637459

Report Number: 214-TRC-03-020

Safety Compliance Testing For FMVSS 214

Side Impact Protection

Mazda Motors

2004 Mazda 3 4-door

NHTSA Number: C45408

Transportation Research Center Inc.

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P. O. Box B-67

East Liberty, OH 43319

Test Date: July 15, 2004

Final Report: July 28, 2004

U. S. Department Of Transportation

National Highway Traffic Safety Administration

Enforcement

Office of Vehicle Safety Compliance

400 Seventh Street, S. W.

Room No. 6111 (NVS-220)

Washington, DC 20590

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Approval Date: _____

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16. Abstract

This 48/24 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2004 Mazda 3 4-door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on July 15, 2004.

The impact velocity of the Moving Deformable Barrier (MDB) was 53.0 km/h, and the ambient temperature at the struck (Driver) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was 238 mm at Level 2.

The test or target vehicle's performance is given below:

	Front SID		Rear SID	
Left Upper Rib Acceleration:	55.5	g's	57.3	g's
Left Lower Rib Acceleration:	68.0	g's	61.8	g's
Lower Spine Acceleration:	70.9	g's	58.7	g's
Thoracic Trauma Index, (TTI):	69.5	g's	60.3	g's
Pelvis Acceleration (PEV):	65.0	g's	64.7	g's

The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches during the side impact event. The rear non-struck side door opened during the side impact event.

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Section 1

Purpose and Test Procedure

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-11114. The purpose of this test was to evaluate side impact protection in a 2004 Mazda 3 4-door. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 2001).

Section 2

Summary of Side Impact Test

A 2004 Mazda 3 4-door was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 53.0 km/h (32.9 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on July 15, 2004. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in Appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-06, dated July 2001). Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T_{12}) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 44 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following tables summarize the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	69.5	60.3
PEV (g)	65.0	64.7

Data Acquisition Explanations

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

The vehicle's left middle A-pillar Y-axis acceleration channel, LMAYG1, recorded questionable data throughout the test. The velocity was also affected.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2004 Mazda 3

Vehicle Body Style/Color: 4-door/Black mica VIN: JM1BK12F341153062

Vehicle NHTSA No.: C45408 Build Date: 02/04

Engine Data: 4 Cylinders; ___ CID; 2.0 Liters; ____ cc

Placement: - Longitudinal; or X Lateral; or - Horizontal

Transmission: 5 Speed; X Manual; - Automatic; - Overdrive

Final Drive: - RWD; X FWD; - Four-Wheel Drive

Odometer Reading: 138 miles

Options: X A/C; X Power steering; X Power brakes; - Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 230 kPa Front; 230 kPa Rear

Recommended Tire Size: P195/65R15

Tire Pressure (at capacity) 220 kPa Front; 220 kPa Rear

Recommended Tire Size: P205/55R16

Tires on Test Vehicle: P195/65R15 Manufacturer: Toyo, Proxes

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; - 3rd seat; 5 Total

Type of Front Seats: X Bucket; - Bench; - Split bench

Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob

Vehicle Max. Capacity Loading = 385 kg (A)

No. of Occupants x 68.04 kg. = 340 kg (B)

Vehicle Cargo Capacity (A-B) = 45 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	383.0 kg	Left Rear	=	235.0 kg
Right Front	=	383.0 kg	Right Rear	=	250.0 kg
Total Front	=	766.0 kg	Total Rear	=	485.0 kg
Front % of Total Weight	=	61.2 %	Rear % of Total Weight	=	38.8 %
Total Weight	=	1251.0 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 = 1251.0 kg (A)

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

Weight of Instrumented Side Impact Dummies (1 or 2 X 83.0 kg) = 166.0 kg (C)

Test Vehicle Target Weight: = 1462.0 kg (A+B+C)

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

Left Front	= 436.5 kg		Left Rear	= 333.0 kg	
Right Front	= 390.0 kg		Right Rear	= 310.5 kg	
Total Front	= 826.5 kg		Total Rear	= 643.5 kg	
Front % of Total Weight	= 56.2 %		Rear % of Total Weight	= 43.8 %	
Total Weight	= 1470.0 kg				

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

Left Front	= 414.8 kg		Left Rear	= 303.2 kg	
Right Front	= 434.0 kg		Right Rear	= 305.4 kg	
Total Front	= 848.8 kg		Total Rear	= 608.6 kg	
Front % of Total Weight	= 58.2 %		Rear % of Total Weight	= 41.8 %	
Total Weight	= 1457.4 kg				

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered		Fully Loaded		Ready For Test	
Right Front	675	Right Front	653	Right Front	655
Left Front	682	Left Front	648	Left Front	656
Right Rear	698	Right Rear	651	Right Rear	654
Left Rear	704	Left Rear	646	Left Rear	652

Test Vehicle Wheelbase: 2640 mm

C.G. = 1104 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4105 mm

Left Side = 4105 mm

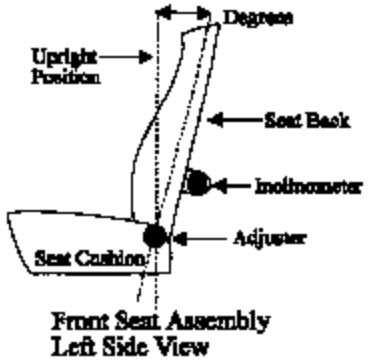
Centerline = 4530 mm

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

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: Seat positioned to mid way of travel; 13th latch position from most forward latch position (#0)

Total Length of Fore/Aft Adjustment Travel: 250 mm

Total Number of Adjustment Positions or Detents: 26

Front Seat Back Adjustment Position: The back was adjusted to 14.4°

Seat Back Torso Angle: 14.4 degrees

Second Position Seat Placement: Fixed

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

Seat Back Adjustment Position: Fixed

Adjustable Steering Column Position: Middle of geometric range of travel

Window Positions:

Right Front: Open Right Rear: Open

Left Front: Closed Left Rear: Closed

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

Amount of Stoddard Solvent In Fuel Tank:

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 = 2640 millimeters

Intended impact point is 380 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 365 millimeters rearward of front axle centerline

Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2004/Mazda/3

Body Style: 4-door VIN: JM1BK12F341153062

NHTSA No.: C45408 Build Date: 02/04

Test Date: 07/15/04

Vehicle Overall Length = 4530 mm Overall Width = 1755 mm

Vehicle Test Weight (Pre-Test):

Left Front	= 414.8 kg		Left Rear	= 303.2	kg
Right Front	= 434.0 kg		Right Rear	= 305.4	kg
Total Front	= 848.8 kg		Total Rear	= 608.6	kg
Total Weight	= 1457.4 kg				
Wheelbase	= 2640 mm				

Longitudinal C.G. From Center Of Front Axle = 1104 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 15 mm left 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 (218 mm above ground) = 63 mm
2. Level 2 (535 mm above ground) = 238 mm
3. Level 3 (620 mm above ground) = 205 mm
4. Level 4 (928 mm above ground) = 158 mm
5. Level 5 (1400 mm above ground) = 66 mm

Maximum Post-Test Intrusion = 238 mm

Occupants:	Front Passenger	Rear Passenger
Dummy Identification	065	066
Restraints Used	3-pt seat belt	3-pt seat belt

Instrumentation:

Number of Vehicle Data Channels: = 21

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

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, 213B0104, 162B0204

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	=	1101	mm

MDB Weight:

Left Front	=	405.4	kg	Left Rear	=	274.4	kg
Right Front	=	378.4	kg	Right Rear	=	306.0	kg
Total Front	=	783.8	kg	Total Rear	=	580.4	kg
Total MDB Weight	=	1364.2	kg				

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

Impact Speed = 53.0 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level	=	149	millimeters
2. Row B at Top of Bumper Level	=	73	millimeters
3. Row C at Mid Level	=	109	millimeters
4. Row D at Top of Stack Level	=	105	millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

Visible Dummy Contact Points:

	Left Front SID	Left Rear SID
Head:	Window, head restraint	Head liner
Upper Torso:	Door panel	Door panel
Lower Torso:	Door panel	Door panel
Left Knee:	Door panel	Door panel
Right Knee:	None	None

Door Opening:

	Left Side	Right Side
Front:	Jammed & latched	Easy
Rear:	Jammed & latched	Easy

MDB Distance From Target Impact Point:

Vertical: 1 mm up from target

Horizontal: 15 mm left from target

Arm Rest Locations:

Front: 230 mm below the bottom of the window

Rear: 282 mm below the bottom of the window

Seat Movement:

Front: None

Rear: None

Glazing Damage:

Windshield: Broken on driver's side

Window: Left side windows broken

Pillar Separation: None

Sill Separation: None

Data Sheet 4 (continued)

Post-Test Observations

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

Other Notable Impact Effects:

The rear passenger door on the non-struck side of the vehicle opened during the impact event.

Prior to test, high speed cameras are mounted on the front and rear non-struck side doors to provide the onboard side door views of the front and rear dummies. Each camera and associated mounting hardware weights 12.2 kg. The cameras and mounting hardware can be viewed in photo A-7 on page A-10 of this report.

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID Instrumentation Data

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

TEST NUMBER: 040715 DRIVER DUMMY SERIAL NUMBER: 065

		POSITIVE DIRECTION		NEGATIVE DIRECTION	
LEFT UPPER RIB ACCELERATION					
LATERAL (P)	55.5 g	@ 38.8 ms		12.8 g	@ 75.0 ms
LATERAL (R)	55.8 g	@ 38.8 ms		13.7 g	@ 75.0 ms
LEFT LOWER RIB ACCELERATION					
LATERAL (P)	68.0 g	@ 36.9 ms		11.0 g	@ 75.6 ms
LATERAL (R)	68.1 g	@ 36.9 ms		12.2 g	@ 75.6 ms
TTI d (P)	69.5				
TTI d (R)	68.6				
LOWER SPINE ACCELERATION					
LATERAL (P)	70.9 g	@ 40.0 ms		6.6 g	@ 68.1 ms
LATERAL (R)	69.2 g	@ 40.0 ms		6.8 g	@ 68.1 ms
PELVIS ACCELERATION					
LATERAL (P)	65.0 g	@ 32.5 ms		11.8 g	@ 56.3 ms
LATERAL (R)	64.4 g	@ 32.5 ms		11.8 g	@ 56.3 ms

POSITIVE DIRECTION		NEGATIVE DIRECTION	
LONGITUDINAL:	FORWARD	LONGITUDINAL:	REARWARD
LATERAL:	RIGHTWARD	LATERAL:	LEFTWARD
VERTICAL:	DOWNWARD	VERTICAL:	UPWARD

Data Sheet 5 (Continued)

SID Instrumentation Data

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

TEST NUMBER: 040715 PASSENGER DUMMY SERIAL NUMBER: 066

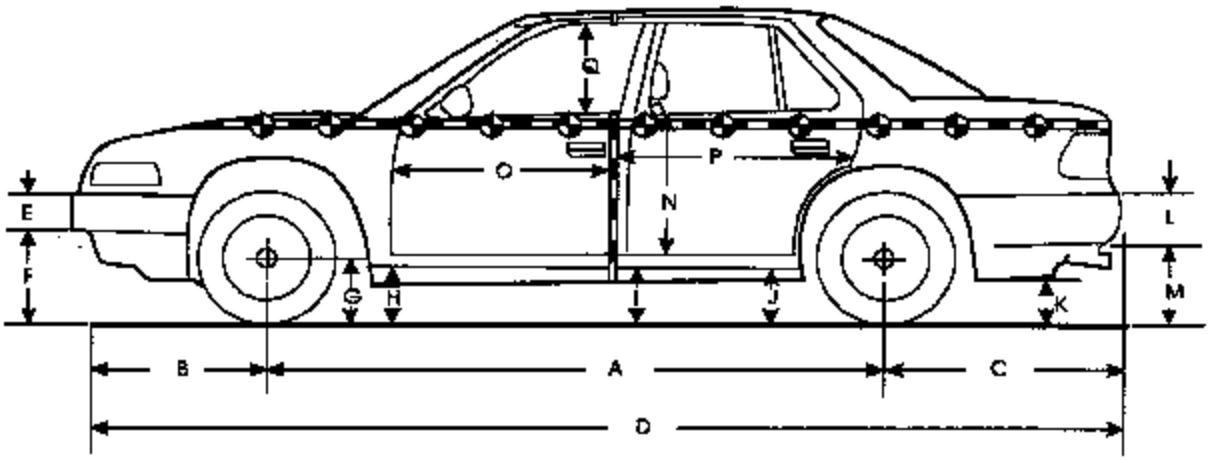
	POSITIVE DIRECTION		NEGATIVE DIRECTION	
LEFT UPPER RIB ACCELERATION				
LATERAL (P)	57.3 g	@ 42.5 ms	13.1 g	@ 111.9 ms
LATERAL (R)	57.2 g	@ 42.5 ms	12.1 g	@ 112.5 ms
LEFT LOWER RIB ACCELERATION				
LATERAL (P)	61.8 g	@ 42.5 ms	15.1 g	@ 111.3 ms
LATERAL (R)	61.2 g	@ 42.5 ms	14.0 g	@ 111.9 ms
TTI d (P)	60.3			
TTI d (R)	59.8			
LOWER SPINE ACCELERATION				
LATERAL (P)	58.7 g	@ 48.1 ms	10.4 g	@ 75.6 ms
LATERAL (R)	58.5 g	@ 48.1 ms	10.2 g	@ 75.6 ms
PELVIS ACCELERATION				
LATERAL (P)	64.7 g	@ 43.8 ms	4.8 g	@ 123.7 ms
LATERAL (R)	64.3 g	@ 43.8 ms	4.8 g	@ 123.1 ms

POSITIVE DIRECTION		NEGATIVE DIRECTION	
LONGITUDINAL:	FORWARD	LONGITUDINAL:	REARWARD
LATERAL:	RIGHTWARD	LATERAL:	LEFTWARD
VERTICAL:	DOWNWARD	VERTICAL:	UPWARD

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408



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	2640	2640	2627	13
B	930	930	934	-4
C	960	N/A[1]	925	35
D	4530	4530	4514	16
E	160	160	160	0
F	425	384	405	-21
G	294	295	295	0
H	227	183	193	-10
I	254	209	249	-40
J1	240	192	199	-7
J2	198	135	153	-18
K	290	N/A[1]	223	67
L	191	191	191	0
M	463	N/A[1]	399	64
N	767	767	735	32
O	877	877	856	21
P	1092	1092	1049	43
Q	394	394	364	30
R	4105	4105	4094	11
S	4105	4105	4099	6
T	1300	1300	1187	113

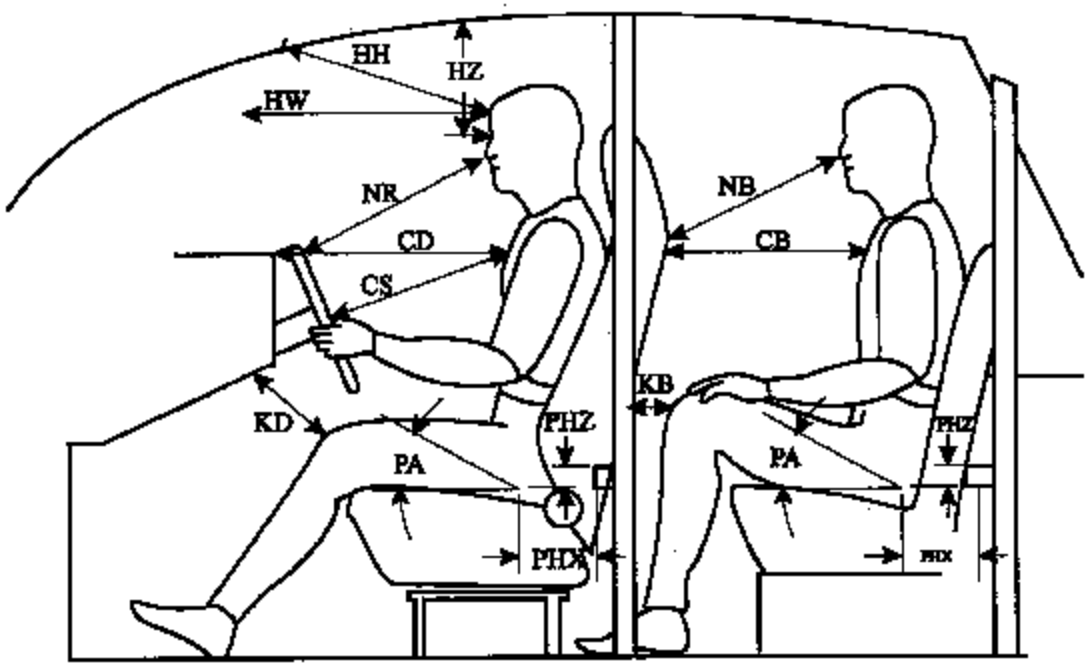
D = Length at centerline E&L = Bumper Thickness R = Right Side Length S = Left Side Length
T = Width at B-pillar J1 = To Pinch Weld J2 = To Sill

[1] Rear bumper fascia was removed prior to test.

Data Sheet 7

SID Longitudinal Clearance Dimensions

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408



Left Side View

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

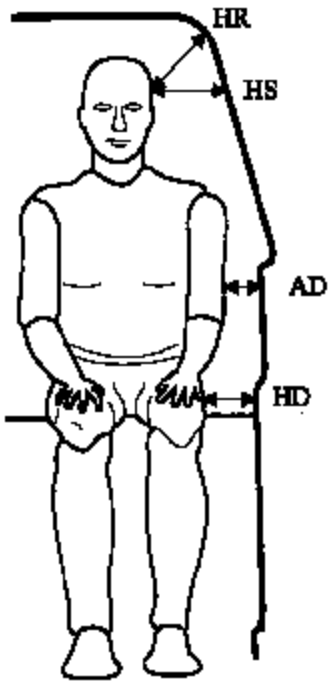
Measurement	Driver SID #065	Left Rear Pass. SID #066
HH	439	N/A
HW	643	N/A
HZ	185	142
NR/NB	505	571
CD/CB	600	494
CS	382	N/A
KDL(KDA°)/KBL(KBA°)	95/(33.0°)	102/(20.6°)
KDR(KDA°)/KBR(KBA°)	94/(33.0°)	108/(25.3°)
PA°	23.3°	23.2°
PHX	210	152
PHZ	159	180

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

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408



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

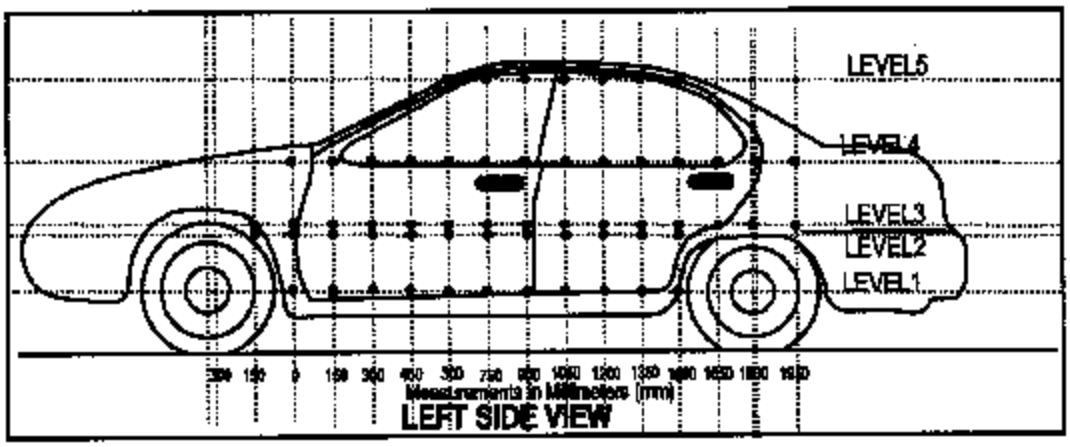
Measurement	Driver SID #065	Left Rear Pass. SID #066
HR	180	184
HS	300	317
AD*	Lower: 112 Upper: 99	Lower: 93 Upper: 96
HD	143	154

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

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408



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	=	1400	mm
Level 4 @ Window Sill	=	928	mm
Level 3 @ Mid Door	=	620	mm
Level 2 @ Occupant H-Point	=	535	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	218	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Location	Height		(mm) From Impact Point													
			-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	218	Pre	---	---	---	---	---	---	---	---	707	697	700	698	702	700
		Post	---	---	---	---	---	---	---	---	683	707	727	733	740	743
		Crush	---	---	---	---	---	---	---	---	-24	10	27	35	38	43
Level 2 H-Point	535	Pre	---	---	694	650	---	---	---	---	626	636	635	634	633	633
		Post	---	---	690	652	---	---	---	---	663	801	819	842	854	866
		Crush	---	---	-4	2	---	---	---	---	37	165	184	208	221	233
Level 3 Mid-Door	620	Pre	---	---	706	660	627	---	---	624	629	632	631	630	629	628
		Post	---	---	705	660	630	---	---	631	666	769	786	824	834	830
		Crush	---	---	-1	0	3	---	---	7	37	137	155	194	205	202
Level 4 Window Sill	928	Pre	---	---	---	---	---	---	---	732	720	711	699	690	680	677
		Post	---	---	---	---	---	---	---	747	741	735	756	772	783	790
		Crush	---	---	---	---	---	---	---	15	21	24	57	82	103	113
Level 5 Window Top	1400	Pre	---	---	---	---	---	---	---	---	---	---	---	---	---	925
		Post	---	---	---	---	---	---	---	---	---	---	---	---	---	945
		Crush	---	---	---	---	---	---	---	---	---	---	---	---	---	20

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

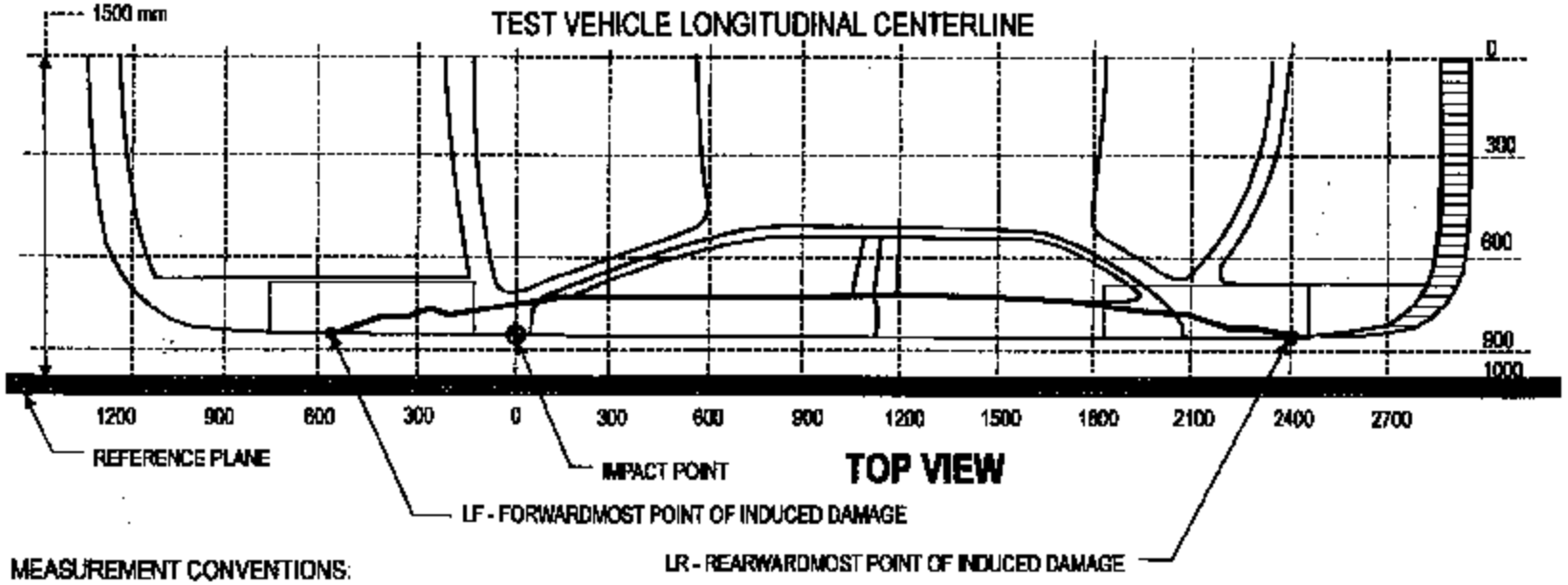
Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	218	Pre	698	695	697	691	693	695	697	---	---	---	---	---	---
		Post	749	751	759	754	740	720	690	---	---	---	---	---	---
		Crush	51	56	62	63	47	25	-7	---	---	---	---	---	---
Level 2 H-Point	535	Pre	632	633	631	633	630	632	636	631	---	---	---	---	669
		Post	870	871	803	803	795	770	680	637	---	---	---	---	669
		Crush	238	238	172	170	165	138	44	6	---	---	---	---	0
Level 3 Mid-Door	620	Pre	627	627	626	626	624	627	630	626	---	---	---	633	667
		Post	828	816	795	793	791	795	730	640	---	---	---	639	672
		Crush	201	189	169	167	167	168	100	14	---	---	---	6	5
Level 4 Window Sill	928	Pre	671	670	665	665	661	664	664	665	669	674	678	687	697
		Post	799	790	805	810	819	819	759	700	695	699	693	699	705
		Crush	128	120	140	145	158	155	95	35	26	25	15	12	8
Level 5 Window Top	1400	Pre	902	892	890	887	890	889	900	910	---	---	---	---	---
		Post	933	933	940	953	940	933	927	933	---	---	---	---	---
		Crush	31	41	50	66	50	44	27	23	---	---	---	---	---

Data Sheet 11

Vehicle Damage Profile Distances

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

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



MEASUREMENT CONVENTIONS:
Forward of the impact point (towards front of vehicle) is considered negative (-)
Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
6: LF = -150 mm (Level 2)	801	636	165
5: 300 mm (Level 2)	819	635	184
4: 750 mm (Level 2)	866	633	233
3: 1200 mm (Level 2)	803	631	172
2: 1650 mm (Level 3)	795	627	168
1: LR = 2100 mm (Level 4)	695	669	26

Full length of induced damage was 2100 mm.

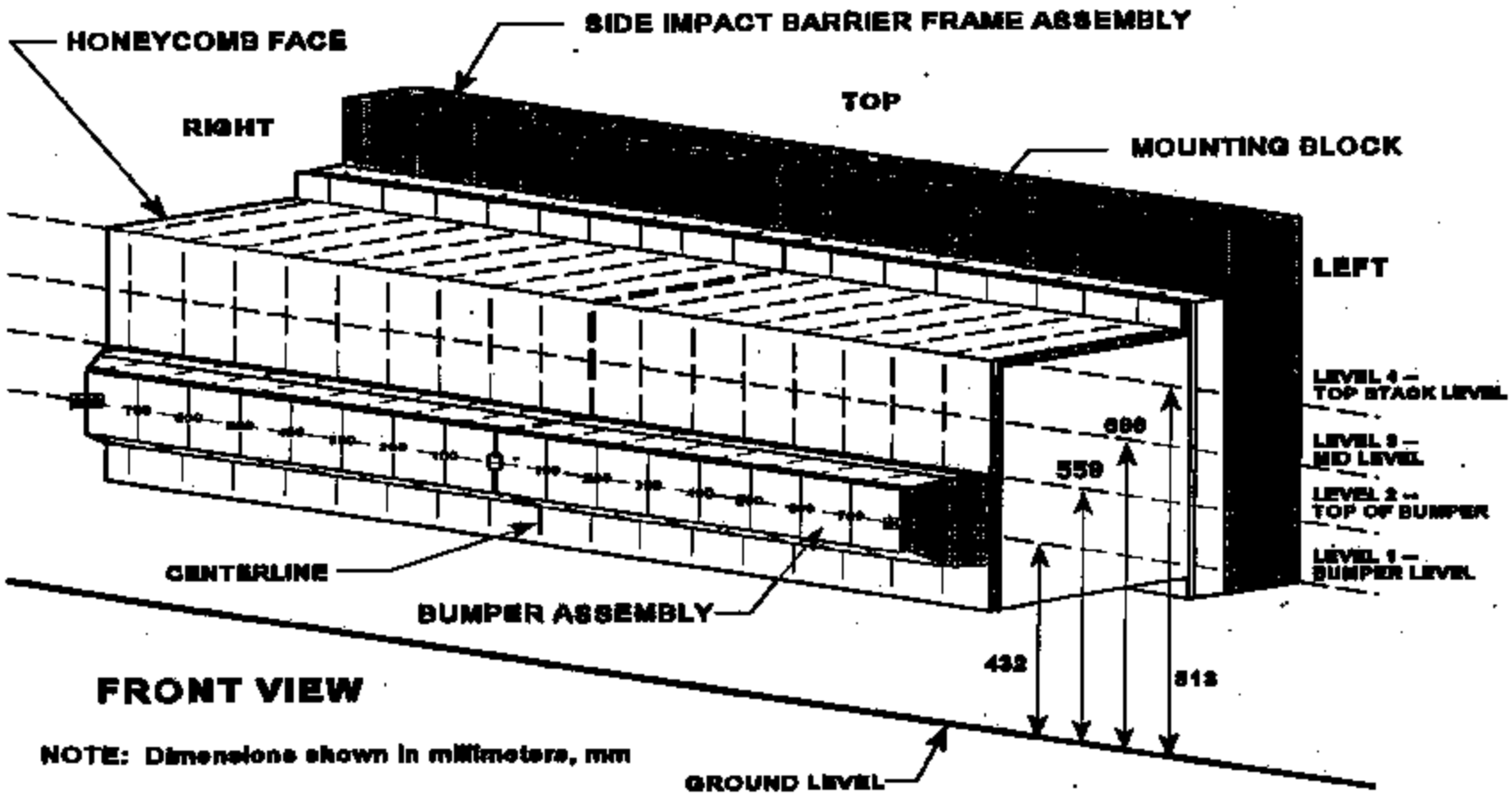
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408



Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

		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	812	16	-7	-8	-5	2	18	14	10	8	7	8	10	13	20	33	51	105
Mid Level Level C	683	5	-3	1	4	8	20	16	11	11	11	11	13	14	16	20	48	109
Top Bumper Level-Level B[1]	559	40	24	17	15	16	19	18	23	25	28	32	36	40	46	52	64	73
Mid Bumper Level - Level A	432	149	105	81	70	67	68	67	69	71	74	77	80	83	88	98	114	124

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

[1] Pre- and post-test Top Bumper measurements are collected at 559 mm to reduce the number of inaccessable measurements points caused by bumper element deformation post-test.

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Deformable Barrier Face Profile

Level D - Top Stack

Pre-Test

Index	Xmm	Ymm	Zmm
1	-107	791	-387
2	-106	691	-386
3	-106	590	-386
4	-106	490	-385
5	-106	392	-384
6	-106	291	-383
7	-106	191	-382
8	-106	91	-381
9	-106	-9	-380
10	-105	-109	-379
11	-105	-209	-379
12	-105	-309	-378
13	-105	-409	-377
14	-105	-509	-376
15	-105	-609	-375
16	-104	-709	-375
17	-104	-808	-374

Post-Test

Index	Xmm	Ymm	Zmm
1	-122	772	-354
2	-99	678	-357
3	-98	577	-357
4	-101	477	-359
5	-108	378	-360
6	-124	279	-361
7	-119	179	-361
8	-115	79	-363
9	-113	-21	-364
10	-112	-121	-366
11	-114	-221	-367
12	-115	-321	-368
13	-118	-421	-370
14	-125	-521	-371
15	-138	-619	-372
16	-154	-718	-374
17	-209	-801	-373

Difference

Index	Xmm	Ymm	Zmm
1	16	18	-33
2	-7	13	-30
3	-8	13	-28
4	-5	14	-26
5	2	14	-24
6	18	12	-22
7	14	12	-20
8	10	12	-19
9	8	12	-16
10	7	12	-14
11	8	12	-12
12	10	12	-9
13	13	12	-7
14	20	12	-5
15	33	11	-3
16	51	9	-1
17	105	-8	0

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Deformable Barrier Face Profile Cont'd.

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-106	792	-258
19	-106	692	-257
20	-105	592	-257
21	-105	492	-256
22	-104	392	-255
23	-106	293	-254
24	-105	193	-253
25	-105	93	-252
26	-105	-7	-251
27	-105	-107	-250
28	-104	-207	-249
29	-104	-307	-248
30	-104	-407	-248
31	-104	-507	-247
32	-104	-607	-246
33	-103	-707	-246
34	-103	-807	-244

Post-Test

Index	Xmm	Ymm	Zmm
18	-111	776	-227
19	-103	677	-228
20	-106	577	-229
21	-108	477	-230
22	-113	378	-231
23	-125	278	-232
24	-122	178	-233
25	-116	78	-235
26	-116	-22	-236
27	-116	-122	-237
28	-116	-222	-239
29	-117	-323	-240
30	-118	-423	-242
31	-120	-523	-243
32	-123	-623	-244
33	-151	-718	-245
34	-212	-797	-245

Difference

Index	Xmm	Ymm	Zmm
18	5	17	-31
19	-3	15	-29
20	1	16	-28
21	4	15	-26
22	8	15	-24
23	20	15	-22
24	16	15	-19
25	11	15	-17
26	11	15	-15
27	11	15	-13
28	11	15	-11
29	13	15	-8
30	14	16	-6
31	16	16	-4
32	20	16	-2
33	48	11	0
34	109	-10	1

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
35	-104	795	-134
36	-105	694	-133
37	-105	594	-132
38	-105	495	-131
39	-105	395	-130
40	-105	294	-130
41	-105	195	-129
42	-104	94	-128
43	-104	-6	-127
44	-104	-106	-126
45	-104	-206	-125
46	-104	-306	-124
47	-103	-406	-123
48	-102	-506	-123
49	-103	-606	-121
50	-103	-707	-120
51	-103	-807	-120

Post-Test

Index	Xmm	Ymm	Zmm
35	-144	774	-115
36	-128	675	-109
37	-122	576	-108
38	-120	476	-108
39	-121	375	-110
40	-124	277	-113
41	-123	177	-111
42	-127	77	-115
43	-129	-23	-116
44	-132	-123	-117
45	-136	-224	-119
46	-139	-324	-121
47	-143	-424	-123
48	-148	-524	-125
49	-155	-624	-128
50	-166	-723	-131
51	-175	-822	-132

Difference

Index	Xmm	Ymm	Zmm
35	40	21	-19
36	24	19	-24
37	17	19	-25
38	15	19	-23
39	16	19	-20
40	19	18	-17
41	18	18	-17
42	23	17	-13
43	25	18	-11
44	28	17	-9
45	32	18	-5
46	36	18	-3
47	40	18	0
48	46	18	2
49	52	17	6
50	64	16	11
51	73	15	13

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Deformable Barrier Face Profile Cont'd.

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-15	797	-6
53	-1	699	-6
54	0	600	-6
55	0	499	-4
56	1	400	-4
57	0	300	-2
58	0	201	-2
59	0	100	-1
60	0	0	0
61	0	-101	1
62	1	-200	2
63	1	-300	3
64	1	-401	4
65	1	-500	4
66	2	-601	5
67	2	-701	6
68	-6	-799	6

Post-Test

Index	Xmm	Ymm	Zmm
52	-164	753	12
53	-106	673	30
54	-81	577	35
55	-70	477	36
56	-66	377	36
57	-68	278	34
58	-67	178	33
59	-69	77	32
60	-71	-23	31
61	-73	-123	30
62	-76	-223	28
63	-79	-323	27
64	-82	-423	25
65	-86	-523	23
66	-96	-623	20
67	-111	-721	15
68	-130	-818	9

Difference

Index	Xmm	Ymm	Zmm
52	149	44	-17
53	105	26	-36
54	81	23	-40
55	70	22	-41
56	67	22	-39
57	68	22	-37
58	67	23	-35
59	69	23	-33
60	71	23	-31
61	74	22	-28
62	77	23	-26
63	80	23	-24
64	83	23	-21
65	88	23	-19
66	98	22	-15
67	114	20	-9
68	124	19	-3

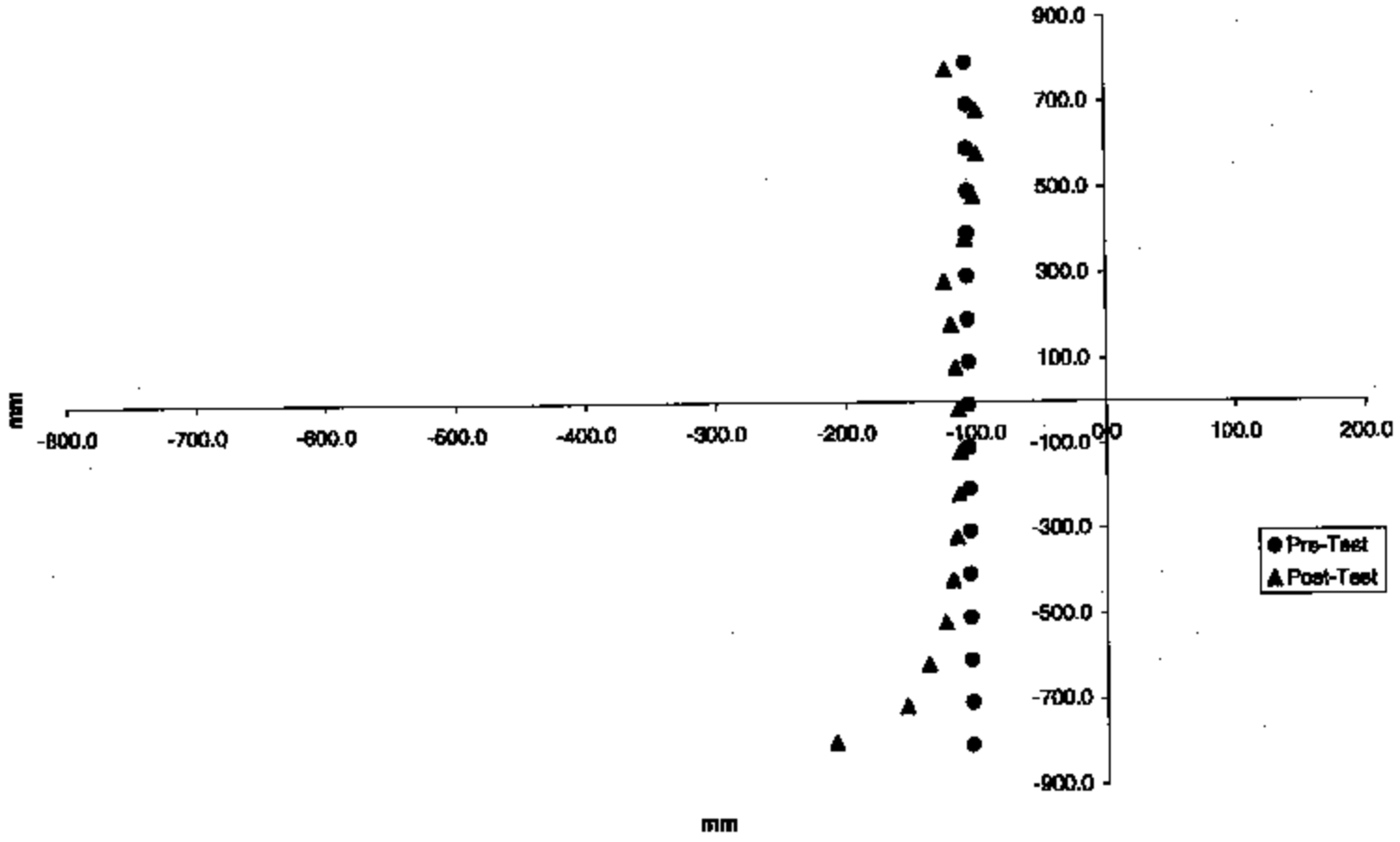
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Level D - Deformable Barrier Face Profile 1-17



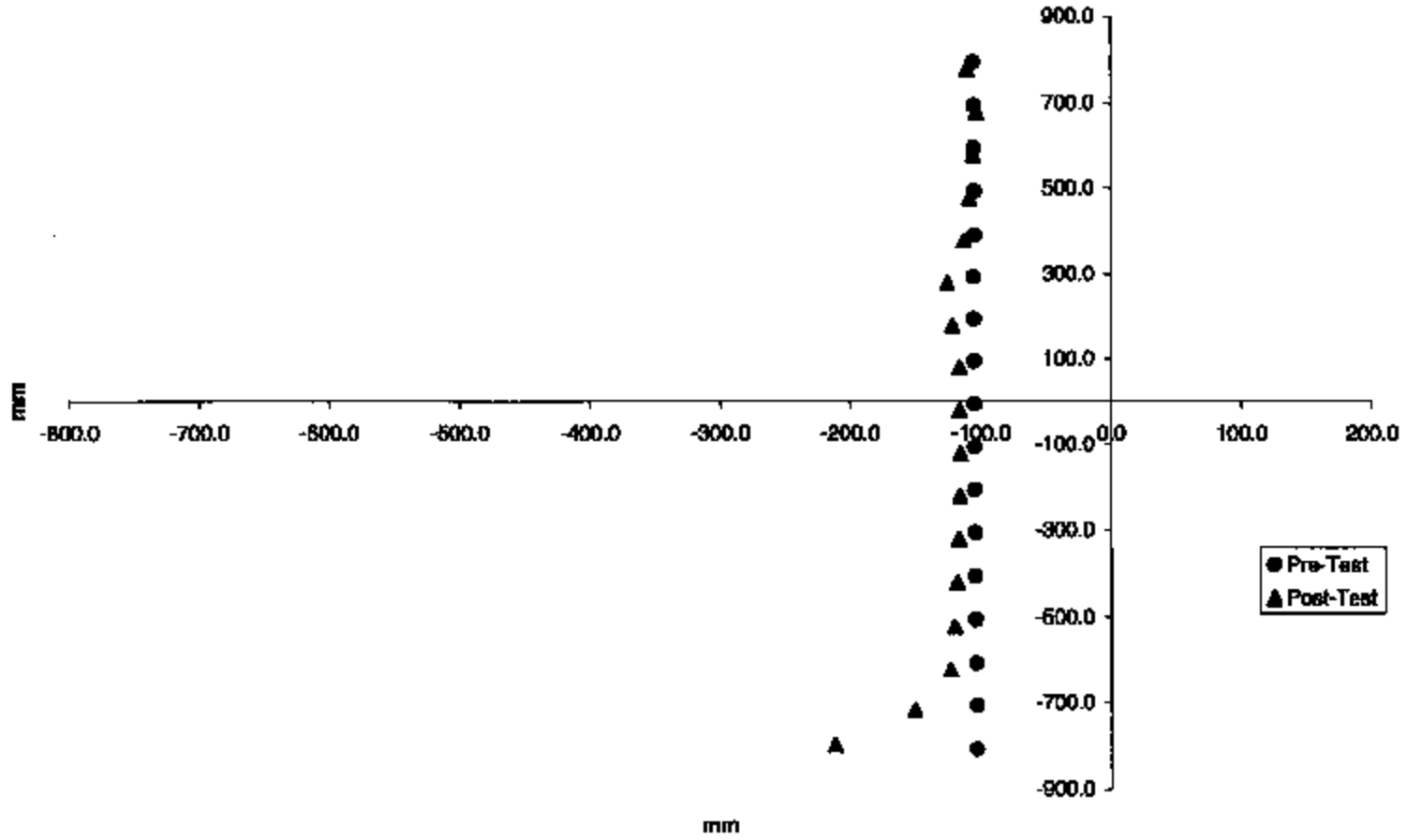
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Level C - Deformable Barrier Face Profile 18-34



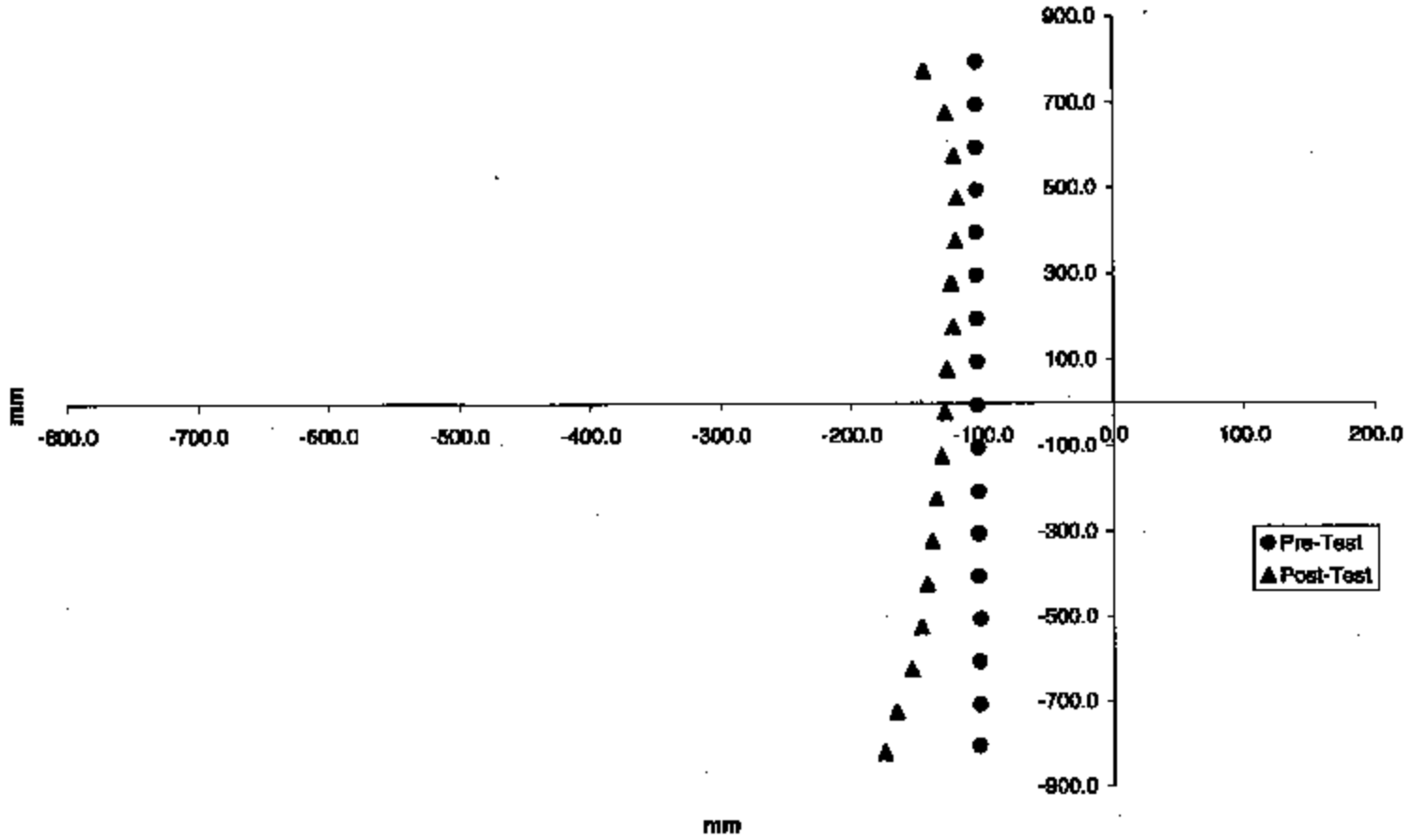
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

Level B - Deformable Barrier Face Profile 35-51



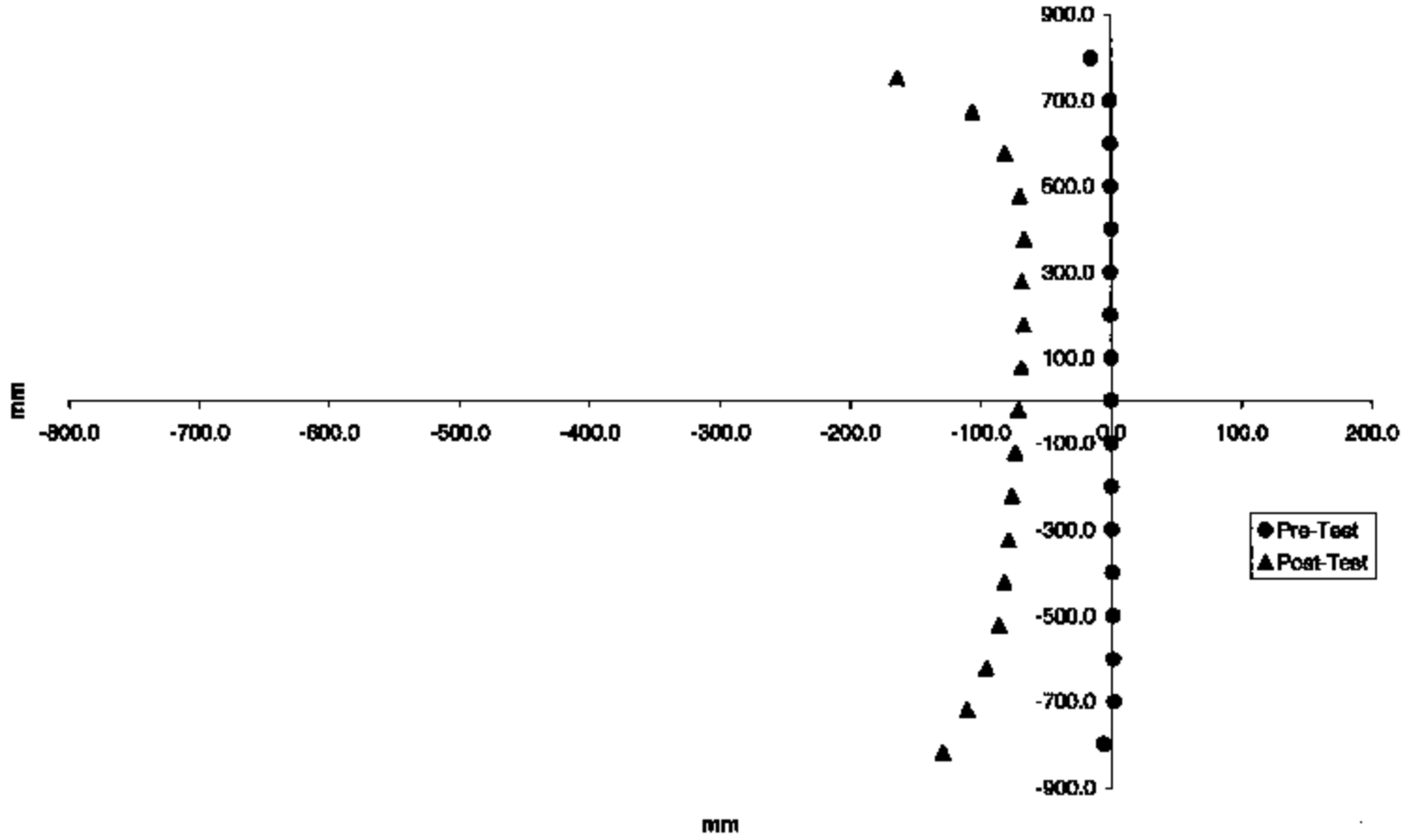
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2004 Mazda 3 4-door

NHTSA No.: C45408

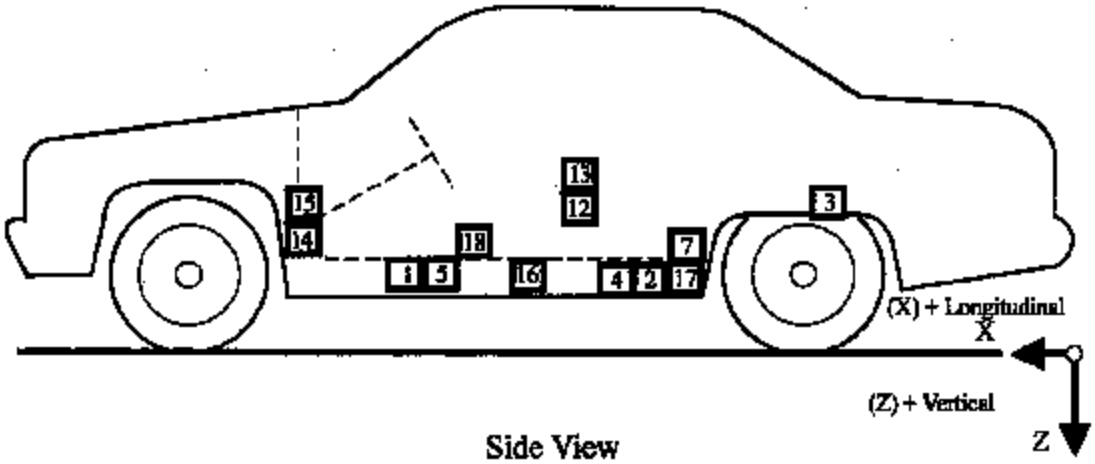
Level A - Deformable Barrier Face Profile 52-68



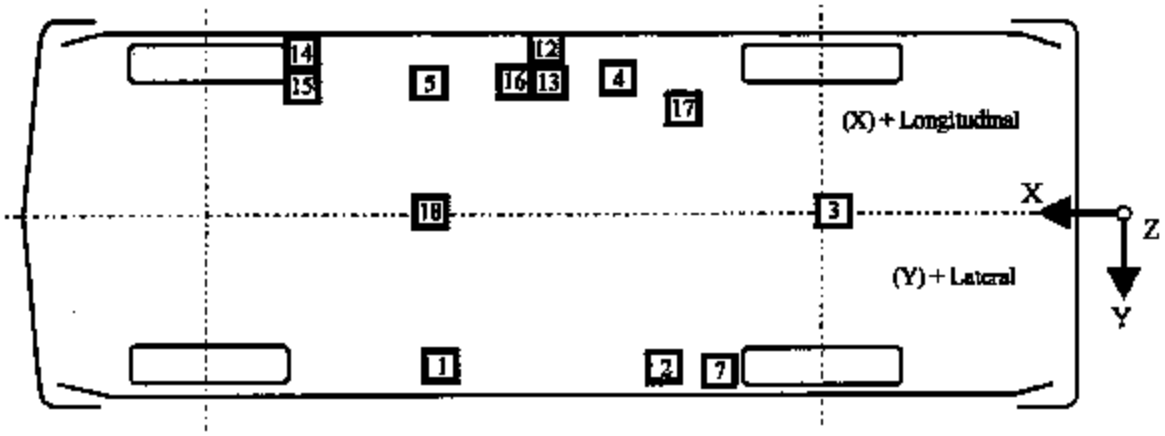
Data Sheet 13

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408



Side View



Bottom View

1-Right Front Side Sill
2-Right Side Sill at Rear Seat
3-Rear Floorpan above Axle
4-Left Side Sill at Rear Seat
5-Left Front Side Sill
7-Right Rear Occupant Compartment
12-Left Side Lower B-pillar
13-Left Side Middle B-pillar
14-Left Side Lower A-pillar
15-Left Side Middle A-pillar
16-Left Side Front Seat Track at H-point
17-Left Rear Seat Track at H-point
18-Vehicle Center of Gravity

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

TEST NUMBER: 040715

No.	LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1	RIGHT SIDE SILL AT FRONT SEAT	2495 mm	660 mm	-268 mm				
	LONGITUDINAL				5.9 g	@ 29.0 ms	6.8 g	@ 11.1 ms
	LATERAL				20.8 g	@ 7.1 ms	3.1 g	@ 115.4 ms
	VERTICAL				5.3 g	@ 60.7 ms	6.3 g	@ 9.4 ms
	RESULTANT				21.3 g	@ 7.3 ms		
2	RIGHT SIDE SILL AT REAR SEAT	1550 mm	660 mm	-259 mm				
	LONGITUDINAL				6.1 g	@ 29.8 ms	6.8 g	@ 11.3 ms
	LATERAL				25.4 g	@ 27.8 ms	2.3 g	@ 72.3 ms
	VERTICAL				8.7 g	@ 36.5 ms	5.7 g	@ 21.2 ms
	RESULTANT				25.6 g	@ 27.8 ms		
3	REAR FLOORPAN ABOVE AXLE	760 mm	0 mm	-422 mm				
	LONGITUDINAL				5.0 g	@ 47.6 ms	14.4 g	@ 8.6 ms
	LATERAL				33.0 g	@ 27.4 ms	1.4 g	@ 86.6 ms
	VERTICAL				11.6 g	@ 22.5 ms	22.2 g	@ 8.0 ms
	RESULTANT				40.3 g	@ 8.0 ms		
4	LEFT SIDE SILL AT REAR SEAT	1600 mm	-660 mm	-247 mm				
	LATERAL				30.3 g	@ 27.8 ms	1.9 g	@ 130.3 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

TEST NUMBER: 040715 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
5 LEFT SIDE SILL AT FRONT SEAT LATERAL	2428 mm	-660 mm	-264 mm	59.7 g @ 5.0 ms	15.5 g @ 17.5 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	1510 mm	580 mm	-241 mm	26.6 g @ 27.4 ms	2.5 g @ 88.6 ms
12 LEFT LOWER B-POST LATERAL	1785 mm	-715 mm	-425 mm	153.9 g @ 5.0 ms	26.8 g @ 15.4 ms
13 LEFT MIDDLE B-POST LATERAL	1755 mm	-690 mm	-684 mm	185.1 g @ 5.1 ms	57.3 g @ 16.1 ms
14 LEFT LOWER A-POST LATERAL[1]	2770 mm	-790 mm	-463 mm	119.7 g @ 3.7 ms	37.2 g @ 16.8 ms
15 LEFT MIDDLE A-POST LATERAL[1]	2765 mm	-790 mm	-765 mm	118.1 g @ 16.4 ms	129.1 g @ 22.6 ms
16 LEFT FRONT SEAT TRACK LATERAL	2265 mm	-555 mm	-301 mm	64.2 g @ 12.7 ms	18.4 g @ 22.4 ms
17 LEFT REAR SEAT TRACK LATERAL	1127 mm	-556 mm	-339 mm	28.9 g @ 27.7 ms	2.4 g @ 88.6 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

TEST NUMBER: 040715 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
18 VEHICLE CENTER OF GRAVITY	2100 mm	20 mm	-462 mm				
LONGITUDINAL				11.1 g	@ 29.5 ms	21.2 g	@ 23.2 ms
LATERAL				93.5 g	@ 22.5 ms	52.2 g	@ 27.8 ms
VERTICAL				27.4 g	@ 28.2 ms	36.3 g	@ 22.3 ms
RESULTANT				102.2 g	@ 22.5 ms		

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

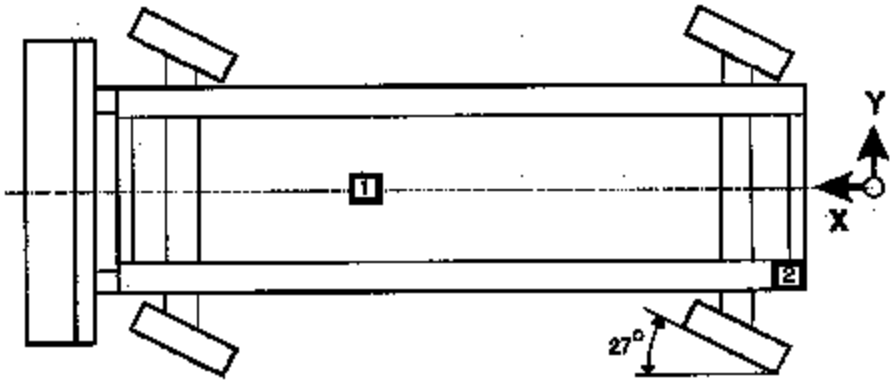
For acceleration data sign convention see Report Sign Convention in Appendix D.

[1] See DATA ACQUISITION EXPLANATIONS on page 2-3

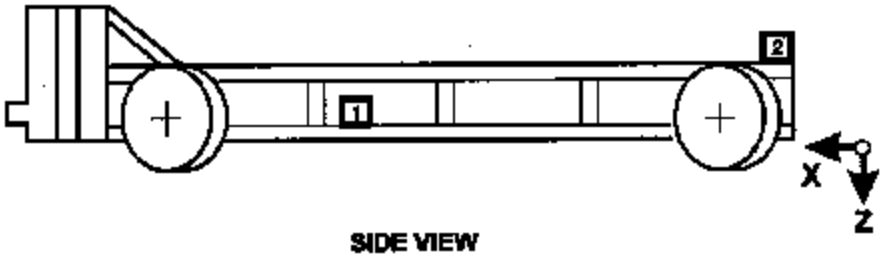
Data Sheet 14

MDB Accelerometer Locations and Data Summary

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408



TOP VIEW



SIDE VIEW

Accel. No.	Location	Coordinates (millimeters) X*	Y*	Z*	Positive Direction Max. (g)	Time (ms)	Negative Direction Max. (g)	Time (ms)
1	MDB Center of Gravity	1855	0	-520				
	Longitudinal X				1.8	133.6	19.6	40.7
	Lateral Y				1.5	53.4	8.0	33.0
	Vertical Z				5.6	51.5	3.6	66.6
	Resultant R				20.3	35.6		
2	Rear Frame Member	412	-677	-625				
	Longitudinal X				2.3	96.9	22.7	33.0
	Lateral Y				4.7	19.2	1.8	138.1

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

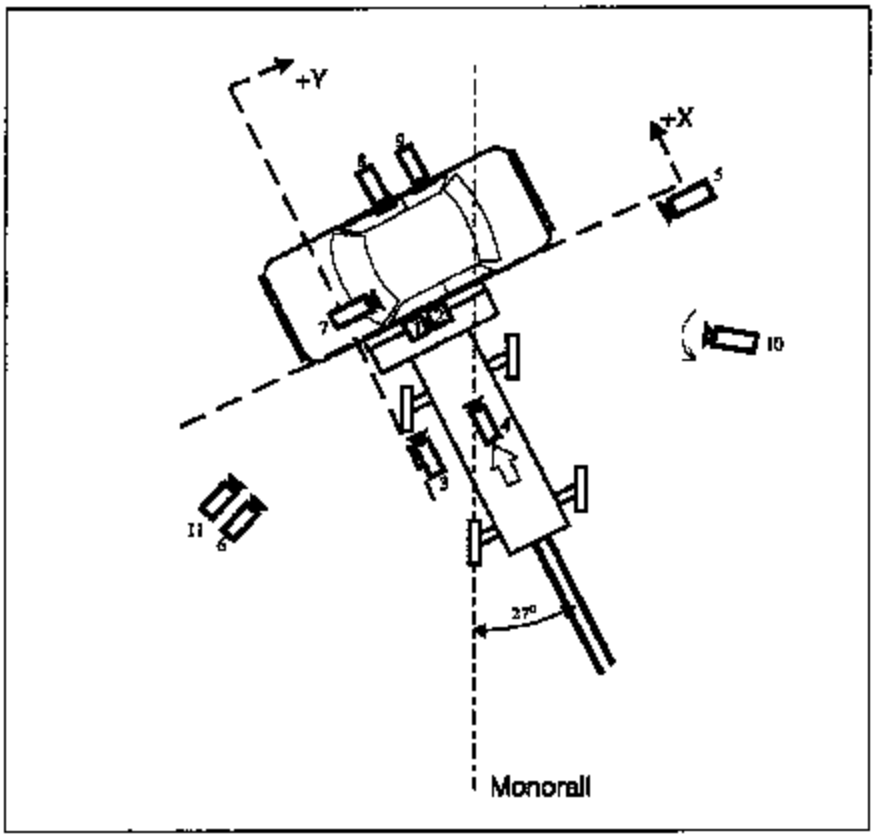
Z = Ground Level (+ Down)

All measurements accurate to within ±3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408



Camera Number	Location	Location, mm X	Y	Z	Angle (deg.)	Lens (mm)	Speed (fps)
1	Overhead wide	250	2150	-5750	-77.5	8.5	1000
2	Overhead tight	370	1800	-5750	-85.5	17	937
3	Onboard MDB left side	-1750	-40	-720	-0.5	13	—[1]
4	Onboard MDB center	-2480	830	-1353	-5.2	25	500
5	Right side of MDB	220	10650	-980	-3.2	13	1000
6	Left side of MDB	-2400	-5950	-1020	-0	13	997
7	Onboard vehicle front	500	530	-1200	-0.7	8	—[2]
8	Onboard side front door	1560	810	-1130	-10.7	8	1000
9	Onboard rear door	1560	1730	-1160	-11.8	8	1000
10	Real-time Panning-Video	N/A	N/A	N/A	N/A	Zoom	30
11	Digital overall event	-2000	-5850	-1020	-2.9	13	1000

+X: Forward (referenced to MDB) from impact point
+Y: Rightward (referenced to MDB) from impact point
+Z: Downward from ground level
[1] No LEDs
[2] Film broke

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C45408 Test Date: 07/15/04

Vehicle Year/Make/Model/Body Style: 2004 Mazda 3 4-door

****

Test Vehicle Impact Type :

_____ Frontal (48.28 km/h)
_____ Oblique (48.28 km/h) with ____° barrier face first contacting the (driver/passenger) side
_____ Rear Moving Barrier (48.28 km/h)
_____ Lateral Moving Barrier (32.19 km/h)
__X__ Side Impact Moving Deformable Barrier (53.0 km/h) contacting the ___Driver___ side

Fuel Spillage Measurement:

	Actual	Maximum Allowed
1. From impact until vehicle motion ceases	0 g	28 g
2. For five-minute period after vehicle motion ceases	0 g	142 g
3. For next 25 minutes.	0 g	28 g/1 minute

Solvent Spillage Details :

None

Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

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 Mazda 3 4-door NHTSA No.: C45408

90 - 180 Degrees

1. Determination of Solvent Collection Time Period:

Roliover 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):

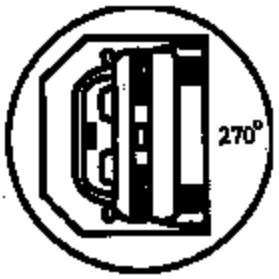
None

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

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

2. FMVSS 301 Requirements:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A

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

4. Solvent Spillage Location(s):

None

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2004 Mazda 3 4-door NHTSA No.: C45408

270 - 360 Degrees

1. Determination Of Solvent Collection Time Period:

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

2. FMVSS 301 Requirements:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A

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

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

List of Photographs

List of Photographs, Cont'd.

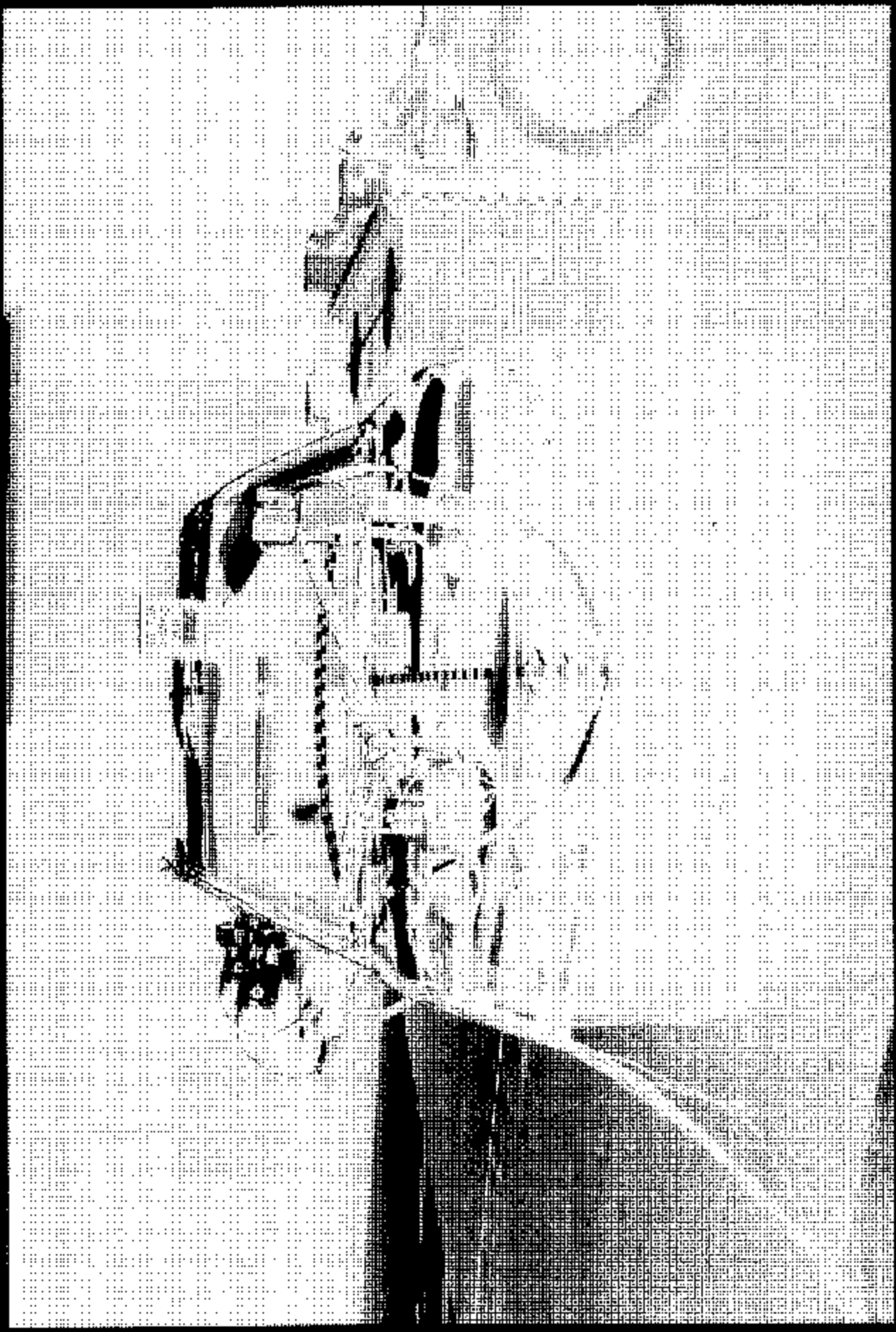


Figure A-1 Pre-Test Front View of Test Vehicle

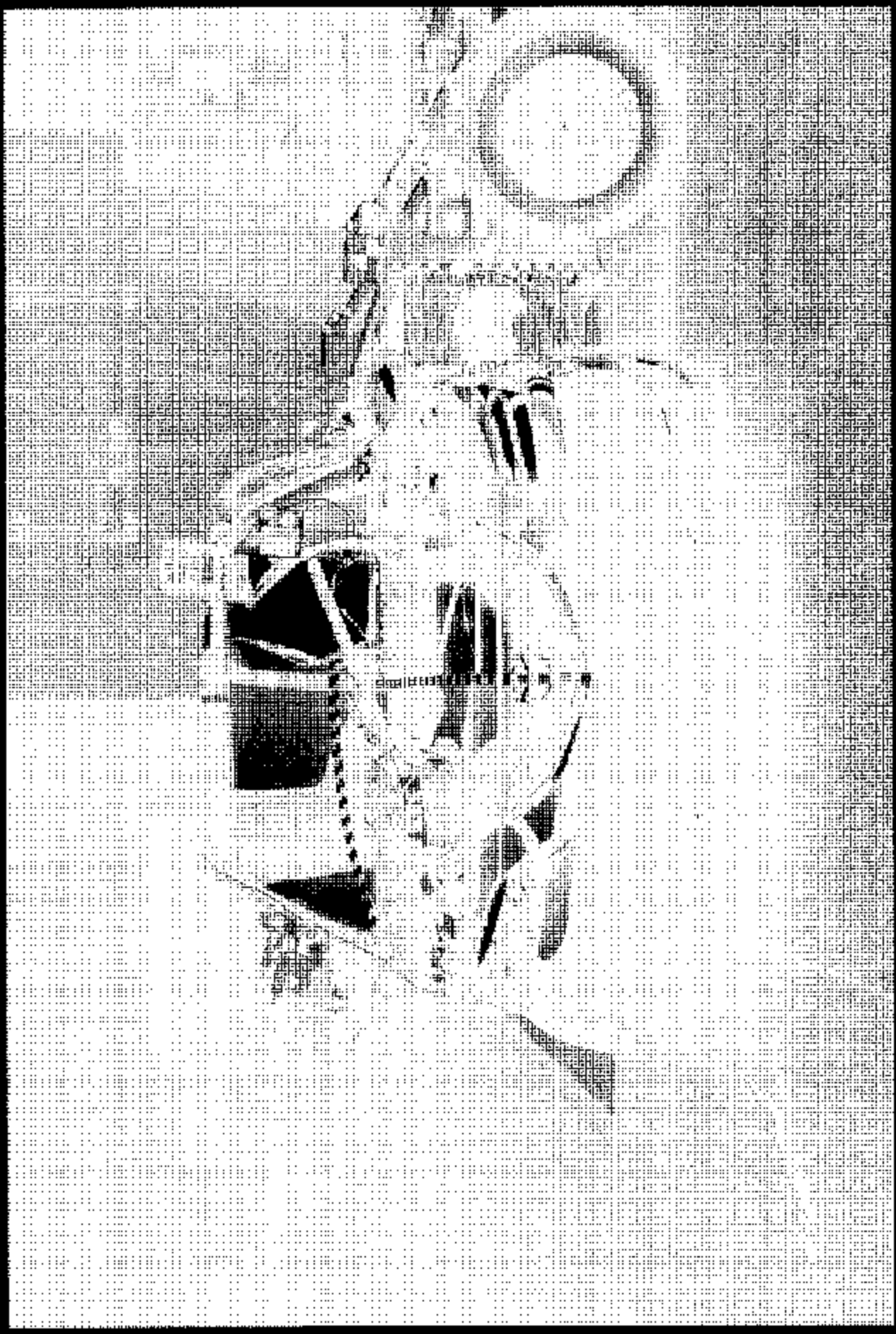


Figure A-2 Post-Test Front View of Test Vehicle

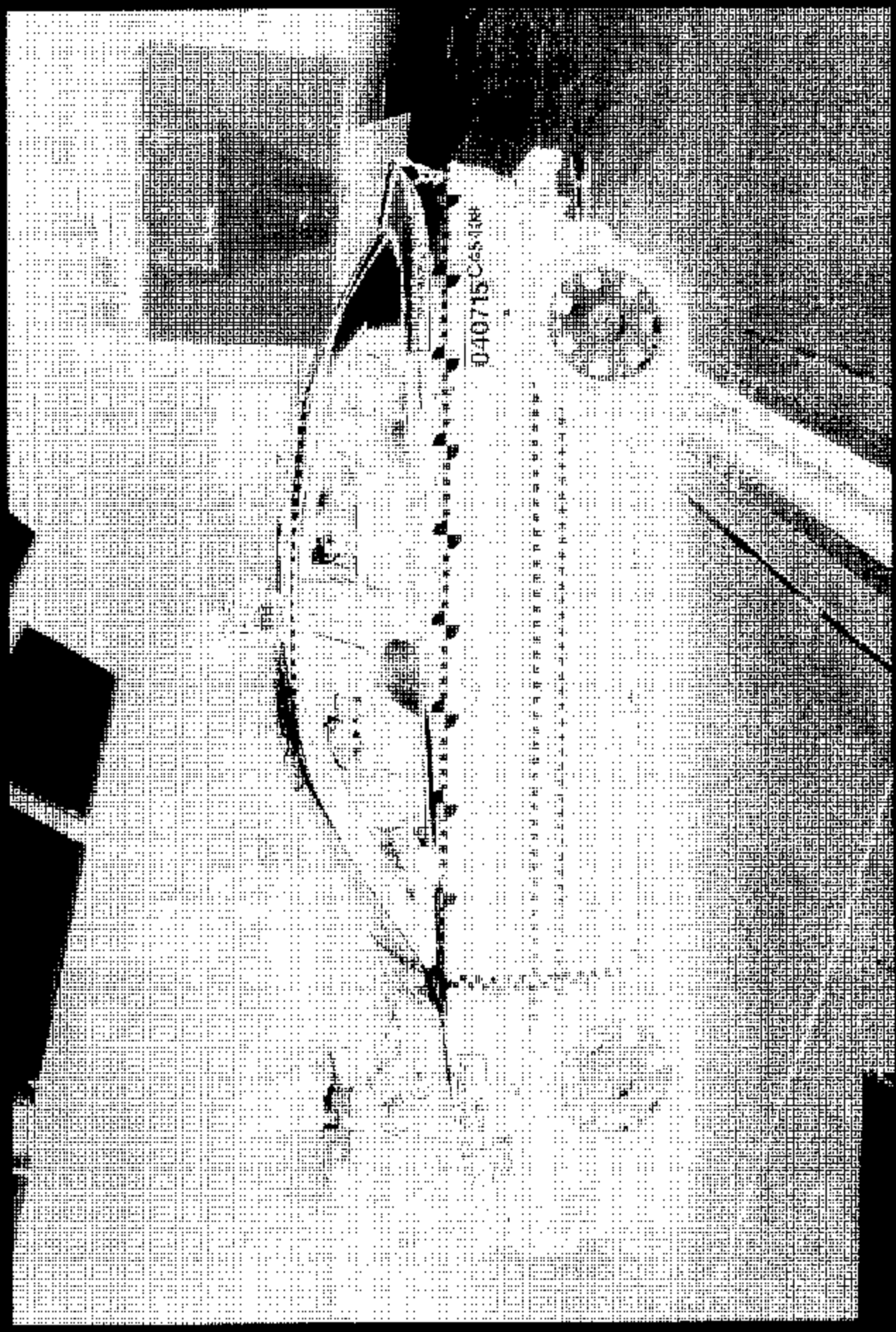


Figure A-3 Pre-Test Impacted Side View of Test Vehicle

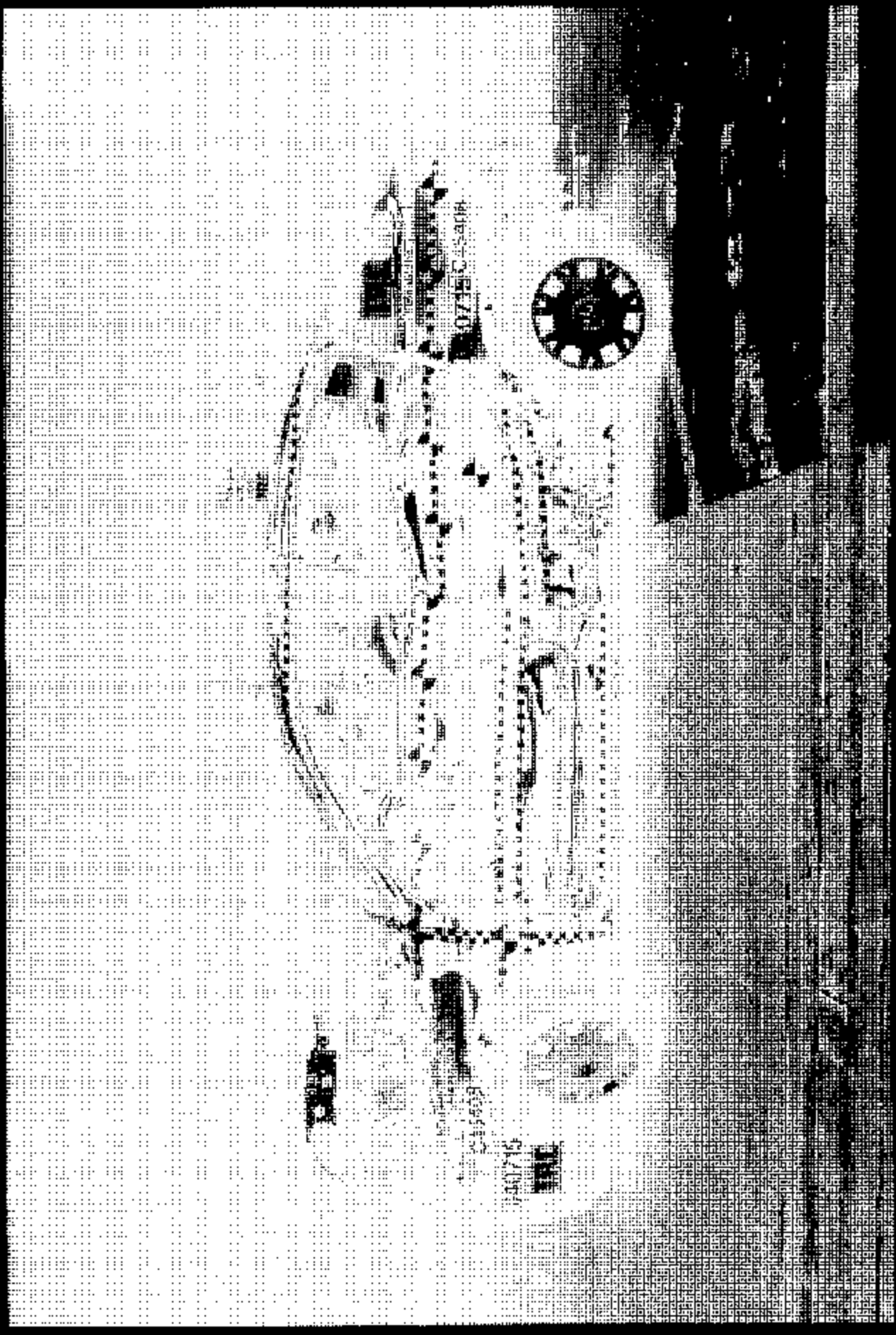


Figure A-4 Post-Test Impacted Side View of Test Vehicle

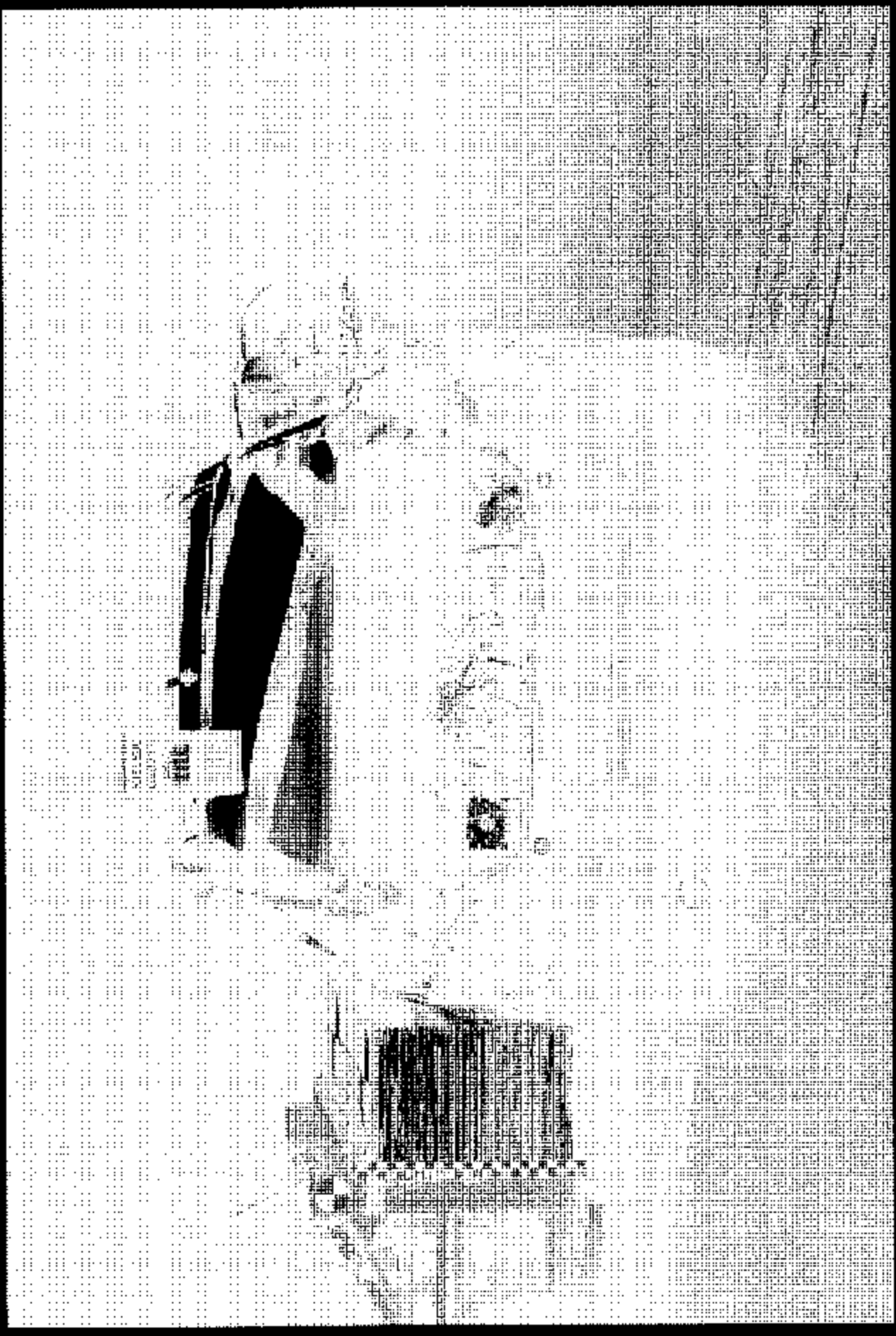


Figure A-5 Pre-Test Rear View of Test Vehicle

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

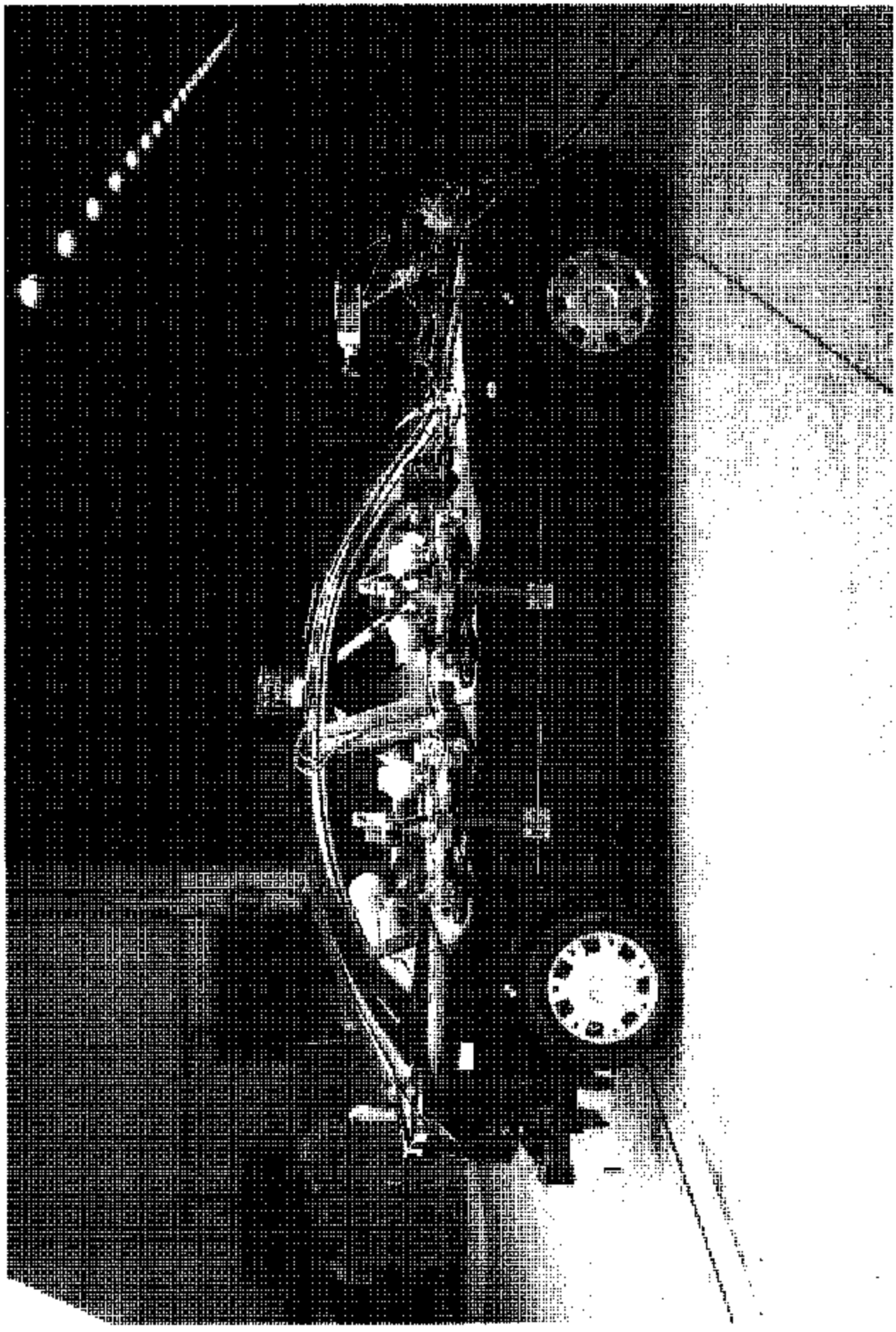


Figure A-7 Pre-Test Non-Struck Side View of Test Vehicle

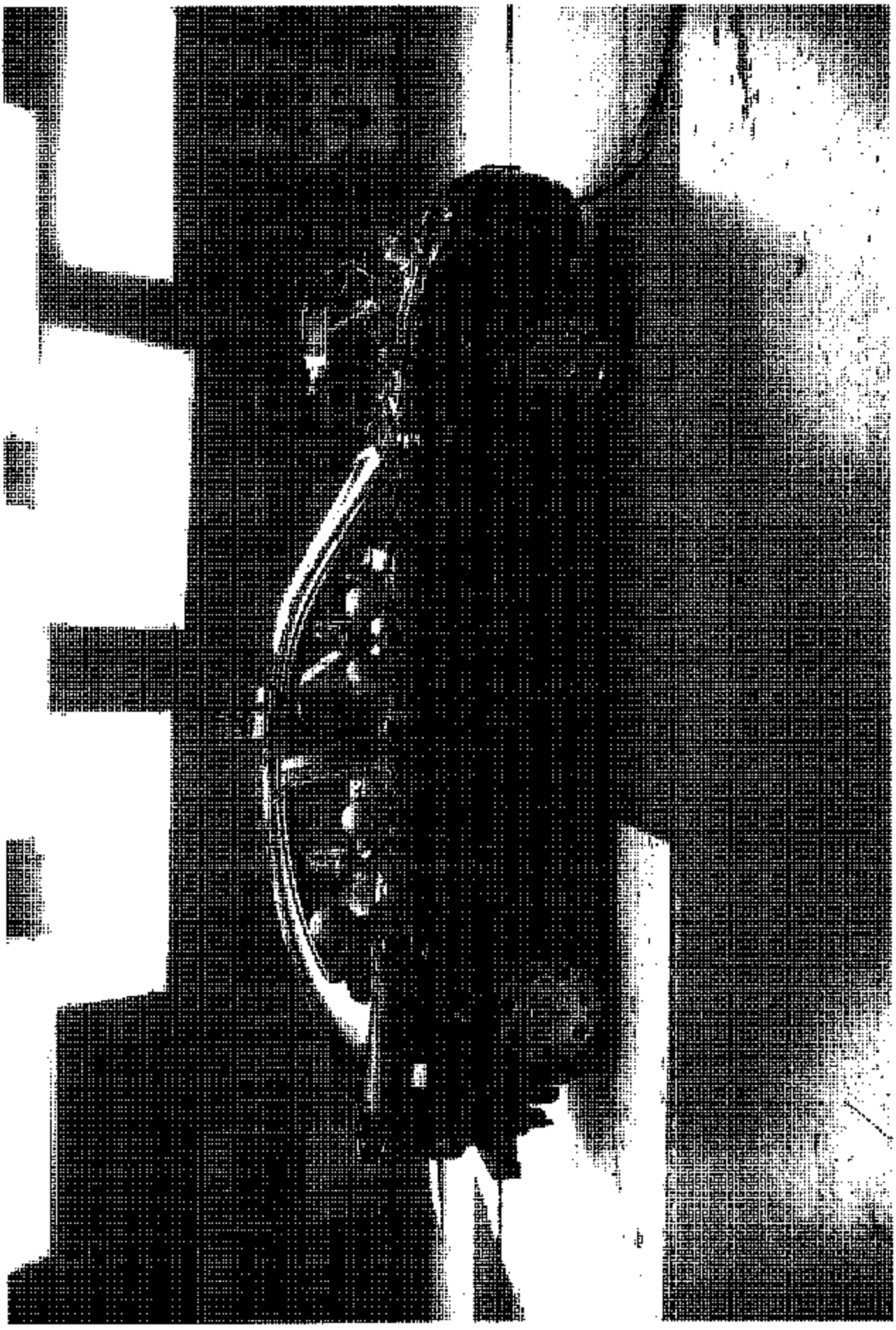


Figure A-8 Post-Test Non-Struck Side View of Test Vehicle

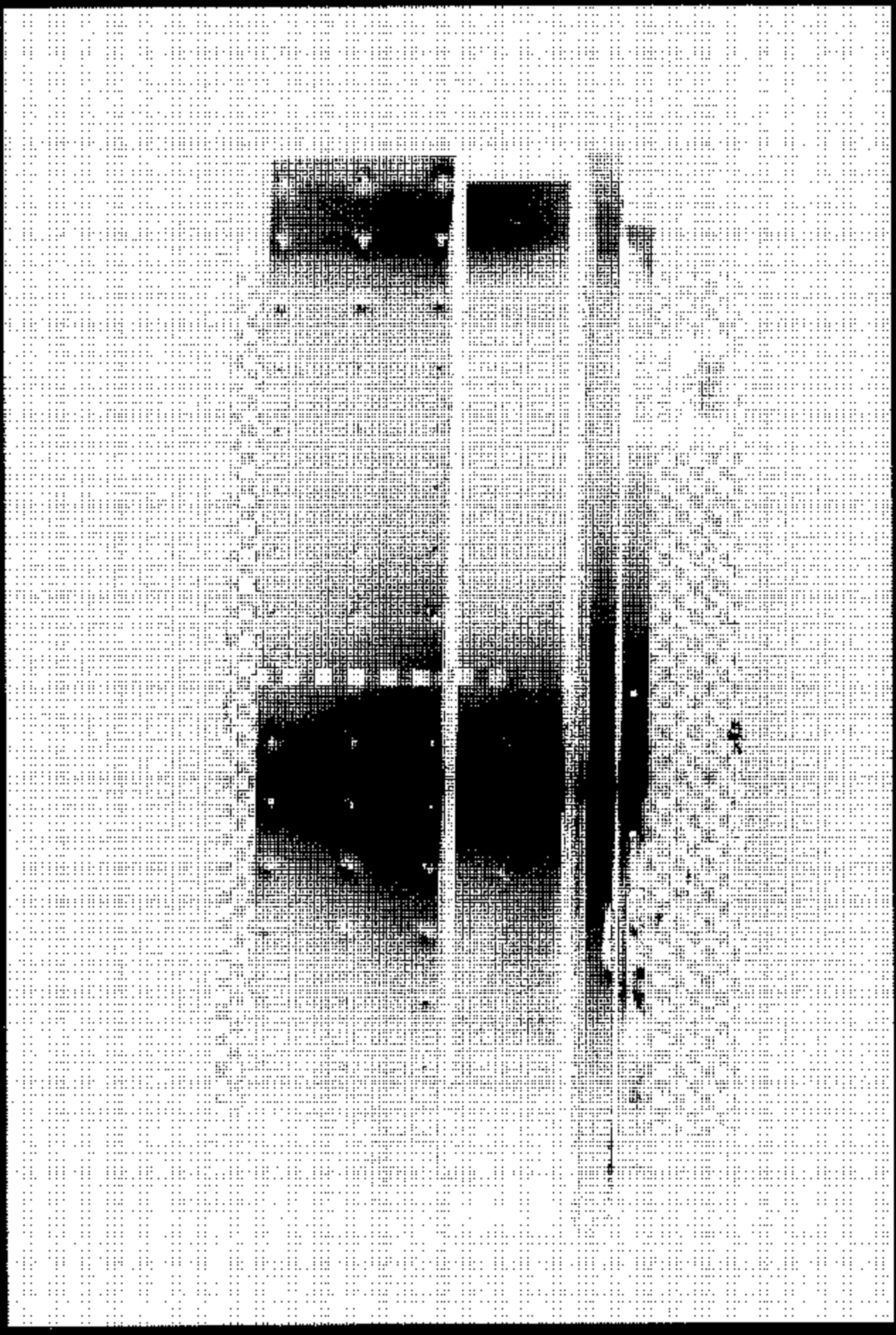


Figure A-9 Pre-Test Frontal View of Impactor Face

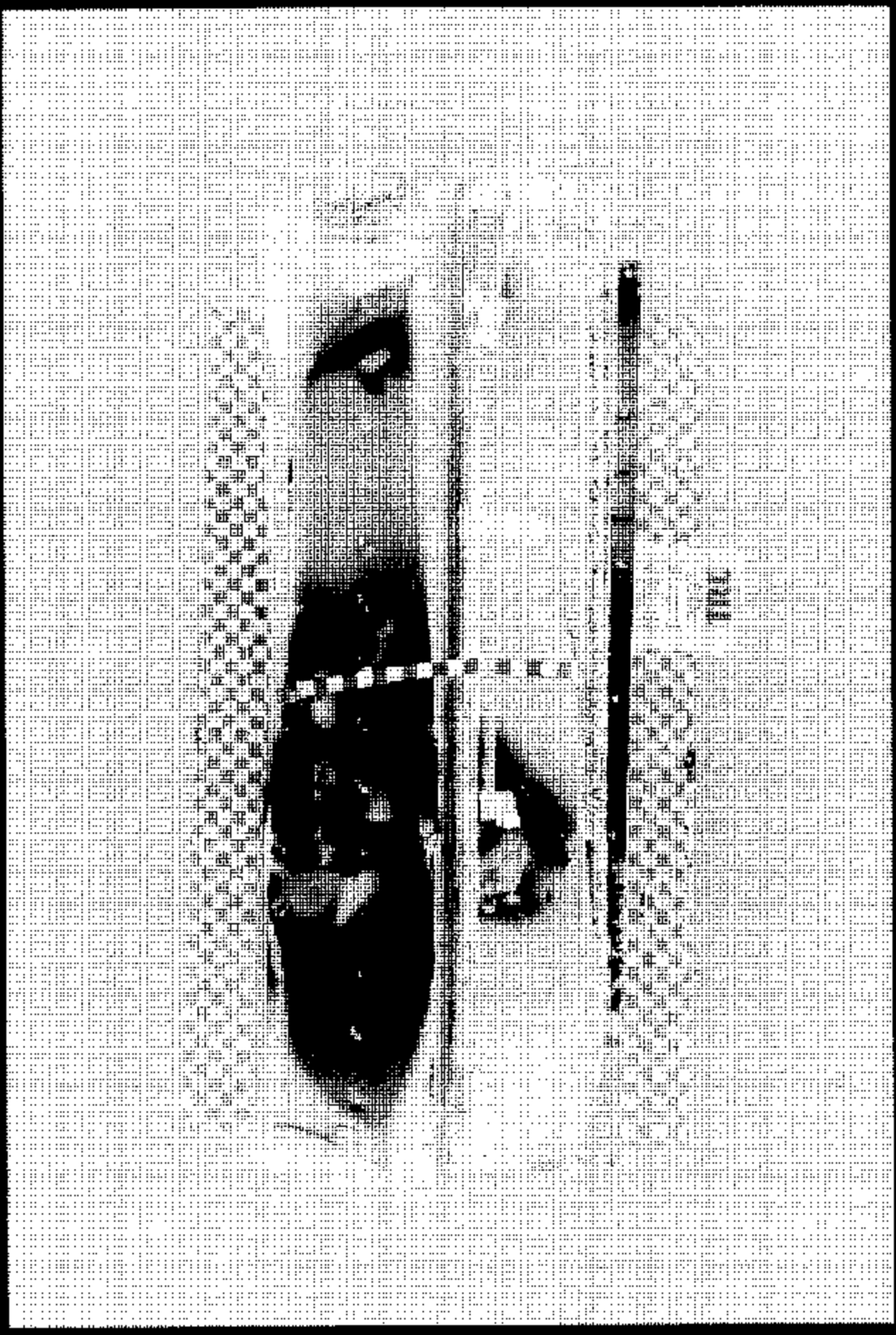


Figure A-10 Post-Test Frontal View of Impactor Face

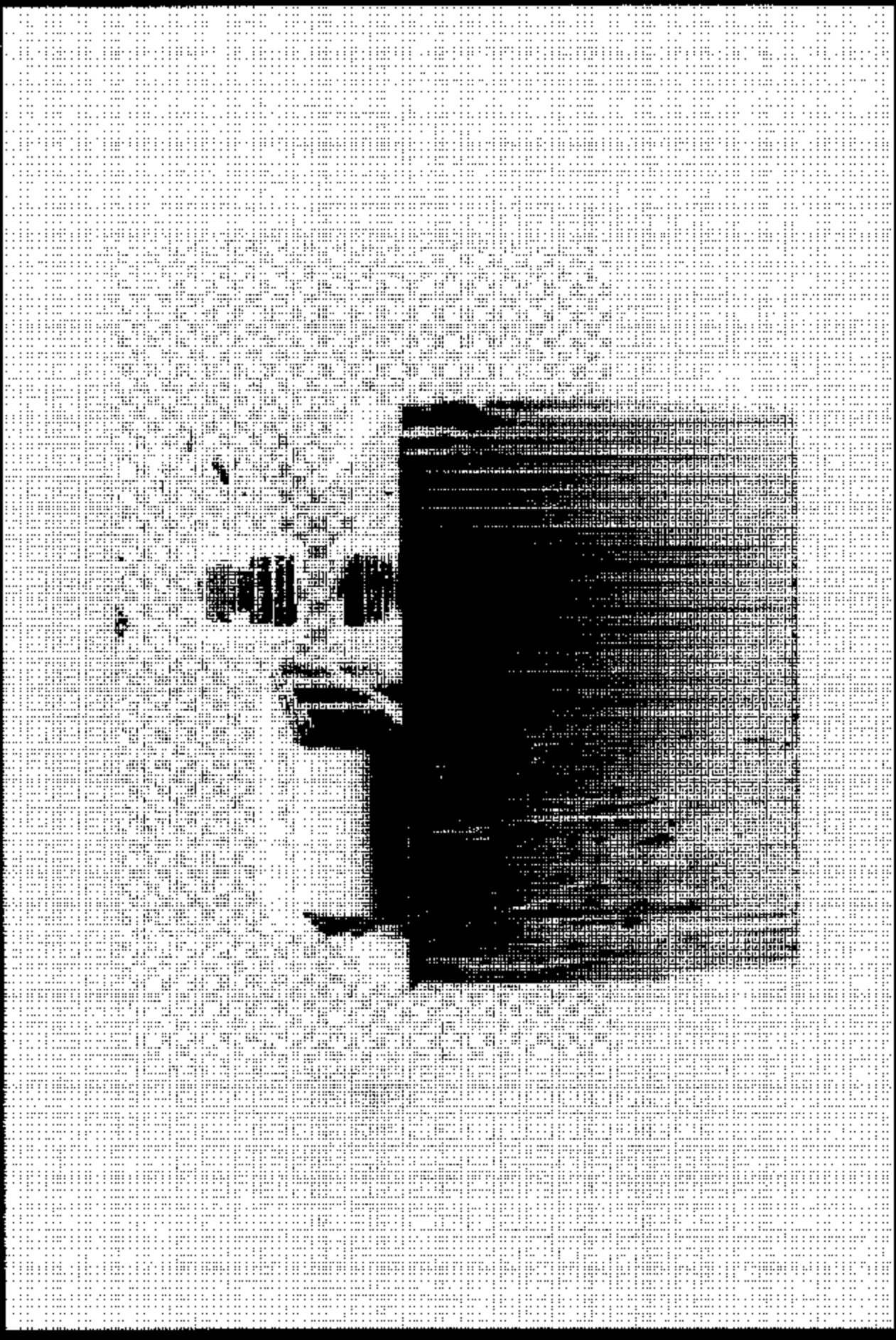


Figure A-11 Pre-Test Left Side View of Impactor Face

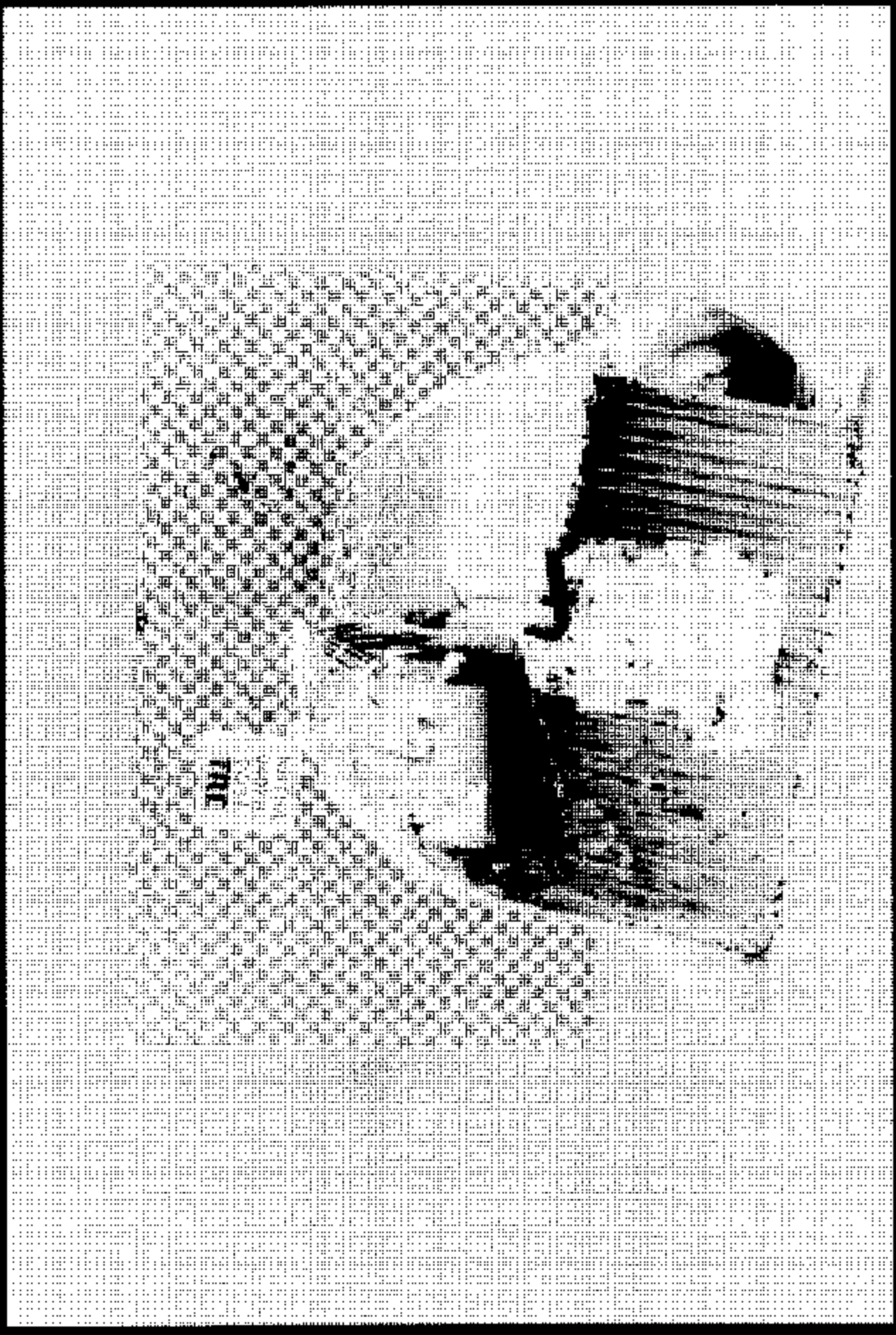


Figure A-12 Post-Test Left Side View of Impactor Face

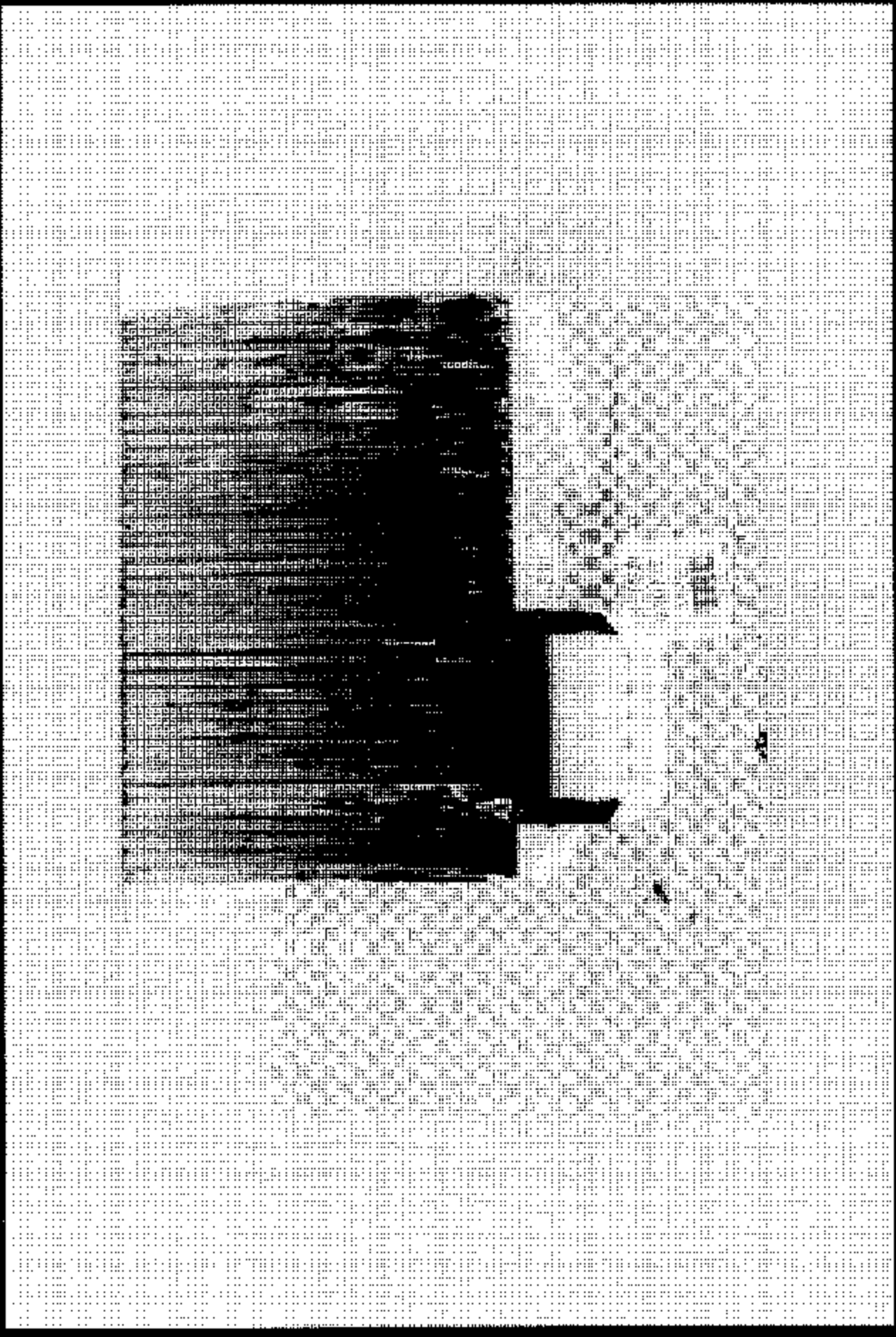


Figure A-13 Pre-Test Right Side View of Impactor Face

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

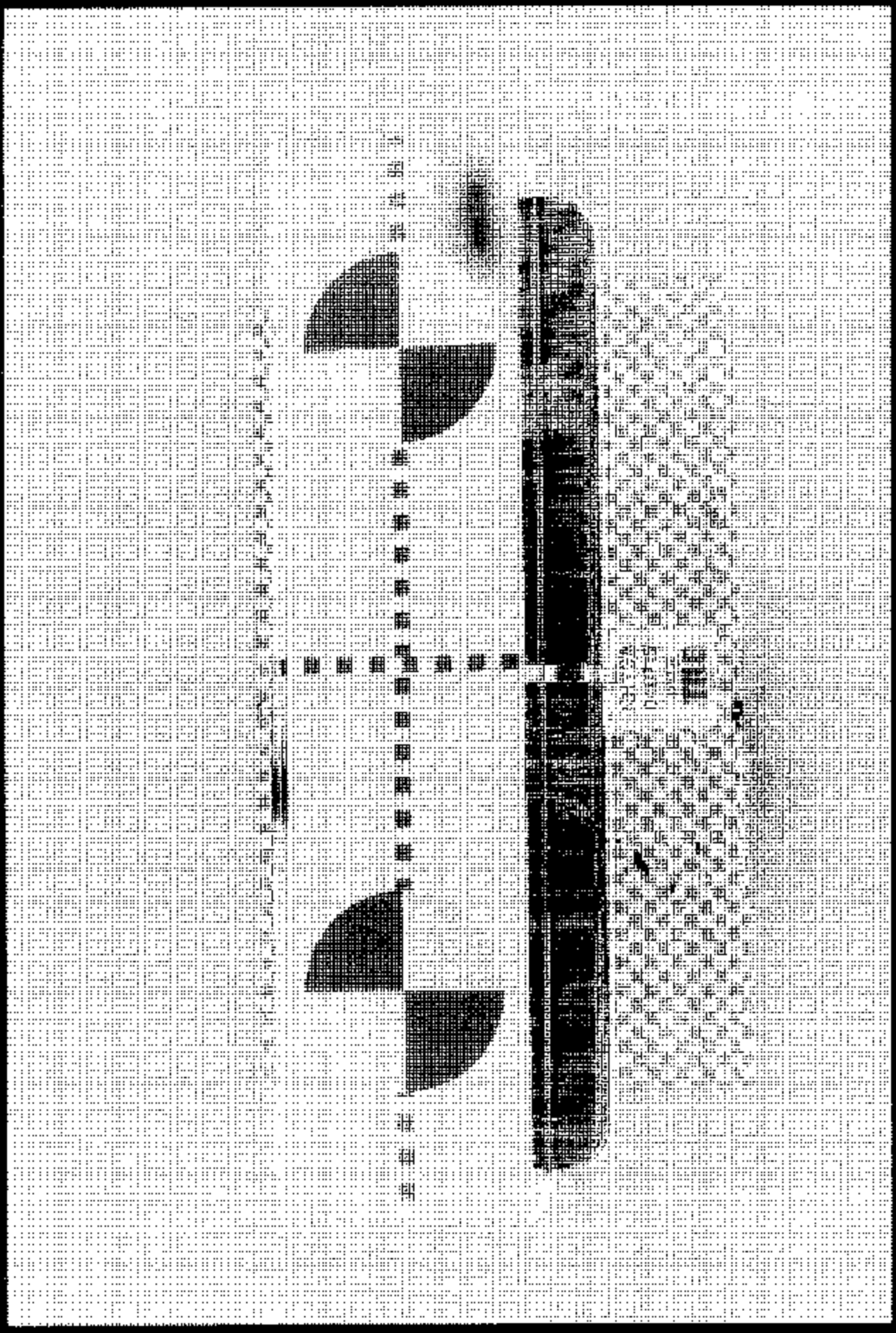


Figure A-15 Pre-Test Top View of Impactor Face

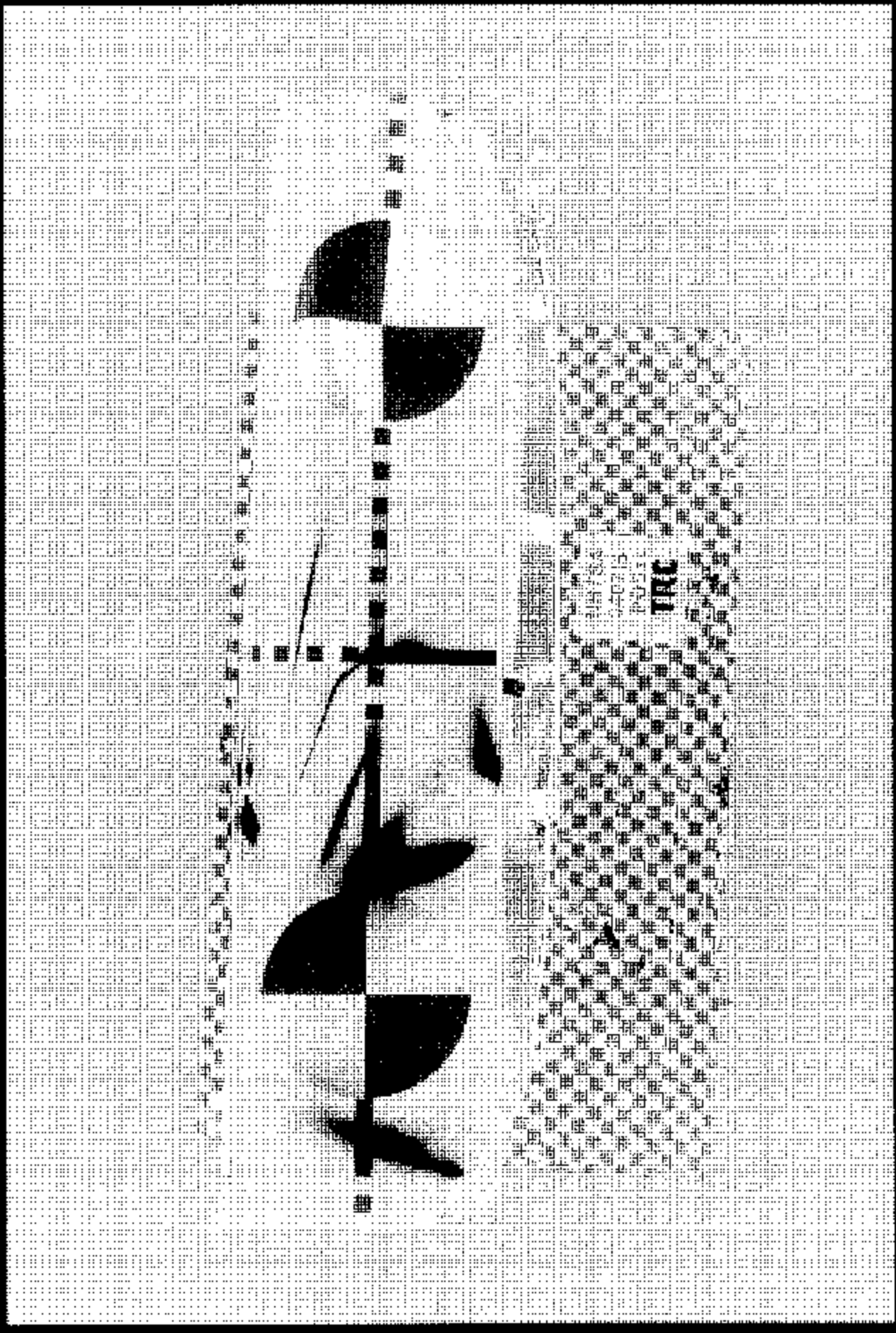


Figure A-16 Post-Test Top View of Impactor Face

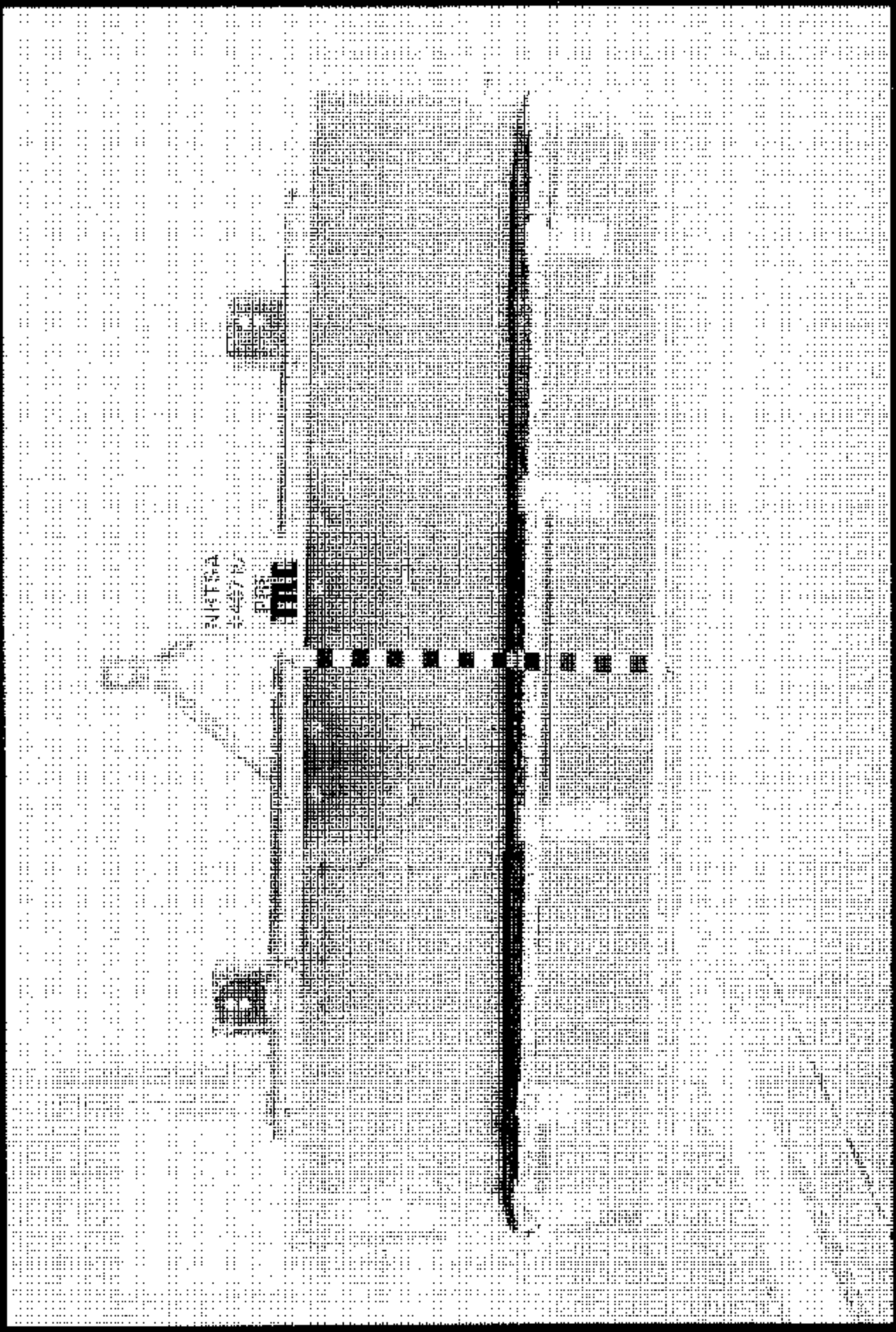


Figure A-17 Pre-Test View of MDB Showing Contact Switches in Place

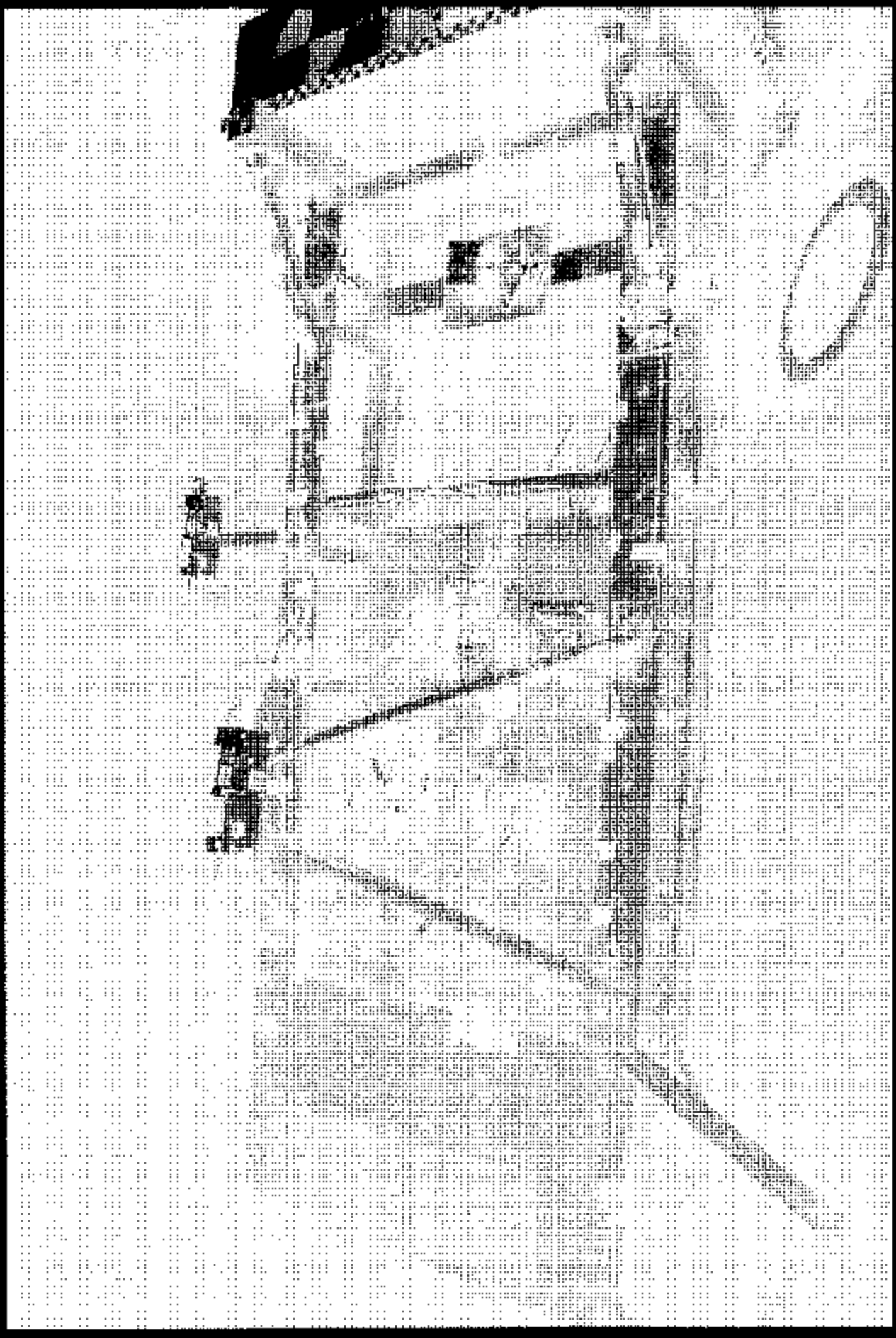


Figure A-18 Pre-Test Overhead View of MDB Aligned with Vehicle

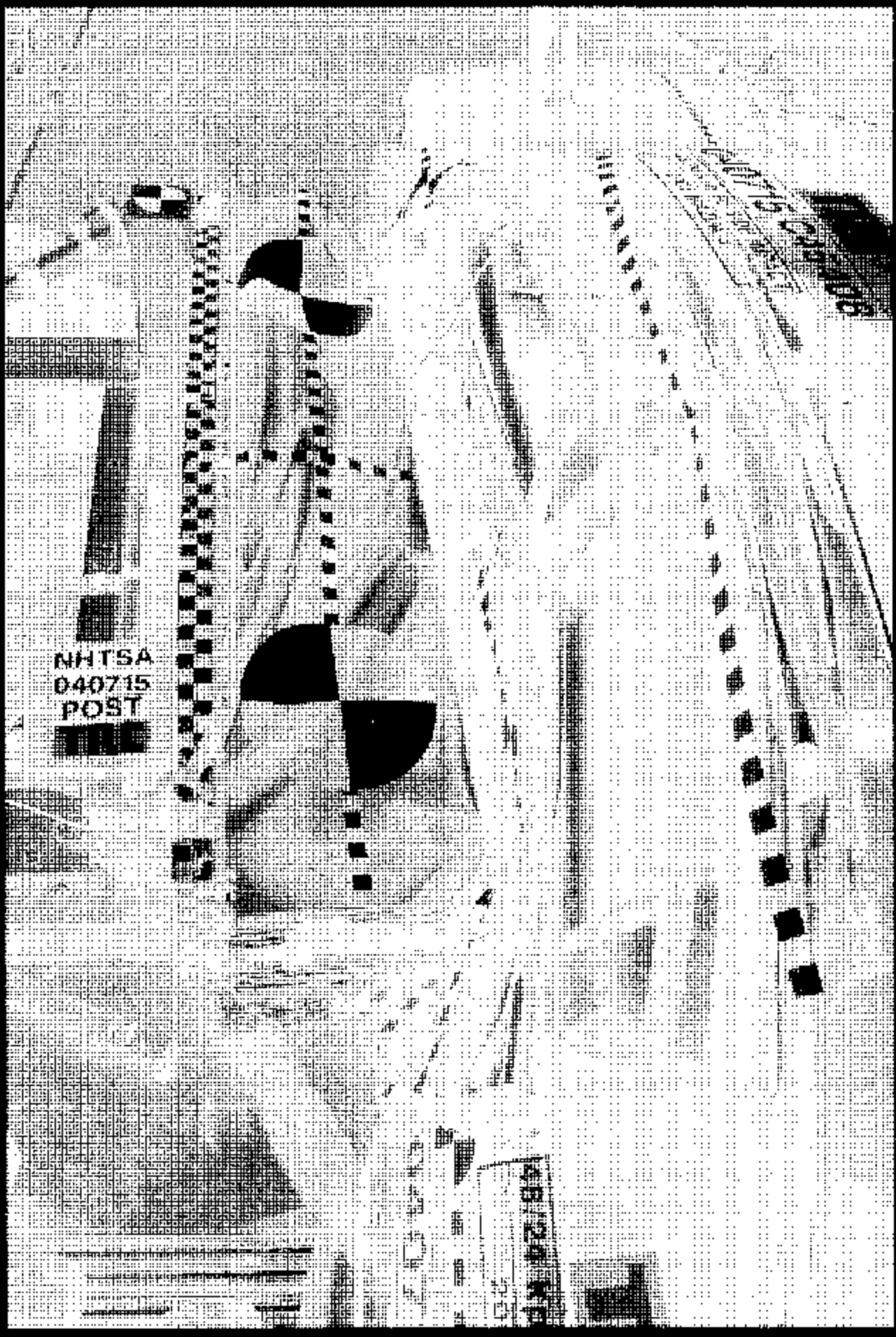


Figure A-19 Post-Test Overhead View of Vehicle

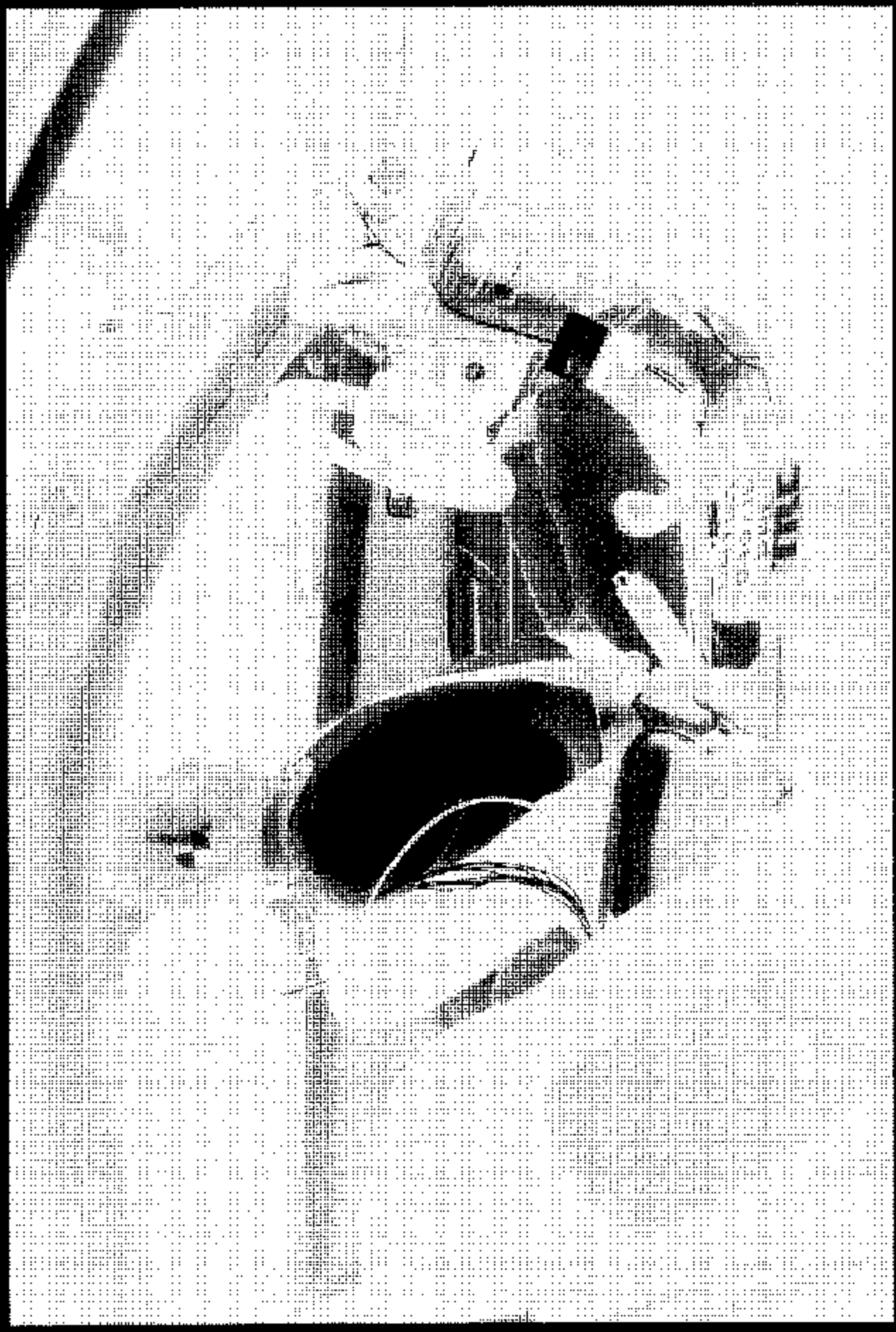


Figure A-20 Pre-Test Right Occupant Compartment View of Front SID

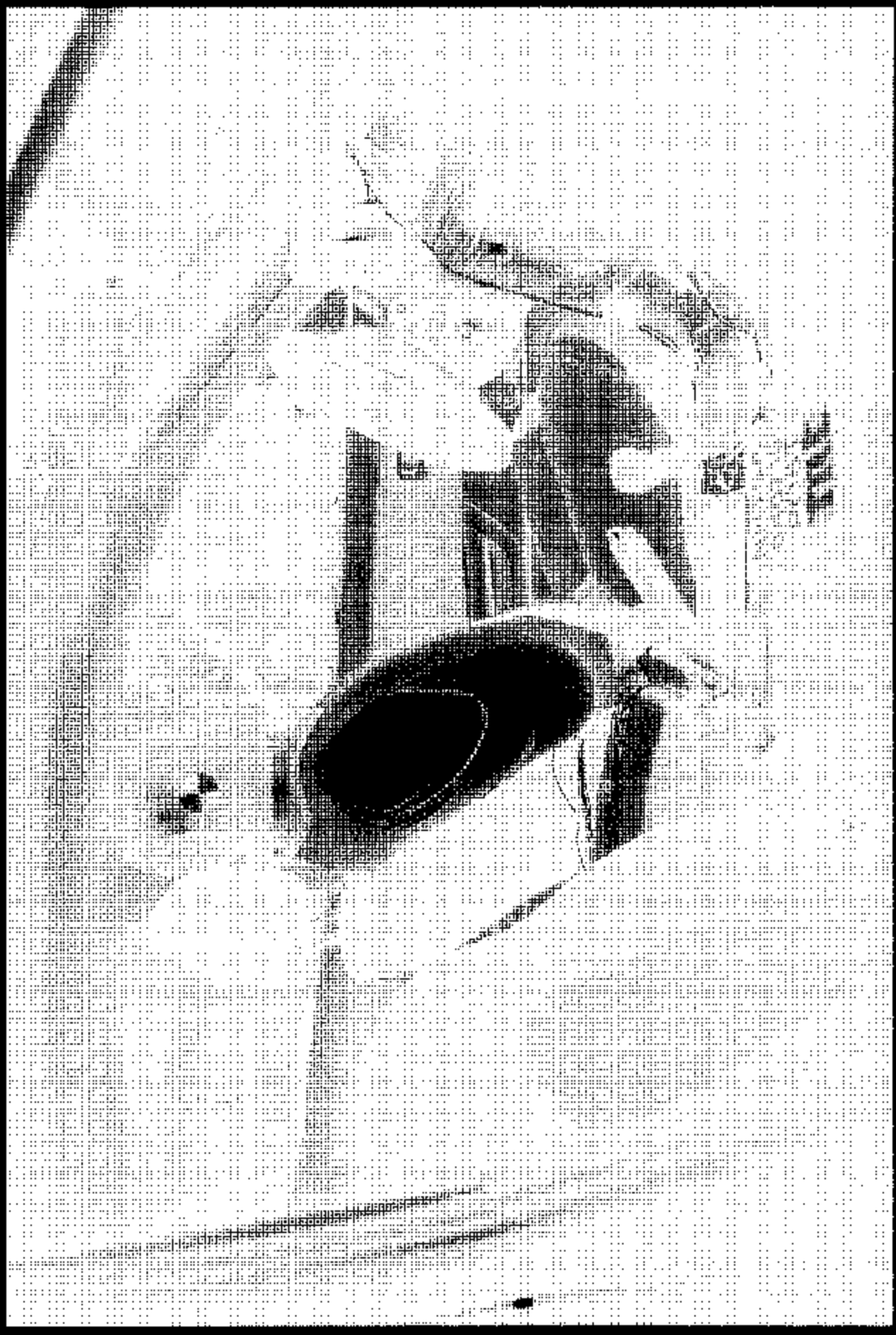


Figure A-21 Post-Test Right Occupant Compartment View of Front SID

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

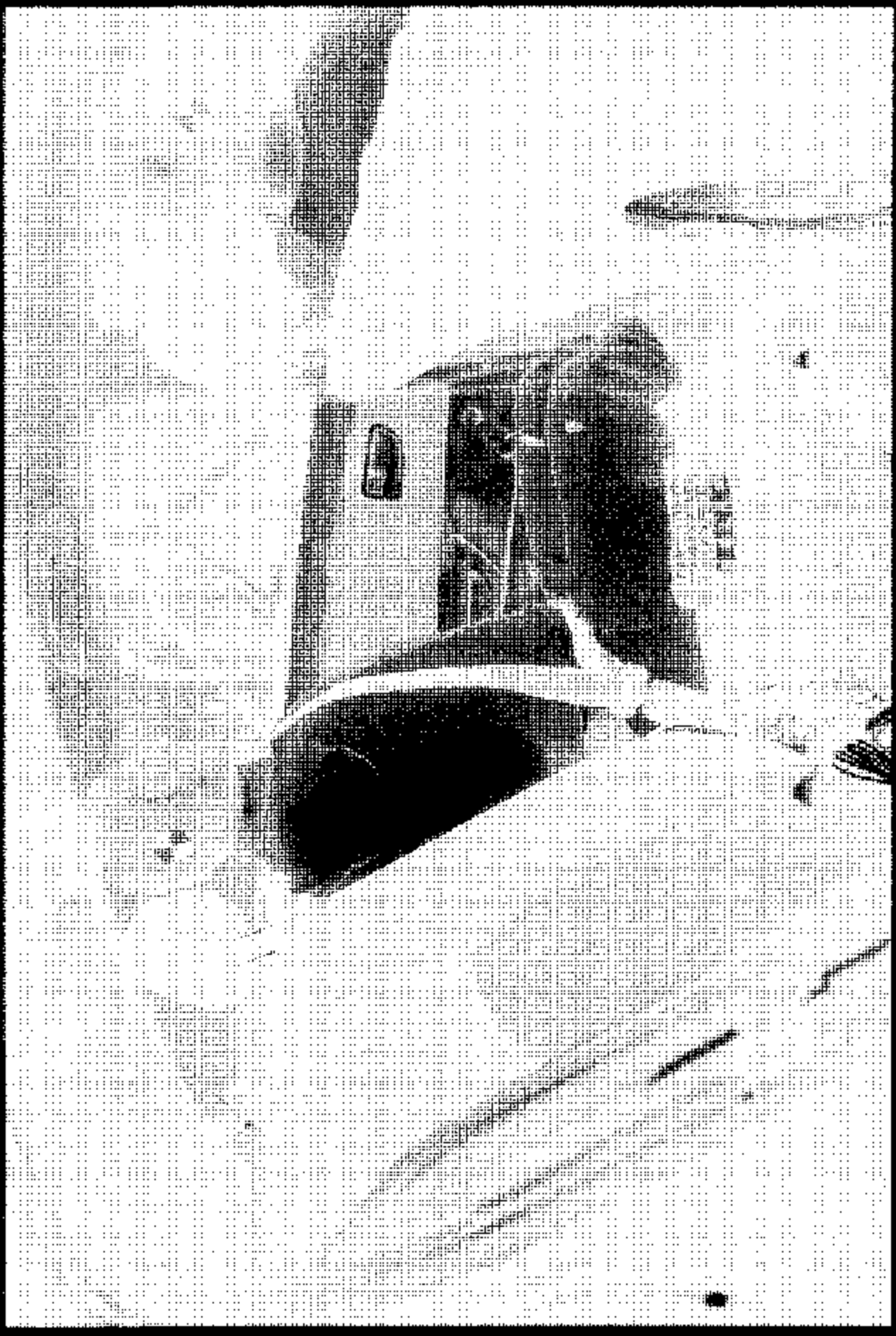


Figure A-23 Post-Test Right Occupant Compartment View of Rear SID

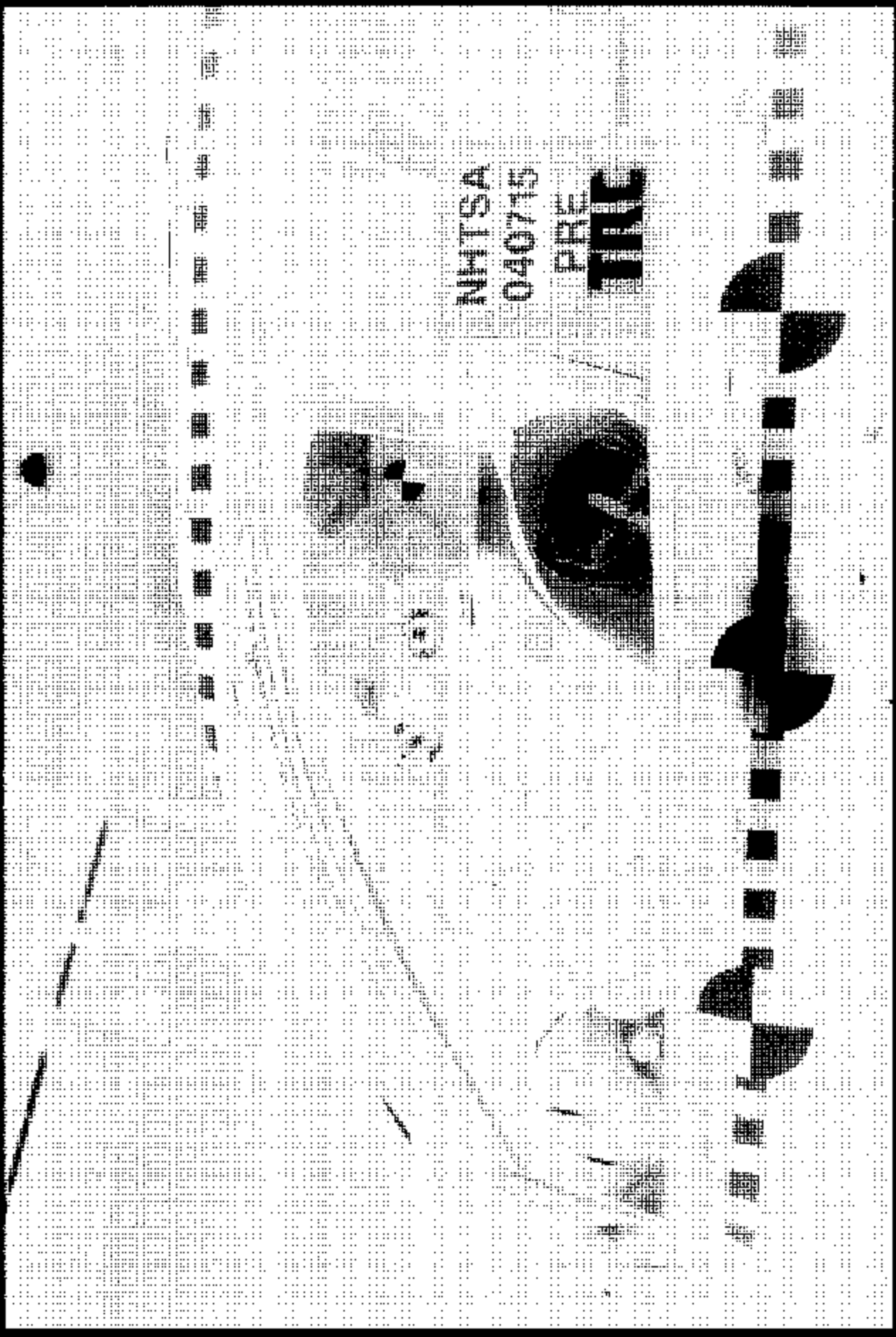


Figure A-24 Pre-Test Left View of Front SID

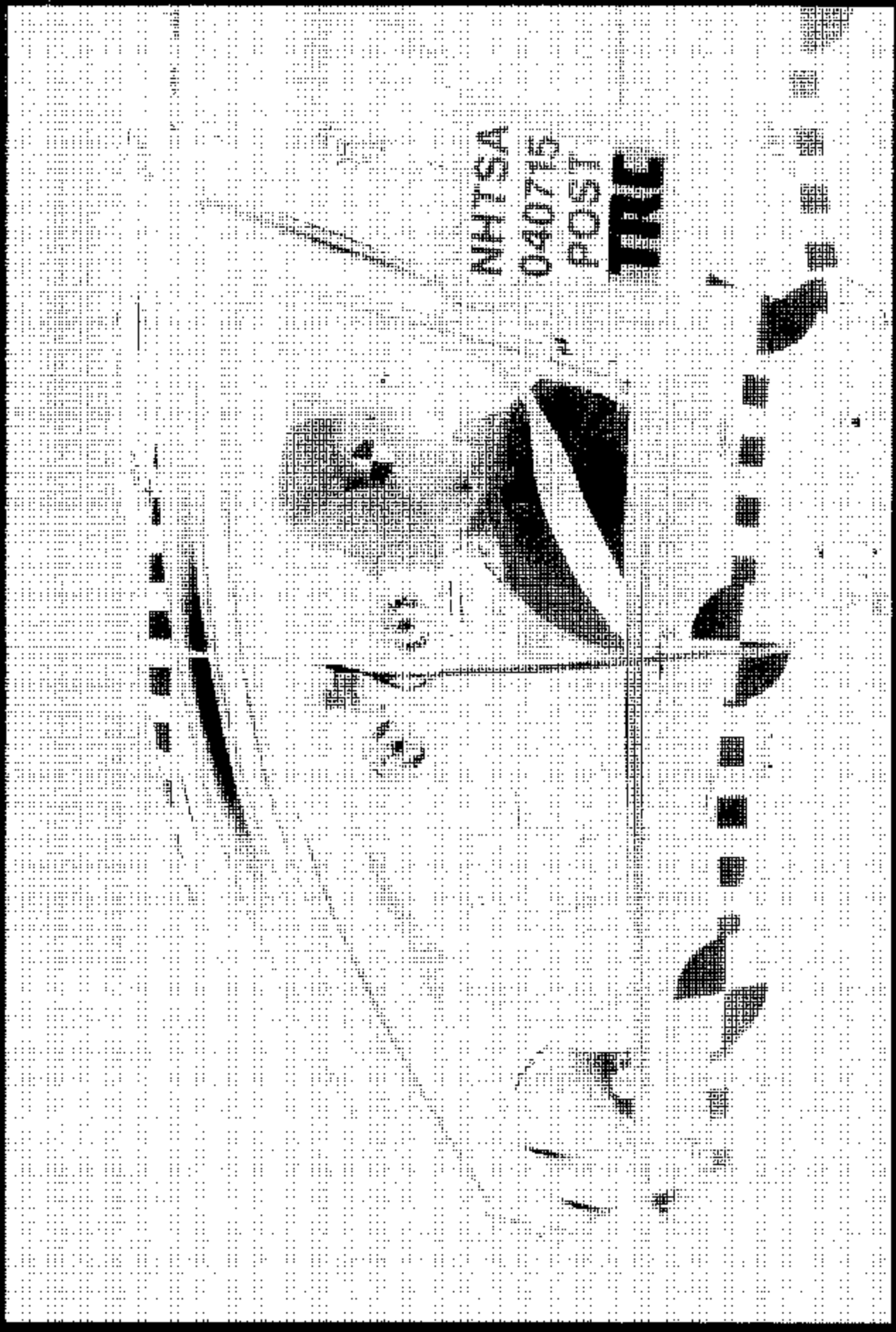


Figure A-25 Post-Test Left View of Front SID

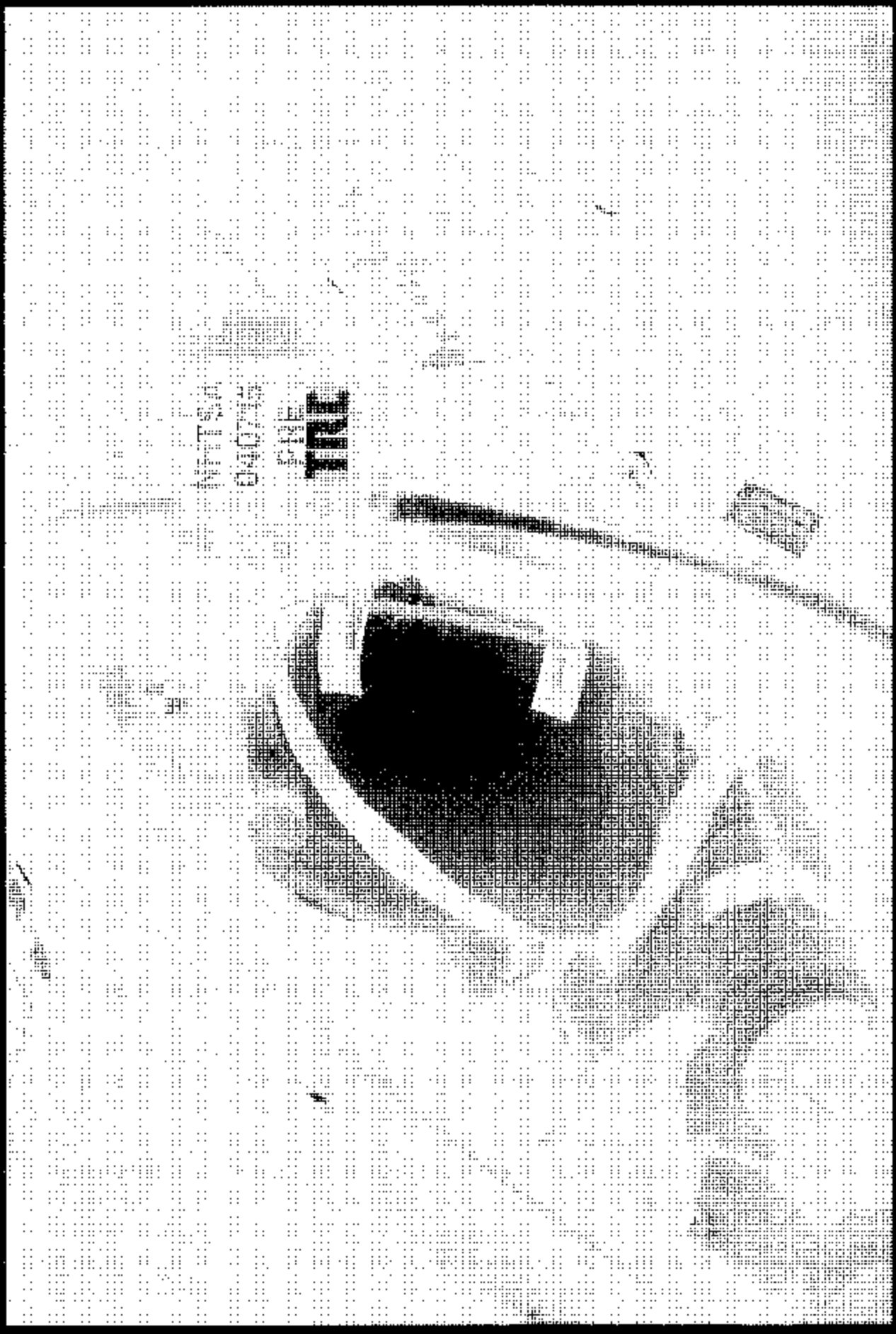


Figure A-26 Pre-Test Left View of Front SID and Belt Position

Figure A-27 Post-Test Left View of Front SID

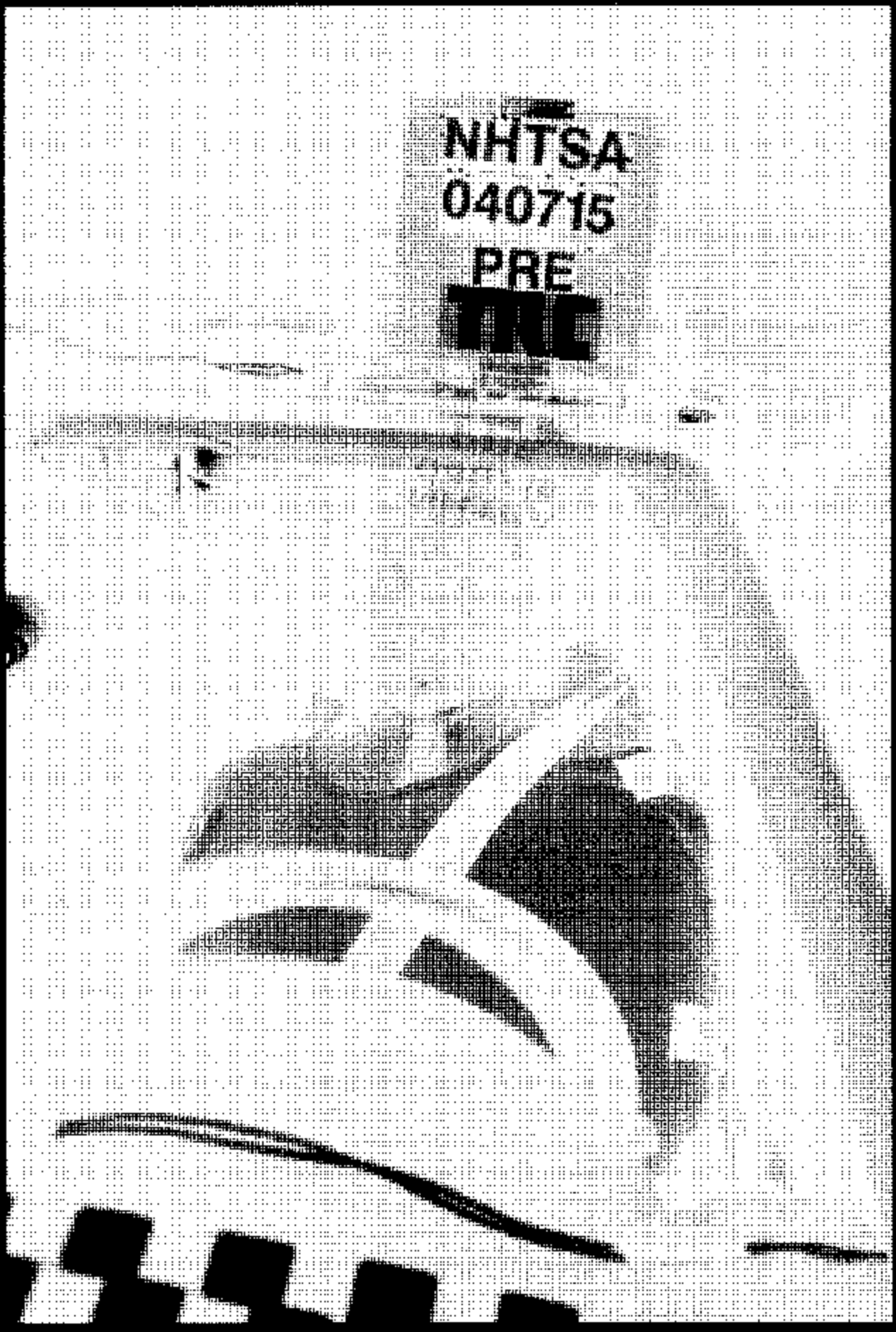


Figure A-28 Pre-Test View of Front SID and Door Clearance

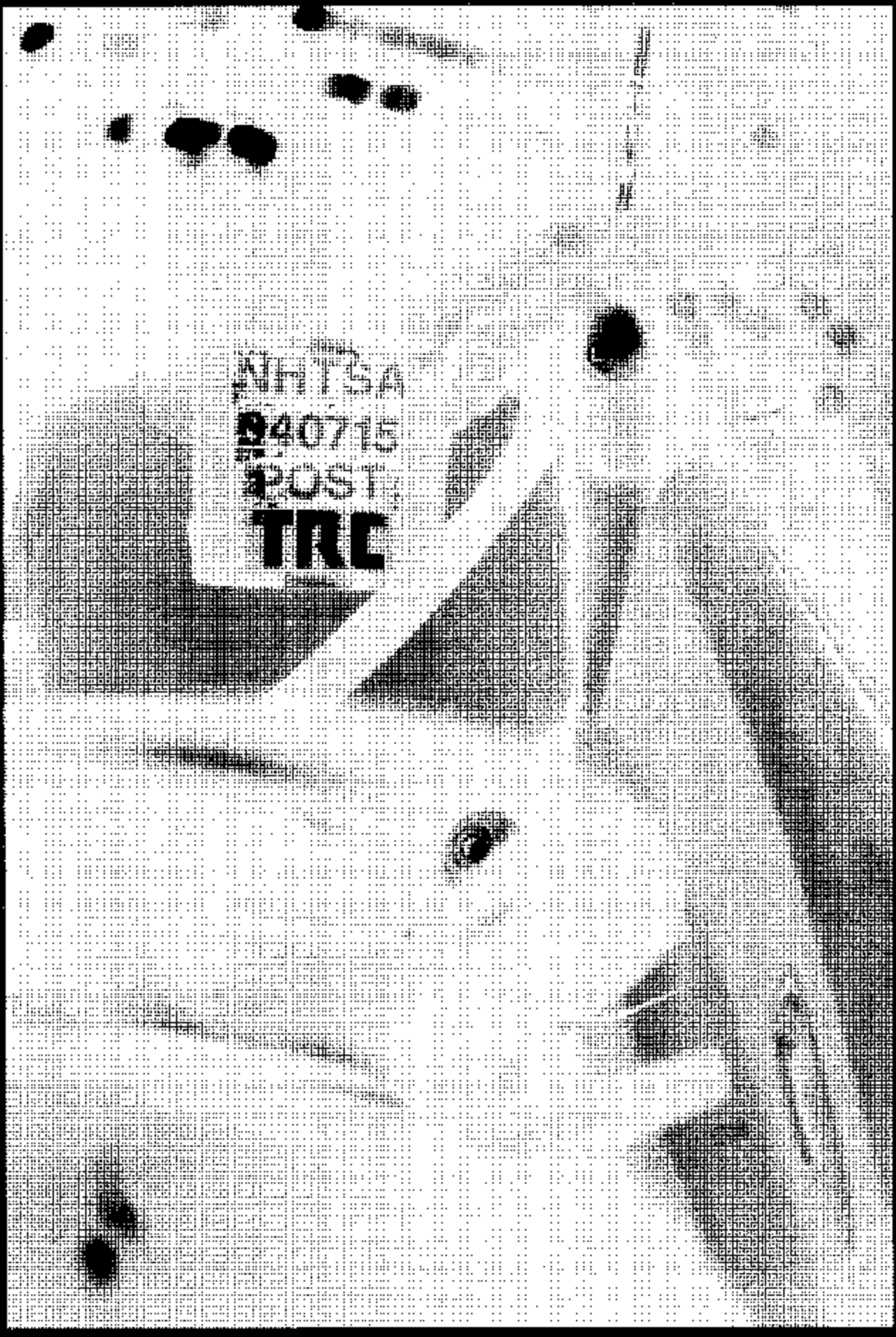


Figure A-29 Post-Test View of Front SID and Door Clearance

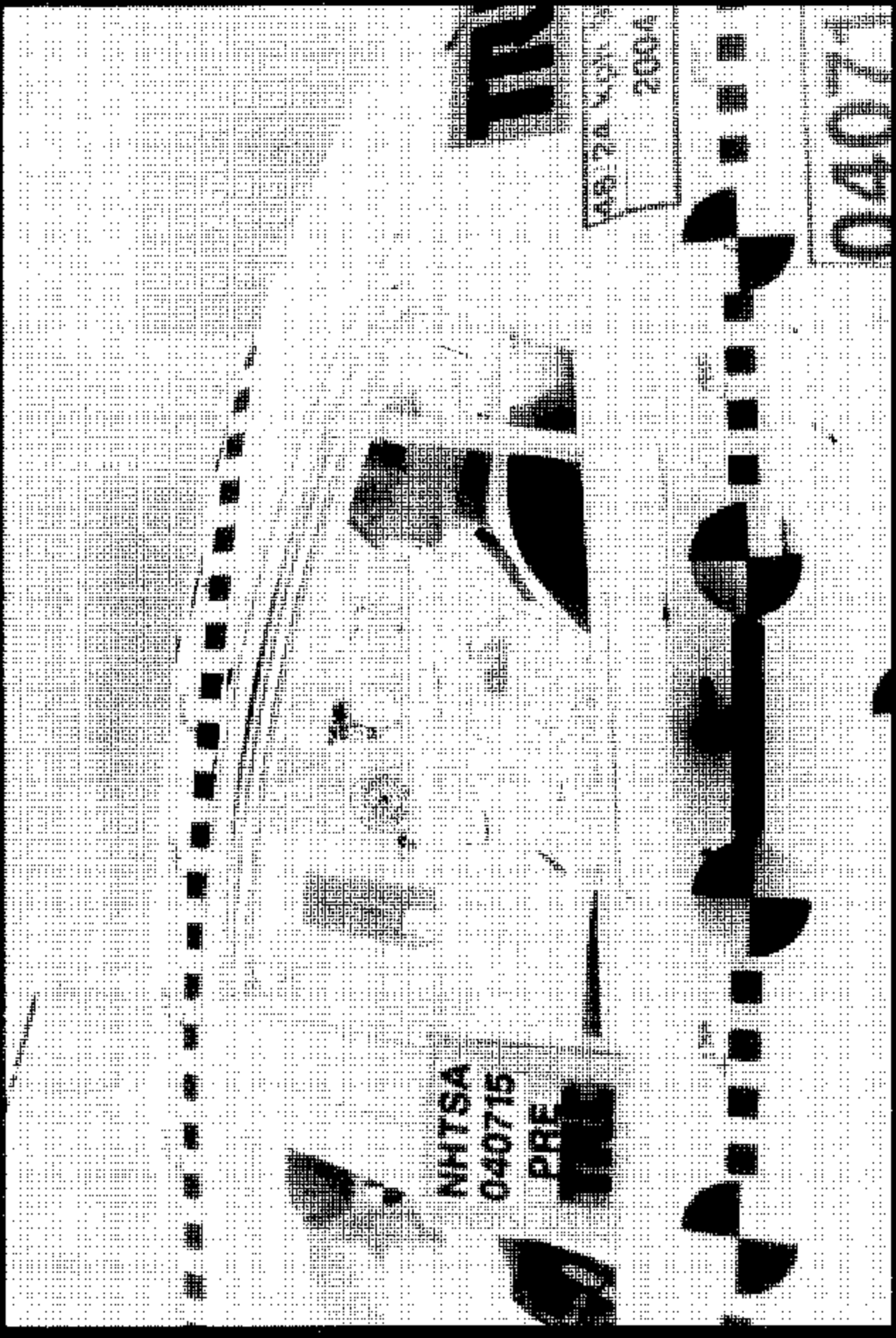


Figure A-30 Pre-Test Left View of Rear SID

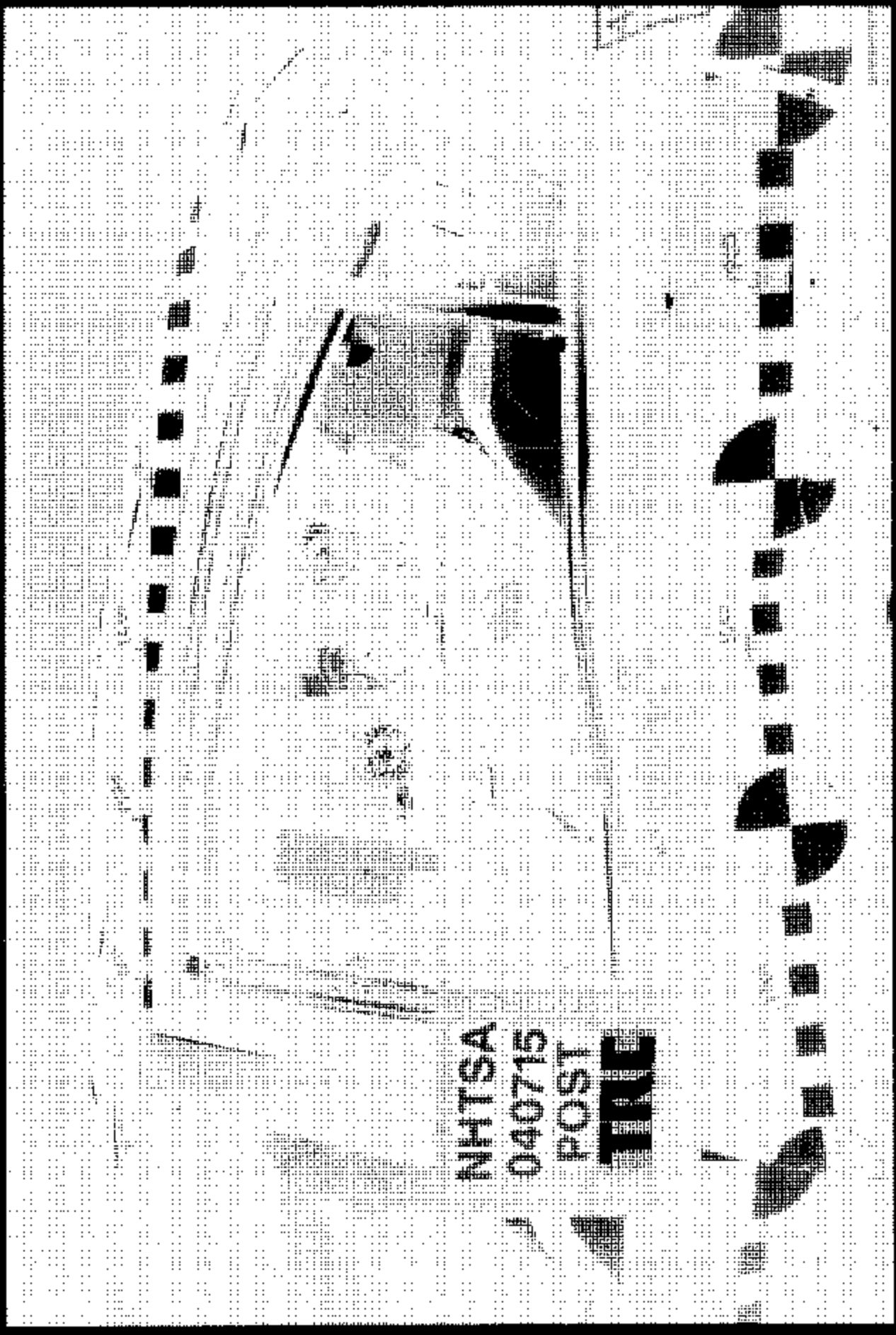


Figure A-31 Post-Test Left View of Rear SID

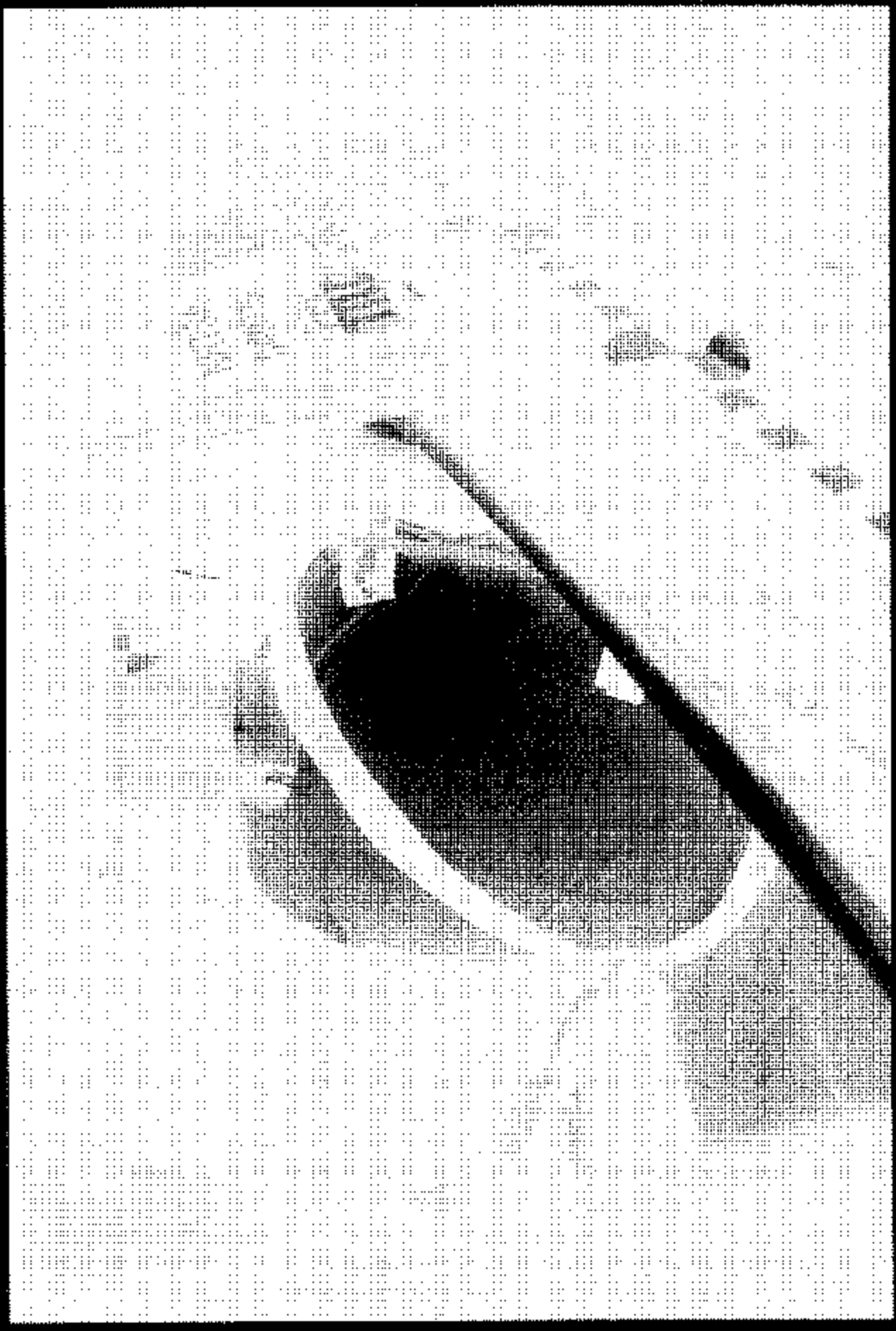


Figure A-32 Pre-Test Angled View of Rear SID

Figure A-33 Post-Test Angled View of Rear SID

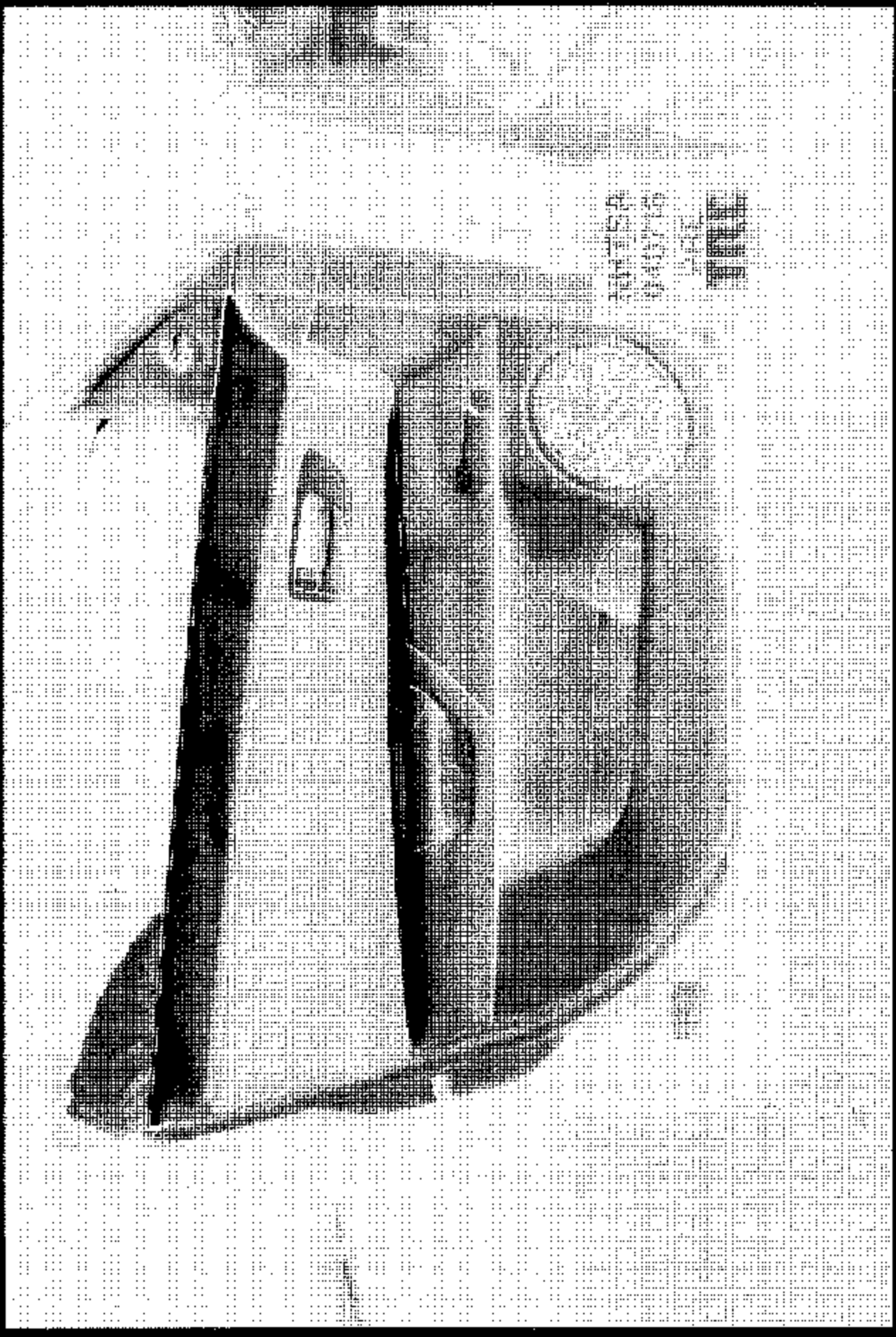


Figure A-34 Pre-Test Interior of Front Door

Figure A-35 Post-Test Interior of Front Door Showing SID Impact Locations

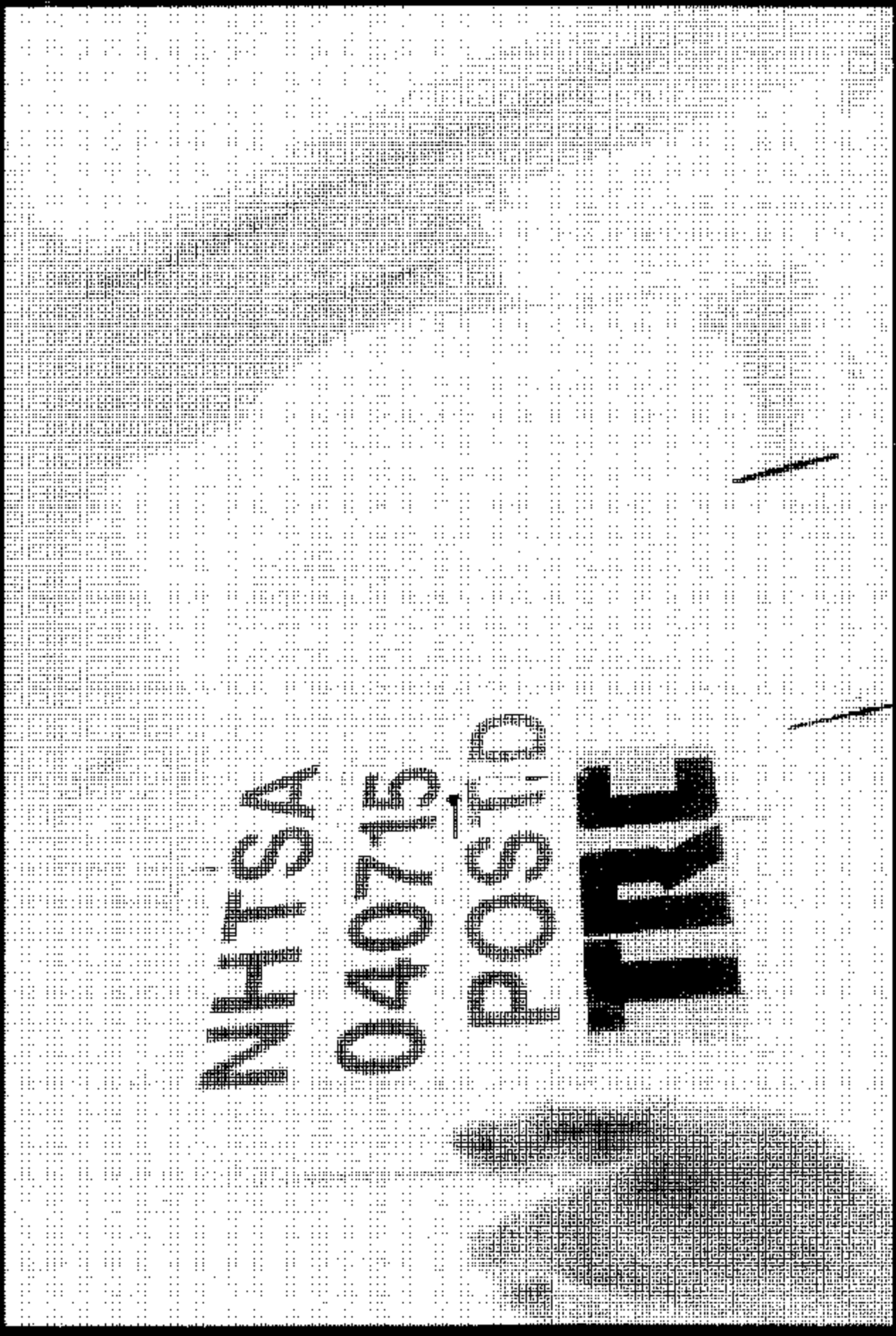


Figure A-36 Post-Test Front SID Contact - View 1

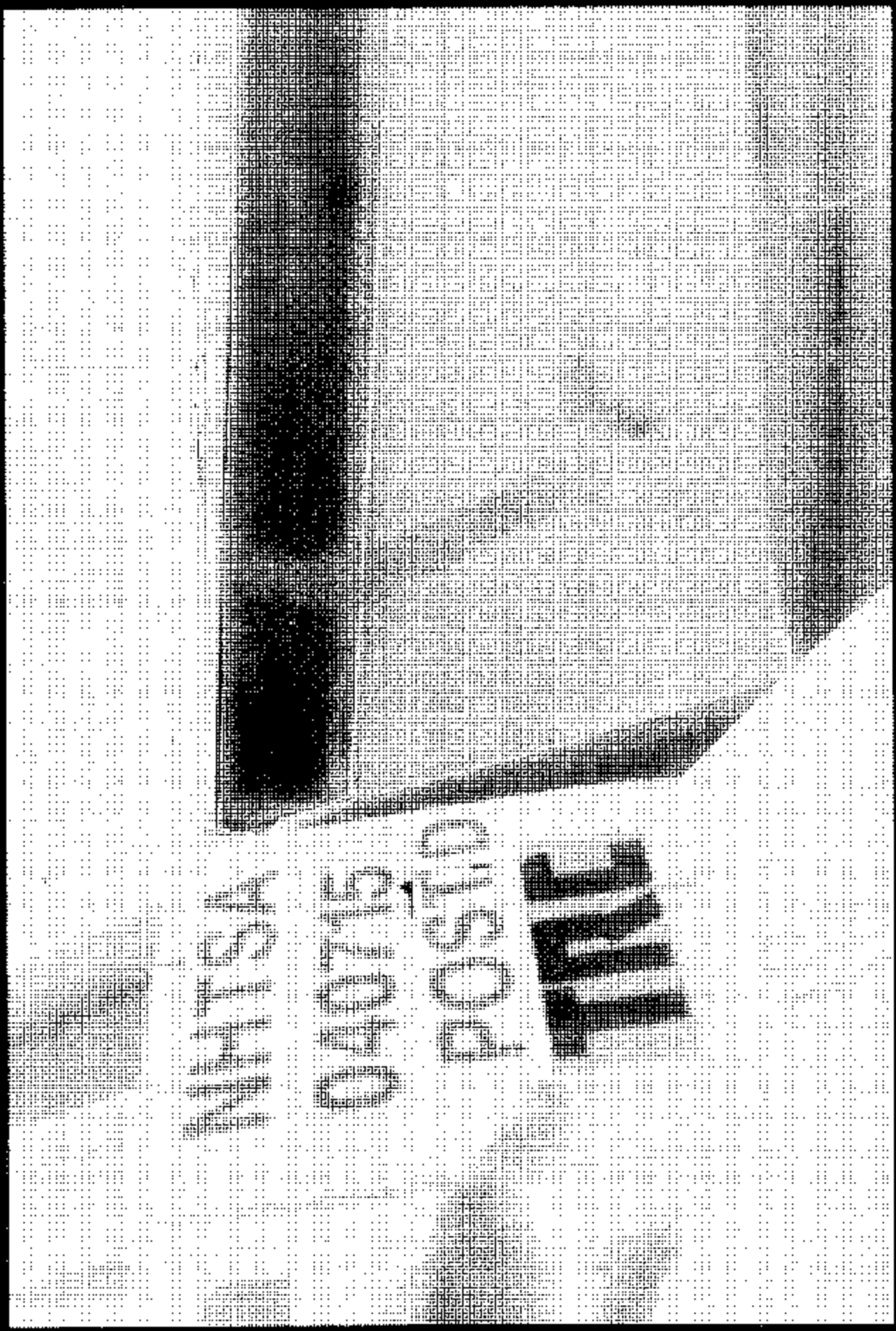


Figure A-37 Post-Test Front SID Contact - View 2

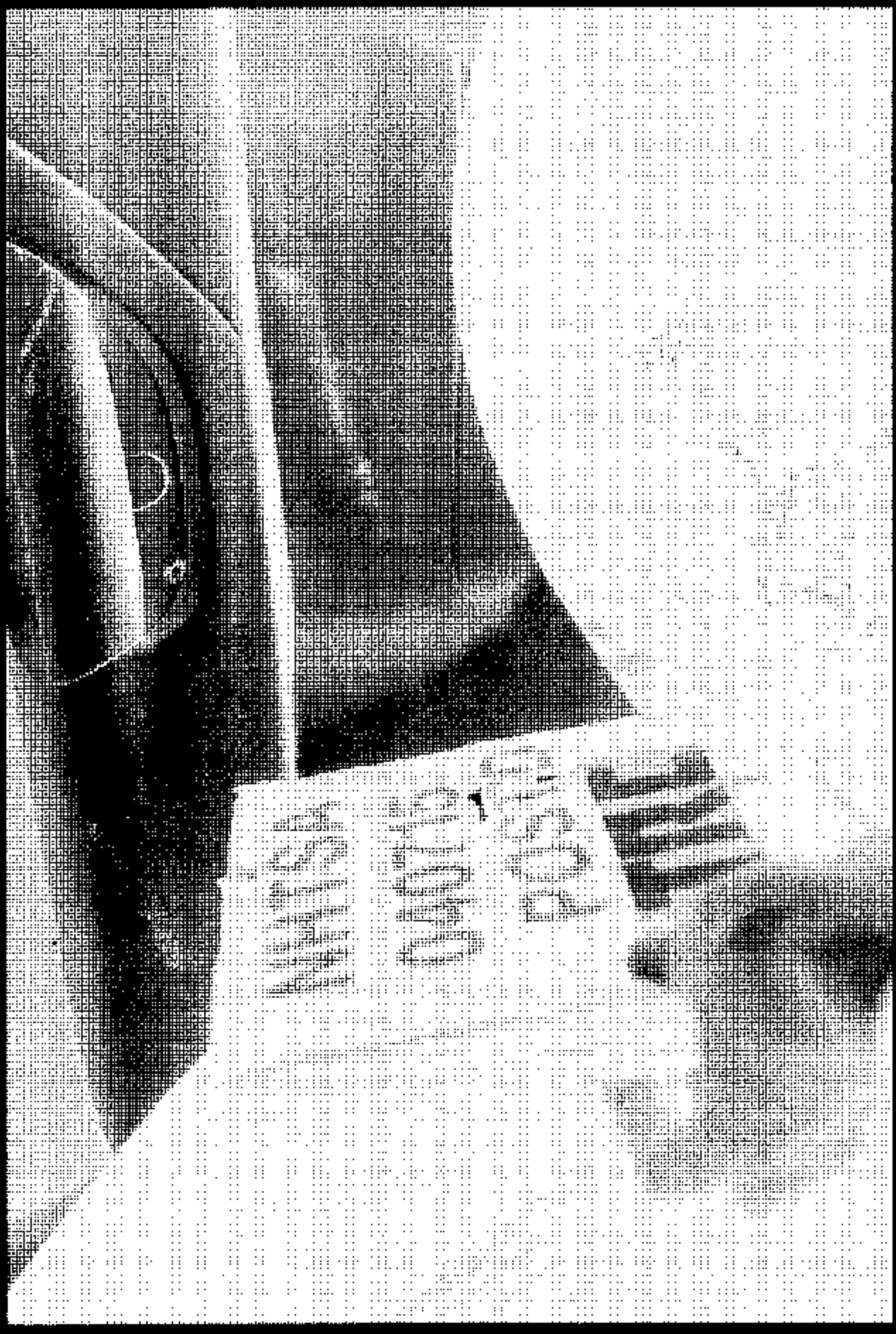


Figure A-38 Post-Test Front SID Contact - View 3

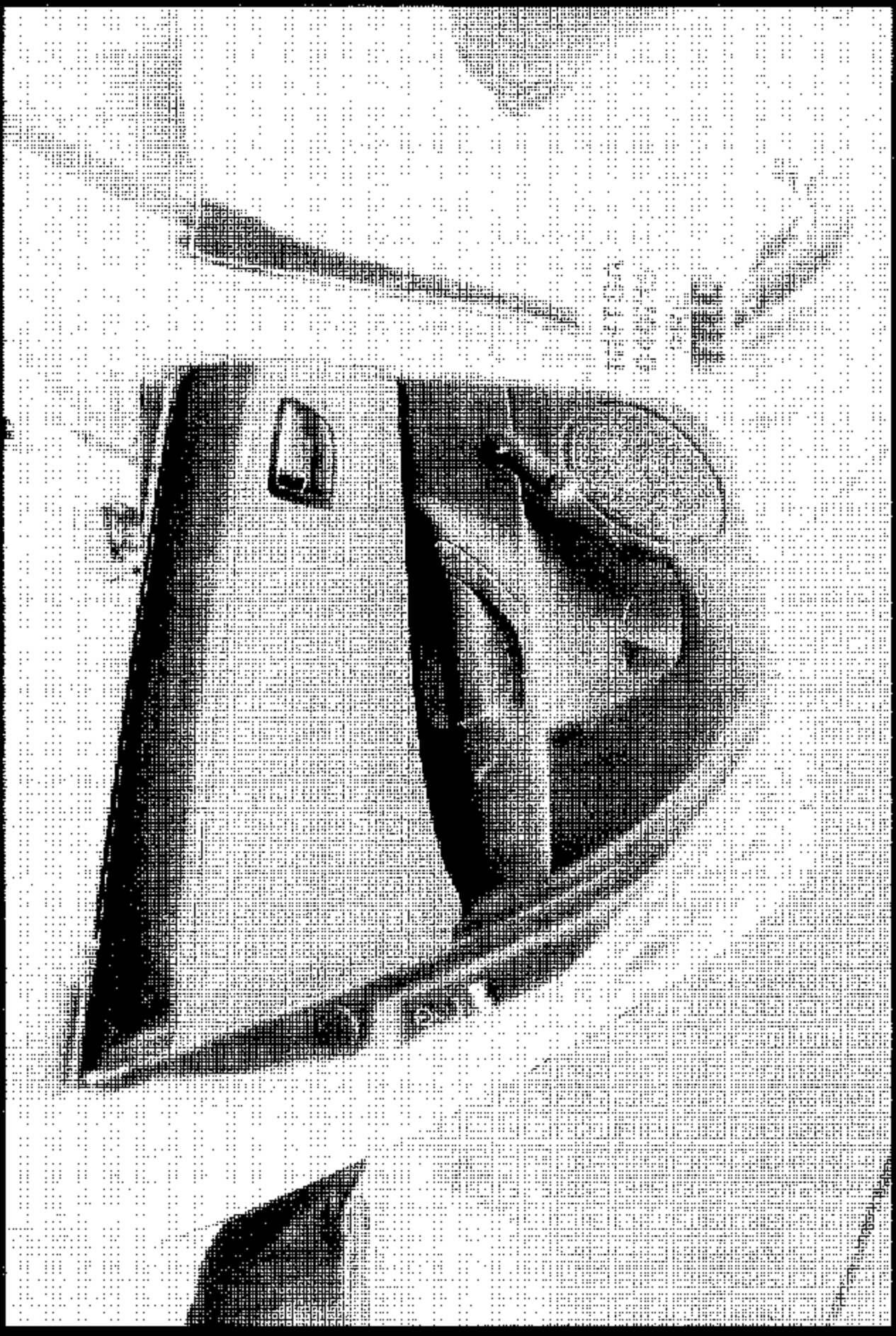


Figure A-39 Pre-Test Interior of Rear Panel

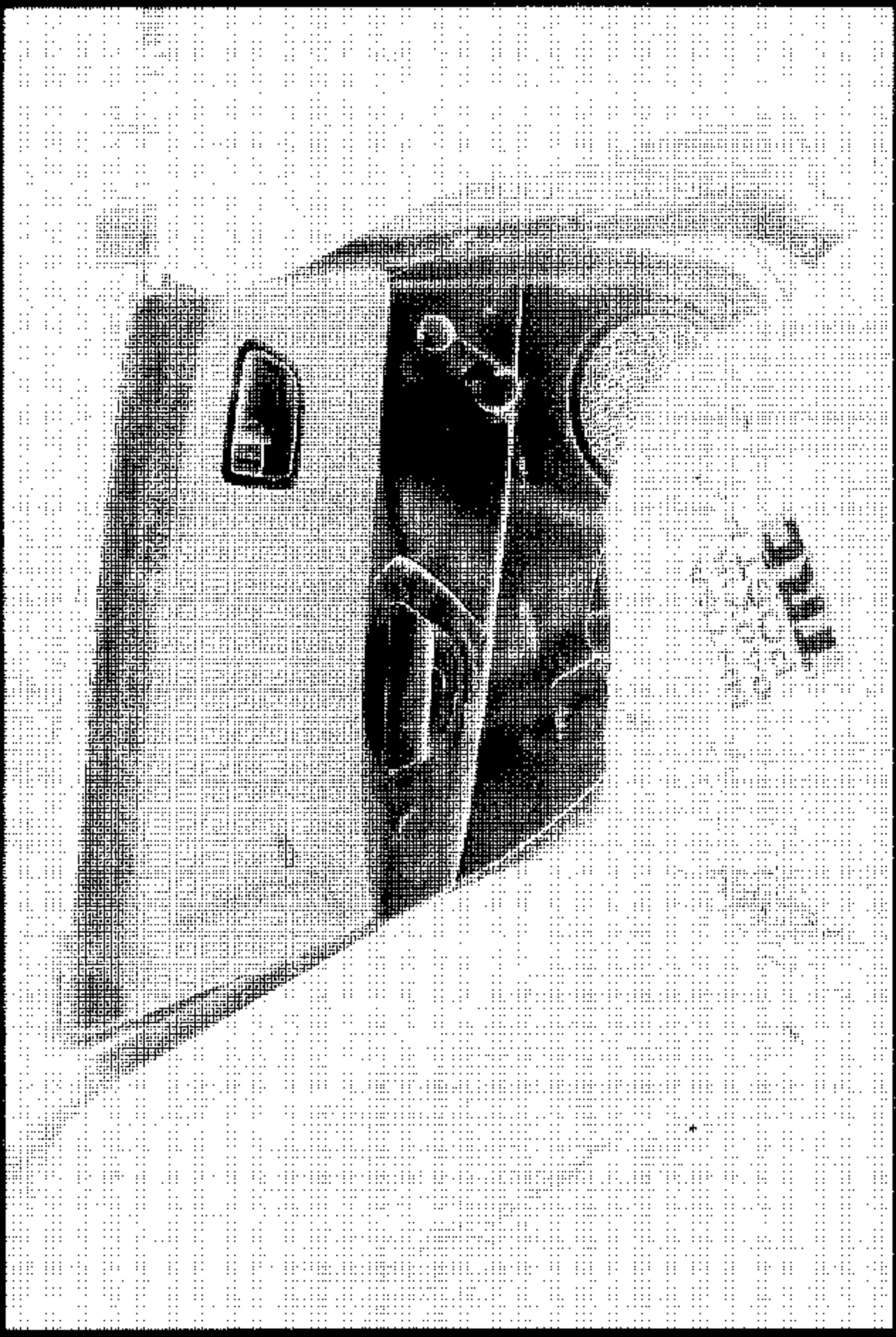


Figure A-40 Post-Test Interior of Rear Panel Showing SID Impact Locations

Figure A-41 Post-Test Rear SID Contact - View 1

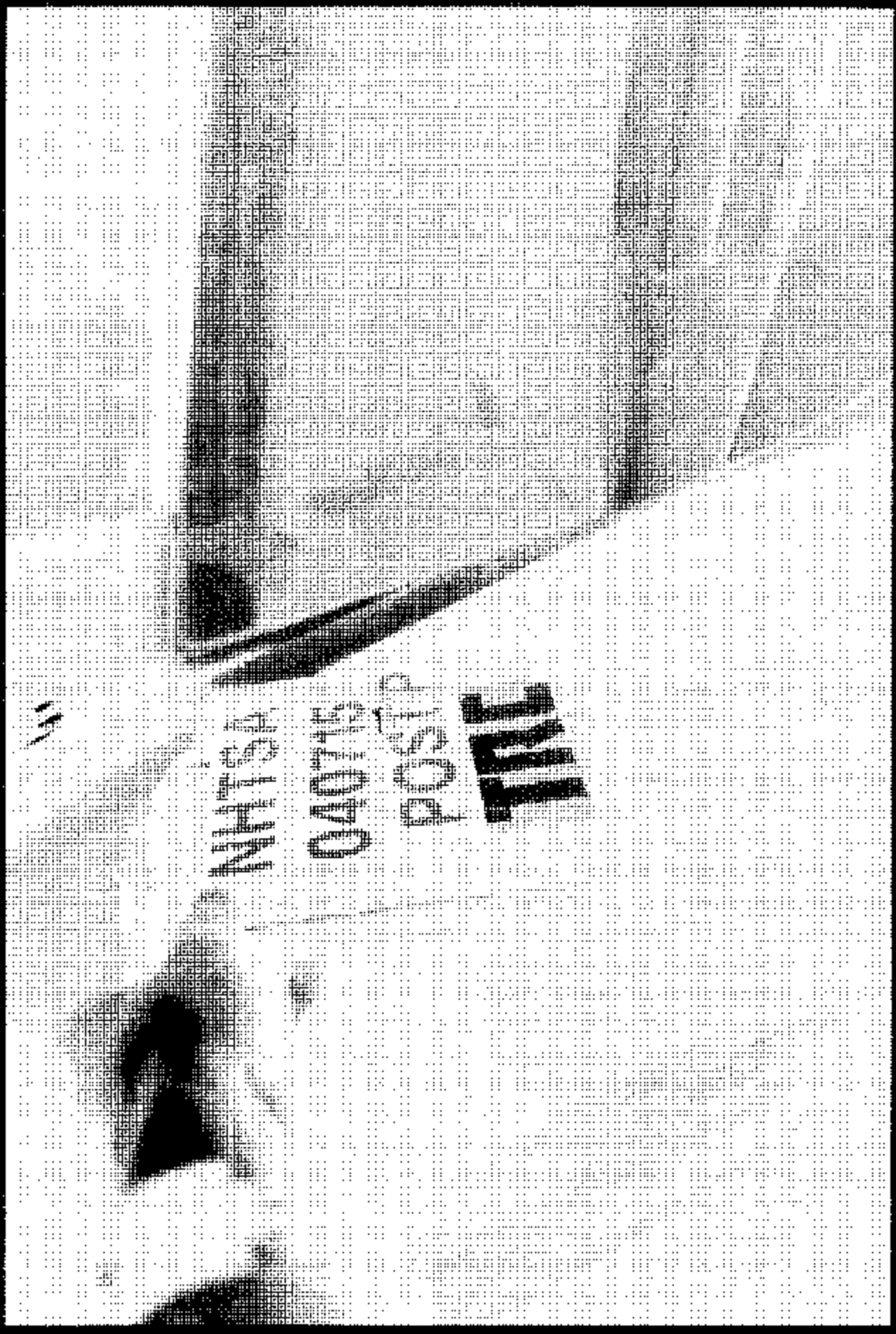


Figure A-42 Post-Test Rear SID Contact - View 2

Figure A-43 Post-Test Rear SID Contact - View 3

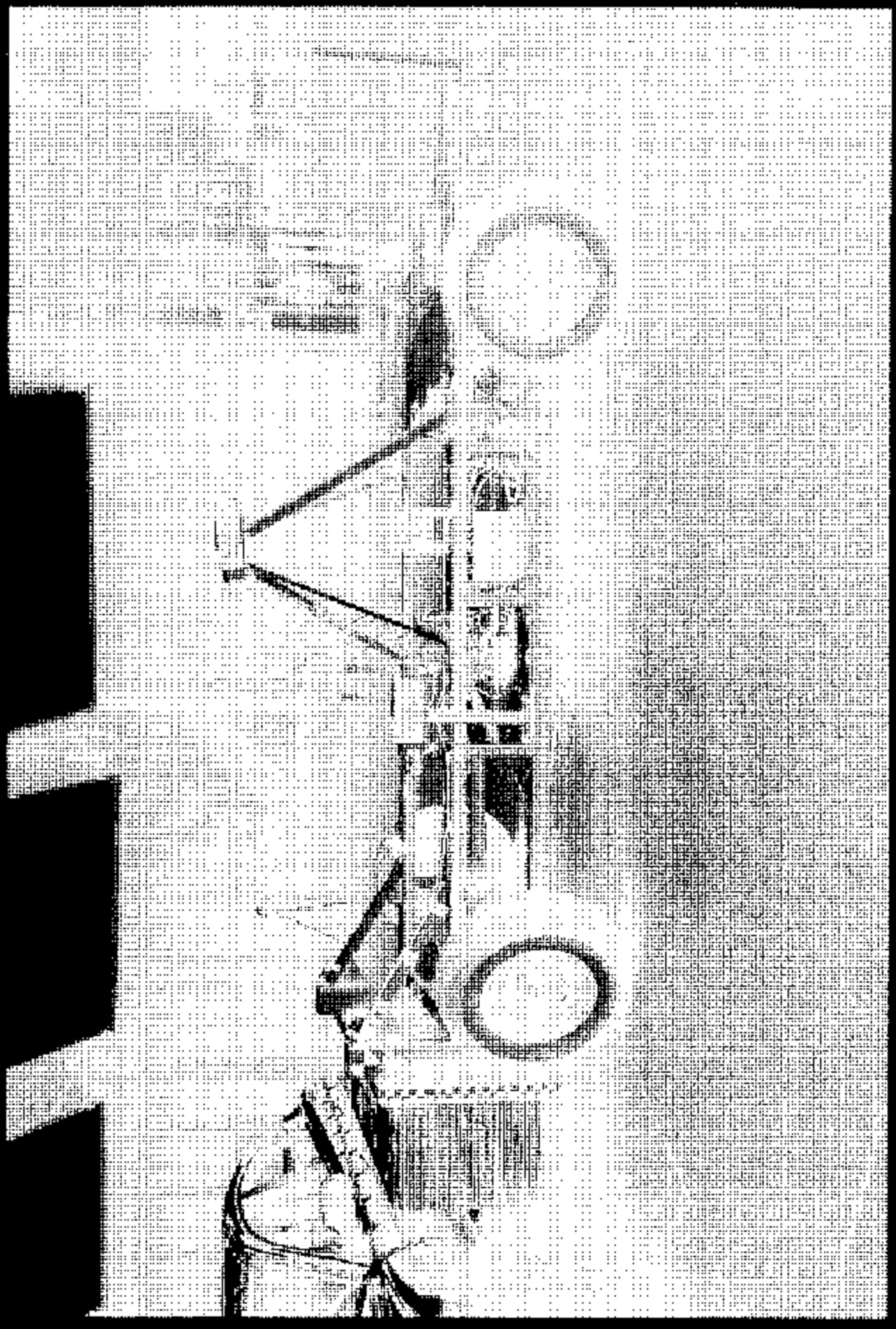


Figure A-44 Pre-Test Left Side View of MDB With Impactor Face in Position

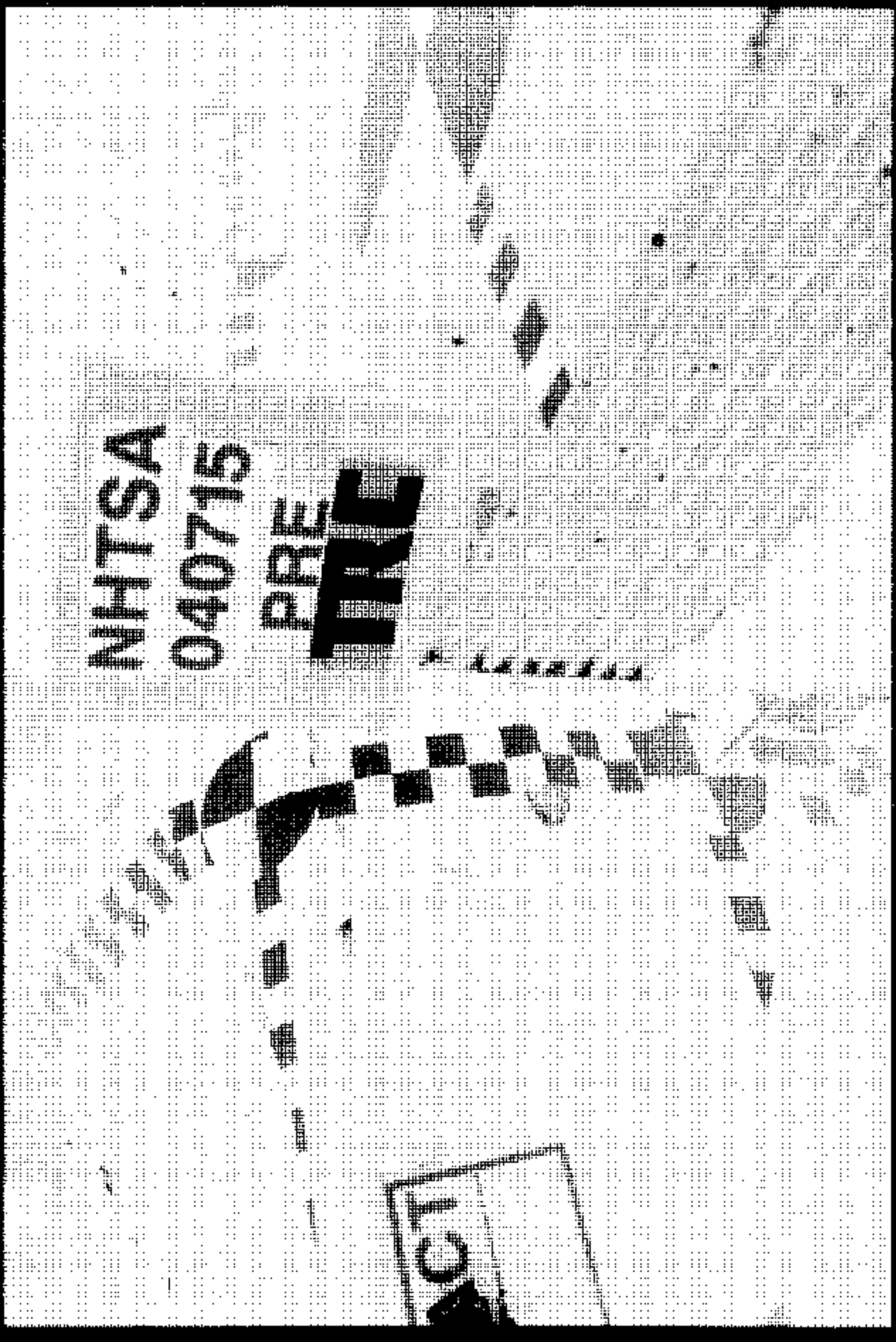


Figure A-45 Pre-Test Primary Impact Point View

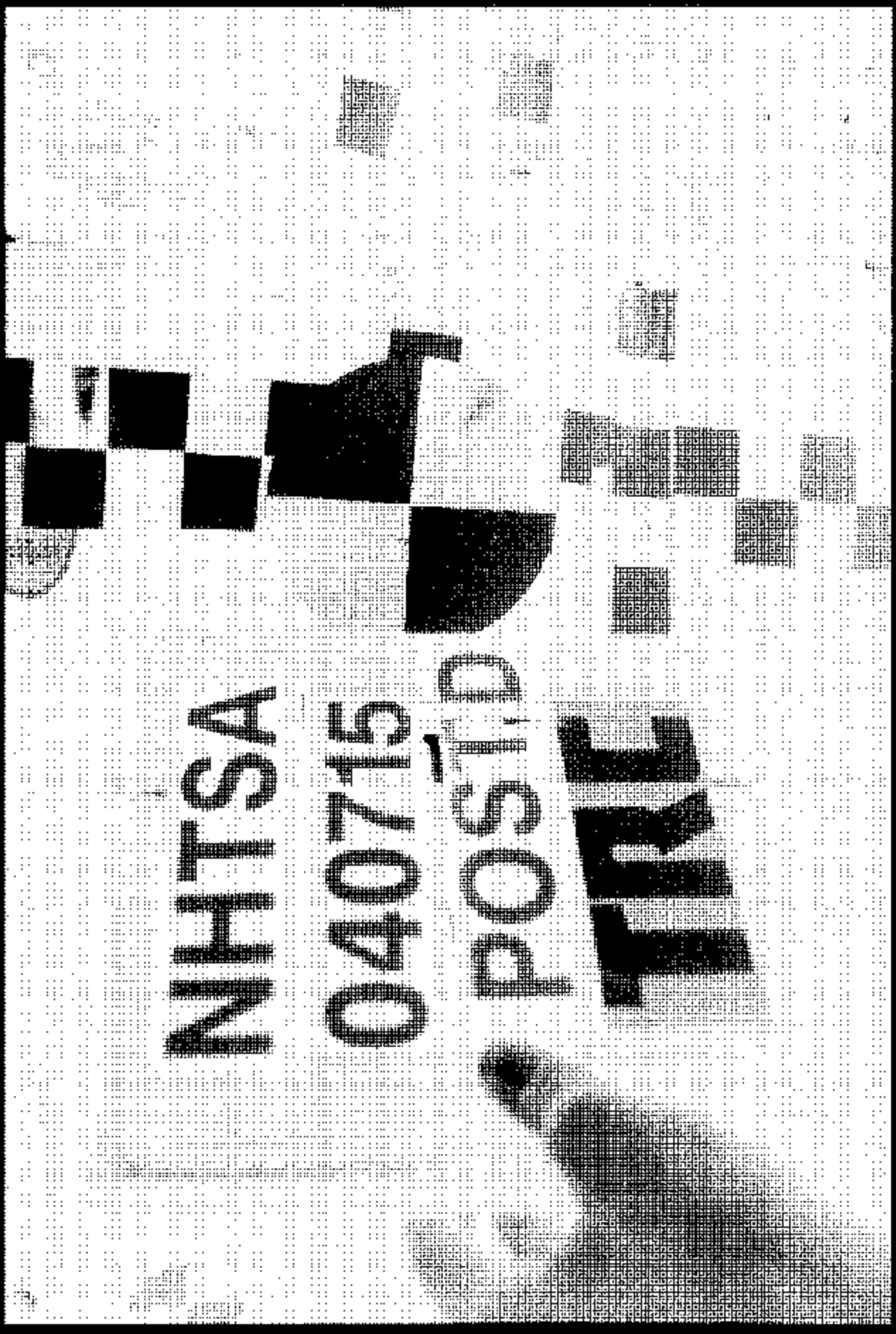


Figure A-46 Post-Test Primary Impact Point View

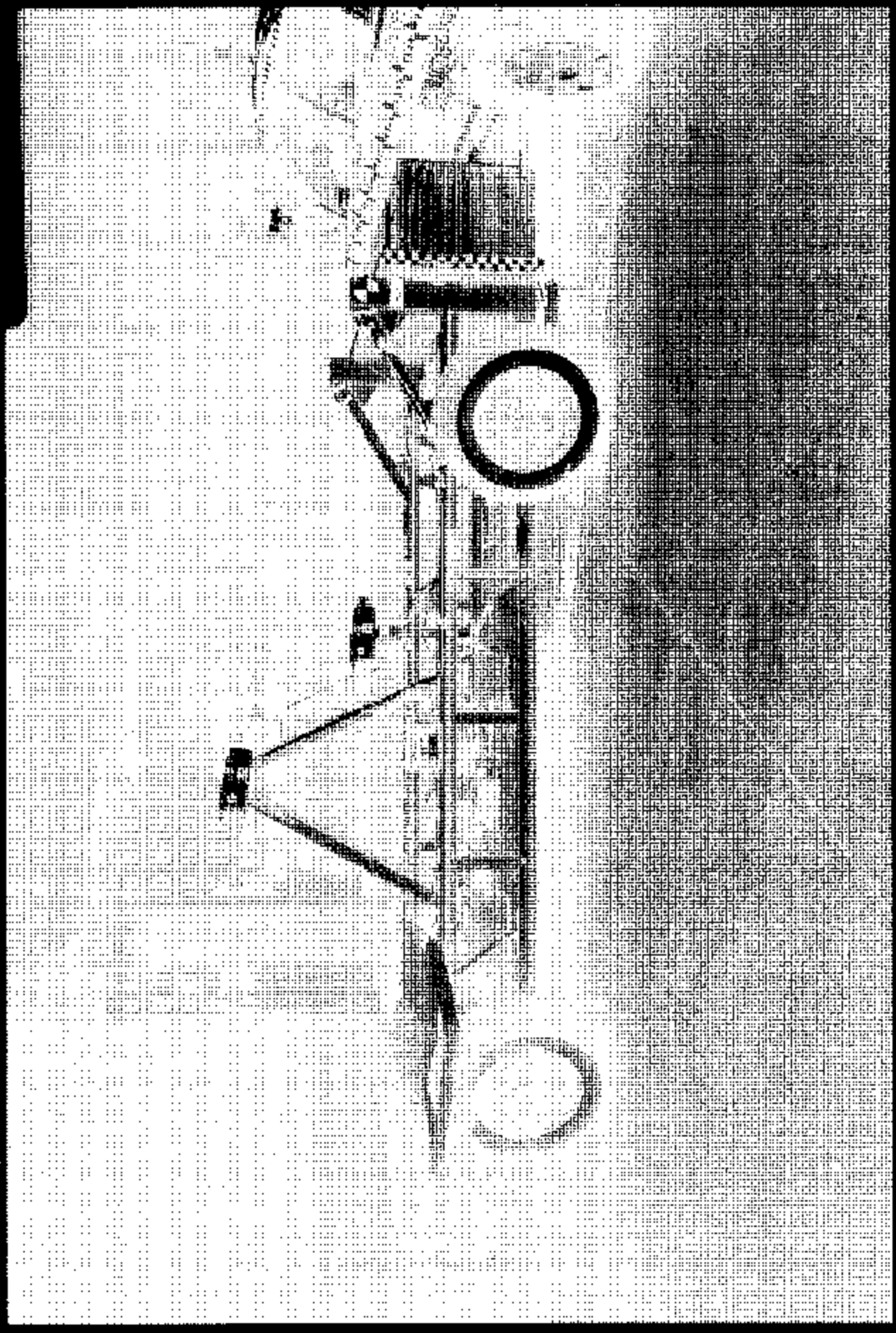


Figure A-47 Pre-Test Right Side View of MDB With Impactor Face in Position

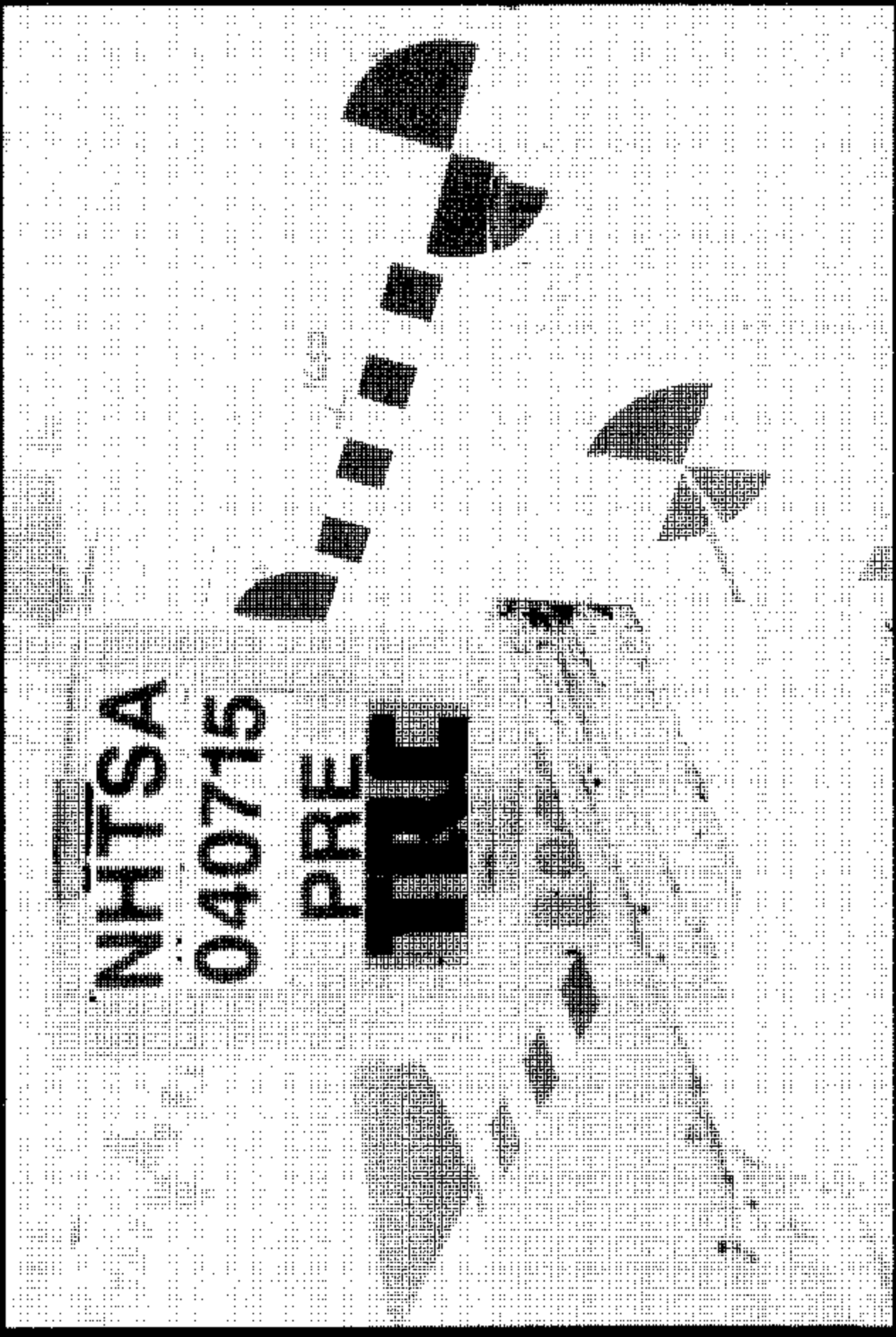


Figure A-48 Pre-Test Secondary Impact Point View

Figure A-49 Post-Test Secondary Impact Point View

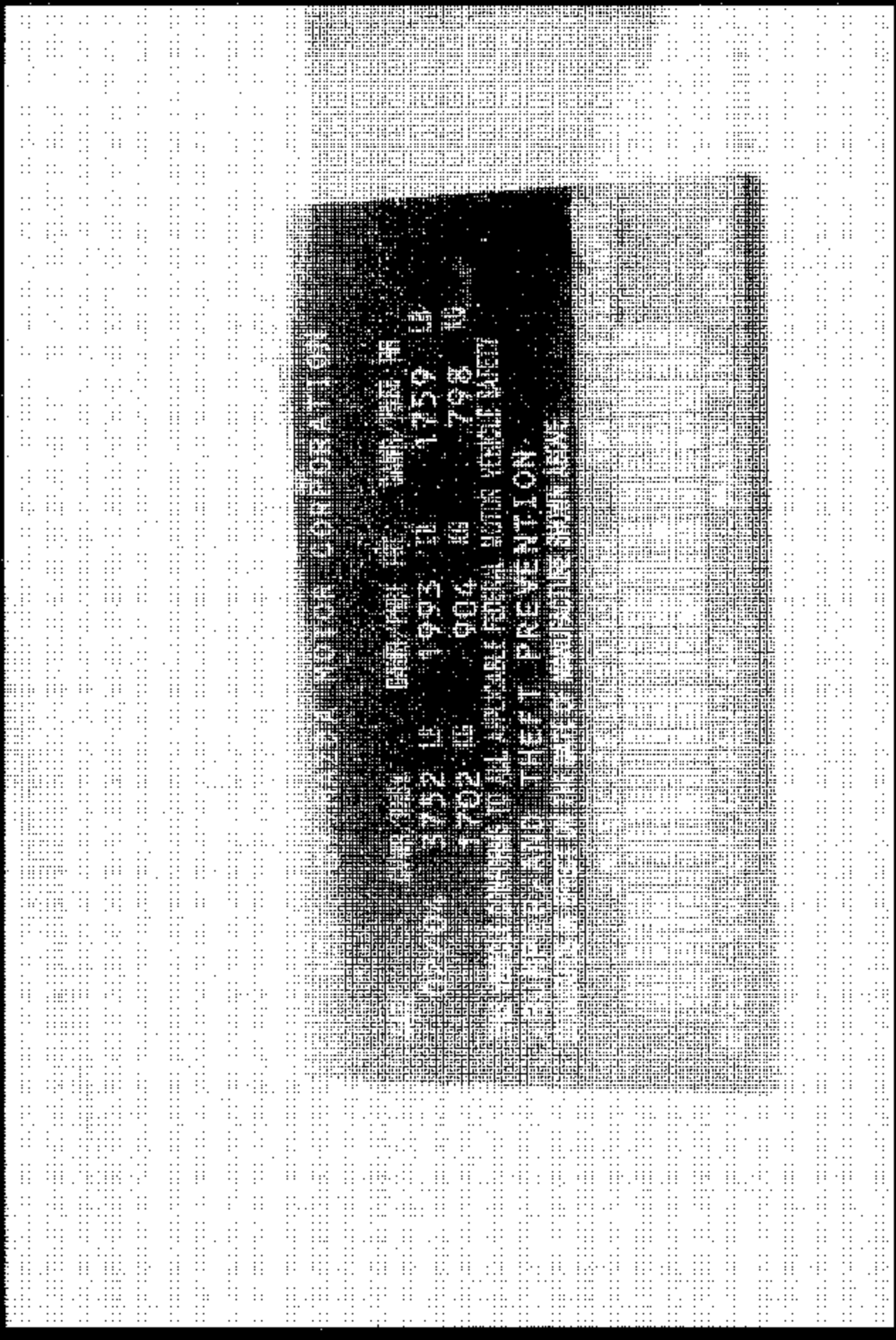


Figure A-50 Pre-Test Vehicle Certification Label View

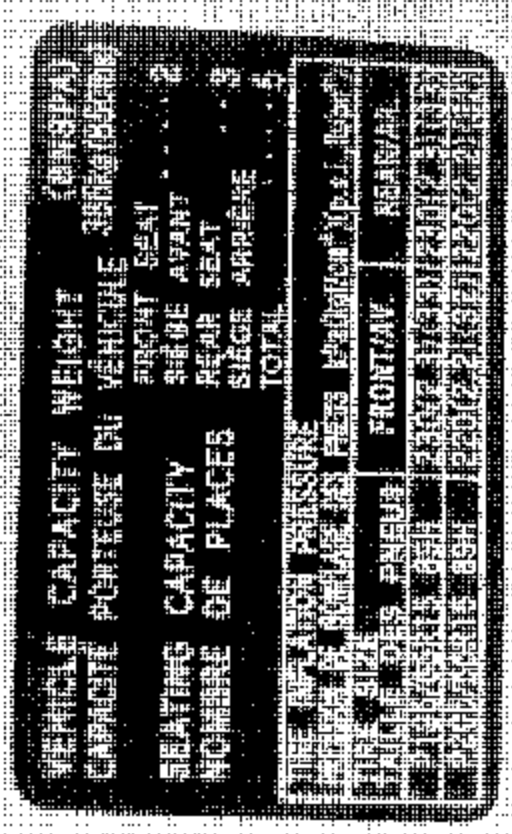


Figure A-51 Pre-Test Vehicle Recommended Tire Pressure Label View

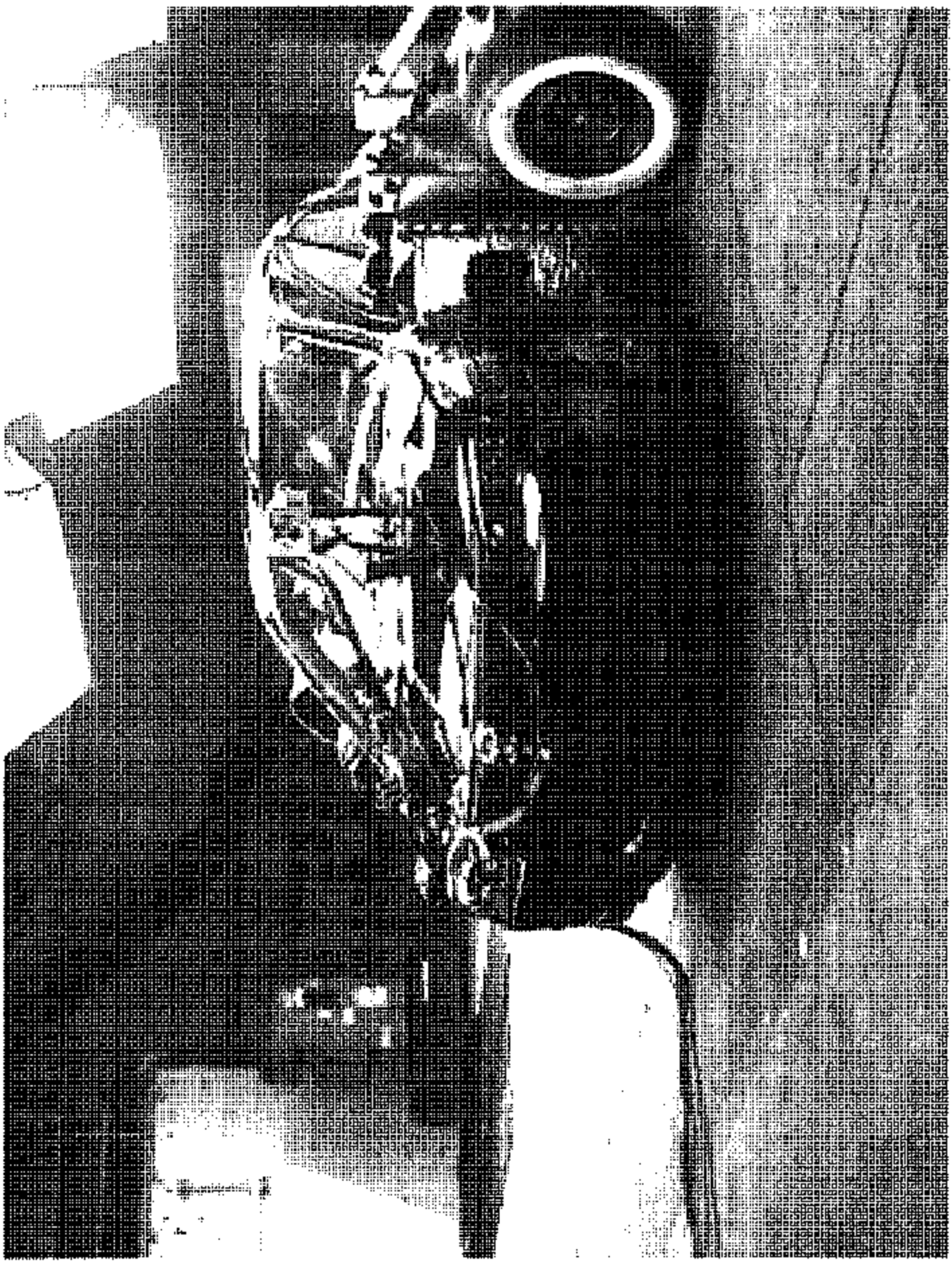


Figure A-52 Impact Event

Figure A-53 Pre-Test Fuel Cap

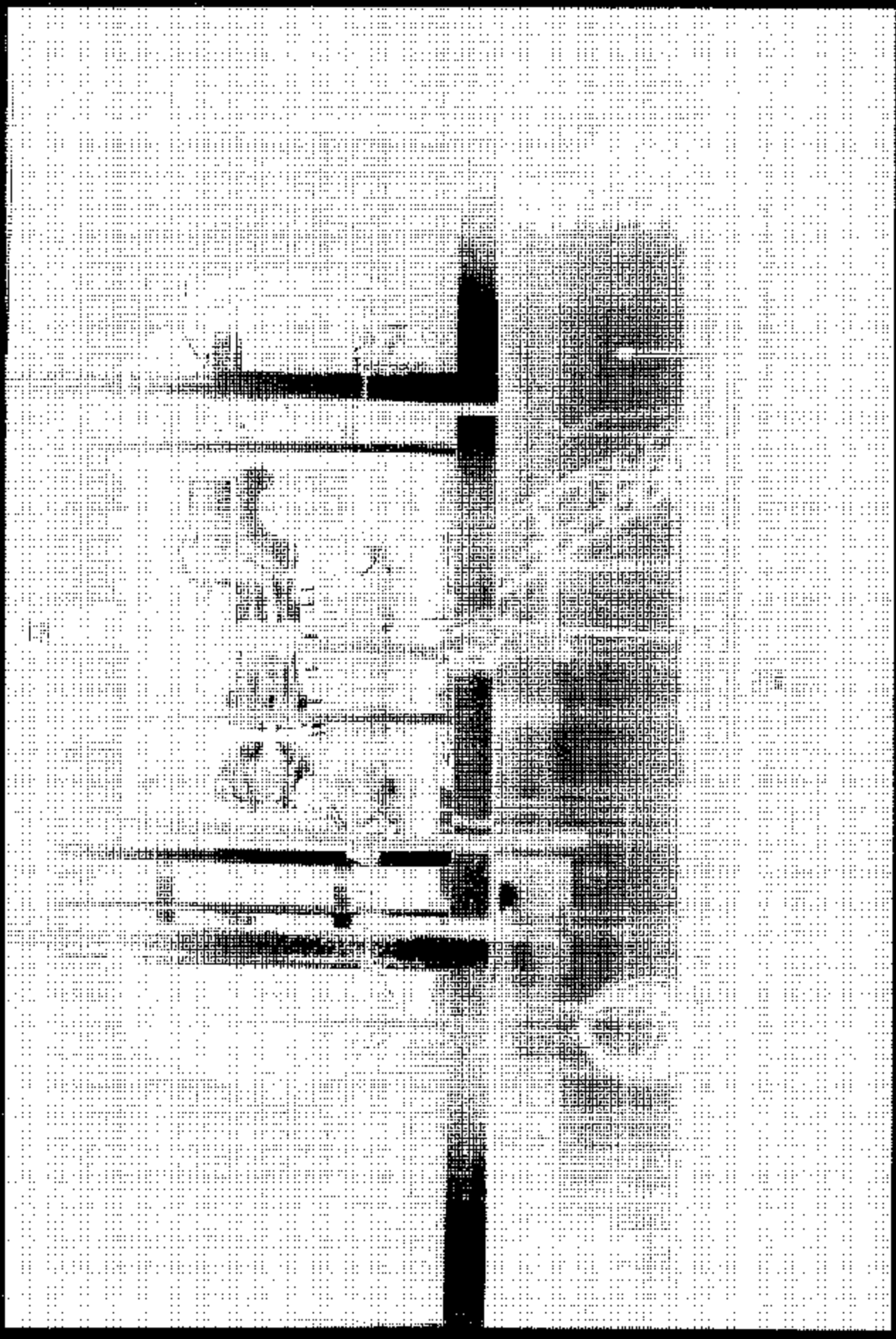


Figure A-54 FMVSS 301 Rollover View at 90°

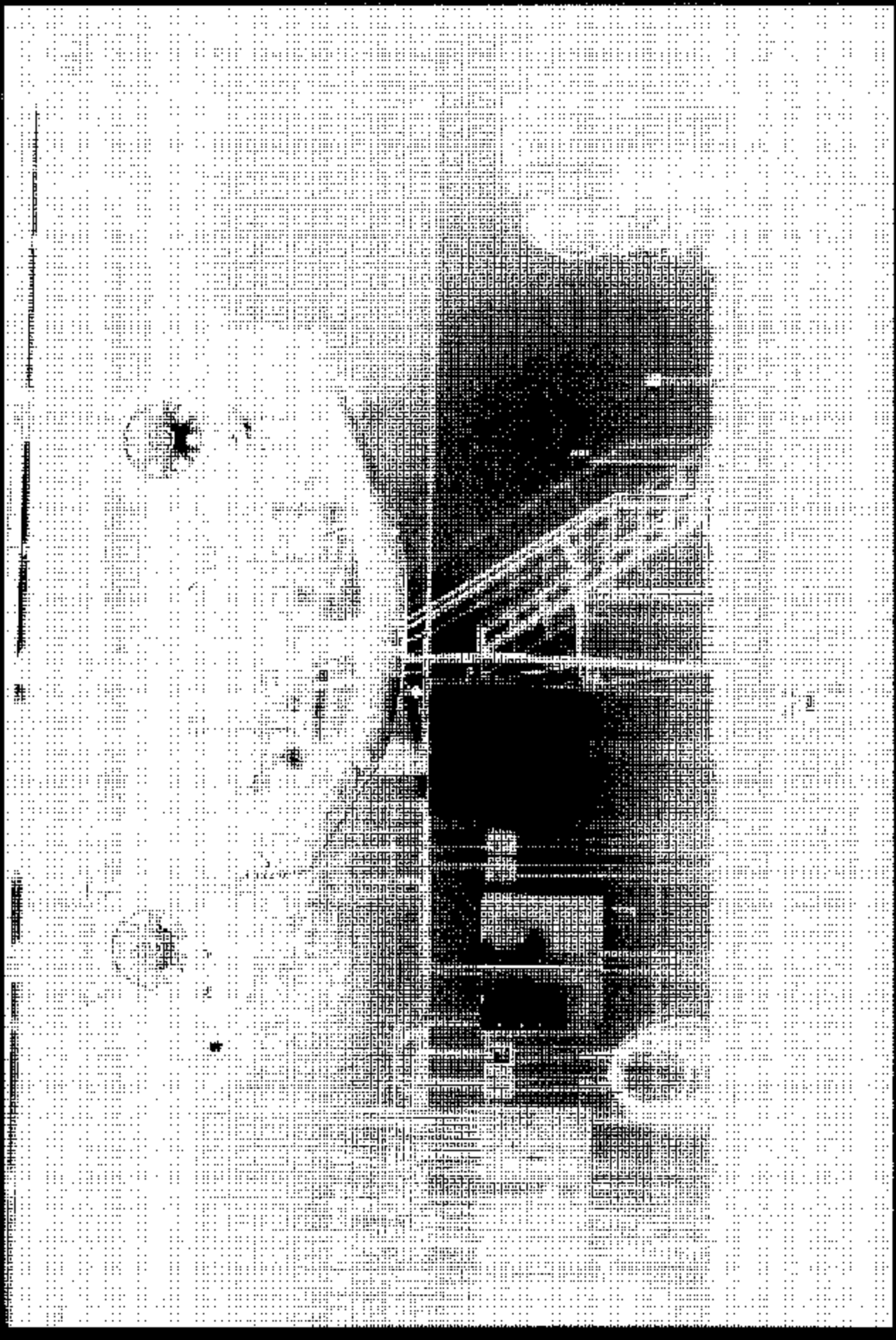


Figure A-55 FMVSS 301 Rollover View at 180°

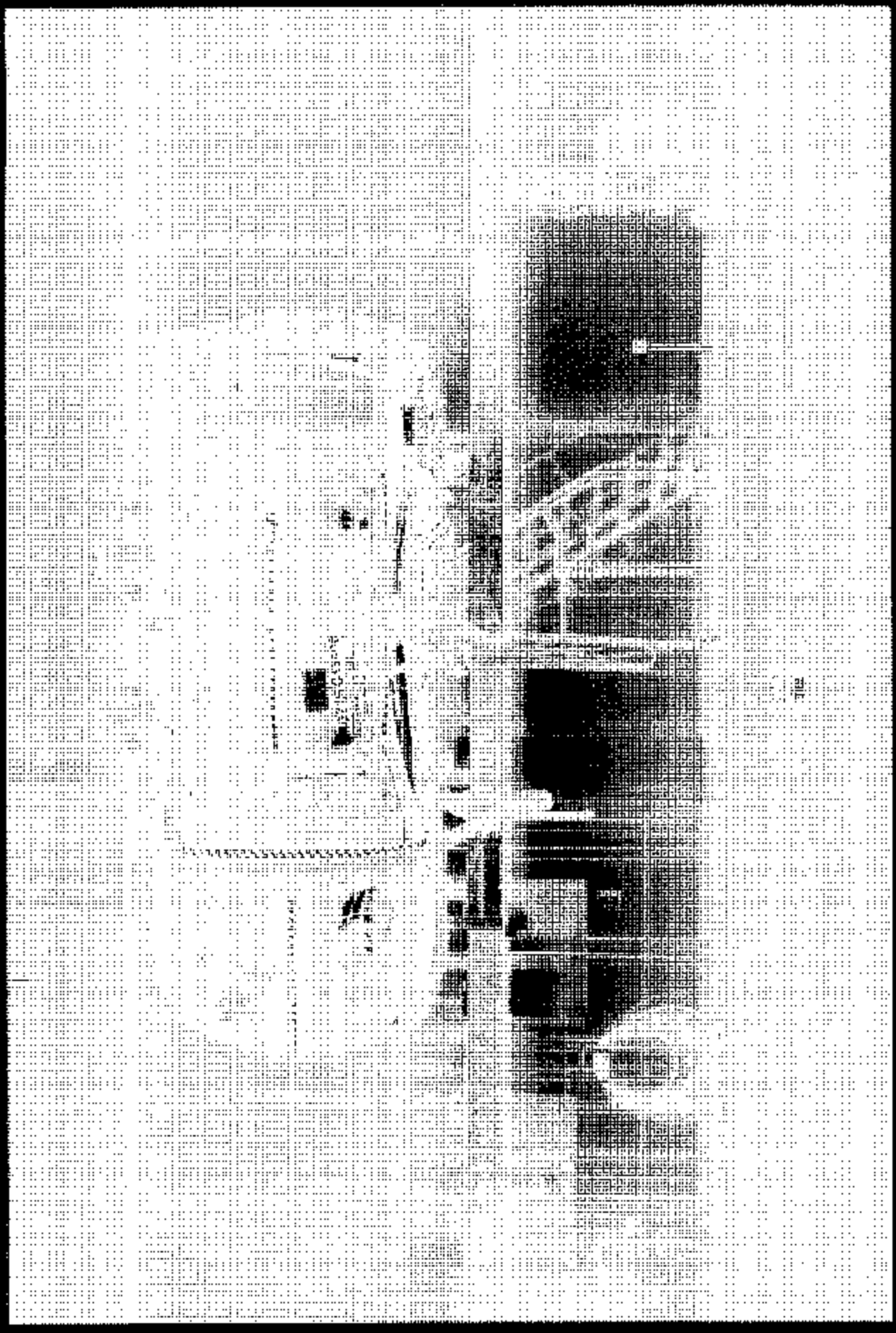


Figure A-56 FMVSS 301 Rollover View at 270°

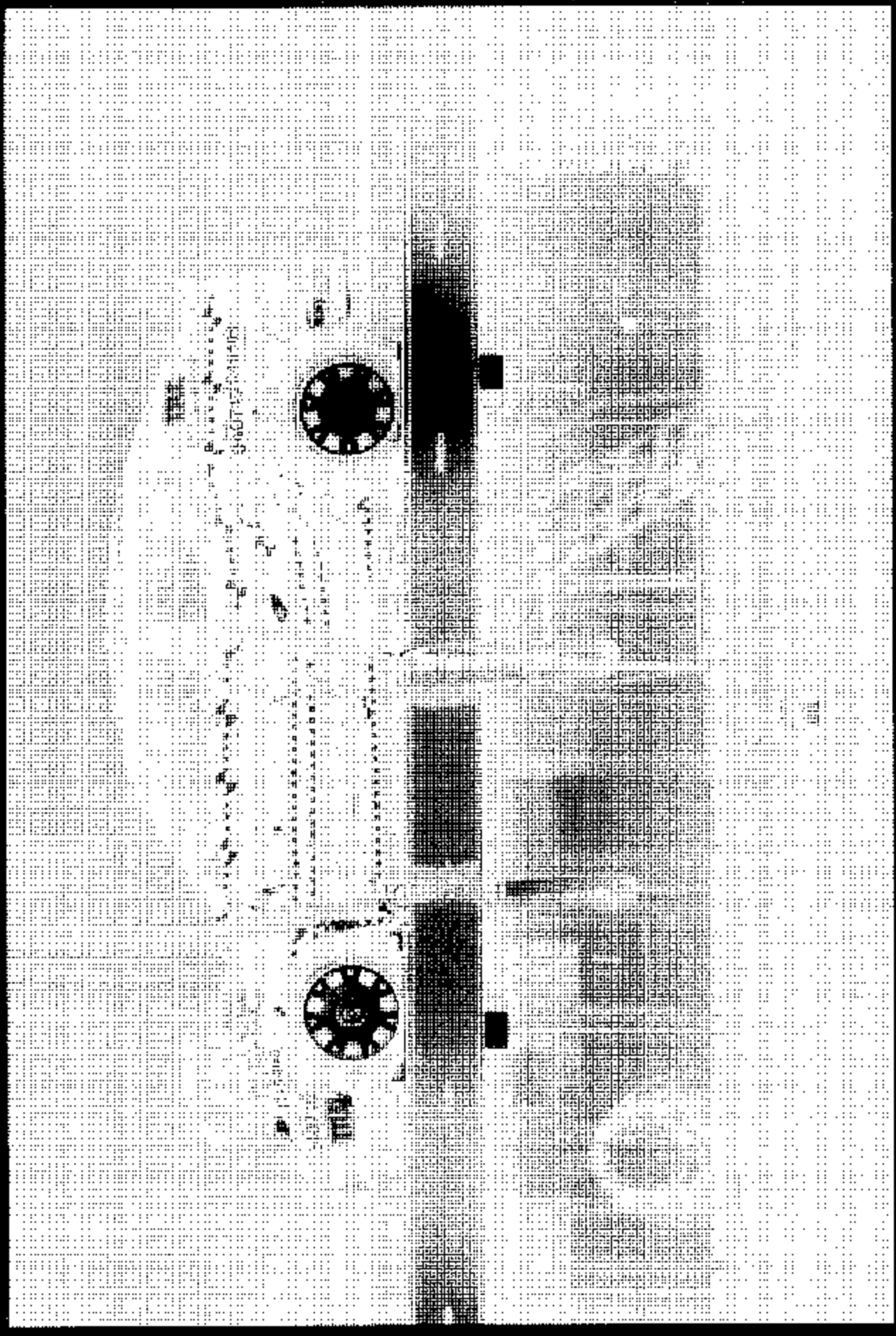


Figure A-87 FMVSS 301 Rollover View at 360°

Appendix B

Data Plots

Table of Data Plots

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 1000 - Redundant

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

Table of Data Plots (Continued)

Test Vehicle Instrumentation Plots (Continued)

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

Table of Data Plots (Continued)

Test Vehicle Instrumentation Plots (Continued)

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

Table of Data Plots (Continued)

MDB Instrumentation Plots (Continued)

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered - Redundant

Driver and Passenger Dummy Instrumentation Plots

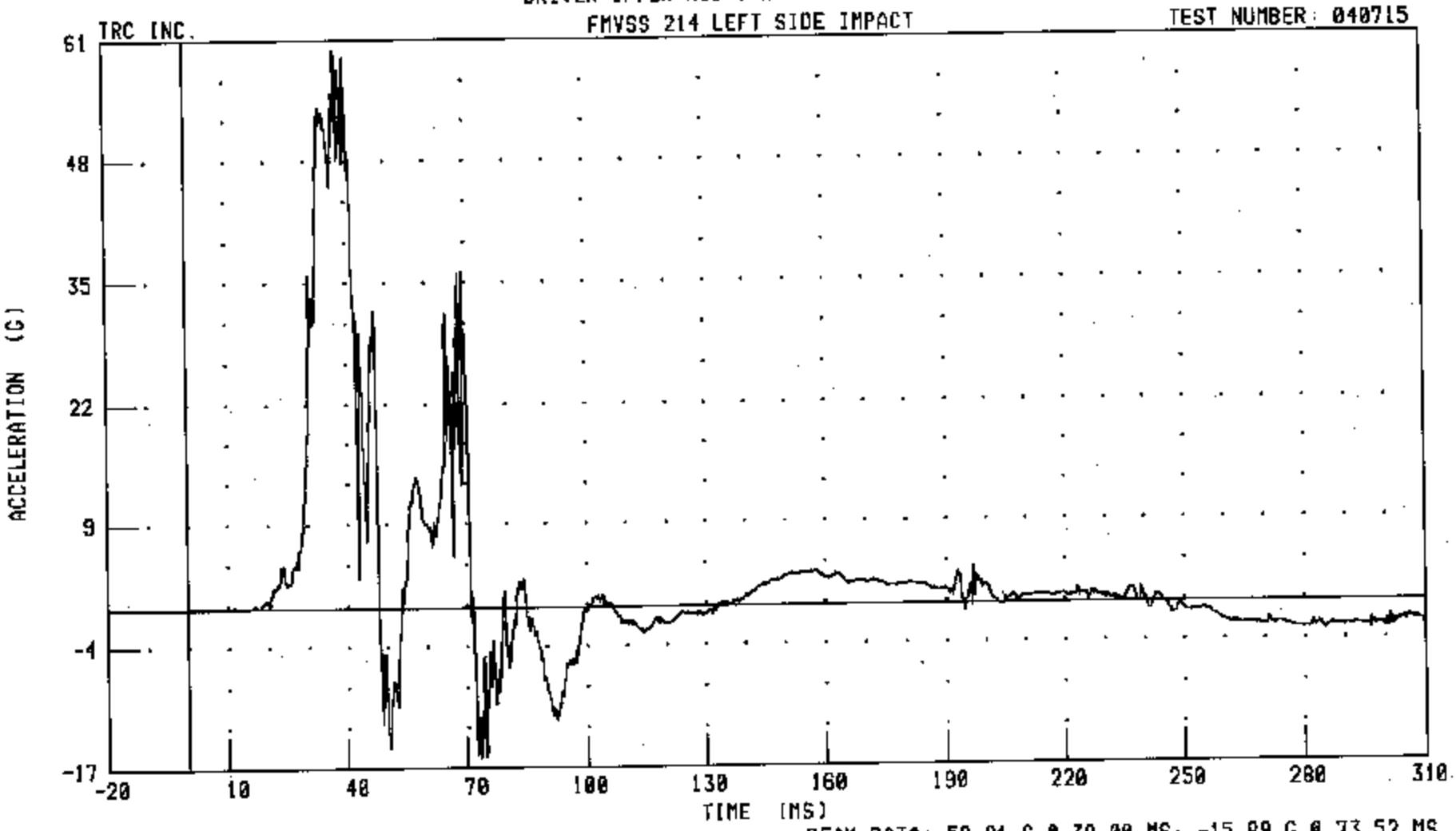
Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT



CHANNEL: LURYG1 FILTER: CH. CLASS 1000

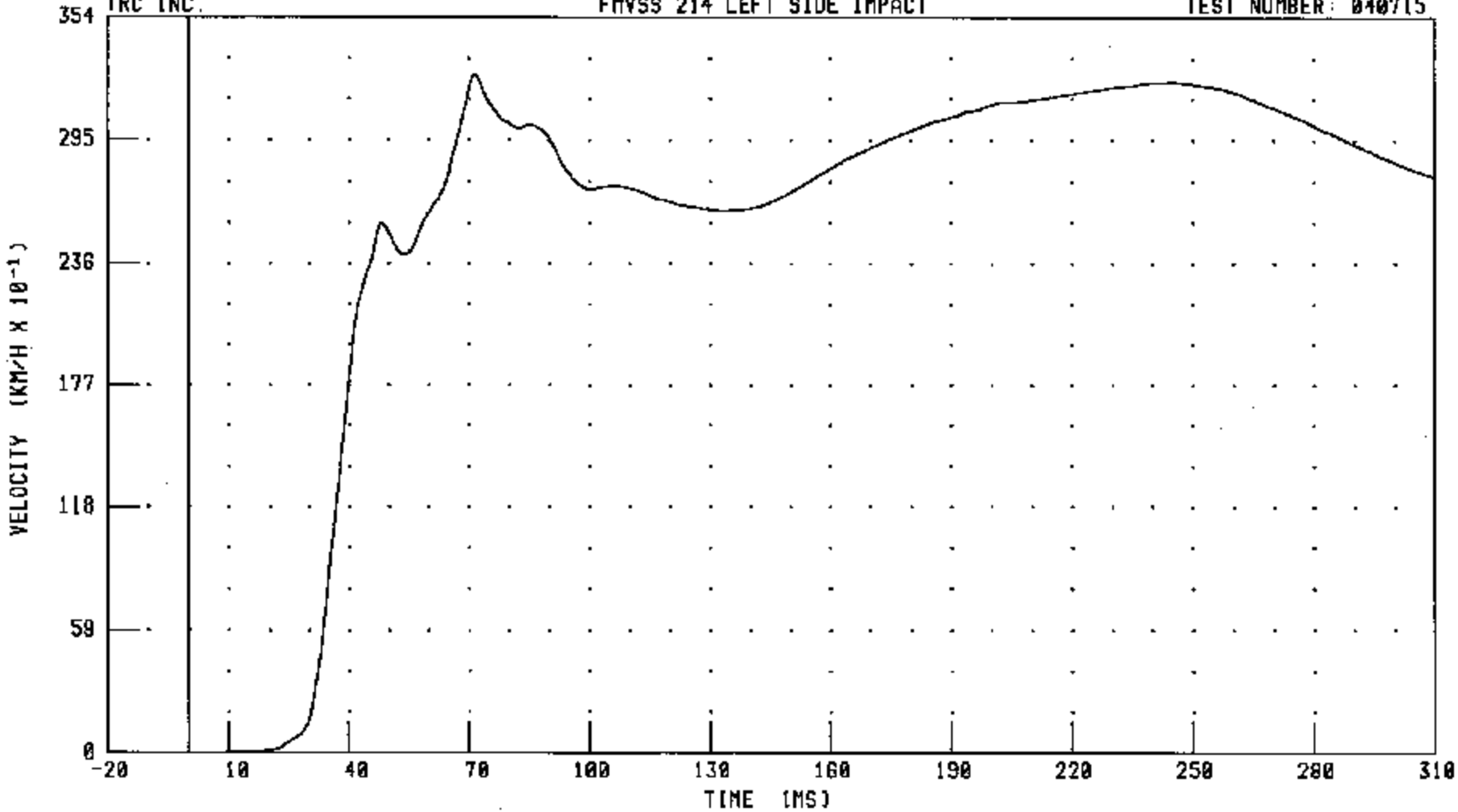
PEAK DATA: 59.91 G @ 38.00 MS; -15.89 G @ 73.52 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER UPPER RIB Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



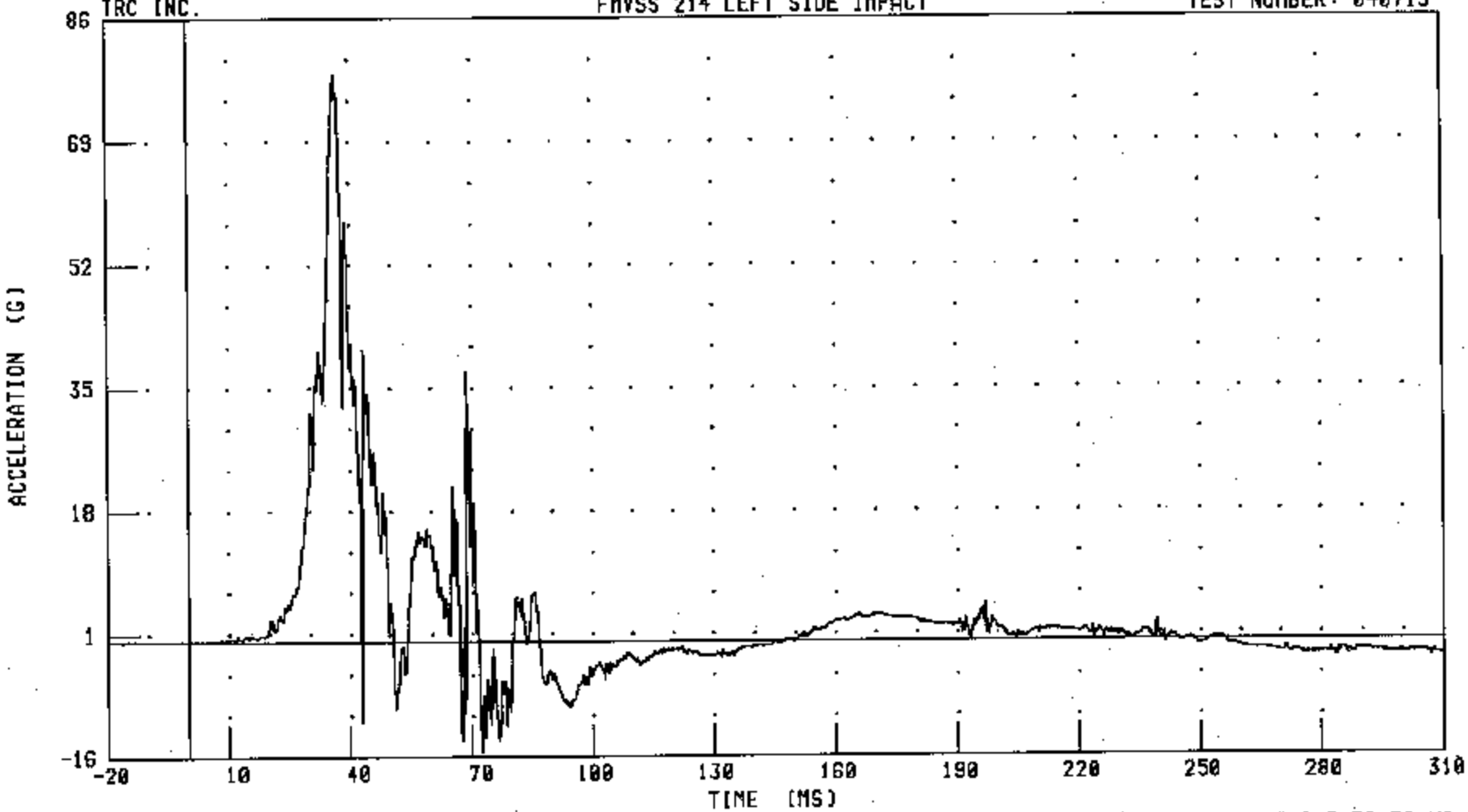
CHANNEL: LURYV1 FILTER: CH. CLASS 180 PEAK DATA: 32.61 KM/H @ 71.60 MS; 0.00 KM/H @ 0.24 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER LOWER RIB Y-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

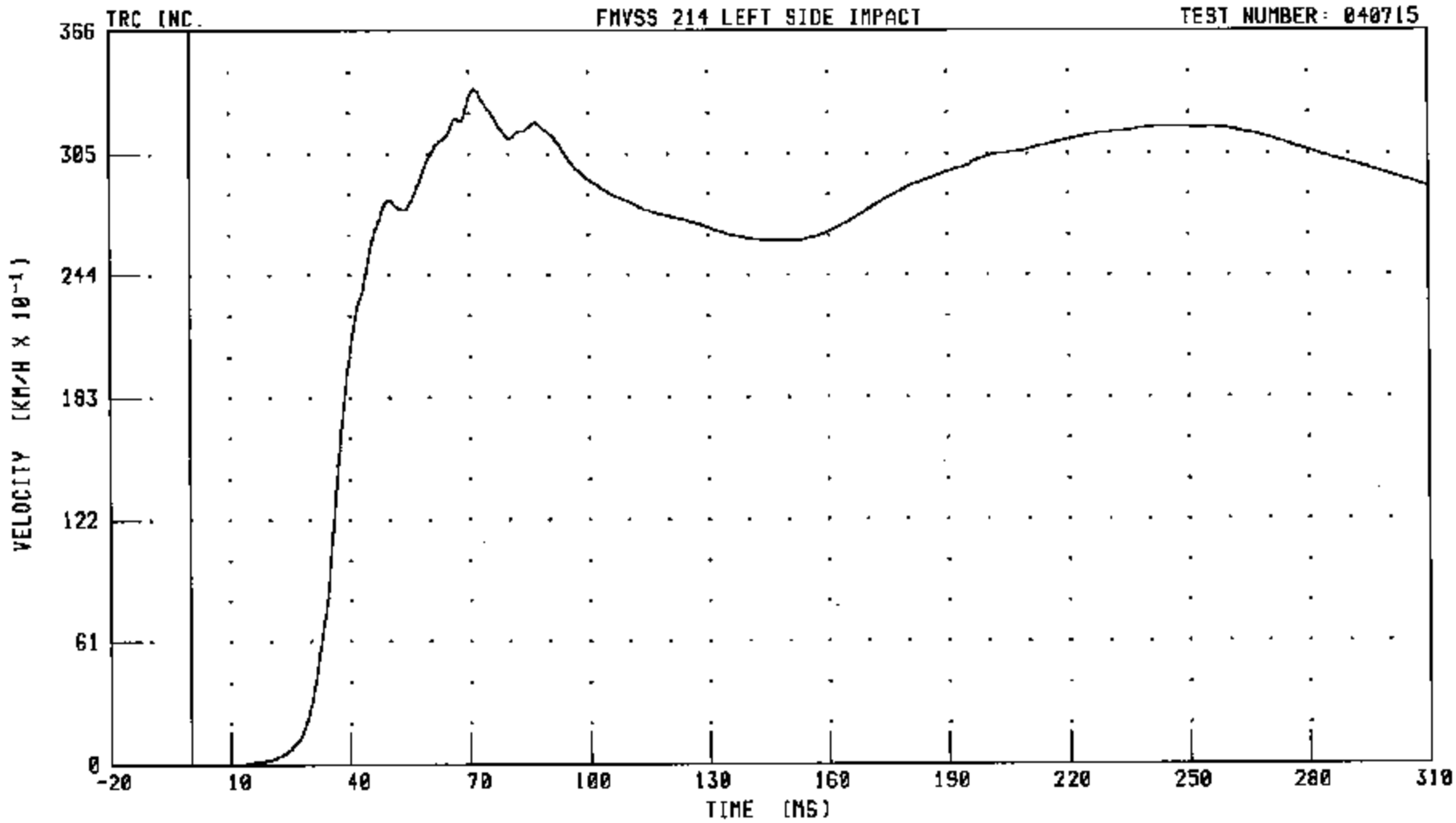


CHANNEL: LLRYG1 FILTER: CH. CLASS 1000 PEAK DATA: 78.27 G @ 36.72 MS; -15.37 G @ 72.32 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER LOWER RIB Y-AXIS VELOCITY



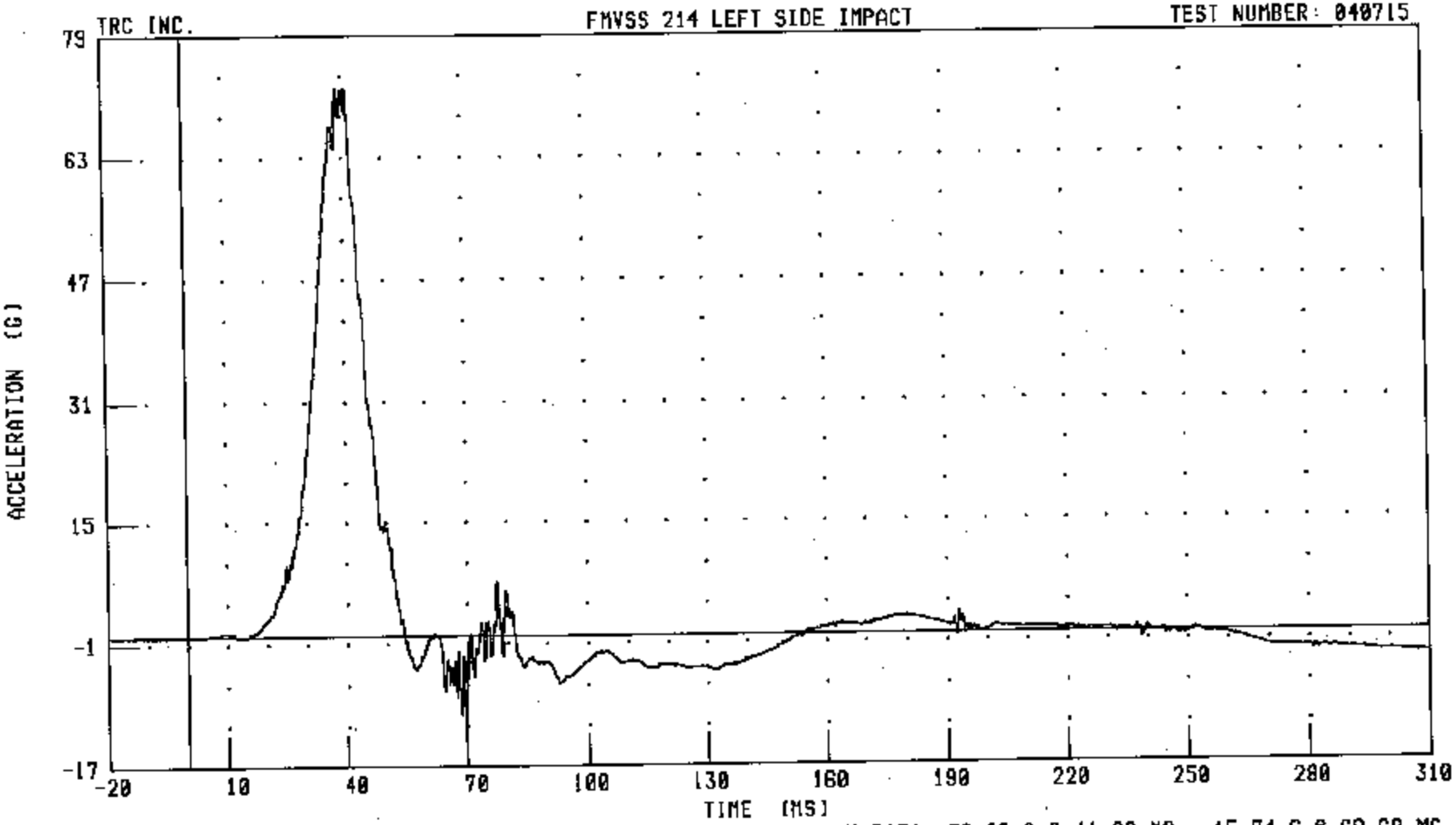
CHANNEL: LLRYV1 FILTER: CH. CLASS 180 PEAK DATA: 33.70 KM/H @ 71.60 MS, 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT



CHANNEL: T12YG1 FILTER: CH. CLASS 1000

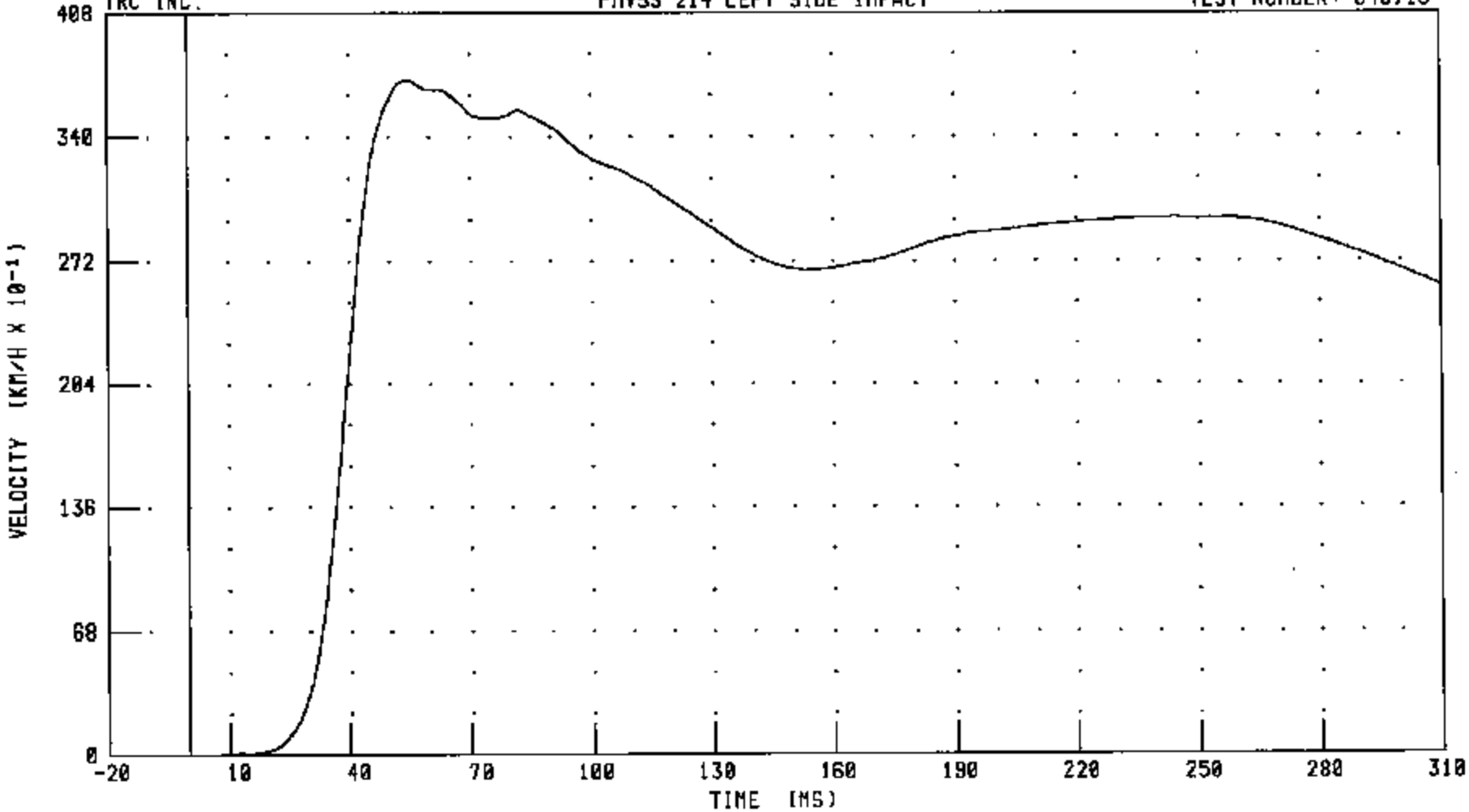
PEAK DATA: 72.08 G @ 41.28 MS, -15.74 G @ 69.68 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER LOWER SPINE Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



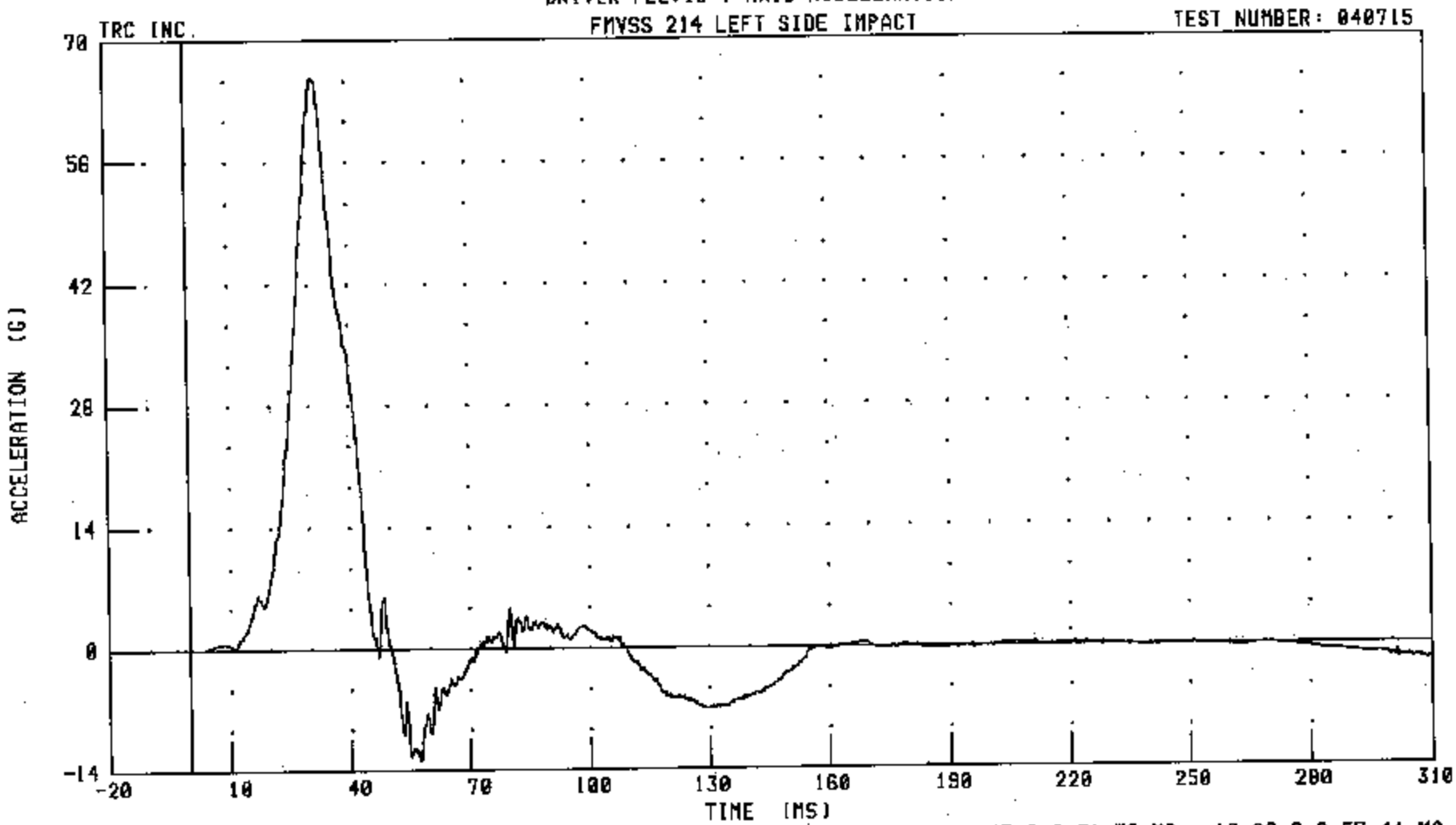
CHANNEL: T12YV1 FILTER: CH. CLASS 180 PEAK DATA: 37.09 KM/H @ 54.64 MS; 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER PELVIS Y-AXIS ACCELERATION

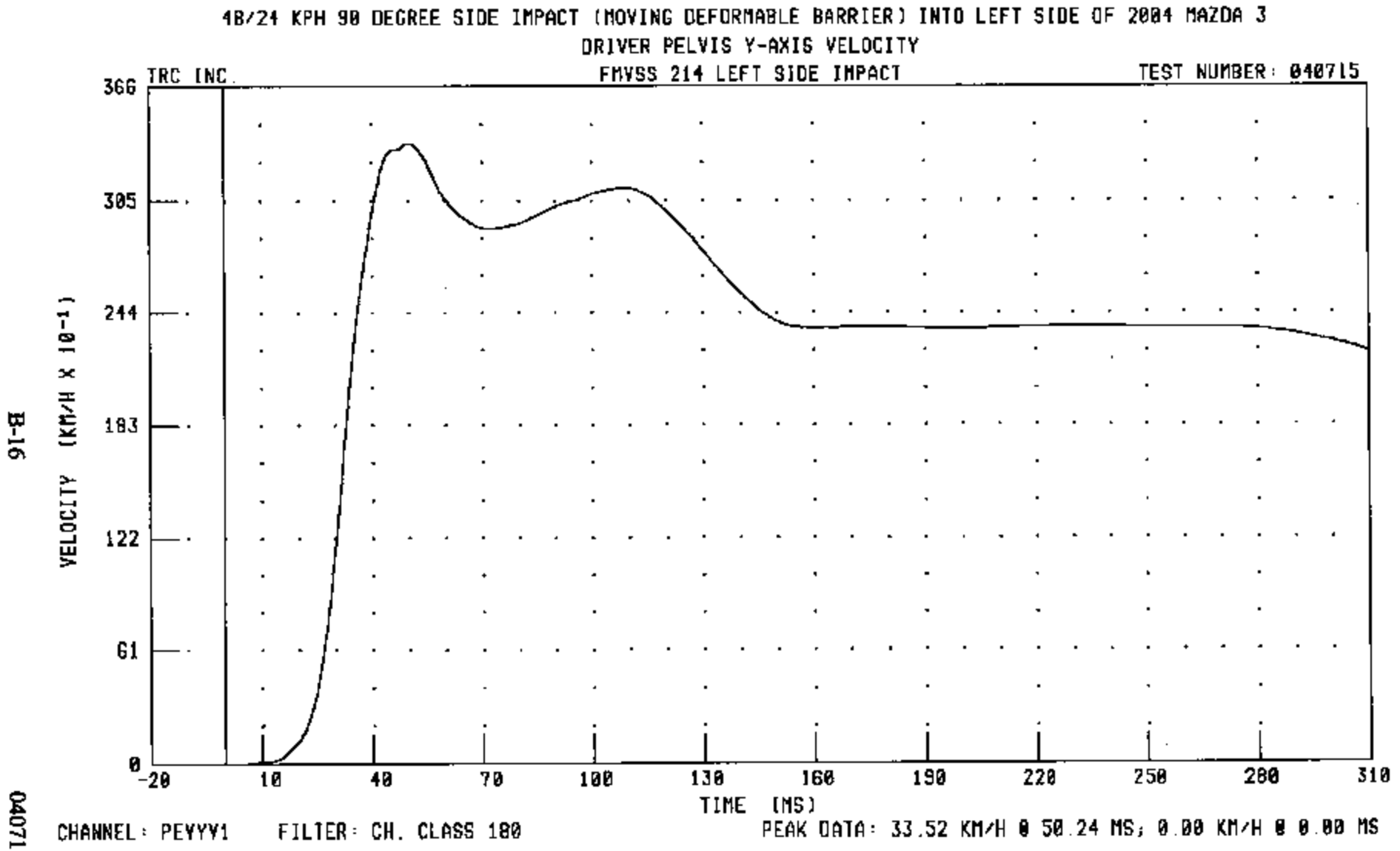
FMVSS 214 LEFT SIDE IMPACT



CHANNEL: PEYYC1 FILTER: CH. CLASS 1000

PEAK DATA: 65.67 G @ 31.52 MS; -12.99 G @ 57.44 MS

040715-1

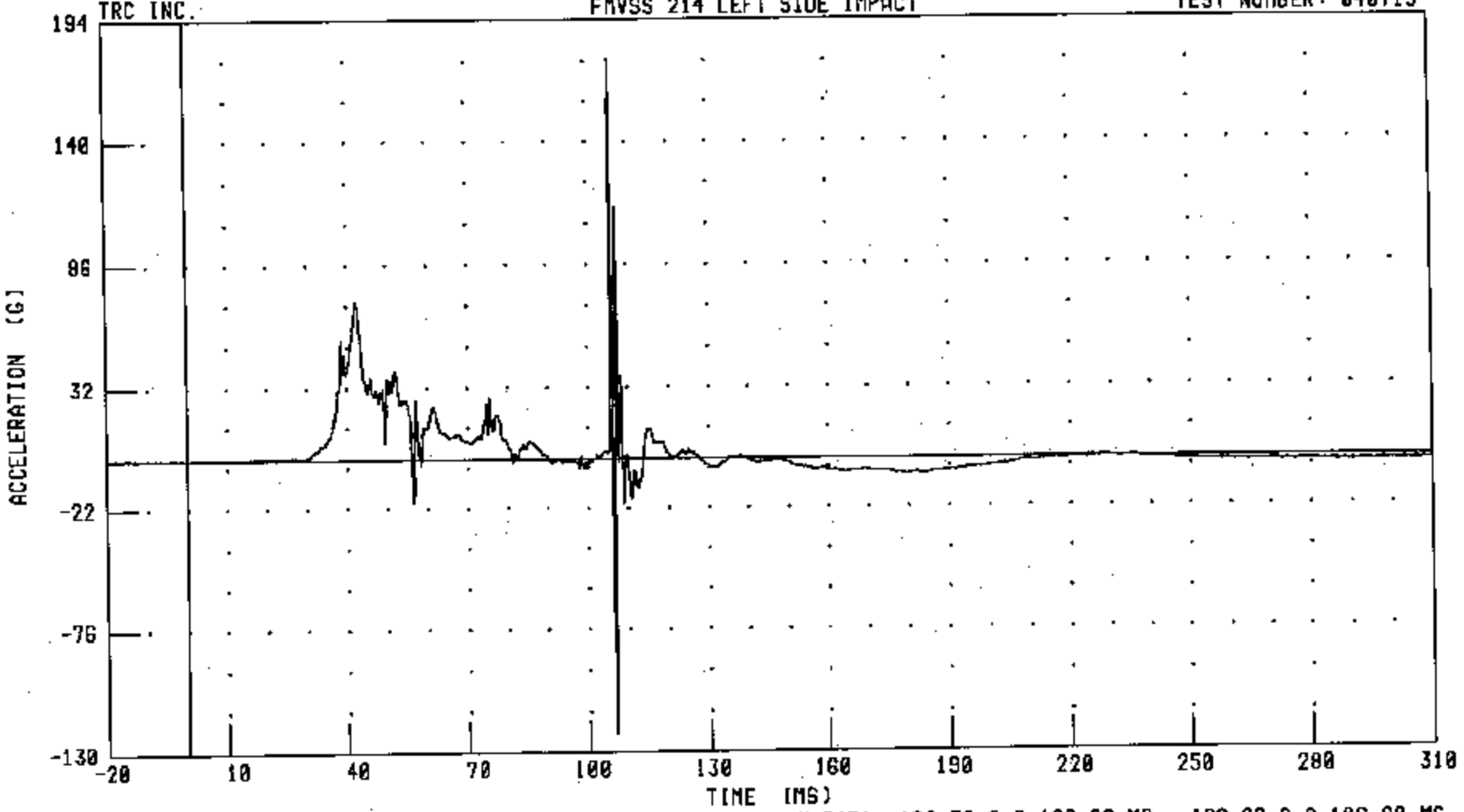

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
DRIVER PELVIS Y-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10-1)
366
305
244
183
122
61
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: PEYYV1
FILTER: CH. CLASS 180
PEAK DATA: 33.52 KM/H @ 50.24 MS; 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



CHANNEL: LURYC4 FILTER: CH. CLASS 1000

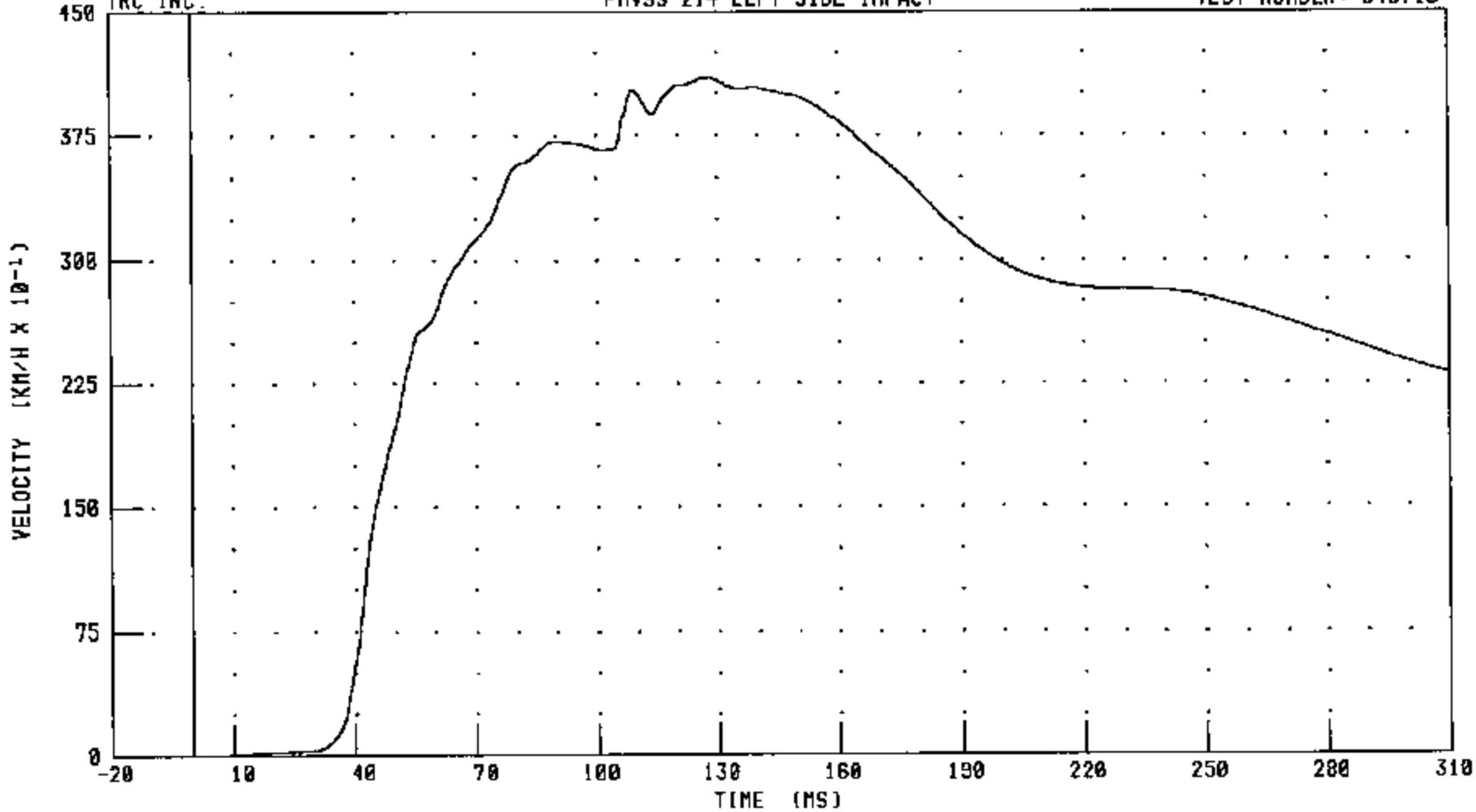
PEAK DATA: 176.79 G @ 106.08 MS; -122.02 G @ 106.80 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

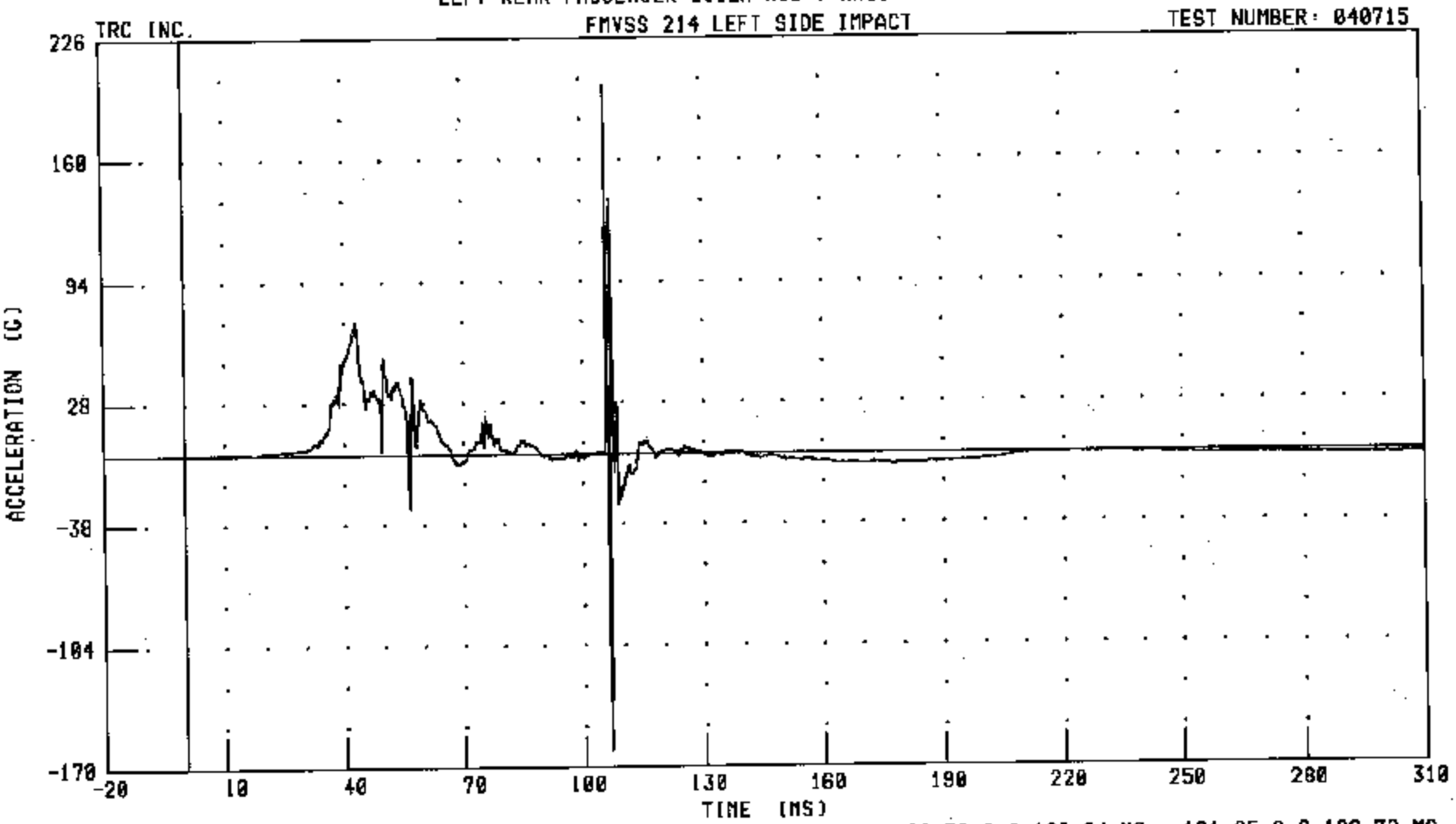


CHANNEL: LURYV4 FILTER: CH. CLASS 180 PEAK DATA: 40.98 KM/H @ 127.76 MS; 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION



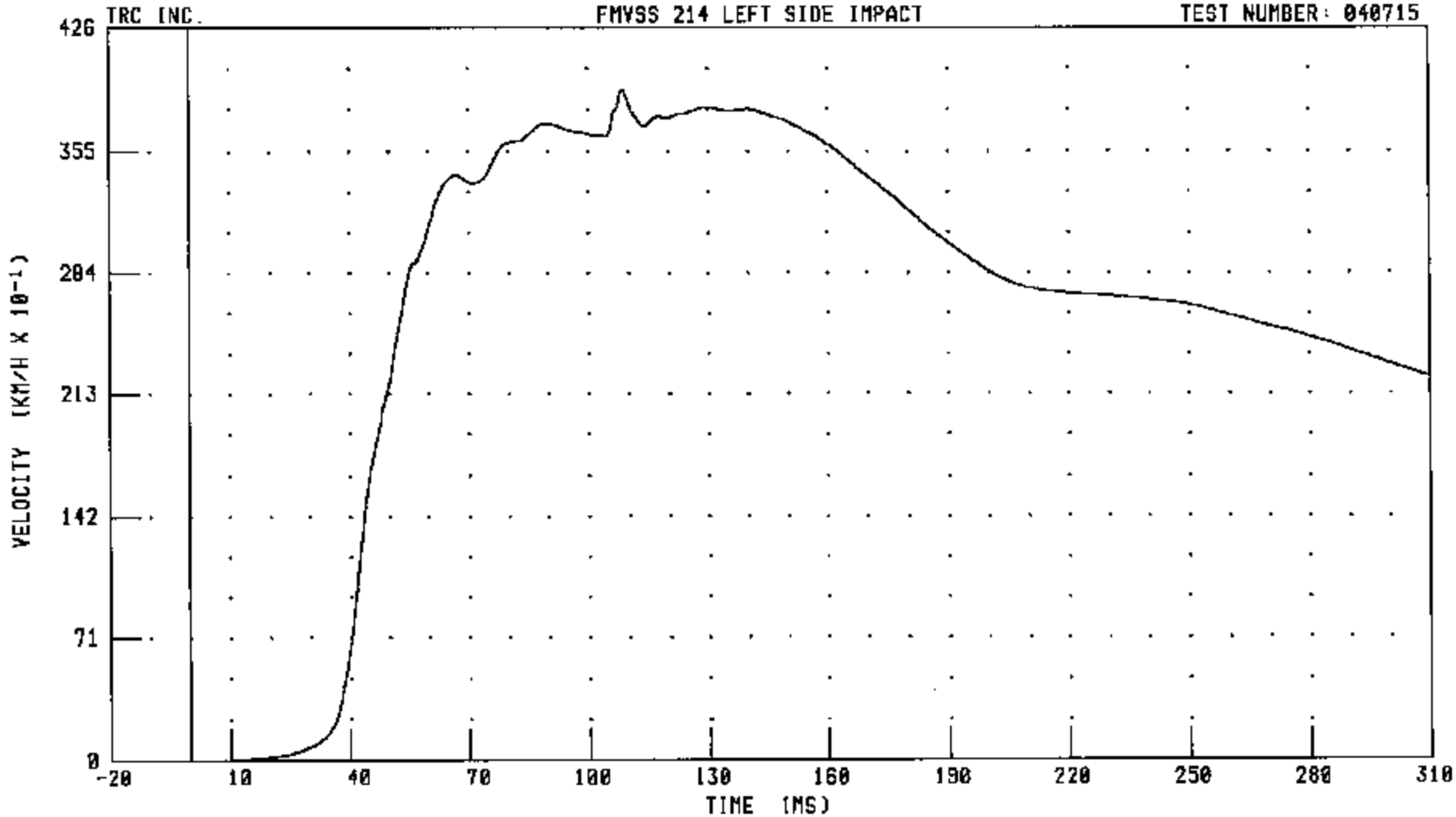
CHANNEL: LLRYG4 FILTER: CH. CLASS 1000

PEAK DATA: 200.36 G @ 106.24 MS; -161.25 G @ 106.72 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY



CHANNEL: LLRYV4 FILTER: CH. CLASS 180 PEAK DATA: 39.00 KM/H @ 108.72 MS; 0.00 KM/H @ 0.00 MS

040715-1

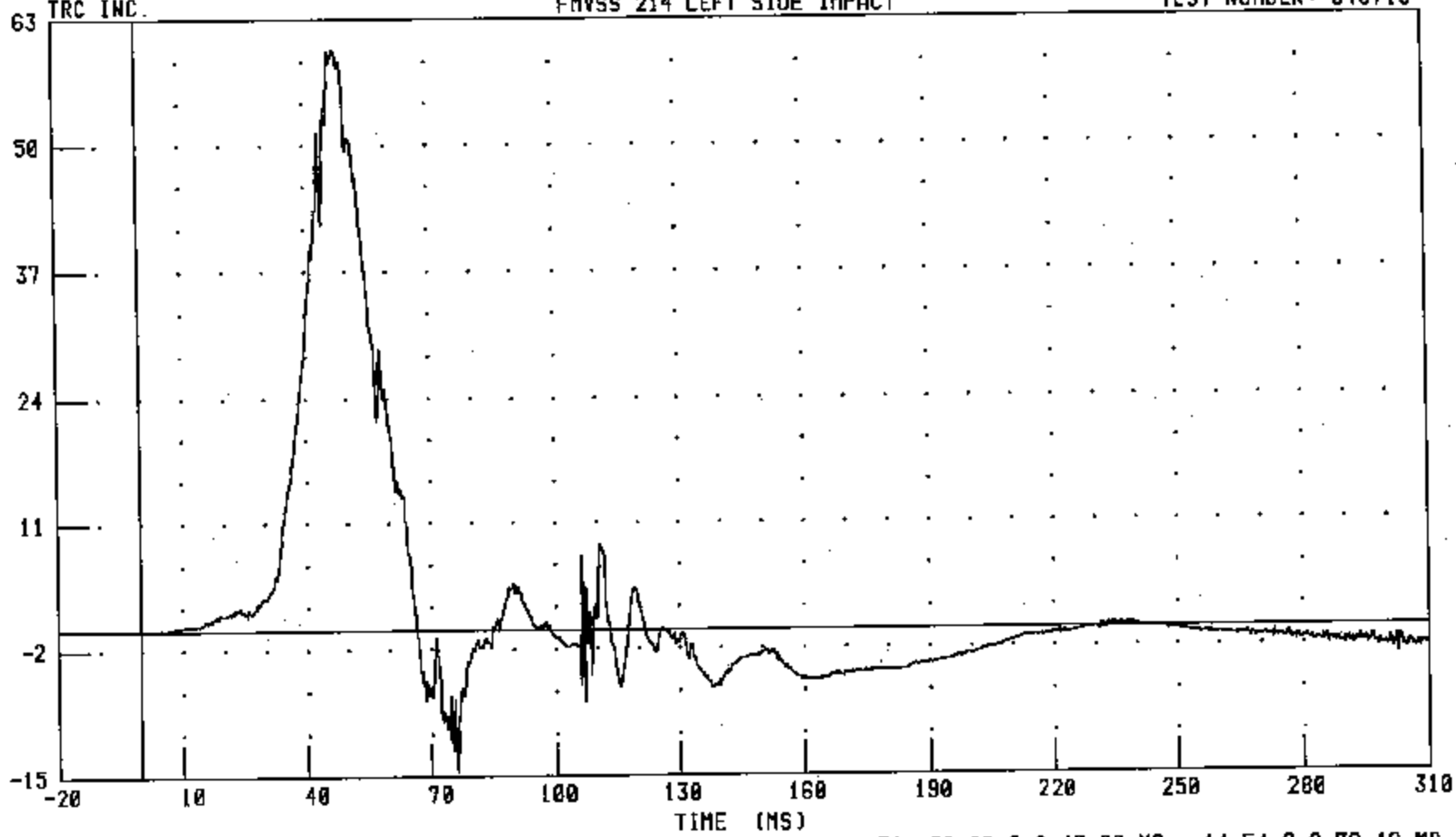
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

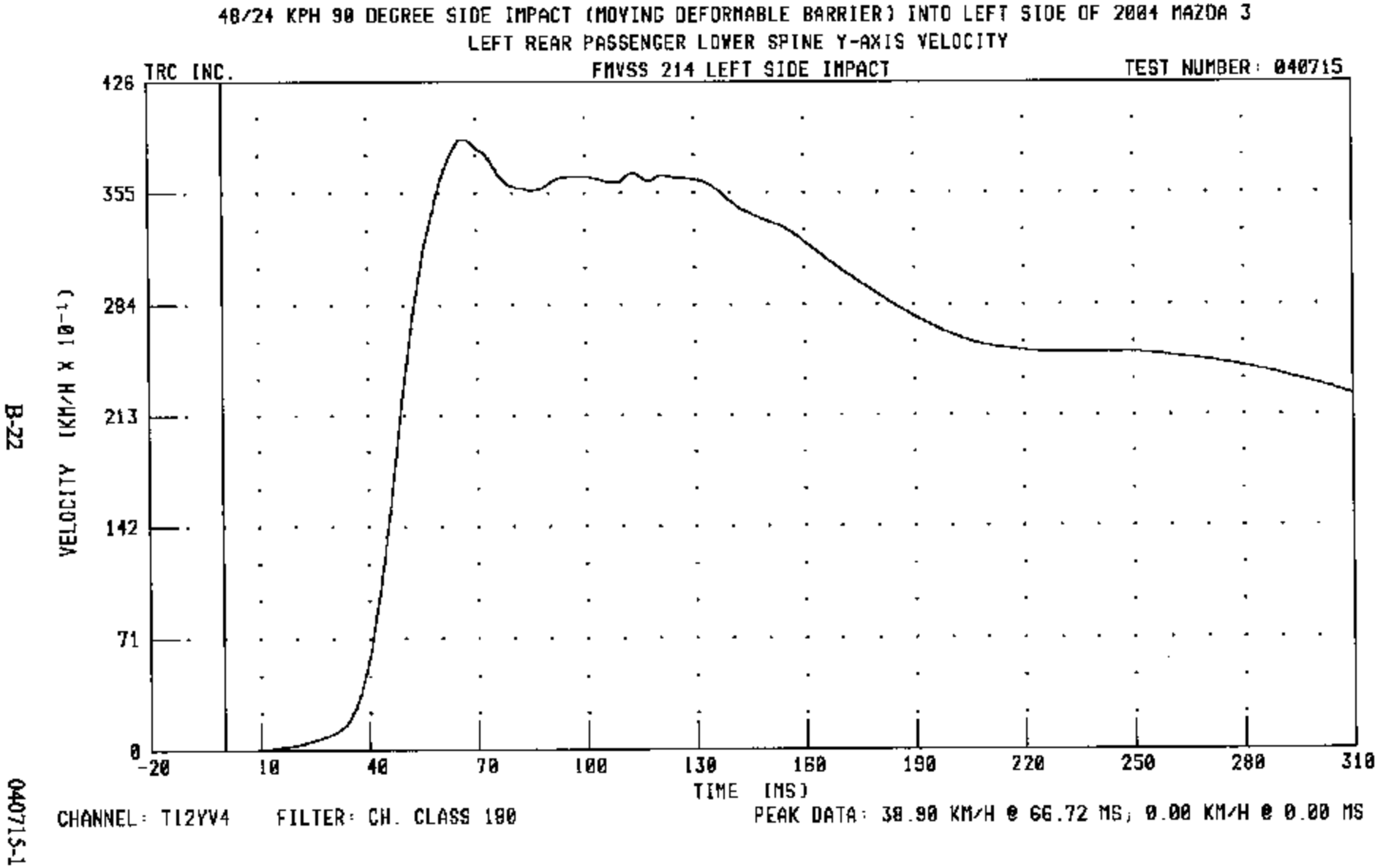
TEST NUMBER: 040715



CHANNEL: T12YG4 FILTER: CH. CLASS 1000

PEAK DATA: 59.92 G @ 47.02 MS; -14.54 G @ 76.16 MS

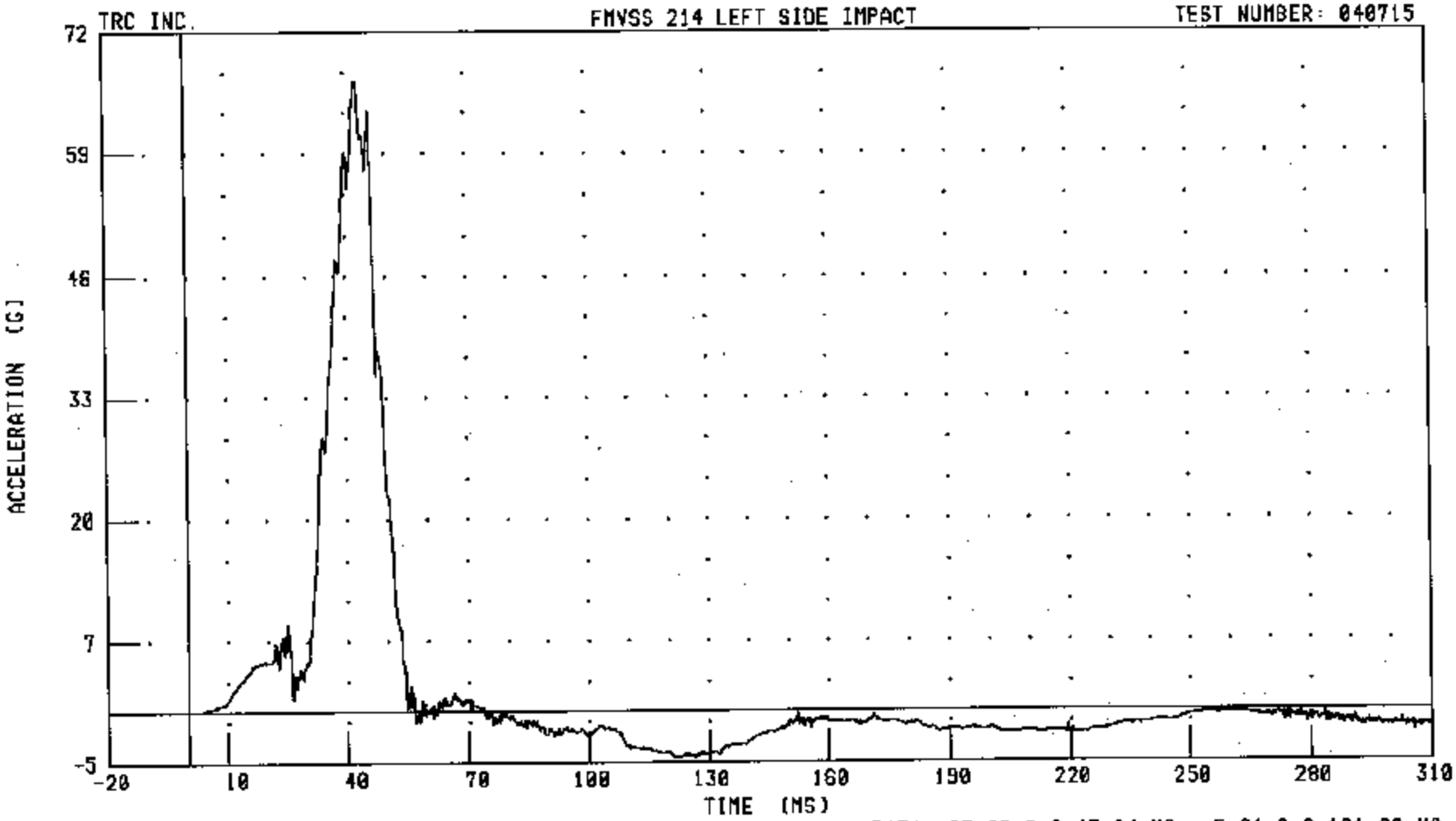
040715-1


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10⁻¹)
426
355
284
213
142
71
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: T12YV4
FILTER: CH. CLASS 180
PEAK DATA: 38.90 KM/H @ 66.72 MS; 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

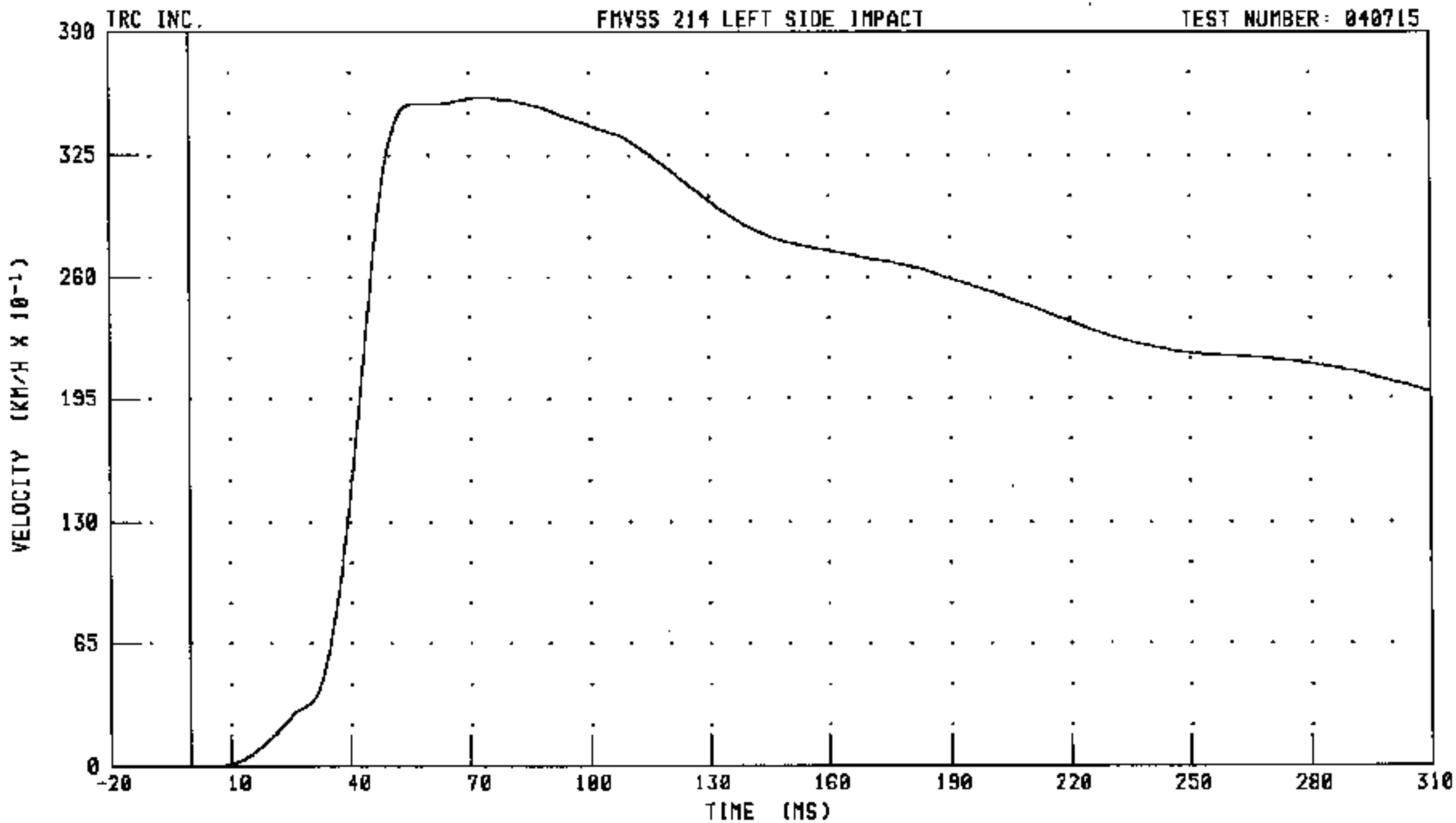


CHANNEL: PEYYG4 FILTER: CH. CLASS 1000 PEAK DATA: 67.20 G @ 43.04 MS, -5.01 G @ 121.92 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY



CHANNEL: PEVYV4 FILTER: CH. CLASS 180 PEAK DATA: 35.50 KM/H @ 73.68 MS; 0.00 KM/H @ 0.00 MS

040715-1

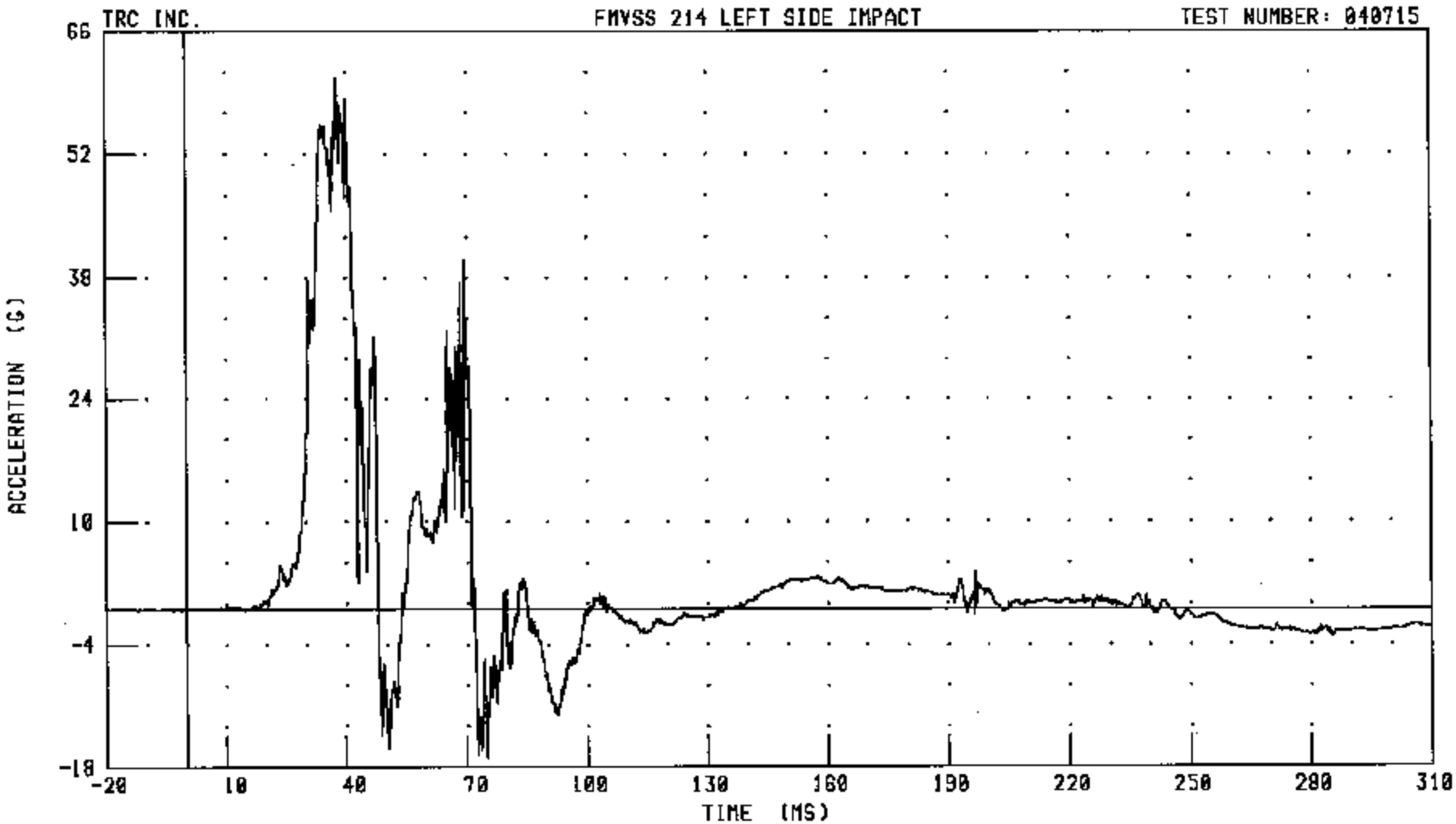
Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

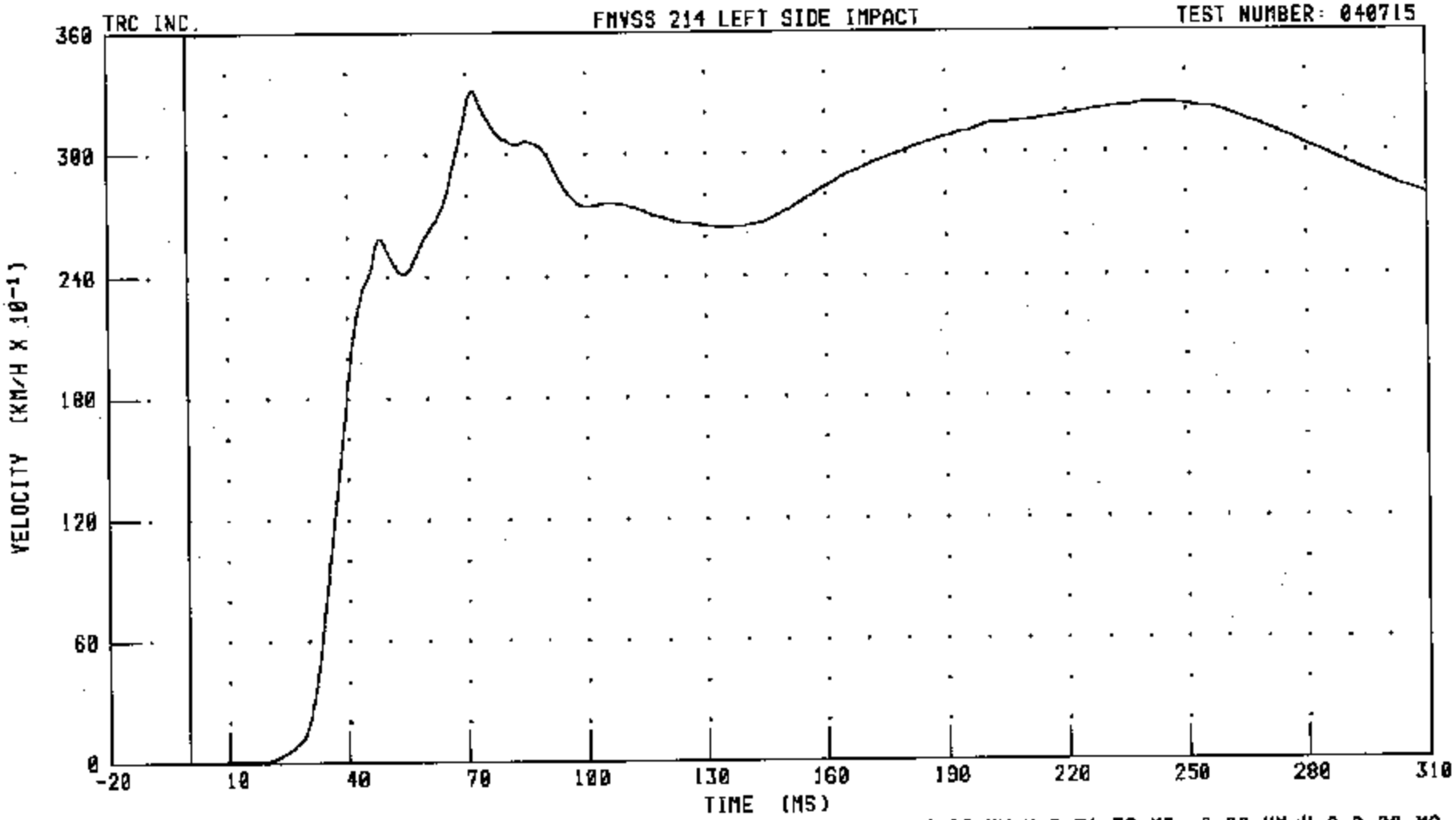
DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT



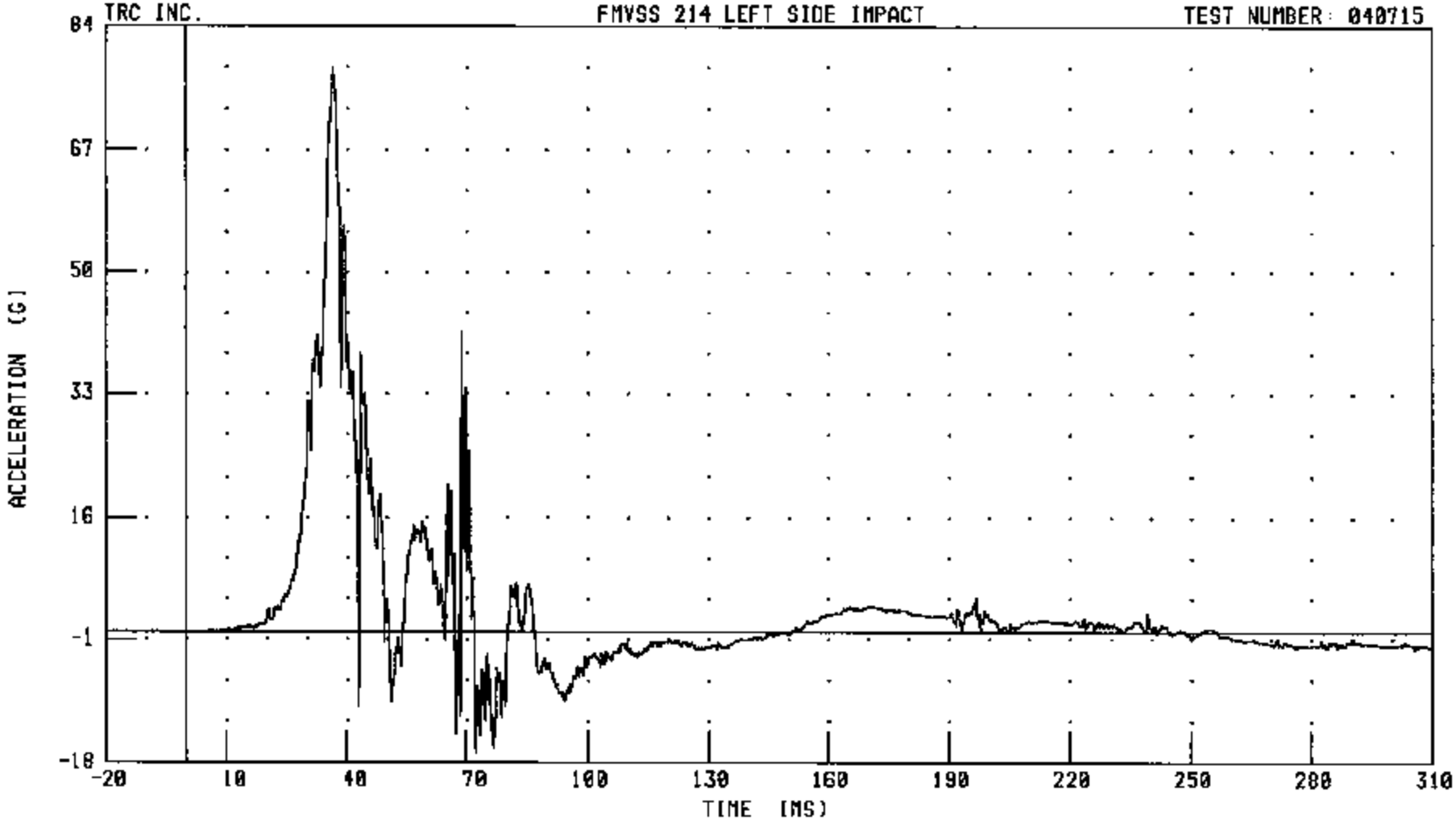
CHANNEL: LURYVI FILTER: CH. CLASS 180

PEAK DATA: 33.08 KM/H @ 71.76 MS, 0.00 KM/H @ 0.96 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION



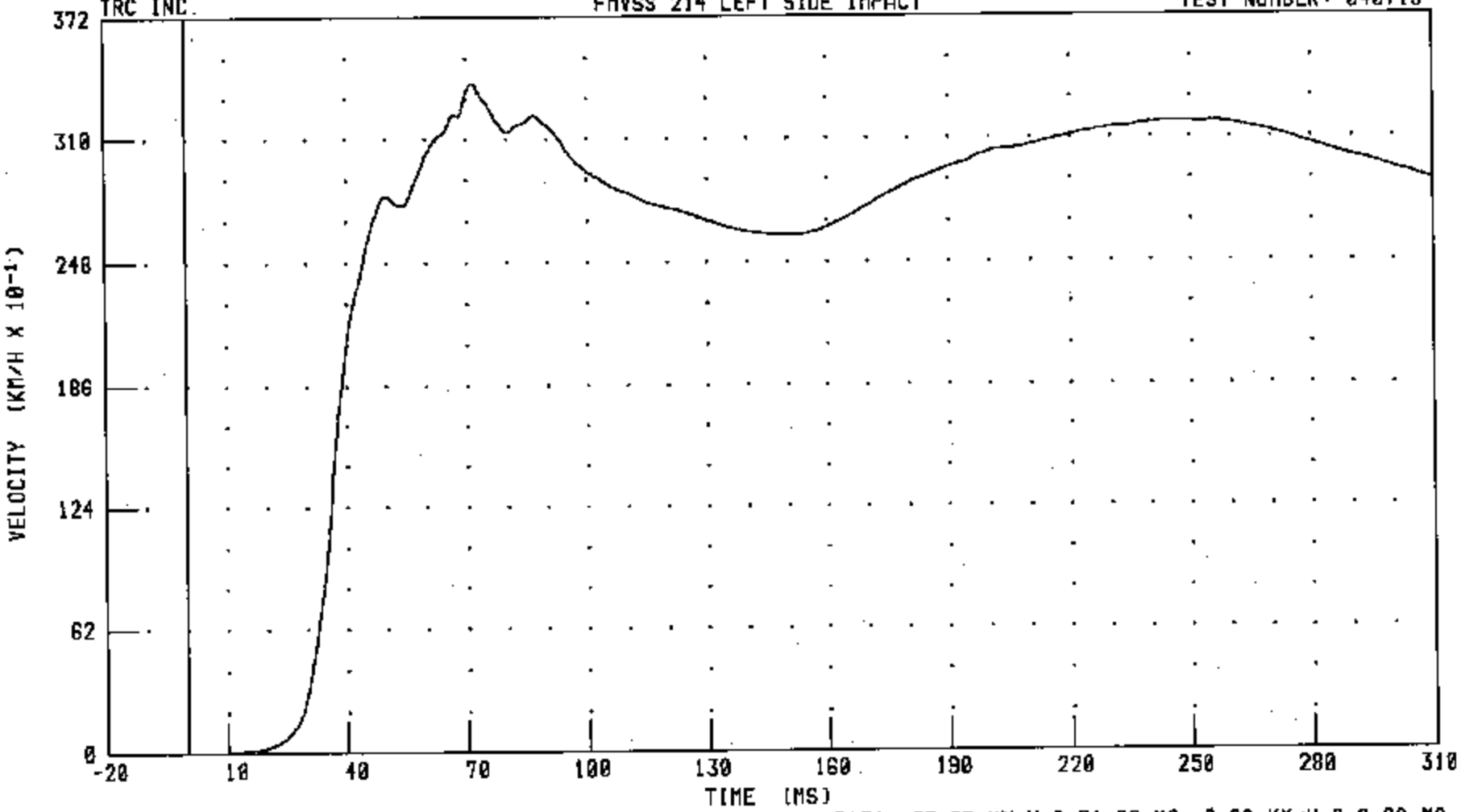
CHANNEL: LLRYR1 FILTER: CH. CLASS 1000 PEAK DATA: 78.24 G @ 36.64 MS, -16.72 G @ 72.32 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



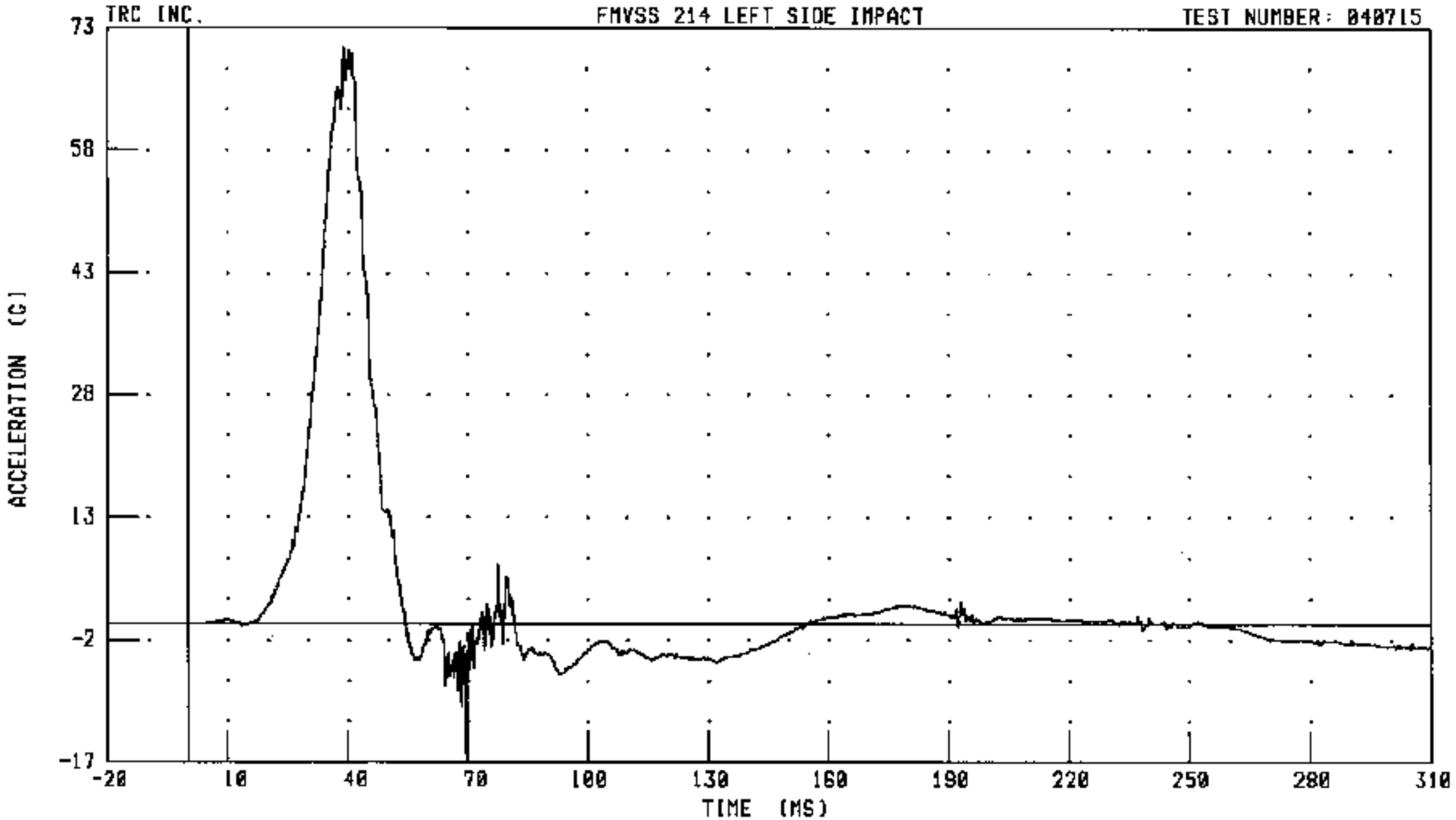
CHANNEL: LLRYVI FILTER: CH. CLASS 180

PEAK DATA: 33.87 KM/H @ 71.68 MS, 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

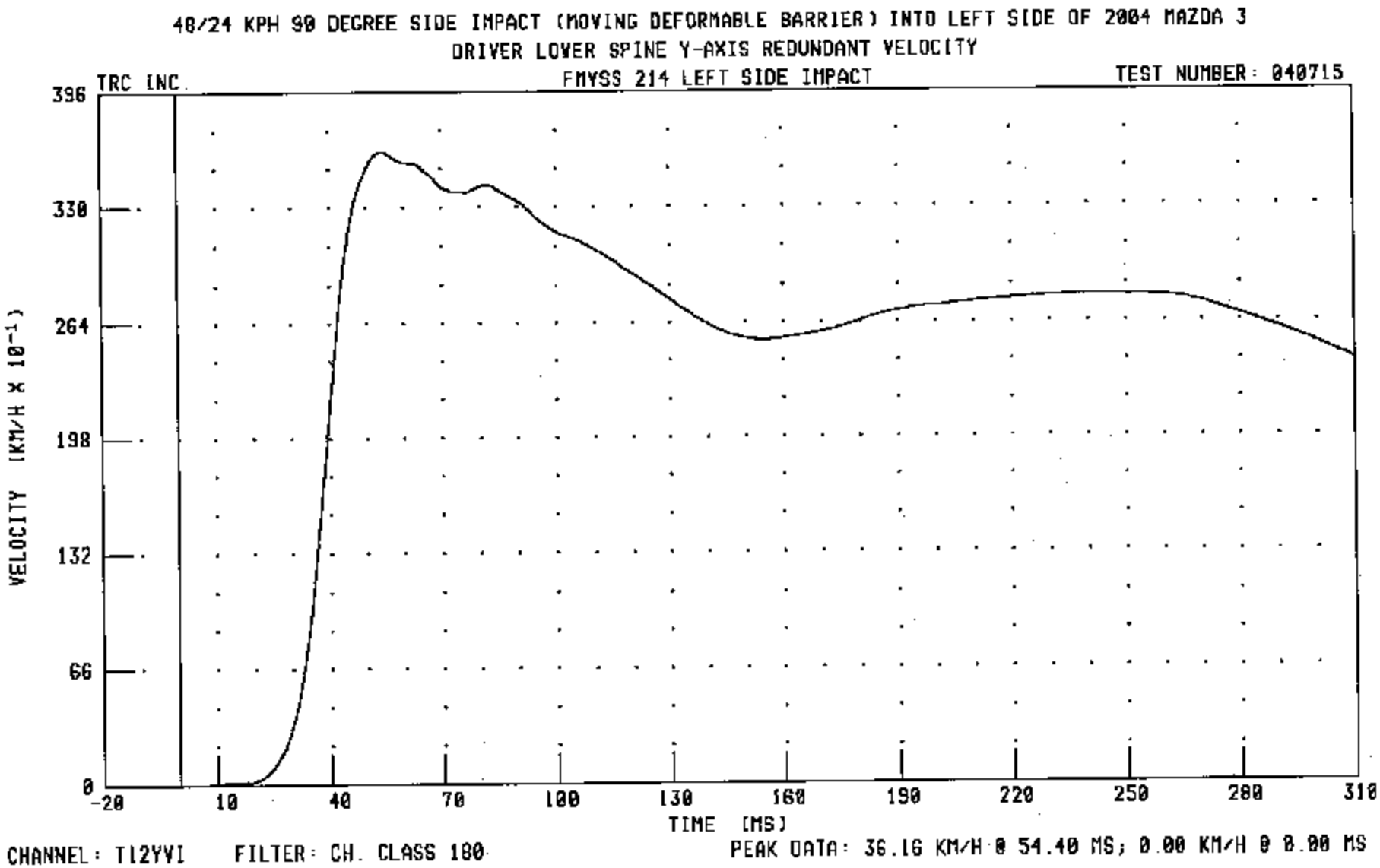
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION



CHANNEL: T12YR1 FILTER: CH. CLASS 1000 PEAK DATA: 70.65 G @ 38.96 MS, -15.90 G @ 69.68 MS

B-30

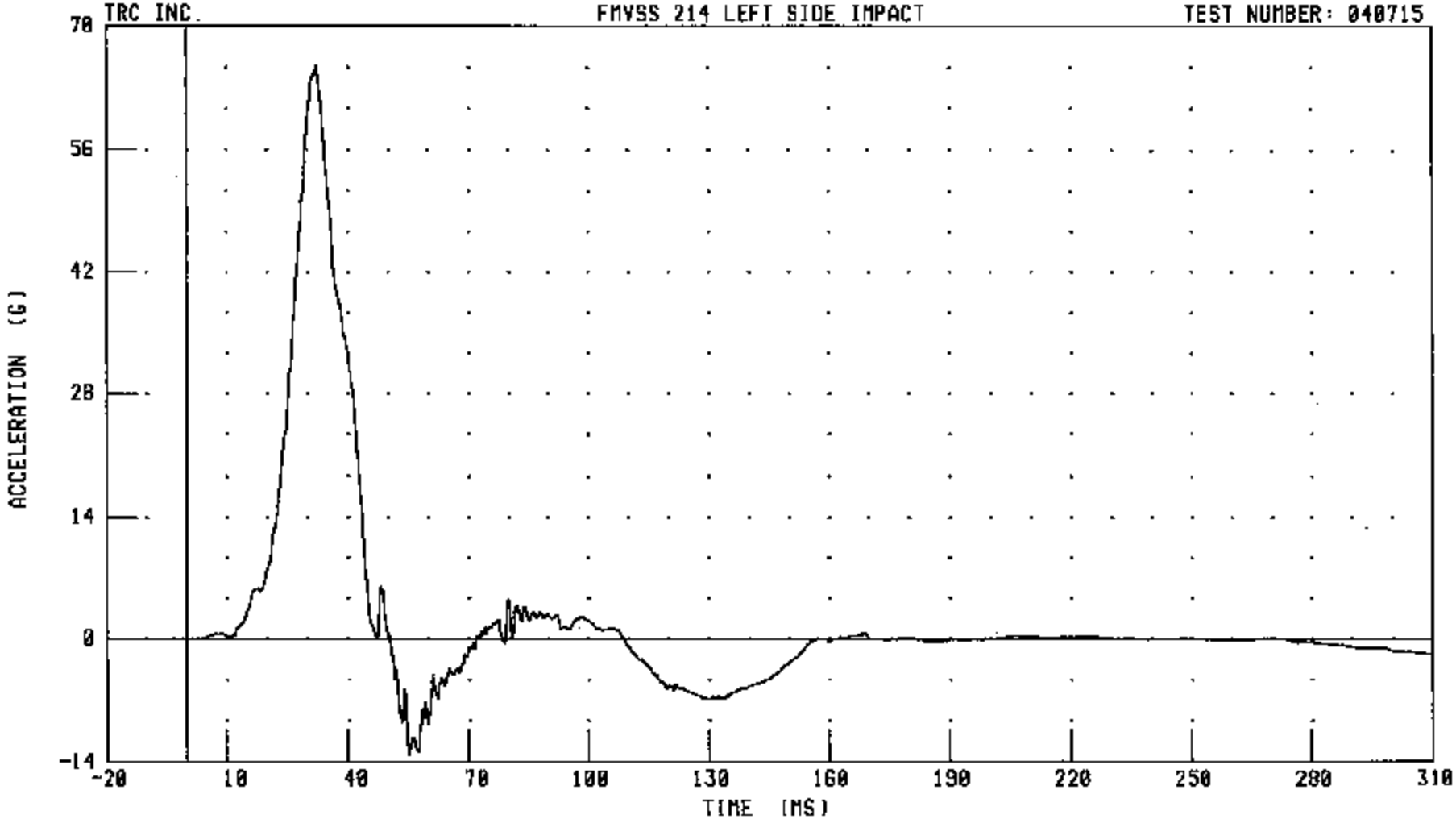
040715-1


40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10⁻¹)
396
330
264
198
132
66
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: T12YYI
FILTER: CH. CLASS 180
PEAK DATA: 36.16 KM/H @ 54.40 MS; 0.00 KM/H @ 0.00 MS

040715-1

40/24 XPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION



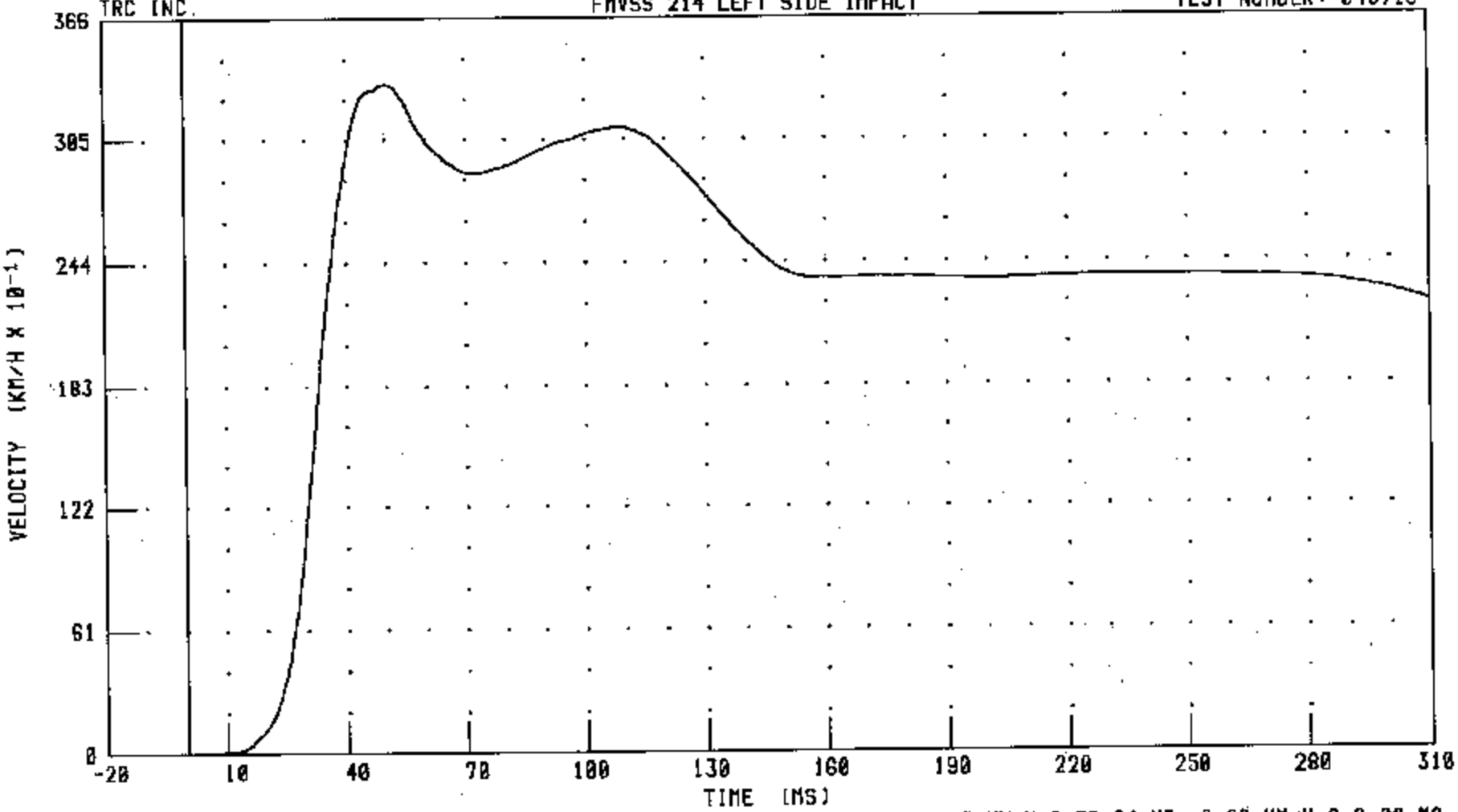
CHANNEL: PEVYR1 FILTER: CH. CLASS 1000 PEAK DATA: 65.53 G @ 32.48 MS; -13.30 G @ 55.12 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY

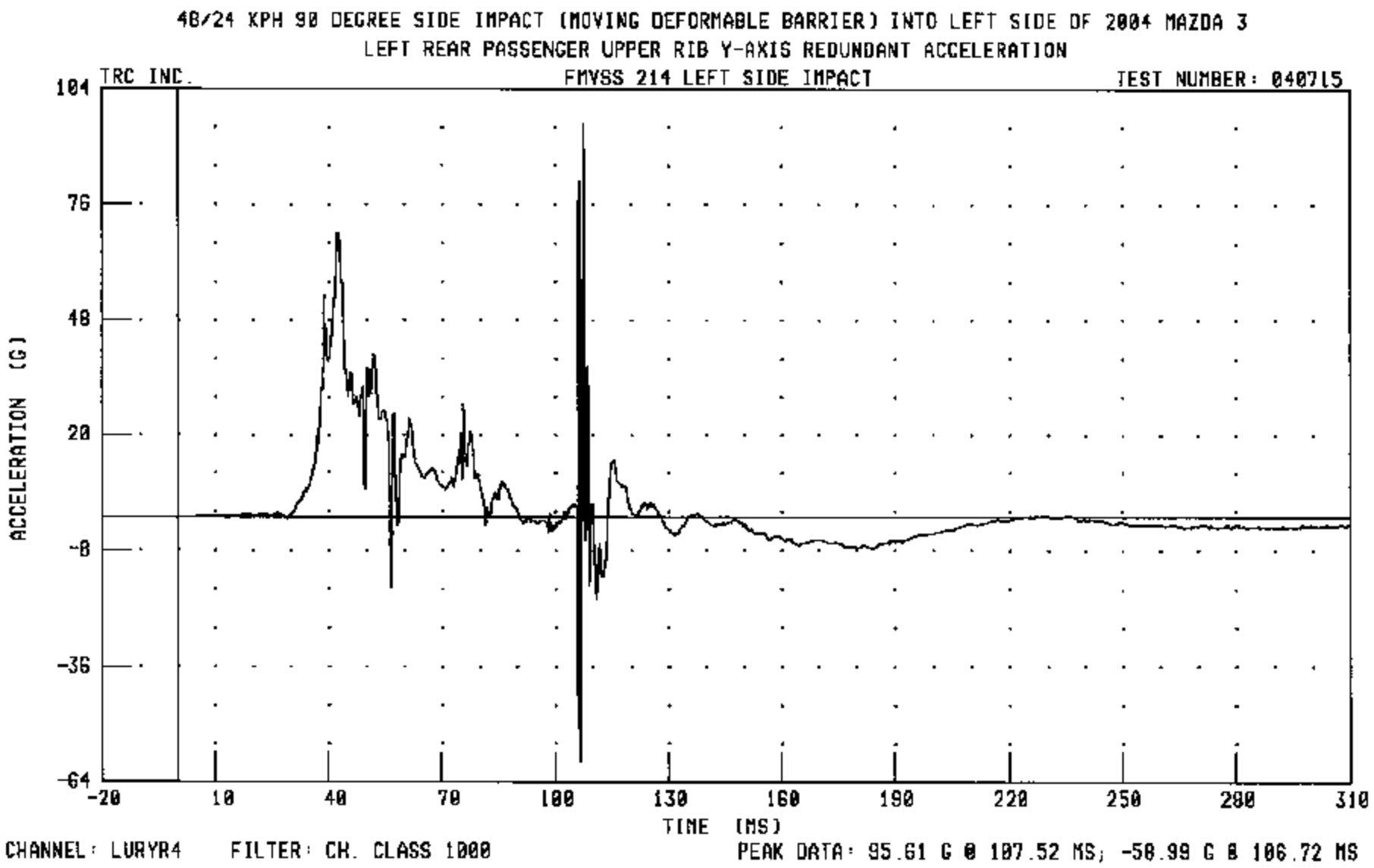
TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



CHANNEL: PEVYVI FILTER: CH. CLASS 180

PEAK DATA: 33.33 KM/H @ 50.24 MS; 0.00 KM/H @ 0.00 MS

040715-1

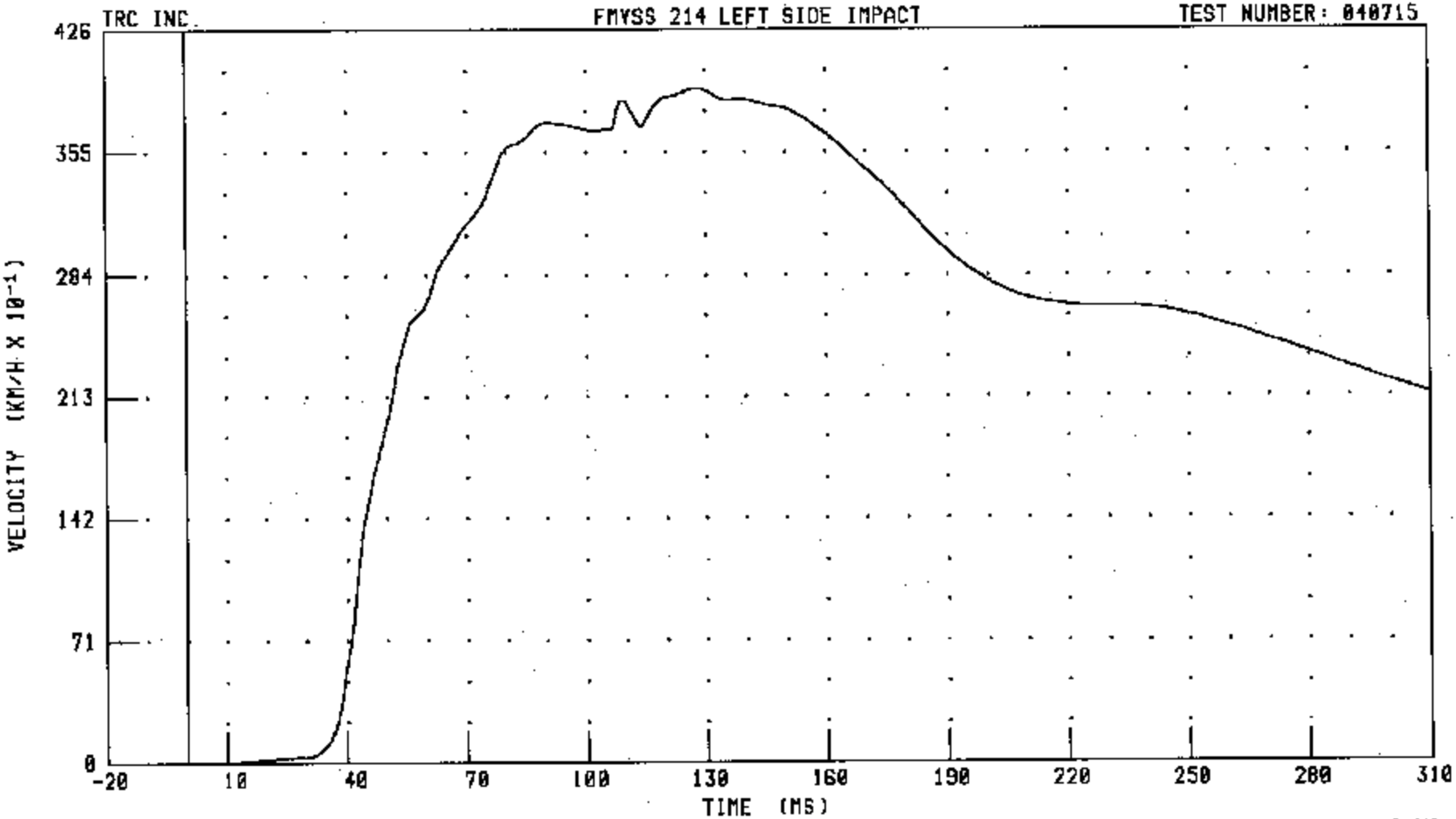

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
104
76
48
20
-8
-36
-64
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LURYR4
FILTER: CH. CLASS 1000
PEAK DATA: 95.61 G @ 107.52 MS; -58.99 G @ 106.72 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

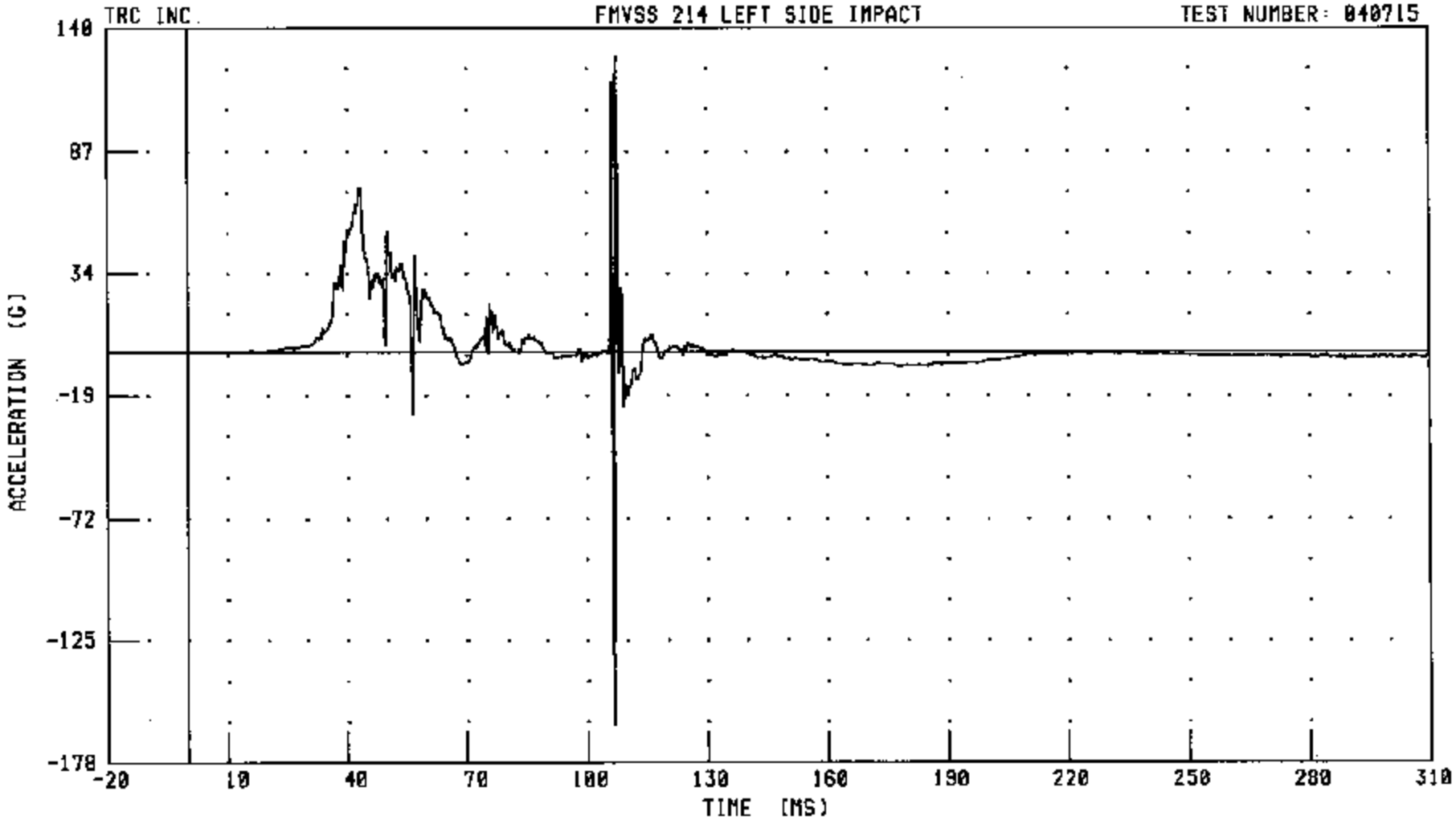


CHANNEL: LURYVJ FILTER: CH. CLASS 180 PEAK DATA: 39.21 KM/H @ 127.92 MS; 0.00 KM/H @ 0.00 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

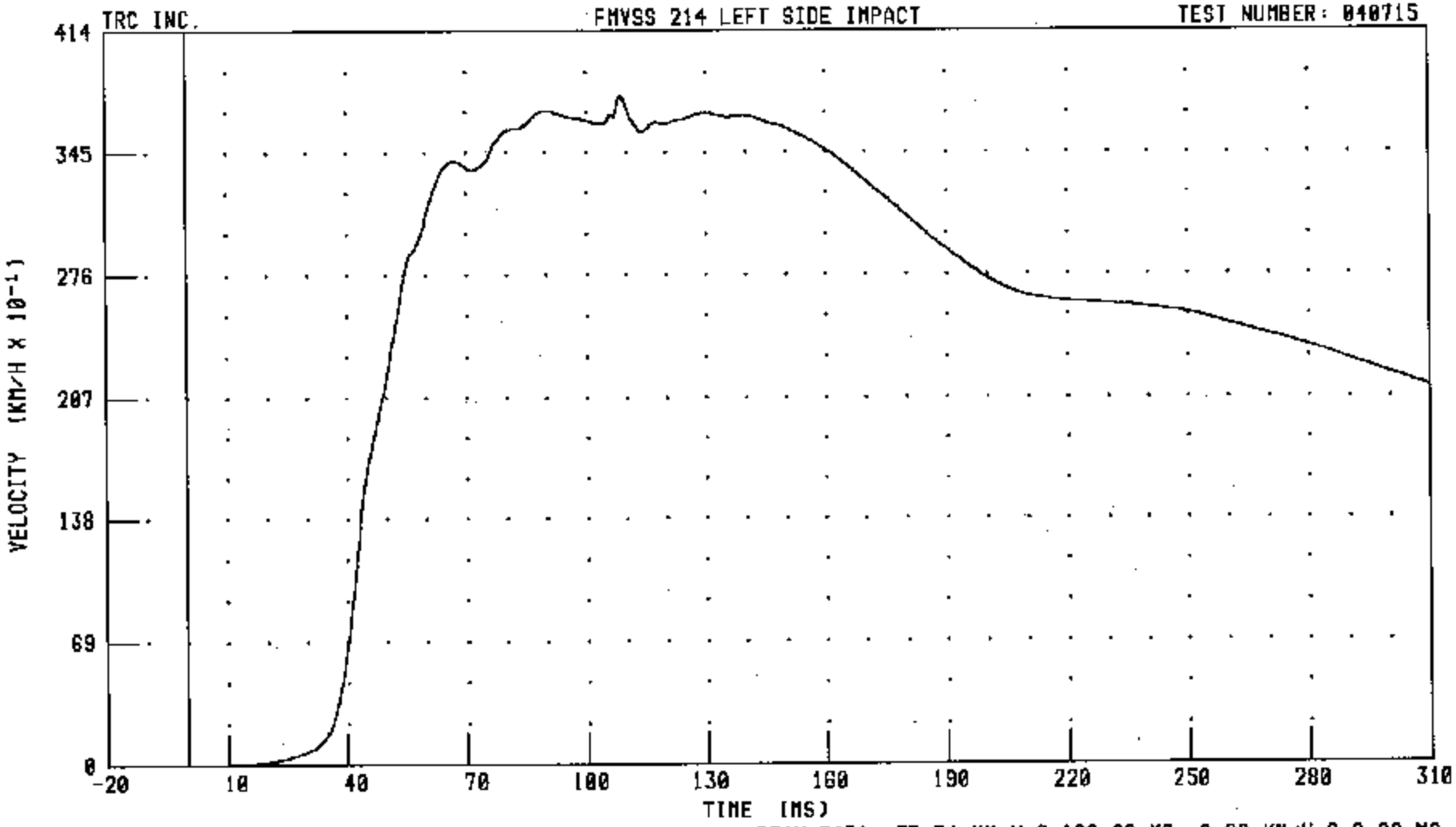


CHANNEL: LLRYR4 FILTER: CH. CLASS 1000 PEAK DATA: 127.74 G @ 107.36 MS; -161.47 G @ 106.72 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY



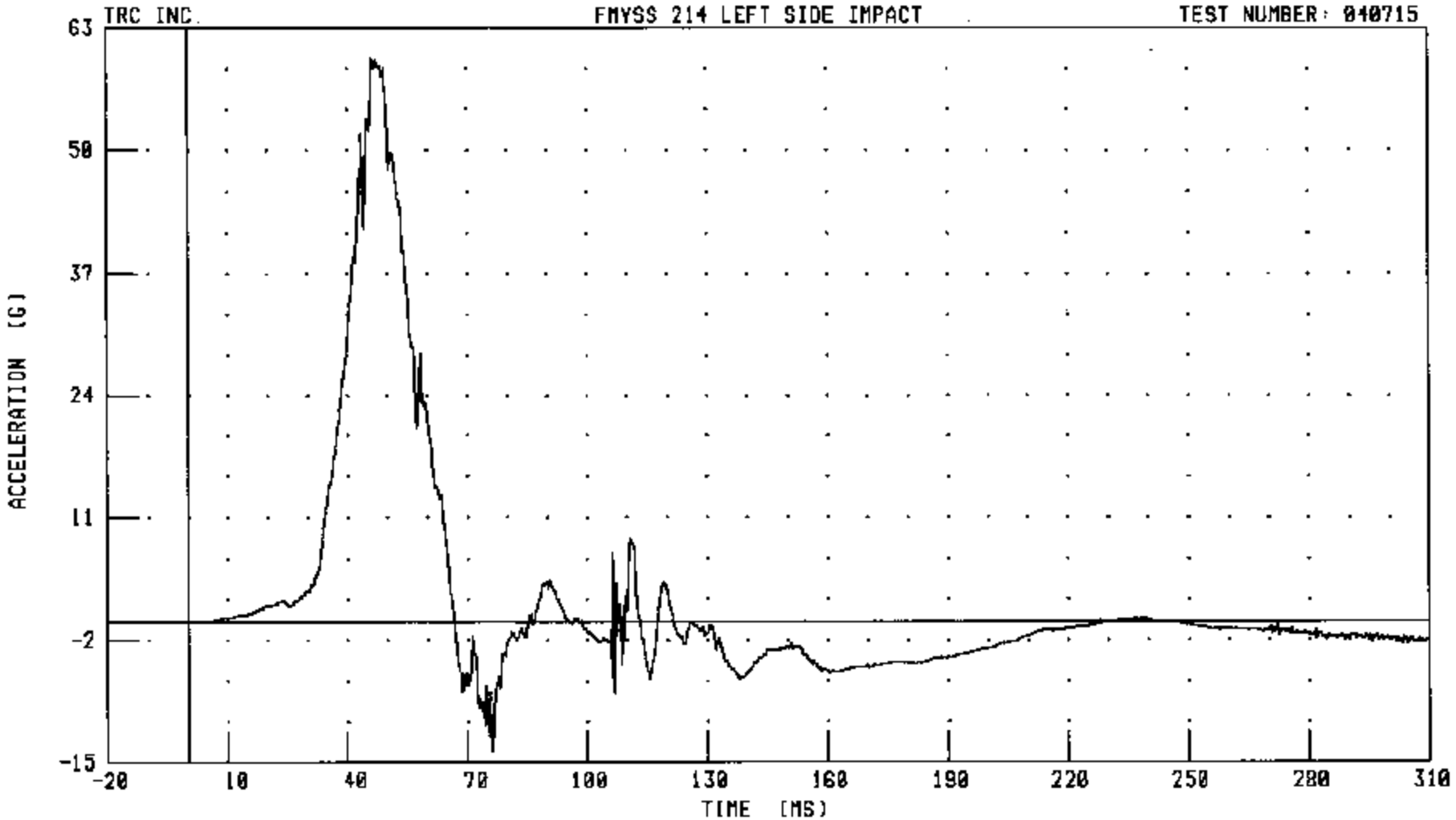
CHANNEL: LLRYVJ FILTER: CH. CLASS 180

PEAK DATA: 37.74 KM/H @ 108.80 MS; 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

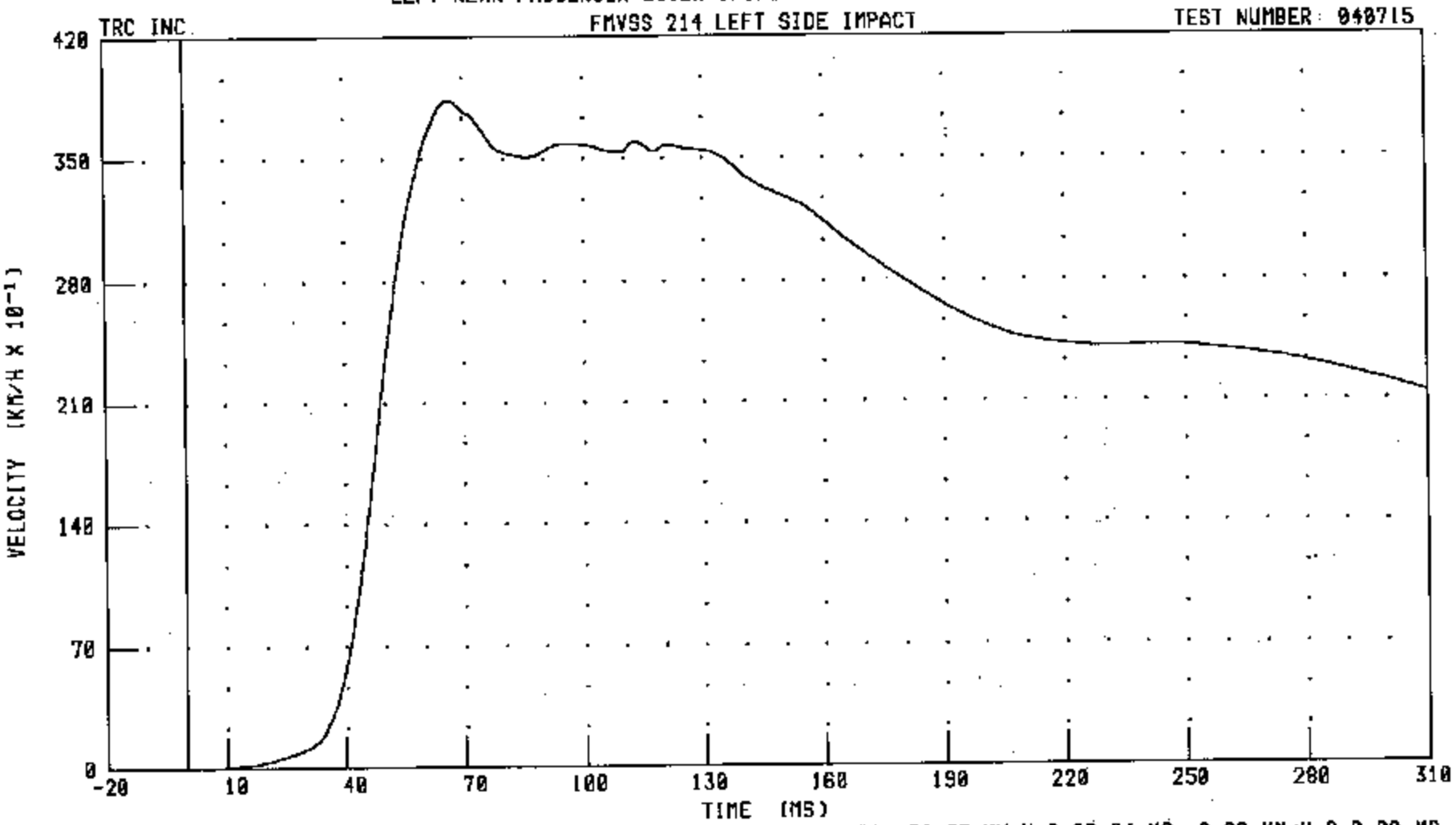


CHANNEL: T12YR4 FILTER: CH. CLASS 1000 PEAK DATA: 59.72 G @ 47.52 MS; -13.79 G @ 76.24 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY



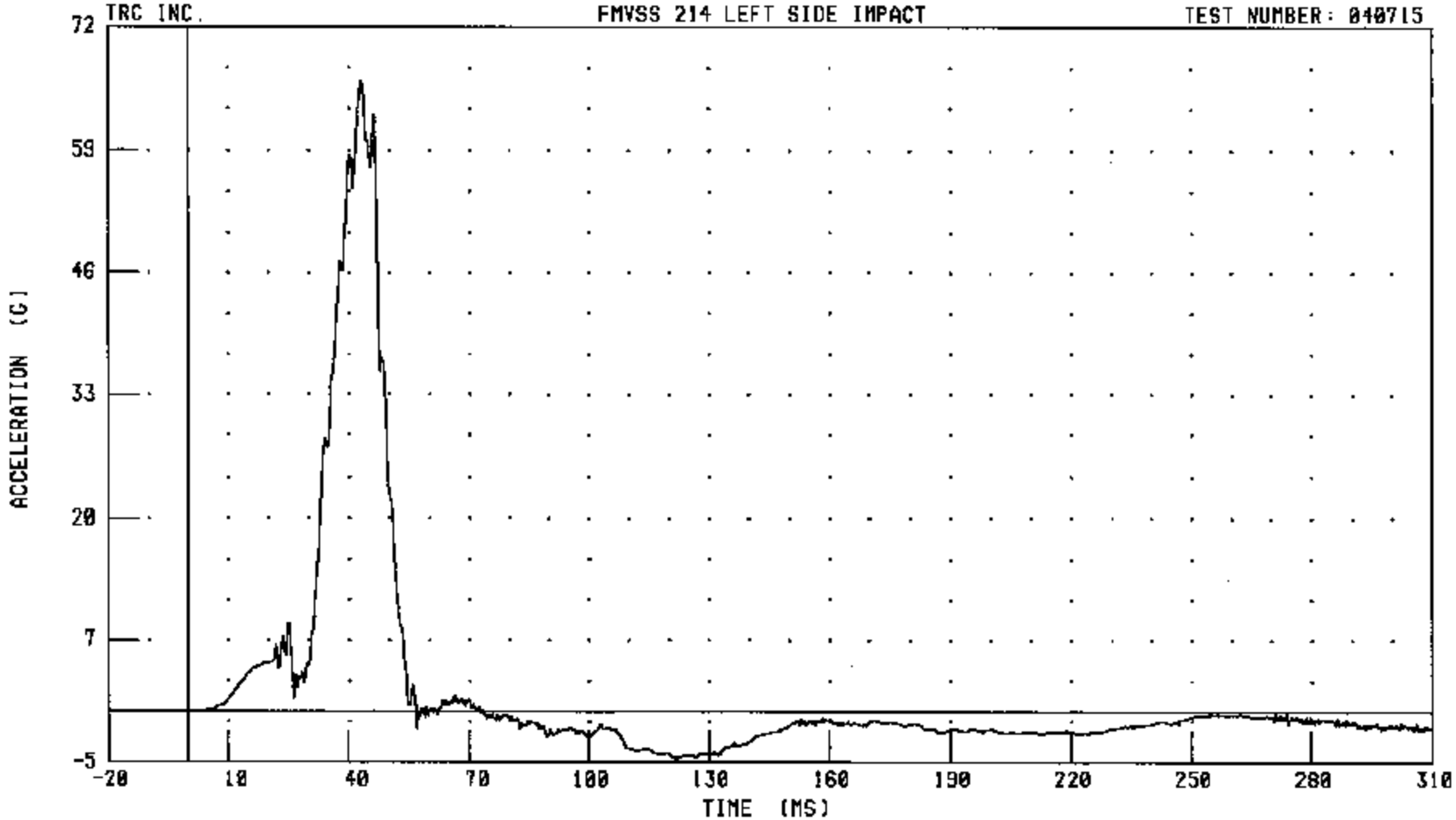
CHANNEL: T12YYJ FILTER: CH. CLASS 180

PEAK DATA: 38.37 KM/H @ 66.64 MS; 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION



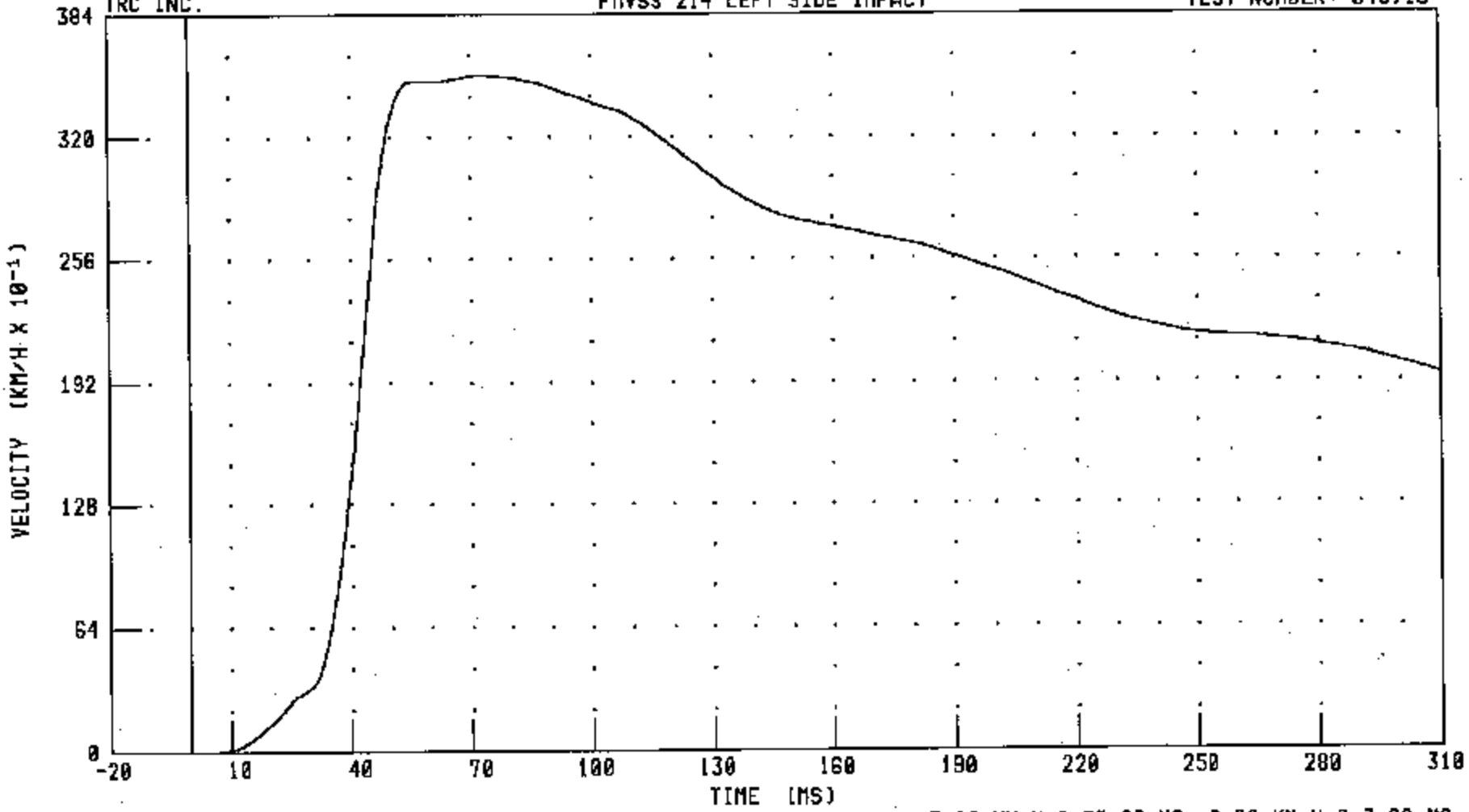
CHANNEL: PEVYR4 FILTER: CH. CLASS 1000 PEAK DATA: 66.78 G @ 43.12 MS; -4.95 G @ 122.16 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



CHANNEL: PEVYYJ FILTER: CH. CLASS 180

PEAK DATA: 35.26 KM/H @ 72.96 MS; 0.00 KM/H @ 3.20 MS

040715-1

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

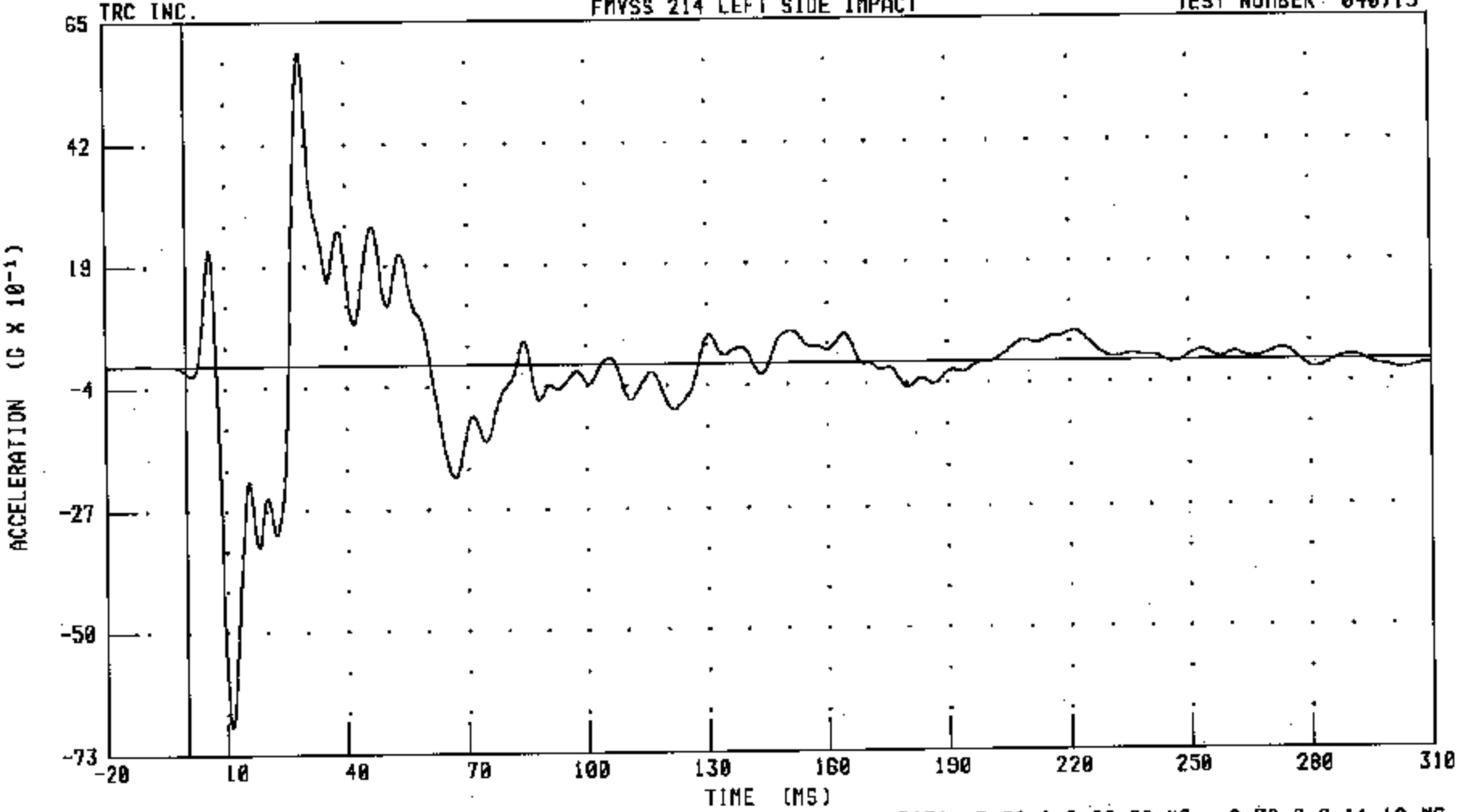
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

TEST NUMBER: 040715



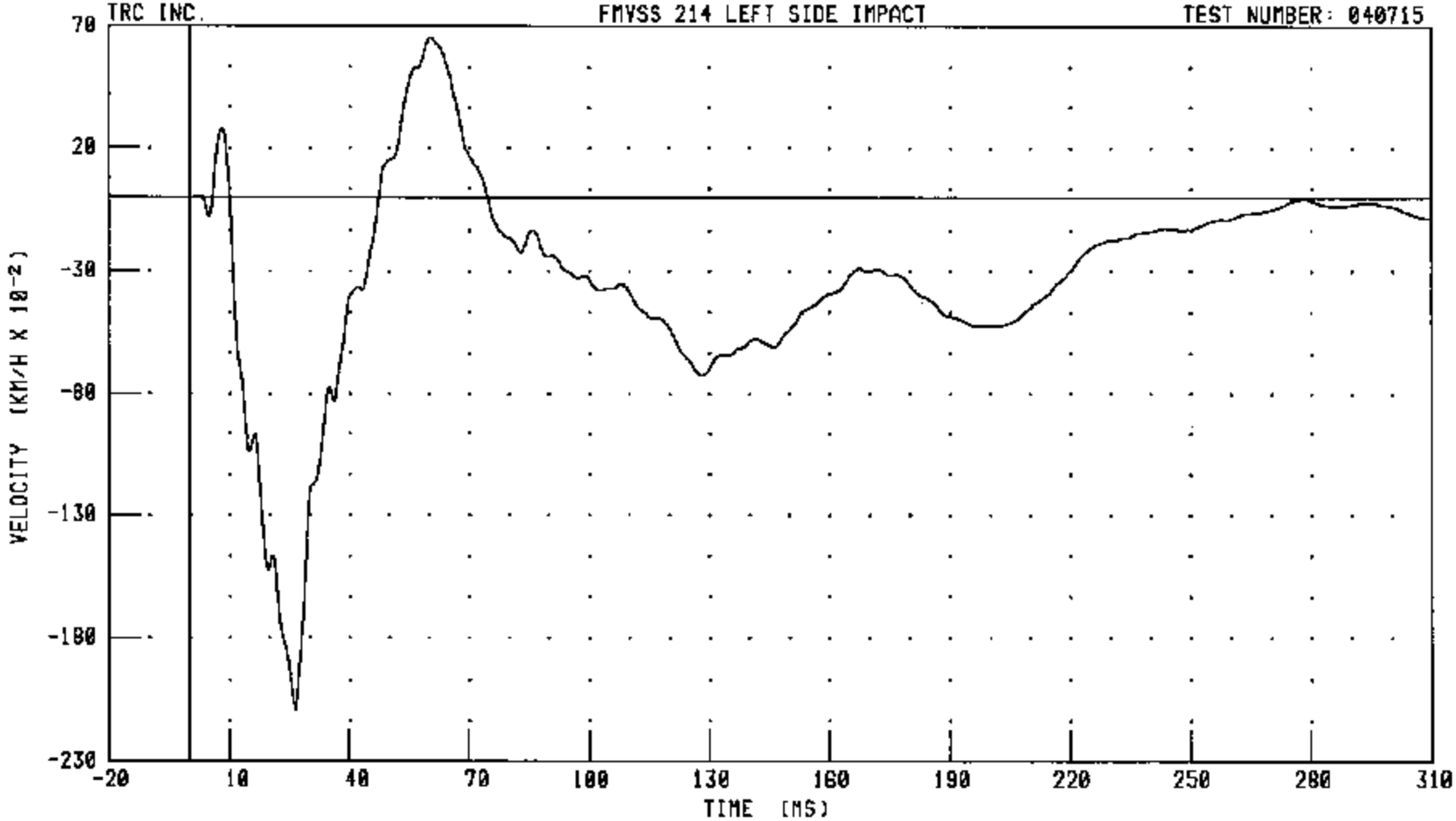
CHANNEL: RFSXG1 FILTER: CH. CLASS 60

PEAK DATA: 5.82 G @ 28.96 MS; -6.78 G @ 11.12 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY



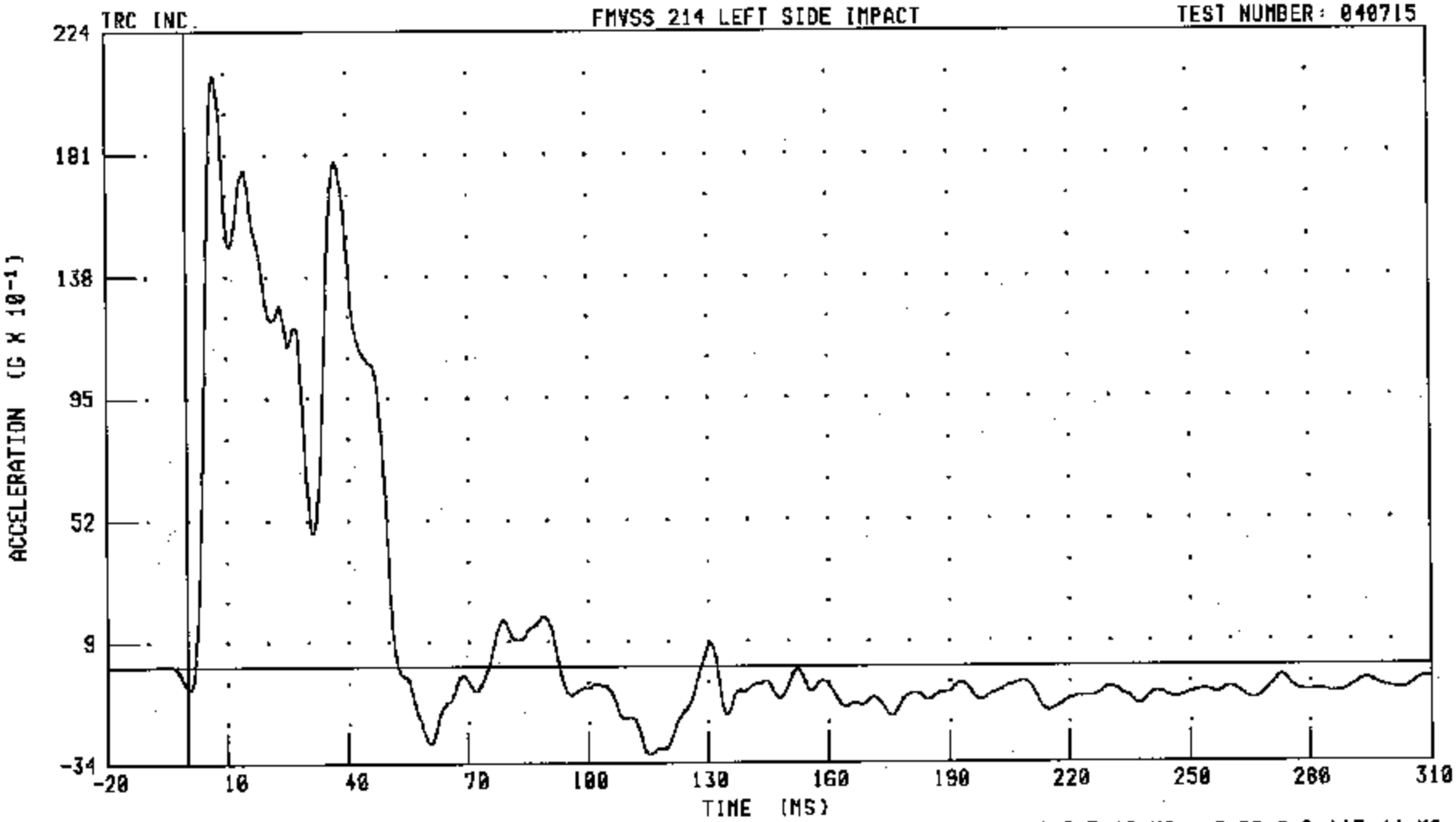
CHANNEL: RFSXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.65 KM/H @ 60.48 MS; -2.09 KM/H @ 26.40 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION



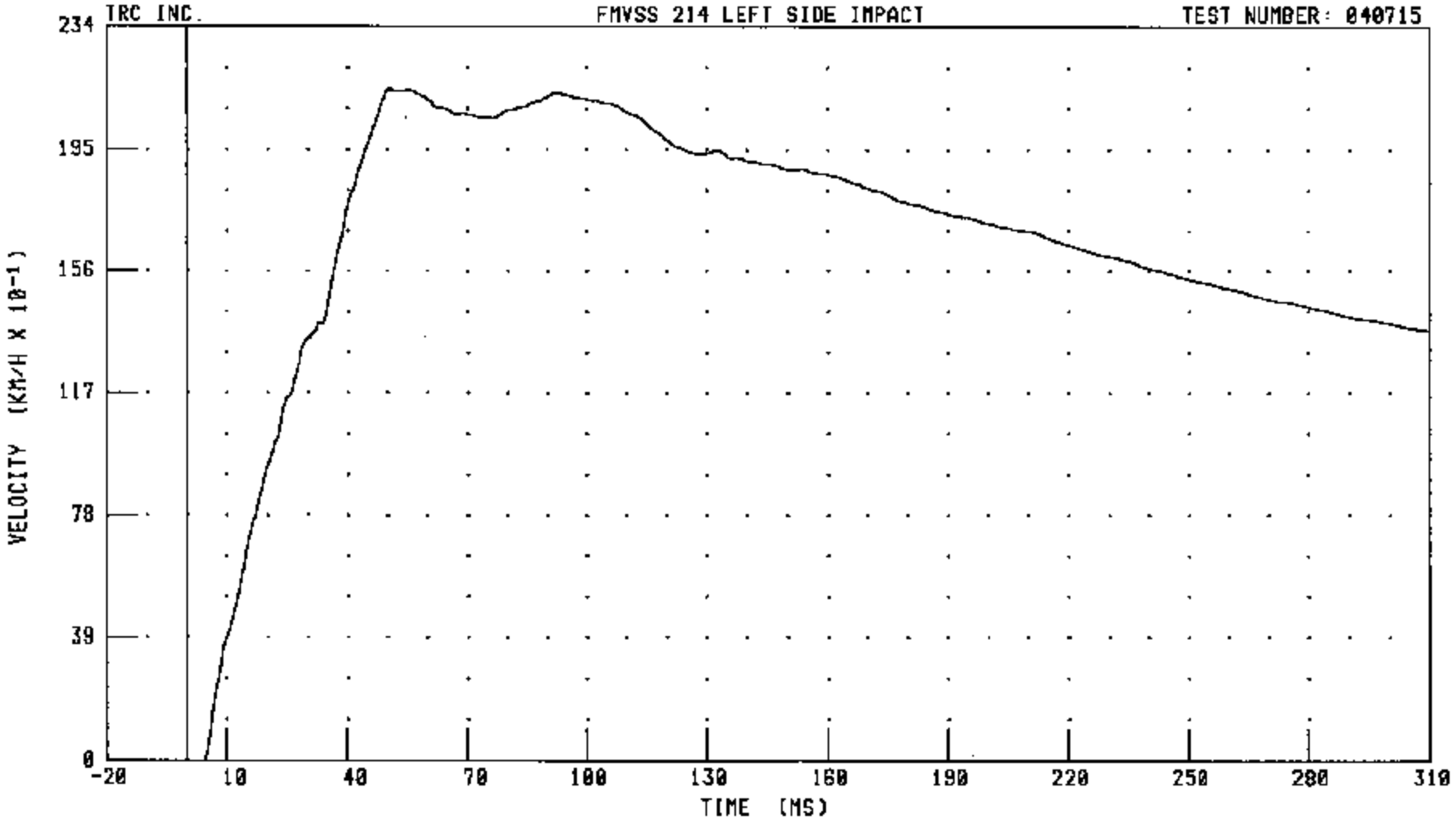
CHANNEL: RFSYG1 FILTER: CH. CLASS 60

PEAK DATA: 20.83 G @ 7.12 MS; -3.09 G @ 115.44 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

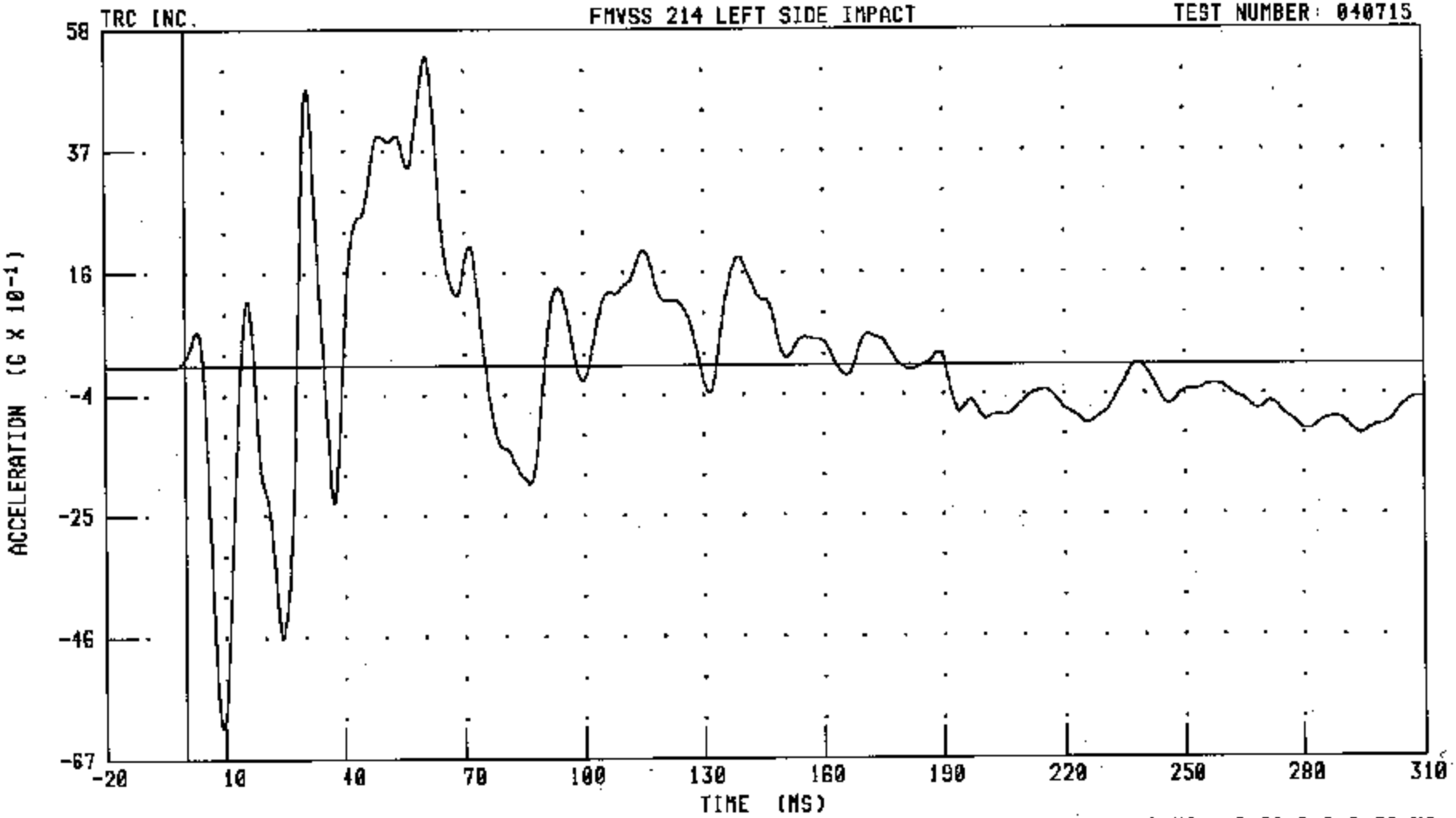


CHANNEL: RFSYV1 FILTER: CH. CLASS 180 PEAK DATA: 21.42 KM/H @ 50.48 MS; -0.03 KM/H @ 4.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

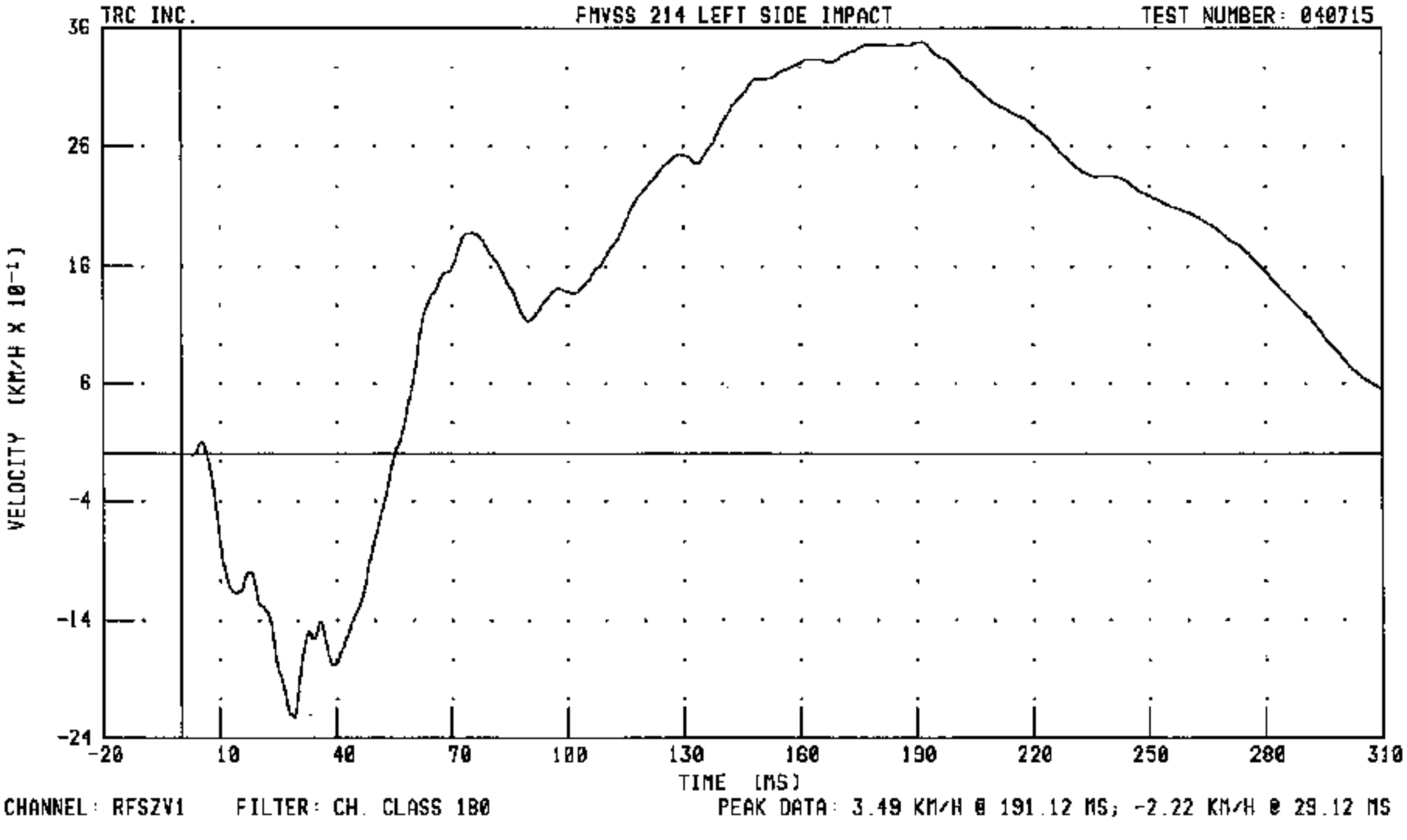
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION



CHANNEL: RFSZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.34 G @ 60.72 MS; -6.26 G @ 9.36 MS

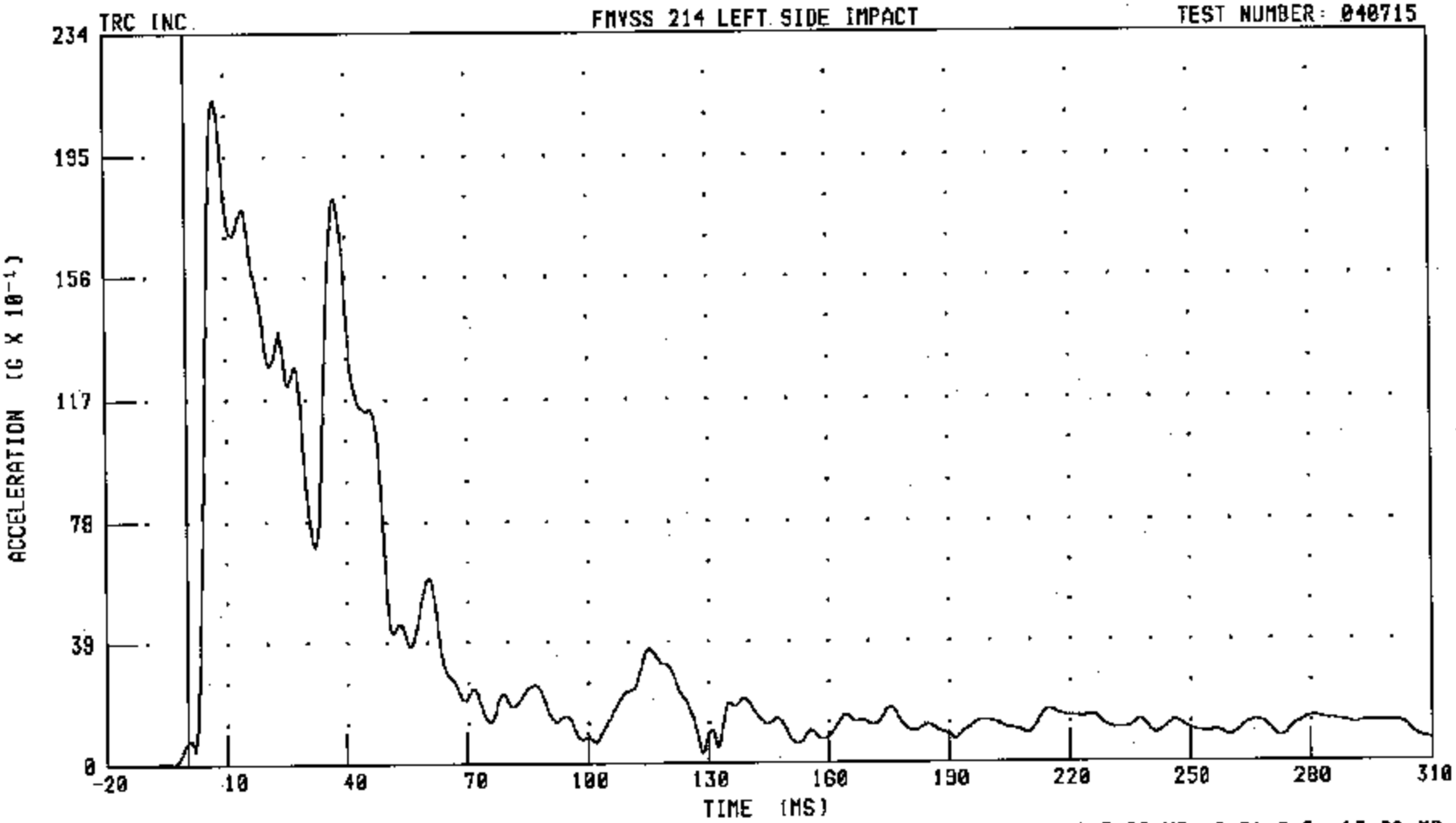
040715-1


40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10⁻¹)
36
26
16
6
-4
-14
-24
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFSZV1
FILTER: CH. CLASS 180
PEAK DATA: 3.49 KM/H @ 191.12 MS; -2.22 KM/H @ 29.12 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

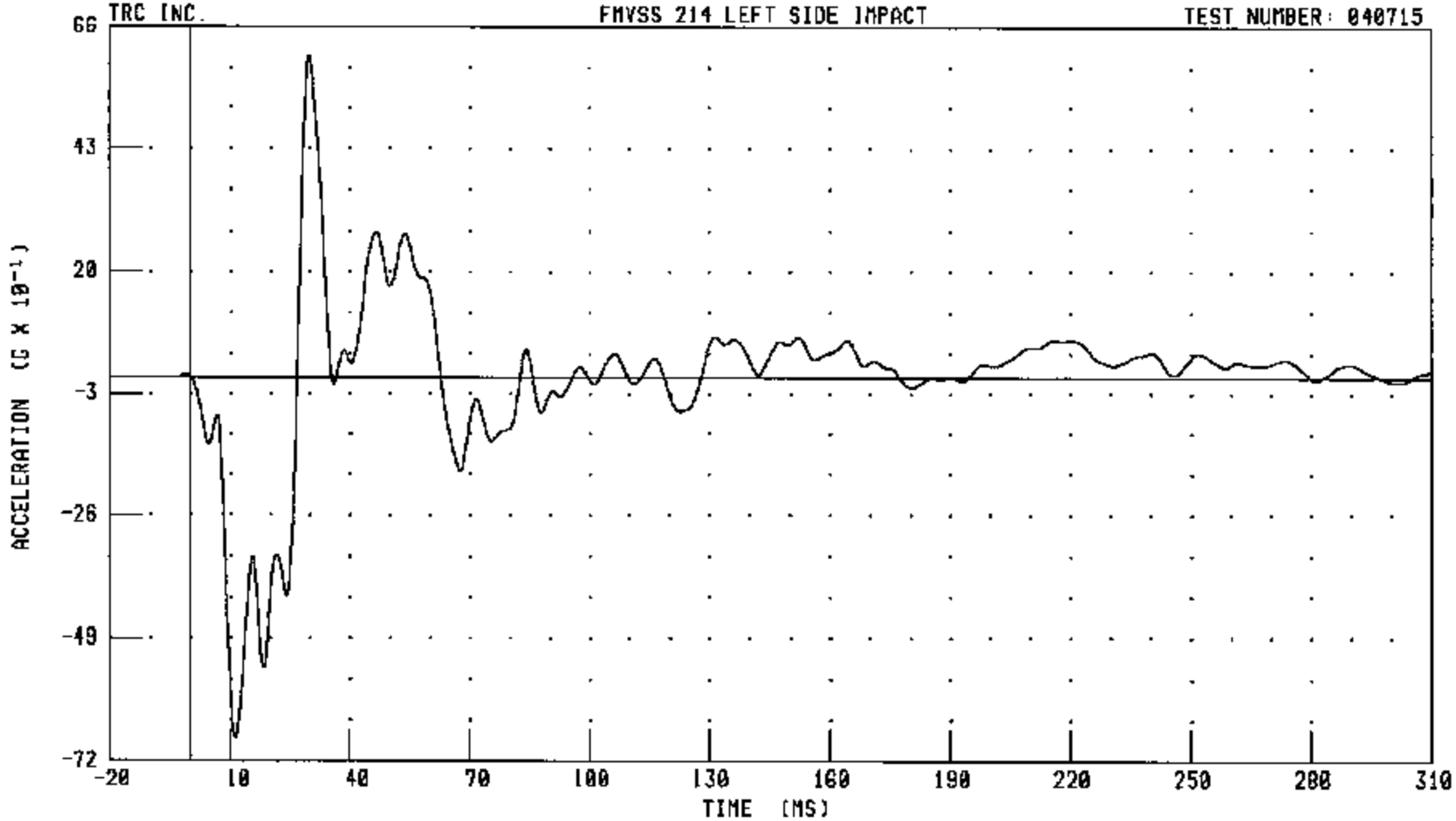
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION



CHANNEL: RFSRC1 FILTER: CH. CLASS 60 PEAK DATA: 21.28 G @ 7.28 MS; 0.01 G @ -13.60 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION



CHANNEL: RRSXG1 FILTER: CH. CLASS 60 PEAK DATA: 6.06 G @ 29.84 MS; -6.75 G @ 11.28 MS

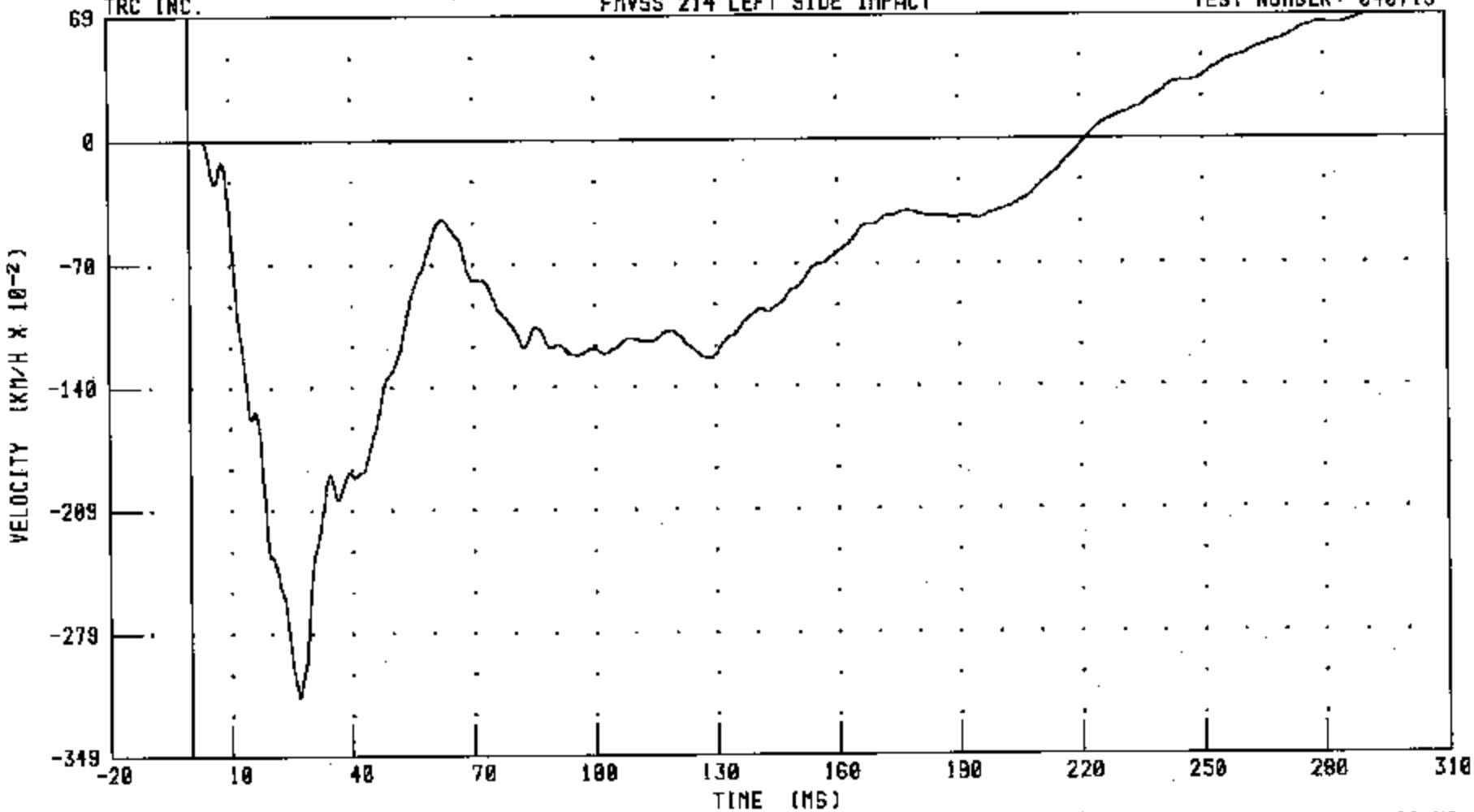
B-50

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



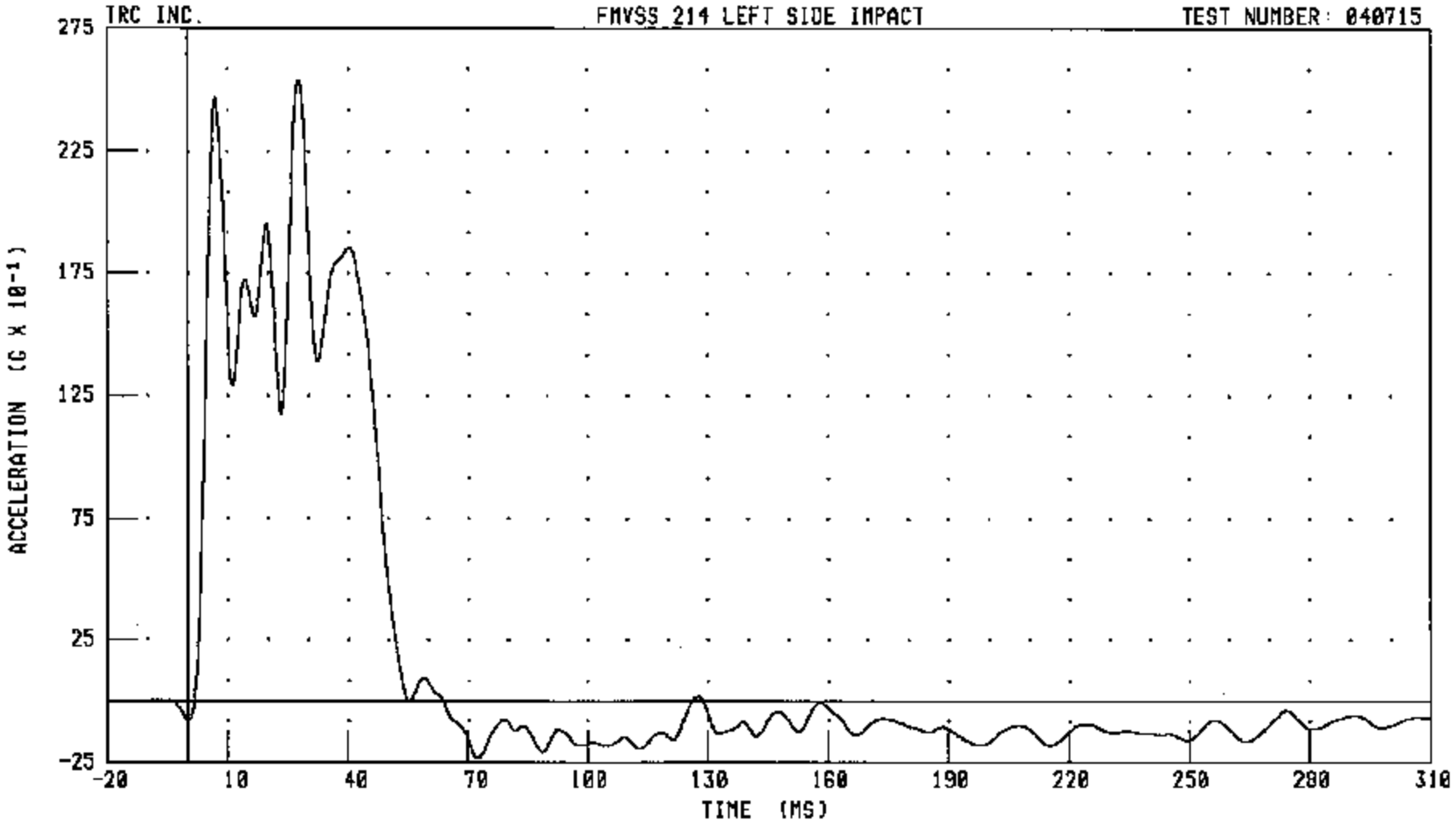
CHANNEL: RRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.73 KM/H @ 296.88 MS; -3.16 KM/H @ 26.88 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION



CHANNEL: RRSYG1 FILTER: CH. CLASS 60 PEAK DATA: 25.36 G @ 27.76 MS; -2.31 G @ 72.32 MS

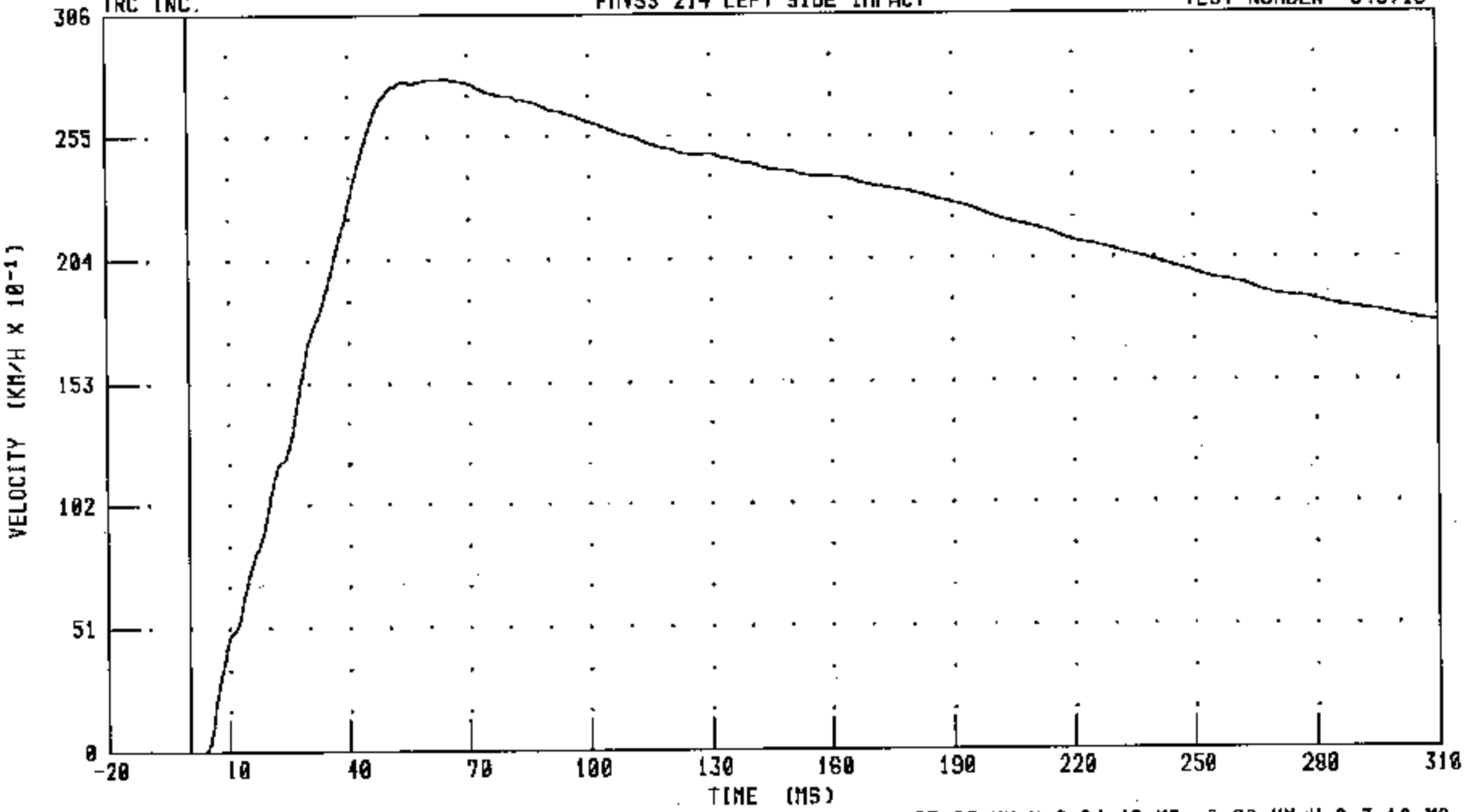
B-52

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

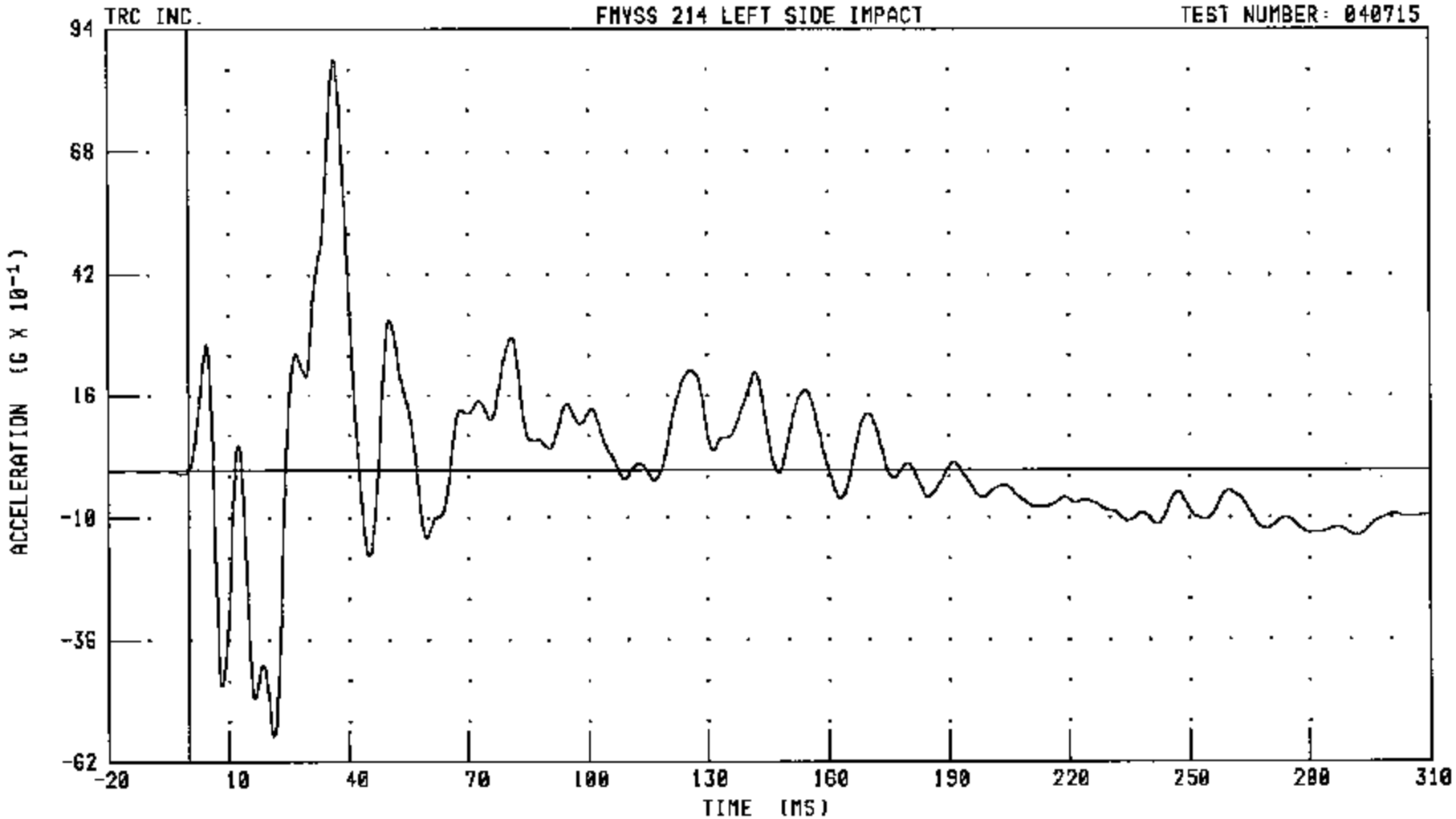


CHANNEL: RRSYV1 FILTER: CH. CLASS 180

PEAK DATA: 27.93 KM/H @ 64.40 MS; 0.00 KM/H @ 3.12 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

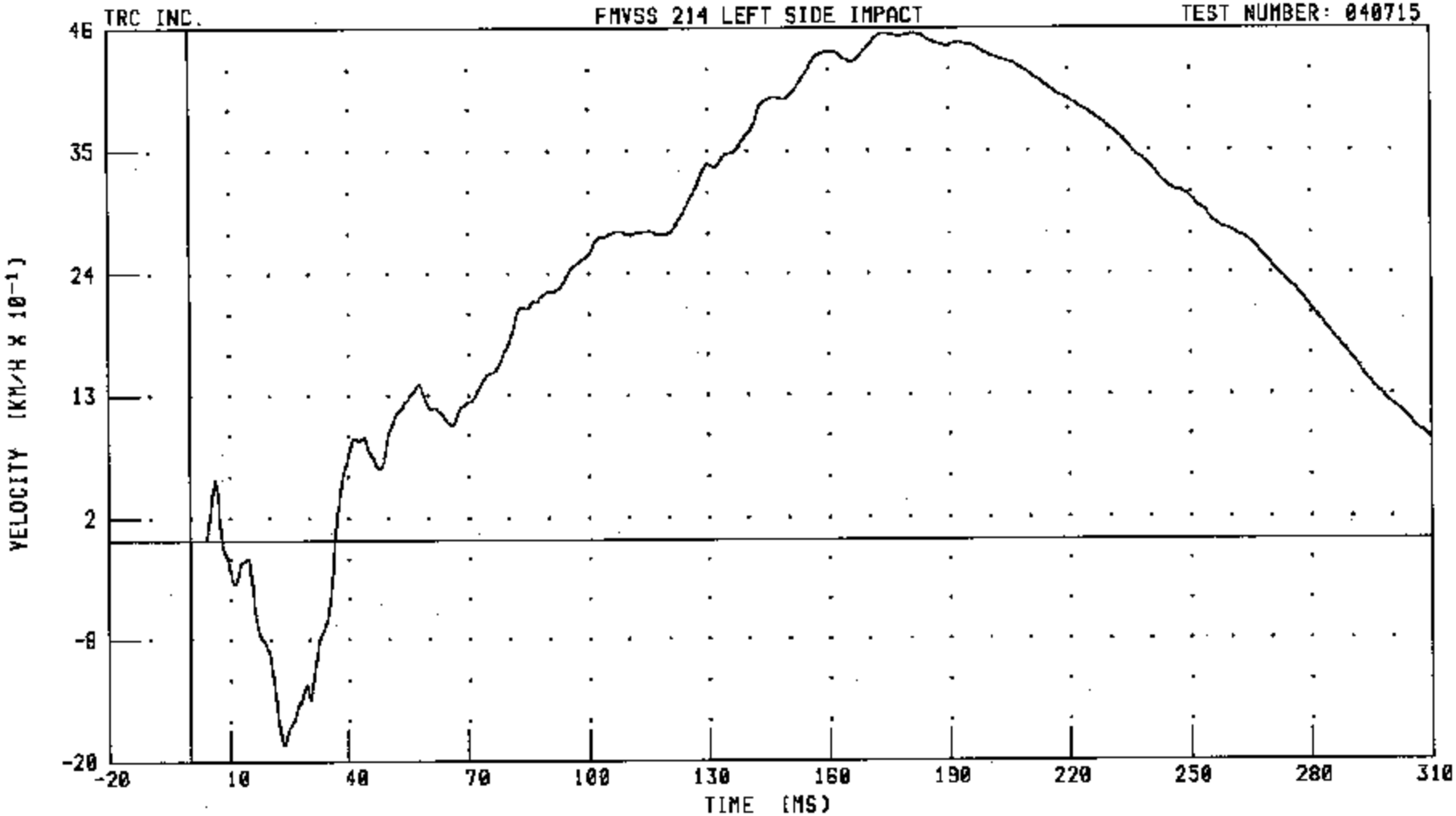


CHANNEL: RRSZG1 FILTER: CH. CLASS 60 PEAK DATA: 8.75 G @ 36.48 MS; -5.65 G @ 21.20 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

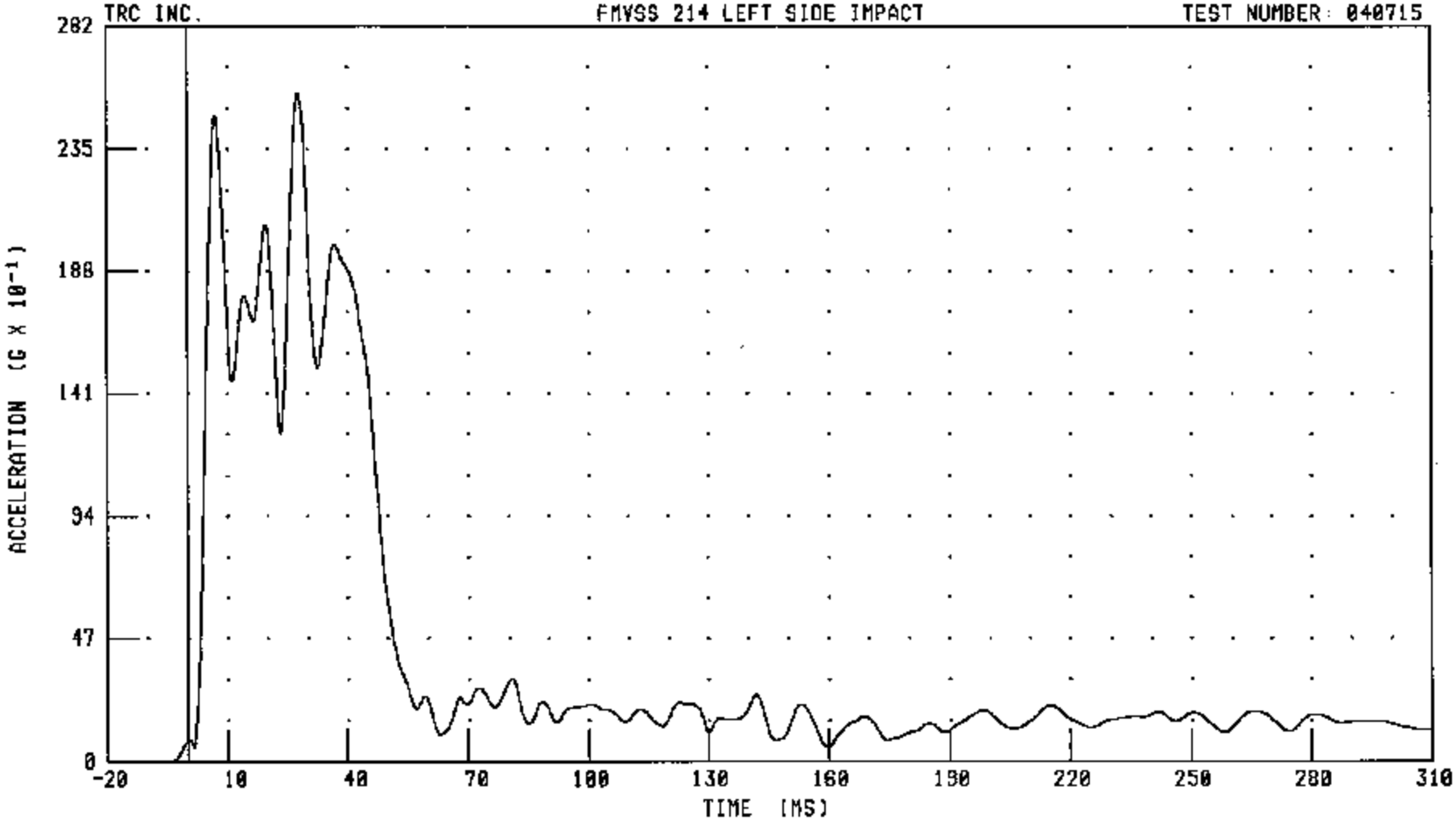


CHANNEL: RRSZV1 FILTER: CH. CLASS 180 PEAK DATA: 4.56 KM/H @ 174.16 MS; -1.86 KM/H @ 23.60 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION



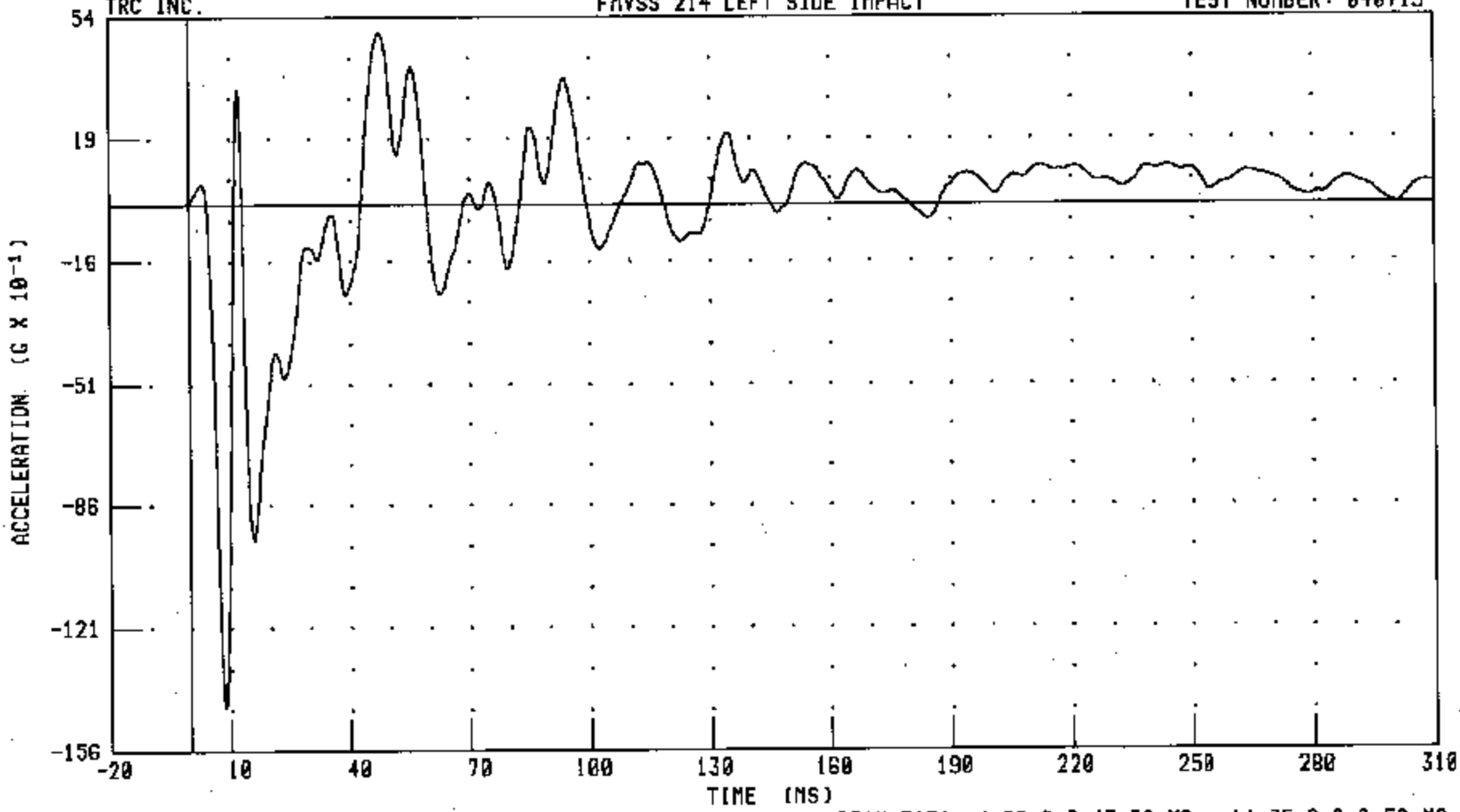
CHANNEL: RRSRG1 FILTER: CH. CLASS 60 PEAK DATA: 25.64 G @ 27.84 MS; 0.00 G @ -15.52 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

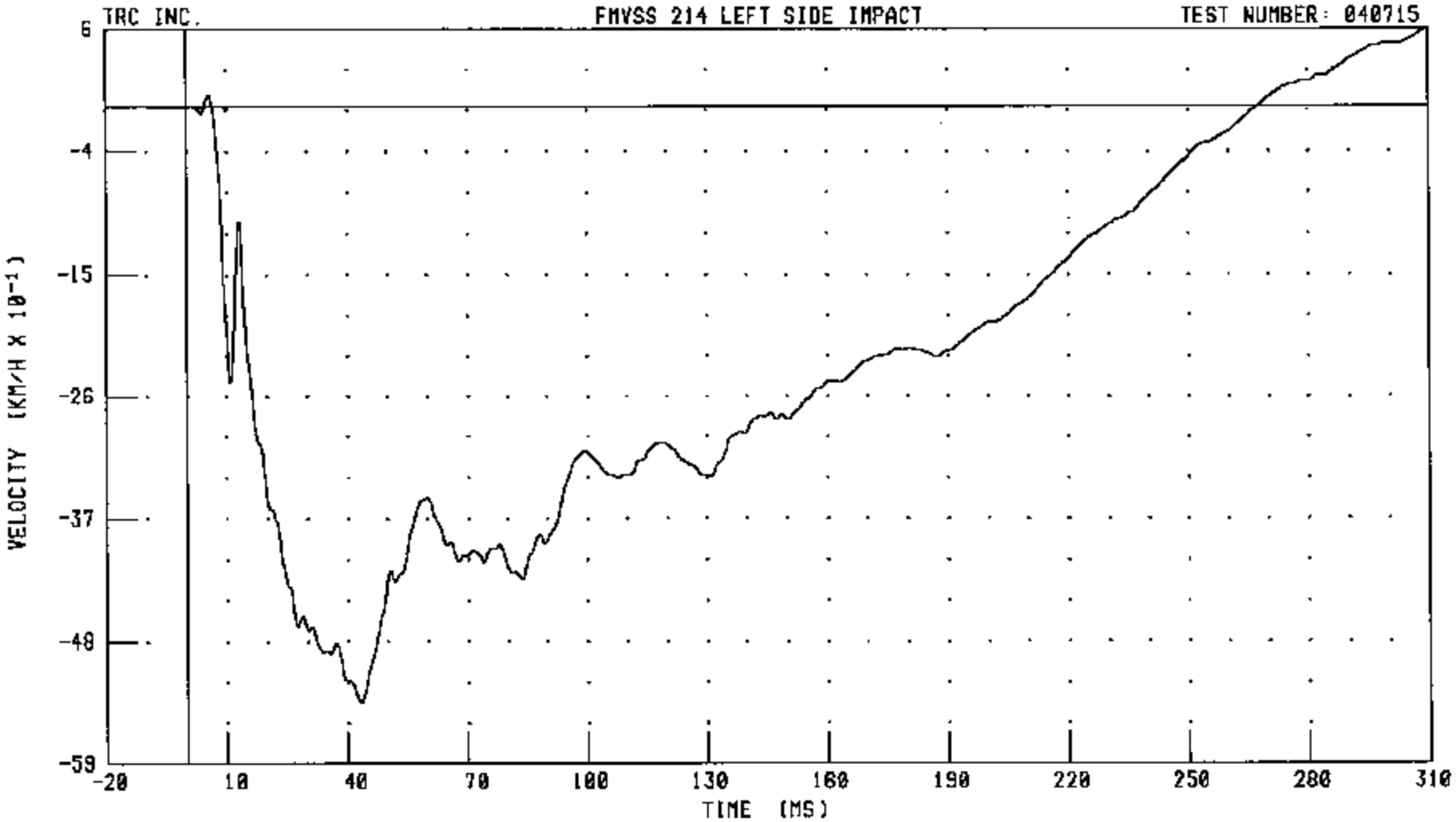


CHANNEL: ROKXC1 FILTER: CH. CLASS 60 PEAK DATA: 4.96 G @ 47.60 MS, -14.35 G @ 8.56 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY



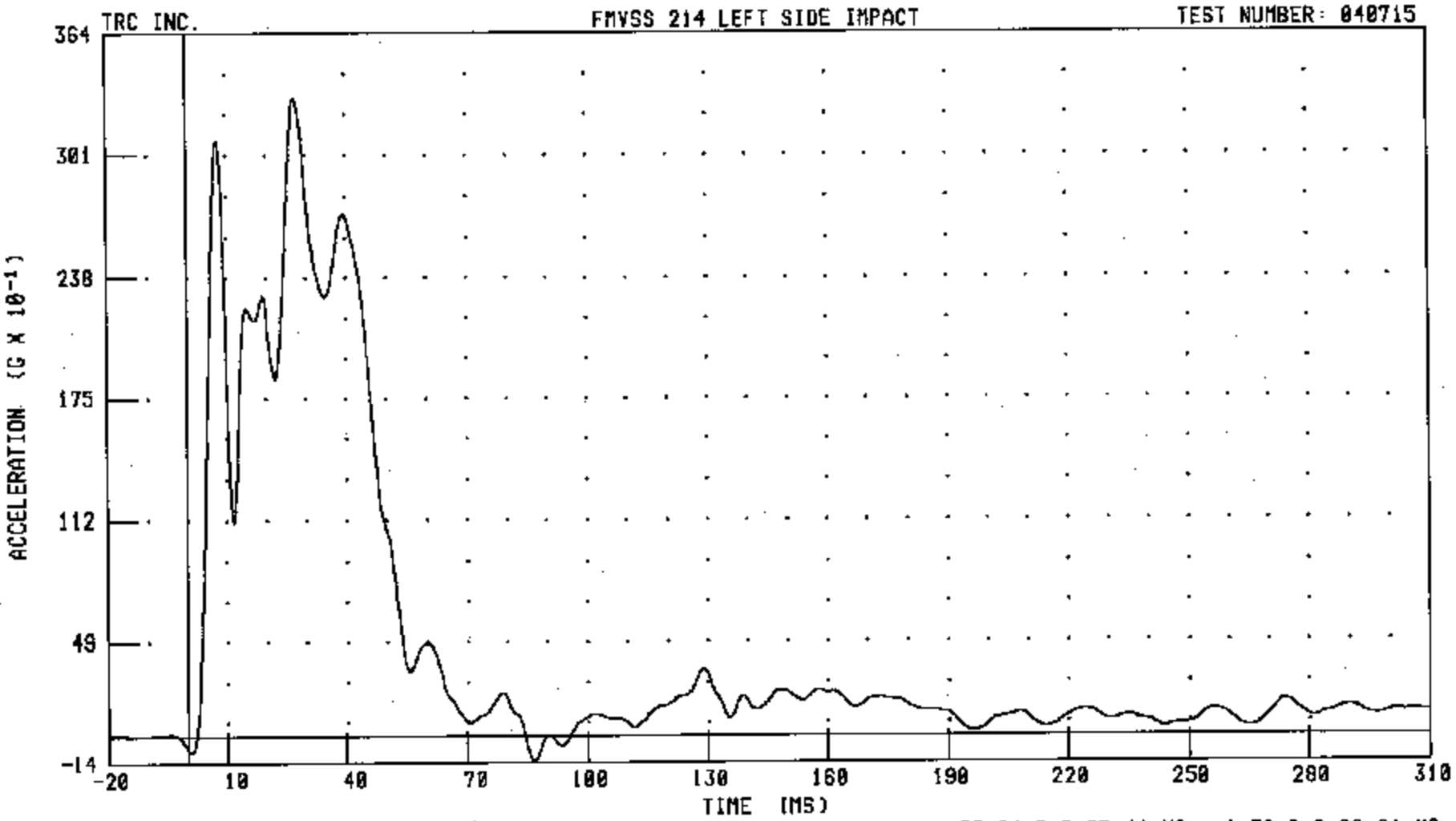
CHANNEL: RDKXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.71 KM/H @ 310.00 MS; -5.36 KM/H @ 43.44 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

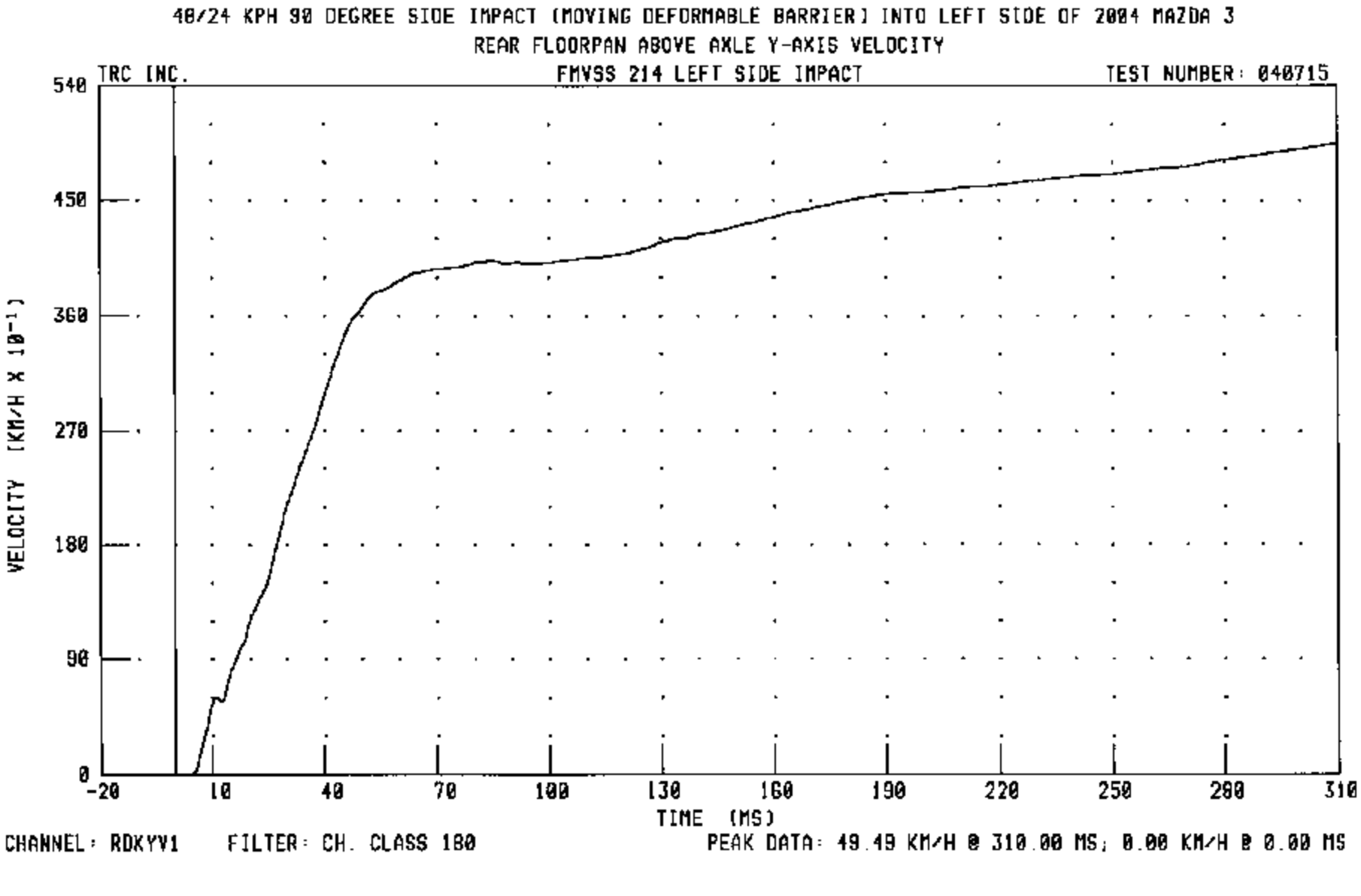
REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION



CHANNEL: ROKYG1 FILTER: CH. CLASS 60 PEAK DATA: 33.04 G @ 27.44 MS; -1.36 G @ 86.64 MS

B-59

040715-I

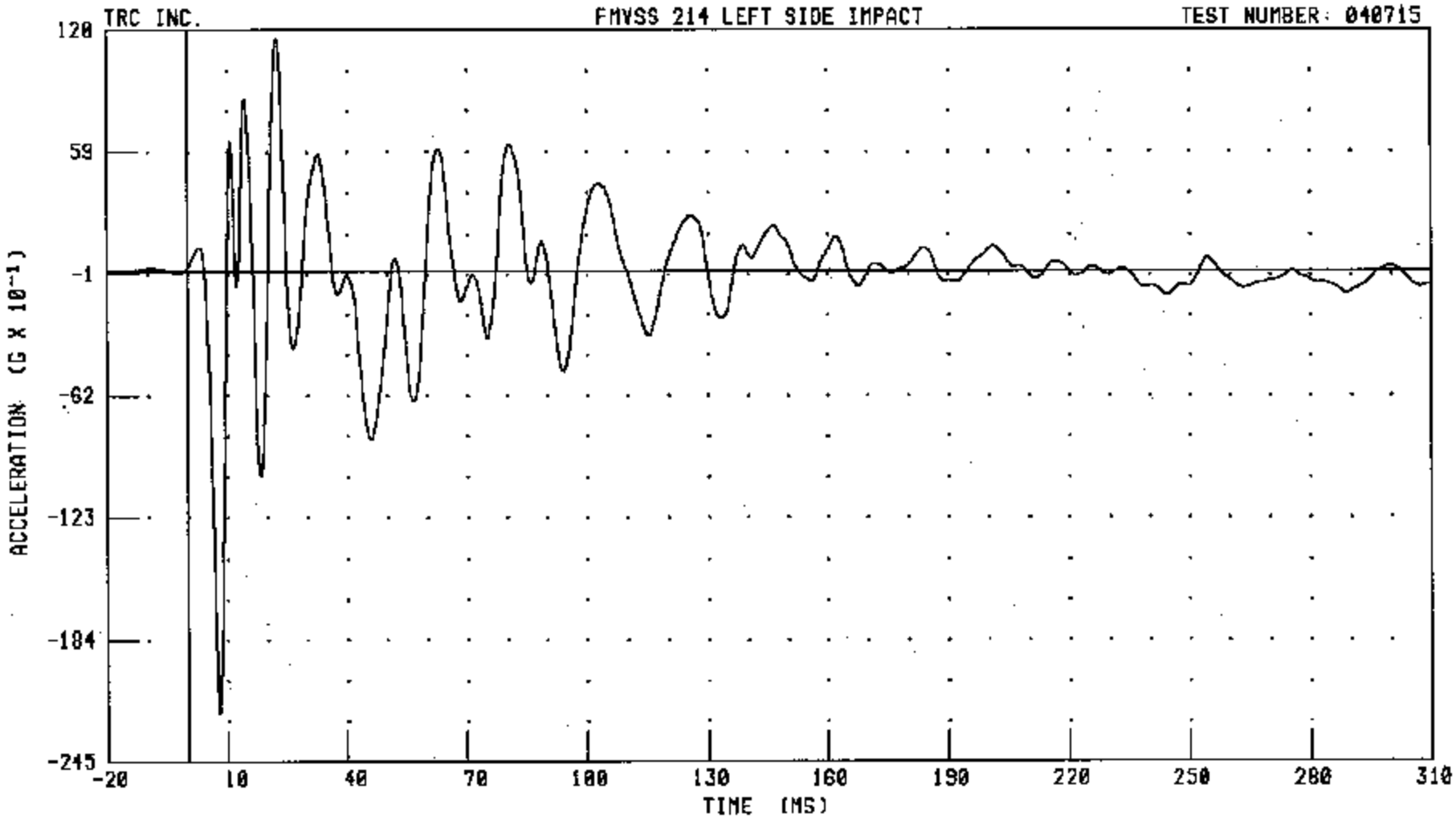

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10⁻¹)
540
450
360
270
180
90
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RDKYV1
FILTER: CH. CLASS 180
PEAK DATA: 49.49 KM/H @ 310.00 MS; 0.00 KM/H @ 0.00 MS

B-60

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION

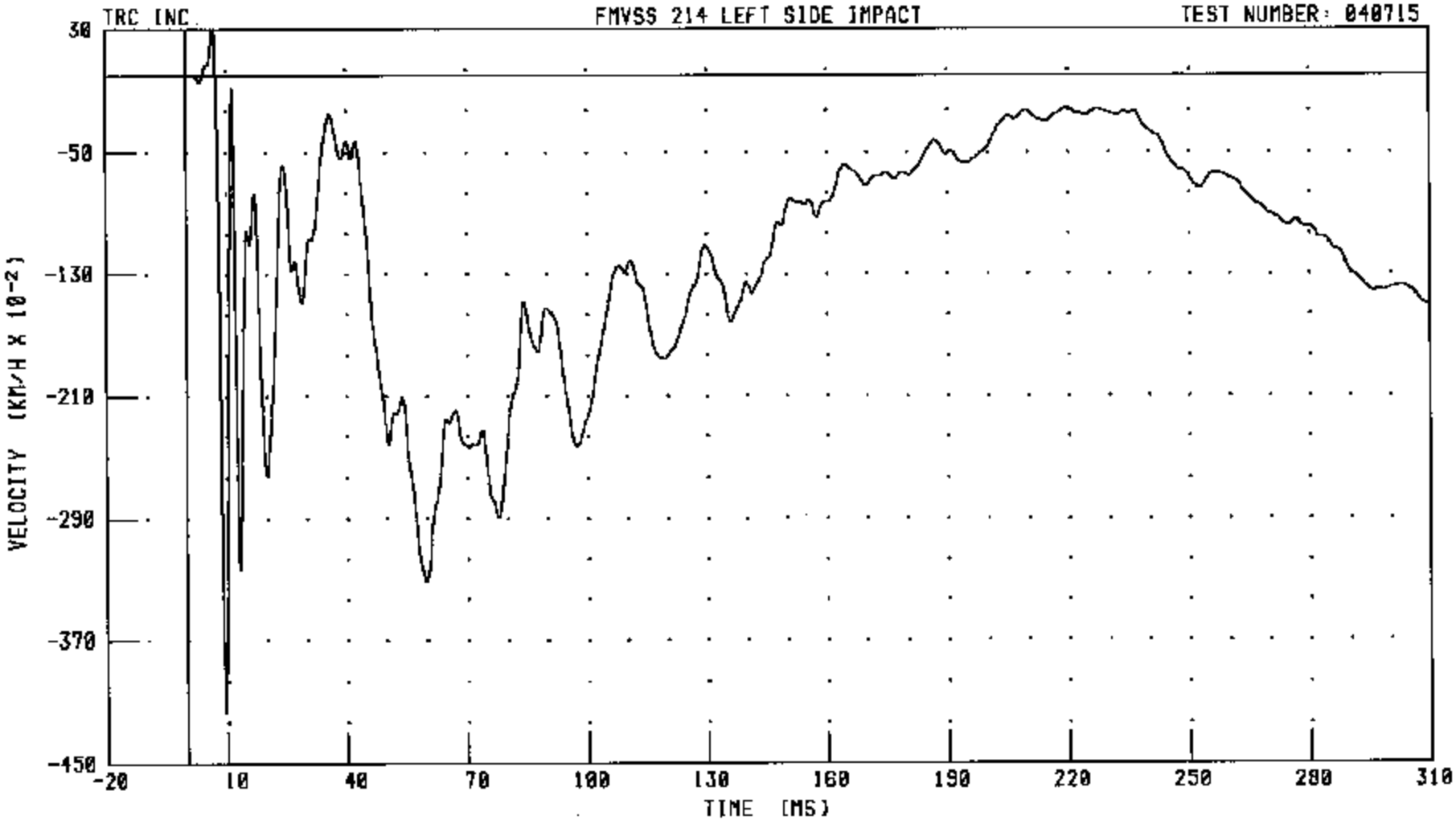


CHANNEL: RDKZG1 FILTER: CH. CLASS 60 PEAK DATA: 11.57 G @ 22.48 MS; -22.20 G @ 8.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY



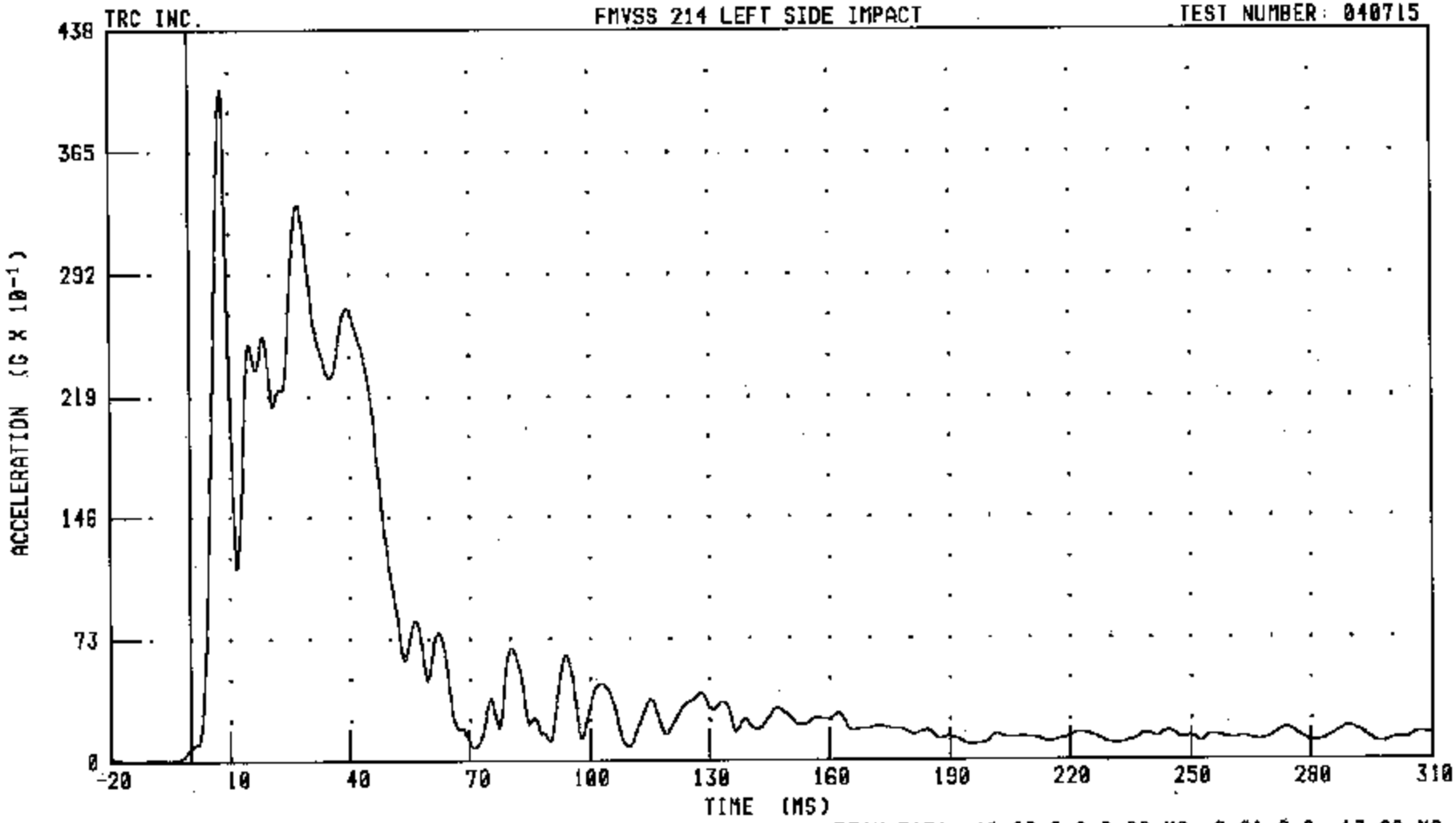
CHANNEL: RDKZV1 FILTER: CH. CLASS 180

PEAK DATA: 0.36 KM/H @ 6.88 MS; -4.17 KM/H @ 9.52 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION



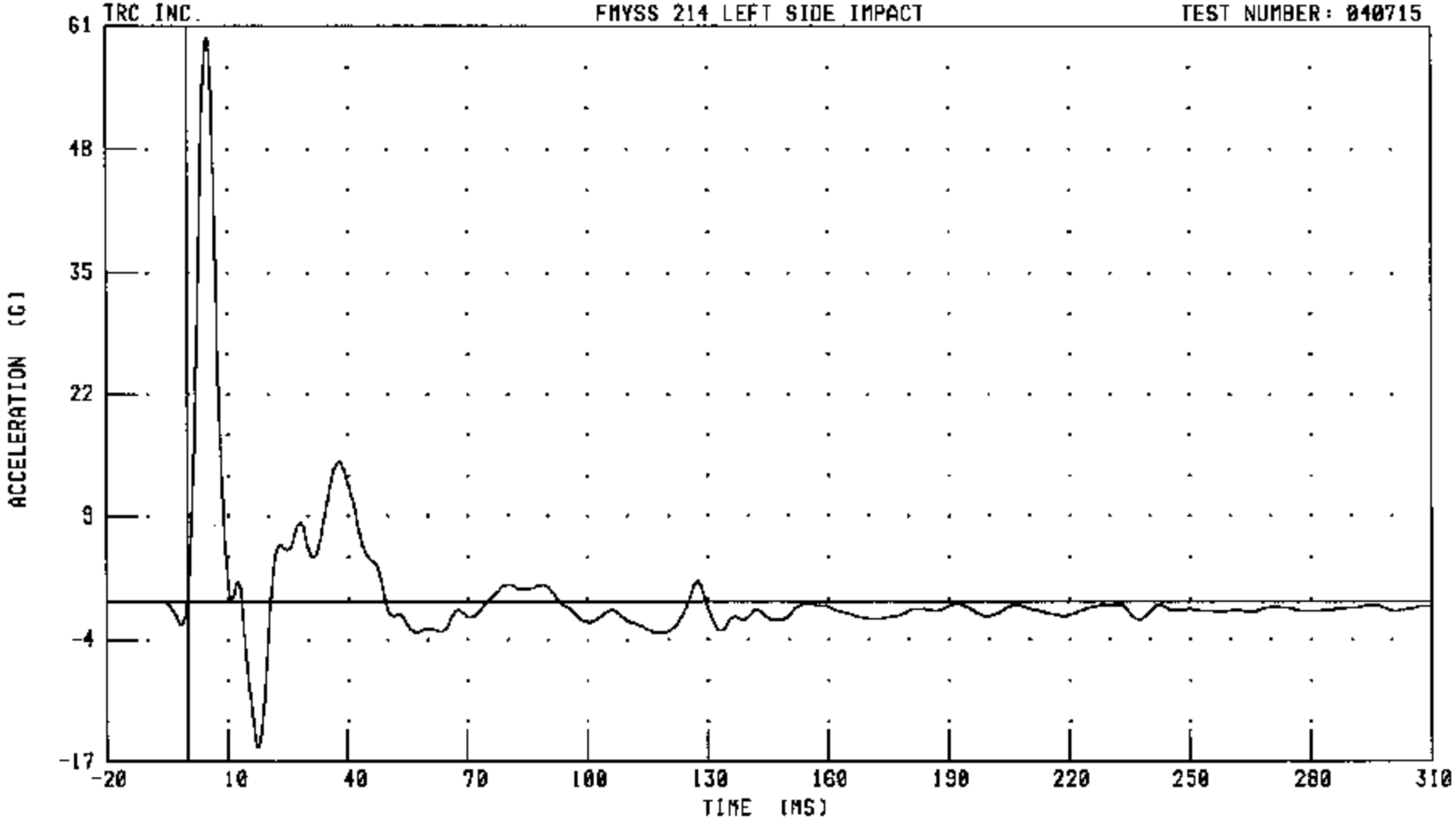
CHANNEL: RDKRG1 FILTER: CH. CLASS 60

PEAK DATA: 40.26 G @ 8.00 MS, 0.01 G @ -13.60 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION



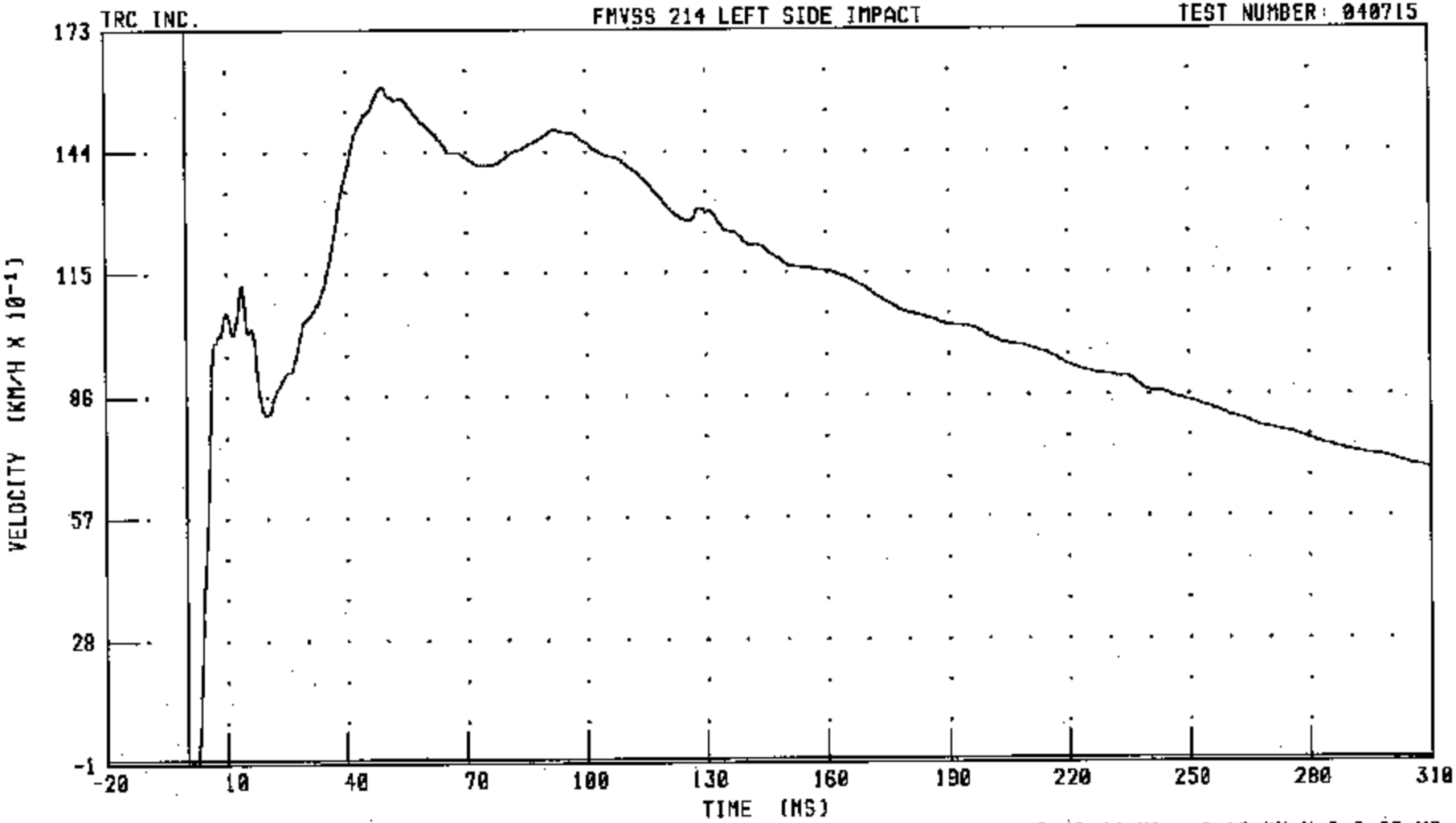
CHANNEL: LFSYG1 FILTER: CH. CLASS 60 PEAK DATA: 59.70 G @ 5.04 MS; -15.51 G @ 17.52 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



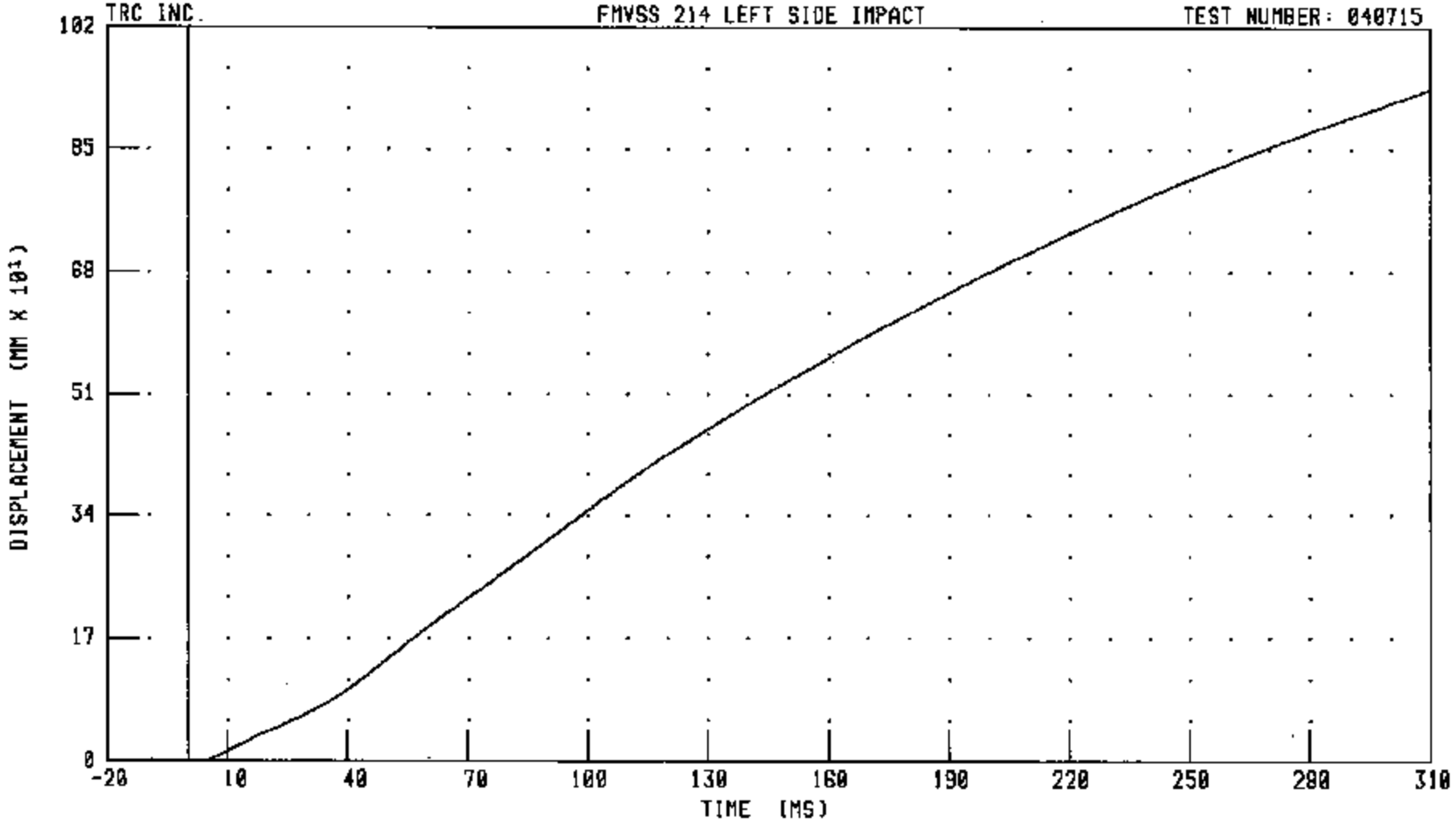
CHANNEL: LFSYV1 FILTER: CH. CLASS 180

PEAK DATA: 15.94 KM/H @ 49.44 MS; -0.12 KM/H @ 2.08 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT SIDE SILL AT FRONT SEAT Y-AXIS DISPLACEMENT



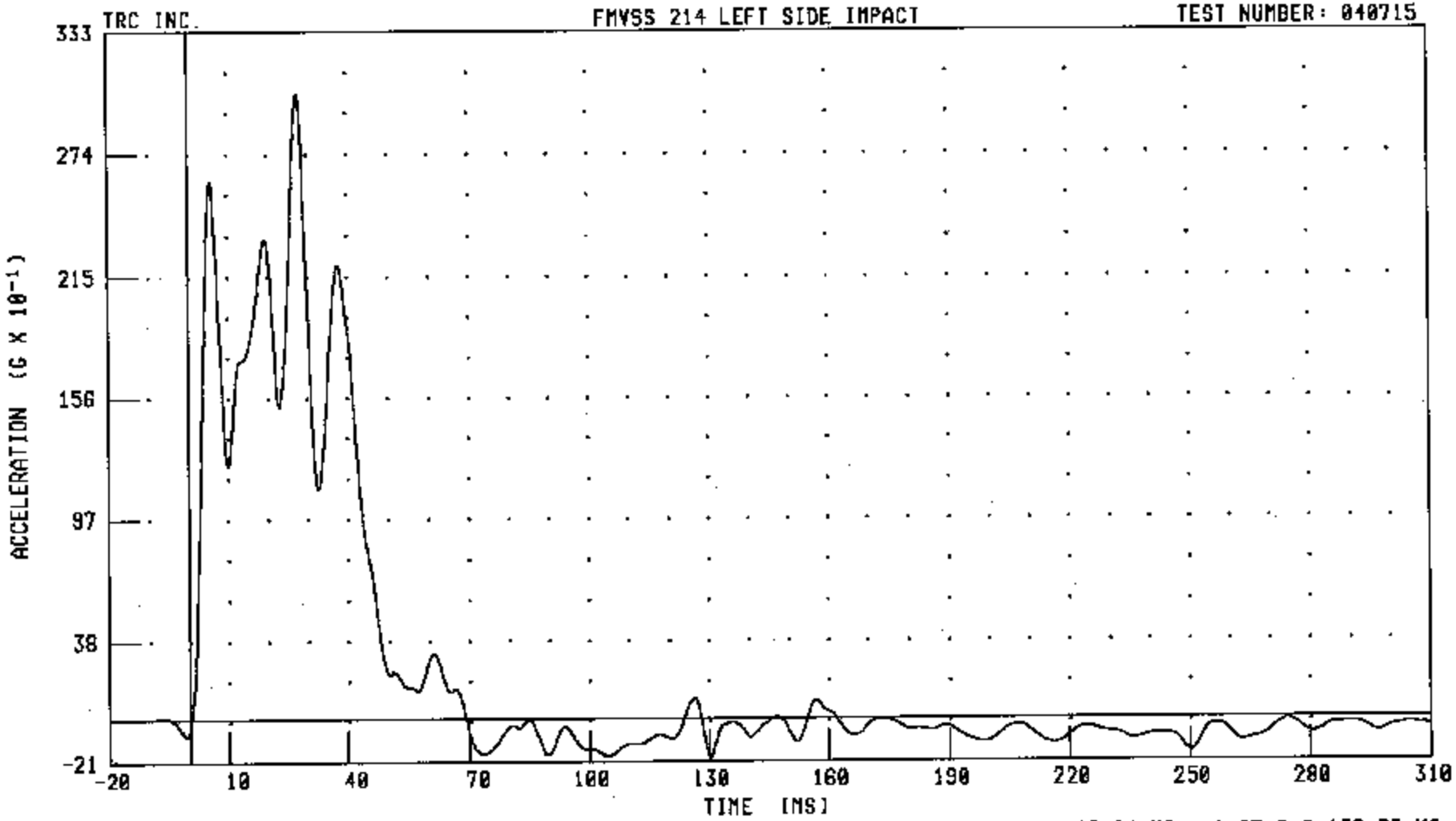
CHANNEL: LFSYD1 FILTER: CH. CLASS 180

PEAK DATA: 934.27 MM @ 310.00 MS; -0.03 MM @ 2.56 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

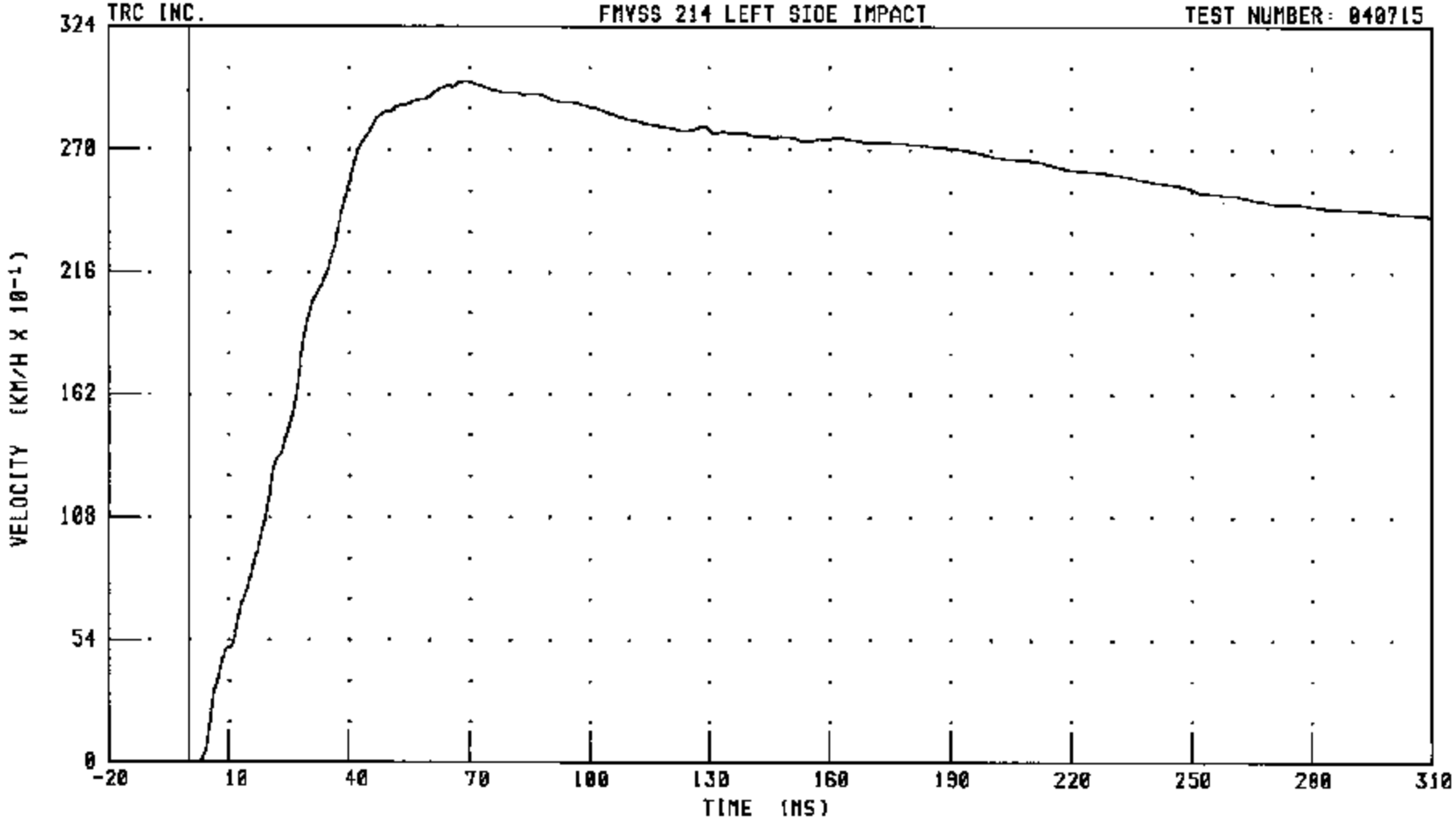


CHANNEL: LRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 30.26 G @ 27.84 MS; -1.95 G @ 130.32 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

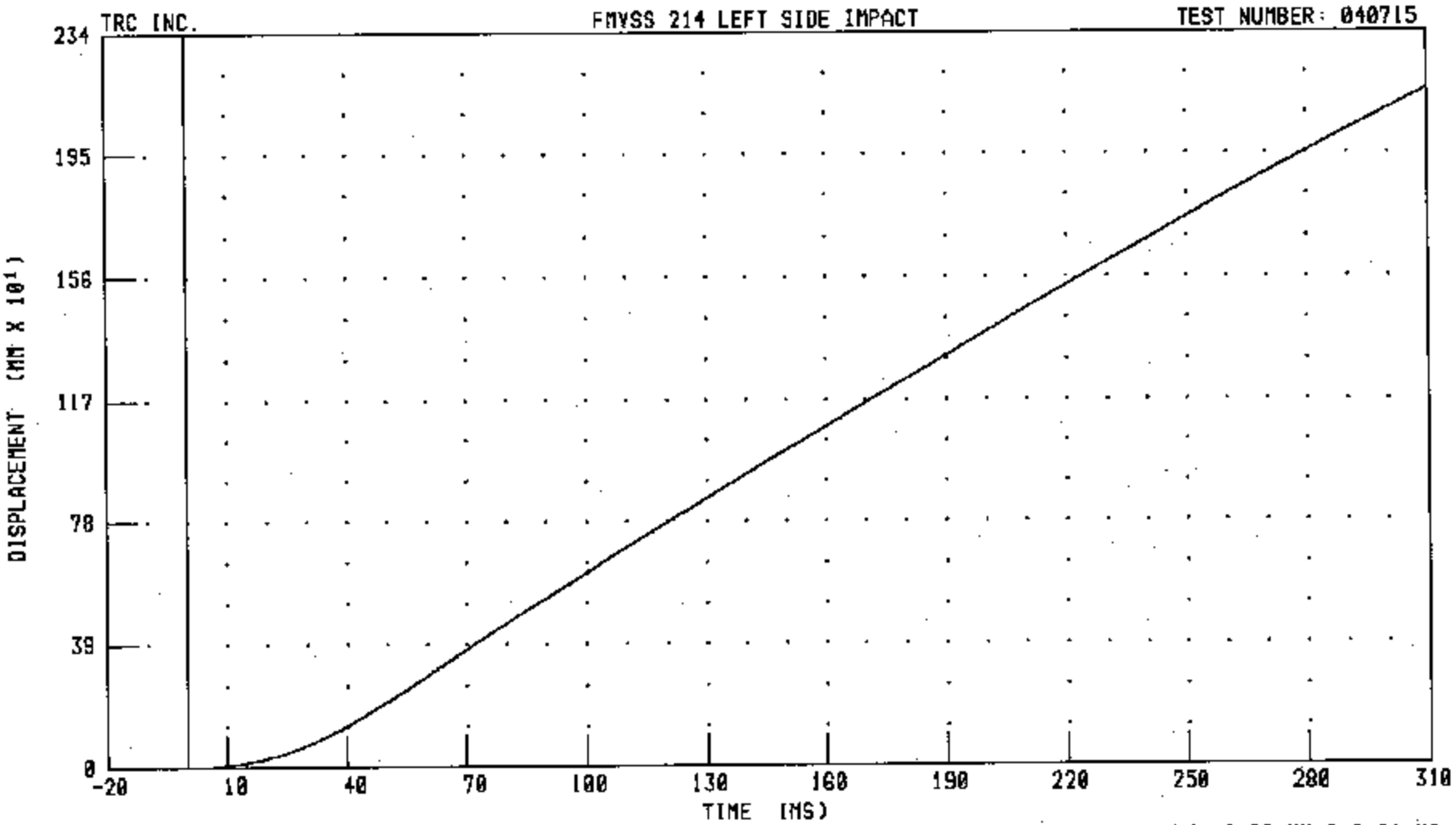


CHANNEL: LRSYV1 FILTER: CH. CLASS 180 PEAK DATA: 29.98 KM/H @ 69.44 MS; -0.01 KM/H @ 1.84 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT SIDE SILL AT REAR SEAT Y-AXIS DISPLACEMENT



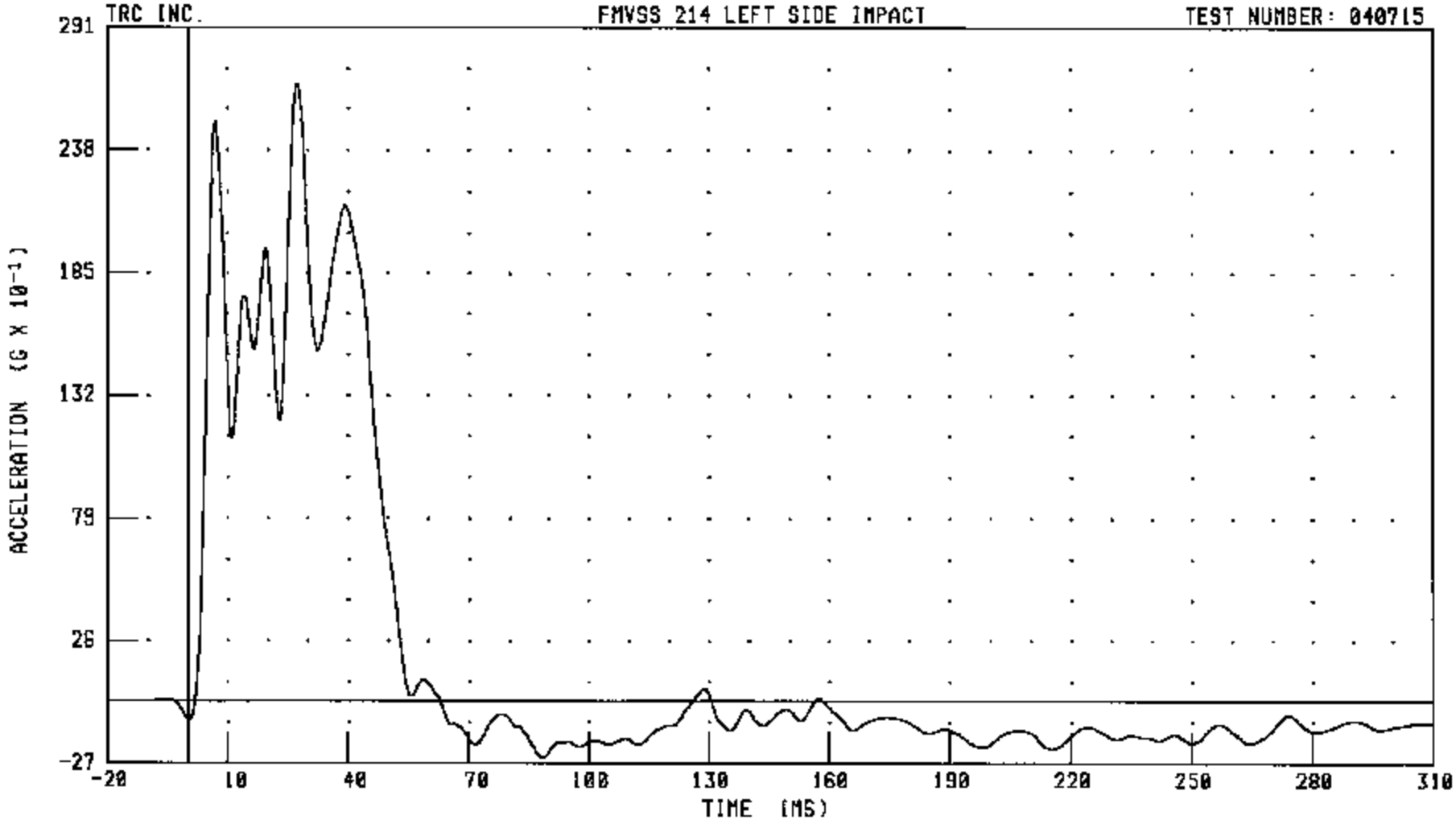
CHANNEL: LRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 2155.97 MM @ 310.00 MS; 0.00 MM @ 2.24 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION



CHANNEL: RRTYC1 FILTER: CH. CLASS 60 PEAK DATA: 26.64 G @ 27.36 MS; -2.46 G @ 88.56 MS

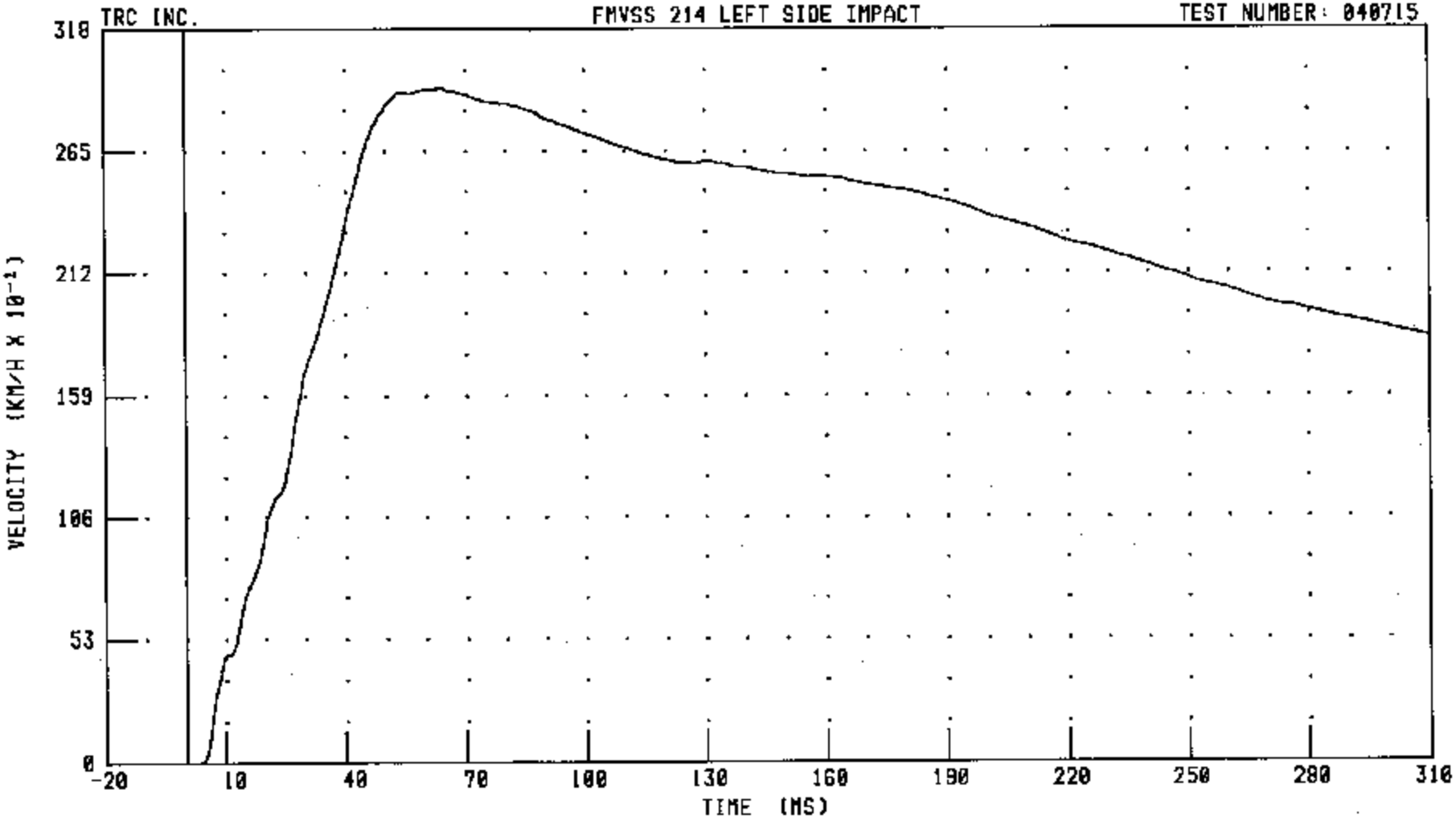
B-70

040715-3

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

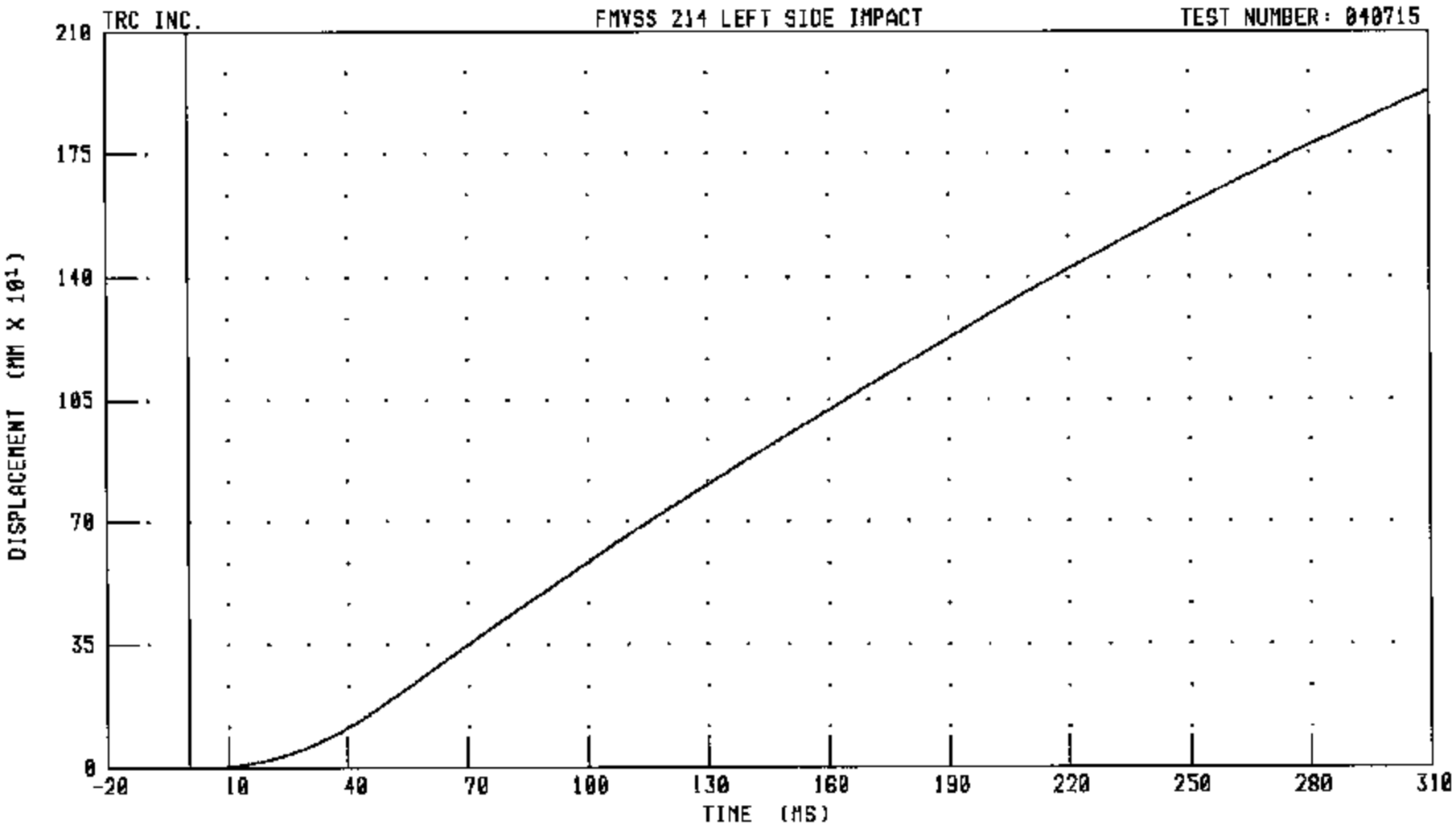


CHANNEL: RRTYV1 FILTER: CH. CLASS 180 PEAK DATA: 29.25 KM/H @ 63.76 MS; 0.00 KM/H @ 0.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

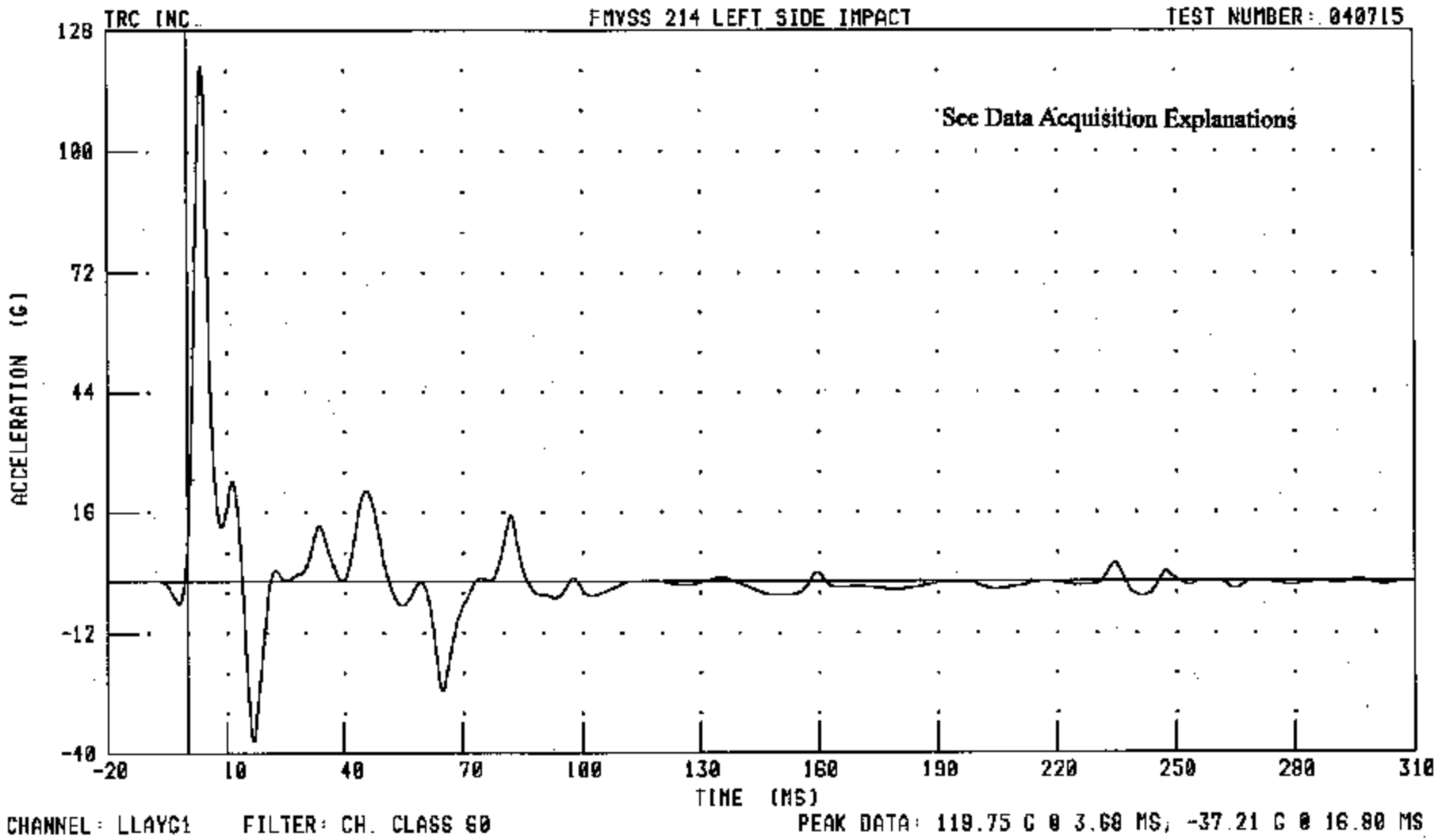
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT



CHANNEL: RRTYD1 FILTER: CH. CLASS 180

PEAK DATA: 1929.87 MM @ 310.00 MS; 0.00 MM @ 0.00 MS

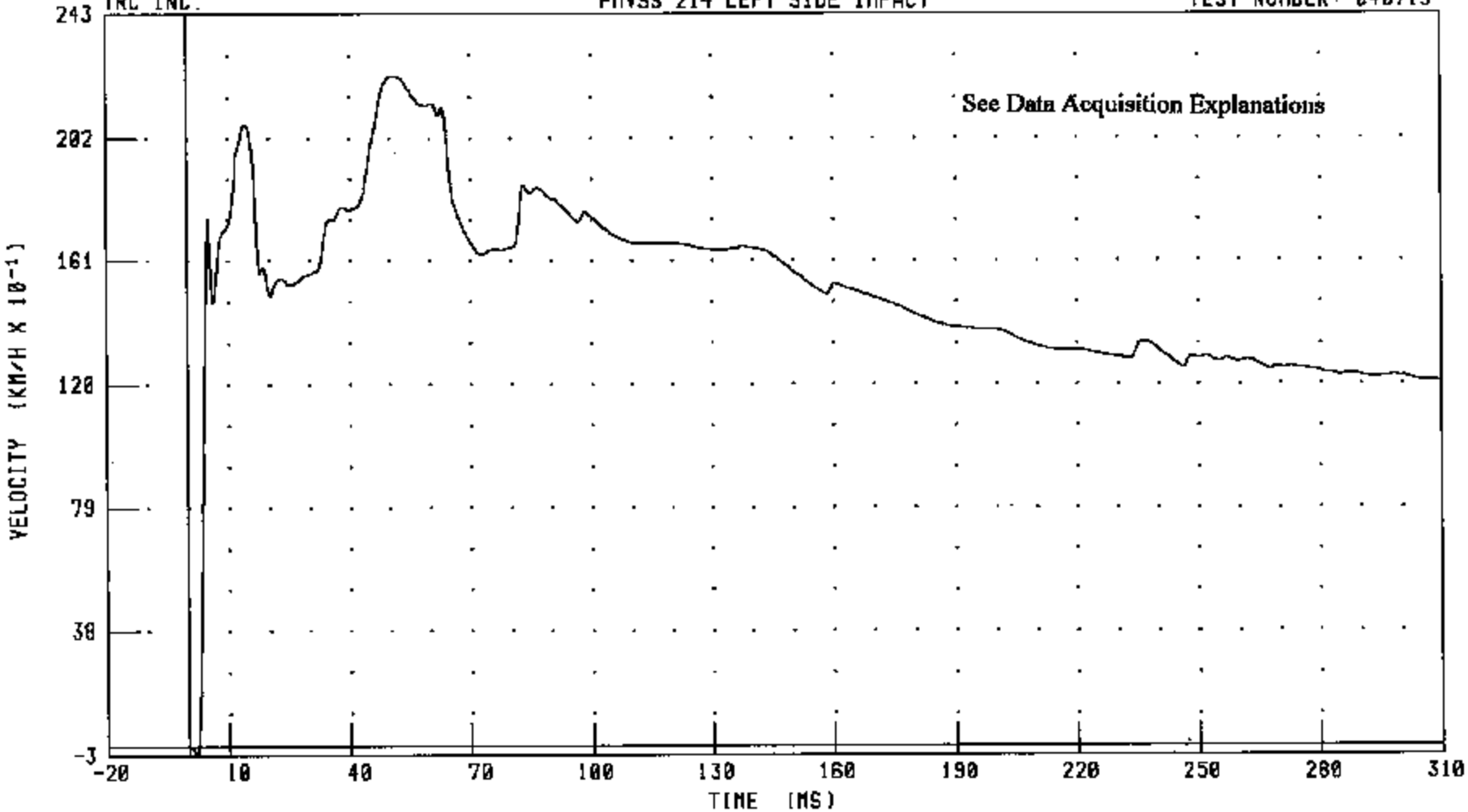
040715-1


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
LEFT LOWER A-POST Y-AXIS ACCELERATION
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
See Data Acquisition Explanations
ACCELERATION (G)
128
100
72
44
16
-12
-40
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LLAYG1
FILTER: CH. CLASS 60
PEAK DATA: 119.75 G @ 3.60 MS; -37.21 G @ 16.80 MS

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT LOWER A-POST Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



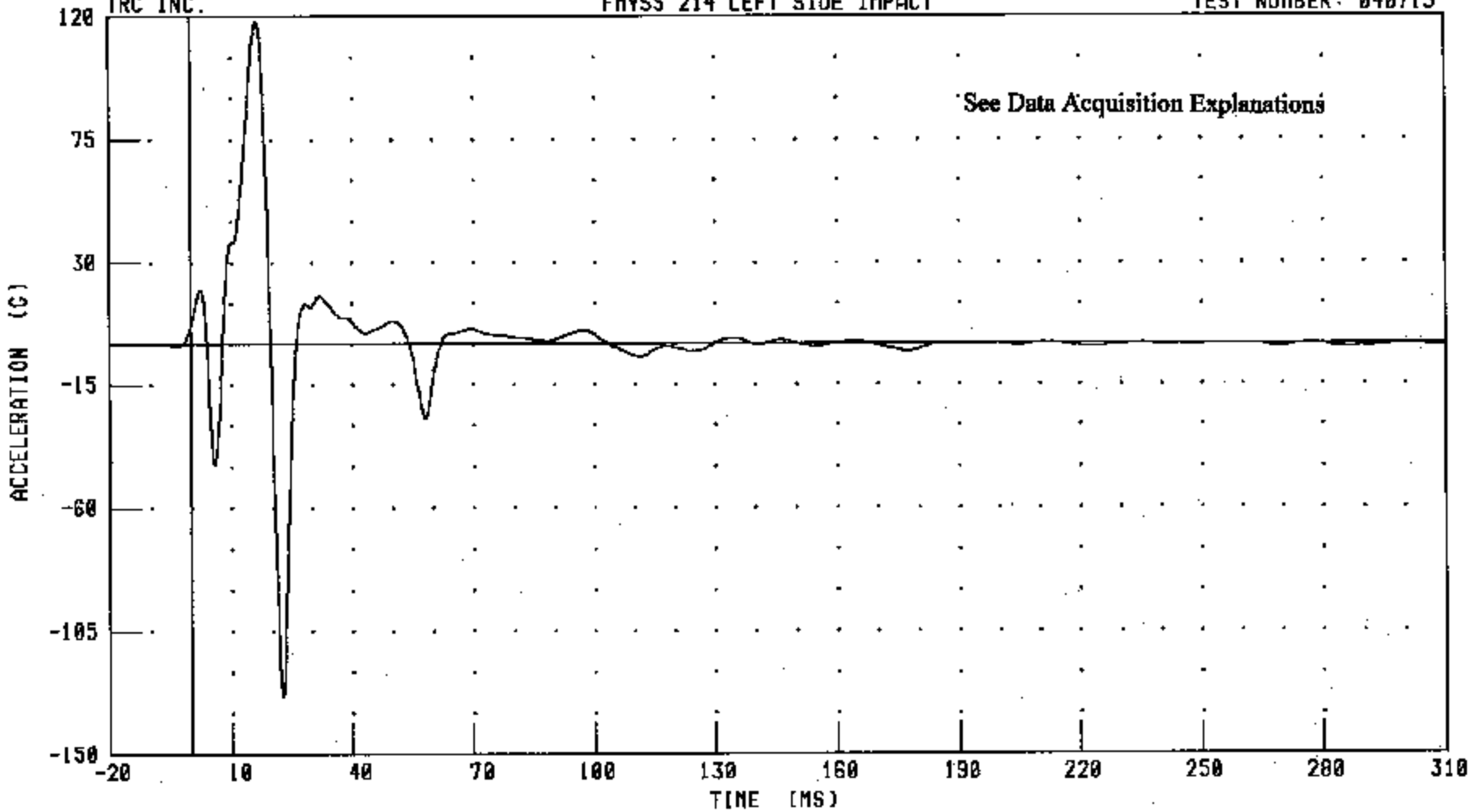
CHANNEL: LLAYV1 FILTER: CH. CLASS 180 PEAK DATA: 22.20 KM/H @ 51.04 MS, -0.36 KM/H @ 2.00 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

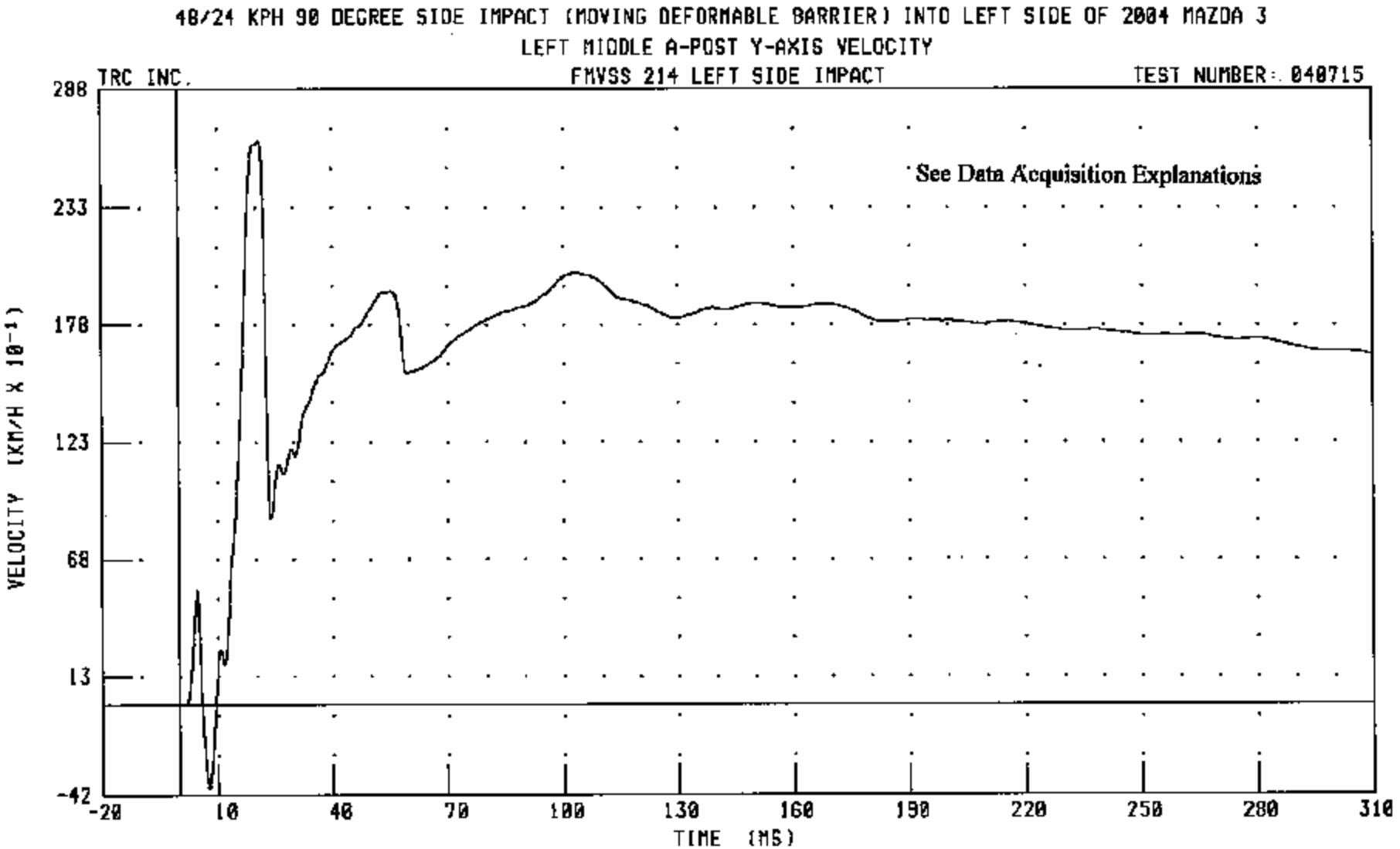
LEFT MIDDLE A-POST Y-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



CHANNEL: LMAYG1 FILTER: CH. CLASS 60

PEAK DATA: 110.09 G @ 16.40 MS; -129.11 G @ 22.64 MS

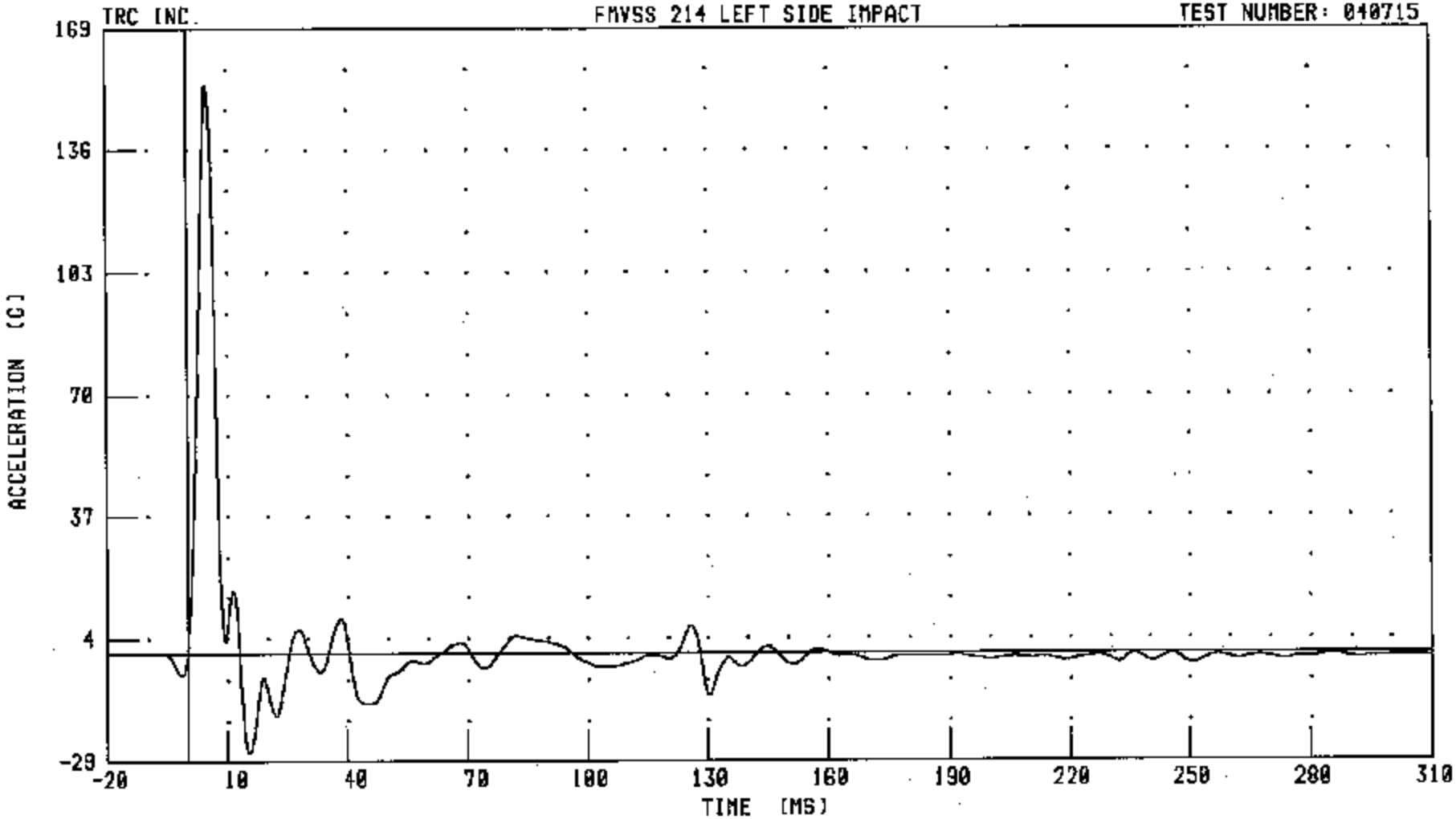

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
LEFT MIDDLE A-POST Y-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
See Data Acquisition Explanations
VELOCITY (KM/H X 10-1)
288
233
178
123
68
13
-42
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LMAYV1
FILTER: CH. CLASS 180
PEAK DATA: 26.41 KM/H @ 21.04 MS; -3.08 KM/H @ 7.68 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT LOWER B-POST Y-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

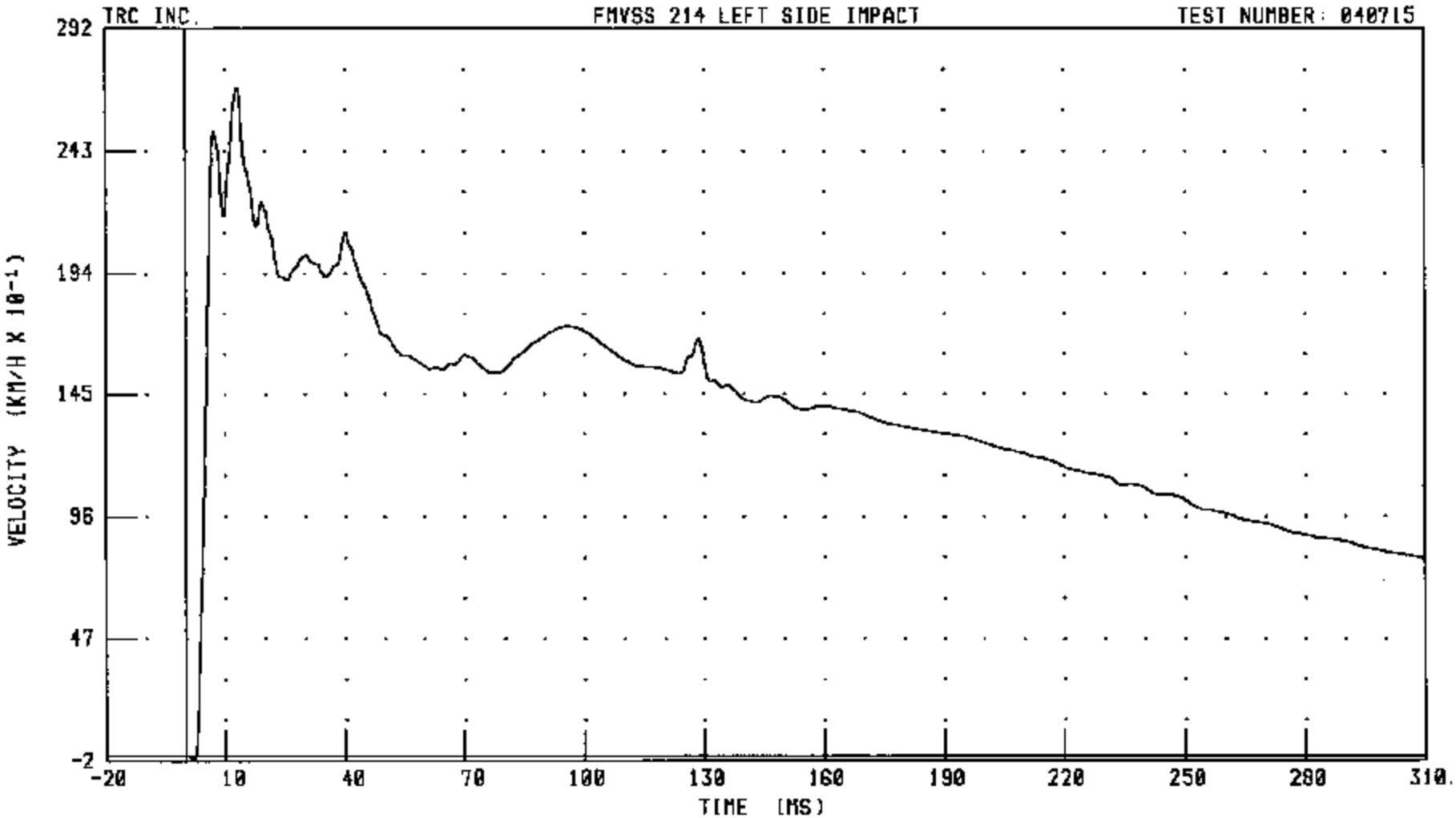


CHANNEL: LLBYG1 FILTER: CH. CLASS 60 PEAK DATA: 153.90 G @ 4.96 MS, -26.80 G @ 15.36 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT LOWER B-POST Y-AXIS VELOCITY



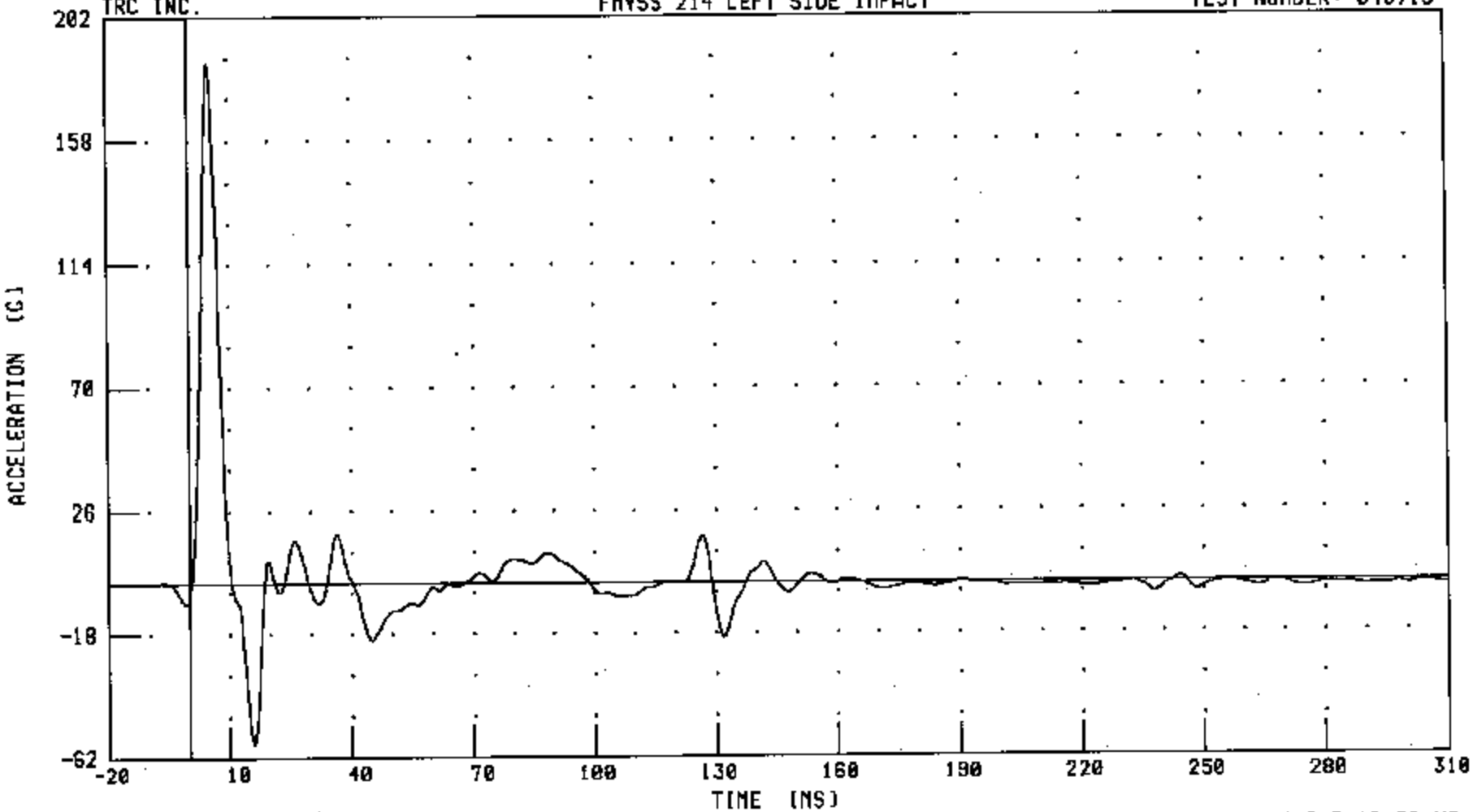
CHANNEL: LLBYY1 FILTER: CH. CLASS 180 PEAK DATA: 26.80 KM/H @ 13.20 MS; -0.19 KM/H @ 2.00 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

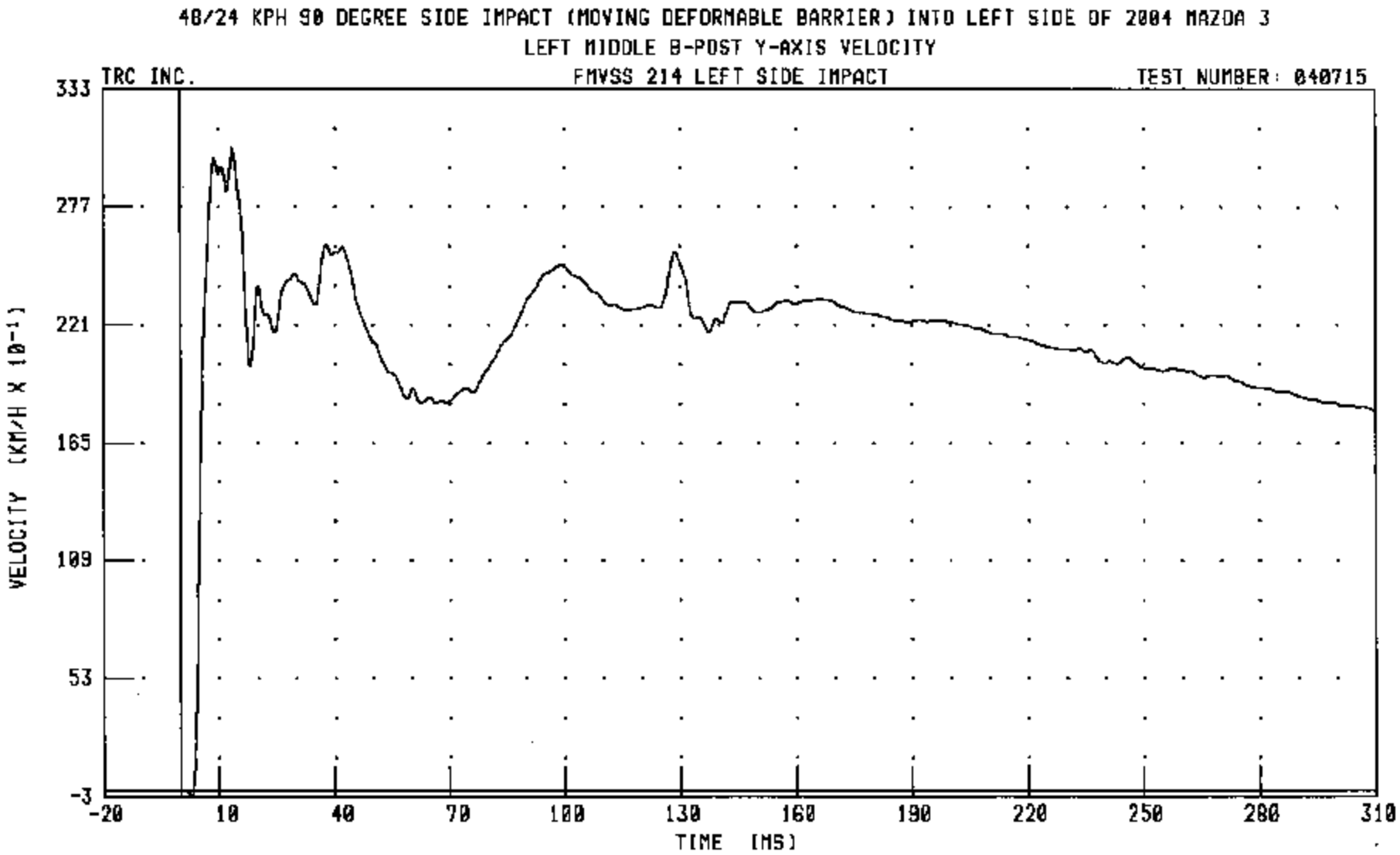
LEFT MIDDLE B-POST Y-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



CHANNEL: LMBYG1 FILTER: CH. CLASS 60 PEAK DATA: 185.14 G @ 5.12 MS; -57.25 G @ 16.08 MS

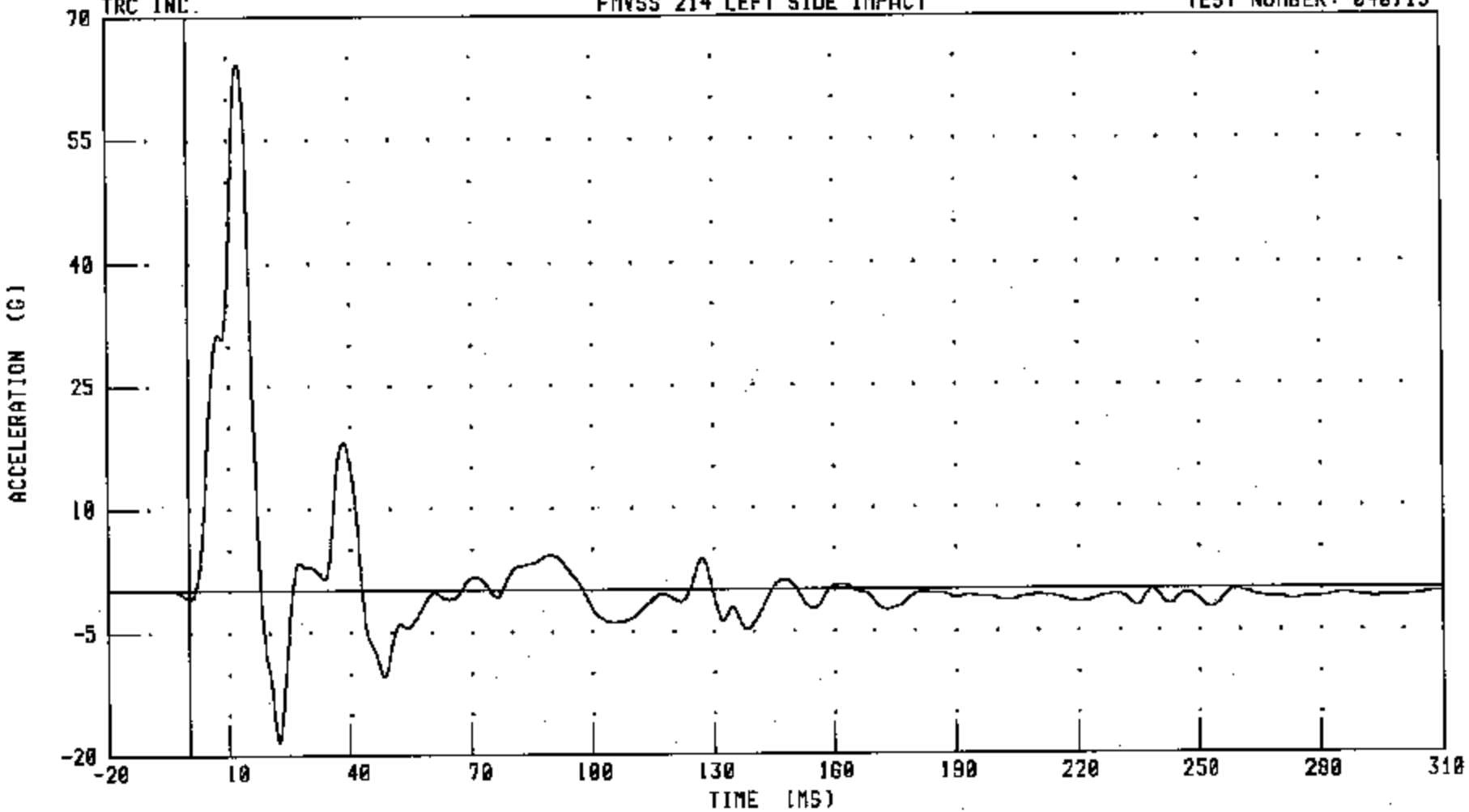
040715-1


40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
LEFT MIDDLE B-POST Y-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10⁻¹)
333
277
221
165
109
53
-3
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LMBYV1
FILTER: CH. CLASS 180
PEAK DATA: 30.52 KM/H @ 13.60 MS; -0.20 KM/H @ 2.88 MS

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

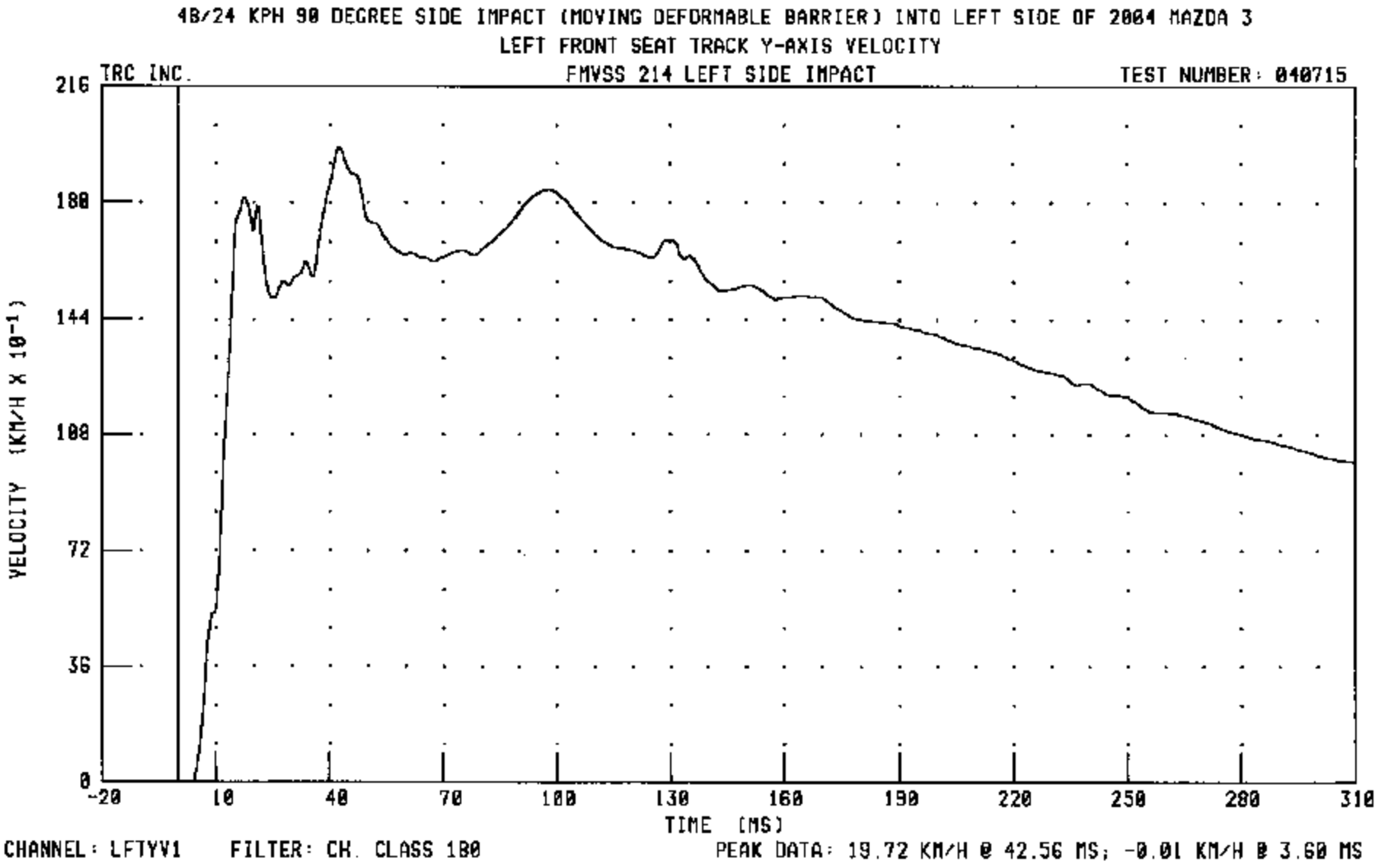
LEFT FRONT SEAT TRACK Y-AXIS ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715



CHANNEL: LFTYG1 FILTER: CH. CLASS 60 PEAK DATA: 64.19 G @ 12.72 MS, -18.36 G @ 22.40 MS

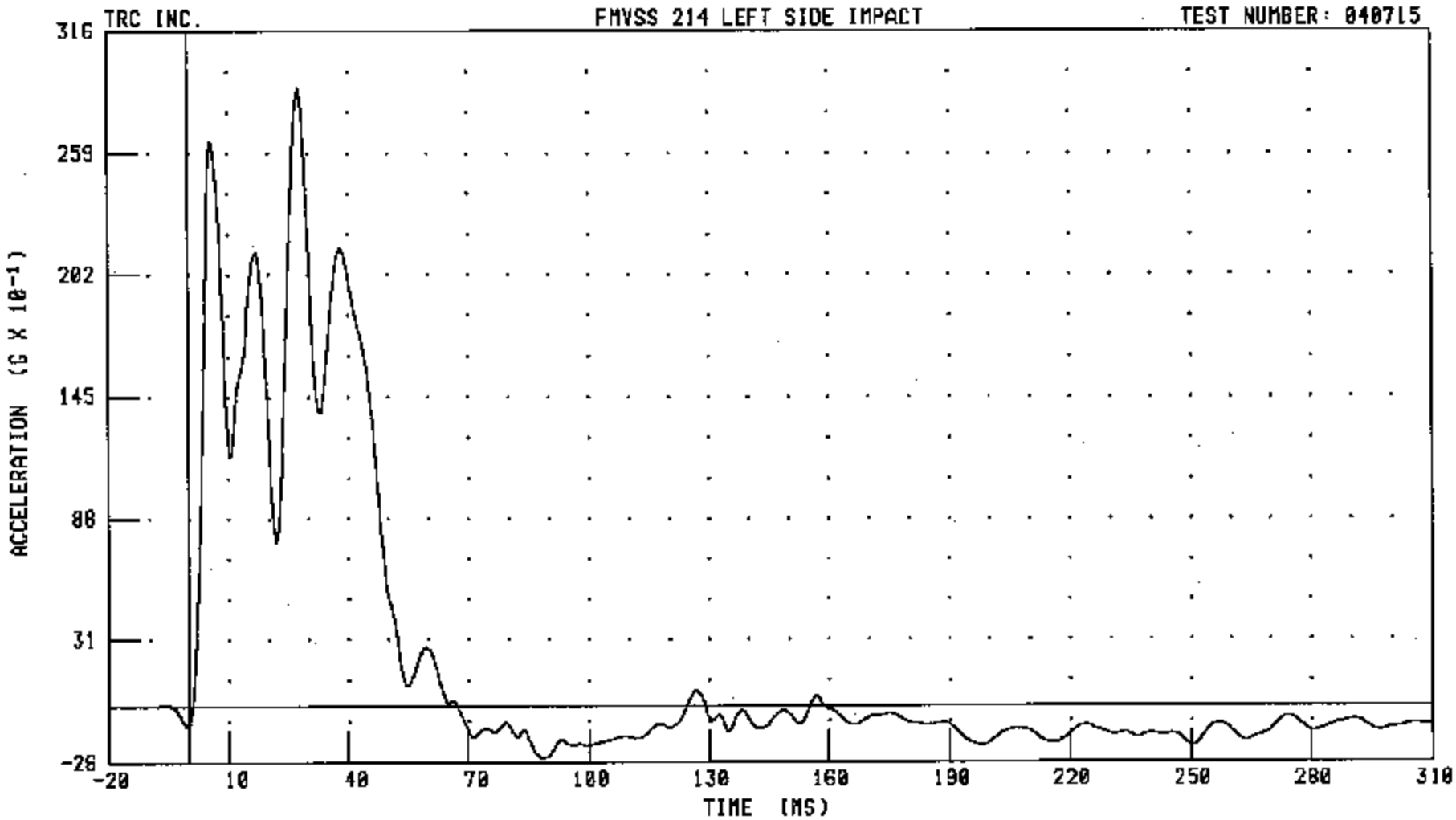
040715-1


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
LEFT FRONT SEAT TRACK Y-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10-1)
216
180
144
108
72
36
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFTYV1
FILTER: CH. CLASS 180
PEAK DATA: 19.72 KM/H @ 42.56 MS; -0.01 KM/H @ 3.60 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR SEAT TRACK Y-AXIS ACCELERATION



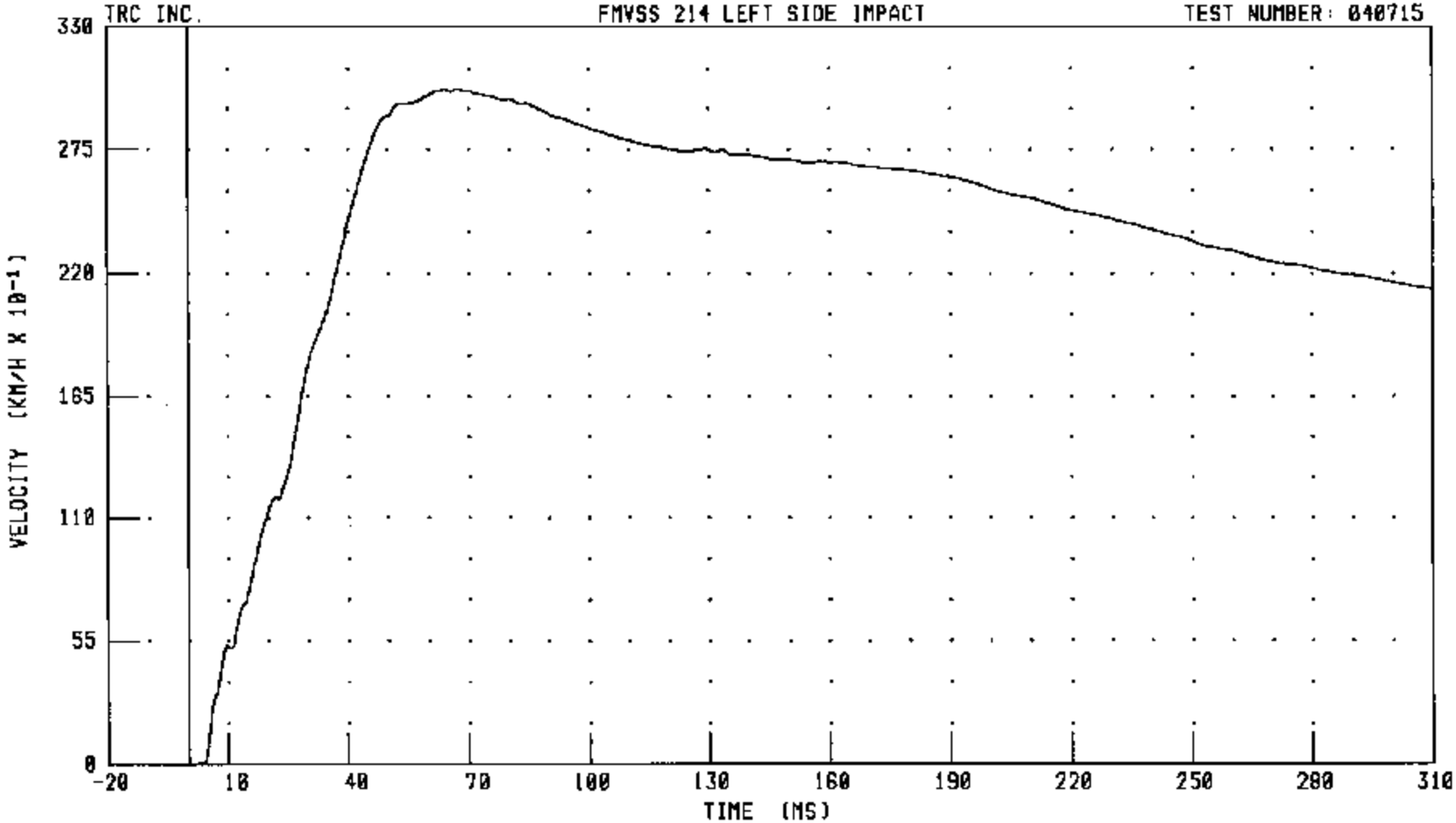
CHANNEL: LRTYG1 FILTER: CH. CLASS 60 PEAK DATA: 28.93 G @ 27.68 MS; -2.40 G @ 88.64 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

LEFT REAR SEAT TRACK Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 040715

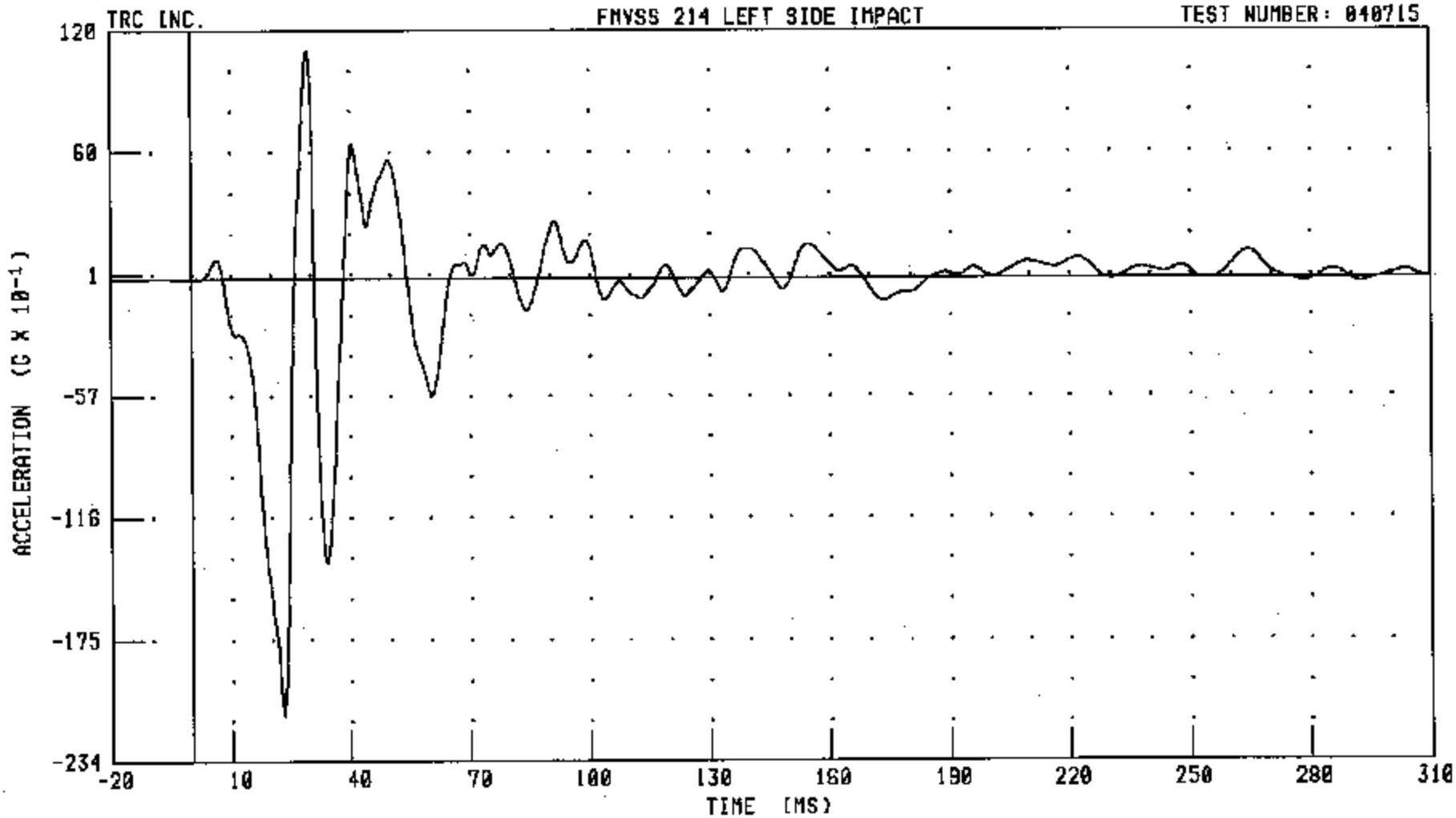


CHANNEL: LRTYV1 FILTER: CH. CLASS 180 PEAK DATA: 30.24 KM/H @ 67.36 MS; 0.00 KM/H @ 0.00 MS

040715-1

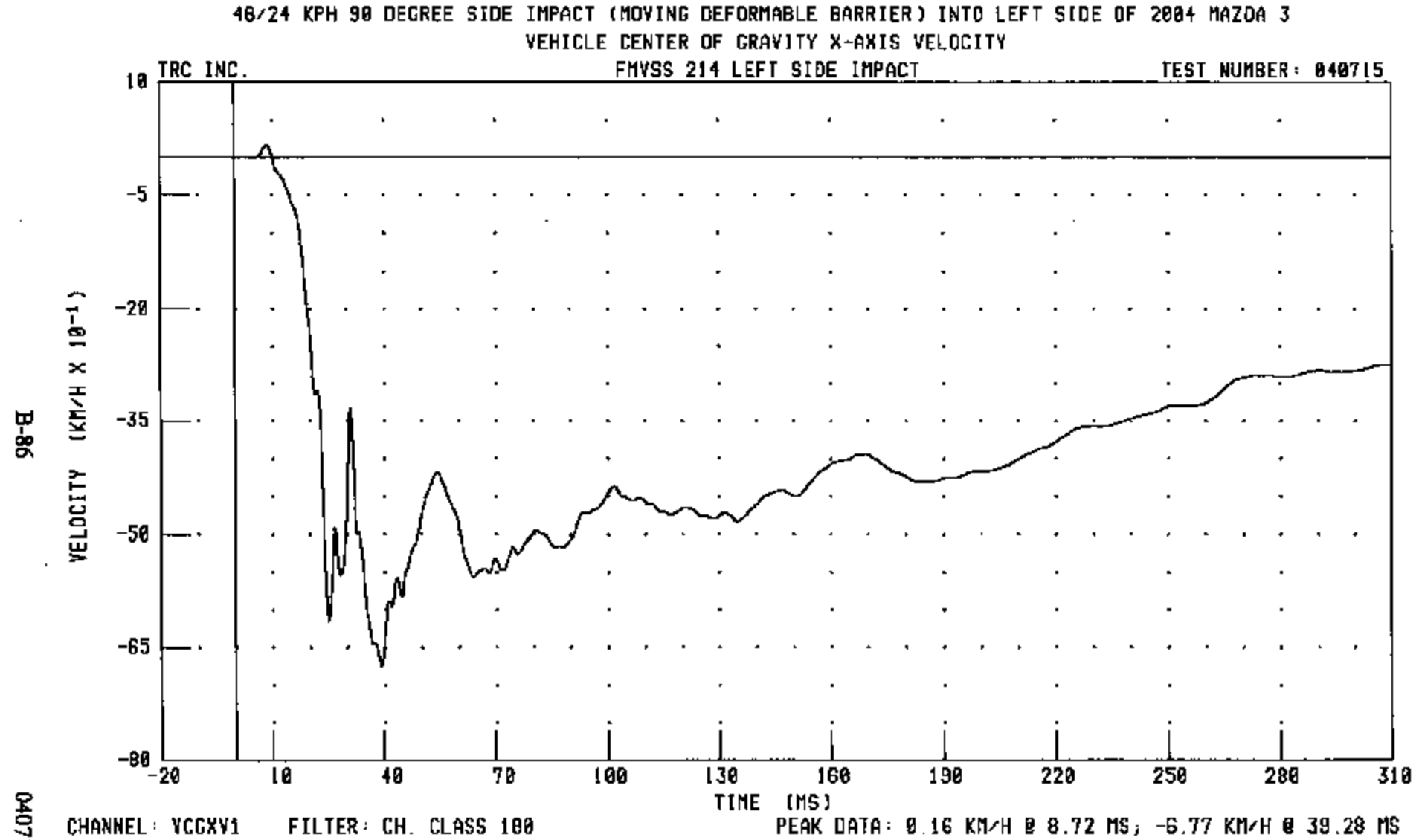
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION



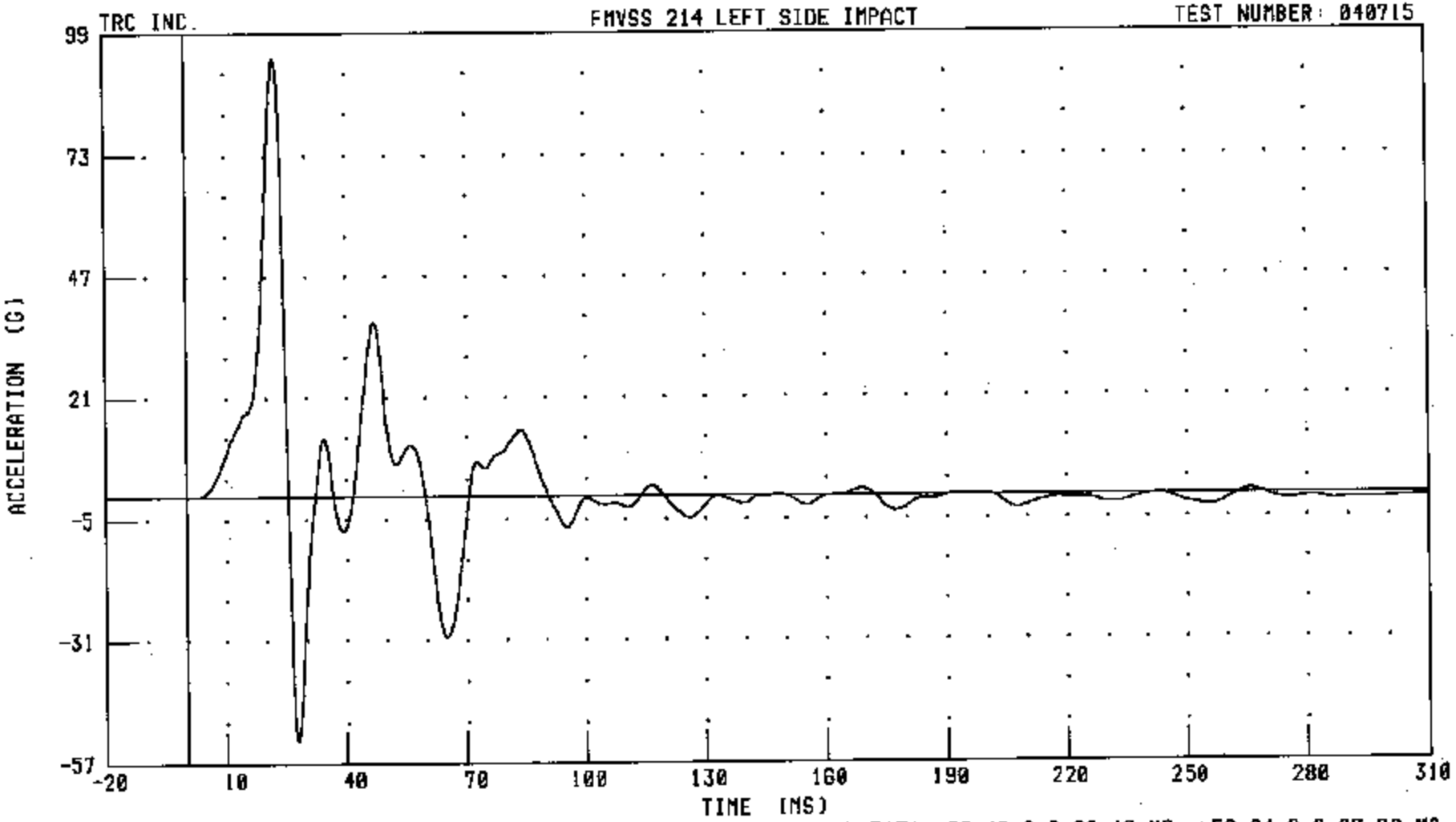
CHANNEL: VCCXG1 FILTER: CH. CLASS 60 PEAK DATA: 11.06 G @ 29.52 MS; -21.17 G @ 23.20 MS

040715-1


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY
TRC INC.
FMVSS 214 LEFT SIDE IMPACT
TEST NUMBER: 040715
VELOCITY (KM/H X 10⁻¹)
10
-5
-20
-35
-50
-65
-80
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: VCGXV1
FILTER: CH. CLASS 180
PEAK DATA: 0.16 KM/H @ 8.72 MS; -6.77 KM/H @ 39.28 MS
B-86
040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION



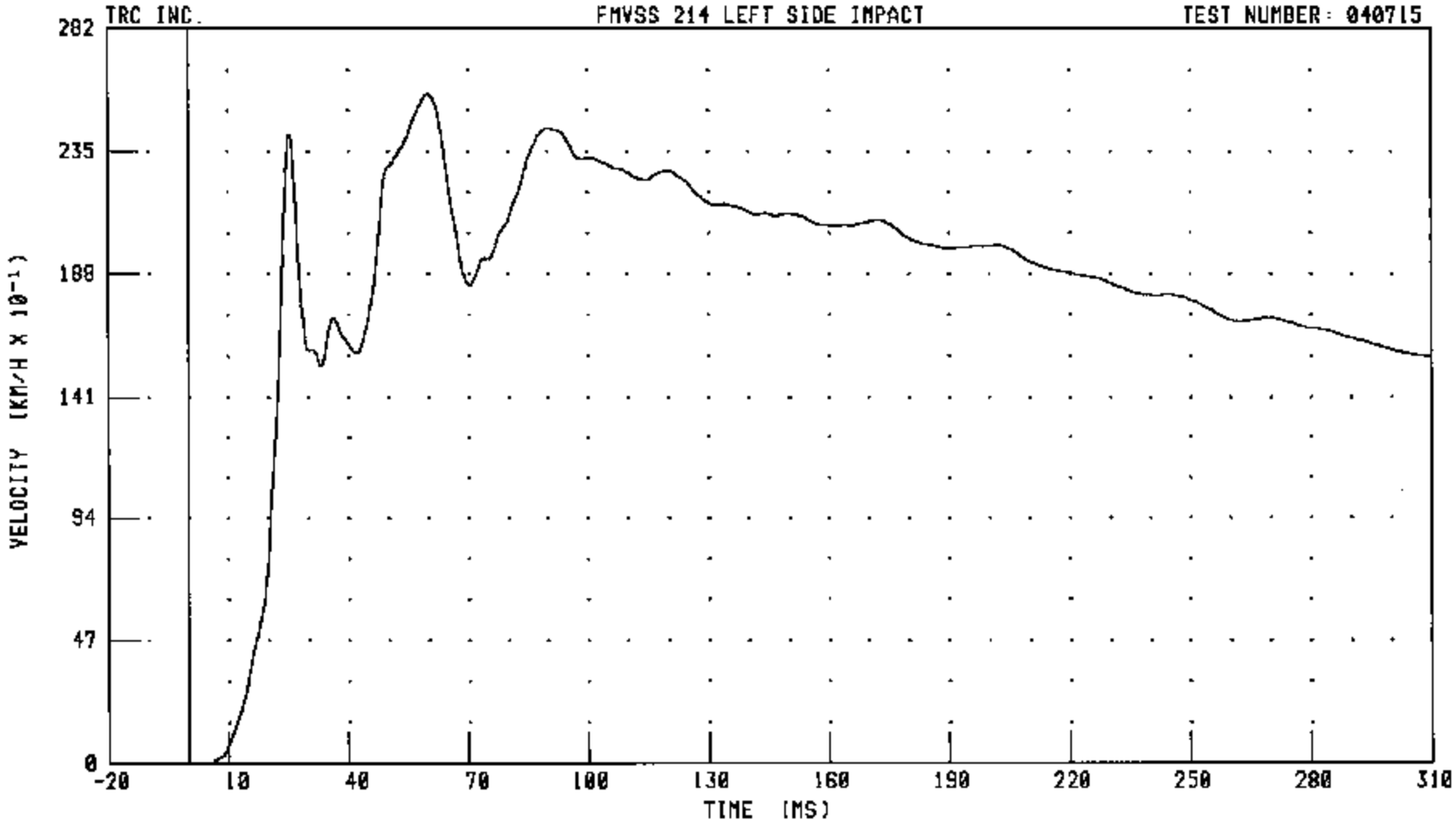
CHANNEL: VCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 93.49 G @ 22.48 MS, -52.24 G @ 27.76 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY



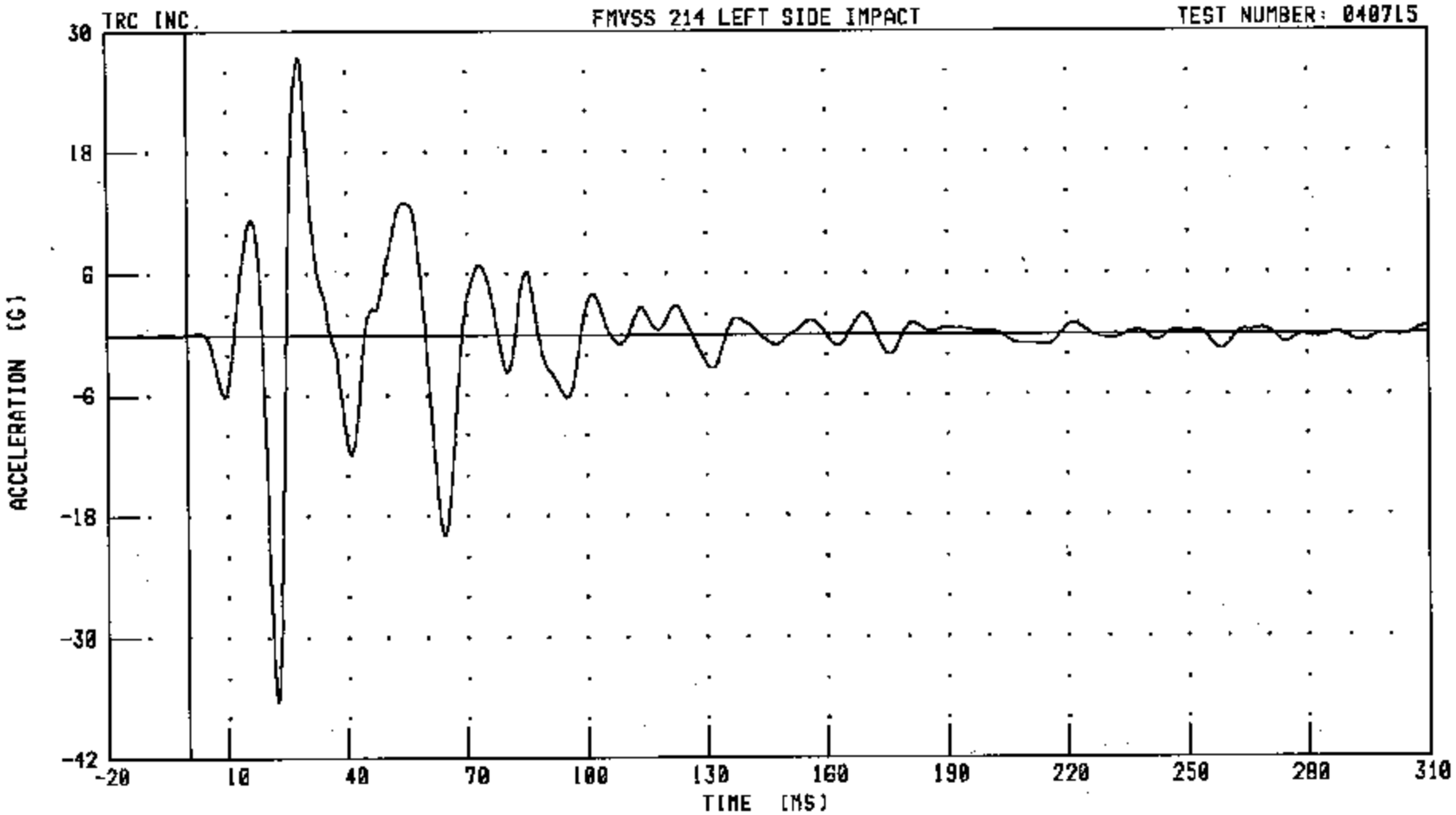
CHANNEL: YCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 25.72 KM/H @ 59.92 MS; 0.00 KM/H @ 0.00 MS

040715-1

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

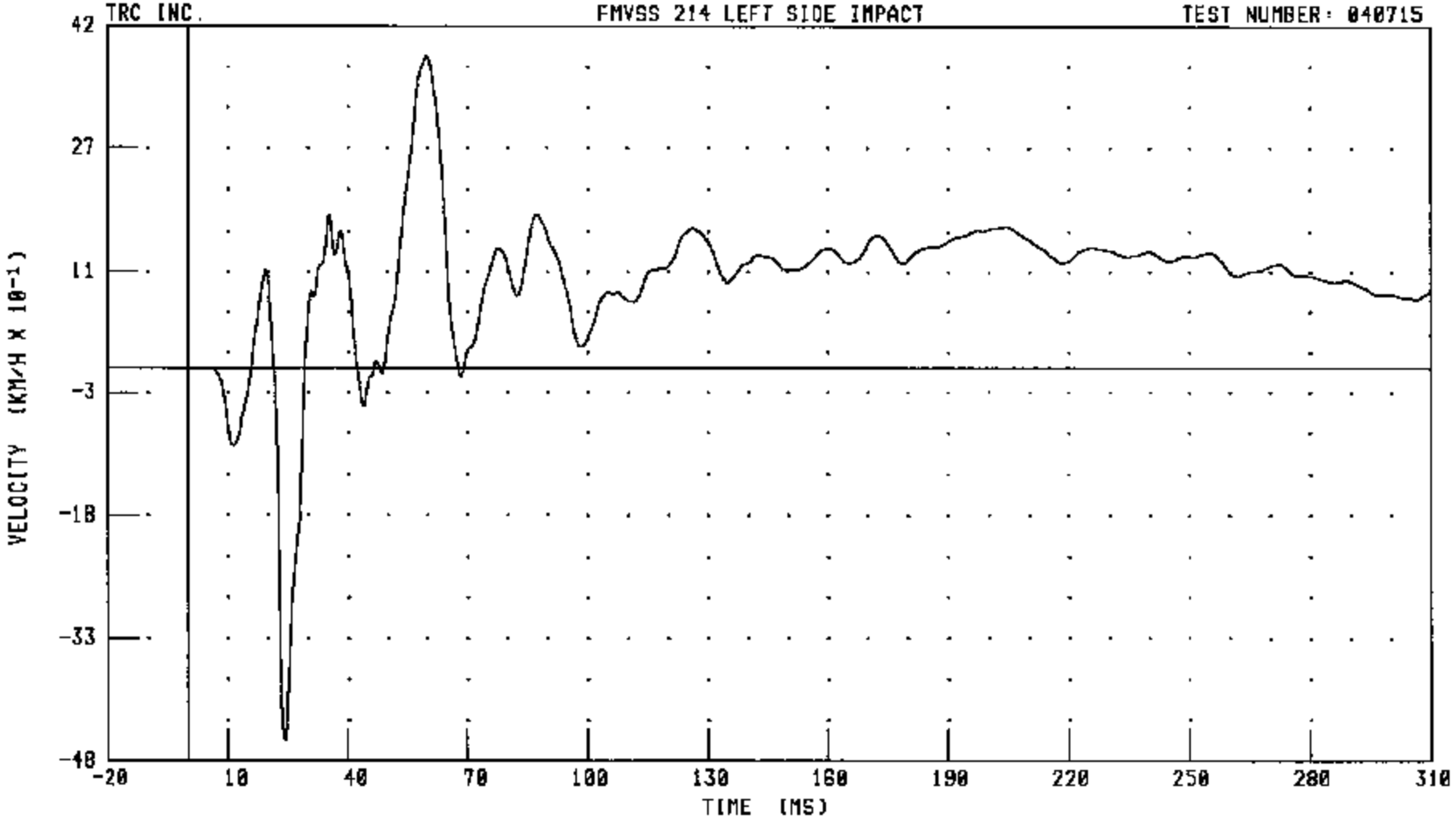


CHANNEL: VCGZC1 FILTER: CH. CLASS 60 PEAK DATA: 27.38 G @ 28.24 MS; -36.27 G @ 22.32 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

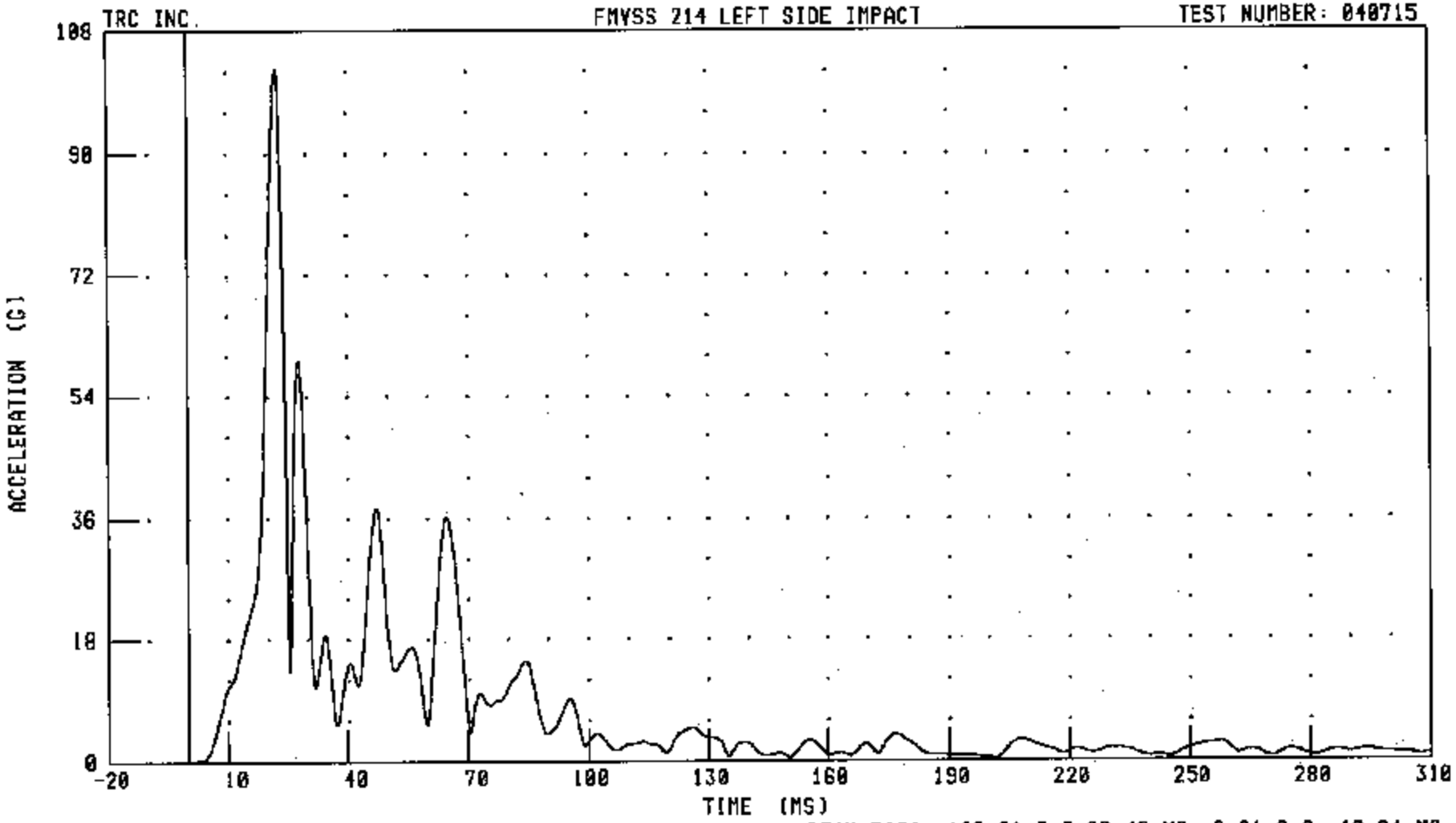


CHANNEL: VCGZV1 FILTER: CH. CLASS 180 PEAK DATA: 3.83 KM/H @ 60.00 MS; -4.56 KM/H @ 24.16 MS

040715-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004 MAZDA 3

VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION



CHANNEL: VCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 102.21 G @ 22.48 MS; 0.01 G @ -10.24 MS

040715-1