

Report Number: NCAP-TRC-03-001

New Car Assessment Program

“Side Impact Testing”

Hyundai Motors

2004 Hyundai Tiburon 2-door

NHTSA Number: M40507

Transportation Research Center Inc.

10820 State Route 347

P. O. Box B-67

East Liberty, OH 43319



Test Date: December 8, 2003

Final Report: December 23, 2003

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

**Safety Performance Standards
Office of Crashworthiness Standards**

400 Seventh Street, S. W.

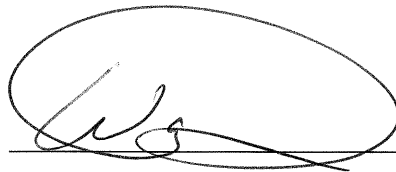
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Transportation Research Center Inc.

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16. Abstract This 56/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject vehicle, a 2004 Hyundai Tiburon 2-door in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for generation of consumer information on vehicle side crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on December 8, 2003. 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 22° C. The target vehicle's post-test maximum crush was 323 mm at Level 3. The test or target vehicle's performance is given below (with FIR filter): <table border="0"> <tr> <td></td> <td><u>Front SID HIII</u></td> <td></td> </tr> <tr> <td>Left Upper Rib Acceleration:</td> <td><u>65.5</u></td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td><u>55.7</u></td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td><u>53.0</u></td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td><u>59.3</u></td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td><u>106.4</u></td> <td>g's</td> </tr> </table> The door on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door did not open during side impact event.				<u>Front SID HIII</u>		Left Upper Rib Acceleration:	<u>65.5</u>	g's	Left Lower Rib Acceleration:	<u>55.7</u>	g's	Lower Spine Acceleration:	<u>53.0</u>	g's	Thoracic Trauma Index, (TTI):	<u>59.3</u>	g's	Pelvis Acceleration (PEV):	<u>106.4</u>	g's
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Section 1

Purpose and Test Procedure

This side impact test is part of the crash testing for New Car Assessment Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-03-D-02055. The purpose of this test was to generate comparative side impact performance data in a 2004 Hyundai Tiburon 2-door. The test was conducted in accordance with the Office of Crashworthiness Standards' Laboratory Test Procedure dated November 2002.

Section 2

Summary of Side Impact Test

A 2004 Hyundai Tiburon 2-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 (38.4 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 December 8, 2003. 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.

One restrained Side Impact Dummy (SID HIII) was placed in the driver (Pos. #1) designated seating position according to the instructions specified in the OCWS Test Procedure for New Car Assessment Side Impact Testing (dated November 2002). The SID HIII dummy was certified prior to this test. The side impact test was documented by one real-time camera and 11 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SID HIII was 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 second SID HIII was placed in the left rear (Pos. #4) designated seating position as ballast during the test. TRC Inc. was unable to properly seat the dummy for testing due to contact between the dummy's head and the rear vehicle hatch.

A summary of the side impact dummy (SID HIII) configuration and verification test data can be found in Appendix C. A total of 55 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
TTI (g)	59.3
PEV (g)	106.4

Head Injury Criteria (HIC)

Injury Criteria	Front SID HIII
HIC	532
t_1 (ms)	42.16
t_2 (ms)	76.64
Average Acceleration $t_1 - t_2$ (g)	47.30

HIC is as defined in FMVSS 208. The maximum time interval t_1 to t_2 is 36 ms.

Neck Injury Criteria

Maximum Values	Front SID HIII
Neck X-axis Force (N)	-698.6
Neck Y-axis Force (N)	743.5
Neck Z-axis Force (N)	1820.5
Moment About X-axis (Nm) ¹	72.6
Moment About Y-axis (Nm)	-40.0
Moment About Z-axis (Nm)	17.9

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

Supplemental Restraint Information

Restraint Type	Left Front (Driver)	
	Installed	Operation
Front Airbag	Yes	Not Deployed
Side Torso/Head Airbag	Yes	Deployed

Data Acquisition Explanations

The left rear passenger dummy could not be seated properly for the test due to contact between the dummy head and the rear window glass of the vehicle. The dummy was left in the vehicle as ballast and the test was performed with one (1) dummy.

The vehicle's left side sill at front seat Y-axis acceleration channel, LFSYG1, did not return to zero post-test. The velocity and displacement were also affected.

The vehicle's left lower A-post Y-axis acceleration channel, LLAYG1, went open at approximately 39 milliseconds and recorded no useful data after that. The velocity was also affected.

The vehicle's left middle A-post Y-axis acceleration channel, LMAYG1, went open at approximately 25 milliseconds and recorded no useful data after that. The velocity was also affected.

The vehicle's center of gravity X-axis acceleration channel, VCGXG1, did not return to zero post-test. The velocity and calculated resultant were also affected.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2004 Hyundai Tiburon
Vehicle Body Style/Color: 2-door/Black VIN: KMHMM65D64U110633
Vehicle NHTSA No.: M40507 Build Date: 09/03
Engine Data: 6 Cylinders; CID; 2 Liters; cc
Placement: X Longitudinal; or - Lateral; or - Horizontal
Transmission: 5 Speed; X Manual; - Automatic; - Overdrive
Final Drive: - RWD; X FWD; - Four-Wheel Drive
Odometer Reading: 63 miles
Options: X A/C; X Power steering; X Pwr. brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 300 kPa Front; 300 kPa Rear

Recommended Tire Size: P205/55R16

Tires on Test Vehicle: P205/55R16 Manufacturer: Michelin, Energy

Vehicle Capacity Data:

Number of Occupants: 2 Front; 2 Rear; - 3rd seat; 4 Total
Type of Front Seats: X Bucket; - Bench; - Split bench
Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
Vehicle Max. Capacity Loading = 317 kg (A)
No. of Occupants x 68.04 kg. = 272 kg (B)
Vehicle Cargo Capacity (A-B) = 45 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u>417.0</u> kg	Left Rear	=	<u>256.0</u> kg
Right Front	=	<u>407.0</u> kg	Right Rear	=	<u>256.0</u> kg
Total Front	=	<u>824.0</u> kg	Total Rear	=	<u>512.0</u> kg
Front % of Total Weight	=	<u>61.7</u> %	Rear % of Total Weight	=	<u>38.3</u> %
Total Weight	=	<u>1336.0</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 = 1336.0 kg (A)

Maximum Cargo Carrying Capacity of Test Vehicle = 45.0 kg (B)

Weight of Instrumented Side Impact Dummies (2 X 84.0 kg) = 168.0 kg (C)

Test Vehicle Target Weight: = 1549.0 kg (A+B+C)

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

Left Front = 470.0 kg Left Rear = 356.0 kg

Right Front = 415.0 kg Right Rear = 316.0 kg

Total Front = 885.0 kg Total Rear = 672.0 kg

Front % of Total Weight = 56.8 % Rear % of Total Weight = 43.2 %

Total Weight = 1557.0 kg

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

Left Front = 450 kg Left Rear = 335.2 kg

Right Front = 434.2 kg Right Rear = 323.8 kg

Total Front = 884.2 kg Total Rear = 659.0 kg

Front % of Total Weight = 57.3 % Rear % of Total Weight = 42.7 %

Total Weight = 1543.2 kg

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>680</u>	Right Front <u>652</u>	Right Front <u>660</u>
Left Front <u>680</u>	Left Front <u>633</u>	Left Front <u>655</u>
Right Rear <u>681</u>	Right Rear <u>625</u>	Right Rear <u>634</u>
Left Rear <u>682</u>	Left Rear <u>615</u>	Left Rear <u>625</u>

Test Vehicle Wheelbase: 2525 mm

C.G. = 1078 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4175 mm

Left Side = 4175 mm

Centerline = 4380 mm

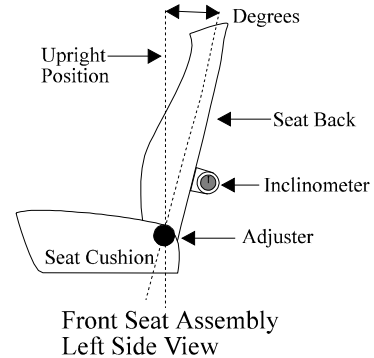
Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

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: Middle position; 120 mm from the rearmost position.

Total Length of Fore/Aft Adjustment Travel: 235 mm

Total Number of Adjustment Positions or Detents: 25

Front Seat Back Adjustment Position: The seat back was adjusted to 22.5° measured at the frame

Seat Back Torso Angle: 25°

Adjustable Steering Column Position: 20°, 3rd notch down of 6

Window Positions:

Right Front: Open

Right Rear: N/A

Left Front: Closed

Left Rear: N/A

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

Amount of Stoddard Solvent In Fuel Tank:

55.0 liters (fuel tank usable capacity)

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

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

Wheelbase = 2525 millimeters

Intended impact point is 323 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 337 millimeters rearward of front axle centerline

Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2004/Hyundai/Tiburon

Body Style: 2-door

VIN: KMHMM65D64U110633

NHTSA No.: M40507

Build Date: 9-15-03

Test Date: 12/08/03

Vehicle Overall Length = 4380 mm

Overall Width = 1700 mm

Vehicle Test Weight (Pre-Test):

Left Front = 450.0 kg Left Rear = 335.2 kg

Right Front = 434.2 kg Right Rear = 323.8 kg

Total Front = 884.2 kg Total Rear = 659.0 kg

Total Weight = 1543.2 kg

Wheelbase = 2525 mm

Longitudinal C.G. From Center Of Front Axle = 1078 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 17 mm right of nominal impact ref. line (Lateral)

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

Maximum Exterior Static Crush:

1. Level 1 (240 mm above ground) = 128 mm

2. Level 2 (454 mm above ground) = 287 mm

3. Level 3 (637 mm above ground) = 323 mm

4. Level 4 (865 mm above ground) = 304 mm

5. Level 5 (1287 mm above ground) = 63 mm

Maximum Post-Test Intrusion = 323 mm

Occupants:

Front Passenger

Rear Passenger¹

Dummy Identification 059

N/A

Restraints Used 3-pt seat belt; side torso airbag

N/A

Instrumentation:

Number of Vehicle Data Channels: = 24

Number of Cameras: Onboard = 2 Offboard = 7 Total = 9

¹ See Data Acquisition Explanations

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, 114B1003 016A1103

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 = 1109 mm

MDB Weight:

Left Front = 421.8 kg Left Rear = 253.4 kg

Right Front = 356.0 kg Right Rear = 328.8 kg

Total Front = 777.8 kg Total Rear = 582.2 kg

Total MDB Weight = 1360.0 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 = 153 millimeters

2. Row B at Top of Bumper Level = 82 millimeters

3. Row C at Mid Level = 136 millimeters

4. Row D at Top of Stack Level = 159 millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Visible Dummy Contact Points:

	<u>Left Front SID HIII</u>	<u>Left Rear SID HIII¹</u>
Head:	<u>Side head/torso airbag</u>	<u>N/A</u>
Upper Torso:	<u>Side head/torso airbag, door panel</u>	<u>N/A</u>
Lower Torso:	<u>Door</u>	<u>N/A</u>
Left Knee:	<u>Door</u>	<u>N/A</u>
Right Knee:	<u>None</u>	<u>N/A</u>

Door Opening:

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

MDB Distance From Target Impact Point:

Vertical: 1 mm up from target

Horizontal: 17 mm right from target

Arm Rest Locations:

Front: 305 mm below the bottom of the window

Rear: N/A

Seat Movement:

Front: Slightly deformed

Rear: N/A

Glazing Damage:

Windshield: Shattered on left side

Window: Shattered on impact side

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

Driver seat bottom deformed downward on outboard side.

¹ See Data Acquisition Explanations

Data Sheet 4 (continued)

Post-Test Observations

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Supplemental Restraint Information

Restraint Type	Left Front (Driver)	
	Installed	Operation
Front Airbag	Yes	Not Deployed
Side Torso/Head Airbag	Yes	Deployed

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID HIII Instrumentation Data

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

TEST NUMBER: 031208

DRIVER DUMMY SERIAL NUMBER: 059

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	6.1 g	@ 174.2 ms	59.5 g	@ 70.7 ms
LATERAL	99.4 g	@ 69.3 ms	7.4 g	@ 165.1 ms
VERTICAL	41.4 g	@ 51.5 ms	18.2 g	@ 70.3 ms
RESULTANT	114.5 g	@ 70.2 ms		
HIC	532 from 42.2 to 76.6 ms			

HEAD REDUNDANT ACCELERATION

LONGITUDINAL	6.1 g	@ 174.8 ms	59.3 g	@ 70.6 ms
LATERAL	99.3 g	@ 69.3 ms	7.2 g	@ 164.7 ms
VERTICAL	43.5 g	@ 51.8 ms	18.2 g	@ 70.3 ms
RESULTANT	114.0 g	@ 70.2 ms		
HIC	559 from 42.4 to 76.5 ms			

NECK FORCE

X-AXIS SHEAR	72.0 N	@ 172.3 ms	698.6 N	@ 51.8 ms
Y-AXIS SHEAR	743.5 N	@ 73.1 ms	310.2 N	@ 154.2 ms
Z-AXIS AXIAL	1820.5 N	@ 51.6 ms	63.5 N	@ 222.2 ms

NECK MOMENT

ABOUT X-AXIS	63.2 N-m	@ 68.6 ms	27.9 N-m	@ 44.9 ms
ABOUT Y-AXIS	23.1 N-m	@ 89.8 ms	40.0 N-m	@ 50.2 ms
ABOUT Z-AXIS	17.9 N-m	@ 65.4 ms	12.1 N-m	@ 194.2 ms
OCCIPITAL COND	72.6 N-m	@ 68.6 ms	26.2 N-m	@ 168.3 ms

LEFT UPPER RIB ACCELERATION

LATERAL (P)	65.5 g	@ 35.6 ms	19.1 g	@ 72.5 ms
LATERAL (R)	66.2 g	@ 35.6 ms	19.1 g	@ 72.5 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	55.7 g	@ 36.3 ms	17.9 g	@ 71.9 ms
LATERAL (R)	55.7 g	@ 36.3 ms	18.0 g	@ 72.5 ms
TTI d (P)	59.3			
TTI d (R)	59.5			

LOWER SPINE ACCELERATION

LATERAL (P)	53.0 g	@ 25.6 ms	16.8 g	@ 76.3 ms
LATERAL (R)	52.7 g	@ 25.6 ms	16.6 g	@ 76.3 ms

PELVIS ACCELERATION

LATERAL (P)	106.4 g	@ 24.4 ms	16.1 g	@ 45.6 ms
LATERAL (R)	106.2 g	@ 24.4 ms	16.2 g	@ 45.6 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

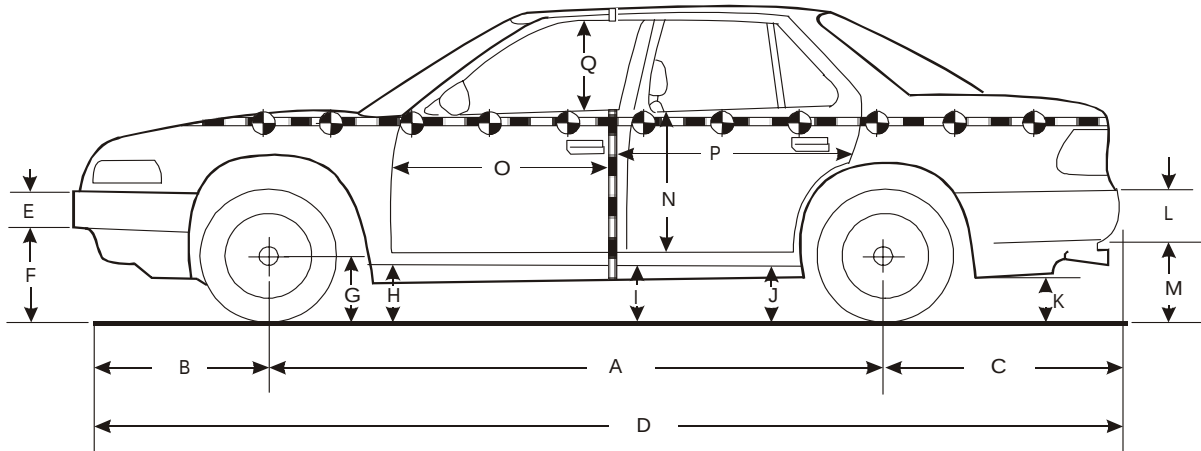
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



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	2525	2525	2505	20
B	965	965	972	-7
C	890	890	877	13
D	4380	4380	4372	8
E	126	126	126	0
F	412	420	422	-2
G	302	300	300	0
H	228	209	242	-33
I	275	218	299	-81
J1	187	146	164	-18
J2	268	197	255	-58
K	288	235	227	8
L	235	235	235	0
M	406	355	366	-11
N	N/A	N/A	N/A	N/A
O	697	697	673	24
P	N/A	N/A	N/A	N/A
Q	332	332	296	36
R	4175	4175	4165	10
S	4185	4185	4141	44
T	1300	1300	1073	227

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

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

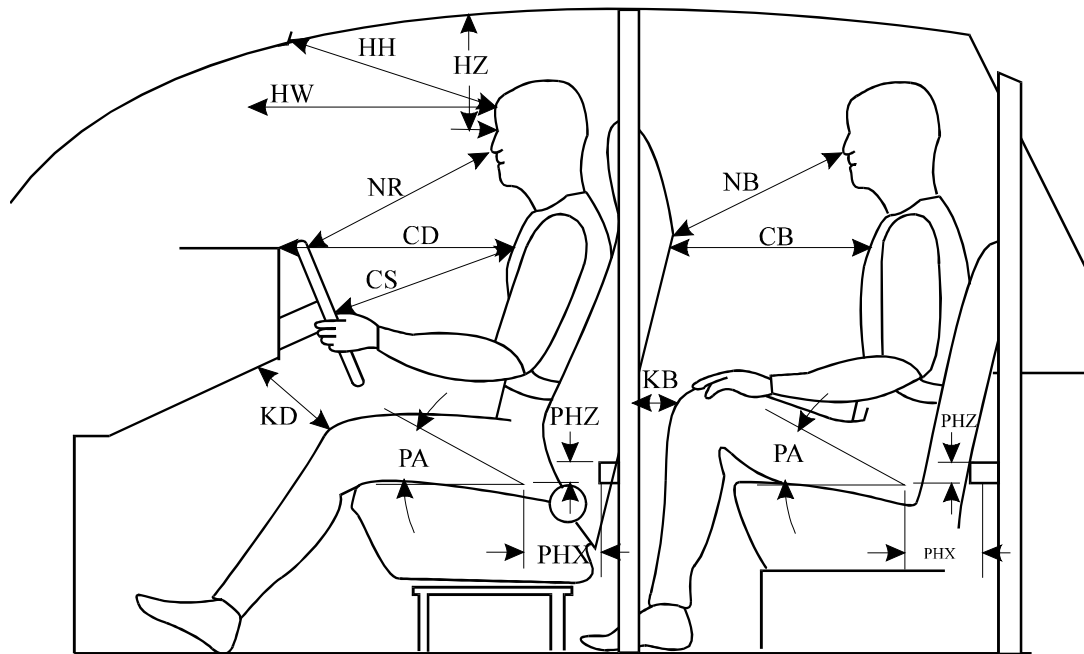
S = Left Side Length

Data Sheet 7

SID HIII Longitudinal Clearance Dimensions

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



Left Side View

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

Measurement	Driver SID HIII # 059	Left Rear Pass. SID HIII # 906 ¹
HH	370	N/A
HW	573	N/A
HZ	148	N/A
NR/NB	450	N/A
CD/CB	500	N/A
CS	290	N/A
KDL(KDA°)/KBL(KBA°)	105/(58.6°)	N/A
KDR(KDA°)/KBR(KBA°)	109/(53.8°)	N/A
PA°	24°	N/A
PHX	360	N/A
PHZ	240	N/A

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

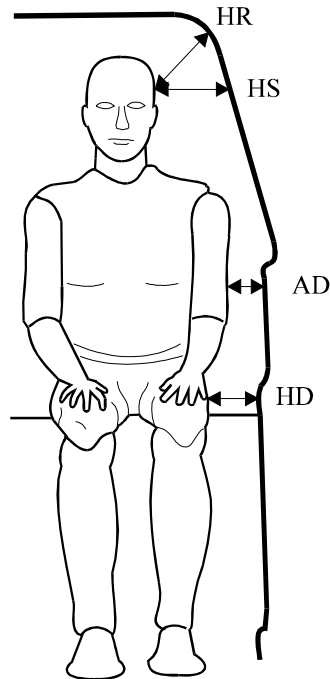
¹ See Data Acquisition Explanations

Data Sheet 8

SID HIII Lateral Clearance Dimensions

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



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

Measurement	Driver SID HIII # 059	Left Rear Pass. SID HIII # 906 ¹
HR	190	N/A
HS	302	N/A
AD*	Lower: 123 Upper: 106	N/A
HD	133	N/A

* 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.

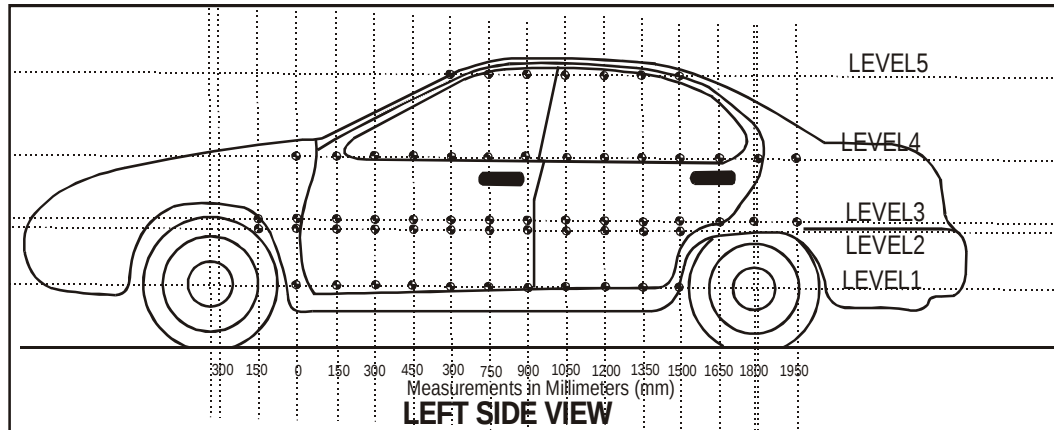
¹ See Data Acquisition Explanations

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



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>1287</u>	mm
Level 4 @ Window Sill	=	<u>865</u>	mm
Level 3 @ Mid Door	=	<u>637</u>	mm
Level 2 @ Occupant H-Point	=	<u>454</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>240</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Location	Height		(mm) From Impact Point													
			-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	240	Pre	---	---	723	674	---	---	---	---	---	660	658	660	665	663
		Post	---	---	738	690	---	---	---	---	---	720	774	778	786	791
		Crush	---	---	15	16	---	---	---	---	---	60	116	118	121	128
Level 2 H-Point	454	Pre	---	---	708	667	---	---	---	---	---	652	648	654	663	663
		Post	---	---	719	680	---	---	---	---	---	---	912	931	944	948
		Crush	---	---	11	13	---	---	---	---	---	---	264	277	281	285
Level 3 Mid-Door	637	Pre	---	---	727	688	600	---	---	620	625	645	644	641	643	643
		Post	---	---	735	700	673	---	---	679	719	783	897	898	908	918
		Crush	---	---	8	12	73	---	---	59	94	138	253	257	265	275
Level 4 Window Sill	865	Pre	---	---	---	743	715	702	691	678	674	668	667	662	661	664
		Post	---	---	---	751	730	716	709	700	706	738	837	880	920	915
		Crush	---	---	---	8	15	14	18	22	32	70	170	218	259	251
Level 5 Window Top	1287	Pre	---	---	---	---	---	---	---	---	---	---	---	---	---	956
		Post	---	---	---	---	---	---	---	---	---	---	---	---	---	977
		Crush	---	---	---	---	---	---	---	---	---	---	---	---	---	21

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	240	Pre	665	667	668	664	667	678	670	---	---	---	---	---	---
		Post	793	790	787	778	767	755	740	---	---	---	---	---	---
		Crush	128	123	119	114	100	77	70	---	---	---	---	---	---
Level 2 H-Point	454	Pre	662	663	665	670	661	660	652	---	---	---	---	643	678
		Post	949	943	945	948	945	930	887	---	---	---	---	661	691
		Crush	287	280	280	278	284	270	235	---	---	---	---	18	13
Level 3 Mid-Door	637	Pre	645	646	650	648	646	648	644	630	---	---	625	648	678
		Post	934	939	928	925	951	971	930	807	---	---	662	674	693
		Crush	289	293	278	277	305	323	286	177	---	---	37	26	15
Level 4 Window Sill	865	Pre	664	666	667	664	664	663	663	664	665	668	680	698	---
		Post	922	915	924	933	968	963	912	827	730	710	701	705	---
		Crush	258	249	257	269	304	300	249	163	65	42	21	7	---
Level 5 Window Top	1287	Pre	940	938	934	938	937	937	---	---	---	---	---	---	---
		Post	972	969	982	1001	985	975	---	---	---	---	---	---	---
		Crush	32	31	48	63	48	38	---	---	---	---	---	---	---

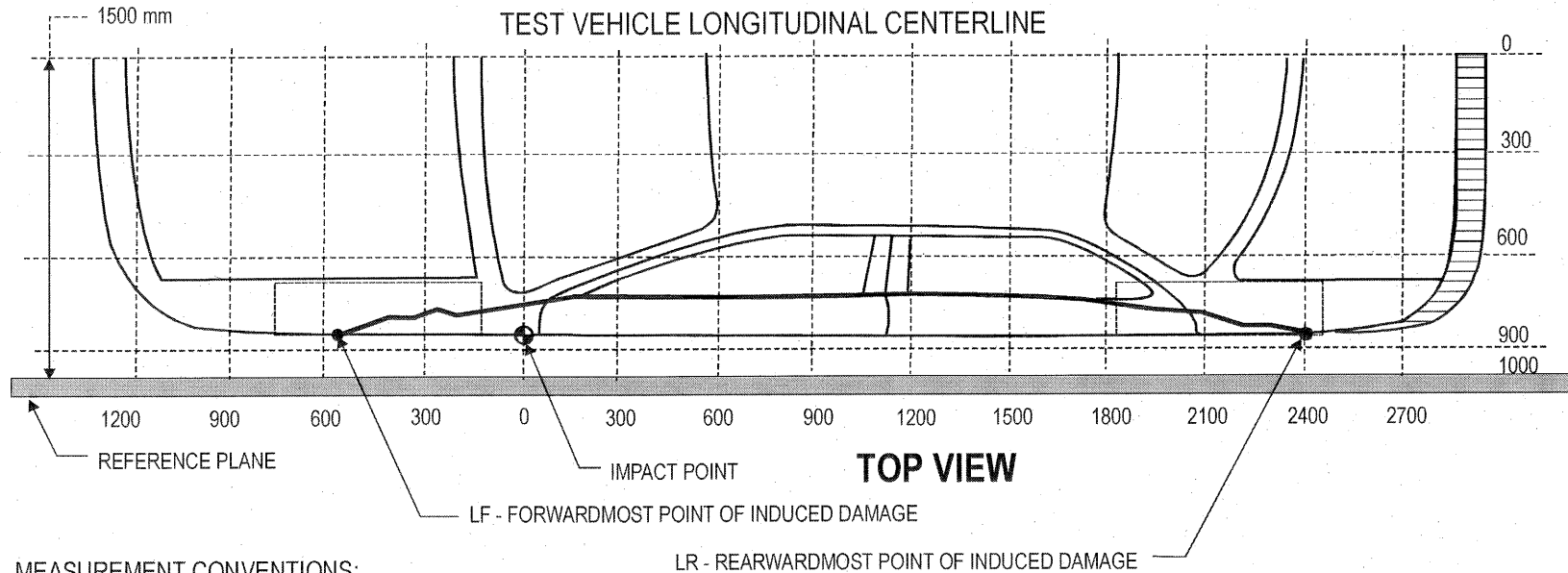
Data Sheet 11

Vehicle Damage Profile Distances

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

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 = -300 mm (Level 4)	709	691	18
5: 150 mm (Level 3)	783	645	138
4: 600 mm (Level 2)	944	663	281
3: 1200 mm (Level 2)	945	665	280
2: 1650 mm (Level 3)	971	648	323
1: LR = 2100 mm (Level 4)	730	665	65

Full length of induced damage was 2400 mm.

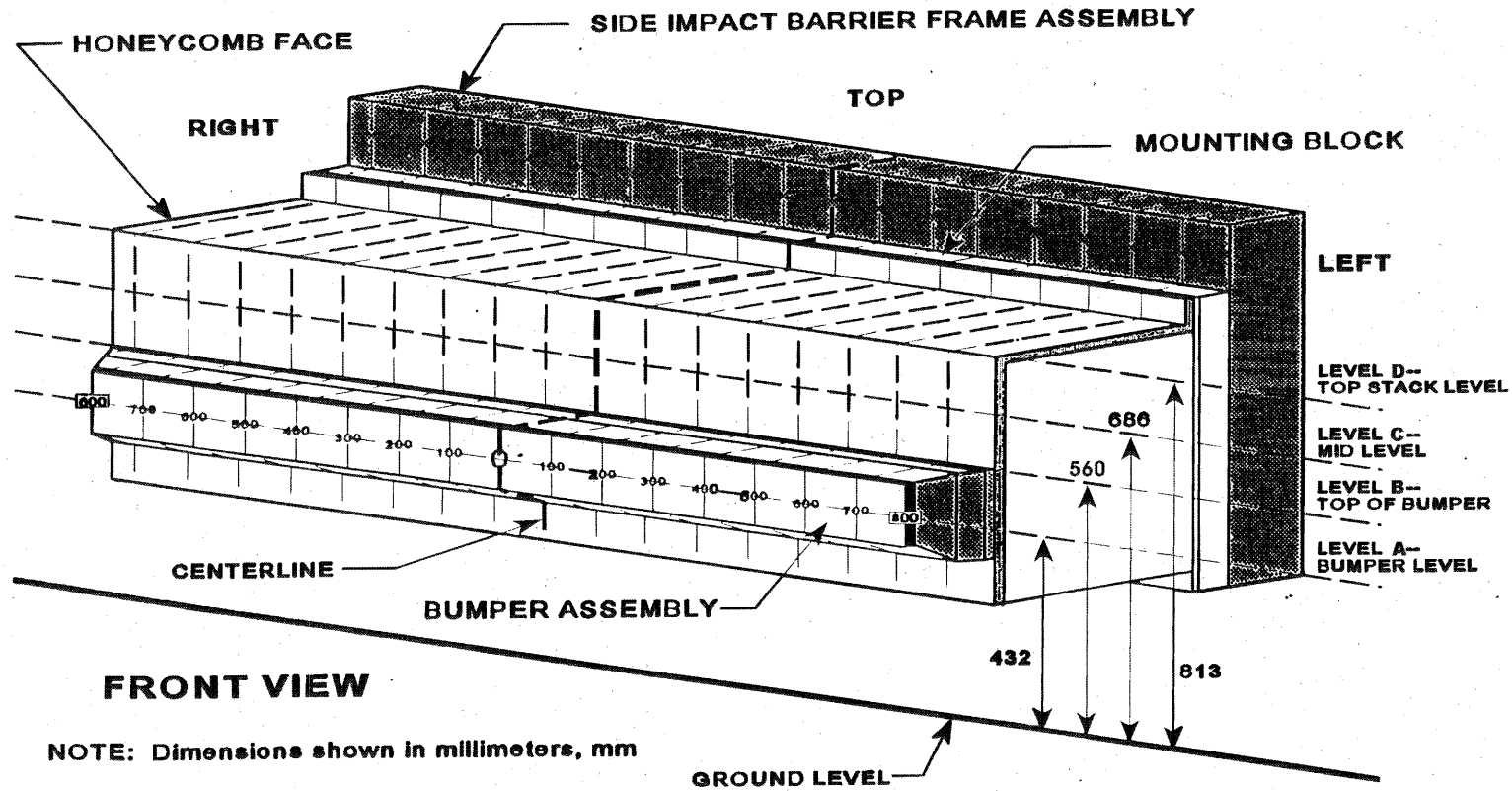
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



FRONT VIEW

NOTE: Dimensions shown in millimeters, mm

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

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

		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	814	-68	-13	9	-4	-3	-6	-3	-2	-5	-13	-6	-12	-29	-47	-64	-113	-159
Mid Level Level C	685	-33	2	3	-8	-6	-2	-3	-4	-6	-6	-7	-9	-11	-16	-31	-85	-136
Top Bumper Level - Level B	559	-43	-35	-31	-27	-26	-24	-22	-22	-22	-22	-24	-27	-28	-31	-39	-56	-82
Mid Bumper Level - Level A	432	-153	-116	-104	-97	-93	-89	-85	-81	-81	-80	-80	-80	-82	-89	-104	-128	-137

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

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

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Deformable Barrier Face Profile

Level D - Top Stack

Pre-Test

Index	Xmm	Ymm	Zmm
1	-380	799	-36
2	-380	699	-37
3	-380	600	-37
4	-380	500	-38
5	-382	400	-38
6	-381	300	-39
7	-382	200	-40
8	-381	100	-41
9	-381	0	-42
10	-383	-99	-41
11	-382	-200	-43
12	-382	-300	-44
13	-382	-400	-45
14	-382	-500	-45
15	-382	-600	-46
16	-382	-700	-47
17	-382	-800	-47

Post-Test

Index	Xmm	Ymm	Zmm
1	-312	762	-89
2	-366	680	-79
3	-390	585	-78
4	-376	486	-74
5	-379	387	-72
6	-375	287	-69
7	-378	187	-66
8	-380	87	-63
9	-376	-13	-61
10	-370	-113	-58
11	-376	-213	-56
12	-370	-313	-53
13	-354	-413	-54
14	-335	-510	-55
15	-318	-607	-60
16	-269	-692	-67
17	-223	-780	-71

Difference

Index	Xmm	Ymm	Zmm
1	-68	37	53
2	-13	20	43
3	9	15	40
4	-4	14	36
5	-3	14	34
6	-6	13	30
7	-3	13	26
8	-2	13	23
9	-5	13	19
10	-13	14	18
11	-6	13	12
12	-12	13	9
13	-29	12	9
14	-47	10	10
15	-64	6	14
16	-113	-8	20
17	-159	-21	23

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Deformable Barrier Face Profile Cont'd.

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-381	801	-164
19	-381	701	-165
20	-381	601	-166
21	-381	501	-167
22	-381	401	-168
23	-381	301	-168
24	-382	201	-169
25	-382	101	-170
26	-382	1	-171
27	-382	-100	-171
28	-382	-199	-172
29	-382	-299	-173
30	-382	-399	-174
31	-383	-499	-175
32	-382	-599	-175
33	-383	-699	-176
34	-383	-798	-177

Post-Test

Index	Xmm	Ymm	Zmm
18	-347	774	-211
19	-383	682	-207
20	-384	582	-205
21	-373	483	-203
22	-375	384	-201
23	-379	283	-197
24	-378	183	-194
25	-377	83	-192
26	-376	-17	-189
27	-376	-117	-186
28	-376	-217	-183
29	-374	-317	-181
30	-371	-417	-179
31	-367	-517	-176
32	-351	-615	-175
33	-298	-697	-188
34	-246	-782	-197

Difference

Index	Xmm	Ymm	Zmm
18	-33	28	46
19	2	20	42
20	3	19	39
21	-8	18	36
22	-6	18	33
23	-2	18	29
24	-3	18	26
25	-4	18	22
26	-6	18	18
27	-6	18	15
28	-7	18	11
29	-9	18	8
30	-11	18	5
31	-16	19	1
32	-31	17	0
33	-85	-2	11
34	-136	-16	20

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

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper
Pre-Test

Index	Xmm	Ymm	Zmm
35	-381	802	-290
36	-381	702	-291
37	-381	602	-292
38	-381	502	-293
39	-382	402	-293
40	-382	302	-294
41	-382	202	-295
42	-382	102	-296
43	-383	2	-297
44	-383	-98	-297
45	-383	-198	-298
46	-383	-298	-299
47	-383	-398	-300
48	-383	-498	-300
49	-383	-598	-301
50	-383	-698	-302
51	-384	-798	-303

Post-Test

Index	Xmm	Ymm	Zmm
35	-338	779	-313
36	-346	680	-315
37	-350	580	-316
38	-354	479	-318
39	-356	379	-317
40	-358	279	-316
41	-360	179	-313
42	-361	79	-312
43	-361	-21	-310
44	-361	-121	-308
45	-359	-221	-304
46	-356	-321	-301
47	-356	-421	-299
48	-353	-521	-297
49	-345	-621	-294
50	-327	-719	-286
51	-302	-813	-295

Difference

Index	Xmm	Ymm	Zmm
35	-43	23	23
36	-35	22	24
37	-31	22	24
38	-27	22	26
39	-26	23	23
40	-24	23	21
41	-22	22	18
42	-22	23	16
43	-22	23	13
44	-22	23	11
45	-24	23	6
46	-27	23	2
47	-28	23	0
48	-31	23	-3
49	-39	23	-8
50	-56	21	-17
51	-82	15	-8

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Hyundai Tiburon 2-door

Deformable Barrier Face Profile Cont'd.

NHTSA No.: M40507

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-475	801	-417
53	-486	704	-416
54	-486	603	-419
55	-486	504	-419
56	-486	403	-420
57	-487	303	-421
58	-487	203	-422
59	-487	103	-423
60	-487	3	-424
61	-488	-97	-425
62	-488	-197	-426
63	-488	-297	-427
64	-488	-398	-428
65	-487	-497	-429
66	-487	-598	-430
67	-487	-698	-431
68	-477	-796	-430

Post-Test

Index	Xmm	Ymm	Zmm
52	-347	772	-455
53	-371	677	-462
54	-382	577	-464
55	-389	478	-463
56	-393	378	-462
57	-397	278	-461
58	-402	178	-460
59	-406	78	-457
60	-406	-23	-456
61	-407	-123	-455
62	-408	-223	-452
63	-407	-323	-451
64	-406	-423	-449
65	-398	-523	-445
66	-383	-622	-439
67	-359	-718	-431
68	-340	-815	-423

Difference

Index	Xmm	Ymm	Zmm
52	-153	28	37
53	-116	27	45
54	-104	26	45
55	-97	26	44
56	-93	26	42
57	-89	25	39
58	-85	26	37
59	-81	26	34
60	-81	26	32
61	-80	26	29
62	-80	26	27
63	-80	26	24
64	-82	26	21
65	-89	25	16
66	-104	24	9
67	-128	21	0
68	-137	19	-7

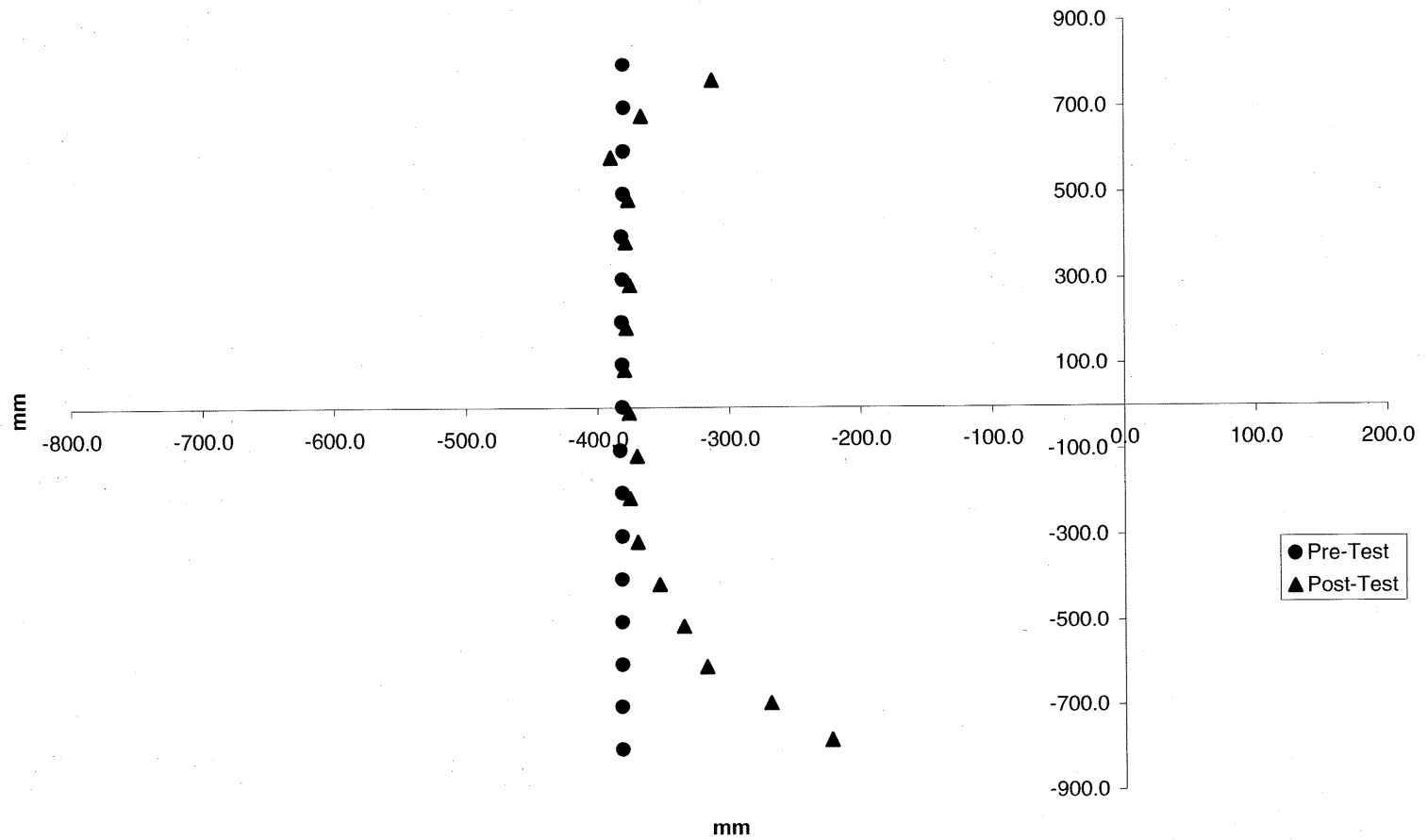
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Level D - Deformable Barrier Face Profile 1-17



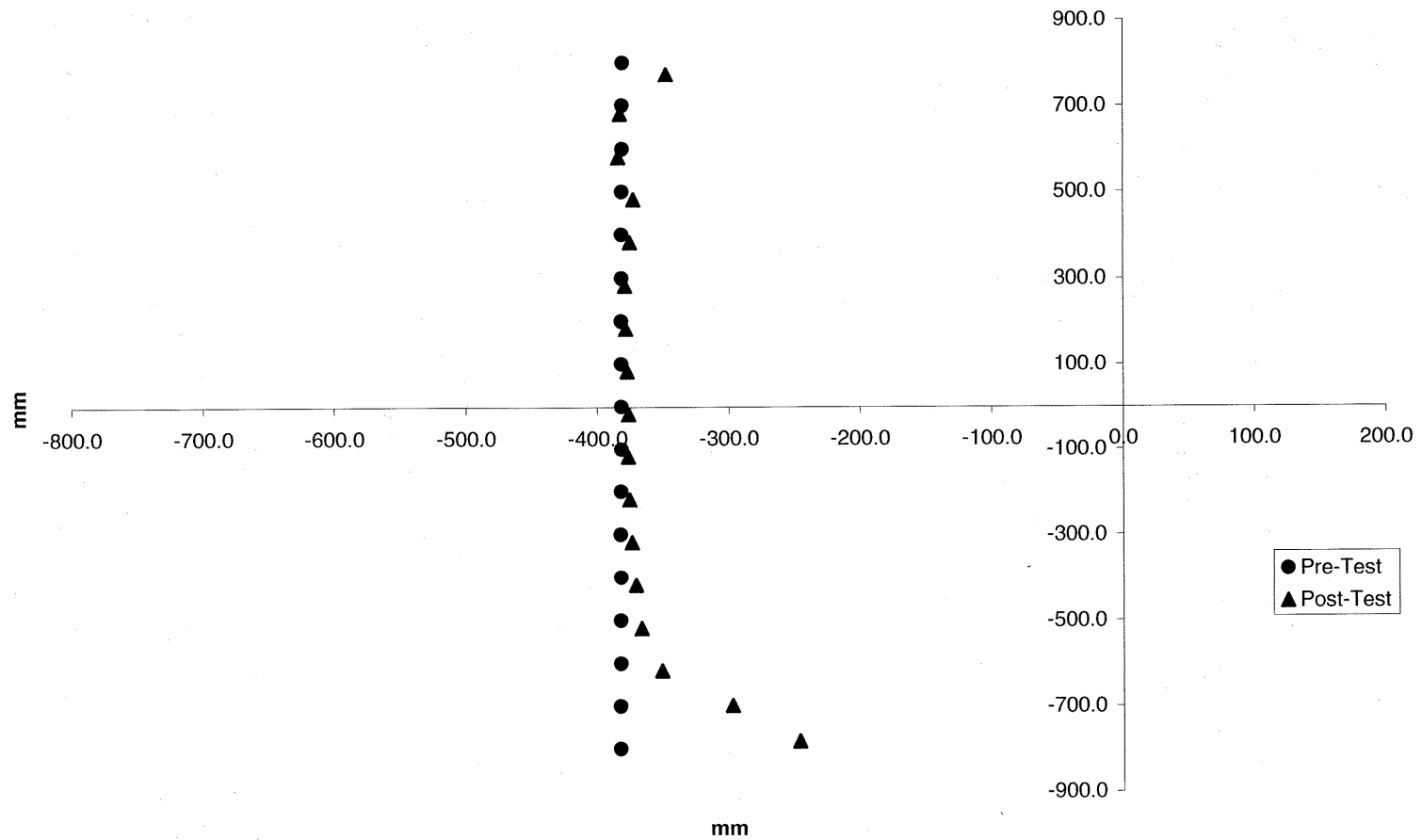
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Level C - Deformable Barrier Face Profile 18-34



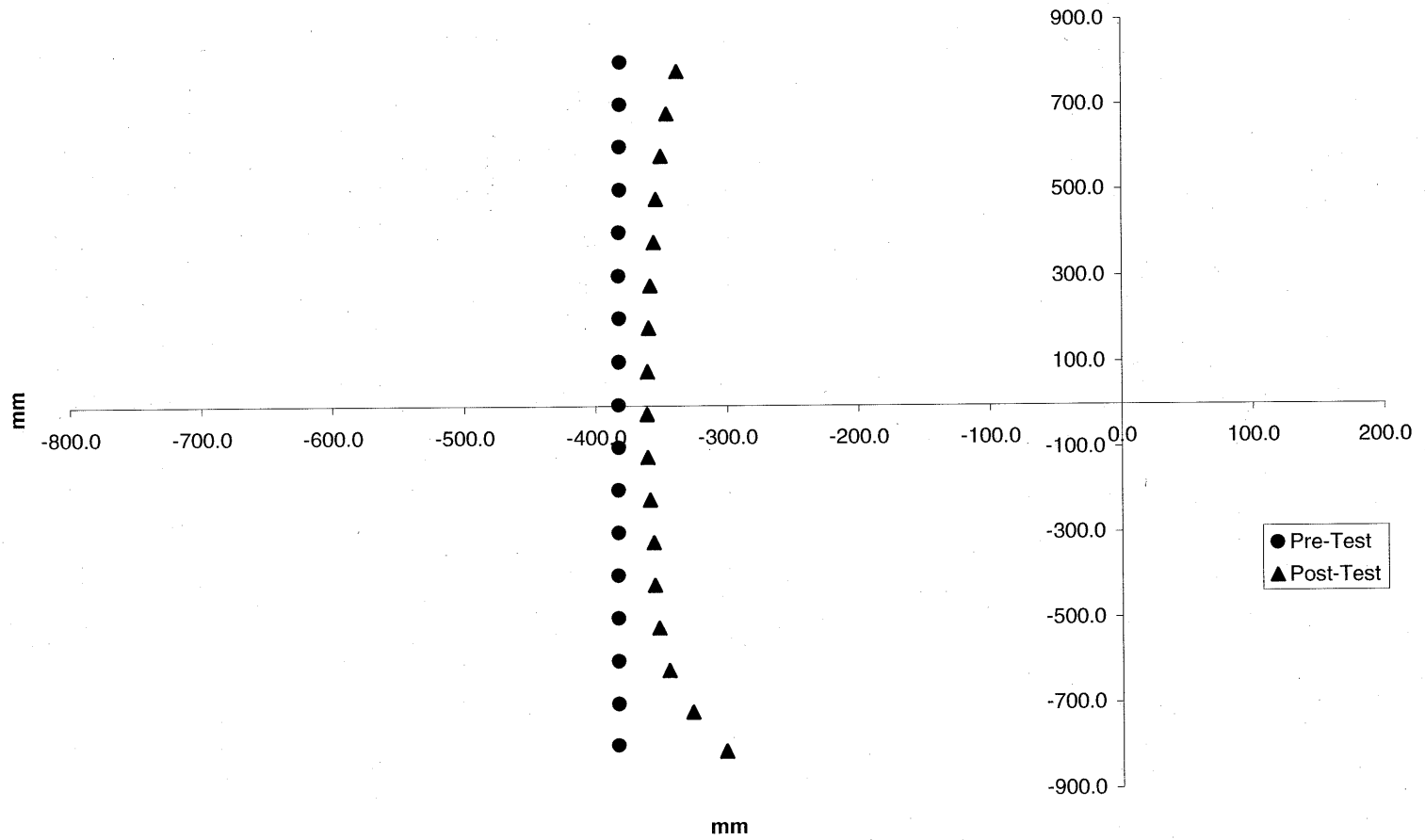
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Level B - Deformable Barrier Face Profile 35-51



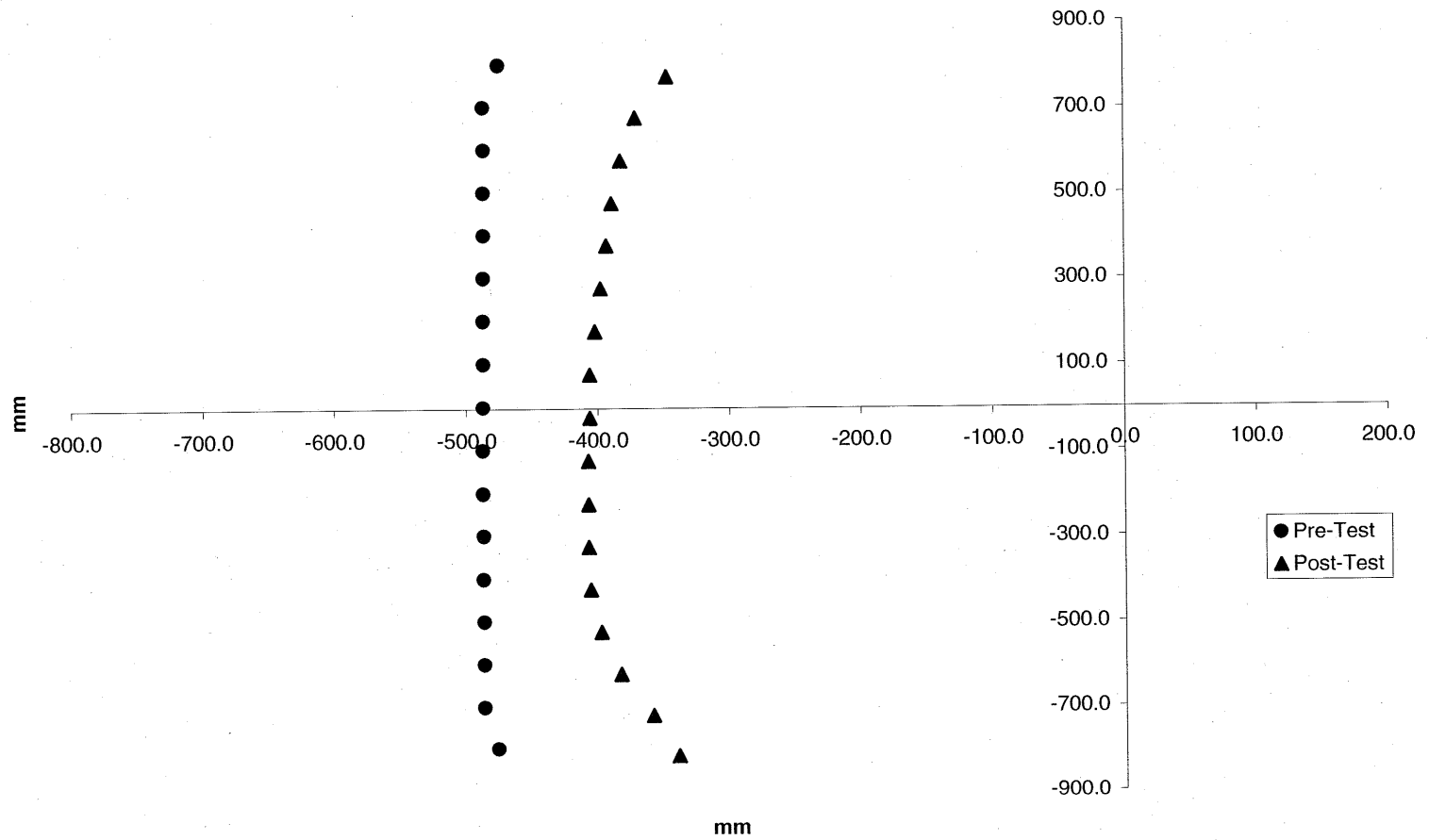
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

Level A - Deformable Barrier Face Profile 52-68

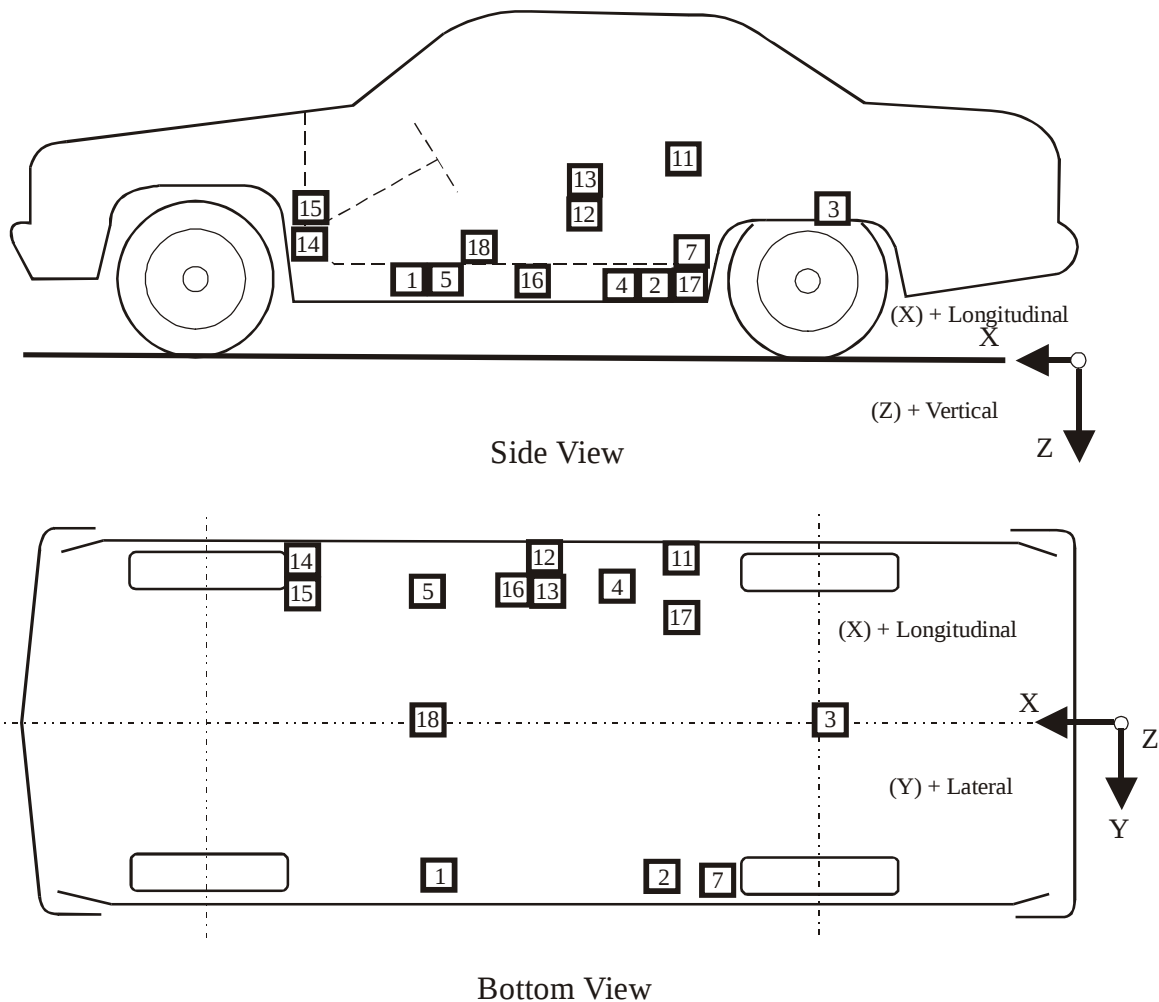


Data Sheet 13

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



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

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2004 Hyundai Tiburon 2-doorNHTSA No.: M40507

TEST NUMBER: 031208

No. LOCATION

X

Y

Z

POSITIVE
DIRECTIONNEGATIVE
DIRECTION

1 RIGHT SIDE SILL AT FRONT SEAT	2823 mm	660 mm	-276 mm				
LONGITUDINAL				4.4 g	@ 49.1 ms	5.8 g	@ 15.3 ms
LATERAL				18.5 g	@ 33.3 ms	2.2 g	@ 131.7 ms
VERTICAL				3.0 g	@ 74.6 ms	6.5 g	@ 23.3 ms
RESULTANT				19.0 g	@ 14.3 ms		
2 RIGHT SIDE SILL AT REAR SEAT	2073 mm	660 mm	-252 mm				
LONGITUDINAL				4.8 g	@ 49.6 ms	5.8 g	@ 15.3 ms
LATERAL				23.7 g	@ 33.1 ms	2.9 g	@ 132.2 ms
VERTICAL				4.6 g	@ 56.6 ms	8.5 g	@ 24.2 ms
RESULTANT				24.0 g	@ 33.2 ms		
3 REAR FLOORPAN ABOVE AXLE	1223 mm	0 mm	-460 mm				
LONGITUDINAL				2.9 g	@ 61.1 ms	11.5 g	@ 22.8 ms
LATERAL				27.5 g	@ 34.2 ms	3.4 g	@ 93.4 ms
VERTICAL				6.6 g	@ 17.1 ms	10.5 g	@ 12.1 ms
RESULTANT				27.7 g	@ 34.2 ms		
4 LEFT SIDE SILL AT REAR SEAT	2043 mm	-660 mm	-345 mm				
LATERAL				91.3 g	@ 5.6 ms	40.7 g	@ 25.0 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2004 Hyundai Tiburon 2-doorNHTSA No.: M40507TEST NUMBER: 031208
No. LOCATION

X

Y

Z

POSITIVE
DIRECTIONNEGATIVE
DIRECTION

5 LEFT SIDE SILL AT FRONT SEAT LATERAL ¹	2860 mm	-660 mm	-258 mm	40.8 g	@	7.6 ms	15.4 g	@	26.2 ms
6 LEFT FRONT DOOR ON CENTERLINE LATERAL	2502 mm	-730 mm	-660 mm	205.4 g	@	7.7 ms	157.7 g	@	13.0 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	1925 mm	490 mm	-380 mm	24.2 g	@	32.8 ms	2.1 g	@	132.7 ms
8 LEFT FRONT DOOR MIDREAR LATERAL	2044 mm	-710 mm	-592 mm	112.2 g	@	5.3 ms	74.8 g	@	15.3 ms
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	2445 mm	-730 mm	-775 mm	152.3 g	@	7.4 ms	38.3 g	@	24.6 ms
12 LEFT LOWER B-POST LATERAL	2000 mm	-810 mm	-450 mm	178.1 g	@	4.8 ms	93.5 g	@	17.6 ms
13 LEFT MIDDLE B-POST LATERAL	1945 mm	-790 mm	-700 mm	143.6 g	@	4.9 ms	36.0 g	@	19.0 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data SummaryVehicle: 2004 Hyundai Tiburon 2-doorNHTSA No.: M40507

TEST NUMBER: 031208 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
14 LEFT LOWER A-POST LATERAL ¹	3190 mm	-785 mm	-350 mm	1562.4 g	@ 42.7 ms	58.4 g	@ 33.8 ms
15 LEFT MIDDLE A-POST LATERAL ¹	3165 mm	-760 mm	-690 mm	60.9 g	@ 259.6 ms	1562.7 g	@ 29.1 ms
16 LEFT FRONT SEAT TRACK LATERAL	2655 mm	-555 mm	-278 mm	72.2 g	@ 17.0 ms	44.2 g	@ 24.9 ms
17 LEFT REAR SEAT TRACK LATERAL	1735 mm	-570 mm	-238 mm	162.0 g	@ 11.7 ms	43.0 g	@ 16.1 ms
18 VEHICLE CENTER OF GRAVITY	2555 mm	0 mm	-420 mm				
LONGITUDINAL ¹				21.7 g	@ 22.6 ms	12.9 g	@ 14.3 ms
LATERAL				110.8 g	@ 19.6 ms	66.8 g	@ 26.1 ms
VERTICAL				17.1 g	@ 30.7 ms	21.0 g	@ 18.2 ms
RESULTANT ¹				111.4 g	@ 19.6 ms		

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

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

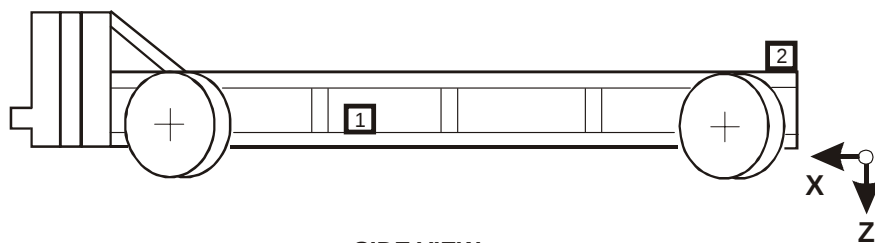
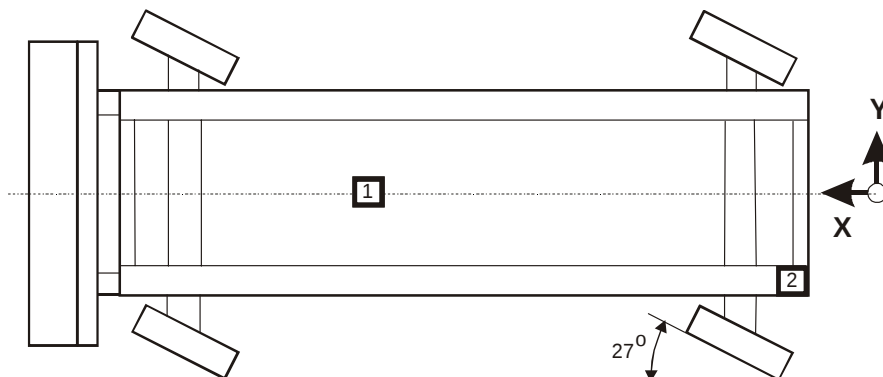
¹ See DATA ACQUISITION EXPLANATIONS on page 2-3

Data Sheet 14

MDB Accelerometer Locations and Data Summary

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



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				1.8	104.5	-22.3	38.0
	Lateral Y				5.4	57.0	-8.0	34.2
	Vertical Z				5.3	54.6	-3.5	18.8
	Resultant R				22.4	37.8		
2	Rear Frame Member	412	-677	-625				
	Longitudinal X				2.7	78.8	-23.4	42.5
	Lateral Y				4.4	27.8	-1.6	92.0

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

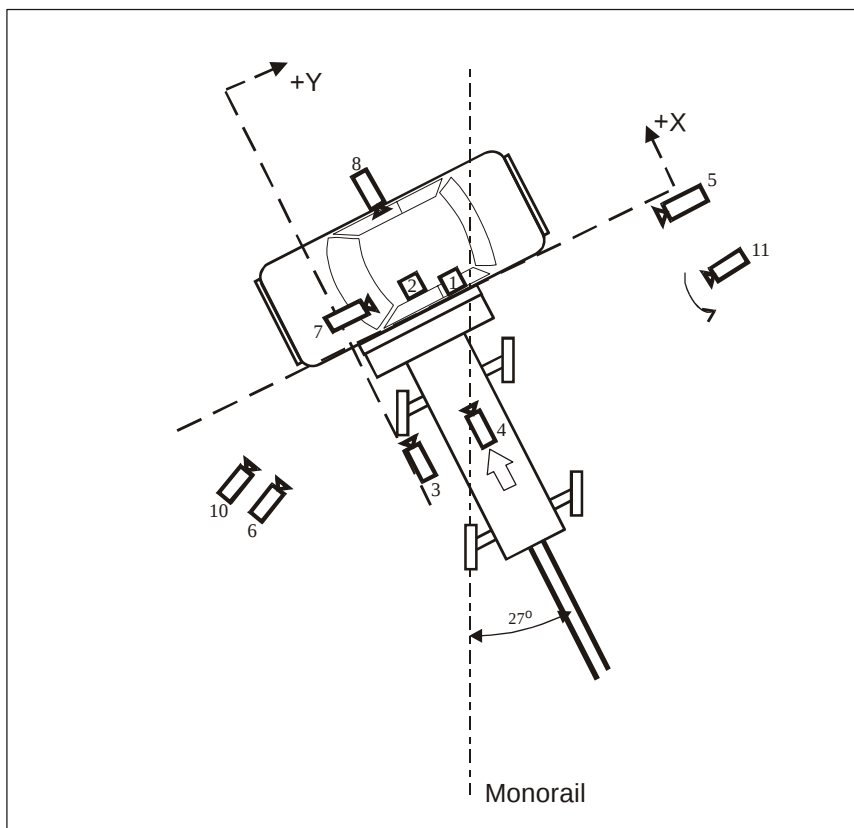
All measurements accurate to within ± 3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507



Impact
Area

Camera Number	Location	Location, mm			Angle (deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	250	2150	-5750	-77.5	8	1000
2	Overhead tight	370	1800	-5750	-85.5	25	997
3	Onboard MDB left side	-1750	-40	-720	-0.5	13	1000
4	Onboard MDB center	-2480	830	-1353	-5.2	25	N/A
5	Right side of MDB	-680	11330	-1225	0.2	13	1000
6	Left side of MDB ¹	-2530	-5330	-1095	-4.2	13	N/A
7	Onboard vehicle front ¹	560	20	-1100	-8.8	8	N/A
8	Onboard side front door ²	1640	660	-1090	-7.3	8	N/A
10	Digital overall event	-2310	-5756	-1065	-2.7	25	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

² Camera ran too slow to time.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: M40507

Test Date: 12/08/03

Vehicle Year/Make/Model/Body Style: 2004 Hyundai Tiburon 2-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 (61.9
km/h) 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

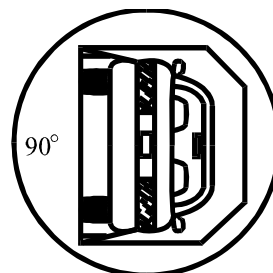
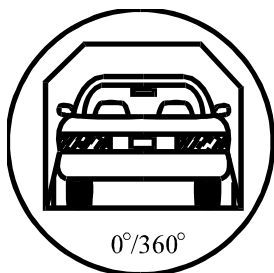
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

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

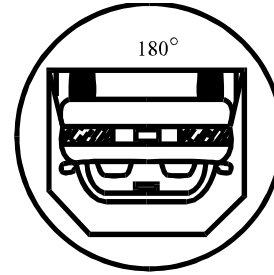
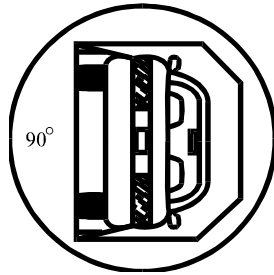
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

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

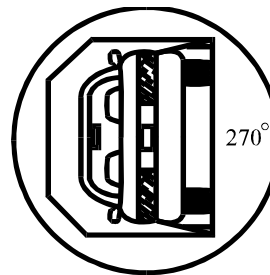
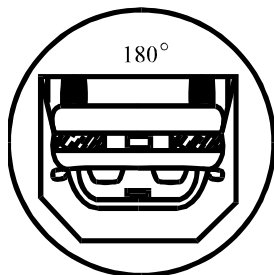
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

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

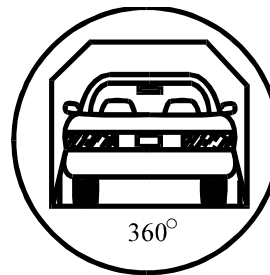
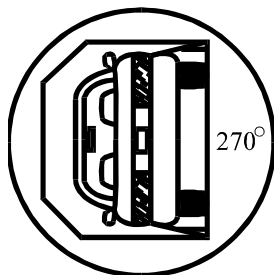
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Hyundai Tiburon 2-door

NHTSA No.: M40507

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	<u>1</u>	minutes	<u>30</u>	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
Total	<u>6</u>	minutes	<u>30</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

3. Actual Test Vehicle Solvent Spillage:

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

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

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

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



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



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



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



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



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



Figure A-7 Pre-Test Right Side View of Test Vehicle



Figure A-8 Post-Test Right Side View of Test Vehicle



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



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



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



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

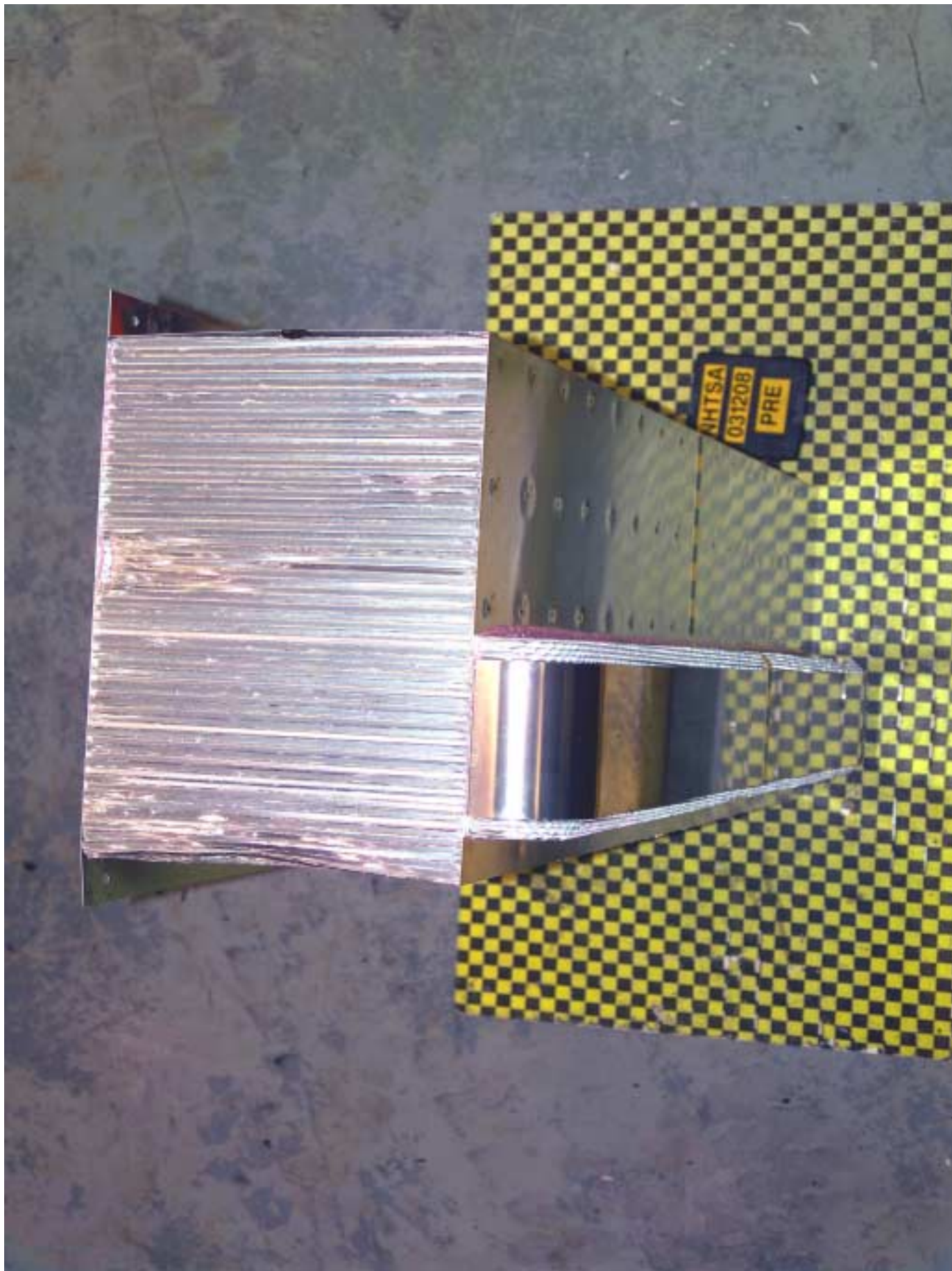


Figure A-13 Pre-Test Right Side View of Impactor Face

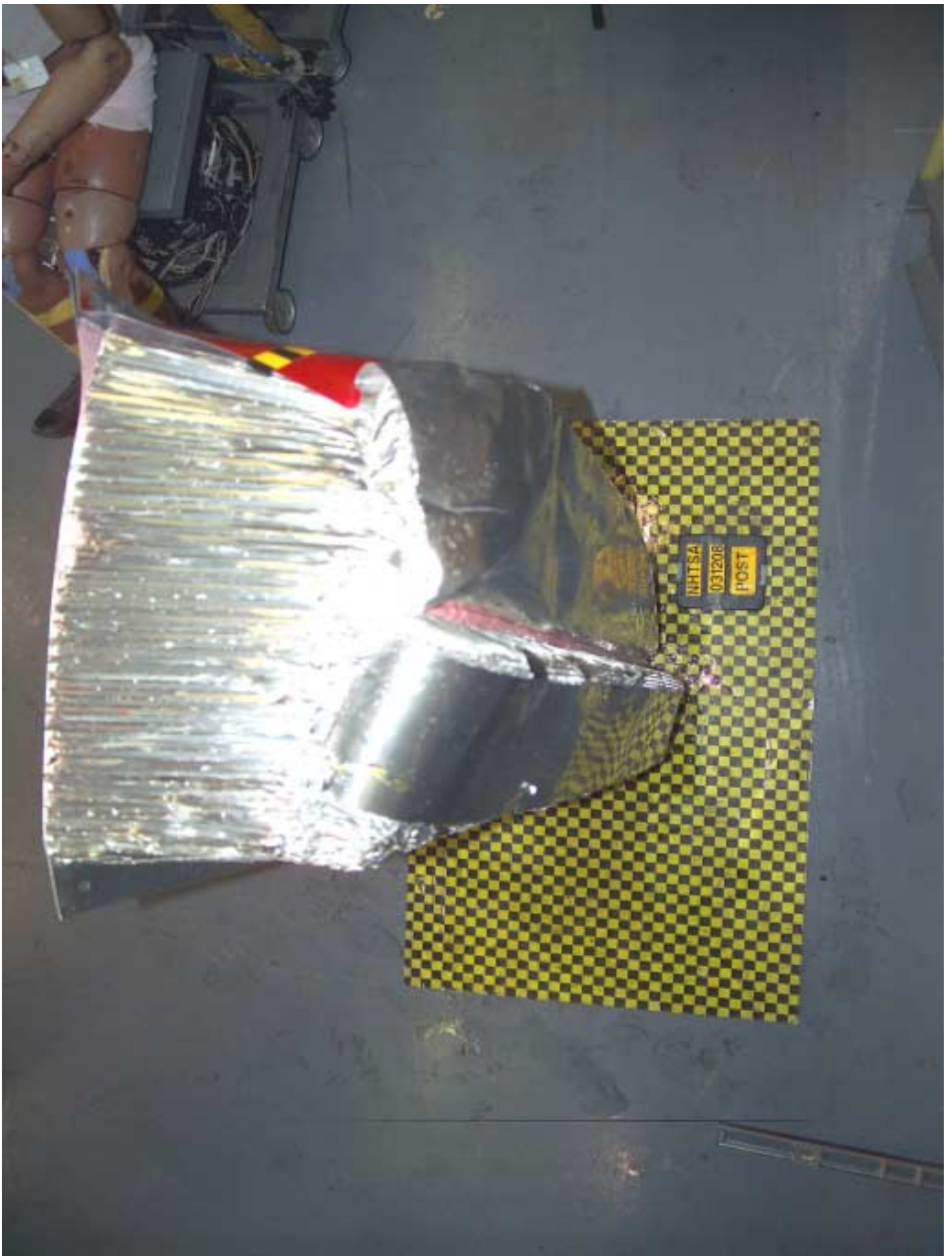


Figure A-14 Post-Test Right Side View of Impactor Face



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



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



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



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



Figure A-19 Post-Test Overhead View of Vehicle



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



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

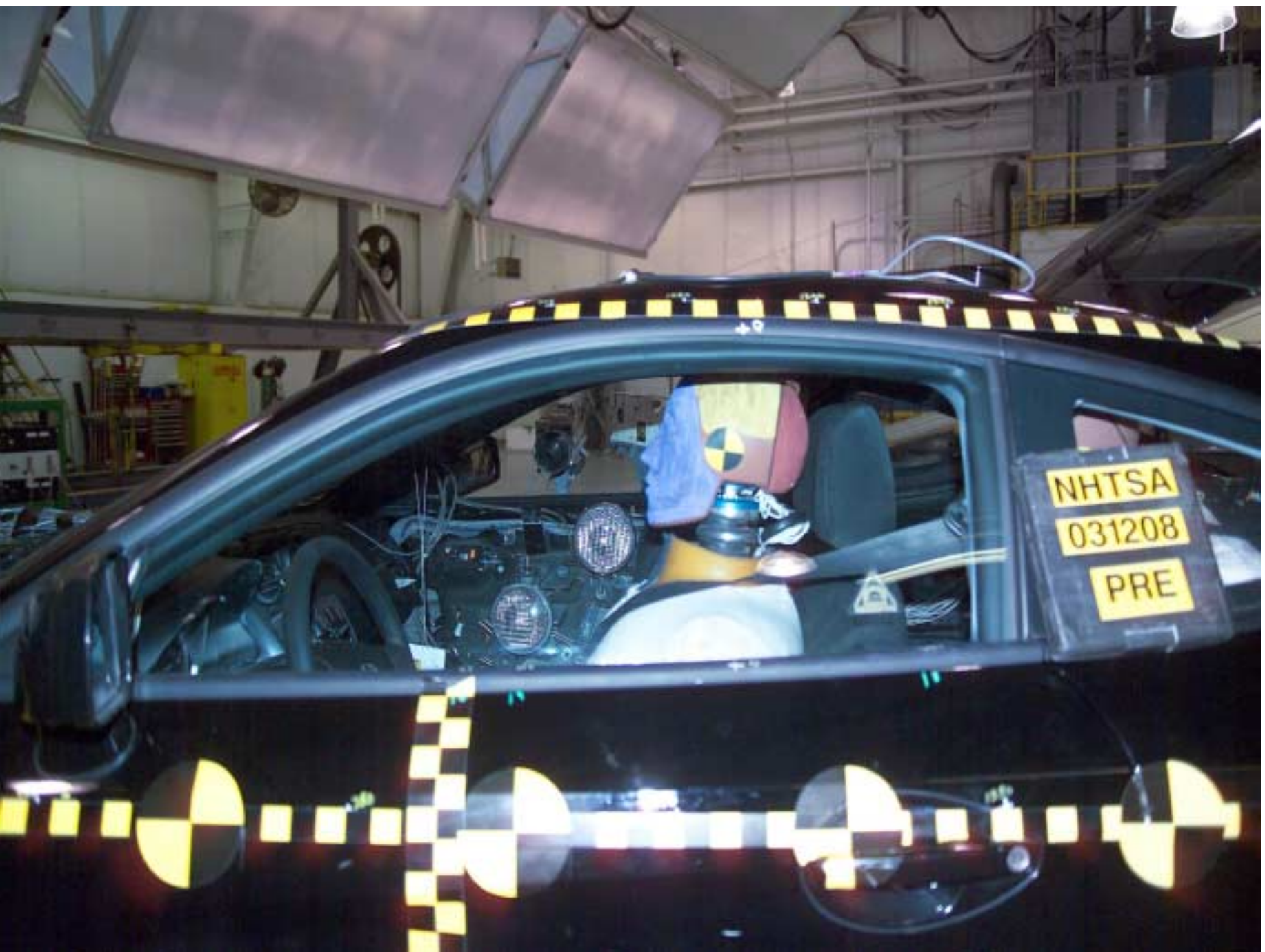


Figure A-22 Pre-Test Left View of Front SID HIII



Figure A-23 Post-Test Left View of Front SID HIII



Figure A-24 Pre-Test Left View of Front SID HIII and Belt Position



Figure A-25 Pre-Test Front View of Front SID HIII and Door Clearance



Figure A-26 Post-Test Front View of Front SID HIII and Door Clearance



Figure A-27 Pre-Test Interior of Front Door View

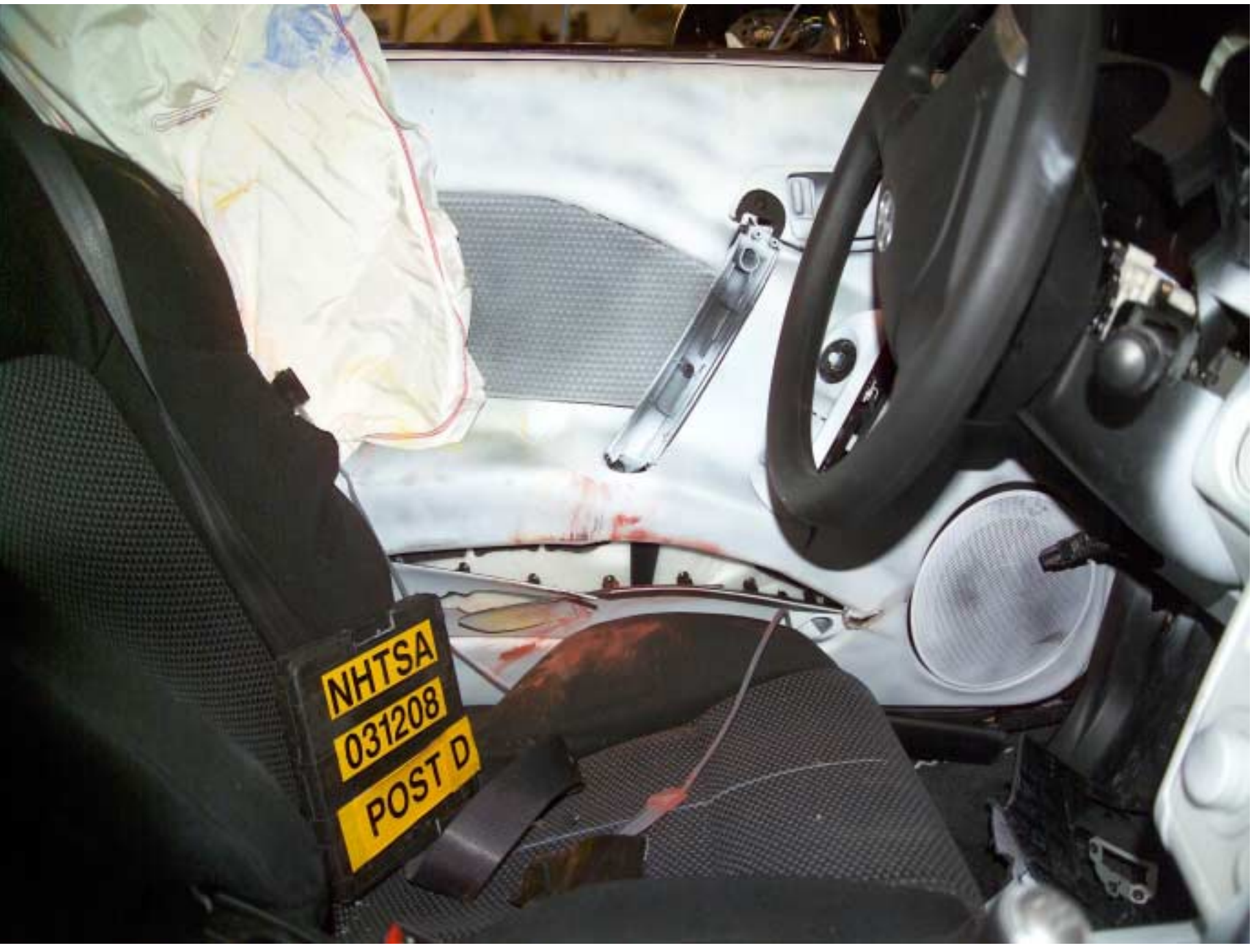


Figure A-28 Post-Test Interior of Front Door Showing SID HII Impact Locations



Figure A-29 Post-Test Front SID HIII Contact - View 1



Figure A-30 Post-Test Front SID HIII Contact - View 2



Figure A-31 Post-Test Front SID HIII Contact - View 3



Figure A-32 Post-Test Rear SID HIII Seating Incompatibility - View 1

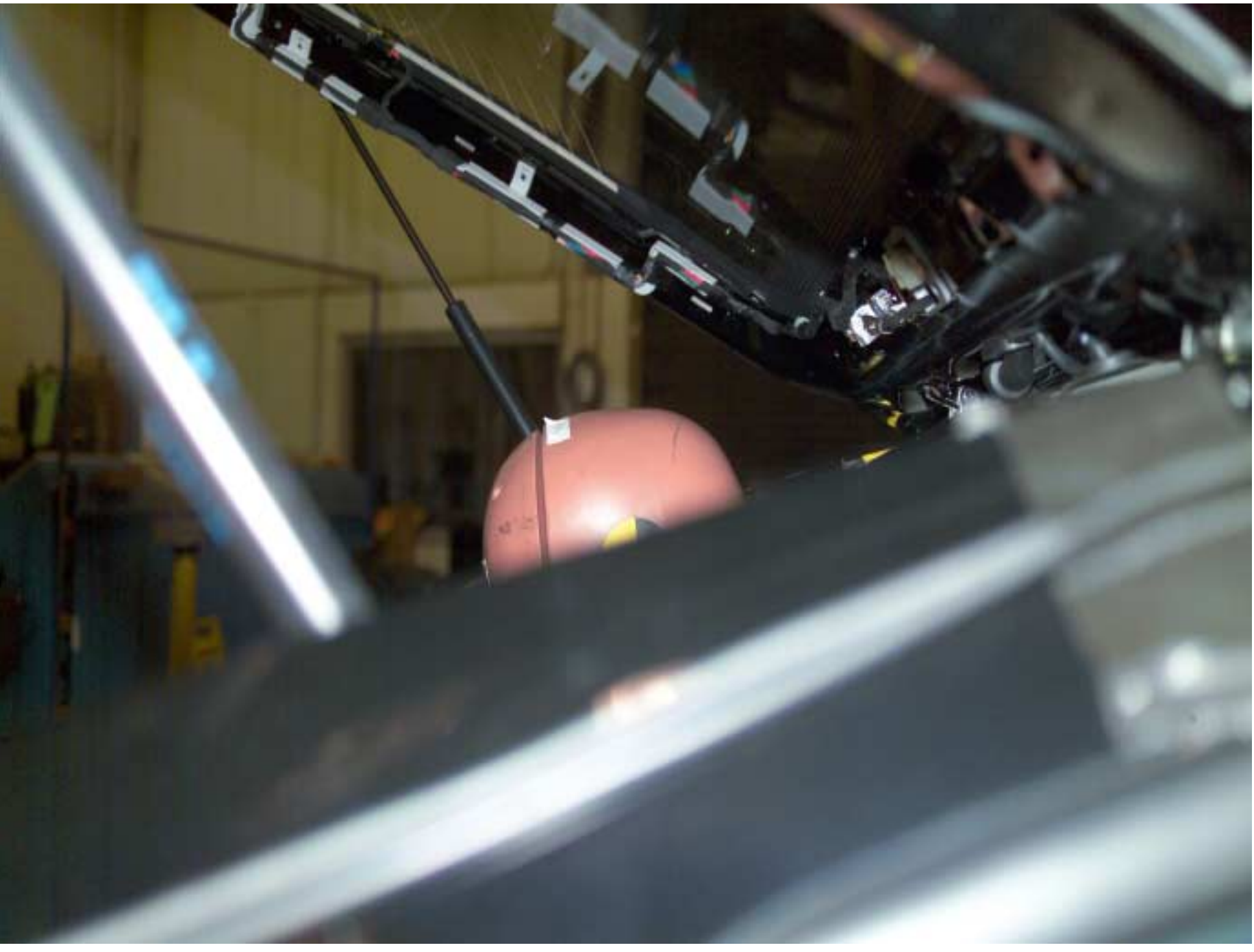


Figure A-33 Post-Test Rear SID HIII Seating Incompatibility - View 2



Figure A-34 Post-Test Rear SID HIII Seating Incompatibility - View 3



Figure A-35 Pre-Test Primary Impact Point View



Figure A-36 Post-Test Primary Impact Point View



Figure A-37 Pre-Test Secondary Impact Point View



Figure A-38 Post-Test Secondary Impact Point View



Figure A-39 Vehicle Certification Label View



Figure A-40 Vehicle Recommended Tire Pressure Label View



Figure A-41 Impact Event



Figure A-42 Pre-Test Fuel Cap View



Figure A-43 Post-Test Fuel Cap View



Figure A-44 FMVSS 301 Rollover View at 90°



Figure A-45 FMVSS 301 Rollover View at 180°

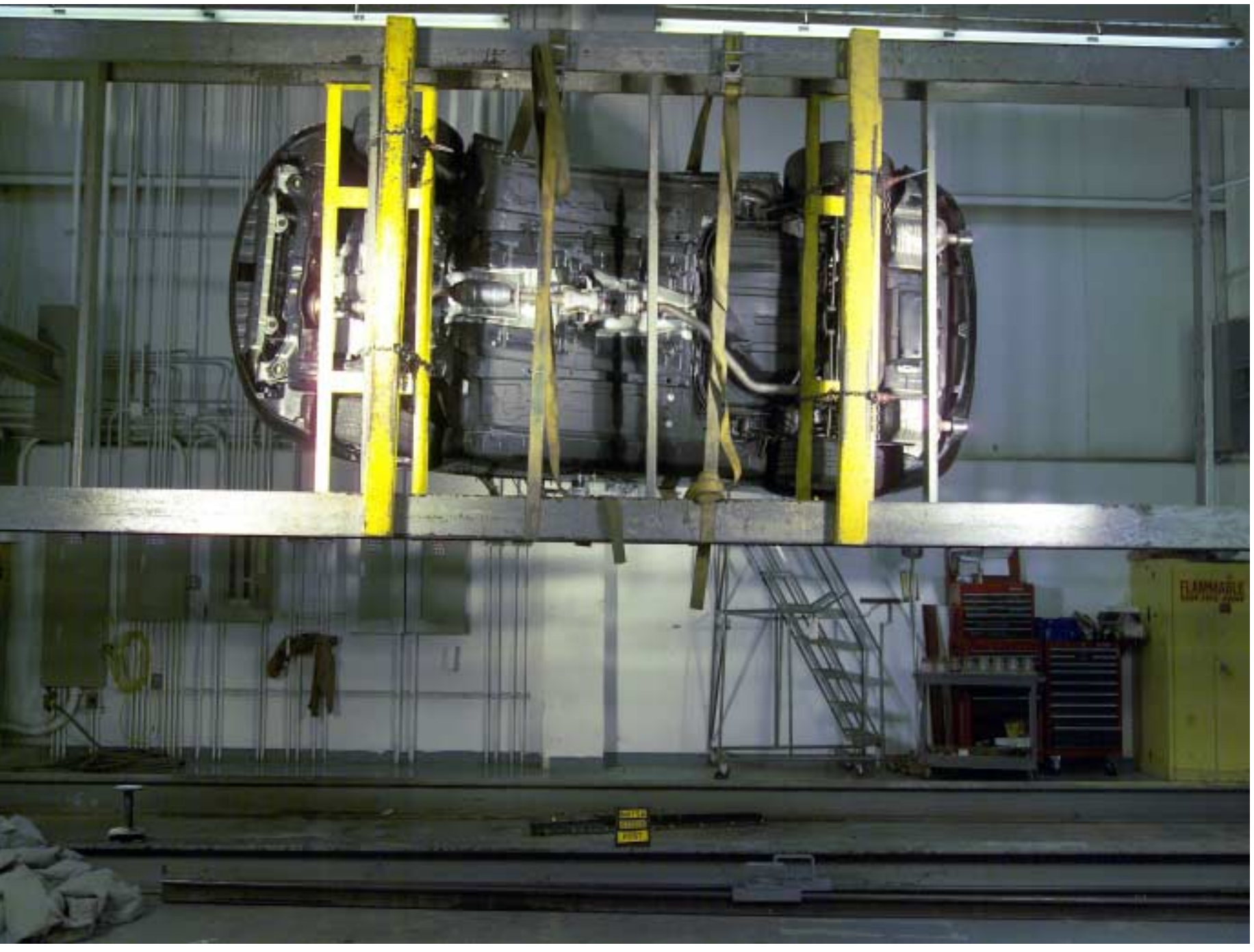


Figure A-46 FMVSS 301 Rollover View at 270°



Figure A-47 FMVSS 301 Rollover View at 360°

Appendix B

Data Plots

Table of Data Plots
Driver 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>
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2	Driver Head X-Axis Velocity	B-11
3	Driver Head Y-Axis Acceleration	B-12
4	Driver Head Y-Axis Velocity	B-13
5	Driver Head Z-Axis Acceleration	B-14
6	Driver Head Z-Axis Velocity	B-15
7	Driver Head Resultant Acceleration	B-16
8	Driver Neck X-Axis Shear Force	B-17
9	Driver Neck Y-Axis Shear Force	B-18
10	Driver Neck Z-Axis Axial Force	B-19
11	Driver Neck Moment about X Axis	B-20
12	Driver Neck Moment about Y Axis	B-21
13	Driver Neck Moment about Z Axis	B-22
14	Driver Neck Occipital Condyle Moment about X Axis	B-23
15	Driver Upper Rib Y-Axis Acceleration	B-24
16	Driver Upper Rib Y-Axis Velocity	B-25
17	Driver Lower Rib Y-Axis Acceleration	B-26
18	Driver Lower Rib Y-Axis Velocity	B-27
19	Driver Lower Spine Y-Axis Acceleration	B-28
20	Driver Lower Spine Y-Axis Velocity	B-29
21	Driver Pelvis Y-Axis Acceleration	B-30
22	Driver Pelvis Y-Axis Velocity	B-31
23	Driver Shoulder Contact Switch	B-32
24	Driver Pelvis Contact Switch	B-33

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

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26	Driver Head X-Axis Redundant Velocity	B-36
27	Driver Head Y-Axis Redundant Acceleration	B-37
28	Driver Head Y-Axis Redundant Velocity	B-38
29	Driver Head Z-Axis Redundant Acceleration	B-39
30	Driver Head Z-Axis Redundant Velocity	B-40
31	Driver Head Resultant Redundant Acceleration	B-41
32	Driver Upper Rib Y-Axis Redundant Acceleration	B-42
33	Driver Upper Rib Y-Axis Redundant Velocity	B-43
34	Driver Lower Rib Y-Axis Redundant Acceleration	B-44
35	Driver Lower Rib Y-Axis Redundant Velocity	B-45
36	Driver Lower Spine Y-Axis Redundant Acceleration	B-46
37	Driver Lower Spine Y-Axis Redundant Velocity	B-47
38	Driver Pelvis Y-Axis Redundant Acceleration	B-48
39	Driver Pelvis Y-Axis Redundant Velocity	B-49

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Test Vehicle Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

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40	Right Side Sill at Front Seat X-Axis Acceleration	B-51
41	Right Side Sill at Front Seat X-Axis Velocity	B-52
42	Right Side Sill at Front Seat Y-Axis Acceleration	B-53
43	Right Side Sill at Front Seat Y-Axis Velocity	B-54
44	Right Side Sill at Front Seat Z-Axis Acceleration	B-55
45	Right Side Sill at Front Seat Z-Axis Velocity	B-56
46	Right Side Sill at Front Seat Resultant Acceleration	B-57
47	Right Side Sill at Rear Seat X-Axis Acceleration	B-58
48	Right Side Sill at Rear Seat X-Axis Velocity	B-59
49	Right Side Sill at Rear Seat Y-Axis Acceleration	B-60
50	Right Side Sill at Rear Seat Y-Axis Velocity	B-61
51	Right Side Sill at Rear Seat Z-Axis Acceleration	B-62
52	Right Side Sill at Rear Seat Z-Axis Velocity	B-63
53	Right Side Sill at Rear Seat Resultant Acceleration	B-64
54	Rear Floorpan Above Axle X-Axis Acceleration	B-65
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63	Left Side Sill at Front Seat Y-Axis Displacement	B-74

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Integration Data - Filter Class 180

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66	Left Side Sill at Rear Seat Y-Axis Displacement	B-77
67	Left Front Door on Centerline Y-Axis Acceleration	B-78
68	Left Front Door on Centerline Y-Axis Velocity	B-79
69	Left Front Door on Centerline Y-Axis Displacement	B-80
70	Right Rear Occupant Compartment Y-Axis Acceleration	B-81
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72	Right Rear Occupant Compartment Y-Axis Displacement	B-83
73	Left Front Door Mid-Rear Y-Axis Acceleration	B-84
74	Left Front Door Mid-Rear Y-Axis Velocity	B-85
75	Left Front Door Mid-Rear Y-Axis Displacement	B-86
76	Left Front Door Upper Centerline Y-Axis Acceleration	B-87
77	Left Front Door Upper Centerline Y-Axis Velocity	B-88
78	Left Front Door Upper Centerline Y-Axis Displacement	B-89
79	Left Lower A-Post Y-Axis Acceleration	B-90
80	Left Lower A-Post Y-Axis Velocity	B-91
81	Left Middle A-Post Y-Axis Acceleration	B-92
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83	Left Lower B-Post Y-Axis Acceleration	B-94
84	Left Lower B-Post Y-Axis Velocity	B-95
85	Left Middle B-Post Y-Axis Acceleration	B-96
86	Left Middle B-Post Y-Axis Velocity	B-97
87	Left Front Seat Track Y-Axis Acceleration	B-98

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Integration Data - Filter Class 180

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92	Vehicle Center of Gravity X-Axis Velocity	B-103
93	Vehicle Center of Gravity Y-Axis Acceleration	B-104
94	Vehicle Center of Gravity Y-Axis Velocity	B-105
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97	Vehicle Center of Gravity Resultant Acceleration	B-108

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

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99	MDB Center of Gravity X-Axis Velocity	B-111
100	MDB Center of Gravity Y-Axis Acceleration	B-112
101	MDB Center of Gravity Y-Axis Velocity	B-113
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103	MDB Center of Gravity Z-Axis Velocity	B-115
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106	MDB Left Rear X-Axis Velocity	B-118
107	MDB Left Rear Y-Axis Acceleration	B-119
108	MDB Left Rear Y-Axis Velocity	B-120
109	MDB Right Side Contact Switch	B-121
110	MDB Left Side Contact Switch	B-122

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Acceleration Data - FIR Filtered

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113	Driver Lower Spine Y-Axis Acceleration	B-126
114	Driver Pelvis Y-Axis Acceleration	B-127
115	Driver Upper Rib Y-Axis Redundant Acceleration	B-128
116	Driver Lower Rib Y-Axis Redundant Acceleration	B-129
117	Driver Lower Spine Y-Axis Redundant Acceleration	B-130
118	Driver Pelvis Y-Axis Redundant Acceleration	B-131

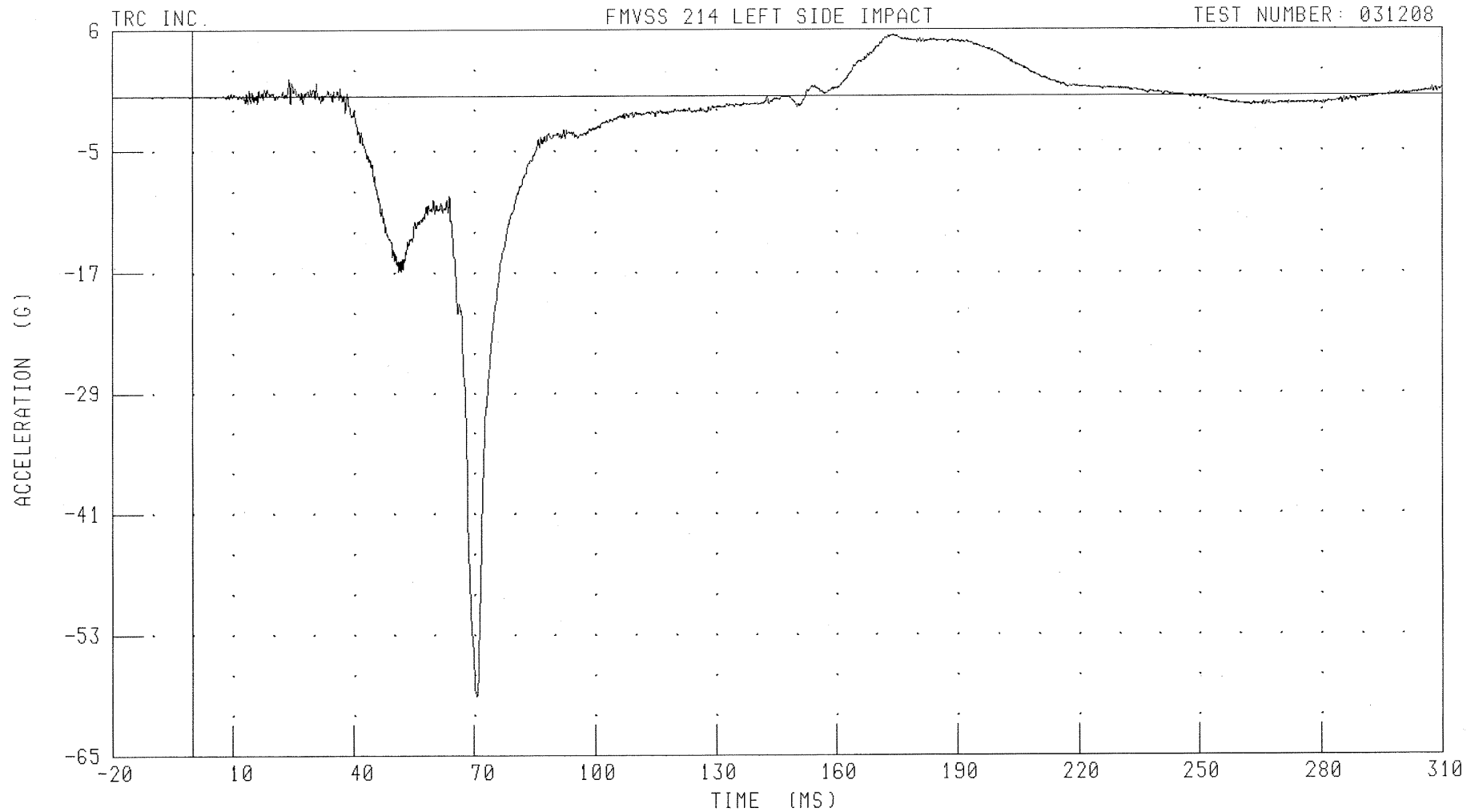
Driver Dummy Instrumentation Plots

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

DRIVER HEAD X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 6.09 G @ 174.16 MS; -59.48 G @ 70.72 MS

B-10

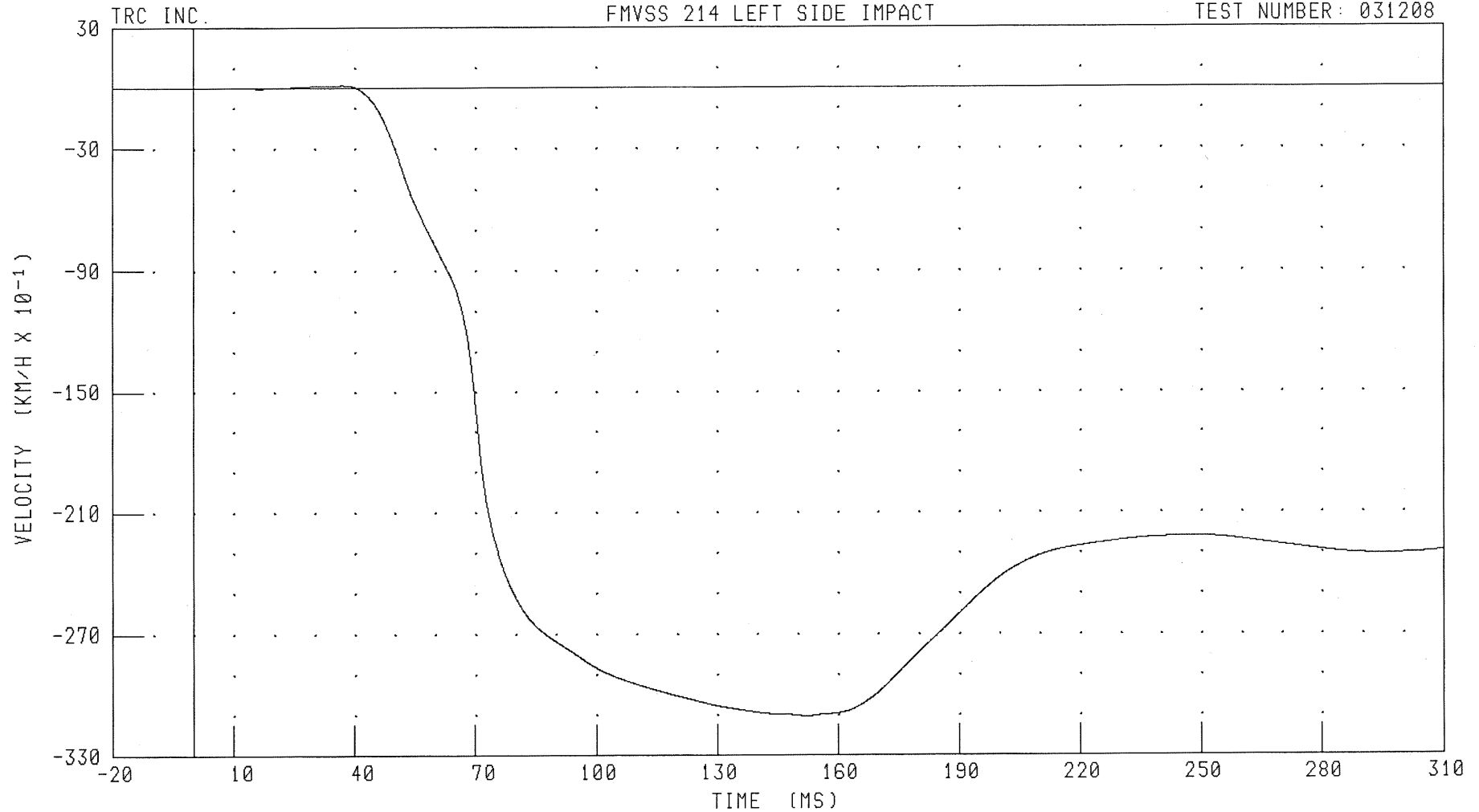
031208

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

DRIVER HEAD X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.14 KM/H @ 36.96 MS; -31.08 KM/H @ 152.24 MS

B-11

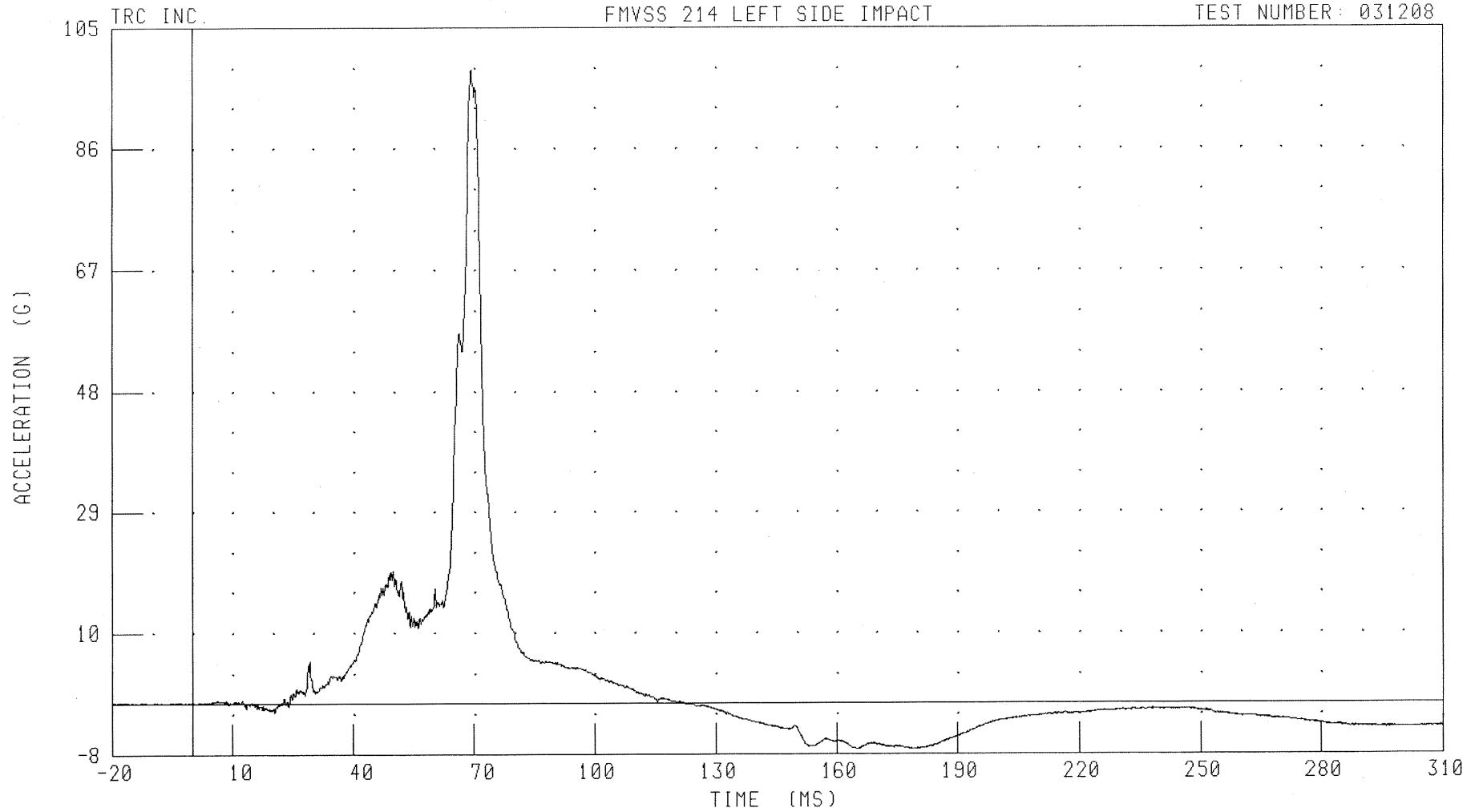
031208

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

DRIVER HEAD Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 99.36 G @ 69.28 MS; -7.36 G @ 165.12 MS

B-12

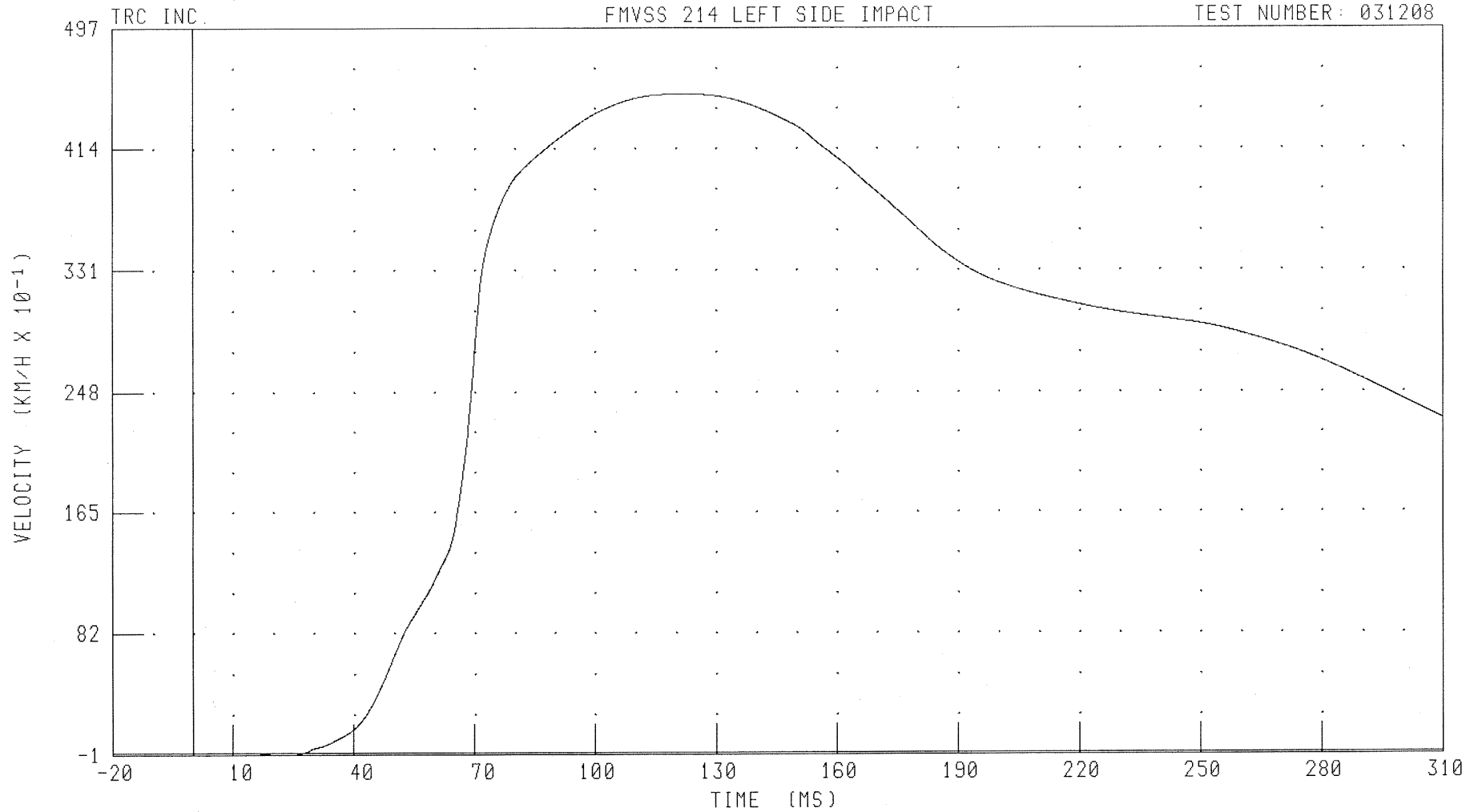
031208

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

DRIVER HEAD Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDYV1 FILTER: CH. CLASS 180

PEAK DATA: 45.17 KM/H @ 122.00 MS; -0.14 KM/H @ 22.16 MS

B-13

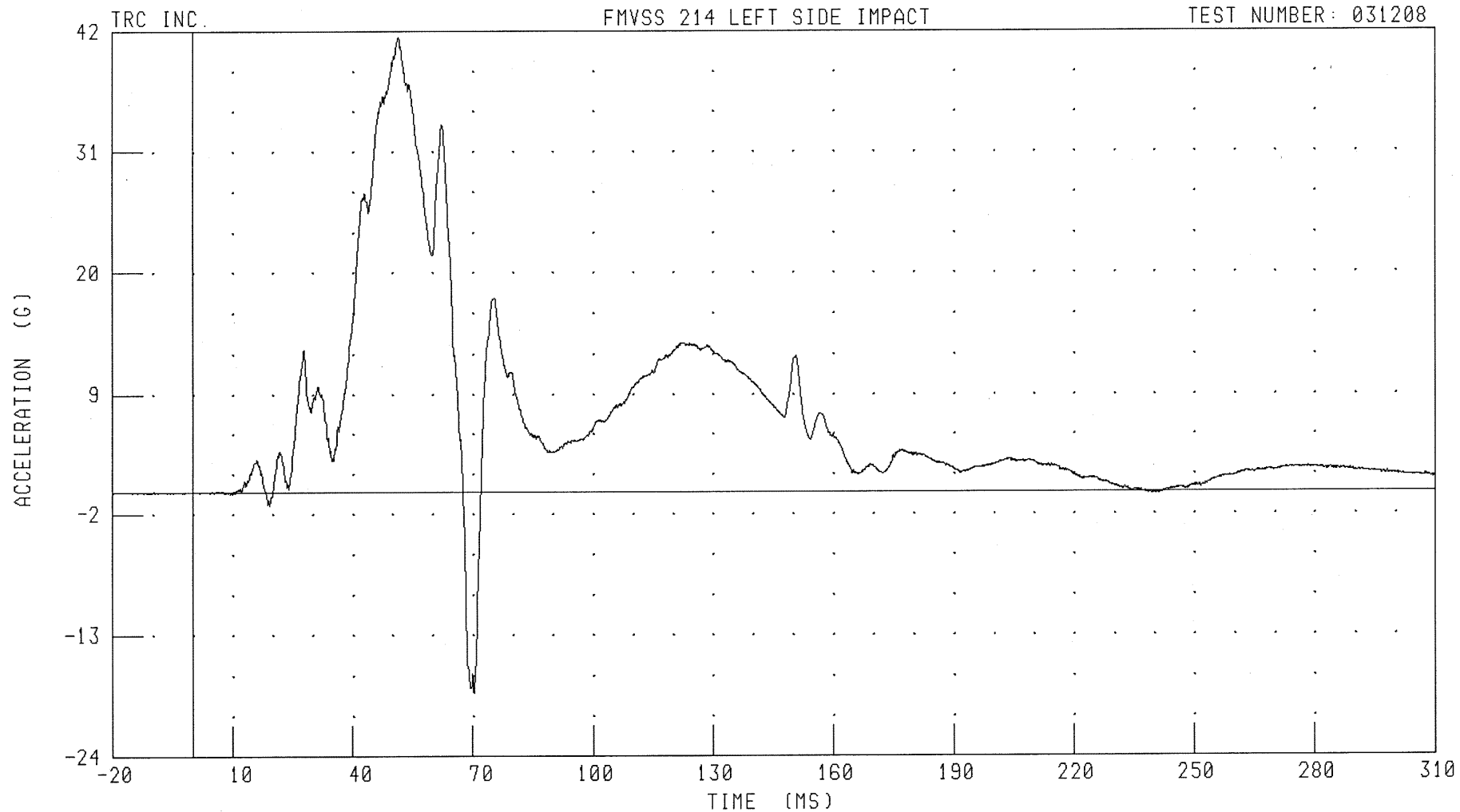
031208

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

DRIVER HEAD Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

PEAK DATA: 41.43 G @ 51.52 MS; -18.23 G @ 70.32 MS

B-14

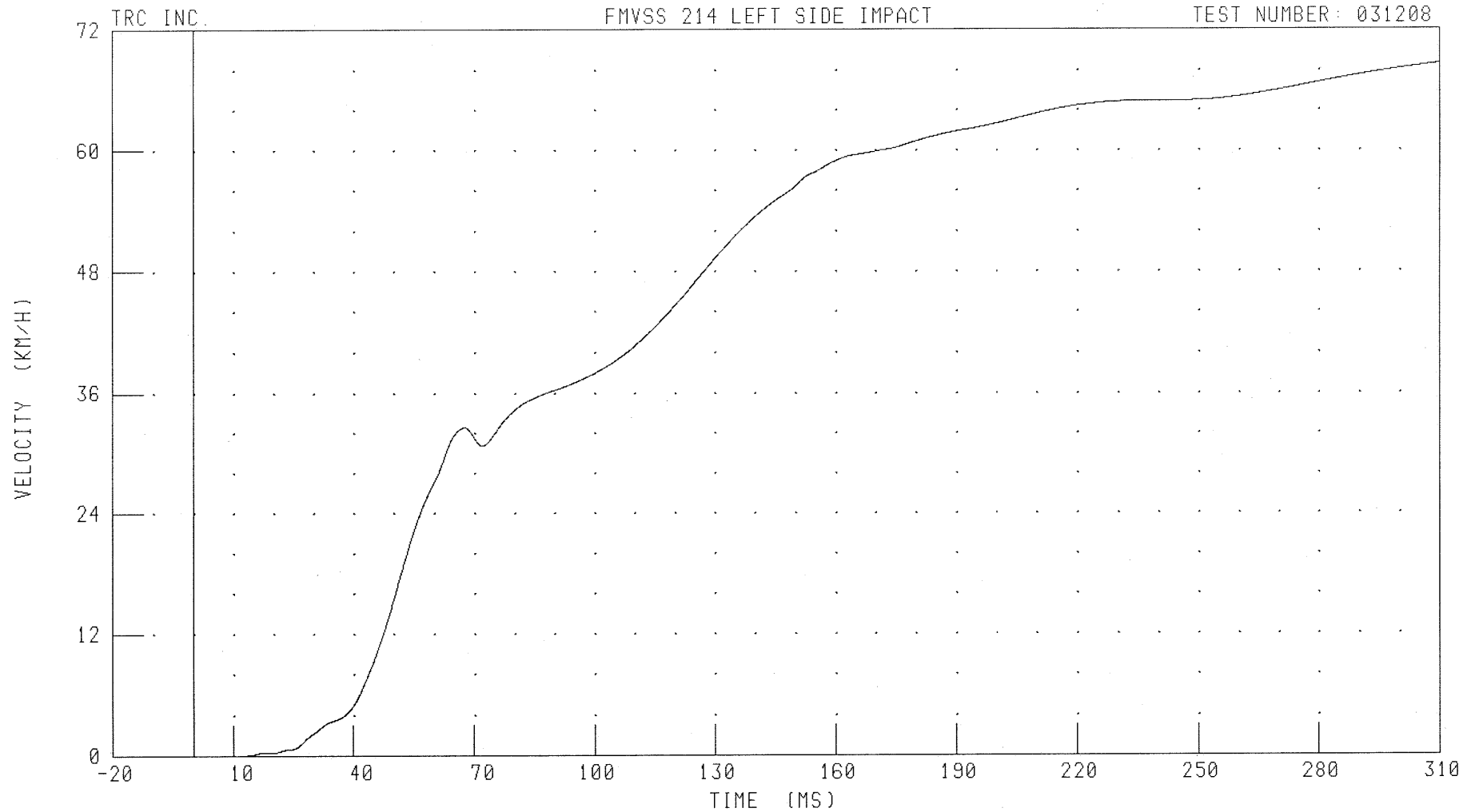
031208

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

DRIVER HEAD Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDZV1

FILTER: CH. CLASS 180

PEAK DATA: 68.67 KM/H @ 310.00 MS; 0.00 KM/H @ 2.56 MS

B-15

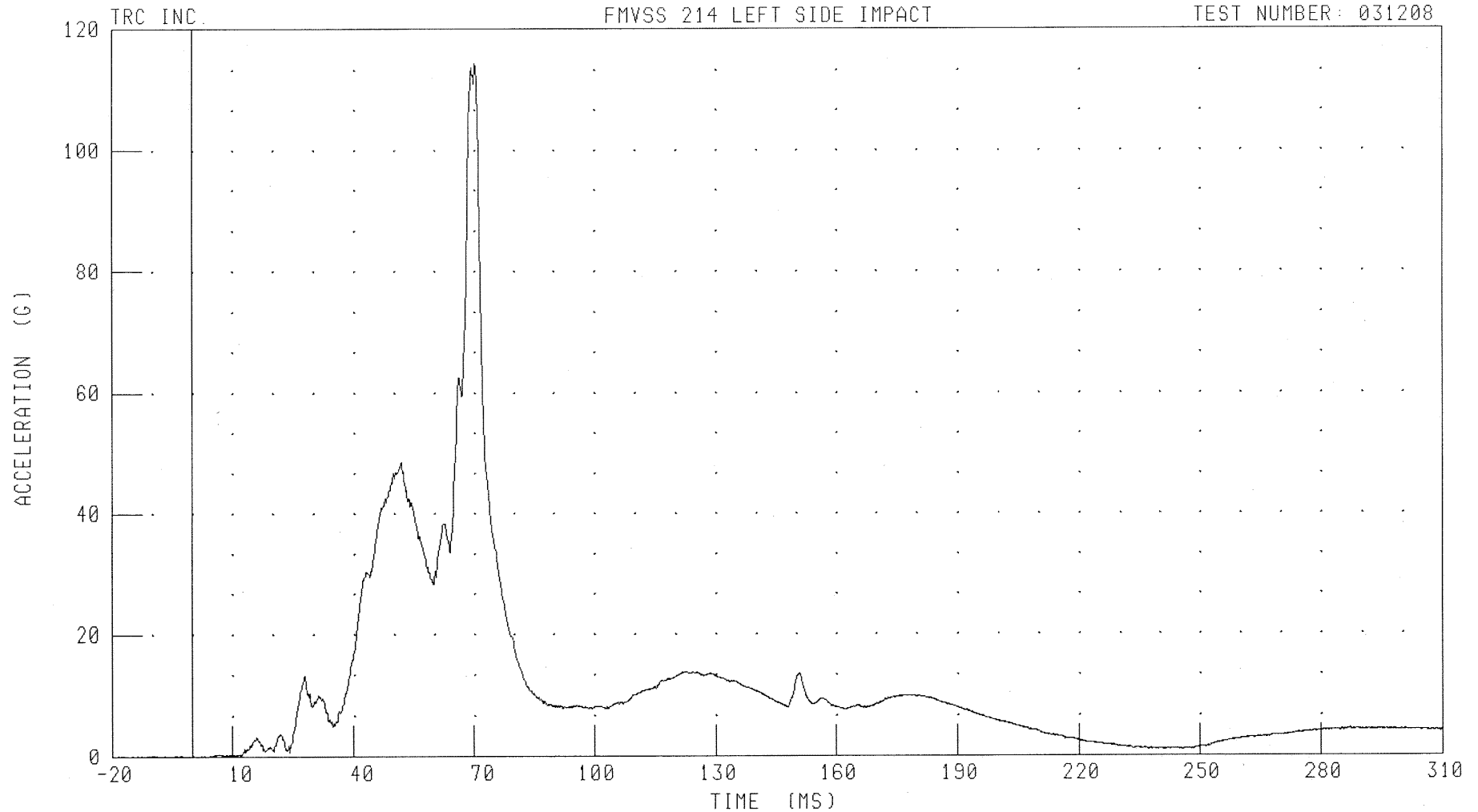
031208

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

DRIVER HEAD RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 114.46 G @ 70.24 MS; 0.01 G @ -19.60 MS

B-16

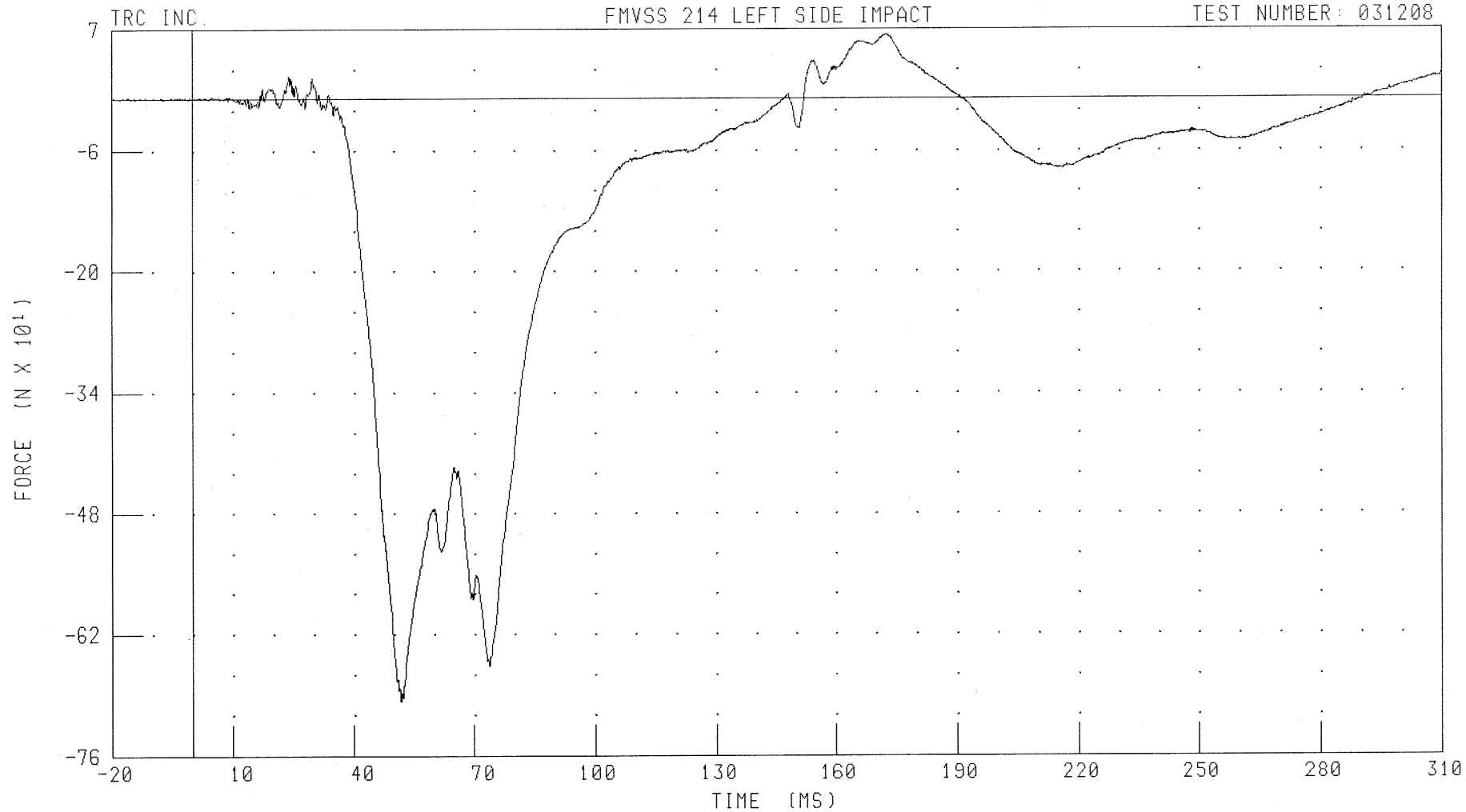
031208

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

DRIVER NECK X-AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 72.00 N @ 172.32 MS; -698.64 N @ 51.76 MS

B-17

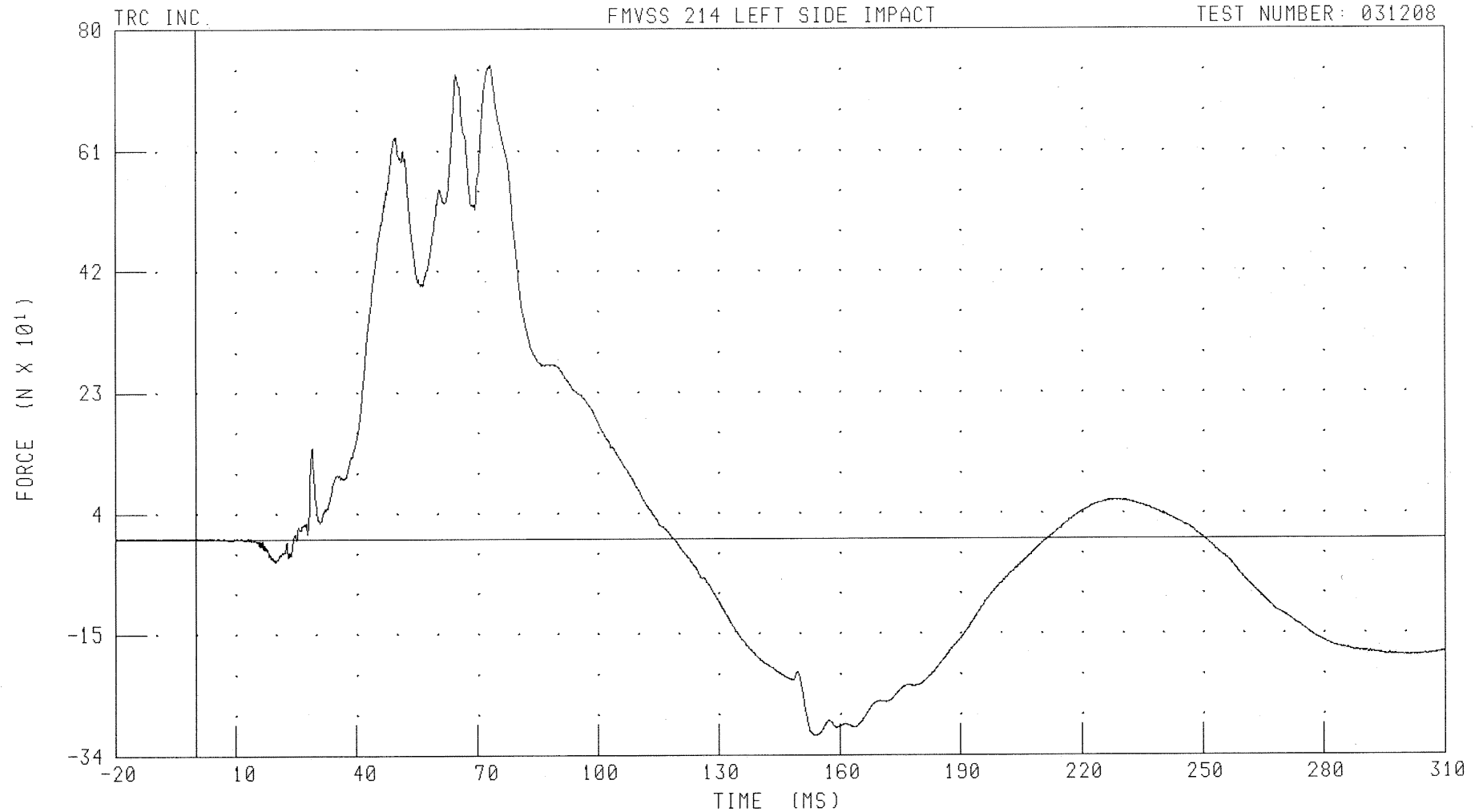
031208

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

DRIVER NECK Y-AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 743.51 N @ 73.12 MS; -310.20 N @ 154.24 MS

B-18

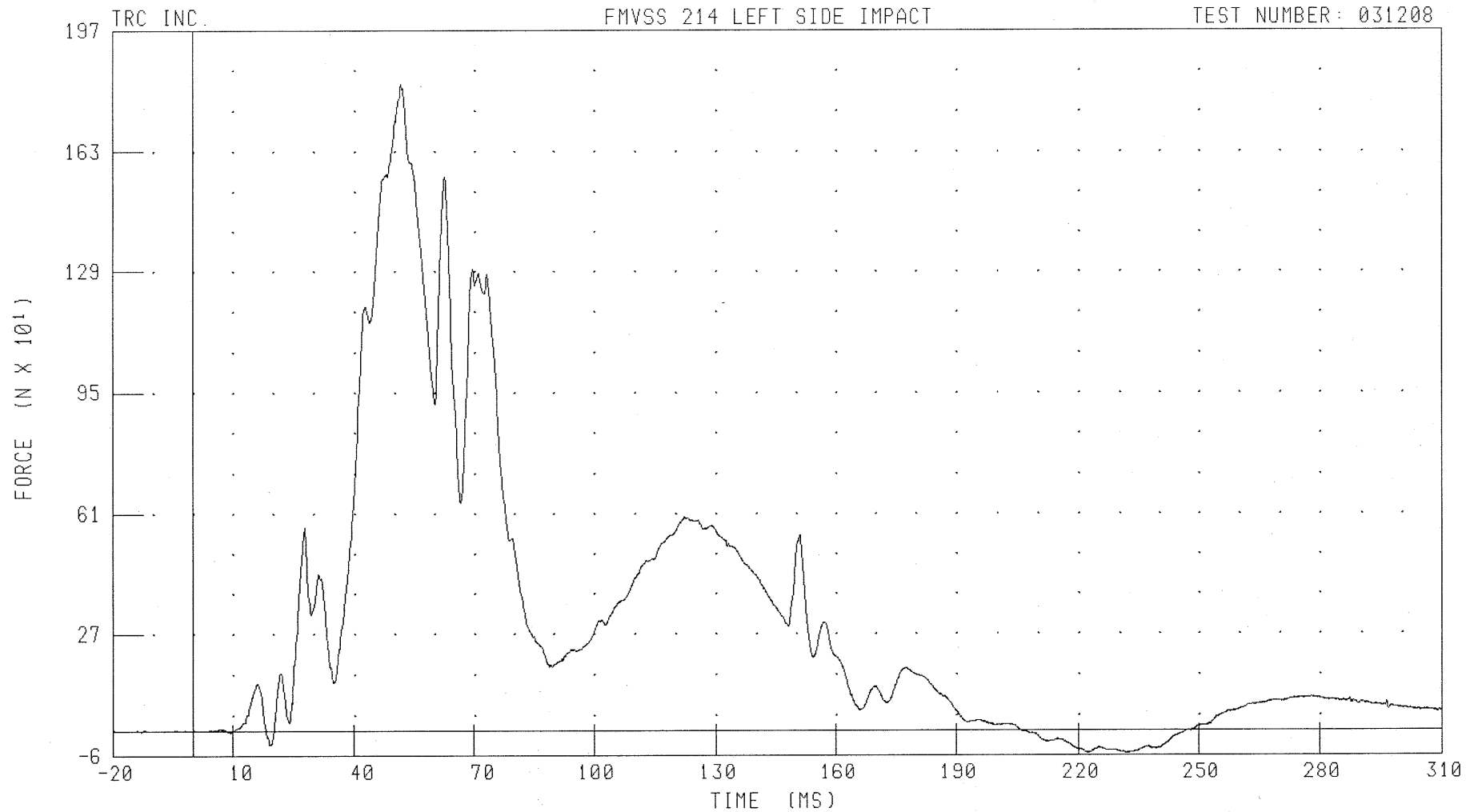
031208

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

DRIVER NECK Z-AXIS AXIAL FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 1820.51 N @ 51.60 MS; -63.48 N @ 222.16 MS

B-19

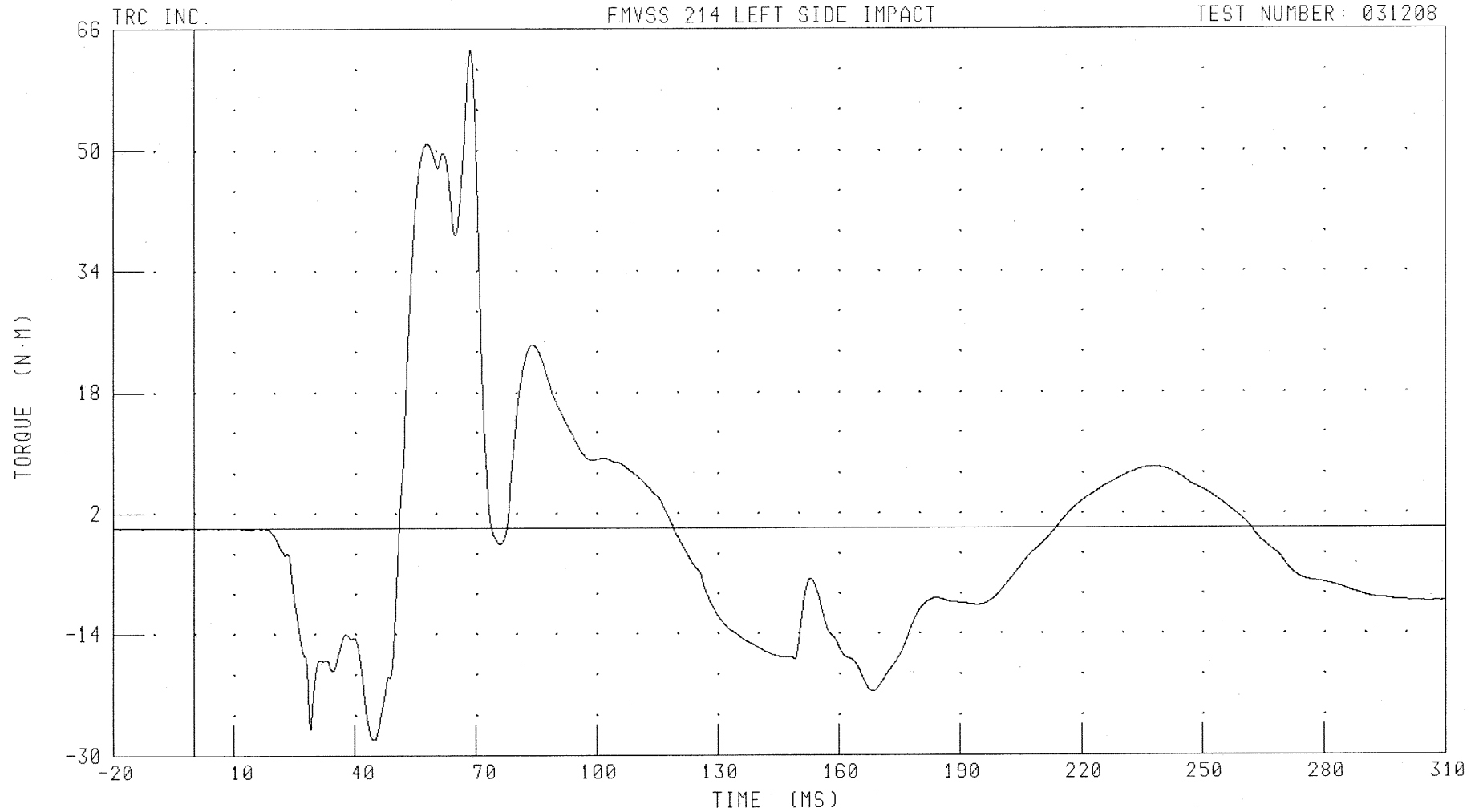
031208

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

DRIVER NECK MOMENT ABOUT X AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: NEKXM1 FILTER: CH. CLASS 600

PEAK DATA: 63.25 N·M @ 68.56 MS; -27.87 N·M @ 44.88 MS

B-20

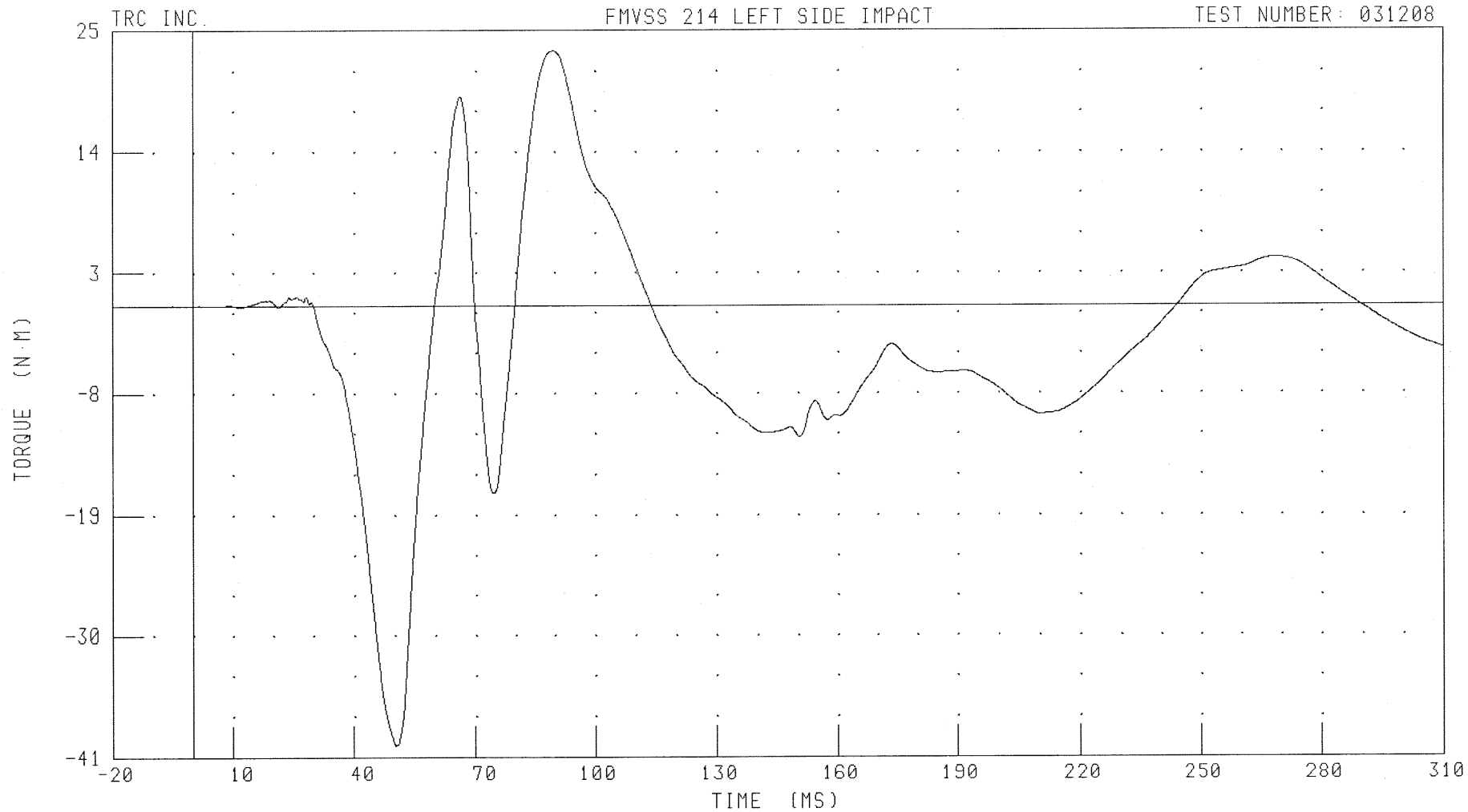
031208

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

DRIVER NECK MOMENT ABOUT Y AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 23.14 N·M @ 89.76 MS; -39.96 N·M @ 50.24 MS

B-21

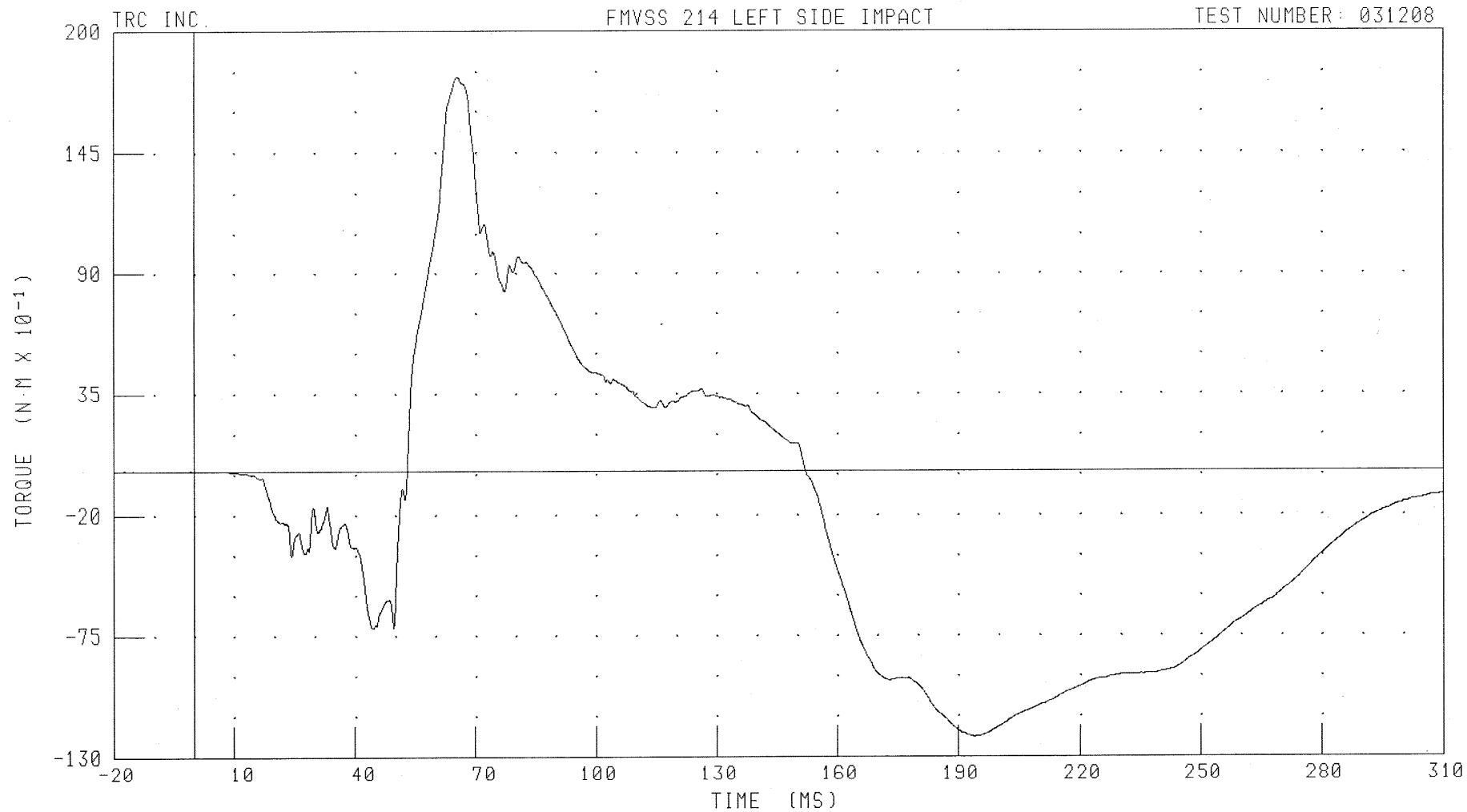
031208

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

DRIVER NECK MOMENT ABOUT Z AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: NEKZM1

FILTER: CH. CLASS 600

PEAK DATA: 17.94 N·M @ 65.44 MS; -12.11 N·M @ 194.24 MS

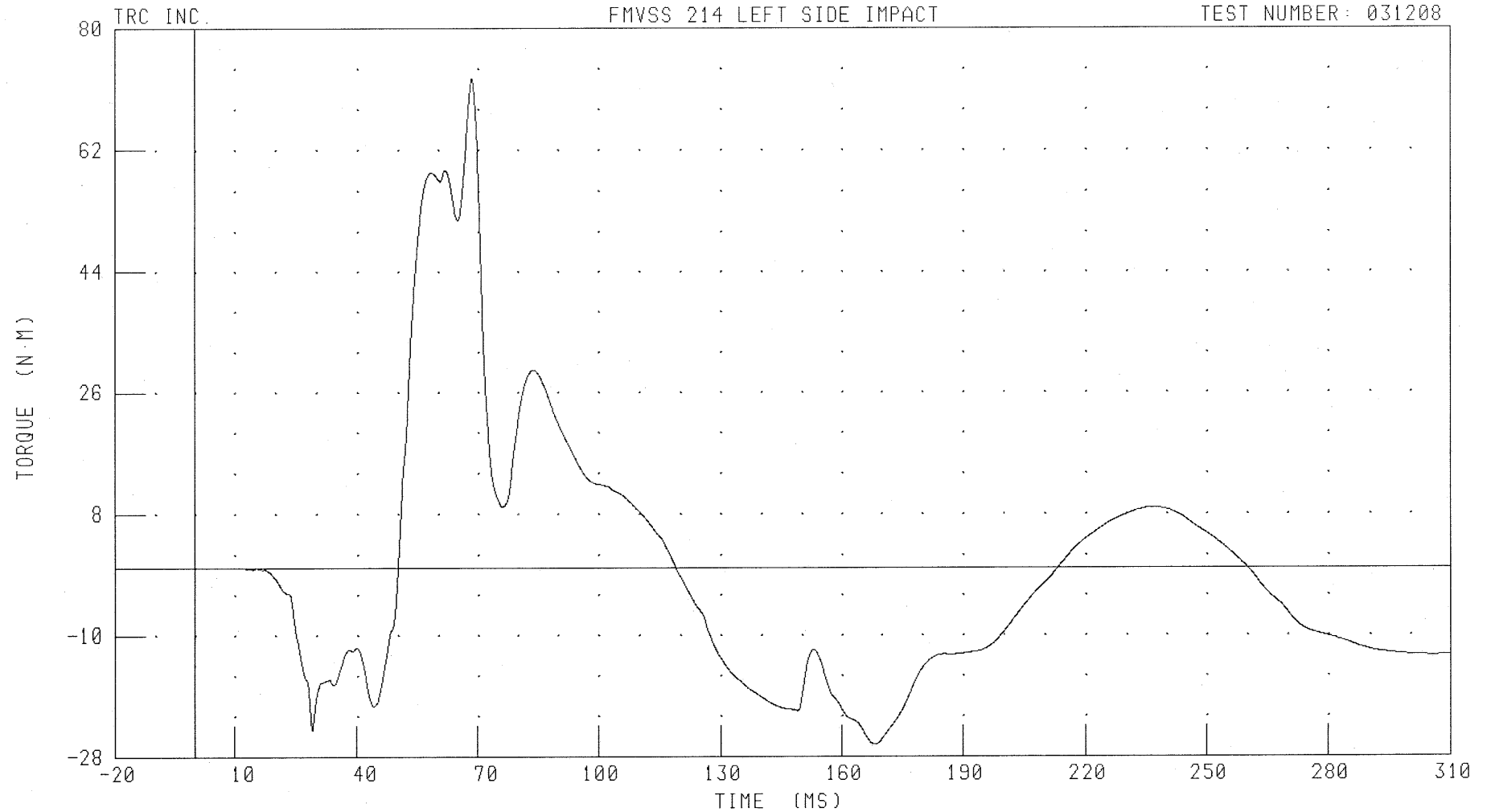
B-22

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: NK0XM1 FILTER: CH. CLASS 600

PEAK DATA: 72.56 N·M @ 68.56 MS; -26.24 N·M @ 168.32 MS

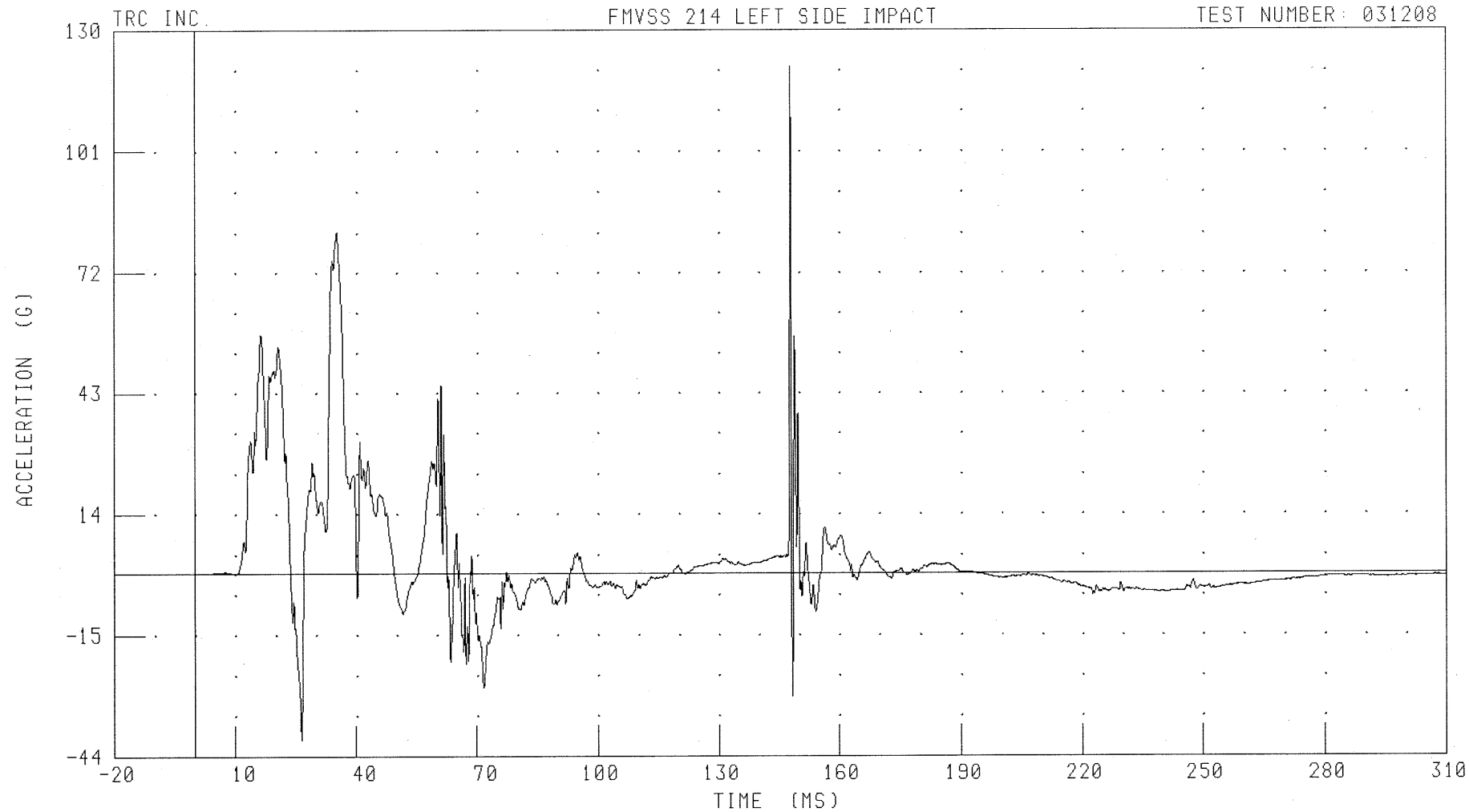
B-23

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LURYG1 FILTER: CH. CLASS 1000

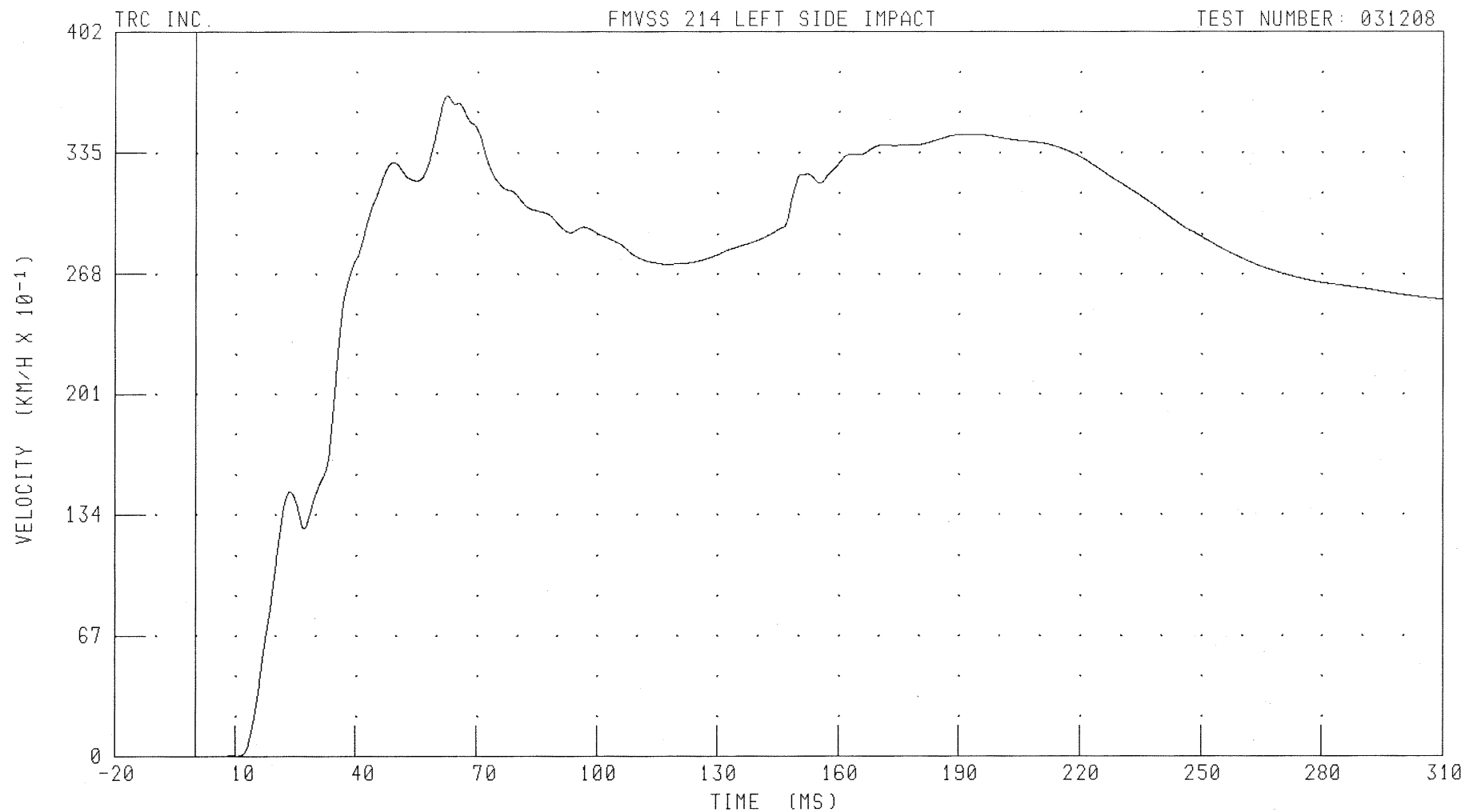
B-24

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LURYV1 FILTER: CH. CLASS 180

PEAK DATA: 36.66 KM/H @ 62.72 MS; 0.00 KM/H @ 0.00 MS

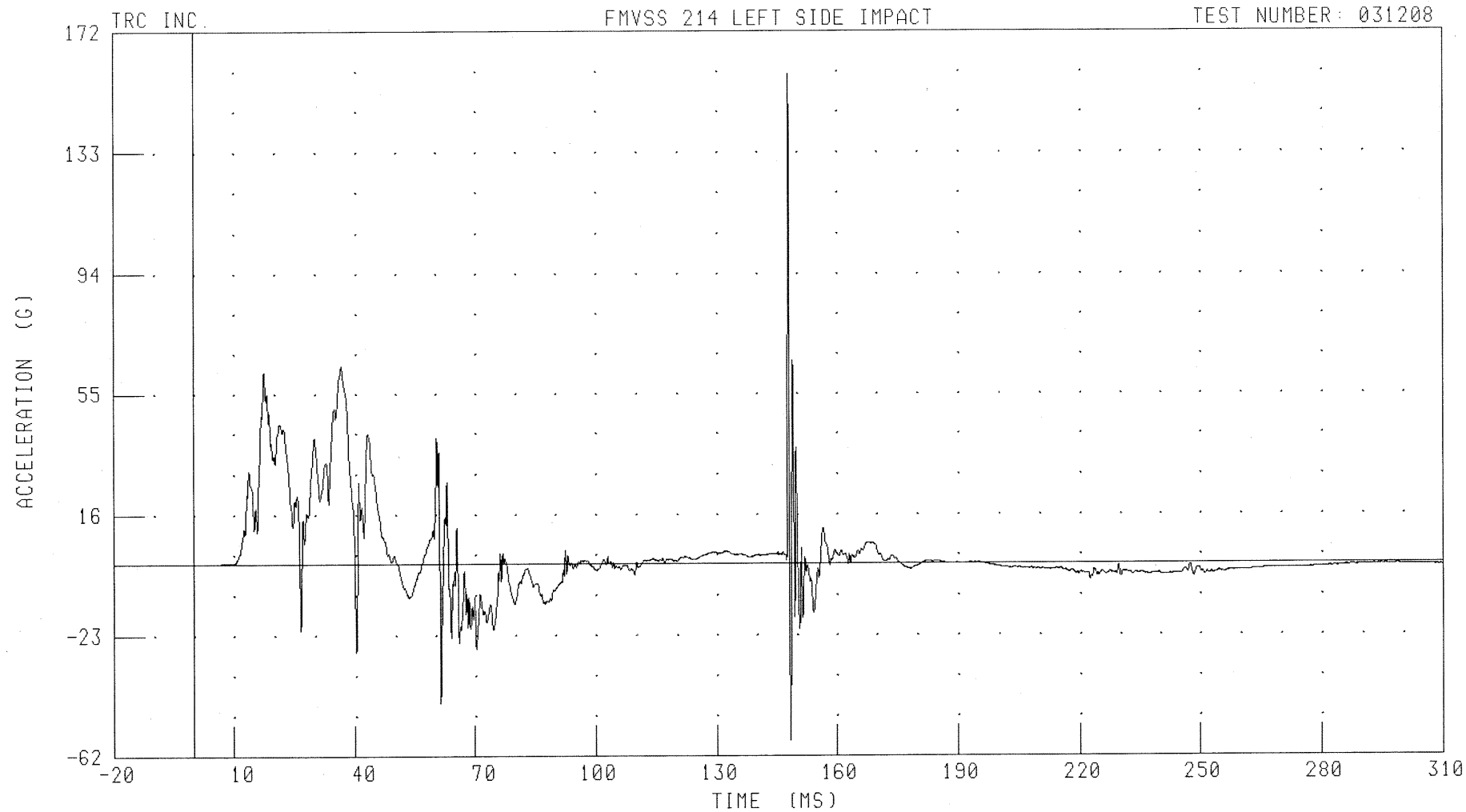
B-25

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLRYG1 FILTER: CH. CLASS 1000

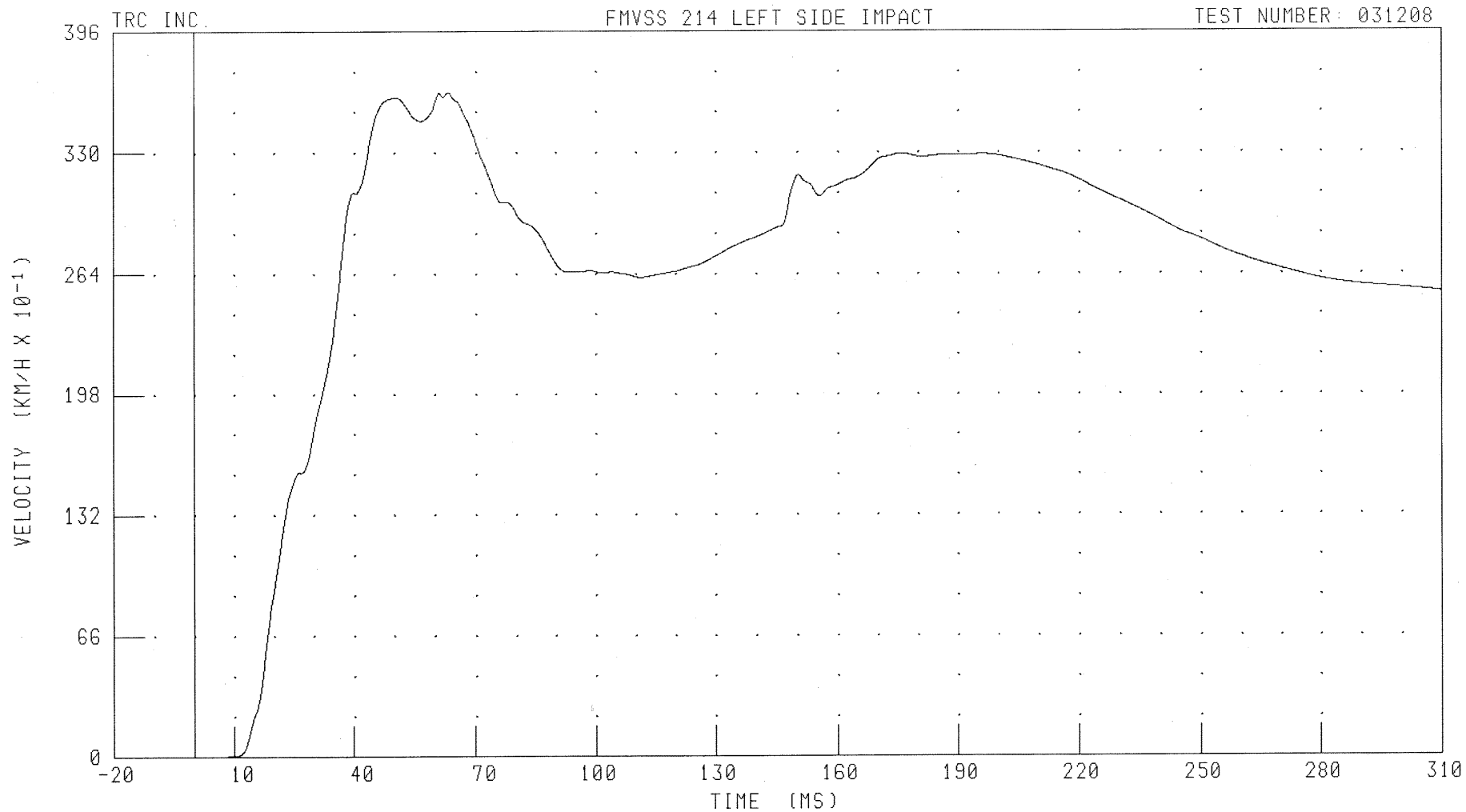
B-26

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLRYV1

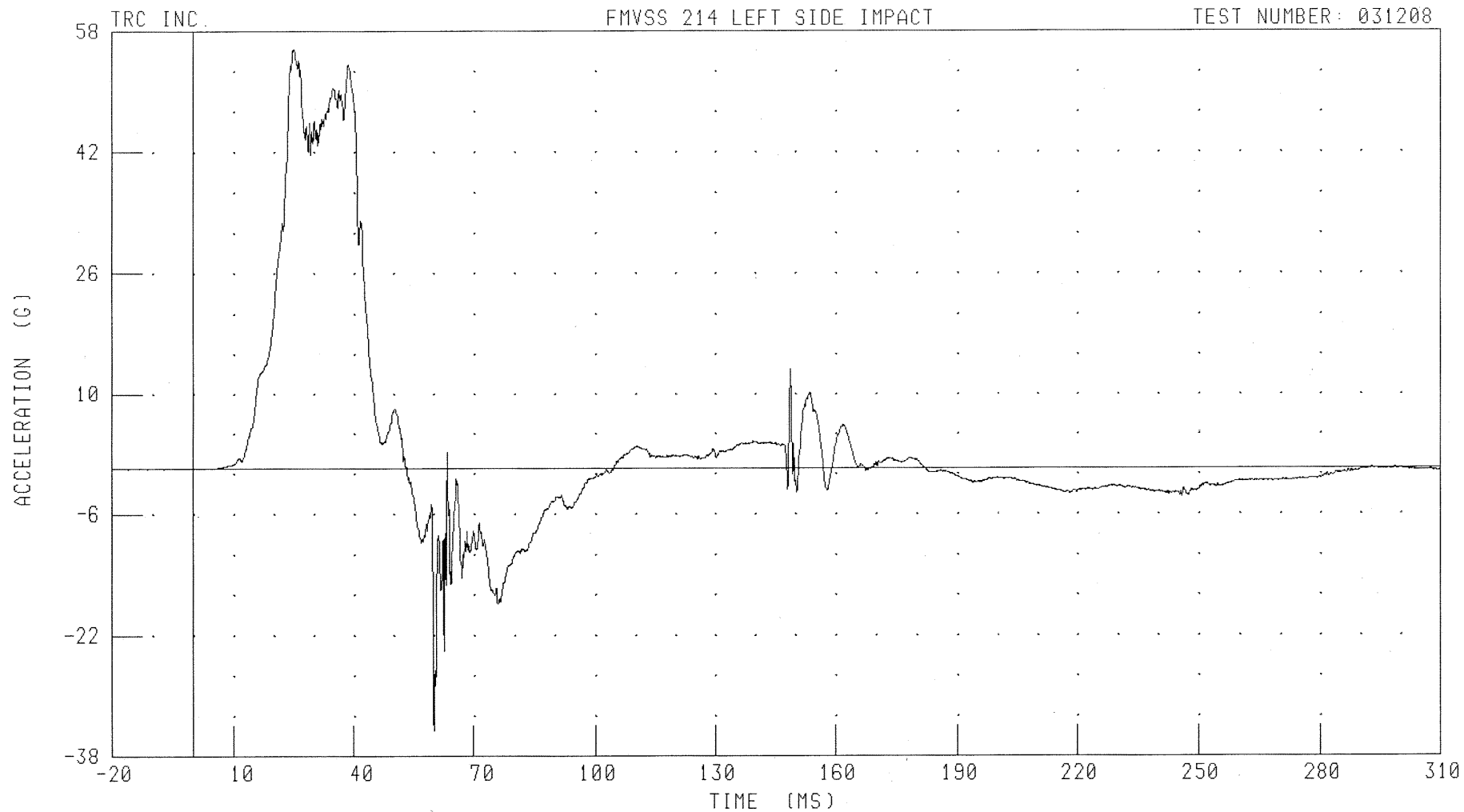
FILTER: CH. CLASS 180

PEAK DATA: 36.29 KM/H @ 63.36 MS; 0.00 KM/H @ 0.00 MS

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: T12YG1

FILTER: CH. CLASS 1000

PEAK DATA: 55.59 G @ 25.12 MS; -34.66 G @ 60.16 MS

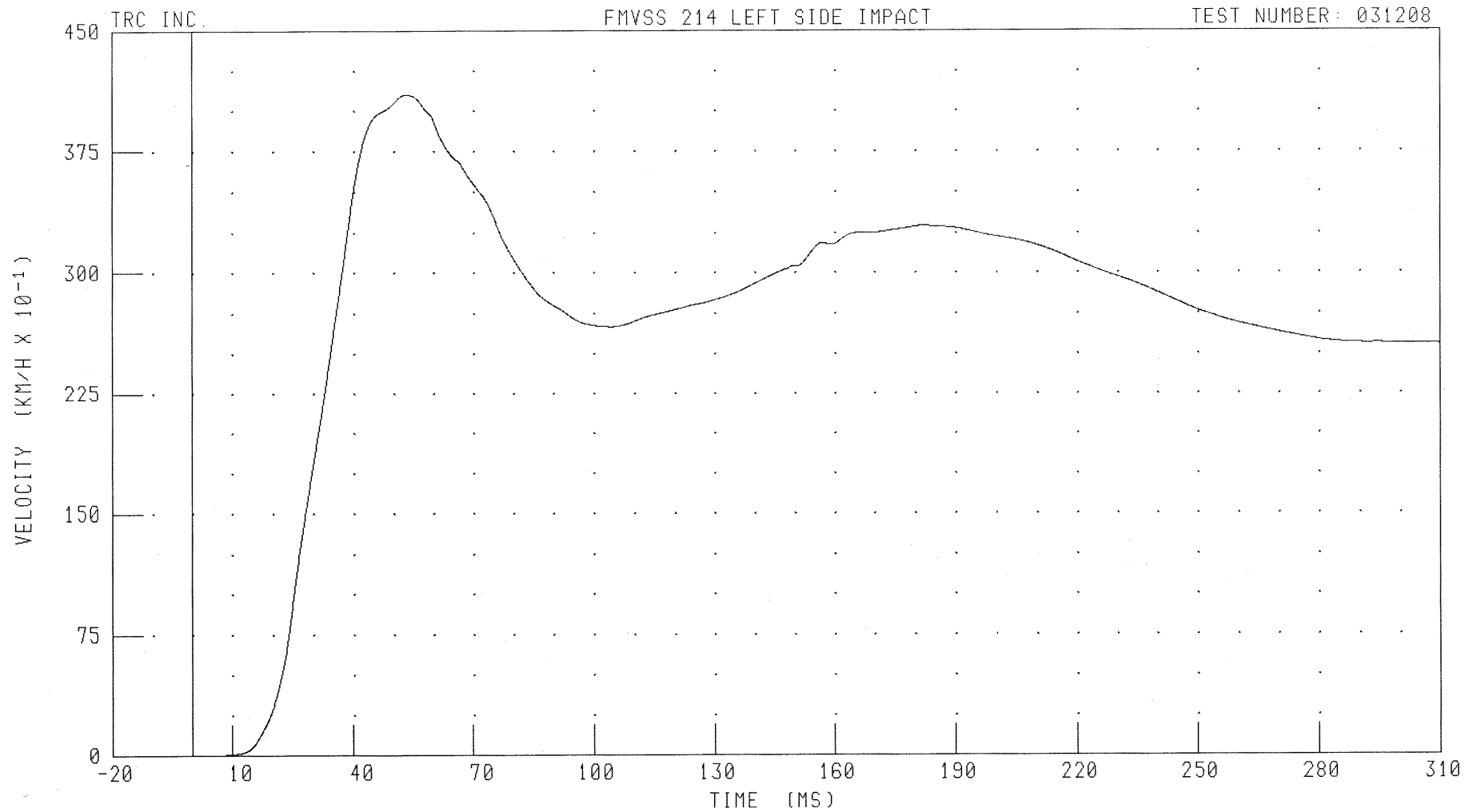
B-28

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: T12YV1

FILTER: CH. CLASS 180

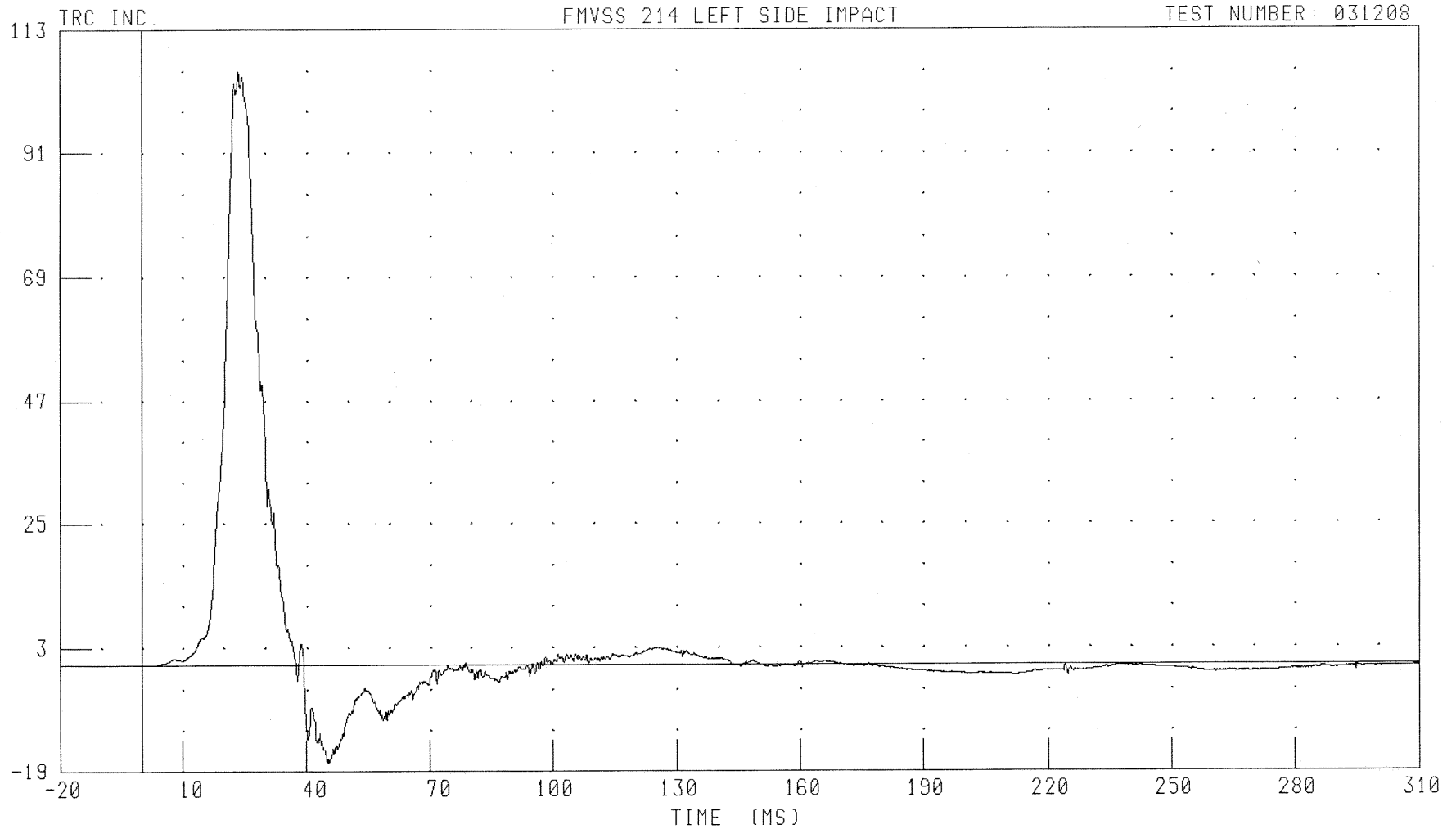
PEAK DATA: 41.01 KM/H @ 53.20 MS; 0.00 KM/H @ 0.00 MS

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

DRIVER PELVIS Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

B-30

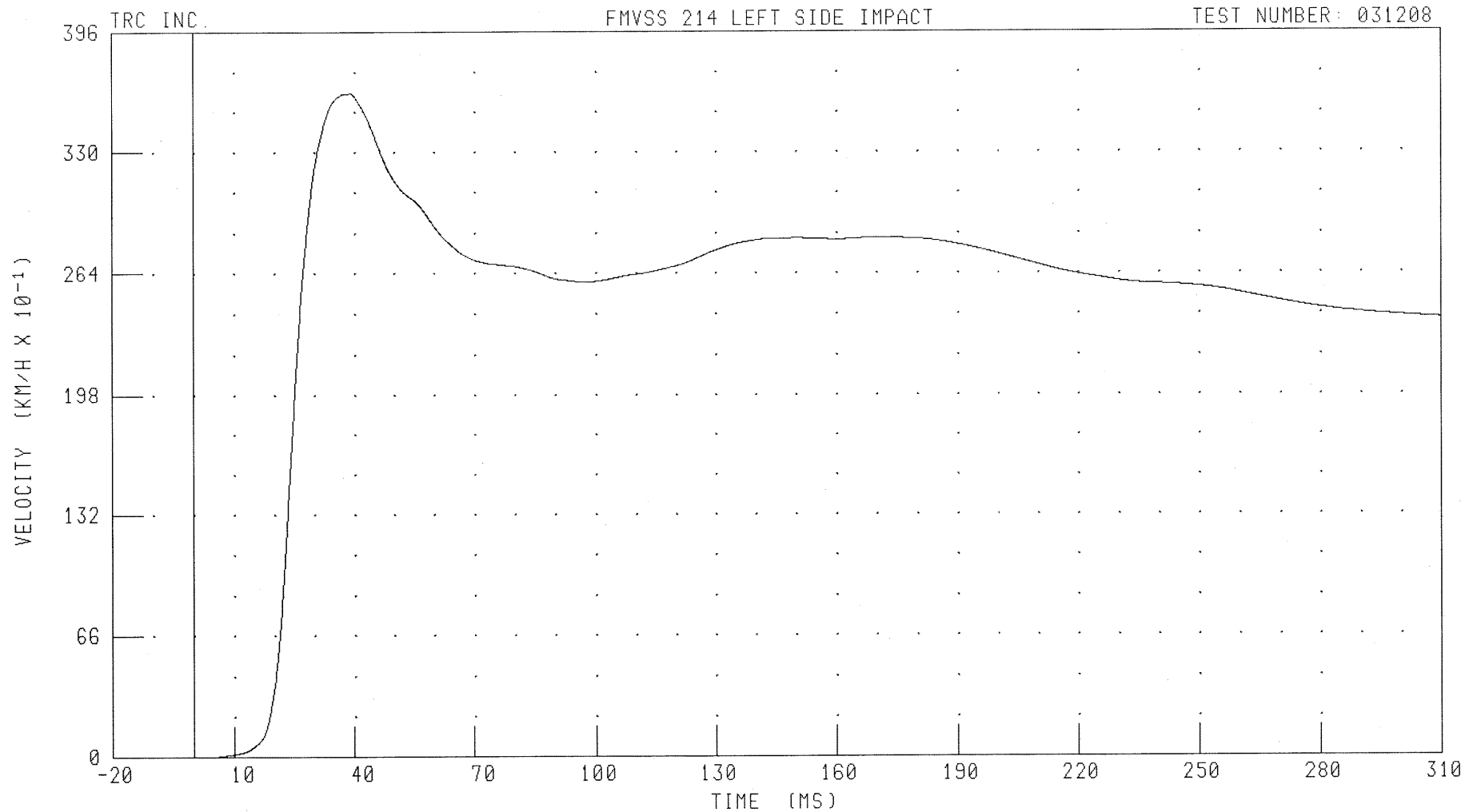
031208

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

DRIVER PELVIS Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: PEVYV1

FILTER: CH. CLASS 180

PEAK DATA: 36.24 KM/H @ 39.12 MS; 0.00 KM/H @ 0.00 MS

B-31

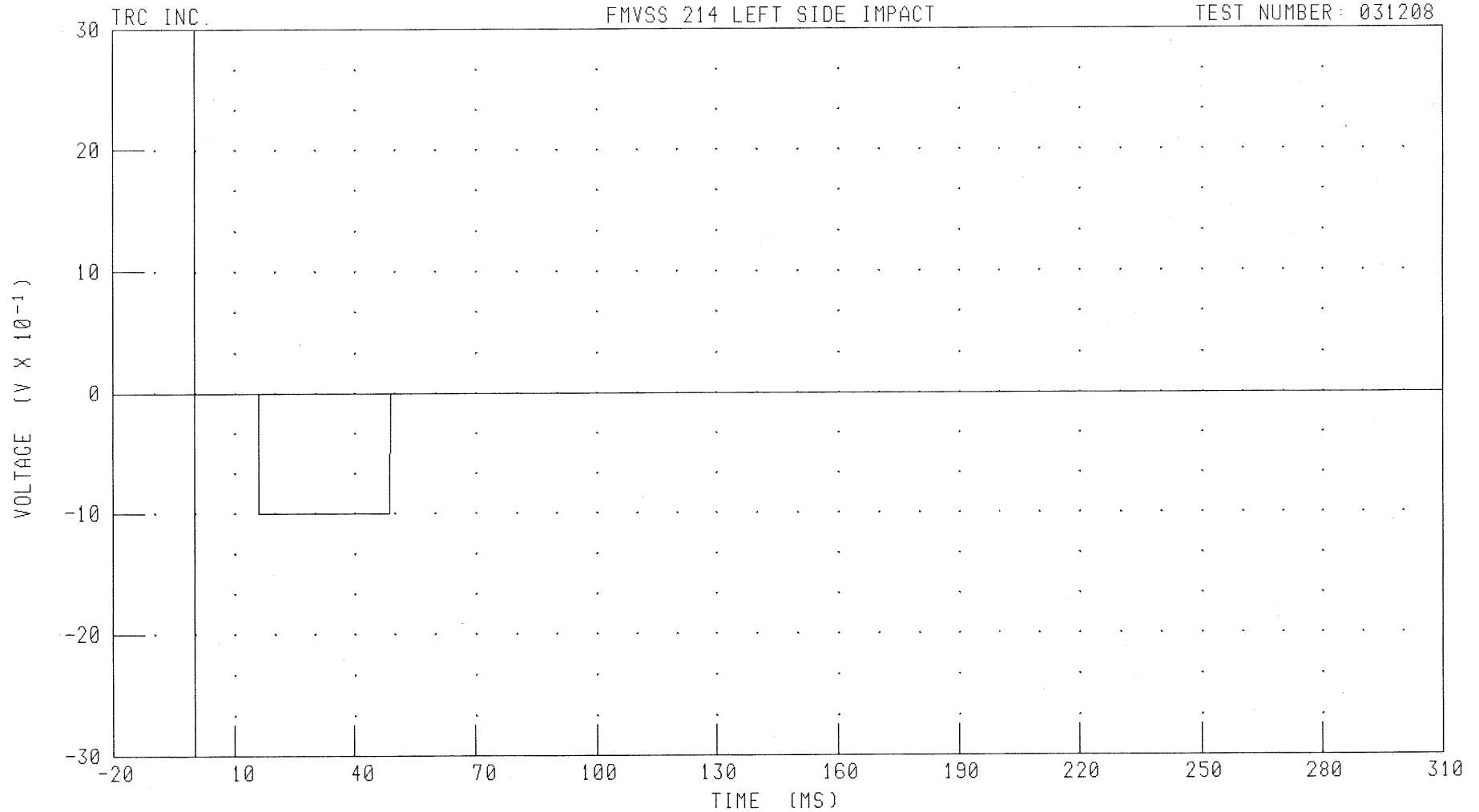
031208

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

DRIVER SHOULDER CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: SHLET1 FILTER: CH. CLASS 1000

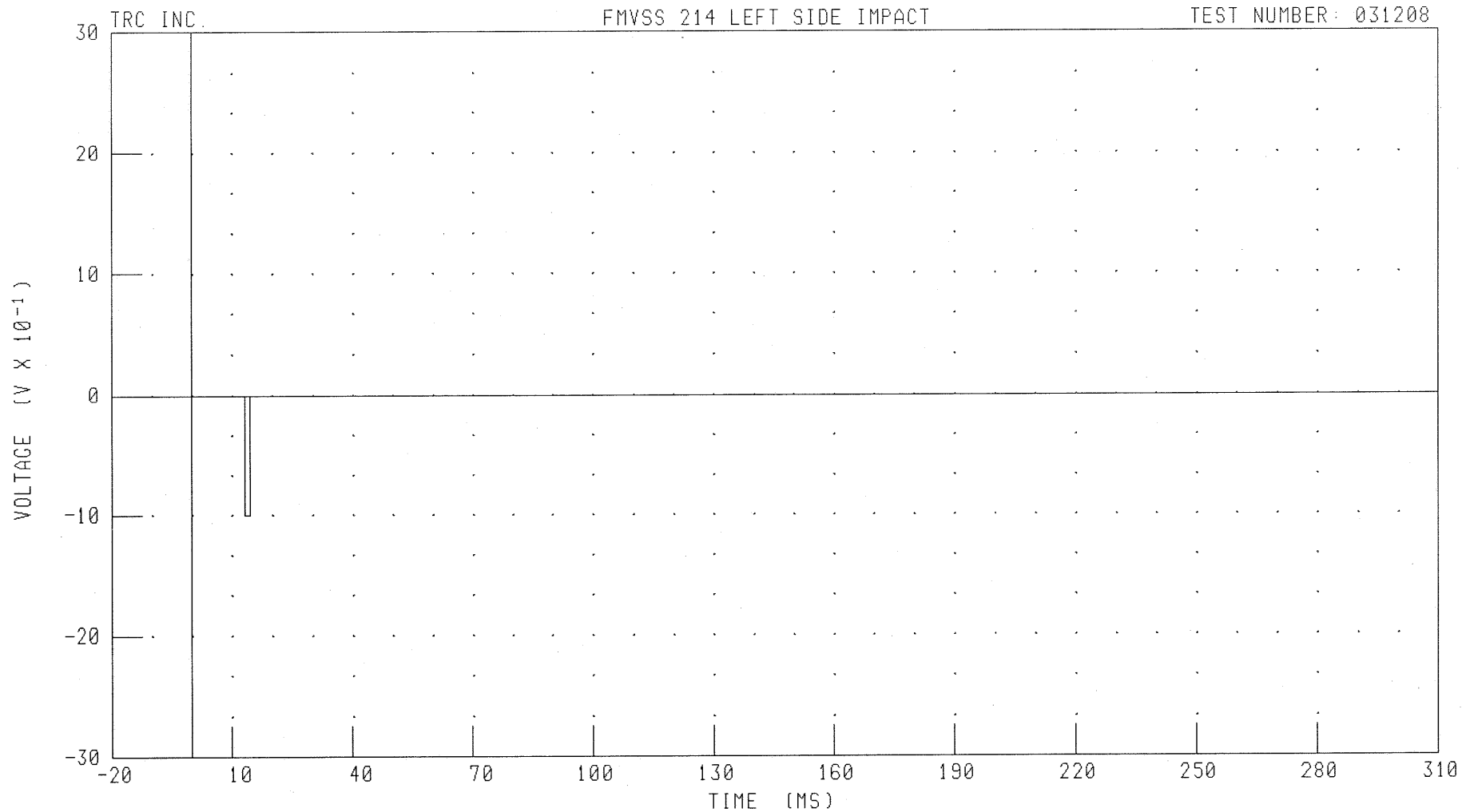
PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 16.16 MS

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

DRIVER PELVIS CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: PEVET1 FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 13.36 MS

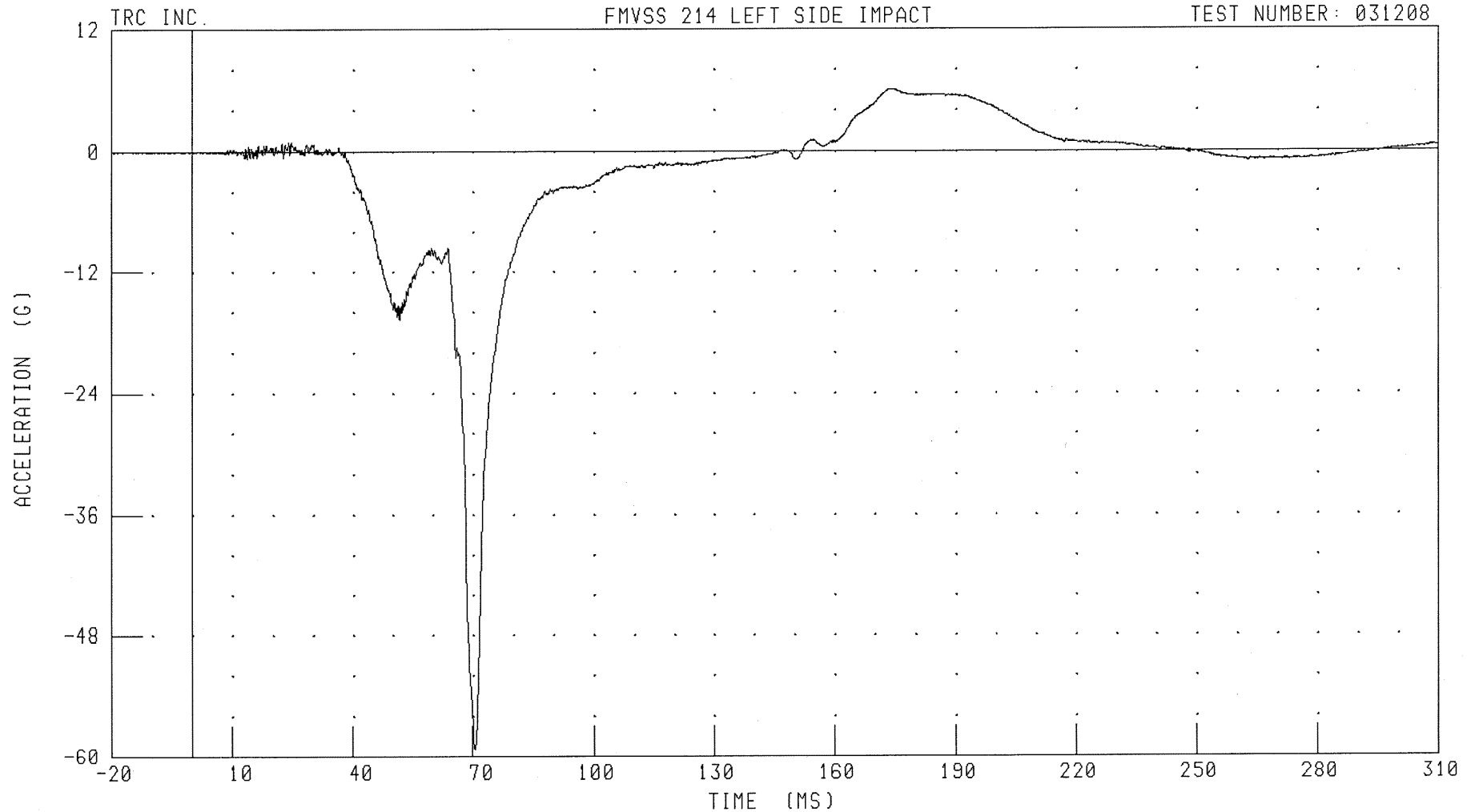
Driver Dummy Redundant Instrumentation Plots

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

DRIVER HEAD X-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

PEAK DATA: 6.05 G @ 174.80 MS; -59.28 G @ 70.56 MS

B-35

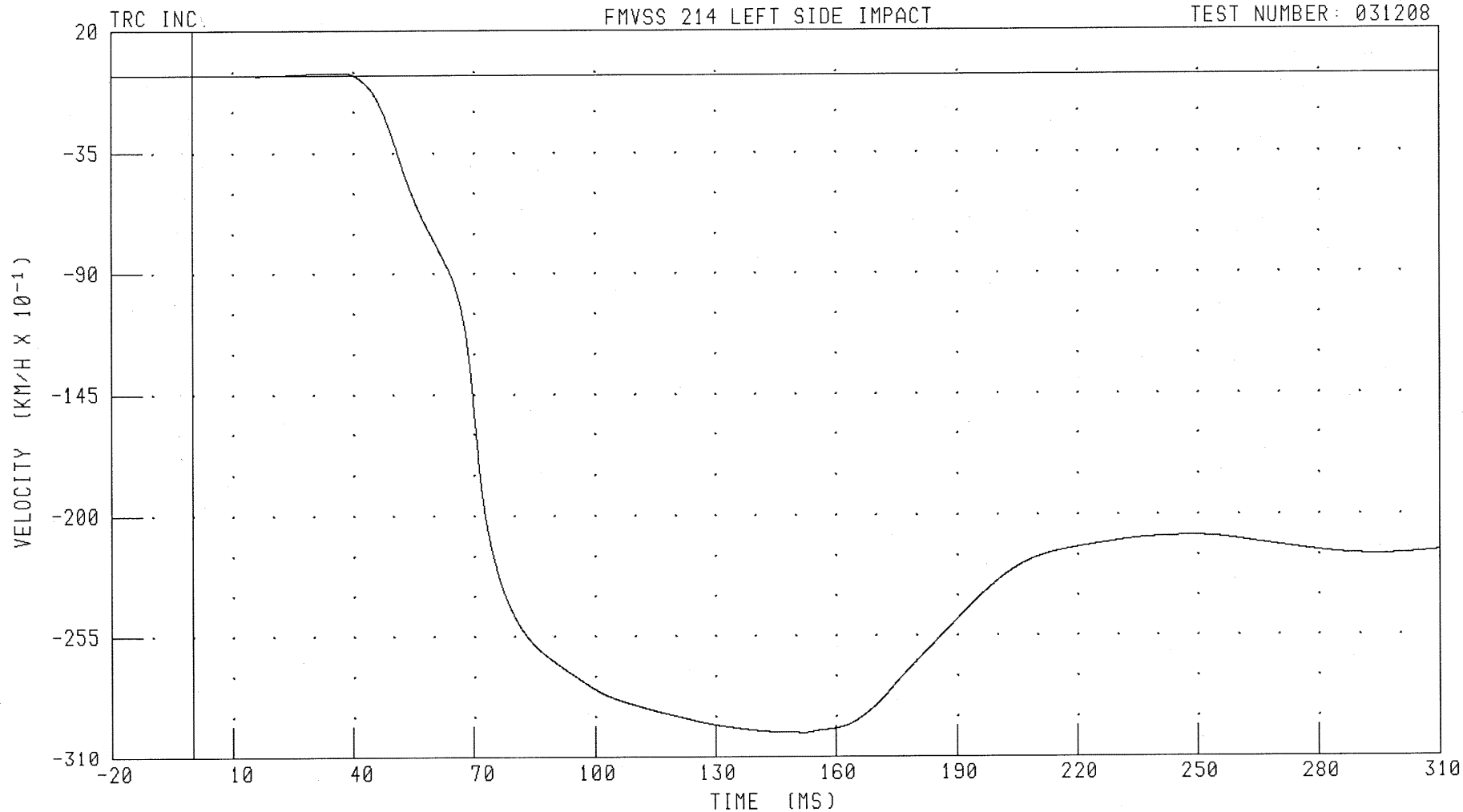
031208

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

DRIVER HEAD X-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDXVI FILTER: CH. CLASS 180

PEAK DATA: 0.11 KM/H @ 37.04 MS; -29.93 KM/H @ 152.00 MS

B-36

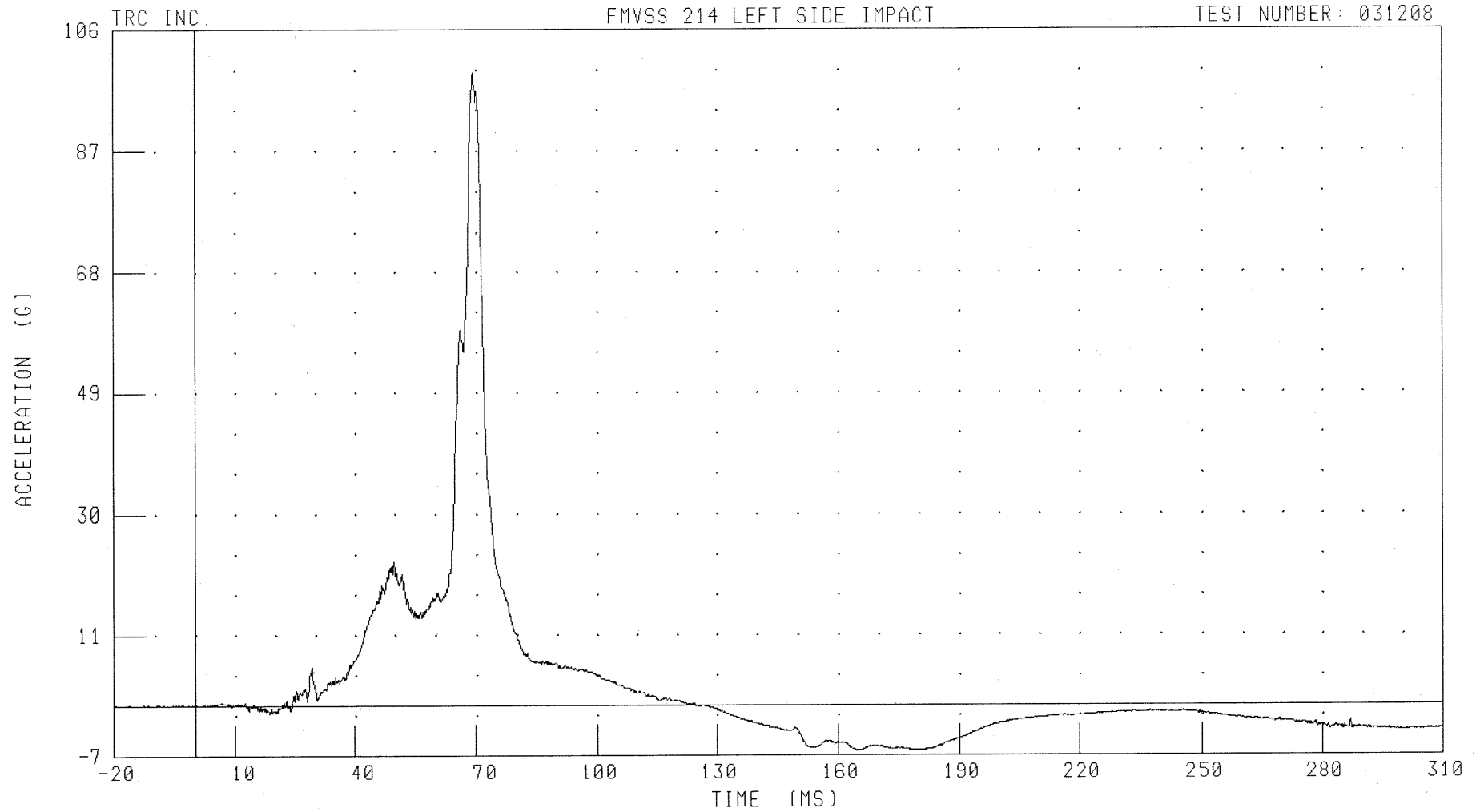
031208

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

DRIVER HEAD Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

PEAK DATA: 99.33 G @ 69.28 MS; -7.22 G @ 164.72 MS

B-37

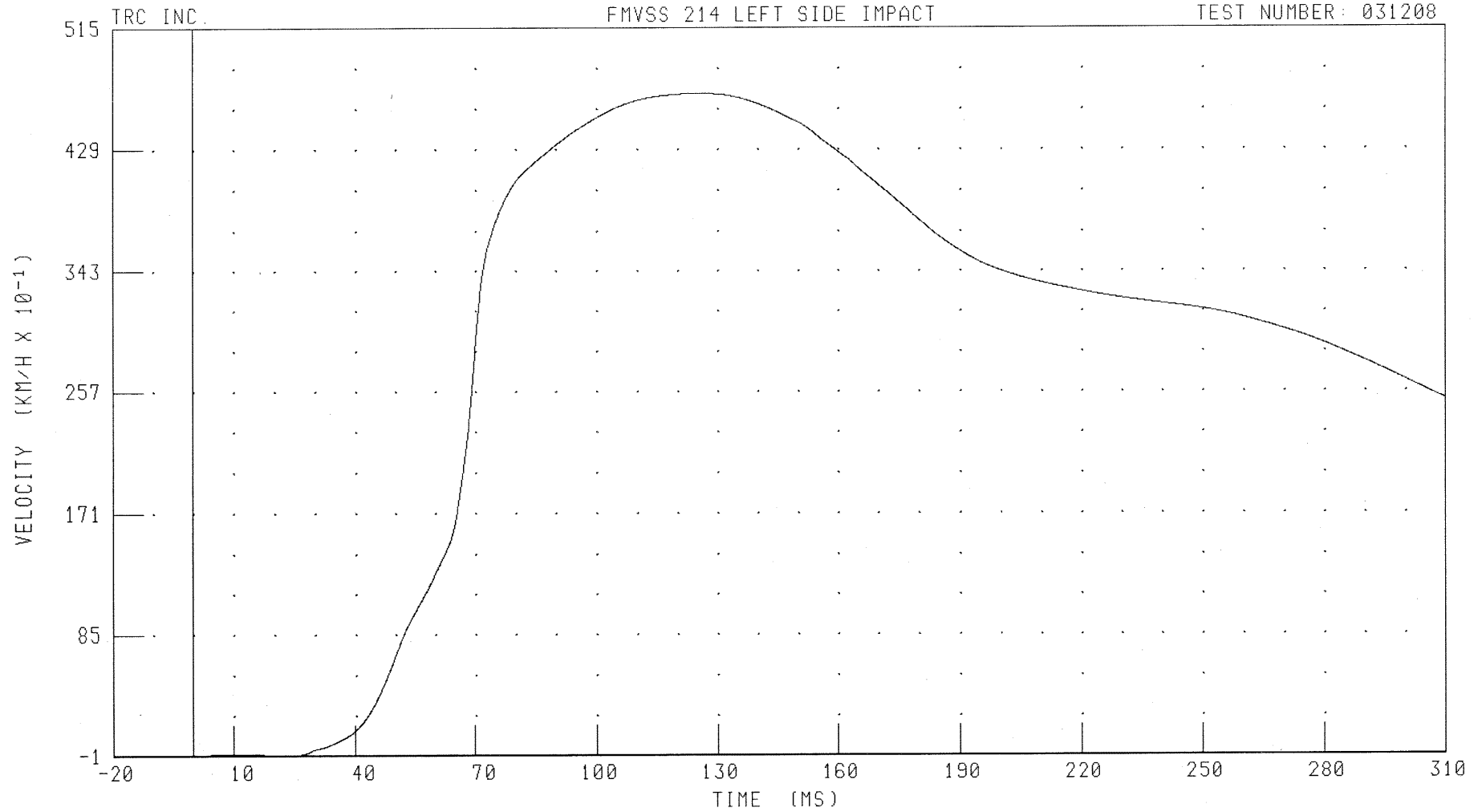
031208

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

DRIVER HEAD Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDYVI FILTER: CH. CLASS 180

PEAK DATA: 46.85 KM/H @ 124.72 MS; -0.12 KM/H @ 23.92 MS

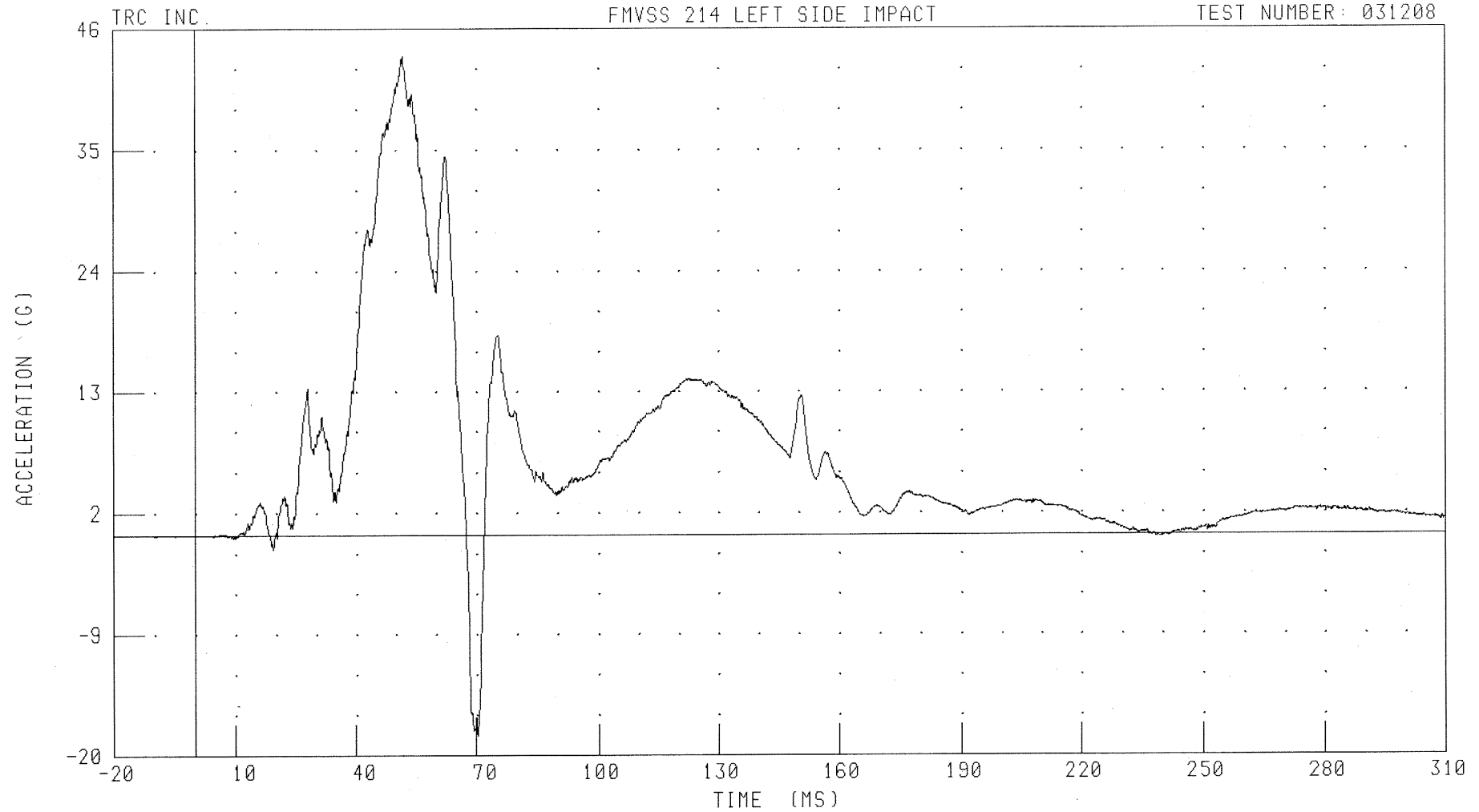
B-38

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
DRIVER HEAD Z-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDZR1 FILTER: CH. CLASS 1000

PEAK DATA: 43.51 G @ 51.76 MS; -18.21 G @ 70.32 MS

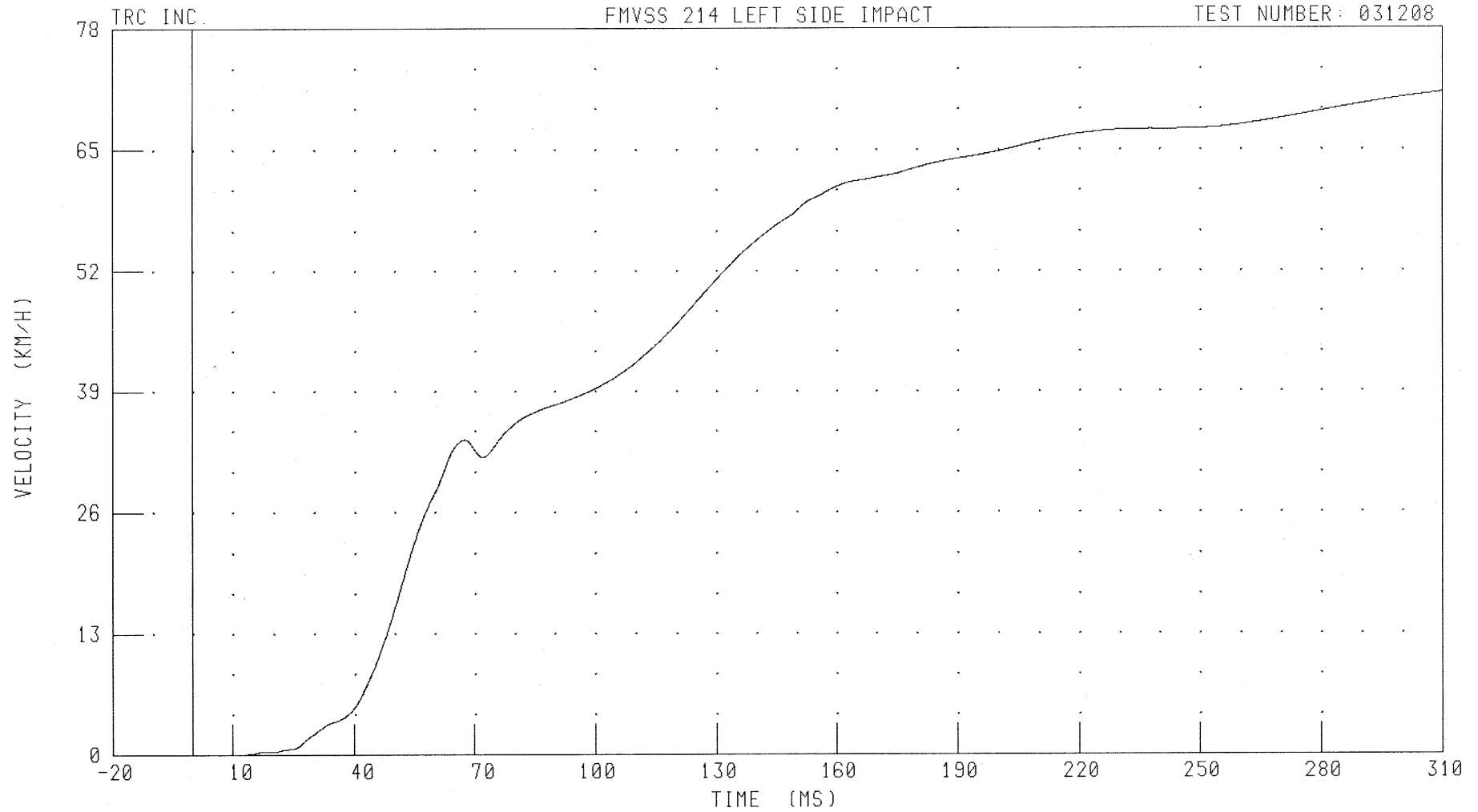
B-39

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
DRIVER HEAD Z-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDZVI FILTER: CH. CLASS 180

PEAK DATA: 71.08 KM/H @ 310.00 MS; 0.00 KM/H @ 10.48 MS

B-40

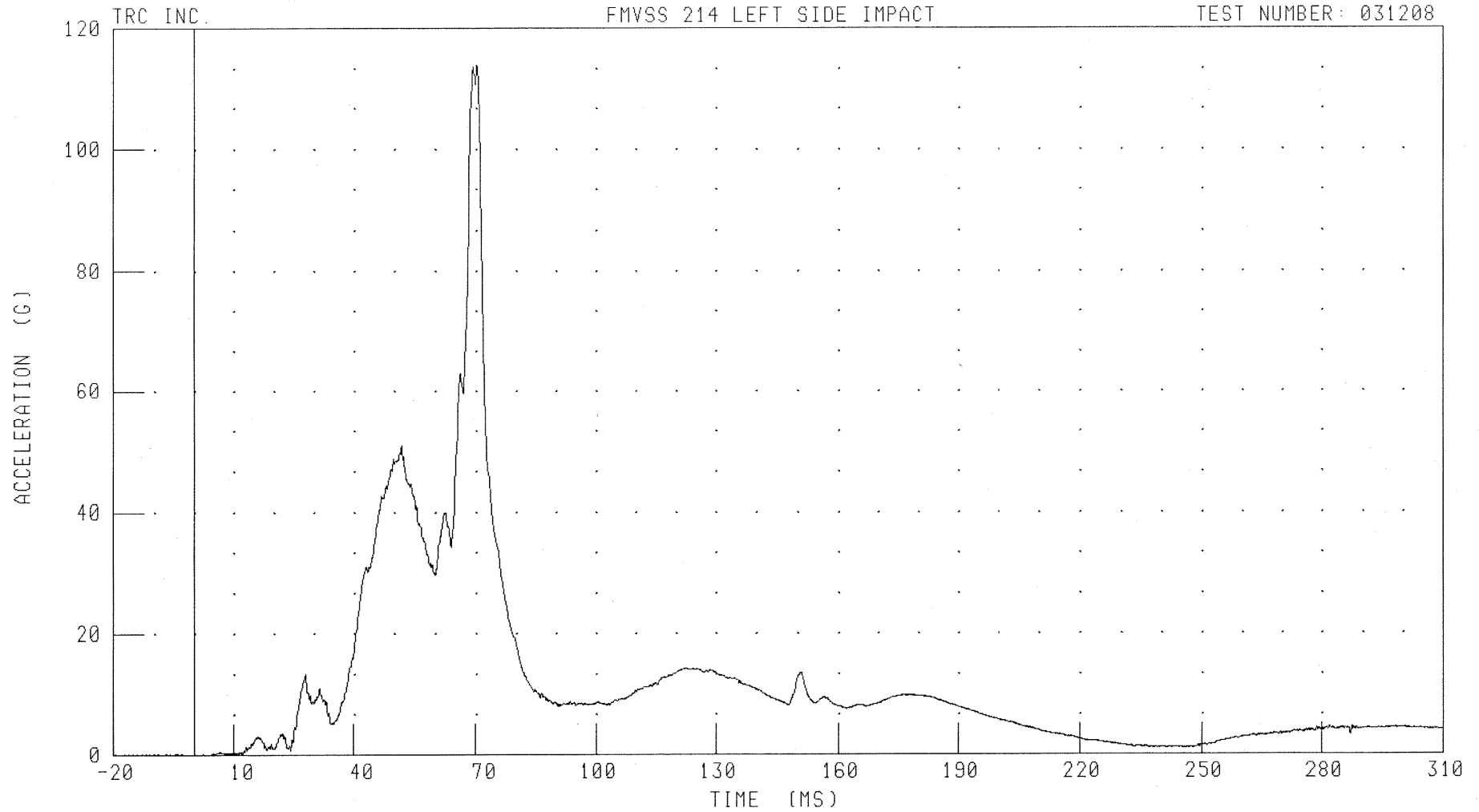
031208

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

DRIVER HEAD RESULTANT REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

PEAK DATA: 114.02 G @ 70.24 MS; 0.01 G @ -16.88 MS

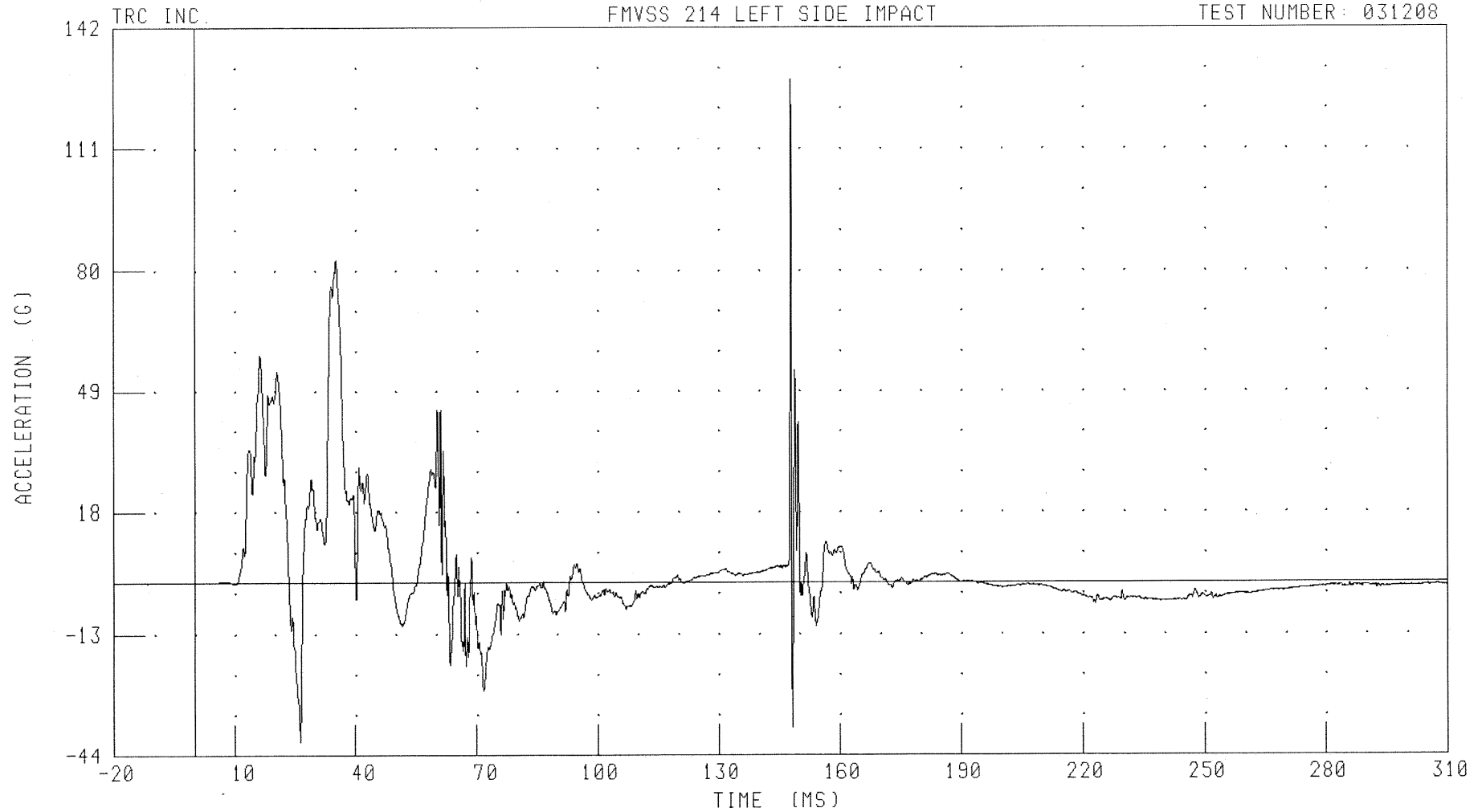
B-41

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LURYR1 FILTER: CH. CLASS 1000

PEAK DATA: 128.72 G @ 147.92 MS; -40.53 G @ 26.40 MS

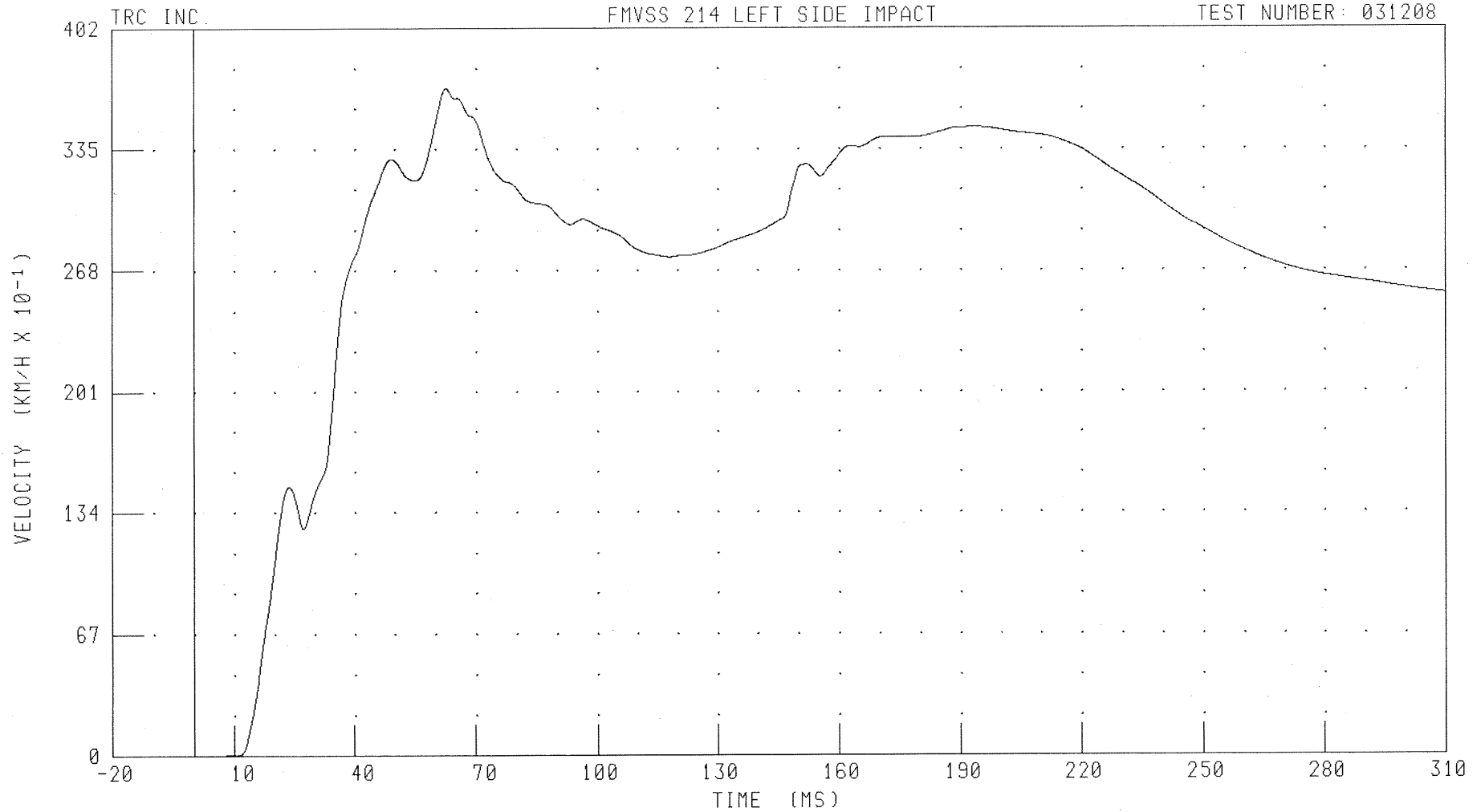
B-42

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LURYVI FILTER: CH. CLASS 180

PEAK DATA: 36.87 KM/H @ 62.72 MS; 0.00 KM/H @ 2.24 MS

B-43

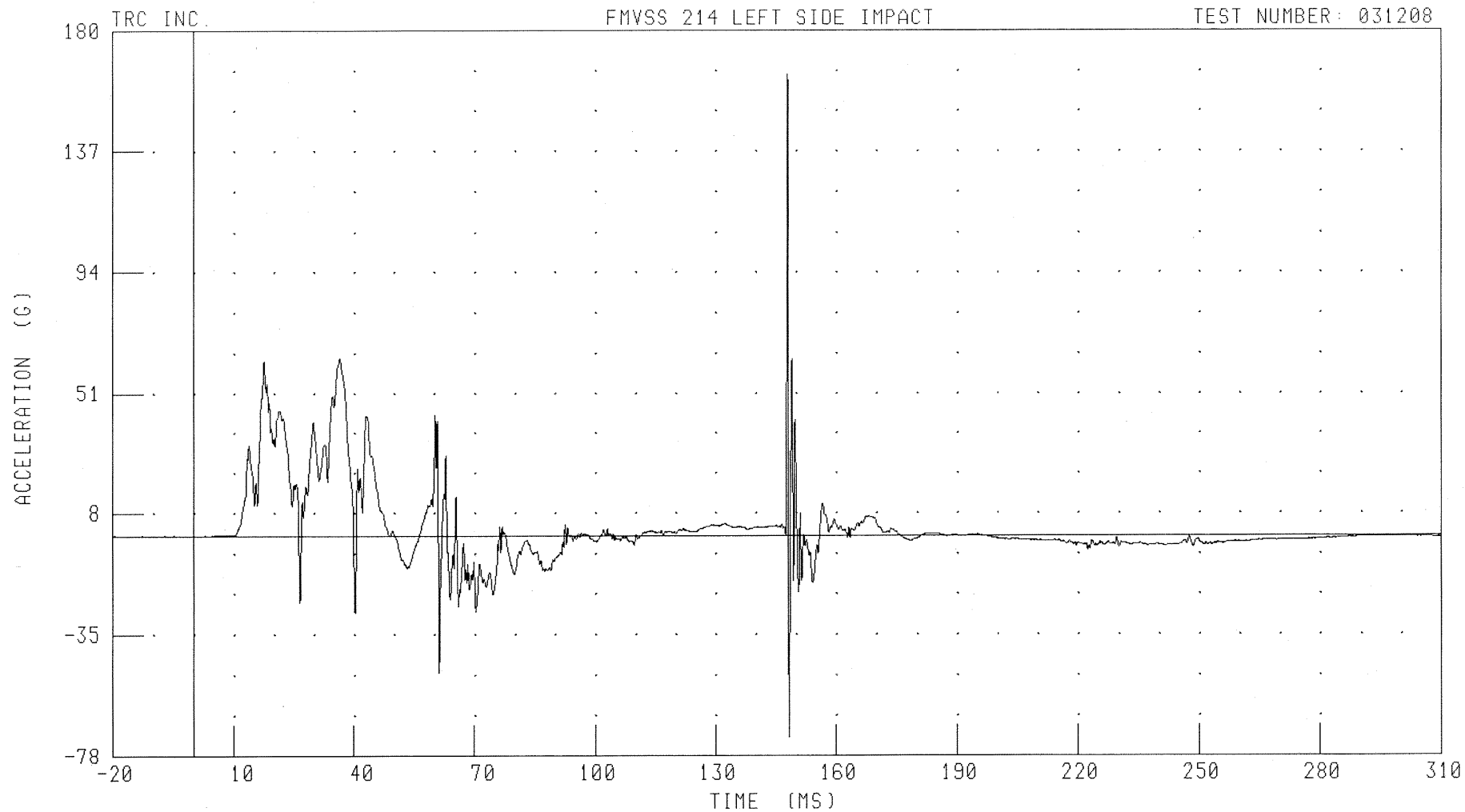
031208

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

DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLRYR1 FILTER: CH. CLASS 1000

PEAK DATA: 164.60 G @ 147.92 MS; -71.66 G @ 148.40 MS

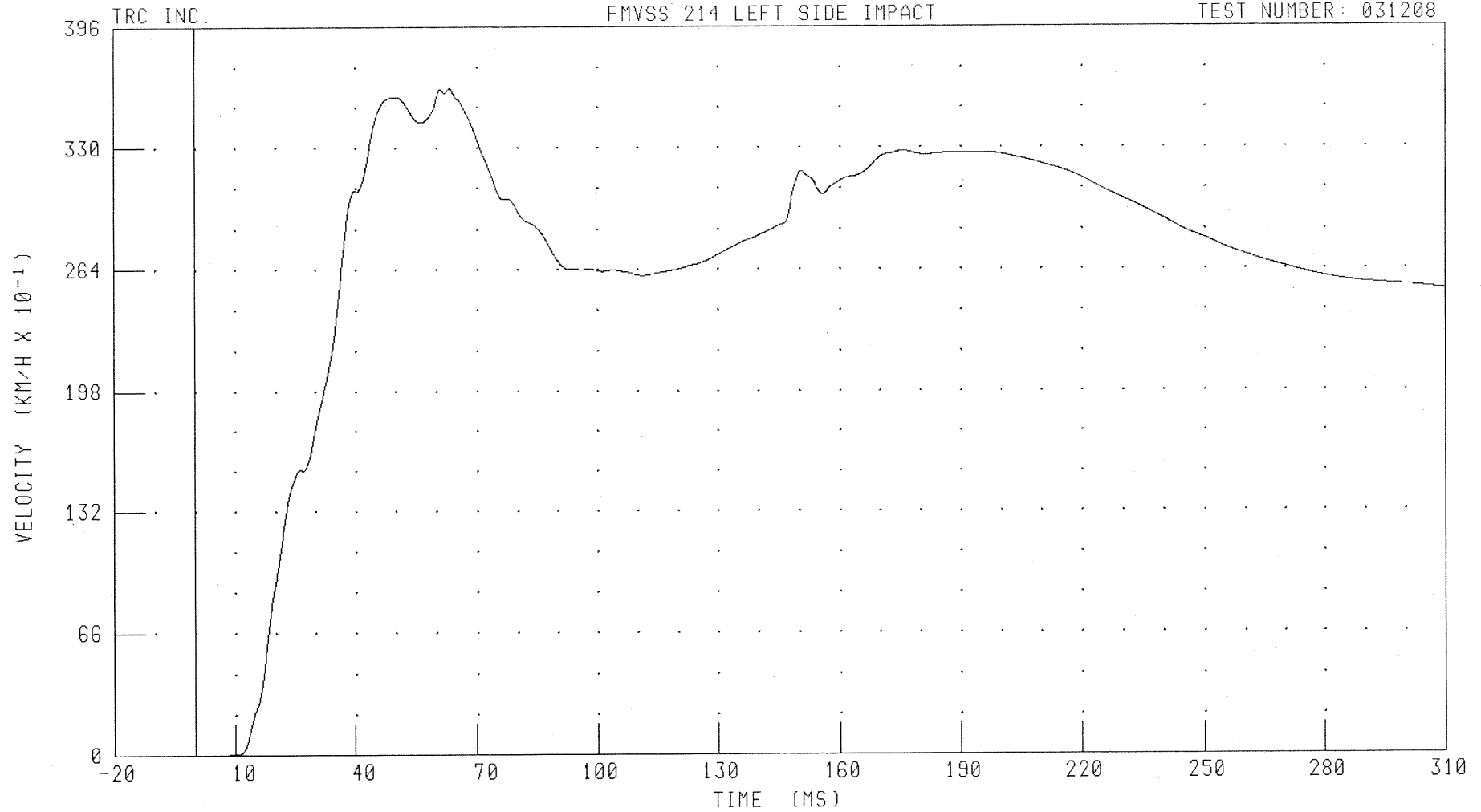
B-44

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLRYVI FILTER: CH. CLASS 180

PEAK DATA: 36.24 KM/H @ 63.36 MS; 0.00 KM/H @ 0.00 MS

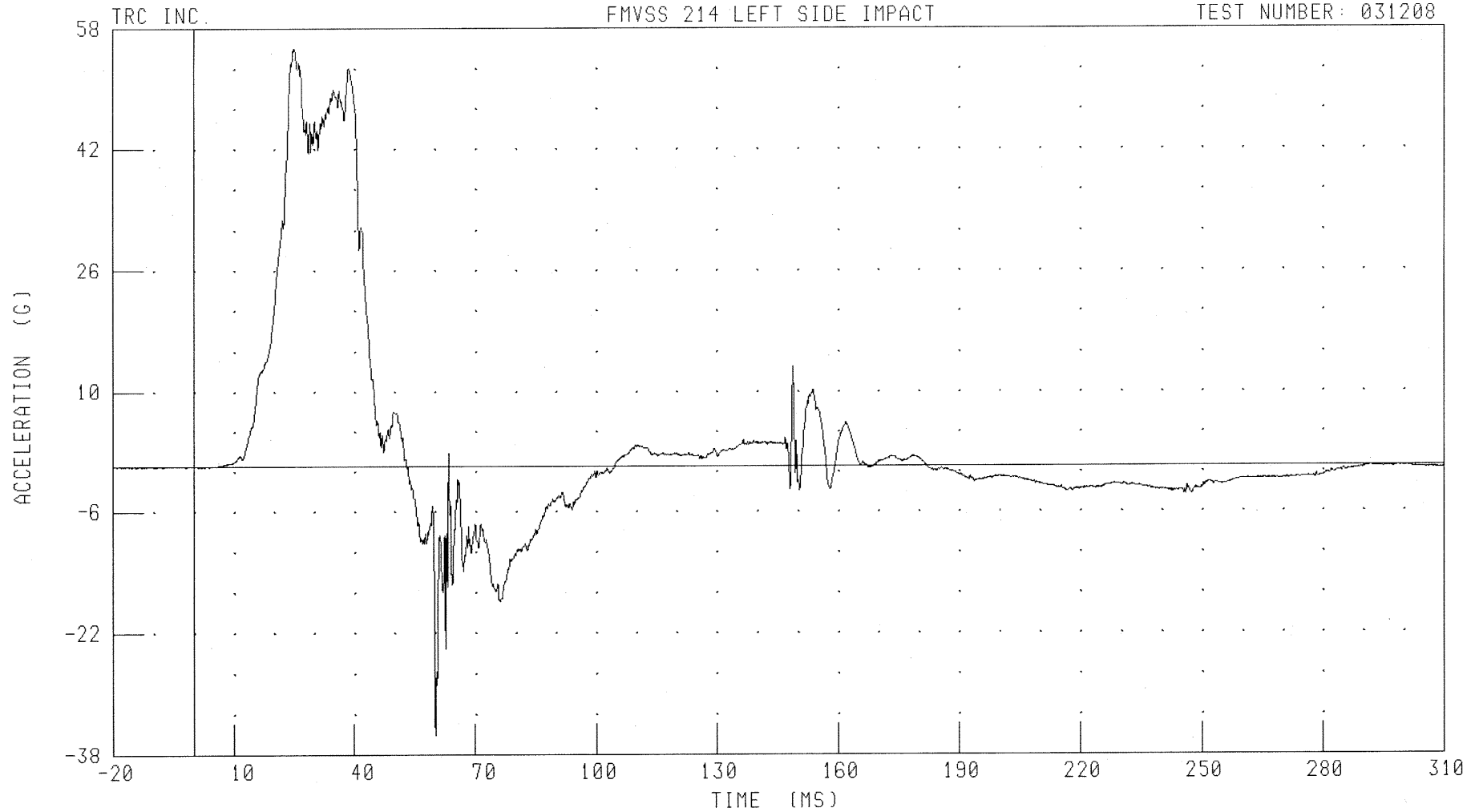
B-45

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: T12YR1 FILTER: CH. CLASS 1000

PEAK DATA: 55.28 G @ 25.12 MS; -35.41 G @ 60.16 MS

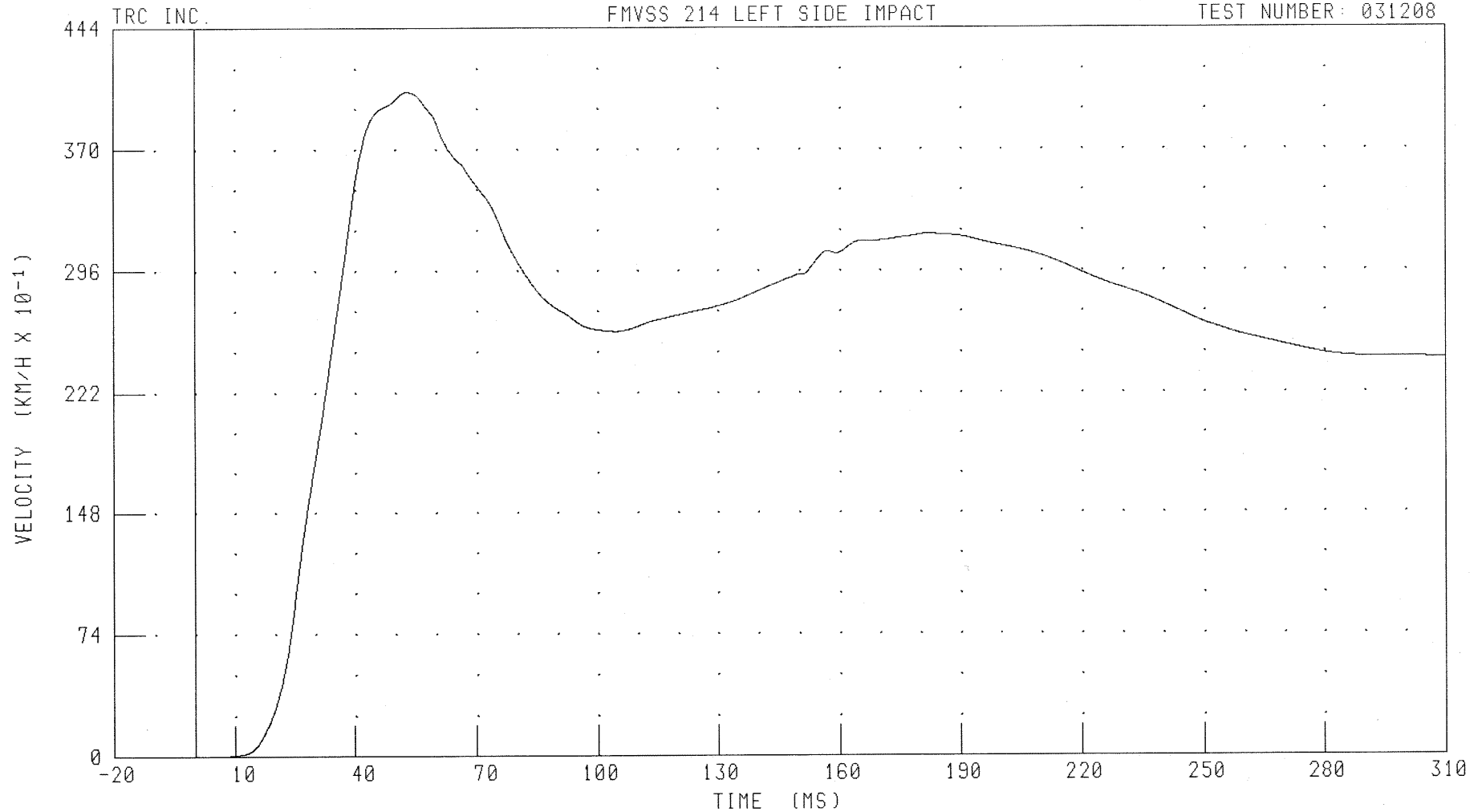
B-46

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: T12YVI FILTER: CH. CLASS 180

PEAK DATA: 40.51 KM/H @ 53.04 MS; 0.00 KM/H @ 2.80 MS

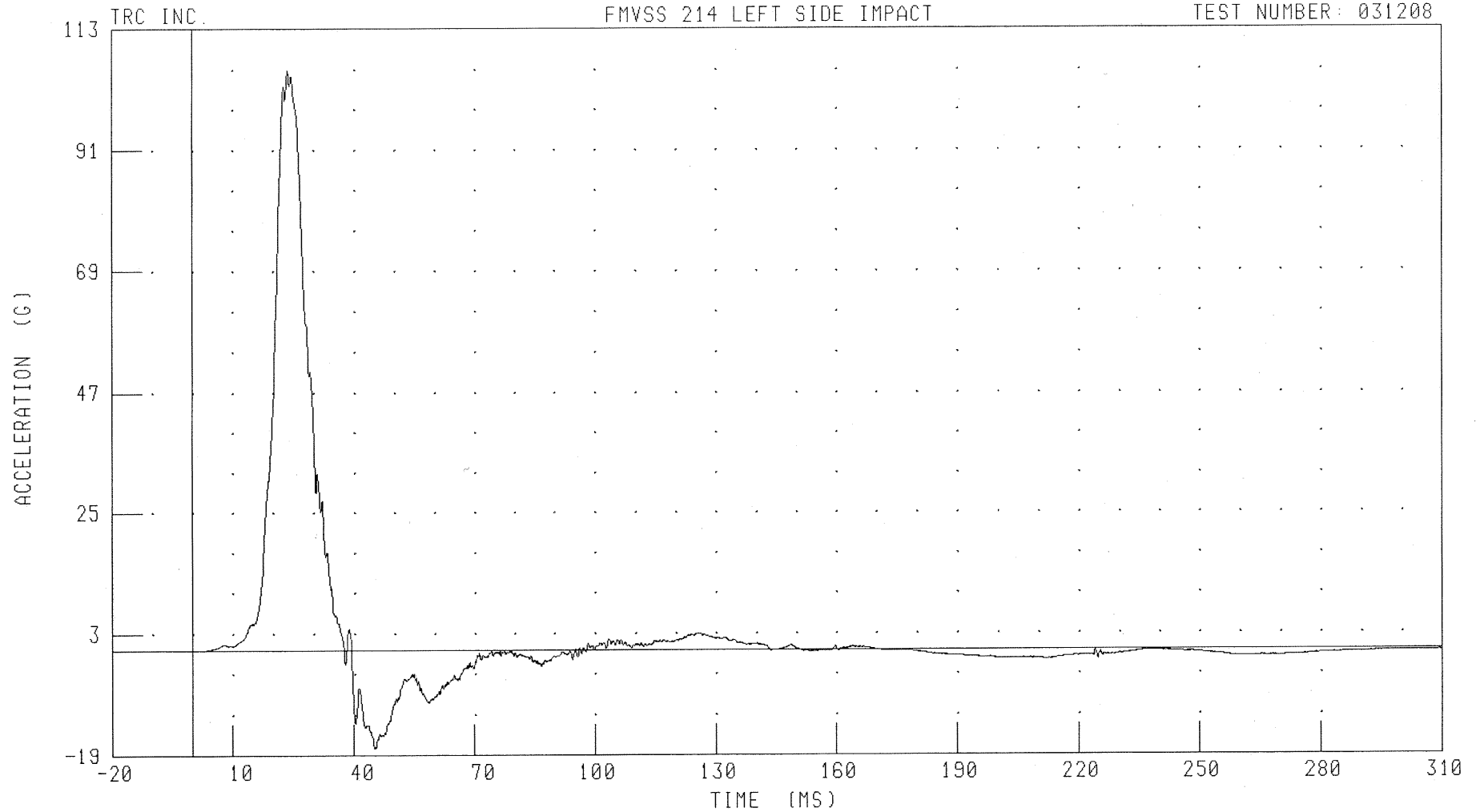
B-47

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: PEVYR1 FILTER: CH. CLASS 1000

PEAK DATA: 105.55 G @ 23.68 MS; -17.74 G @ 45.20 MS

B-48

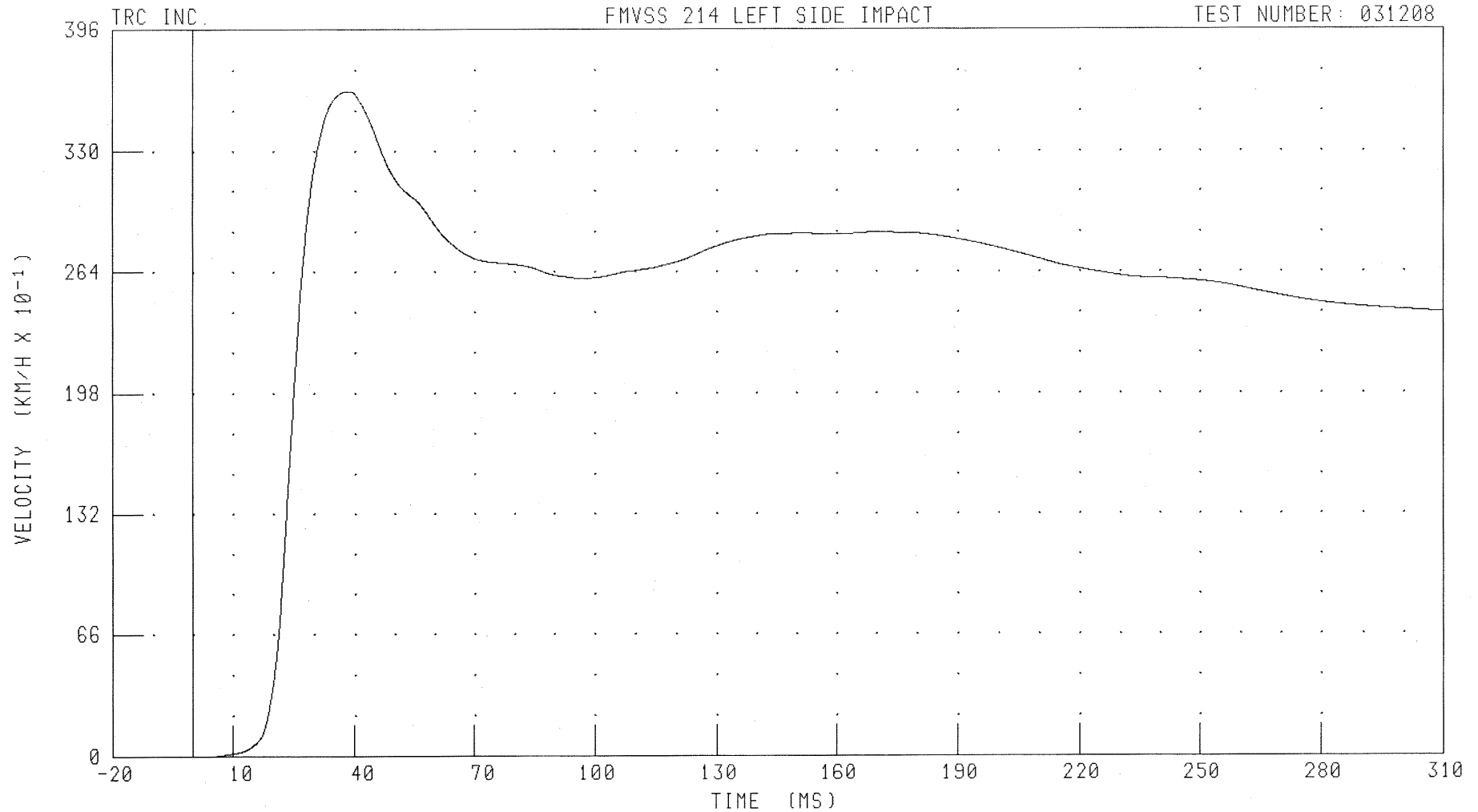
031208

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

DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: PEVYVI FILTER: CH. CLASS 180

PEAK DATA: 36.29 KM/H @ 39.12 MS; 0.00 KM/H @ 0.00 MS

B-49

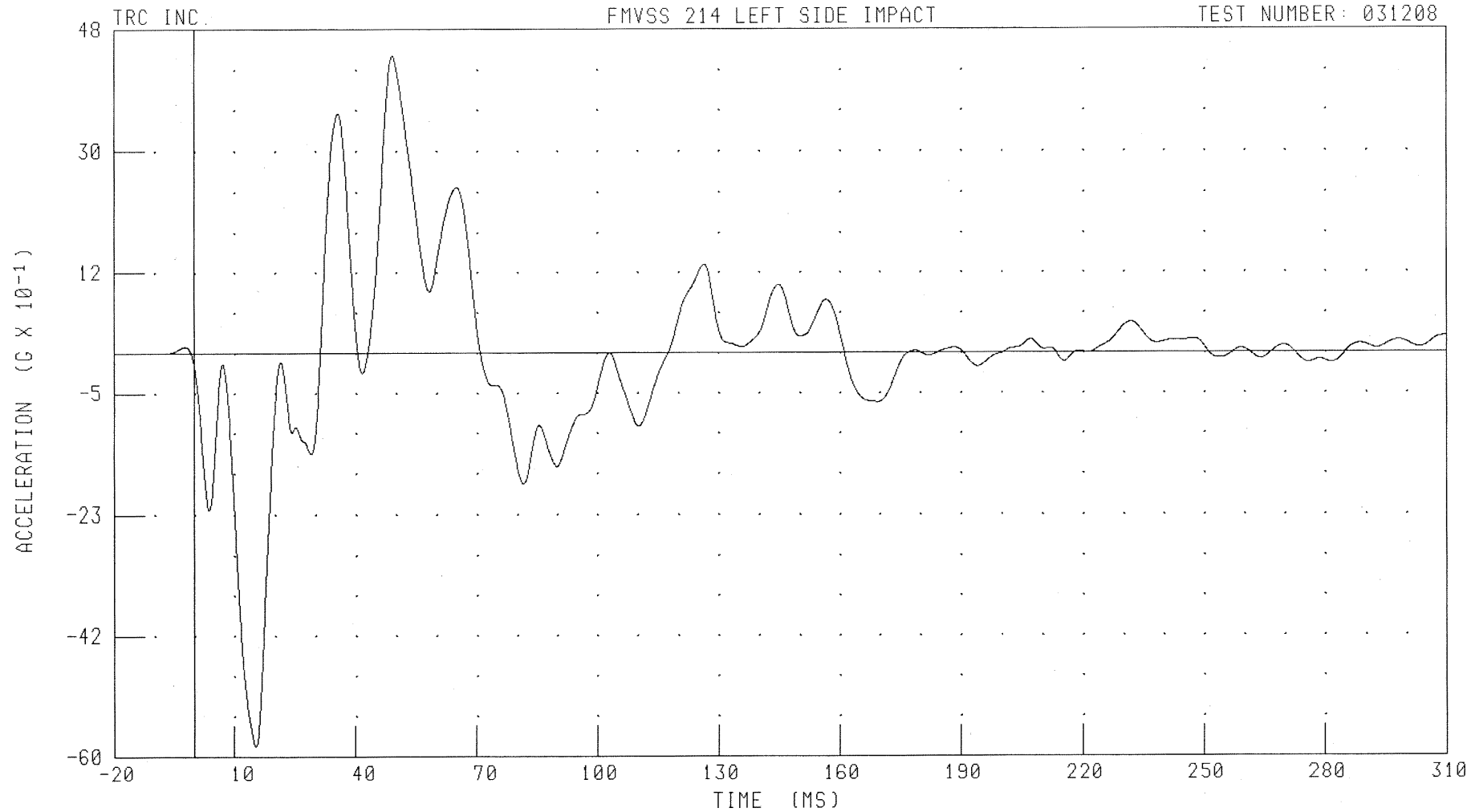
031208

Test Vehicle Instrumentation Plots

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RFSXG1 FILTER: CH. CLASS 60

PEAK DATA: 4.41 G @ 49.12 MS; -5.85 G @ 15.28 MS

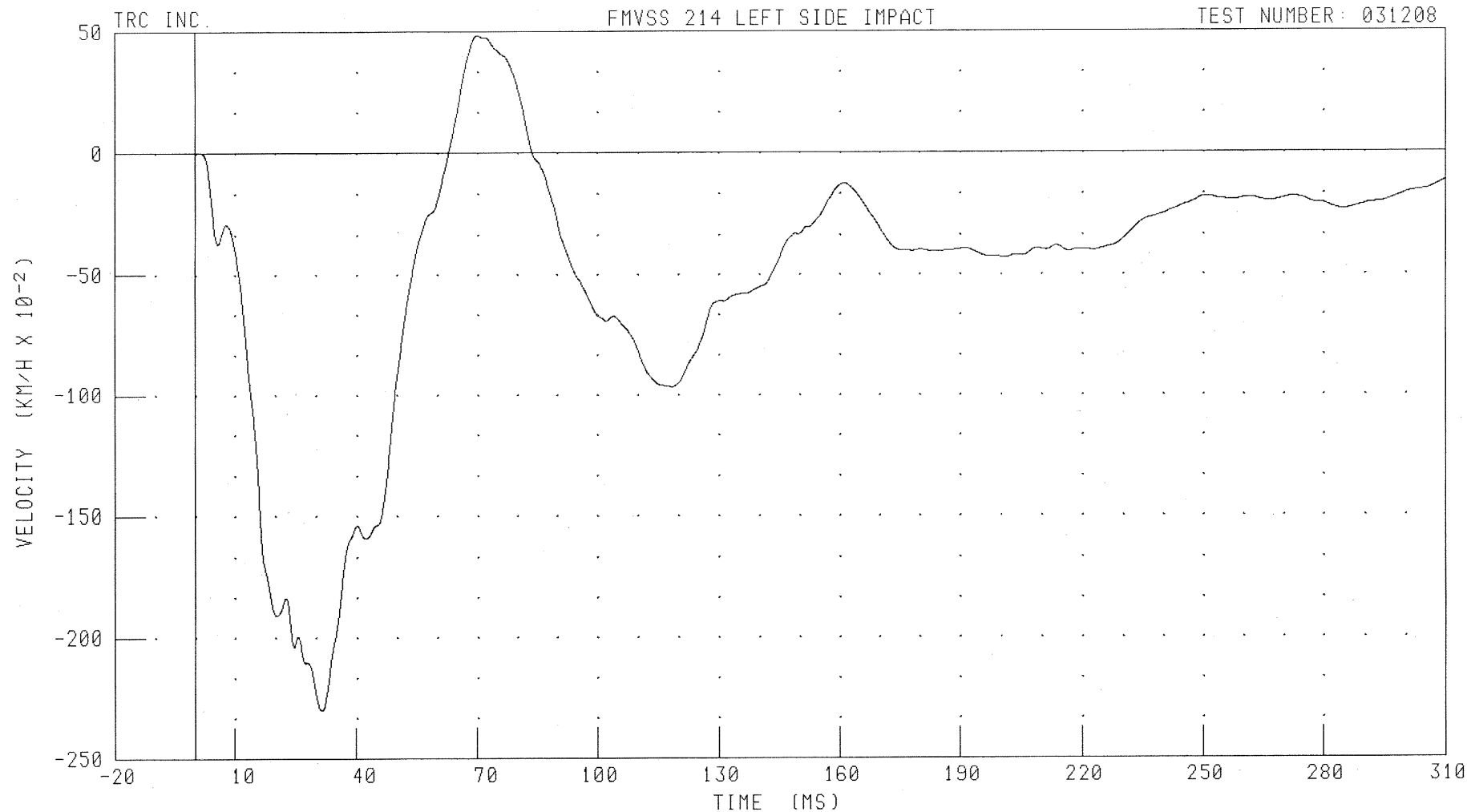
B-51

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RFSXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.48 KM/H @ 70.00 MS; -2.30 KM/H @ 31.52 MS

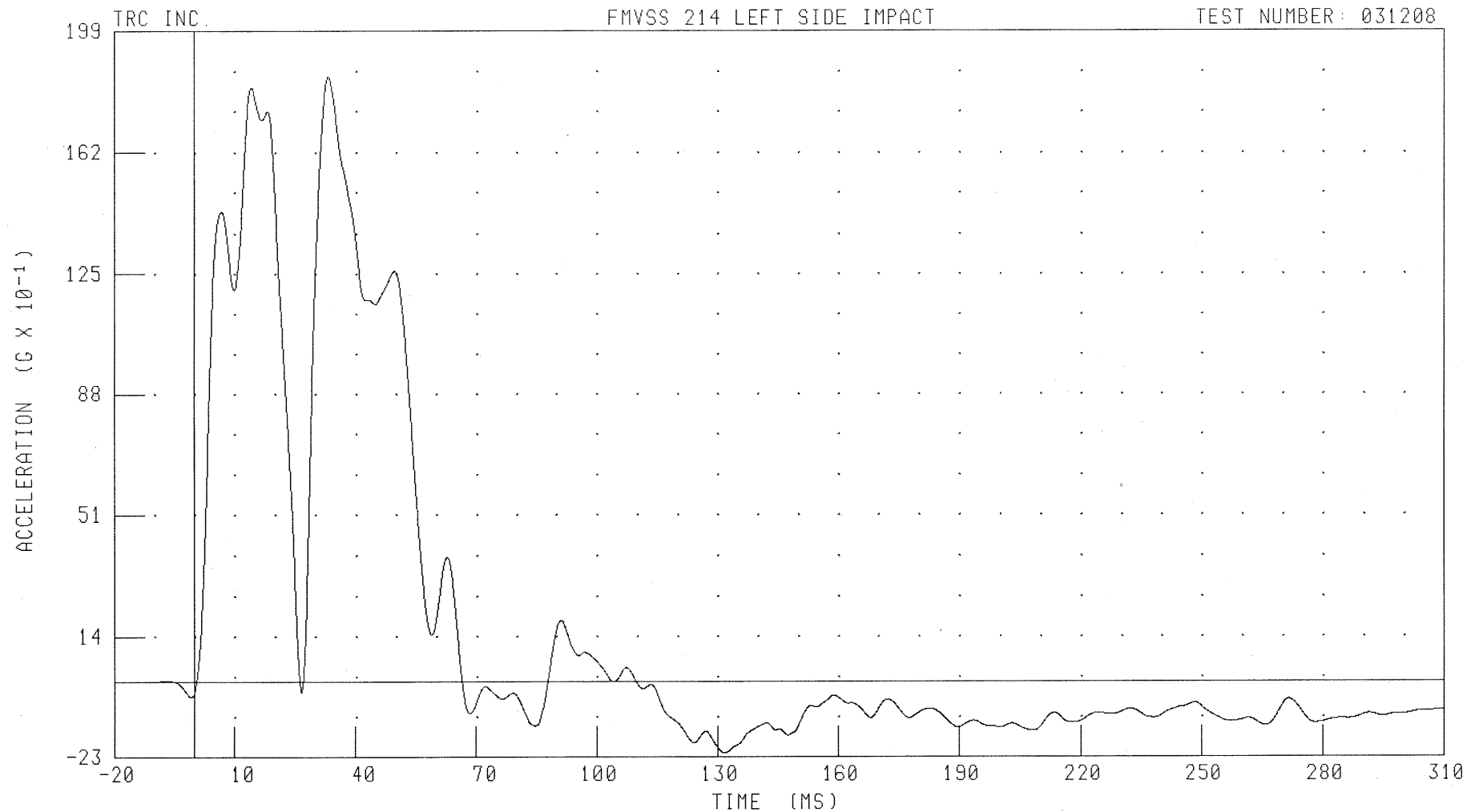
B-52

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



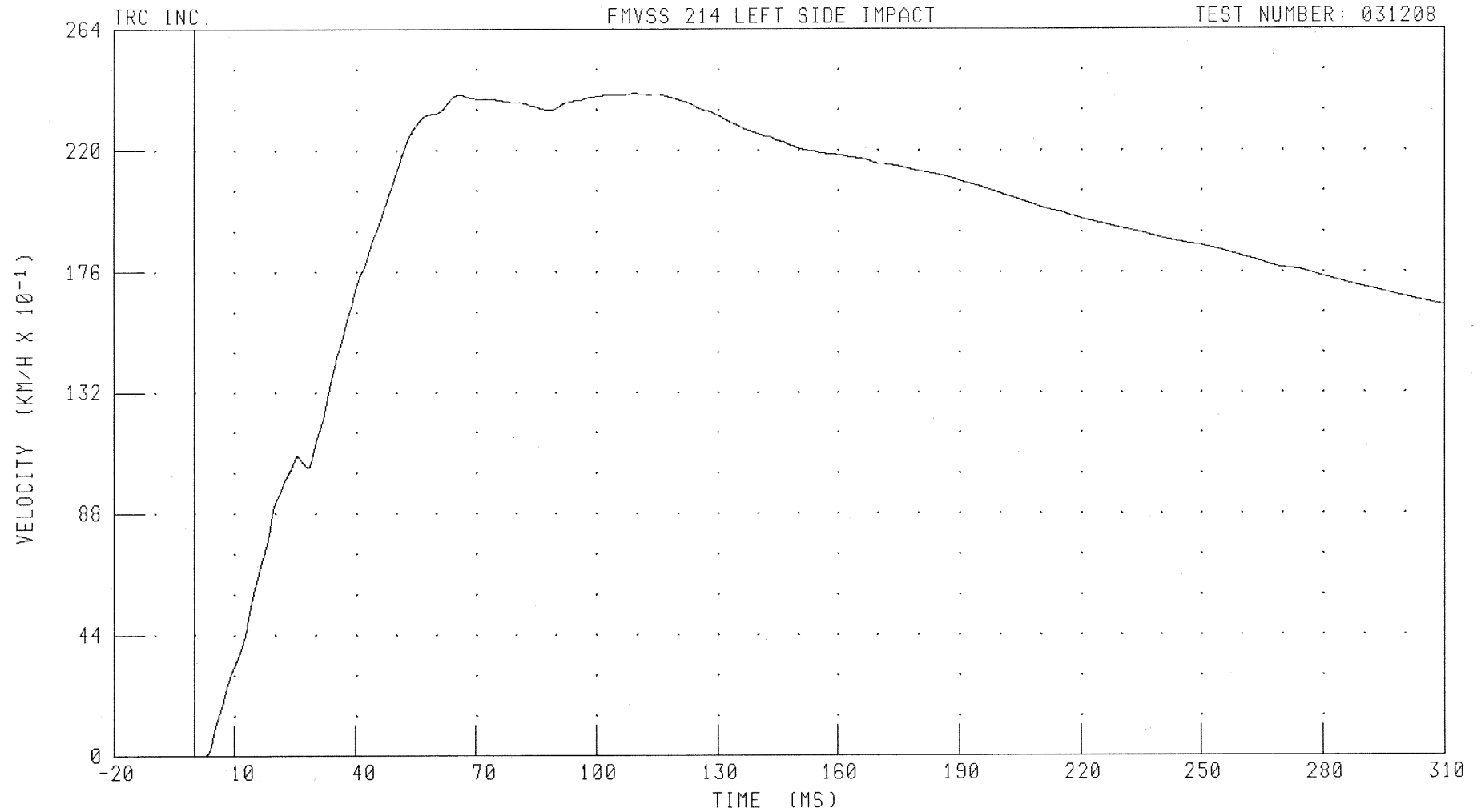
B-53

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RFSYV1 FILTER: CH. CLASS 180

PEAK DATA: 24.05 KM/H @ 109.44 MS; 0.00 KM/H @ 2.48 MS

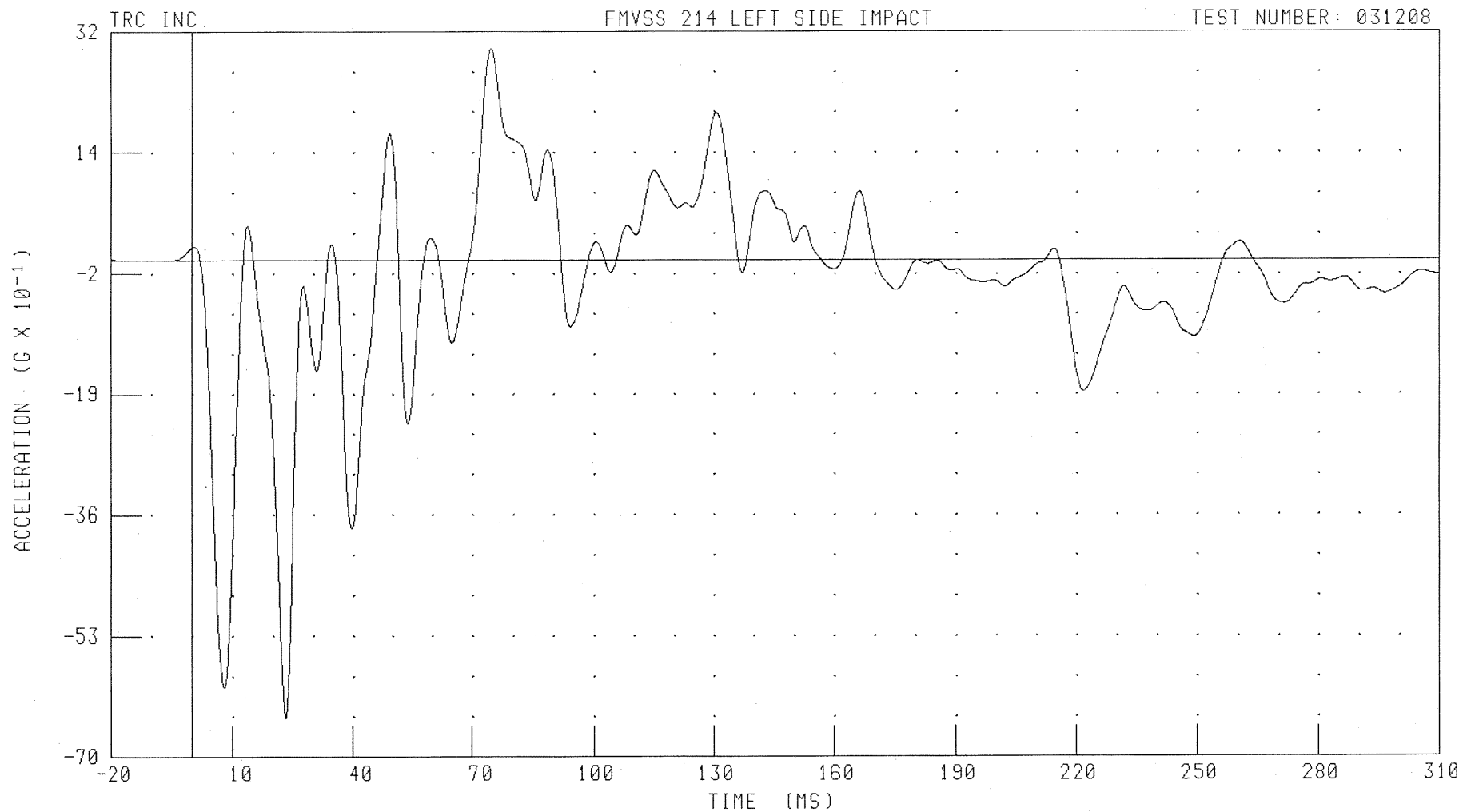
B-54

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



PEAK DATA: 2.96 G @ 74.64 MS; -6.46 G @ 23.28 MS

CHANNEL: RFSZG1 FILTER: CH. CLASS 60

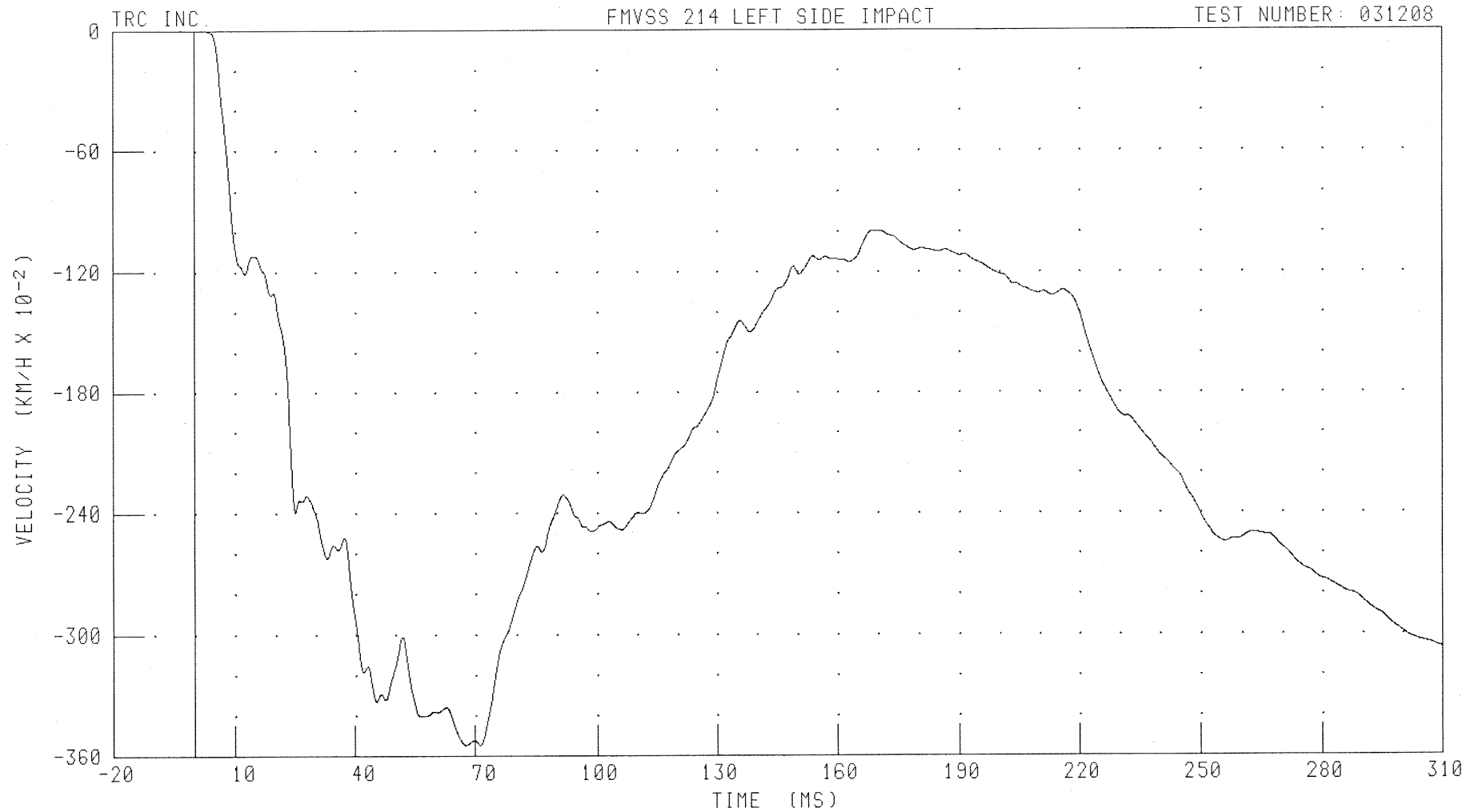
B-55

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RFSZV1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 KM/H @ 2.24 MS; -3.55 KM/H @ 71.20 MS

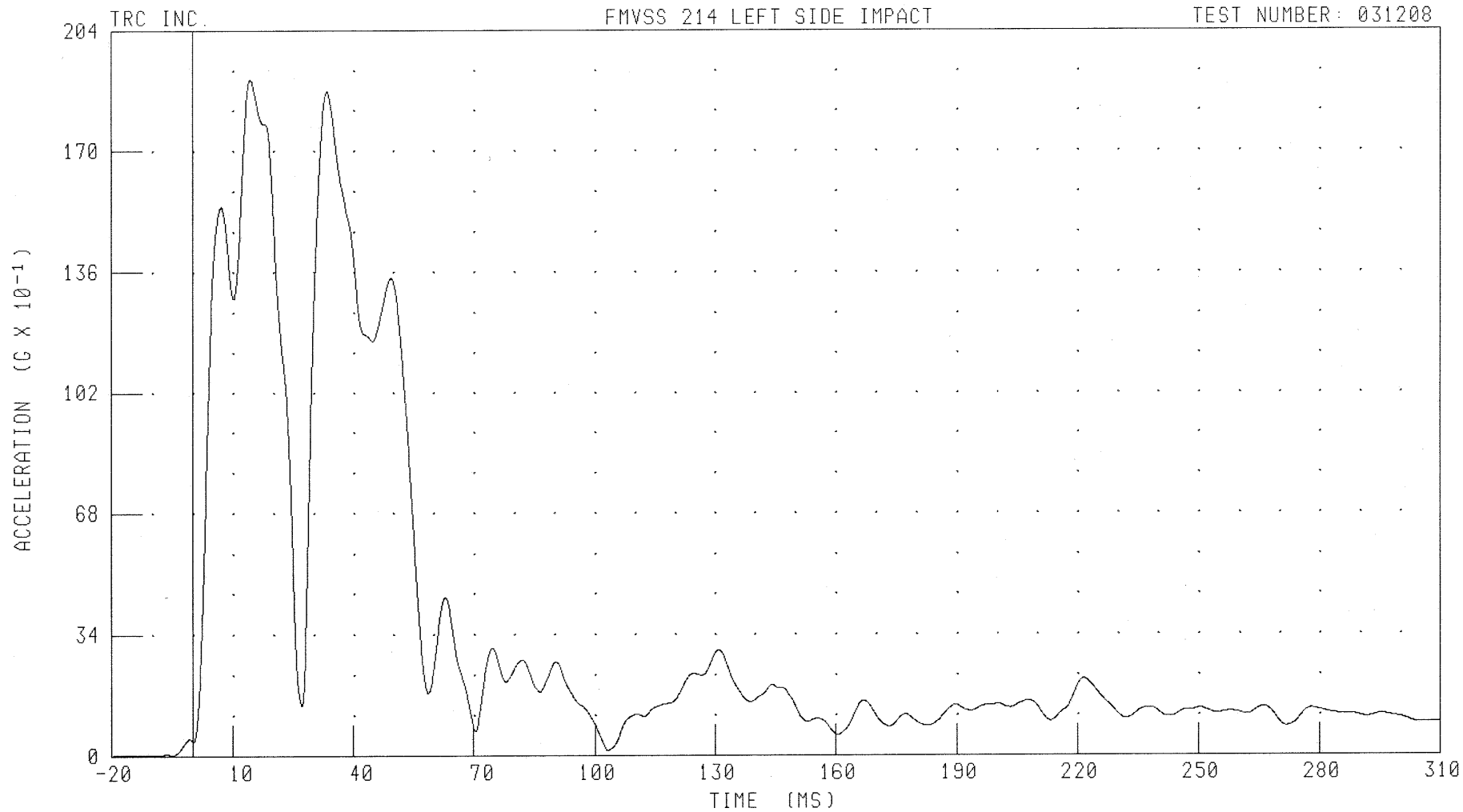
B-56

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RFSRG1 FILTER: CH. CLASS 60

PEAK DATA: 19.02 G @ 14.32 MS; 0.01 G @ -20.00 MS

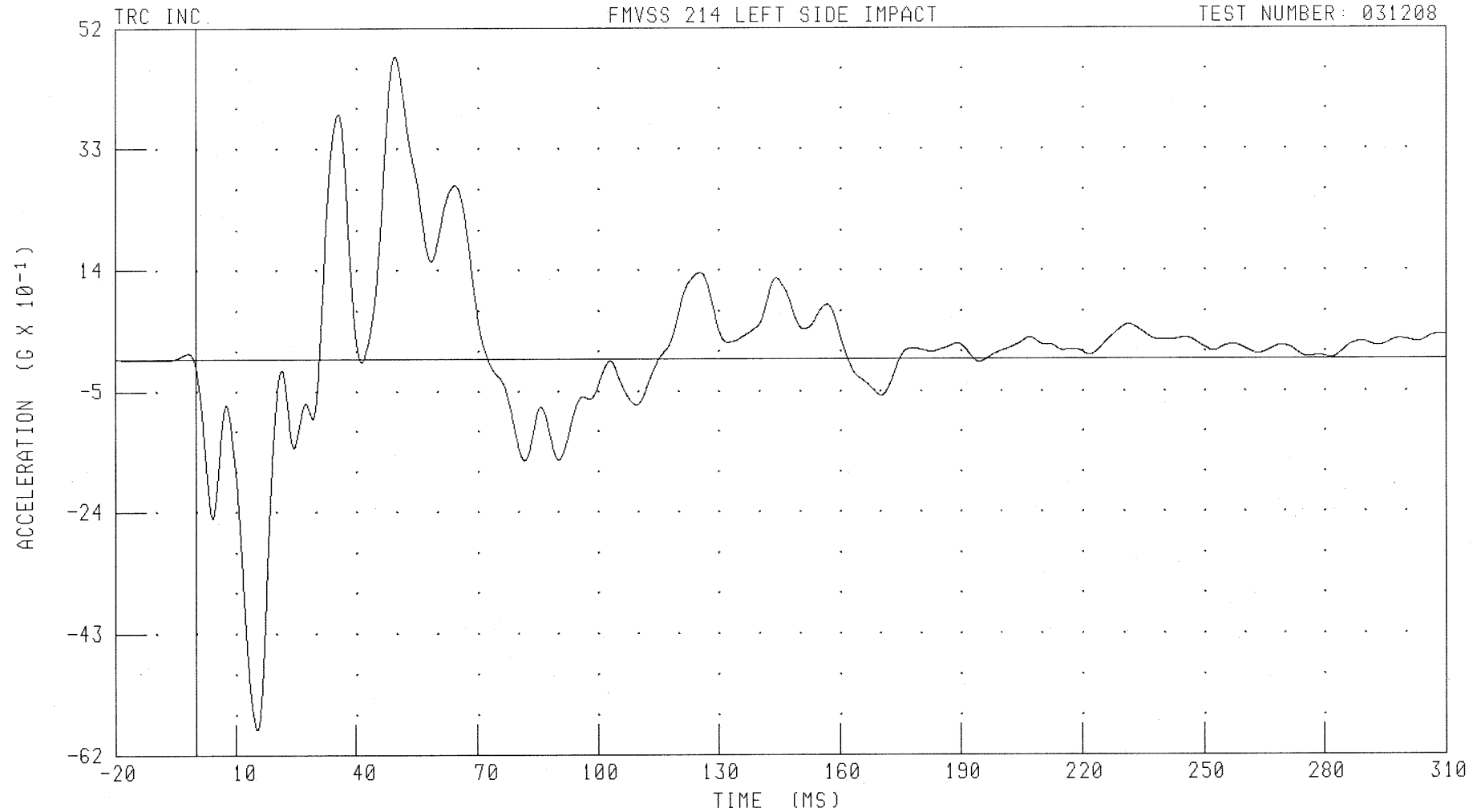
B-57

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRSXG1

FILTER: CH. CLASS 60

PEAK DATA: 4.75 G @ 49.60 MS; -5.80 G @ 15.28 MS

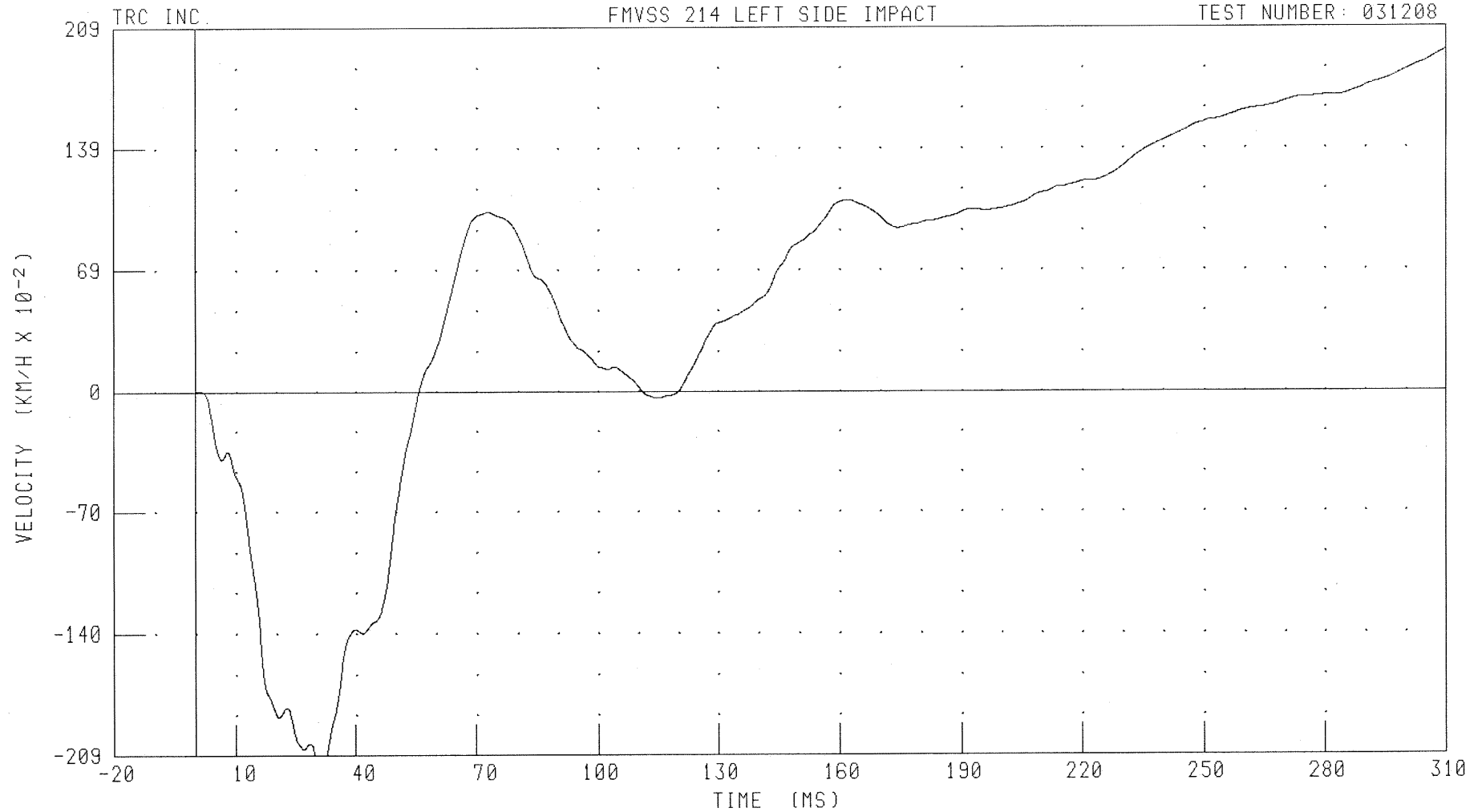
B-58

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRSXV1

FILTER: CH. CLASS 180

PEAK DATA: 1.97 KM/H @ 310.00 MS; -2.20 KM/H @ 31.28 MS

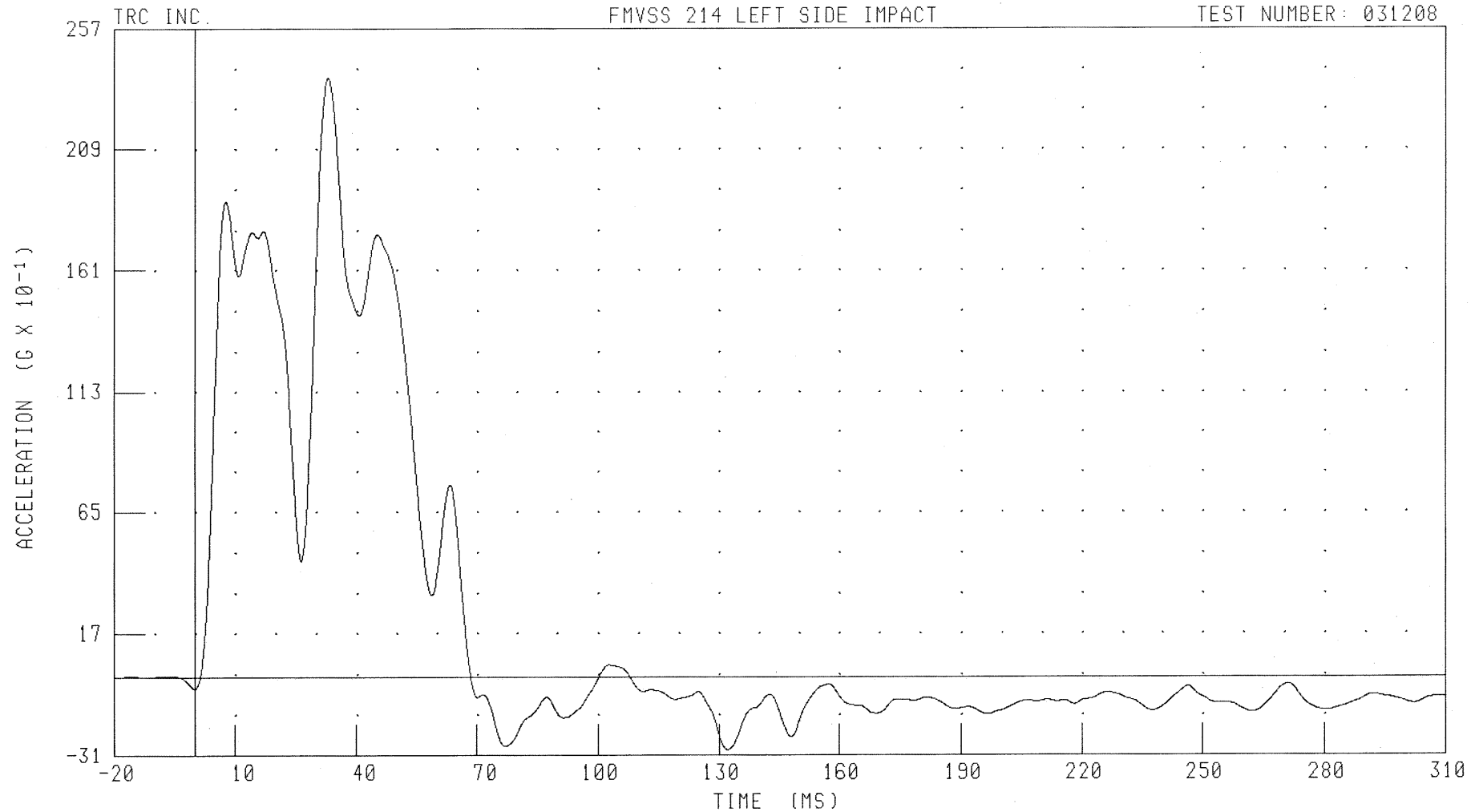
B-59

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 23.74 G @ 33.12 MS; -2.89 G @ 132.16 MS

B-60

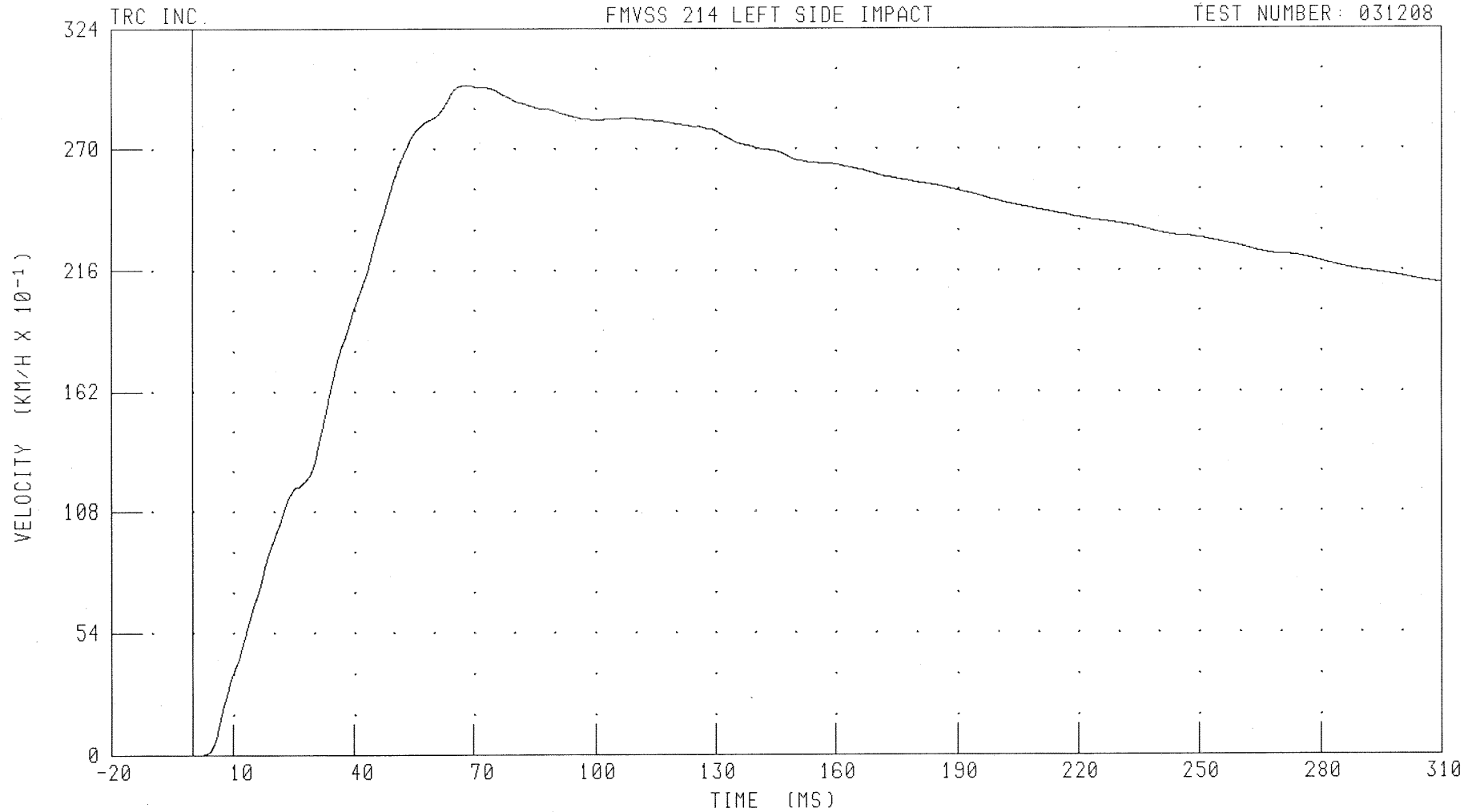
031208

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

RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRSYV1

FILTER: CH. CLASS 180

PEAK DATA: 29.86 KM/H @ 68.08 MS; 0.00 KM/H @ 0.00 MS

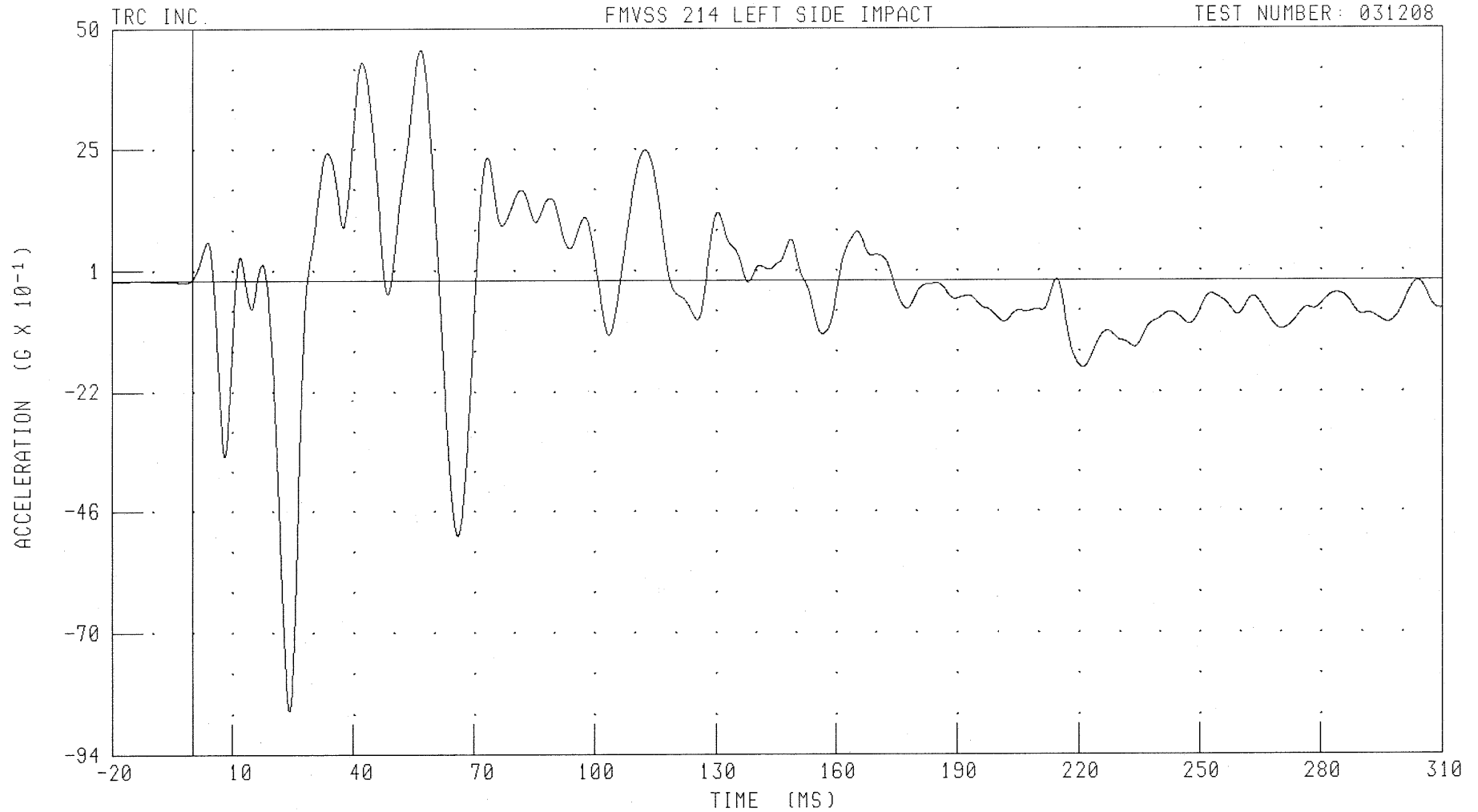
B-61

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRSZG1 FILTER: CH. CLASS 60

PEAK DATA: 4.59 G @ 56.64 MS; -8.54 G @ 24.24 MS

B-62

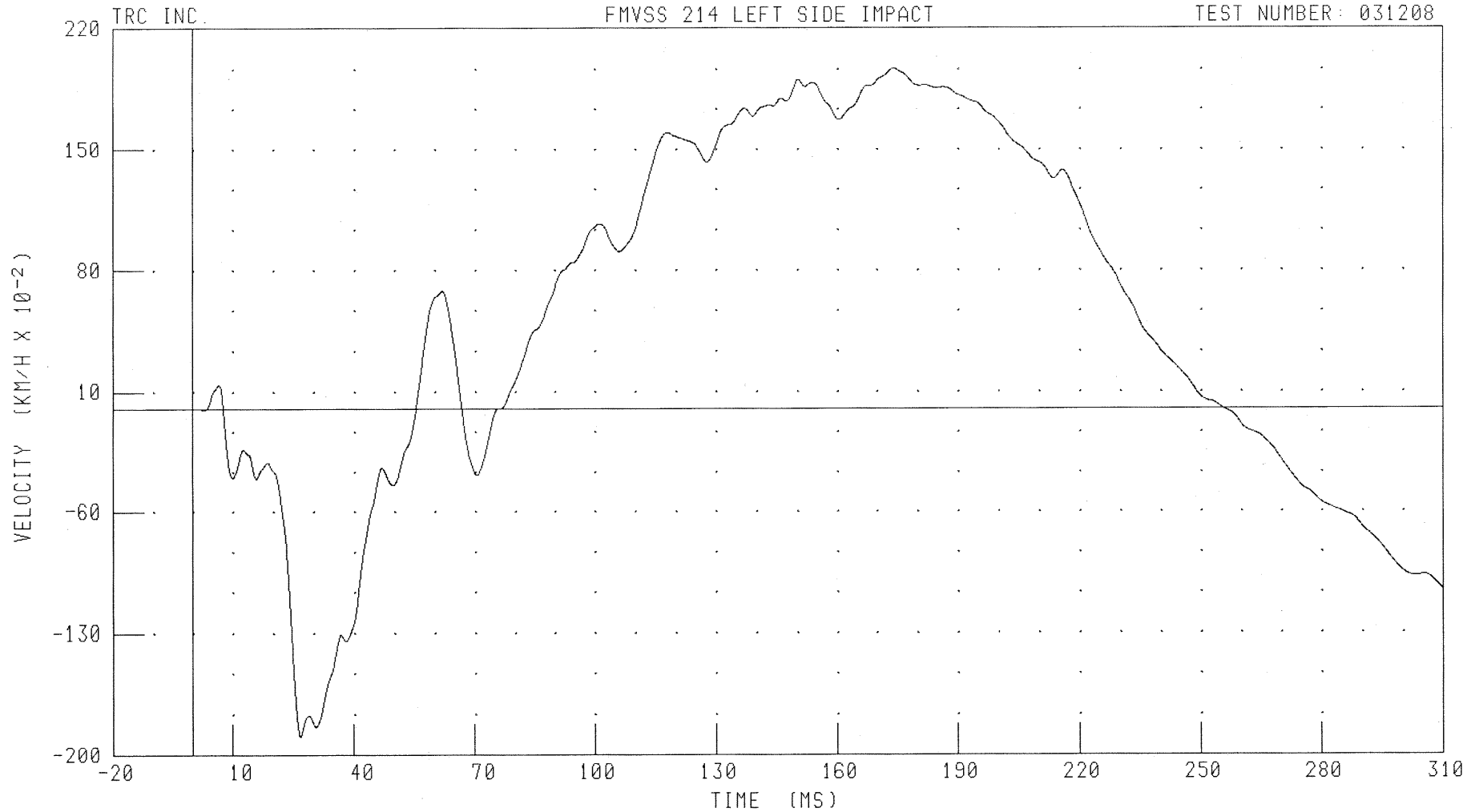
031208

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

RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRSZV1

FILTER: CH. CLASS 180

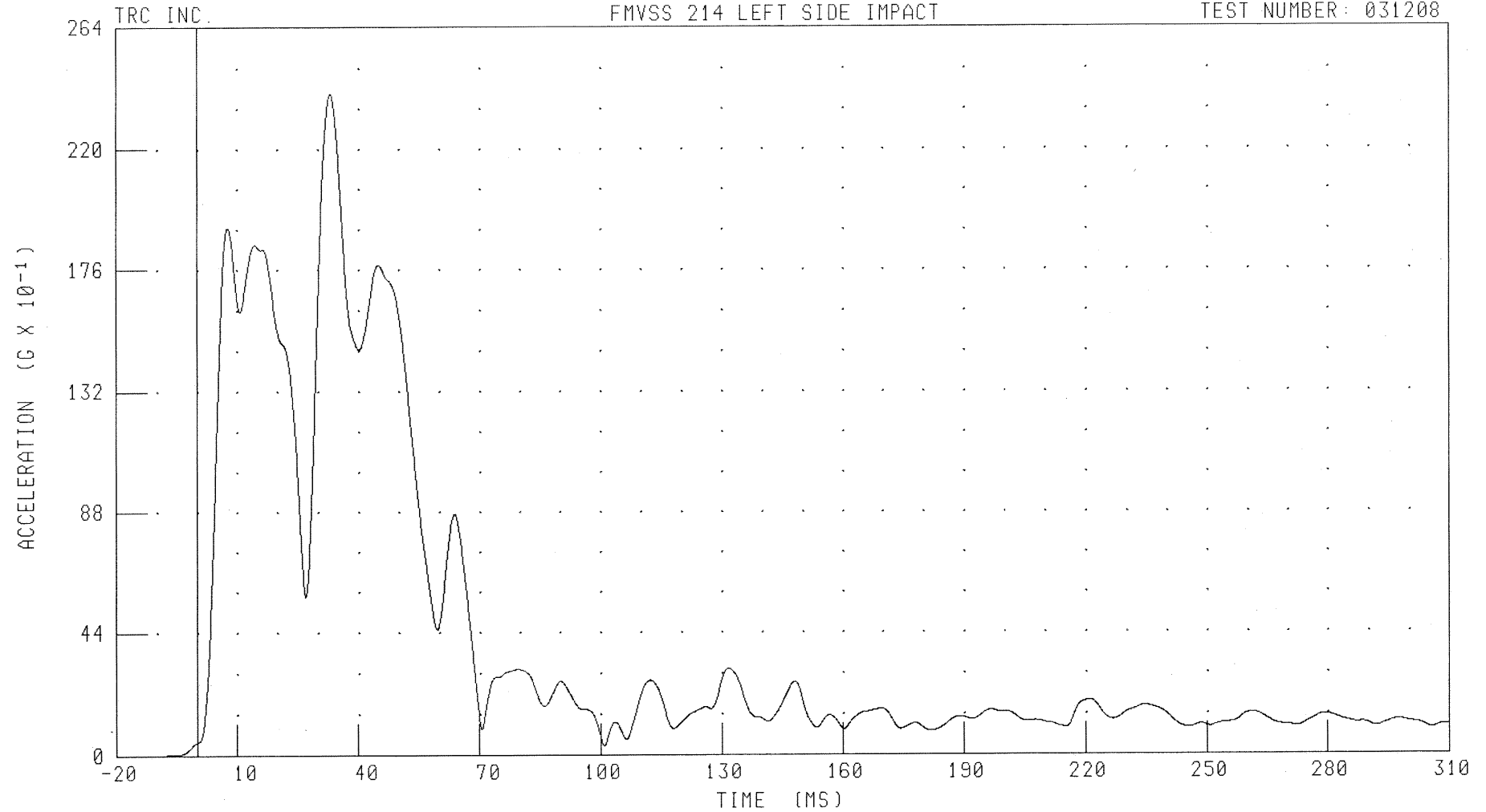
PEAK DATA: 1.97 KM/H @ 174.16 MS; -1.89 KM/H @ 26.80 MS

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

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRSRG1 FILTER: CH. CLASS 60

PEAK DATA: 24.02 G @ 33.20 MS; 0.01 G @ -10.56 MS

B-64

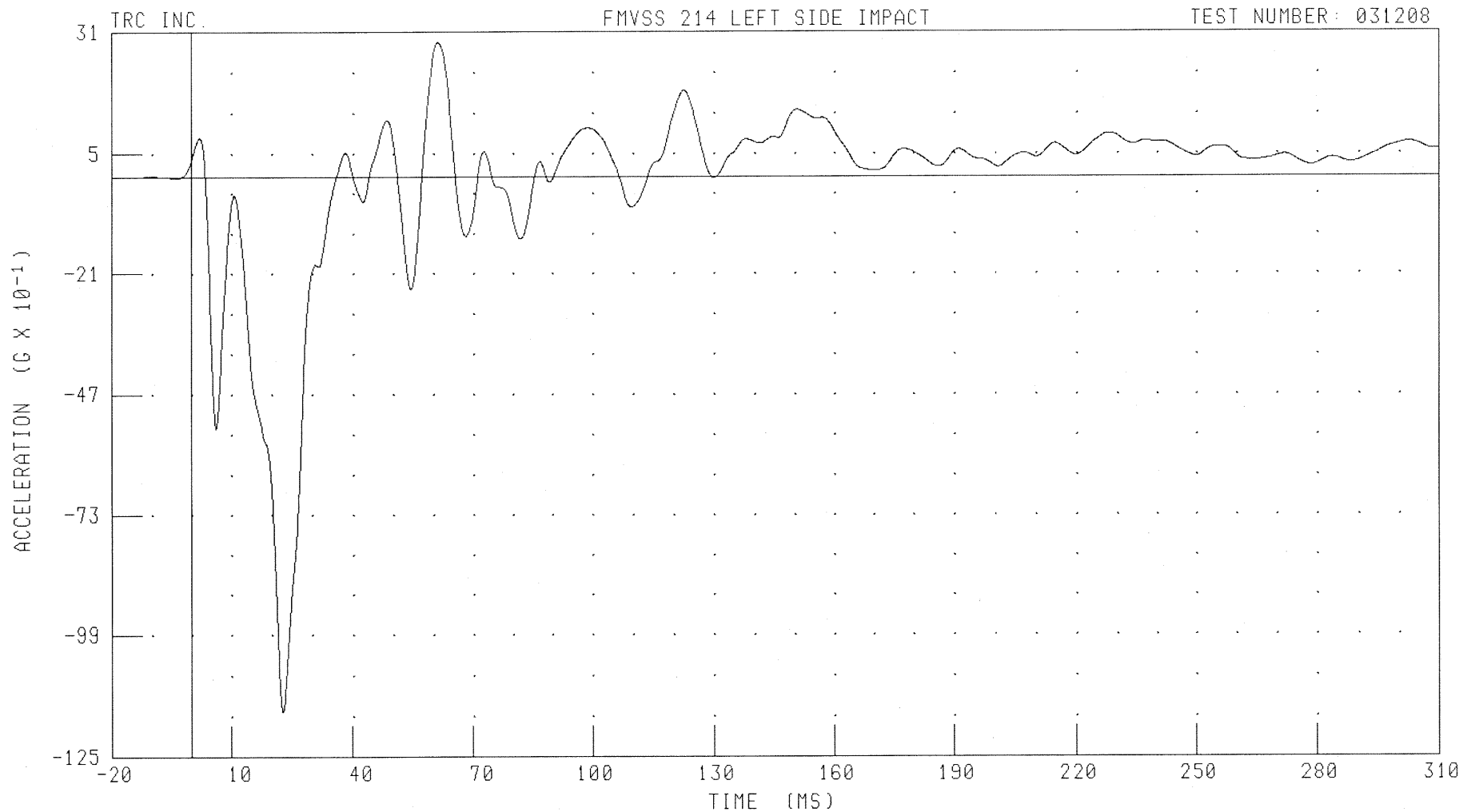
031208

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

REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RDKXG1 FILTER: CH. CLASS 60

PEAK DATA: 2.88 G @ 61.12 MS; -11.54 G @ 22.80 MS

B-65

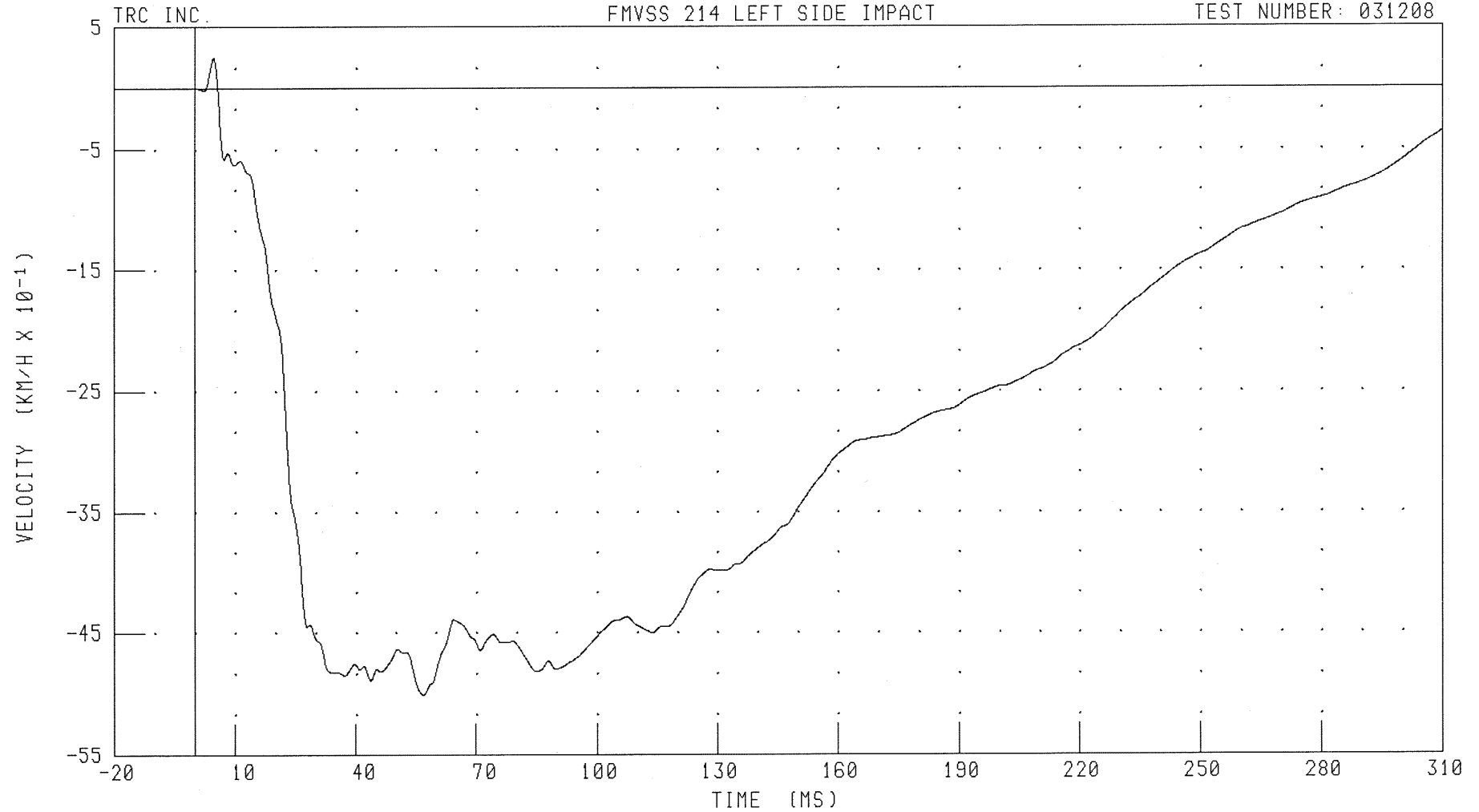
031208

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

REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RDKXV1 FILTER: CH. CLASS 180

B-66

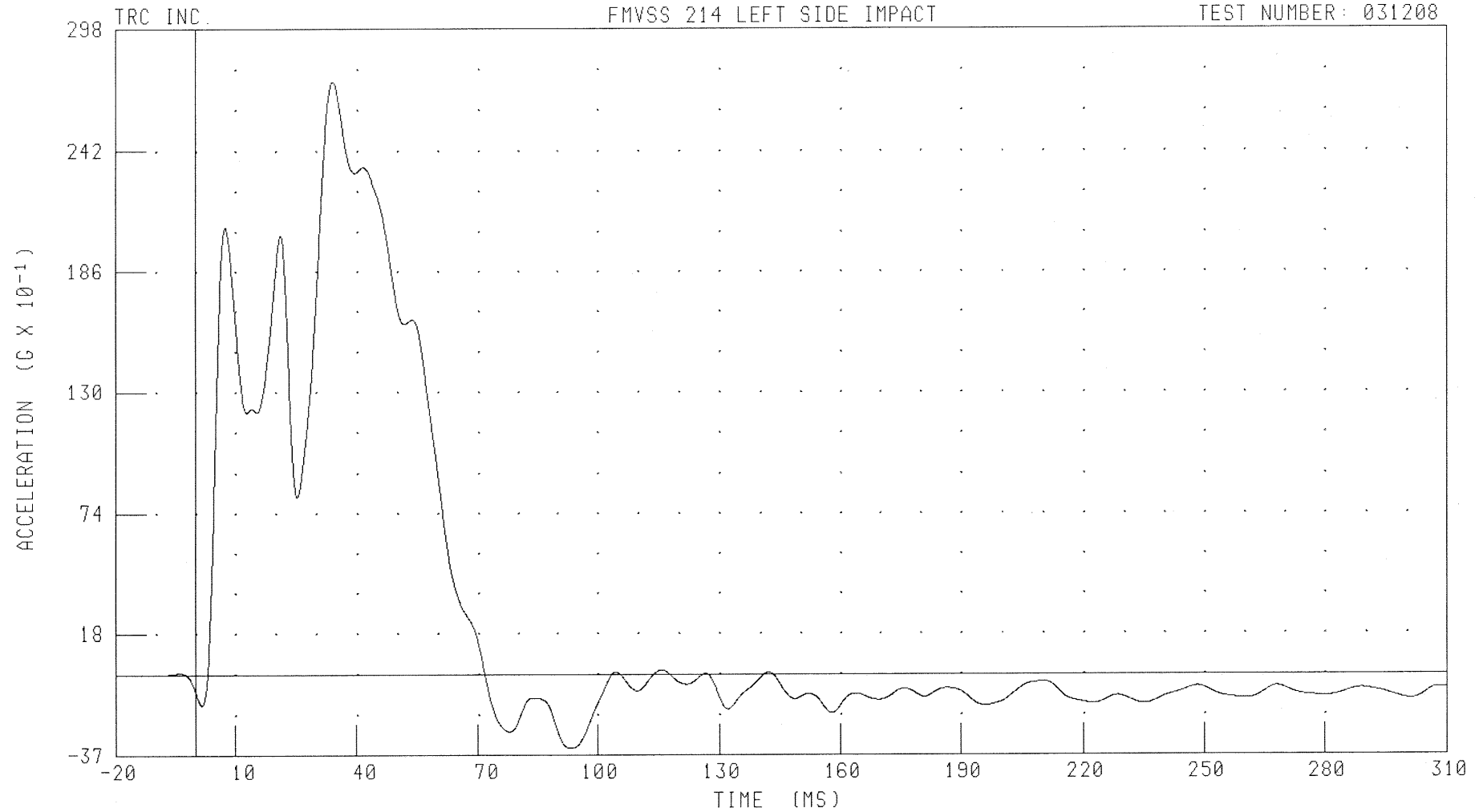
031208

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

REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RDKYC1 FILTER: CH. CLASS 60

PEAK DATA: 27.47 G @ 34.16 MS; -3.40 G @ 93.36 MS

B-67

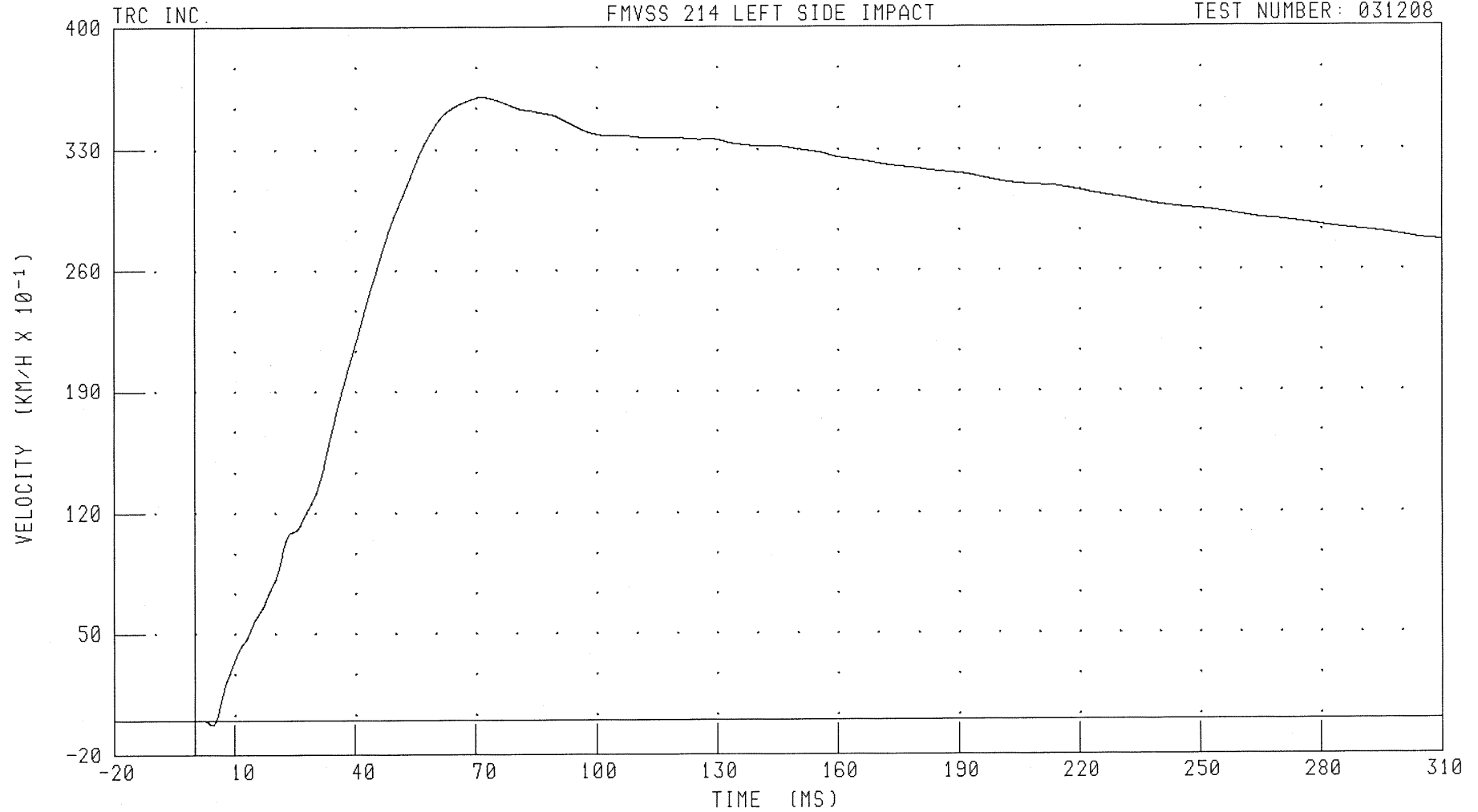
031208

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

REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RDKYV1 FILTER: CH. CLASS 180

PEAK DATA: 35.98 KM/H @ 71.44 MS; -0.24 KM/H @ 4.40 MS

B-68

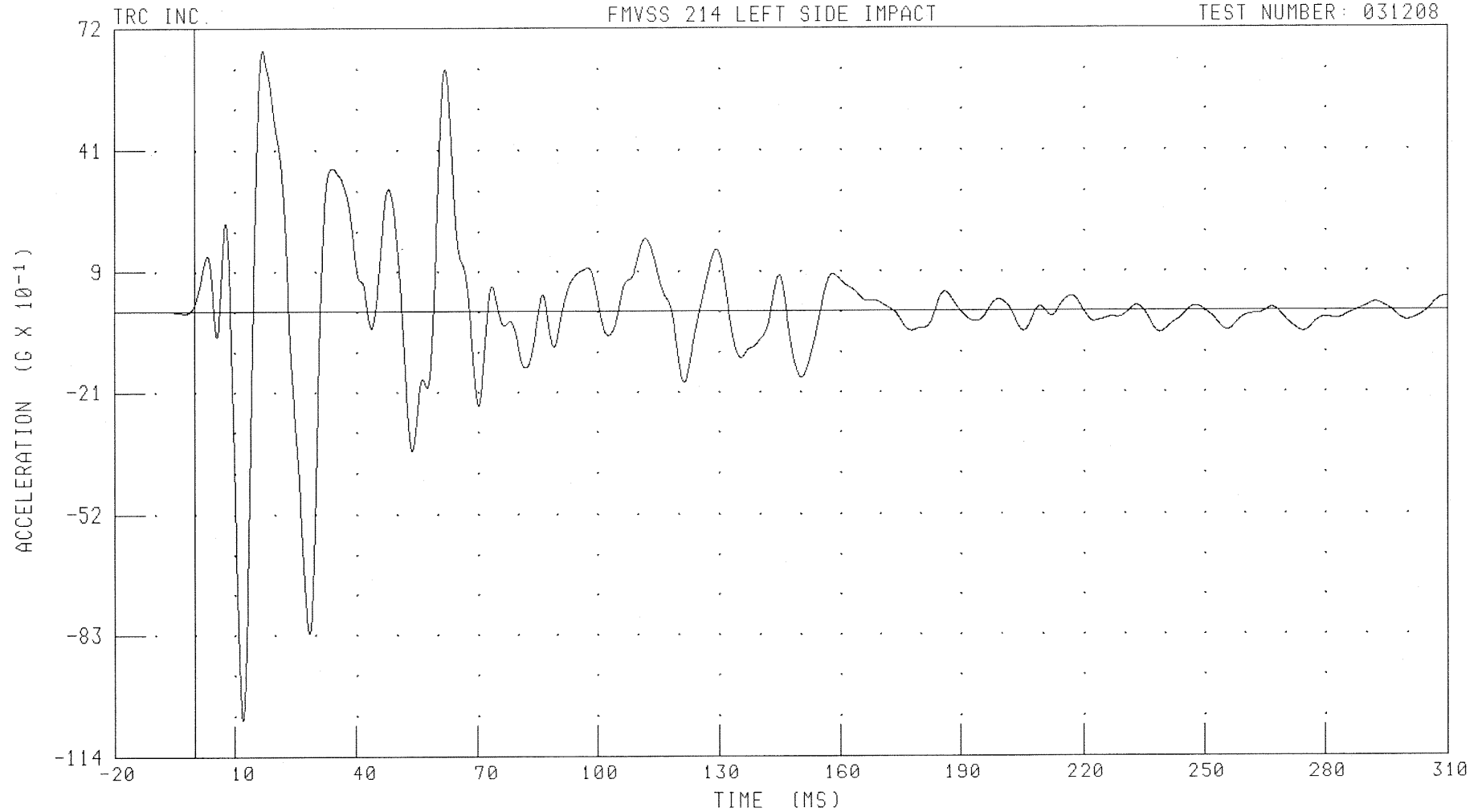
031208

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

REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RDKZG1 FILTER: CH. CLASS 60

PEAK DATA: 6.63 G @ 17.12 MS; -10.48 G @ 12.08 MS

B-69

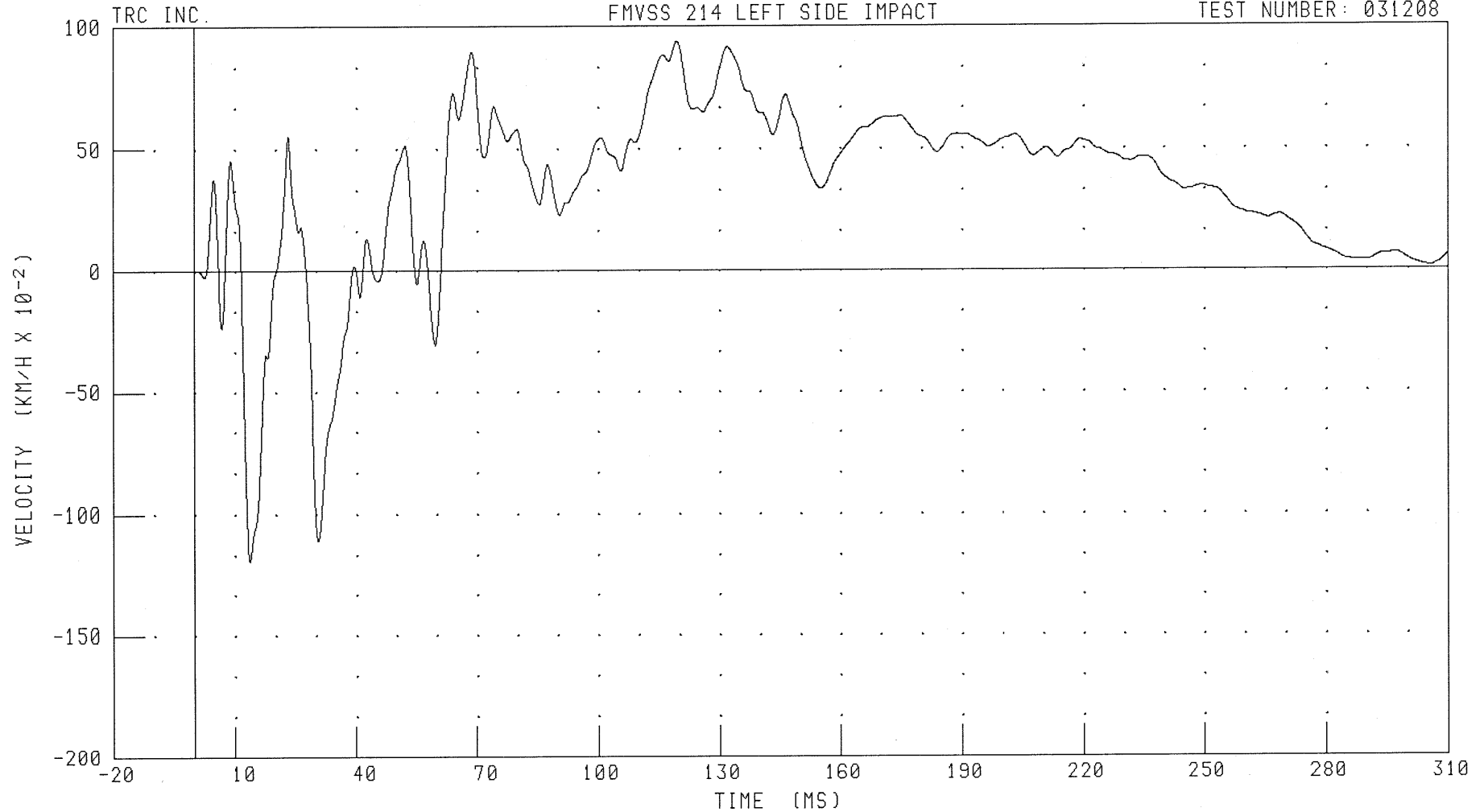
031208

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

REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RDKZV1

FILTER: CH. CLASS 180

PEAK DATA: 0.94 KM/H @ 119.52 MS; -1.19 KM/H @ 13.68 MS

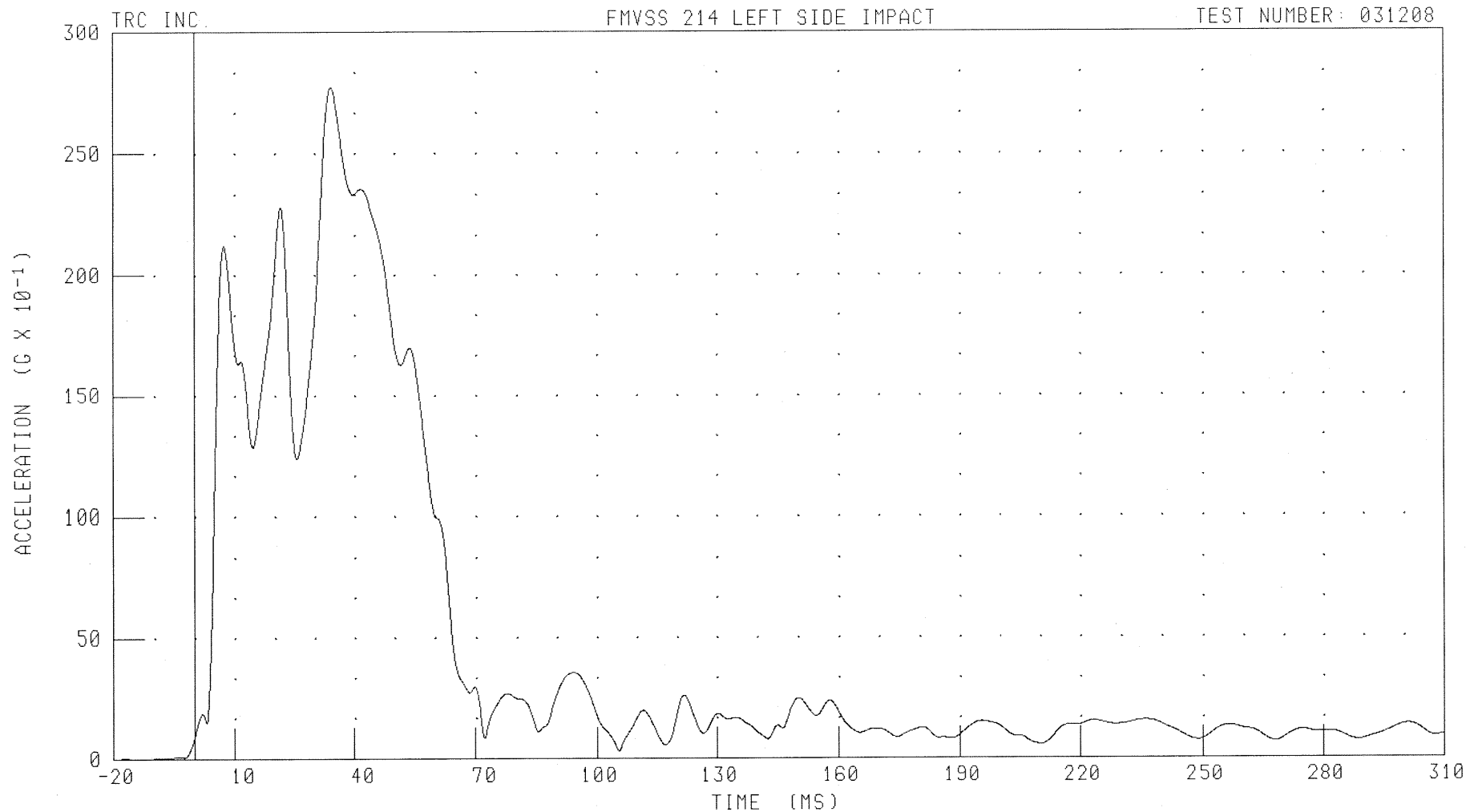
B-70

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



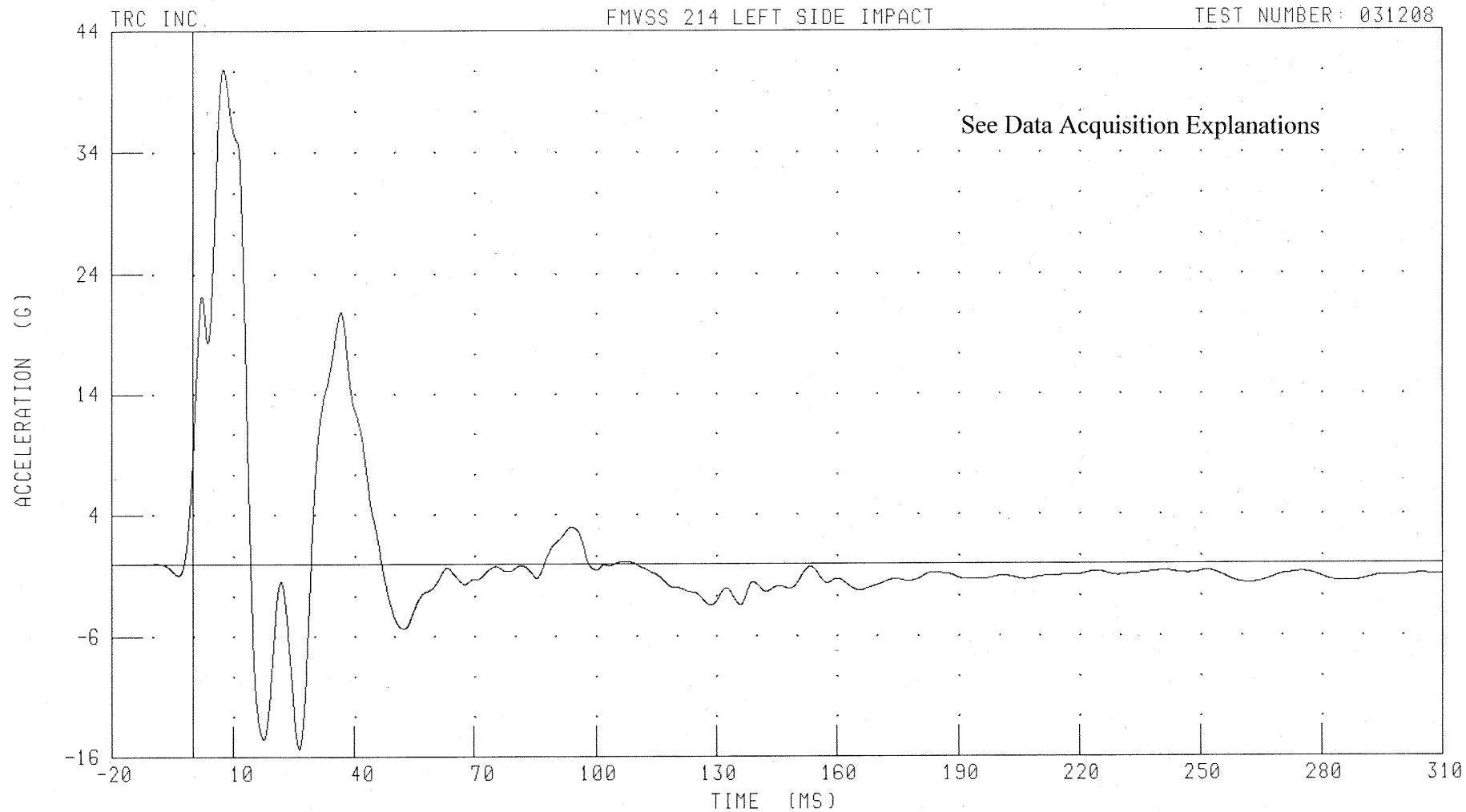
B-71

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFSYG1 FILTER: CH. CLASS 60

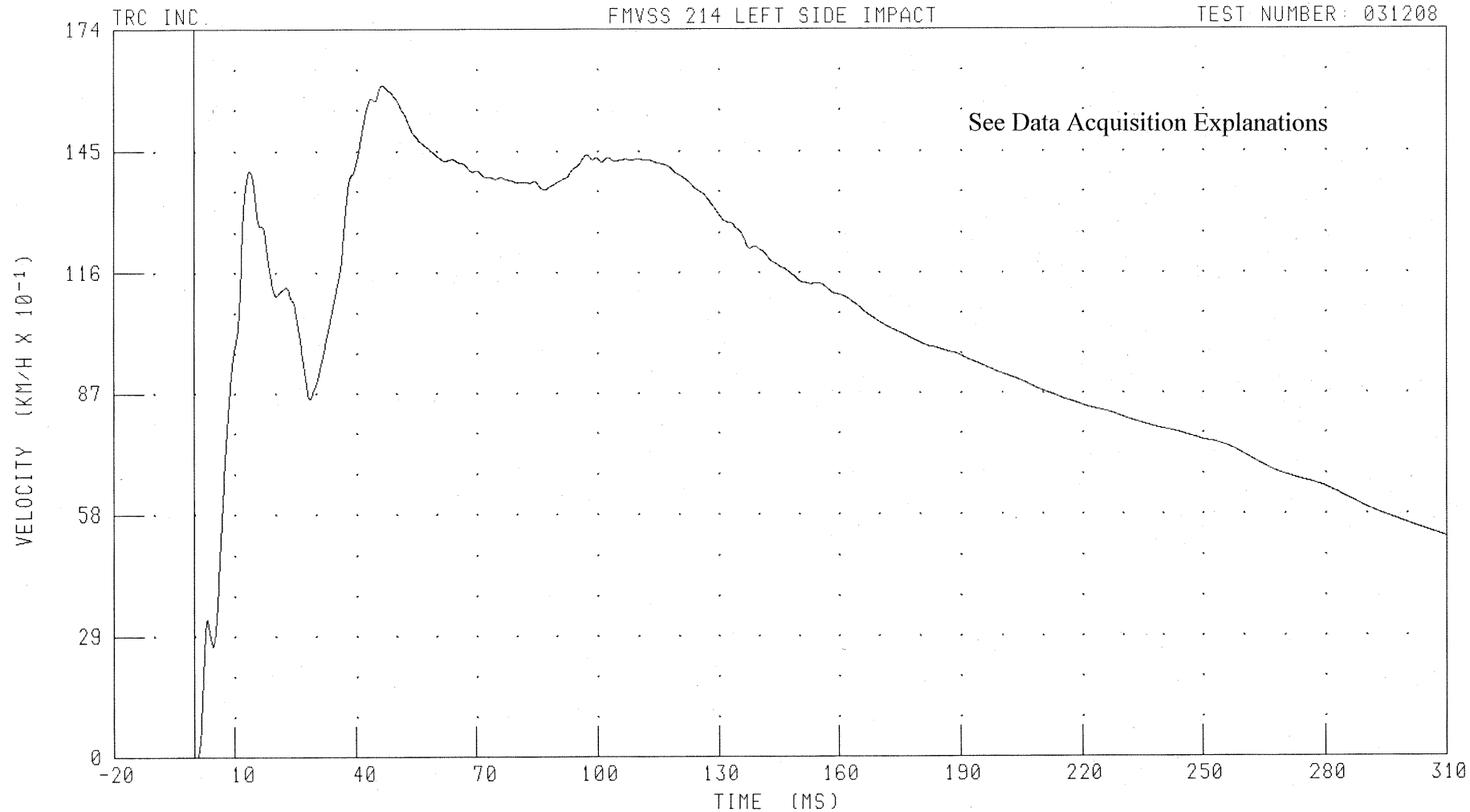
PEAK DATA: 40.80 G @ 7.60 MS; -15.39 G @ 26.24 MS

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

LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFSYV1 FILTER: CH. CLASS 180

PEAK DATA: 16.05 KM/H @ 46.48 MS; -0.03 KM/H @ 0.56 MS

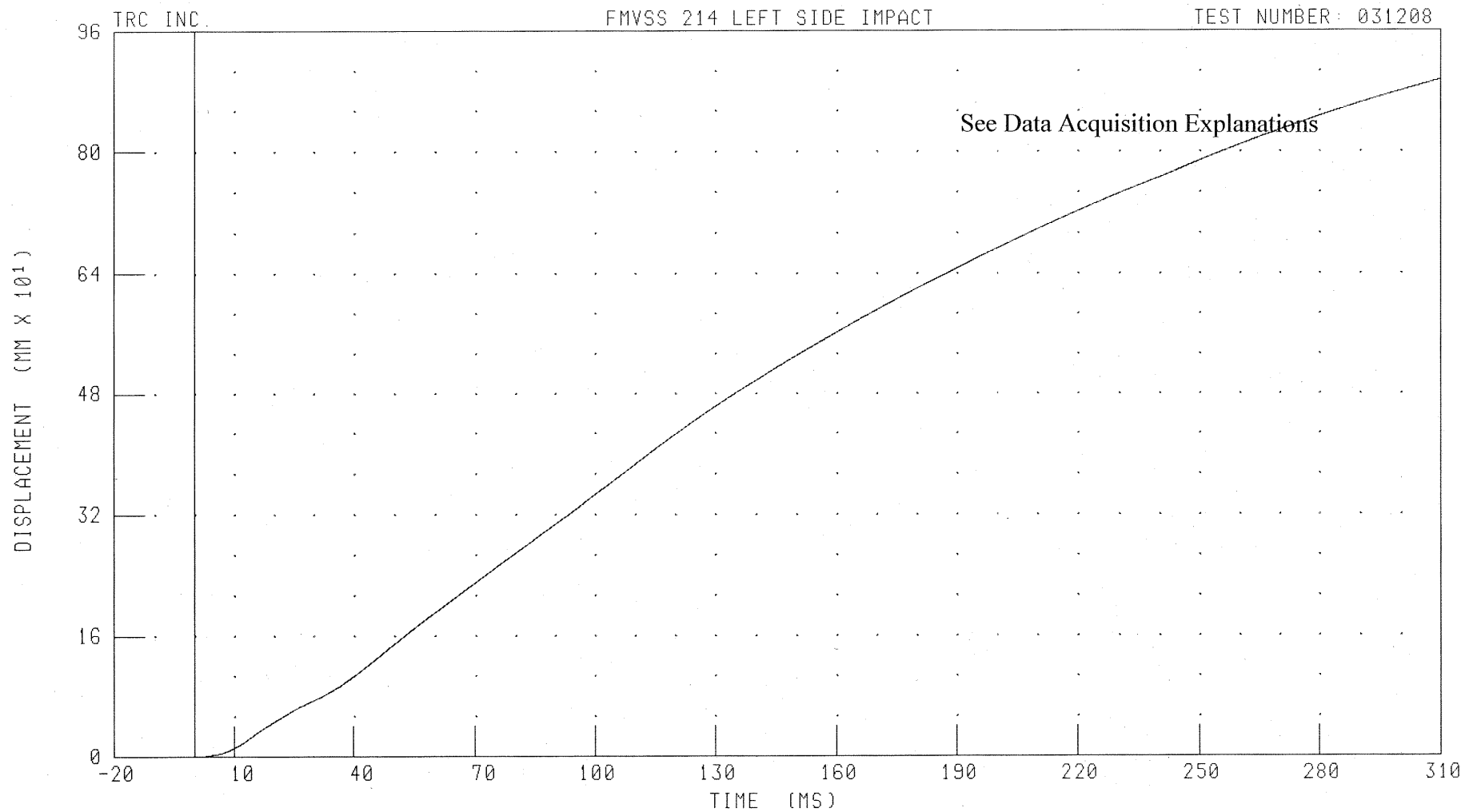
B-73

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



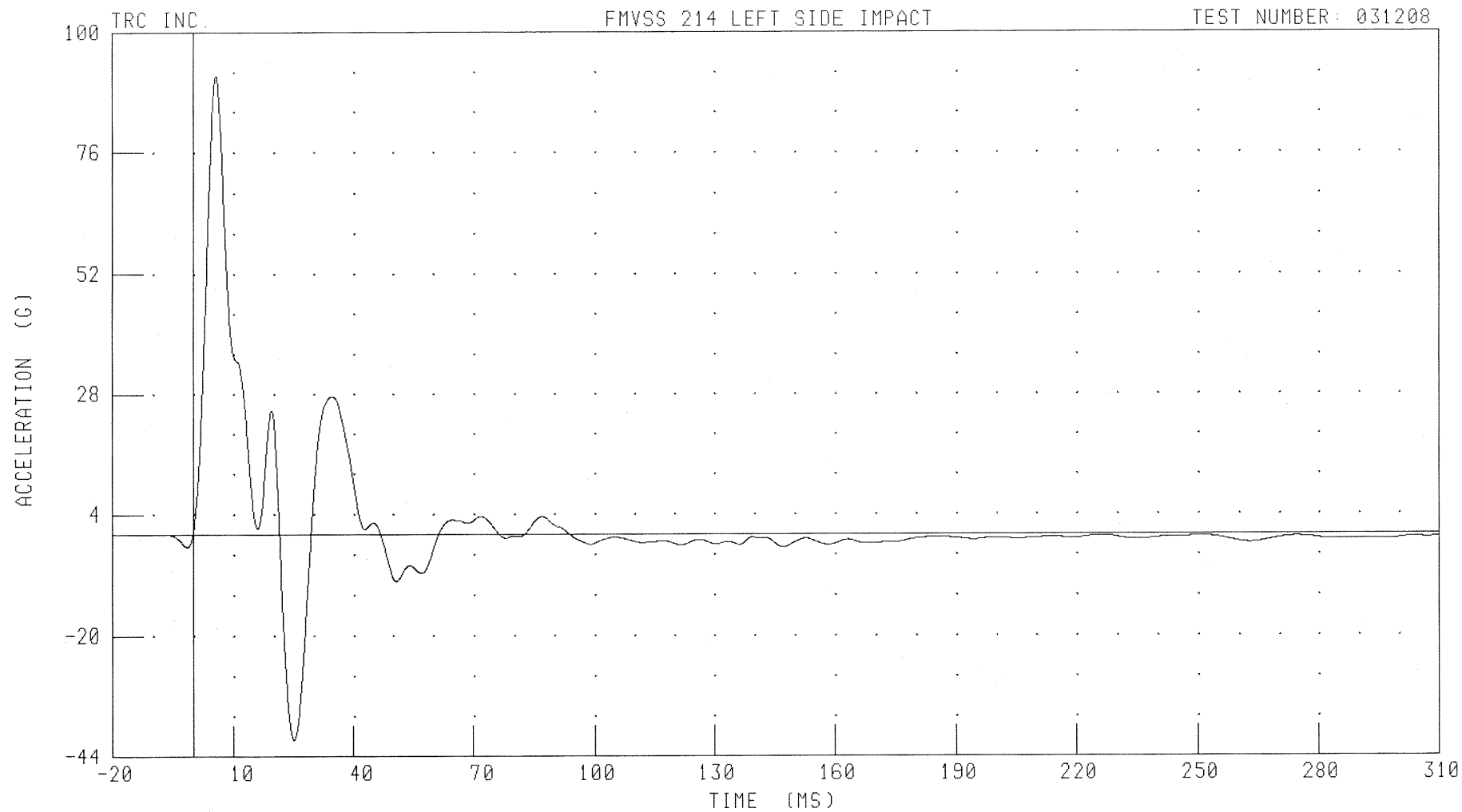
CHANNEL: LFSYD1 FILTER: CH. CLASS 180

PEAK DATA: 894.65 MM @ 310.00 MS; 0.00 MM @ 0.88 MS

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 91.28 G @ 5.60 MS; -40.70 G @ 25.04 MS

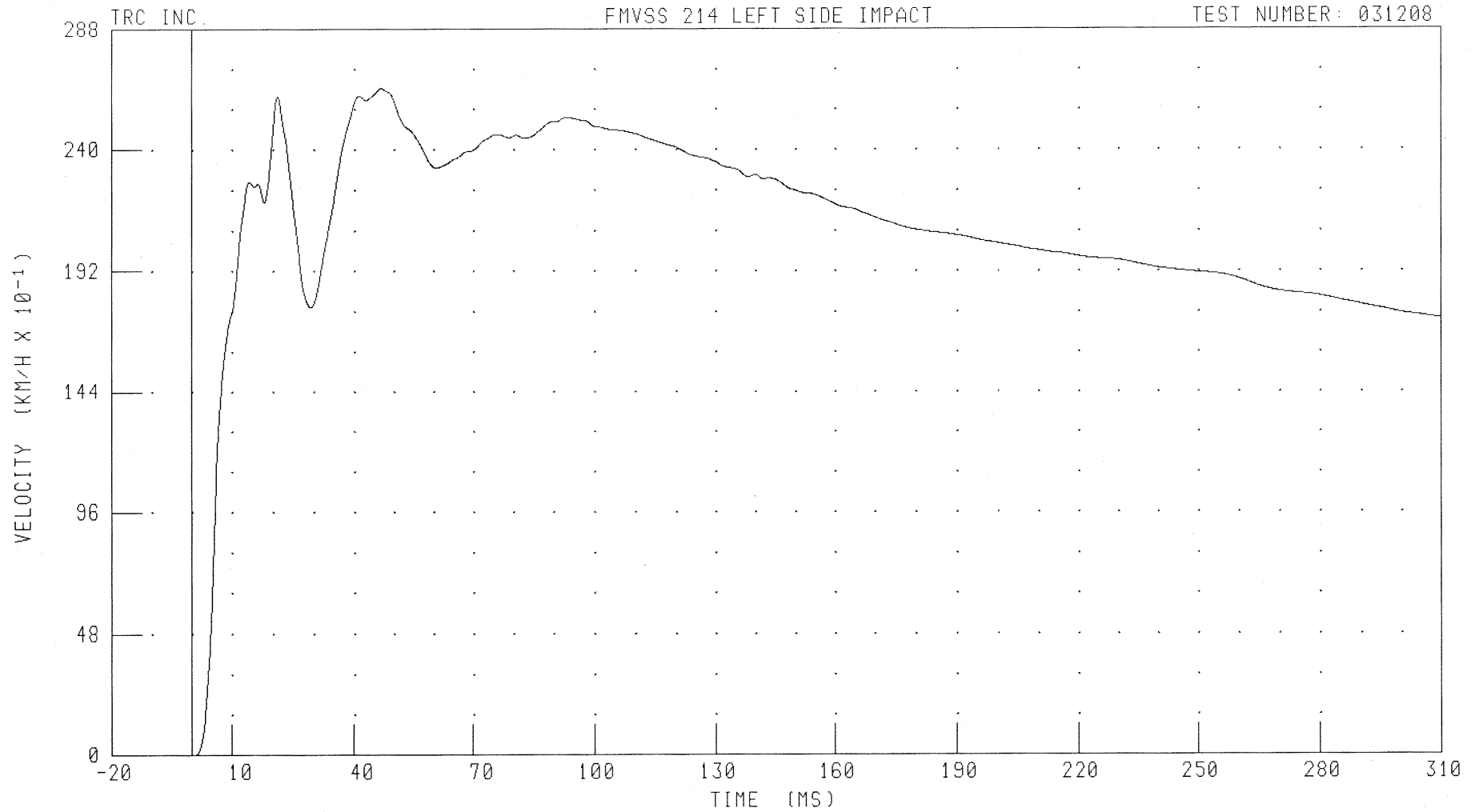
B-75

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRSYV1 FILTER: CH. CLASS 180

PEAK DATA: 26.44 KM/H @ 46.88 MS, 0.00 KM/H @ 0.48 MS

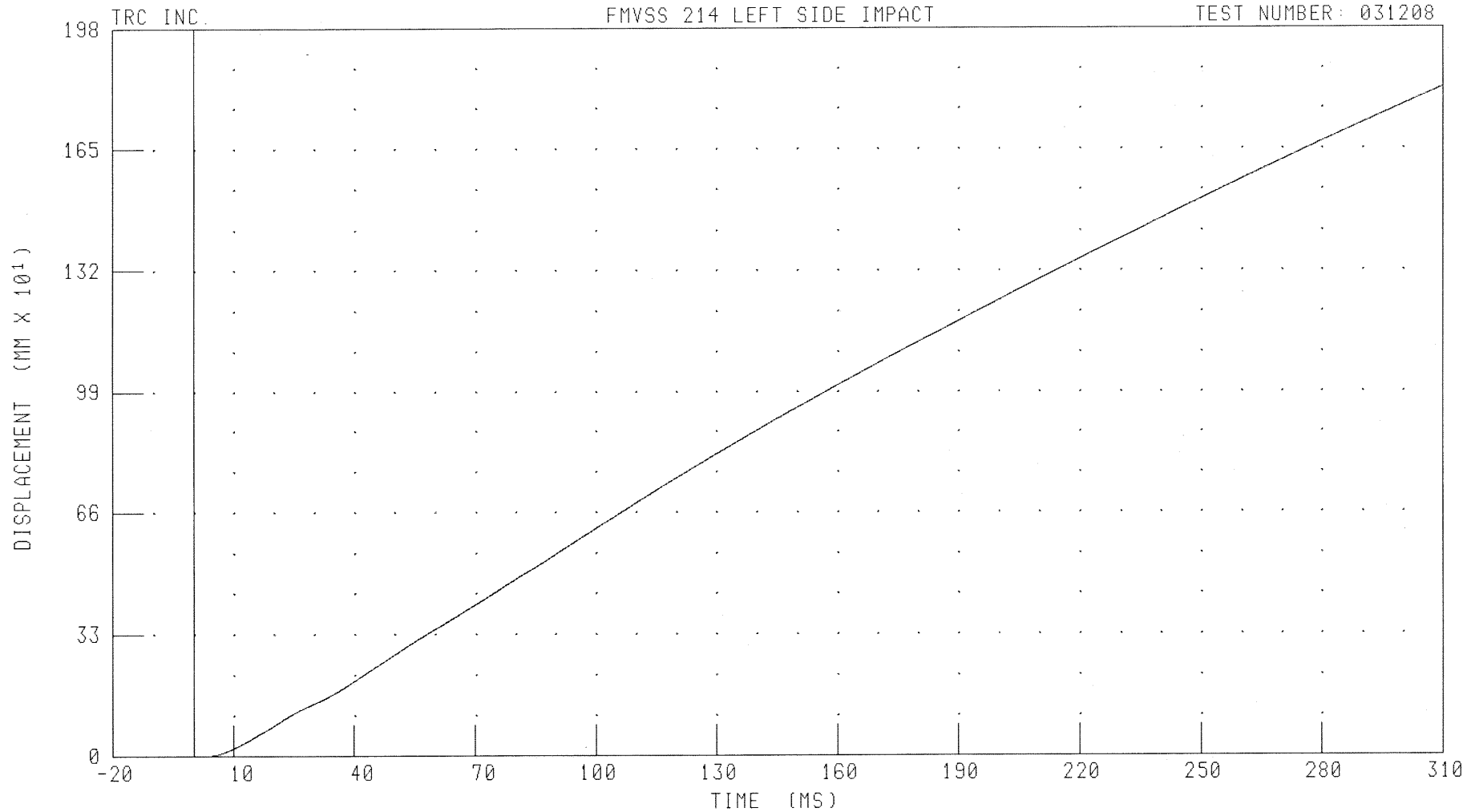
B-76

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRSYD1

FILTER: CH. CLASS 180

PEAK DATA: 1816.62 MM @ 310.00 MS; 0.00 MM @ 0.80 MS

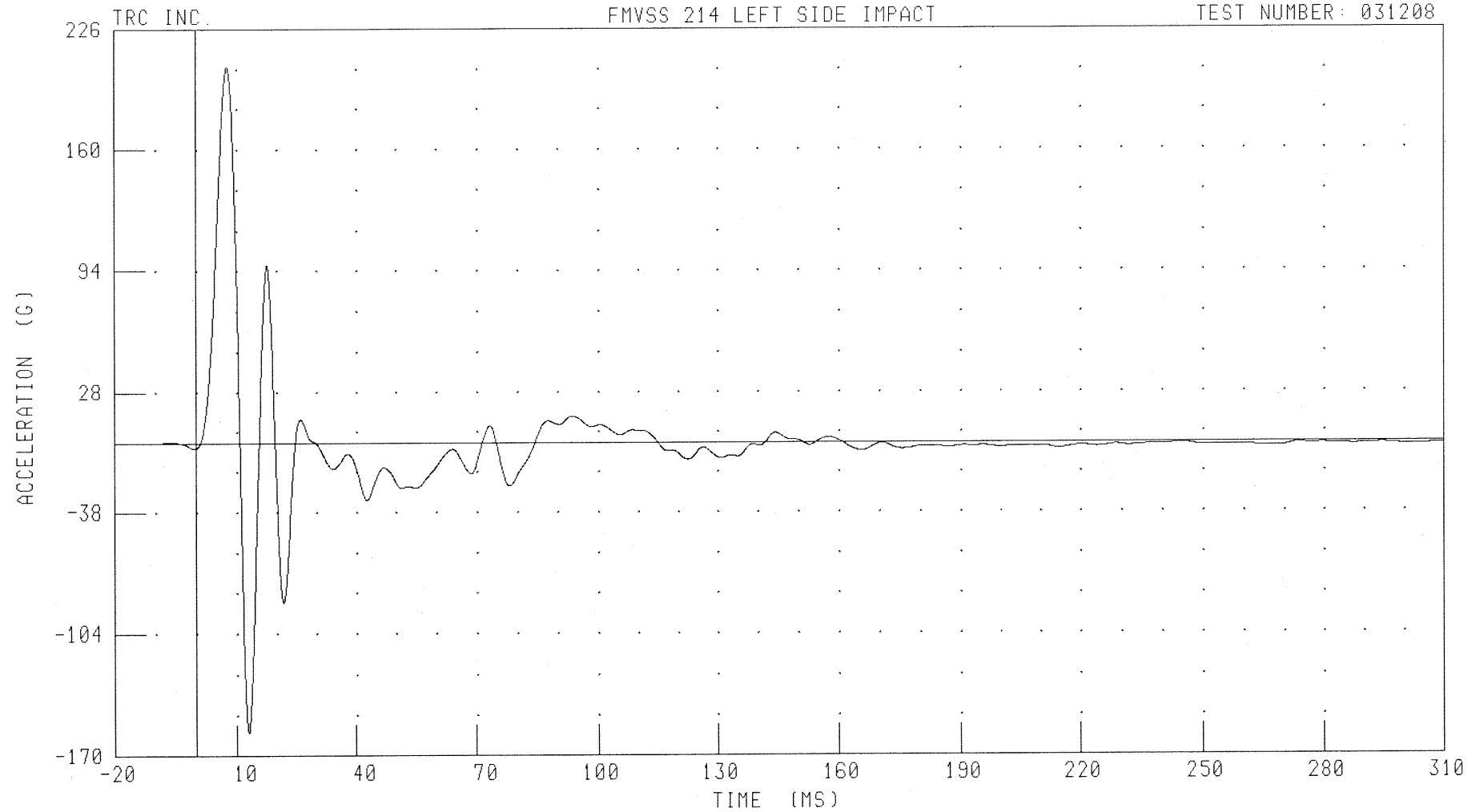
B-77

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT DOOR ON CENTERLINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFCYG1 FILTER: CH. CLASS 60

PEAK DATA: 205.42 G @ 7.68 MS; -157.72 G @ 12.96 MS

B-78

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT DOOR ON CENTERLINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFCYV1

FILTER: CH. CLASS 180

PEAK DATA:

40.83 KM/H @ 11.04 MS; -12.05 KM/H @ 310.00 MS

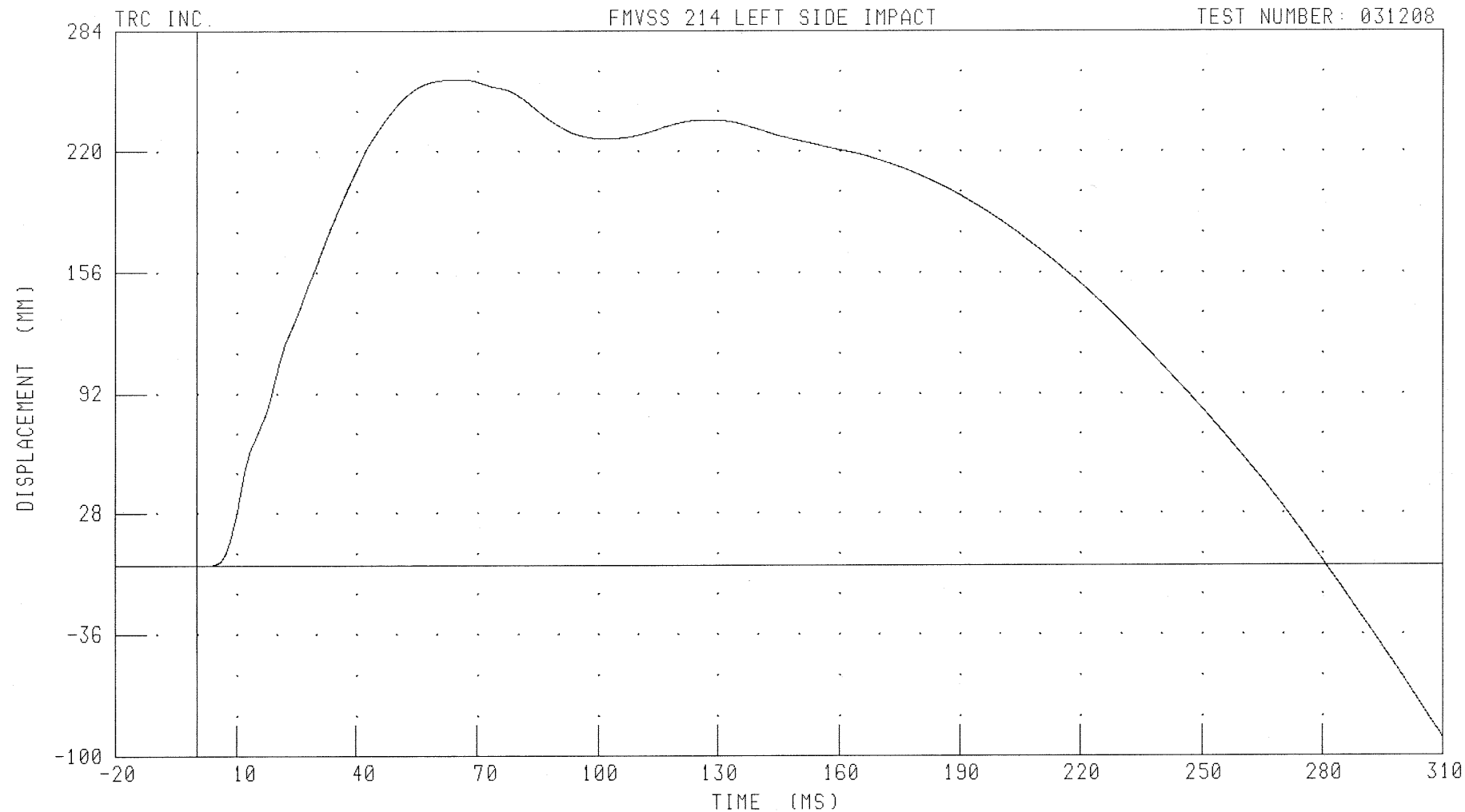
B-79

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT DOOR ON CENTERLINE Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFCYD1 FILTER: CH. CLASS 180

PEAK DATA: 258.19 MM @ 66.08 MS; -91.04 MM @ 310.00 MS

B-80

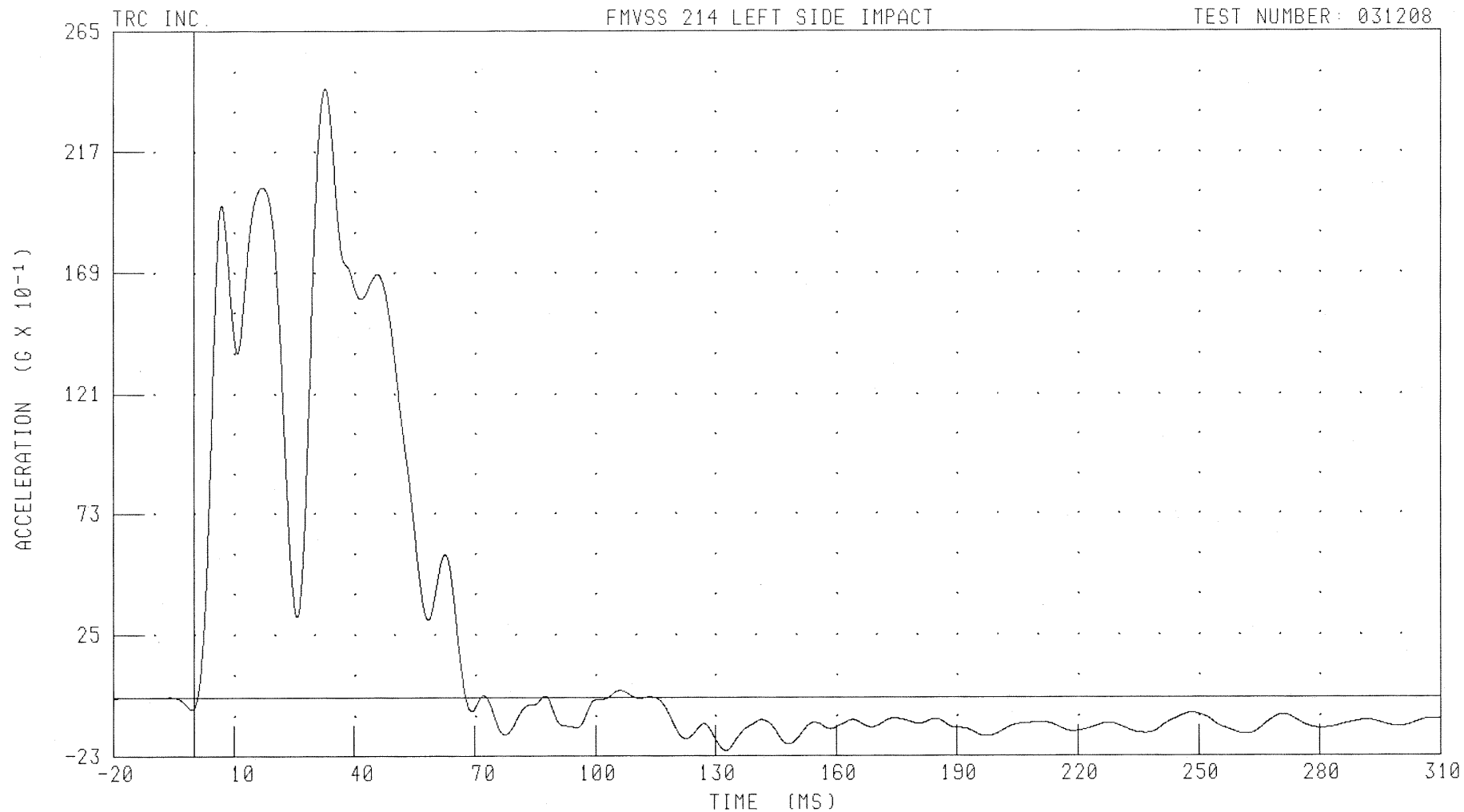
031208

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

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



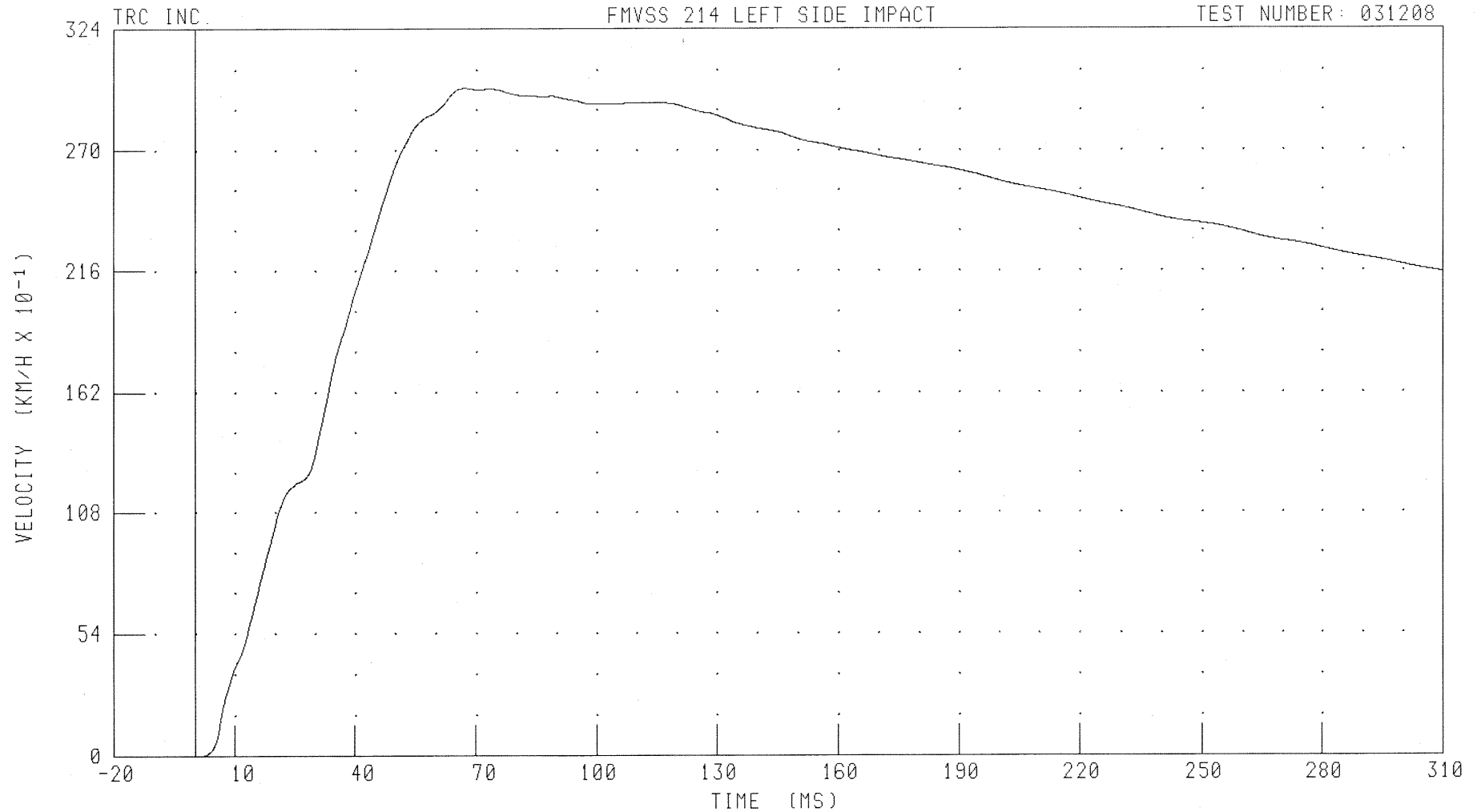
CHANNEL: RRTYG1 FILTER: CH. CLASS 60

PEAK DATA: 24.22 G @ 32.80 MS; -2.10 G @ 132.72 MS

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRTYV1 FILTER: CH. CLASS 180

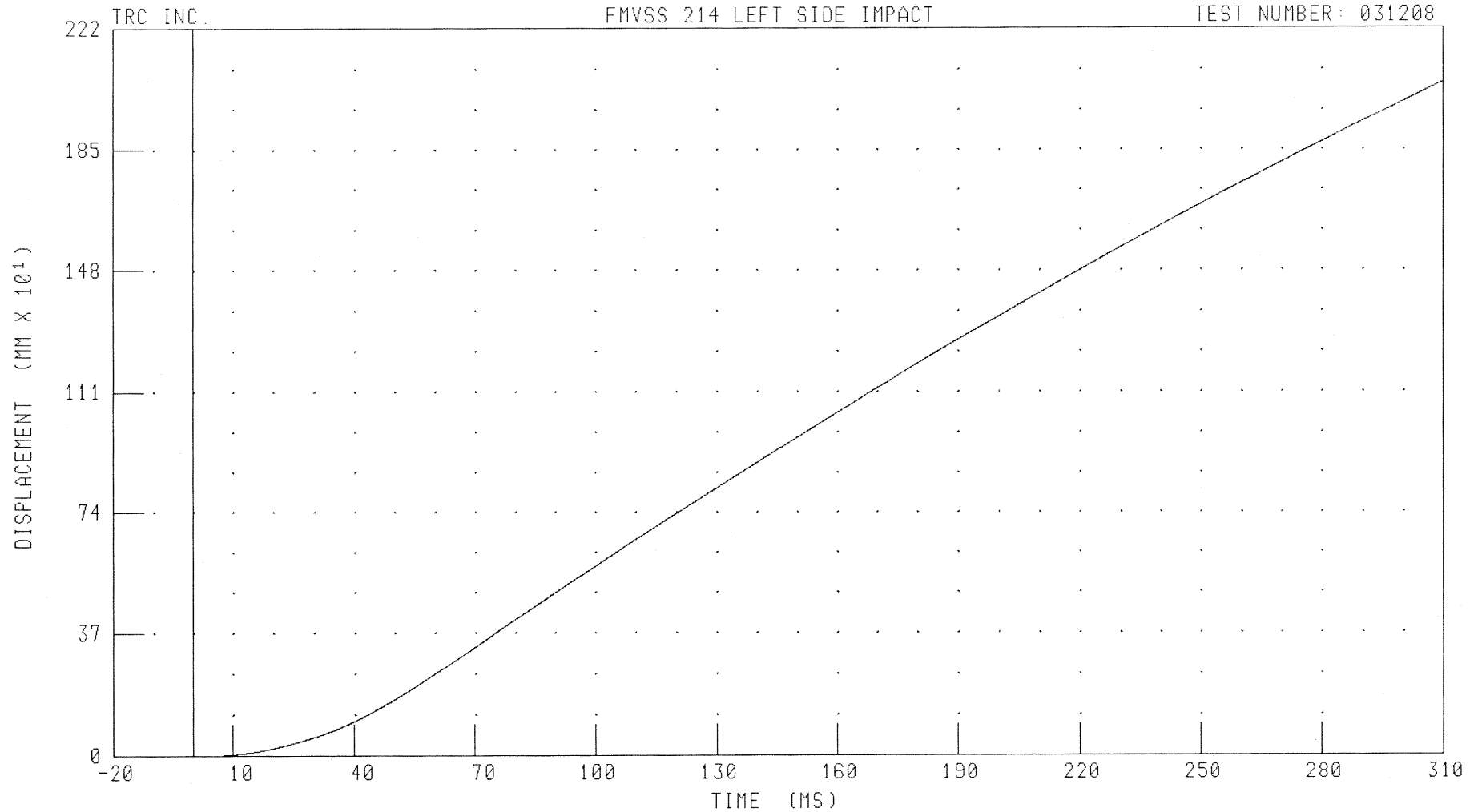
PEAK DATA: 29.79 KM/H @ 67.12 MS; 0.00 KM/H @ 0.00 MS

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

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: RRTYD1 FILTER: CH. CLASS 180

PEAK DATA: 2057.37 MM @ 310.00 MS; 0.00 MM @ 0.00 MS

B-83

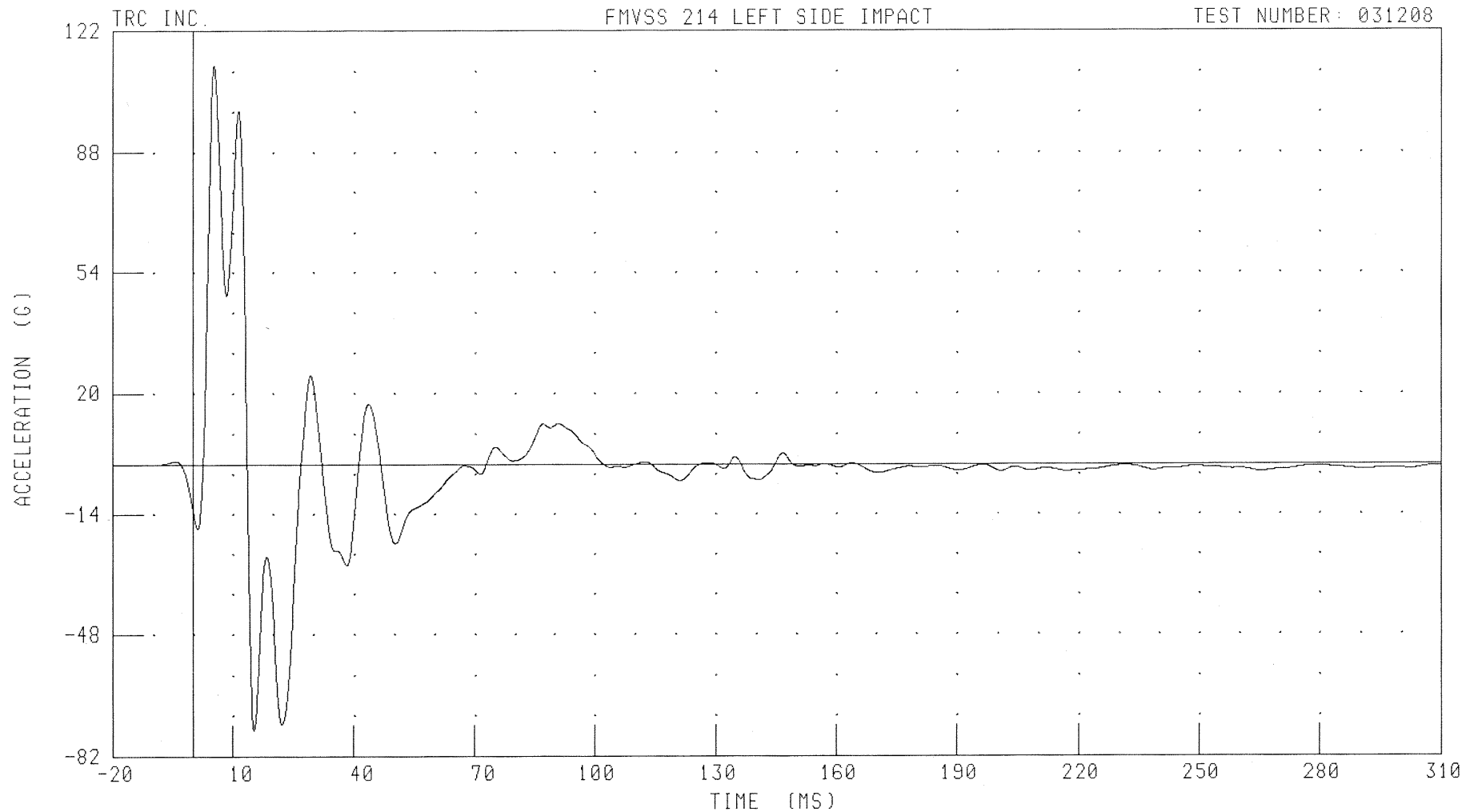
031208

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

LEFT FRONT DOOR MID-REAR Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFMYG1 FILTER: CH. CLASS 60

PEAK DATA: 112.21 G @ 5.28 MS; -74.79 G @ 15.28 MS

B-84

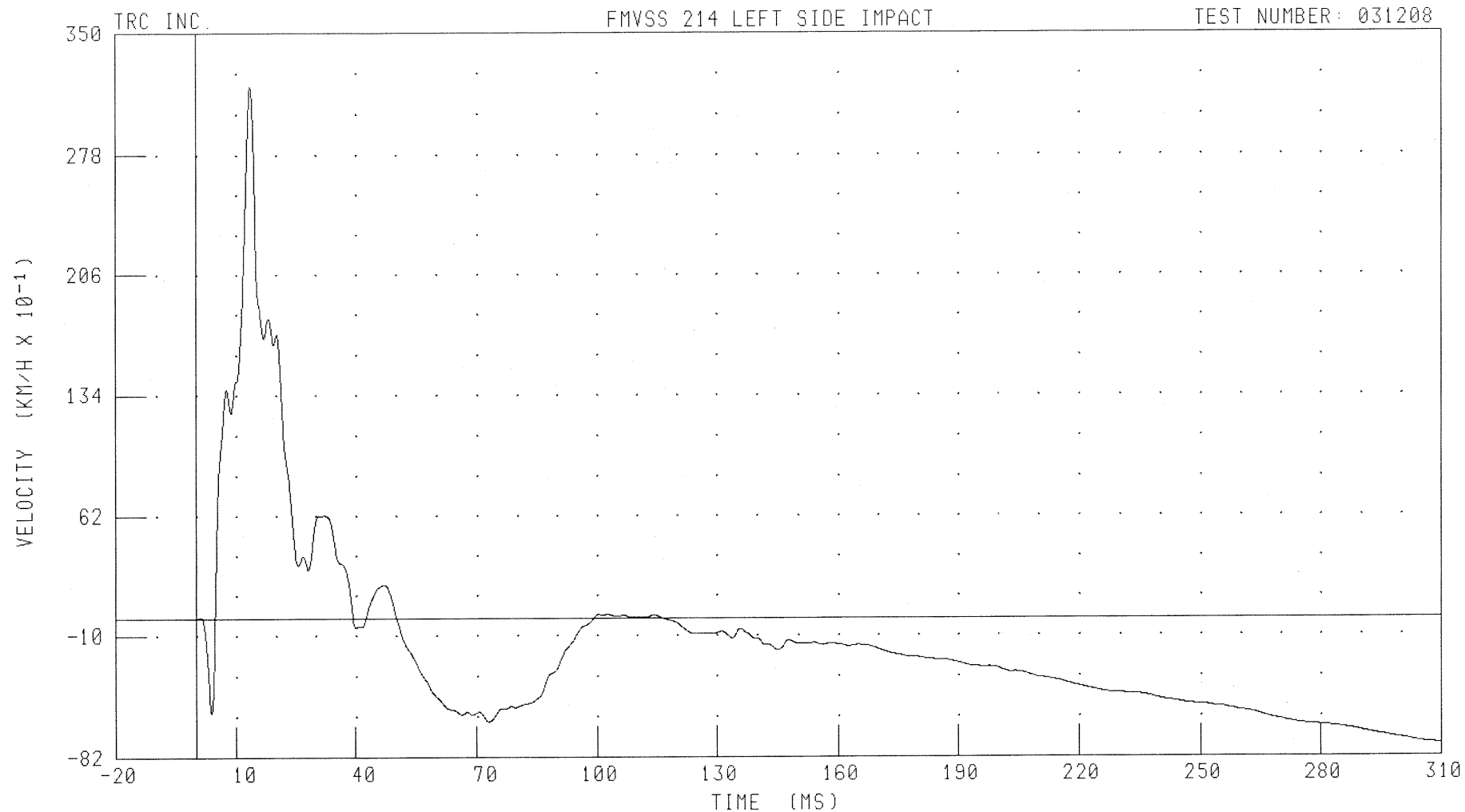
031208

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

LEFT FRONT DOOR MID-REAR Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFMV1 FILTER: CH. CLASS 180

PEAK DATA: 31.82 KM/H @ 13.52 MS; -7.46 KM/H @ 310.00 MS

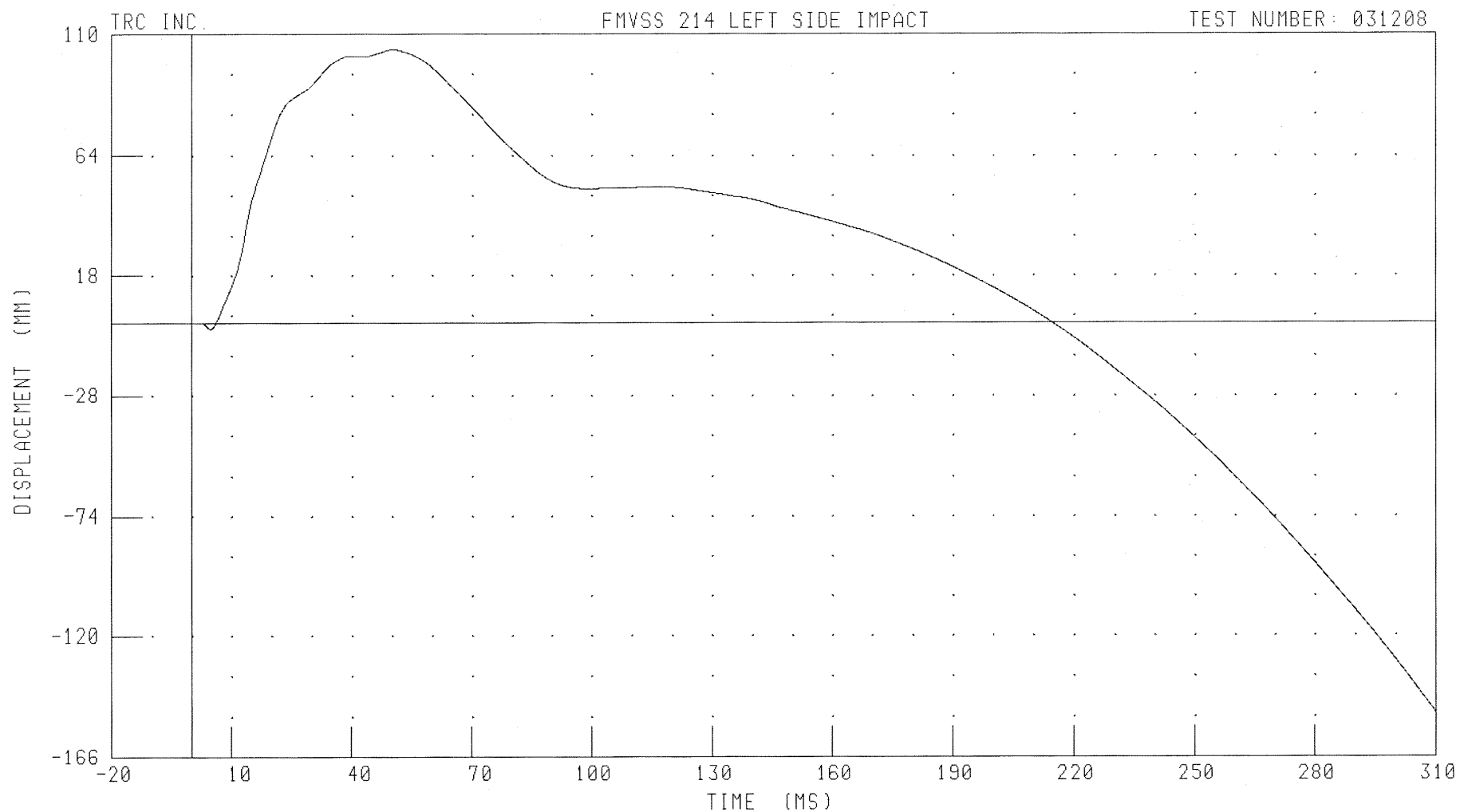
B-85

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT DOOR MID-REAR Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



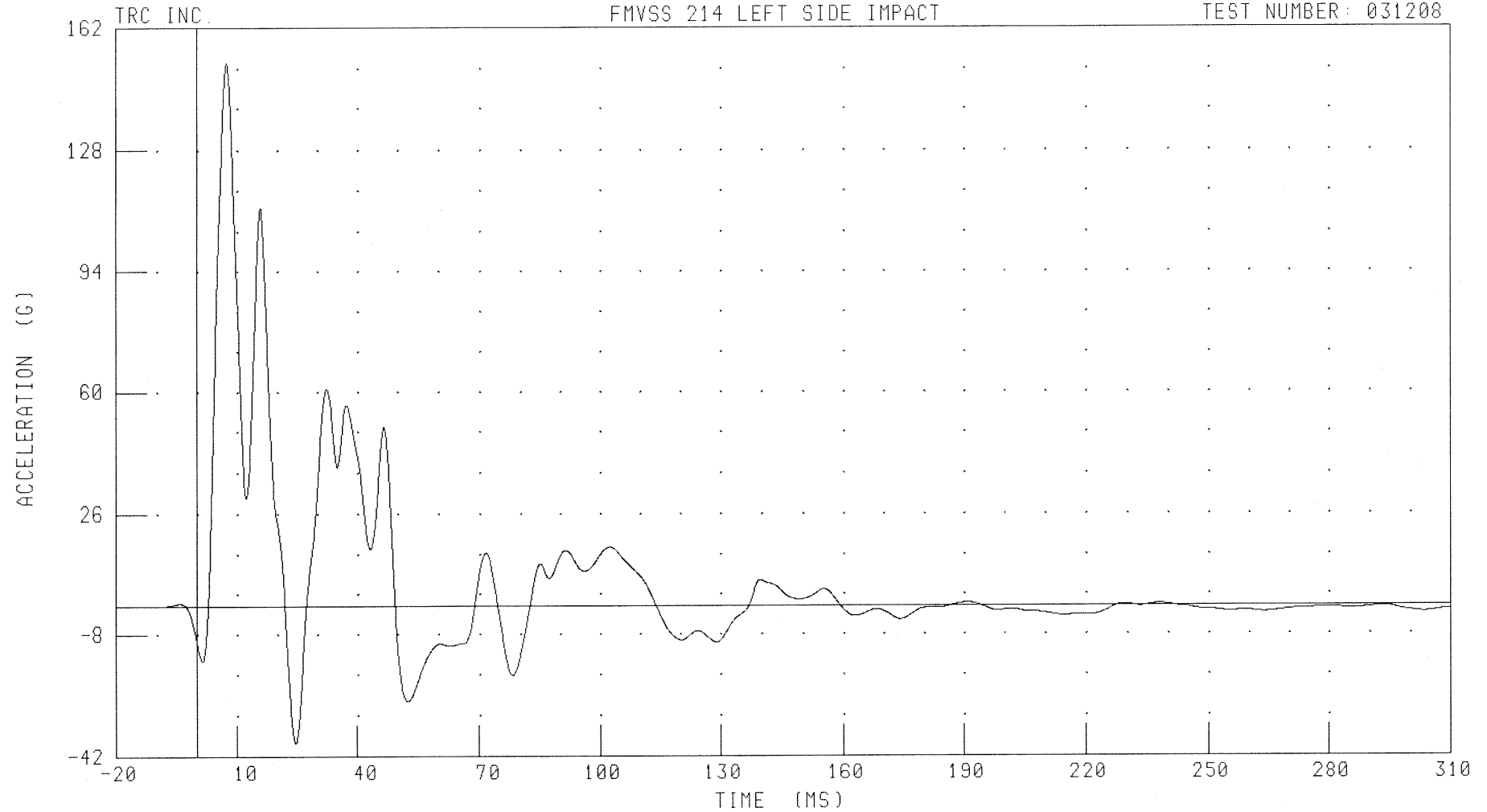
CHANNEL: LFMYD1 FILTER: CH. CLASS 180

PEAK DATA: 104.20 MM @ 50.24 MS; -149.67 MM @ 310.00 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFUYG1 FILTER: CH. CLASS 60

PEAK DATA: 152.31 G @ 7.36 MS; -38.33 G @ 24.56 MS

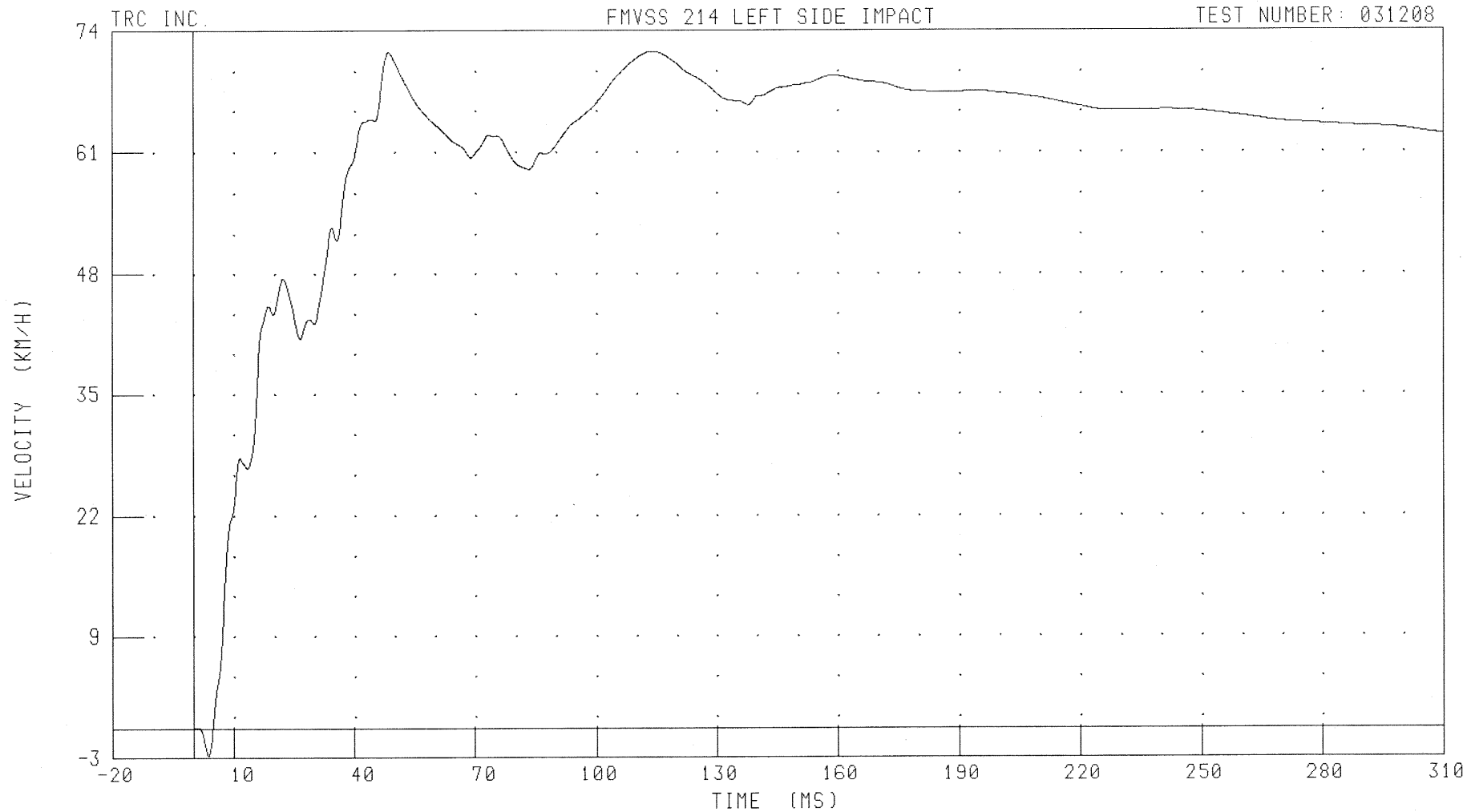
B-87

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFUYV1 FILTER: CH. CLASS 180

PEAK DATA: 72.64 KM/H @ 113.68 MS; -2.88 KM/H @ 3.60 MS

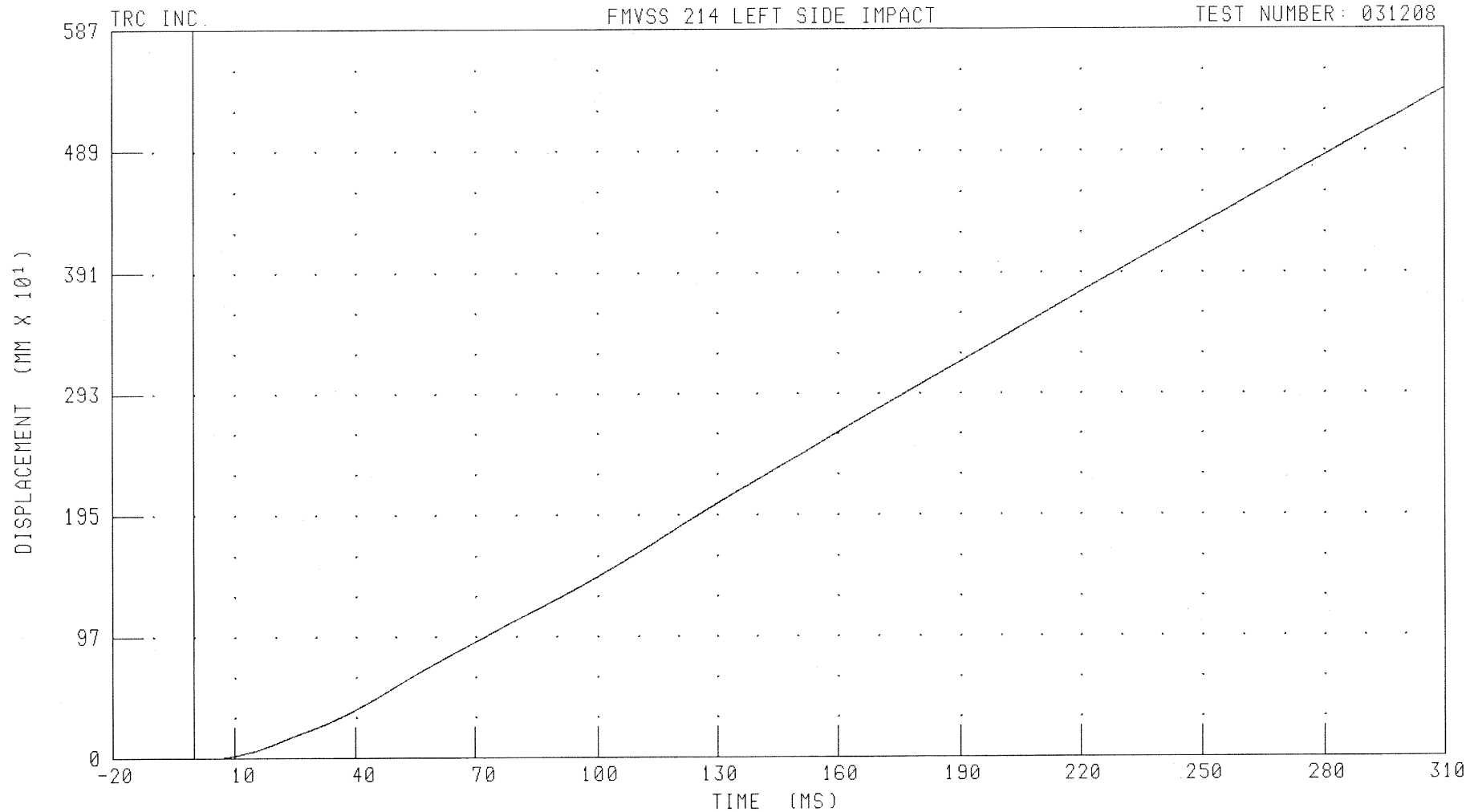
B-88

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS DISPLACEMENT

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFUYD1

FILTER: CH. CLASS 180

PEAK DATA: 5396.19 MM @ 310.00 MS; -1.37 MM @ 4.80 MS

B-89

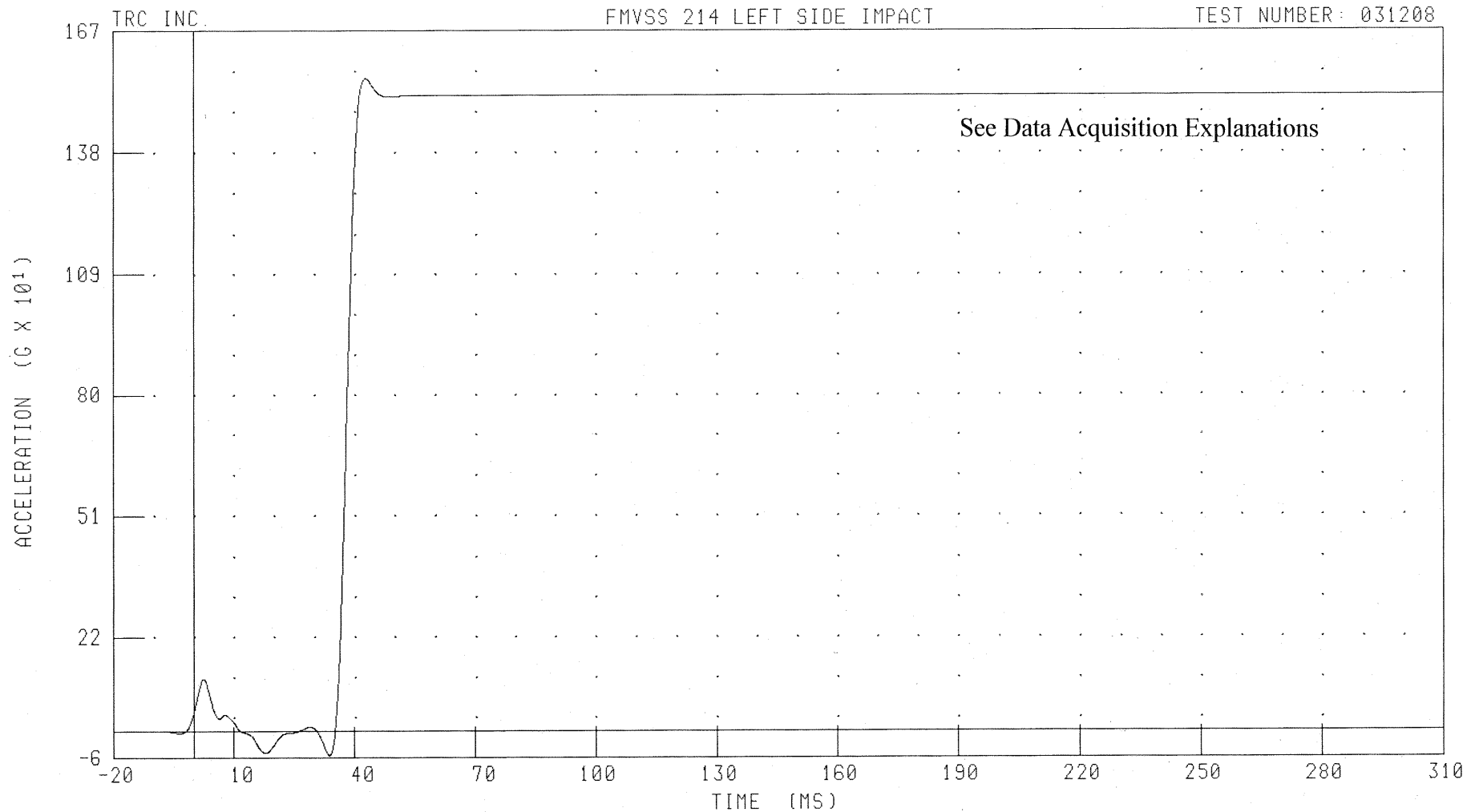
031208

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

LEFT LOWER A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLAGC1 FILTER: CH. CLASS 60

PEAK DATA: 1562.44 G @ 42.72 MS; -58.37 G @ 33.76 MS

B-90

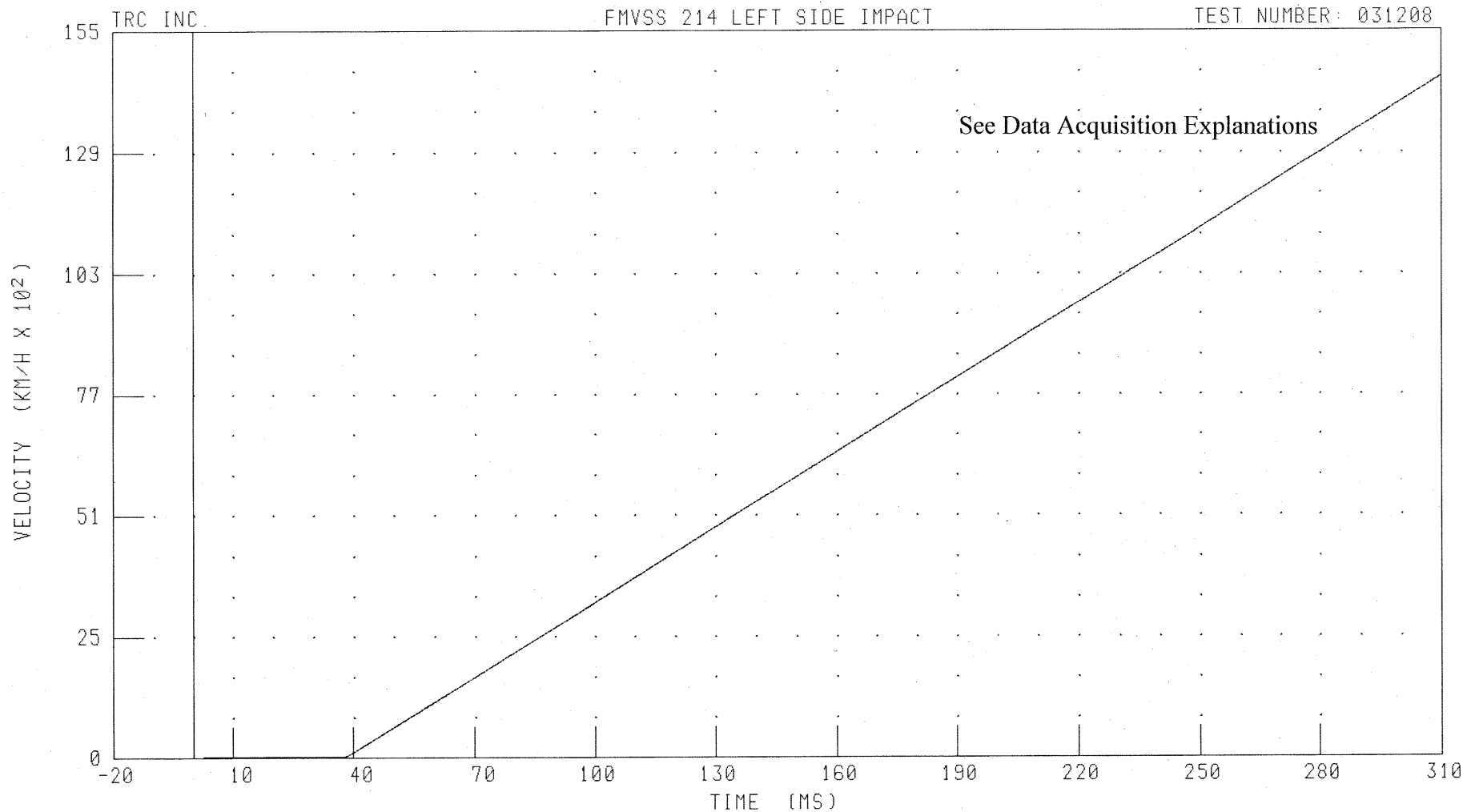
031208

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

LEFT LOWER A-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLAYV1 FILTER: CH. CLASS 180

PEAK DATA: 14610.68 KM/H @ 310.00 MS; -0.10 KM/H @ 0.56 MS

B-91

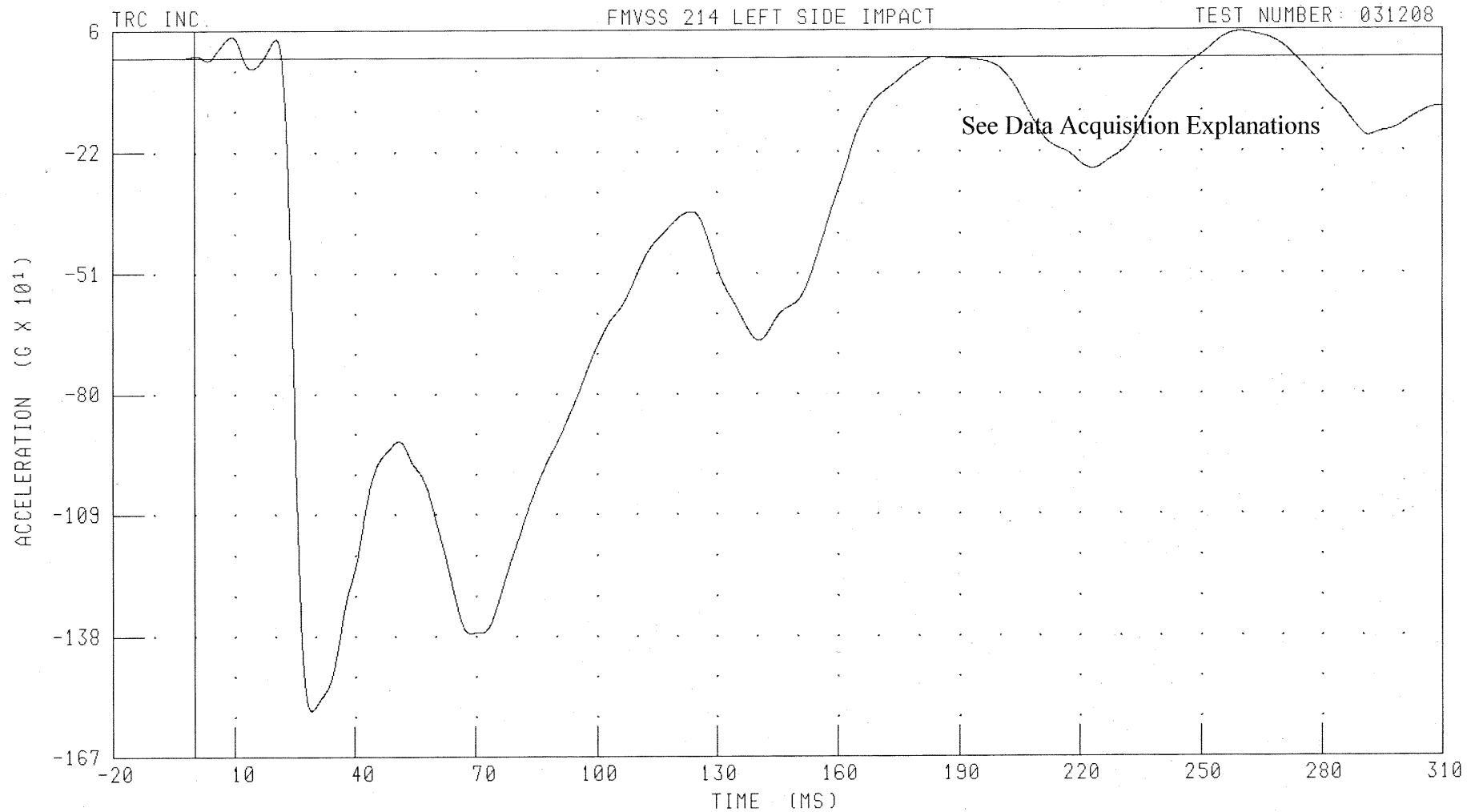
031208

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

LEFT MIDDLE A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LMAYG1 FILTER: CH. CLASS 60

PEAK DATA: 60.87 G @ 259.60 MS, -1562.67 G @ 29.12 MS

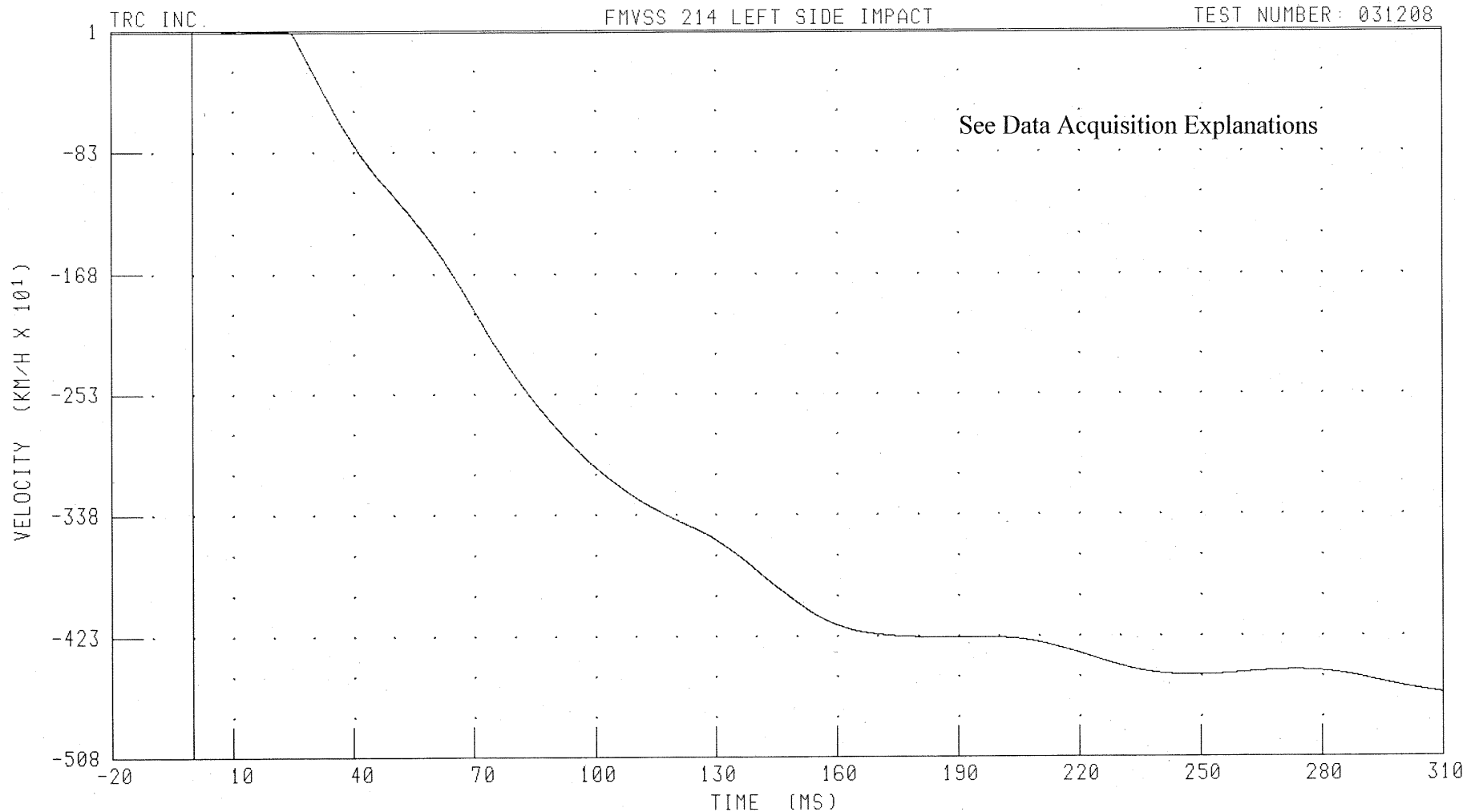
B-92

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LMAYV1

FILTER: CH. CLASS 180

PEAK DATA: 10.08 KM/H @ 11.44 MS; -4642.17 KM/H @ 310.00 MS

B-93

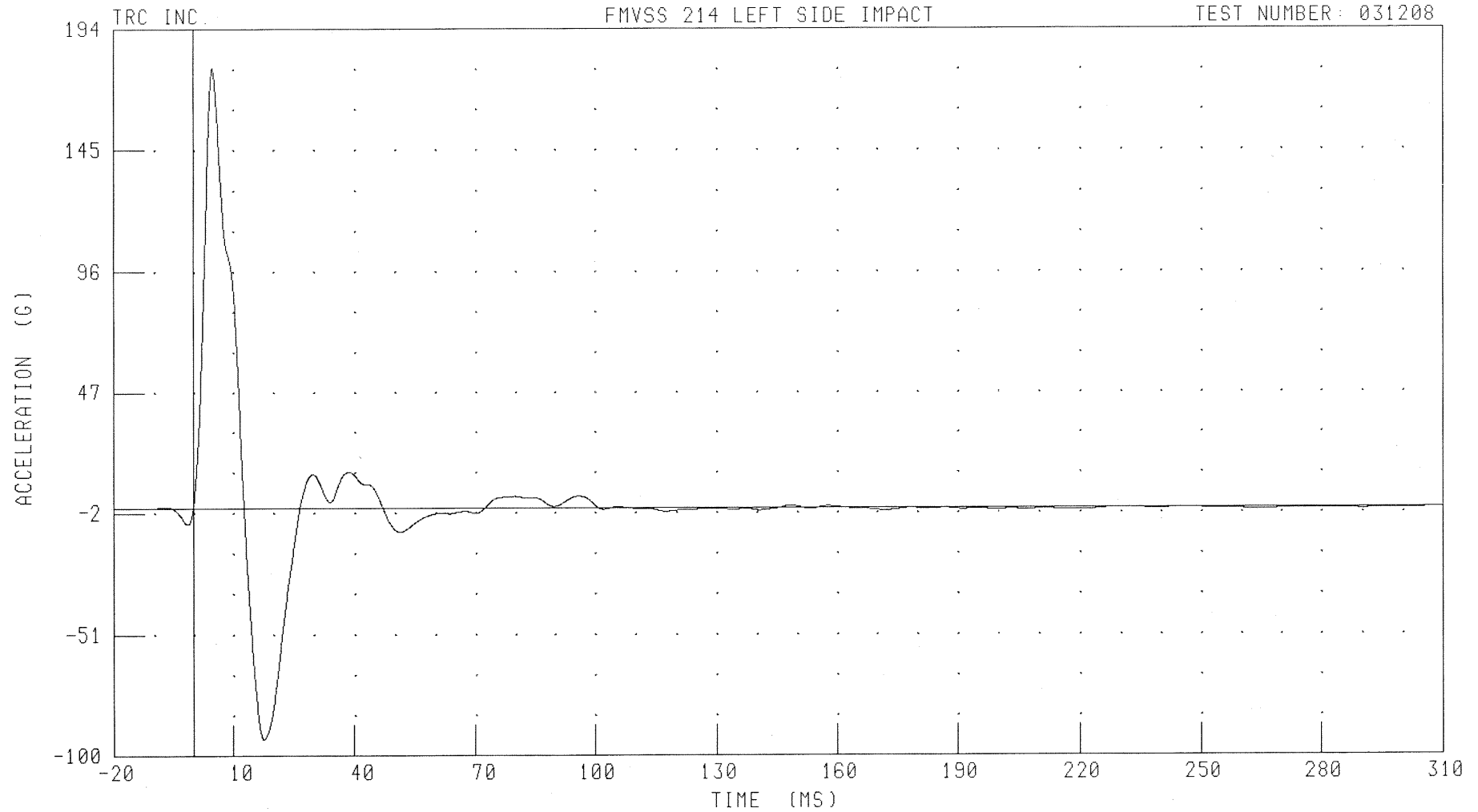
031208

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

LEFT LOWER B-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLBYG1 FILTER: CH. CLASS 60

PEAK DATA: 178.14 G @ 4.80 MS; -93.52 G @ 17.60 MS

B-94

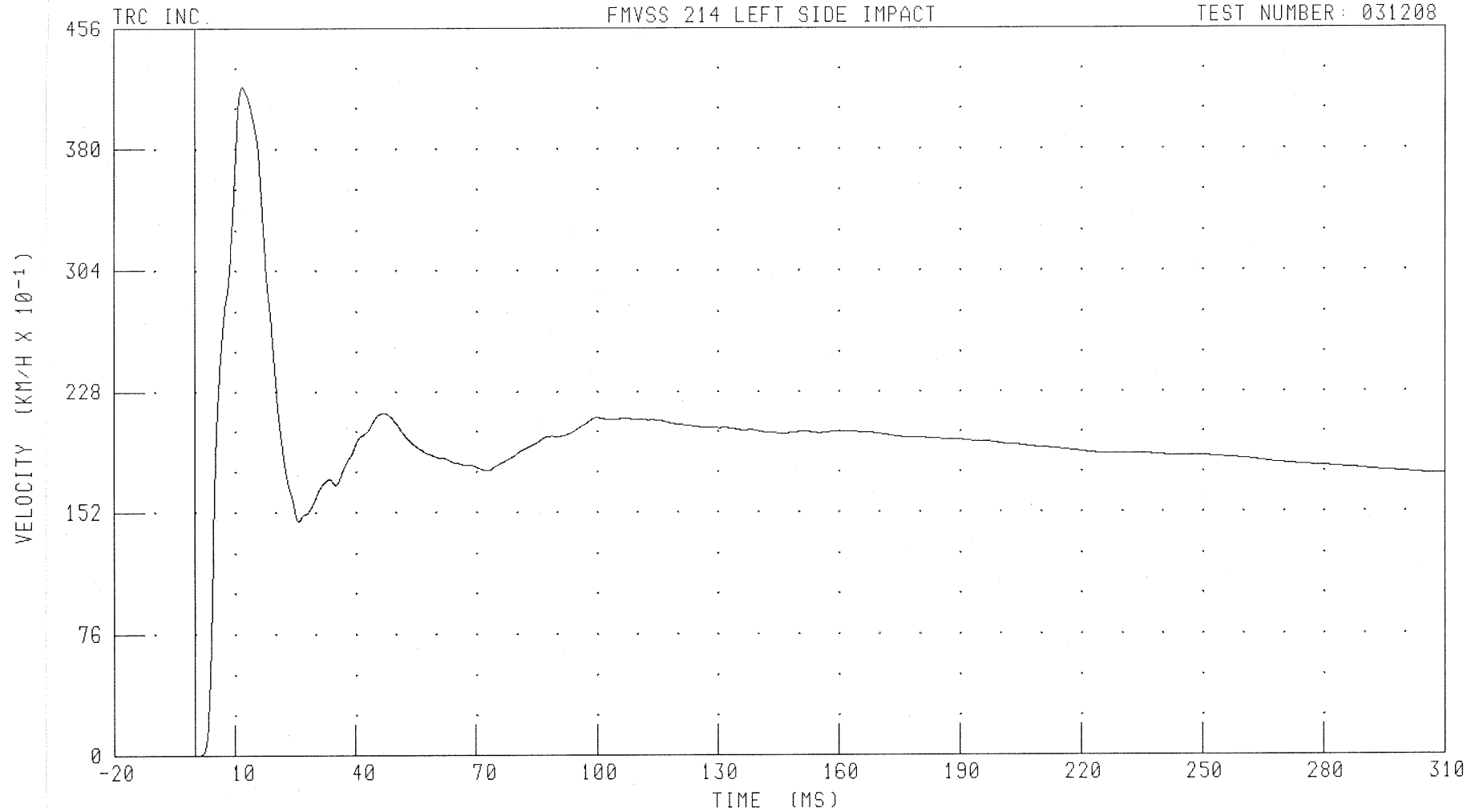
031208

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

LEFT LOWER B-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLBYV1 FILTER: CH. CLASS 180

PEAK DATA: 41.88 KM/H @ 11.76 MS; 0.00 KM/H @ 0.00 MS

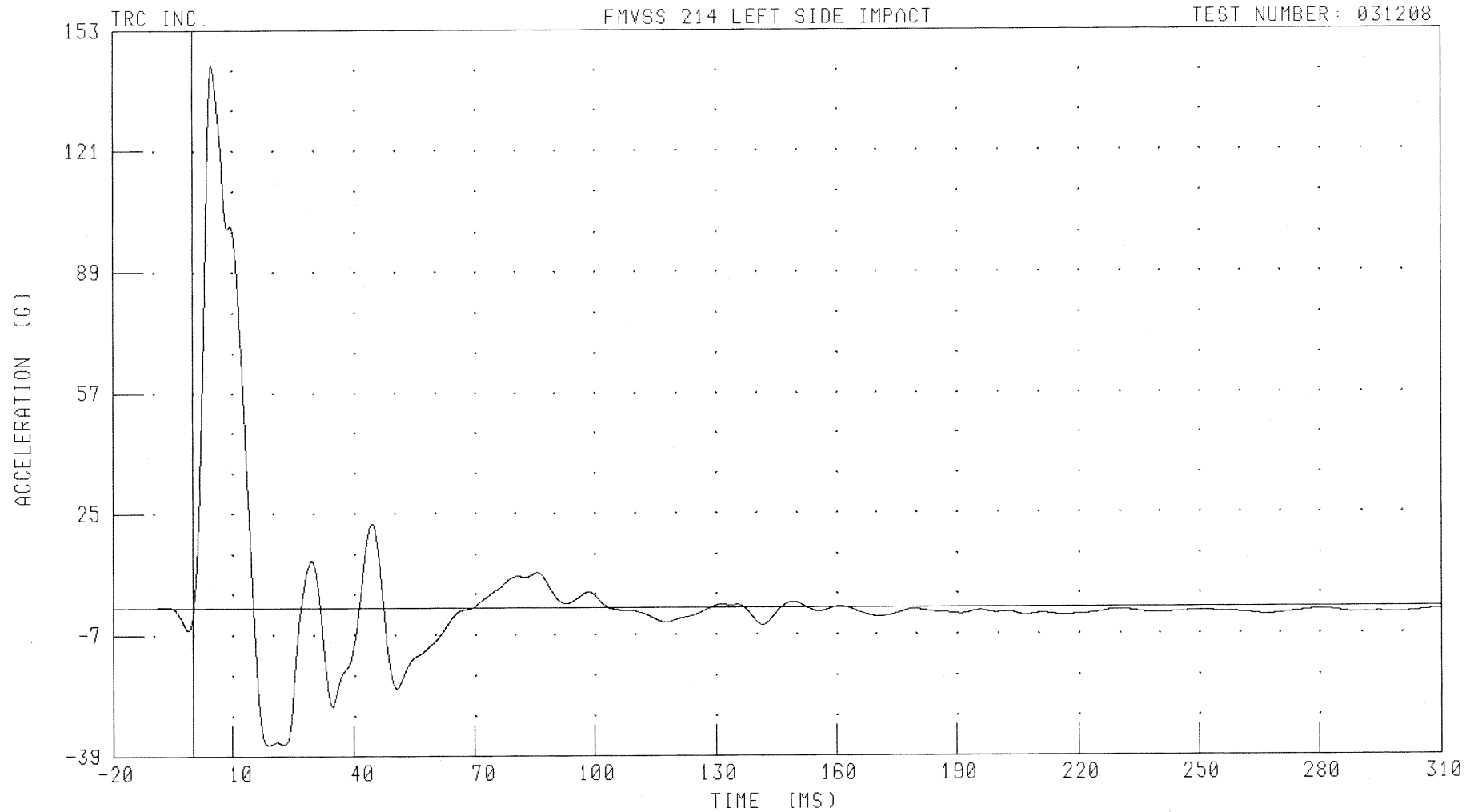
B-95

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT MIDDLE B-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LM BYG1 FILTER: CH. CLASS 60

PEAK DATA: 143.63 G @ 4.88 MS, -35.99 G @ 18.96 MS

B-96

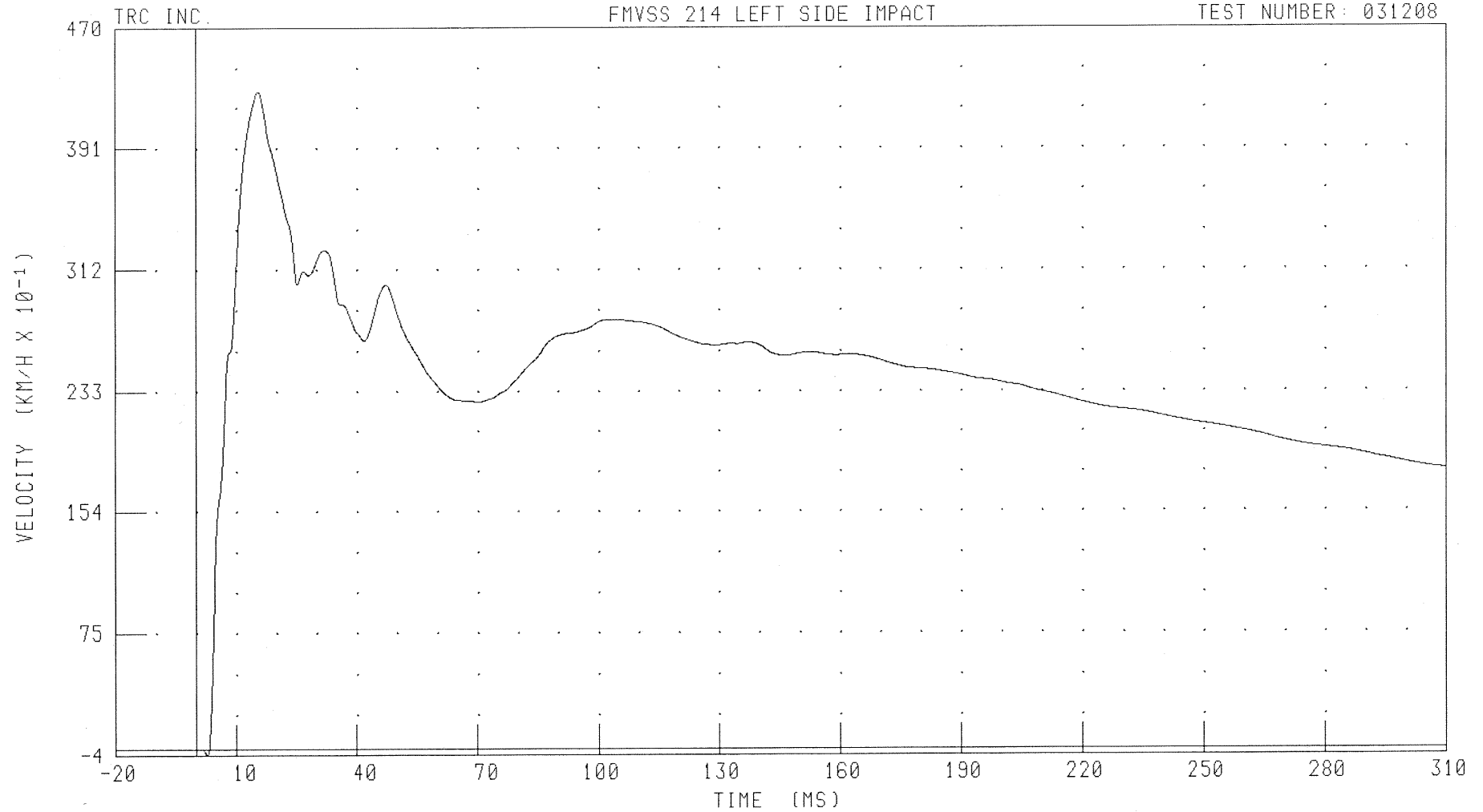
031208

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

LEFT MIDDLE B-POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LMBYV1 FILTER: CH. CLASS 180

PEAK DATA: 42.83 KM/H @ 15.52 MS; -0.39 KM/H @ 2.72 MS

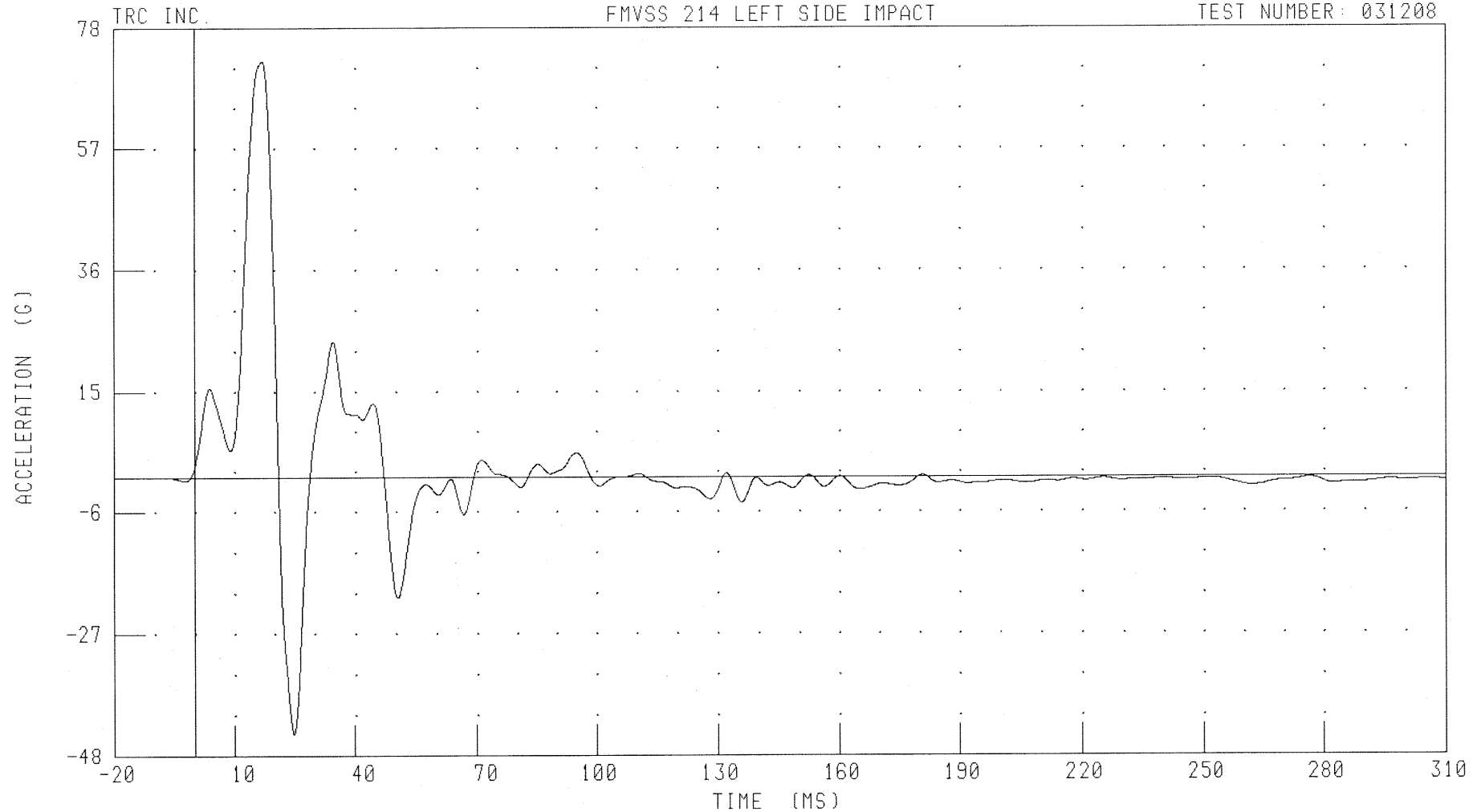
B-97

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
LEFT FRONT SEAT TRACK Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFTYG1 FILTER: CH. CLASS 60

PEAK DATA: 72.19 G @ 16.96 MS; -44.22 G @ 24.88 MS

B-98

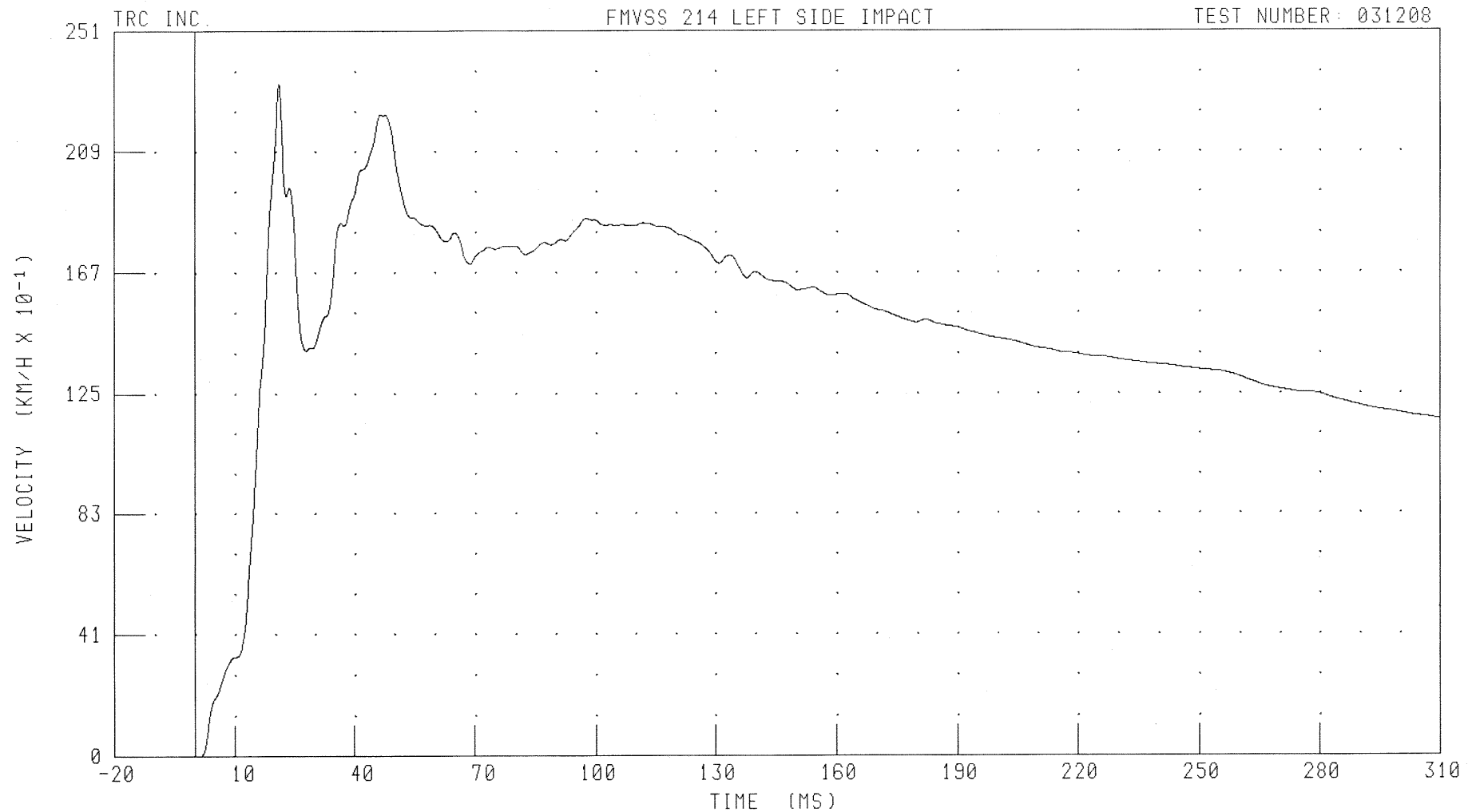
031208

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

LEFT FRONT SEAT TRACK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LFTYV1 FILTER: CH. CLASS 180

PEAK DATA: 23.36 KM/H @ 20.96 MS; -0.01 KM/H @ 1.12 MS

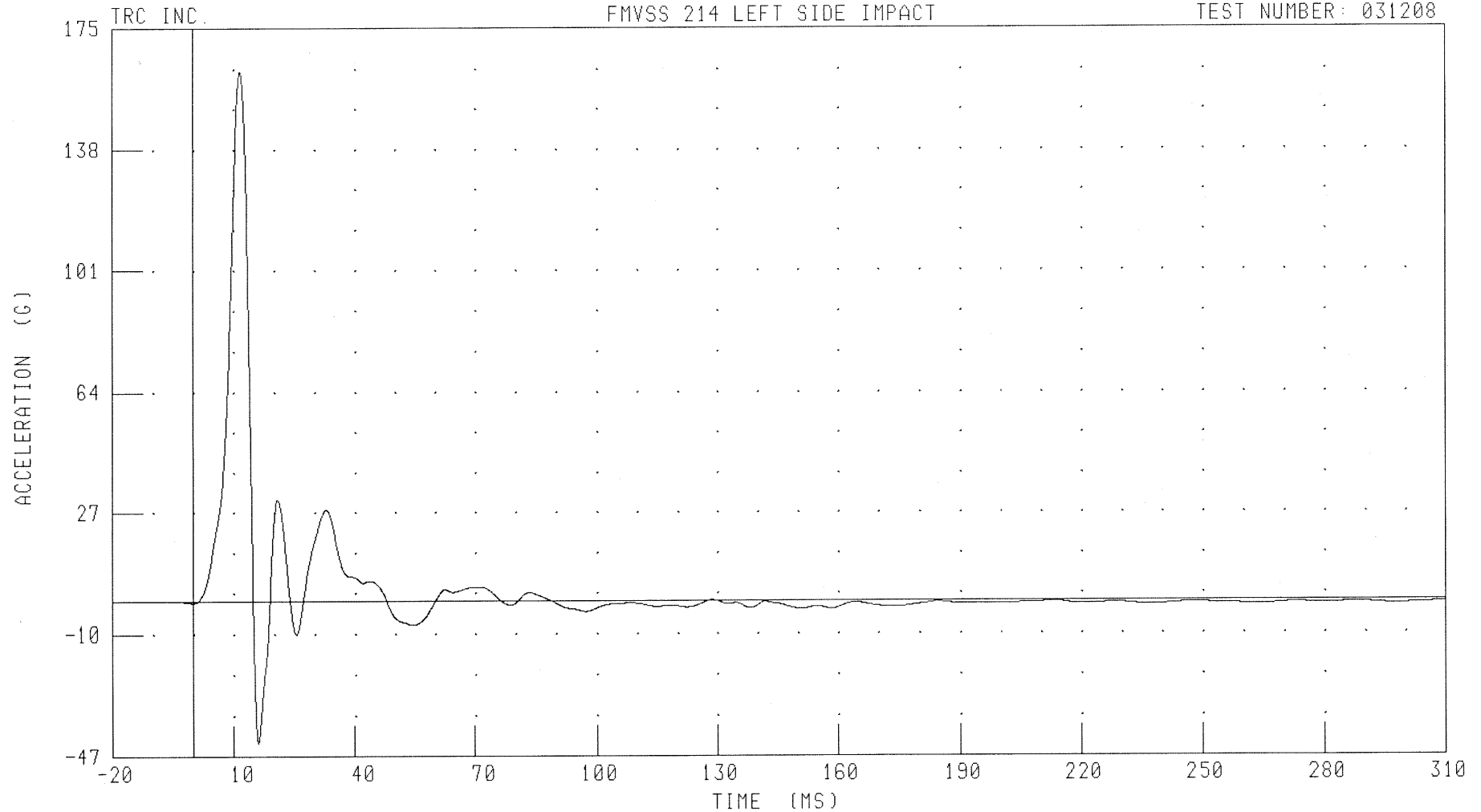
B-99

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRTYG1

FILTER: CH. CLASS 60

PEAK DATA: 162.04 G @ 11.68 MS; -42.97 G @ 16.08 MS

B-100

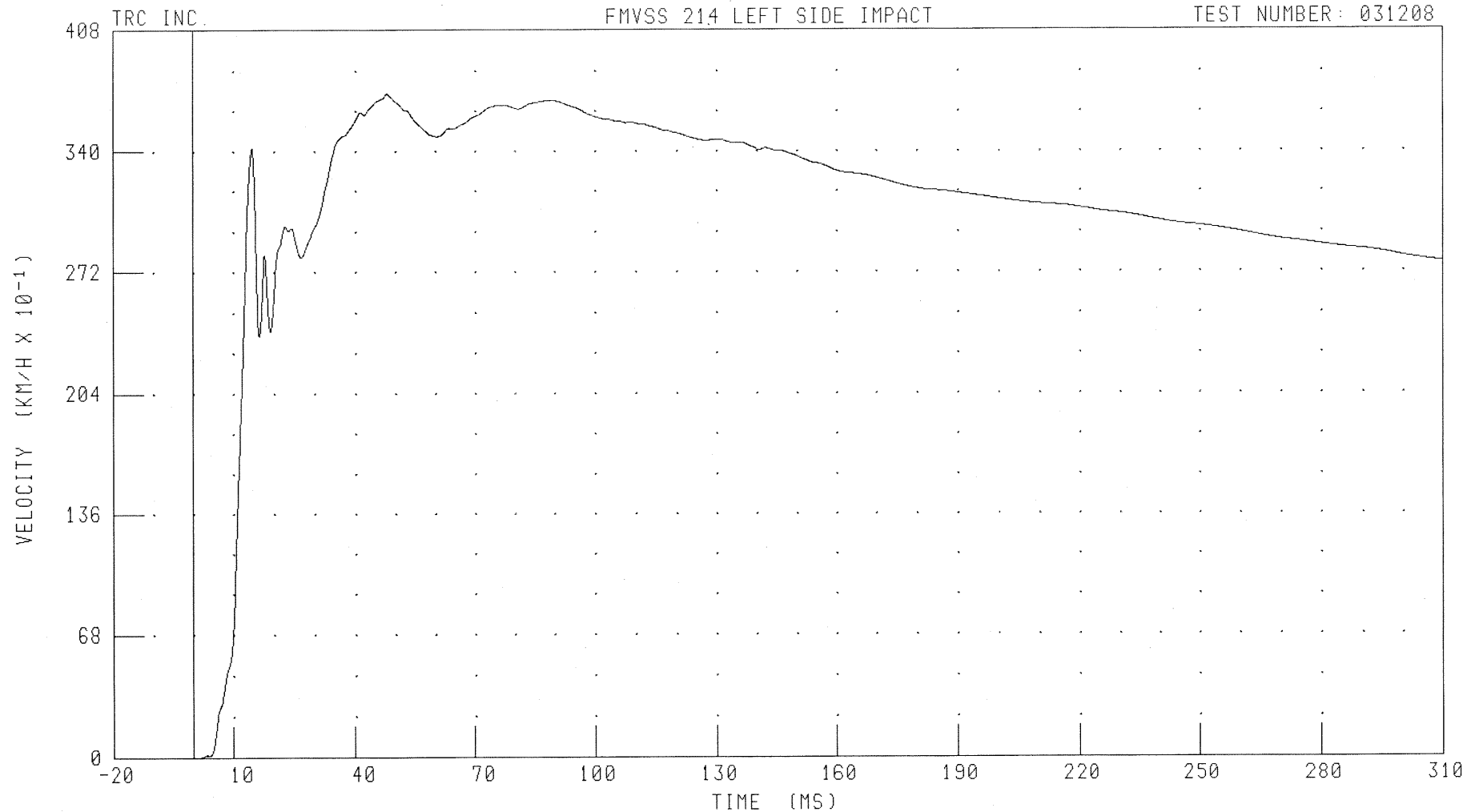
031208

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

LEFT REAR SEAT TRACK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRTYV1

FILTER: CH. CLASS 180

PEAK DATA: 37.29 KM/H @ 47.92 MS; 0.00 KM/H @ 1.20 MS

B-101

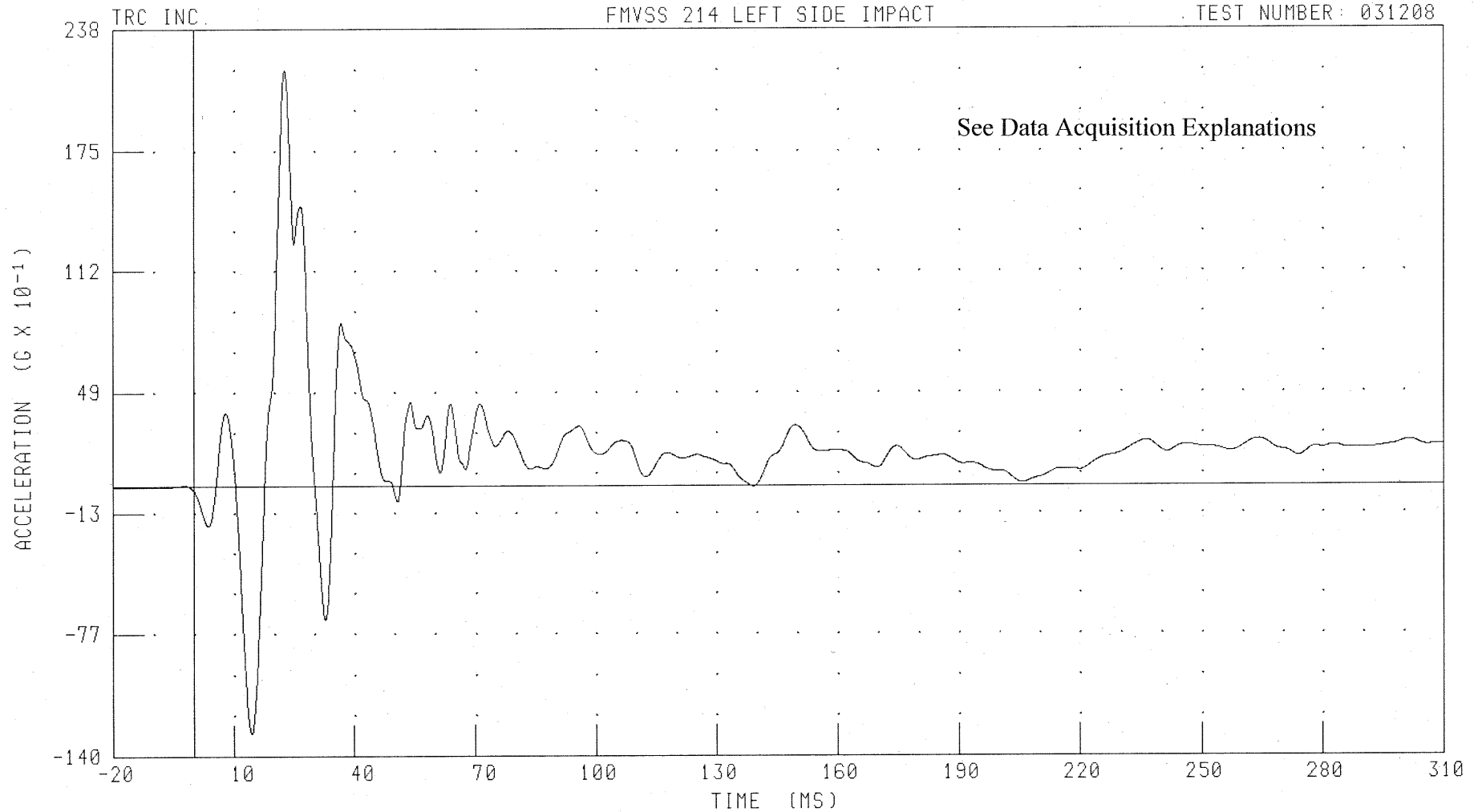
031208

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

VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: VCGXG1

FILTER: CH. CLASS 60

PEAK DATA: 21.67 G @ 22.64 MS; -12.85 G @ 14.32 MS

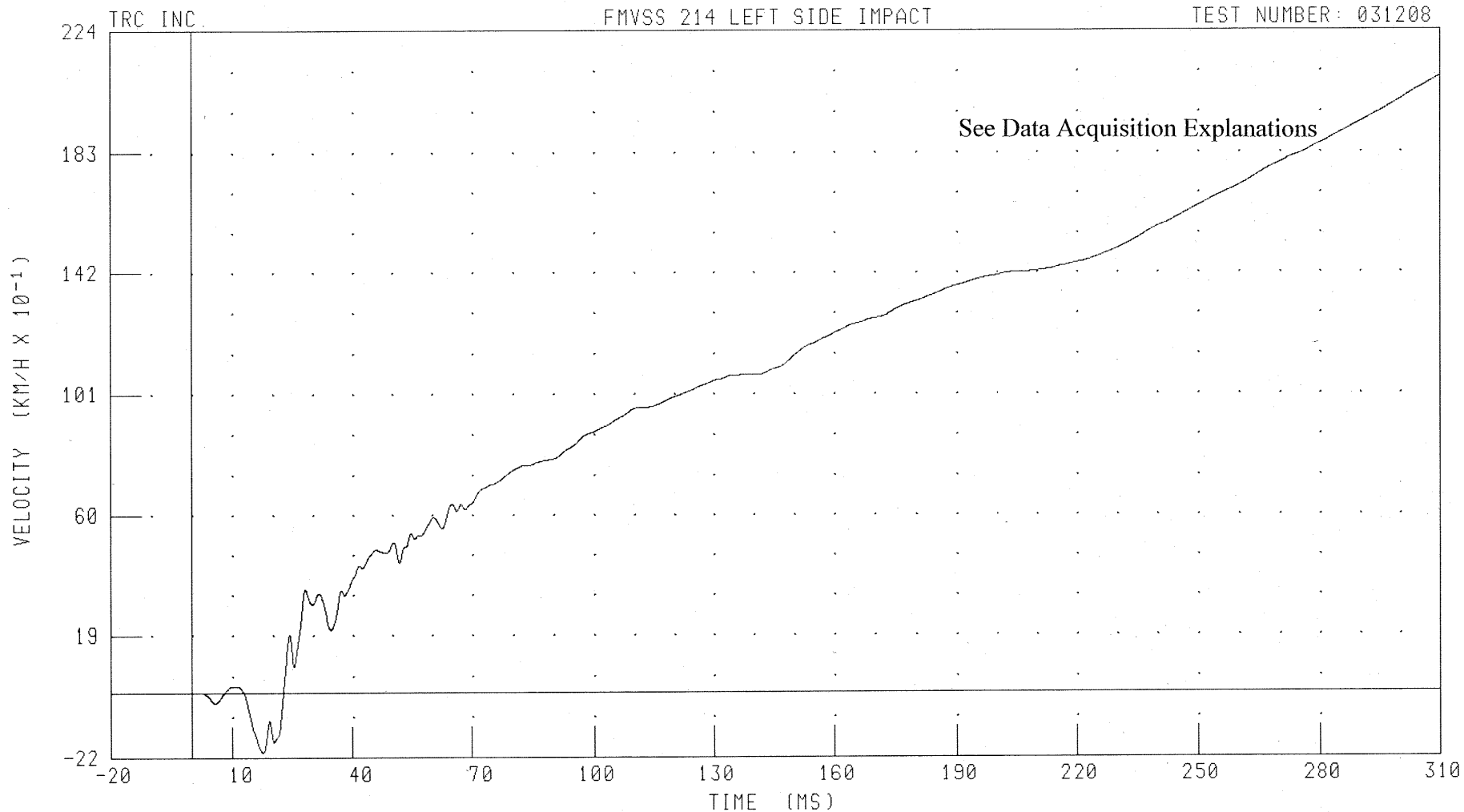
B-102

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: VCGXV1

FILTER: CH. CLASS 180

PEAK DATA: 20.84 KM/H @ 310.00 MS, -2.04 KM/H @ 17.52 MS

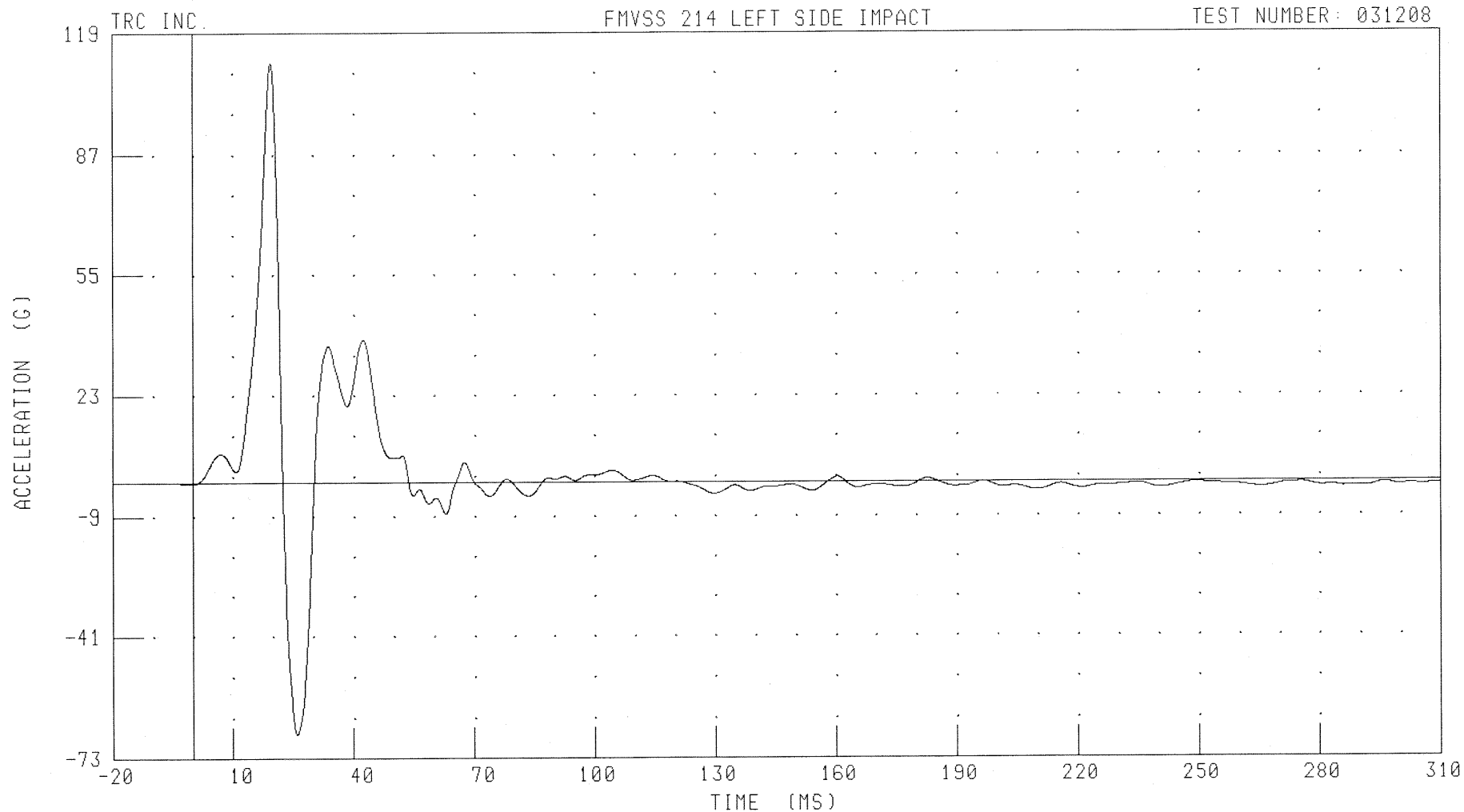
B-103

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: VCGY01

FILTER: CH. CLASS 60

PEAK DATA: 110.84 G @ 19.60 MS; -66.79 G @ 26.08 MS

B-104

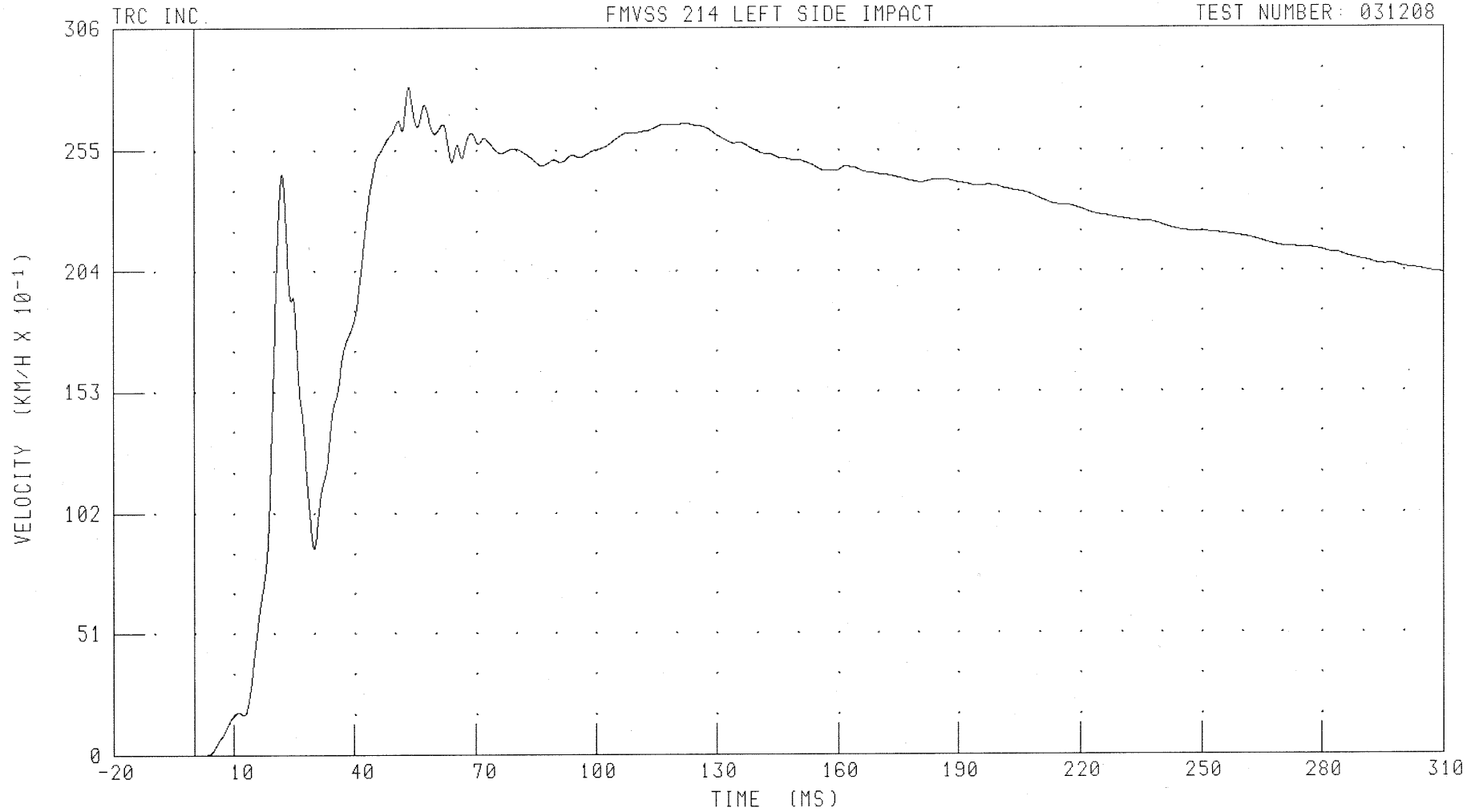
031208

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

VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: VCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 28.10 KM/H @ 53.52 MS; 0.00 KM/H @ 0.80 MS

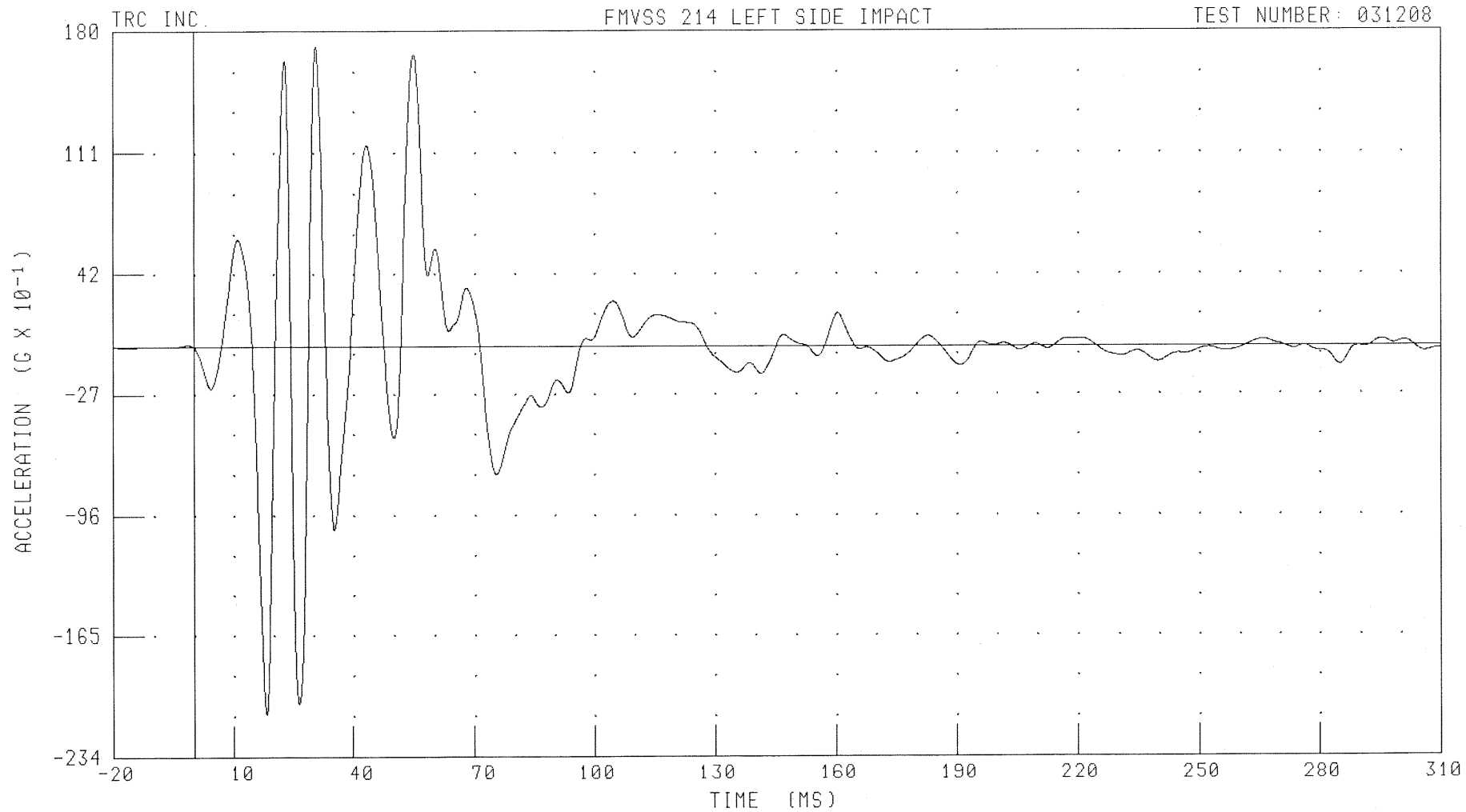
B-105

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: VCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 17.15 G @ 30.72 MS; -21.01 G @ 18.24 MS

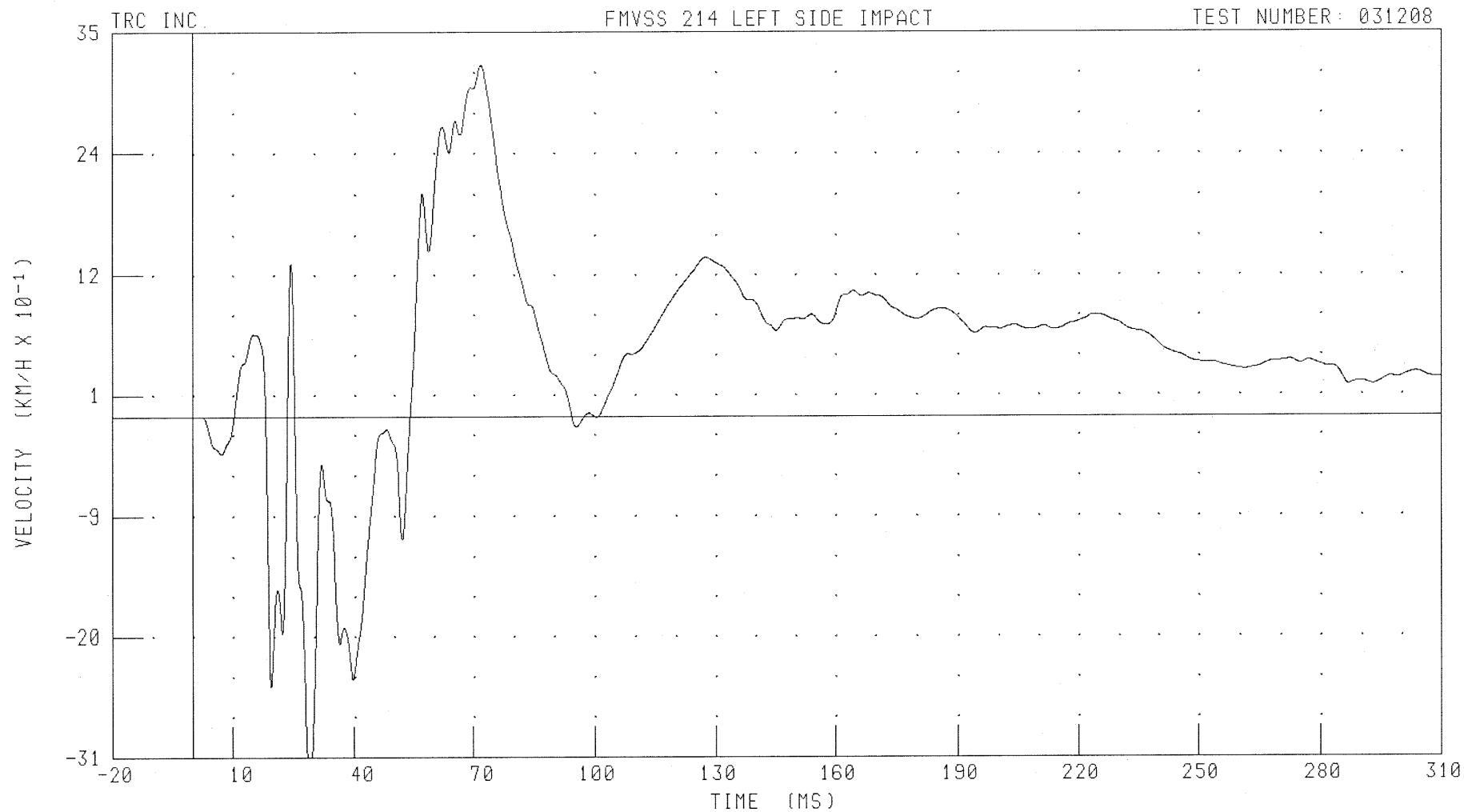
B-106

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: VCGZV1 FILTER: CH. CLASS 180

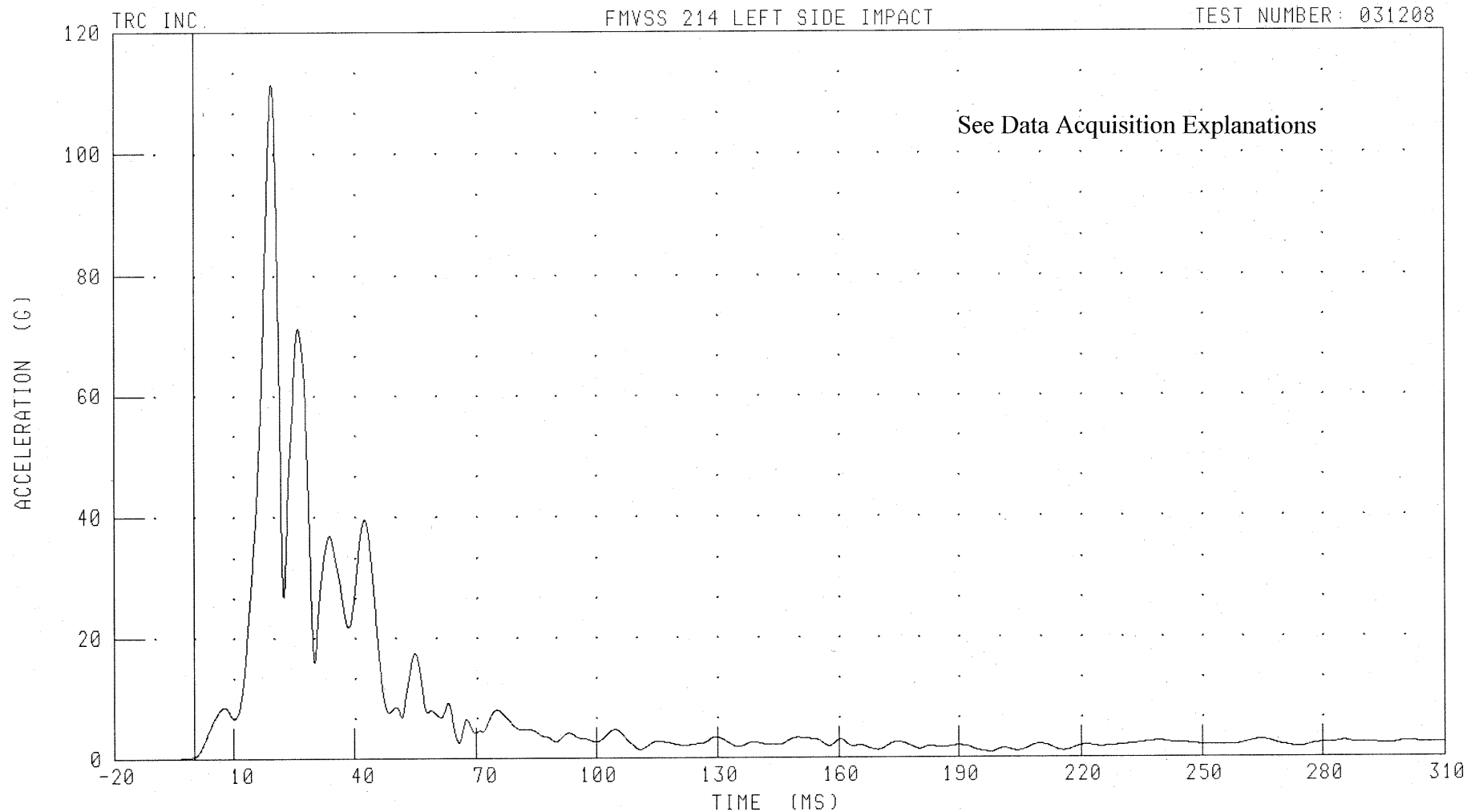
B-107

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: VCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 111.43 G @ 19.60 MS; 0.02 G @ -20.00 MS

B-108

031208

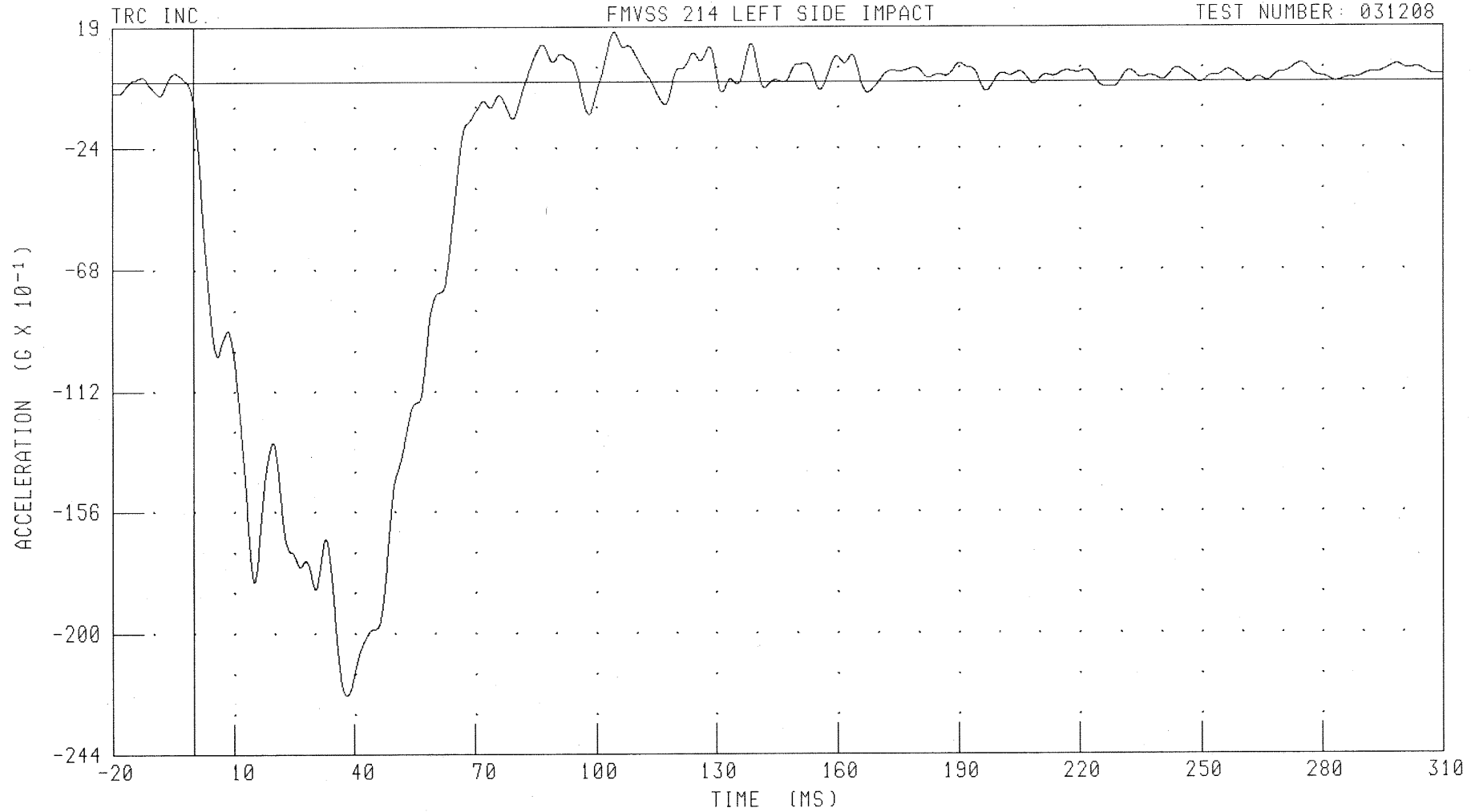
MDB Instrumentation Plots

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

MDB CENTER OF GRAVITY X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: BCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.82 G @ 104.48 MS; -22.25 G @ 38.00 MS

B-110

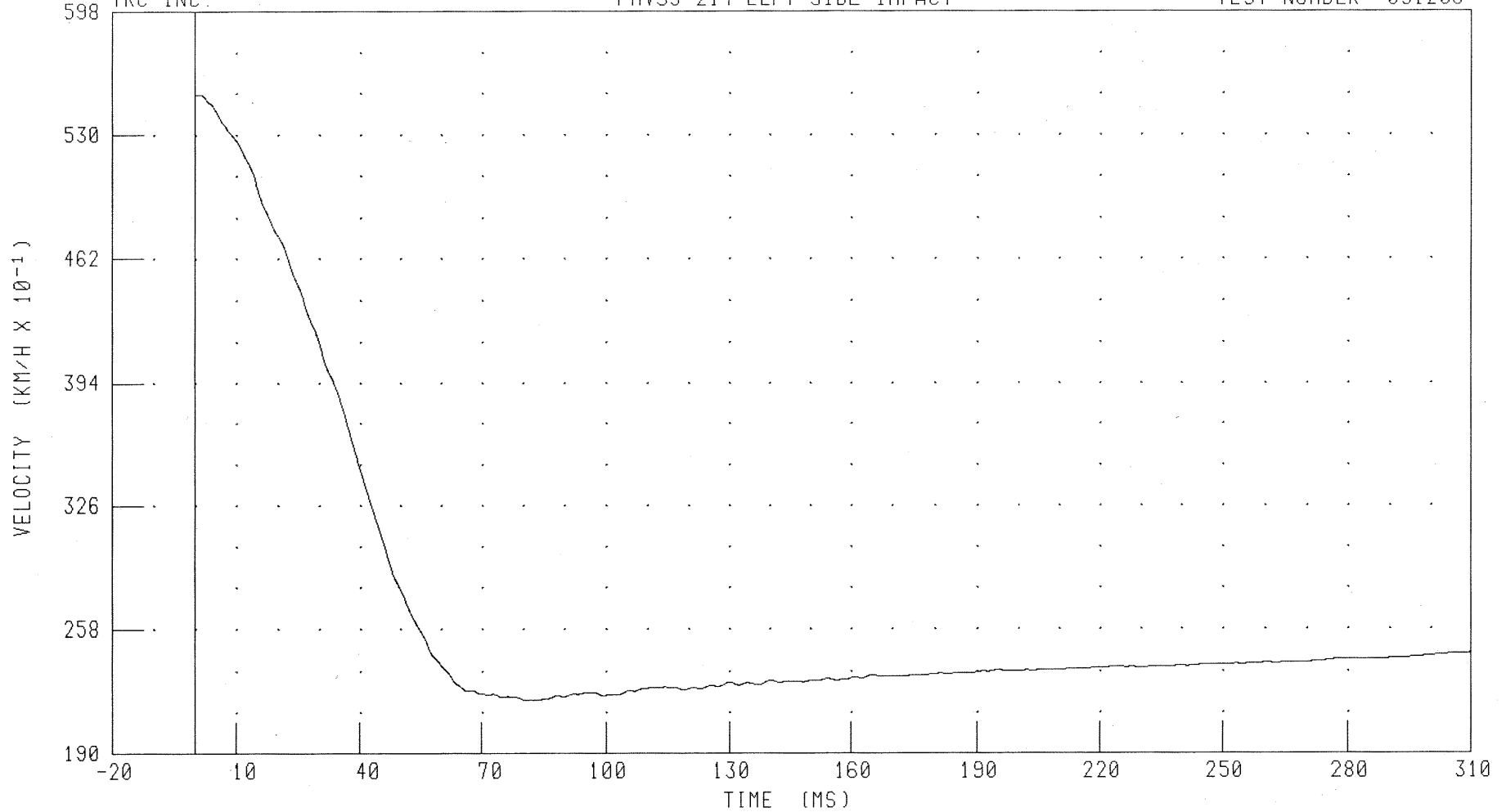
031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
MDB CENTER OF GRAVITY X-AXIS VELOCITY

TRC INC.

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: BCGXV1 FILTER: CH. CLASS 180

PEAK DATA: 55.23 KM/H @ 1.12 MS; 21.91 KM/H @ 80.88 MS

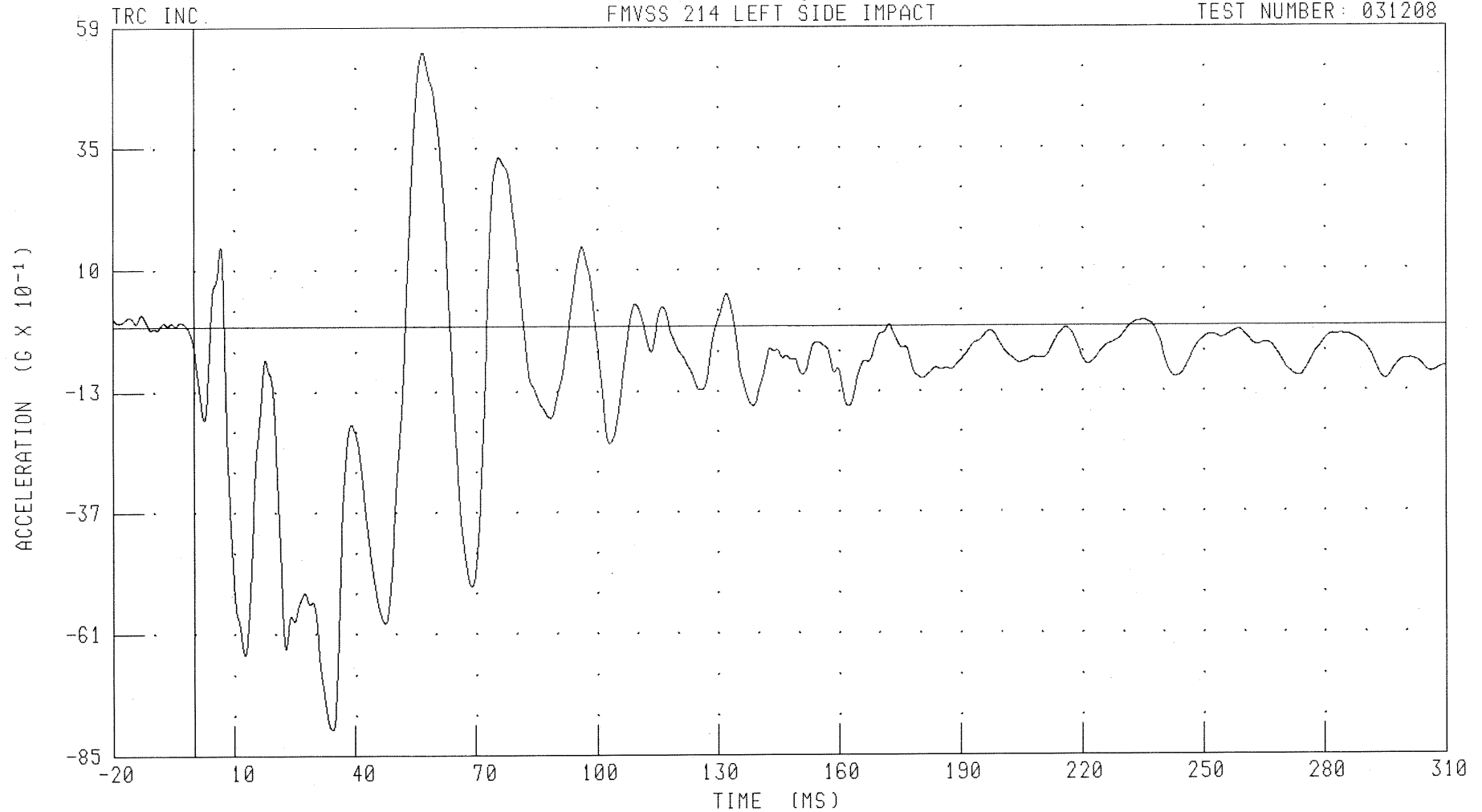
B-111

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
MDB CENTER OF GRAVITY Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: BCGYG1

FILTER: CH. CLASS 60

PEAK DATA: 5.41 G @ 56.96 MS; -7.98 G @ 34.24 MS

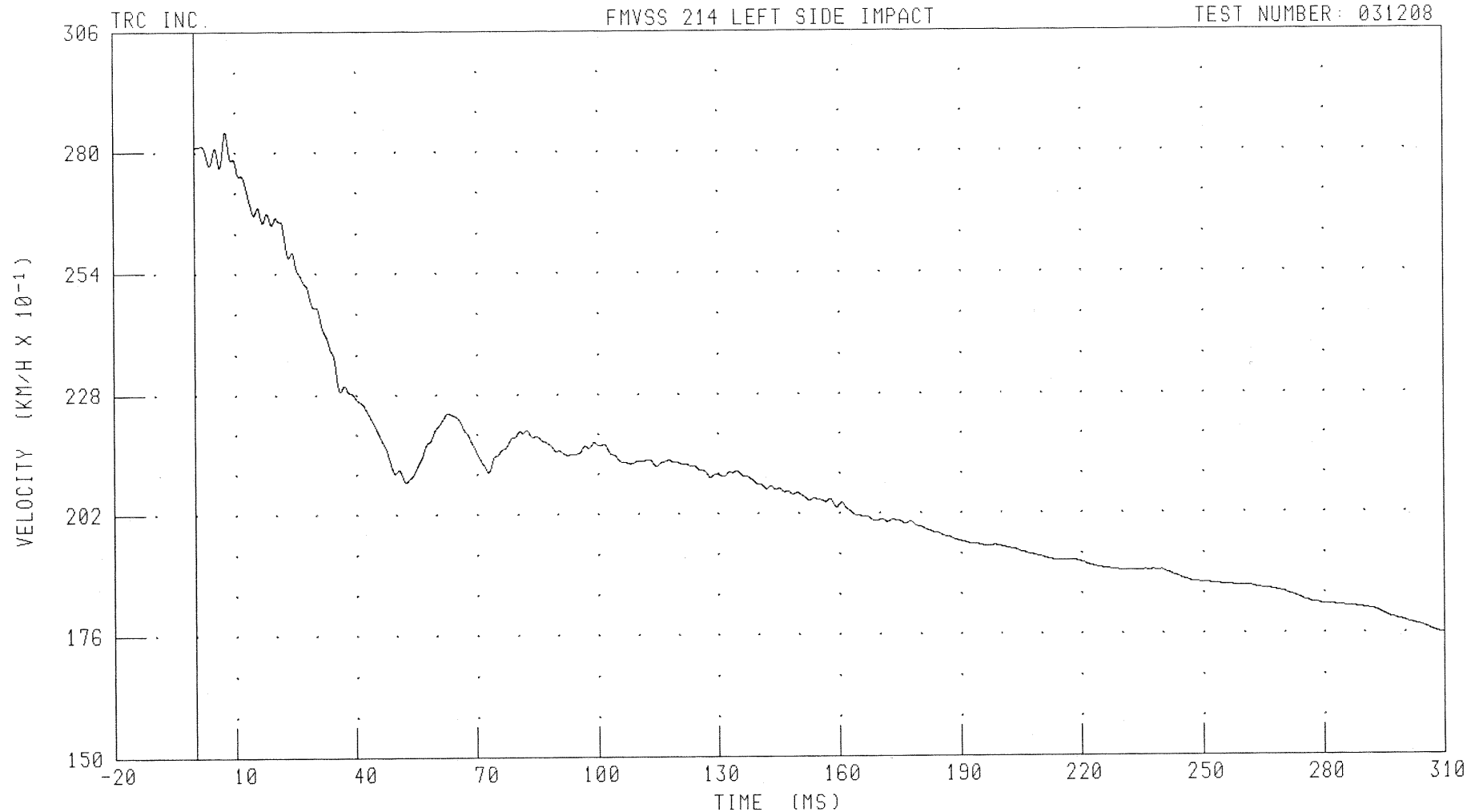
B-112

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
MDB CENTER OF GRAVITY Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: BCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 28.44 KM/H @ 7.68 MS; 17.59 KM/H @ 310.00 MS

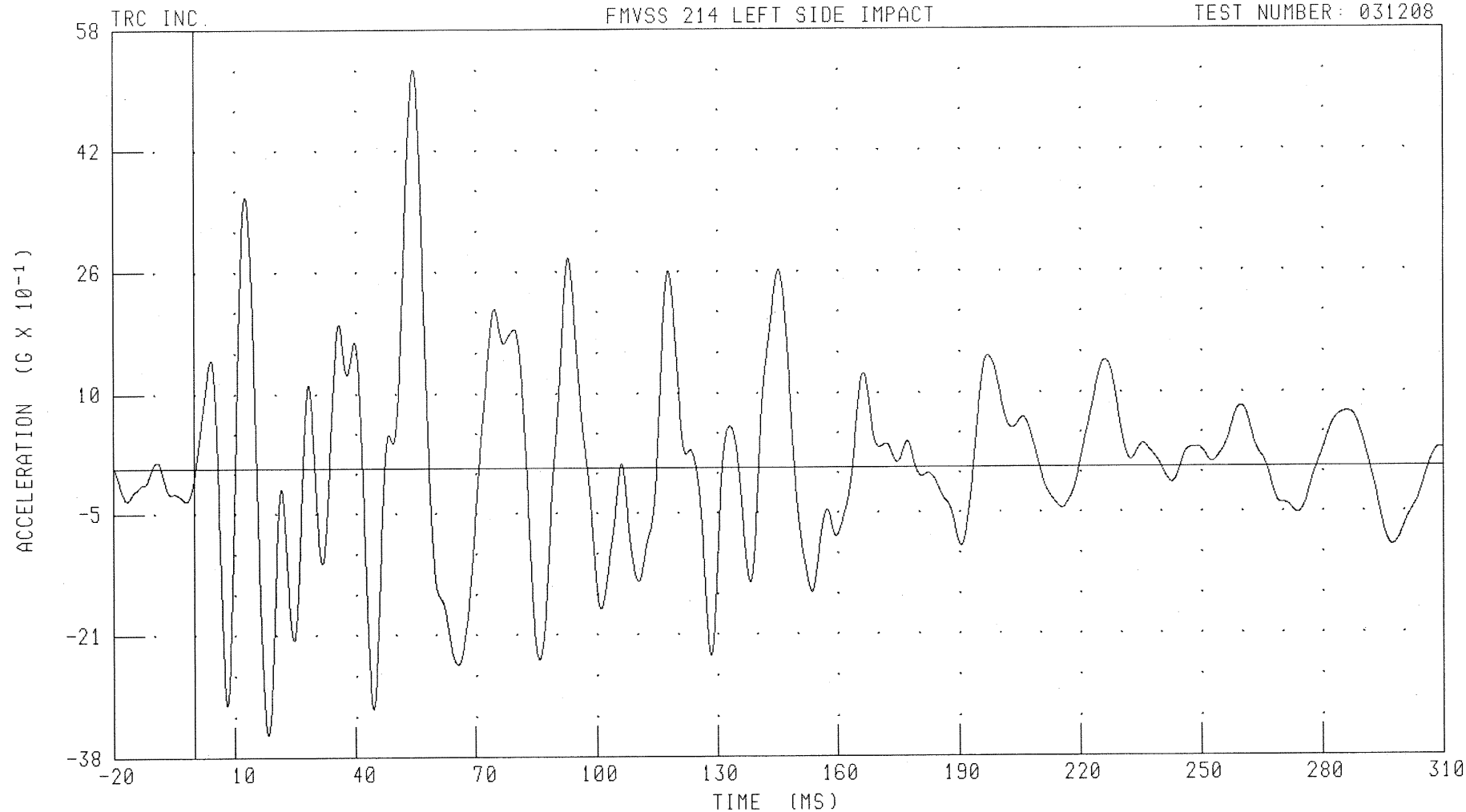
B-113

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: BCGZG1

FILTER: CH. CLASS 60

PEAK DATA: 5.28 G @ 54.64 MS; -3.50 G @ 18.24 MS

B-114

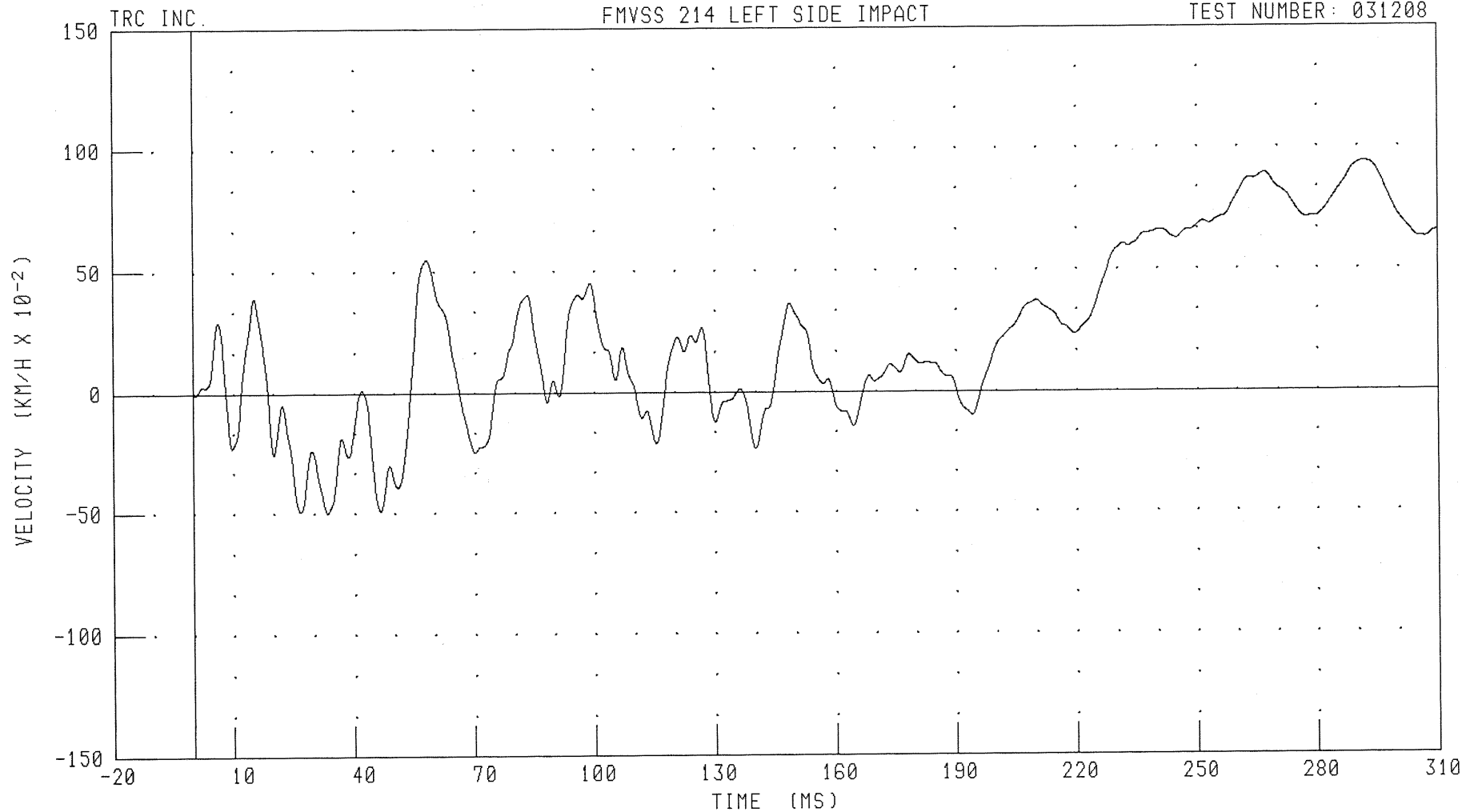
031208

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

MDB CENTER OF GRAVITY Z-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: BCGZV1 FILTER: CH. CLASS 180

PEAK DATA: 0.94 KM/H @ 291.52 MS; -0.50 KM/H @ 33.44 MS

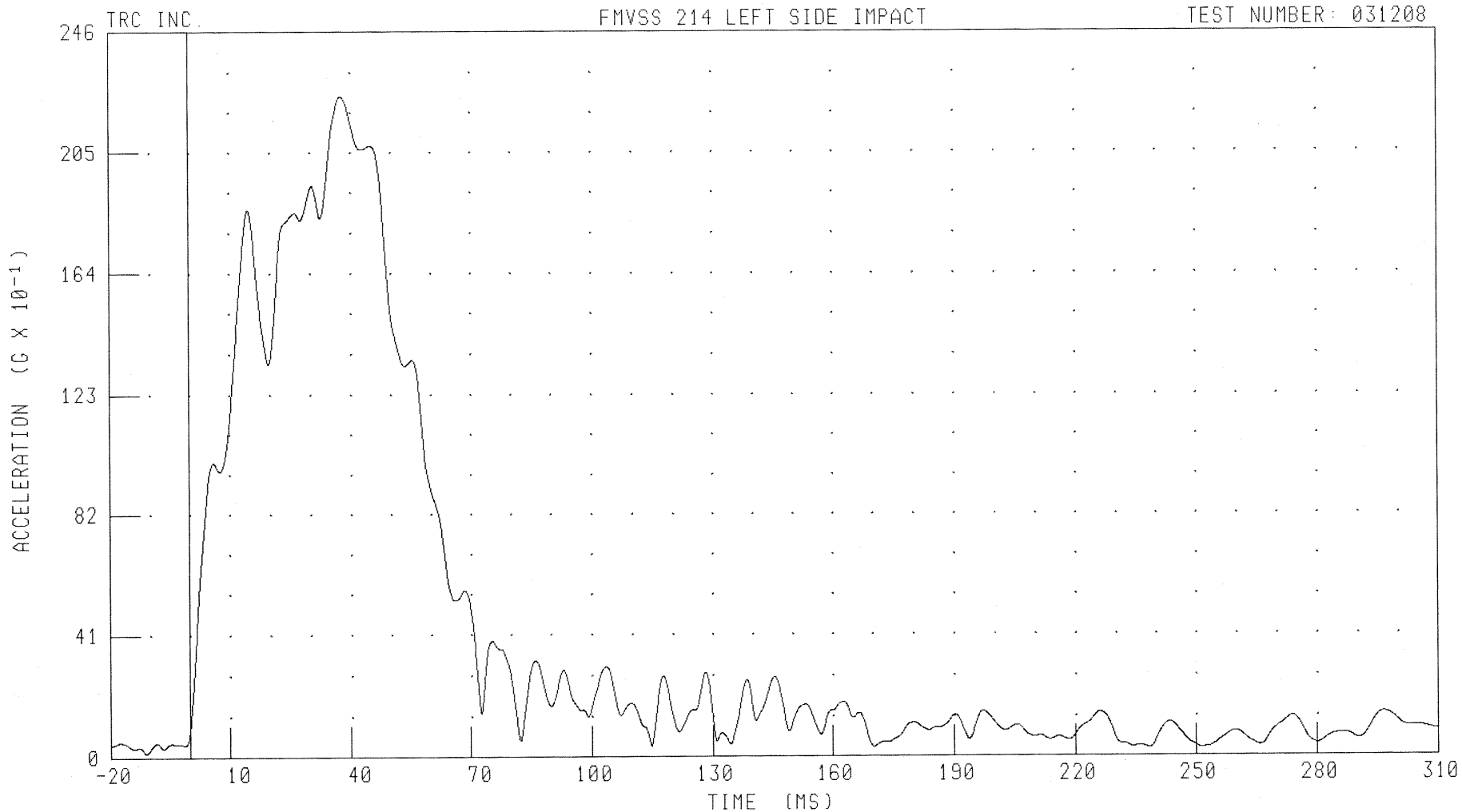
B-115

031208

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 HYUNDAI TIBURON
MDB CENTER OF GRAVITY RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: BCCRG1 FILTER: CH. CLASS 60

PEAK DATA: 22.42 G @ 37.84 MS; 0.13 G @ -11.20 MS

B-116

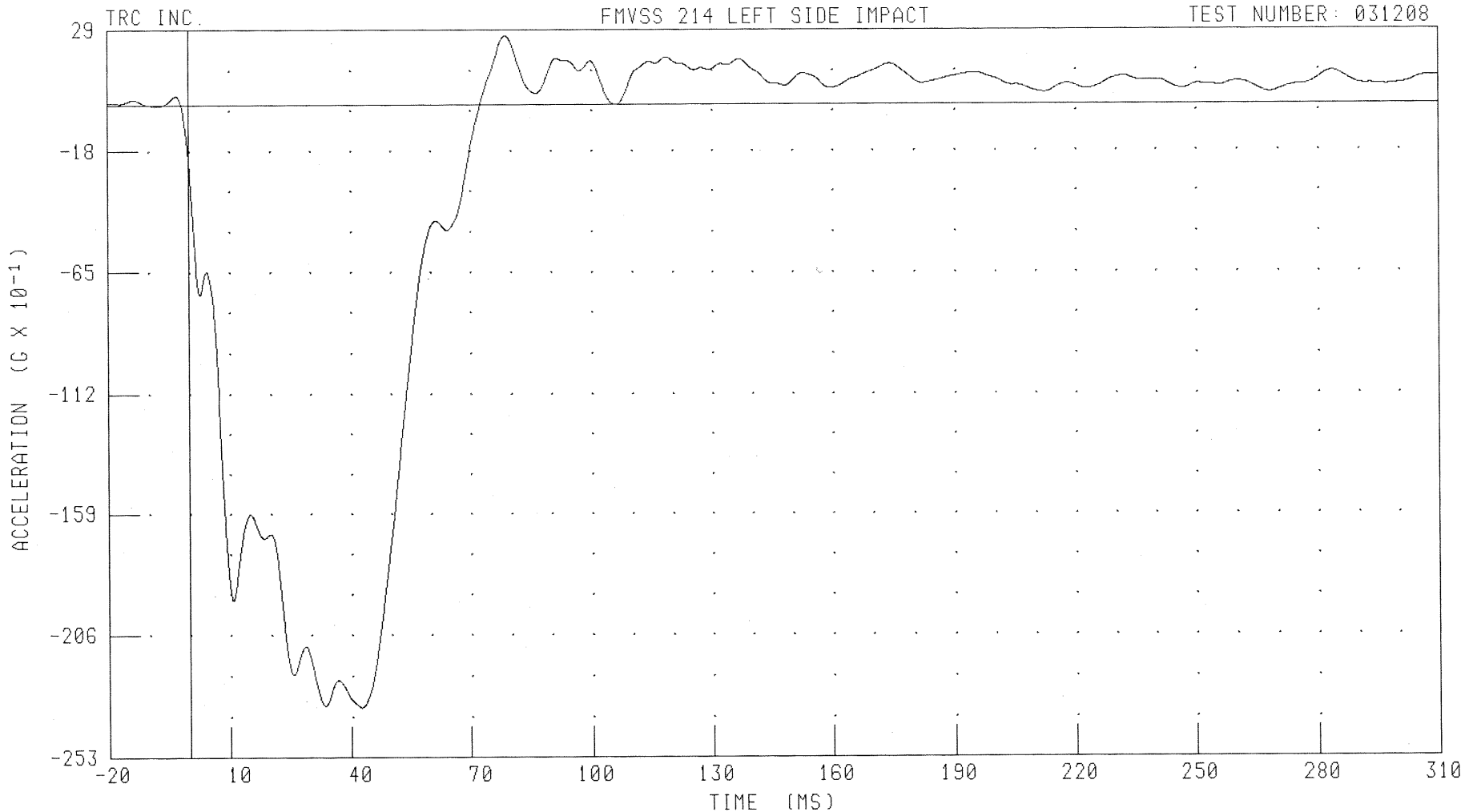
031208

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

MOB LEFT REAR X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRRXG1 FILTER: CH. CLASS 60

PEAK DATA: 2.67 G @ 78.80 MS; -23.38 G @ 42.48 MS

B-117

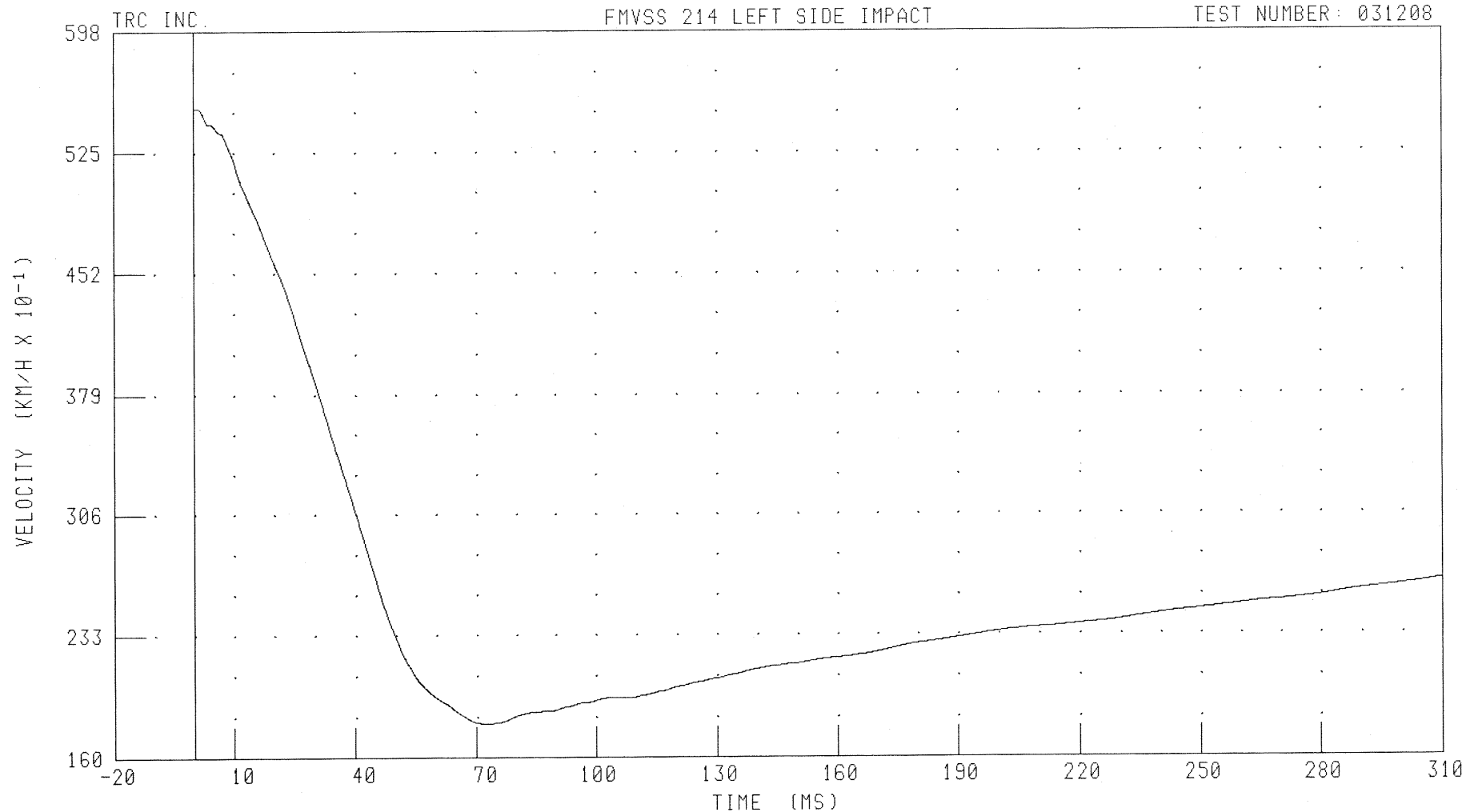
031208

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

MOB LEFT REAR X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRRXV1 FILTER: CH. CLASS 180

PEAK DATA: 55.21 KM/H @ 0.64 MS; 18.03 KM/H @ 72.96 MS

B-118

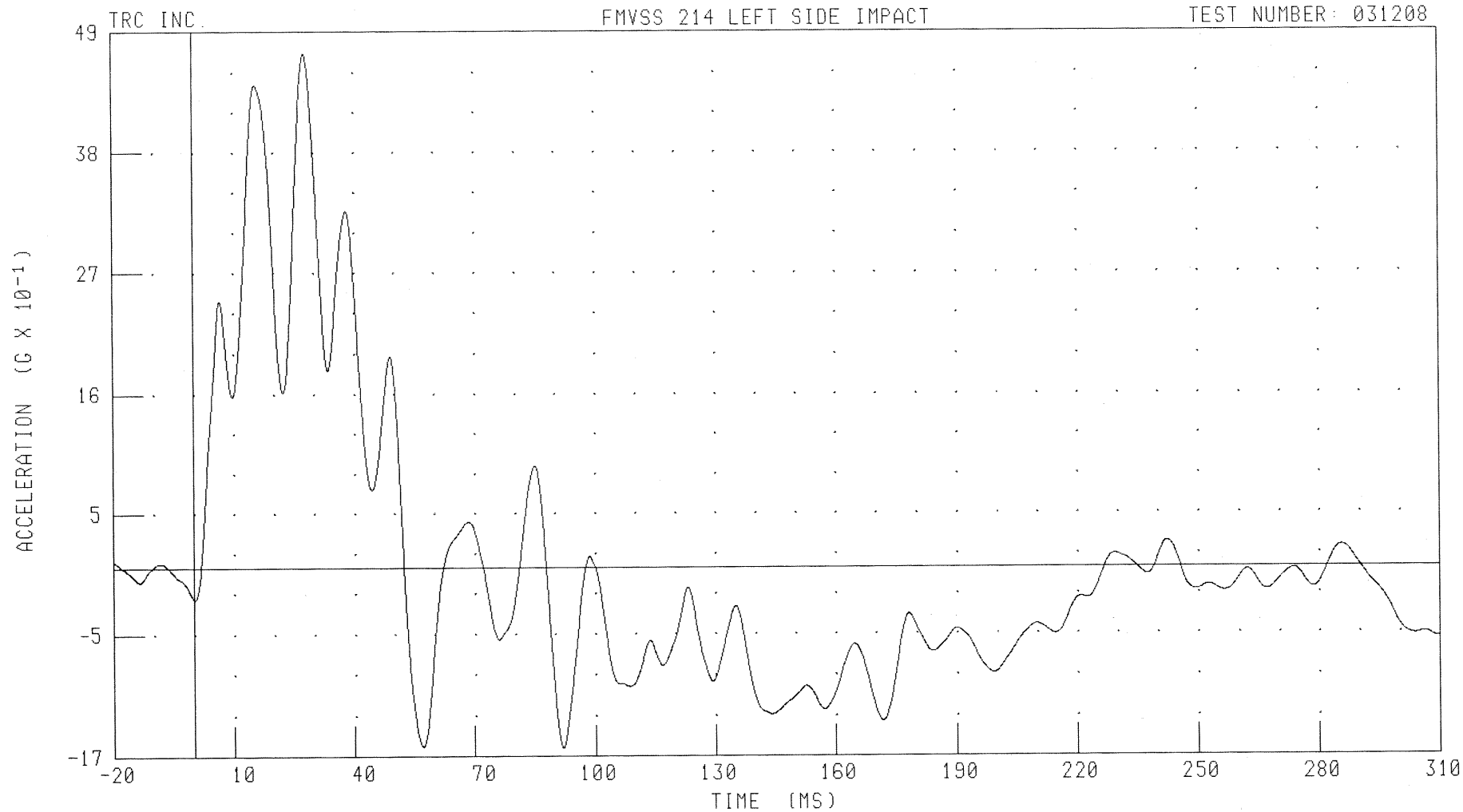
031208

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

MOB LEFT REAR Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRRYG1 FILTER: CH. CLASS 60

PEAK DATA: 4.71 G @ 27.84 MS; -1.63 G @ 92.00 MS

B-119

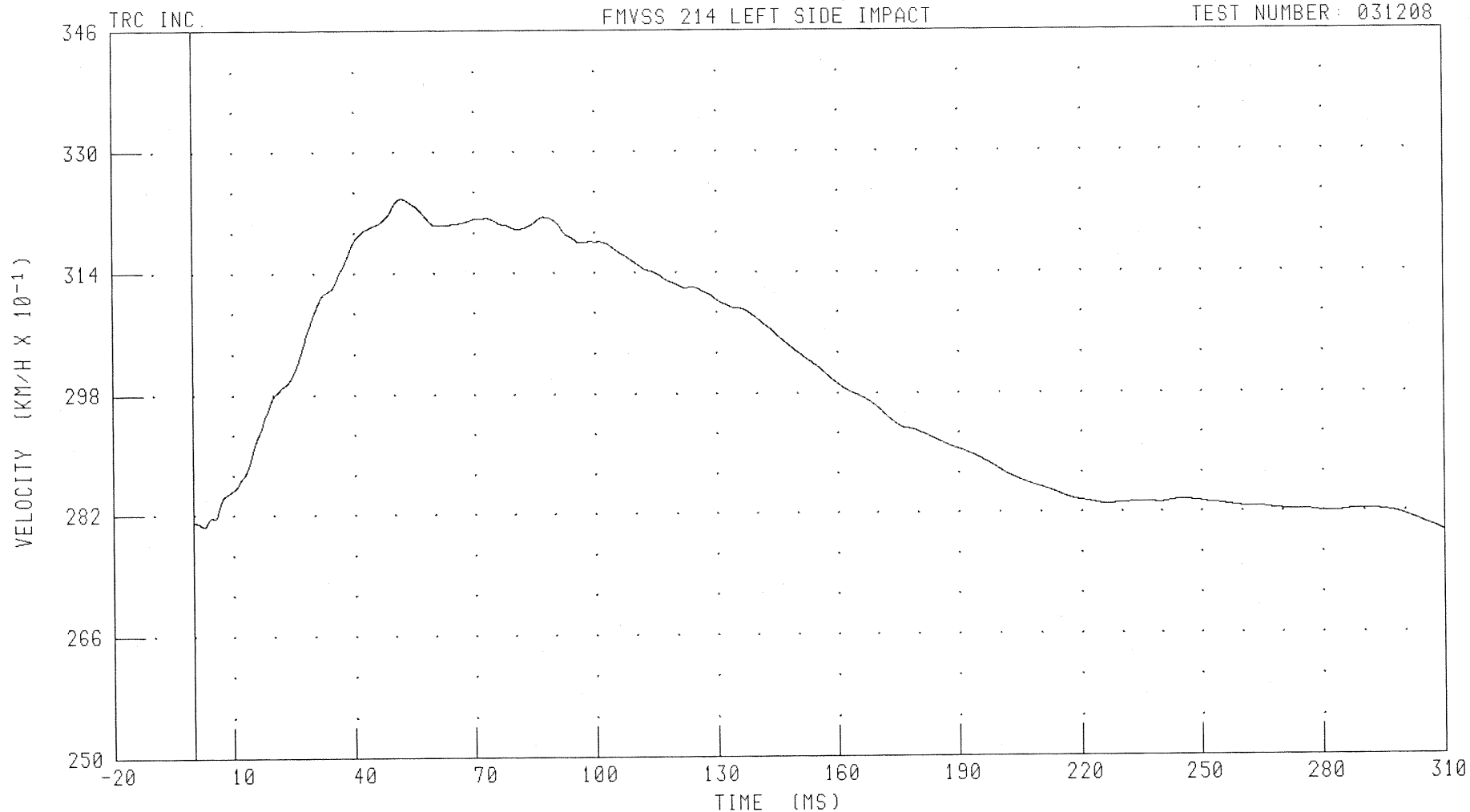
031208

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

MDB LEFT REAR Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LRRYV1 FILTER: CH. CLASS 180

PEAK DATA: 32.38 KM/H @ 51.92 MS; 27.93 KM/H @ 310.00 MS

B-120

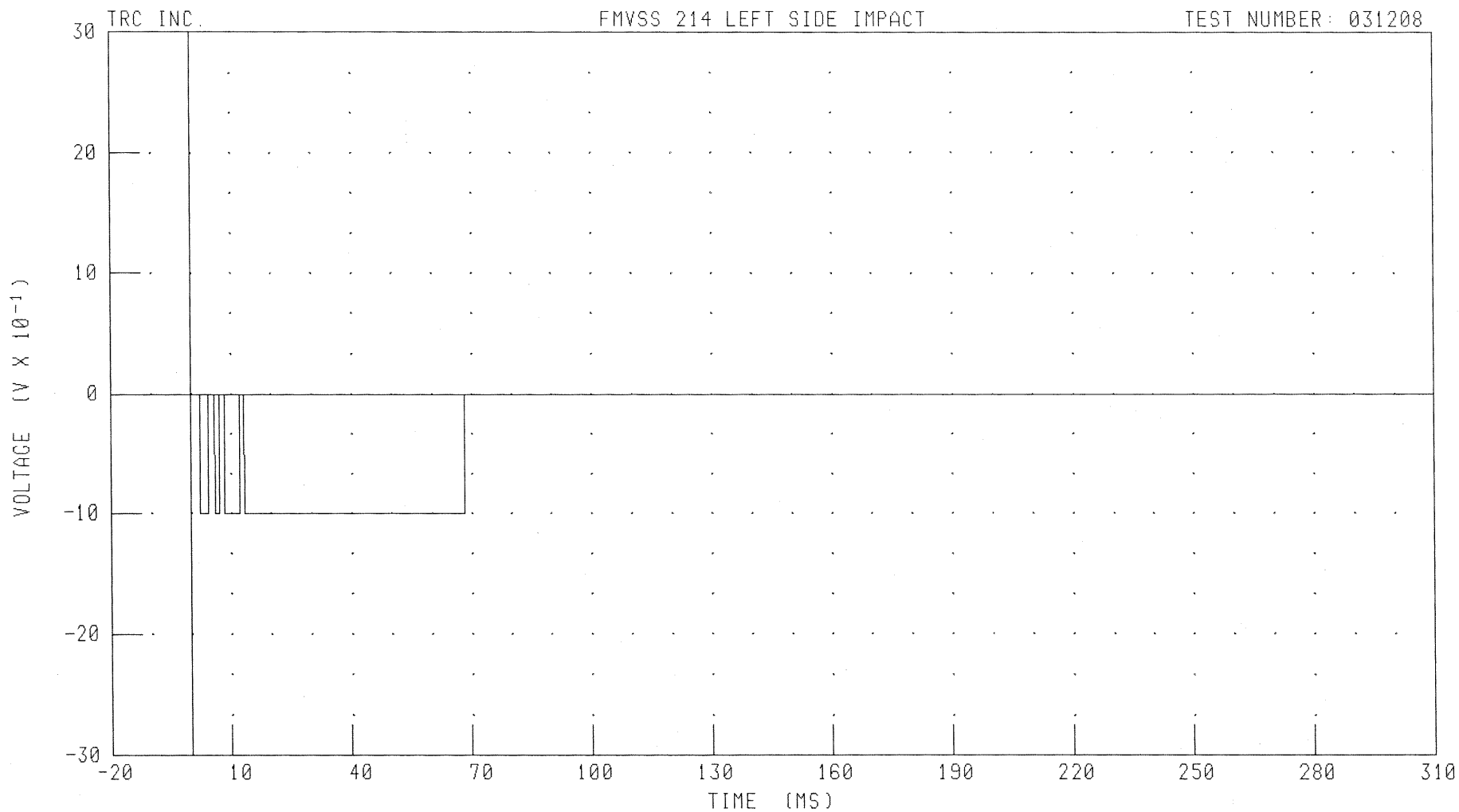
031208

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

MDB RIGHT SIDE CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: MDBR1 FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ 2.32 MS

B-121

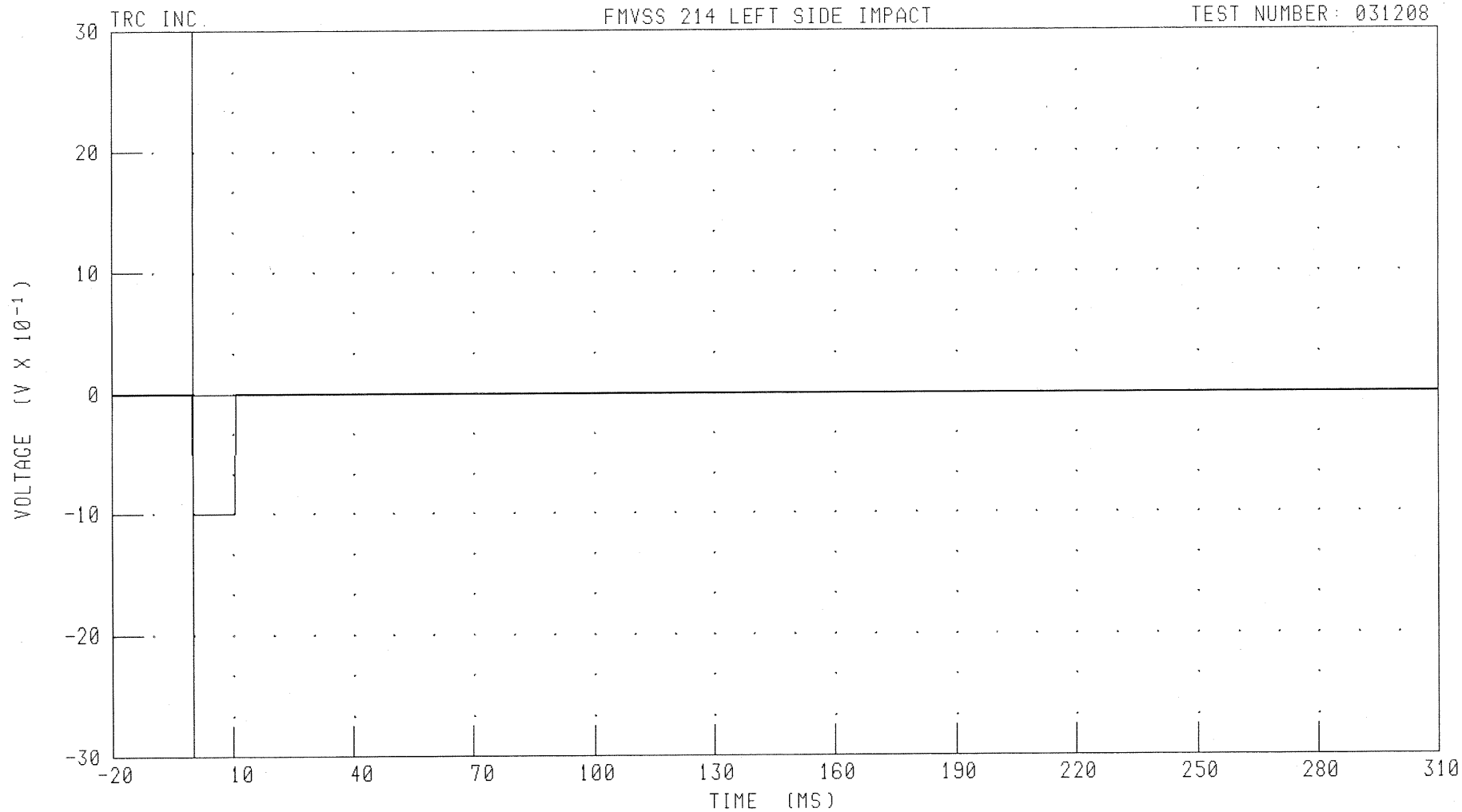
031208

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

MDB LEFT SIDE CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: MDBL1

FILTER: CH. CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS; -1.00 V @ -0.08 MS

B-122

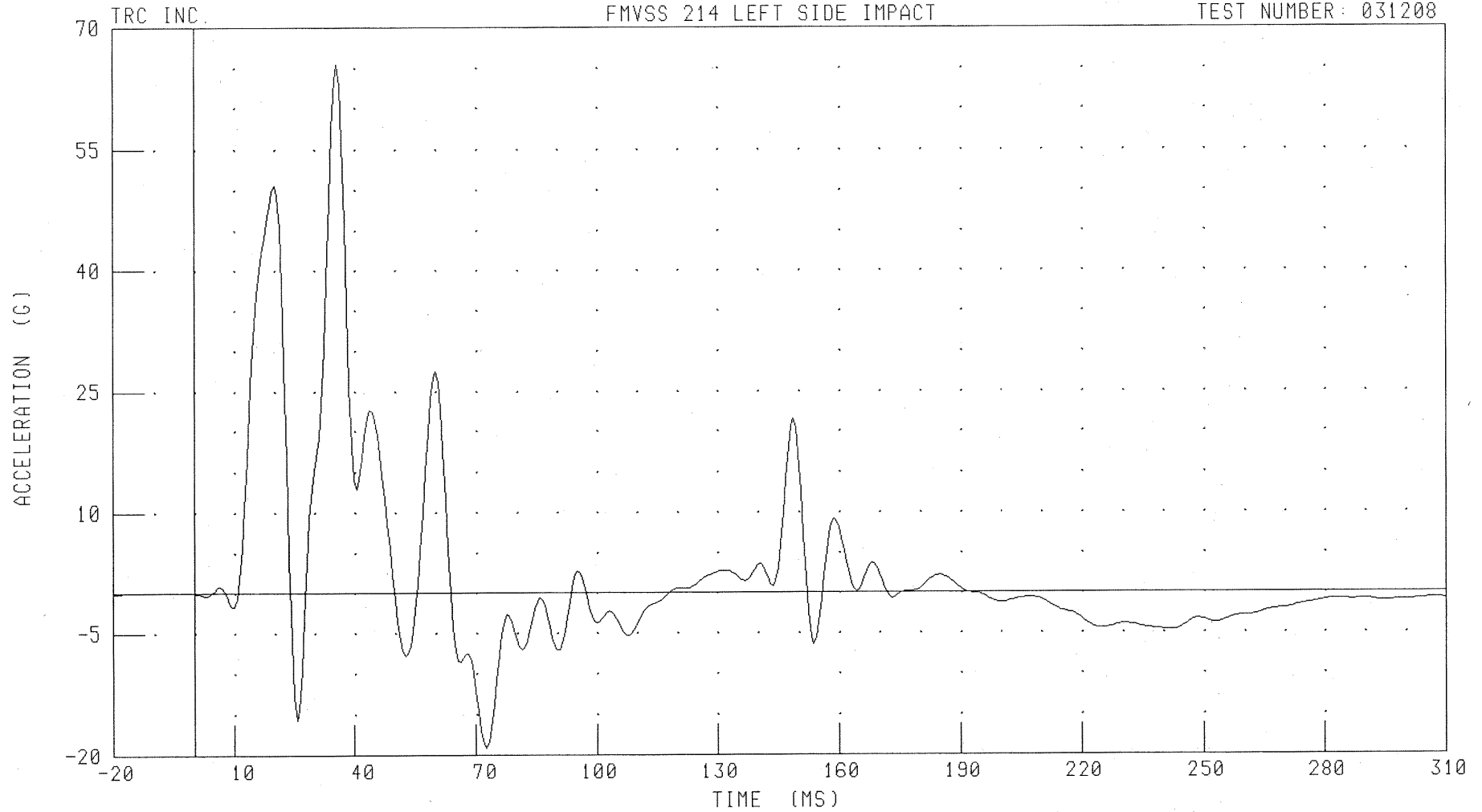
031208

Driver Dummy Instrumentation Plots

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LURYC1 FILTER: FIR 100

PEAK DATA: 65.50 G @ 35.63 MS; -19.07 G @ 72.50 MS

B-124

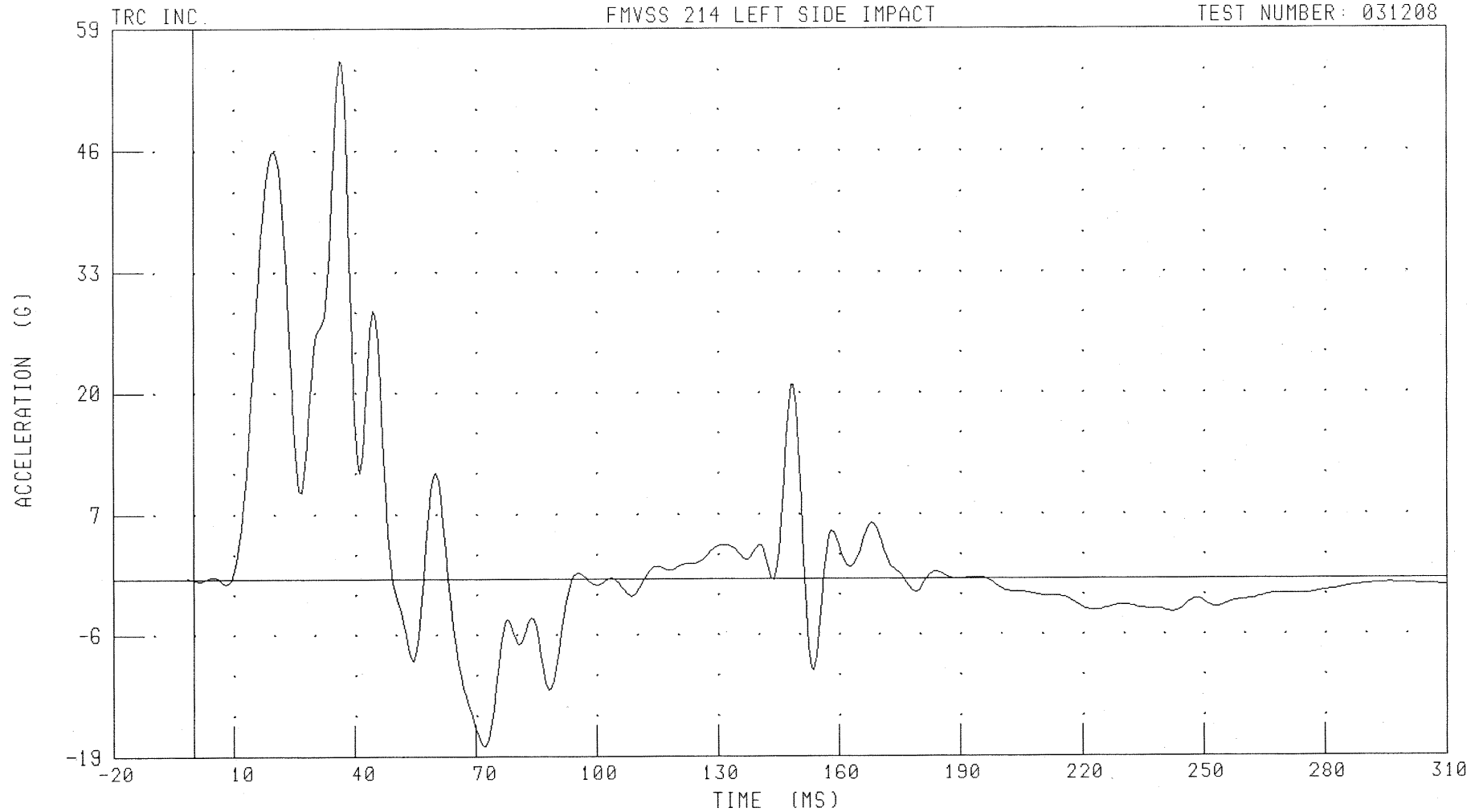
031208

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

DRIVER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLRYG1

FILTER: FIR 100

PEAK DATA: 55.66 G @ 36.25 MS; -17.92 G @ 71.88 MS

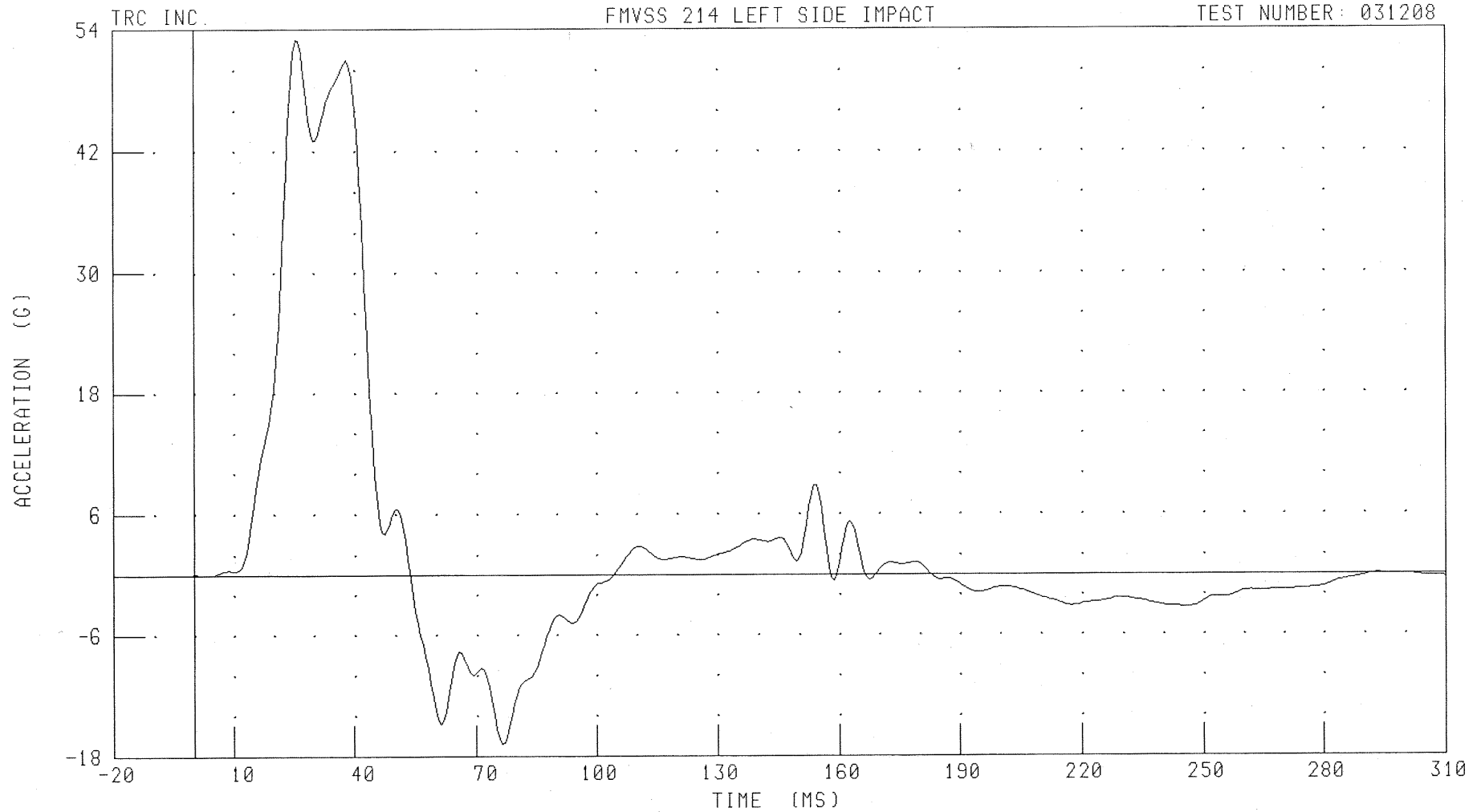
B-125

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: T12YC1 FILTER: FIR 100

PEAK DATA: 53.04 G @ 25.63 MS; -16.79 G @ 76.25 MS

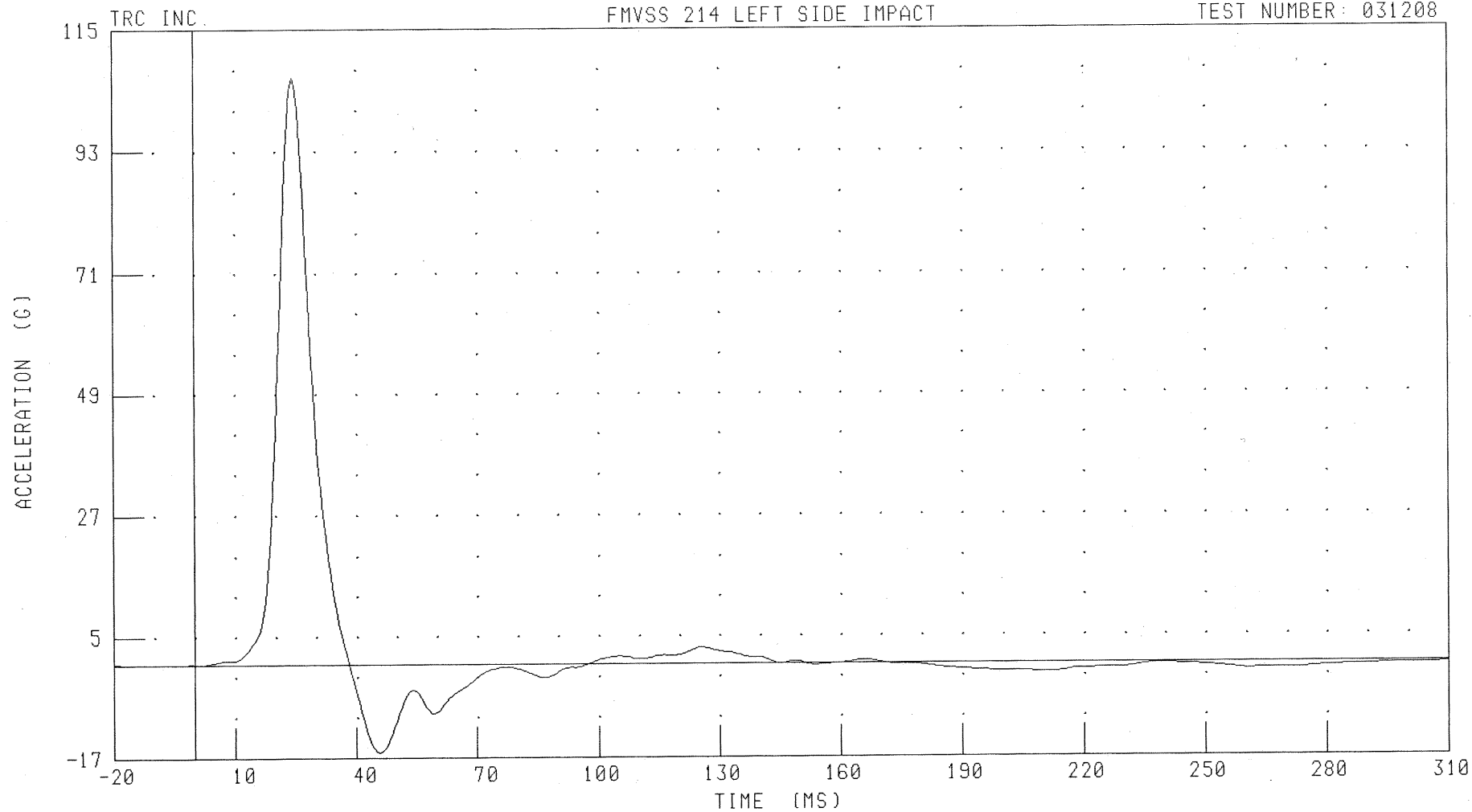
B-126

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: PEVYG1 FILTER: FIR 100

PEAK DATA: 106.38 G @ 24.38 MS; -16.07 G @ 45.62 MS

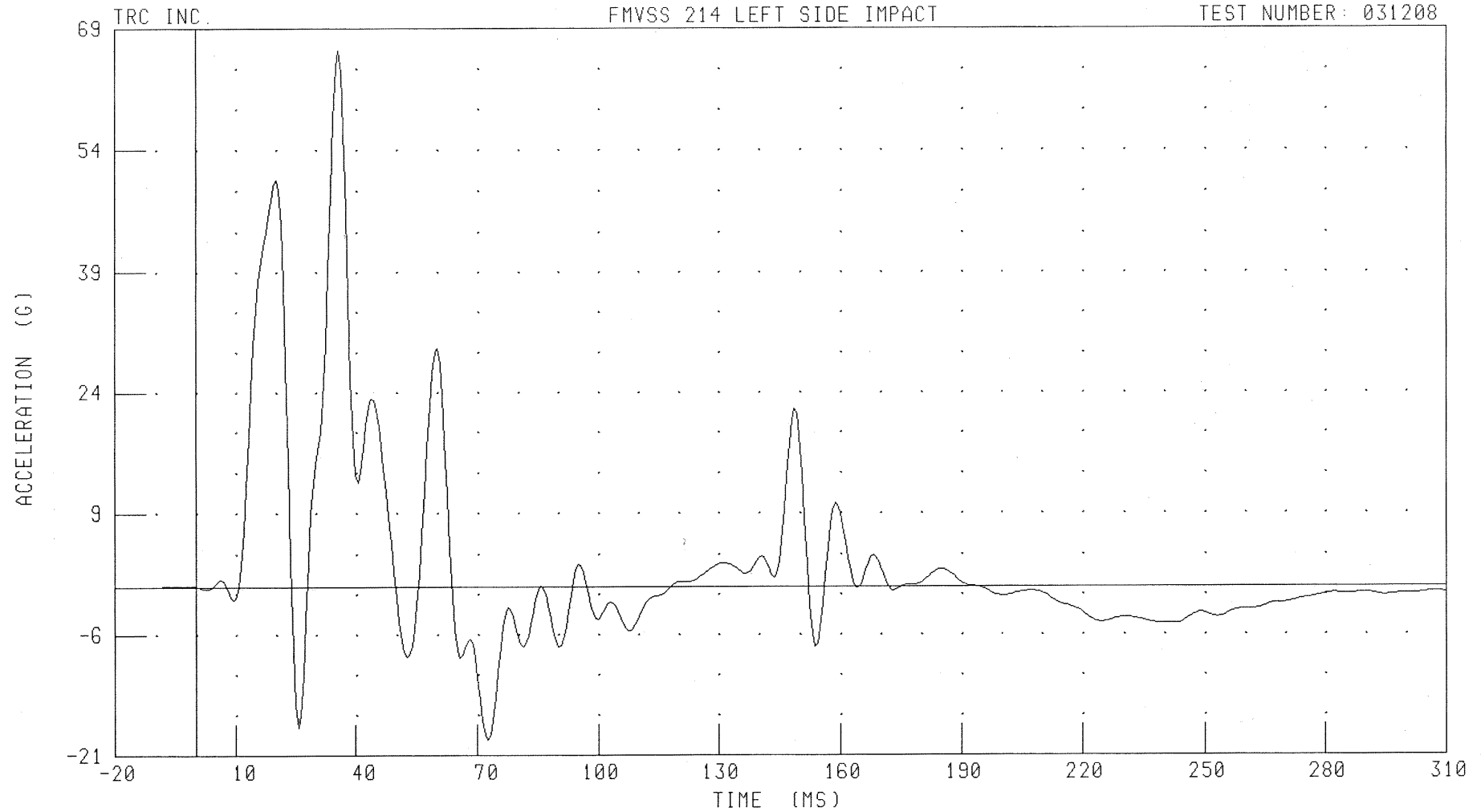
B-127

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LURYR1 FILTER: FIR 100

PEAK DATA: 66.24 G @ 35.63 MS; -19.14 G @ 72.50 MS

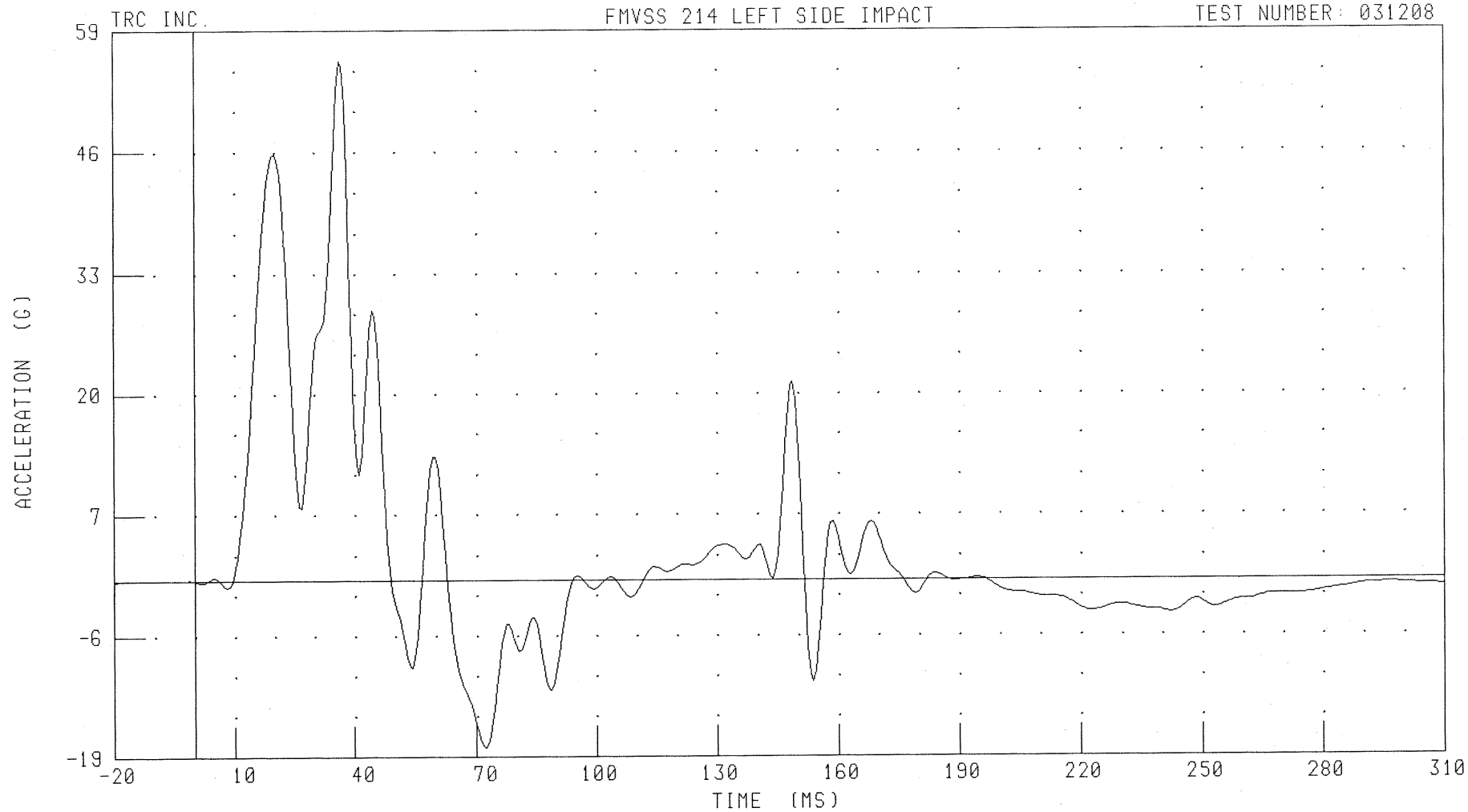
B-128

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: LLRYR1

FILTER: FIR 100

PEAK DATA: 55.70 G @ 36.25 MS; -17.98 G @ 72.50 MS

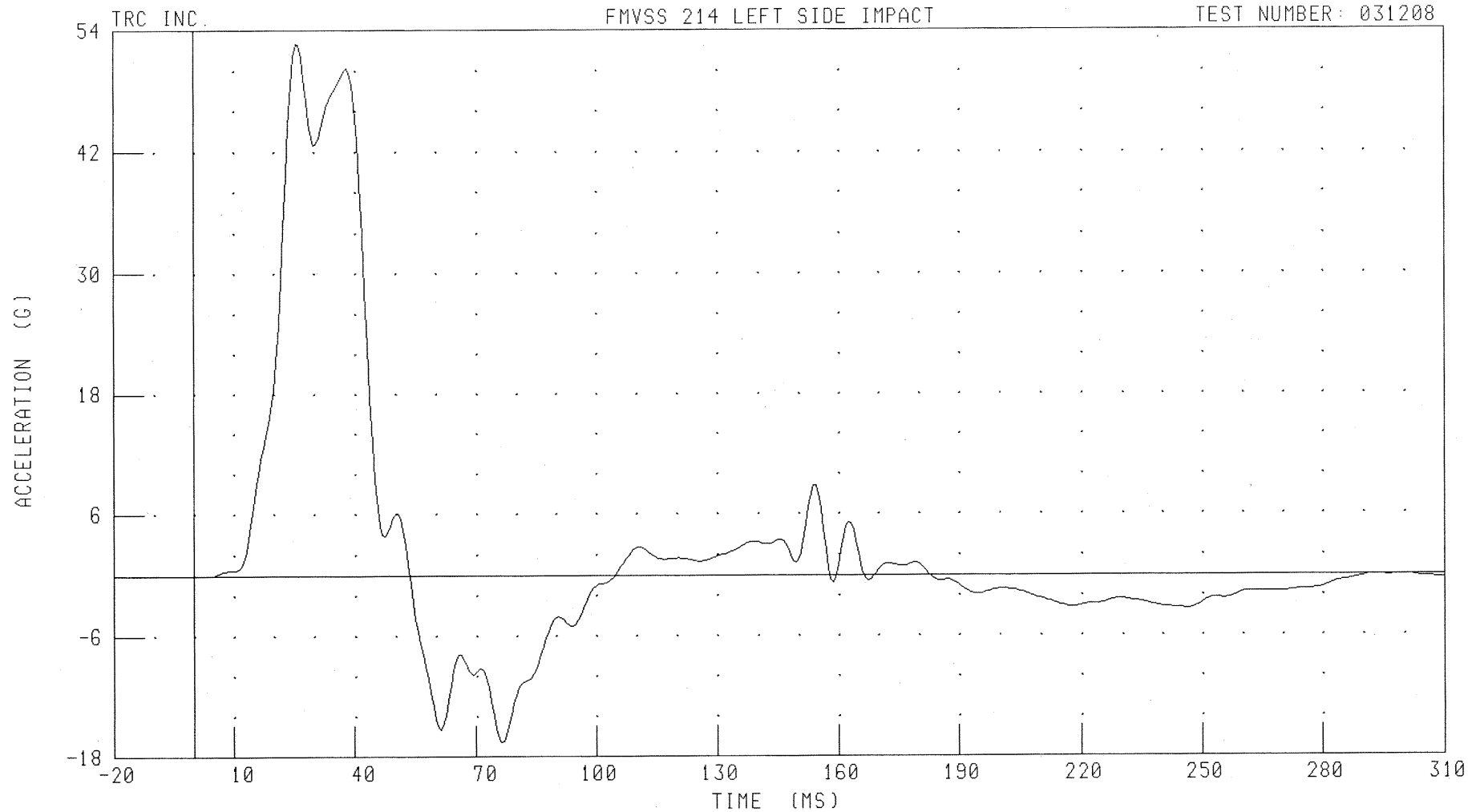
B-129

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: T12YR1 FILTER: FIR 100

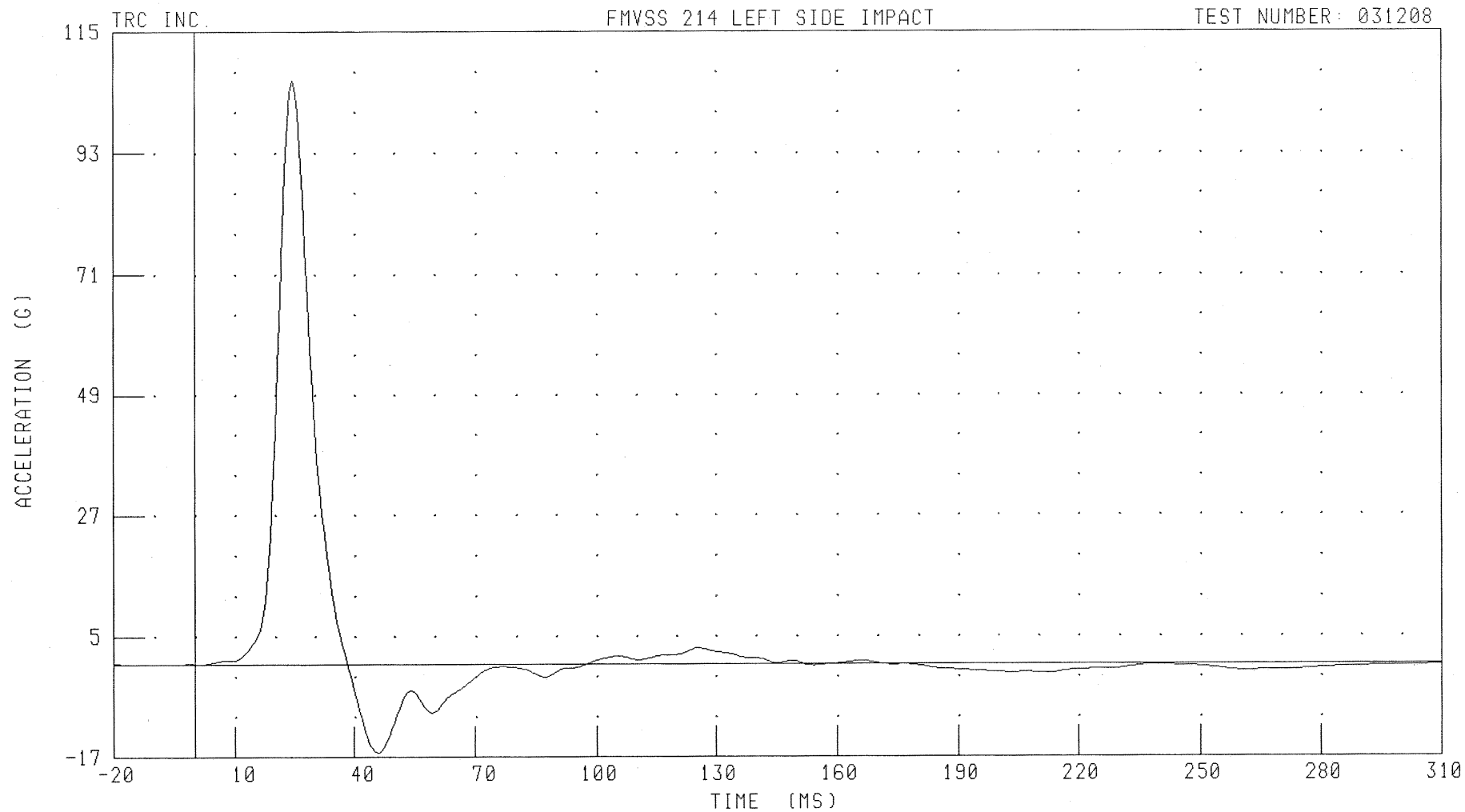
B-130

031208

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

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 031208



CHANNEL: PEVYR1 FILTER: FIR 100

PEAK DATA: 106.19 G @ 24.38 MS; -16.24 G @ 45.62 MS

B-131

031208

Appendix C

SID HIII Configuration and Performance Verification Data

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

Date: 09/24/03, 12/10/03 TRC Inc. Test Number: 031208
 Laboratory Technician: Jack Willeke

Test Parameter	Specification	SID HIII 059	
		Pre-Test	Post-Test
SH - Seated Height (mm)	889-909	909	906
RH - Rib Height (mm)	502-520	512	505
HP - Hip Pivot Height (mm)	99 ref	99.1	99.1
RD - Rib from Back Line (mm)	229-241	229	229
KH - Knee Pivot from Back Line (mm)	511-526	521	517
KV - Knee Pivot to Floor (mm)	490-505	492	495
HW - Hip Width (mm)	356-391	365	362
Thorax Impacts			
Temperature (°C)	18.9-25.5	20.8	21.7
Relative Humidity (%)	10-70	49.0	36.0
Probe Speed (m/s)	4.27-4.33	4.31	4.29
Upper Rib (g's)	37-46	41.4	42.3
Lower Rib (g's)	37-46	39.5	40.9
Lower Spine (g's)	15-22	18.9	20.2
Pelvis Impacts			
Temperature (°C)	18.9-25.5	20.9	21.7
Relative Humidity (%)	10-70	43.0	36.0
Probe Speed (m/s)	4.27-4.33	4.27	4.28
Pelvis (g's)	40-60	47.6	42.9

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.
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.
Thoracic Shock Absorber Test:	The thoracic shock absorber was tested on September 11, 2003 for a previous calibration series.

Transportation Research Center Inc.

SID/HIII Dummy

External Dimensions

Serial No. 059 Calibration No. 02

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	519 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	229 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	521 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	492 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

John K. Claidge

Approved

V.J. Walter



TRANSPORTATION RESEARCH CENTER INC.

LATERAL HEAD DROP TEST

HYBRIDIII SID DUMMY

23-SEP-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. HL05902

572M SID/HIII SN059 HEAD CAL02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 deg. C	21.39 deg. C
RELATIVE HUMIDITY	10 - 70 %	49.00 %
PEAK RESULTANT ACCELERATION	120 - 150 G	149.44 G
PEAK LONGITUDINAL ACCELERATION	15 G MAX	6.32 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

V. F. Watters

RUN NUMBER: 092703.1655;2

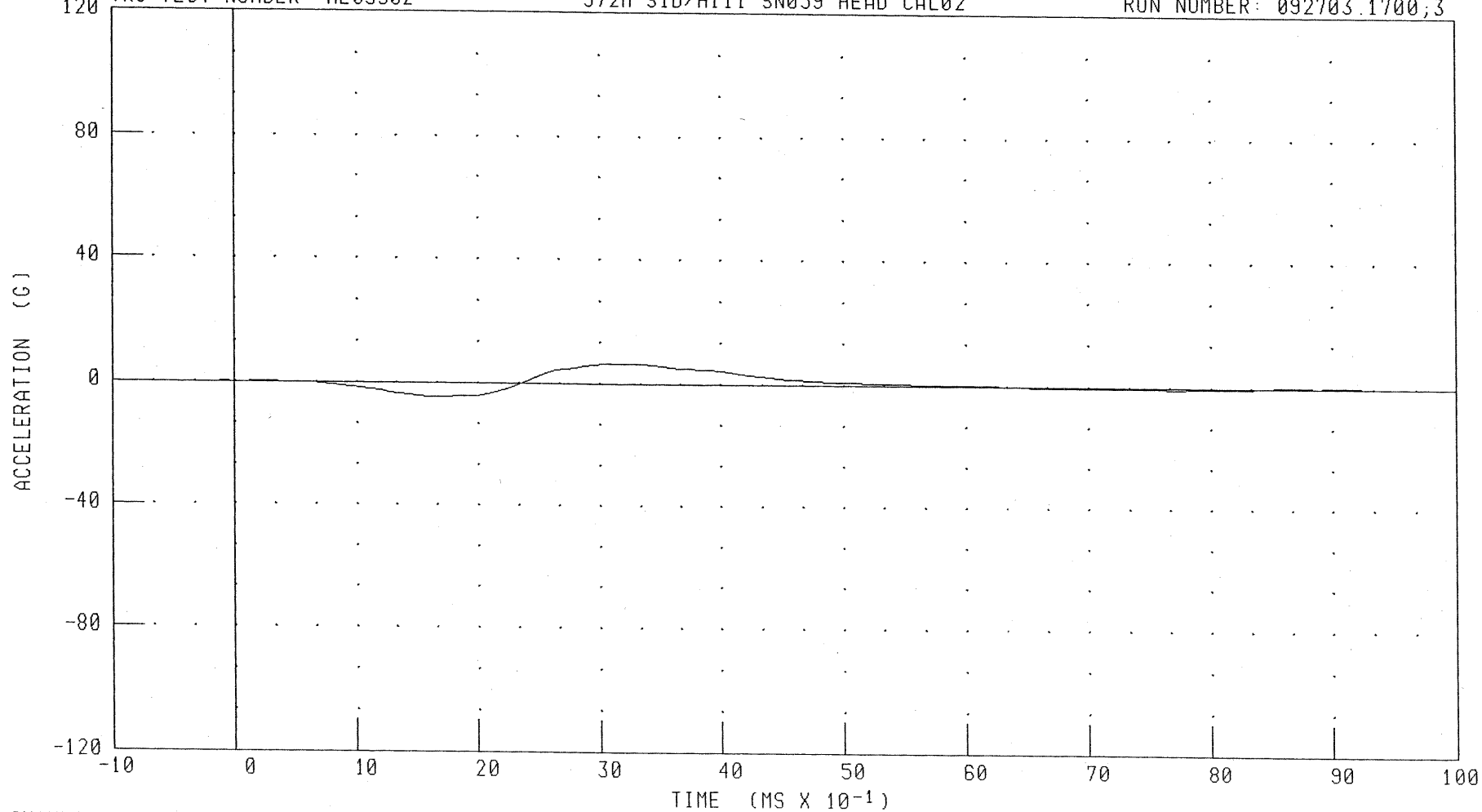
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: HL05902

572M SID/HIII SN059 HEAD CAL02

RUN NUMBER: 092703.1700;3



CHANNEL: HEDXC

FILTER: CH. CLASS 1000

PEAK DATA: 6.32 G @ 3.28 MS; -4.51 G @ 1.68 MS

C-6

031208

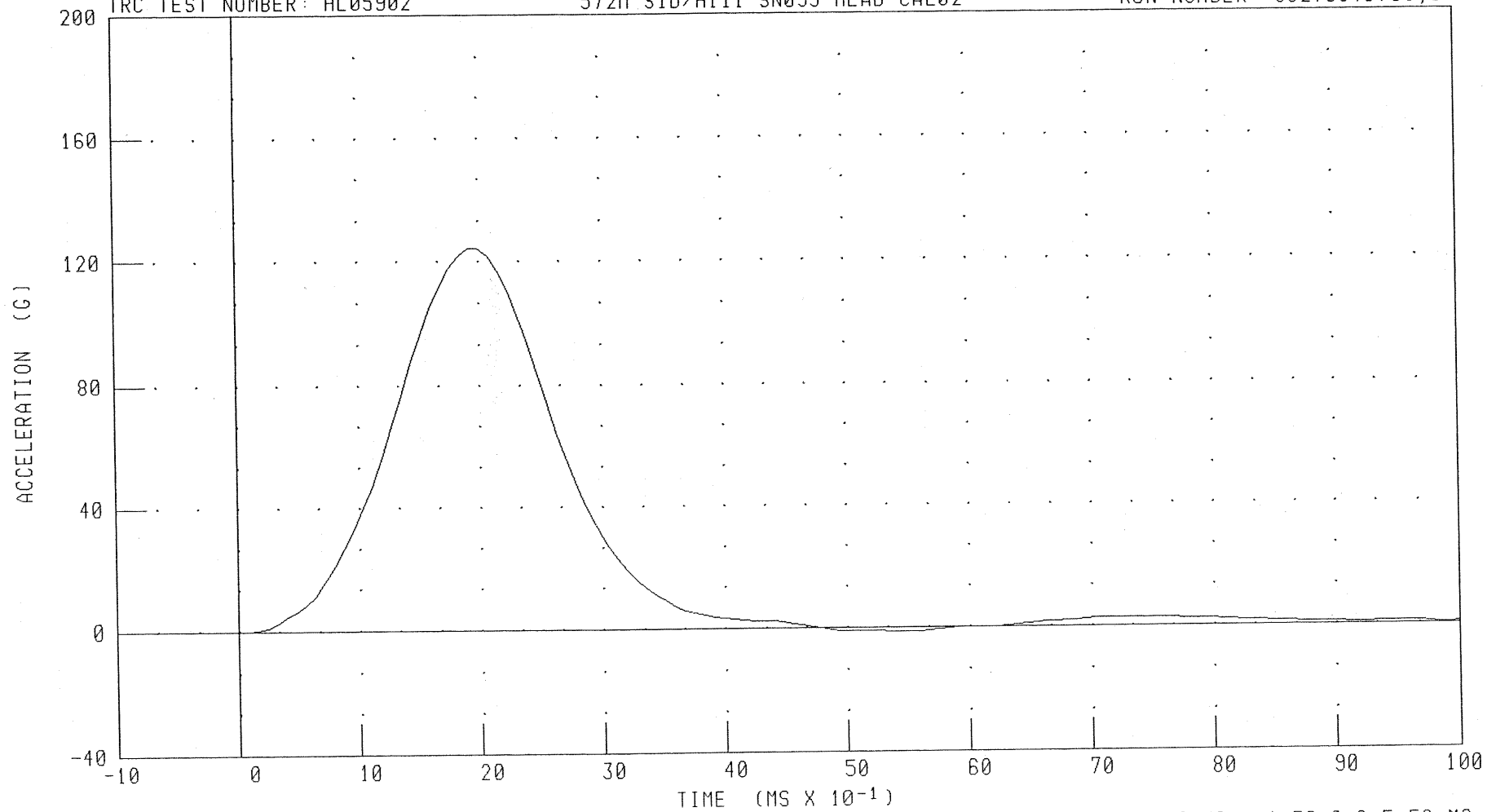
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: HL05902

572M SID/HIII SN059 HEAD CAL02

RUN NUMBER: 092703.1700;3



CHANNEL: HEDYG

FILTER: CH. CLASS 1000

PEAK DATA: 124.11 G @ 1.92 MS; -1.59 G @ 5.52 MS

031208

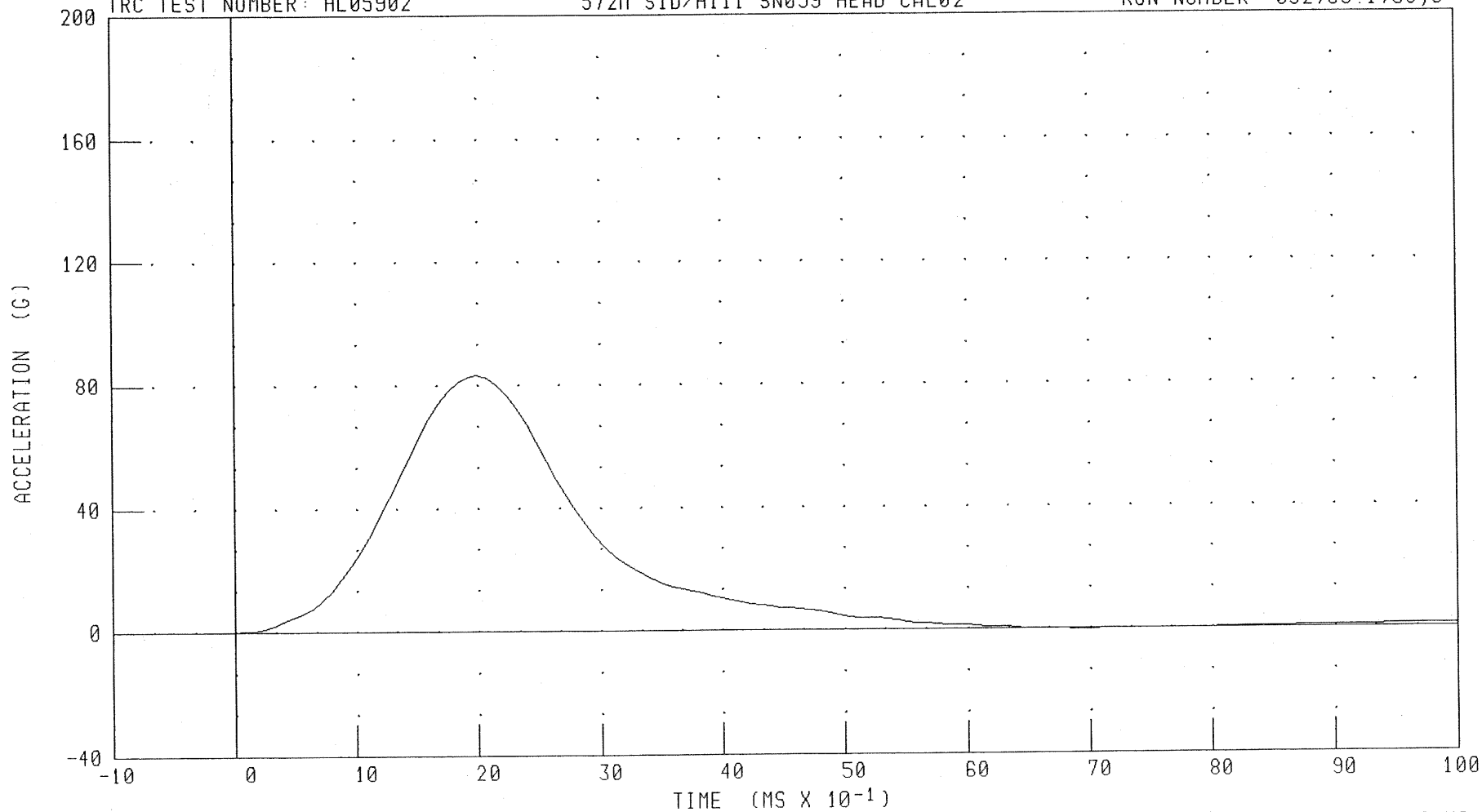
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: HL05902

572M SID/HIII SN059 HEAD CAL02

RUN NUMBER: 092703.1700,3



CHANNEL: HEDZG

FILTER: CH. CLASS 1000

PEAK DATA: 83.14 G @ 2.00 MS; -0.38 G @ 6.96 MS

031208

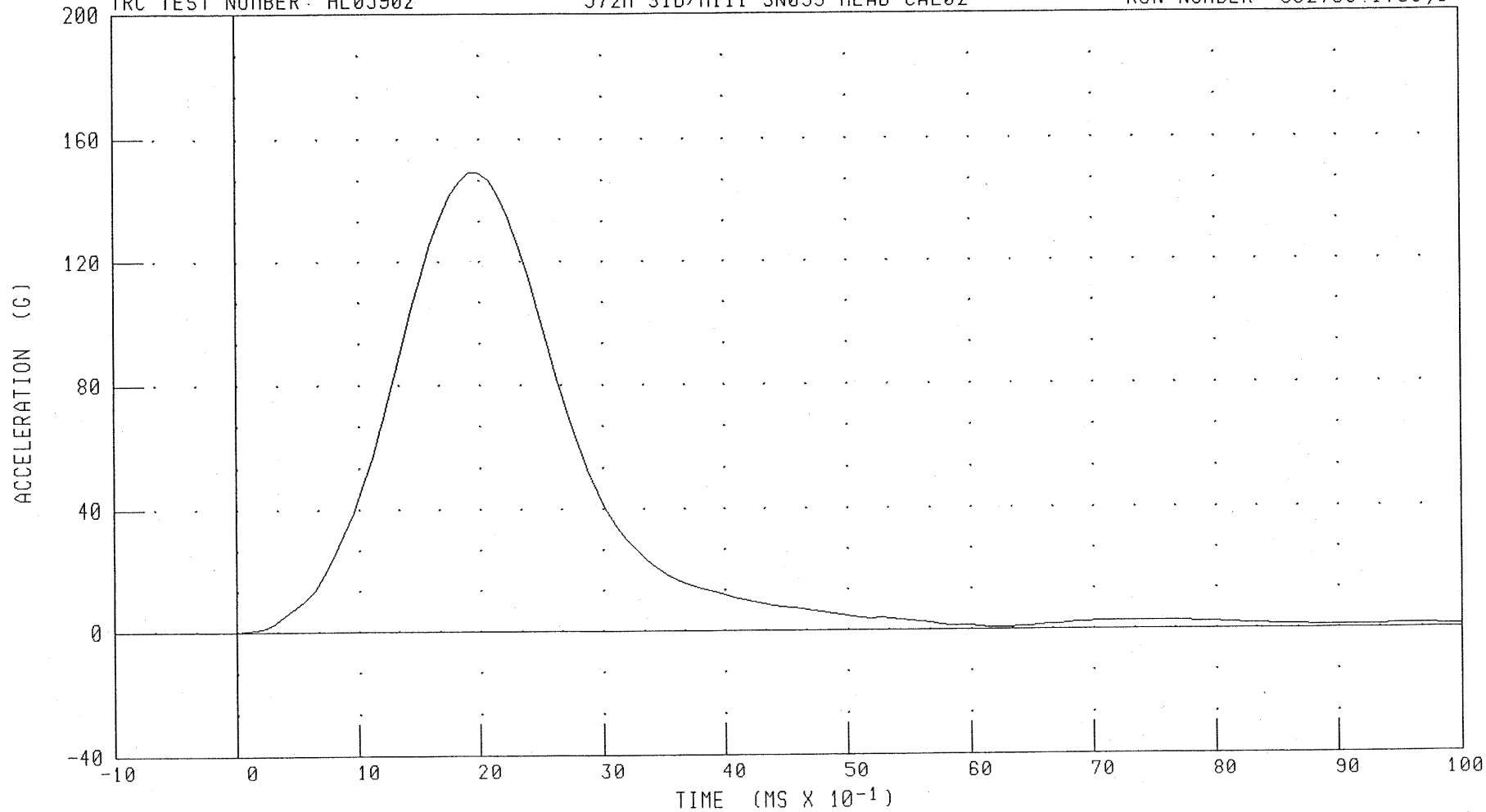
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: HL05902

572M SID/HIII SN059 HEAD CAL02

RUN NUMBER: 092703.1700;3



CHANNEL: HEDRG

FILTER: CH. CLASS 1000

PEAK DATA: 149.44 G @ 2.00 MS; 0.02 G @ -0.24 MS

031208

TRANSPORTATION RESEARCH CENTER INC.

LATERAL NECK TEST

HYBRIDI III SID DUMMY

22-SEP-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. NL05902

572M SID/H3 SN059 NECK CAL02

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 deg. C	21.39 deg. C
RELATIVE HUMIDITY		10 - 70 %	51.00 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
INTEGRATED VELOCITY	10 MS	1.96 - 2.55 M/S	2.04 M/S
	20 MS	4.12 - 5.10 M/S	4.34 M/S
	30 MS	5.73 - 7.01 M/S	6.40 M/S
	40 - 70 MS	6.27 - 7.64 M/S	7.15- 7.32 M/S
MAXIMUM MIDSAGGITAL PLANE ROTATION		66 - 82 deg.	72.31 deg.
ROTATION ANGLE DECAY TIME FROM PEAK TO ZERO		58 - 67 MS	61.04 MS
MAXIMUM MOMENT ABOUT OCCIPITAL CONDYLE		73.0 - 88.0 NM	78.70 NM
POSITIVE MOMENT DECAY TIME FROM PEAK TO ZERO		49 - 64 MS	61.04 MS
TIME OF MAXIMUM ROTATION AFTER MAXIMUM MOMENT		2 - 16 MS	11.92 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

V. J. Watters

RUN NUMBER: 092703.1751;3

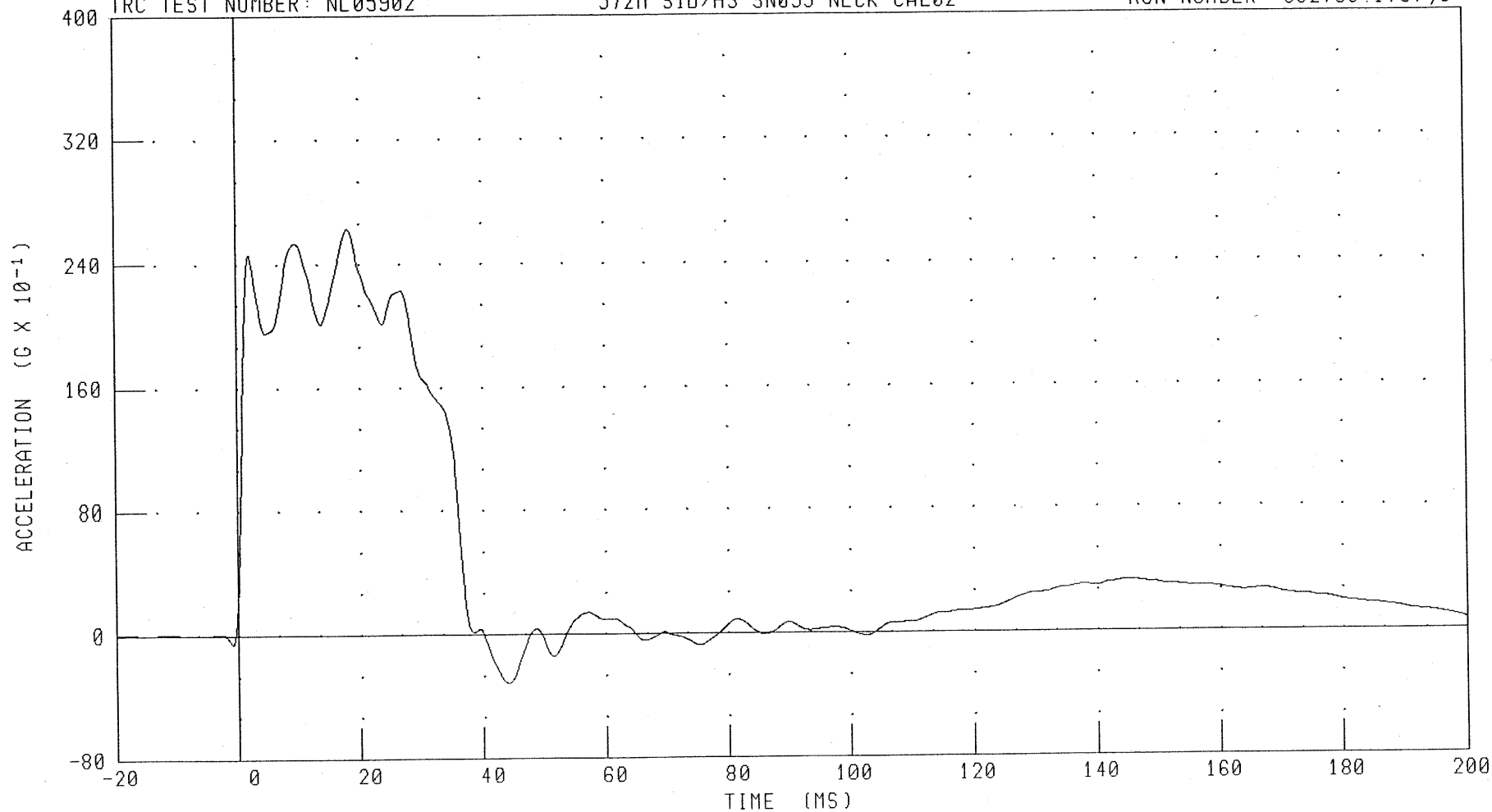
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

PENDULUM DECELERATION

TRC TEST NUMBER: NL05902

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3



CHANNEL: PENXC

FILTER: CH. CLASS 180

PEAK DATA: 26.31 G @ 18.32 MS; -3.13 G @ 44.16 MS

C-11

031208

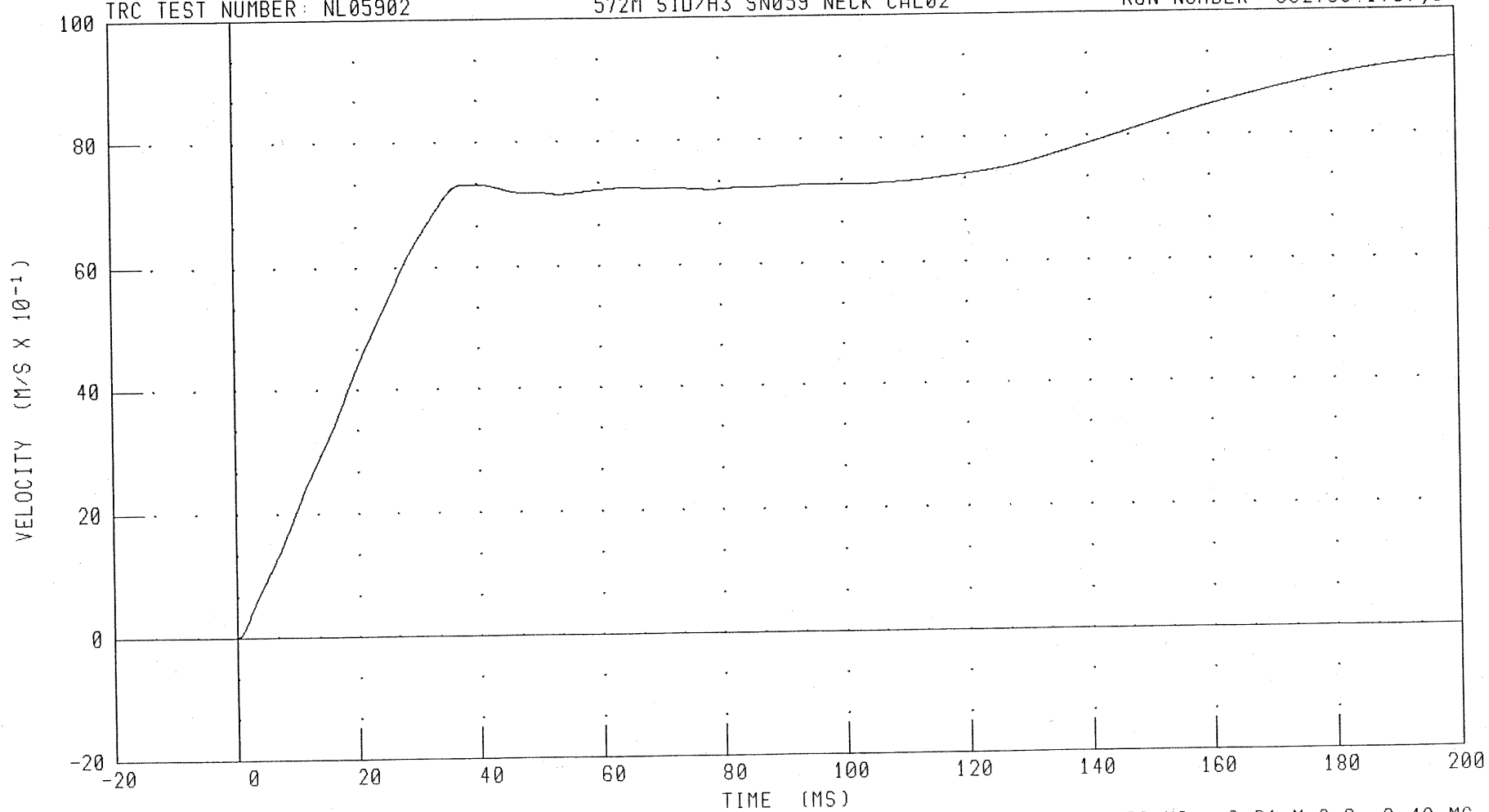
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

INTEGRATED PENDULUM VELOCITY

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3

TRC TEST NUMBER: NL05902



CHANNEL: PENXVI

FILTER: CH. CLASS 180

PEAK DATA: 9.21 M/S @ 200.00 MS; -0.01 M/S @ -0.40 MS

C-12

031208

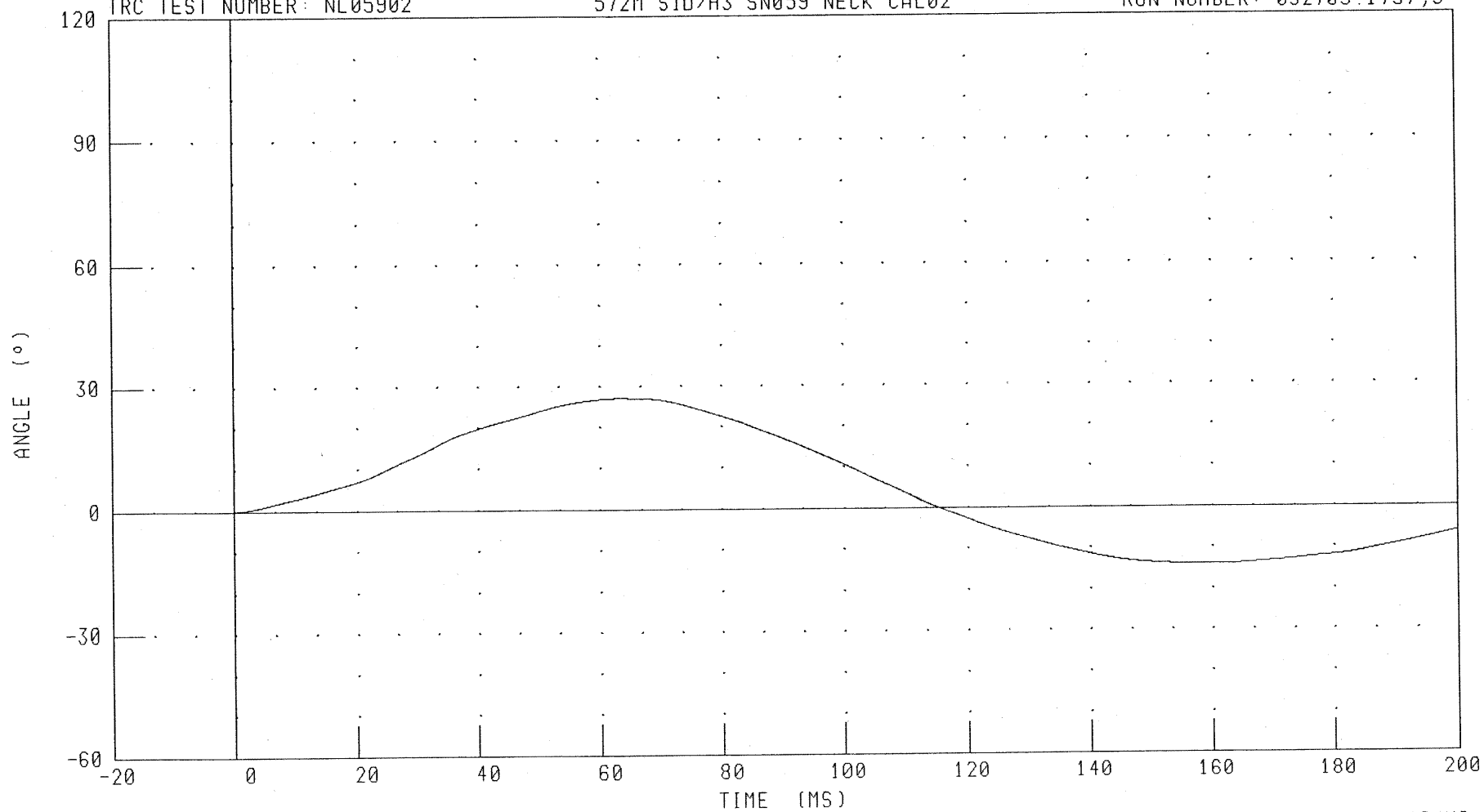
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: NL05902

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3



CHANNEL: BETA

FILTER: CH. CLASS 60

PEAK DATA: 26.99 ° @ 63.44 MS; -14.16 ° @ 158.40 MS

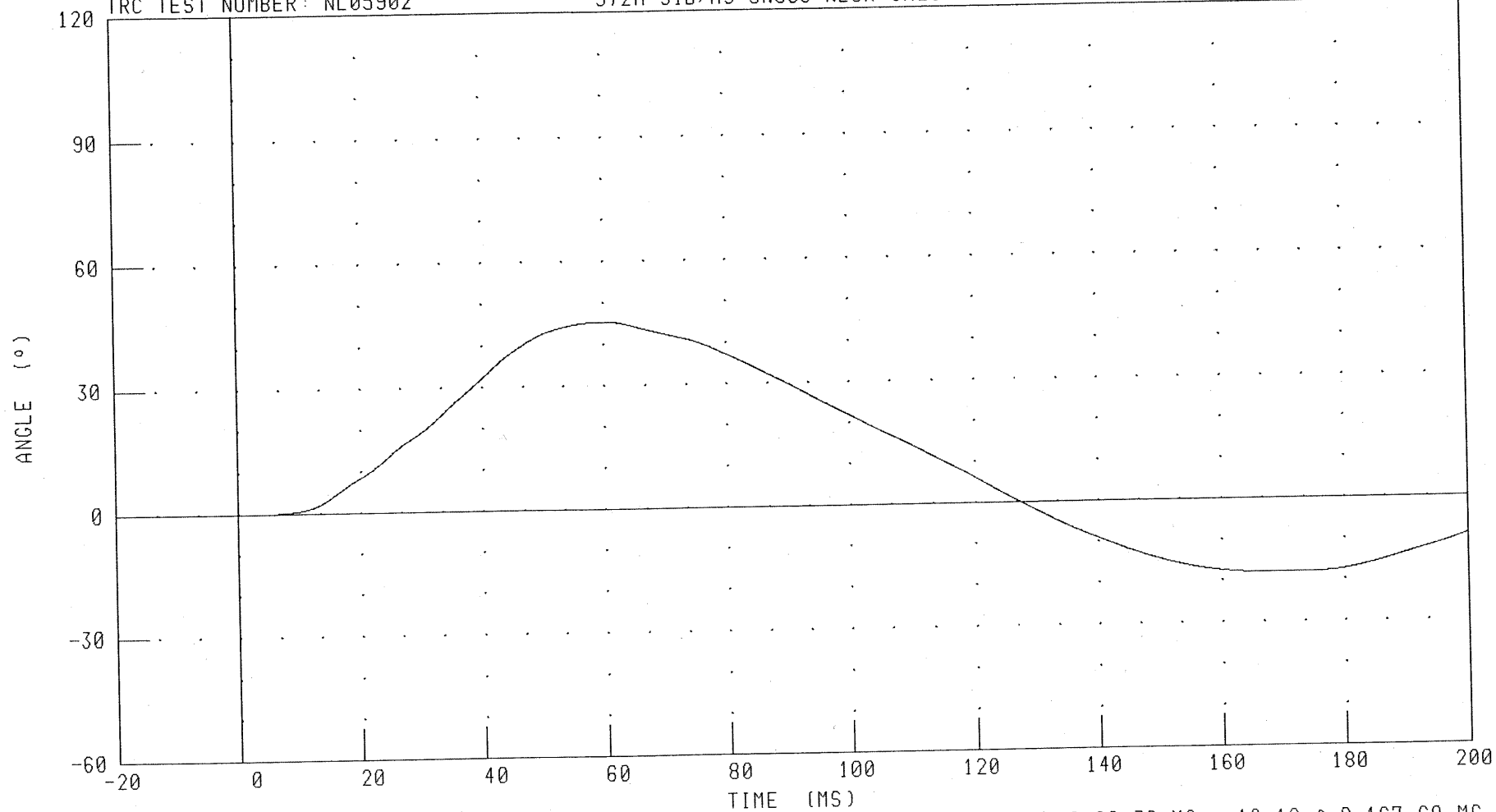
031208

572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NL05902

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3



CHANNEL: THETA

FILTER: CH. CLASS 60

PEAK DATA: 45.46 ° @ 60.32 MS; -18.12 ° @ 167.68 MS

C-14

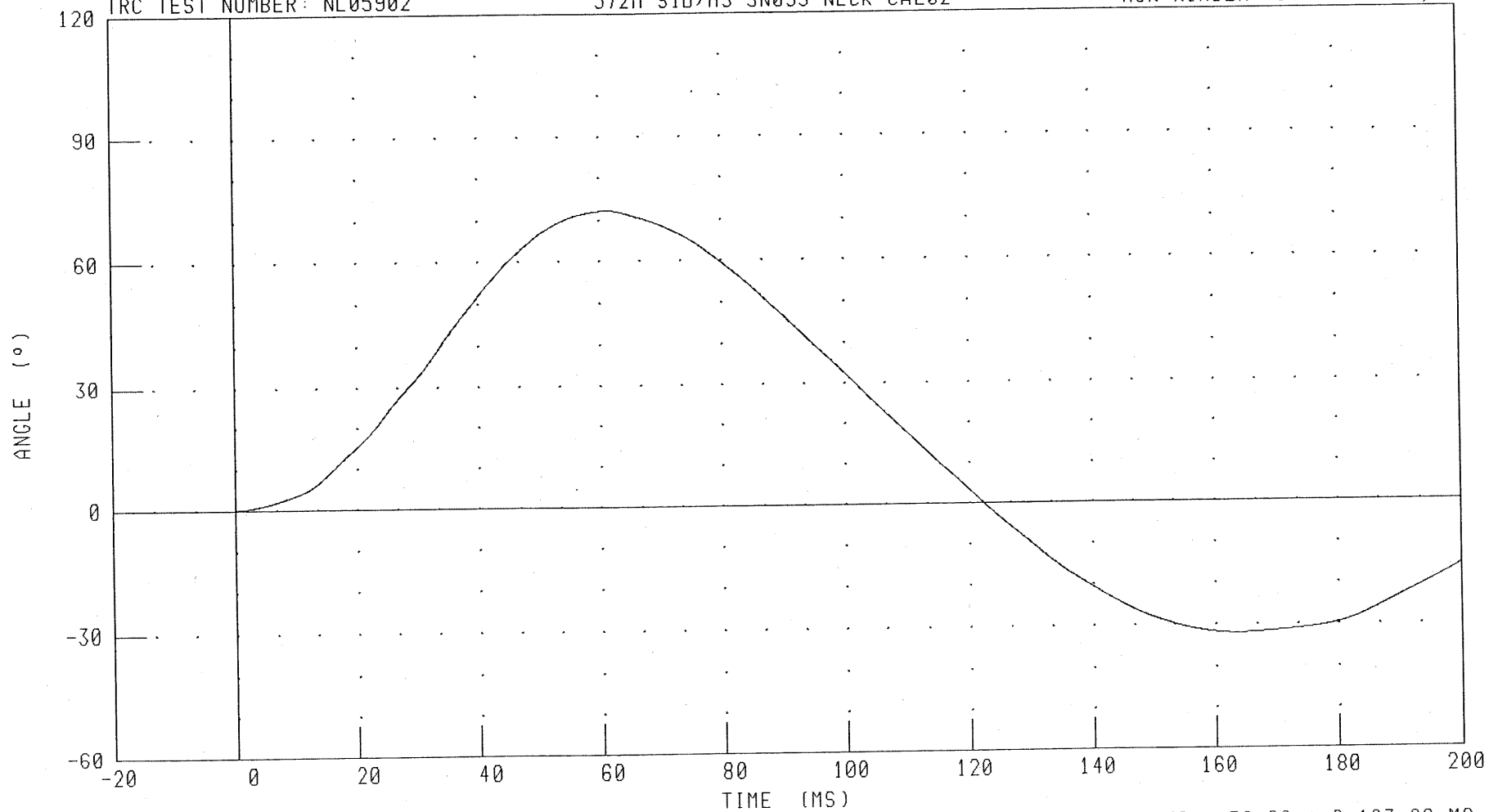
031208

572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST
TOTAL ROTATION

TRC TEST NUMBER: NL05902

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3



CHANNEL: TOTAN

FILTER: CH. CLASS 60

PEAK DATA: 72.31 ° @ 61.36 MS; -32.00 ° @ 163.68 MS

C-15

031208

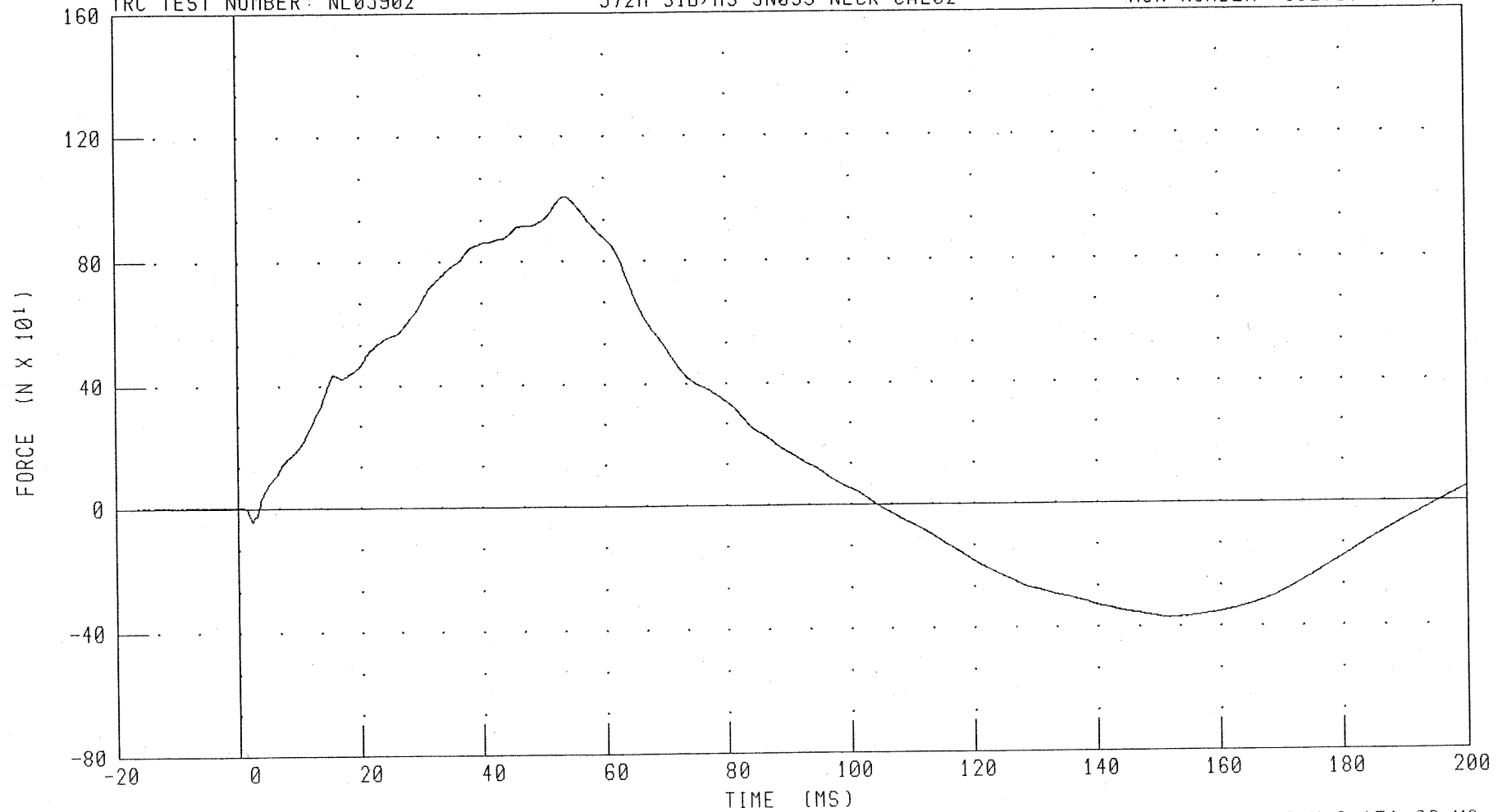
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK FORCE Y AXIS

TRC TEST NUMBER: NL05902

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3



CHANNEL: NEKYF

FILTER: CH. CLASS 1000

PEAK DATA: 1004.58 N @ 53.68 MS; -372.47 N @ 151.60 MS

C-16

031208

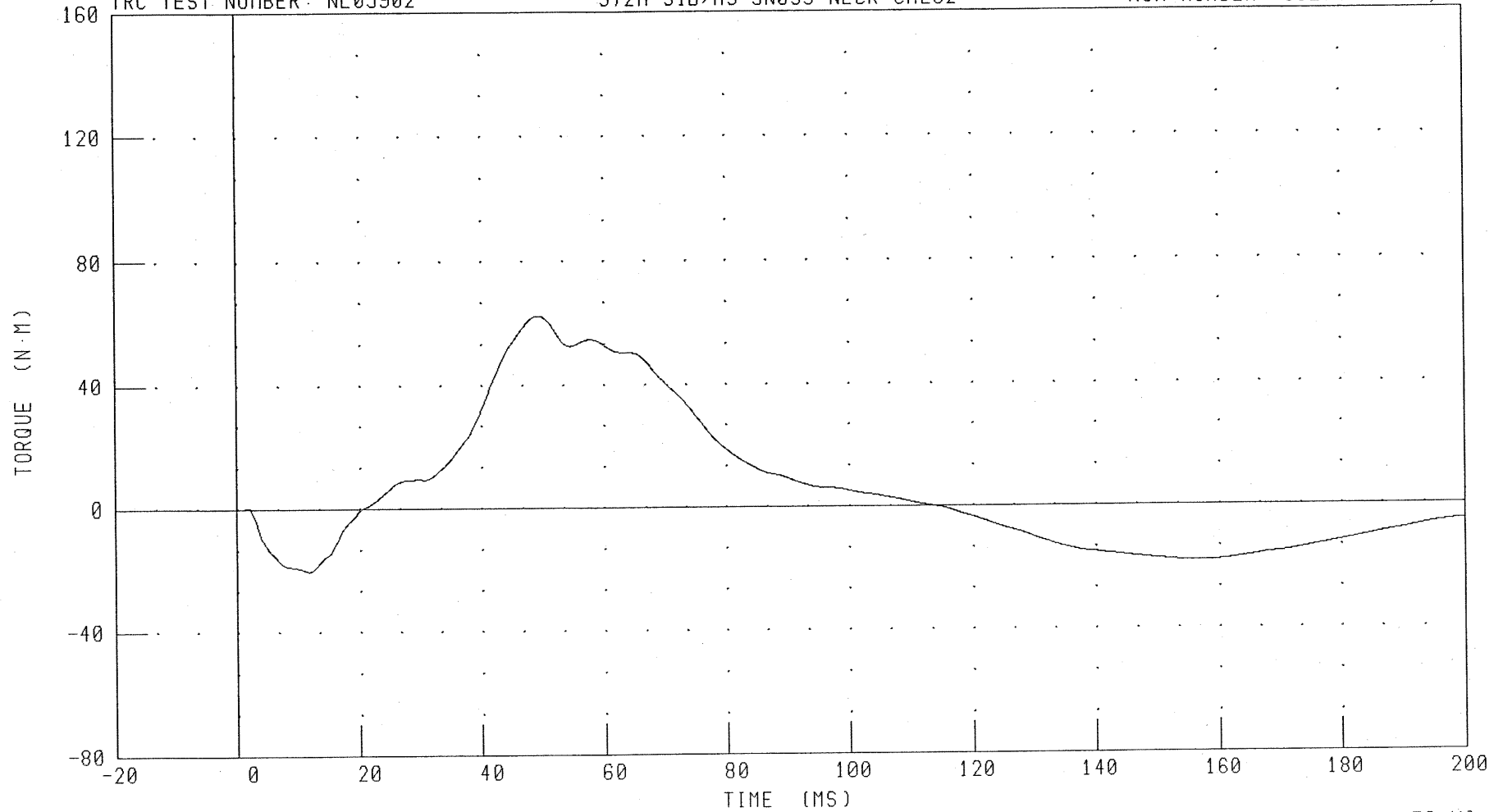
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK MOMENT X AXIS

TRC TEST NUMBER: NL05902

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3



CHANNEL: NEKXM

FILTER: CH. CLASS 600

PEAK DATA: 62.31 N·M @ 49.20 MS; -20.30 N·M @ 11.76 MS

031208

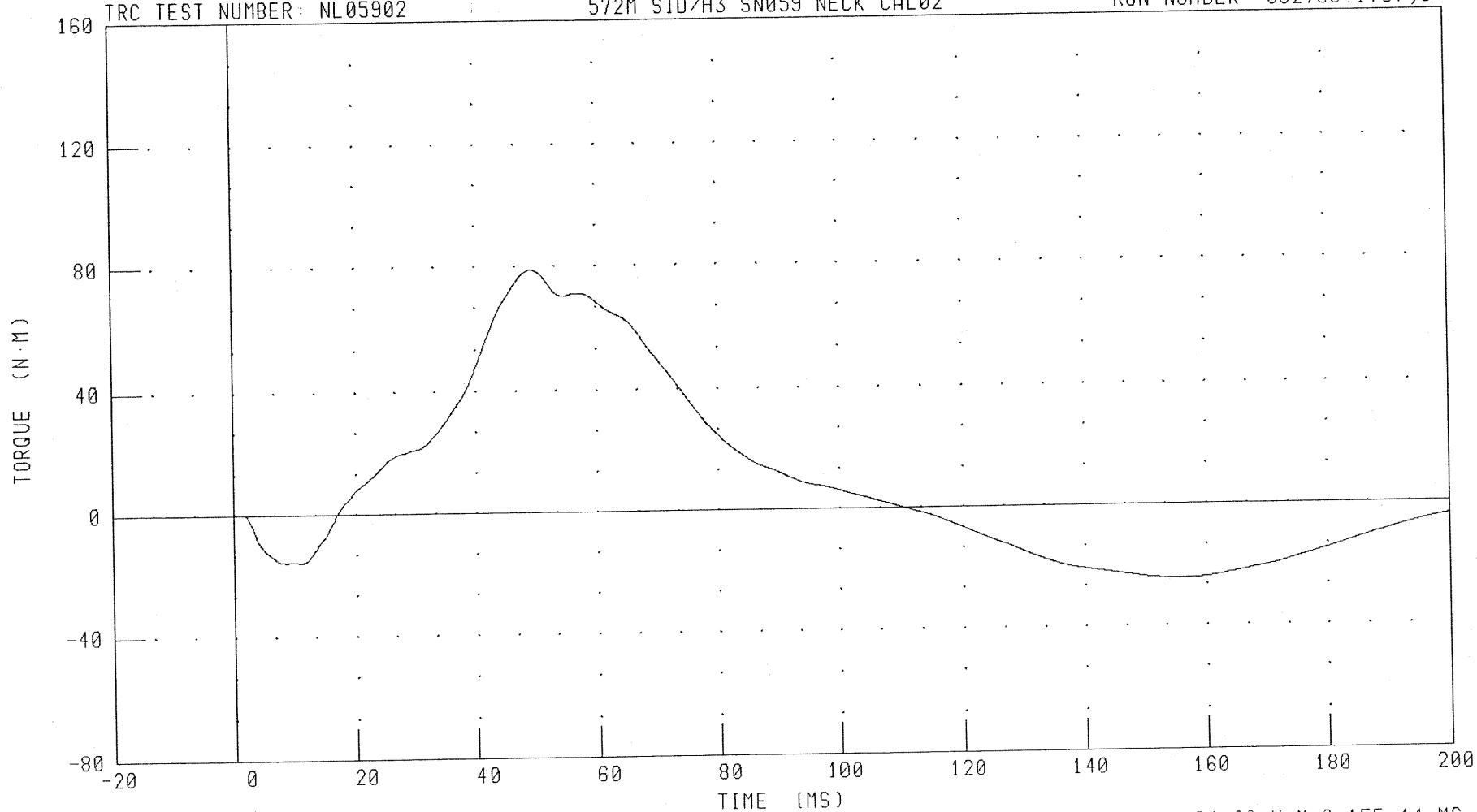
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NL05902

572M SID/H3 SN059 NECK CAL02

RUN NUMBER: 092703.1757;3



CHANNEL: NEKOM

FILTER: CH. CLASS 600

PEAK DATA: 78.70 N·m @ 49.44 MS; -24.66 N·m @ 155.44 MS

TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

SID HIII

CAL DATE: 24-Sep-03

TRC, INC. TEST NO: LF05902 SID/HIII SN 59 TORSO FLEX CAL 02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.1 °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	142.3 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	200.2 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	258.0 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	2 °

TEST MEETS SPECIFICATIONS

TECHNICIAN V. J. Watton

Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 059 Calibration No. 02 - 7

Test Date 09/24/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.8 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician

John K. Cluney

Approved

V. F. Walters

09.24.2003 10:05:55 114

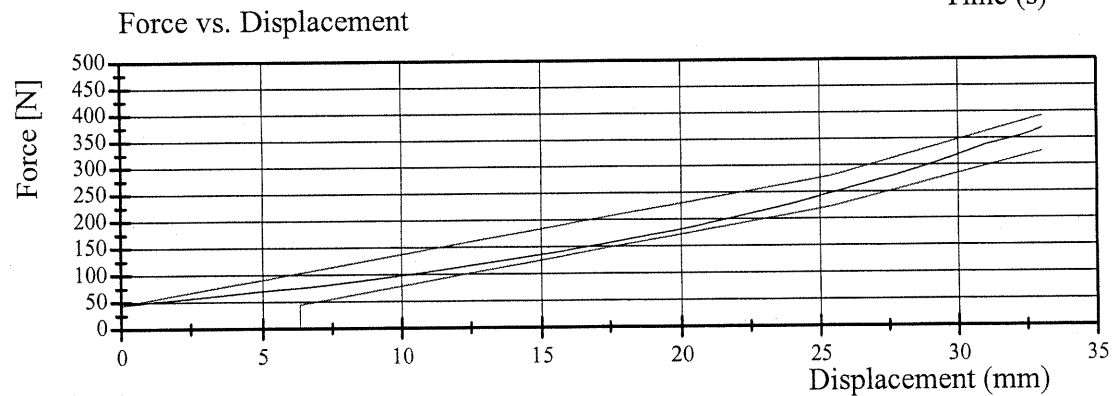
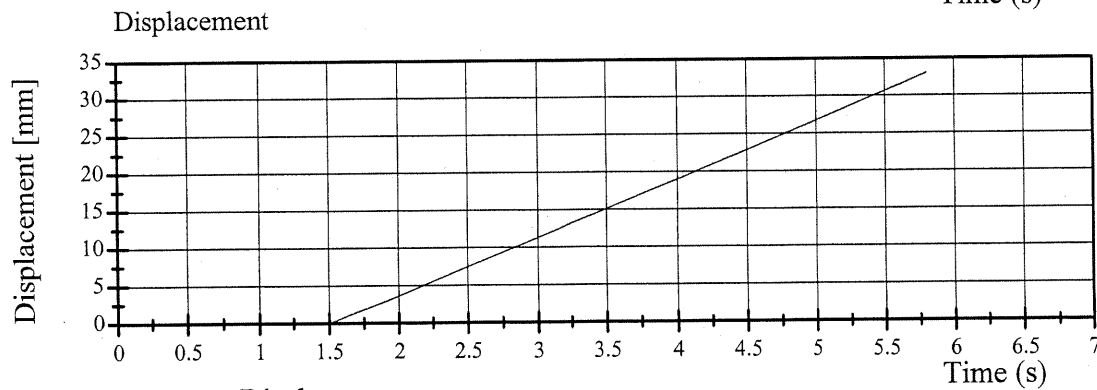
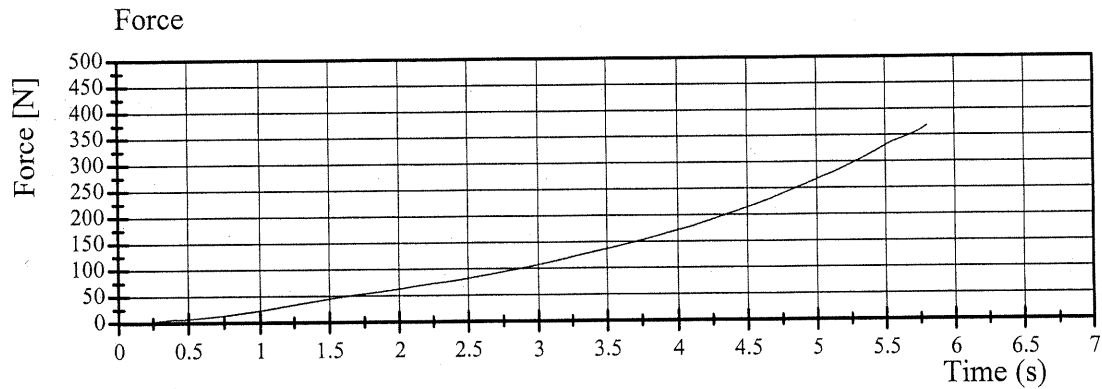


Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 059 Calibration No. 02 - 7

Test Date 09/24/2003



TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

11-SEP-03

TRC INC.

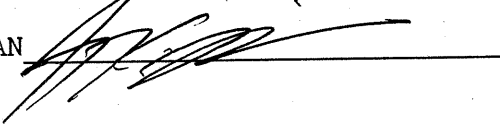
572F SN059 DAMPER TEST CAL01

TEST NUMBERS: DP05901A,DP05901B,DP05901C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	65.0 %
VELOCITY	FORCE	667 - 925 N	749 N
2.75 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.9 MM
VELOCITY	FORCE	1733 - 2100 N	1802 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	32.7 MM
VELOCITY	FORCE	3703 - 4402 N	3922 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	35.9 MM

DAMPER SETTING = 5.5

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 091503.1343;2

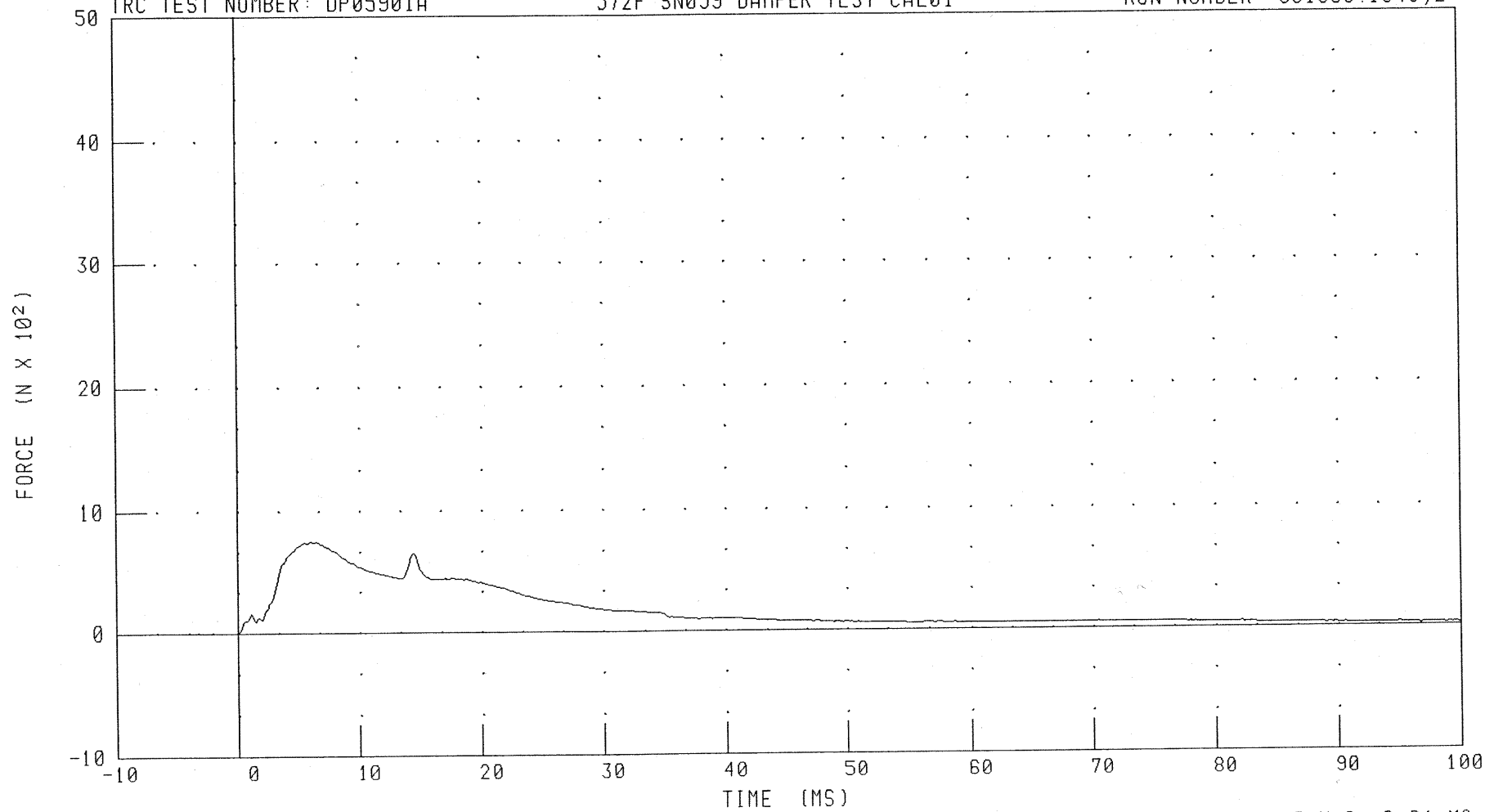
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP05901A

572F SN059 DAMPER TEST CAL01

RUN NUMBER: 091503.1343;2



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 748.99 N @ 6.00 MS; -2.13 N @ -9.04 MS

C-23

031208

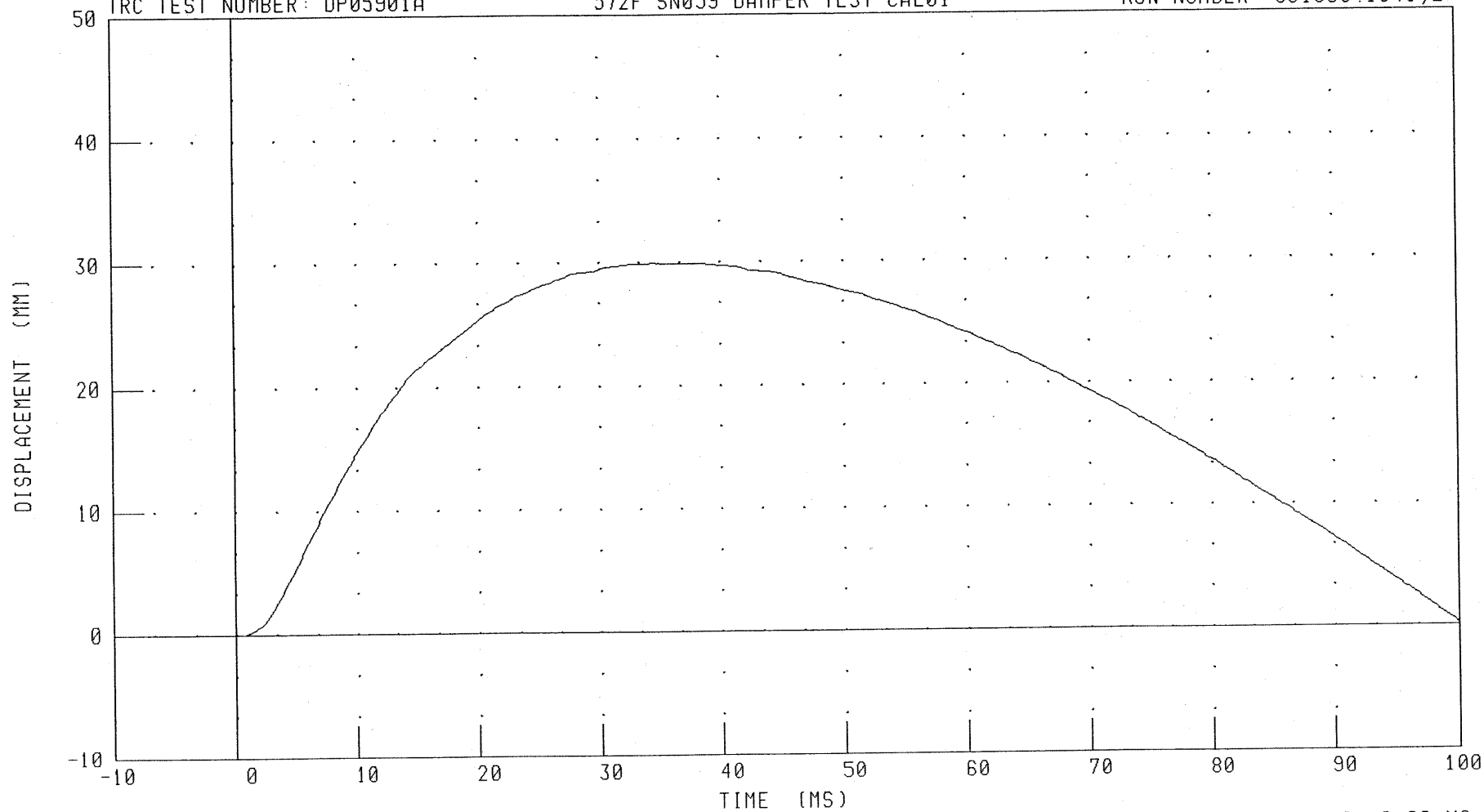
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05901A

572F SN059 DAMPER TEST CAL01

RUN NUMBER: 091503.1343;2



PEAK DATA: 29.92 MM @ 34.32 MS; 0.00 MM @ -8.80 MS

CHANNEL: CSTYD

FILTER: CH. CLASS 1000

C-24

031208

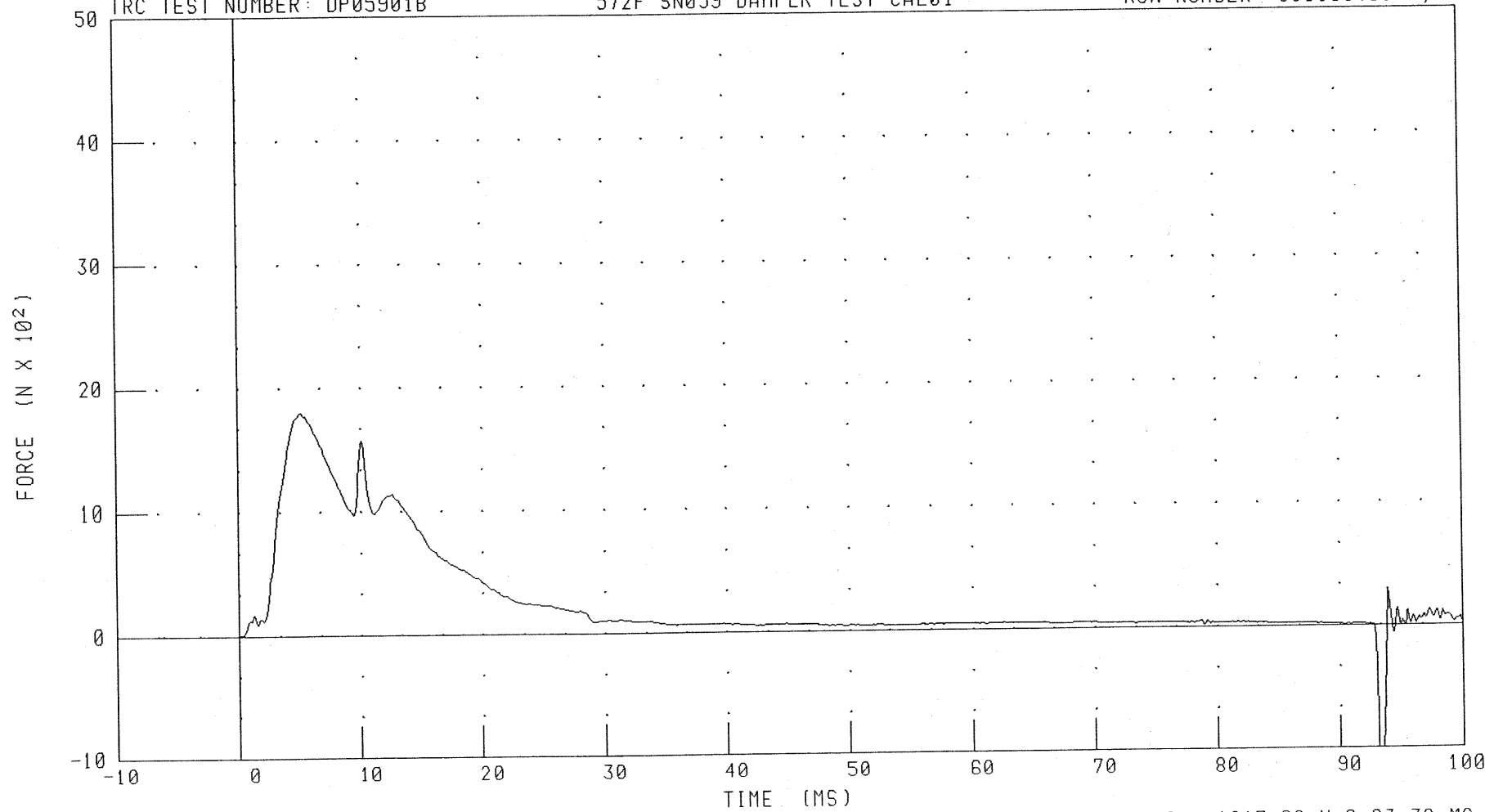
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN059 DAMPER TEST CAL01

RUN NUMBER: 091503.1343;2

TRC TEST NUMBER: DP05901B



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 1801.64 N @ 5.12 MS; -1917.29 N @ 93.36 MS

C-25

031208

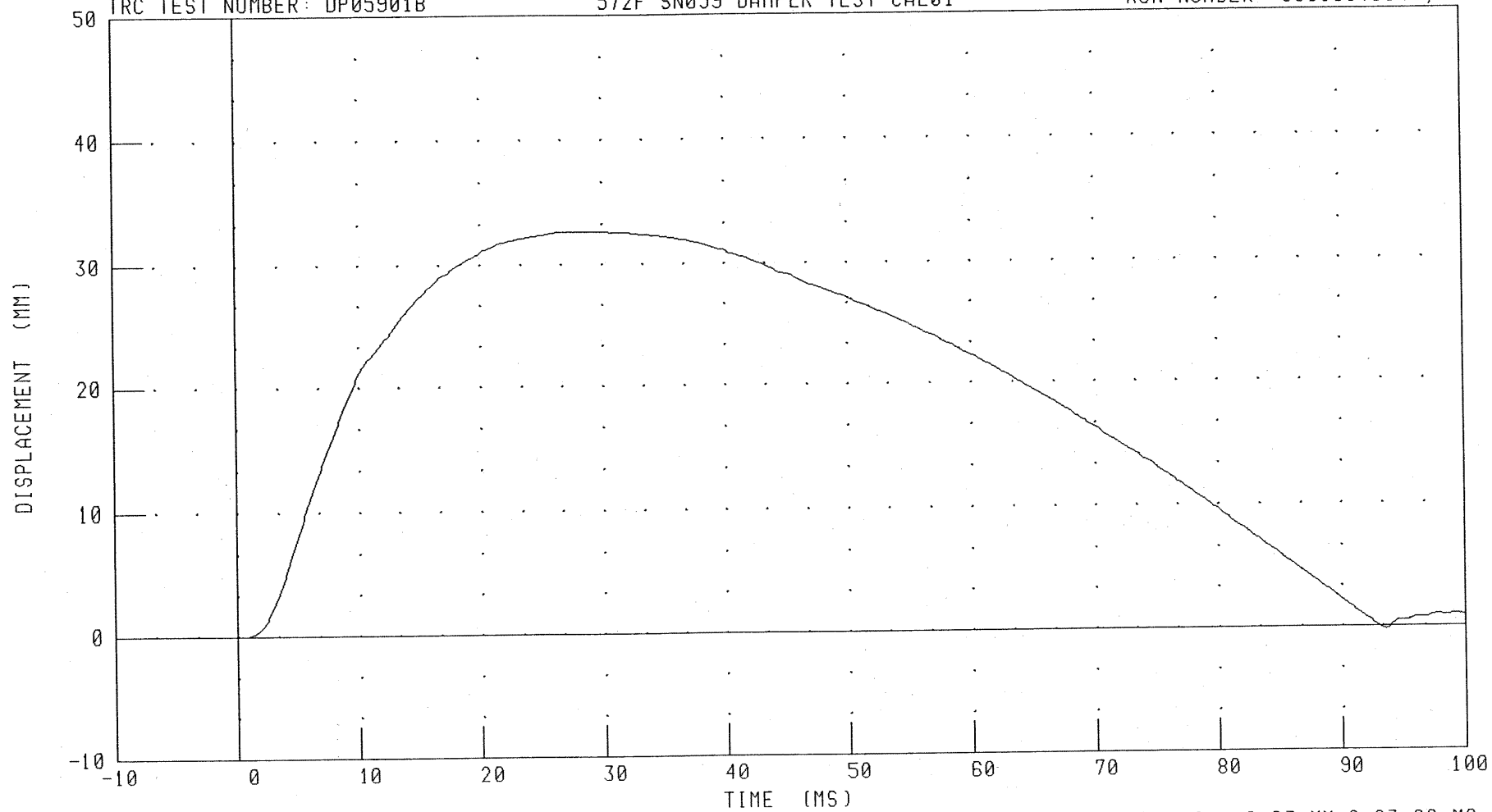
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05901B

572F SN059 DAMPER TEST CAL01

RUN NUMBER: 091503.1343;2



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 32.68 MM @ 27.68 MS; -0.23 MM @ 93.60 MS

C-26

031208

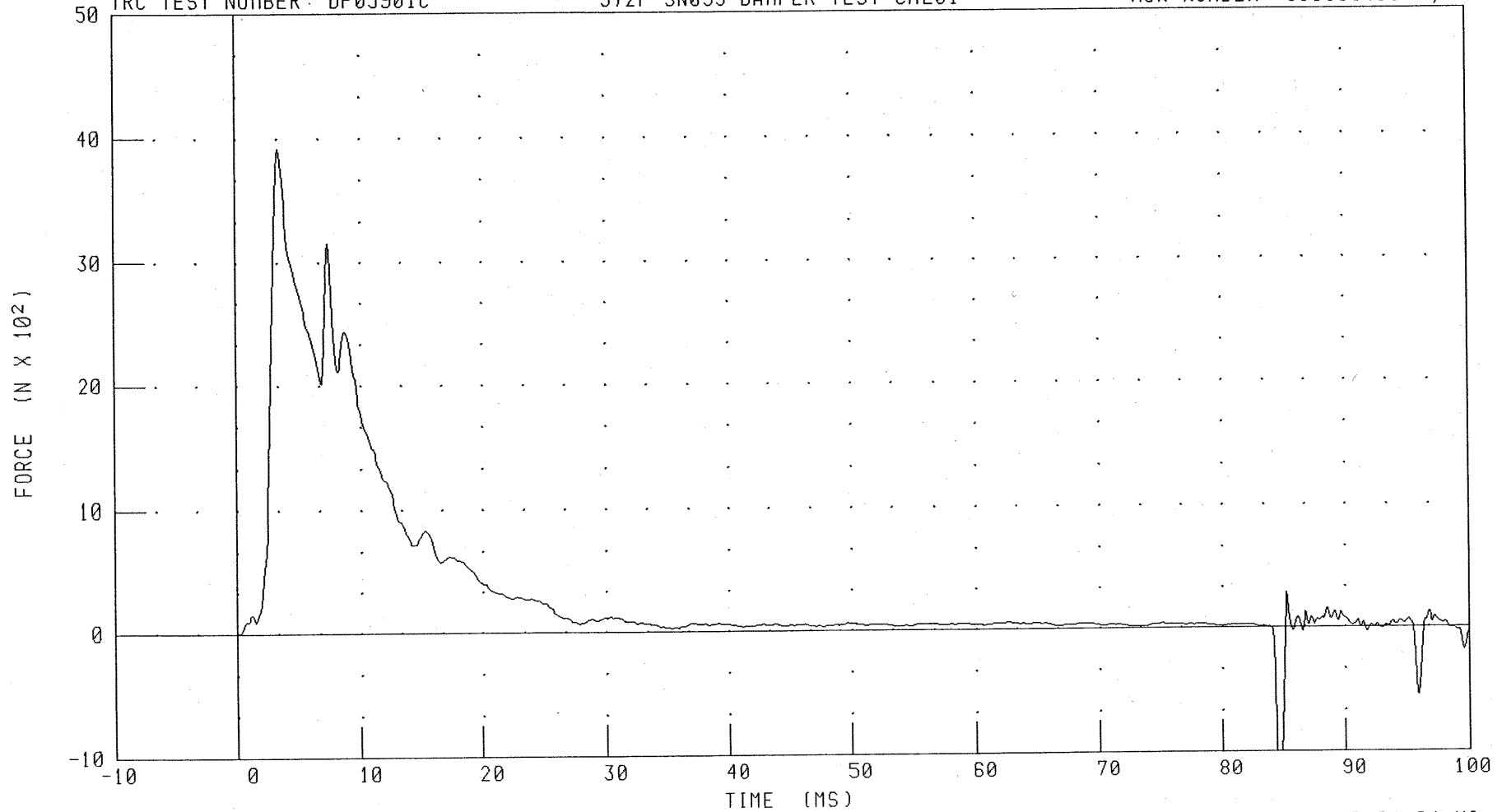
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN059 DAMPER TEST CAL01

RUN NUMBER: 091503.1343;2

TRC TEST NUMBER: DP05901C



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 3922.19 N @ 3.44 MS; -2043.18 N @ 84.64 MS

C-27

031208

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

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP05901C

572F SN059 DAMPER TEST CAL01

RUN NUMBER: 091503.1343;2



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

PEAK DATA: 35.88 MM @ 26.08 MS; -0.25 MM @ 84.88 MS

C-28

031208

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

26-SEP-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL05902C

SID/HIII SN059 L.THORAX CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.8 DEG. C
RELATIVE HUMIDITY	10 - 70 %	49.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	41.4 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	39.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	18.9 G

NEW ARM FOAM INSTALLED

TEST MEETS SPECIFICATIONS

TECHNICIAN

V. J. Watkins

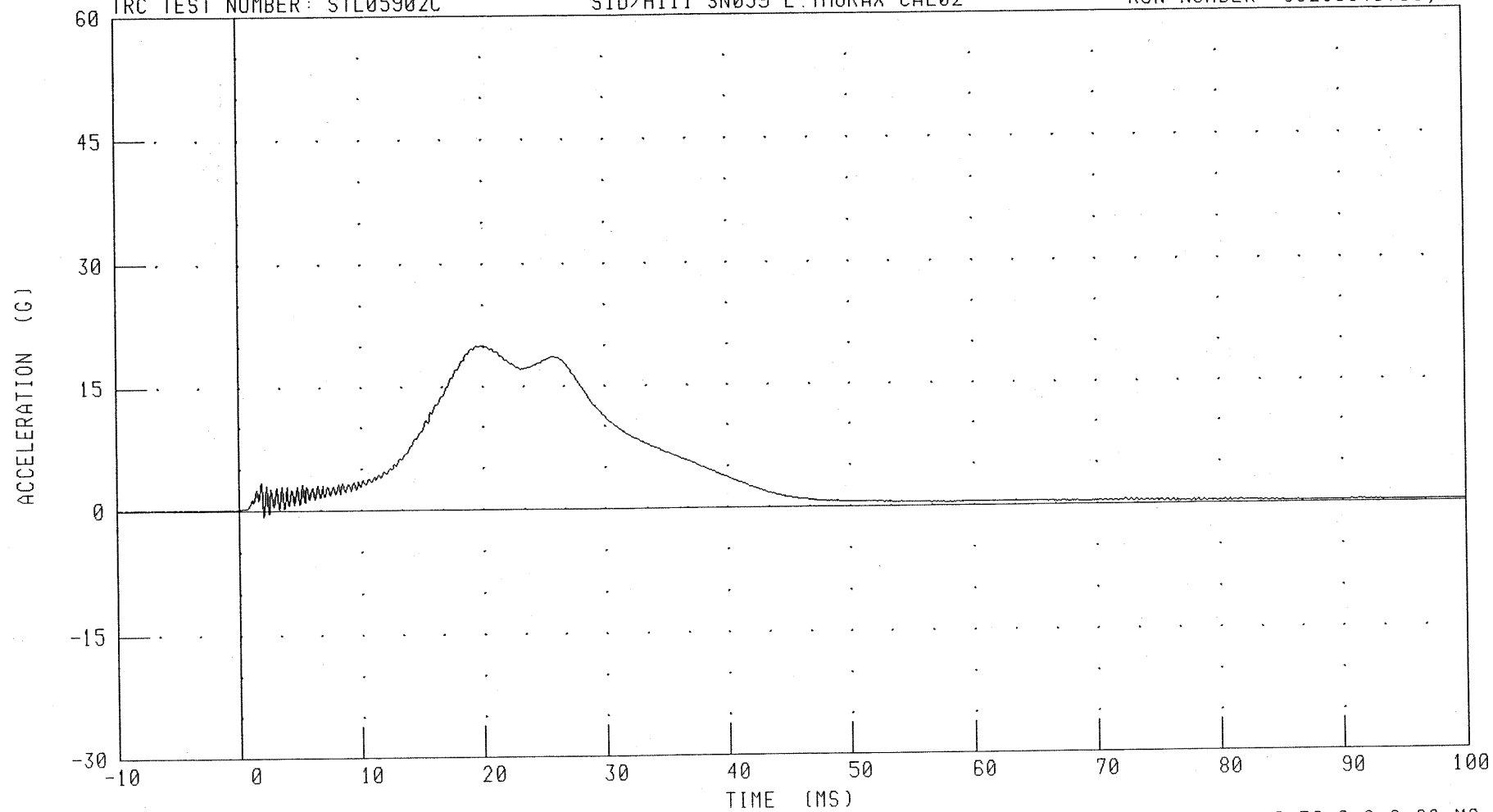
RUN NUMBER: 092603.1659;1

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

TRC TEST NUMBER: STL05902C

SID/HIII SN059 L THORAX CAL02

RUN NUMBER: 092603.1700;1



CHANNEL: PENXC

FILTER: CH. CLASS 1000

PEAK DATA: 20.03 G @ 19.92 MS; -0.78 G @ 2.00 MS

C-30

031208

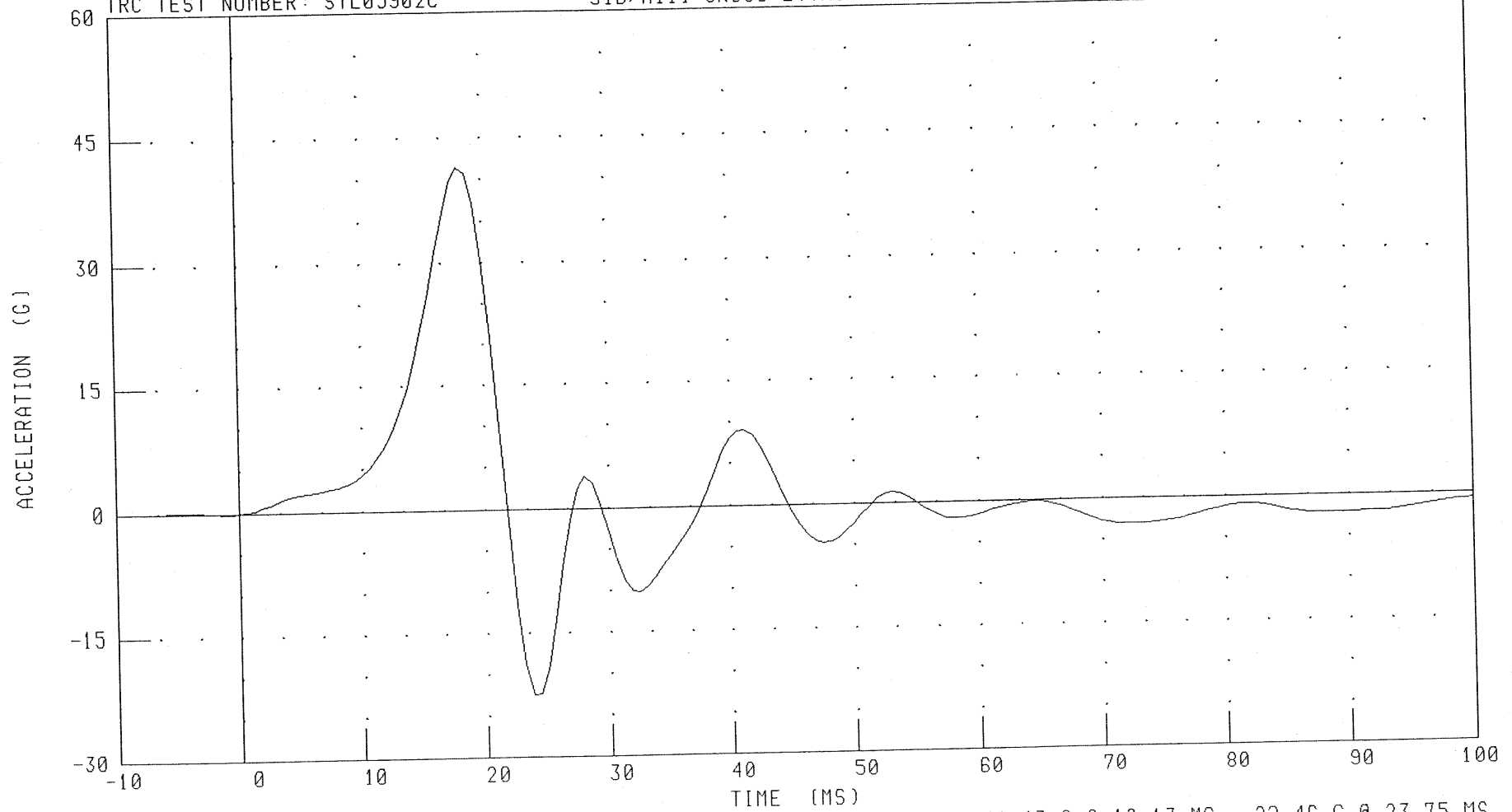
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

SID/HIII SN059 L THORAX CAL02

RUN NUMBER: 092603.1700;1

TRC TEST NUMBER: STL05902C



CHANNEL: LURYG

FILTER: FIR 100

PEAK DATA: 41.43 G @ 18.13 MS; -22.46 G @ 23.75 MS

C-31

031208

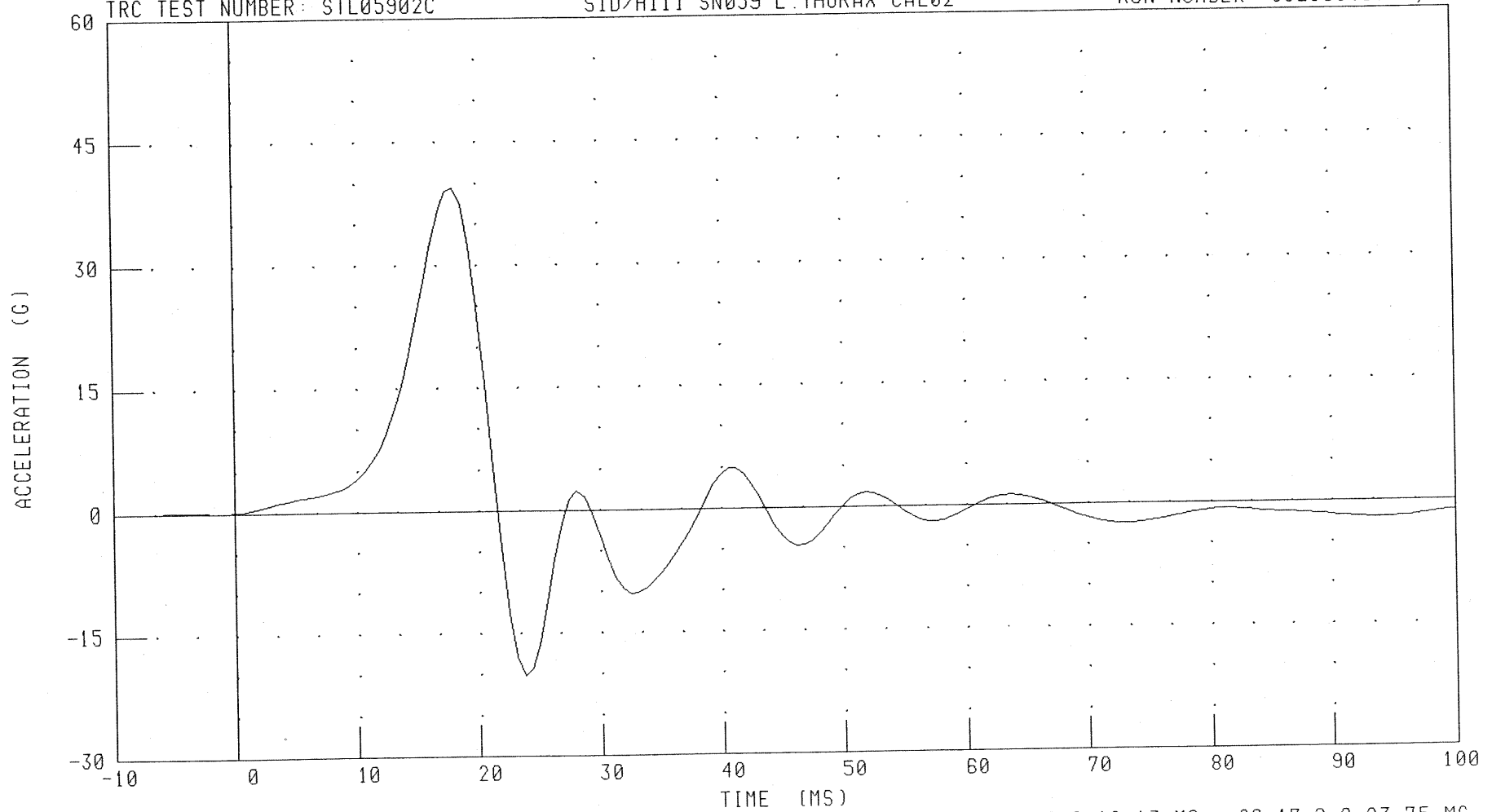
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

SID/HIII SN059 L THORAX CAL02

RUN NUMBER: 092603.1700;1

TRC TEST NUMBER: STL05902C



CHANNEL: LLRYG

FILTER: FIR 100

PEAK DATA: 39.46 G @ 18.13 MS; -20.17 G @ 23.75 MS

C-32

031208

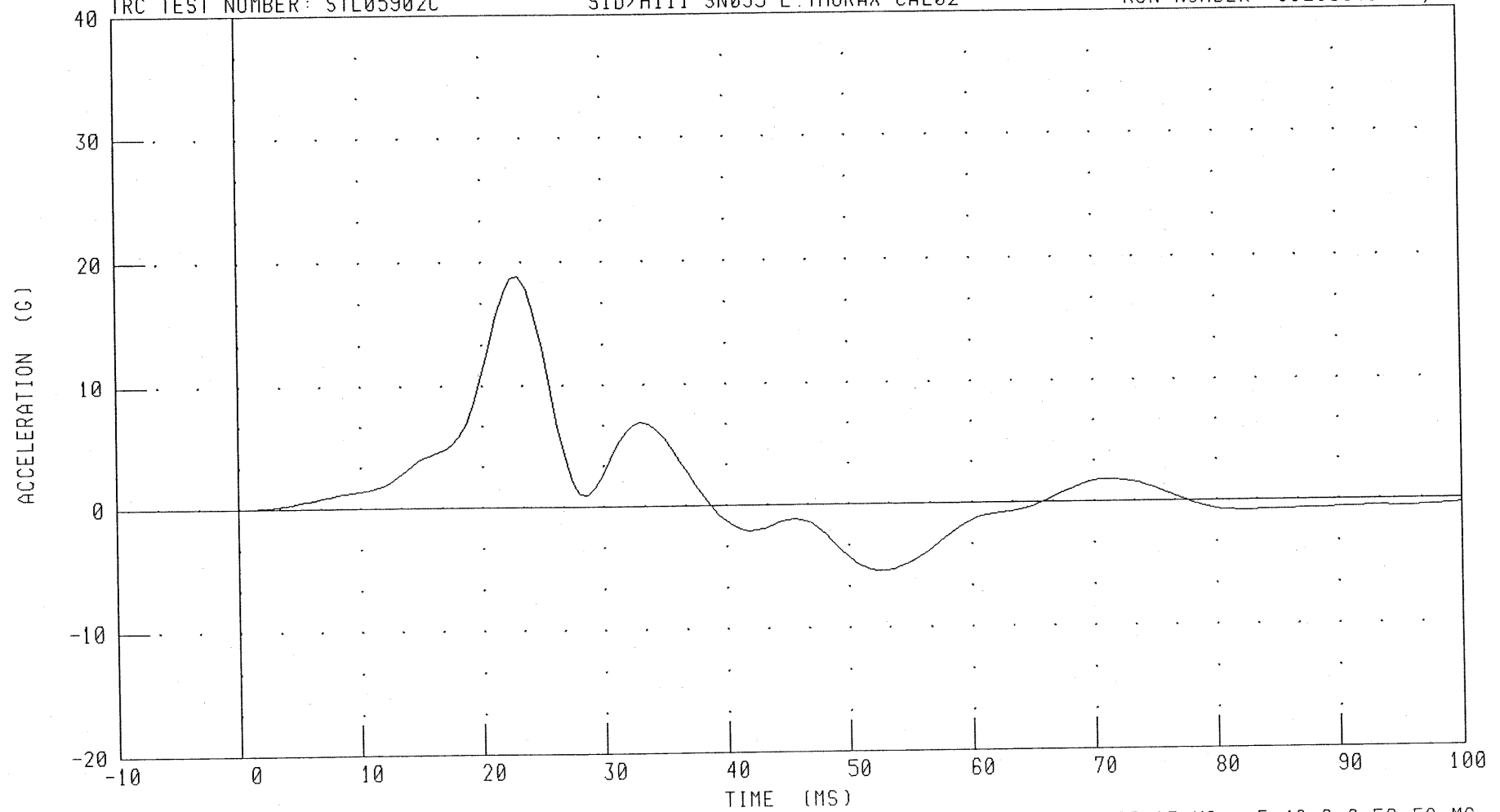
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL05902C

SID/HIII SN059 L.THORAX CAL02

RUN NUMBER: 092603.1700;1



CHANNEL: T12YC

FILTER: FIR 100

C-33

031208

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

25-SEP-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL05902

SID/H3 SN059 LEFT PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.9 DEG. C
RELATIVE HUMIDITY	10 - 70 %	43.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.27 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	47.6 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.1 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

V. J. Watter

RUN NUMBER: 092703.1804;1

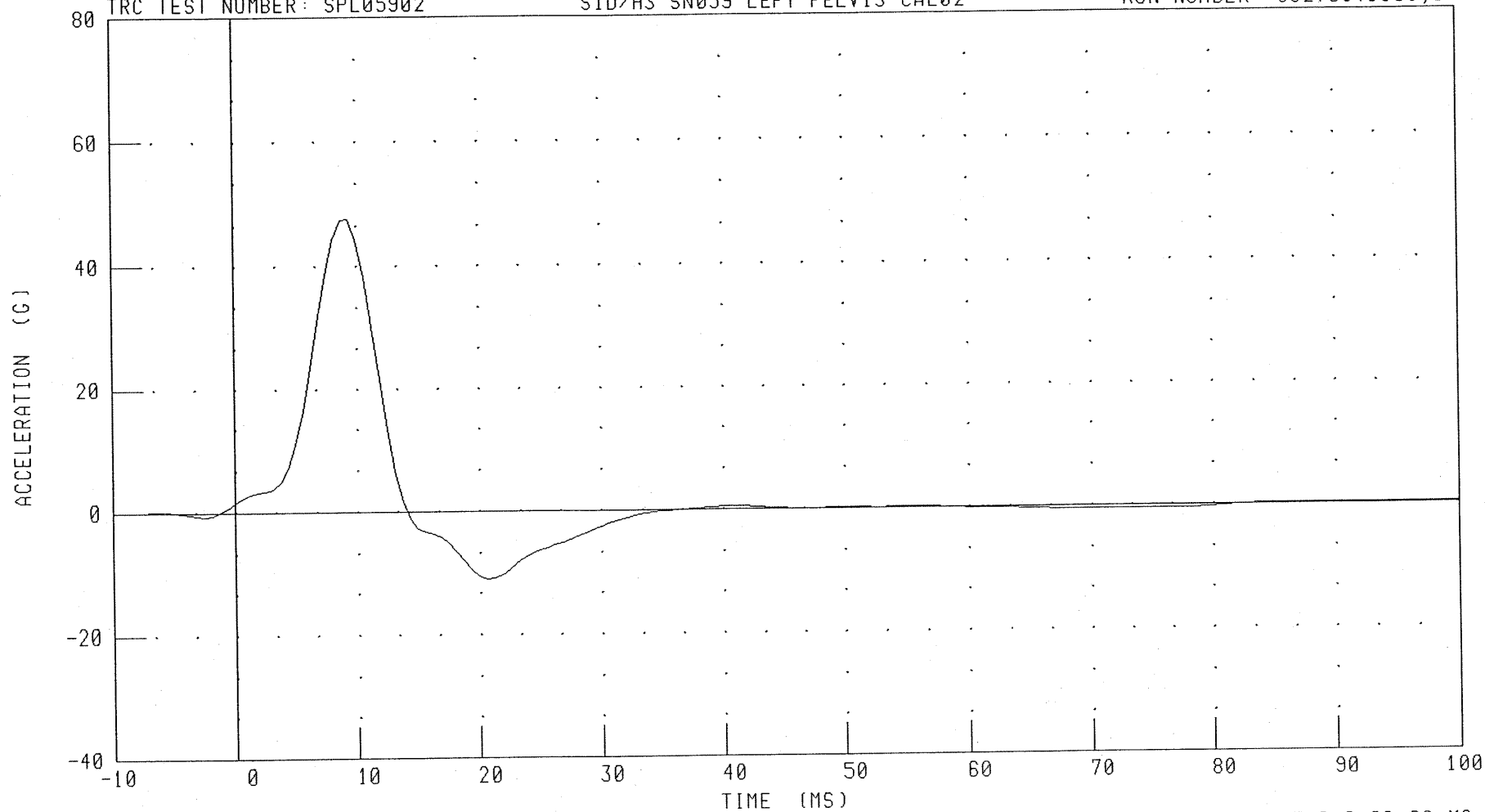
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL05902

SID/H3 SN059 LEFT PELVIS CAL02

RUN NUMBER: 092703.1809;1



CHANNEL: PEVYC

FILTER: FIR 100

PEAK DATA: 47.64 G @ 9.37 MS; -10.87 G @ 20.62 MS

C-35

031208

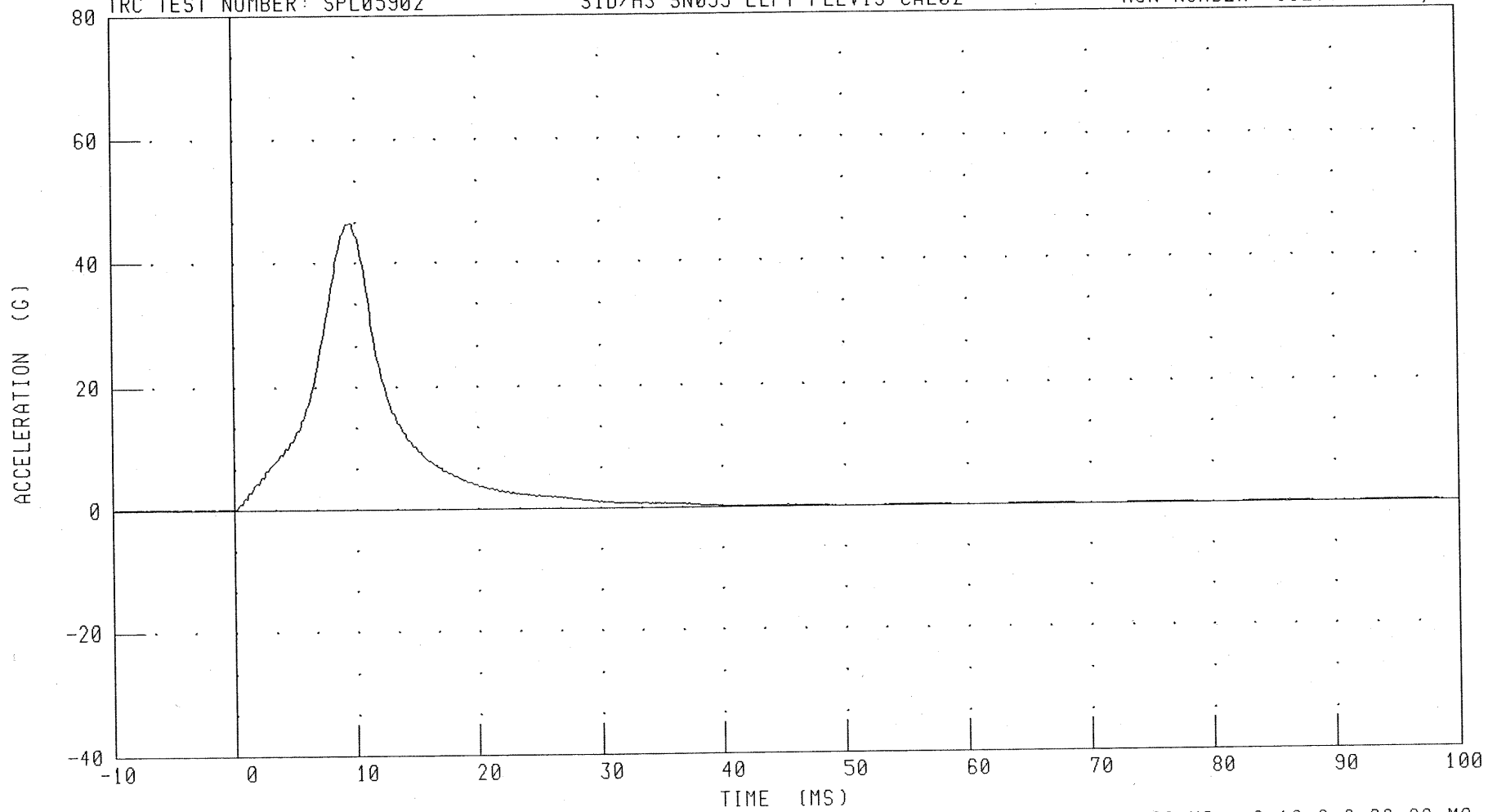
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL05902

SID/H3 SN059 LEFT PELVIS CAL02

RUN NUMBER: 092703.1809;1



CHANNEL: PENXG

FILTER: CH. CLASS 1000

PEAK DATA: 46.57 G @ 9.68 MS; -0.12 G @ 60.00 MS

C-36

031208

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.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.
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. 059 Calibration No. 03

Date: 12/16/03

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	906 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	505 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	229 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	517 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	495 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	362 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	176 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	177 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician



Approved



Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/10/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Peak Resultant Acceleration	120 - 150 g	136.0 g	Yes
Peak Longitudinal Acceleration	15 g Max	6.1 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



12.11.2003 08:32:14 611

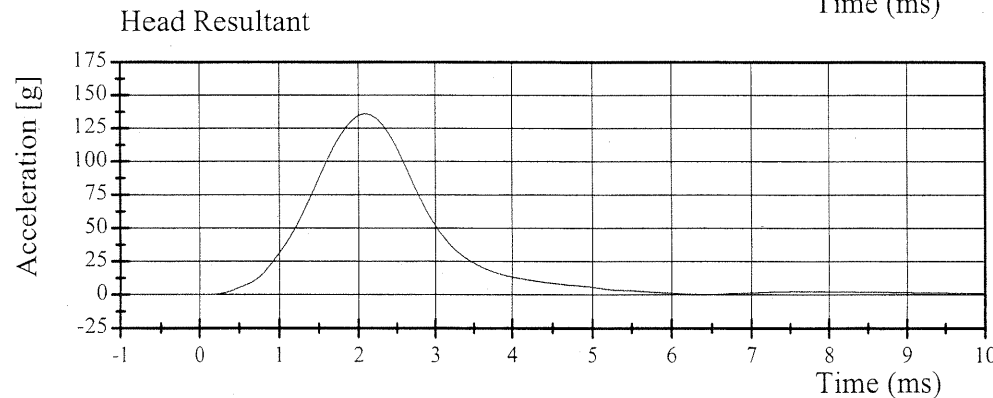
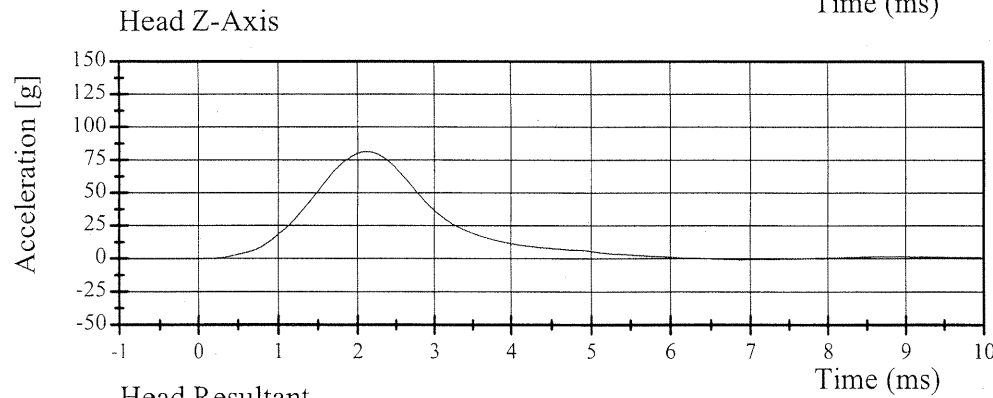
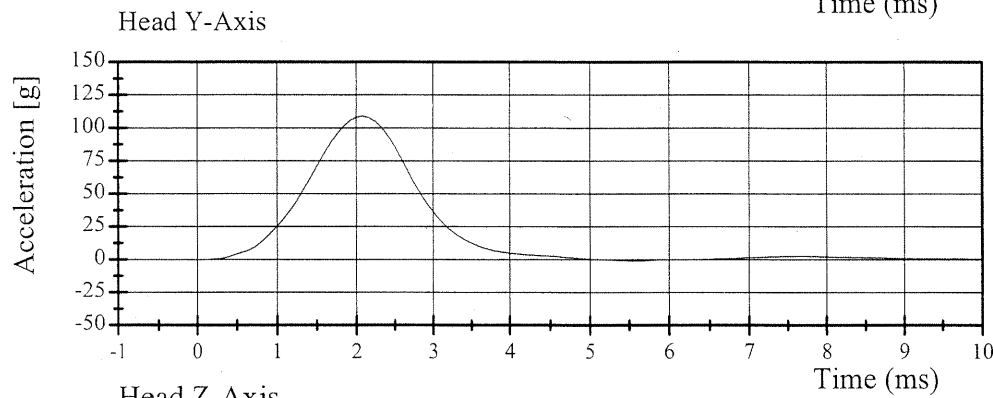
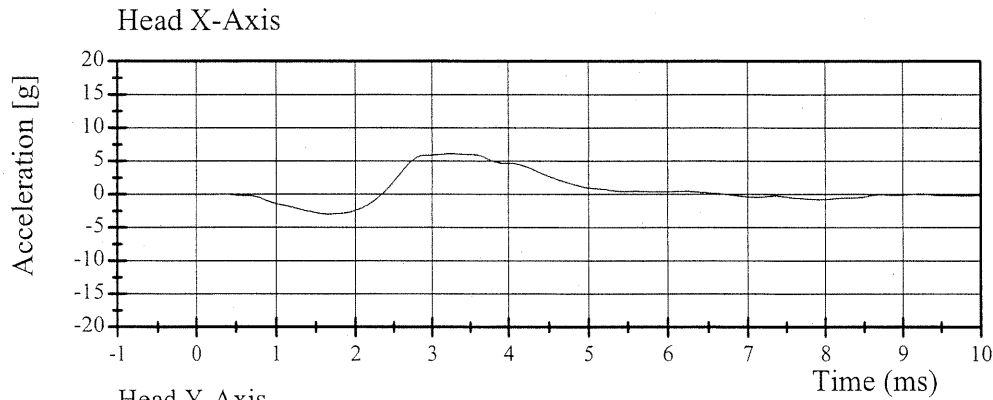


Transportation Research Center Inc.

572M Left Lateral Head Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/10/2003



12.11.2003 08:32:15 611



Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/16/2003

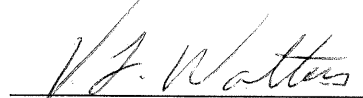
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.96 - 2.55 m/s	2.34 m/s	Yes
20 ms	4.12 - 5.10 m/s	4.77 m/s	Yes
30 ms	5.73 - 7.01 m/s	6.79 m/s	Yes
40 - 70 ms	6.27 - 7.64 m/s	7.14 - 7.24 m/s	Yes
Peak D Plane Rotation	66 - 82 °	73.1 °	Yes
Rotation Decay Time To 0° From Peak Angle	58 - 67 °	59.3 °	Yes
Peak Moment About Occipital Condyles	73.0 - 88.0 N·m	79.0 N·m	Yes
Moment Decay Time To 0 N·m From Peak Moment	49 - 64 ms	59.0 ms	Yes
Time Between Peak Rotation and Peak Moment	2 - 16 ms	13.0 ms	Yes

Comments:

Technician



Approved



12.16.2003 14:45:21 519



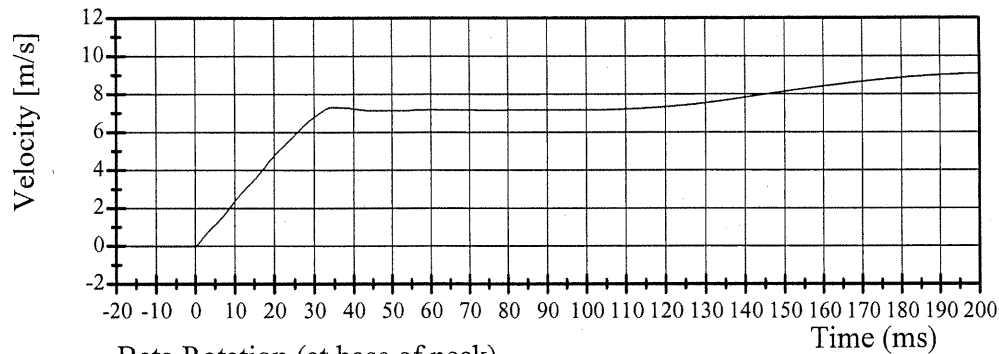
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/16/2003

Integrated Pendulum Velocity

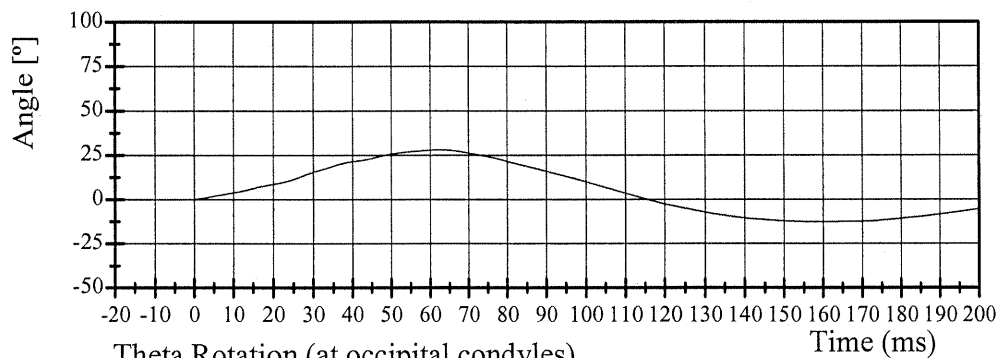


Filter Class: 180

Max: 9.1 m/s at 206.7 ms

Min: -0.0 m/s at -0.6 ms

Beta Rotation (at base of neck)

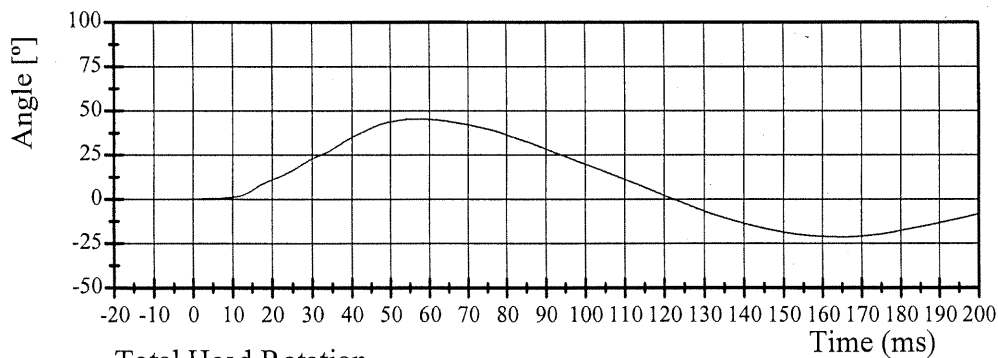


Filter Class: 60

Max: 28.1 ° at 62.8 ms

Min: -12.5 ° at 157.2 ms

Theta Rotation (at occipital condyles)

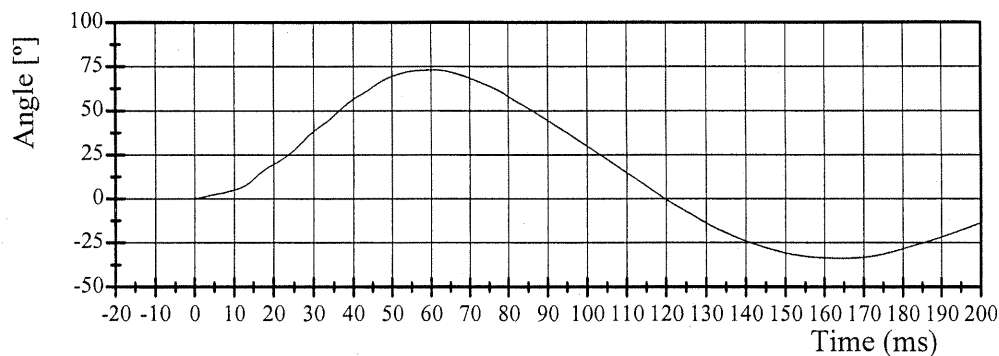


Filter Class: 60

Max: 45.4 ° at 55.8 ms

Min: -21.3 ° at 165.3 ms

Total Head Rotation



Filter Class: 60

Max: 73.1 ° at 60.6 ms

Min: -33.8 ° at 164.4 ms

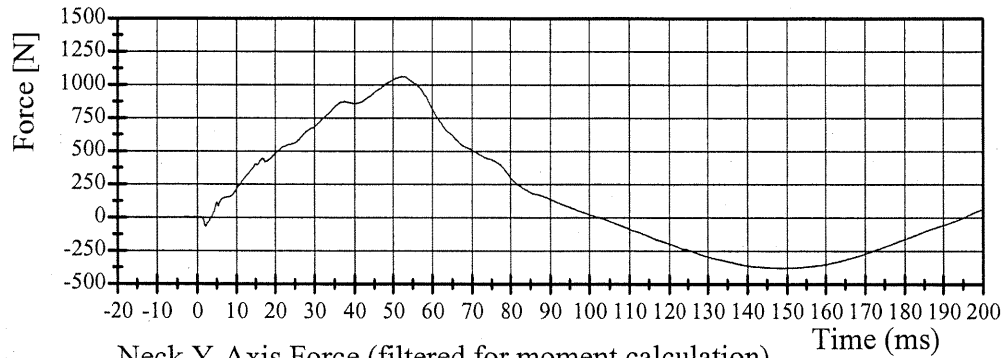
Transportation Research Center Inc.

572M Left Lateral Neck Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/16/2003

Neck Y-Axis Force

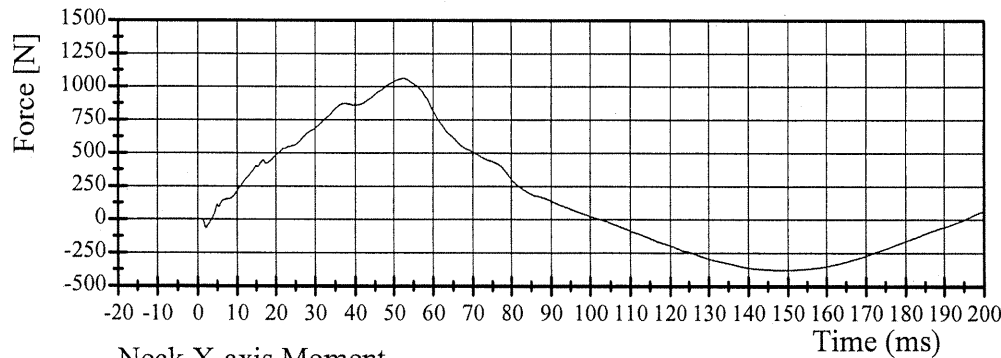


Filter Class: CFC 1000

Max: 1063 N at 52.3 ms

Min: -380 N at 148.7 ms

Neck Y-Axis Force (filtered for moment calculation)

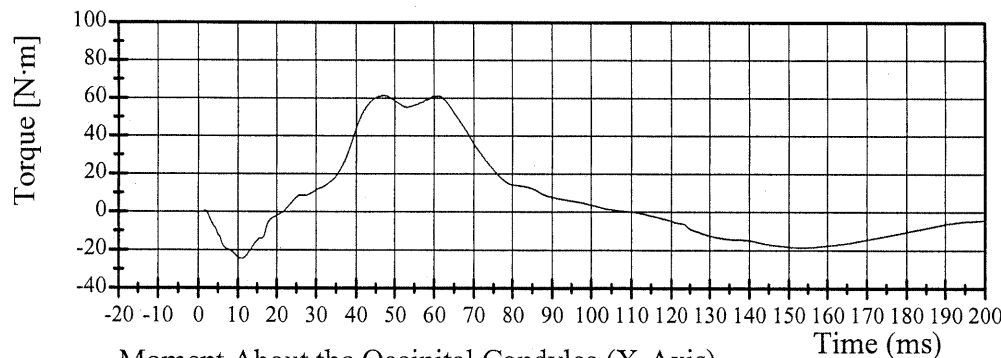


Filter Class: CFC 600

Max: 1062 N at 52.4 ms

Min: -379 N at 149.1 ms

Neck X-axis Moment

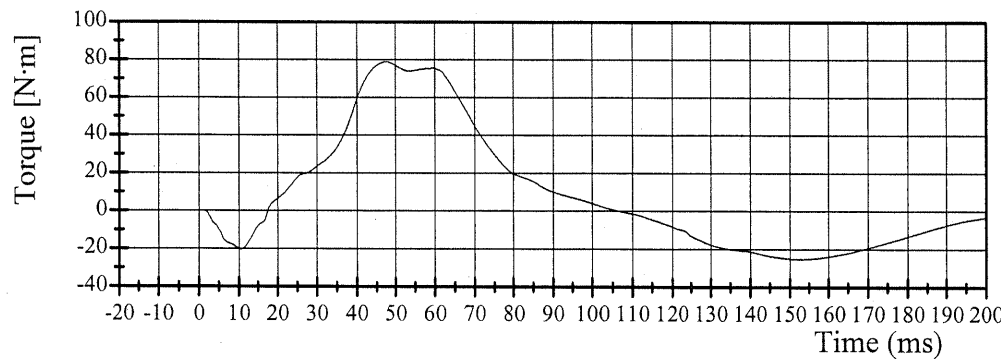


Filter Class: CFC 600

Max: 61.4 N·m at 46.9 ms

Min: -24.5 N·m at 10.7 ms

Moment About the Occipital Condyles (X-Axis)



Filter Class: 600

Max: 79.0 ° at 47.6 ms

Min: -25.1 ° at 152.3 ms

Transportation Research Center Inc.

572F Left Thorax Test

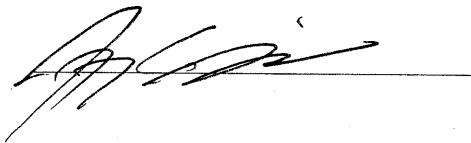
SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/10/2003

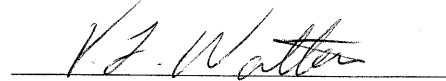
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.7 C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	4.21 - 4.33 m/sec	4.29 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	42.3 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	40.9 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	20.2 g	Yes

Comments:

Technician



Approved



12.11.2003 08:34:00 1149

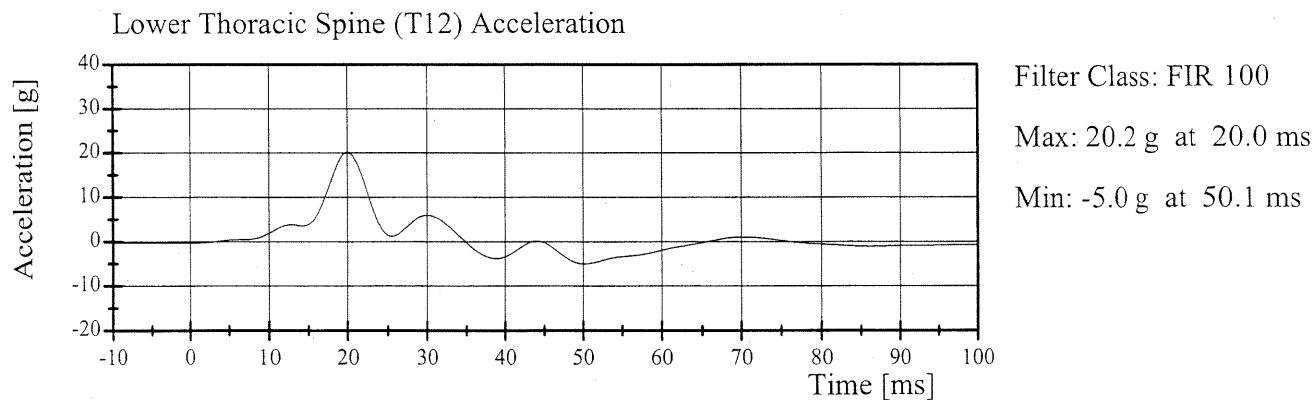
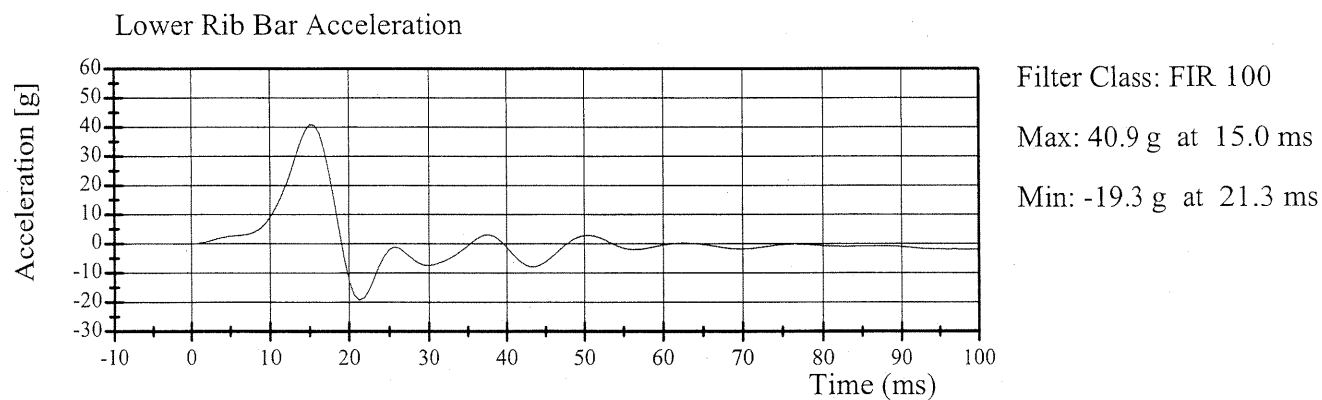
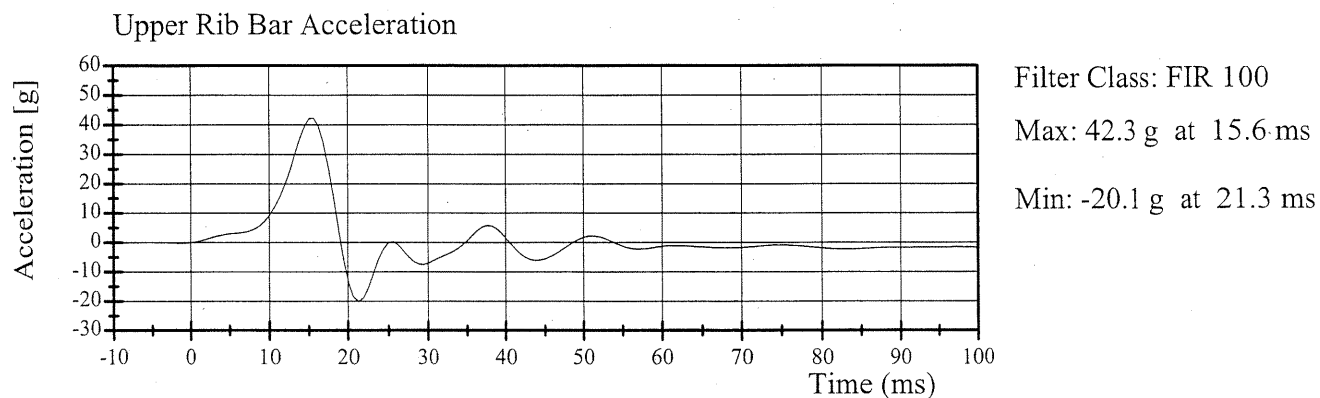


Transportation Research Center Inc.

572F Left Thorax Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/10/2003



12.11.2003 08:34:00 1149



Transportation Research Center Inc.

572B Abdomen Compression Test

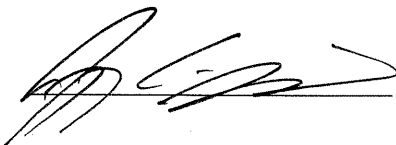
SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/16/2003

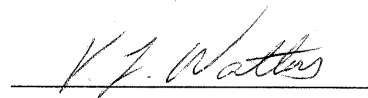
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.9 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



12.16.2003 15:25:35 1103

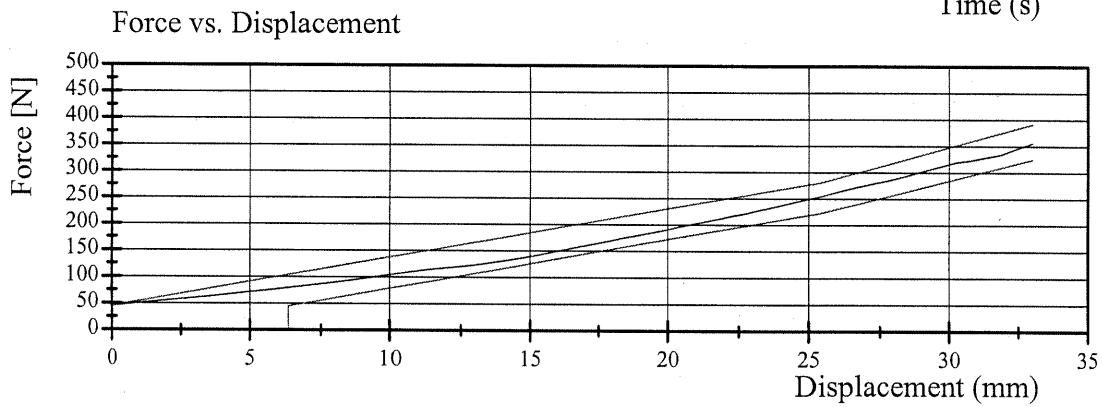
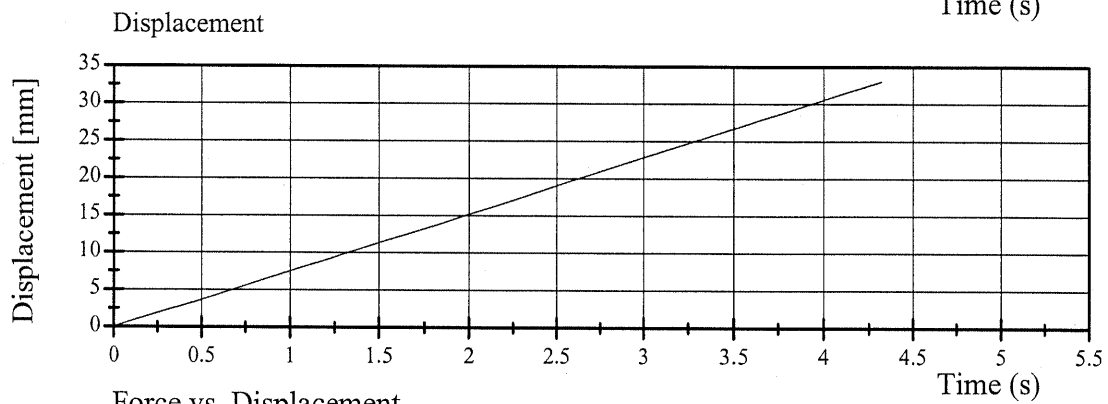
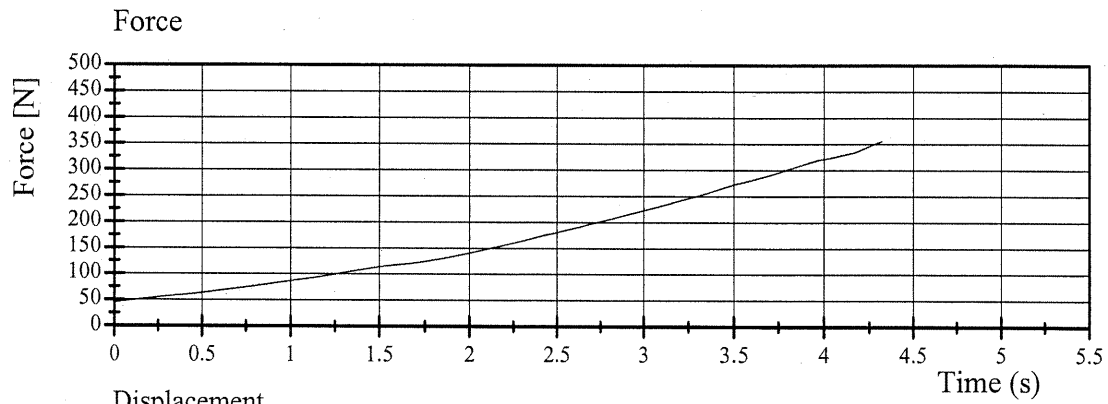


Transportation Research Center Inc.

572B Abdomen Compression Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/16/2003



12.16.2003 15:25:36 1103



TRANSPORTATION RESEARCH CENTER INC.

PART 572B LUMBAR FLEXION TEST

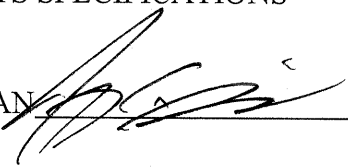
SID HIII

CAL DATE: 10-Dec-03

TRC, INC. TEST NO: LF05903 SID/HIII SN 059 TORSO FLEX CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.7 °C
RELATIVE HUMIDITY	10 – 70 %	35 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	129.0 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	191.3 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	240.2 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	4 °

TEST MEETS SPECIFICATIONS

TECHNICIAN 

Transportation Research Center Inc.

572F Left Pelvis Test

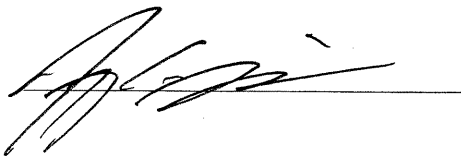
SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/10/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.7 C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	4.21 - 4.33 m/sec	4.28 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	42.9 g	Yes
Time Above 20 g	3 - 7 ms	6.00 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician



Approved



12.11.2003 08:33:09 1158

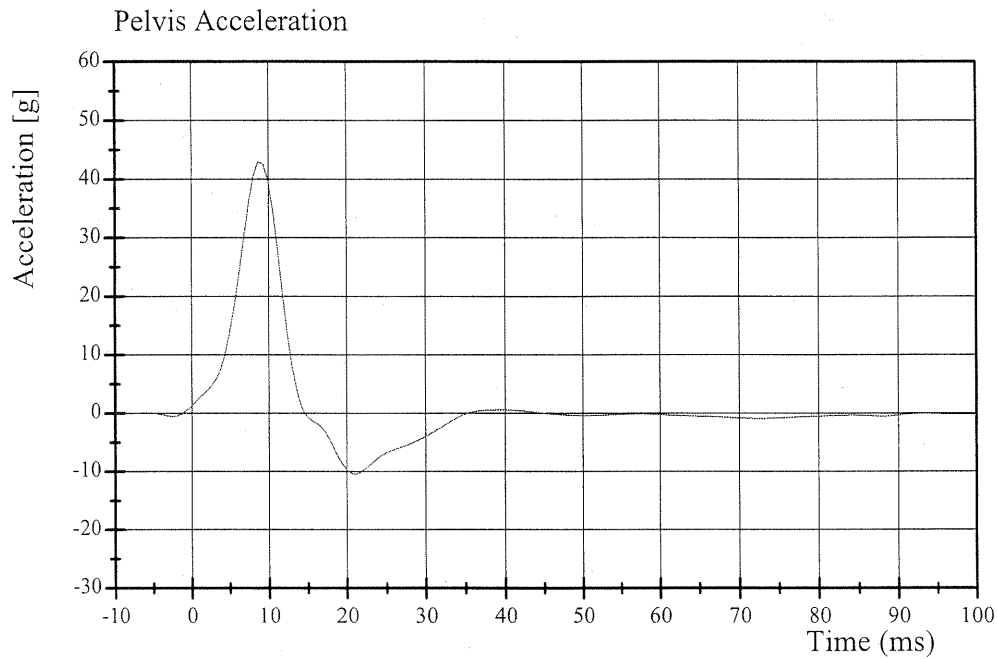


Transportation Research Center Inc.

572F Left Pelvis Test

SID HIII Serial No. 059 Calibration No. 03 - 1

Test Date 12/10/2003



Filter Class: FIR 100

Max: 42.9 g at 8.7 ms

Min: -10.4 g at 21.2 ms

12.11.2003 08:33:10 1158



Type: SID HIII S/N: 059 Mfr: ASTC Test Date: 12/08/03Proj./Seg. No.: 20030296-1000 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: 12/05/03

Type: SID HIII S/N: 059 Mfr: ASTC Test Date: 12/08/03Proj./Seg. No.: 20030296-1000 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	X
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: No damage to report.

Inspection Completed By: J. ClarridgeDate: 12/09/03

Appendix D

Test Equipment List and Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers:

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

Potentiometers:

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

Rotation potentiometers:

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

Load cells:

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

Neck load cells:

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

Tibia load cells:

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

Sign Convention, Cont'd.
SAE J211 MAR95

Lumbar load cells:

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

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
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

12/8/2003 8:10:15 AM

Name of Test 031208

System MINIDAU

Name of DAU DAUD

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	P21712	HEDXG1	Head Accel X	Rwd	808.59128 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0002	P22733	HEDYG1	Head Accel Y	Lft	799.37548 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0003	P21625	HEDZG1	Head Accel Z	Up	806.14686 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0004	P25076	HEDXR1	Head Accel X Red	Rwd	794.38962 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0005	P16213	HEDYR1	Head Accel Y Red	Lt	807.39268 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0006	P18941	HEDZR1	Head Accel Z Red	Up	811.60339 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0007	1716A-1532-FX	NEKXF1	Neck Force X	Hd	8910.4831 N	-	9/9/2003	OK 059n	Denton	1716A
0008	1716A-1532-FY	NEKYF1	Neck Force Y	Hd	8903.5686 N	+	9/9/2003	OK 059n	Denton	1716A
0009	1716A-1532-FZ	NEKZF1	Neck Force Z	Hd	13353.823 N	+	9/9/2003	OK 059n	Denton	1716A
0010	1716A-1532-MX	NEKXM1	Neck Moment X	Rt Ear	282.57842 N·m	-	9/9/2003	OK 059n	Denton	1716A
0011	1716A-1532-MY	NEKYM1	Neck Moment Y	Chn	282.17998 N·m	+	9/9/2003	OK 059n	Denton	1716A
0012	1716A-1532-MZ	NEKZM1	Neck Moment Z	Chn	282.95095 N·m	+	9/9/2003	OK 059n	Denton	1716A
0013	P27355	LURYG1	Left Upper Rib Y	Rgt	792.44698 g	+	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0014	P27178	LURYR1	Left Upper Rib Red Y	Rgt	798.55262 g	+	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0015	P29214	LLRYG1	Left Lower Rib Y	Rgt	803.51537 g	+	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0016	P25389	LLRYR1	Left Lower Rib Red Y	Rgt	796.13129 g	+	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0017	P27211	T12YG1	Lower Spine Y	Lft	399.22027 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0018	P29206	T12YR1	Lower Spine Red Y	Lft	397.99138 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0019	P27228	PEVYG1	Pelvis Accel Y	Lft	402.61384 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0020	P27230	PEVYR1	Pelvis Accel Red Y	Lft	398.85329 g	-	9/9/2003	OK 059n	Endevco	7264C-2K-2-180
0021	J26885	HEDXG4	Head Accel X	Rwd	803.17505 g	-	9/9/2003	OK 906n	Endevco	7264-2000TZ
0022	J26864	HEDYG4	Head Accel Y	Lft	790.78244 g	-	9/9/2003	OK 906n	Endevco	7264-2000TZ
0023	J27950	HEDZG4	Head Accel Z	Up	791.95668 g	-	9/9/2003	OK 906n	Endevco	7264-2000TZ
0024	J27271	HEDXR4	Head Accel X Red	Rwd	799.75007 g	-	9/9/2003	OK 906n	Endevco	7264-2000TZ
0025	J27283	HEDYR4	Head Accel Y Red	Lt	809.00012 g	-	9/9/2003	OK 906n	Endevco	7264-2000TZ
0026	J26980	HEDZR4	Head Accel Z Red	Up	789.53861 g	-	9/9/2003	OK 906n	Endevco	7264-2000TZ
0027	1716A-1535-FX	NEKXF4	Neck Force X	Hd	8891.7885 N	-	9/9/2003	OK 906n	Denton	1716A
0028	1716A-1535-FY	NEKYF4	Neck Force Y	Hd	8908.0907 N	+	9/9/2003	OK 906n	Denton	1716A
0029	1716A-1535-FZ	NEKZF4	Neck Force Z	Hd	13330.563 N	+	9/9/2003	OK 906n	Denton	1716A
0030	1716A-1535-MX	NEKXM4	Neck Moment X	Rt Ear	282.72169 N·m	-	9/9/2003	OK 906n	Denton	1716A
0031	1716A-1535-MY	NEKYM4	Neck Moment Y	Chn	282.57318 N·m	+	9/9/2003	OK 906n	Denton	1716A
0032	1716A-1535-MZ	NEKZM4	Neck Moment Z	Chn	283.00597 N·m	+	9/9/2003	OK 906n	Denton	1716A

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031208

Channel Report

12/8/2003 8:10:15 AM

Name of Test 031208

System MINIDAU

Name of DAU DAUF

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	P27850	LURYG4	Left Upper Rib Y	Rgt	792.32435 g	+	9/9/2003	OK 906n	Endevco	7264C-2K-2-180
0002	P25374	LURYR4	Left Upper Rib Red Y	Rgt	799.23822 g	+	9/9/2003	OK 906n	Endevco	7264C-2K-2-180
0003	P29211	LLRYG4	Left Lower Rib Y	Rgt	787.98325 g	+	9/9/2003	OK 906n	Endevco	7264C-2K-2-180
0004	P25075	LLRYR4	Left Lower Rib Red Y	Rgt	797.20976 g	+	9/9/2003	OK 906n	Endevco	7264C-2K-2-180
0005	P21635	T12YG4	Lower Spine Y	Lft	397.33043 g	-	9/9/2003	OK 906n	Endevco	7264C-2K-2-180
0006	P24564	T12YR4	Lower Spine Red Y	Lft	397.12087 g	-	9/9/2003	OK 906n	Endevco	7264C-2K-2-180
0007	P21652	PEVYG4	Pelvis Accel Y	Lft	397.45998 g	-	9/9/2003	OK 906n	Endevco	7264C-2K-2-180
0008	P25318	PEVYR4	Pelvis Accel Red Y	Lft	402.78171 g	-	9/15/2003	OK 906n	Endevco	7264C-2K-2-180
0009	P28870	RFSXG1	RT SIDE SILL AT FRONT	FWD	403.30203 g	+	8/15/2003	OK -1	Endevco	7264C-2K-2-180
0010	P28104	RFSYG1	RT SIDE SILL AT FRONT	LT	1014.4238 g	-	7/18/2003	OK -1	Endevco	7264C-2K-2-180
0011	P28869	RFSZG1	RT SIDE SILL AT FRONT	UP	399.70334 g	-	8/14/2003	OK -1	Endevco	7264C-2K-2-180
0012	P30355	RRSXG1	RT SIDE SILL AT RR SEAT	FWD	402.18373 g	+	11/12/2003	OK -1	Endevco	7264C-2K-2-180
0013	P28962	RRSYG1	RT SIDE SILL AT RR SEAT	LT	1021.1408 g	-	11/20/2003	OK -1	Endevco	7264C-2K-2-180
0014	P28965	RRSZG1	RT SIDE SILL AT RR SEAT	UP	401.17846 g	-	11/28/2003	OK -1	Endevco	7264C-2K-2-180
0015	P29373	RFPXG1	REAR FLOORPAN ABOVE	FWD	985.60098 g	+	8/12/2003	OK -1	Endevco	7264C-2K-2-180
0016	P26675	RFPYG1	REAR FLOORPAN ABOVE	LT	999.59001 g	-	11/14/2003	OK -1	Endevco	7264C-2K-2-180
0017	P28583	RFPZG1	REAR FLOORPAN ABOVE	UP	1015.6916 g	-	11/28/2003	OK -1	Endevco	7264C-2K-2-180
0018	P26229	LRSYG1	LT SIDE SILL AT RR SEAT	RT	1012.4980 g	+	11/28/2003	OK -1	Endevco	7264C-2K-2-180
0019	P28271	LFSYG1	LT SIDE SILL AT FR SEAT	RT	997.66173 g	+	11/28/2003	OK -1	Endevco	7264C-2K-2-180
0020	P23707	LFCYG1	LT FR DOOR ON CTR LINE	RT	1486.1256 g	+	11/20/2003	OK -1	Endevco	7264C-2K-2-180
0021	P28324	RRTYG1	RT RR OCCUPANT CMP	LT	983.63175 g	-	12/5/2003	OK -1	Endevco	7264C-2K-2-180
0022	P27179	LFMYG1	MID-RR OF LF FR DOOR	RT	1459.4378 g	+	11/20/2003	OK -1	Endevco	7264C-2K-2-180
0023	P28598	LFUYG1	LT FR DOOR UPR CTR LINE	RT	1491.8414 g	+	11/20/2003	OK -1	Endevco	7264C-2K-2-180
0026	J34877	LLBYG1	LT LWR B-POST Y-AXIS	LT	1452.7707 g	-	10/15/2003	OK -1	Endevco	7264-2000TZ
0027	J37150	LUBYG1	LT MID B-POST Y-AXIS	LT	1453.1006 g	-	10/15/2003	OK -1	Endevco	7264-2000TZ
0028	P30026	LLAYG1	LT LWR A-POST Y-AXIS	LT	1522.3596 g	-	8/13/2003	OK -1	Endevco	7264C-2K-2-180
0029	P30399	LUAYG1	LT MID A-POST Y-AXIS	LT	1512.6894 g	-	7/29/2003	OK -1	Endevco	7264C-2K-2-180
0030	P28290	LFTYG1	LT FR SEAT TRACK Y-AXIS	RT	1498.8290 g	+	11/14/2003	OK -1	Endevco	7264C-2K-2-180
0031	P28908	LRTYG1	LT RR SEAT TRACK Y-AXIS	LT	1535.4625 g	-	8/14/2003	OK -1	Endevco	7264C-2K-2-180
0032	P29995	VCXG1	VEHICLE CG X-AXIS	FWD	1012.4980 g	+	7/29/2003	OK -1	Endevco	7264C-2K-2-180

031208

Channel Report

12/8/2003 8:10:16 AM

Name of Test 031208

System MINIDAU

Name of DAU DAUG

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	P28313	VCGYG1	VEHICLE CG Y-AXIS	LT	1019.2705 g	-	6/18/2003	OK -1	Endevco	7264C-2K-2-180
0002	P22834	VCGZG1	VEHICLE CG Z-AXIS	UP	989.94586 g	-	7/21/2003	OK -1	Endevco	7264C-2K-2-180

Channel Report

12/8/2003 8:10:16 AM

Name of Test 031208

System MINIDAU

Name of DAU DAUH

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	P22079	BCGXG1	MDB CG X-AXIS	FWD	601.84314	g	+ 8/1/2003	OK -1	Endevco	7264C-2K-2-180
0003	P28257	BCGYG1	MDB CG Y-AXIS	LT	603.11925	g	- 6/19/2003	OK -1	Endevco	7264C-2K-2-180
0004	P28938	BCGZG1	MDB CG Z-AXIS	UP	595.94478	g	- 8/15/2003	OK -1	Endevco	7264C-2K-2-180
0005	P27522	LRXG1	MDB LT RR X-AXIS	RR	606.29026	g	- 7/19/2003	OK -1	Endevco	7264C-2K-2-180
0006	P27358	LRYG1	MDB LT RR Y-AXIS	RT	595.22425	g	+ 7/19/2003	OK -1	Endevco	7264C-2K-2-180
0007	P27362	TRCX1	TRC X-AXIS	RR	1020.9779	g	- 7/19/2003	OK -1	Endevco	7264C-2K-2-180
0008	P28118	TRCY1	TRC Y-AXIS	RT	984.91843	g	+ 7/19/2003	OK -1	Endevco	7264C-2K-2-180
0009	P28337	TRCZ1	TRC Z-AXIS	UP	987.27342	g	- 7/18/2003	OK -1	Endevco	7264C-2K-2-180

Digital and System Channel Report

2003-12-08 08:09:59

Name of Test	031208	System	MINIDAU	Name of DAU	DAUD	descriptio
enable Channel	Short Name	Type	Data File	Module Type		
Yes 0501	DIGD	dig0	DATD0501	KM3710 Controller		

bit position	bit	short	long	descriptio
MSB = bit 15	1	SHLET1	DRIV. SHOULDER CONTACT	A
bit 14	1	PEVET1	DRIV. PELVIS CONTACT	B
bit 13	1	SHLET4	RR/L. SHOULDER CONTACT	E
bit 12	1	PEVET4	RR/L. PELVIS CONTACT	F
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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031208

Digital and System Channel Report

2003-12-08 08:10:00

Name of Test 031208

System MINIDAU

Name of DAU DAUH descriptio

enable Channel

Short Name

Type

Data File

Module Type

Yes 0501

DIGH

dig0

DATH0501

KM3710 Controller

bit position	bit	short	long	descriptio
MSB = bit 15	1	MDBR1	MDB RT SIDE CONTACT	D
bit 14	1	MDBL1	MDB LT SIDE CONTACT	C
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			

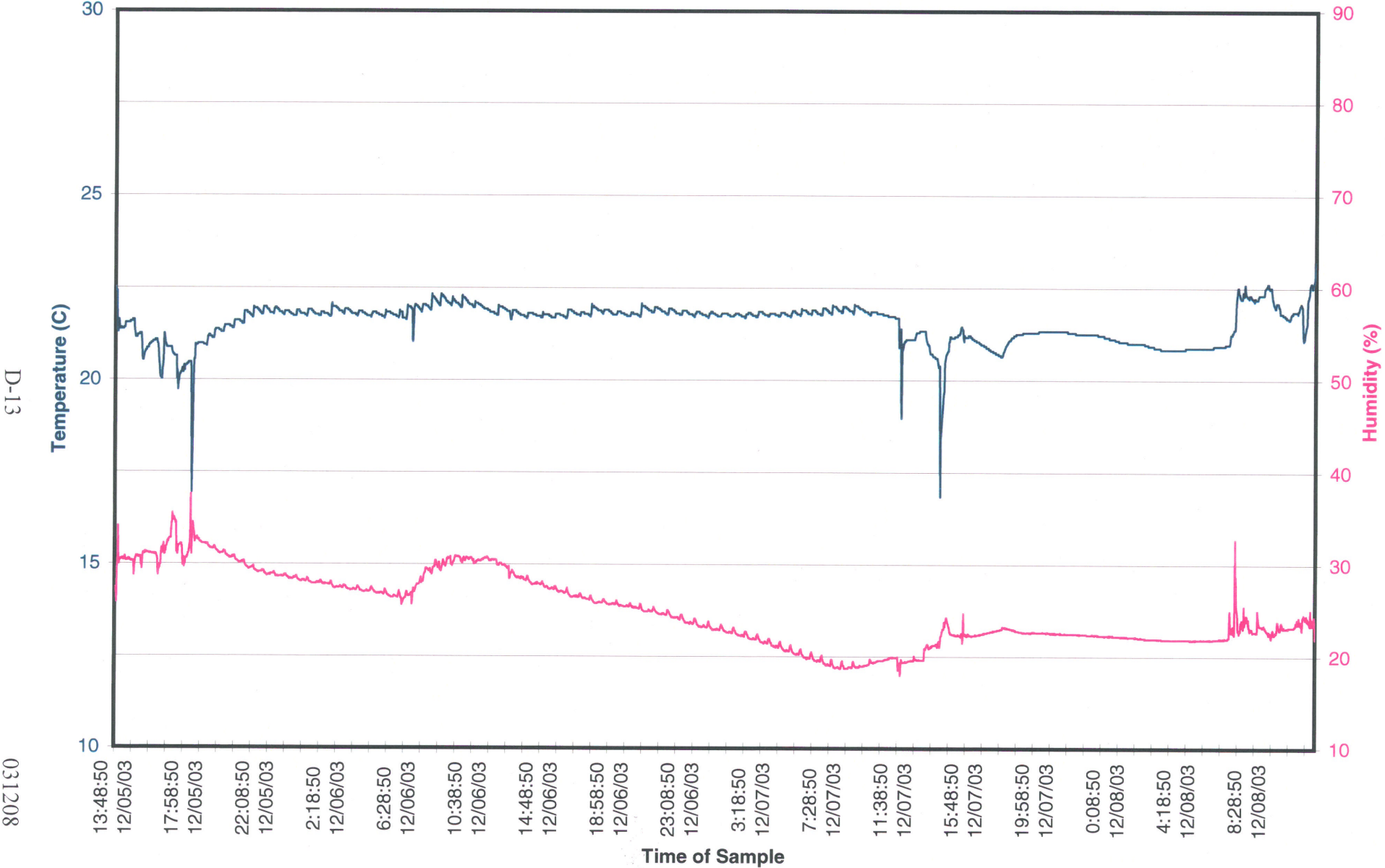
D-11

031208

D-12

Dummy	059n	Type	SID/H3	Description	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	

NCAP SIDE IMPACT TESTING/031208



SIDE IMPACTOR BARRIER CERTIFICATION

Date: December 2, 2003

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

PURCHASE ORDER INFORMATION

Customer P.O. Number: 027358
Work Order Number: 19171
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: 114B1003

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

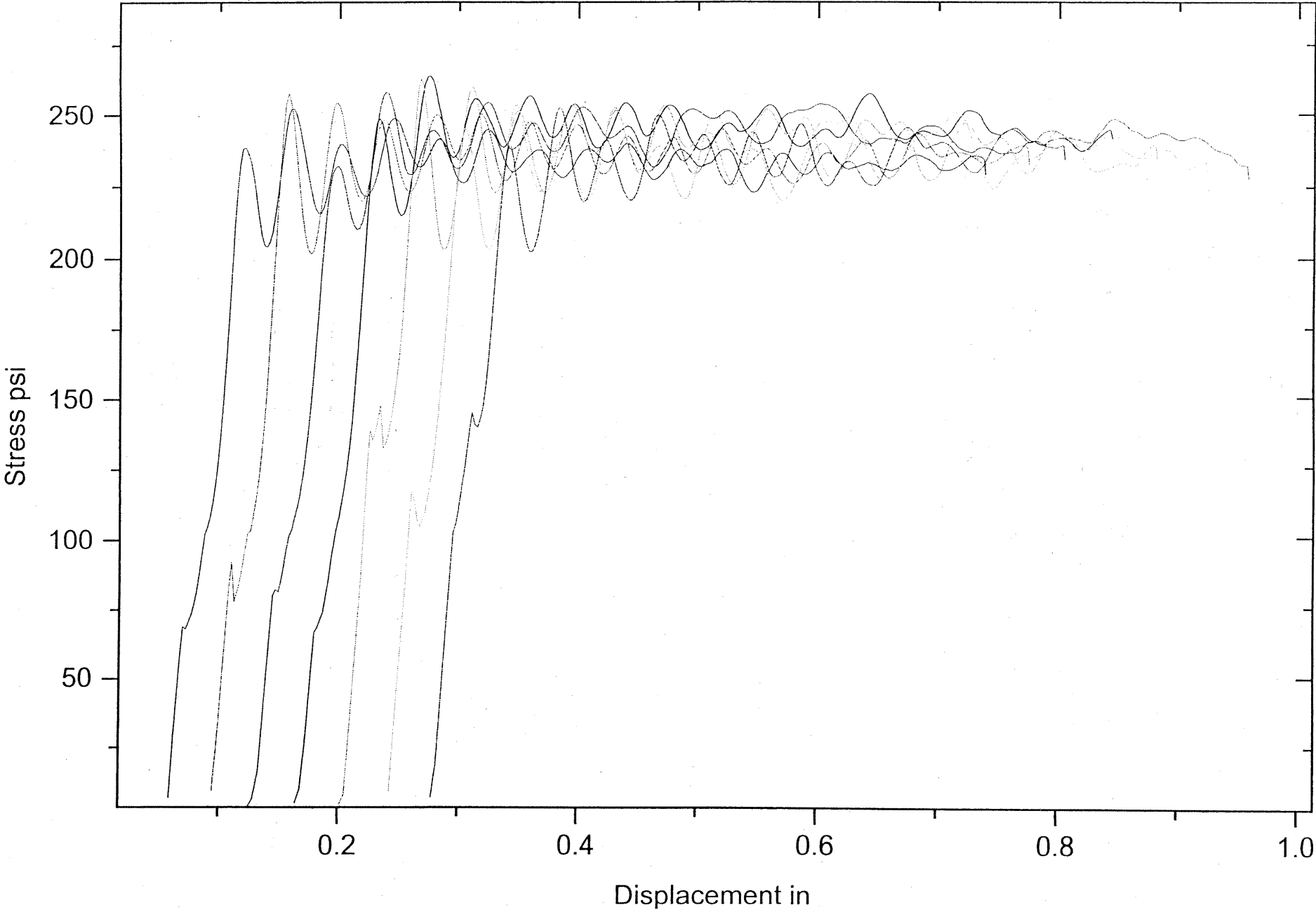
Block Number: 114B1003

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	234.38	232.22	233.14
2	236.30	235.50	236.32
3	245.08	245.90	241.05
4	246.67	245.23	245.18
5	241.88	239.44	238.87
6	237.10	237.91	236.21
7	233.26	239.88	243.77

BLOCK # 114B1003 Sample ID: IN228538

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031208





SIDE IMPACTOR BARRIER CERTIFICATION

Date: December 2, 2003

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

PURCHASE ORDER INFORMATION

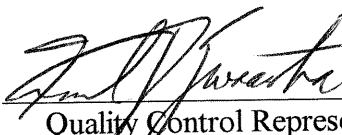
Customer P.O. Number: 027358
Work Order Number: 19171
Quantity: 01 piece

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: 016A1103

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

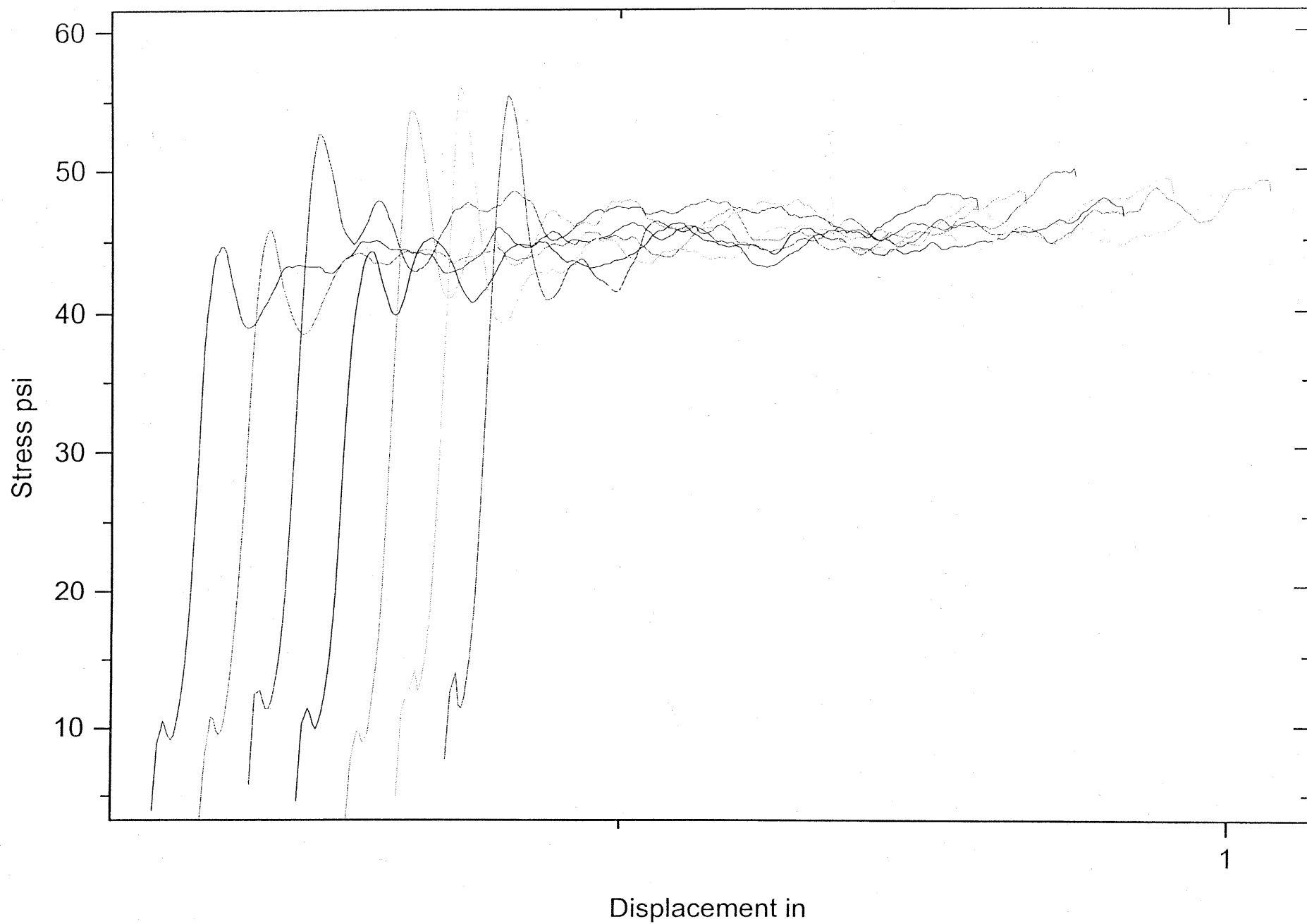


Crush Data
45 psi +/- 2.5 psi per DWG # DSL-1285

Block Number: **016A1103**

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	45.22	44.74	45.71
2	44.67	45.45	45.04
3	47.18	46.34	46.10
4	44.92	44.70	45.14
5	46.79	45.85	46.36
6	45.05	45.04	45.14
7	45.16	45.73	47.42

BLOCK # 016A1103 Sample ID: IN228608



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031208