

Report Number: 214-TRC-03-018

Safety Compliance Testing For FMVSS 214

Side Impact Protection

Indicant

Daewoo Auto & Technology Company

2004 Chevrolet Aveo 4-door

NHTSA Number: C40107

Transportation Research Center Inc.

10820 State Route 347

P. O. Box B-67

East Liberty, OH 43319



Test Date: March 17, 2004

Final Report: March 30, 2004

**U. S. Department Of Transportation
National Highway Traffic Safety Administration
Enforcement**

Office of Vehicle Safety Compliance

400 Seventh Street, S. W.

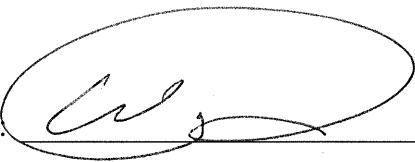
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Washington, DC 20590

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16. Abstract This 56/28 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2004 Chevrolet Aveo 4-door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 except the test was conducted 8 km/h (5 mph) faster than the standard specifies to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on March 17, 2004. The impact velocity of the Moving Deformable Barrier (MDB) was 61.9 km/h, and the ambient temperature at the struck (Driver's) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was 350 mm at Level 2. The test or target vehicle's performance is given below (with FIR filter): <table border="0"> <thead> <tr> <th></th> <th><u>Front SID HIII</u></th> <th></th> <th><u>Rear SID HIII</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td><u>71.6</u></td> <td>g's</td> <td><u>69.0</u></td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td><u>70.6</u></td> <td>g's</td> <td><u>91.1</u></td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td><u>98.8</u></td> <td>g's</td> <td><u>80.5</u></td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td><u>85.4</u></td> <td>g's</td> <td><u>85.9</u></td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td><u>149.0</u></td> <td>g's</td> <td><u>91.3</u></td> <td>g's</td> </tr> </tbody> </table> The rear passenger door on the struck side of the vehicle separated from the body at the latch. The opposite doors did not open during side impact event.				<u>Front SID HIII</u>		<u>Rear SID HIII</u>		Left Upper Rib Acceleration:	<u>71.6</u>	g's	<u>69.0</u>	g's	Left Lower Rib Acceleration:	<u>70.6</u>	g's	<u>91.1</u>	g's	Lower Spine Acceleration:	<u>98.8</u>	g's	<u>80.5</u>	g's	Thoracic Trauma Index, (TTI):	<u>85.4</u>	g's	<u>85.9</u>	g's	Pelvis Acceleration (PEV):	<u>149.0</u>	g's	<u>91.3</u>	g's
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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 Chevrolet Aveo 4-door. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 2001) (except the test was conducted 8 km/h (5 mph) faster than the standard specifies).

Section 2

Summary of Side Impact Test

A 2004 Chevrolet Aveo 4-door 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 61.9 km/h (38.5 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on March 17, 2004. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SID HIIIs) are included in Appendix A.

Two restrained Side Impact Dummies (SID HIIIs) 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 SID HIII dummies 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 SID HIIIs were instrumented with the following accelerometers:

1. Head (HED) triaxial and redundant accelerometers (X, Y, and Z-directions)
2. Neck (NEK) triaxial force and moment load cells (X, Y, and Z-directions)
3. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
4. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
5. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
6. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact dummy (SID HIII) configuration and verification test data can be found in Appendix C. A total of seventy-two (72) 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 HIII	Rear SID HIII
TTI (g)	85.4	85.9
PEV (g)	149.0	91.3

Head Injury Criteria (HIC)

Injury Criteria	Front SID HIII	Rear SID HIII
HIC	262	362
t ₁ (ms)	27.28	38.64
t ₂ (ms)	36.48	63.92
Average Acceleration t ₁ - t ₂ (g)	27.3	38.6

HIC is as defined in FMVSS 208. The maximum time interval t₁ to t₂ is 36 ms.

Neck Injury Criteria

Maximum Values	Front SID HIII	Rear SID HIII
Neck X-axis Force (N)	-1081	751
Neck Y-axis Force (N)	-883	-1356
Neck Z-axis Force (N)	1916	-1208
Moment About X-axis (Nm) ¹	-45.8	-103.3
Moment About Y-axis (Nm)	-77.5	-34.1
Moment About Z-axis (Nm)	49.9	10.2

¹ Calculated about the occipital condyle with the following formula: $M_{occ} = M_x + 0.01778F_y$.

Data Acquisition Explanations

The vehicle's left lower A-post Y-axis acceleration channel, LLAYG1, recorded questionable data throughout the test. The velocity was also affected.

The vehicle's left rear seat track Y-axis acceleration channel, LRTYG1, recorded questionable data throughout the test. The velocity was also affected.

The vehicle's center of gravity X-, Y-, and Z-axis acceleration channels, VCGXG1, VCGYG1, and VCGZG1, recorded an anomalous data spike at approximately 21 milliseconds and recorded no useful data after that. The accelerometer mounting block was found to be dislodged during post-test inspection. The velocity and calculated resultant were also affected.

The moving deformable barrier's left side contact switch channel, MDBL1, did not record an event during the test.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2004 Chevrolet Aveo
Vehicle Body Style/Color: 4-door/Pastel Blue VIN: KL1TD52644B169942
Vehicle NHTSA No.: C40107 Build Date: 12/03
Engine Data: 4 Cylinders; CID; 1.6 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: 76 miles
Options: - A/C; X Power steering; X Pwr. brakes; - Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 210 kPa Front; 210 kPa Rear
Recommended Tire Size: P185/60R14
Tires on Test Vehicle: P185/60R14 Manufacturer: KumHo, Steel Radial

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 = 390 kg (A)
No. of Occupants x 68.04 kg = 340 kg (B)
Vehicle Cargo Capacity (A-B) = 50 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u> 343.0 </u> kg	Left Rear	=	<u> 224.5 </u> kg
Right Front	=	<u> 332.5 </u> kg	Right Rear	=	<u> 215.5 </u> kg
Total Front	=	<u> 675.5 </u> kg	Total Rear	=	<u> 440.0 </u> kg
Front % of Total Weight	=	<u> 60.6 </u> %	Rear % of Total Weight	=	<u> 39.4 </u> %
Total Weight	=	<u> 1115.5 </u> kg			

* Tire pressure used in test.

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight With Max. Fluids = 1115.5 kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle = 50.0 kg (B)
Weight of Instrumented Side Impact Dummies (2 X 84.0 kg) = 168.0 kg (C)
Test Vehicle Target Weight: = 1333.5 kg (A+B+C)

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

Left Front	=	<u>389.5</u> kg	Left Rear	=	<u>328.5</u> kg
Right Front	=	<u>334.5</u> kg	Right Rear	=	<u>275.5</u> kg
Total Front	=	<u>724.0</u> kg	Total Rear	=	<u>604.0</u> kg
Front % of Total Weight	=	<u>54.5</u> %	Rear % of Total Weight	=	<u>45.5</u> %
Total Weight	=	<u>1328</u> kg			

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

Left Front	=	<u>381.4</u> kg	Left Rear	=	<u>310.2</u> kg
Right Front	=	<u>349.4</u> kg	Right Rear	=	<u>286.8</u> kg
Total Front	=	<u>730.8</u> kg	Total Rear	=	<u>597.0</u> kg
Front % of Total Weight	=	<u>55.0</u> %	Rear % of Total Weight	=	<u>45.0</u> %
Total Weight	=	<u>1327.8</u> kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>661</u>	Right Front <u>641</u>	Right Front <u>648</u>
Left Front <u>659</u>	Left Front <u>627</u>	Left Front <u>638</u>
Right Rear <u>644</u>	Right Rear <u>586</u>	Right Rear <u>594</u>
Left Rear <u>630</u>	Left Rear <u>563</u>	Left Rear <u>576</u>

Test Vehicle Wheelbase: 2475 mm

C.G. = 1114 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4132 mm
Left Side = 4132 mm
Centerline = 4230 mm

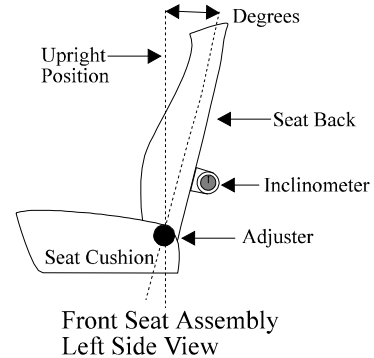
Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

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: 1st detent rearward of the mid point of travel (11 of 20)

Total Length of Fore/Aft Adjustment Travel: 230 mm

Total Number of Adjustment Positions or Detents: 20

Front Seat Back Adjustment Position: The seat back was adjusted to produce a 25° H-point machine torso angle

Seat Back Angle: 15.9 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: Middle of 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:

44.7 liters (fuel tank usable capacity)

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

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

Wheelbase = 2475 millimeters

Intended impact point is 298 millimeters rearward of front axle centerline

Actual Impact Point is 288 millimeters rearward of front axle centerline

Data Sheet 2
Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2004/Chevrolet/Aveo

Body Style: 4-door

VIN: KL1TD52644B169942

NHTSA No.: C40107

Build Date: 12/03

Test Date: 03/17/04

Vehicle Overall Length = 4230 mm

Overall Width = N/A¹

Vehicle Test Weight (Pre-Test):

Left Front = 381.4 kg Left Rear = 310.2 kg

Right Front = 349.4 kg Right Rear = 286.8 kg

Total Front = 730.8 kg Total Rear = 597.0 kg

Total Weight = 1327.8 kg

Wheelbase = 2475 mm

Longitudinal C.G. From Center Of Front Axle = 1114 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 10 mm left of nominal impact ref. line (Lateral)

Actual Impact Point is 5 mm up from nominal impact point (Vertical)

Maximum Exterior Static Crush:

1. Level 1 (302 mm above ground) = 171 mm

2. Level 2 (605 mm above ground) = 350 mm

3. Level 3 (642 mm above ground) = 328 mm

4. Level 4 (905 mm above ground) = 338 mm

5. Level 5 (1500 mm above ground) = 116 mm

Maximum Post-Test Intrusion = 350 mm

Occupants:

Front Passenger

Rear Passenger

Dummy Identification 055

059

Restraints Used 3-point seat belt

3-point seat belt

Instrumentation:

Number of Vehicle Data Channels: = 21

Number of Cameras: Onboard = 3 Offboard = 8 Total = 11

¹ Pre-test maximum vehicle width was not recorded.

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, 057A1203 07180104

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 = 1118 mm

MDB Weight:

Left Front = 420.4 kg Left Rear = 252.4 kg

Right Front = 354.2 kg Right Rear = 335.8 kg

Total Front = 774.6 kg Total Rear = 588.2 kg

Total MDB Weight = 1362.8 kg

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

Impact Speed = 61.9 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level = 151 millimeters

2. Row B at Top of Bumper Level = 89 millimeters

3. Row C at Mid Level = 131 millimeters

4. Row D at Top of Stack Level = 186 millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

Visible Dummy Contact Points:

	<u>Left Front SID HIII</u>	<u>Left Rear SID HIII</u>
Head:	<u>B-pillar, D-ring mount</u>	<u>Side header, C-pillar,</u> <u>and head restraint</u>
Upper Torso:	<u>Door panel, B-pillar</u>	<u>Door panel</u>
Lower Torso:	<u>Door panel</u>	<u>Door panel</u>
Left Knee:	<u>Door panel</u>	<u>Door panel</u>
Right Knee:	<u>None</u>	<u>None</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed and latched</u>	<u>Easy</u>
Rear:	<u>Unlatched¹</u>	<u>Easy</u>

MDB Distance From Target Impact Point:

Vertical: 5 mm up from target
Horizontal: 10 mm left from target

Arm Rest Locations:

Front: 233 mm below the bottom of the window
Rear: 233 mm below the bottom of the window

Seat Movement:

Front: None
Rear: None

Glazing Damage:

Windshield: None
Window: Left side windows were broken.

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects: None

¹ See photo A-54 page A-57.

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID HIII Instrumentation Data

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

TEST NUMBER: 040317

DRIVER DUMMY SERIAL NUMBER: 055

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	40.4 g	@ 171.7 ms	27.1 g	@ 44.1 ms
LATERAL	78.5 g	@ 31.2 ms	9.4 g	@ 205.4 ms
VERTICAL	32.0 g	@ 29.9 ms	12.5 g	@ 37.4 ms
RESULTANT	86.6 g	@ 31.2 ms		
HIC 36	262 from 27.3 to 36.5 ms			

HEAD REDUNDANT ACCELERATION

LONGITUDINAL	40.6 g	@ 171.7 ms	24.7 g	@ 44.2 ms
LATERAL	79.3 g	@ 31.2 ms	9.3 g	@ 204.9 ms
VERTICAL	32.1 g	@ 29.9 ms	12.4 g	@ 36.8 ms
RESULTANT	87.8 g	@ 31.2 ms		
HIC 36	279 from 27.3 to 36.7 ms			

NECK FORCE

X-AXIS SHEAR	113.4 N	@ 180.5 ms	1080.7 N	@ 44.6 ms
Y-AXIS SHEAR	300.5 N	@ 40.2 ms	883.4 N	@ 31.0 ms
Z-AXIS AXIAL	1916.3 N	@ 30.2 ms	978.0 N	@ 36.8 ms

NECK MOMENT

ABOUT X-AXIS	19.1 N-m	@ 47.9 ms	50.0 N-m	@ 38.6 ms
ABOUT Y-AXIS	74.5 N-m	@ 61.4 ms	77.5 N-m	@ 43.9 ms
ABOUT Z-AXIS	49.9 N-m	@ 53.8 ms	20.4 N-m	@ 209.8 ms
OCCIPITAL COND	17.0 N-m	@ 47.8 ms	45.8 N-m	@ 38.5 ms

LEFT UPPER RIB ACCELERATION

LATERAL (P)	71.6 g	@ 23.8 ms	19.3 g	@ 87.5 ms
LATERAL (R)	75.1 g	@ 23.8 ms	19.7 g	@ 87.5 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	70.6 g	@ 31.9 ms	18.2 g	@ 87.5 ms
LATERAL (R)	70.1 g	@ 31.9 ms	18.5 g	@ 87.5 ms
TTI d (P)	85.2			
TTI d (R)	86.3			

LOWER SPINE ACCELERATION

LATERAL (P)	98.8 g	@ 28.7 ms	11.7 g	@ 91.2 ms
LATERAL (R)	97.4 g	@ 28.7 ms	12.0 g	@ 91.2 ms

PELVIS ACCELERATION

LATERAL (P)	149.0 g	@ 25.0 ms	17.7 g	@ 46.3 ms
LATERAL (R)	149.0 g	@ 25.0 ms	17.5 g	@ 46.3 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 5 (Continued)

SID HIII Instrumentation Data

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

TEST NUMBER: 040317

PASSENGER DUMMY SERIAL NUMBER: 059

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	9.1 g	@ 152.4 ms	17.0 g	@ 39.4 ms
LATERAL	74.4 g	@ 44.1 ms	11.8 g	@ 61.0 ms
VERTICAL	34.5 g	@ 41.0 ms	36.1 g	@ 56.8 ms
RESULTANT	77.1 g	@ 44.1 ms		
HIC 36	362 from 38.6 to 63.9 ms			

HEAD REDUNDANT ACCELERATION

LONGITUDINAL	9.2 g	@ 150.1 ms	16.8 g	@ 39.4 ms
LATERAL	74.9 g	@ 44.1 ms	11.4 g	@ 61.5 ms
VERTICAL	34.2 g	@ 41.0 ms	36.2 g	@ 56.7 ms
RESULTANT	77.8 g	@ 44.1 ms		
HIC 36	362 from 38.6 to 64.1 ms			

NECK FORCE

X-AXIS SHEAR	750.6 N	@ 55.0 ms	155.7 N	@ 105.9 ms
Y-AXIS SHEAR	20.9 N	@ 0.7 ms	1355.6 N	@ 51.4 ms
Z-AXIS AXIAL	642.7 N	@ 35.4 ms	1207.5 N	@ 61.9 ms

NECK MOMENT

ABOUT X-AXIS	18.9 N-m	@ 158.2 ms	86.0 N-m	@ 58.9 ms
ABOUT Y-AXIS	26.8 N-m	@ 117.3 ms	34.1 N-m	@ 66.6 ms
ABOUT Z-AXIS	10.2 N-m	@ 70.6 ms	10.0 N-m	@ 172.6 ms
OCCIPITAL COND	15.7 N-m	@ 158.2 ms	103.3 N-m	@ 58.6 ms

LEFT UPPER RIB ACCELERATION

LATERAL (P)	69.0 g	@ 31.9 ms	10.6 g	@ 36.9 ms
LATERAL (R)	67.4 g	@ 31.9 ms	10.7 g	@ 36.9 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	91.1 g	@ 31.3 ms	7.0 g	@ 59.4 ms
LATERAL (R)	89.4 g	@ 31.3 ms	5.9 g	@ 59.4 ms
TTI d (P)	85.8			
TTI d (R)	84.5			

LOWER SPINE ACCELERATION

LATERAL (P)	80.5 g	@ 36.3 ms	20.8 g	@ 63.8 ms
LATERAL (R)	79.5 g	@ 36.3 ms	21.1 g	@ 64.4 ms

PELVIS ACCELERATION

LATERAL (P)	91.3 g	@ 30.0 ms	25.7 g	@ 59.4 ms
LATERAL (R)	91.3 g	@ 30.0 ms	25.4 g	@ 59.4 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

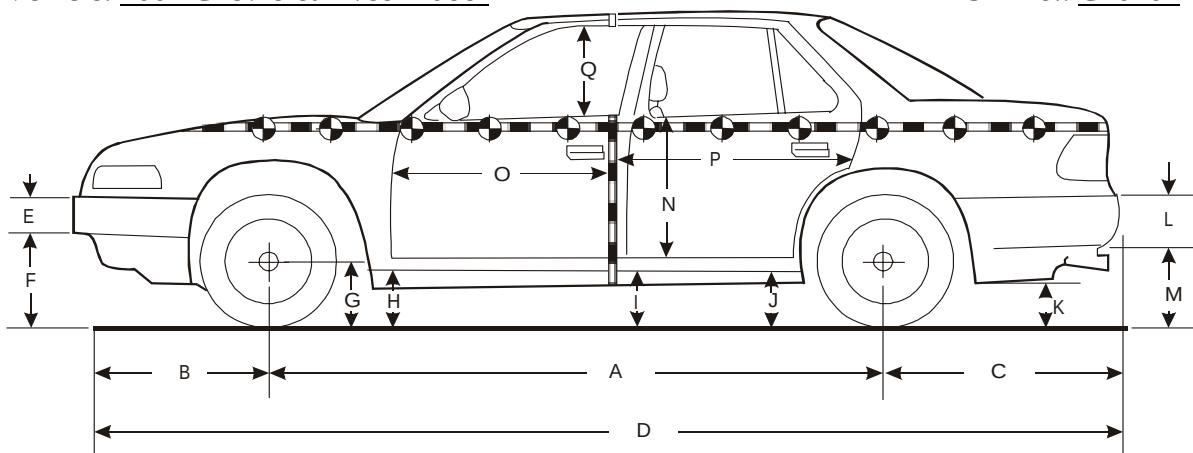
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



Left Side View

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

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2475	2475	2459	16
B	800	800	823	-23
C	935	935	895 ¹	40 ¹
D	4230	4230	4160 ¹	70 ¹
E	155	155	155	0
F	410	339	358	-19
G	270	267	267	0
H	427	219	211	8
I	427	215	282	-67
J1	199	154	155	-1
J2	420	195	211	-16
K	311	N/A ²	N/A ¹	N/A ¹
L	160	160	160	0
M	447	335	346	-11
N	700	700	600	100
O	730	730	685	45
P	1332	1332	1155	177
Q	441	441	425	16
R	4132	4132	4031 ¹	101 ¹
S	4125	4132	4035 ¹	97 ¹
T	1280	1280	1038	242

D = Length at centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

T = Width at B-pillar

J1 = To Pinch Weld

J2 = To Sill

¹ The vehicle's rear bumper fascia was destroyed during testing. Post-test measurements are to the bumper beam. The difference is affected.

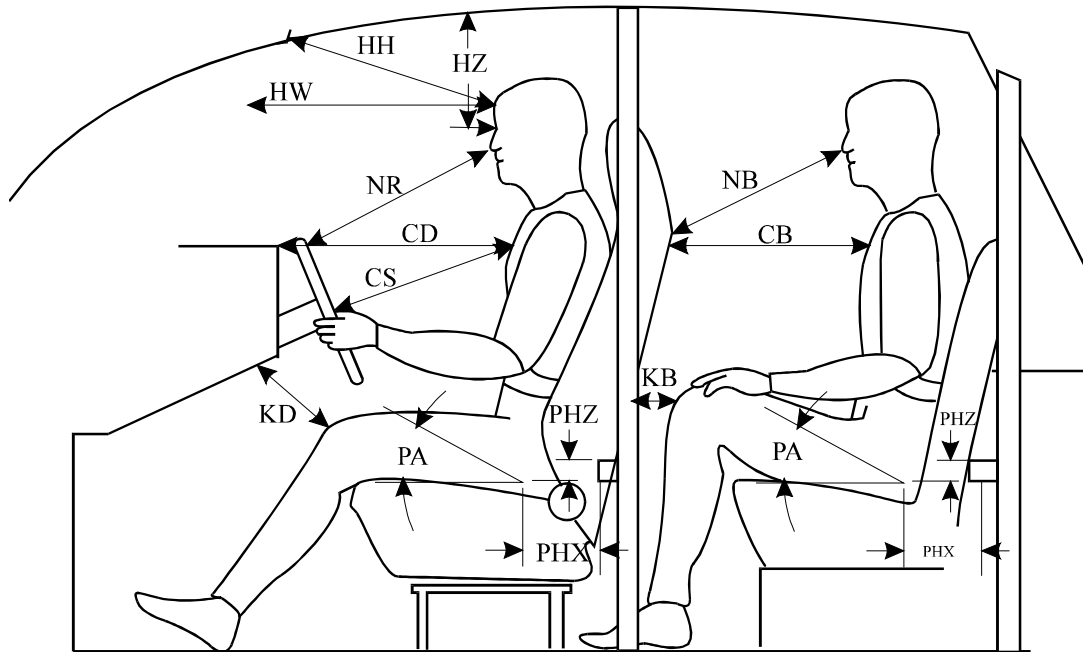
² Pre-test measurement not recorded.

Data Sheet 7

SID HIII Longitudinal Clearance Dimensions

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



Left Side View

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

Measurement	Driver SID HIII # 055	Left Rear Pass. SID HIII # 059
HH	530	N/A
HW	765	N/A
HZ	195	140
NR/NB	562	575
CD/CB	655	470
CS	442	N/A
KDL(KDA°)/KBL(KBA°)	83/(76.6°)	50/(61.5°)
KDR(KDA°)/KBR(KBA°)	73/(73.8°)	47/(59.0°)
PA°	25.0°	25.0°
PHX	184	330
PHZ	136	278

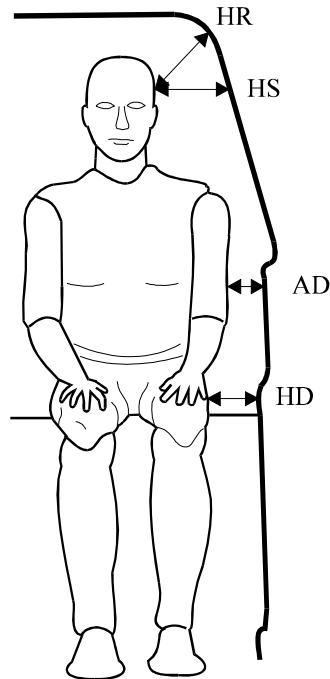
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID HIII Lateral Clearance Dimensions

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



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

Measurement	Driver SID HIII # 055	Left Rear Pass. SID HIII # 059
HR	209	180
HS	295	275
AD*	Lower: 104 Upper: 103	Lower: 103 Upper: 82
HD	152	166

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

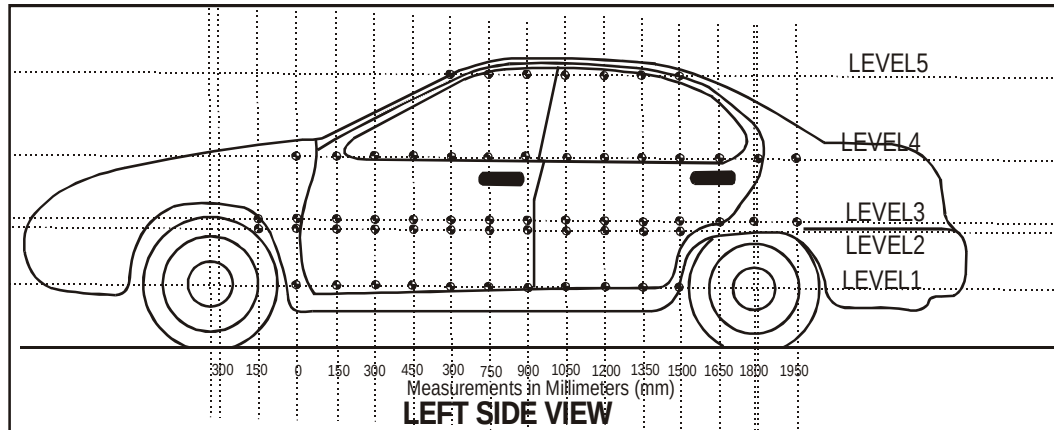
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID HIII arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



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>1500</u>	mm
Level 4 @ Window Sill	=	<u>905</u>	mm
Level 3 @ Mid Door	=	<u>642</u>	mm
Level 2 @ Occupant H-Point	=	<u>605</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>302</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

Location	Height		(mm) From Impact Point													
			-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	302	Pre	---	---	---	---	---	---	---	---	---	725	725	725	725	725
		Post	---	---	---	---	---	---	---	---	---	836	841	859	866	877
		Crush	---	---	---	---	---	---	---	---	---	111	116	134	141	152
Level 2 H-Point	605	Pre	---	---	---	---	723	---	---	---	676	678	676	675	675	674
		Post	---	---	---	---	731	---	---	---	750	882	944	964	968	971
		Crush	---	---	---	---	8	---	---	---	74	204	268	289	293	297
Level 3 Mid-Door	642	Pre	---	---	---	---	742	683	675	670	682	679	675	673	673	672
		Post	---	---	---	---	744	707	---	723	741	870	942	954	959	966
		Crush	---	---	---	---	2	24	---	53	59	191	267	281	286	294
Level 4 Window Sill	905	Pre	---	---	---	---	845	803	774	750	737	728	718	704	700	698
		Post	---	---	---	---	845	807	784	770	767	806	870	901	934	954
		Crush	---	---	---	---	0	4	10	20	30	78	152	197	234	256
Level 5 Window Top	1500	Pre	---	---	---	---	---	---	---	---	---	---	---	---	---	965
		Post	---	---	---	---	---	---	---	---	---	---	---	---	---	994
		Crush	---	---	---	---	---	---	---	---	---	---	---	---	---	29

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	302	Pre	725	724	723	719	719	720	---	---	---	---	---	---	---
		Post	896	895	893	884	854	822	---	---	---	---	---	---	---
		Crush	171	171	170	165	135	102	---	---	---	---	---	---	---
Level 2 H-Point	605	Pre	675	675	675	674	671	673	716	670	---	---	681	619	739
		Post	999	1006	1001	1024	1003	976	918	721	---	---	---	---	---
		Crush	324	331	326	350	332	303	202	51	---	---	---	---	---
Level 3 Mid-Door	642	Pre	673	674	672	672	670	672	676	691	664	668	688	721	742
		Post	967	987	982	1000	990	982	910	797	704	694	706	---	---
		Crush	294	313	310	328	320	310	234	106	40	26	18	---	---
Level 4 Window Sill	905	Pre	695	695	693	692	687	690	675	940	710	720	730	746	765
		Post	965	975	982	1012	1025	1000	926	803	694	746	753	759	769
		Crush	270	280	289	320	338	310	251	-137	-16	26	23	13	4
Level 5 Window Top	1500	Pre	955	943	944	939	930	929	969	933	955	---	---	---	---
		Post	997	1014	1036	1055	1039	1022	983	973	980	---	---	---	---
		Crush	42	71	92	116	109	93	14	40	25	---	---	---	---

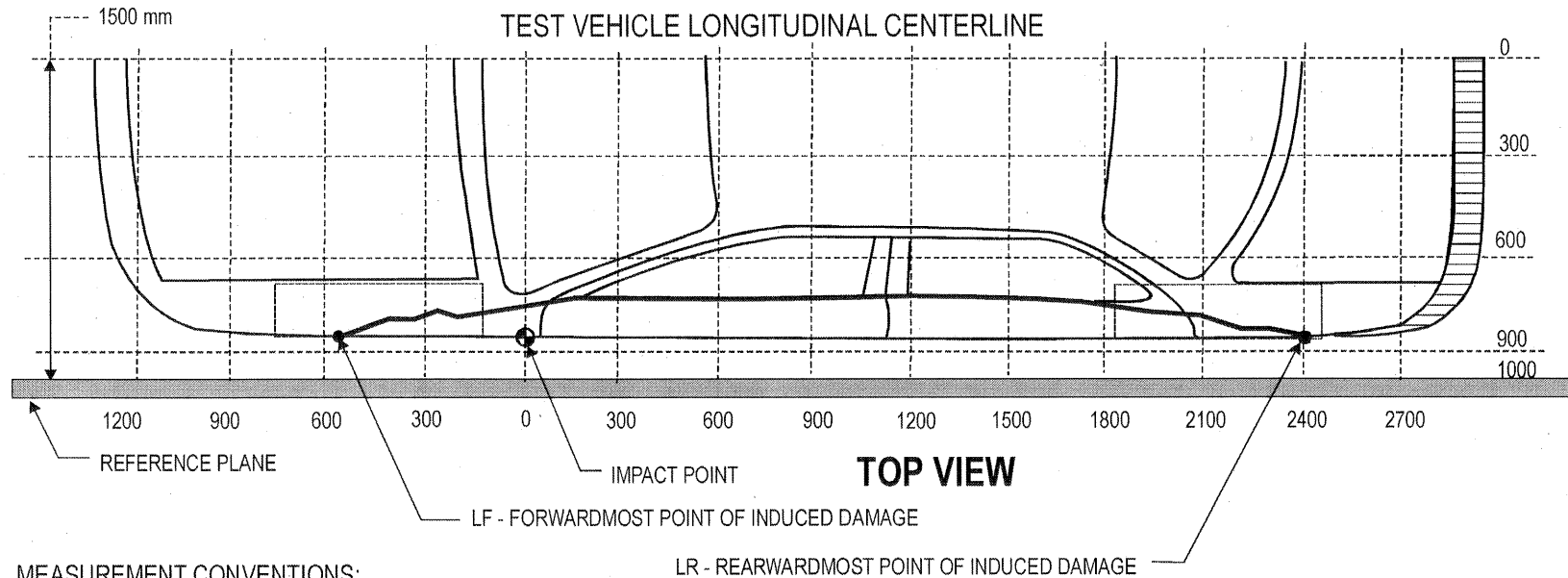
Data Sheet 11

Vehicle Damage Profile Distances

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

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)	723	670	53
5: 300 mm (Level 2)	944	676	268
4: 750 mm (Level 2)	971	674	297
3: 1200 mm (Level 2)	1001	675	326
2: 1650 mm (Level 3,4)	982/1000	672/690	310/310
1: LR = 2100 mm (Level 3)	704	664	40

Full length of induced damage was 2250 mm.

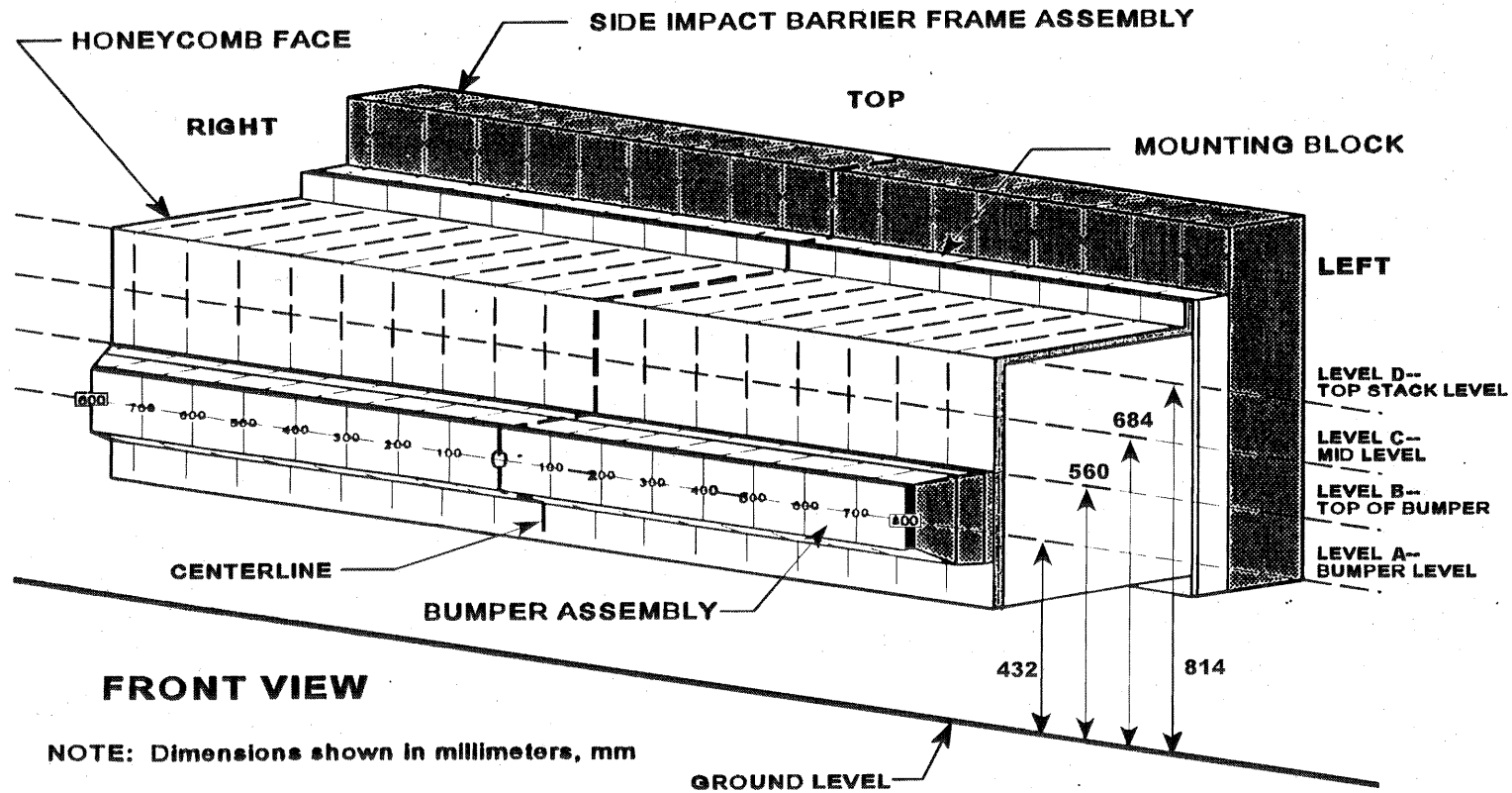
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



Data Sheet 12 (Continued)
Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

		Distance Right of Center (mm)										Distance Left of Center (mm)							
Location	Height At CL	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800	
Top Stack Level - Level D	813	-50	-7	13	9	0	-22	-16	-20	-13	-14	-16	-22	-35	-49	-71	-119	-186	
Mid Level Level C	684	-33	5	5	1	-4	-18	-15	-10	-11	-9	-10	-14	-17	-22	-37	-84	-131	
Top Bumper Level-Level B ¹	560	-32	-22	-18	-17	-19	-19	-21	-26	-24	-29	-32	-35	-39	-43	-52	-74	-89	
Mid Bumper Level - Level A	432	-84	-67	-57	-56	-61	-60	-62	-63	-64	-67	-69	-73	-75	-79	-95	-128	-151	

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

¹ 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 Face

Vehicle: 2004 Chevrolet Aveo 4-door

Deformable Barrier Face Profile

NHTSA No.: C40107

Level D - Top Stack

Pre-Test

Index	Xmm	Ymm	Zmm
1	-380	799	-47
2	-381	700	-47
3	-381	600	-47
4	-382	499	-46
5	-382	399	-46
6	-382	299	-46
7	-382	199	-46
8	-382	100	-45
9	-382	-1	-45
10	-383	-101	-45
11	-383	-201	-44
12	-383	-301	-45
13	-383	-401	-44
14	-382	-500	-43
15	-382	-601	-43
16	-382	-700	-43
17	-383	-799	-43

Post-Test

Index	Xmm	Ymm	Zmm
1	-330	760	-87
2	-374	673	-81
3	-395	577	-79
4	-390	476	-77
5	-381	377	-76
6	-360	279	-73
7	-366	179	-71
8	-362	80	-69
9	-369	-20	-65
10	-369	-120	-63
11	-366	-219	-60
12	-361	-319	-57
13	-348	-418	-56
14	-333	-517	-54
15	-311	-614	-53
16	-264	-699	-59
17	-197	-772	-72

Difference

Index	Xmm	Ymm	Zmm
1	-50	40	41
2	-7	27	34
3	13	23	33
4	9	23	31
5	0	22	29
6	-22	20	28
7	-16	20	26
8	-20	20	24
9	-13	19	21
10	-14	19	18
11	-16	19	16
12	-22	19	13
13	-35	18	12
14	-49	17	10
15	-71	14	10
16	-119	-1	17
17	-186	-27	29

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

Deformable Barrier Face Profile Cont'd.

NHTSA No.: C40107

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-381	800	-176
19	-382	700	-175
20	-382	600	-175
21	-382	499	-175
22	-382	399	-175
23	-382	300	-174
24	-382	199	-174
25	-382	99	-174
26	-383	-1	-174
27	-382	-102	-174
28	-383	-201	-173
29	-383	-301	-173
30	-383	-401	-173
31	-383	-501	-173
32	-383	-601	-172
33	-383	-701	-172
34	-383	-801	-172

Post-Test

Index	Xmm	Ymm	Zmm
18	-348	761	-211
19	-387	675	-208
20	-387	575	-207
21	-383	475	-206
22	-378	374	-204
23	-364	277	-202
24	-367	176	-199
25	-372	76	-196
26	-372	-23	-193
27	-374	-124	-190
28	-372	-224	-187
29	-369	-324	-184
30	-366	-425	-181
31	-361	-524	-179
32	-345	-623	-176
33	-298	-710	-183
34	-252	-794	-183

Difference

Index	Xmm	Ymm	Zmm
18	-33	39	36
19	5	25	33
20	5	24	32
21	1	25	32
22	-4	24	29
23	-18	23	28
24	-15	23	25
25	-10	23	22
26	-11	23	19
27	-9	23	17
28	-10	23	14
29	-14	23	11
30	-17	23	9
31	-22	24	6
32	-37	23	4
33	-84	9	11
34	-131	-7	12

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

Deformable Barrier Face Profile Cont'd.

NHTSA No.: C40107

Level B - Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
35	-382	799	-300
36	-382	699	-300
37	-382	599	-300
38	-382	499	-300
39	-382	399	-300
40	-382	299	-300
41	-382	199	-299
42	-383	99	-299
43	-383	-1	-298
44	-383	-101	-299
45	-383	-201	-299
46	-384	-301	-298
47	-384	-401	-299
48	-384	-501	-297
49	-383	-601	-297
50	-383	-701	-297
51	-383	-801	-296

Post-Test

Index	Xmm	Ymm	Zmm
35	-351	772	-327
36	-360	674	-328
37	-364	573	-326
38	-366	473	-327
39	-363	373	-322
40	-363	273	-323
41	-361	171	-321
42	-357	72	-321
43	-359	-27	-315
44	-354	-127	-310
45	-351	-227	-306
46	-349	-327	-303
47	-345	-427	-300
48	-341	-527	-298
49	-331	-627	-293
50	-309	-724	-285
51	-294	-820	-296

Difference

Index	Xmm	Ymm	Zmm
35	-32	27	27
36	-22	26	28
37	-18	26	26
38	-17	26	27
39	-19	26	22
40	-19	26	24
41	-21	27	22
42	-26	27	22
43	-24	26	17
44	-29	26	11
45	-32	26	7
46	-35	26	6
47	-39	27	1
48	-43	26	1
49	-52	26	-4
50	-74	23	-12
51	-89	20	0

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

Deformable Barrier Face Profile Cont'd.

NHTSA No.: C40107

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-476	794	-429
53	-485	695	-427
54	-485	595	-428
55	-485	495	-427
56	-486	396	-427
57	-485	295	-427
58	-486	195	-426
59	-486	96	-425
60	-486	-4	-426
61	-486	-105	-425
62	-486	-204	-426
63	-487	-304	-425
64	-486	-405	-425
65	-486	-505	-425
66	-487	-605	-425
67	-486	-705	-424
68	-476	-802	-424

Post-Test

Index	Xmm	Ymm	Zmm
52	-392	759	-463
53	-418	664	-465
54	-429	564	-466
55	-430	464	-464
56	-425	364	-462
57	-425	264	-459
58	-424	164	-457
59	-424	64	-455
60	-422	-35	-453
61	-420	-136	-450
62	-417	-235	-448
63	-414	-336	-445
64	-411	-436	-442
65	-407	-536	-439
66	-392	-634	-434
67	-358	-729	-427
68	-325	-822	-420

Difference

Index	Xmm	Ymm	Zmm
52	-84	35	35
53	-67	32	38
54	-57	32	38
55	-56	32	37
56	-61	32	35
57	-60	31	33
58	-62	31	31
59	-63	32	29
60	-64	31	27
61	-67	31	25
62	-69	31	22
63	-73	32	20
64	-75	31	17
65	-79	31	14
66	-95	30	9
67	-128	24	3
68	-151	20	-4

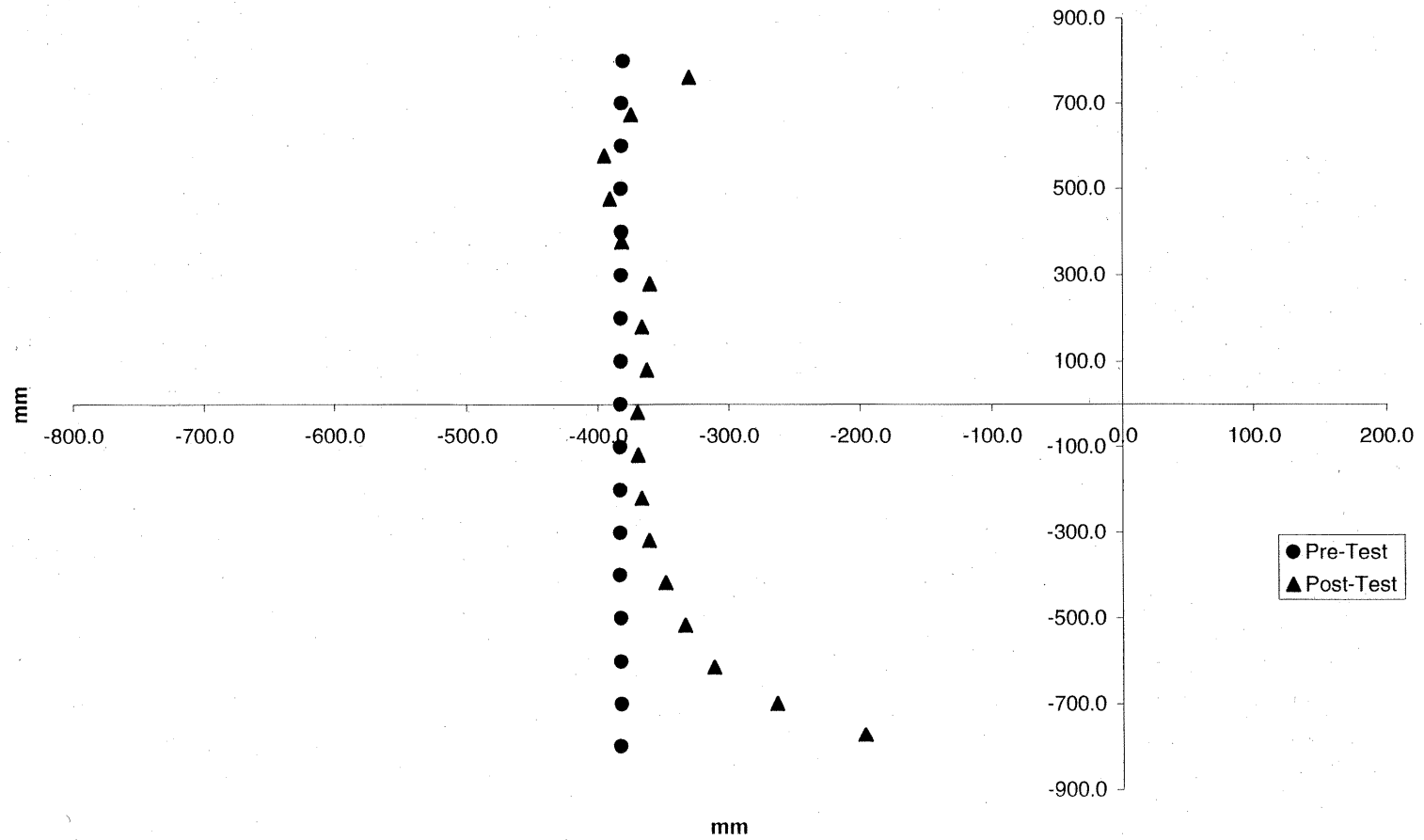
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

Level D - Deformable Barrier Face Profile 1-17



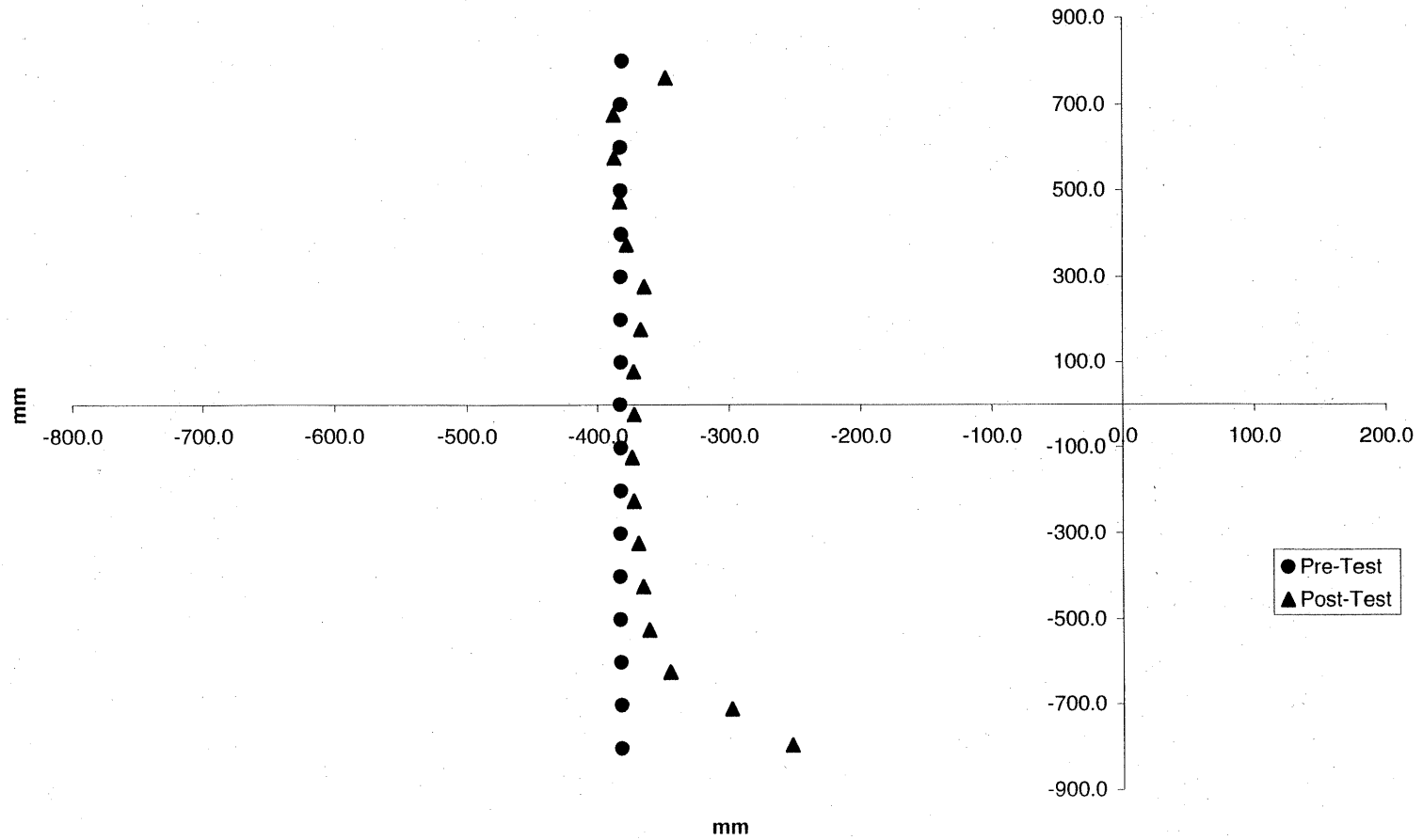
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

Level C - Deformable Barrier Face Profile 18-34



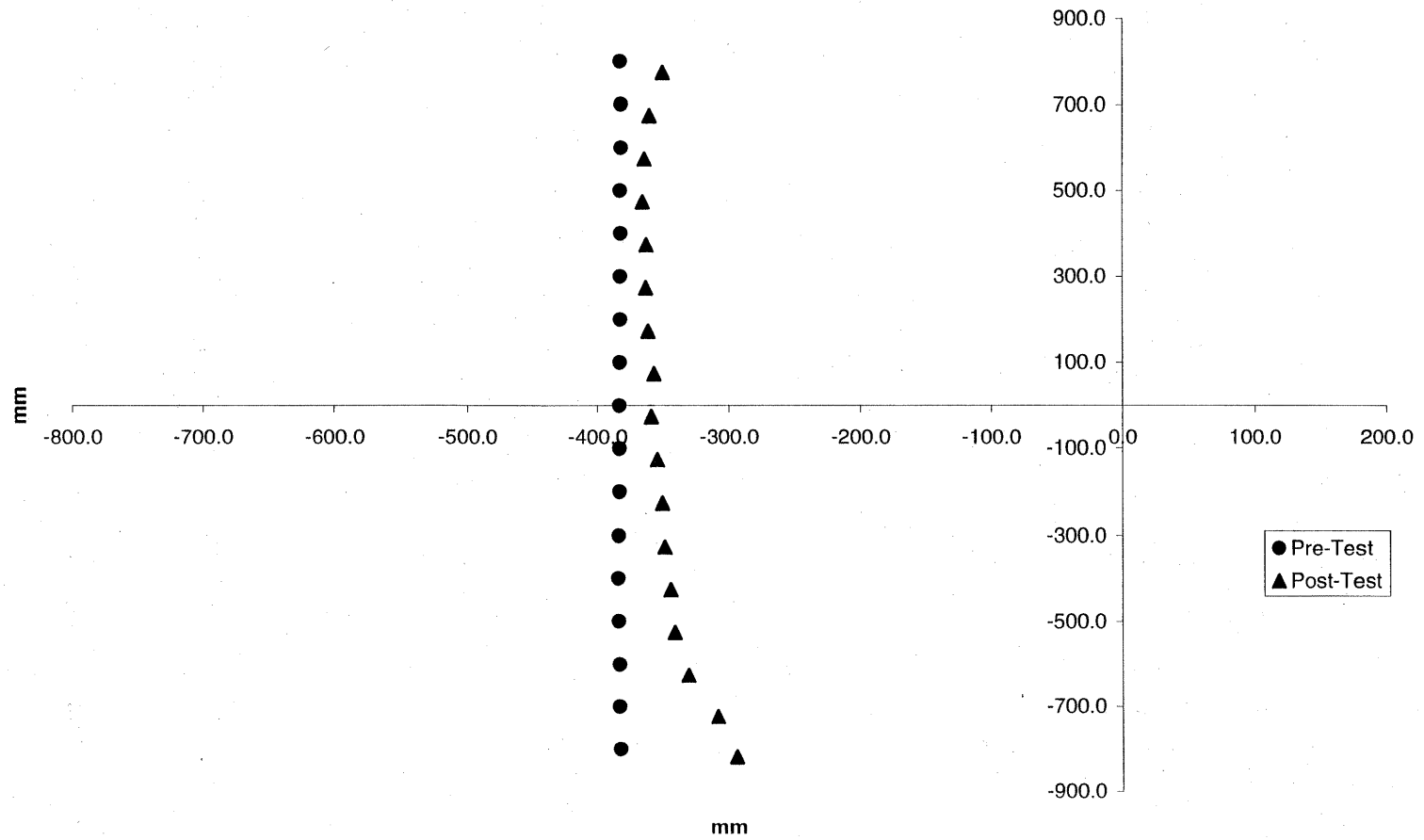
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

Level B - Deformable Barrier Face Profile 35-51



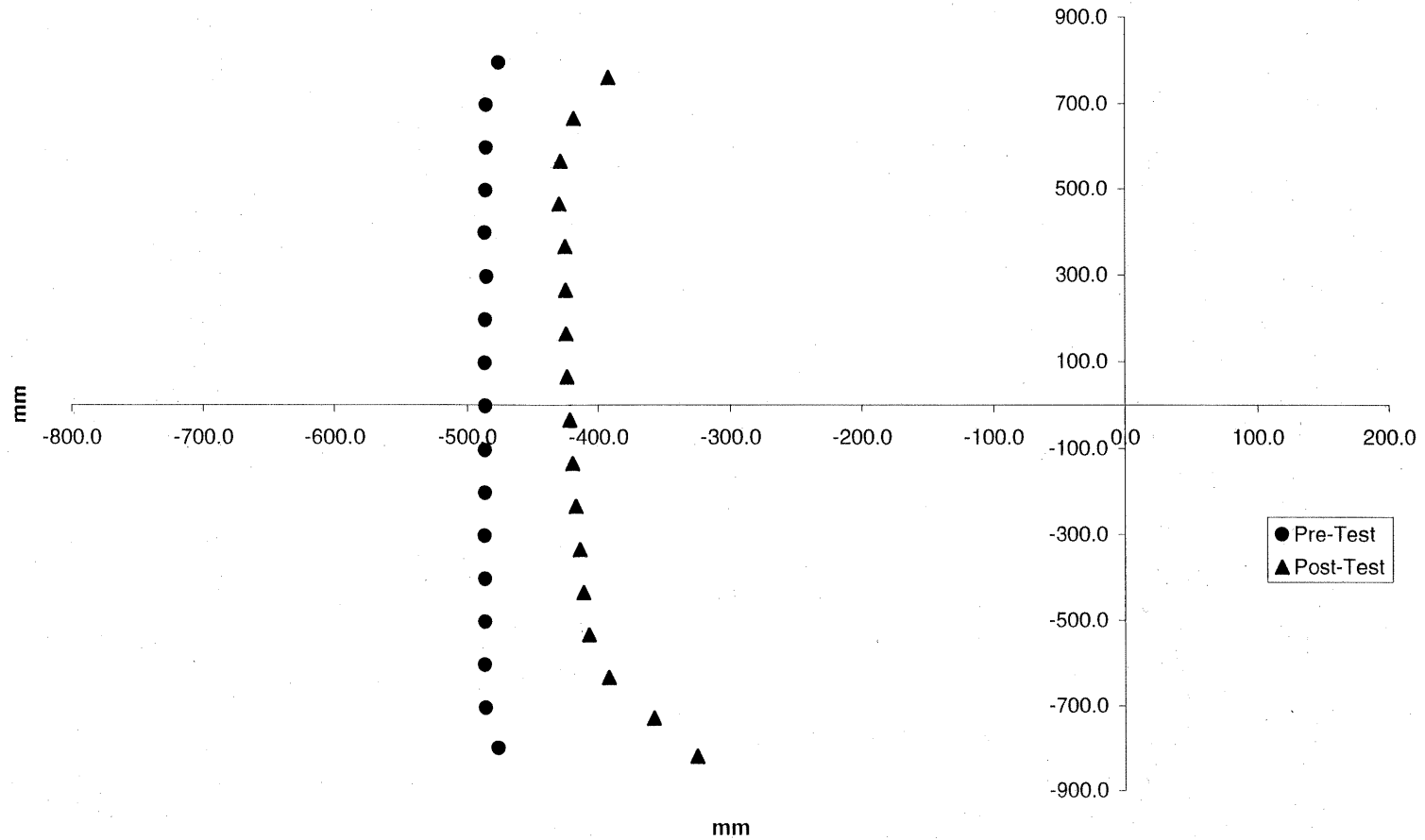
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

Level A - Deformable Barrier Face Profile 52-68

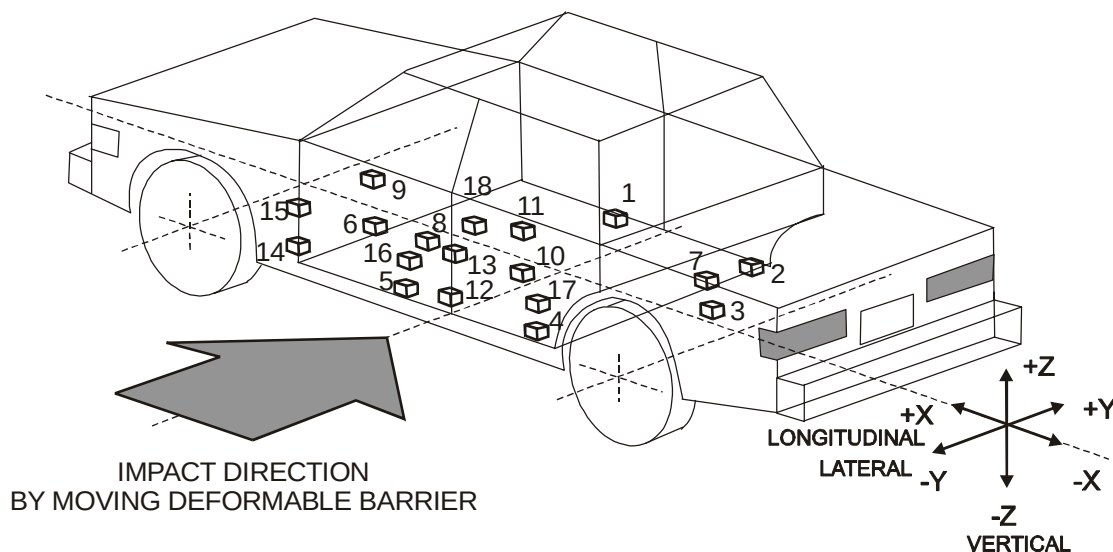


Data Sheet 13

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



- 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
- 6-Left Front Door on Centerline
- 7-Right Rear Occupant Compartment
- 8-Left Front Door Mid Rear
- 9-Left Front Door Upper Centerline

- 10-Left Rear Door Mid Rear
- 11-Left Rear Door Upper Centerline
- 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 SummaryVehicle: 2004 Chevrolet Aveo 4-doorNHTSA No.: C40107

TEST NUMBER: 040317

No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 RIGHT SIDE SILL AT FRONT SEAT	2744 mm	632 mm	-259 mm				
LONGITUDINAL				3.1 g	@ 38.2 ms	8.5 g	@ 13.3 ms
LATERAL				21.8 g	@ 5.0 ms	2.8 g	@ 66.0 ms
VERTICAL				5.3 g	@ 67.7 ms	5.6 g	@ 34.4 ms
RESULTANT				21.9 g	@ 5.0 ms		
2 RIGHT SIDE SILL AT REAR SEAT	1750 mm	635 mm	-238 mm				
LONGITUDINAL				3.5 g	@ 28.6 ms	7.9 g	@ 12.9 ms
LATERAL				23.7 g	@ 27.0 ms	2.8 g	@ 182.9 ms
VERTICAL				7.2 g	@ 34.7 ms	8.3 g	@ 25.4 ms
RESULTANT				24.9 g	@ 26.9 ms		
3 REAR FLOORPAN ABOVE AXLE	1030 mm	0 mm	-378 mm				
LONGITUDINAL				3.3 g	@ 41.3 ms	11.3 g	@ 10.0 ms
LATERAL				29.0 g	@ 28.8 ms	2.8 g	@ 181.8 ms
VERTICAL				15.5 g	@ 38.3 ms	5.7 g	@ 7.8 ms
RESULTANT				29.9 g	@ 8.4 ms		
4 LEFT SIDE SILL AT REAR SEAT	1750 mm	-635 mm	-262 mm				
LATERAL				50.5 g	@ 9.8 ms	10.0 g	@ 47.8 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2004 Chevrolet Aveo 4-doorNHTSA No.: C40107

TEST NUMBER: 040317

No. LOCATION

X

Y

Z

POSITIVE
DIRECTIONNEGATIVE
DIRECTION

5 LEFT SIDE SILL AT FRONT SEAT LATERAL	2740 mm	-632 mm	-226 mm	25.4 g	@	2.6 ms	7.1 g	@	27.6 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	1630 mm	450 mm	-353 mm	25.4 g	@	8.0 ms	2.7 g	@	140.0 ms
12 LEFT LOWER B-POST LATERAL	1945 mm	-669 mm	-605 mm	231.6 g	@	4.9 ms	53.8 g	@	14.7 ms
13 LEFT MIDDLE B-POST LATERAL	1880 mm	-702 mm	-855 mm	205.4 g	@	4.7 ms	70.1 g	@	28.6 ms
14 LEFT LOWER A-POST LATERAL ¹	2998 mm	-710 mm	-503 mm	209.8 g	@	2.0 ms	104.8 g	@	9.9 ms
15 LEFT MIDDLE A-POST LATERAL	2995 mm	-715 mm	-851 mm	40.1 g	@	10.7 ms	2.8 g	@	21.4 ms
16 LEFT FRONT SEAT TRACK LATERAL	2412 mm	-540 mm	-347 mm	53.9 g	@	15.8 ms	24.9 g	@	24.6 ms
17 LEFT REAR SEAT TRACK LATERAL ¹	1368 mm	-555 mm	-403 mm	84.2 g	@	40.4 ms	123.3 g	@	33.7 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

TEST NUMBER: 040317 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
18 VEHICLE CENTER OF GRAVITY	2350 mm	0 mm	-431 mm		
LONGITUDINAL ¹				---	---
LATERAL ¹				---	---
VERTICAL ¹				---	---
RESULTANT ¹				---	---

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.

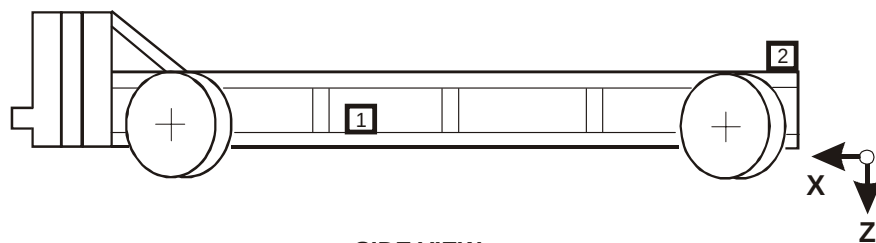
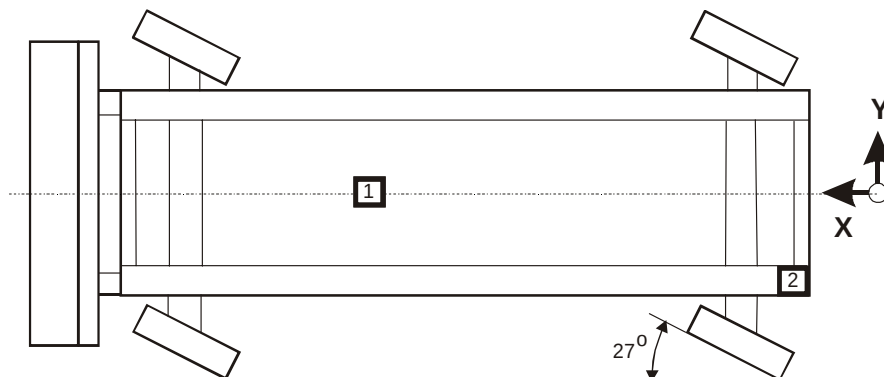
¹ See DATA ACQUISITION EXPLANATIONS on page 2-3

Data Sheet 14

MDB Accelerometer Locations and Data Summary

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1855	0	-520				
	Longitudinal X				1.9	122.2	24.5	33.6
	Lateral Y				7.7	98.6	7.6	26.3
	Vertical Z				7.2	50.6	6.2	104.4
	Resultant R				25.1	33.4		
2	Rear Frame Member	412	-677	-625				
	Longitudinal X				3.5	98.4	23.6	34.5
	Lateral Y				4.1	21.3	3.5	149.3

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

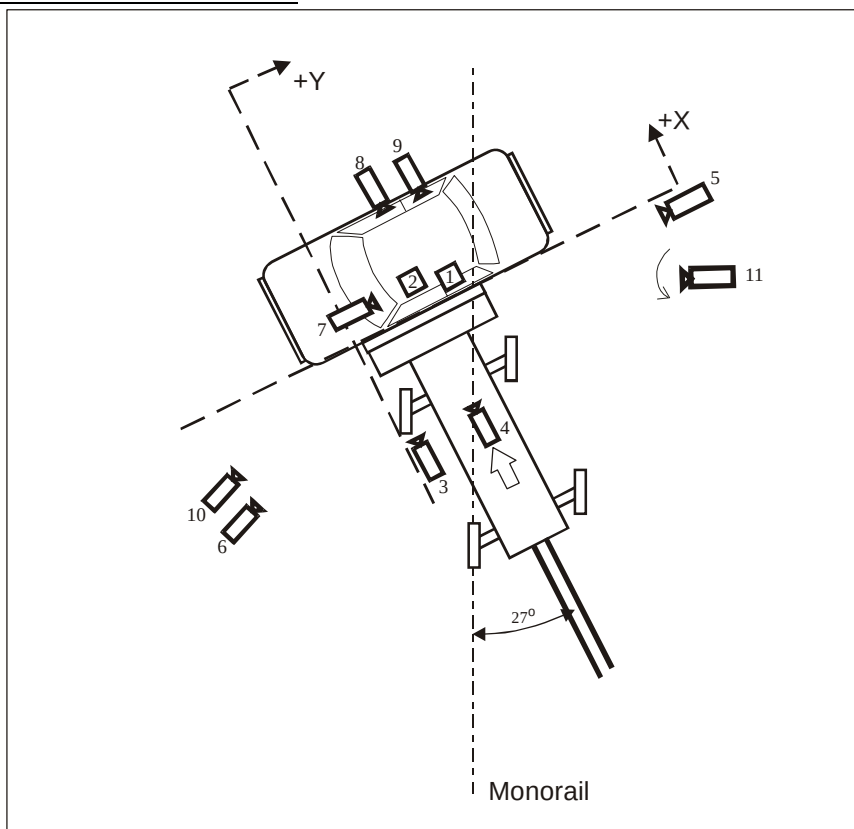
All measurements accurate to within ± 3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107



Camera Number	Location	Location, mm			Angle (deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	250	2150	-5750	-80.3	8.5	1012
2	Overhead tight	370	1800	-5750	-86.6	25	700
3	Onboard MDB left side	-1750	-40	-720	-0.1	13	N/A ¹
4	Onboard MDB center	-2480	830	-1353	-5.5	25	1025
5	Right side of MDB	-100	10850	-940	-2.0	13	1017
6	Left side of MDB	-2900	-5800	-950	-0.7	13	1007
7	Onboard vehicle front	500	330	-1300	-11.4	8	955
8	Onboard side front door	1500	760	-1080	1.0	8	255
9	Onboard side rear door	1500	1620	-1040	1.1	7.5	1017
10	Digital overall event	-2160	-5900	-990	-1.5	13	1000
11	Real-time Panning-Video	N/A	N/A	N/A	N/A	Zoom	30

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

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

+Z: Downward from ground level

¹ Camera did not run.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C40107

Test Date: 03/17/04

Vehicle Year/Make/Model/Body Style: 2004 Chevrolet Aveo 4-door

Test Vehicle Impact Type :

- ☐ Frontal (48.28 km/h)
☐ Oblique (48.28 km/h) with ____° barrier face
first contacting the (driver/passenger) side
☐ Rear Moving Barrier (48.28 km/h)
☐ Lateral Moving Barrier (32.19 km/h)
☒ Side Impact Moving Deformable Barrier (38.5
MPH) contacting the Driver's side

Fuel Spillage Measurement:

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

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

Solvent Spillage Details :

None

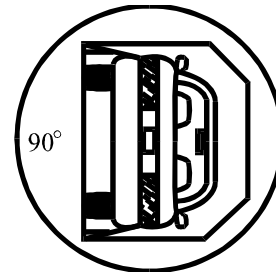
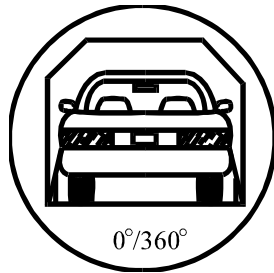
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

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

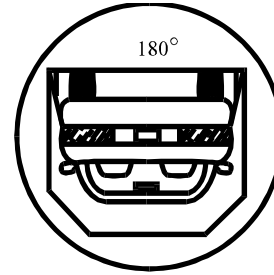
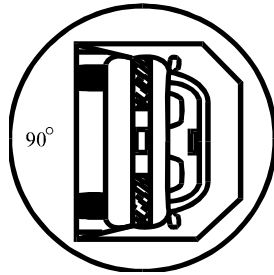
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

90 - 180 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

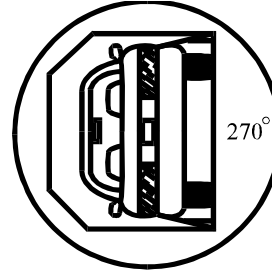
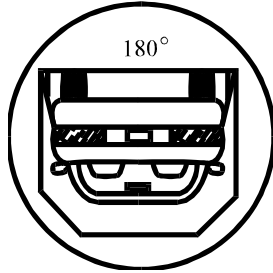
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

180 - 270 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

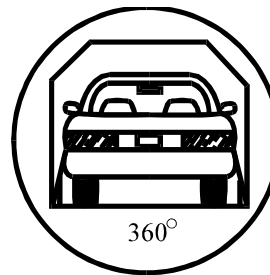
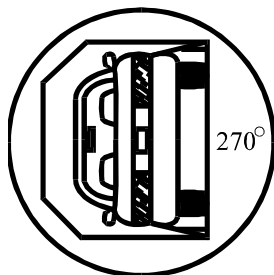
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Chevrolet Aveo 4-door

NHTSA No.: C40107

270 - 360 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

Appendix A

Photographs

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

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Figure A-2 Post-Test Front View of Test Vehicle
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Figure A-3 Pre-Test Impacted Side View of Test Vehicle
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Figure A-4 Post-Test Impacted Side View of Test Vehicle
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Figure A-5 Pre-Test Rear View of Test Vehicle
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Figure A-6 Post-Test Rear View of Test Vehicle
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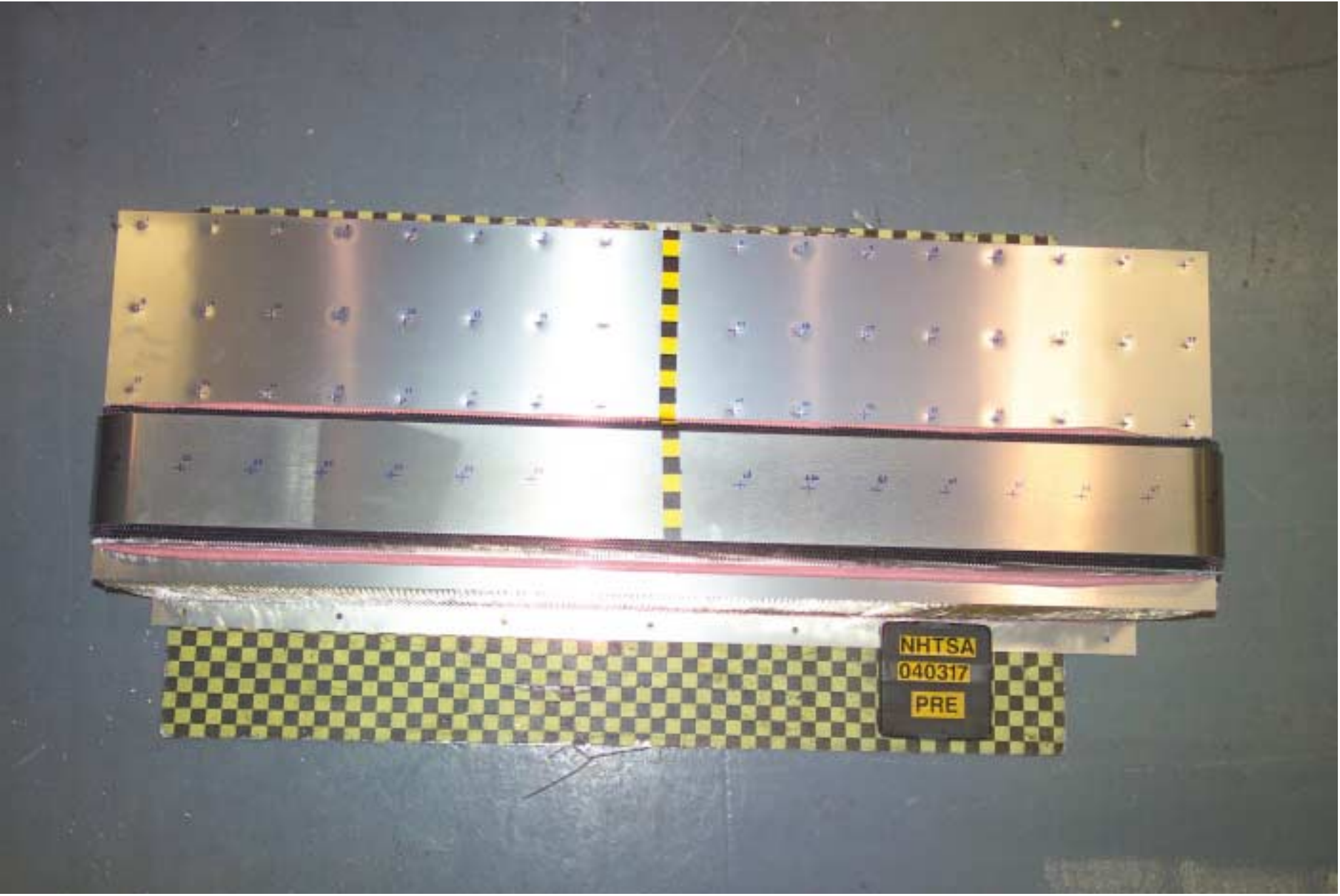


Figure A-7 Pre-Test Frontal View of Impactor Face
A-10

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Figure A-8 Post-Test Frontal View of Impactor Face
A-11

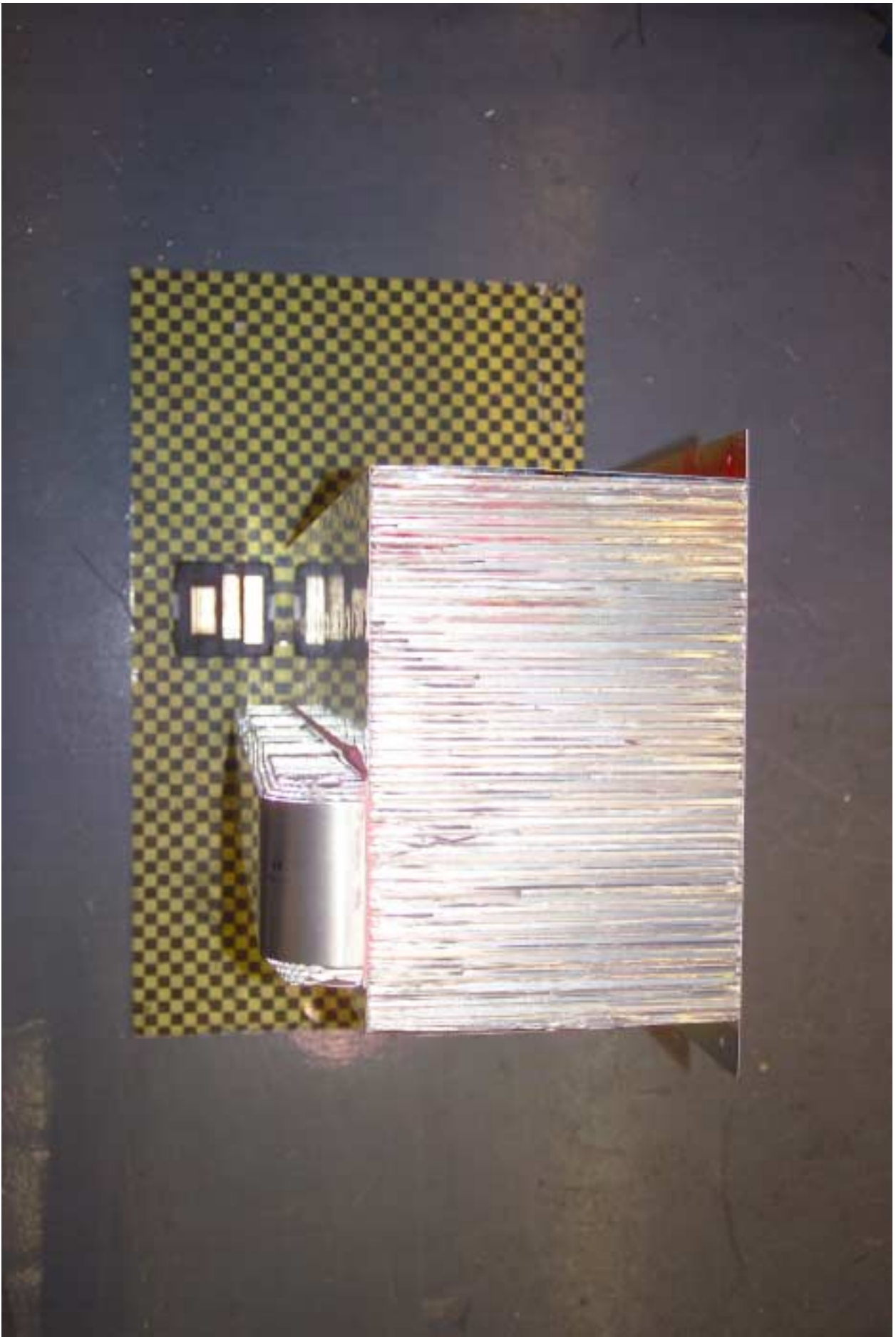


Figure A-9 Pre-Test Left Side View of Impactor Face
A-12

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Figure A-10 Post-Test Left Side View of Impactor Face
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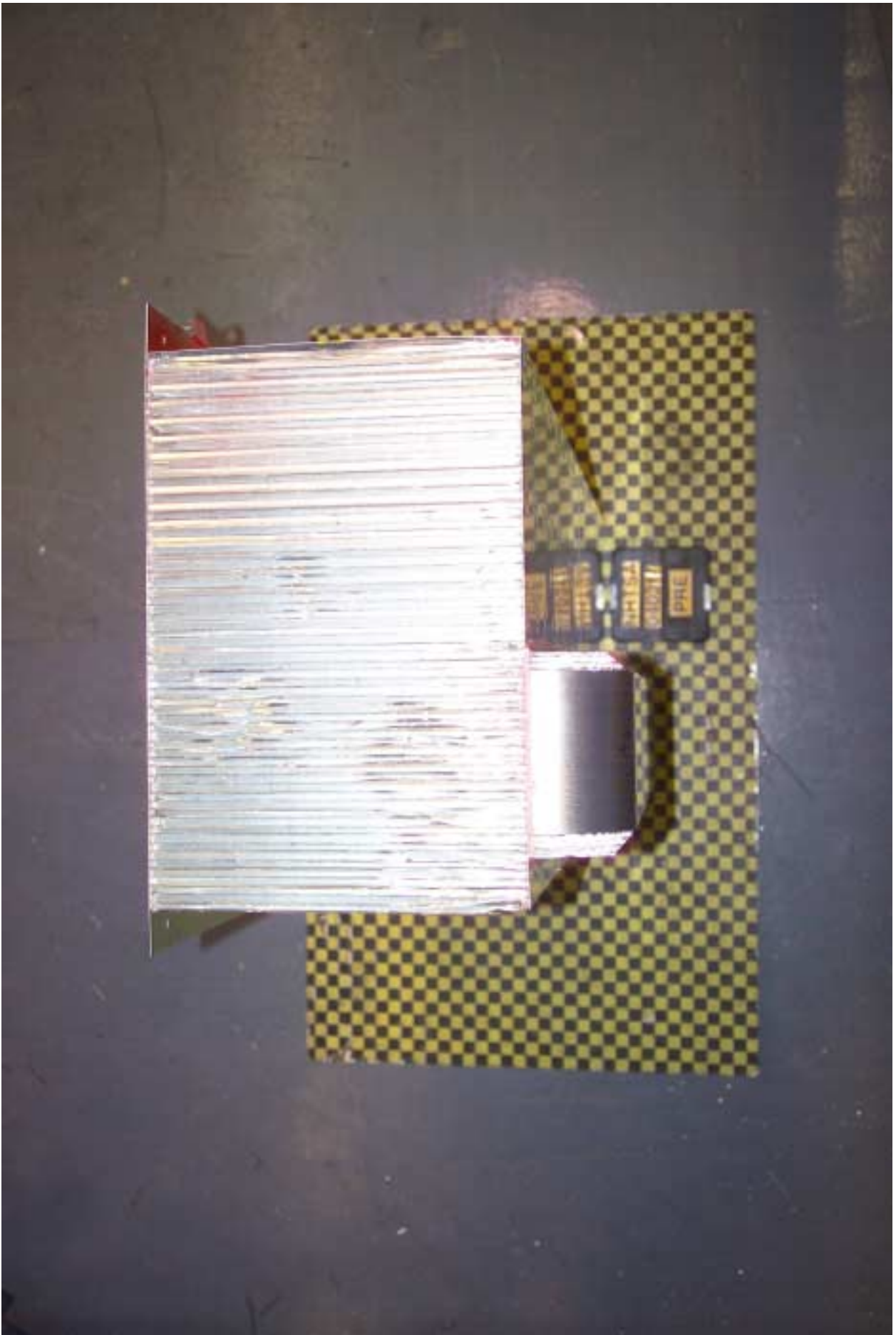


Figure A-11 Pre-Test Right Side View of Impactor Face



Figure A-12 Post-Test Right Side View of Impactor Face
A-15

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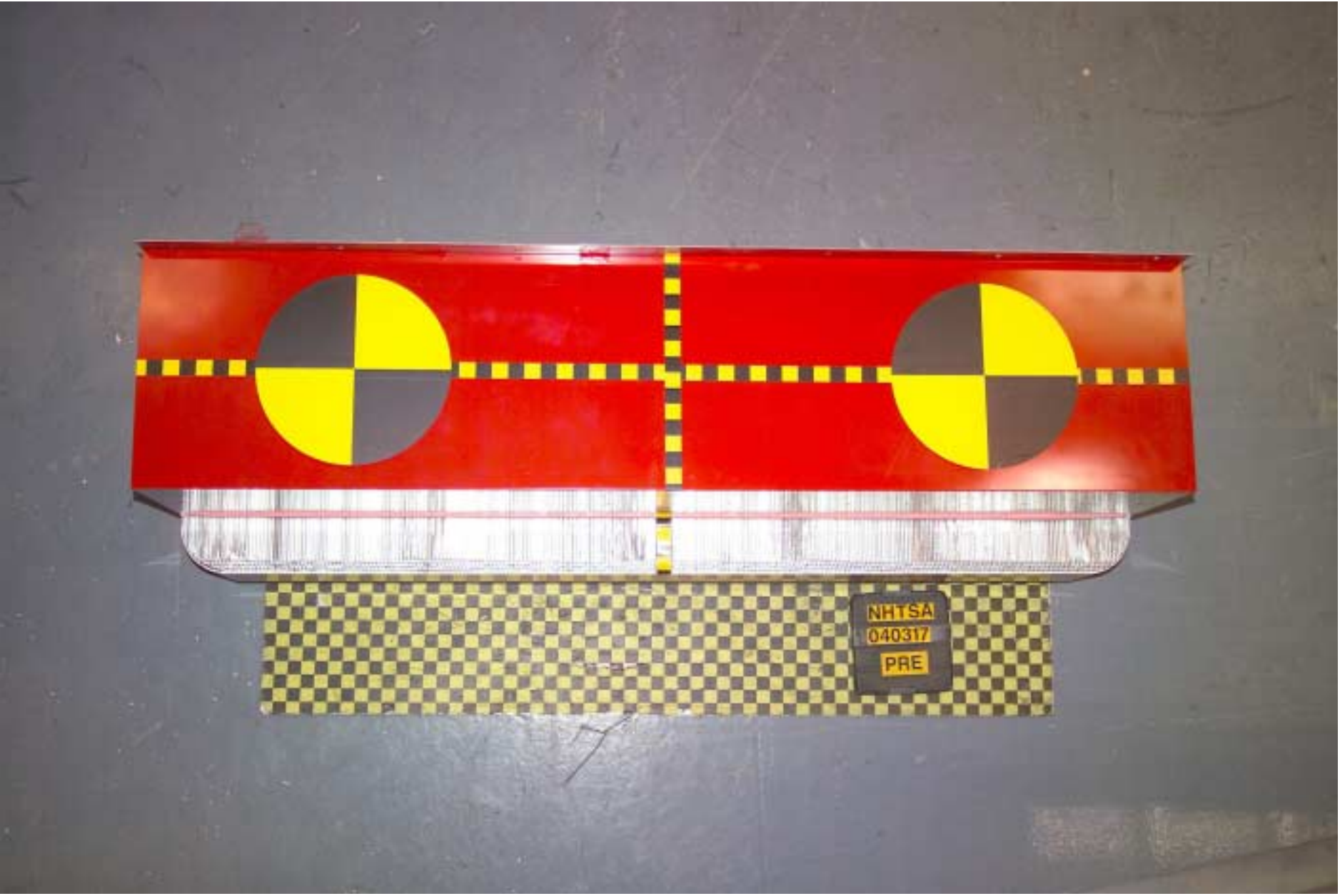


Figure A-13 Pre-Test Top View of Impactor Face
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Figure A-14 Post-Test Top View of Impactor Face
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Figure A-15 Pre-Test View of MDB Showing Contact Switches in Place
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Figure A-16 Pre-Test Overhead View of MDB Aligned with Vehicle



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



Figure A-18 Pre-Test Right Occupant Compartment View of Front SID-HIII
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Figure A-19 Post-Test Right Occupant Compartment View of Front SID-HIII
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Figure A-20 Pre-Test Right Occupant Compartment View of Rear SID-HIII
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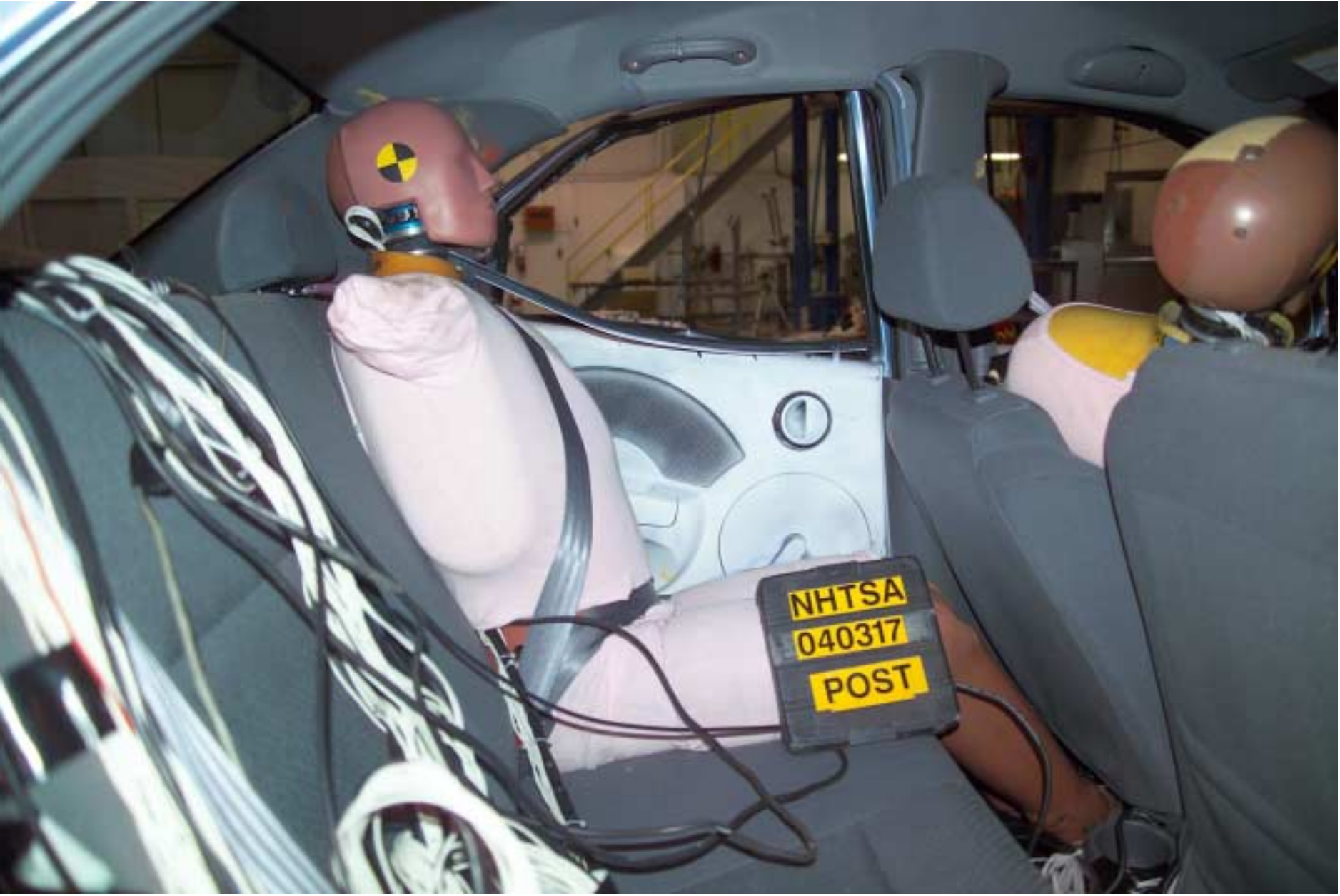


Figure A-21 Post-Test Right Occupant Compartment View of Rear SID-HIII
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Figure A-22 Pre-Test Left View of Front SID-HIII
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Figure A-23 Pre-Test Left View of Front SID-HIII and Belt Position
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Figure A-24 Pre-Test Front View of Front SID-HIII and Door Clearance



Figure A-25 Post-Test Left View of Front SID-HIII
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Figure A-26 Pre-Test Left View of Rear SID-HIII
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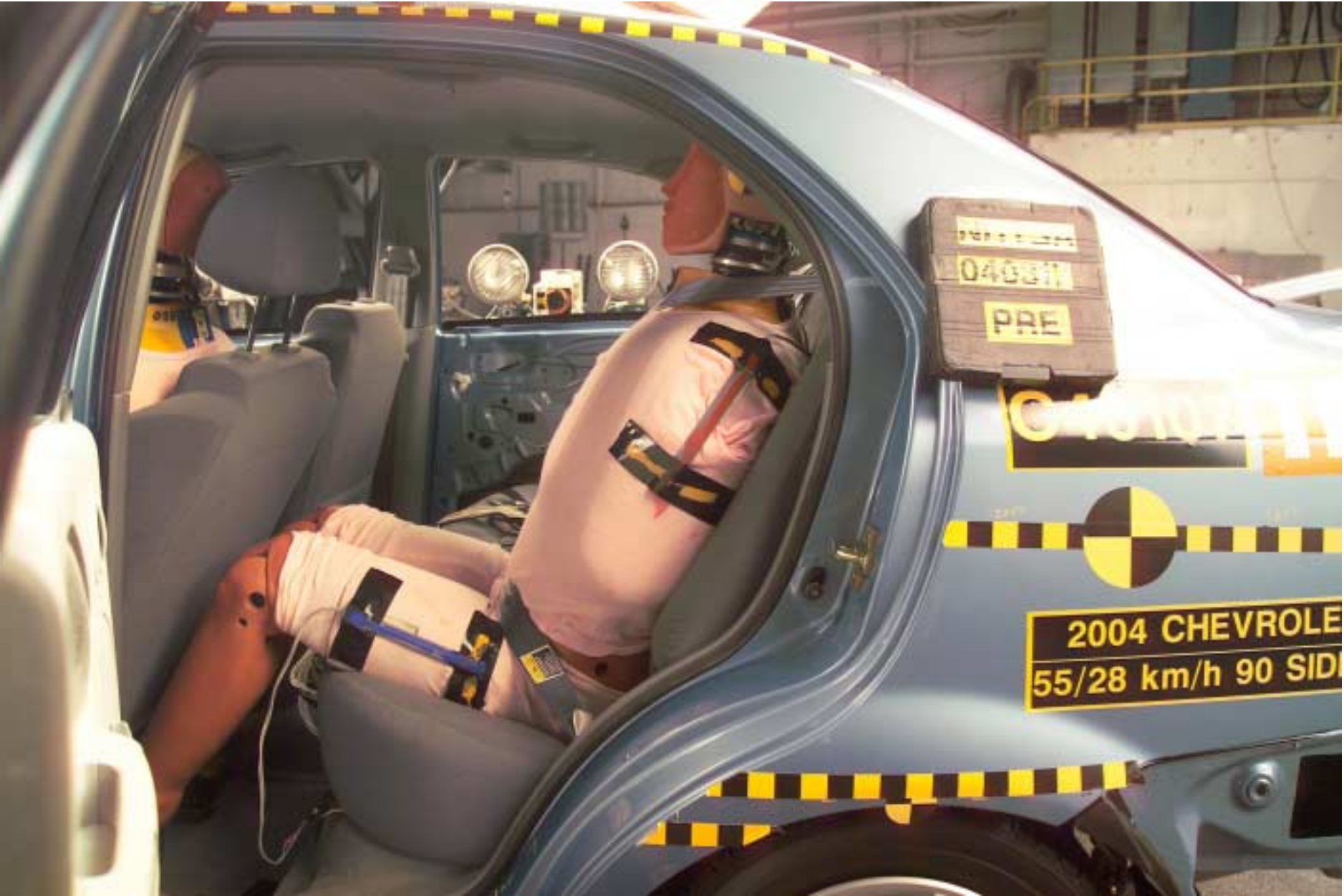


Figure A-27 Pre-Test Left View of Rear SID-HIII and Belt Position
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Figure A-28 Post-Test Left View of Rear SID-HIII
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Figure A-29 Pre-Test Interior of Front Door
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Figure A-30 Post-Test Interior of Front Door Showing SID-HIII Impact Locations

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Figure A-31 Post-Test Front SID-HIII Contact - View 1
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Figure A-32 Post-Test Front SID-HIII Contact - View 2
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Figure A-33 Post-Test Front SLD-HIII Contact - View 3
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Figure A-34 Pre-Test Interior of Rear Panel
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Figure A-35 Post-Test Interior of Rear Panel Showing SID-HIII Impact Locations
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Figure A-36 Post-Test Rear SID-HIII Contact - View 1
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Figure A-37 Post-Test Rear SID-HIII Contact - View 2
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Figure A-38 Post-Test Rear SID-HIII Contact - View 3
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Figure A-39 Pre-Test Left Side View of MDB With Impactor Face in Position
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Figure A-40 Pre-Test Primary Impact Point View
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Figure A-41 Post-Test Primary Impact Point View
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Figure A-42 Pre-Test Right Side View of MDB With Impactor Face in Position
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Figure A-43 Pre-Test Secondary Impact Point View
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Figure A-44 Post-Test Secondary Impact Point View
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MFD. BY GM DAEWOO AUTO & TECHNOLOGY COMPANY
REPUBLIC OF KOREA
DATE GVWR GAWR FRT GAWR RR
12/03 3348 LB 1830 LB 1767 LB

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

KL1TD52644B169942

P.N.96 404 578

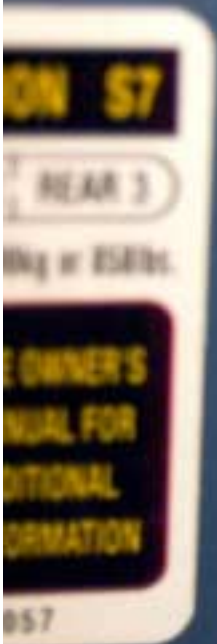


Figure A-45 Pre-Test Vehicle Certification Label View
A-48



TIRE AND LOADING INFORMATION S7

SEATING CAPACITY | TOTAL 5 | FRONT 2 | REAR 3

The combined weight of occupants and cargo should never exceed 390kg or 858lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
P185/60 R14 82H	FRONT	210KPA, 30PSI
	REAR	210KPA, 30PSI
COMPACT SPARE TIRE	COLD TIRE INFLATION PRESSURE	
T105/70D14	420KPA, 60PSI	

SEE OWNER'S
MANUAL FOR
ADDITIONAL
INFORMATION

96413057

MFD. BY G

DATE
12/03

THIS VEHICLE
U.S. FEDERAL
AND THEFT
ON THE DA

KL17T

Figure A-46 Pre-Test Vehicle Recommended Tire Pressure Label View



Figure A-47 Impact Event



Figure A-48 Pre-Test Fuel Cap
A-51

040317



Figure A-49 Post-Test Fuel Cap
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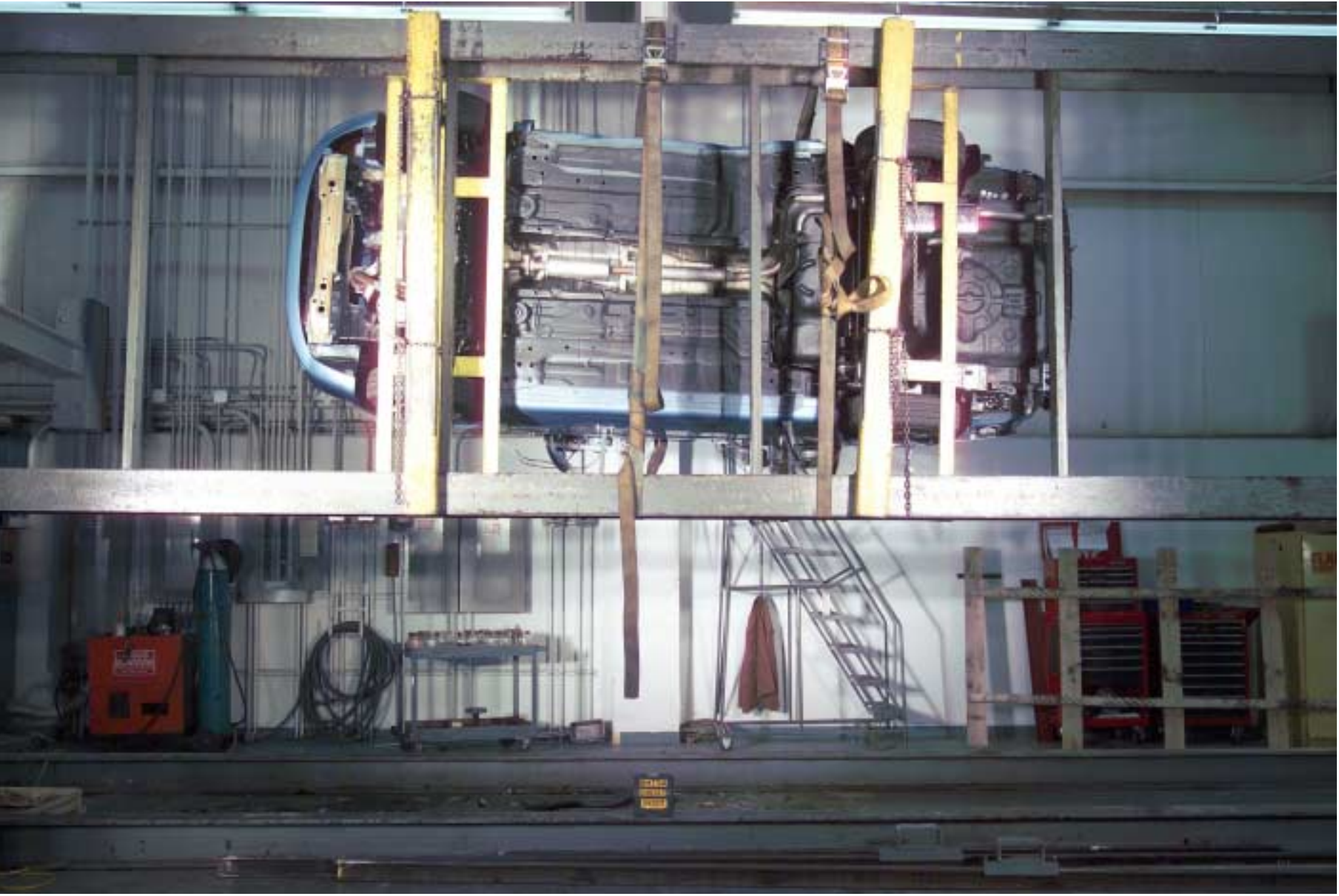


Figure A-50 FMVSS 301 Rollover View at 90°
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Figure A-51 FMVSS 301 Rollover View at 180°
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Figure A-52 FMVSS 301 Rollover View at 270°
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Figure A-53 FMVSS 301 Rollover View at 360°
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Figure A-54 Post-Test View of Rear Struck Side Door
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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
 Force Data - Filter Class 1000
 Moment Data - Filter Class 600
 Contact Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	Driver Head X-Axis Acceleration	B-11
2	Driver Head X-Axis Velocity	B-12
3	Driver Head Y-Axis Acceleration	B-13
4	Driver Head Y-Axis Velocity	B-14
5	Driver Head Z-Axis Acceleration	B-15
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12	Driver Neck Moment about Y Axis	B-22
13	Driver Neck Moment about Z Axis	B-23
14	Driver Neck Occipital Condyle Moment about X Axis	B-24
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Table of Data Plots (Continued)
Driver and Passenger Dummy Instrumentation Plots (Continued)
Acceleration Data - Filter Class 1000
Integration Data - Filter Class 180
Force Data - Filter Class 1000
Moment Data - Filter Class 600
Contact Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
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Driver and Passenger Dummy Redundant Instrumentation Plots

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53	Driver Head Z-Axis Redundant Acceleration	B-64
54	Driver Head Z-Axis Redundant Velocity	B-65
55	Driver Head Resultant Redundant Acceleration	B-66
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Driver and Passenger Dummy Redundant Instrumentation Plots (Continued)

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81	Right Side Sill at Front Seat Y-Axis Acceleration	B-93
82	Right Side Sill at Front Seat Y-Axis Velocity	B-94
83	Right Side Sill at Front Seat Z-Axis Acceleration	B-95
84	Right Side Sill at Front Seat Z-Axis Velocity	B-96
85	Right Side Sill at Front Seat Resultant Acceleration	B-97
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Acceleration Data - Filter Class 60
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104	Left Side Sill at Rear Seat Y-Axis Velocity	B-116
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108	Right Rear Occupant Compartment Y-Axis Displacement	B-120
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111	Left Middle A-Post Y-Axis Acceleration	B-123
112	Left Middle A-Post Y-Axis Velocity	B-124
113	Left Lower B-Post Y-Axis Acceleration	B-125
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121	Vehicle Center of Gravity X-Axis Acceleration	B-133
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 MDB Instrumentation Plots
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131	MDB Center of Gravity Y-Axis Velocity	B-144
132	MDB Center of Gravity Z-Axis Acceleration	B-145
133	MDB Center of Gravity Z-Axis Velocity	B-146
134	MDB Center of Gravity Resultant Acceleration	B-147
135	MDB Left Rear X-Axis Acceleration	B-148
136	MDB Left Rear X-Axis Velocity	B-149
137	MDB Left Rear Y-Axis Acceleration	B-150
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154	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-168
155	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-169
156	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-170

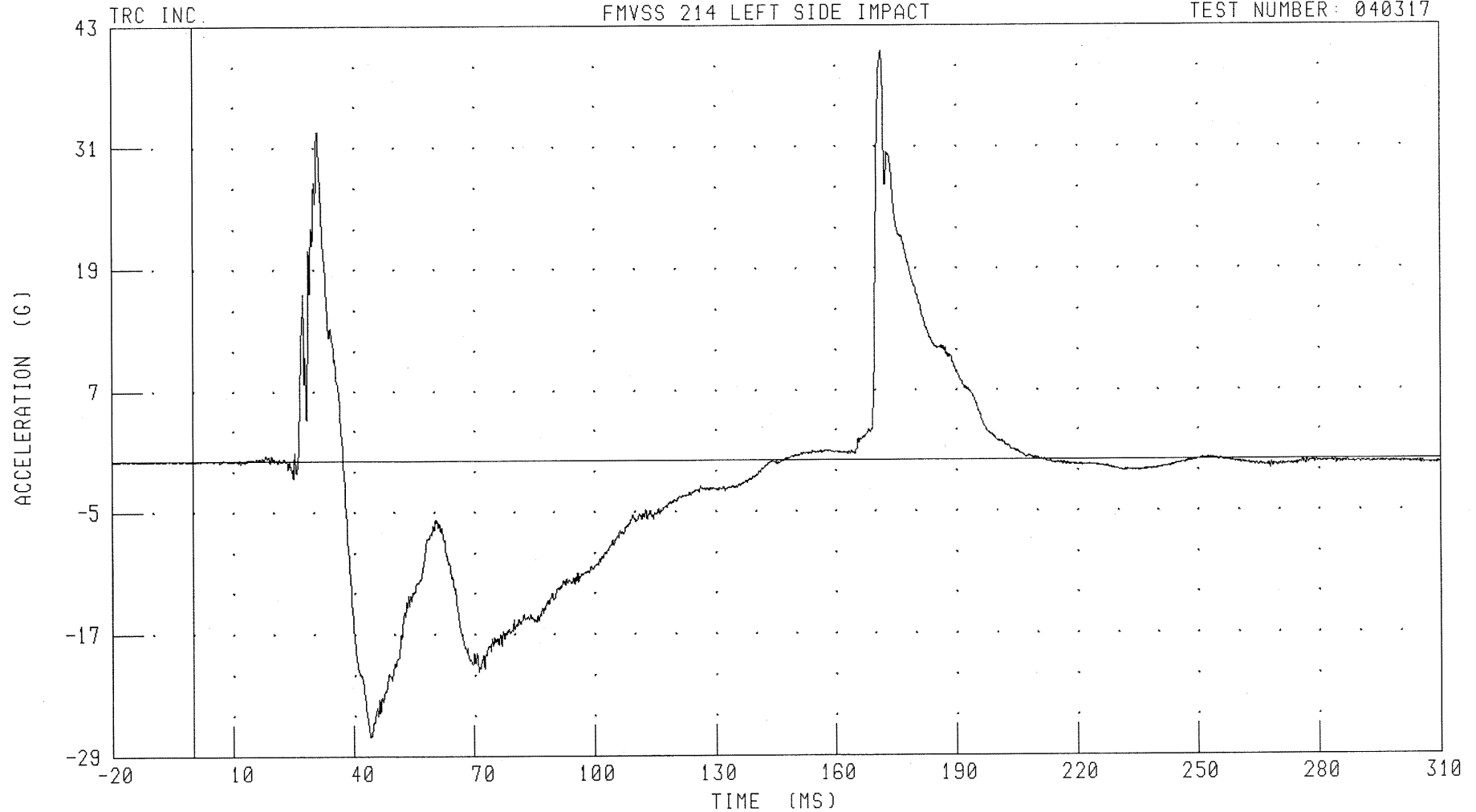
Driver and Passenger Dummy Instrumentation Plots

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 40.44 G @ 171.68 MS; -27.09 G @ 44.08 MS

B-11

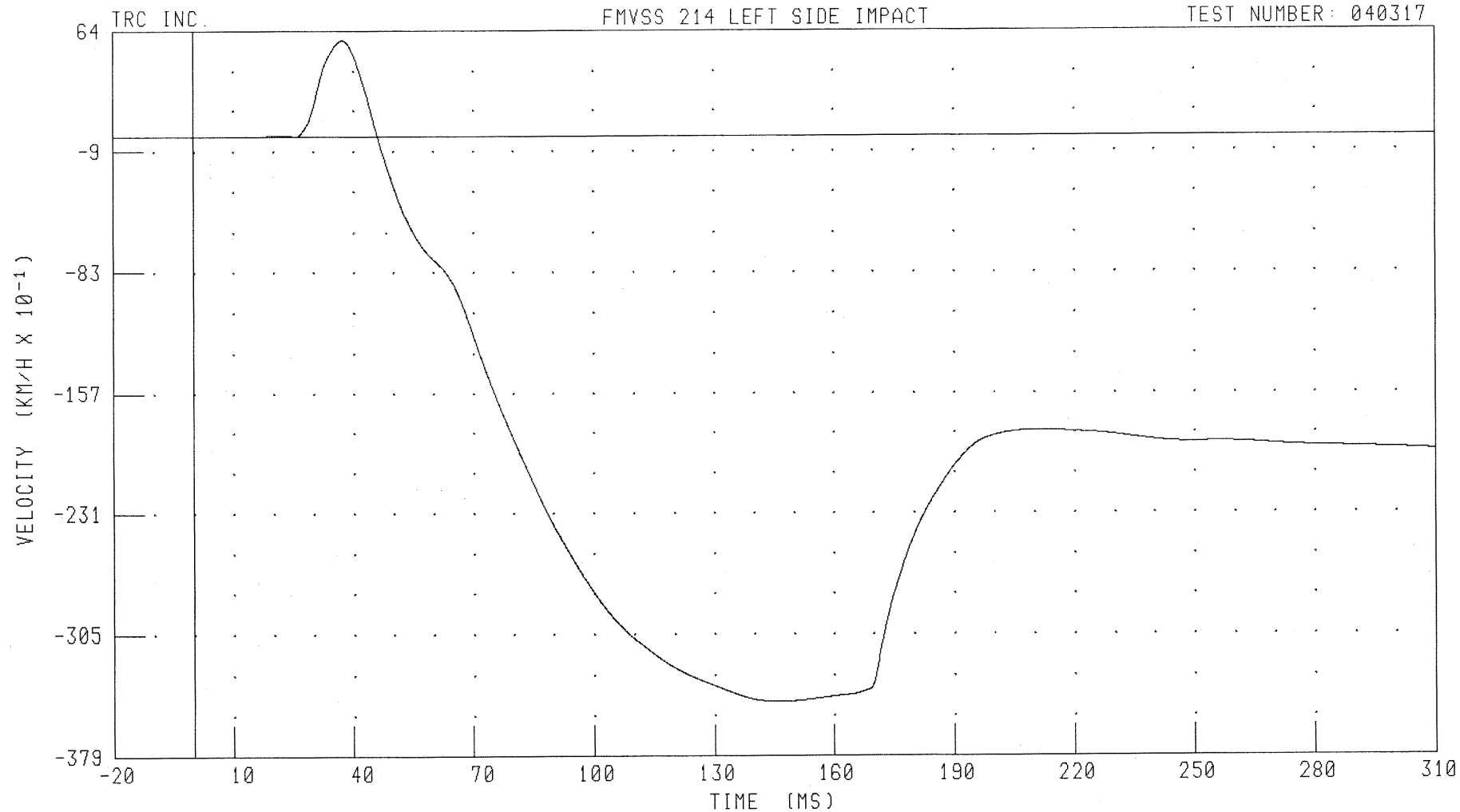
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXV1 FILTER: CH. CLASS 180

PEAK DATA: 5.93 KM/H @ 37.44 MS; -34.59 KM/H @ 146.96 MS

B-12

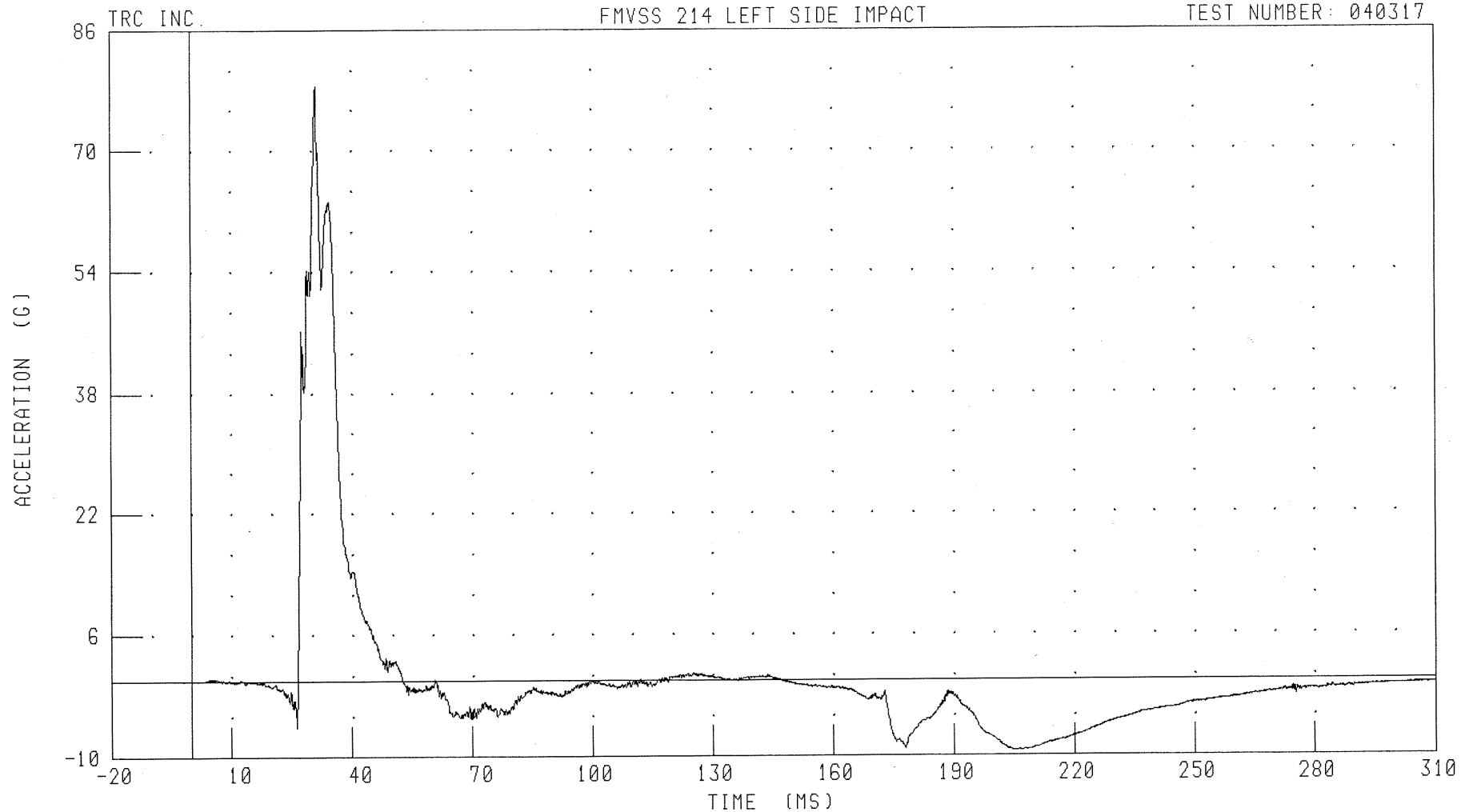
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 78.54 G @ 31.20 MS; -9.37 G @ 205.36 MS

B-13

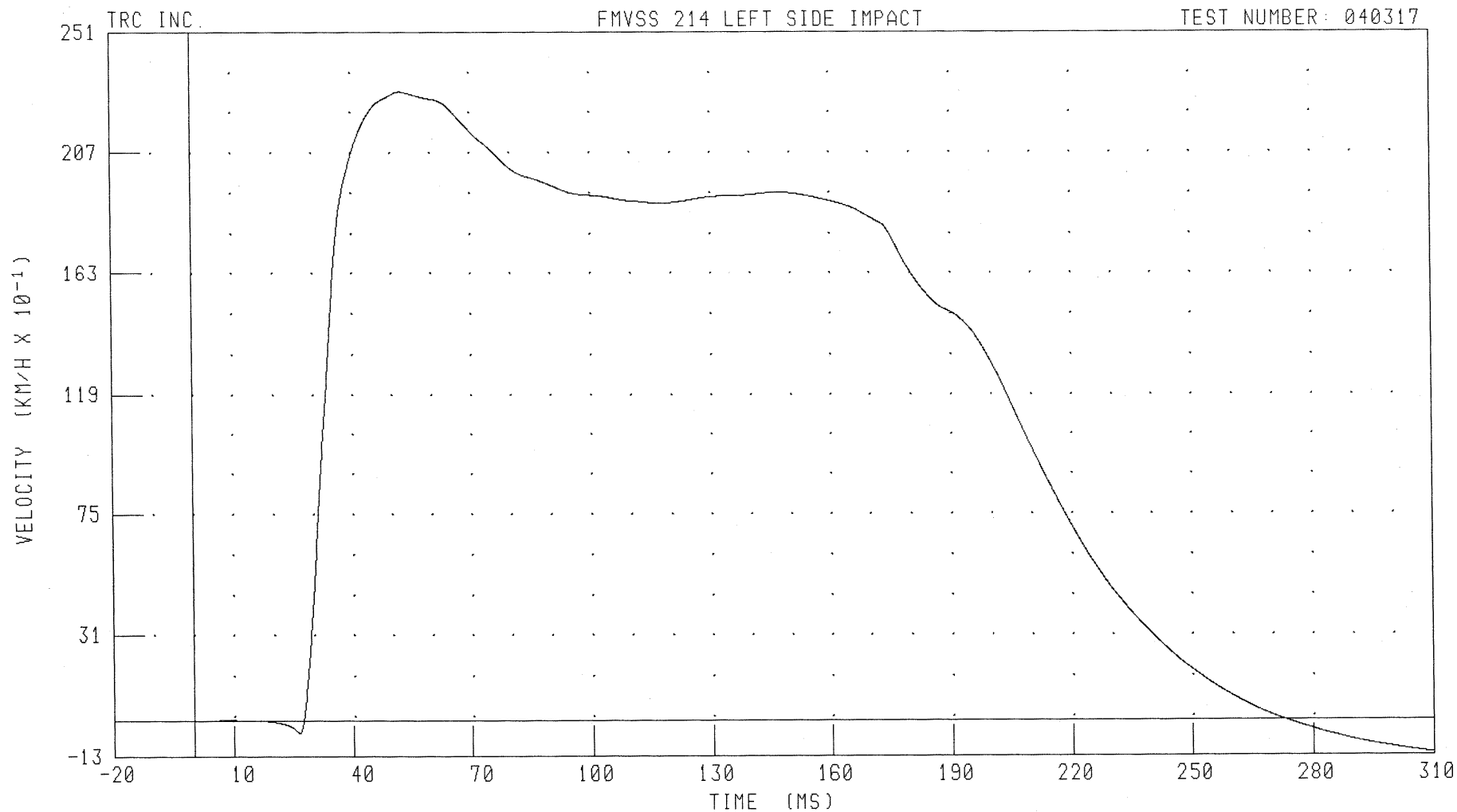
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYV1 FILTER: CH. CLASS 180

PEAK DATA: 22.93 KM/H @ 52.64 MS; -1.21 KM/H @ 310.00 MS

B-14

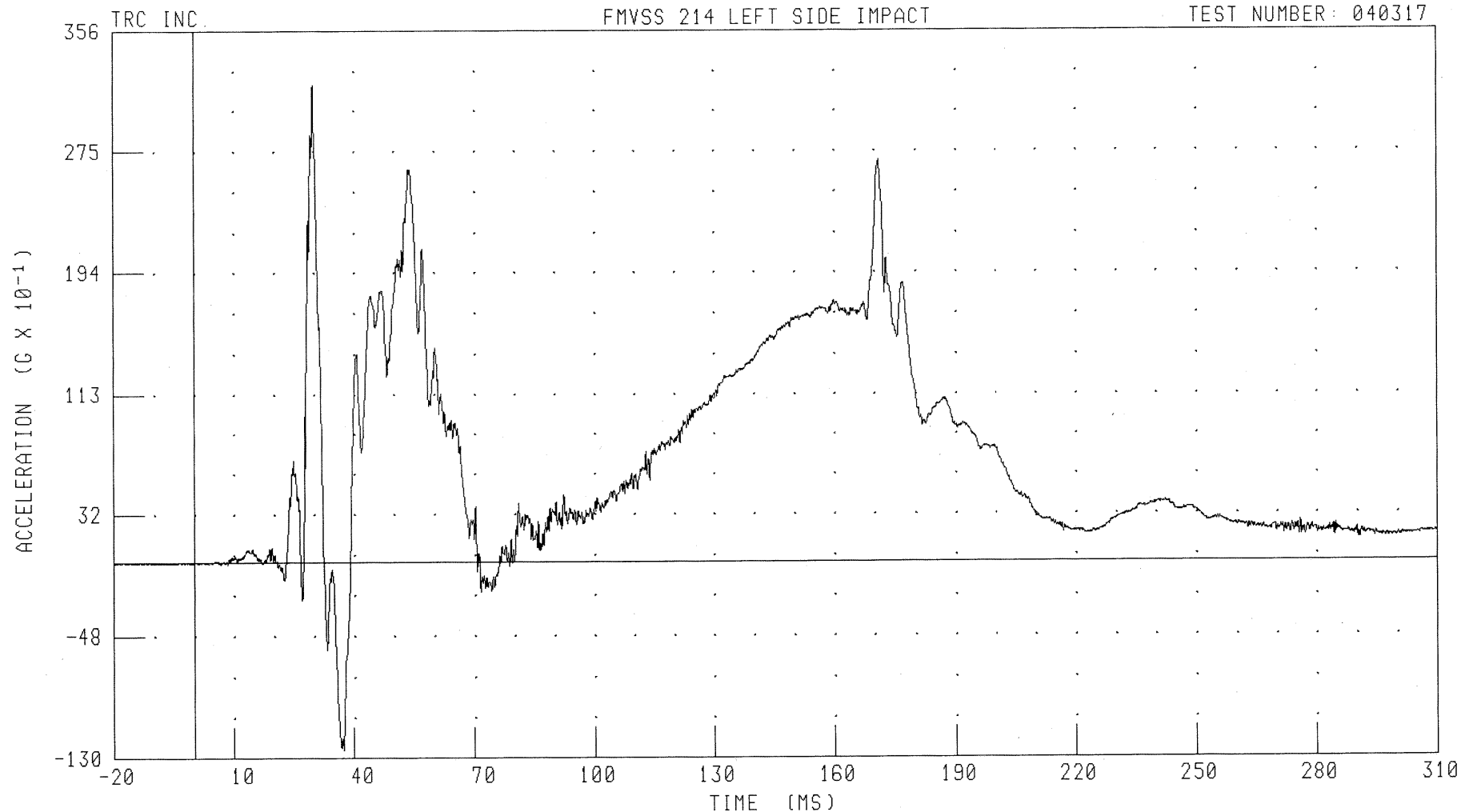
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZG1

FILTER: CH. CLASS 1000

PEAK DATA: 32.01 G @ 29.92 MS; -12.46 G @ 37.36 MS

B-15

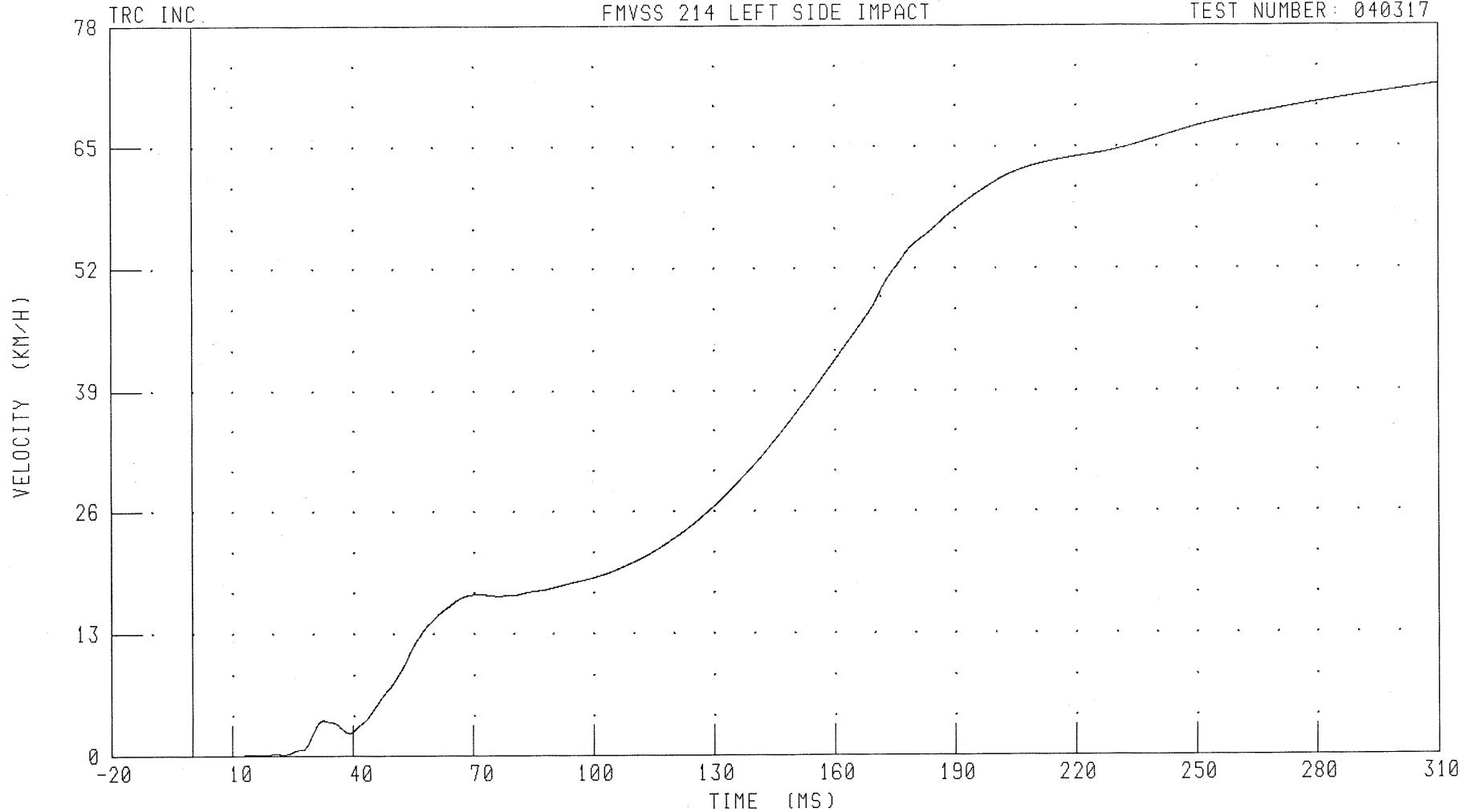
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZV1 FILTER: CH. CLASS 180

PEAK DATA: 71.71 KM/H @ 310.00 MS; 0.00 KM/H @ 4.40 MS

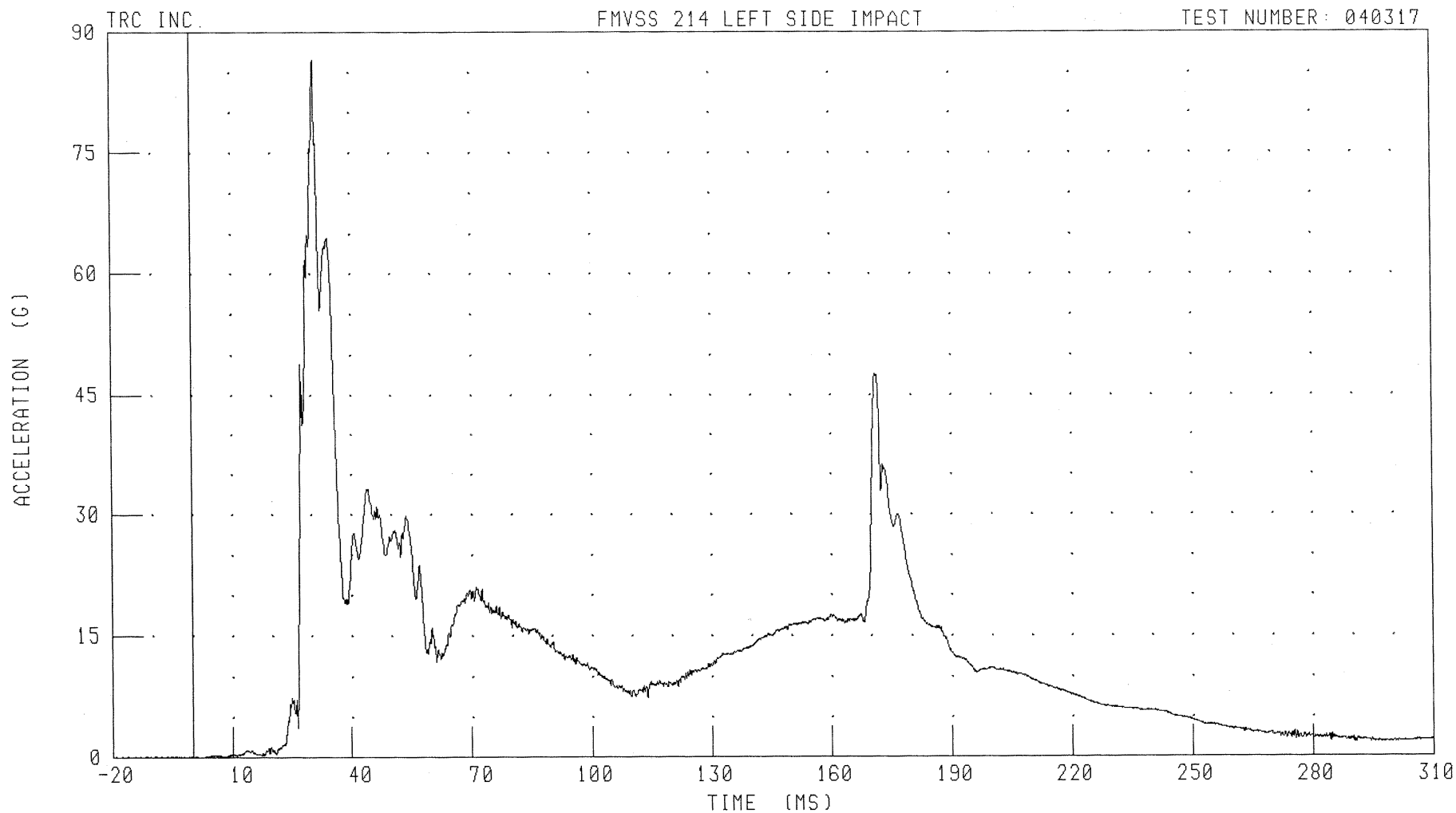
B-16

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER HEAD RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



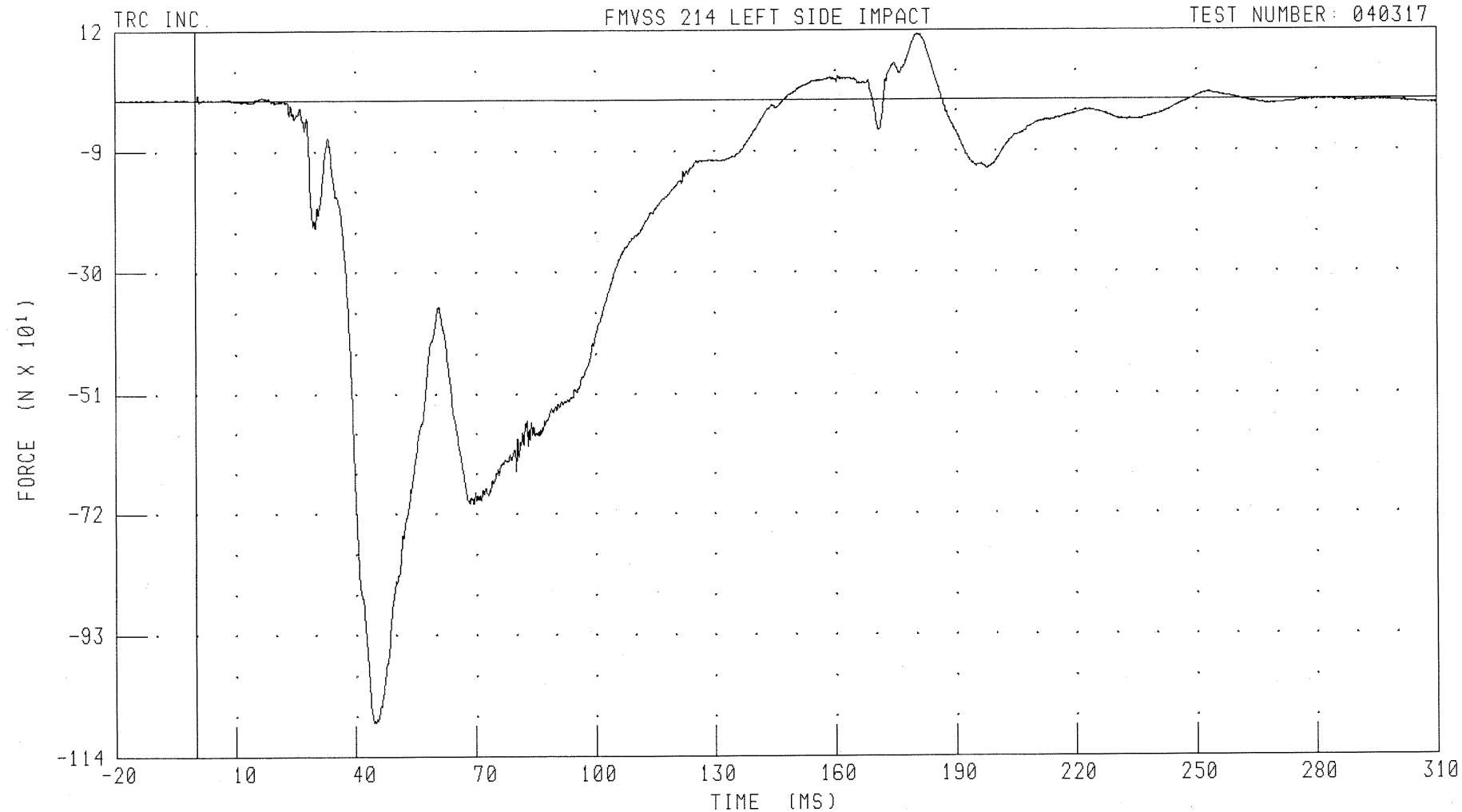
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 86.55 G @ 31.20 MS; 0.02 G @ -19.92 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER NECK X-AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 113.43 N @ 180.48 MS; -1080.68 N @ 44.56 MS

B-18

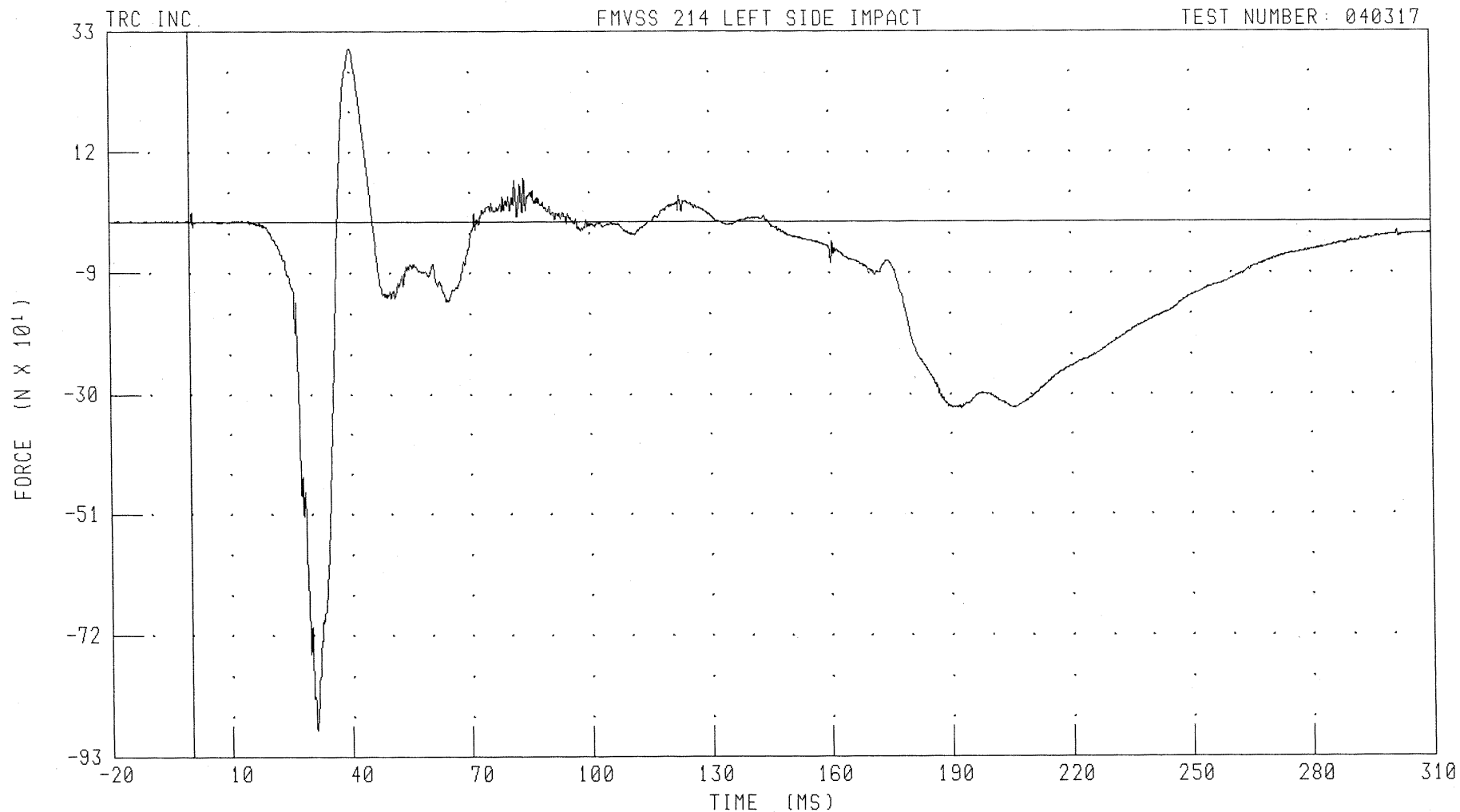
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER NECK Y-AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

B-19

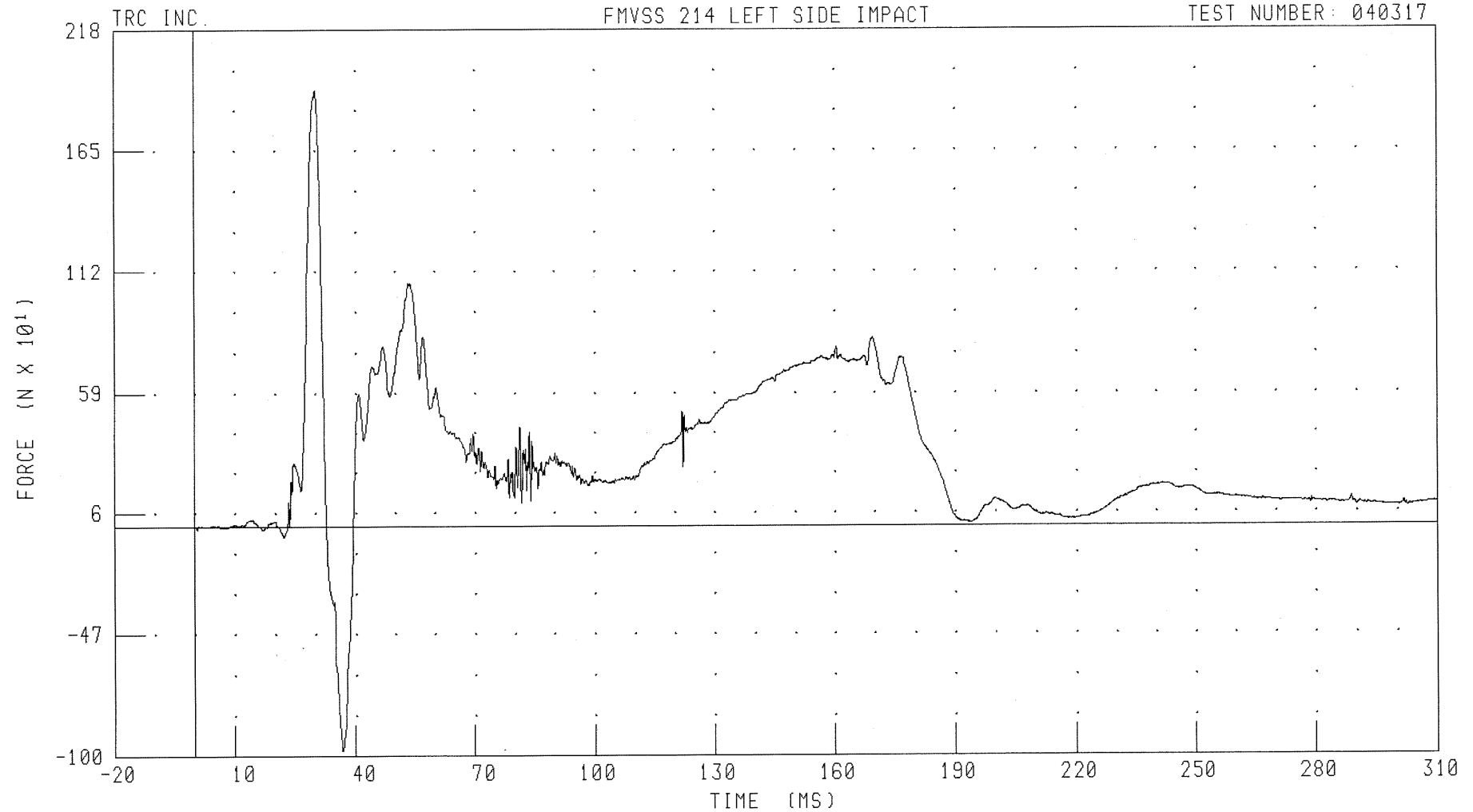
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER NECK Z-AXIS AXIAL FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 1916.30 N @ 30.16 MS; -977.96 N @ 36.80 MS

B-20

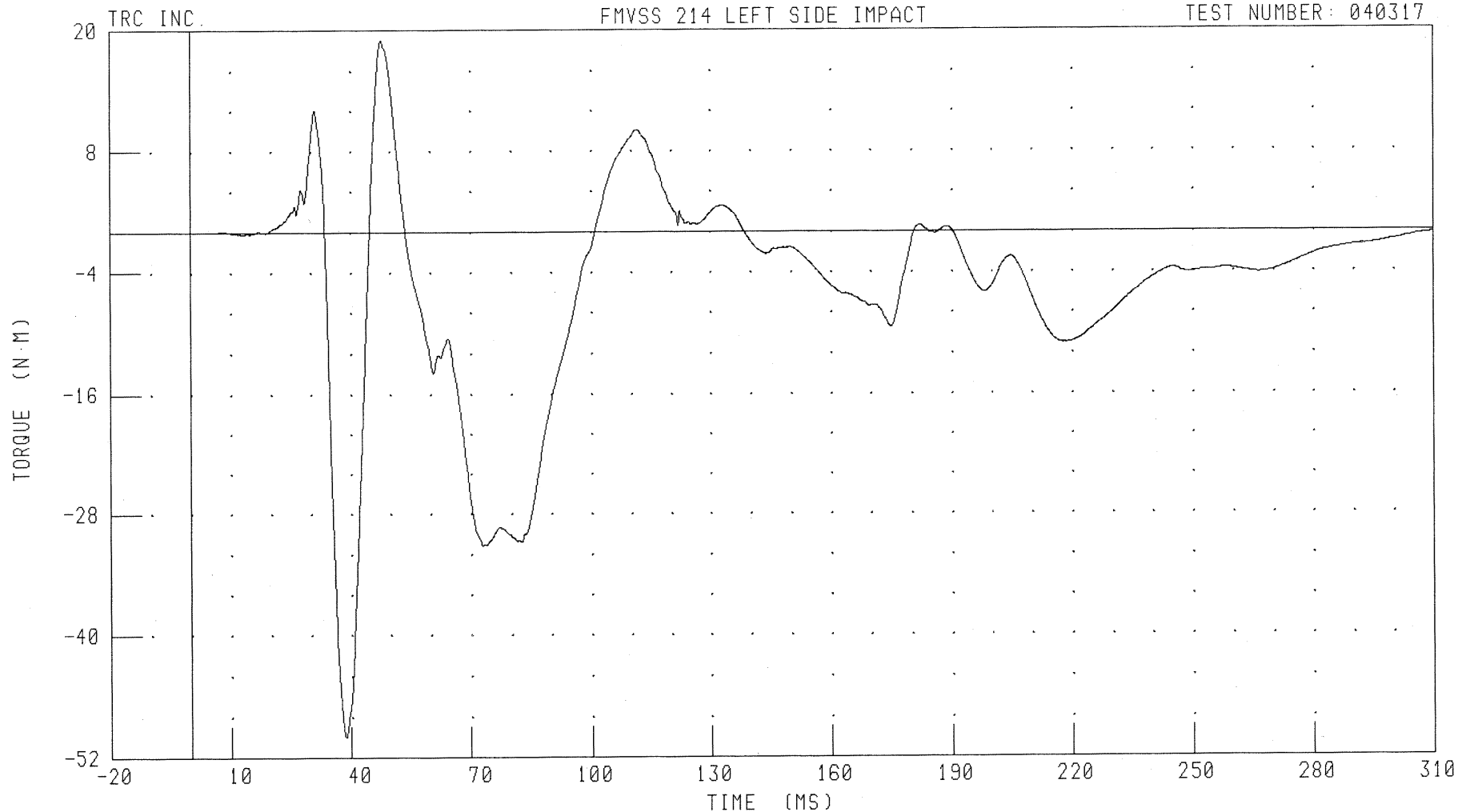
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER NECK MOMENT ABOUT X AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKXM1 FILTER: CH. CLASS 600

PEAK DATA: 19.06 N·M @ 47.92 MS; -50.03 N·M @ 38.64 MS

B-21

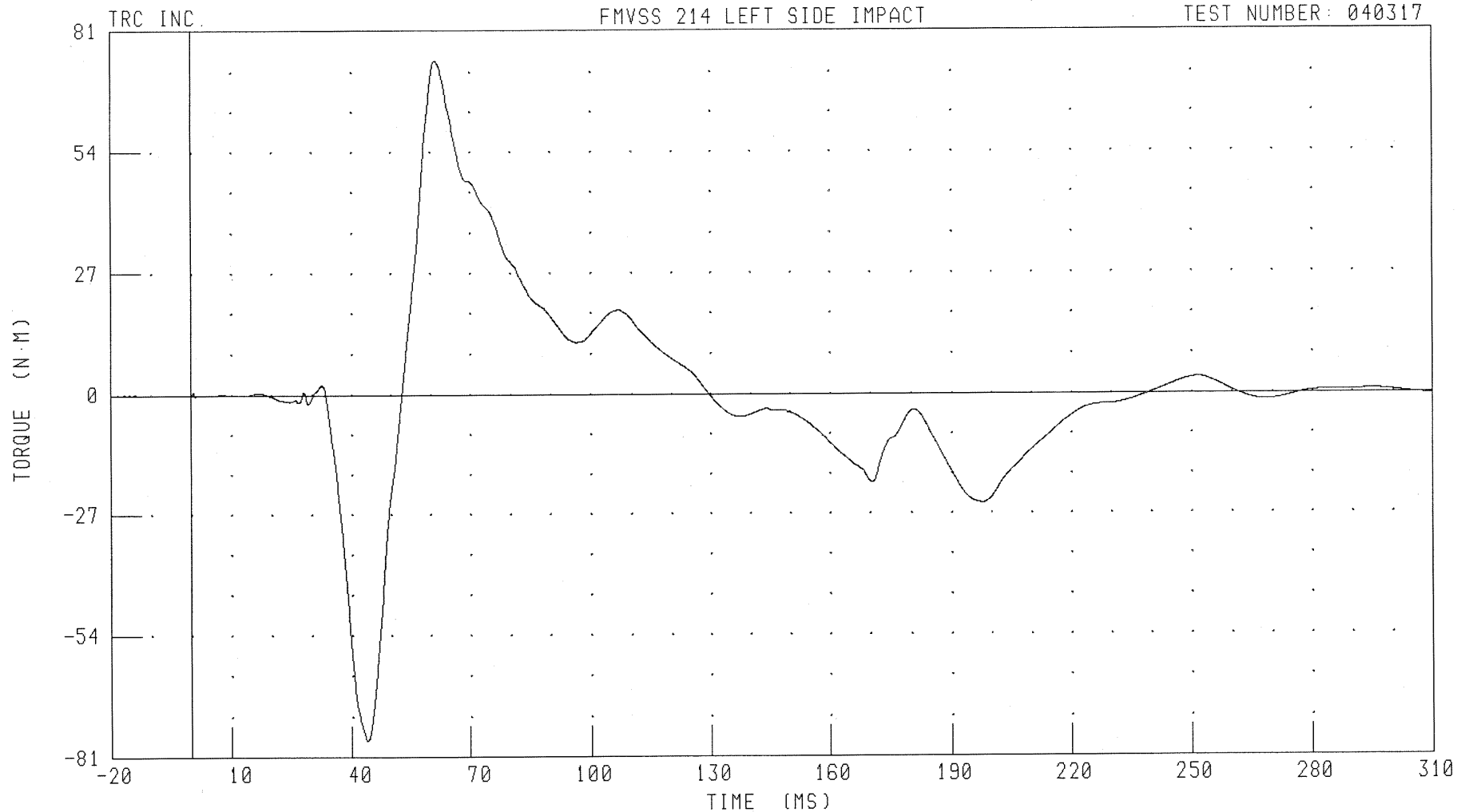
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER NECK MOMENT ABOUT Y AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 74.46 N·M @ 61.44 MS; -77.47 N·M @ 43.92 MS

B-22

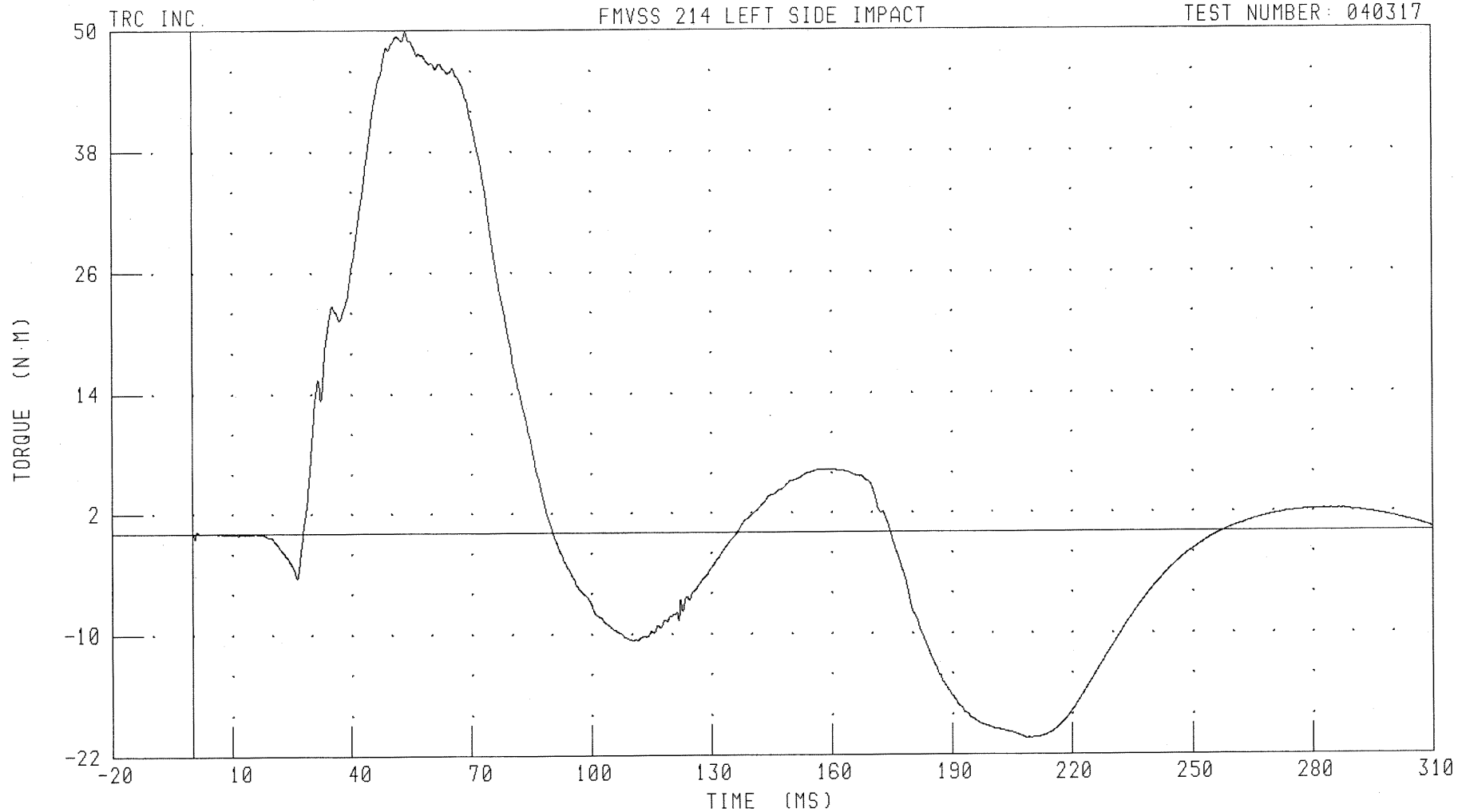
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER NECK MOMENT ABOUT Z AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 49.89 N·M @ 53.84 MS; -20.38 N·M @ 209.76 MS

B-23

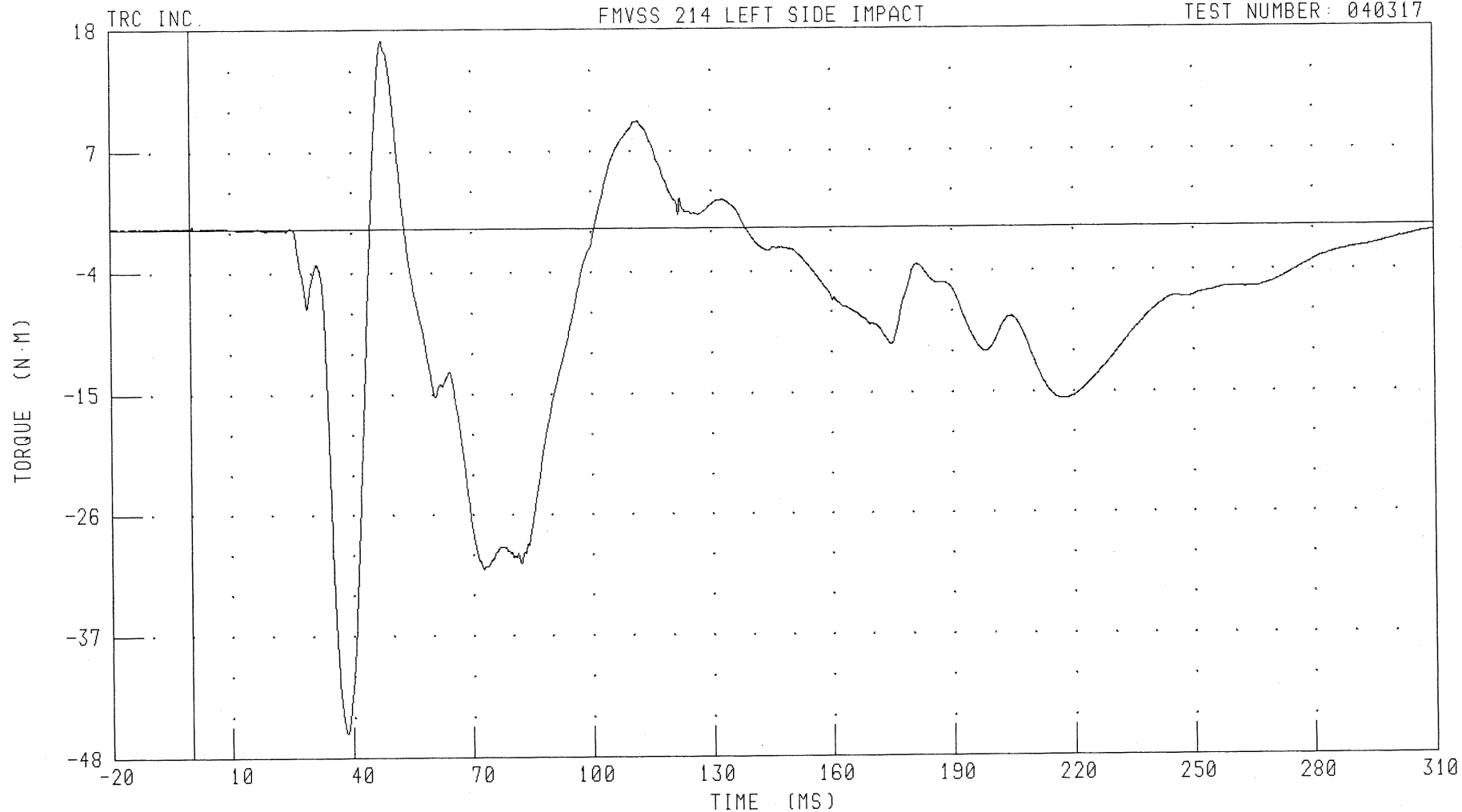
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NKOXM1 FILTER: CH. CLASS 600

PEAK DATA: 16.99 N·m @ 47.84 ms; -45.80 N·m @ 38.48 ms

B-24

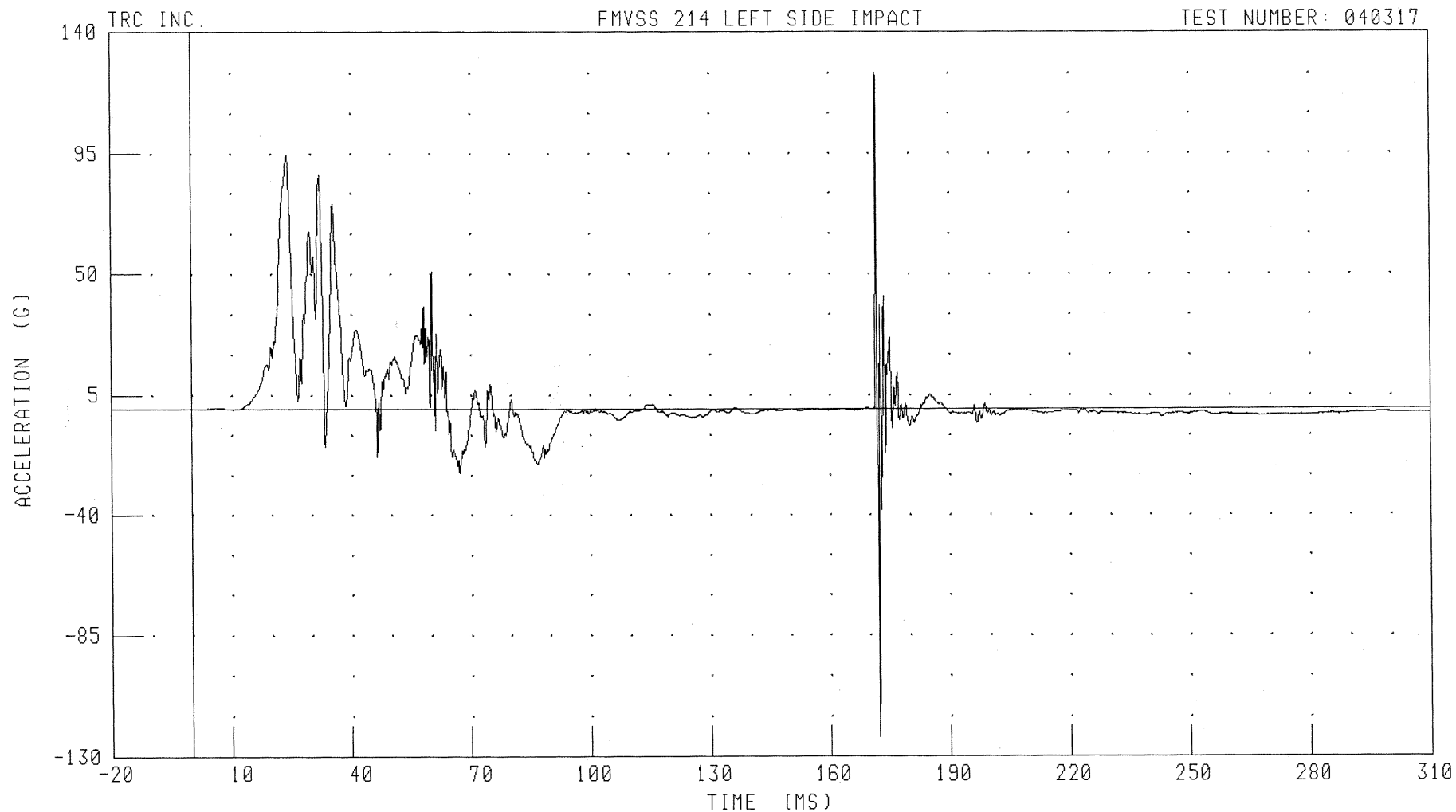
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYG1 FILTER: CH. CLASS 1000

B-25

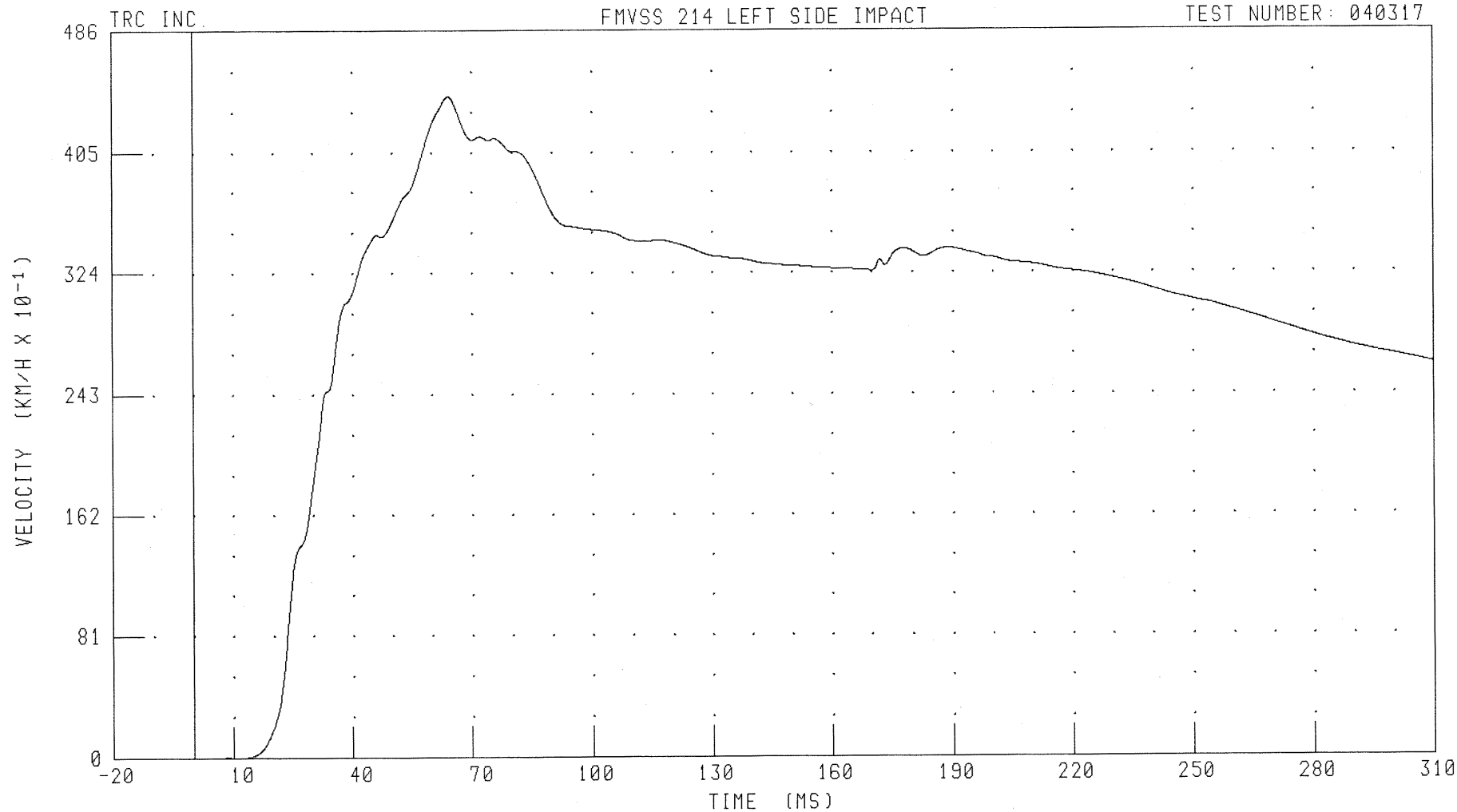
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER UPPER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYV1 FILTER: CH. CLASS 180

PEAK DATA: 44.28 KM/H @ 64.32 MS; 0.00 KM/H @ 0.00 MS

B-26

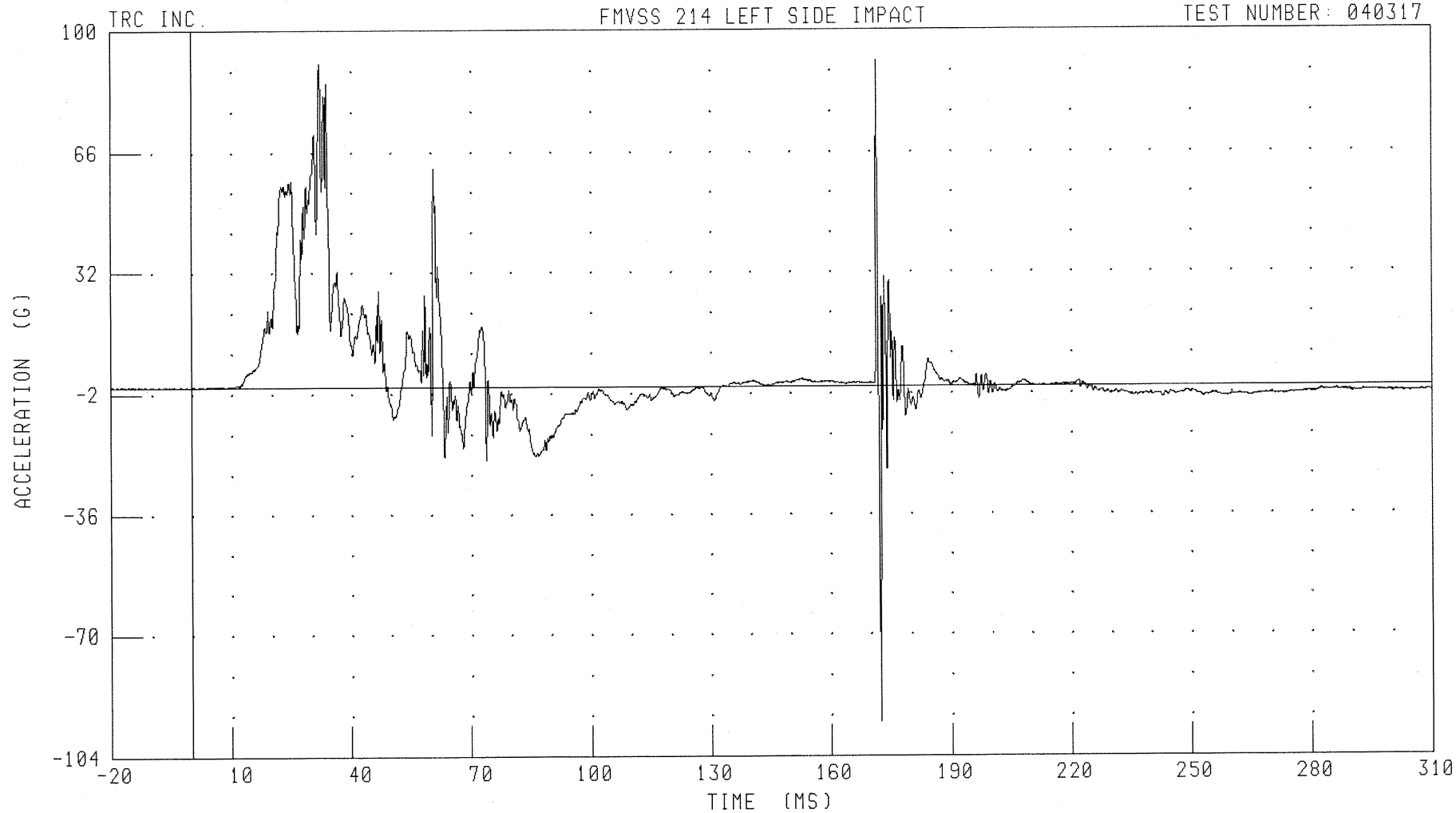
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYG1 FILTER: CH. CLASS 1000

PEAK DATA: 91.32 G @ 171.76 MS; -94.51 G @ 172.48 MS

B-27

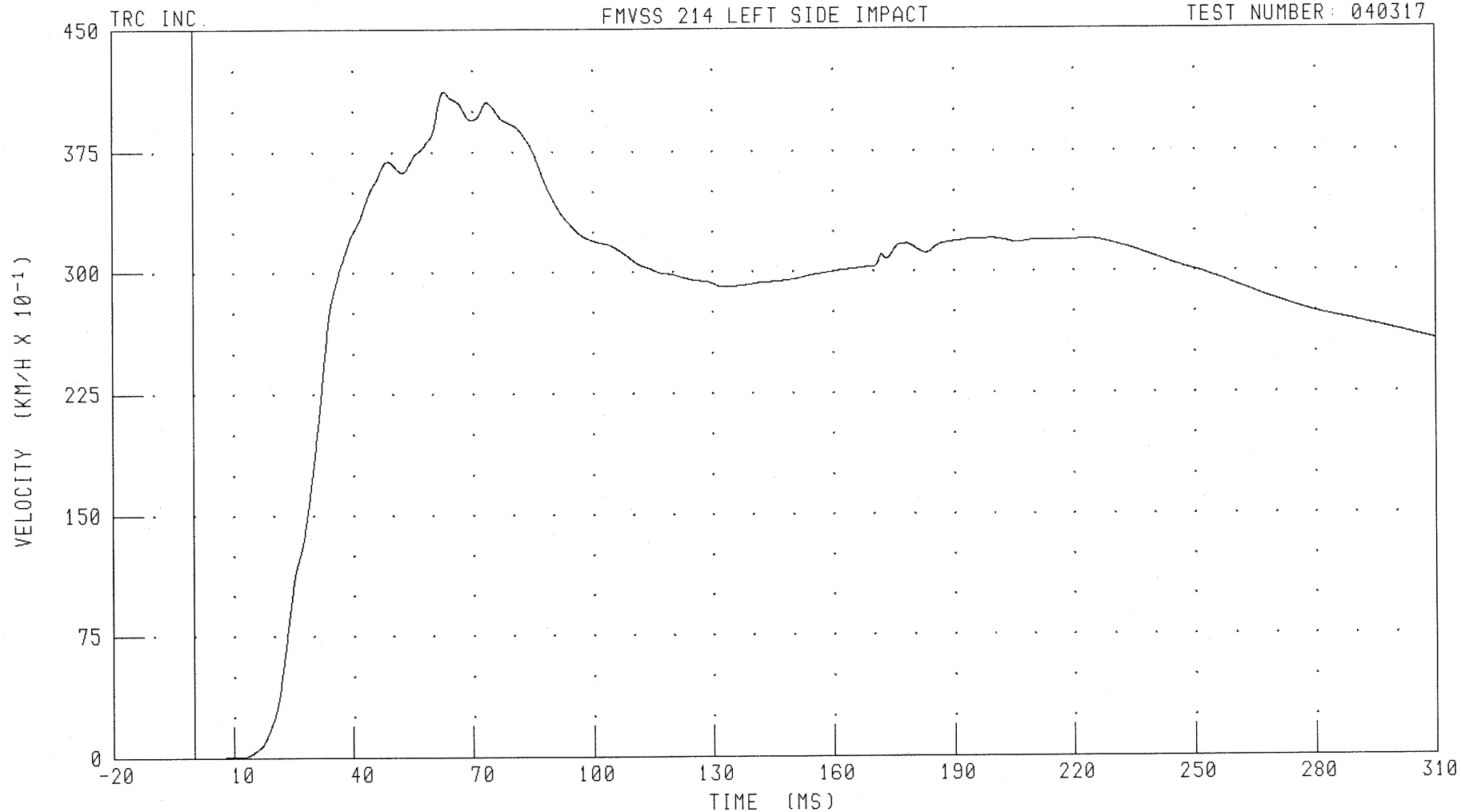
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER LOWER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYV1 FILTER: CH. CLASS 180

PEAK DATA: 41.23 KM/H @ 63.04 MS; 0.00 KM/H @ 0.00 MS

B-28

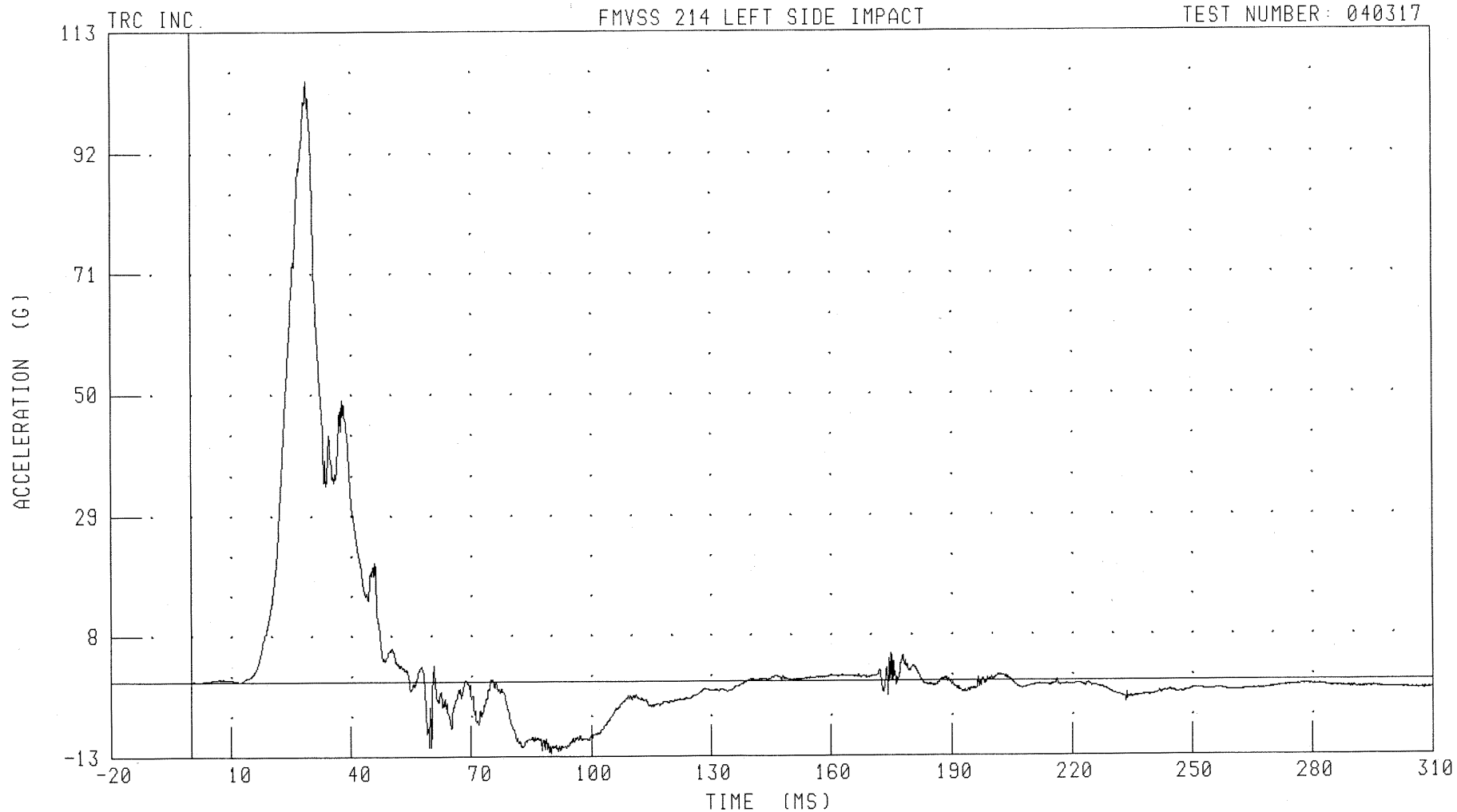
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YG1 FILTER: CH. CLASS 1000

PEAK DATA: 104.48 G @ 28.96 MS; -12.40 G @ 89.84 MS

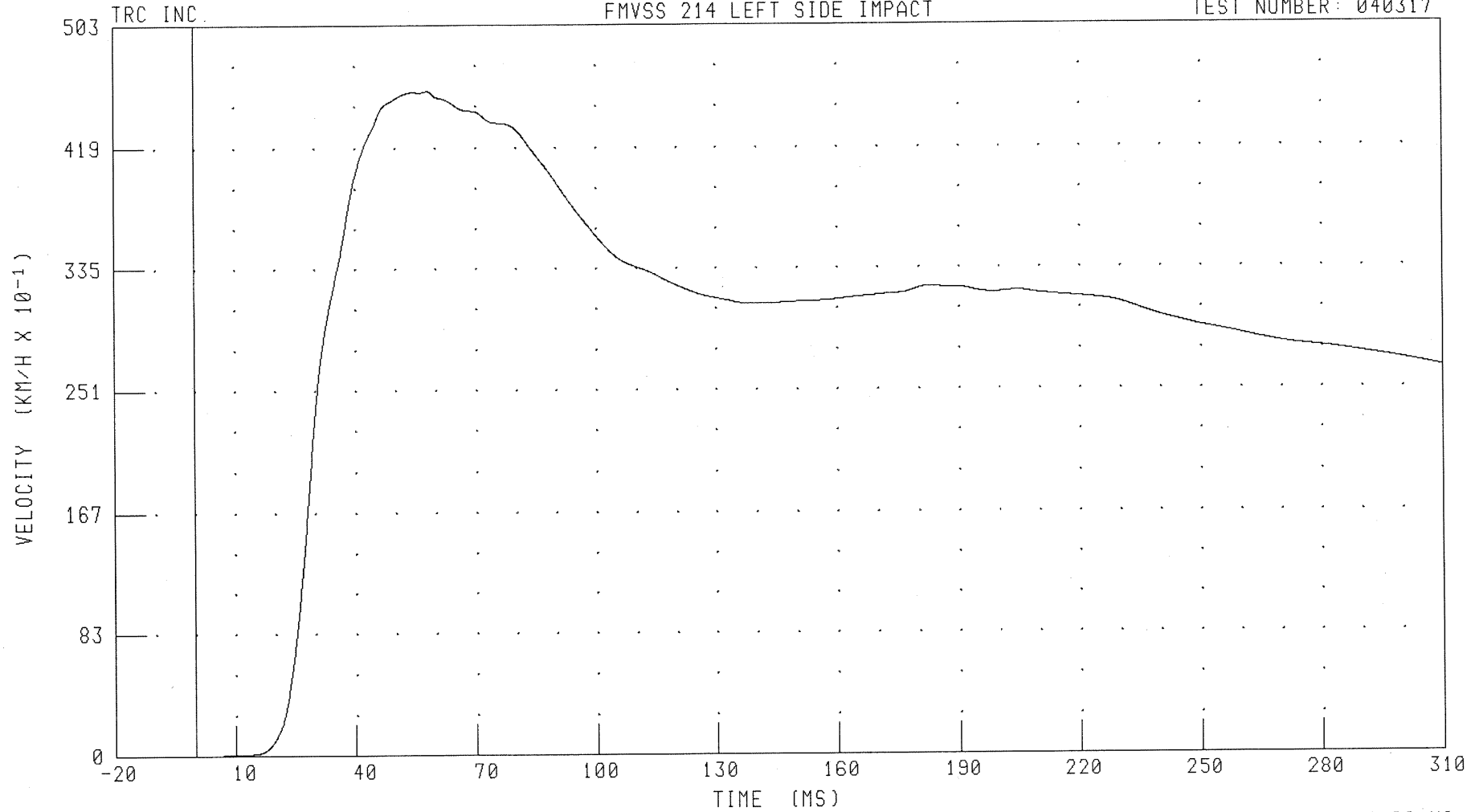
B-29

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER LOWER SPINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YV1 FILTER: CH. CLASS 180

PEAK DATA: 45.84 KM/H @ 58.08 MS; 0.00 KM/H @ 0.00 MS

B-30

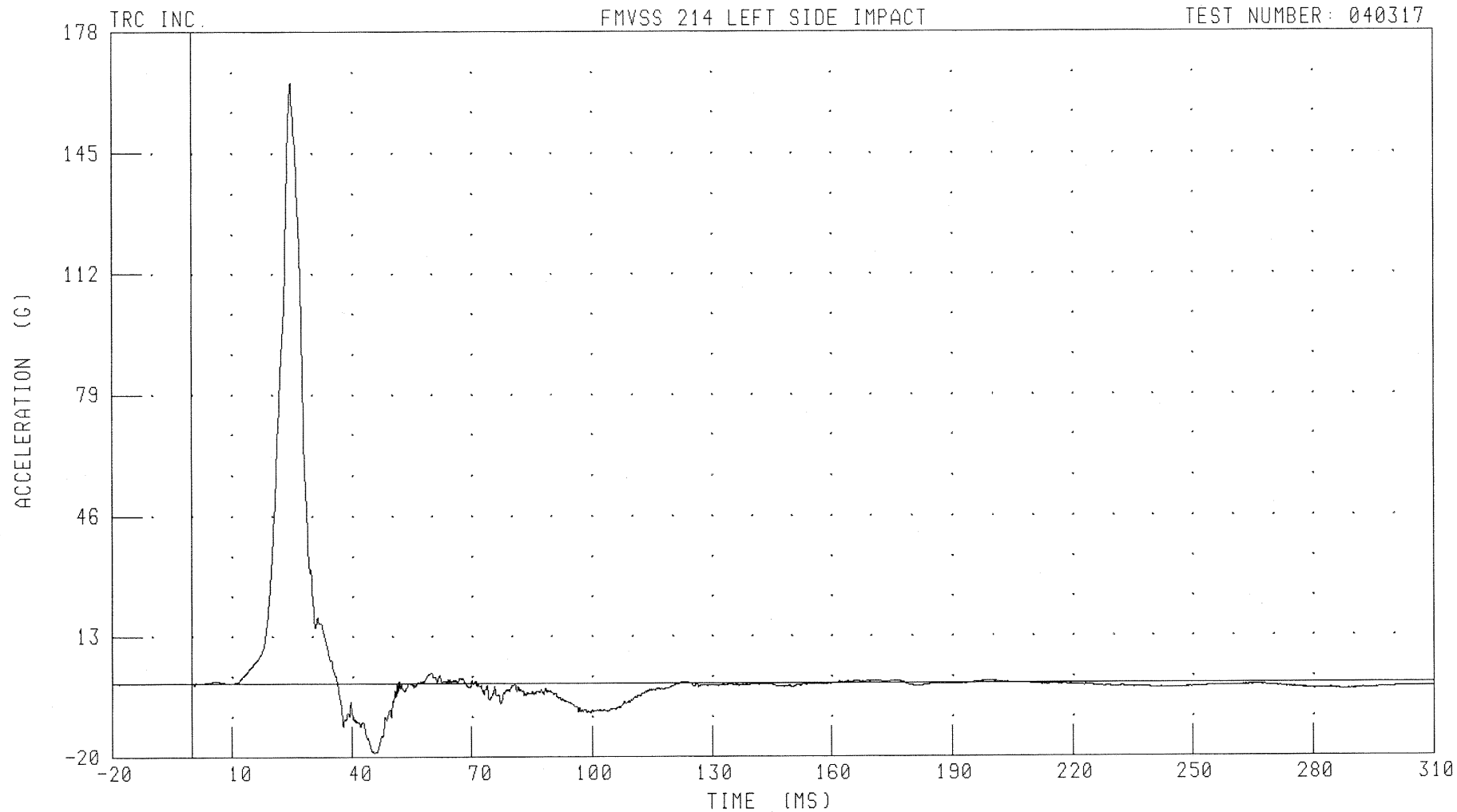
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

PEAK DATA: 163.96 G @ 24.80 MS; -18.83 G @ 45.52 MS

B-31

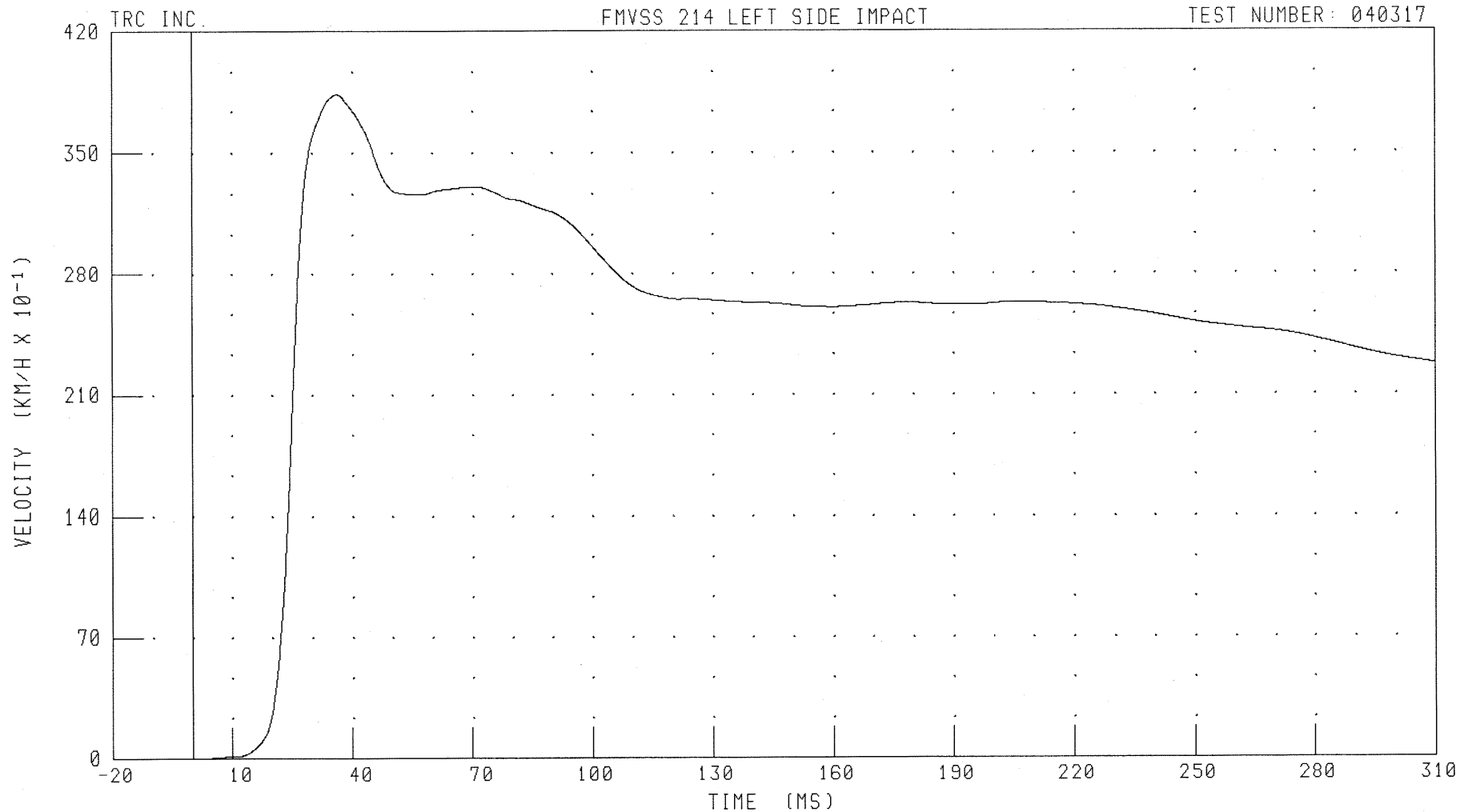
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER PELVIS Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYV1

FILTER: CH. CLASS 180

PEAK DATA: 38.38 KM/H @ 36.32 MS; 0.00 KM/H @ 1.04 MS

B-32

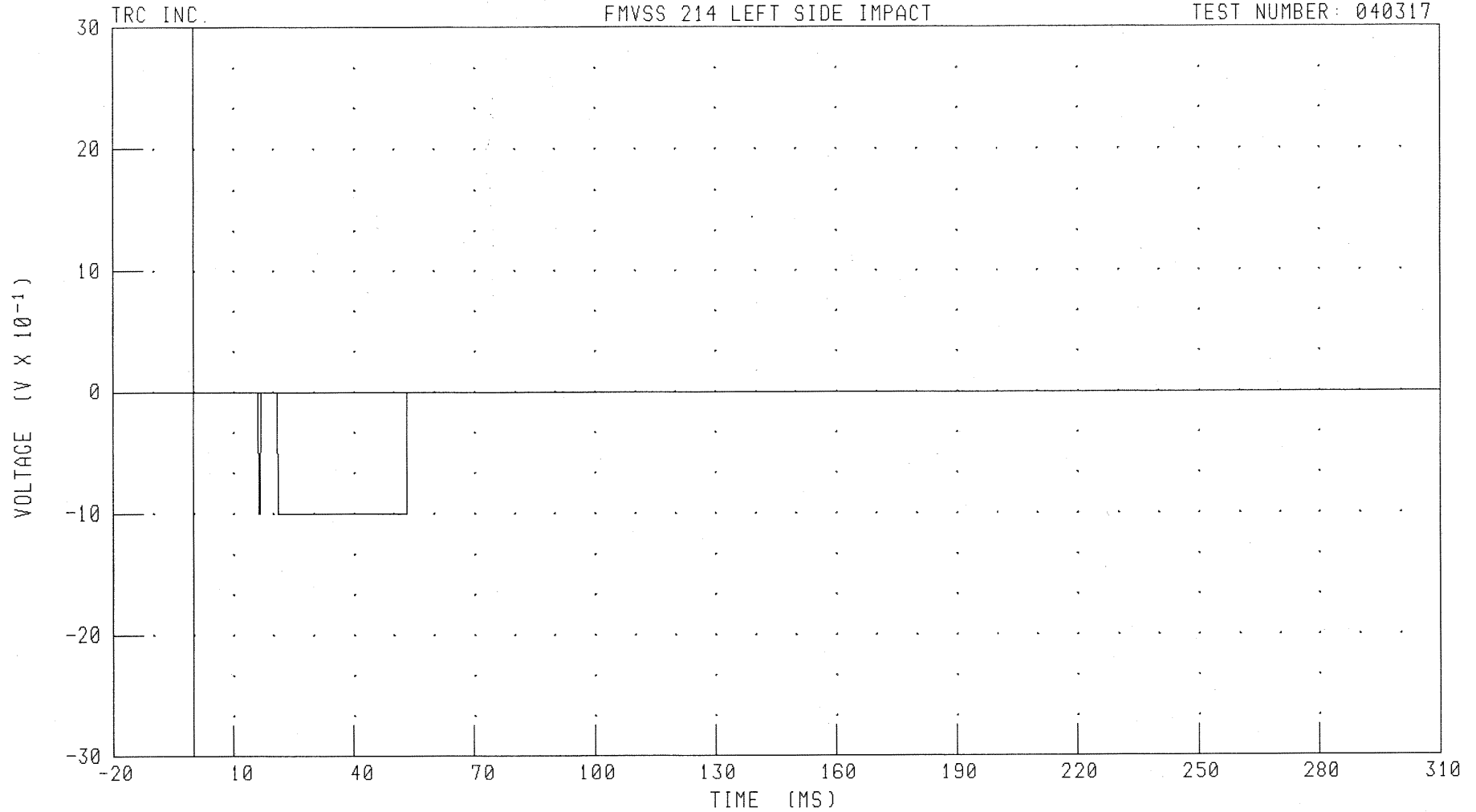
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER SHOULDER CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: SHLET1

FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 16.48 MS

B-33

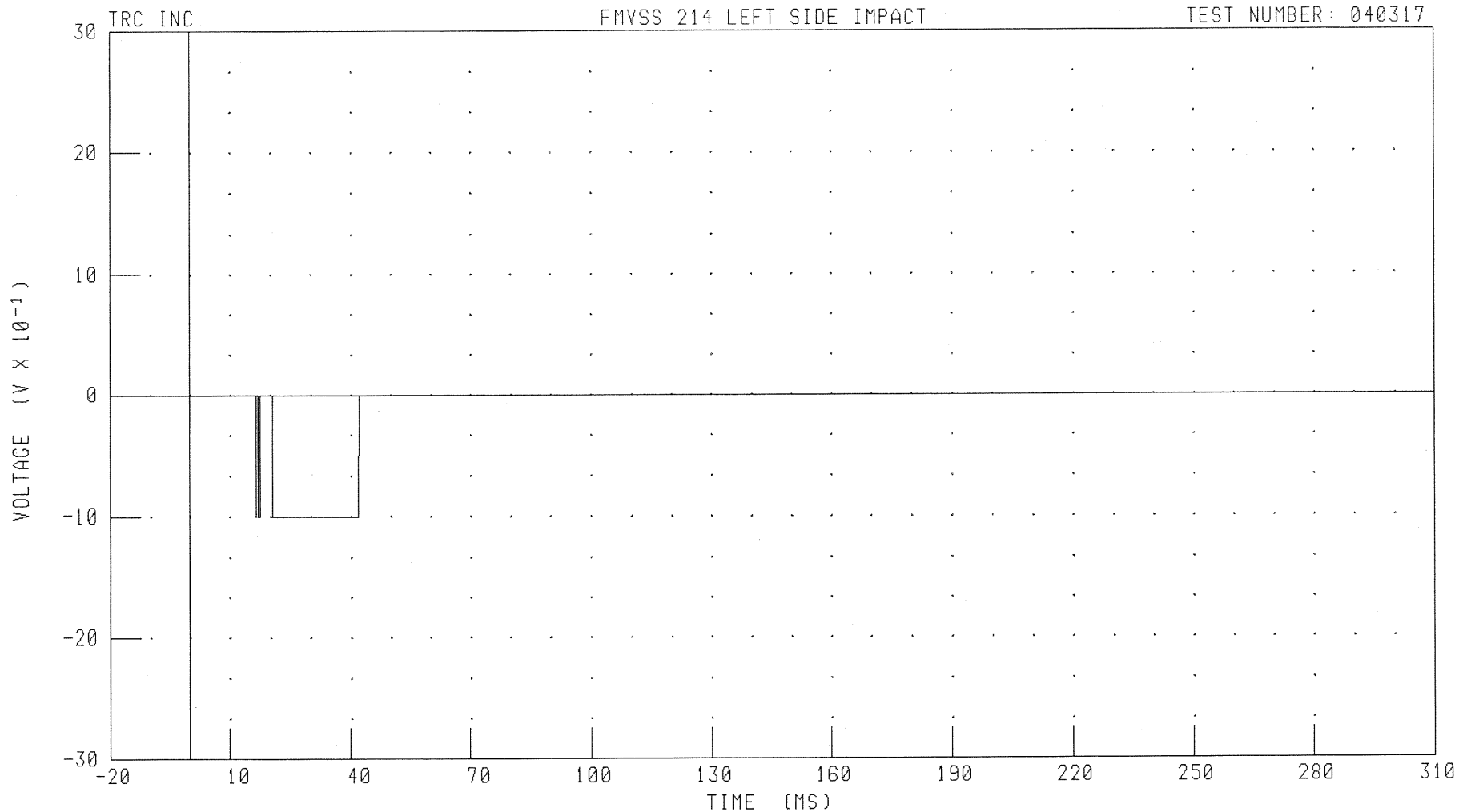
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER PELVIS CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVET1

FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 16.56 MS

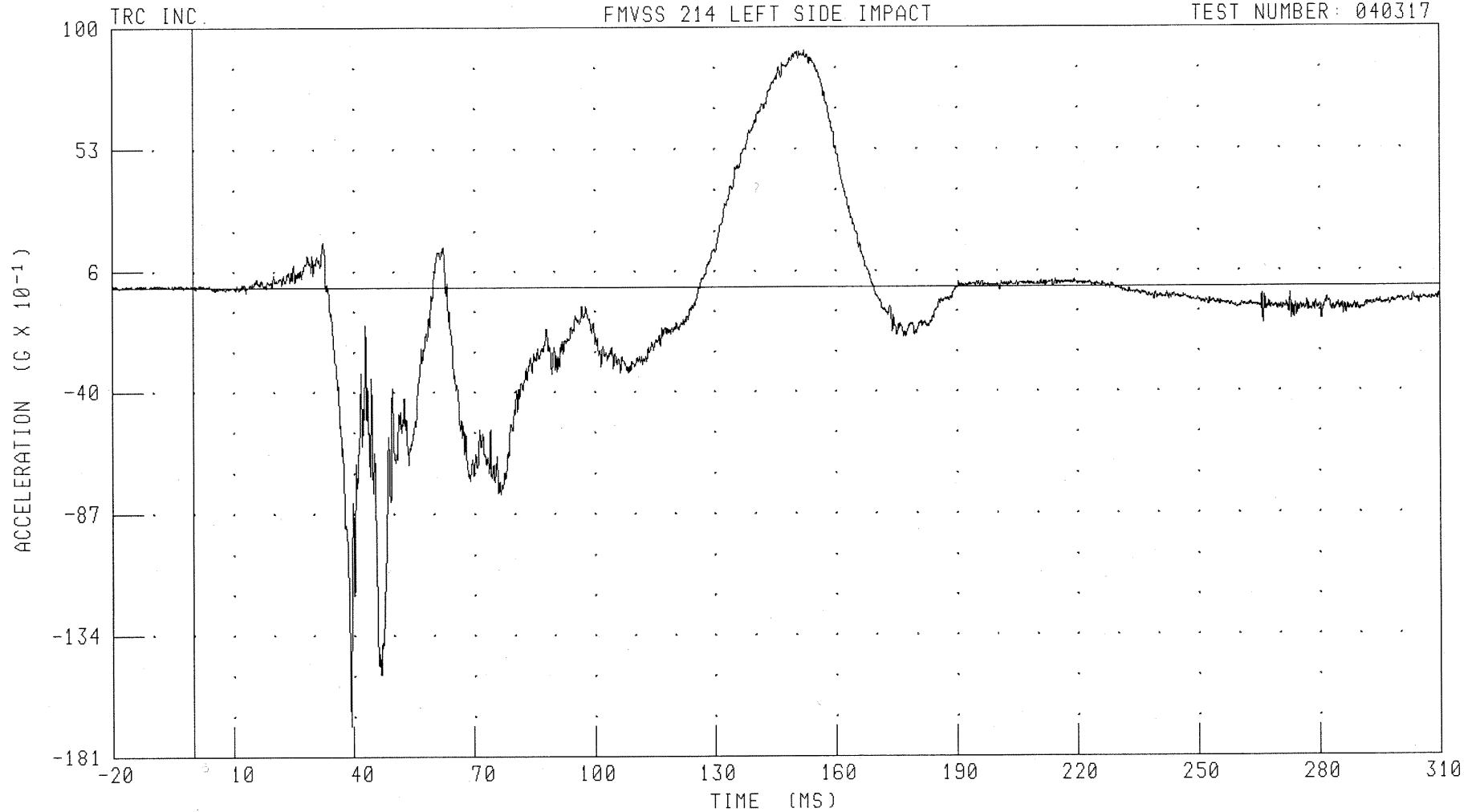
B-34

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXG4 FILTER: CH. CLASS 1000

PEAK DATA: 9.10 G @ 152.40 MS; -17.03 G @ 39.36 MS

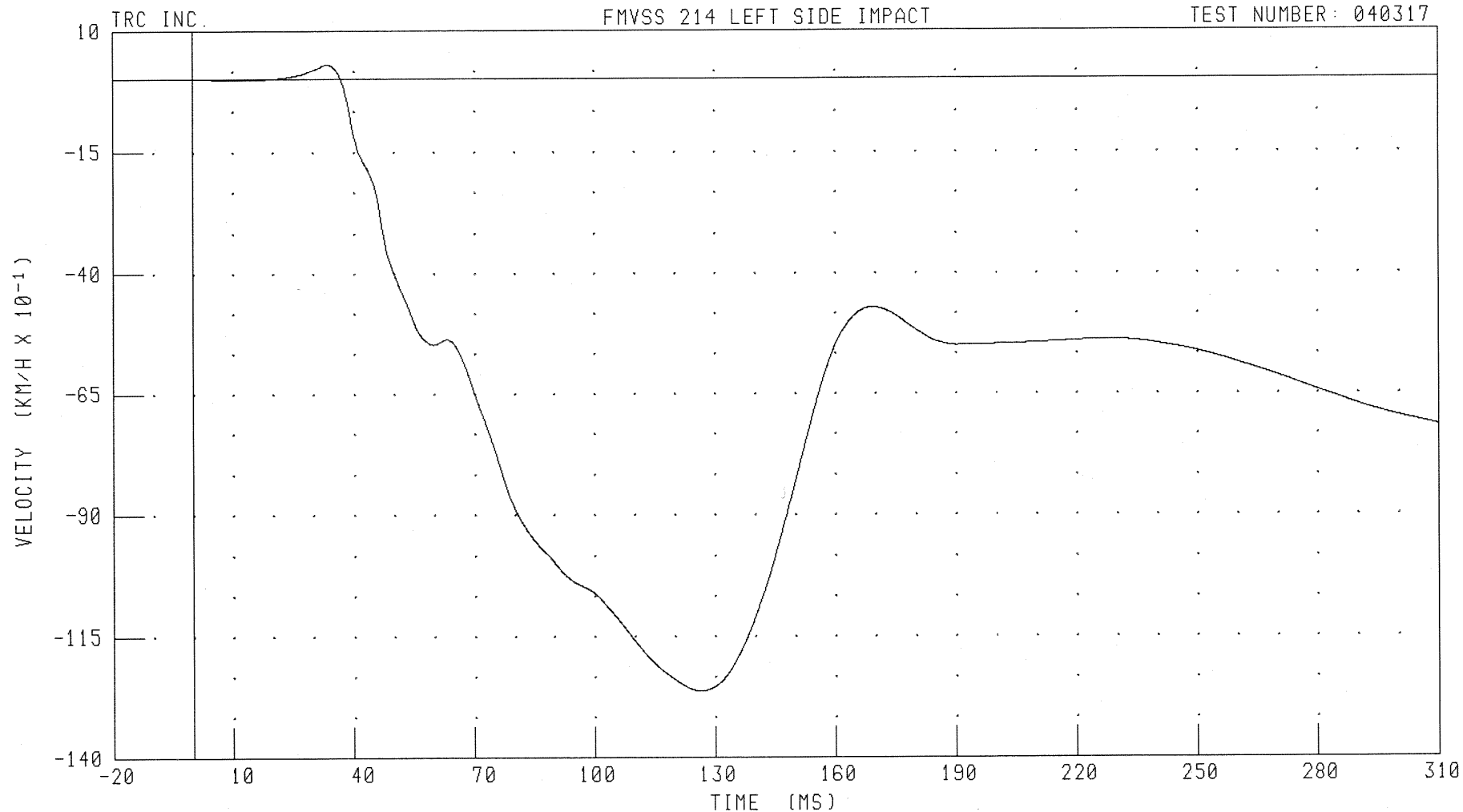
B-35

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXV4

FILTER: CH. CLASS 180

PEAK DATA: 0.31 KM/H @ 33.60 MS; -12.63 KM/H @ 126.40 MS

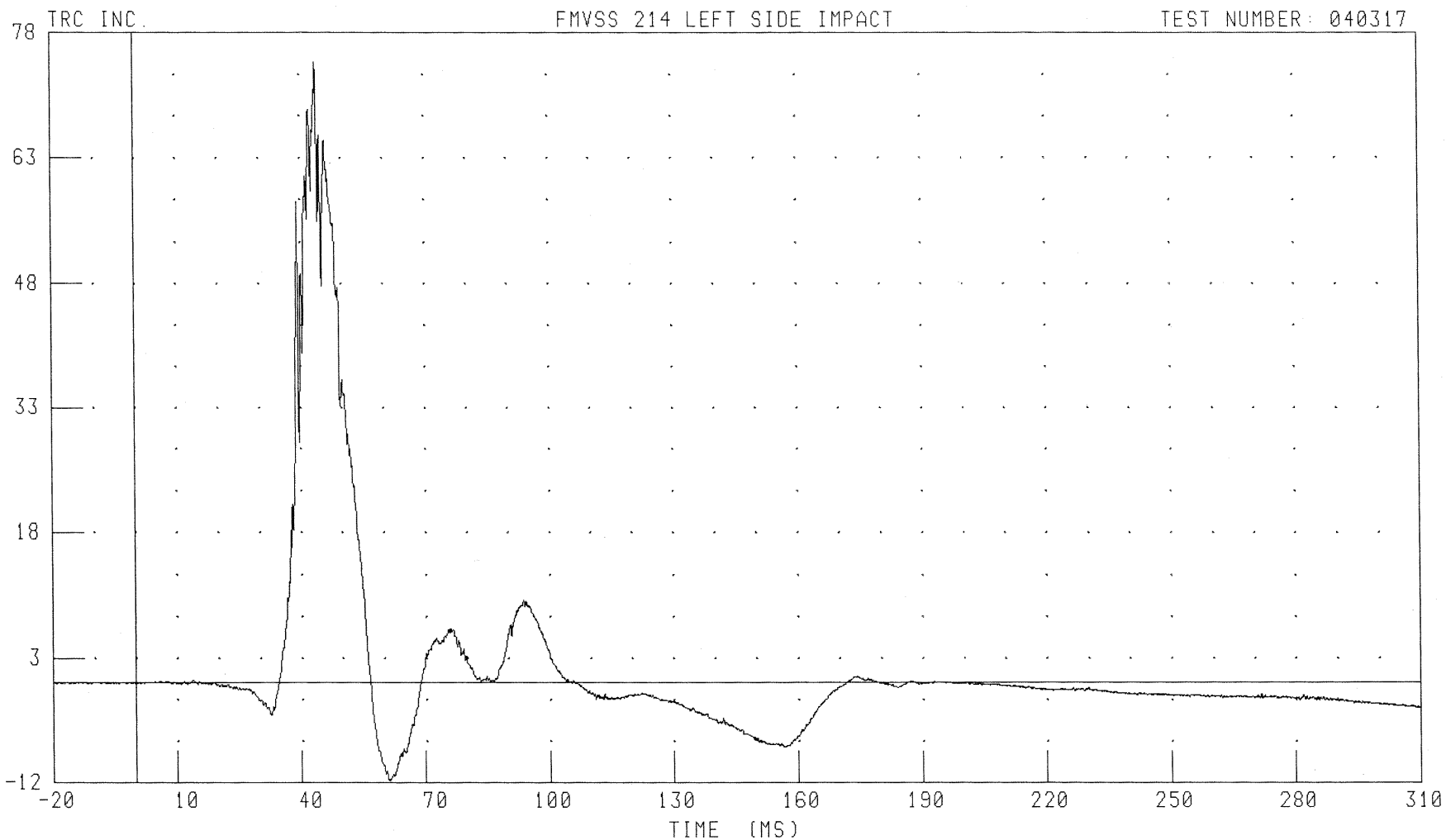
B-36

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYG4 FILTER: CH. CLASS 1000

PEAK DATA: 74.43 G @ 44.08 MS; -11.78 G @ 61.04 MS

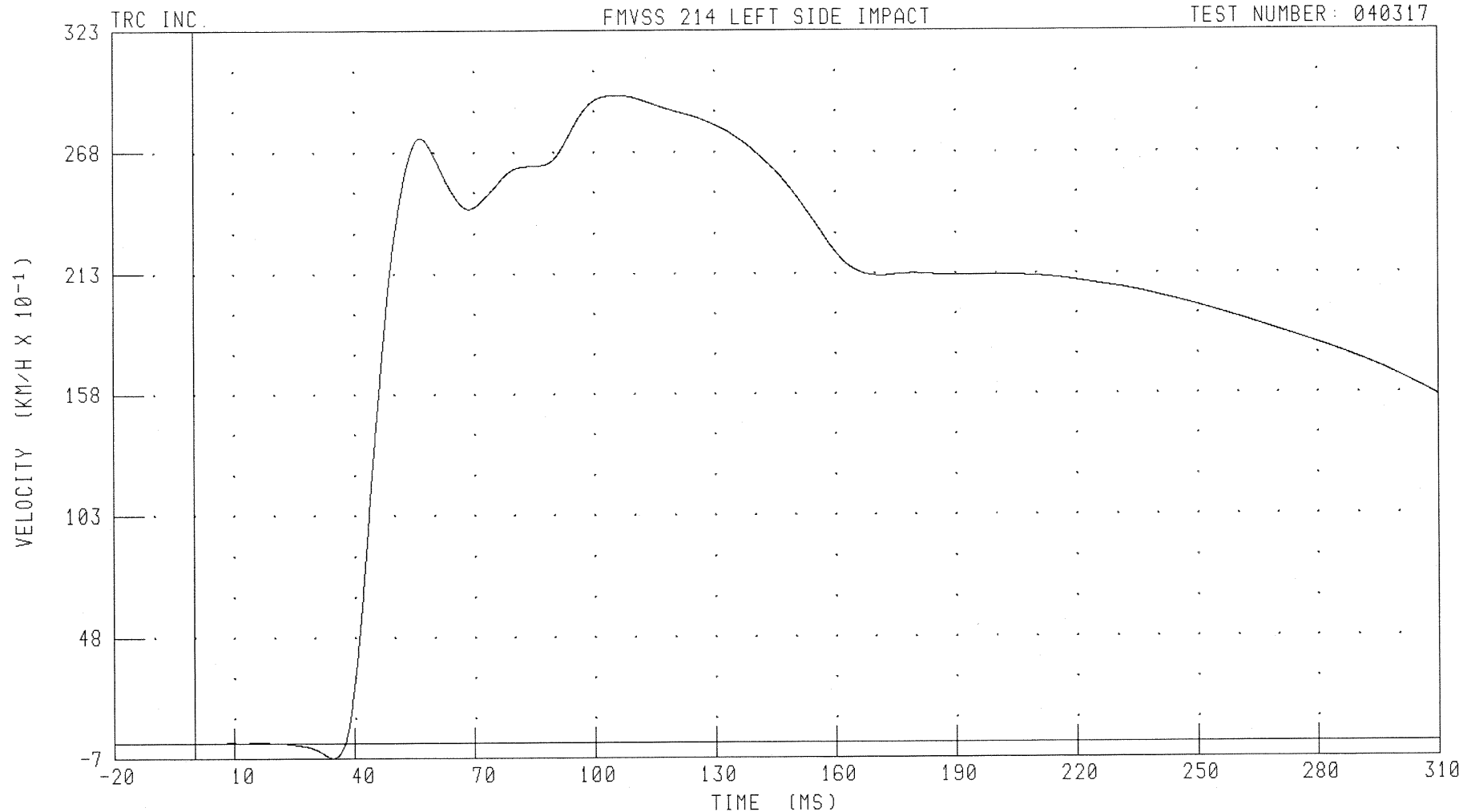
B-37

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYV4 FILTER: CH. CLASS 180

PEAK DATA: 29.33 KM/H @ 106.16 MS; -0.69 KM/H @ 34.48 MS

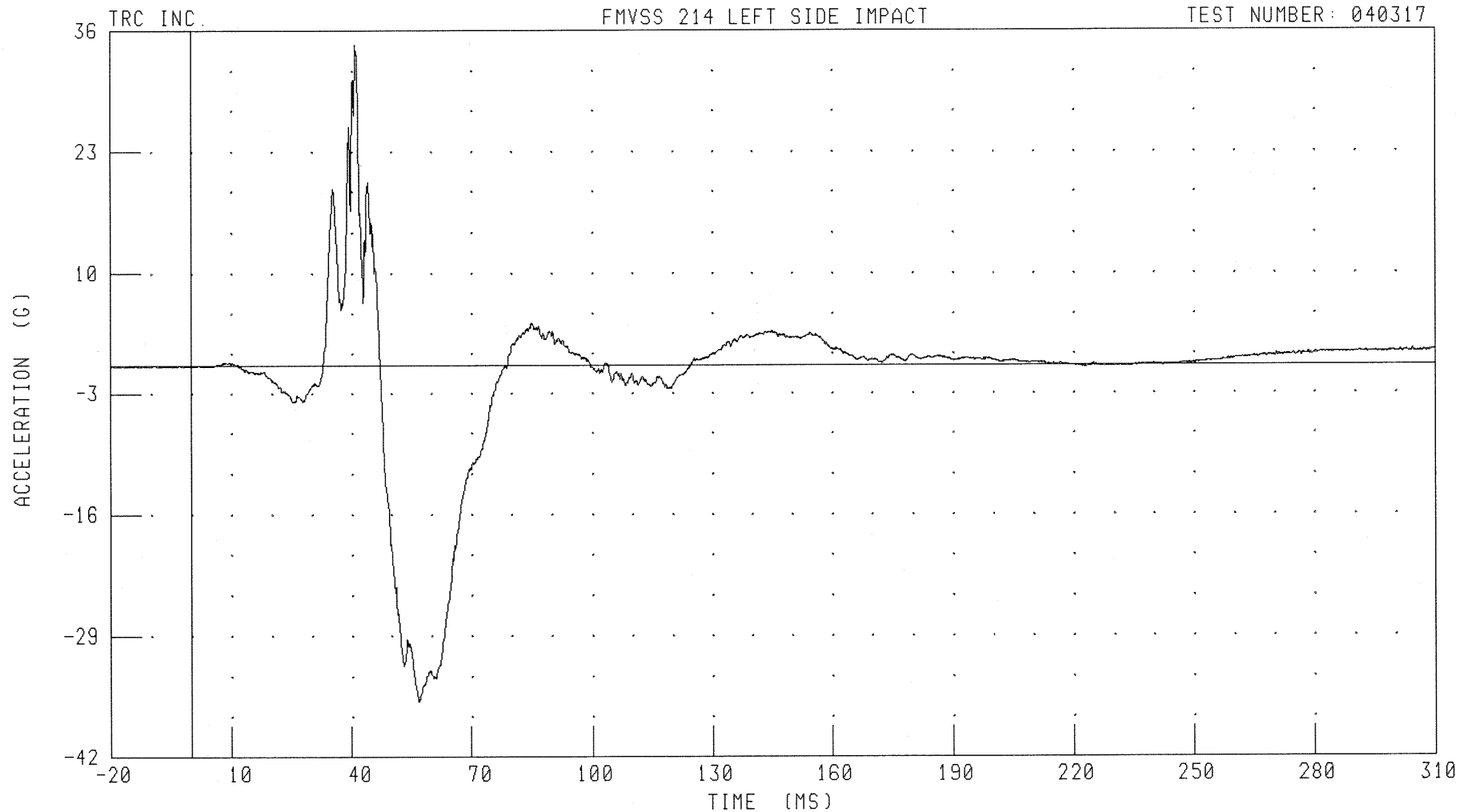
B-38

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZG4 FILTER: CH. CLASS 1000

PEAK DATA: 34.46 G @ 40.96 MS; -36.07 G @ 56.80 MS

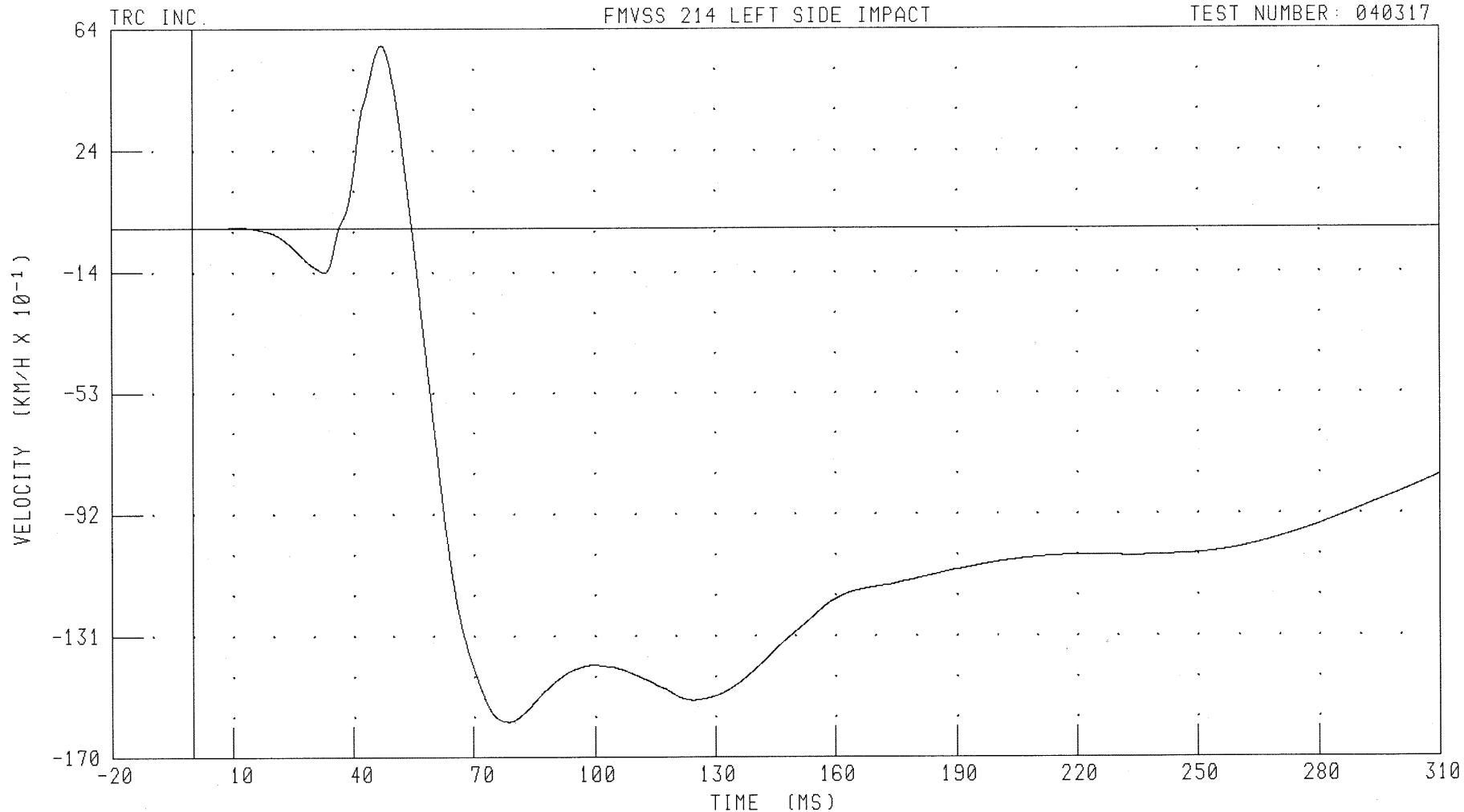
B-39

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZV4

FILTER: CH. CLASS 180

PEAK DATA: 5.86 KM/H @ 47.28 MS; -15.87 KM/H @ 78.72 MS

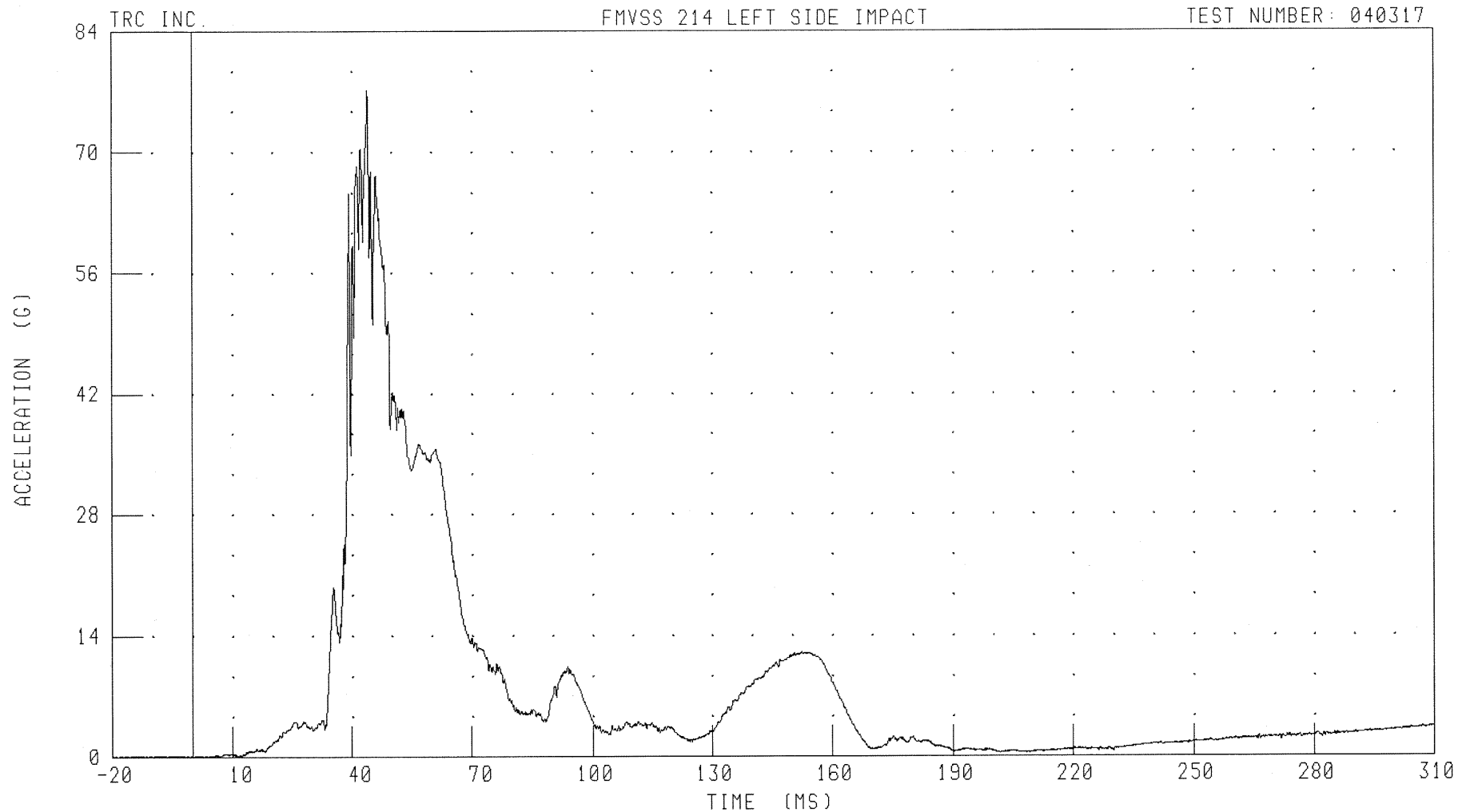
B-40

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDRG4 FILTER: CH. CLASS 1000

PEAK DATA: 77.13 G @ 44.08 MS; 0.01 G @ -19.68 MS

B-41

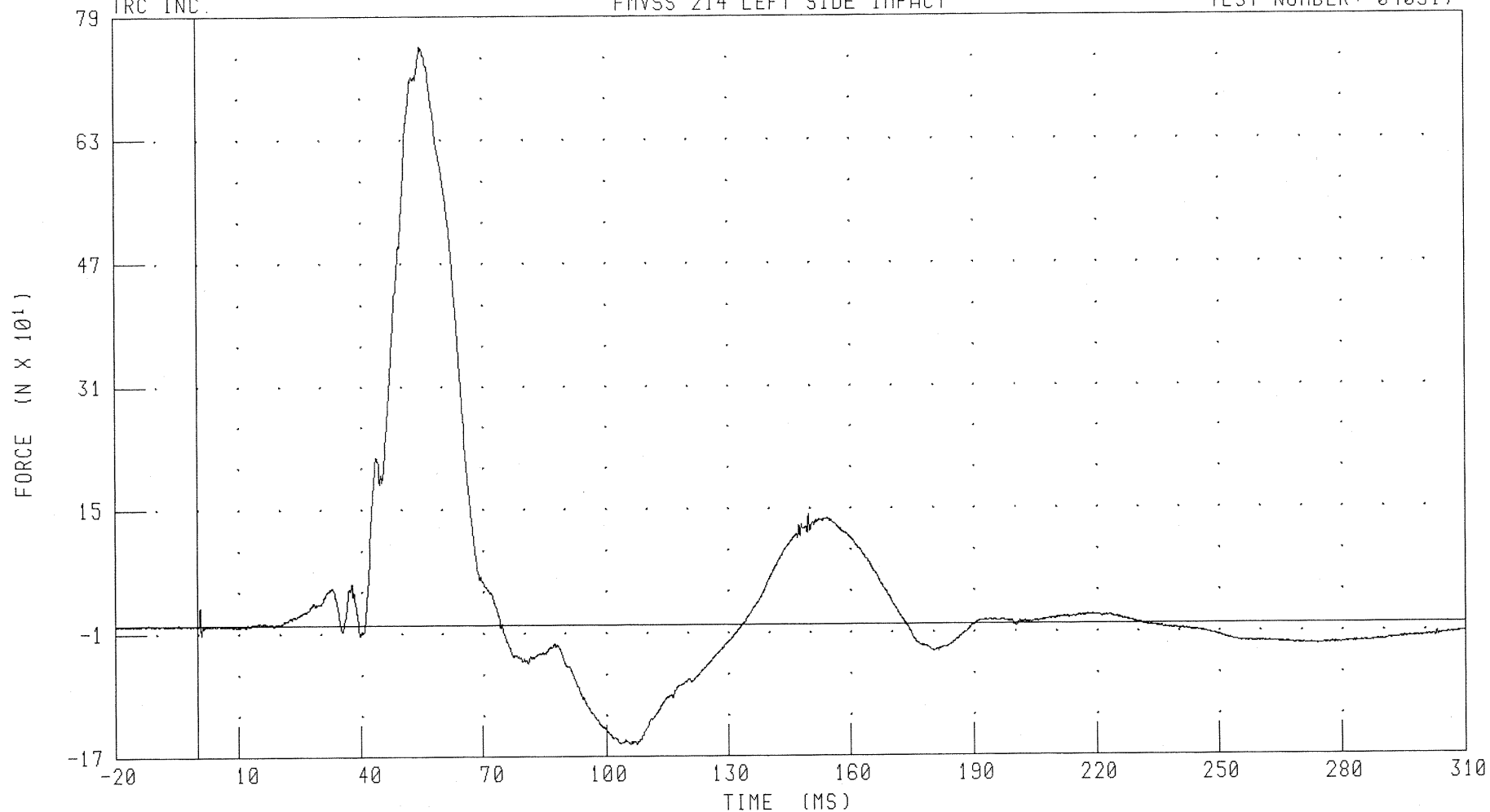
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER NECK X-AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317

TRC INC.



CHANNEL: NEKXF4 FILTER: CH. CLASS 1000

PEAK DATA: 750.64 N @ 54.96 MS; -155.69 N @ 105.92 MS

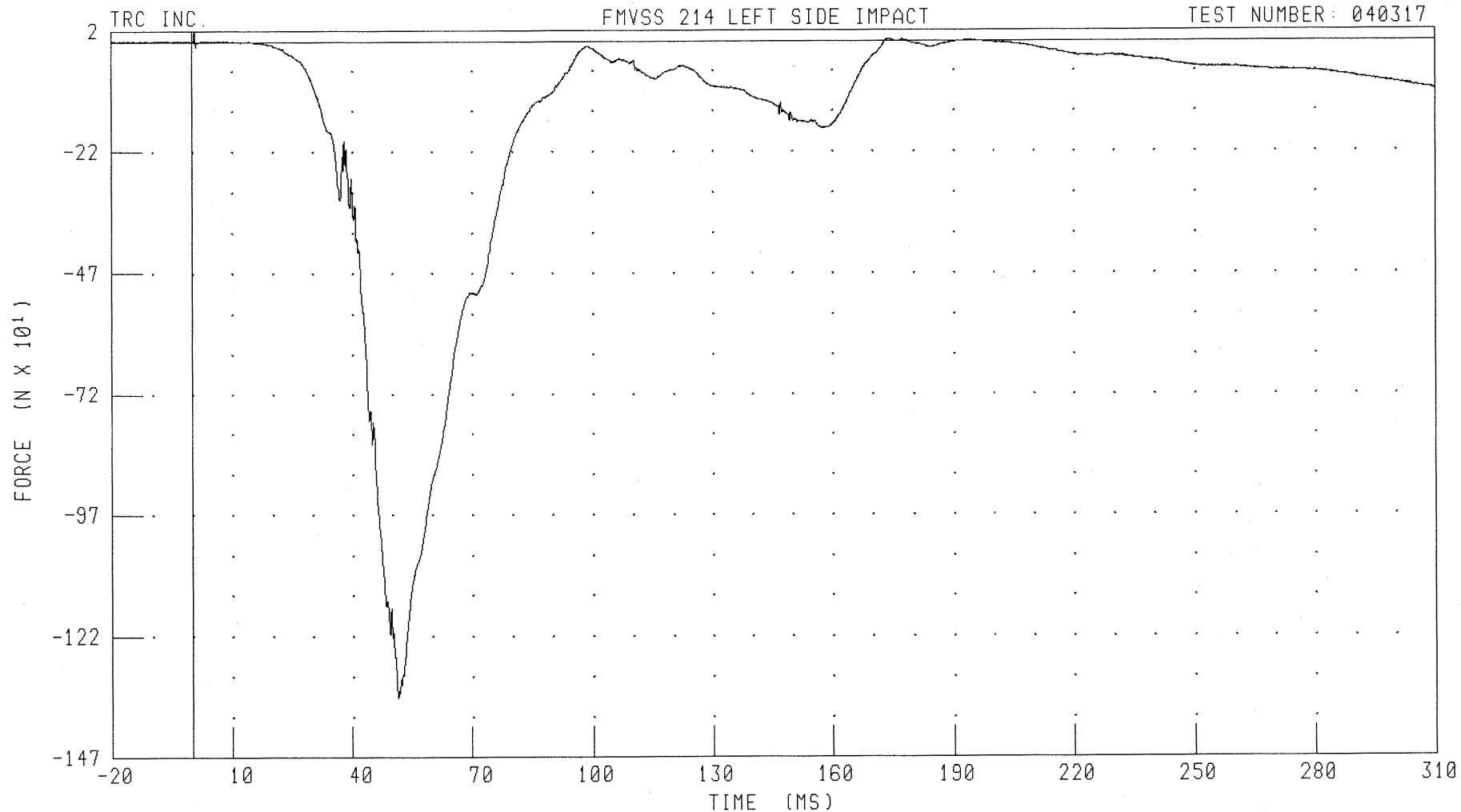
B-42

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER NECK Y-AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKYF4 FILTER: CH. CLASS 1000

PEAK DATA: 20.87 N @ 0.72 MS, -1355.64 N @ 51.44 MS

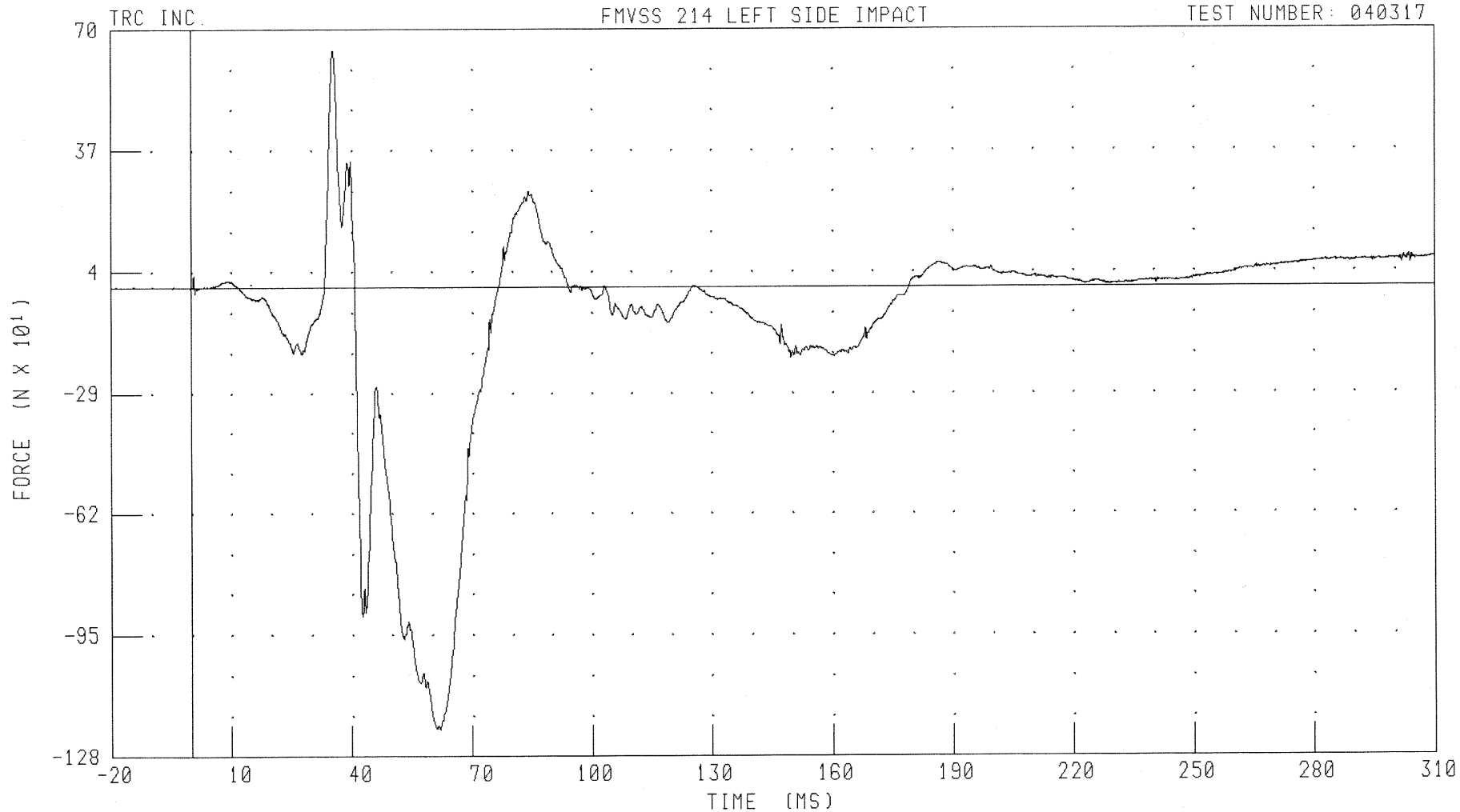
B-43

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER NECK Z-AXIS AXIAL FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKZF4 FILTER: CH. CLASS 1000

PEAK DATA: 642.65 N @ 35.44 MS; -1207.51 N @ 61.92 MS

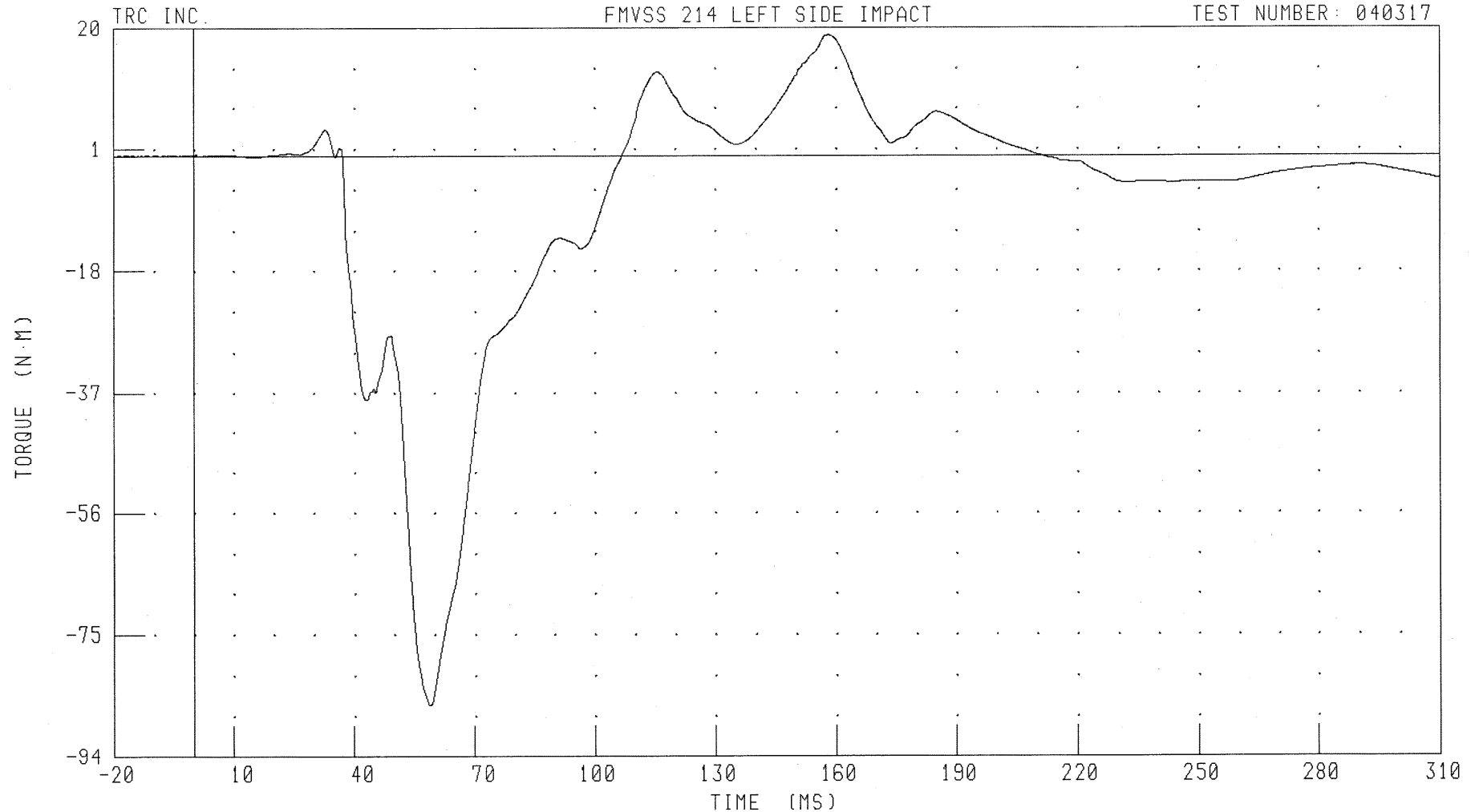
B-44

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER NECK MOMENT ABOUT X AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKXM4

FILTER: CH. CLASS 600

PEAK DATA: 18.85 N·m @ 158.24 MS; -85.96 N·m @ 58.88 MS

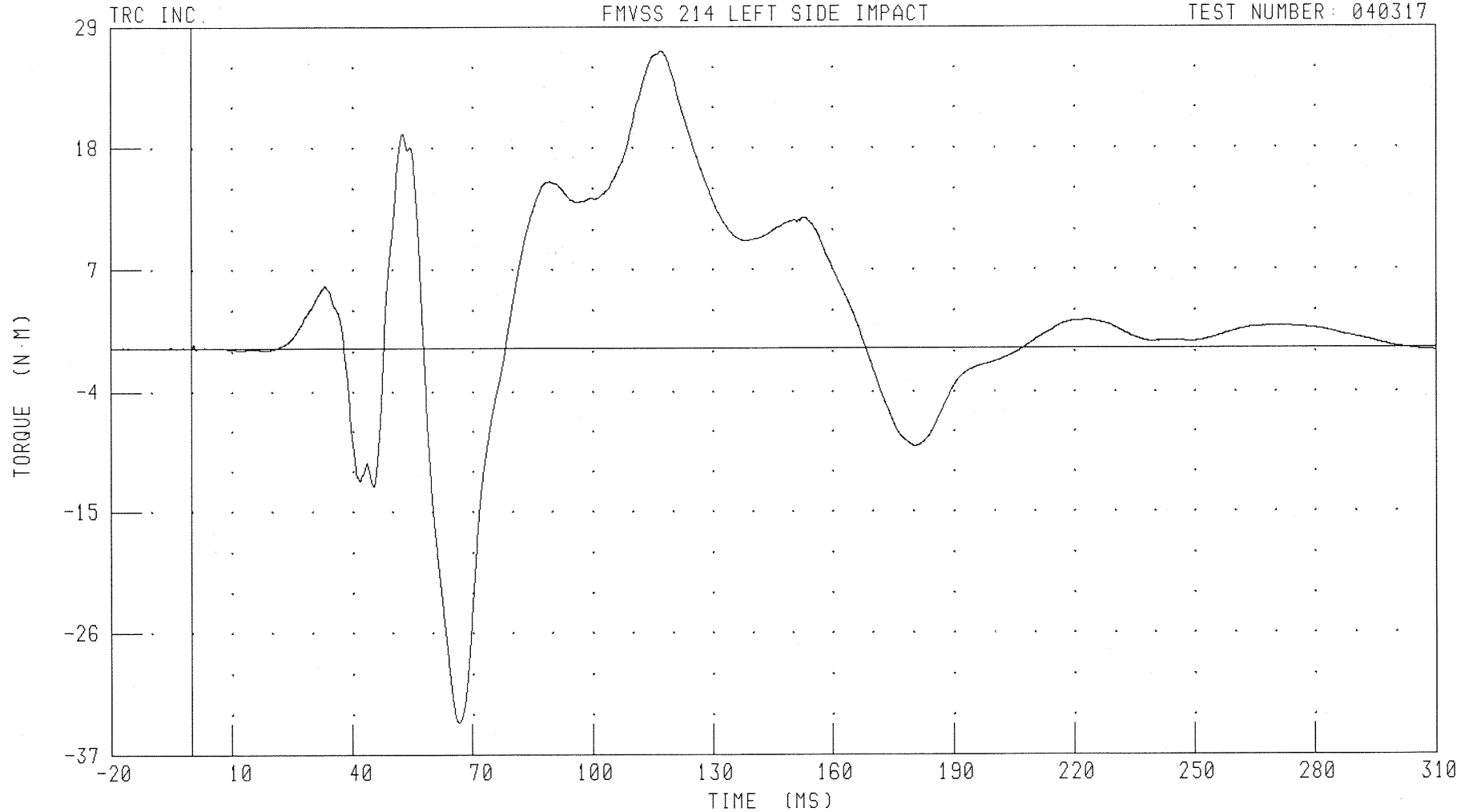
B-45

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER NECK MOMENT ABOUT Y AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKYM4 FILTER: CH. CLASS 600

PEAK DATA: 26.80 N·M @ 117.28 MS; -34.09 N·M @ 66.56 MS

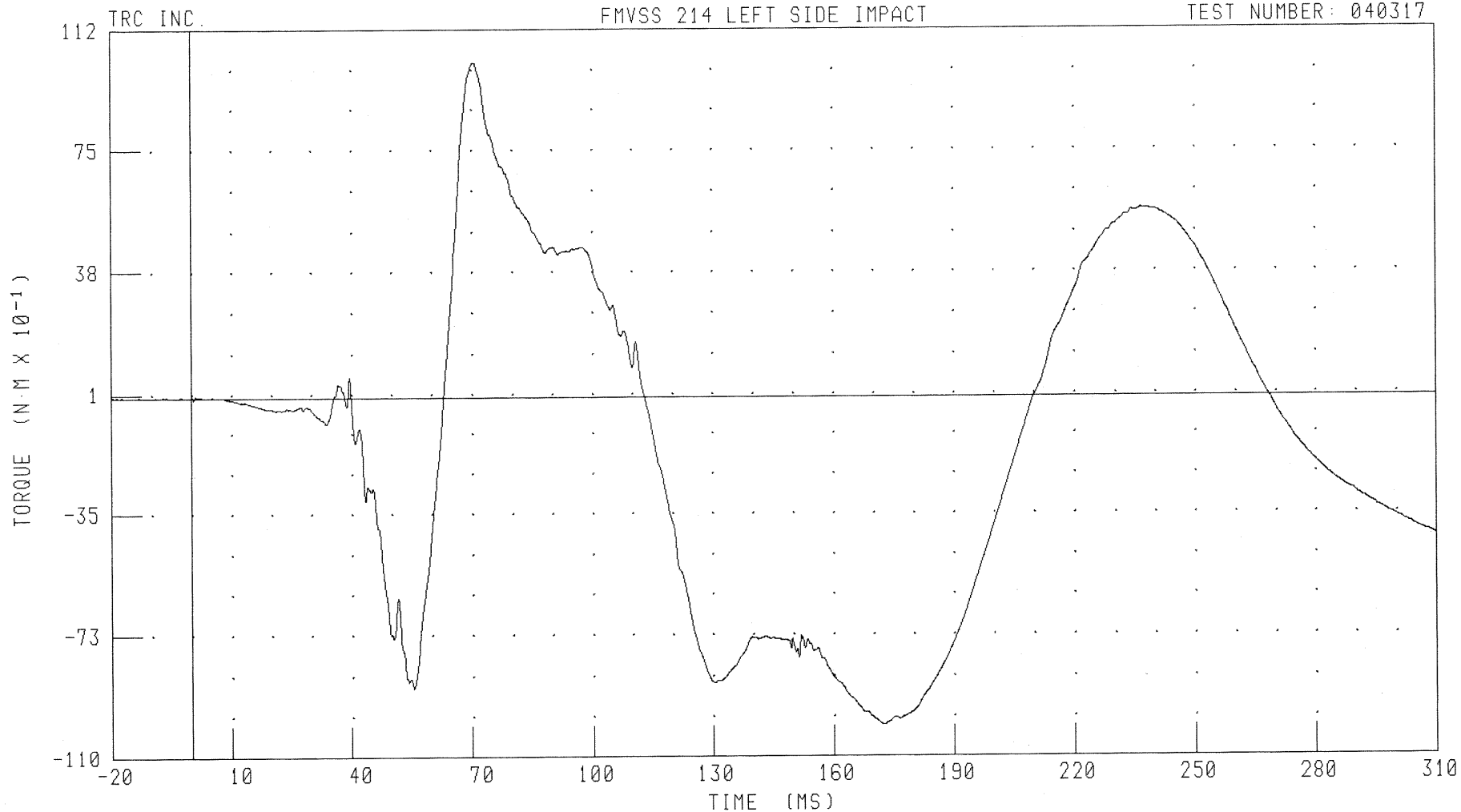
B-46

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER NECK MOMENT ABOUT Z AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NEKZM4 FILTER: CH. CLASS 600

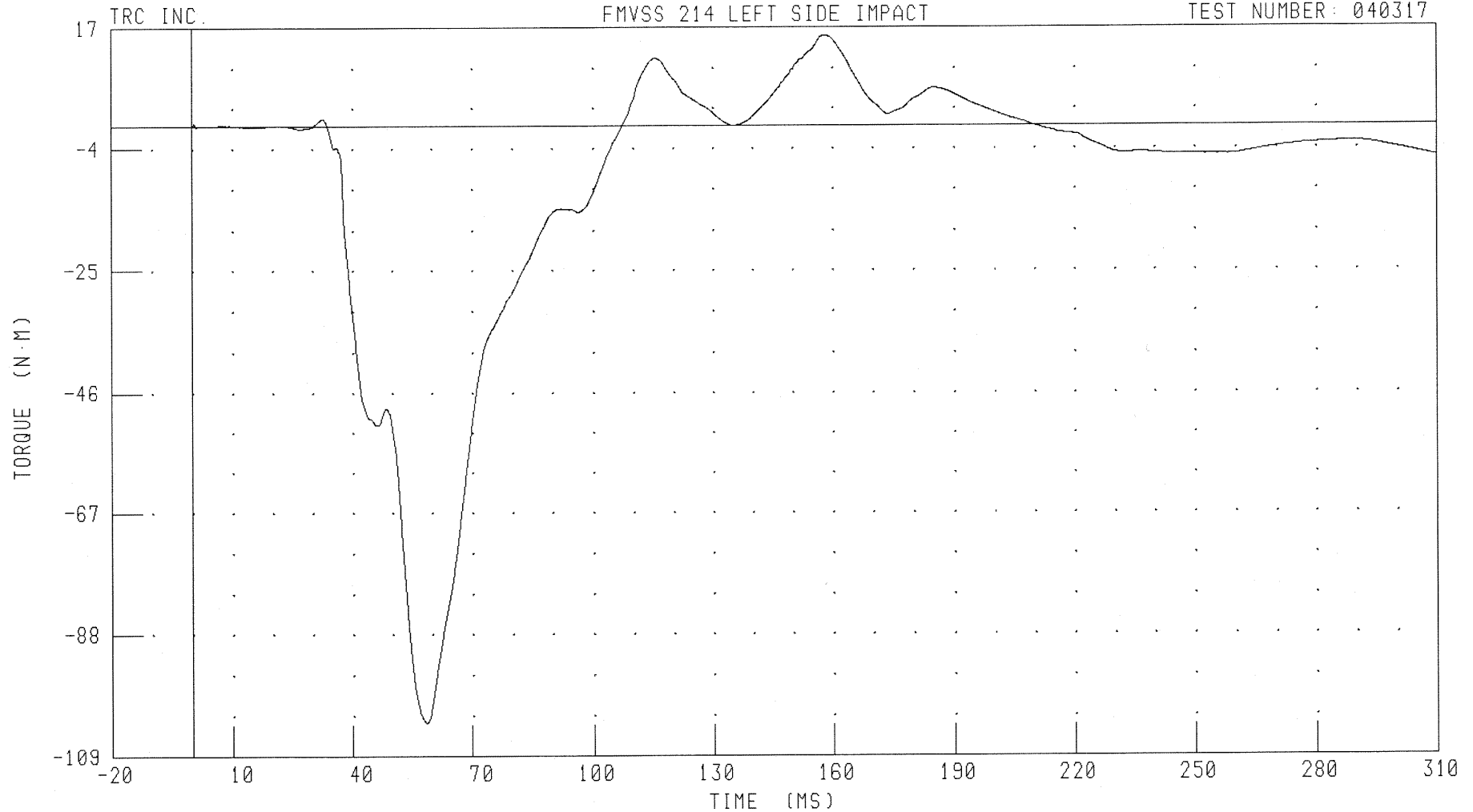
B-47

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: NK0XM4 FILTER: CH. CLASS 600

PEAK DATA: 15.65 N·M @ 158.24 MS; -103.31 N·M @ 58.56 MS

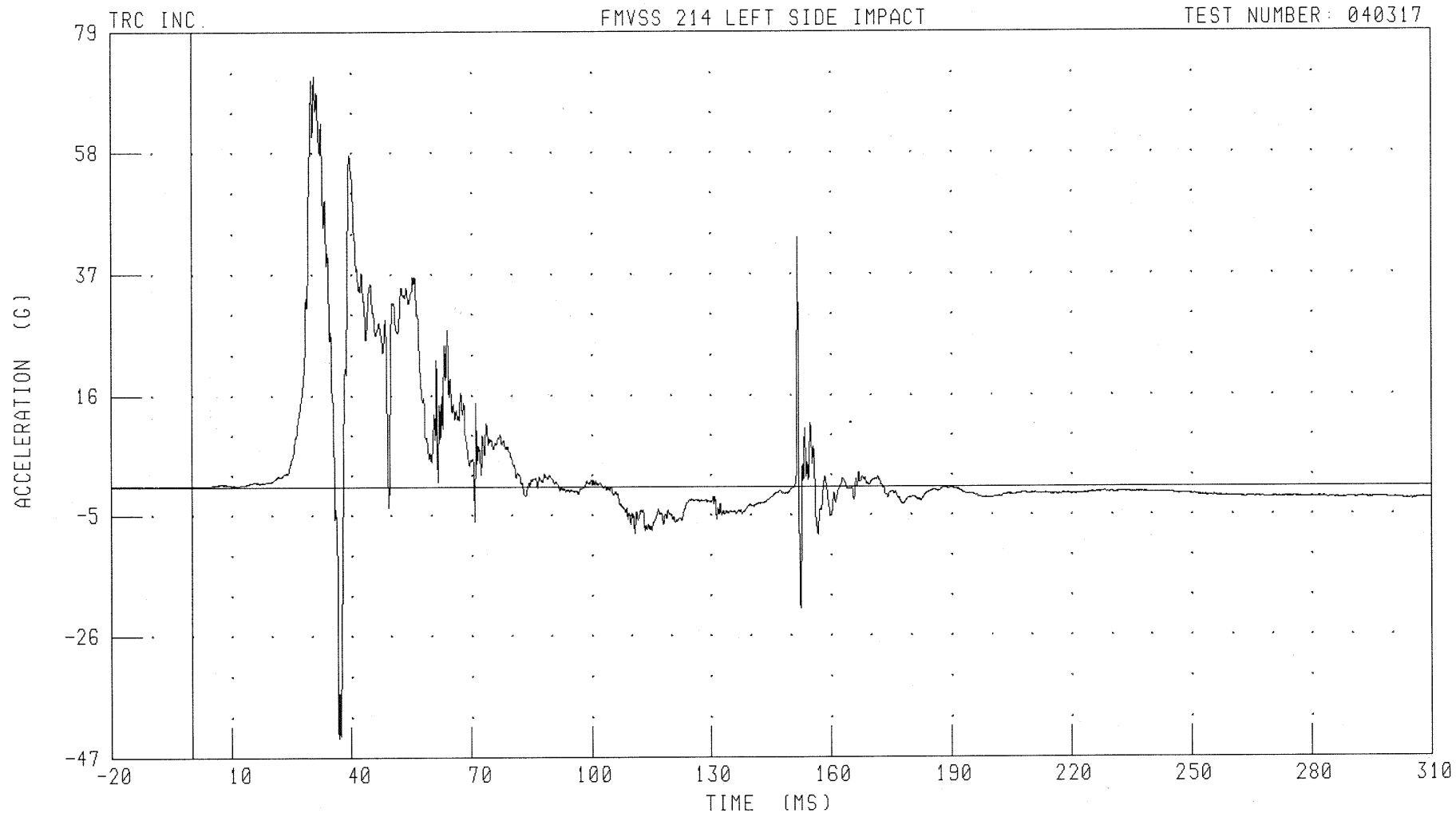
B-48

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYG4 FILTER: CH. CLASS 1000

PEAK DATA: 71.46 G @ 30.72 MS; -43.61 G @ 36.80 MS

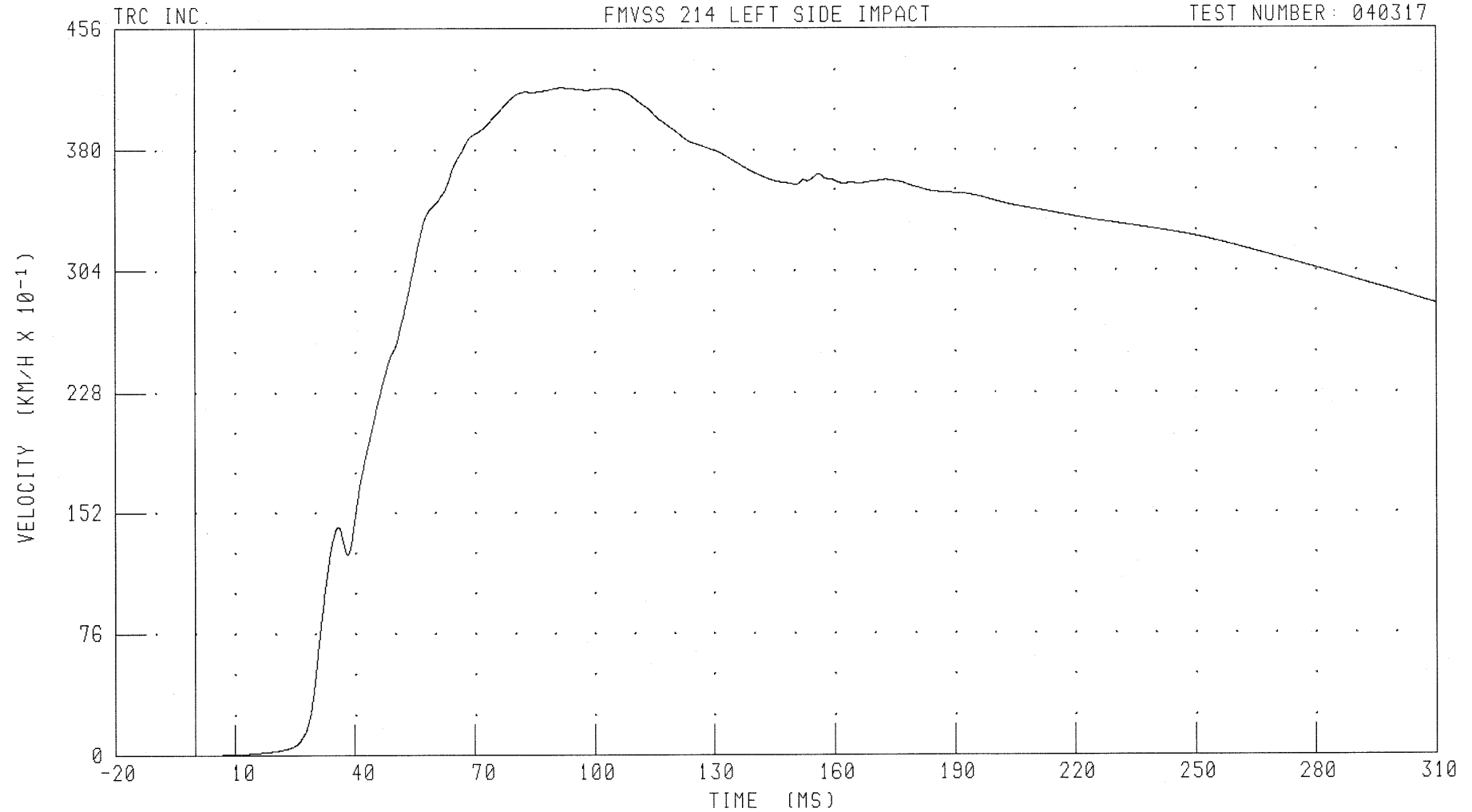
B-49

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYV4

FILTER: CH. CLASS 180

PEAK DATA: 41.92 KM/H @ 91.76 MS; 0.00 KM/H @ 0.00 MS

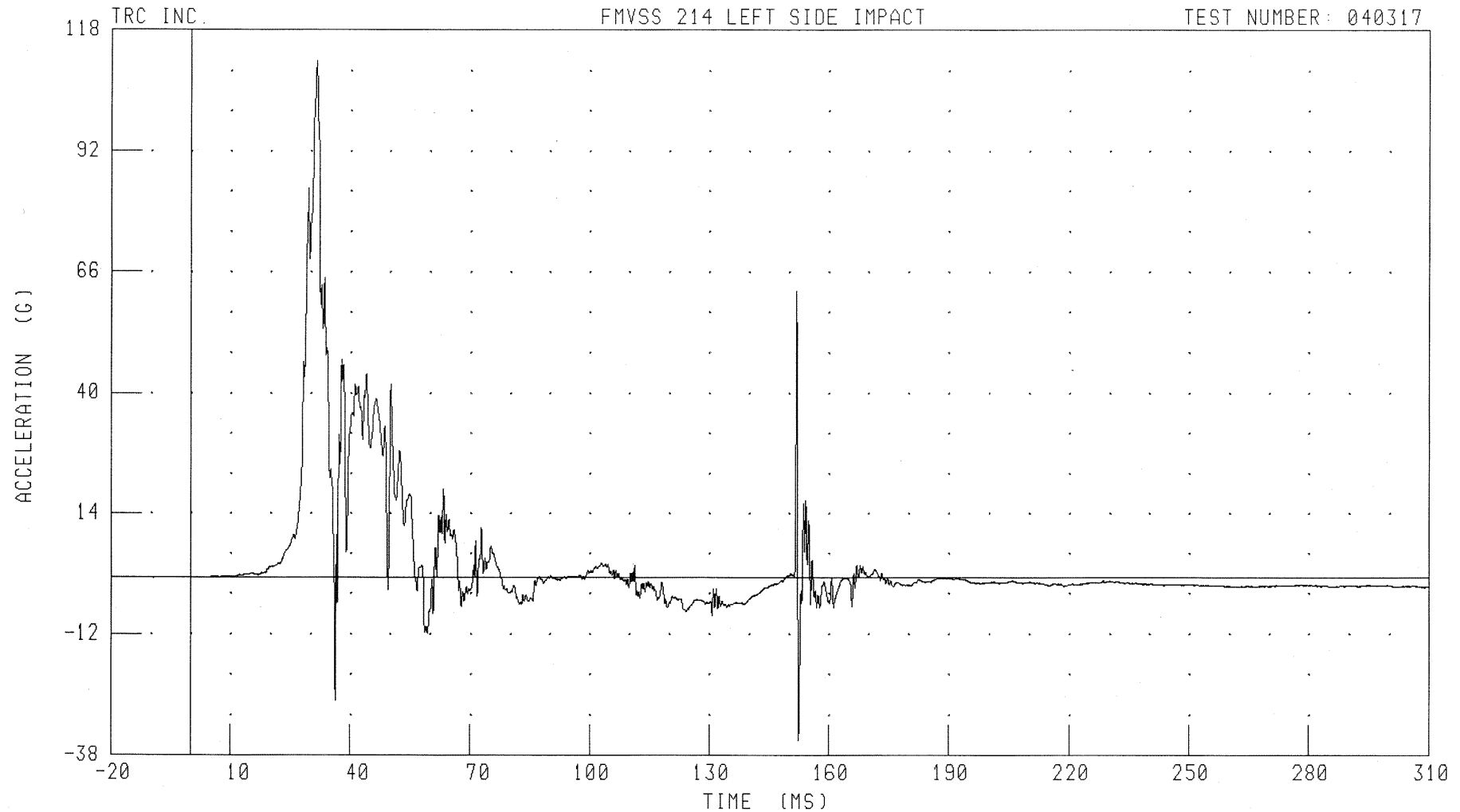
B-50

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYG4 FILTER: CH. CLASS 1000

PEAK DATA: 111.38 G @ 31.52 MS; -34.71 G @ 152.56 MS

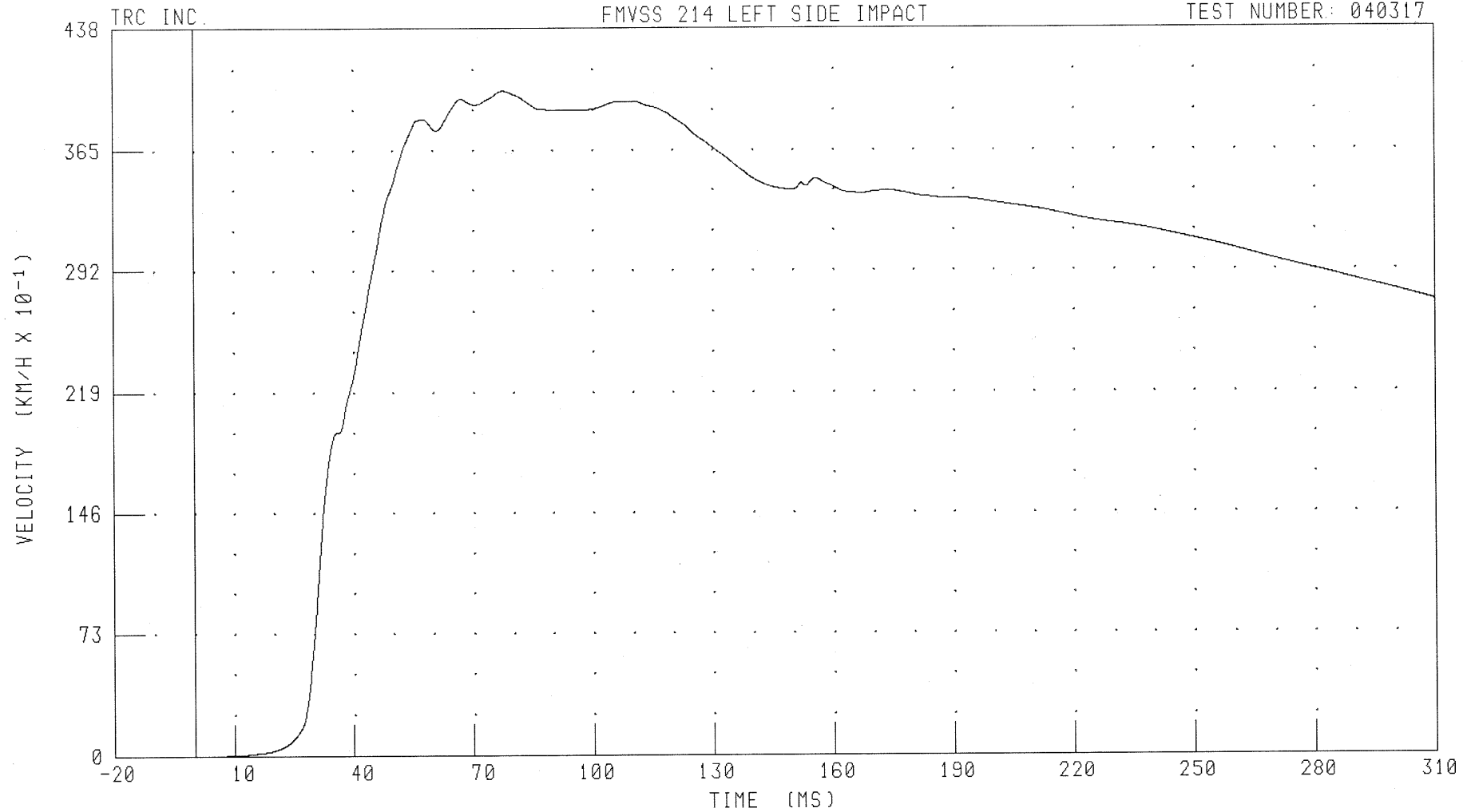
B-51

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYV4 FILTER: CH. CLASS 180

PEAK DATA: 40.08 KM/H @ 77.68 MS; 0.00 KM/H @ 0.00 MS

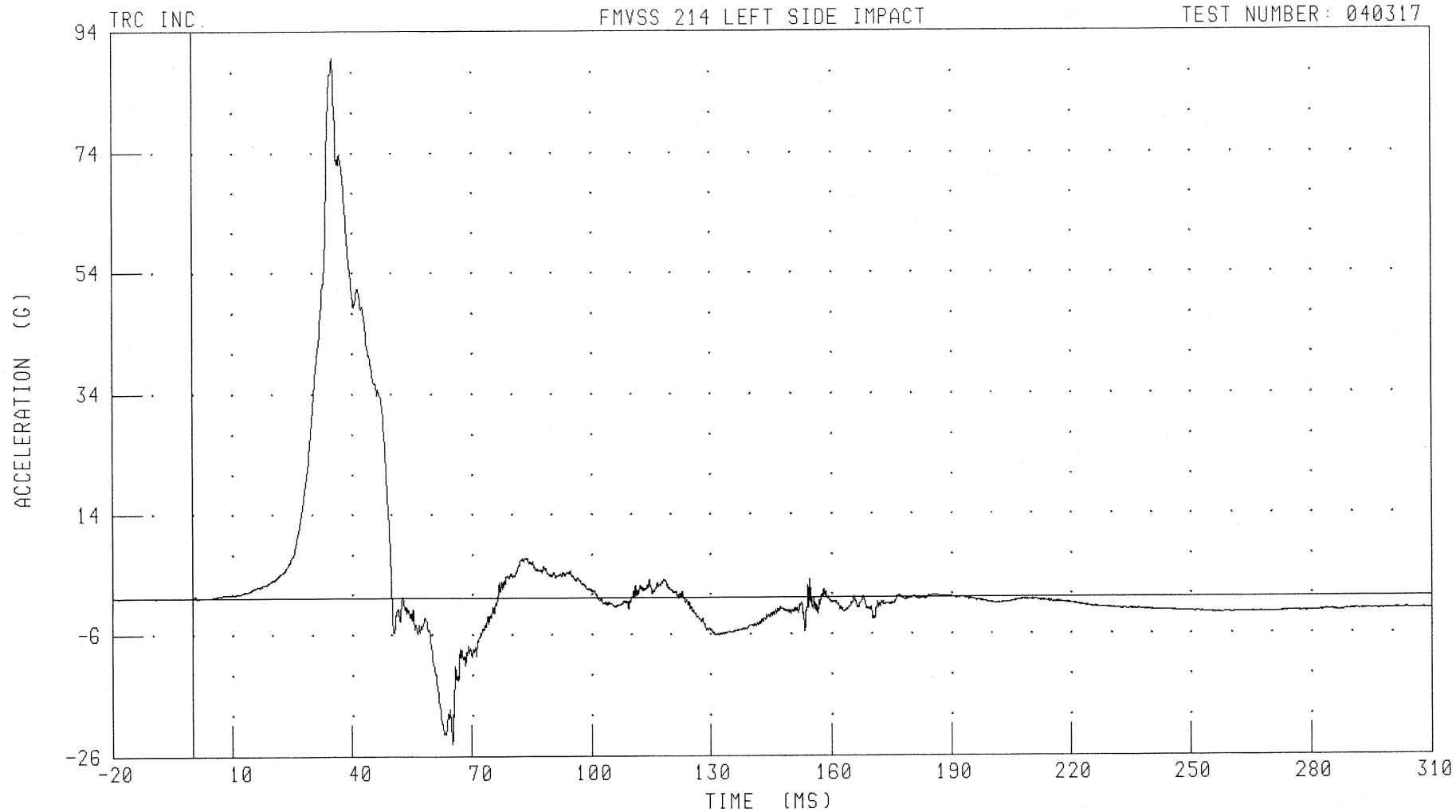
B-52

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YG4 FILTER: CH. CLASS 1000

PEAK DATA: 89.59 G @ 35.36 MS; -24.03 G @ 65.12 MS

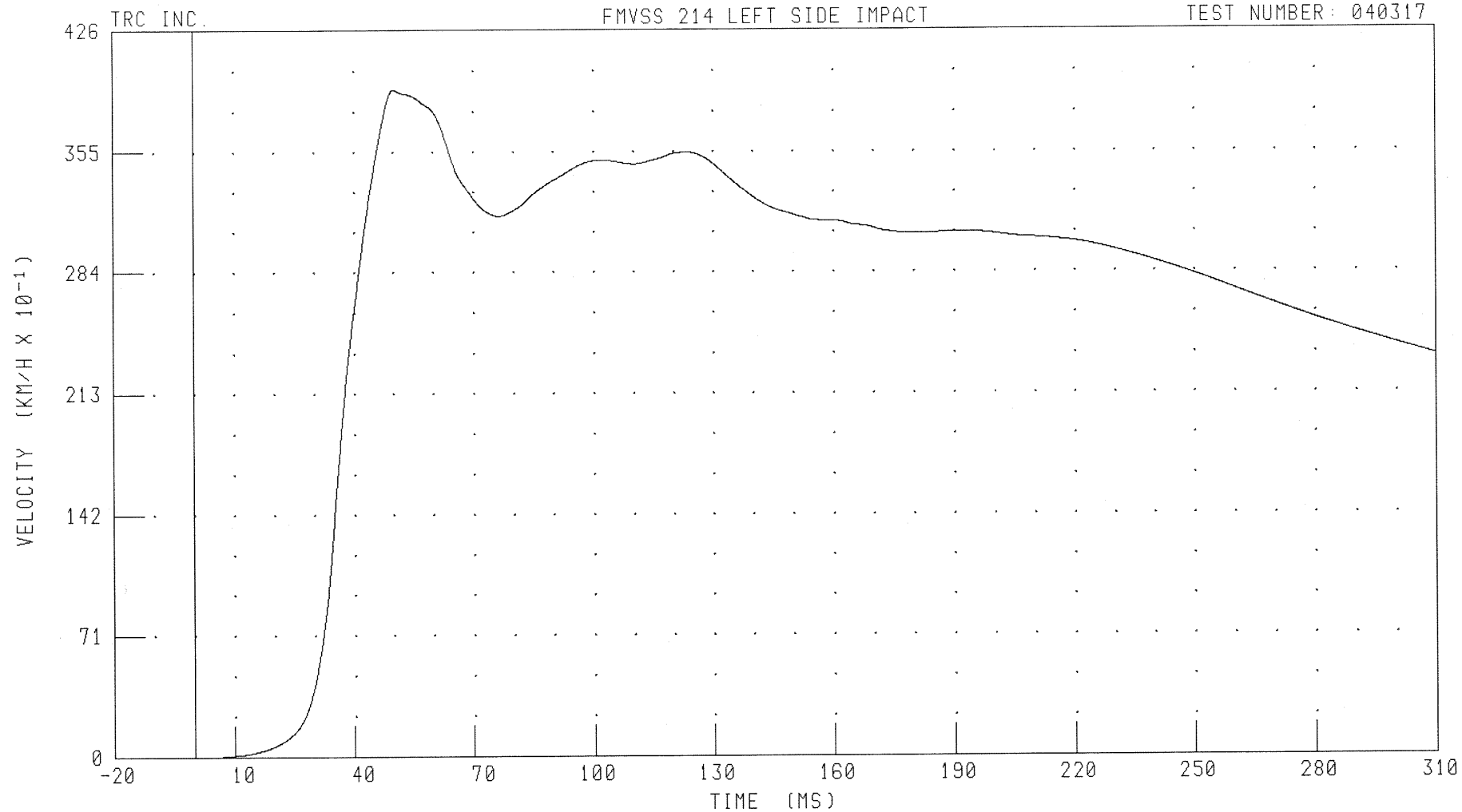
B-53

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YV4 FILTER: CH. CLASS 180

PEAK DATA: 39.15 KM/H @ 50.32 MS; 0.00 KM/H @ 0.00 MS

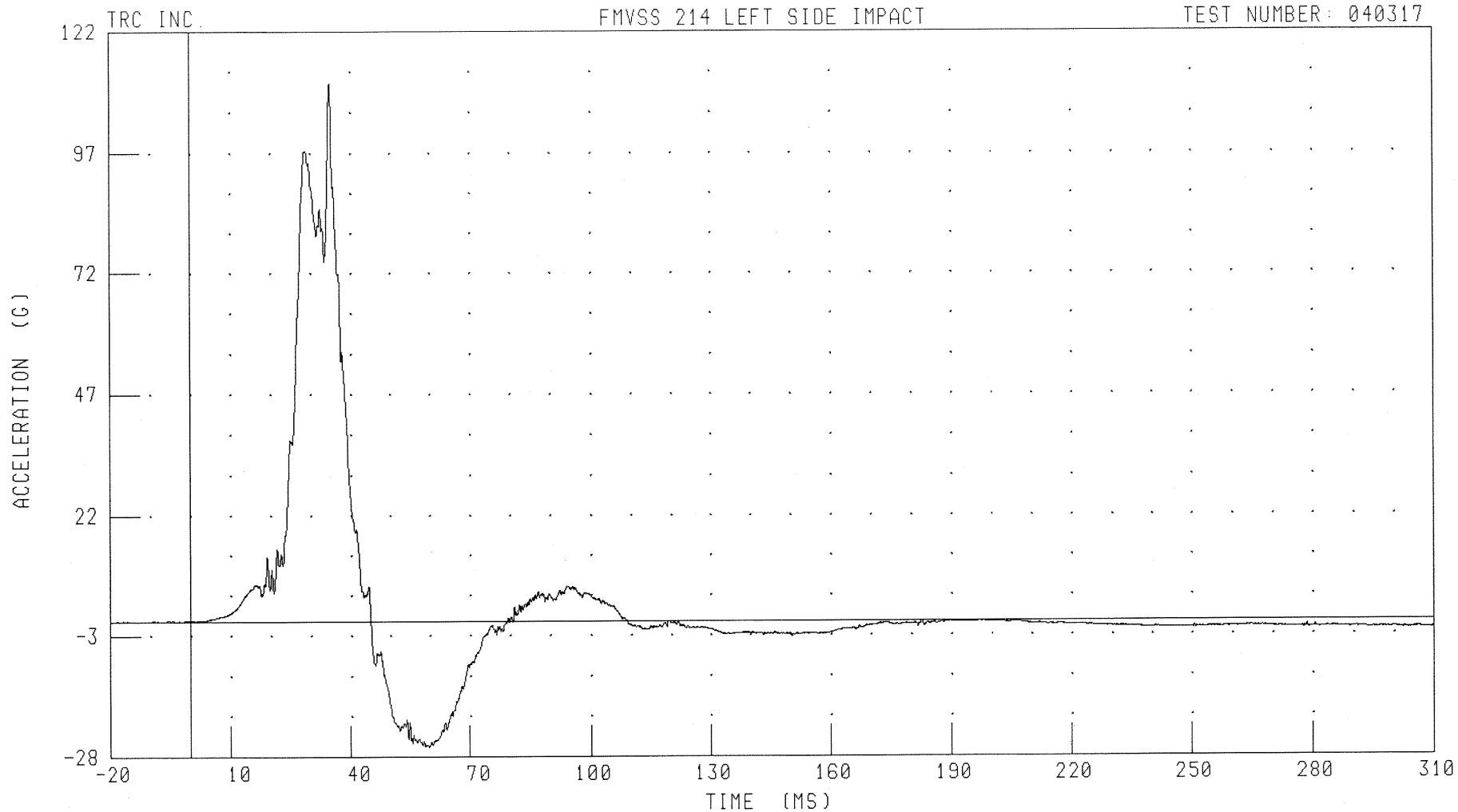
B-54

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYG4 FILTER: CH. CLASS 1000

PEAK DATA: 111.25 G @ 35.04 MS; -26.02 G @ 59.76 MS

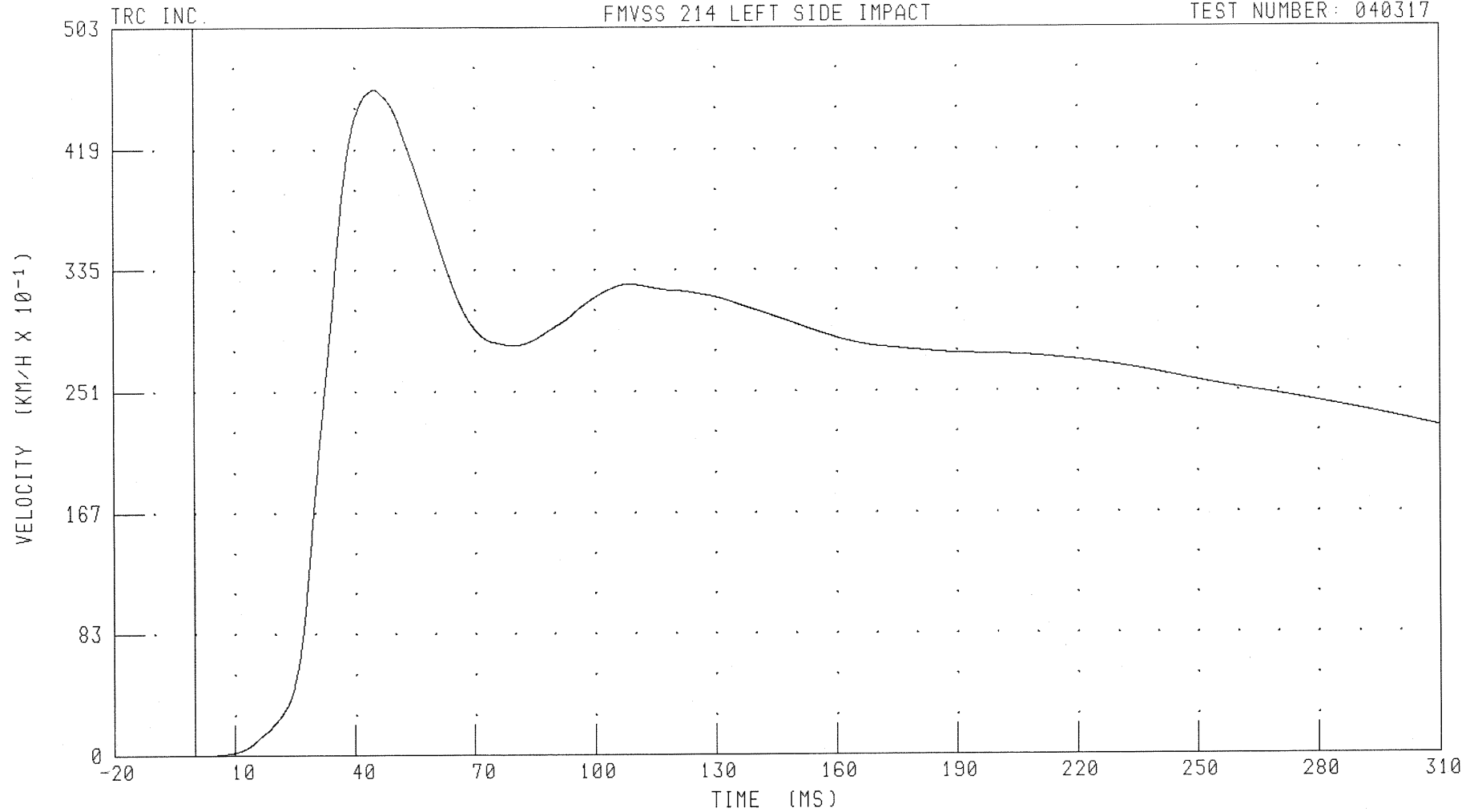
B-55

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYV4 FILTER: CH. CLASS 180

PEAK DATA: 46.08 KM/H @ 45.04 MS; 0.00 KM/H @ 0.00 MS

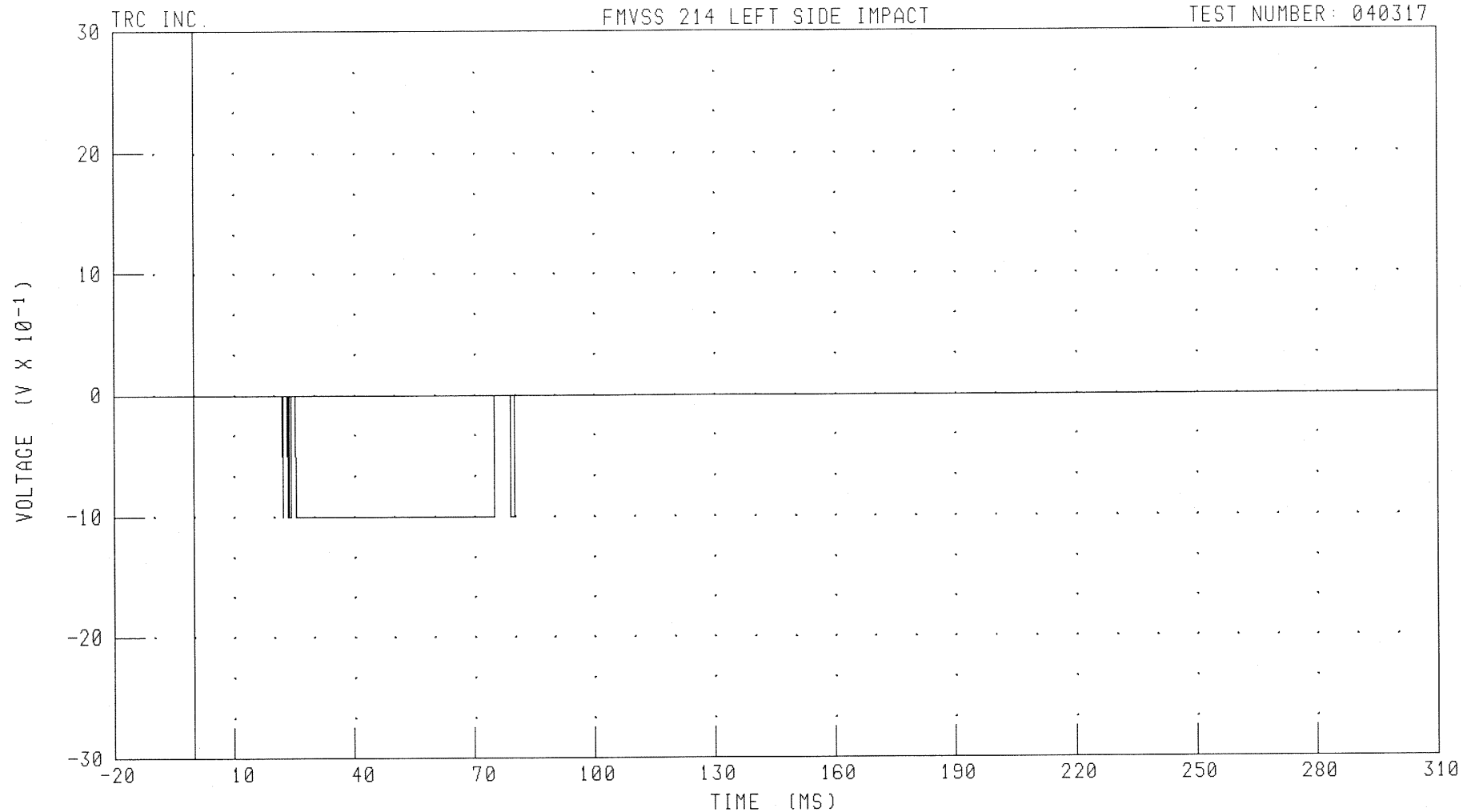
B-56

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER SHOULDER CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: SHLET4 FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 22.32 MS

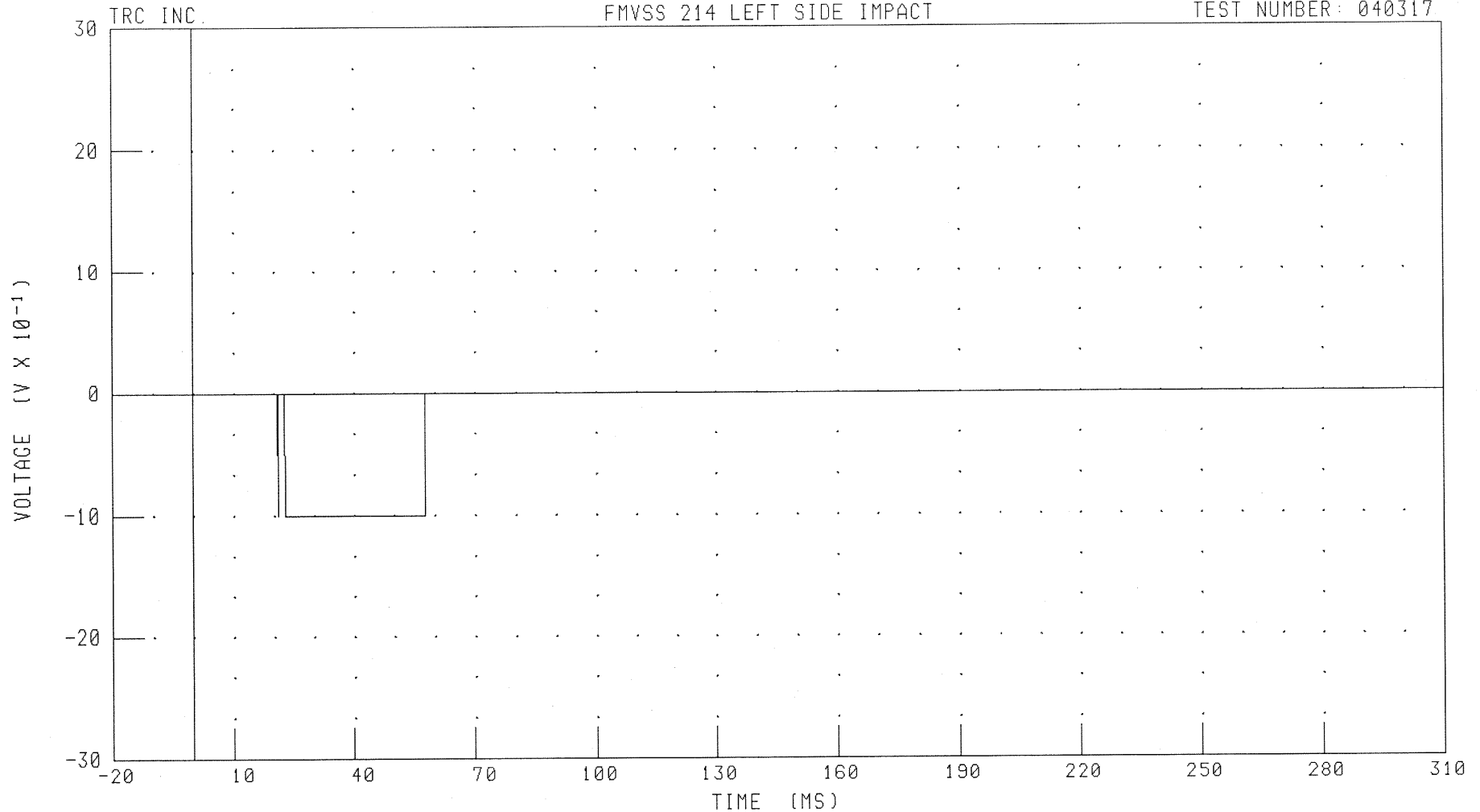
B-57

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER PELVIS CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVET4 FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 21.04 MS

B-58

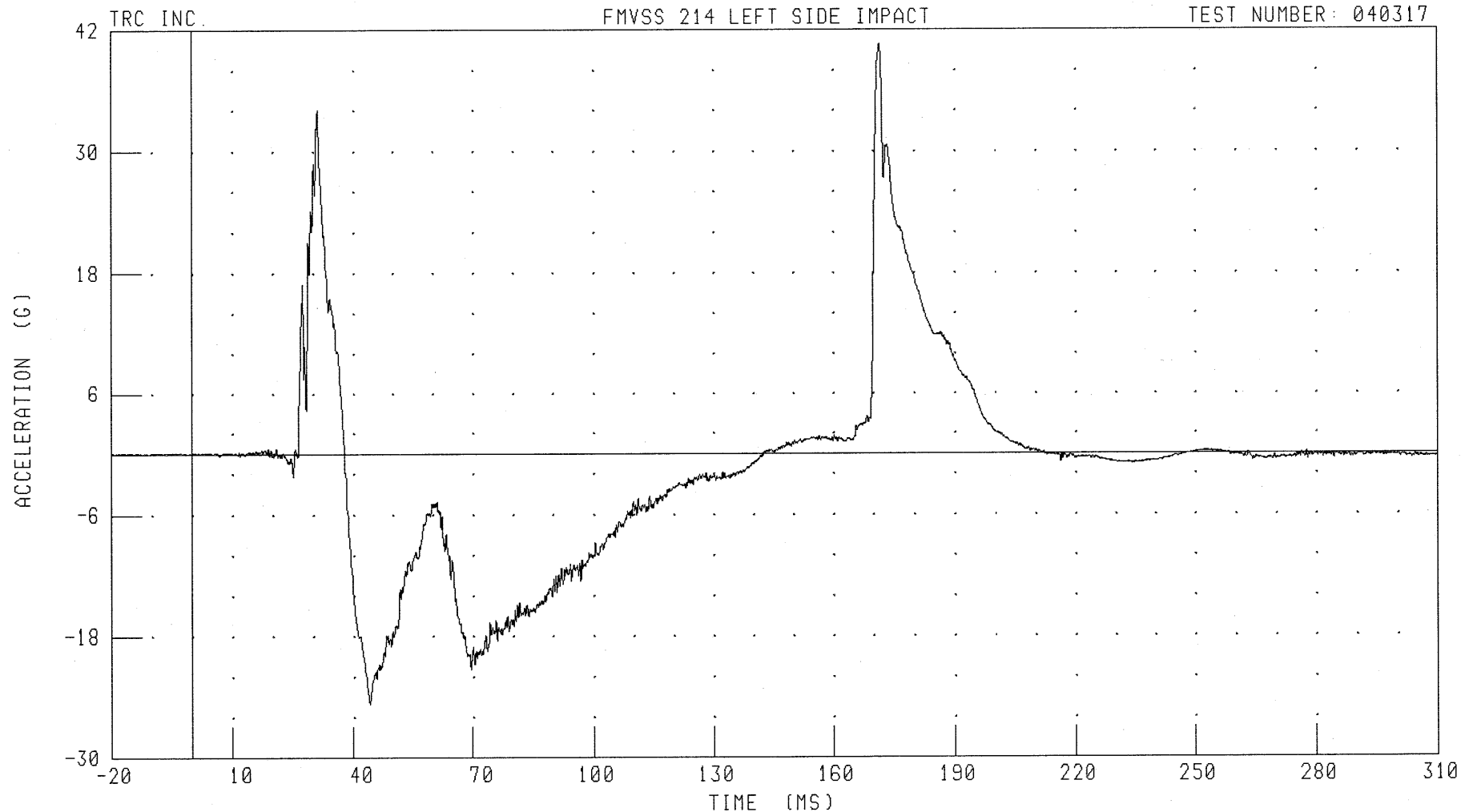
040317

Driver and Passenger Dummy Redundant Instrumentation Plots

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER HEAD X-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXR1 FILTER: CH. CLASS. 1000

PEAK DATA: 40.60 G @ 171.68 MS; -24.71 G @ 44.16 MS

B-60

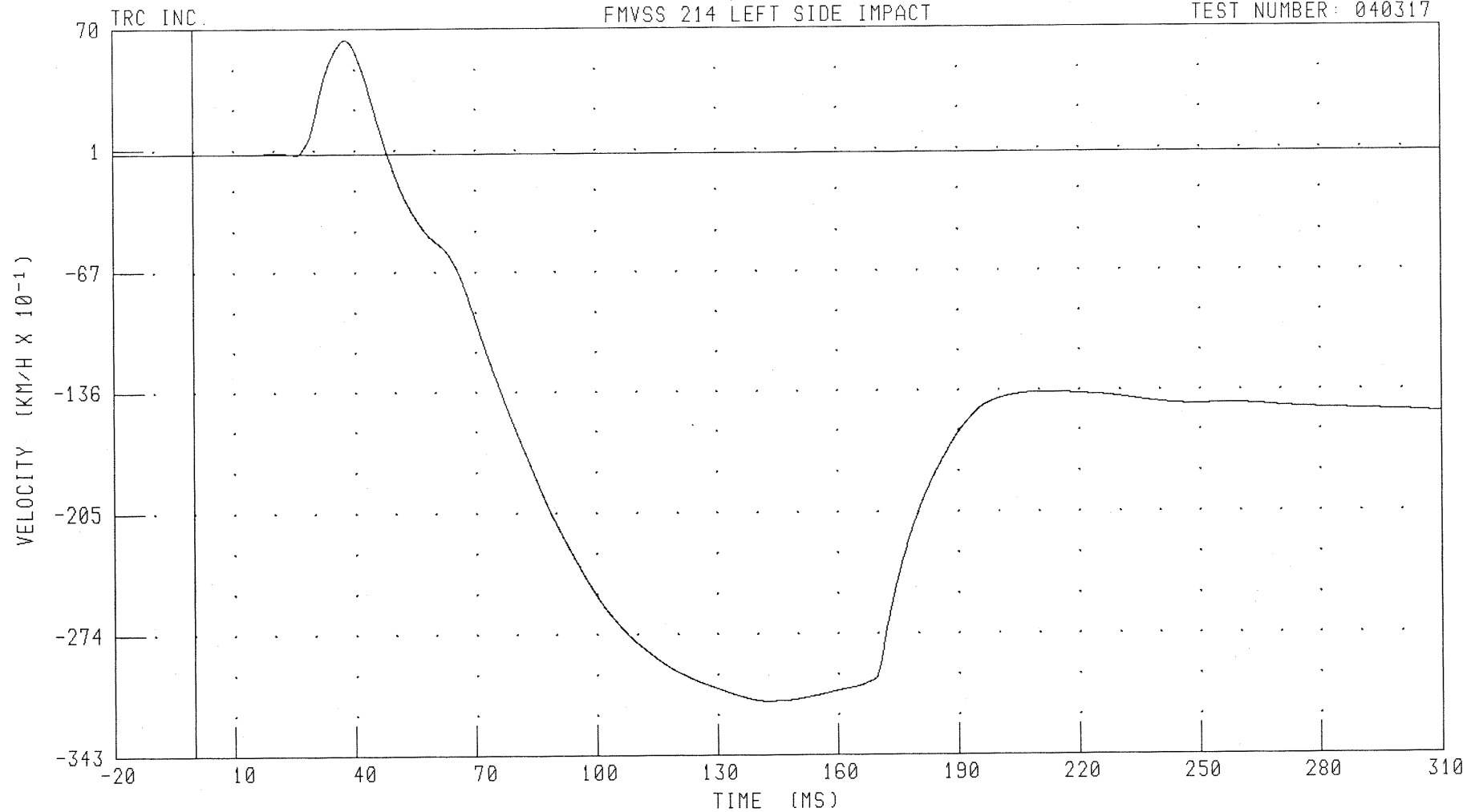
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD X-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXVI FILTER: CH. CLASS 180

B-61

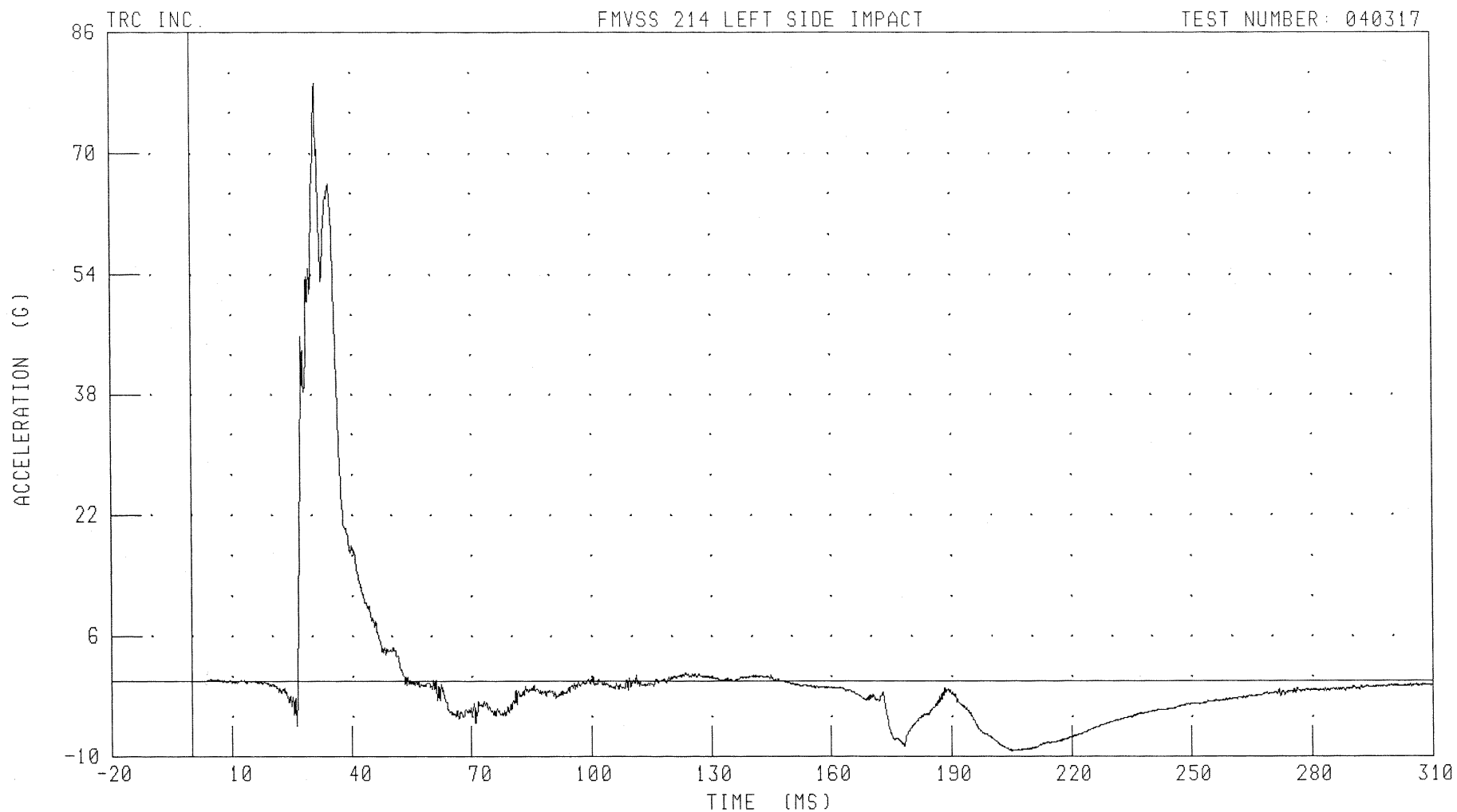
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

PEAK DATA: 79.31 G @ 31.20 MS; -9.28 G @ 204.88 MS

B-62

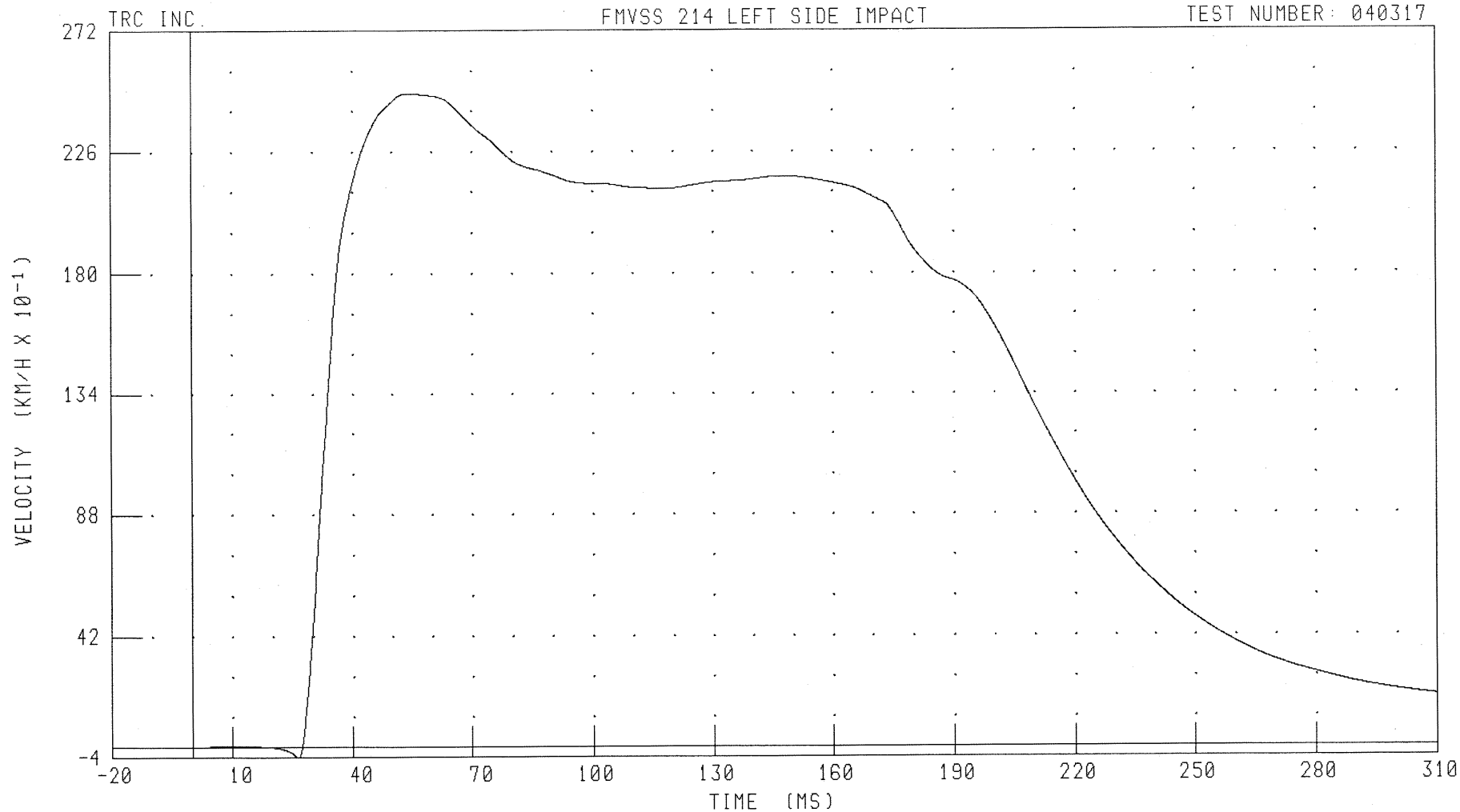
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYVI FILTER: CH. CLASS 180

PEAK DATA: 24.80 KM/H @ 54.00 MS; -0.43 KM/H @ 26.16 MS

B-63

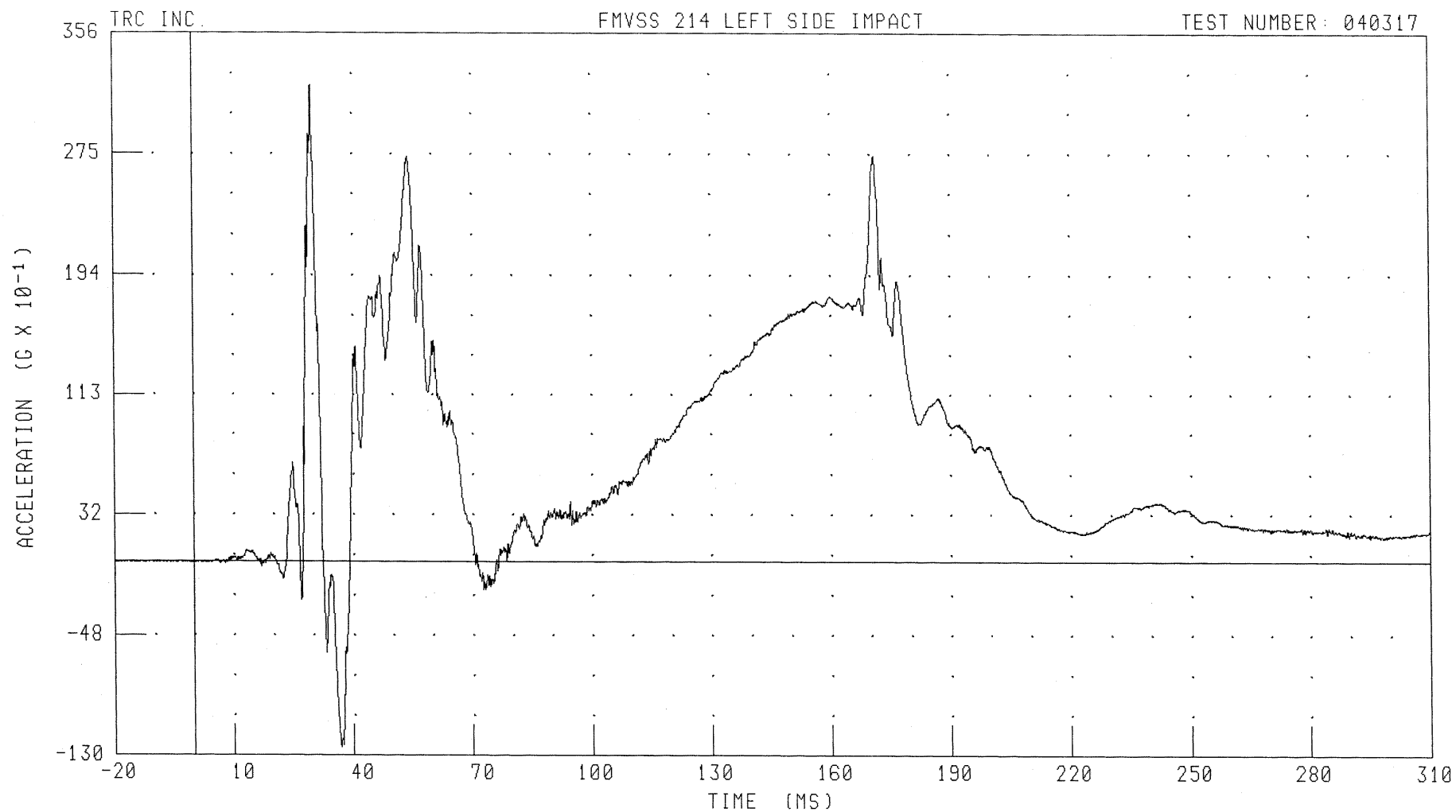
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Z-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZR1 FILTER: CH. CLASS 1000

PEAK DATA: 32.11 G @ 29.92 MS; -12.43 G @ 36.80 MS

B-64

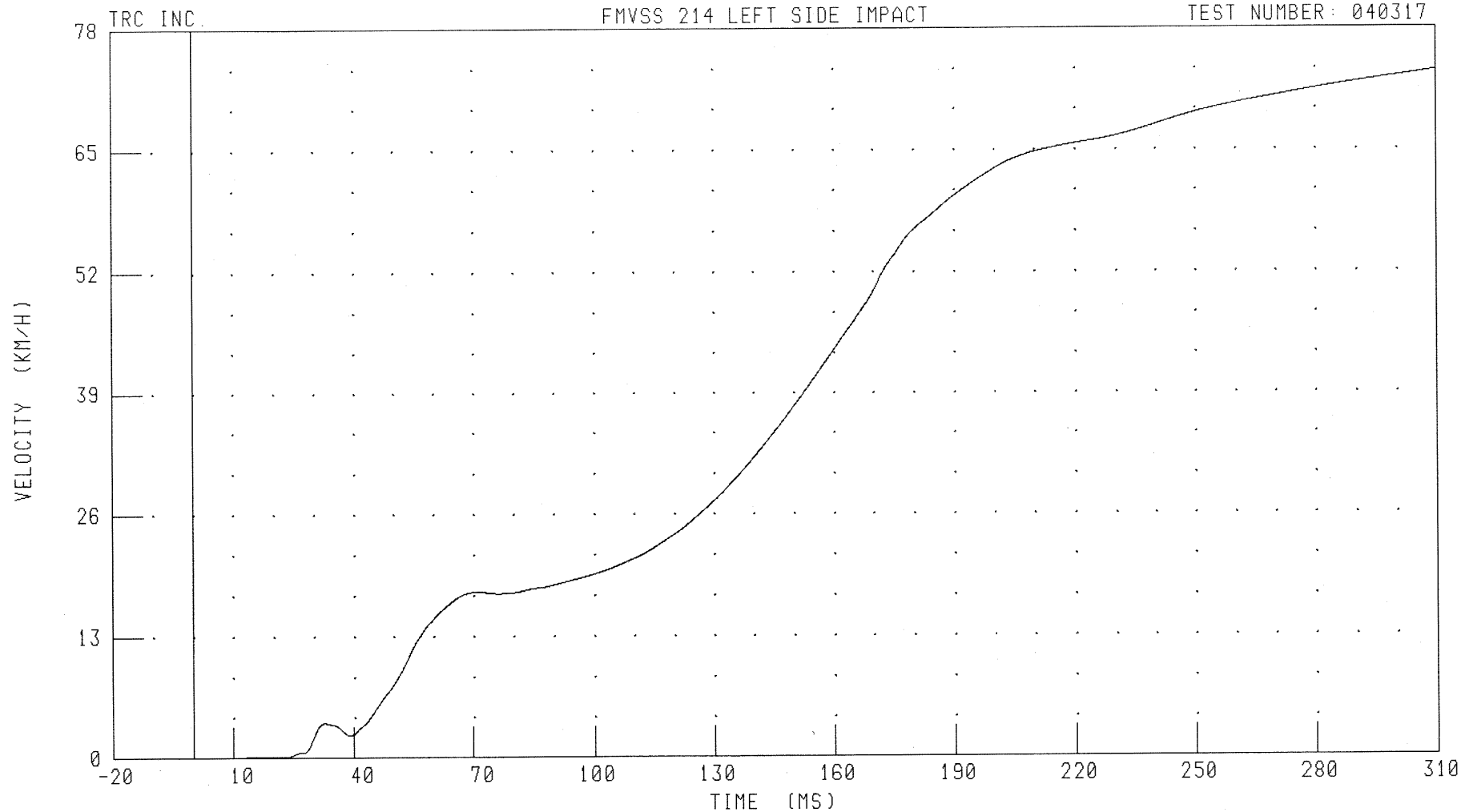
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER HEAD Z-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZVI FILTER: CH. CLASS 180

PEAK DATA: 73.45 KM/H @ 310.00 MS; 0.00 KM/H @ 4.64 MS

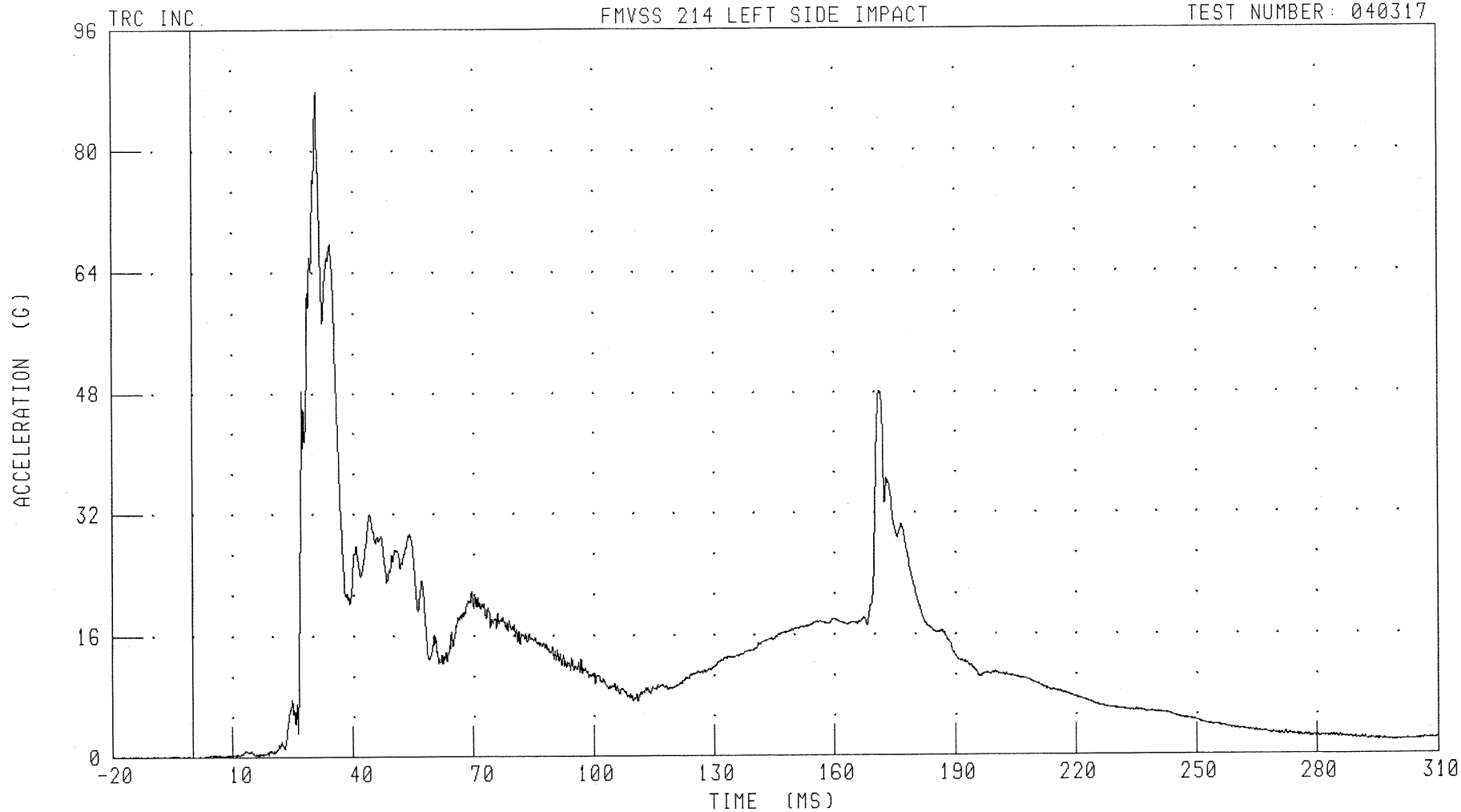
B-65

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER HEAD RESULTANT REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

PEAK DATA: 87.81 G @ 31.20 MS; 0.01 G @ -19.52 MS

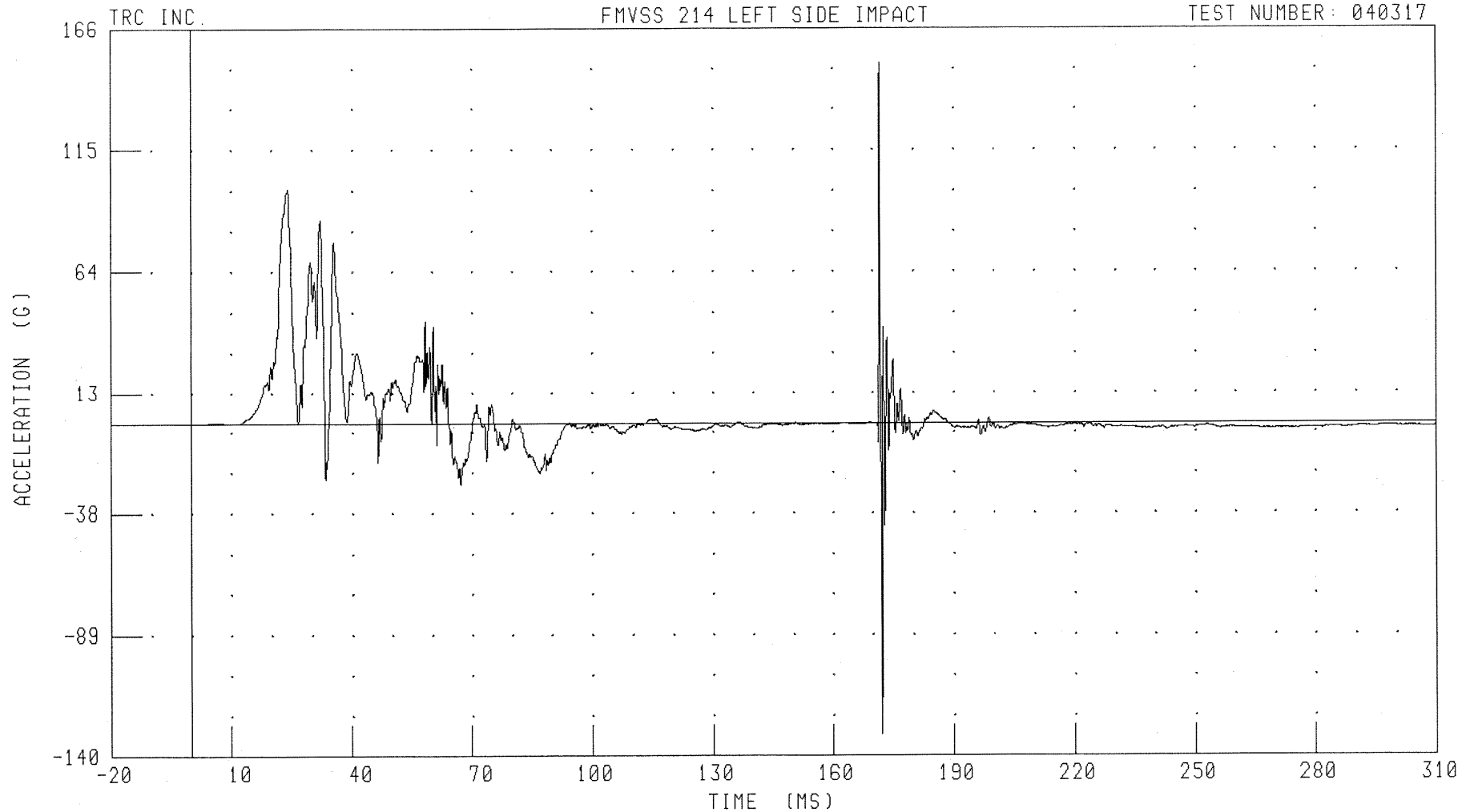
B-66

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYR1 FILTER: CH. CLASS 1000

PEAK DATA: 151.52 G @ 171.92 MS; -130.82 G @ 172.32 MS

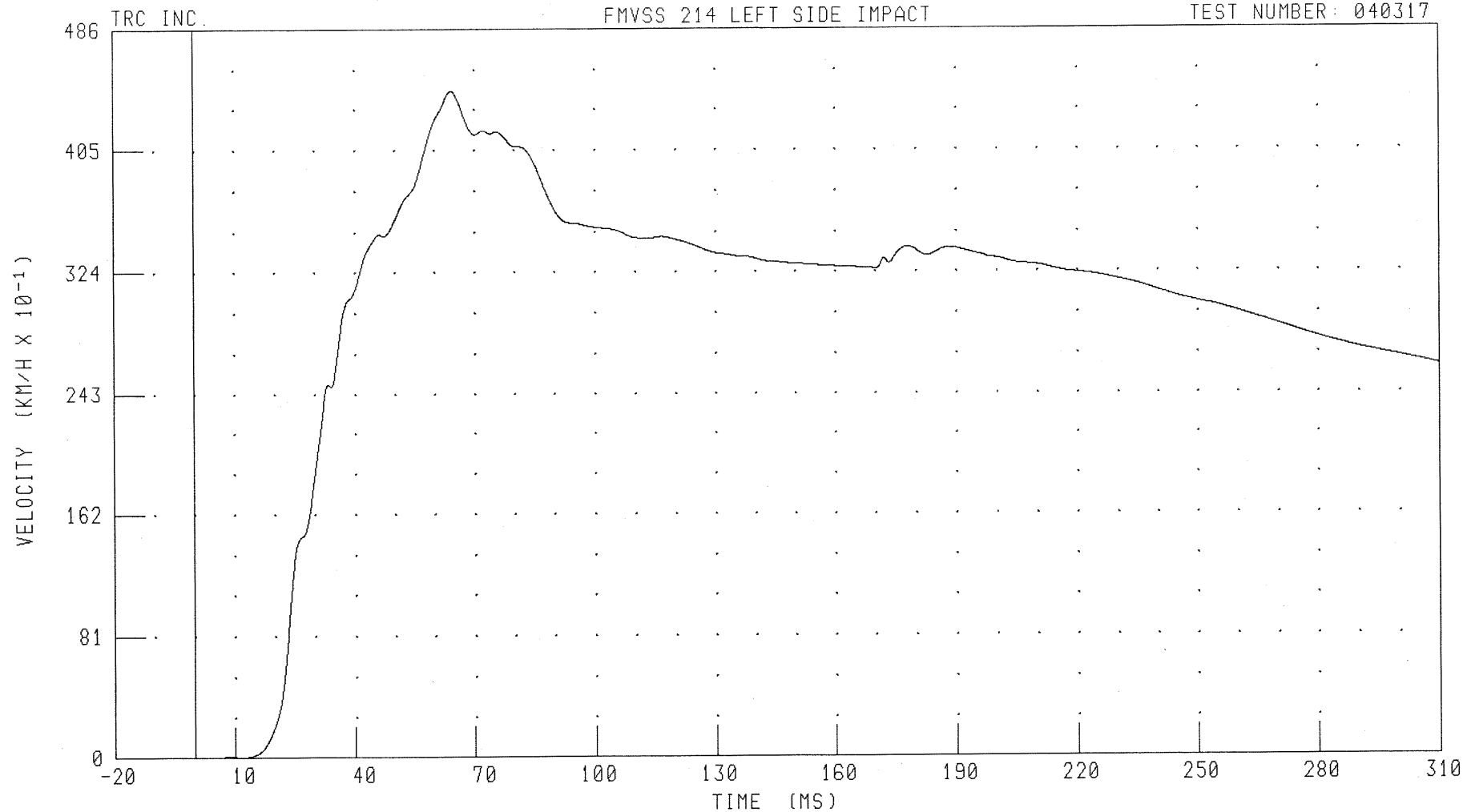
B-67

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYVI FILTER: CH. CLASS 180

PEAK DATA: 44.43 KM/H @ 64.40 MS; 0.00 KM/H @ 0.00 MS

B-68

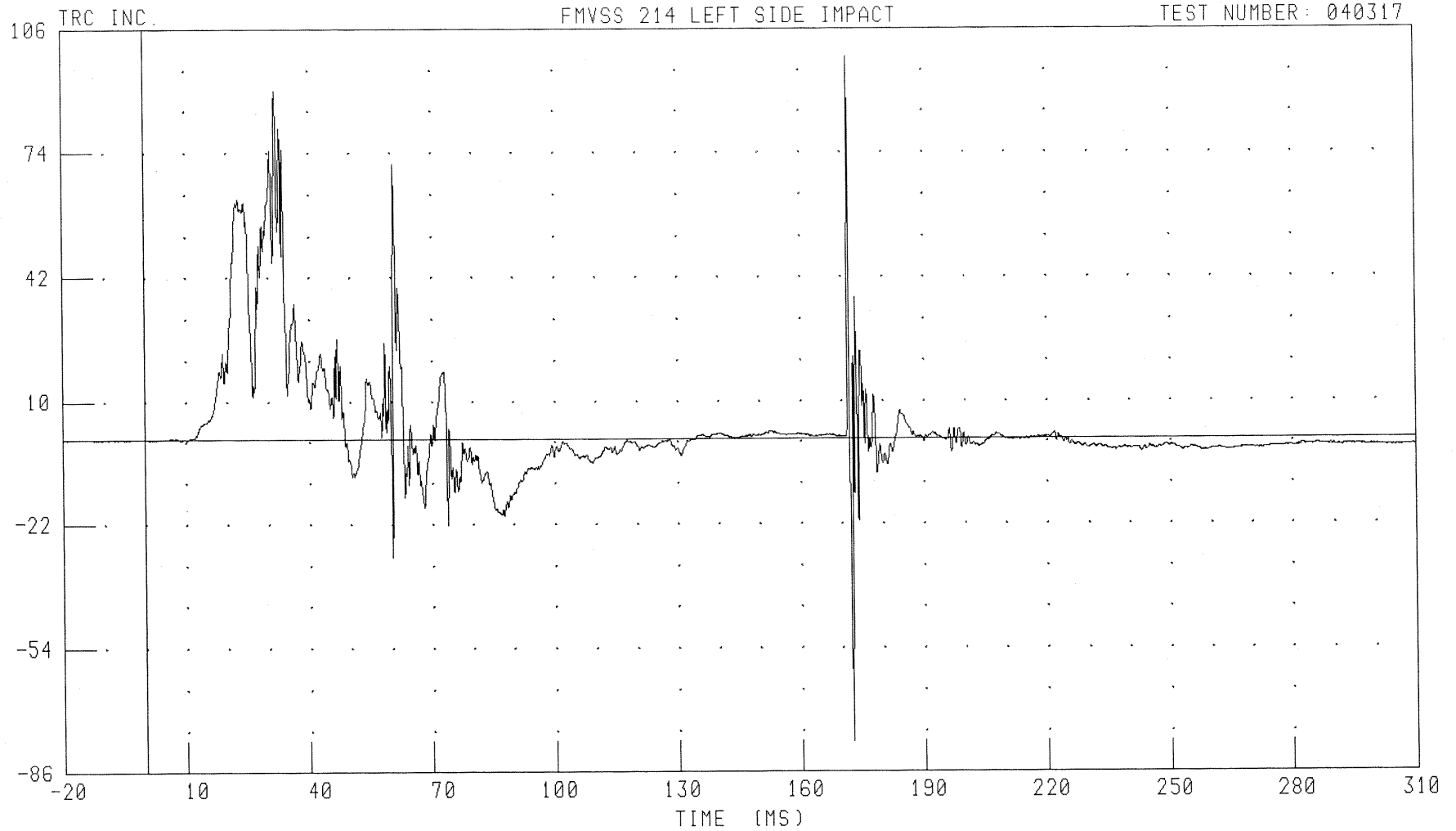
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYR1 FILTER: CH. CLASS 1000

PEAK DATA: 98.67 G @ 171.84 MS; -78.21 G @ 172.48 MS

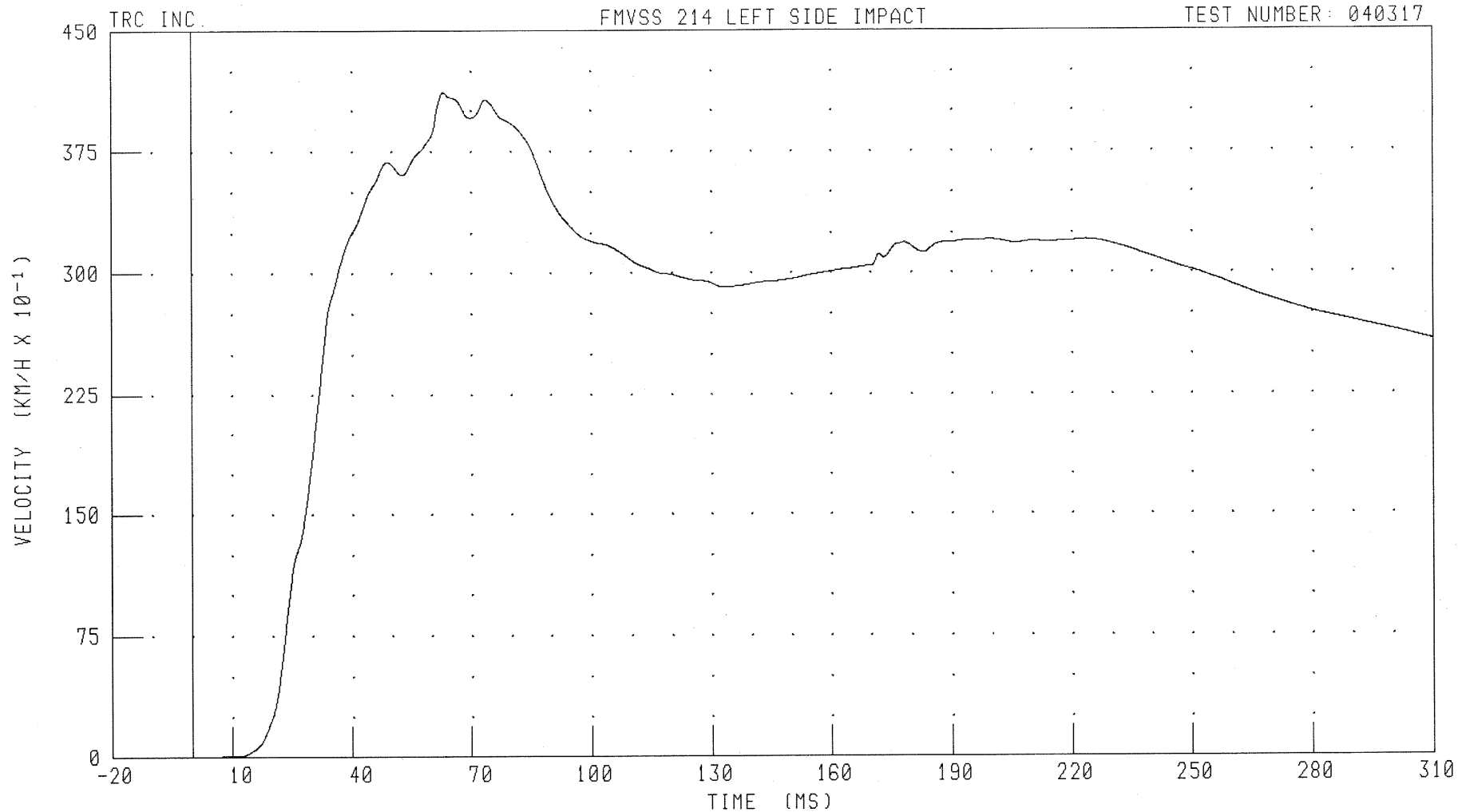
B-69

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYVI FILTER: CH. CLASS 180

PEAK DATA: 41.18 KM/H @ 63.12 MS; 0.00 KM/H @ 0.00 MS

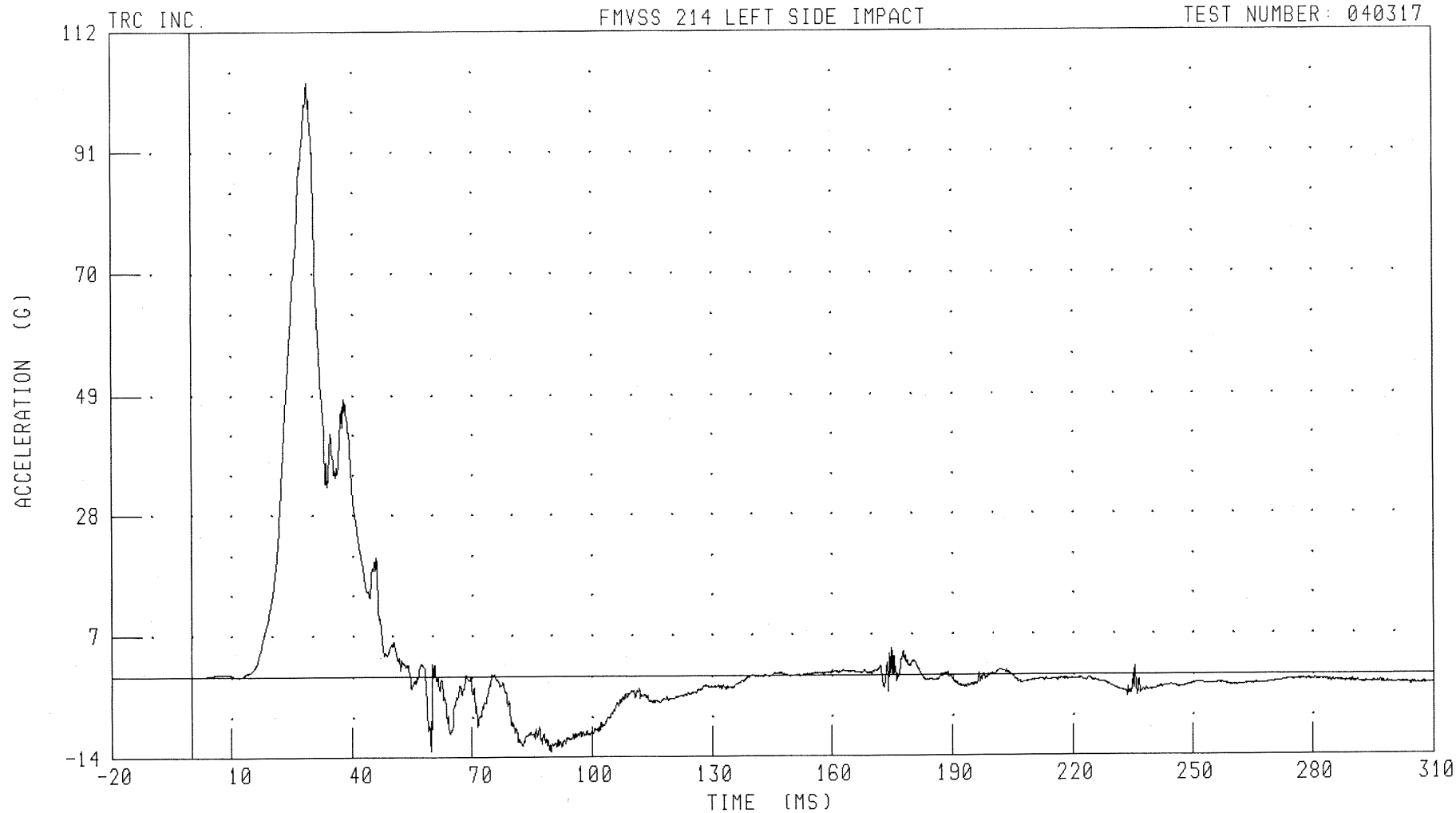
B-70

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YR1 FILTER: CH. CLASS 1000

PEAK DATA: 103.22 G @ 28.96 MS; -13.21 G @ 89.84 MS

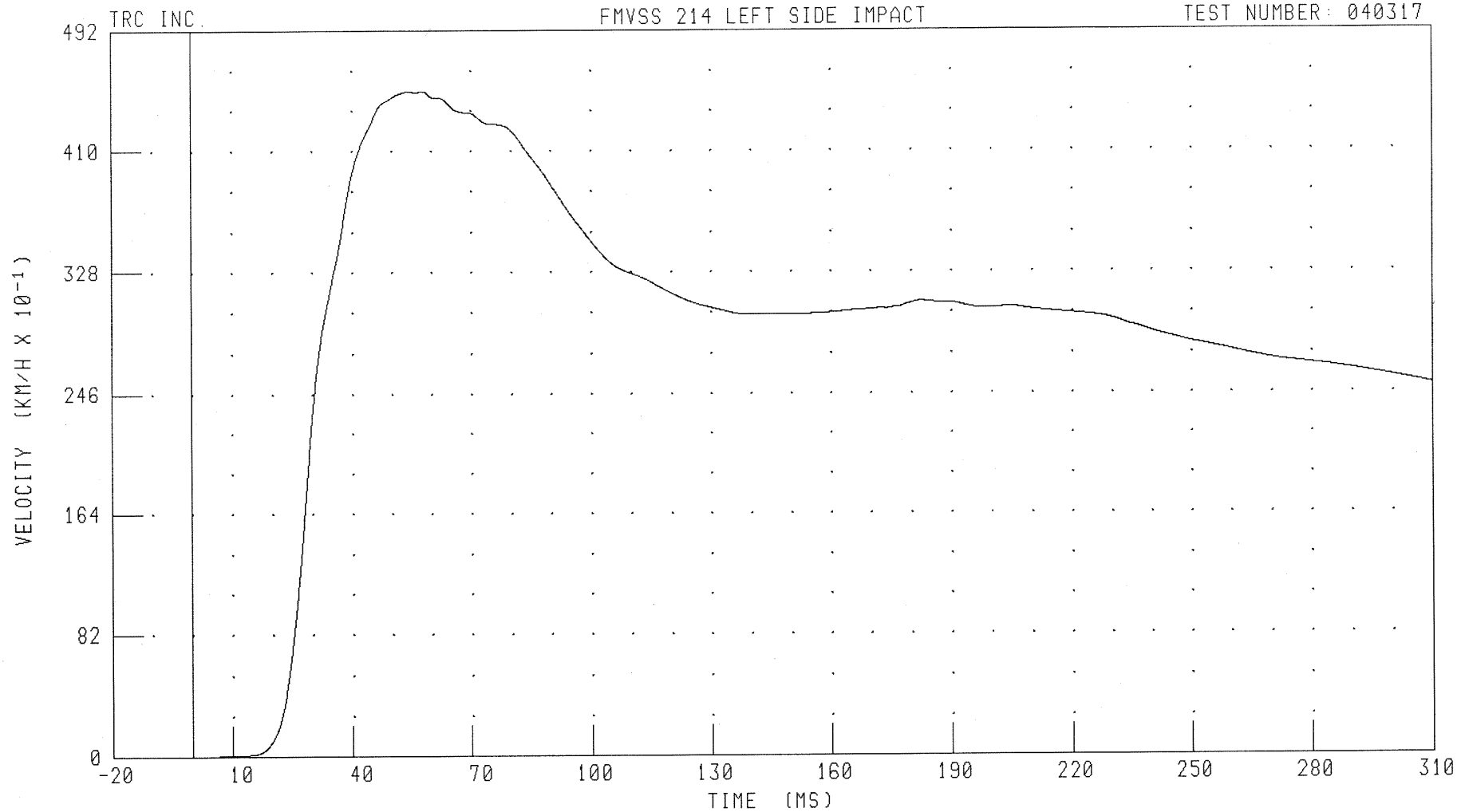
B-71

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YVI FILTER: CH. CLASS 180

PEAK DATA: 45.07 KM/H @ 58.00 MS; 0.00 KM/H @ 0.00 MS

B-72

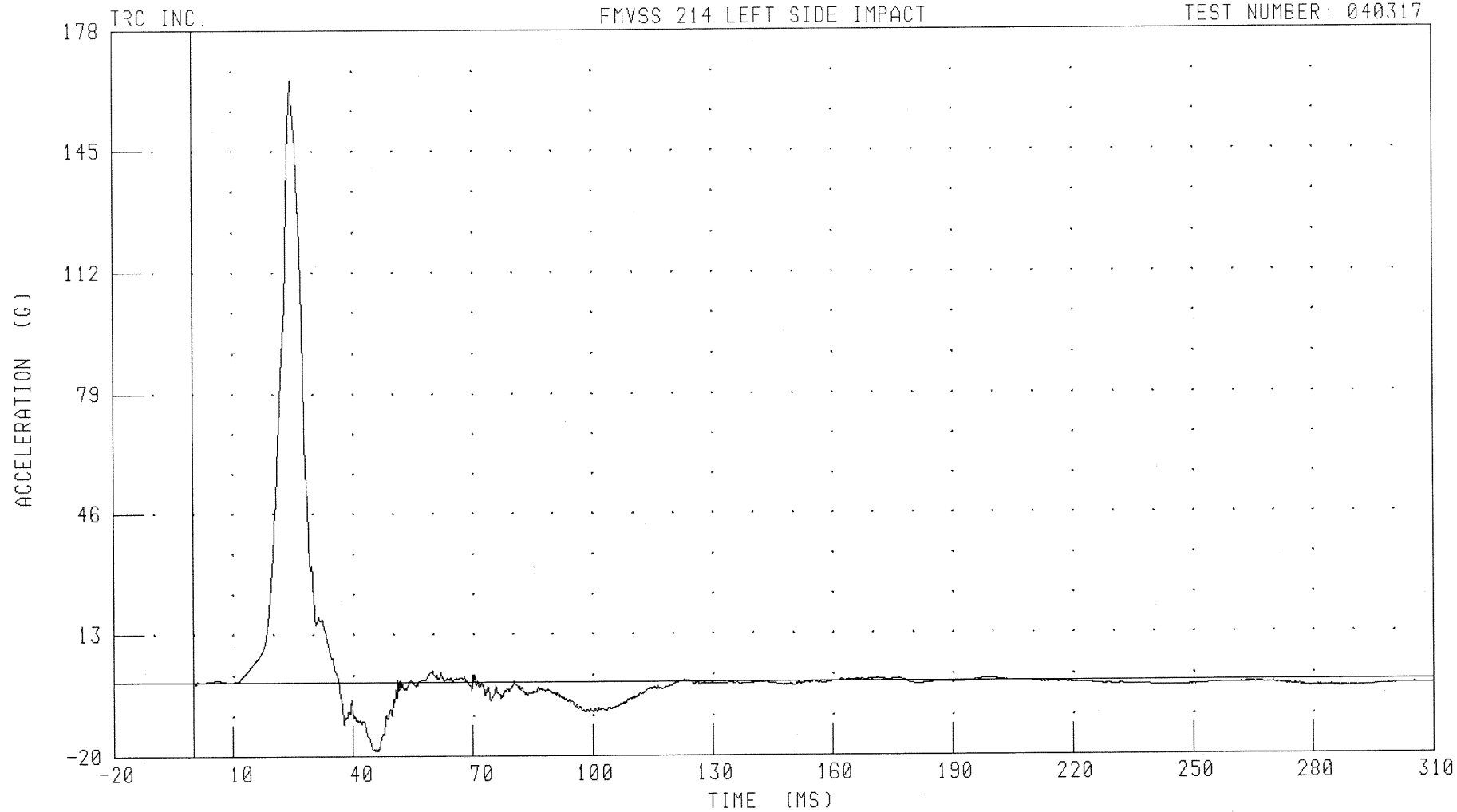
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYR1 FILTER: CH. CLASS 1000

PEAK DATA: 164.53 G @ 24.80 MS; -18.74 G @ 46.08 MS

B-73

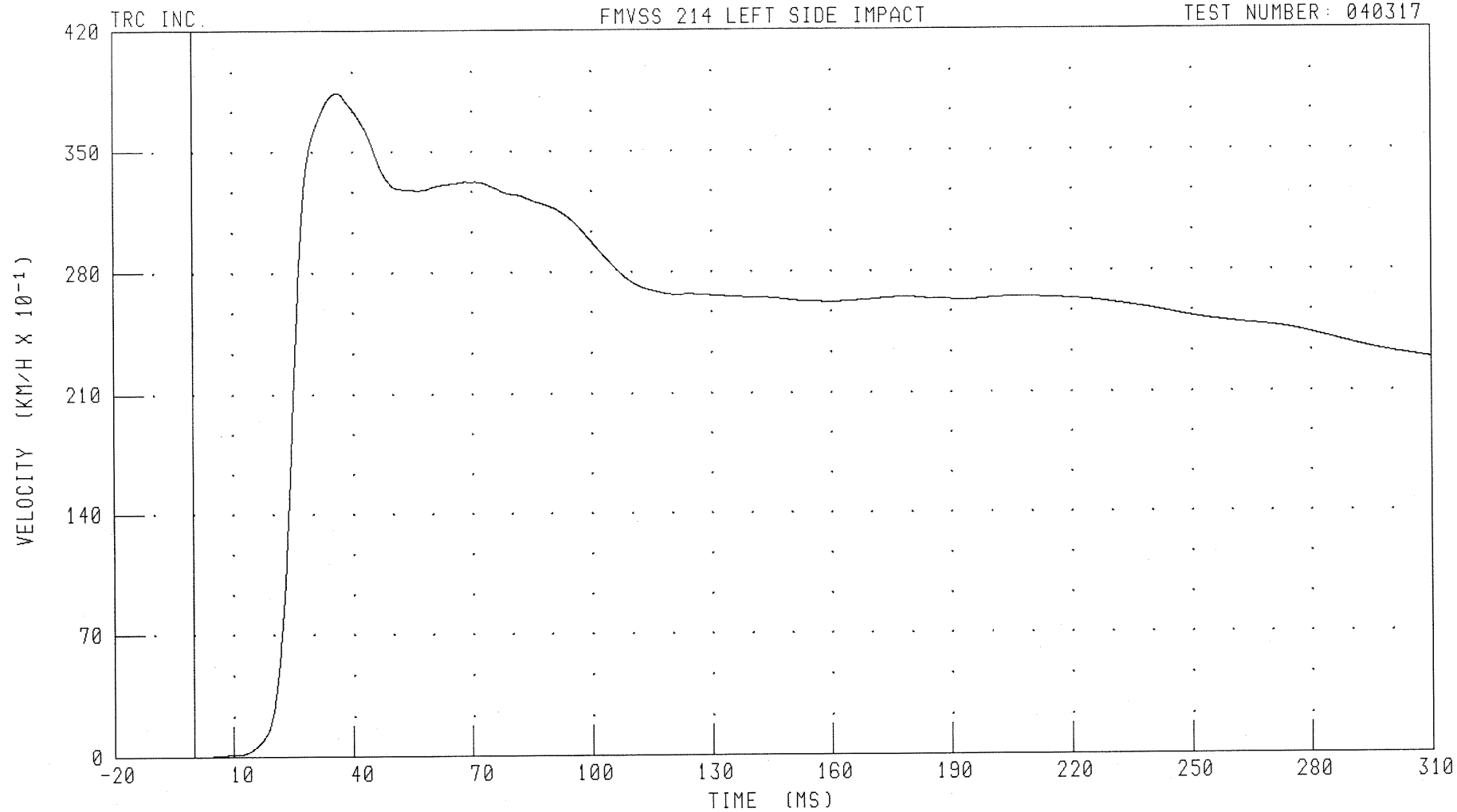
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYVI FILTER: CH. CLASS 180

PEAK DATA: 38.43 KM/H @ 36.32 MS; 0.00 KM/H @ 1.04 MS

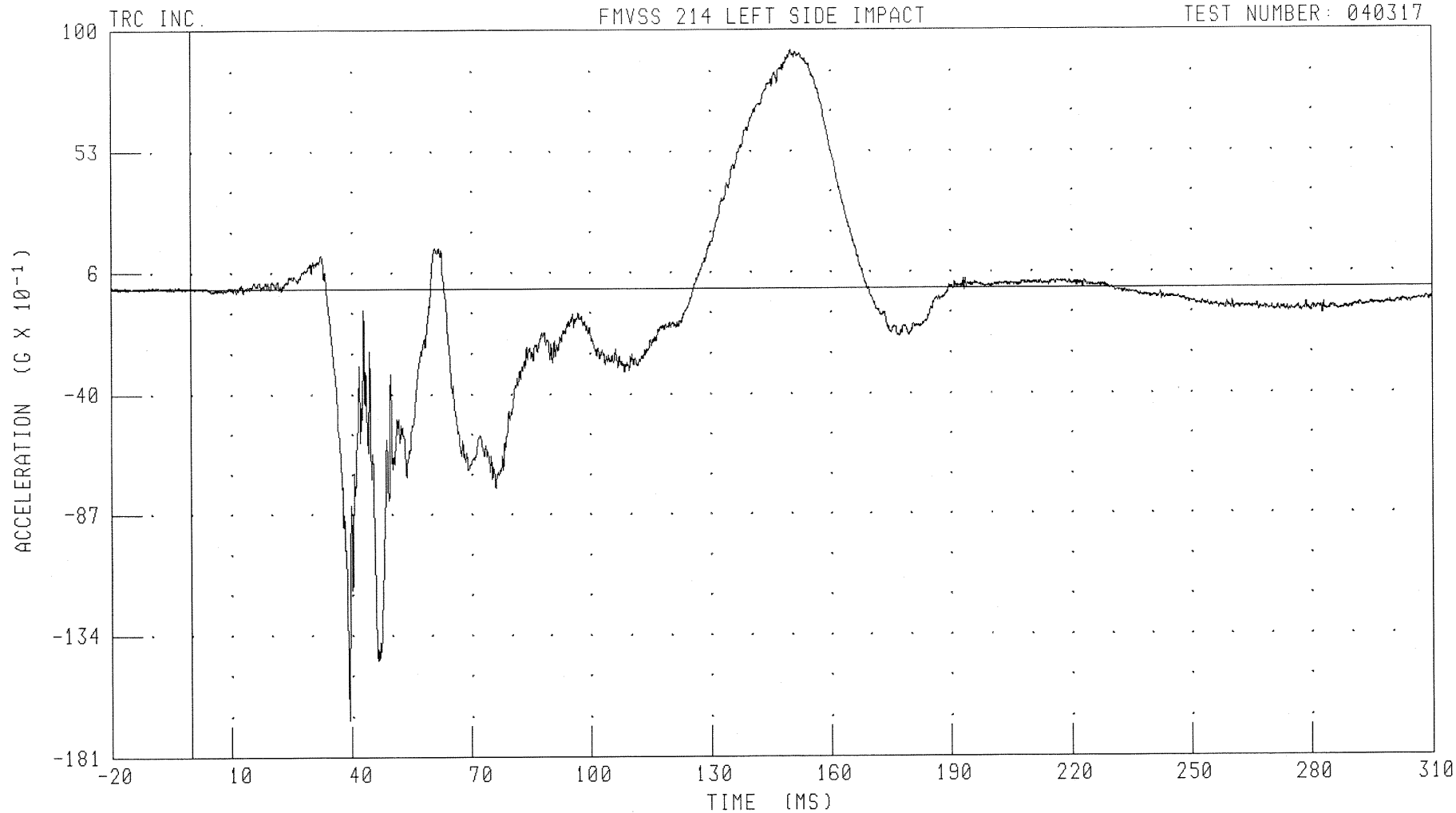
B-74

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD X-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXR4 FILTER: CH. CLASS 1000

PEAK DATA: 9.19 G @ 150.08 MS; -16.77 G @ 39.36 MS

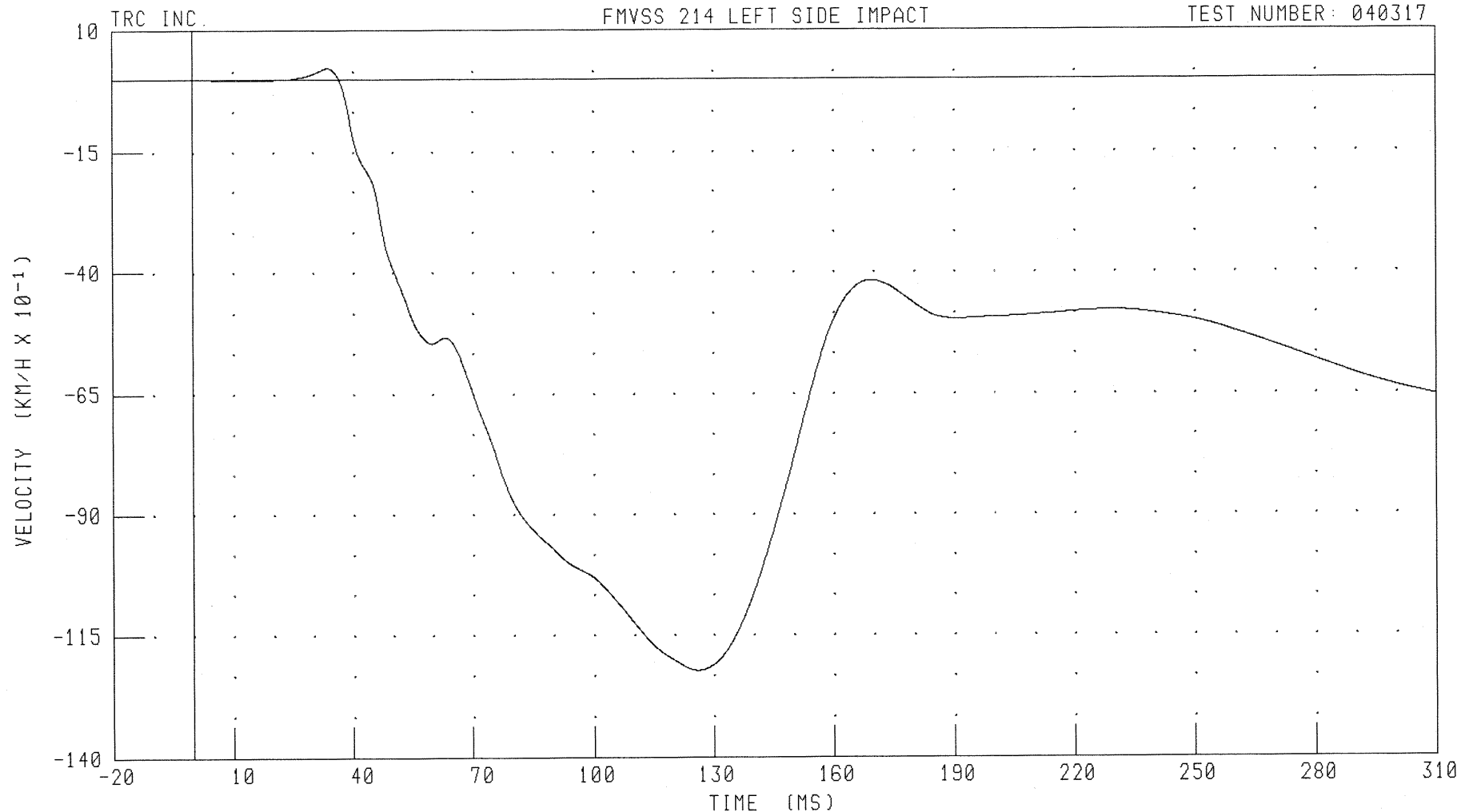
B-75

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD X-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDXVJ FILTER: CH. CLASS 180

PEAK DATA: 0.24 KM/H @ 33.84 MS; -12.24 KM/H @ 125.92 MS

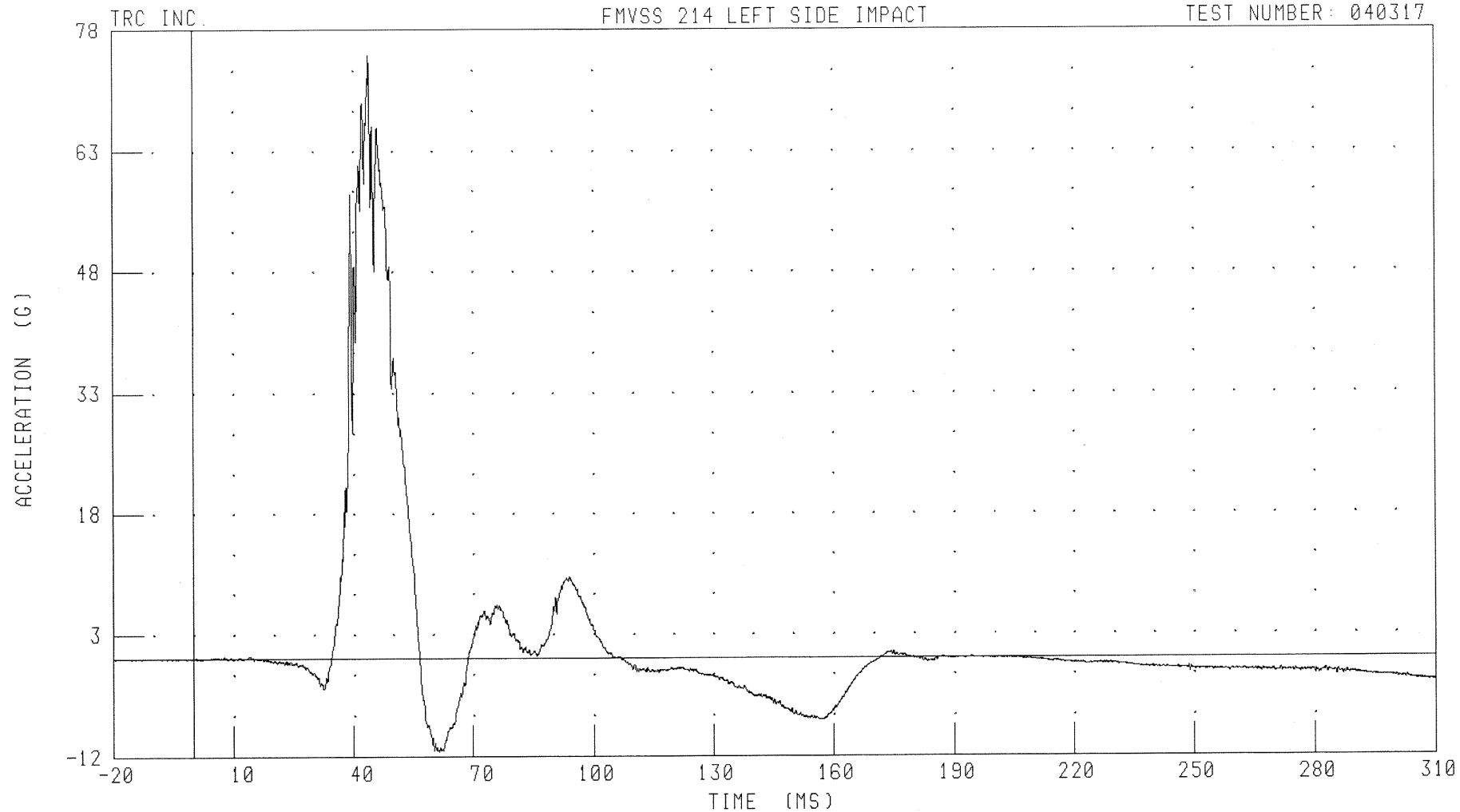
B-76

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYR4 FILTER: CH. CLASS 1000

PEAK DATA: 74.87 G @ 44.08 MS; -11.37 G @ 61.52 MS

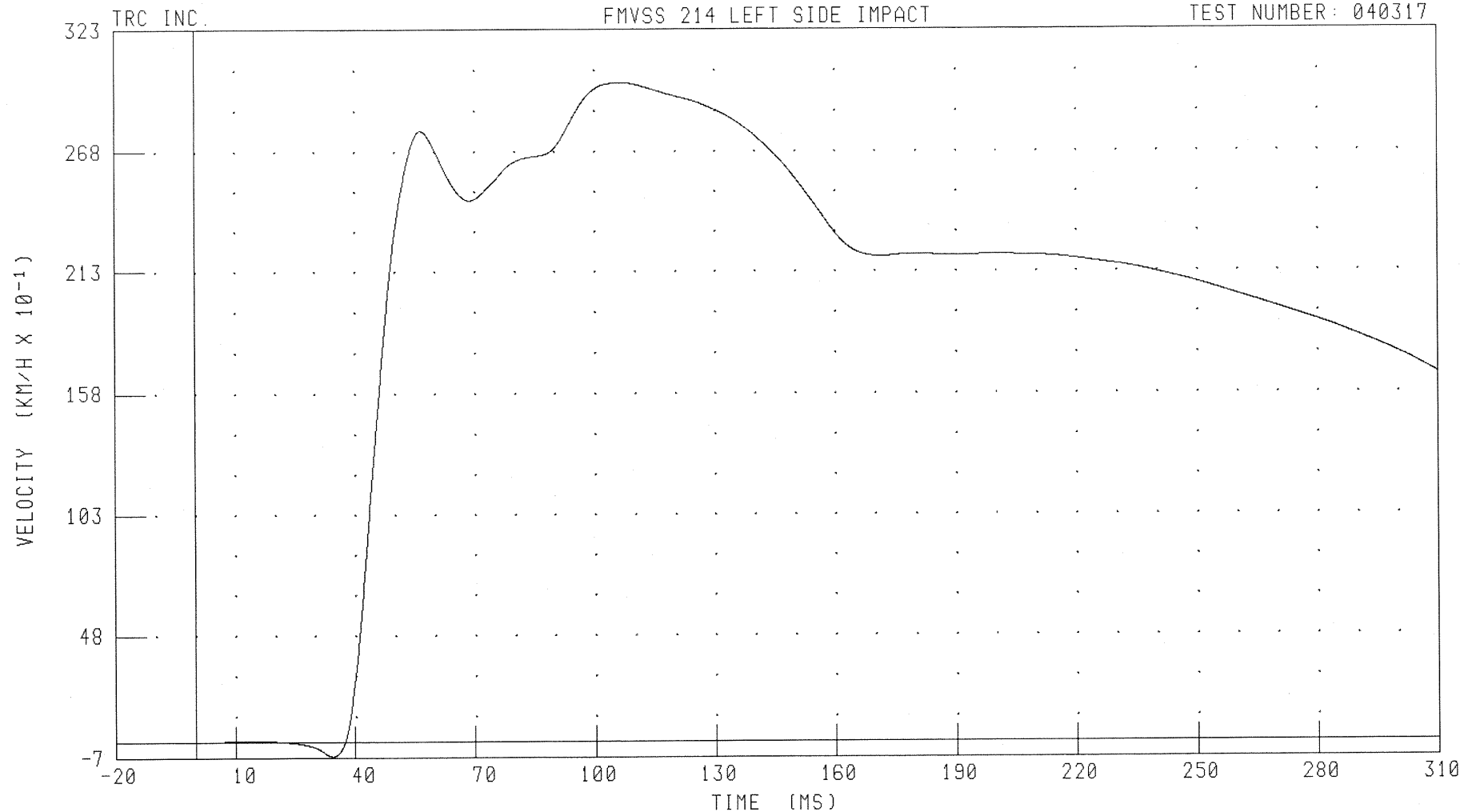
B-77

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDYVJ FILTER: CH. CLASS 180

PEAK DATA: 29.89 KM/H @ 106.96 MS; -0.64 KM/H @ 34.40 MS

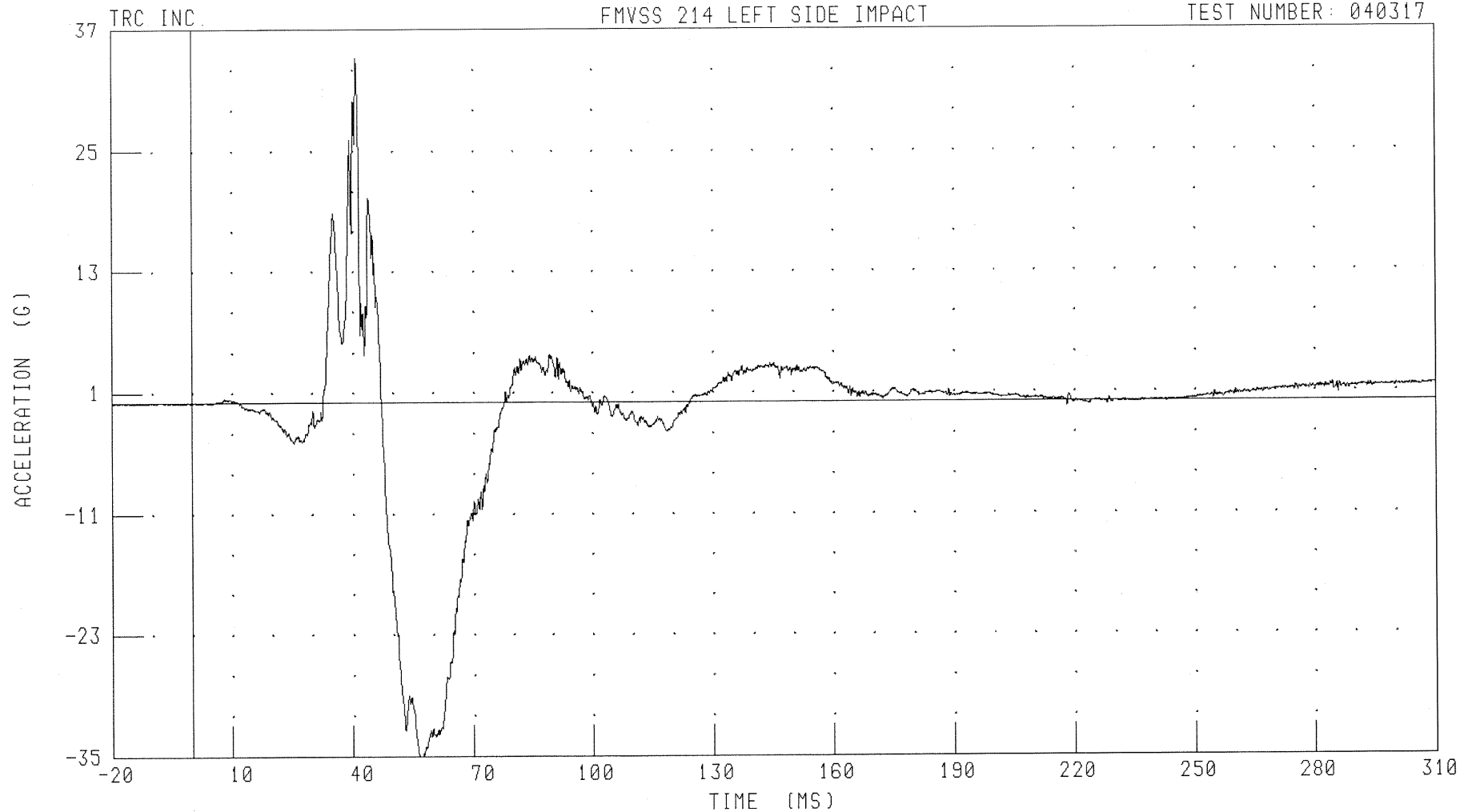
B-78

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Z-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZR4 FILTER: CH. CLASS 1000

PEAK DATA: 34.18 G @ 41.04 MS; -36.21 G @ 56.72 MS

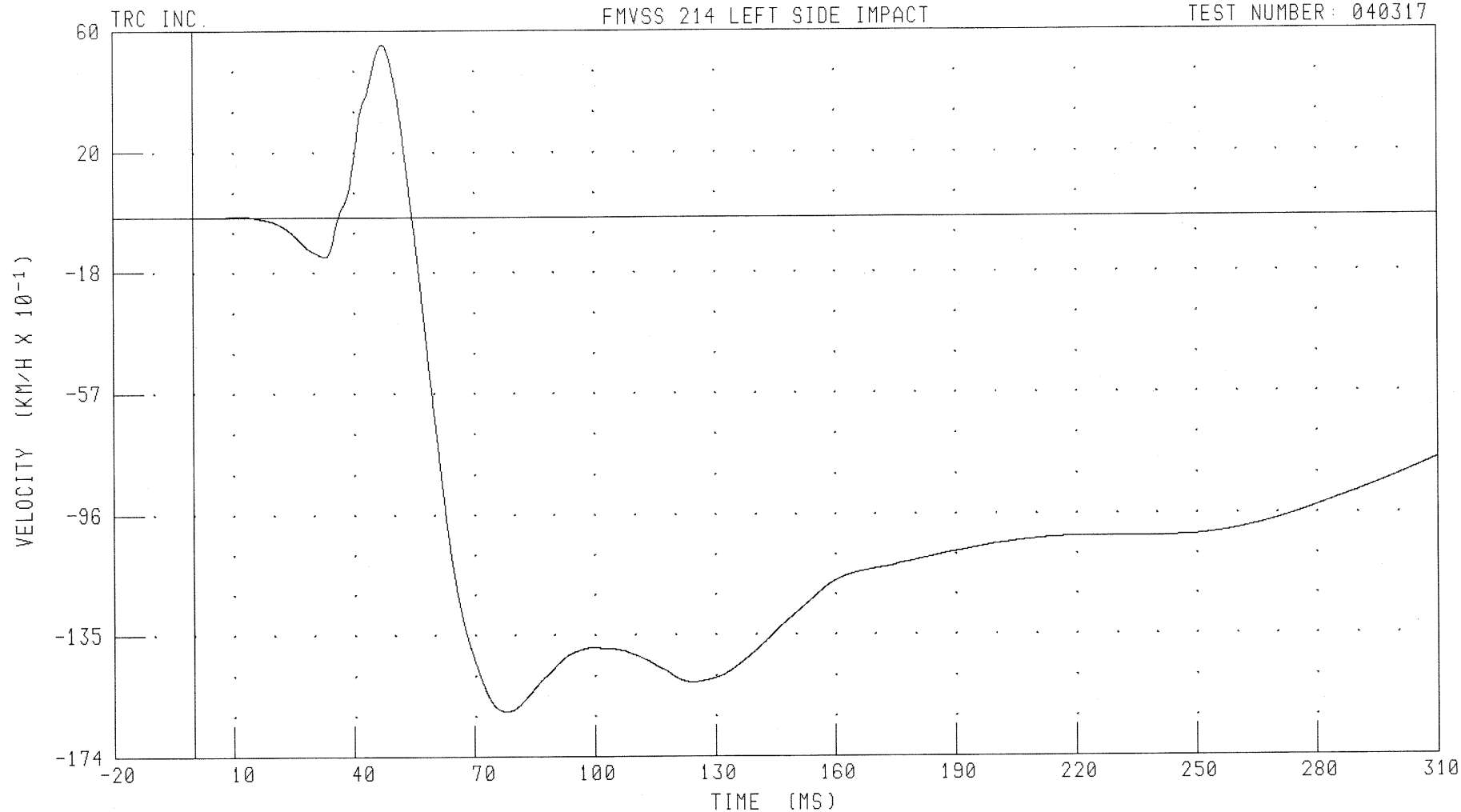
B-79

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD Z-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDZVJ FILTER: CH. CLASS 180

PEAK DATA: 5.53 KM/H @ 47.28 MS; -15.95 KM/H @ 77.84 MS

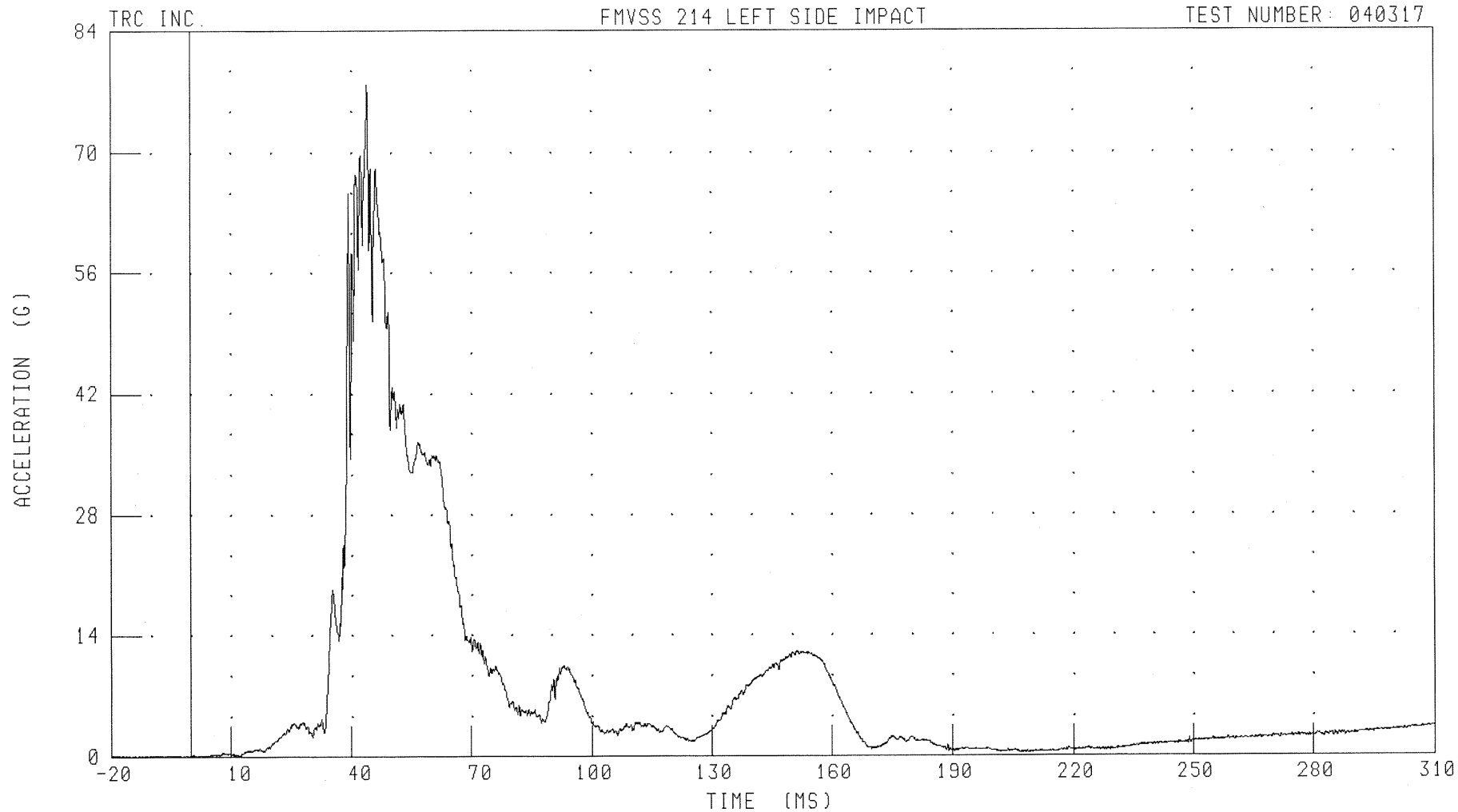
B-80

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER HEAD RESULTANT REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: HEDRR4 FILTER: CH. CLASS 1000

PEAK DATA: 77.80 G @ 44.08 MS; 0.01 G @ -20.00 MS

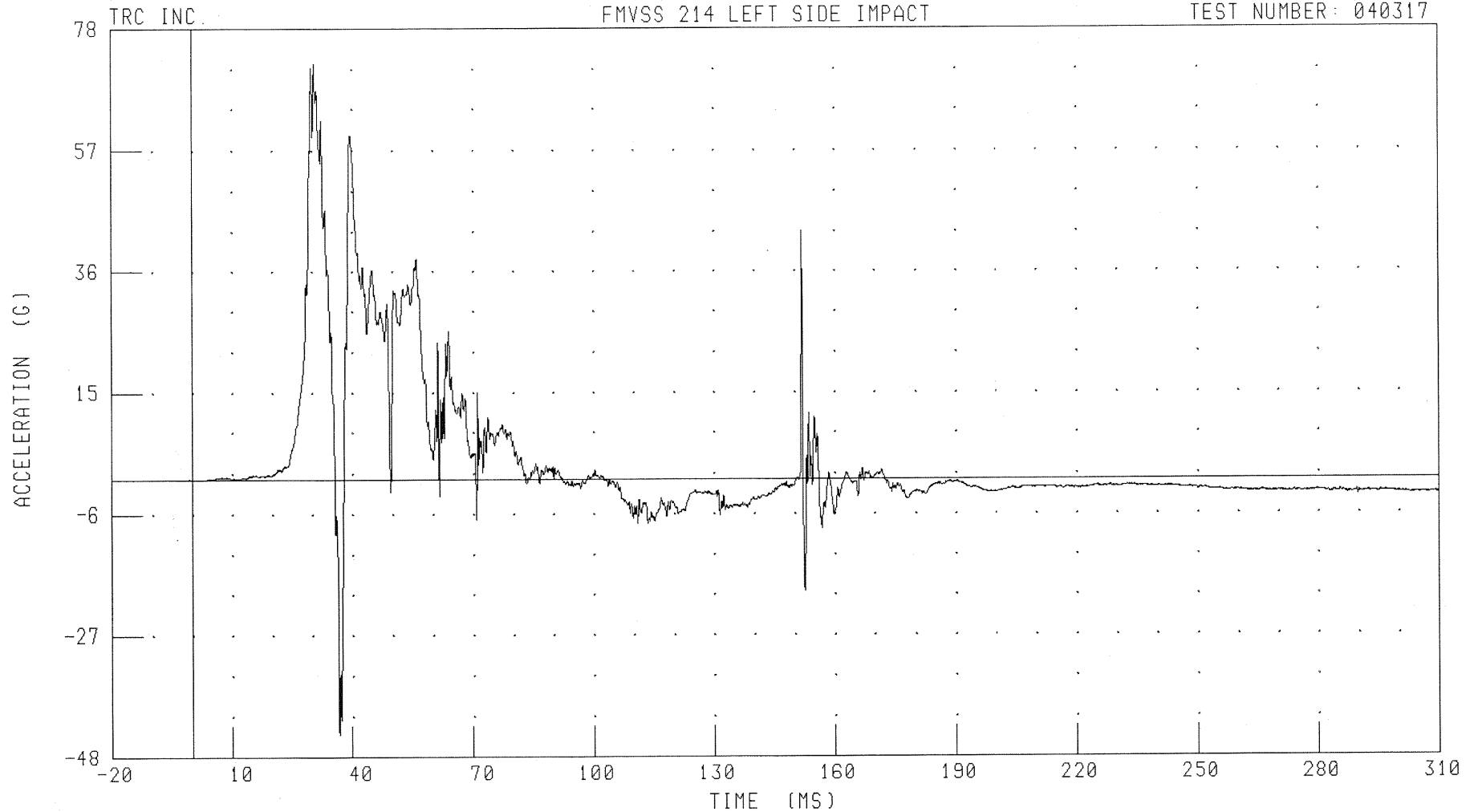
B-81

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYR4 FILTER: CH. CLASS 1000

PEAK DATA: 71.91 G @ 30.72 MS; -44.07 G @ 36.80 MS

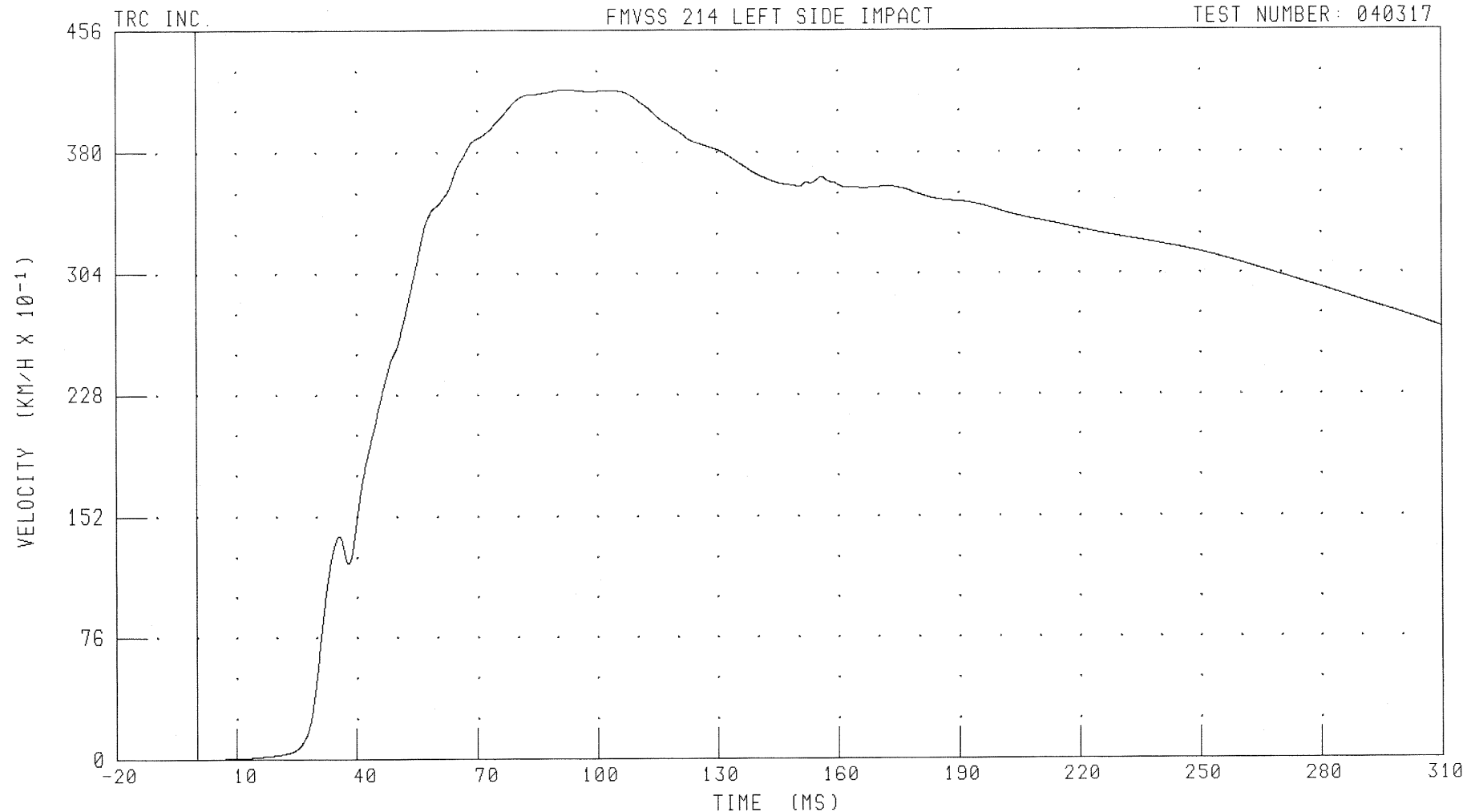
B-82

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYVJ FILTER: CH. CLASS 180

PEAK DATA: 41.91 KM/H @ 92.24 MS; 0.00 KM/H @ 0.00 MS

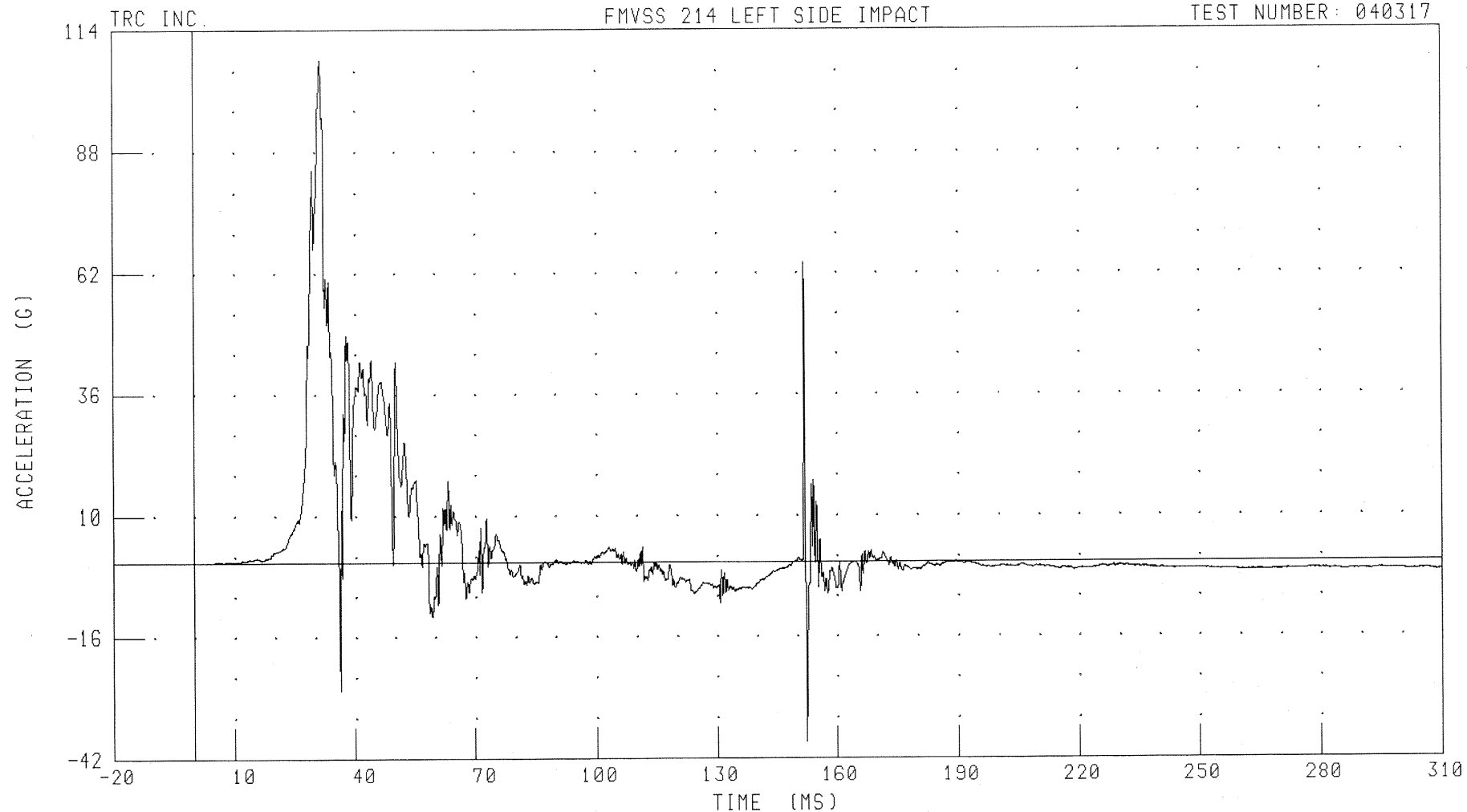
B-83

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYR4 FILTER: CH. CLASS 1000

PEAK DATA: 107.61 G @ 31.52 MS; -38.43 G @ 152.48 MS

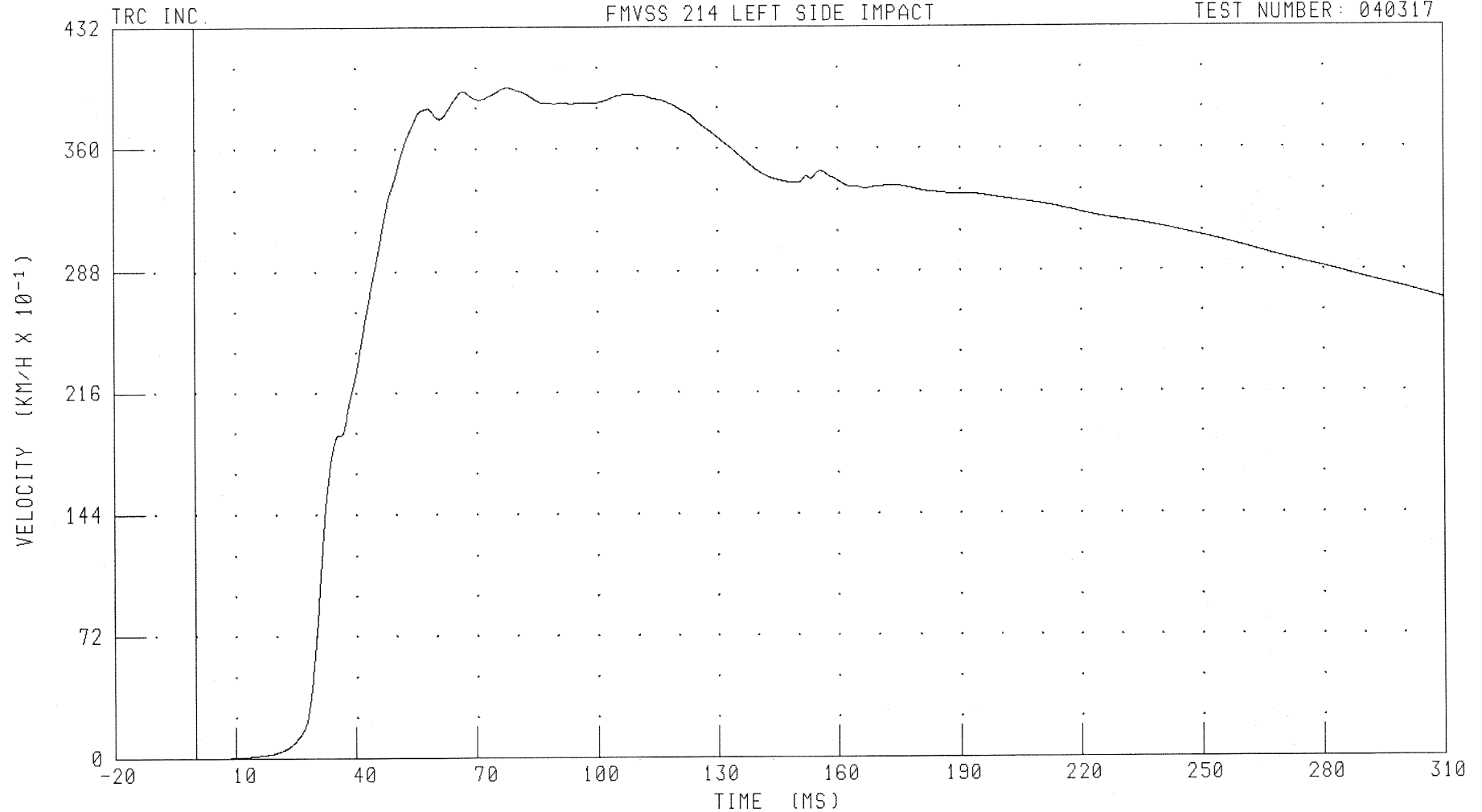
B-84

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYVJ FILTER: CH. CLASS 180

PEAK DATA: 39.60 KM/H @ 77.84 MS; 0.00 KM/H @ 0.00 MS

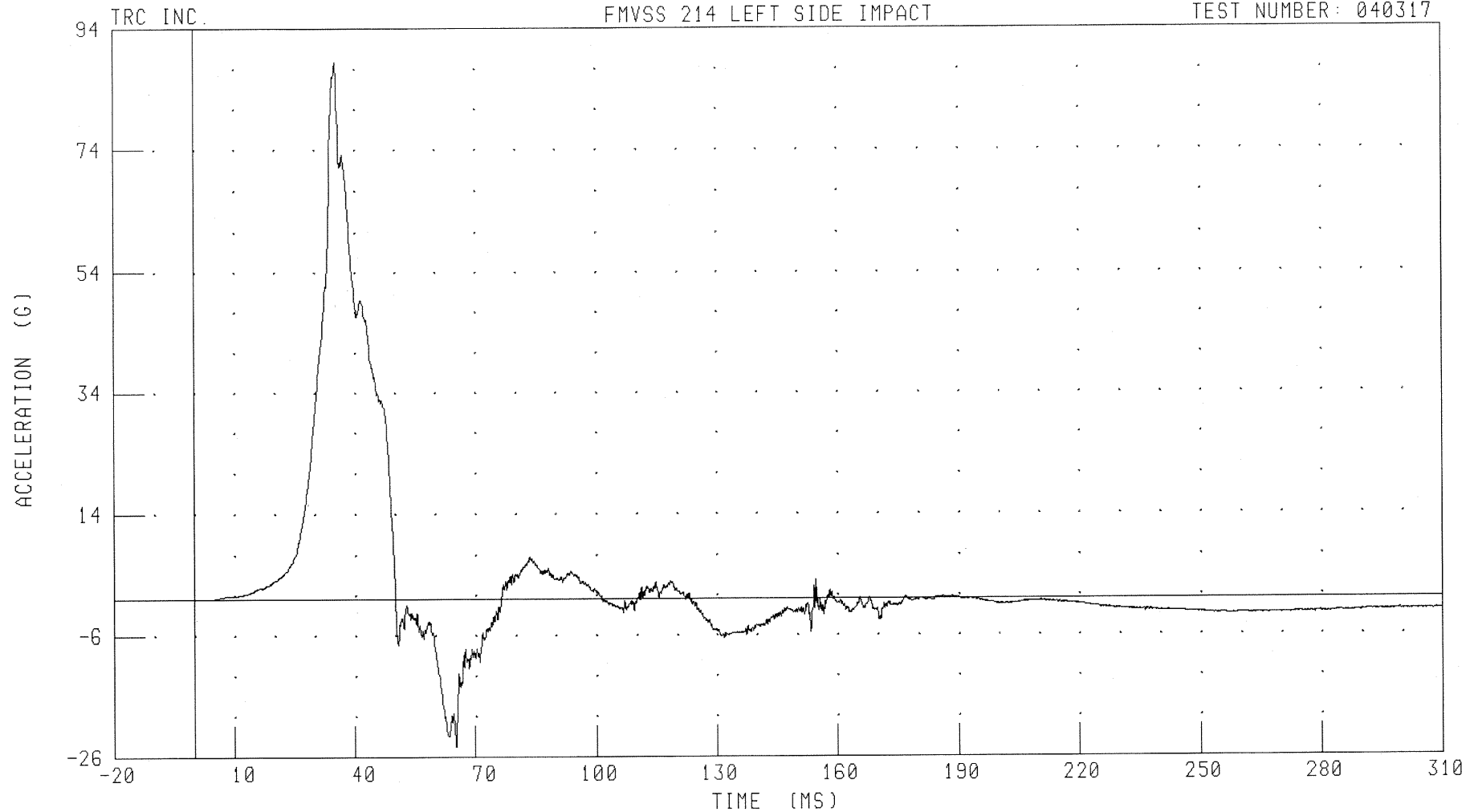
B-85

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YR4

FILTER: CH. CLASS 1000

PEAK DATA: 88.41 G @ 35.36 MS; -24.40 G @ 65.12 MS

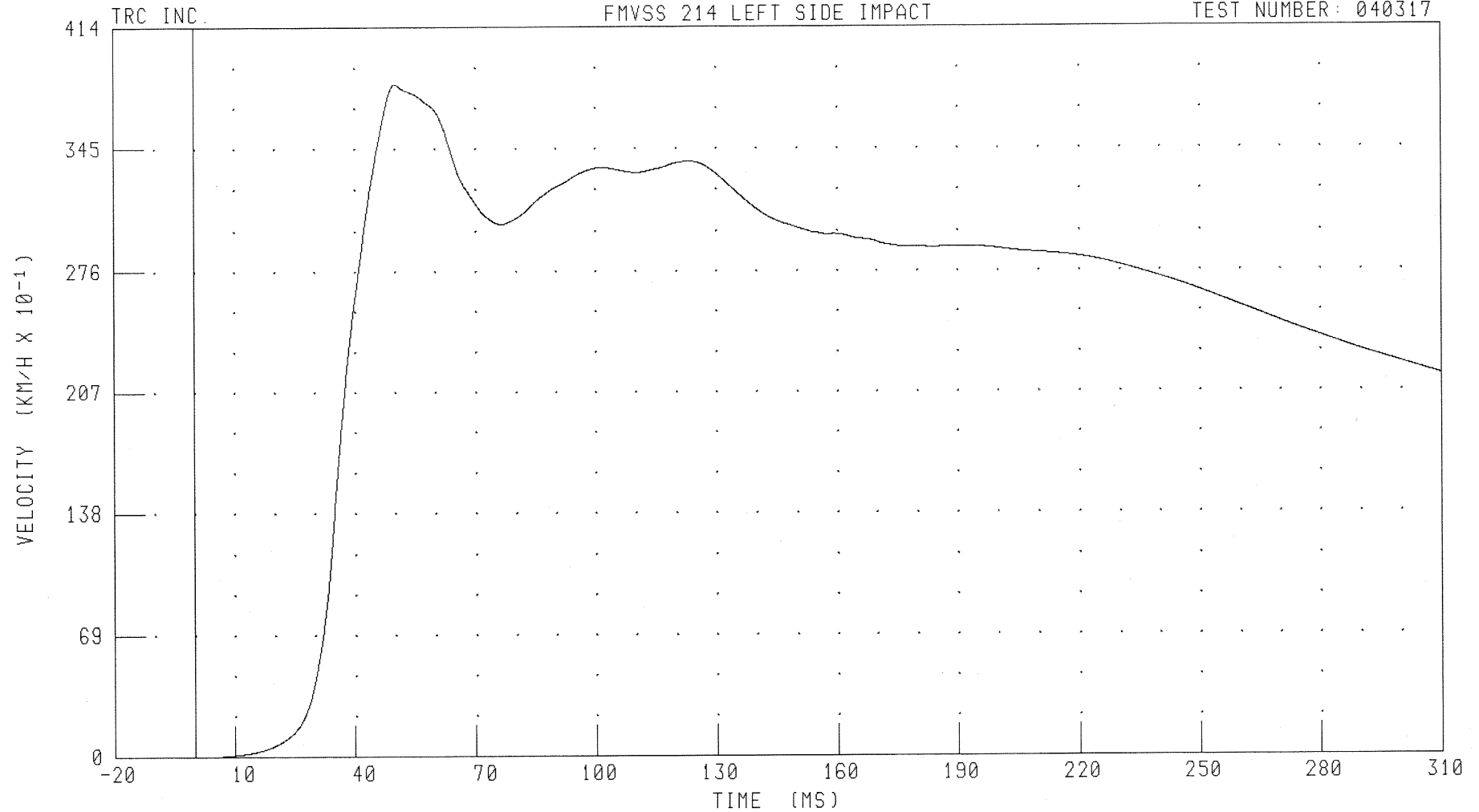
B-86

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YVJ

FILTER: CH. CLASS 180

PEAK DATA: 38.17 KM/H @ 50.16 MS; 0.00 KM/H @ 0.00 MS

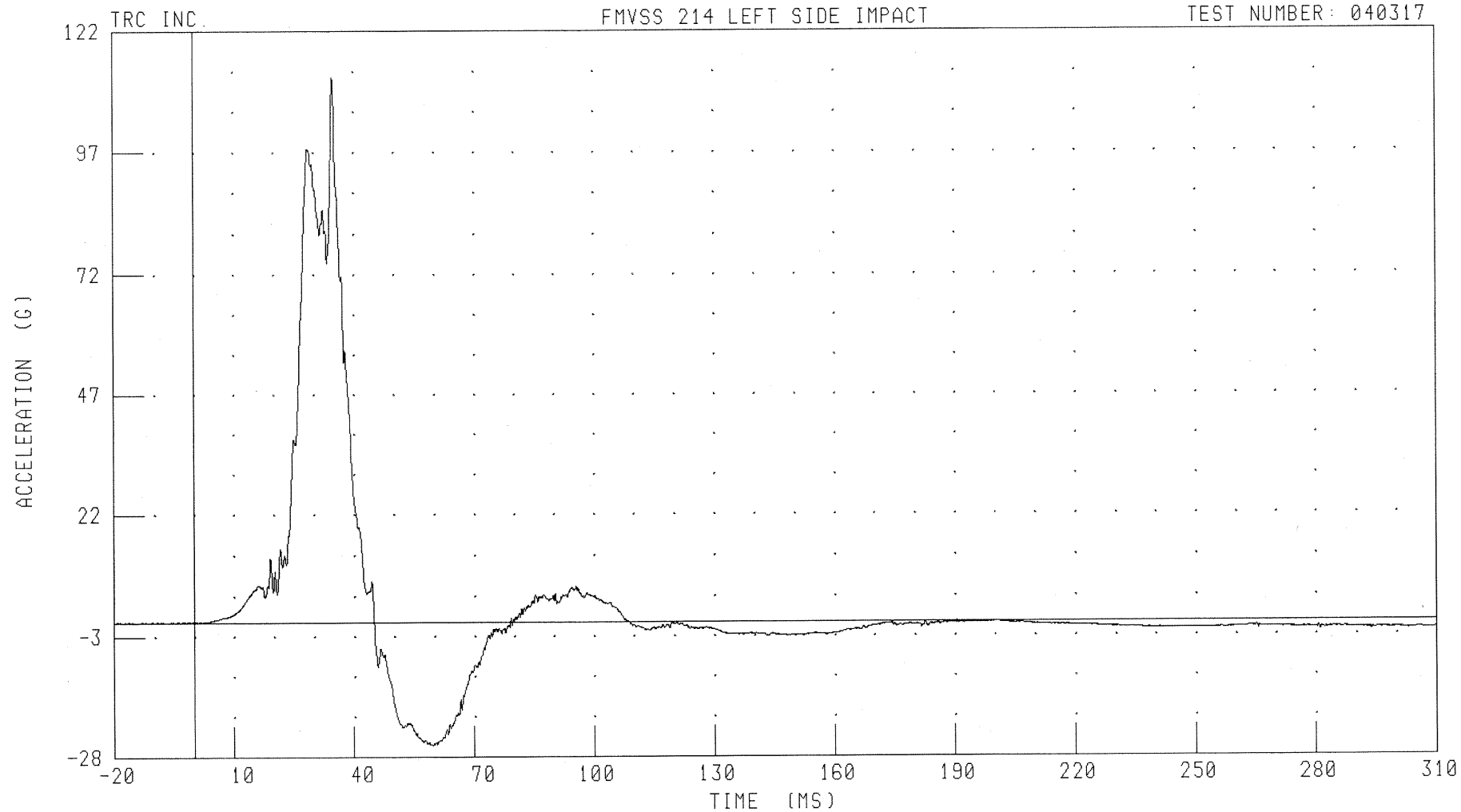
B-87

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYR4 FILTER: CH. CLASS 1000

PEAK DATA: 112.42 G @ 34.88 MS; -25.68 G @ 59.36 MS

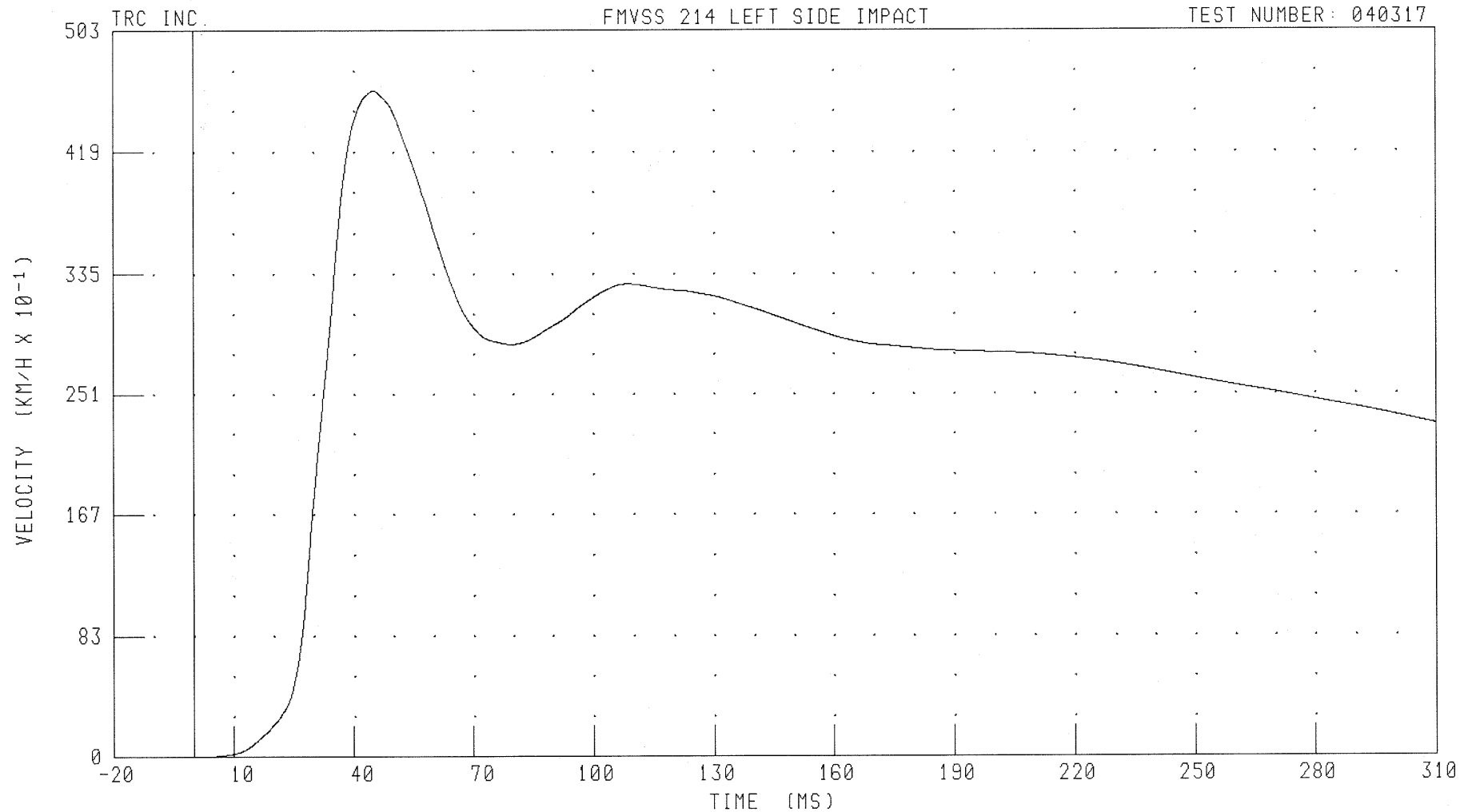
B-88

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYVJ

FILTER: CH. CLASS 180

PEAK DATA: 46.25 KM/H @ 45.12 MS; 0.00 KM/H @ 0.00 MS

B-89

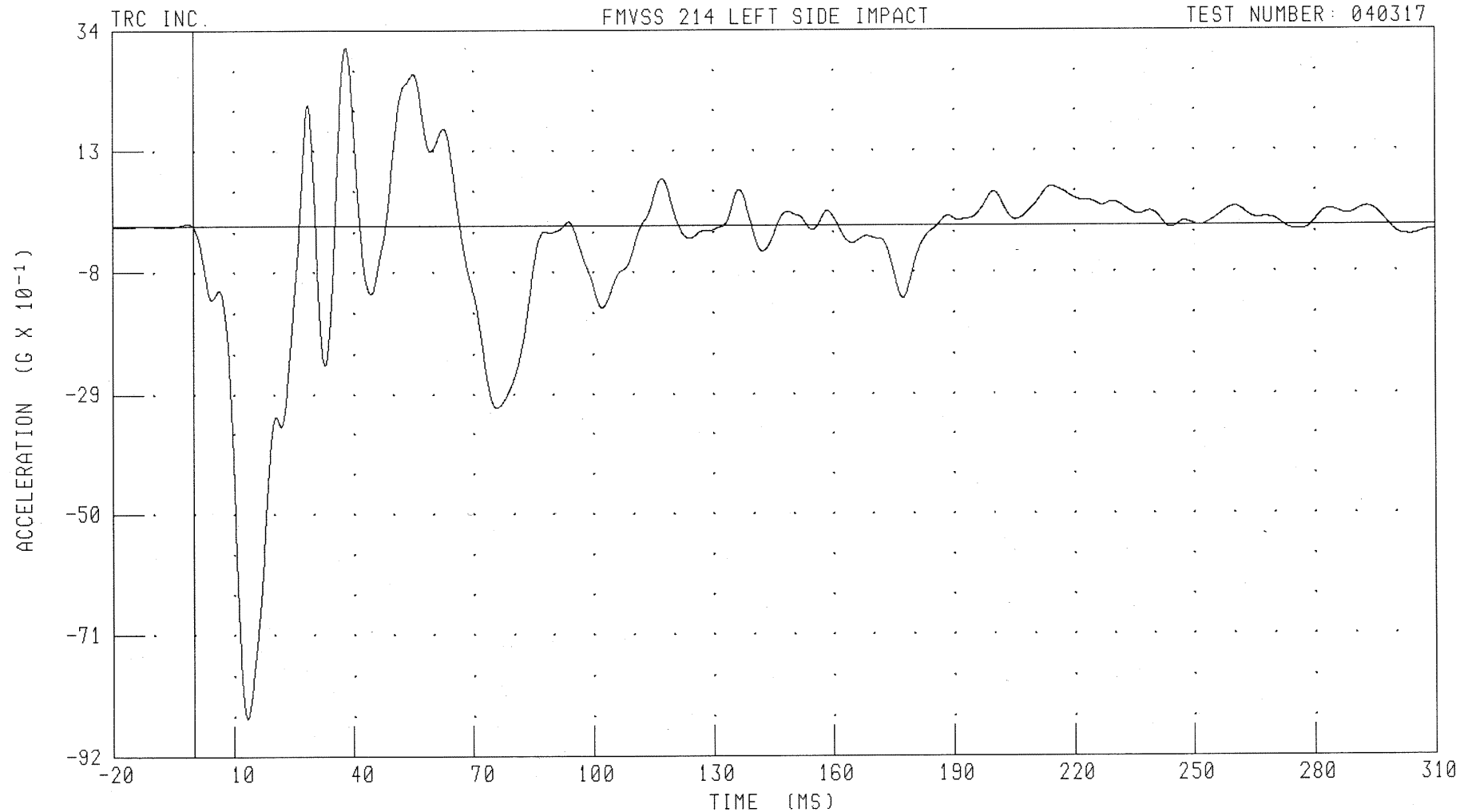
040317

Test Vehicle Instrumentation Plots

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RFSXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.10 G @ 38.16 MS; -8.54 G @ 13.28 MS

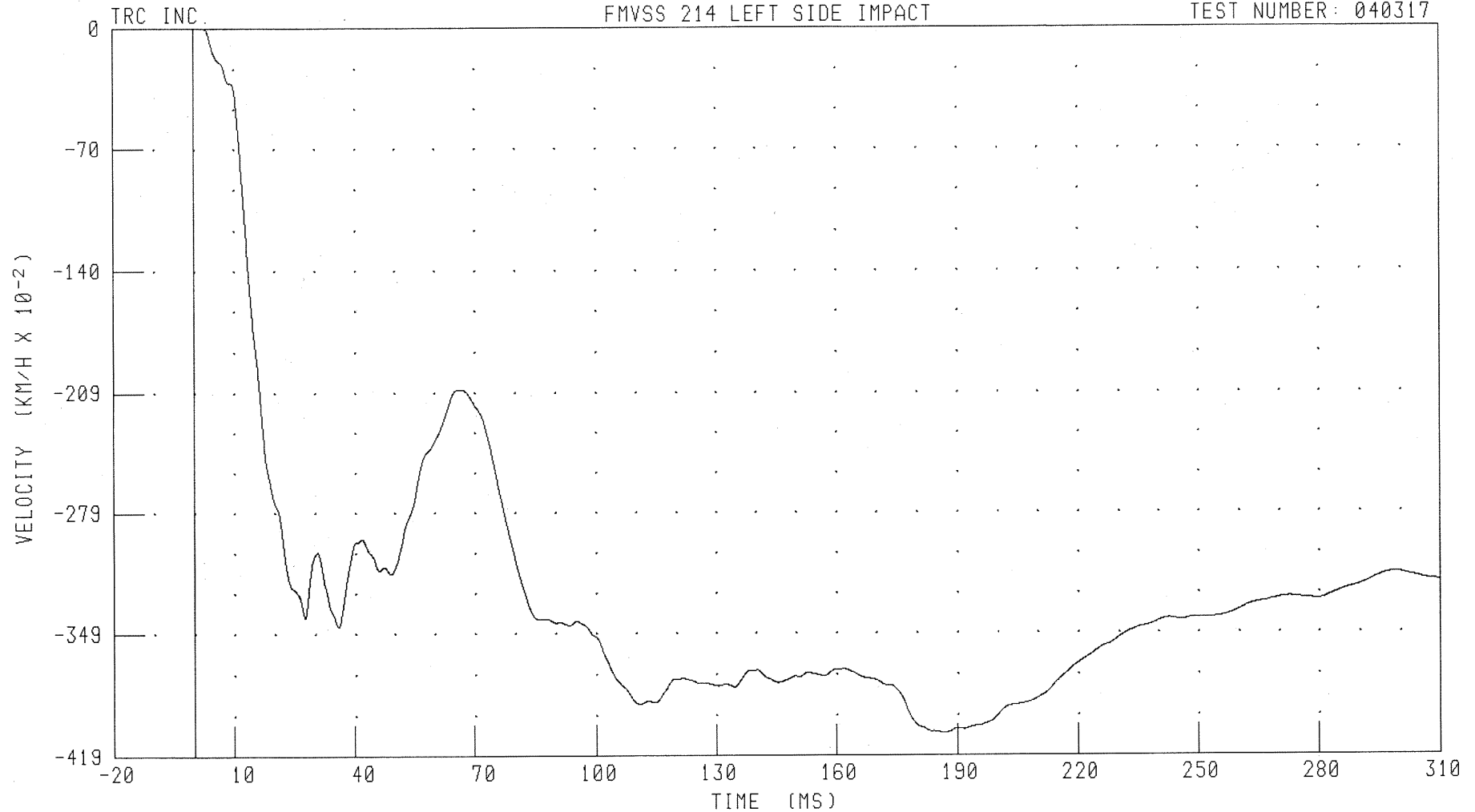
B-91

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RFSXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 KM/H @ 2.24 MS; -4.07 KM/H @ 186.88 MS

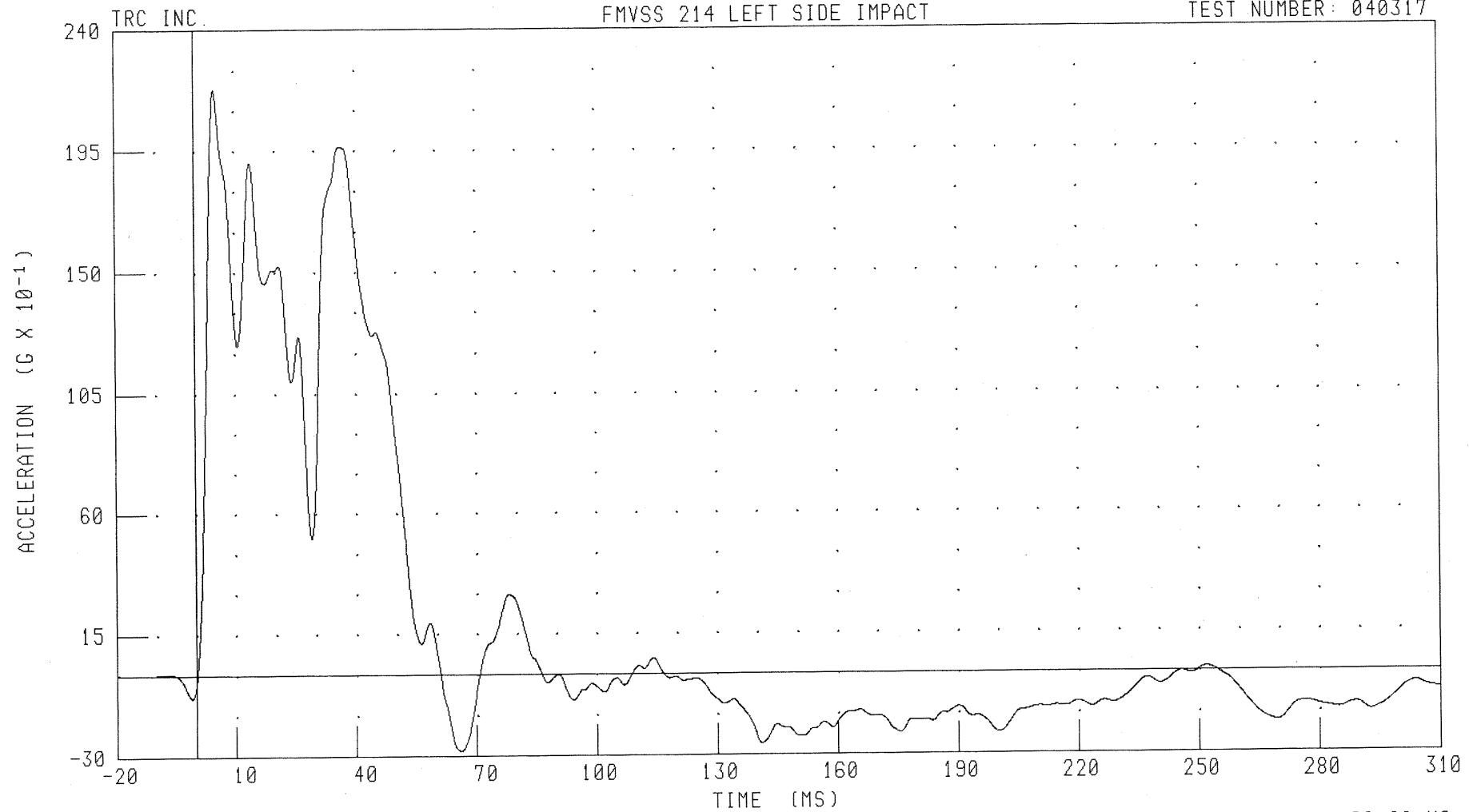
B-92

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RFSYG1 FILTER: CH. CLASS 60

PEAK DATA: 21.78 G @ 5.04 MS; -2.81 G @ 66.00 MS

B-93

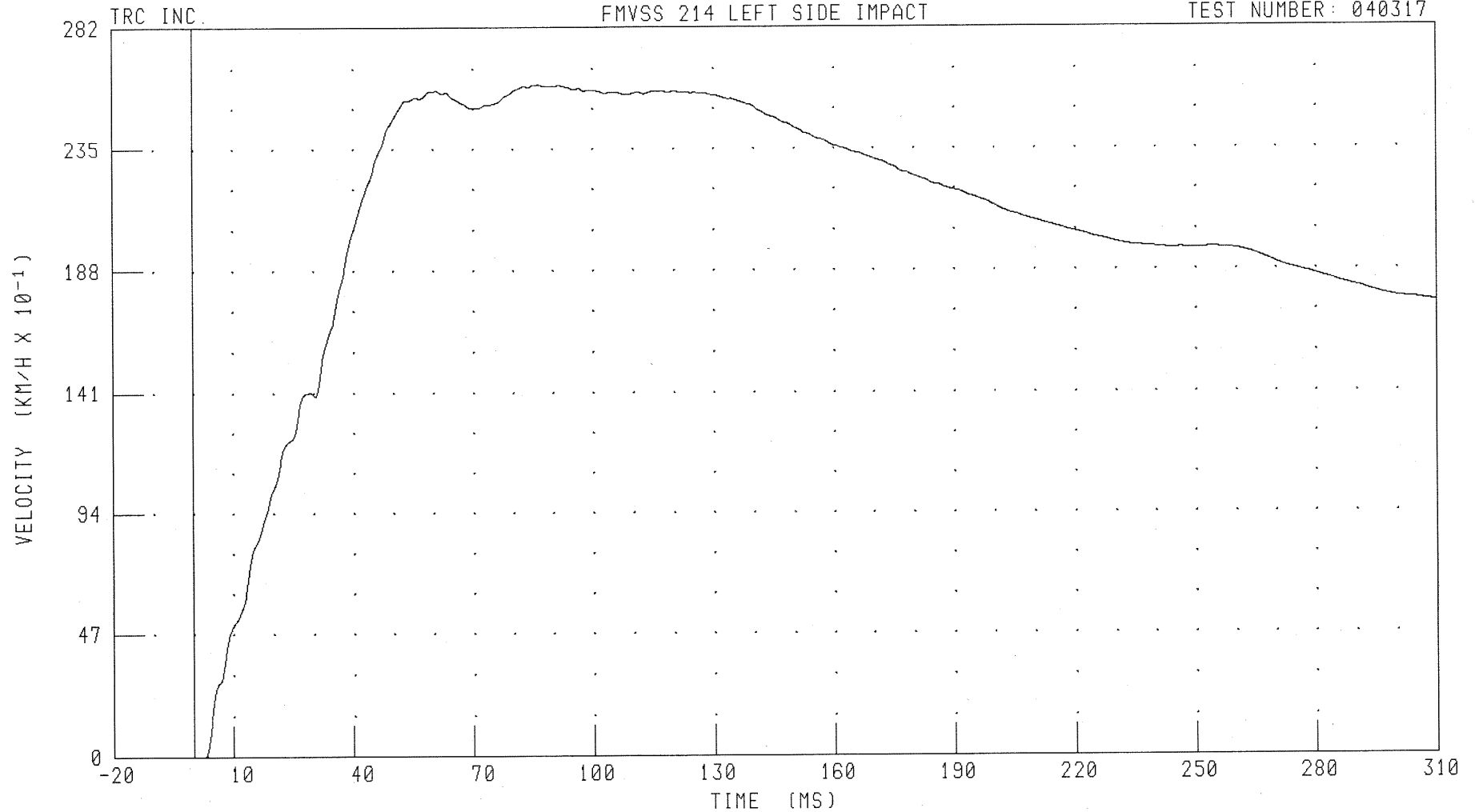
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RFSYV1 FILTER: CH. CLASS 180

PEAK DATA: 26.00 KM/H @ 86.56 MS; -0.03 KM/H @ 2.56 MS

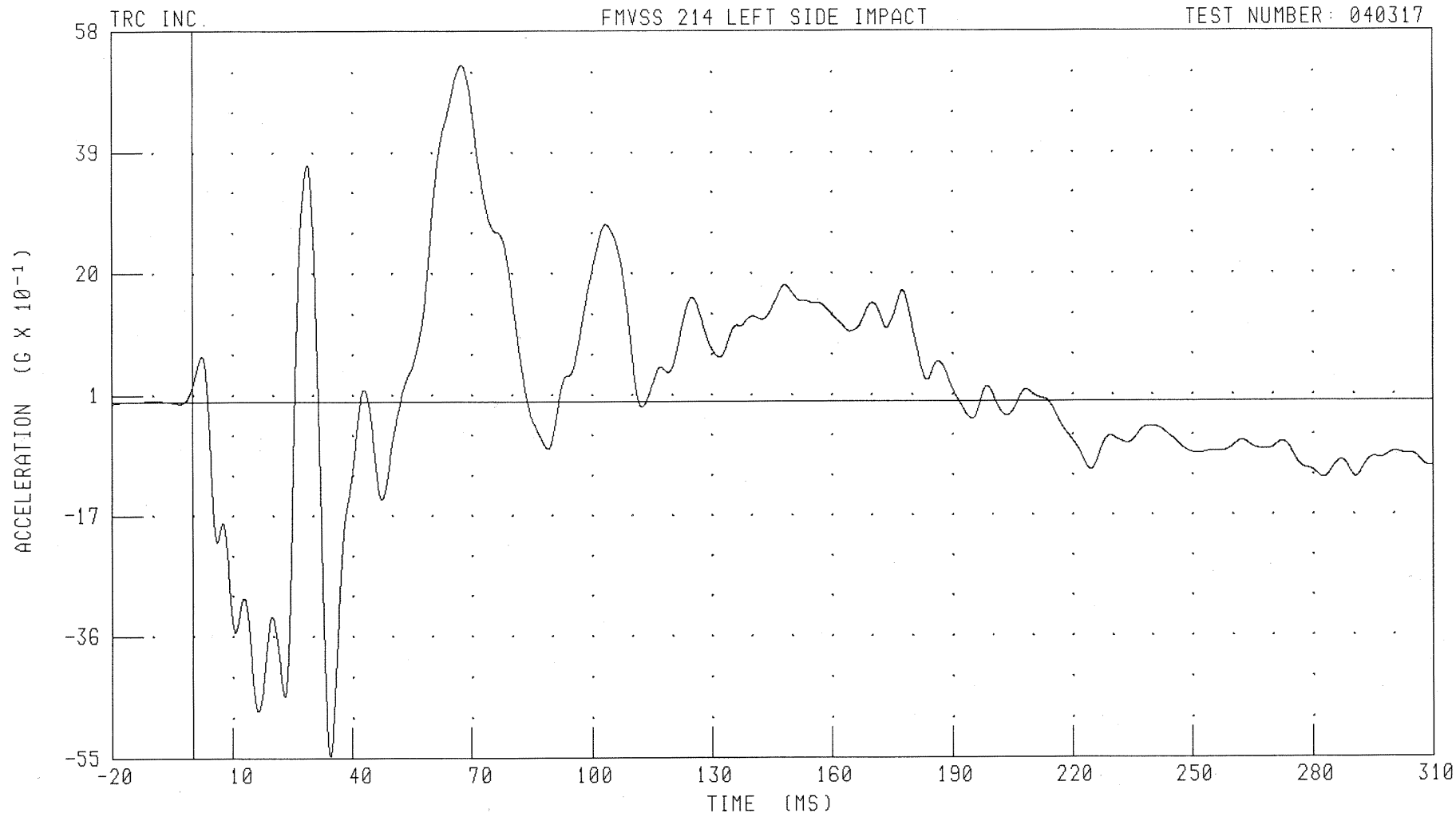
B-94

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RFSZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.27 G @ 67.68 MS; -5.58 G @ 34.40 MS

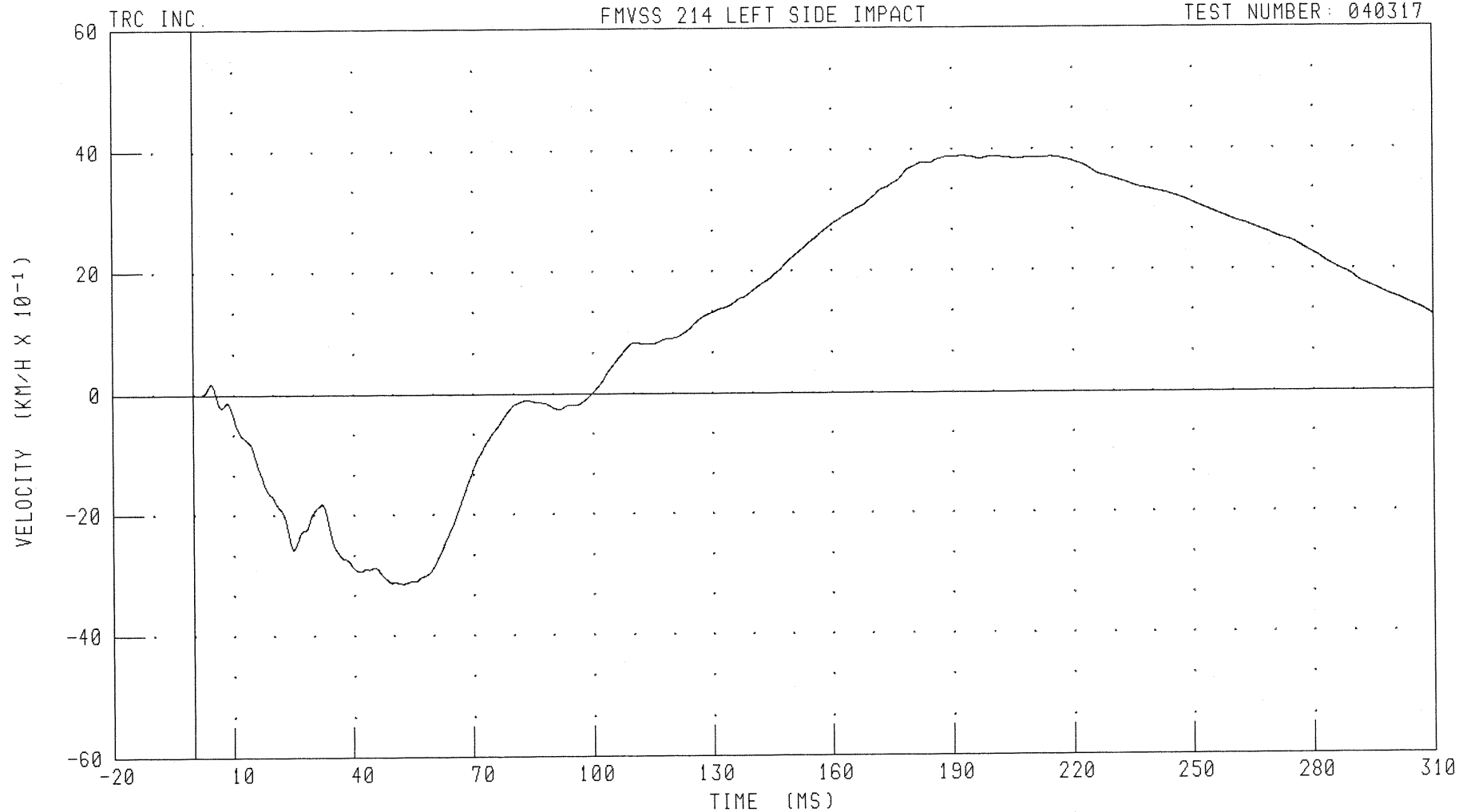
B-95

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RFSZV1 FILTER: CH. CLASS 180

PEAK DATA: 3.88 KM/H @ 192.56 MS; -3.15 KM/H @ 52.56 MS

B-96

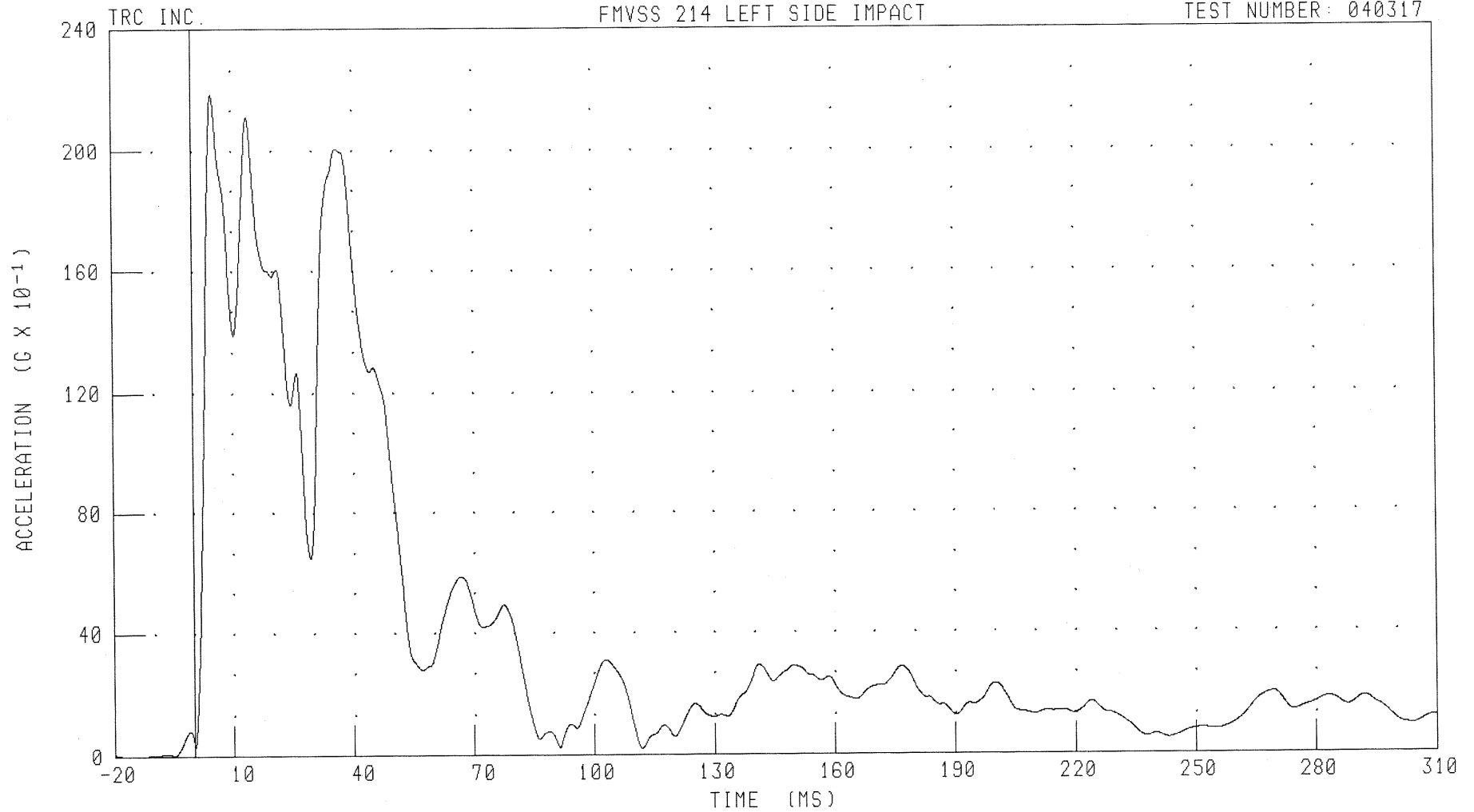
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RFSRG1

FILTER: CH. CLASS 60

B-97

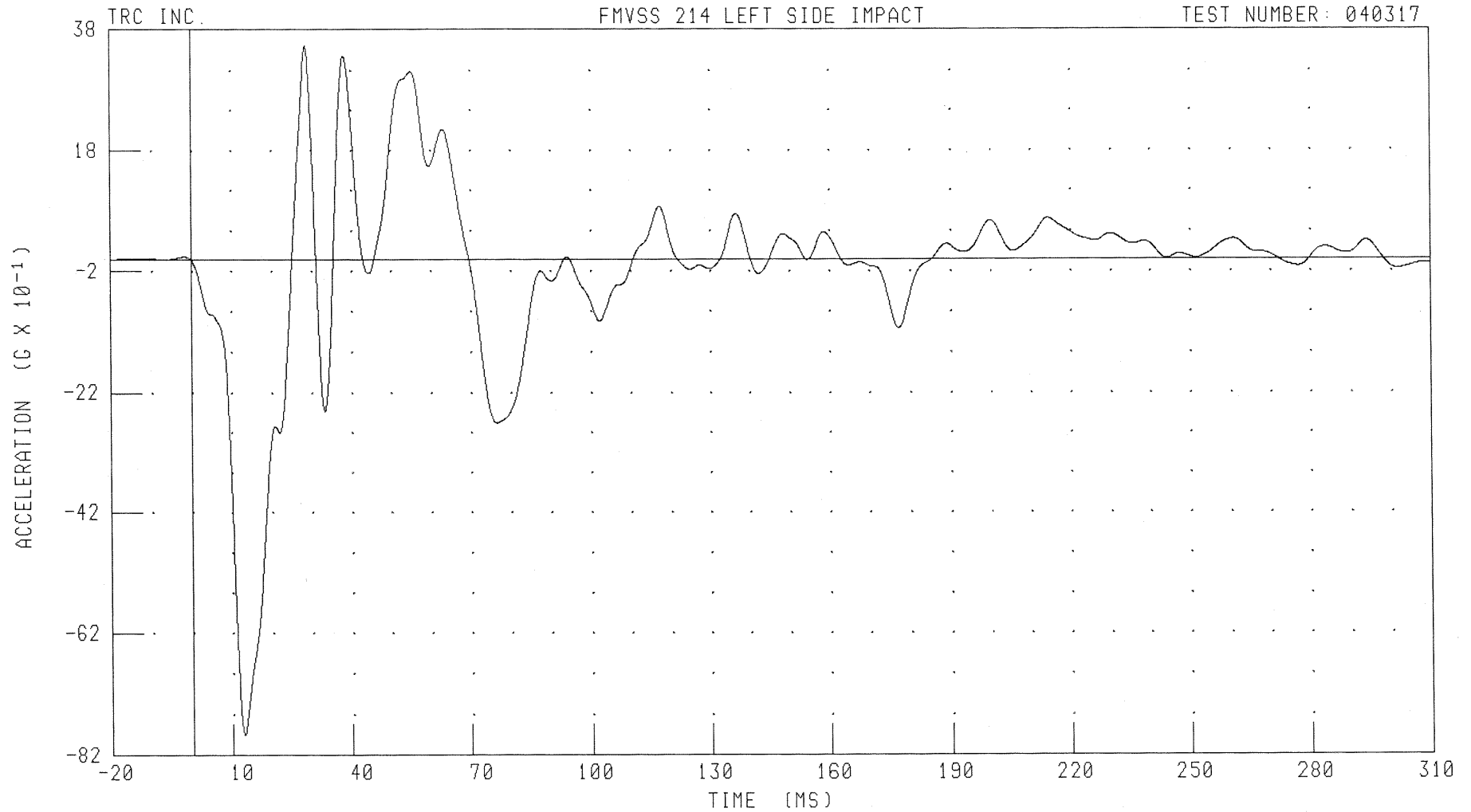
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRSXG1 FILTER: CH. CLASS 60

B-98

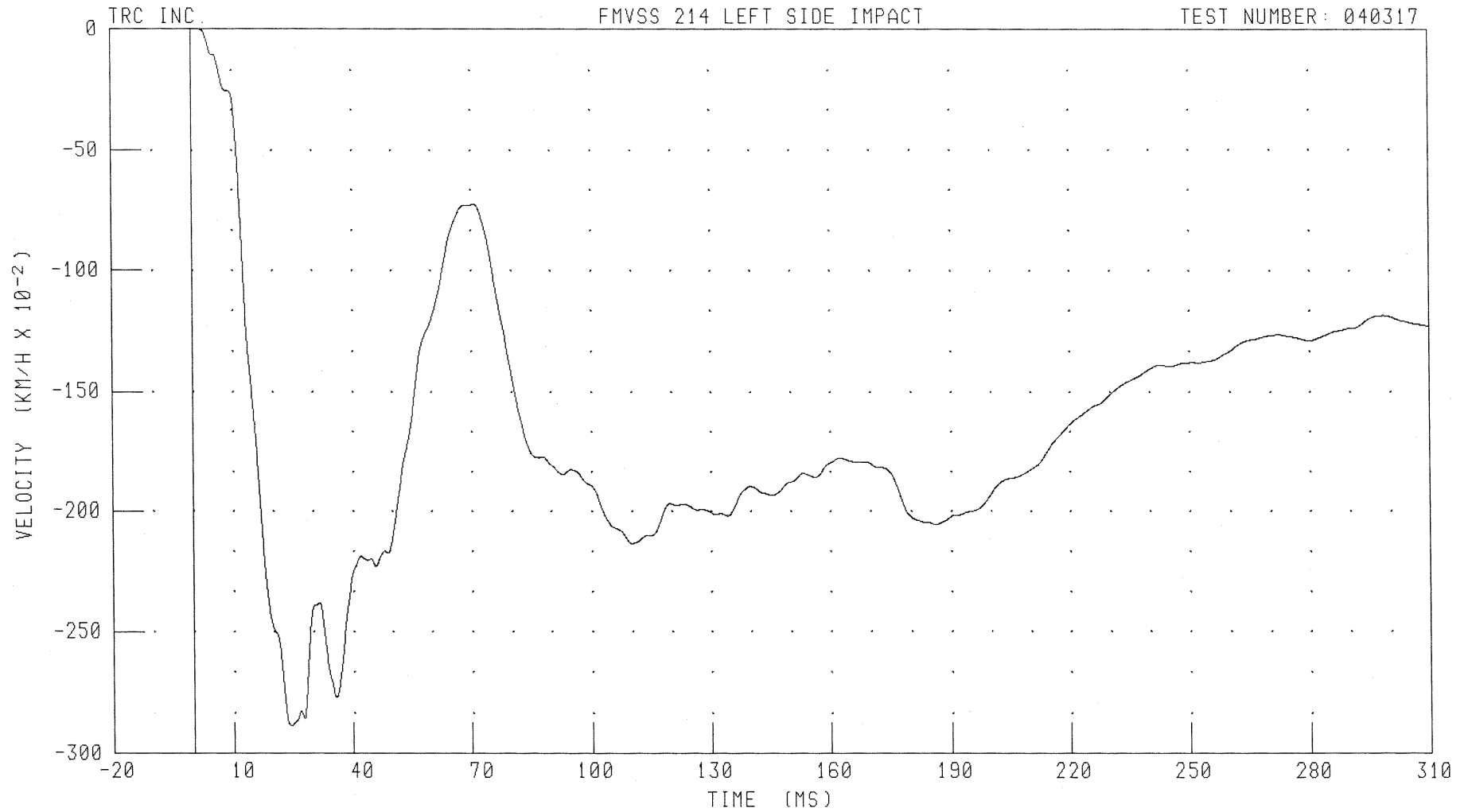
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 KM/H @ 1.28 MS; -2.89 KM/H @ 24.40 MS

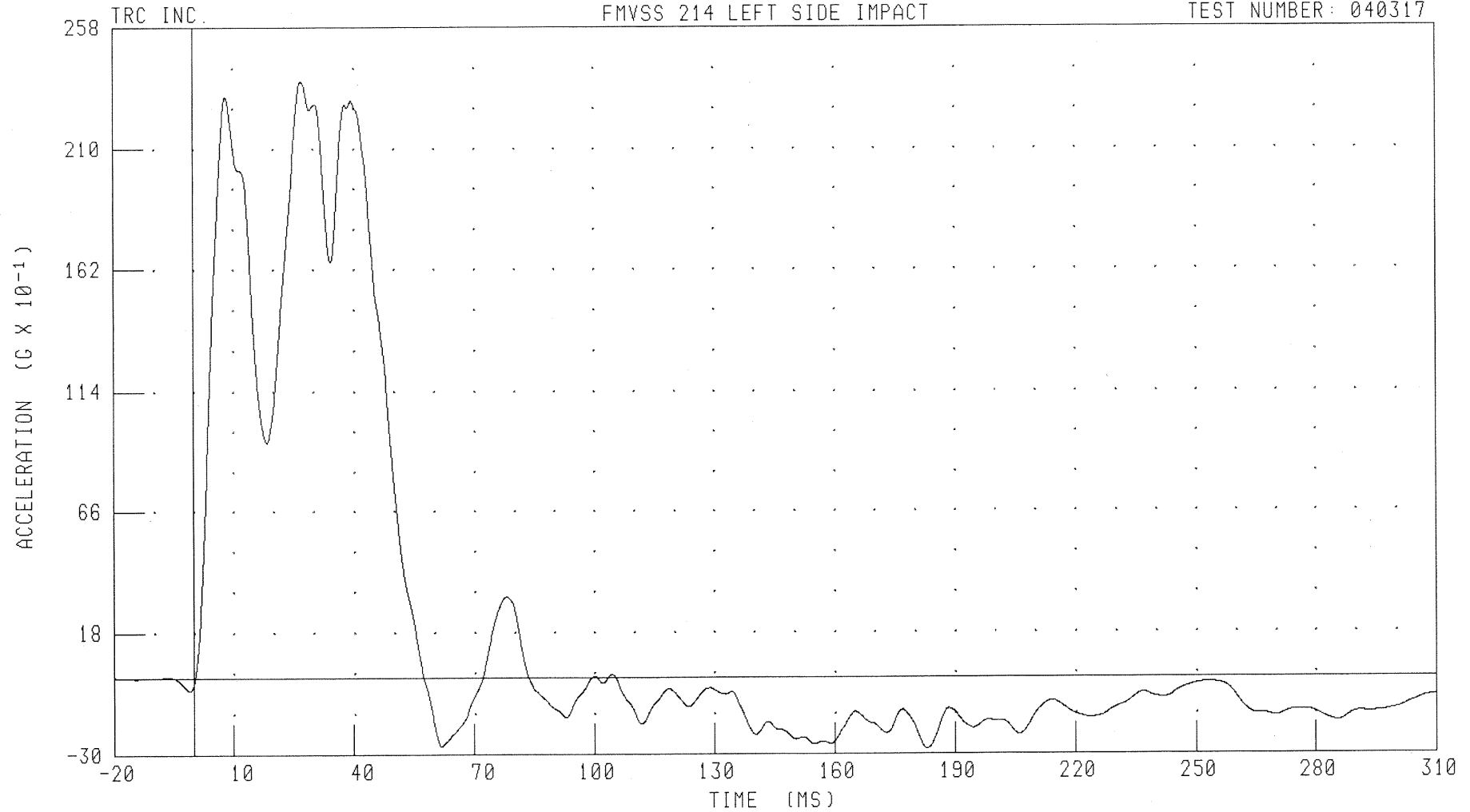
B-99

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 23.69 G @ 27.04 MS; -2.81 G @ 182.88 MS

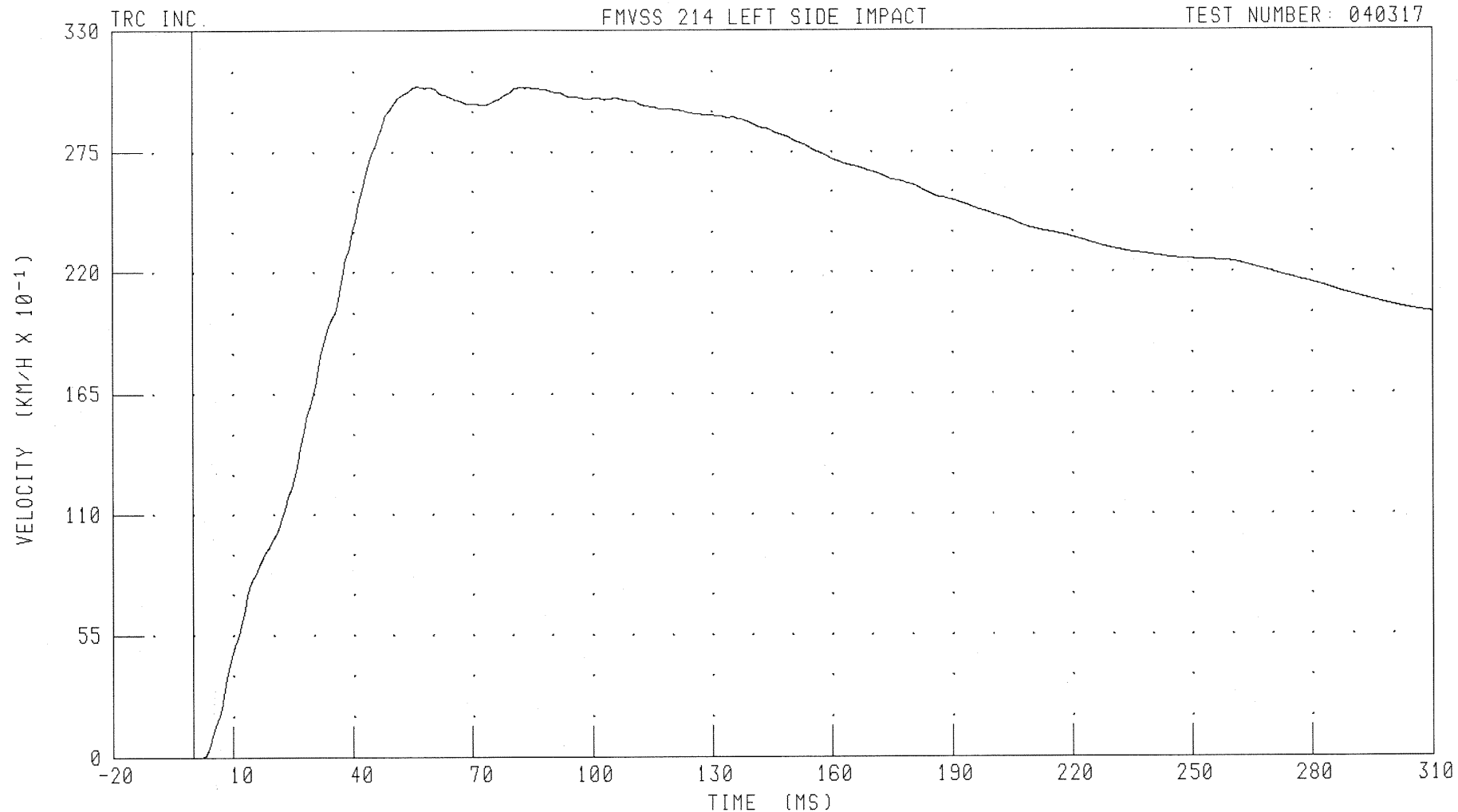
B-100

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRSYV1 FILTER: CH. CLASS 180

PEAK DATA: 30.48 KM/H @ 56.32 MS; 0.00 KM/H @ 1.84 MS

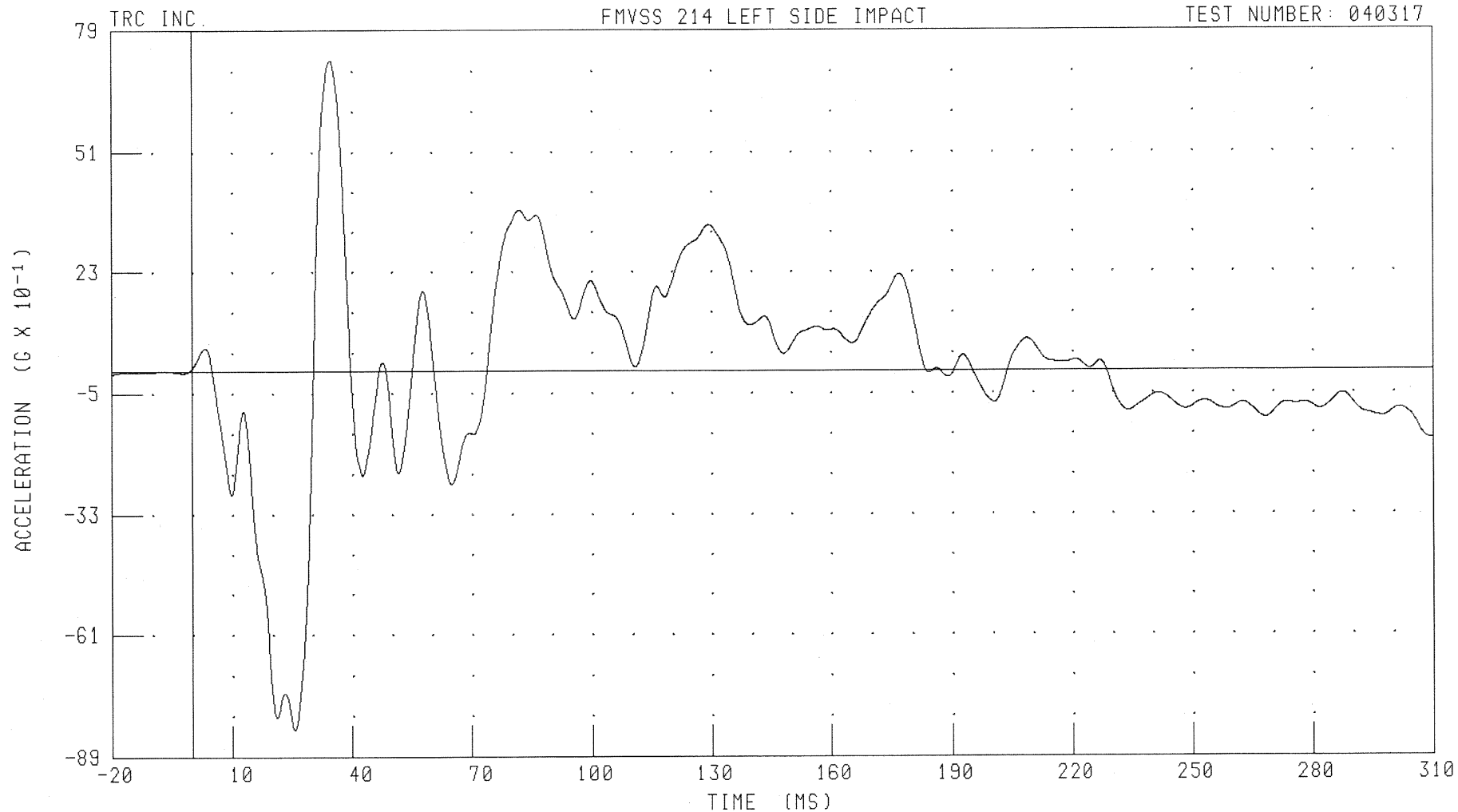
B-101

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRSZG1 FILTER: CH. CLASS 60

PEAK DATA: 7.21 G @ 34.72 MS; -8.29 G @ 25.44 MS

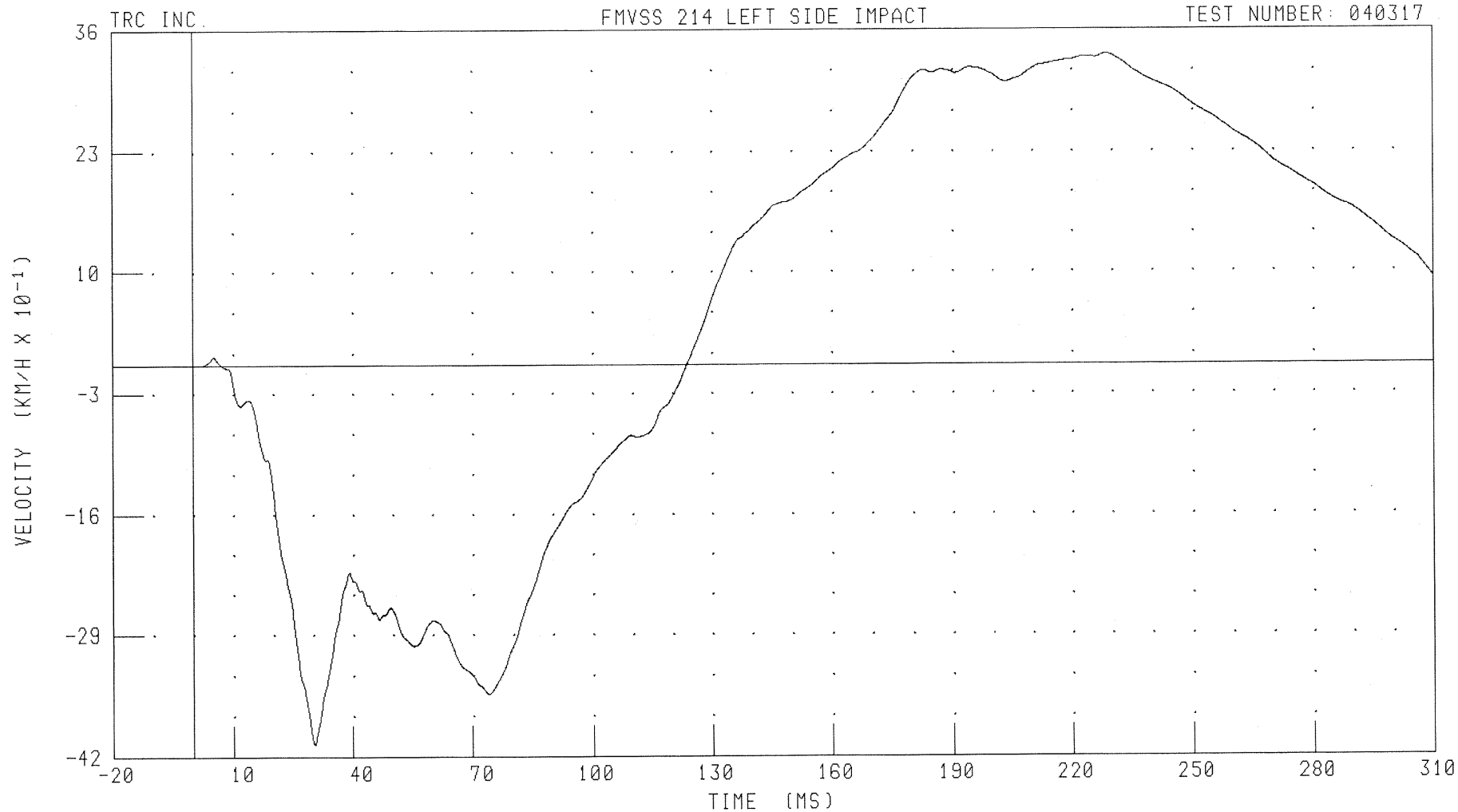
B-102

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRSZV1 FILTER: CH. CLASS 180

PEAK DATA: 3.34 KM/H @ 228.88 MS; -4.07 KM/H @ 30.32 MS

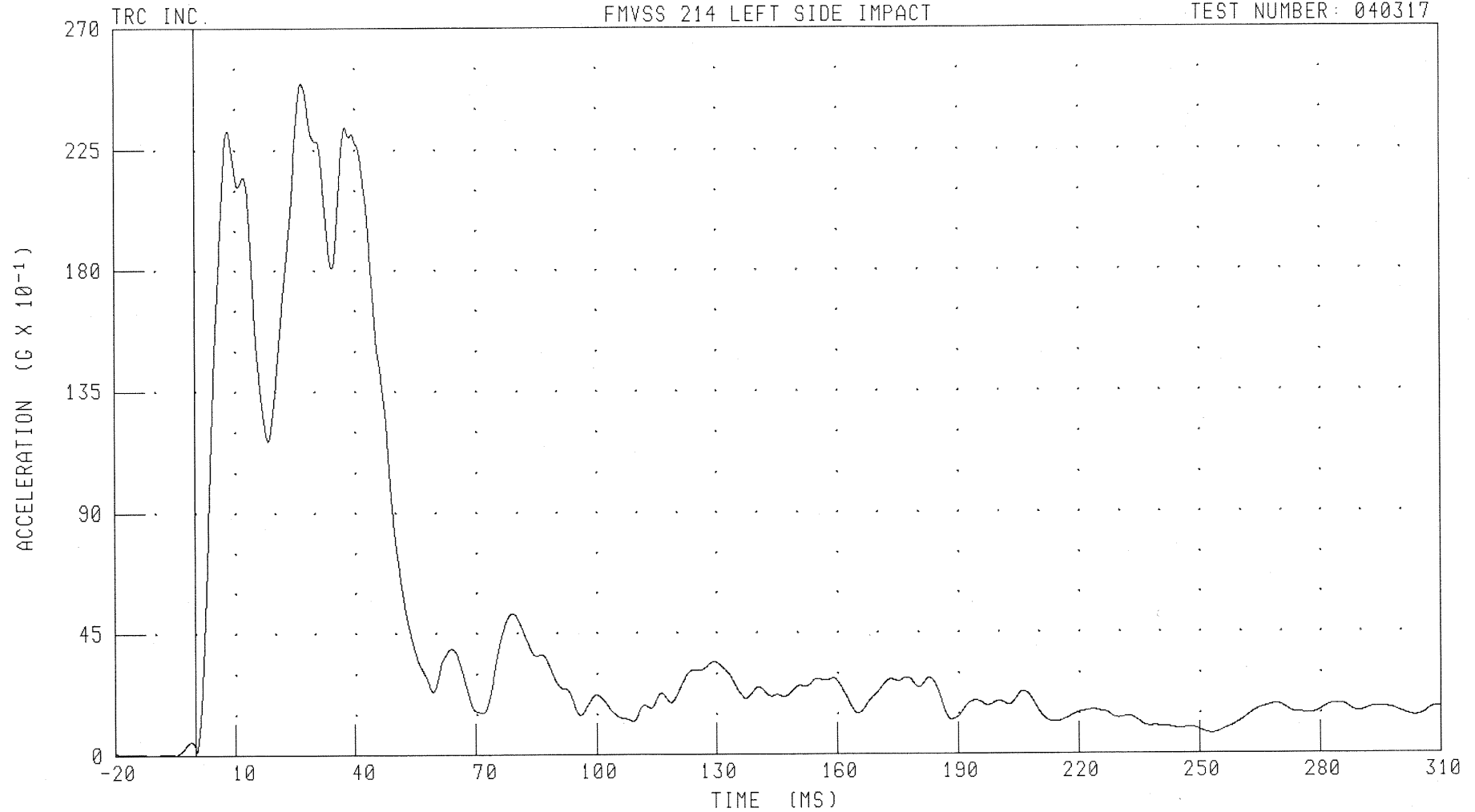
B-103

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRSRG1 FILTER: CH. CLASS 60

PEAK DATA: 24.94 G @ 26.88 MS; 0.00 G @ -4.96 MS

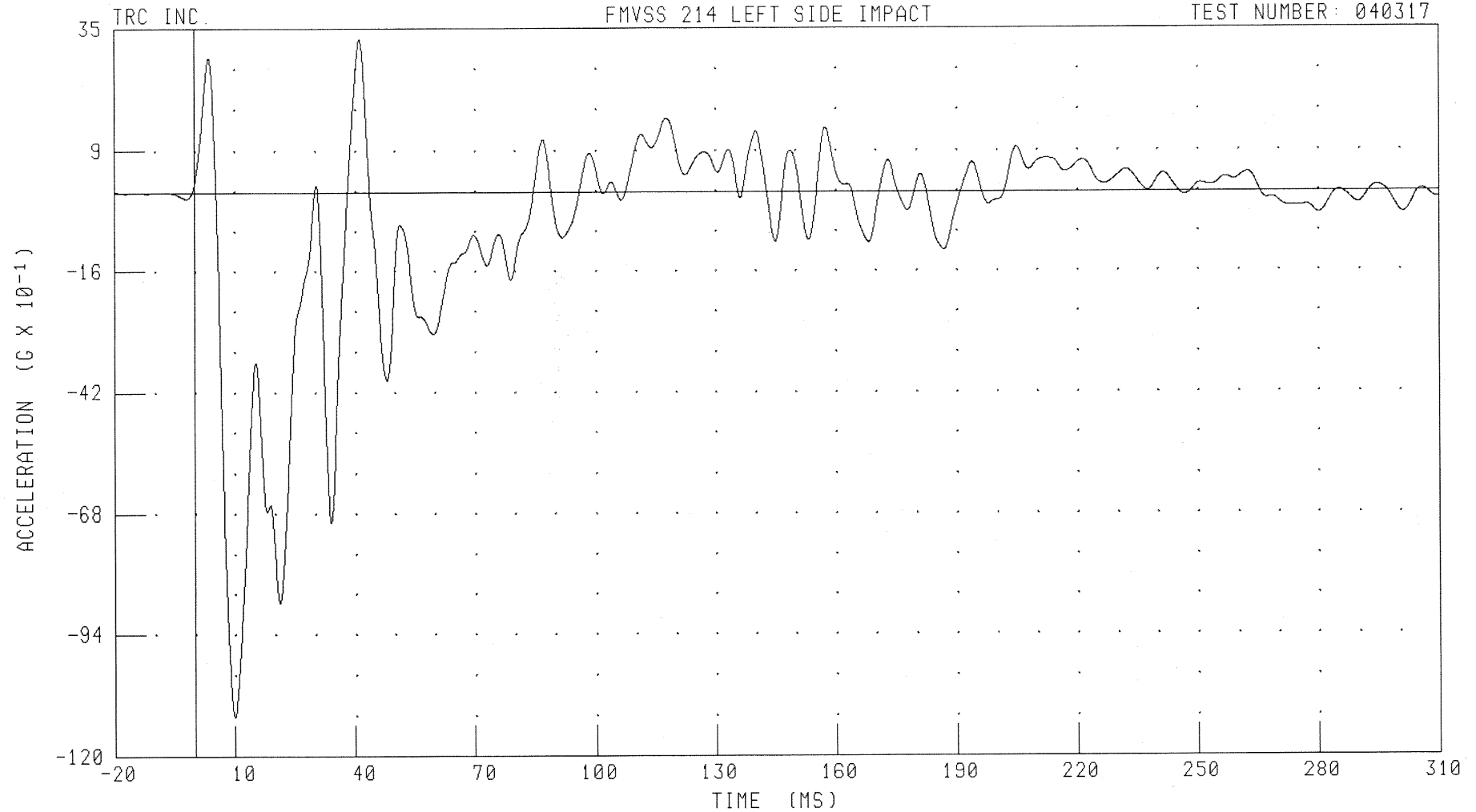
B-104

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RDKXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.26 G @ 41.28 MS; -11.26 G @ 10.00 MS

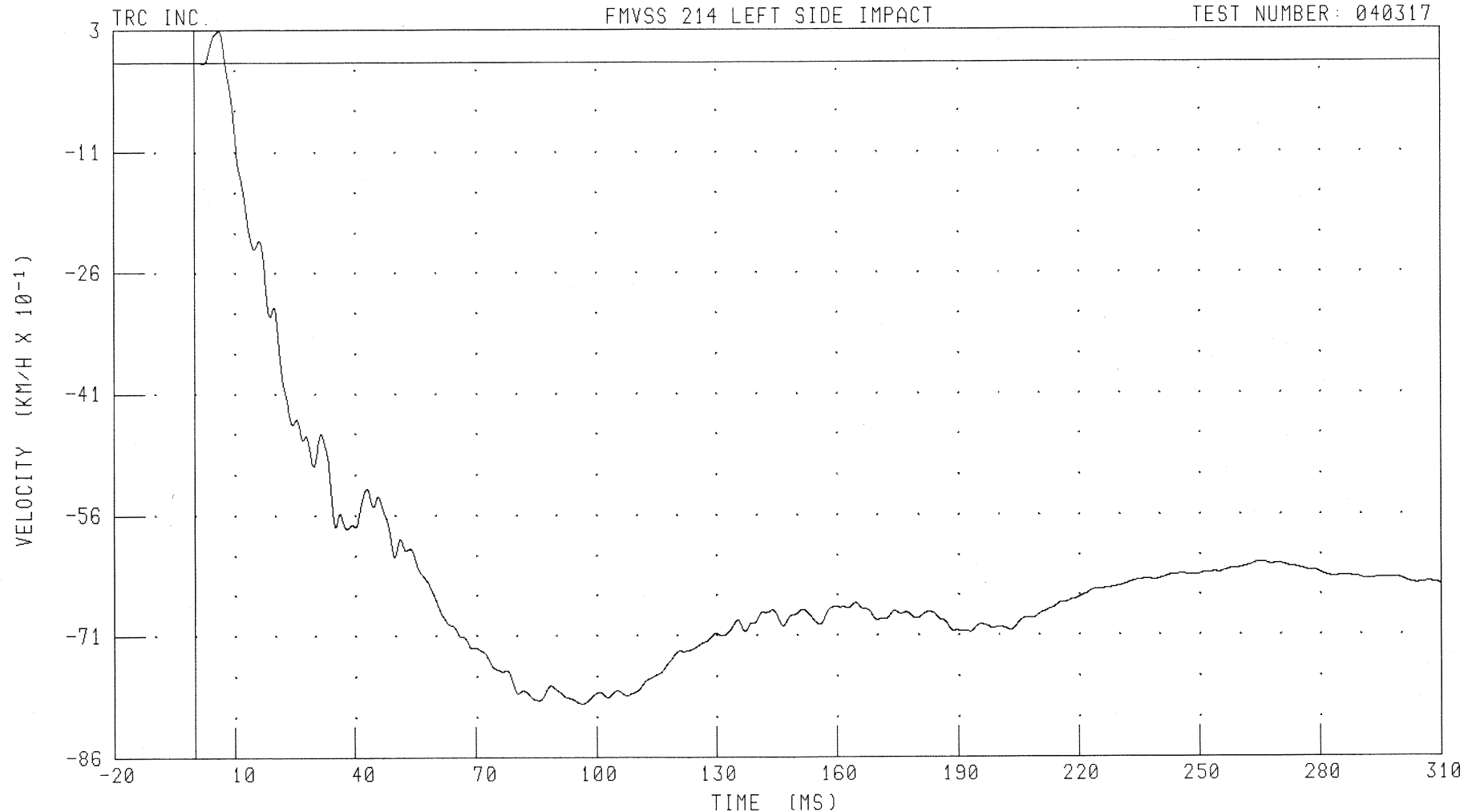
B-105

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RDKXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.39 KM/H @ 6.16 MS; -7.94 KM/H @ 96.48 MS

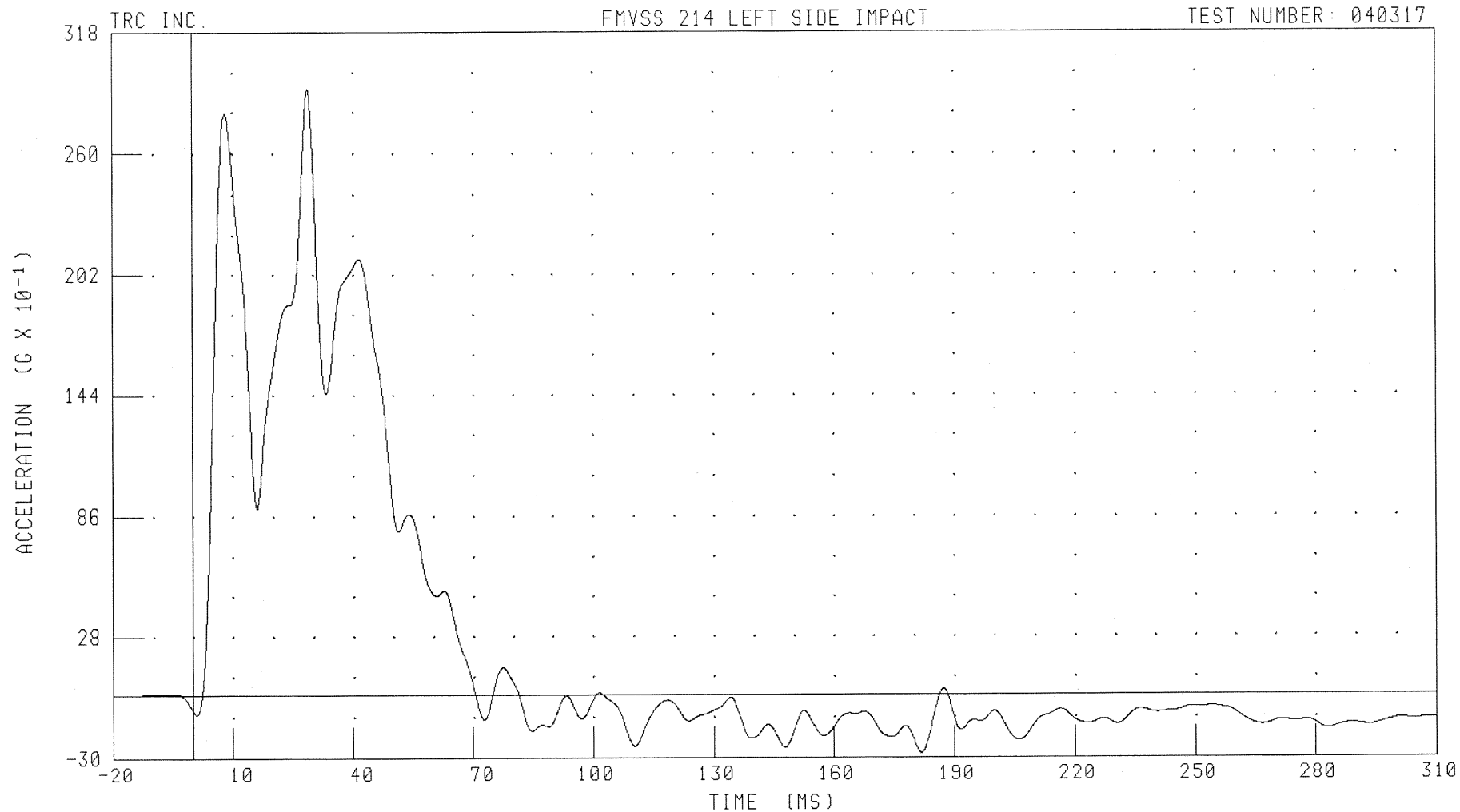
B-106

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RDKYG1 FILTER: CH. CLASS 60

PEAK DATA: 29.05 G @ 28.80 MS; -2.79 G @ 181.76 MS

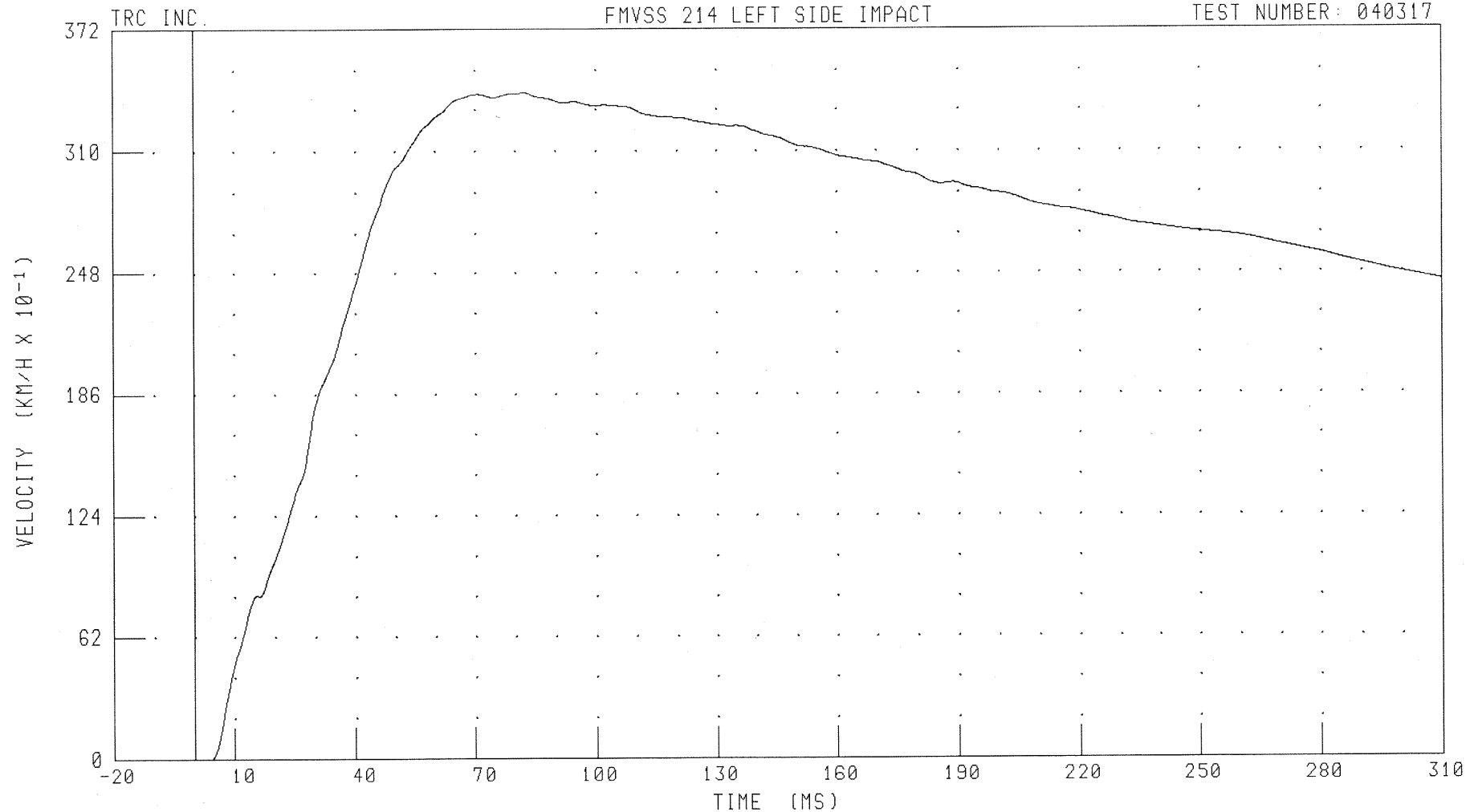
B-107

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RDKYV1 FILTER: CH. CLASS 180

PEAK DATA: 33.95 KM/H @ 82.32 MS; -0.06 KM/H @ 3.68 MS

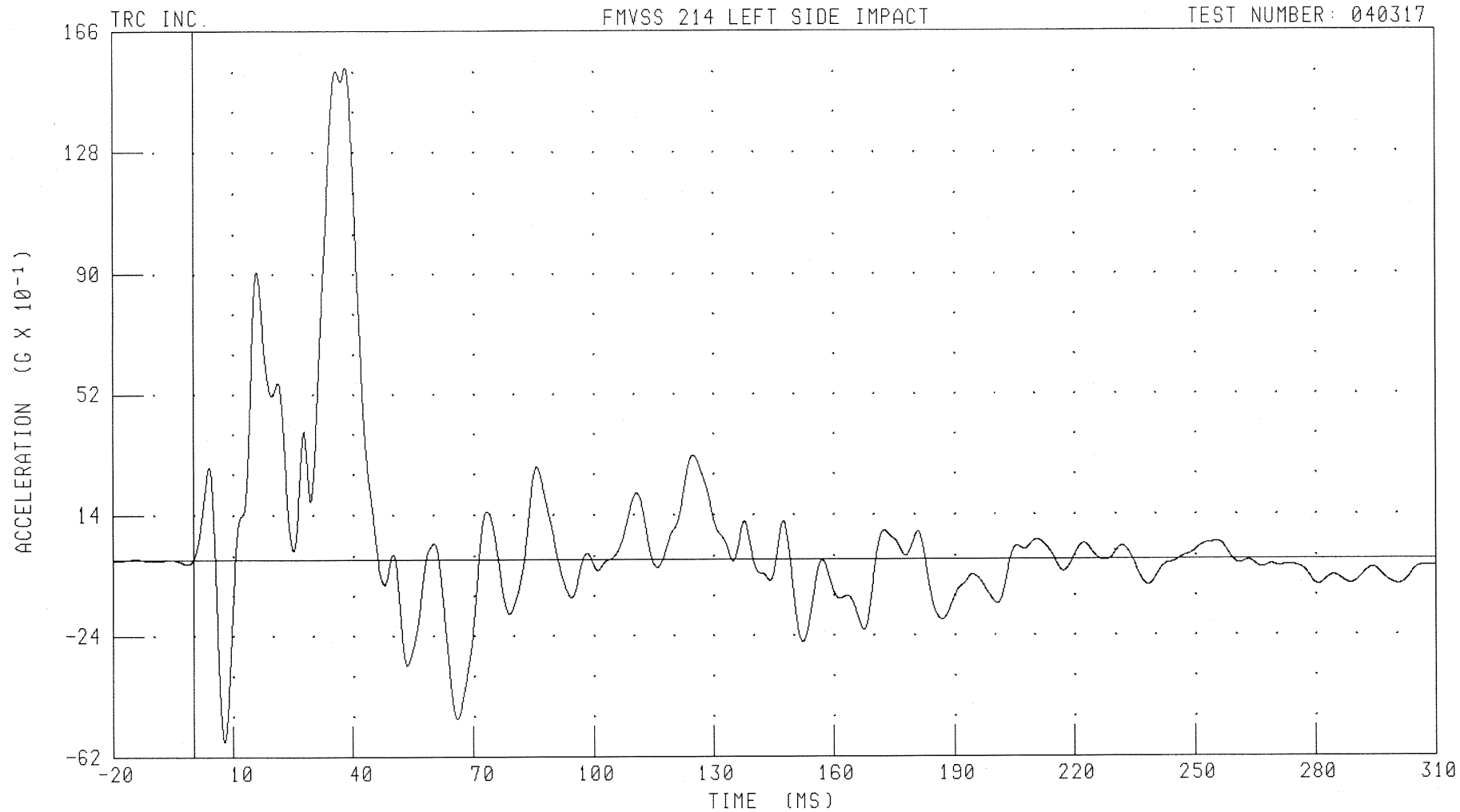
B-108

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RDKZG1 FILTER: CH. CLASS 60

PEAK DATA: 15.46 G @ 38.32 MS; -5.72 G @ 7.76 MS

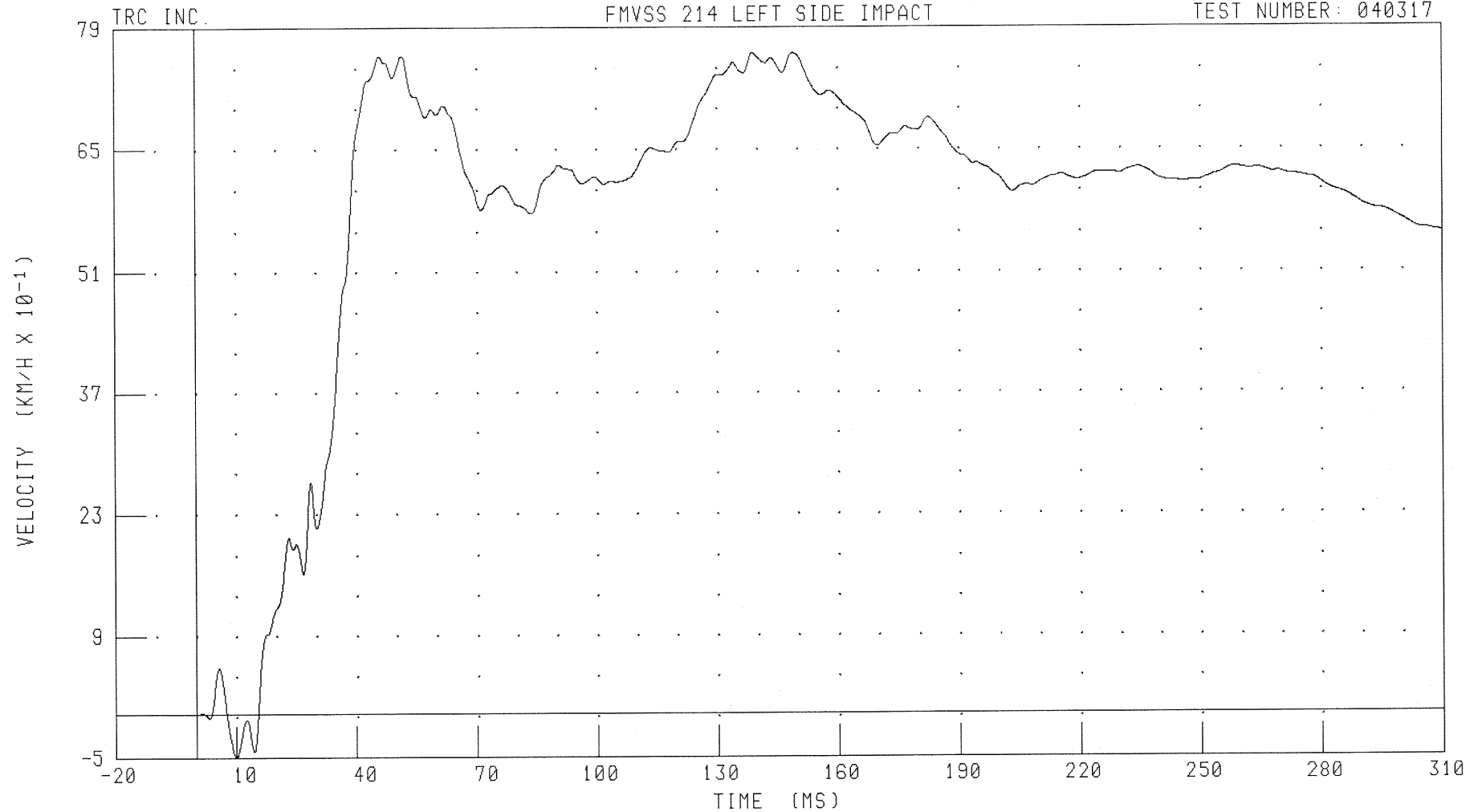
B-109

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RDKZV1 FILTER: CH. CLASS 180

PEAK DATA: 7.61 KM/H @ 138.88 MS; -0.49 KM/H @ 9.92 MS

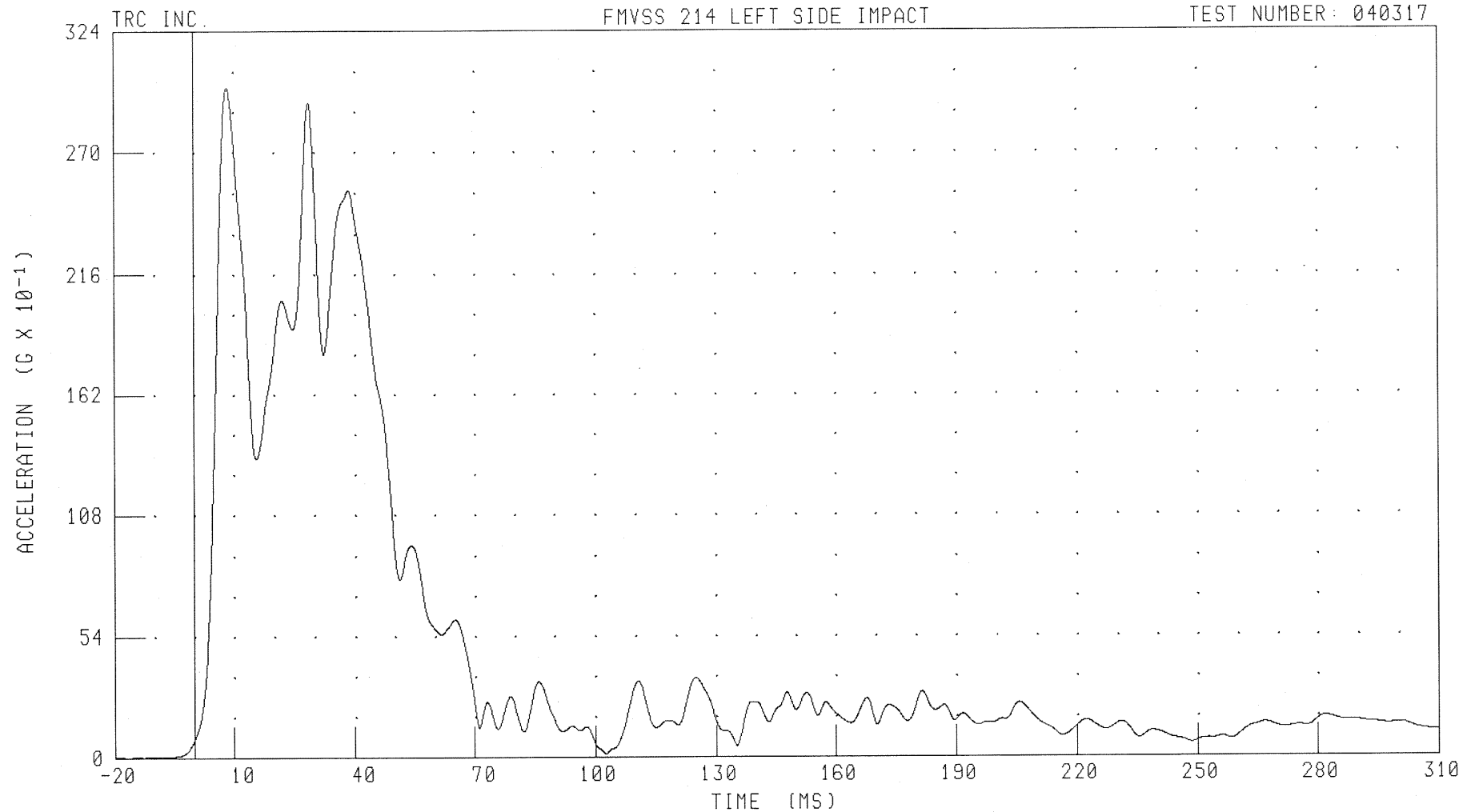
B-110

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RDKRG1

FILTER: CH. CLASS 60

PEAK DATA: 29.89 G @ 8.40 MS; 0.01 G @ -16.72 MS

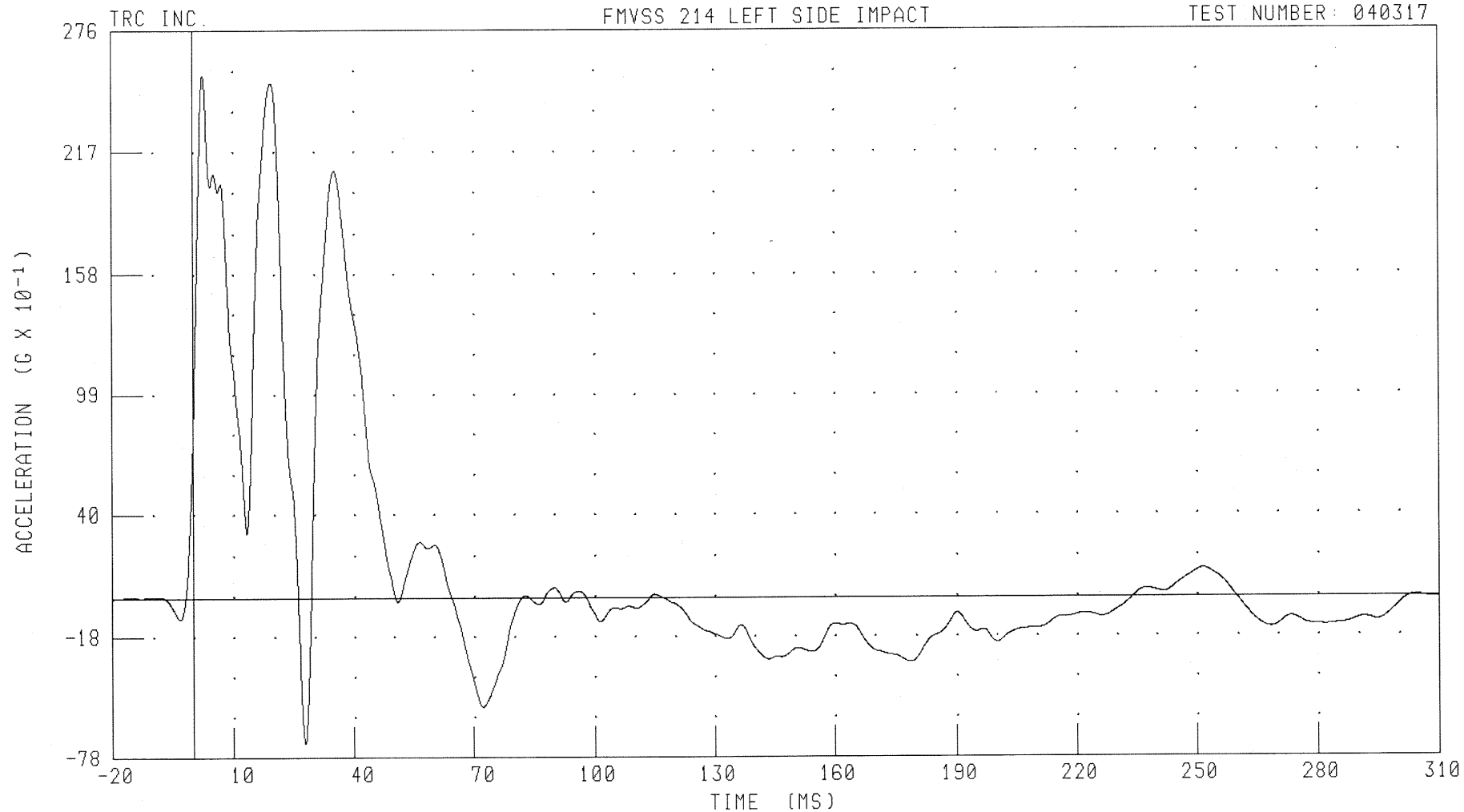
B-111

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LFSYG1 FILTER: CH. CLASS 60

PEAK DATA: 25.43 G @ 2.56 MS; -7.13 G @ 27.60 MS

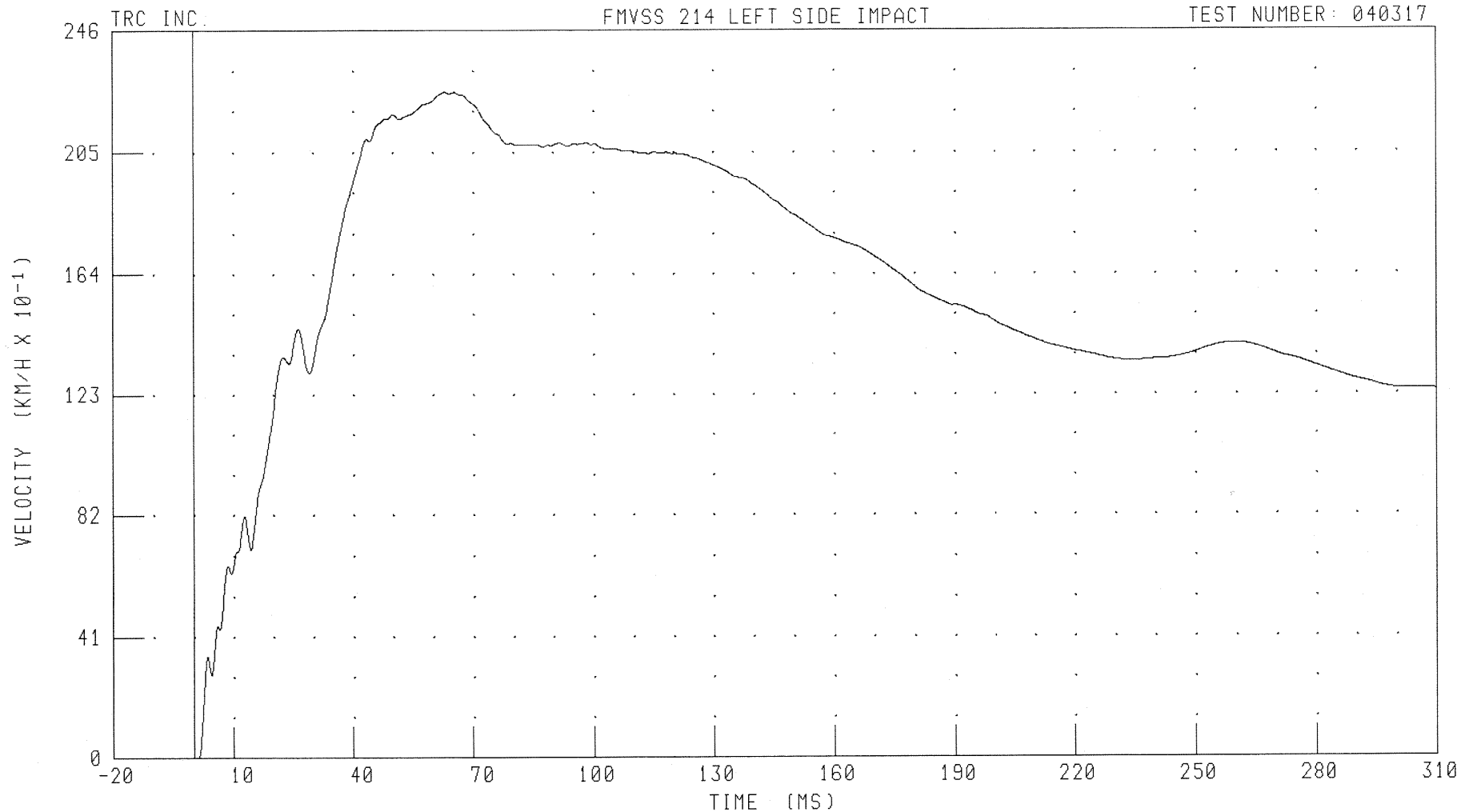
B-112

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LFSYV1 FILTER: CH. CLASS 180

PEAK DATA: 22.52 KM/H @ 63.04 MS; -0.05 KM/H @ 0.80 MS

B-113

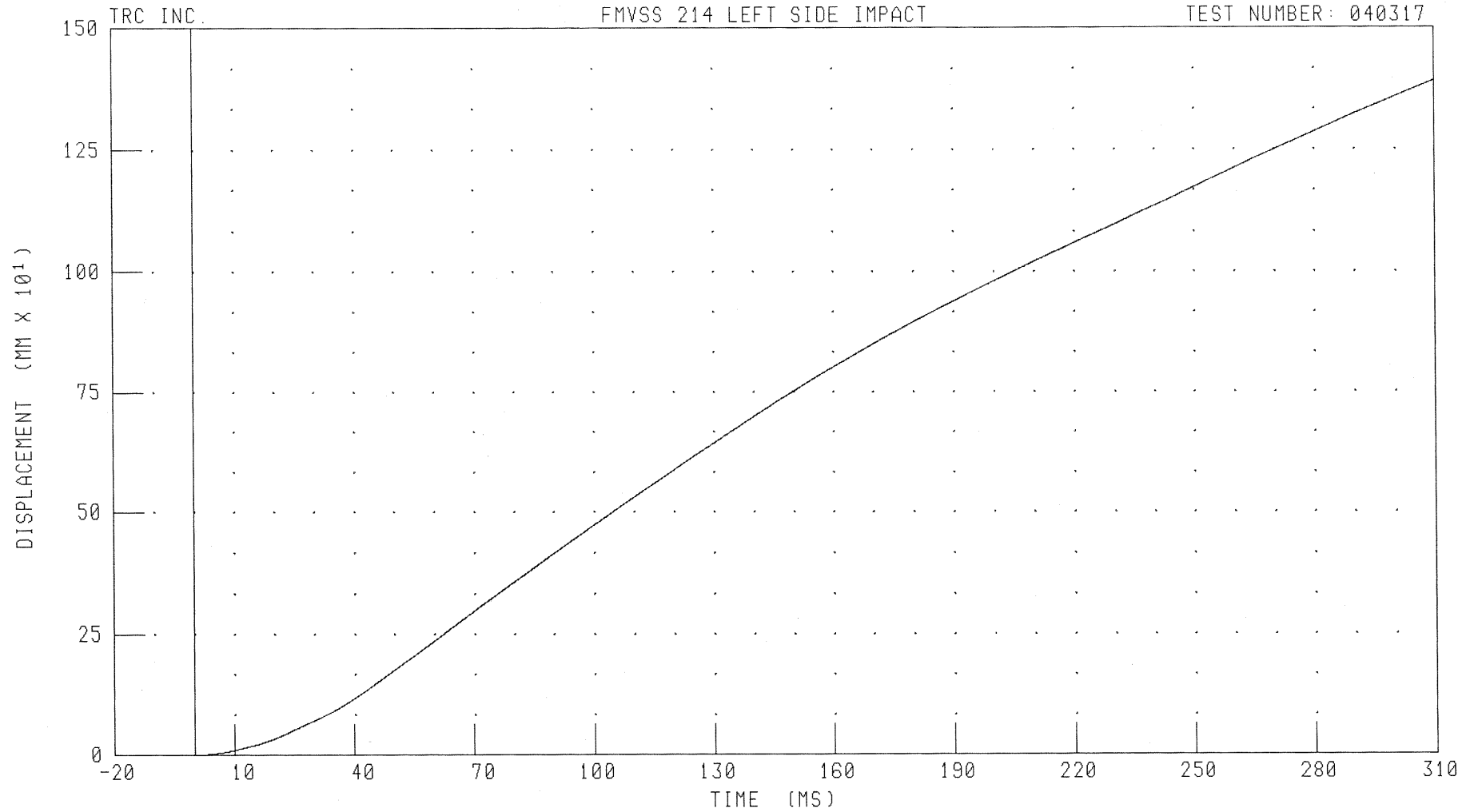
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

LEFT SIDE SILL AT FRONT SEAT Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LFSYD1 FILTER: CH. CLASS 180

PEAK DATA: 1391.67 MM @ 310.00 MS; -0.01 MM @ 1.20 MS

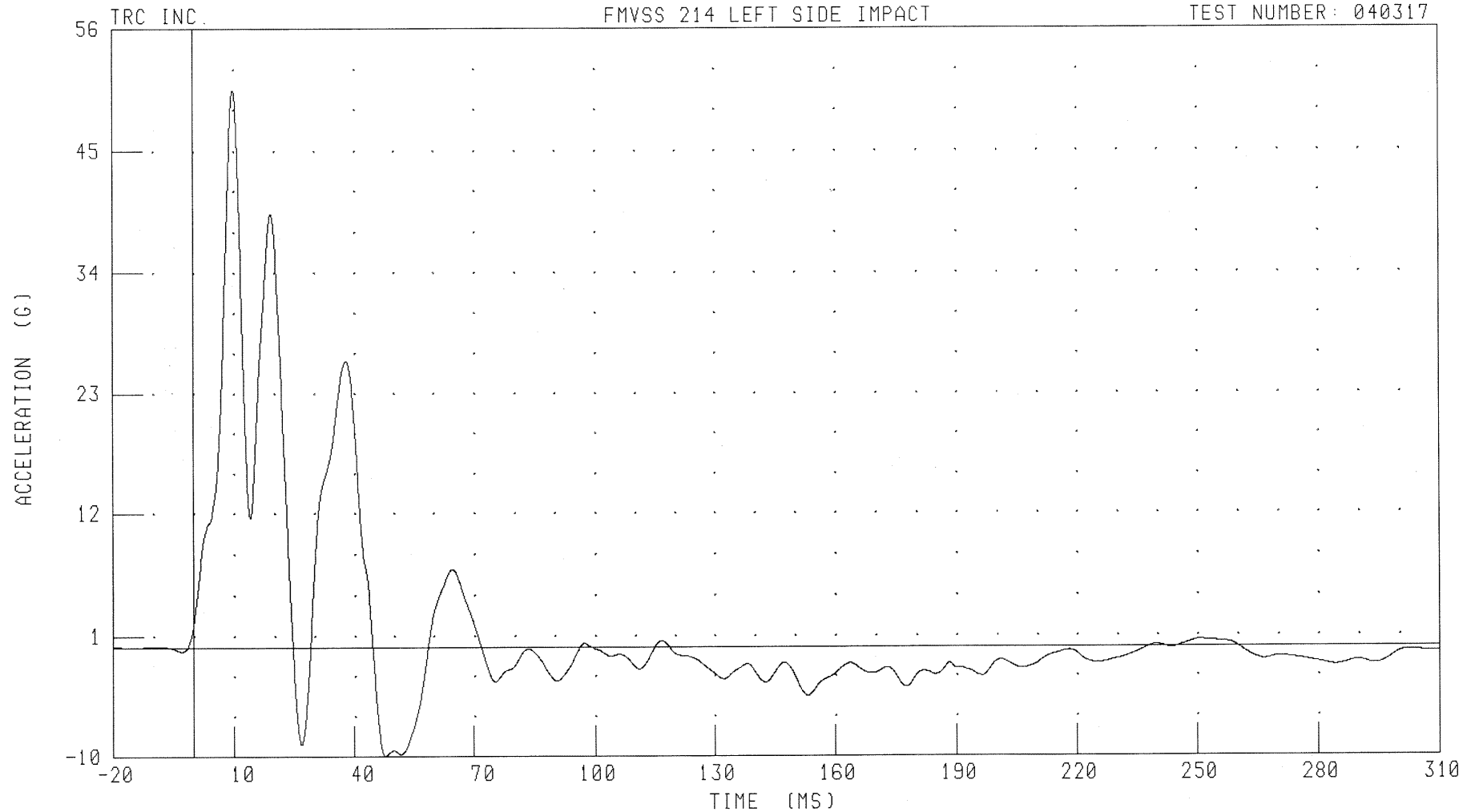
B-114

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRSYG1

FILTER: CH. CLASS 60

PEAK DATA: 50.45 G @ 9.84 MS; -10.00 G @ 47.76 MS

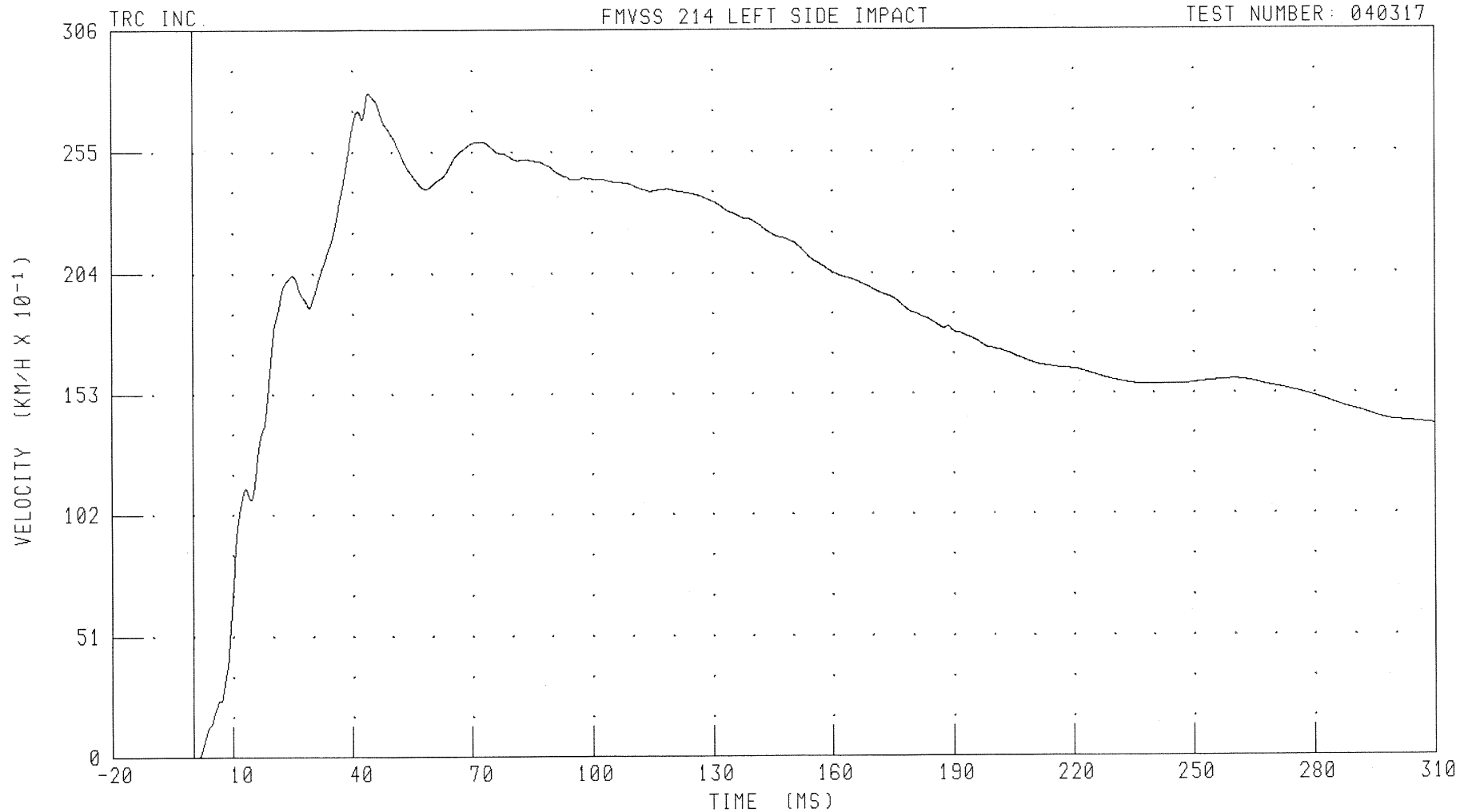
B-115

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRSYV1 FILTER: CH. CLASS 180

PEAK DATA: 27.94 KM/H @ 44.24 MS; -0.02 KM/H @ 0.88 MS

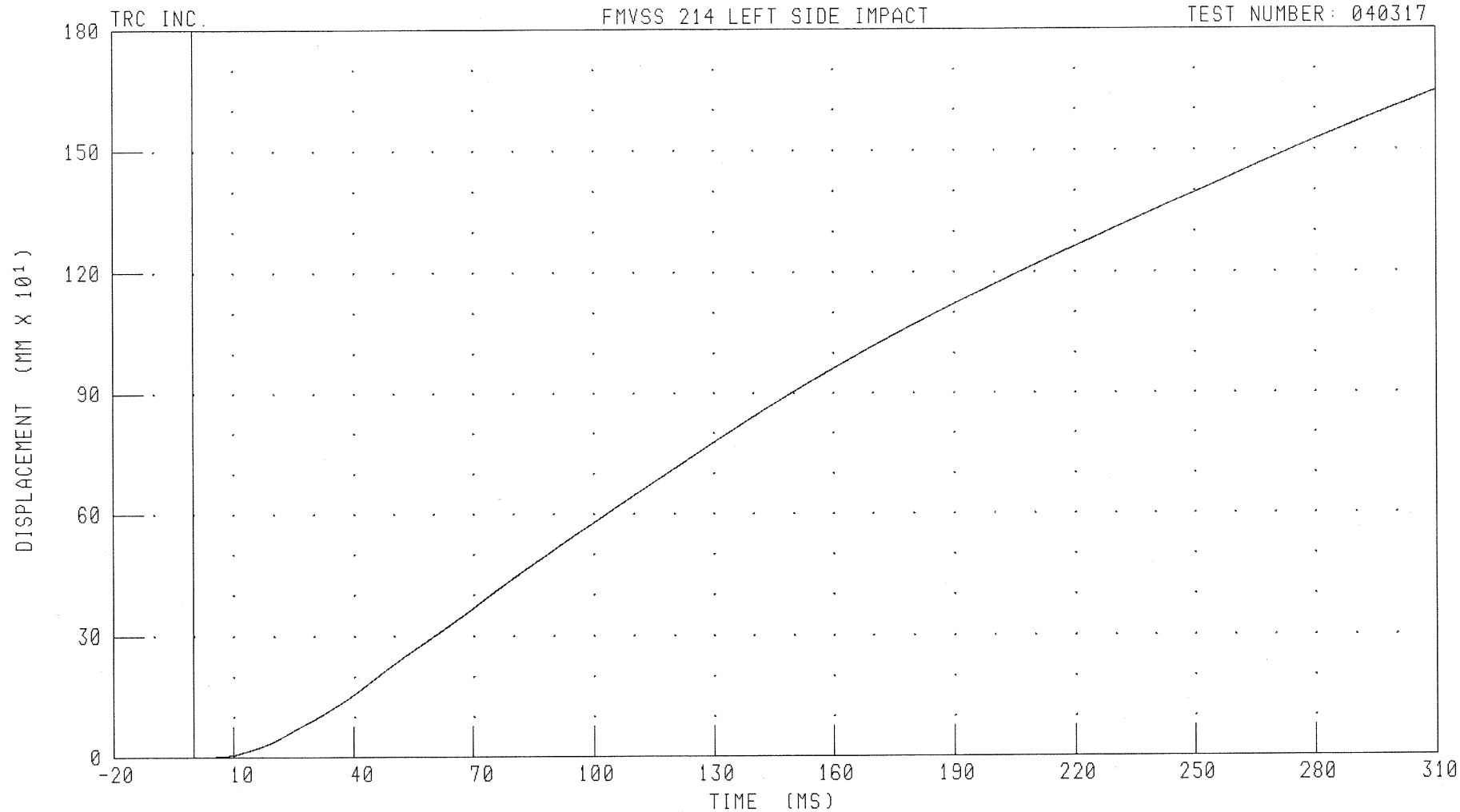
B-116

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT SIDE SILL AT REAR SEAT Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 1644.31 MM @ 310.00 MS; 0.00 MM @ 1.36 MS

B-117

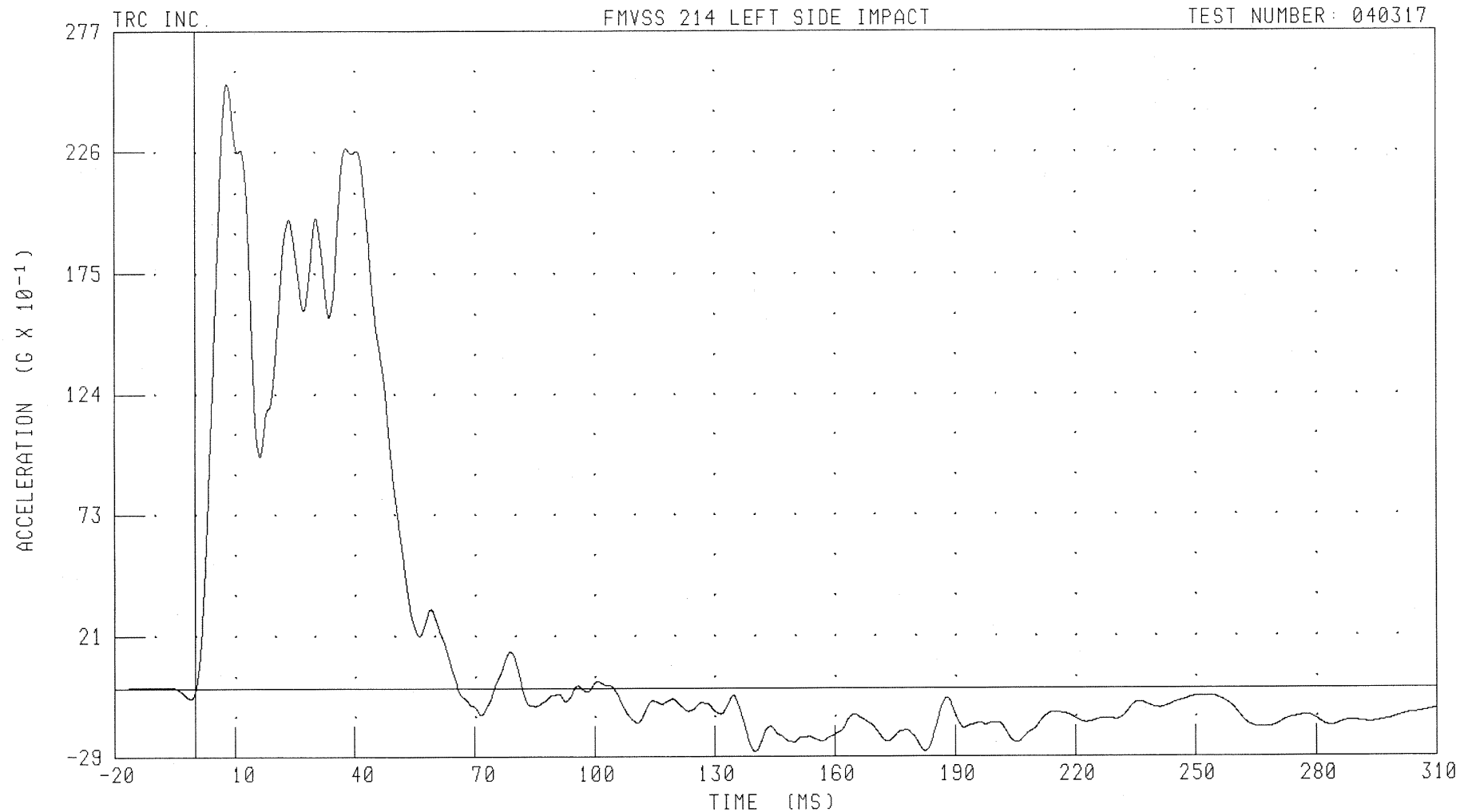
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRTYG1 FILTER: CH. CLASS 60

PEAK DATA: 25.44 G @ 8.00 MS; -2.69 G @ 140.00 MS

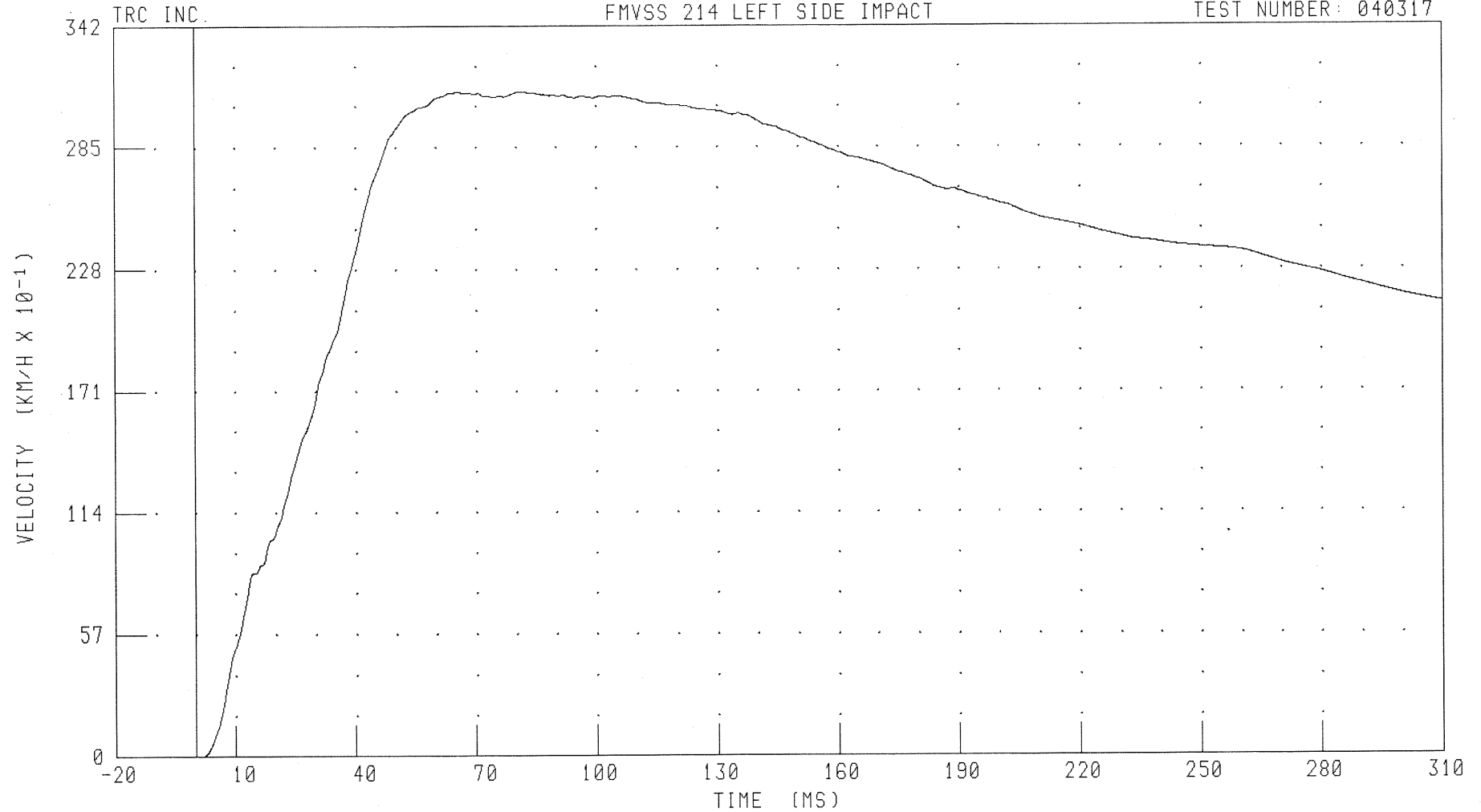
B-118

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRTYV1 FILTER: CH. CLASS 180

PEAK DATA: 31.10 KM/H @ 81.84 MS; 0.00 KM/H @ 1.44 MS

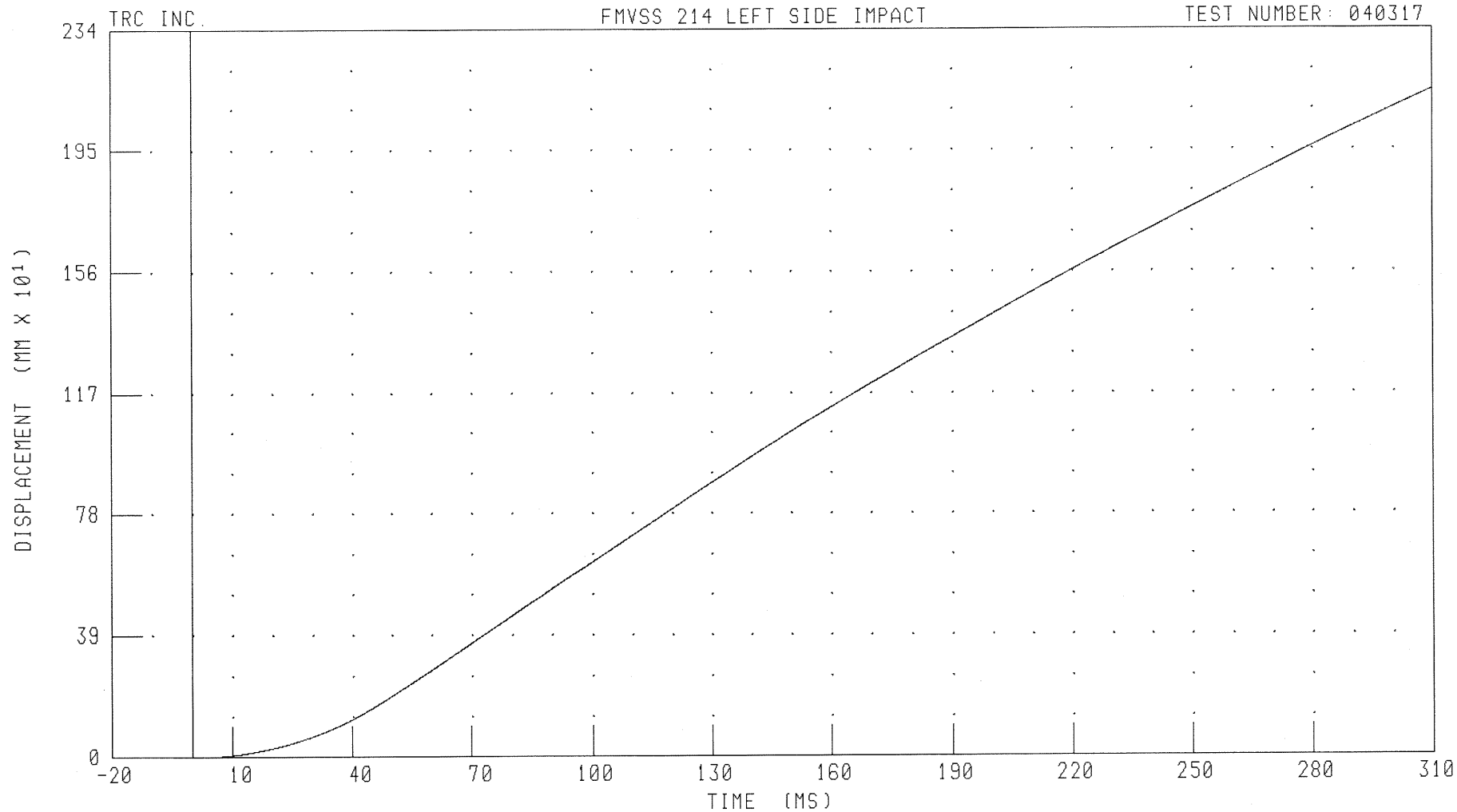
B-119

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: RRTYD1 FILTER: CH. CLASS 180

PEAK DATA: 2141.41 MM @ 310.00 MS; 0.00 MM @ 1.84 MS

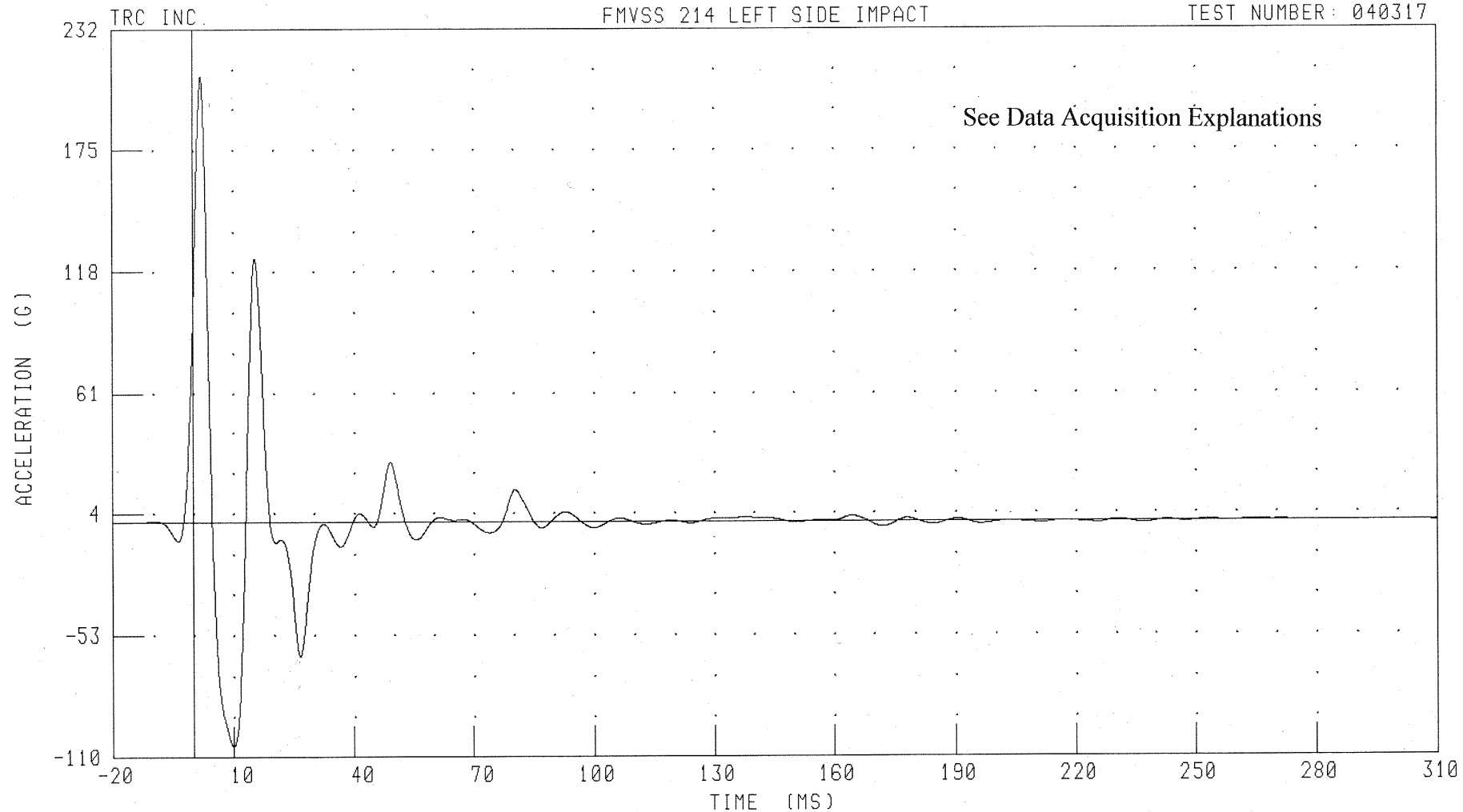
B-120

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT LOWER A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLAGC1 FILTER: CH. CLASS 60

PEAK DATA: 209.77 G @ 2.00 MS, -104.81 G @ 9.92 MS

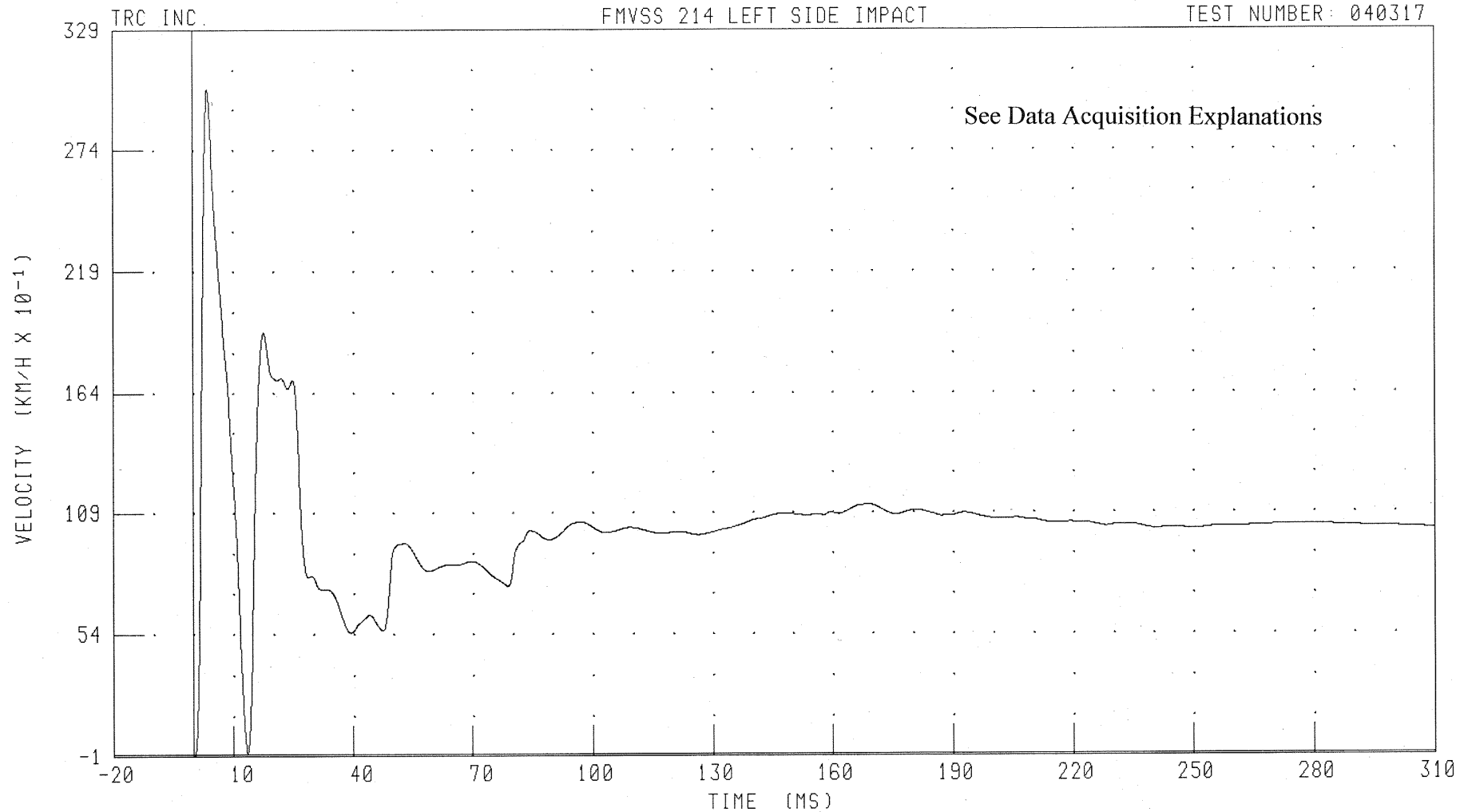
B-121

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT LOWER A-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLAYV1 FILTER: CH. CLASS 180

PEAK DATA: 30.23 KM/H @ 3.60 MS; -0.11 KM/H @ 10.32 MS

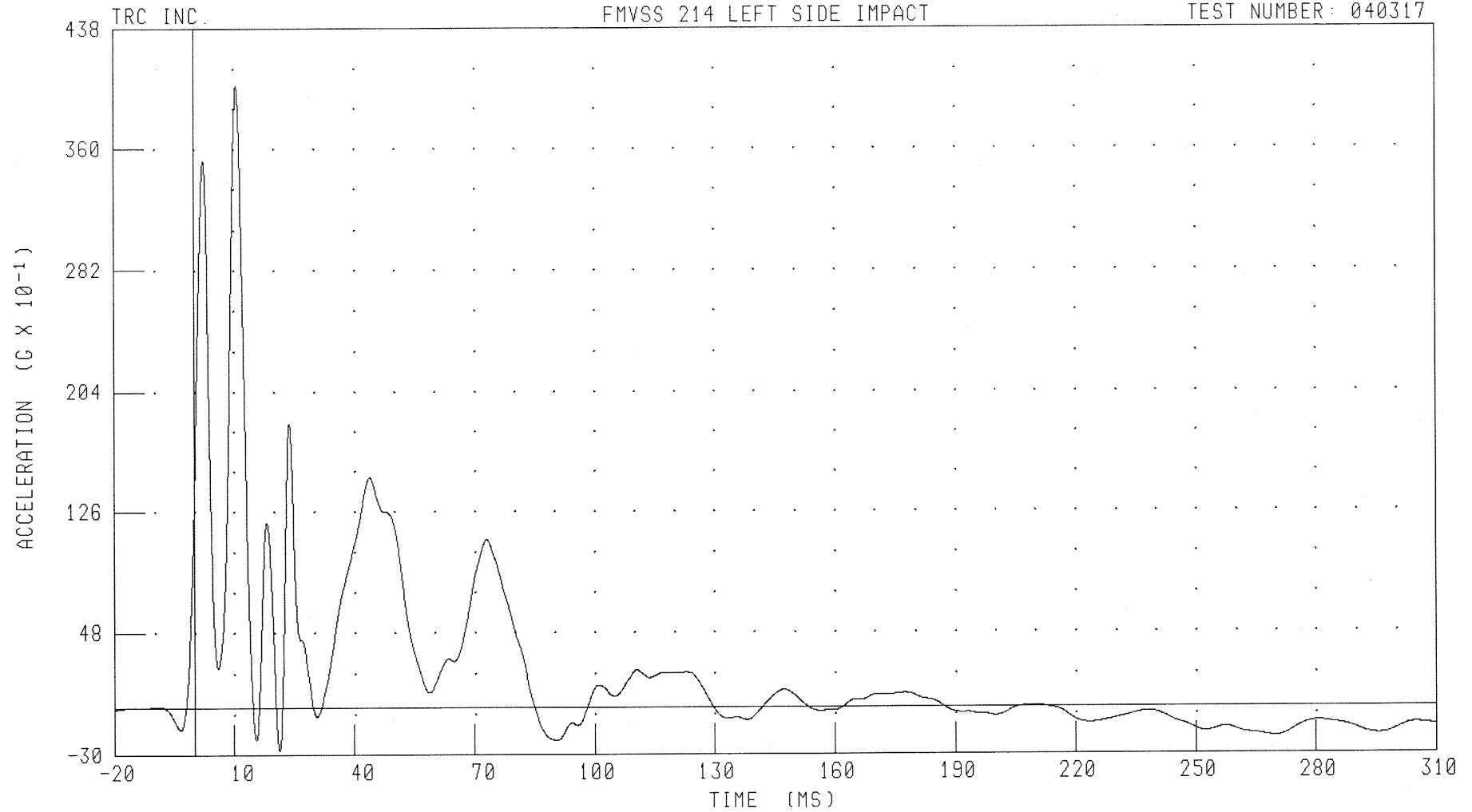
B-122

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT MIDDLE A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LMAYG1 FILTER: CH. CLASS 60

PEAK DATA: 40.11 G @ 10.72 MS; -2.75 G @ 21.36 MS

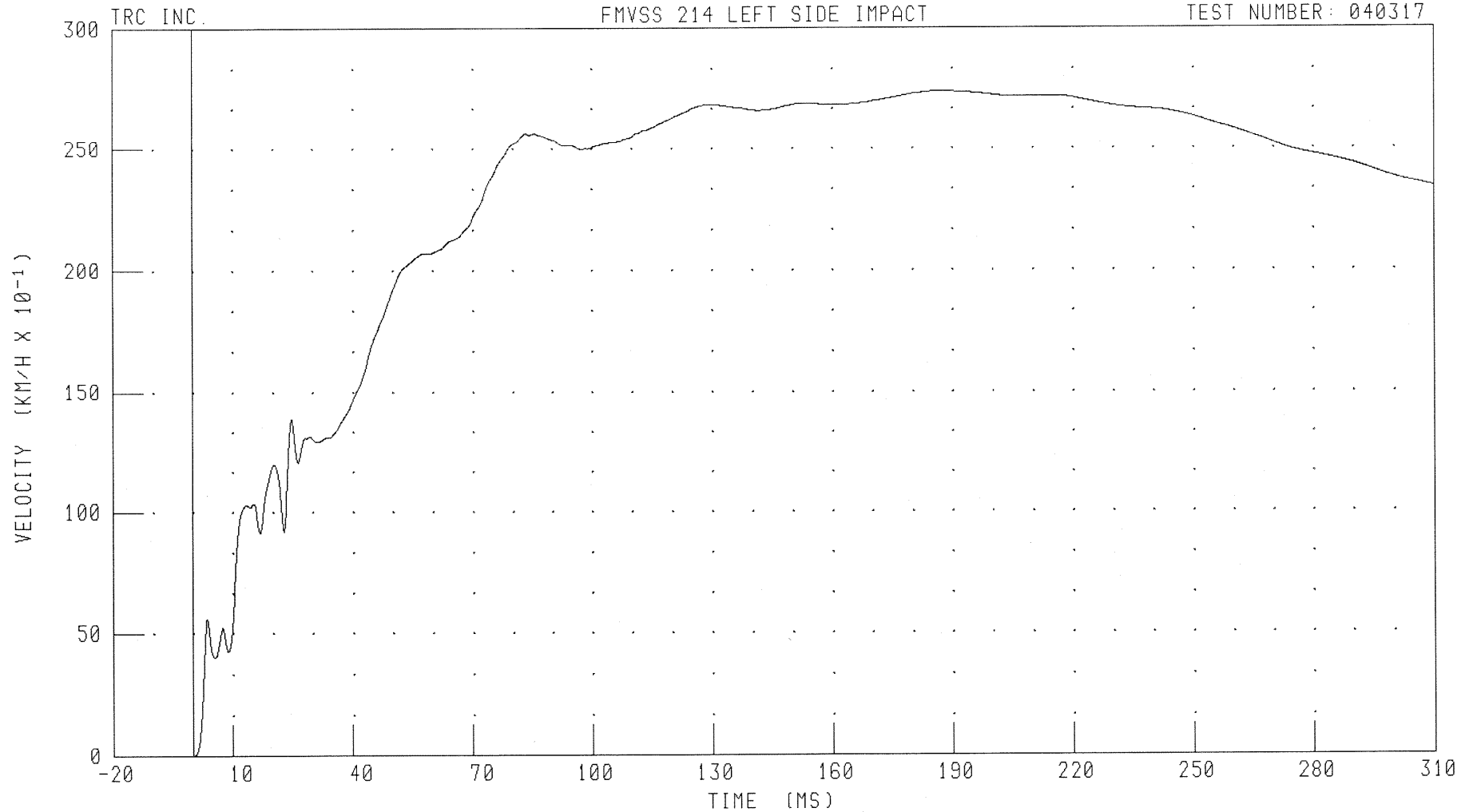
B-123

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT MIDDLE A-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LMAYV1 FILTER: CH. CLASS 180

PEAK DATA: 27.39 KM/H @ 186.64 MS; 0.00 KM/H @ 0.16 MS

B-124

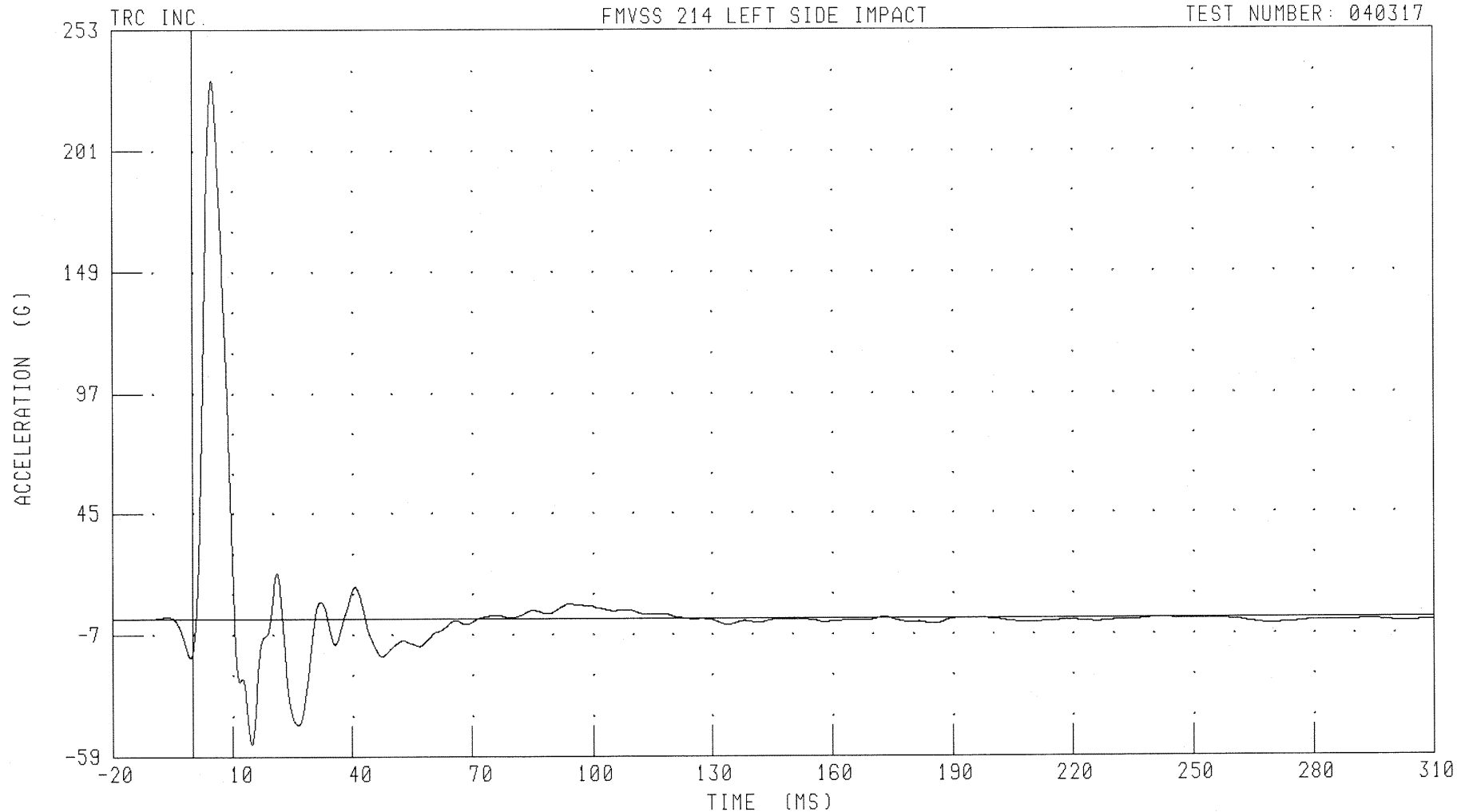
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

LEFT LOWER B-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLBYG1 FILTER: CH. CLASS 60

PEAK DATA: 231.55 G @ 4.88 MS; -53.83 G @ 14.72 MS

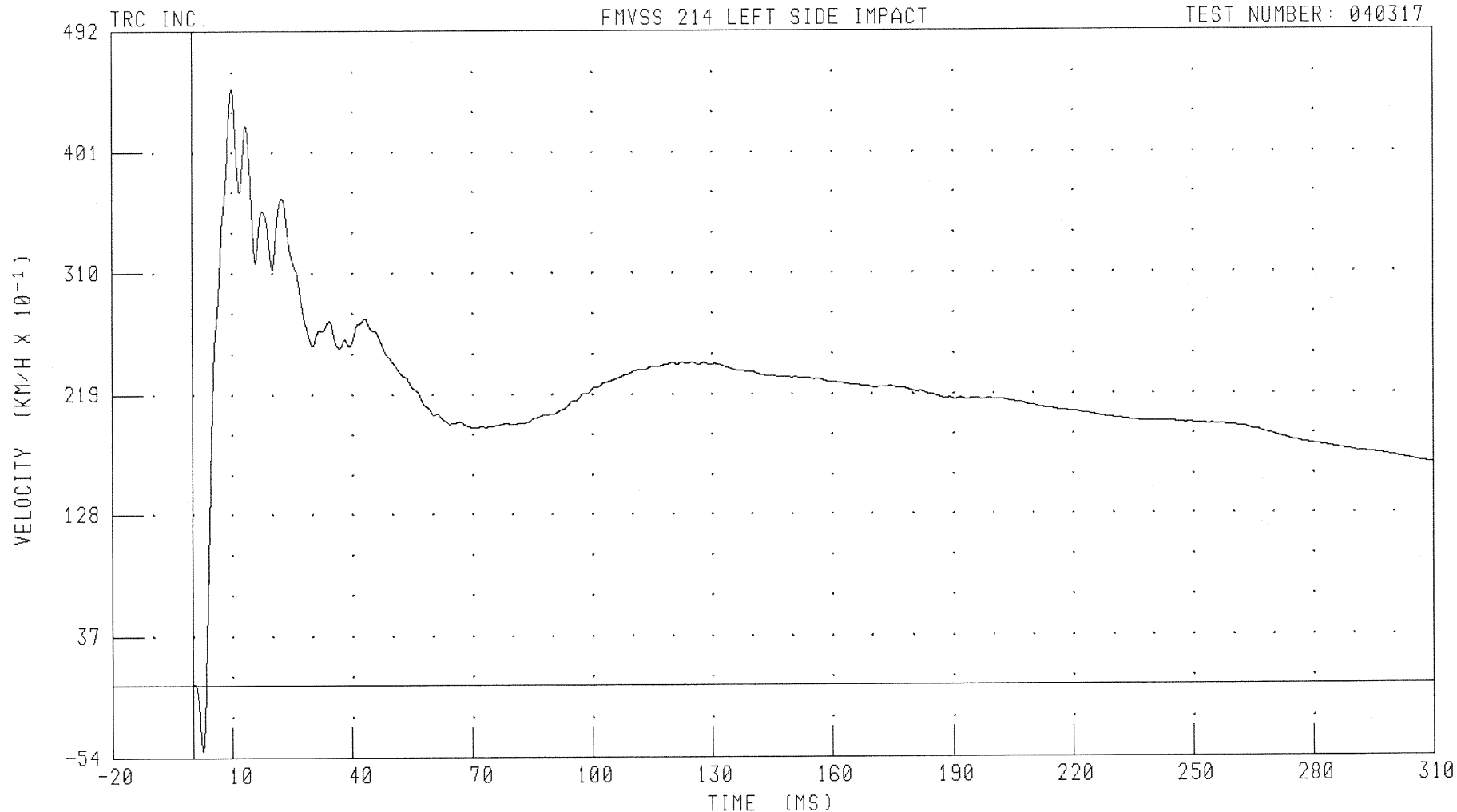
B-125

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT LOWER B-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLBYV1 FILTER: CH. CLASS 180

PEAK DATA: 44.89 KM/H @ 10.00 MS; -4.93 KM/H @ 2.48 MS

B-126

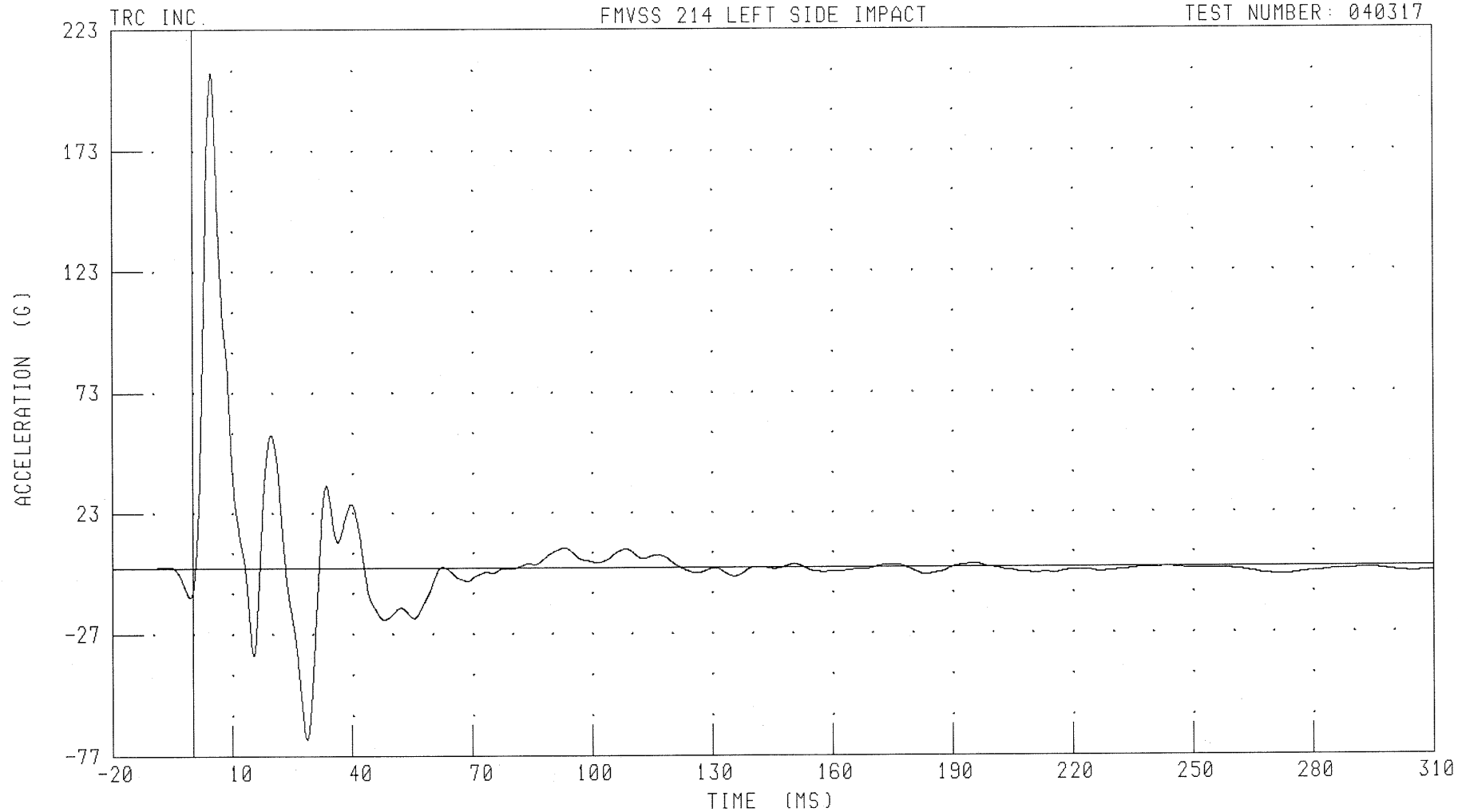
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

LEFT MIDDLE B-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LMBYG1 FILTER: CH. CLASS 60

PEAK DATA: 205.43 G @ 4.72 MS; -70.09 G @ 28.64 MS

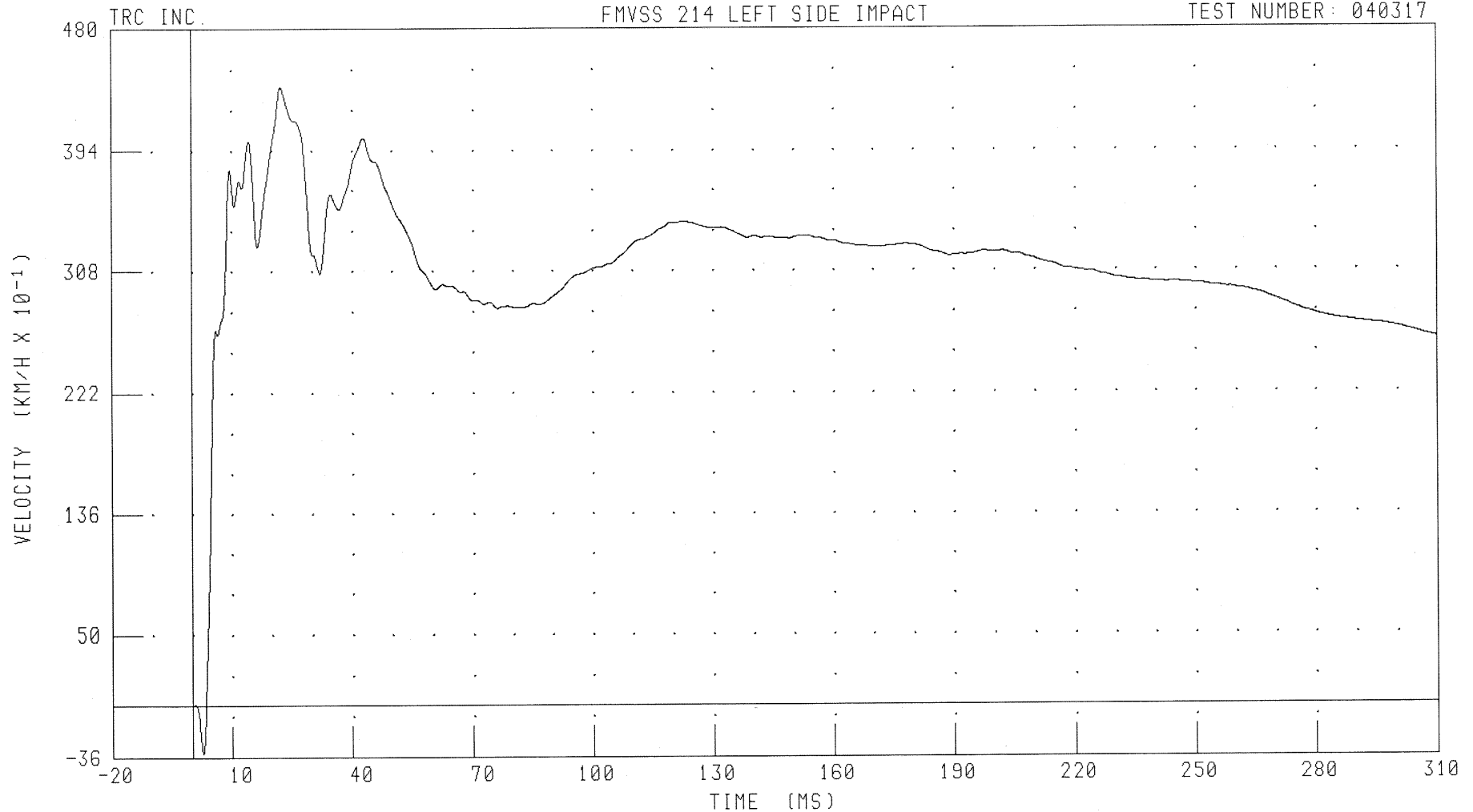
B-127

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT MIDDLE B-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LMBYV1 FILTER: CH. CLASS 180

PEAK DATA: 43.91 KM/H @ 22.40 MS; -3.29 KM/H @ 2.64 MS

B-128

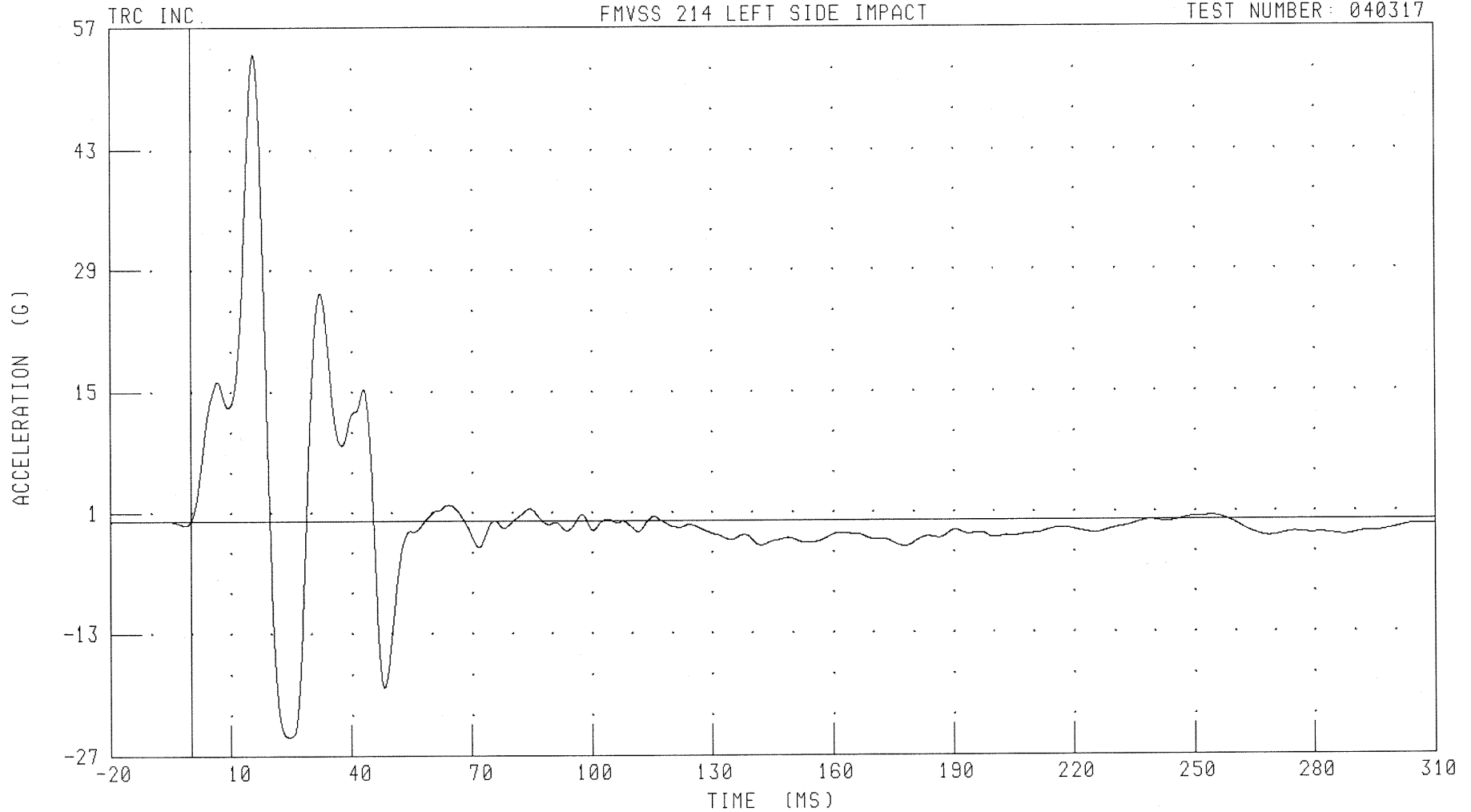
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

LEFT FRONT SEAT TRACK Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LFTYG1 FILTER: CH. CLASS 60

PEAK DATA: 53.89 G @ 15.84 MS; -24.88 G @ 24.56 MS

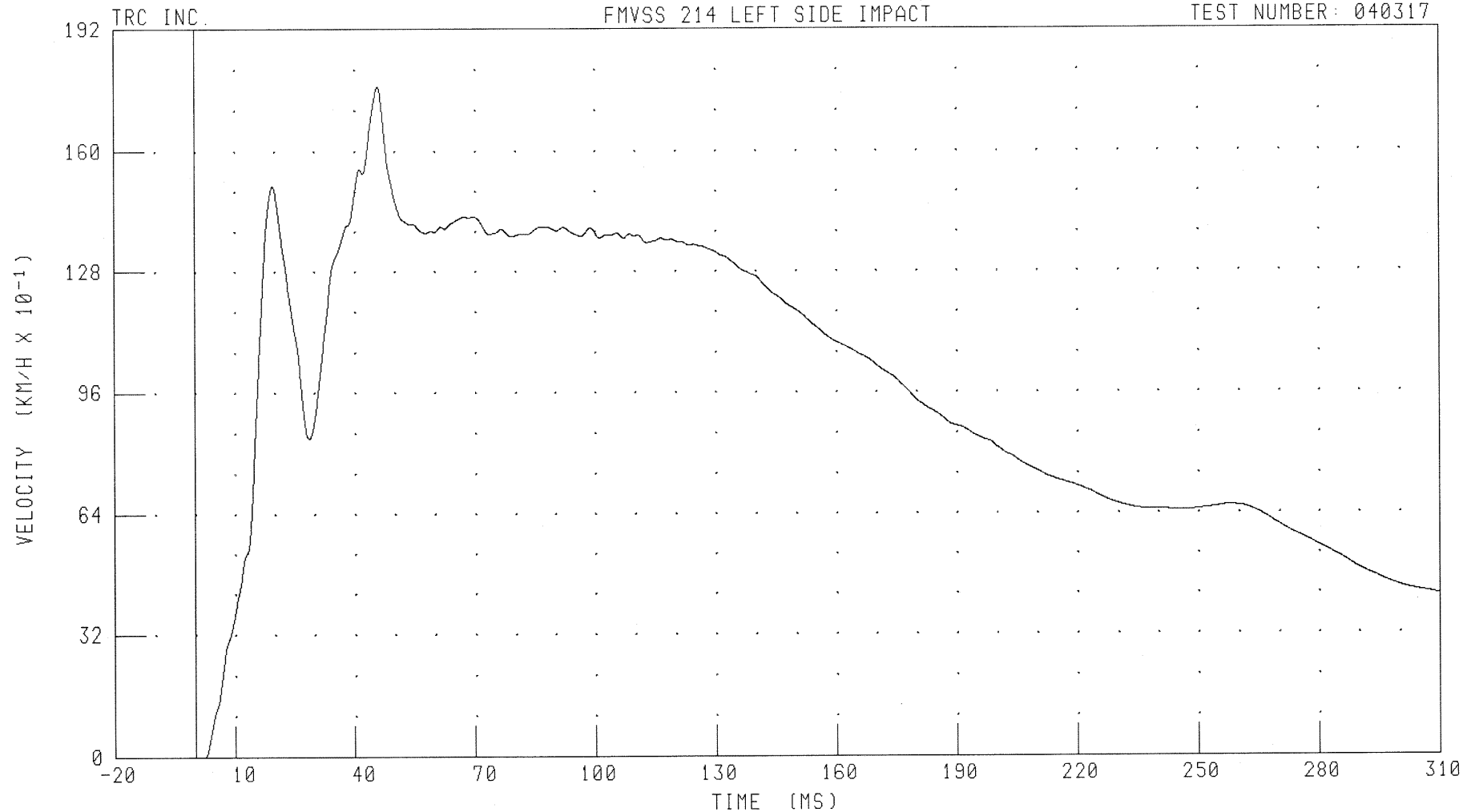
B-129

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT FRONT SEAT TRACK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LFTYV1 FILTER: CH. CLASS 180

PEAK DATA: 17.69 KM/H @ 45.92 MS; -0.03 KM/H @ 2.00 MS

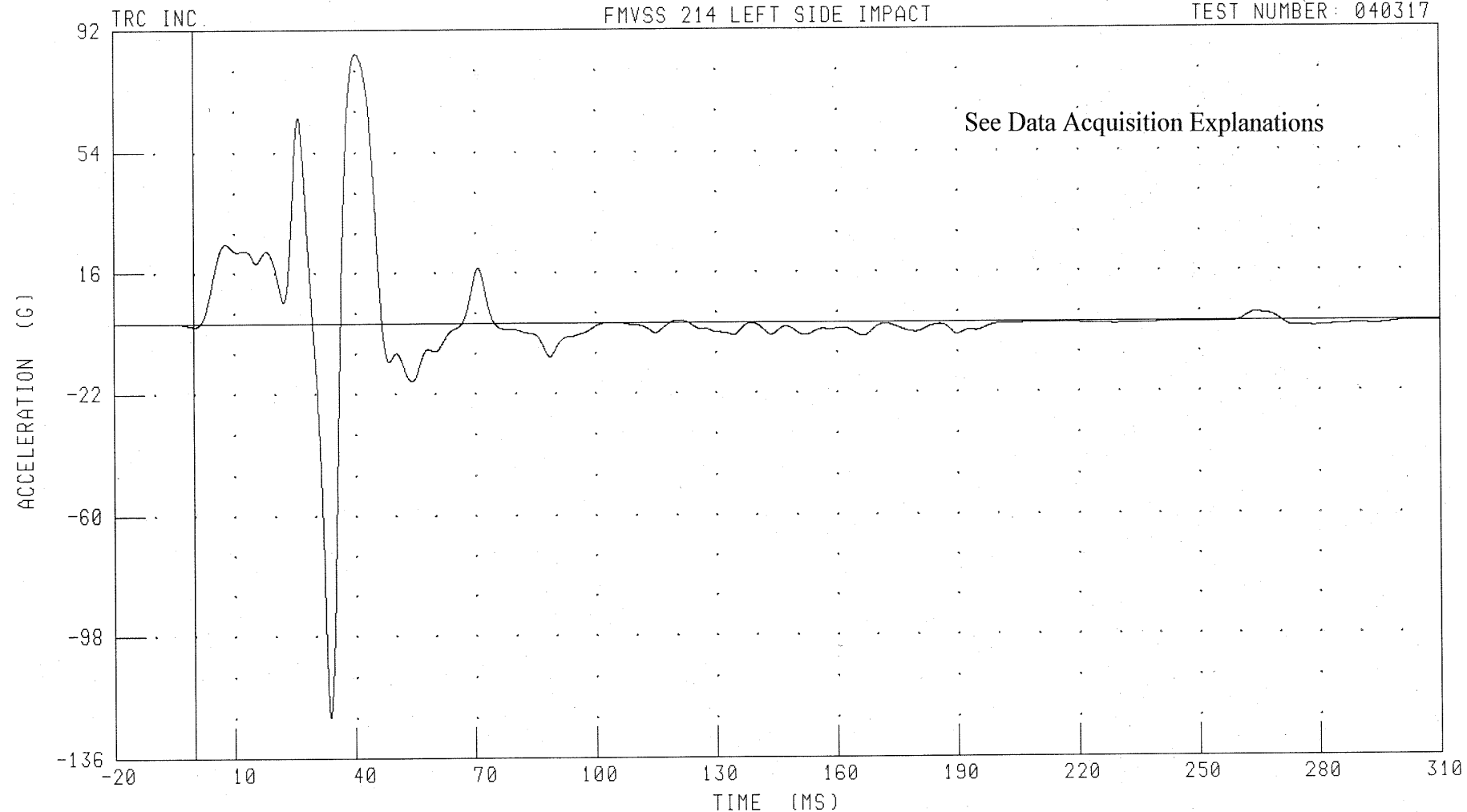
B-130

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR SEAT TRACK Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRTYG1 FILTER: CH. CLASS 60

PEAK DATA: 84.23 G @ 40.40 MS, -123.28 G @ 33.68 MS

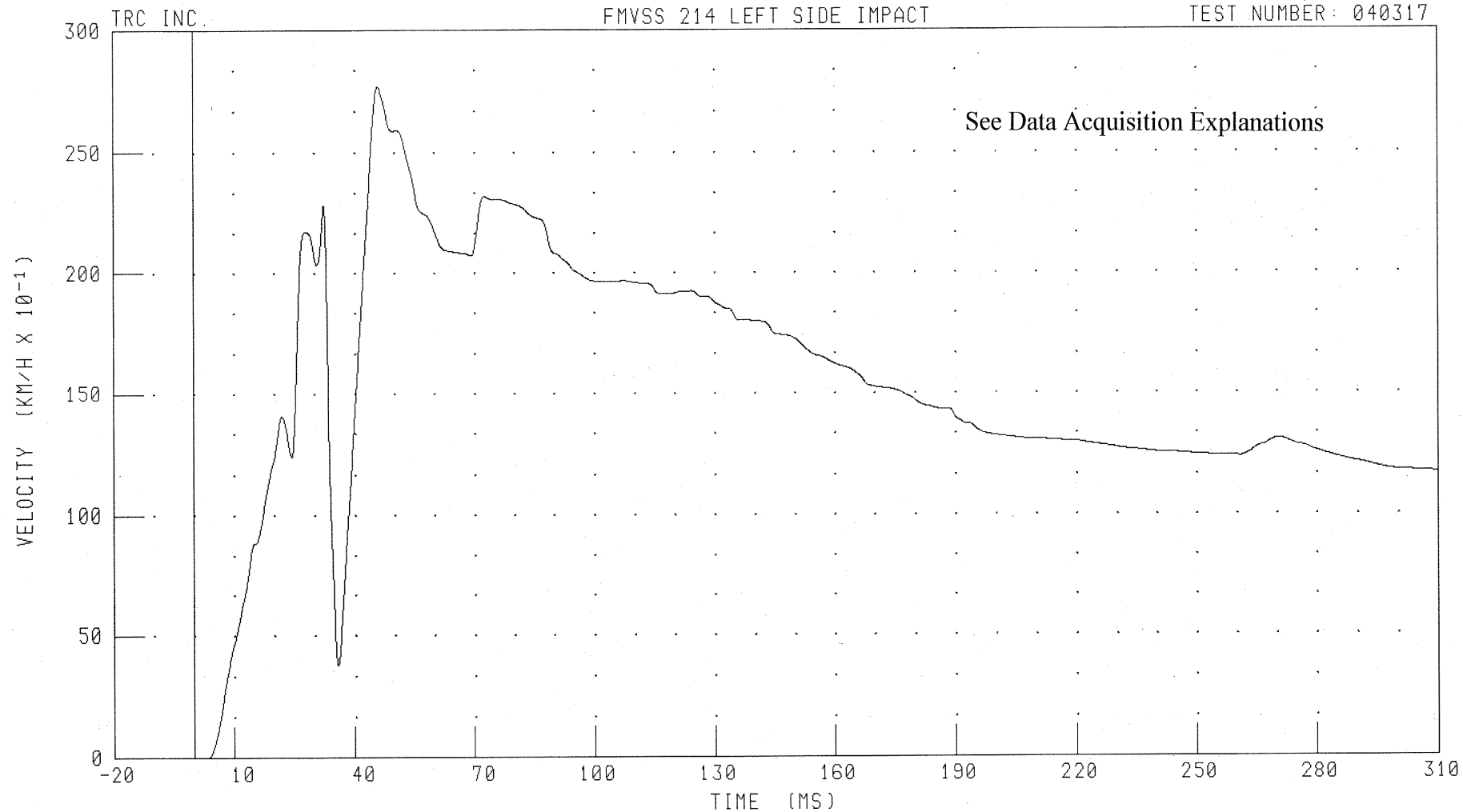
B-131

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR SEAT TRACK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRTYV1 FILTER: CH. CLASS 180

PEAK DATA: 27.68 KM/H @ 46.00 MS; -0.04 KM/H @ 3.04 MS

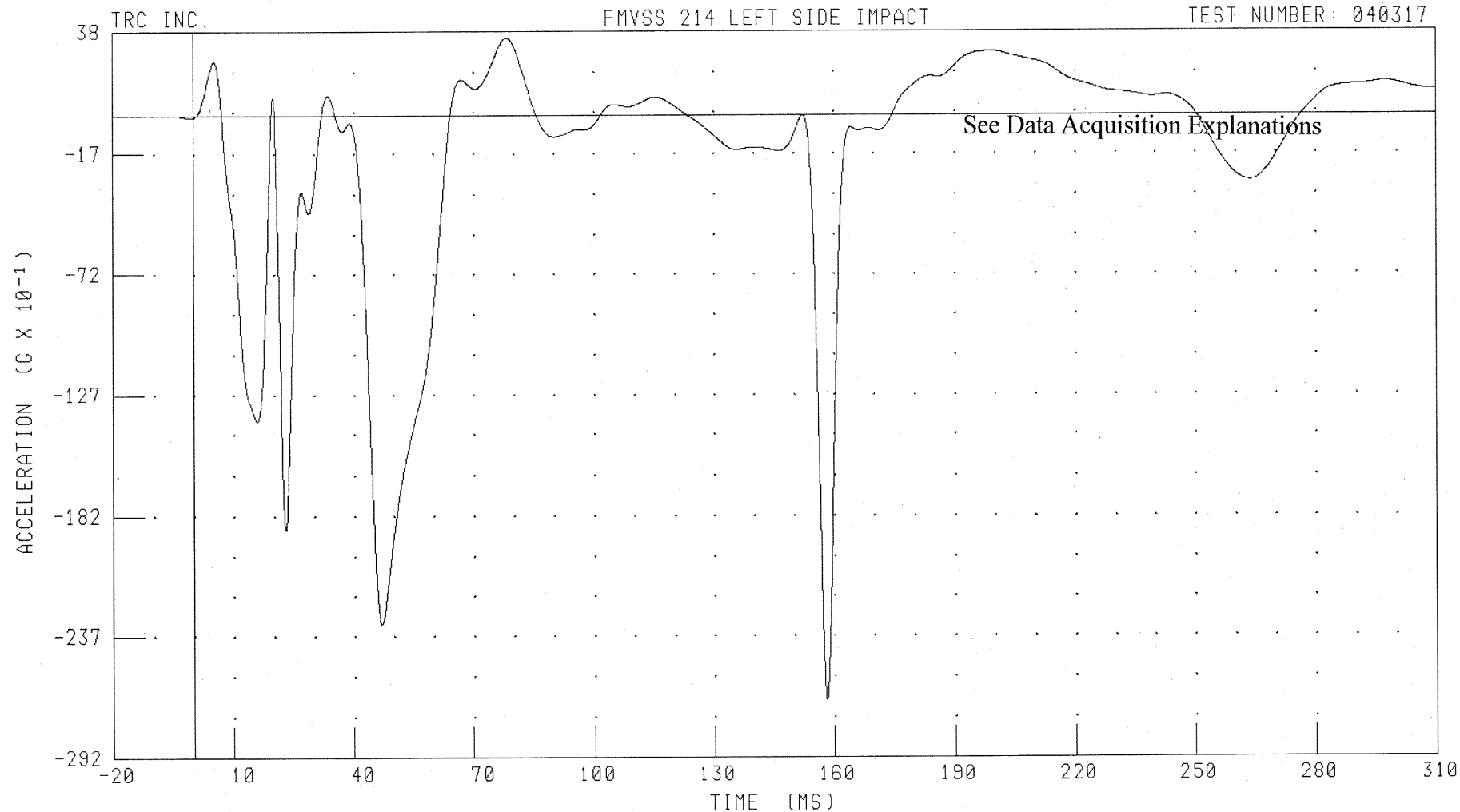
B-132

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: VCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.51 G @ 78.48 MS; -26.67 G @ 158.24 MS

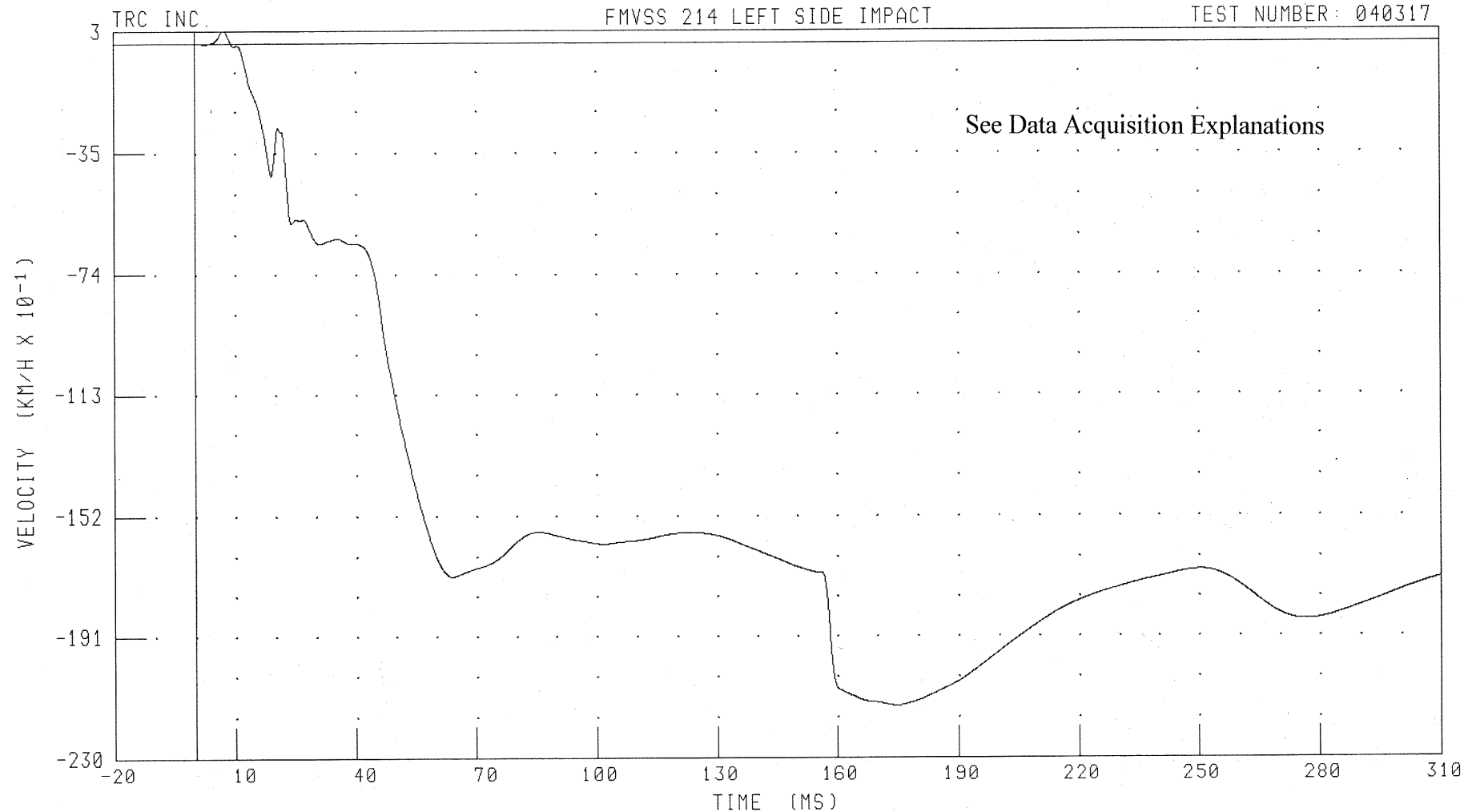
B-133

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: VCGXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.43 KM/H @ 7.20 MS; -21.35 KM/H @ 174.96 MS

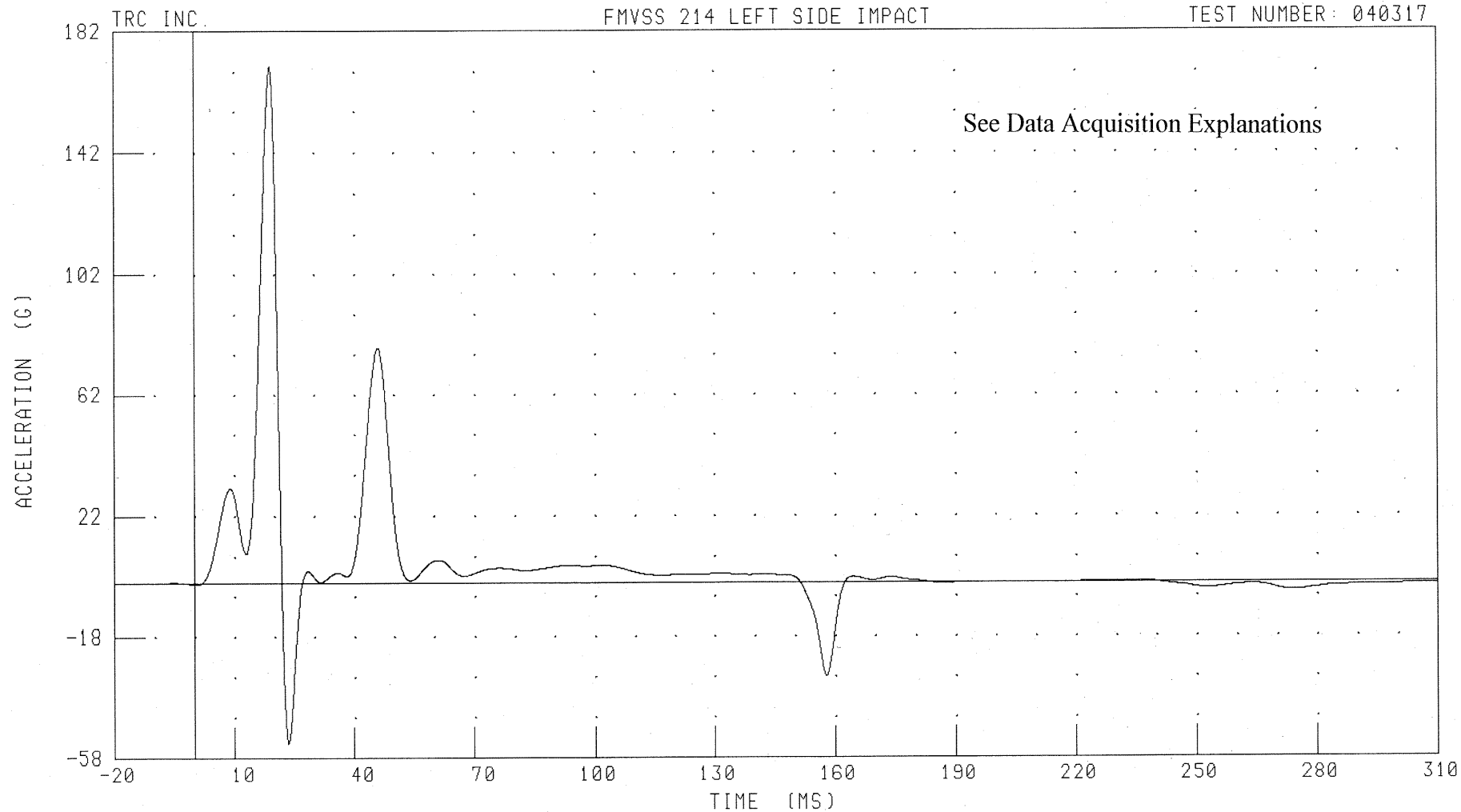
B-134

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: VCCYG1

FILTER: CH. CLASS 60

PEAK DATA: 170.47 G @ 19.04 MS; -53.15 G @ 23.52 MS

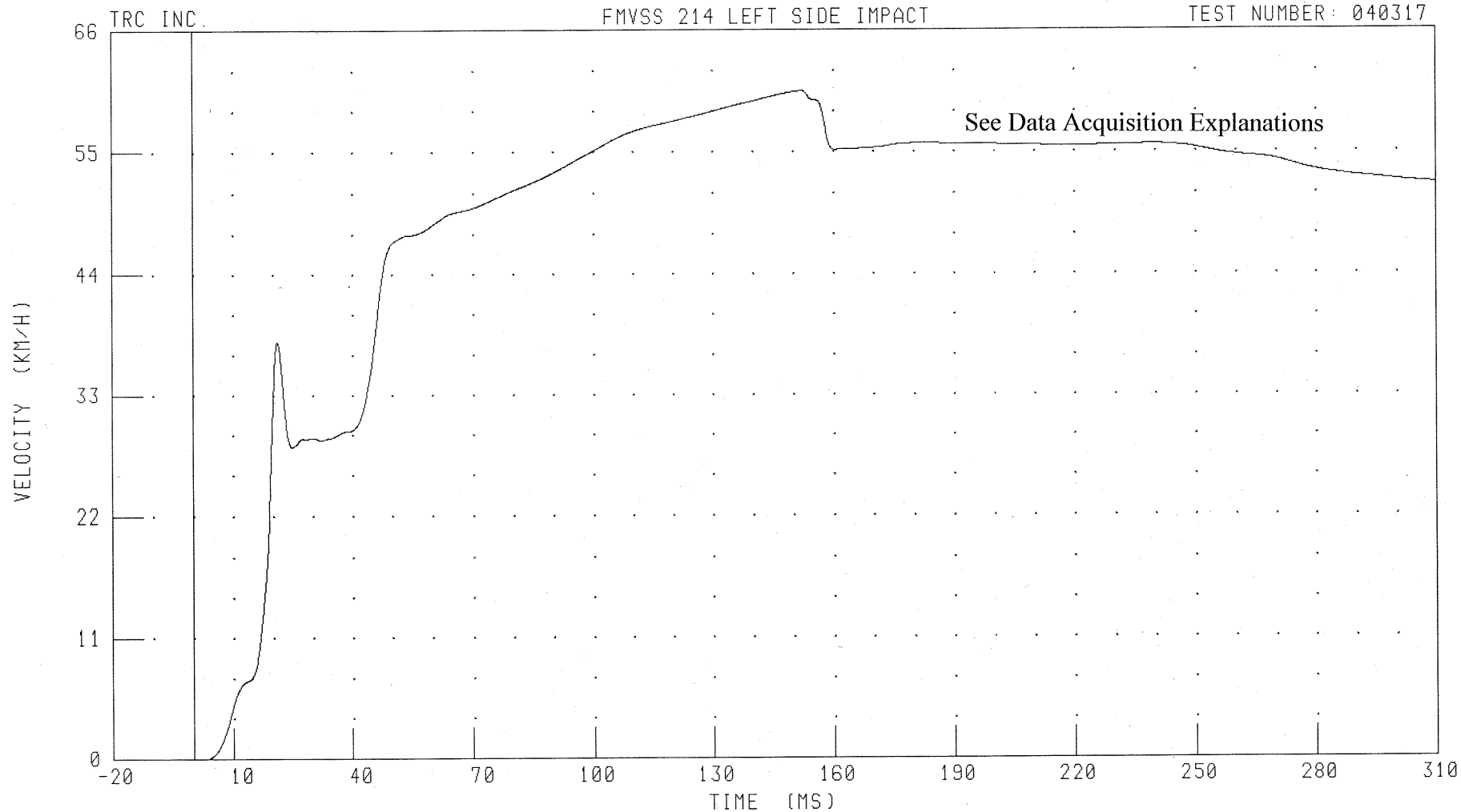
B-135

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: VCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 60.51 KM/H @ 152.24 MS; 0.00 KM/H @ 0.00 MS

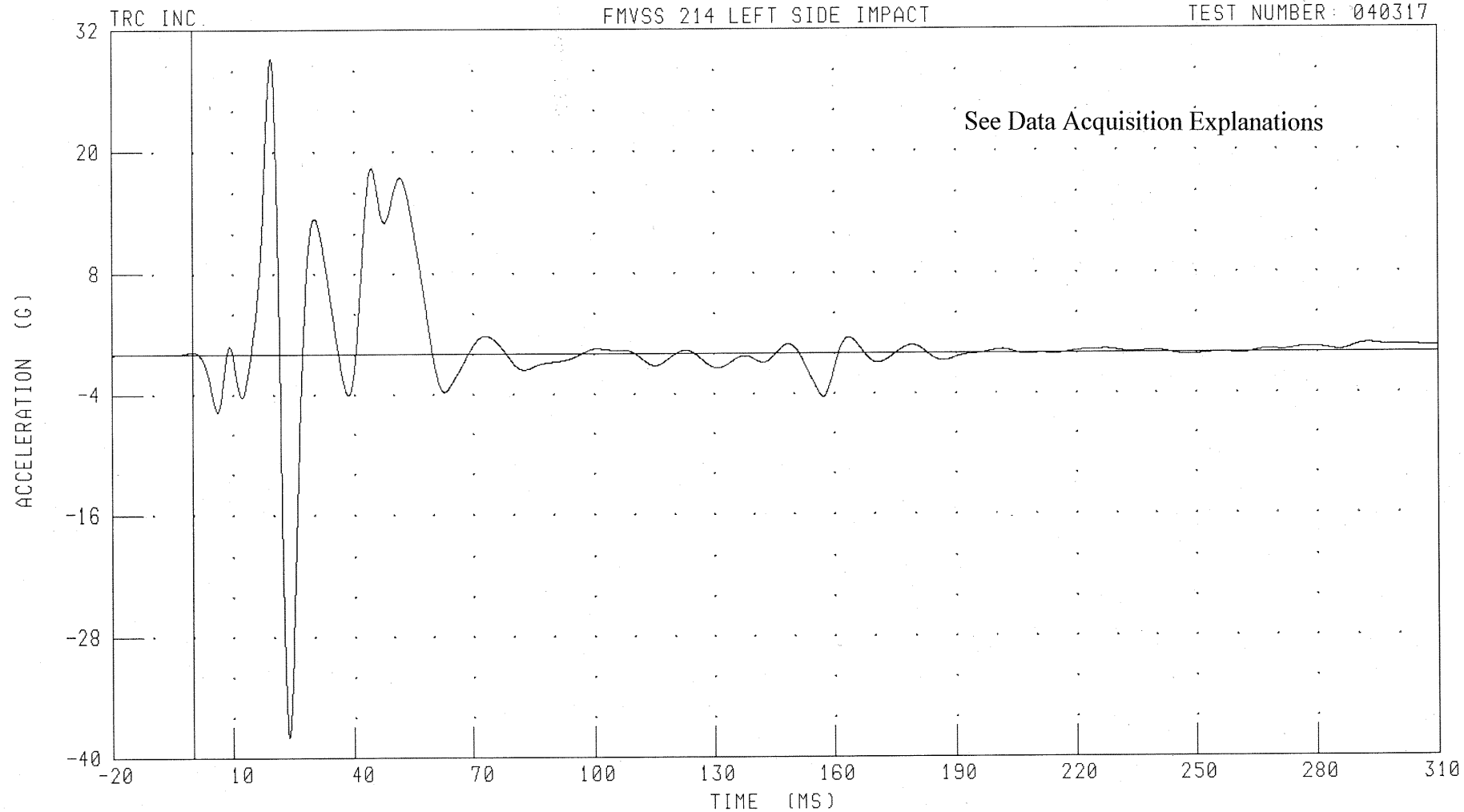
B-136

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: VCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 29.14 G @ 19.60 MS; -37.94 G @ 23.76 MS

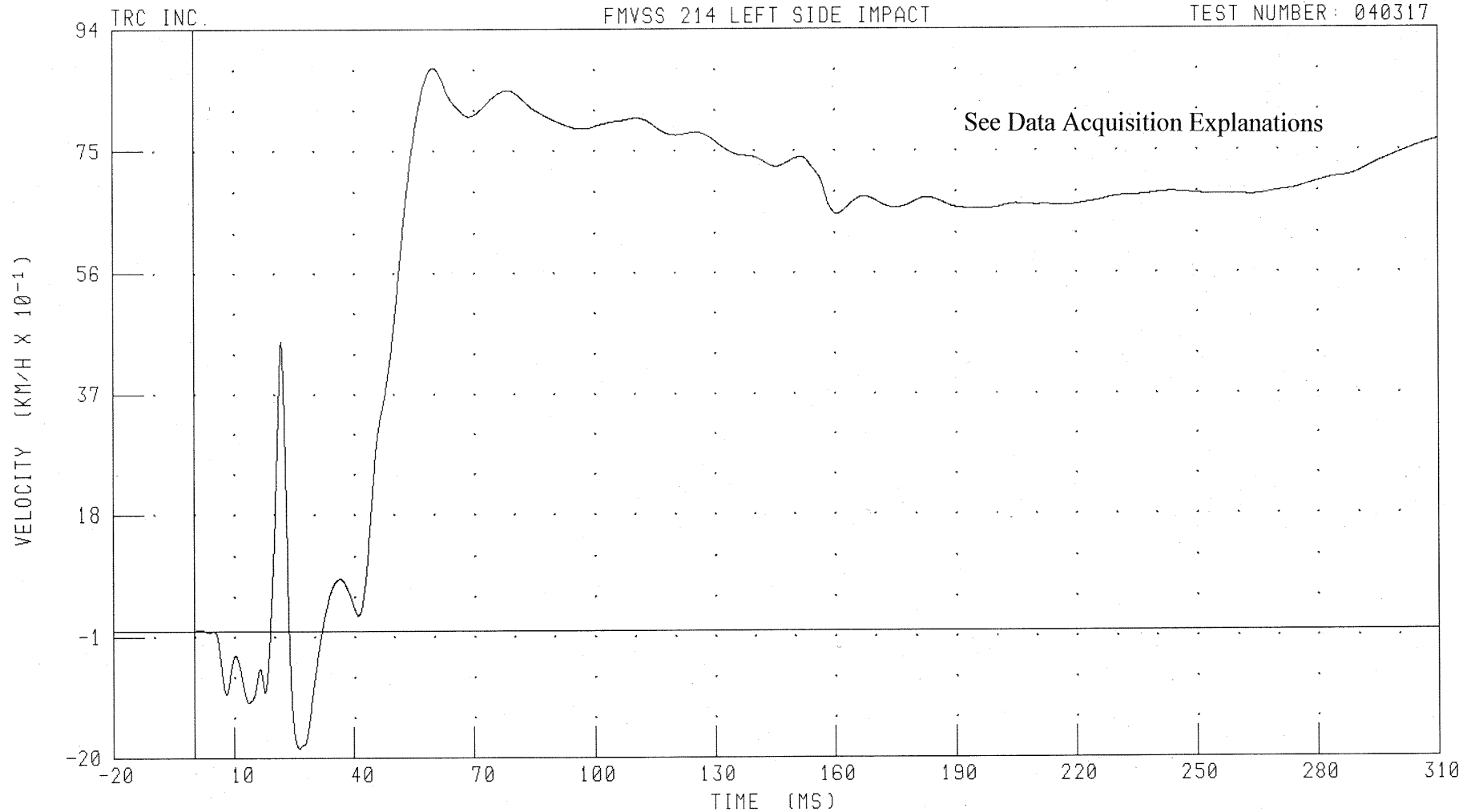
B-137

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: VCGZV1

FILTER: CH. CLASS 180

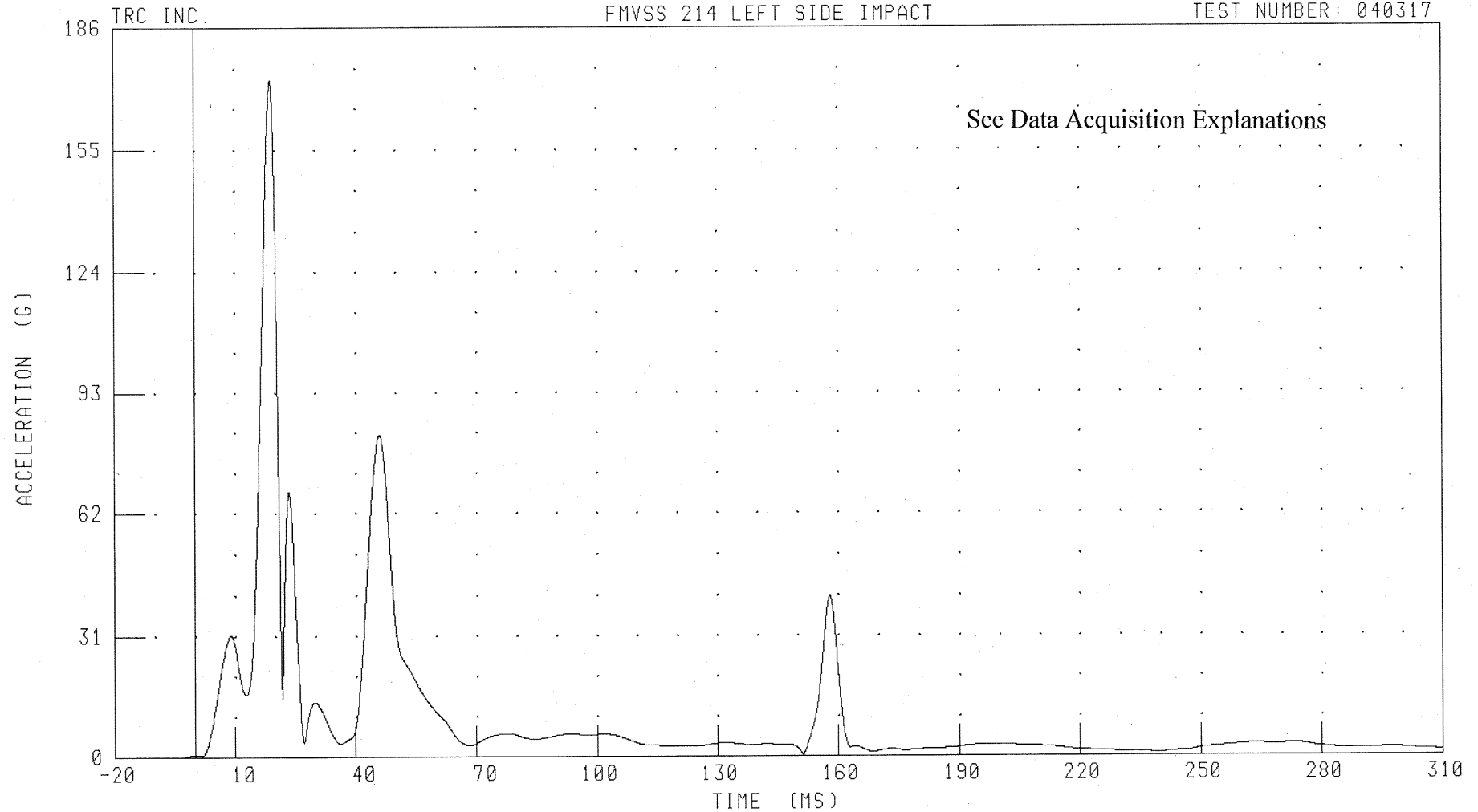
PEAK DATA: 8.80 KM/H @ 59.92 MS; -1.85 KM/H @ 26.24 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317

See Data Acquisition Explanations



CHANNEL: VCGRG1

FILTER: CH. CLASS 60

PEAK DATA: 172.71 G @ 19.04 MS; 0.00 G @ -12.24 MS

B-139

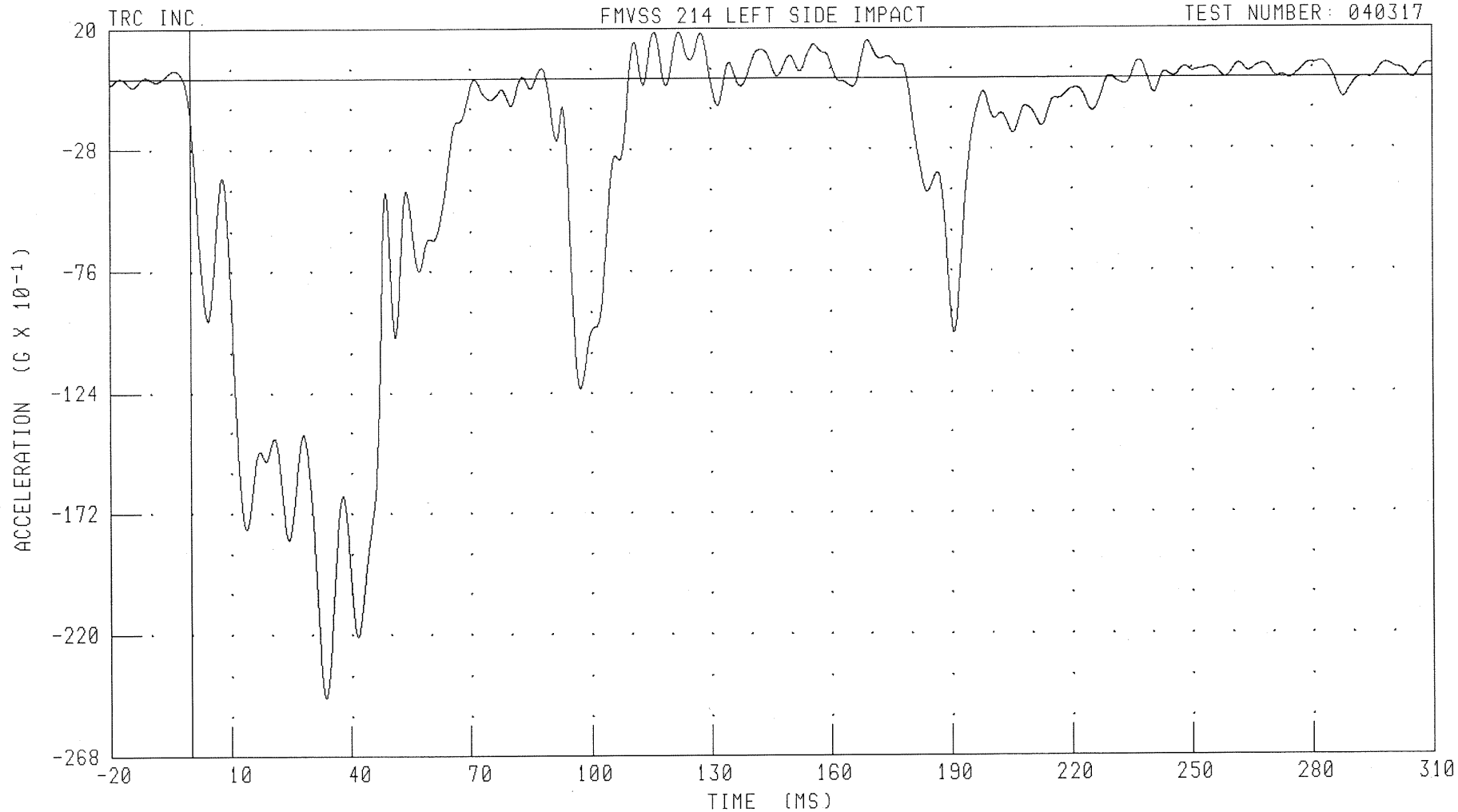
040317

MDB Instrumentation Plots

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
MDB CENTER OF GRAVITY X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: BCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.86 G @ 122.16 MS; -24.50 G @ 33.60 MS

B-141

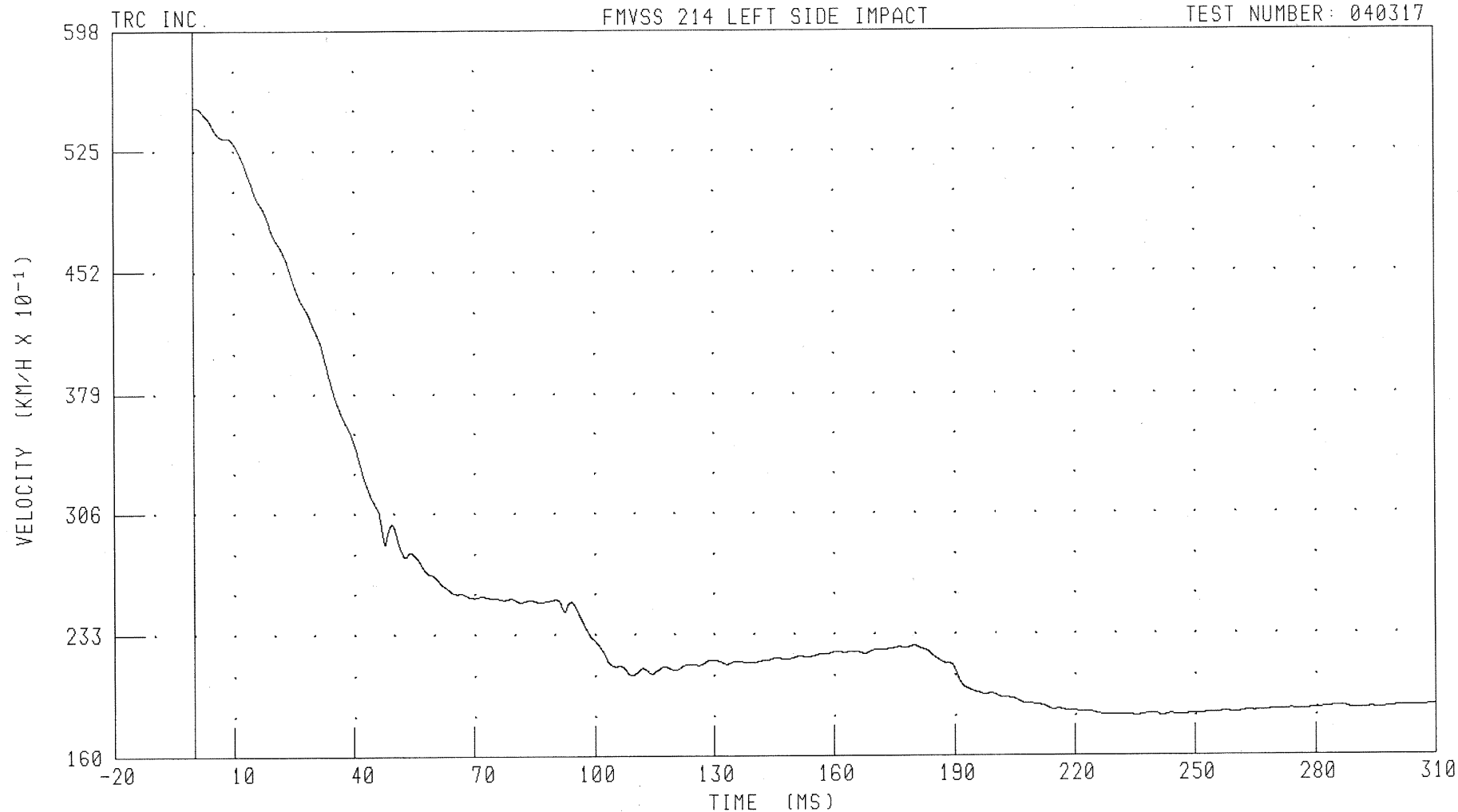
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MDB CENTER OF GRAVITY X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: BCGXV1 FILTER: CH. CLASS 180

PEAK DATA: 55.10 KM/H @ 0.56 MS; 18.41 KM/H @ 235.12 MS

B-142

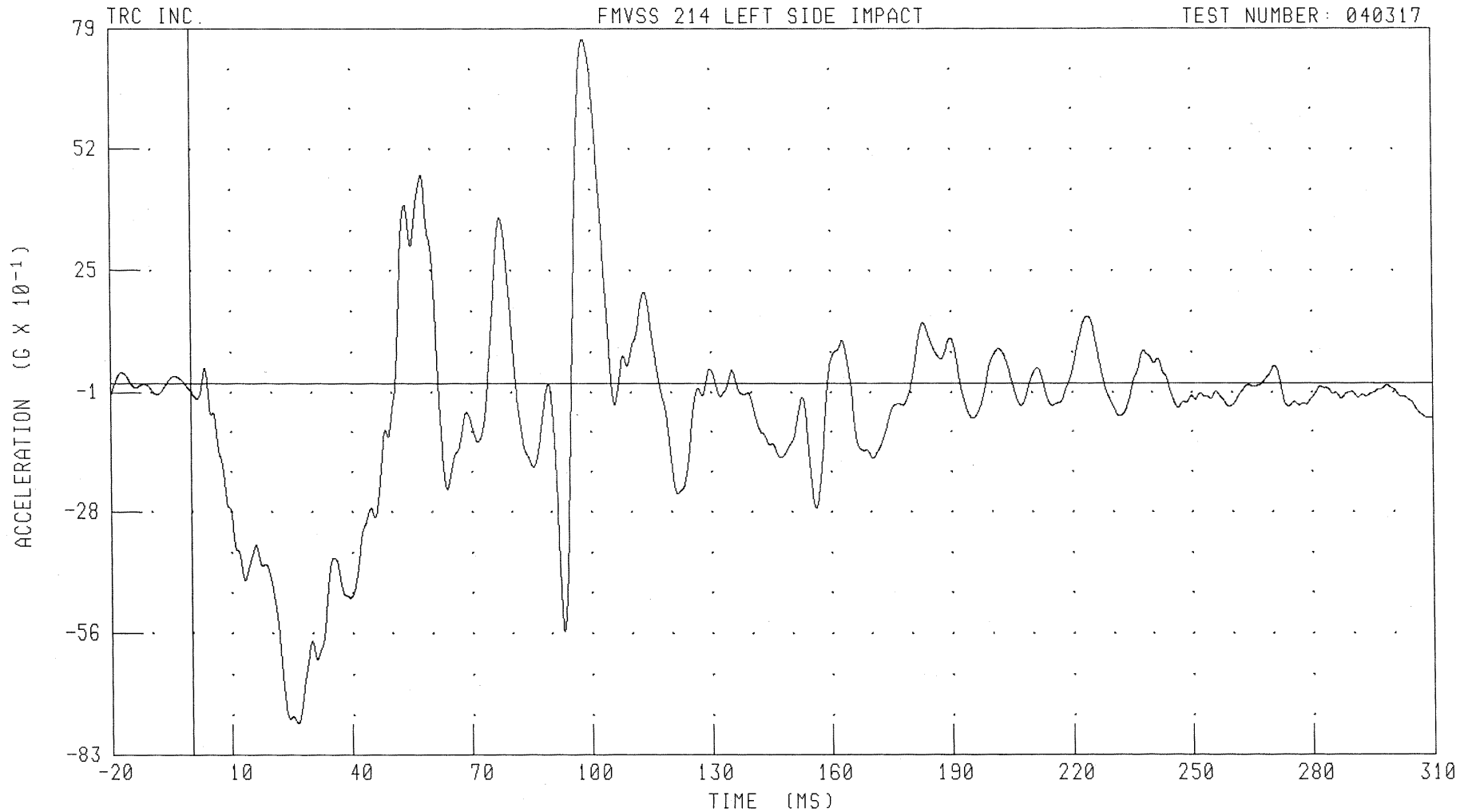
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MDB CENTER OF GRAVITY Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: BCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 7.65 G @ 98.56 MS; -7.60 G @ 26.32 MS

B-143

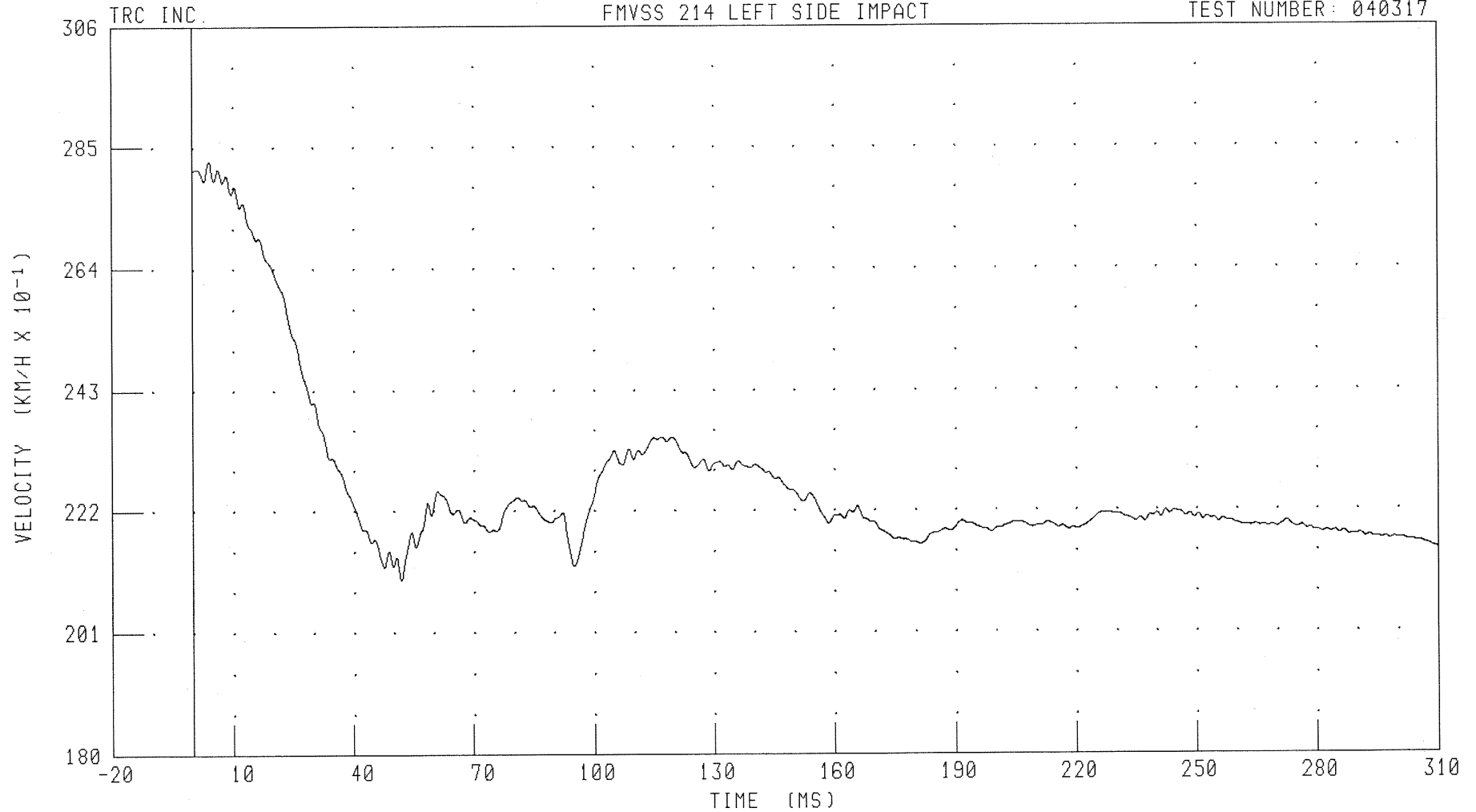
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MDB CENTER OF GRAVITY Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: BCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 28.27 KM/H @ 4.24 MS; 21.01 KM/H @ 52.00 MS

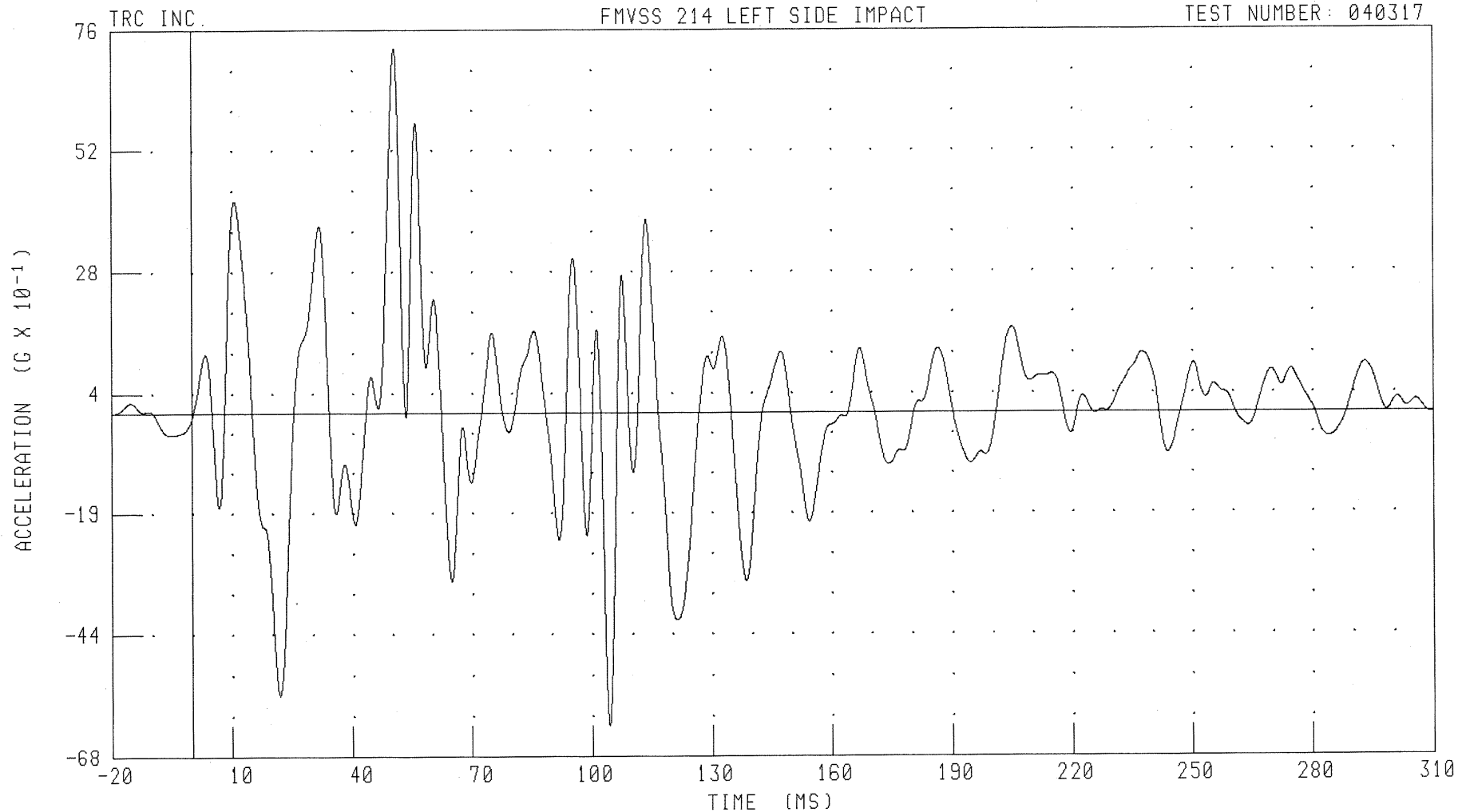
B-144

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
MDB CENTER OF GRAVITY Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: BCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 7.25 G @ 50.64 MS; -6.19 G @ 104.40 MS

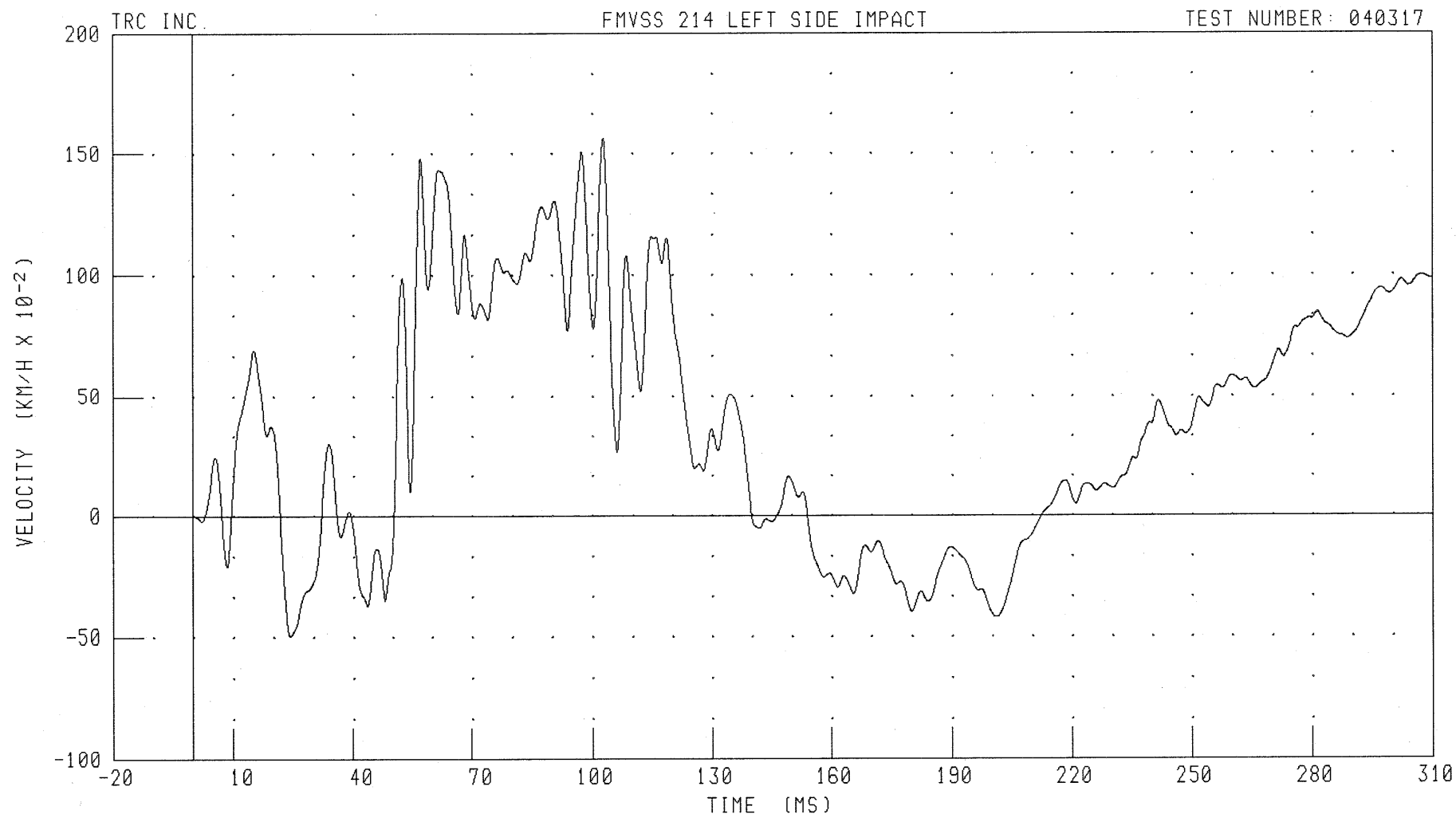
B-145

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
MDB CENTER OF GRAVITY Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: BCGZV1

FILTER: CH. CLASS 180

PEAK DATA: 1.56 KM/H @ 102.88 MS; -0.50 KM/H @ 24.32 MS

B-146

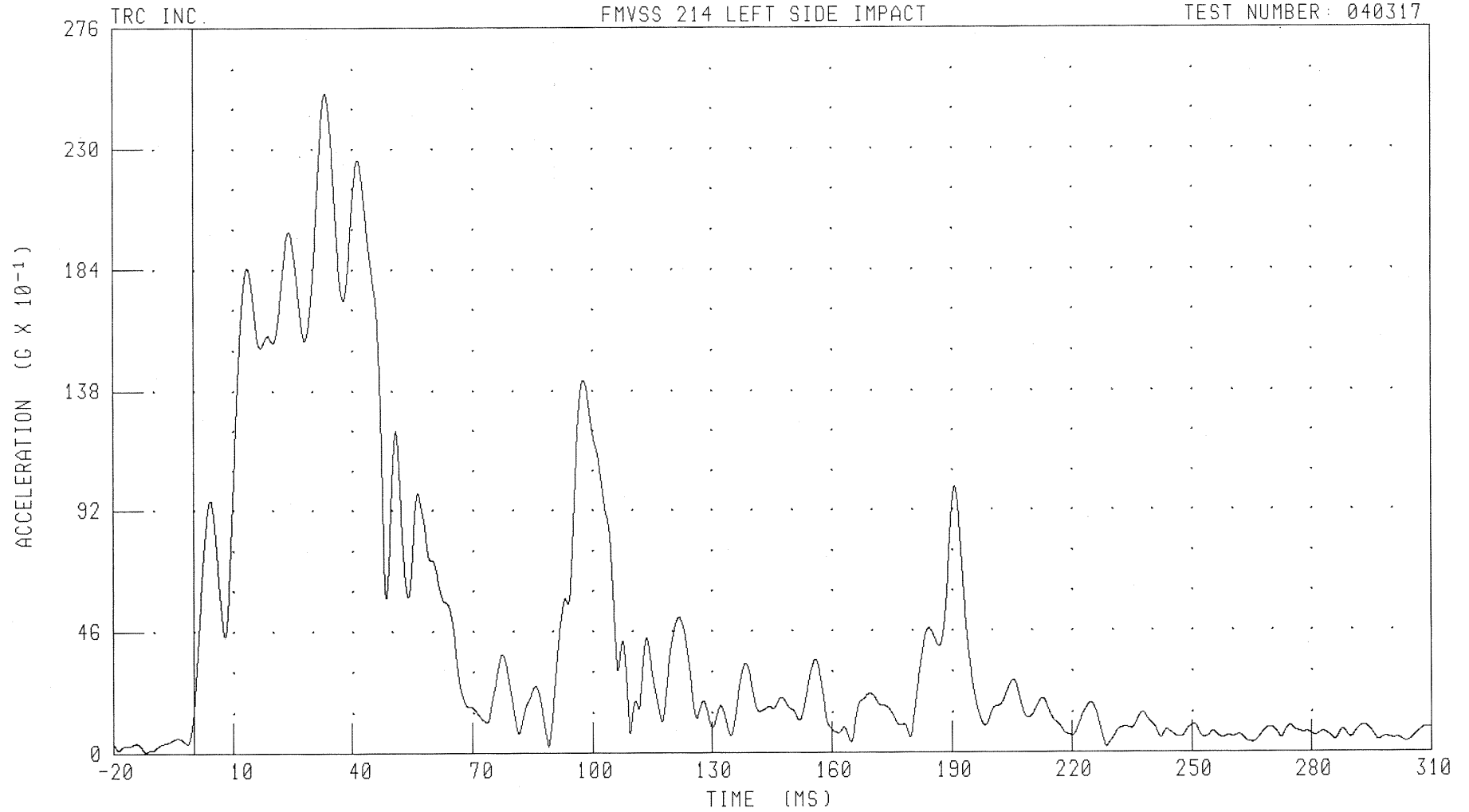
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MOB CENTER OF GRAVITY RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: BCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 25.12 G @ 33.36 MS; 0.04 G @ -12.00 MS

B-147

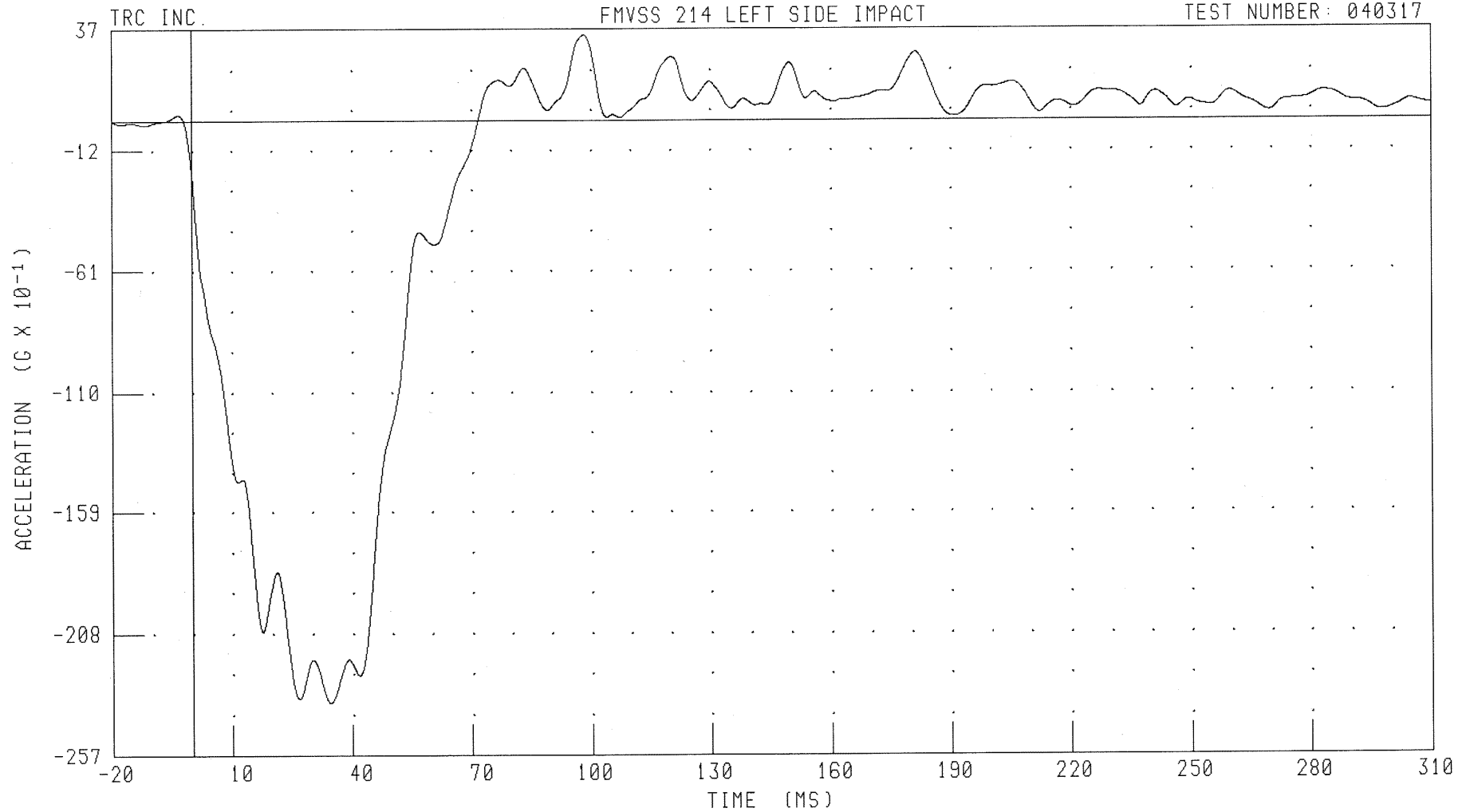
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MDB LEFT REAR X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRRXC1 FILTER: CH. CLASS 60

PEAK DATA: 3.45 G @ 98.40 MS; -23.59 G @ 34.48 MS

B-148

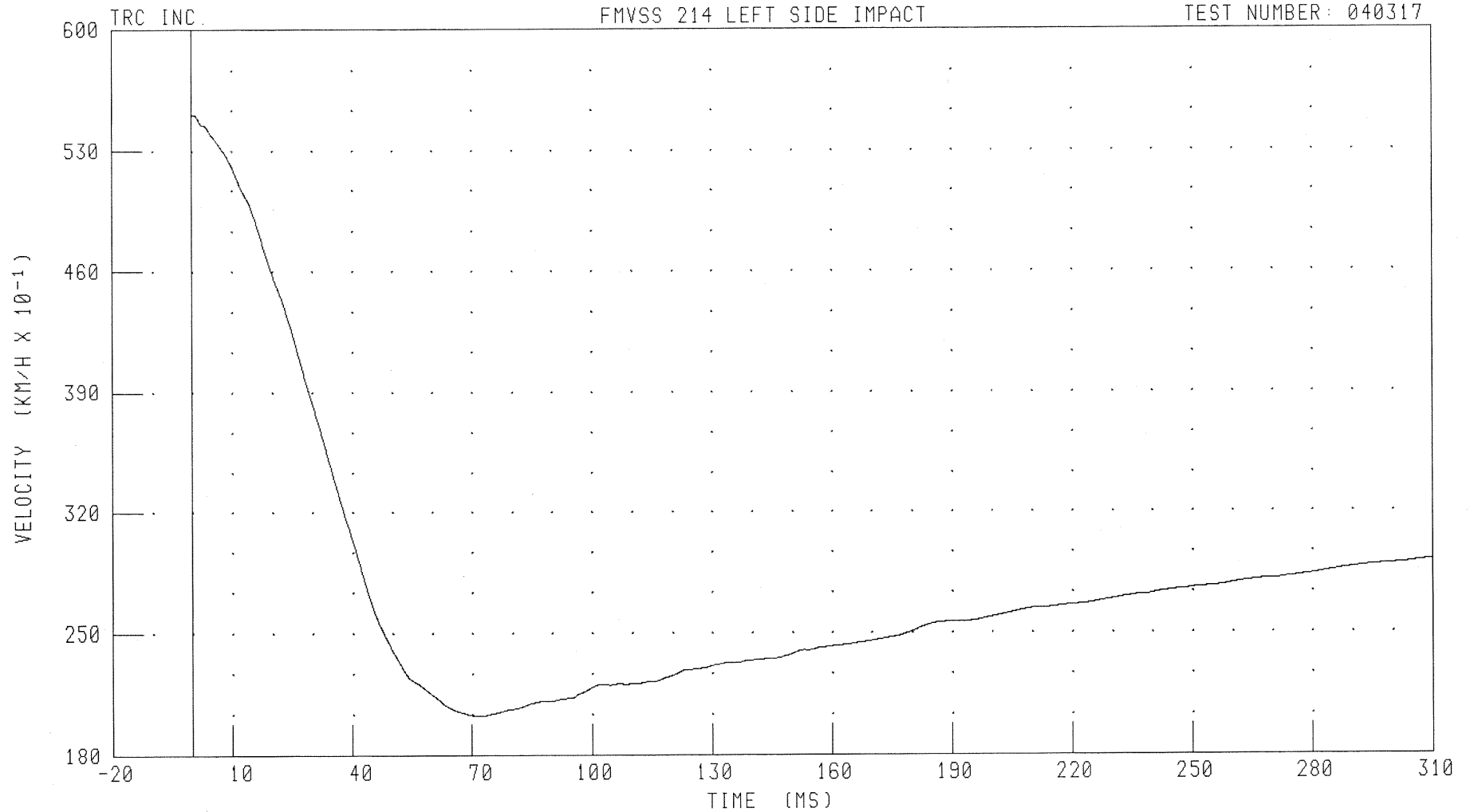
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MDB LEFT REAR X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRRXV1 FILTER: CH. CLASS 180

PEAK DATA: 55.10 KM/H @ 0.32 MS; 20.22 KM/H @ 72.00 MS

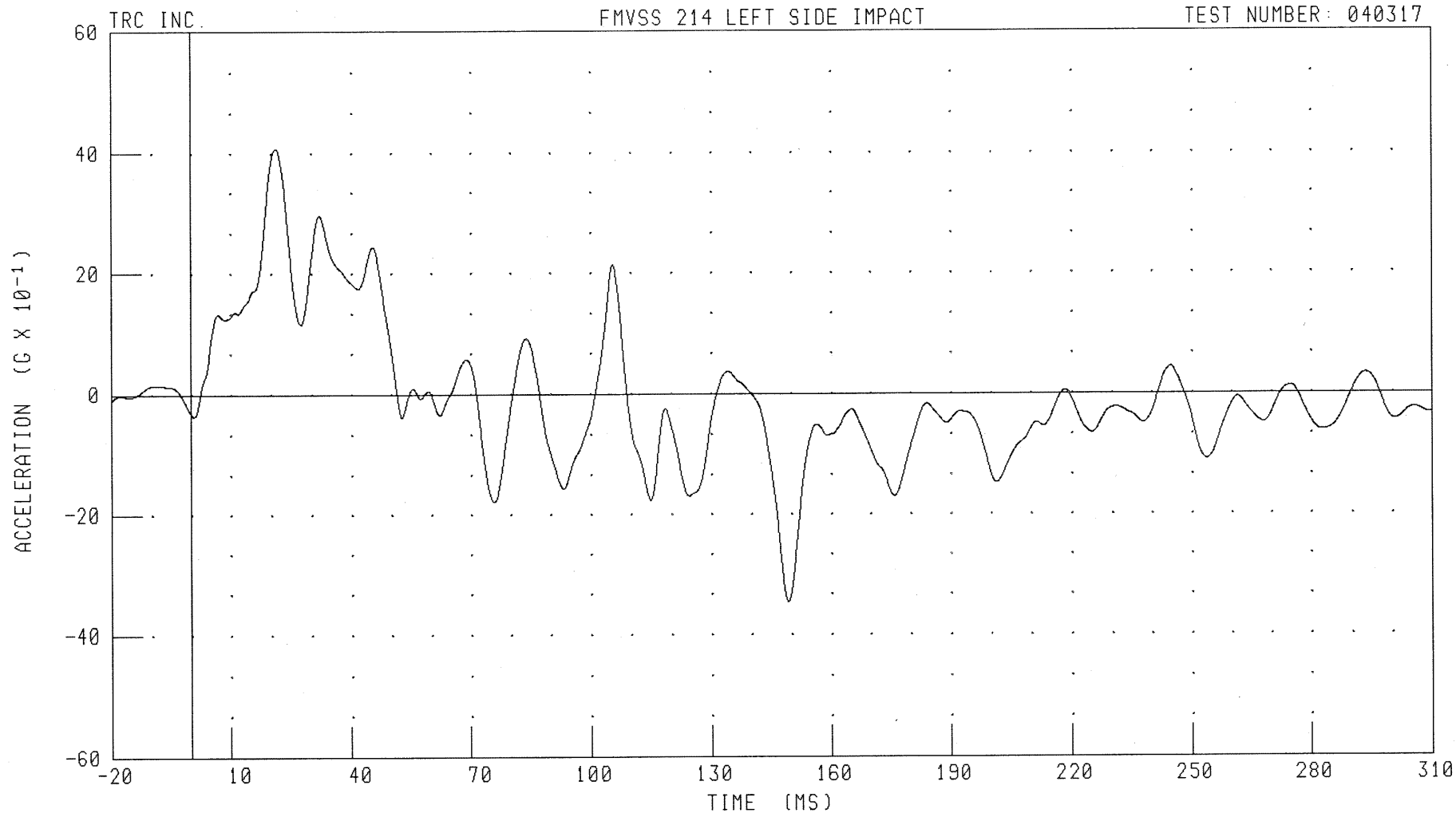
B-149

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
MDB LEFT REAR Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRRYG1

FILTER: CH. CLASS 60

PEAK DATA: 4.08 G @ 21.28 MS; -3.46 G @ 149.28 MS

B-150

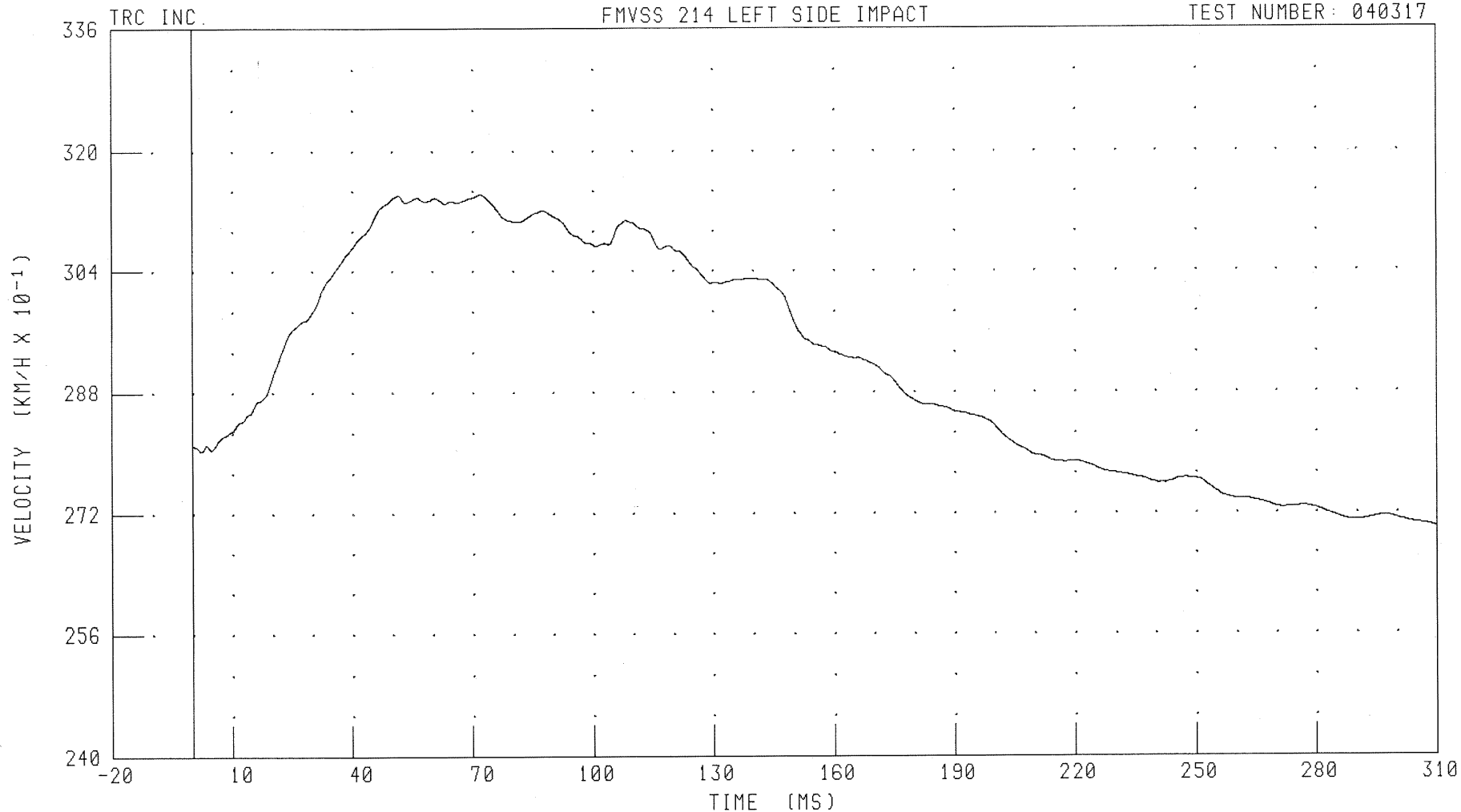
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MDB LEFT REAR Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LRRYV1 FILTER: CH. CLASS 180

PEAK DATA: 31.42 KM/H @ 72.08 MS; 27.00 KM/H @ 310.00 MS

B-151

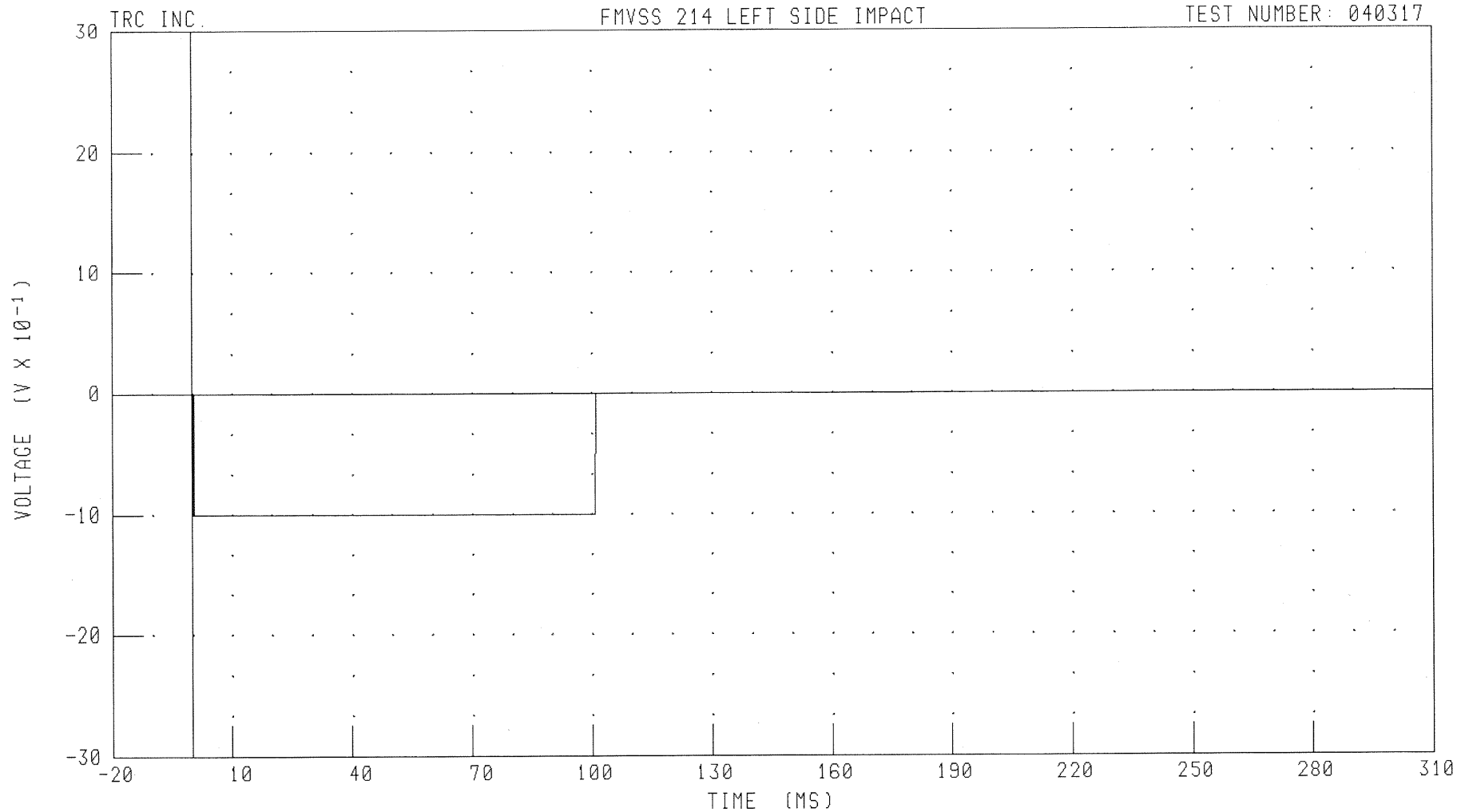
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

MDB RIGHT SIDE CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: MDBR1

FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 0.24 MS

B-152

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

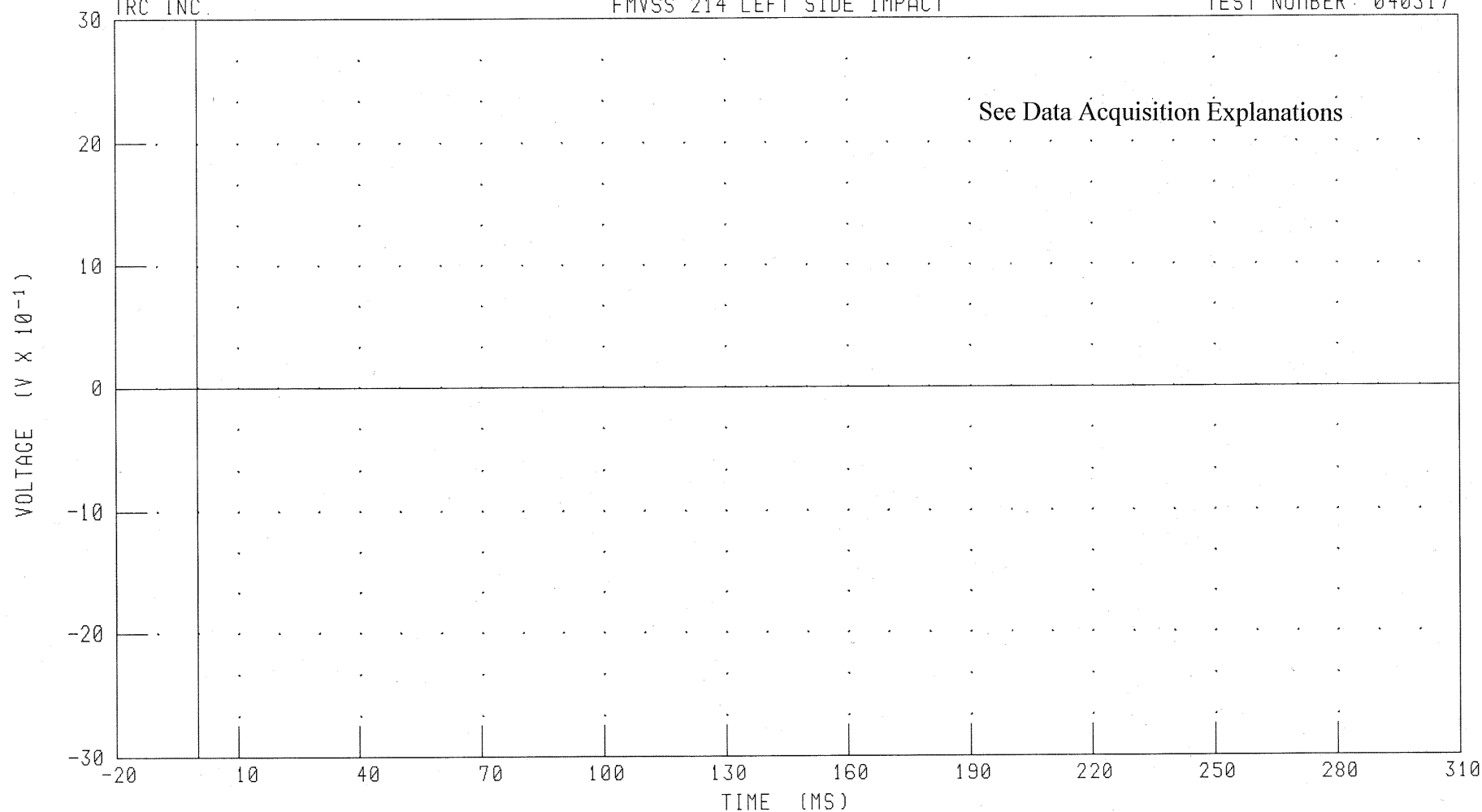
MDB LEFT SIDE CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317

TRC INC.

See Data Acquisition Explanations



CHANNEL: MDBL1

FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; 0.00 V @ -20.00 MS

B-153

040317

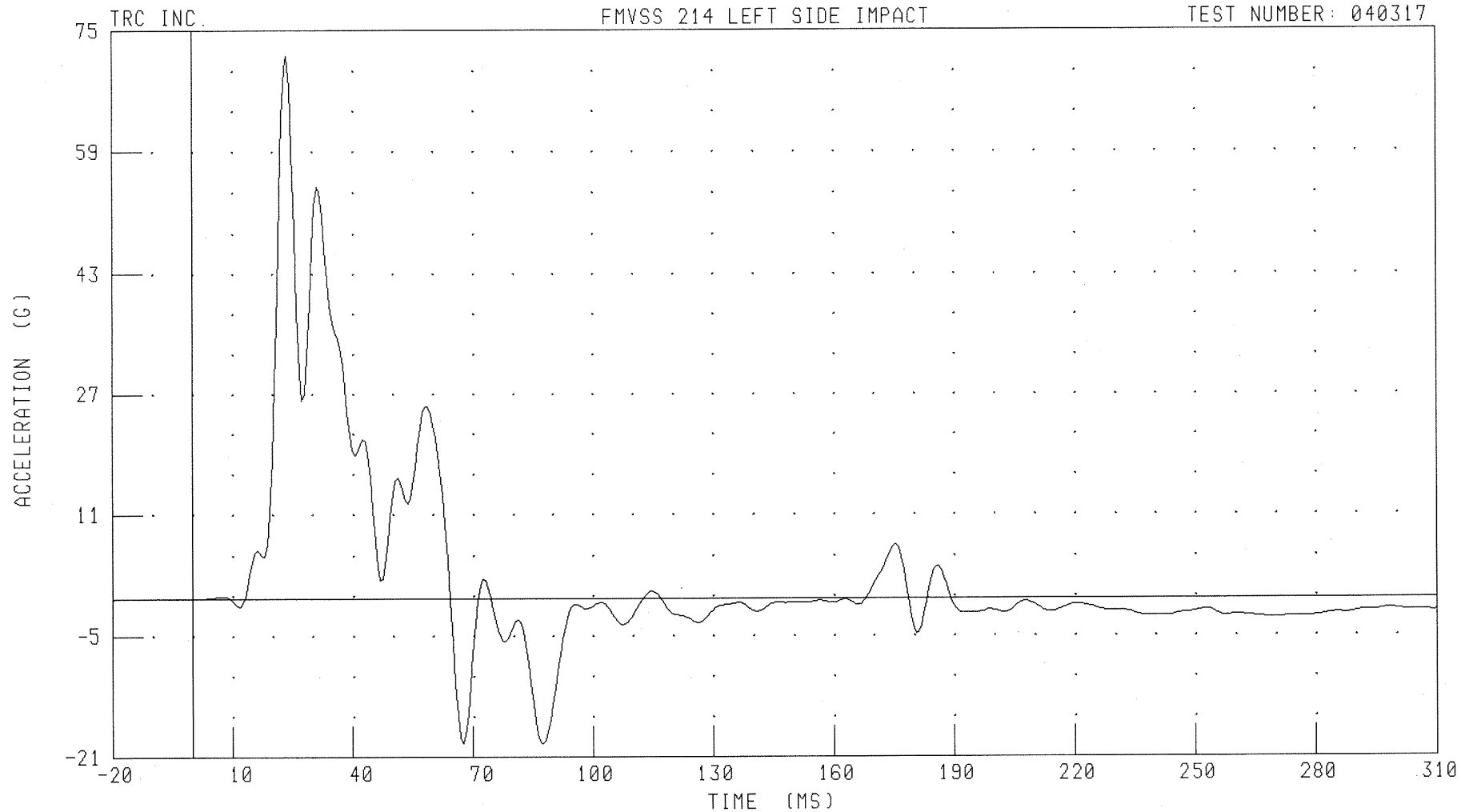
Driver and Passenger Dummy Instrumentation Plots

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYG1 FILTER: FIR 100

PEAK DATA: 71.61 G @ 23.75 MS; -19.31 G @ 87.50 MS

B-155

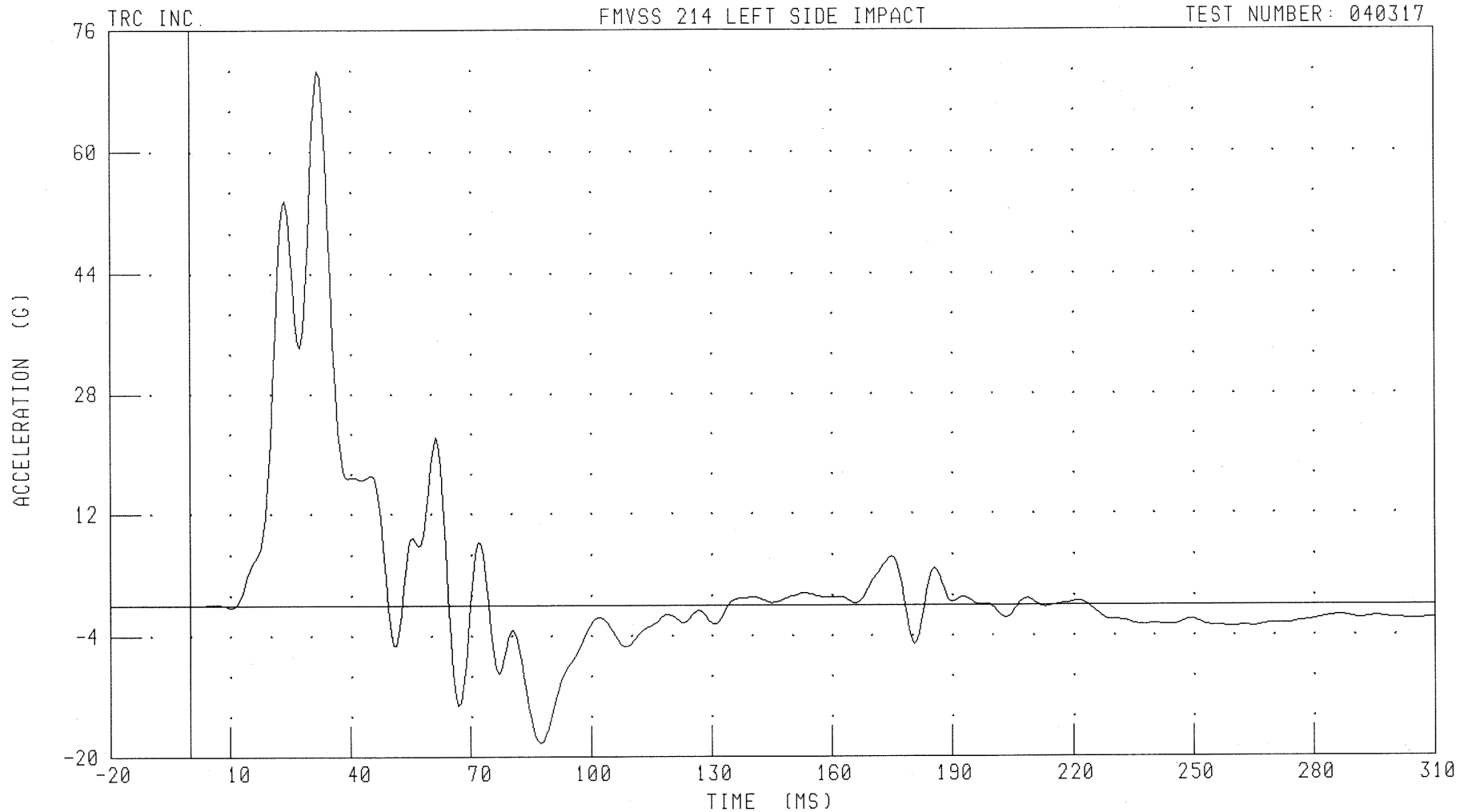
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYG1

FILTER: FIR 100

PEAK DATA: 70.64 G @ 31.88 MS; -18.21 G @ 87.50 MS

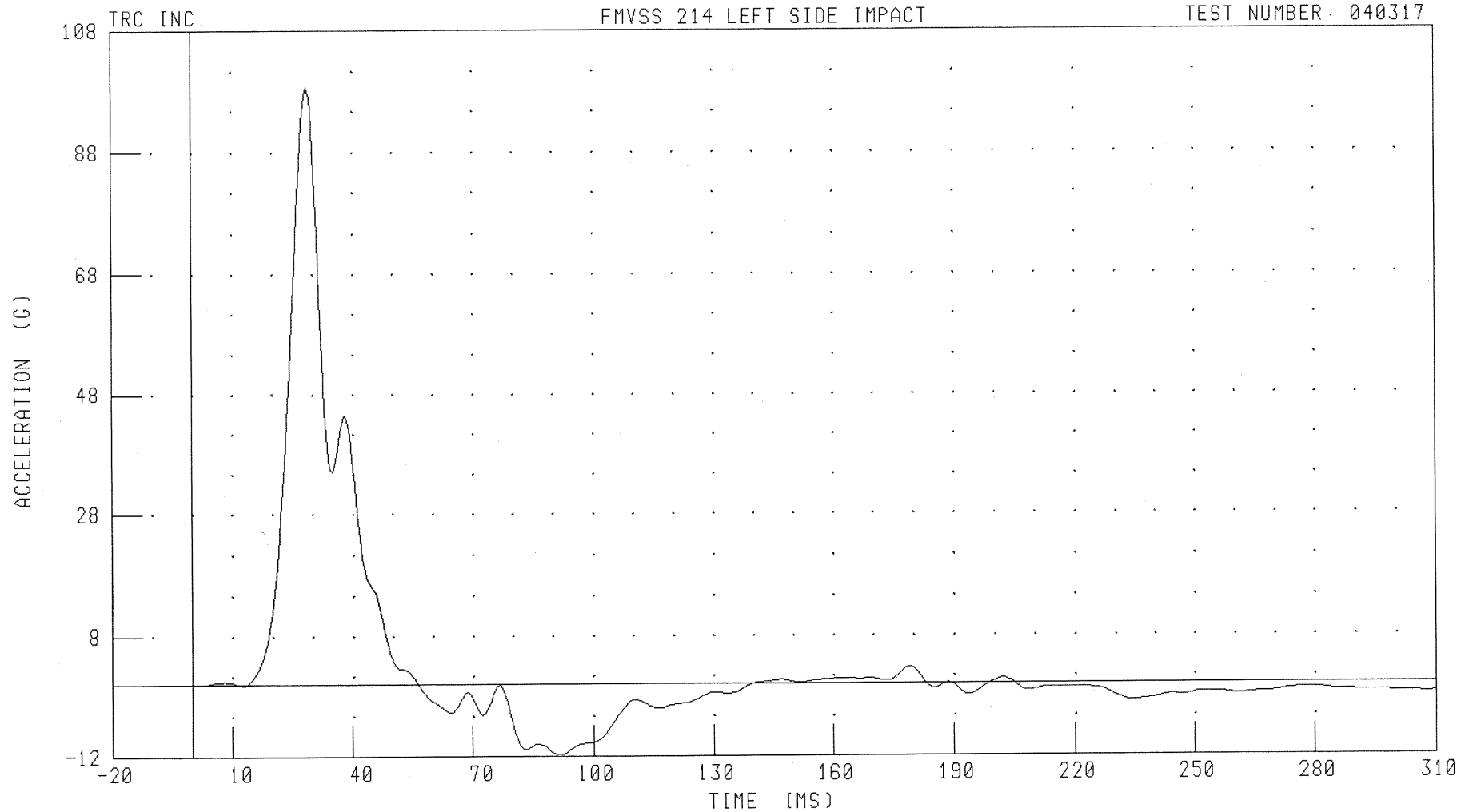
B-156

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YG1

FILTER: FIR 100

PEAK DATA: 98.77 G @ 28.75 MS; -11.73 G @ 91.25 MS

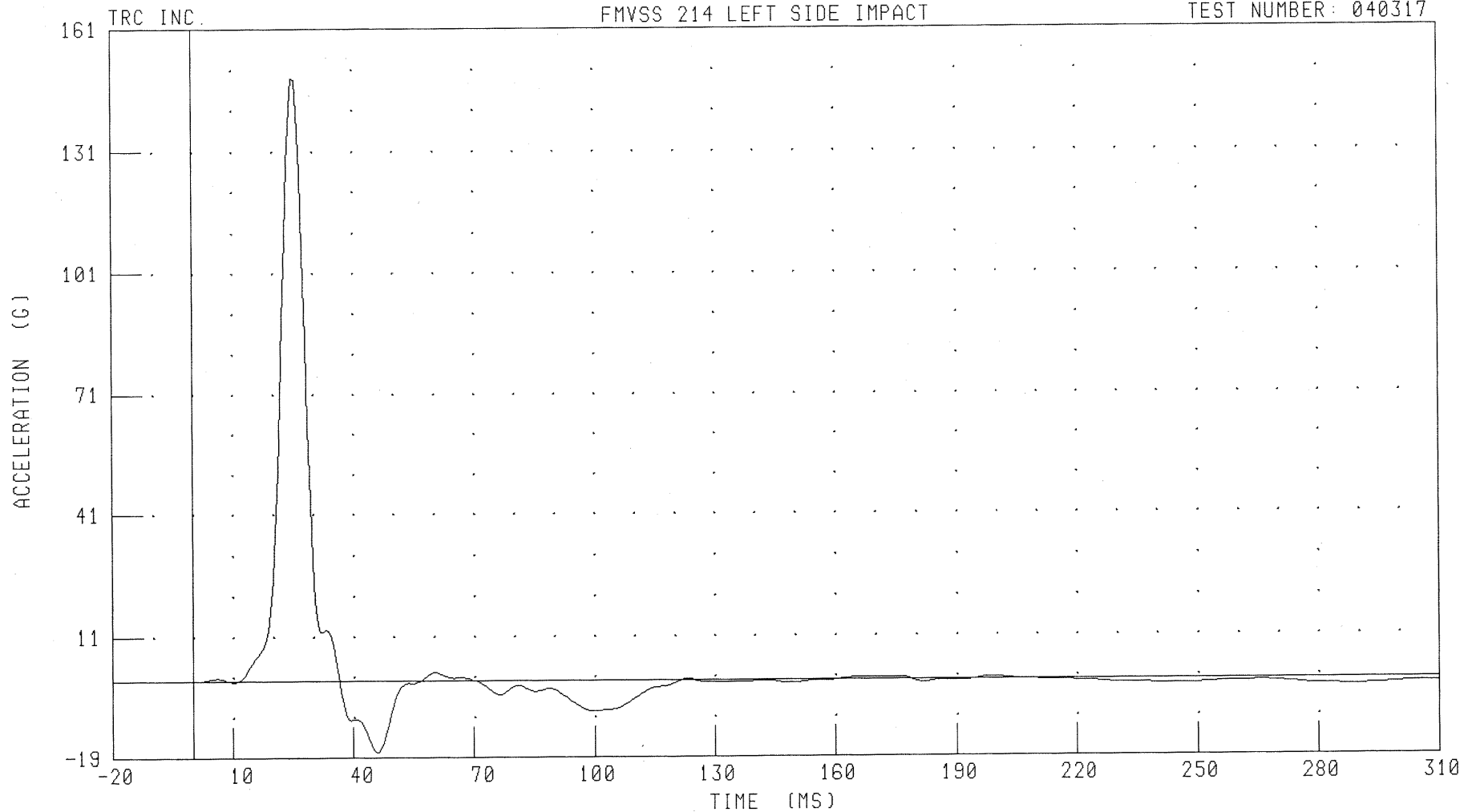
B-157

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYG1

FILTER: FIR 100

PEAK DATA: 148.96 G @ 25.00 MS; -17.66 G @ 46.25 MS

B-158

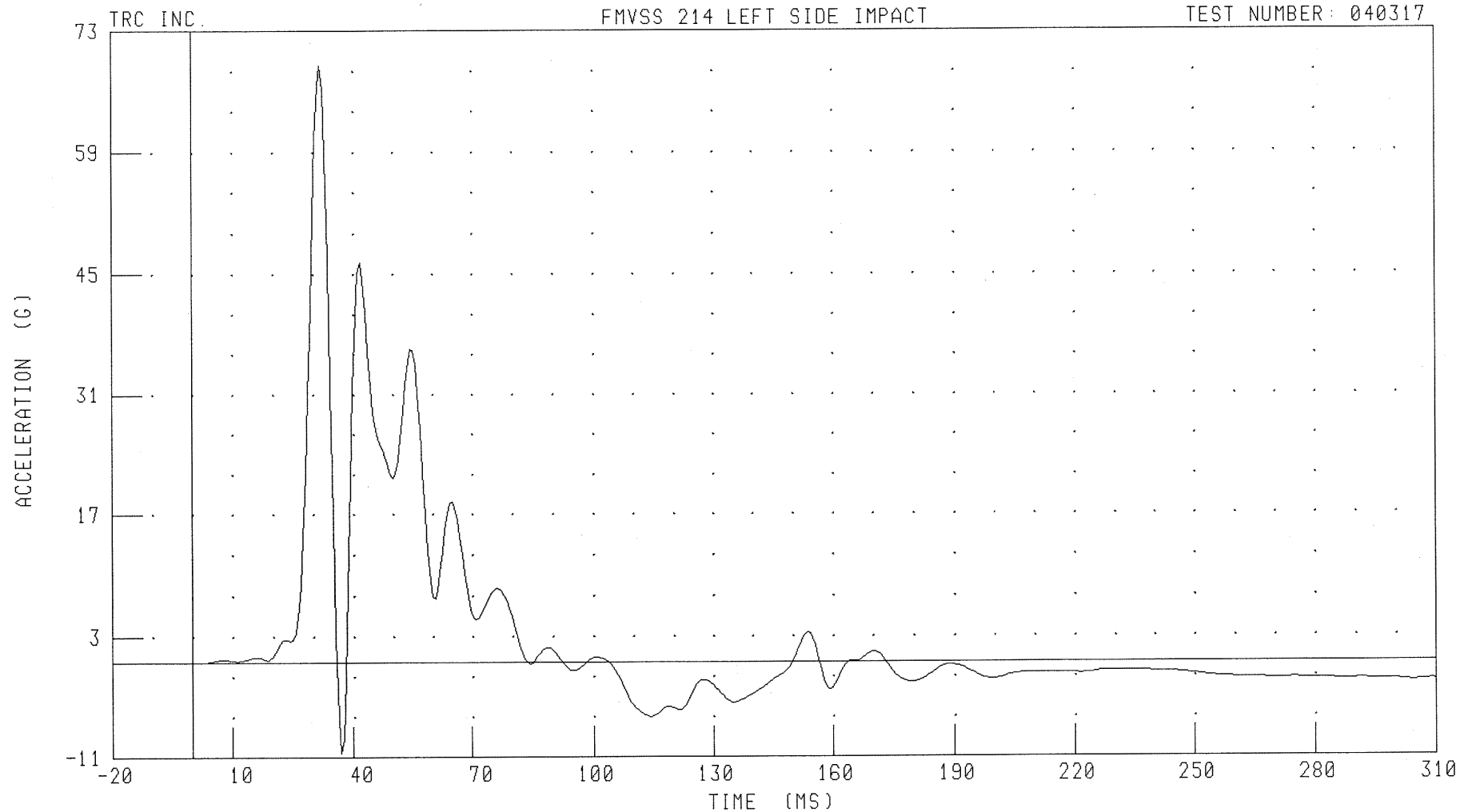
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYG4 FILTER: FIR 100

PEAK DATA: 68.97 G @ 31.88 MS; -10.58 G @ 36.88 MS

B-159

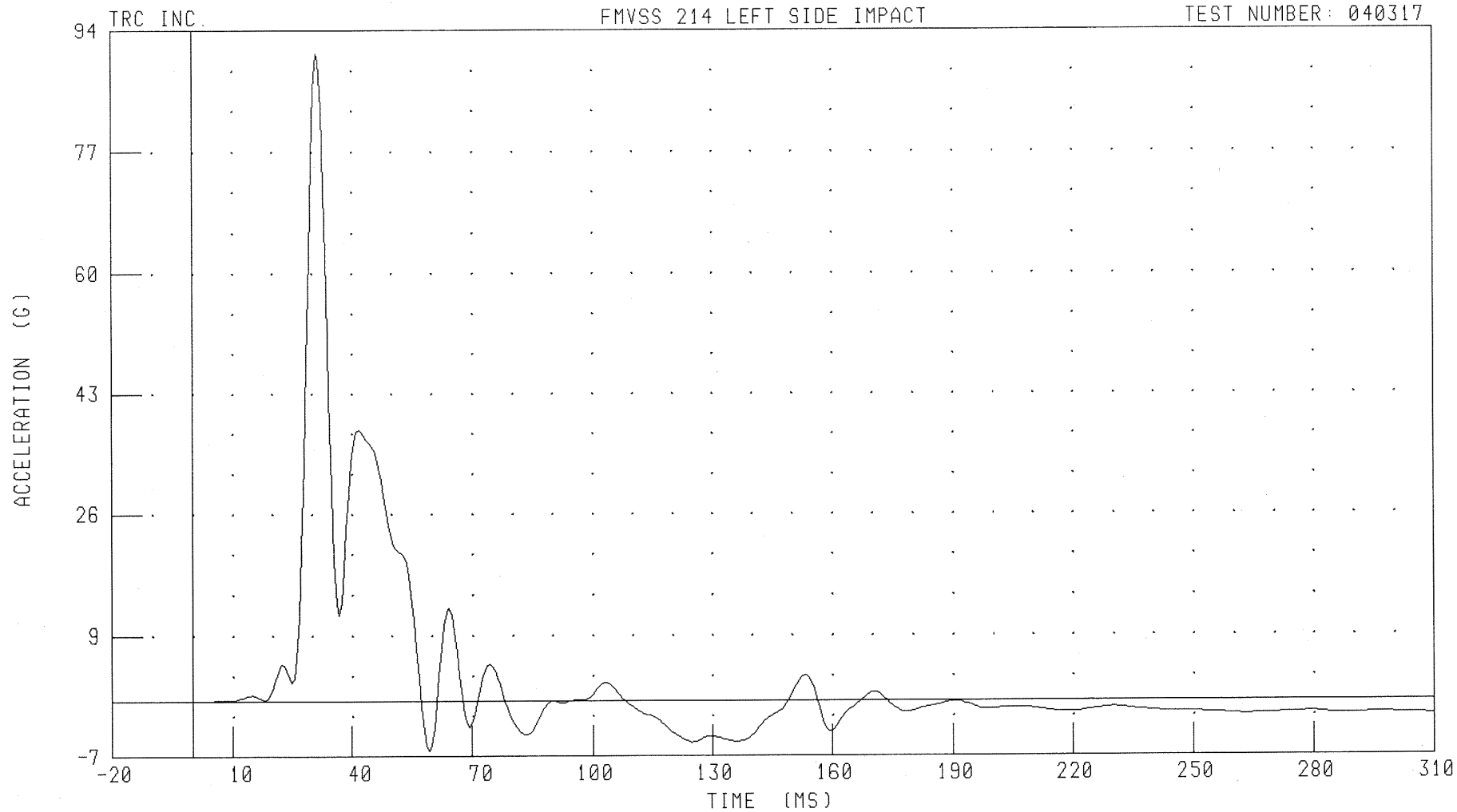
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYG4 FILTER: FIR 100

PEAK DATA: 91.05 G @ 31.25 MS; -7.01 G @ 59.38 MS

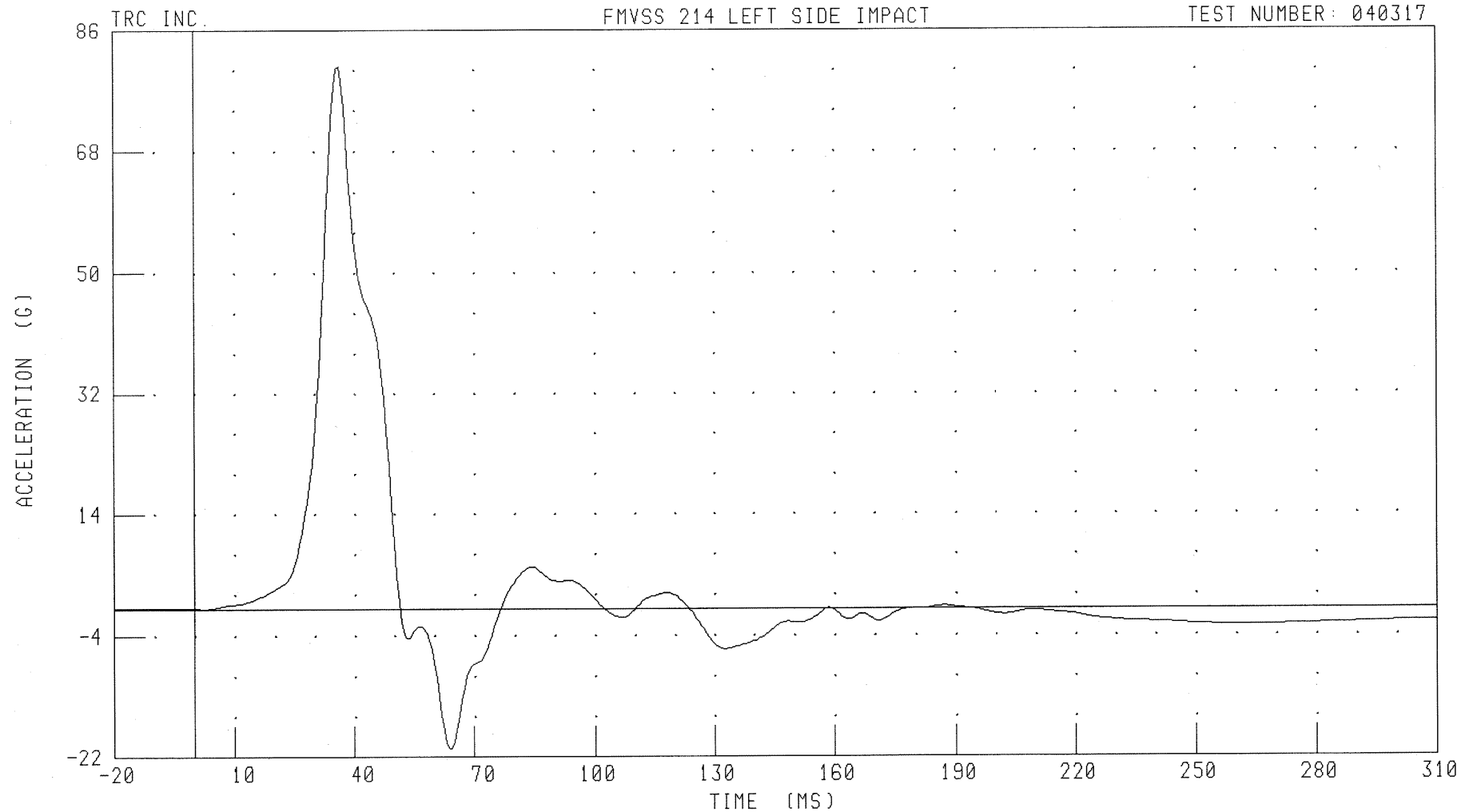
B-160

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YG4 FILTER: FIR 100

PEAK DATA: 80.49 G @ 36.25 MS; -20.84 G @ 63.75 MS

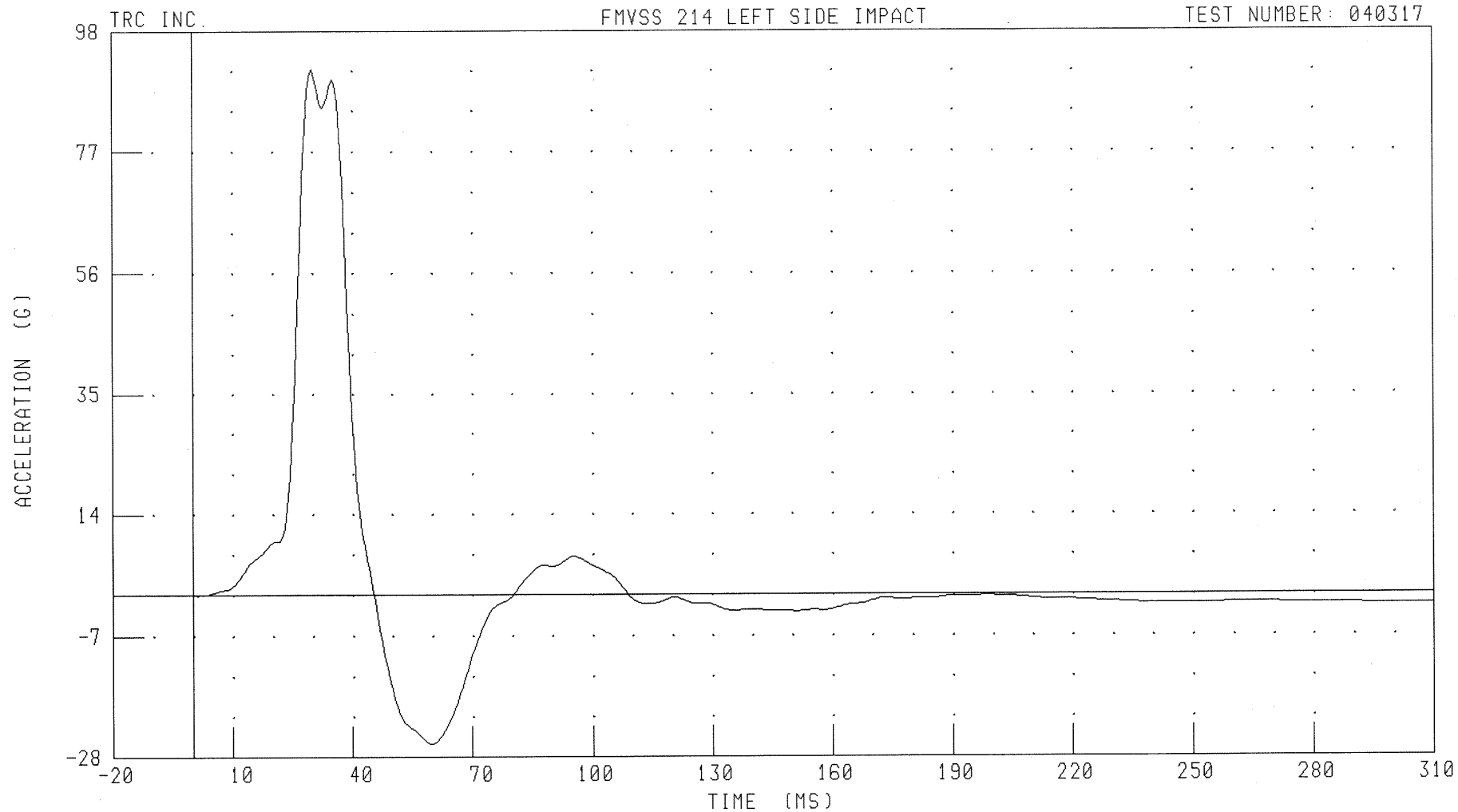
B-161

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYG4 FILTER: FIR 100

PEAK DATA: 91.28 G @ 30.00 MS; -25.67 G @ 59.38 MS

B-162

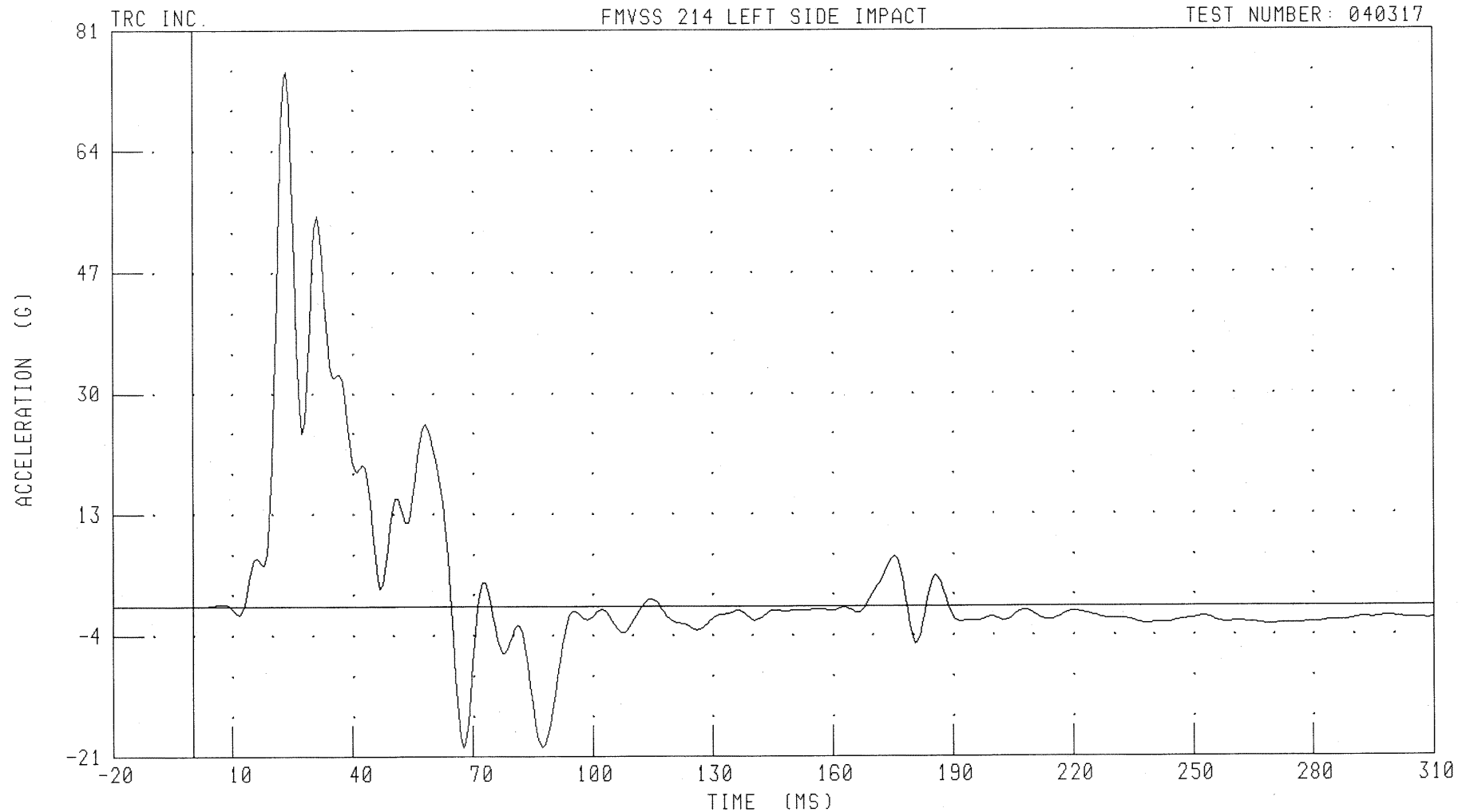
040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO

DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYR1

FILTER: FIR 100

PEAK DATA: 75.10 G @ 23.75 MS; -19.69 G @ 87.50 MS

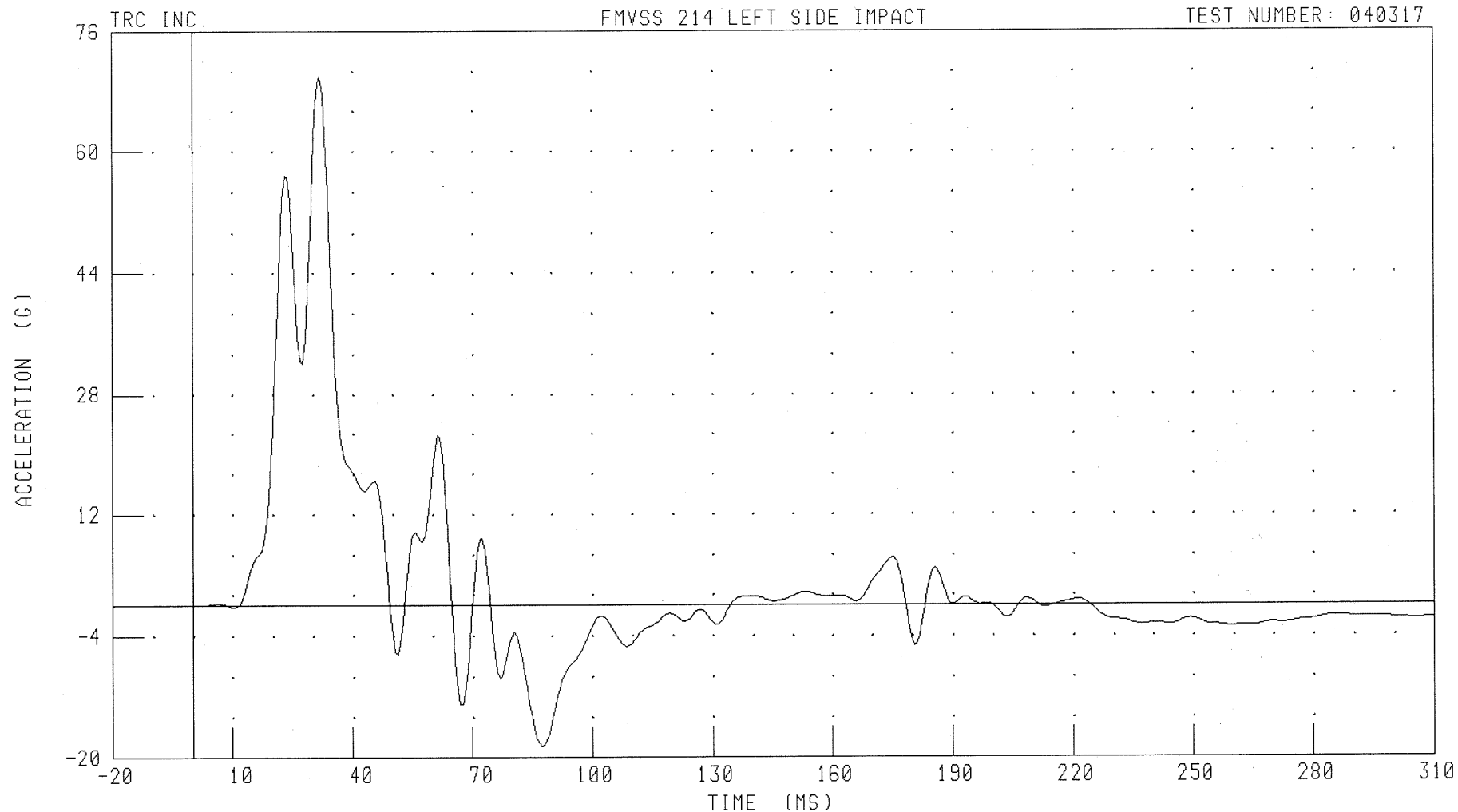
B-163

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYR1

FILTER: FIR 100

PEAK DATA: 70.09 G @ 31.88 MS; -18.50 G @ 87.50 MS

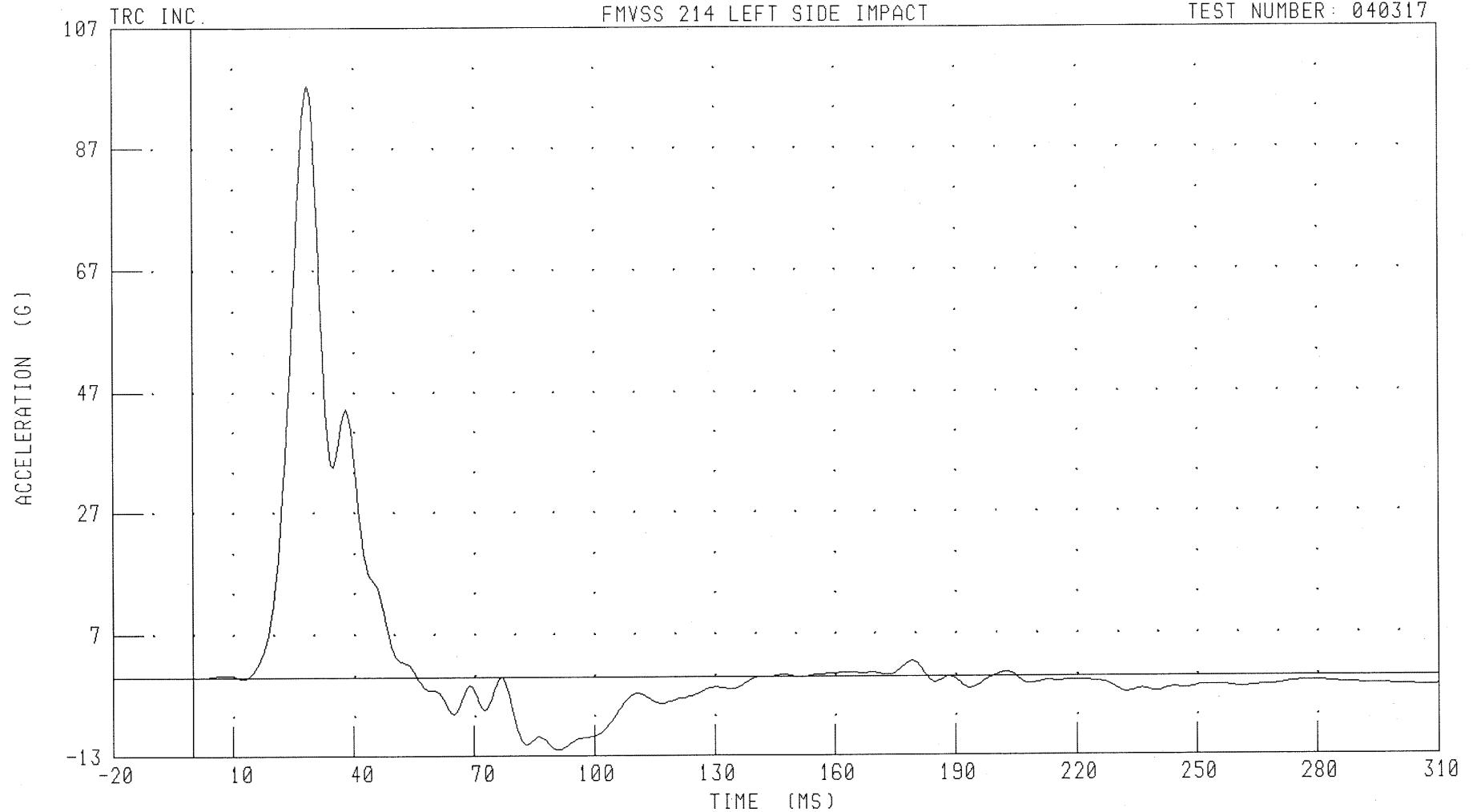
B-164

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YR1 FILTER: FIR 100

PEAK DATA: 97.40 G @ 28.75 MS; -12.02 G @ 91.25 MS

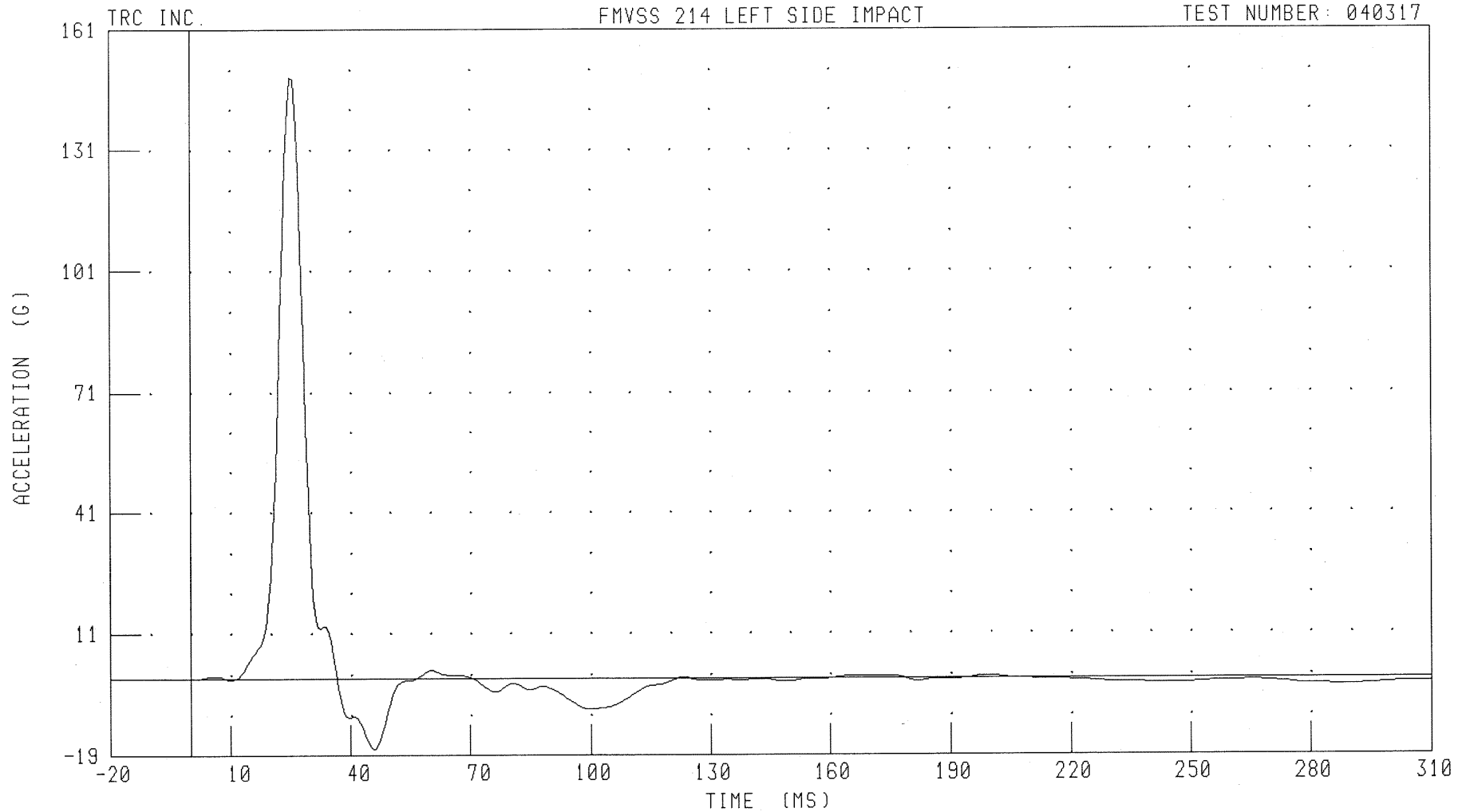
B-165

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYR1 FILTER: FIR 100

PEAK DATA: 149.01 G @ 25.00 MS; -17.54 G @ 46.25 MS

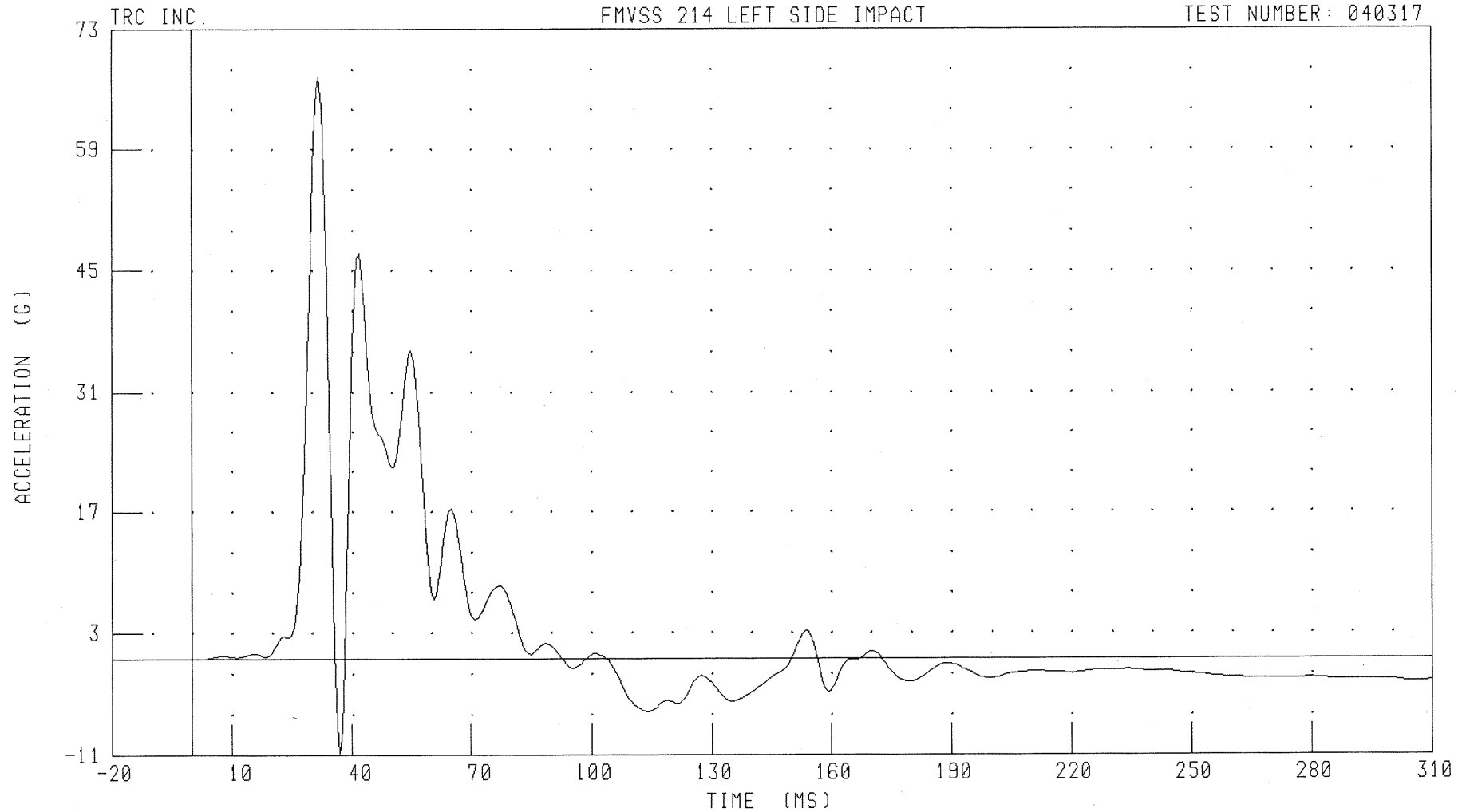
B-166

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LURYR4 FILTER: FIR 100

PEAK DATA: 67.43 G @ 31.88 MS; -10.73 G @ 36.88 MS

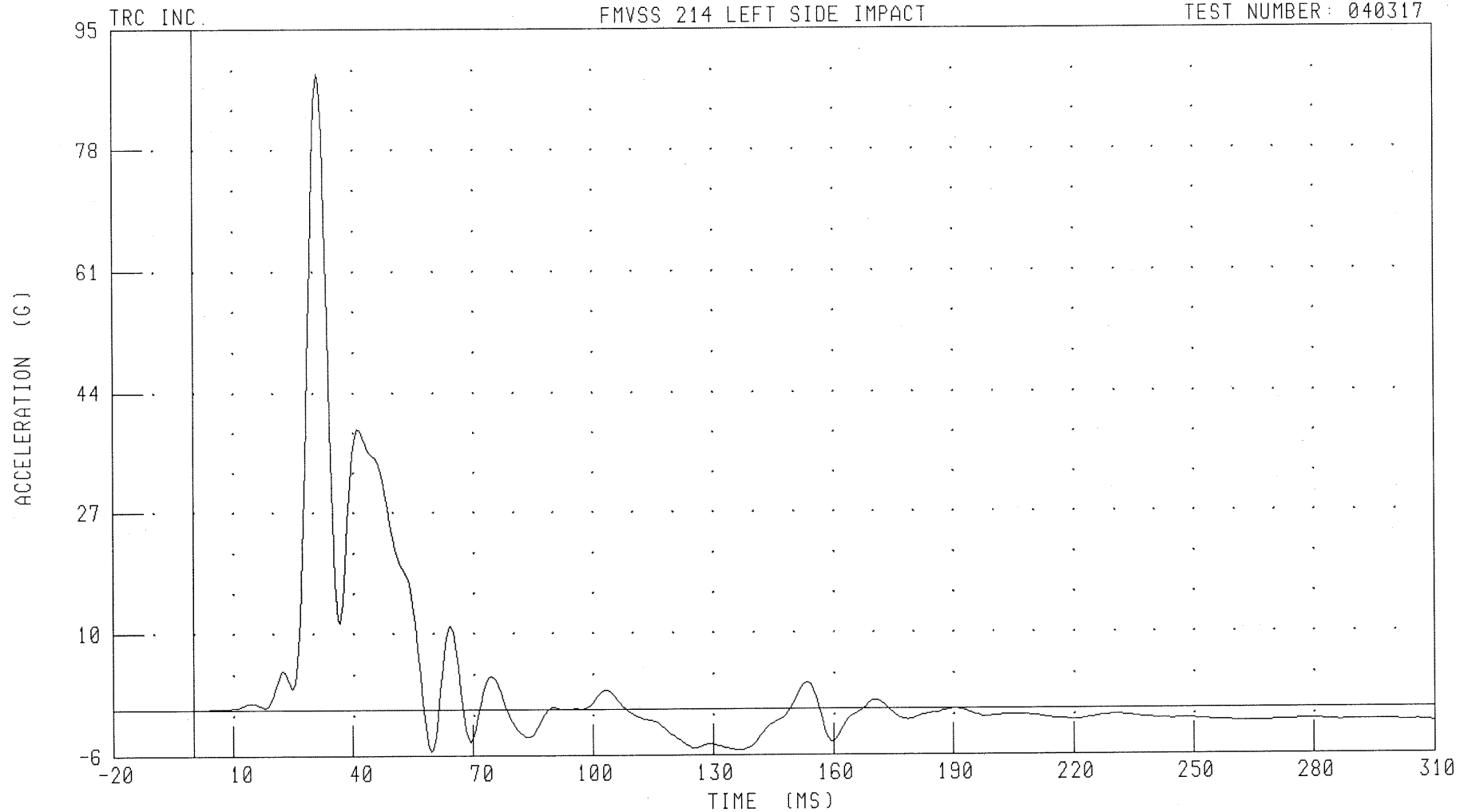
B-167

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: LLRYR4 FILTER: FIR 100

PEAK DATA: 89.41 G @ 31.25 MS; -5.94 G @ 59.38 MS

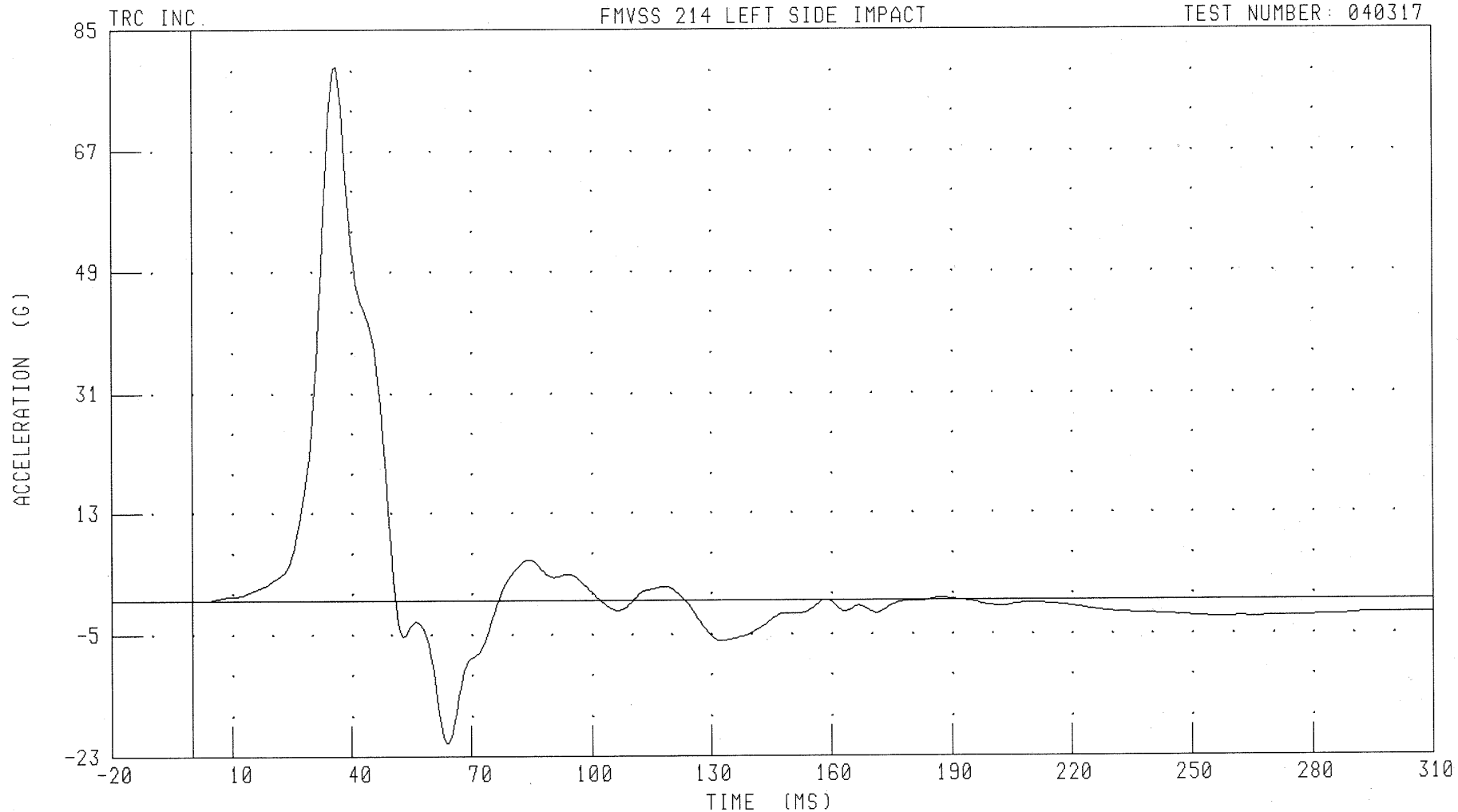
B-168

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: T12YR4 FILTER: FIR 100

PEAK DATA: 79.51 G @ 36.25 MS; -21.06 G @ 64.38 MS

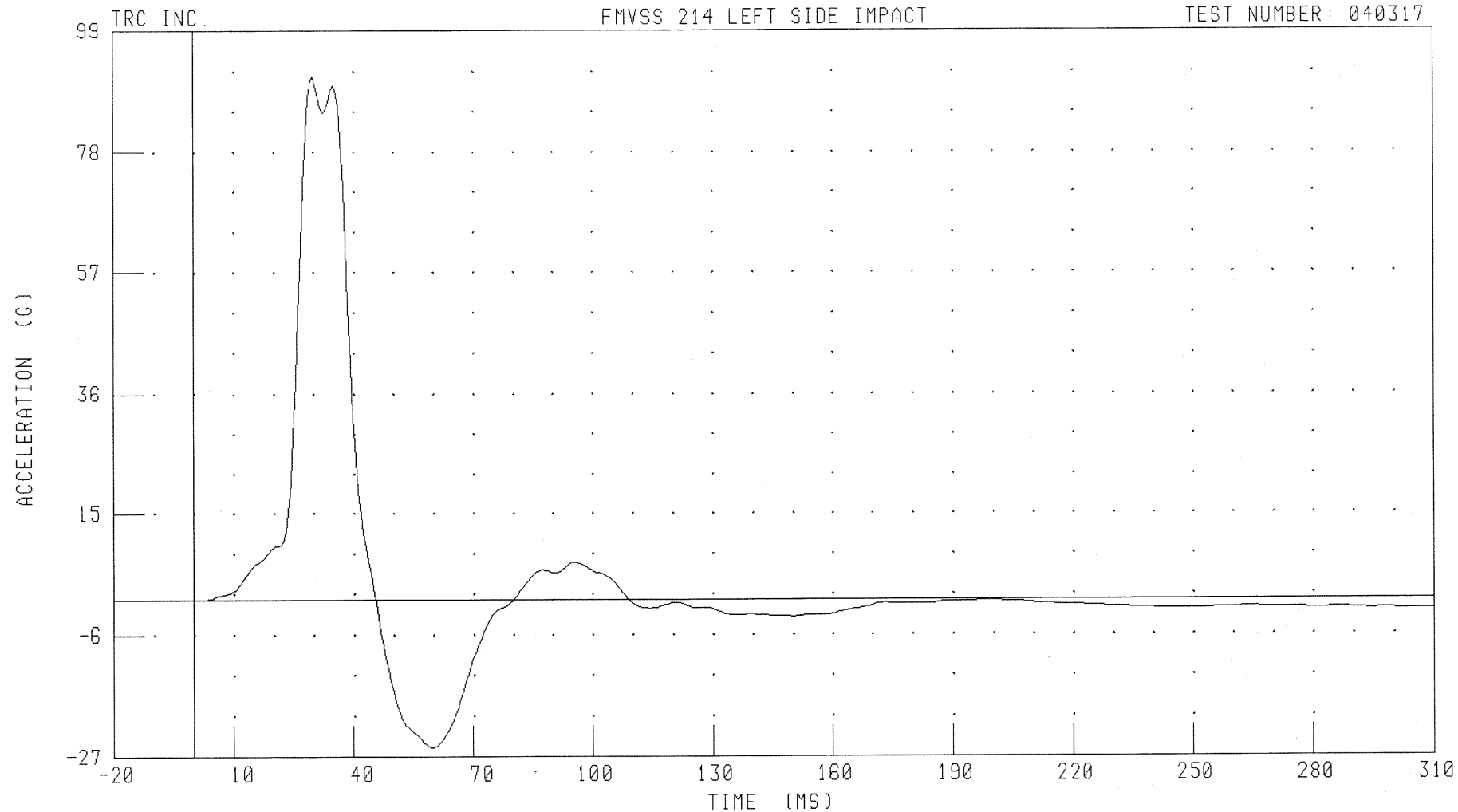
B-169

040317

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 CHEVROLET AVEO
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 040317



CHANNEL: PEVYR4 FILTER: FIR 100

PEAK DATA: 91.27 G @ 30.00 MS; -25.44 G @ 59.38 MS

B-170

040317

Appendix C

SID HIII Configuration and Performance Verification Data

Summary
 SID HIII Pre-Test and Post-Test Calibration
 Configured For Left Side Impact

Date: Feb. 17-March 26, 2004 TRC Inc. Test Number: S/N 055 & S/N 059

Laboratory Technician: V. Olivieri, S. Sterling, J. Clarridge, G. Watters

Test Parameter	Specification	SID HIII 055		SID HIII 059	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - Seated Height (mm)	889-909	905	909	902	907
RH - Rib Height (mm)	502-520	514	507	512	508
HP - Hip Pivot Height (mm)	99 ref	99.1	99.1	99.1	99.1
KH - Knee Pivot from Back Line (mm)	511-526	525	525	520	523
KV - Knee Pivot to Floor (mm)	490-505	491	491	491	495
HW - Hip Width (mm)	356-391	360	365	365	365
Thorax Impacts					
Temperature (°C)	18.9-25.5	21.7	22.0	21.7	21.5
Relative Humidity (%)	10-70	28	21	21	24
Probe Speed (m/s)	4.27-4.33	4.32	4.31	4.31	4.32
Upper Rib (g's)	37-46	38.6	38.5	39.6	39.9
Lower Rib (g's)	37-46	37.4	37.3	37.5	39.3
Lower Spine (g's)	15-22	17.5	17.5	20.0	20.1
Pelvis Impacts					
Temperature (°C)	18.9-25.5	21.8	22.0	21.5	22.1
Relative Humidity (%)	10-70	28	21	34	23
Probe Speed (m/s)	4.27-4.33	4.32	4.31	4.29	4.31
Pelvis (g's)	40-60	47.1	45.1	41.8	45.0

Calibration Test Results

Pre-Test

SID HIII: 055

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements.
Lateral Thorax Impact Test:	The 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.

Transportation Research Center Inc.
SID/HIII Dummy
External Dimensions Pre-Test
Serial No. 055 Calibration No. 12
Date: 3/15/04

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	905 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	514 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	525 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	491 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	360 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	173 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	2.0 mm	Yes

Technician

Vincent Oliver

Approved

V. J. Watts



Transportation Research Center Inc.

572M Left Lateral Head Test

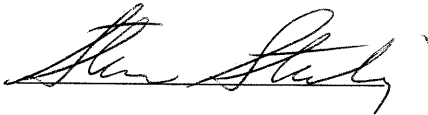
SID HIII Serial No. 055 Calibration No. 11 - 1

Test Date 02/17/2004

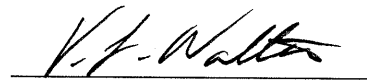
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	24 %	Yes
Peak Resultant Acceleration	120 - 150 g	133.0 g	Yes
Peak Longitudinal Acceleration	15 g Max	7.4 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



02.17.2004 10:43:13 610



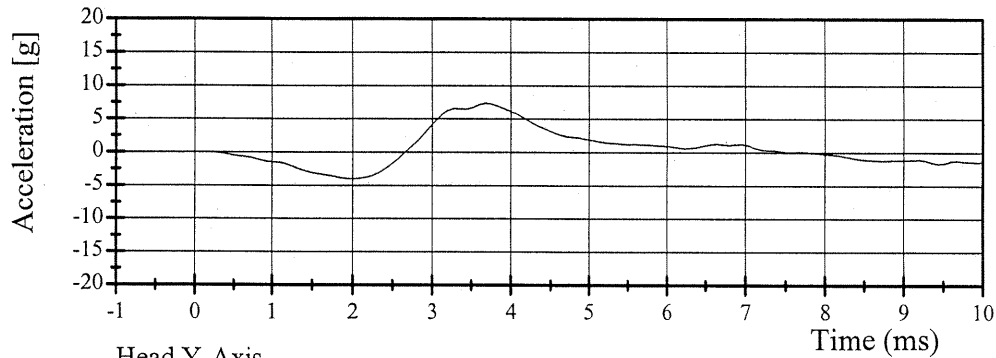
Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 055 Calibration No. 11 - 1

Test Date 02/17/2004

Head X-Axis

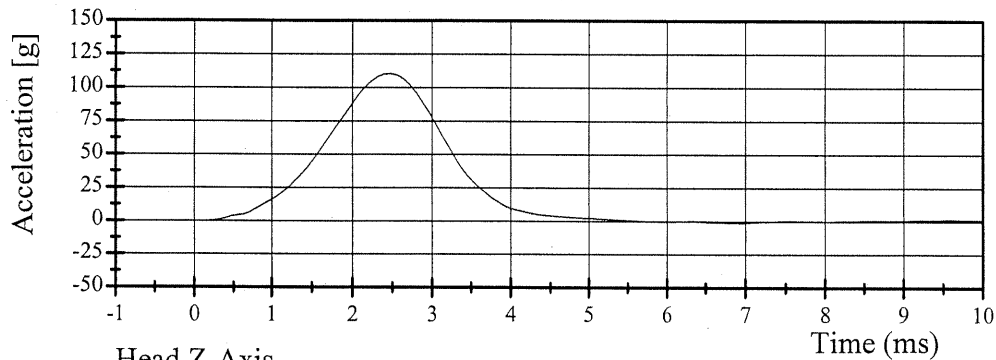


Filter Class: 1000

Max: 7.4 g at 3.7 ms

Min: -4.0 g at 2.0 ms

Head Y-Axis

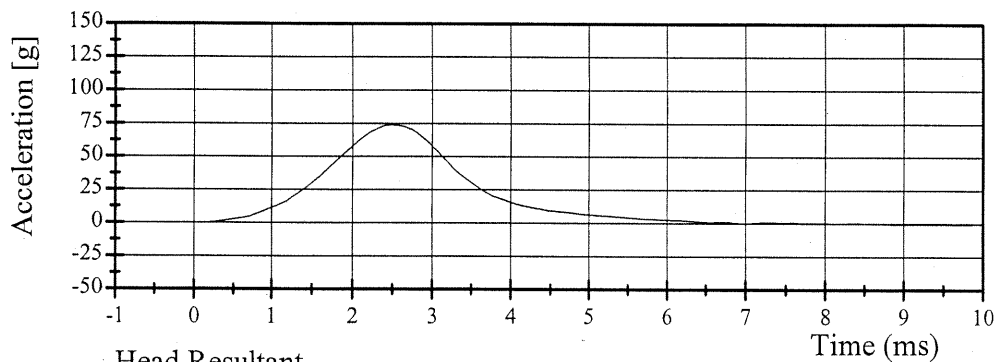


Filter Class: 1000

Max: 110.5 g at 2.5 ms

Min: -1.1 g at 7.0 ms

Head Z-Axis

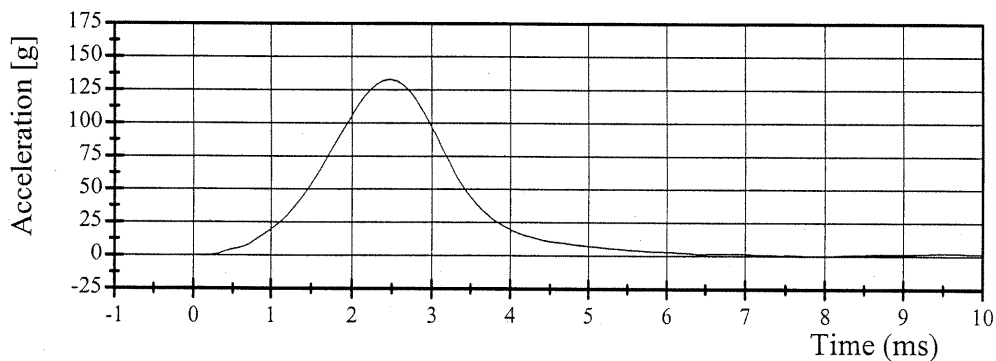


Filter Class: 1000

Max: 74.0 g at 2.5 ms

Min: -0.6 g at 9.7 ms

Head Resultant



Filter Class: 1000

Max: 133.0 g at 2.5 ms

Min: 0.0 g at 0.6 ms

Transportation Research Center Inc.

572M Left Lateral Neck Test

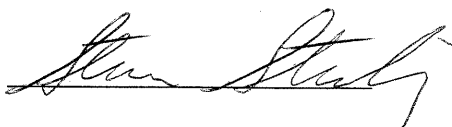
SID HIII Serial No. 055 Calibration No. 11 - 4

Test Date 02/17/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	24 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.96 - 2.55 m/s	2.04 m/s	Yes
20 ms	4.12 - 5.10 m/s	4.20 m/s	Yes
30 ms	5.73 - 7.01 m/s	6.07 m/s	Yes
40 - 70 ms	6.27 - 7.64 m/s	7.17 - 7.32 m/s	Yes
Peak D Plane Rotation	66 - 82 °	69.5 °	Yes
Rotation Decay Time To 0° From Peak Angle	58 - 67 °	59.9 °	Yes
Peak Moment About Occipital Condyles	73.0 - 88.0 N·m	83.0 N·m	Yes
Moment Decay Time To 0 N·m From Peak Moment	49 - 64 ms	53.0 ms	Yes
Time Between Peak Rotation and Peak Moment	2 - 16 ms	8.6 ms	Yes

Comments:

Technician



Approved



02.17.2004 15:01:58 506



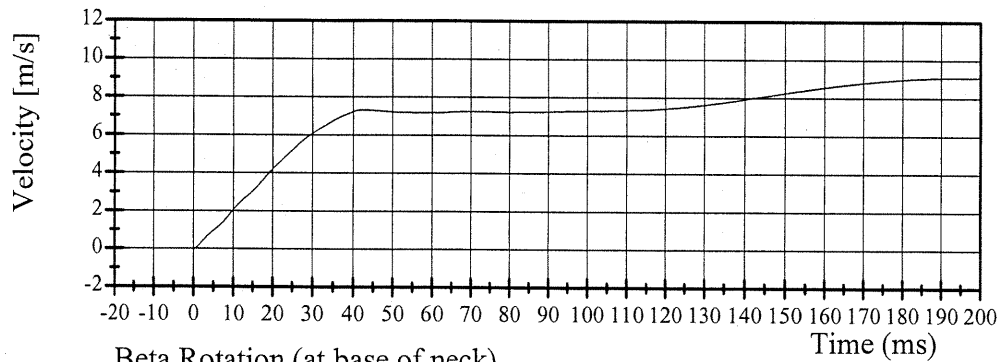
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 055 Calibration No. 11 - 4

Test Date 02/17/2004

Integrated Pendulum Velocity

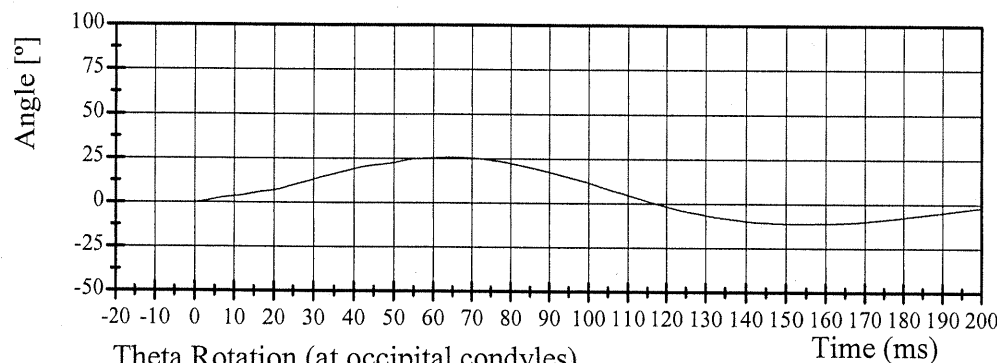


Filter Class: 180

Max: 9.4 m/s at 959.5 ms

Min: -0.0 m/s at -31.4 ms

Beta Rotation (at base of neck)

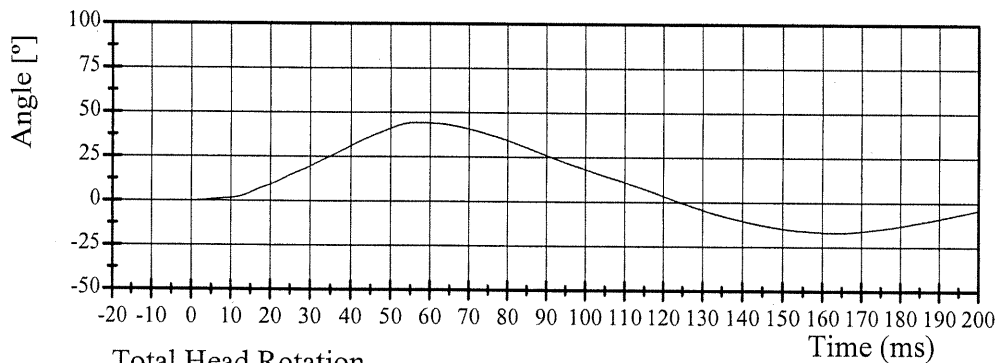


Filter Class: 60

Max: 25.7 ° at 65.0 ms

Min: -11.0 ° at 152.6 ms

Theta Rotation (at occipital condyles)

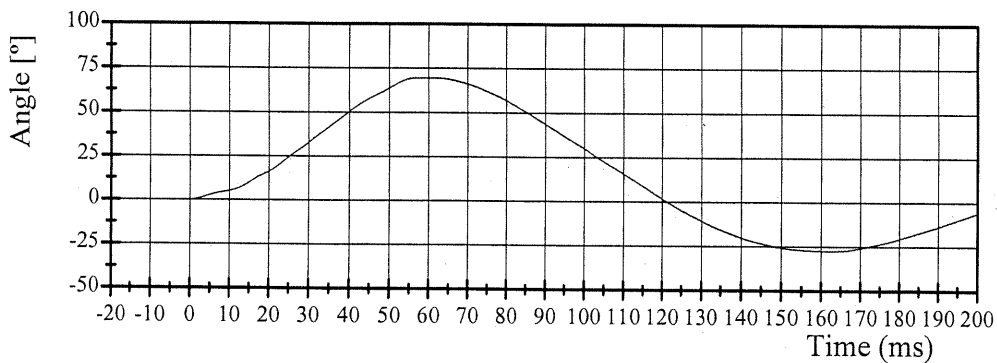


Filter Class: 60

Max: 44.4 ° at 56.6 ms

Min: -16.8 ° at 163.5 ms

Total Head Rotation



Filter Class: 60

Max: 69.5 ° at 61.4 ms

Min: -27.5 ° at 162.3 ms

02.17.2004 15:01:59 506



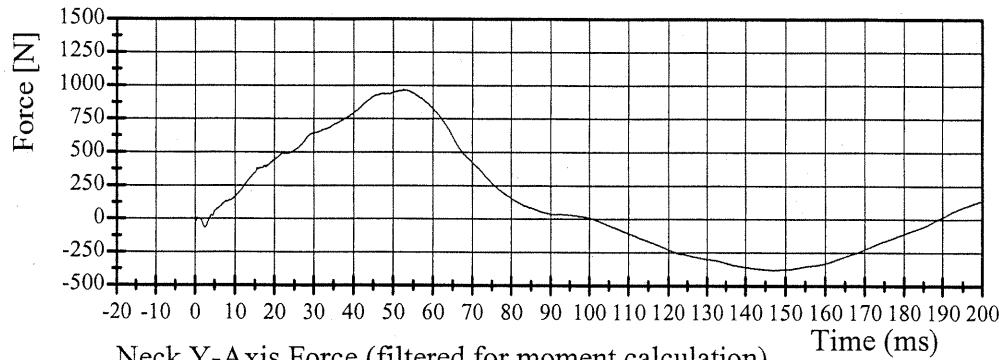
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 055 Calibration No. 11 - 4

Test Date 02/17/2004

Neck Y-Axis Force

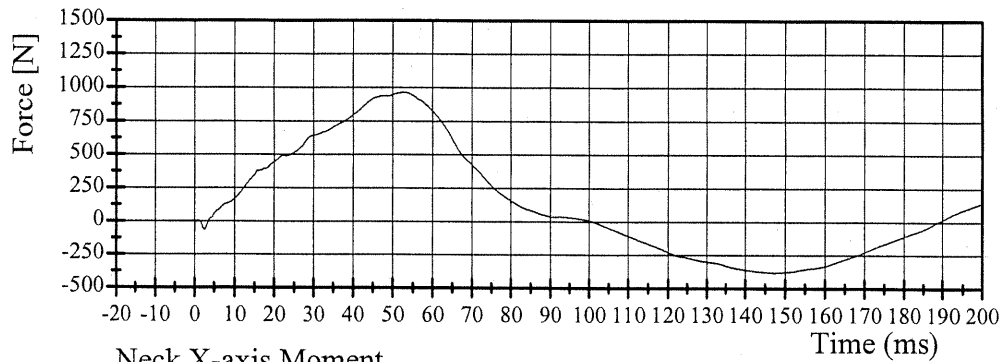


Filter Class: CFC 1000

Max: 968 N at 52.5 ms

Min: -381 N at 147.3 ms

Neck Y-Axis Force (filtered for moment calculation)

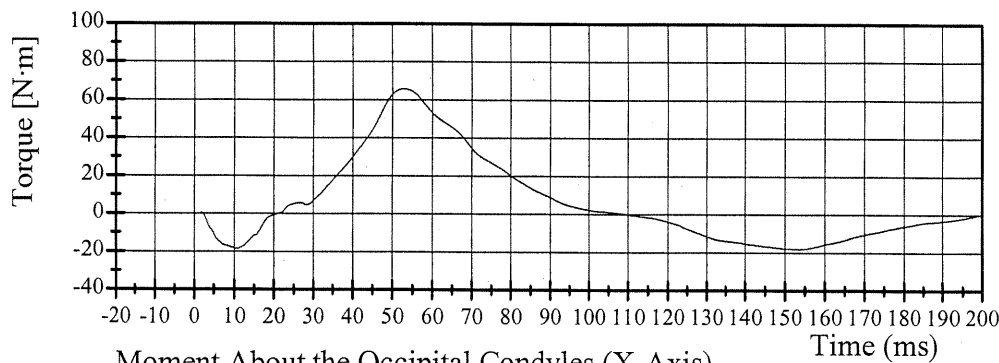


Filter Class: CFC 600

Max: 966 N at 52.6 ms

Min: -380 N at 147.1 ms

Neck X-axis Moment

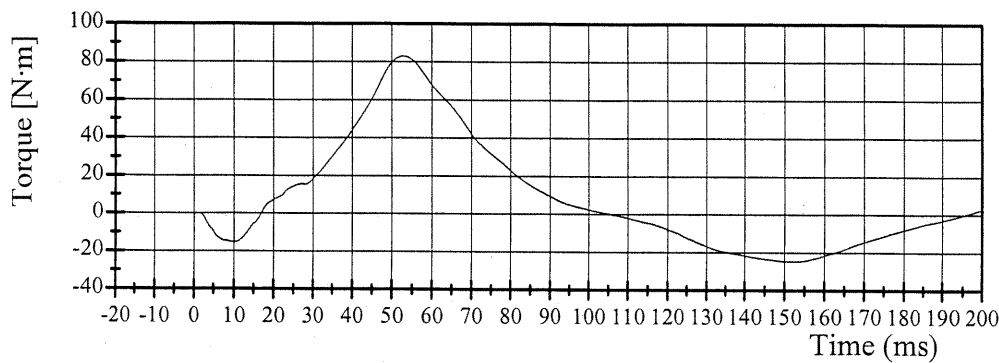


Filter Class: CFC 600

Max: 65.8 N·m at 52.8 ms

Min: -18.4 N·m at 10.9 ms

Moment About the Occipital Condyles (X-Axis)



Filter Class: 600

Max: 83.0° at 52.8 ms

Min: -24.6° at 152.2 ms

02.17.2004 15:02:00 506



TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

13-MAR-04

TRC INC.

572F SN055 DAMPER TEST CAL12

TEST NUMBERS: DP05512A9,DP05512B1,DP05512C7

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.6 DEG. C
RELATIVE HUMIDITY		10 - 70 %	21.0 %
VELOCITY	FORCE	667 - 925 N	771 N
2.72 M/S	DISPLACEMENT	29.7 - 34.5 MM	30.7 MM
VELOCITY	FORCE	1733 - 2100 N	1746 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.8 MM
VELOCITY	FORCE	3663 - 4355 N	3769 N
6.05 M/S	DISPLACEMENT	33.2 - 39.5 MM	36.7 MM

DAMPER SETTING = 9.0

REPLACEMENT DAMPER INSTALLED.

TEST MEETS SPECIFICATIONS

TECHNICIAN

V. J. Watter

RUN NUMBER: 031304.2024;1

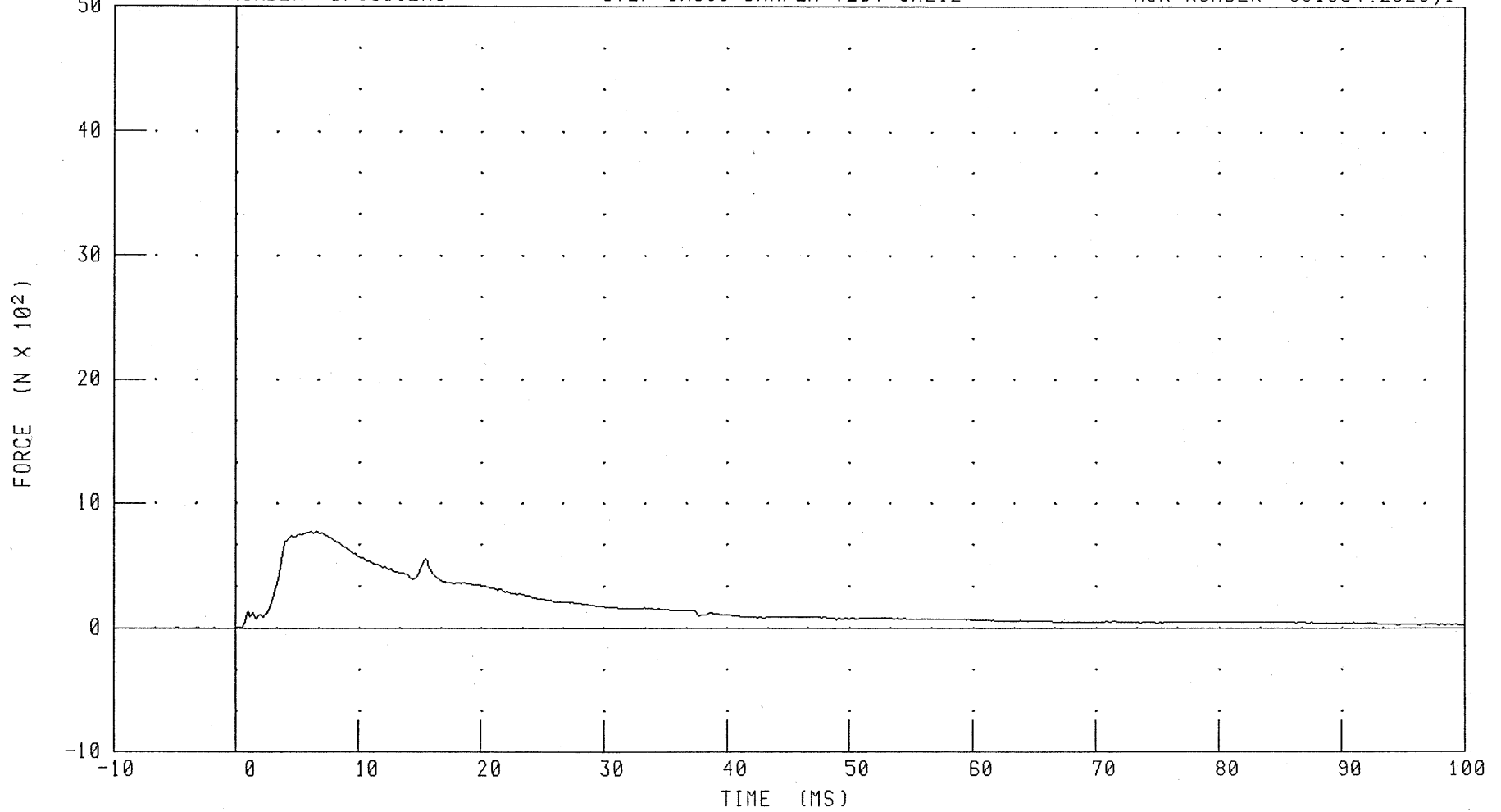
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP05512A9

572F SN055 DAMPER TEST CAL12

RUN NUMBER: 031304.2025;1



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 771.07 N @ 6.56 MS; -2.23 N @ -5.20 MS

040317

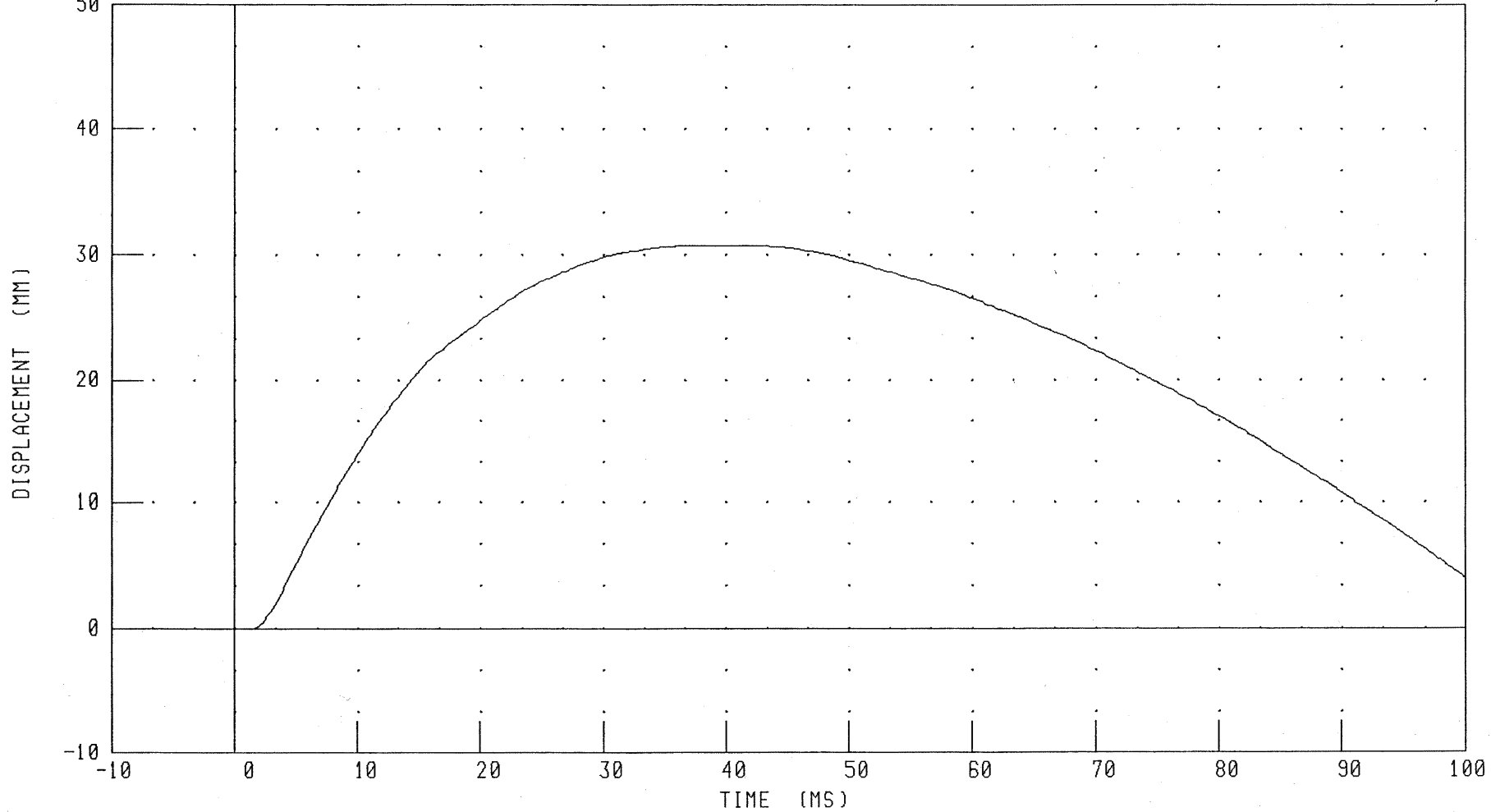
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05512A9

572F SN055 DAMPER TEST CAL12

RUN NUMBER: 031304.2025;1



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 30.70 MM @ 37.36 MS; -0.01 MM @ 1.04 MS

C-12

040317

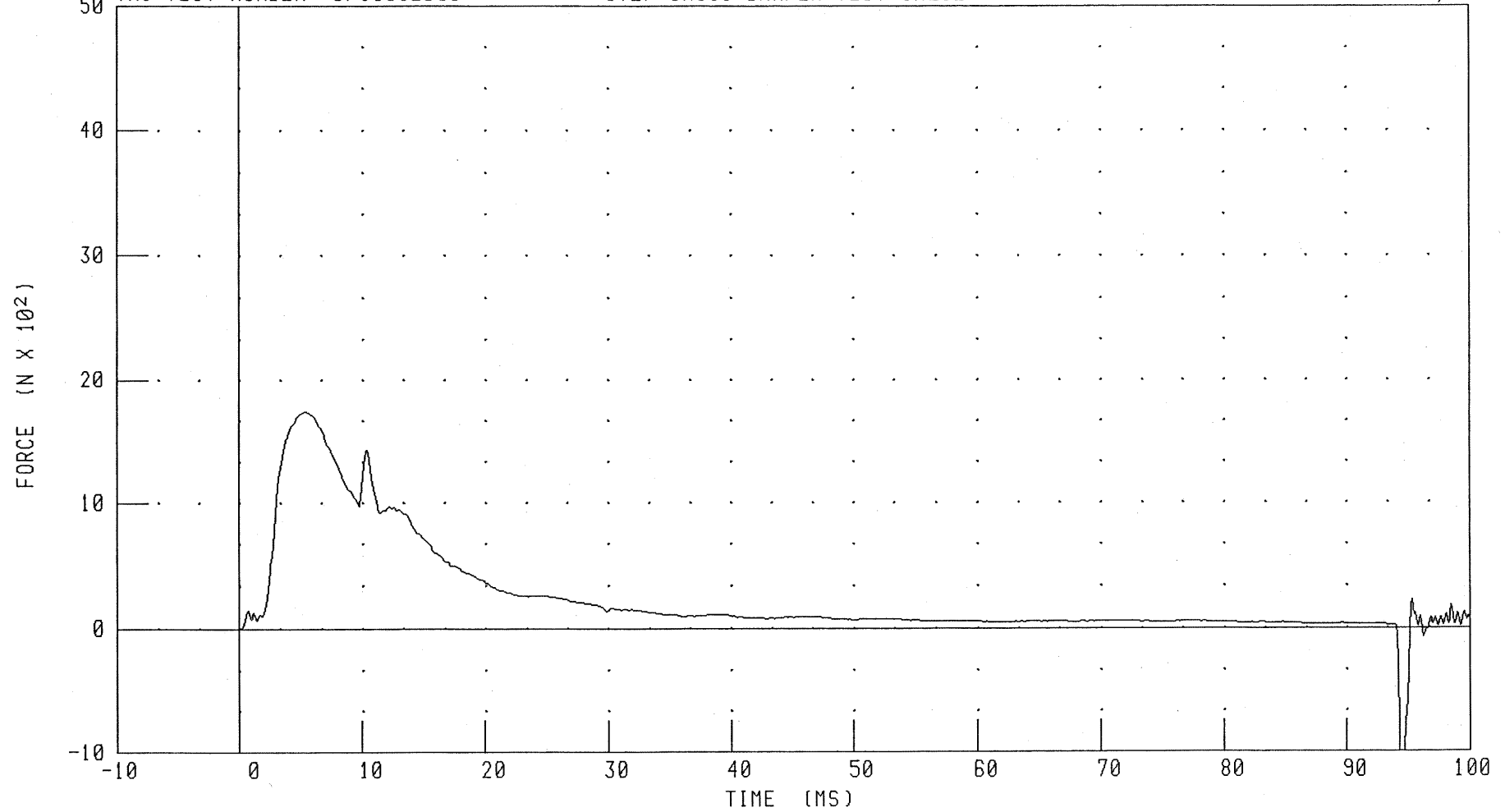
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP05512B11

572F SN055 DAMPER TEST CAL12

RUN NUMBER: 031304.2026;1



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 1746.07 N @ 5.44 MS; -1982.01 N @ 94.48 MS

040317

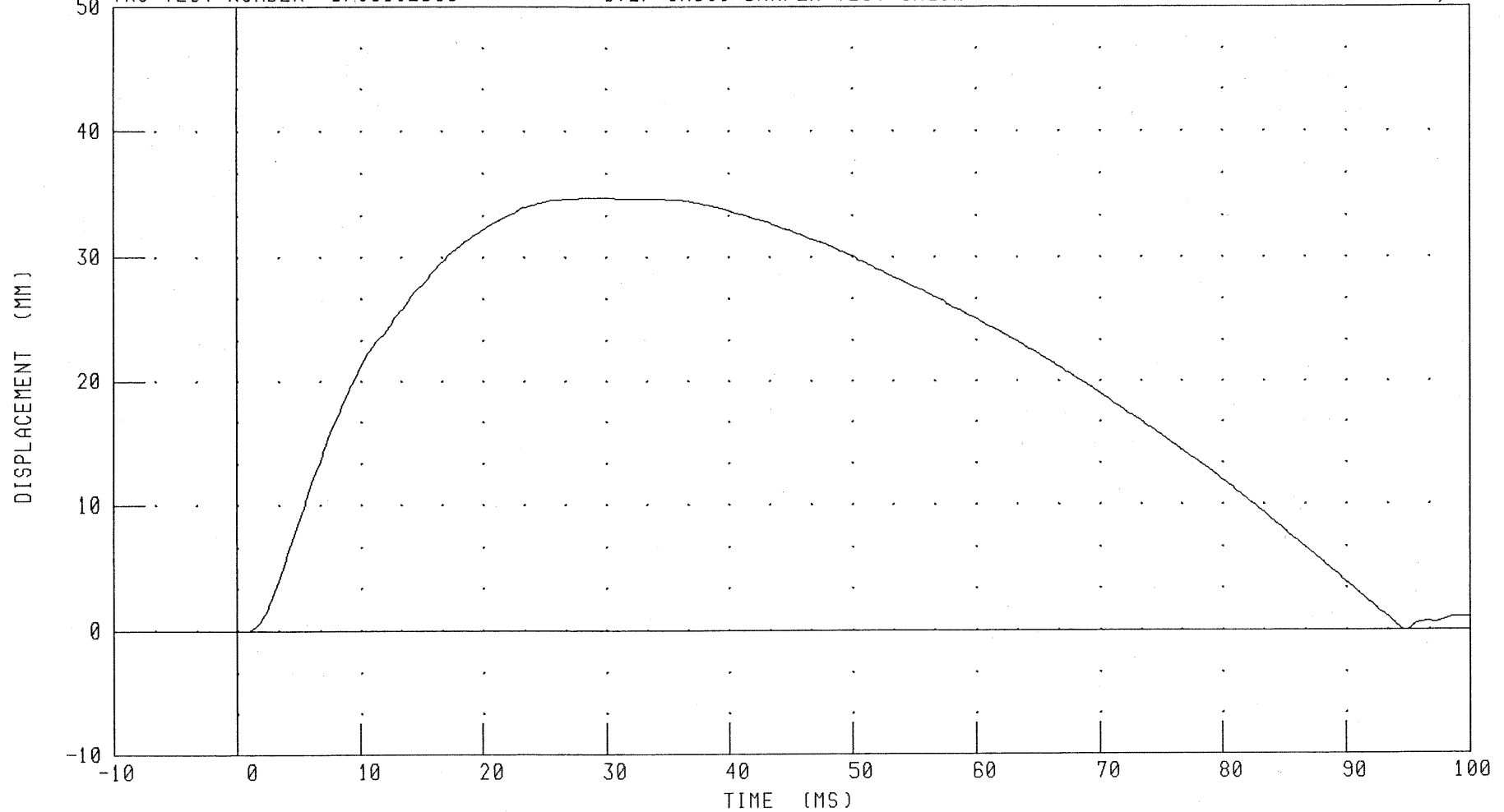
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05512B11

572F SN055 DAMPER TEST CAL12

RUN NUMBER: 031304.2026;1



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 34.78 MM @ 29.36 MS; -0.05 MM @ 94.80 MS

C-14

040317

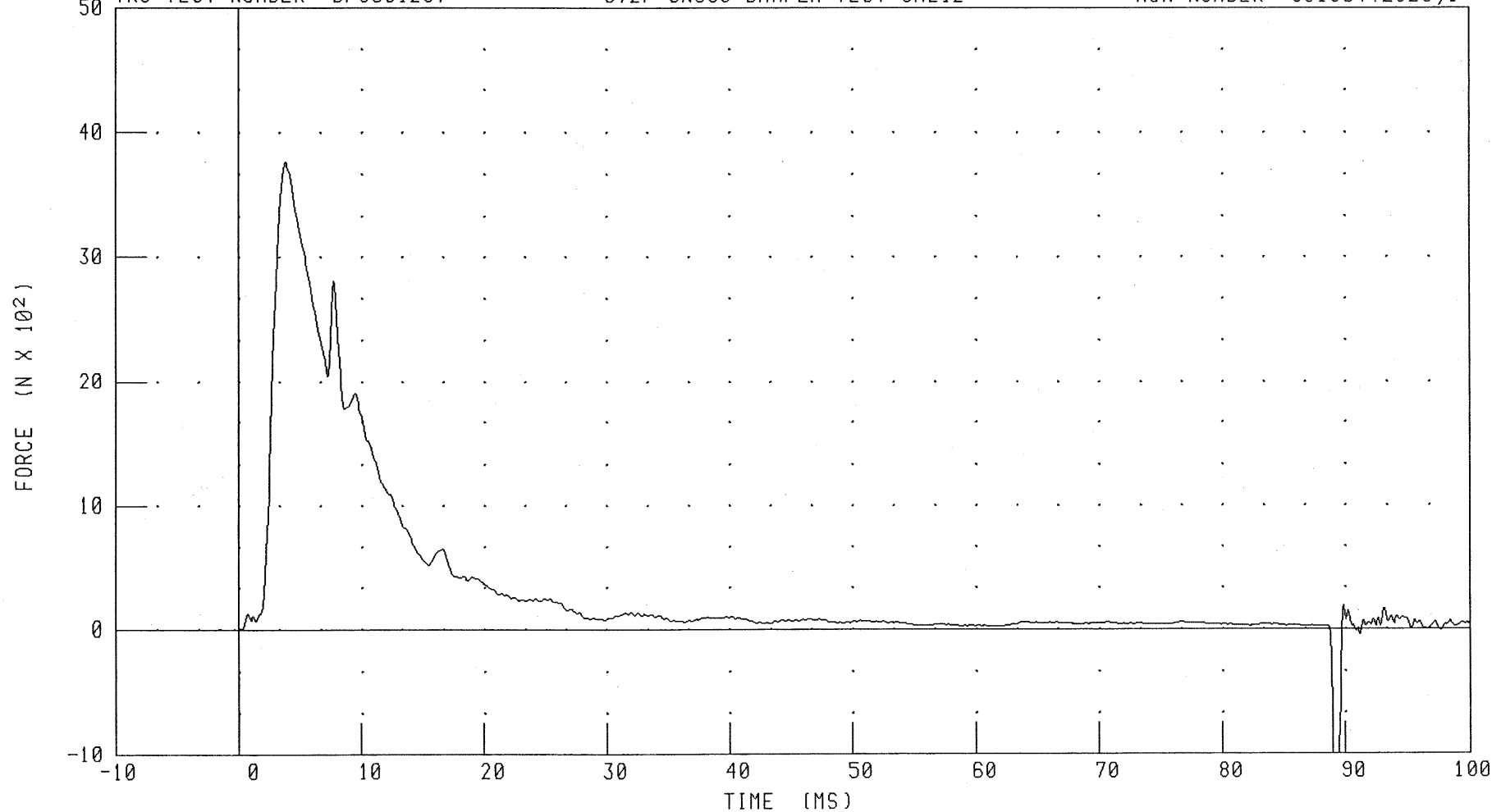
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP05512C7

572F SN055 DAMPER TEST CAL12

RUN NUMBER: 031304.2026;1



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 3768.94 N @ 3.84 MS; -1964.28 N @ 89.20 MS

C-15

040317

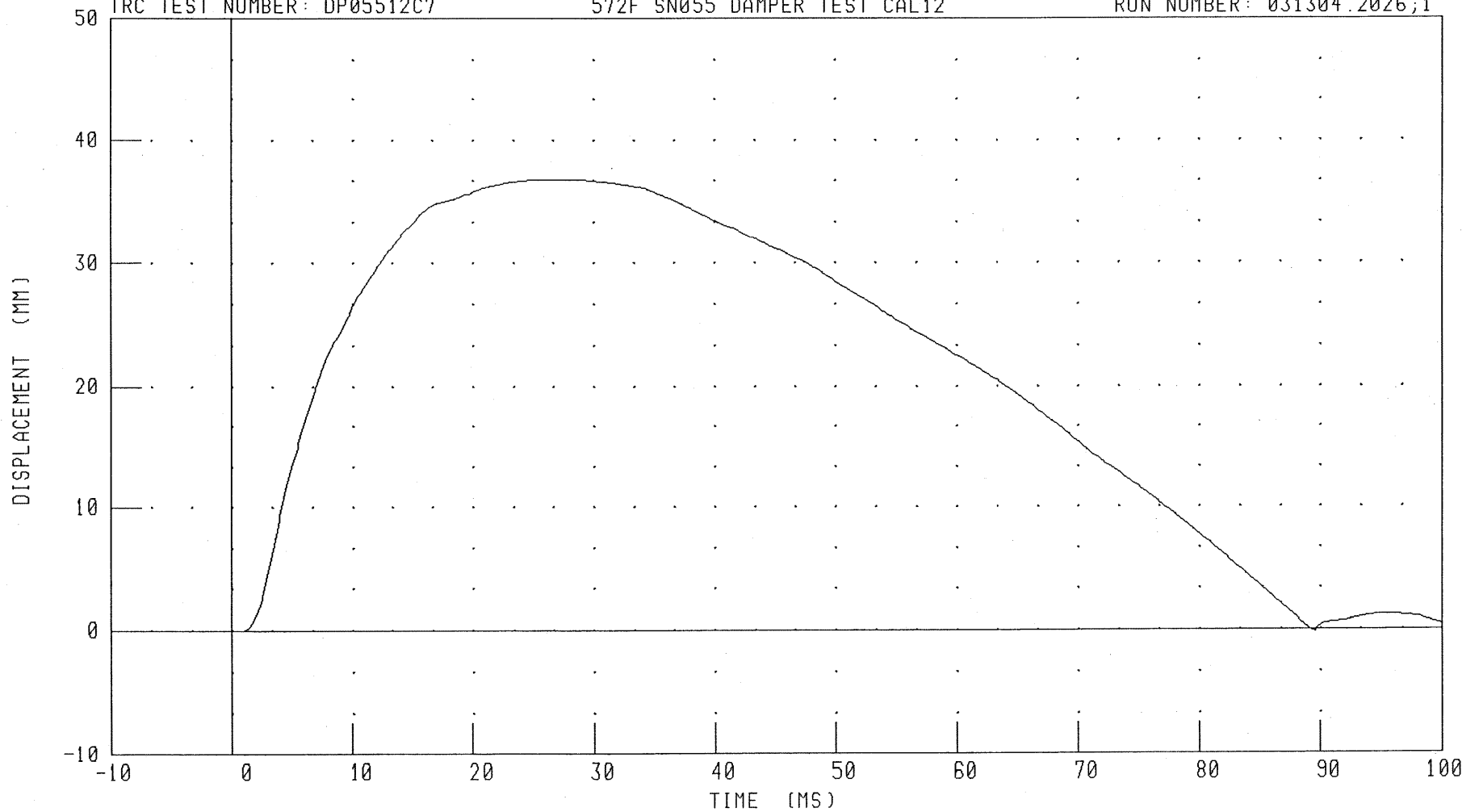
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05512C7

572F SN055 DAMPER TEST CAL12

RUN NUMBER: 031304.2026;1



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 36.73 MM @ 26.24 MS; -0.17 MM @ 89.52 MS

C-16

040317

TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID/HIII

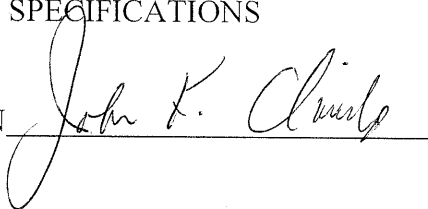
CAL DATE: 08-Mar-04

TRC, INC. TEST NO: 055C12TF2 572M SN 055 TORSO FLEX CAL 12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.4 °C
RELATIVE HUMIDITY	10 – 70 %	19 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	142.3 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	164.6 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	209.1 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	0.4 °

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

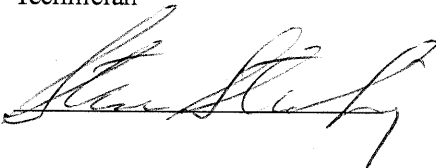
SID HIII Serial No. 055 Calibration No. 12 - 3

Test Date 03/05/2004

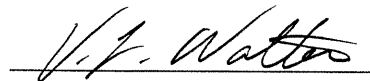
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.7 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



03.05.2004 17:17:29 1766

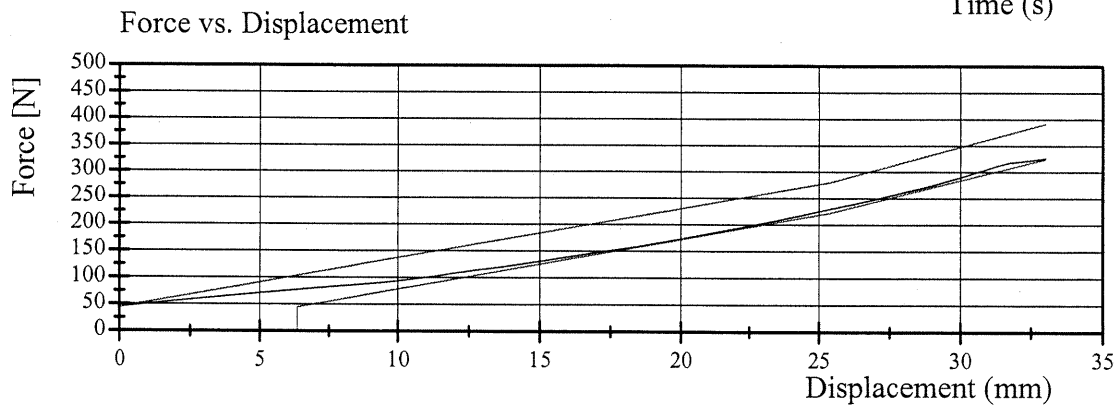
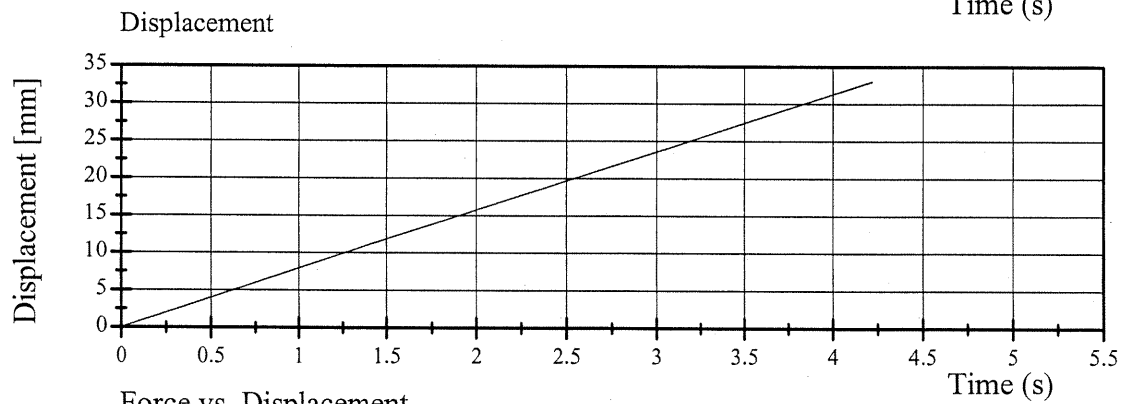
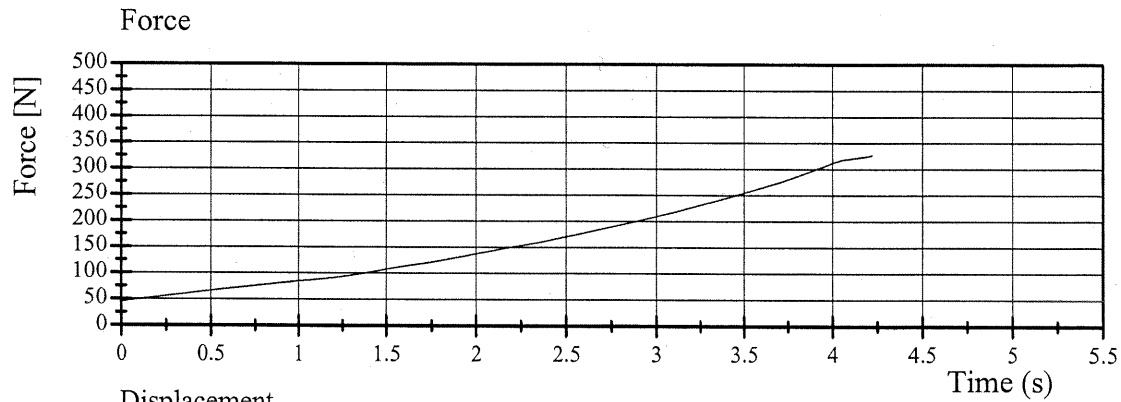


Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 055 Calibration No. 12 - 3

Test Date 03/05/2004



03.05.2004 17:17:30 1766



Transportation Research Center Inc.

572F Left Thorax Test

SID HIII Serial No. 055 Calibration No. 12 - 2

Test Date 03/15/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.7 C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.32 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	38.6 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	37.4 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	17.5 g	Yes

Comments:

Pre-test calibration.

Technician

Vincent Oliver

Approved

V. J. Watter

03.15.2004 13:54:26 1201

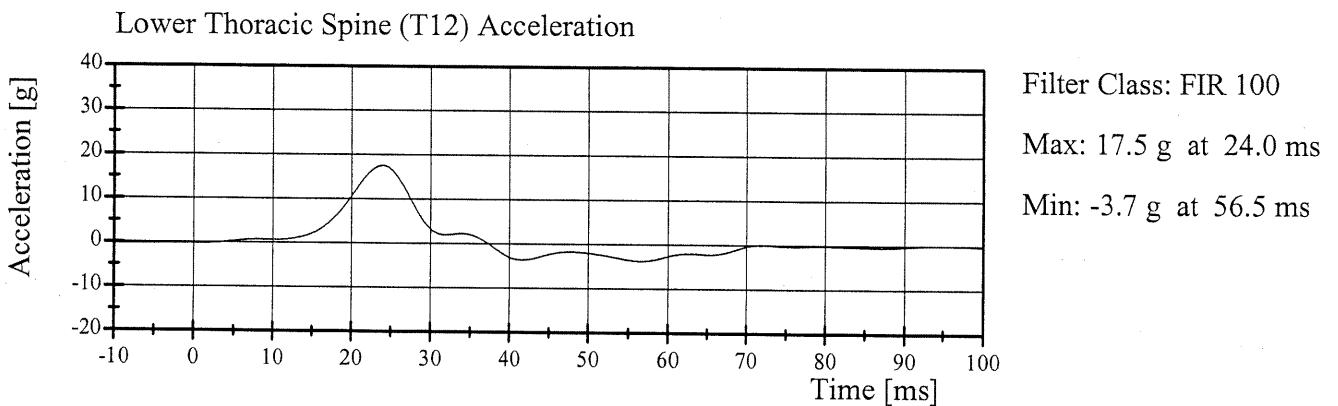
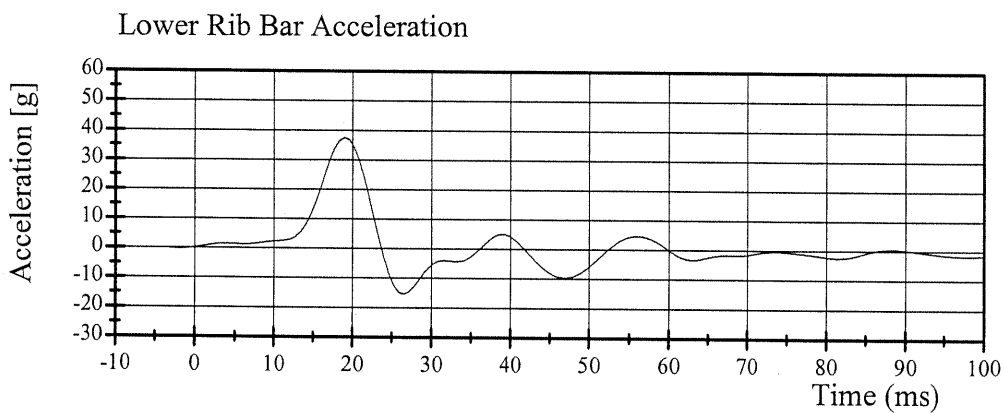
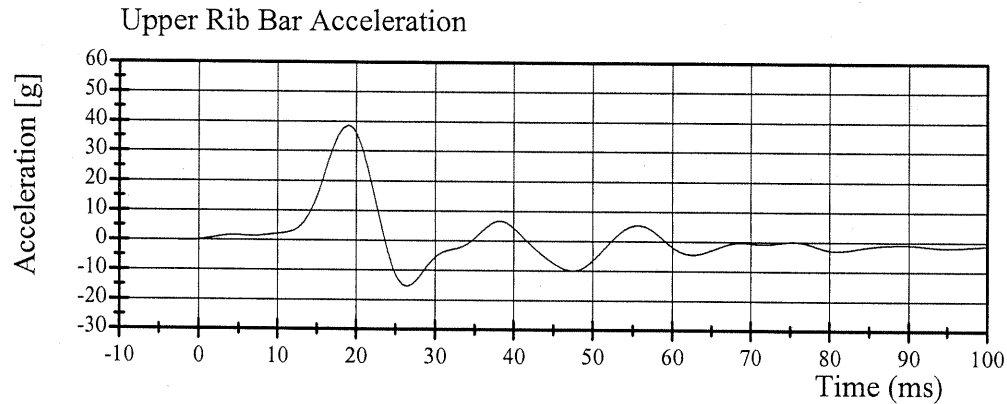


Transportation Research Center Inc.

572F Left Thorax Test

SID HIII Serial No. 055 Calibration No. 12 - 2

Test Date 03/15/2004



03.15.2004 13:54:27 1201



Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 055 Calibration No. 12 - 2

Test Date 03/15/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.8 C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.32 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	47.1 g	Yes
Time Above 20 g	3 - 7 ms	6.08 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician

Vincent Oliveri

Approved

K.F. Watter

03.30.2004 11:30:07 1173

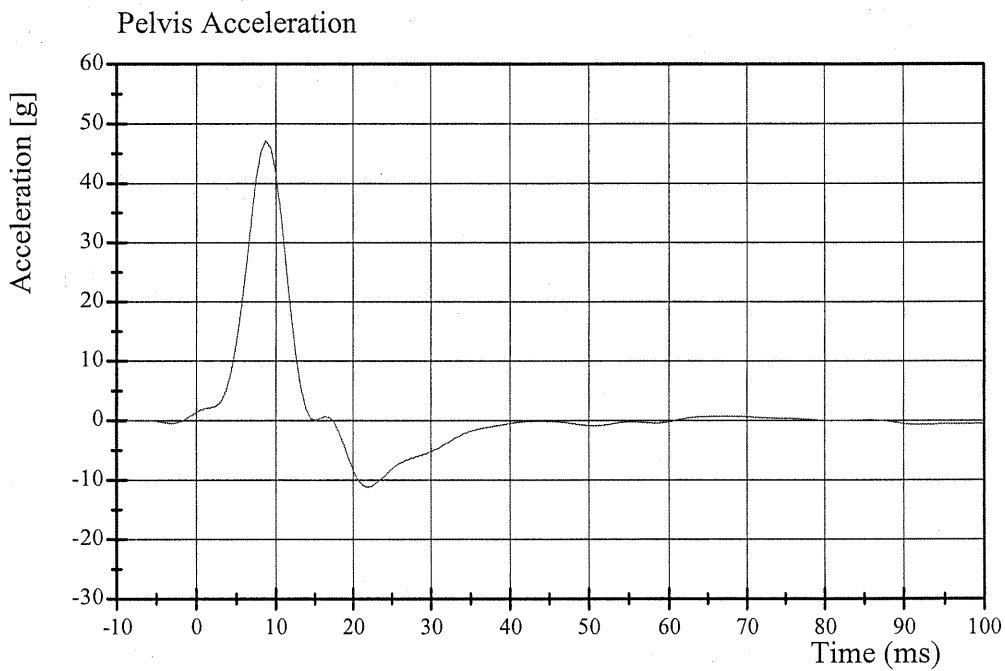


Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 055 Calibration No. 12 - 2

Test Date 03/15/2004



Filter Class: FIR 100

Max: 47.1 g at 8.7 ms

Min: -11.2 g at 21.8 ms

Calibration Test Results

Pre-Test

SID HIII: 059

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements (was tested on February 23, 2004 for a previous calibration series).
Lateral Thorax Impact Test:	The 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.

Transportation Research Center Inc.
SID/HIII Dummy Pre-Test
External Dimensions
Serial No. 059 Calibration No. 07
Date: 3/14/04

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	902 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	512 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	520 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	491 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	365 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	178 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	179 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician

Vincent Oliveri

Approved

V. F. Walter



Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 059 Calibration No. 06 - 1

Test Date 02/19/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Peak Resultant Acceleration	120 - 150 g	142.7 g	Yes
Peak Longitudinal Acceleration	15 g Max	5.1 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Post Test

This dummy's head skin slipped half-way off during test and was reinstalled prior to calibration

Technician



Approved



03.02.2004 09:56:33 607

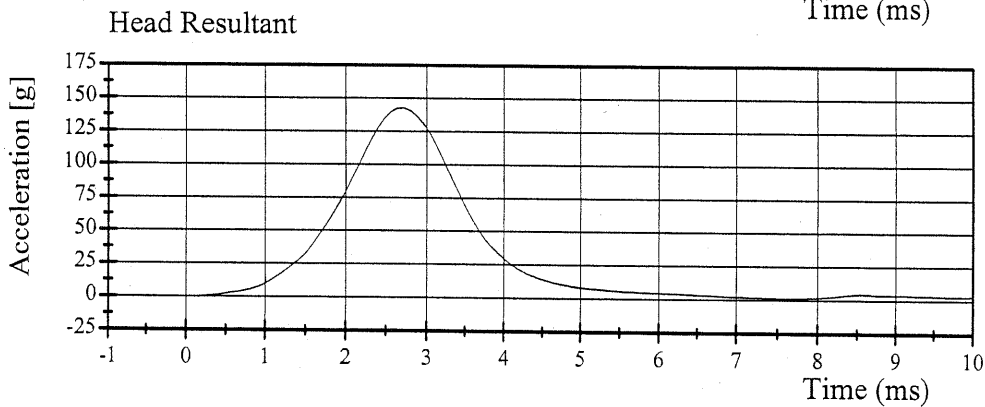
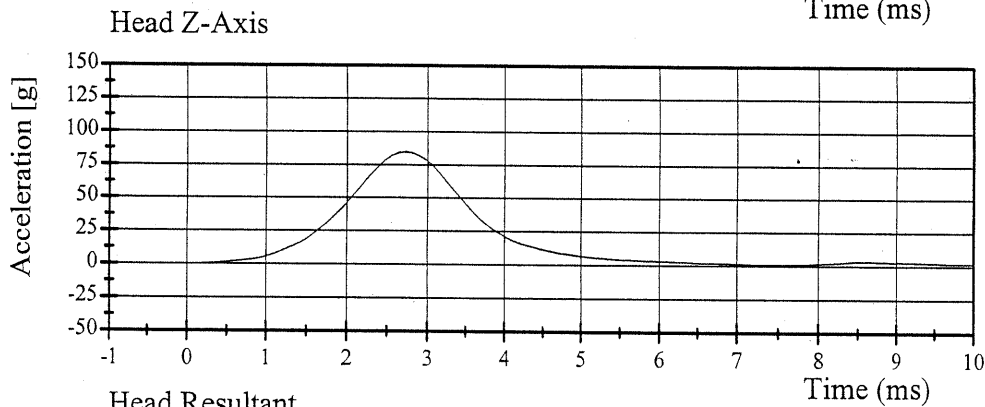
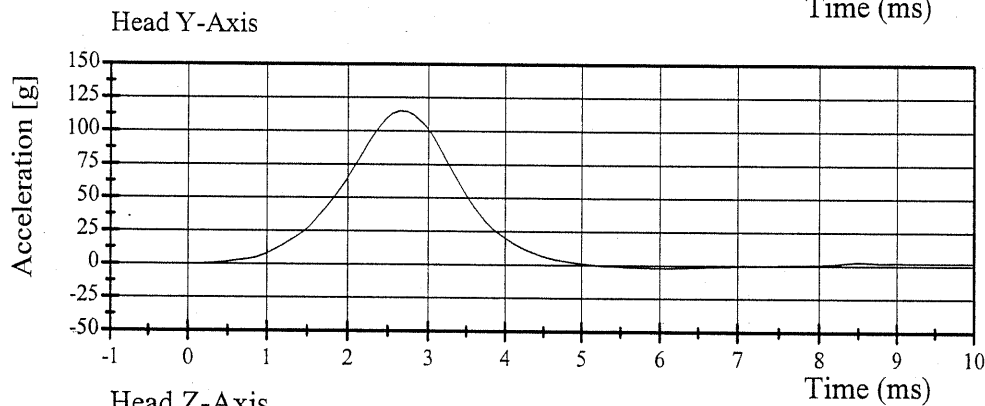
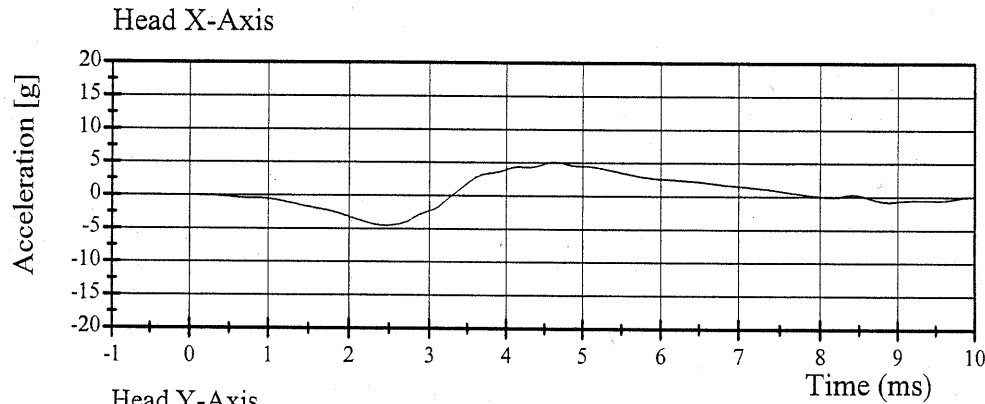


Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 059 Calibration No. 06 - 1

Test Date 02/19/2004



03.02.2004 09:56:34 607



Transportation Research Center Inc.

572M Left Lateral Neck Test

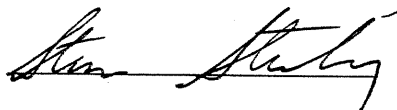
SID HIII Serial No. 059 Calibration No. 06 - 2

Test Date 03/02/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Impact Velocity	6.89 - 7.13 m/s	6.97 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.96 - 2.55 m/s	2.47 m/s	Yes
20 ms	4.12 - 5.10 m/s	4.81 m/s	Yes
30 ms	5.73 - 7.01 m/s	6.66 m/s	Yes
40 - 70 ms	6.27 - 7.64 m/s	7.11 - 7.22 m/s	Yes
Peak D Plane Rotation	66 - 82 °	72.4 °	Yes
Rotation Decay Time To 0° From Peak Angle	58 - 67 °	61.0 °	Yes
Peak Moment About Occipital Condyles	73.0 - 88.0 N·m	83.3 N·m	Yes
Moment Decay Time To 0 N·m From Peak Moment	49 - 64 ms	59.4 ms	Yes
Time Between Peak Rotation and Peak Moment	2 - 16 ms	8.8 ms	Yes

Comments:

Technician



Approved



03.02.2004 09:19:48 515



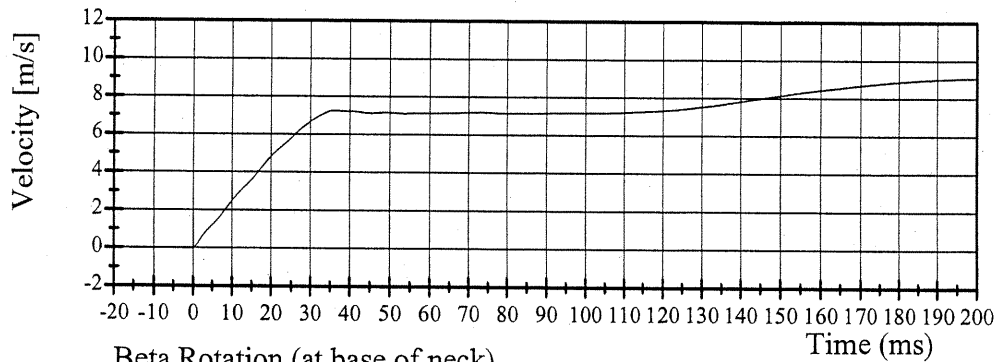
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 059 Calibration No. 06 - 2

Test Date 03/02/2004

Integrated Pendulum Velocity

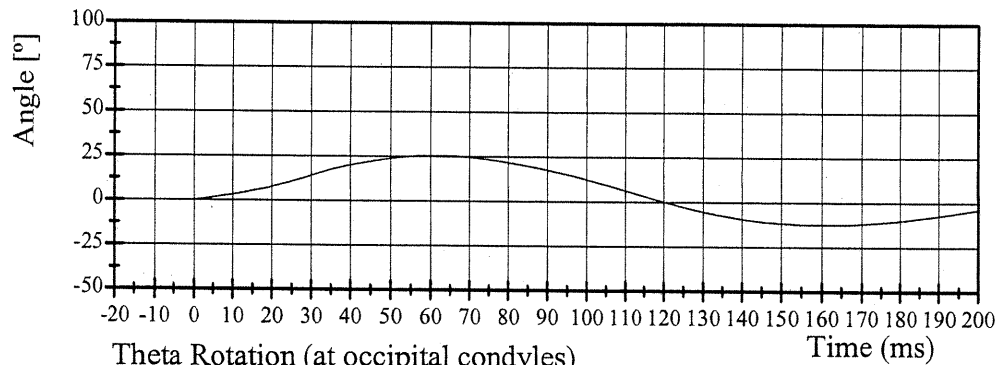


Filter Class: 180

Max: 9.3 m/s at 958.8 ms

Min: -0.0 m/s at -0.6 ms

Beta Rotation (at base of neck)

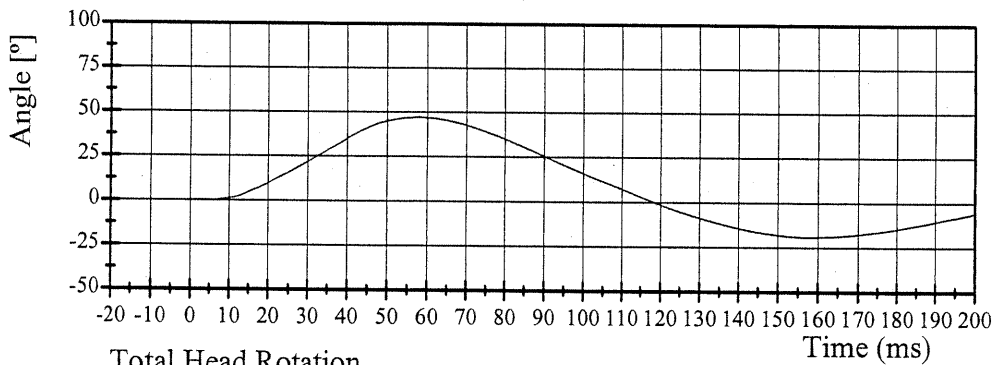


Filter Class: 60

Max: 25.4 ° at 61.8 ms

Min: -12.4 ° at 158.1 ms

Theta Rotation (at occipital condyles)

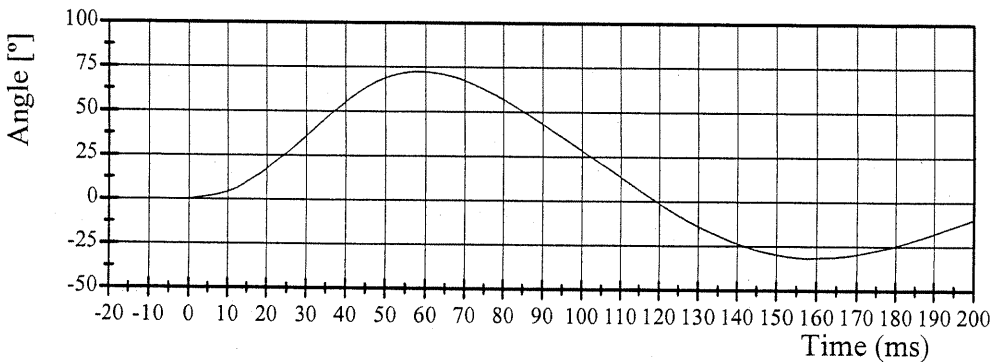


Filter Class: 60

Max: 47.1 ° at 57.8 ms

Min: -19.1 ° at 157.8 ms

Total Head Rotation



Filter Class: 60

Max: 72.4 ° at 58.3 ms

Min: -31.5 ° at 157.8 ms

03.02.2004 09:19:49 515



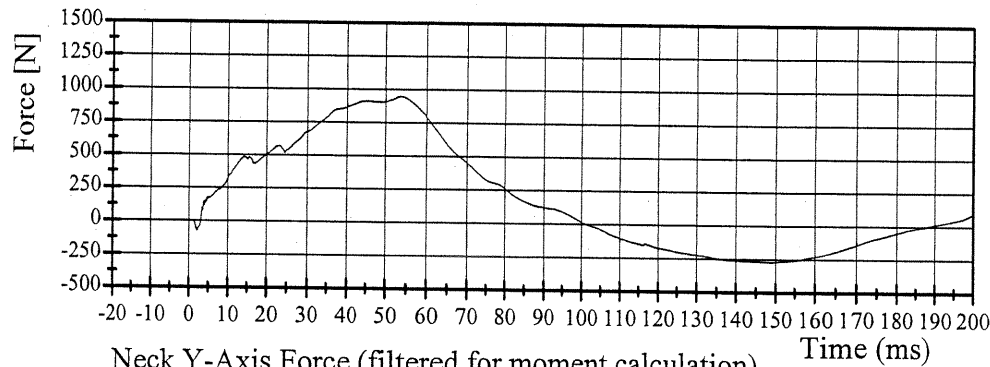
Transportation Research Center Inc.

572M Left Lateral Neck Test

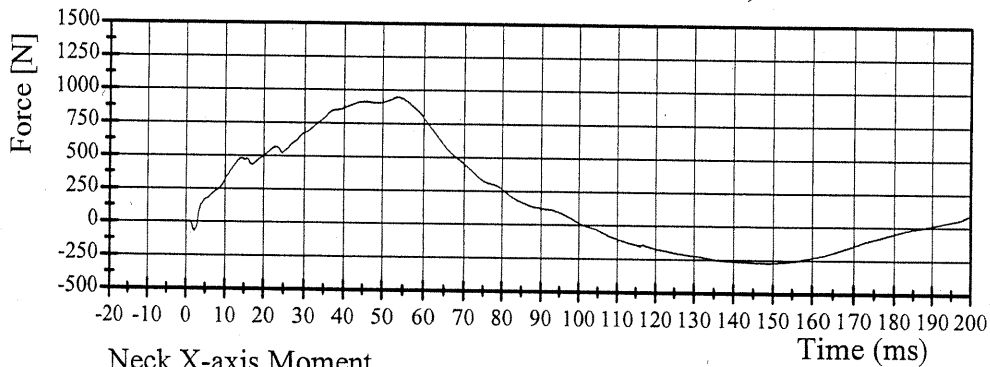
SID HIII Serial No. 059 Calibration No. 06 - 2

Test Date 03/02/2004

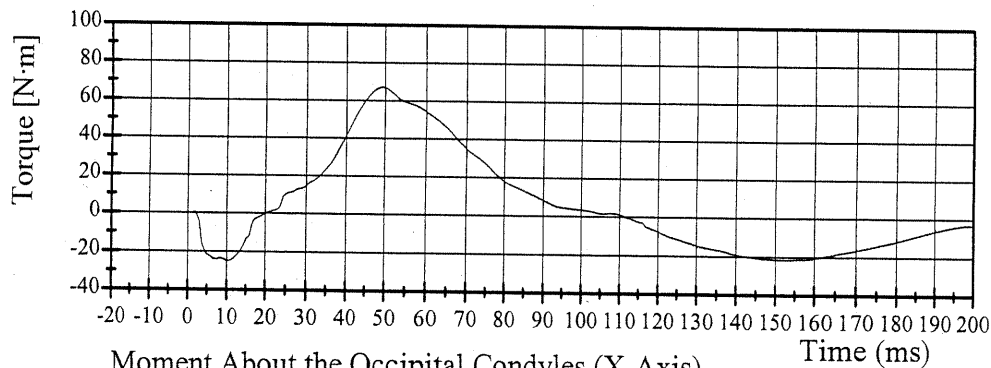
Neck Y-Axis Force



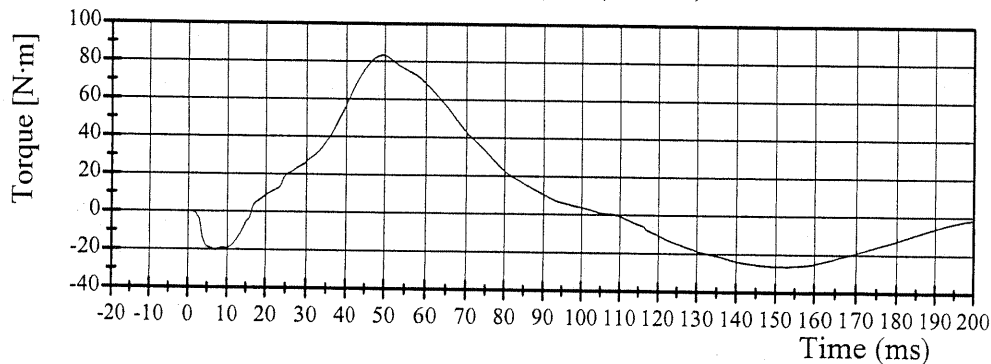
Neck Y-Axis Force (filtered for moment calculation)



Neck X-axis Moment



Moment About the Occipital Condyles (X-Axis)



TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

23-FEB-04

TRC INC.

572F SN059 DAMPER TEST CAL06

TEST NUMBERS: DP05906A9,DP0596B25,DP05906C3

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	22.0 DEG. C
RELATIVE HUMIDITY		10 - 70 %	31.0 %
VELOCITY	FORCE	667 - 925 N	782 N
2.72 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.9 MM
VELOCITY	FORCE	1733 - 2100 N	1920 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.1 MM
VELOCITY	FORCE	3703 - 4402 N	4151 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	36.0 MM

DAMPER SETTING = 6.5

PRE-TEST CALIBRATION WITH REPLACEMENT DAMPER

TEST MEETS SPECIFICATIONS

TECHNICIAN VJ Walter

RUN NUMBER: 022304.2044;1

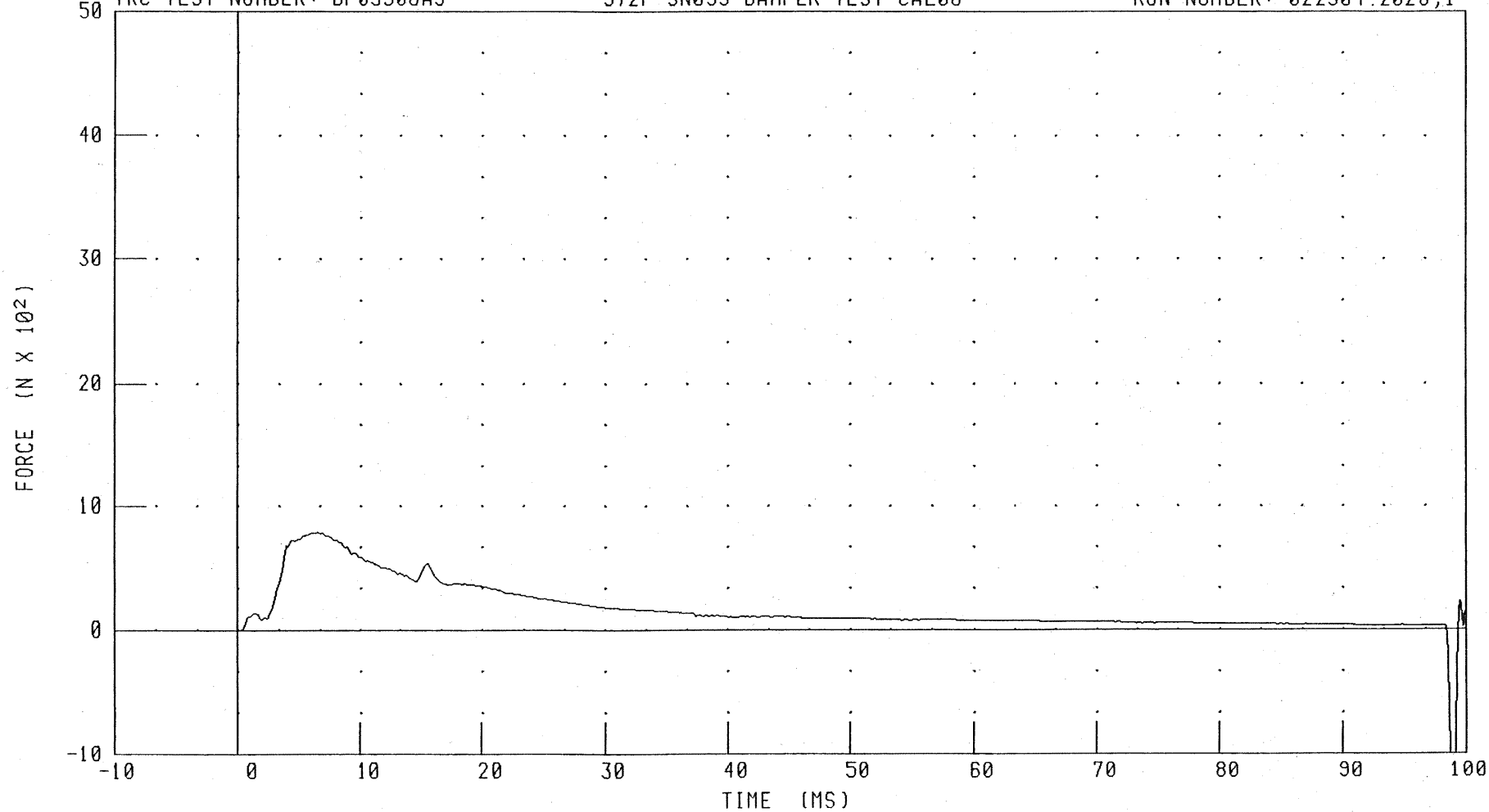
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP05906A9

572F SN059 DAMPER TEST CAL06

RUN NUMBER: 022304.2026;1



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 781.78 N @ 6.48 MS; -2193.36 N @ 98.88 MS

040317

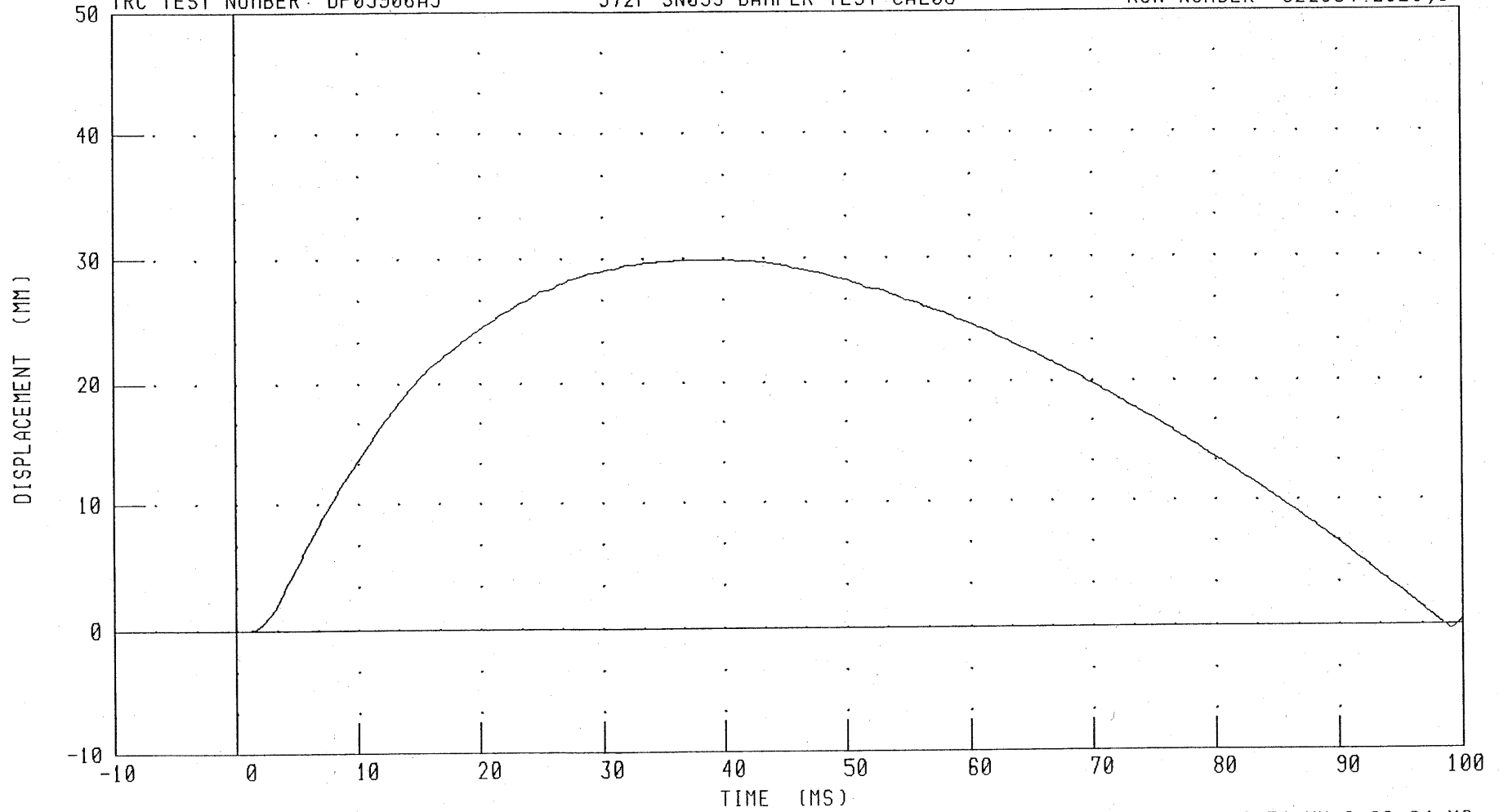
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN059 DAMPER TEST CAL06

RUN NUMBER: 022304.2026;1

TRC TEST NUMBER: DP05906A9



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 29.87 MM @ 37.04 MS; -0.34 MM @ 99.04 MS

C-33

040317

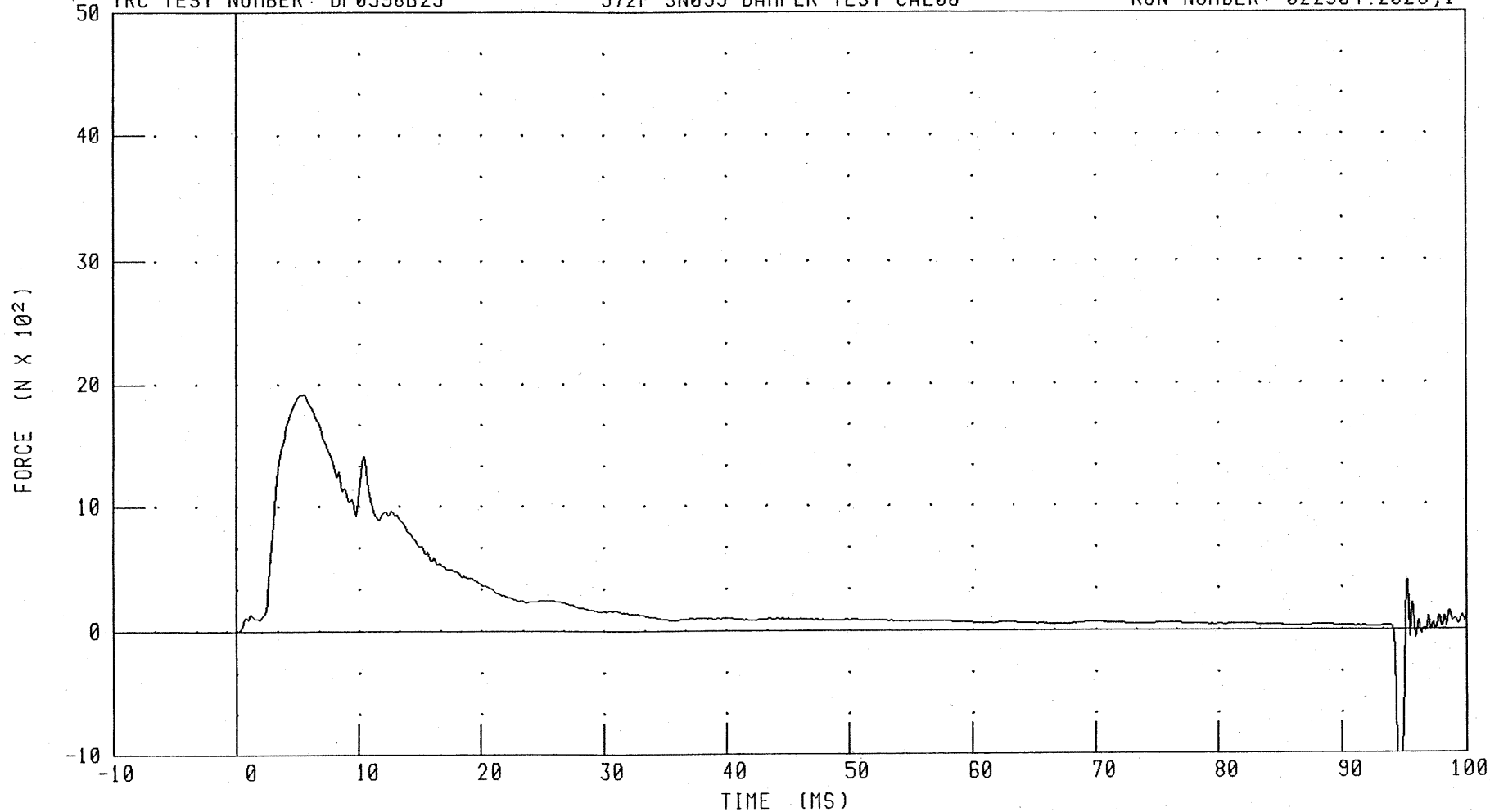
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP0596B25

572F SN059 DAMPER TEST CAL06

RUN NUMBER: 022304.2026;1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 1920.19 N @ 5.52 MS; -2109.24 N @ 94.64 MS

040317

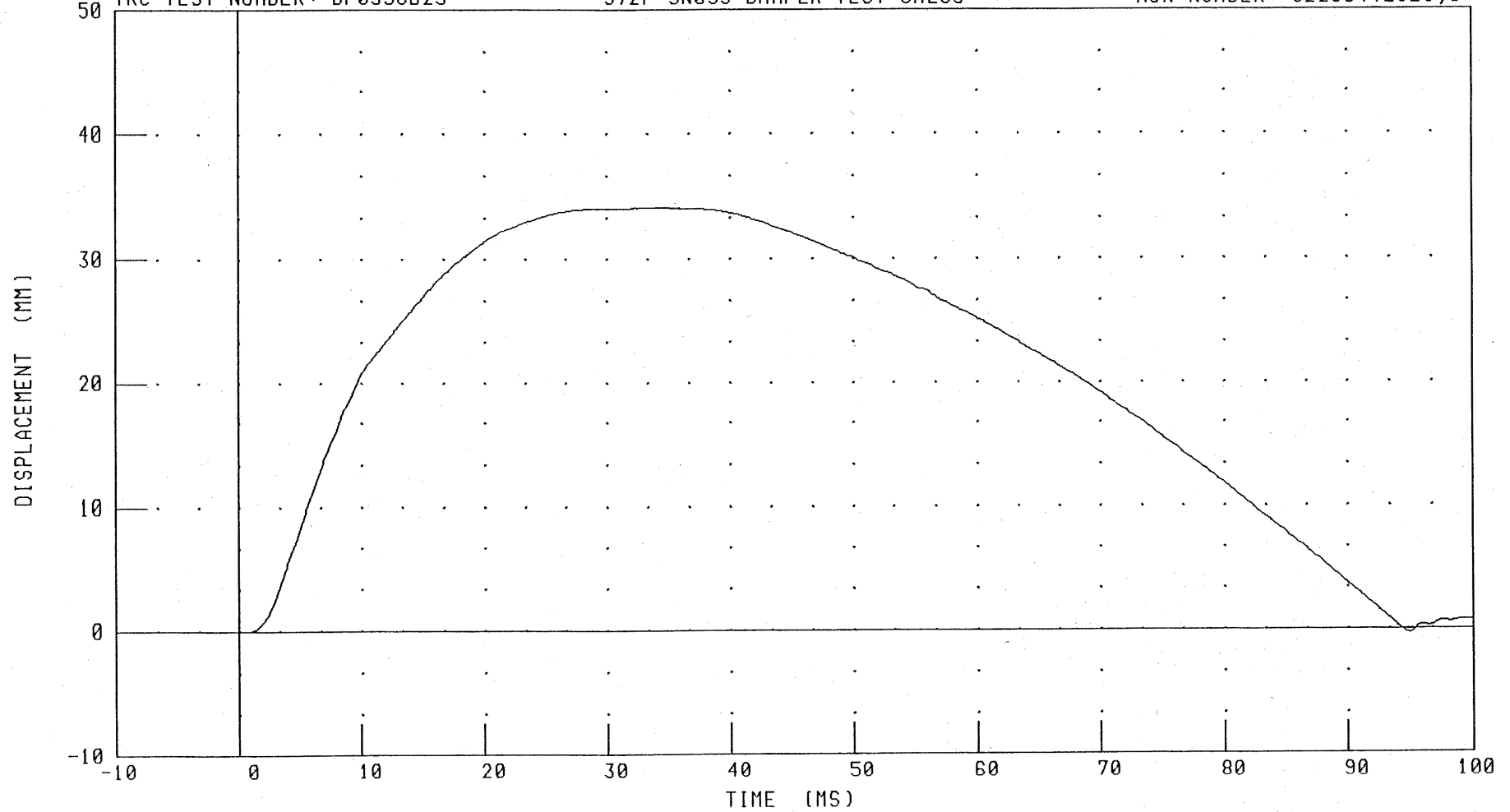
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP0596B25

572F SN059 DAMPER TEST CAL06

RUN NUMBER: 022304.2026;1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 34.07 MM @ 32.96 MS; -0.33 MM @ 94.96 MS

C-35

040317

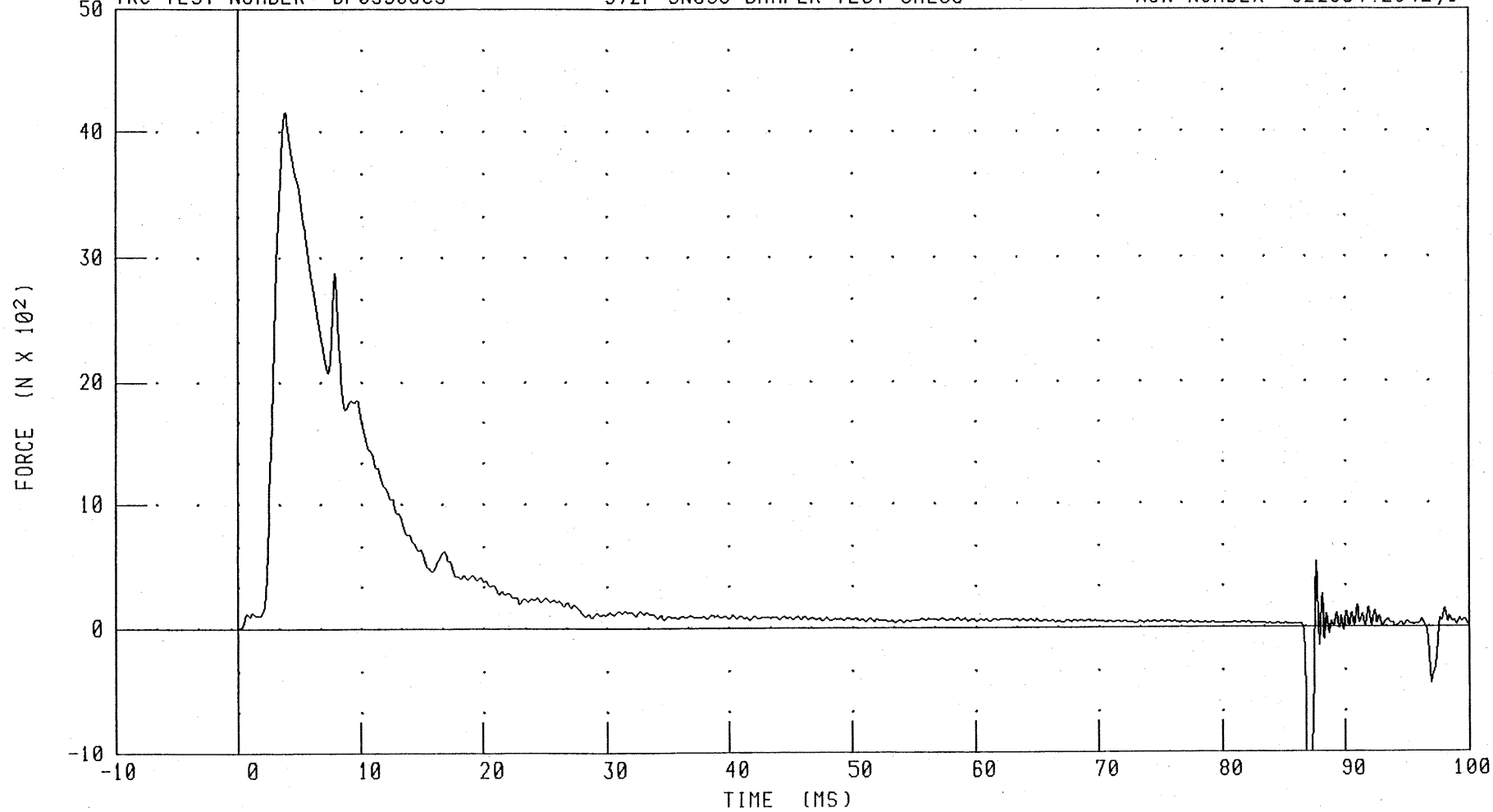
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP05906C3

572F SN059 DAMPER TEST CAL06

RUN NUMBER: 022304.2042;1



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 4151.46 N @ 3.84 MS; -2021.15 N @ 86.96 MS

C-36

040317

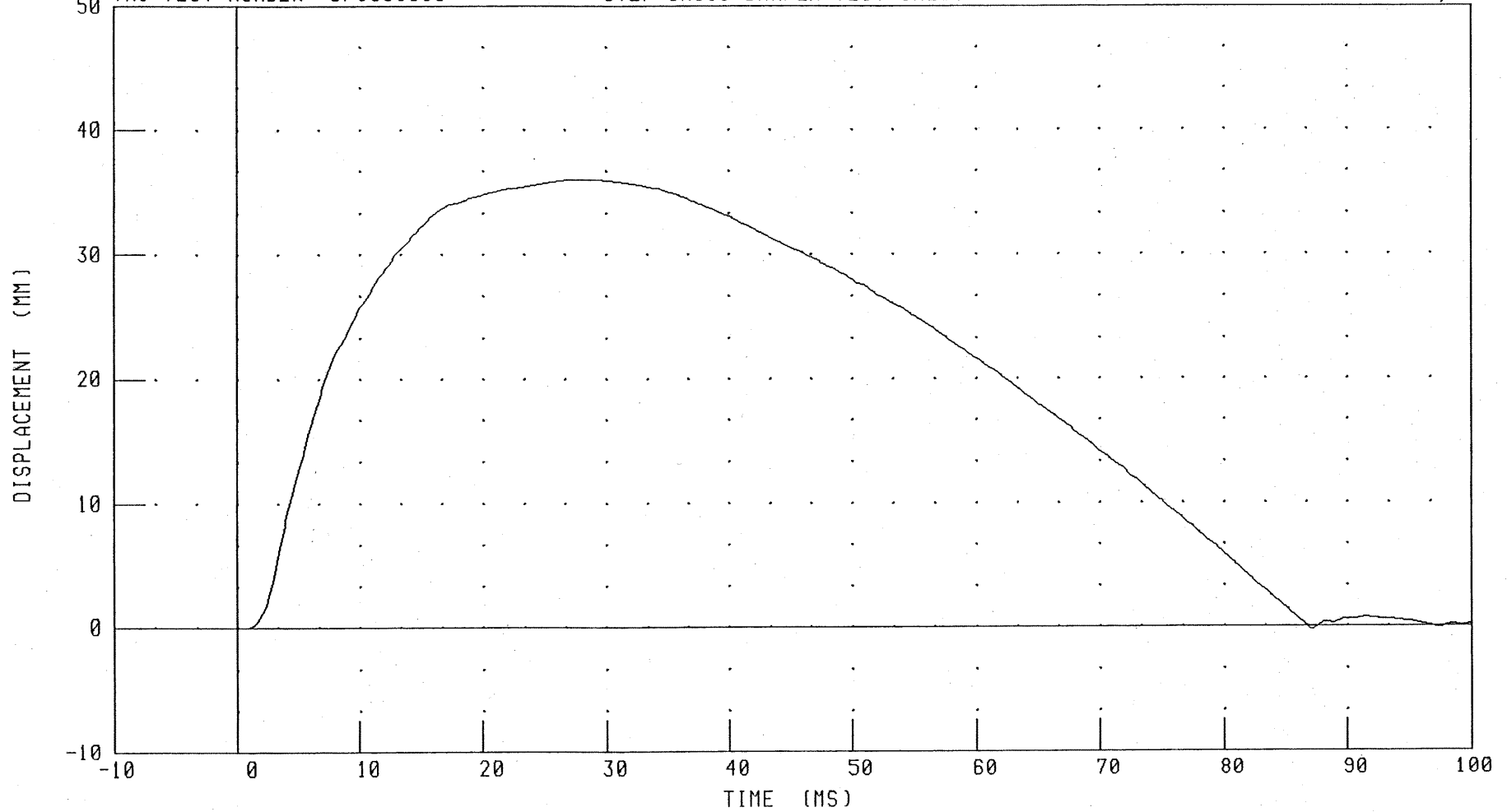
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05906C3

572F SN059 DAMPER TEST CAL06

RUN NUMBER: 022304.2042;1



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 35.95 MM @ 28.16 MS; -0.31 MM @ 87.12 MS

C-37

040317

Transportation Research Center Inc.

572B Abdomen Compression Test

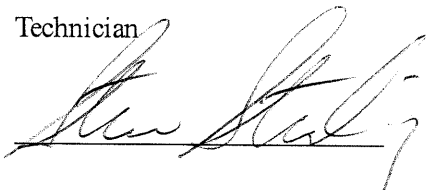
SID HIII Serial No. 059 Calibration No. 07 - 2

Test Date 03/05/2004

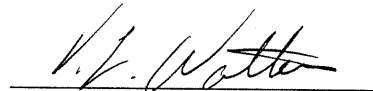
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.7 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



03.05.2004 11:32:38 1587

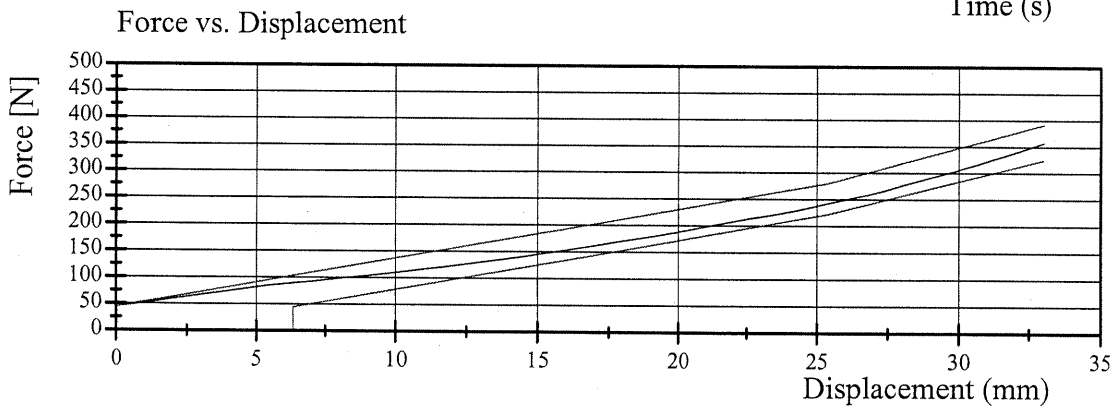
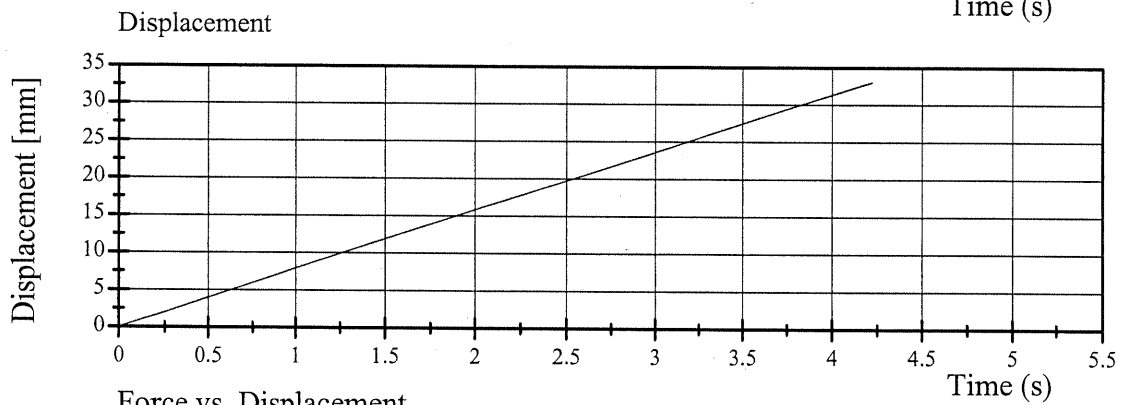
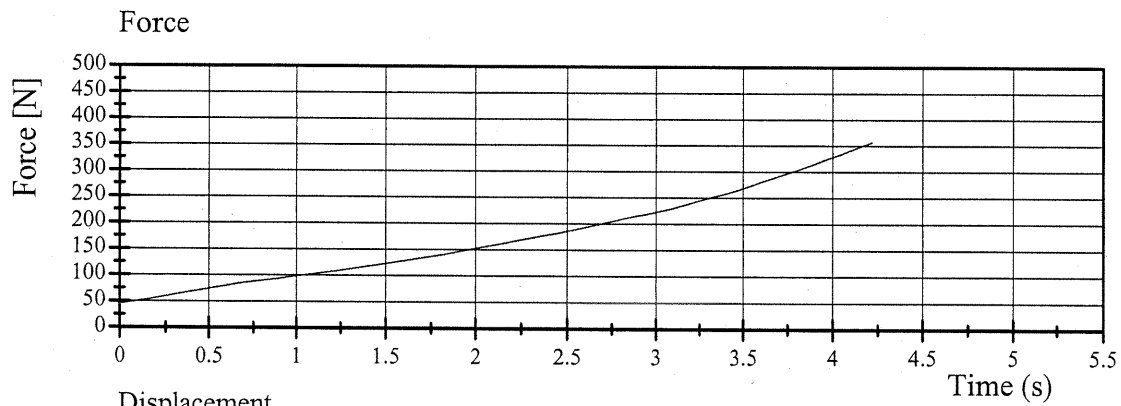


Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 059 Calibration No. 07 - 2

Test Date 03/05/2004



TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID HIII

CAL DATE: 05-Mar-04

TRC, INC. TEST NO: LF05907-2

572M SN 059 TORSO FLEX CAL 07

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.3 °C
RELATIVE HUMIDITY	10 – 70 %	46 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	140.1 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	191.3 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	244.7 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	3.3 °

TEST MEETS SPECIFICATIONS

TECHNICIAN V.J. Walter

Transportation Research Center Inc.

572F Left Thorax Pre Test

SID HIII Serial No. 059 Calibration No. 07 - 1

Test Date 03/12/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.7 C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.31 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	39.6 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	37.5 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	20.0 g	Yes

Comments:

Technician

Vincent Olivier

Approved

K. J. Walter

03.12.2004 11:30:40 1159



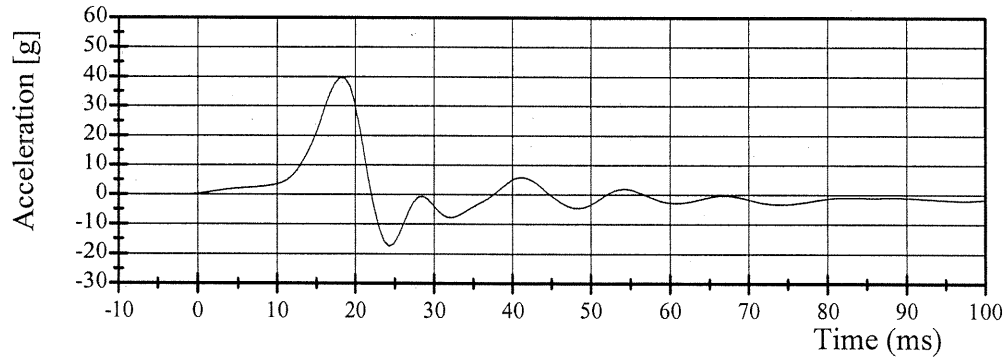
Transportation Research Center Inc.

572F Left Thorax Pre Test

SID HIII Serial No. 059 Calibration No. 07 - 1

Test Date 03/12/2004

Upper Rib Bar Acceleration

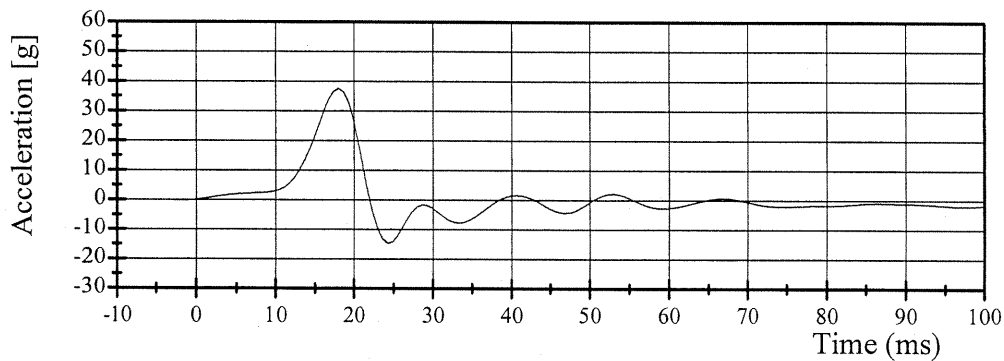


Filter Class: FIR 100

Max: 39.6 g at 18.0 ms

Min: -17.5 g at 24.2 ms

Lower Rib Bar Acceleration

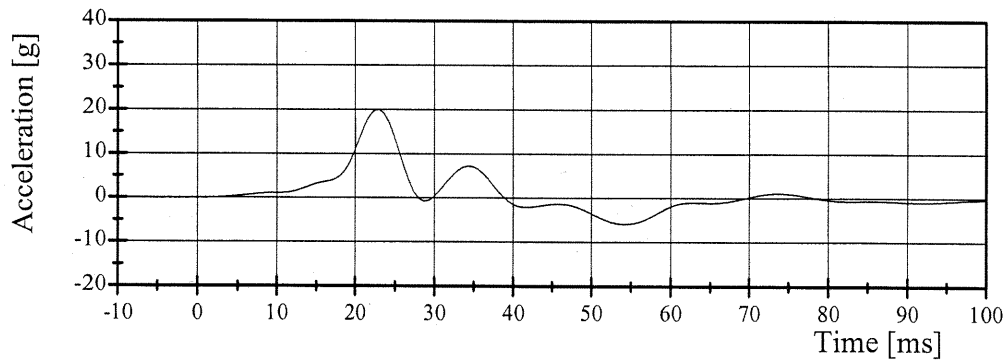


Filter Class: FIR 100

Max: 37.5 g at 18.0 ms

Min: -14.7 g at 24.2 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 20.0 g at 23.0 ms

Min: -5.9 g at 54.2 ms

03.12.2004 11:30:41 1159



Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/11/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.5 C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.29 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	41.8 g	Yes
Time Above 20 g	3 - 7 ms	6.40 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician

Vincent Oliveri

Approved

V. J. Walter

03.11.2004 15:31:25 1153

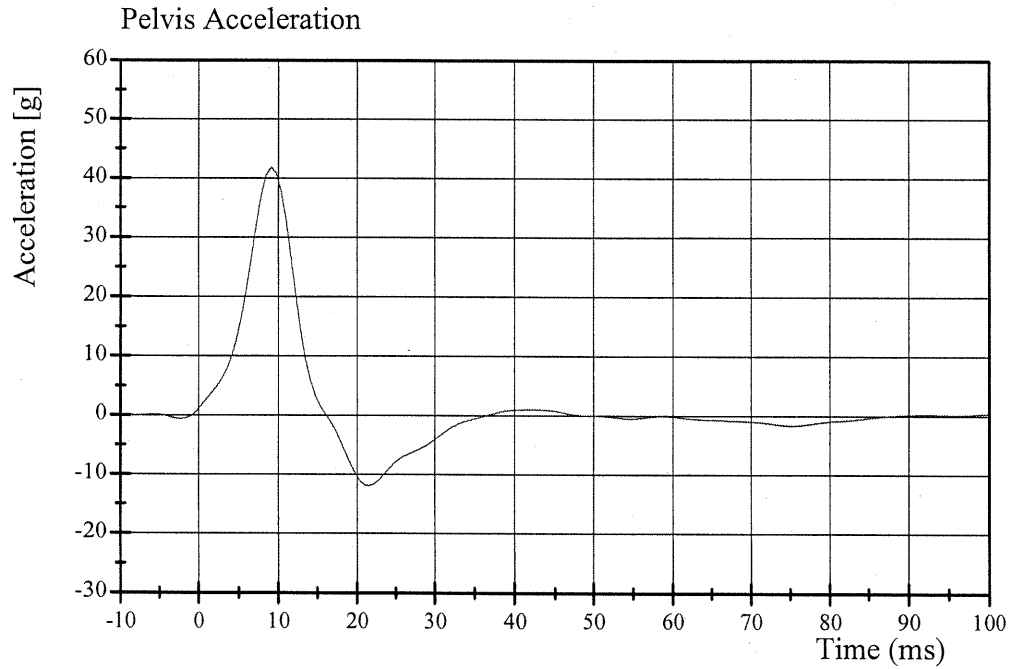


Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/11/2004



Filter Class: FIR 100

Max: 41.8 g at 9.1 ms

Min: -11.9 g at 21.6 ms

Calibration Test Results

Post-Test

SID HIII: 055

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.
Lateral Thorax Impact Test:	The 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.

Transportation Research Center Inc.
SID/HIII Dummy
External Dimensions
Serial No. 055 Calibration No. 13
Date: 3/22/04

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	909 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	507 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	525 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	491 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	365 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 & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician

Vincent Oliver

Approved

V. F. Walker



Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 055 Calibration No. 13 - 1

Test Date 03/22/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Peak Resultant Acceleration	120 - 150 g	138.0 g	Yes
Peak Longitudinal Acceleration	15 g Max	-12.3 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician

Vincent Oliver

Approved

V. Walter

03.22.2004 18:52:07 611



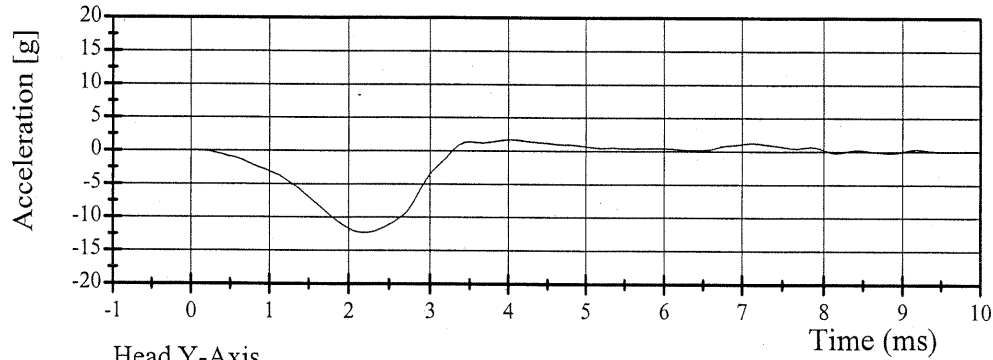
Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 055 Calibration No. 13 - 1

Test Date 03/22/2004

Head X-Axis

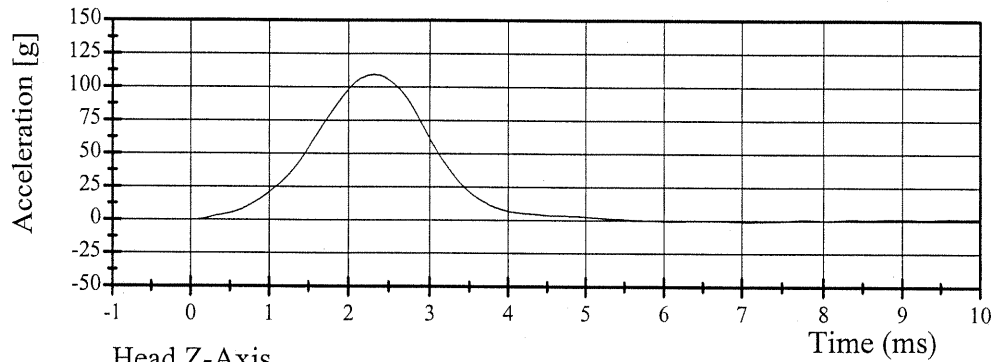


Filter Class: 1000

Max: 1.7 g at 4.0 ms

Min: -12.3 g at 2.2 ms

Head Y-Axis

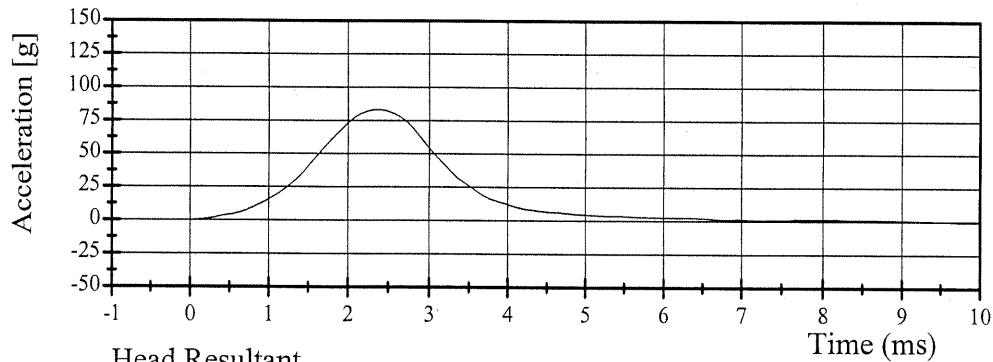


Filter Class: 1000

Max: 109.5 g at 2.3 ms

Min: -0.9 g at 7.0 ms

Head Z-Axis

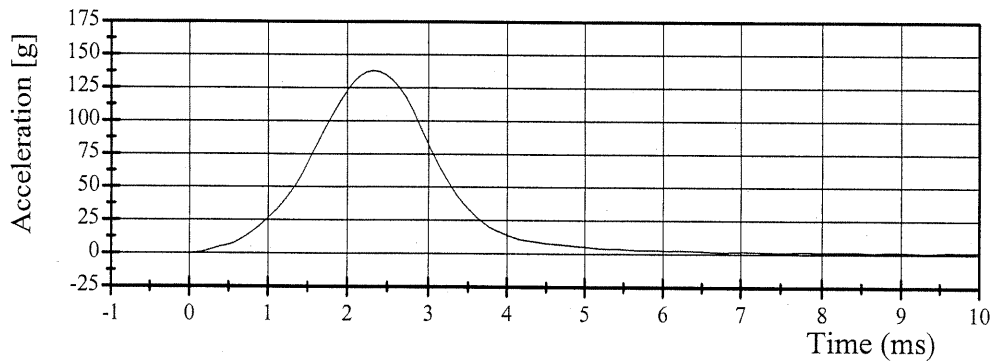


Filter Class: 1000

Max: 83.2 g at 2.3 ms

Min: -0.4 g at 9.8 ms

Head Resultant



Filter Class: 1000

Max: 138.0 g at 2.3 ms

Min: 0.0 g at 0.8 ms

03.22.2004 18:52:08 611



Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 055 Calibration No. 13 - 5

Test Date 03/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	24 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.96 - 2.55 m/s	2.26 m/s	Yes
20 ms	4.12 - 5.10 m/s	4.47 m/s	Yes
30 ms	5.73 - 7.01 m/s	6.36 m/s	Yes
40 - 70 ms	6.27 - 7.64 m/s	7.21 - 7.36 m/s	Yes
Peak D Plane Rotation	66 - 82 °	70.8 °	Yes
Rotation Decay Time To 0° From Peak Angle	58 - 67 °	62.6 °	Yes
Peak Moment About Occipital Condyles	73.0 - 88.0 N·m	86.9 N·m	Yes
Moment Decay Time To 0 N·m From Peak Moment	49 - 64 ms	53.8 ms	Yes
Time Between Peak Rotation and Peak Moment	2 - 16 ms	7.0 ms	Yes

Comments:

Technician

Vincent Oliver

Approved

V. J. Walter

03.23.2004 13:49:30 516



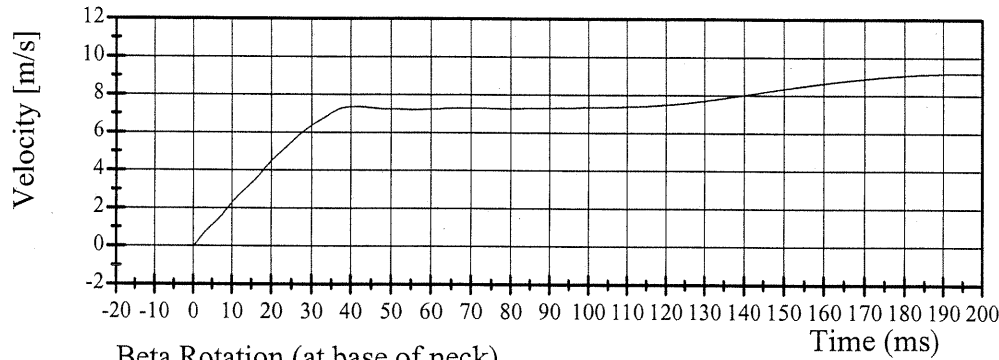
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 055 Calibration No. 13 - 5

Test Date 03/23/2004

Integrated Pendulum Velocity

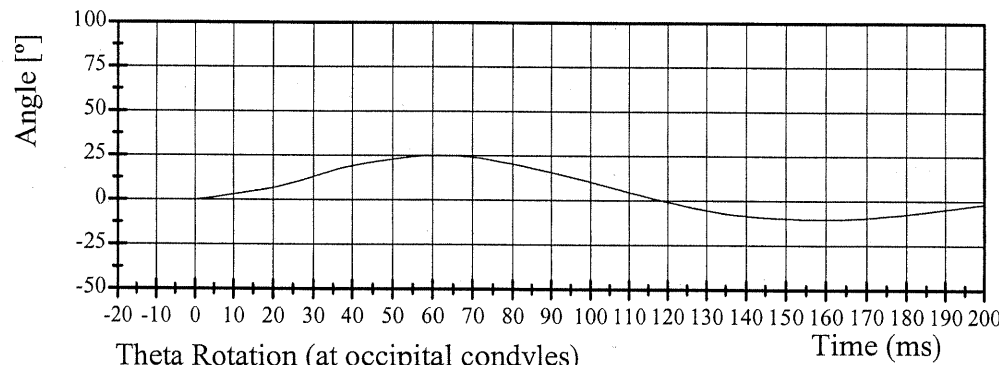


Filter Class: 180

Max: 9.5 m/s at 958.7 ms

Min: -0.0 m/s at -0.7 ms

Beta Rotation (at base of neck)

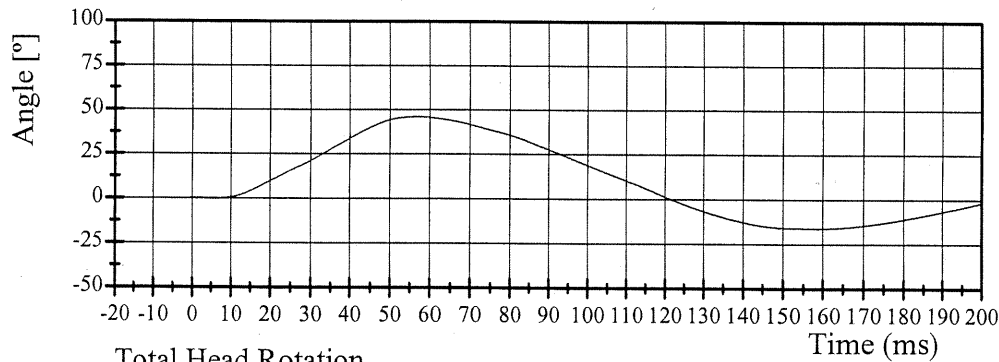


Filter Class: 60

Max: 24.8 ° at 62.4 ms

Min: -10.2 ° at 157.4 ms

Theta Rotation (at occipital condyles)

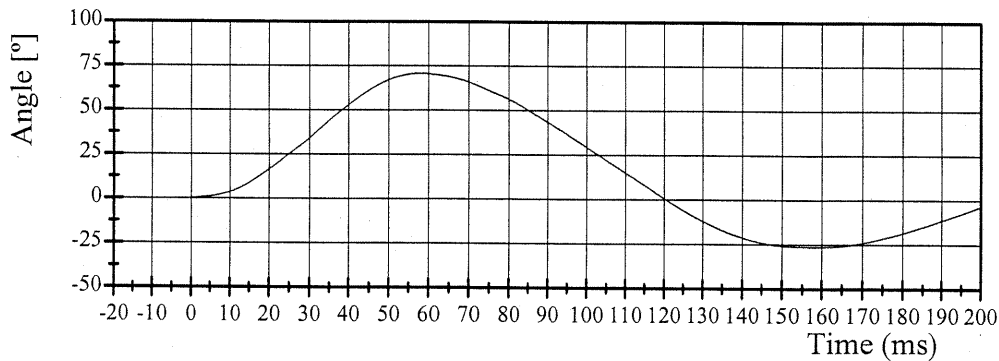


Filter Class: 60

Max: 46.1 ° at 57.0 ms

Min: -16.1 ° at 158.7 ms

Total Head Rotation



Filter Class: 60

Max: 70.8 ° at 58.0 ms

Min: -26.4 ° at 158.7 ms

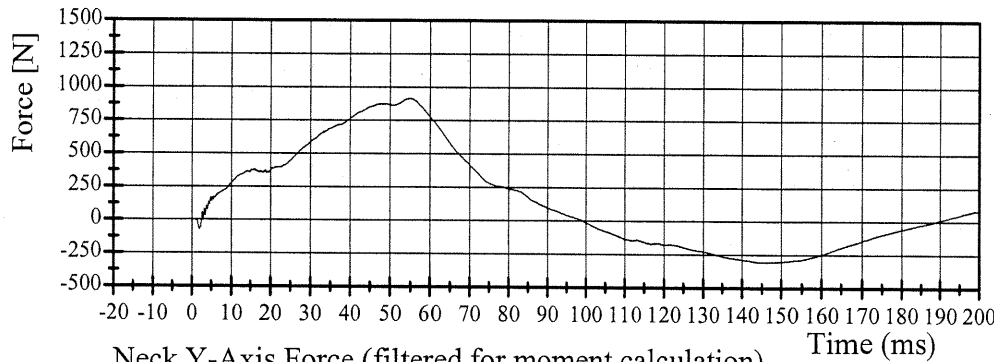
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 055 Calibration No. 13 - 5

Test Date 03/23/2004

Neck Y-Axis Force

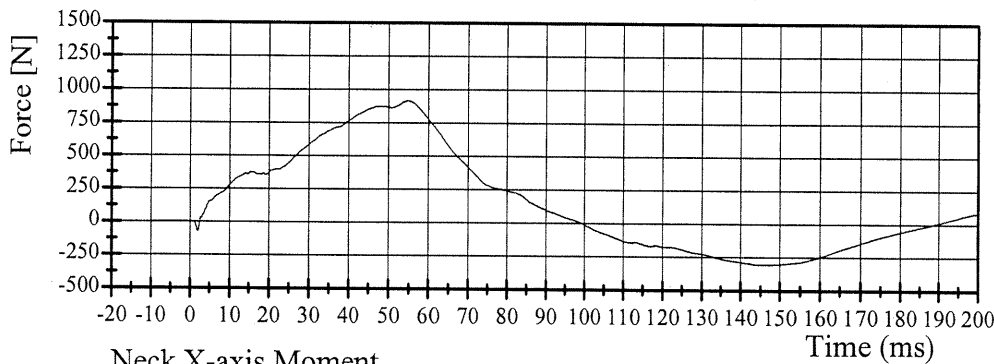


Filter Class: CFC 1000

Max: 916 N at 54.6 ms

Min: -306 N at 146.0 ms

Neck Y-Axis Force (filtered for moment calculation)

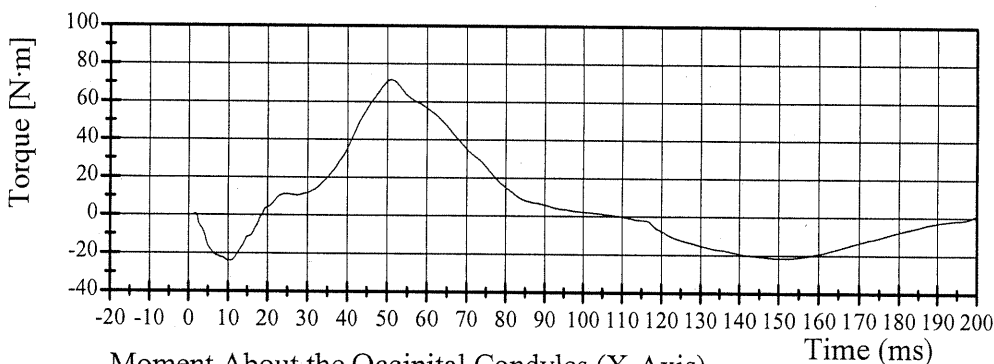


Filter Class: CFC 600

Max: 916 N·m at 54.6 ms

Min: -306 N·m at 146.1 ms

Neck X-axis Moment

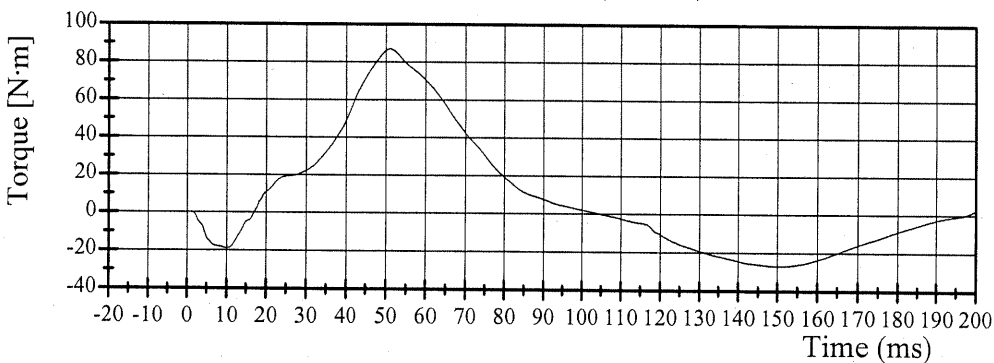


Filter Class: CFC 600

Max: 71.6 N·m at 51.0 ms

Min: -23.8 N·m at 10.6 ms

Moment About the Occipital Condyles (X-Axis)



Filter Class: 600

Max: 86.9° at 51.0 ms

Min: -26.9° at 150.6 ms

03.23.2004 13:49:32 516



TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID/HIII

CAL DATE: 26-Mar-04

TRC, INC.

TEST NO: 055C13TF1

572M SN 055 TORSO FLEX CAL 13

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	22.0 °C
RELATIVE HUMIDITY	10 – 70 %	49 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	137.9 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	160.1 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	206.8 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	2.5 °

TEST MEETS SPECIFICATIONS

TECHNICIAN Vincent Oliver

Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 055 Calibration No. 13 - 5

Test Date 03/26/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.7 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician

Vincent Oliveri

Approved

V. J. Watts

03.26.2004 13:15:36 1769

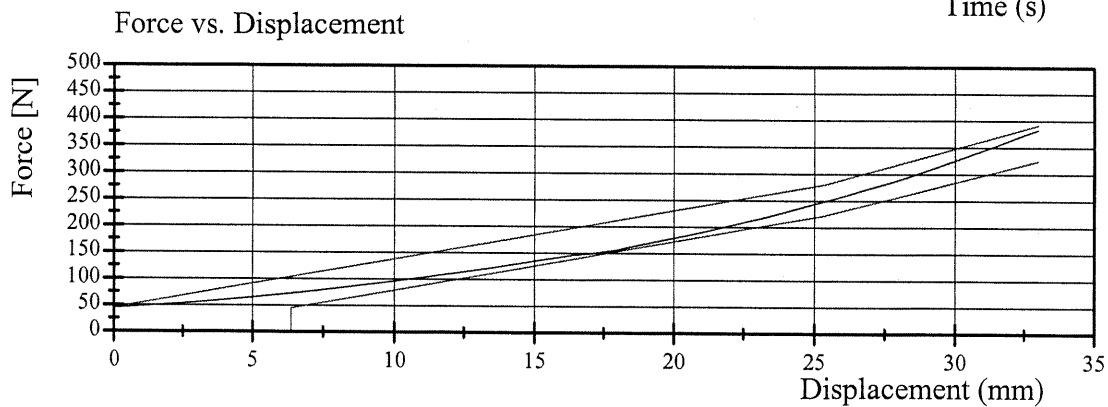
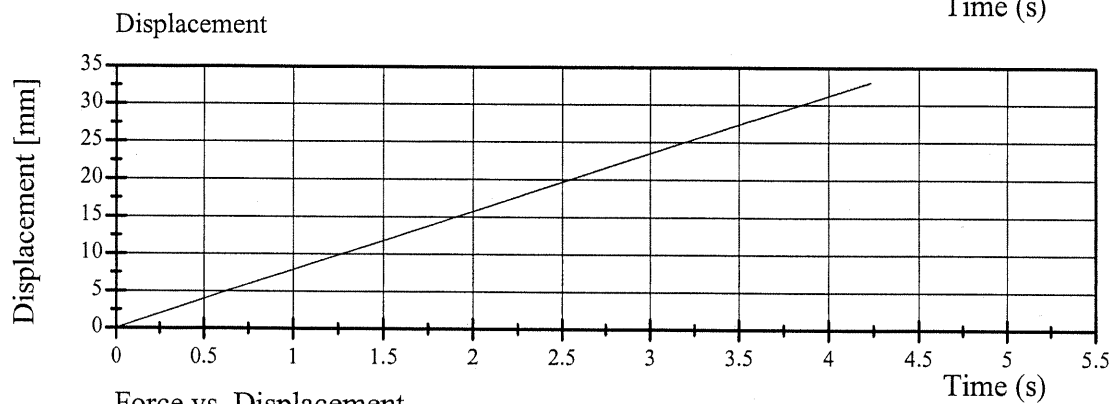
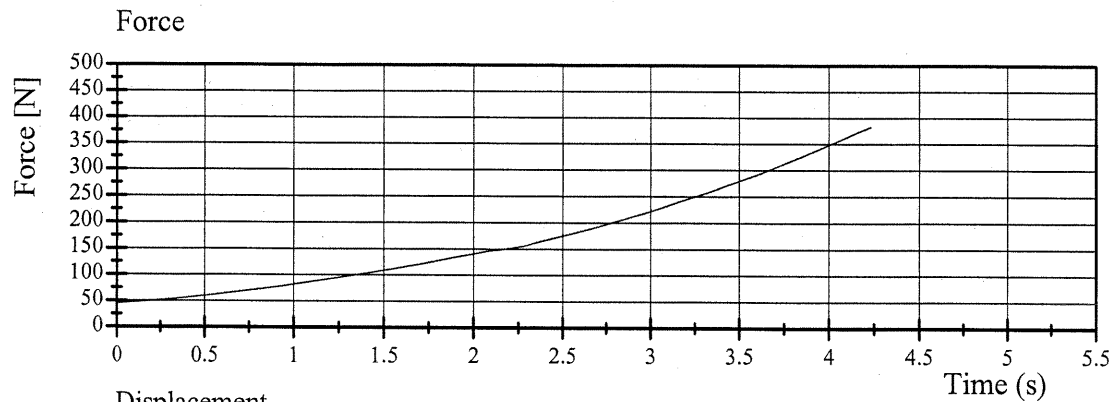


Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 055 Calibration No. 13 - 5

Test Date 03/26/2004



03.26.2004 13:15:37 1769



Transportation Research Center Inc.

572F Left Thorax Test

SID HIII Serial No. 055 Calibration No. 13 - 1

Test Date 03/22/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	22.0 C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.31 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	38.5 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	37.3 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	17.5 g	Yes

Comments:

Technician

Vincent Oliver

Approved

V. J. Walter

03.29.2004 14:31:55 1152



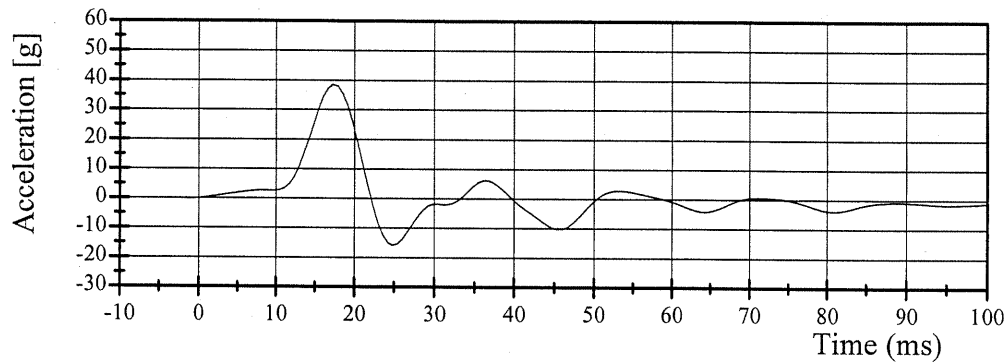
Transportation Research Center Inc.

572F Left Thorax Test

SID HIII Serial No. 055 Calibration No. 13 - 1

Test Date 03/22/2004

Upper Rib Bar Acceleration

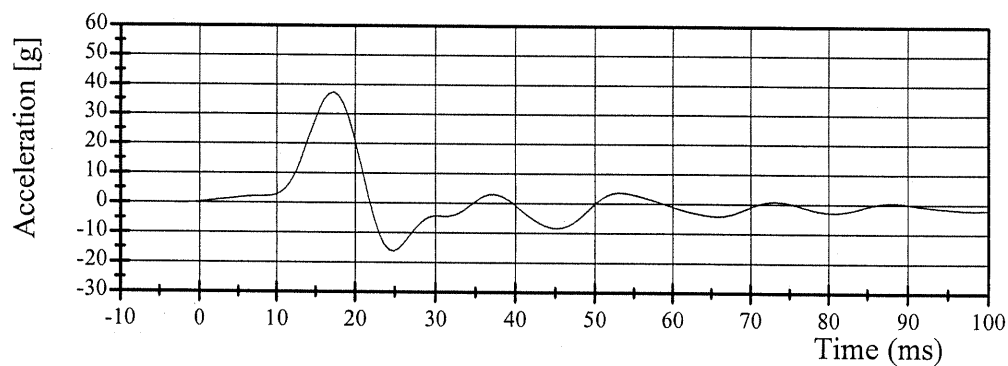


Filter Class: FIR 100

Max: 38.5 g at 17.3 ms

Min: -15.9 g at 24.8 ms

Lower Rib Bar Acceleration

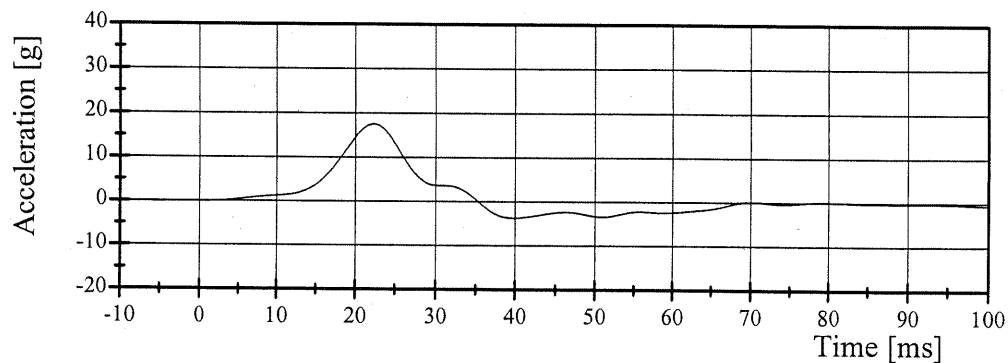


Filter Class: FIR 100

Max: 37.3 g at 17.3 ms

Min: -16.2 g at 24.8 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 17.5 g at 22.3 ms

Min: -3.7 g at 39.8 ms

Transportation Research Center Inc.

572F Left Pelvis Test

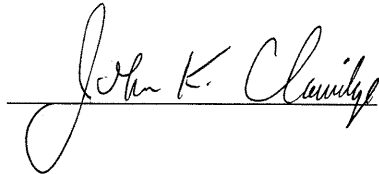
SID HIII Serial No. 055 Calibration No. 13 - 1

Test Date 03/22/2004

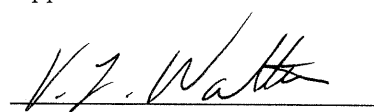
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	22.0 C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.31 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	45.1 g	Yes
Time Above 20 g	3 - 7 ms	6.08 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician



Approved



03.22.2004 15:17:31 1152

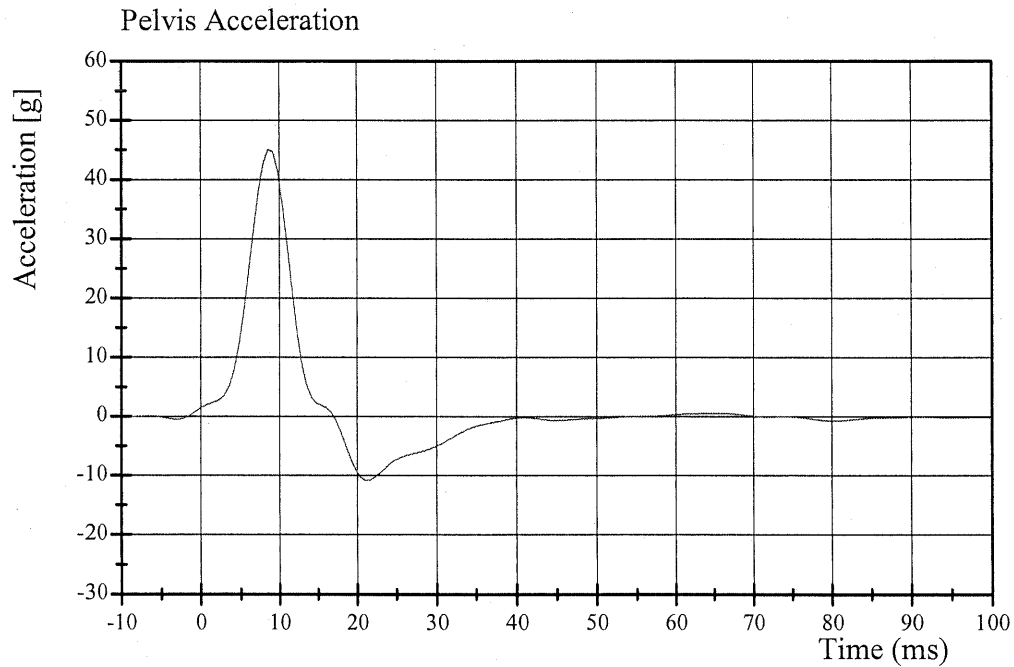


Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 055 Calibration No. 13 - 1

Test Date 03/22/2004



Filter Class: FIR 100

Max: 45.1 g at 8.6 ms

Min: -10.8 g at 21.1 ms

Calibration Test Results

Post-Test

SID HIII: 059

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.
Lateral Thorax Impact Test:	The 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.

Transportation Research Center Inc.

SID/HIII Dummy

External Dimensions Post-Test

Serial No. 059 Calibration No. 08

Date: 3/22/04

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	907 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	508 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	523 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	495 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	365 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	178 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician

Vincent Olivier

Approved

V. F. Walter



Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	24 %	Yes
Peak Resultant Acceleration	120 - 150 g	142.0 g	Yes
Peak Longitudinal Acceleration	15 g Max	4.8 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician

Vincent Oliveri

Approved

V. J. Walts

03.23.2004 18:46:57 608

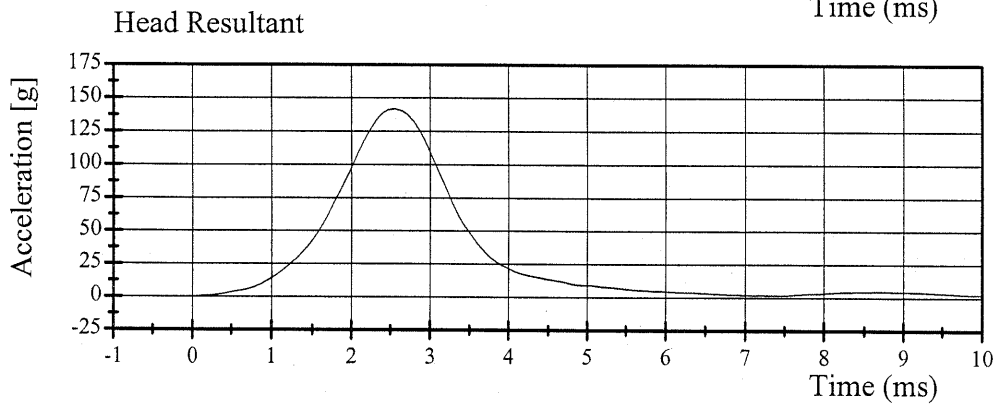
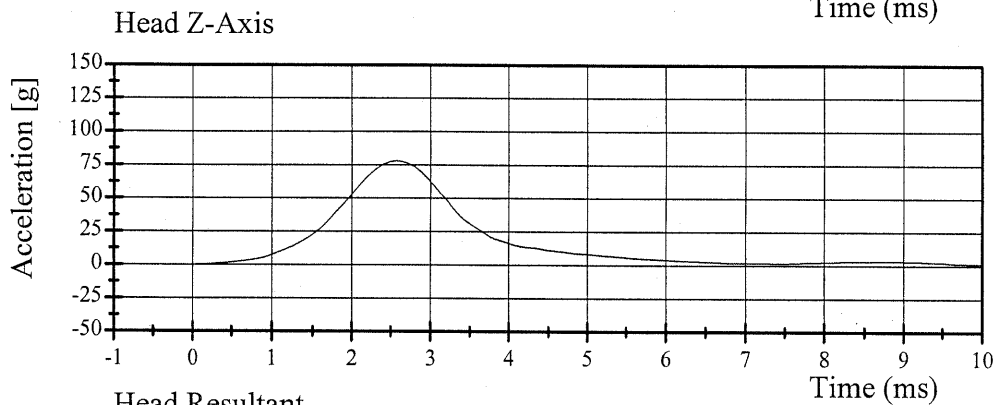
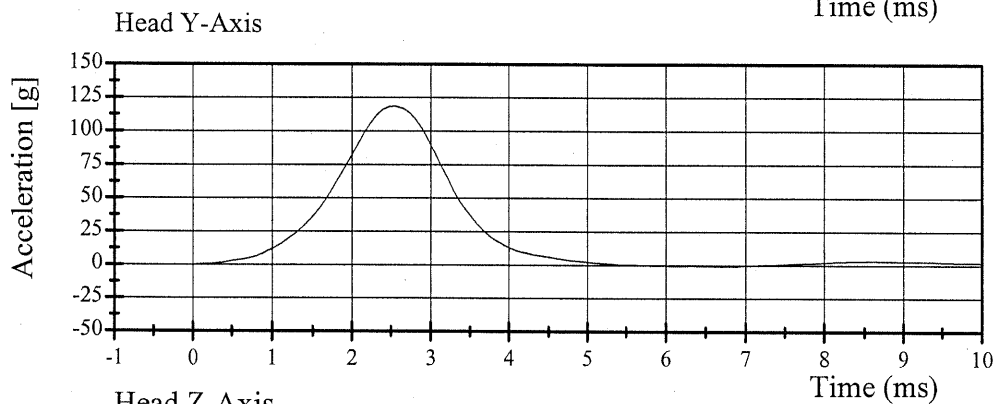
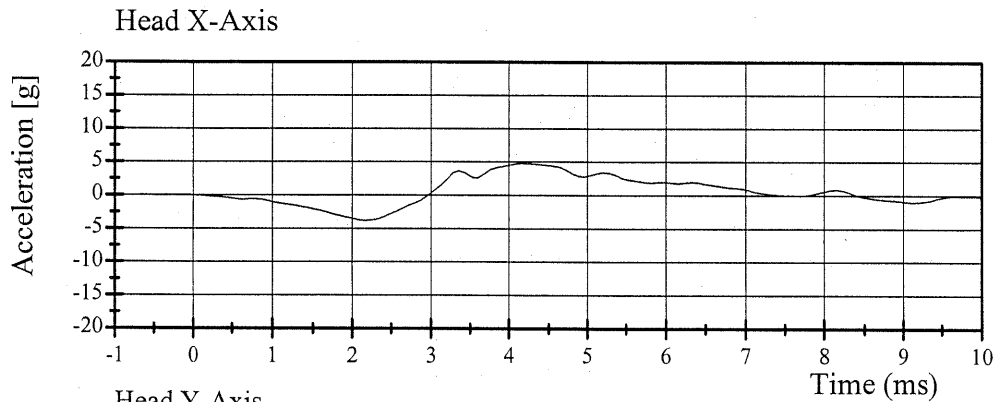


Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004



03.23.2004 18:46:58 608



Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 059 Calibration No. 08 - 2

Test Date 03/25/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.96 - 2.55 m/s	2.33 m/s	Yes
20 ms	4.12 - 5.10 m/s	4.62 m/s	Yes
30 ms	5.73 - 7.01 m/s	6.46 m/s	Yes
40 - 70 ms	6.27 - 7.64 m/s	7.19 - 7.29 m/s	Yes
Peak D Plane Rotation	66 - 82 °	71.3 °	Yes
Rotation Decay Time To 0° From Peak Angle	58 - 67 °	60.8 °	Yes
Peak Moment About Occipital Condyles	73.0 - 88.0 N·m	82.1 N·m	Yes
Moment Decay Time To 0 N·m From Peak Moment	49 - 64 ms	58.9 ms	Yes
Time Between Peak Rotation and Peak Moment	2 - 16 ms	11.3 ms	Yes

Comments:

Technician

Vincent Oliver

Approved

V. J. Walto

03.25.2004 18:47:54 518



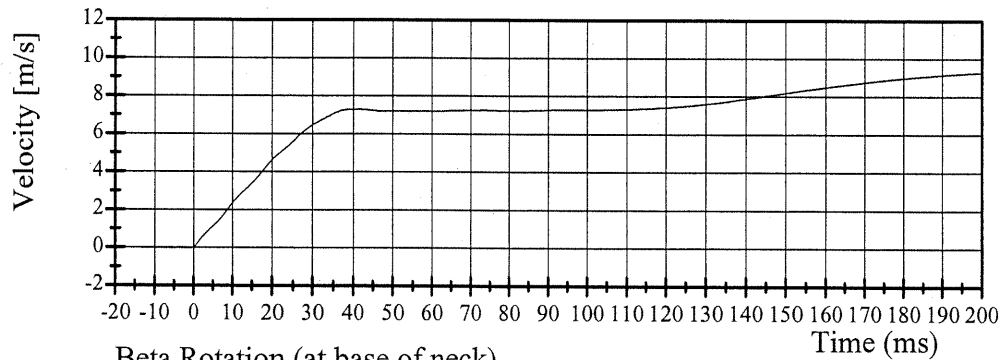
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 059 Calibration No. 08 - 2

Test Date 03/25/2004

Integrated Pendulum Velocity

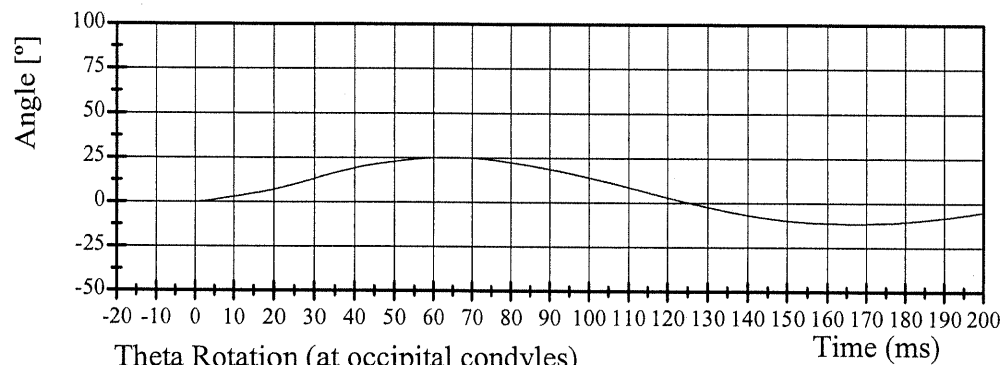


Filter Class: 180

Max: 9.7 m/s at 958.6 ms

Min: -0.0 m/s at -0.8 ms

Beta Rotation (at base of neck)

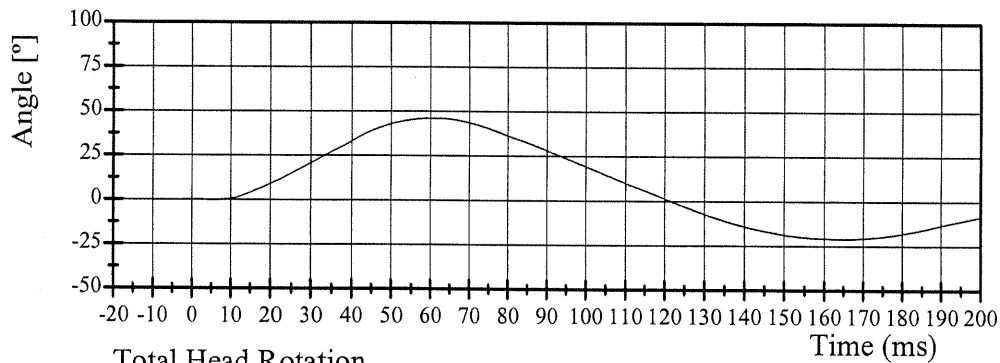


Filter Class: 60

Max: 25.2 ° at 63.8 ms

Min: -11.5 ° at 167.5 ms

Theta Rotation (at occipital condyles)

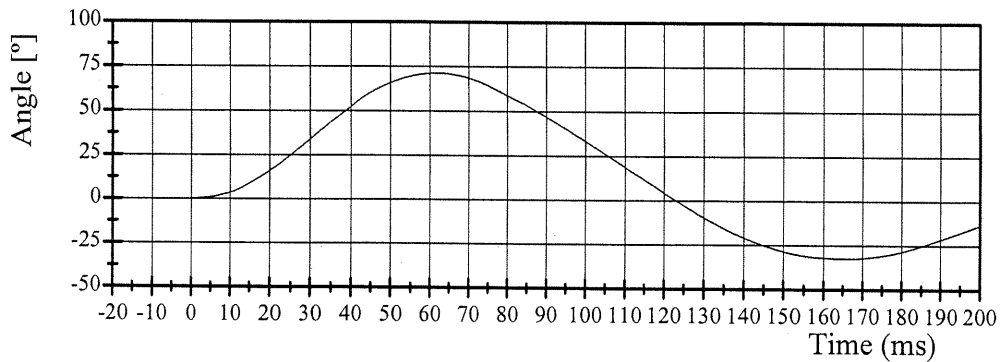


Filter Class: 60

Max: 46.2 ° at 61.2 ms

Min: -20.9 ° at 164.6 ms

Total Head Rotation



Filter Class: 60

Max: 71.3 ° at 62.2 ms

Min: -32.4 ° at 165.9 ms

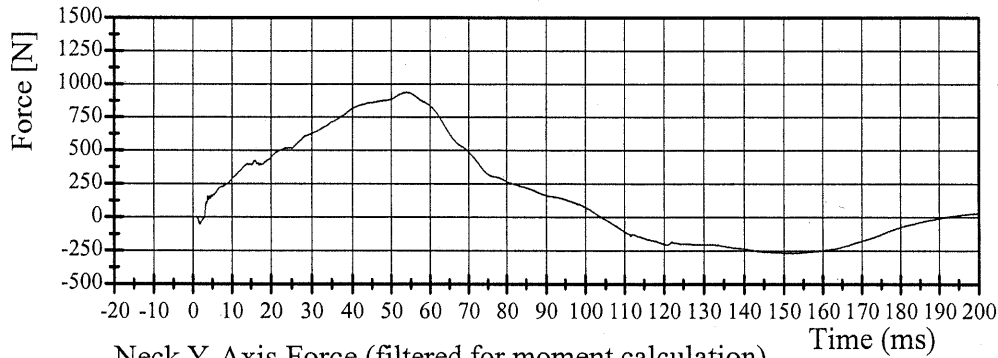
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 059 Calibration No. 08 - 2

Test Date 03/25/2004

Neck Y-Axis Force

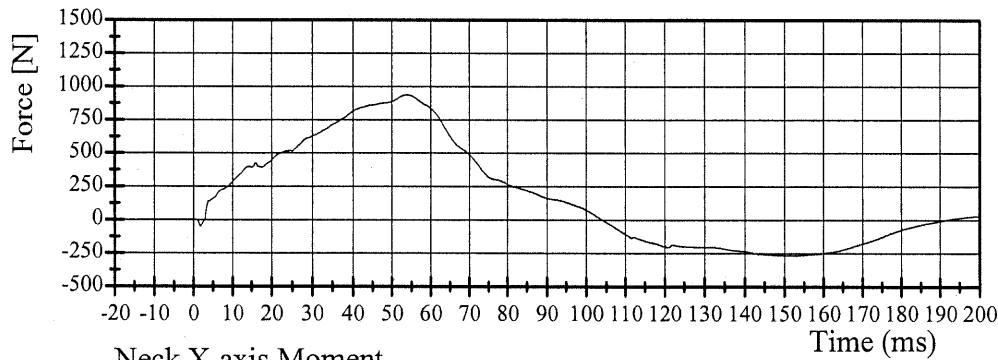


Filter Class: CFC 1000

Max: 938 N at 53.8 ms

Min: -268 N at 152.2 ms

Neck Y-Axis Force (filtered for moment calculation)

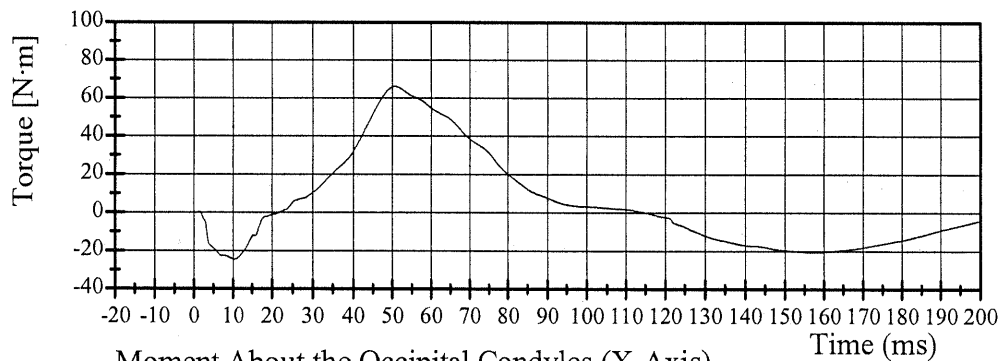


Filter Class: CFC 600

Max: 937 N·m at 53.9 ms

Min: -267 N·m at 152.2 ms

Neck X-axis Moment

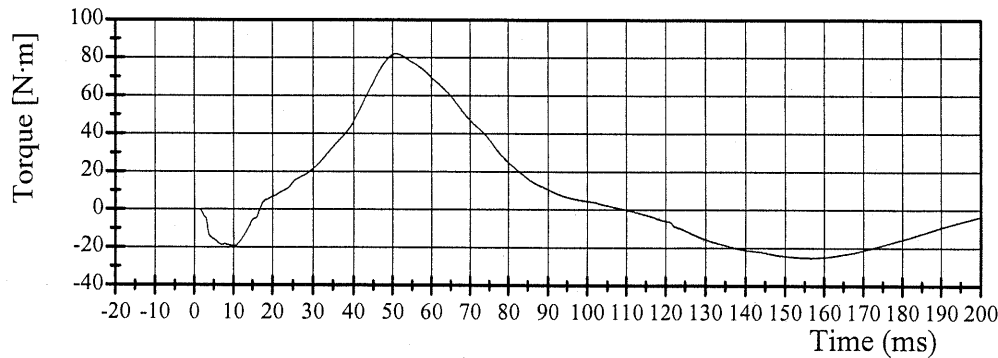


Filter Class: CFC 600

Max: 66.1 N·m at 50.7 ms

Min: -24.5 N·m at 10.5 ms

Moment About the Occipital Condyles (X-Axis)



Filter Class: 600

Max: 82.1 ° at 51.0 ms

Min: -25.1 ° at 156.6 ms

03.25.2004 18:47:56 518



Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	26 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.7 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician

Vincent Oliver

Approved

V. F. Walter

03.23.2004 18:02:27 1552

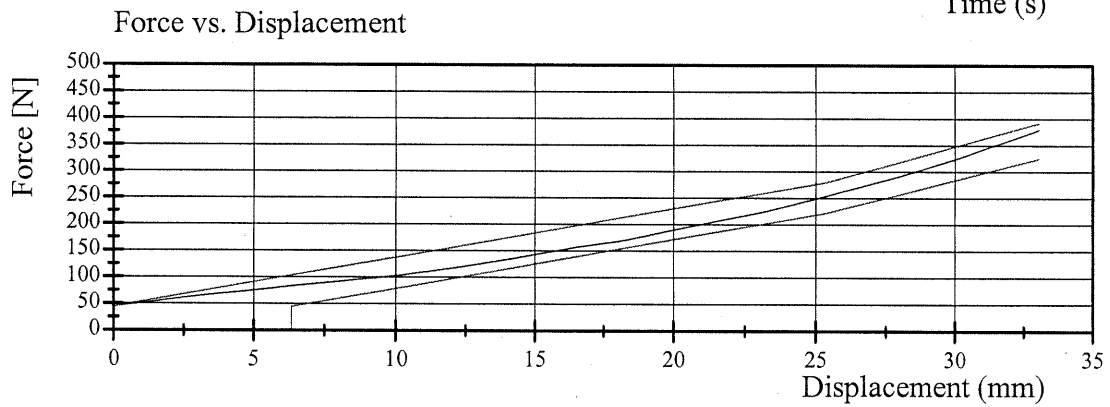
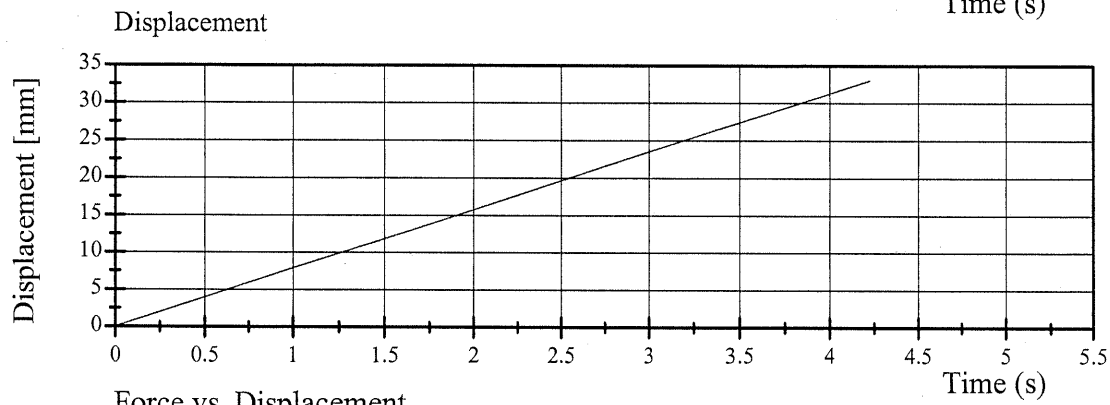
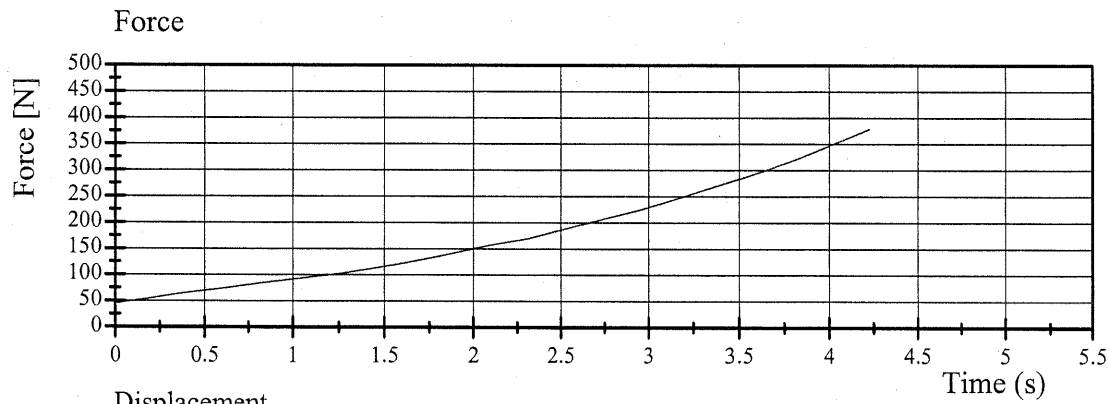


Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004



03.23.2004 18:02:28 1552



TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID HIII

CAL DATE: 25-Mar-04

TRC, INC. TEST NO: LF05908-2

572M SN 059 TORSO FLEX CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	22.2 °C
RELATIVE HUMIDITY	10 – 70 %	45 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	137.9 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	191.3 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	258.0 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	5.0 °

TEST MEETS SPECIFICATIONS

TECHNICIAN Vincent Oliver

Transportation Research Center Inc.

572F Left Thorax Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.5 C	Yes
Relative Humidity	10 - 70 %	24 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.32 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	39.9 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	39.3 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	20.1 g	Yes

Comments:

Technician

Vincent Oliveri

Approved

V. F. Walter

03.23.2004 15:55:22 1162



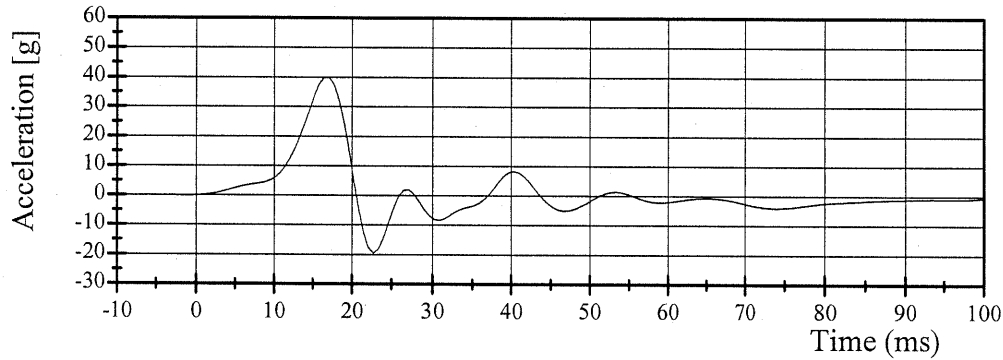
Transportation Research Center Inc.

572F Left Thorax Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004

Upper Rib Bar Acceleration

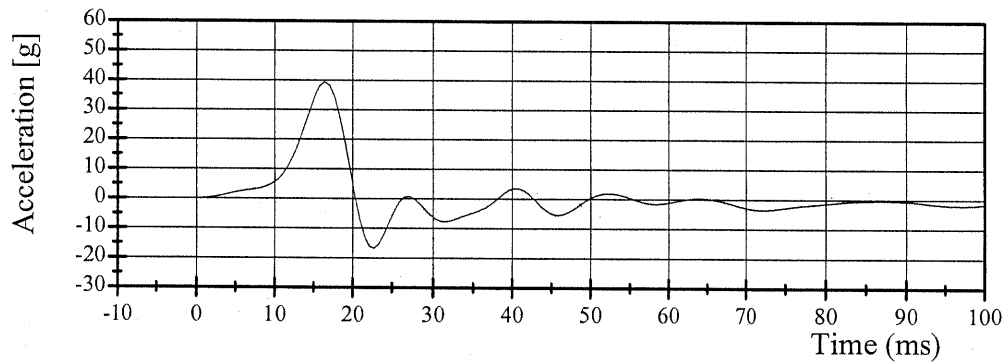


Filter Class: FIR 100

Max: 39.9 g at 17.1 ms

Min: -19.5 g at 22.7 ms

Lower Rib Bar Acceleration

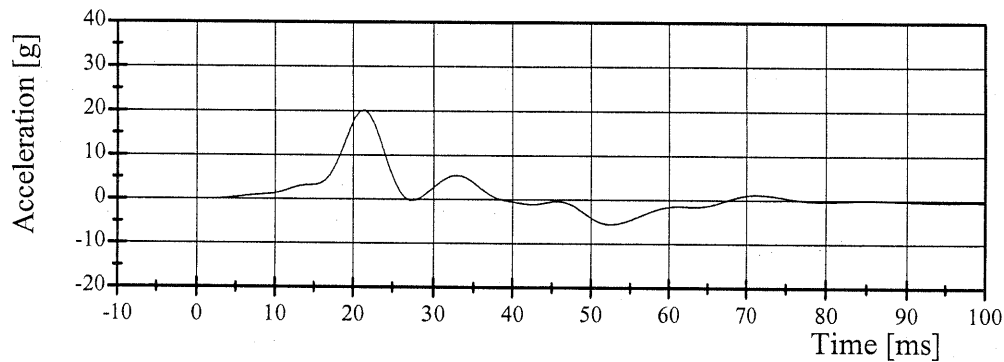


Filter Class: FIR 100

Max: 39.3 g at 16.5 ms

Min: -16.8 g at 22.7 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 20.1 g at 21.4 ms

Min: -5.6 g at 52.7 ms

Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	22.1 C	Yes
Relative Humidity	10 - 70 %	23 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.31 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	45.0 g	Yes
Time Above 20 g	3 - 7 ms	6.00 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician

Vincent Olivier

Approved

V. F. Walter

03.23.2004 13:35:14 1168

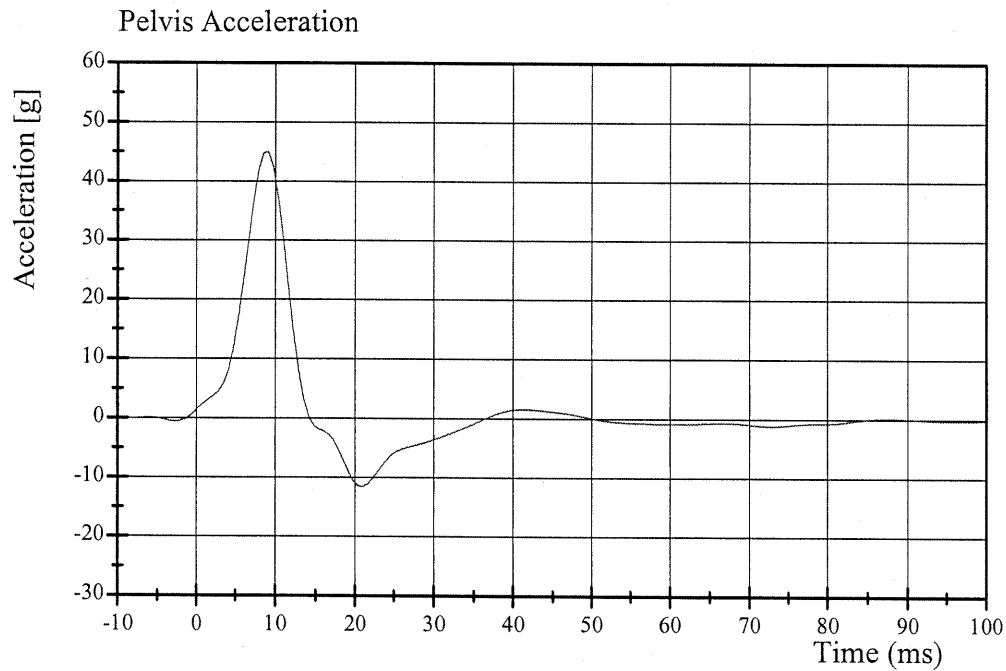


Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 059 Calibration No. 08 - 1

Test Date 03/23/2004



Filter Class: FIR 100

Max: 45.0 g at 9.1 ms

Min: -11.6 g at 21.0 ms

03.23.2004 13:35:15 1168



Type: SID HIII S/N: 055 Mfr: ASTC Test Date: 03/17/04Proj./Seg. No.: 20020455-2070 Test Eng.: Walter D. Dudek

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left) N/A	(Right)
NECK:		
Rubber Condition and Separation From End Caps	X	
THORAX: Left side configuration		
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	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 03/16/04

Type: SID HIII S/N: 059 Mfr: ASTC Test Date: 03/17/04Proj./Seg. No.: 20020455-2070 Test Eng.: Walter D. Dudek

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left) N/A	(Right)
NECK:		
Rubber Condition and Separation From End Caps	X	
THORAX: Left side configuration		
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	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 03/16/04

Type: SID HIII S/N: 055 Mfr: ASTC Test Date: 03/17/04Proj./Seg. No.: 20020455-2070 Test Eng.: Walter D. Dudek

ITEM	POST-USE
HEAD:	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX: Left side configuration	
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	*
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
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: *Rib wrap has broken rivet. No other damage.

Inspection Completed By: J. ClarridgeDate: 03/22/04

Type: SID HIII S/N: 059 Mfr: ASTC Test Date: 03/17/04Proj./Seg. No.: 20020455-2070 Test Eng.: Walter D. Dudek

ITEM	POST-USE
HEAD:	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX: Left side configuration	
Jacket Condition	X
Arm Foam Condition	*
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	*
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
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: * Left arm foam has deep cut at bottom. Rib wrap assembly torn.No other damage.Inspection Completed By: J. ClarridgeDate: 03/22/04

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>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
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
Sled Accelerations	60
Steering Column Loads	600
Head Form Accelerations	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

3/17/2004 8:34:31 AM

Name of Test 040317

System MINIDAU

Name of DAU DAUA

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	P25298	HEDXG1	Head Accel X	Rwd	805.80430	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0002	P25061	HEDYG1	Head Accel Y	Lft	790.56265	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0003	P25261	HEDZG1	Head Accel Z	Up	808.75732	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0004	P25067	HEDXR1	Head Accel X Red	Rwd	809.38379	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0005	P24511	HEDYR1	Head Accel Y Red	Lt	795.73535	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0006	P25063	HEDZR1	Head Accel Z Red	Up	811.34616	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0007	1716-0534-FX	NEKXF1	Neck Force X	Hd	8890.8019	N	- 9/9/2003	--- 055n	Denton	1716
0008	1716-0534-FY	NEKYF1	Neck Force Y	Hd	8885.0977	N	+ 9/9/2003	--- 055n	Denton	1716
0009	1716-0534-FZ	NEKZF1	Neck Force Z	Hd	13357.627	N	+ 9/9/2003	--- 055n	Denton	1716
0010	1716-0534-MX	NEKXM1	Neck Moment X	Rt Ear	282.37048	N·m	- 9/9/2003	--- 055n	Denton	1716
0011	1716-0534-MY	NEKYM1	Neck Moment Y	Chn	282.42609	N·m	+ 9/9/2003	--- 055n	Denton	1716
0012	1716-0534-MZ	NEKZM1	Neck Moment Z	Chn	282.48456	N·m	+ 9/9/2003	--- 055n	Denton	1716
0013	P25068	LURYG1	Left Upper Rib Y	Rgt	799.41293	g	+ 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0014	P25069	LURYR1	Left Upper Rib Red Y	Rgt	791.63832	g	+ 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0015	P25305	LLRYG1	Left Lower Rib Y	Rgt	807.23993	g	+ 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0016	P25395	LLRYR1	Left Lower Rib Red Y	Rgt	810.40868	g	+ 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0017	P24393	T12YG1	Lower Spine Y	Lft	398.42807	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0018	P24627	T12YR1	Lower Spine Red Y	Lft	398.59867	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0019	P25397	PEVYG1	Pelvis Accel Y	Lft	400.12503	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0020	P25231	PEVYR1	Pelvis Accel Red Y	Lft	400.85181	g	- 2/20/2004	OK 055n	Endevco	7264C-2K-2-180
0021	P21712	HEDXG4	Head Accel X	Rwd	808.59128	g	- 9/9/2003	--- 059n	Endevco	7264C-2K-2-180
0022	P22733	HEDYG4	Head Accel Y	Lft	799.37548	g	- 9/9/2003	--- 059n	Endevco	7264C-2K-2-180
0023	P21625	HEDZG4	Head Accel Z	Up	806.14686	g	- 9/9/2003	--- 059n	Endevco	7264C-2K-2-180
0024	P25076	HEDXR4	Head Accel X Red	Rwd	794.38962	g	- 9/9/2003	--- 059n	Endevco	7264C-2K-2-180
0025	P16213	HEDYR4	Head Accel Y Red	Lt	807.39268	g	- 9/9/2003	--- 059n	Endevco	7264C-2K-2-180
0026	P18941	HEDZR4	Head Accel Z Red	Up	811.60339	g	- 9/9/2003	--- 059n	Endevco	7264C-2K-2-180
0027	1716A-1532-FX	NEKXF4	Neck Force X	Hd	8910.4831	N	- 9/9/2003	--- 059n	Denton	1716A
0028	1716A-1532-FY	NEKYF4	Neck Force Y	Hd	8903.5686	N	+ 9/9/2003	--- 059n	Denton	1716A
0029	1716A-1532-FZ	NEKZF4	Neck Force Z	Hd	13353.823	N	+ 9/9/2003	--- 059n	Denton	1716A
0030	1716A-1532-MX	NEKXM4	Neck Moment X	Rt Ear	282.57842	N·m	- 9/9/2003	--- 059n	Denton	1716A
0031	1716A-1532-MY	NEKYM4	Neck Moment Y	Chn	282.17998	N·m	+ 9/9/2003	--- 059n	Denton	1716A
0032	1716A-1532-MZ	NEKZM4	Neck Moment Z	Chn	282.95095	N·m	+ 9/9/2003	--- 059n	Denton	1716A

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Channel Report

3/17/2004 8:34:32 AM

Name of Test 040317

System MINIDAU

Name of DAU DAUB

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	P27355	LURYG4	Left Upper Rib Y	Rgt	792.44698 g	+	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0003	P27178	LURYR4	Left Upper Rib Red Y	Rgt	798.55262 g	+	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0004	P29214	LLRYG4	Left Lower Rib Y	Rgt	803.51537 g	+	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0005	P25389	LLRYR4	Left Lower Rib Red Y	Rgt	796.13129 g	+	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0006	P27211	T12YG4	Lower Spine Y	Lft	399.22027 g	-	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0007	P29206	T12YR4	Lower Spine Red Y	Lft	397.99138 g	-	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0008	P27228	PEVYG4	Pelvis Accel Y	Lft	402.61384 g	-	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0009	P27230	PEVYR4	Pelvis Accel Red Y	Lft	398.85329 g	-	9/9/2003	---	059n	Endevco 7264C-2K-2-180
0010	P33082	RFSXG1	RT SID ESILL AT FR SEAT	FWD	400.64478 g	+	2/27/2004	OK -1	Endevco	7264C-2K-2-180
0011	P33058	RFSYG1	RT SIDE SILL AT FR SEAT	LT	1023.1201 g	-	2/27/2004	OK -1	Endevco	7264C-2K-2-180
0012	P33047	RFSZG1	RT SIDE SILL AT FR SEAT	UP	398.85640 g	-	2/27/2004	OK -1	Endevco	7264C-2K-2-180
0013	P29717	RRSXG1	RT SIDE SILL AT RR SEAT	FWD	402.83241 g	+	1/23/2004	OK -1	Endevco	7264C-2K-2-180
0014	P32767	RRSYG1	RT SIDE SILL AT RR SEAT	LT	1004.3942 g	-	2/27/2004	OK -1	Endevco	7264C-2K-2-180
0015	P28926	RRSZG1	RT SIDE SILL AT RR SEAT	UP	399.51309 g	-	1/6/2004	OK -1	Endevco	7264C-2K-2-180
0016	P27518	RDKXG1	RR FLOOR PAN ABOVE	FWD	1012.2978 g	+	1/23/2004	OK -1	Endevco	7264C-2K-2-180
0017	P28083	RDKYG1	RR FLOOR PAN ABOVE	LT	1002.1334 g	-	1/23/2004	OK -1	Endevco	7264C-2K-2-180
0018	P27919	RDYZG1	RR FLOOR PAN ABOVE	UP	1012.6582 g	-	1/8/2004	OK -1	Endevco	7264C-2K-2-180
0019	P28338	LRSYG1	LT SIDE SILL AT RR SEAT	RT	979.90430 g	+	1/15/2004	OK -1	Endevco	7264C-2K-2-180
0020	P29811	LFSYG1	LT SIDE SILL AT FR SEAT	RT	1008.6682 g	+	1/23/2004	OK -1	Endevco	7264C-2K-2-180
0021	P27366	RRTYG1	RT RR OCCUPANT	LT	1532.7046 g	-	9/18/2003	OK -1	Endevco	7264C-2K-2-180
0022	P33044	LLBYG1	LT LWR B-POST Y-AXIS	RT	1482.8974 g	+	2/27/2004	OK -1	Endevco	7264C-2K-2-180
0023	P27362	LUBYG1	LT MID B-POST Y-AXIS	RT	1547.6694 g	+	12/26/2003	OK -1	Endevco	7264C-2K-2-180
0024	P28892	LLAYG1	LT LWR A-POST Y-AXIS	LT	1482.1676 g	-	12/17/2003	OK -1	Endevco	7264C-2K-2-180
0025	P27095	LUAYG1	LT MID A-POST Y-AXIS	LT	1516.2283 g	-	1/20/2004	OK -1	Endevco	7264C-2K-2-180
0026	P33020	LFTYG1	LT FR SEAT TRACK Y-AXIS	RT	1501.3782 g	+	2/27/2004	OK -1	Endevco	7264C-2K-2-180
0027	P29849	LRTYG1	LT RR SEAT TRACK Y-AXIS	RT	1487.2912 g	+	12/22/2003	OK -1	Endevco	7264C-2K-2-180
0028	P30448	VCGXG1	VEHICLE CG X-AXIS	FWD	1020.9779 g	+	1/23/2004	OK -1	Endevco	7264C-2K-2-180
0029	P28870	VCGYG1	VEHICLE CG Y-AXIS	LT	990.25220 g	-	2/6/2004	OK -1	Endevco	7264C-2K-2-180
0030	P25042	VCGZG1	VEHICLE CG Z-AXIS	UP	987.65432 g	-	1/16/2004	OK -1	Endevco	7264C-2K-2-180

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Channel Report

3/17/2004 8:34:32 AM

Name of Test 040317

System MINIDAU

Name of DAU DAUC

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	EVENT	EVENT	EVENT		5.12	V	+ 11/8/2003	OK -1	TRC	Event
0002	P30422	BCGXG1	MDB CG X--AXIS	FWD	595.27961	g	+ 1/23/2004	OK -1	Endevco	7264C-2K-2-180
0003	P30424	BCGYG1	MDB CG Y-AXIS	LT	594.65737	g	- 1/23/2004	OK -1	Endevco	7264C-2K-2-180
0004	P29734	BCGZG1	MDB CG Z-AXIS	UP	601.50375	g	- 1/23/2004	OK -1	Endevco	7264C-2K-2-180
0005	P29352	LRRXG1	MDB LT RR X-AXIS	FWD	598.64136	g	+ 1/13/2004	OK -1	Endevco	7264C-2K-2-180
0006	P30415	LRRYG1	MDB LT RR Y-AXIS	LT	601.05889	g	- 2/6/2004	OK -1	Endevco	7264C-2K-2-180

Digital and System Channel Report

2004-03-17 08:35:59

Name of Test 040317

System MINIDAU

Name of DAU DAUA descriptio

enable Channel Short Name

Yes 0501 DIGA

Type

dig0

Data File

DATA0501

Module Type

KM3710 Controller

bit position	bit	short	long	descriptio
MSB = bit 15	1	SHLET1	DRIV. SHOULDER CONTACT SWITCH	I
bit 14	1	PEVET1	DRIV. PELVIS CONTACT SWITCH	J
bit 13	1	SHLET4	RR/L. SHOULDER CONTACT SWITCH	K
bit 12	1	PEVET4	RR/L. PELVIS CONTACT SWITCH	M
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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040317

Digital and System Channel Report

2004-03-17 08:36:00

Name of Test 040317

System MINIDAU

Name of DAU DAUC descriptio

enable Channel

Short Name

Type

Data File

Module Type

Yes 0501

DIGC

dig0

DATC0501

KM3710 Controller

bit position	bit	short	long	descriptio
MSB = bit 15	1	MDBR1	MDB RT SIDE CONTACT SWITCH	O
bit 14	1	MDBL1	MDB LT SIDE CONTACT SWITCH	G
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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040317

Dummy 055n Type SID/H3 Descriptio NHTSA - 055n SID-LEFT IMP. CONFIG. w/RED ACCELS ICAL'd 9-9-04(DKS

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	7264C-2K-2-18	P25298	Endevco	0.02191 g	2000	2/20/2004	Rwd	1
HEDYG	Head Accel Y	7264C-2K-2-18	P25061	Endevco	0.01799 g	2000	2/20/2004	Lft	1
HEDZG	Head Accel Z	7264C-2K-2-18	P25261	Endevco	0.01711 g	2000	2/20/2004	Up	1
HEDXR	Head Accel X Red	7264C-2K-2-18	P25067	Endevco	0.01622 g	2000	2/20/2004	Rwd	1
HEDYR	Head Accel Y Red	7264C-2K-2-18	P24511	Endevco	0.01739 g	2000	2/20/2004	Lt	1
HEDZR	Head Accel Z Red	7264C-2K-2-18	P25063	Endevco	0.01803 g	2000	2/20/2004	Up	1
NEKXF	Neck Force X	1716	1716-0534-FX	Denton	0.000193247 N	8896.4	9/9/2003	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716	1716-0534-FY	Denton	0.000181781 N	8896.4	9/9/2003	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716	1716-0534-FZ	Denton	0.000087114 N	13344.6	9/9/2003	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716	1716-0534-MX	Denton	0.00588708 N	282.5	9/9/2003	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716	1716-0534-MY	Denton	0.005773451 N	282.5	9/9/2003	Chn to Strnm	0
NEKZM	Neck Moment Z	1716	1716-0534-MZ	Denton	0.00839115 N	282.5	9/9/2003	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264C-2K-2-18	P25068	Endevco	0.01731 g	2000	2/20/2004	Rgt	0
LURYR	Left Upper Rib Red Y	7264C-2K-2-18	P25069	Endevco	0.01702 g	2000	2/20/2004	Rgt	0
LLRYG	Left Lower Rib Y	7264C-2K-2-18	P25305	Endevco	0.02046 g	2000	2/20/2004	Rgt	0
LLRYR	Left Lower Rib Red Y	7264C-2K-2-18	P25395	Endevco	0.02038 g	2000	2/20/2004	Rgt	0
T12YG	Lower Spine Y	7264C-2K-2-18	P24393	Endevco	0.01977 g	2000	2/20/2004	Lft	1
T12YR	Lower Spine Red Y	7264C-2K-2-18	P24627	Endevco	0.01835 g	2000	2/20/2004	Lft	1
PEVYG	Pelvis Accel Y	7264C-2K-2-18	P25397	Endevco	0.01828 g	2000	2/20/2004	Lft	1
PEVYR	Pelvis Accel Red Y	7264C-2K-2-18	P25231	Endevco	0.01774 g	2000	2/20/2004	Lft	1

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Dummy 059n Type SID/H3 Descriptio NHTSA - 059n SID-LEFT IMP. CONFIG. w/RED ACCELS ICAL'd 9-9-03(DKS)

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	7264C-2K-2-18	P21712	Endevco	0.01583 g	2000	9/9/2003	Rwd	1
HEDYG	Head Accel Y	7264C-2K-2-18	P22733	Endevco	0.0183 g	2000	9/9/2003	Lft	1
HEDZG	Head Accel Z	7264C-2K-2-18	P21625	Endevco	0.01868 g	2000	9/9/2003	Up	1
HEDXR	Head Accel X Red	7264C-2K-2-18	P25076	Endevco	0.01572 g	2000	9/9/2003	Rwd	1
HEDYR	Head Accel Y Red	7264C-2K-2-18	P16213	Endevco	0.01626 g	2000	9/9/2003	Lt	1
HEDZR	Head Accel Z Red	7264C-2K-2-18	P18941	Endevco	0.02035 g	2000	9/9/2003	Up	1
NEKXF	Neck Force X	1716A	1716A-1532-FX	Denton	0.000194123 N	8896.4	9/9/2003	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-1532-FY	Denton	0.000184311 N	8896.4	9/9/2003	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716A	1716A-1532-FZ	Denton	0.00009756 N	13344.6	9/9/2003	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-1532-MX	Denton	0.005979823 N	282.5	9/9/2003	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-1532-MY	Denton	0.005929558 N	282.5	9/9/2003	Chn to Strnm	0
NEKZM	Neck Moment Z	1716A	1716A-1532-MZ	Denton	0.008416283 N	282.5	9/9/2003	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264C-2K-2-18	P27355	Endevco	0.02485 g	2000	9/9/2003	Rgt	0
LURYR	Left Upper Rib Red Y	7264C-2K-2-18	P27178	Endevco	0.01781 g	2000	9/9/2003	Rgt	0
LLRYG	Left Lower Rib Y	7264C-2K-2-18	P29214	Endevco	0.02655 g	2000	9/9/2003	Rgt	0
LLRYR	Left Lower Rib Red Y	7264C-2K-2-18	P25389	Endevco	0.01649 g	2000	9/9/2003	Rgt	0
T12YG	Lower Spine Y	7264C-2K-2-18	P27211	Endevco	0.0171 g	2000	9/9/2003	Lft	1
T12YR	Lower Spine Red Y	7264C-2K-2-18	P29206	Endevco	0.02042 g	2000	9/9/2003	Lft	1
PEVYG	Pelvis Accel Y	7264C-2K-2-18	P27228	Endevco	0.03437 g	2000	9/9/2003	Lft	1
PEVYR	Pelvis Accel Red Y	7264C-2K-2-18	P27230	Endevco	0.01808 g	2000	9/9/2003	Lft	1

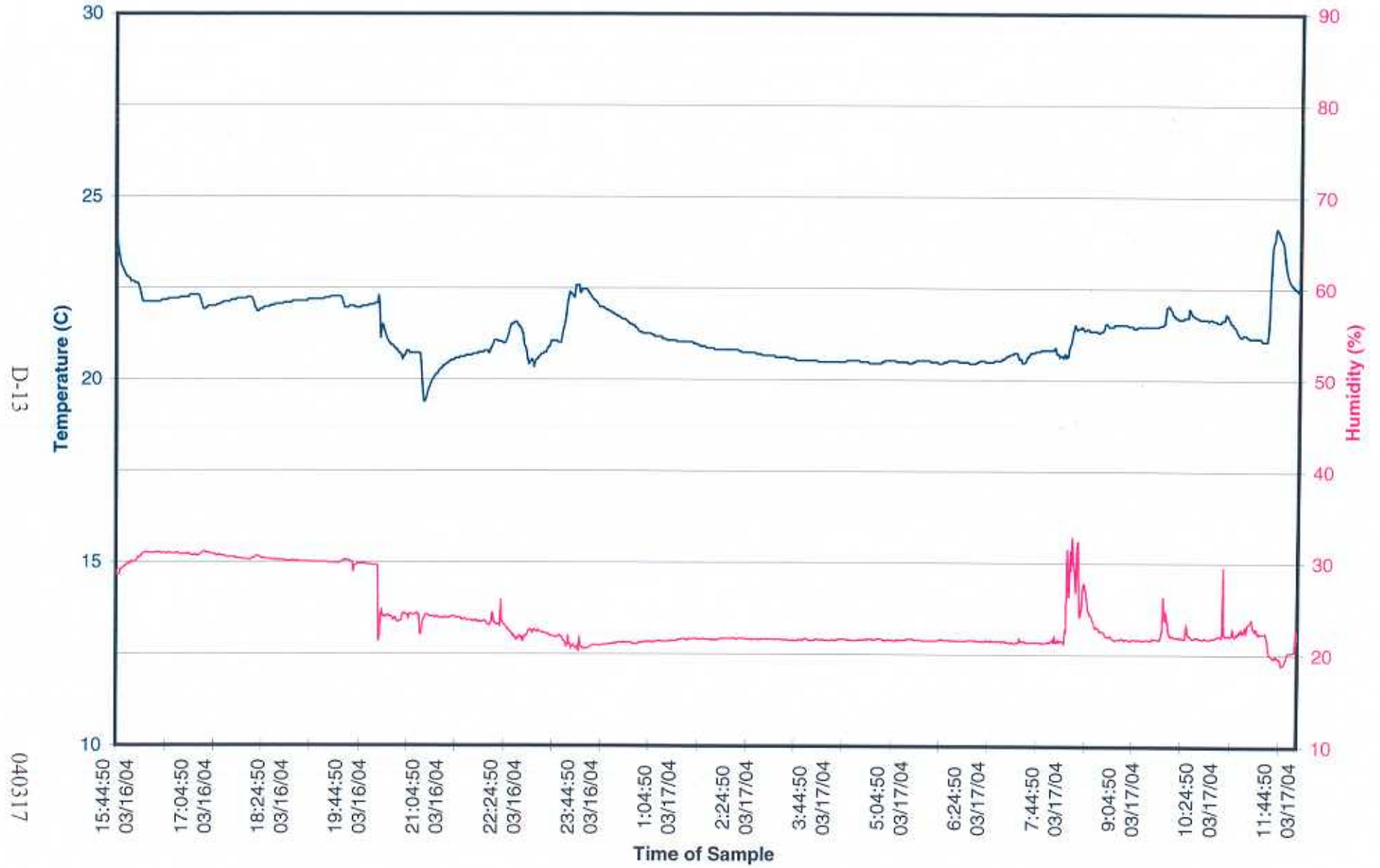
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2004

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55/28 KPH 90 DEGREE SIDE IMPACT / C40107 / 040317



SIDE IMPACTOR BARRIER CERTIFICATION

Date: February 5, 2004

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

PURCHASE ORDER INFORMATION

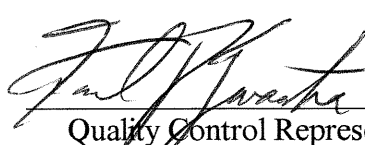
Customer P.O. Number: 28450
Work Order Number: 19891
Quantity: 01 piece

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: 057A1203

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.

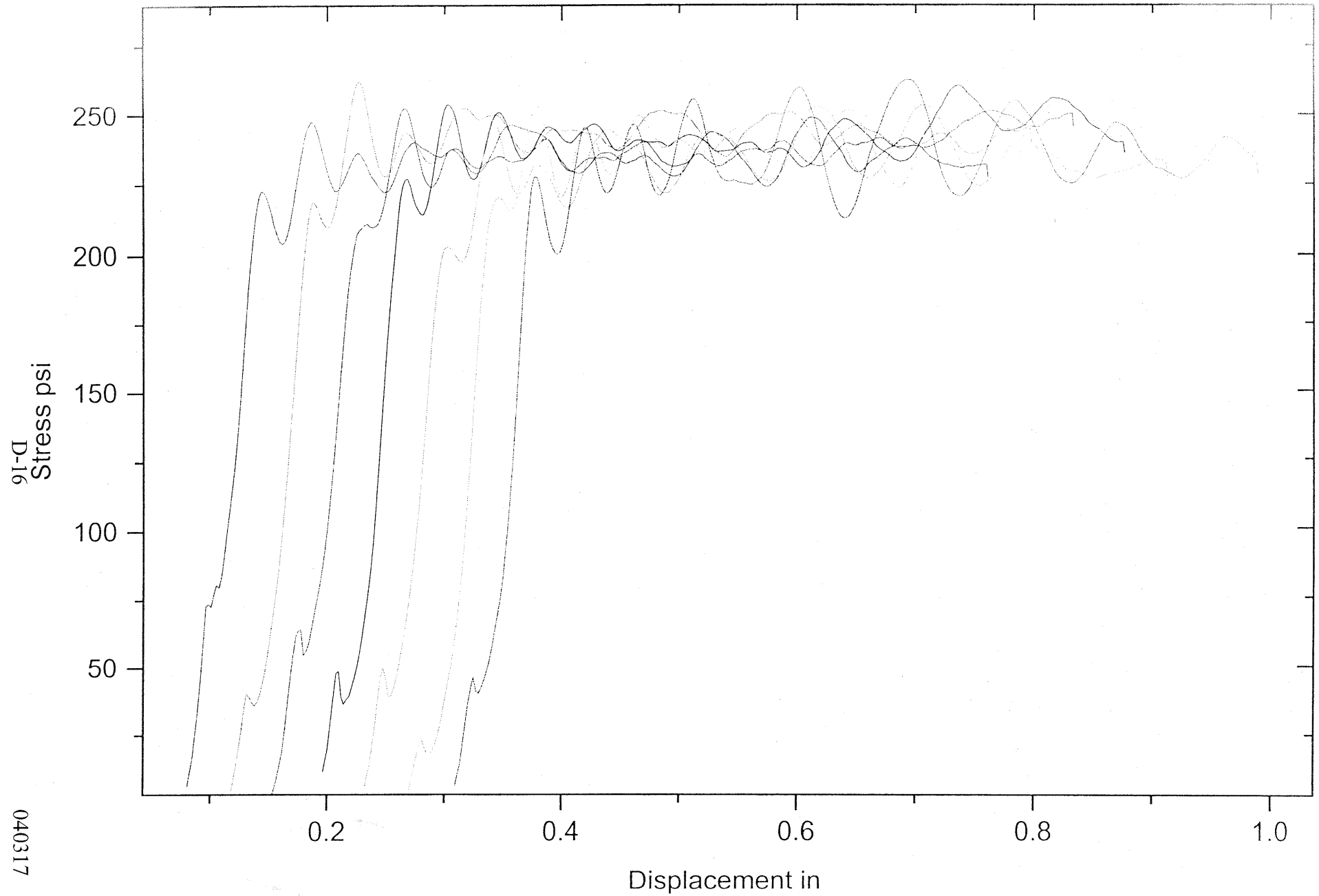

Quality Control Representative
Karl D. Zwaanstra



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

Block Number: **057A1203**

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	234.37	235.85	236.70
2	244.92	243.78	240.24
3	234.87	237.67	245.73
4	241.09	238.32	240.52
5	239.88	236.47	233.91
6	238.82	245.24	246.96
7	242.69	235.68	235.31



SIDE IMPACTOR BARRIER CERTIFICATION

Date: February 5, 2004

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

PURCHASE ORDER INFORMATION

Customer P.O. Number: 28450
Work Order Number: 19891
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: 071B0104

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

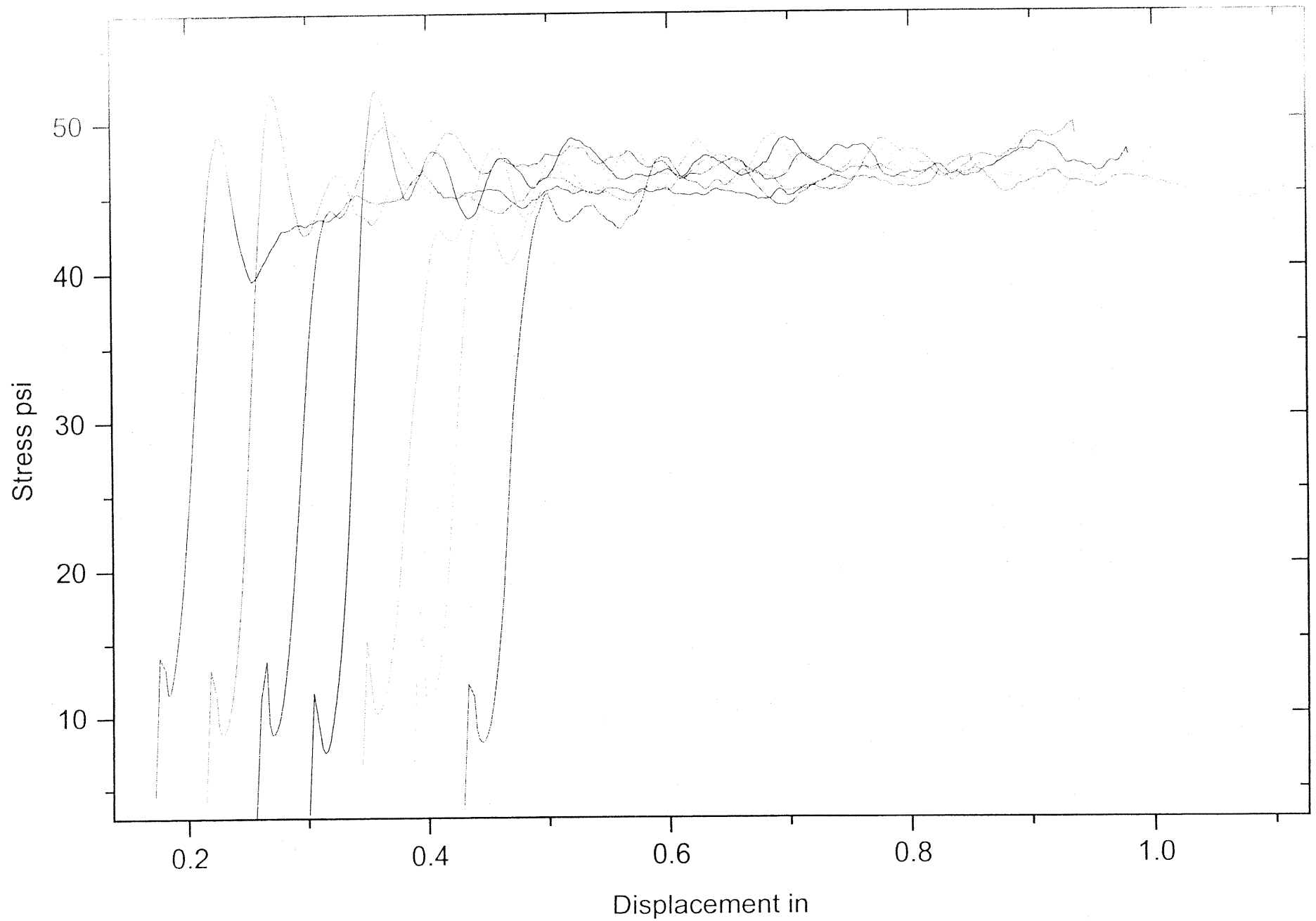


Crush Data
45 psi +/- 2.5 psi per DWG # DSL-1285

Block Number: 071B0104

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	45.14	45.08	45.81
2	45.47	46.42	46.87
3	47.10	46.72	46.62
4	46.92	47.18	47.29
5	47.47	46.82	46.34
6	46.14	46.25	46.18
7	44.78	45.68	47.22

BLOCK # 071B0104 Sample ID: IN228995



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