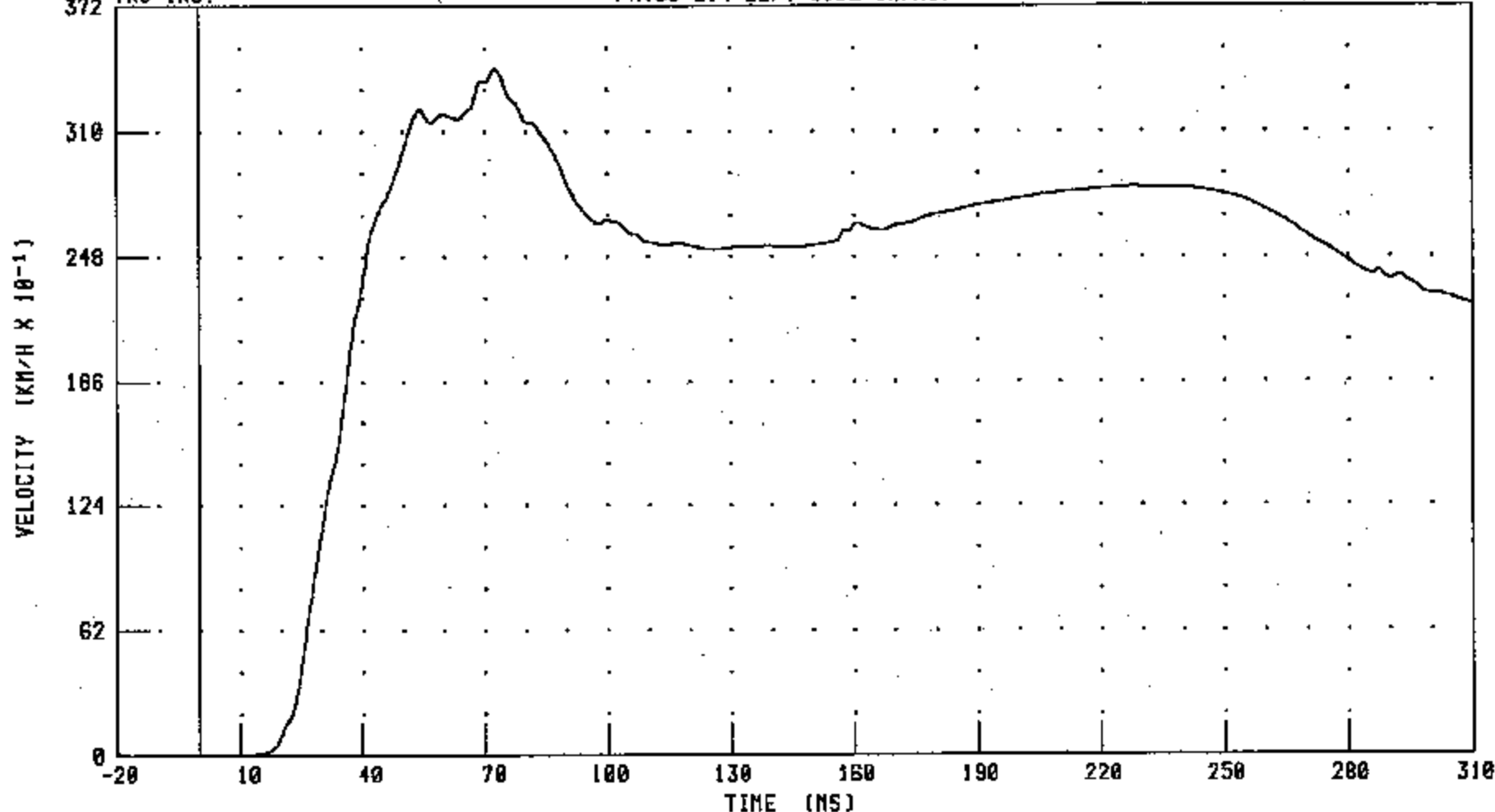
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: LLRYV1 FILTER: CH. CLASS 180

PEAK DATA: 34.11 KM/H @ 72.72 MS; 0.00 KM/H @ 0.56 MS

B-11

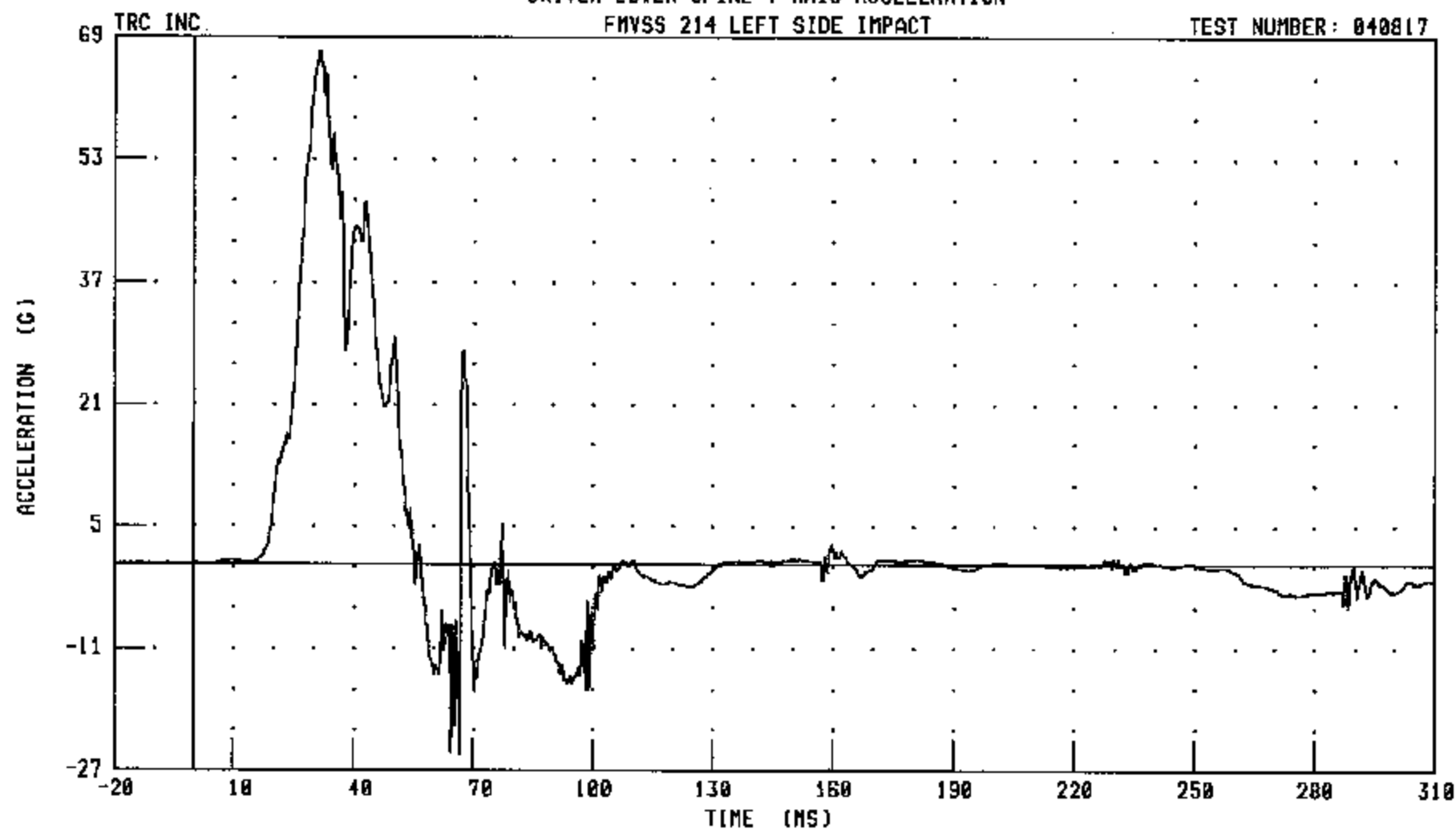
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: TL2YC1 FILTER: CH. CLASS 1000

PEAK DATA: 67.15 G @ 31.60 MS; -24.94 G @ 66.56 MS

B-12

040817

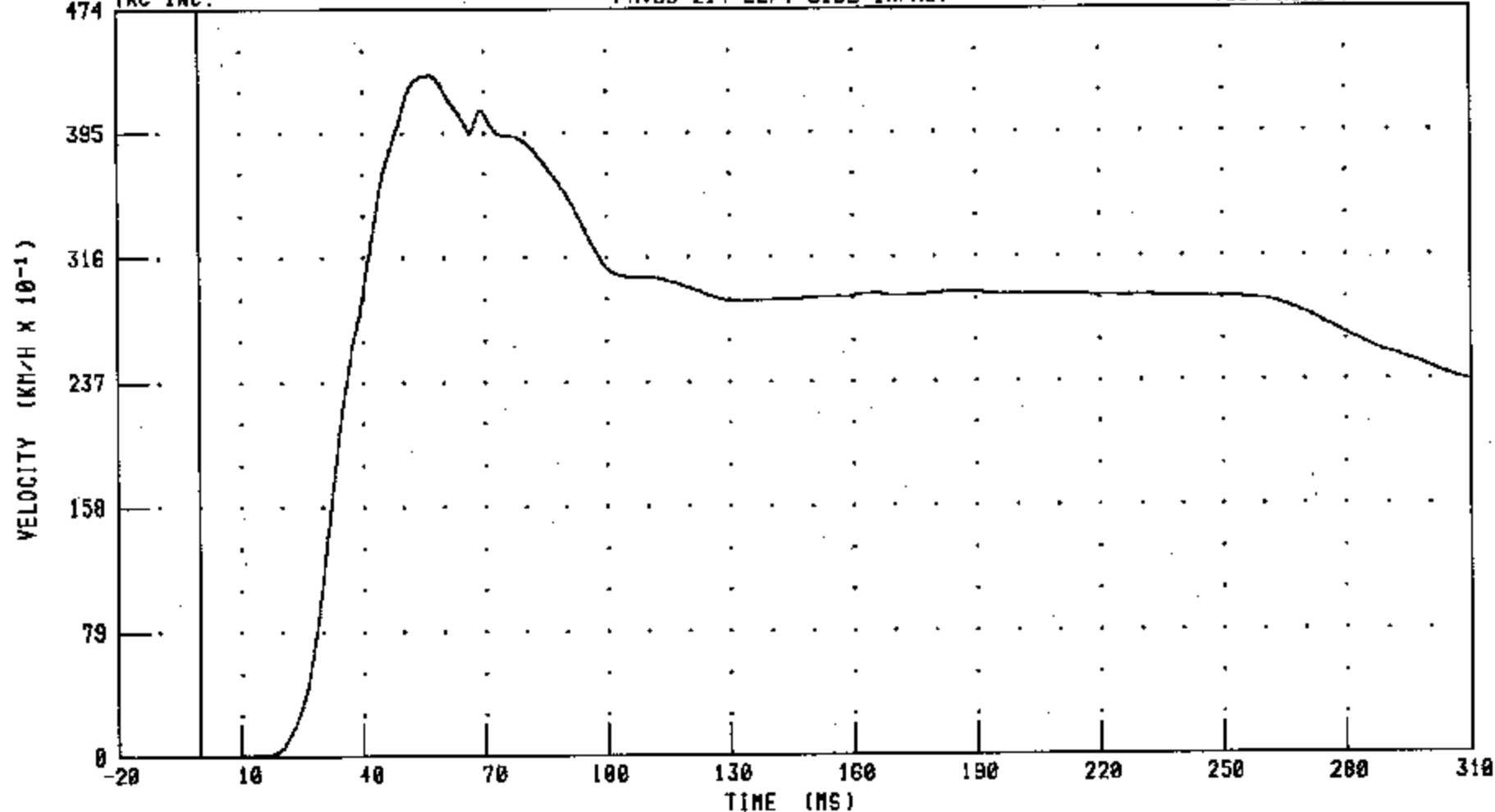
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER LOWER SPINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: T12YV1 FILTER: CH. CLASS 100

PEAK DATA: 43.19 KM/H @ 56.80 MS, 0.00 KM/H @ 0.00 MS

B-13

040817

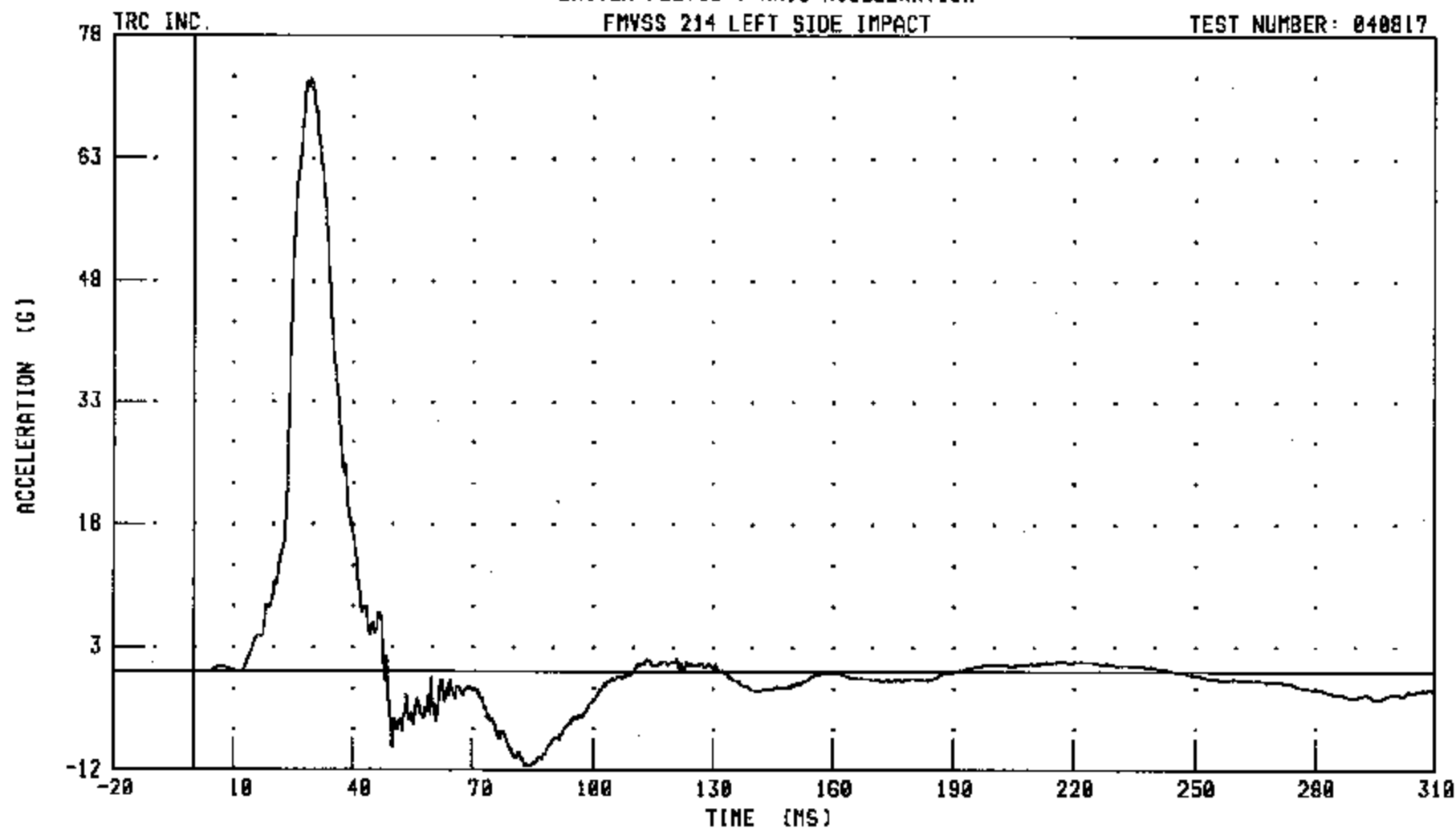


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

B-14

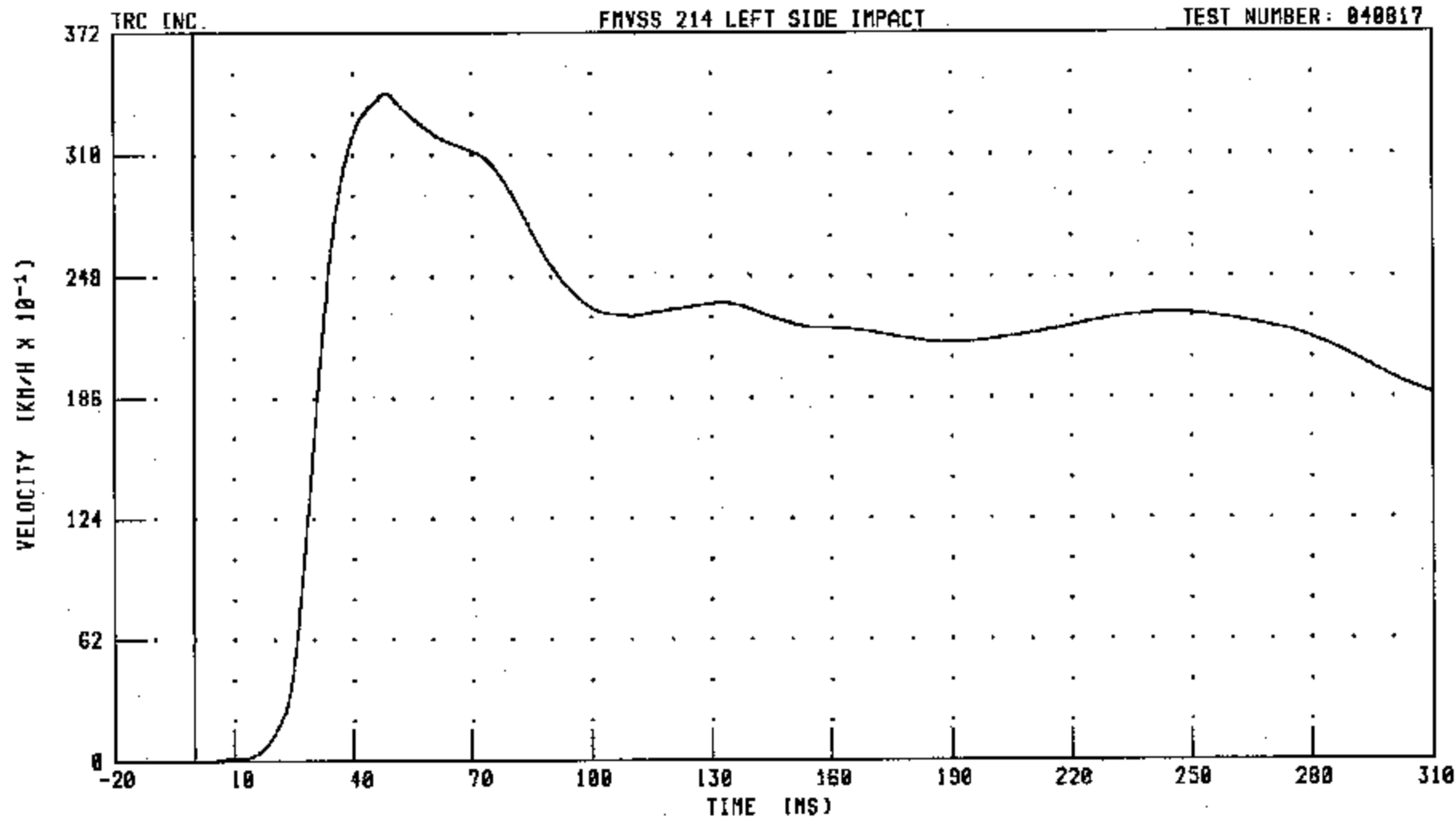
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER PELVIS Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYV1 FILTER: CH. CLASS 100

PEAK DATA: 34.13 KM/H @ 48.48 MS, 0.00 KM/H @ 0.00 MS

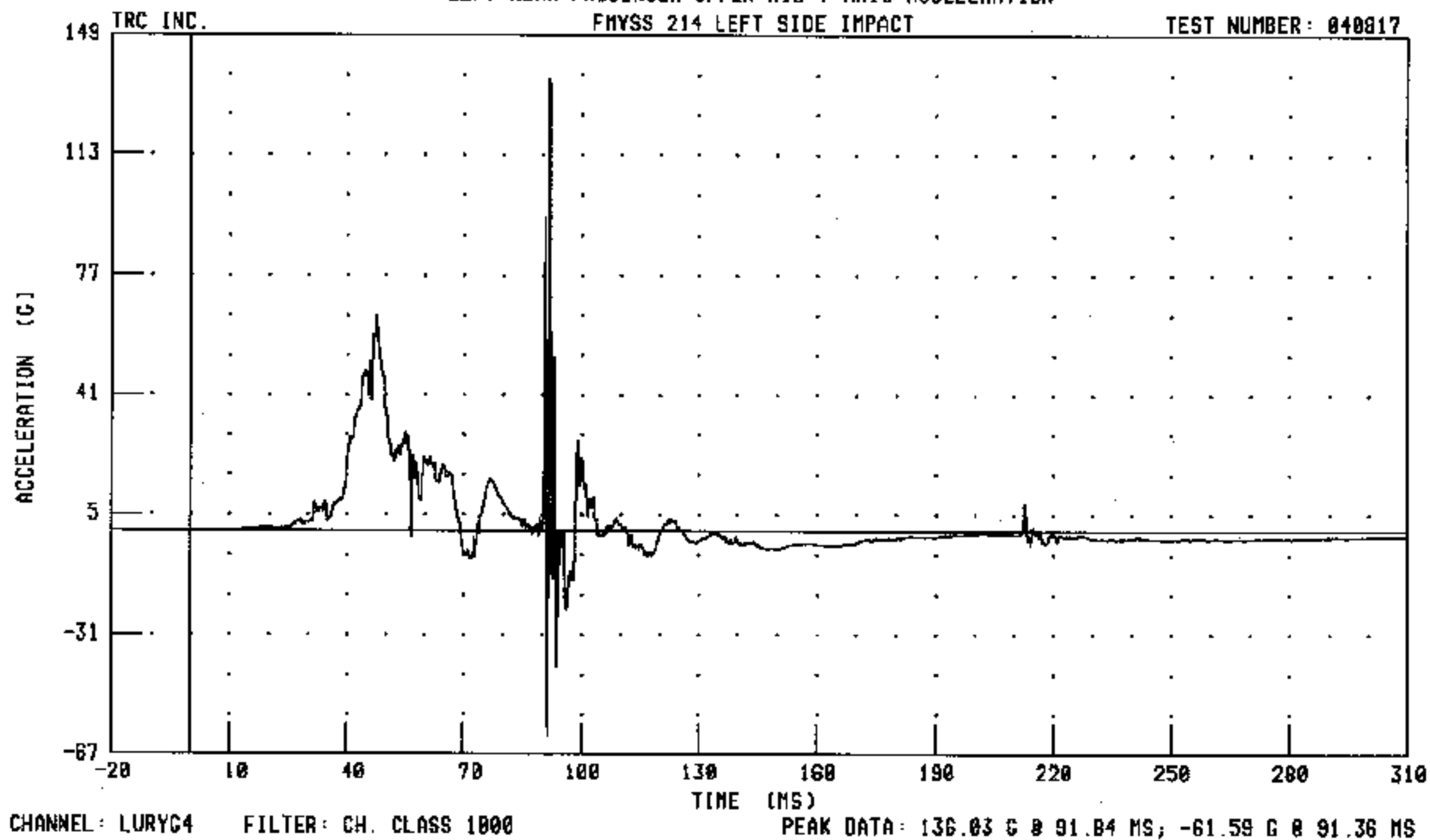
B-15

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



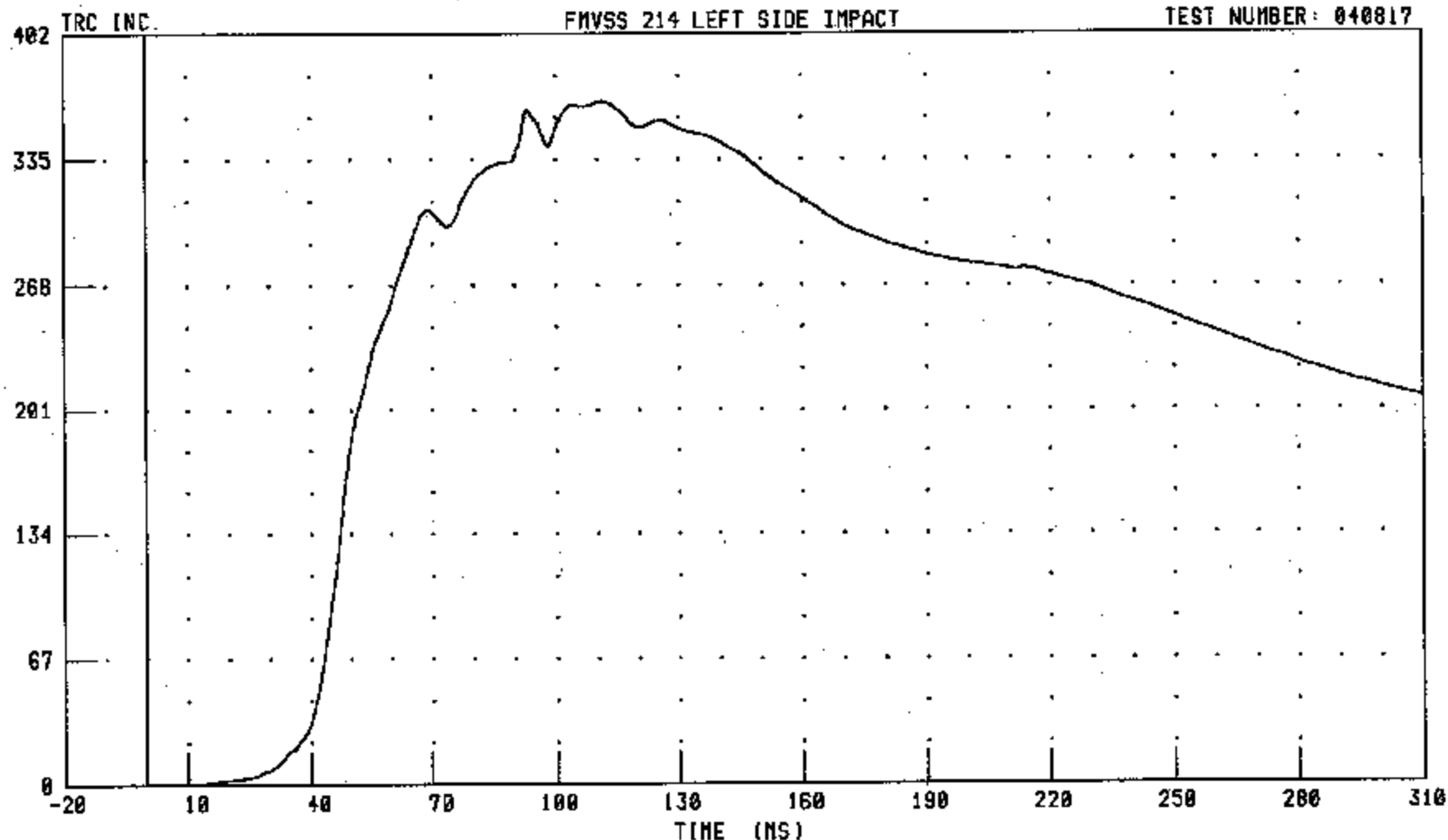
B-16

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYV4 FILTER: CH. CLASS 180

PEAK DATA: 36.61 KM/H @ 111.36 MS, 0.00 KM/H @ 0.00 MS

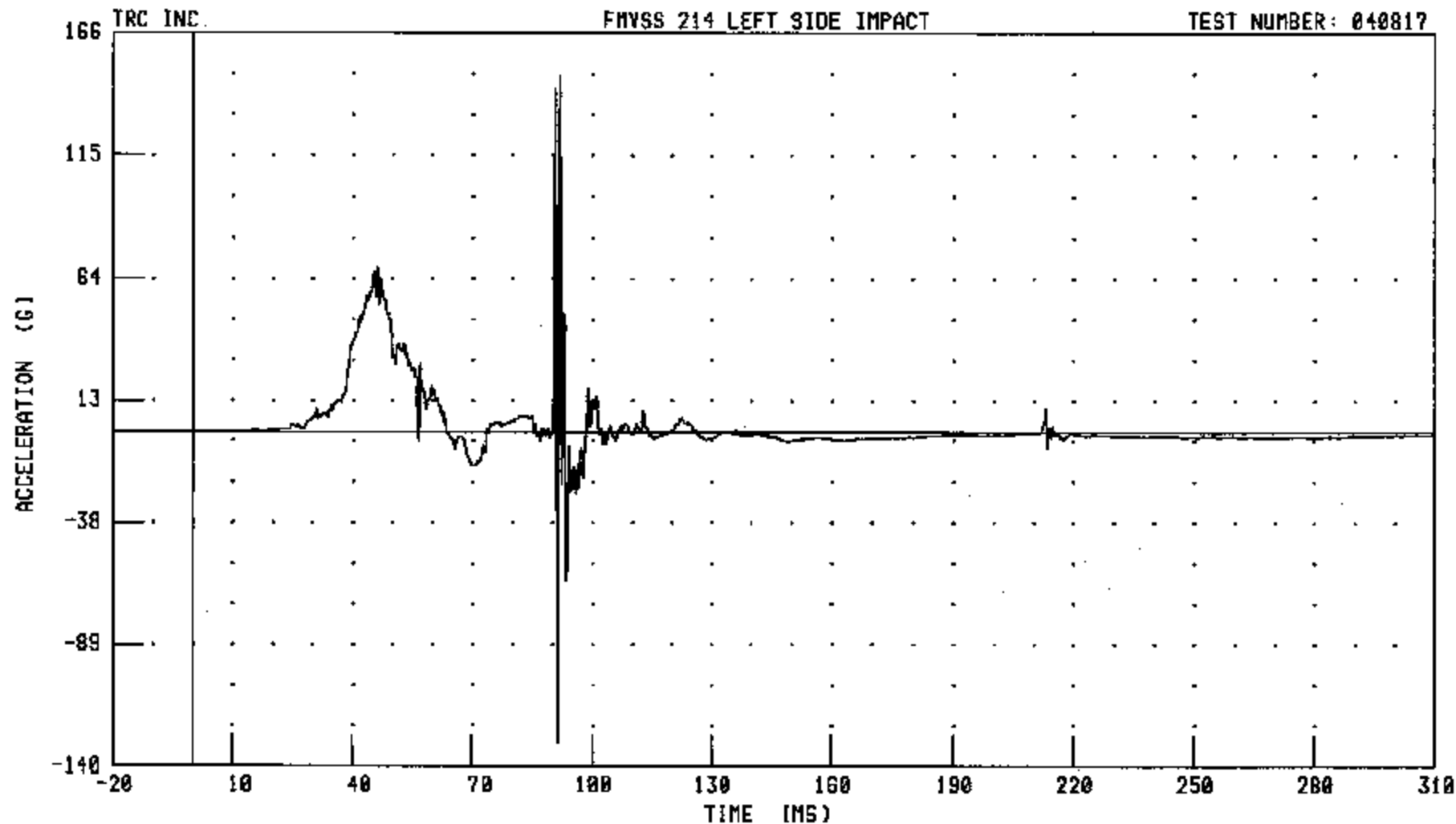
B-17

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYG4 FILTER: CH. CLASS 1000

PEAK DATA: 148.00 G @ 92.00 MS; -130.68 G @ 91.36 MS

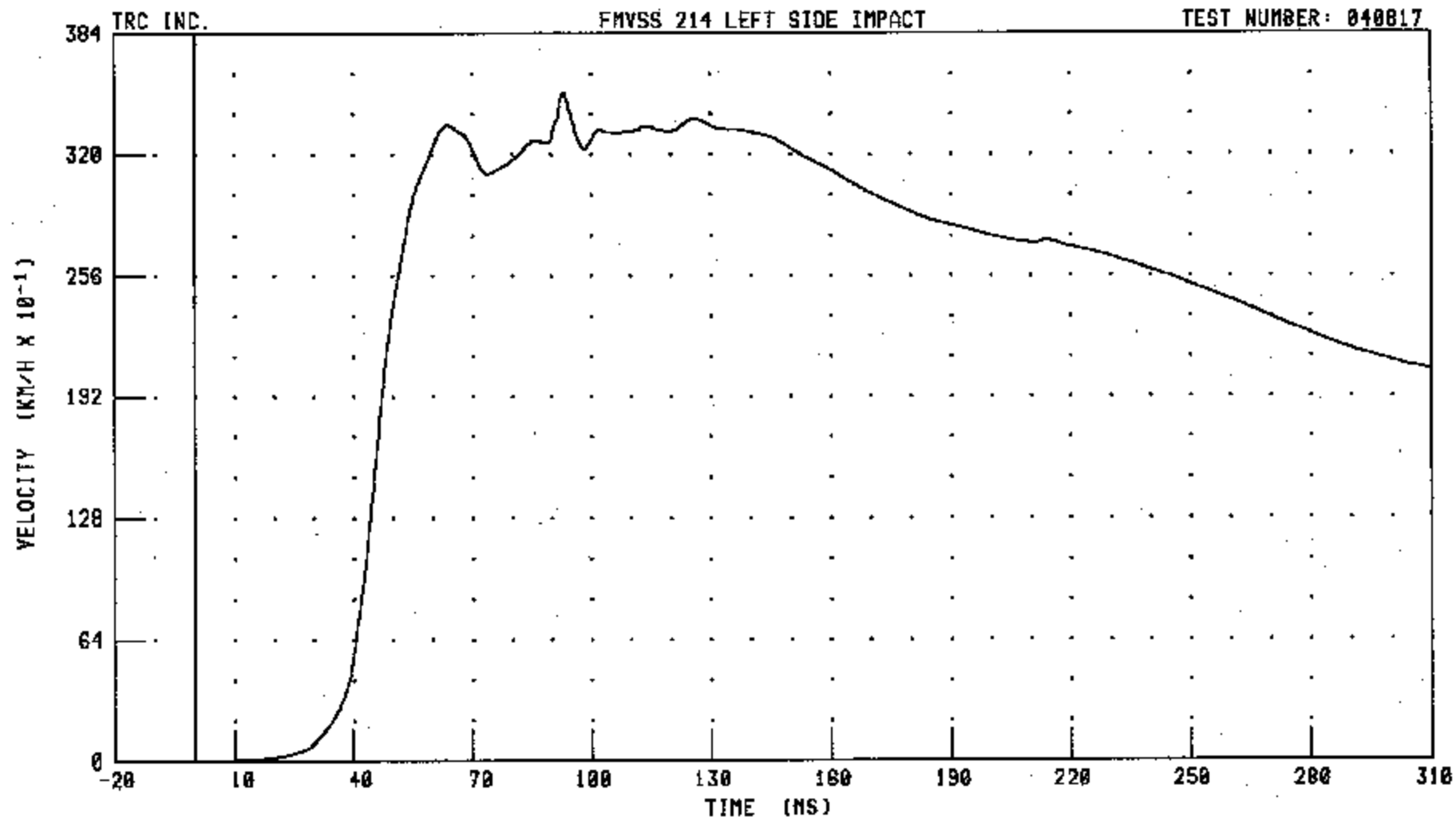
B-18

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYV4 FILTER: CH. CLASS 100

PEAK DATA: 35.25 KM/H @ 93.20 MS, 0.00 KM/H @ 1.12 MS

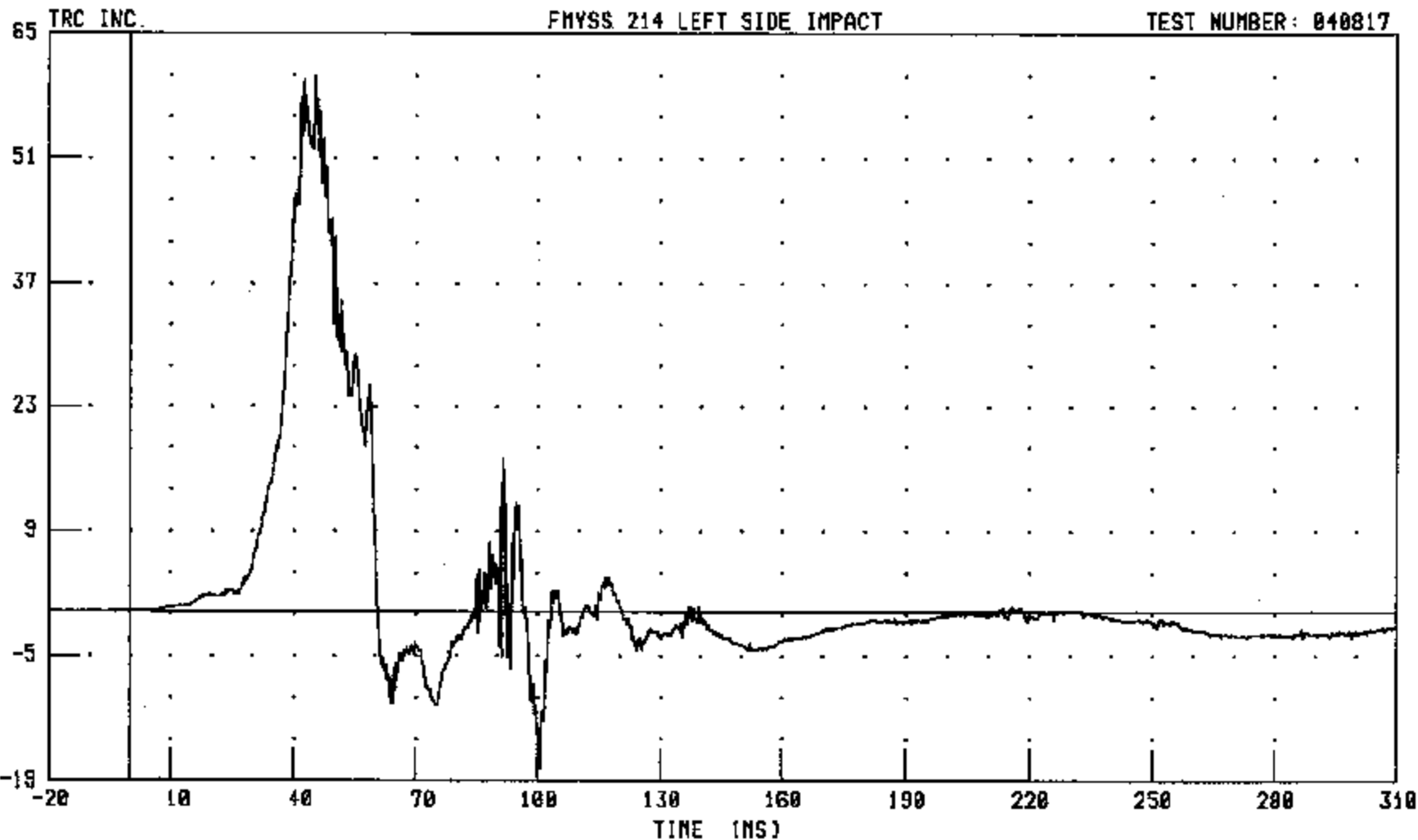
B-19

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

PHYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YC4 FILTER: CH. CLASS 1000

PEAK DATA: 60.34 G @ 45.36 MS; -17.74 G @ 100.96 MS

B-20

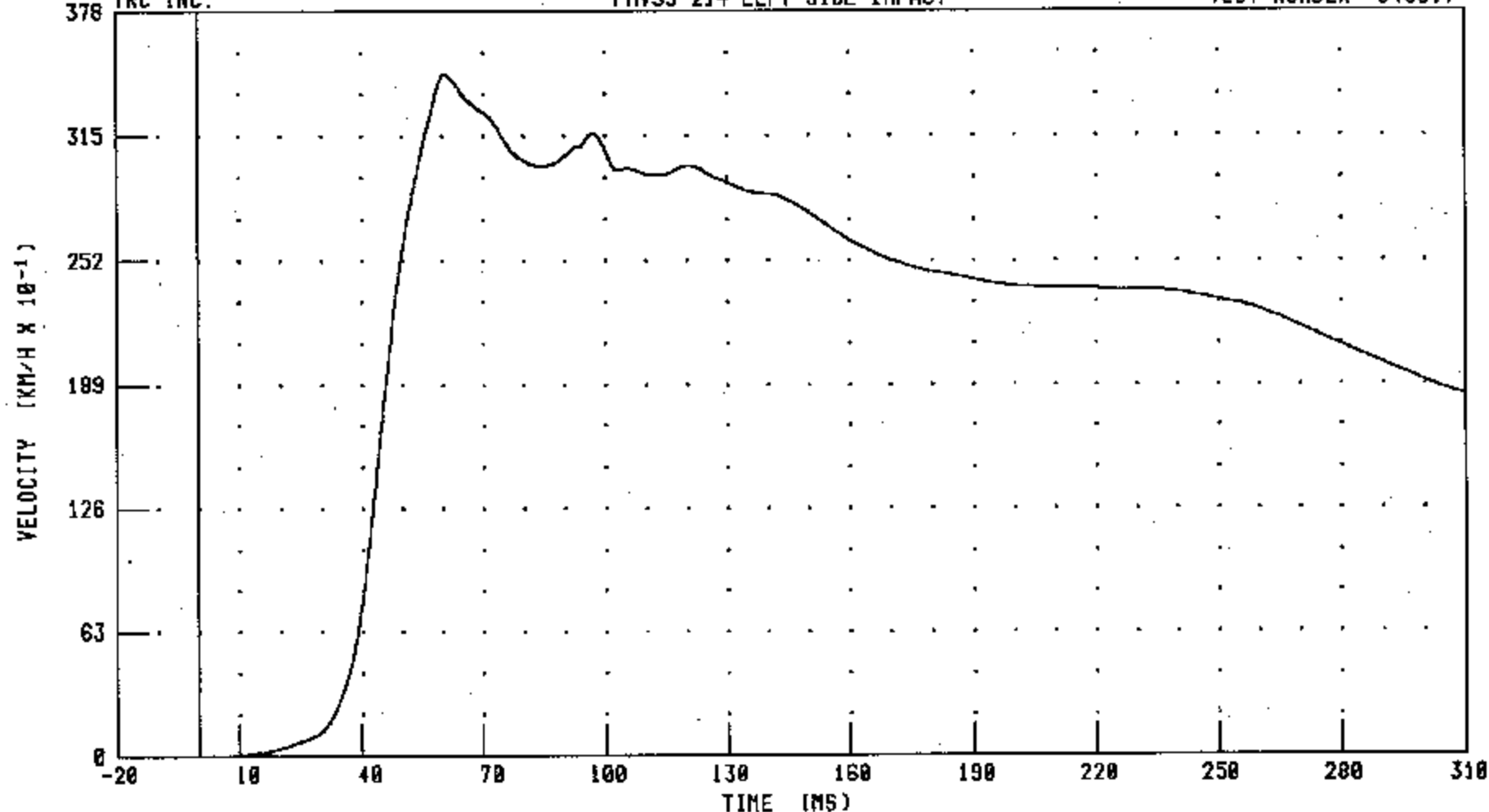
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: T12YV4 FILTER: CH. CLASS 100

PEAK DATA: 34.61 KM/H @ 60.72 MS, 0.00 KM/H @ 0.00 MS

B-21

040817

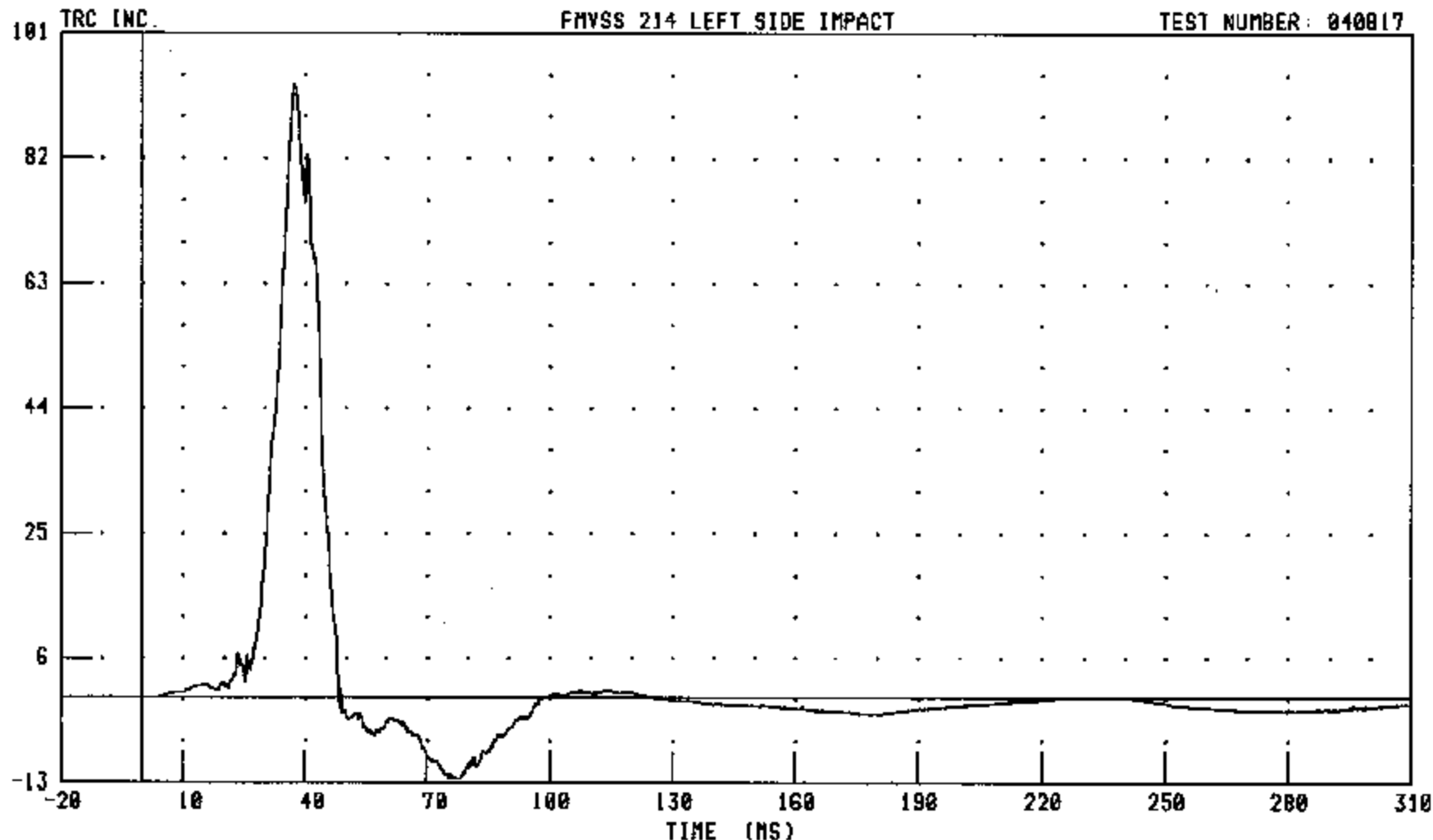


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYC4 FILTER: CH. CLASS 1000

PEAK DATA: 93.28 G @ 37.28 MS, -12.42 G @ 77.44 MS

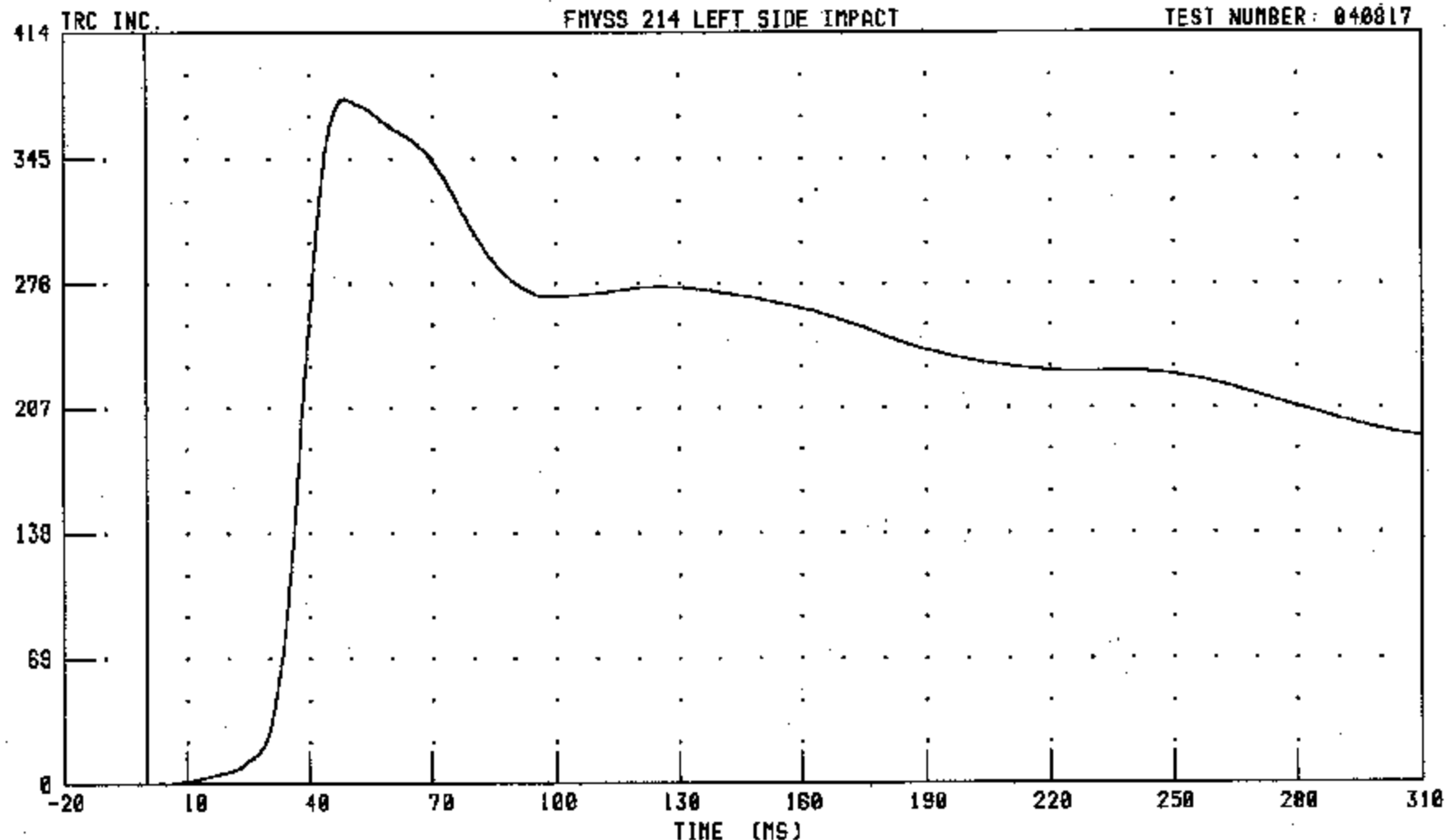
B-22

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYY4 FILTER: CH. CLASS 100

PEAK DATA: 37.76 KM/H @ 48.72 MS; 0.00 KM/H @ 0.00 MS

B-23

040817

Driver and Passenger Dummy Instrumentation Plots

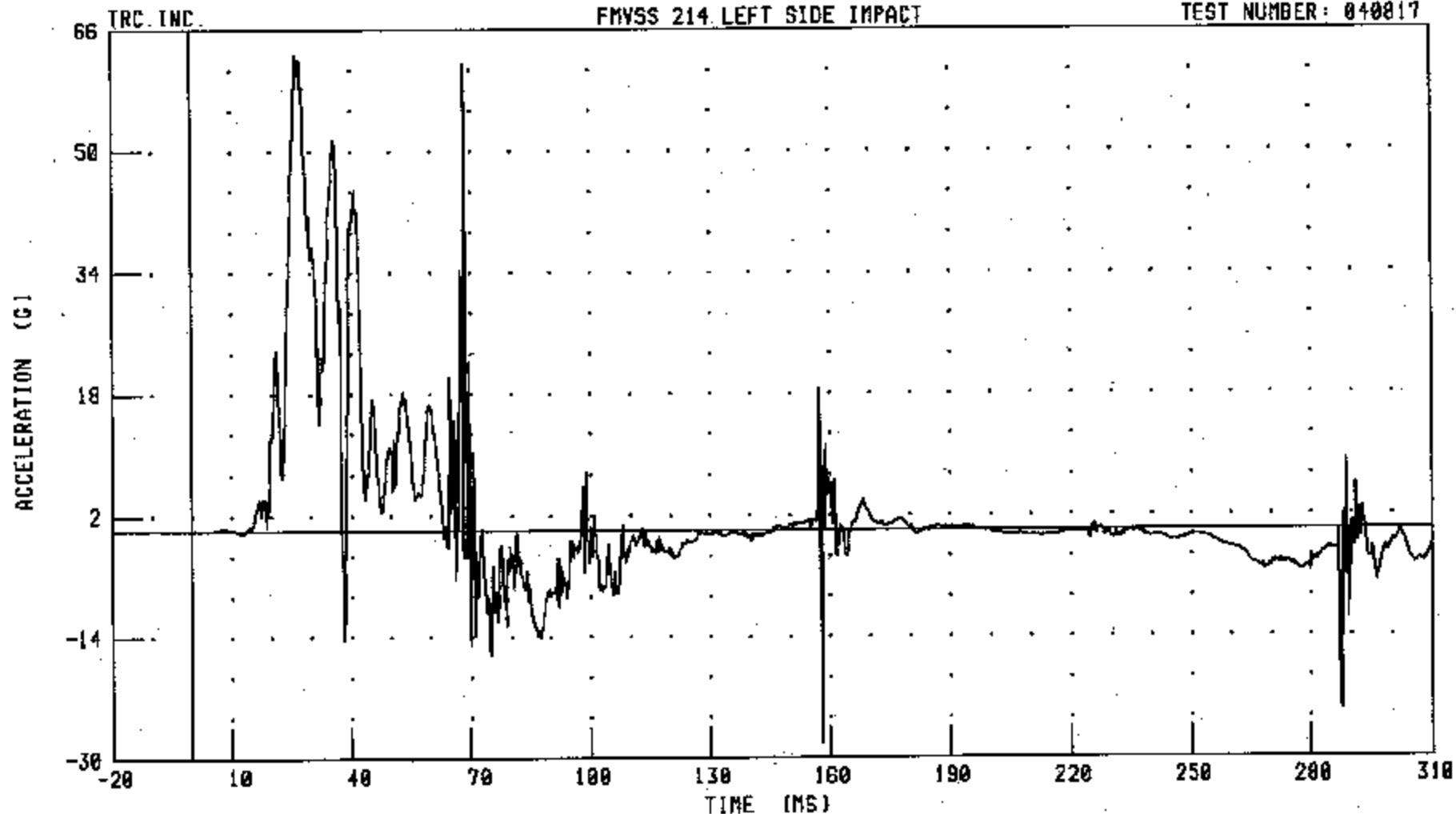
Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYR1 FILTER: CH. CLASS 1000

B-25

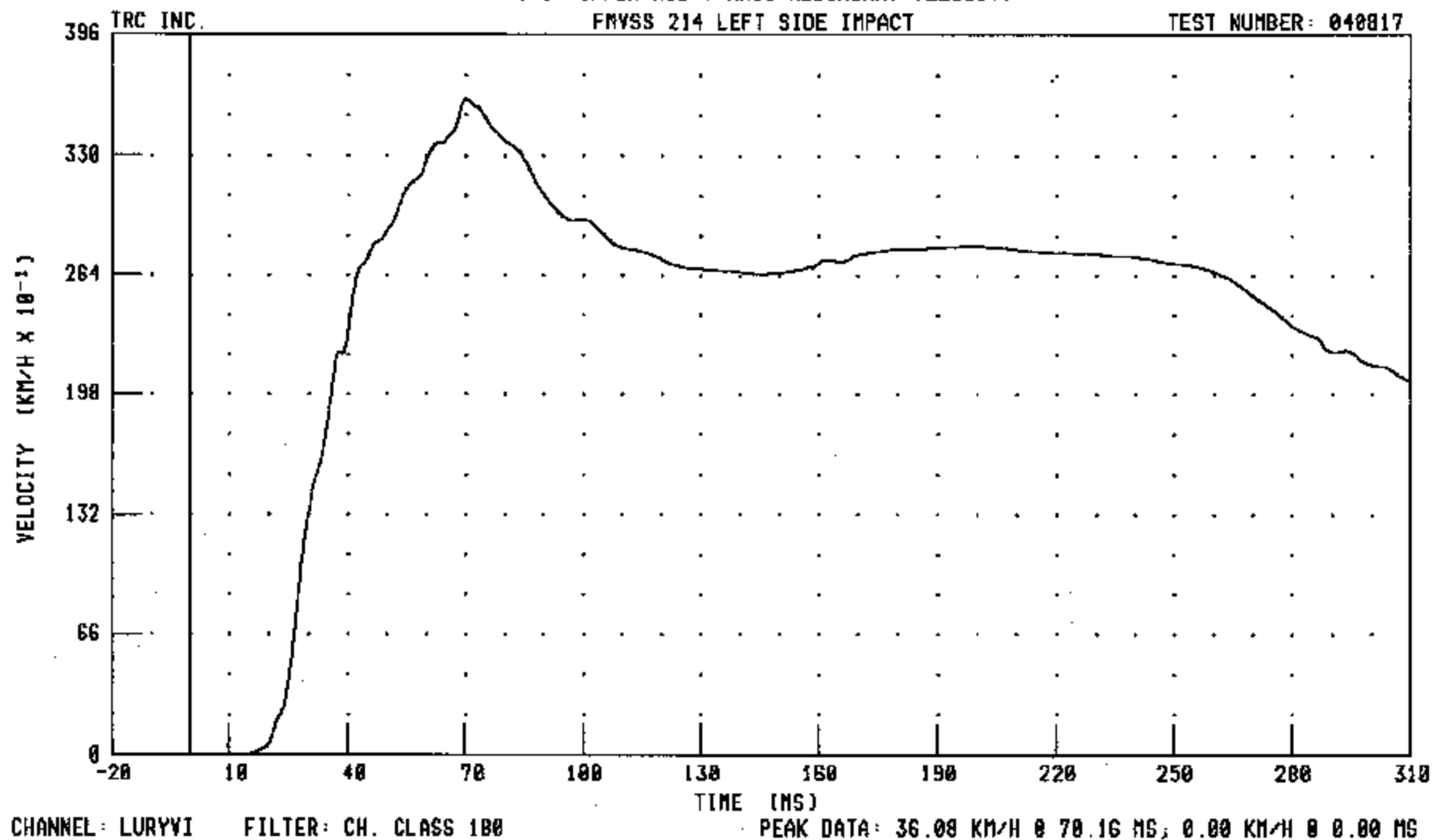
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



B-26

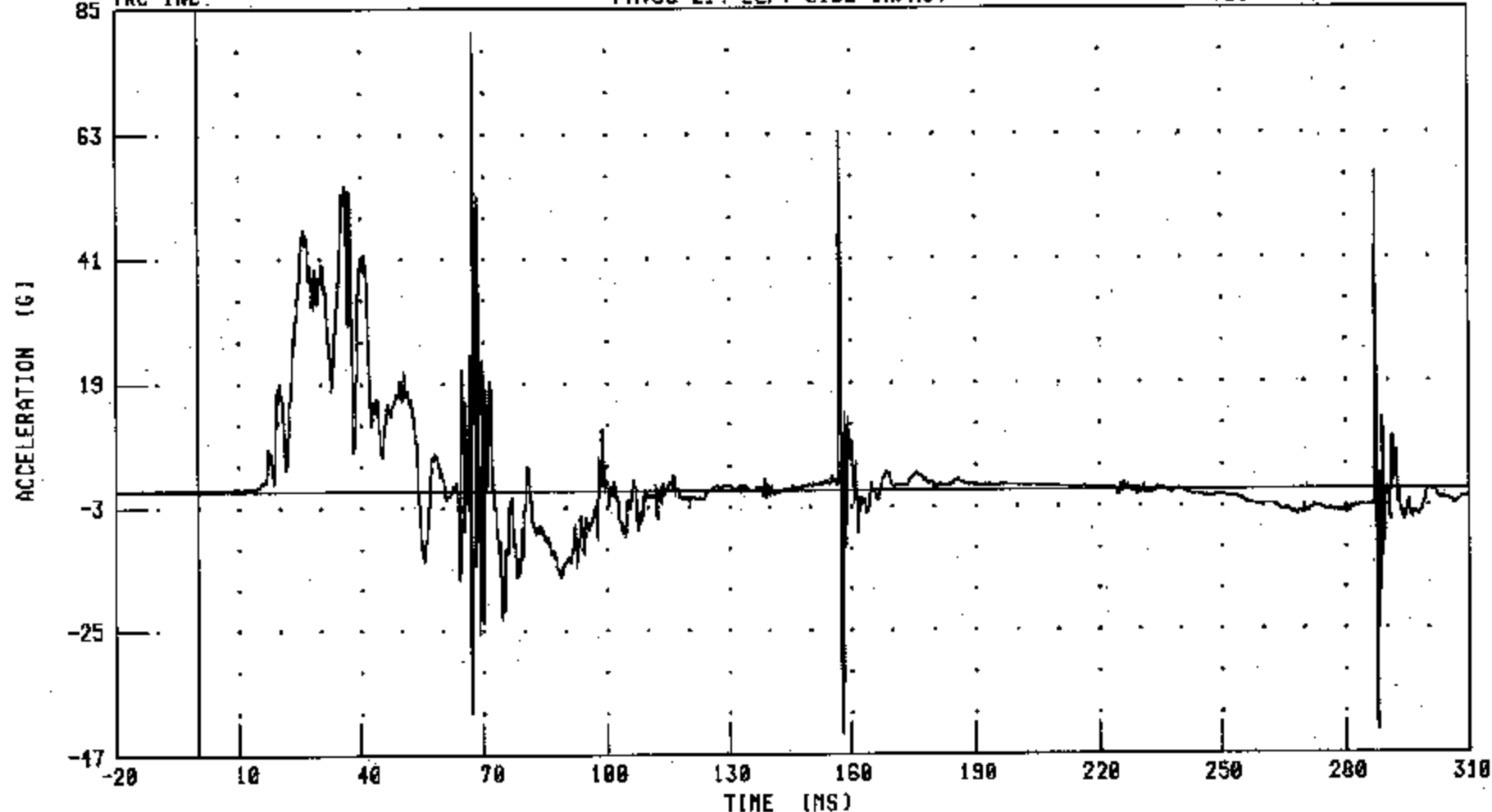
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: LLRYR1 FILTER: CH. CLASS 1000

PEAK DATA: 80.98 G @ 67.68 MS; -43.34 G @ 158.00 MS

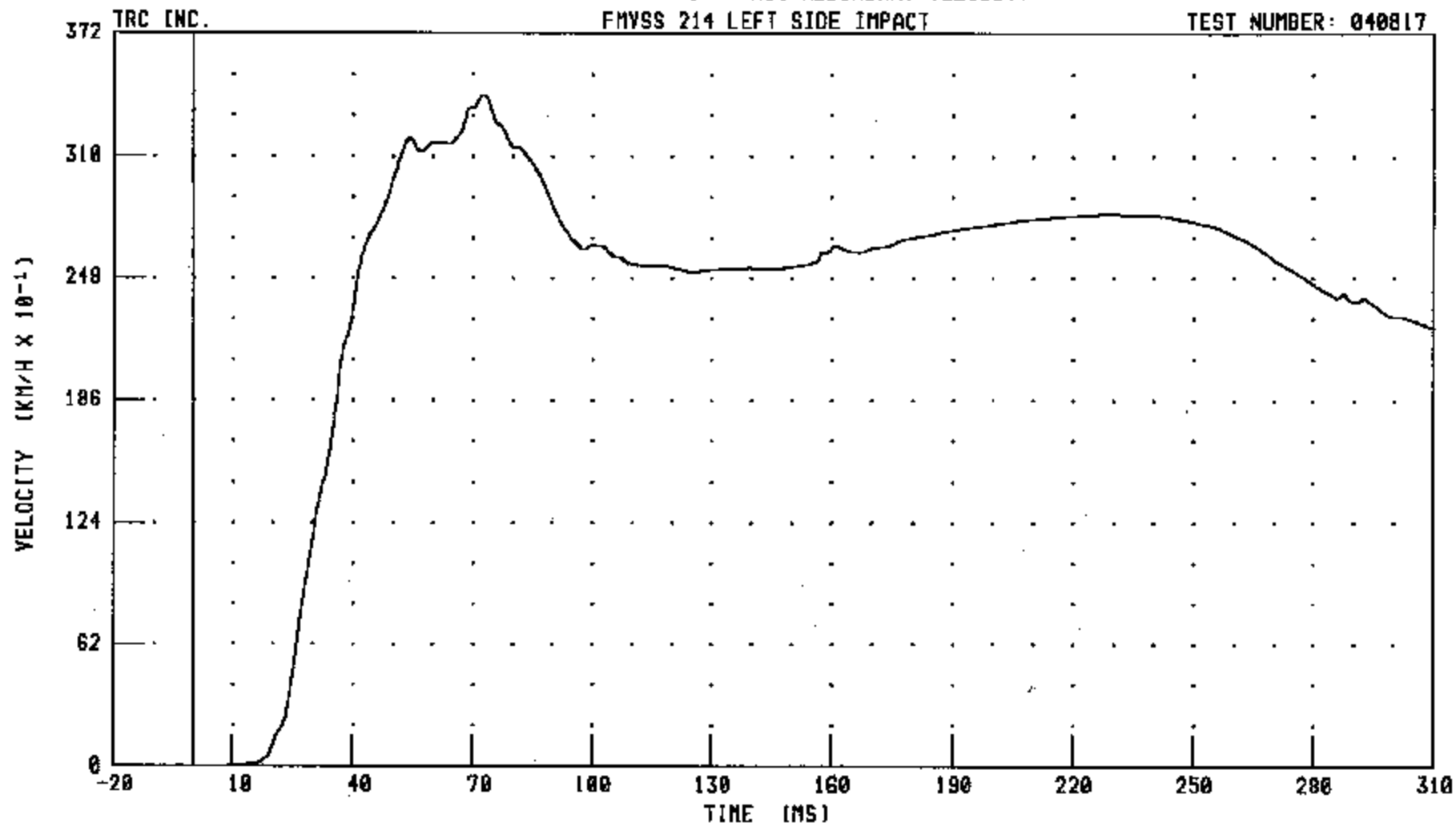
B-27

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYVI FILTER: CH. CLASS 180

PEAK DATA: 34.09 KM/H @ 72.72 MS; 0.00 KM/H @ 1.12 MS

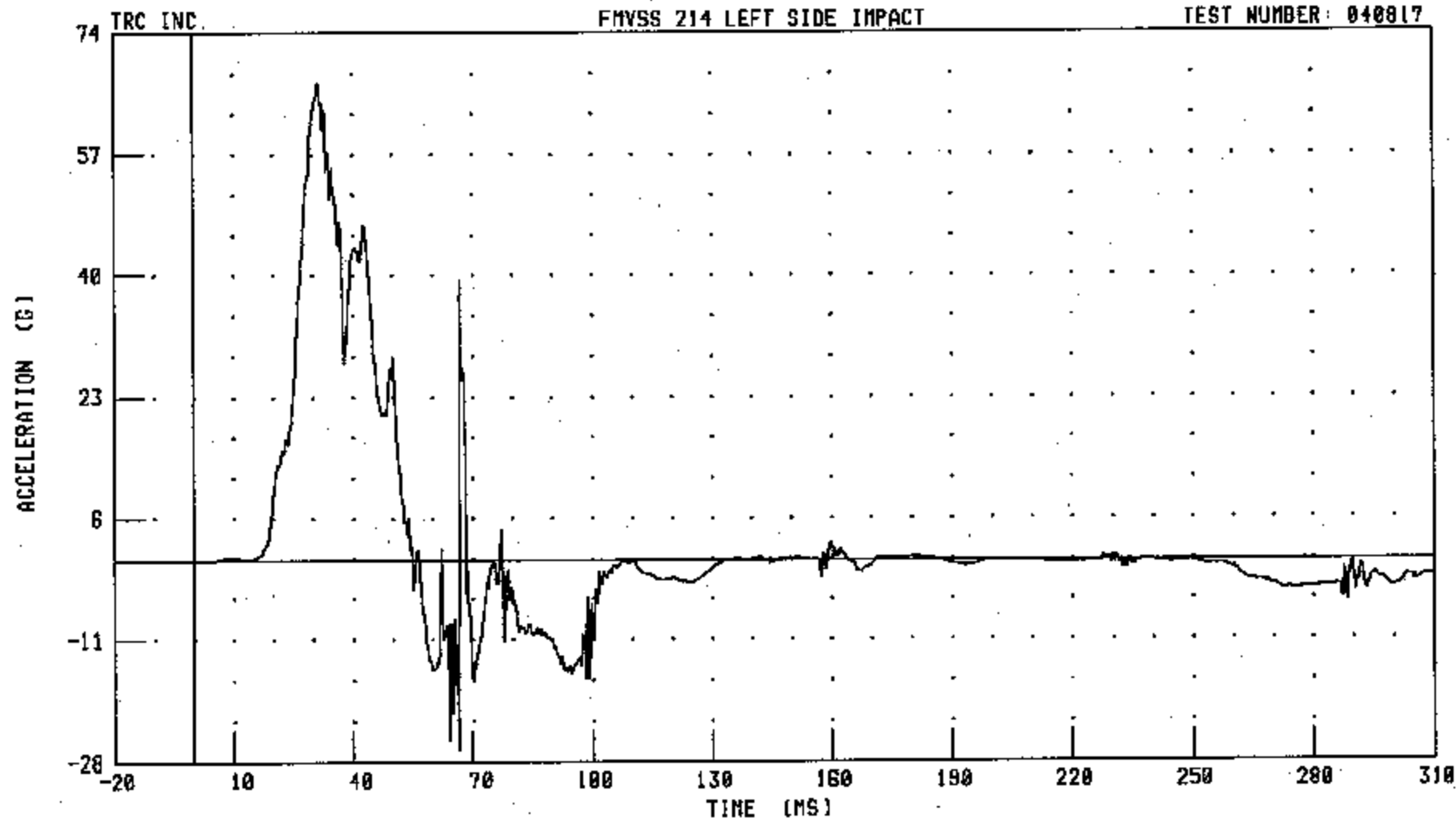
B-28

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YR1 FILTER: CH. CLASS 1000

PEAK DATA: 66.93 G @ 31.60 MS, -26.26 G @ 66.56 MS

B-29

040817

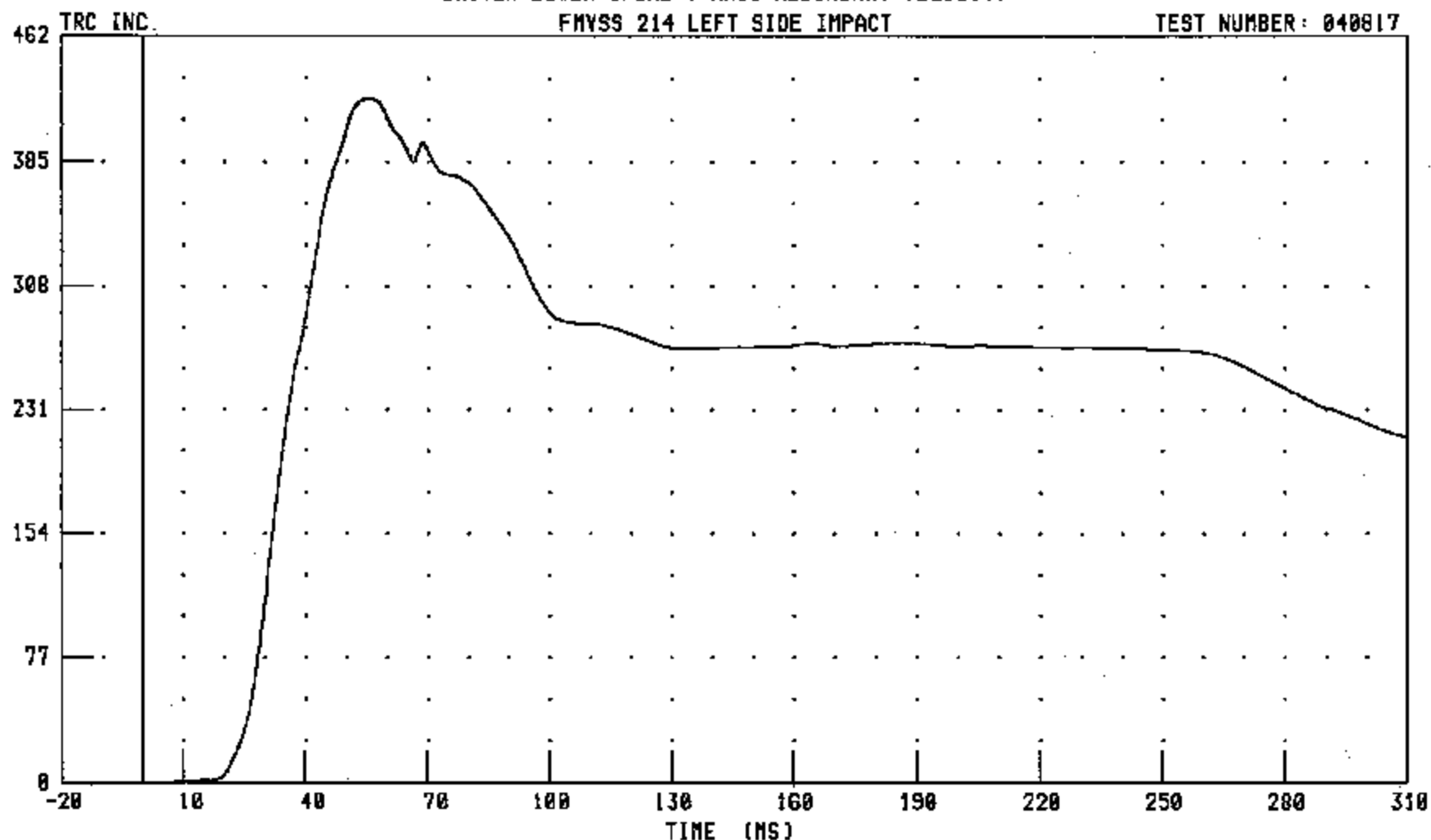


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



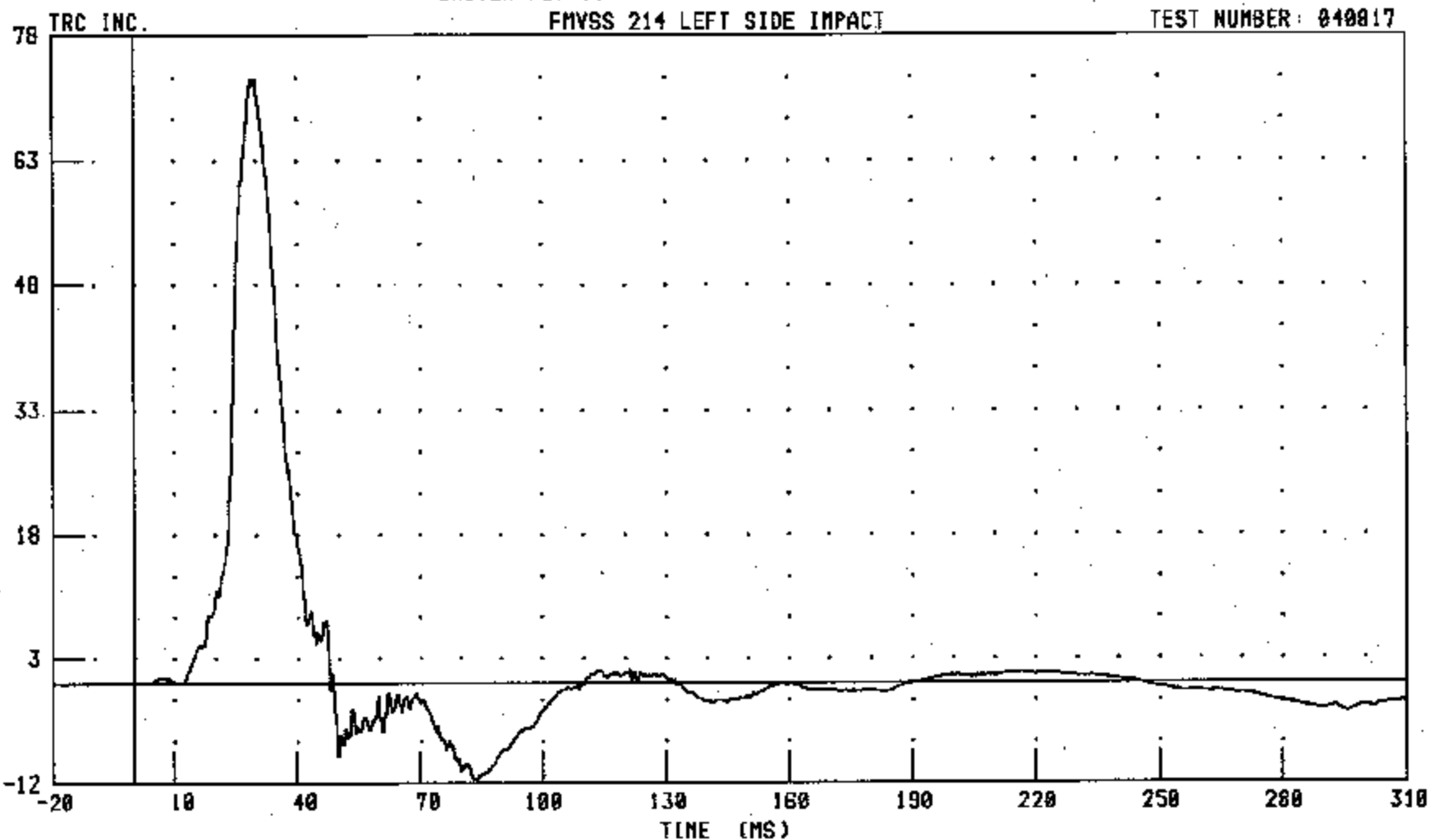
CHANNEL: T12YV1 FILTER: CH. CLASS 100

PEAK DATA: 42.37 KM/H @ 55.04 MS; 0.00 KM/H @ 0.00 MS

B-30

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION



CHANNEL: PEVYR1 FILTER: CH. CLASS 1000

B-31

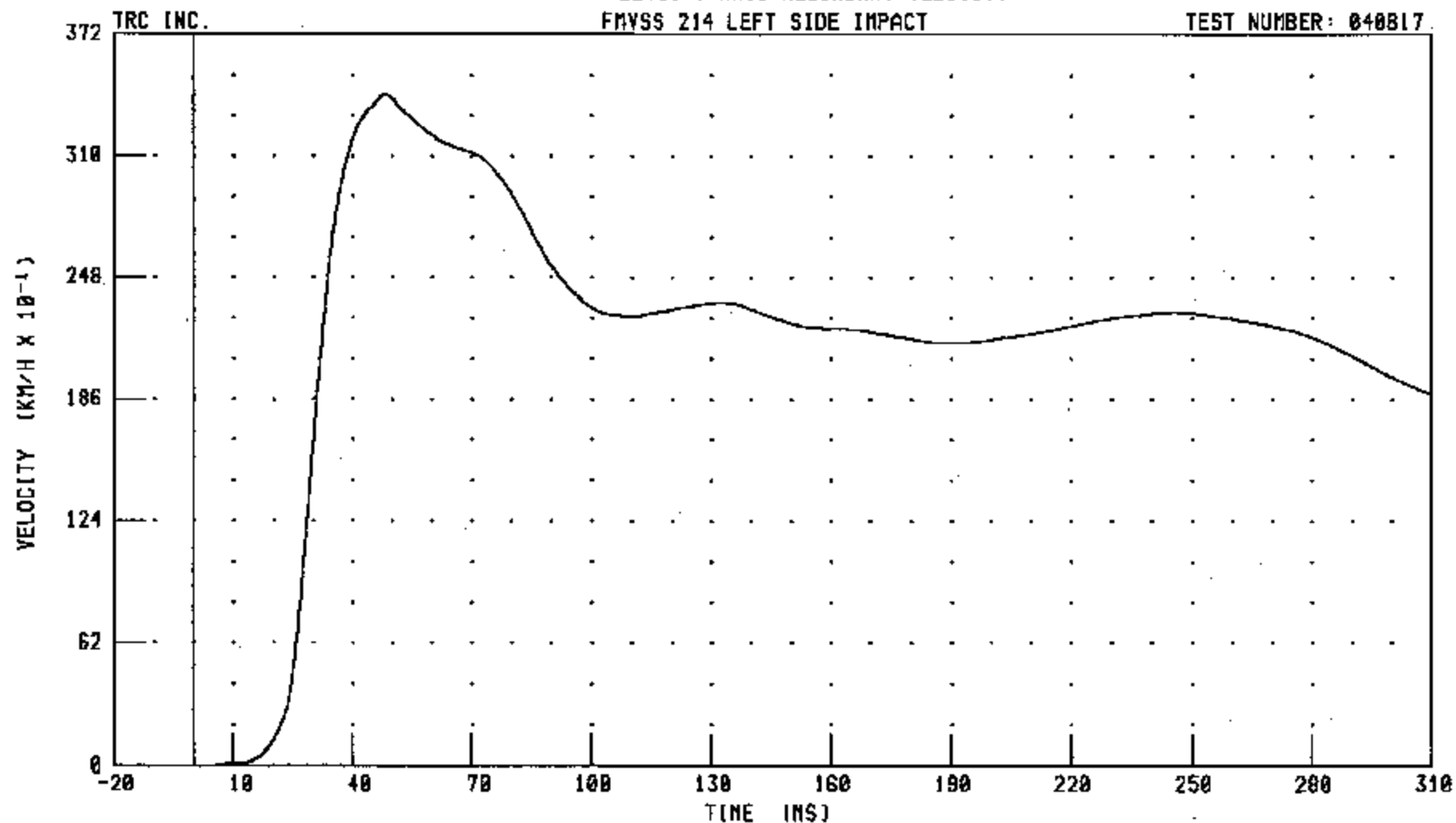
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYVI FILTER: CH. CLASS 100

PEAK DATA: 34.15 KM/H @ 48.48 MS; 0.00 KM/H @ 0.00 MS

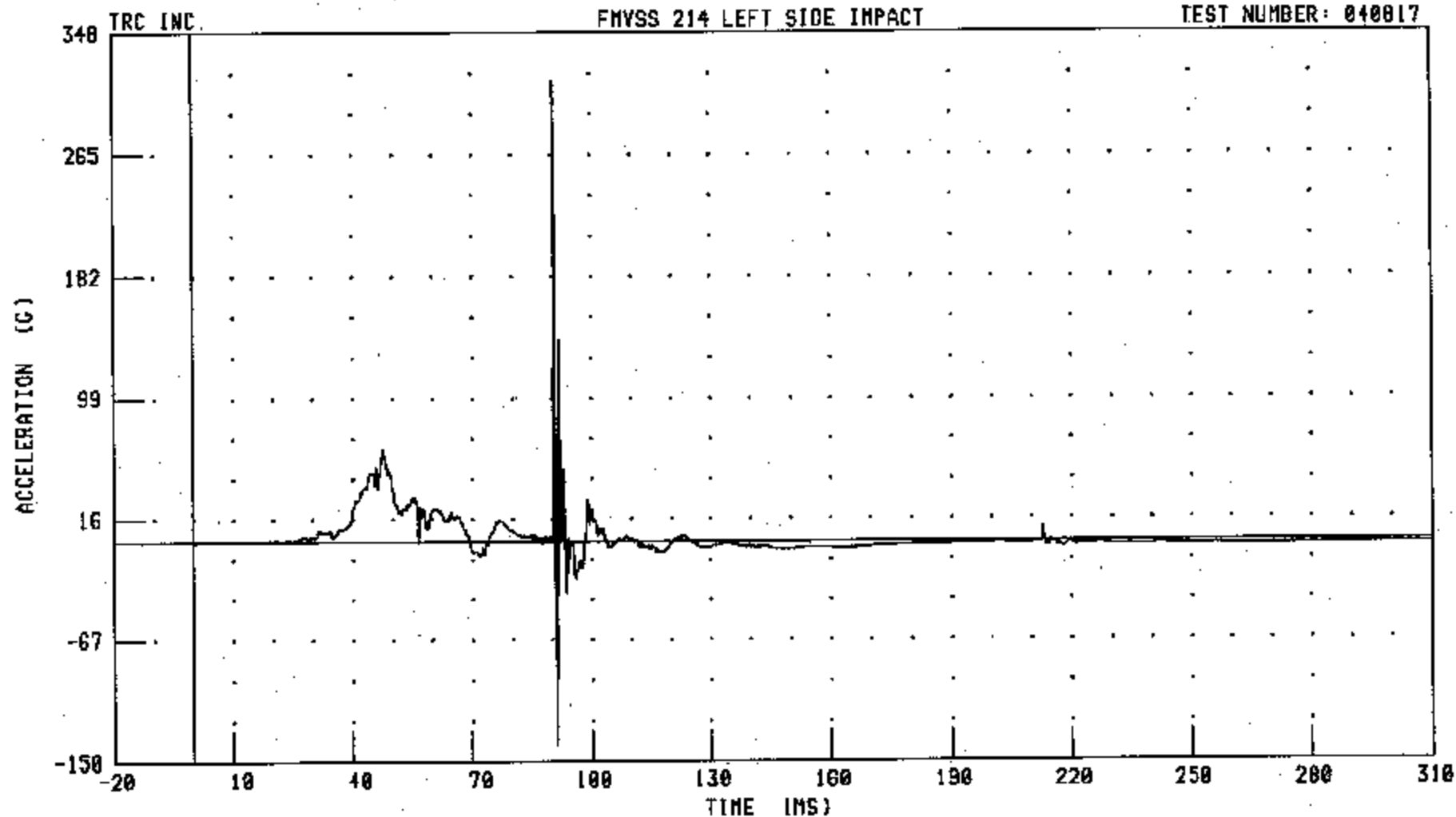
B-32

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYR4 FILTER: CH. CLASS 1000

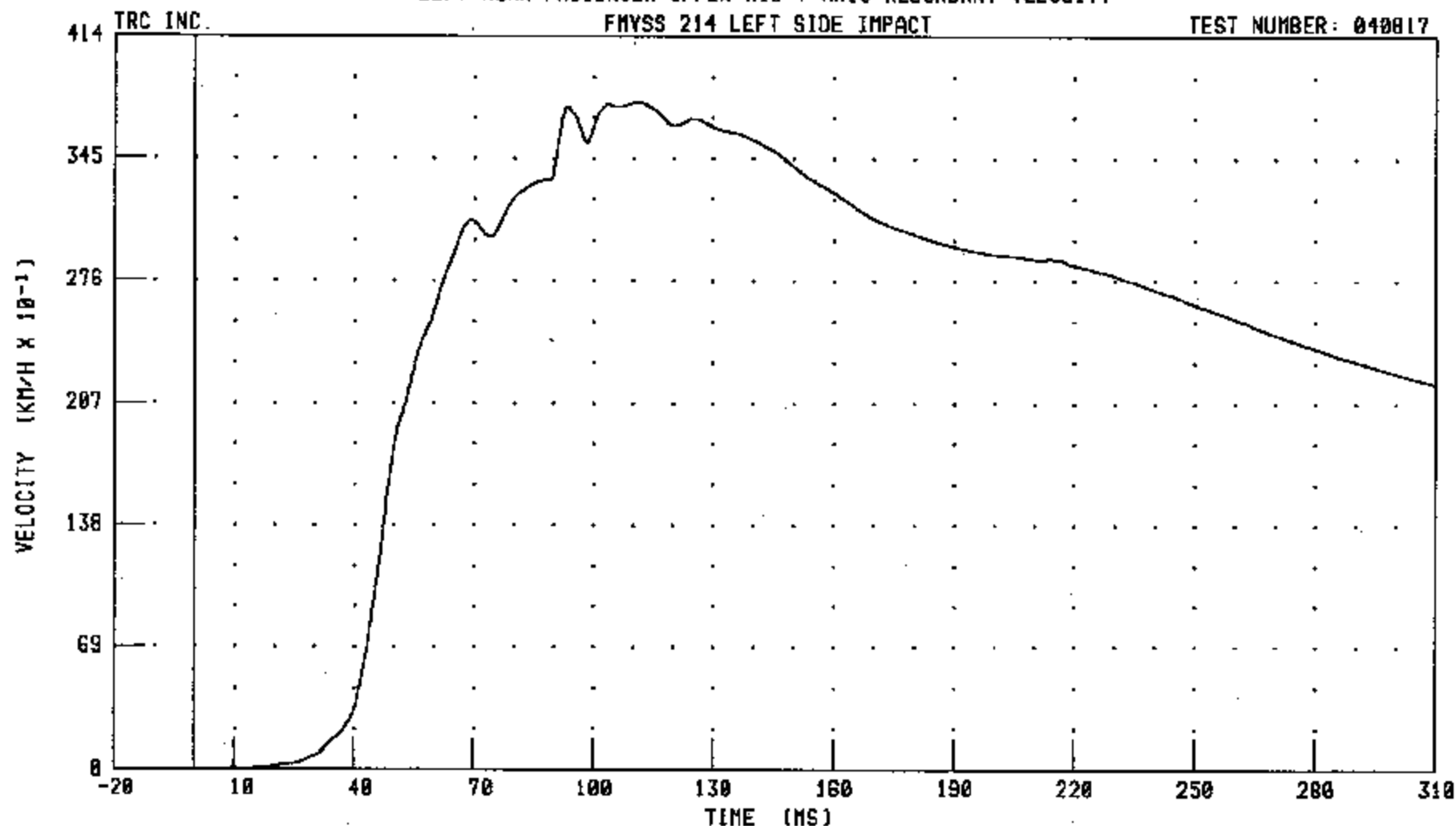
B-33

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYVJ FILTER: CH. CLASS 100

PEAK DATA: 37.69 KM/H @ 111.36 MS, 0.00 KM/H @ 0.00 MS

B-34

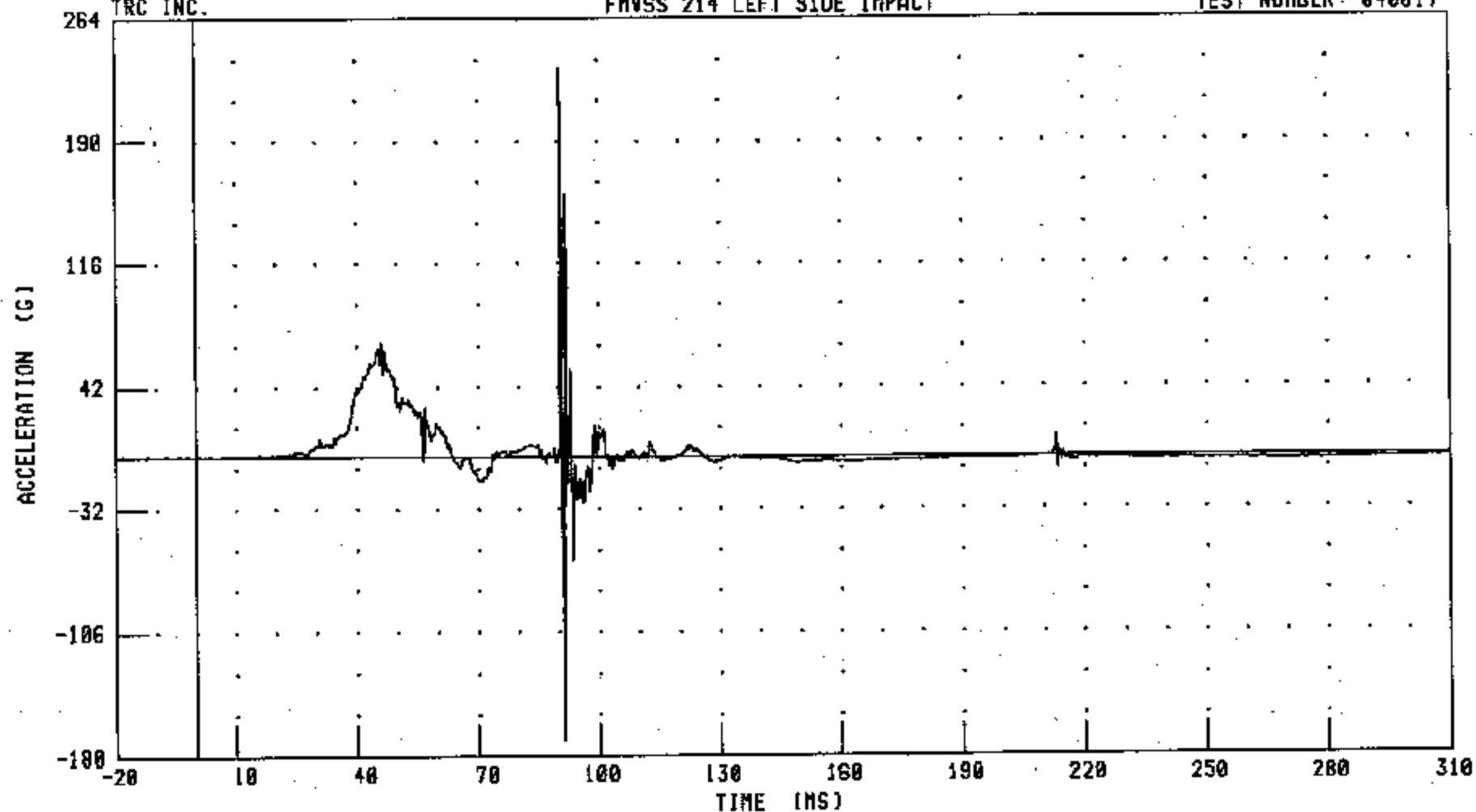
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

TRC INC.

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYR4 FILTER: CH. CLASS 1000

PEAK DATA: 234.10 G @ 90.00 MS, -170.56 G @ 91.28 MS

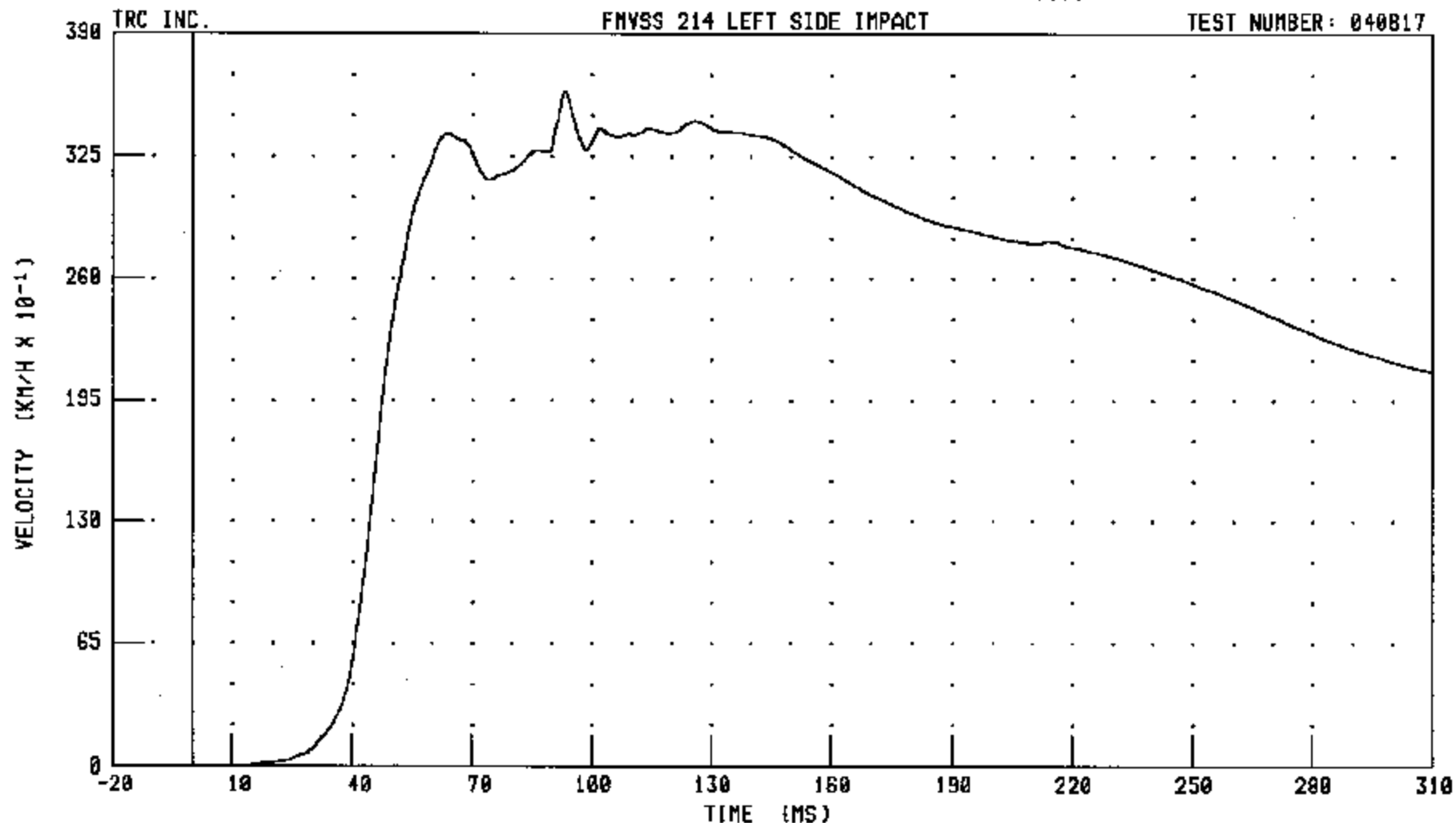
B-35

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYVJ FILTER: CH. CLASS 100

PEAK DATA: 35.95 KM/H @ 93.28 MS; 0.00 KM/H @ 1.28 MS

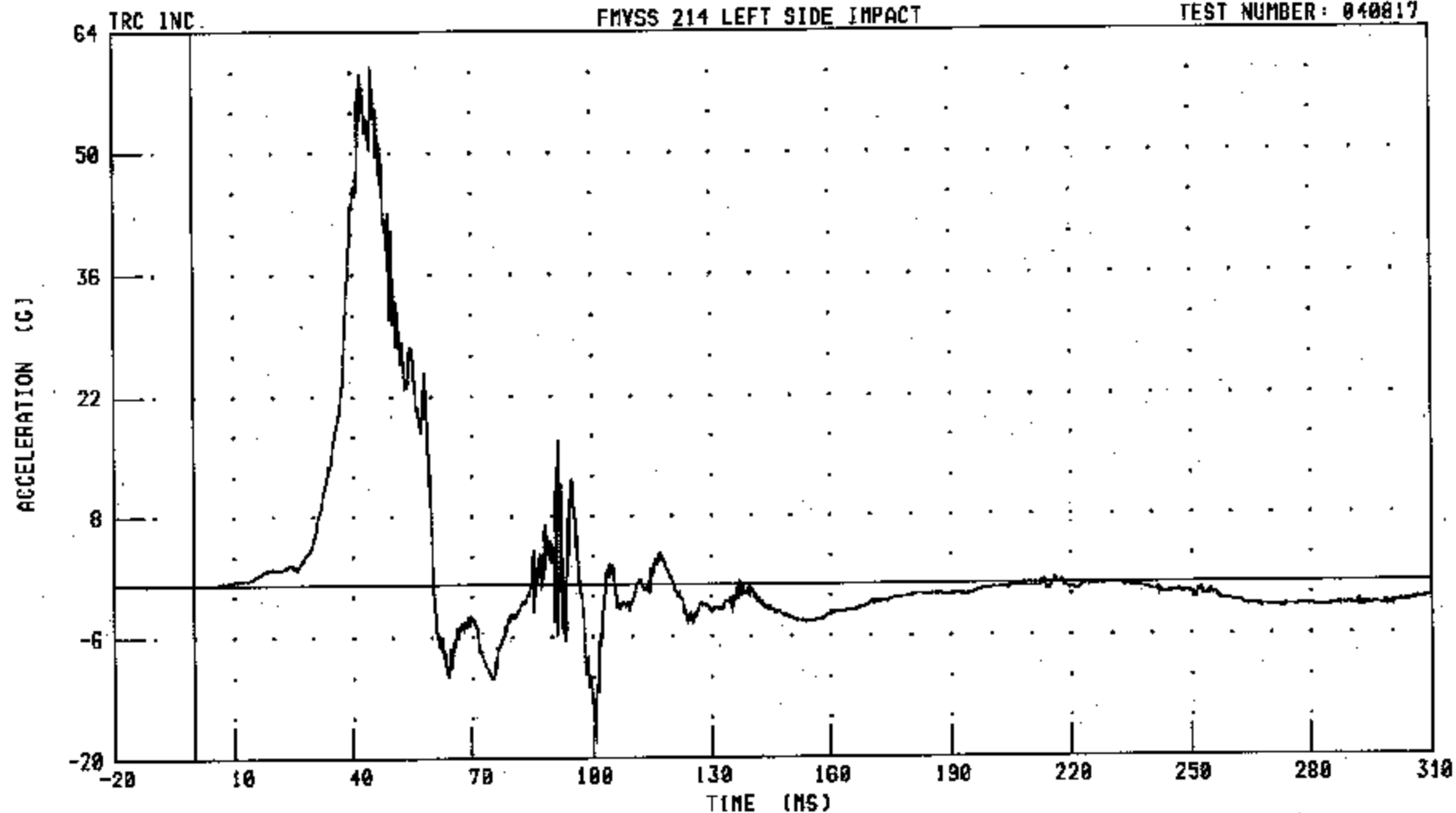
B-36

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YR4 FILTER: CH. CLASS 1000

PEAK DATA: 60.04 G @ 45.36 MS, -18.20 G @ 100.96 MS

B-37

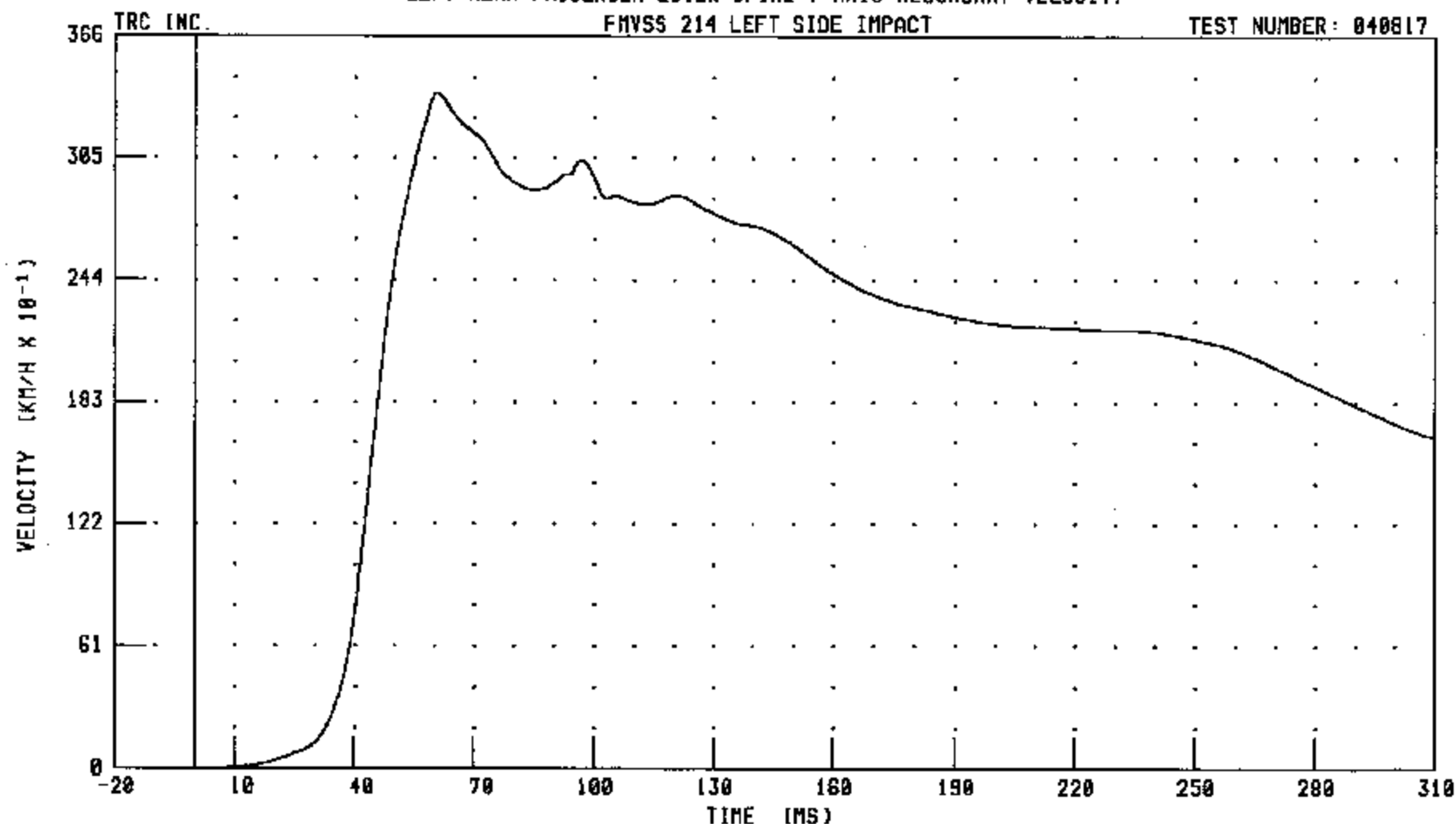
040817



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YVJ FILTER: CH. CLASS 100

PEAK DATA: 33.79 KM/H @ 60.64 MS; 0.00 KM/H @ 0.00 MS

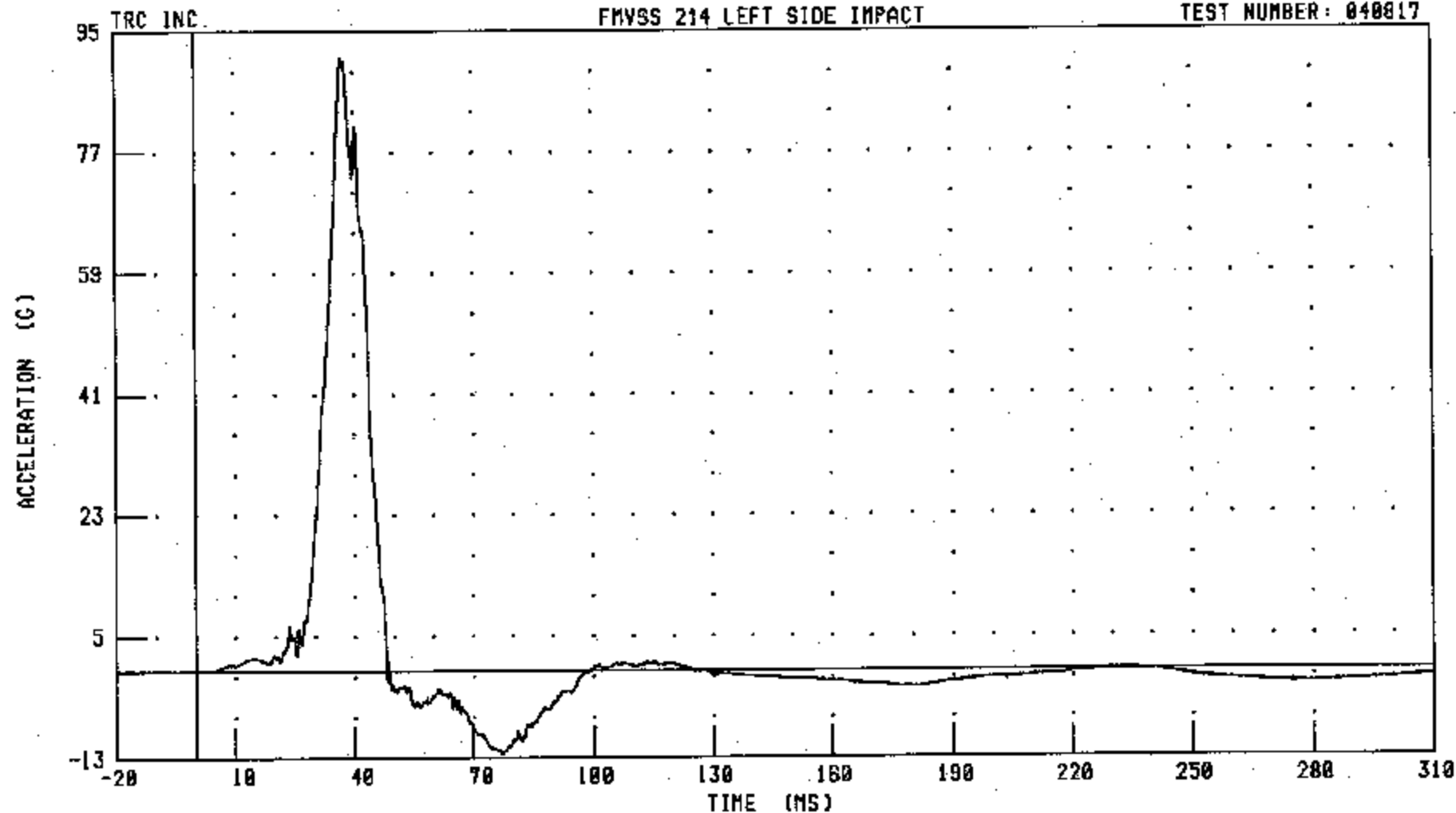
B-38

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYR4 FILTER: CH. CLASS 1000

PEAK DATA: 91.03 G @ 37.28 MS, -12.38 G @ 77.68 MS

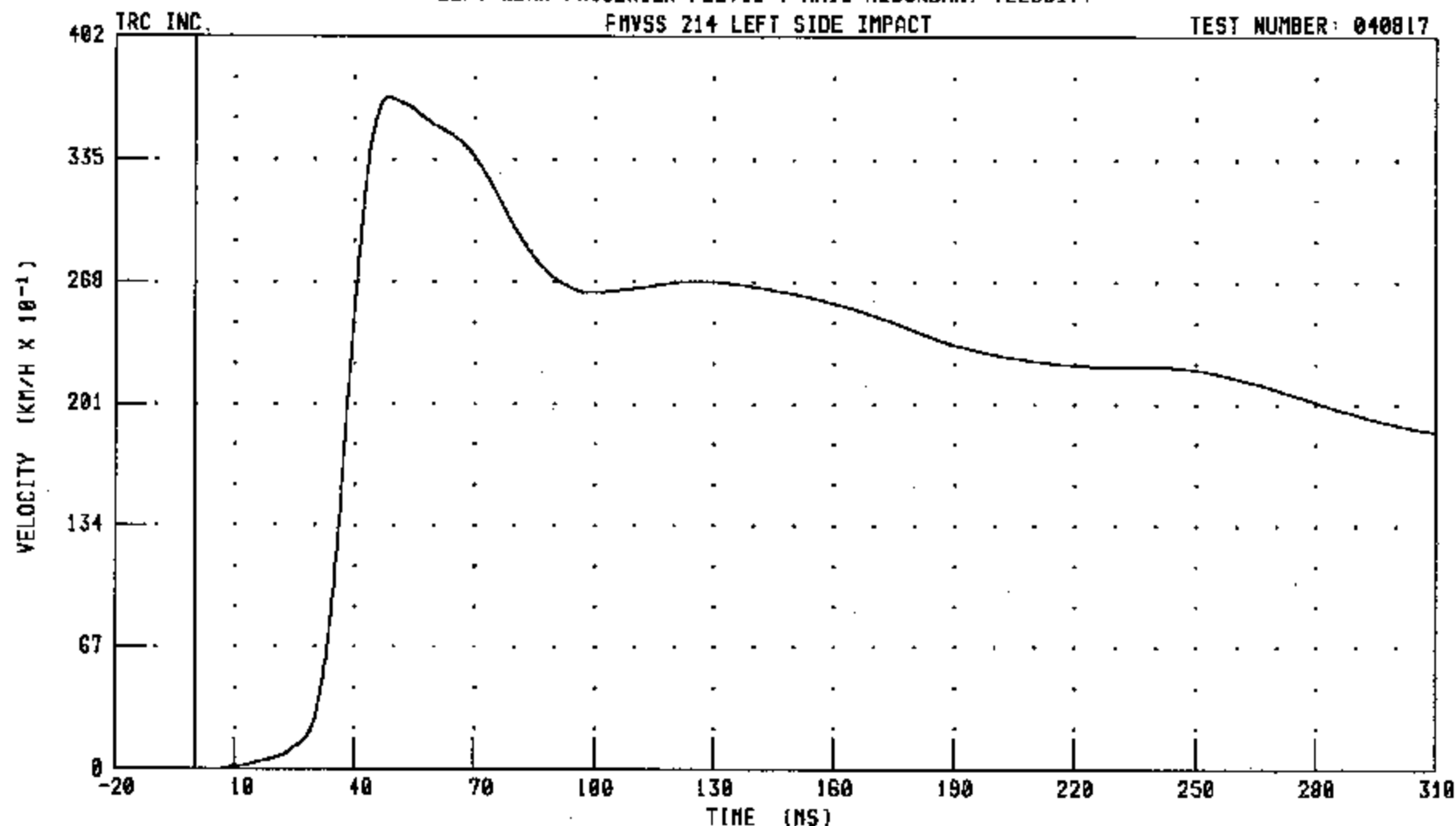
B-39

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYVJ FILTER: CH. CLASS 100

PEAK DATA: 36.89 KM/H @ 48.72 NS; 0.00 KM/H @ 0.00 MS

B-40

040817

Test Vehicle Instrumentation Plots

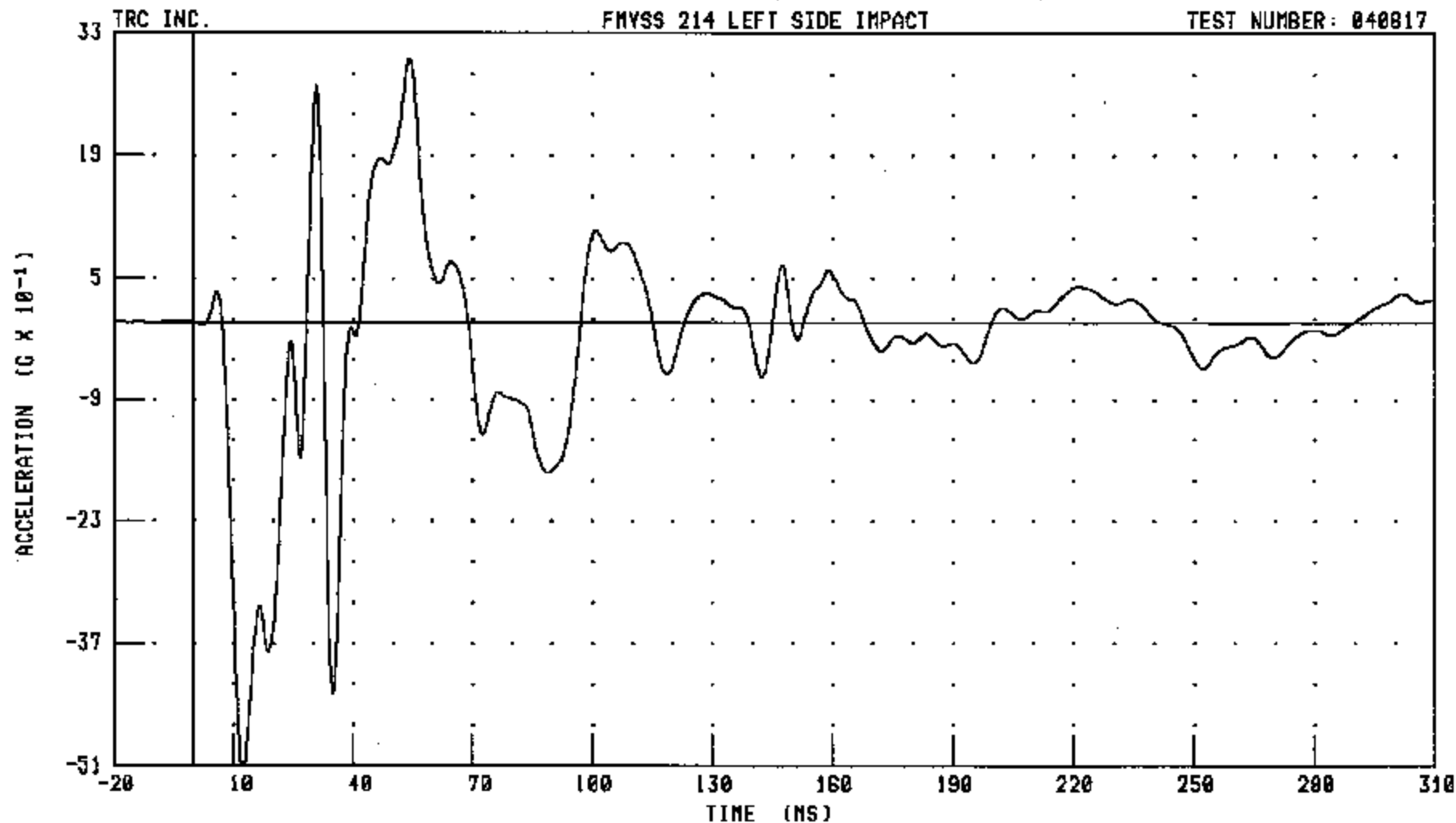
Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RFSXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.01 G @ 54.32 MS; -5.12 G @ 12.40 MS

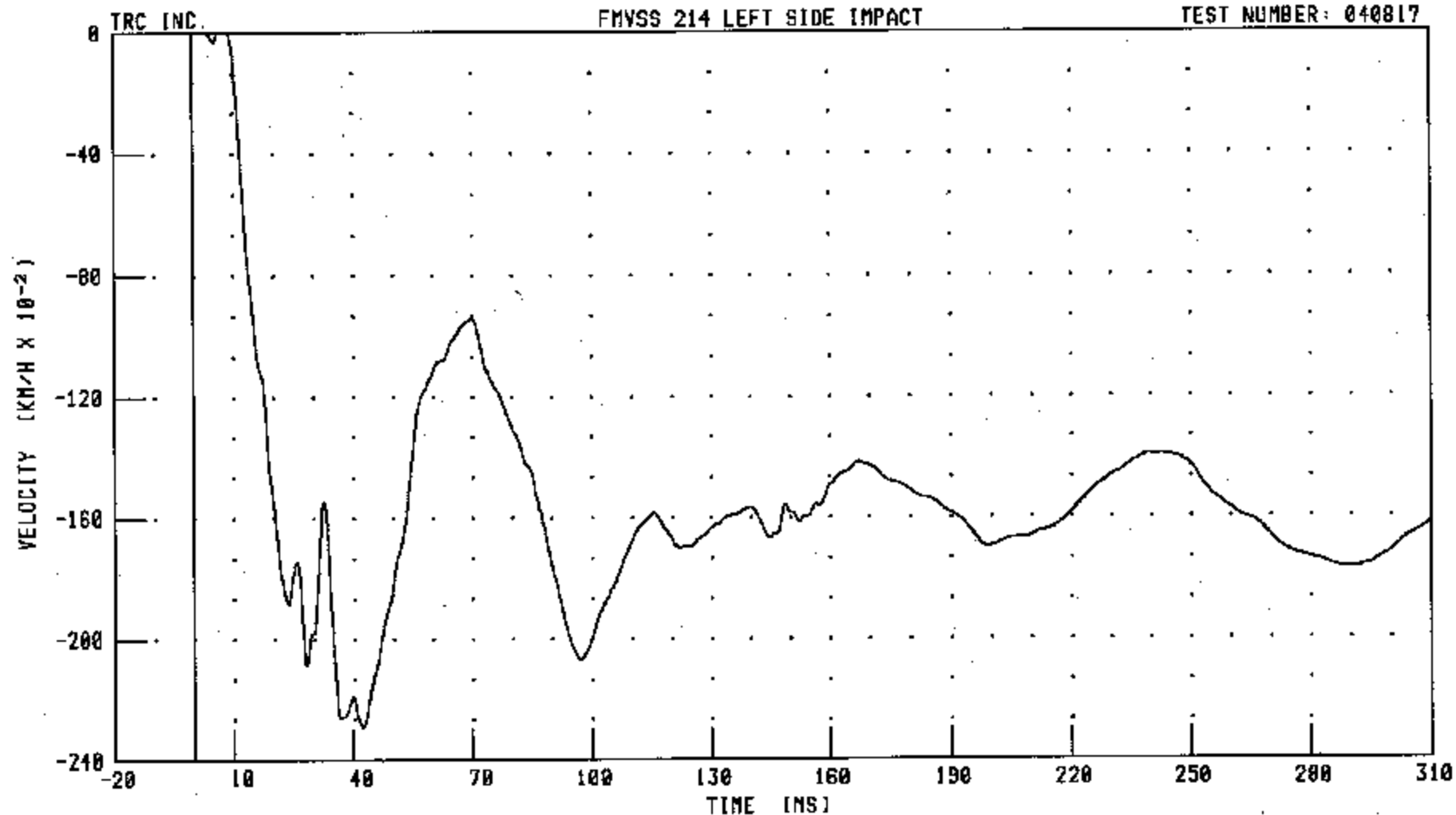
B-42

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RFSXY1 FILTER: CH. CLASS 100

PEAK DATA: 0.04 KM/H @ 7.12 MS; -2.29 KM/H @ 42.48 MS

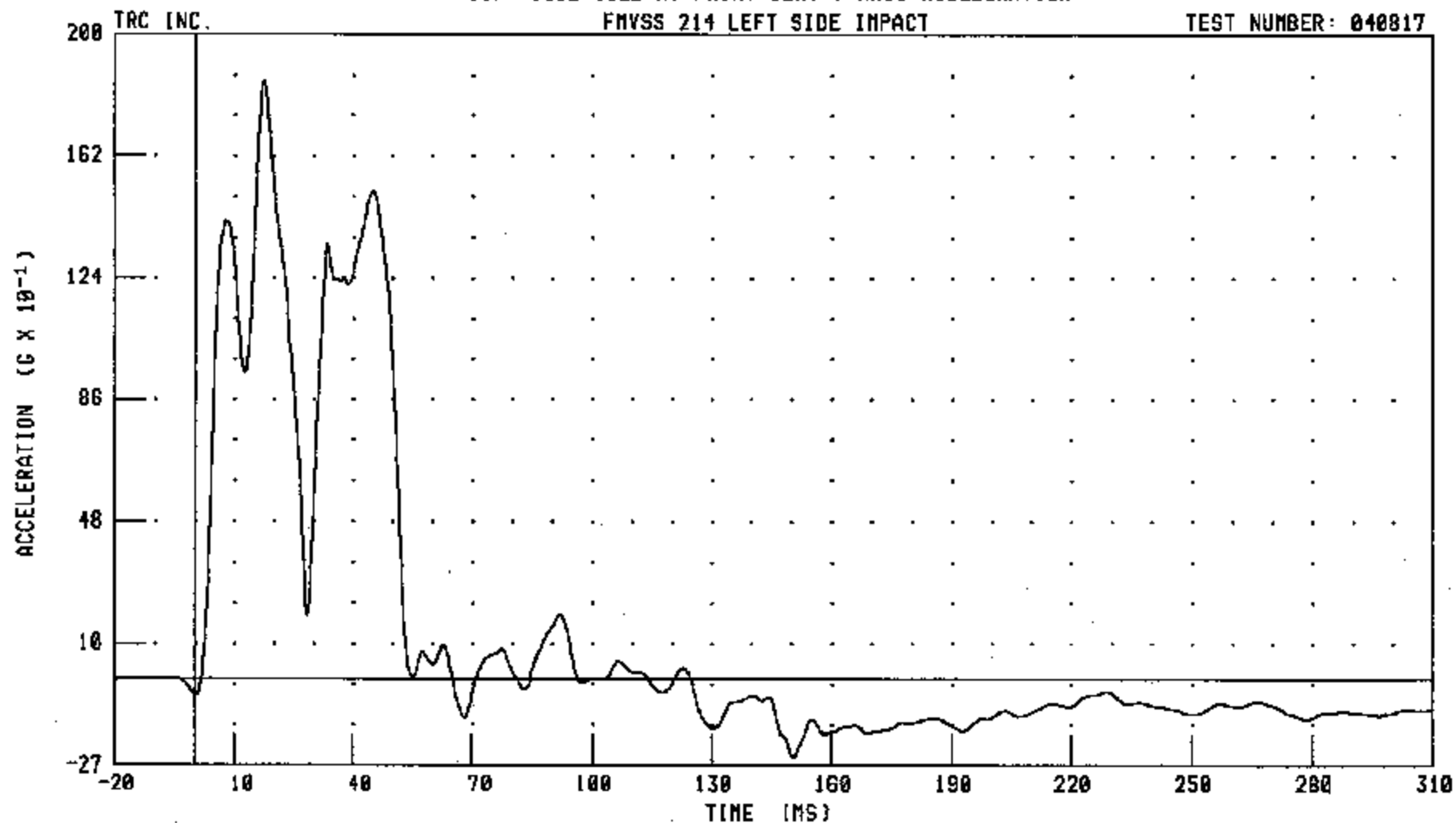
B-43

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RFSYG1 FILTER: CH. CLASS 60

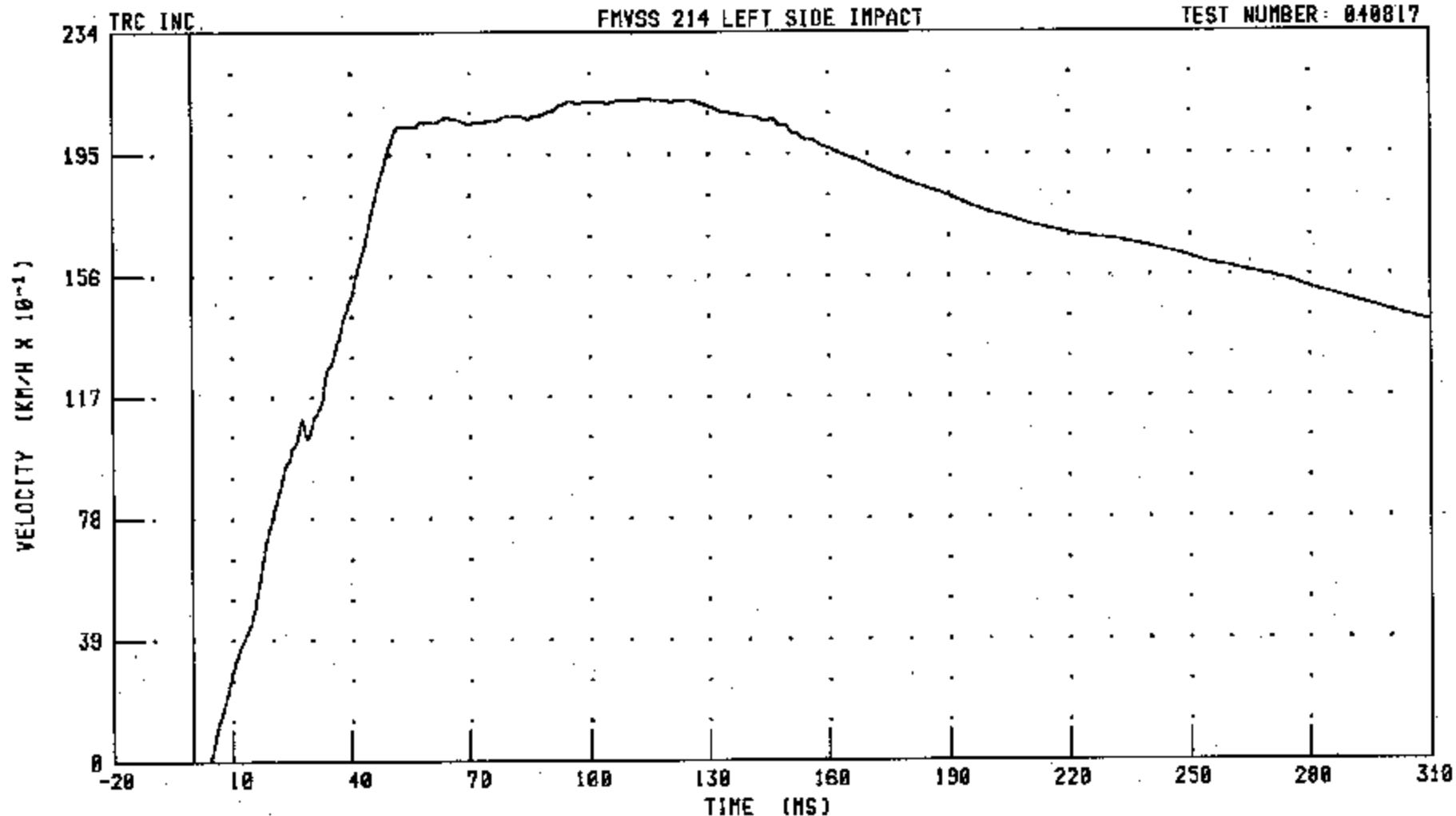
B-44

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RFSYV1 FILTER: CH. CLASS 100

PEAK DATA: 21.26 KM/H @ 114.24 MS, -0.02 KM/H @ 3.60 MS

B-45

040817

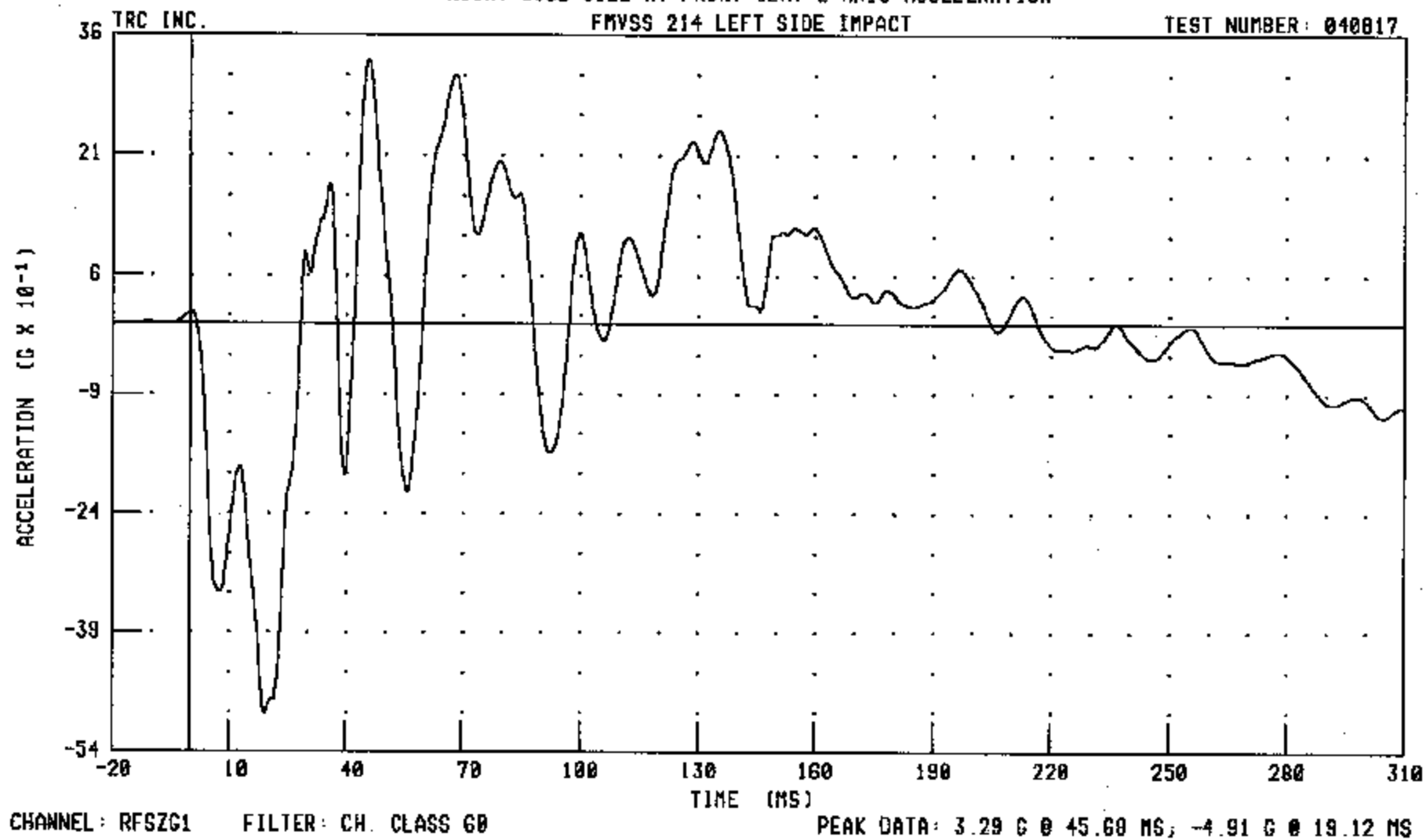


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



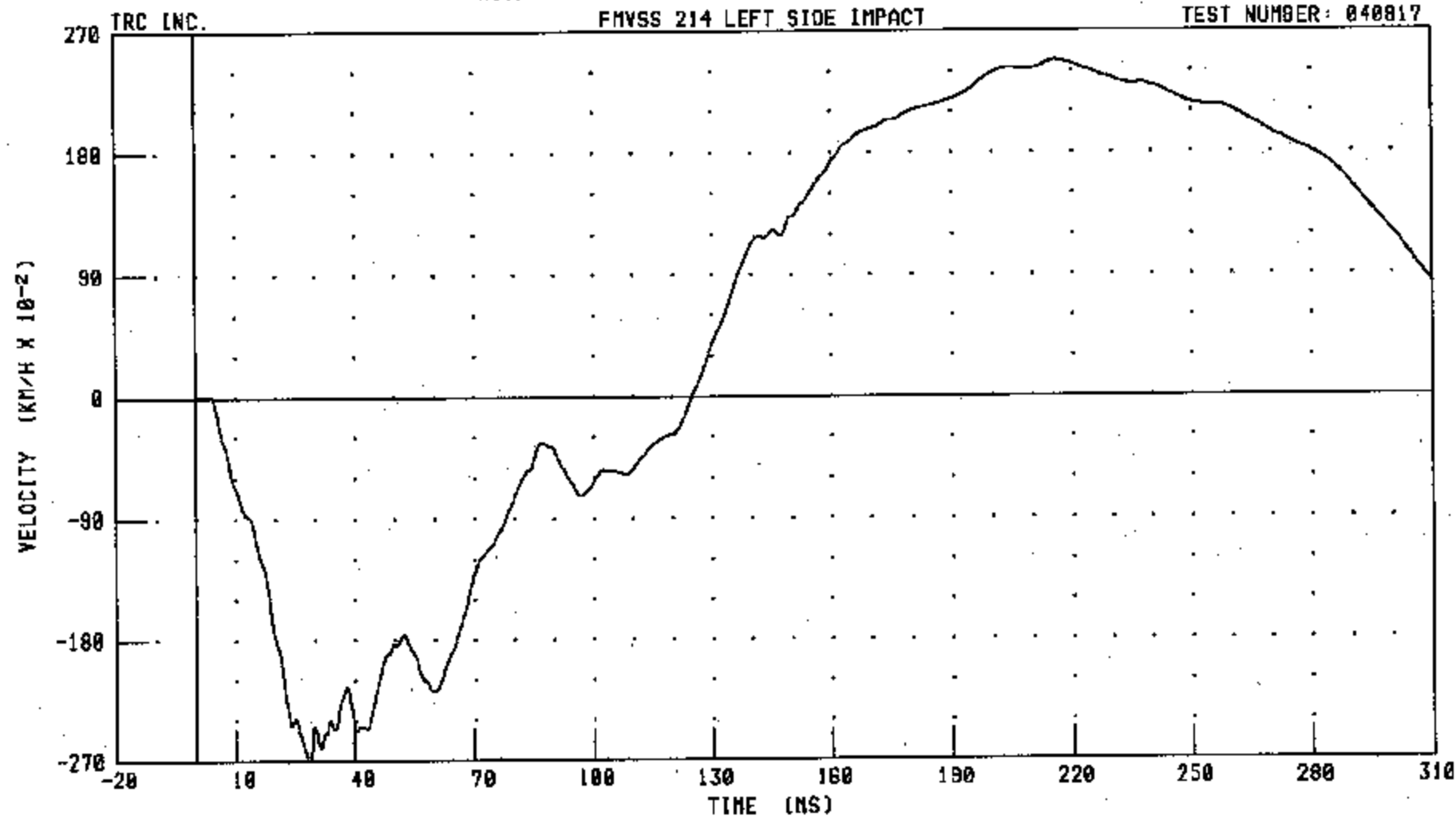
B-46

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY

FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RFSZV1 FILTER: CH. CLASS 100

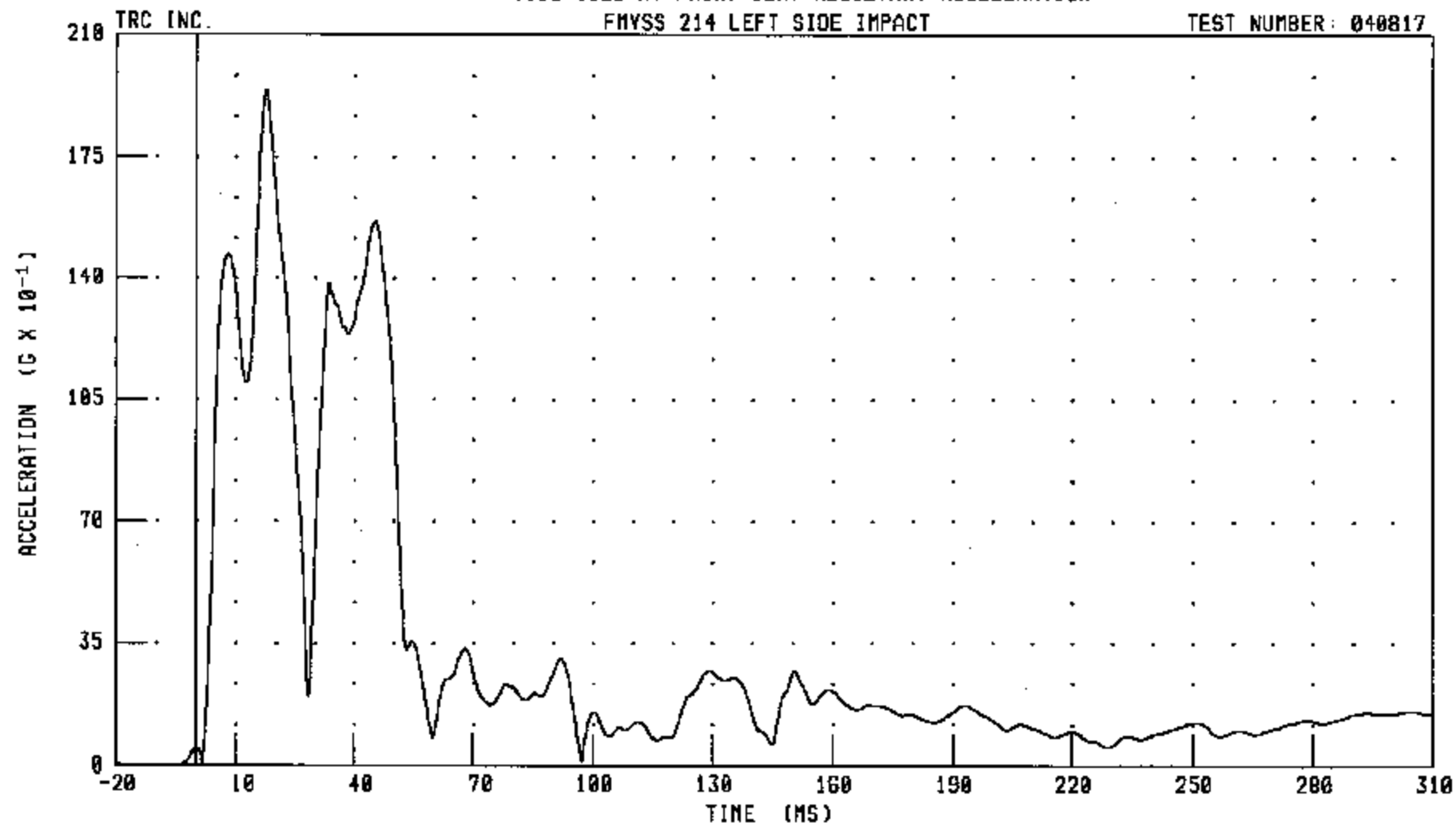
B-47

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



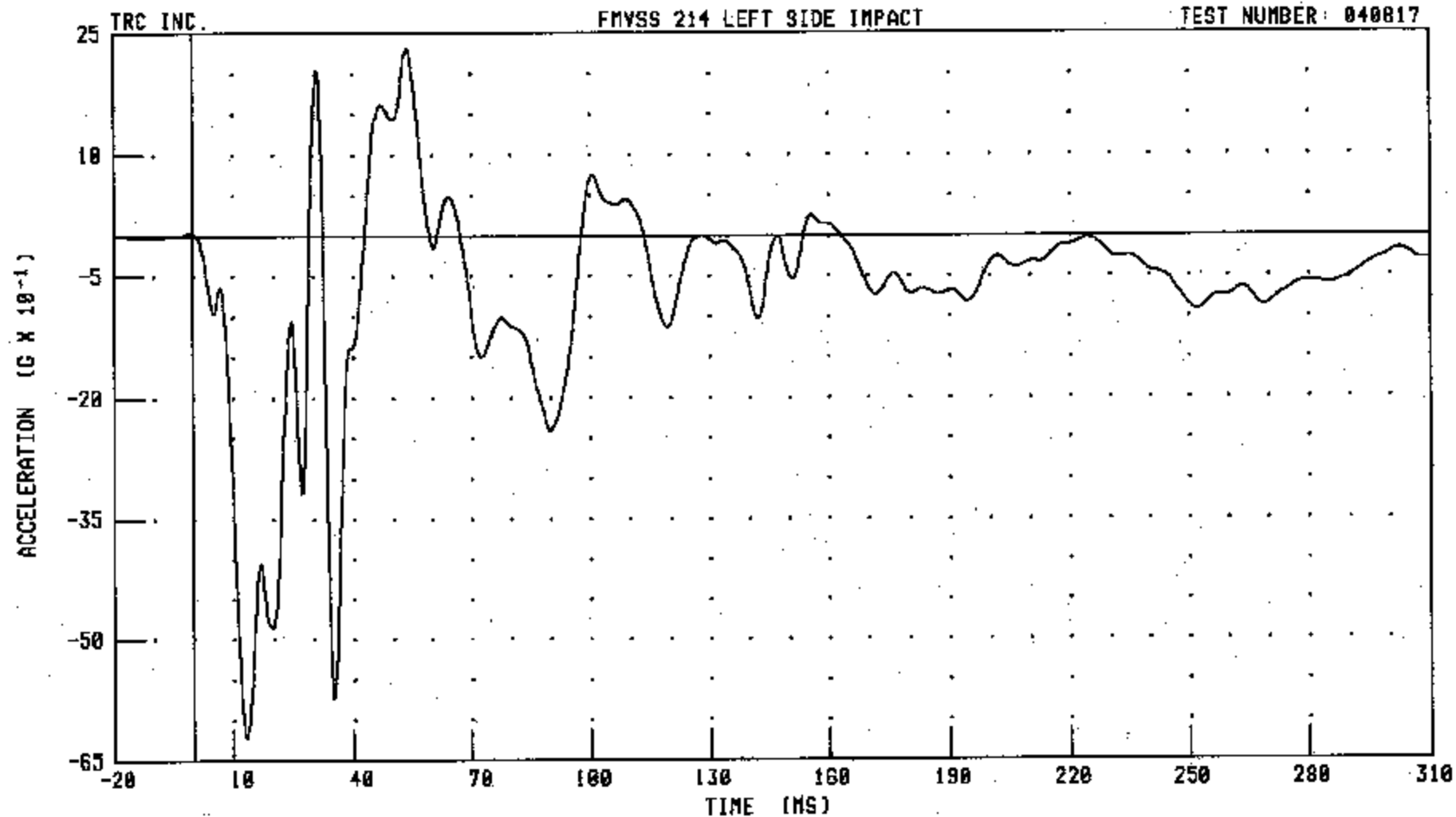
B-48

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRSXC1 FILTER: CH. CLASS 60

PEAK DATA: 2.31 G @ 53.84 MS; -6.22 G @ 13.20 MS

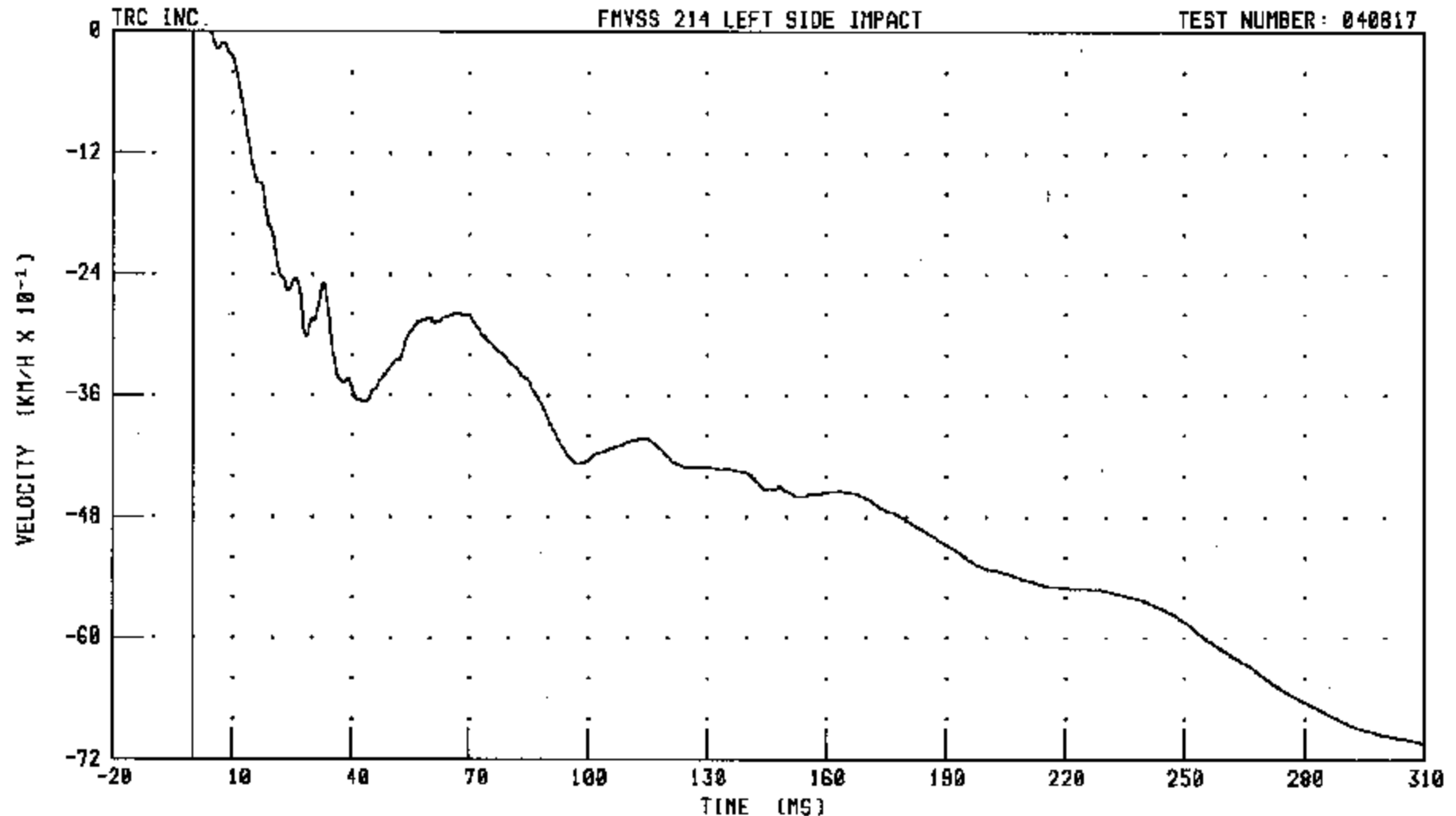
B-49

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRSXV1 FILTER: CH. CLASS 100

PEAK DATA: 0.01 KM/H @ 3.76 MS; -7.04 KM/H @ 310.00 MS

B-50

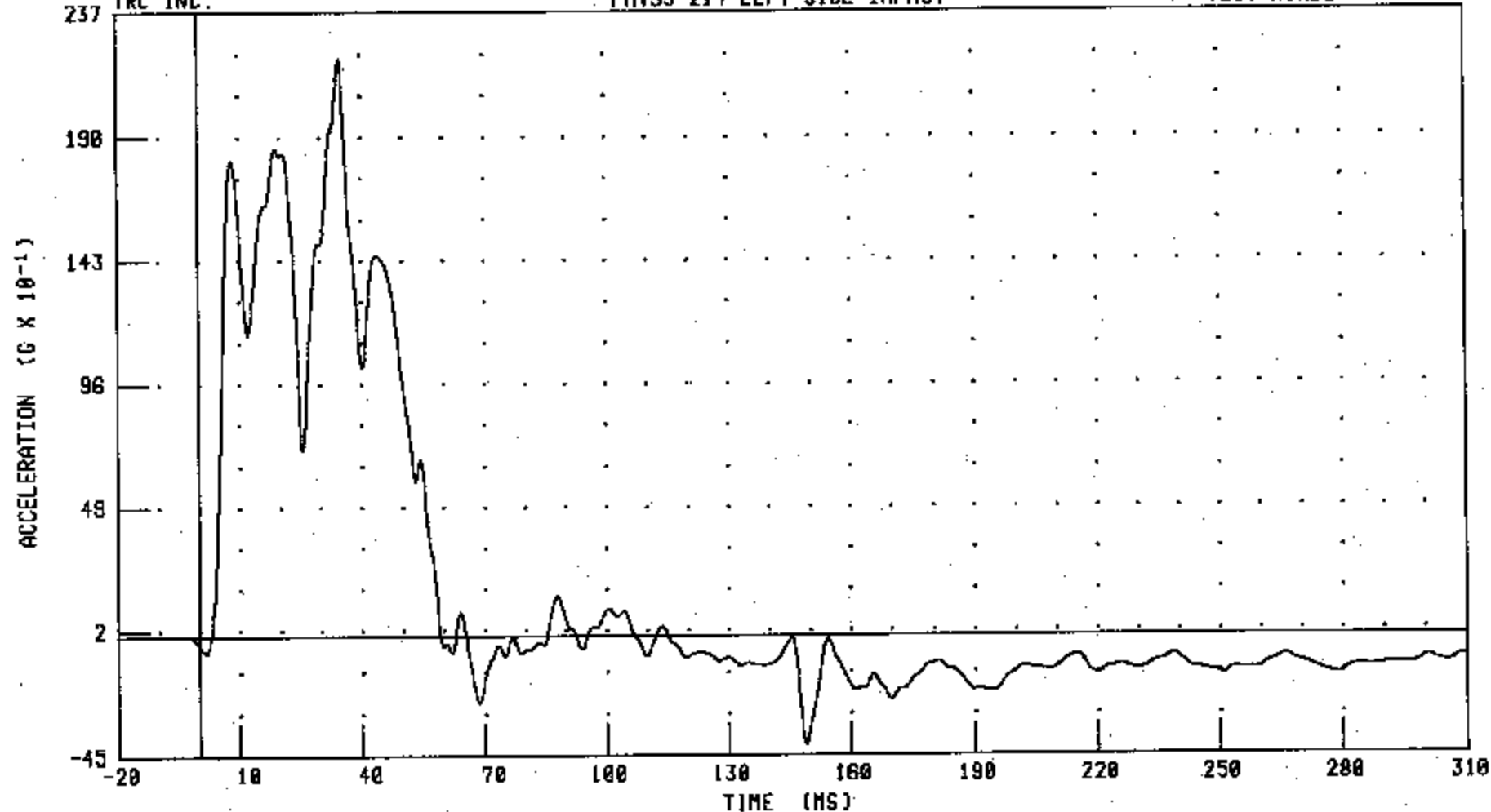
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



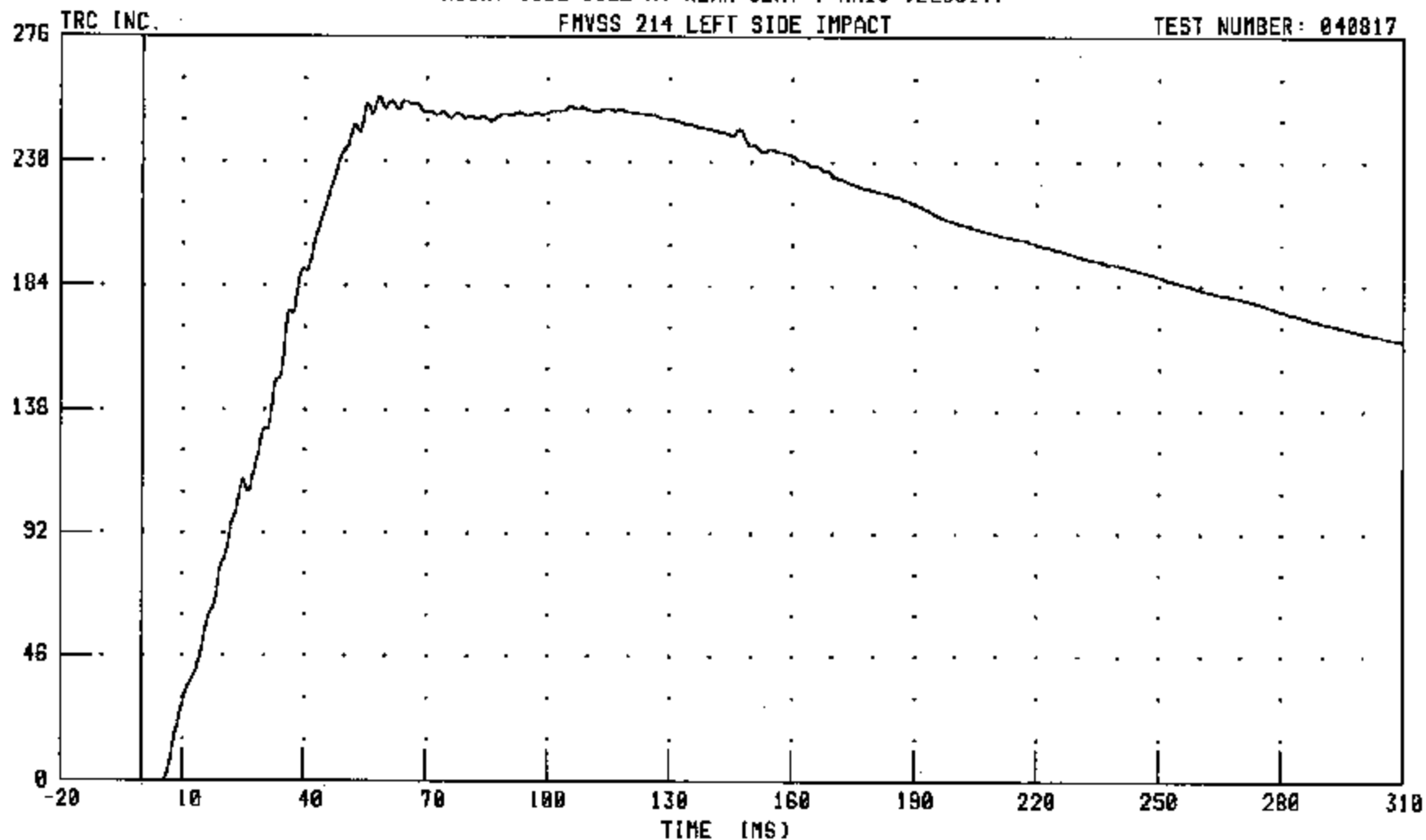
B-51

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRSYV1 FILTER: CH. CLASS 180

PEAK DATA: 25.36 KM/H @ 58.48 MS; 0.00 KM/H @ 4.72 MS

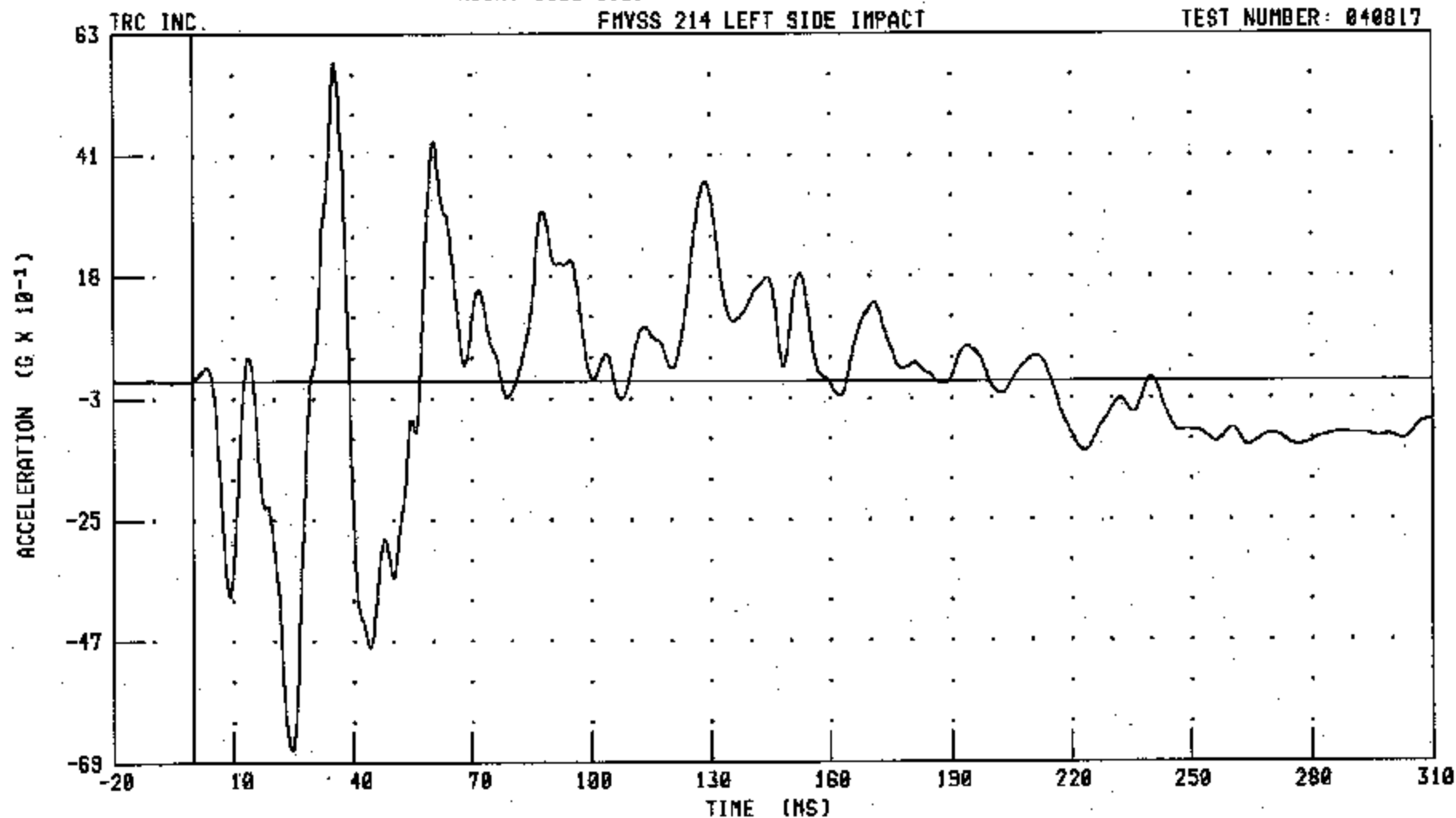
B-52

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRSZG1 FILTER: CH. CLASS 60

B-53

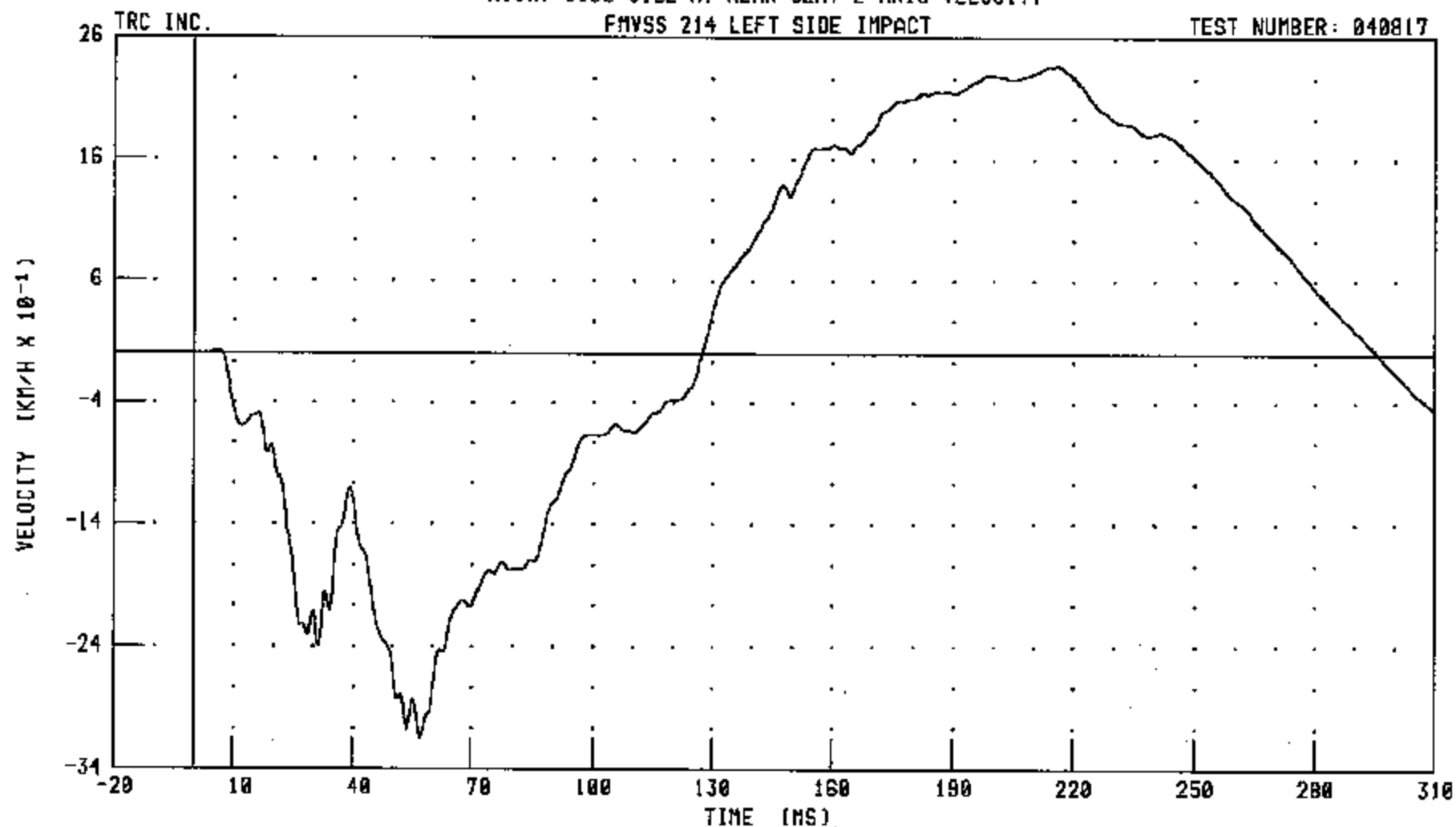
040817



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRSZV1 FILTER: CH. CLASS 100

PEAK DATA: 2.37 KM/H @ 216.00 MS; -3.15 KM/H @ 57.20 MS

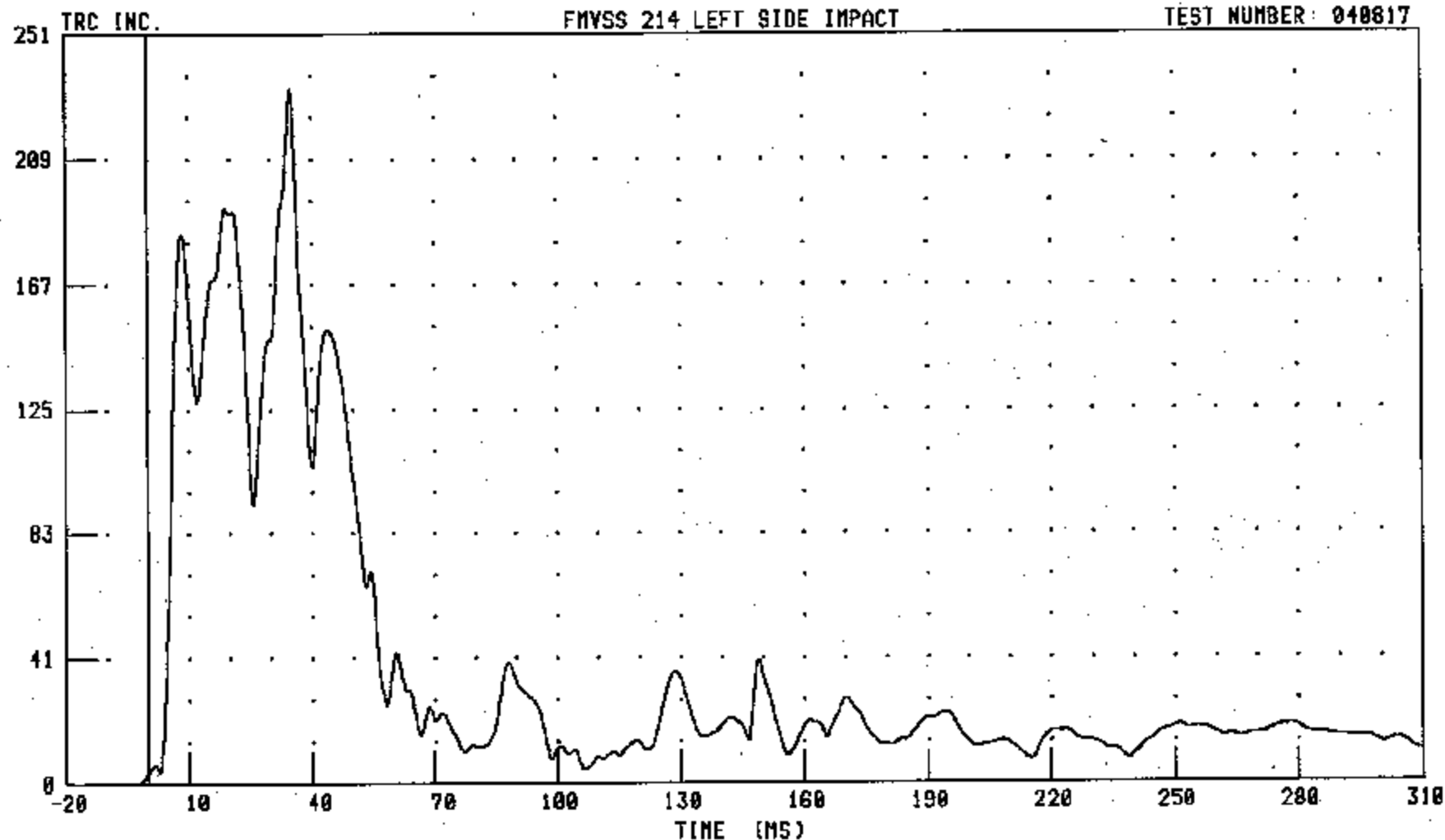
B-54

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRSRG1 FILTER: CH. CLASS 60

B-55

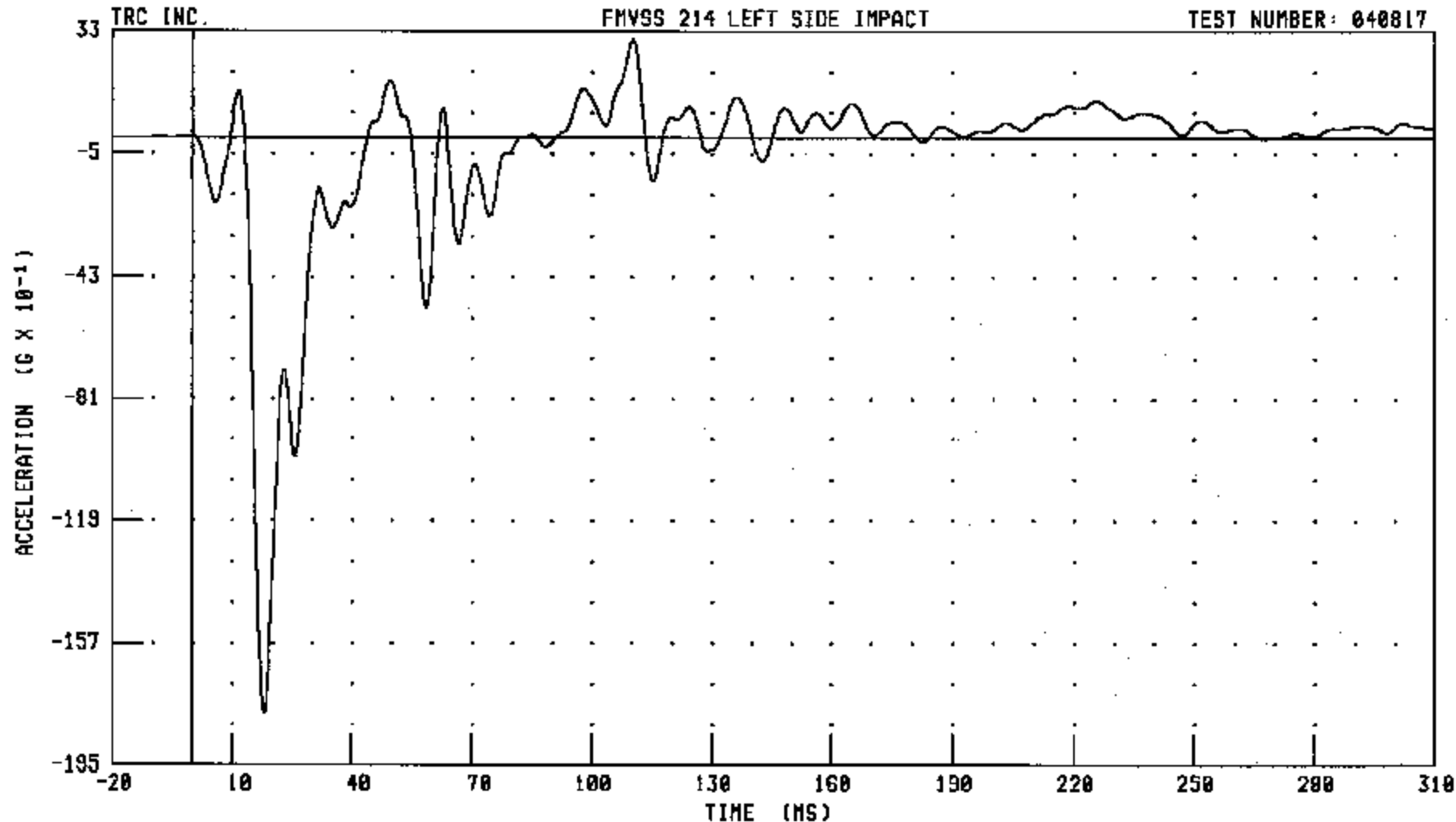
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

TRC INC.

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RDKXC1 FILTER: CH. CLASS 60

PEAK DATA: 3.04 G @ 110.40 MS, -17.90 G @ 10.00 MS

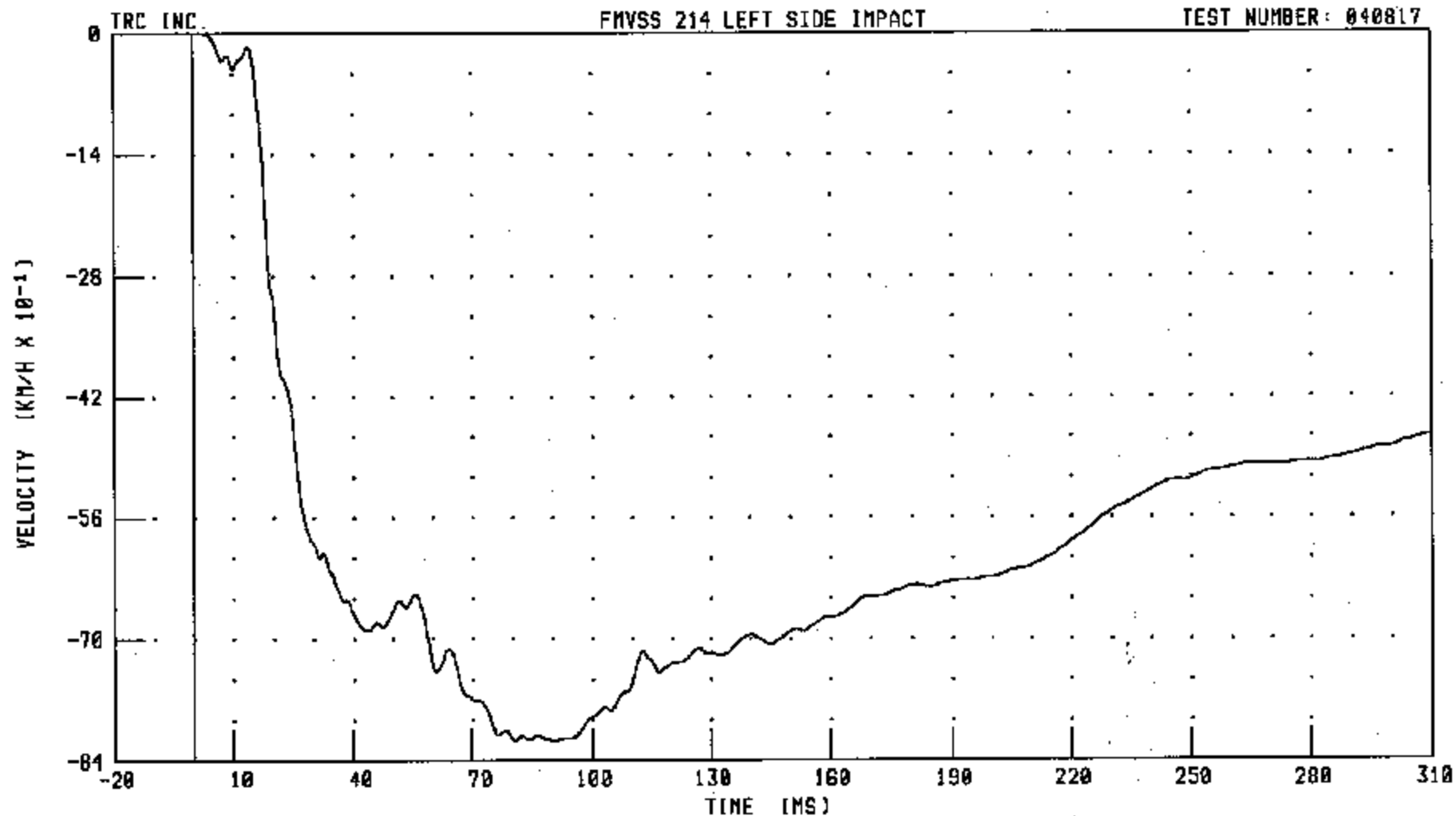
B-56

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RDKXV1 FILTER: CH. CLASS 100

PEAK DATA: 0.00 KM/H @ 1.04 MS, -8.17 KM/H @ 90.16 MS

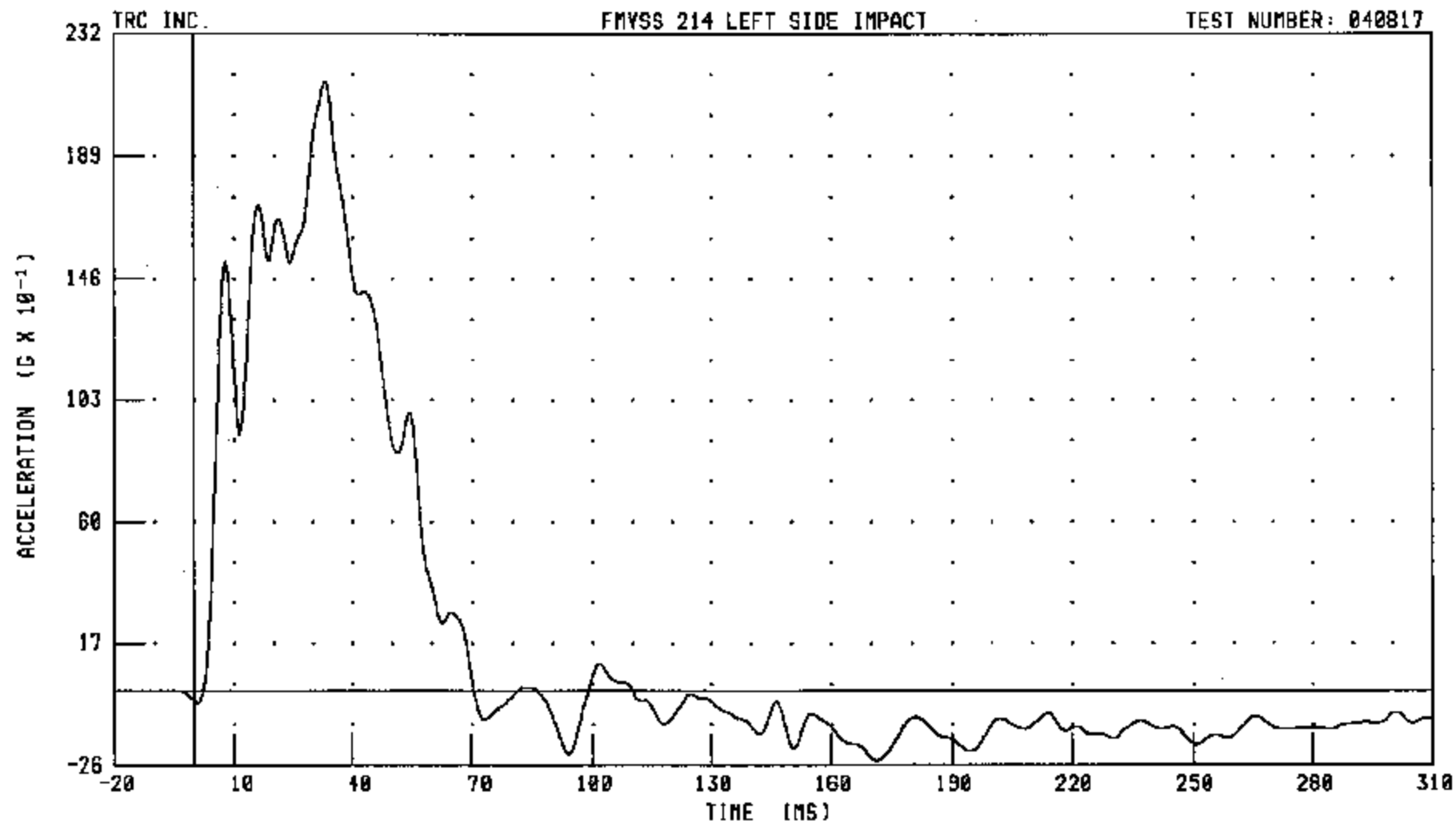
B-57

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RDKYG1 FILTER: CH. CLASS 60

PEAK DATA: 21.53 G @ 33.20 MS; -2.45 G @ 171.36 MS

B-58

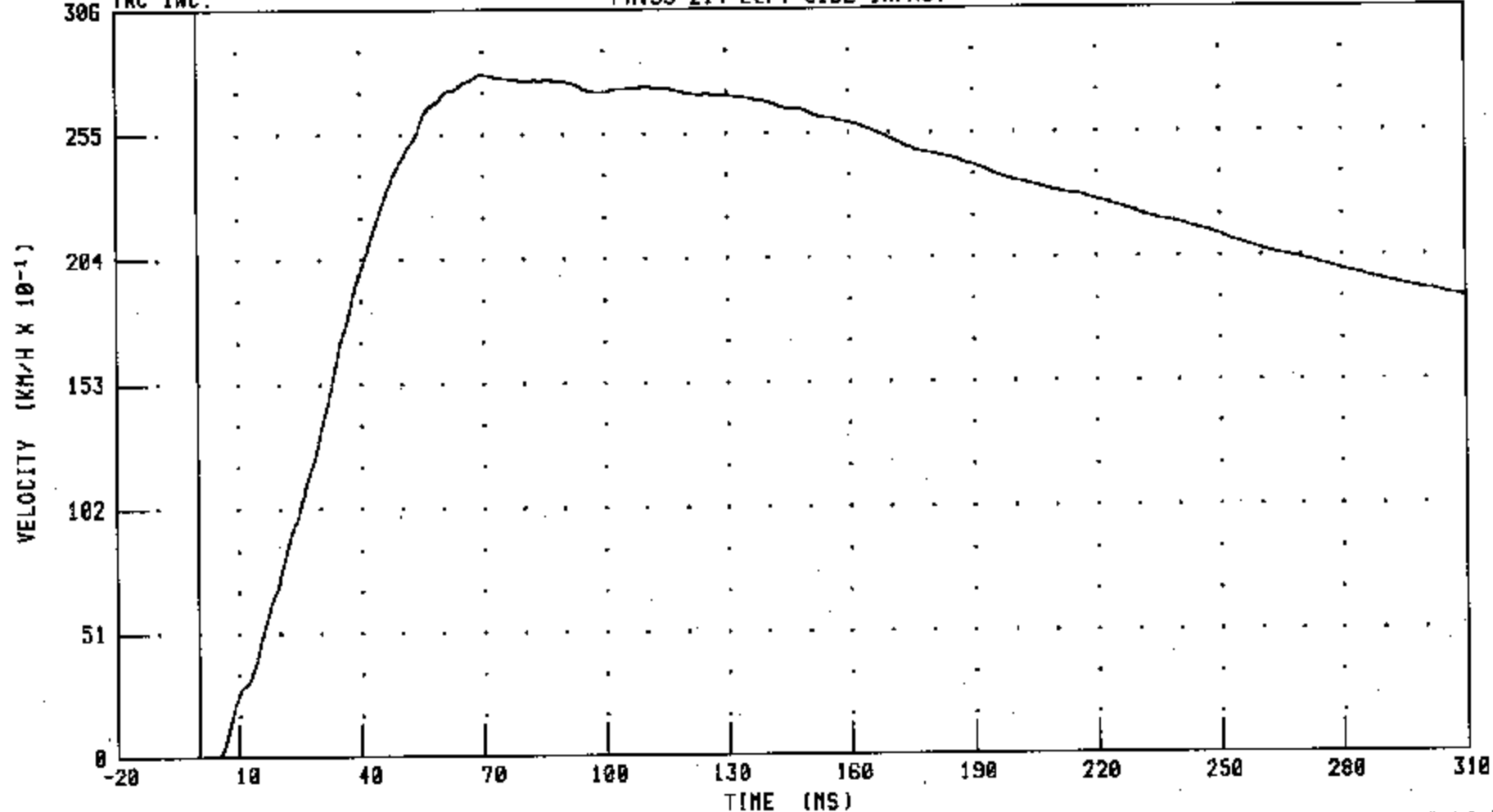
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: RDKYV1 FILTER: CH. CLASS 100

PEAK DATA: 27.93 KM/H @ 69.92 MS; 0.00 KM/H @ 0.00 MS

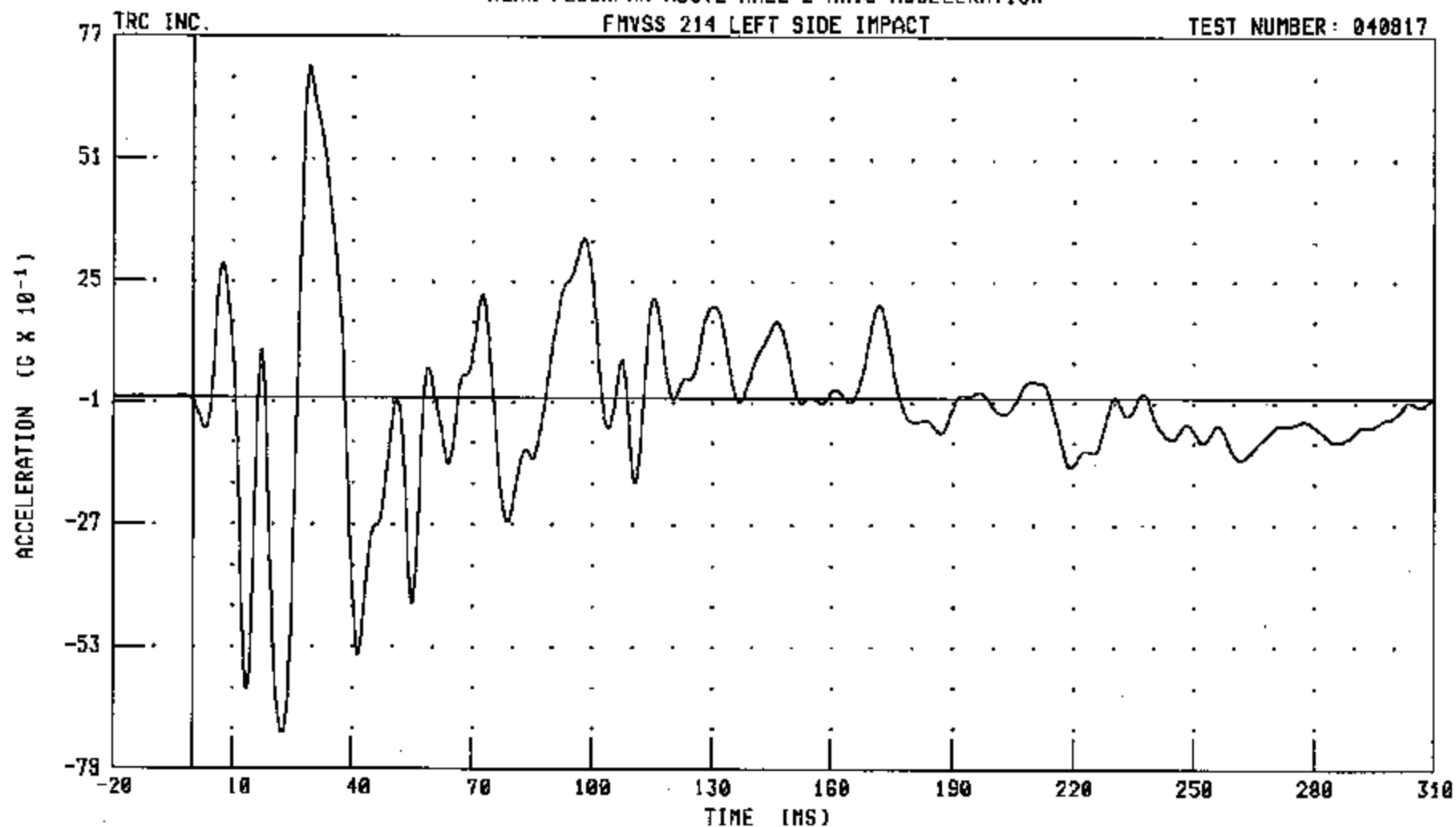
B-59

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RDKZG1 FILTER: CH. CLASS 60

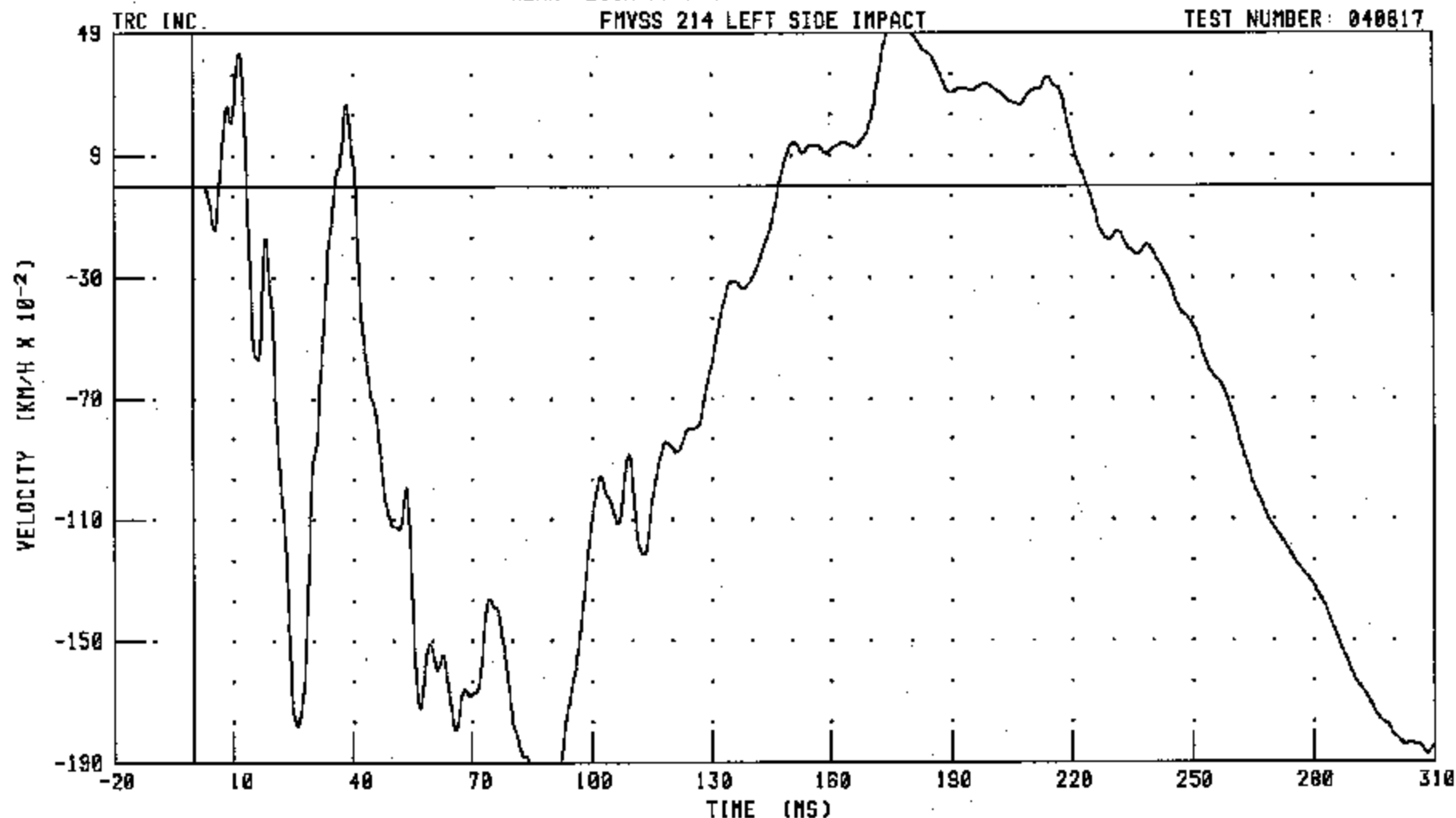
B-60

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RDKZV1 FILTER: CH. CLASS 180

B-61

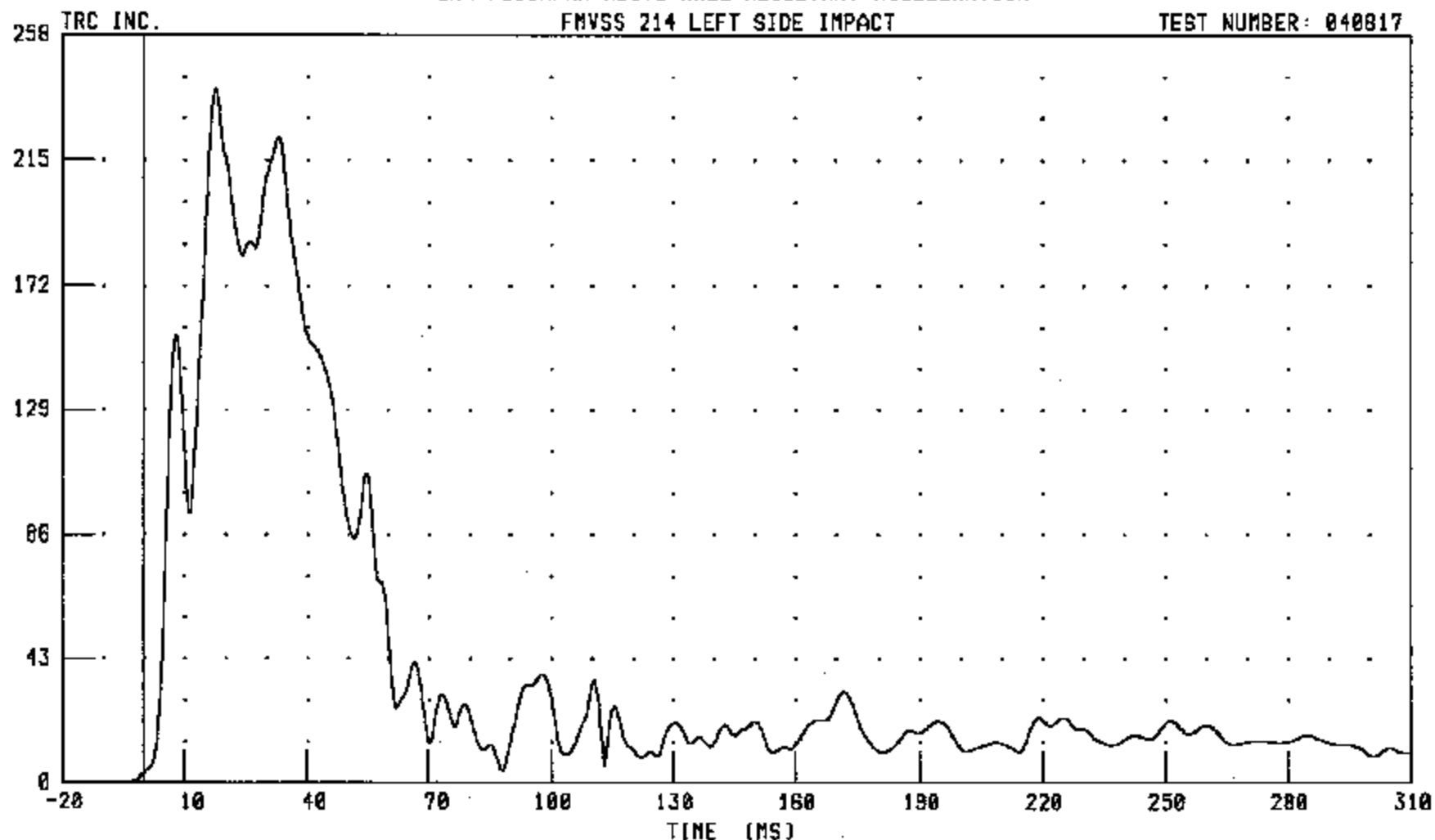
040817



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RDKRG1 FILTER: CH. CLASS 60

PEAK DATA: 23.97 G @ 17.60 MS; 0.01 G @ -10.72 MS

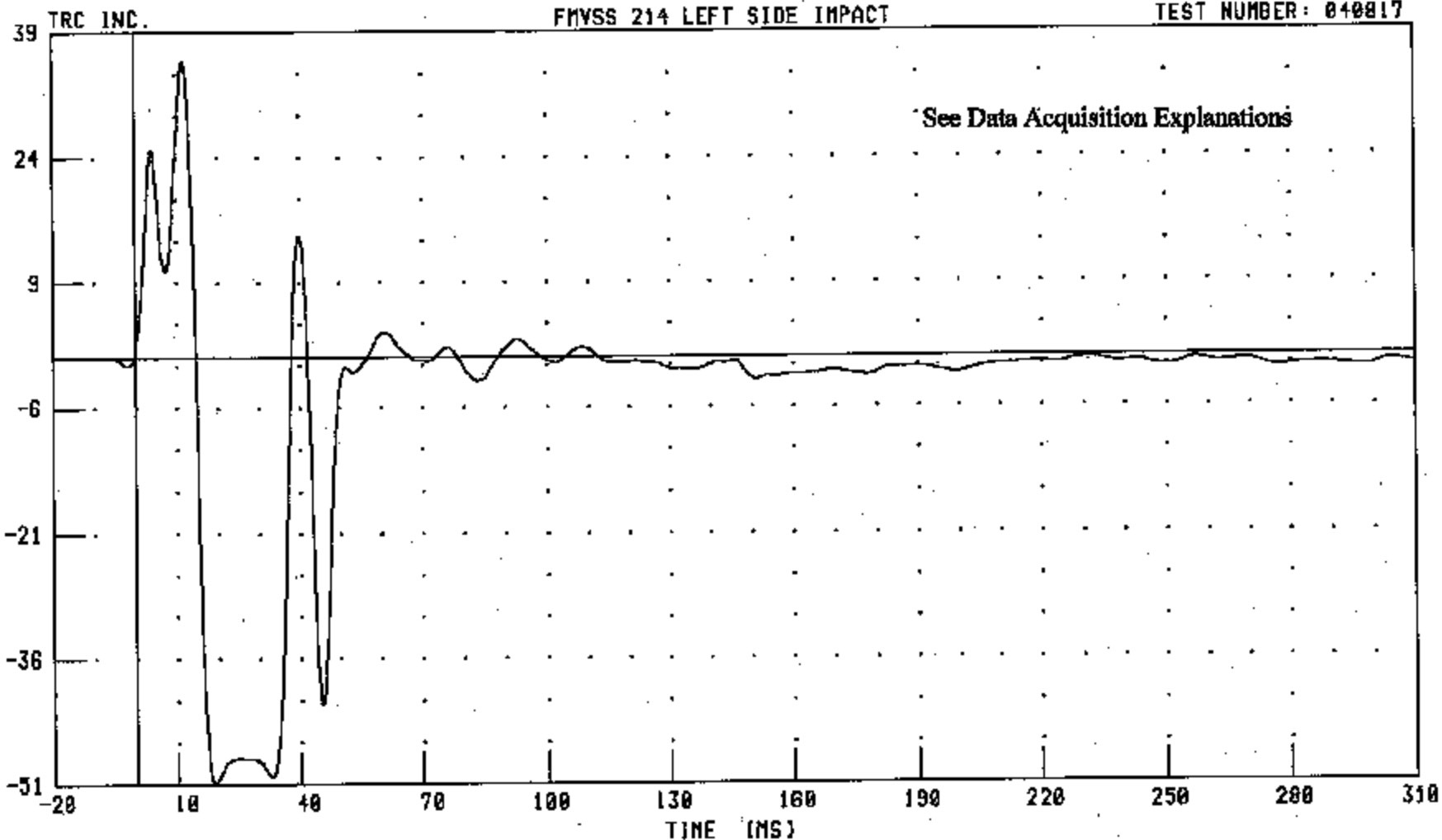
B-62

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LFSYG1 FILTER: CH. CLASS 60

PEAK DATA: 35.60 G @ 11.76 MS, -50.90 G @ 19.04 MS

B-63

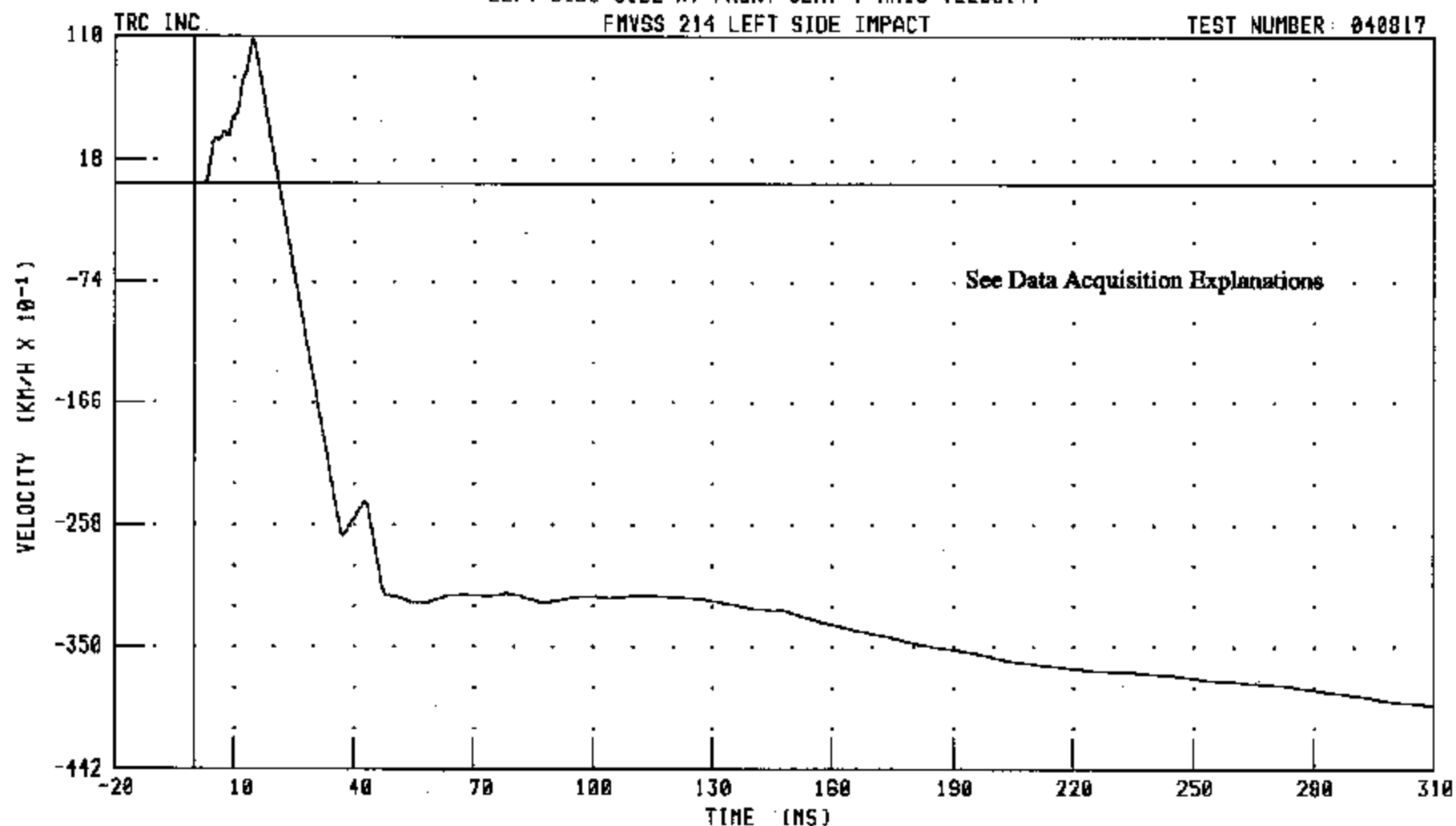
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LFSYV1 FILTER: CH. CLASS 100

PEAK DATA: 10.77 KM/H @ 14.00 MS, -39.42 KM/H @ 310.00 MS

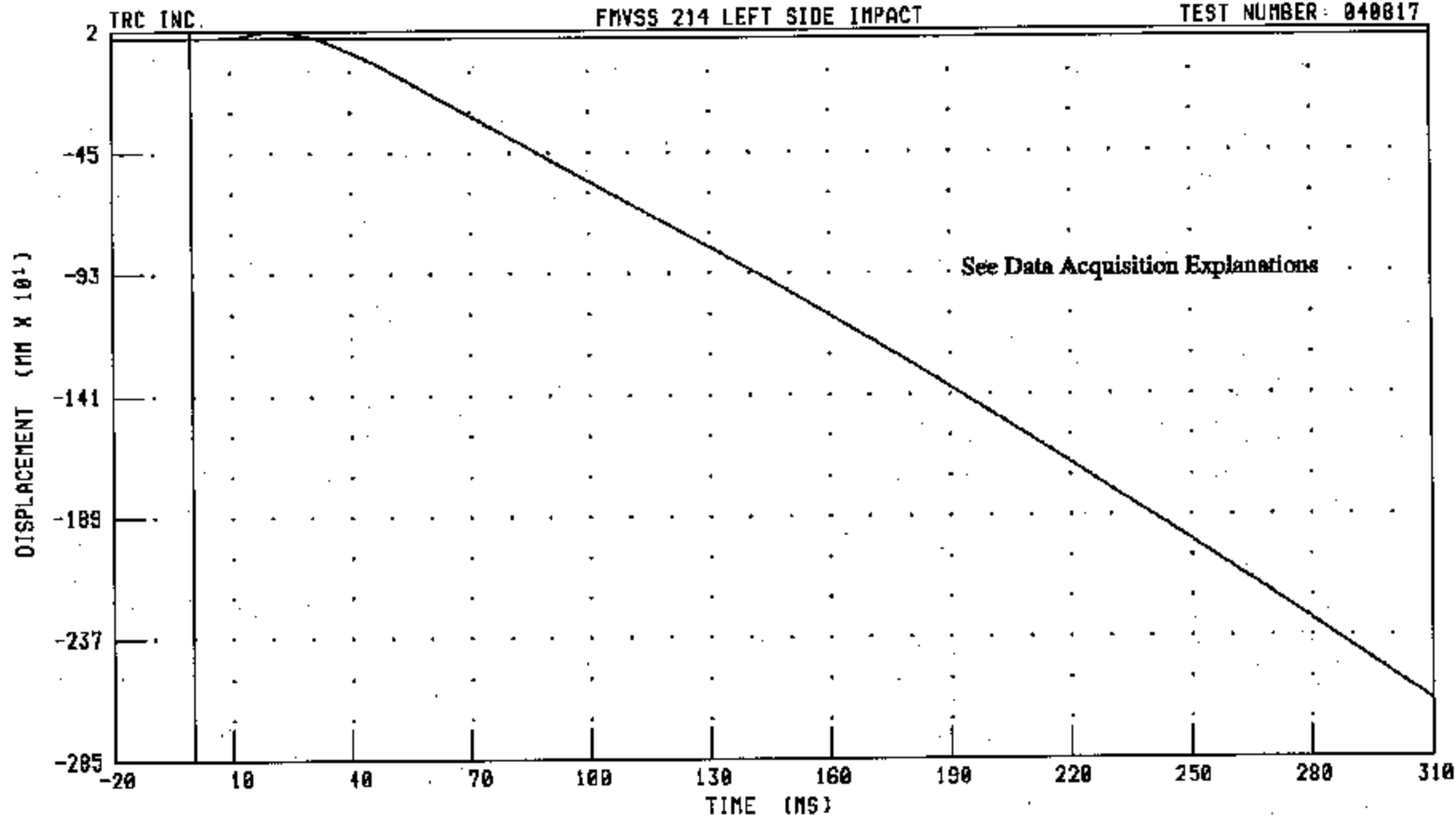
B-64

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT SIDE SILL AT FRONT SEAT Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LFSYD1 FILTER: CH. CLASS 100

PEAK DATA: 26.58 MM @ 21.36 MS, -2626.91 MM @ 310.00 MS

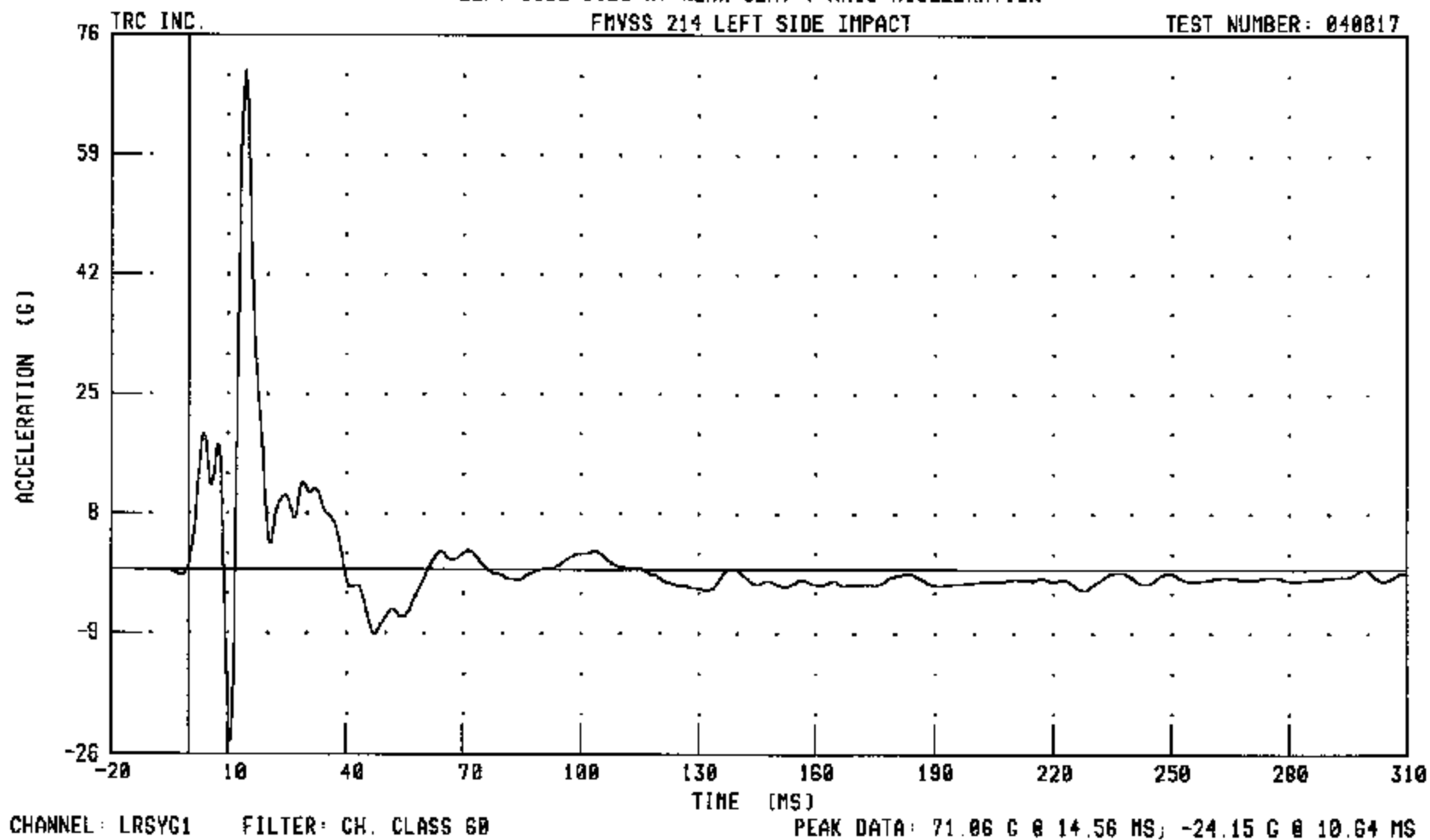
B-65

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



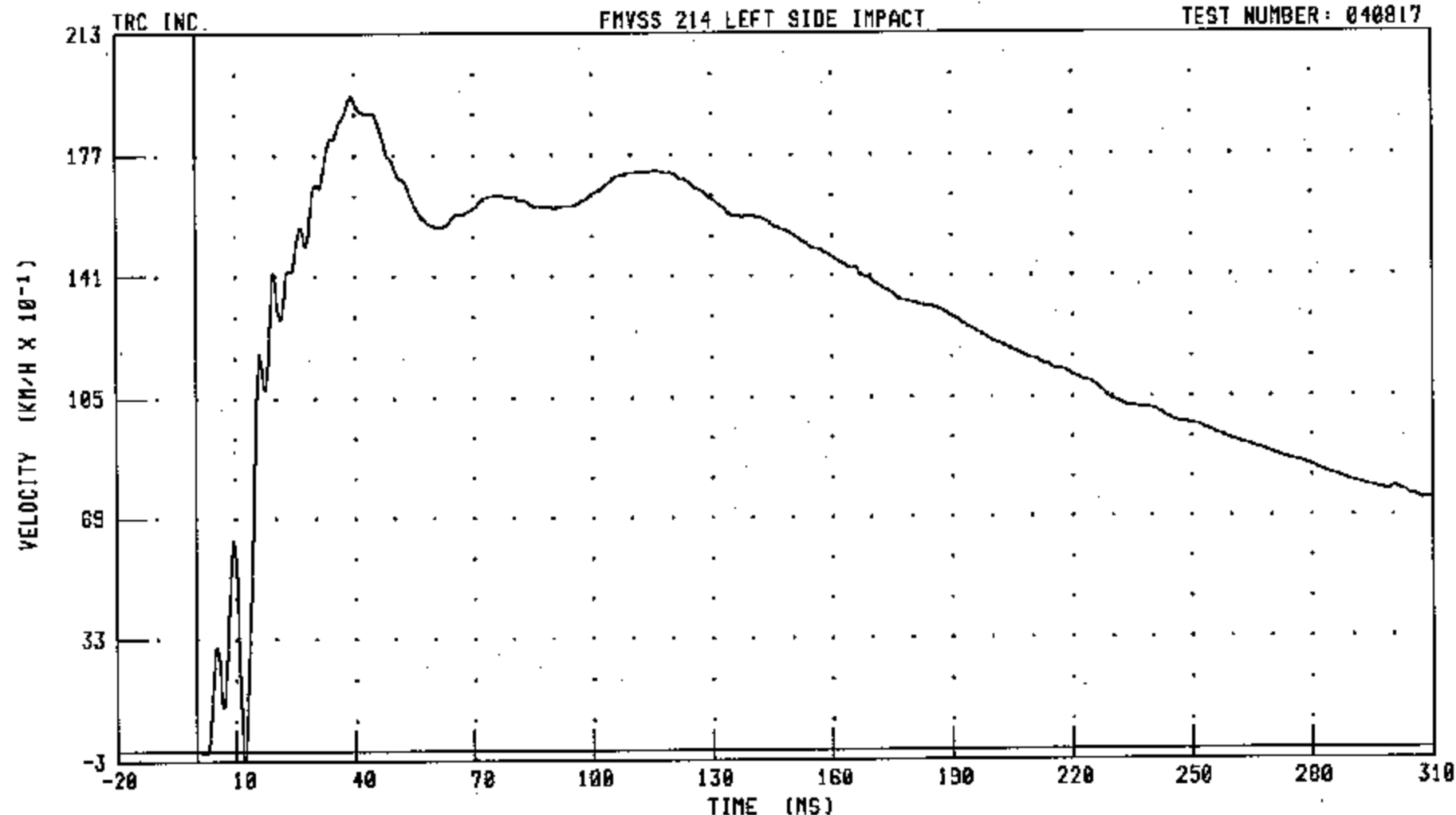
B-66

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LRSYV1 FILTER: CH. CLASS 100

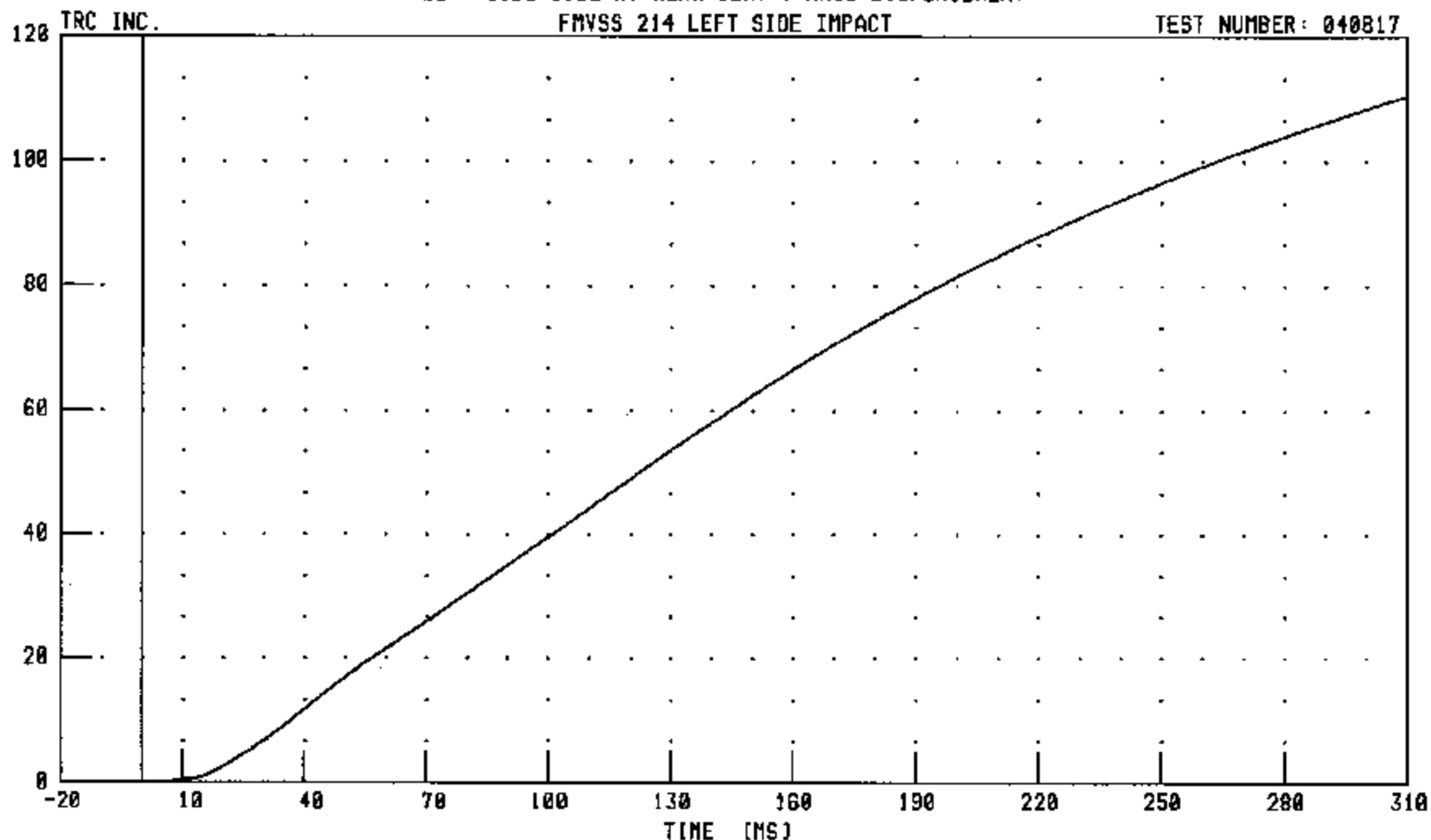
B-67

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT SIDE SILL AT REAR SEAT Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LRSYD1 FILTER: CH. CLASS 100

PEAK DATA: 1106.18 MM @ 310.00 MS; -0.01 MM @ 2.72 MS

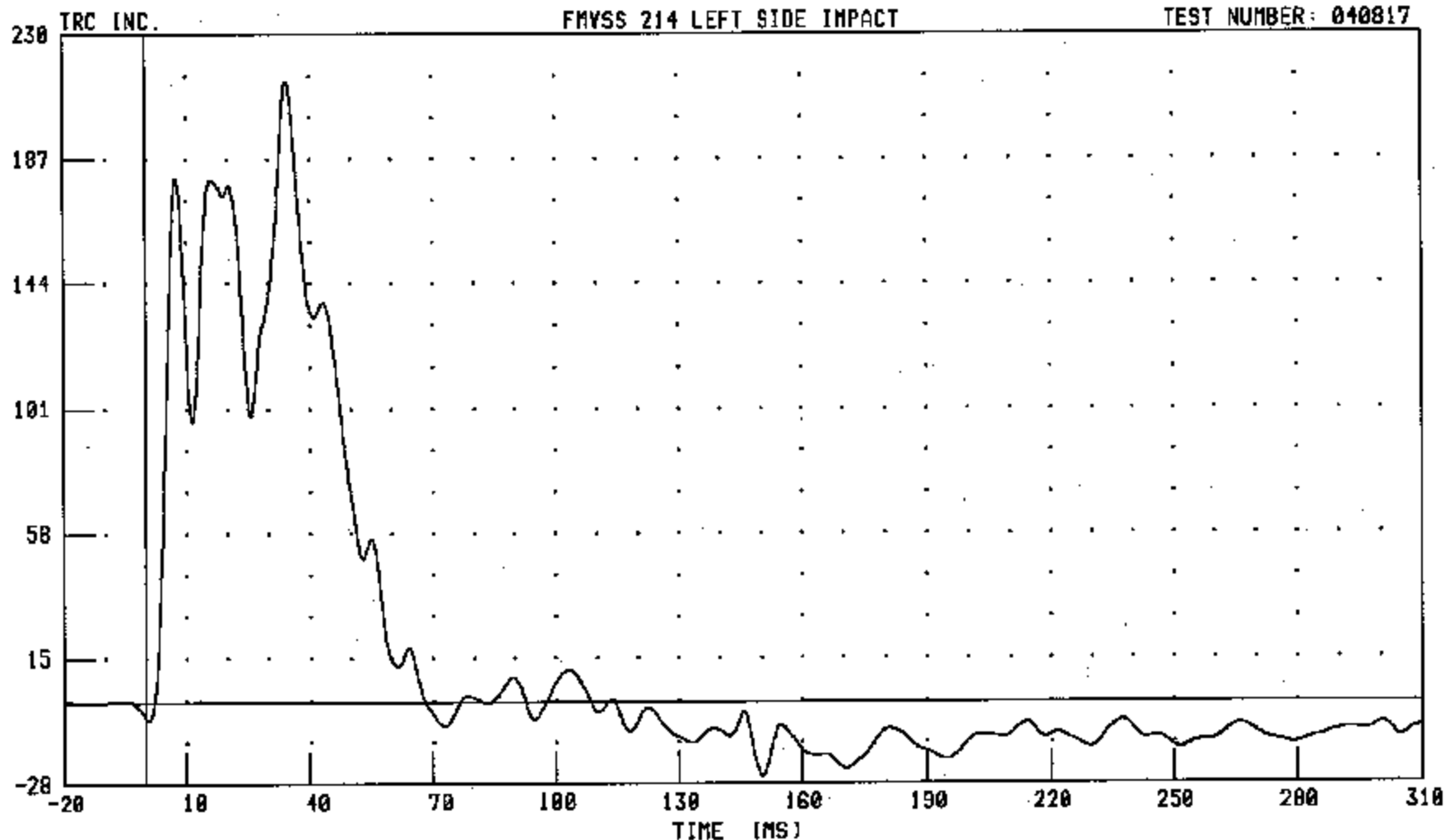
B-68

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRTYC1

FILTER: CH. CLASS 60

PEAK DATA: 21.39 G @ 34.56 MS, -2.55 G @ 150.48 MS

B-69

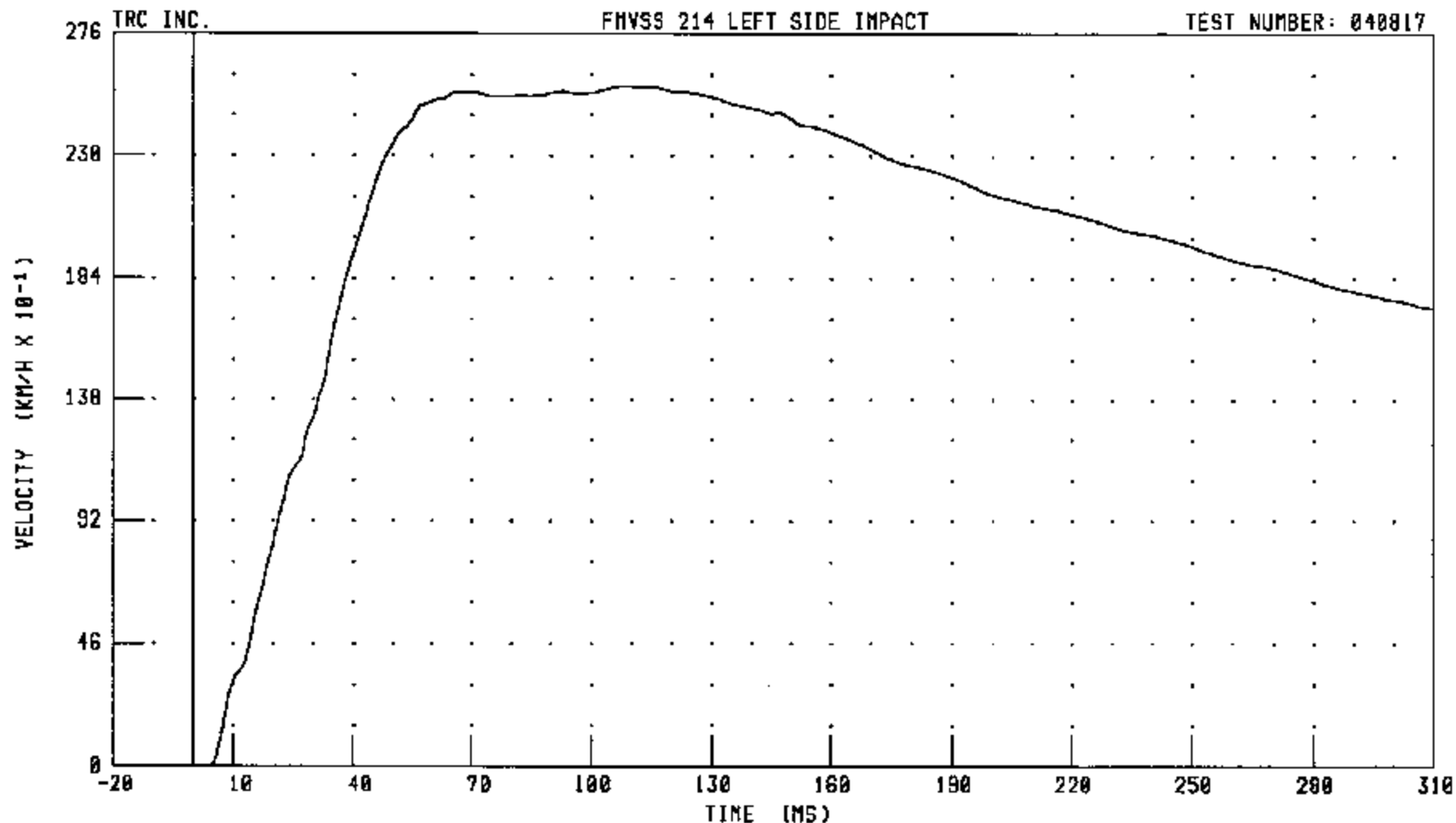
040817



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY

FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRTYV1 FILTER: CH. CLASS 100

PEAK DATA: 25.63 KM/H @ 108.88 MS, -0.01 KM/H @ 3.84 MS

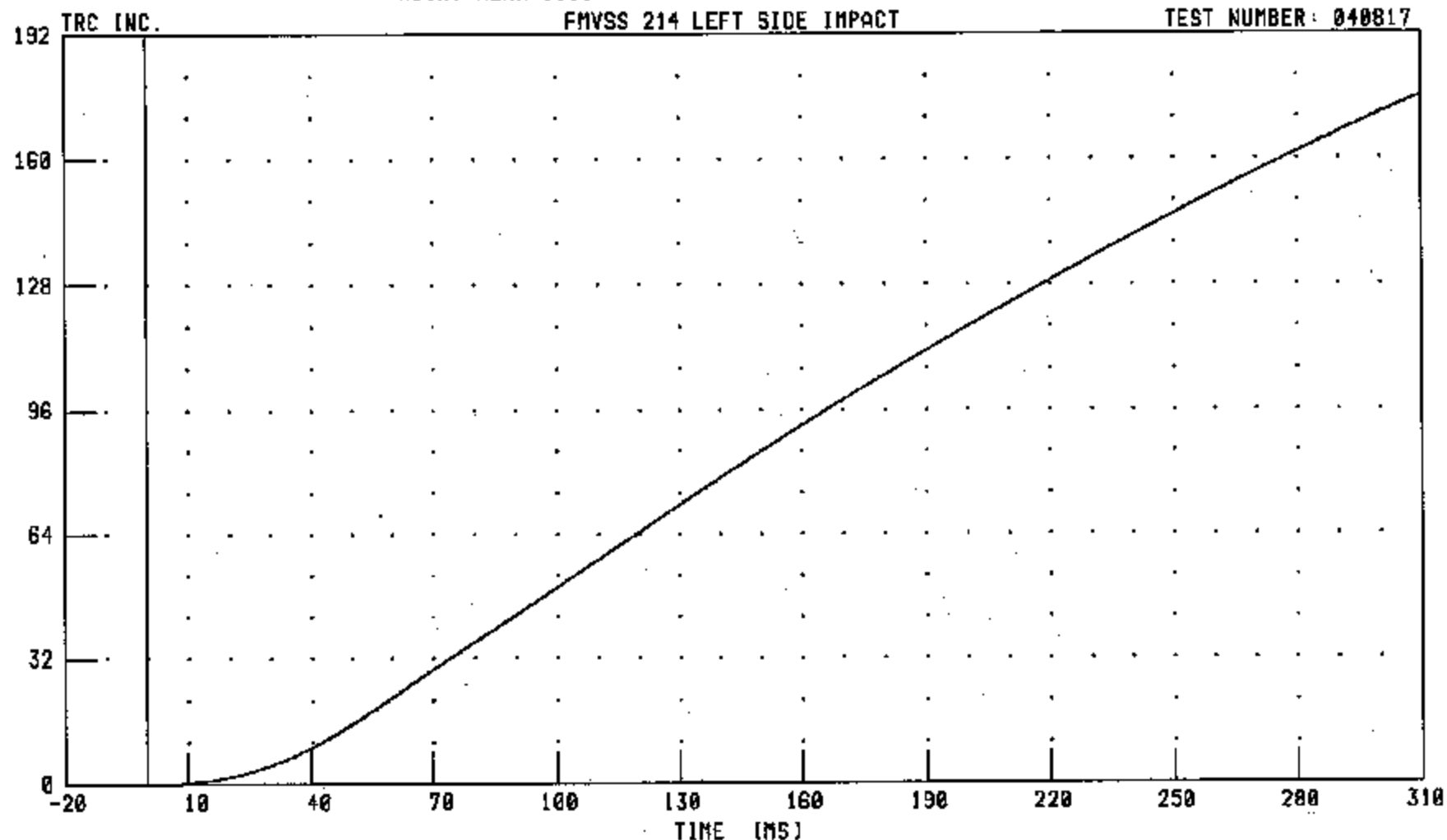
B-70

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: RRTYD1 FILTER: CH. CLASS 180

PEAK DATA: 1762.86 MM @ 310.00 MS, 0.00 MM @ 0.00 MS

B-71

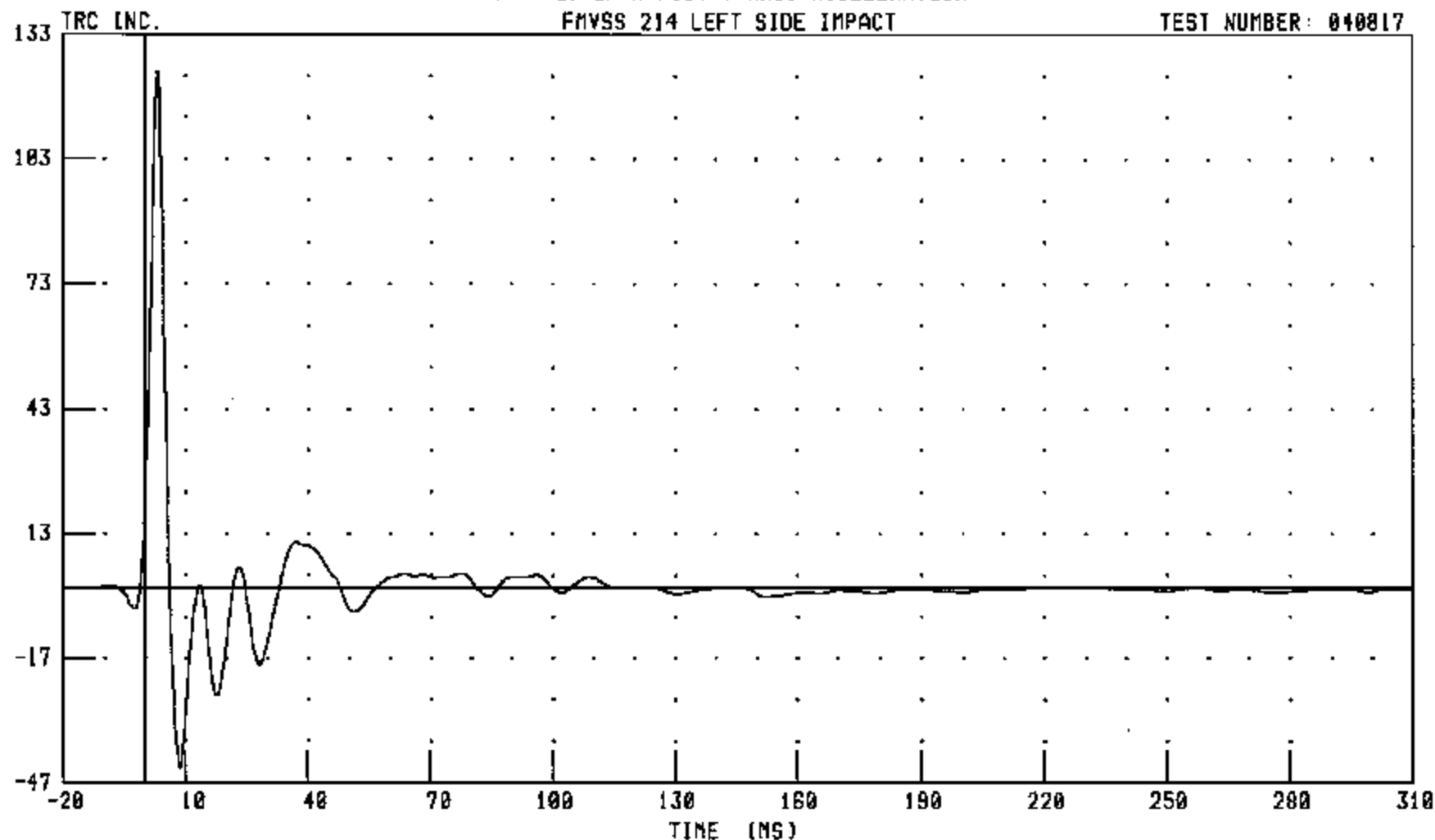
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT LOWER A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLAG01 FILTER: CH. CLASS 60

PEAK DATA: 124.03 G @ 3.20 MS; -43.40 G @ 0.72 MS

B-72

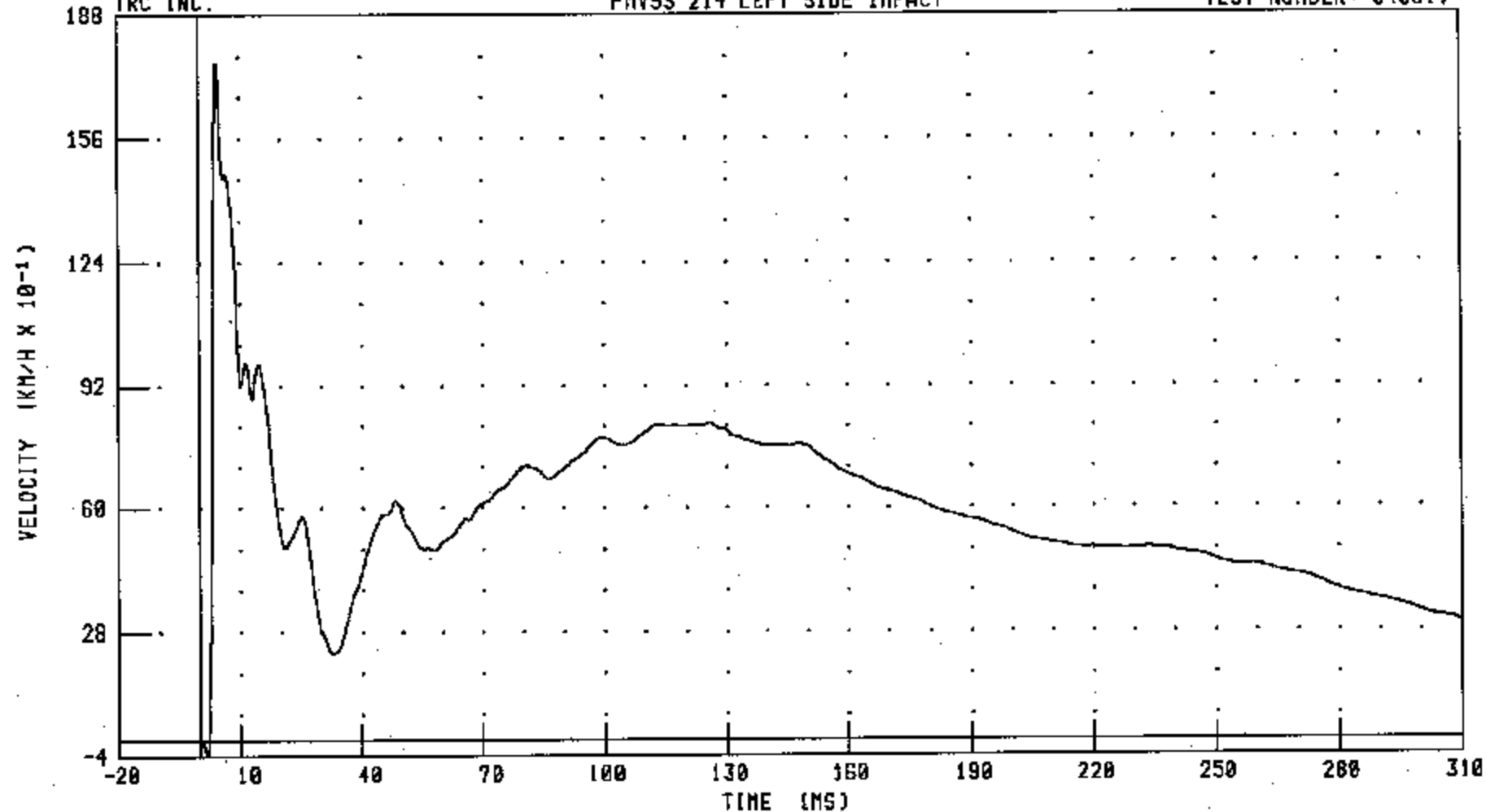
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT LOWER A-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: LAYV1 FILTER: CH. CLASS 180

PEAK DATA: 17.57 KM/H @ 4.48 MS, -0.38 KM/H @ 1.60 MS

B-73

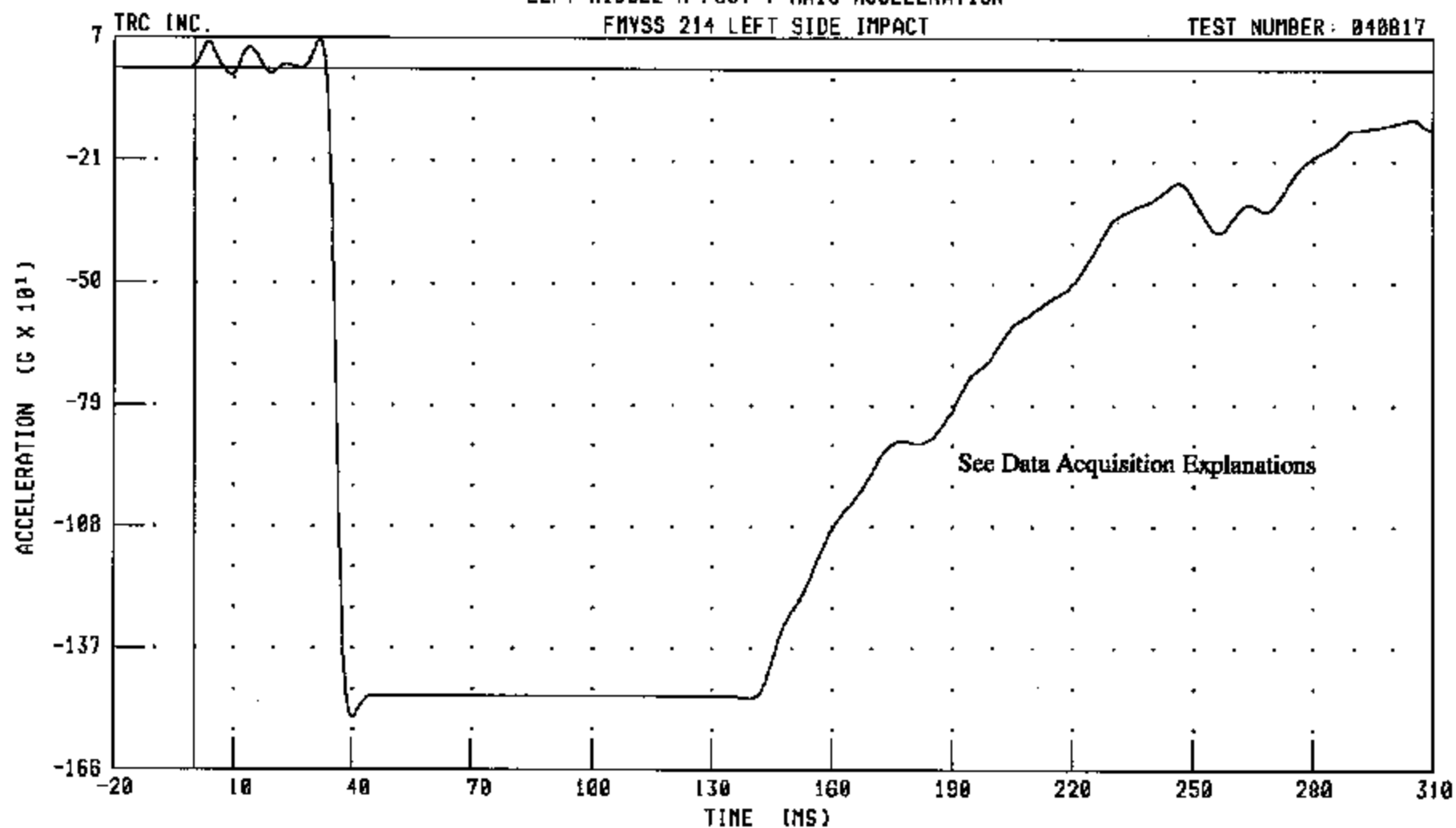
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT MIDDLE A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LMAYG1 FILTER: CH. CLASS 60

PEAK DATA: 66.20 G @ 31.76 MS; -154.59 G @ 40.24 MS

B-74

040817

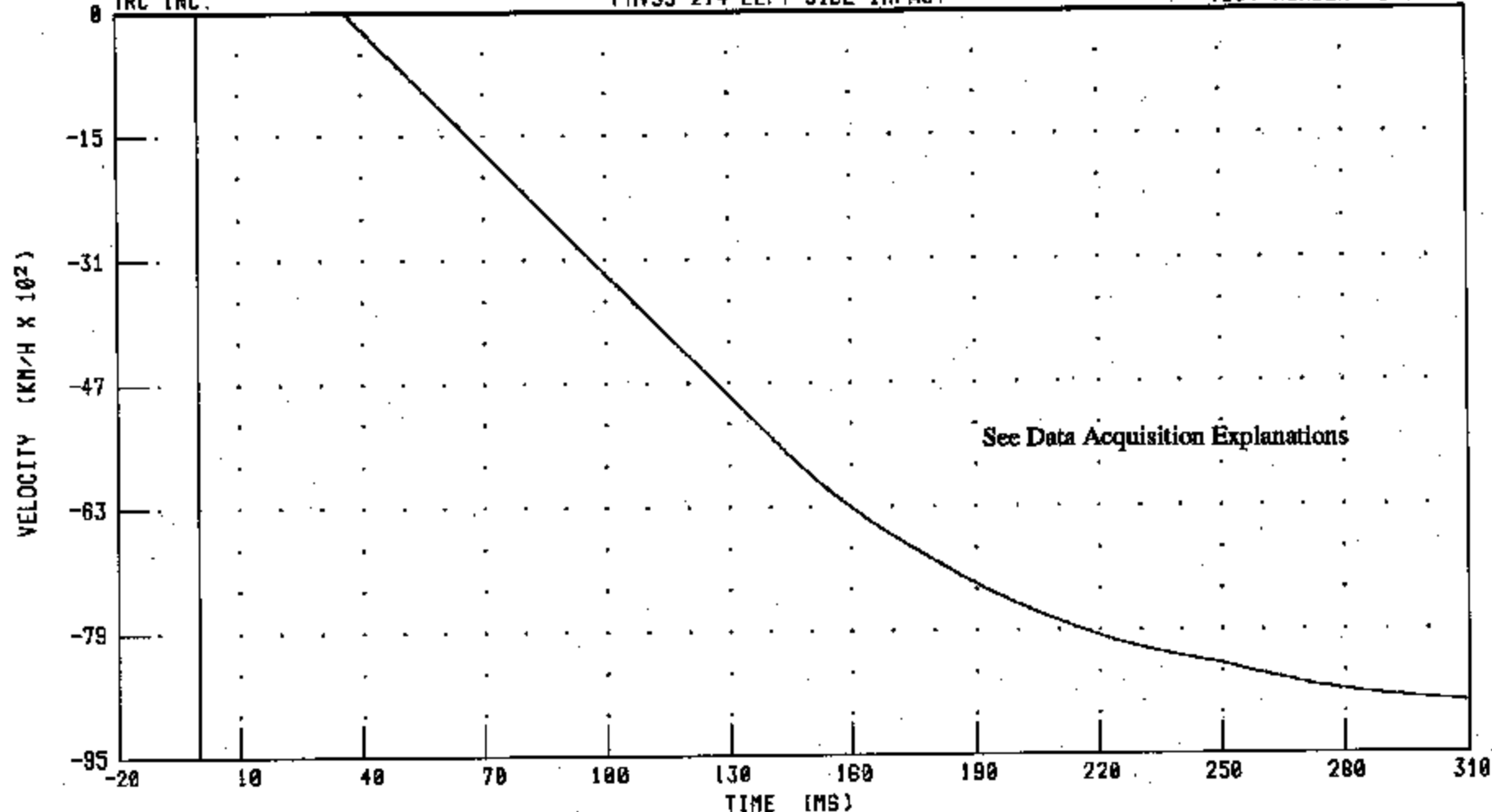
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT MIDDLE A-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



See Data Acquisition Explanations

CHANNEL: L MAYV1 FILTER: CH. CLASS 100

PEAK DATA: 18.92 KM/H @ 34.96 MS, -8910.11 KM/H @ 310.00 MS

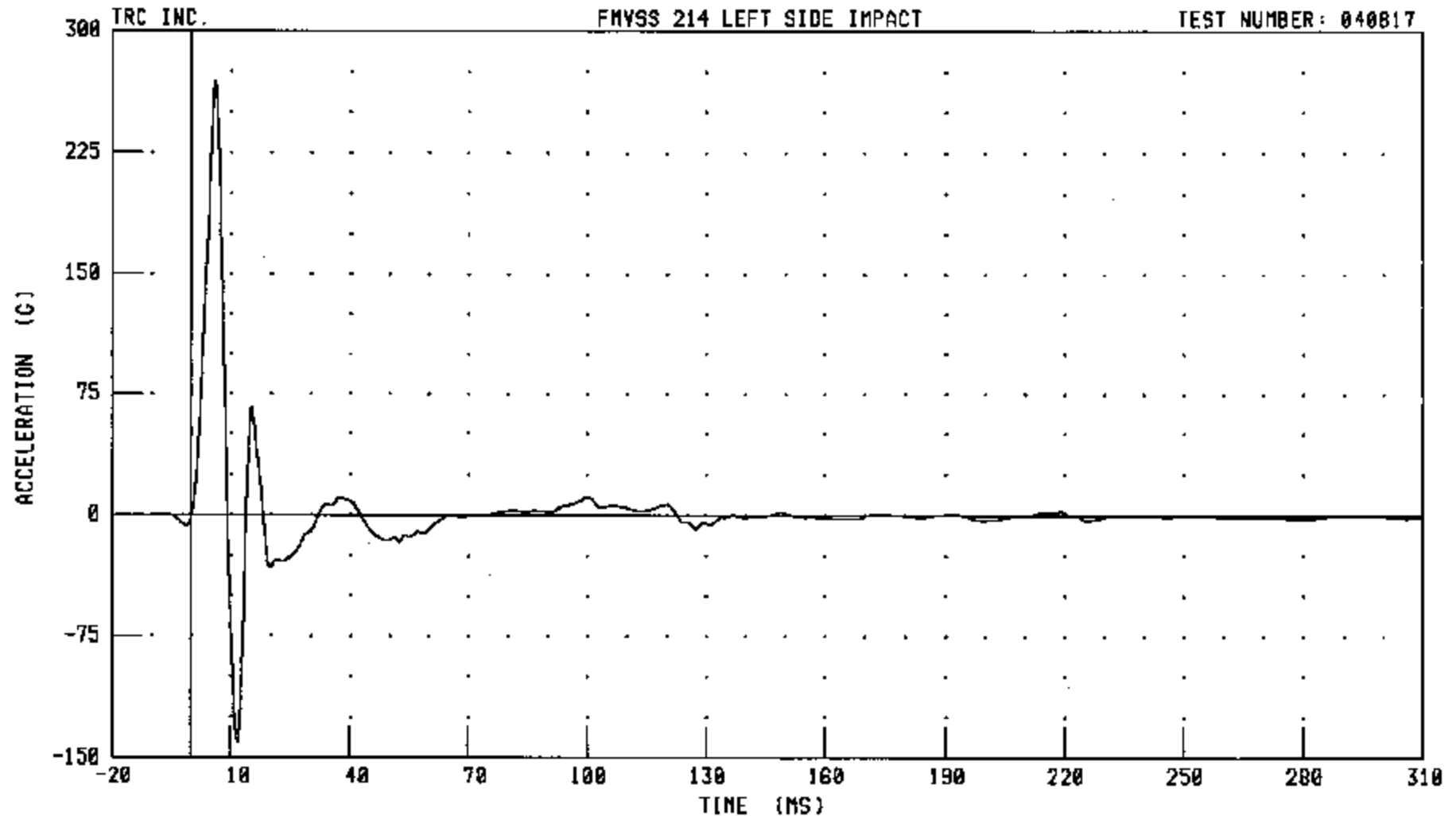
B-75

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT LOWER B-POST Y-AXIS ACCELERATION

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLBYG1 FILTER: CH. CLASS 60

PEAK DATA: 269.00 G @ 6.00 MS; -141.00 G @ 11.60 MS

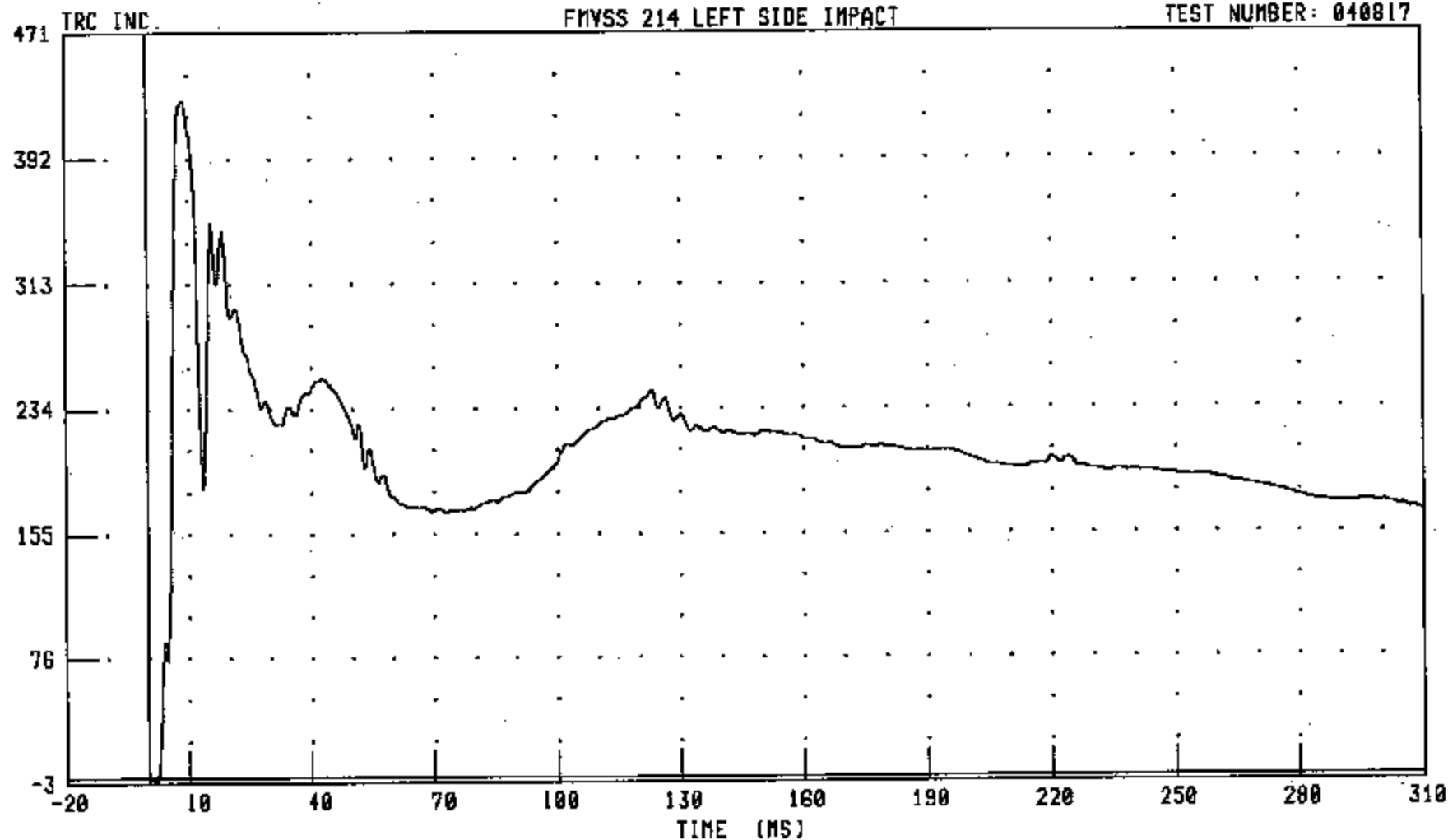
B-76

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT LOWER B-POST Y-AXIS VELOCITY

FMYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLBYV1 FILTER: CH. CLASS 180

PEAK DATA: 42.84 KM/H @ 9.88 MS; -0.30 KM/H @ 1.84 MS

B-77

040817

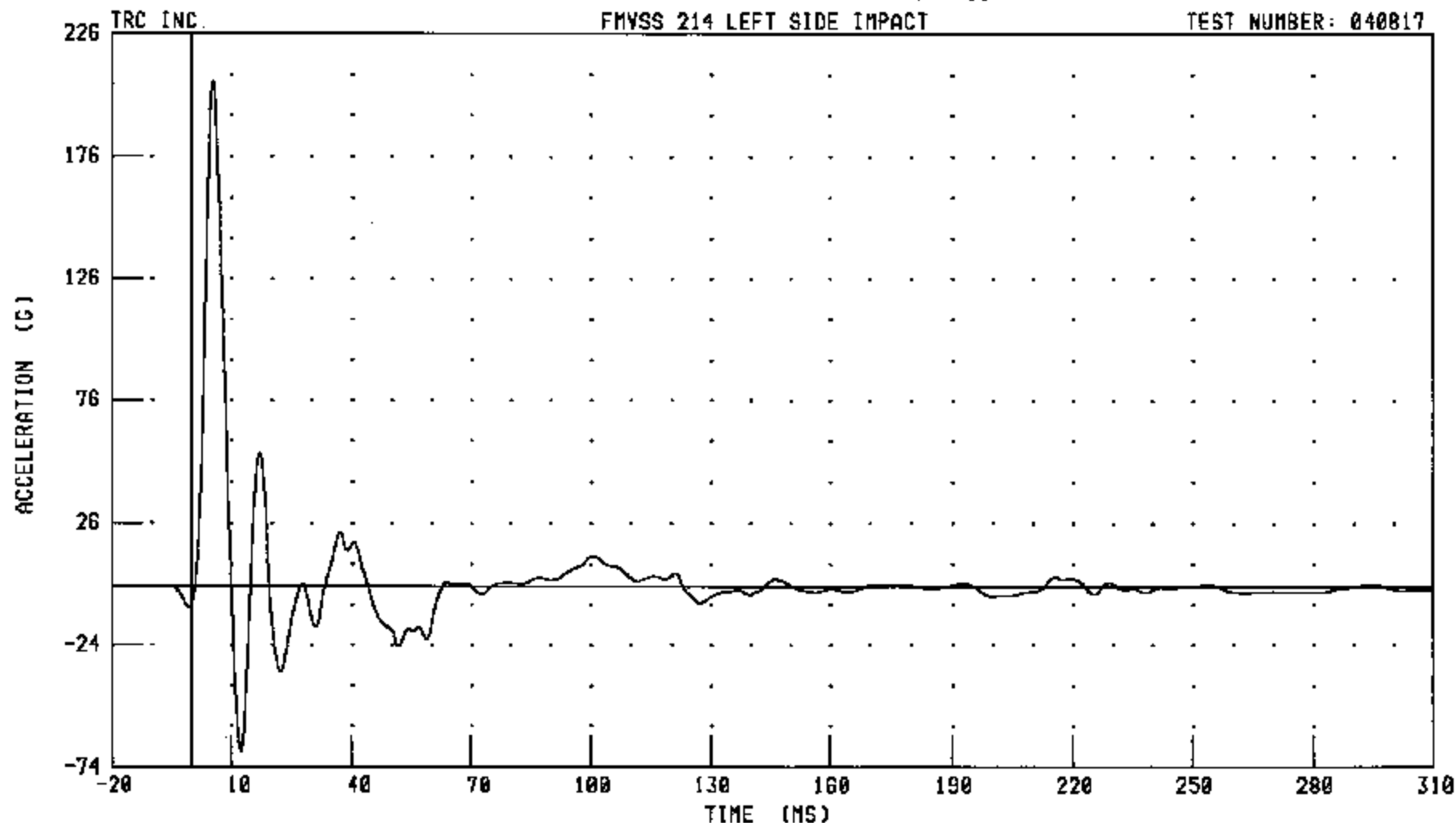


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT MIDDLE B-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LMBY01 FILTER: CH. CLASS 60

PEAK DATA: 206.57 G @ 5.36 MS; -67.84 G @ 12.40 MS

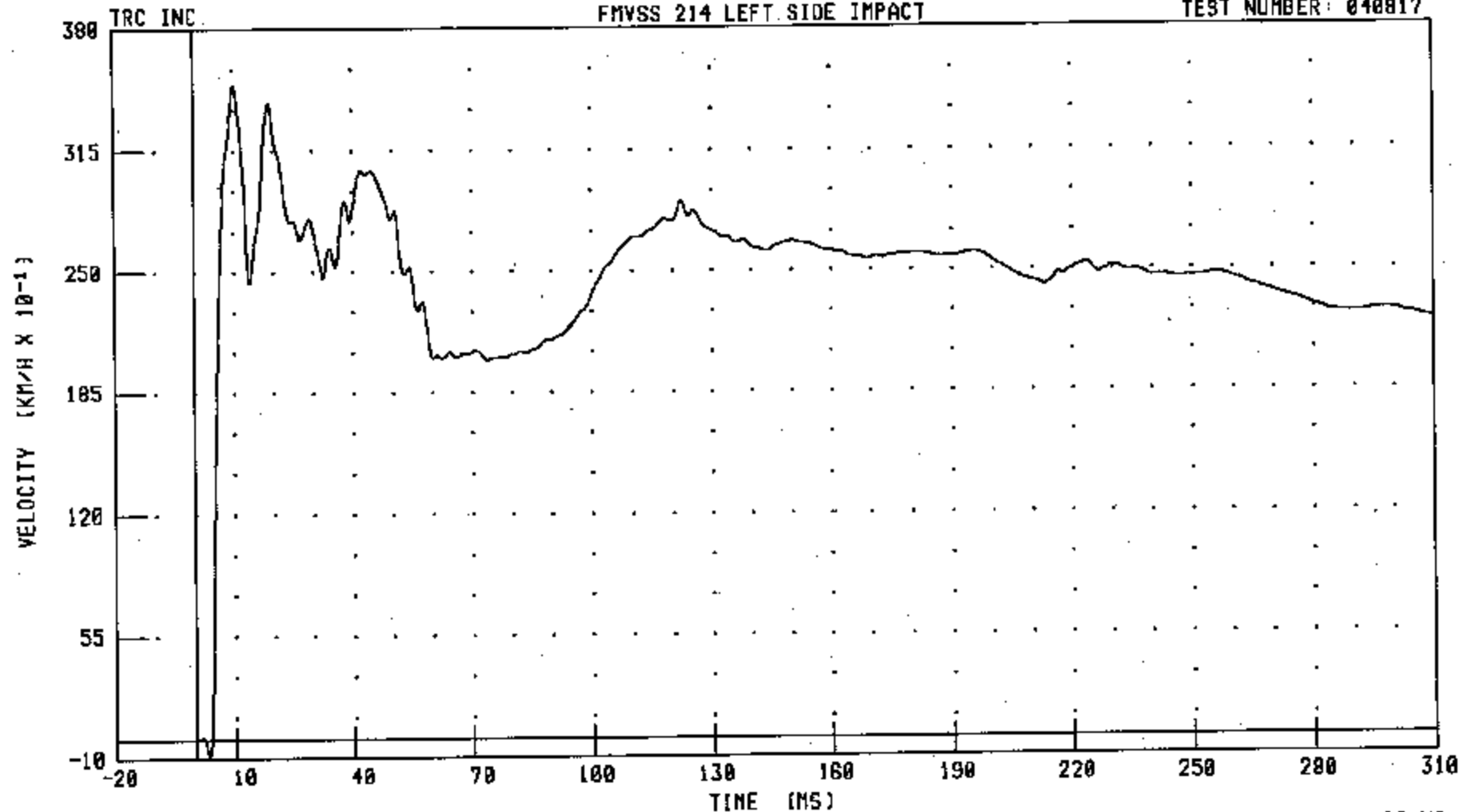
B-78

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT MIDDLE B-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LMBYV1 FILTER: CH. CLASS 100

PEAK DATA: 34.99 KM/H @ 10.24 MS, -0.98 KM/H @ 3.28 MS

B-79

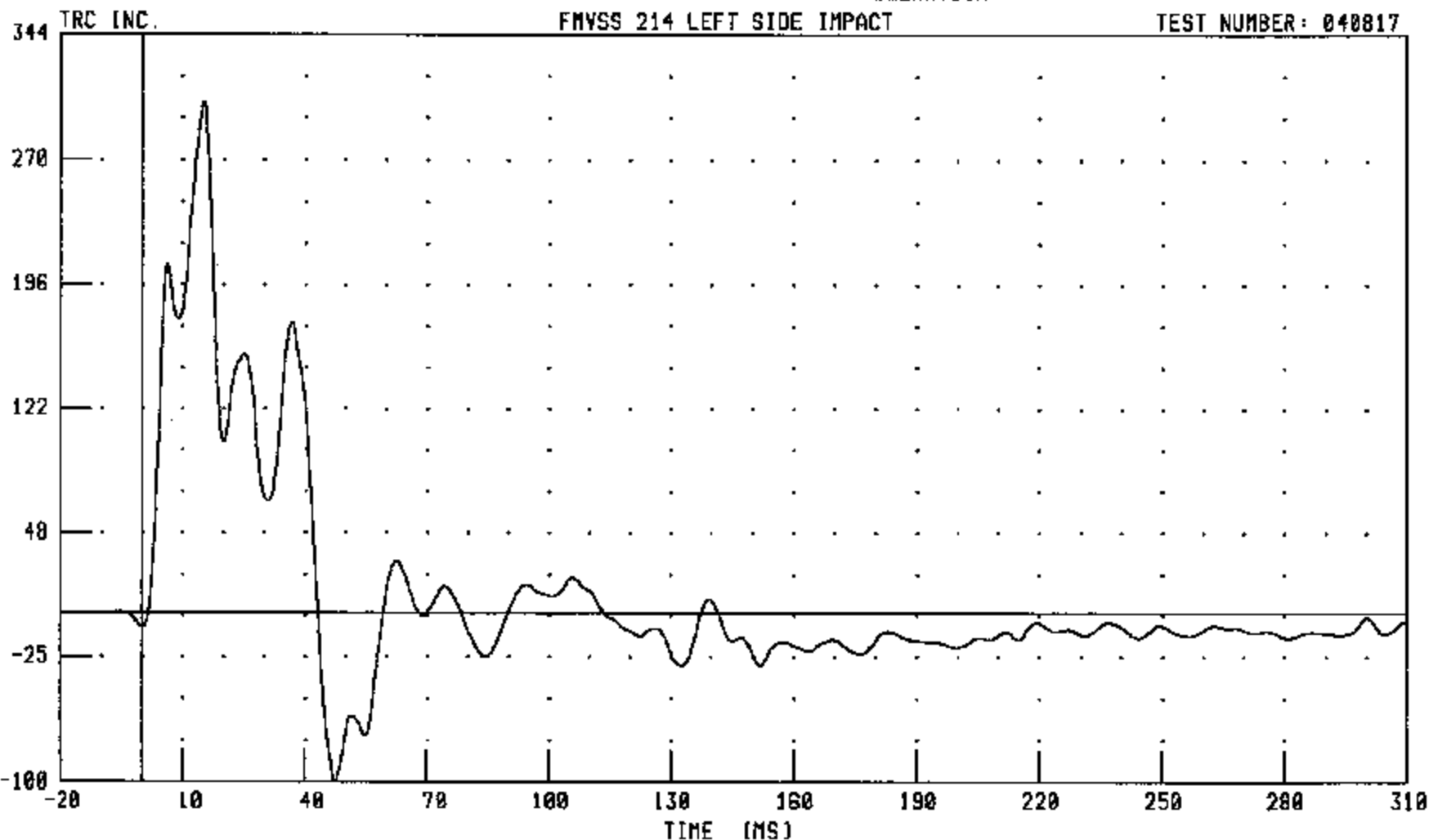
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT FRONT SEAT TRACK Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LFTYC1 FILTER: CH. CLASS 60

PEAK DATA: 30.43 G @ 15.20 MS; -9.94 G @ 47.52 MS

B-80

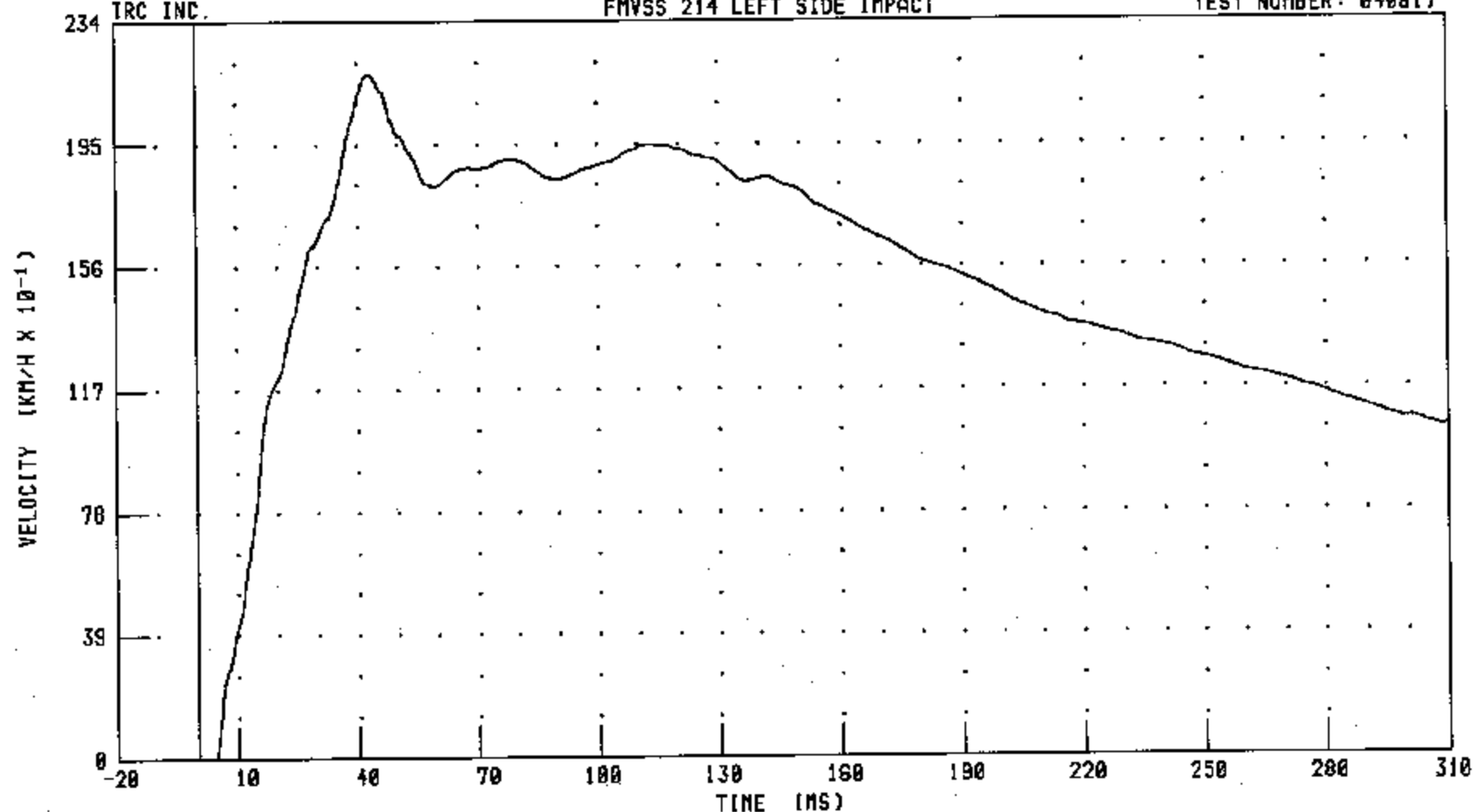
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT FRONT SEAT TRACK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: LFTYV1 FILTER: CH. CLASS 100

PEAK DATA: 21.75 KM/H @ 42.96 MS, -0.04 KM/H @ 3.84 MS

B-81

040817

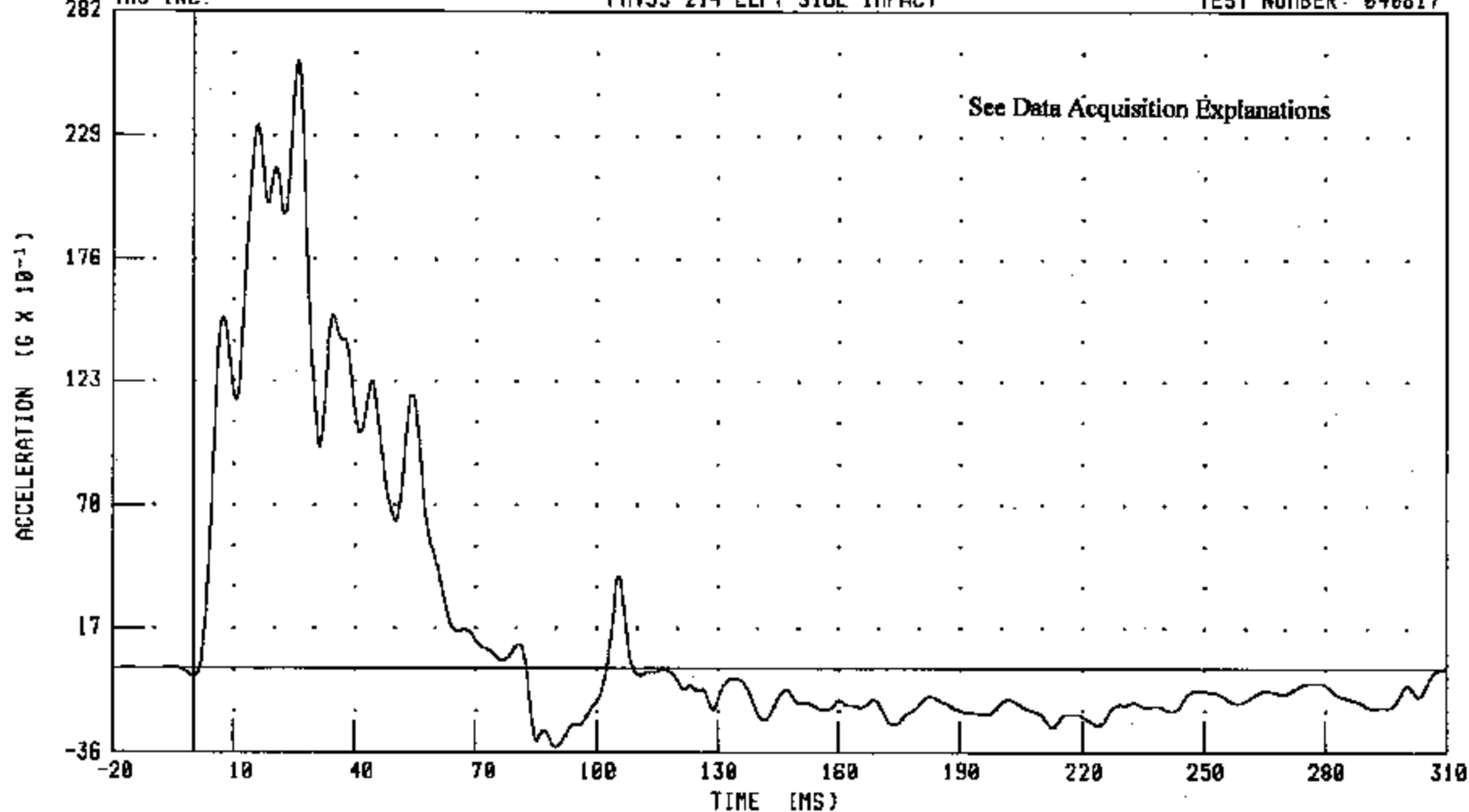
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT REAR SEAT TRACK Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: LRTYG1 FILTER: CH. CLASS 60

PEAK DATA: 26.00 G @ 26.00 MS, -3.36 G @ 89.92 MS

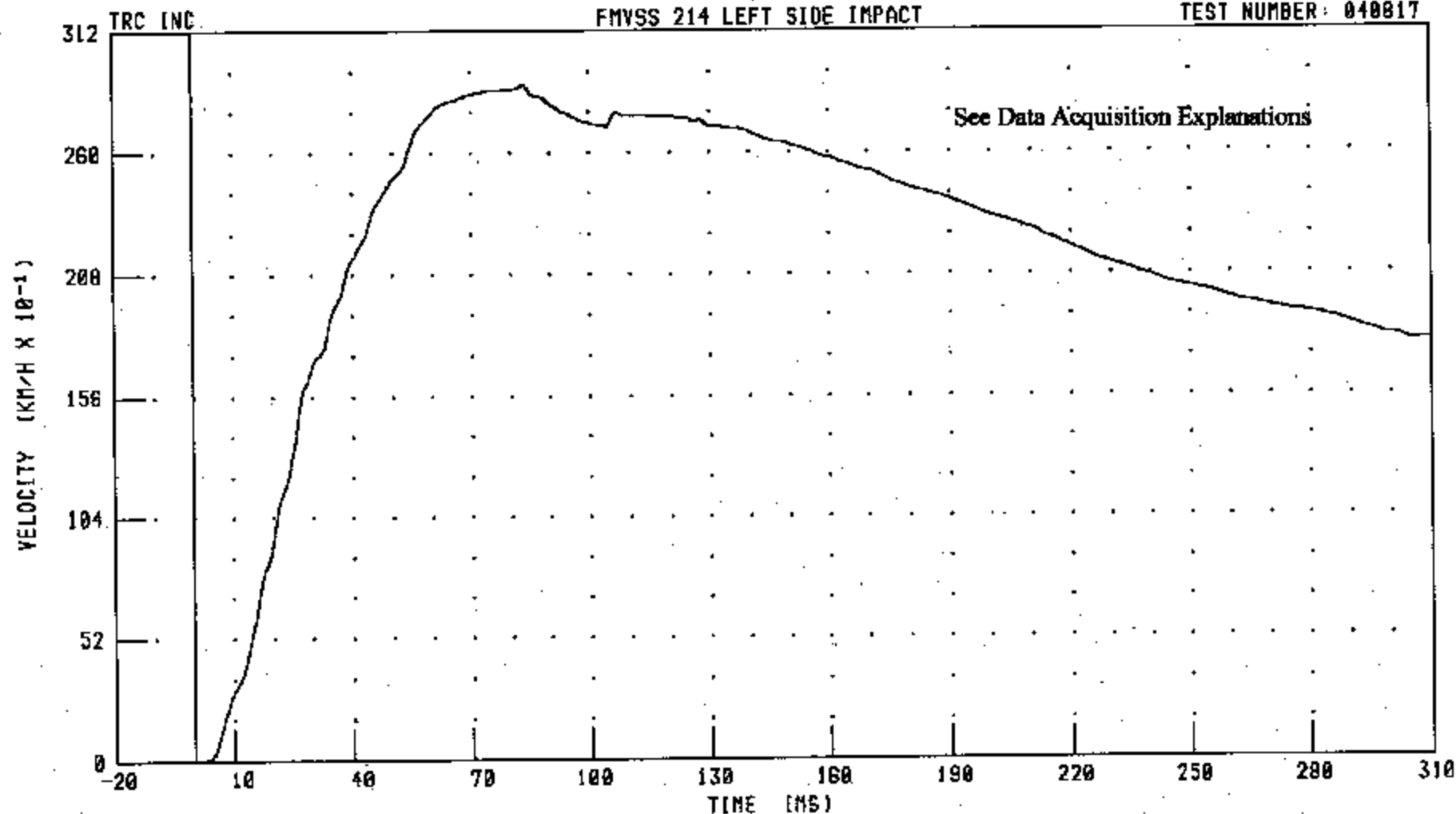
B-82

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR SEAT TRACK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LRTYV1 FILTER: CH. CLASS 100

PEAK DATA: 20.90 KM/H @ 83.52 MS; 0.00 KM/H @ 0.80 MS

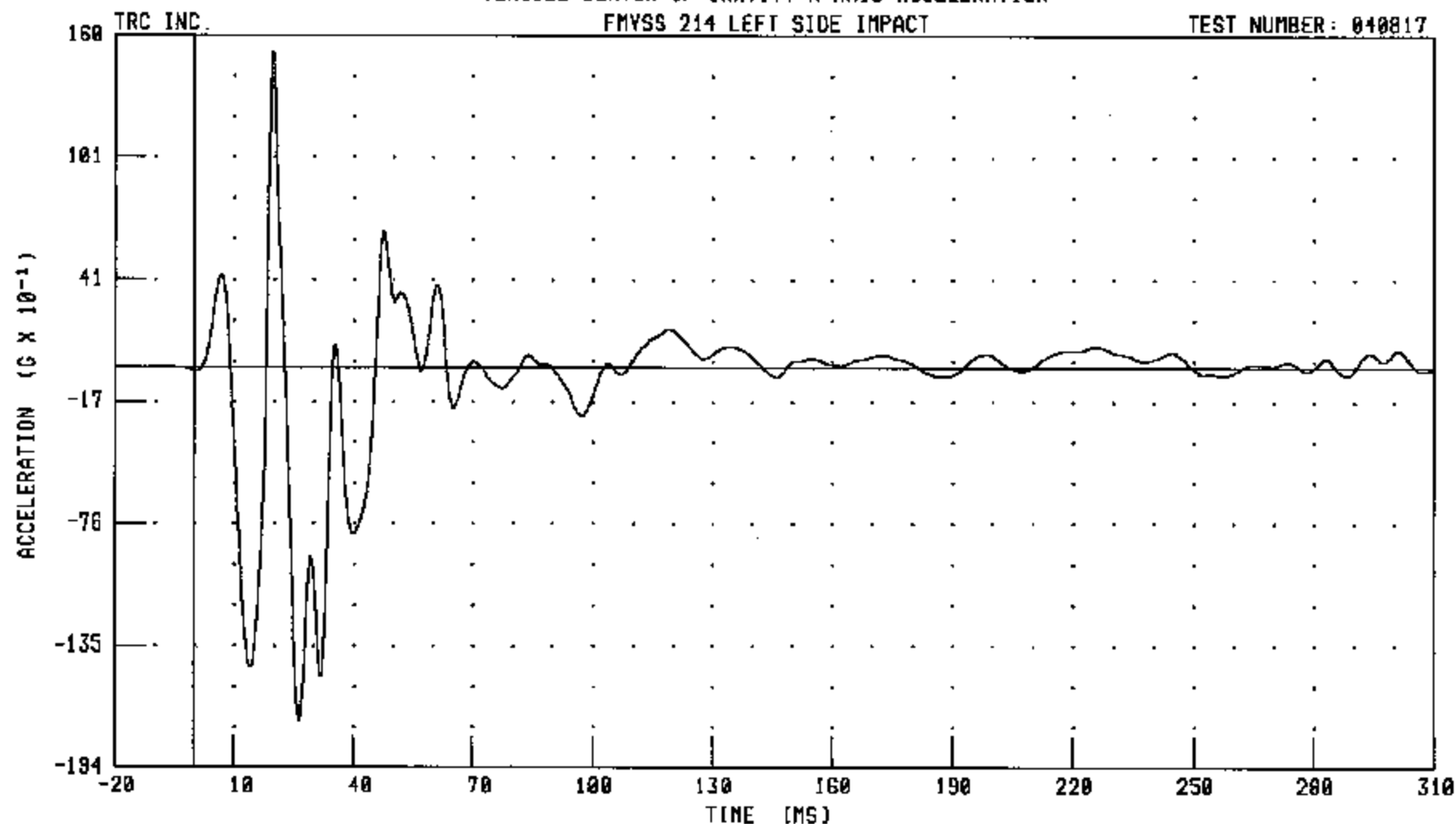
B-83

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: VCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 15.16 G @ 19.68 MS, -17.12 G @ 26.40 MS

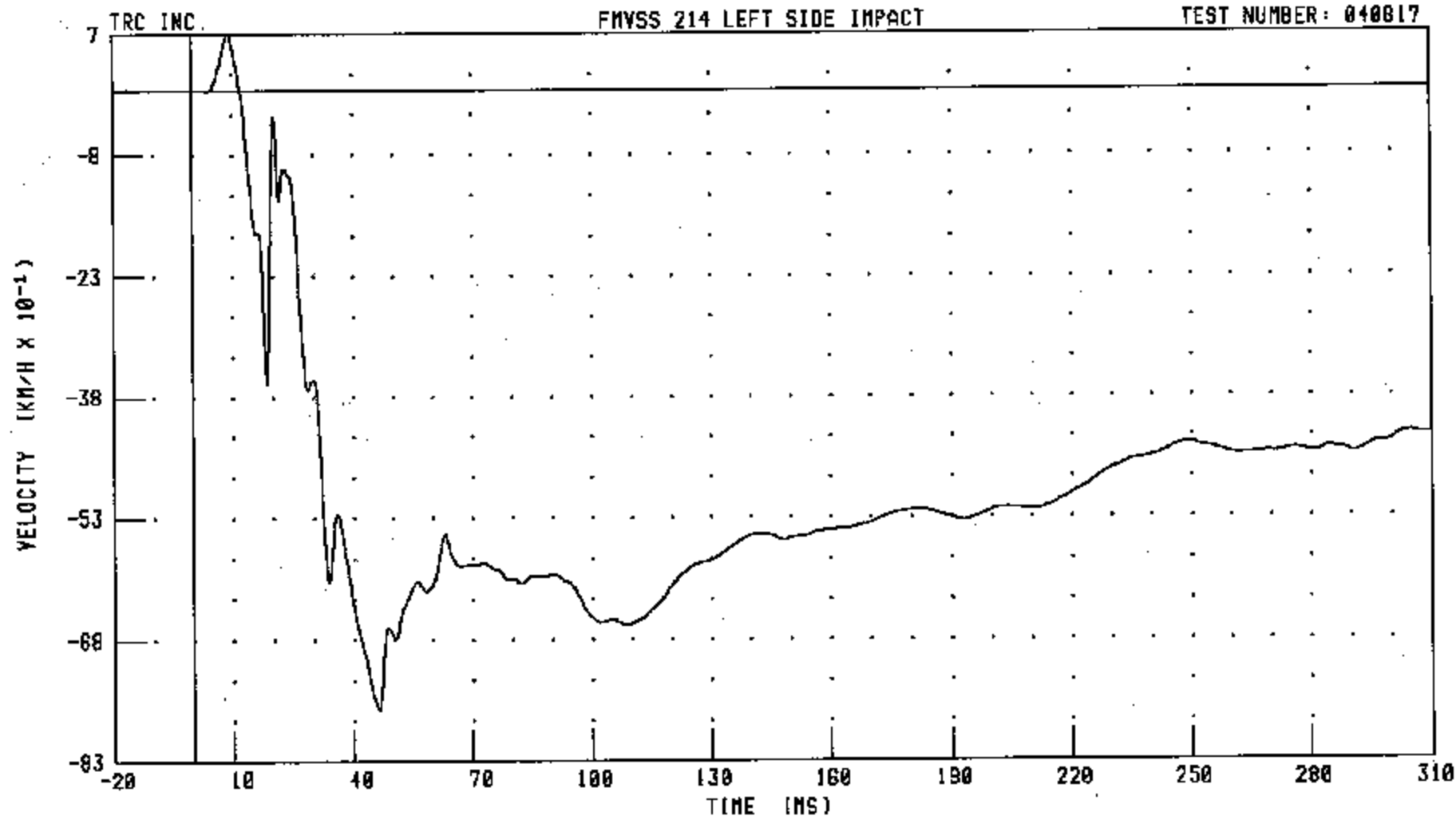
B-84

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: VCCXV1 FILTER: CH. CLASS 100

PEAK DATA: 0.70 KM/H @ 9.12 MS, -7.66 KM/H @ 46.40 MS

B-85

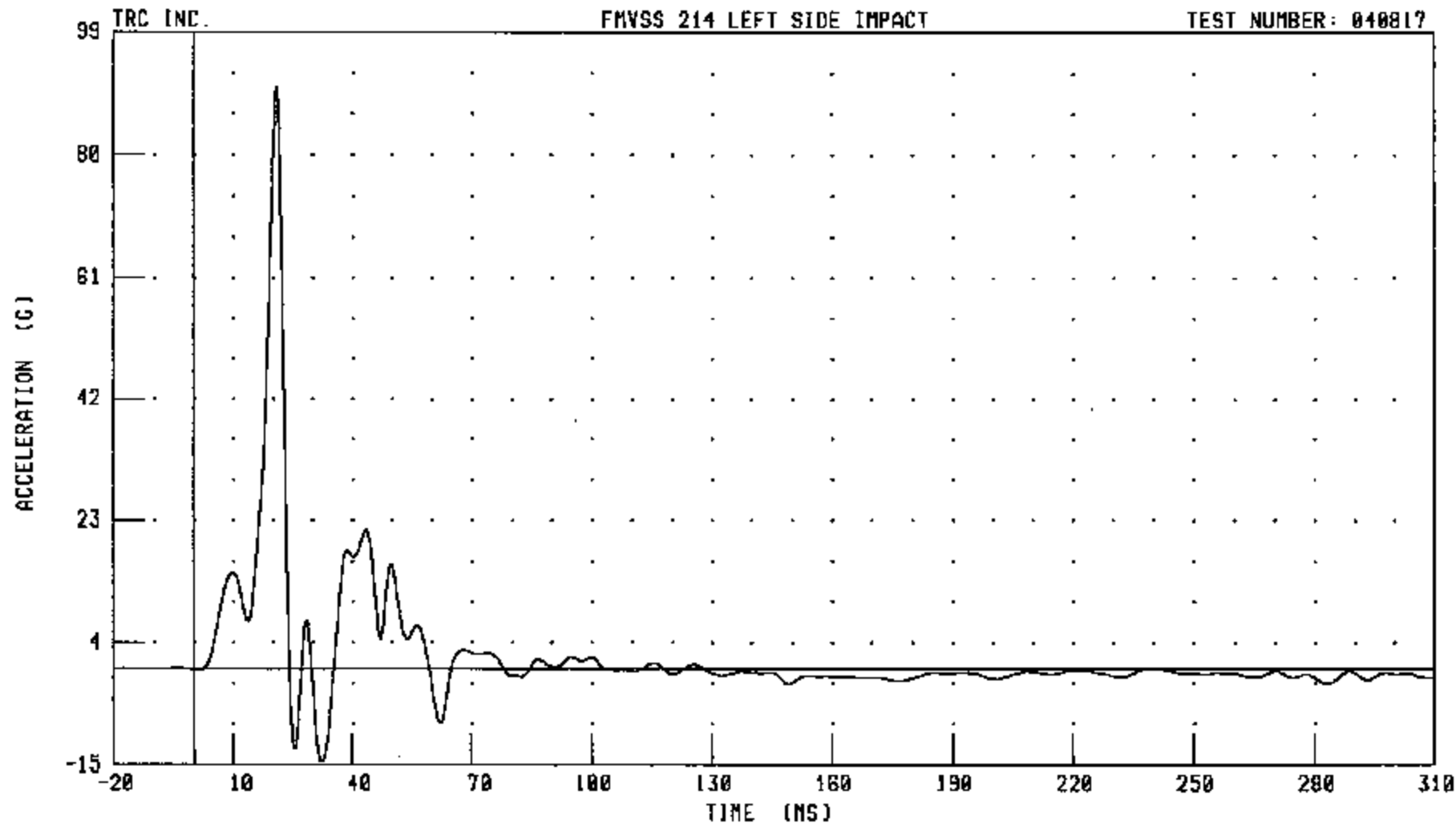
040817



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: YCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 90.49 G @ 20.88 MS, -14.53 G @ 32.40 MS

B-86

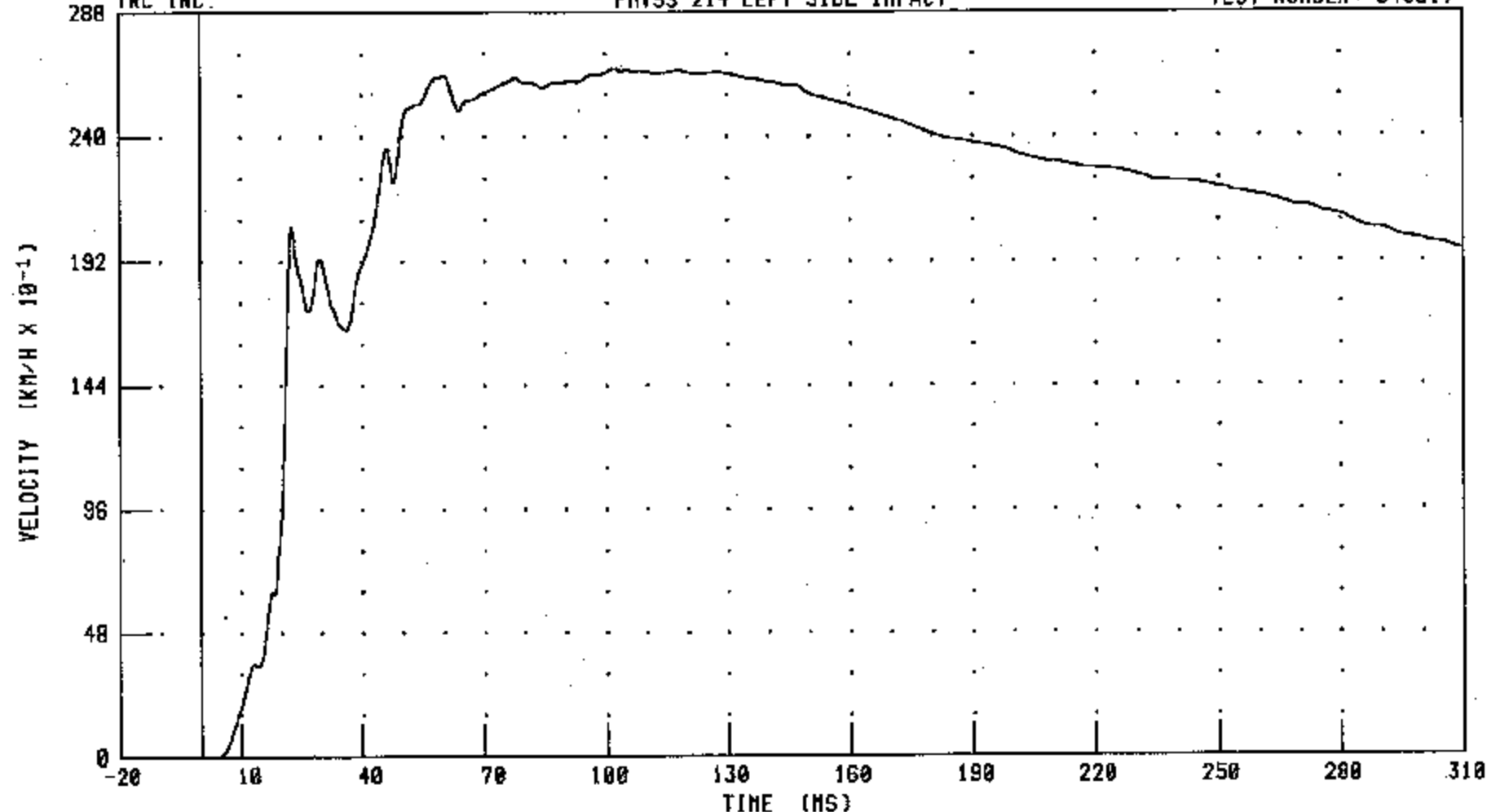
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: VCGYVL FILTER: CH. CLASS 100

PEAK DATA: 26.62 KM/H @ 102.32 MS, 0.00 KM/H @ 0.96 MS

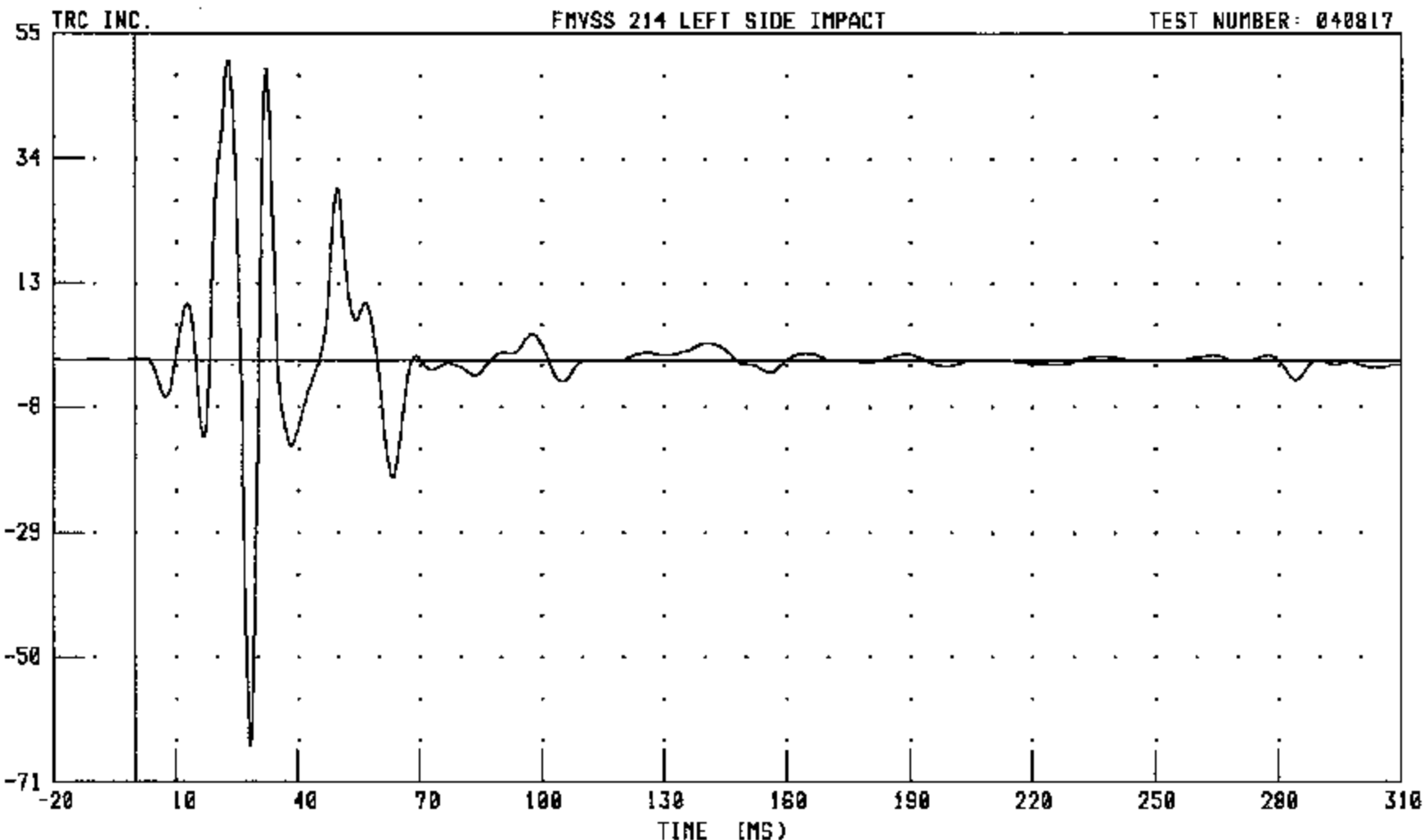
B-87

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: VCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 50.50 G @ 22.96 MS; -64.80 G @ 28.40 MS

B-88

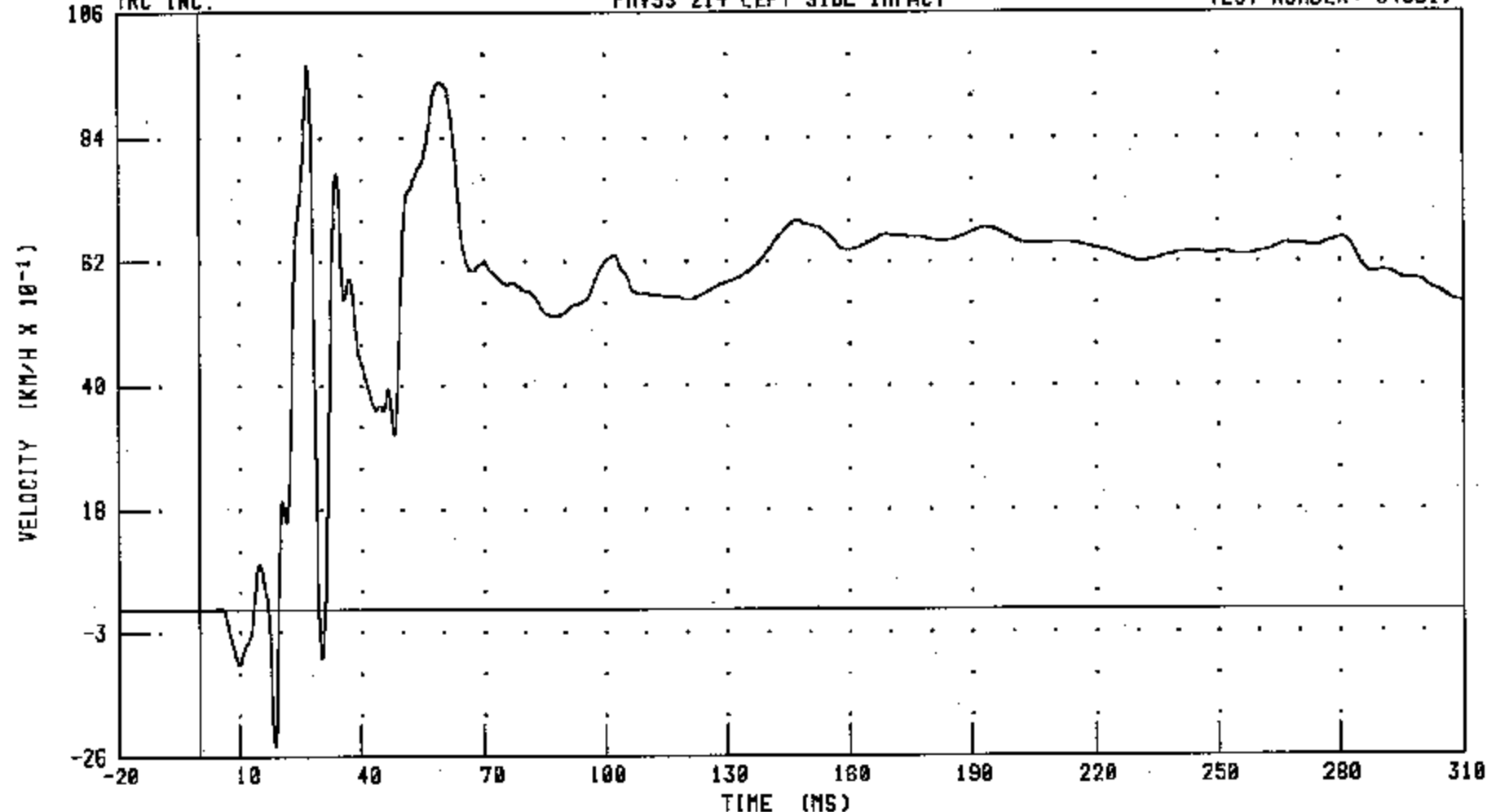
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: VCGZY1 FILTER: CH. CLASS 100

PEAK DATA: 9.67 KM/H @ 26.88 MS; -2.42 KM/H @ 10.64 MS

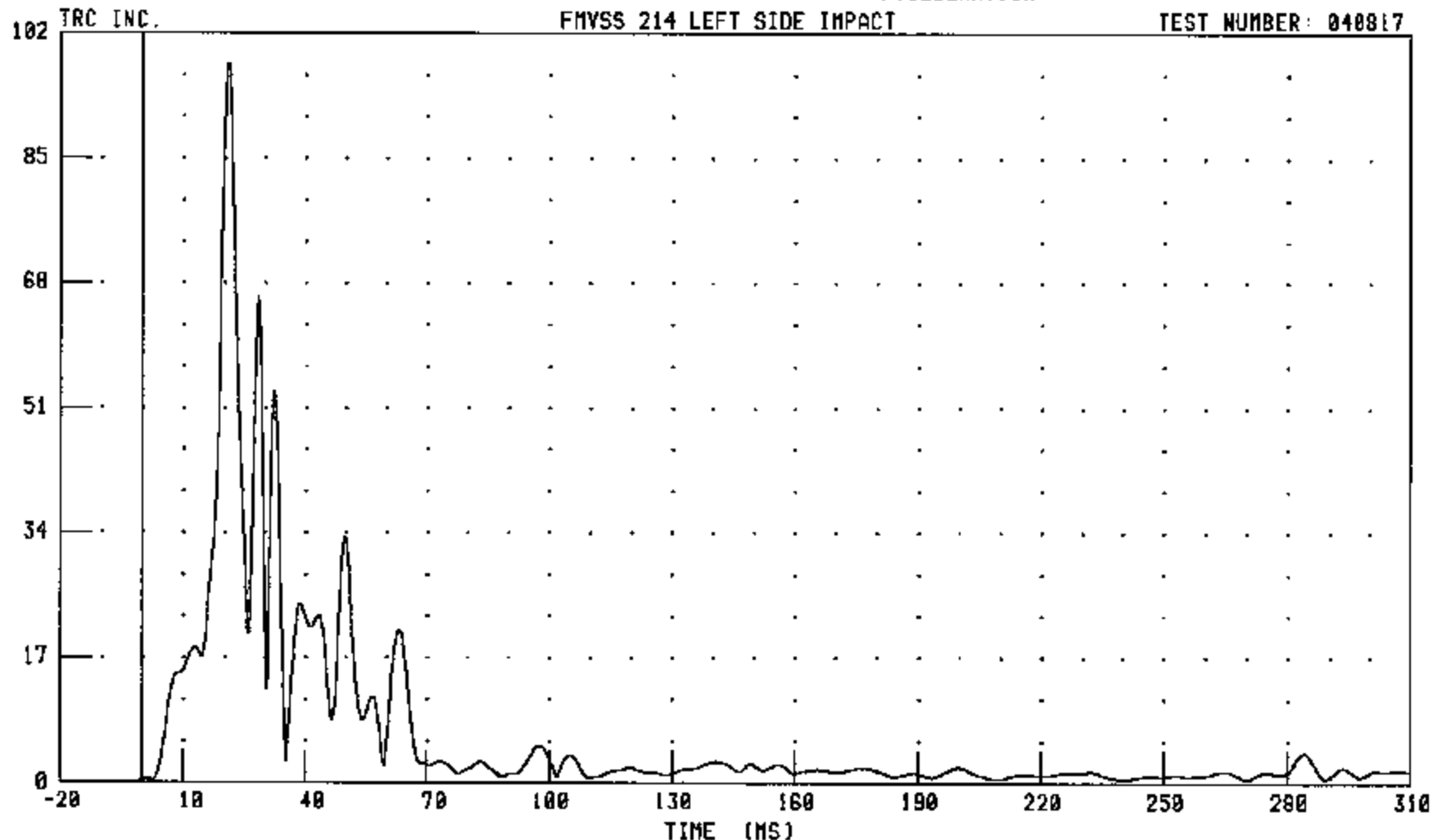
B-89

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: VCGR01 FILTER: CH. CLASS 60

PEAK DATA: 97.91 G @ 20.96 MS; 0.01 G @ -10.24 MS

B-90

040817

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

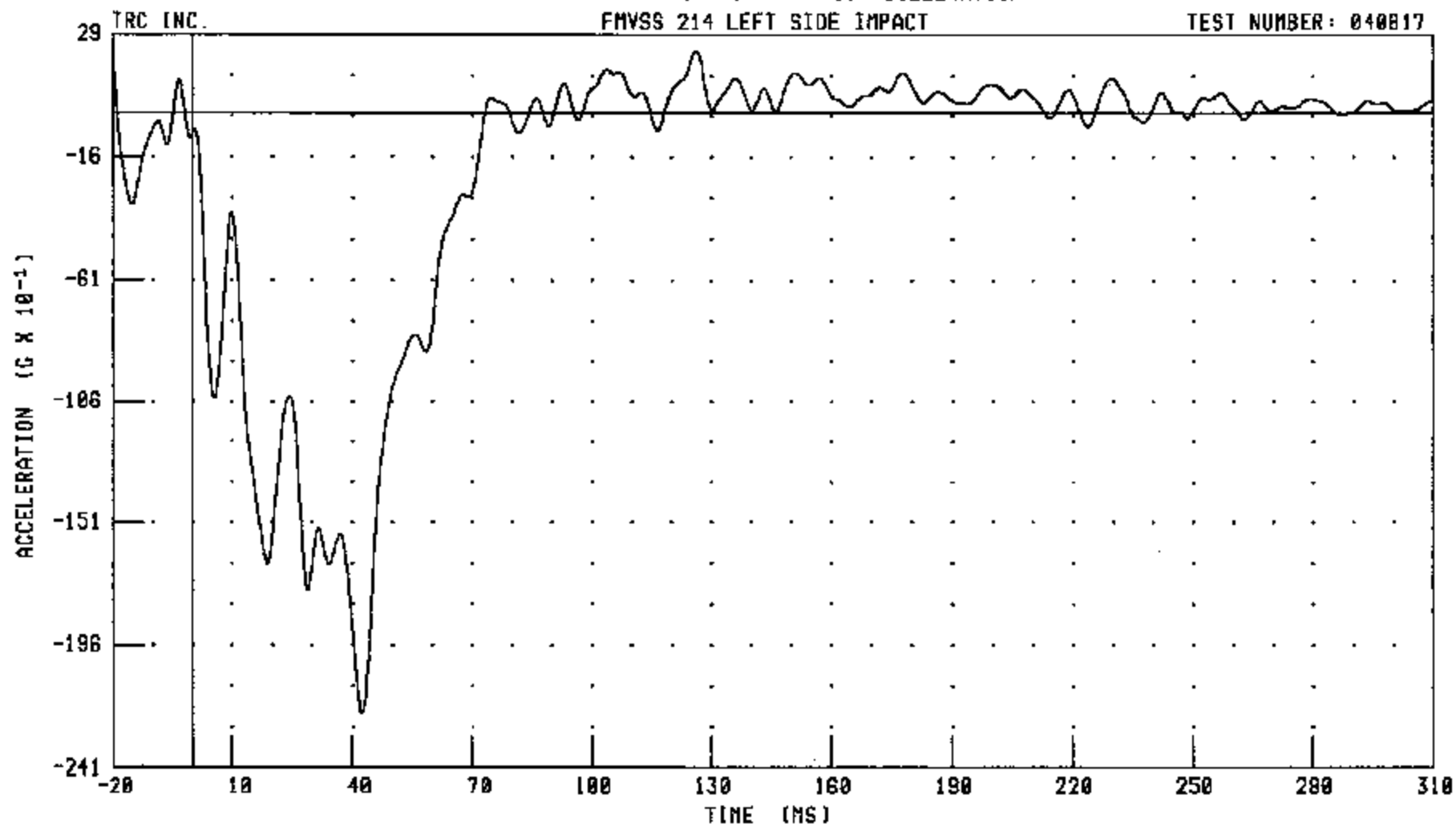
Integration Data - Filter Class 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB CENTER OF GRAVITY X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: BCCXG1 FILTER: CH. CLASS 60

PEAK DATA: 2.66 G @ -20.00 MS; -22.00 G @ 42.56 MS

B-92

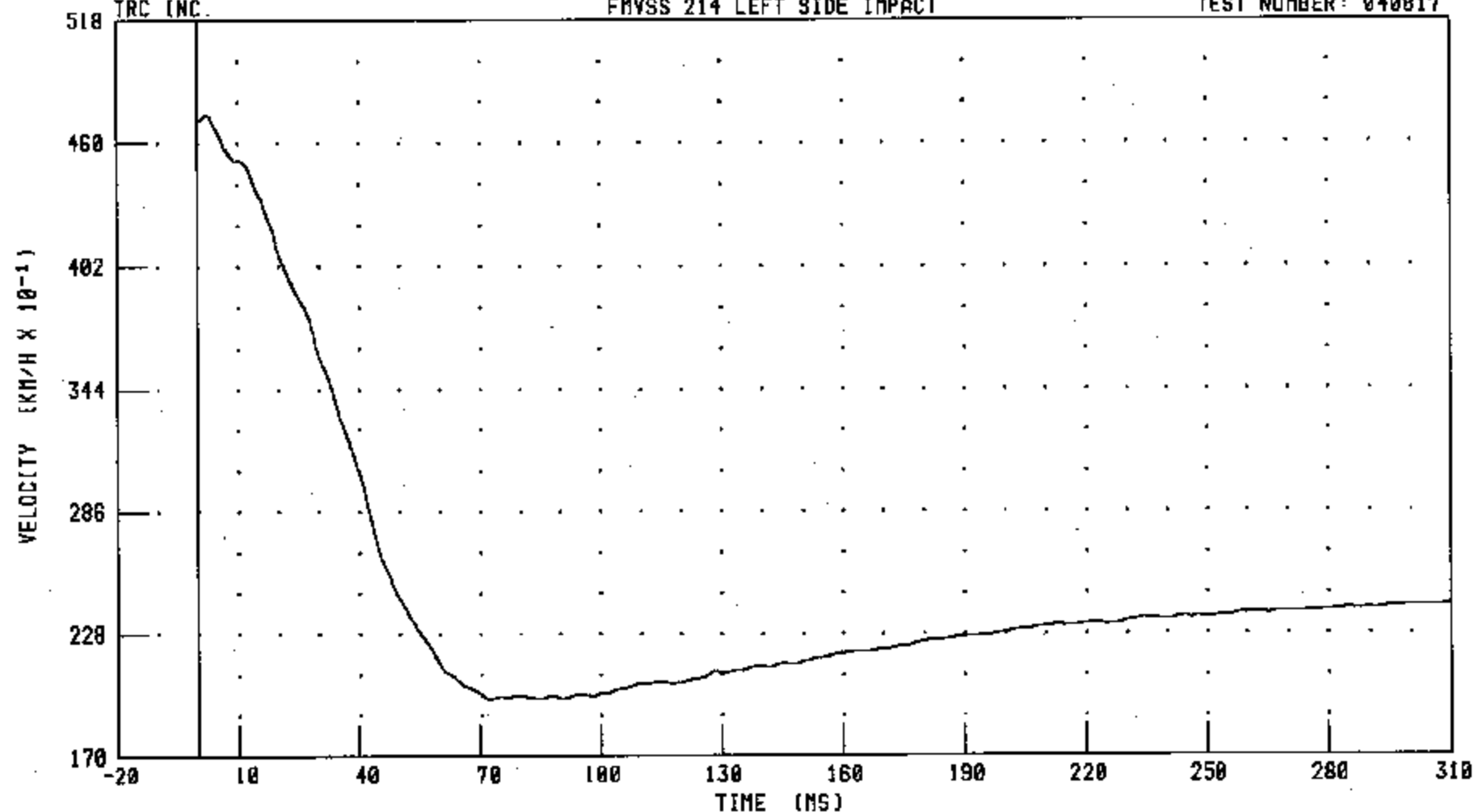
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
MDB CENTER OF GRAVITY X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: BCGXY1 FILTER: CH. CLASS 180

PEAK DATA: 47.34 KM/H @ 2.40 MS; 19.73 KM/H @ 72.56 MS

B-93

040817

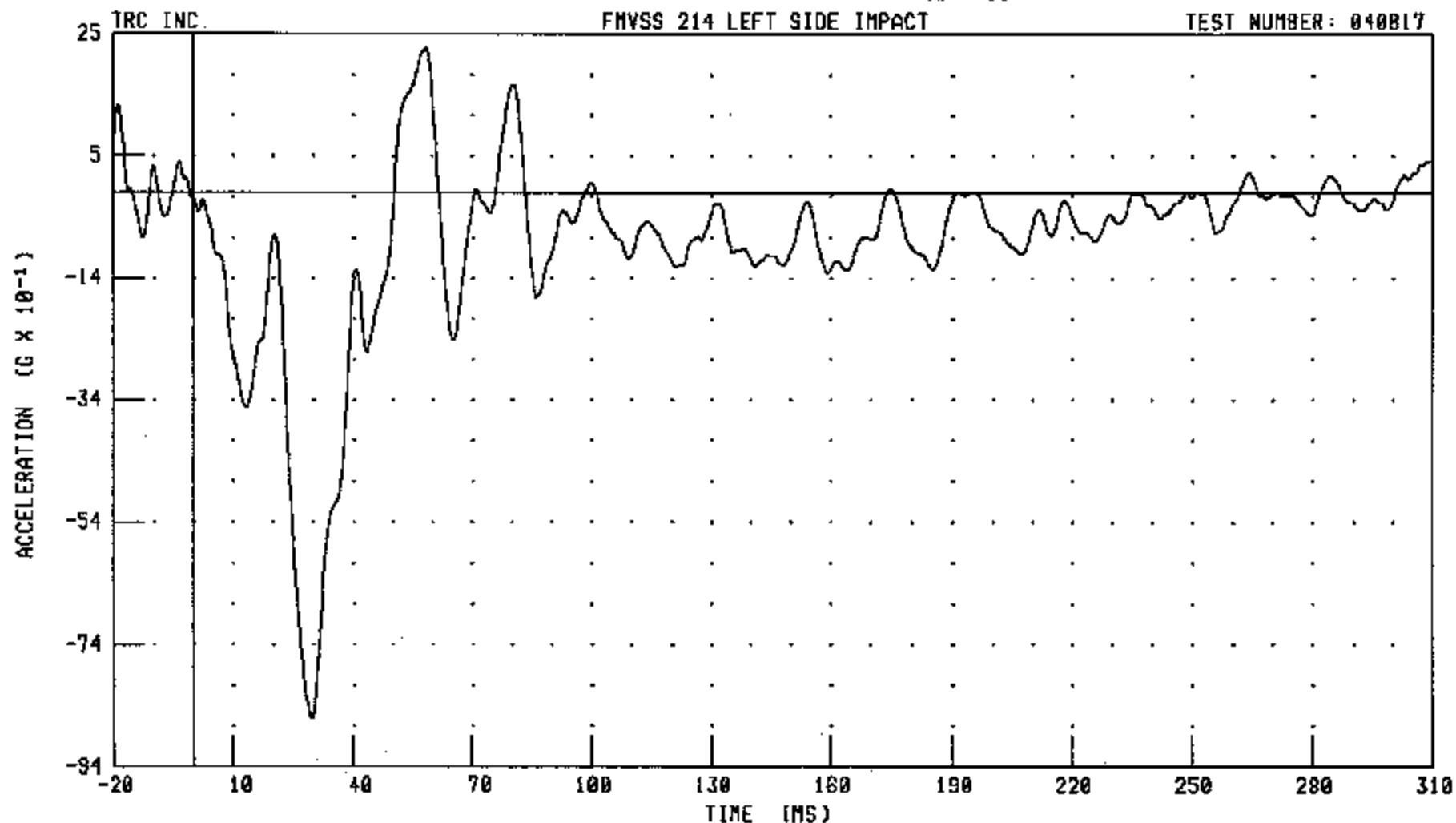


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB CENTER OF GRAVITY Y-AXIS ACCELERATION

FHVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: BCCYG1 FILTER: CH. CLASS 60

PEAK DATA: 2.38 G @ 58.40 MS; -8.61 G @ 29.60 MS

B-94

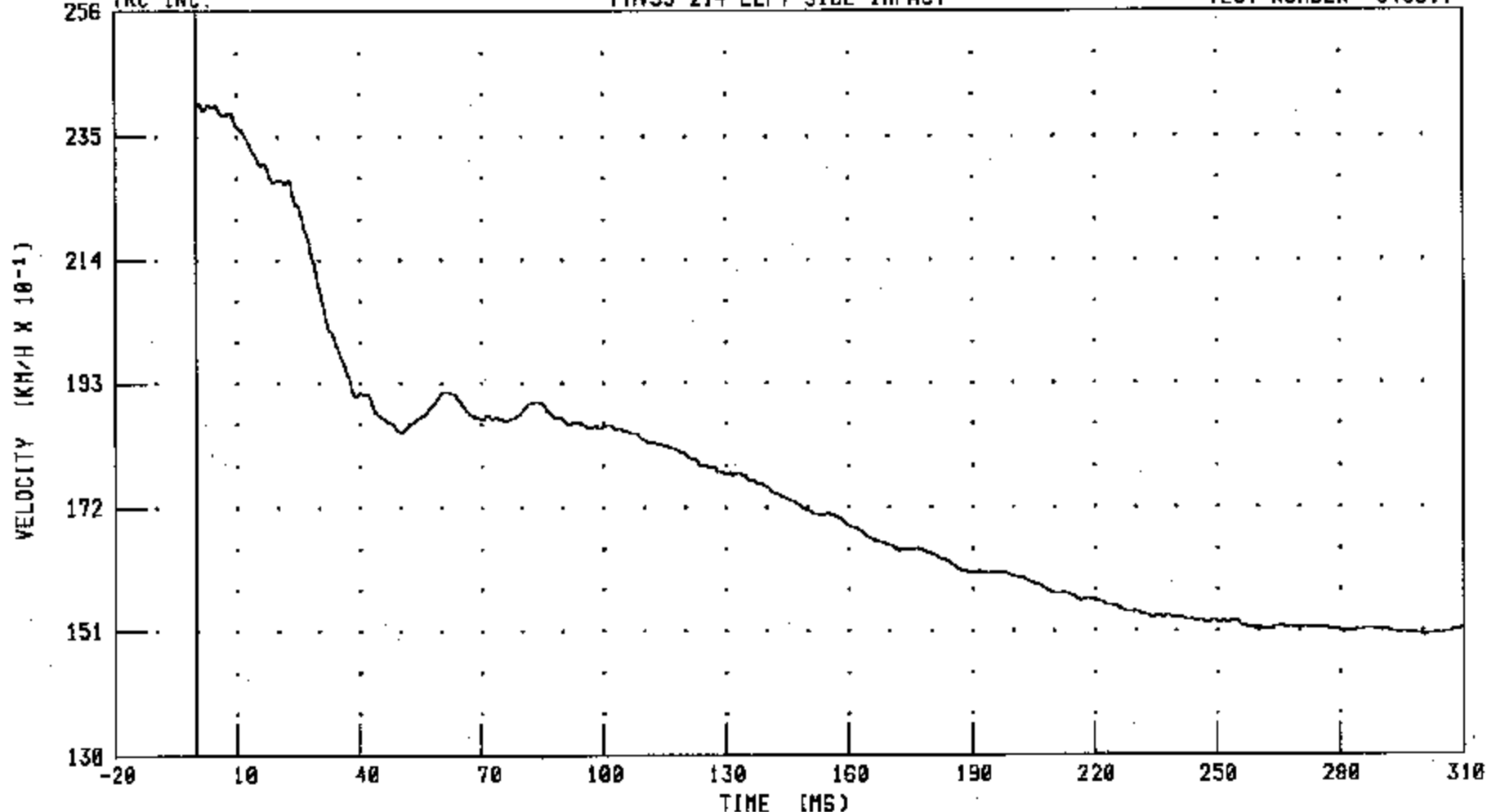
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
MDB CENTER OF GRAVITY Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: BCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 24.06 KM/H @ 0.72 MS, 15.01 KM/H @ 300.56 MS

B-95

040817

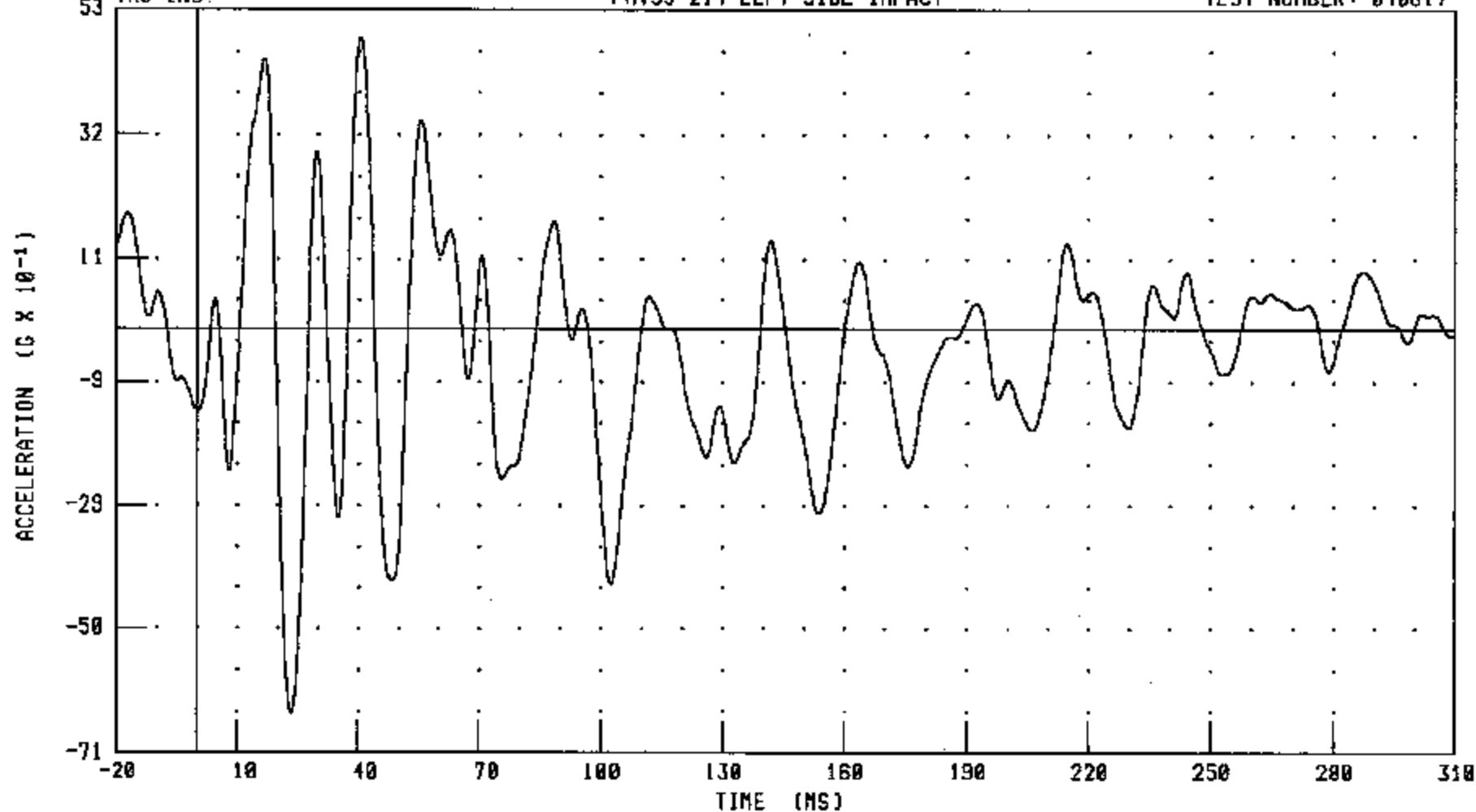
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB CENTER OF GRAVITY Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: BCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 4.92 G @ 40.72 MS, -6.54 G @ 23.44 MS

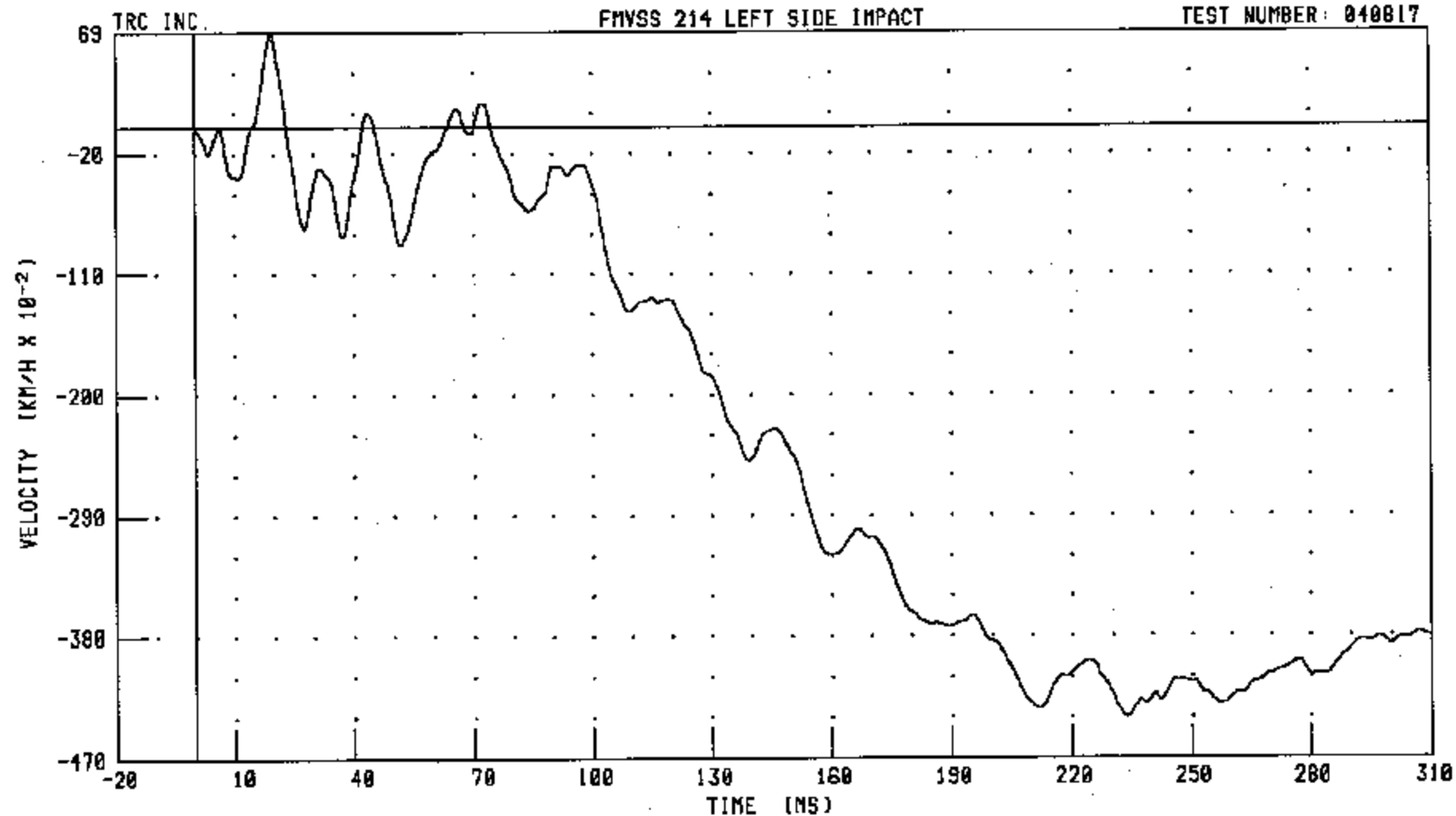
B-96

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
MDB CENTER OF GRAVITY Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: BCGZV1 FILTER: CH. CLASS 100

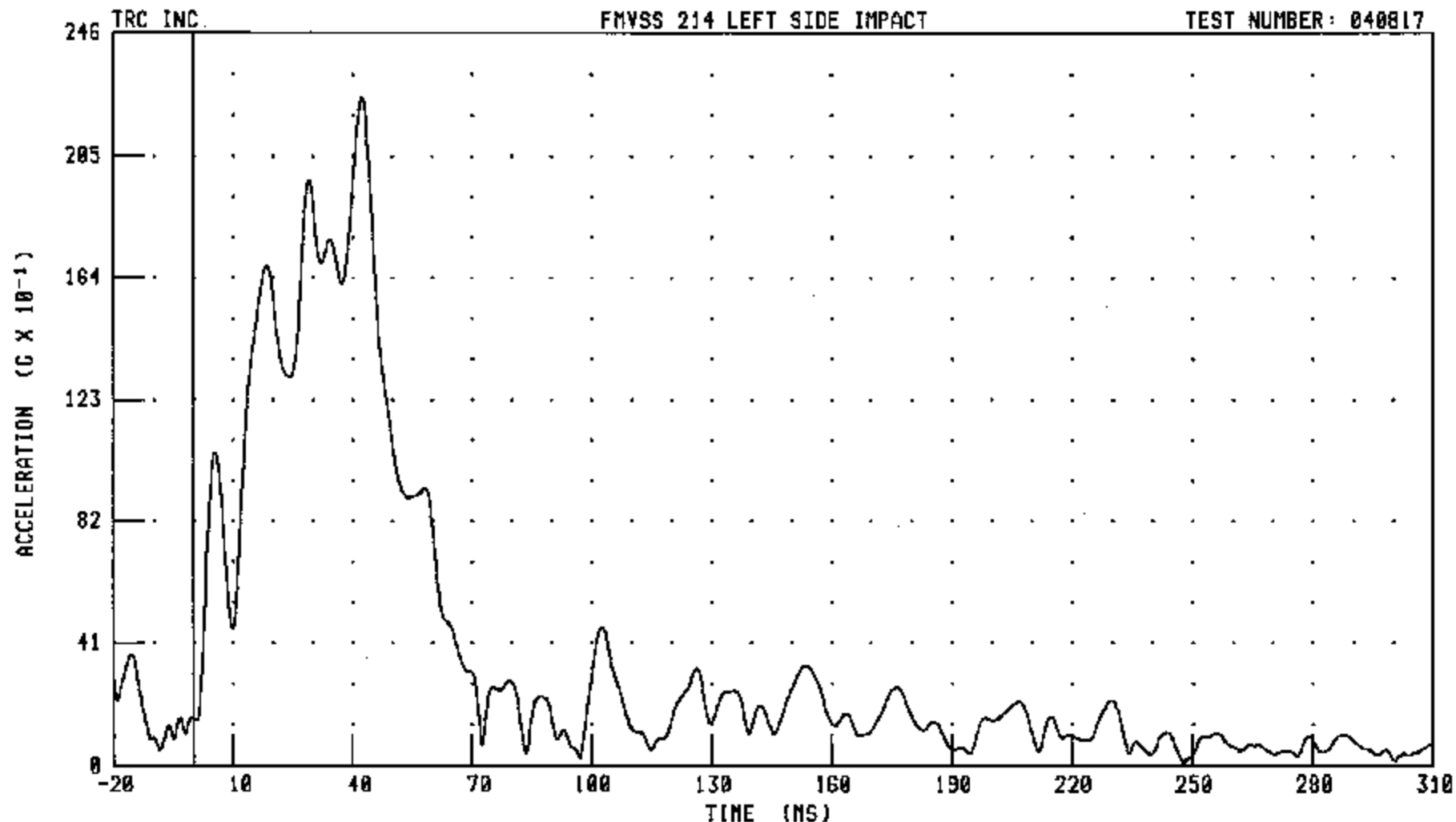
B-97

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
NOB CENTER OF GRAVITY RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: BCGRG1 FILTER: CH. CLASS 60

B-98

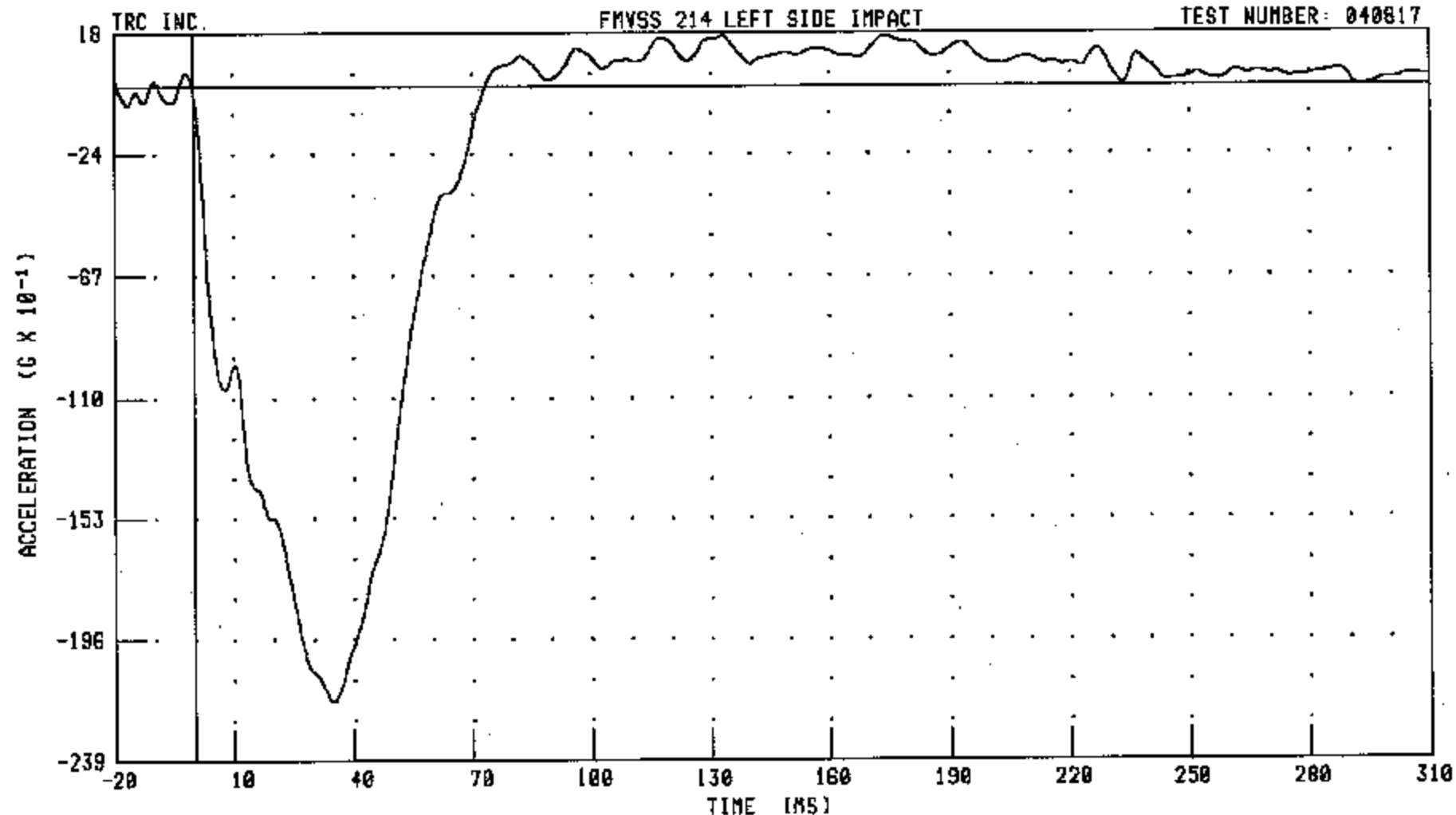
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB LEFT REAR X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LRRXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.80 G @ 133.36 MS, -21.81 G @ 34.88 MS

B-99

040817

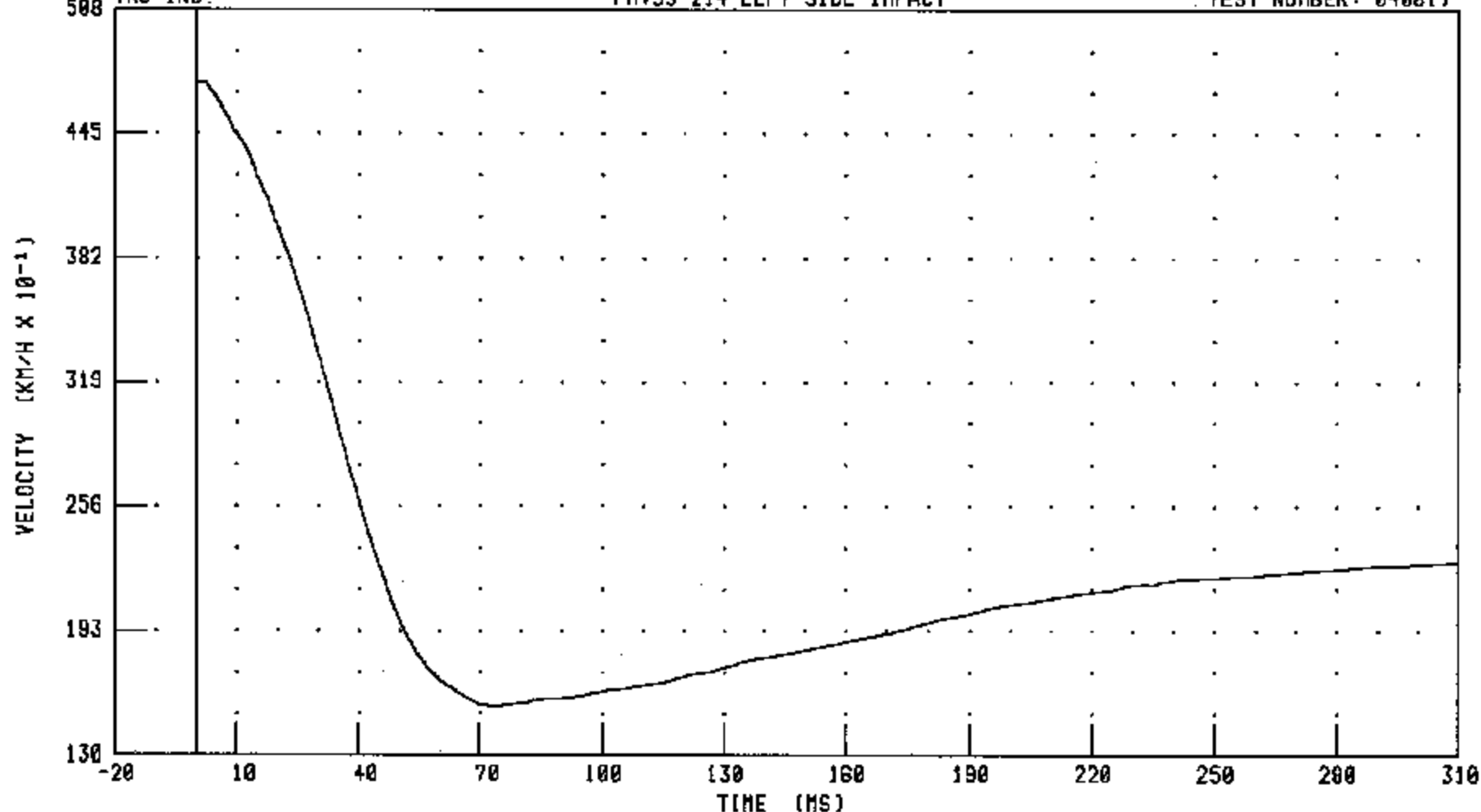
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MDB LEFT REAR X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817

TRC INC.



CHANNEL: LRRXV1 FILTER: CH. CLASS 100

PEAK DATA: 47.12 KM/H @ 1.68 MS; 15.50 KM/H @ 73.28 MS

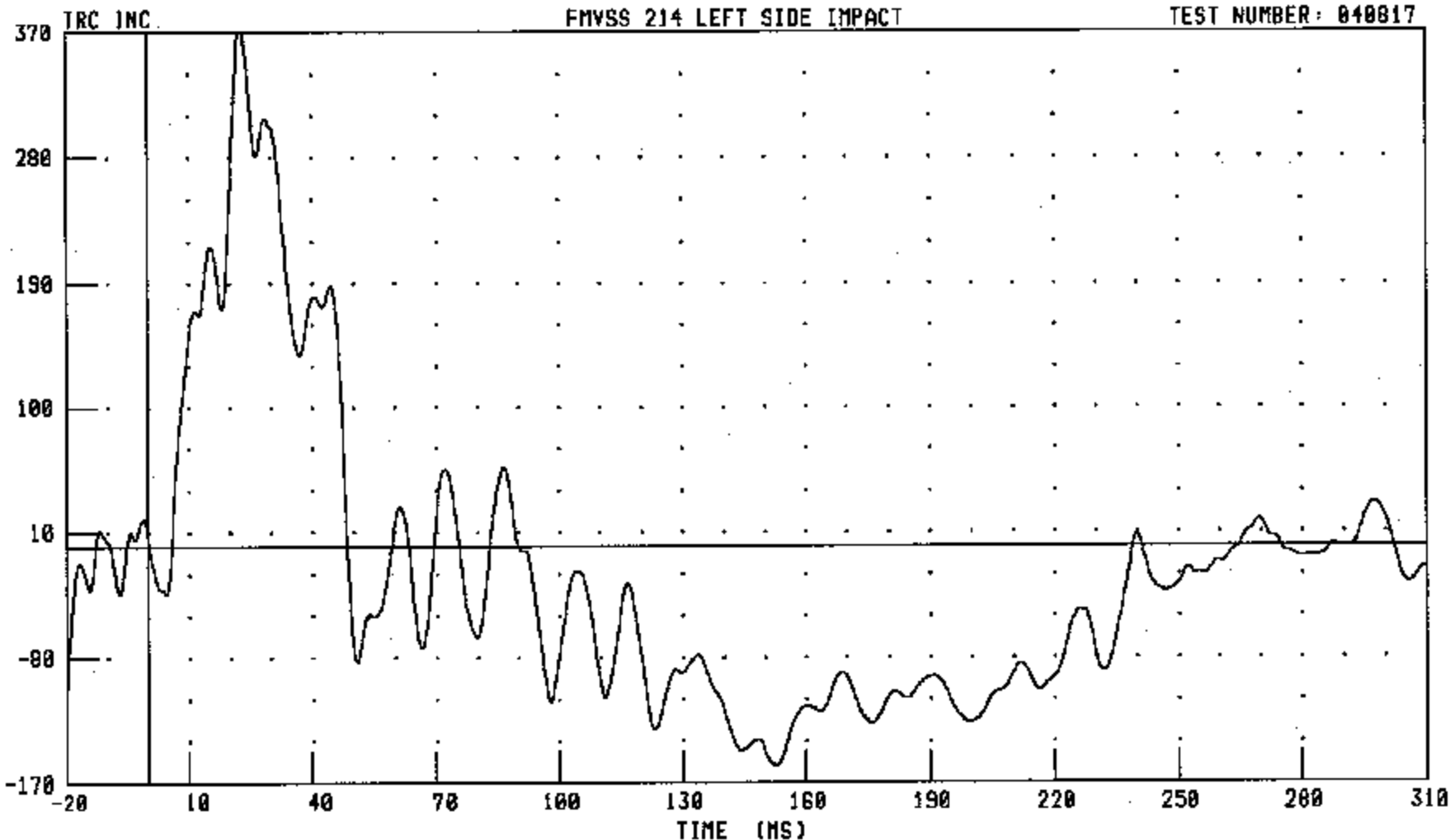
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB LEFT REAR Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LRRYG1 FILTER: CH. CLASS 60

B-101

040817

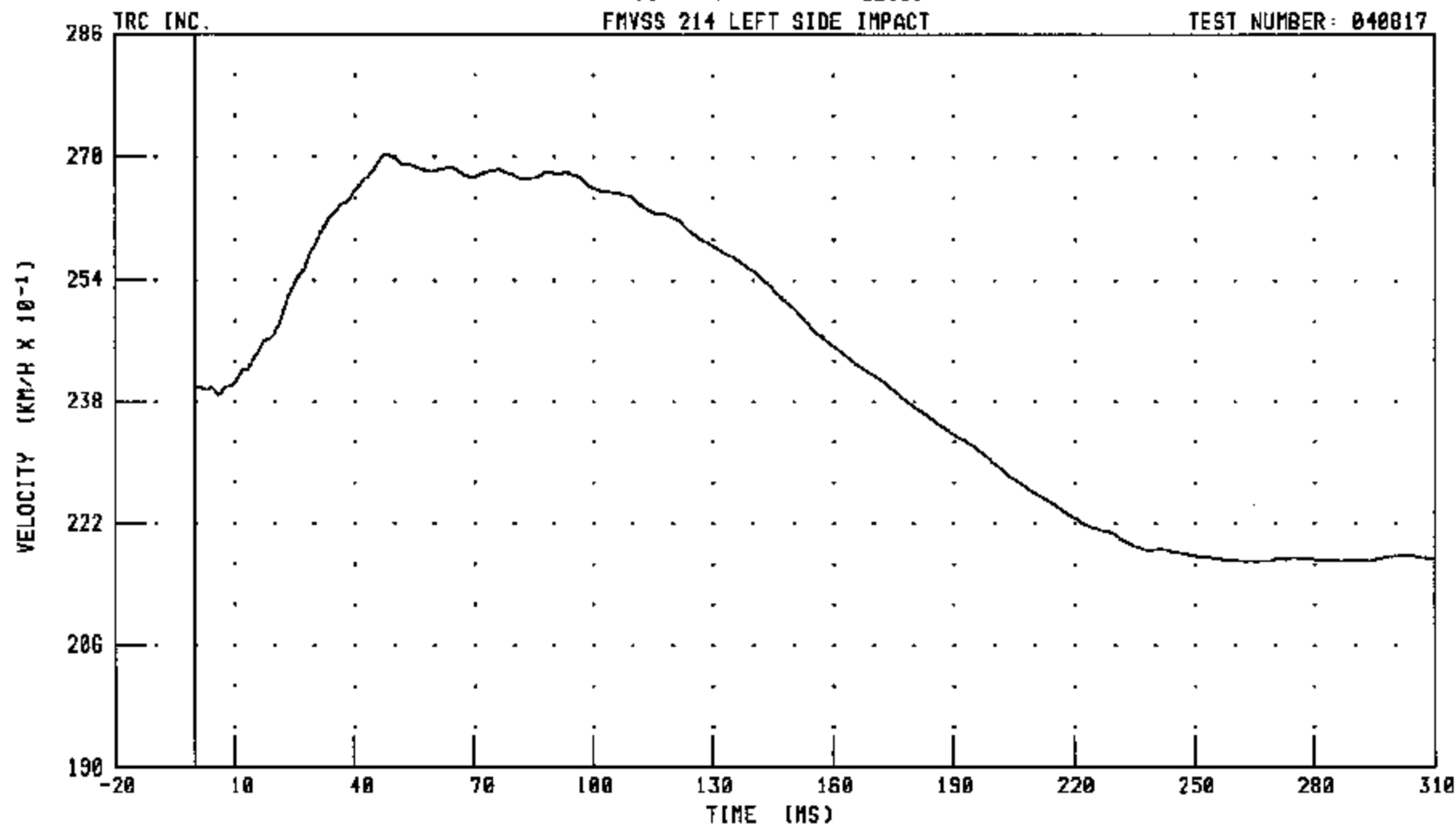


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB LEFT REAR Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LRRYV1 FILTER: CH. CLASS 180

PEAK DATA: 27.03 KM/H @ 40.08 MS; 21.70 KM/H @ 265.60 MS

B-102

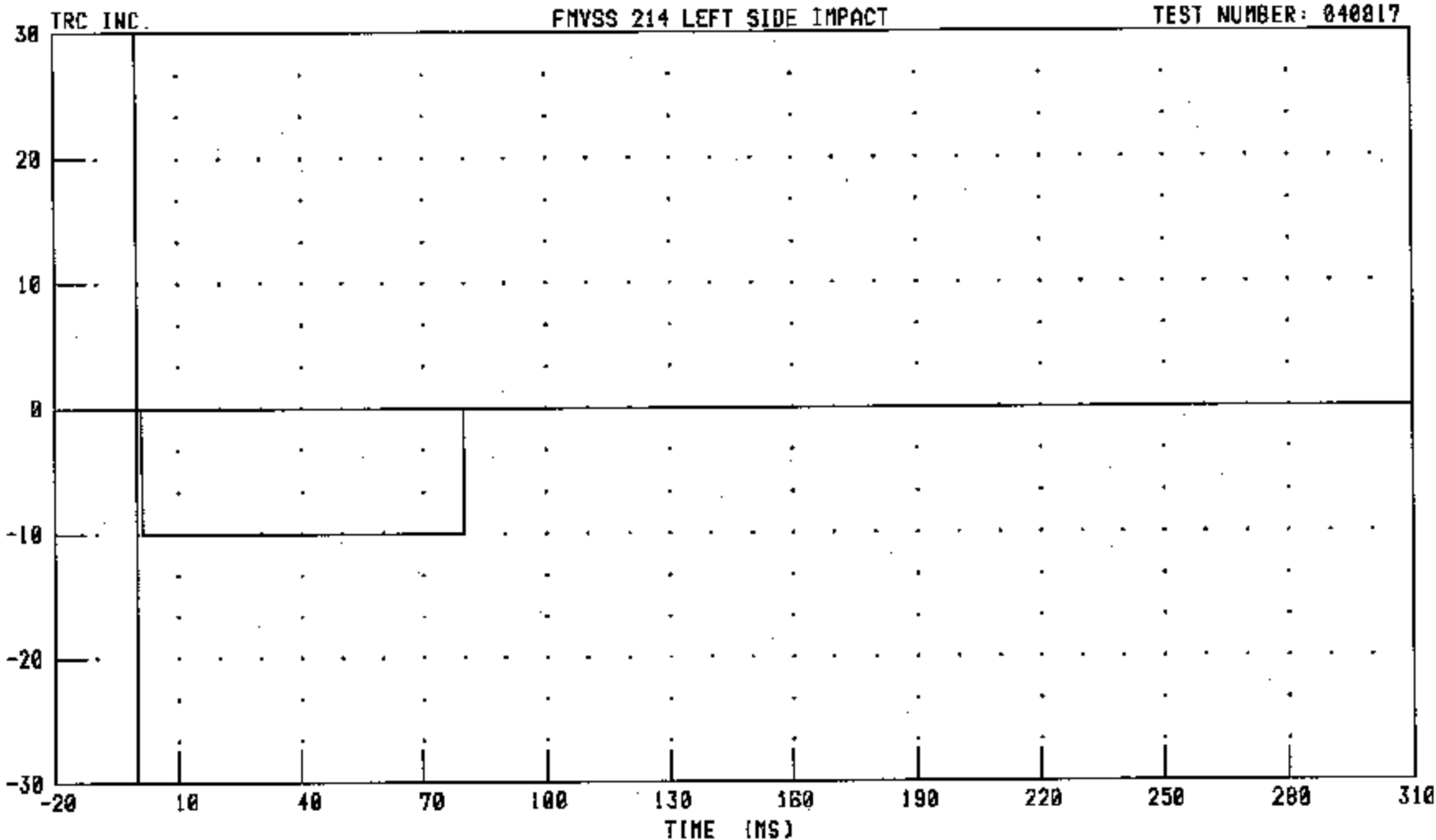
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB RIGHT SIDE CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: MOBRI

FILTER: CH. CLASS 1000

B-103

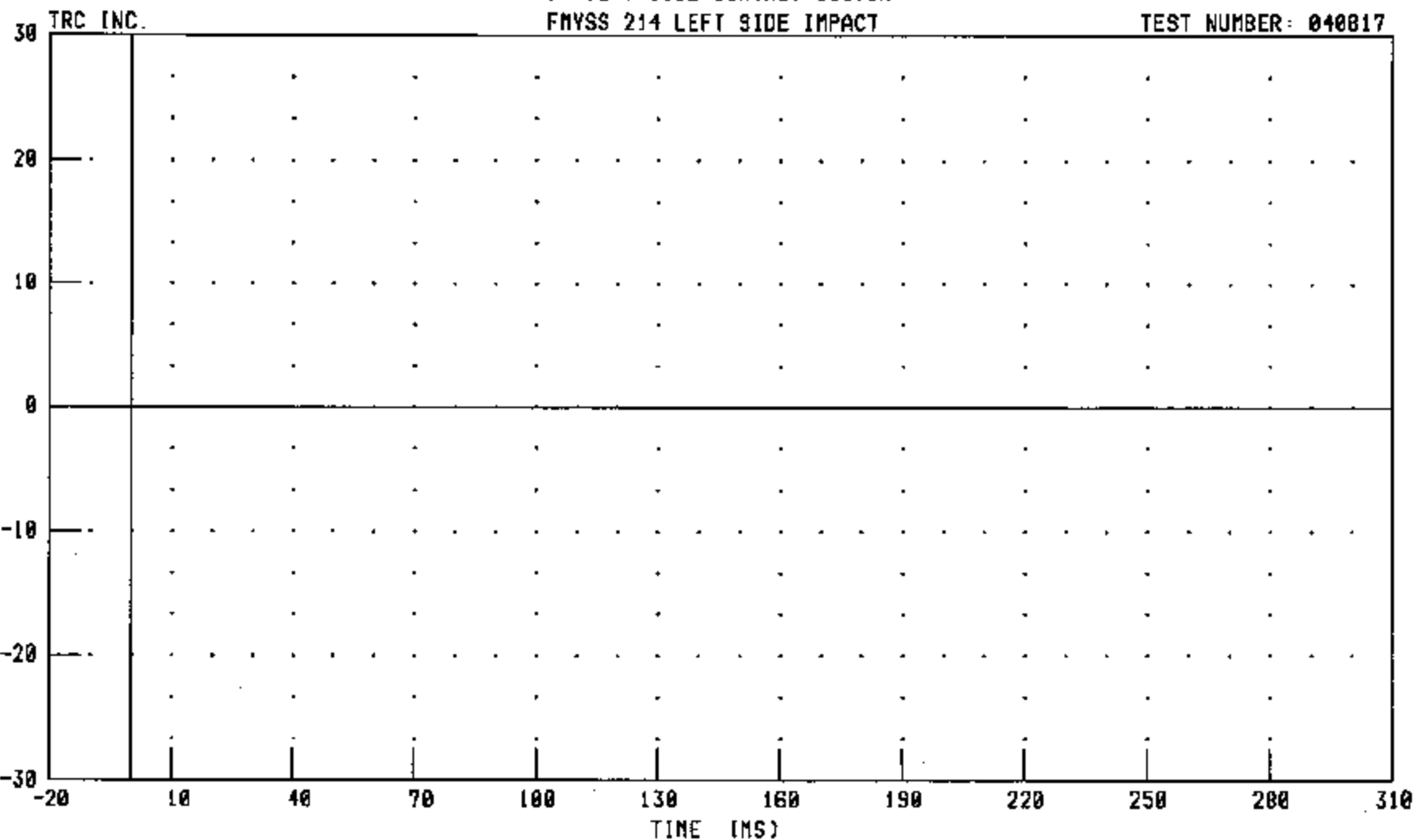
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

MOB LEFT SIDE CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



B-104

040817

Driver and Passenger Dummy Instrumentation Plots

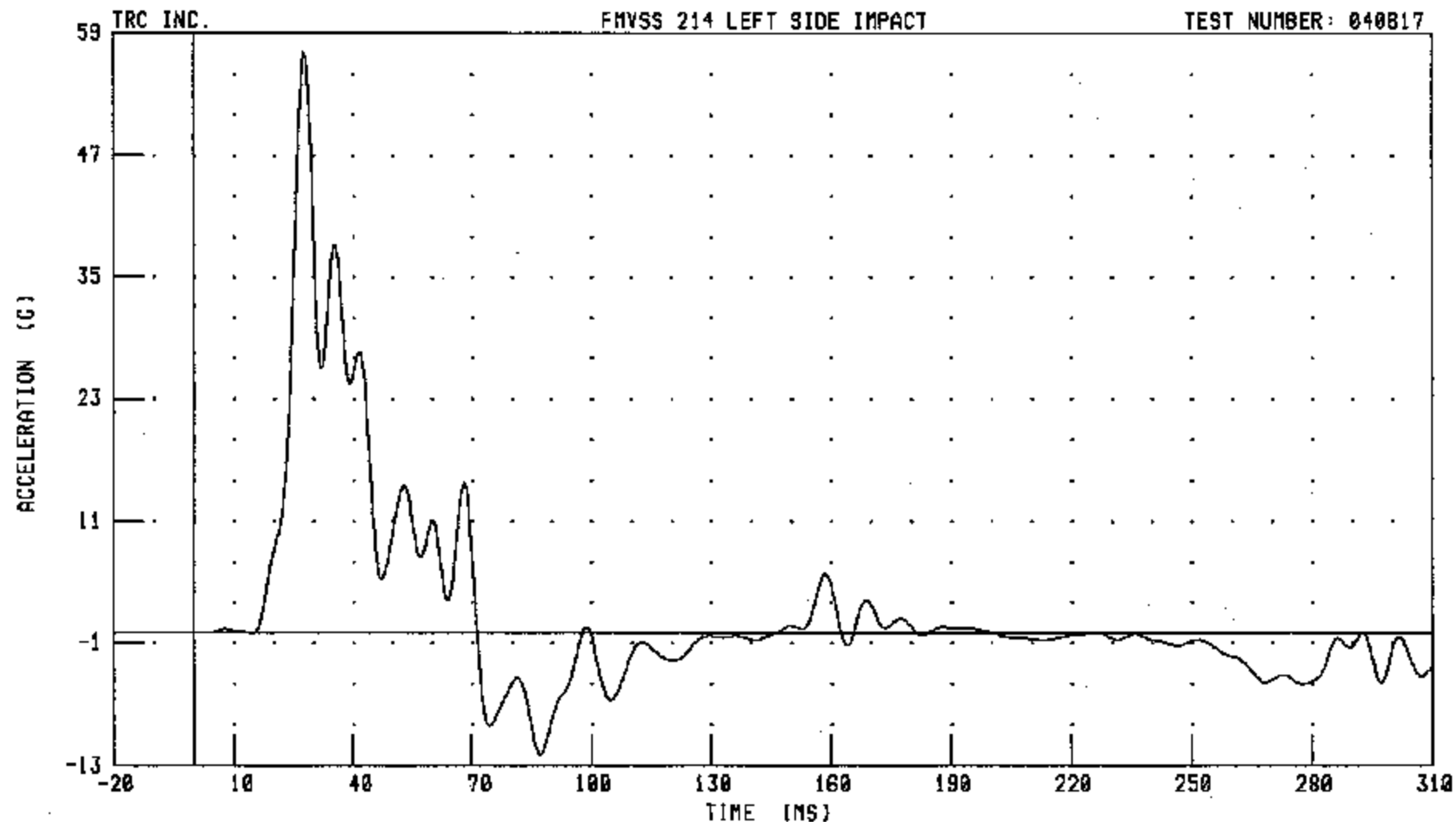
Acceleration Data - FIR Filtered

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYG1 FILTER: FIR 100

PEAK DATA: 57.15 G @ 27.50 MS; -11.88 G @ 87.50 MS

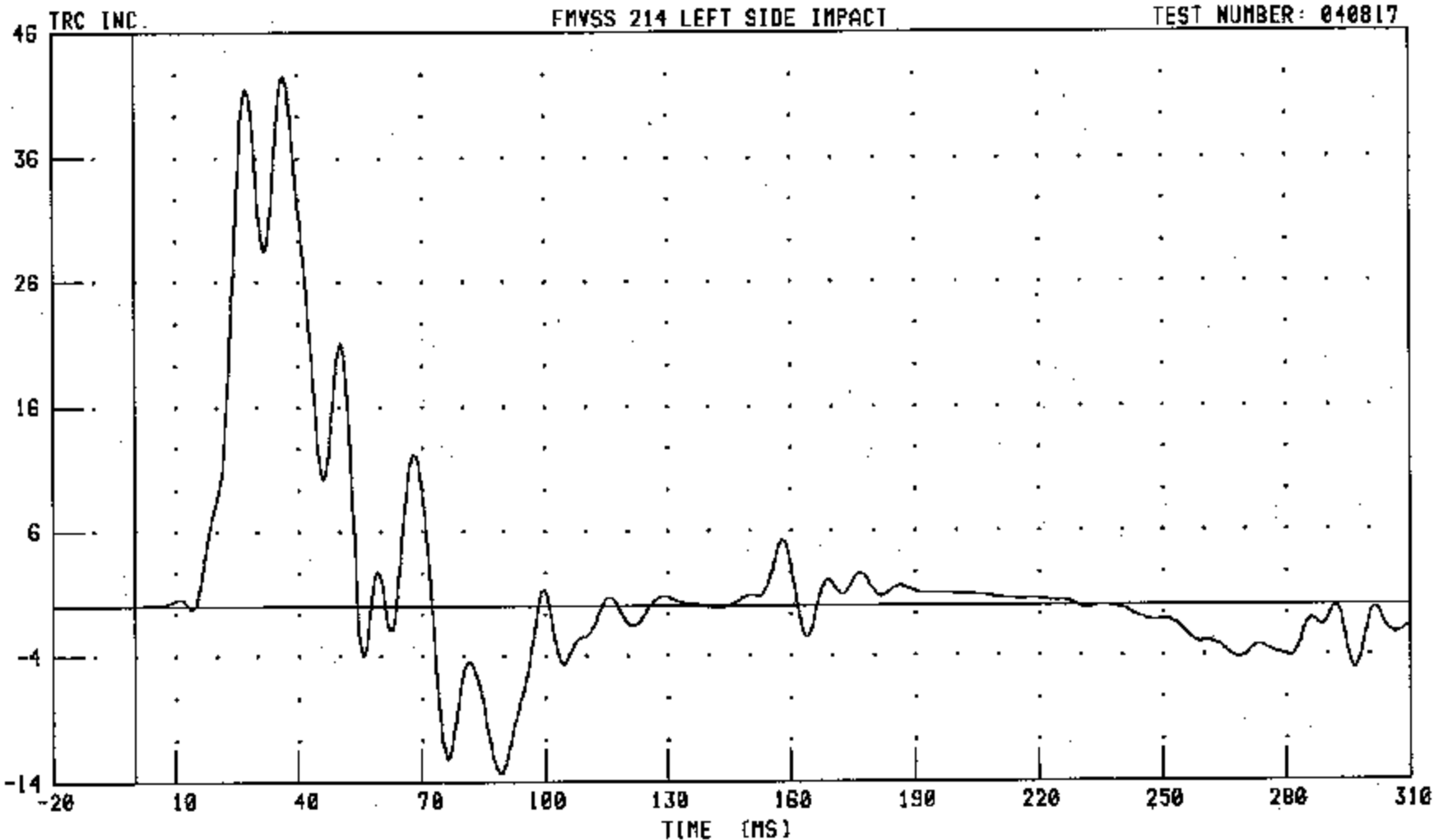
B-106

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYC1 FILTER: FIR 100

B-107

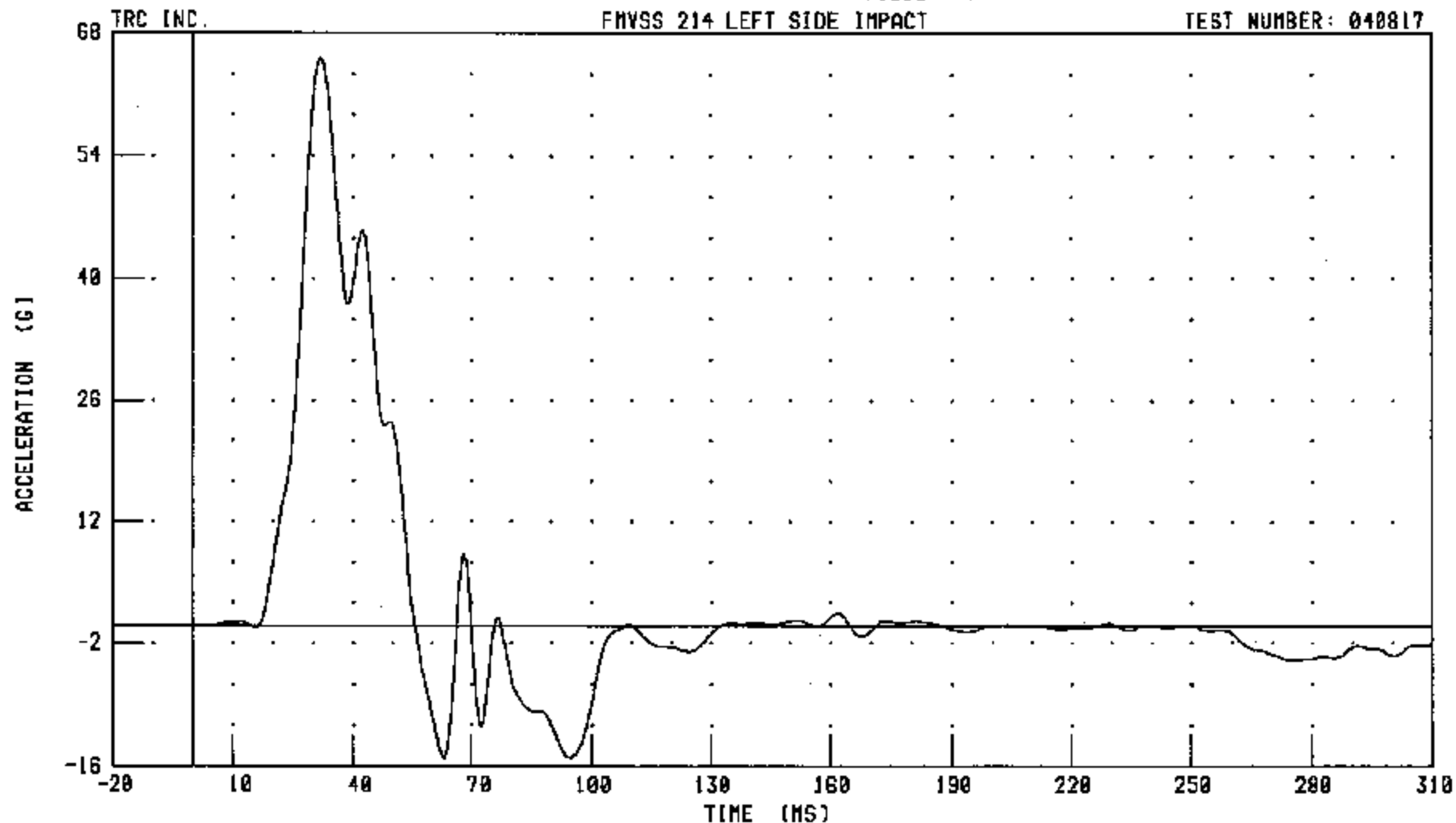
040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YC1 FILTER: FIR 100

PEAK DATA: 65.23 G @ 31.88 MS, -15.12 G @ 63.13 MS

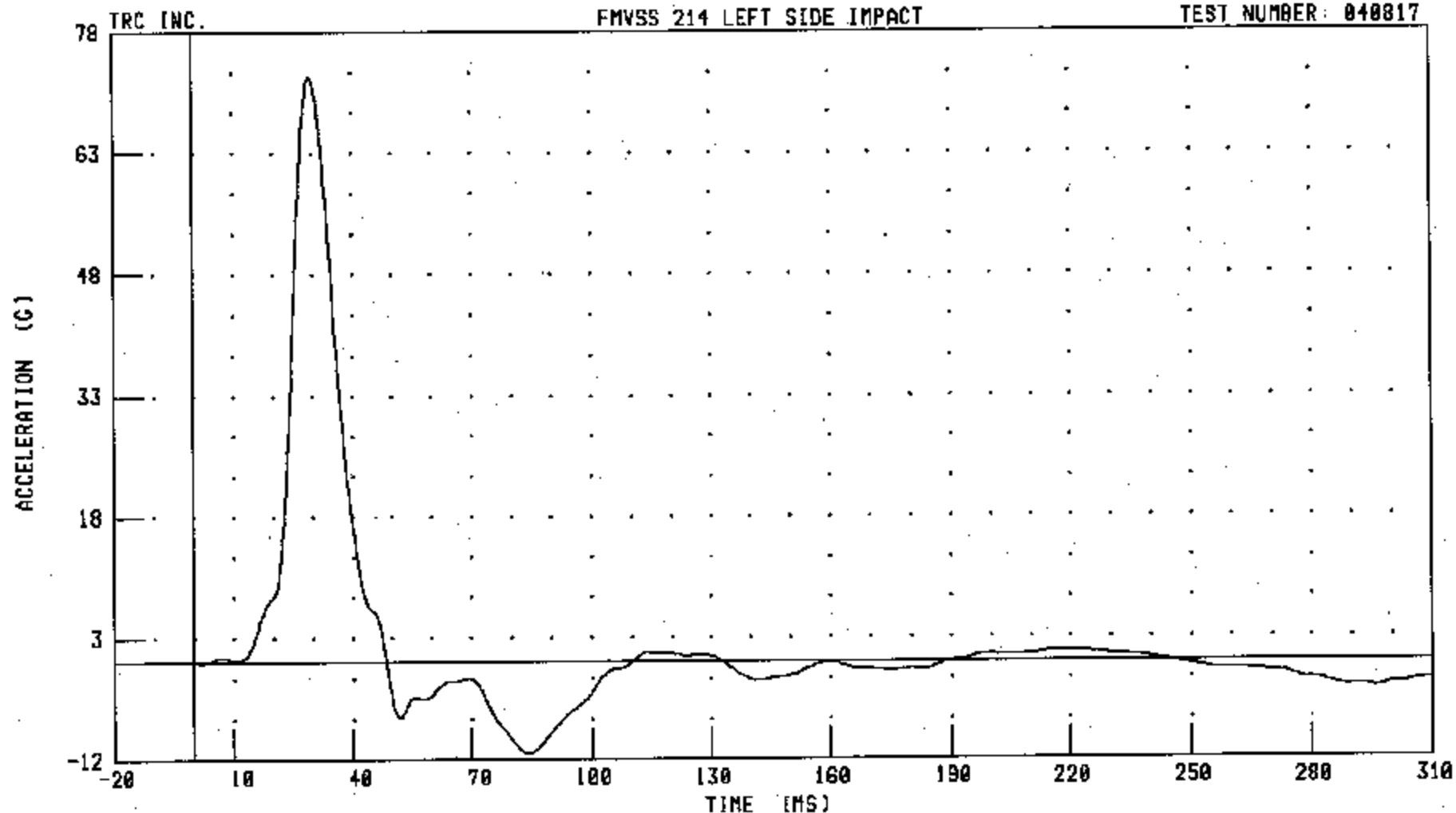
B-108

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYG1 FILTER: FIR 100

PEAK DATA: 72.47 G @ 29.38 MS, -11.31 G @ 84.38 MS

B-109

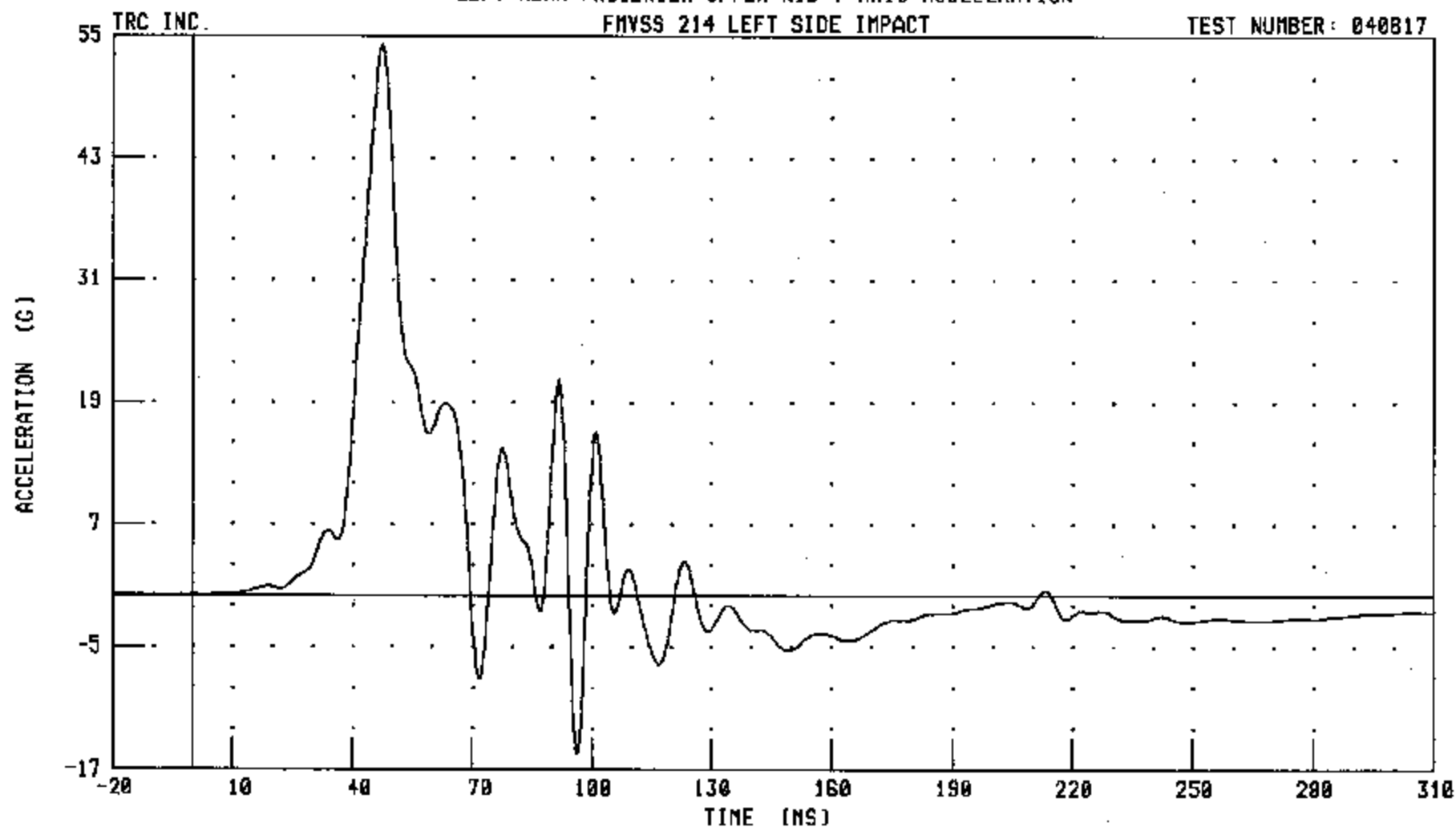
040817



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYG4 FILTER: FIR 100

PEAK DATA: 54.25 G @ 47.50 MS, -15.46 G @ 96.25 MS

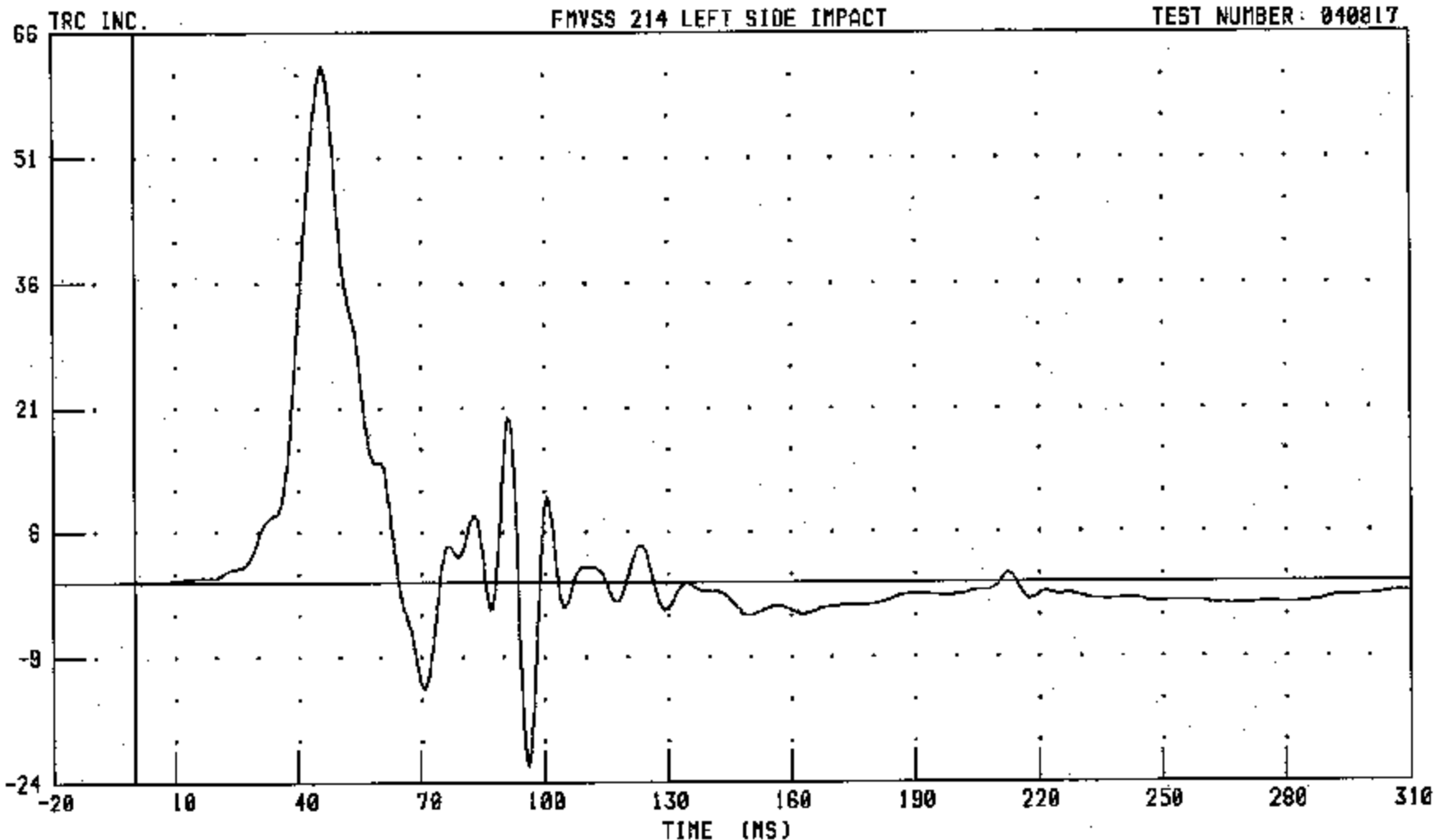
B-110

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



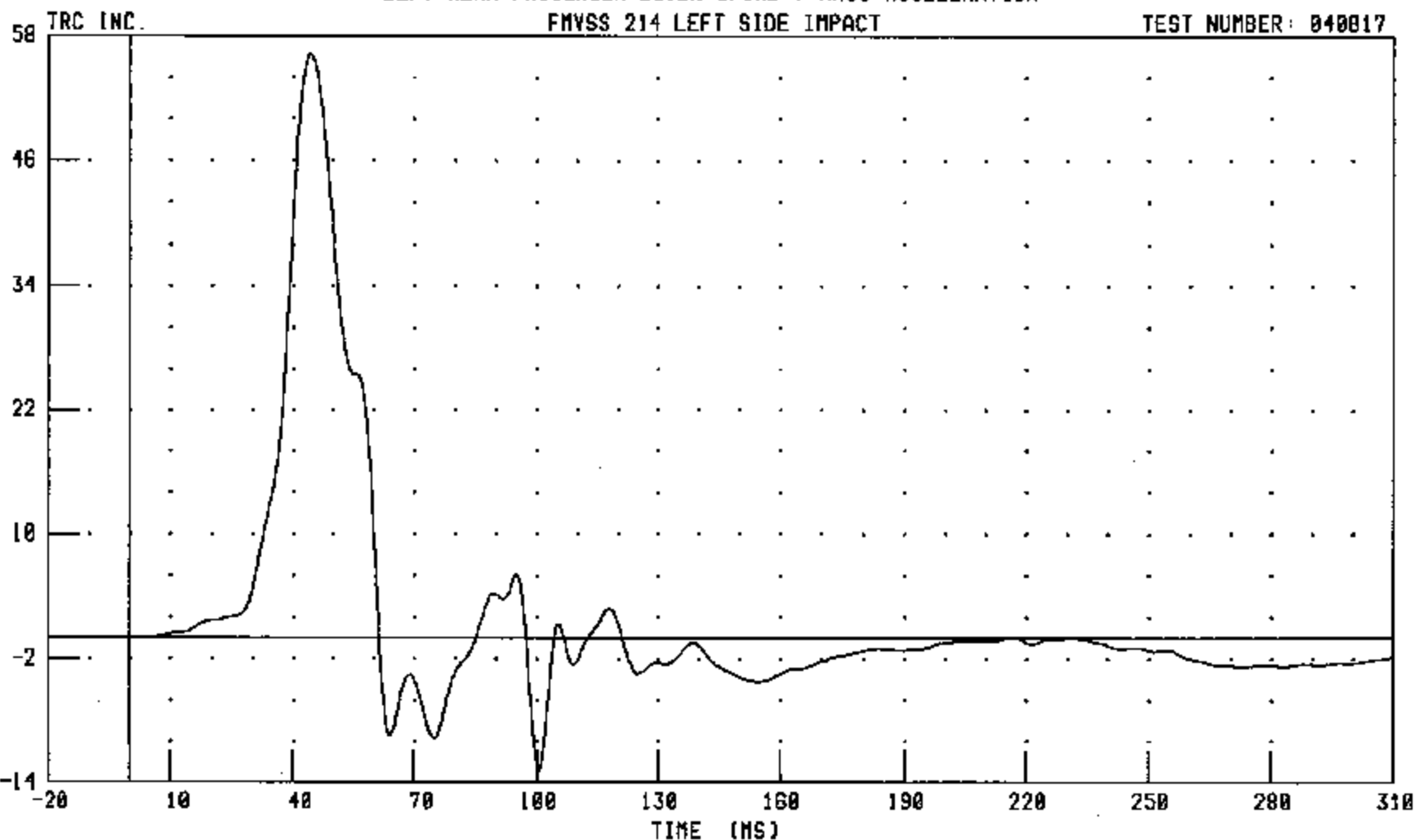
CHANNEL: LLRYC4 FILTER: FIR 100

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YG4 FILTER: FIR 100

PEAK DATA: 56.27 G @ 44.38 MS, -12.90 G @ 100.63 MS

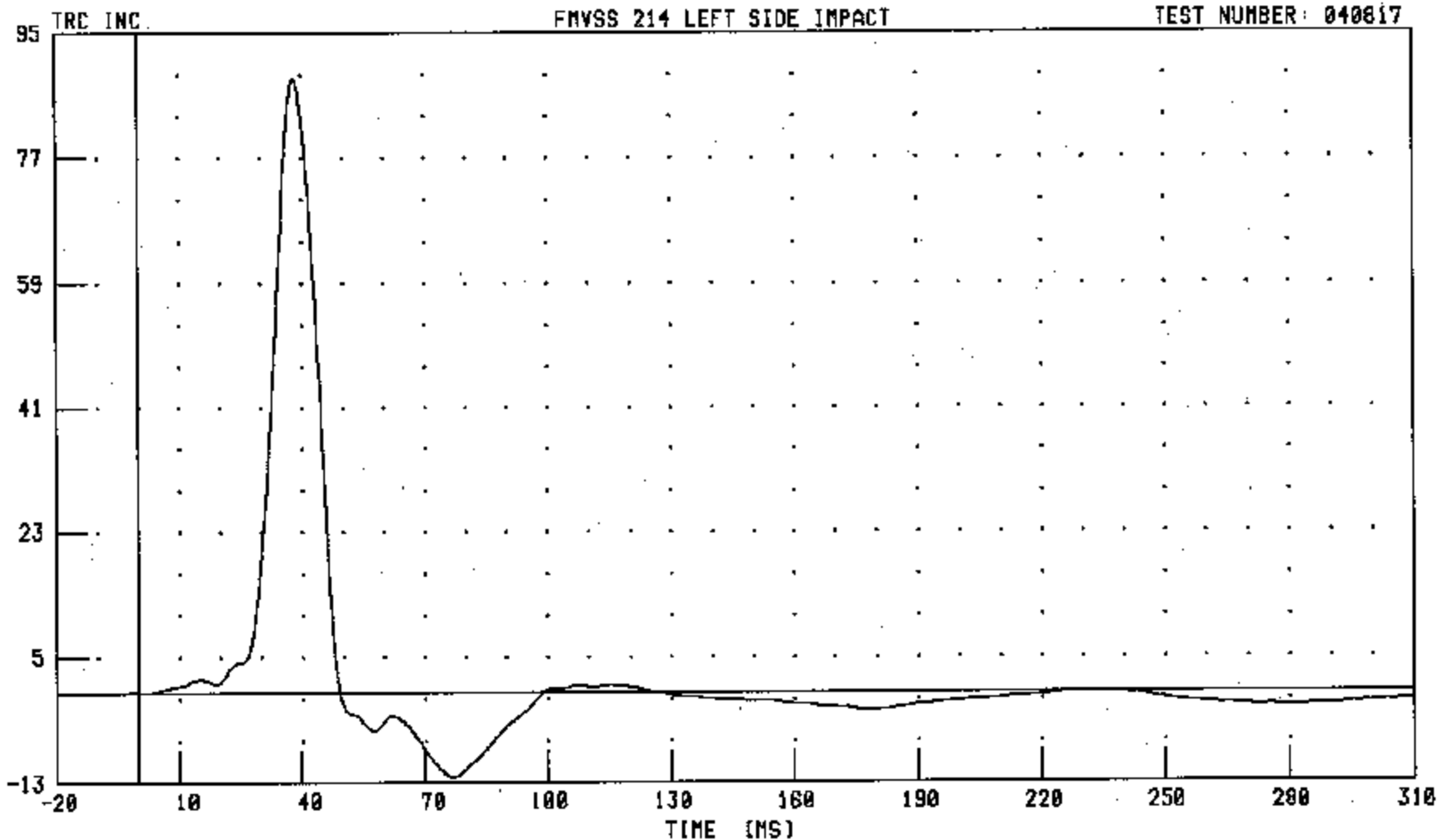
B-112

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYG4 FILTER: FIR 100

PEAK DATA: 88.51 G @ 38.13 MS, -12.30 G @ 76.88 MS

B-113

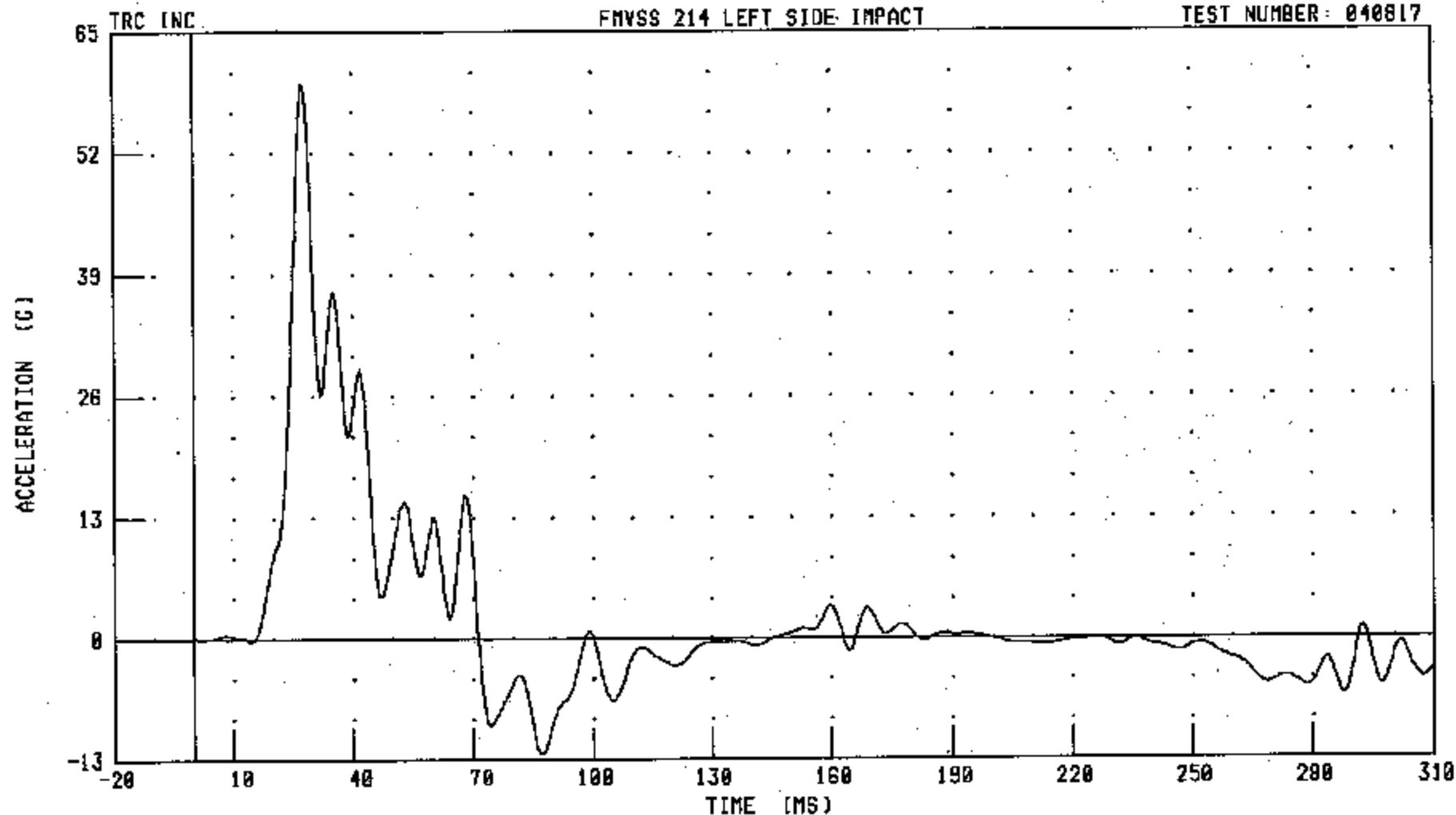
040817

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

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYR1 FILTER: FIR 100

PEAK DATA: 59.36 G @ 27.50 MS, -12.47 G @ 87.50 MS

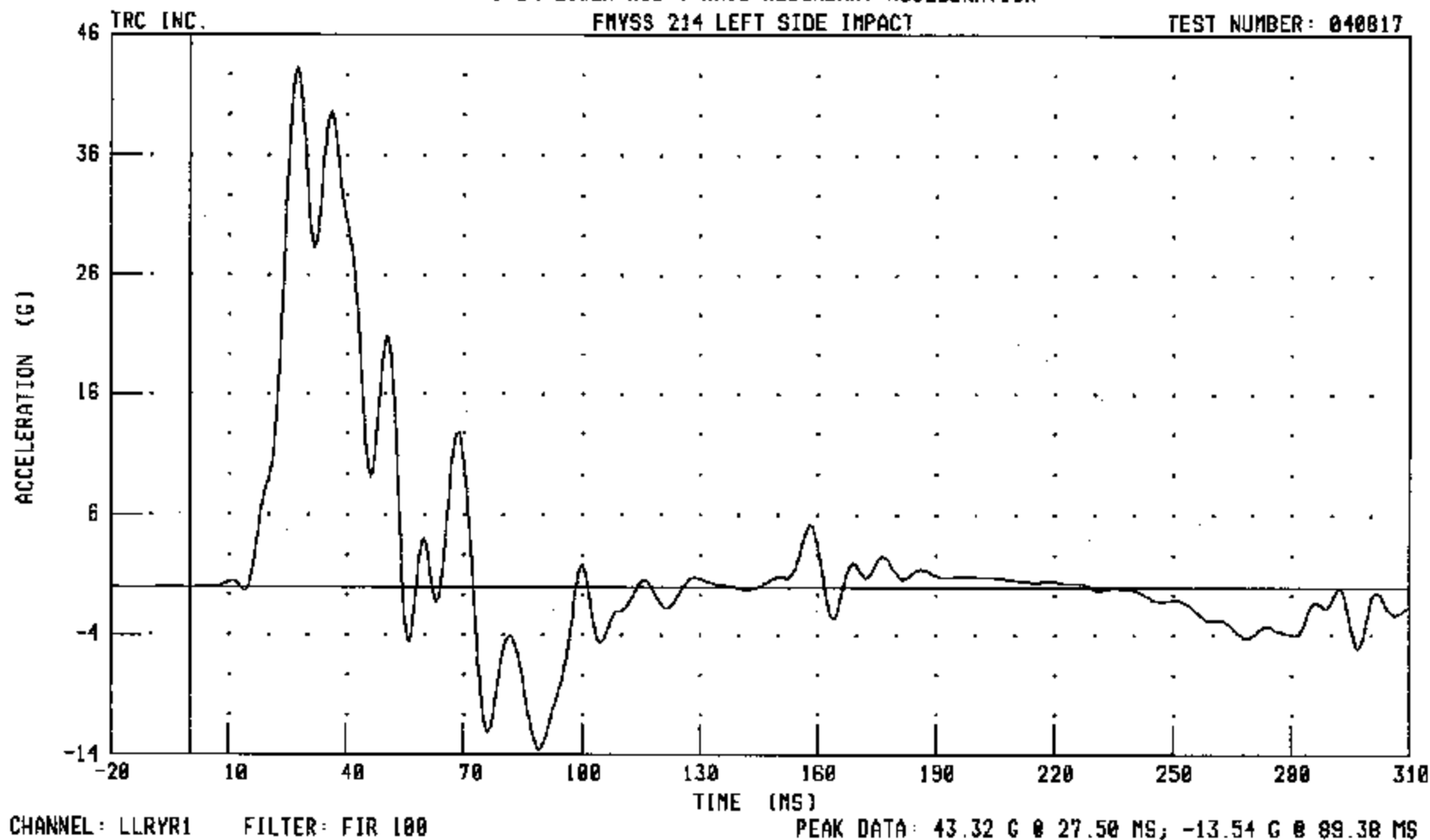
B-115

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



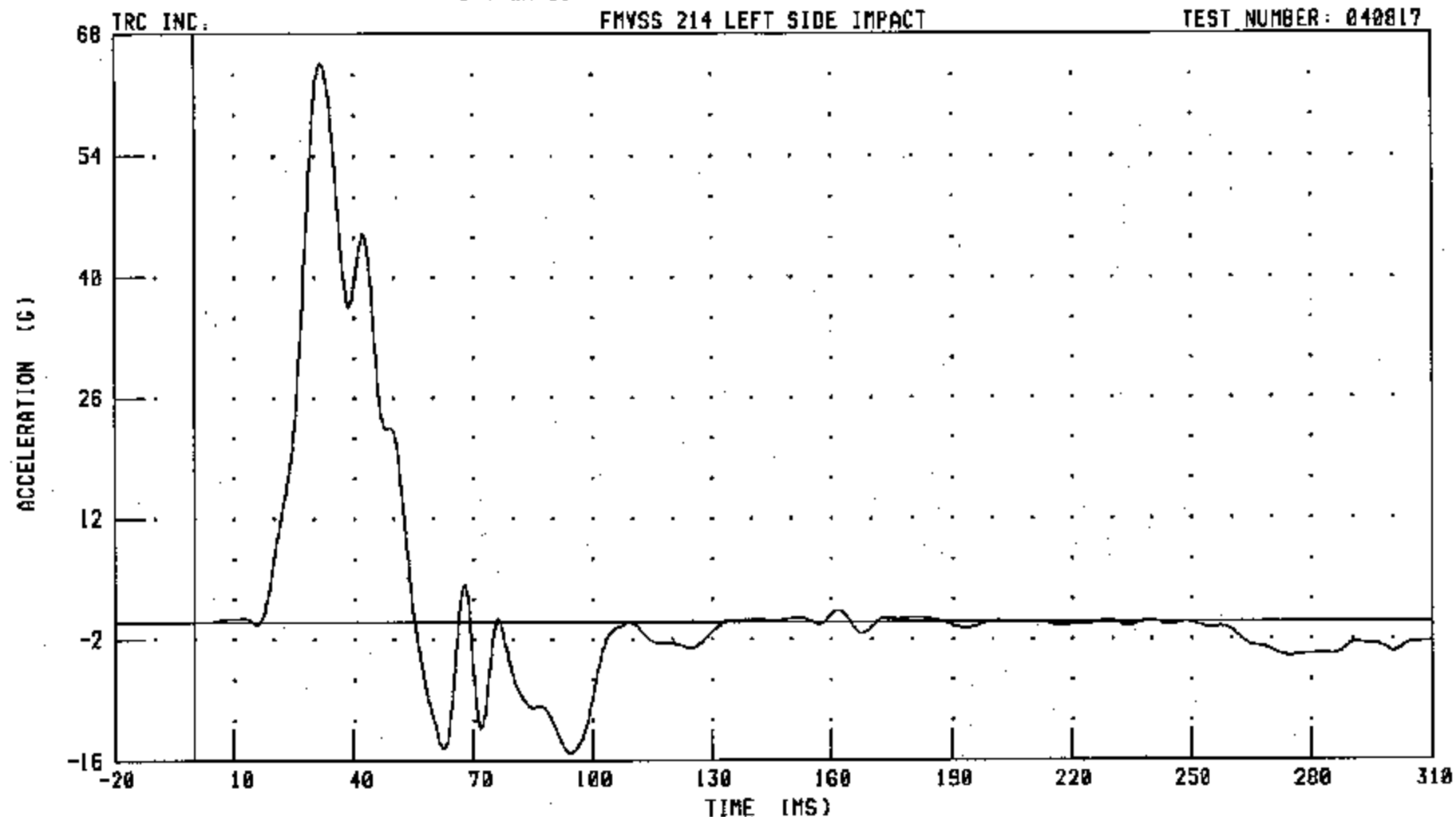
B-116

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YR1 FILTER: FIR 100

PEAK DATA: 64.63 G @ 31.88 MS; -15.85 G @ 94.38 MS

B-117

040817

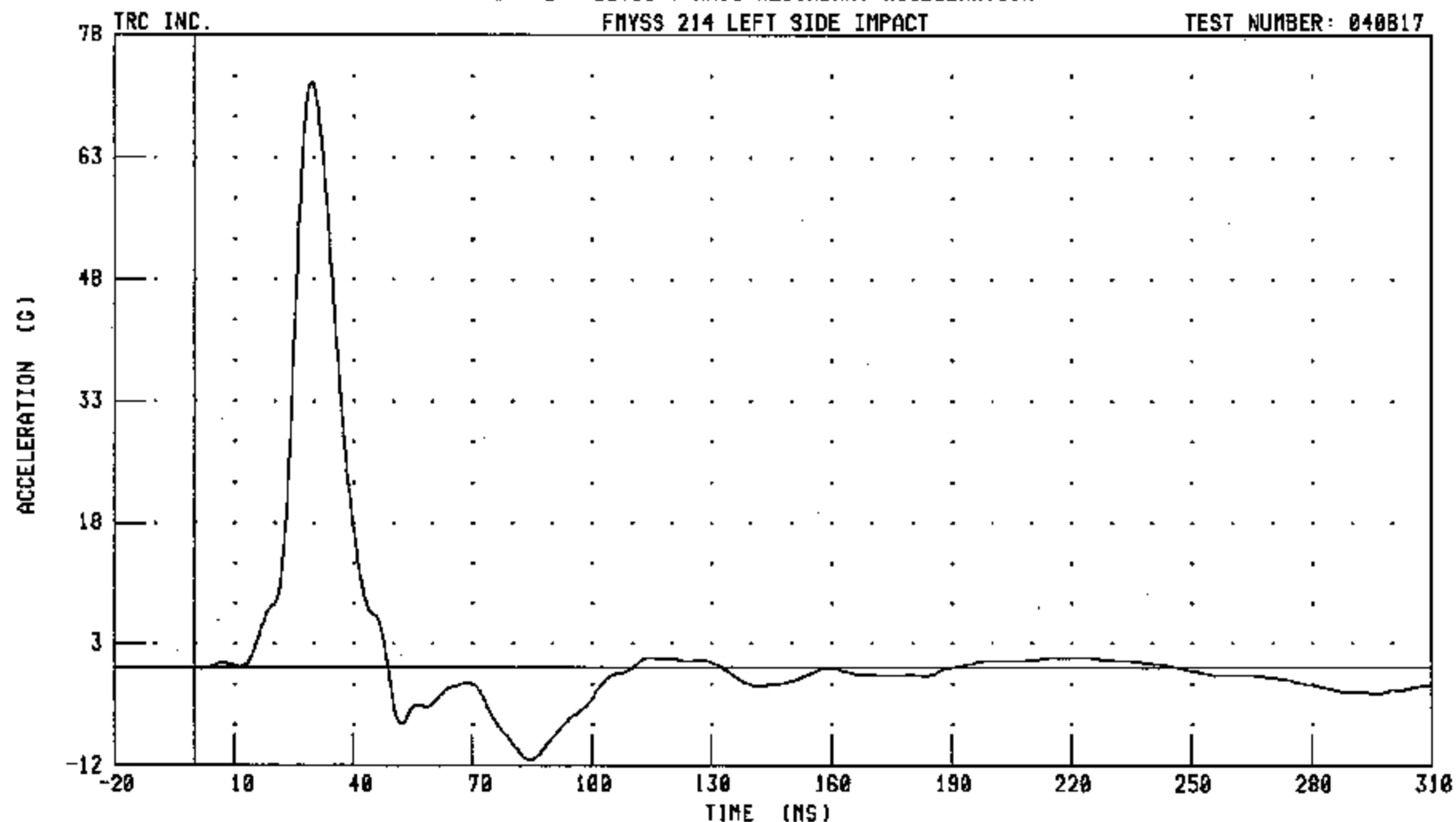


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA

DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYR1 FILTER: FIR 100

PEAK DATA: 72.37 G @ 29.38 MS; -11.31 G @ 84.38 MS

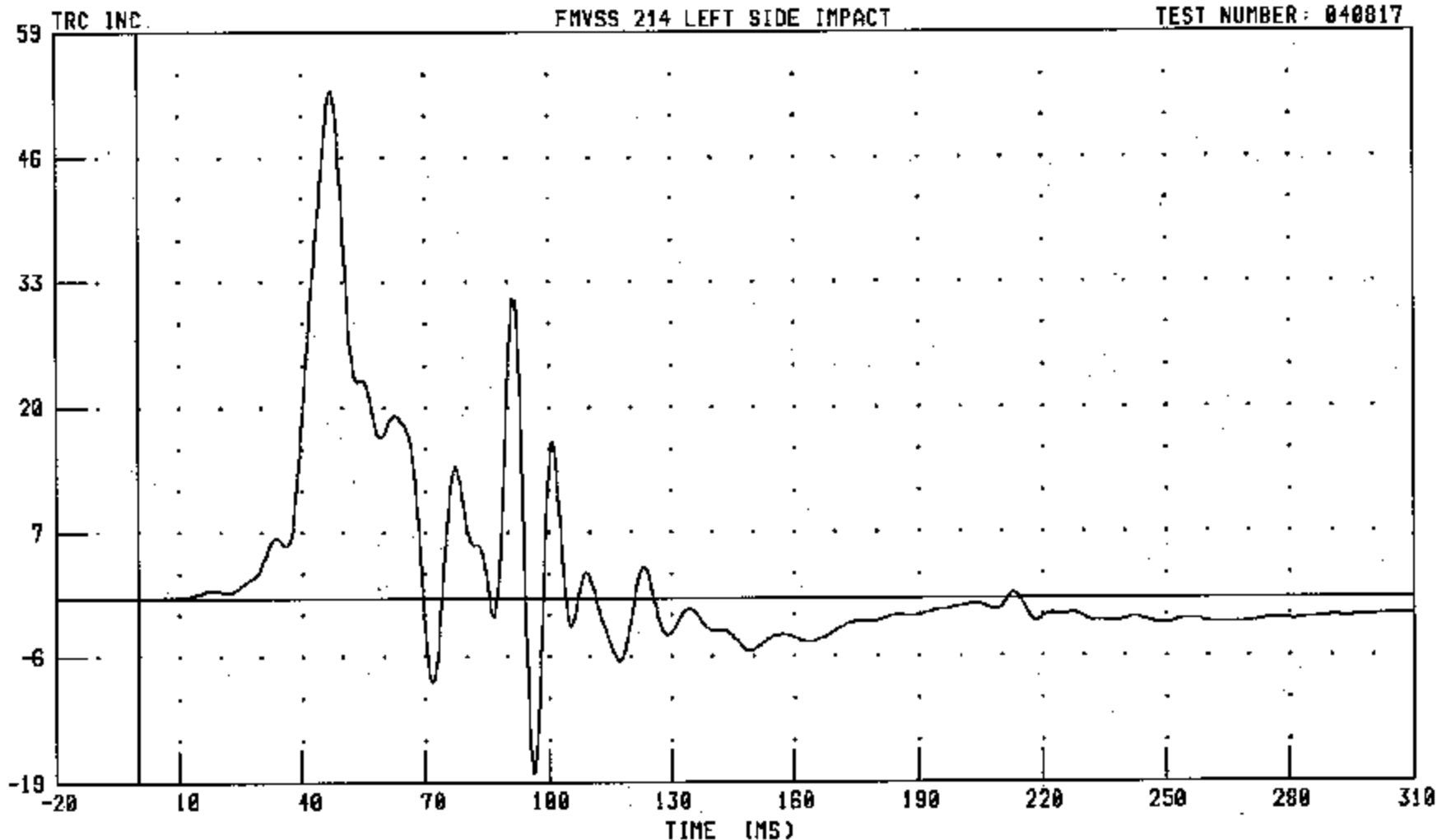
B-118

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LURYR4 FILTER: FIR 100

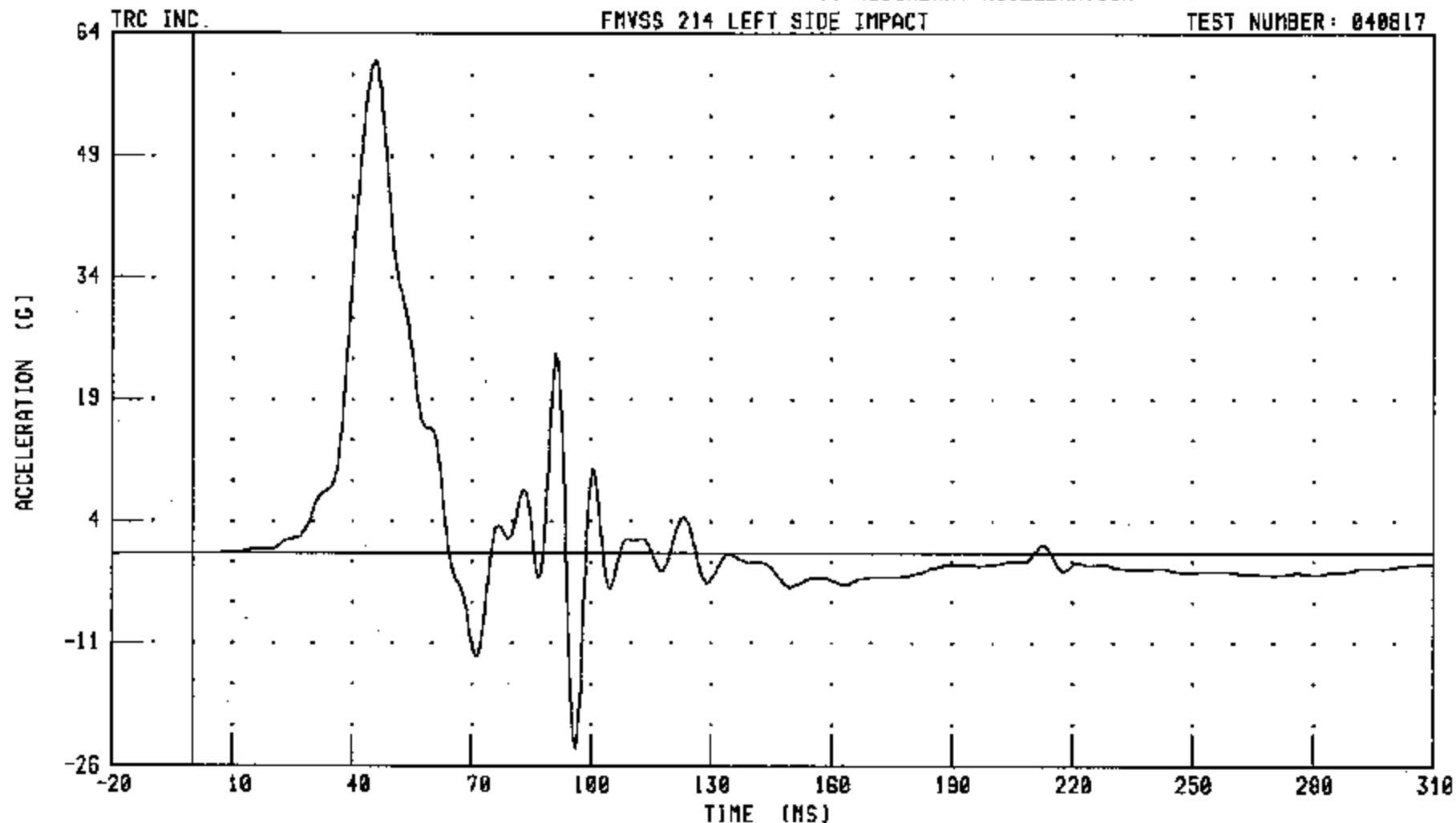
B-119

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: LLRYR4 FILTER: FIR 100

PEAK DATA: 60.64 G @ 45.62 MS; -23.88 G @ 96.25 MS

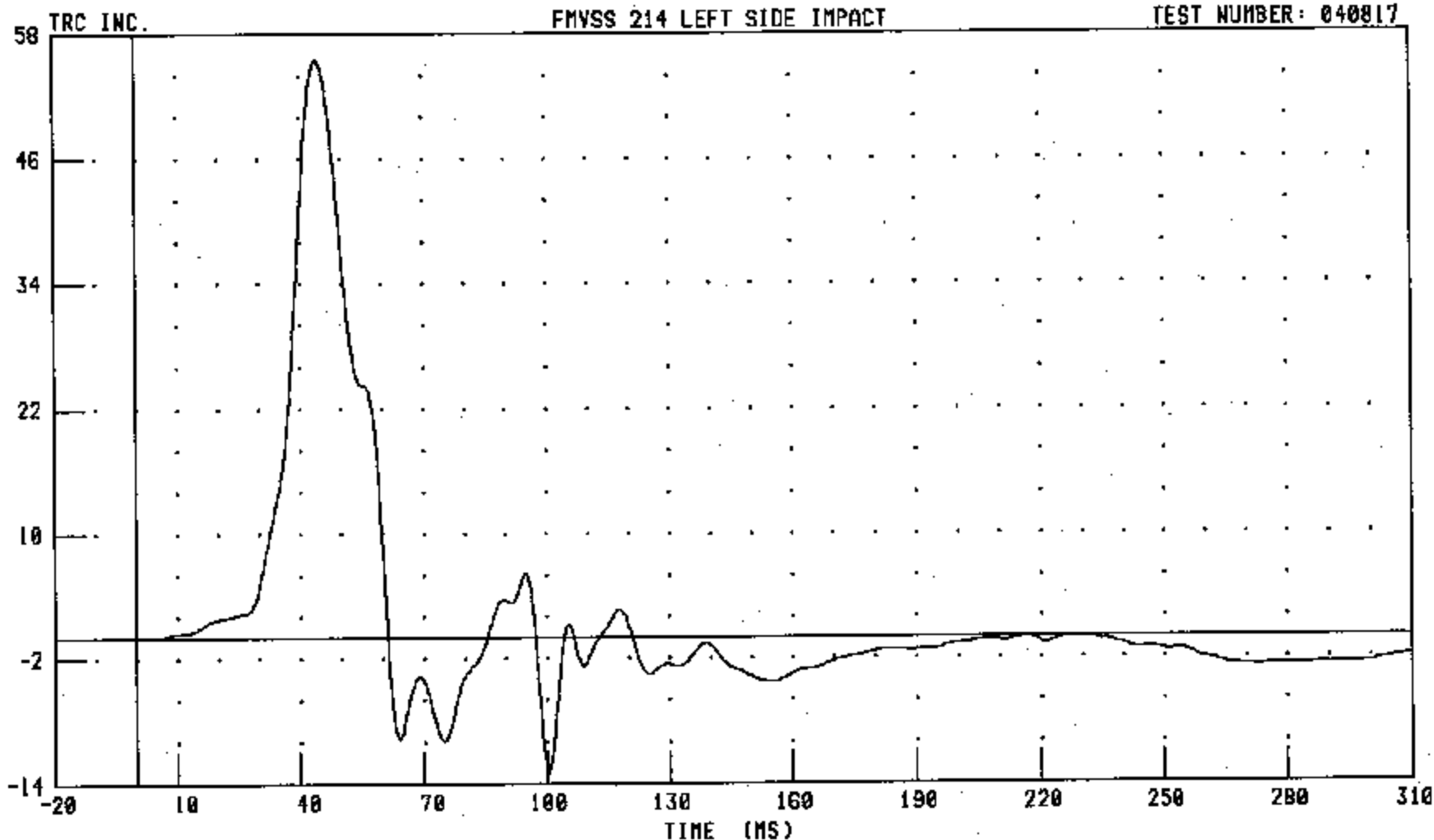
B-120

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: T12YR4 FILTER: FIR 100

PEAK DATA: 55.58 G @ 44.30 MS; -13.09 G @ 100.63 MS

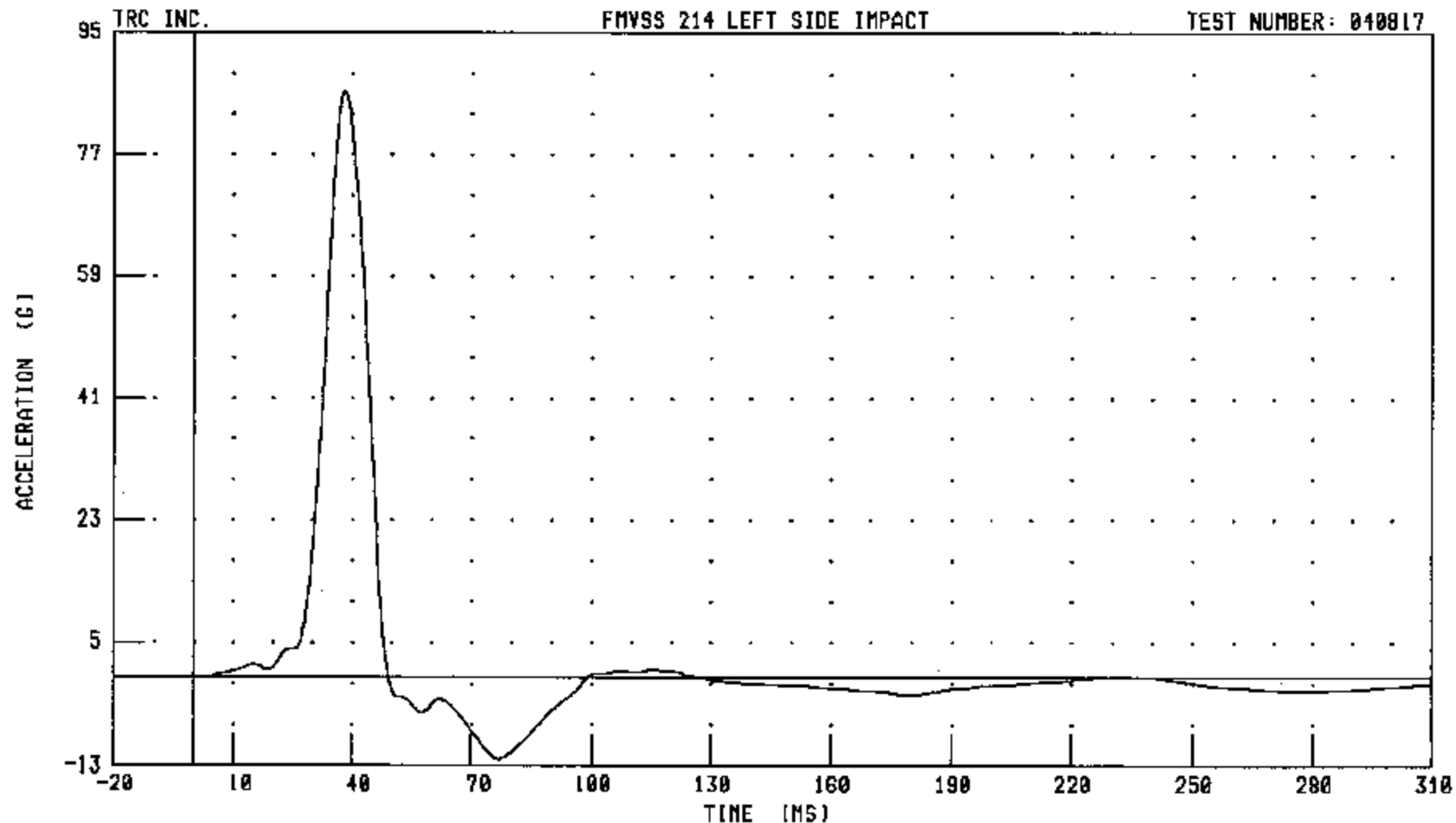
B-121

040817

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 SUZUKI FORENZA  
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040817



CHANNEL: PEVYR4 FILTER: FIR 100

PEAK DATA: 86.53 G @ 38.13 MS, -12.04 G @ 76.98 MS

B-122

040817

## Appendix C

### SID Configuration and Performance Verification Data

Summary  
SID Pre-Test and Post-Test Calibration

Date: 07/20/04-08/18/04 TRC Inc. Test Number: S/N 066 & S/N 028

Laboratory Technician: Vincent Olivieri

| Test Parameter                      | Specification | SID 066  |           | SID 028  |           |
|-------------------------------------|---------------|----------|-----------|----------|-----------|
|                                     |               | Pre-Test | Post-Test | Pre-Test | Post-Test |
| SH - Seated Height (mm)             | 889-909       | 900      | 898       | 899      | 897       |
| RH - Rib Height (mm)                | 502-520       | 505      | 506       | 505      | 507       |
| HP - Hip Pivot Height (mm)          | 99 ref        | 99.1     | 99.1      | 99.1     | 99.1      |
| RD - Rib from Back Line (mm)        | 229-241       | 235      | 234       | 233      | 234       |
| KH - Knee Pivot from Back Line (mm) | 511-526       | 522      | 523       | 517      | 520       |
| KV - Knee Pivot to Floor (mm)       | 490-505       | 493      | 492       | 497      | 496       |
| HW - Hip Width (mm)                 | 356-391       | 366      | 368       | 371      | 375       |
| Thorax Impacts                      |               |          |           |          |           |
| Temperature (°C)                    | 18.9-25.5     | 22.7     | 21.4      | 21.3     | 21.8      |
| Relative Humidity (%)               | 10-70         | 55       | 53        | 52       | 52        |
| Probe Speed (m/s)                   | 4.27-4.33     | 4.32     | 4.32      | 4.31     | 4.31      |
| Upper Rib (g's)                     | 37-46         | 42.4     | 45.4      | 41.4     | 40.9      |
| Lower Rib (g's)                     | 37-46         | 43.8     | 44.4      | 39.1     | 38.0      |
| Lower Spine (g's)                   | 15-22         | 18.8     | 19.9      | 17.2     | 16.6      |
| Pelvis Impacts                      |               |          |           |          |           |
| Temperature (°C)                    | 18.9-25.5     | 22.6     | 21.3      | 21.4     | 24.4      |
| Relative Humidity (%)               | 10-70         | 55       | 51        | 56       | 59        |
| Probe Speed (m/s)                   | 4.27-4.33     | 4.29     | 4.32      | 4.32     | 4.31      |
| Pelvis (g's)                        | 40-60         | 51.7     | 47.4      | 48.7     | 47.0      |

### Calibration Test Results

Pre-Test

SID: 066

Configured for Left Side Impact

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| External Dimensions:          | The dummy passed all external dimension requirements.                           |
| Lateral Thorax Impact Test:   | The lateral thorax passed all impact test requirements.                         |
| Lumbar Flexion Test:          | The dummy met the lumbar flexion test requirements.                             |
| Abdominal Compression Test:   | The abdomen met the compression test requirements.                              |
| Pelvis Impact Test:           | The lateral pelvis passed all impact test requirements.                         |
| Thoracic Shock Absorber Test: | The thoracic shock absorber was tested July 6, 2004 for a previous test series. |



**Transportation Research Center Inc.**  
**572F SID Dummy**  
**External Dimensions**  
**Serial No. 066 Calibration No. 12**

| Test Parameter                                        | Dimension | Specification    | Results | Pass |
|-------------------------------------------------------|-----------|------------------|---------|------|
| Seated Height                                         | SH        | 889.0 - 909.3 mm | 900 mm  | Yes  |
| Rib Height                                            | RH        | 501.7 - 520.7 mm | 505 mm  | Yes  |
| Hip Pivot Height                                      | HP        | 99.1 REF mm      | 99.1 mm |      |
| Rib From Backline                                     | RD        | 228.6 - 241.3 mm | 235 mm  | Yes  |
| Knee Pivot From Backline                              | KH        | 510.5 - 525.8 mm | 522 mm  | Yes  |
| Knee Pivot From Floor                                 | KV        | 490.2 - 505.5 mm | 493 mm  | Yes  |
| Hip Width                                             | HW        | 355.6 - 391.2 mm | 366 mm  | Yes  |
| Top Rib Width From CVL                                | RW-1      | 165.1 - 180.3 mm | 171 mm  | Yes  |
| Bottom Rib Width From CVL                             | RW-2      | 165.1 - 180.3 mm | 172 mm  | Yes  |
| Difference Between Top &<br>Bottom Rib Width from CVL |           | ≤ 2.5 mm         | 1.0 mm  | Yes  |

Technician

Vincent Oliveri

Approved

V. F. Natter

**TRE**

# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 066 Calibration No. 11 - A

| Test Parameter                           | Specification  | Test Results | Pass |
|------------------------------------------|----------------|--------------|------|
| Temperature                              | 18.9 - 25.5 C  | 21.7 C       | Yes  |
| Relative Humidity                        | 10 - 70 %      | 61 %         | Yes  |
| Pendulum Velocity                        |                | 2.71 m/sec   |      |
| Maximum Force<br>at Test Velocity        | 650 - 904 N    | 774 N        | Yes  |
| Maximum Displacement<br>at Test Velocity | 29.6 - 34.4 mm | 30.7 mm      | Yes  |

Test meets specifications.

Comments:

Damper Setting : 5.3

Technician



Approved



07.16.2004 14:33:44 1542

**TRE**

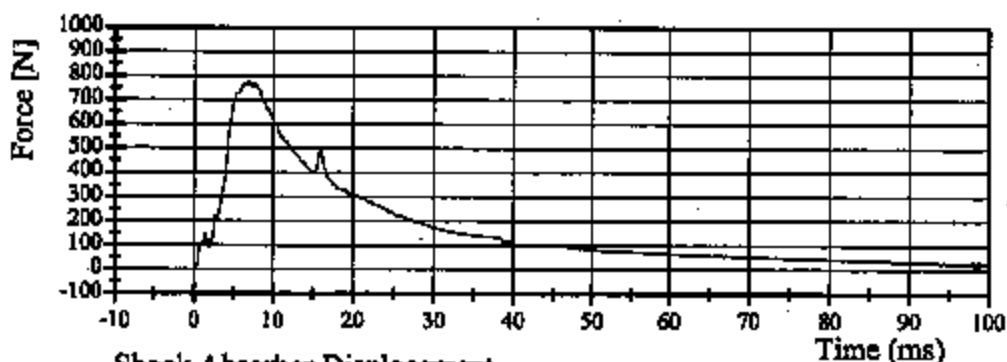
# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 066 Calibration No. 11 - A

Test Date 07/06/2004

Shock Absorber Resistive Force

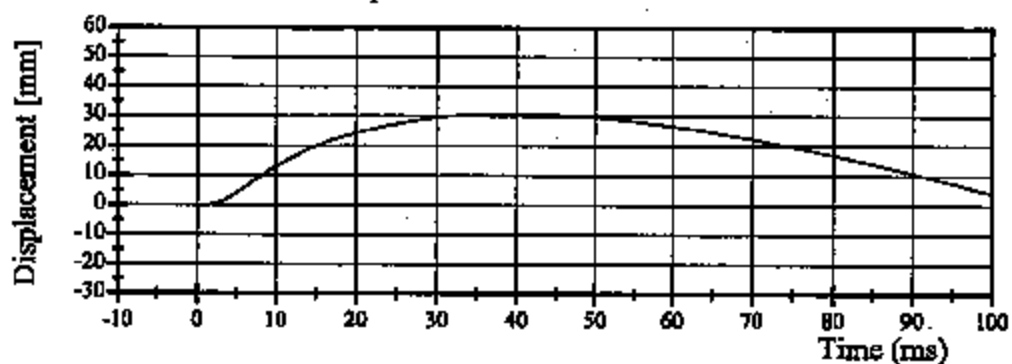


Filter Class: 1000

Max: 774 N at 7.0 ms

Min: -1335 N at 106.0 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 30.7 mm at 37.8 ms

Min: -0.3 mm at 106.1 ms

07.16.2004 14:33:44 1542

TRE

# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 066 Calibration No. 11 - B

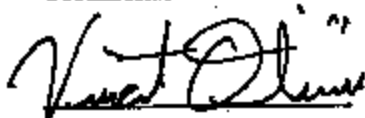
| Test Parameter                           | Specification  | Test Results | Pass |
|------------------------------------------|----------------|--------------|------|
| Temperature                              | 18.9 - 25.5 C  | 21.5 C       | Yes  |
| Relative Humidity                        | 10 - 70 %      | 60 %         | Yes  |
| Pendulum Velocity                        |                | 4.28 m/sec   |      |
| Maximum Force<br>at Test Velocity        | 1747 - 2111 N  | 1879 N       | Yes  |
| Maximum Displacement<br>at Test Velocity | 31.7 - 37.2 mm | 36.0 mm      | Yes  |

Test meets specifications.

Comments:

Damper Setting : 5.3

Technician



Approved



07.16.2004 14:34:19 1202

**TRE**

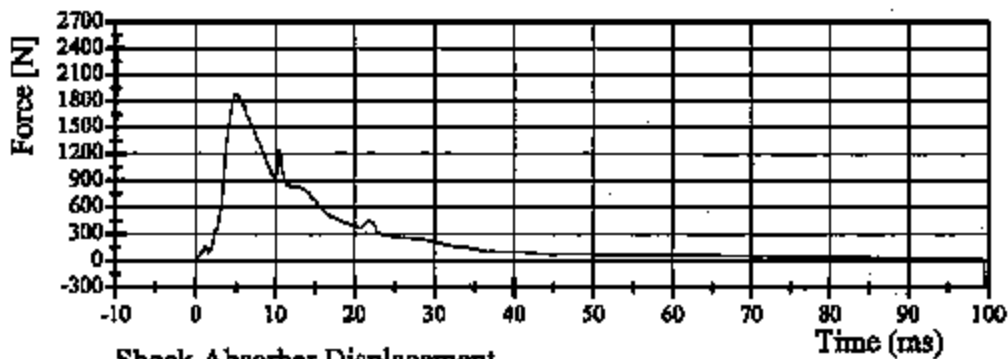
# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 066 Calibration No. 11 - B

Test Date 07/06/2004

Shock Absorber Resistive Force

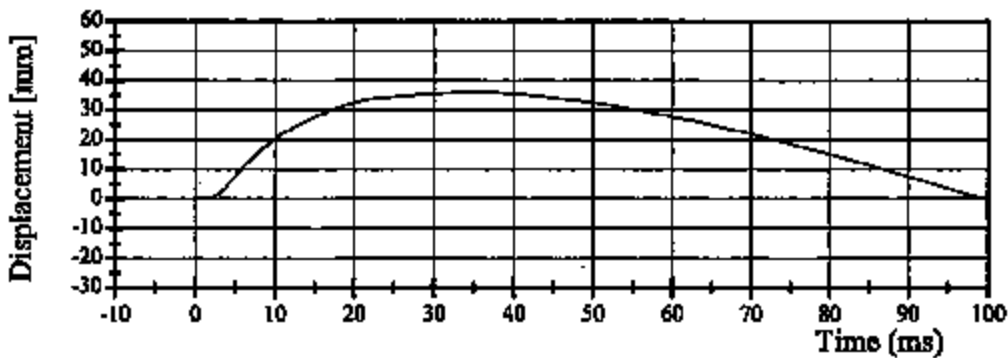


Filter Class: 1000

Max: 1879 N at 5.0 ms

Min: -1423 N at 99.9 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 36.0 mm at 34.6 ms

Min: -0.3 mm at 99.8 ms

# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 066 Calibration No. 11 - C

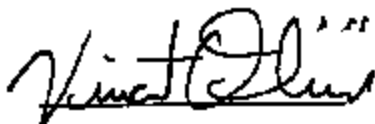
| Test Parameter                           | Specification  | Test Results | Pass |
|------------------------------------------|----------------|--------------|------|
| Temperature                              | 18.9 - 25.5 C  | 21.7 C       | Yes  |
| Relative Humidity                        | 10 - 70 %      | 57 %         | Yes  |
| Pendulum Velocity                        |                | 6.12 m/sec   |      |
| Maximum Force<br>at Test Velocity        | 3777 - 4476 N  | 4441 N       | Yes  |
| Maximum Displacement<br>at Test Velocity | 33.4 - 39.6 mm | 38.5 mm      | Yes  |

Test meets specifications.

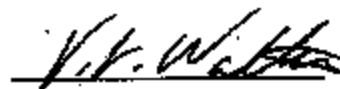
Comments:

Damper Setting : 5.3

Technician



Approved



07.16.2004 14:34:55 1029

**TRE**

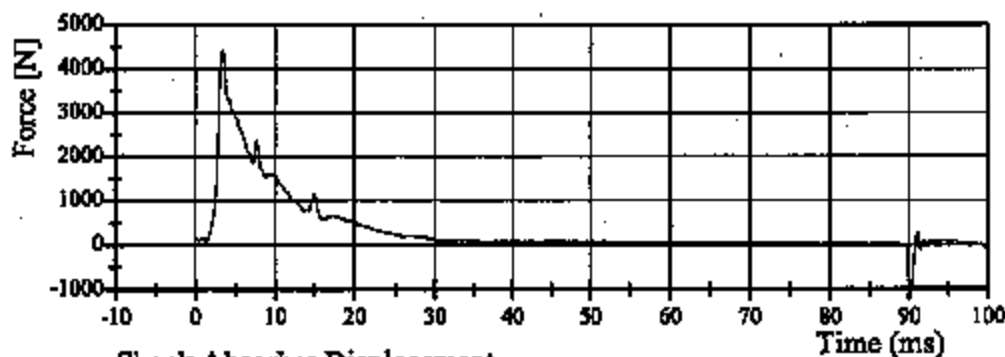
# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 066 Calibration No. 11 - C

Test Date 07/06/2004

Shock Absorber Resistive Force

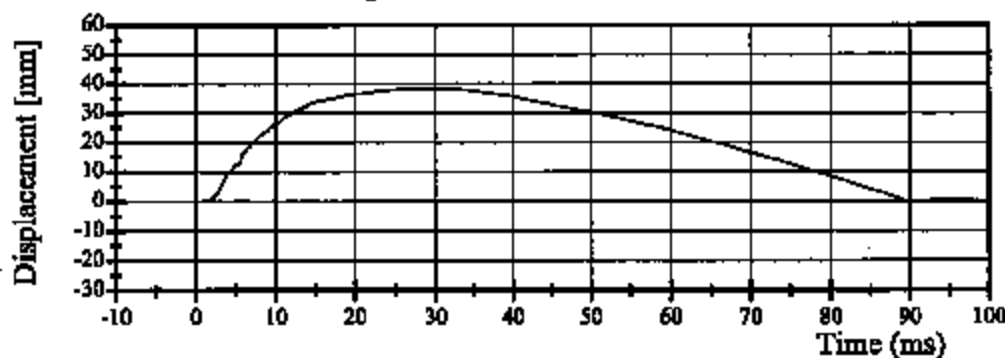


Filter Class: 1000

Max: 4441 N at 3.4 ms

Min: -1718 N at 90.2 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 38.5 mm at 28.7 ms

Min: -0.3 mm at 90.2 ms

07.16.2004 14:34:55 1029



# Transportation Research Center Inc.

572F Left Side Thorax Test

SID Serial No. 066 Calibration No. 12 - 1

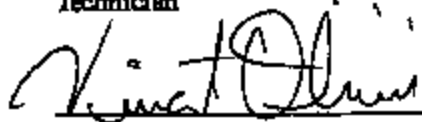
Test Date 07/21/2004

| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 22.7 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 55 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.32 m/sec   | Yes  |
| Upper Rib Bar Peak Acceleration              | 37 - 46 g         | 42.4 g       | Yes  |
| Lower Rib Bar Peak Acceleration              | 37 - 46 g         | 43.8 g       | Yes  |
| Lower Thoracic Spine (T12) Peak Acceleration | 15 - 22 g         | 18.8 g       | Yes  |

Test meets specifications.

Comments:

Technician



Approved



07.21.2004 09:28:01 1218





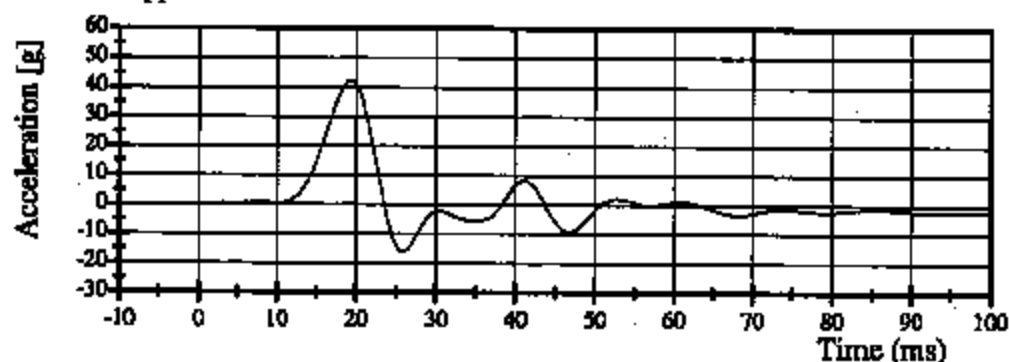
# Transportation Research Center Inc.

572F Left Side Thorax Test

SID Serial No. 066 Calibration No. 12 - 1

Test Date 07/21/2004

Upper Rib Bar Acceleration

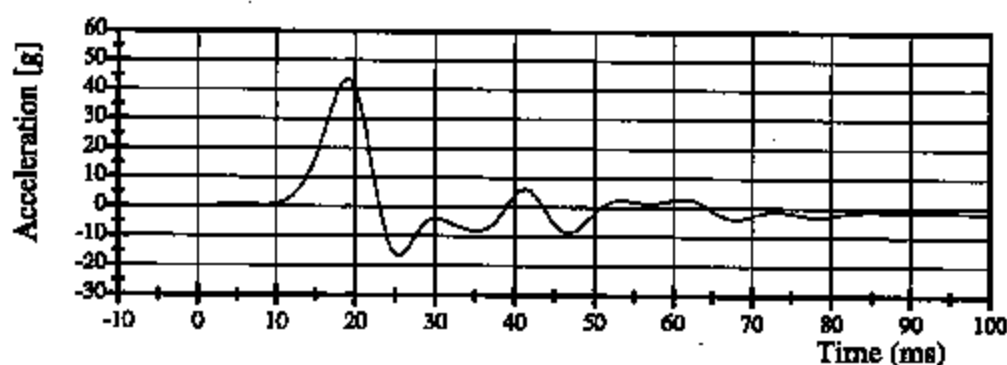


Filter Class: FIR 100

Max: 42.4 g at 19.5 ms

Min: -16.3 g at 25.8 ms

Lower Rib Bar Acceleration

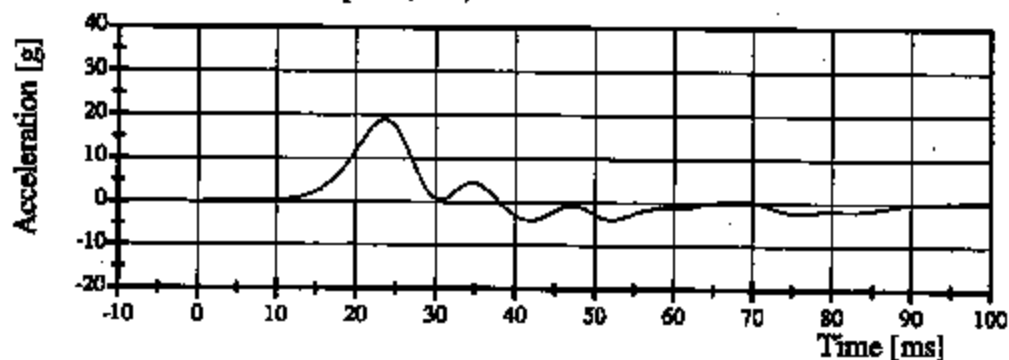


Filter Class: FIR 100

Max: 43.8 g at 18.9 ms

Min: -16.7 g at 25.2 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 18.8 g at 23.3 ms

Min: -4.1 g at 42.0 ms

07/21/2004 09:28:02 1218

TRE

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 20-Jul-04

TRC, INC.

TEST NO: 066C12TF1

572B SN 066 TORSO FLEX CAL 12

| TEST PARAMETER                      | SPECIFICATION  | TEST RESULTS |
|-------------------------------------|----------------|--------------|
| TEMPERATURE                         | 18.9 - 25.6° C | 21.9 °C      |
| RELATIVE HUMIDITY                   | 10 - 70 %      | 55 %         |
| FORCE AT 0 DEG. FLEXION             | -27 - 27 N     | 0 N          |
| FORCE AT 20 DEG OF FLEXION          | 98 - 151 N     | 111.2 N      |
| FORCE AT 30 DEG OF FLEXION          | 151 - 205 N    | 173.5 N      |
| FORCE AT 40 DEG OF FLEXION          | 205 - 258 N    | 195.7 N      |
| NET RETURN ANGLE AFTER 3<br>MINUTES | < 12 °         | 4.2 °        |

TEST MEETS SPECIFICATIONS

TECHNICIAN *V. E. Oliver*

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 12 - 3

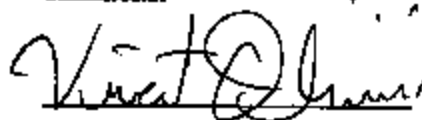
Test Date 07/20/2004

| Test Parameter                | Specification    | Test Results   | Pass |
|-------------------------------|------------------|----------------|------|
| Temperature                   | 18.9 - 25.5 °C   | 22.2 °C        | Yes  |
| Relative Humidity             | 10 - 70 %        | 55 %           | Yes  |
| Displacement Rate             | 6.35 - 8.89 mm/s | 7.7 - 8.0 mm/s | Yes  |
| Data Within Required Corridor | Yes              | Yes            | Yes  |

Test meets specifications.

Comments:

Technician



Approved



07.20.2004 14:27:29 2173

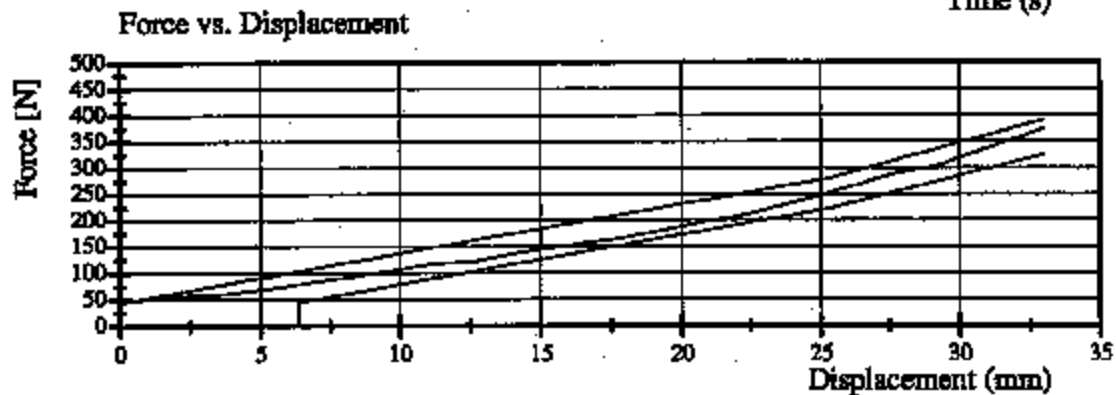
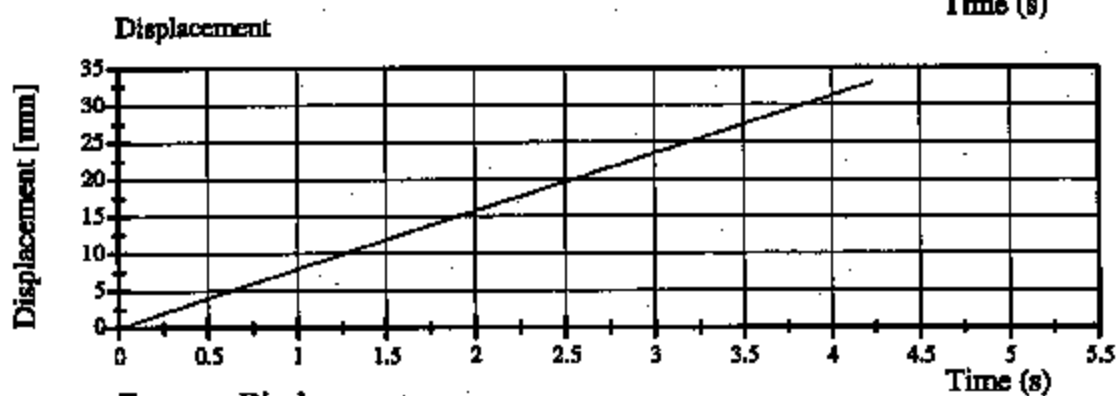
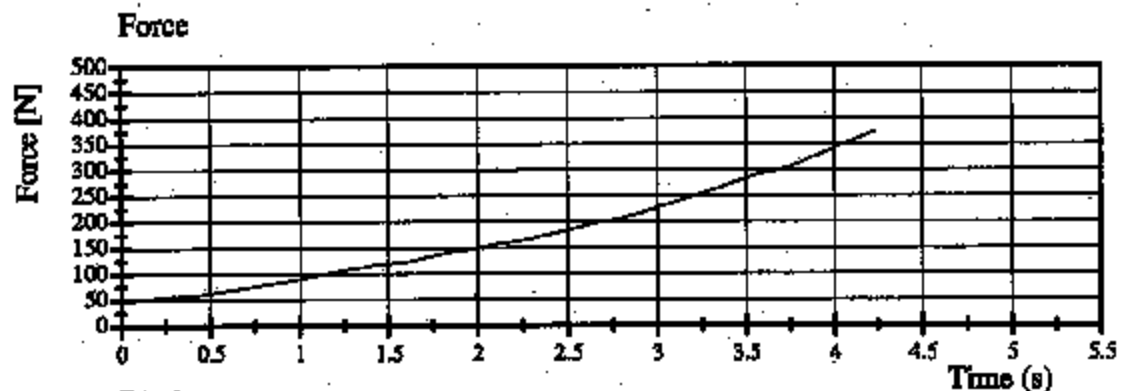
**TRE**

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 12 - 3

Test Date 07/20/2004



07.20.2004 14:27:30 2173



# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID Serial No. 066 Calibration No. 12 - 1

Test Date 07/21/2004

| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 22.6 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 55 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.29 m/sec   | Yes  |
| Pelvis Peak Acceleration                     | 40 - 60 g         | 51.7 g       | Yes  |
| Time Above 20 g                              | 3 - 7 ms          | 6.00 ms      | Yes  |
| Unimodal requirement for pelvis acceleration | Yes               | Yes          | Yes  |

Comments:

Technician



Approved



07.21.2004 08:57:04 1167

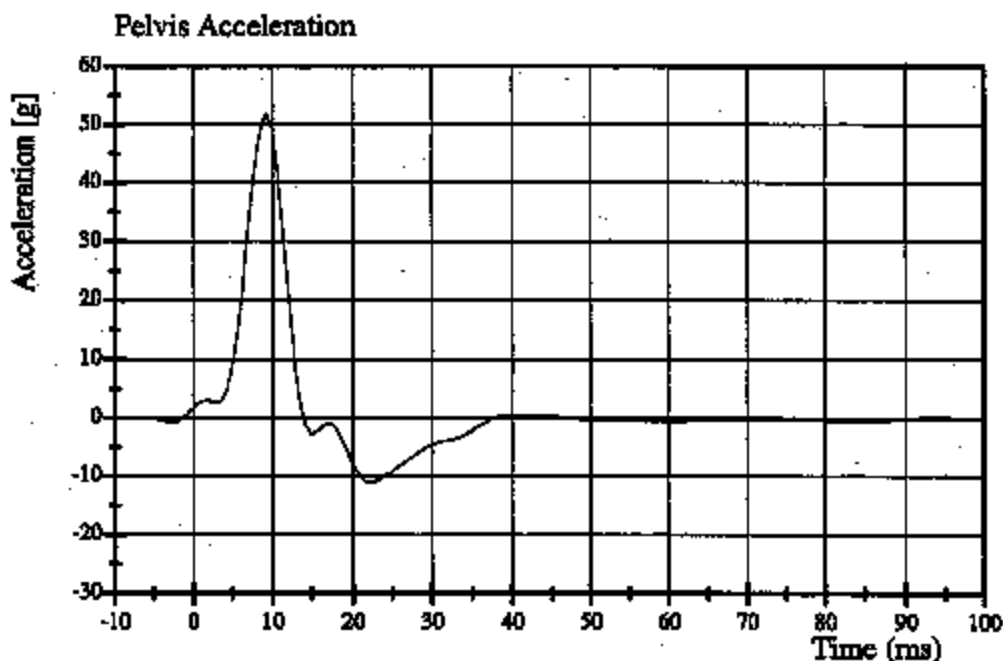
**TRE**

# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID Serial No. 066 Calibration No. 12 - 1

Test Date 07/21/2004



Filter Class: FIR 100

Max: 51.7 g at 9.2 ms

Min: -11.1 g at 22.3 ms

07.21.2004 08:57:05 1167



Calibration Test Results

Pre-Test

SID: 028

Configured for Left Side Impact

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| External Dimensions:          | The dummy passed all external dimension requirements.                           |
| Lateral Thorax Impact Test:   | The lateral thorax passed all impact test requirements.                         |
| Lumbar Flexion Test:          | The dummy met the lumbar flexion test requirements.                             |
| Abdominal Compression Test:   | The abdomen met the compression test requirements.                              |
| Pelvis Impact Test:           | The lateral pelvis passed all impact test requirements.                         |
| Thoracic Shock Absorber Test: | The thoracic shock absorber was tested July 6, 2004 for a previous test series. |

**Transportation Research Center Inc.**

**572F SID Dummy**

**External Dimensions**

**Serial No. 028    Calibration No. 10**

| Test Parameter                                       | Dimension | Specification    | Results | Pass |
|------------------------------------------------------|-----------|------------------|---------|------|
| Seated Height                                        | SH        | 889.0 - 909.3 mm | 899 mm  | Yes  |
| Rib Height                                           | RH        | 501.7 - 520.7 mm | 505 mm  | Yes  |
| Hip Pivot Height                                     | HP        | 99.1 RHF mm      | 99.1 mm |      |
| Rib From Backline                                    | RD        | 228.6 - 241.3 mm | 233 mm  | Yes  |
| Knee Pivot From Backline                             | KH        | 510.5 - 525.8 mm | 517 mm  | Yes  |
| Knee Pivot From Floor                                | KV        | 490.2 - 505.5 mm | 497 mm  | Yes  |
| Hip Width                                            | HW        | 355.6 - 391.2 mm | 371 mm  | Yes  |
| Top Rib Width From CL                                | RW-1      | 165.1 - 180.3 mm | 172 mm  | Yes  |
| Bottom Rib Width From CL                             | RW-2      | 165.1 - 180.3 mm | 172 mm  | Yes  |
| Difference Between Top &<br>Bottom Rib Width from CL |           | ≤ 2.5 mm         | 0.0 mm  | Yes  |

Technician

*Vince Oliver*

Approved

*J. F. Walter*

**TRE**



# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 09 - A

| Test Parameter                           | Specification  | Test Results | Pass |
|------------------------------------------|----------------|--------------|------|
| Temperature                              | 18.9 - 25.5 C  | 21.3 C       | Yes  |
| Relative Humidity                        | 10 - 70 %      | 52 %         | Yes  |
| Pendulum Velocity                        |                | 2.71 m/sec   |      |
| Maximum Force<br>at Test Velocity        | 650 - 904 N    | 725 N        | Yes  |
| Maximum Displacement<br>at Test Velocity | 29.6 - 34.4 mm | 30.2 mm      | Yes  |

Test meets specifications.

Comments:

Damper Setting : 5.6

Technician

Vincent Oliver

Approved

V.F. White

07.16.2004 14:24:30 1542

**TRE**

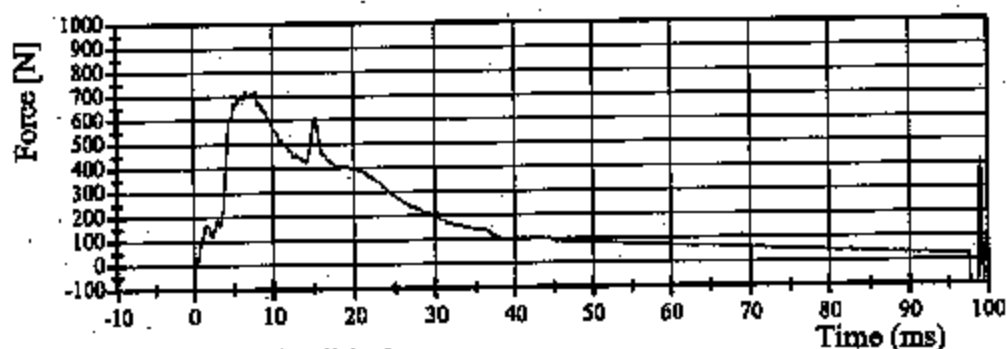
# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 09 - A

Test Date 07/06/2004

Shock Absorber Resistive Force

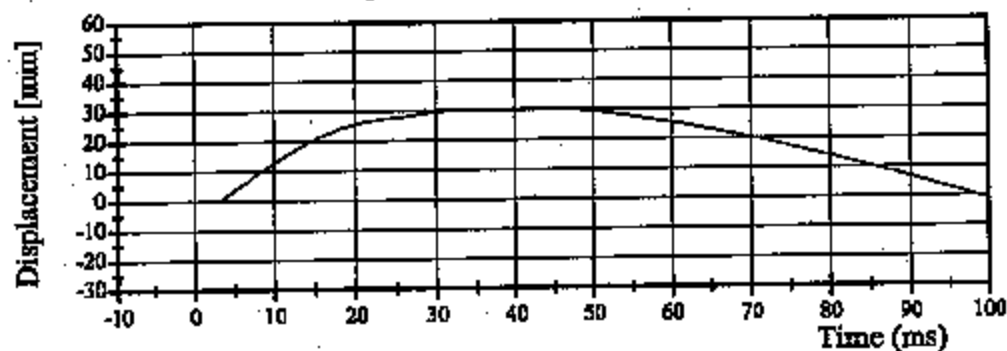


Filter Class: 1000

Max: 725 N at 7.8 ms

Min: -1651 N at 98.3 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 30.2 mm at 36.8 ms

Min: -0.7 mm at 99.8 ms

07.16.2004 14:24:31 1542



# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 09 - B3

| Test Parameter                           | Specification  | Test Results | Pass |
|------------------------------------------|----------------|--------------|------|
| Temperature                              | 18.9 - 25.5 C  | 21.4 C       | Yes  |
| Relative Humidity                        | 10 - 70 %      | 53 %         | Yes  |
| Pendulum Velocity                        |                | 4.28 m/sec   |      |
| Maximum Force<br>at Test Velocity        | 1747 - 2111 N  | 1939 N       | Yes  |
| Maximum Displacement<br>at Test Velocity | 31.7 - 37.2 mm | 33.6 mm      | Yes  |

Test meets specifications.

Comments:

Damper Setting : 5.6

Technician

Vincent Oliveri

Approved

V.J. Watkins

07.16.2004 14:25:33 1256

**TRE**

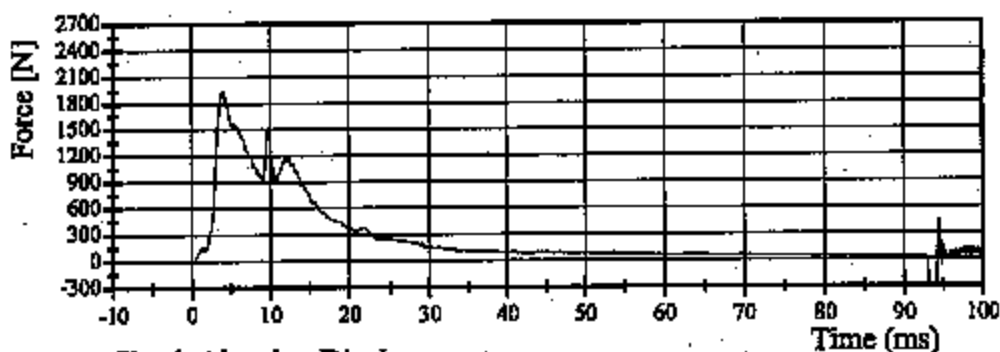
# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 09 - B3

Test Date 07/06/2004

## Shock Absorber Resistive Force

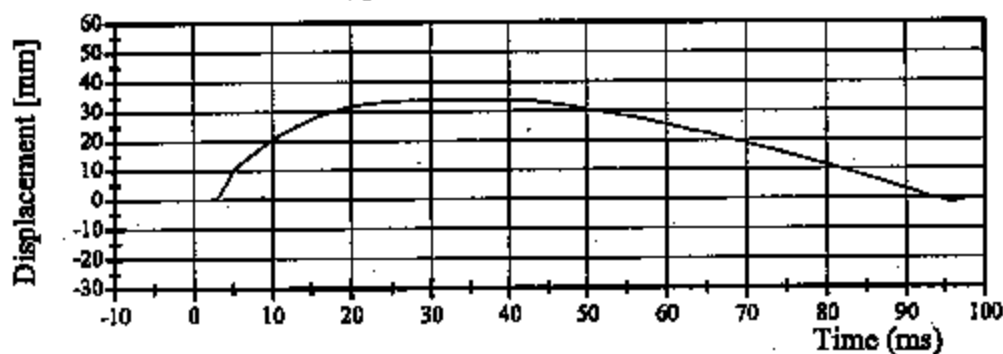


Filter Class: 1000

Max: 1939 N at 4.0 ms

Min: -1871 N at 93.7 ms

## Shock Absorber Displacement



Filter Class: 1000

Max: 33.6 mm at 30.2 ms

Min: -1.3 mm at 95.8 ms

07.16.2004 14:25:34 1256

TRE

# Transportation Research Center Inc.

## 572F Damper Test

SID Serial No. 028 Calibration No. 09 - C

| Test Parameter                           | Specification  | Test Results | Pass |
|------------------------------------------|----------------|--------------|------|
| Temperature                              | 18.9 - 25.5 C  | 21.2 C       | Yes  |
| Relative Humidity                        | 10 - 70 %      | 52 %         | Yes  |
| Pendulum Velocity                        |                | 6.12 m/sec   |      |
| Maximum Force<br>at Test Velocity        | 3777 - 4476 N  | 4067 N       | Yes  |
| Maximum Displacement<br>at Test Velocity | 33.4 - 39.6 mm | 37.1 mm      | Yes  |

Test meets specifications.

Comments:

Damper Setting : 5.6

Technician

Vincent Oliver

Approved

V. L. Watter

07.16.2004 14:26:18 1032



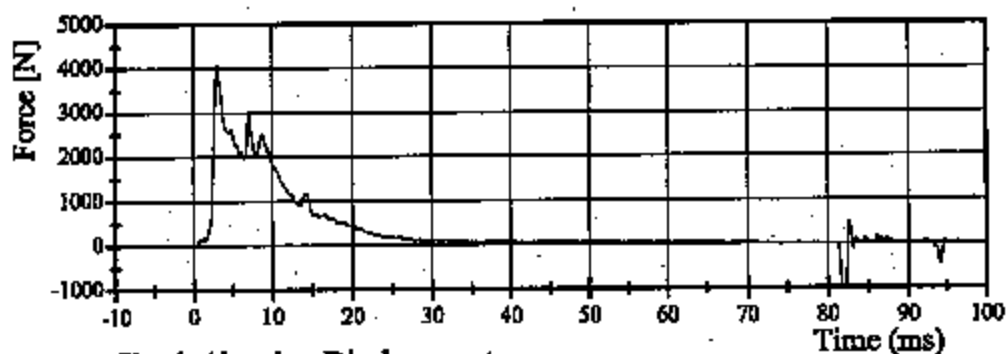
# Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 09 - C

Test Date 07/06/2004

Shock Absorber Resistive Force

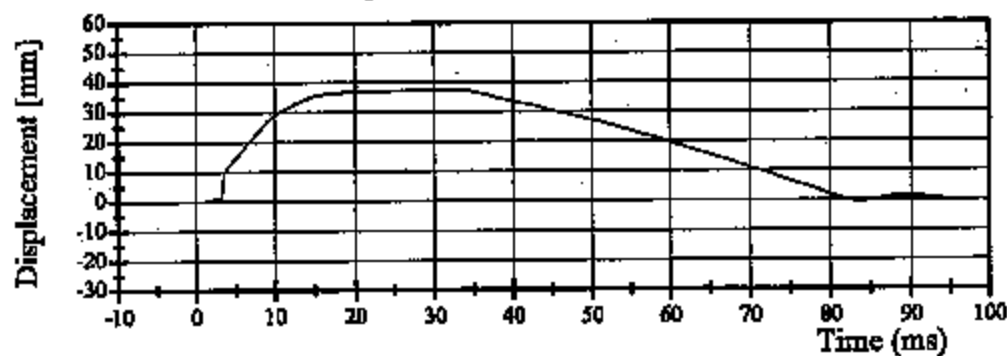


Filter Class: 1000

Max: 4067 N at 3.0 ms

Min: -1709 N at 82.1 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 37.1 mm at 29.4 ms

Min: -0.9 mm at 83.7 ms

# Transportation Research Center Inc.

572F Left Side Thorax Test

SID Serial No. 028 Calibration No. 10 - 2

Test Date 08/02/2004

| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 21.3 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 52 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.31 m/sec   | Yes  |
| Upper Rib Bar Peak Acceleration              | 37 - 46 g         | 41.4 g       | Yes  |
| Lower Rib Bar Peak Acceleration              | 37 - 46 g         | 39.1 g       | Yes  |
| Lower Thoracic Spine (T12) Peak Acceleration | 15 - 22 g         | 17.2 g       | Yes  |

Test meets specifications.

Comments:

Technician

Nine D. Davis

Approved

K. J. Walker

08.02.2004 15:13:17 1149



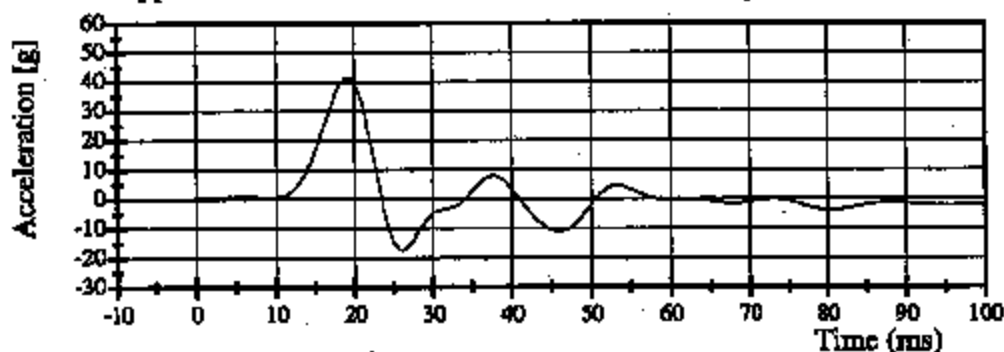
# Transportation Research Center Inc.

572F Left Side Thorax Test

SID Serial No. 028 Calibration No. 10 - 2

Test Date 08/02/2004

Upper Rib Bar Acceleration

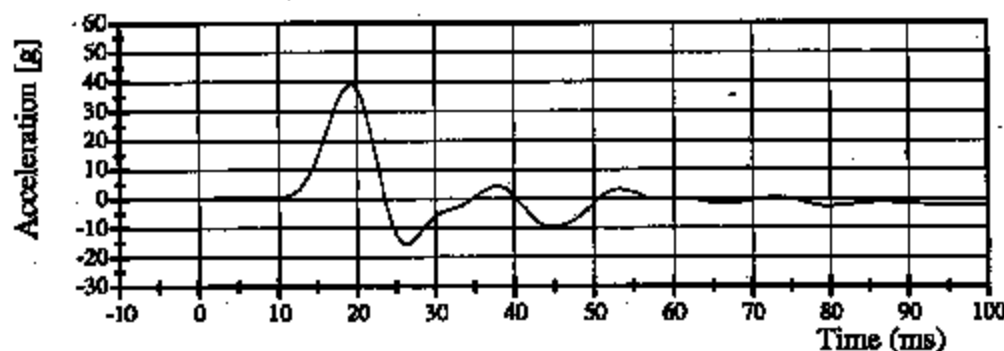


Filter Class: FIR 100

Max: 41.4 g at 19.4 ms

Min: -17.4 g at 26.2 ms

Lower Rib Bar Acceleration

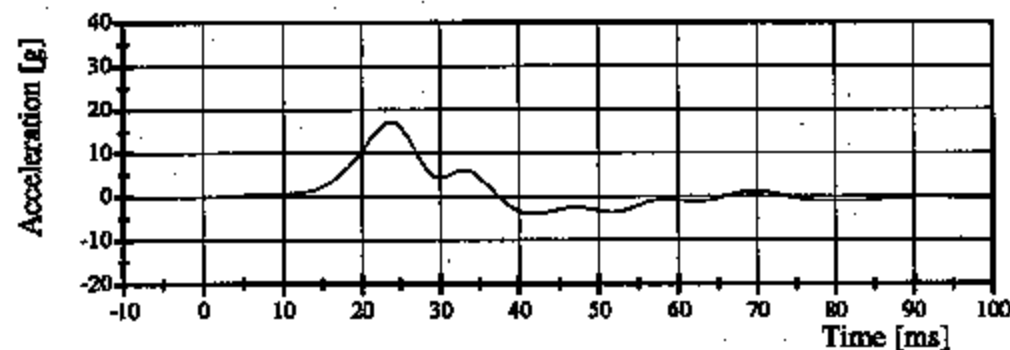


Filter Class: FIR 100

Max: 39.1 g at 19.4 ms

Min: -15.6 g at 26.3 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 17.2 g at 23.8 ms

Min: -3.9 g at 41.9 ms

08.02.2004 15:13:18 1149





TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 30-Jul-04

TRC, INC.

TEST NO: 028C10TF2

572B SN 028 TORSO FLEX CAL 10

| TEST PARAMETER                      | SPECIFICATION  | TEST RESULTS |
|-------------------------------------|----------------|--------------|
| TEMPERATURE                         | 18.9 - 25.6° C | 21.1 °C      |
| RELATIVE HUMIDITY                   | 10 - 70 %      | 52 %         |
| FORCE AT 0 DEG. FLEXION             | -27 - 27 N     | 0 N          |
| FORCE AT 20 DEG OF FLEXION          | 98 - 151 N     | 102 N        |
| FORCE AT 30 DEG OF FLEXION          | 151 - 205 N    | 156 N        |
| FORCE AT 40 DEG OF FLEXION          | 205 - 258 N    | 209 N        |
| NET RETURN ANGLE AFTER 3<br>MINUTES | < 12 °         | 1.4 °        |

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Vincent Oliver*

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 028 Calibration No. 10 - 8

Test Date 08/02/2004

| Test Parameter                | Specification    | Test Results   | Pass |
|-------------------------------|------------------|----------------|------|
| Temperature                   | 18.9 - 25.5 °C   | 21.1 °C        | Yes  |
| Relative Humidity             | 10 - 70 %        | 54 %           | Yes  |
| Displacement Rate             | 6.35 - 8.89 mm/s | 7.7 - 8.0 mm/s | Yes  |
| Data Within Required Corridor | Yes              | Yes            | Yes  |

Test meets specifications.

Comments:

Technician



Approved



08.02.2004 12:14:55 1964

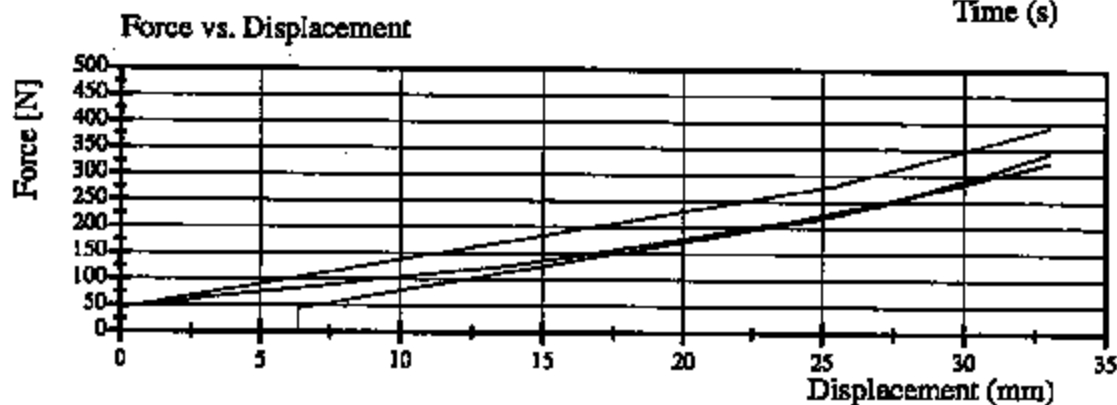
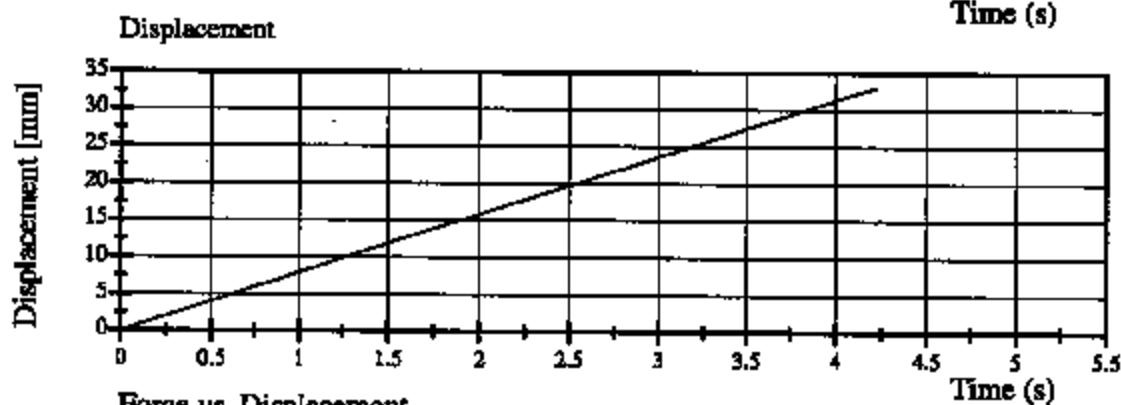
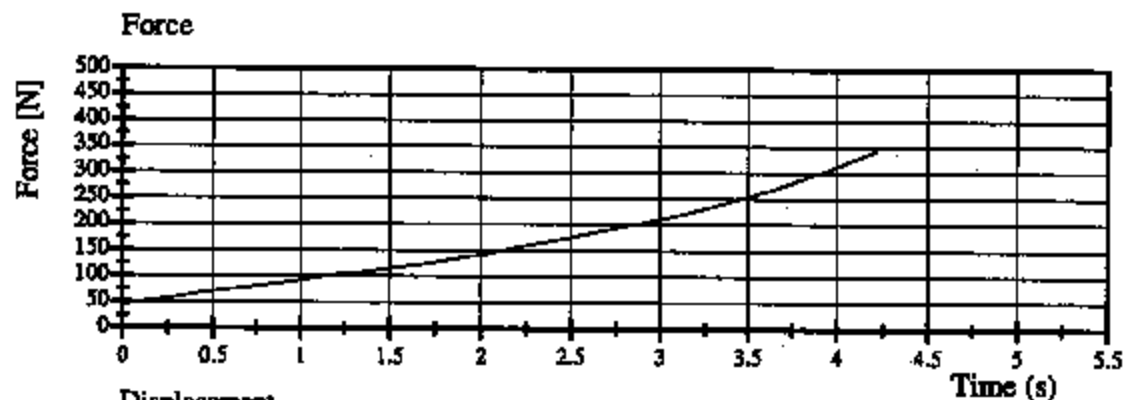
TRE

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 028 Calibration No. 10 - 8

Test Date 08/02/2004



08.02.2004 12:14:56 1964

TRE

# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID Serial No. 028 Calibration No. 10 - 2

Test Date 08/03/2004

| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 21.4 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 56 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.32 m/sec   | Yes  |
| Pelvis Peak Acceleration                     | 40 - 60 g         | 48.7 g       | Yes  |
| Time Above 20 g                              | 3 - 7 ms          | 6.32 ms      | Yes  |
| Unimodal requirement for pelvis acceleration | Yes               | Yes          | Yes  |

Comments:

Technician

N. J. Quinn

Approved

L. K. Walker

08.03.2004 07:47:36 1187

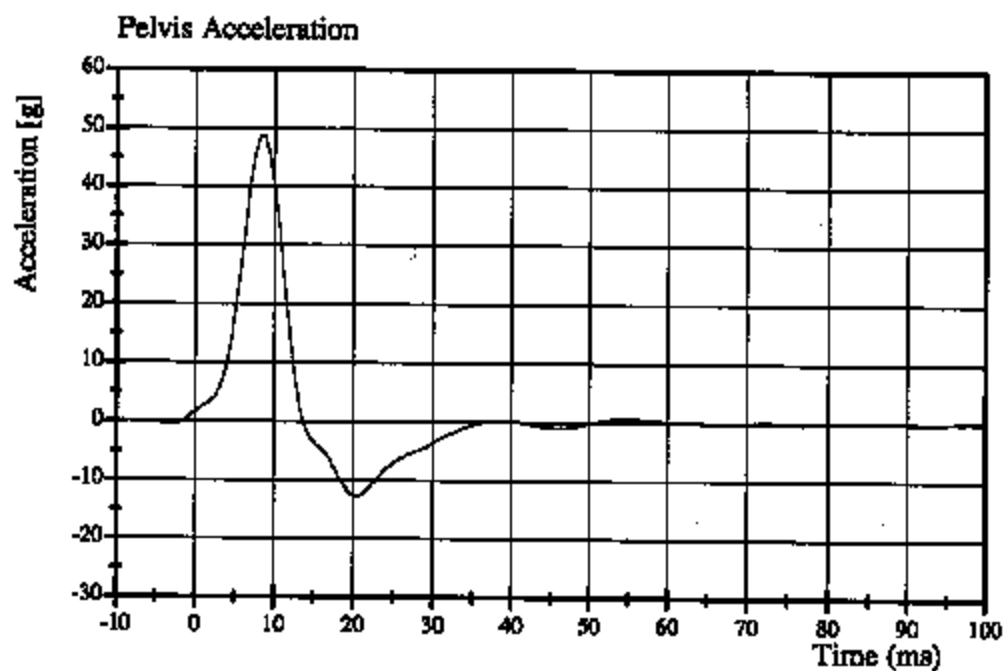
**TRE**

# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID Serial No. 028 Calibration No. 10 - 2

Test Date 08/03/2004



Filter Class: FIR 100

Max: 48.7 g at 8.3 ms

Min: -12.7 g at 20.7 ms

08.03.2004 07:47:37 1187



## Calibration Test Results

Post-Test

SID: 066

Configured for Left Side Impact

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

**Transportation Research Center Inc.**  
**572F SID Dummy**  
**External Dimensions**  
**Serial No. 066 Calibration No. 13**

| Test Parameter                                        | Dimension | Specification    | Results | Pass |
|-------------------------------------------------------|-----------|------------------|---------|------|
| Seated Height                                         | SH        | 889.0 - 909.3 mm | 898 mm  | Yes  |
| Rib Height                                            | RH        | 501.7 - 520.7 mm | 506 mm  | Yes  |
| Hip Pivot Height                                      | HP        | 99.1 REF mm      | 99.1 mm |      |
| Rib From Backline                                     | RD        | 228.6 - 241.3 mm | 234 mm  | Yes  |
| Knee Pivot From Backline                              | KH        | 510.5 - 525.8 mm | 523 mm  | Yes  |
| Knee Pivot From Floor                                 | KV        | 490.2 - 505.5 mm | 492 mm  | Yes  |
| Hip Width                                             | HW        | 355.6 - 391.2 mm | 368 mm  | Yes  |
| Top Rib Width From C/L                                | RW-1      | 165.1 - 180.3 mm | 172 mm  | Yes  |
| Bottom Rib Width From C/L                             | RW-2      | 165.1 - 180.3 mm | 171 mm  | Yes  |
| Difference Between Top &<br>Bottom Rib Width from C/L |           | ≤ 2.5 mm         | 1.0 mm  | Yes  |

Technician

Vincent D. Dini

Approved

V. F. W. W. W.

**TRE**

# Transportation Research Center Inc.

572F Left Side Thorax Test

SID Serial No. 066 Calibration No. 13 - 1

Test Date 08/24/2004

| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 21.4 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 53 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.32 m/sec   | Yes  |
| Upper Rib Bar Peak Acceleration              | 37 - 46 g         | 45.4 g       | Yes  |
| Lower Rib Bar Peak Acceleration              | 37 - 46 g         | 44.4 g       | Yes  |
| Lower Thoracic Spine (T12) Peak Acceleration | 15 - 22 g         | 19.9 g       | Yes  |

Test meets specifications.

Comments:

Technician

Vincent Oliver

Approved

V. J. Watton

08.24.2004 15:54:48 1139





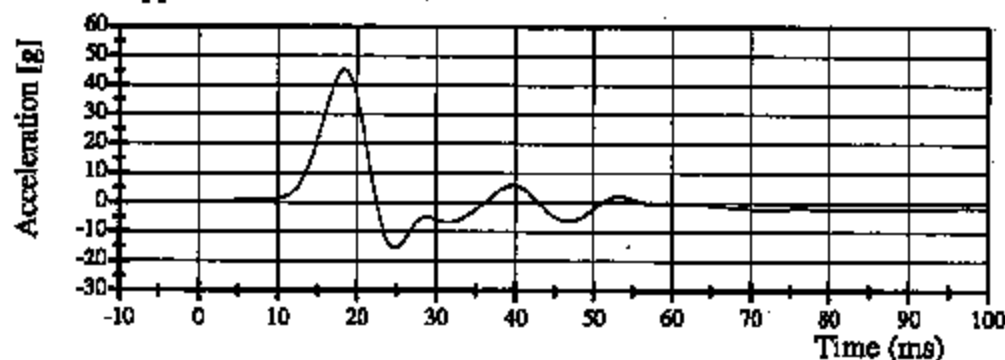
# Transportation Research Center Inc.

572F Left Side Thorax Test

SID Serial No. 066 Calibration No. 13 - 1

Test Date 08/24/2004

Upper Rib Bar Acceleration

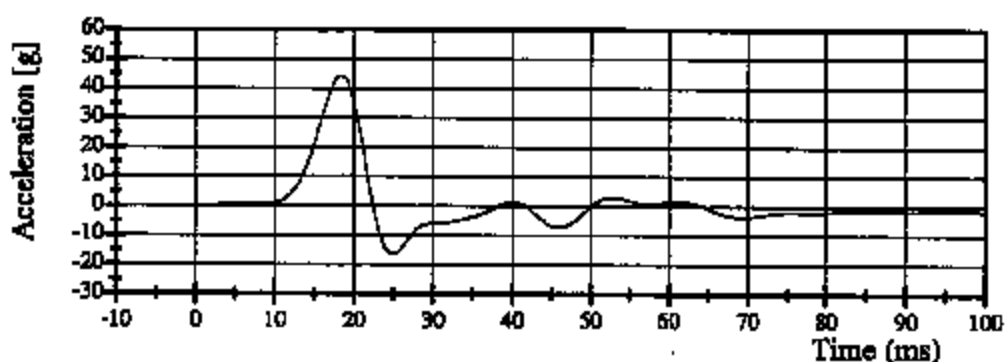


Filter Class: FIR 100

Max: 45.4 g at 18.3 ms

Min: -15.5 g at 24.6 ms

Lower Rib Bar Acceleration

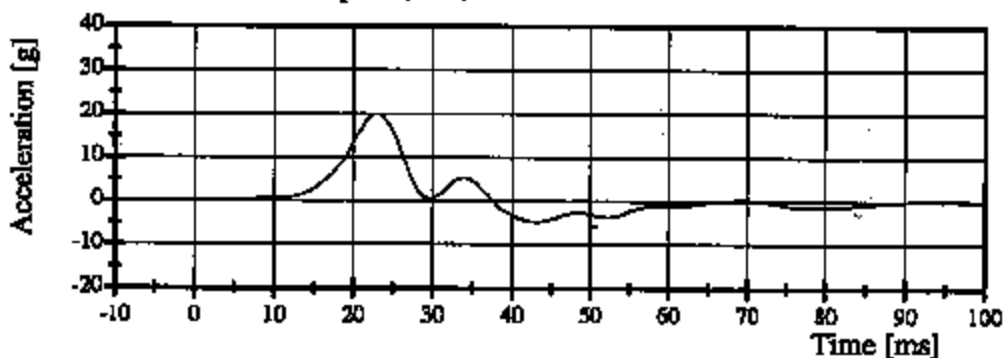


Filter Class: FIR 100

Max: 44.4 g at 18.3 ms

Min: -16.3 g at 25.2 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 19.9 g at 22.7 ms

Min: -4.7 g at 43.3 ms

08.24.2004 15:54:49 1139

TRE

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 24-Aug-04

TRC, INC.

TEST NO: 066C13TF1

572B SN 066 TORSO FLEX CAL 13

| TEST PARAMETER                      | SPECIFICATION  | TEST RESULTS |
|-------------------------------------|----------------|--------------|
| TEMPERATURE                         | 18.9 - 25.6° C | 22.6 C       |
| RELATIVE HUMIDITY                   | 10 - 70 %      | 53 %         |
| FORCE AT 0 DEG. FLEXION             | -27 - 27 N     | 0 N          |
| FORCE AT 20 DEG OF FLEXION          | 98 - 151 N     | 120.1 N      |
| FORCE AT 30 DEG OF FLEXION          | 151 - 205 N    | 173.5 N      |
| FORCE AT 40 DEG OF FLEXION          | 205 - 258 N    | 226.9 N      |
| NET RETURN ANGLE AFTER 3<br>MINUTES | < 12 °         | 3.2 °        |

TEST MEETS SPECIFICATIONS

TECHNICIAN

Vincent Oliver

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 13 - 5

Test Date 08/24/2004

| Test Parameter                | Specification    | Test Results   | Pass |
|-------------------------------|------------------|----------------|------|
| Temperature                   | 18.9 - 25.5 °C   | 21.7 °C        | Yes  |
| Relative Humidity             | 10 - 70 %        | 53 %           | Yes  |
| Displacement Rate             | 6.35 - 8.89 mm/s | 7.6 - 7.9 mm/s | Yes  |
| Data Within Required Corridor | Yes              | Yes            | Yes  |

Test meets specifications.

Comments:

Technician

Vincent D. Davis

Approved

V. F. Nathan

08.24.2004 14:27:58 1974

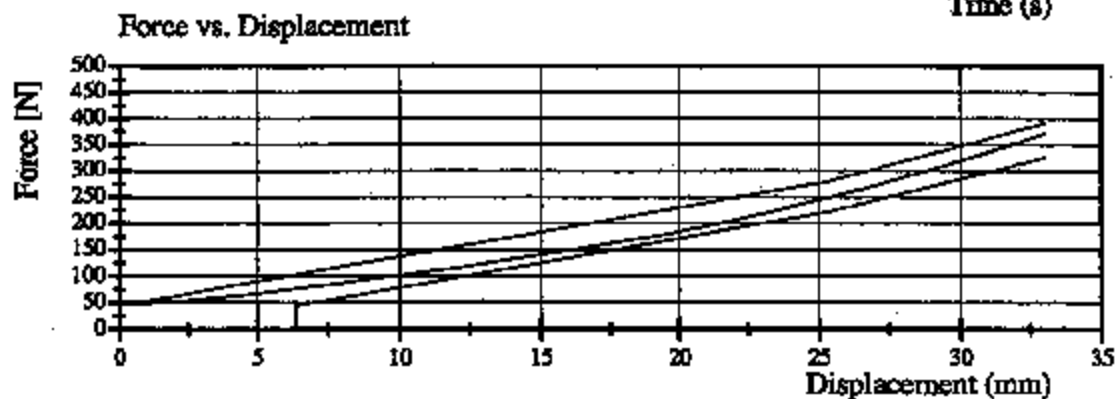
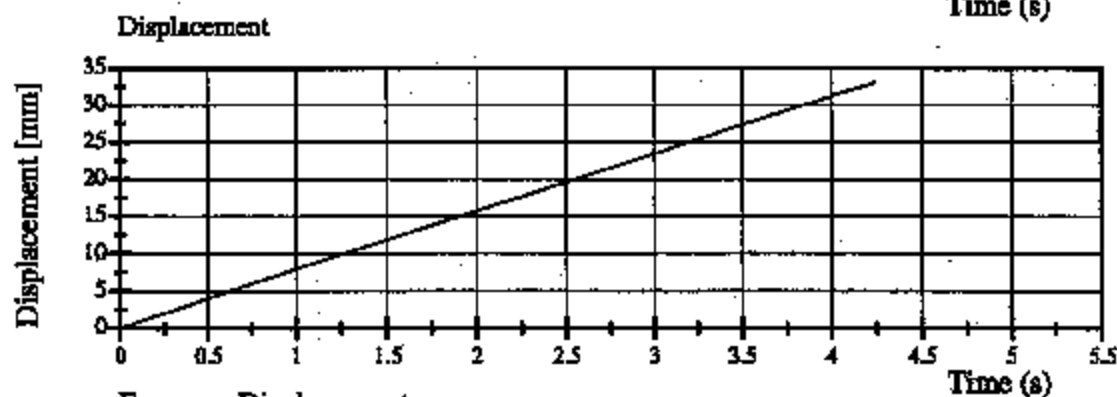
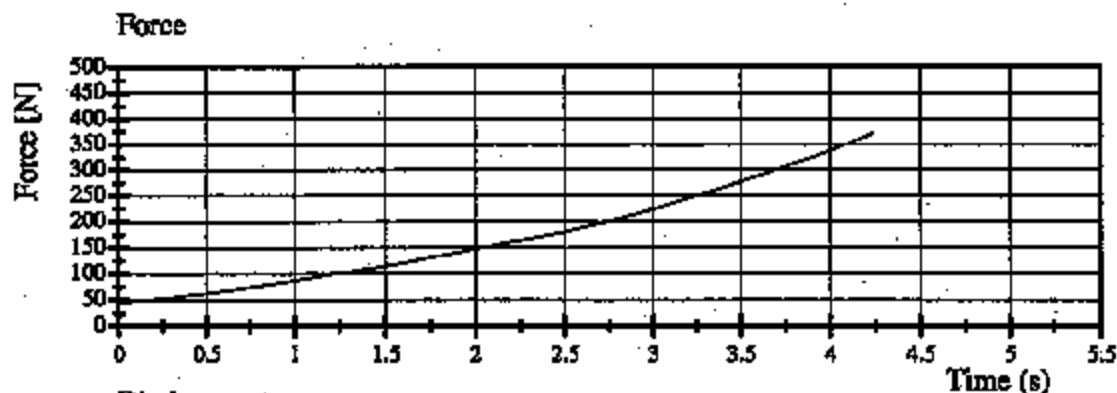
**TRE**

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 13 - 5

Test Date 08/24/2004



08.24.2004 14:27:59 1974

TRE

# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID Serial No. 066 Calibration No. 13 - 1

Test Date 08/24/2004

| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 21.3 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 51 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.32 m/sec   | Yes  |
| Pelvis Peak Acceleration                     | 40 - 60 g         | 47.4 g       | Yes  |
| Time Above 20 g                              | 3 - 7 ms          | 6.08 ms      | Yes  |
| Unimodal requirement for pelvis acceleration | Yes               | Yes          | Yes  |

Comments:

Technician

Vincent Oliver

Approved

V. F. Walker

08.24.2004 15:32:30 1164

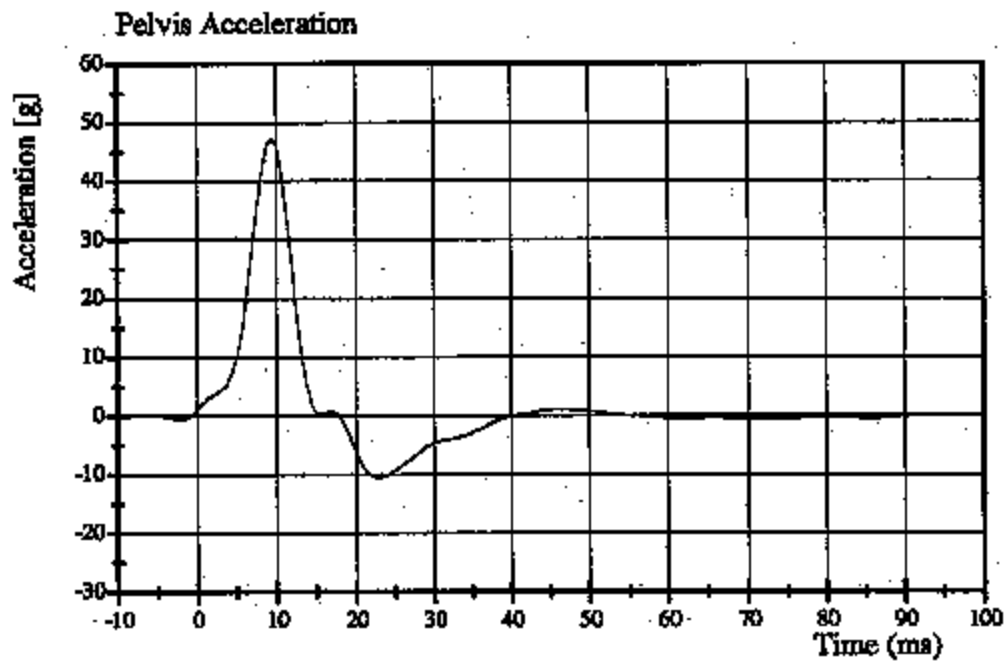


# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID Serial No. 066 Calibration No. 13 - 1

Test Date 08/24/2004



Filter Class: FIR 100

Max: 47.4 g at 9.4 ms

Min: -10.5 g at 22.6 ms

08.24.2004 15:32:31 1164



Calibration Test Results

Post-Test

SID: 028

Configured for Left Side Impact

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

**Transportation Research Center Inc.**

**572F SID Dummy**

**External Dimensions**

**Serial No. 028 Calibration No. 11**

| Test Parameter                                       | Dimension | Specification    | Results | Pass |
|------------------------------------------------------|-----------|------------------|---------|------|
| Seated Height                                        | SH        | 889.0 - 909.3 mm | 897 mm  | Yes  |
| Rib Height                                           | RH        | 501.7 - 520.7 mm | 507 mm  | Yes  |
| Hip Pivot Height                                     | HP        | 99.1 REF mm      | 99.1 mm |      |
| Rib From Backline                                    | RD        | 228.6 - 241.3 mm | 234 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 | 496 mm  | Yes  |
| Hip Width                                            | HW        | 355.6 - 391.2 mm | 375 mm  | Yes  |
| Top Rib Width From CL                                | RW-1      | 165.1 - 180.3 mm | 172 mm  | Yes  |
| Bottom Rib Width From CL                             | RW-2      | 165.1 - 180.3 mm | 173 mm  | Yes  |
| Difference Between Top &<br>Bottom Rib Width from CL |           | $\leq$ 2.5 mm    | 1.0 mm  | Yes  |

Technician

Vincent Ormrod

Approved

V.F. Walther

**TRE**



# Transportation Research Center Inc.

572F Left Side Thorax Test

SFD Serial No. 028 Calibration No. 11 - 2

Test Date 08/24/2004

| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 21.8 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 52 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.31 m/sec   | Yes  |
| Upper Rib Bar Peak Acceleration              | 37 - 46 g         | 40.9 g       | Yes  |
| Lower Rib Bar Peak Acceleration              | 37 - 46 g         | 38.0 g       | Yes  |
| Lower Thoracic Spine (T12) Peak Acceleration | 15 - 22 g         | 16.6 g       | Yes  |

Test meets specifications.

Comments:

Technician



Approved



08.24.2004 13:53:44 1073

**TRC**

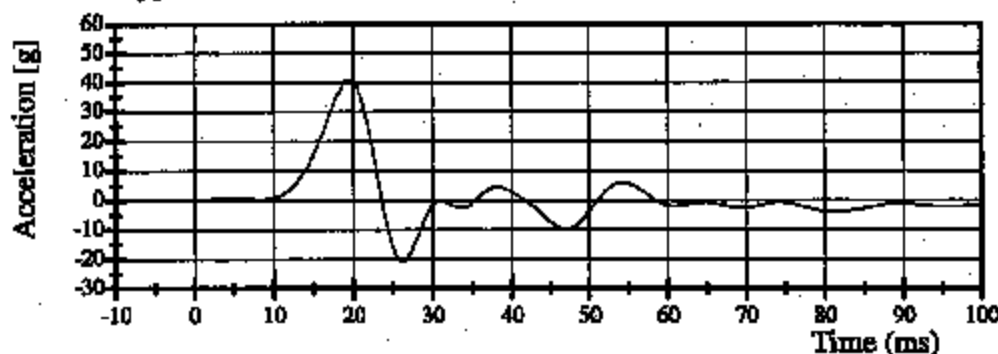
# Transportation Research Center Inc.

572F Left Side Thorax Test

SID Serial No. 028 Calibration No. 11 - 2

Test Date 08/24/2004

Upper Rib Bar Acceleration

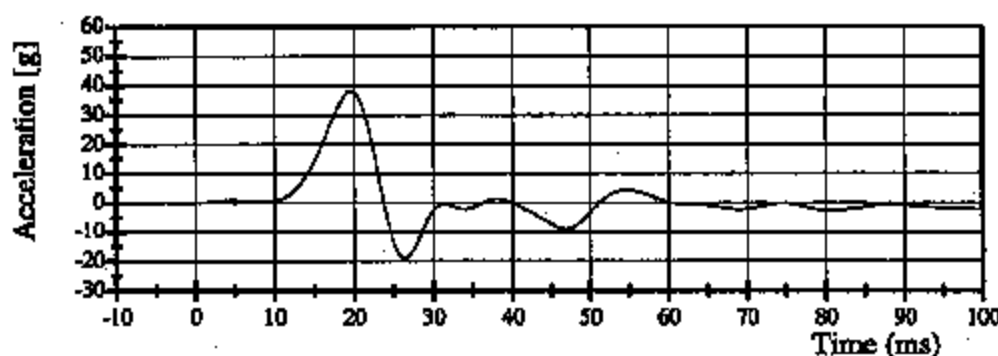


Filter Class: FIR 100

Max: 40.9 g at 19.3 ms

Min: -20.8 g at 26.2 ms

Lower Rib Bar Acceleration

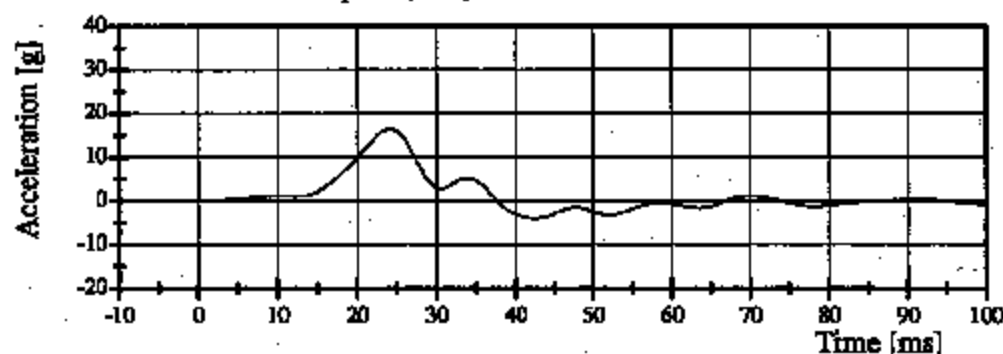


Filter Class: FIR 100

Max: 38.0 g at 19.8 ms

Min: -19.2 g at 26.2 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 16.6 g at 24.2 ms

Min: -4.0 g at 42.4 ms

08.24.2004 13:53:45 1073

TRE

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 23-Aug-04

TRC, INC.

TEST NO: 028C11TF3

572B SN 028 TORSO FLEX CAL 11

| TEST PARAMETER                      | SPECIFICATION  | TEST RESULTS |
|-------------------------------------|----------------|--------------|
| TEMPERATURE                         | 18.9 - 25.6° C | 21.4 °C      |
| RELATIVE HUMIDITY                   | 10 - 70 %      | 60 %         |
| FORCE AT 0 DEG. FLEXION             | -27 - 27 N     | 0 N          |
| FORCE AT 20 DEG OF FLEXION          | 98 - 151 N     | 115.7 N      |
| FORCE AT 30 DEG OF FLEXION          | 151 - 205 N    | 155.7 N      |
| FORCE AT 40 DEG OF FLEXION          | 205 - 258 N    | 209.1 N      |
| NET RETURN ANGLE AFTER 3<br>MINUTES | < 12°          | 1.4°         |

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Vince Oliver*

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 028 Calibration No. 11 - 5

Test Date 08/23/2004

| Test Parameter                | Specification    | Test Results   | Pass |
|-------------------------------|------------------|----------------|------|
| Temperature                   | 18.9 - 25.5 °C   | 21.3 °C        | Yes  |
| Relative Humidity             | 10 - 70 %        | 57 %           | Yes  |
| Displacement Rate             | 6.35 - 8.89 mm/s | 7.6 - 8.0 mm/s | Yes  |
| Data Within Required Corridor | Yes              | Yes            | Yes  |

Test meets specifications.

Comments:

Technician

Vicente Oliver

Approved

V. K. Walker

08.23.2004 15:01:52 1642

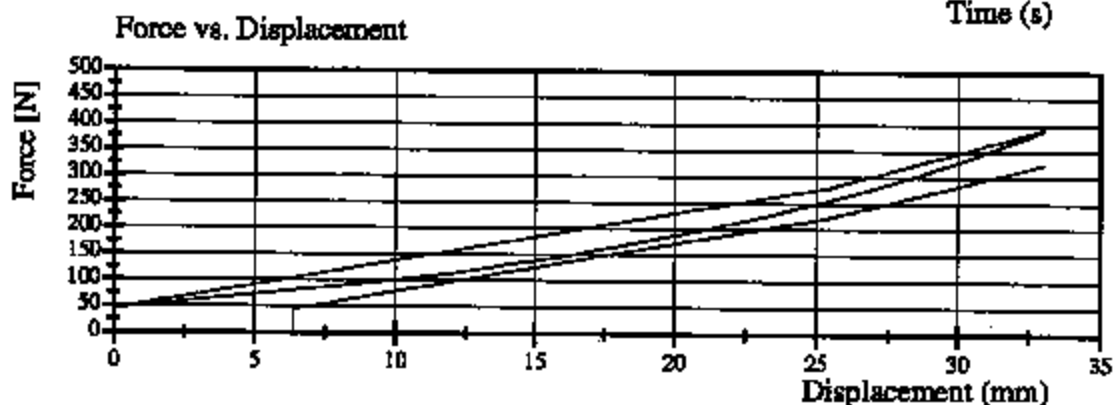
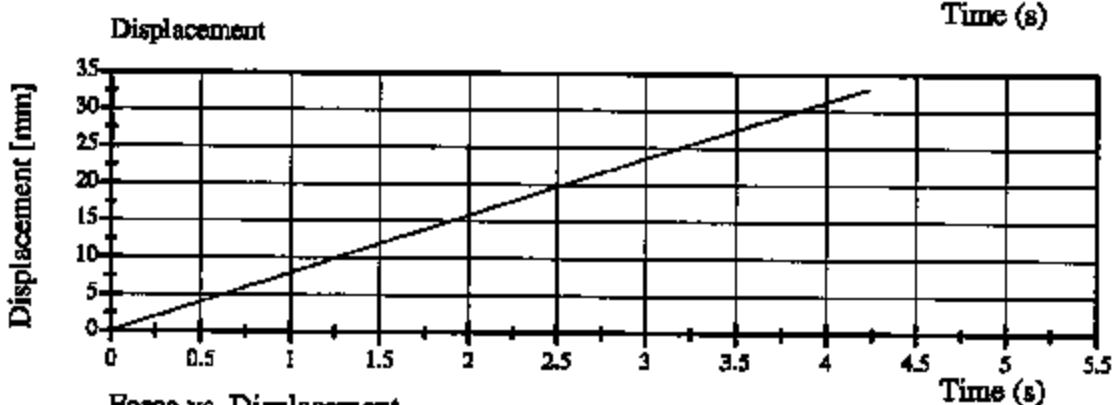
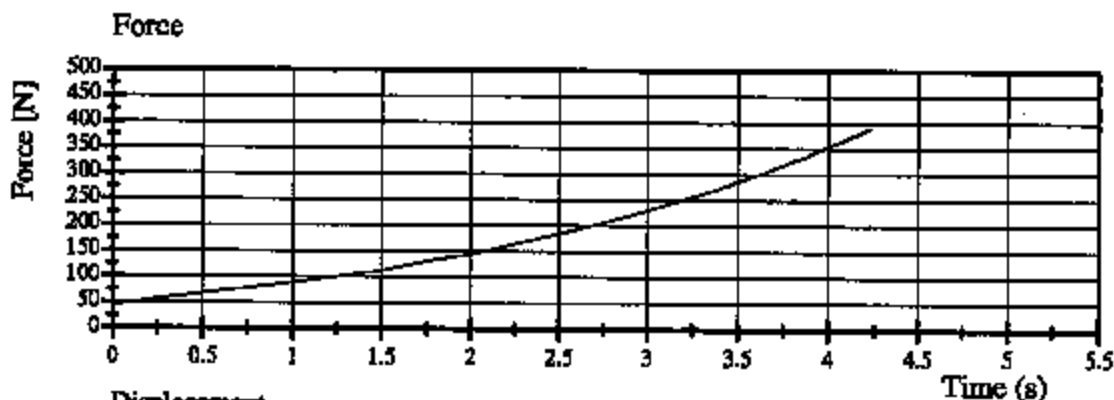
**TRC**

# Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 028 Calibration No. 11 - 5

Test Date 08/23/2004



08.23.2004 15:01:53 1642

TTC

# Transportation Research Center Inc.

572F Left Side Pelvis Test

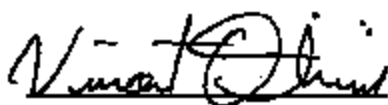
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Test Date 08/24/2004

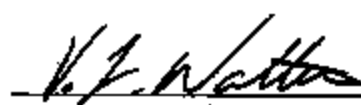
| Test Parameter                               | Specification     | Test Results | Pass |
|----------------------------------------------|-------------------|--------------|------|
| Temperature                                  | 18.9 - 25.5 C     | 24.4 C       | Yes  |
| Relative Humidity                            | 10 - 70 %         | 59 %         | Yes  |
| Pendulum Velocity                            | 4.27 - 4.33 m/sec | 4.31 m/sec   | Yes  |
| Pelvis Peak Acceleration                     | 40 - 60 g         | 47.0 g       | Yes  |
| Time Above 20 g                              | 3 - 7 ms          | 6.24 ms      | Yes  |
| Unimodal requirement for pelvis acceleration | Yes               | Yes          | Yes  |

Comments:

Technician



Approved



08.24.2004 12:45:28 1140

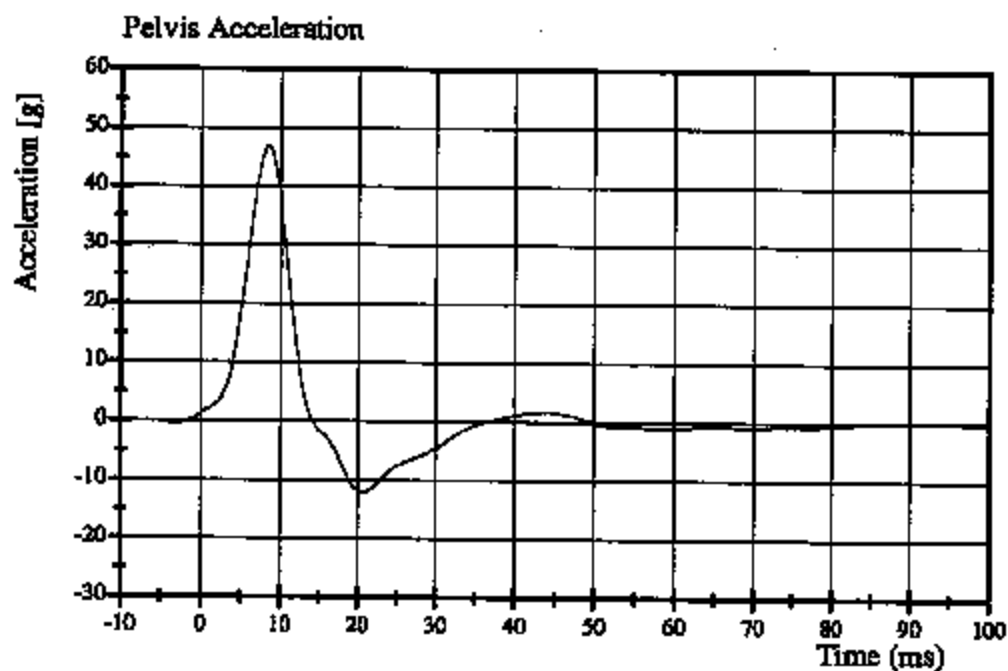
**TRE**

# Transportation Research Center Inc.

572F Left Side Pelvis Test

SID Serial No. 028 Calibration No. 11 - 1

Test Date 08/24/2004



Filter Class: FIR 100

Max: 47.0 g at 8.2 ms

Min: -12.2 g at 20.7 ms

08.24.2004 12:45:30 1140

**TRE**

Type: DOT SID S/N: 066 Mfr: Denton Test Date: 08/17/04  
 Proj./Seg. No.: 20020455-2110 Test Eng.: Walter D. Dudek

| ITEM                                                                 | PRE-USE       |           |
|----------------------------------------------------------------------|---------------|-----------|
| <b>HEAD:</b>                                                         |               |           |
| Head Ballast Condition                                               | X             |           |
| Accel. Mount Bolts and Cables                                        | N/A           |           |
| Skull Cap Bolts                                                      | X             |           |
| Head Skin Condition                                                  | X             |           |
| Accel. Cable Exit (left or right)                                    | (Left)<br>N/A | (Right)   |
| <b>NECK:</b>                                                         |               |           |
| Rubber Condition and Separation From End Caps                        | X             |           |
| <b>THORAX: Left side configuration</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)<br>X   | (Without) |
| <b>LEGS AND FEET:</b>                                                |               |           |
| Femur Load Cell Bolts (30 ft/lbs)                                    | X             |           |
| Breakaway Femur Bolts                                                | 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: J. Clarridge Date: 08/03/04



Type: DOT SID S/N: 028 Mfr: Vector Test Date: 08/17/04Proj./Seg. No.: 20020455-2110 Test Eng.: Walter D. Dudek

| ITEM                                                                 | PRE-USE       |           |
|----------------------------------------------------------------------|---------------|-----------|
| <b>HEAD:</b>                                                         |               |           |
| Head Ballast Condition                                               | X             |           |
| Accel. Mount Bolts and Cables                                        | N/A           |           |
| Skull Cap Bolts                                                      | X             |           |
| Head Skin Condition                                                  | X             |           |
| Accel. Cable Exit (left or right)                                    | (Left)<br>N/A | (Right)   |
| <b>NECK:</b>                                                         |               |           |
| Rubber Condition and Separation From End Caps                        | X             |           |
| <b>THORAX: Left side configuration</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)<br>X   | (Without) |
| <b>LEGS AND FEET:</b>                                                |               |           |
| Femur Load Cell Bolts (30 ft/lbs)                                    | X             |           |
| Breakaway Femur Bolts                                                | 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: J. Clarridge Date: 08/03/04

Transportation Research Center Inc.

SID Post-Use Inspection

Type: DOT SID S/N: 066Mfr: DentonTest Date: 08/17/04Proj./Seg. No.: 20020455-2110Test Eng.: Walter D. Dudek

| ITEM                                                | POST-USE |
|-----------------------------------------------------|----------|
| <b>HEAD:</b>                                        |          |
| Head Skin Condition                                 | X        |
| Head Ballast Condition                              | X        |
| <b>NECK:</b>                                        |          |
| Rubber Condition and Separation From End Caps       | X        |
| <b>THORAX: Left side configuration</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 found.Inspection Completed By: J. ClarridgeDate: 08/19/04

Type: DOT SID S/N: 028 Mfr: Vector Test Date: 08/17/04  
Proj./Seg. No.: 20020455-2110 Test Eng.: Walter D. Dudek

| ITEM                                                | POST-USE |
|-----------------------------------------------------|----------|
| <b>HEAD:</b>                                        |          |
| Head Skin Condition                                 | X        |
| Head Ballast Condition                              | X        |
| <b>NECK:</b>                                        |          |
| Rubber Condition and Separation From End Caps       | X        |
| <b>THORAX: Left side configuration</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.

Inspection Completed By: J. Clarridge

Date: 08/19/04

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

8/17/2004 7:25:50 AM

Name of Test 040817

System MINIDAU

Name of DAU DAU8

| Chan.# | Sensor # | Mnemonic | Description             | Dir. | Range     | Pol. | Cal.        | Group    | Mfg.    | Model          |
|--------|----------|----------|-------------------------|------|-----------|------|-------------|----------|---------|----------------|
| 8001   | P34348   | LURYG1   | Left Upper Rib Y        | Rgt  | 802.50783 | g    | + 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8002   | P31875   | LURYR1   | Left Upper Rib Red Y    | Rgt  | 788.83308 | g    | + 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8003   | P34029   | LLRYG1   | Left Lower Rib Y        | Rgt  | 801.75383 | g    | + 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8004   | P33541   | LLRYR1   | Left Lower Rib Red Y    | Rgt  | 810.04967 | g    | + 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8005   | P34275   | T12YG1   | Lower Spine Y           | Lft  | 398.18638 | g    | - 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8006   | P33847   | T12YR1   | Lower Spine Red Y       | Lft  | 401.24762 | g    | - 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8007   | P34025   | PEVYG1   | Pelvis Accel Y          | Lft  | 401.78291 | g    | - 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8008   | P33878   | PEVYR1   | Pelvis Accel Red Y      | Lft  | 400.44737 | g    | - 4/19/2004 | OK 066nl | Endevco | 7264C-2K-2-180 |
| 8009   | P33829   | LURYG4   | Left Upper Rib Y        | Rgt  | 809.31982 | g    | + 3/31/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8010   | P33607   | LURYR4   | Left Upper Rib Red Y    | Rgt  | 787.43790 | g    | + 3/31/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8011   | P33894   | LLRYG4   | Left Lower Rib Y        | Rgt  | 796.72595 | g    | + 4/19/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8012   | P33588   | LLRYR4   | Left Lower Rib Red Y    | Rgt  | 804.70248 | g    | + 3/31/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8013   | P33800   | T12YG4   | Lower Spine Y           | Lft  | 401.00250 | g    | - 3/31/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8014   | P33576   | T12YR4   | Lower Spine Red Y       | Lft  | 402.37021 | g    | - 3/31/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8015   | P33547   | PEVYG4   | Pelvis Accel Y          | Lft  | 396.99770 | g    | - 3/31/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8016   | P33805   | PEVYR4   | Pelvis Accel Red Y      | Lft  | 398.18638 | g    | - 3/31/2004 | OK 028nl | Endevco | 7264C-2K-2-180 |
| 8017   | P34253   | RFSXG1   | RGT SIDE SILL FRNT ST X | FWD  | 402.89581 | g    | + 6/7/2004  | OK -1    | Endevco | 7264C-2K-2-180 |
| 8018   | P34681   | RFSYG1   | RGT SIDE SILL FRNT ST Y | LT   | 1003.4296 | g    | - 6/7/2004  | OK -1    | Endevco | 7264C-2K-2-180 |
| 8019   | P37752   | RFSZG1   | RGT SIDE SILL FRNT ST Z | UP   | 402.64234 | g    | - 6/7/2004  | OK -1    | Endevco | 7264C-2K-2-180 |
| 8020   | P37722   | RRSXG1   | RGT SIDE SILL RR ST X   | FWD  | 399.95937 | g    | + 6/7/2004  | OK -1    | Endevco | 7264C-2K-2-180 |
| 8021   | P37753   | RRSYG1   | RGT SIDE SILL RR ST Y   | LT   | 1012.4980 | g    | - 6/7/2004  | OK -1    | Endevco | 7264C-2K-2-180 |
| 8022   | P33562   | RRSZG1   | RGT SIDE SILL RR ST Z   | UP   | 401.98479 | g    | - 3/31/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8023   | P33668   | RDKXG1   | RR FLR PAN ABV AXLE X   | FWD  | 1000      | g    | + 3/17/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8024   | P33539   | RDKYG1   | RR FLR PAN ABV AXLE Y   | LT   | 992.05580 | g    | - 3/31/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8025   | P33716   | RDKZG1   | RR FLR PAN ABV AXLE Z   | UP   | 986.81674 | g    | - 3/16/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8026   | P33092   | LRSYG1   | LFT SIDE SILL RR ST Y   | RT   | 1020.9779 | g    | + 2/27/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8027   | P30417   | LPSYG1   | LFT SIDE SILL FRNT ST Y | RT   | 1004.9975 | g    | + 7/28/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8028   | P23483   | RRTYG1   | RGT RR OCP COMP Y       | RT   | 1522.4501 | g    | + 4/8/2004  | OK -1    | Endevco | 7264C-2K-2-180 |
| 8029   | P33769   | LLBYG1   | LFT LOWER B-POST Y      | RT   | 1512.4240 | g    | + 7/28/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8030   | P28599   | LUBYG1   | LFT MID B-POST Y        | RT   | 1507.8851 | g    | + 5/24/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8031   | P28598   | LLAYG1   | LFT LOWER A-POST Y      | LT   | 1491.3270 | g    | - 7/28/2004 | OK -1    | Endevco | 7264C-2K-2-180 |
| 8032   | P33998   | LUAYG1   | LFT MID A-POST Y        | LT   | 1492.9289 | g    | - 4/19/2004 | OK -1    | Endevco | 7264C-2K-2-180 |

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# Channel Report

8/17/2004 7:25:50 AM

Name of Test 040817

System MINIDAU

Name of DAU DAU9

| Chan.# | Sensor # | Mnemonic | Description           | Dir. | Range     | Pol. | Cal.        | Group | Mfg.    | Model          |
|--------|----------|----------|-----------------------|------|-----------|------|-------------|-------|---------|----------------|
| 9001   | P34961   | LFTYG1   | LFT FRNT SEAT TRACK Y | RT   | 1461.1872 | g    | + 6/7/2004  | OK -1 | Endevco | 7264C-2K-2-180 |
| 9002   | P33612   | LRTYG1   | LFT RR SEAT TRACK Y   | LT   | 1518.7920 | g    | - 3/16/2004 | OK -1 | Endevco | 7264C-2K-2-180 |
| 9003   | P33759   | VCGXG1   | VEH C/G X             | FWD  | 987.08309 | g    | + 3/31/2004 | OK -1 | Endevco | 7264C-2K-2-180 |
| 9004   | P33028   | VCGYG1   | VEH C/G Y             | LT   | 1012.0177 | g    | - 2/27/2004 | OK -1 | Endevco | 7264C-2K-2-180 |
| 9005   | P33613   | VCGZG1   | VEH C/G Z             | UP   | 987.14018 | g    | - 3/16/2004 | OK -1 | Endevco | 7264C-2K-2-180 |

D-7

040817

# Channel Report

8/17/2004 7:25:50 AM

Name of Test 040817

System MINIDAU

Name of DAU DAUA

| Chan.# | Sensor # | Mnemonic | Description                  | Dir. | Range     | Pol. | Cal.        | Group | Mfg.    | Model          |
|--------|----------|----------|------------------------------|------|-----------|------|-------------|-------|---------|----------------|
| 0001   | EVENT    | EVENT    | EVENT                        |      | 5.12      | V    | + 4/19/2004 | OK -1 | TRC     | Event          |
| 0002   | P34983   | BCGXG1   | MDB Center of Gravity X-axis | FWD  | 605.28680 | g    | + 6/7/2004  | OK -1 | Endevco | 7264C-2K-2-180 |
| 0003   | P34217   | BCGYG1   | MDB Center of Gravity Y-axis | LT   | 606.75009 | g    | - 4/19/2004 | OK -1 | Endevco | 7264C-2K-2-180 |
| 0004   | P34105   | BCGZG1   | MDB Center of Gravity Z-axis | UP   | 595.57044 | g    | - 4/19/2004 | OK -1 | Endevco | 7264C-2K-2-180 |
| 0005   | P34347   | LRRXG1   | MDB Left Rear X-axis         | FWD  | 602.60816 | g    | + 4/19/2004 | OK -1 | Endevco | 7264C-2K-2-180 |
| 0006   | P27514   | LRRYG1   | MDB Left Rear Y-axis         | RT   | 599.38815 | g    | + 7/9/2004  | OK -1 | Endevco | 7264C-2K-2-180 |

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040817

# Digital and System Channel Report

2004-08-17 07:25:14

Name of Test 040817

System MINIDAU

Name of DAU DAUA descriptio

enable Channel

Short Name

Type

Data File

Module Type

Yes 0501

DIGA

dig0

DATA0501

KM3710 Controller

bit position bit

short

long

descriptio

MSB - bit 15

1

MDBR1

MDB Right Side Contact Switch

W

bit 14

1

MDBL1

MDB Left Side Contact Switch

V

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

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040817

Dummy 066nl Type DOT SID Description NHTSA - 066n SID-LEFT IMP. ICAL'd 4-19-04 (DKS7-6-04 )J211

| Chsnam | Location             | Model         | Name          | Manufacturer | Sens./mV/V/U    | Fullscal | Caldat     | Pos Output        | Flip |
|--------|----------------------|---------------|---------------|--------------|-----------------|----------|------------|-------------------|------|
| IHEDXG | Head Accel X         | 7264-2000TZ   | J26980        | Endevco      | 0.0307 g        | 2000     | 3/18/2004  | Rwd               | 1    |
| IHEDYG | Head Accel Y         | 7264-2000TZ   | J27048        | Endevco      | 0.02678 g       | 2000     | 9/9/2003   | Lft               | 1    |
| IHEDZG | Head Accel Z         | 7264-2000TZ   | J26896        | Endevco      | 0.024 g         | 2000     | 12/11/2003 | Up                | 1    |
| IHEDXR | Head Accel X Red     | 7264C-2K-2-18 | P22890        | Endevco      | 0.02212 g       | 2000     | 9/9/2003   | Rwd               | 1    |
| IHEDYR | Head Accel Y Red     | 7264C-2K-2-18 | P16213        | Endevco      | 0.0162 g        | 2000     | 3/31/2004  | Lt                | 1    |
| IHEDZR | Head Accel Z Red     | 7264C-2K-2-18 | P18941        | Endevco      | 0.02027 g       | 2000     | 3/31/2004  | Up                | 1    |
| INEKXF | Neck Force X         | 1716A         | 1716A-1220-FX | Denton       | 0.000195214 N   | 8896.4   | 9/16/2003  | Hd Fd,Cst Rr      | 1    |
| INEKYF | Neck Force Y         | 1716A         | 1716A-1220-FY | Denton       | 0.000186244 N   | 8896.4   | 9/16/2003  | Hd Lt,Cst Rt      | 0    |
| INEKZF | Neck Force Z         | 1716A         | 1716A-1220-FZ | Denton       | 0.000098594 N   | 13344.6  | 9/16/2003  | Hd Up,Cst Dn      | 0    |
| INEKXM | Neck Moment X        | 1716A         | 1716A-1220-MX | Denton       | 0.005936637 N-m | 282.5    | 9/16/2003  | Rt Ear to Rt Shld | 1    |
| INEKYM | Neck Moment Y        | 1716A         | 1716A-1220-MY | Denton       | 0.005987257 N-m | 282.5    | 9/16/2003  | Chn to Strnm      | 0    |
| INEKZM | Neck Moment Z        | 1716A         | 1716A-1220-MZ | Denton       | 0.008511504 N-m | 282.5    | 9/16/2003  | Chn to Lt Shld    | 0    |
| LURYG  | Left Upper Rib Y     | 7264C-2K-2-18 | P34348        | Endevco      | 0.0319 g        | 2000     | 4/19/2004  | Rgt               | 0    |
| LURYR  | Left Upper Rib Red Y | 7264C-2K-2-18 | P31875        | Endevco      | 0.01909 g       | 2000     | 4/19/2004  | Rgt               | 0    |
| LLRYG  | Left Lower Rib Y     | 7264C-2K-2-18 | P34029        | Endevco      | 0.0206 g        | 2000     | 4/19/2004  | Rgt               | 0    |
| LLRYR  | Left Lower Rib Red Y | 7264C-2K-2-18 | P33541        | Endevco      | 0.01859 g       | 2000     | 4/19/2004  | Rgt               | 0    |
| T12YG  | Lower Spine Y        | 7264C-2K-2-18 | P34275        | Endevco      | 0.02041 g       | 2000     | 4/19/2004  | Lft               | 1    |
| T12YR  | Lower Spine Red Y    | 7264C-2K-2-18 | P33847        | Endevco      | 0.02502 g       | 2000     | 4/19/2004  | Lft               | 1    |
| PEVYG  | Pelvis Accel Y       | 7264C-2K-2-18 | P34025        | Endevco      | 0.01874 g       | 2000     | 4/19/2004  | Lft               | 1    |
| PEVYR  | Pelvis Accel Red Y   | 7264C-2K-2-18 | P33878        | Endevco      | 0.01853 g       | 2000     | 4/19/2004  | Lft               | 1    |

Tuesday, August 17, 2004 066nl

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040817

Dummy 028nl Type DOT SID Descriptio NHTSA - 028n SID-LEFT IMP. CONFIG. ICAL'd 3-31-04 (DKS 7-14-04 )J211

| Chnam  | Location             | Model         | Name          | Manufacturer | Sens./mV/V/U  | Fullscal | Caldat    | Pos Output        | Flp |
|--------|----------------------|---------------|---------------|--------------|---------------|----------|-----------|-------------------|-----|
| IHEDXG | Head Accel X         | 7264C-2K-2-18 | P25307        | Endevco      | 0.01815 g     | 2000     | 10/1/2003 | Rwd               | 1   |
| IHEDYG | Head Accel Y         | 7264C-2K-2-18 | P25326        | Endevco      | 0.02118 g     | 2000     | 10/1/2003 | Lft               | 1   |
| IHEDZG | Head Accel Z         | 7264C-2K-2-18 | P25298        | Endevco      | 0.02191 g     | 2000     | 2/20/2004 | Up                | 1   |
| INEKXF | Neck Force X         | 1716A         | 1716A-1535-FX | Denton       | 0.0001847 N   | 8896.4   | 7/2/2004  | Hd Fd,Cst Rr      | 1   |
| INEKYF | Neck Force Y         | 1716A         | 1716A-1535-FY | Denton       | 0.0001814 N   | 8896.4   | 7/2/2004  | Hd Lt,Cst Rt      | 0   |
| INEKZF | Neck Force Z         | 1716A         | 1716A-1535-FZ | Denton       | 0.0000934 N   | 13344.6  | 7/2/2004  | Hd Up,Cst Dn      | 0   |
| INEXXM | Neck Moment X        | 1716A         | 1716A-1535-MX | Denton       | 0.0058399 N-m | 282.5    | 7/2/2004  | Rt Ear to Rt Shld | 1   |
| INEKYM | Neck Moment Y        | 1716A         | 1716A-1535-MY | Denton       | 0.0057848 N-m | 282.5    | 7/2/2004  | Cfm to Strm       | 0   |
| INEKZM | Neck Moment Z        | 1716A         | 1716A-1535-MZ | Denton       | 0.0081527 N-m | 282.5    | 7/2/2004  | Cfm to Lt Shld    | 0   |
| LURYG  | Left Upper Rib Y     | 7264C-2K-2-18 | P33829        | Endevco      | 0.01543 g     | 2000     | 3/31/2004 | Rgt               | 0   |
| LURYR  | Left Upper Rib Red Y | 7264C-2K-2-18 | P33607        | Endevco      | 0.02827 g     | 2000     | 3/31/2004 | Rgt               | 0   |
| LLRYG  | Left Lower Rib Y     | 7264C-2K-2-18 | P33894        | Endevco      | 0.02073 g     | 2000     | 4/18/2004 | Rgt               | 0   |
| LLRYR  | Left Lower Rib Red Y | 7264C-2K-2-18 | P33588        | Endevco      | 0.02194 g     | 2000     | 3/31/2004 | Rgt               | 0   |
| T12YG  | Lower Spine Y        | 7264C-2K-2-18 | P33800        | Endevco      | 0.0228 g      | 2000     | 3/31/2004 | Lft               | 1   |
| T12YR  | Lower Spine Red Y    | 7264C-2K-2-18 | P33576        | Endevco      | 0.02086 g     | 2000     | 3/31/2004 | Lft               | 1   |
| PEVYG  | Pelvis Accel Y       | 7264C-2K-2-18 | P33547        | Endevco      | 0.02303 g     | 2000     | 3/31/2004 | Lft               | 1   |
| PEVYR  | Pelvis Accel Red Y   | 7264C-2K-2-18 | P33805        | Endevco      | 0.02041 g     | 2000     | 3/31/2004 | Lft               | 1   |

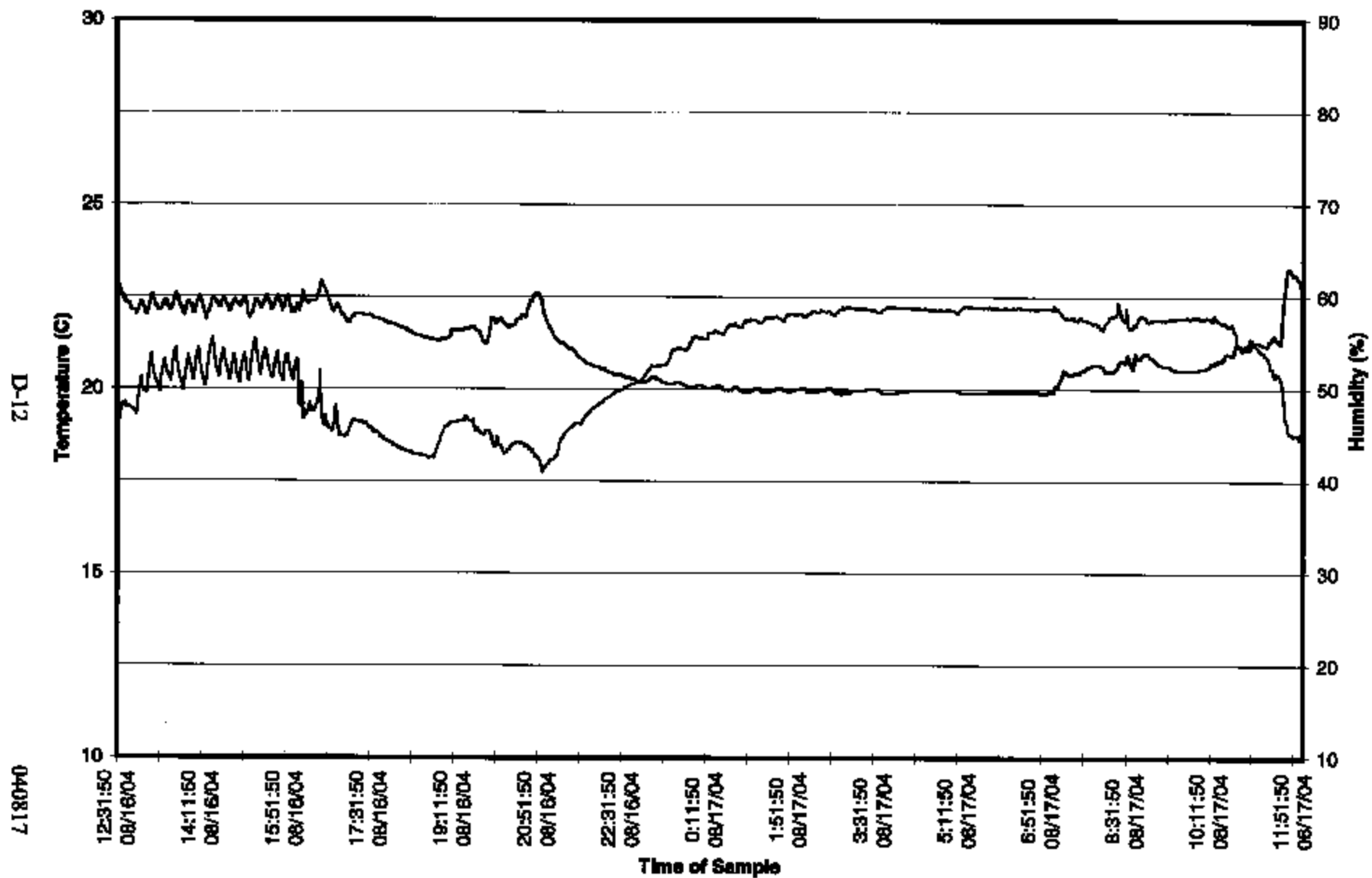
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040817

# FMVSS 214 LEFT SIDE IMPACT C40512 / 040817



040817

**SIDE IMPACTOR BARRIER CERTIFICATION**

Date: July 27, 2004  
To: Transportation Research  
Ship & Rec Bldg 50  
10820 St. Route 347  
East Liberty, OH 43319-0367

**PURCHASE ORDER INFORMATION**

Customer P.O. Number: 031364  
Work Order Number: 105710  
Plascore Part Number: 18723  
Quantity: 01 piece

**CORE INFORMATION**

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

Unit Number: 047A0504

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

  
Quality Control Representative  
Karl D. Zwaanstra

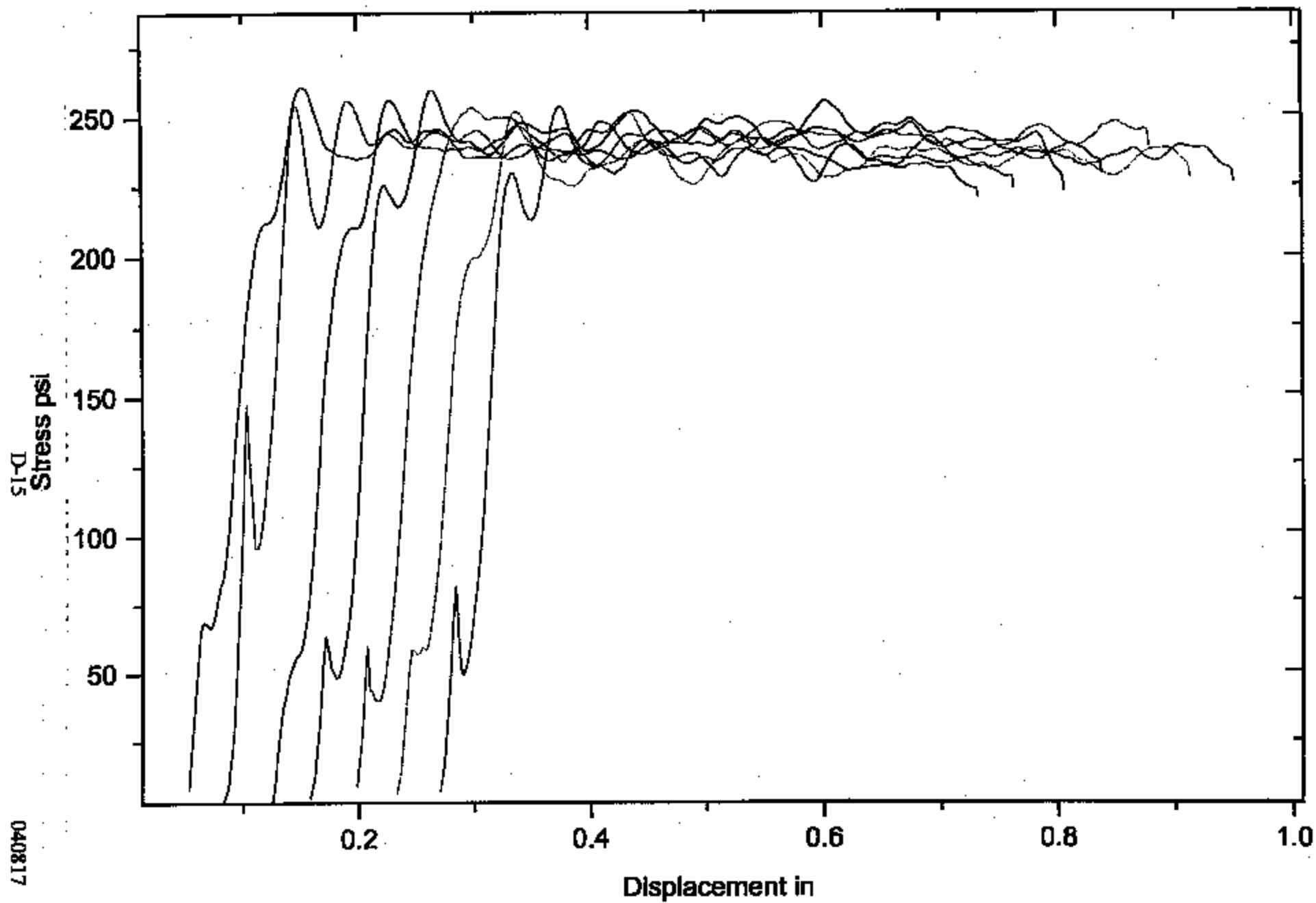




**Crush Data**  
**232 - 250 psi per DWG # DSL-1285**

**Block Number:** 047A0504

| <u>Specimen Number</u> | <u>Zone 1</u> | <u>Zone 2</u> | <u>Zone 3</u> |
|------------------------|---------------|---------------|---------------|
| 1                      | 236.29        | 236.55        | 232.30        |
| 2                      | 239.86        | 241.43        | 235.98        |
| 3                      | 241.89        | 243.01        | 241.52        |
| 4                      | 243.94        | 246.62        | 245.40        |
| 5                      | 243.16        | 240.83        | 241.49        |
| 6                      | 233.96        | 234.91        | 233.89        |
| 7                      | 234.33        | 236.19        | 234.62        |



**SIDE IMPACTOR BARRIER CERTIFICATION**

Date: July 27, 2004  
To: Transportation Research  
Ship & Rec Bldg 50  
10820 St. Route 347  
East Liberty, OH 43319-0367

**PURCHASE ORDER INFORMATION**

Customer P.O. Number: 031364  
Work Order Number: 105710  
Plascore Part Number: 18723  
Quantity: 01 piece

**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 Number: 016A0604

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

  
Quality Control Representative  
Karl D. Zwaanstra

**Crush Data**  
**45 psi +/- 2.5 psi per DWG # DSL-1285**

**Block Number: 016A0604**

| <u>Specimen Number</u> | <u>Zone 1</u> | <u>Zone 2</u> | <u>Zone 3</u> |
|------------------------|---------------|---------------|---------------|
| 1                      | 45.56         | 47.41         | 46.31         |
| 2                      | 46.87         | 46.10         | 47.12         |
| 3                      | 43.82         | 44.36         | 44.90         |
| 4                      | 43.29         | 44.83         | 45.29         |
| 5                      | 46.00         | 45.59         | 46.37         |
| 6                      | 43.99         | 43.37         | 44.80         |
| 7                      | 45.87         | 44.80         | 45.25         |

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