

V3027

REPORT NUMBER: 214-TRC-99-002

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION**

**1999 SUBARU FORESTER
PASSENGER CAR**

NHTSA NUMBER: CX5500

TRANSPORTATION RESEARCH CENTER INC.

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January 11, 1999

FINAL REPORT

**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration**

Enforcement

Office of Vehicle Compliance

400 Seventh Street, S. W.

Room No. 6115 (NSA-30)

Washington, DC 20590

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16. Abstract This 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject 1999 Subaru Forester passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-04 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted at Transportation Research Center Inc. in East Liberty, Ohio, on January 11, 1999. The impact velocity of the Moving Deformable Barrier (MDB) was 52.6 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21° C. The target vehicles post-test maximum crush was 239 mm at Level 2. The test or target vehicle's performance is given below: <table border="0" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Front SID</u></th> <th></th> <th style="text-align: center;"><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td style="text-align: center;">38</td> <td>g's</td> <td style="text-align: center;">40</td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td style="text-align: center;">37</td> <td>g's</td> <td style="text-align: center;">48</td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td style="text-align: center;">55</td> <td>g's</td> <td style="text-align: center;">44</td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td style="text-align: center;">46</td> <td>g's</td> <td style="text-align: center;">46</td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">61</td> <td>g's</td> <td style="text-align: center;">45</td> <td>g's</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.					<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	38	g's	40	g's	Left Lower Rib Acceleration:	37	g's	48	g's	Lower Spine Acceleration:	55	g's	44	g's	Thoracic Trauma Index, (TTI):	46	g's	46	g's	Pelvis Acceleration (PEV):	61	g's	45	g's
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	meters	m
yd	yards	0.9	kilometers	km
mi	miles	1.6		
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

* 1 m = 2.54 (exactly). For other exact conversions and more detailed tables, see NIST Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SO Catalog No. C13.10296.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

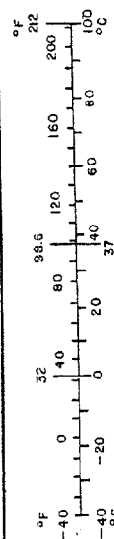


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SECTION 1

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. DTNH22-97-C-21033. The purpose of this test was to evaluate side impact protection in a 1999 Subaru Forester passenger car. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-04, dated September 1, 1995).

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 1999 Subaru Forester passenger car was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 52.6 kph (32.7 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 January 11, 1999. Pre- 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-04, dated September 1, 1995). 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 (T₁₂) 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 41 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	46	46
PEV (g)	61	45

Data Acquisition Explanations

The vehicle's lower A-post Y-axis data channel, LLAYG1, lost data between approximately 50 and 60 milliseconds. This also affected the velocity calculation.

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999 Subaru Forester passenger car
 Vehicle Body Color: Red VIN: JF1SF6356XH711317
 Vehicle NHTSA No.: CX5500 Month & Year of Manufacture: 09/98
 Engine Data: 4 Cylinders; - CID; 2.5 Liters; - cc
 Engine Placement: - Longitudinal; or - Lateral; or X Horizontal
 Transmission: 4 Speed; - Manual; X Automatic; - Overdrive
 Final Drive: - Rear Wheel Drive; - Front Wheel Drive; X Four-Wheel
 Odometer Reading: 84 km
 Options: X A/C; X Power steering; X Pwr. brakes; X Pwr. windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity); 200 kPa FRONT
248 kPa REAR
 Recommended Tire Size: P205/70R15
 Tires on Test Vehicle: P205/70R15 Manufacturer: Bridgestone
 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 = 408.2 kg (A)
 No. of Occupants x 68.04 kg. = 340.2 kg (B)
 Vehicle Cargo Capacity = 68.0 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>389.2</u>	kg	Left Rear	=	<u>336.1</u>	kg
Right Front	=	<u>402.8</u>	kg	Right Rear	=	<u>320.7</u>	kg
TOTAL FRONT	=	<u>792.0</u>	kg	TOTAL REAR	=	<u>656.8</u>	kg
% of Total Weight	=	<u>54.7</u>	%	% of Total Weight	=	<u>45.3</u>	%
TOTAL WEIGHT	=	<u>1,448.8</u>	kg				

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight With Max. Fluids = 1,448.8 kg (A)
 Maximum Cargo Carrying Capacity Of Test Vehicle = 68.0 kg (B)
 Weight Of Instrumented Side Impact Dummies (1 Or 2 X 79.0 kg) = 158.0 kg (C)
 TEST VEHICLE TARGET WEIGHT: = 1,674.8 kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDW + 1 OR 2 SID(s) + CARGO):

Left Front	=	<u>447.2</u>	kg	Left Rear	=	<u>400.1</u>	kg
Right Front	=	<u>399.2</u>	kg	Right Rear	=	<u>445.0</u>	kg
TOTAL FRONT	=	<u>846.4</u>	kg	TOTAL REAR	=	<u>845.1</u>	kg
% of Total Weight	=	<u>50.0</u>	%	% of Total Weight	=	<u>50.0</u>	%
TOTAL WEIGHT	=	<u>1,691.5</u>	kg				

AS TESTED WEIGHT OF TEST VEHICLE (1 OR 2 SID(s) + CARGO + EQUIPMENT & INSTRUMENTATION)

Left Front	=	<u>448.5</u>	kg	Left Rear	=	<u>419.0</u>	kg
Right Front	=	<u>395.5</u>	kg	Right Rear	=	<u>406.5</u>	kg
TOTAL FRONT	=	<u>844.0</u>	kg	TOTAL REAR	=	<u>825.5</u>	kg
% of Total Weight	=	<u>50.6</u>	%	% of Total Weight	=	<u>49.6</u>	%
TOTAL WEIGHT	=	<u>1,669.5</u>	kg				

TEST VEHICLE ATTITUDE (ALL DIMENSIONS IN MILLIMETERS):

AS DELIVERED:

Left Front 745 Right Front 751 Left Rear 751 Right Rear 762

FULLY LOADED:

Left Front 723 Right Front 743 Left Rear 705 Right Rear 732

READY FOR TEST:

Left Front 723 Right Front 733 Left Rear 721 Right Rear 735

TEST VEHICLE WHEELBASE: 2,520 millimeters

C.G. = 1,246 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4,245 millimeters
 Left Side = 4,230 millimeters
 Centerline = 4,425 millimeters

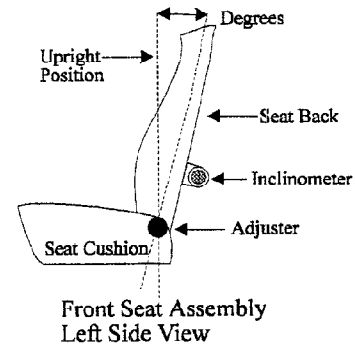
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

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: Mid position

Total Length Of Adjustment Travel: 203 millimeters

Total Number Of Adjustment Positions Or Detents: 16

FRONT SEAT BACK ADJUSTMENT POSITION: The back adjusted to the 4th latch position from the upright position.

Seat Back Torso Angle: -- degrees

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: The back adjusted to the 5th latch position from the upright position.

ADJUSTABLE STEERING COLUMN POSITION: Mid-position

WINDOW POSITIONS: Left Front: Closed Left Rear: Closed
Right Front: Open Right Rear: Open

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:

60.2 liters (fuel tank usable capacity)

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

LOCATION OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:

Wheelbase = 2,520 millimeters

Impact point is 320.0 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 323.0 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 1999 Subaru Forester
 Body Style: passenger car VIN: JF1SF6356XH711317
 NHTSA No.: CX5500 Test Date: January 11, 1999
 Overall Length = 4,425 millimeters; Overall Width = 1,735 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 448.5 kg Left Rear = 419.0 kg
 Right Front = 395.5 kg Right Rear = 406.5 kg
 TOTAL FRONT = 844.0 kg TOTAL REAR = 825.5 kg
 TOTAL VEHICLE WEIGHT 1,669.5 kg
 Wheelbase = 2,520 millimeters
 Longitudinal C.G. From Center Of Front Axle = 1,246 millimeters
 Impact Angle With Respect To Impactor = 90 degrees

ACTUAL IMPACT POINT:

Actual Impact Point is 3 mm rearward of nominal impact ref. line (Lateral)
 Actual Impact Point is 4 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (280 mm above ground) = 78 millimeters
 2. LEVEL 2 (590 mm above ground) = 239 millimeters
 3. LEVEL 3 (685 mm above ground) = 222 millimeters
 4. LEVEL 4 (960 mm above ground) = 181 millimeters
 5. LEVEL 5 (1,500 mm above ground) = 50 millimeters
 Maximum Post-Test Intrusion = 239 millimeters

OCCUPANTS:

	<u>Front Passenger:</u>	<u>Rear Passenger:</u>
Dummy Identification	<u>051</u>	<u>052</u>
Restraints Used	<u>3-point active seat belt</u>	<u>3-point active seat belt</u>

INSTRUMENTATION:

Number Of Vehicle Data Channels: = 41
 Number Of Cameras: Onboard = 3
 Offboard = 7
 TOTAL = 10

DATA SHEET 3

MOVING DEFORMABLE BARRIER(MDB) SUMMARY

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore, Inc.: 012C1098, 013C1098, 027A1098, 029B1098

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to the left

MDB DETAILS:

Overall Width of Framework Carriage = 1,251 millimeters

Overall Length of MDB (Incl. honeycomb impact face) = 4,115 millimeters

Wheelbase of Framework Carriage = 2,591 millimeters

Tread of Framework Carriage (Front & Rear) = 1,880 millimeters

C.G. Location Rearward of Front Axle = 1,101 millimeters

MDB WEIGHT:

Left Front = 303.5 kg Left Rear = 375.5 kg

Right Front = 478.5 kg Right Rear = 202.5 kg

TOTAL FRONT = 782.0 kg TOTAL REAR = 578.0 kg

TOTAL MDB WEIGHT = 1,360.0 kg

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

Impact Speed = 52.6 kph

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level = 123.4 millimeters

2. Row B at Top of Bumper Level = 53.7 millimeters

3. Row C at Mid Level = 91.2 millimeters

4. Row D at Top of Stack Level = 133.1 millimeters

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>Head rest</u>	<u>C-pillar/head rest</u>
Upper Torso:	<u>N/A</u>	<u>N/A</u>
Lower Torso:	<u>N/A</u>	<u>N/A</u>
Left Knee:	<u>Door panel</u>	<u>Door panel/seat back</u>
Right Knee:	<u>Dash panel</u>	<u>Seat back</u>

DOOR OPENING:

	<u>LEFT DOOR</u>	<u>RIGHT DOOR</u>
Front:	<u>Tools</u>	<u>Easy</u>
Rear:	<u>Tools</u>	<u>Easy</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

Vertical: 4 mm above target

Horizontal: 3 mm rearward of target

ARM REST LOCATIONS:

Front: 238 mm below the bottom of the window

Rear: 233 mm below the bottom of the window

SEAT MOVEMENT:

Front: None

Rear: None

GLAZING DAMAGE:

Windshield: Left edge of windshield cracked

Window: Left driver window and left rear passenger window shattered at impact

PILLAR PERFORMANCE:

No visible tears or separations

SILL SEPARATION:

None

OTHER NOTABLE IMPACT EFFECTS:

The driver and passenger frontal airbags did not deploy.

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

TEST NUMBER: 990111

DRIVER DUMMY SERIAL NUMBER: 051

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	38.4 g	@ 33.7 ms	21.6 g	@ 75.6 ms
LATERAL (R)	39.7 g	@ 33.7 ms	22.3 g	@ 75.6 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	36.9 g	@ 33.7 ms	16.6 g	@ 75.6 ms
LATERAL (R)	38.3 g	@ 33.1 ms	17.7 g	@ 75.6 ms
TTI d (P)	46.5			
TTI d (R)	47.6			

LOWER SPINE ACCELERATION

LATERAL (P)	54.6 g	@ 35.6 ms	10.7 g	@ 78.1 ms
LATERAL (R)	55.4 g	@ 35.6 ms	10.2 g	@ 78.1 ms

PELVIS ACCELERATION

LATERAL (P)	60.9 g	@ 32.5 ms	14.1 g	@ 57.5 ms
LATERAL (R)	60.1 g	@ 32.5 ms	14.2 g	@ 57.5 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

DATA SHEET 5 (continued)

SID INSTRUMENTATION DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

TEST NUMBER: 990111

PASSENGER DUMMY SERIAL NUMBER: 052

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	39.8 g	@ 53.1 ms	7.1 g	@ 149.4 ms
LATERAL (R)	40.0 g	@ 53.1 ms	7.7 g	@ 149.4 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	48.0 g	@ 51.9 ms	7.4 g	@ 148.7 ms
LATERAL (R)	47.4 g	@ 51.9 ms	7.5 g	@ 148.7 ms
TTI d (P)	46.1			
TTI d (R)	45.9			

LOWER SPINE ACCELERATION

LATERAL (P)	44.2 g	@ 53.1 ms	20.8 g	@ 80.6 ms
LATERAL (R)	44.5 g	@ 53.1 ms	20.1 g	@ 80.6 ms

PELVIS ACCELERATION

LATERAL (P)	44.7 g	@ 45.6 ms	9.2 g	@ 92.5 ms
LATERAL (R)	44.1 g	@ 45.6 ms	9.2 g	@ 92.5 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

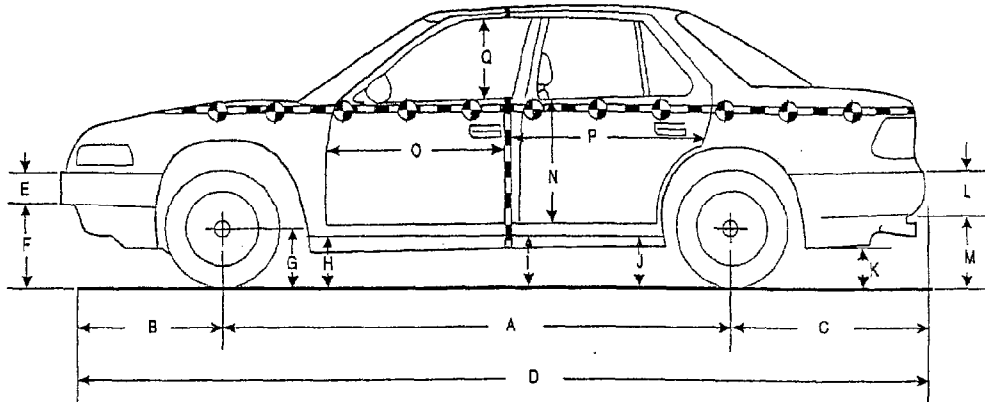
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500



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	2520	2520	2490	30
B	900	900	902	-2
C	1030	1030	1015	15
D	4425	4425	4418	7
E	240	240	240	0
F	351	295	302	-7
G	315	315	313	2
H	277	234	263	-29
I	288	233	234	-1
J1	288	223	262	-39
J2	278	218	242	-24
K	423	273	246	27
L	200	200	200	0
M	439	344	355	-11
N	716	716	468	248
O	690	690	670	20
P	1247	1240	1181	59
Q	445	445	425	20
R	4245	4245	4255	-10
S	4230	4230	4295	-65
T	1308	1308	1177	131

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

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

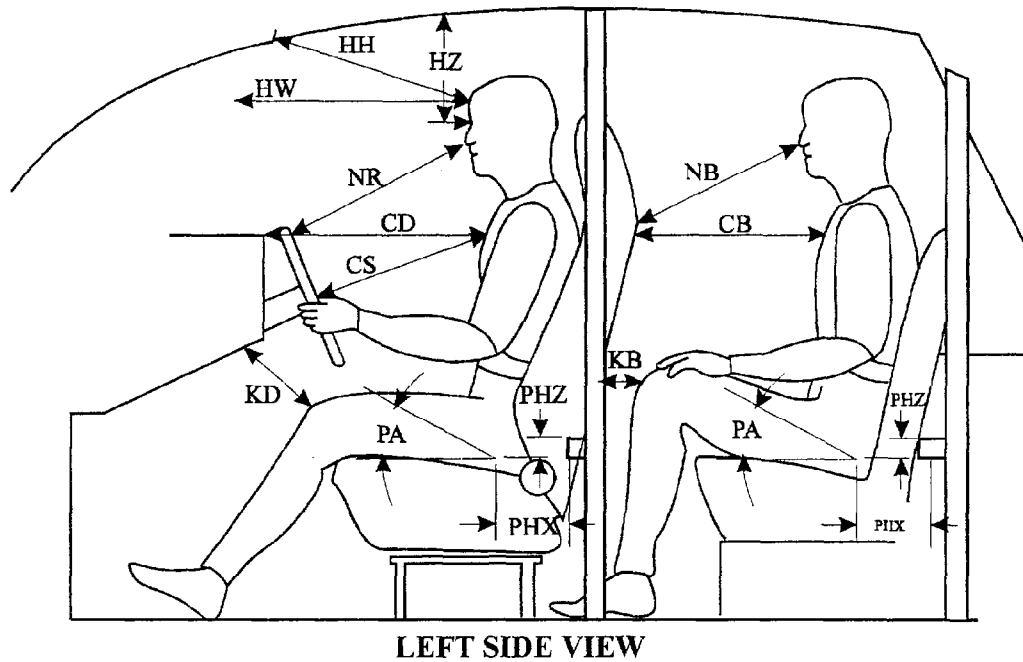
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500



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

	DRIVER ID #051	LEFT REAR PASS. ID#052
HH	498	N/A
HW	684	N/A
HZ	211	233
NR/NB	486	548
CD/CB	546	463
CS	369	N/A
KDL(KDA°)/KBL(KDA°)	81/77°	99/0°
KDR(KBA°)/KBR(KBA°)	81/77°	84/0°
PA°	24°	24°
PHX	130	251
PHZ	82	265

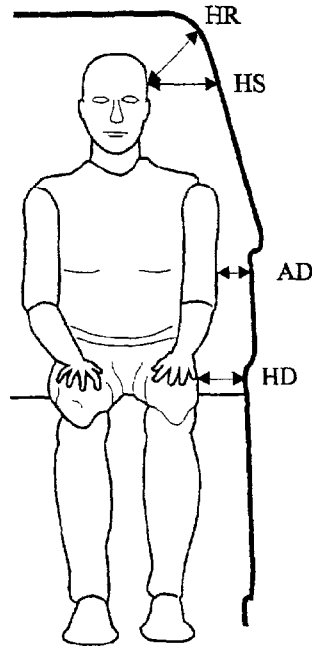
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500



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

	DRIVER ID #051	LEFT REAR PASS. ID #052
HR	198	229
HS	261	239
AD*	LOWER: 175 UPPER: 120	LOWER: 223 UPPER: 175
HD	114	179

* 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.

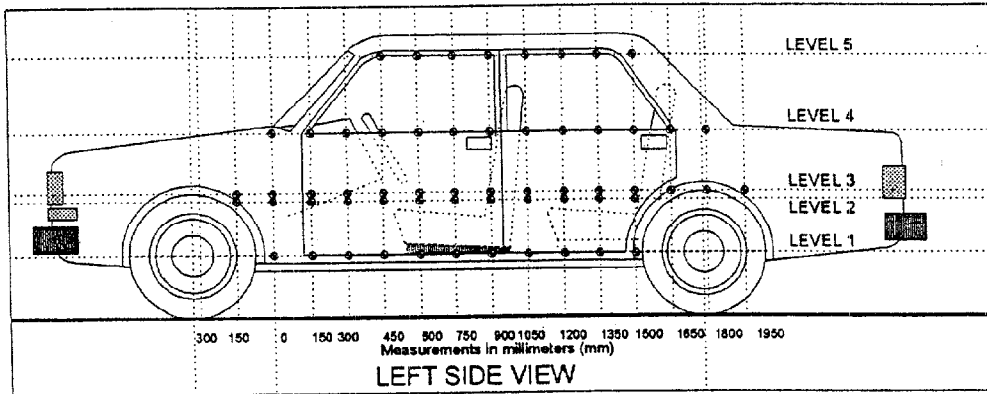
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500



- LEVEL 5 - WINDOW TOP
- LEVEL 4 - WINDOW SILL
- LEVEL 3 - MID-DOOR
- LEVEL 2 - OCCUPANT H-POINT
- LEVEL 1 - AXLE CENTERLINE HEIGHT OR SILL TOP HEIGHT

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1500</u>	millimeters
Level 4 @ Window Sill	=	<u>960</u>	millimeters
Level 3 @ Mid Door	=	<u>685</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>590</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>280</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

Location	Height	(mm) From Impact Point													
		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	432	438	445	456	455
	Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	490	499	511	523	533
	Crush	N/A	N/A	N/A	3	N/A	N/A	N/A	N/A	N/A	58	61	66	67	78
Level 2 H-Point	Pre	N/A	N/A	426	393	N/A	N/A	N/A	N/A	N/A	383	380	376	375	375
	Post	N/A	N/A	430	400	N/A	N/A	N/A	N/A	N/A	563	605	613	610	610
	Crush	N/A	N/A	4	7	N/A	N/A	N/A	N/A	N/A	180	225	237	235	235
Level 3 Mid-Door	Pre	N/A	N/A	N/A	395	358	N/A	N/A	N/A	356	376	375	372	372	373
	Post	N/A	N/A	N/A	401	377	N/A	N/A	N/A	449	544	555	464	565	571
	Crush	N/A	N/A	N/A	6	19	N/A	N/A	N/A	93	168	180	-92	193	198
Level 4 Window Sill	Pre	N/A	N/A	N/A	N/A	N/A	N/A	445	435	430	422	420	415	411	414
	Post	N/A	N/A	N/A	N/A	N/A	N/A	466	471	466	476	493	498	510	524
	Crush	N/A	N/A	N/A	N/A	N/A	N/A	21	36	36	54	73	83	99	110
Level 5 Window Top	Pre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	628
	Post	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	671
	Crush	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	43

DATA SHEET 10 (continued)
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

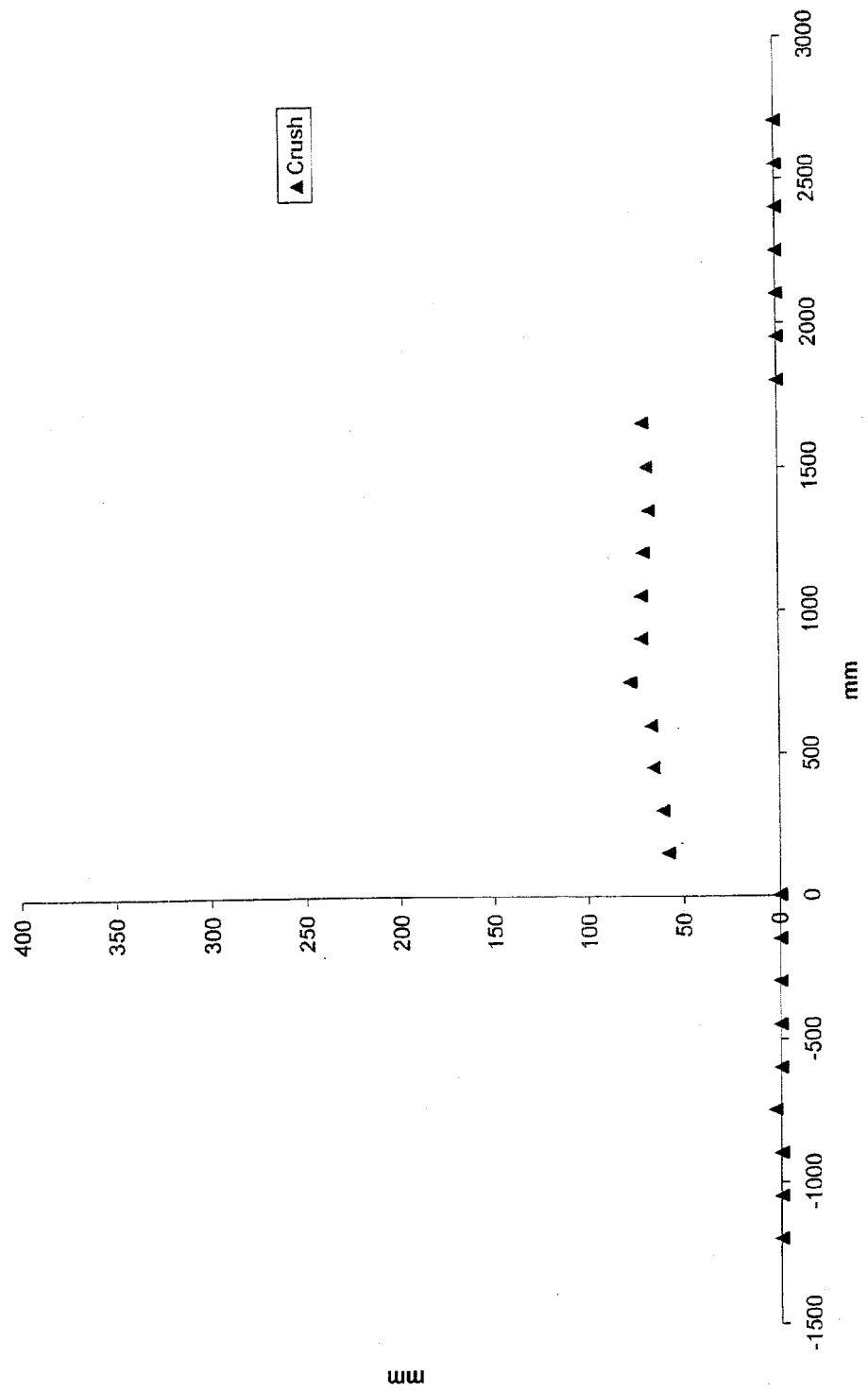
Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

Location	Height	(mm) From Impact Point														
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	Pre	463	462	455	449	444	438	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Post	535	534	526	517	513	509	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Crush	72	72	71	68	69	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Level 2 H-Point	Pre	372	365	368	369	373	370	365	N/A	N/A	N/A	N/A	370	390		
	Post	605	597	598	608	612	597	571	N/A	N/A	N/A	N/A	391	402		
	Crush	233	232	230	239	239	227	206	N/A	N/A	N/A	N/A	21	12		
Level 3 Mid-Door	Pre	371	366	370	369	373	371	365	360	N/A	N/A	N/A	375	389		
	Post	576	582	592	586	588	580	562	451	N/A	N/A	N/A	393	400		
	Crush	205	216	222	217	215	209	197	91	N/A	N/A	N/A	18	11		
Level 4 Window Sill	Pre	409	406	405	407	406	404	405	400	408	407	415	430	432		
	Post	536	543	586	570	557	540	535	502	461	455	446	432	445		
	Crush	127	137	181	163	151	136	130	102	53	48	31	2	13		
Level 5 Window Top	Pre	626	626	622	633	630	629	634	635	639	642	645	634	N/A		
	Post	668	672	672	678	675	671	672	651	670	671	671	678	N/A		
	Crush	42	46	50	45	45	42	38	16	31	29	26	24	N/A		

DATA SHEET 10 (continued)
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

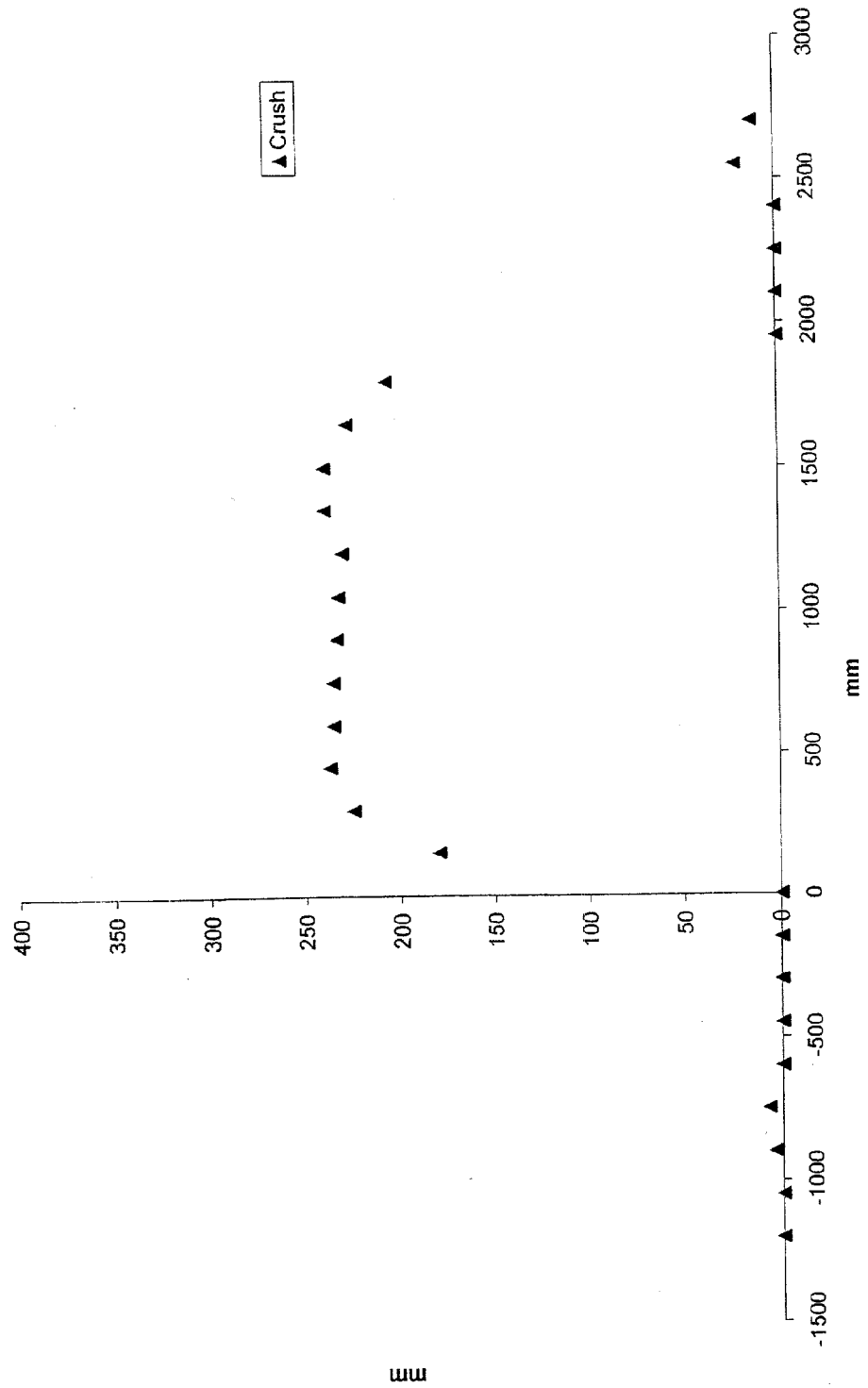
Side Profile Level 1 280 mm Above Ground



DATA SHEET 10 (continued)
VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

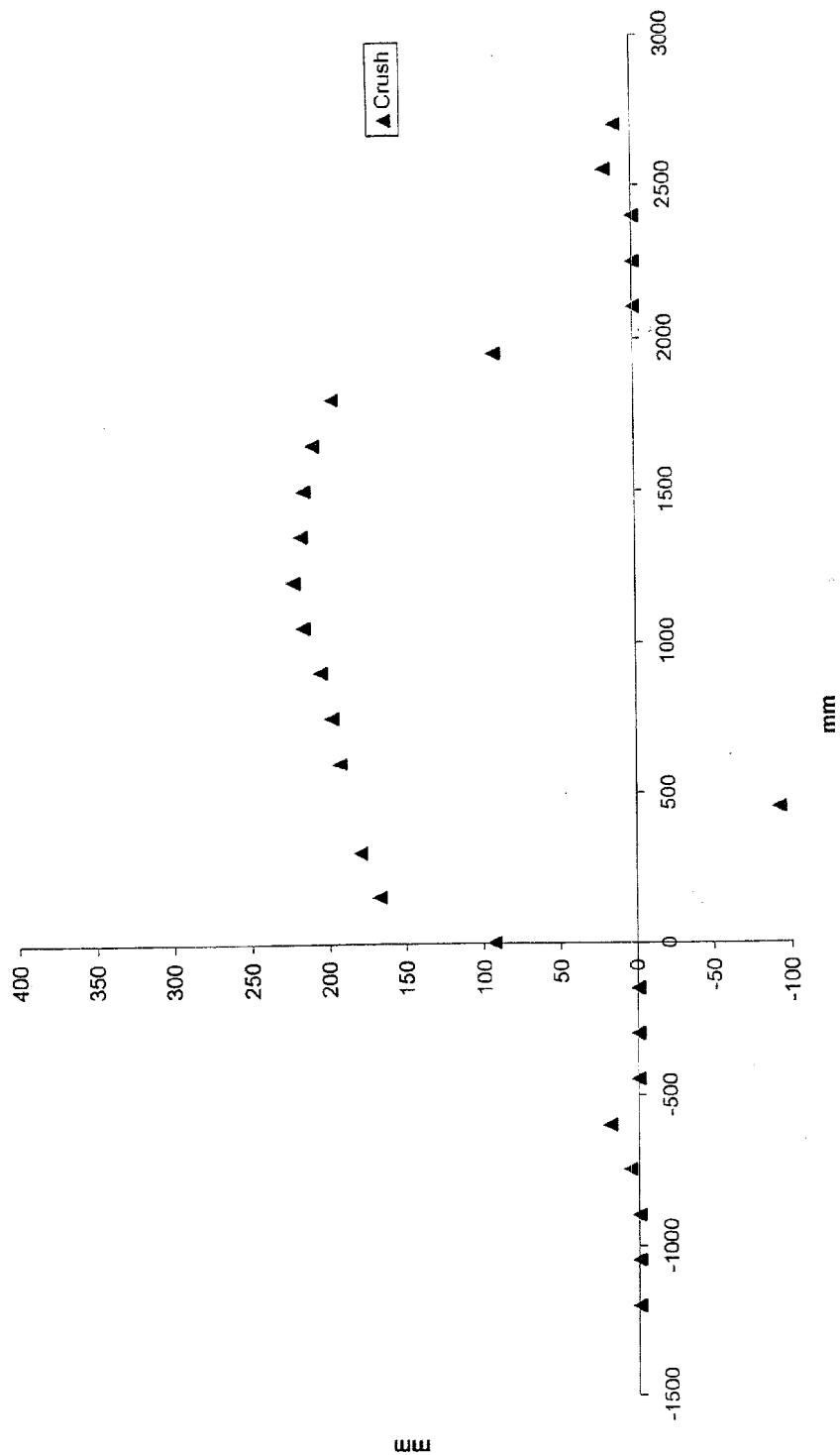
Side Profile Level 2 590 mm Above Ground



DATA SHEET 10 (continued)
 VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

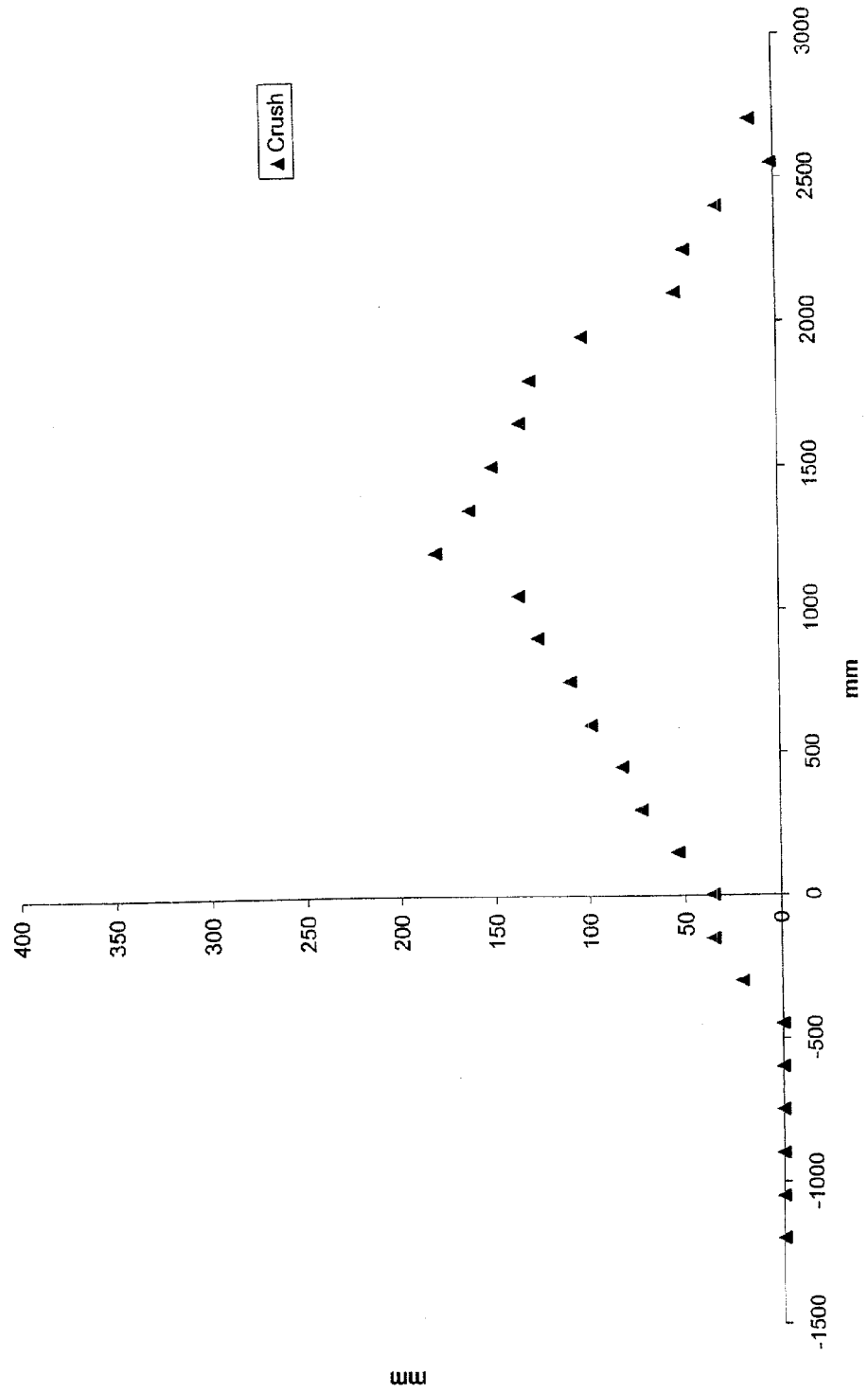
Side Profile Level 3 685 mm Above Ground



DATA SHEET 10 (continued)
 VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

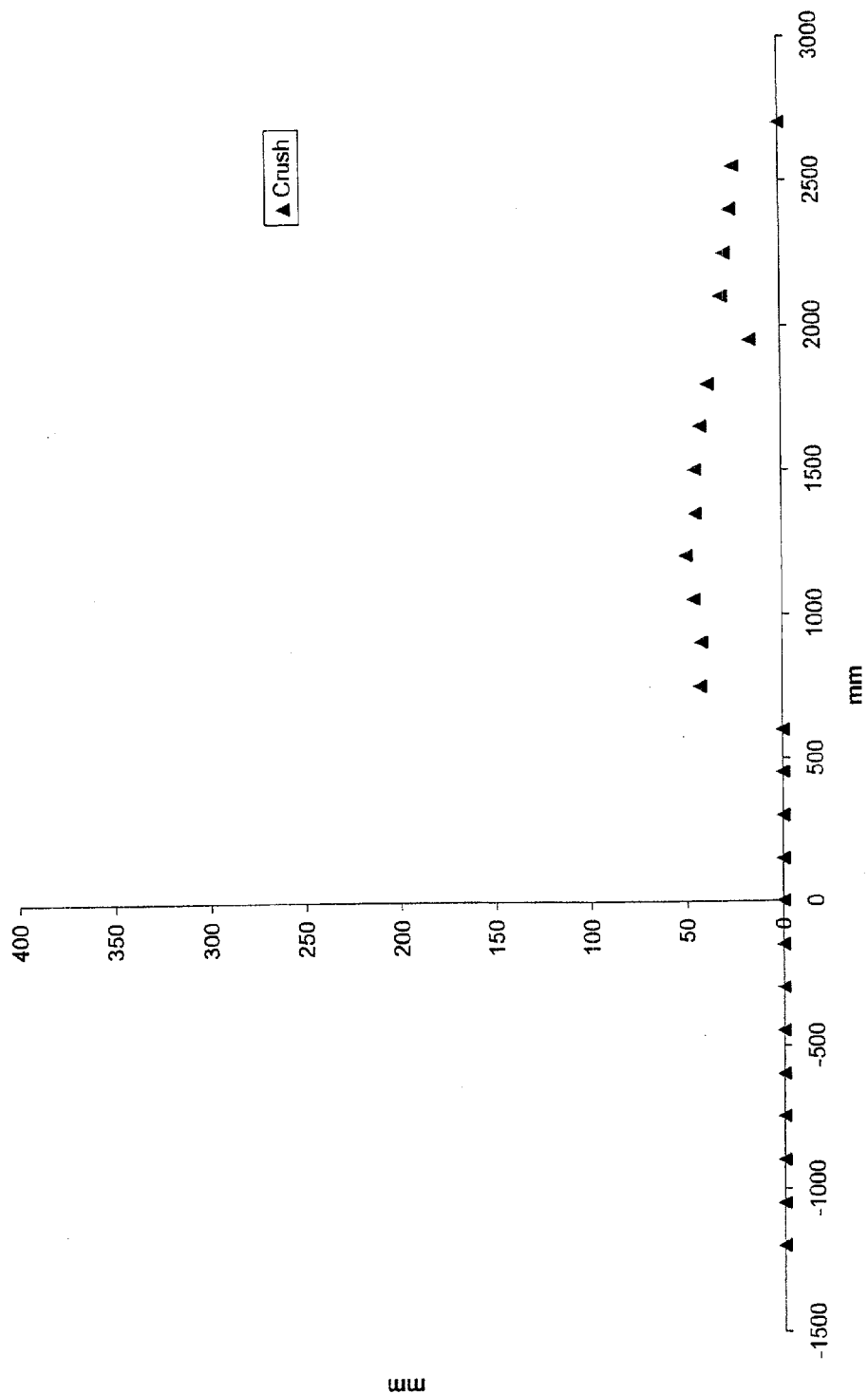
Side Profile Level 4 960 mm Above Ground



DATA SHEET 10 (continued)
 VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

Side Profile Level 5 1500 mm Above Ground



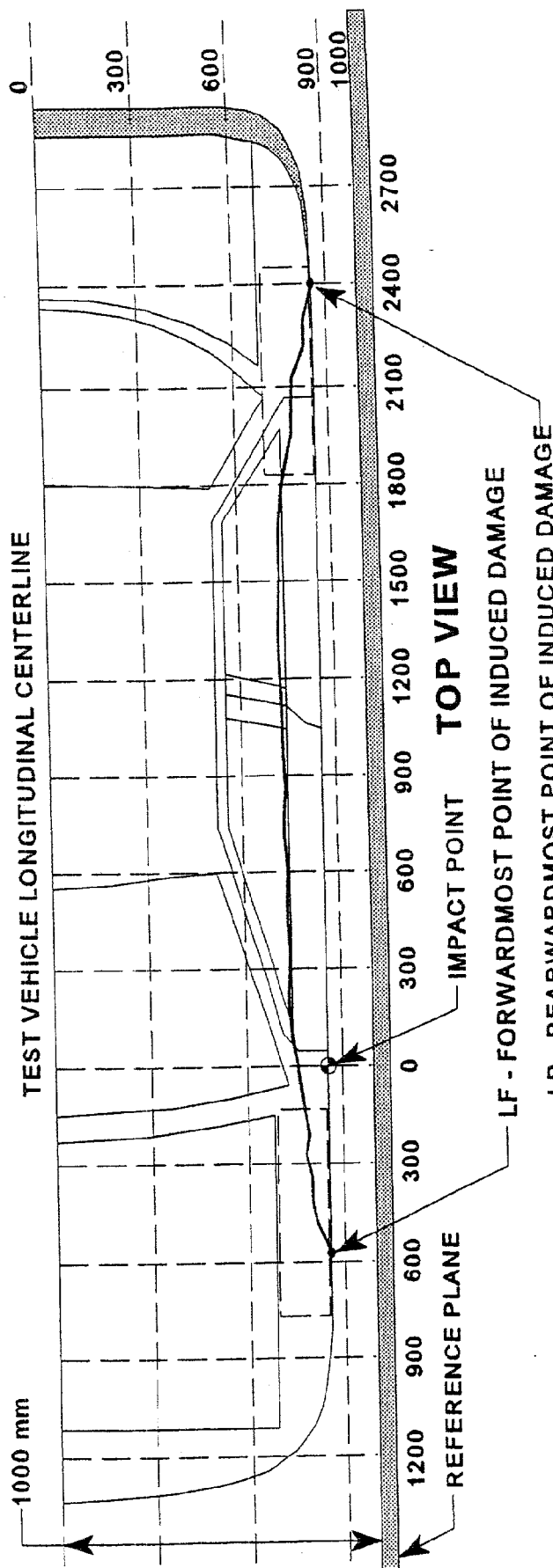
DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

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



MEASUREMENT CONVENTIONS:

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

Rearward of the impact point (toward rear of vehicle) is considered positive (+).

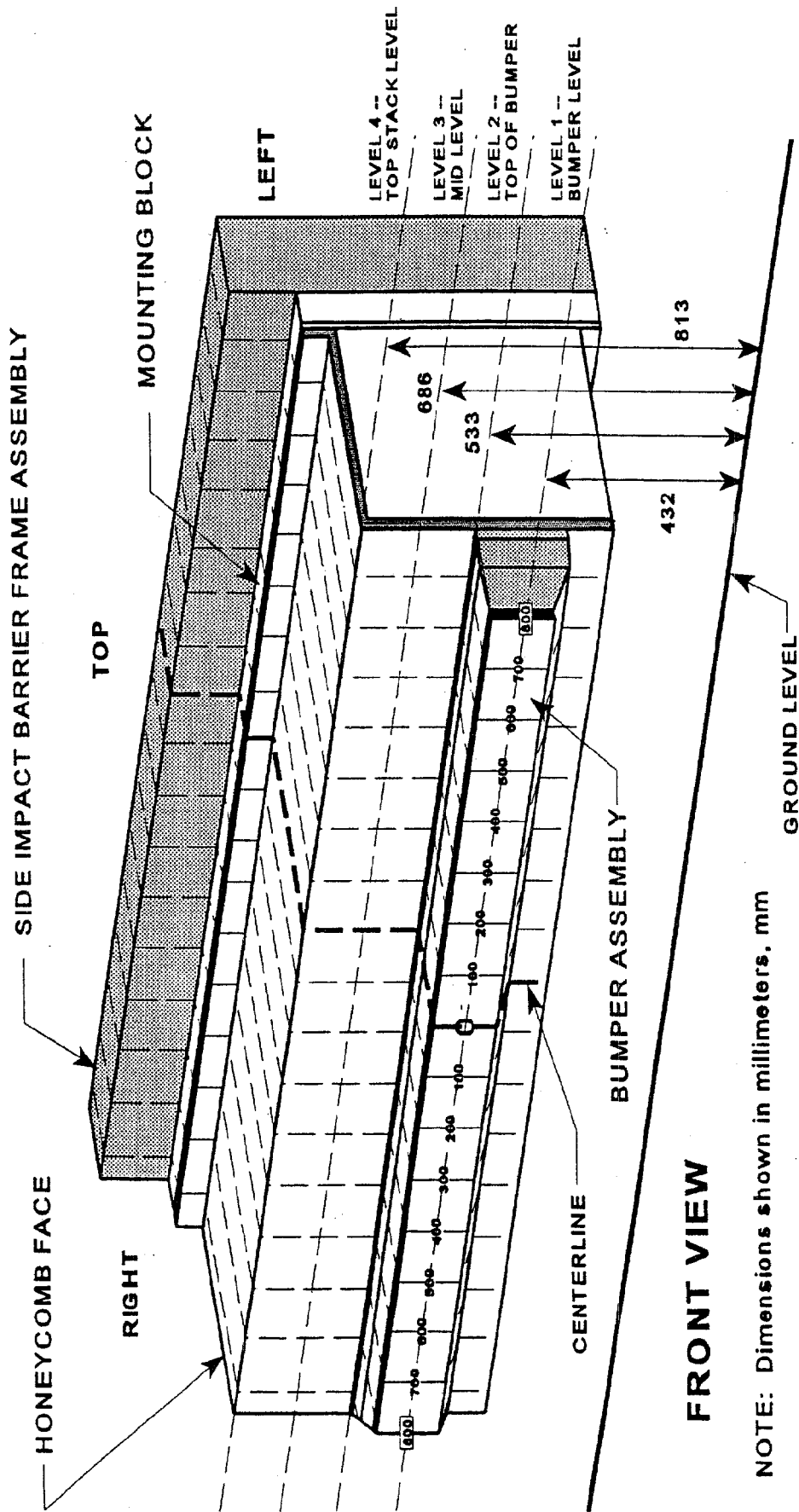
DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
1 (LF = -900 mm)	430	426	4
2 -180	503	386	117
3 540	611	375	236
4 1260	601	368	226
5 1980	528	366	162
6 (LR = 2700 mm)	402	390	12

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

(Grid as looking at MDB from front)

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500



FRONT VIEW

NOTE: Dimensions shown in millimeters, mm

DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

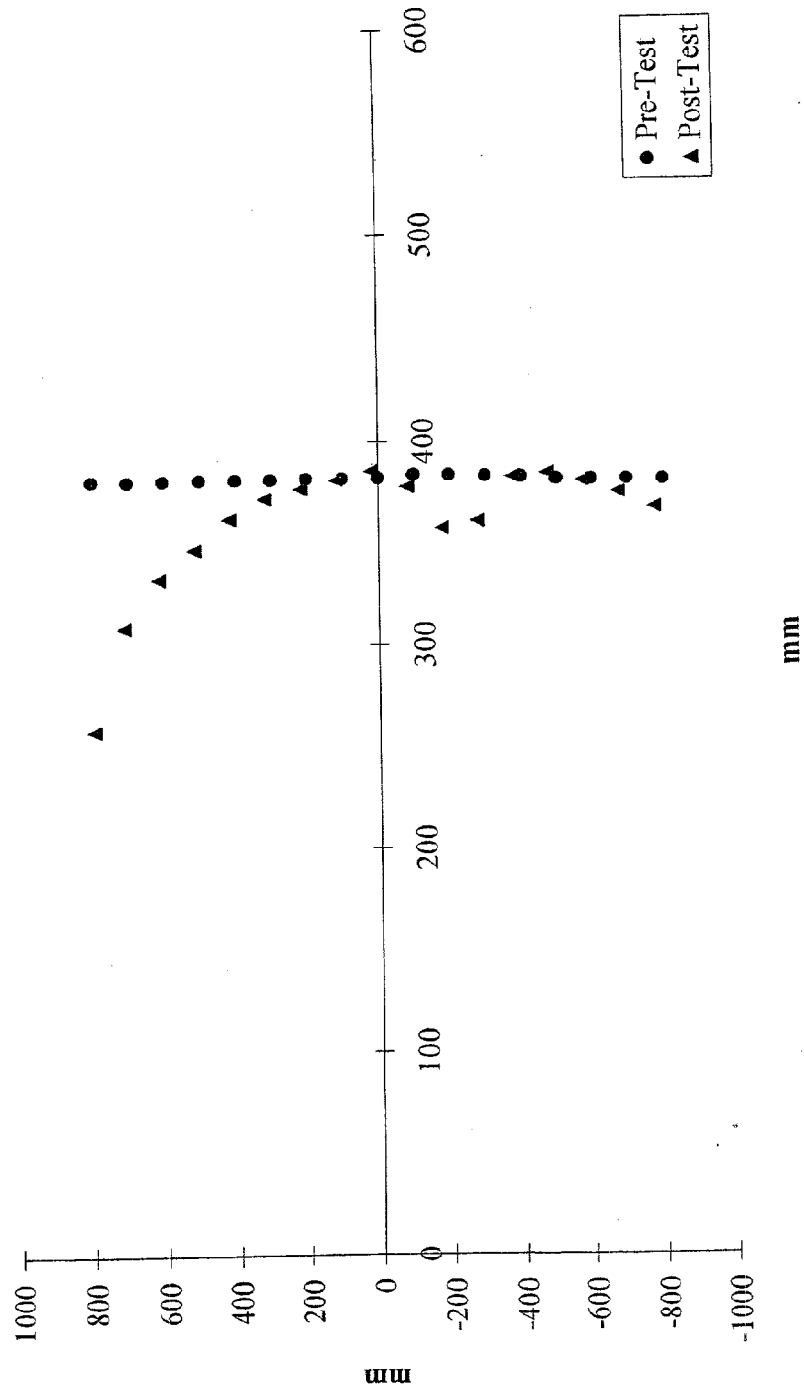
Location	Height At CL	Distance Right of Center (mm)								Distance Left of Center (mm)								
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level Level 4	810	14.4	6.8	1.2	-2.8	0.2	22.7	26.5	6.2	-3	1.4	5.5	9.8	19.6	34.2	48.2	72	123.4
Mid Level Level 3	685	29.6	17.5	13.9	11.6	10.5	6.5	18.3	3.4	2.7	1.6	2	3.4	6.7	11.5	15.7	22.7	53.7
Top Bumper Level Level 2	560	91.2	88.6	78.6	69.2	60.2	56.9	56.3	41.4	27.7	16.3	22.3	29.6	30.5	31.9	35.6	47.2	58.3
Mid Bumper Level Level 1	432	128.4	133.1	132.1	115.1	106.7	103.2	88.2	73.3	57.9	47.7	47.3	47.5	48.3	49.3	55	74.6	88.3

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

DATA SHEET 12 (continued)
 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

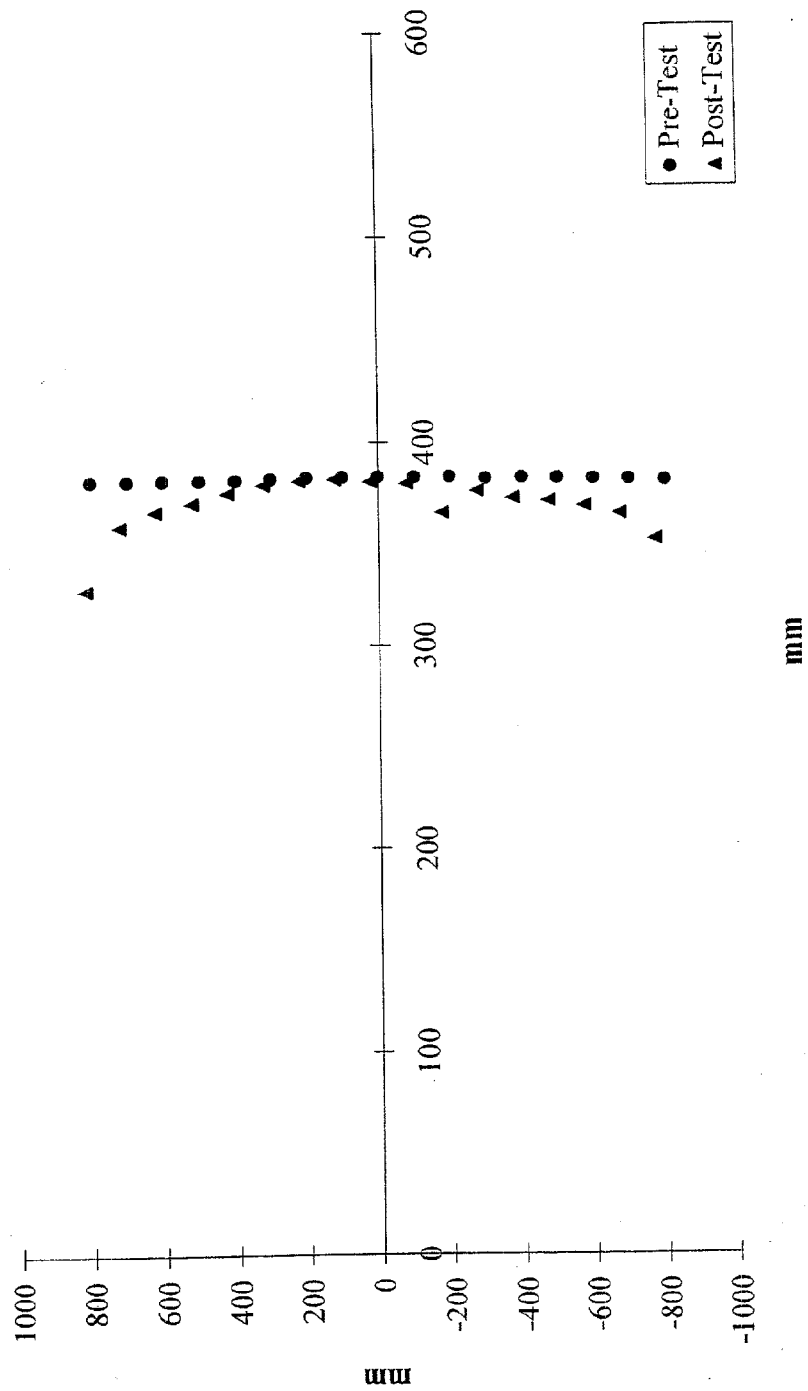
Deformable Barrier Face Profile 1-17



DATA SHEET 12 (continued)
 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

Deformable Barrier Face Profile 18-34

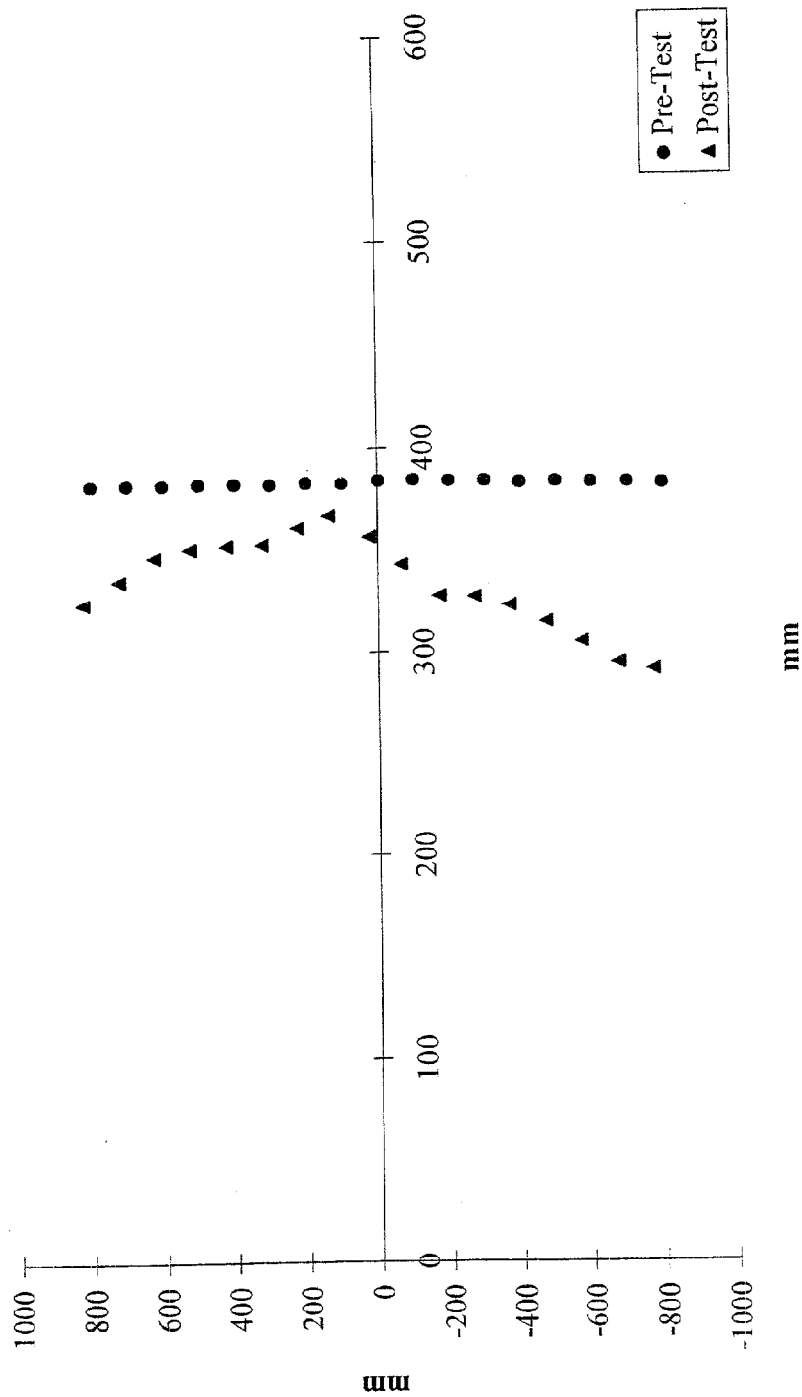


DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

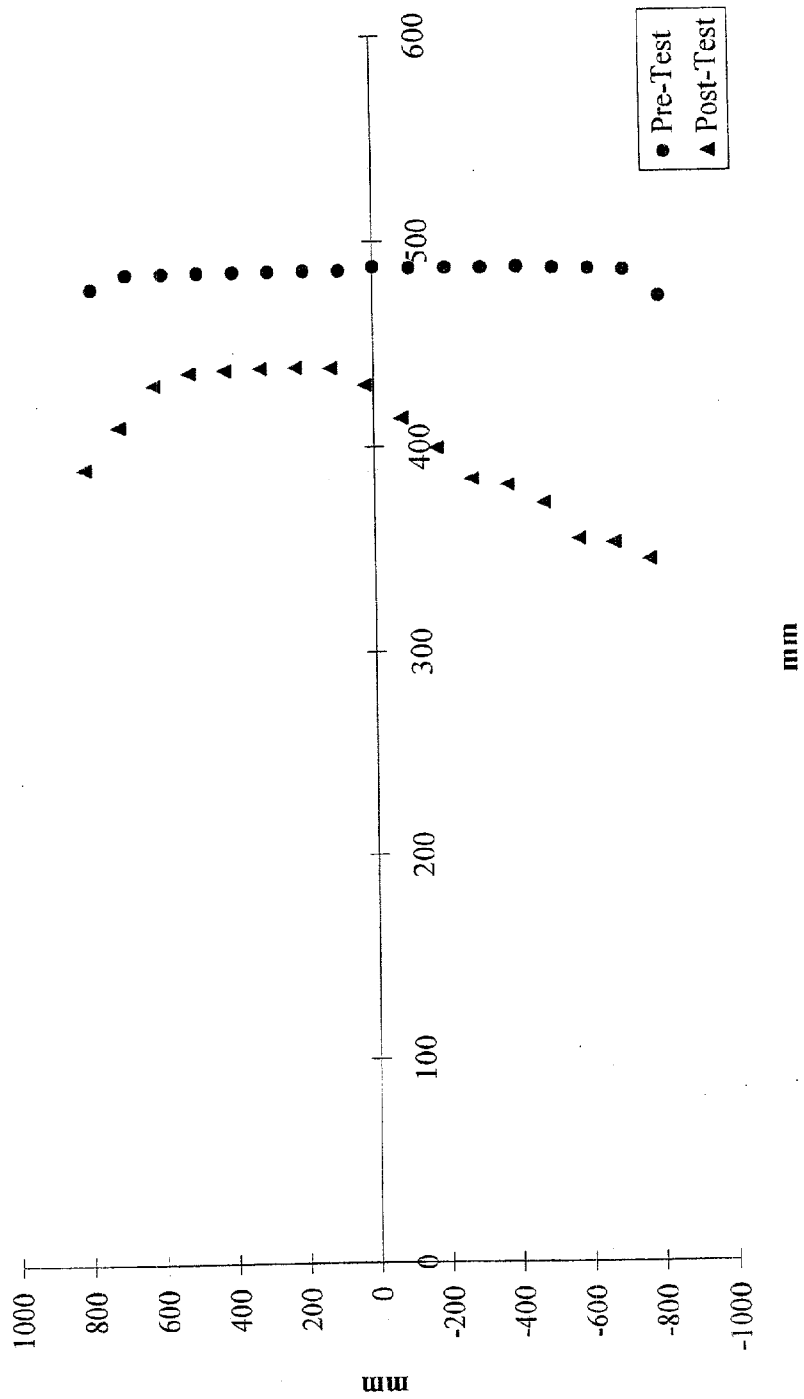
Deformable Barrier Face Profile 35-51



DATA SHEET 12 (continued)
 EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

Deformable Barrier Face Profile 52-68



DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

Deformable Barrier Face Profile

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
1	381.5	-797.2	246.4	1	367.1	-772.8	207.6	1	14.4	-24.4	38.8
2	381.6	-696.7	246.1	2	374.8	-672.6	208.7	2	6.8	-24.1	37.4
3	381.7	-597.2	245.6	3	380.5	-573	208.5	3	1.2	-24.2	37.1
4	381.6	-497.6	246.2	4	384.4	-473.7	209.8	4	-2.8	-23.9	36.4
5	382.8	-398.2	246.7	5	382.6	-373.9	210.9	5	0.2	-24.3	35.8
6	383.2	-298.2	247.1	6	360.5	-276.8	210.8	6	22.7	-21.4	36.3
7	383.7	-198	247.5	7	357.2	-178	212.1	7	26.5	-20.0	35.4
8	383.8	-98.9	249	8	377.6	-81.1	216.6	8	6.2	-17.8	32.4
9	382.4	1.9	248.2	9	385.4	19.8	218.7	9	-3.0	-17.9	29.5
10	382.4	101.7	248	10	381	119.2	219.2	10	1.4	-17.5	28.8
11	382.3	201.5	248.2	11	376.8	218.6	222.4	11	5.5	-17.1	25.8
12	381.9	301.9	247.9	12	372.1	319.1	225.1	12	9.8	-17.2	22.8
13	381.9	401.4	248.1	13	362.3	418.2	226.3	13	19.6	-16.8	21.8
14	381.8	501.8	248.6	14	347.6	517.2	225.3	14	34.2	-15.4	23.3
15	381.6	601.4	247.3	15	333.4	615.3	227.4	15	48.2	-13.9	19.9
16	381.4	701.3	247.8	16	309.4	711.2	225.7	16	72.0	-9.9	22.1
17	381.9	800.5	247.5	17	258.5	795.5	210.4	17	123.4	5.0	37.1
18	381.5	-798.8	122	18	351.9	-771.2	88.4	18	29.6	-27.6	33.6
19	382	-698	123.1	19	364.5	-672.5	89.4	19	17.5	-25.5	33.7
20	382.4	-597.8	123.2	20	368.5	-572.7	88.6	20	13.9	-25.1	34.6
21	382.5	-497.7	123.3	21	370.9	-473.6	89.2	21	11.6	-24.1	34.1
22	382.7	-398.1	124	22	372.2	-373.2	90.1	22	10.5	-24.9	33.9

DATA SHEET 12 (continued)
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

Deformable Barrier Face Profile Cont'd.

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
23	382.4	-298	124.4	23	375.9	-273.3	90.1	23	6.5	-24.7	34.3
24	383.3	-198.2	124.1	24	365	-176.1	89.9	24	18.3	-22.1	34.2
25	383.1	-98.2	124	25	379.7	-77.1	93.4	25	3.4	-21.1	30.6
26	383.2	2.2	123.8	26	380.5	22.9	93.1	26	2.7	-20.7	30.7
27	383.2	102.5	124.8	27	381.6	123.9	99.6	27	1.6	-21.4	25.2
28	383	202	123.7	28	381	223.4	101.4	28	2.0	-21.4	22.3
29	382.6	301.9	123.9	29	379.2	322.8	104	29	3.4	-20.9	19.9
30	381.9	401.2	124.1	30	375.2	422.2	108.1	30	6.7	-21.0	16.0
31	381.8	500.9	124.9	31	370.3	521.5	110.5	31	11.5	-20.6	14.4
32	381.9	601.5	124.6	32	366.2	622.3	112.4	32	15.7	-20.8	12.2
33	381.7	700.7	124	33	359	721.7	113.9	33	22.7	-21.0	10.1
34	381.6	801.9	124.3	34	327.9	817	111	34	53.7	-15.1	13.3
35	382.6	-796.8	-24.8	35	291.4	-769.4	-26.9	35	91.2	-27.4	2.1
36	383.2	-698.5	-25	36	294.6	-671	-26.8	36	88.6	-27.5	1.8
37	383.3	-598	-24.5	37	304.7	-569.2	-26.6	37	78.6	-28.8	2.1
38	383.8	-498.6	-23.8	38	314.6	-470.3	-30.5	38	69.2	-28.3	6.7
39	383	-398.4	-23.6	39	322.8	-368.5	-32.6	39	60.2	-29.9	9.0
40	384	-298.9	-23.8	40	327.1	-270.3	-31.2	40	56.9	-28.6	7.4
41	384	-198.8	-23.4	41	327.7	-169.6	-32.2	41	56.3	-29.2	8.8
42	384.4	-99.9	-22.4	42	343	-64.6	-33.2	42	41.4	-35.3	10.8
43	383.9	-1.5	-21.8	43	356.2	25.4	-36.3	43	27.7	-26.9	14.5
44	382.7	101.1	-23.4	44	366.4	139.2	-29.9	44	16.3	-38.1	6.5

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

Deformable Barrier Face Profile Cont'd.

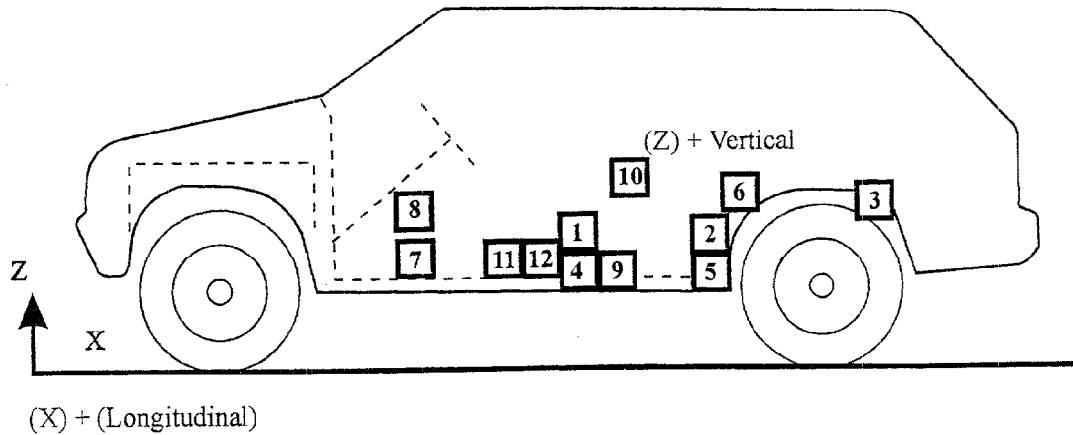
Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
45	383	199.8	-23.4	45	360.7	226.2	-32.8	45	22.3	-26.4	9.4
46	382.4	300.7	-22.5	46	352.8	325	-31.8	46	29.6	-24.3	9.3
47	382.9	399.8	-21.8	47	352.4	423.9	-31.8	47	30.5	-24.1	10.0
48	382.8	500.8	-22.8	48	350.9	525.5	-30	48	31.9	-24.7	7.2
49	382.5	600.2	-23.8	49	346.9	625.6	-28.8	49	35.6	-25.4	5.0
50	382.6	700	-22.4	50	335.4	723.7	-25.5	50	47.2	-23.7	3.1
51	382.5	799.3	-21.9	51	324.2	822.5	-19	51	58.3	-23.2	-2.9
52	473.1	-798	-135	52	344.7	-765.1	-152.9	52	128.4	-32.9	17.9
53	485.9	-700	-133.6	53	352.8	-666.4	-153.3	53	133.1	-33.6	19.7
54	486.7	-601	-132.1	54	354.6	-568	-150.7	54	132.1	-33.0	18.6
55	487	-501.7	-130.9	55	371.9	-470.4	-152.4	55	115.1	-31.3	21.5
56	487.6	-401.7	-130	56	380.9	-370.8	-151	56	106.7	-30.9	21.0
57	487.2	-301.4	-129.7	57	384	-270.9	-148.7	57	103.2	-30.5	19.0
58	487.3	-202.4	-129.3	58	399.1	-173.4	-148.1	58	88.2	-29.0	18.8
59	487.2	-102.4	-128.7	59	413.9	-75.6	-148.5	59	73.3	-26.8	19.8
60	487.9	-1.1	-129.9	60	430	24.7	-147.7	60	57.9	-25.8	17.8
61	486.2	96	-127.2	61	438.5	122	-146.1	61	47.7	-26.0	18.9
62	486.2	195.5	-127.4	62	438.9	221.6	-144.5	62	47.3	-26.1	17.1
63	486.2	295.3	-126.8	63	438.7	320.9	-142.7	63	47.5	-25.6	15.9
64	486.2	395.1	-126.1	64	437.9	420.6	-140.4	64	48.3	-25.5	14.3
65	486.1	494.7	-127.1	65	436.8	520.5	-139.5	65	49.3	-25.8	12.4
66	485.9	593.5	-125.6	66	430.9	619.3	-136.2	66	55.0	-25.8	10.6
67	485.7	694.1	-125.4	67	411.1	717.1	-133.2	67	74.6	-23.0	7.8
68	478.8	791.6	-126	68	390.5	813.1	-129.7	68	88.3	-21.5	3.7

DATA SHEET 13

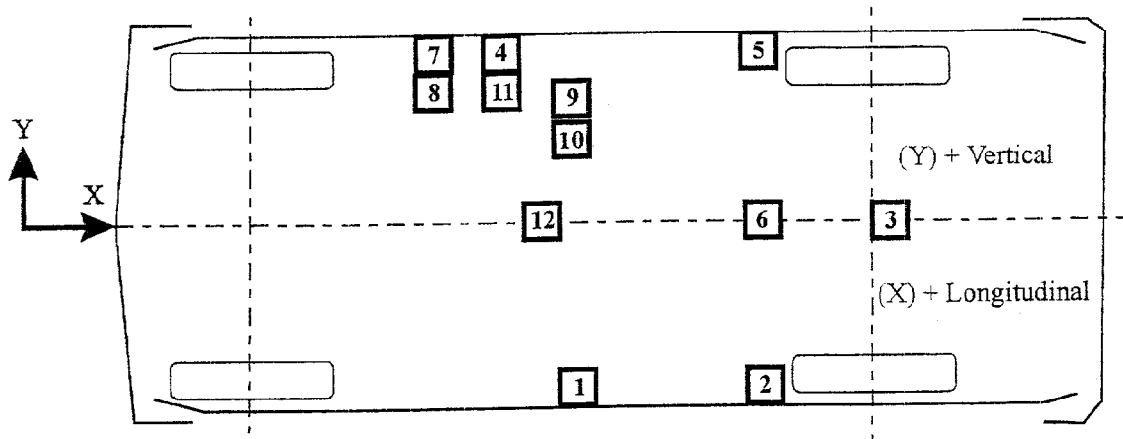
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500



Side View



Bottom View

- 1-Right Front Sill
- 2-Right Rear Sill
- 3-Rear Floorpan Sill
- 4-Left Front Sill
- 5-Left Rear Sill
- 6-Right Rear Seat

- 7-Left Side Lower A-pillar
- 8-Left Side Upper A-pillar
- 9-Left Side Lower B-pillar
- 10-Left Side Upper B-pillar
- 11-Left Side Front Seat Track at H-point
- 12-Vehicle Center of Gravity

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

TEST NUMBER: 990111
No. LOCATION

	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 RIGHT SIDE SILL	PRE 2725 mm	650 mm	335 mm		
AT FRONT SEAT	POST 2730 mm	650 mm	340 mm		
LONGITUDINAL			2.7 g	@ 47.4 ms	@ 14.9 ms
LATERAL			24.5 g	@ 25.3 ms	@ 56.2 ms
VERTICAL			5.3 g	@ 61.7 ms	@ 8.6 ms
RESULTANT			27.0 g	@ 25.3 ms	
2 RIGHT SIDE SILL	PRE 2035 mm	650 mm	332 mm		
AT REAR SEAT	POST 2070 mm	650 mm	315 mm		
LONGITUDINAL			3.0 g	@ 47.9 ms	@ 14.3 ms
LATERAL			25.8 g	@ 9.1 ms	@ 56.4 ms
VERTICAL			4.1 g	@ 85.4 ms	@ 24.6 ms
RESULTANT			26.2 g	@ 9.1 ms	
3 REAR FLOORPAN	PRE 1020 mm	0 mm	540 mm		
ABOVE AXLE	POST 1010 mm	0 mm	550 mm		
LONGITUDINAL			4.3 g	@ 16.2 ms	@ 40.2 ms
LATERAL			21.4 g	@ 10.2 ms	@ 127.9 ms
VERTICAL			6.6 g	@ 33.1 ms	@ 40.2 ms
RESULTANT			22.1 g	@ 10.2 ms	
4 LEFT SIDE SILL	PRE 2812 mm	-650 mm	345 mm		
AT FRONT SEAT	POST 2800 mm	-610 mm	NA		
LATERAL			65.4 g	@ 4.6 ms	@ 19.0 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

TEST NUMBER: 990111
No. LOCATION

	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
5 LEFT SIDE SILL AT REAR SEAT LATERAL	PRE 2025 mm POST 2020 mm	-650 mm -600 mm	300 mm NA	68.9 g @ 10.8 ms	12.5 g @ 46.6 ms
6 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	PRE 1815 mm POST 1830 mm	480 mm 480 mm	370 mm 380 mm	27.1 g @ 8.9 ms	3.4 g @ 55.5 ms
7 LOWER A-POST LATERAL	PRE 3055 mm POST 3020 mm	-714 mm 700 mm	600 mm NA	---	---
8 UPPER A-POST LATERAL	PRE 3007 mm POST 2965 mm	-714 mm -710 mm	895 mm NA	35.8 g @ 16.8 ms	6.8 g @ 50.1 ms
9 LOWER B-POST LATERAL	PRE 2120 mm POST 2090 mm	-685 mm -577 mm	630 mm NA	78.4 g @ 4.1 ms	23.0 g @ 32.1 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Subaru Forester passenger car NHTSA No.: CX5500

TEST NUMBER: 990111 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
10 UPPER B-POST	PRE 2085 mm POST 2050 mm	-685 mm -550 mm	855 mm NA		
LATERAL				69.6 g @ 4.2 ms	32.3 g @ 35.3 ms
11 FRONT SEAT TRACK	PRE 2304 mm POST 2210 mm	-650 mm -600 mm	295 mm NA		
LATERAL				74.9 g @ 11.4 ms	10.7 g @ 47.0 ms
12 VEHICLE CENTER OF GRAVITY	PRE 2510 mm POST 2488 mm	10 mm 10 mm	460 mm 488 mm		
LONGITUDINAL				5.4 g @ 3.8 ms	8.7 g @ 9.5 ms
LATERAL				23.7 g @ 18.6 ms	3.6 g @ 54.9 ms
VERTICAL				4.7 g @ 29.3 ms	7.3 g @ 22.2 ms
RESULTANT				23.9 g @ 18.6 ms	

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

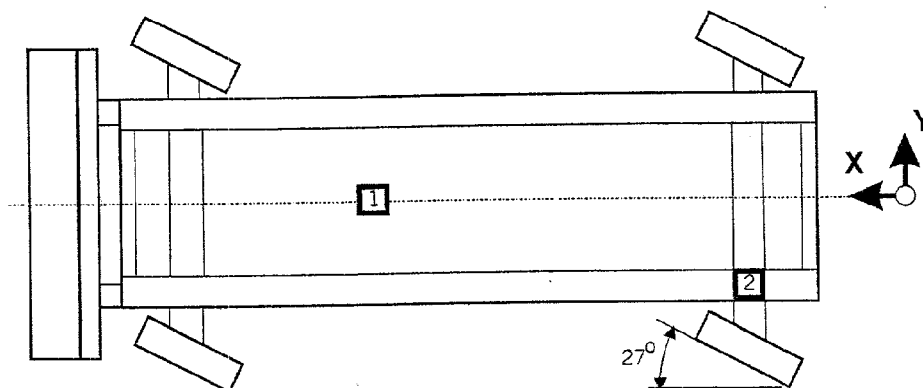
1 See DATA ACQUISITION EXPLANATIONS

DATA SHEET 14

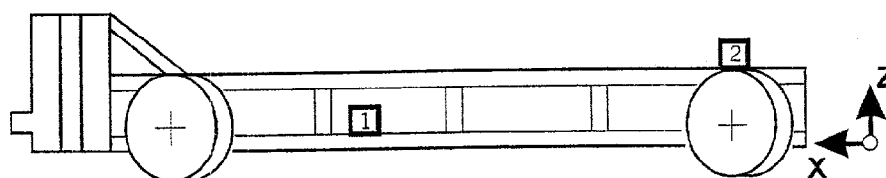
MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500



TOP VIEW



SIDE VIEW

Accel. No.	Location		Coordinates (millimeters)			Positive Direction		Negative Direction	
			X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity		1835	0	502				
	Longitudinal	X				2.1	89.5	20.1	39.1
	Lateral	Y				1.0	193.7	6.2	22.3
	Vertical	Z				5.9	53.2	4.1	68.0
	Resultant	R				21.1	38.7		
2	Rear Frame Member		385	-638	621				
	Longitudinal	X				2.4	91.1	21.8	39.7
	Lateral	Y				2.0	23.0	2.5	53.7

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

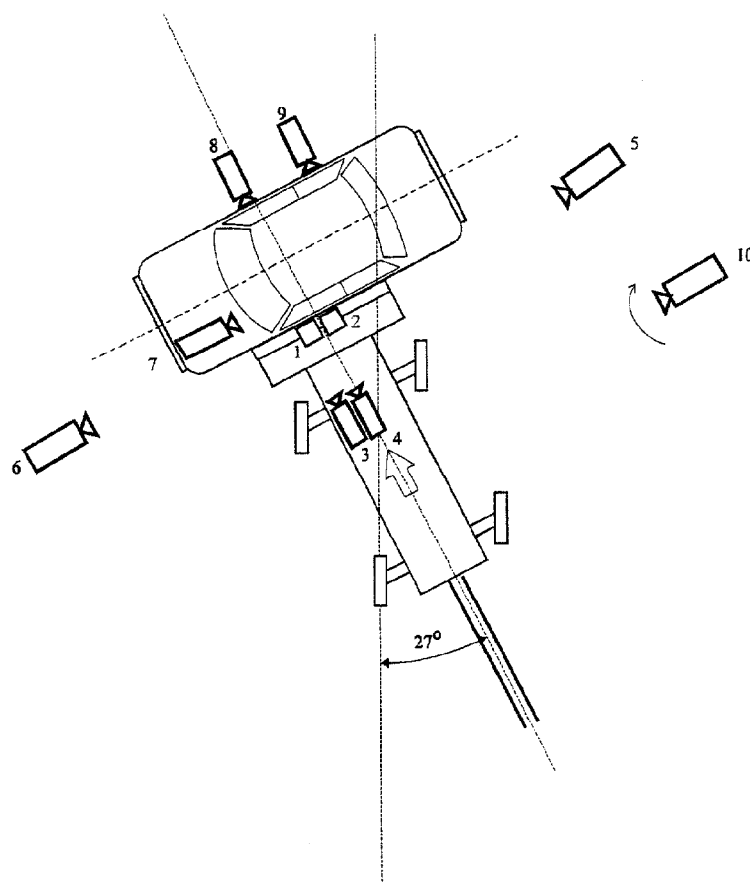
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500



Camera Number	Location	Location, mm			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Overhead wide	1,270	1,676	7,620	8.5	997
2	Overhead tight	1,270	1,245	7,620	25	997
3	Onboard MDB left side	0	-1880	787	25	965
4	Onboard MDB center	838	-2,464	1448	13	627
5	Right side	8,865	254	813	13	1000
6	Left side	-1,321	4,674	813	13	1000
7	Onboard vehicle front	-305	-508	1,346	8	1007
8	Onboard side front door	940	1,651	1,168	8	997
9	Onboard side rear door	1,702	1,651	1,168	8	995
10	Real-time Panning	N/A	N/A	N/A	16	24

+X: Rearward from impact point

+Y: Toward right from impact point

+Z: Upward from ground level

SECTION 5
VEHICLE FUEL SYSTEM INTEGRITY

DATA SHEET 16

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA NO.: CX5500 TEST DATE: January 11, 1999

Vehicle Mfgr./Make/Model : 1999 Subaru Forester passenger car

TEST VEHICLE IMPACT TYPE : Frontal (48.28 kph)
 Oblique (48.28 kph) with ° barrier
 face first contacting the (driver/passenger) side
 Rear Moving Barrier (48.28 kph)
 Lateral Moving Barrier (32.19 kph)
 X Side Impact Moving Deformable Barrier
 (53.91 kph) contacting the driver side

FUEL SPILLAGE MEASUREMENT:

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

ACTUAL	MAXIMUM ALLOWED
0 g	28 g
0 g	142 g
0 g	28 g/1 min.

SOLVENT SPILLAGE DETAILS :

None

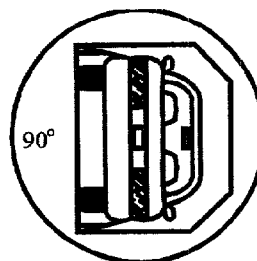
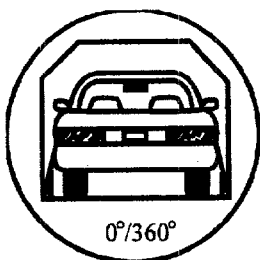
DATA SHEET 17

ROLLOVER DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

0 - 90 Degrees



1. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. 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
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

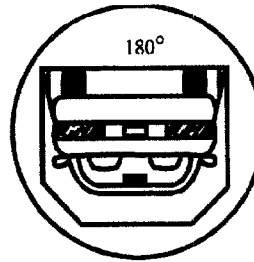
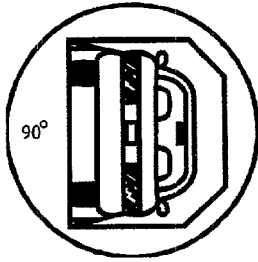
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

90 - 180 Degrees



1. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. 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
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

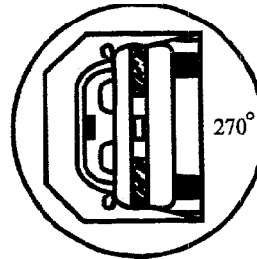
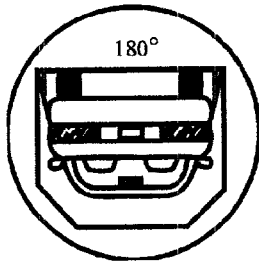
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

180 - 270 Degrees



1. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. 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
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

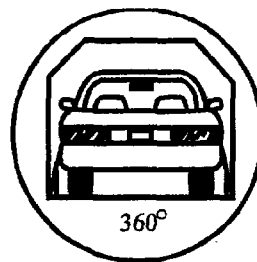
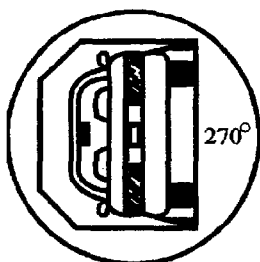
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Subaru Forester passenger car

NHTSA No.: CX5500

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time 1 minutes 2 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 6 minutes 2 seconds

Next whole minute interval 7 minutes

II. 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
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE :

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Appendix A

Photographs

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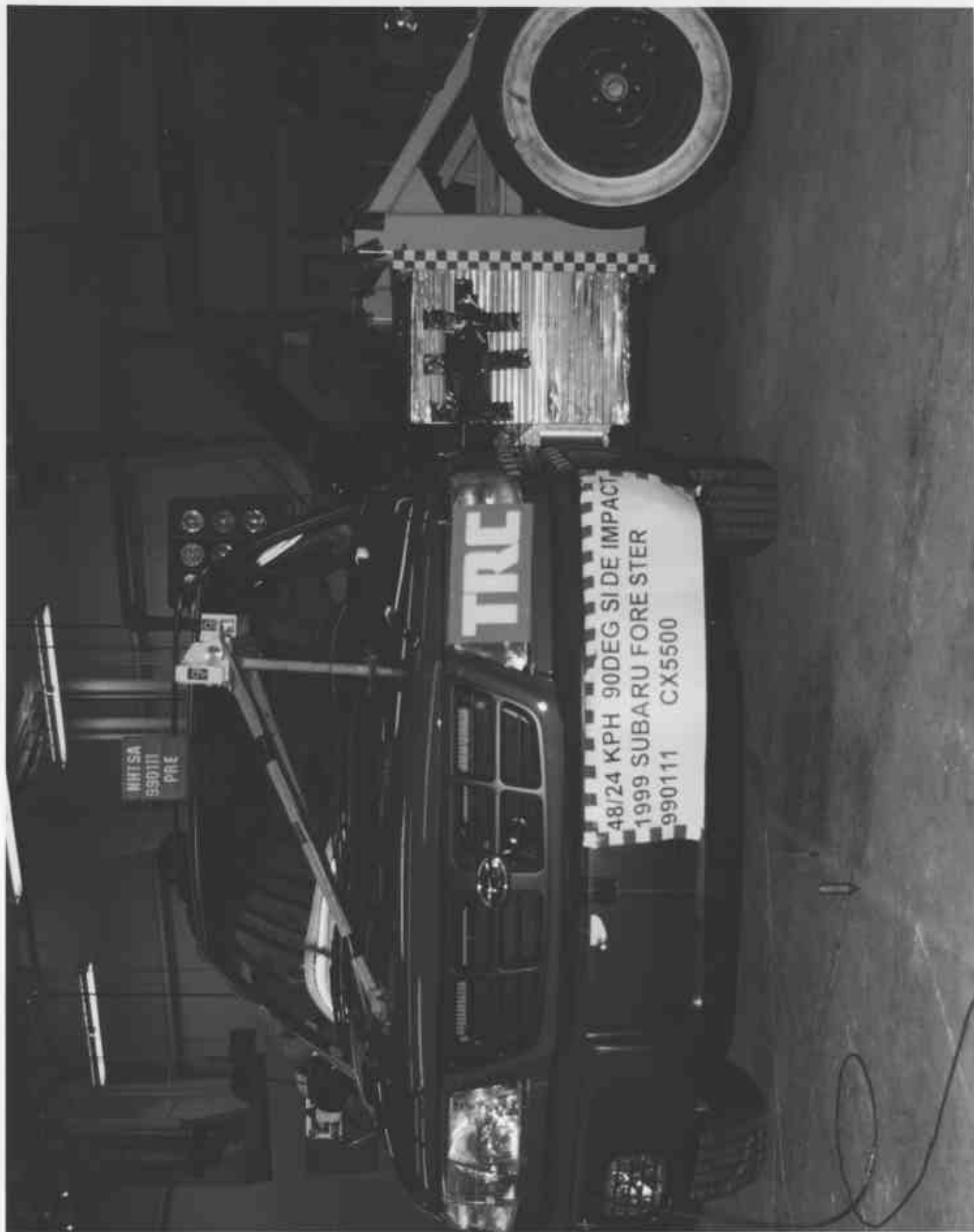


Figure A-1 Pre-Test Front View of Test Vehicle

A-3

990111



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

A-4

990111

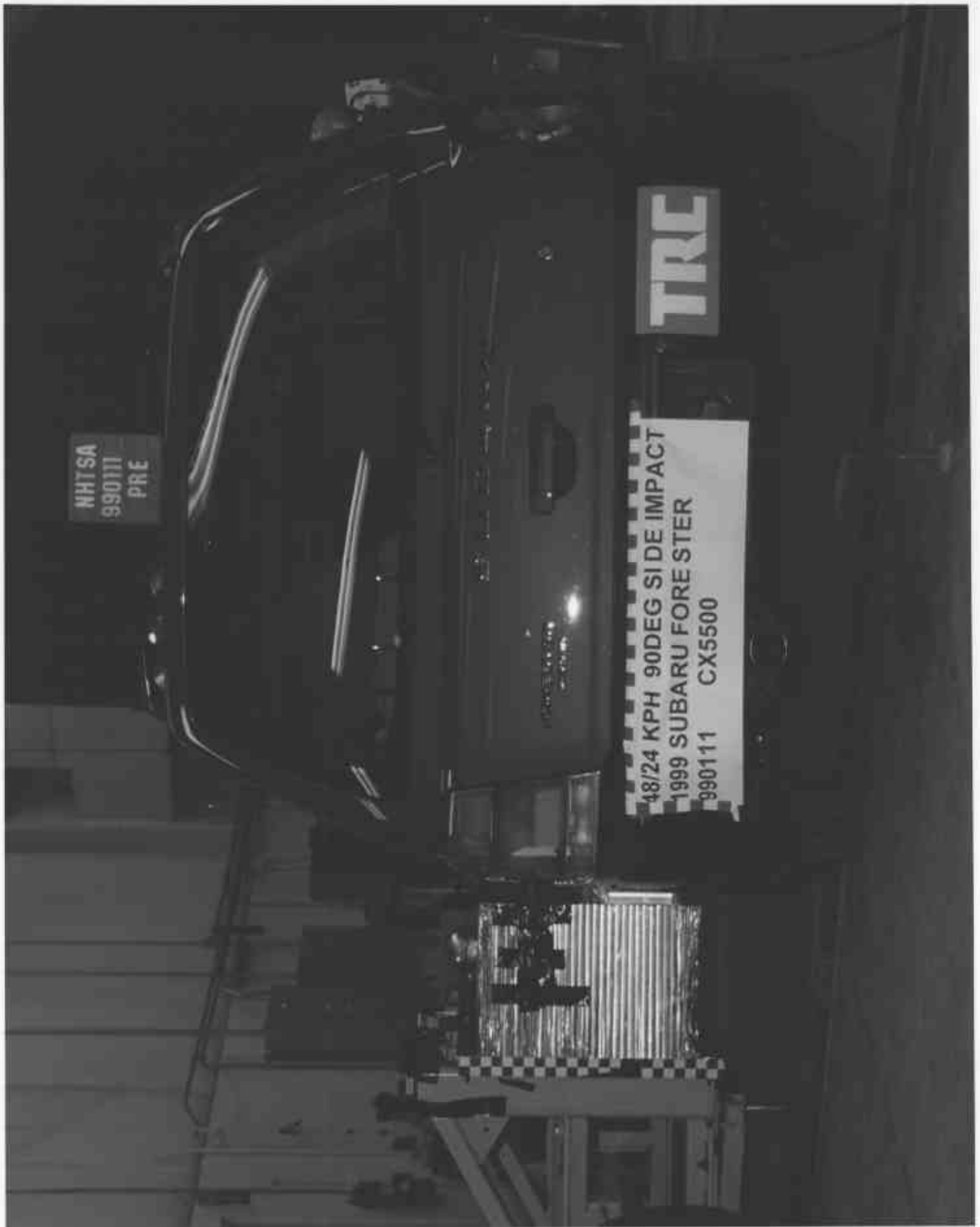


Figure A-3 Pre-Test Rear View of Test Vehicle
A-5

990111



Figure A-4 Post-Test Rear View of Test Vehicle
A-6

990111

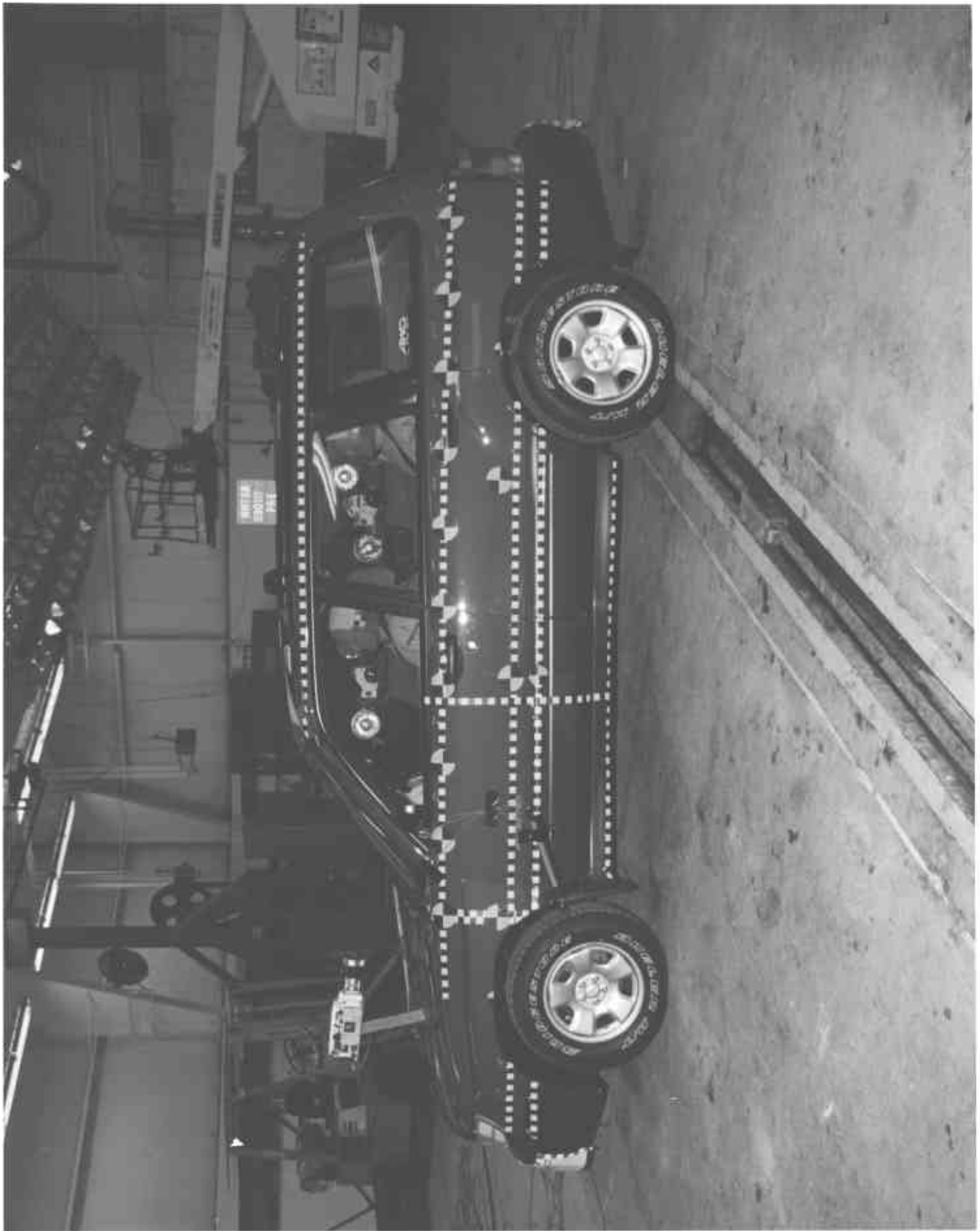


Figure A-5 Pre-Test Impacted Side View of Test Vehicle
A-7

990111

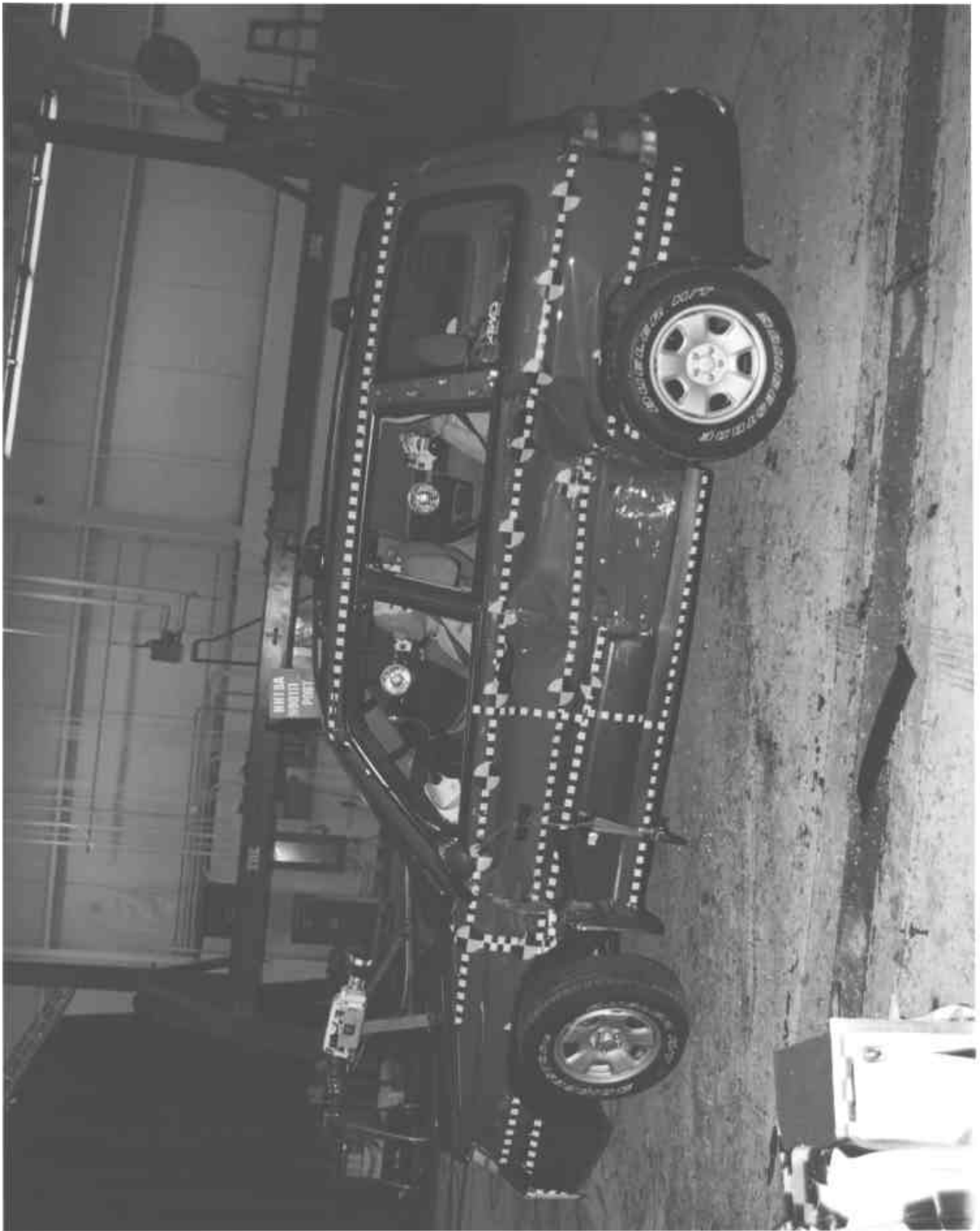


Figure A-6 Post-Test Impacted Side View of Test Vehicle
A-8

990111

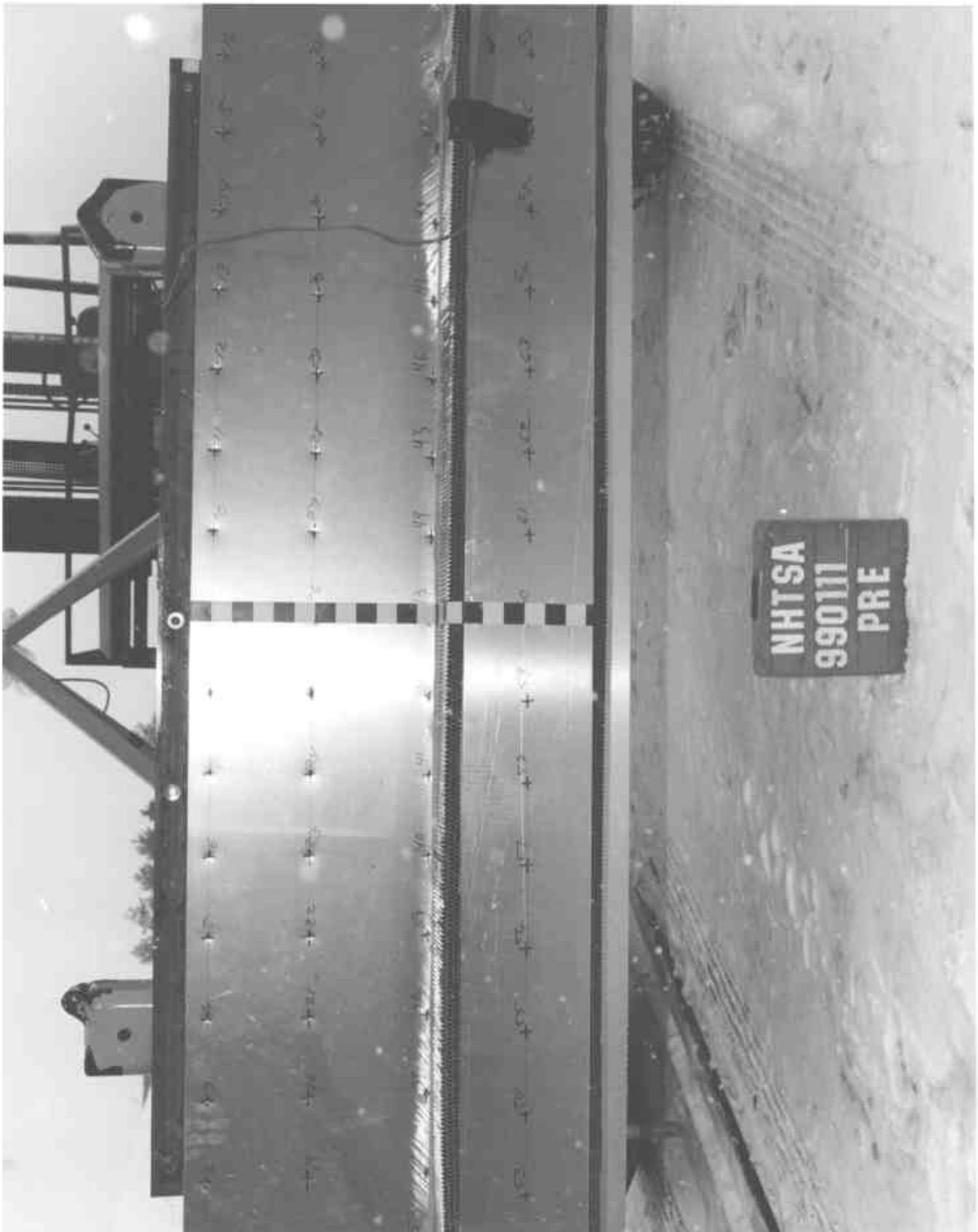


Figure A-7 Pre-Test Frontal View of Impactor Face
A-9

990111

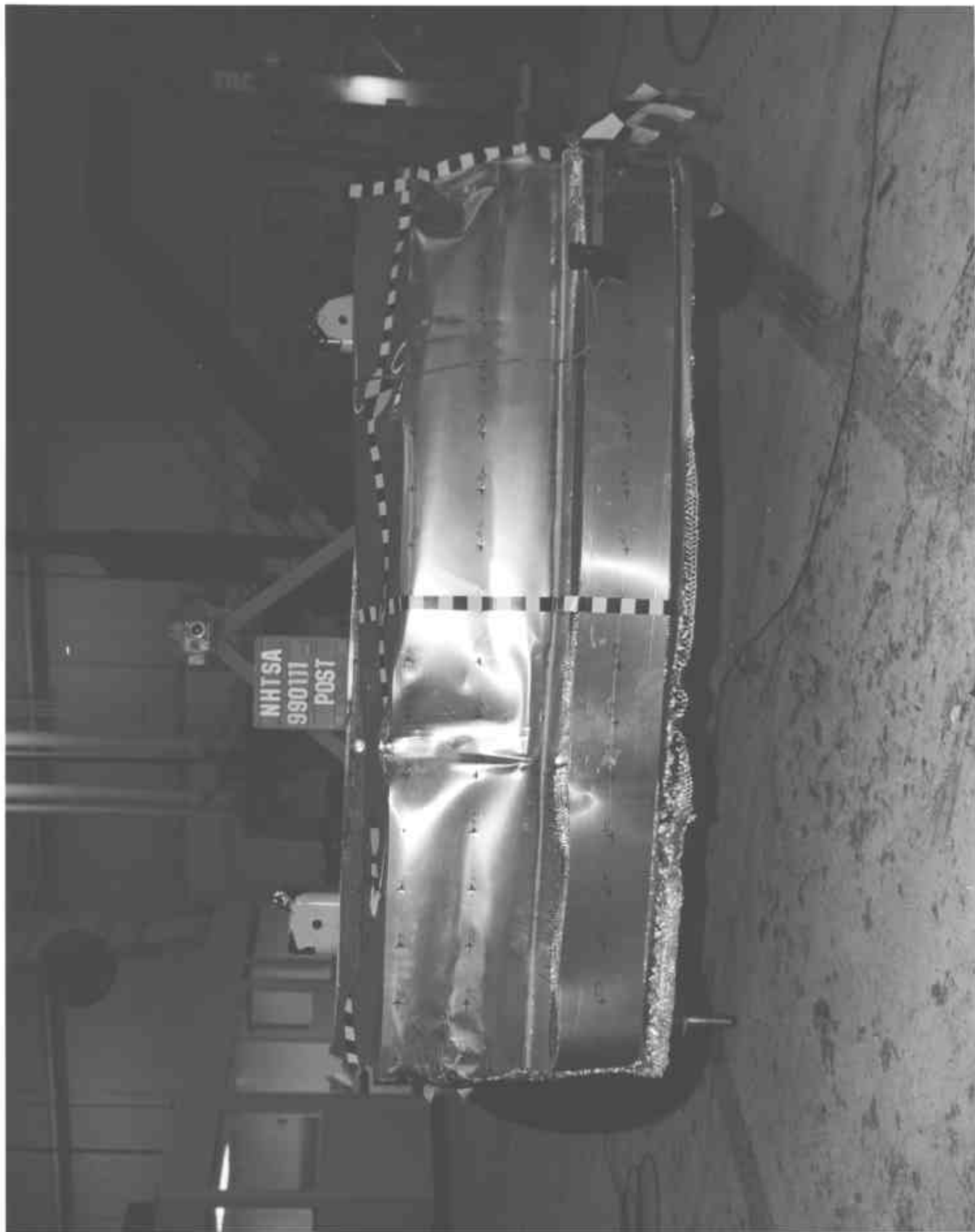


Figure A-8 Post-Test Frontal View of Impactor Face
A-10

990111

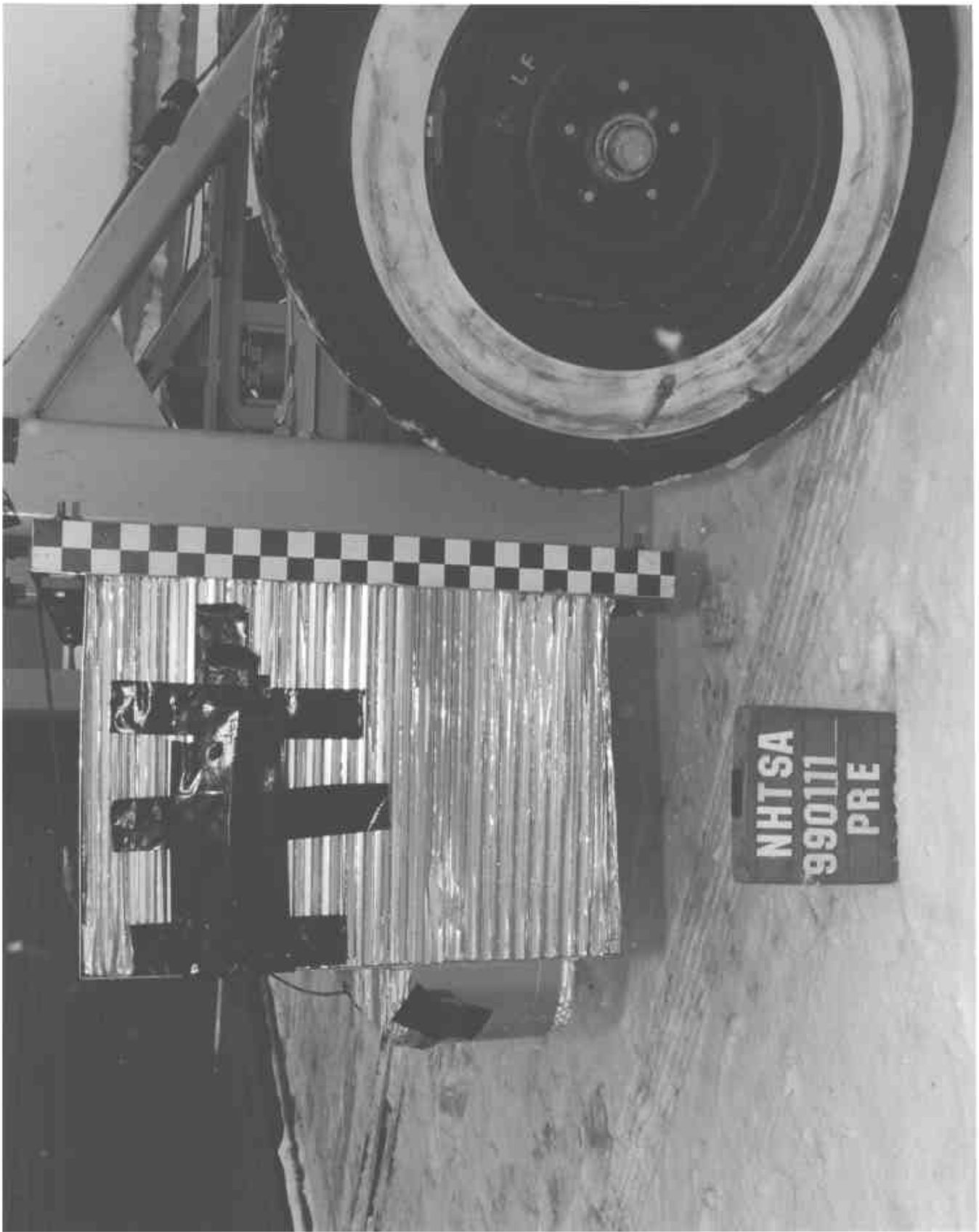


Figure A-9 Pre-Test Left Side View of Impactor Face
A-11

990111



Figure A-11 Pre-Test Right Side View of Impactor Face
A-13

990111



Figure A-12 Post-Test Right Side View of Impactor Face
A-14

990111

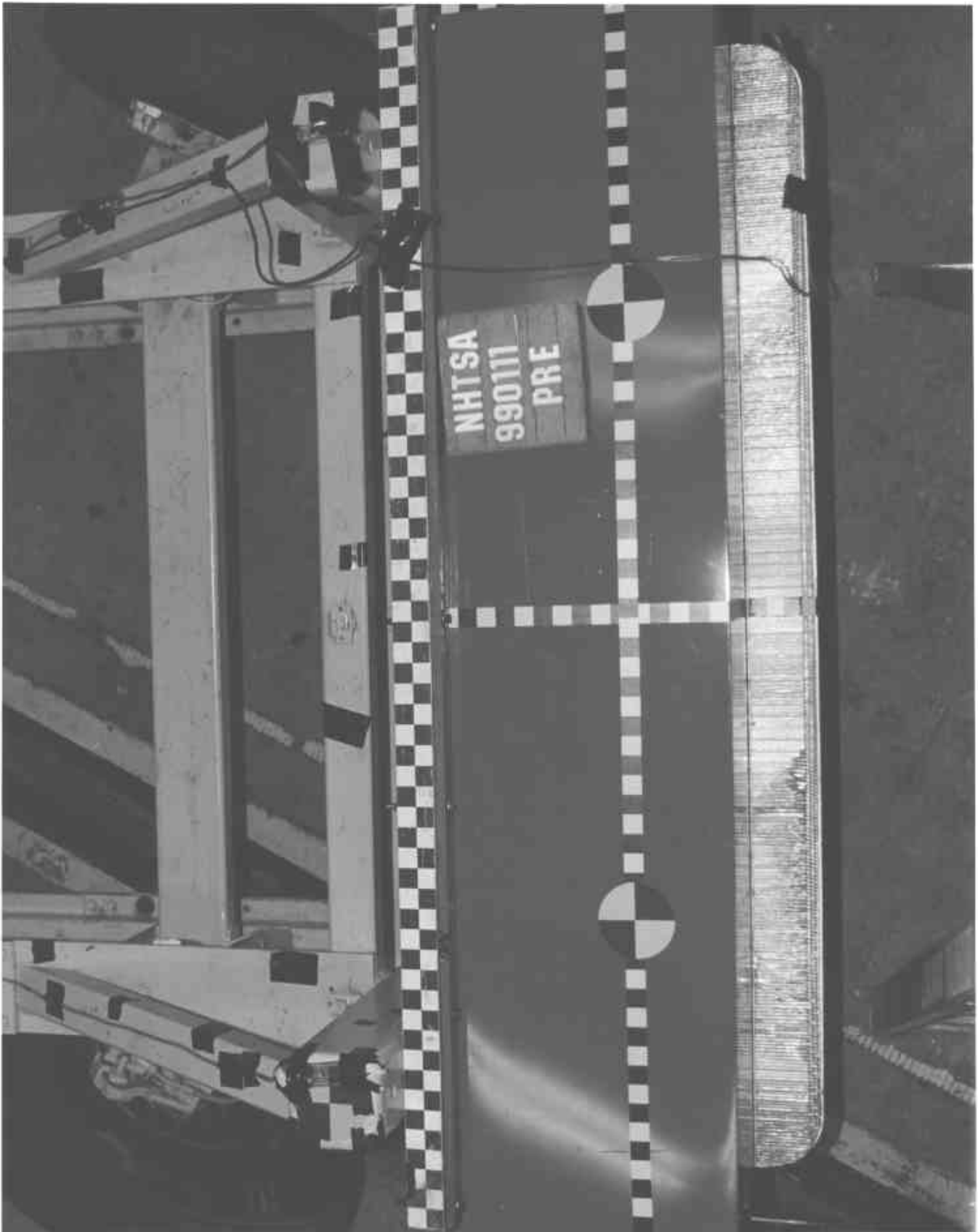


Figure A-13 Pre-Test Top View of Impactor Face
A-15

990111

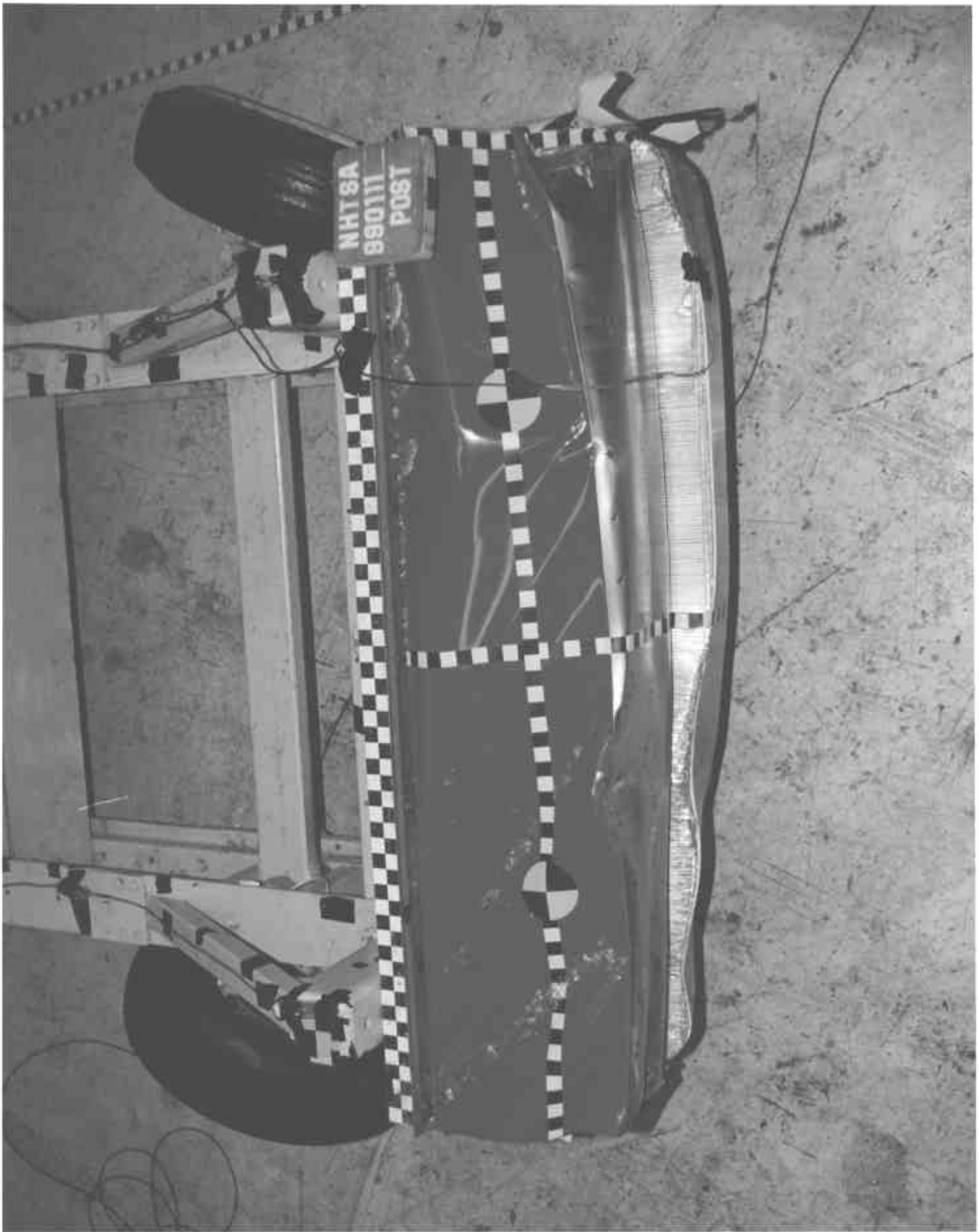


Figure A-14 Post-Test Top View of Impactor Face
A-16

990111

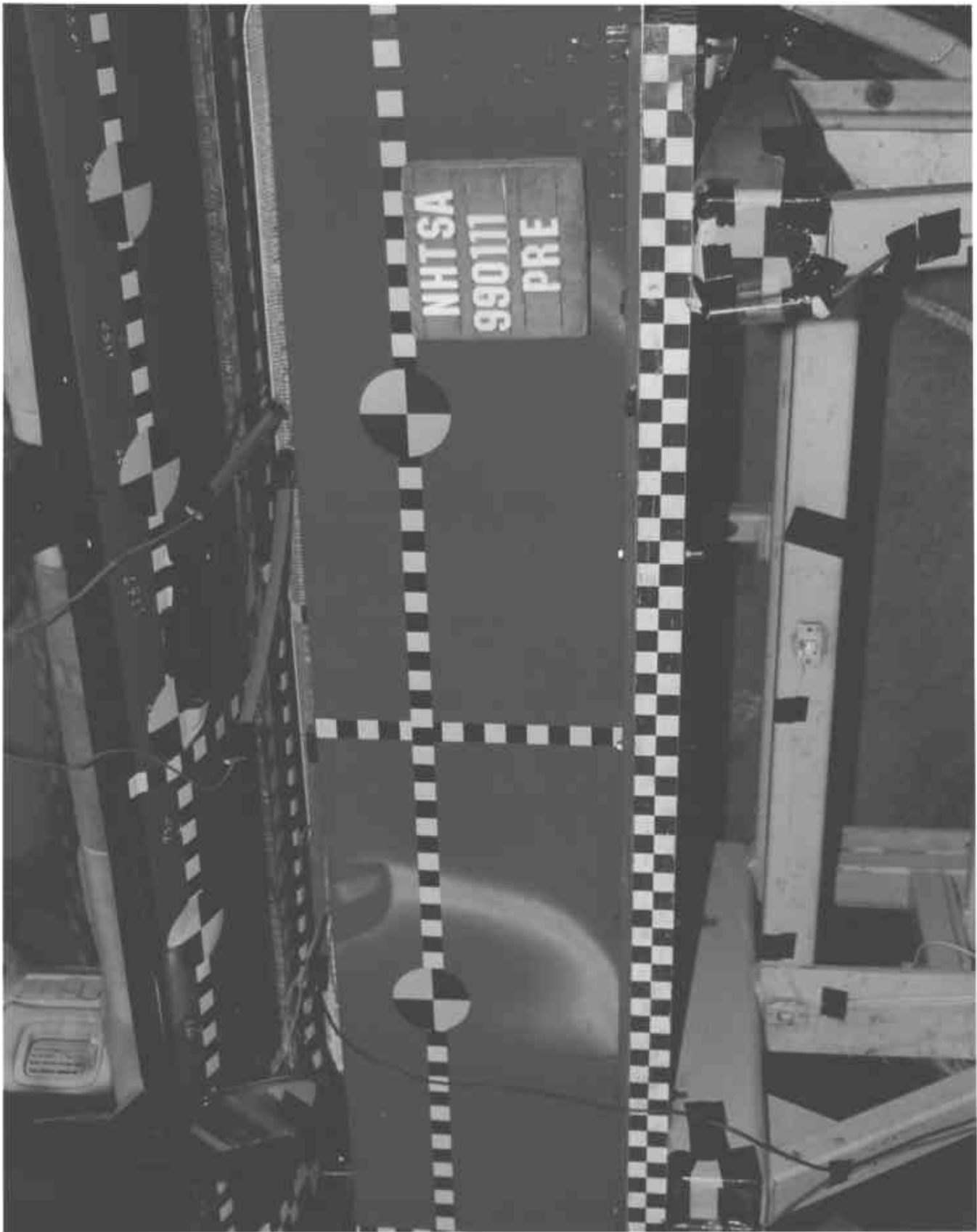


Figure A-15 Pre-Test Overhead View of MDB Aligned with Vehicle

A-17

990111



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

A-18

990111



Figure A-17 Post-Test Right Occupant Compartment View of Front SID

A-19

990111



Figure A-18 Post-Test Right Occupant Compartment View of Rear SID

A-20

990111

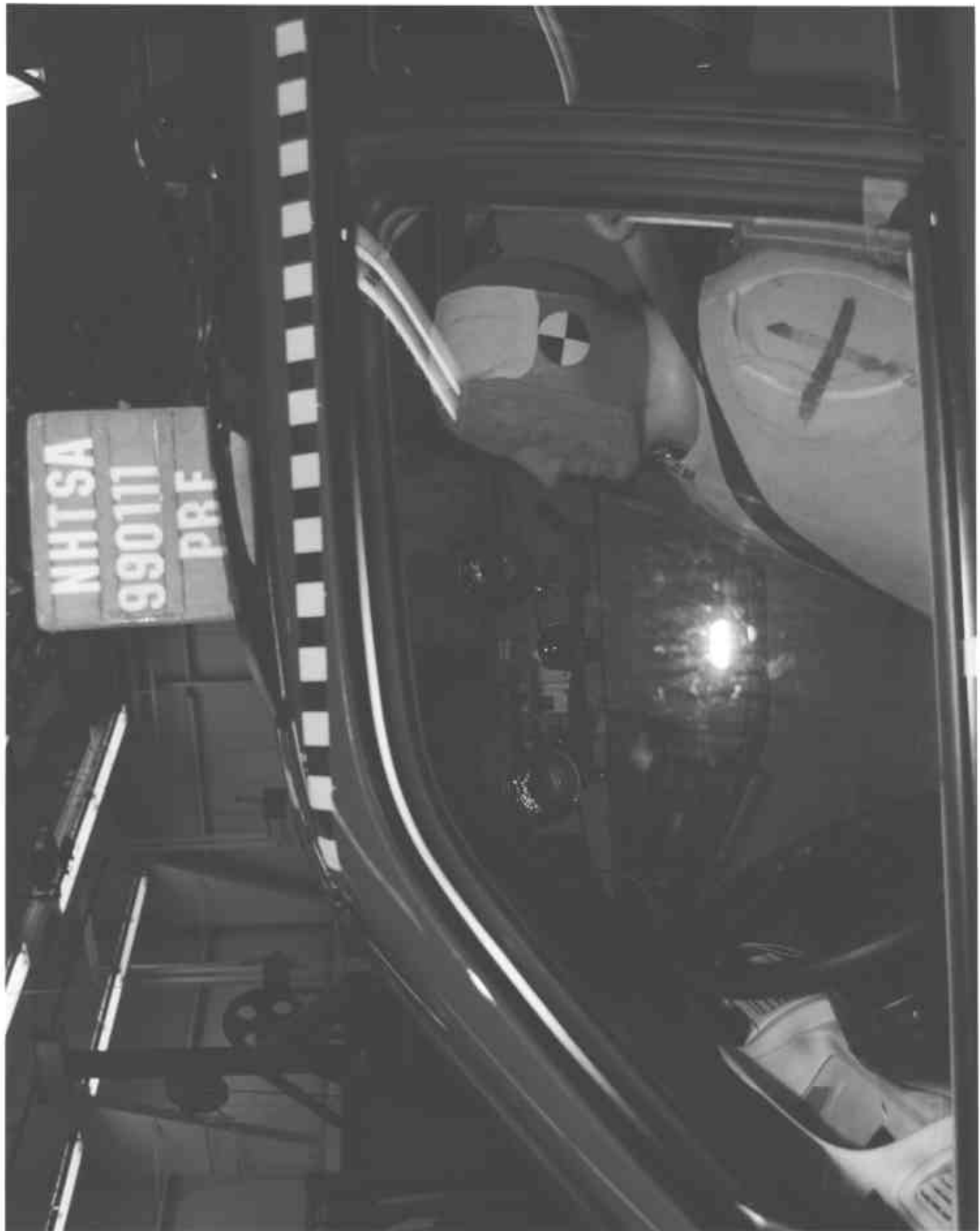


Figure A-19 Pre-Test Left Occupant Compartment View of Front SID

A-21

990111



Figure A-20 Post-Test Left Occupant Compartment View of Front SID

A-22

990111

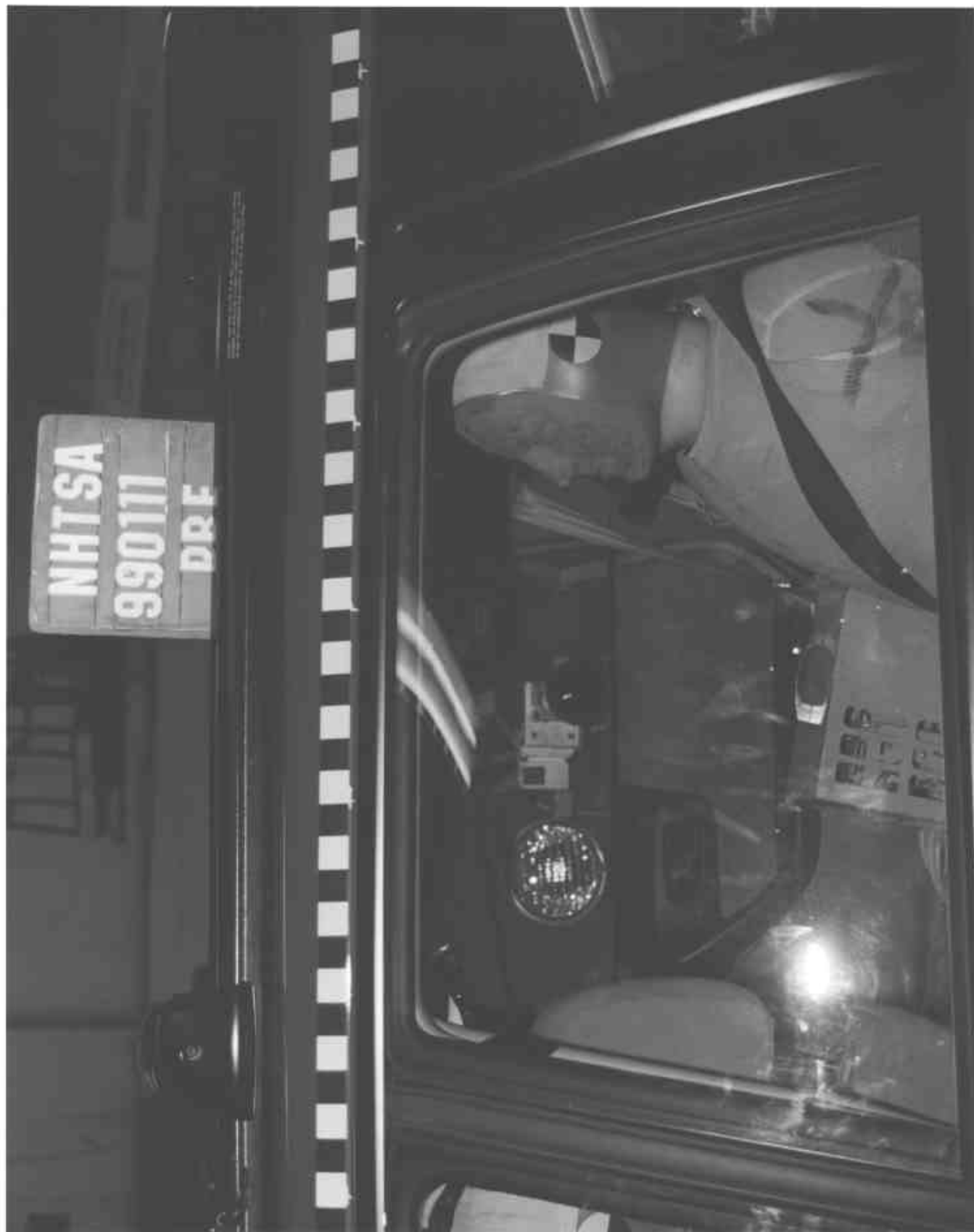


Figure A-21 Pre-Test Left Occupant Compartment View of Rear SID

A-23

990111

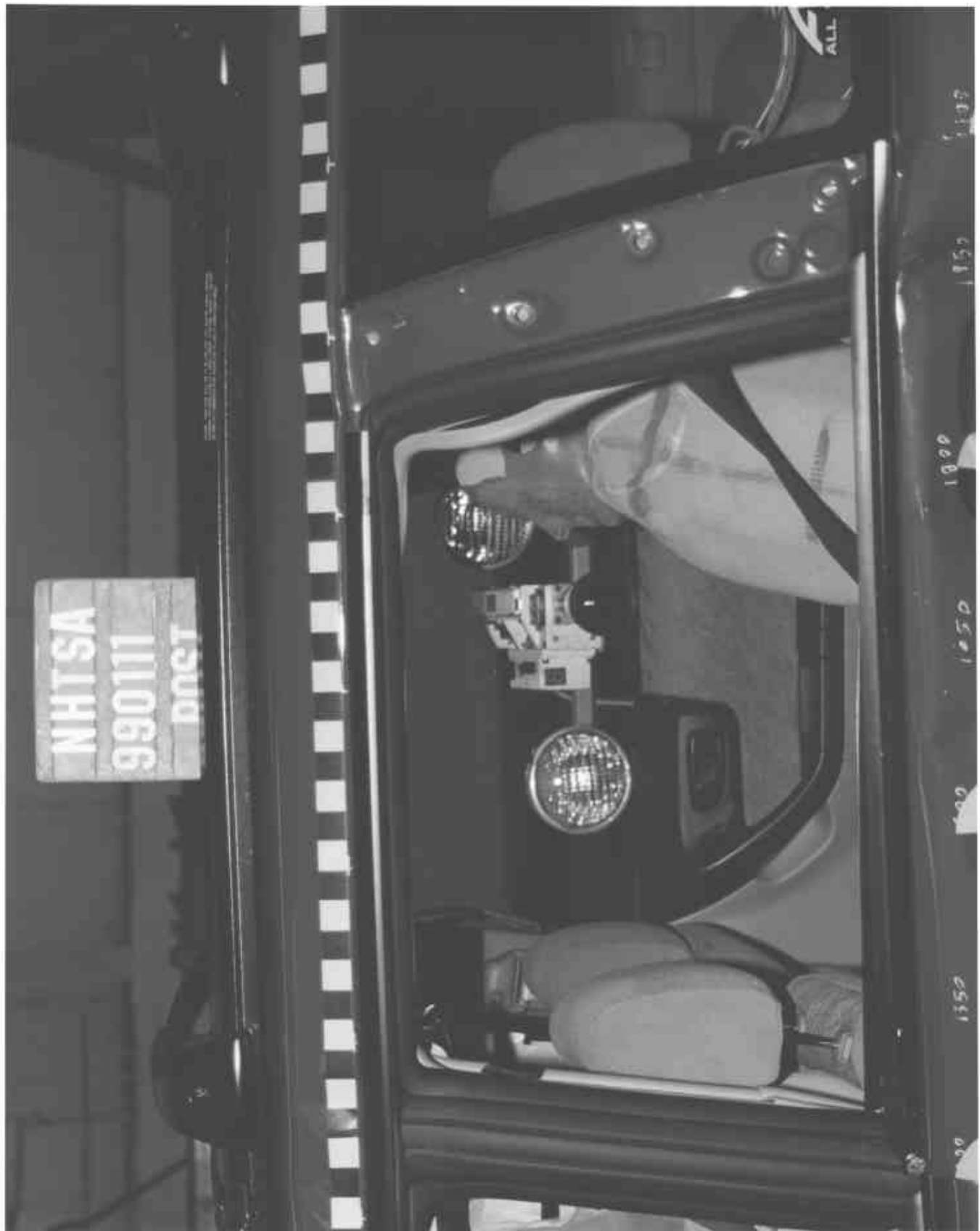


Figure A-22 Post-Test Left Occupant Compartment View of Rear SID

A-24

990111



Figure A-23 Pre-Test Interior Of Front Door
A-25

990111

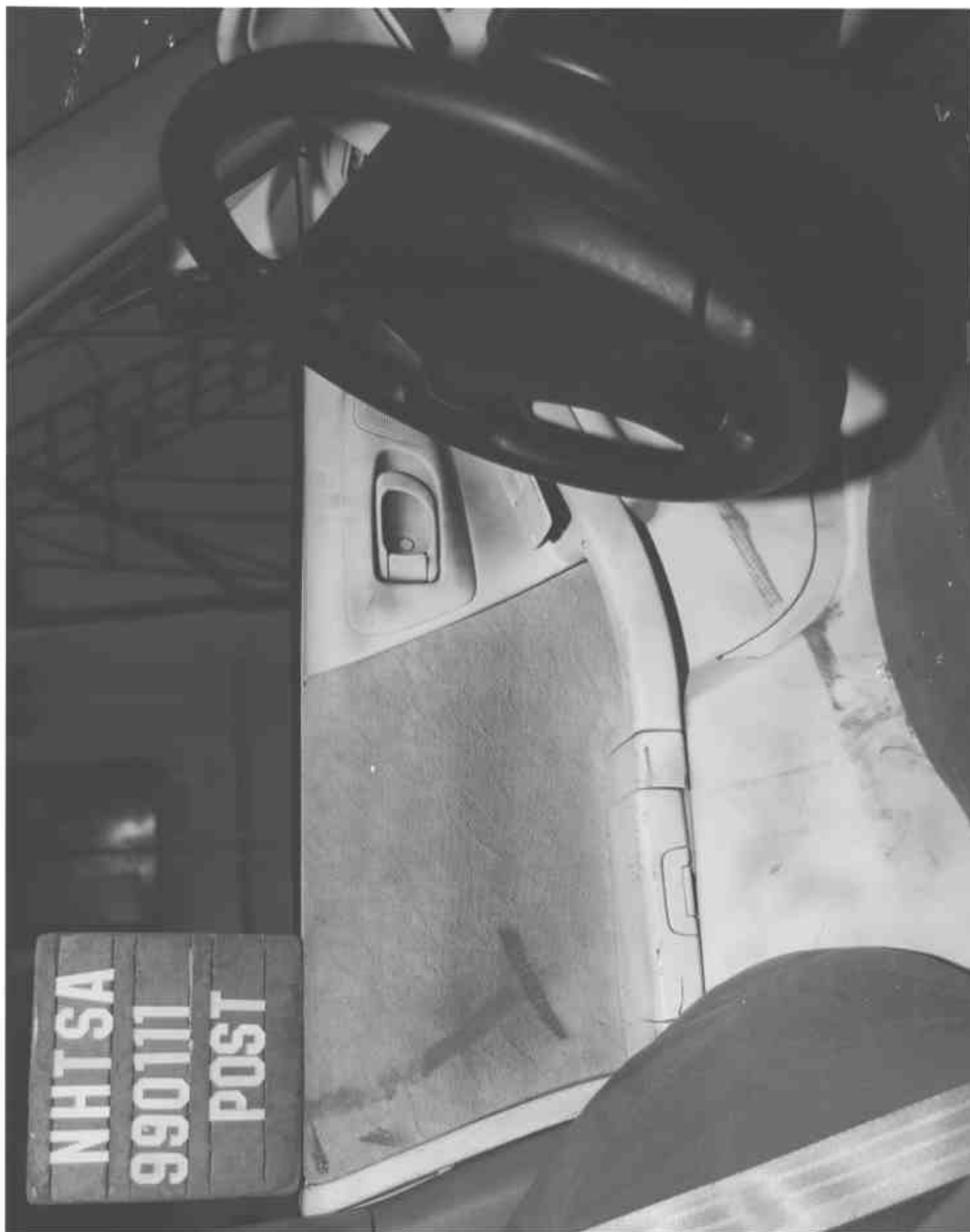


Figure A-24 Post-Test Interior of Front Door Showing SID Impact Locations

A-26

990111



Figure A-25 Post-Test Front SID Contact
A-27

990111



Figure A-26 Pre-Test Interior Of Rear Door
A-28

990111



Figure A-27 Post-Test Interior of Rear Panel Showing SID Impact Locations

A-29

990111



Figure A-28 Post-Test Rear SID Contact
A-30

990111



Figure A-29 Pre-Test Left Side View of MDB With Impactor Face in Position

A-31

990111

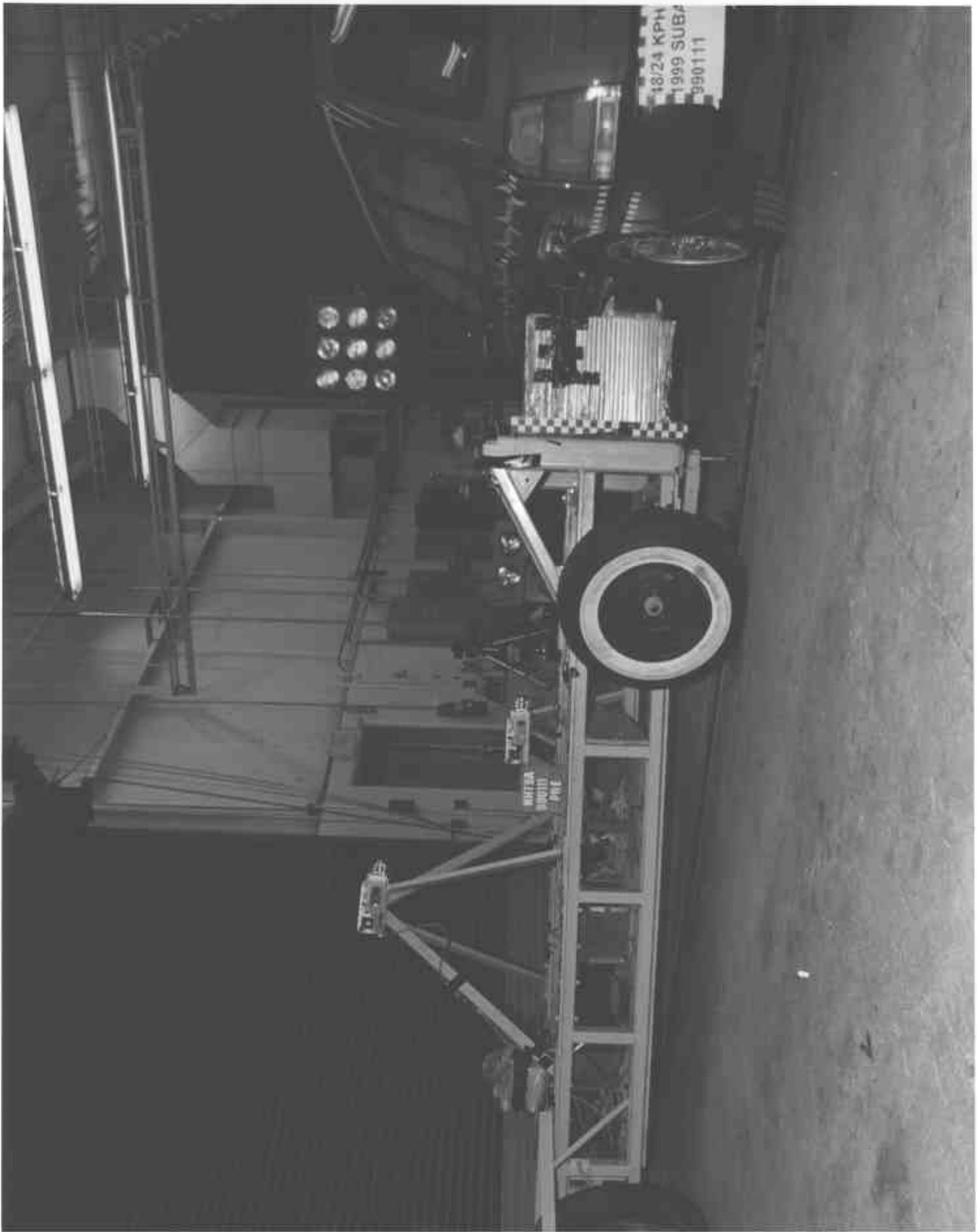


Figure A-30 Pre-Test Right Side View of MDB With Impactor Face in Position
A-32 990111

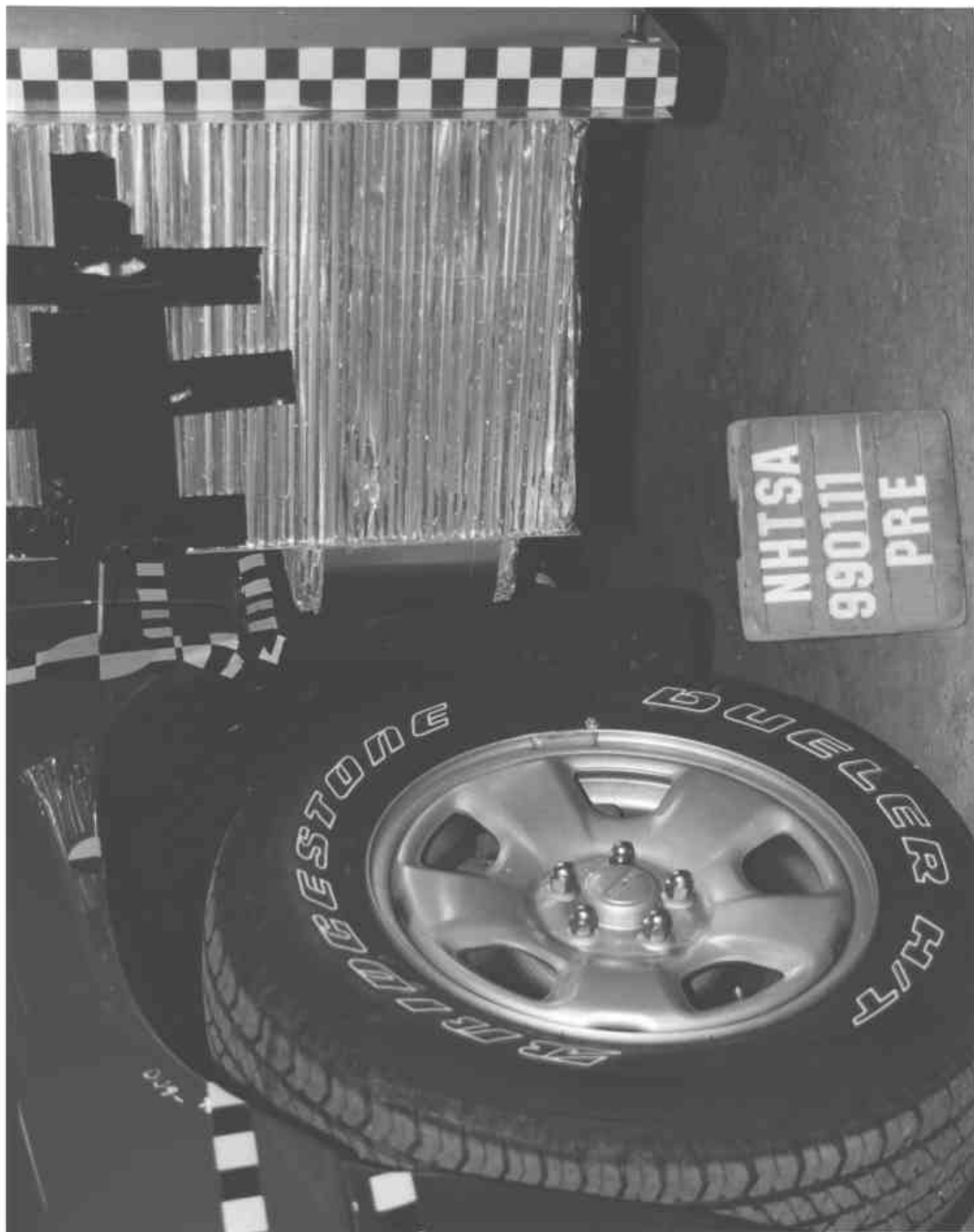


Figure A-31 Pre-Test Close-Up View of Impact Point Target
A-33

990111



Figure A-32 Post-Test Close-Up View of Impact Point
A-34

990111

MFD BY FUJII HEAVY IND. LTD. JAPAN

MFD IN 09/98

GVWR: 4120LB(1870KG)
GAWR: FRONT-2000LB(905KG)
REAR -2120LB(965KG)

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

VIN

JF1SF6356XH711317

(VD)

PASSENGER CAR

Figure A-33 Pre-Test Vehicle Certification Label View

VEHICLE CAPACITY WEIGHT:
900LB(410KG)
NUMBER OF OCCUPANTS:
TOTAL 5 (FRONT 2/ REAR 3)
RECOMMENDED TIRE INFLATION
PRESSURE psi(kgf/cm²)

TIRE SIZE		FRONT	REAR
P205/10R15 95S	LIGHT LOAD	29(2.0)	26(1.8)
	FULL LOAD	29(2.0)	36(2.5)

At trailer towing, rear inflation
pressure is 41 PSI (2.8 kgf/cm²).

SUBARU CD

Figure A-34 Pre-Test Vehicle Recommended Tire Pressure Label View

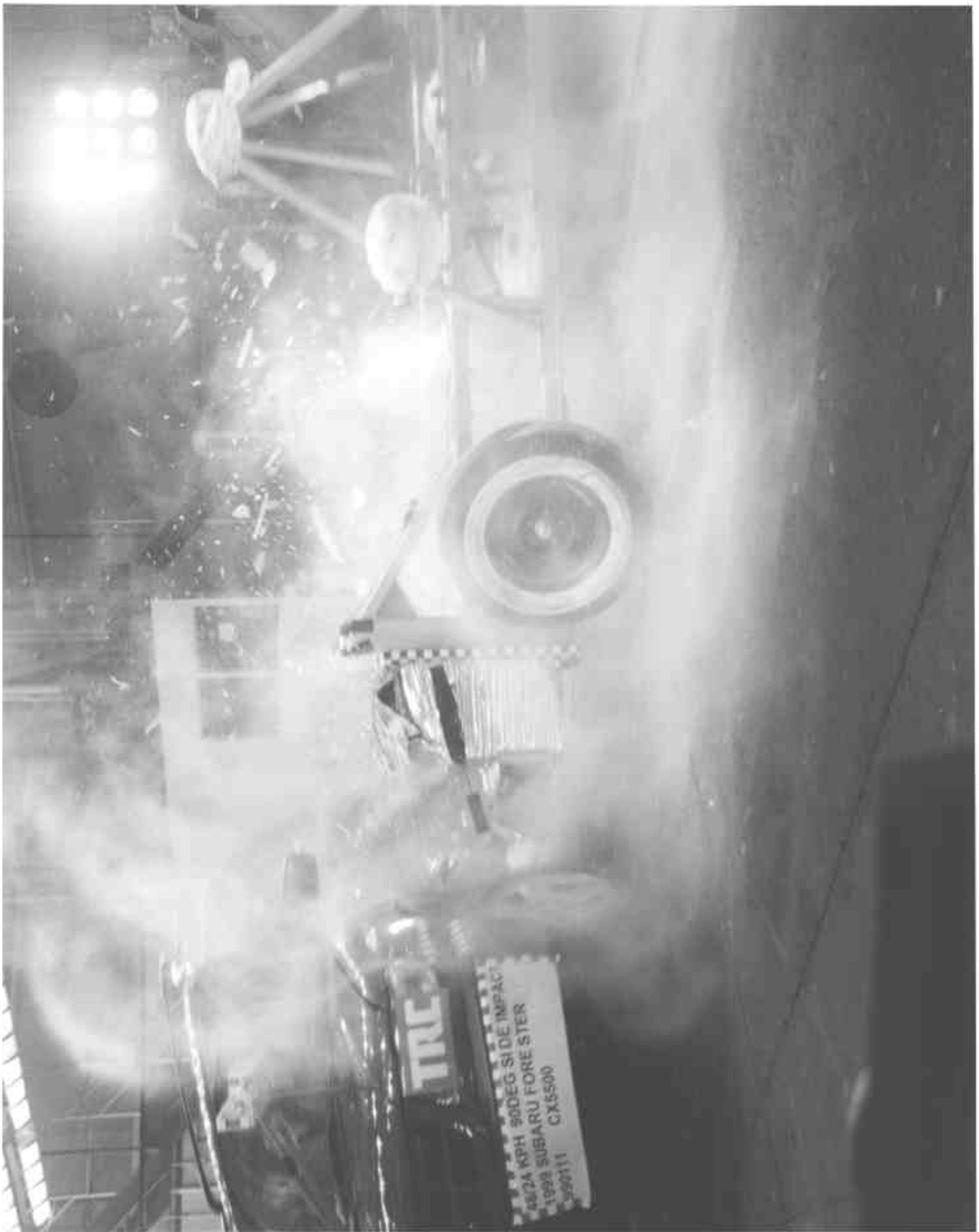


Figure A-35 Impact Event
A-37

990111

Appendix B

Data Plots

Table of Data Plots

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	DRIVER UPPER RIB Y-AXIS ACCELERATION	B-7
2	DRIVER UPPER RIB Y-AXIS VELOCITY	B-8
3	DRIVER LOWER RIB Y-AXIS ACCELERATION	B-9
4	DRIVER LOWER RIB Y-AXIS VELOCITY	B-10
5	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-11
6	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-12
7	DRIVER PELVIS Y-AXIS ACCELERATION	B-13
8	DRIVER PELVIS Y-AXIS VELOCITY	B-14
9	LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION	B-15
10	LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY	B-16
11	LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION	B-17
12	LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY	B-18
13	LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION	B-19
14	LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY	B-20
15	LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION	B-21
16	LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY	B-22

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
17	RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION	B-24
18	RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY	B-25
19	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION	B-26
20	RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-27
21	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION	B-28
22	RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY	B-29
23	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION	B-30
24	RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION	B-31
25	RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY	B-32
26	RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION	B-33

27	RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY	B-34
28	RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION	B-35
29	RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY	B-36
30	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION	B-37
31	REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION	B-38
32	REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY	B-39
33	REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION	B-40
34	REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY	B-41
35	REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION	B-42
36	REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY	B-43
37	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION	B-44
38	LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION	B-45
39	LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-46
40	LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION	B-47
41	LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY	B-48
44	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION	B-51
45	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY	B-52
54	LOWER A-POST Y-AXIS ACCELERATION	B-61
55	LOWER A-POST Y-AXIS VELOCITY	B-62
56	UPPER A-POST Y-AXIS ACCELERATION	B-63
57	UPPER A-POST Y-AXIS VELOCITY	B-64
58	LOWER B-POST Y-AXIS ACCELERATION	B-65
59	LOWER B-POST Y-AXIS VELOCITY	B-66
60	UPPER B-POST Y-AXIS ACCELERATION	B-67
61	UPPER B-POST Y-AXIS VELOCITY	B-68
62	FRONT SEAT TRACK Y-AXIS ACCELERATION	B-69
63	FRONT SEAT TRACK Y-AXIS VELOCITY	B-70
66	VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION	B-73
67	VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY	B-74
68	VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION	B-75
69	VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY	B-76
70	VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION	B-77
71	VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY	B-78
72	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION	B-79

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

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
73	MDB CENTER OF GRAVITY X-AXIS ACCELERATION	B-81
74	MDB CENTER OF GRAVITY X-AXIS VELOCITY	B-82
75	MDB CENTER OF GRAVITY Y-AXIS ACCELERATION	B-83
76	MDB CENTER OF GRAVITY Y-AXIS VELOCITY	B-84
77	MDB CENTER OF GRAVITY Z-AXIS ACCELERATION	B-85
78	MDB CENTER OF GRAVITY Z-AXIS VELOCITY	B-86
79	MDB CENTER OF GRAVITY RESULTANT ACCELERATION	B-87
80	MDB REAR X-AXIS ACCELERATION	B-88
81	MDB REAR X-AXIS VELOCITY	B-89
82	MDB REAR Y-AXIS ACCELERATION	B-90
83	MDB REAR Y-AXIS VELOCITY	B-91

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
84	DRIVER UPPER RIB Y-AXIS ACCELERATION	B-93
85	DRIVER UPPER RIB Y-AXIS VELOCITY	B-94
86	DRIVER LOWER RIB Y-AXIS ACCELERATION	B-95
87	DRIVER LOWER RIB Y-AXIS VELOCITY	B-96
88	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-97
89	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-98
90	DRIVER PELVIS Y-AXIS ACCELERATION	B-99
91	DRIVER PELVIS Y-AXIS VELOCITY	B-100
92	PASSENGER UPPER RIB Y-AXIS ACCELERATION	B-101
93	PASSENGER UPPER RIB Y-AXIS VELOCITY	B-102
94	PASSENGER LOWER RIB Y-AXIS ACCELERATION	B-103
95	PASSENGER LOWER RIB Y-AXIS VELOCITY	B-104
96	PASSENGER LOWER SPINE Y-AXIS ACCELERATION	B-105
97	PASSENGER LOWER SPINE Y-AXIS VELOCITY	B-106
98	PASSENGER PELVIS Y-AXIS ACCELERATION	B-107
99	PASSENGER PELVIS Y-AXIS VELOCITY	B-108

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
100	DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION	B-110
101	DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-111
102	DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-112
103	DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-113
104	DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-114
105	DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-115
106	DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION	B-116
107	DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY	B-117
108	PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION	B-118
109	PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-119
110	PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-120
111	PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-121
112	PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-122
113	PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-123
114	PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION	B-124
115	PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY	B-125

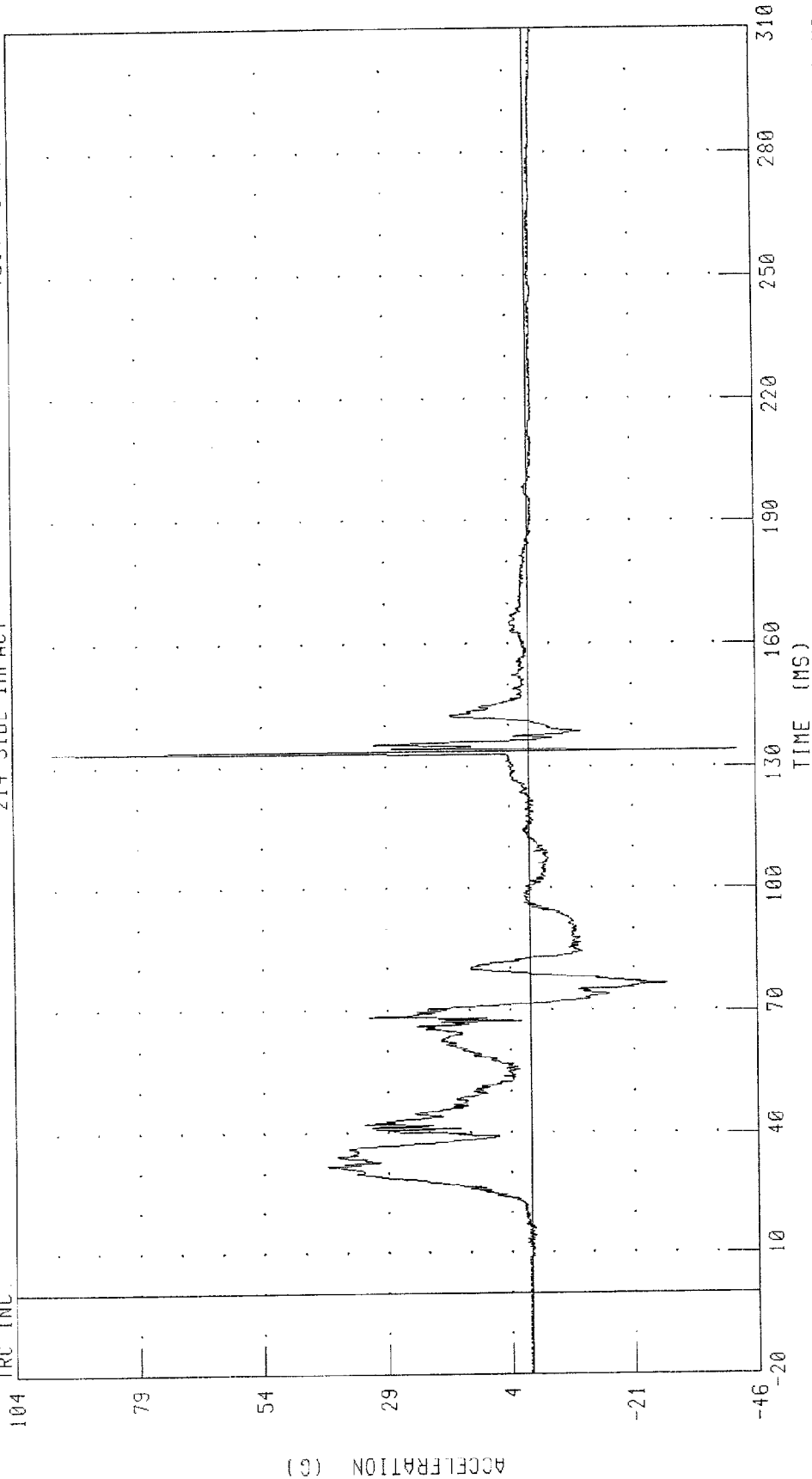
Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - Filter Class 1000
Integration Data - Filter Class 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
DRIVER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER 990111

214 SIDE IMPACT

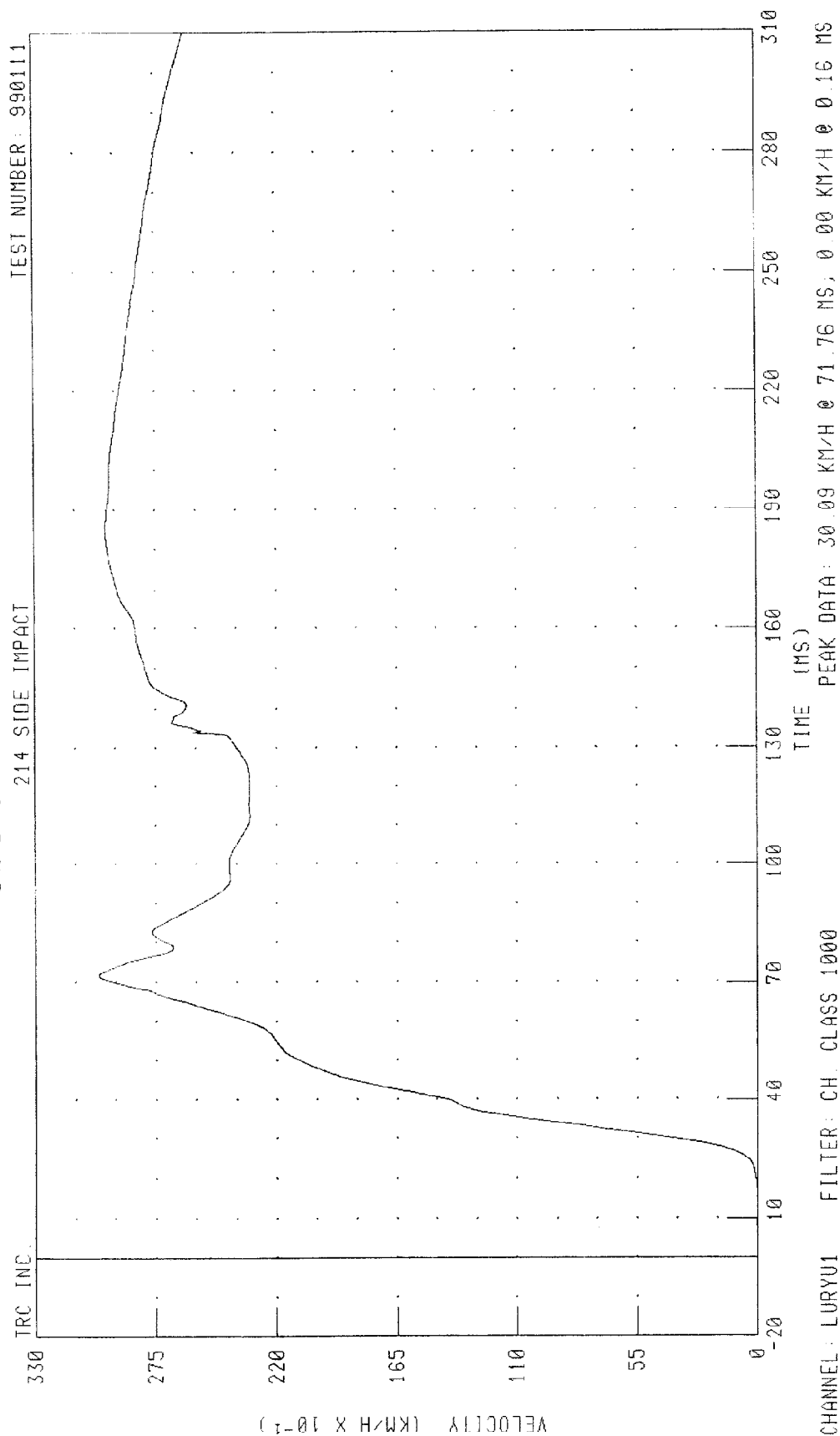
TRC INC.



CHANNEL: LURYC1 FILTER: CH. CLASS 1000

PEAK DATA: 96.47 G @ 133.52 MS; -42.14 G @ 134.08 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER UPPER RIB Y-AXIS VELOCITY

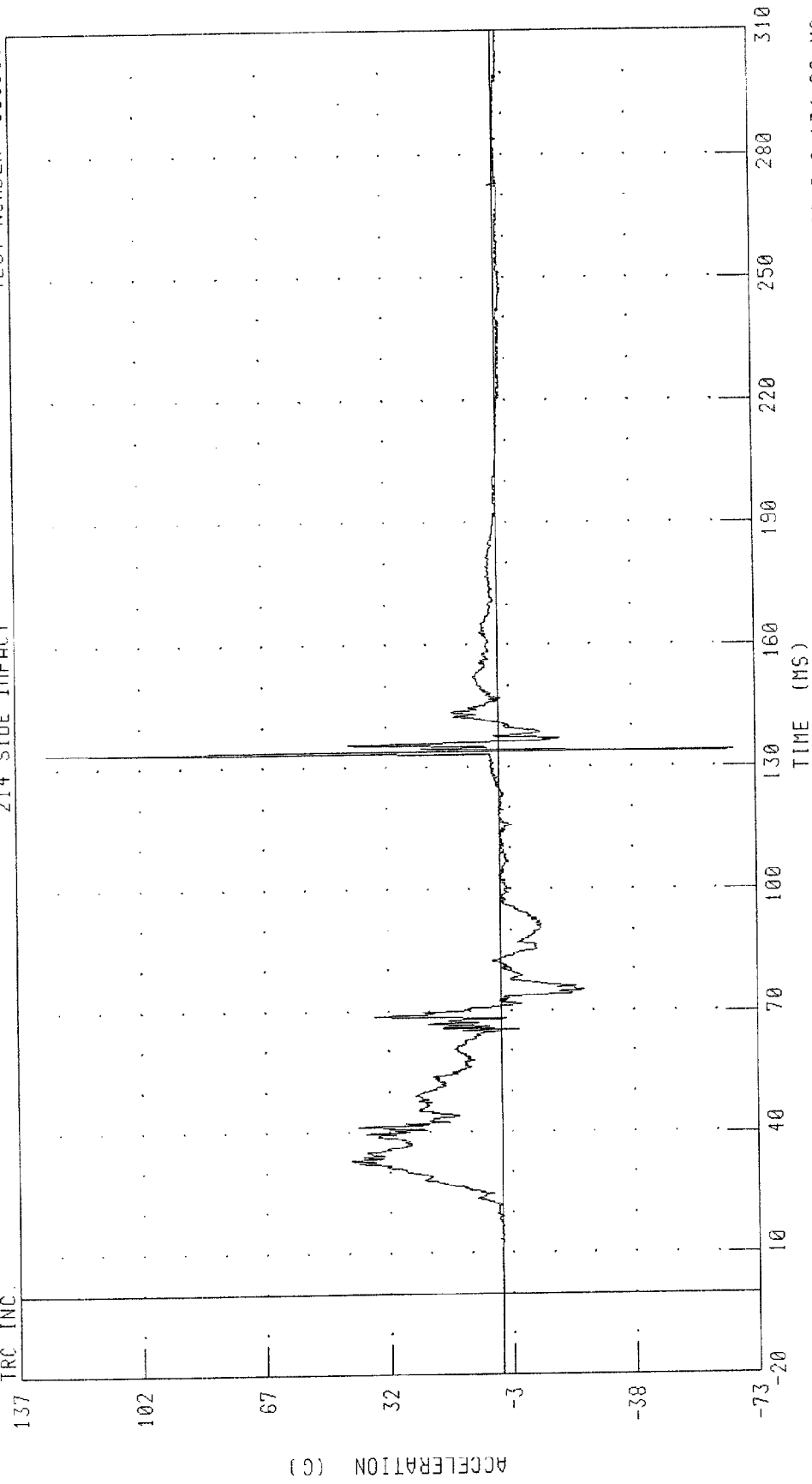


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

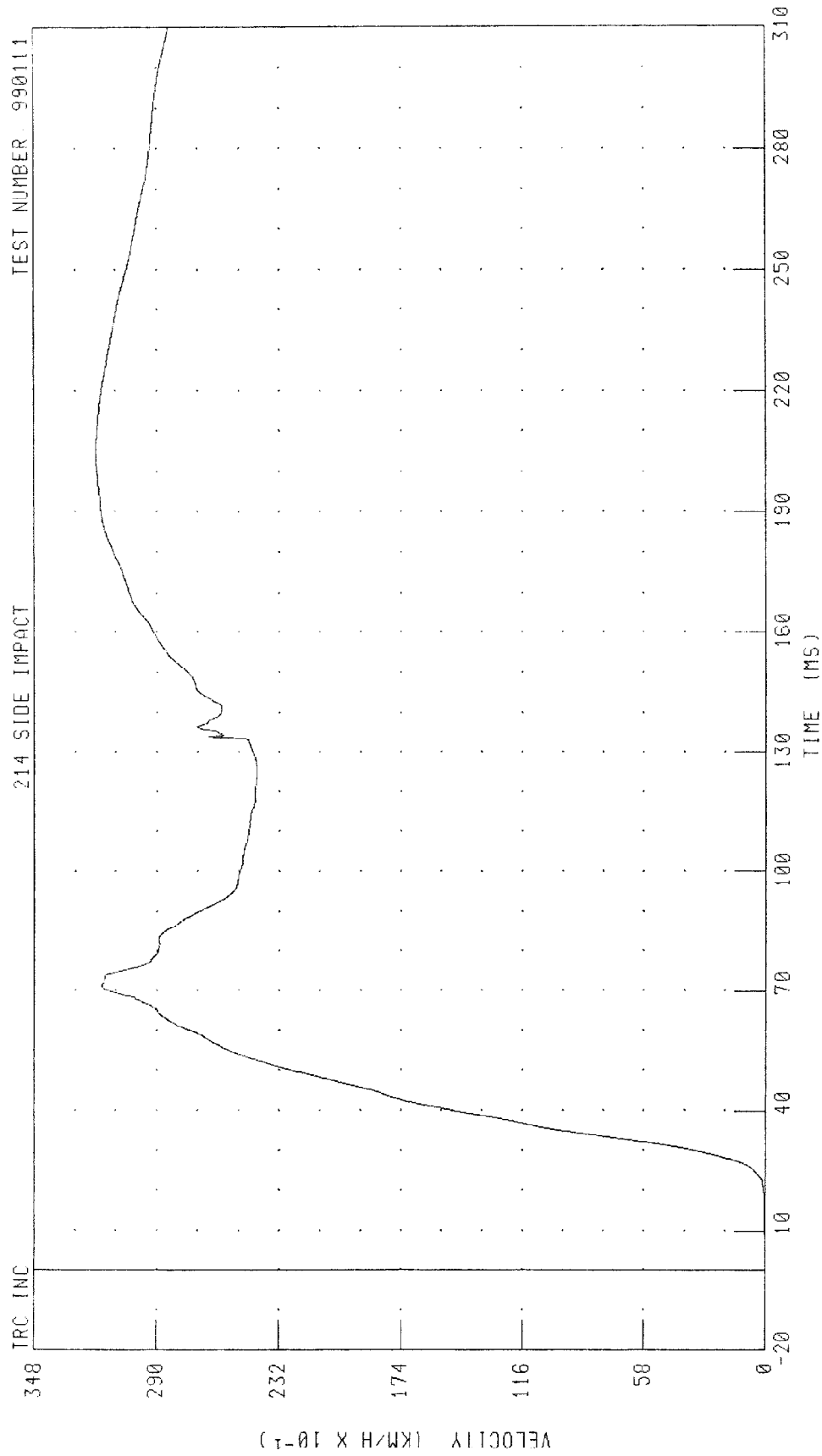
TRC INC.



PEAK DATA: 128.34 G @ 133.60 MS, -67.22 G @ 134.08 MS

CHANNEL: LLRYG1 FILTER: CH. CLASS 1000

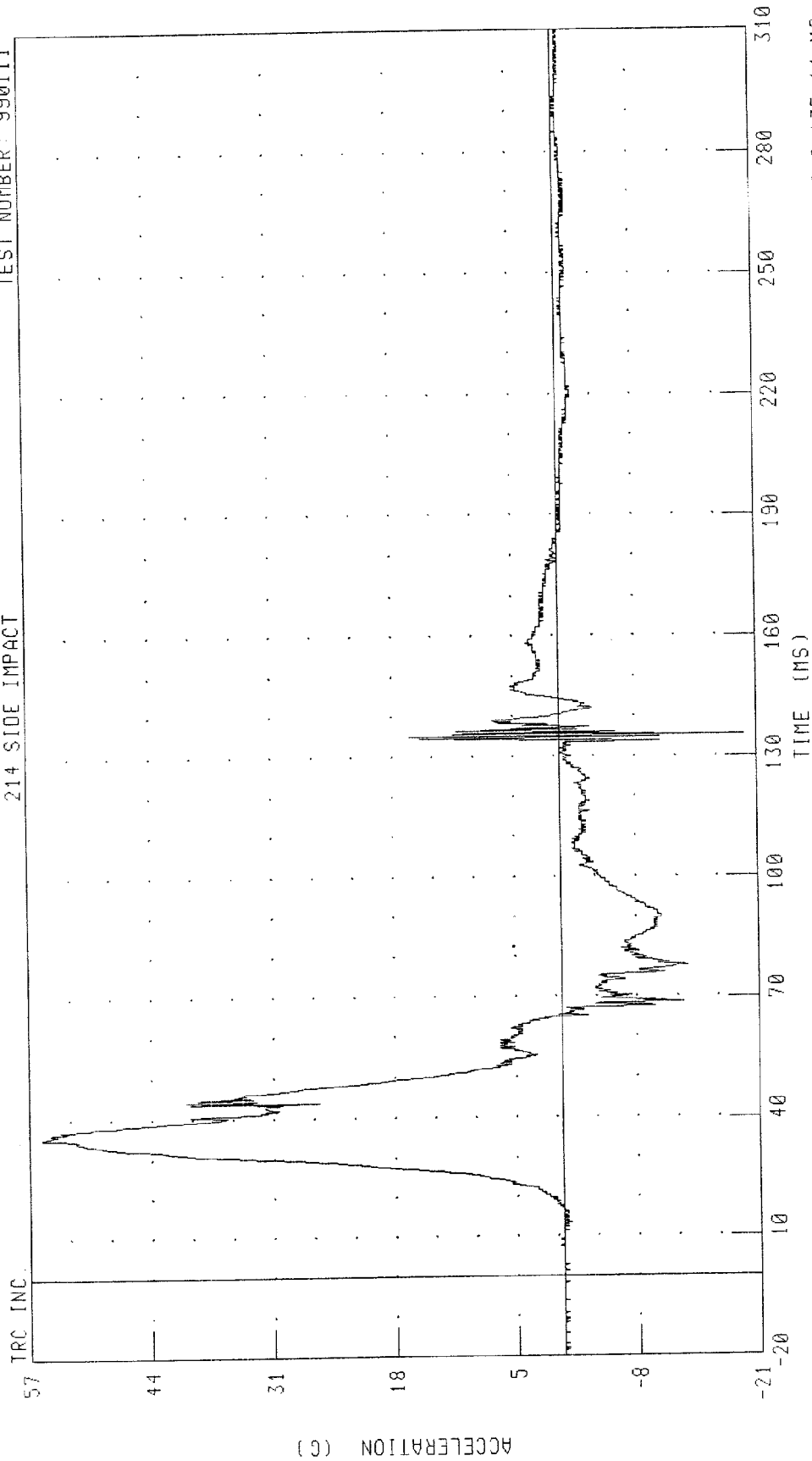
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
DRIVER LOWER RIB Y-AXIS VELOCITY



CHANNEL: LLRYU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER SPINE Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111



PEAK DATA: 55.66 G @ 35.20 MS, -19.72 G @ 135.44 MS

CHANNEL: T12YC1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER

DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.

372

310

VELOCITY (KM/H X 10⁻¹)

248

186

124

62

0

-20

10

40

70

100

130

160

190

220

250

280

310

TIME (MS)

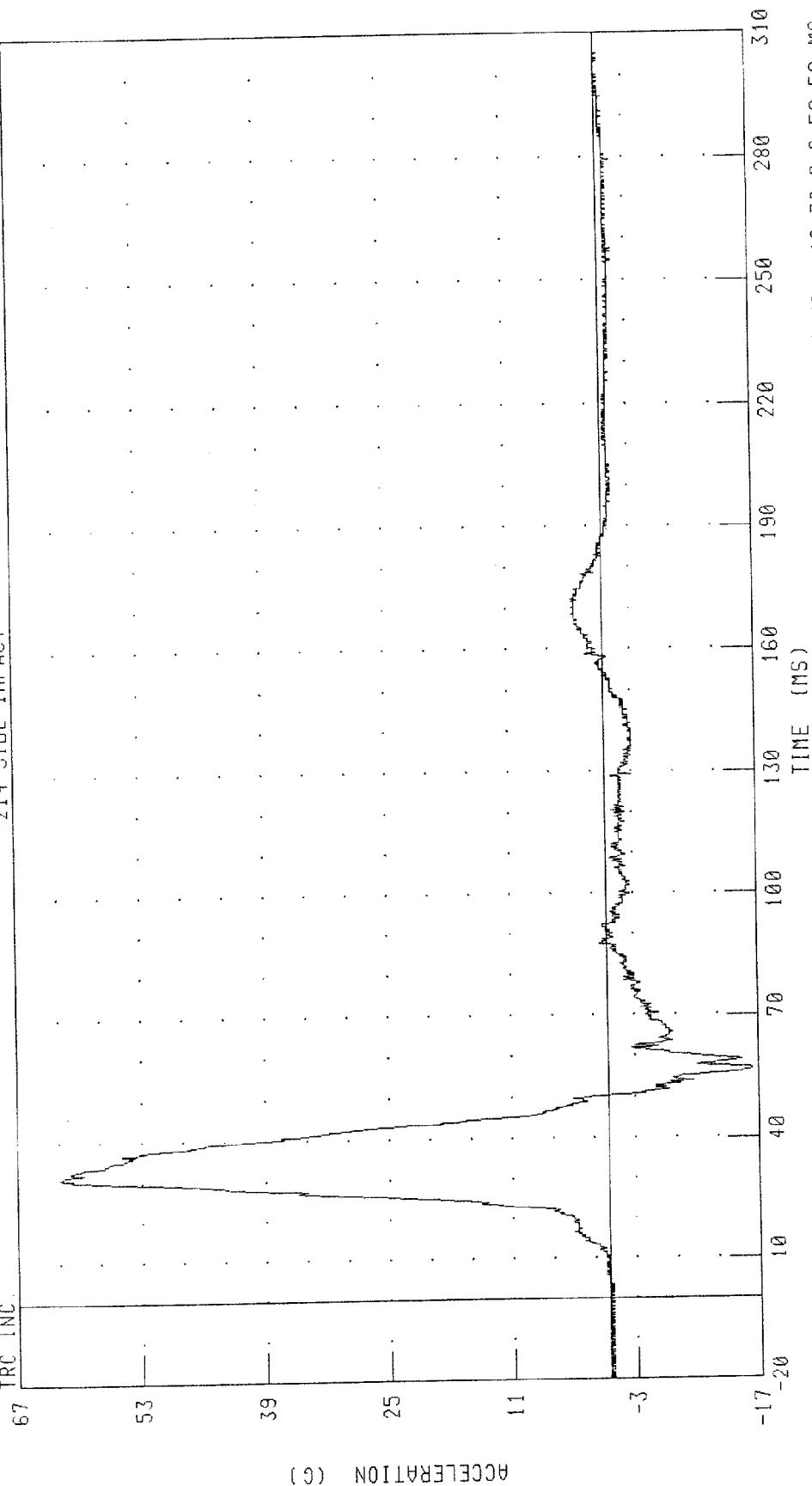
CHANNEL: T12YU1 FILTER: CH. CLASS 1000

PEAK DATA: 34.06 KM/H @ 65.12 MS, -0.02 KM/H @ 16.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER PELVIS Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111

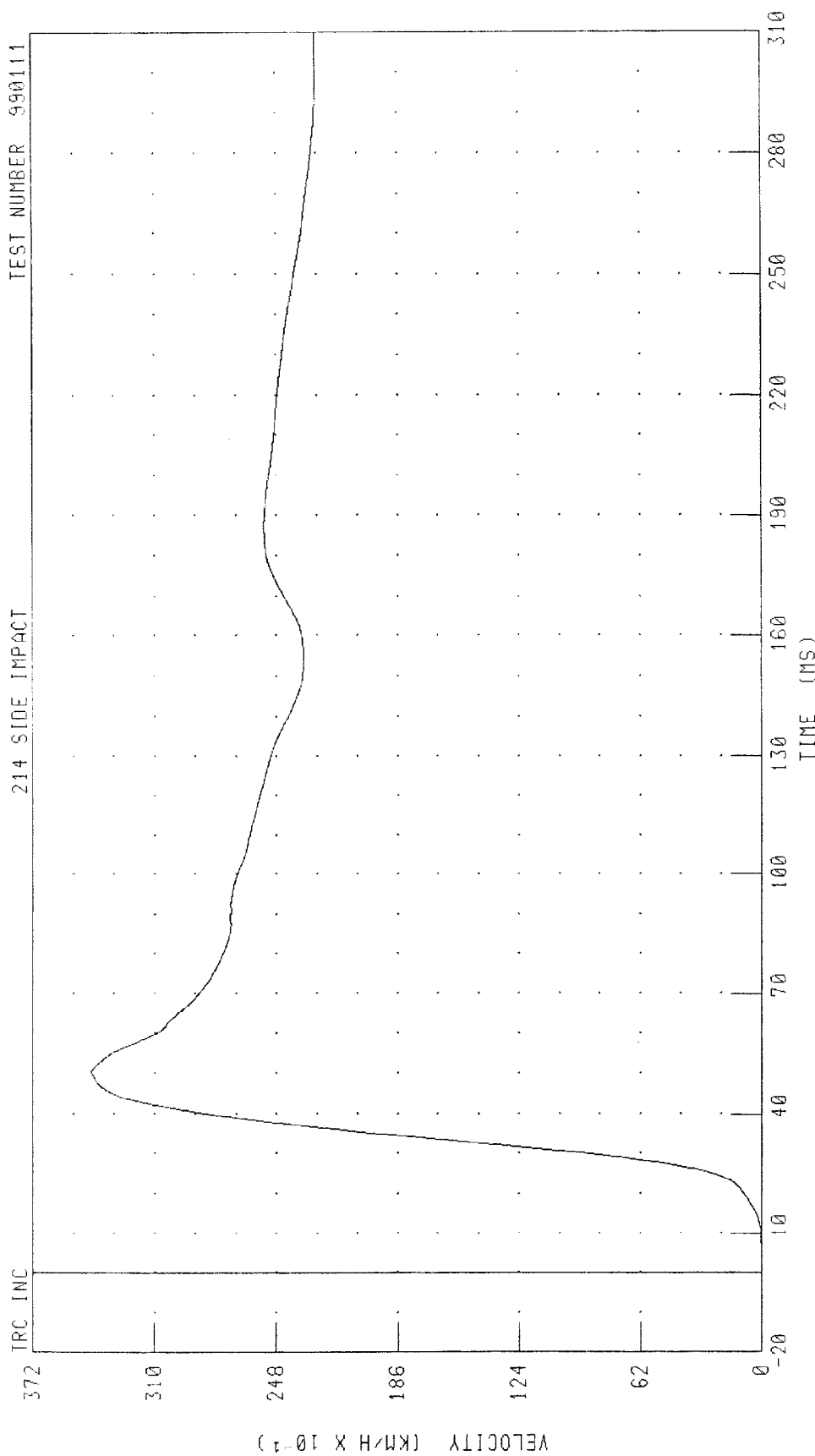
TRC INC.



PEAK DATA: 62.32 G @ 31.20 MS; -16.30 G @ 56.56 MS

CHANNEL: PEVY01 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER PELVIS Y-AXIS VELOCITY



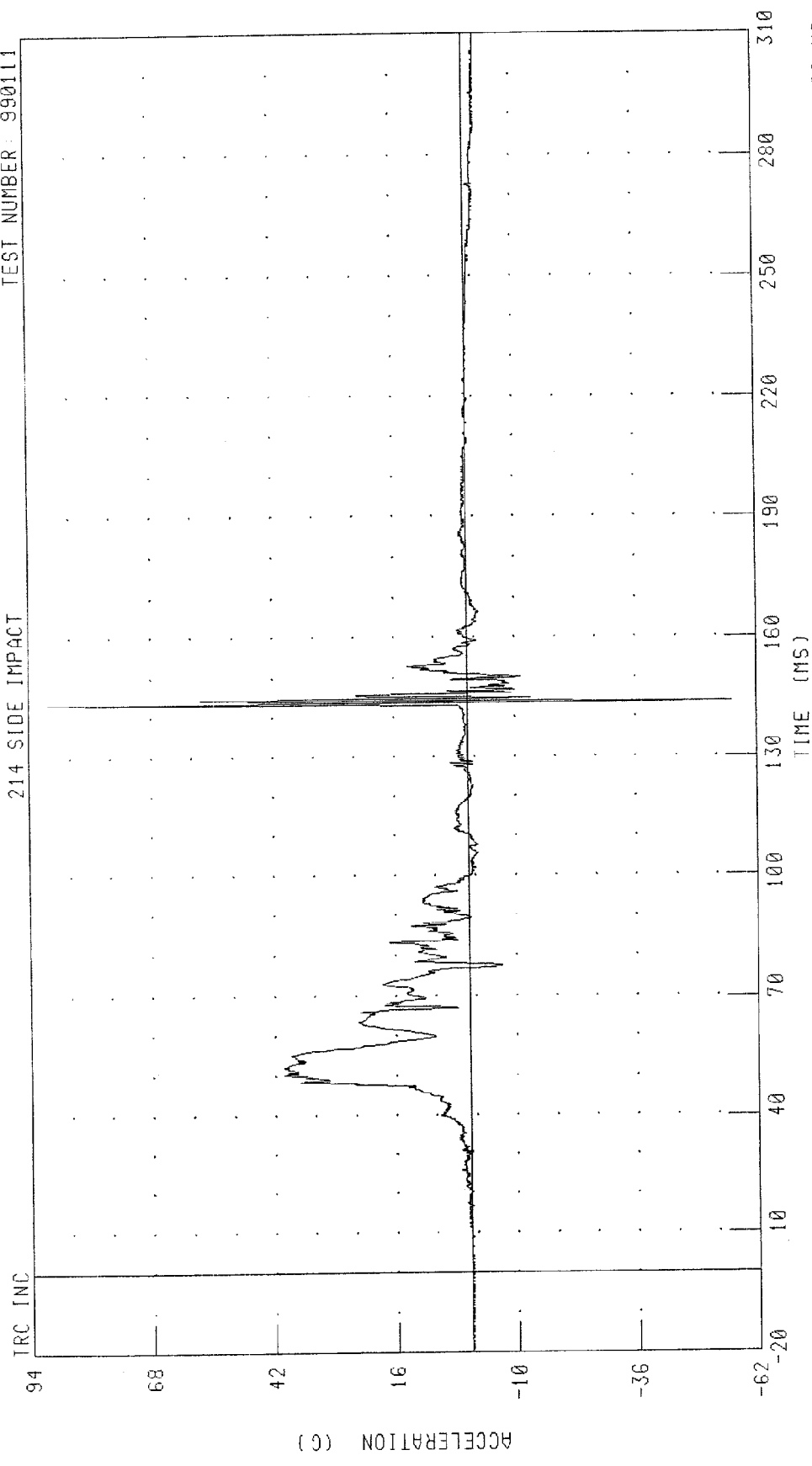
PEAK DATA: 34.22 KM/H @ 50.40 MS, 0.00 KM/H @ 3.28 MS

CHANNEL: PEYU1 FILTER CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT



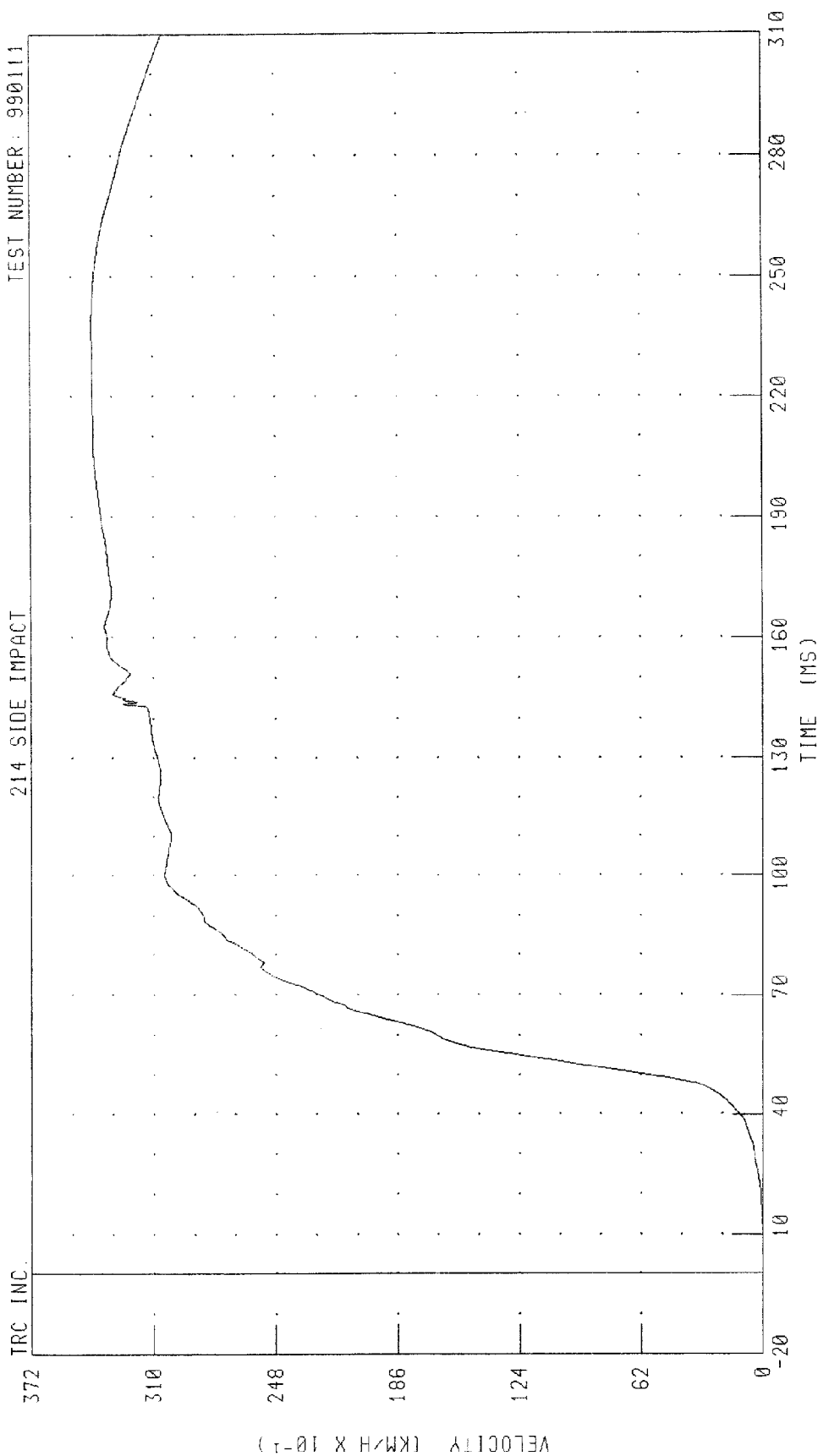
PEAK DATA: 89.95 G @ 143.44 MS, -56.83 G @ 144.00 MS

CHANNEL: LURV04 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

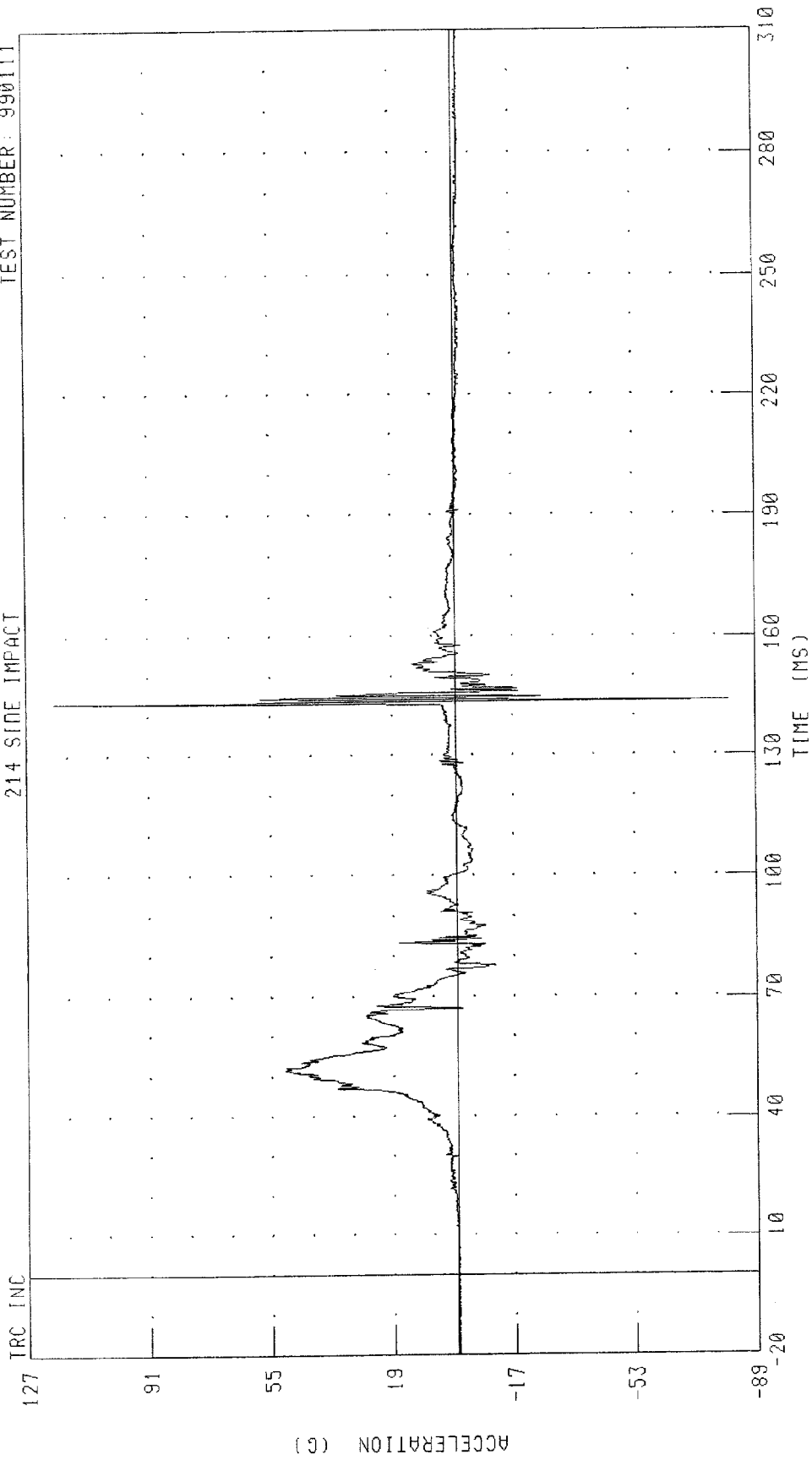


PEAK DATA: 34.10 KM/H @ 238.08 MS, 0.00 KM/H @ 4.16 MS

CHANNEL: LURYU4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION
214 SIDE IMPACT

TEST NUMBER: 990111

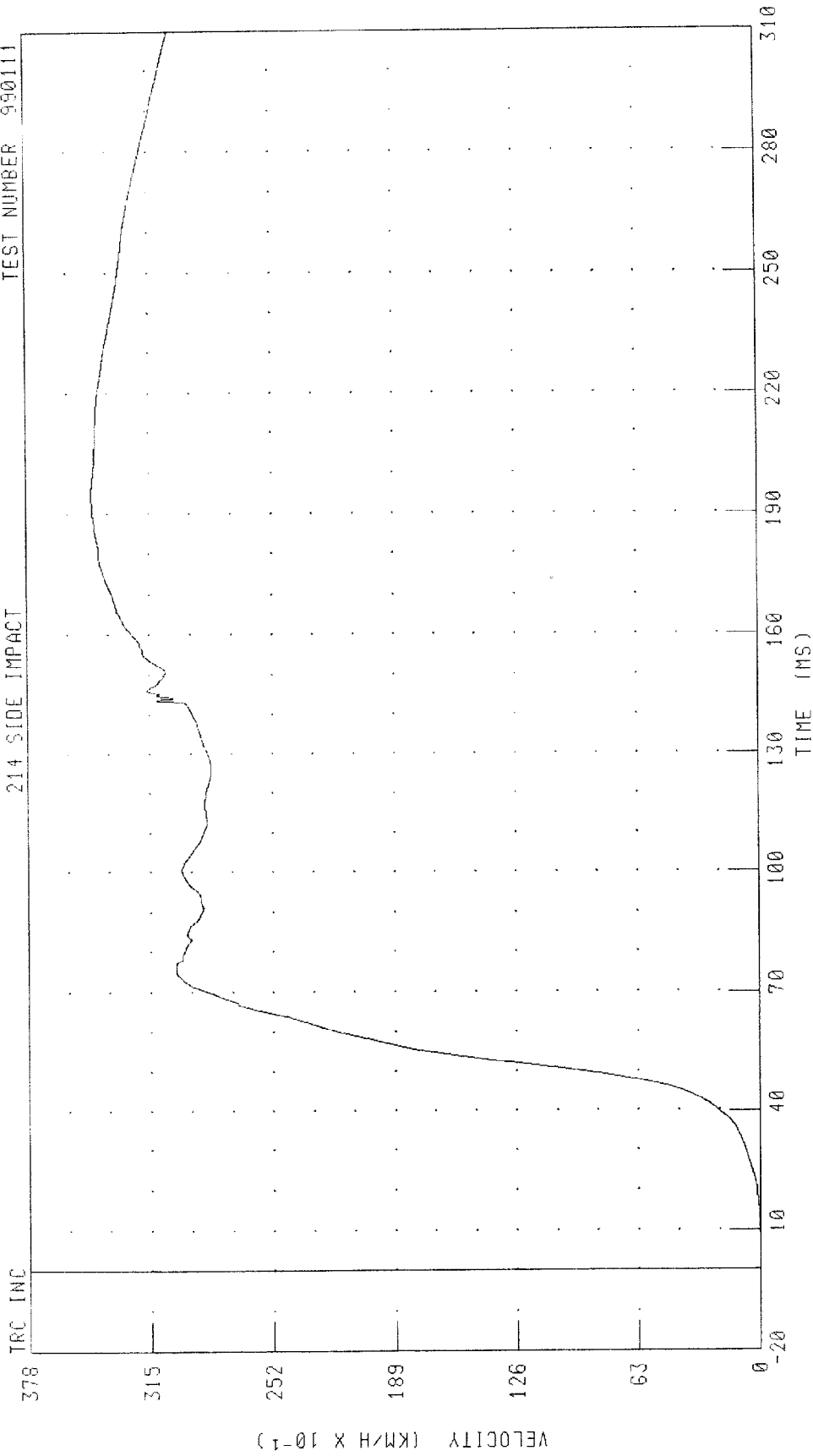


PEAK DATA: 118.74 G @ 143.44 MS; -81.03 G @ 143.92 MS

CHANNEL: LLRYC4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER 990111



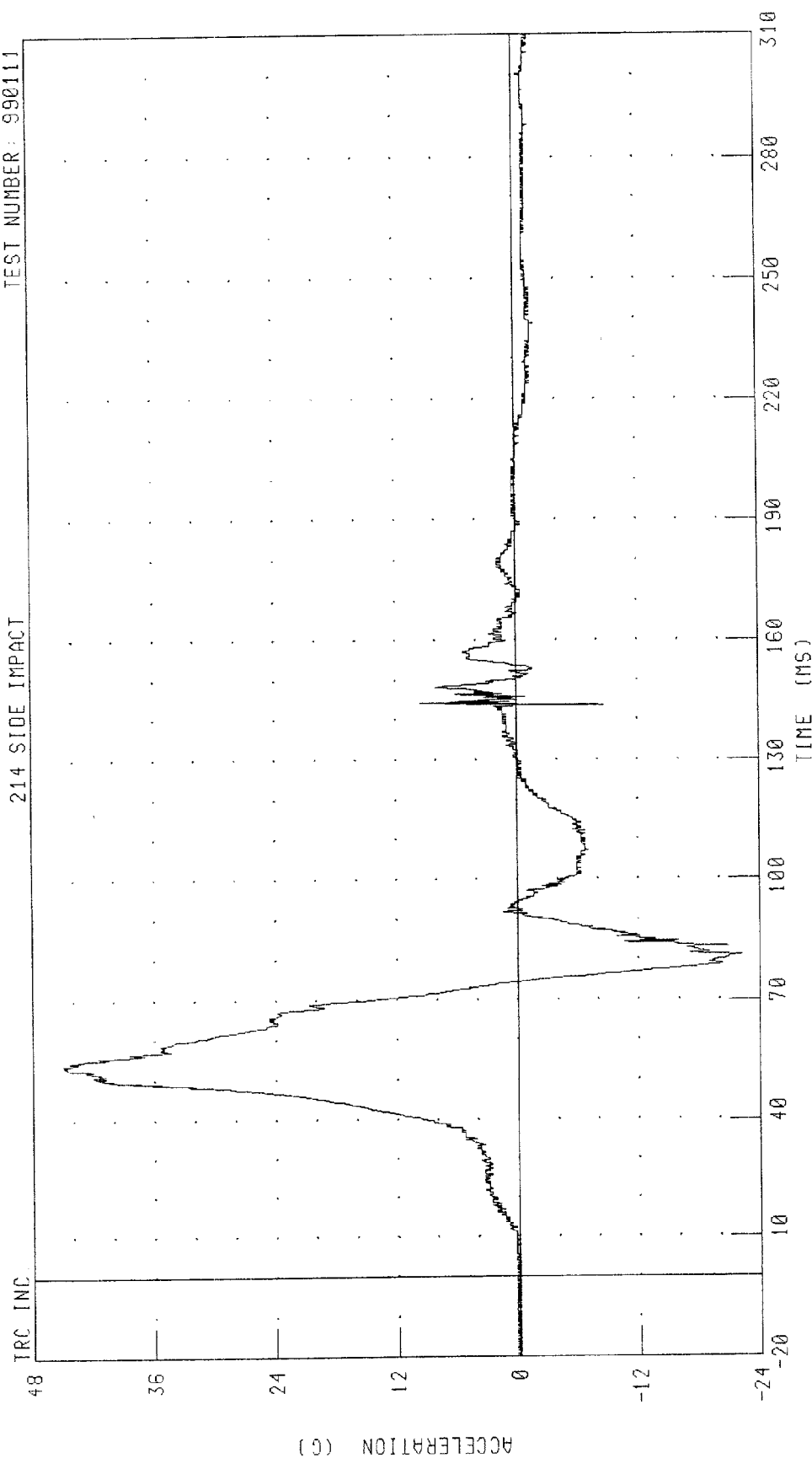
PEAK DATA: 34.43 KM/H @ 195.52 MS; 0.00 KM/H @ 0.16 MS

CHANNEL: LLRYU4 FILTER: CH CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT



CHANNEL: T12YG4 FILTER: CH. CLASS 1000

PEAK DATA: 45.09 G @ 53.28 MS; -22.17 G @ 81.04 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER 990111

214 SIDE IMPACT

TRC INC

378

315

VELOCITY (KM/H X 10⁻¹)

252

189

126

63

0
-20

TIME (MS)

130

100

70

40

10

250

280

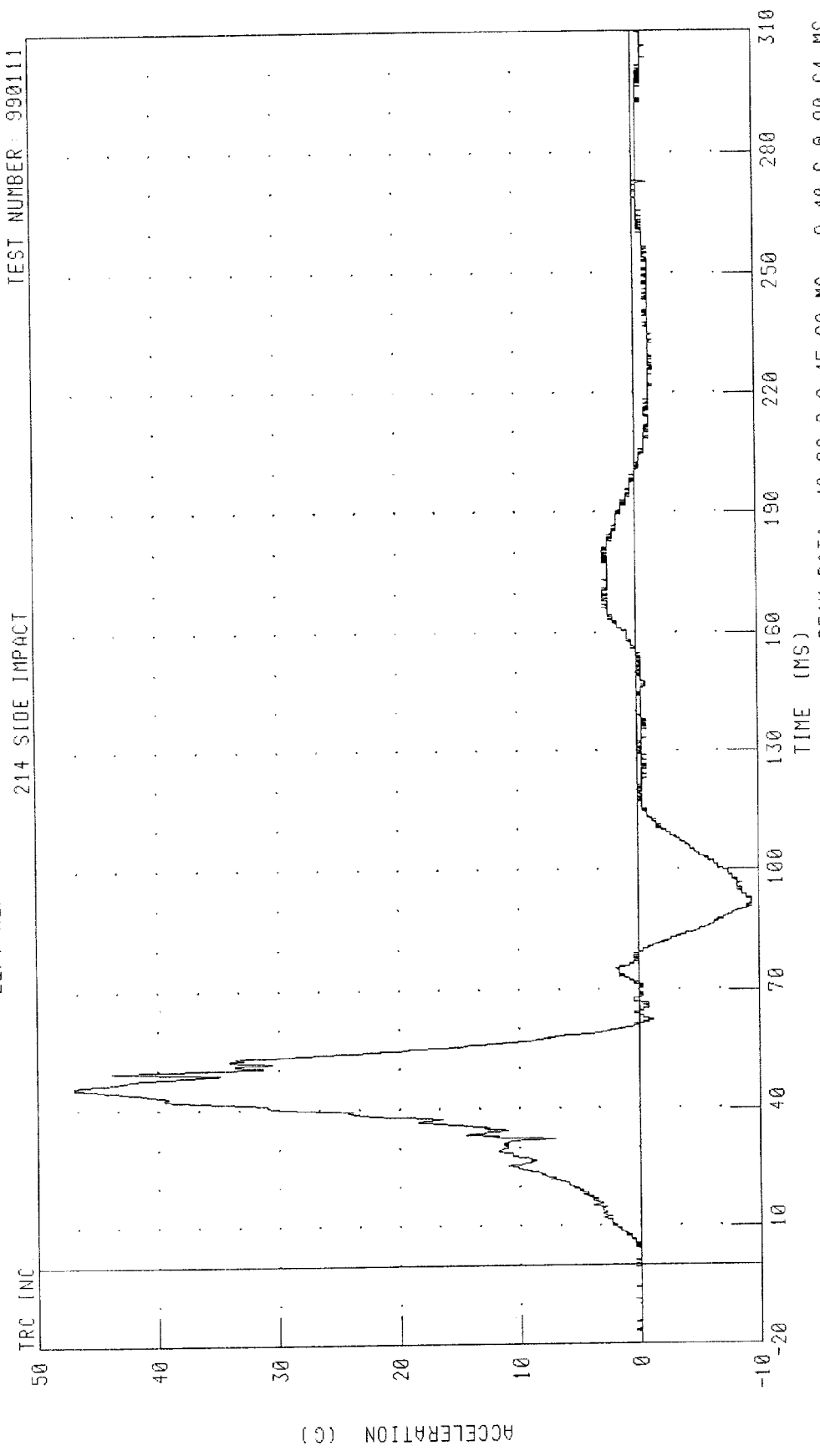
310

CHANNEL: T12YU4 FILTER: CH CLASS 1000

PEAK DATA: 34.53 KM/H @ 74.56 MS, 0.00 KM/H @ 0.00 MS

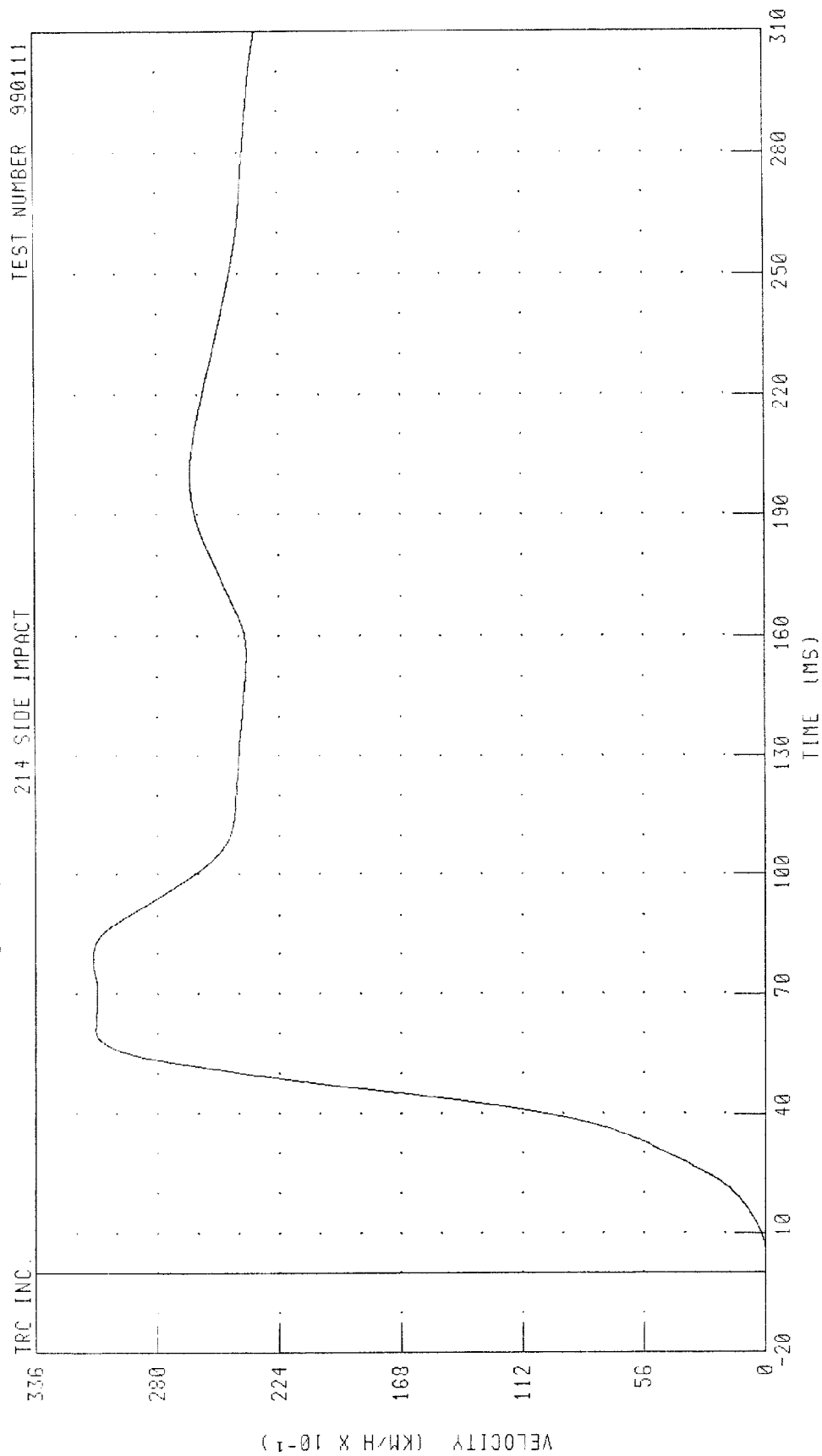
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111



CHANNEL: PEVYC4 FILTER: CH. CLASS 1000 PEAK DATA: 46.99 G @ 45.60 MS; -9.40 G @ 90.64 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY



PEAK DATA: 30.97 KM/H @ 79.12 MS, 0.00 KM/H @ 0.08 MS

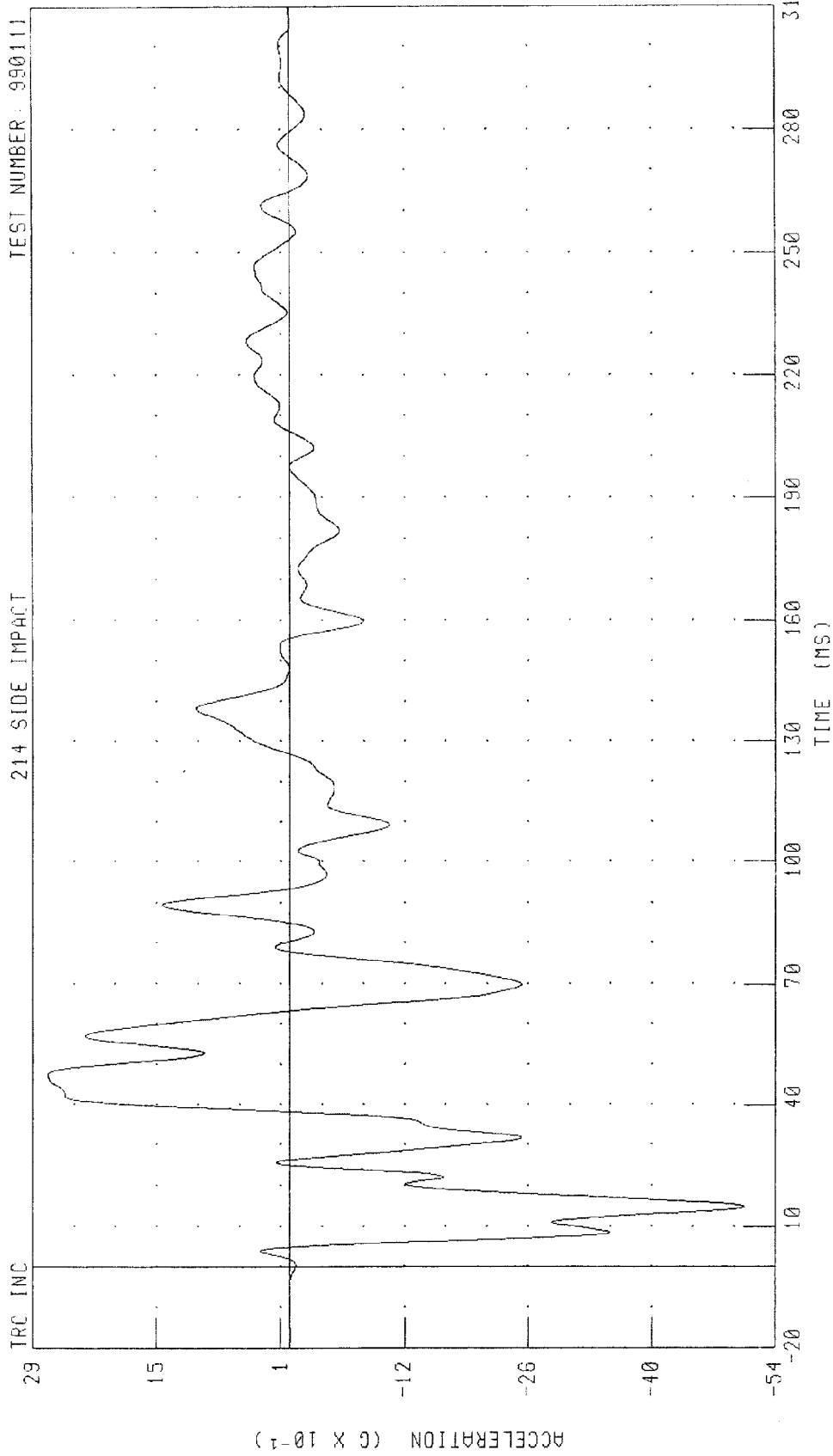
CHANNEL: PEVYU4 FILTER: CH. CLASS 1000

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION



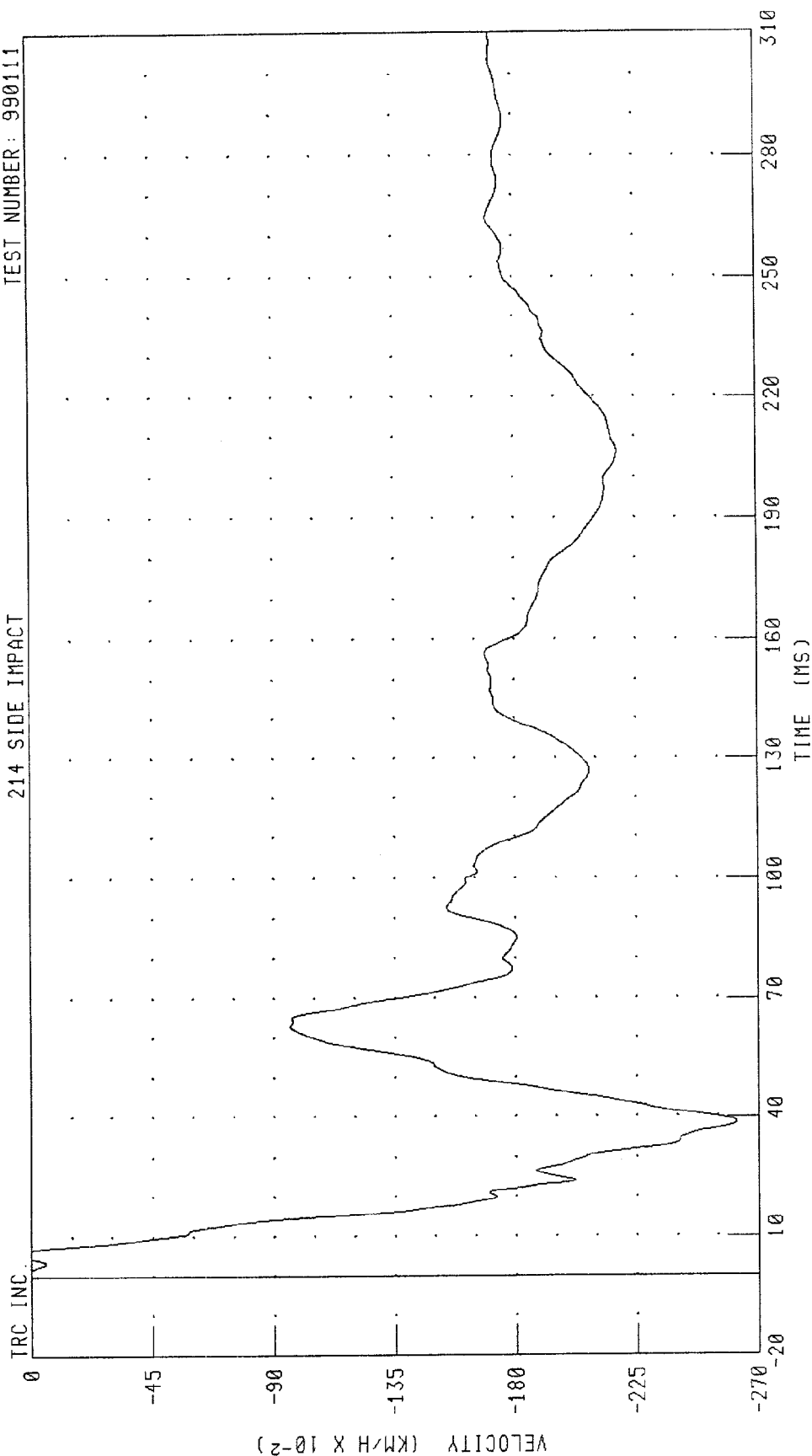
PEAK DATA: 2.73 G @ 47.44 MS; -5.15 G @ 14.88 MS

CHANNEL: RFSXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT



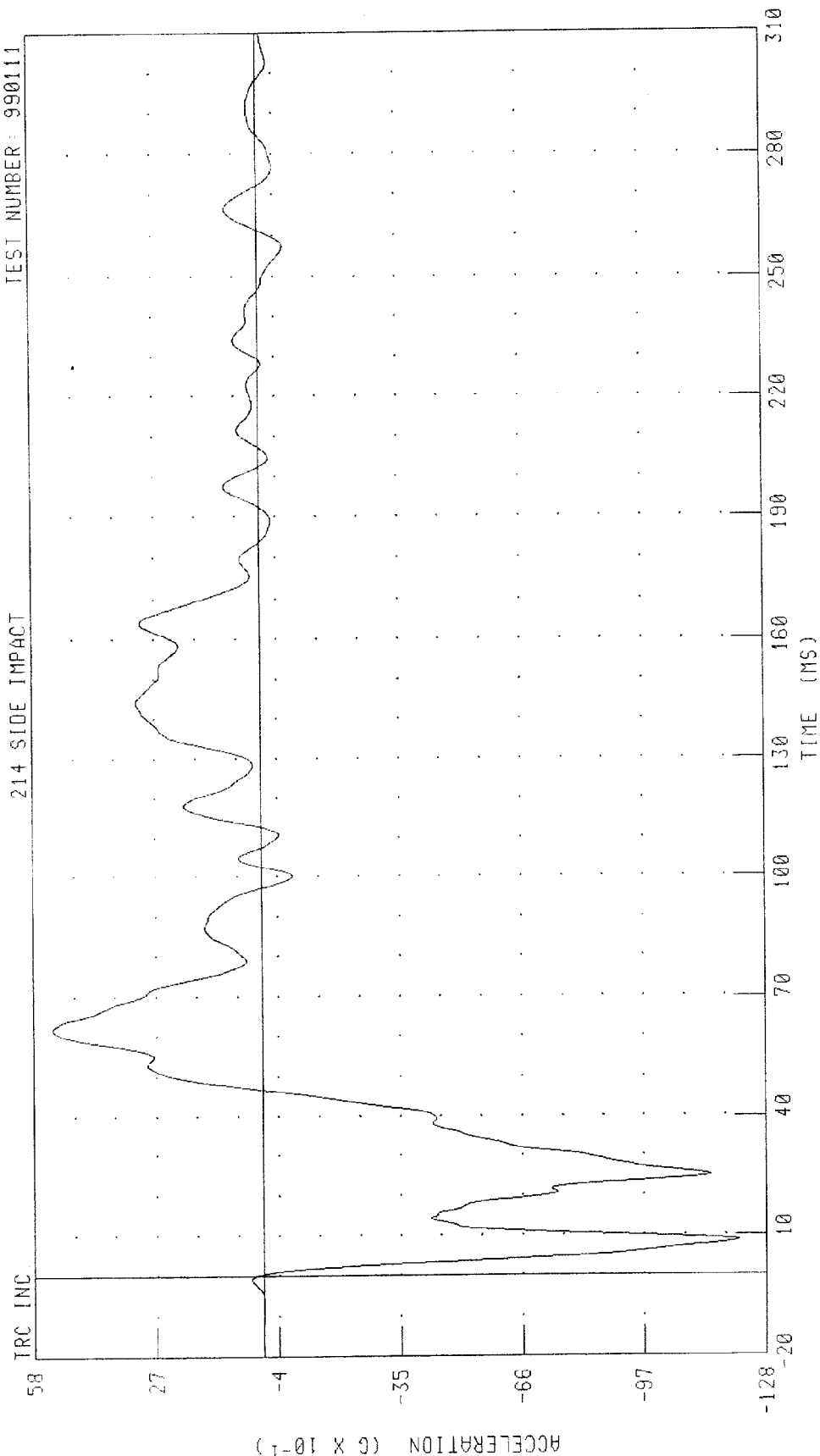
PEAK DATA: 0.06 KM/H @ 5.68 MS; -2.62 KM/H @ 38.64 MS

CHANNEL: RFSXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT



PEAK DATA: 5.32 G @ 61.68 MS, -12.09 G @ 8.56 MS

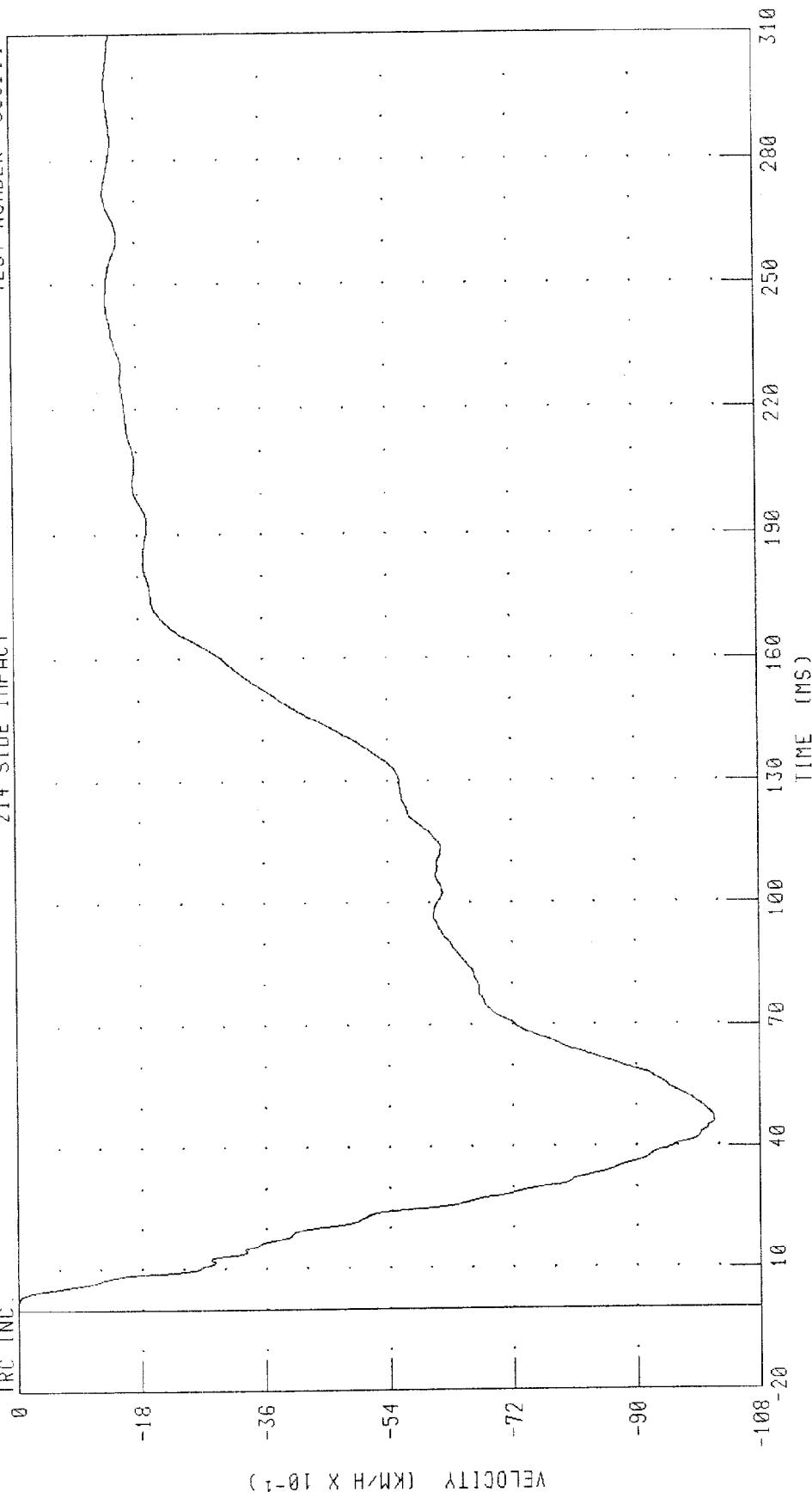
CHANNEL: RFSZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

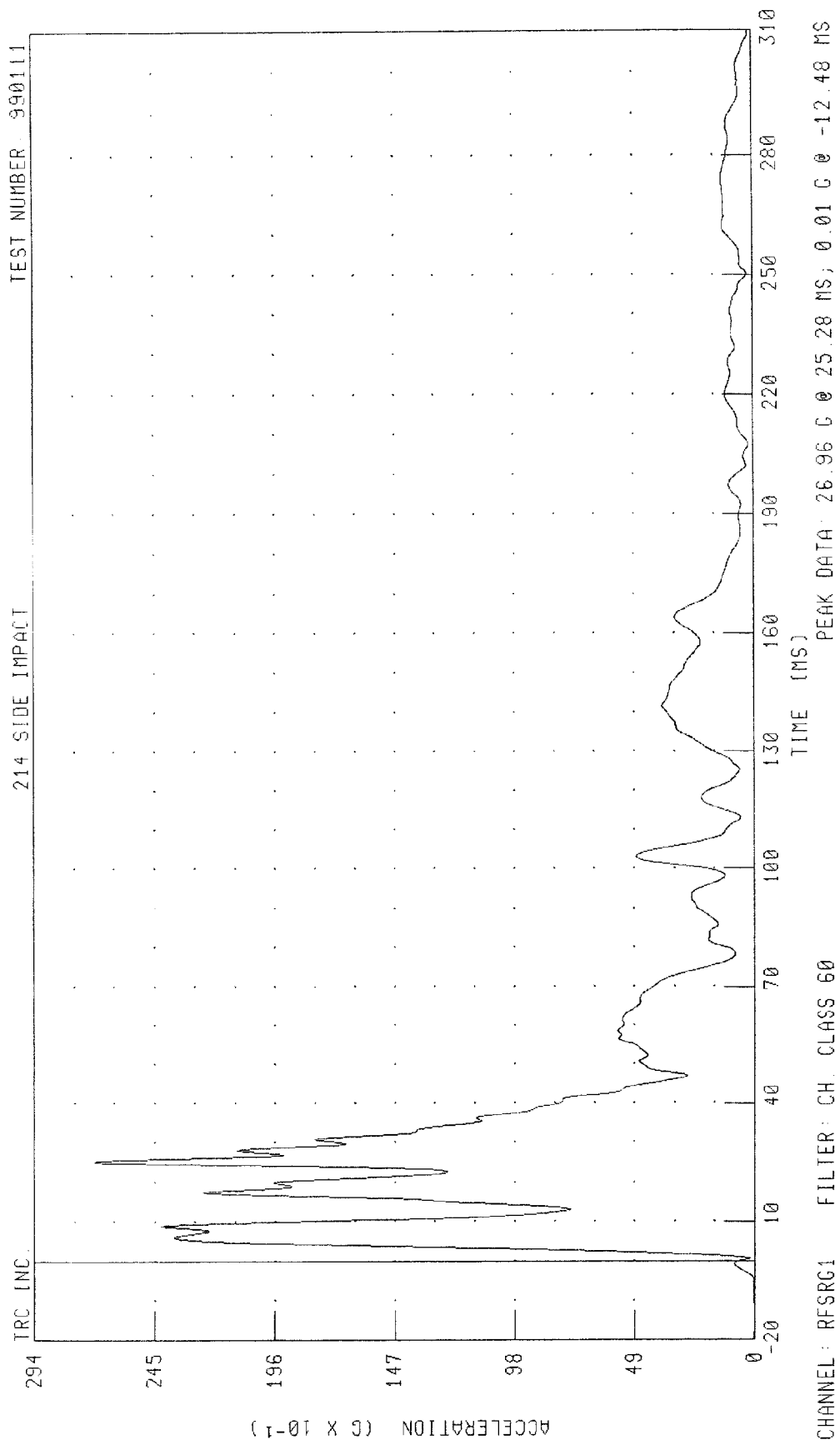
TRC INC.



CHANNEL: RFSZV1 FILTER: CH CLASS 180

PEAK DATA: 0.00 KM/H @ 1.52 MS; -10.14 KM/H @ 46.32 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

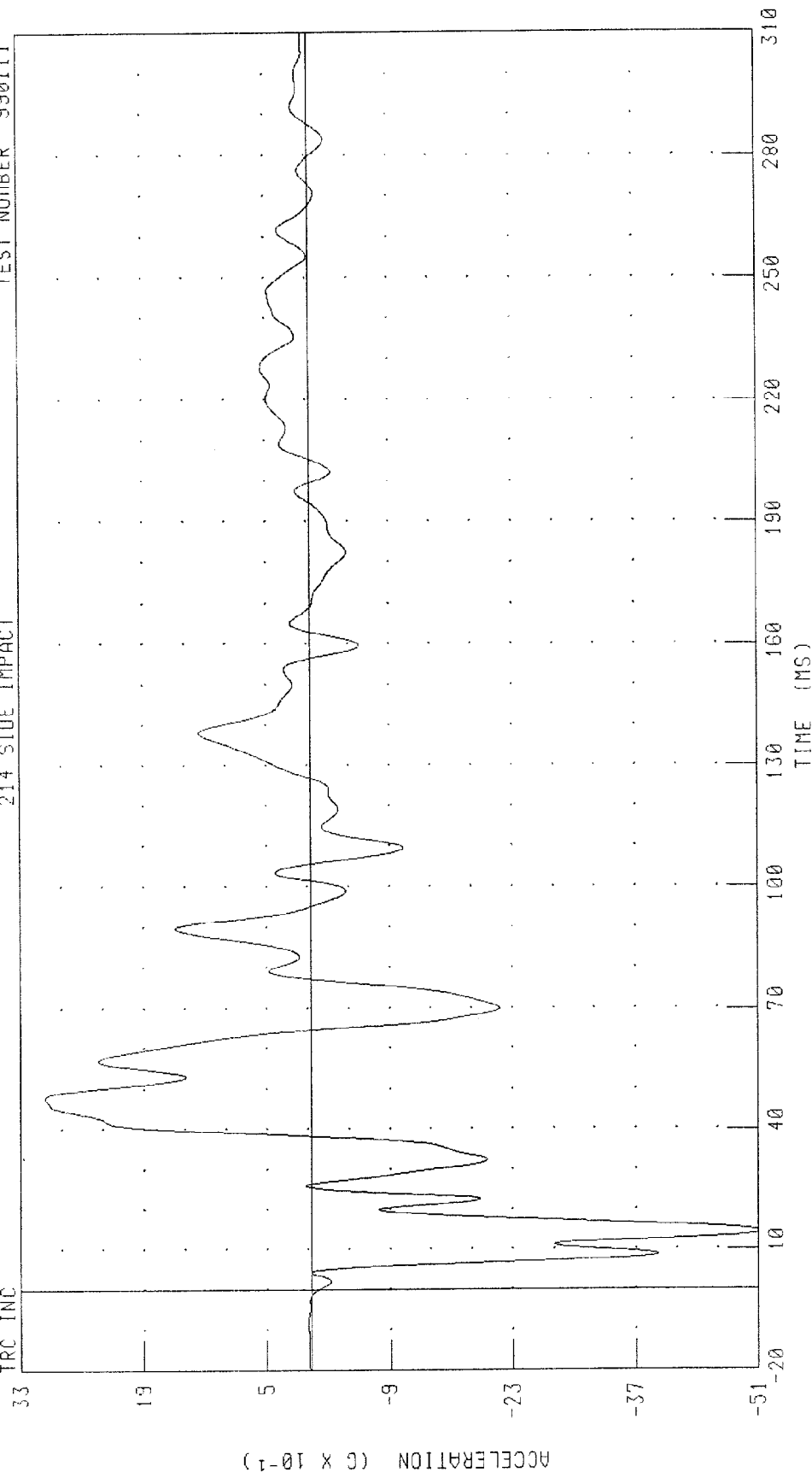


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER 990111

214 SIDE IMPACT

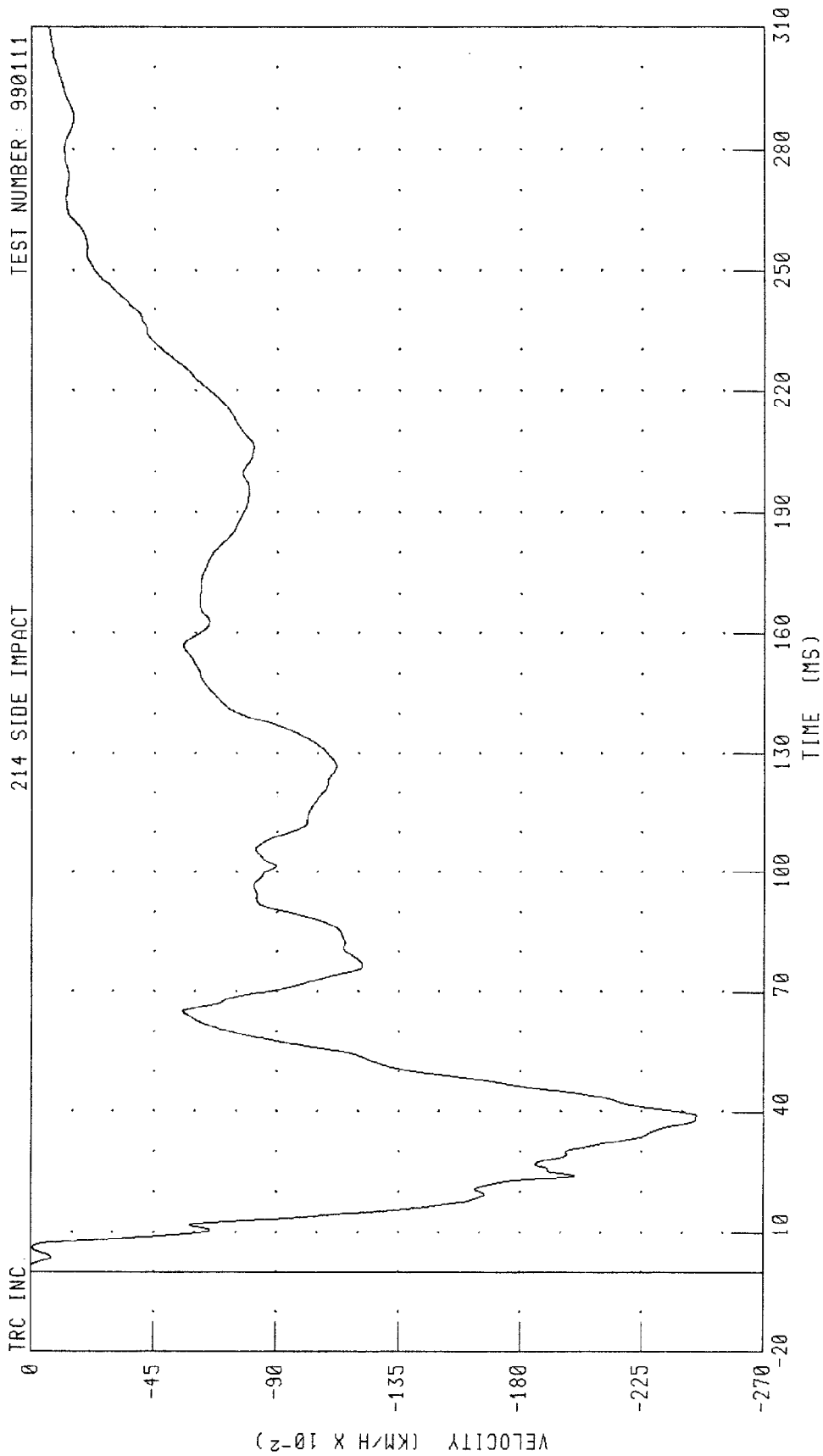
TRC INC



PEAK DATA: 3.02 G @ 47.92 MS, -5.14 G @ 14.32 MS

CHANNEL: RRSXG1 FILTER: CH. CLASS 60

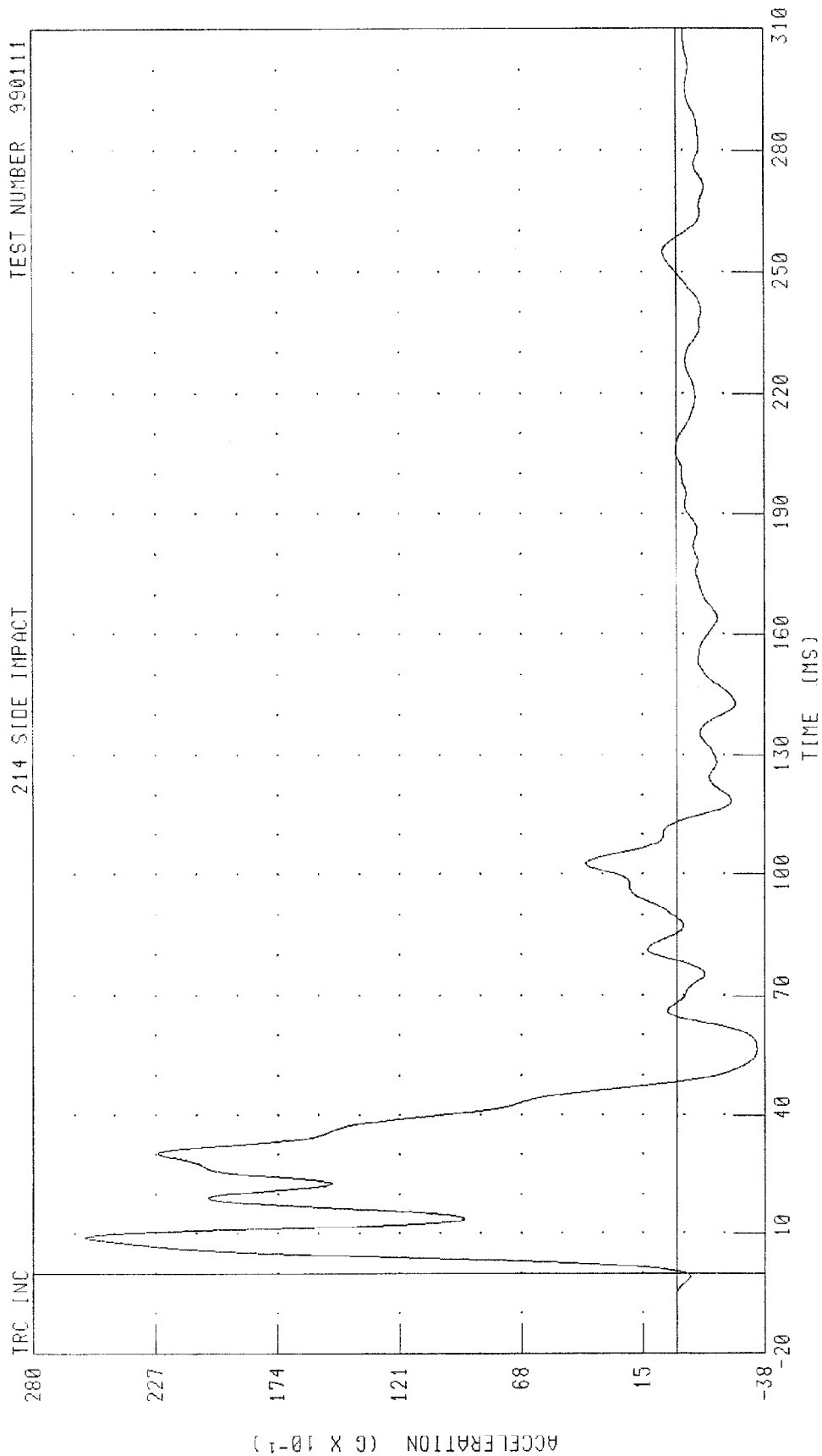
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY



CHANNEL: RRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 KM/H @ 1.20 MS, -2.45 KM/H @ 38.96 MS

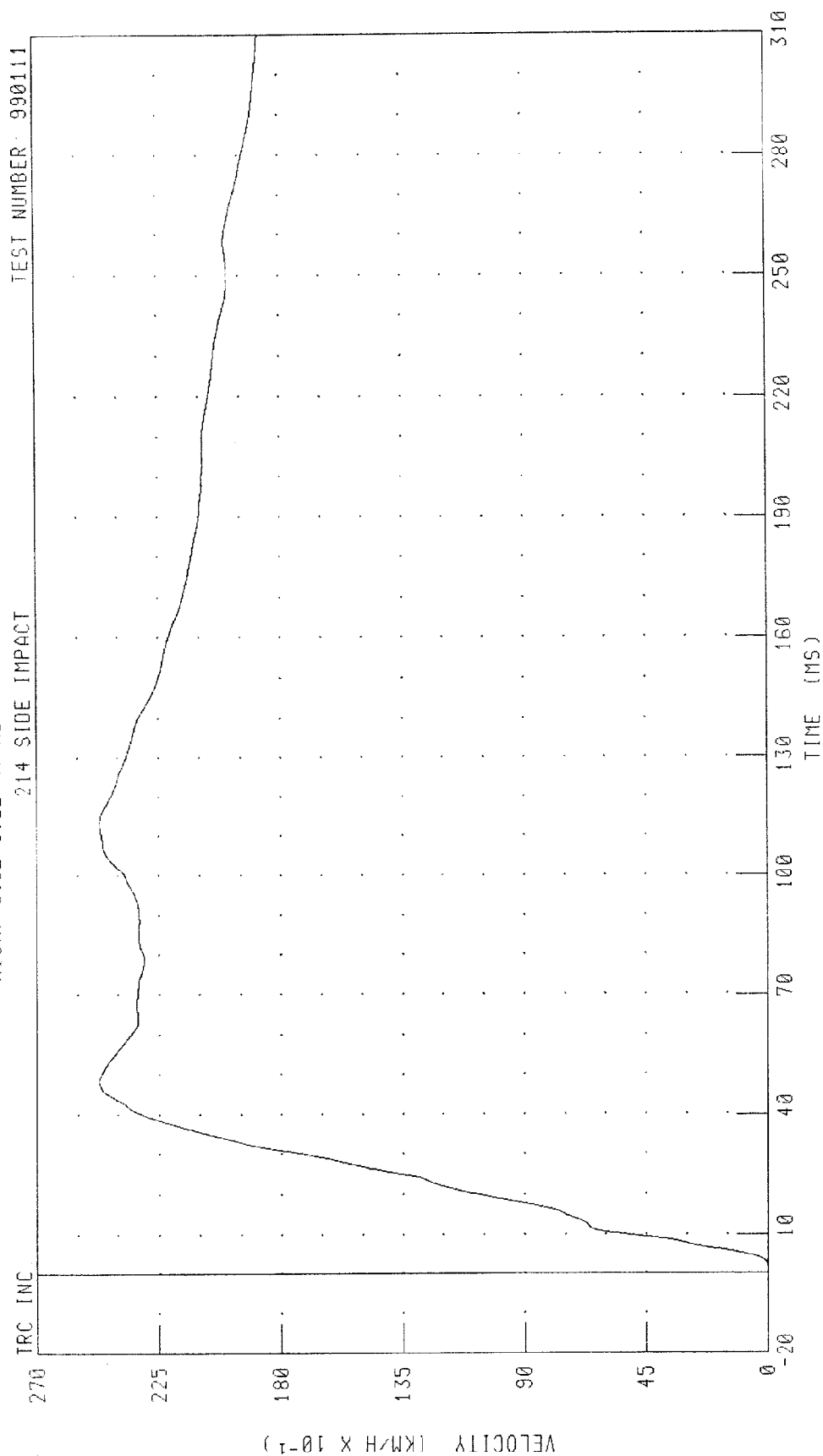
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION



PEAK DATA: 25 77 G @ 9.12 MS, -3.48 G @ 56.40 MS

CHANNEL: RRSYG1 FILTER: CH. CLASS 60

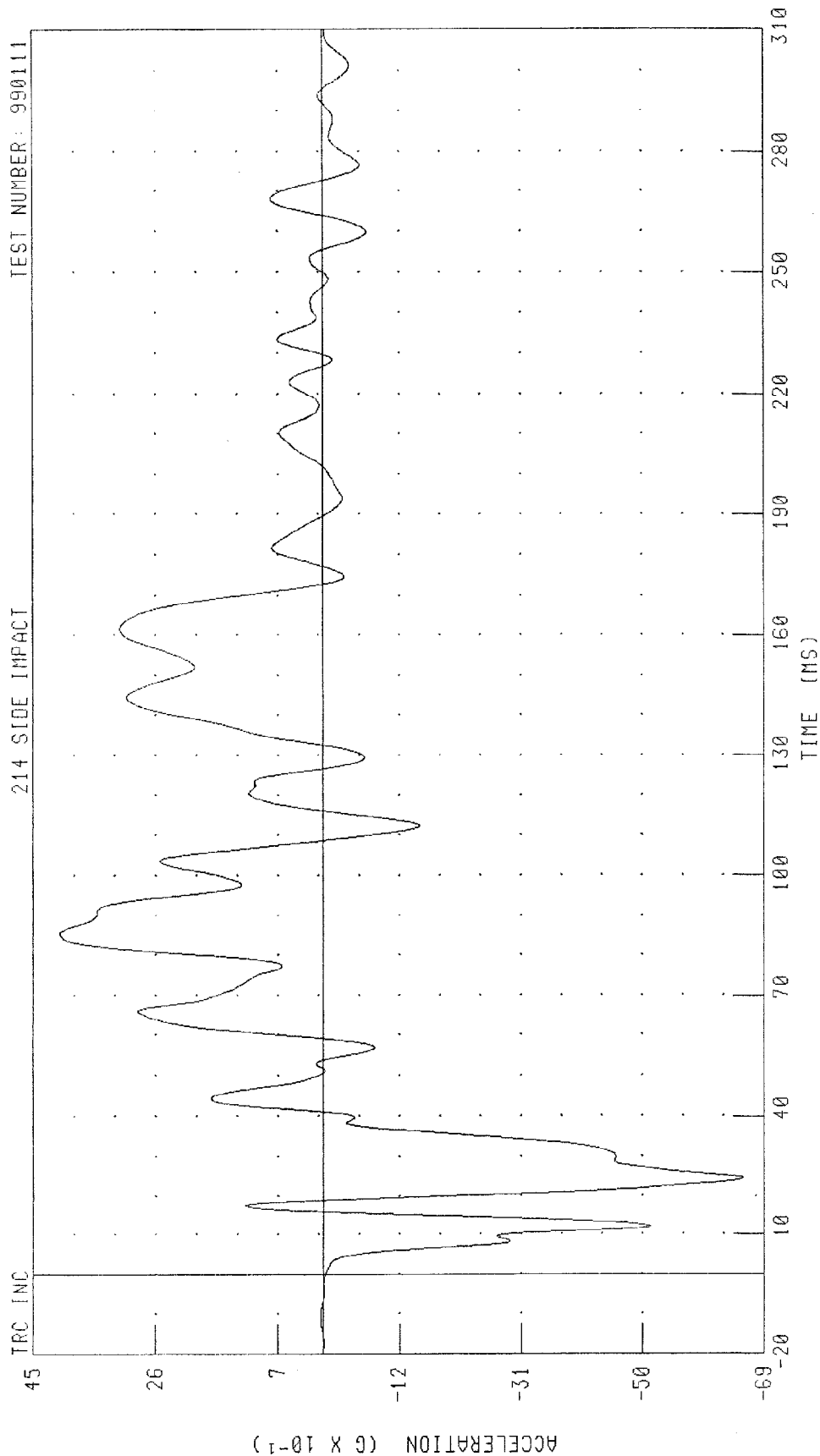
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY



PEAK DATA: 24.72 KM/H @ 48.48 MS, 0.00 KM/H @ 1.52 MS

CHANNEL: RRSYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

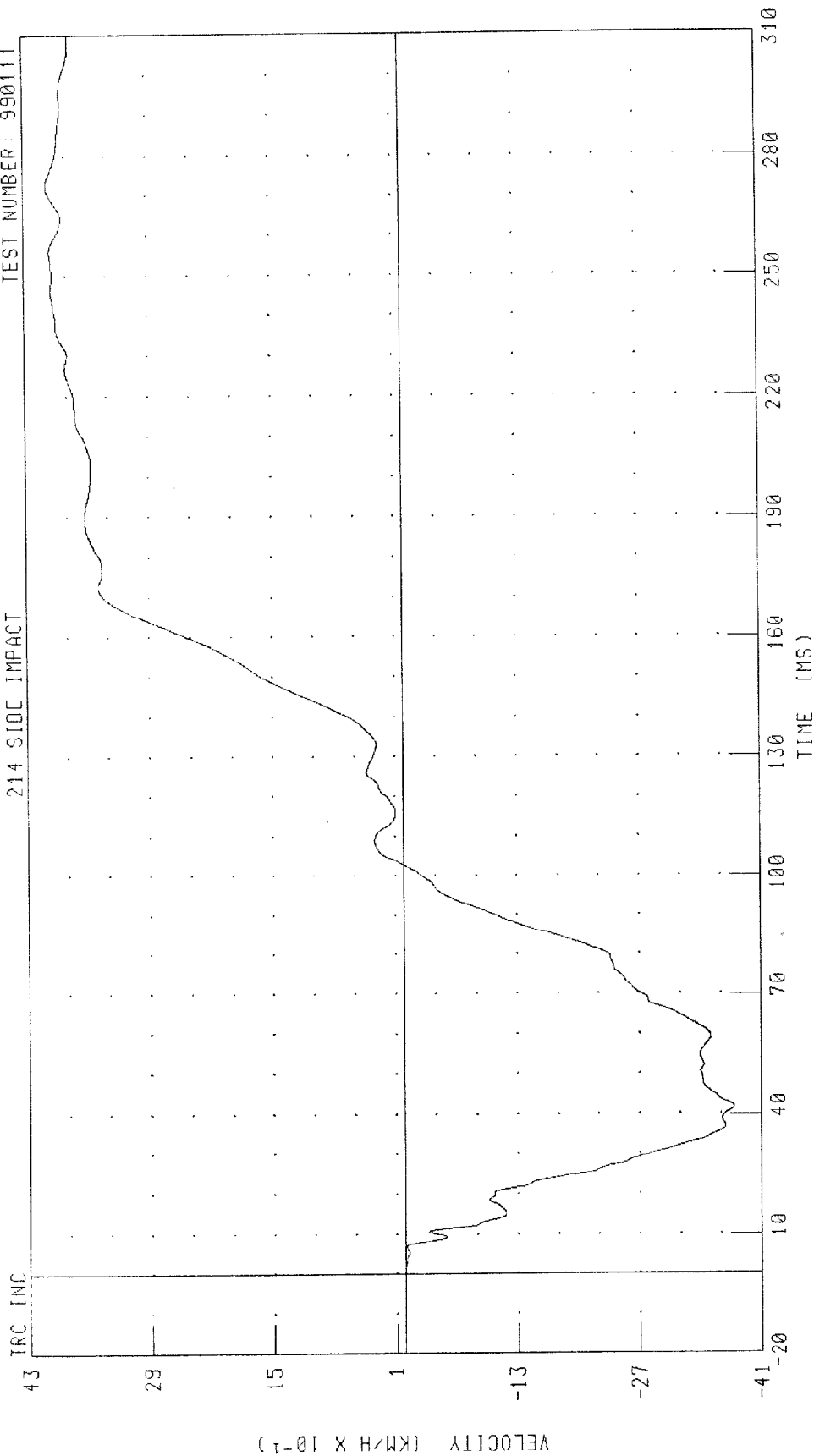


PEAK DATA: 4 09 G @ 85.36 MS, -6.58 G @ 24.64 MS

CHANNEL: RRSZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 990111



PEAK DATA: 4.05 KM/H @ 272.88 MS, -3.79 KM/H @ 41.76 MS

CHANNEL: RRSZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC

288

240

192

144

96

48

0

ACCELERATION (G X 10⁻¹)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

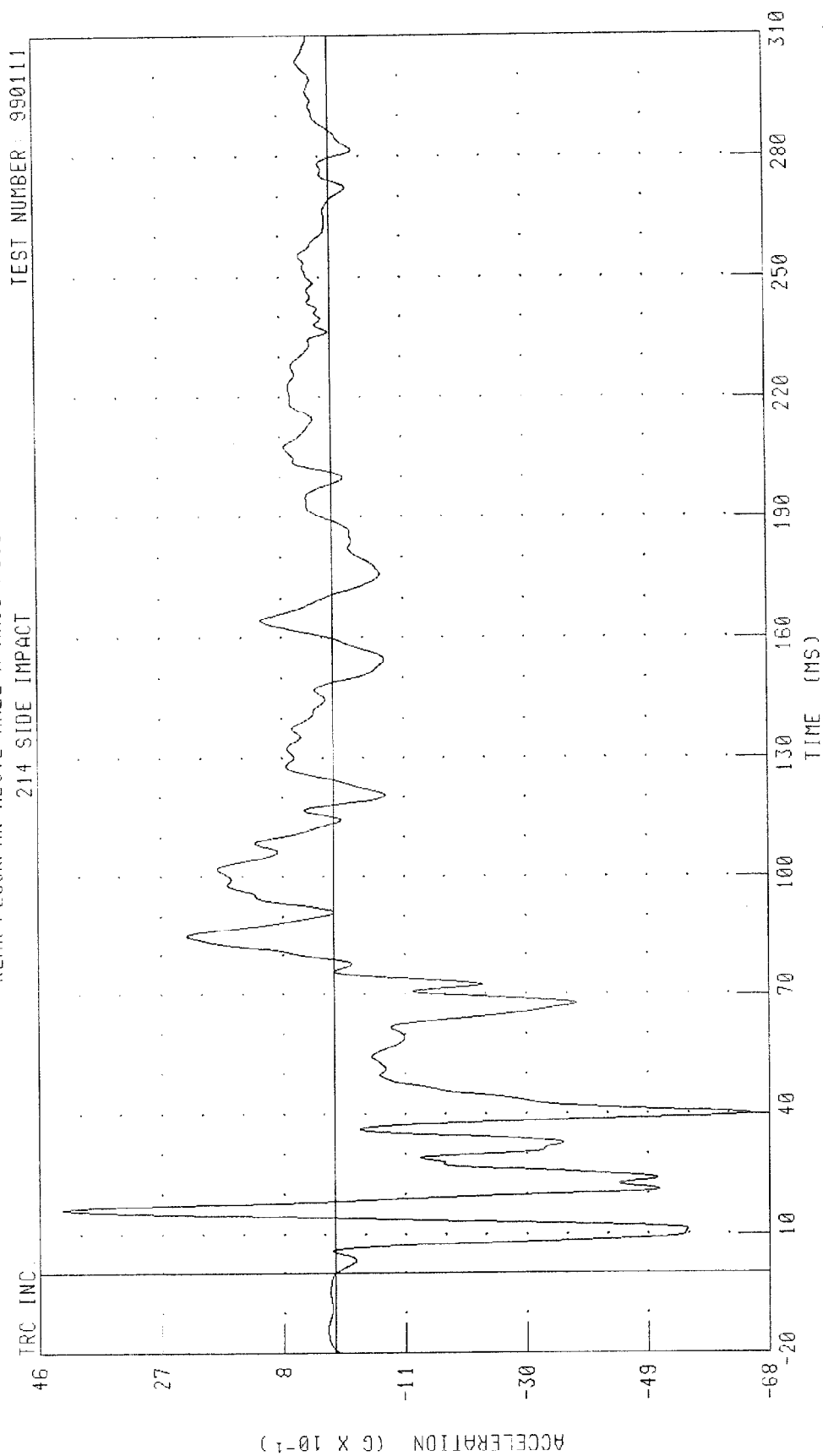
10

-20

PEAK DATA: 26.21 G @ 9.12 MS, 0.01 G @ -19.60 MS

CHANNEL: RRSRG1 FILTER: CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION
 214 SIDE IMPACT



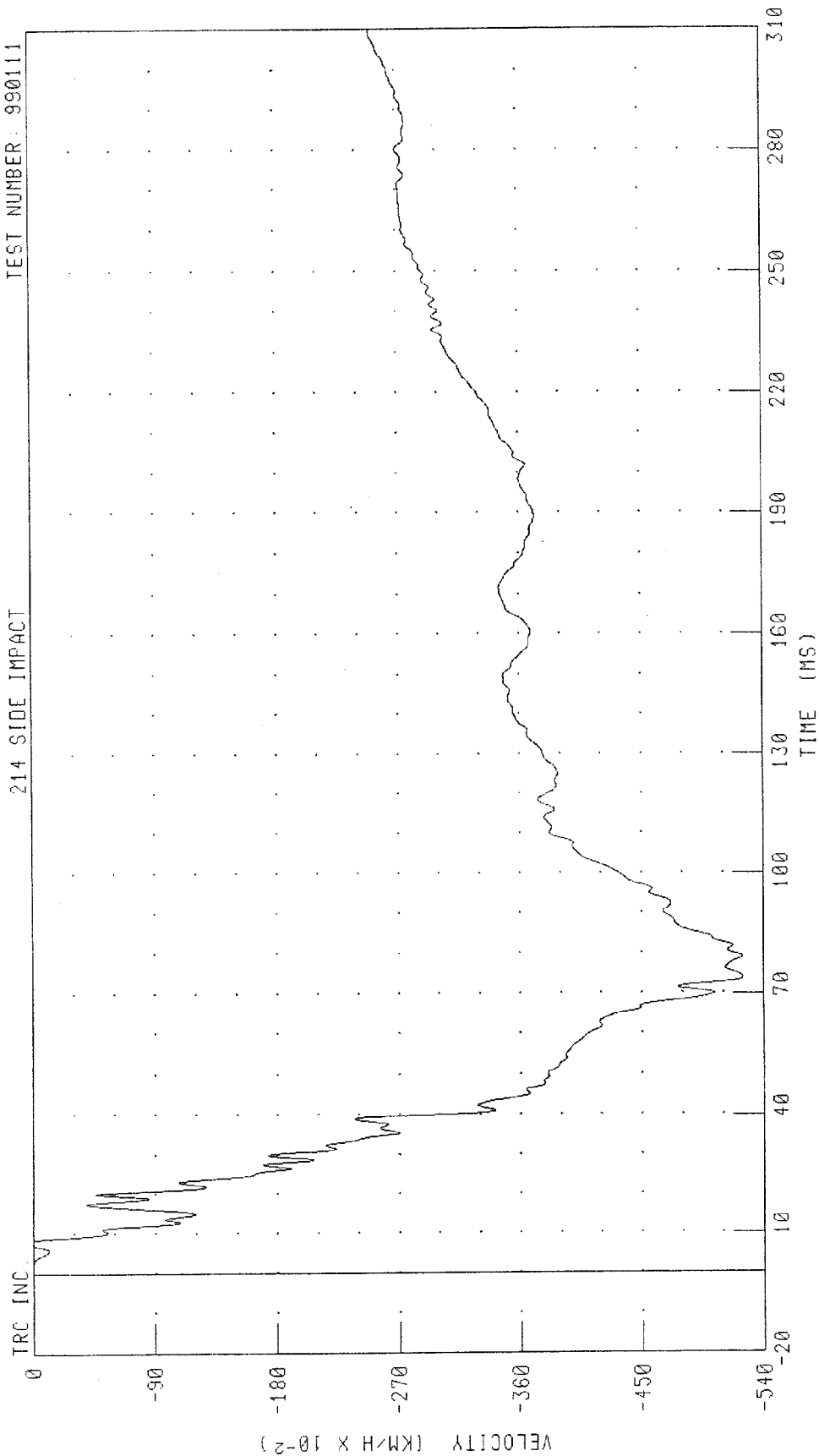
PEAK DATA: 4.25 G @ 16.16 MS; -6.49 G @ 40.16 MS

CHANNEL: RDKXG1 FILTER: CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT



PEAK DATA: 0 07 KM/H @ 7.68 MS, -5.25 KM/H @ 73.84 MS

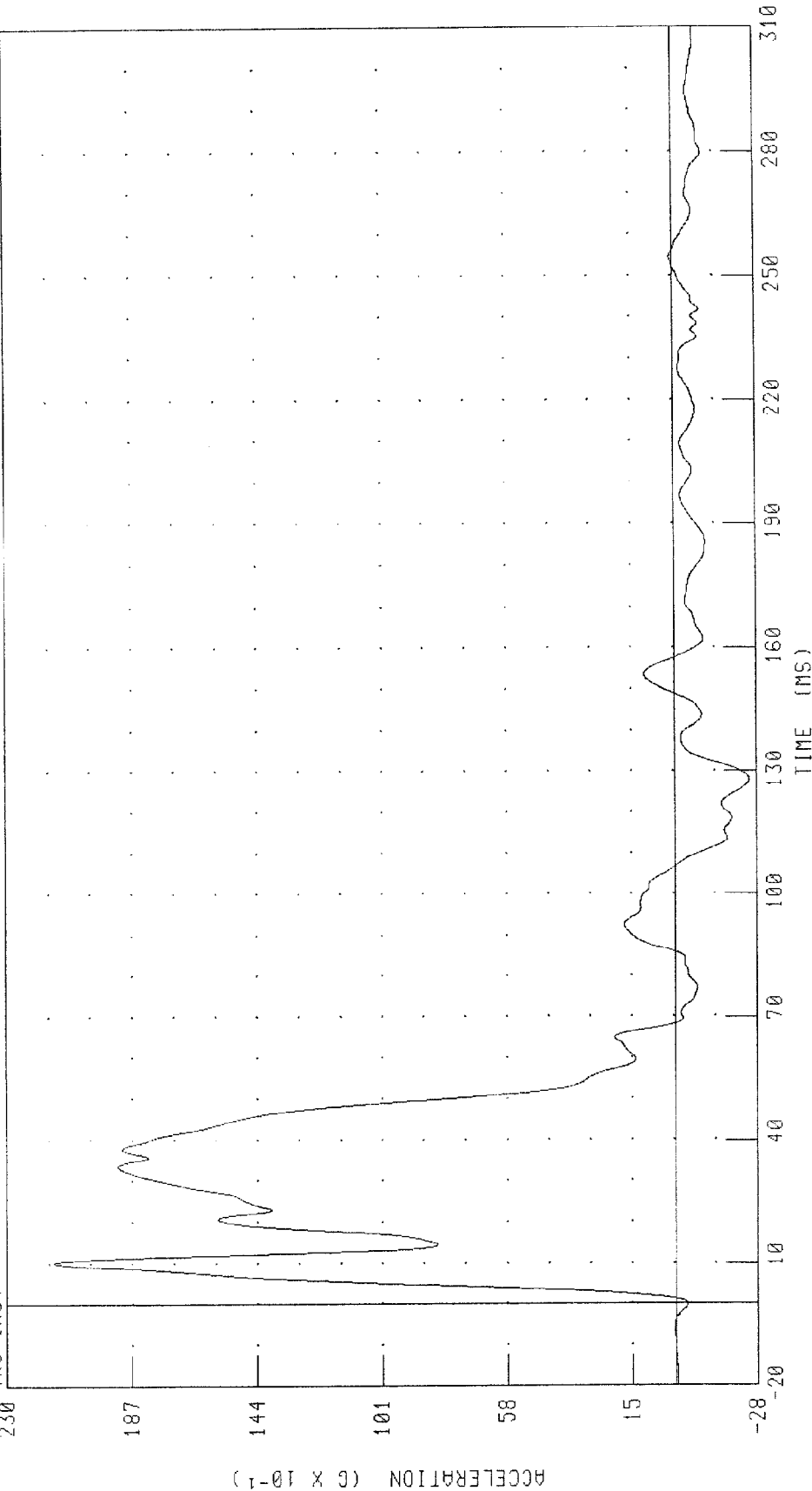
CHANNEL: RDKXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.



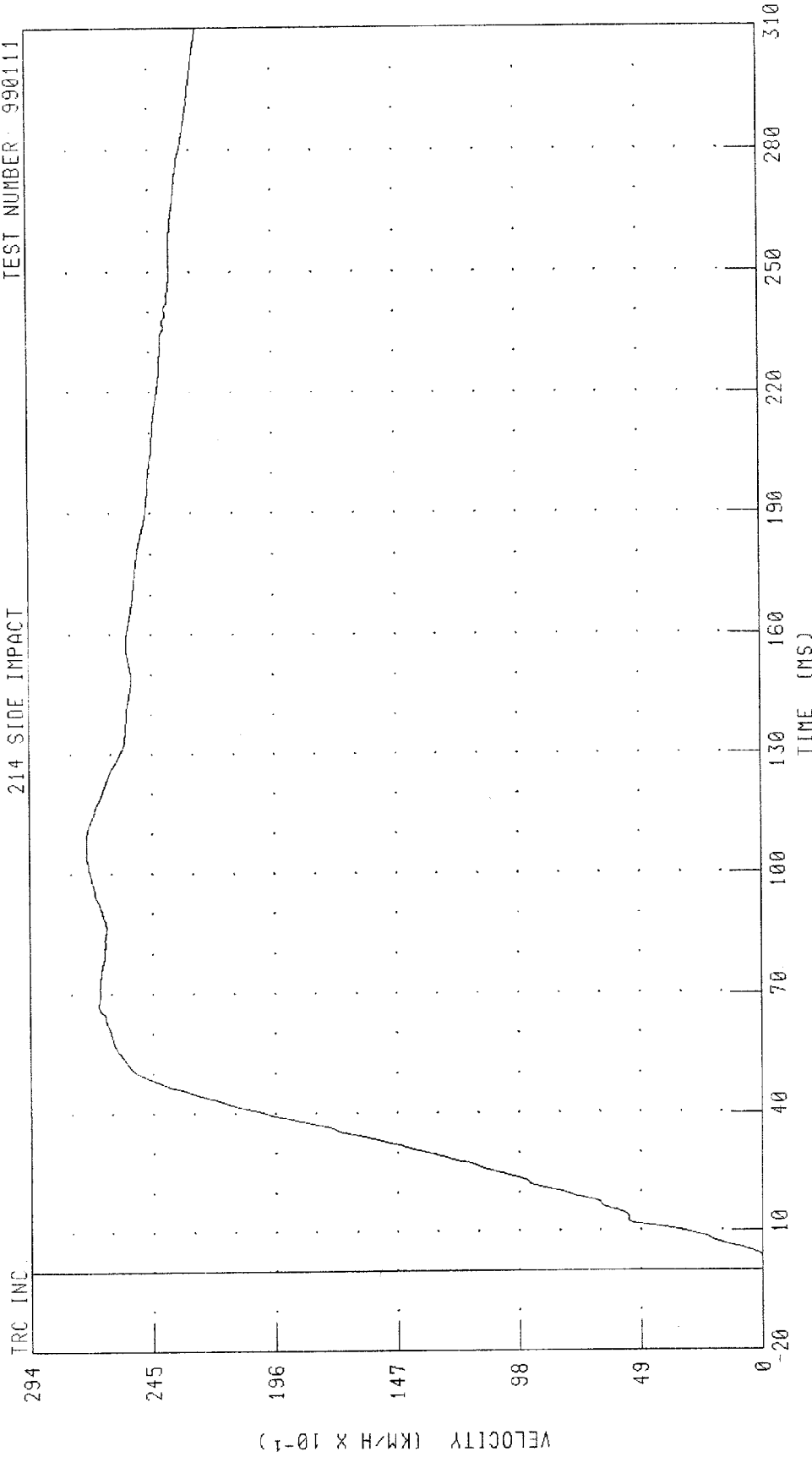
CHANNEL: ROKY61 FILTER: CH CLASS 60

PEAK DATA: 21.40 G @ 10.24 MS, -2.56 G @ 127.92 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

TEST NUMBER 990111

214 SIDE IMPACT

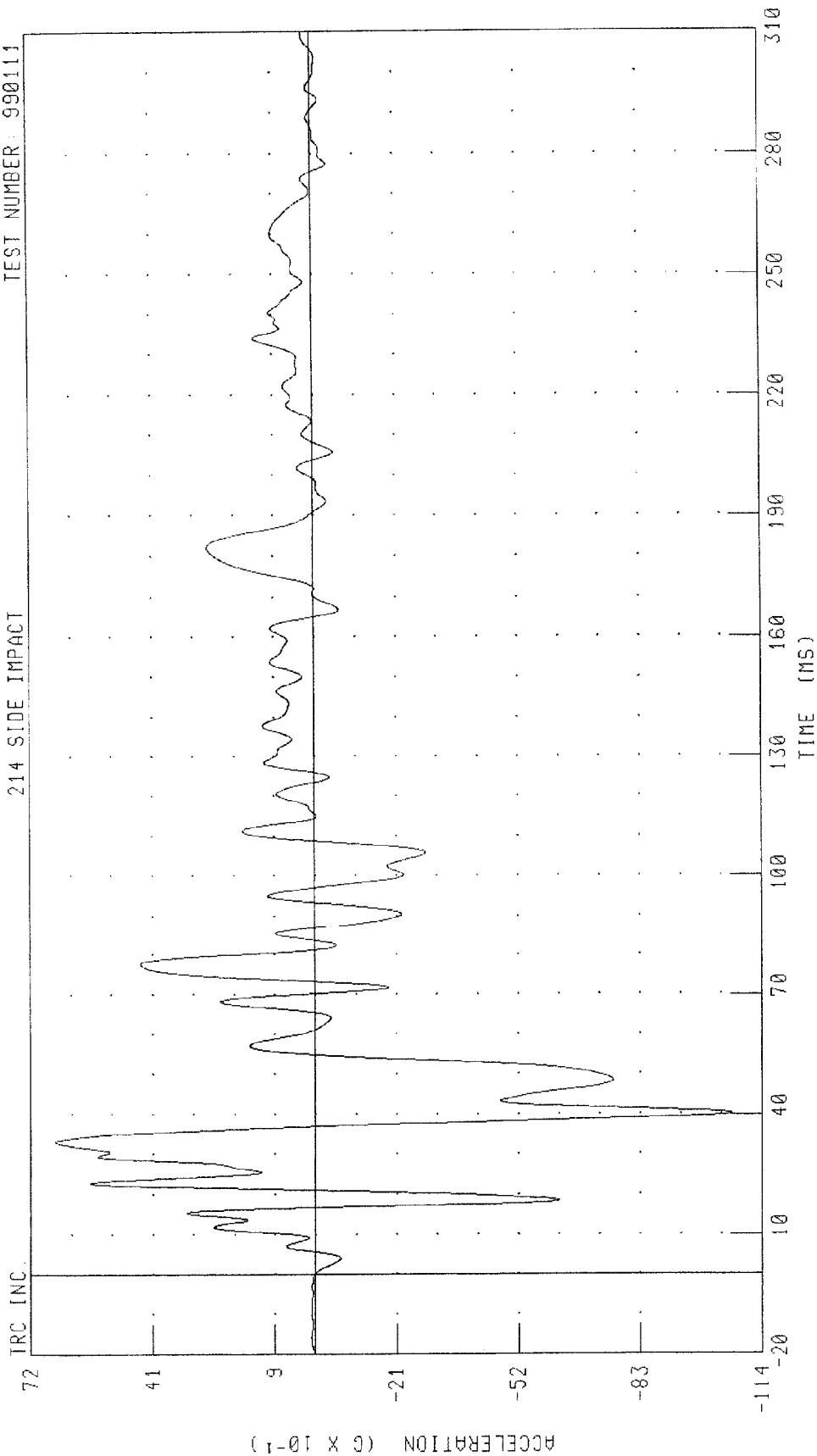


PEAK DATA: 27.14 KM/H @ 106.24 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: RDKYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111



PEAK DATA: 6 58 G @ 33.12 MS, -10.65 G @ 40.24 MS

CHANNEL: RDKZC1 FILTER: CH CLASS 60

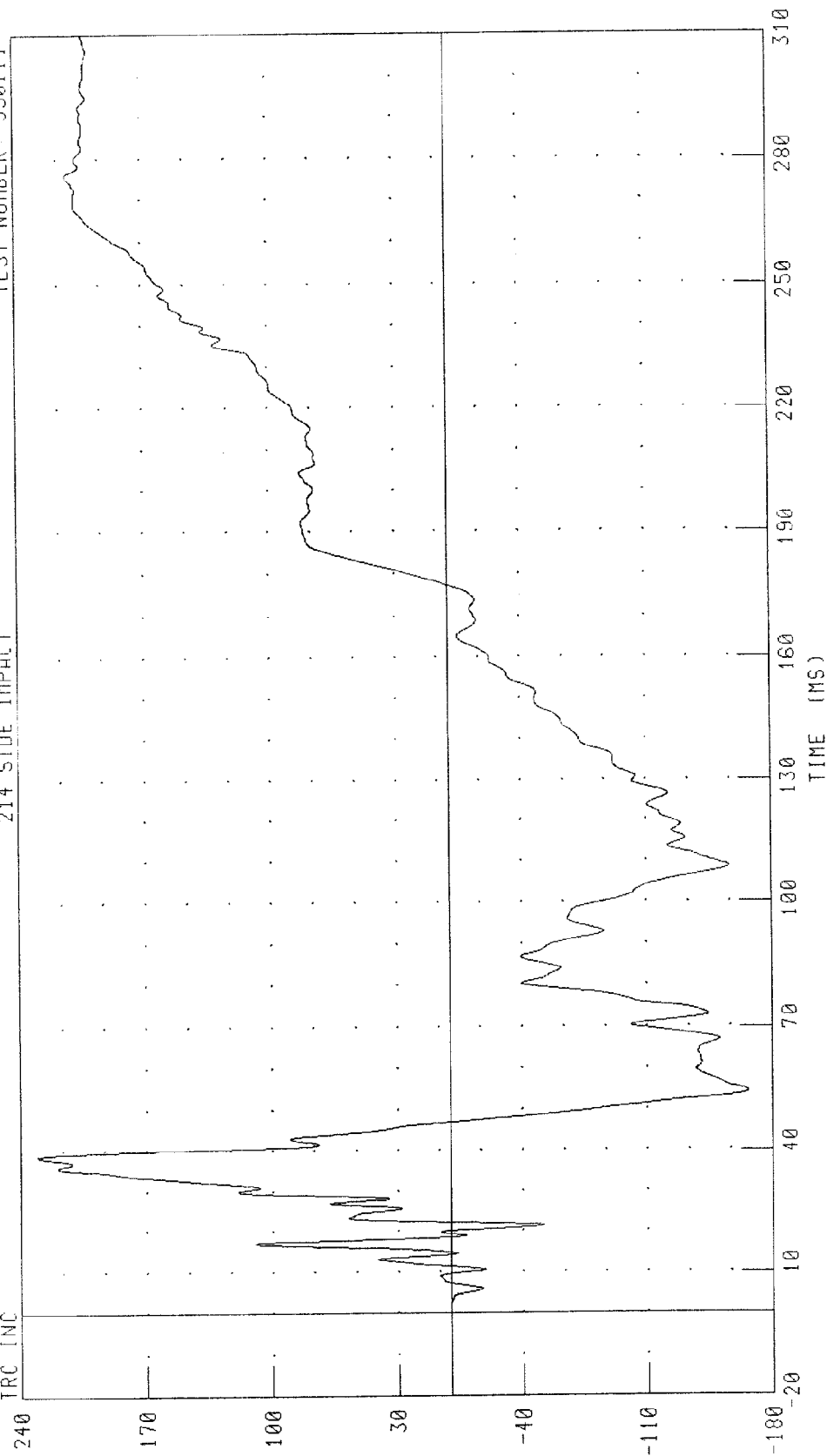
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC

VELOCITY (KM/H X 10⁻²)

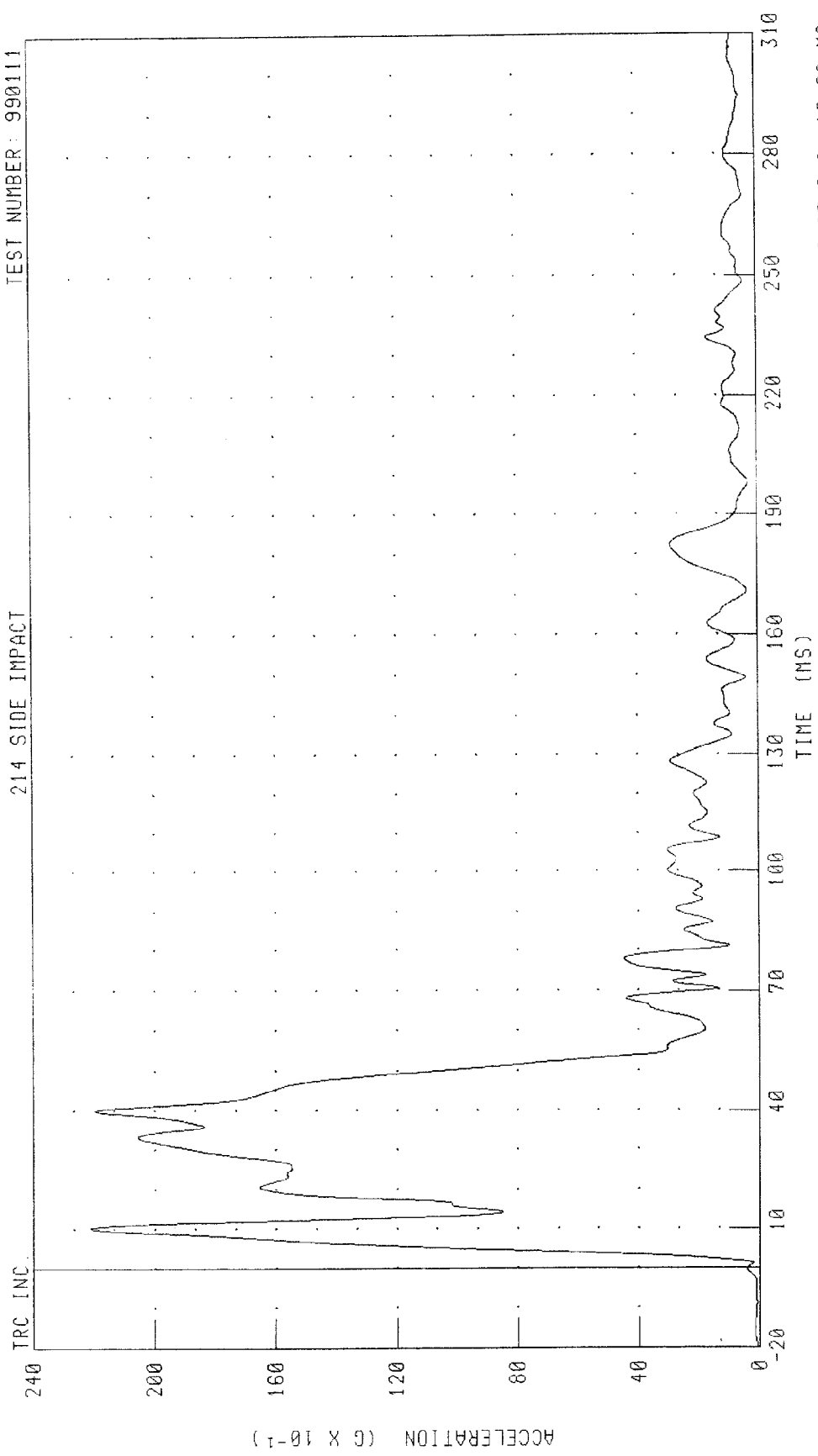


PEAK DATA: 2.31 KM/H @ 38.72 MS, -1.67 KM/H @ 54.16 MS

CHANNEL: RDKZV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111

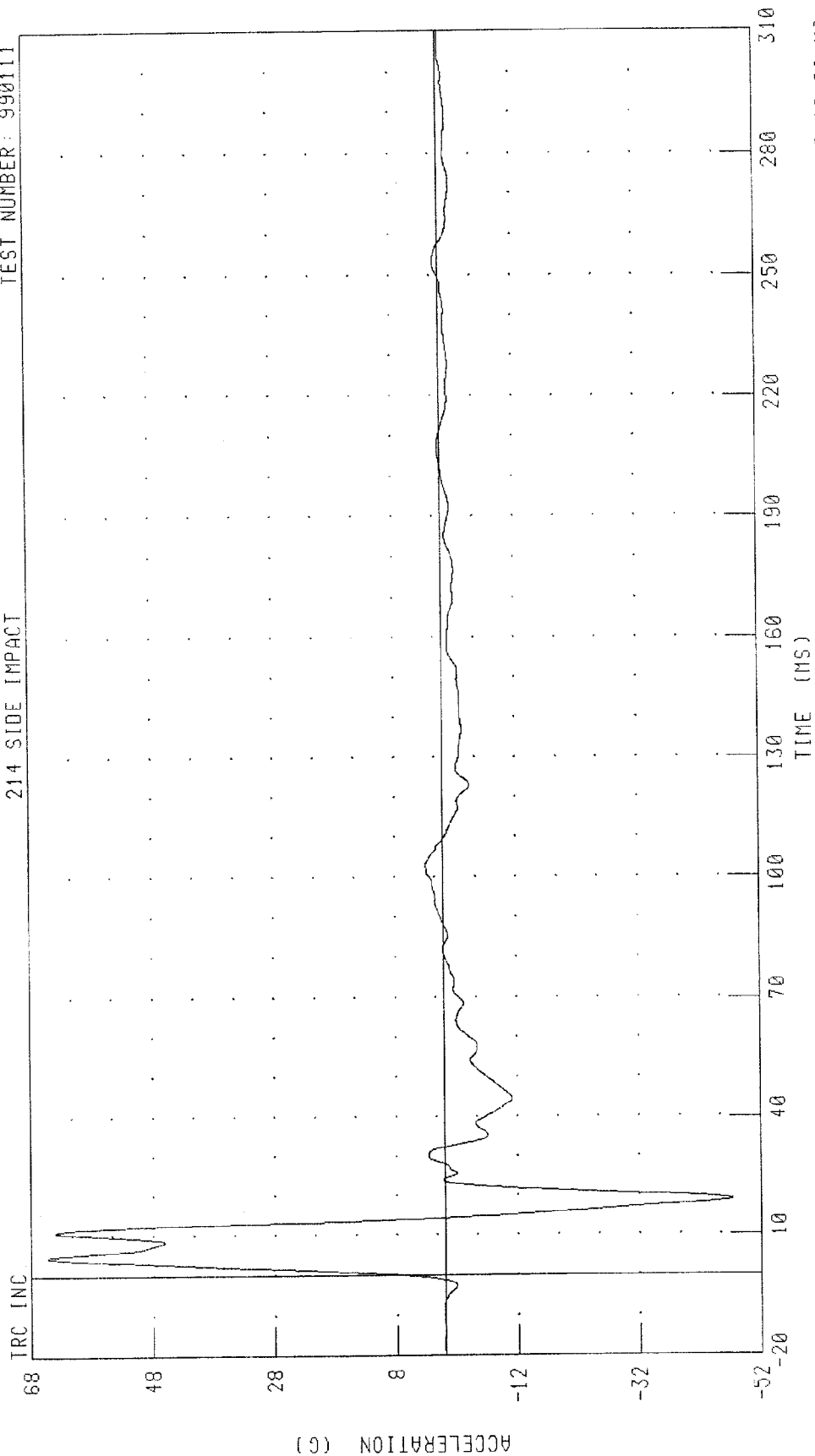


PEAK DATA: 22.11 G @ 10.24 MS; 0 07 G @ -19.60 MS

CHANNEL: RDKRC1 FILTER: CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION
 214 SIDE IMPACT

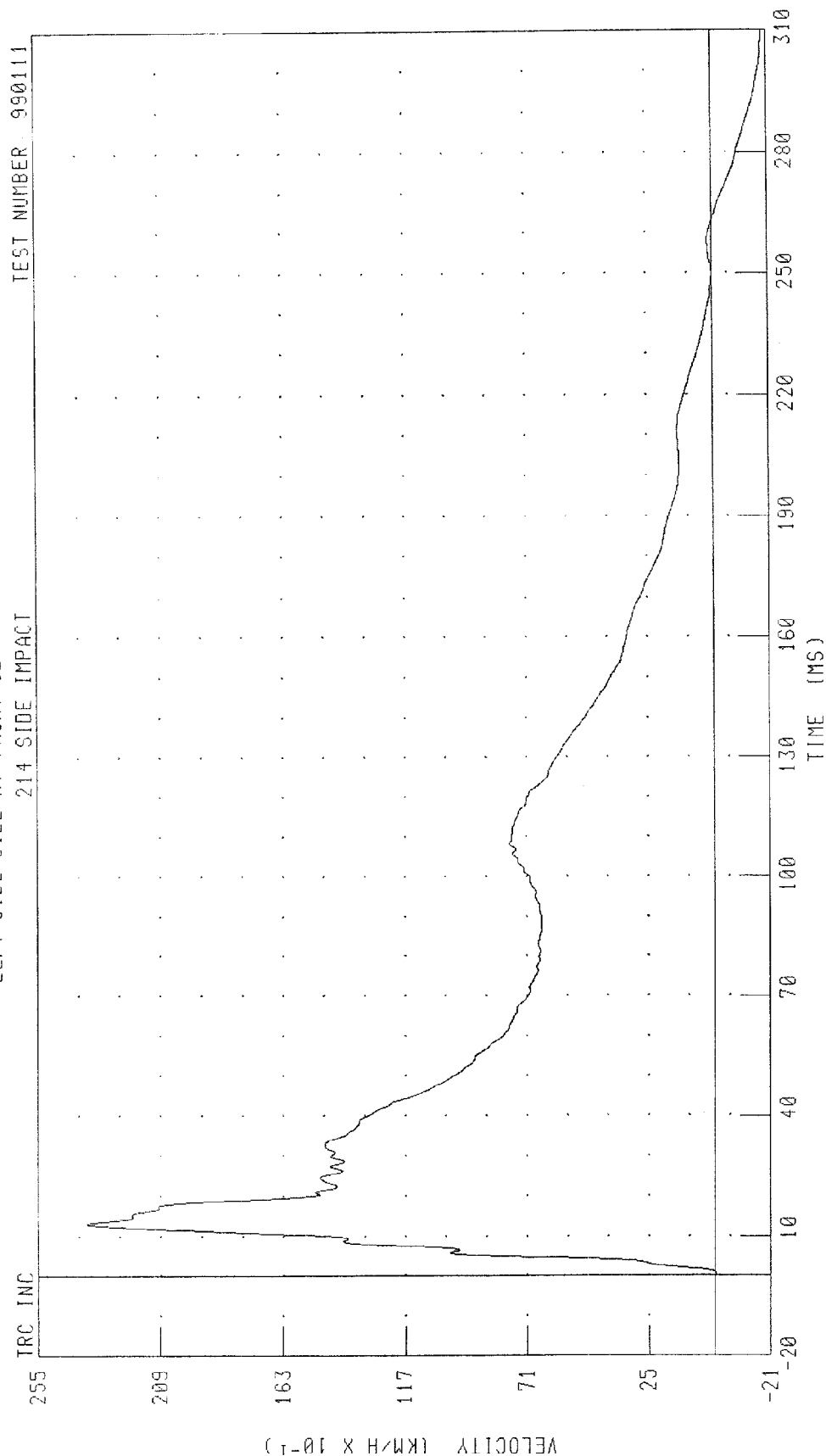
TEST NUMBER: 990111



PEAK DATA: 65.38 G @ 4.56 MS; -47.30 G @ 18.96 MS

CHANNEL: LFSYG1 FILTER: CH. CLASS 60

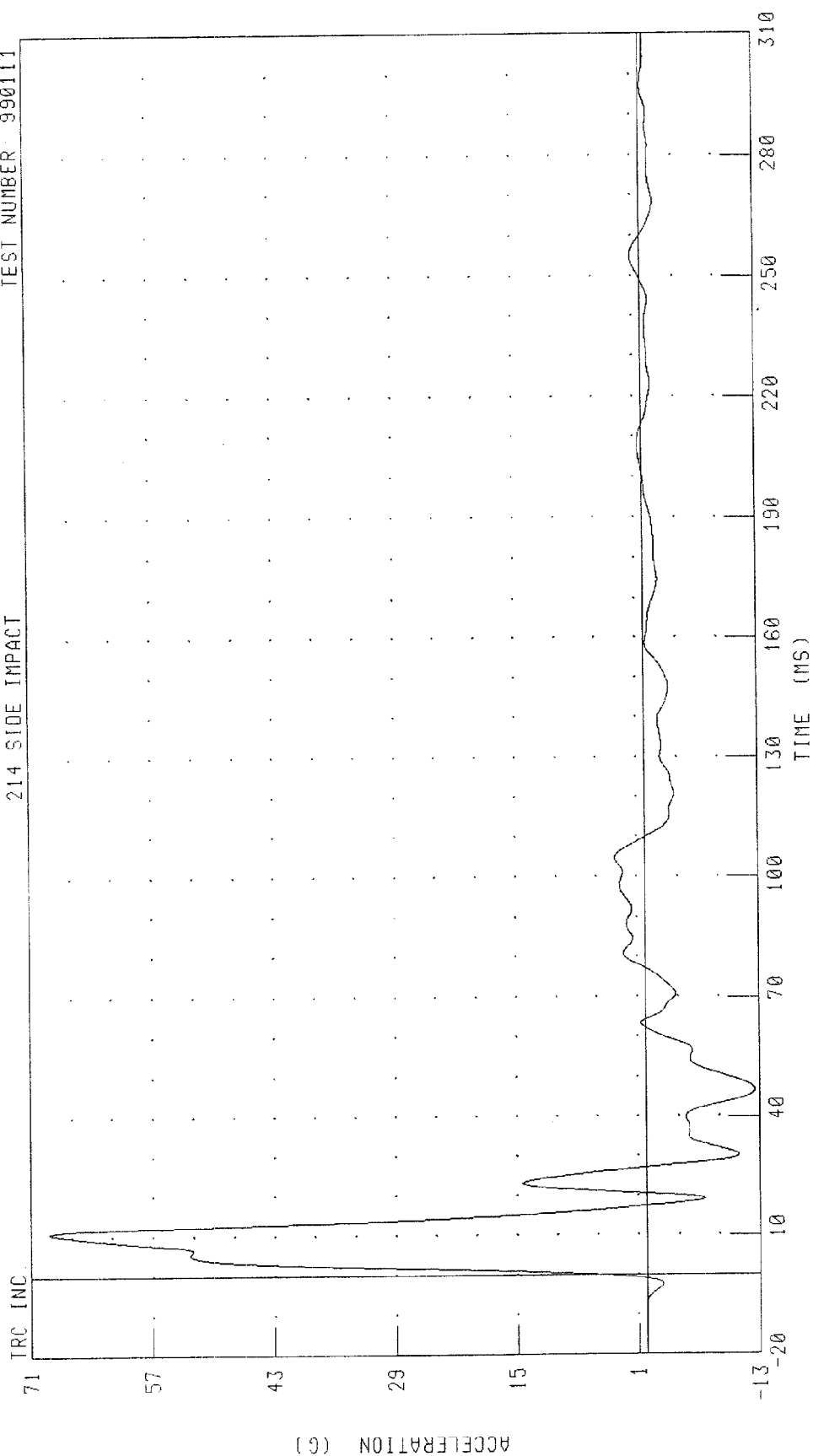
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY



CHANNEL: LFSV1 FILTER: CH CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER 990111

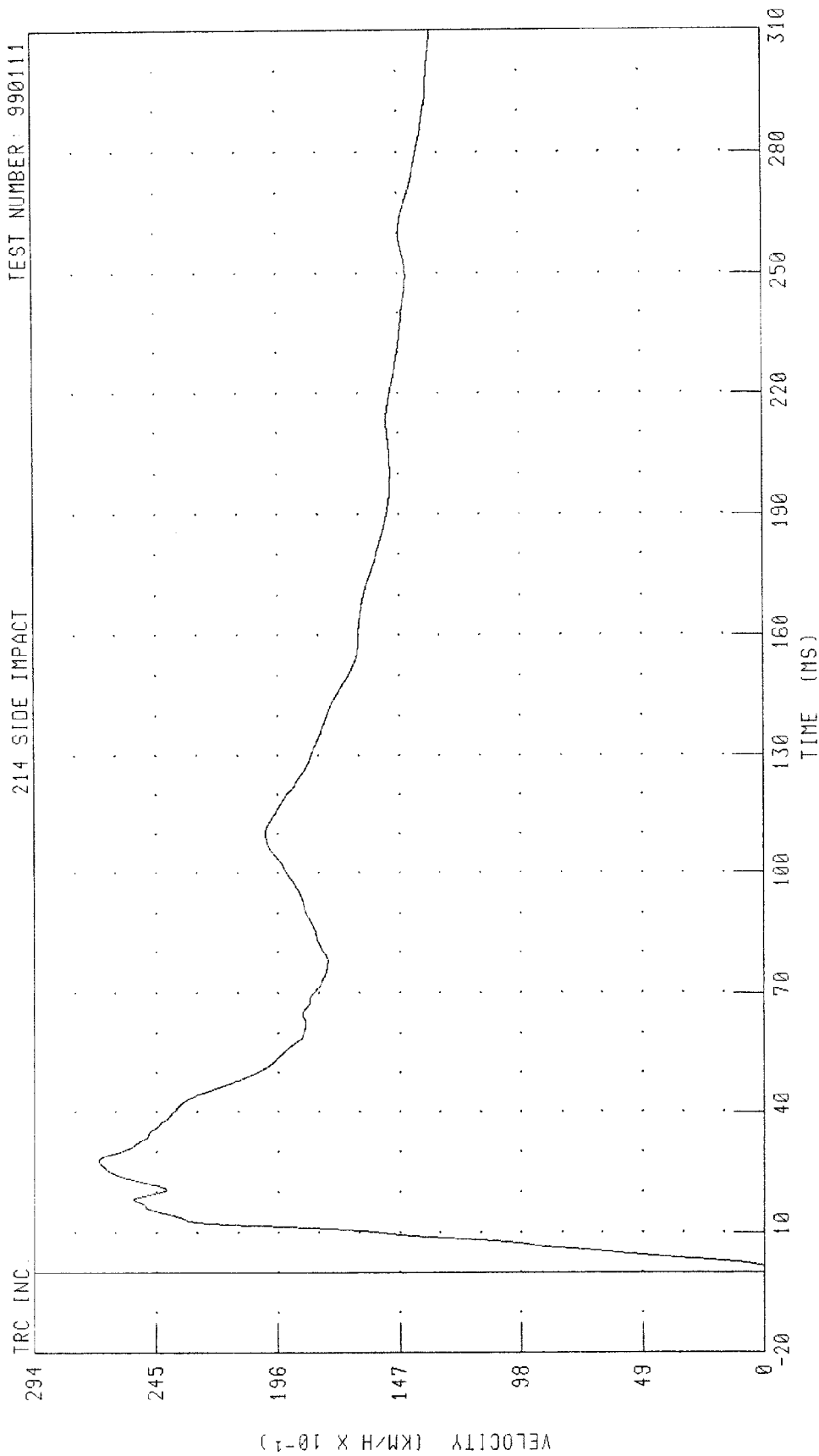


PEAK DATA: 68.88 G @ 10.80 MS; -12.52 G @ 46.64 MS

CHANNEL: LRSYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 990111



PEAK DATA: 26.81 KM/H @ 27.92 MS; -0.05 KM/H @ 1.04 MS

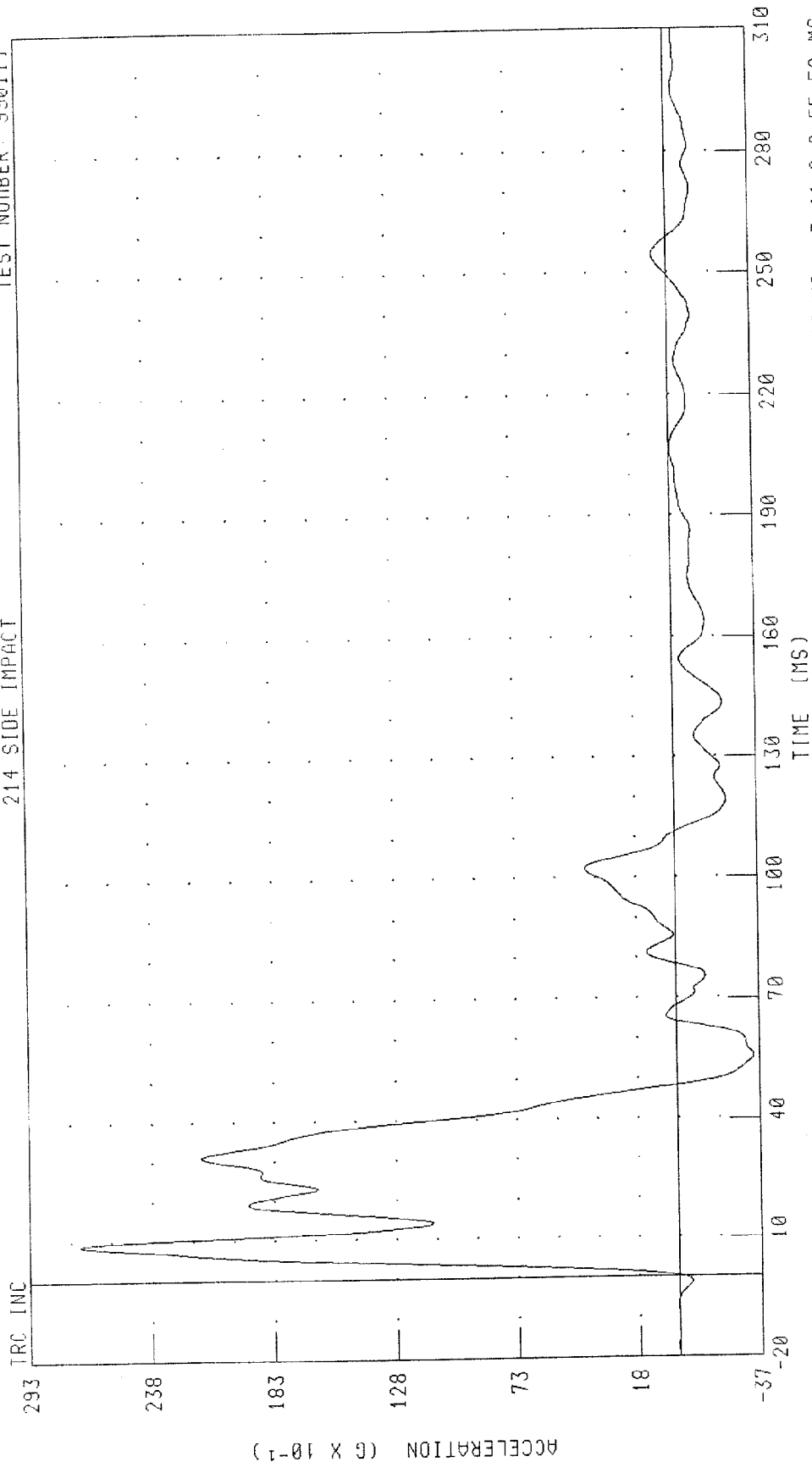
CHANNEL: LRSYV1 FILTER: CH. CLASS 180

**Vehicle's Left Front Door on Centerline Y-Axis
Data Channel, LFCYG1, Was Not Installed**

**Vehicle's Left Front Door on Centerline Y-Axis
Velocity, LFCYV1, Was Not Calculated**

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION
 214 SIDE IMPACT

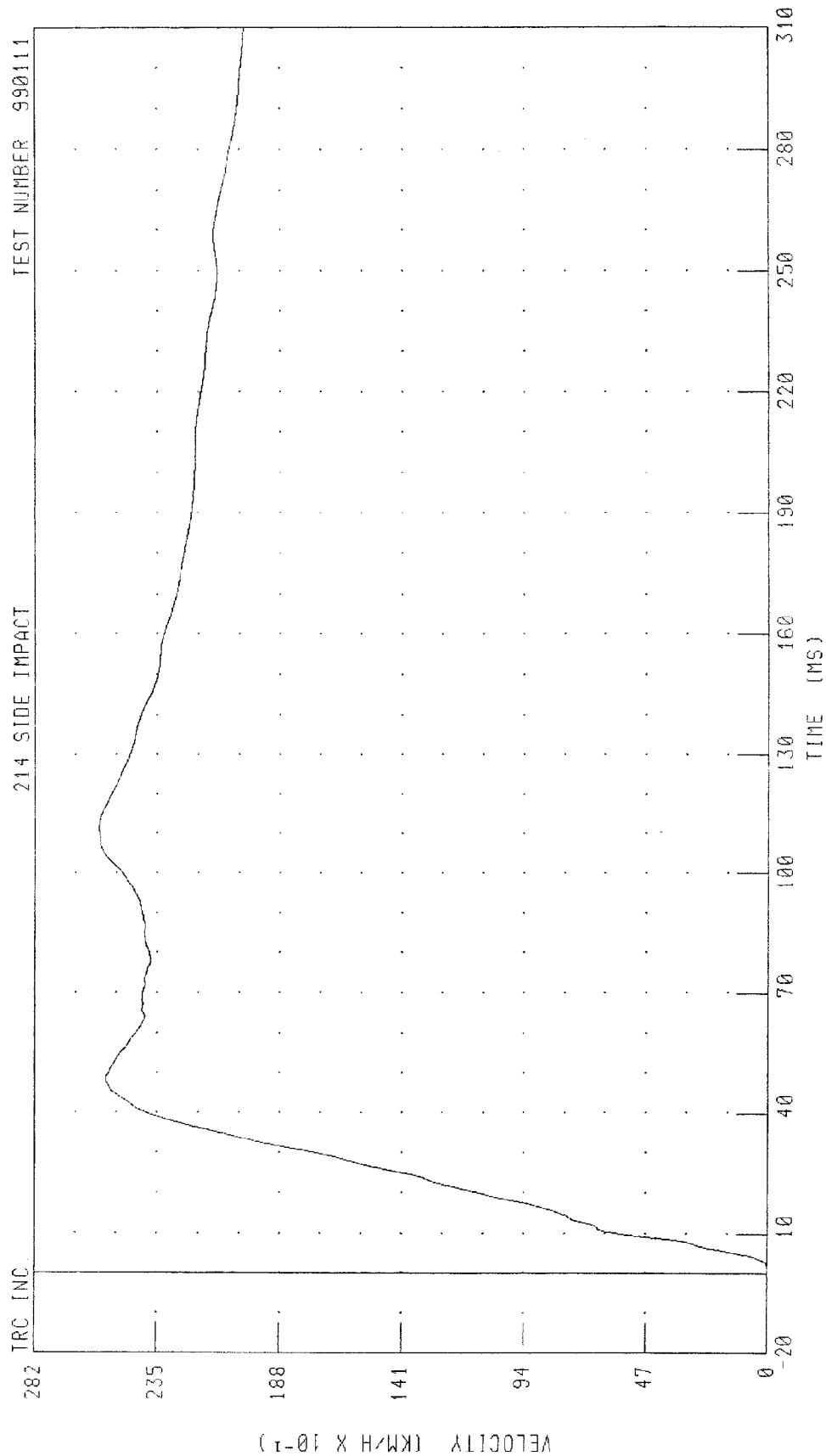
TEST NUMBER: 990111



CHANNEL: RRTYG1 FILTER: CH. CLASS 60

PEAK DATA: 27.09 G @ 8.88 MS, -3.44 G @ 55.52 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY



CHANNEL: RRTYV1 FILTER: CH. CLASS 180

PEAK DATA: 25.73 KM/H @ 111.36 MS, 0.00 KM/H @ 1.28 MS

**Vehicle's Mid Rear of Left Front Door Y-Axis
Data Channel, LFMYG1, Was Not Installed**

**Vehicle's Mid Rear of Left Front Door Y-Axis
Velocity, LFMYV1, Was Not Calculated**

**Vehicle's Left Front Door Upper Centerline Y-Axis
Data Channel, LFUYG1, Was Not Installed**

**Vehicle's Left Front Door Upper Centerline Y-Axis
Velocity, LFUYV1, Was Not Calculated**

**Vehicle's Mid Rear of Left Rear Door Y-Axis
Data Channel, LRMYG1, Was Not Installed**

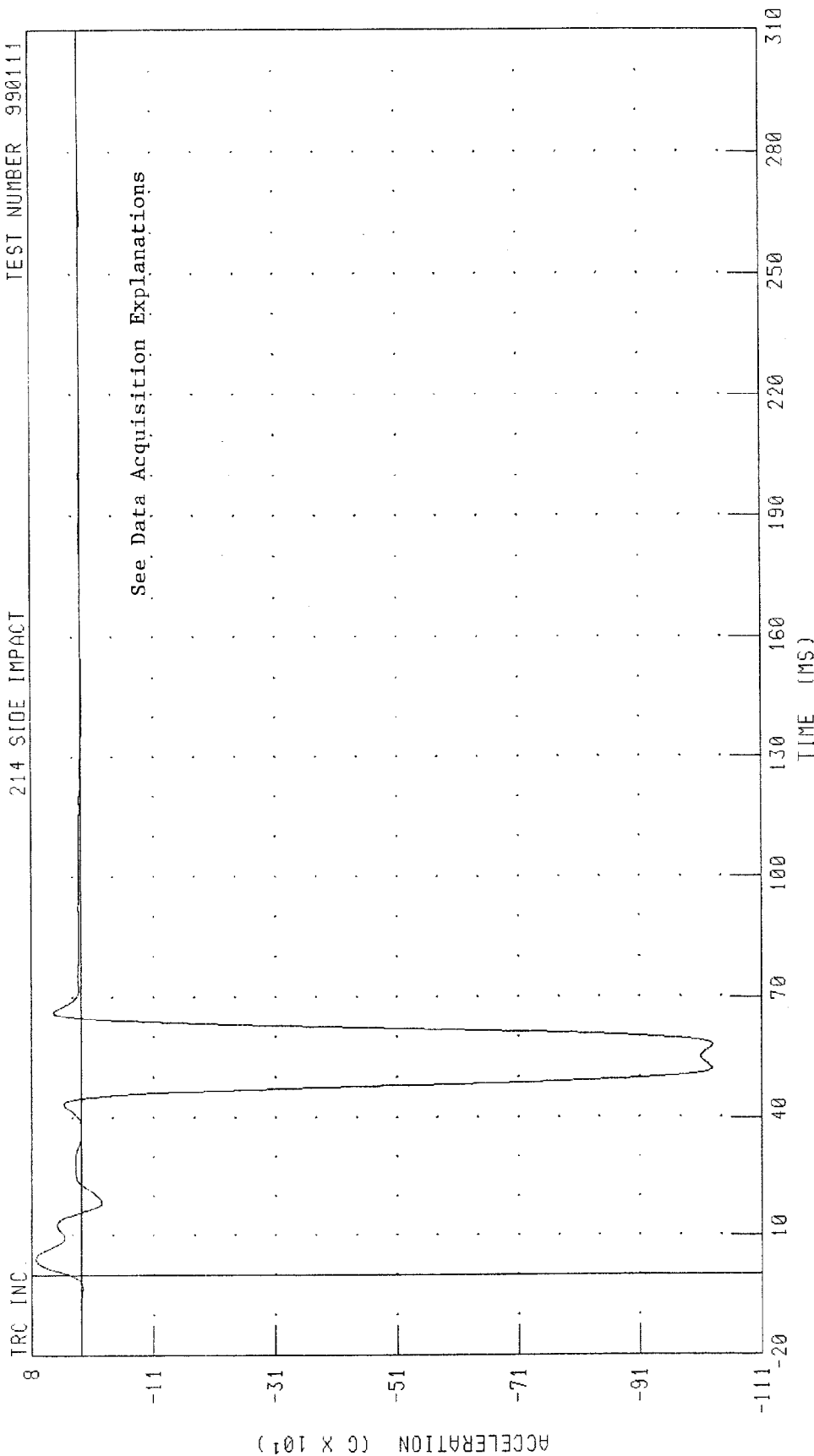
**Vehicle's Mid Rear of Left Rear Door Y-Axis
Velocity, LRMV1, Was Not Calculated**

**Vehicle's Left Rear Door Upper Centerline Y-Axis
Data Channel, LRUYG1, Was Not Installed**

**Vehicle's Left Rear Door Upper Centerline Y-Axis
Velocity, LRUYV1, Was Not Calculated**

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LOWER A-POST Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER 990111



PEAK DATA: 73.98 G @ 3.92 MS; -1038.86 G @ 57.92 MS

CHANNEL: LLAYG1 FILTER: CH. CLASS 60

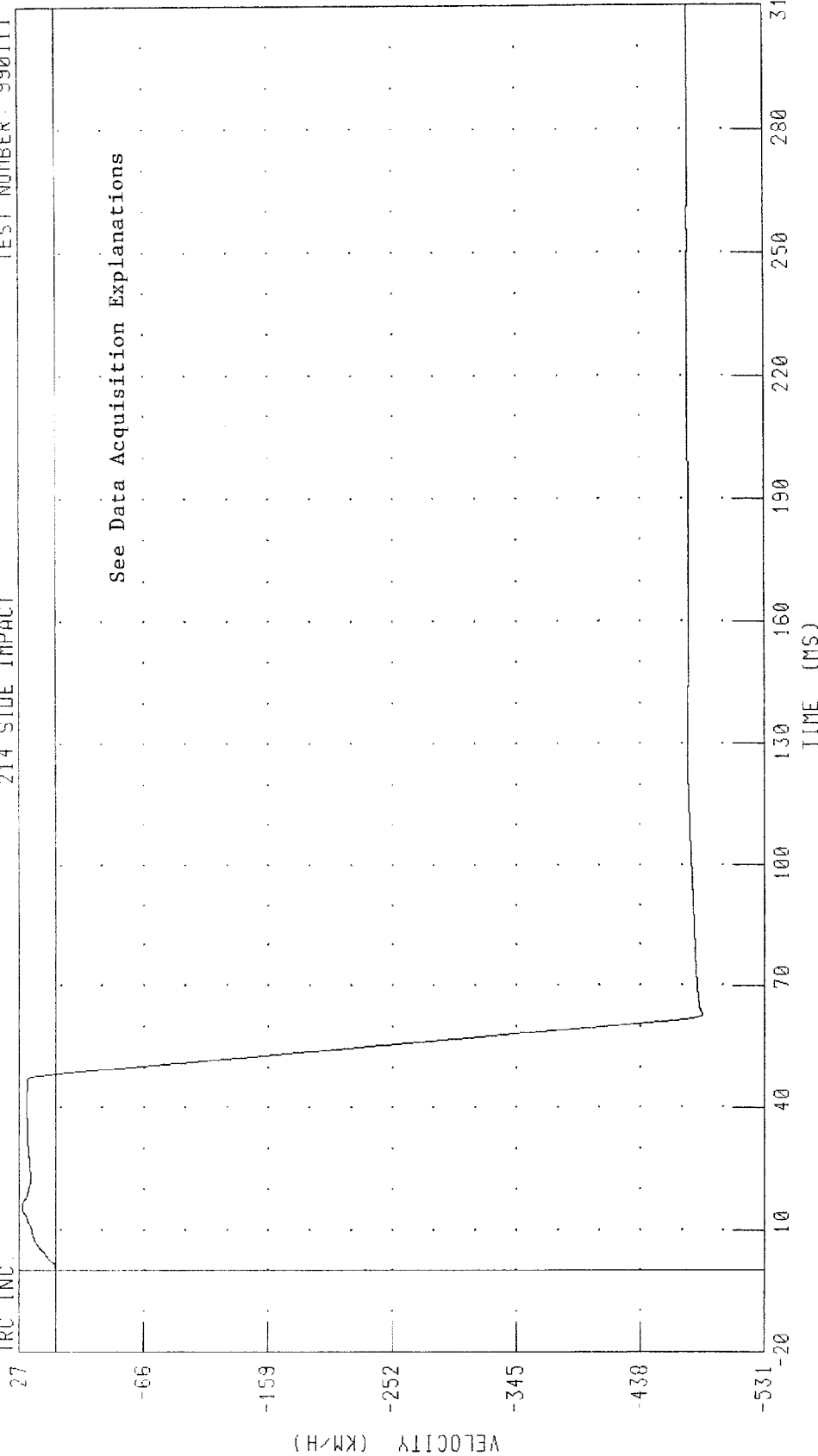
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER

LOWER A-POST Y-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.



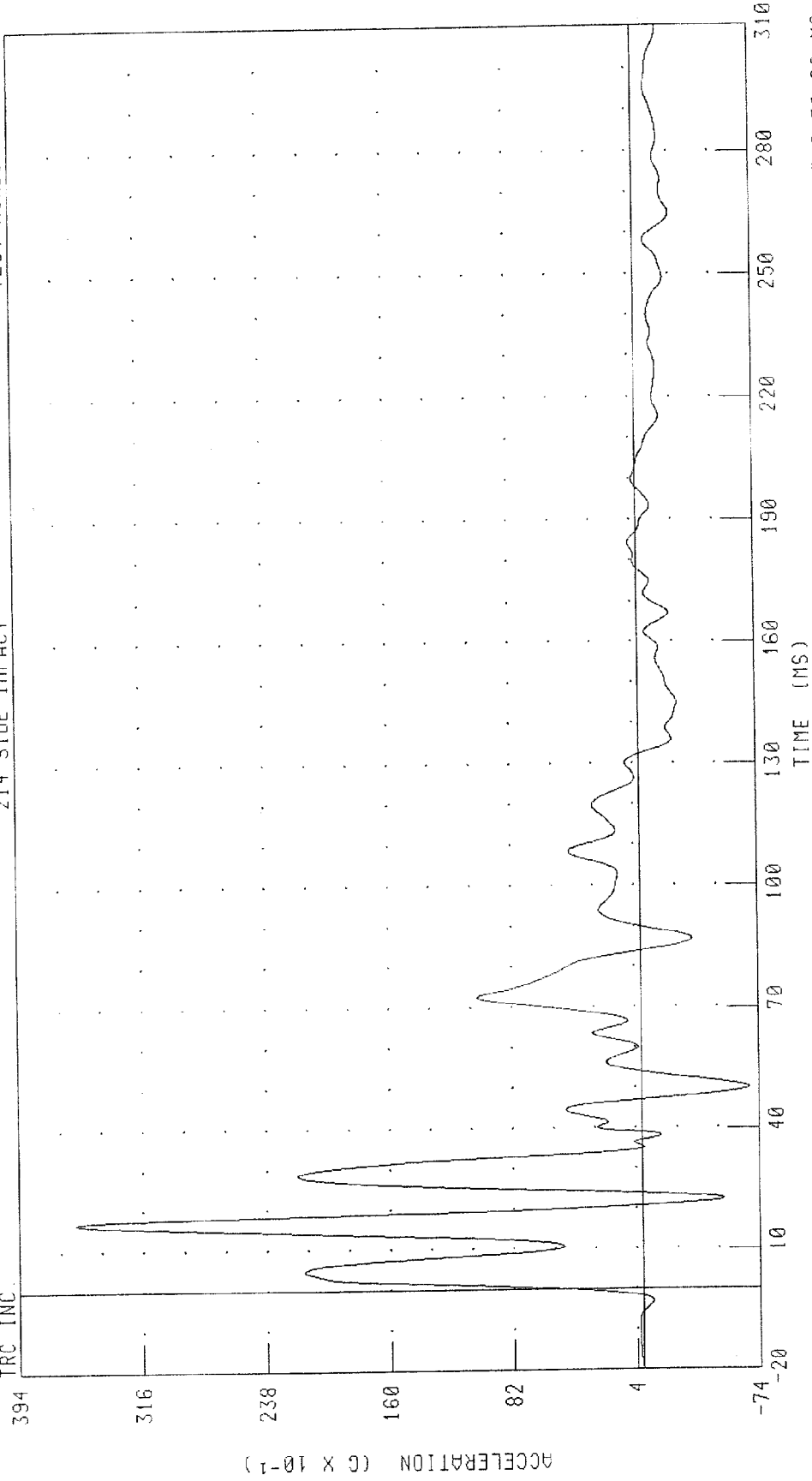
PEAK DATA: 25.16 KM/H @ 15.60 MS; -484.54 KM/H @ 62.96 MS

CHANNEL: L1AYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 UPPER A-POST Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER 990111

TRC INC.



PEAK DATA: 35.82 G @ 16.80 MS; -6.82 G @ 50.08 MS

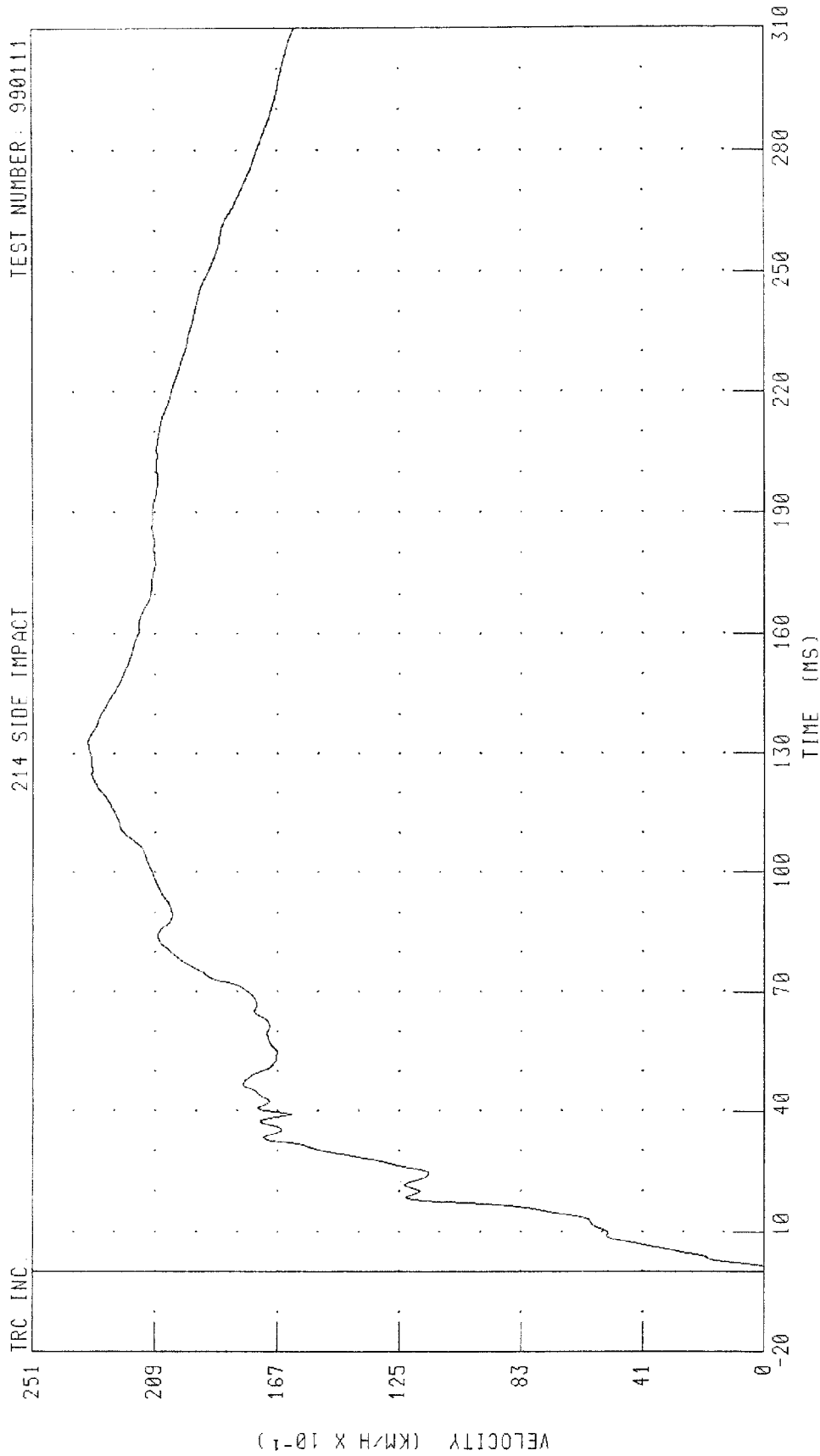
CHANNEL: LMAYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER

UPPER A-POST Y-AXIS VELOCITY

214 SIDE IMPACT

TEST NUMBER: 990111

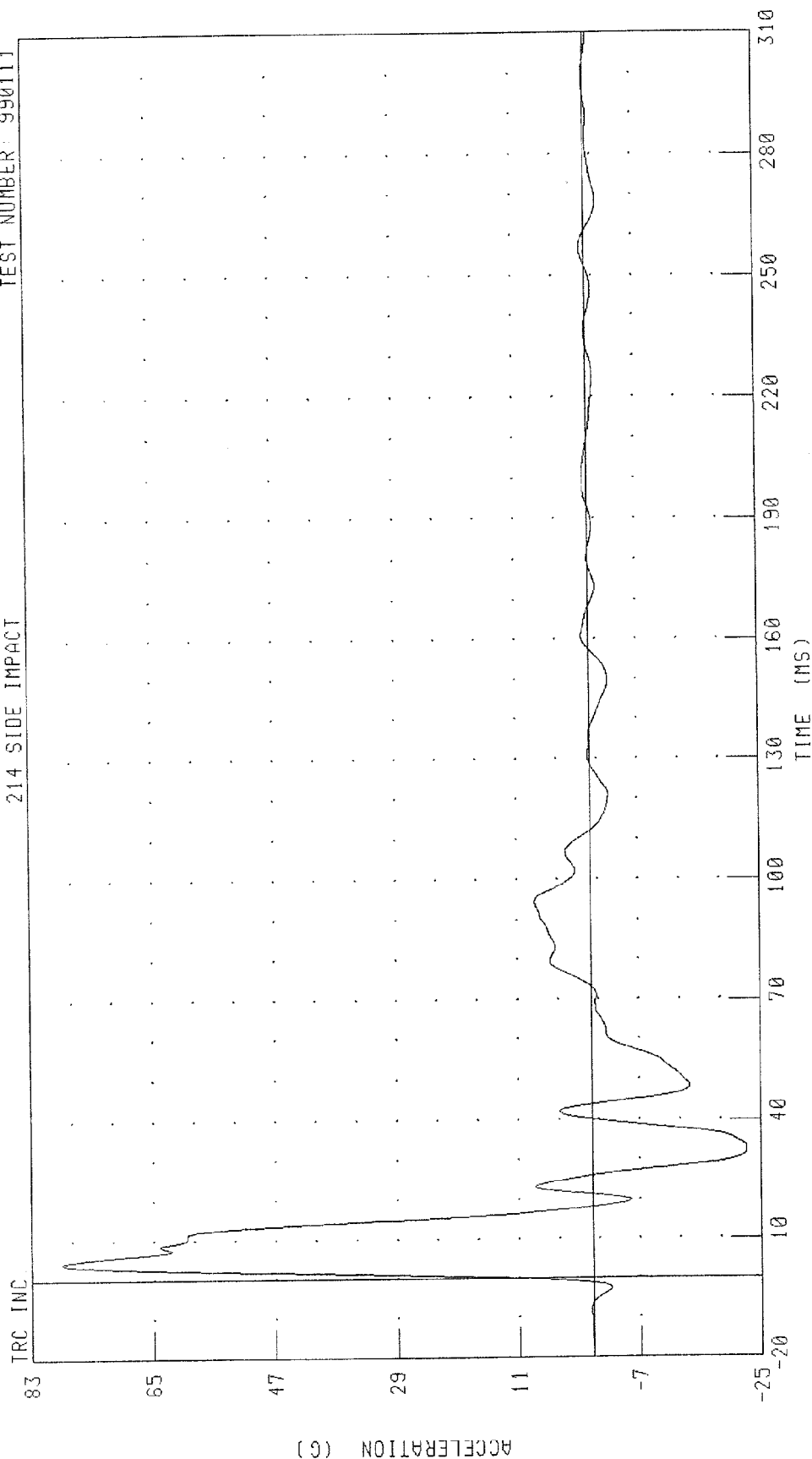


PEAK DATA: 23 31 KM/H @ 132.88 MS; -0.03 KM/H @ 0.80 MS

CHANNEL: LMAYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LOWER B-POST Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111



PEAK DATA: 78.44 G @ 4.08 MS; -22.95 G @ 32.08 MS

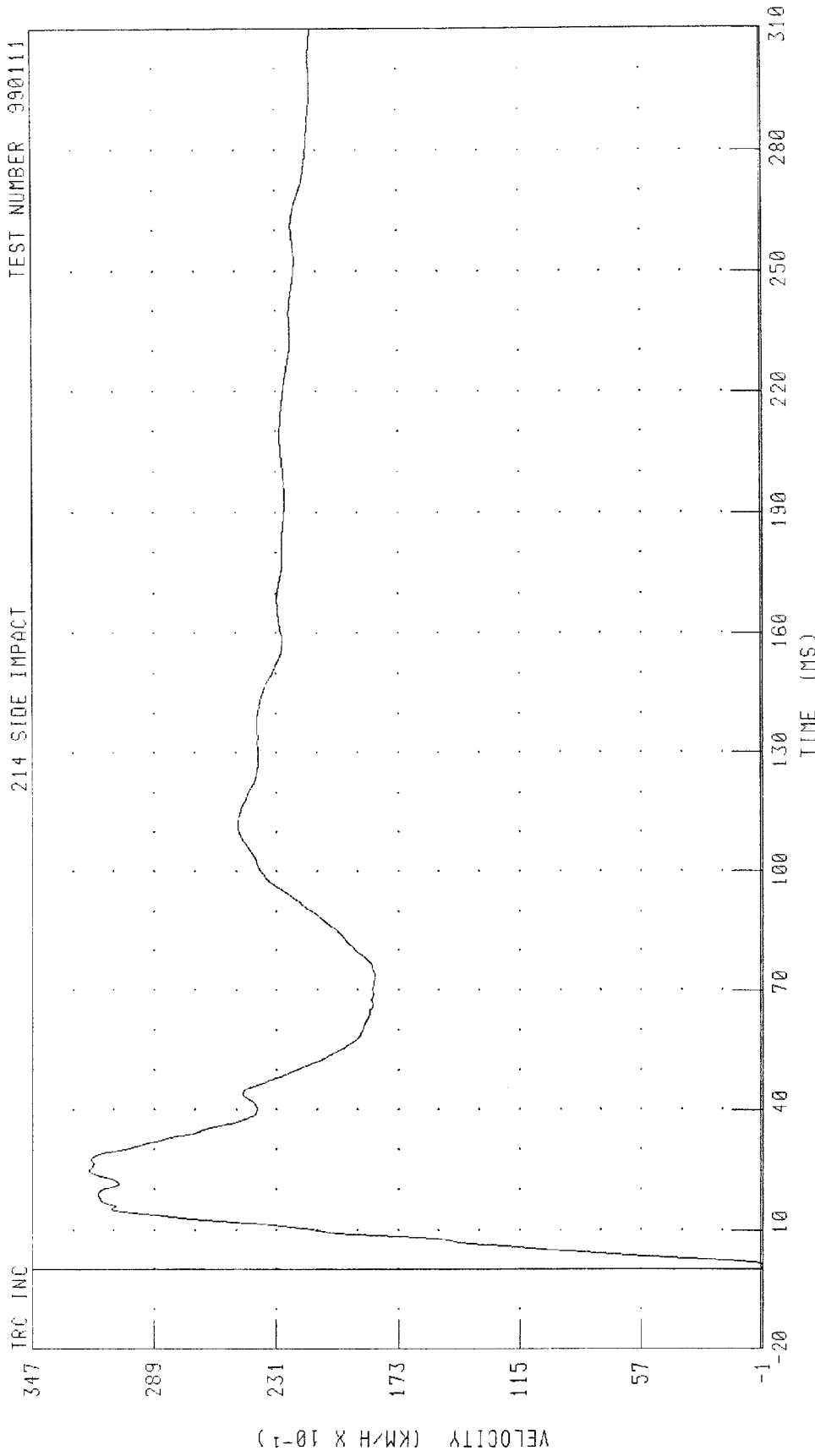
CHANNEL: LLBYG1 FILTER: CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER

LOWER B-POST Y-AXIS VELOCITY

TEST NUMBER 990111

214 SIDE IMPACT

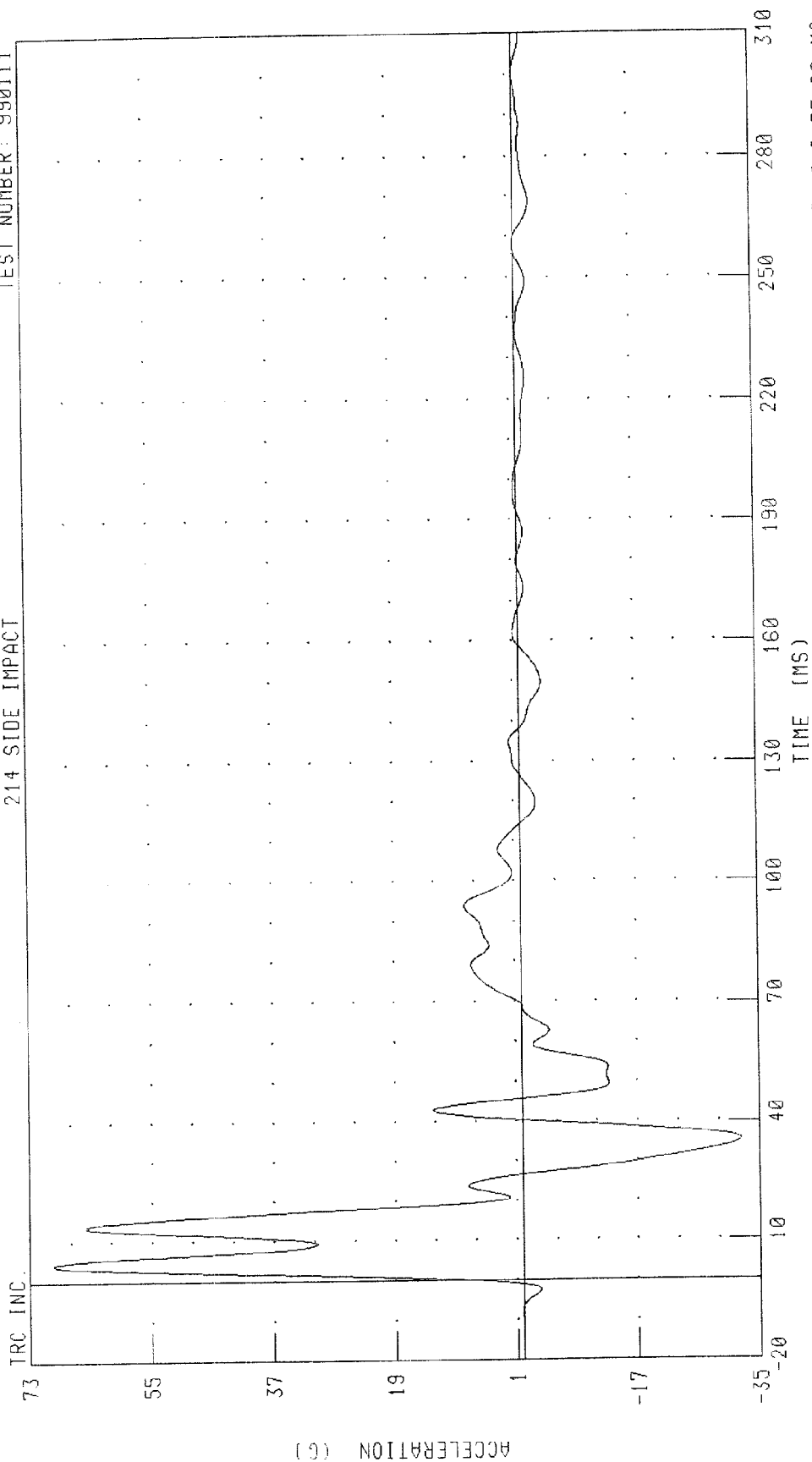


PEAK DATA: 32.00 KM/H @ 24.80 MS, -0.11 KM/H @ 1.04 MS

CHANNEL: LLBYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 UPPER B-POST Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111



PEAK DATA: 69.56 G @ 4.16 MS, -32.31 G @ 35.28 MS

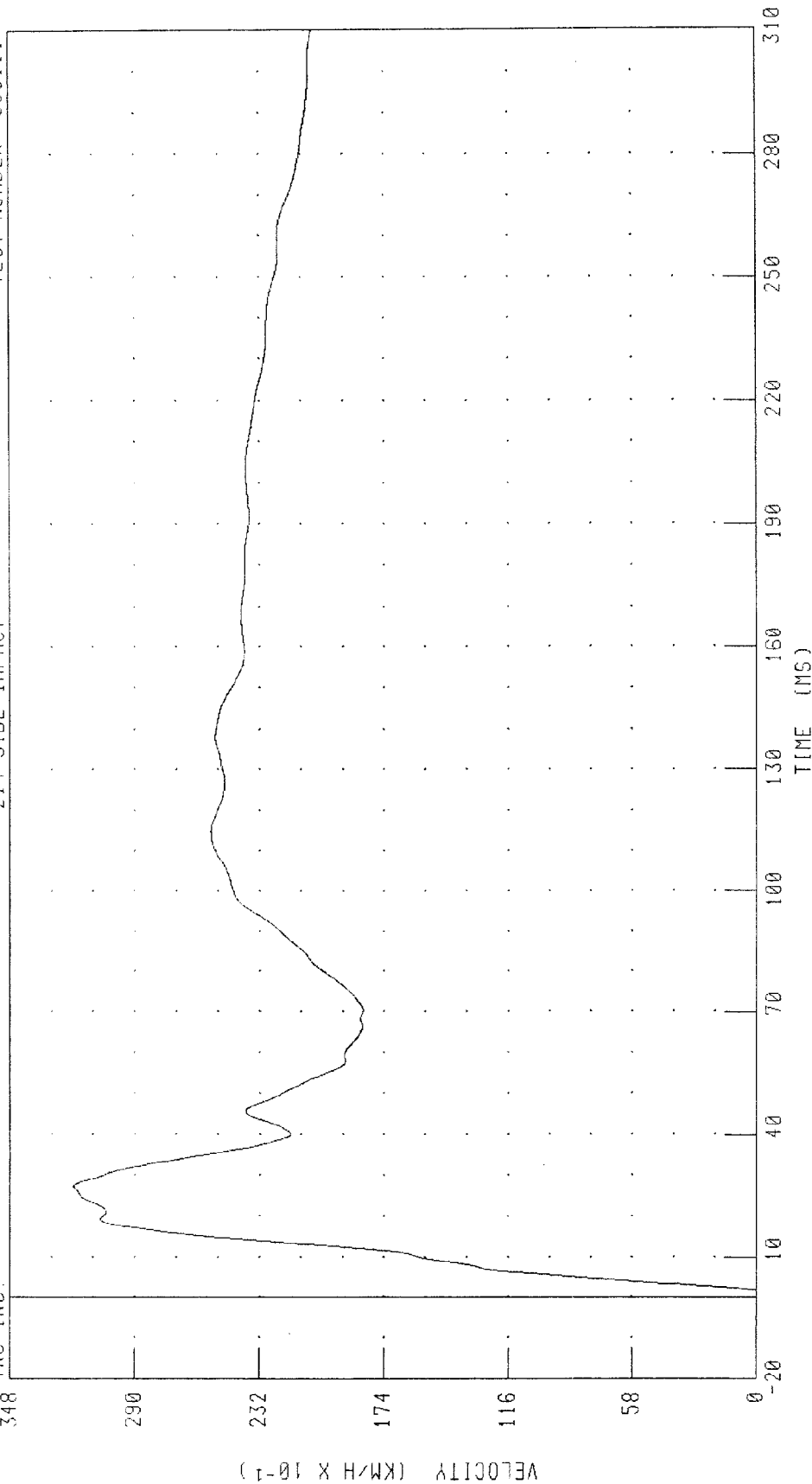
CHANNEL: LMBYCI FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
UPPER B-POST Y-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.



CHANNEL: LMBYV1 FILTER: CH. CLASS 180

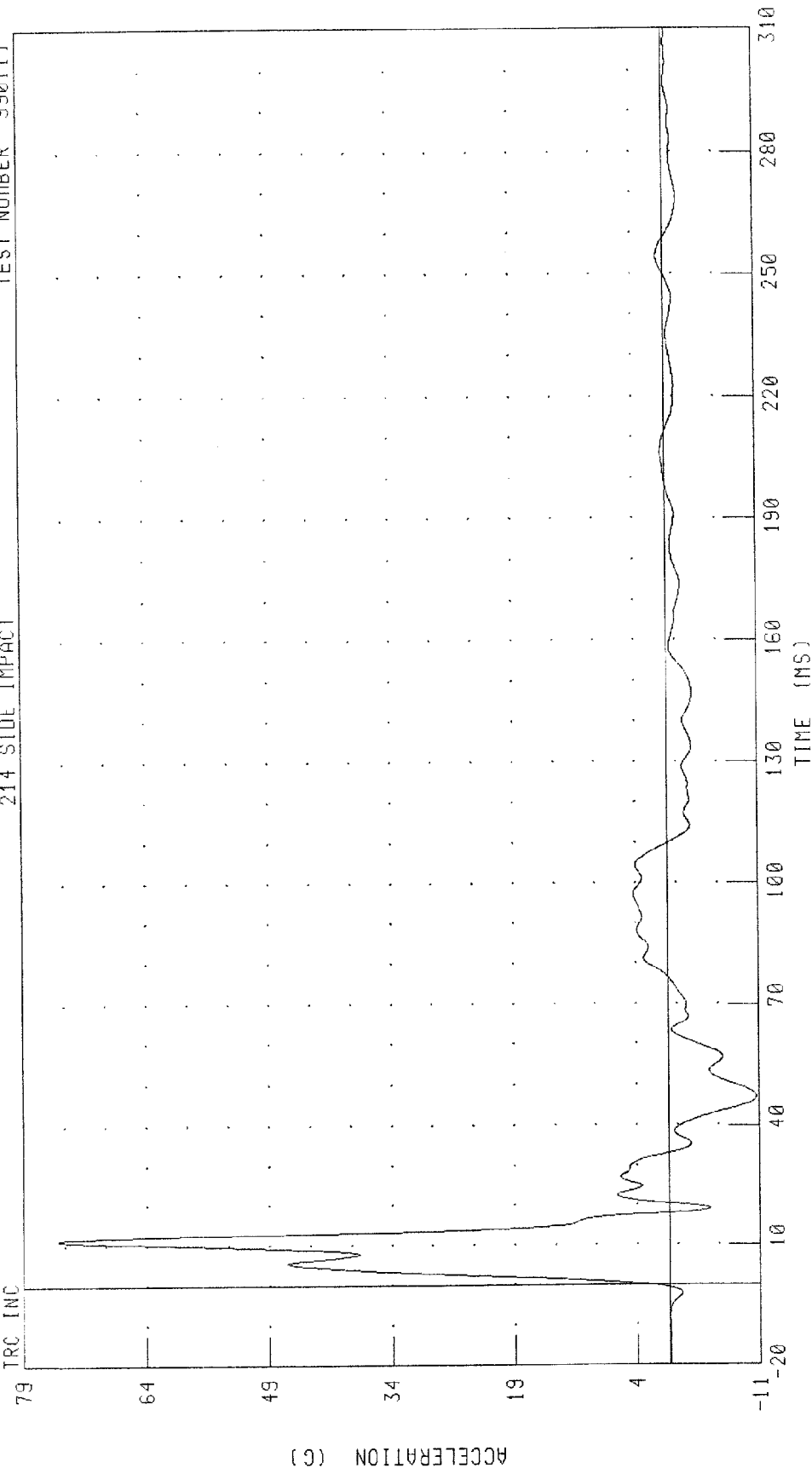
PEAK DATA: 31.85 KM/H @ 27.36 MS; -0.09 KM/H @ 1.12 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
FRONT SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER 990111

214 SIDE IMPACT

TRC INC



PEAK DATA: 74.89 G @ 11.36 MS, -10.72 G @ 46.96 MS

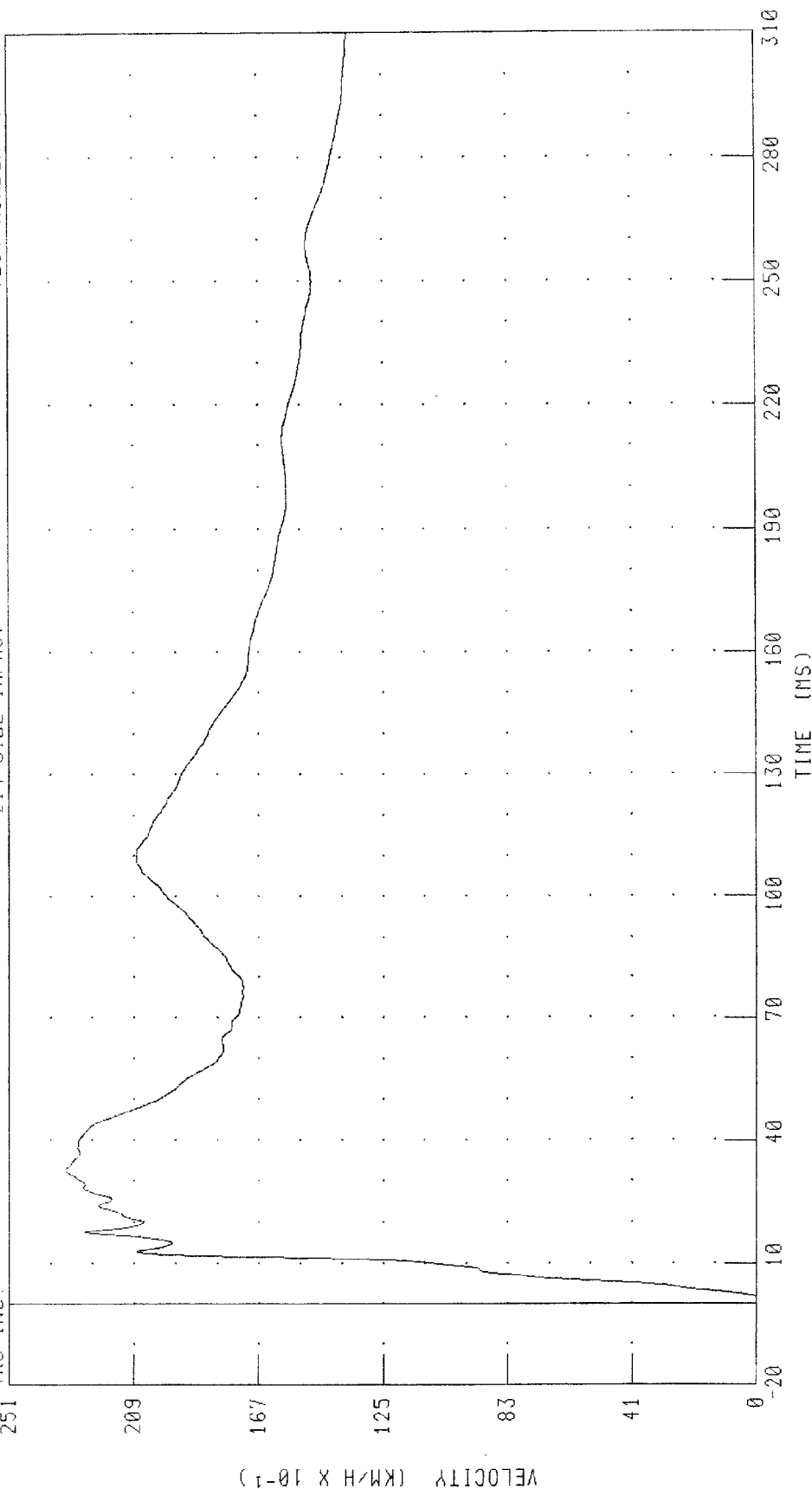
CHANNEL: LFTY61 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
FRONT SEAT TRACK Y-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.



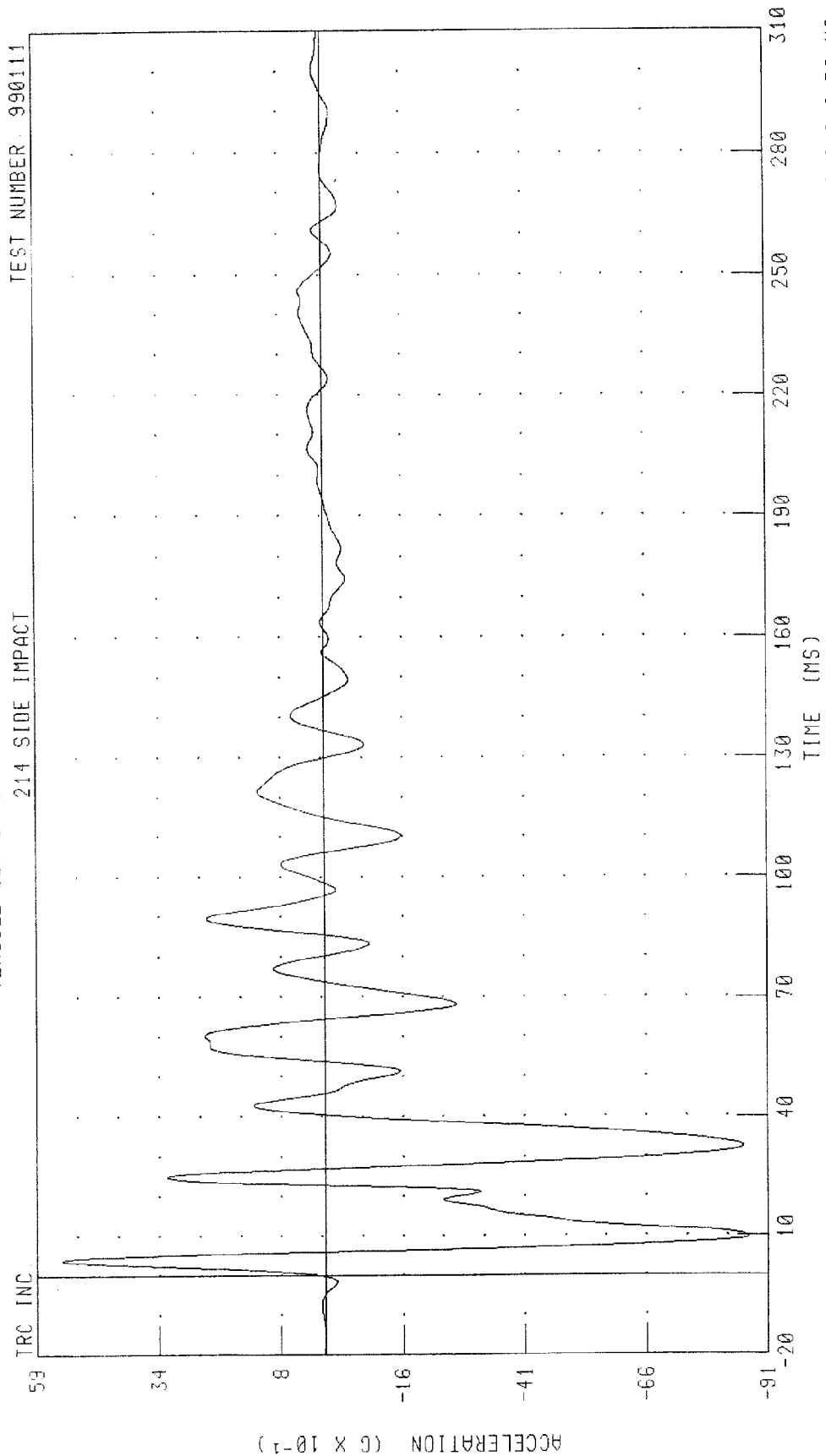
CHANNEL: LFTYV1 FILTER: CH. CLASS 180

PEAK DATA: 23.30 KM/H @ 32.80 MS; -0.04 KM/H @ 1.20 MS

Vehicle's Rear Seat Track Y-Axis, LRTYG1, Was Not Installed

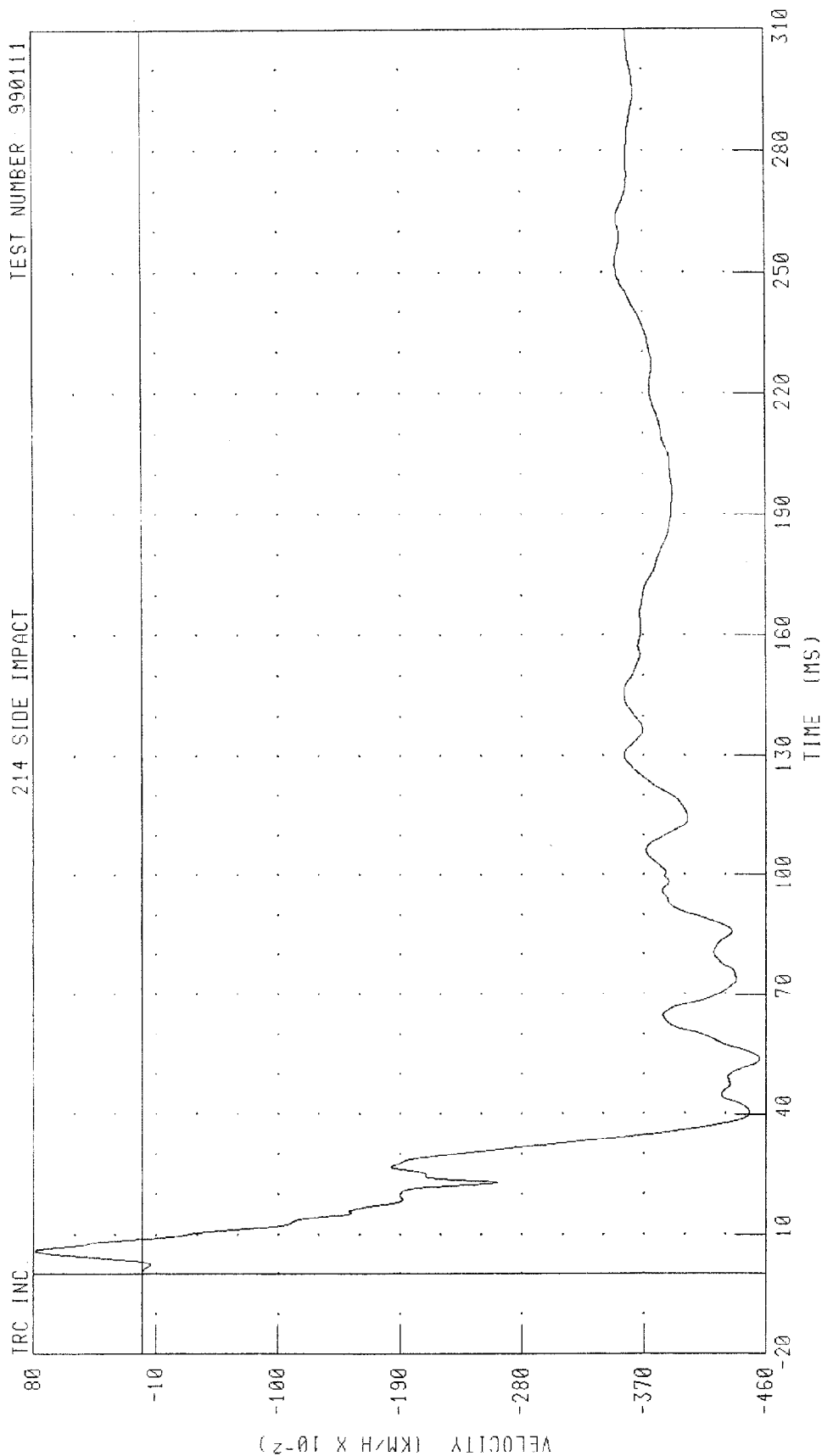
Vehicle's Rear Seat Track Y-Axis Velocity, LRTYV1, Was Not Calculated

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION



CHANNEL: VCCXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY



PEAK DATA: 0.79 KM/H @ 5.84 MS; -4.56 KM/H @ 53.84 MS

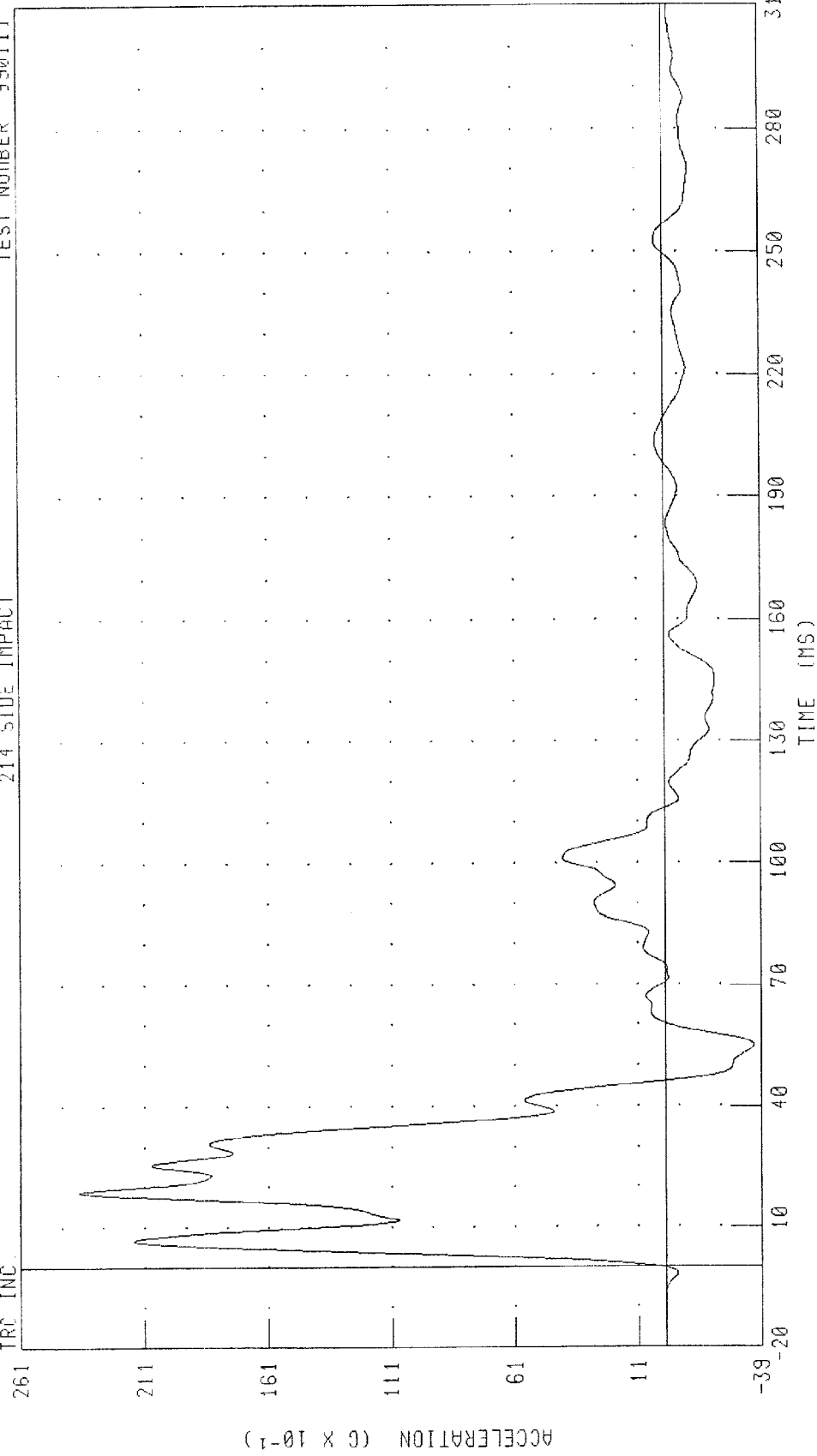
CHANNEL: VCCXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER 990111

214 SIDE IMPACT

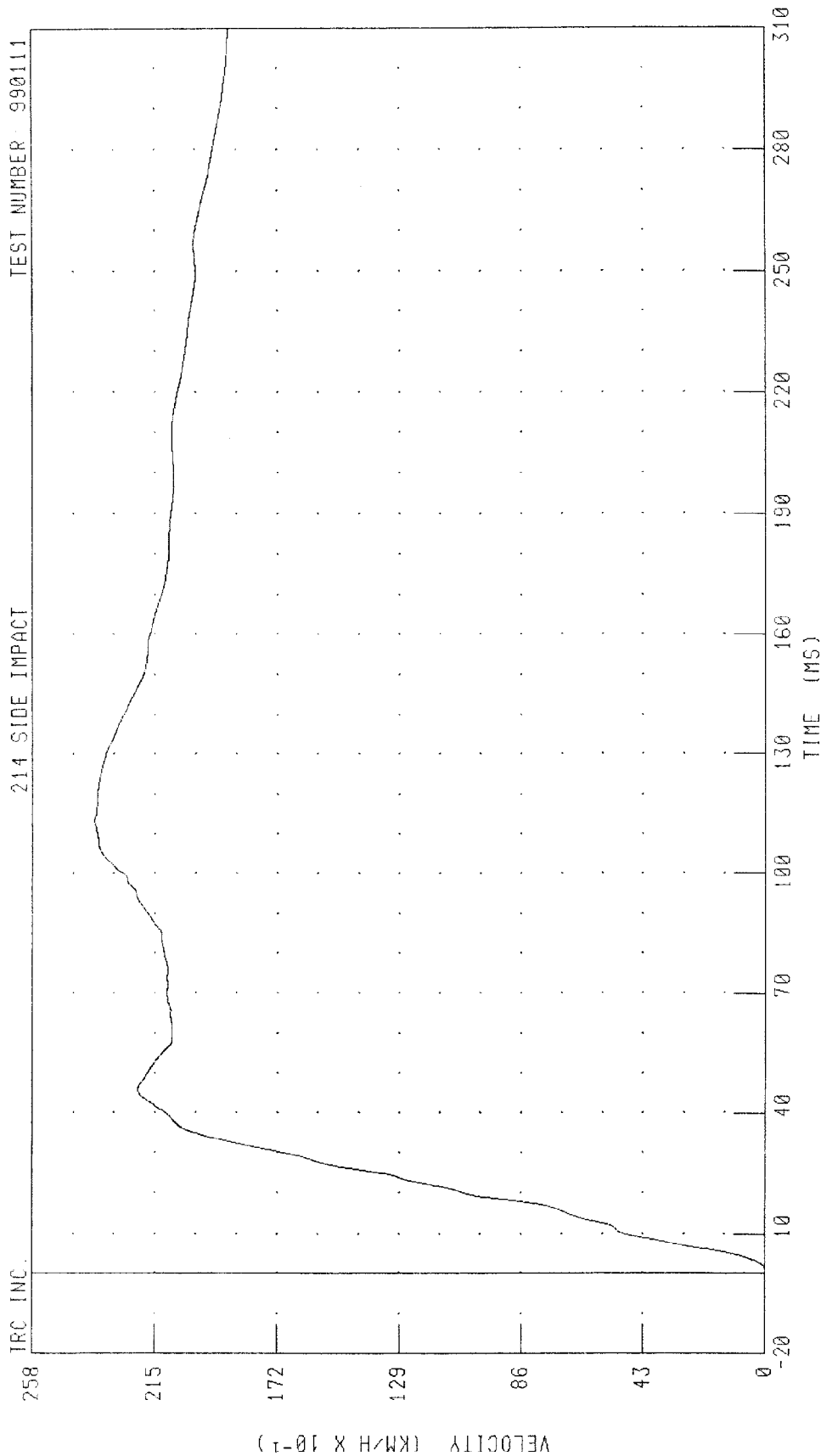
TRC INC.



CHANNEL: VCCYG1 FILTER: CH. CLASS 60

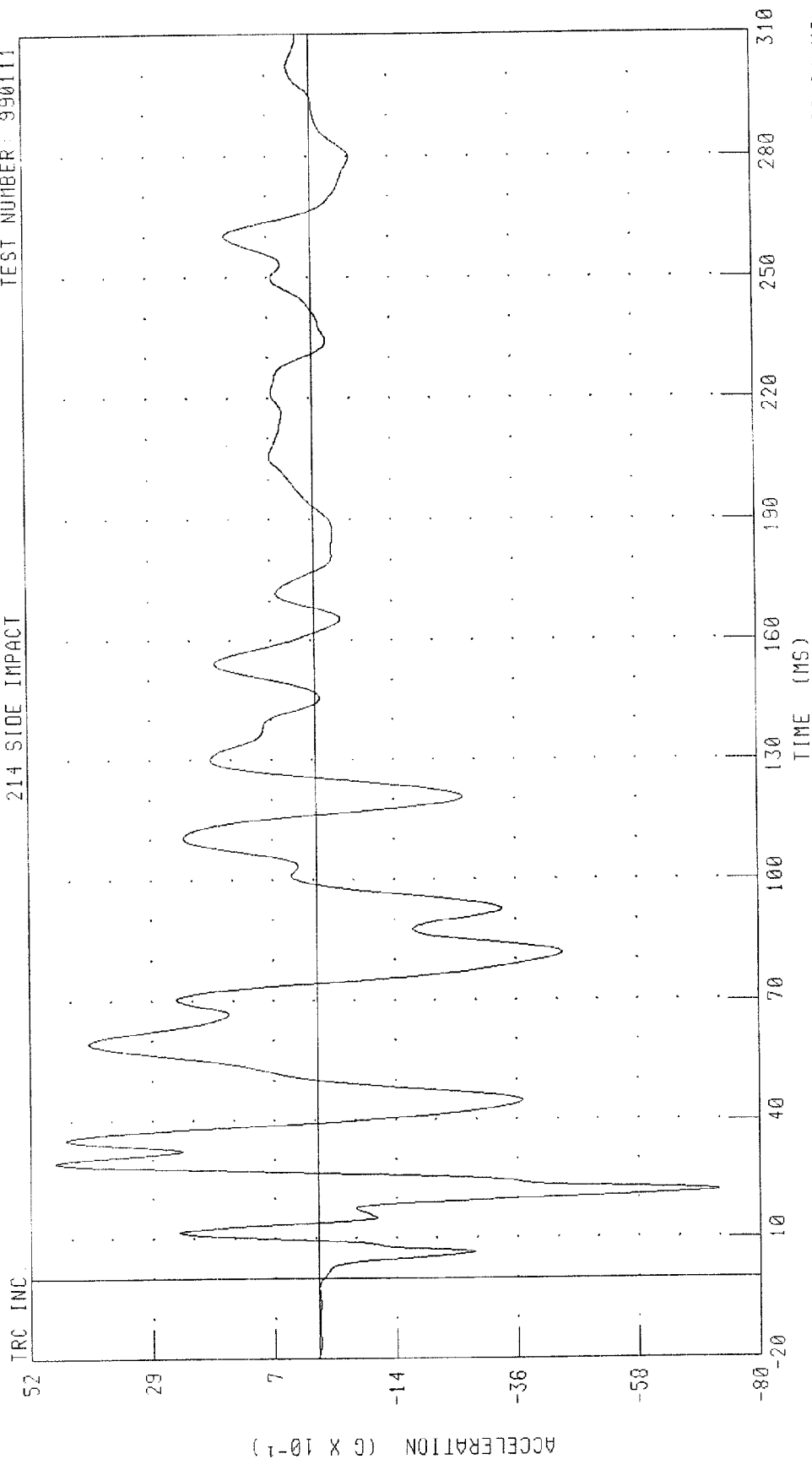
PEAK DATA: 23.74 G @ 18.64 MS, -3.60 G @ 54.88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION
 214 SIDE IMPACT

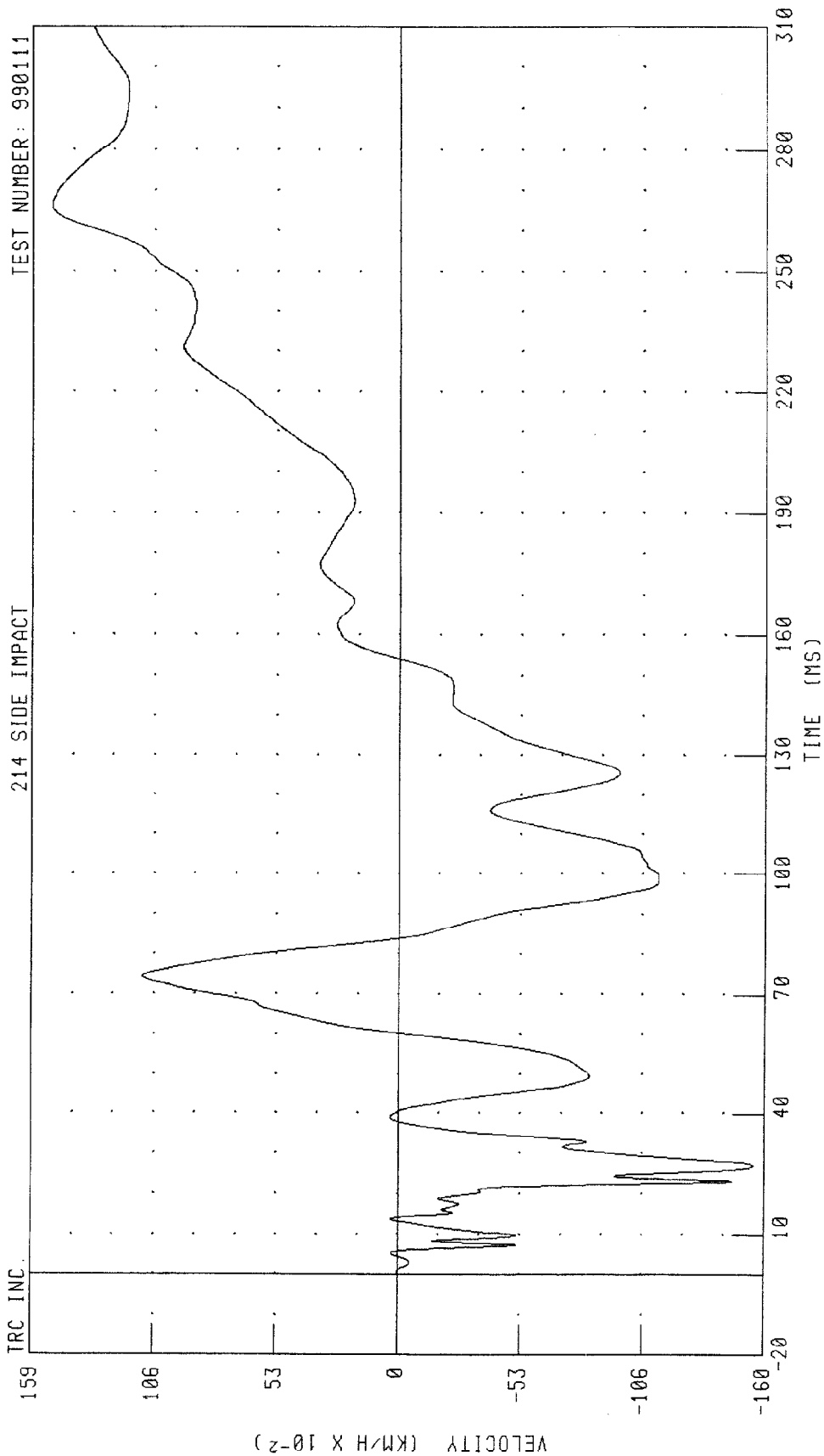
TEST NUMBER: 990111



PEAK DATA: 4.75 G @ 29.28 MS; -7.26 G @ 22.24 MS

CHANNEL: VCCZG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

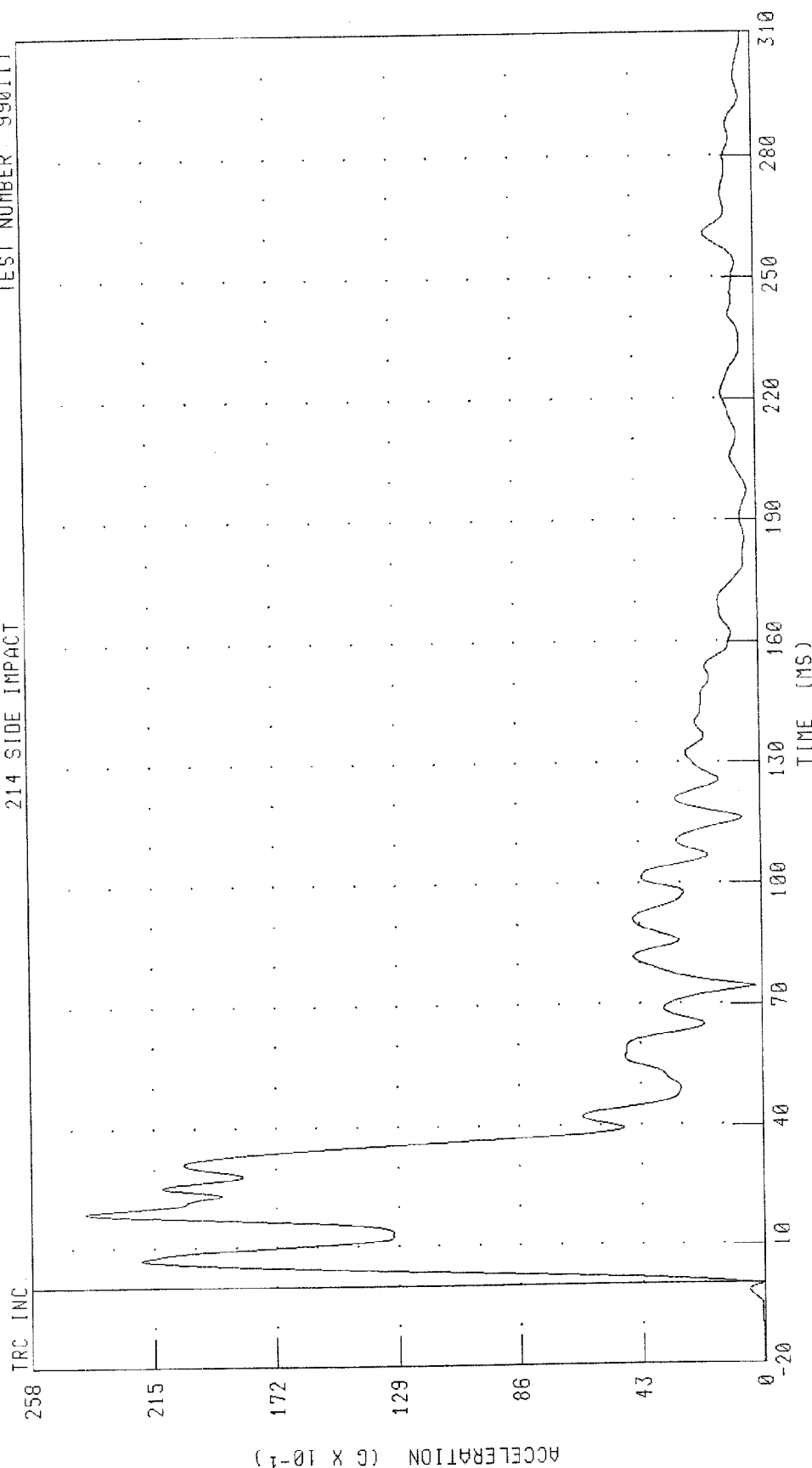


CHANNEL: VCGZV1 FILTER CH. CLASS 180

PEAK DATA: 1.52 KM/H @ 266.16 MS, -1.55 KM/H @ 27.04 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

214 SIDE IMPACT TEST NUMBER 990111



PEAK DATA 23.92 G @ 18.64 MS, 0.01 G @ -19.04 MS

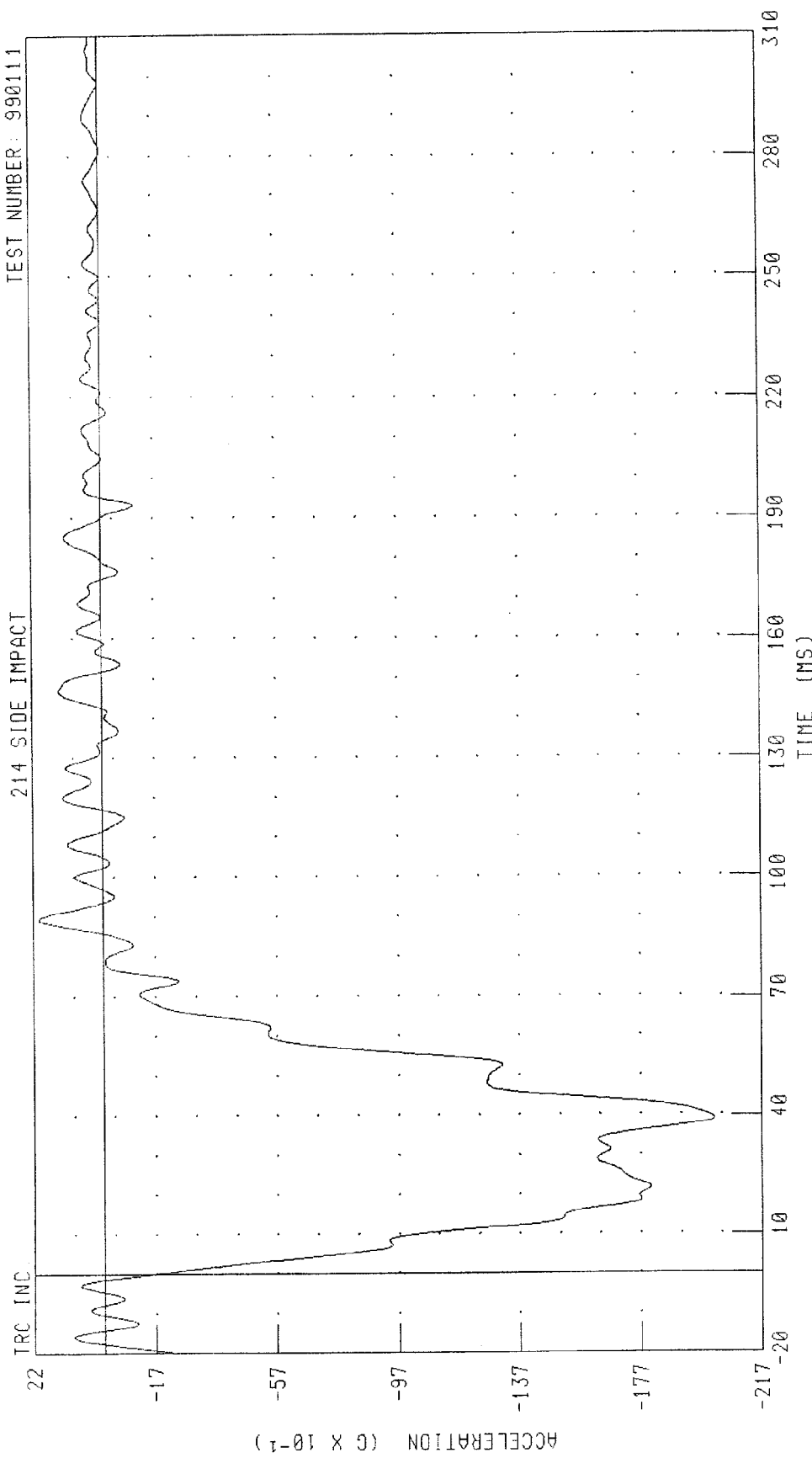
CHANNEL: VCGRG1 FILTER: CH. CLASS 60

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT



CHANNEL: BCCXC1 FILTER: CH. CLASS 60

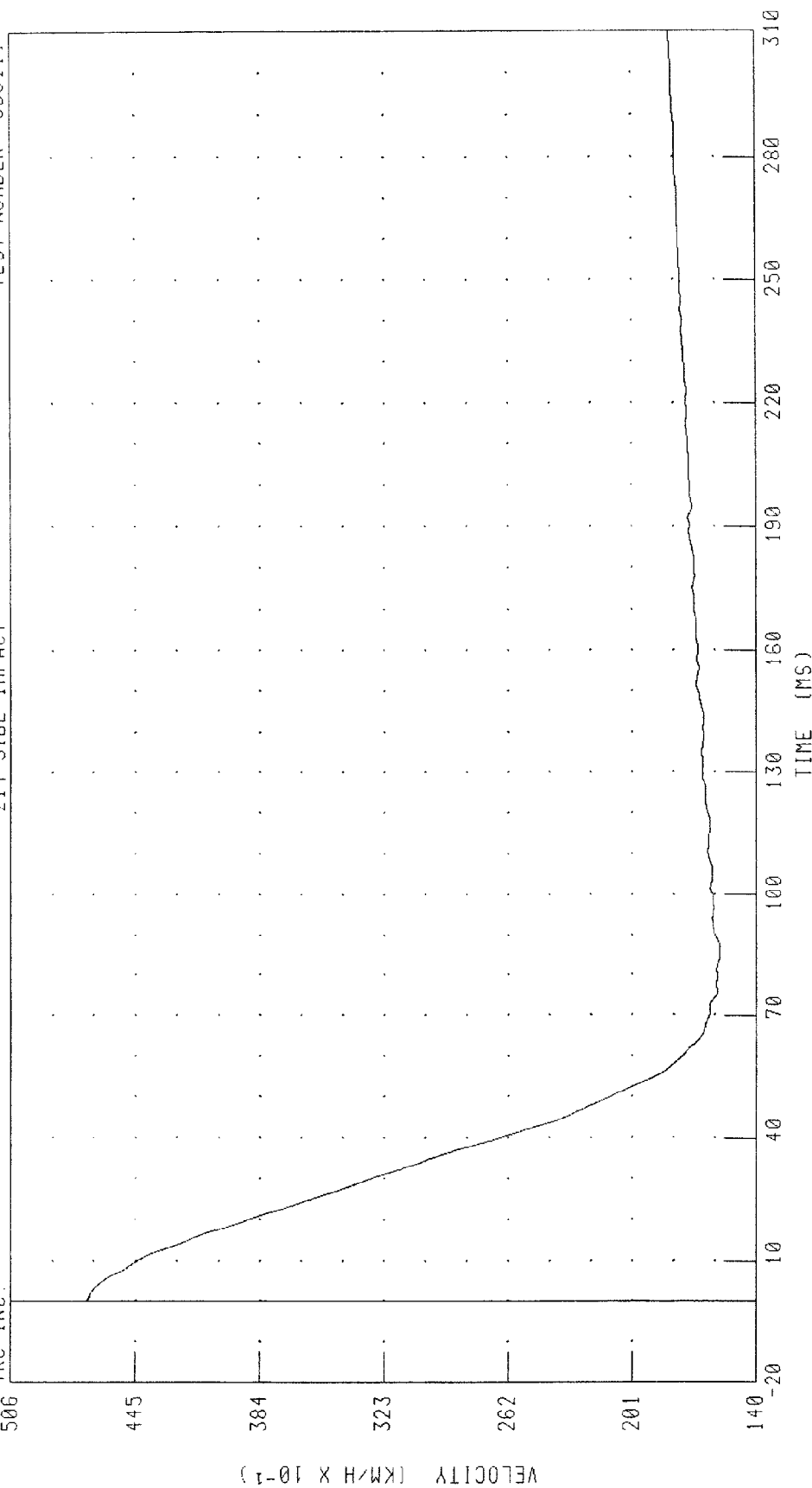
PEAK DATA: 2.11 G @ 89.52 MS, -20.13 G @ 39.12 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 KIA SEPHIA
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.



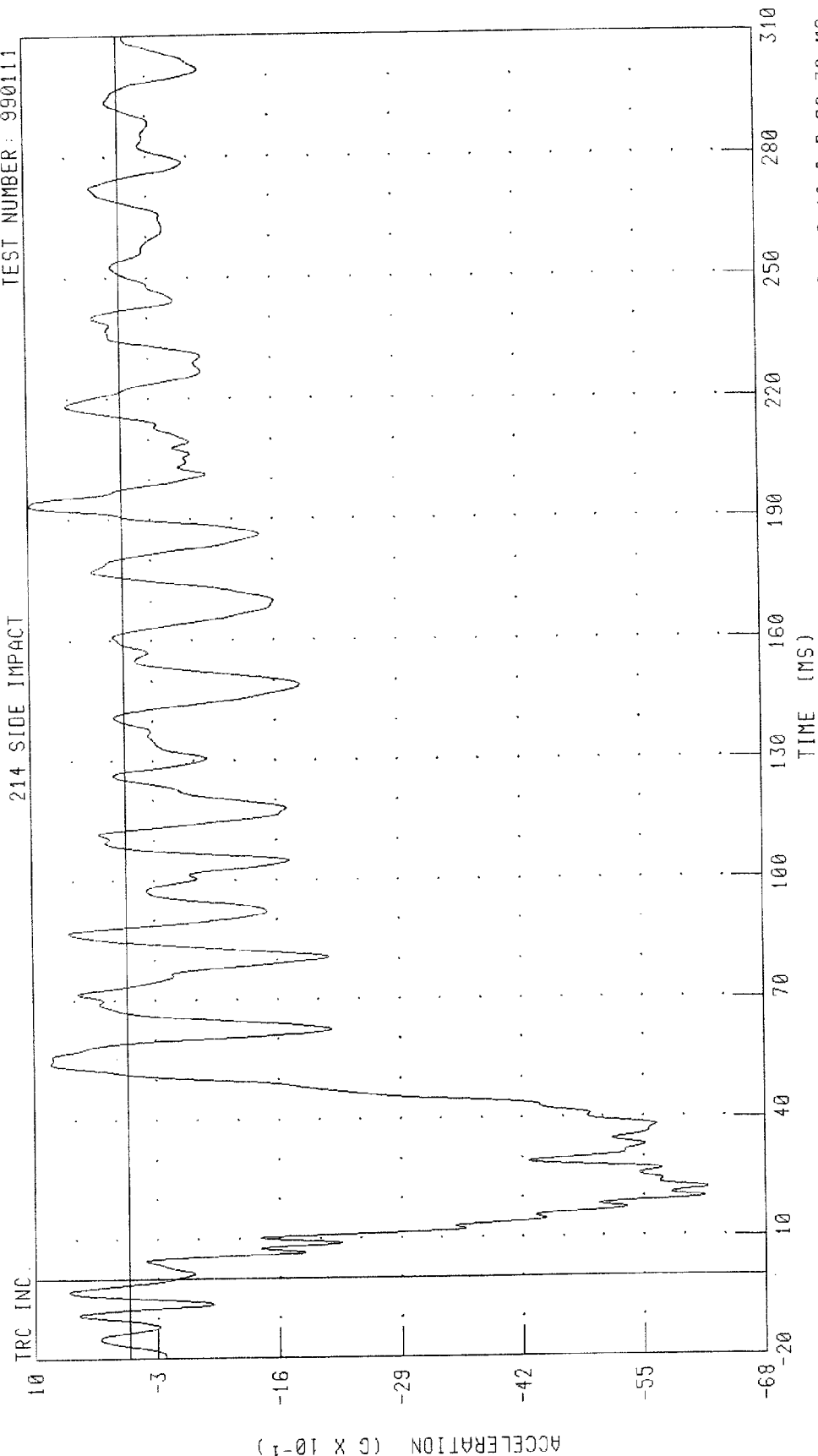
CHANNEL: BCCXV1 FILTER: CH. CLASS 180

PEAK DATA: 46.90 KM/H @ 0.00 MS; 15.78 KM/H @ 87.12 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT



PEAK DATA: 0.98 G @ 193.68 MS; -6.19 G @ 22.32 MS

CHANNEL: BCCYC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER 990111

214 SIDE IMPACT

TRC INC.

260

235

VELOCITY (KM/H X 10⁻¹)

210

185

160

135

110

-20

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

CHANNEL: BCCYV1 FILTER: CH CLASS 180

PEAK DATA: 24 05 KM/H @ 5 52 MS, 13 17 KM/H @ 307 84 MS

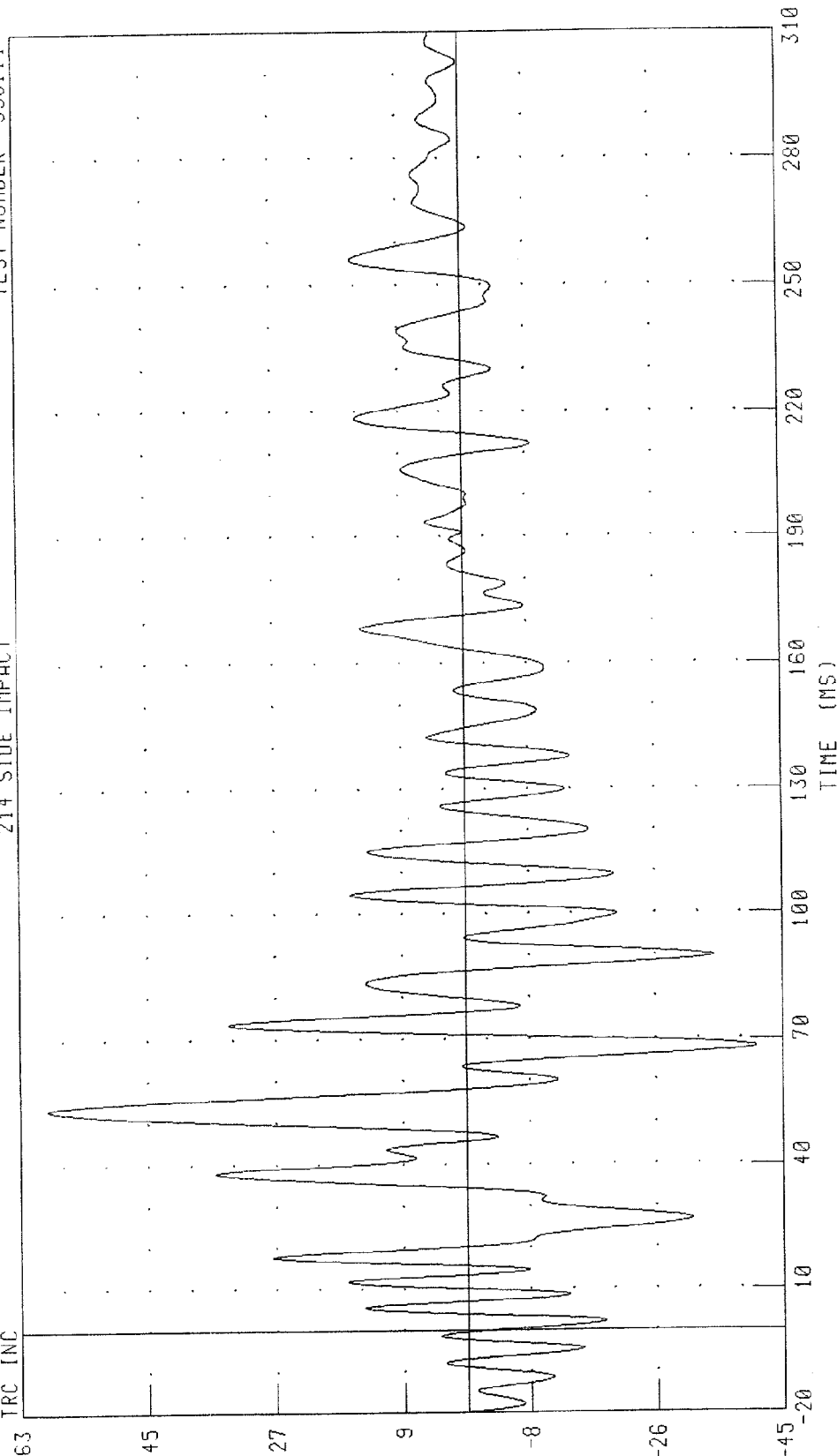
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC

ACCELERATION ($G \times 10^{-1}$)



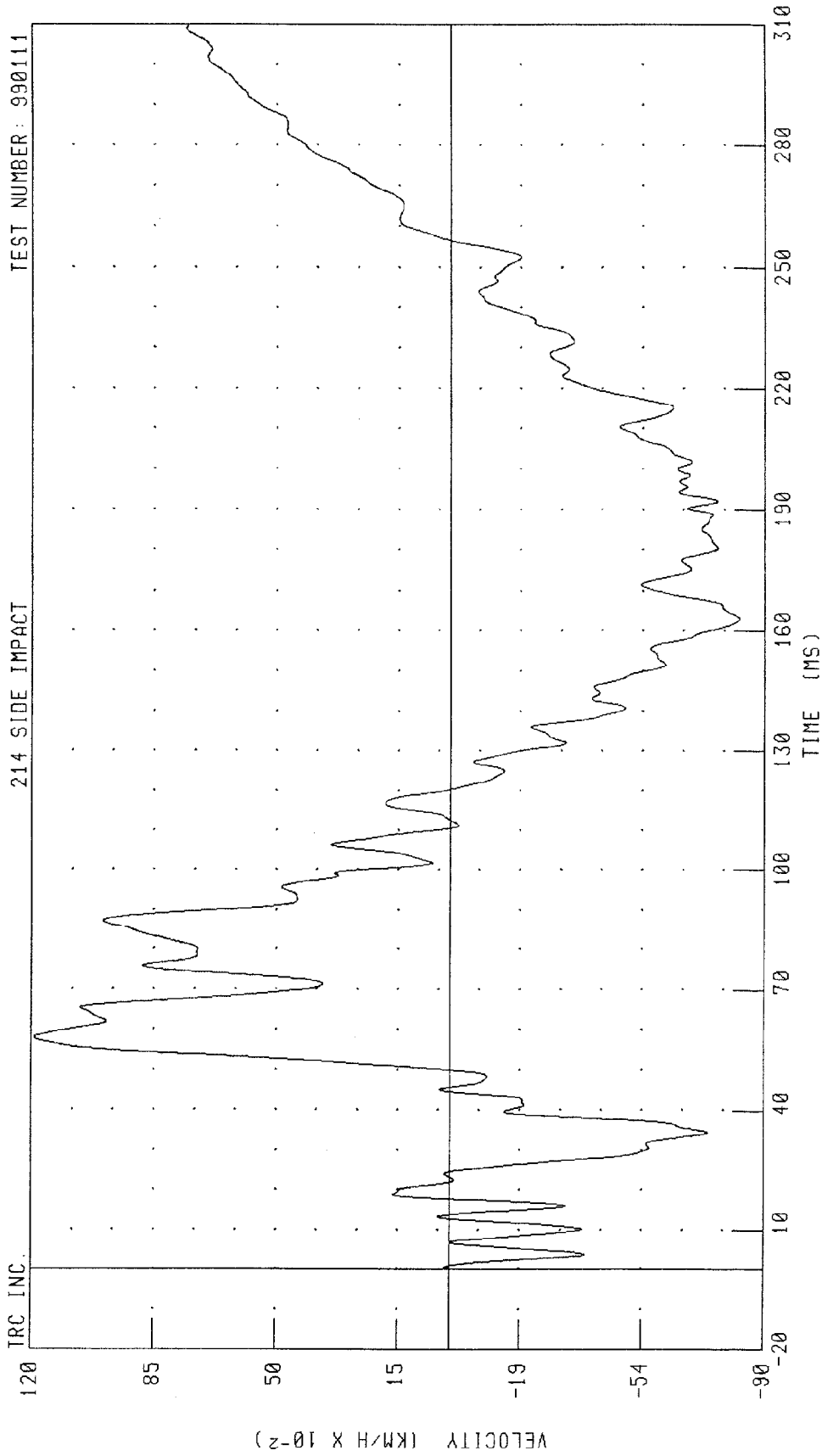
CHANNEL: BCOZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.92 G @ 53.20 MS; -4.12 G @ 68.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT



PEAK DATA: 1.19 KM/H @ 57.92 MS; -0.83 KM/H @ 162.96 MS

CHANNEL: BCCZY1 FILTER: CH. CLASS 180

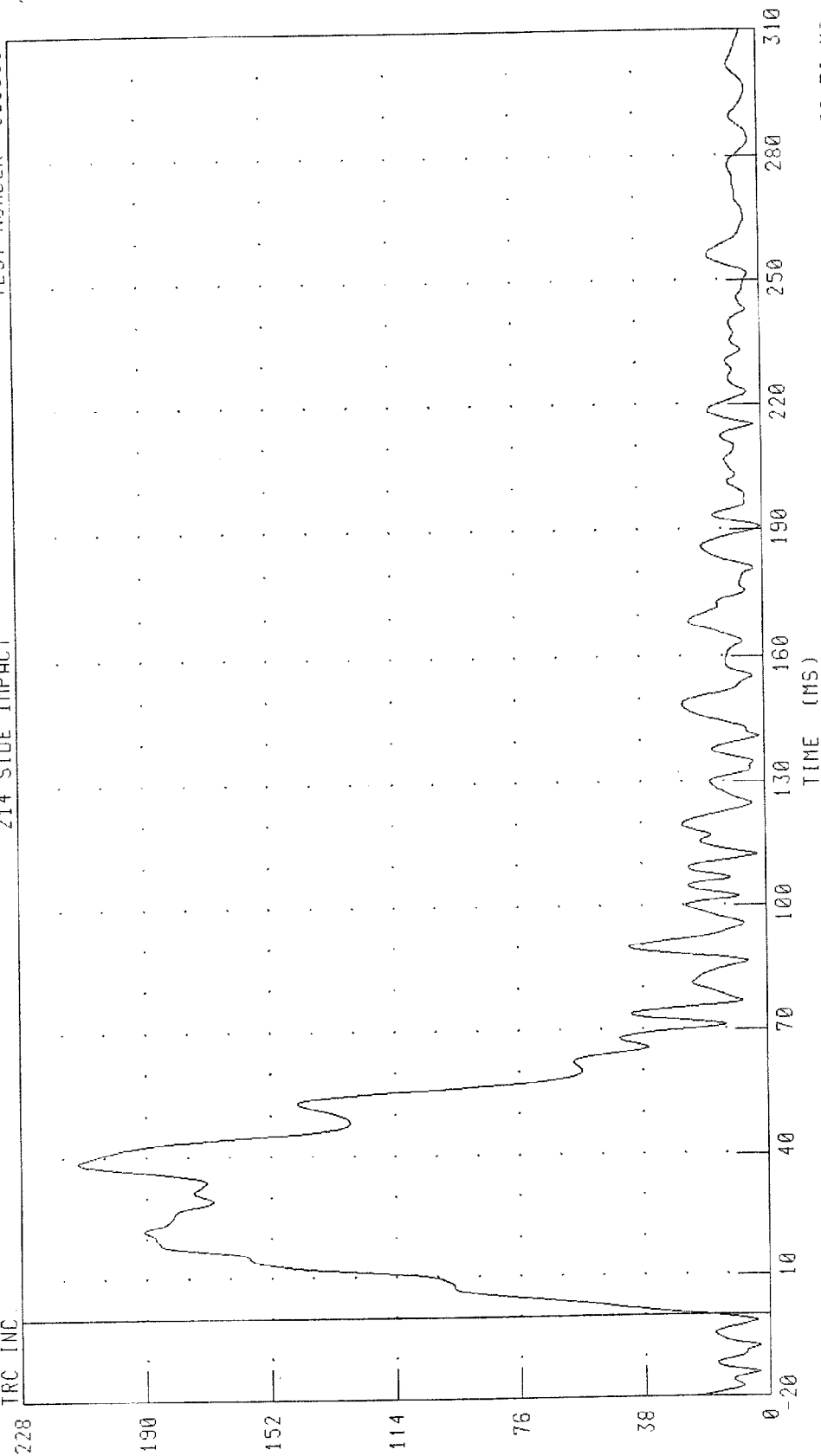
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.

ACCELERATION (G X 10⁻¹)



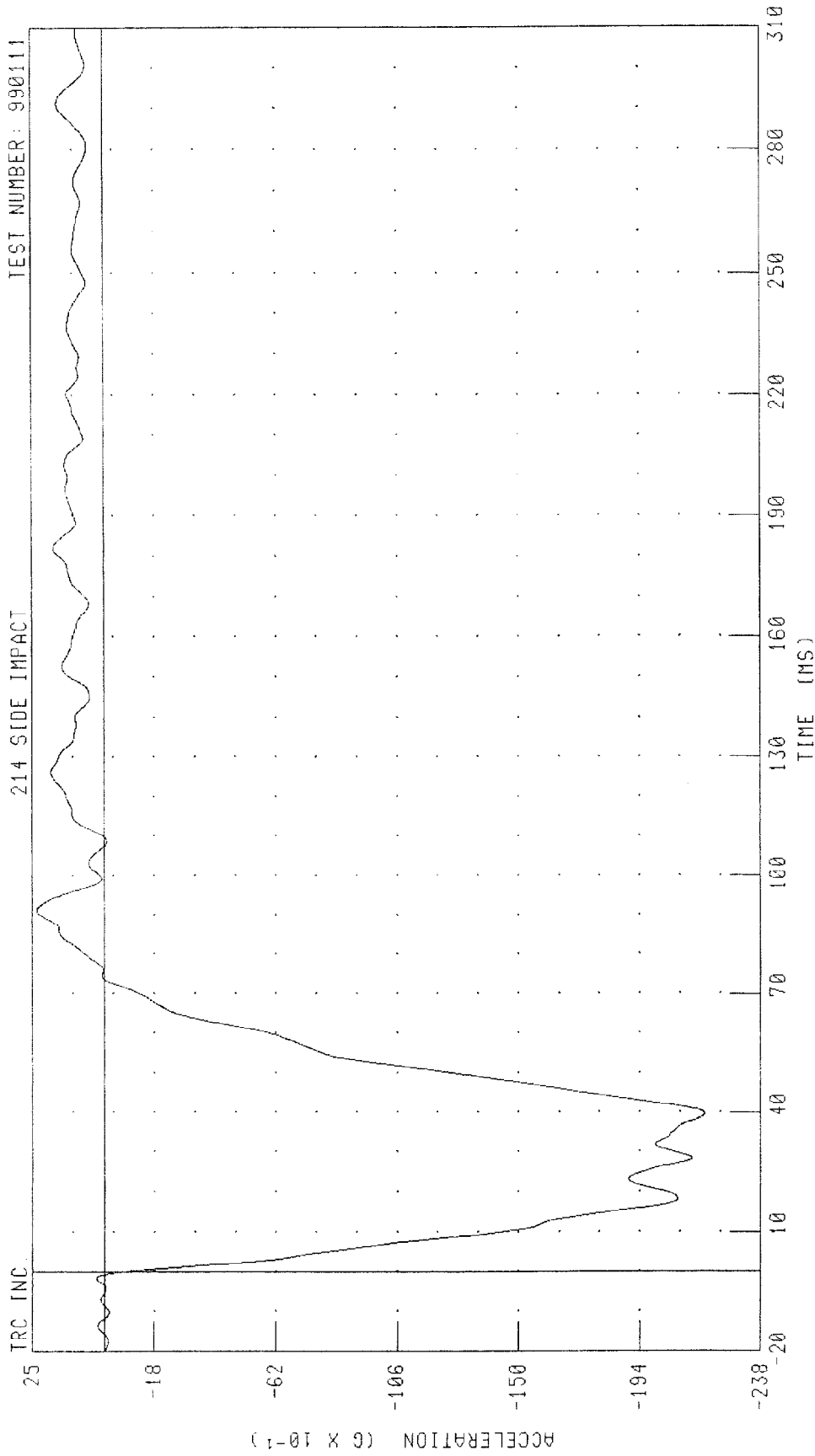
PEAK DATA: 21.07 G @ 38.72 MS, 0.06 G @ 190.56 MS

CHANNEL: BCGRG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
MOVING DEFORMABLE BARRIER REAR X-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

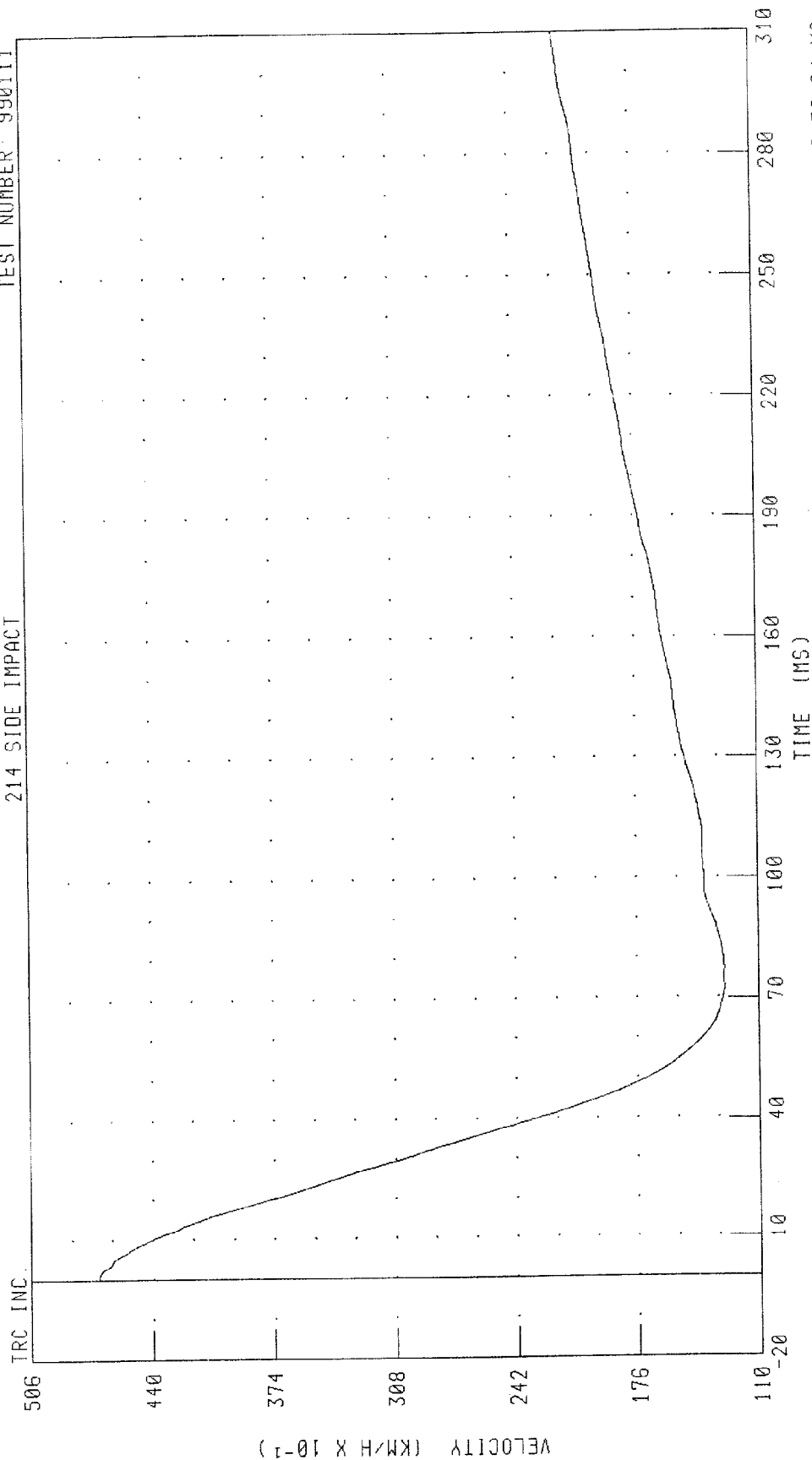


PEAK DATA 2.43 G @ 91.12 MS, -21.75 G @ 39.68 MS

CHANNEL: LRRXC1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 MOVING DEFORMABLE BARRIER REAR X-AXIS VELOCITY
 214 SIDE IMPACT

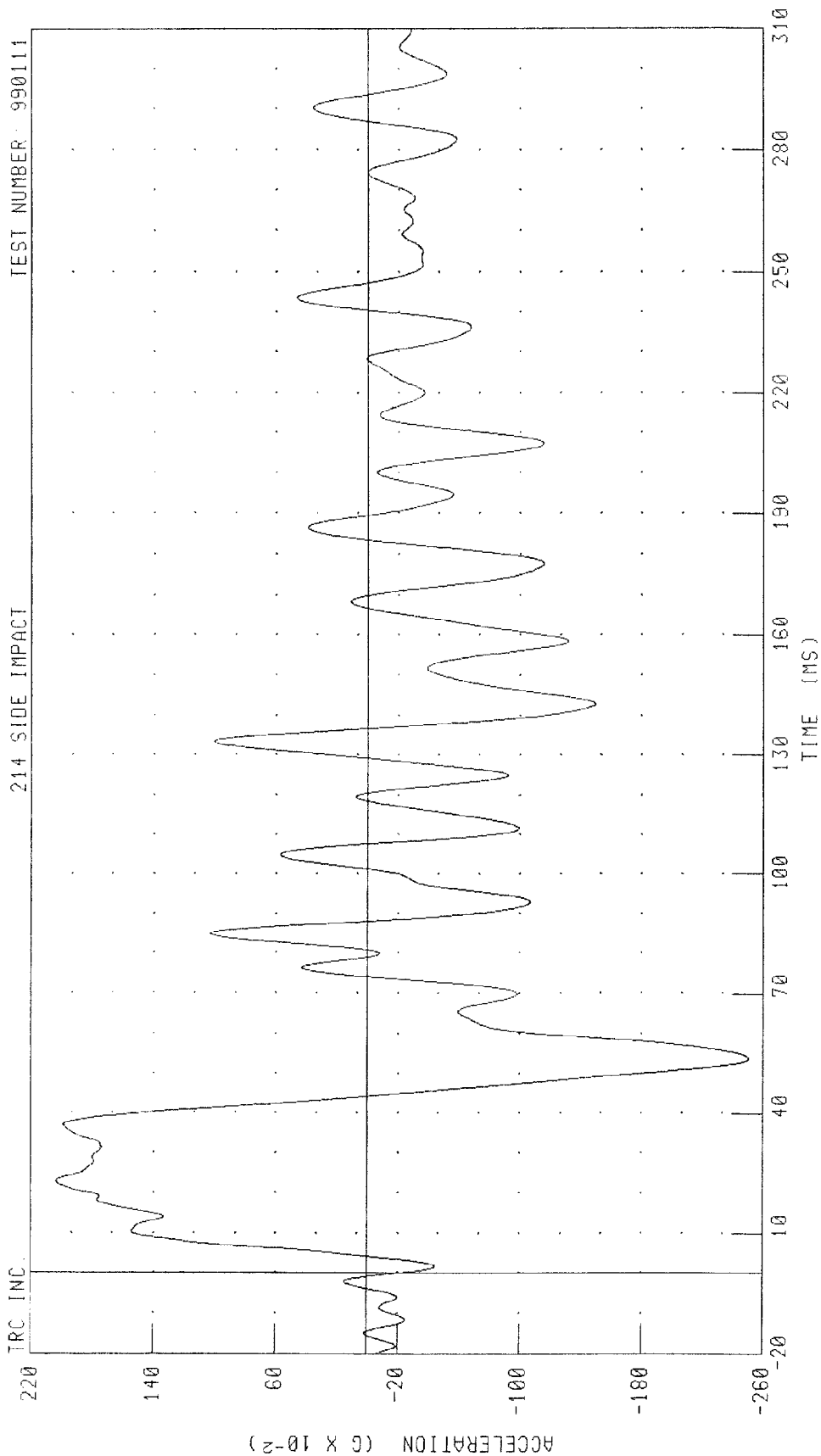
TEST NUMBER: 990111



PEAK DATA: 46.91 KM/H @ 72 MS; 12.85 KM/H @ 72.64 MS

CHANNEL: LRRXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
MOVING DEFORMABLE BARRIER REAR Y-AXIS ACCELERATION



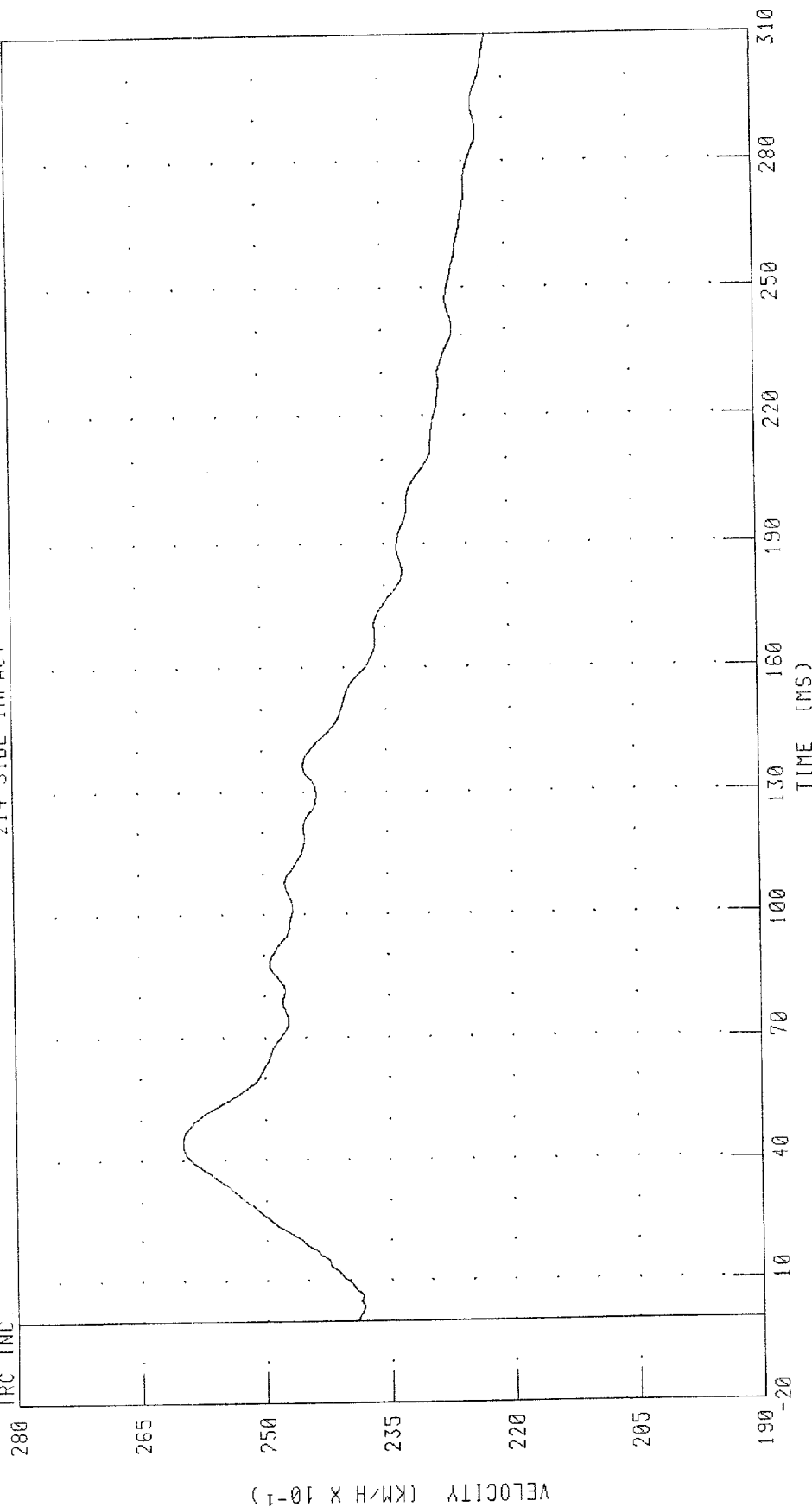
CHANNEL: LRRY01 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
MOVING DEFORMABLE BARRIER REAR Y AXIS VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.



TIME (MS)

PEAK DATA: 25.99 KM/H @ 43.92 MS; 22.19 KM/H @ 310.00 MS

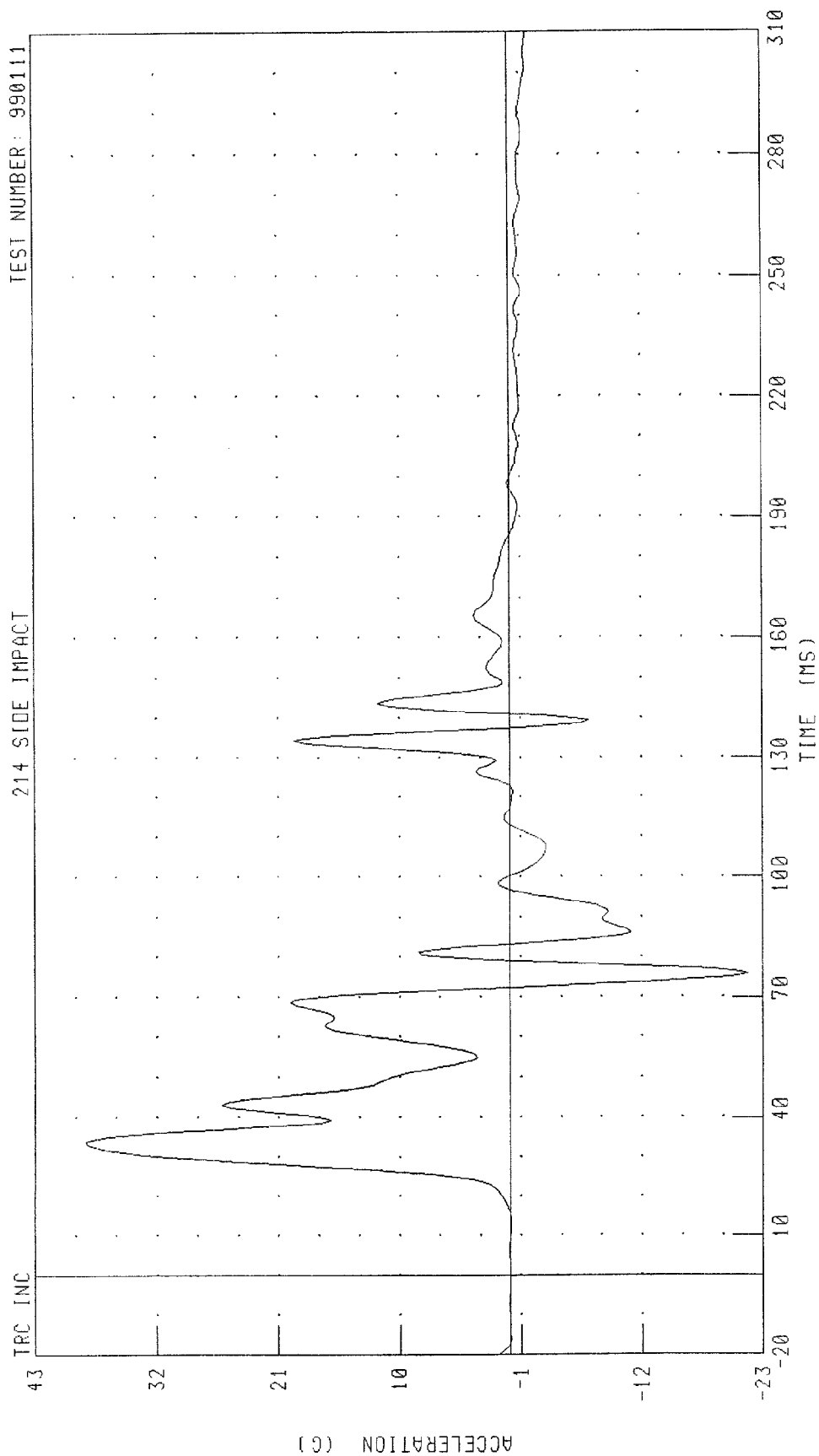
CHANNEL: LRRYV1 FILTER: CH CLASS 180

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT



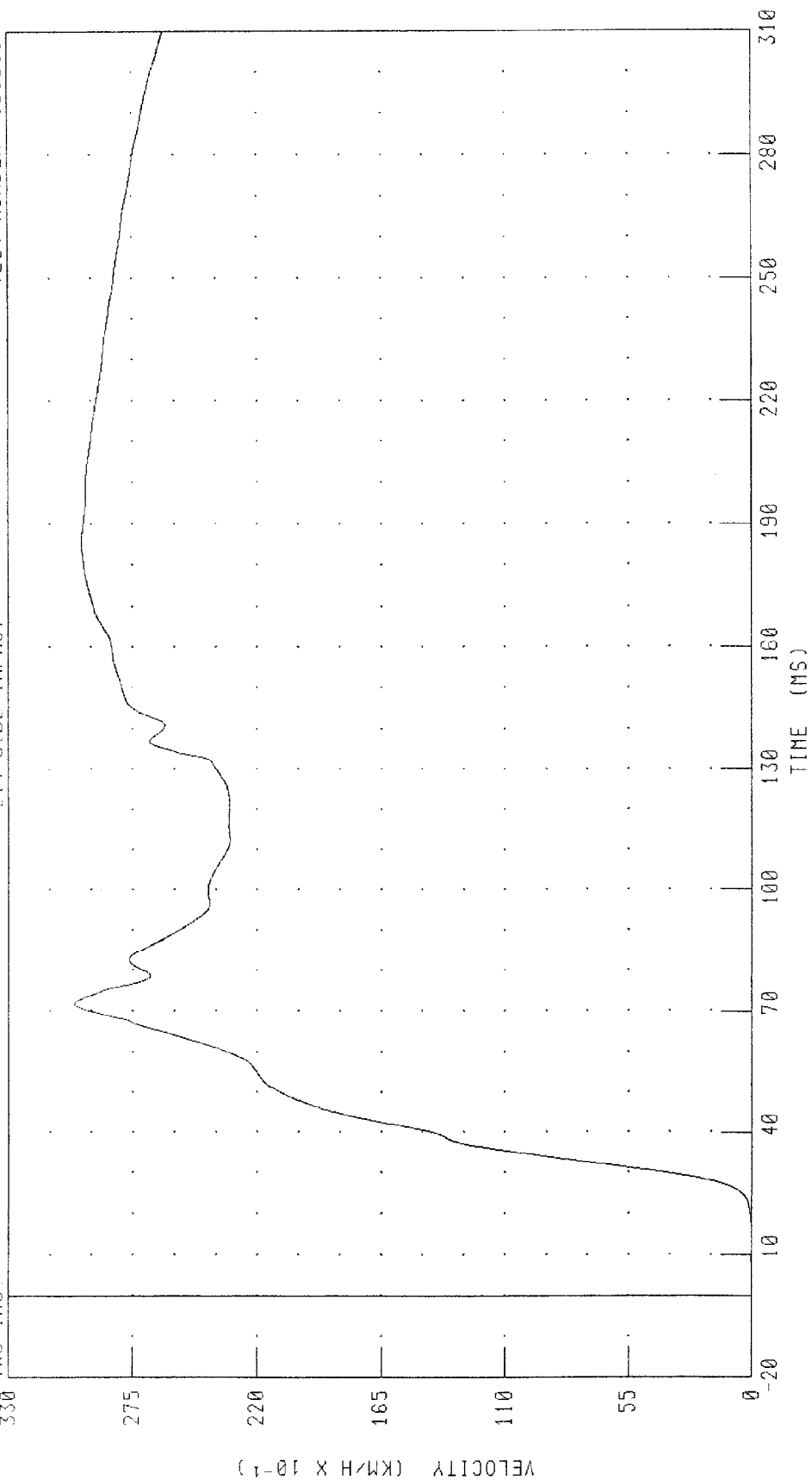
PEAK DATA: 38.44 G @ 33.75 MS; -21.62 G @ 75.62 MS

CHANNEL: LURVC1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER UPPER RIB Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 990111

TRC INC.



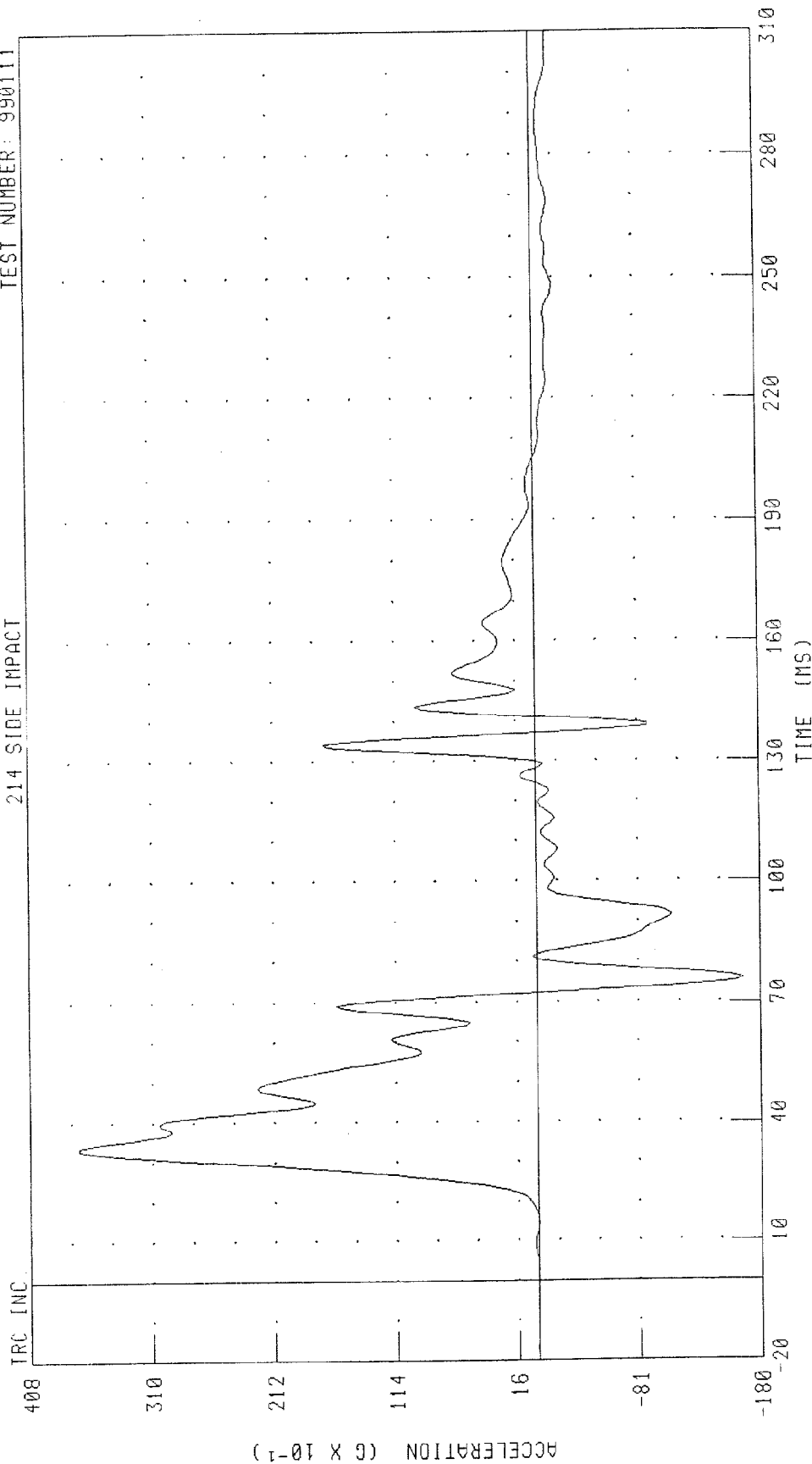
CHANNEL: LURYV1 FILTER: CH. CLASS 180

PEAK DATA: 30.07 KM/H @ 71.76 MS; 0.00 KM/H @ 0.24 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT



PEAK DATA: 36.92 G @ 33.75 MS; -16.62 G @ 75.62 MS

CHANNEL: L1RYG1 FILTER: FIR 100

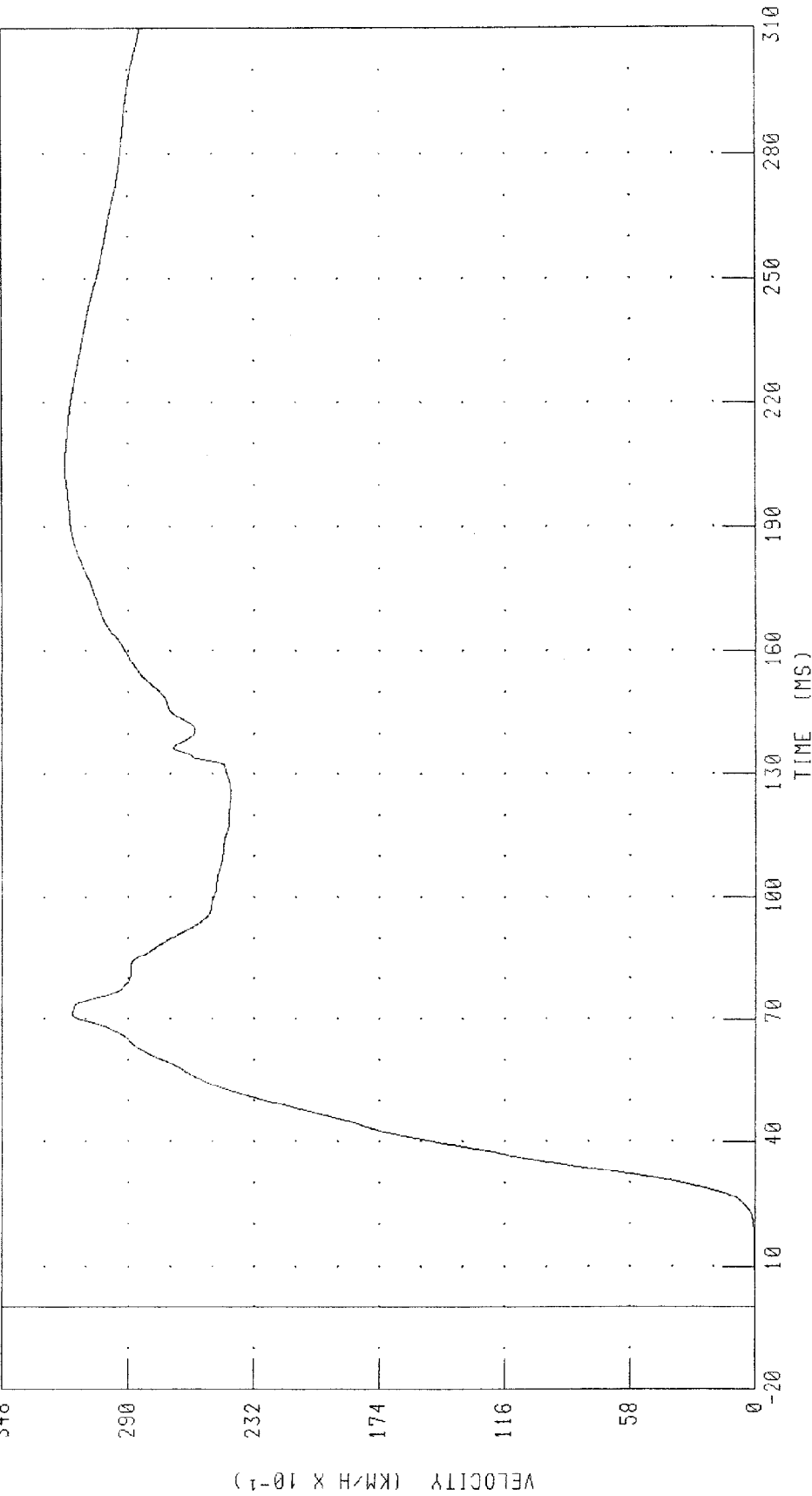
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER

DRIVER LOWER RIB Y-AXIS VELOCITY

214 SIDE IMPACT

TEST NUMBER: 990111

TRC INC.

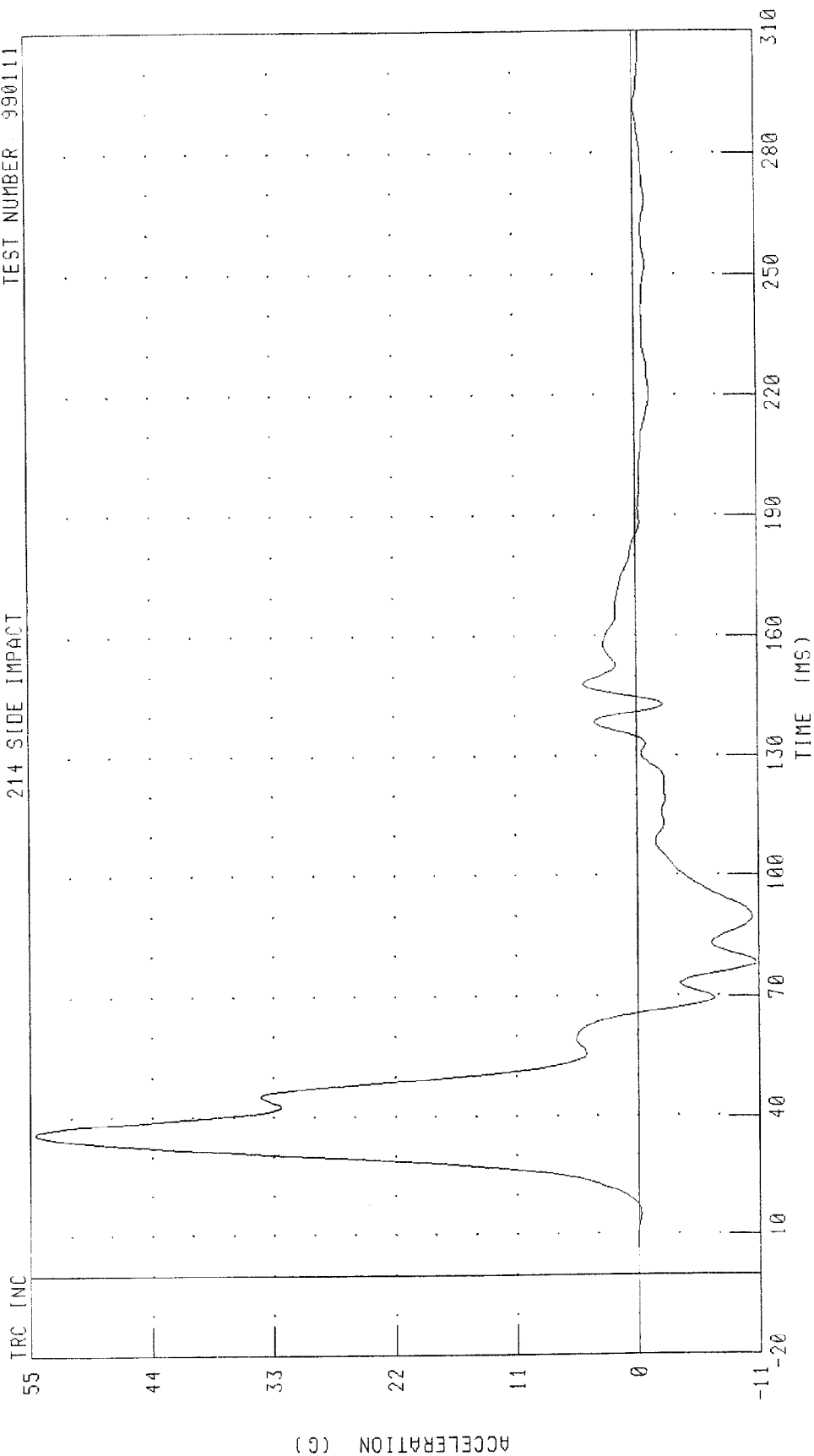


CHANNEL: LLRYV1 FILTER: CH CLASS 180

PEAK DATA: 31.86 KM/H @ 205.44 MS, 0.00 KM/H @ 5.36 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER SPINE Y-AXIS ACCELERATION
 214 SIDE IMPACT

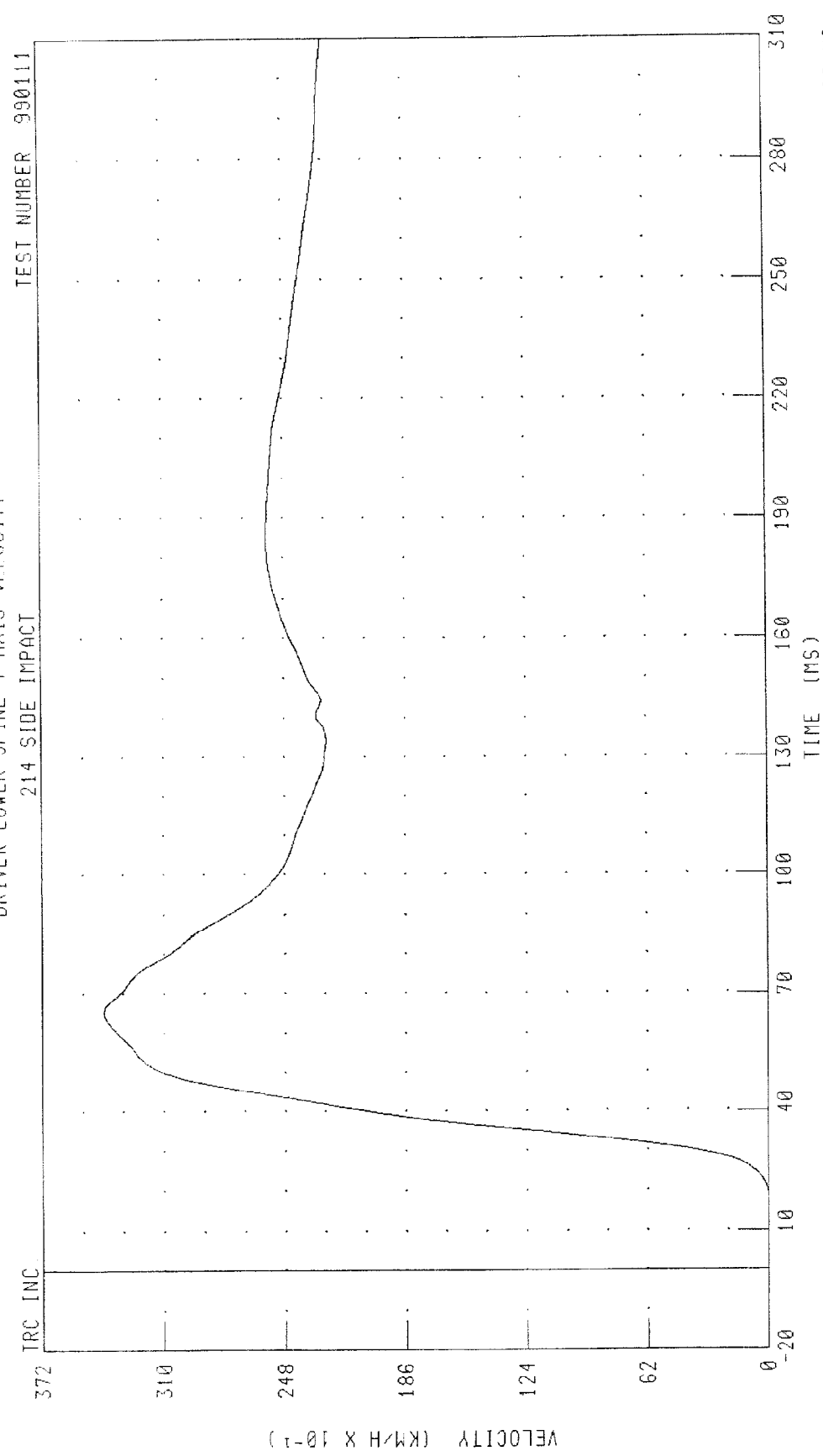
TEST NUMBER: 990111



PEAK DATA: 54.55 G @ 35.63 MS, -10.71 G @ 78.13 MS

CHANNEL: T12YC1 FILTER: FIR 100

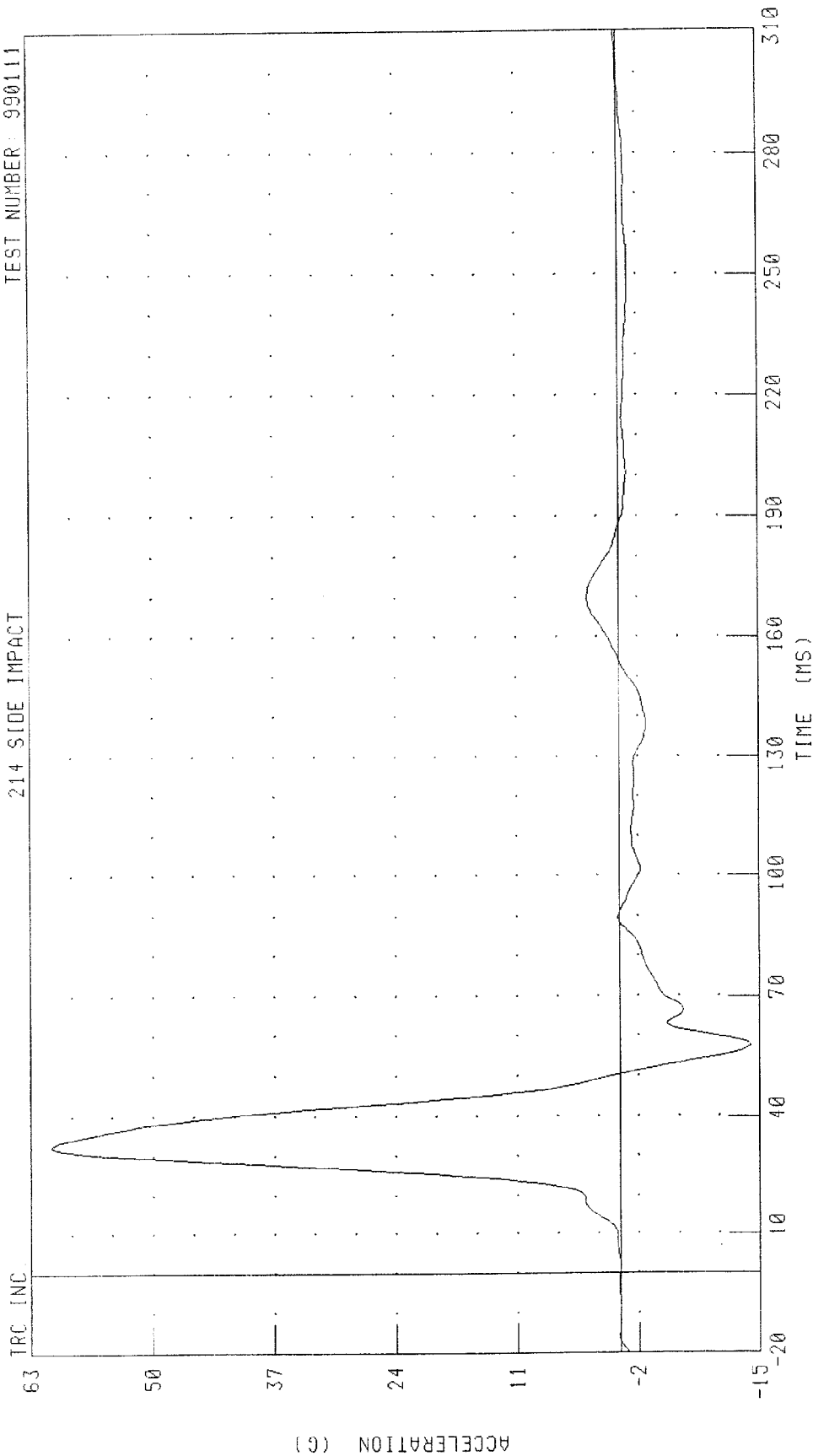
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER SPINE Y-AXIS VELOCITY



CHANNEL: T12YV1 FILTER: CH. CLASS 160
 PEAK DATA: 34.05 KM/H @ 55.20 MS; -0.02 KM/H @ 16.88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER PELVIS Y-AXIS ACCELERATION
 214 SIDE IMPACT

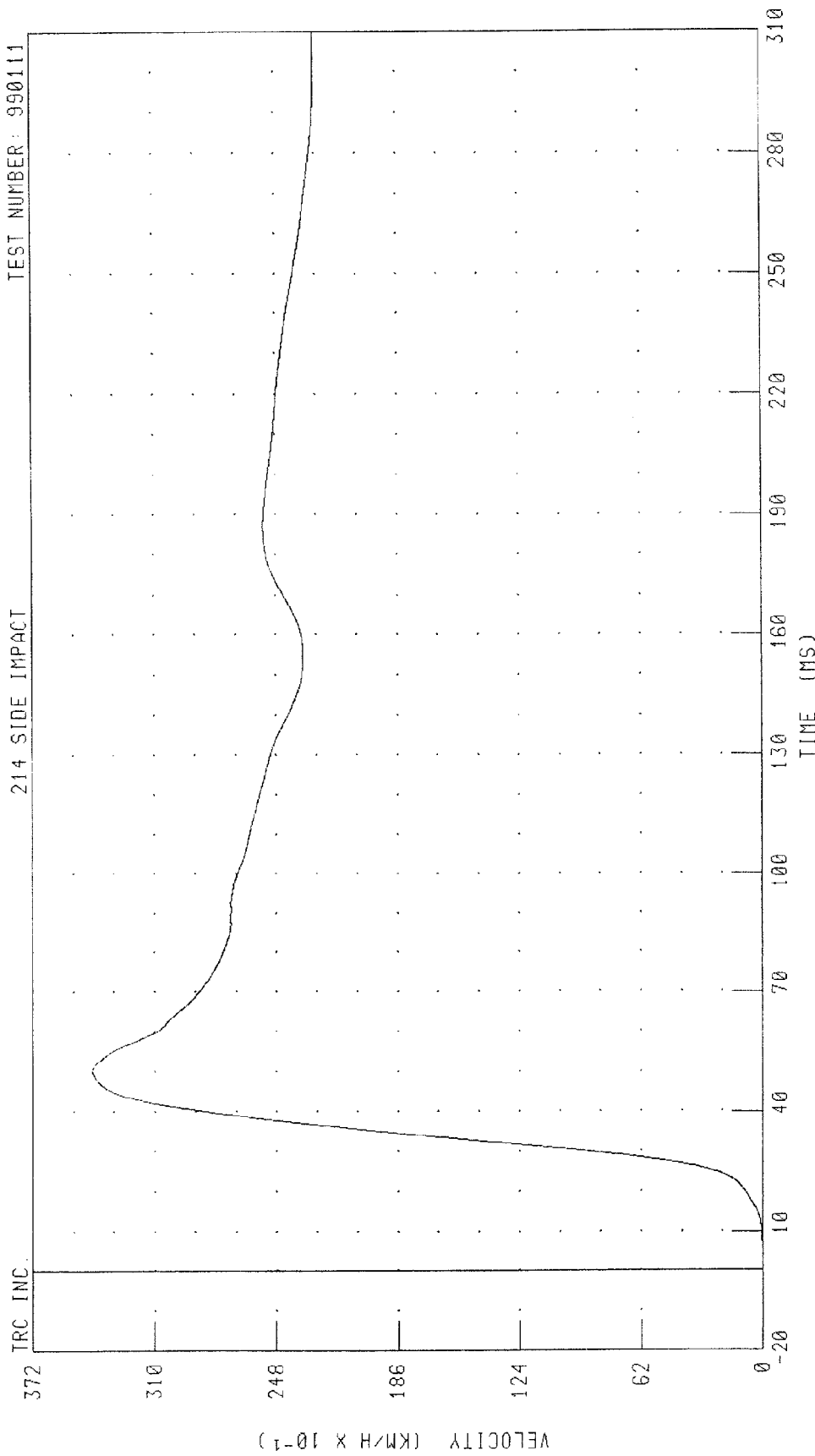
TEST NUMBER: 990111



PEAK DATA: 60.86 G @ 32.50 MS; -14.05 G @ 57.50 MS

CHANNEL: PEVYG1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER PELVIS Y-AXIS VELOCITY
 214 SIDE IMPACT



PEAK DATA: 34 20 KM/H @ 50.40 MS; 0 00 KM/H @ 3.12 MS

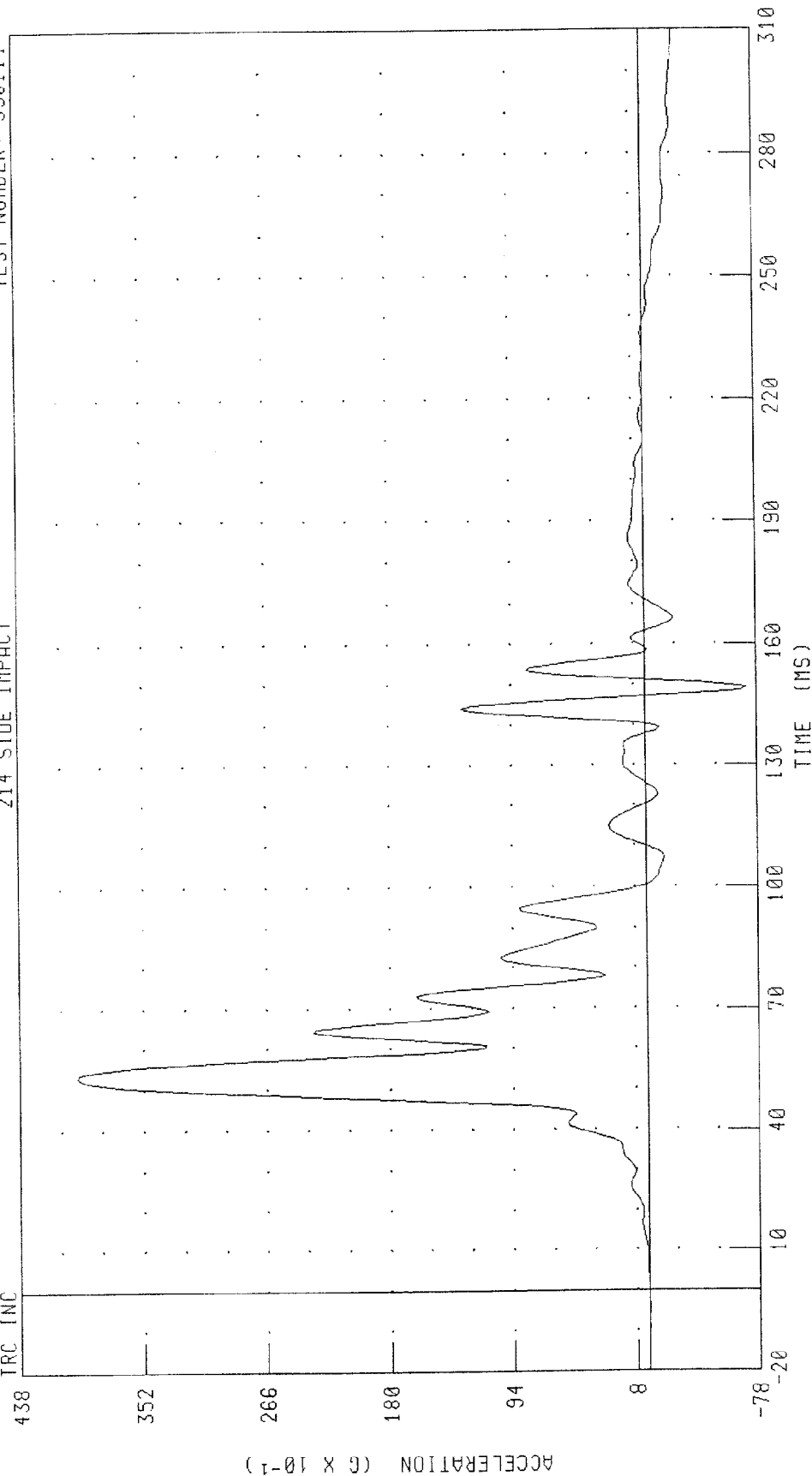
CHANNEL: PEVYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

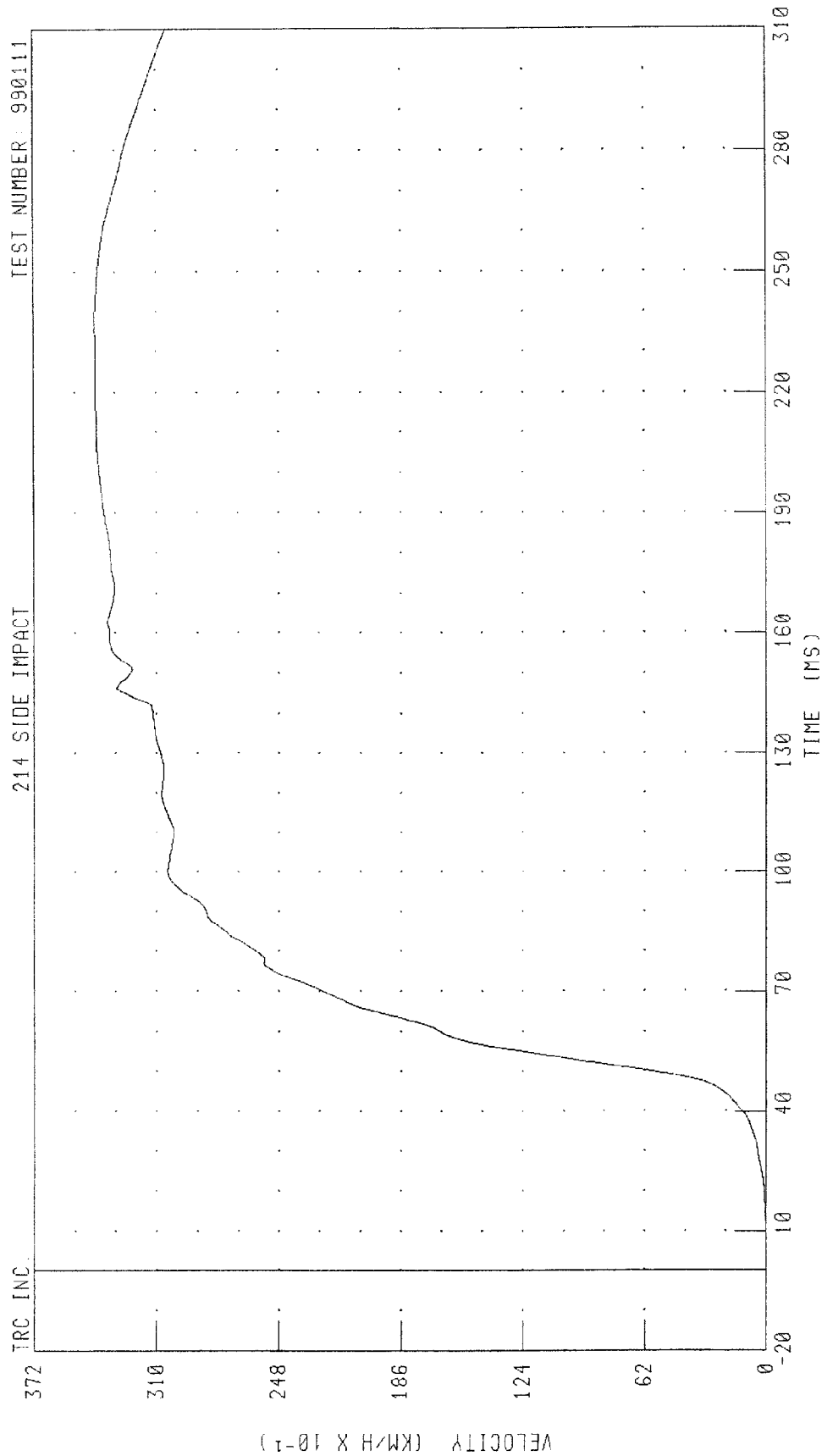
TRC INC



CHANNEL: LURYG4 FILTER: FIR 100

PEAK DATA: 39.82 G @ 53.12 MS; -7.11 G @ 149.37 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

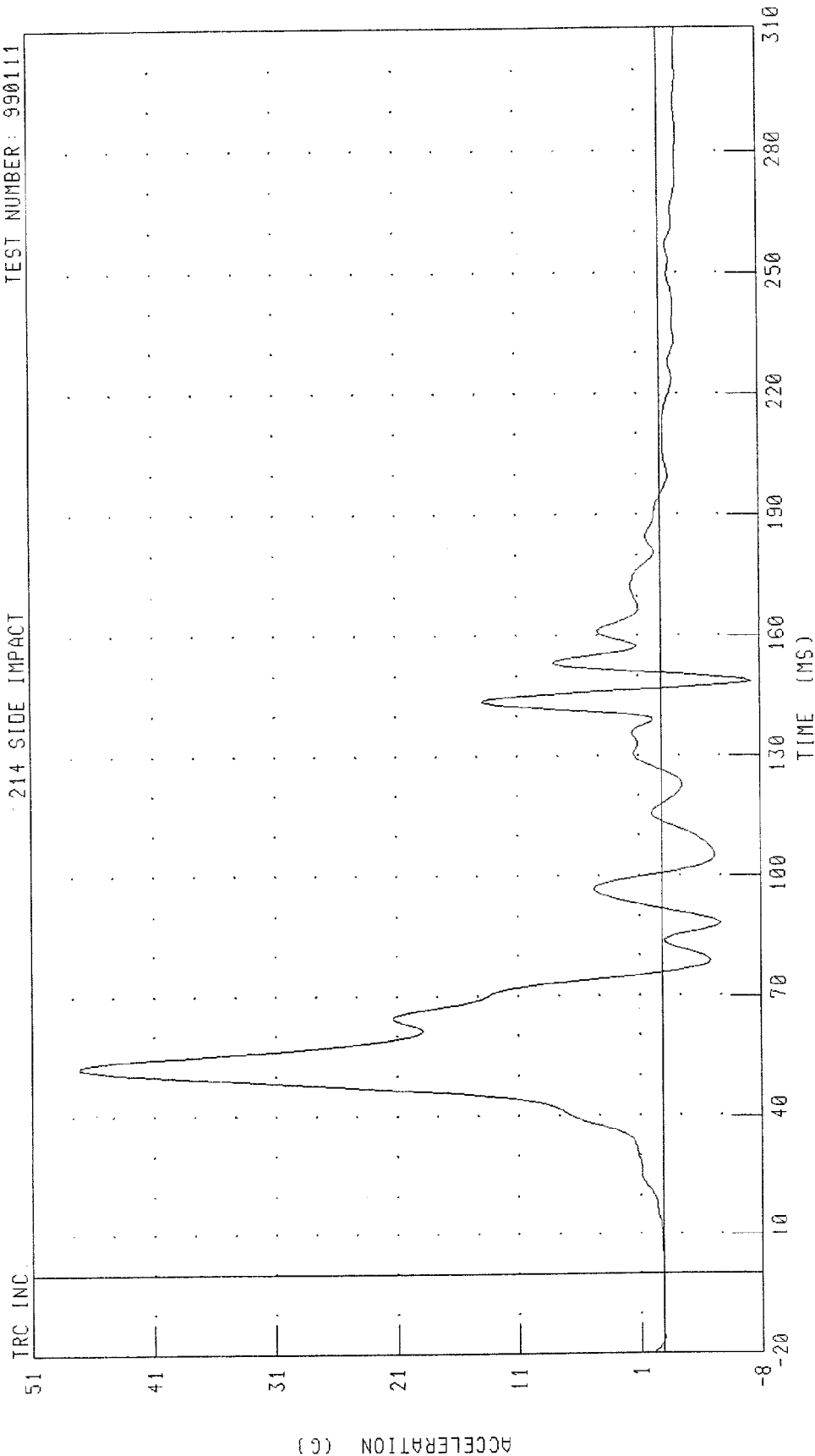


PEAK DATA: 34.10 KM/H @ 238.08 MS; 0.00 KM/H @ 2.48 MS

CHANNEL: LURYV4 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 990111



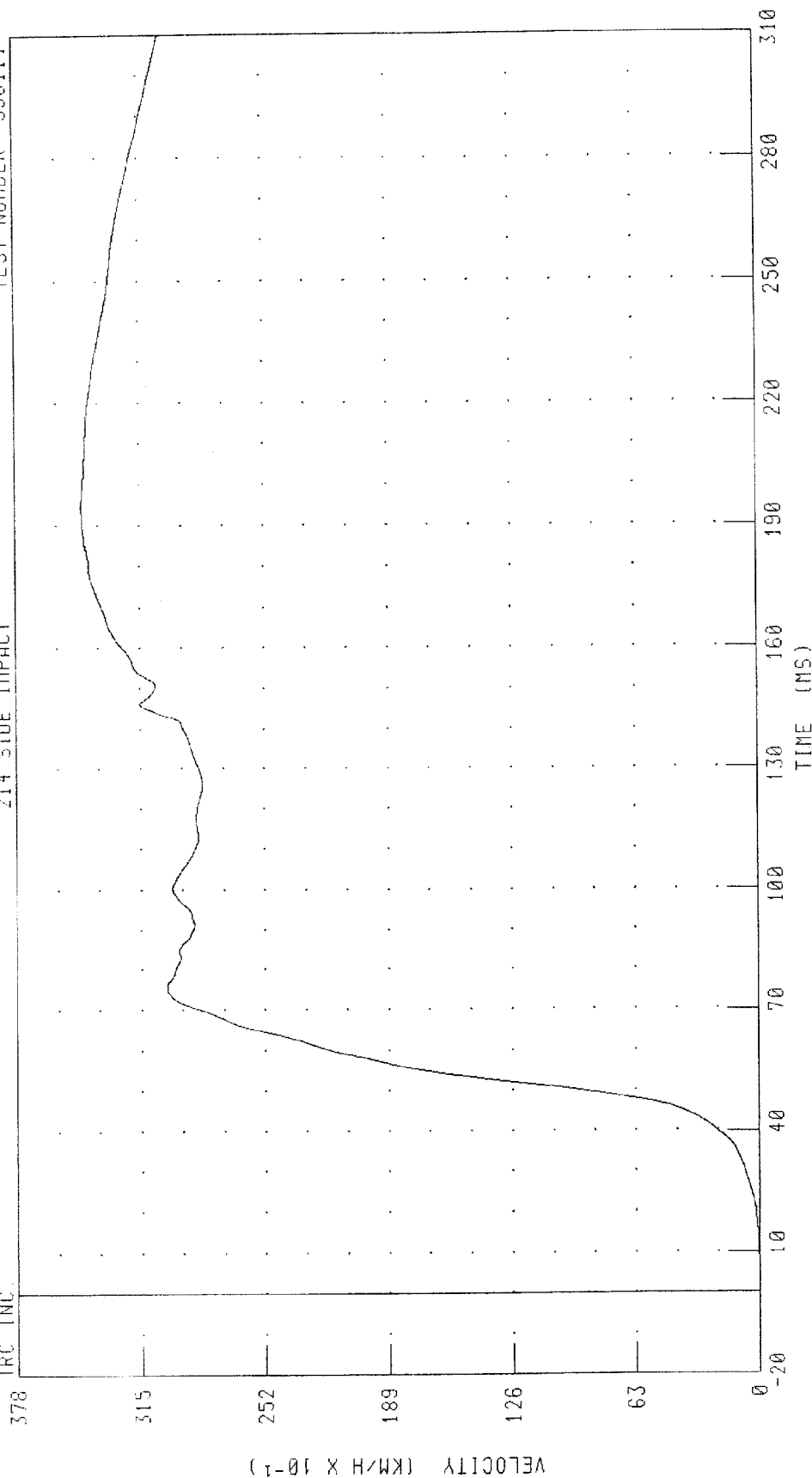
PEAK DATA: 48.00 G @ 51.88 MS, -7.40 G @ 148.75 MS

CHANNEL: LLRYC4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER 990111

TRC INC.



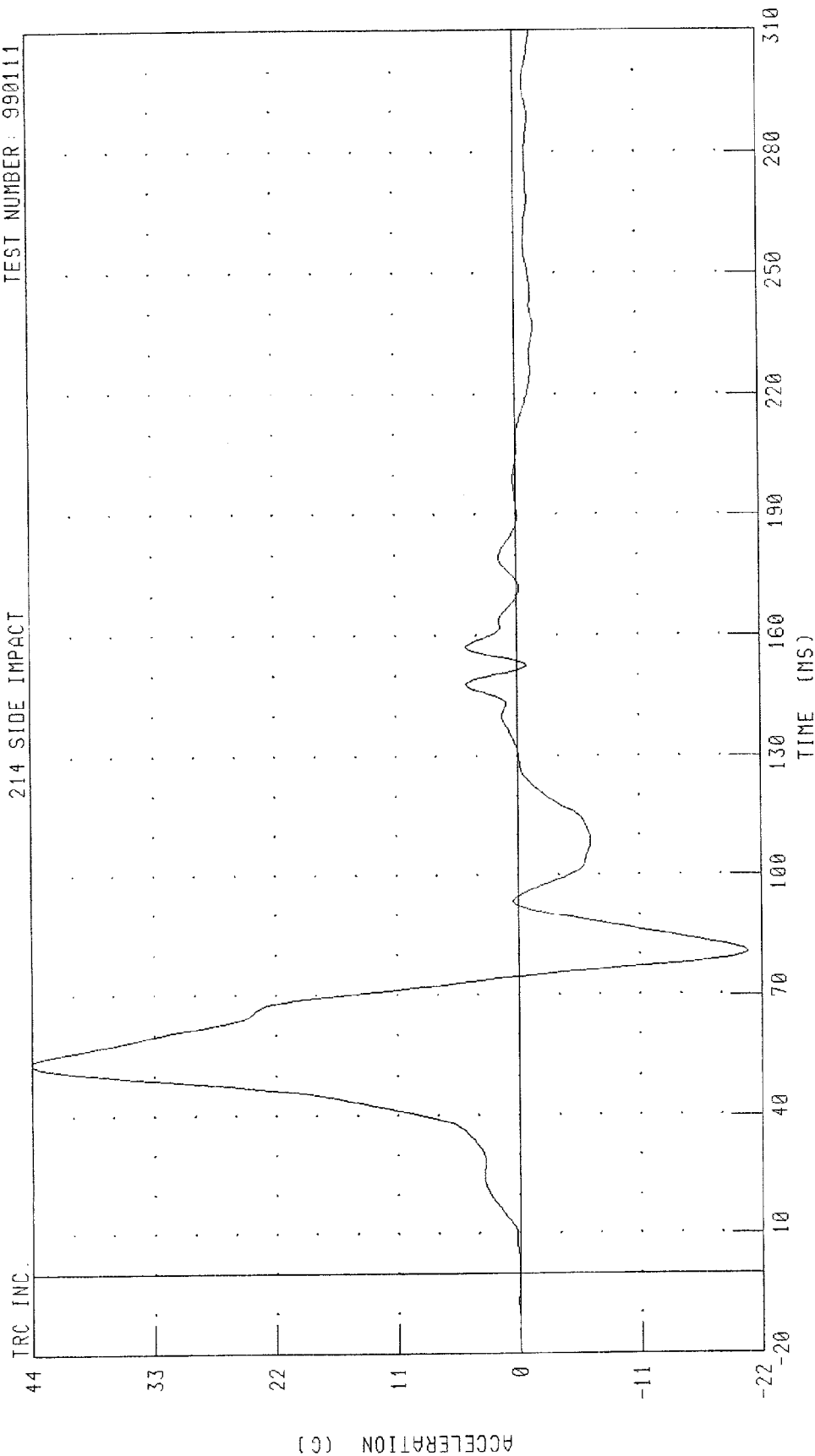
CHANNEL: LLRYV4 FILTER: CH. CLASS 180

PEAK DATA: 34.43 KM/H @ 195.28 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 990111

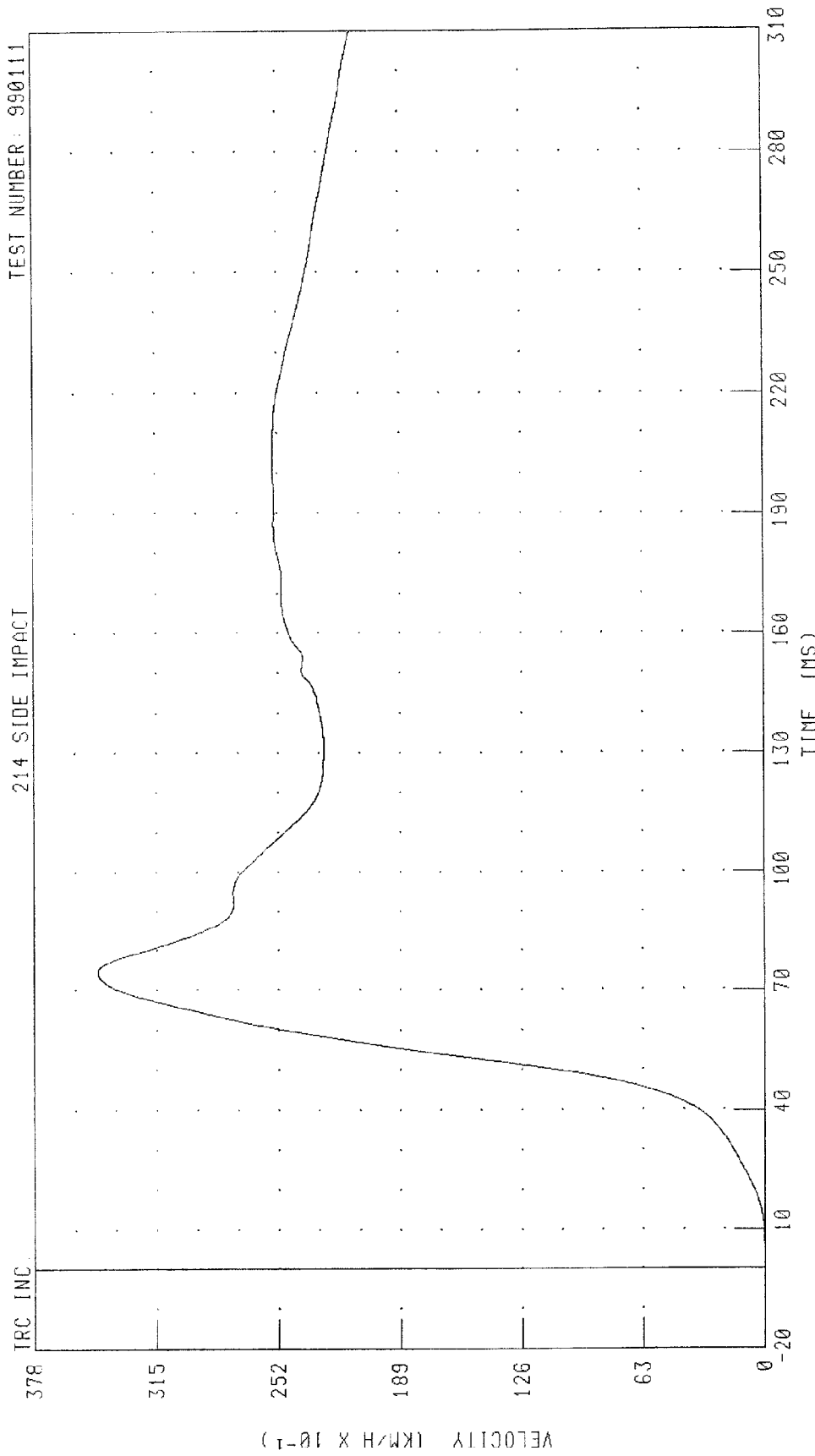
214 SIDE IMPACT



CHANNEL: T12YG4 FILTER: FIR 100

PEAK DATA: 44.24 G @ 53.12 MS; -20.78 G @ 80.63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY



PEAK DATA: 34.53 KM/H @ 74.56 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: T12YV4 FILTER: CH CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER 990111

214 SIDE IMPACT

TRC INC.

488

390

292

194

96

-1

-100

-20

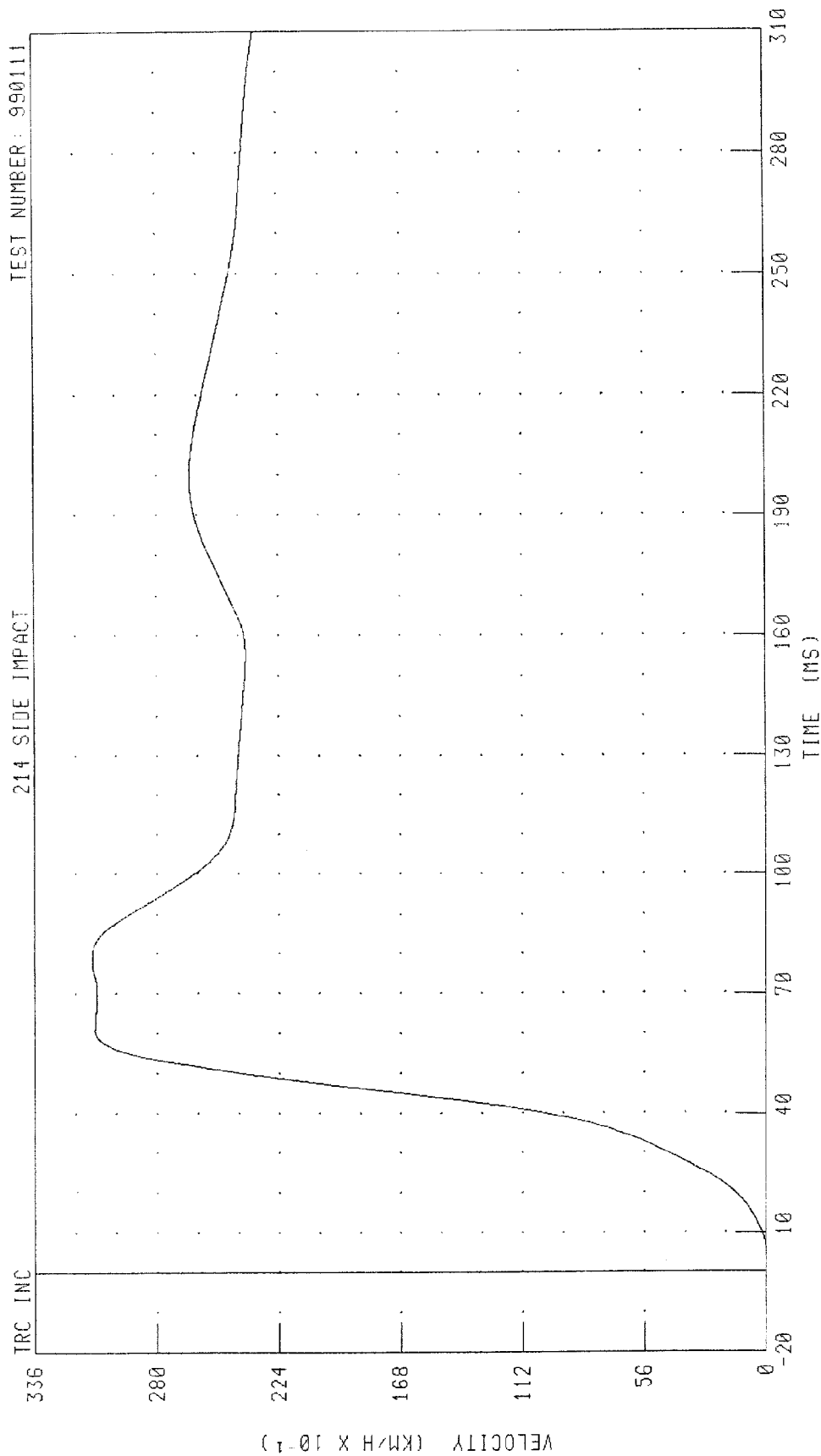
ACCELERATION (G X 10⁻¹)

TIME (MS)

CHANNEL: PEVYG4 FILTER: FIR 100

PEAK DATA: 44.69 G @ 45.62 MS, -9.24 G @ 92.50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY



PEAK DATA: 30 97 KM/H @ 79.12 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: PEVYV4 FILTER: CH. CLASS 180

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.

42

31

20

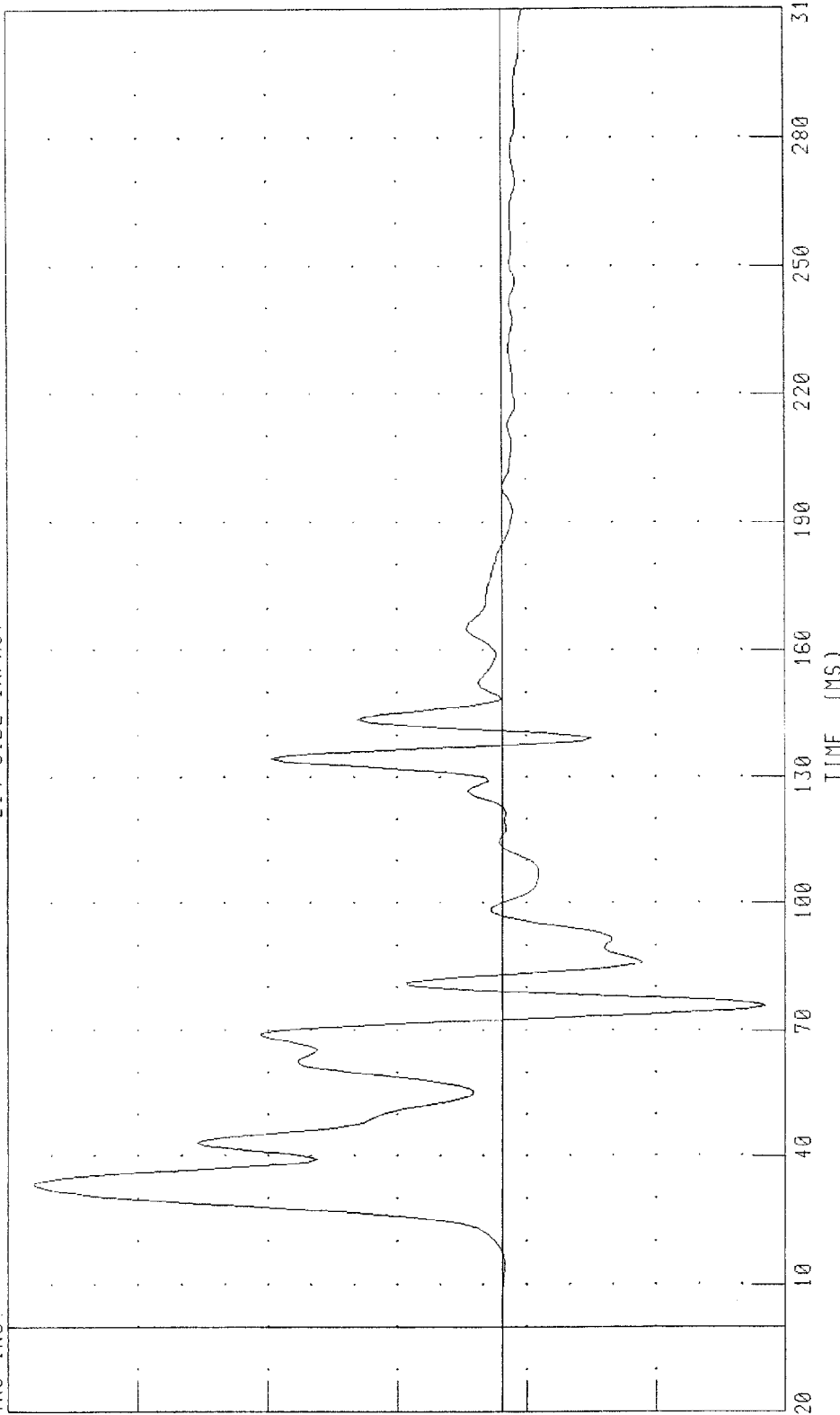
9

-2

-13

-24

ACCELERATION (G)



TIME (MS)

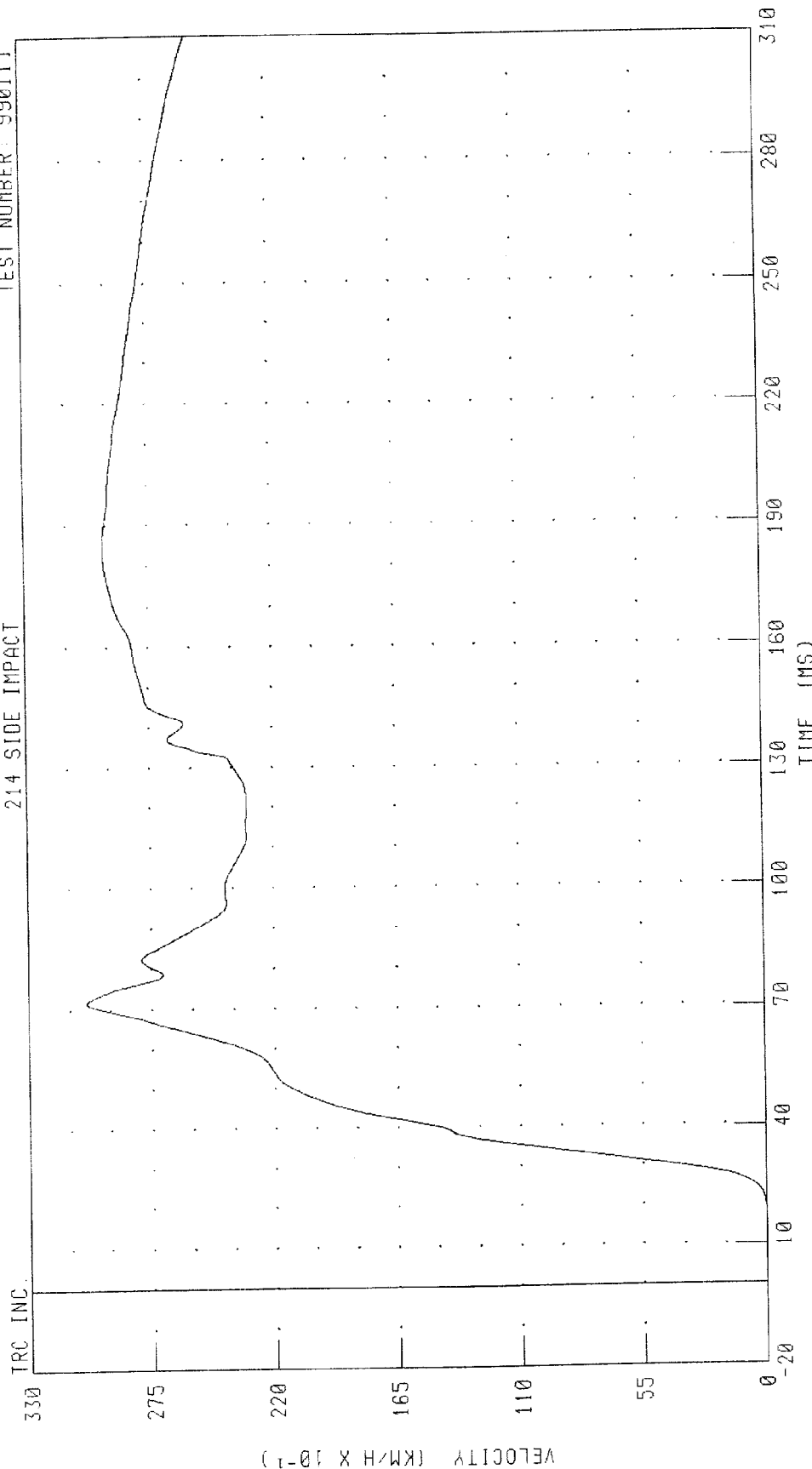
CHANNEL: LURYR1 FILTER: FIR 100

PEAK DATA: 39.75 G @ 33.75 MS, -22.31 G @ 75.62 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 990111

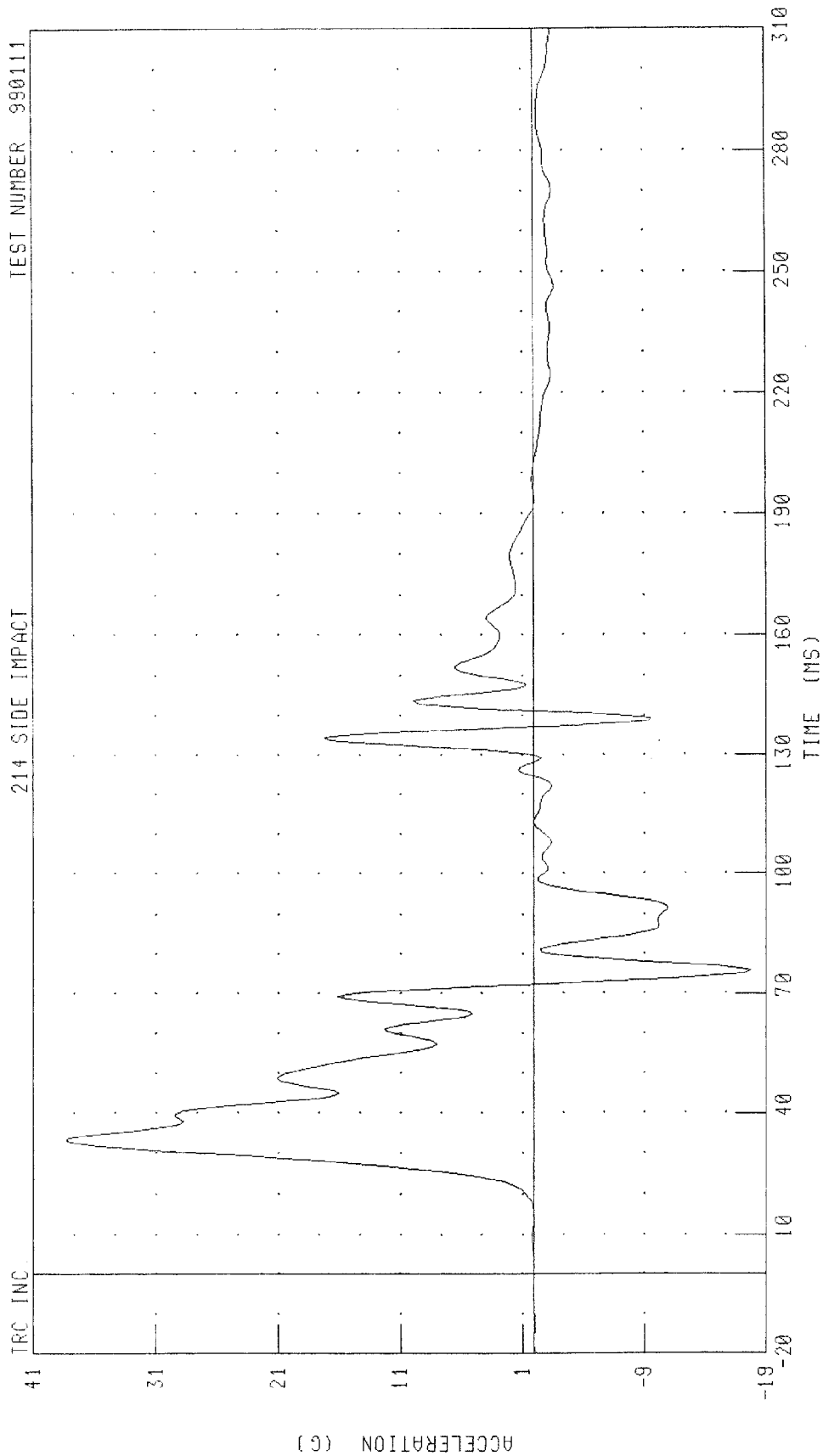
214 SIDE IMPACT



PEAK DATA: 30.39 KM/H @ 71.92 MS; -0.03 KM/H @ 16.80 MS

CHANNEL: LURYVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

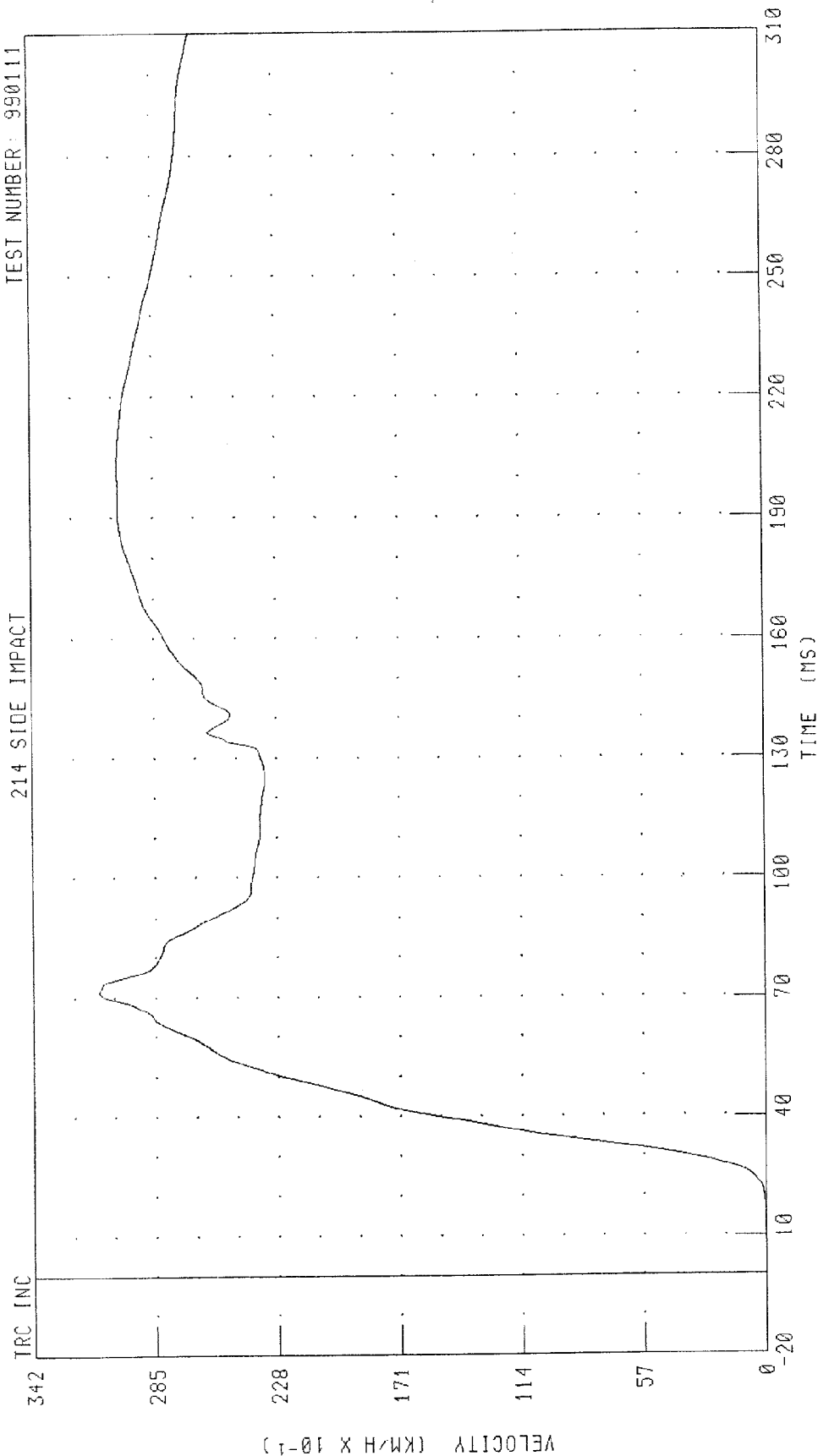


CHANNEL: LLRYR1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 990111

214 SIDE IMPACT



PEAK DATA: 31.11 KM/H @ 71.36 MS; 0.00 KM/H @ 0.96 MS

CHANNEL: LLRYVT FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 990111

214 SIDE IMPACT

TRC INC.

61

49

37

25

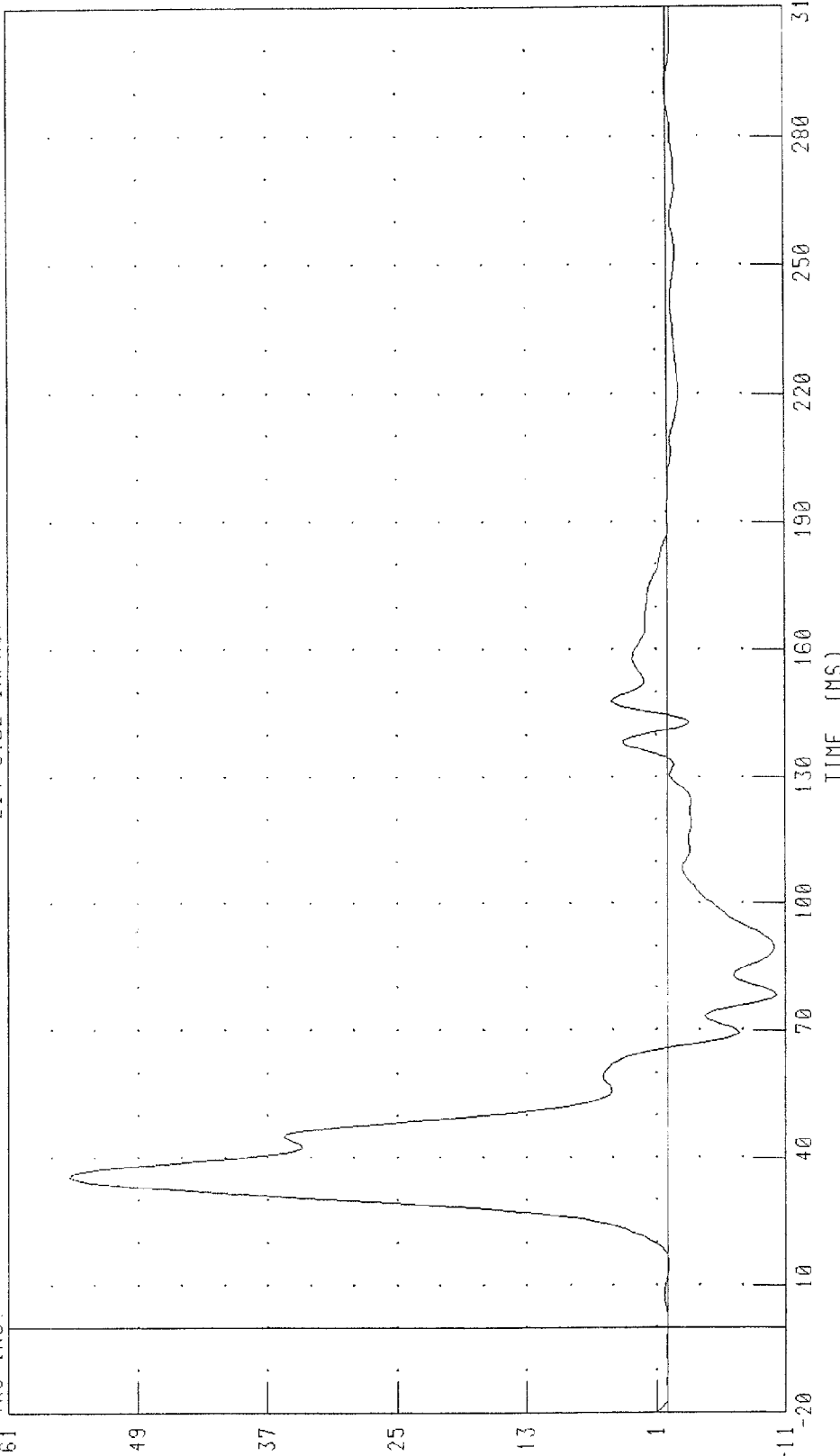
13

1

-11

-20

ACCELERATION (G)



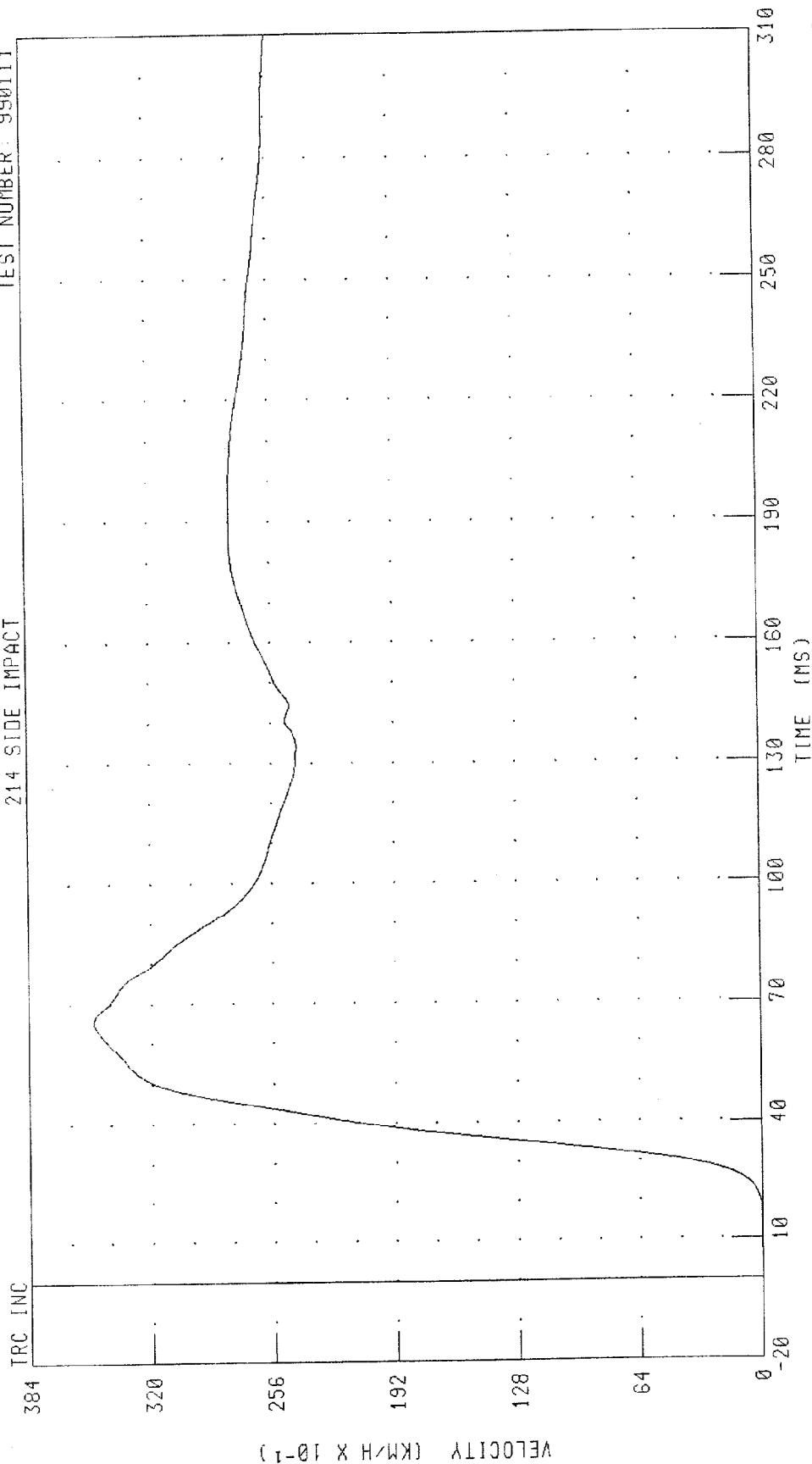
CHANNEL: T12YR1 FILTER: FIR 100

PEAK DATA: 55.38 G @ 55.63 MS; -10.23 G @ 78.13 MS

TIME (MS)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY
 214 SIDE IMPACT

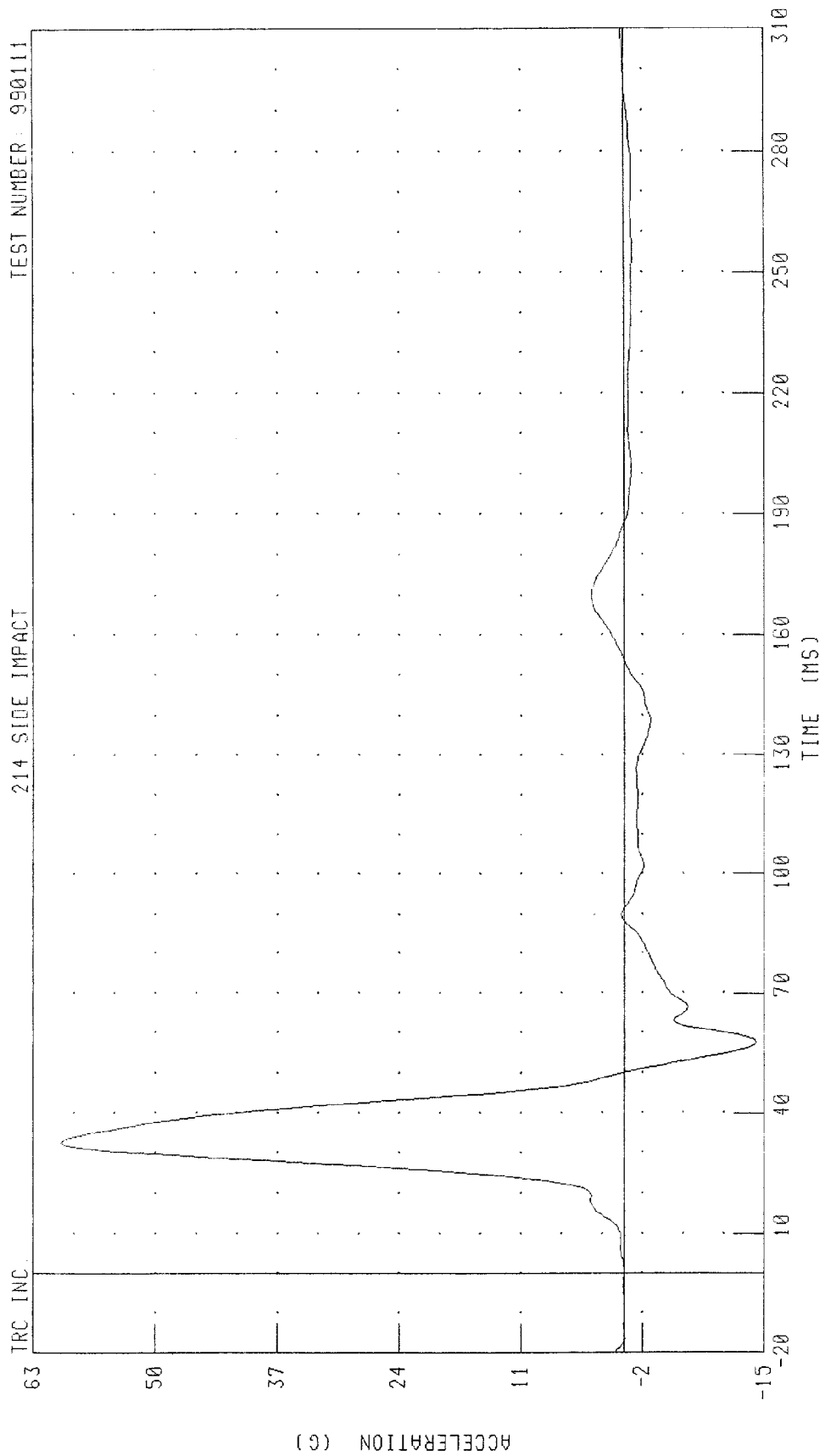
TEST NUMBER: 990111



PEAK DATA: 34.99 KM/H @ 65.36 MS; 0.00 KM/H @ 3.44 MS

CHANNEL: T12YVI FILTER: CH. CLASS 180

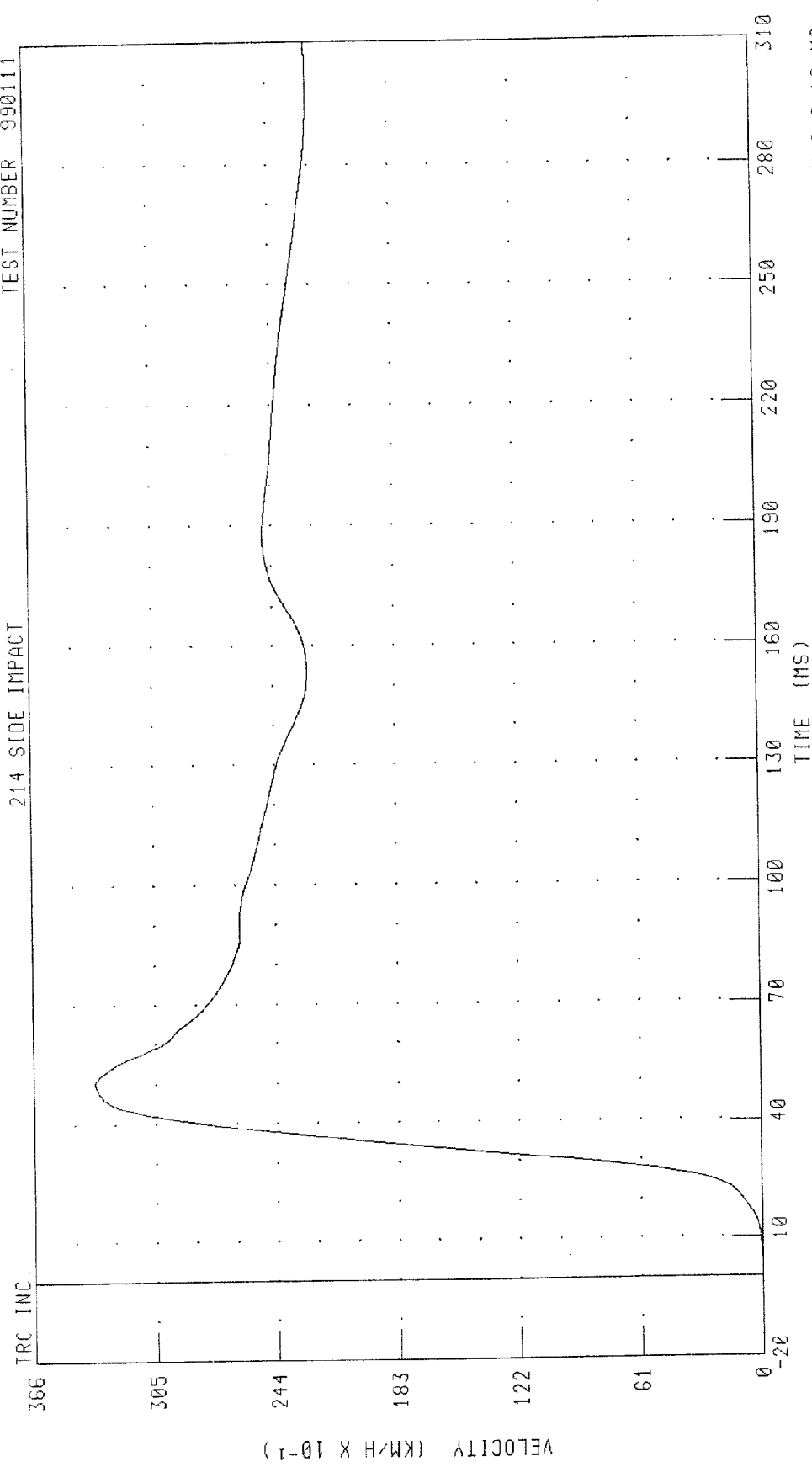
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION



CHANNEL: PEVYR1 FILTER: FIR 100 PEAK DATA: 60.10 G @ 32.50 MS, -14.17 G @ 57.50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY
 214 SIDE IMPACT

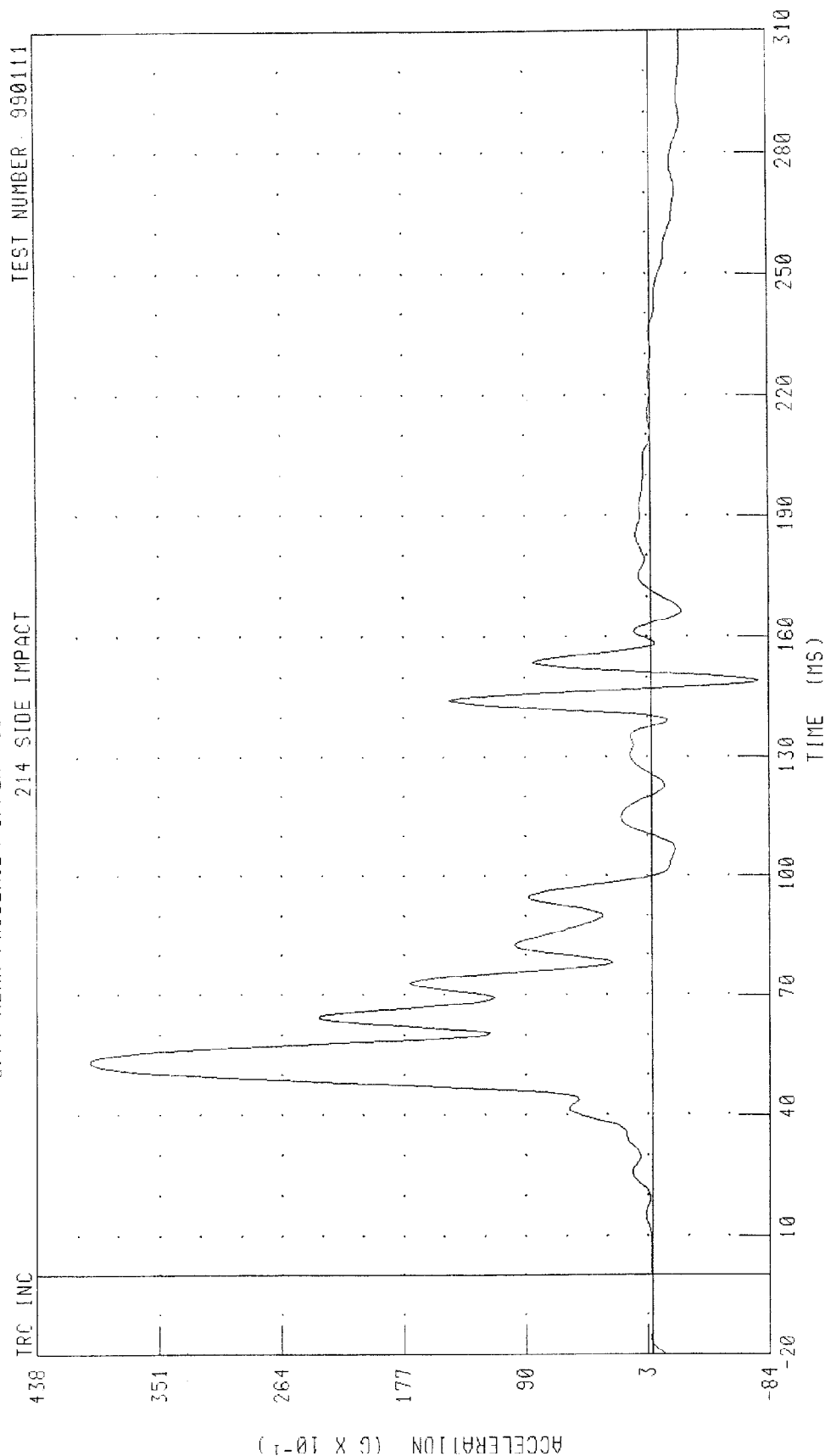
TEST NUMBER 990111



PEAK DATA: 33.54 KM/H @ 50.24 MS; 0.00 KM/H @ 0.16 MS

CHANNEL: PEVYVI FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION



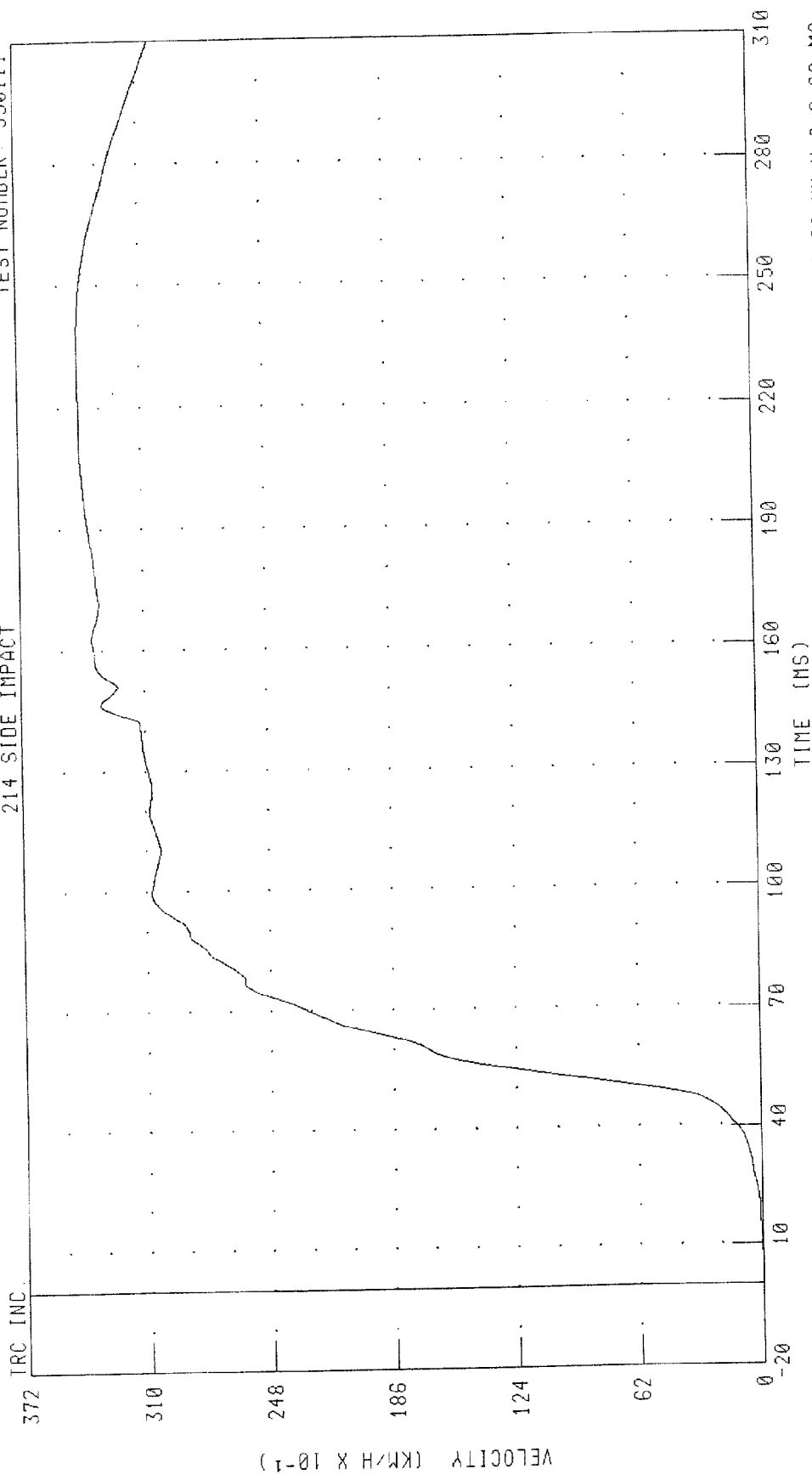
PEAK DATA: 40.05 G @ 53.12 MS; -7.70 G @ 149.37 MS

CHANNEL: LURYR4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 990111

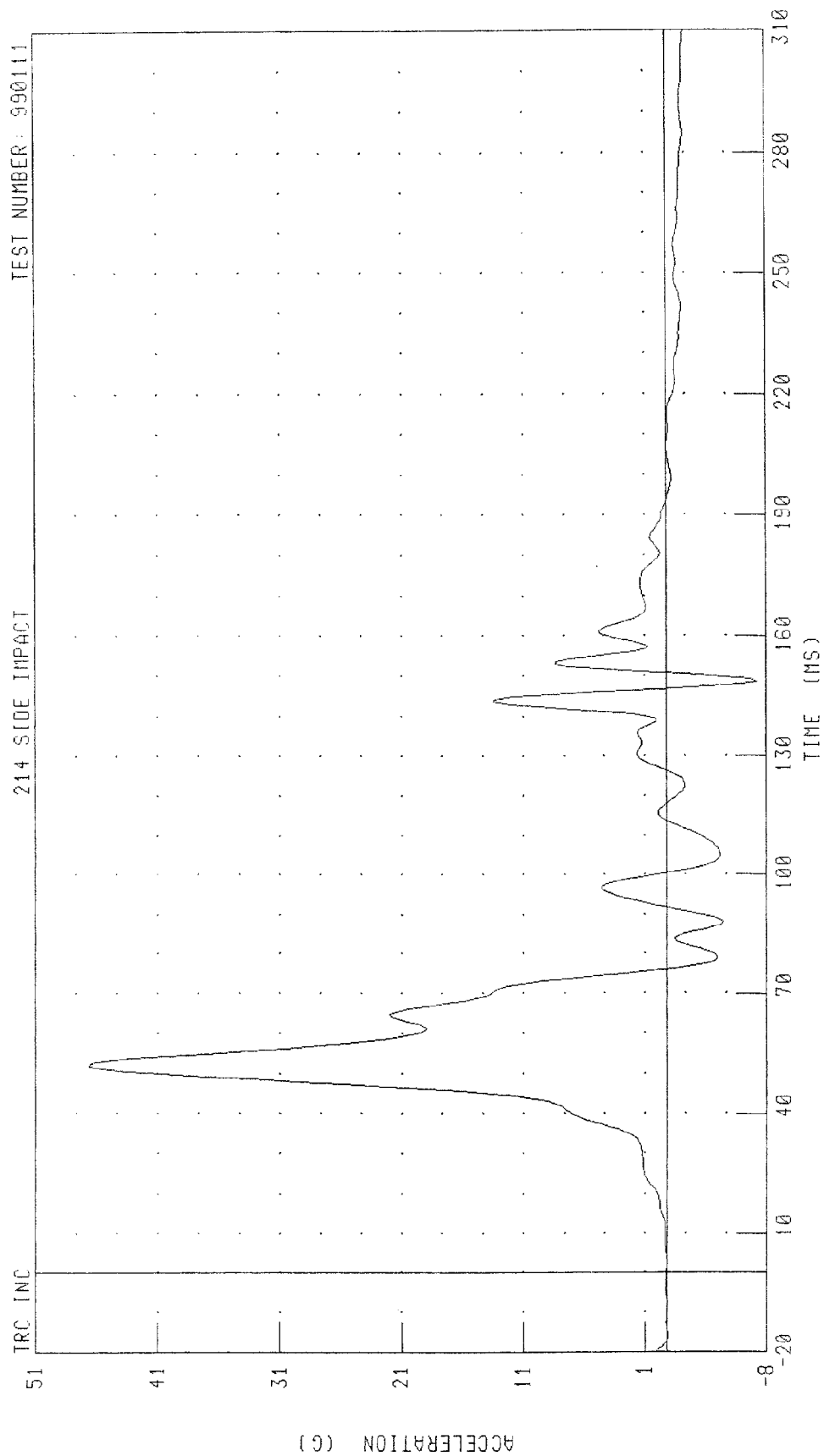
214 SIDE IMPACT



PEAK DATA: 34.16 KM/H @ 228.64 MS, 0.00 KM/H @ 0.80 MS

CHANNEL: LURYVJ FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION



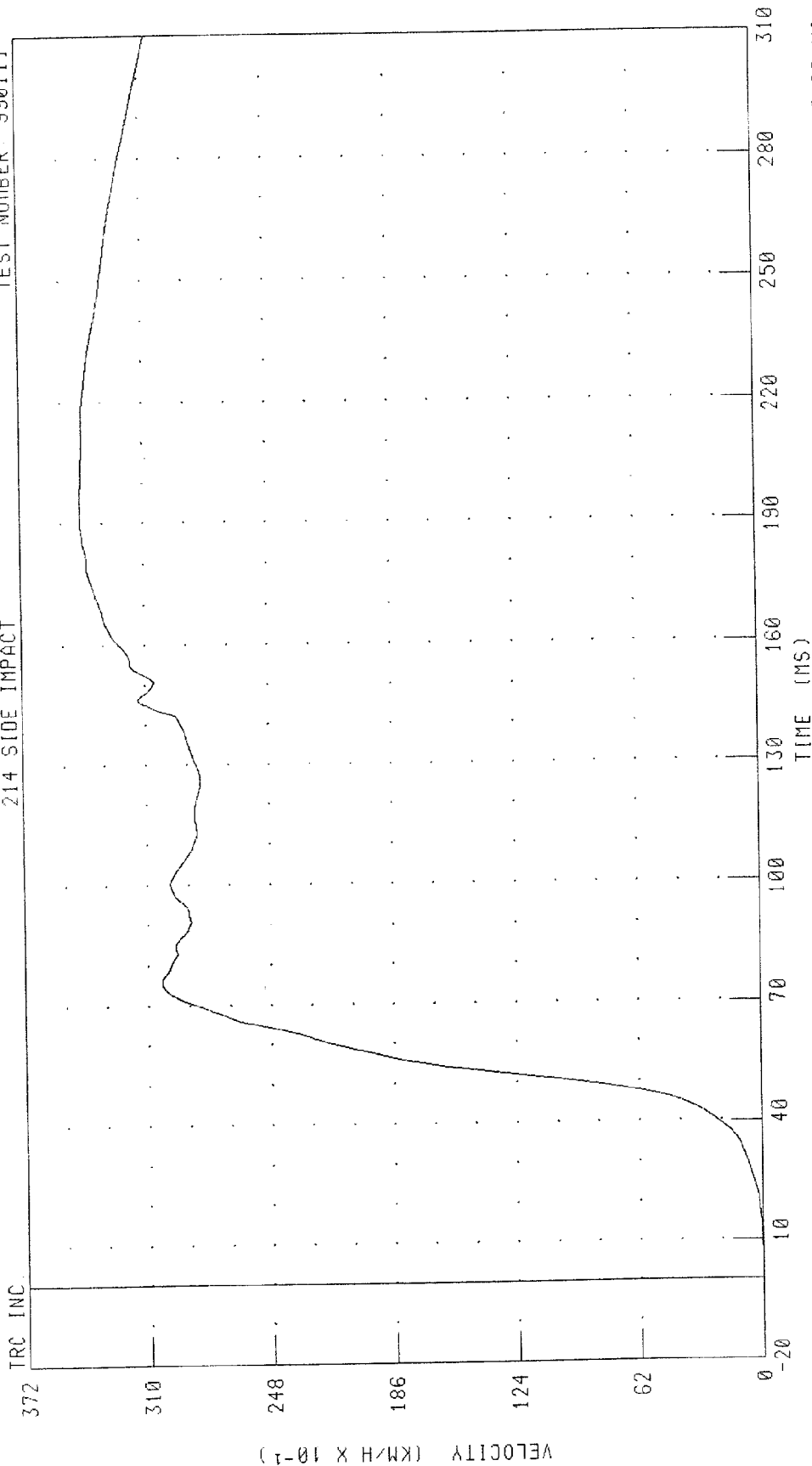
PEAK DATA: 47.39 G @ 51.88 MS, -7.47 G @ 148.75 MS

CHANNEL: LLRYR4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 990111

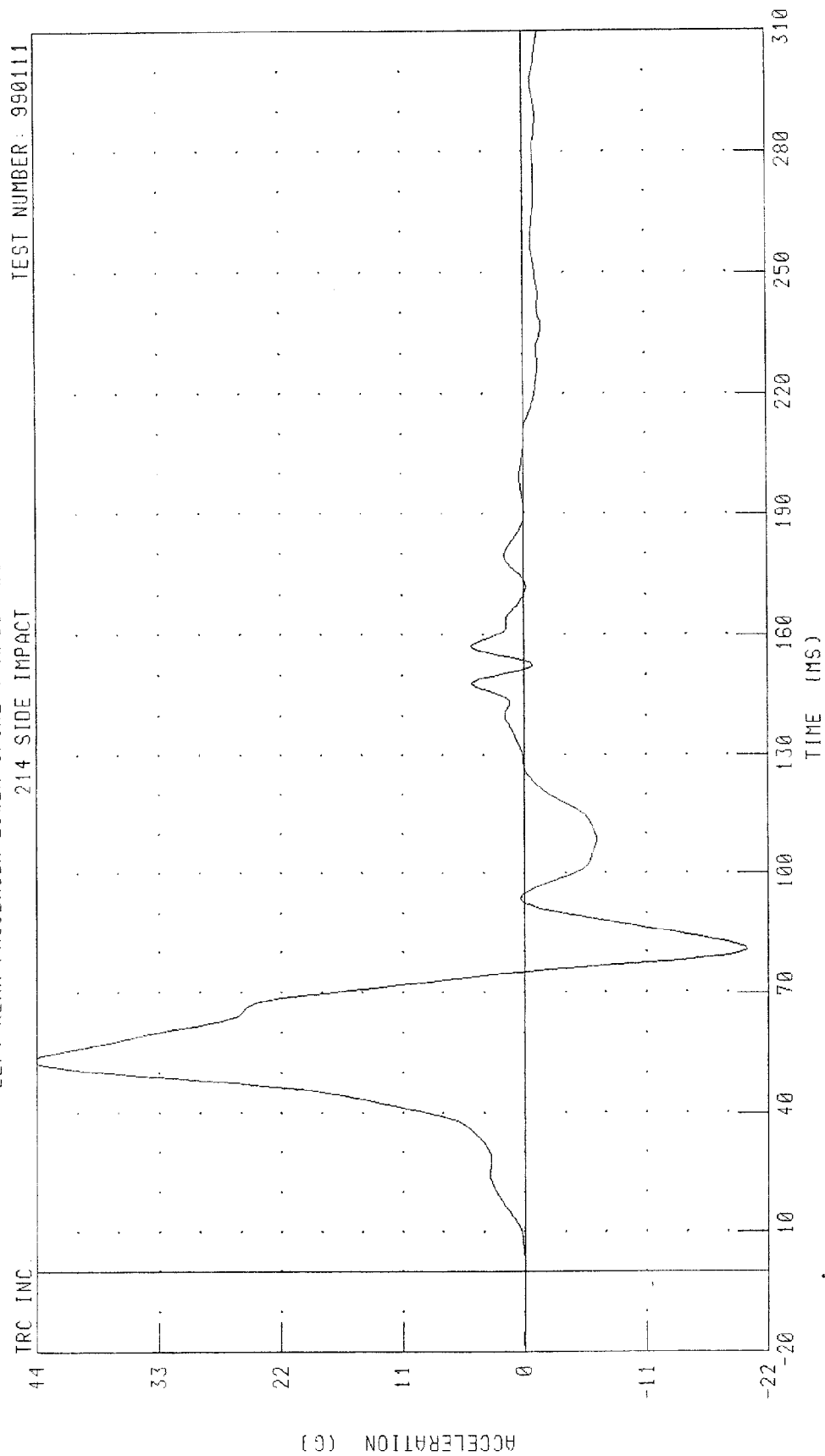
214 SIDE IMPACT



PEAK DATA: 34.19 KM/H @ 193.92 MS, 0.00 KM/H @ 0.00 MS

CHANNEL: LLRYVJ FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

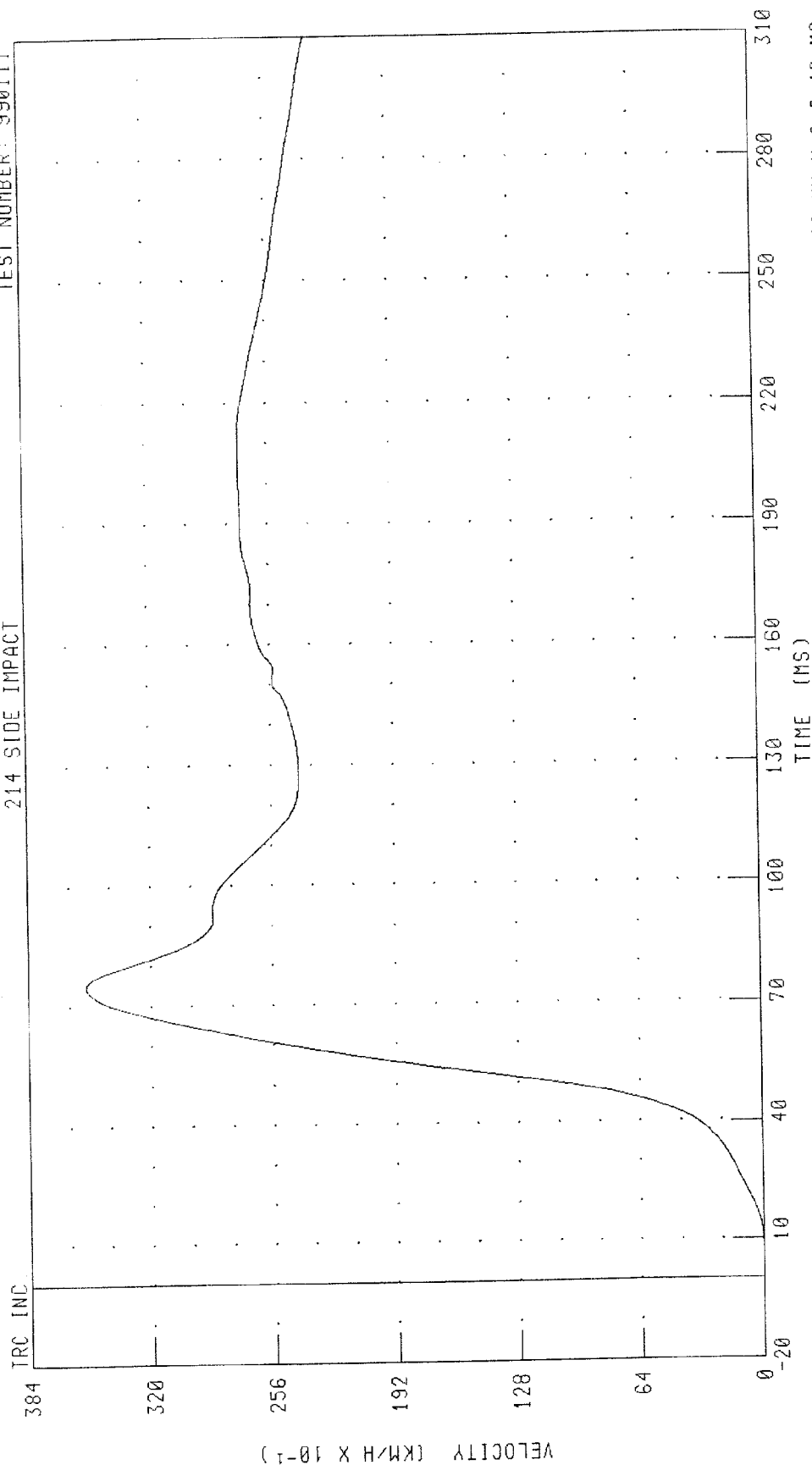


CHANNEL: T12VR4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 990111

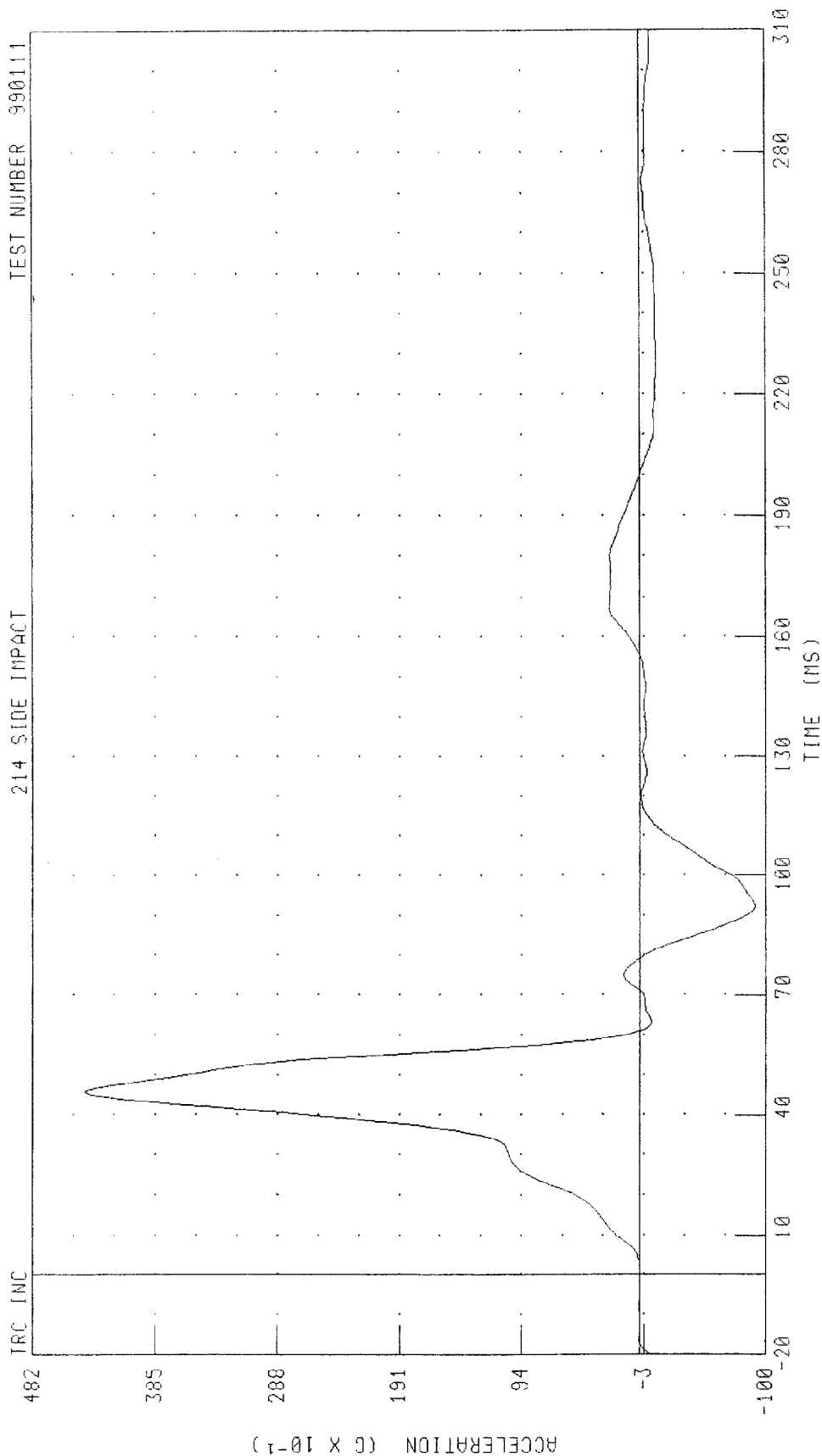
214 SIDE IMPACT



PEAK DATA: 35.39 KM/H @ 74.96 MS; 0.00 KM/H @ 2.48 MS

CHANNEL: T12YVJ FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION



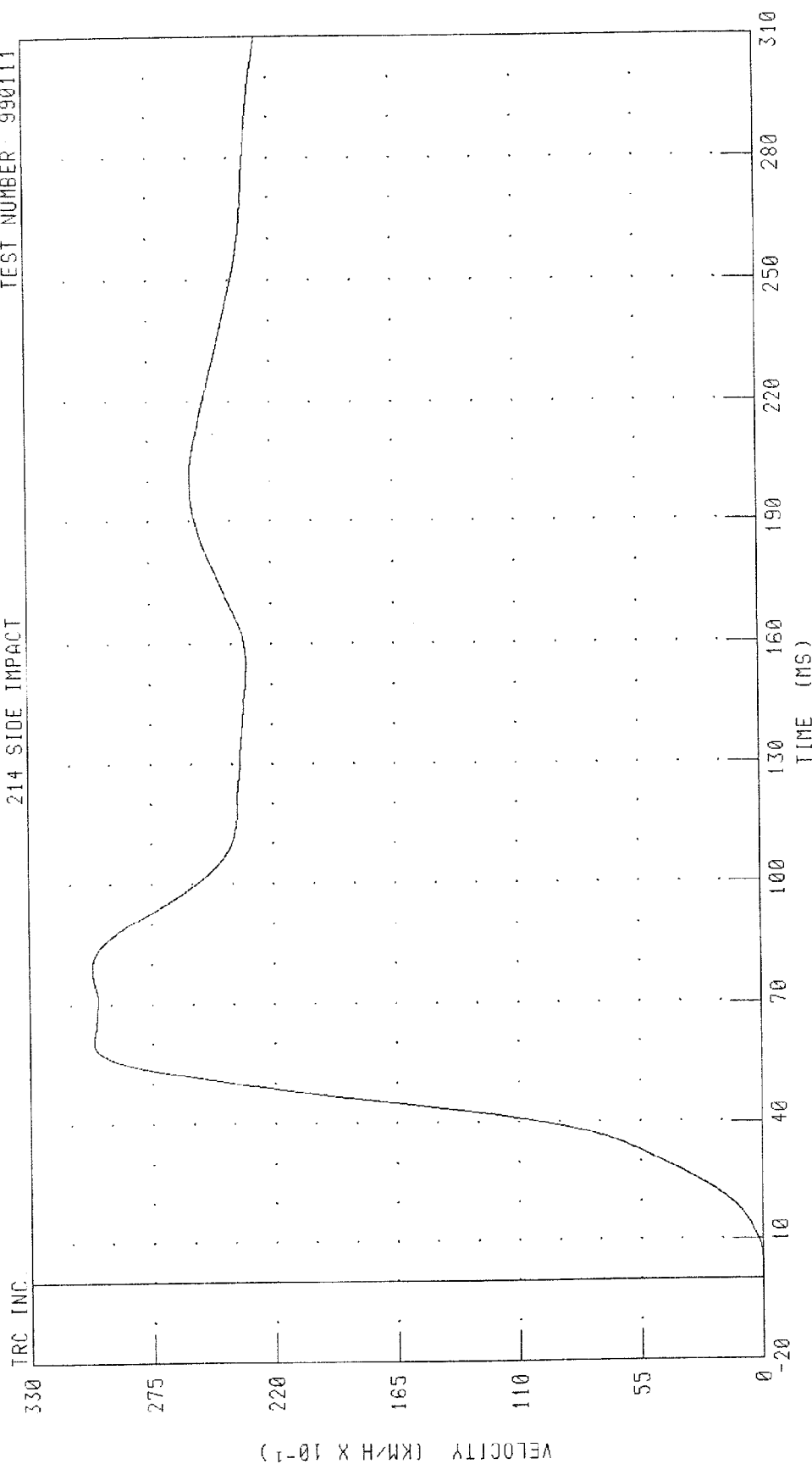
CHANNEL: PEVYR4 FILTER: FIR 100

PEAK DATA: 44.07 G @ 45.62 MS, -9.19 G @ 92.50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1999 SUBARU FORESTER
 LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 990111

214 SIDE IMPACT



PEAK DATA: 30.17 KM/H @ 79.44 MS; 0.00 KM/H @ 1.92 MS

CHANNEL: PEVYVJ FILTER: CH. CLASS 180

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE-TEST AND POST-TEST CALIBRATION
CONFIGURED FOR LEFT SIDE IMPACT

Date: 01/08/99 & 01/18/99 TRC sequential test number: ED5110 & ED5209
Laboratory Technician: B. Crabtree, K. Watkins

Test Parameter	Specification	SID 051		SID 052	
		Pre-	Post-	Pre-	Post-
		Test	Test	Test	Test
SH - seated height (mm)	889-909	899.2	901.7	906.8	891.5
RH - Rib Height (mm)	502-520	501.6	501.6	505.5	505.5
HP - Hip Pivot Height (mm)	99 ref	99.1	99.1	99.1	99.1
RD - Rib from Back Line (mm)	229-241	236.2	236.2	233.7	238.8
KV - Knee Pivot from Back Line (mm)	511-526	520.7	520.7	518.2	518.2
SW - Knee Pivot to Floor (mm)	490-505	505.5	502.9	500.4	497.8
HW - Hip Width (mm)	356-391	375.9	373.4	373.4	378.5
THORAX IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.1	21.1	21.1
Relative Humidity (%)	10-70	22	20	22	20
Probe Speed (m/s)	4.27-4.33	4.32	4.29	4.31	4.32
Upper Rib (g's)	37-46	38.6	36.7	45.5	42.8
Lower Rib (g's)	37-46	40.7	36.9	44.5	41.0
Lower Spine (g's)	15-22	19.8	17.5	21.0	19.2
PELVIS IMPACTS					
Temperature (°C)	18.9-25.5	21.1	21.1	21.1	21.1
Relative Humidity (%)	10-70	22	20	22	20
Probe Speed (m/s)	4.27-4.33	4.32	4.28	4.32	4.31
Pelvis (g's)	40-60	58.4	52.5	51.2	46.9

Calibration Test Results

Pre-Test

SID: 051

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax passed all shock absorber requirements.

TRANSPORTATION RESEARCH CENTER INC.
 SIDE IMPACT DUMMY
 EXTERNAL DIMENSIONS
 LEFT SIDE CONFIGURATION
 SN SN051 VECTOR

08-01-99

TRC INC. TEST NO: ED5110 572F SN051 EXT.DIMENSION CAL10

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	899.2 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	520.7 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	505.5 MM
HW	HIP WIDTH	356 - 391 MM	375.9 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	501.6 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	177.8 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	177.8 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Bj Calit

RUN NUMBER: 010899.1543

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

08-JAN-99

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: STL5110

572F SN51 LEFT THORAX CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.32 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-38.6 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-40.7 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.8 G

TEST MEETS SPECIFICATIONS

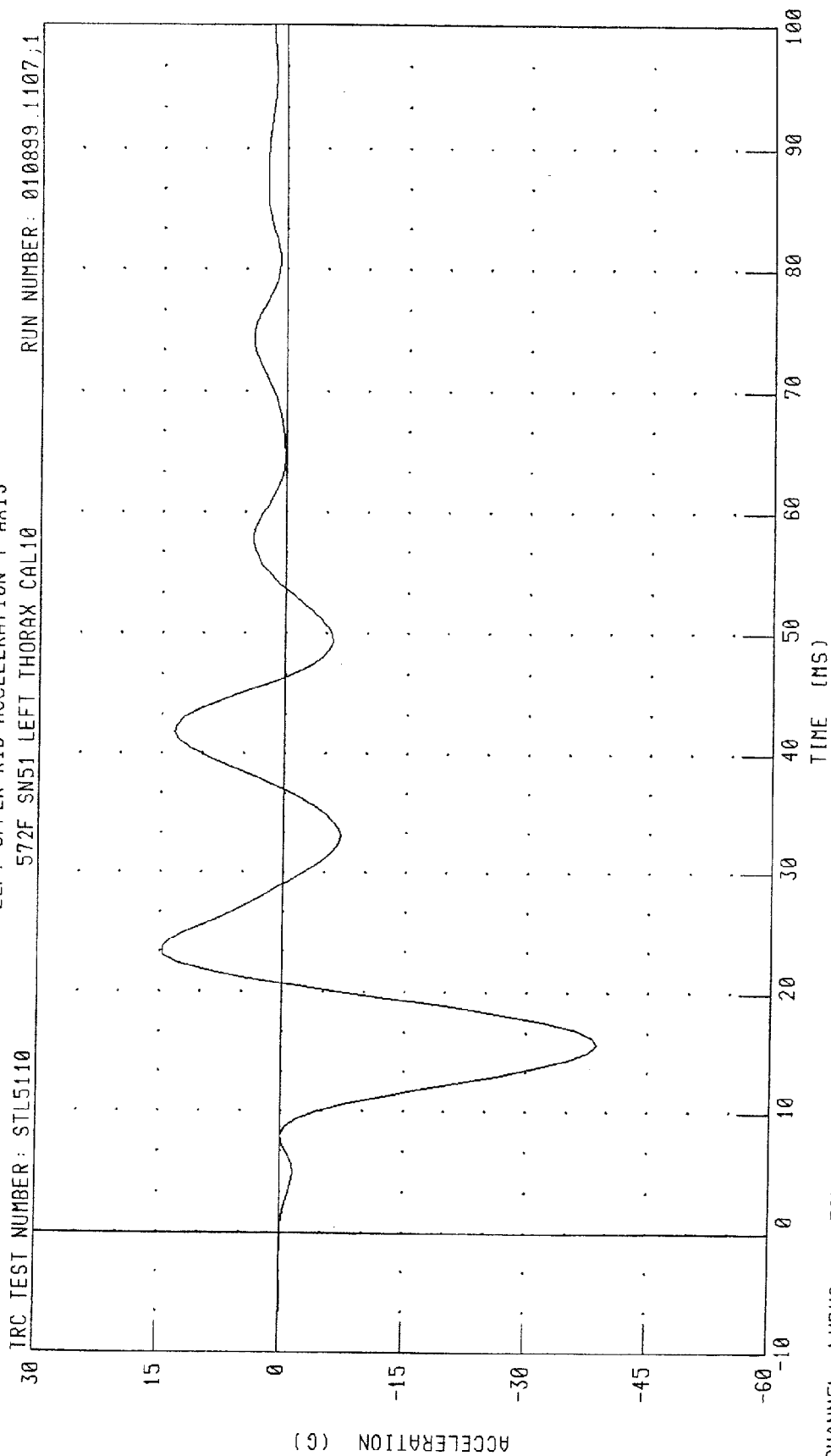
TECHNICIAN

B. Calt

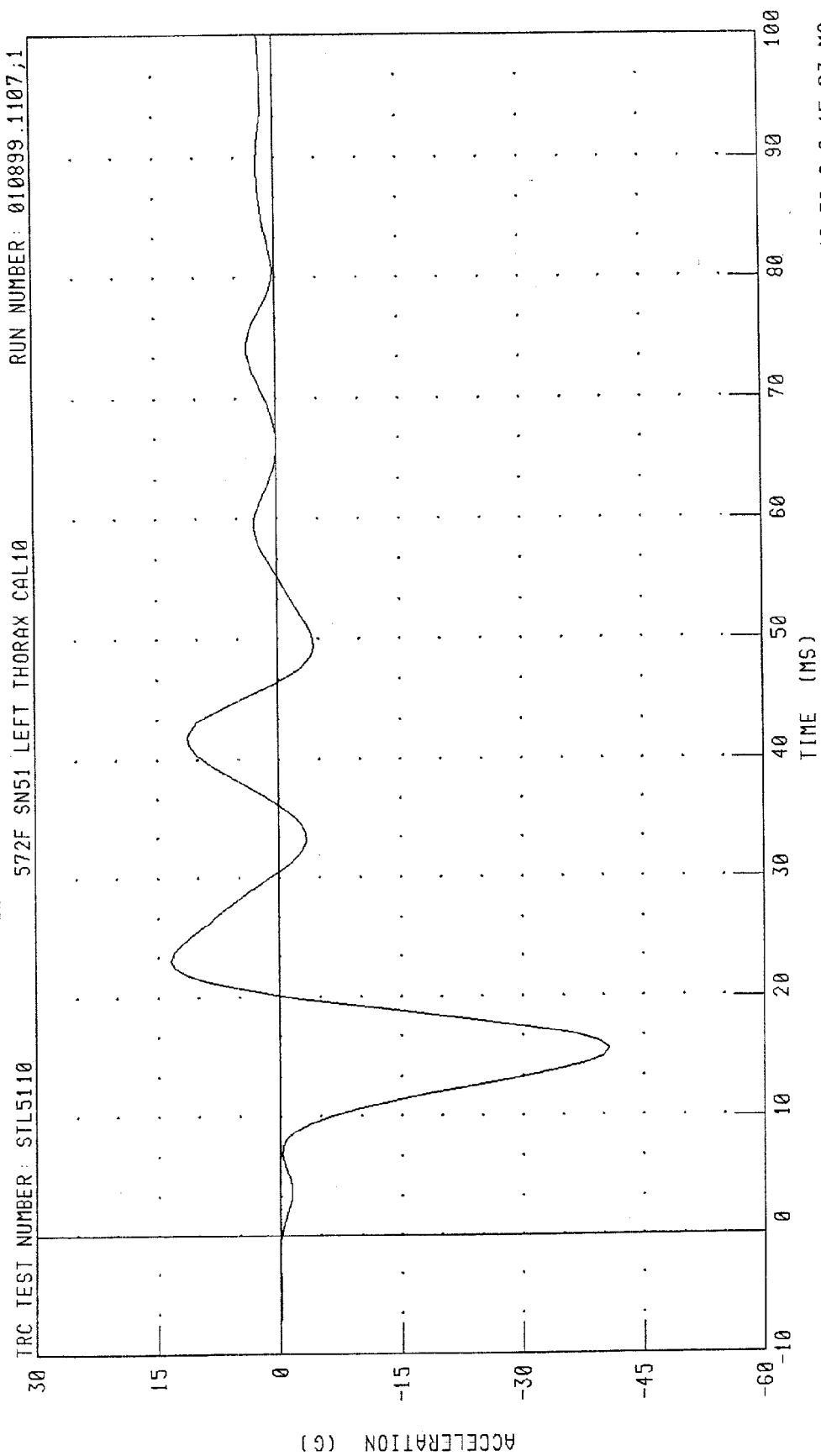
RUN NUMBER: 010899.1106;1

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

LEFT UPPER RIB ACCELERATION Y AXIS



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



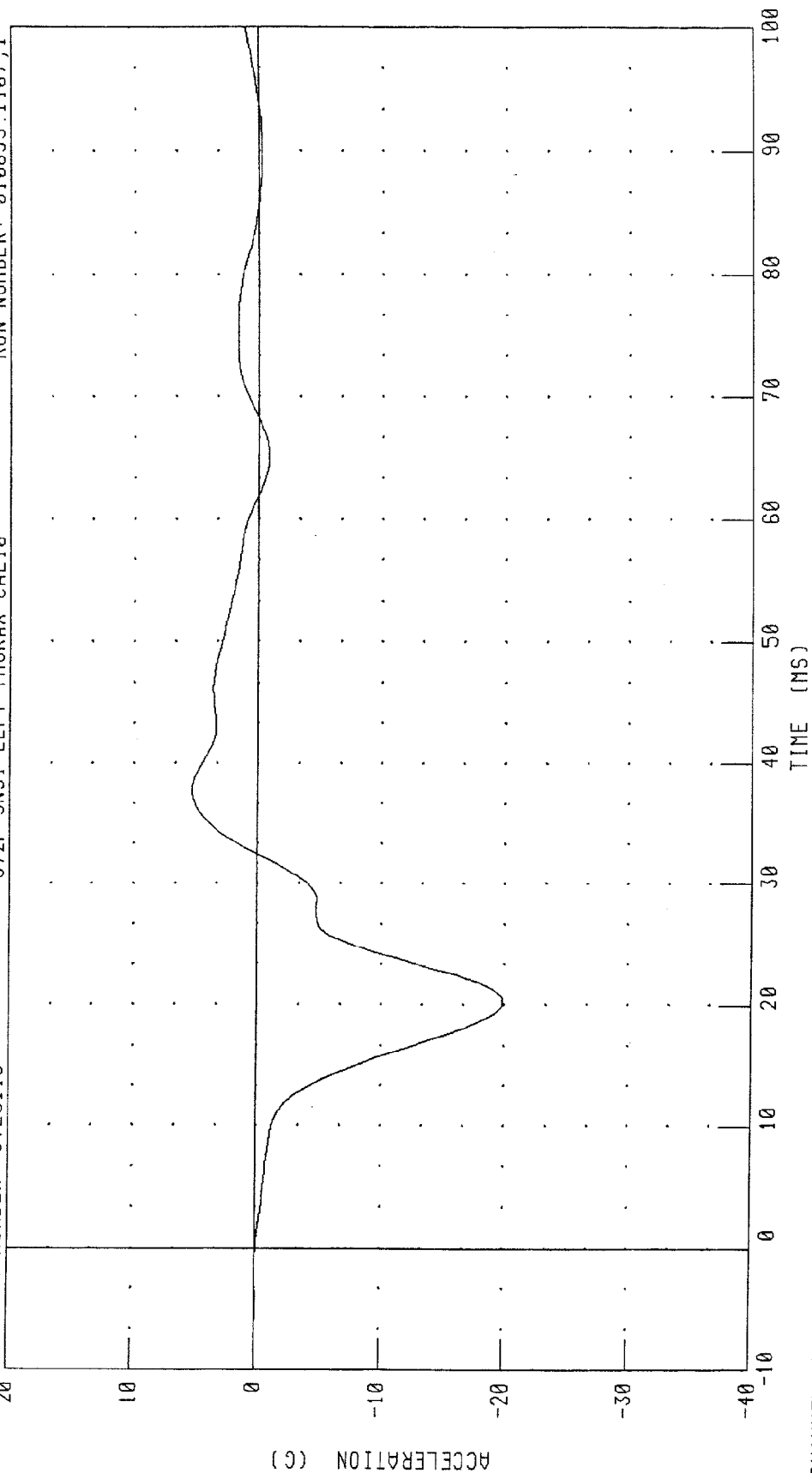
PEAK DATA: 13.45 G @ 23.13 MS; -40.72 G @ 15.63 MS

CHANNEL: LLRYC FILTER: FIR 100

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

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL5110 572F SN51 LEFT THORAX CAL10 RUN NUMBER: 010899.1107,1



CHANNEL: T12YC FILTER: FIR 100

PEAK DATA: 5.28 G @ 37.50 MS, -19.85 G @ 20.62 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

08-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5110

572F SN51 LEFT PELVIS CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.32 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-58.4 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.7 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

By [Signature]

RUN NUMBER: 010899.1132;1

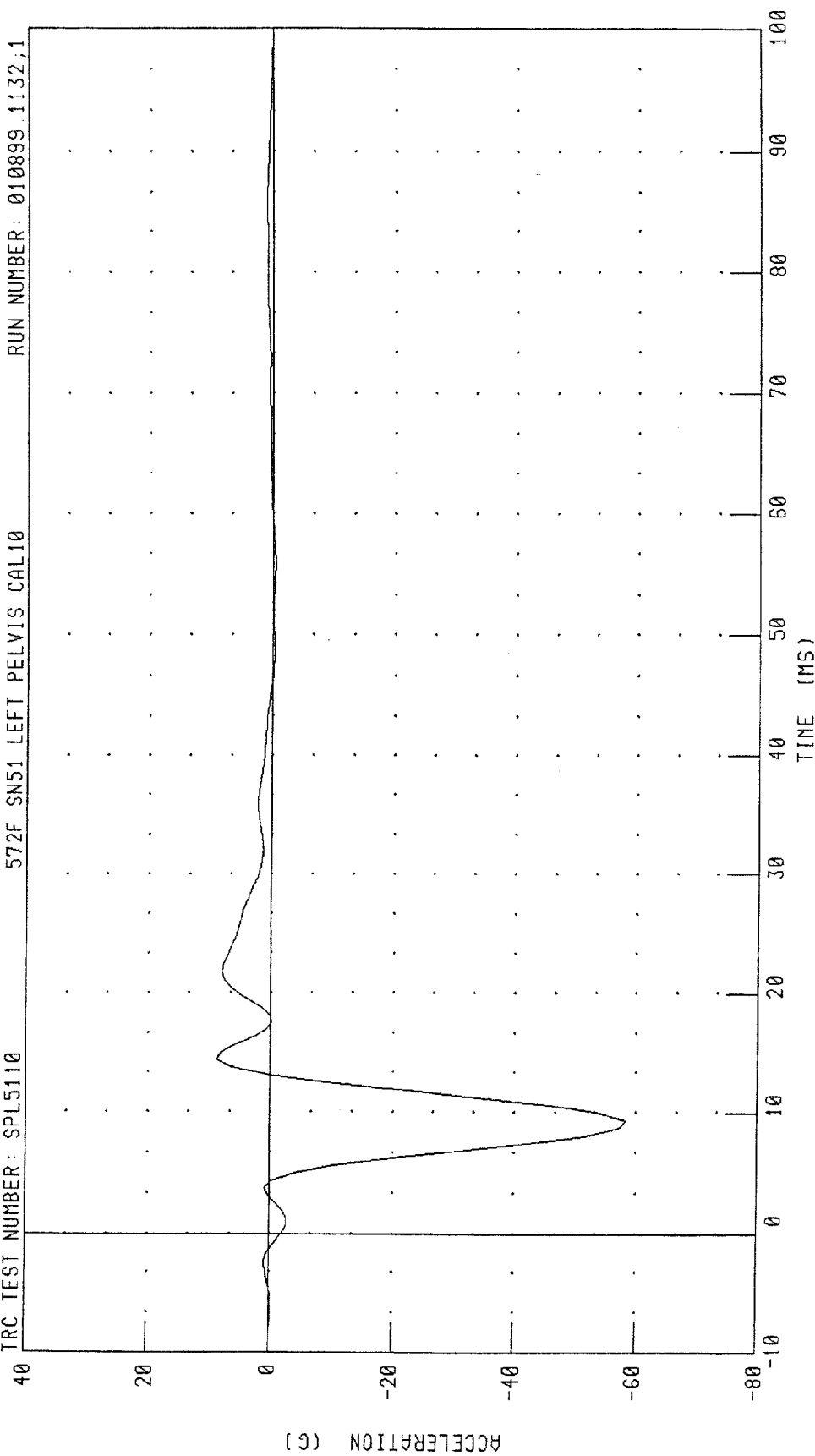
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN51 LEFT PELVIS CAL10

TRC TEST NUMBER: SPL5110

RUN NUMBER: 010899.1132;1



CHANNEL: PEVYC FILTER: FIR 100

PEAK DATA: 8.67 G @ 14.37 MS; -58.41 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

08-JAN-99

TRC INC.

TEST NO: ABD5110A

ABDOMIN COMPRESSION TEST SN51

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.80 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	130.80 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	190.96 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	268.24 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	387.09 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By cult

RUN NUMBER: 010899.1321;2

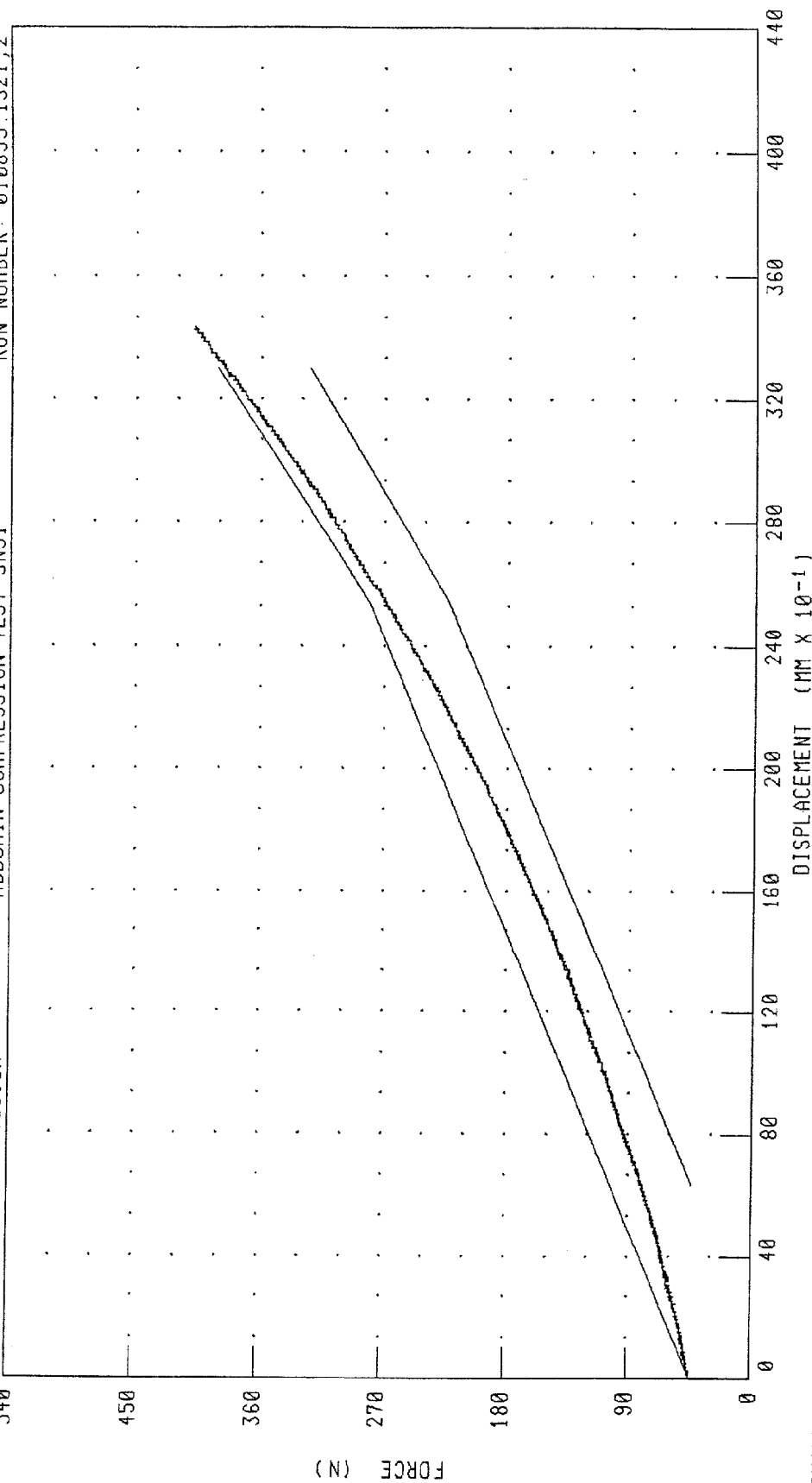
PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

TRC TEST NUMBER: ABD5110A

ABDOMIN COMPRESSION TEST SN51

RUN NUMBER: 010899.1321,2



CHANNEL: ABXD
ABXF

FILTER: CH. CLASS 1000
CH. CLASS 1000

PEAK DATA:

34.39 MM @ 4.39 S;
409.10 N @ 4.39 S;
0 00 MM @ 0.00 S
44 23 N @ 0.00 S

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

08-01-99

TRC INC. TEST NO: LF5110

572F LUMBAR FLEX

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	106.75 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	160.13 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	217.95 N
NET RETURN ANGLE	< 12 DEG.	1.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By Cult

RUN NUMBER: 010899.1559

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

19-NOV-98

TRC INC.

572F SN51 DAMPER TEST CAL08

TEST NUMBERS: DP5108A,DP5108B,DP5108C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	33.0 %
VELOCITY	FORCE	856 - 1146 N	914 N
3.07 M/S	DISPLACEMENT	30.2 - 35.2 MM	33.3 MM
VELOCITY	FORCE	1733 - 2100 N	1798 N
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	36.5 MM
VELOCITY	FORCE	3703 - 4402 N	4254 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	39.4 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN By C. H.

RUN NUMBER: 111998.1233;2

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

SHOCK ABSORBER RESISTIVE FORCE

572F SN51 DAMPER TEST CAL08

TRC TEST NUMBER: DP5108A

50

40

30

20

10

0

-10

-20

-30

-40

-50

-60

-70

-80

-90

-100

-110

-120

-130

-140

-150

-160

-170

-180

-190

-200

-210

-220

-230

-240

-250

-260

-270

-280

-290

-300

-310

-320

-330

-340

-350

-360

-370

-380

-390

-400

-410

-420

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-810

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-850

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-870

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-910

-920

-930

-940

-950

-960

-970

-980

-990

-1000

-1010

-1020

-1030

-1040

-1050

-1060

-1070

-1080

-1090

-1100

-1110

-1120

-1130

-1140

-1150

-1160

-1170

-1180

-1190

-1200

-1210

-1220

-1230

-1240

-1250

-1260

-1270

-1280

-1290

-1300

-1310

-1320

-1330

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-1800

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-1960

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-2010

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-2200

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-2230

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-3030

-3040

-3050

-3060

-3070

-3080

-3090

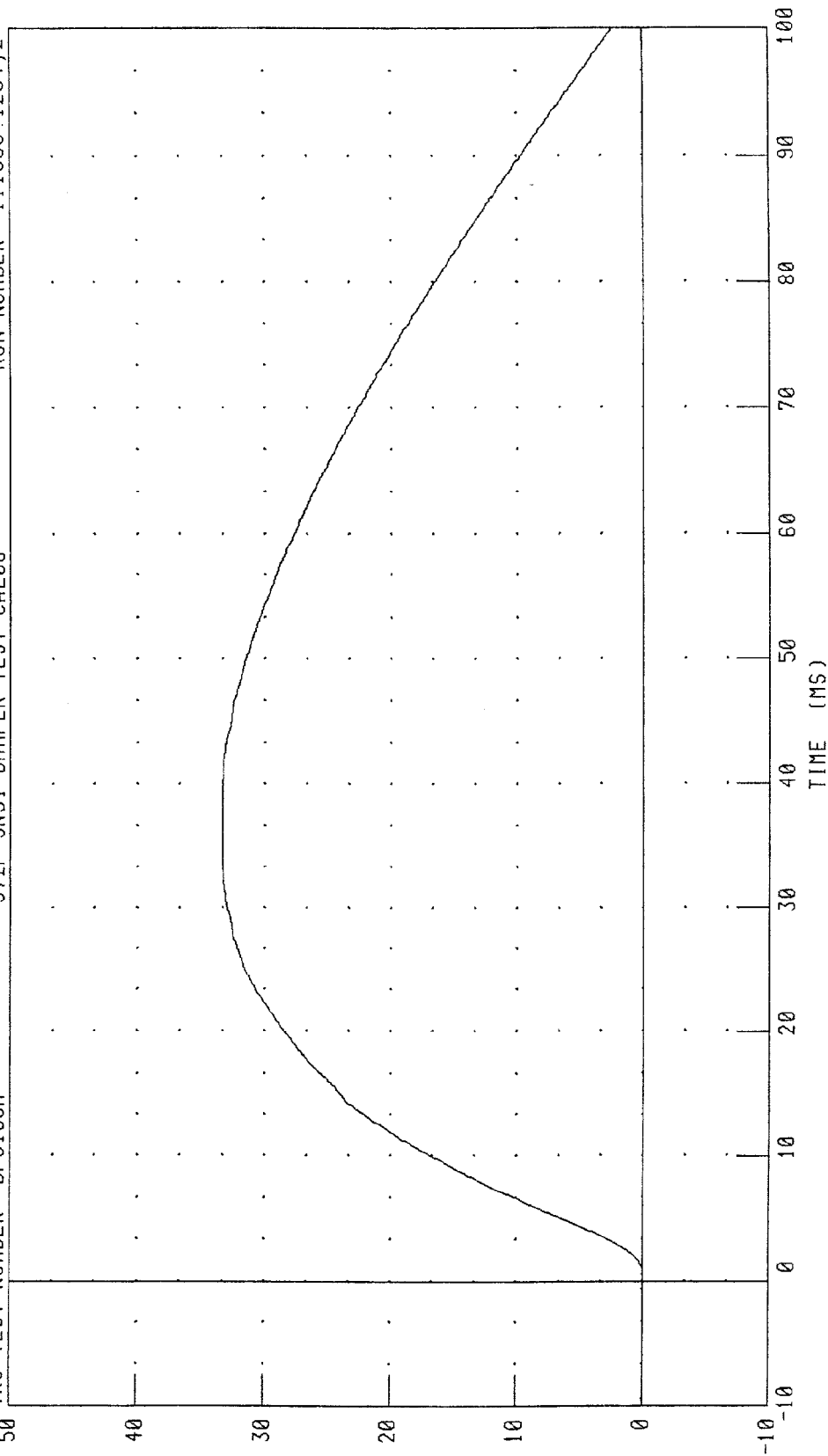
-3100</

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

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5108A 572F SN51 DAMPER TEST CAL08 RUN NUMBER: 111998.1234;2

DISPLACEMENT (MM)



CHANNEL: CSTYD

FILTER: CH. CLASS 1000

TIME (MS)

PEAK DATA: 33.32 MM @ 33.20 MS; 0.00 MM @ -10.00 MS

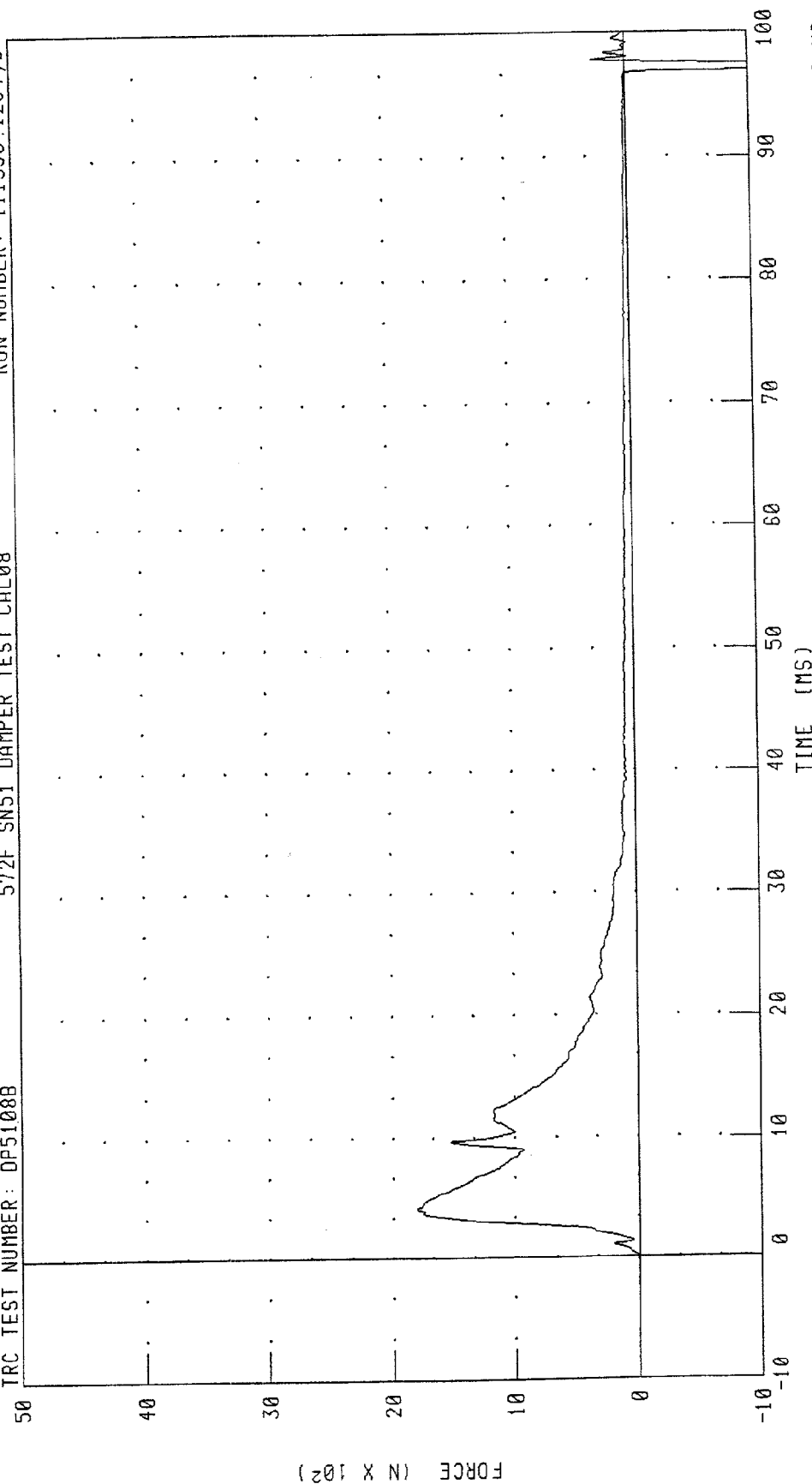
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5108B

572F SN51 DAMPER TEST CAL08

RUN NUMBER: 111998.1234,3



PEAK DATA: 1797.86 N @ 4.16 MS; -1813.54 N @ 97.28 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

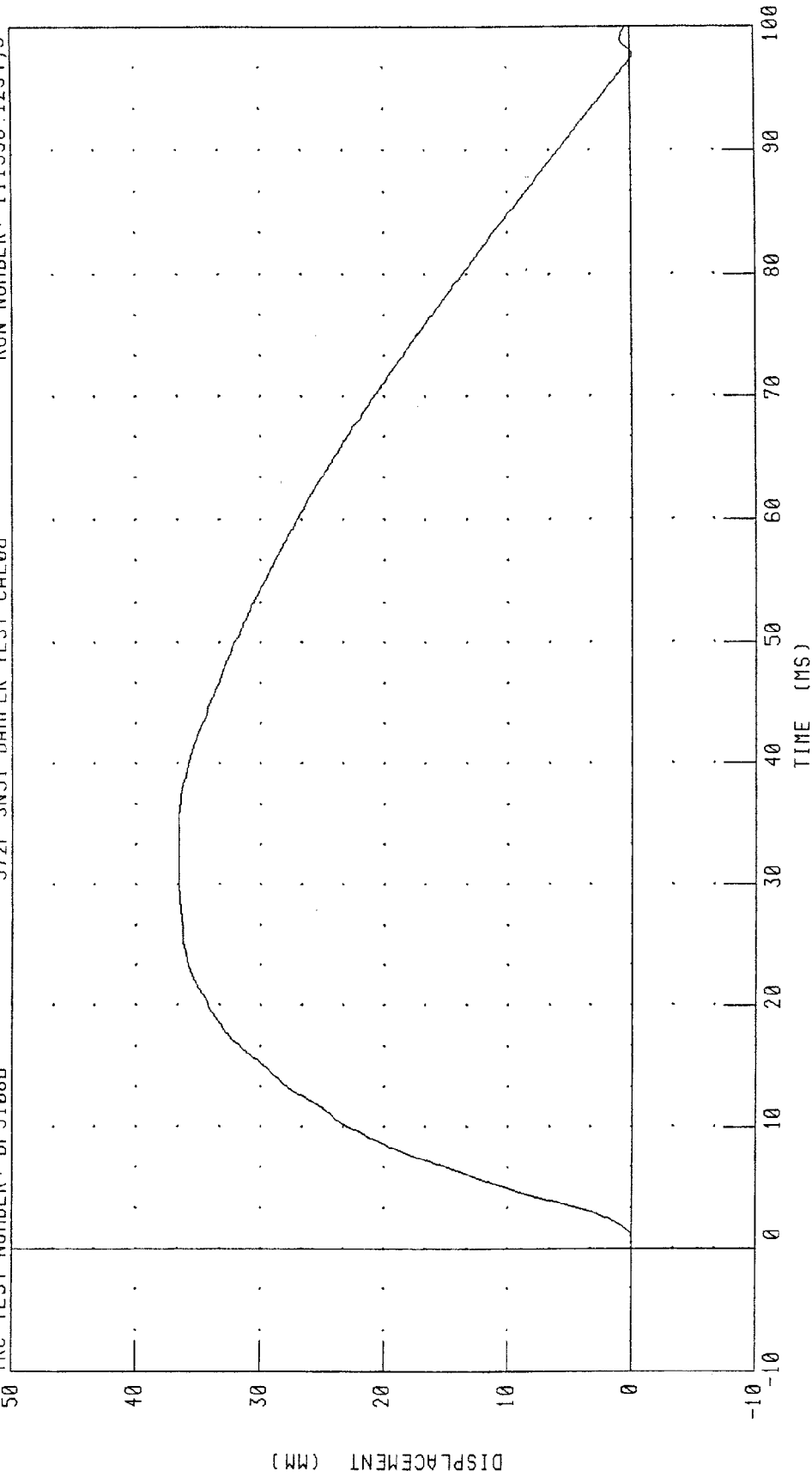
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5108B

572F SN51 DAMPER TEST CAL08

RUN NUMBER: 111998.1234,3



PEAK DATA: 36.55 MM @ 29.52 MS; -0.20 MM @ 97.60 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

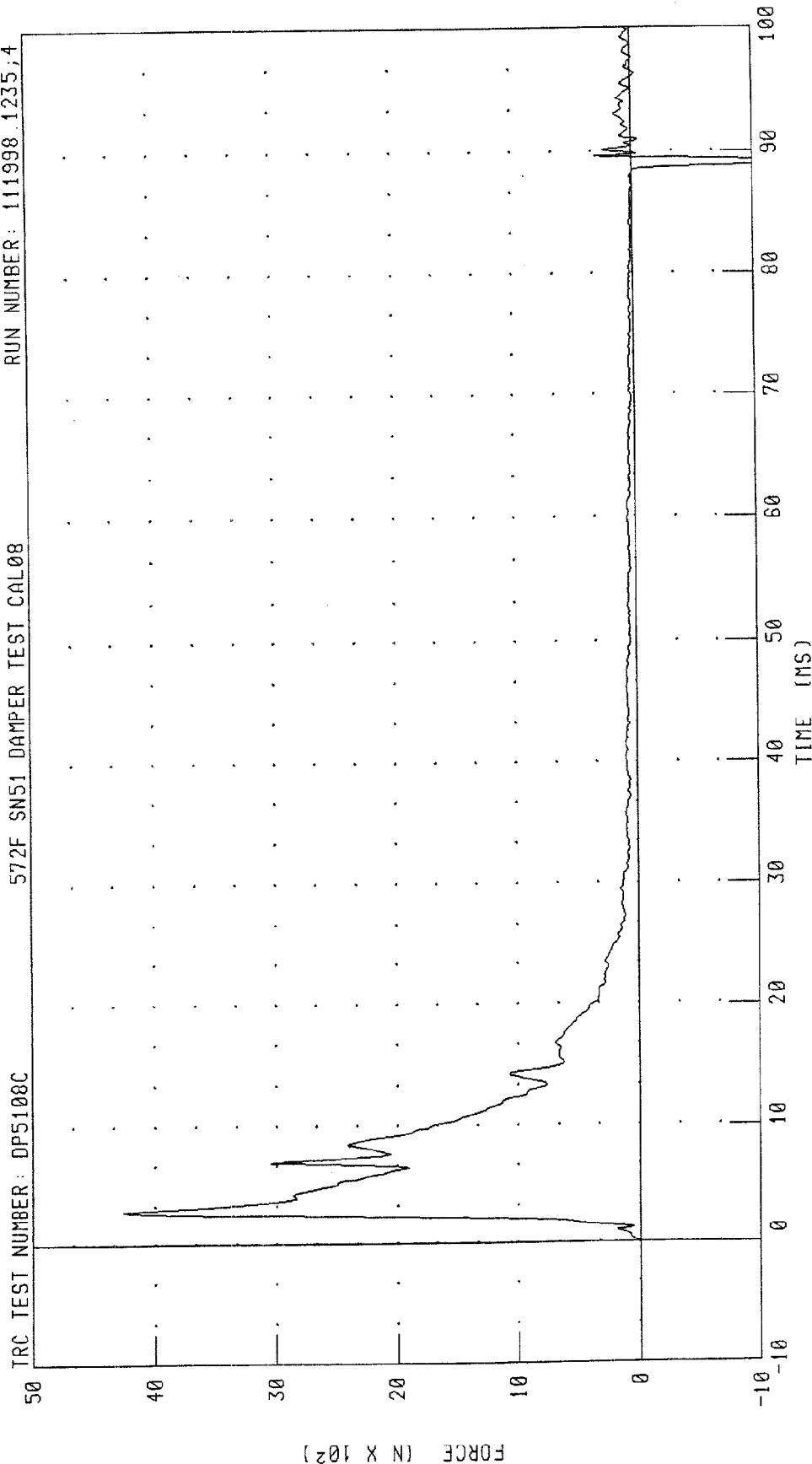
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (8.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

RUN NUMBER: 111998.1235;4

TRC TEST NUMBER: DP5108C

572F SN51 DAMPER TEST CAL08



PEAK DATA: 4253.81 N @ 2.88 MS; -2089.36 N @ 89.12 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

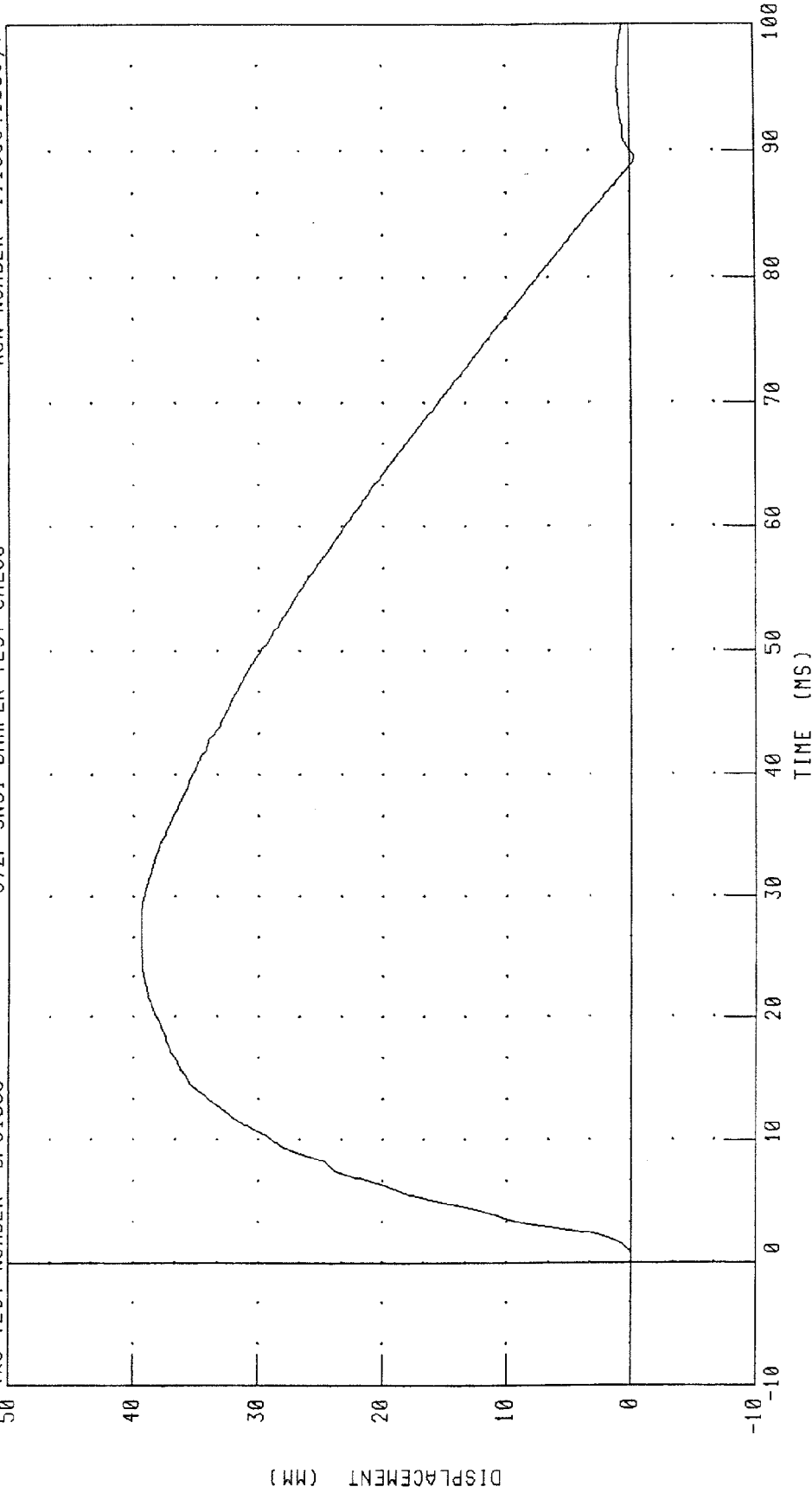
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC.)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5108C

572F SN51 DAMPER TEST CAL08

RUN NUMBER: 111998.1235,4



CHANNEL: CSTYD FILTER: CH. CLASS 1000

990111

Calibration Test Results

Pre-Test

SID: 052

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax passed all shock absorber requirements.

TRANSPORTATION RESEARCH CENTER INC.
SIDE IMPACT DUMMY
EXTERNAL DIMENSIONS
LEFT SIDE CONFIGURATION
SN SN052 VECTOR

08-01-99

TRC INC. TEST NO: ED5209 572F EXT.DIMENSIONS CAL09

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		22.0 %
SH	SEATED HEIGHT	889 - 909 MM	906.8 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	518.2 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	500.4 MM
HW	HIP WIDTH	356 - 391 MM	373.4 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	505.5 MM
RD	RIB FROM BACKLINE	229 - 241 MM	233.7 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	167.6 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	167.6 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN By cult

RUN NUMBER: 010899.1706

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

08-JAN-99

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: STL5209

572F SN52 LEFT THORAX CAL09

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-45.5 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-44.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-21.0 G

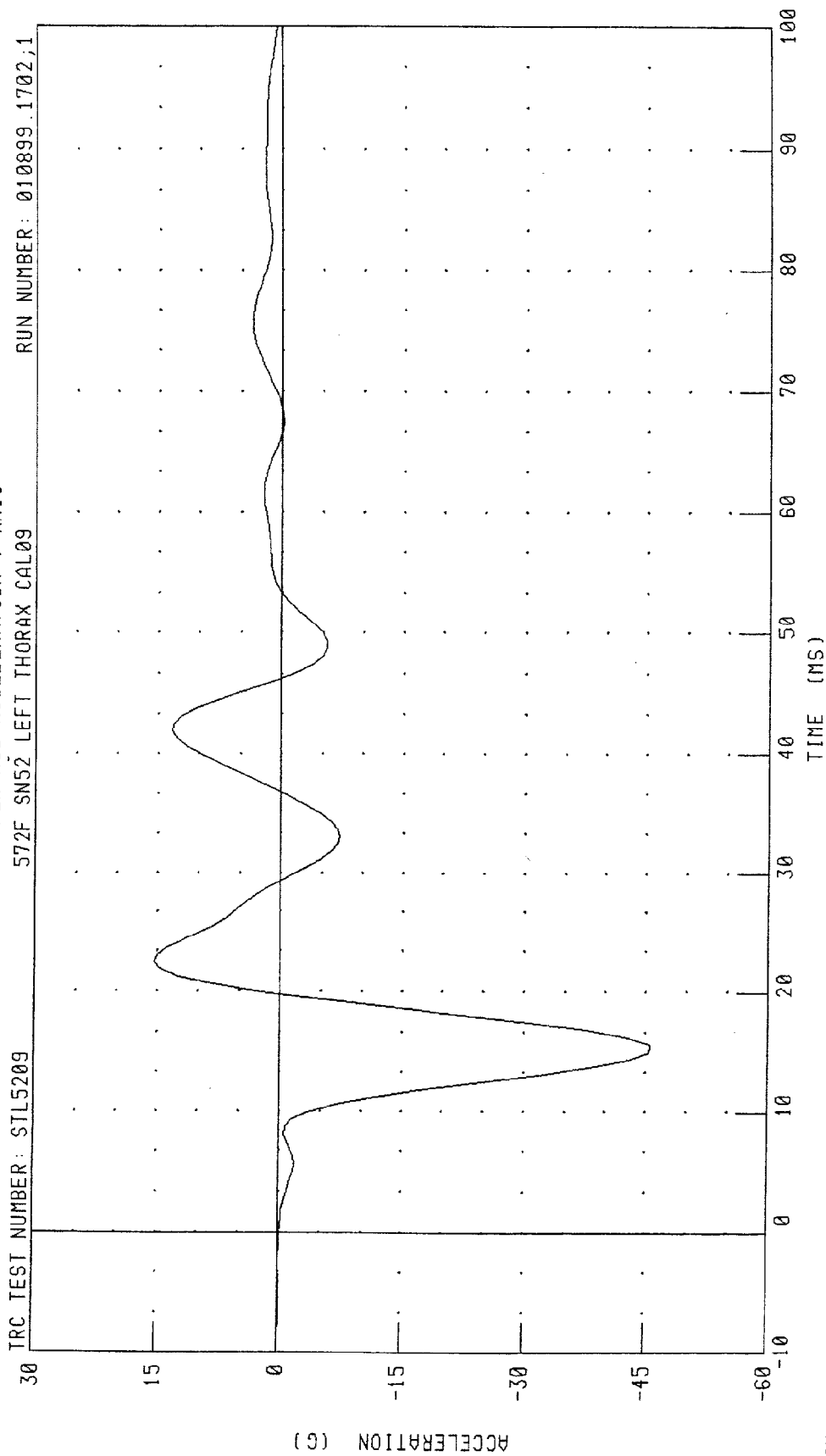
TEST MEETS SPECIFICATIONS

TECHNICIAN

By [Signature]

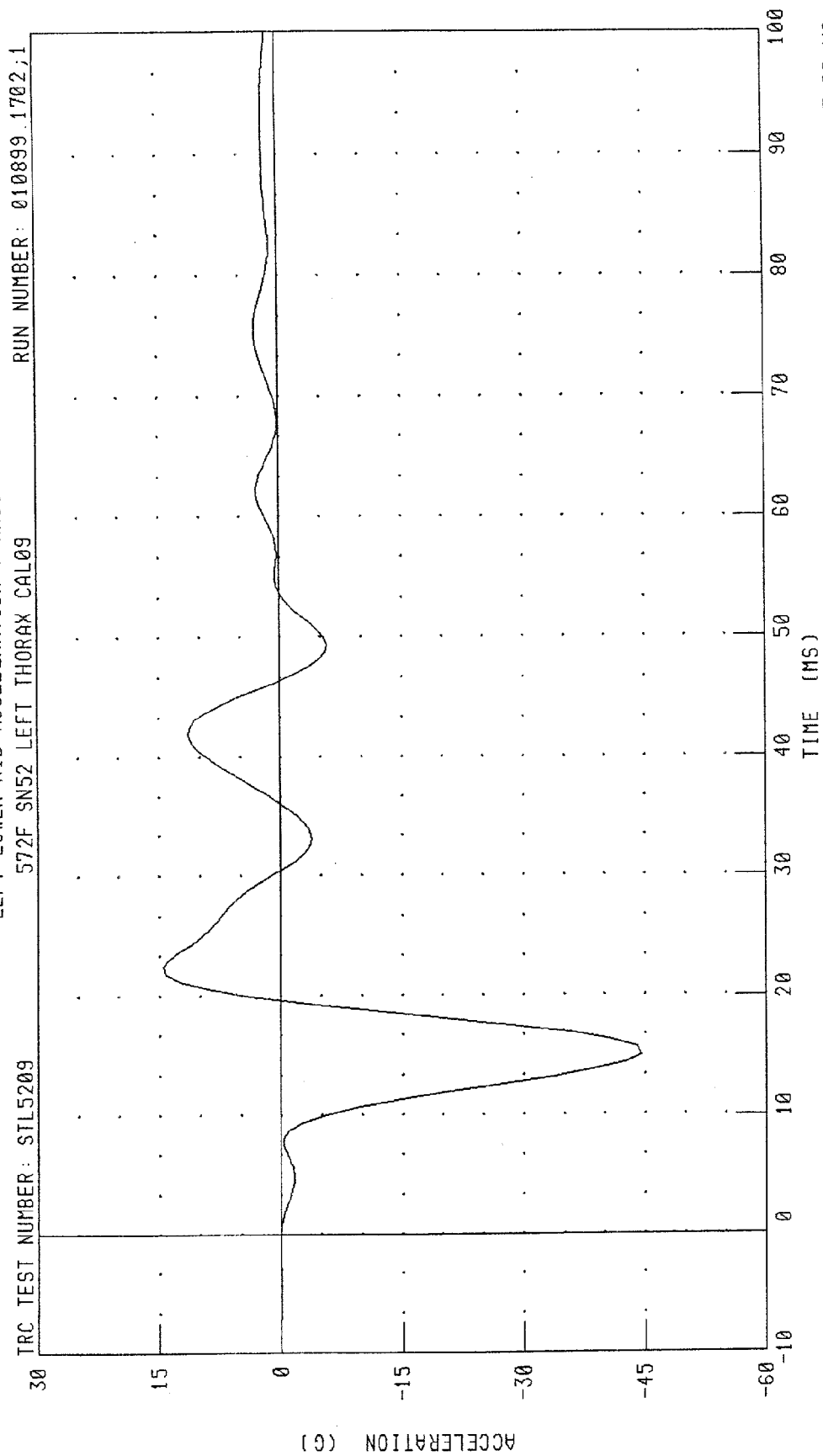
RUN NUMBER: 010899.1702;1

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



CHANNEL: LURYG FILTER: FIR 100

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



PEAK DATA: 14.51 G @ 22.50 MS, -44.46 G @ 15.00 MS

CHANNEL: LLRYG FILTER: FIR 100

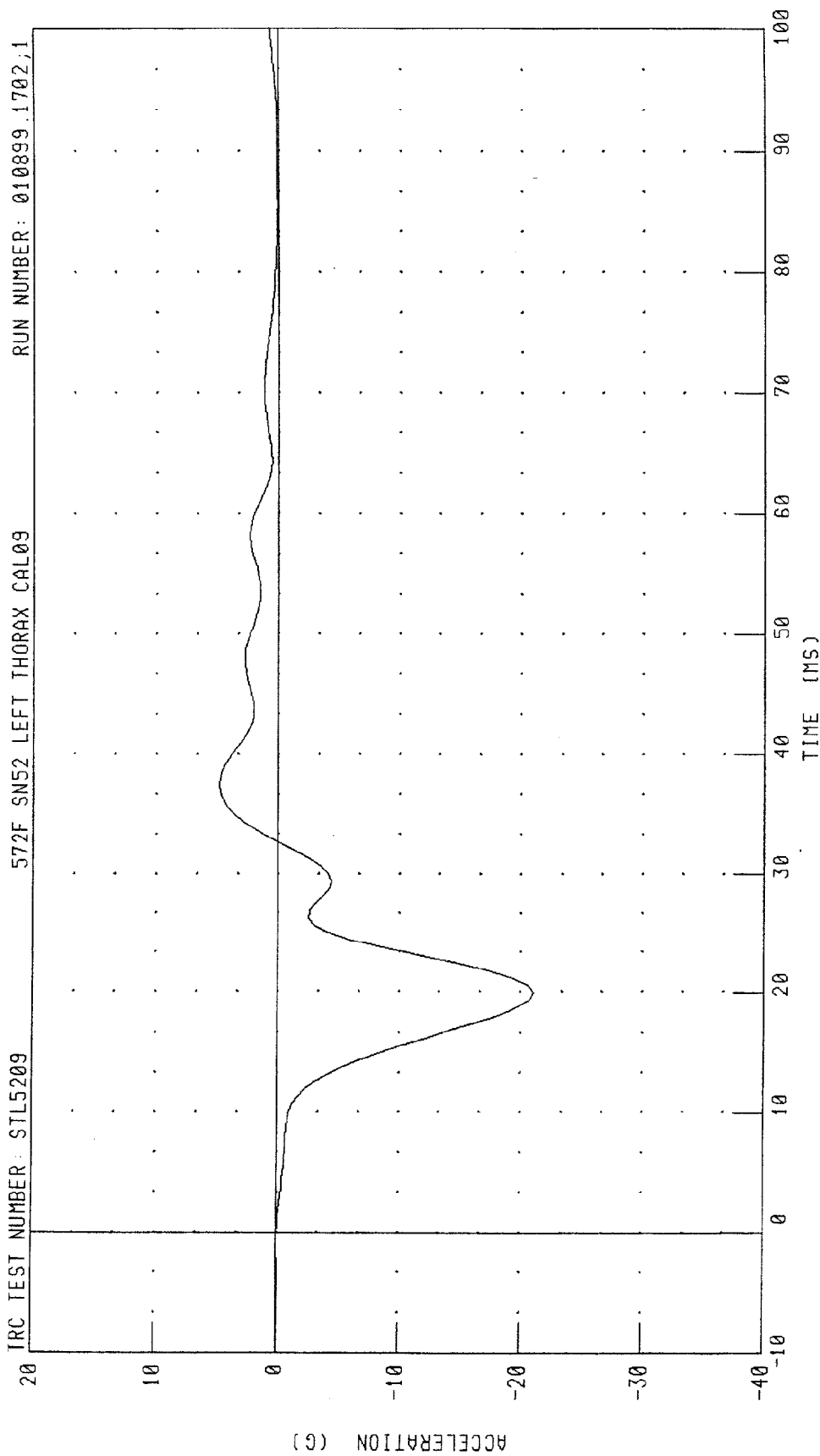
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

IRC TEST NUMBER: STL5209

572F SN52 LEFT THORAX CAL09

RUN NUMBER: 010899.1702;1



CHANNEL: T12YG FILTER: FIR 100

PEAK DATA: 4.88 G @ 37.50 MS; -21.01 G @ 20.00 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

08-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5209

572F SN52 LEFT PELVIS CAL09

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.32 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-51.2 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN By Cuth

RUN NUMBER: 010899.1654;1

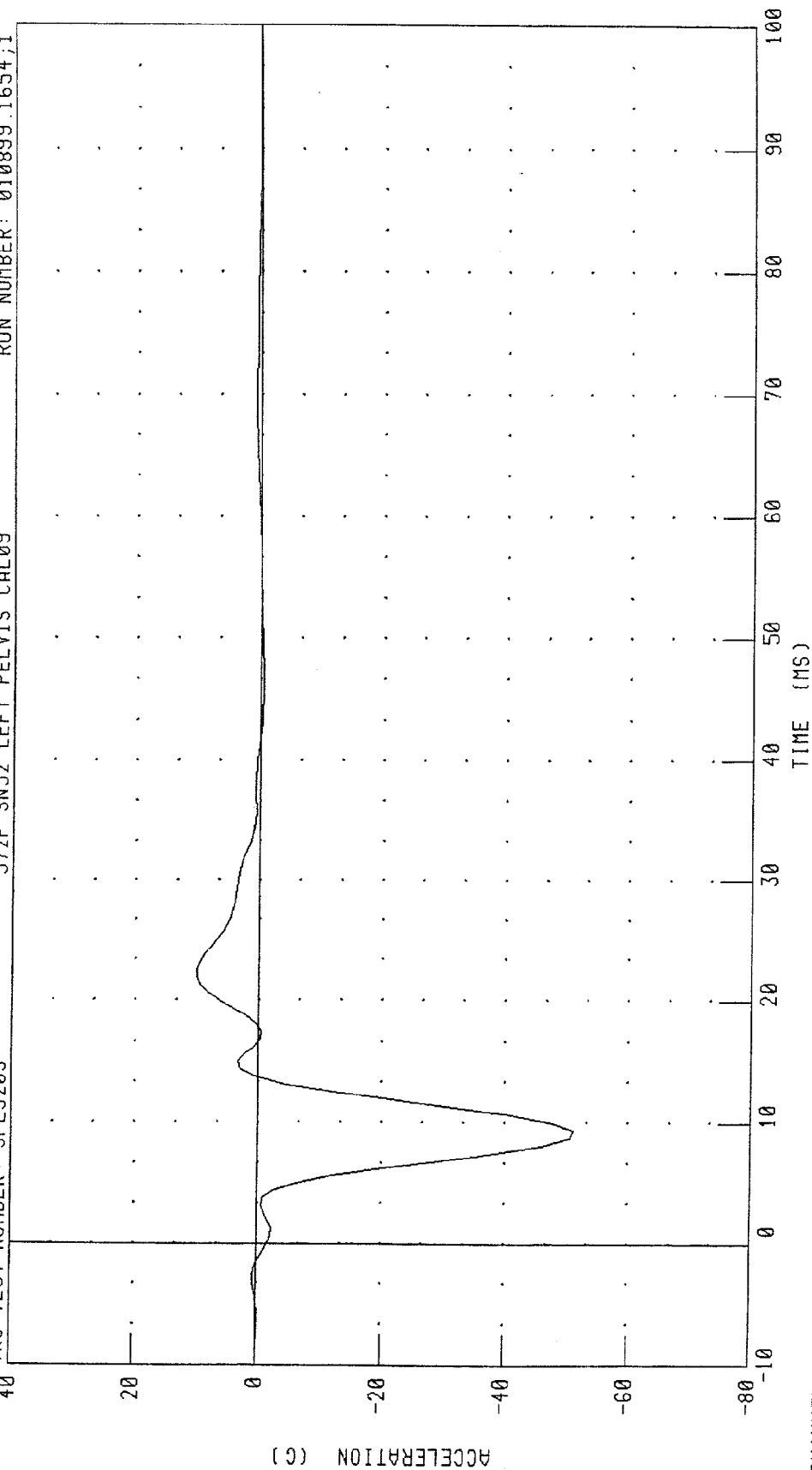
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5209

572F SN52 LEFT PELVIS CAL09

RUN NUMBER: 010899.1654;1



CHANNEL: PEVYC

FILTER: FIR 100

PEAK DATA: 10.04 G @ 22.50 MS; -51.24 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

08-JAN-99

TRC INC.

TEST NO: ABD5209G

ABDOMIN COMPRESSION TEST SN52

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.74 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	116.93 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	173.18 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	246.05 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	355.61 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Ry Cult

RUN NUMBER: 010899.1616;1

PART 572-8 HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN52

RUN NUMBER: 010899.1617,1

IRC TEST NUMBER: ABD5209C

540

450

360

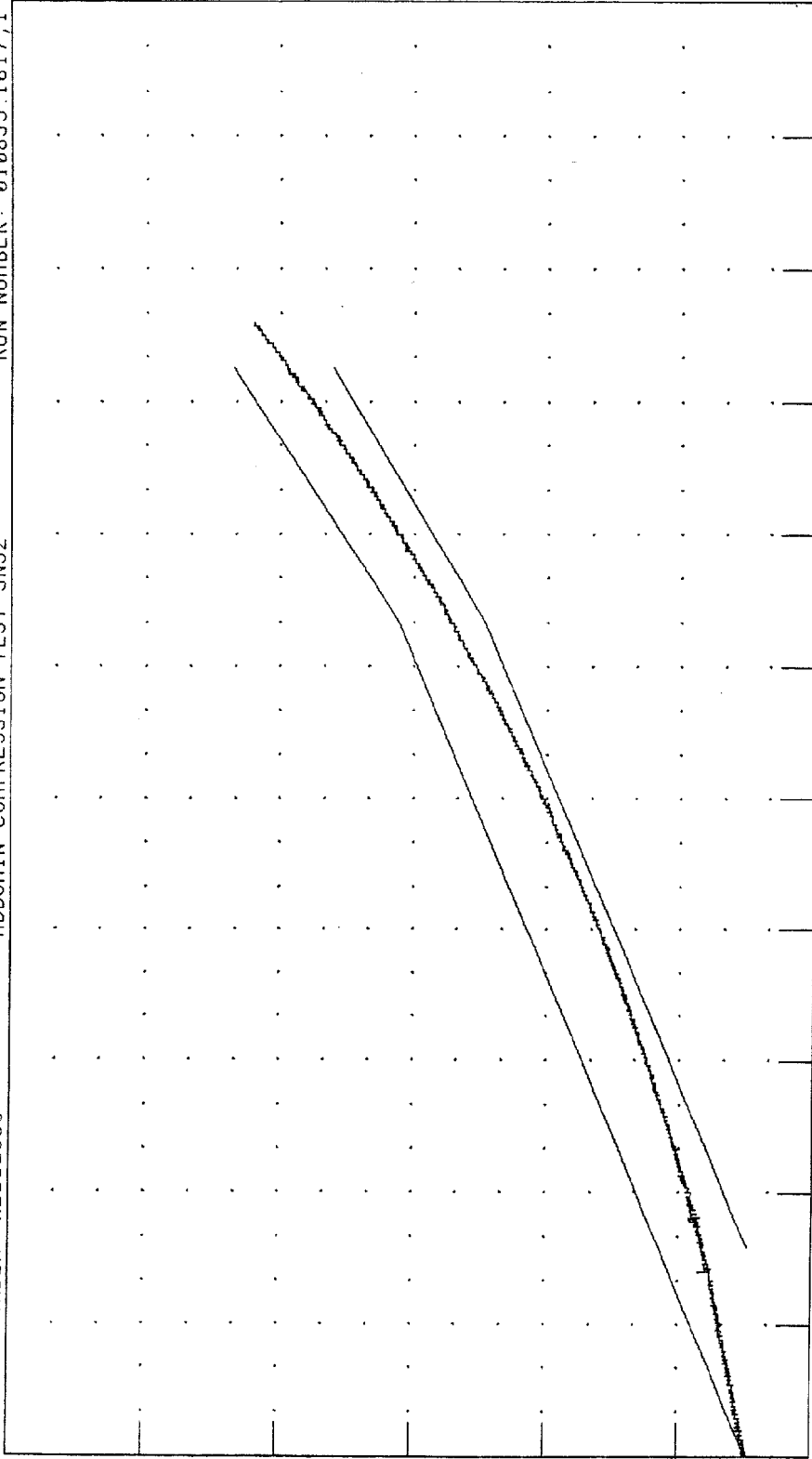
270

180

90

0

FORCE (N)



DISPLACEMENT (MM X 10⁻¹)

CHANNEL: ABXD
ABXF

FILTER: CH. CLASS 1000
CH. CLASS 1000

PEAK DATA:

34.39 MM @ 4.41 S;
378.60 N @ 4.40 S; 43.56 N @ 0.01 S

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

08-01-99

TRC INC

TEST NO: LF5209

572F SN052 LUMBAR FLEX.

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	22 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	120.10 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	164.58 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	213.50 N
NET RETURN ANGLE	< 12 DEG.	1.50 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Ry Cault

RUN NUMBER: 010899.1400

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

30-NOV-98

TRC INC.

572F SN52 DAMPER TEST CAL08

TEST NUMBER: DP5208A

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	33.0 %
VELOCITY	FORCE	838 - 1125 N	967 N
3.05 M/S	DISPLACEMENT	30.2 - 35.2 MM	31.8 MM
VELOCITY	FORCE	1733 - 2100 N	1838 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.9 MM
VELOCITY	FORCE	3743 - 4448 N	4139 N
6.10 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.2 MM

DAMPER SETTING = 9.0

TEST MEETS SPECIFICATIONS

TECHNICIAN *By Cuth*

RUN NUMBER: 113098.0837;3

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

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL08

TRC TEST NUMBER: DP5208A

50

40

30

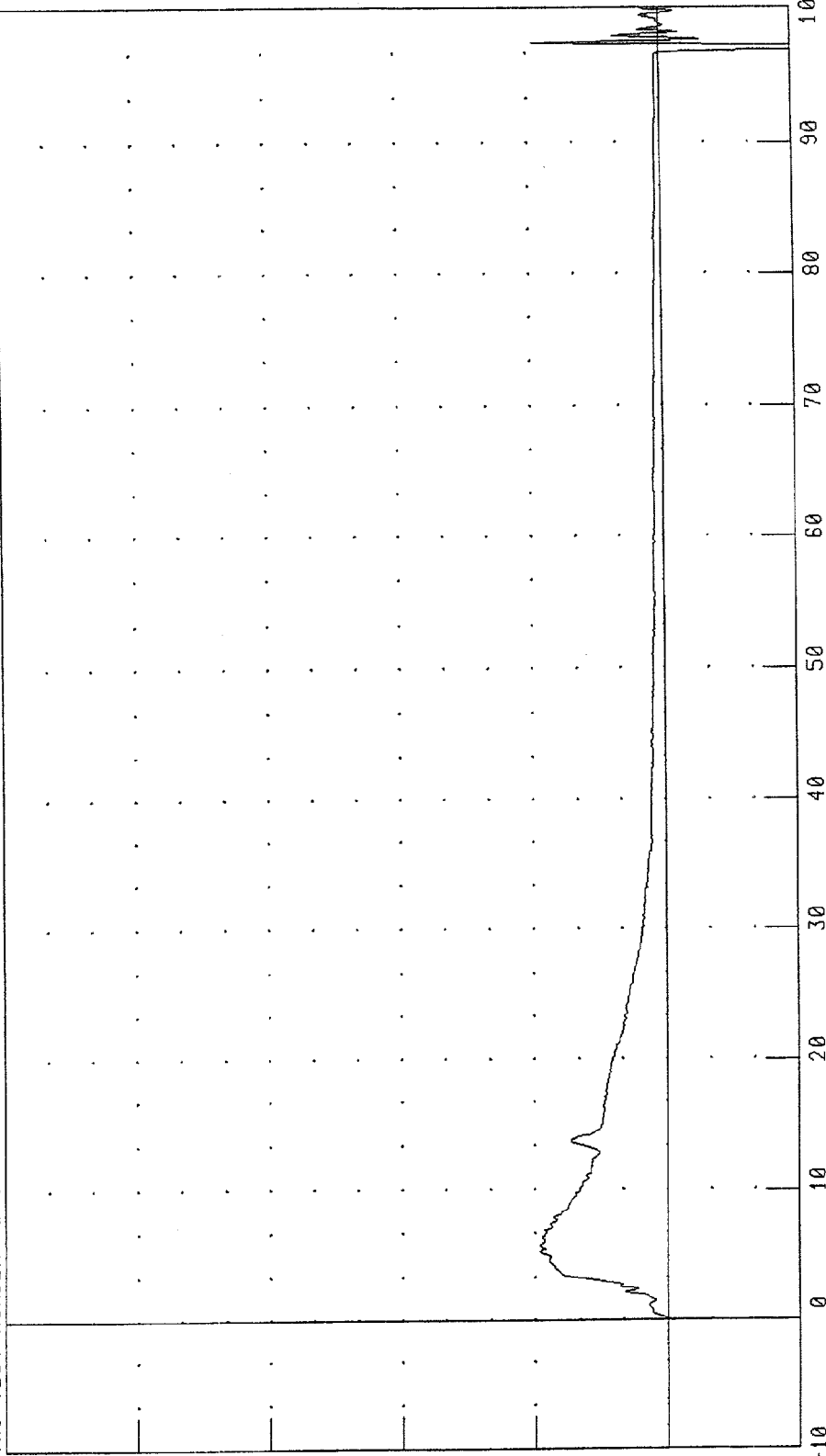
20

10

0

-10

FORCE (N X 10²)



TIME (MS)

PEAK DATA: 967.30 N @ 5.28 MS; -3039.95 N @ 97.12 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

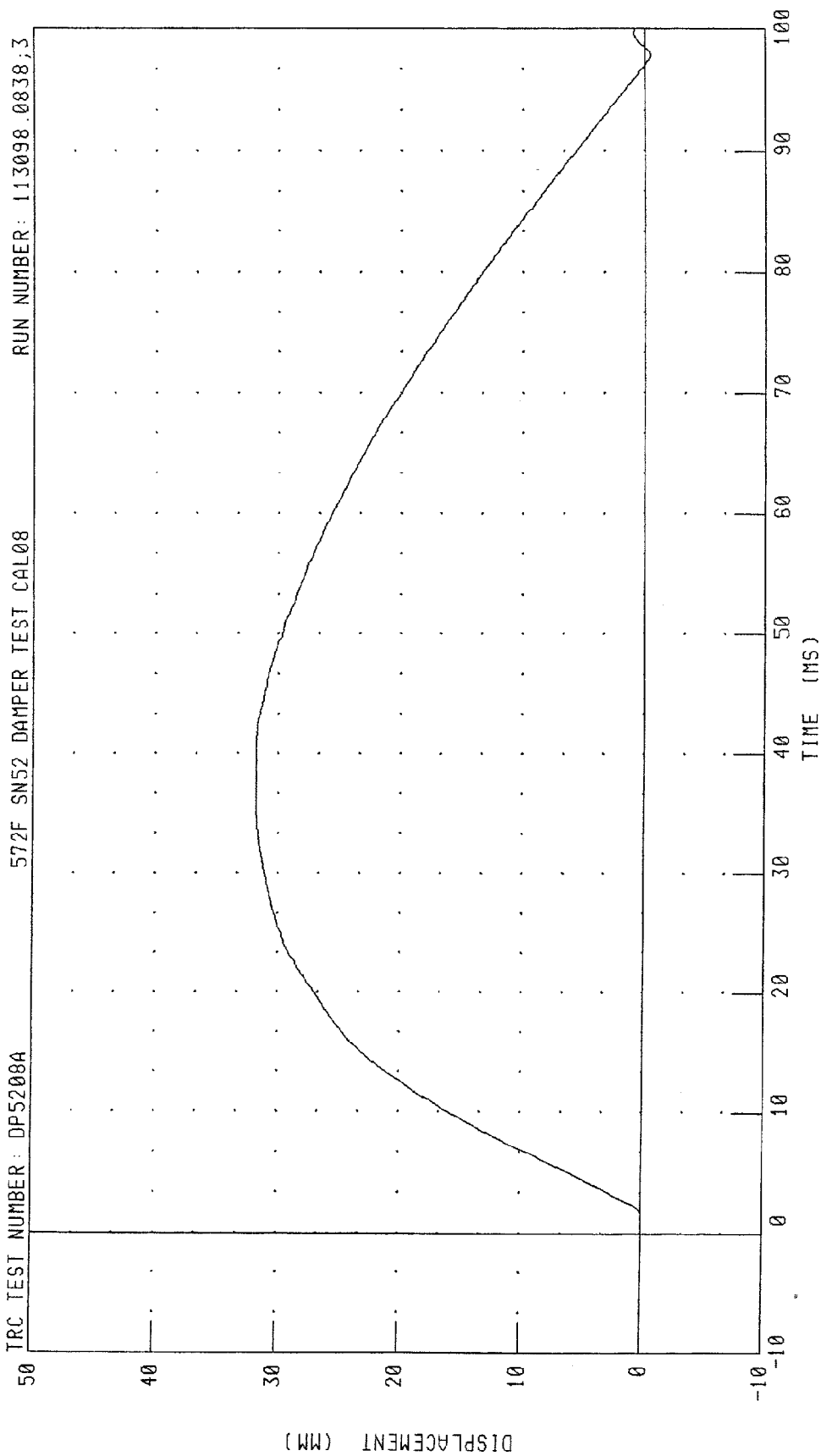
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5208A

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838;3



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 31.82 MM @ 35.68 MS; -0.48 MM @ 97.76 MS

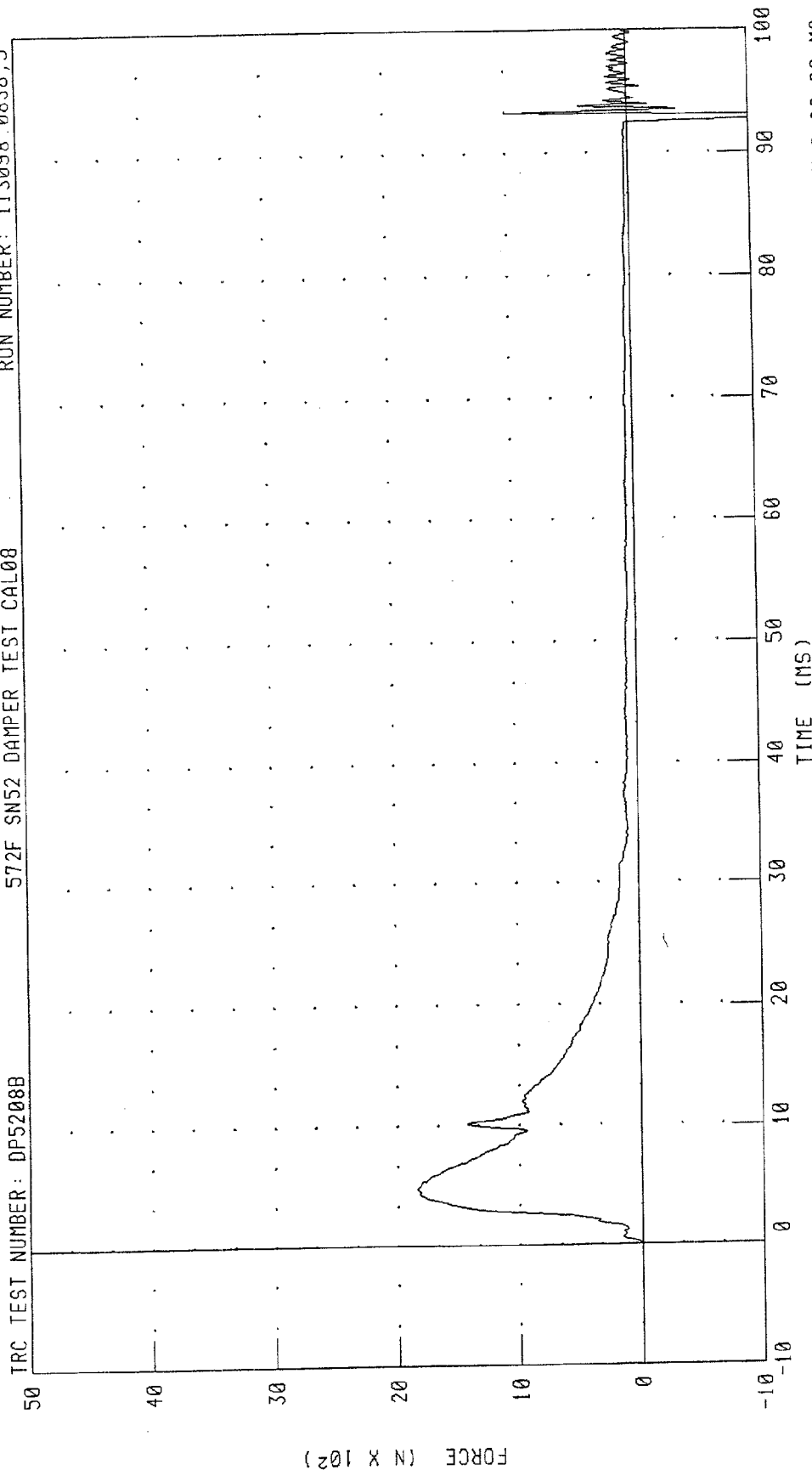
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL08

TRC TEST NUMBER: DP5208B

RUN NUMBER: 113098 0838,9



PEAK DATA: 1838.07 N @ 4.88 MS; -2975.51 N @ 92.96 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

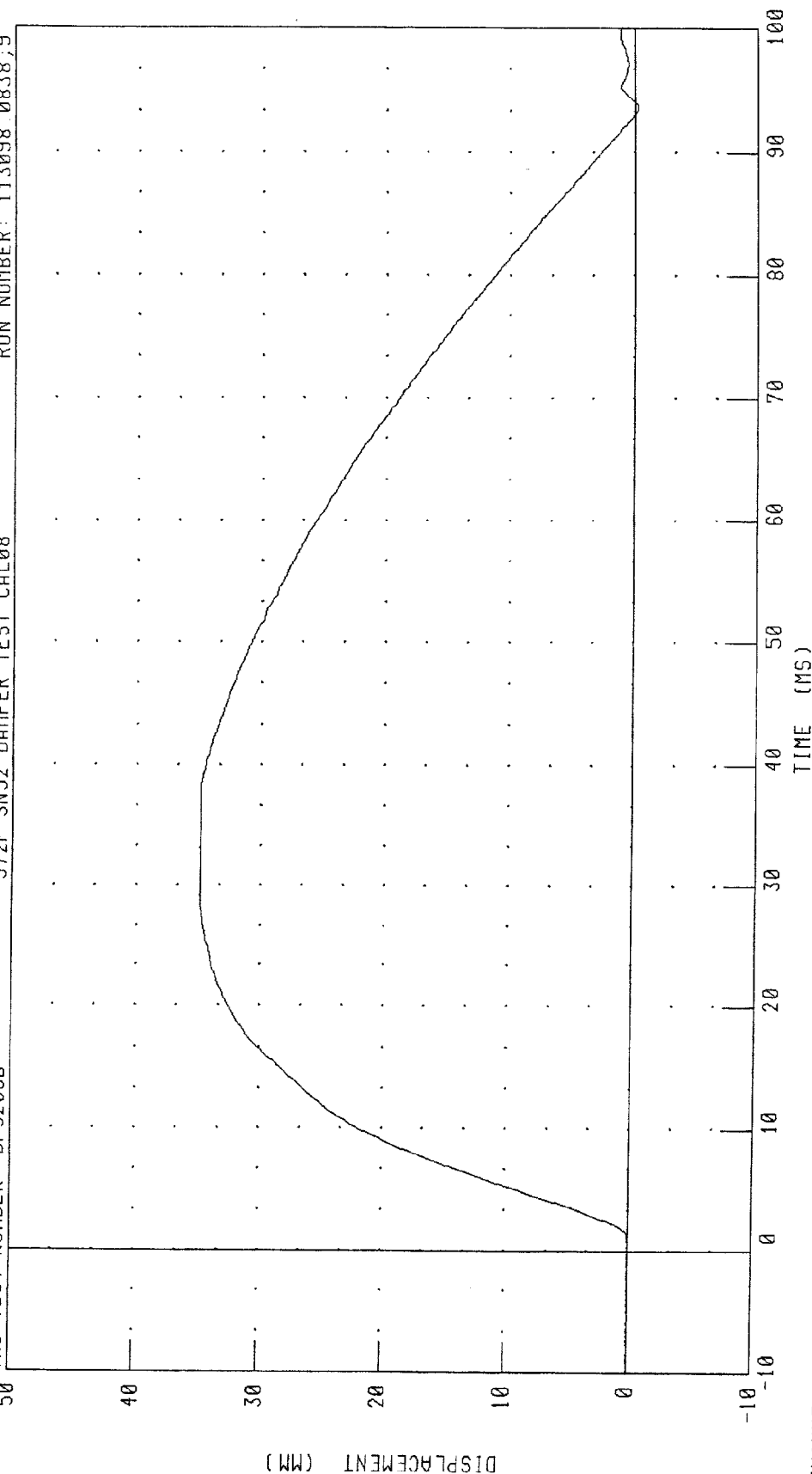
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5208B

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098 0838.9



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 34.94 MM @ 29.20 MS; -0.28 MM @ 93.60 MS

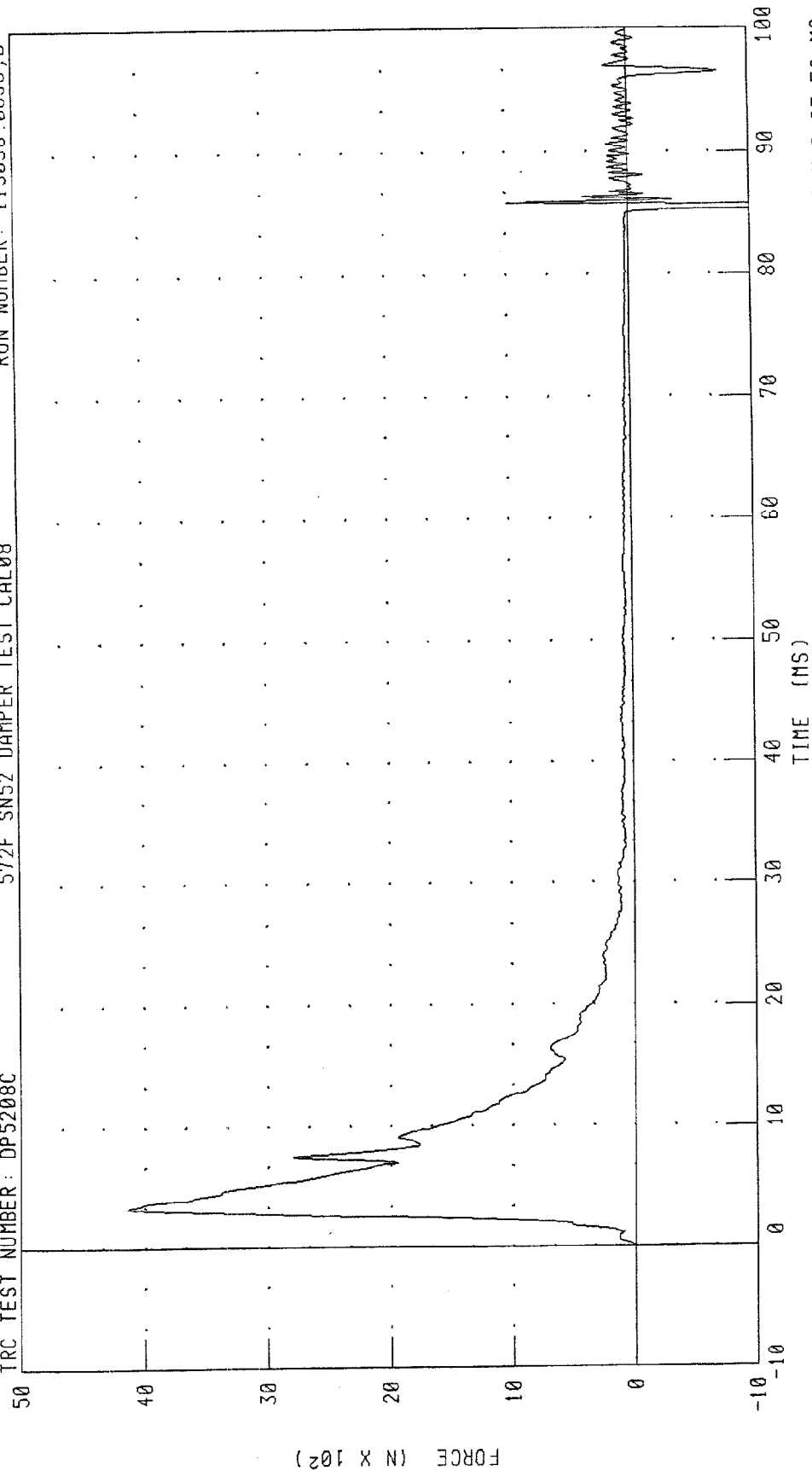
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL08

TRC TEST NUMBER: DP5208C

RUN NUMBER: 113098.0838;6



PEAK DATA: 4138.81 N @ 3.28 MS, -3157.30 N @ 85.52 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

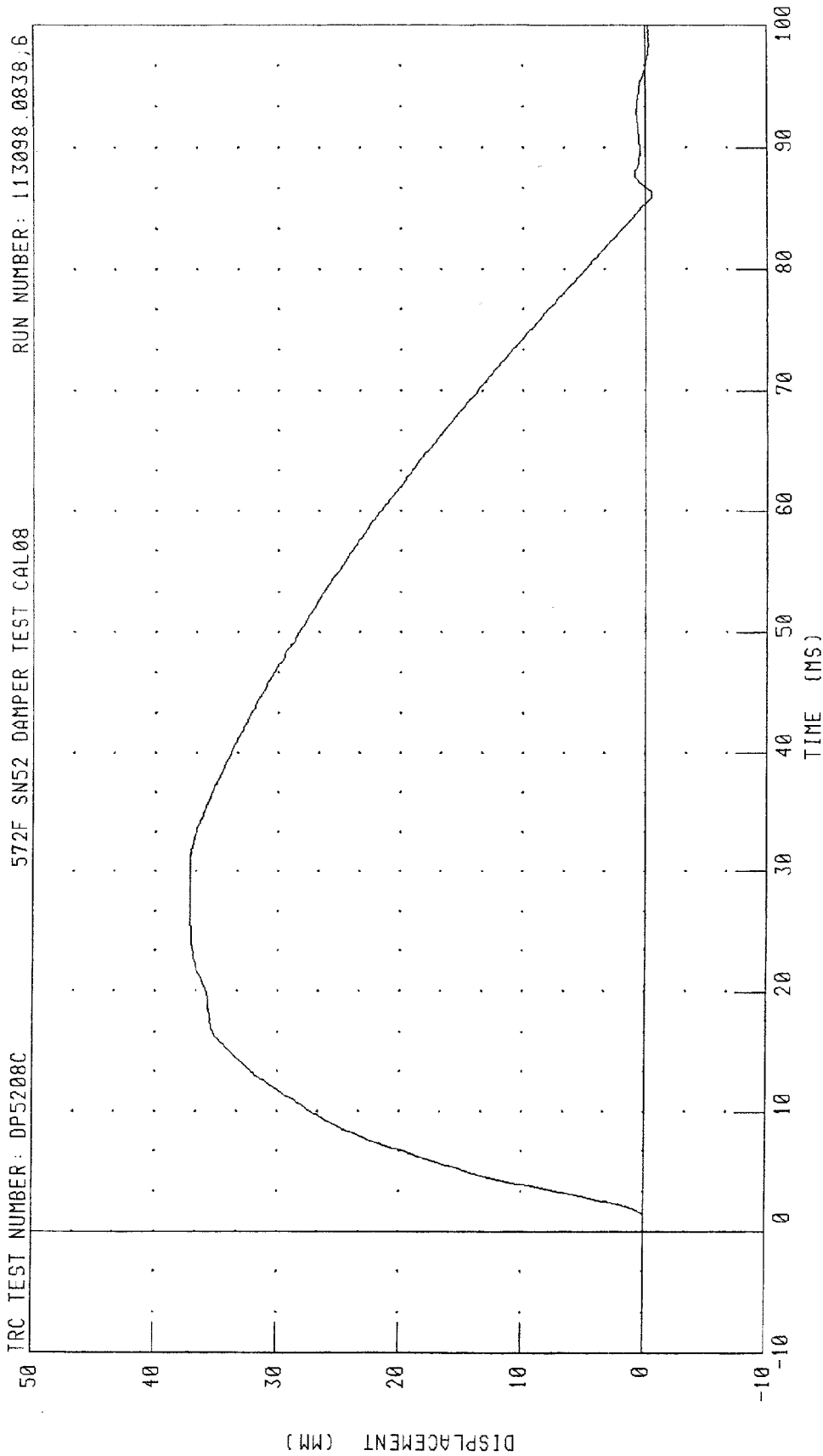
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5208C

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838,6



PEAK DATA: 37.19 MM @ 26.96 MS; -0.56 MM @ 86.08 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

Calibration Test Results

Post-Test

SID: 051

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax failed with a marginally low acceleration of the lower rib bar.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax failed the 4.28 m/s drop with low force

TRANSPORTATION RESEARCH CENTER INC.
 SIDE IMPACT DUMMY
 EXTERNAL DIMENSIONS
 LEFT SIDE CONFIGURATION
 SN SN51 VECTOR

18-01-99

TRC INC. TEST NO: ED5111 572F SN51 EXT.DIMESIONS CAL11

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		20.0 %
SH	SEATED HEIGHT	889 - 909 MM	901.7 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	520.7 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	502.9 MM
HW	HIP WIDTH	356 - 391 MM	373.4 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	501.6 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	177.8 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	177.8 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

B. J. Call

RUN NUMBER: 011999.0732

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5111

572F SN51 LEFT THORAX CAL11

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-36.7 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-36.9 G *
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-17.5 G

* TEST DOES NOT MEET SPECIFICATIONS

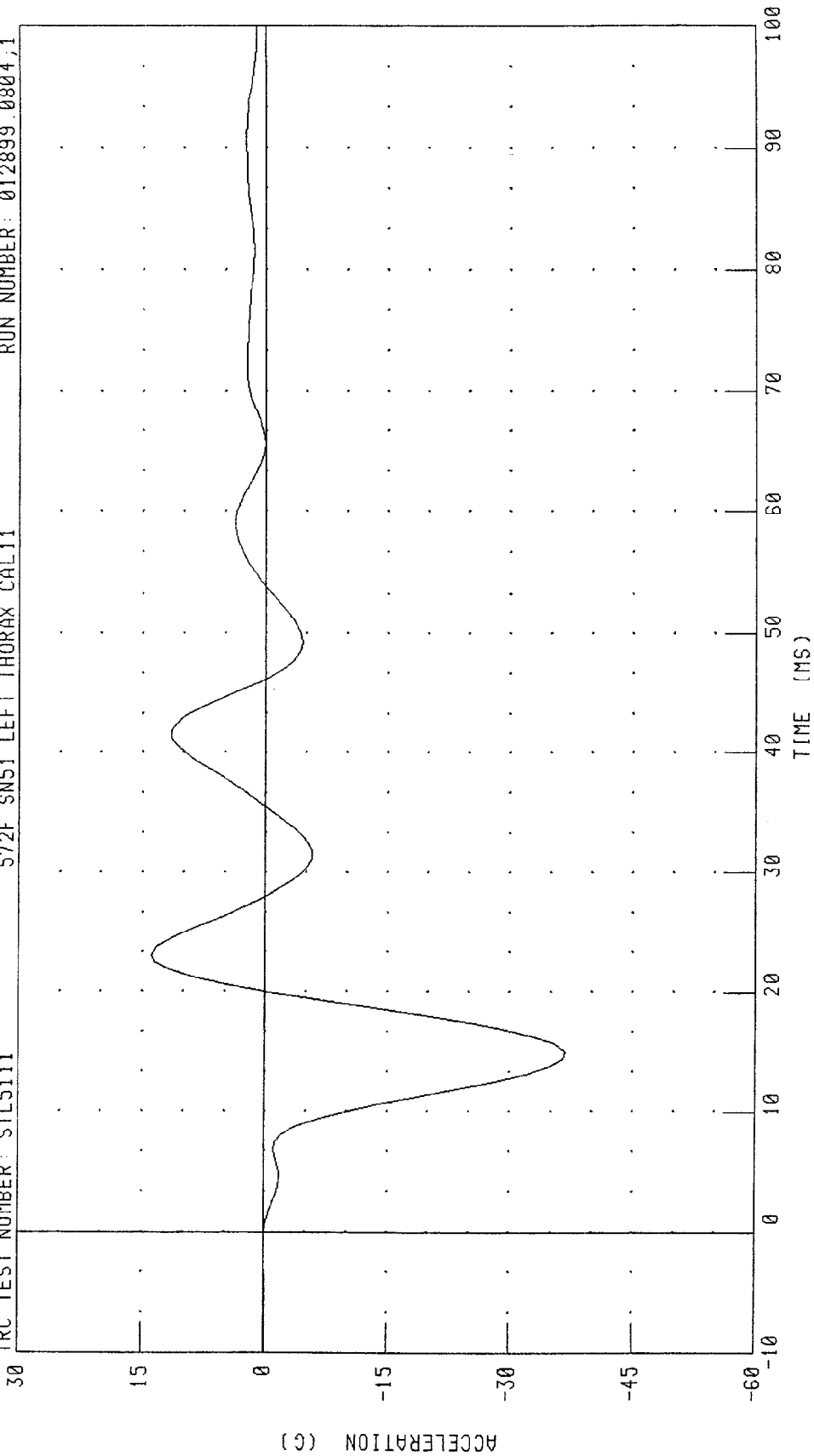
TECHNICIAN

Ry Calh

RUN NUMBER: 011899.1433;1

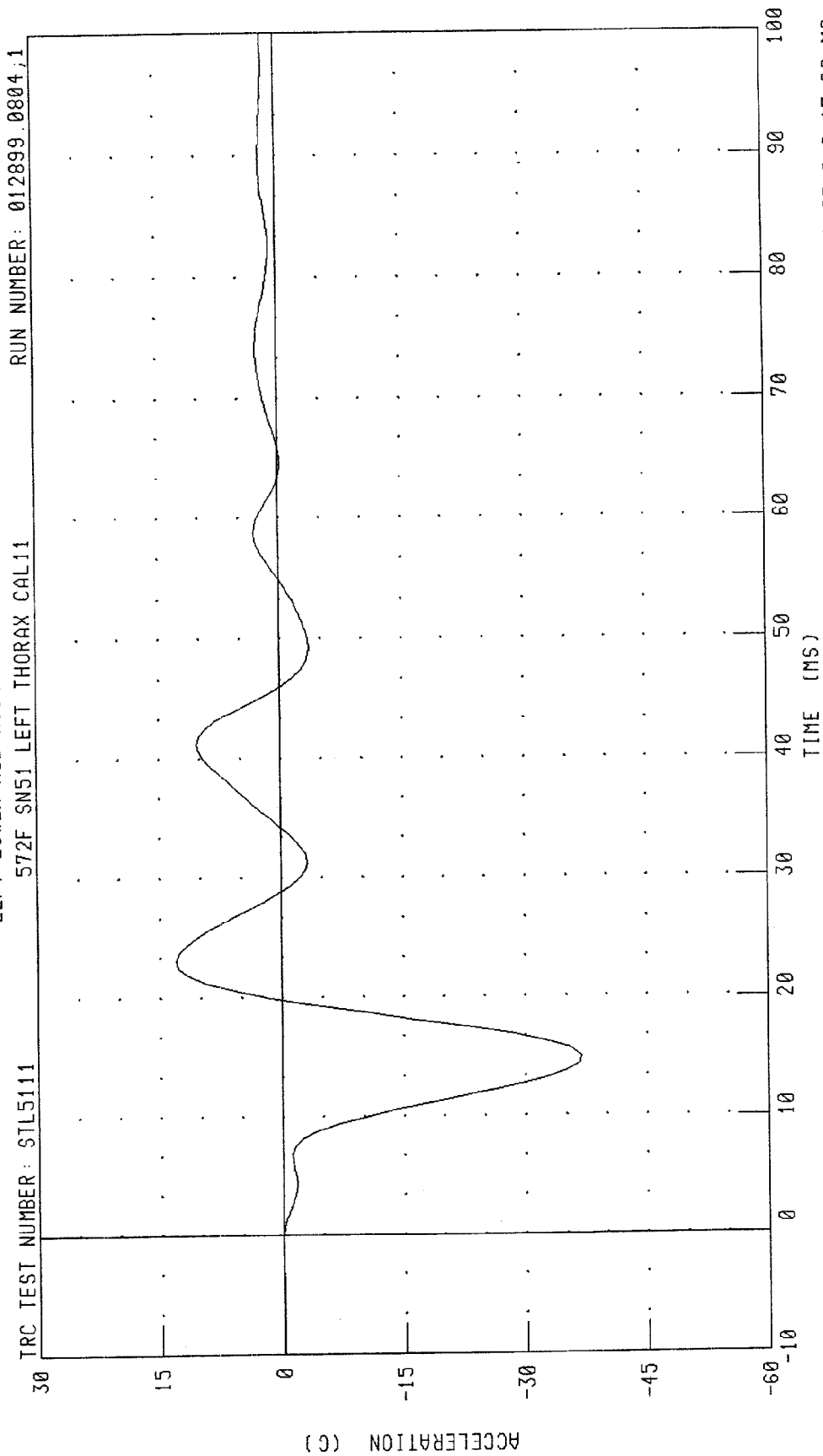
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
LEFT UPPER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL5111 572F SN51 LEFT THORAX CAL11 RUN NUMBER: 012899.0804;1



CHANNEL: LURYG FILTER: FIR 100 PEAK DATA: 13.88 G @ 23.13 MS, -36.74 G @ 15.00 MS

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

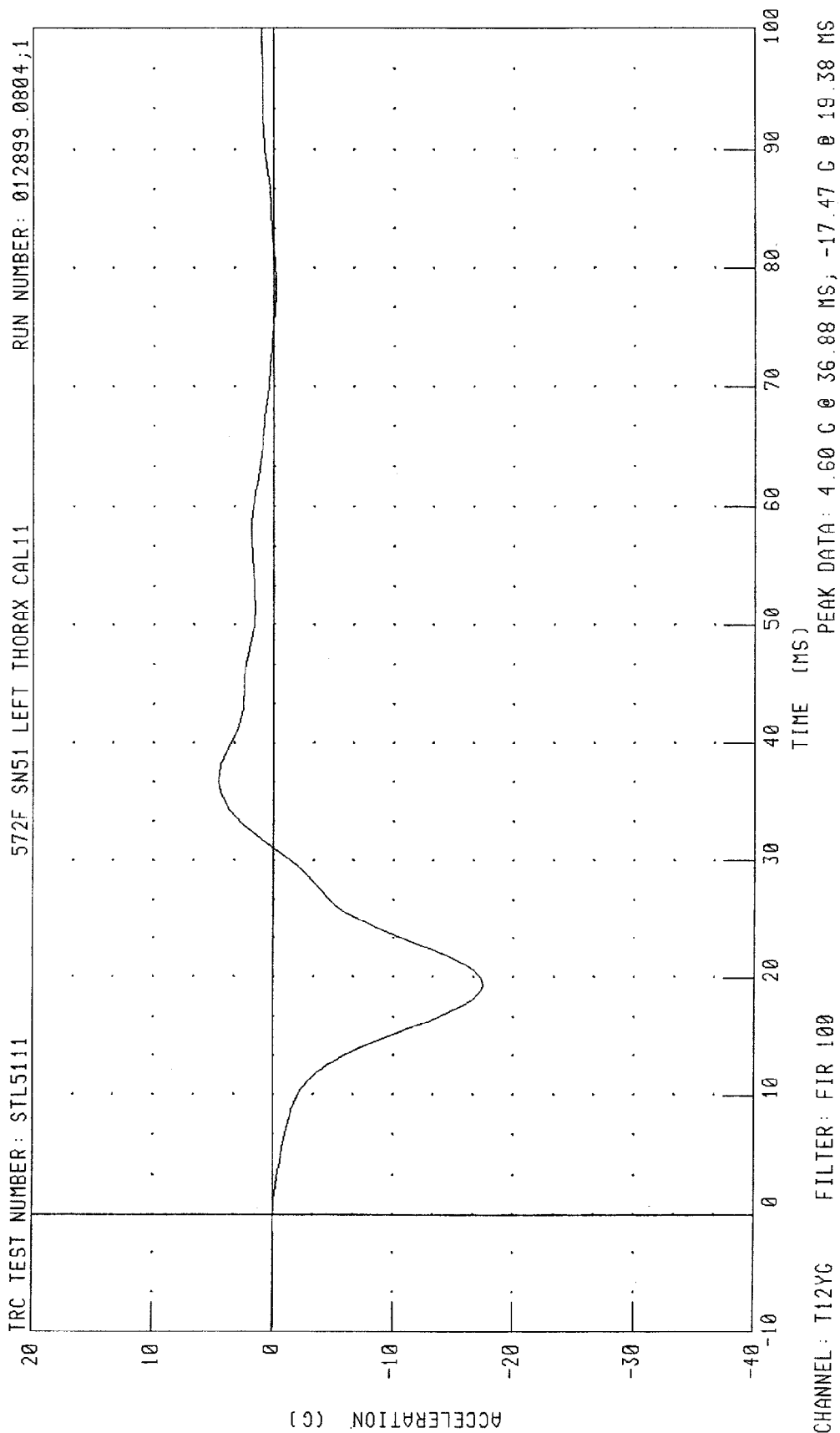


PEAK DATA: 13.05 G @ 23.13 MS; -36.93 G @ 15.00 MS

CHANNEL: LLRYC FILTER: FIR 100

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

LOWER SPINE ACCELERATION Y AXIS



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5111

572F SN51 LEFT PELVIS CAL11

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.28 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-52.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

By Calt

RUN NUMBER: 011899.1338;1

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

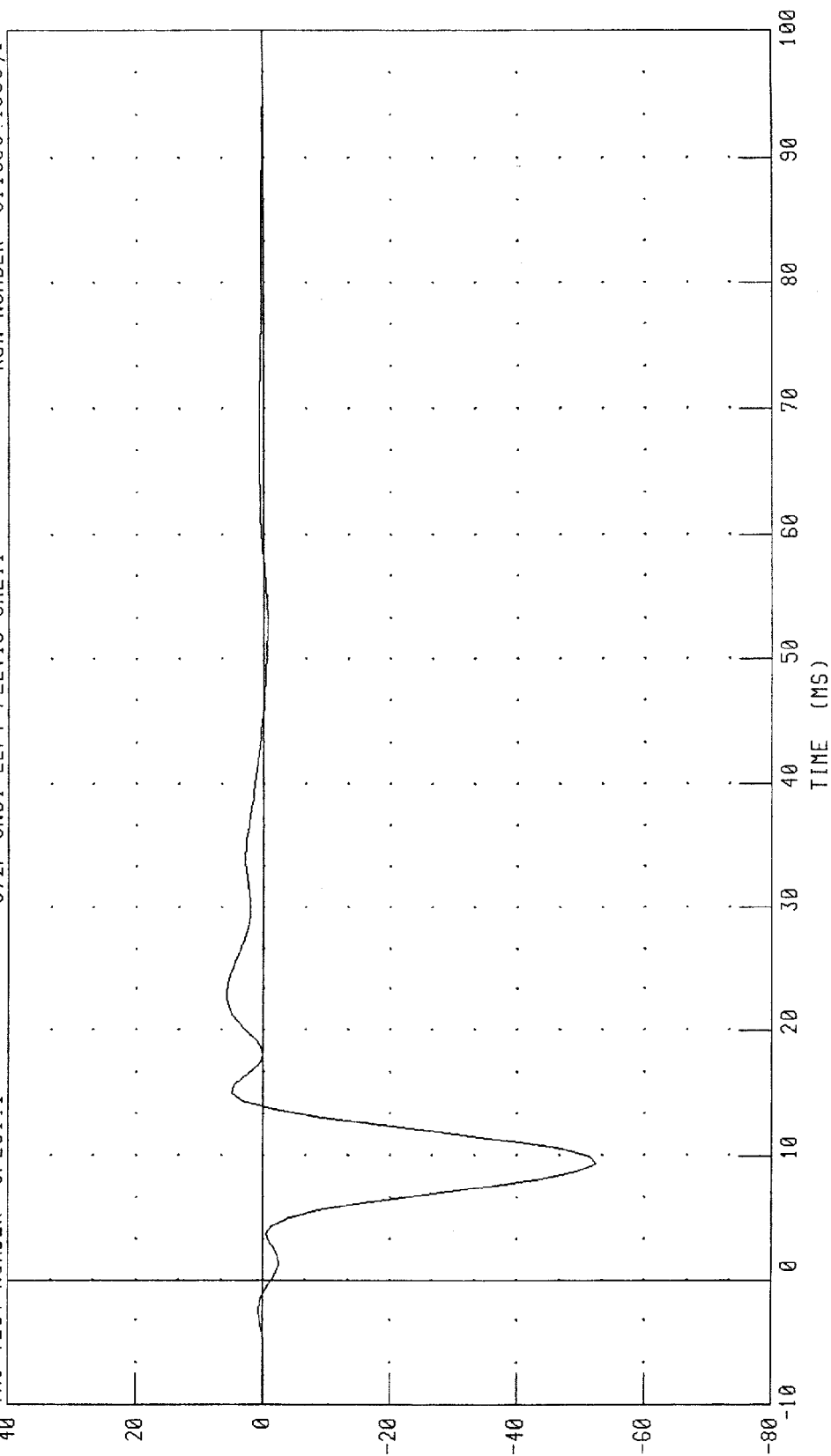
PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5111

572F SN51 LEFT PELVIS CAL11

RUN NUMBER: 011899.1338,1

ACCELERATION (G)



990111

C-46

CHANNEL: PEVYC FILTER: FIR 100

TIME (MS)

PEAK DATA: 5.83 G @ 22.50 MS; -52.47 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

18-JAN-99

TRC INC.

TEST NO: ABD5111

ABDOMIN COMPRESSION TEST SN51

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.82 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	139.04 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	206.54 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	285.78 N *
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	404.63 N *
	23.69 MM206.41 - 264.34 N	264.75 N *

* DUMMY DOES NOT MEET SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 011899.0833;1

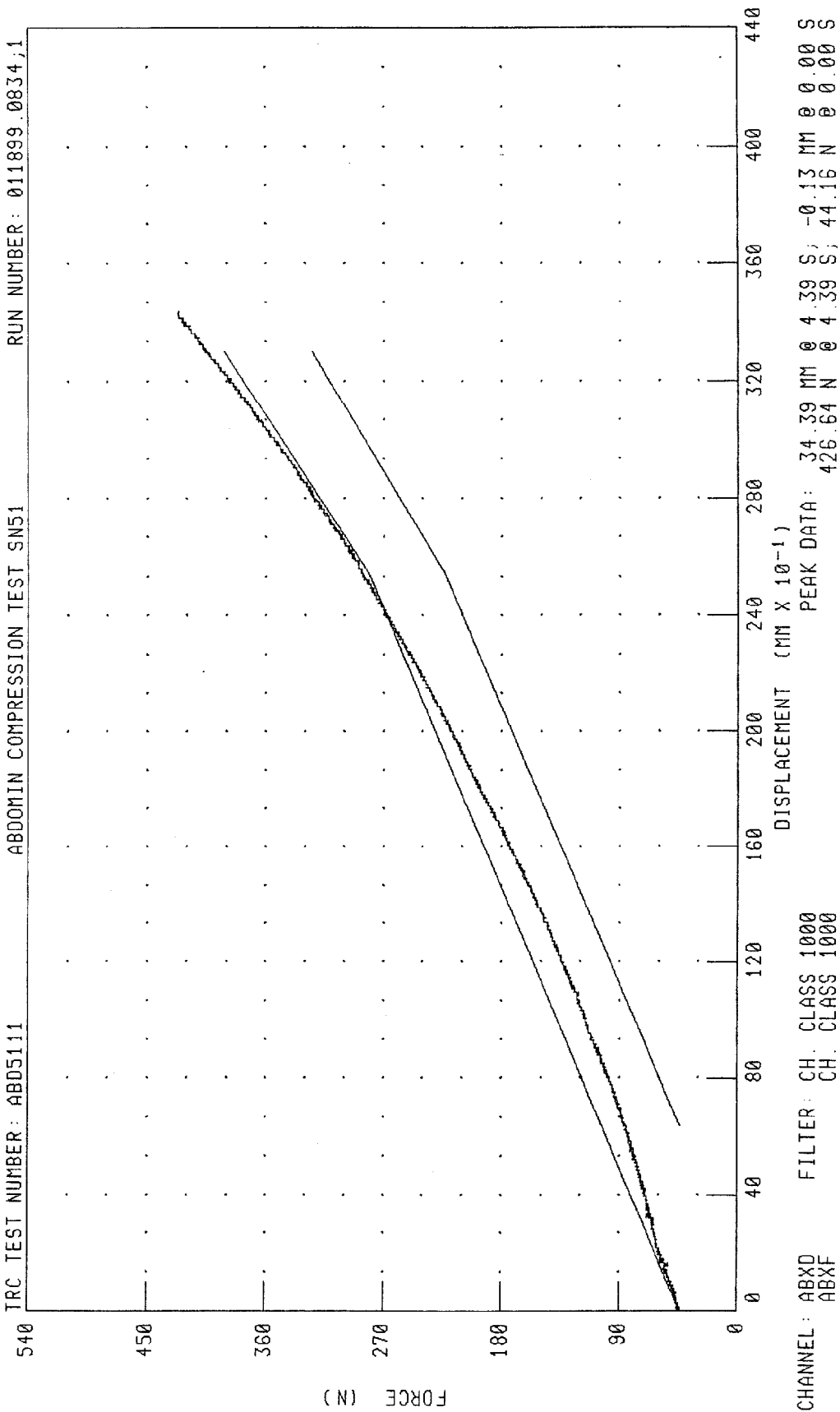
PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN51

TRC TEST NUMBER: ABD5111

RUN NUMBER: 011899.0834,1



TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

18-JAN-99

TRC INC.

TEST NO: ABD5111C

ABDOMIN COMPRESSION TEST SN51

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.69 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	130.73 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	192.85 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	270.62 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	384.09 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

By Calt

RUN NUMBER: 011899.1049;1

PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN51

TRC TEST NUMBER: ABD5111C

540

450

360

270

180

90

0

0

40

80

120

160

200

240

280

320

360

400

440

DISPLACEMENT (MM X 10⁻¹)

PEAK DATA: 34.39 MM @ 4.42 S; -0.13 MM @ 0.00 S

405.61 N @ 4.42 S; 43.67 N @ 0.00 S

CHANNEL: ABXD

ABXF

FILTER: CH. CLASS 1000

CH. CLASS 1000

RUN NUMBER: 011899.1050;1

0

90

180

270

360

450

540

FORCE (N)

C-50

990111

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

18-01-99

TRC INC. TEST NO: LF5111

572F SN51 LUMBAR FLEX.

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	115.65 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	177.92 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	217.95 N
NET RETURN ANGLE	< 12 DEG.	3.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bryant

RUN NUMBER: 011899.1519

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

18-JAN-99

TRC INC.

572F SN51 DAMPER TEST CAL11

TEST NUMBER: DP5111B

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	20.0 %
VELOCITY	FORCE	1733 - 2100 N	1628 N *
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.8 MM

DAMPER SETTING = 6.0

* TEST DOES NOT MEET SPECIFICATIONS

TECHNICIAN *By cult*

RUN NUMBER: 011899.1024;1

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

18-JAN-99

TRC INC.

572F SN51 DAMPER TEST CAL11

TEST NUMBERS: DP5111A,DP5111B,DP5111C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	20.0 %
VELOCITY	FORCE	838 - 1125 N	916 N
3.06 M/S	DISPLACEMENT	30.2 - 35.2 MM	31.6 MM
VELOCITY	FORCE	1733 - 2100 N	1833 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.8 MM
VELOCITY	FORCE	3784 - 4495 N	4149 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.7 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN

Ryalt

RUN NUMBER: 011899.1111;1

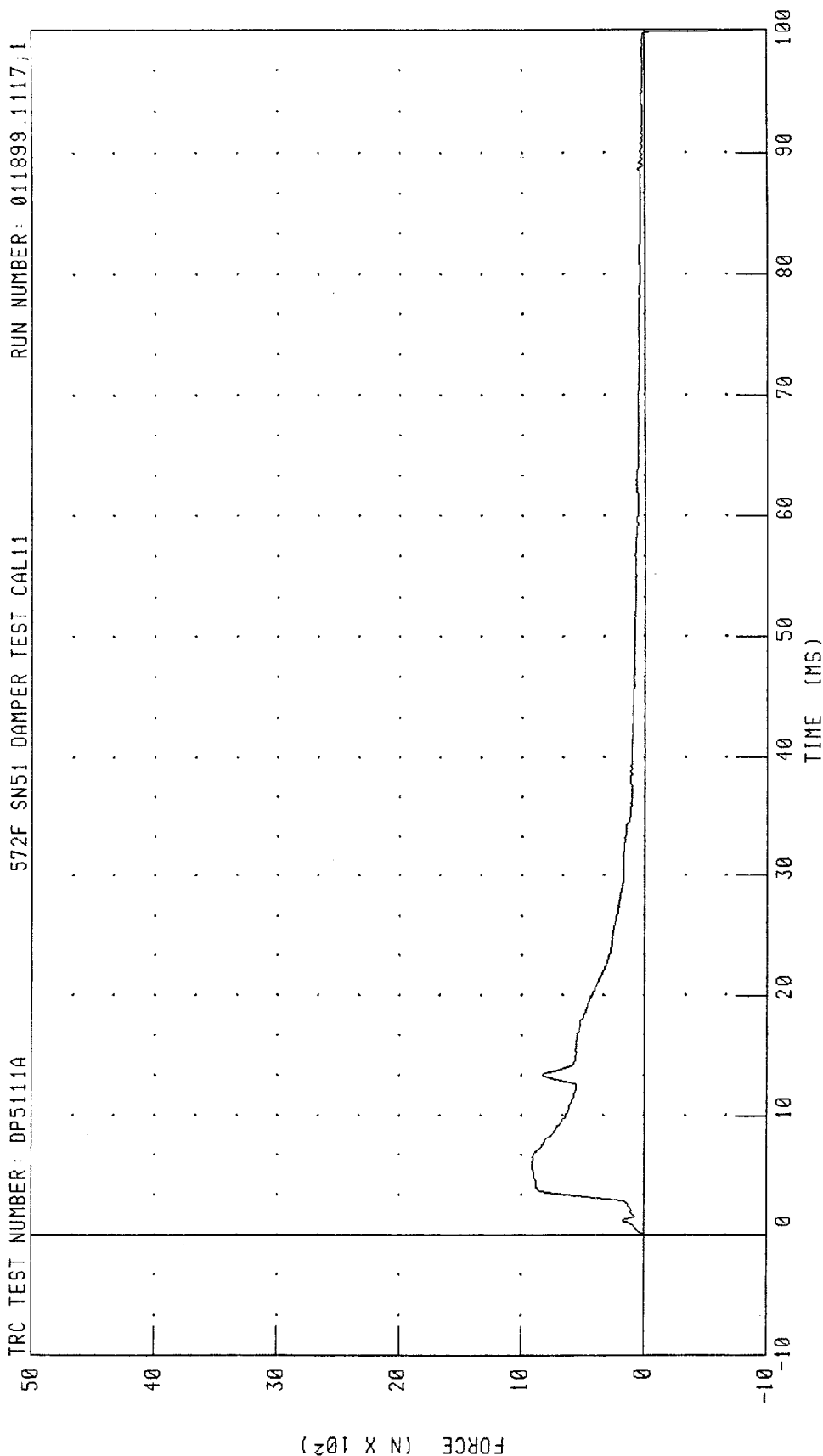
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111A

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1117.1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 916.34 N @ 5.68 MS, -1458.68 N @ 100.00 MS

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

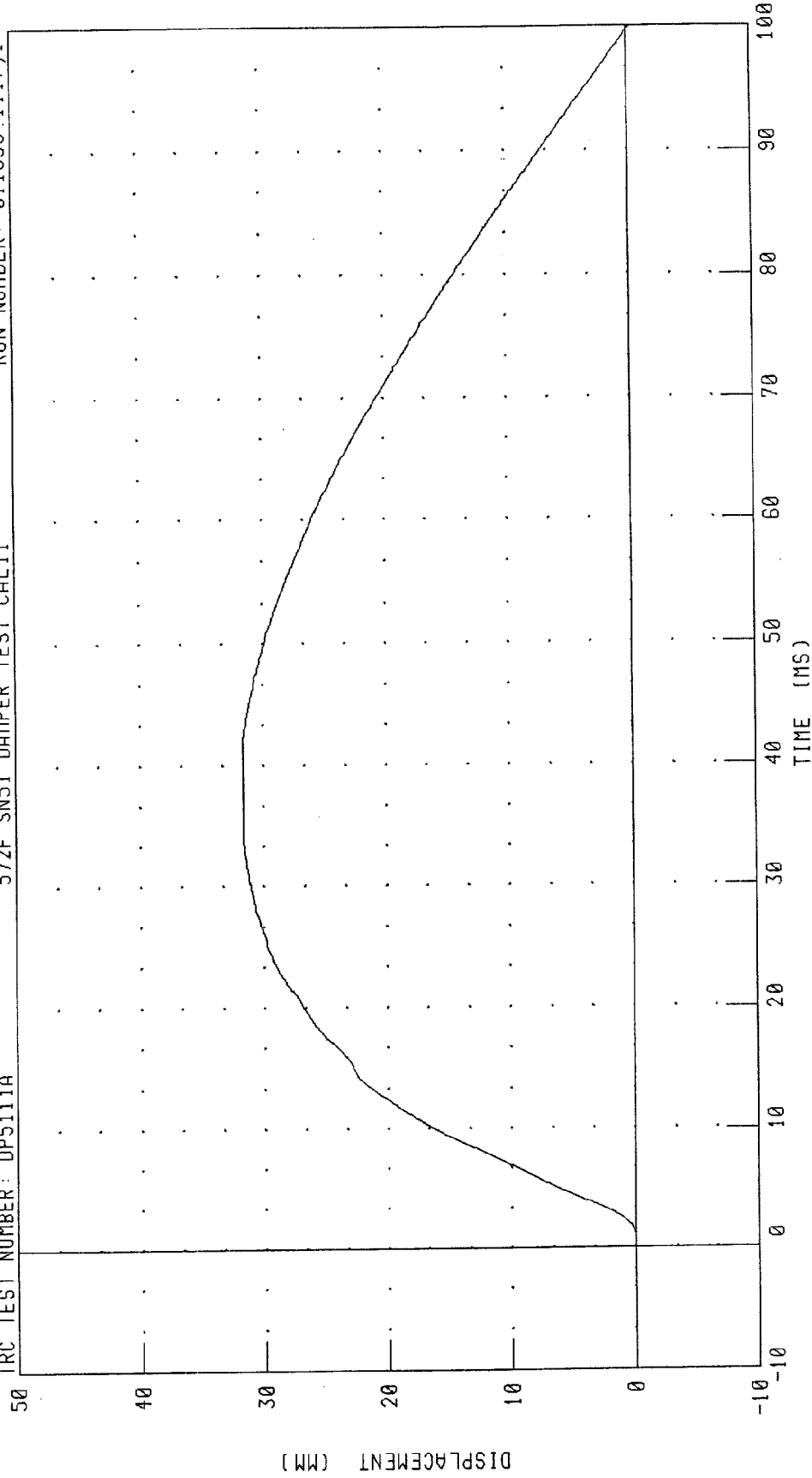
SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL11

TRC TEST NUMBER: DP5111A

572F SN51 DAMPER TEST CAL11

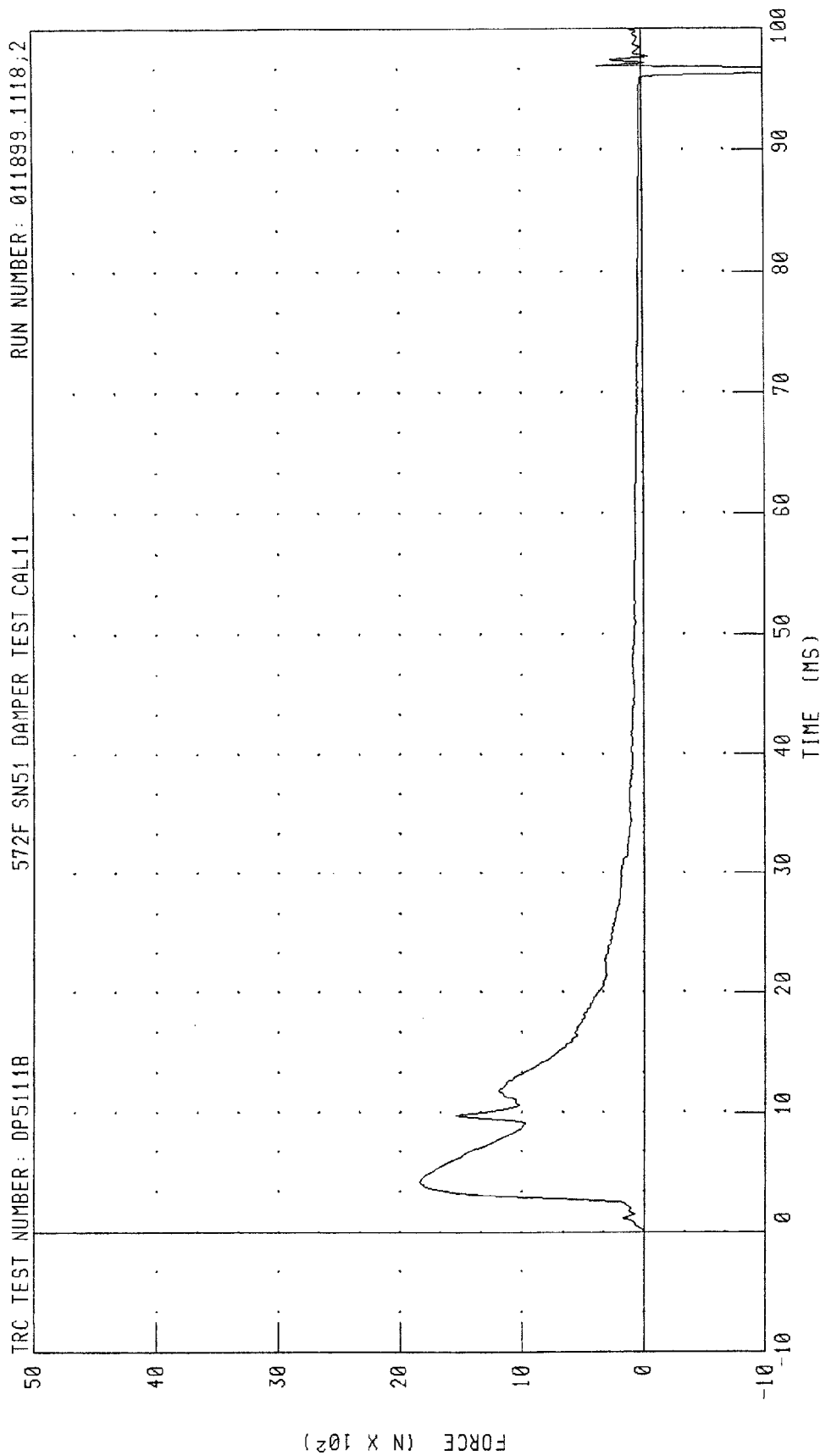
RUN NUMBER: 011899.1117,1



PEAK DATA: 31.65 MM @ 34.80 MS, -0.35 MM @ 100.00 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

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



PEAK DATA: 1832.88 N @ 4.16 MS, -2350.29 N @ 96.48 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1118;2

TRC TEST NUMBER: DP5111B

50

40

30

20

10

0

-10

DISPLACEMENT (MM)

TIME (MS)

100

90

80

70

60

50

40

30

20

10

0

PEAK DATA: 34.81 MM @ 32.96 MS; -0.85 MM @ 96.96 MS

FILTER: CH. CLASS 1000

CHANNEL: CSTYD

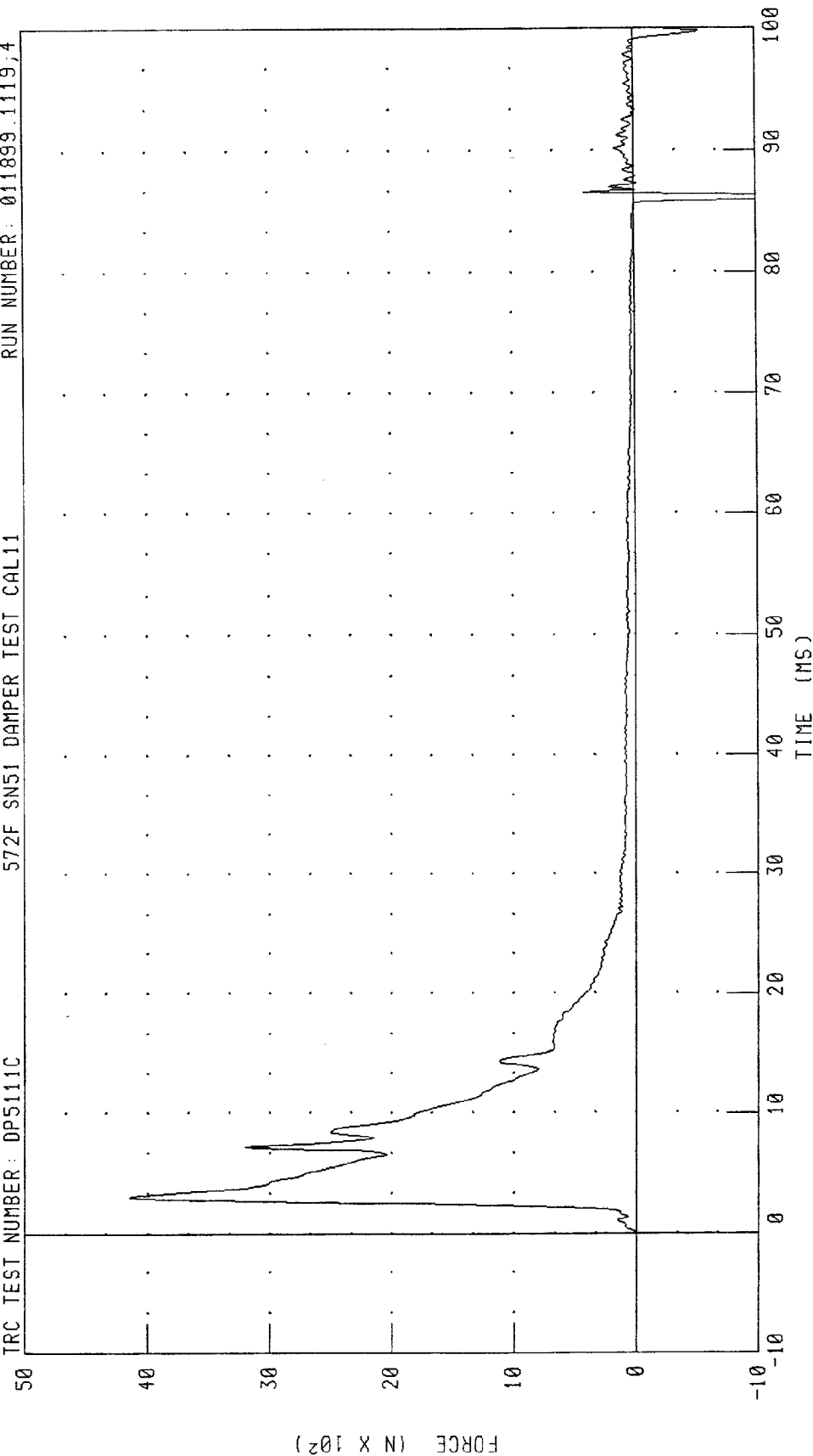
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (5.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5111C

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1119,4



PEAK DATA: 4149.11 N @ 3.04 MS; -2721.84 N @ 86.16 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

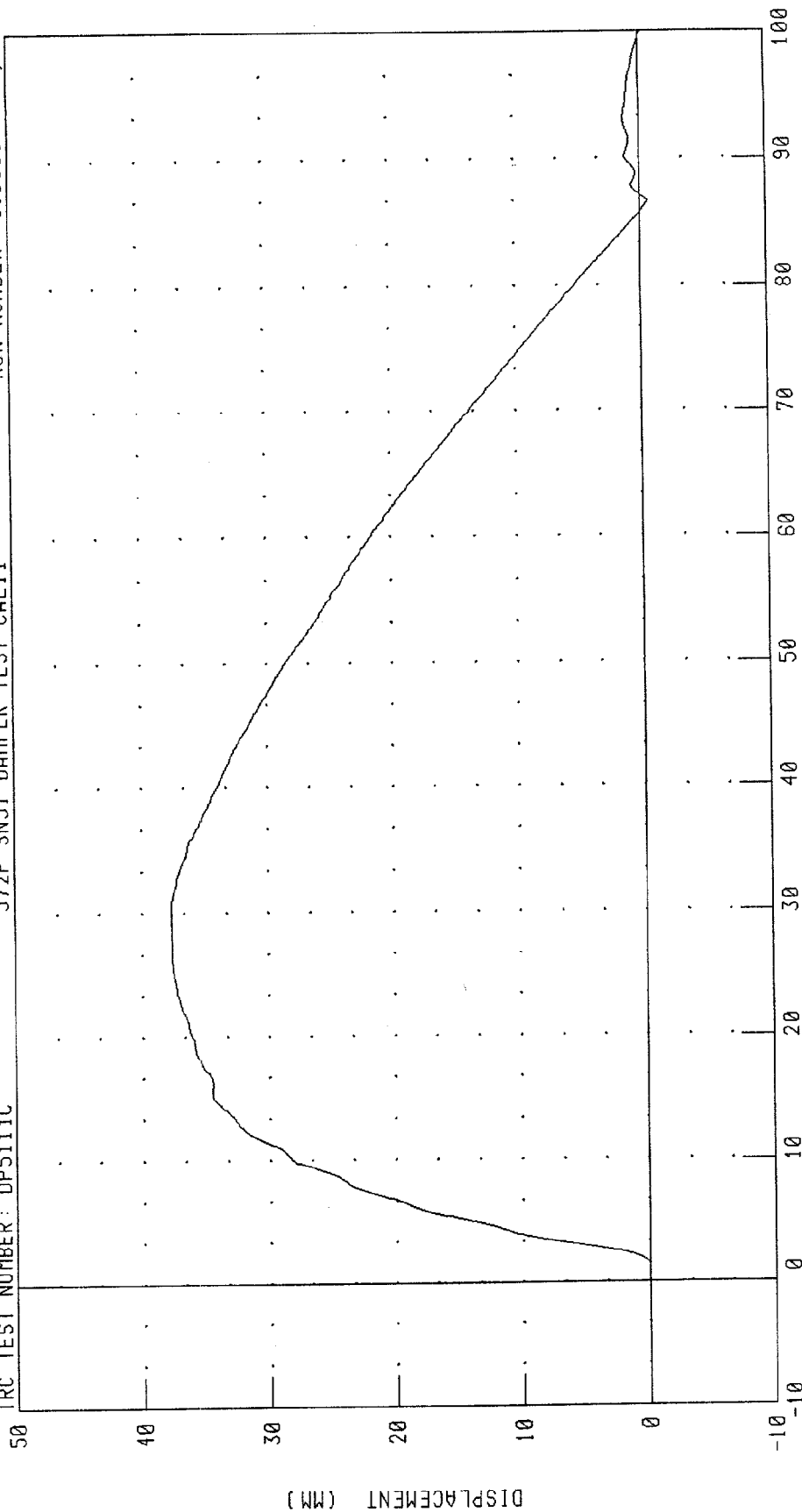
SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL11

RUN NUMBER: 011899.1119;4

TRC TEST NUMBER: DP5111C

50



TIME (MS)

PEAK DATA: 37.66 MM @ 26.72 MS; -0.60 MM @ 86.48 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

Calibration Test Results

Post-Test

SID: 052

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Pelvis Impact Tests:	The lateral pelvis passed all impact test requirements.
Thorax Shock Absorbers:	The thorax passed all shock absorber requirements.

TRANSPORTATION RESEARCH CENTER INC.
SIDE IMPACT DUMMY
EXTERNAL DIMENSIONS
LEFT SIDE CONFIGURATION
SN SN52 VECTOR

18-01-99

TRC INC. TEST NO: ED5210 572F SN52 EXT.DIMENSIONS CAL10

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		20.0 %
SH	SEATED HEIGHT	889 - 909 MM	891.5 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	518.2 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	497.8 MM
HW	HIP WIDTH	356 - 391 MM	378.5 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	505.5 MM
RD	RIB FROM BACKLINE	229 - 241 MM	238.8 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	180.3 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	180.3 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Ben Calt

RUN NUMBER: 011999.0738

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5210

572F SN52 LEFT THORAX CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.32 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-42.8 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-41.0 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-19.2 G

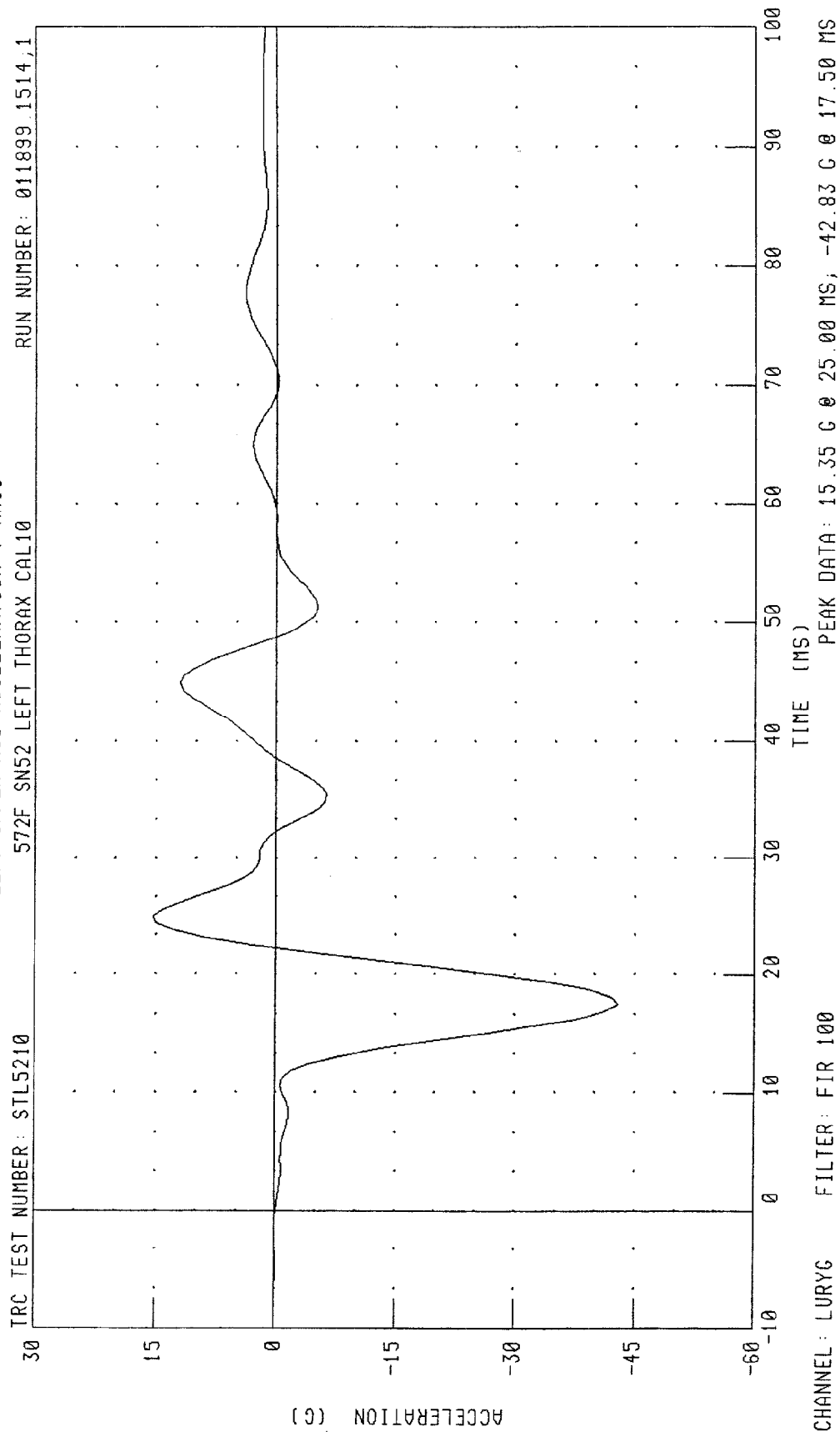
TEST MEETS SPECIFICATIONS

TECHNICIAN

By cult

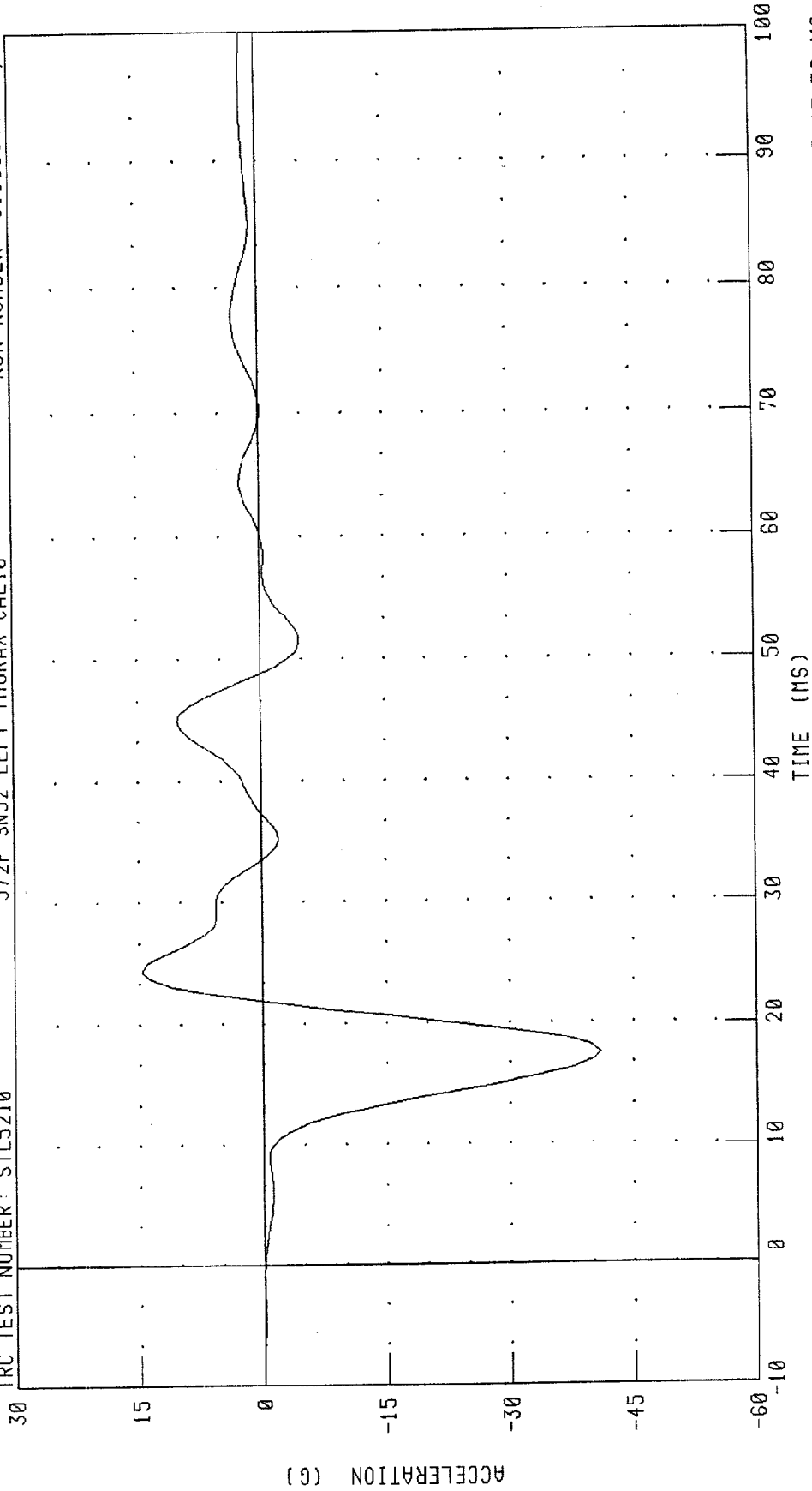
RUN NUMBER: 011899.1514;1

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



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

TRC TEST NUMBER: STL5210 572F SN52 LEFT THORAX CAL10 RUN NUMBER: 011899.1514;1



CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 14.67 G @ 24.38 MS; -41.01 G @ 17.50 MS

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

LOWER SPINE ACCELERATION Y AXIS

572F SN52 LEFT THORAX CAL10

TRC TEST NUMBER: STL5210

20

10

0

-10

-20

-30

-40

ACCELERATION (G)

TIME (MS)

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

200

210

220

230

240

250

260

270

280

290

300

310

320

330

340

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1080

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1100

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1190

1200

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2110

2120

2130

2140

2150

2160

2170

2180

2190

2200

2210

2220

2230

2240

2250

2260

2270

2280

2290

2300

2310

2320

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2390

2400

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2480

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2500

2510

2520

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2580

2590

2600

2610

2620

2630

2640

2650

2660

2670

2680

2690

2700

2710

2720

2730

2740

2750

2760

2770

2780

2790

2800

2810

2820

2830

2840

2850

2860

2870

2880

2890

2900

2910

2920

2930

2940

2950

2960

2970

2980

2990

3000

3010

3020

3030

3040

3050

3060

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

18-JAN-99

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5210

572F SN52 LEFT PELVIS CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	20.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-46.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.9 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

By Calt

RUN NUMBER: 011899.1523;1

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

PELVIS ACCELERATION Y AXIS

572F SN52 LEFT PELVIS CAL10

TRC TEST NUMBER: SPL5210

40

20

0

-20

-40

-60

-80

-100

TIME (MS)

PEAK DATA: 8.19 G @ 23.13 MS; -46.95 G @ 10.00 MS

CHANNEL: PEVYC FILTER: FIR 100

990111

C-67

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

18-JAN-99

TRC INC.

TEST NO: ABD5210

ABDOMIN COMPRESSION TEST SN52

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
DEFLECTION RATE	6.4 - 8.9 MM/S	7.76 MM/S
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	123.25 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	179.98 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	257.26 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	375.63 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Bj Calt

RUN NUMBER: 011899.1231;1

PART 572-B HYBRID II ABDOMEN CALIBRATION

ABDOMEN FORCE VS DISPLACEMENT

ABDOMIN COMPRESSION TEST SN52

RUN NUMBER: 011899.1232.1

TRC TEST NUMBER: ABD5210

540

450

360

270

180

90

0

FORCE (N)

C-69

DISPLACEMENT (MM X 10⁻¹)

FILTER: CH. CLASS 1000
CH. CLASS 1000

CHANNEL: ABXD
ABXF

PEAK DATA: 34.39 MM @ 4.40 S; 0.00 MM @ 0.00 S
398.62 N @ 4.40 S; 43.52 N @ 0.00 S

990111

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

18-01-99

TRC INC. TEST NO: LF5210

572F SN52 LUMBAR FLEX.

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.0 C
RELATIVE HUMIDITY	10 - 70 %	20 %
FORCE AT 0 DEG. FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG. FLEXION	97.86 - 151.24 N	124.54 N
FORCE AT 30 DEG. FLEXION	151.24 - 204.62 N	182.37 N
FORCE AT 40 DEG. FLEXION	204.62 - 258.00 N	226.85 N
NET RETURN ANGLE	< 12 DEG.	0.00 DEG.

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Ray Cull

RUN NUMBER: 011899.1514

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

30-NOV-98

TRC INC.

572F SN52 DAMPER TEST CAL08

TEST NUMBER: DP5208A

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	33.0 %
VELOCITY	FORCE	838 - 1125 N	967 N
3.05 M/S	DISPLACEMENT	30.2 - 35.2 MM	31.8 MM
VELOCITY	FORCE	1733 - 2100 N	1838 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.9 MM
VELOCITY	FORCE	3743 - 4448 N	4139 N
6.10 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.2 MM

DAMPER SETTING = 9.0

TEST MEETS SPECIFICATIONS

TECHNICIAN B. C. Smith

RUN NUMBER: 113098.0837;3

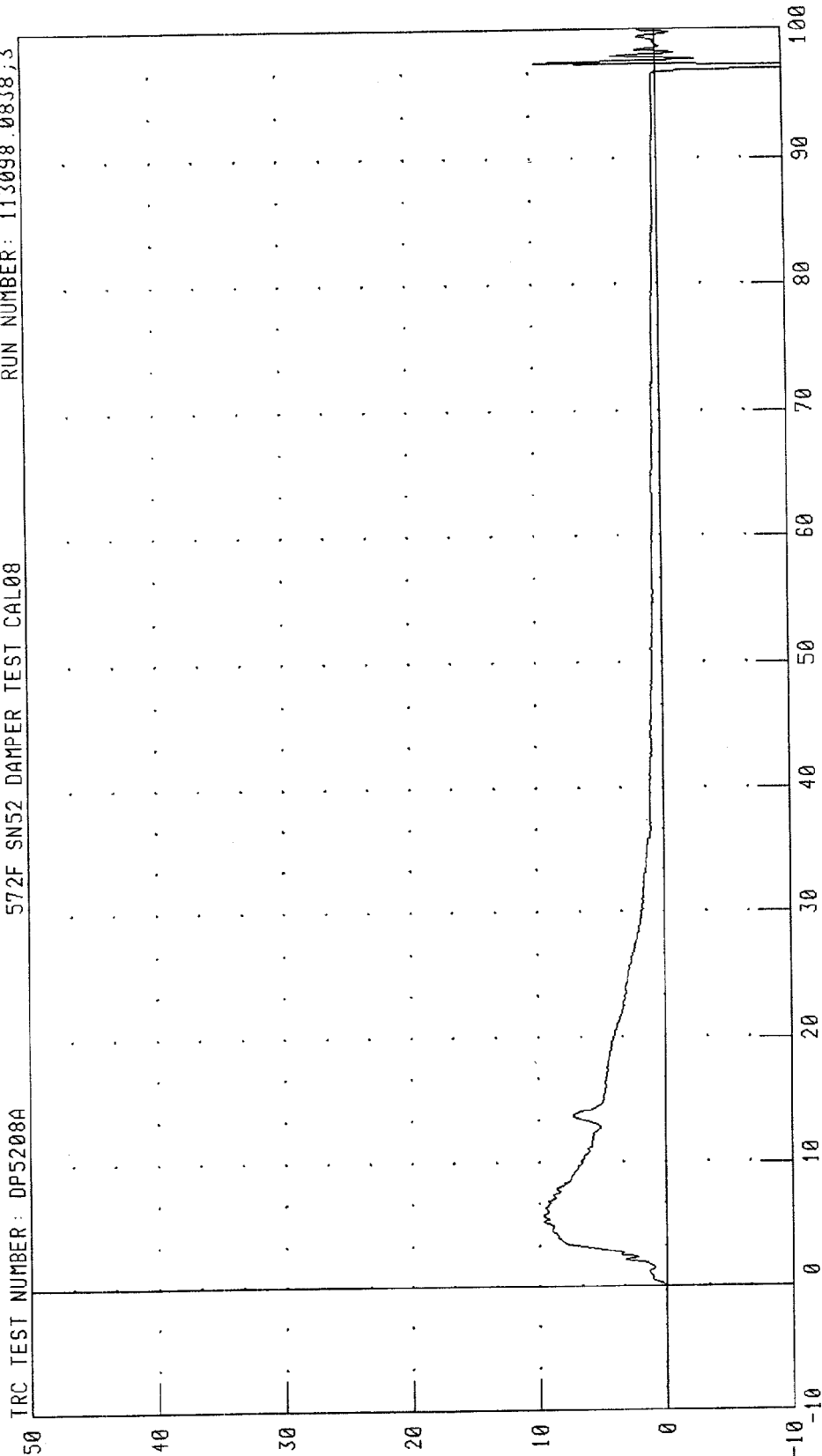
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL08

TRC TEST NUMBER: DP5208A

50



990111

CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 967.30 N @ 5.28 MS; -3039.95 N @ 97.12 MS

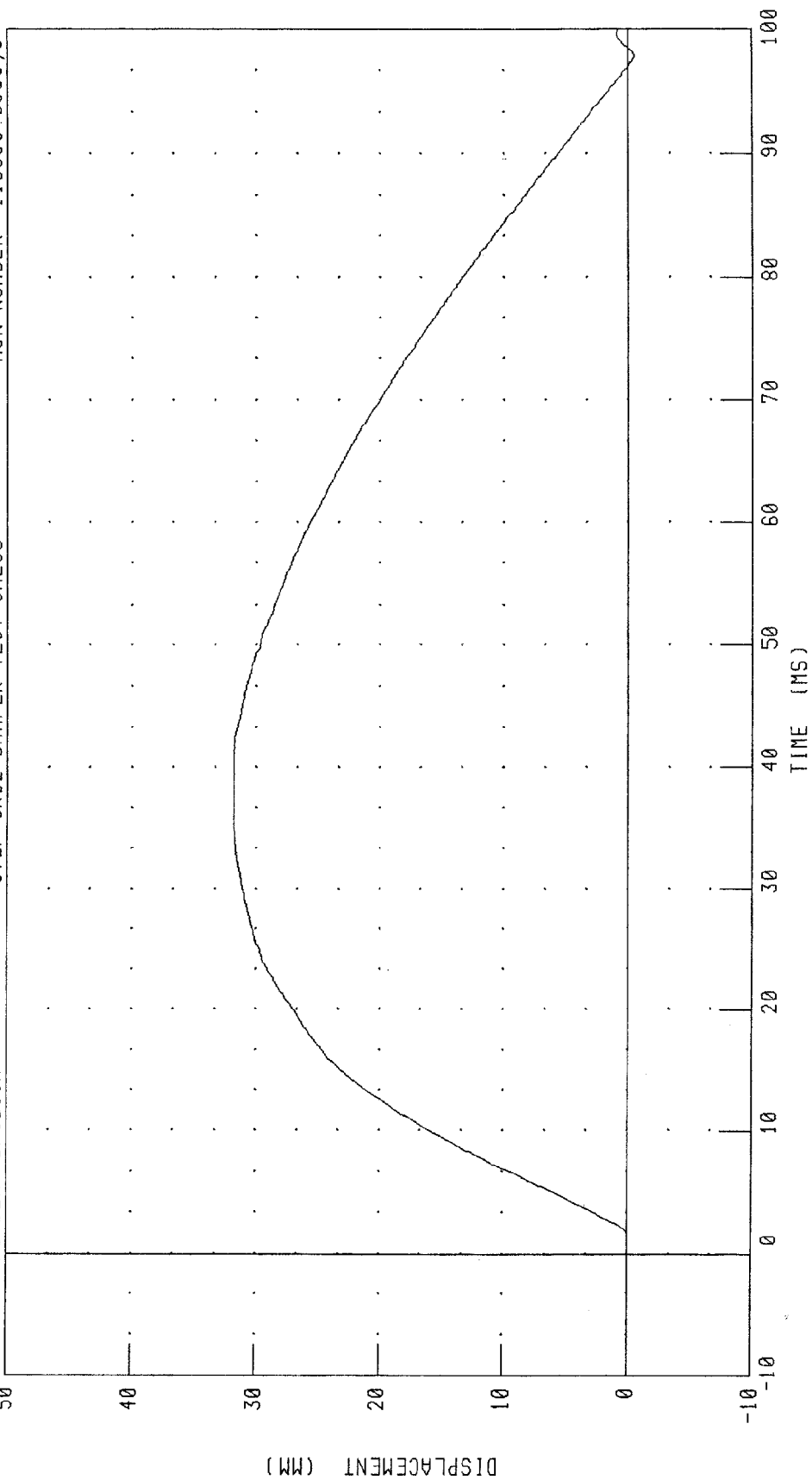
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5208A

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838;3



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 31.82 MM @ 35.68 MS; -0.48 MM @ 97.76 MS

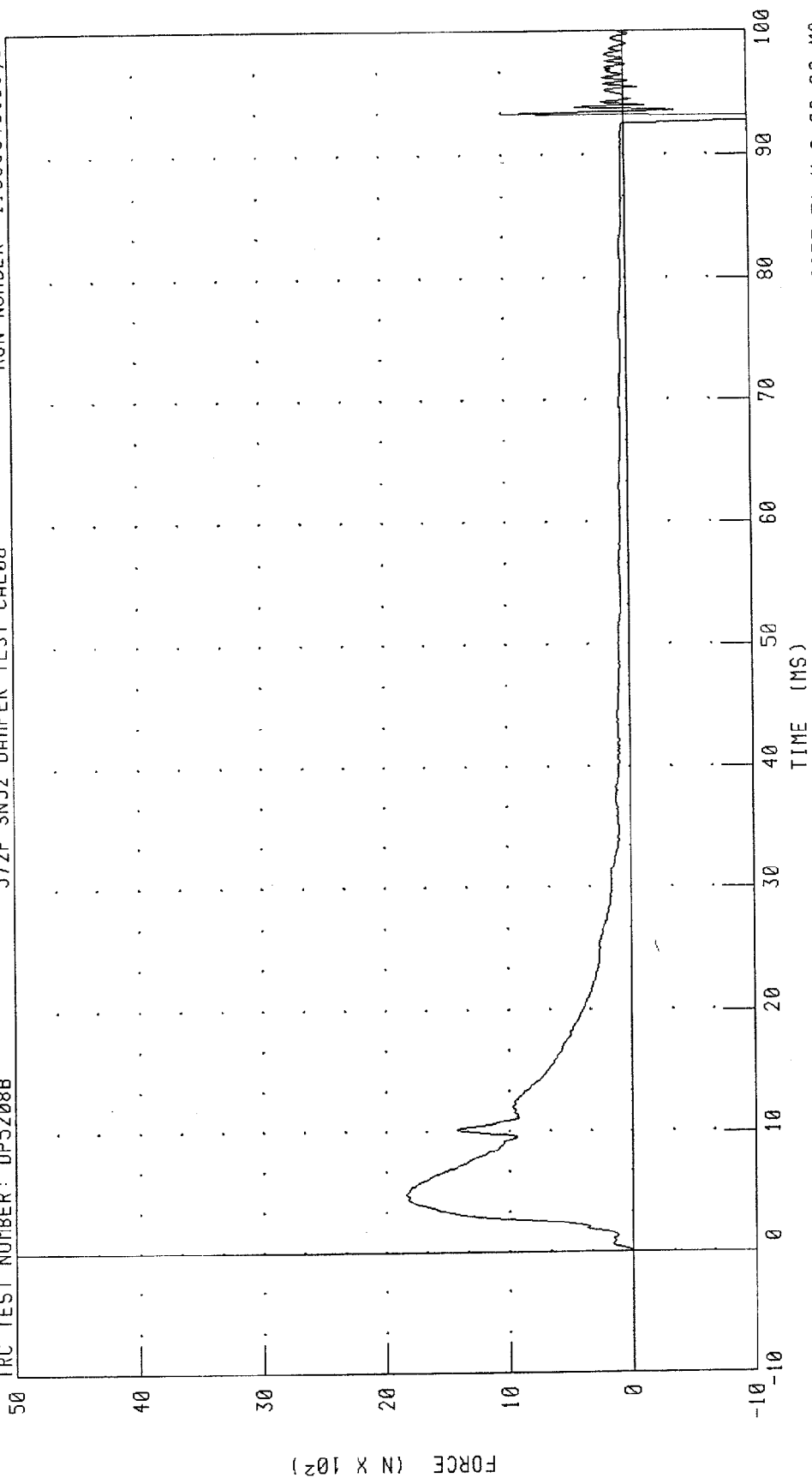
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL08

TRC TEST NUMBER: DP5208B

RUN NUMBER: 113098.0838.9



PEAK DATA: 1838.07 N @ 4.88 MS; -2975.51 N @ 92.96 MS

FILTER: CH. CLASS 1000

CHANNEL: DAMPF

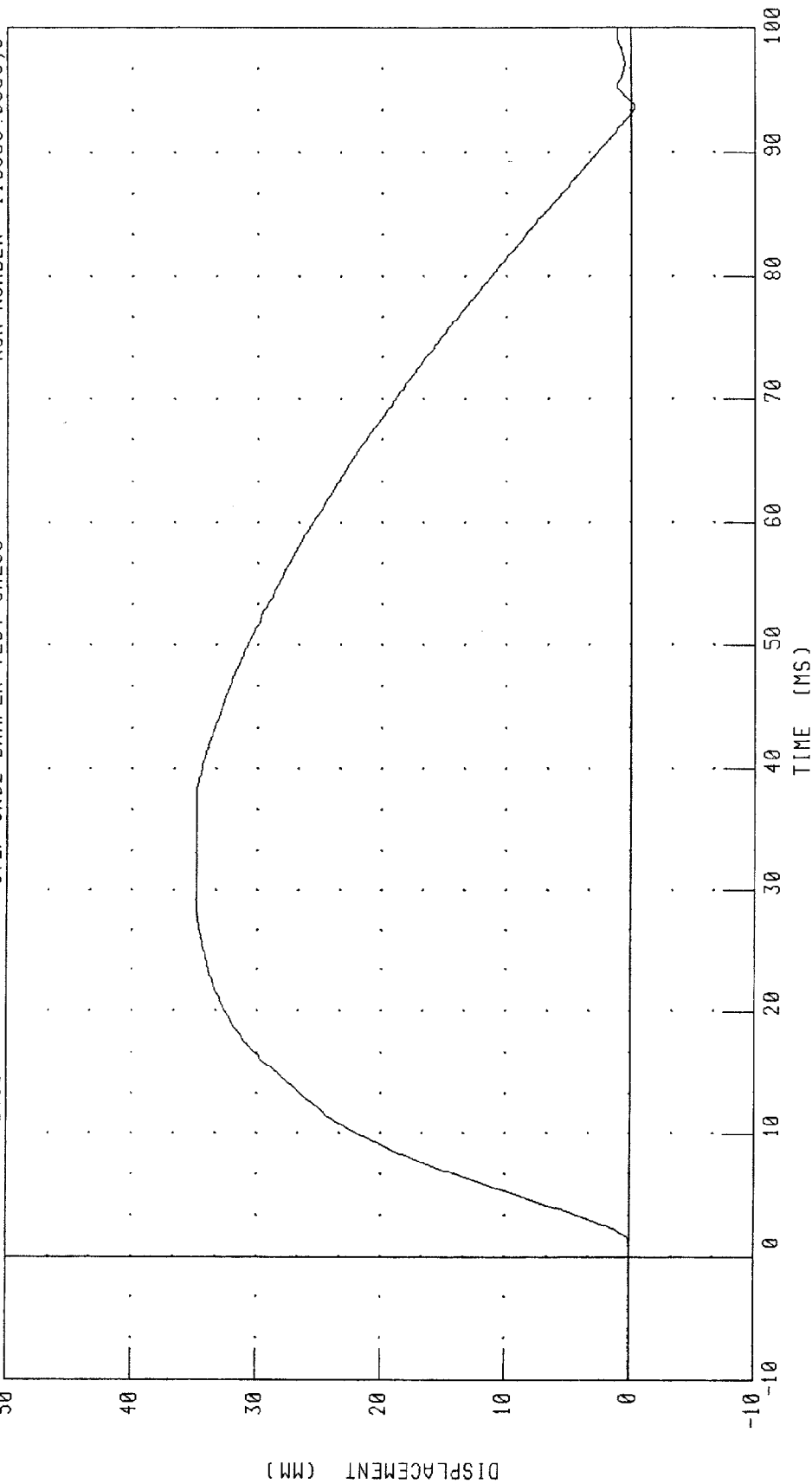
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5208B

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838,9



PEAK DATA: 34.94 MM @ 29.20 MS, -0.28 MM @ 93.60 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

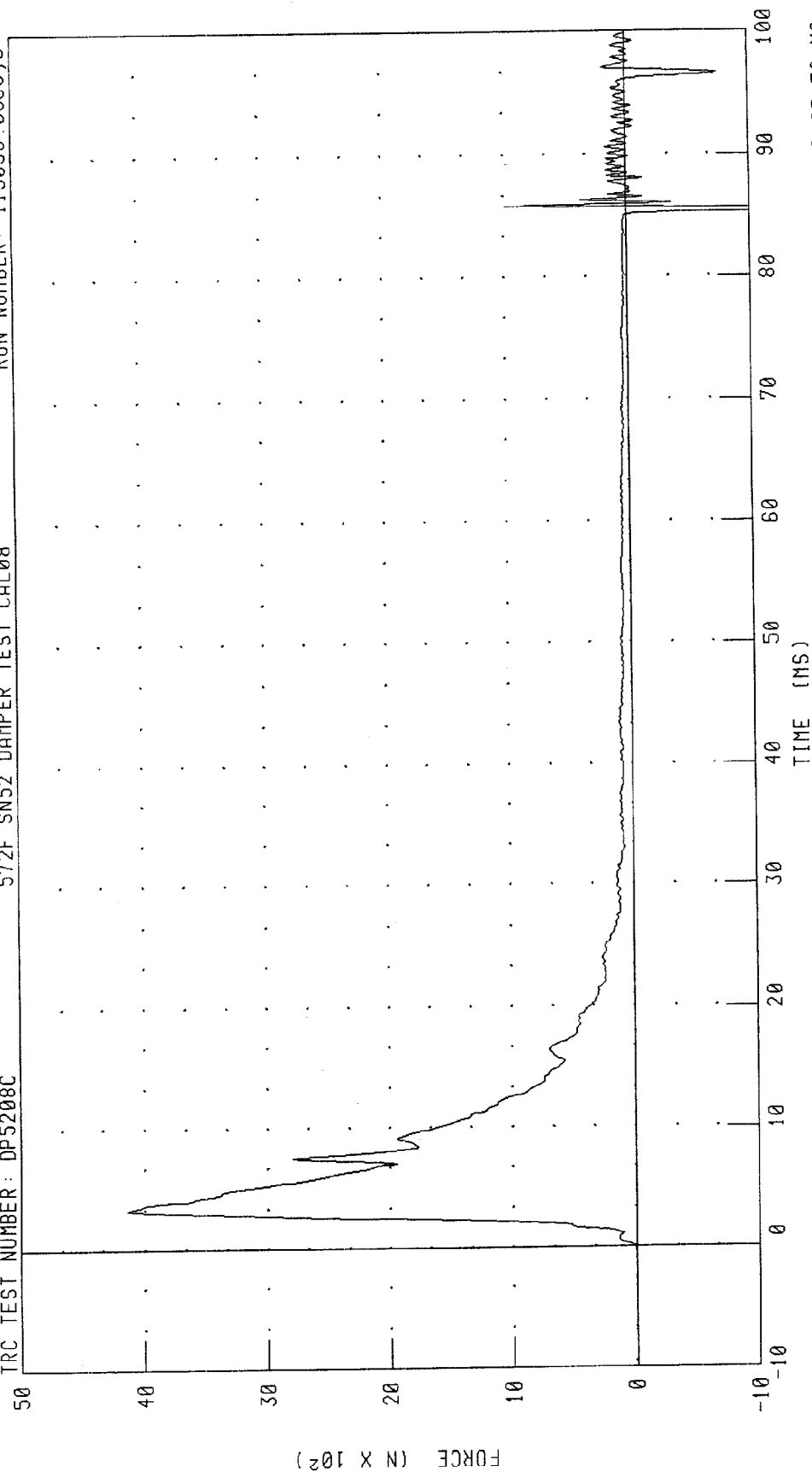
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN52 DAMPER TEST CAL08

TRC TEST NUMBER: DP5208C

RUN NUMBER: 113098.0838,6



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 4138.81 N @ 3.28 MS; -3157.30 N @ 85.52 MS

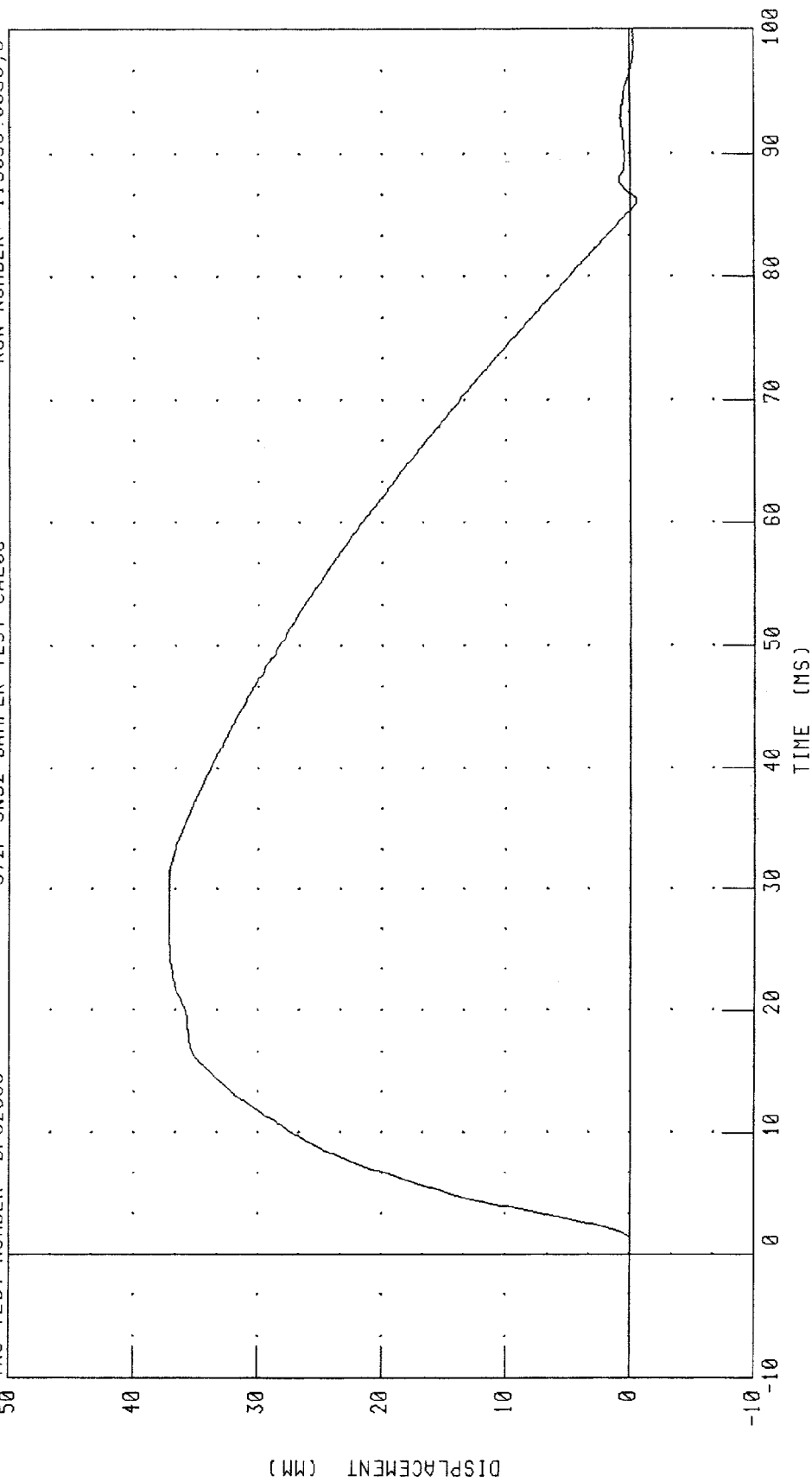
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5208C

572F SN52 DAMPER TEST CAL08

RUN NUMBER: 113098.0838,6



PEAK DATA: 37.19 MM @ 26.96 MS, -0.56 MM @ 86.08 MS

CHANNEL: CSTVD FILTER: CH. CLASS 1000

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

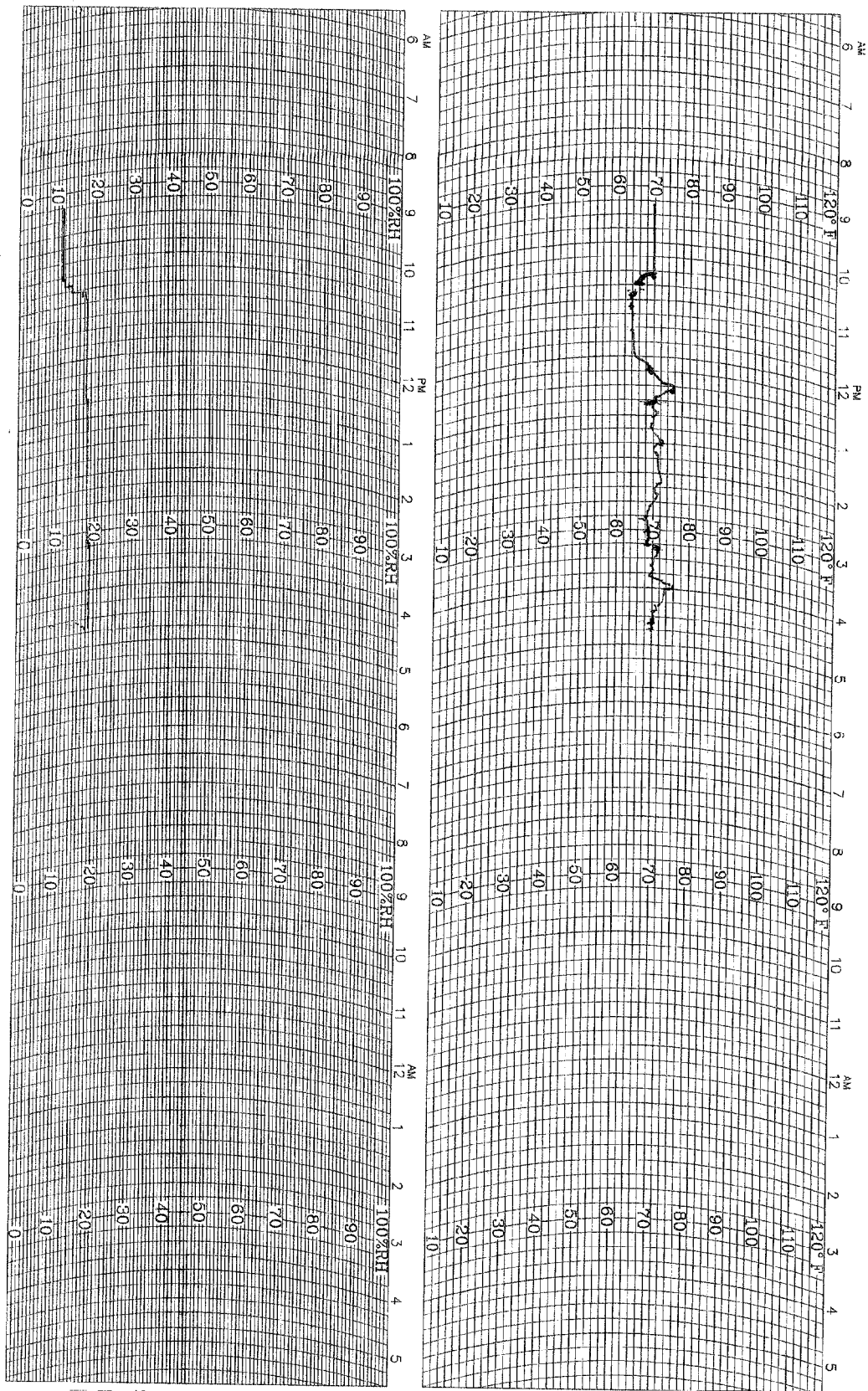
SID INSTRUMENTATION

FRONT SID NO.: 051			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Upper Rib	J22075	Endevco	11/98
Lower Rib	J22047	Endevco	11/98
Lower Spine	J15372	Endevco	11/98
Pelvis	J22197	Endevco	11/98
Upper Rib Redundant	J20184	Endevco	11/98
Lower Rib Redundant	J22046	Endevco	11/98
Lower Spine Redundant	J20024	Endevco	11/98
Pelvis Redundant	J20387	Endevco	11/98

REAR SID NO.: 052			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Upper Rib	J20148	Endevco	11/98
Lower Rib	J18811	Endevco	11/98
Lower Spine	J19303	Endevco	11/98
Pelvis	J20243	Endevco	11/98
Upper Rib Redundant	J20005	Endevco	11/98
Lower Rib Redundant	J20561	Endevco	11/98
Lower Spine Redundant	J20025	Endevco	11/98
Pelvis Redundant	J20462	Endevco	11/98

VEHICLE AND MDB INSTRUMENTATION

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Right Front Sill (X)	J26493	Endevco	01/99
Right Front Sill (Y)	J26484	Endevco	01/99
Right Front Sill (Z)	J26497	Endevco	01/99
Right Rear Sill (X)	J26499	Endevco	01/99
Right Rear Sill (Y)	J26498	Endevco	01/99
Right Rear Sill (Z)	J26491	Endevco	01/99
Rear Floorpan Above Axle (X)	J28377	Endevco	01/99
Rear Floorpan Above Axle (Y)	J26494	Endevco	01/99
Rear Floorpan Above Axle (Z)	J26512	Endevco	01/99
Left Rear Sill (Y)	AMT99	Endevco	10/98
Left Front Sill (Y)	J21422	Endevco	12/98
Right Rear Seat Occupant Comp. (Y)	J26496	Endevco	01/99
Lower Left B-Pillar (Y)	J19557	Endevco	10/98
Upper Left B-Pillar (Y)	J26495	Endevco	01/99
Lower Left A-Pillar (Y)	J25019	Endevco	10/98
Upper Left A-Pillar (Y)	J21916	Endevco	10/98
Front Seat Track (Y)	J22537	Endevco	10/98
Rear Seat Track (Y)	-----	-----	-----
Vehicle CG (X)	J26525	Endevco	01/99
Vehicle CG (Y)	J26511	Endevco	01/99
Vehicle CG (Z)	J26492	Endevco	01/99
MDB CG (X)	J21757	Endevco	10/98
MDB CG (Y)	J22167	Endevco	10/98
MDB CG (Z)	J25991	Endevco	12/98
MDB Rear Frame Member (X)	J22676	Endevco	07/98
MDB Rear Frame Member (Y)	J21803	Endevco	11/98



Weather Measure
WEATHERtronics
Division of QUALMETRICS, Inc.

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PHONE: (916) 923-0055

HYGROTHERMOGRAPH
1 DAY

CHART NO. M699123
C311-D-HF
ECN 2717
6-9-87

STATION _____ DATE ON _____ DATE OFF _____