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REPORT NUMBER: 214-TRC-98-004

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION - PASSENGER CARS**

**1998 HYUNDAI TIBURON
2-DOOR COUPE**

NHTSA NUMBER: CW0501

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**January 5, 1998
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 1998 Hyundai Tiburon 2-door coupe 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 5, 1998. The impact velocity of the Moving Deformable Barrier (MDB) was 53.0 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 23° C. The target vehicles post-test maximum crush was 258 mm at Level 3. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th> <th><u>Front SID</u></th> <th></th> <th><u>Rear SID*</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td><u>65</u></td> <td>g's</td> <td><u>53</u></td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td><u>65</u></td> <td>g's</td> <td><u>51</u></td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td><u>67</u></td> <td>g's</td> <td><u>58</u></td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td><u>66</u></td> <td>g's</td> <td><u>56</u></td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td><u>72</u></td> <td>g's</td> <td><u>52</u></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. Rear seat was too small to allow SID to be seated according to the seating procedure specified in S7 of the standard, seating position exempt from performance requirements of S5.1 Data provided for informational purposes only.					<u>Front SID</u>		<u>Rear SID*</u>		Left Upper Rib Acceleration:	<u>65</u>	g's	<u>53</u>	g's	Left Lower Rib Acceleration:	<u>65</u>	g's	<u>51</u>	g's	Lower Spine Acceleration:	<u>67</u>	g's	<u>58</u>	g's	Thoracic Trauma Index, (TTI):	<u>66</u>	g's	<u>56</u>	g's	Pelvis Acceleration (PEV):	<u>72</u>	g's	<u>52</u>	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	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
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

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
m ³	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



* 1 in = 2.54 exactly. For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Print 92-307, SD Catalog No. C13.102286.

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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 1998 Hyundai Tiburon 2-door coupe. 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 1998 Hyundai Tiburon 2-door coupe 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 53.0 kph (32.9 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on January 5, 1998. 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). The rear seat was too small to allow SID to be seated according to the seating procedure specified in S7 of the standard. 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)	66	56
PEV (g)	72	52

Data Acquisition Explanations

The vehicle's left side upper A-post Y-axis acceleration, LMAYG1, recorded questionable data after approximately 18 milliseconds. The acceleration never returned to zero, which affected the velocity of the data channel.

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1998 Hyundai Tiburon 2-door coupe
 Vehicle Body Color: Black VIN: KMHJG24FXWU089051
 Vehicle NHTSA No.: CW0501 Month & Year of Manufacture: 10/97
 Engine Data: 4 Cylinders; - CID; 2.0 Liters; - cc
 Engine Placement: - Longitudinal; or X Lateral
 Transmission: 3 Speed; - Manual; X Automatic; - Overdrive
 Final Drive: - Rear Wheel Drive; X Front Wheel Drive; - Four-Wheel
 Odometer Reading: 119 km
 Options: X A/C; X Power steering; X Pwr. brakes; X Pwr. windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity): 207 kPa FRONT
207 kPa REAR
 Recommended Tire Size: P195/55R15
 Tires on Test Vehicle: P195/55R15 Manufacturer: Michelin
 Vehicle Capacity Data:
 Number of Occupants: 2 Front; 2 Rear; - 3rd seat; 4 Total
 Type of Front Seats: X Bucket; - Bench; - Split bench
 Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
 Vehicle Max Capacity Loading = 317.5 kg (A)
 No. of Occupants x 68.04 kg. = 272.2 kg (B)
 Vehicle Cargo Capacity = 45.3 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>388.7</u>	kg	Left Rear	=	<u>215.9</u>	kg
Right Front	=	<u>391.0</u>	kg	Right Rear	=	<u>241.3</u>	kg
TOTAL FRONT	=	<u>779.7</u>	kg	TOTAL REAR	=	<u>457.2</u>	kg
% of Total Weight	=	<u>63.0</u>	%	% of Total Weight	=	<u>37.0</u>	%
TOTAL WEIGHT	=	<u>1,236.9</u>	kg				

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight With Max. Fluids = 1,236.9 kg (A)
 Maximum Cargo Carrying Capacity Of Test Vehicle = 45.3 kg (B)
 Weight Of Instrumented Side Impact Dummies (1 Or 2 X 79.0 kg) = 158.0 kg (C)
 TEST VEHICLE TARGET WEIGHT: = 1,440.2 kg (A+B+C)

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

Left Front	=	<u>437.3</u>	kg	Left Rear	=	<u>345.2</u>	kg
Right Front	=	<u>397.8</u>	kg	Right Rear	=	<u>263.5</u>	kg
TOTAL FRONT	=	<u>835.1</u>	kg	TOTAL REAR	=	<u>608.7</u>	kg
% of Total Weight	=	<u>57.8</u>	%	% of Total Weight	=	<u>42.2</u>	%
TOTAL WEIGHT	=	<u>1,443.8</u>	kg				

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

Left Front	=	<u>321.0</u>	kg	Left Rear	=	<u>410.0</u>	kg
Right Front	=	<u>428.0</u>	kg	Right Rear	=	<u>277.0</u>	kg
TOTAL FRONT	=	<u>749.0</u>	kg	TOTAL REAR	=	<u>687.0</u>	kg
% of Total Weight	=	<u>52.2</u>	%	% of Total Weight	=	<u>47.8</u>	%
TOTAL WEIGHT	=	<u>1,436.0</u>	kg				

TEST VEHICLE ATTITUDE (ALL DIMENSIONS IN MILLIMETERS):

AS DELIVERED:

Left Front 641 Right Front 649 Left Rear 635 Right Rear 644

FULLY LOADED:

Left Front 620 Right Front 642 Left Rear 585 Right Rear 611

READY FOR TEST:

Left Front 621 Right Front 629 Left Rear 592 Right Rear 609

TEST VEHICLE WHEELBASE: 2480 millimeters

C.G. = 1,186.5 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4,145 millimeters
 Left Side = 4,150 millimeters
 Centerline = 4,335 millimeters

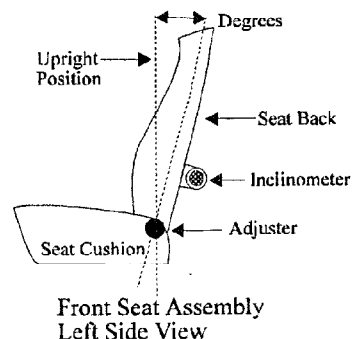
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

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: ----- millimeters

Total Number Of Adjustment Positions Or Detents: 18

FRONT SEAT BACK ADJUSTMENT POSITION: The back adjusted to the 8th latch position from the upright position.

Seat Back Torso Angle: 16 degrees

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: N/A

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:

55.0 liters (fuel tank usable capacity)

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

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

Wheelbase = 2480 millimeters

Impact point is 300 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 293 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 1998 Hyundai Tiburon
Body Style: 2-door coupe VIN: KMHJG24FXWU089051
NHTSA No.: CW0501 Test Date: January 5, 1998
Overall Length = 4,335 millimeters; Overall Width = 1725 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 410.0 kg Left Rear = 321.0 kg
Right Front = 428.0 kg Right Rear = 277.0 kg
TOTAL FRONT = 838.0 kg TOTAL REAR = 598.0 kg
TOTAL VEHICLE WEIGHT 1,436.0 kg
Wheelbase = 2480 millimeters
Longitudinal C.G. From Center Of Front Axle = 1,032.8 millimeters
Impact Angle With Respect To Impactor = 90 degrees

ACTUAL IMPACT POINT:

Actual Impact Point is 7 mm forward of nominal impact ref. line (Lateral)
Actual Impact Point is 8 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (280 mm above ground) = 101 millimeters
2. LEVEL 2 (436 mm above ground) = 207 millimeters
3. LEVEL 3 (579 mm above ground) = 258 millimeters
4. LEVEL 4 (860 mm above ground) = 224 millimeters
5. LEVEL 5 (1,269 mm above ground) = 53 millimeters
Maximum Post-Test Intrusion = 258 millimeters

OCCUPANTS:

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

INSTRUMENTATION:

Number Of Vehicle Data Channels: = 20
Number Of Cameras: Onboard = 3
Offboard = 6
TOTAL = 9

DATA SHEET 3

MOVING DEFORMABLE BARRIER(MDB) SUMMARY

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore, Inc.: 034C0897, 035C0897, 036C0897, 172B0597

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to the left

MDB DETAILS:

Overall Width of Framework Carriage = 1251 millimeters

Overall Length of Mdb (Incl. honeycomb impact face) = 4115 millimeters

Wheelbase of Framework Carriage = 2591 millimeters

Tread of Framework Carriage (Front & Rear) = 1880 millimeters

C.G. Location Rearward of Front Axle = 1115 millimeters

MDB WEIGHT:

Left Front = 340.0 kg Left Rear = 332.0 kg

Right Front = 433.0 kg Right Rear = 252.0 kg

TOTAL FRONT = 773.0 kg TOTAL REAR = 584.0 kg

TOTAL MDB WEIGHT = 1,357.0 kg

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

Impact Speed = 53.0 kph

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level = 134 millimeters

2. Row B at Top of Bumper Level = 65 millimeters

3. Row C at Mid Level = 89 millimeters

4. Row D at Top of Stack Level = 81 millimeters

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>Airbag</u>	<u>Side header</u>
Upper Torso:	<u>N/A</u>	<u>N/A</u>
Lower Torso:	<u>N/A</u>	<u>N/A</u>
Left Knee:	<u>Steering column</u>	<u>Seat back</u>
Right Knee:	<u>Center console</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: 8 mm above target
Horizontal: 7 mm forward of target

ARM REST LOCATIONS:

Front: 292 mm below the bottom of the window
Rear: N/A

SEAT MOVEMENT:

Front: Seat was pushed against center console
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 airbags deployed.

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

TEST NUMBER: 980105

DRIVER DUMMY SERIAL NUMBER: 052

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	65.4 g	@	40.0 ms	27.8 g	@	73.1 ms
LATERAL (R)	66.4 g	@	40.0 ms	29.3 g	@	73.1 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	65.1 g	@	31.3 ms	15.9 g	@	72.5 ms
LATERAL (R)	64.8 g	@	31.3 ms	17.1 g	@	72.5 ms
TTI d (P)	66.1					
TTI d (R)	66.6					

LOWER SPINE ACCELERATION

LATERAL (P)	66.7 g	@	36.3 ms	13.1 g	@	65.6 ms
LATERAL (R)	66.8 g	@	36.3 ms	13.2 g	@	65.6 ms

PELVIS ACCELERATION

LATERAL (P)	71.8 g	@	35.0 ms	6.9 g	@	57.5 ms
LATERAL (R)	69.8 g	@	35.0 ms	7.6 g	@	58.1 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: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

TEST NUMBER: 980105

PASSENGER DUMMY SERIAL NUMBER: 051

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	53.2 g	@ 35.6 ms	6.3 g	@ 113.7 ms
LATERAL (R)	52.1 g	@ 35.6 ms	6.0 g	@ 113.7 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	51.2 g	@ 45.6 ms	7.6 g	@ 95.6 ms
LATERAL (R)	52.1 g	@ 45.6 ms	8.4 g	@ 95.6 ms
TTI d (P)	55.5			
TTI d (R)	55.0			

LOWER SPINE ACCELERATION

LATERAL (P)	57.9 g	@ 48.8 ms	6.8 g	@ 100.0 ms
LATERAL (R)	58.0 g	@ 48.8 ms	6.9 g	@ 100.0 ms

PELVIS ACCELERATION

LATERAL (P)	52.3 g	@ 45.0 ms	4.0 g	@ 138.1 ms
LATERAL (R)	52.4 g	@ 44.4 ms	4.0 g	@ 136.3 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

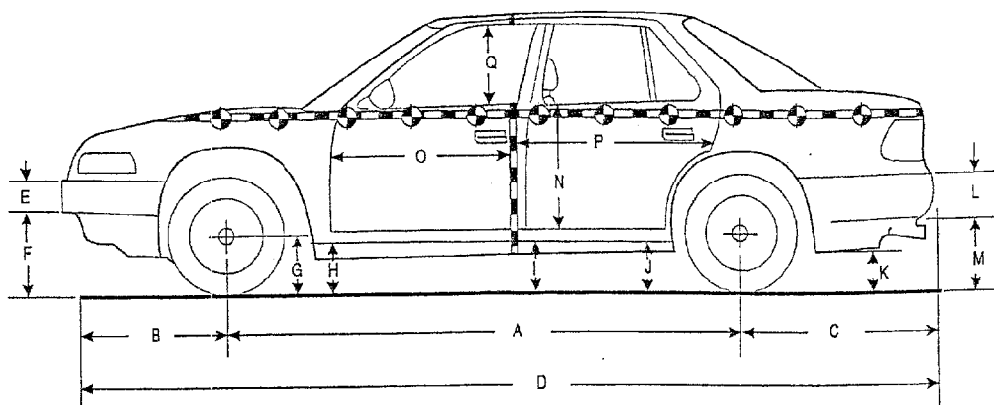
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501



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	N/A	2480	2400	80
B	N/A	955	1002	-47
C	N/A	900	923	-23
D	N/A	4335	4325	10
E	N/A	270	270	0
F	N/A	234	258	-24
G	N/A	176	275	-99
H	N/A	178	207	-29
I	N/A	186	170	16
J1	N/A	153	185	-32
J2	N/A	168	199	-31
K	N/A	N/A	N/A	N/A
L	N/A	275	275	0
M	N/A	N/A	N/A	N/A
O	N/A	669	664	5
P	N/A	643	625	18
Q	N/A	369	375	-6
R	N/A	4145	4135	10
S	N/A	4150	4115	35
T	N/A	1730	1430	300

D = Length at centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

T = Width at B-pillar

J1 = To Pinch Weld

J2 = To Sill

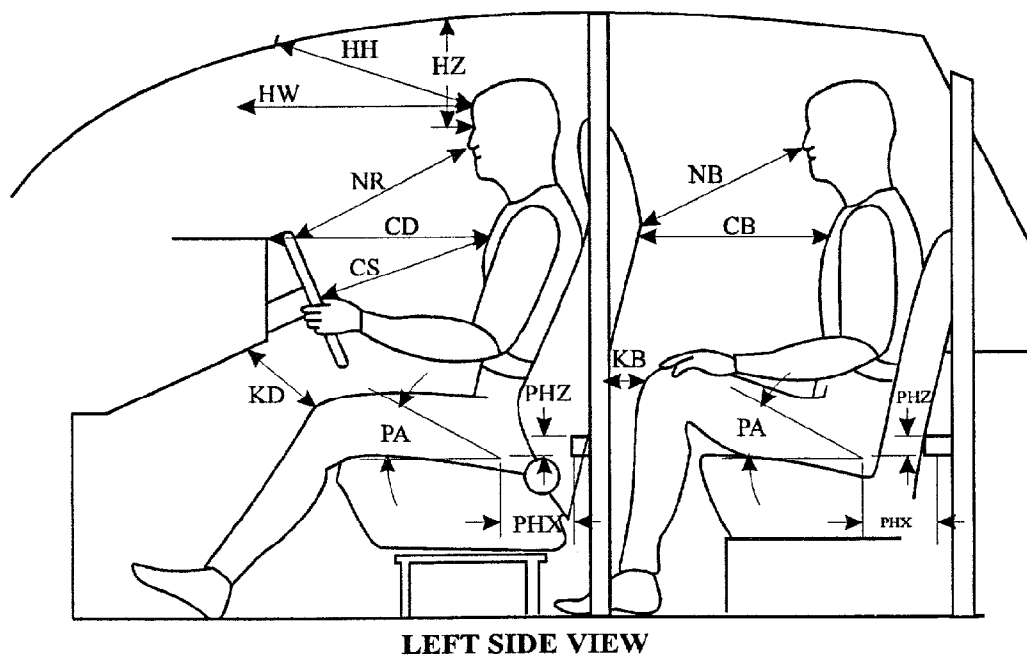
Note: The rear bumper fascia was removed, therefore K & M measurements were not taken.

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501



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

	DRIVER ID #052	LEFT REAR PASS. ID#051
HH	338	N/A
HW	542	N/A
HZ	137	129
NR/NB	449	497
CD/CB	533	414
CS	353	N/A
KDL(KDA°)/KBL(KDA°)	152/23	19/27.6
KDR(KBA°)/KBR(KBA°)	163/33	8/27.1
PA°	23.3	28
PHX	507	333
PHZ	178	145

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.

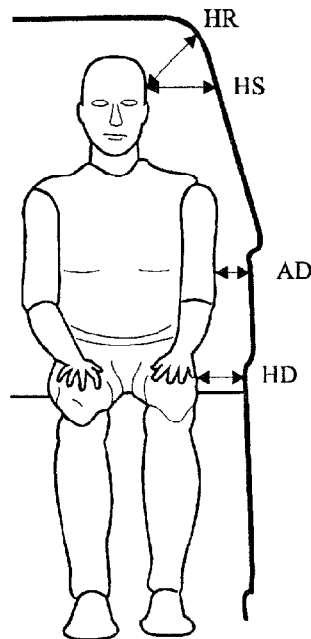
The left rear passenger was not seated properly because he could not fit correctly.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501



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

	DRIVER ID #052	LEFT REAR PASS. ID#051
HR	133	172
HS	210	302
AD*	LOWER: 114 UPPER: 84	LOWER: 87 UPPER: 95
HD	125	107

* 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.

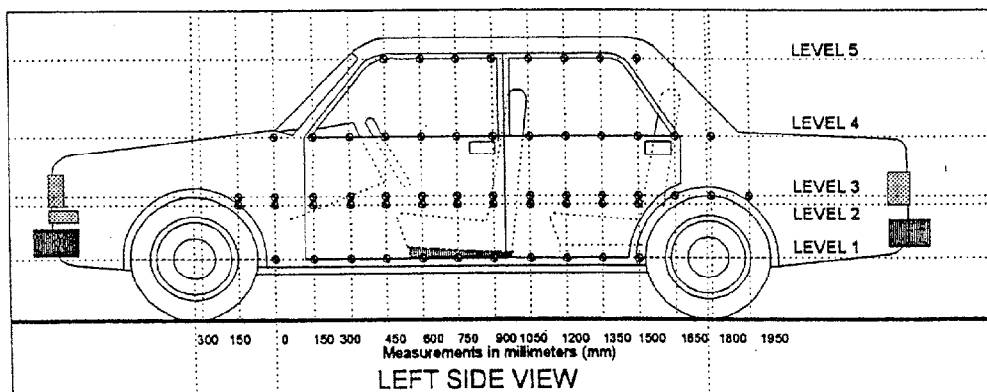
The left rear passenger was not seated properly because he could not fit properly.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501



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>1269</u>	millimeters
Level 4 @ Window Sill	=	<u>860</u>	millimeters
Level 3 @ Mid Door	=	<u>579</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>436</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>280</u>	millimeters

Note: The measurements taken are off by 45 mm forward at each interval.

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

NHTSA No.: CW0501

Vehicle: 1998 Hyundai Tiburon 2-door coupe

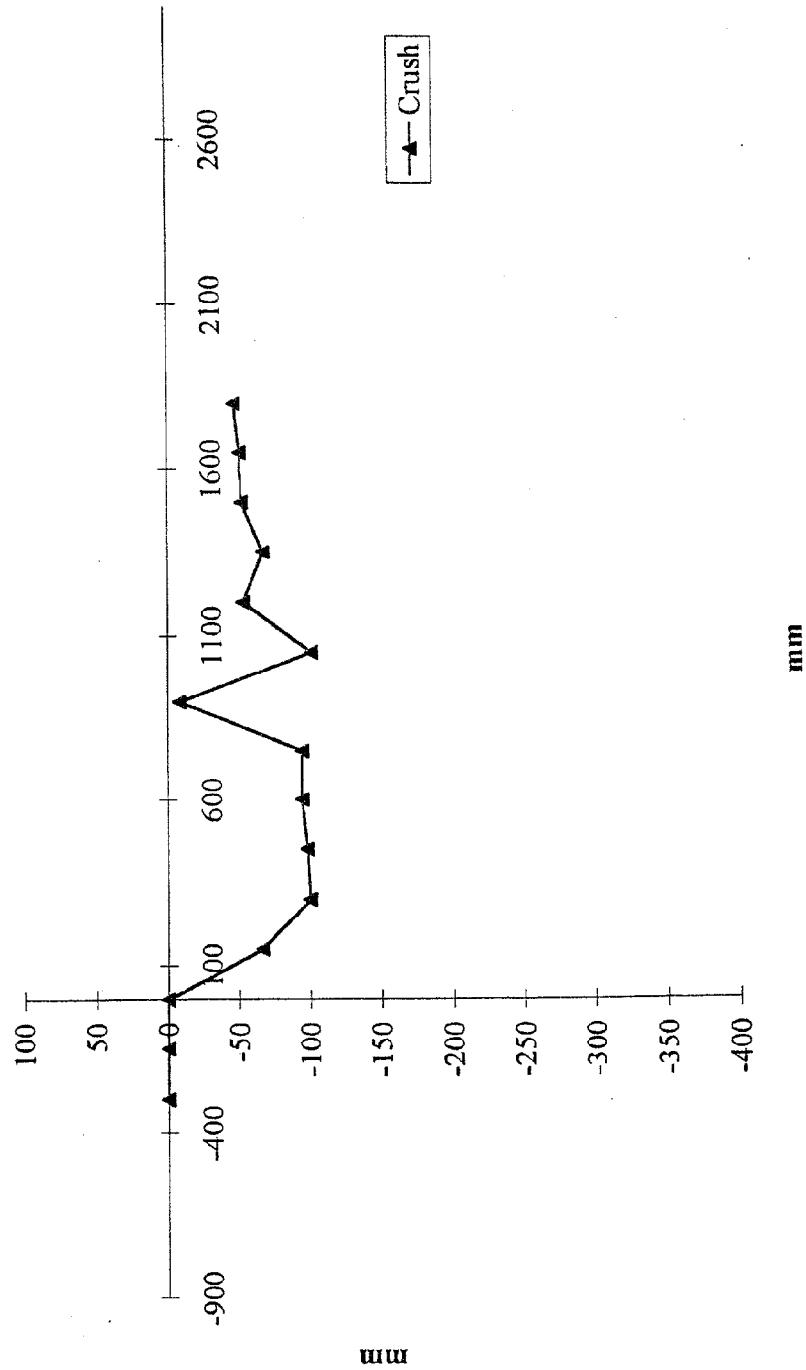
Location	Height	(mm) From Impact Point															
		-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	
Level 1 Side Sill	Pre	X	X	X	378	387	392	391	391	400	393	395	385	392	387	386	
	Post	X	X	X	444	487	490	45	485	483	494	448	447	444	438	433	
	Crush	X	X	X	-66	-100	-98	-94	-94	-8	-101	-53	-67	-52	-51	-47	
Level 2 H-Point	Pre	X	X	X	376	375	375	377	375	383	376	373	365	363	363	367	
	Post	X	X	X	508	559	569	573	580	590	582	580	571	552	550	537	
	Crush	X	X	X	-132	-184	-194	-196	-205	-207	-206	-207	-206	-189	-187	-170	
Level 3 Mid-Door	Pre	X	X	357	360	360	364	368	373	380	369	377	370	365	367	365	
	Post	X	X	448	491	550	578	600	610	622	627	621	605	580	580	587	
	Crush	X	X	-91	-131	-190	-214	-232	-237	-242	-258	-244	-235	-215	-213	-222	
Level 4 Window Sill	Pre	455	445	445	443	437	444	438	440	440	433	435	421	407	407	390	
	Post	495	495	490	505	531	545	553	560	568	568	579	600	620	631	581	
	Crush	-40	-50	-45	-62	-94	-101	-115	-120	-128	-135	-144	-179	-213	-224	-191	
Level 5 Window Top	Pre	X	X	X	X	X	X	X	X	695	698	708	699	705	717	X	
	Post	X	X	X	X	X	X	X	X	746	733	740	752	758	753	X	
	Crush	X	X	X	X	X	X	X	X	-51	-35	-32	-53	-53	-36	X	

DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

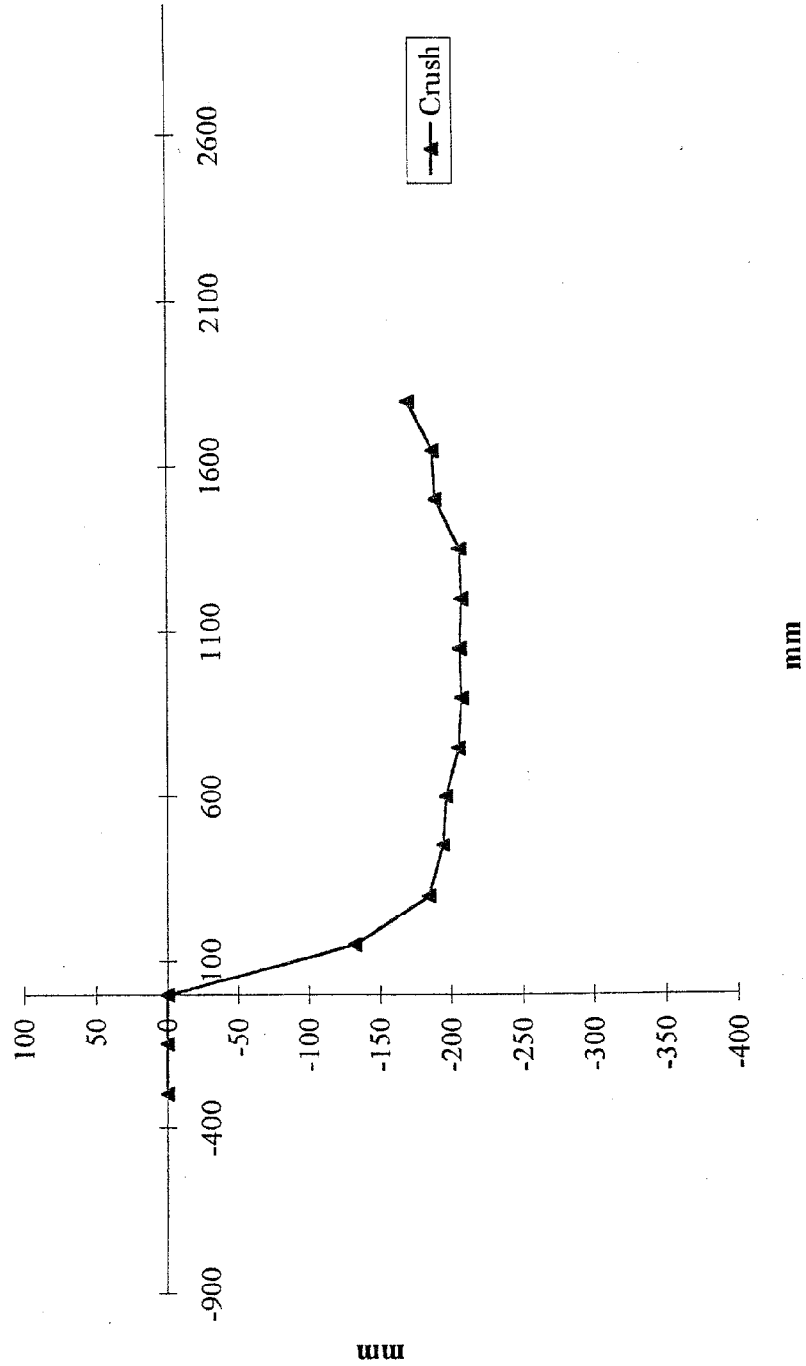
Side Profile Level 1
280 mm Above Ground



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

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

Side Profile Level 2
436 mm Above Ground

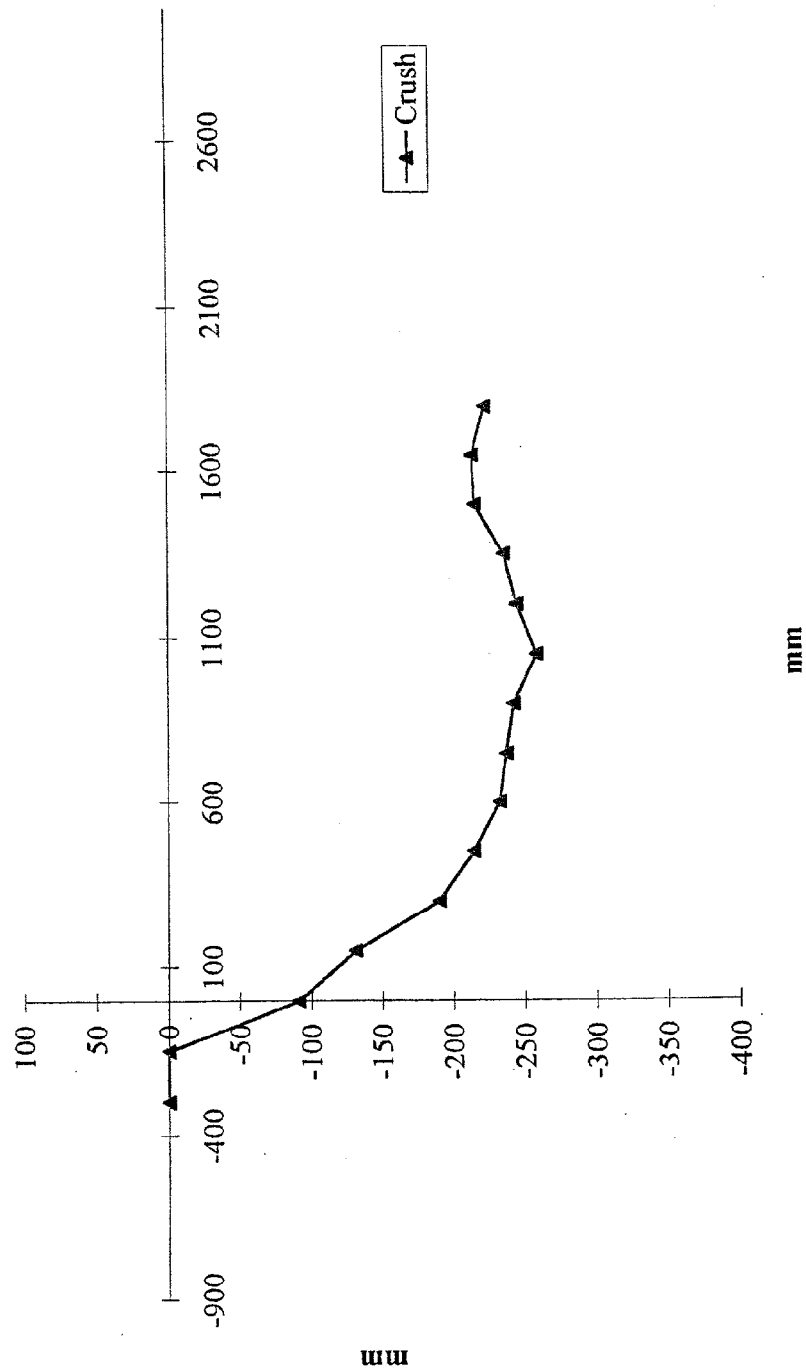


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

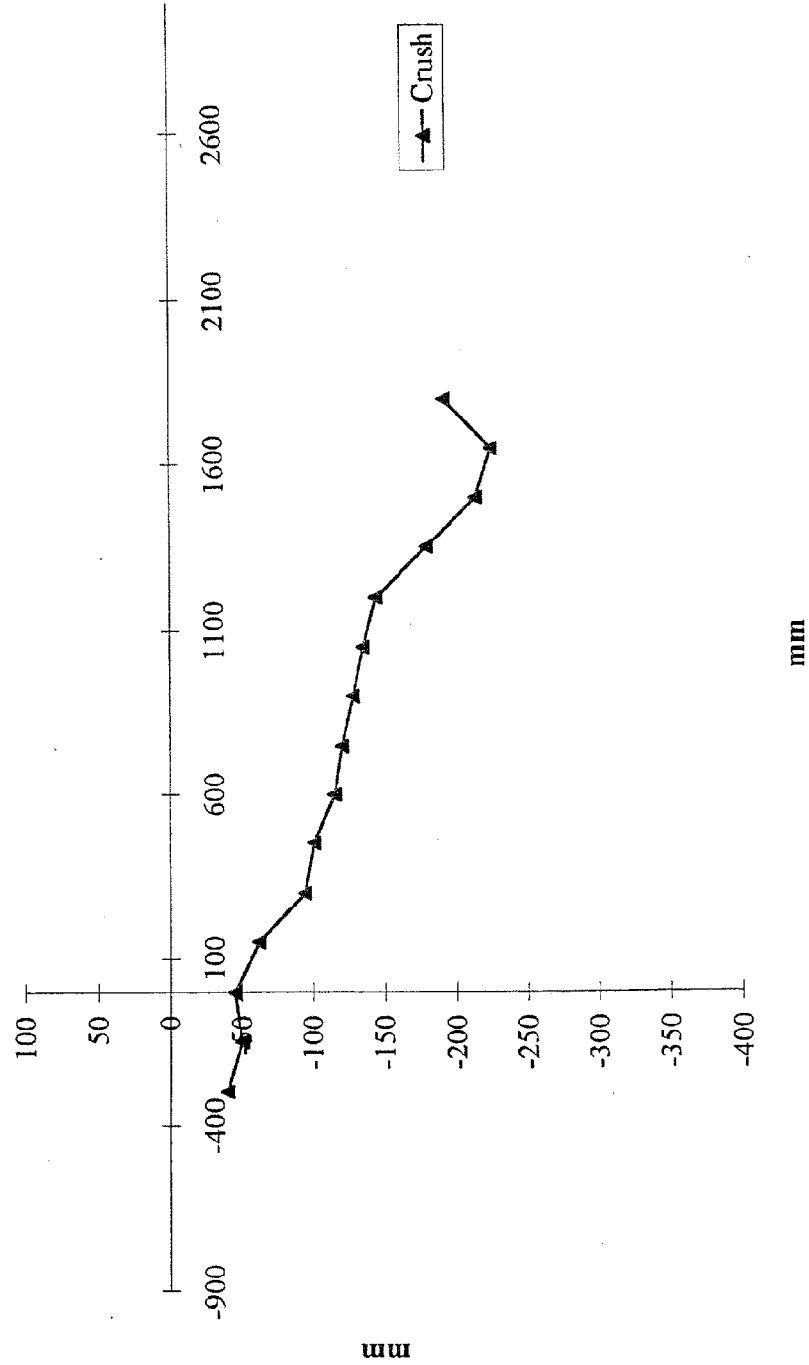
Side Profile Level 3
579 mm Above Ground



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

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

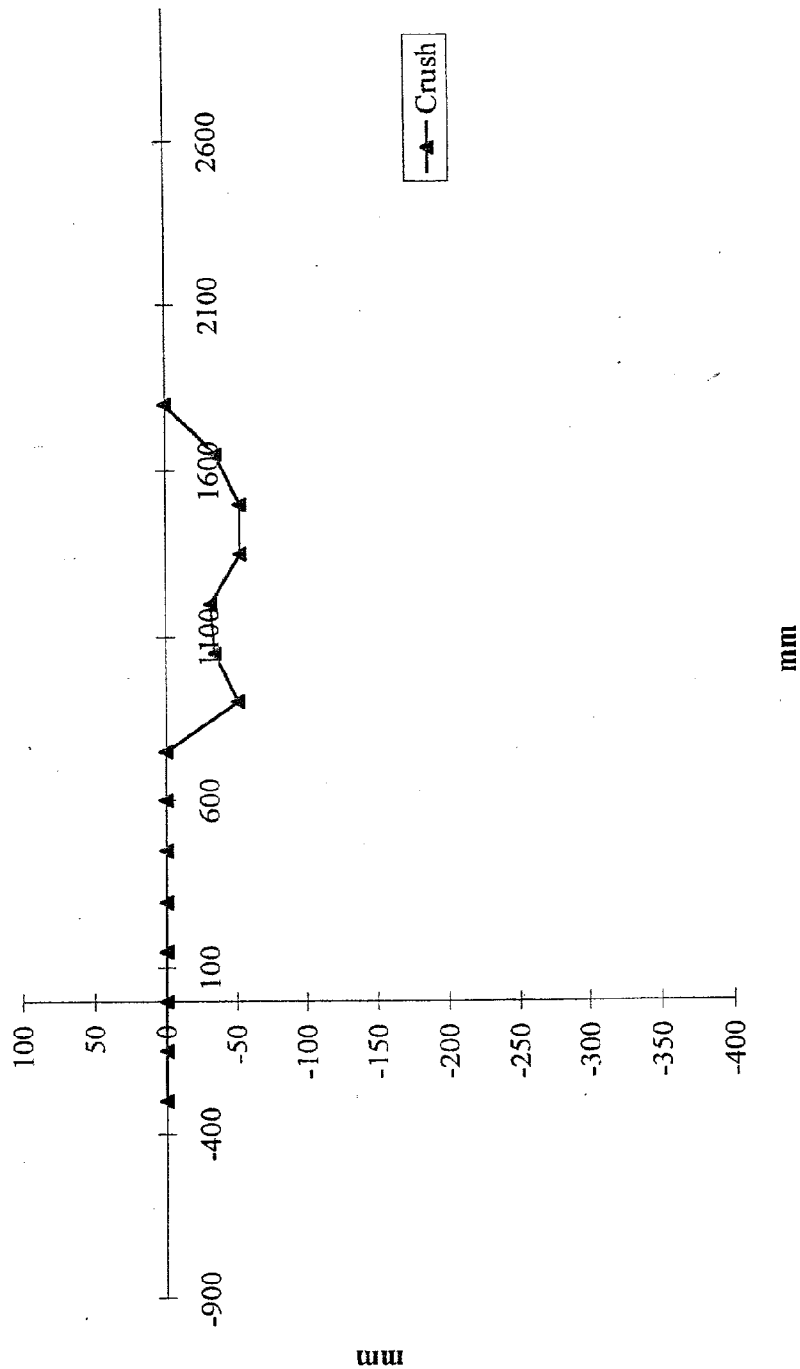
Side Profile Level 4
 860 mm Above Ground



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

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

Side Profile Level 5
1269 mm Above Ground



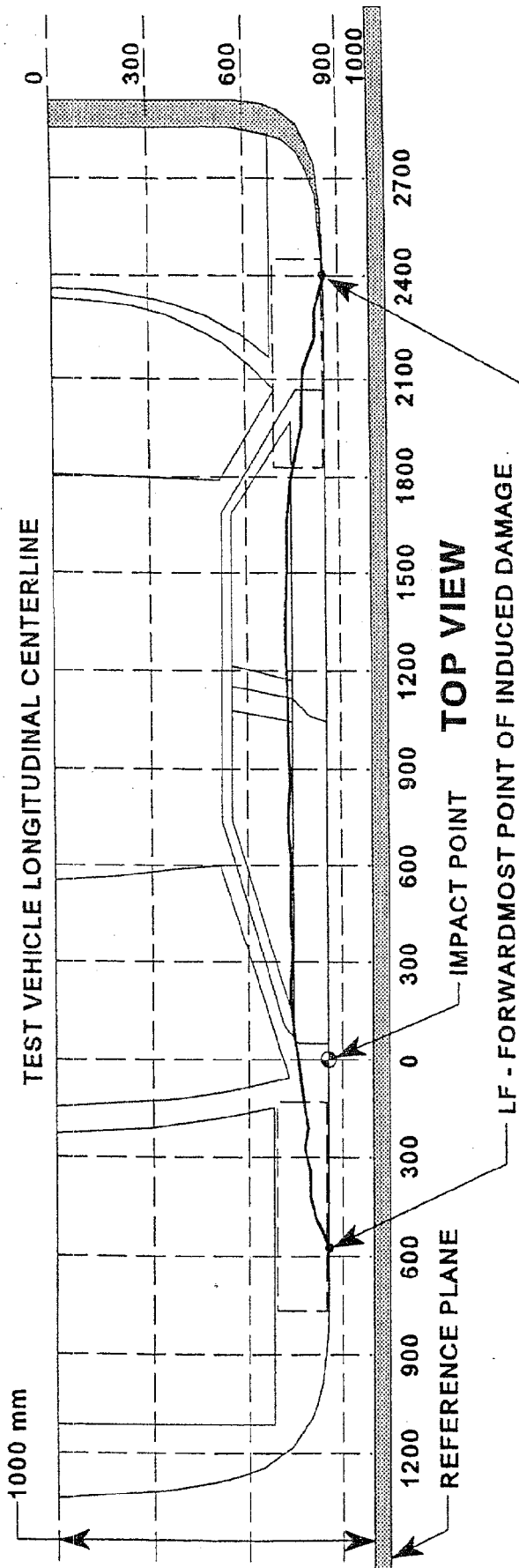
DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

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



MEASUREMENT CONVENTIONS: LR - REARWARDMOST POINT OF INDUCED DAMAGE
 Forward of the impact point (towards front of vehicle) is considered negative (-).
 Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
1 (LF = -1050 mm)	583.0	570.0	13.0
2 -330	403.2	362.0	41.2
3 390	566.8	362.4	204.4
4 1110	629.0	364.6	264.4
5 1830	566.0	364.0	202.0
6 (LR = 2550 mm)	415.0	392.0	23.0

DATA SHEET 12
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE
(Grid as looking at MDB from front)

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

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	-26	14	22	13	17	10	12	3	1	1	5	2	-10	-17	-36	-53	-81
Mid Level Level 3	685	-9	9	14	13	9	0	2	-3	-6	-2	-1	-4	-12	-15	-33	-72	-89
Top Bumper Level Level 2	560	-46	-34	-32	-22	-22	-10	-10	-2	-12	-10	-13	-15	-21	-24	-39	-51	-65
Mid Bumper Level Level 1	432	-134	-133	-130	-122	-105	-86	-80	-70	-63	-61	-65	-65	-72	-82	-94	-105	-107

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

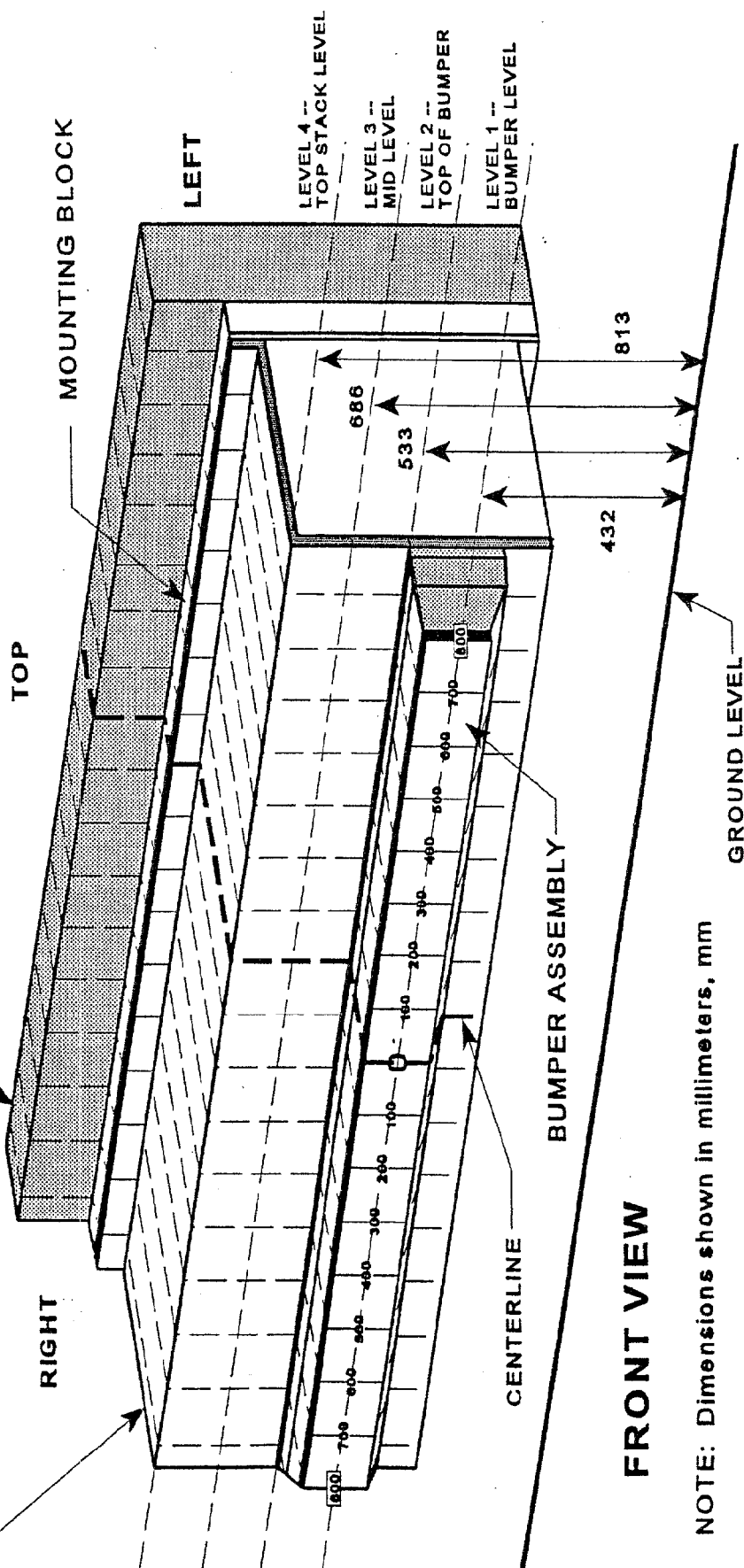
DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

HONEYCOMB FACE

SIDE IMPACT BARRIER FRAME ASSEMBLY



FRONT VIEW

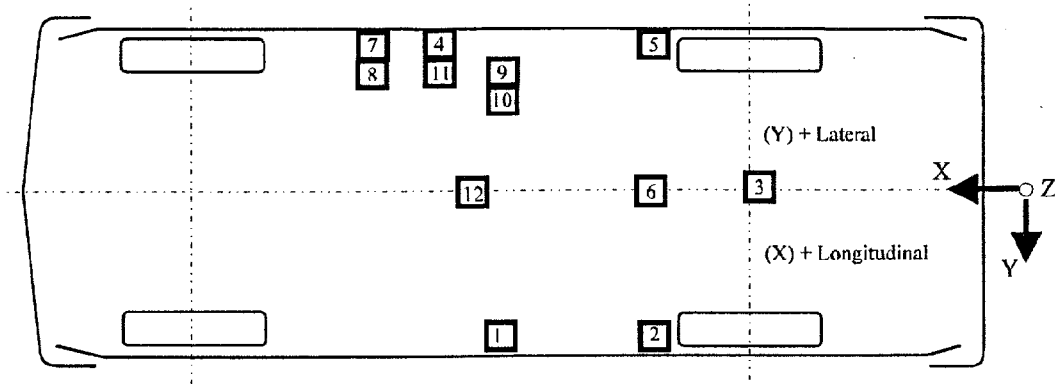
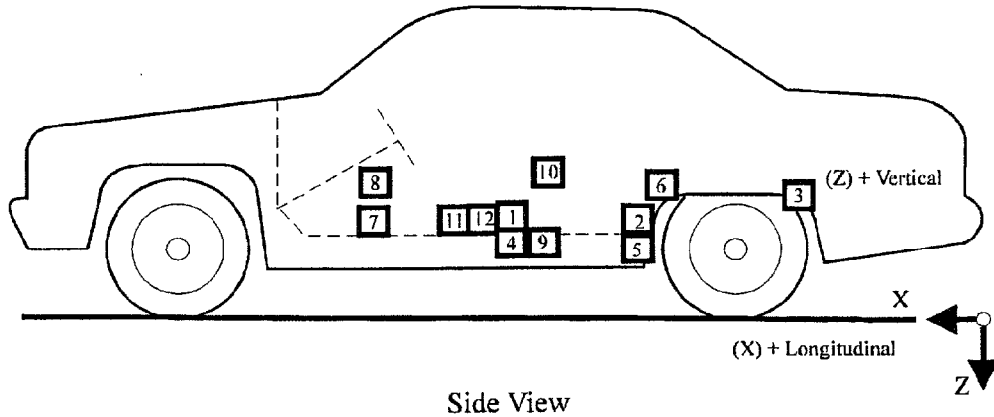
NOTE: Dimensions shown in millimeters, mm

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501



- 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 Rack at H-point
- 12-Vehicle Center of Gravity

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

TEST NUMBER: 980105
No. LOCATION

	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 RIGHT SIDE SILL	PRE 2620 in	-1325 in	240 in		
AT FRONT SEAT	POST 2595 in	-1325 in	305 in		
LONGITUDINAL					
LATERAL			4.9 g	@ 32.8 ms	5.5 g @ 10.1 ms
VERTICAL			23.2 g	@ 6.6 ms	3.7 g @ 54.2 ms
RESULTANT			6.3 g	@ 38.2 ms	10.7 g @ 8.6 ms
			24.2 g	@ 6.8 ms	
2 RIGHT SIDE SILL	PRE 1705 in	-1325 in	310 in		
AT REAR SEAT	POST 1680 in	-650 in	268 in		
LONGITUDINAL					
LATERAL			5.1 g	@ 33.0 ms	5.7 g @ 10.2 ms
VERTICAL			24.9 g	@ 6.6 ms	5.1 g @ 66.6 ms
RESULTANT			5.8 g	@ 39.3 ms	10.2 g @ 17.8 ms
			25.3 g	@ 6.6 ms	
3 REAR FLOORPAN	PRE 969 in	0 in	315 in		
ABOVE AXLE	POST 969 in	0 in	500 in		
LONGITUDINAL					
LATERAL			2.1 g	@ 23.9 ms	5.7 g @ 7.5 ms
VERTICAL			25.0 g	@ 6.2 ms	2.8 g @ 68.1 ms
RESULTANT			5.4 g	@ 10.6 ms	3.6 g @ 44.8 ms
			25.3 g	@ 6.2 ms	
4 LEFT SIDE SILL	PRE 2620 in	1325 in	340 in		
AT FRONT SEAT	POST 2557 in	1325 in	230 in		
LATERAL			40.9 g	@ 4.8 ms	9.3 g @ 23.5 ms

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle:		1998 Hyundai Tiburon 2-door coupe		NHTSA No.:		CW0501		
TEST NUMBER: 980105								
No. LOCATION		X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
5 LEFT SIDE SILL AT REAR SEAT LATERAL	PRE	1725 in	1325 in	230 in	31.8 g	@ 4.6 ms	2.3 g	@ 115.0 ms
	POST	1625 in	650 in	548 in				
6 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	PRE	1640 in	-1265 in	443 in	25.1 g	@ 6.2 ms	3.0 g	@ 67.0 ms
	POST	1631 in	-587 in	339 in				
7 LOWER A-POST LATERAL	PRE	2890 in	765 in	334 in	255.8 g	@ 37.8 ms	11.5 g	@ 57.0 ms
	POST	2795 in	700 in	435 in				
8 UPPER A-POST LATERAL ¹	PRE	2890 in	765 in	684 in	1052.2 g	@ 17.4 ms	-5.7 g	@ 0.0 ms
	POST	2825 in	730 in	710 in				
9 LOWER B-POST LATERAL	PRE	1665 in	677 in	445 in	143.0 g	@ 3.7 ms	87.0 g	@ 27.8 ms
	POST	1608 in	532 in	565 in				

DATA SHEET 13 (continued)

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1998 Hyundai Tiburon 2-door coupe NHTSA No.: CW0501

TEST NUMBER: 980105						POSITIVE	NEGATIVE
No. LOCATION	X	Y	Z			DIRECTION	DIRECTION
10 UPPER B-POST	PRE 1670 in	677 in	795 in				
	POST 1603 in	510 in	755 in				
LATERAL			115.6 g	@	4.5 ms	68.6 g	@ 28.4 ms
11 FRONT SEAT TRACK	PRE 2130 in	667 in	250 in				
	POST 2100 in	570 in	170 in				
LATERAL			37.9 g	@	4.6 ms	5.1 g	@ 62.2 ms
12 VEHICLE CENTER	PRE 2202 in	0 in	305 in				
OF GRAVITY	POST 2202 in	0 in	305 in				
LONGITUDINAL			5.5 g	@	33.1 ms	8.7 g	@ 8.6 ms
LATERAL			22.6 g	@	5.8 ms	3.5 g	@ 55.5 ms
VERTICAL			7.1 g	@	36.3 ms	7.7 g	@ 70.8 ms
RESULTANT			23.5 g	@	5.8 ms		

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

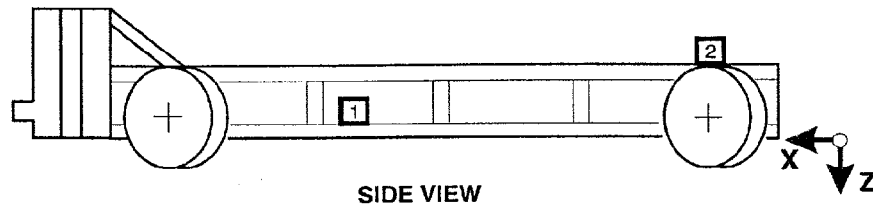
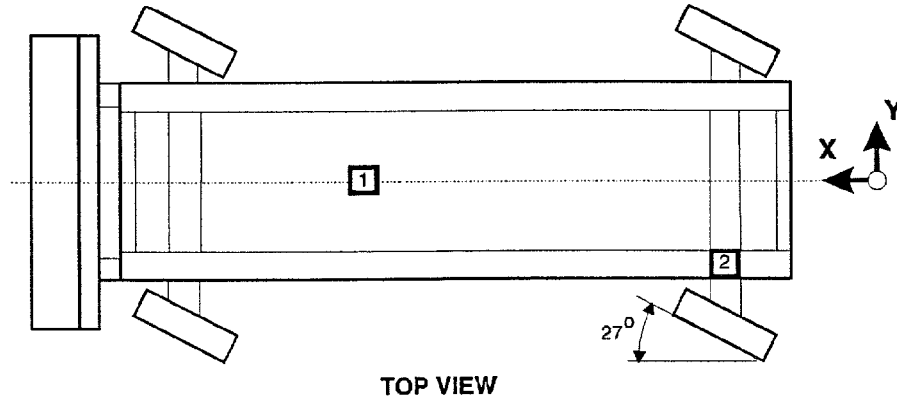
¹ See DATA ACQUISITION EXPLANATIONS

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501



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				3.0	96.5	20.5	35.6
	Lateral Y				2.6	54.5	5.9	35.3
	Vertical Z				4.4	27.0	5.0	62.2
	Resultant R				21.3	35.5		
2	Rear Frame Member	385	-638	621				
	Longitudinal X				1.3	94.1	17.2	37.8
	Lateral Y				6.8	23.0	2.5	95.4

*Reference: X=Rear Bumper (+ Forward)

Y=Vehicle Centerline (+ To Right)

Z=Ground Level (+ Up)

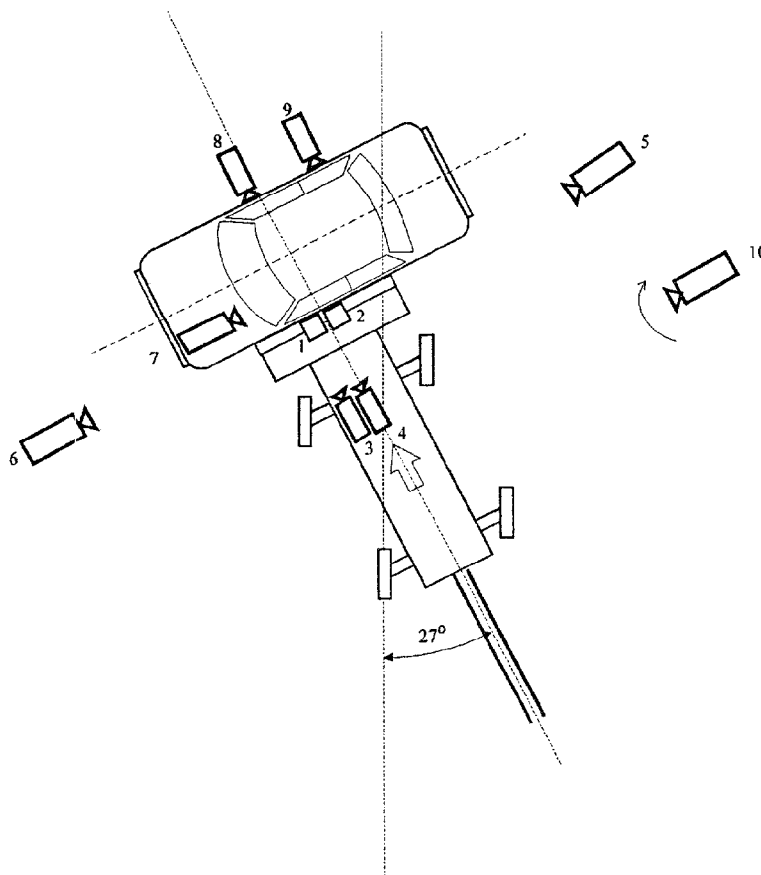
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501



Camera Number	Location	Location, mm			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Overhead wide	1,142	1,811	10,866	8	965
2	Overhead tight	1,142	1,378	10,866	25	1000
3	Onboard MDB left side	1,854	0	787	25	998
4	Onboard MDB center	1,041	-2,743	1,422	13	998
5	Right side	8,534	-4,547	965	13	1000
6	Left side	-25,910	-3,048	965	13	910
7	Onboard vehicle front	-520	571	1,651	8	660
8	Onboard side front door	810	2,409	1,219	8	600
9	Onboard side rear door	1,650	2,409	1,219	8	688
10	Real-time Panning	9,754	0	1,524	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.: CW0501

TEST DATE: January 5, 1998

Vehicle Mfg./Make/Model : 1998 Hyundai Tiburon Coupe

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

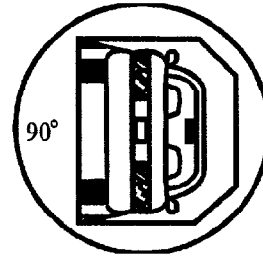
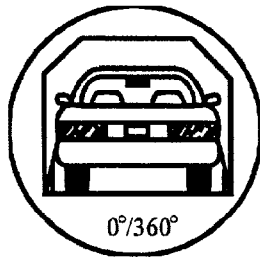
DATA SHEET 17

ROLLOVER DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

0 - 90 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 Postion 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

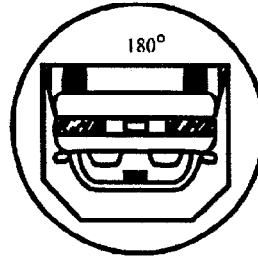
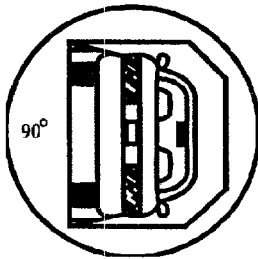
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

90 - 180 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 Postion 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

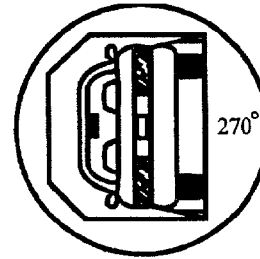
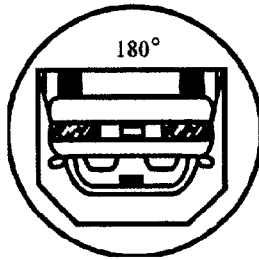
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

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 Postion 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

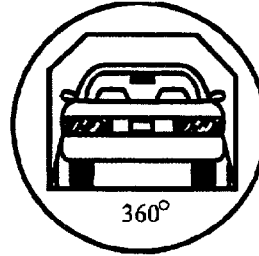
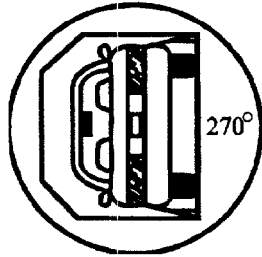
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1998 Hyundai Tiburon 2-door coupe

NHTSA No.: CW0501

270 - 360 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 Postion 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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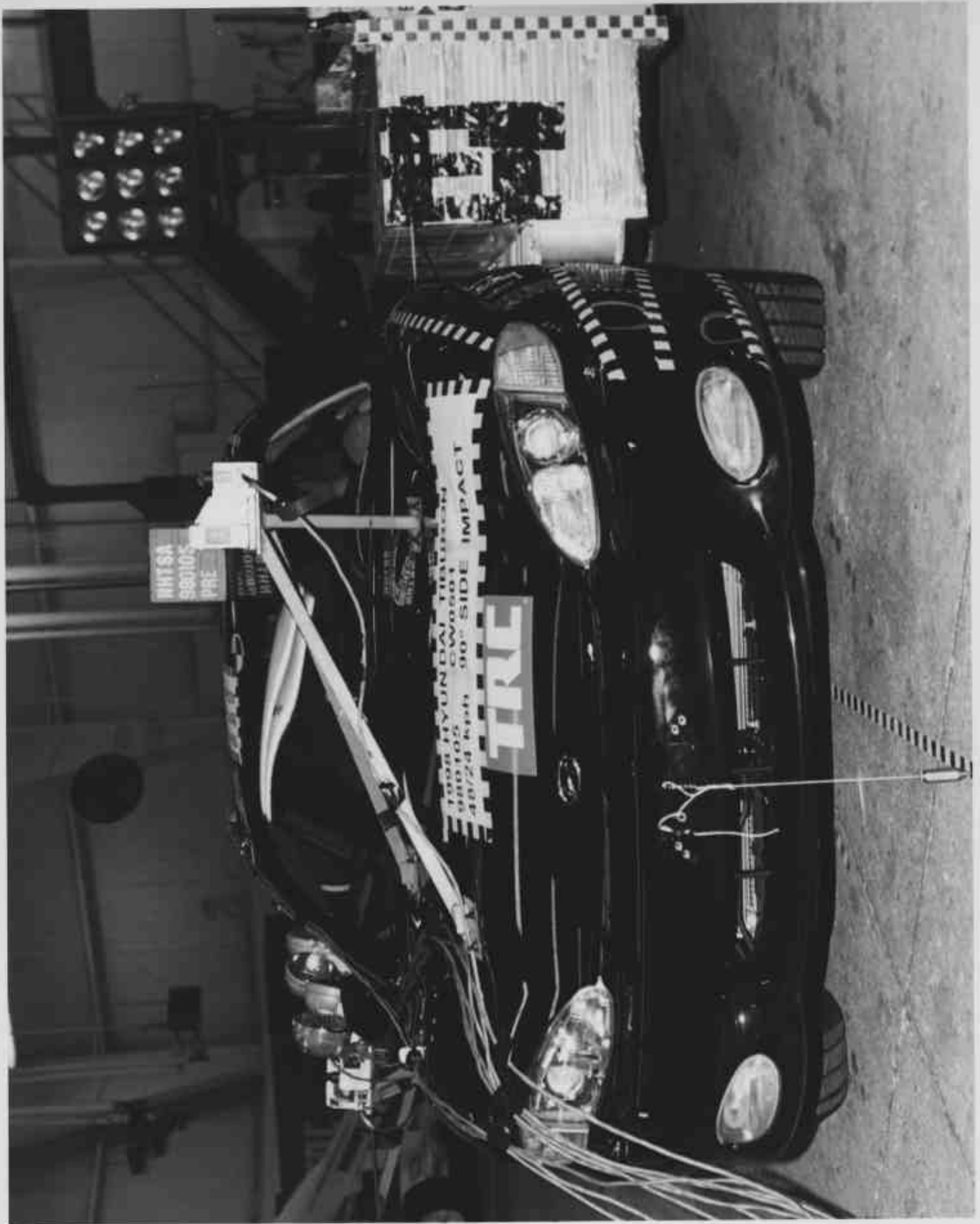


Figure A-1 Pre-Test Front View of Test Vehicle
A-3

980105

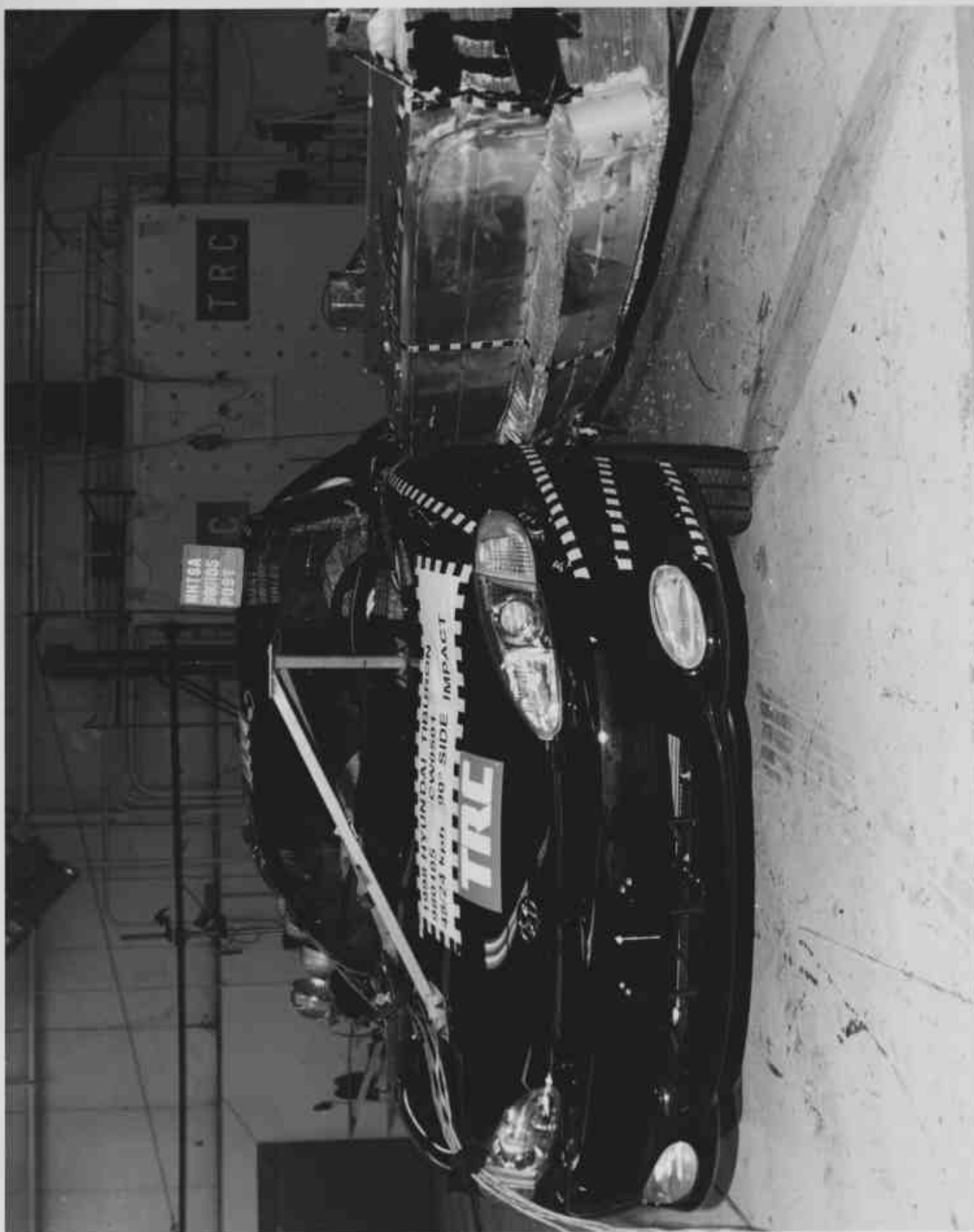


Figure A-2 Post-Test Front View of Test Vehicle
A-4

980105

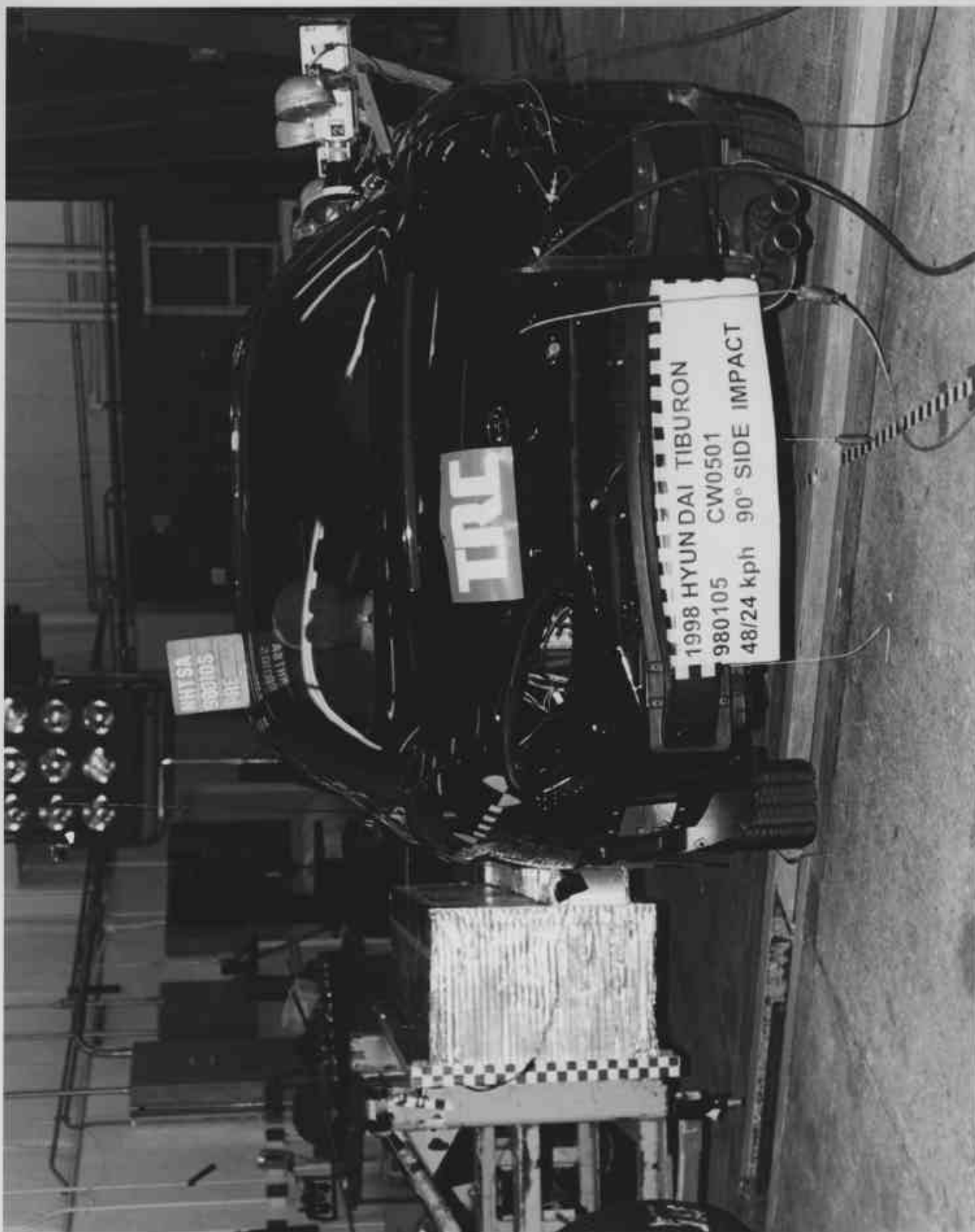


Figure A-3 Pre-Test Rear View of Test Vehicle
A-5

980105



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

980105

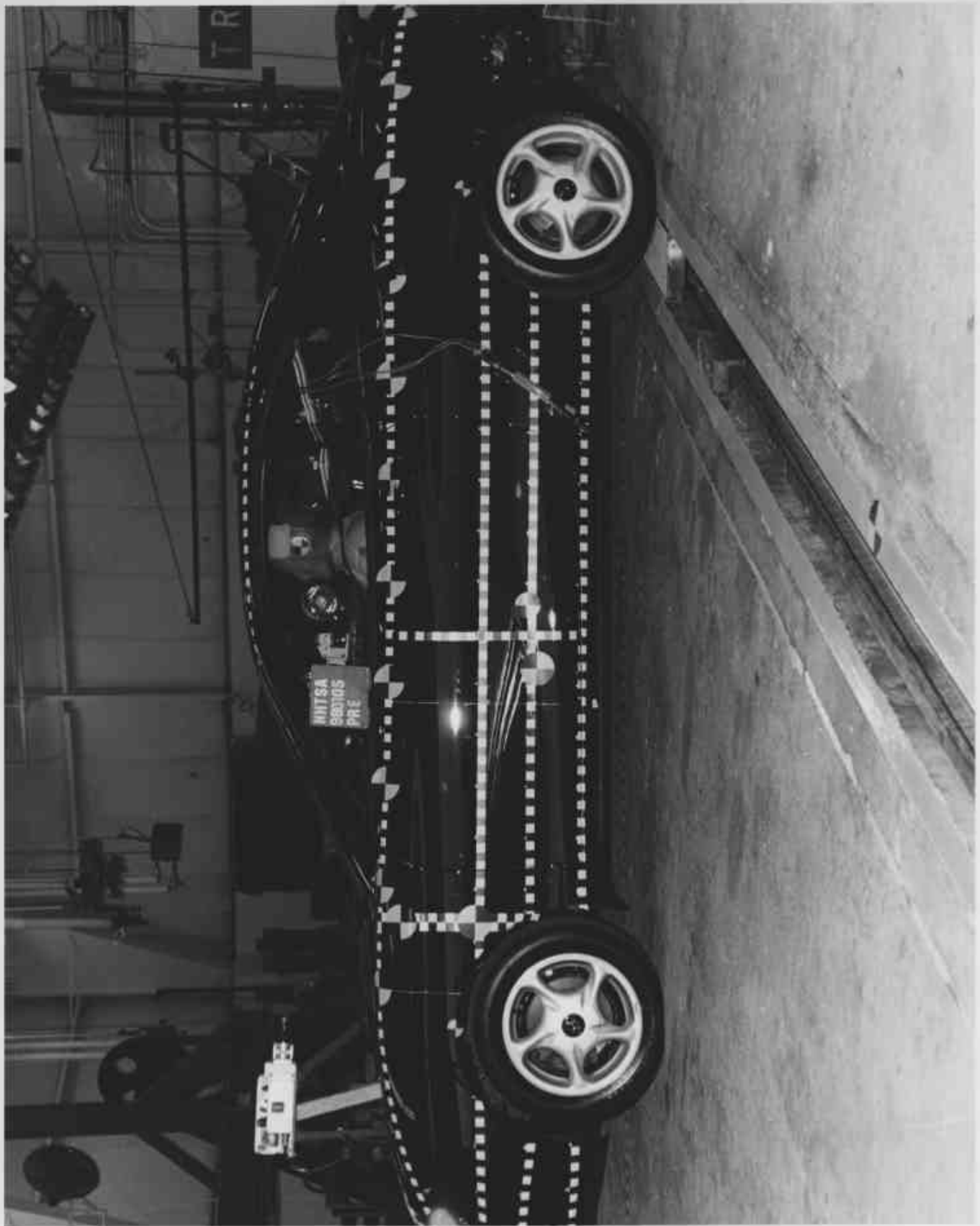


Figure A-5 Pre-Test Impacted Side View of Test Vehicle
A-7

980105



Figure A-6 Post-Test Impacted Side View of Test Vehicle - View 1

A-8

980105

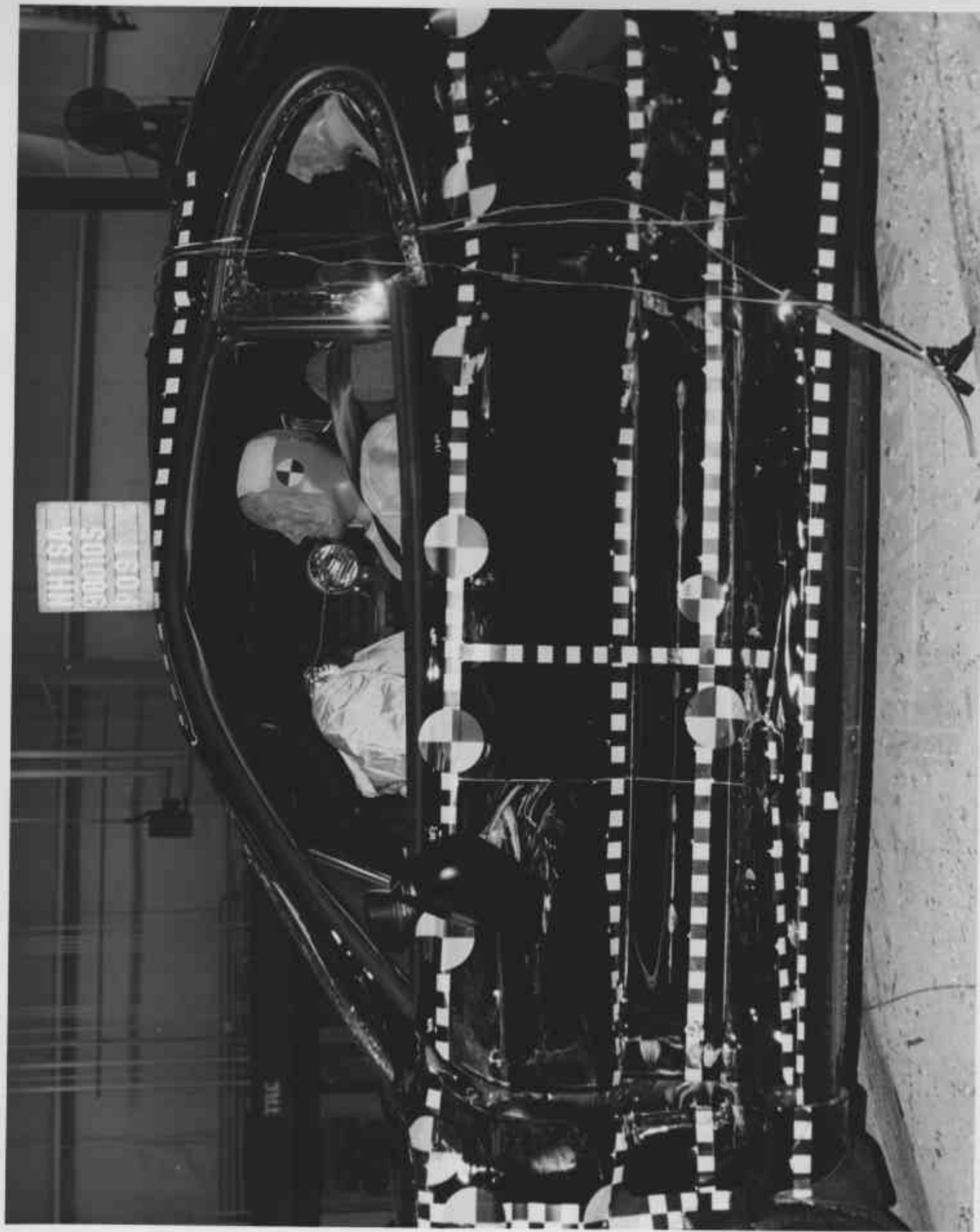


Figure A-7 Post-Test Impacted Side View of Test Vehicle - View 2

A-9

980105

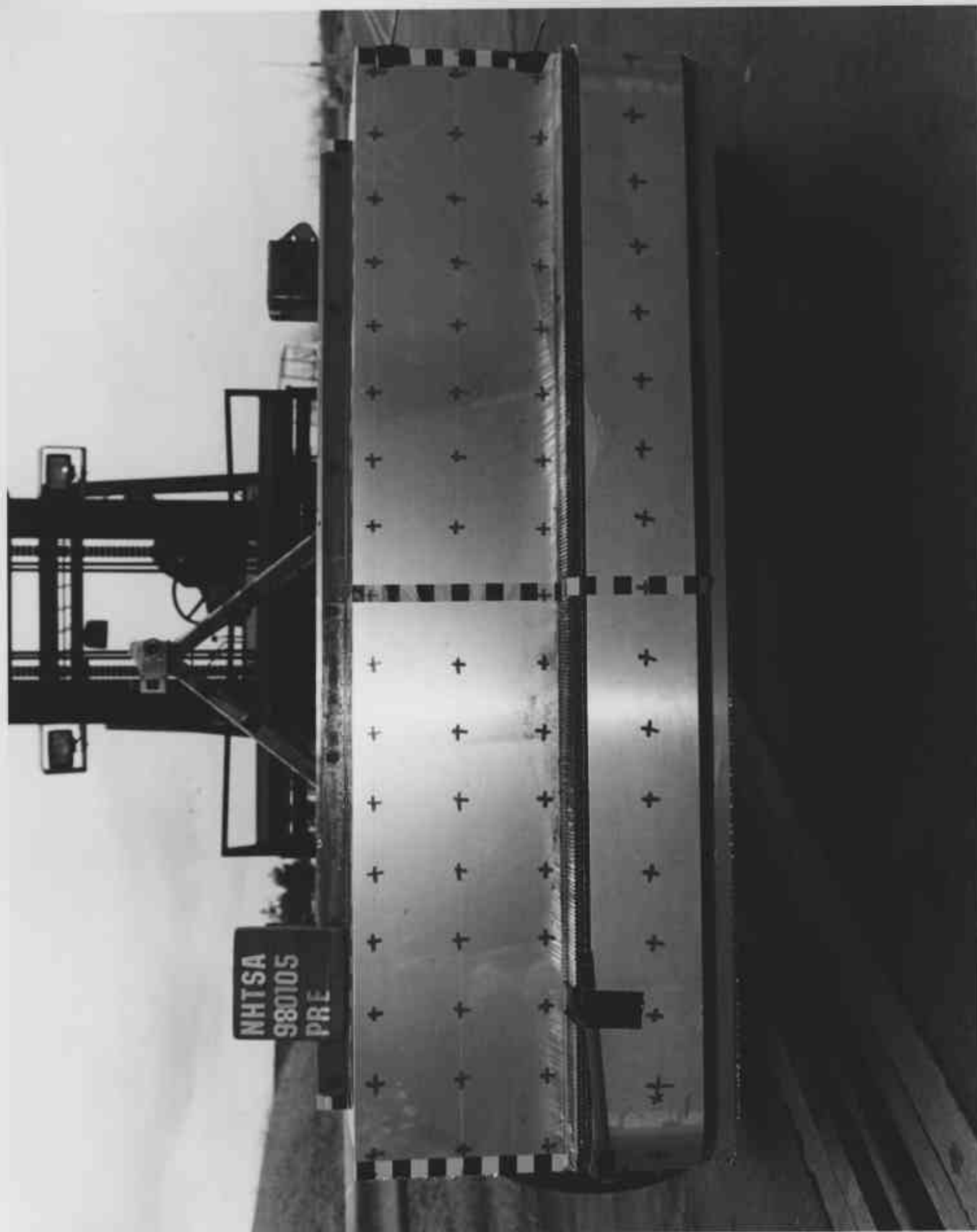


Figure A-8 Pre-Test Frontal View of Impactor Face
A-10

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Figure A-9 Post-Test Frontal View of Impactor Face
A-11

980105



Figure A-10 Pre-Test Left Side View of Impactor Face
A-12

980105



Figure A-11 Post-Test Left Side View of Impactor Face
A-13

980105



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

980105



Figure A-13 Post-Test Right Side View of Impactor Face
A-15

980105

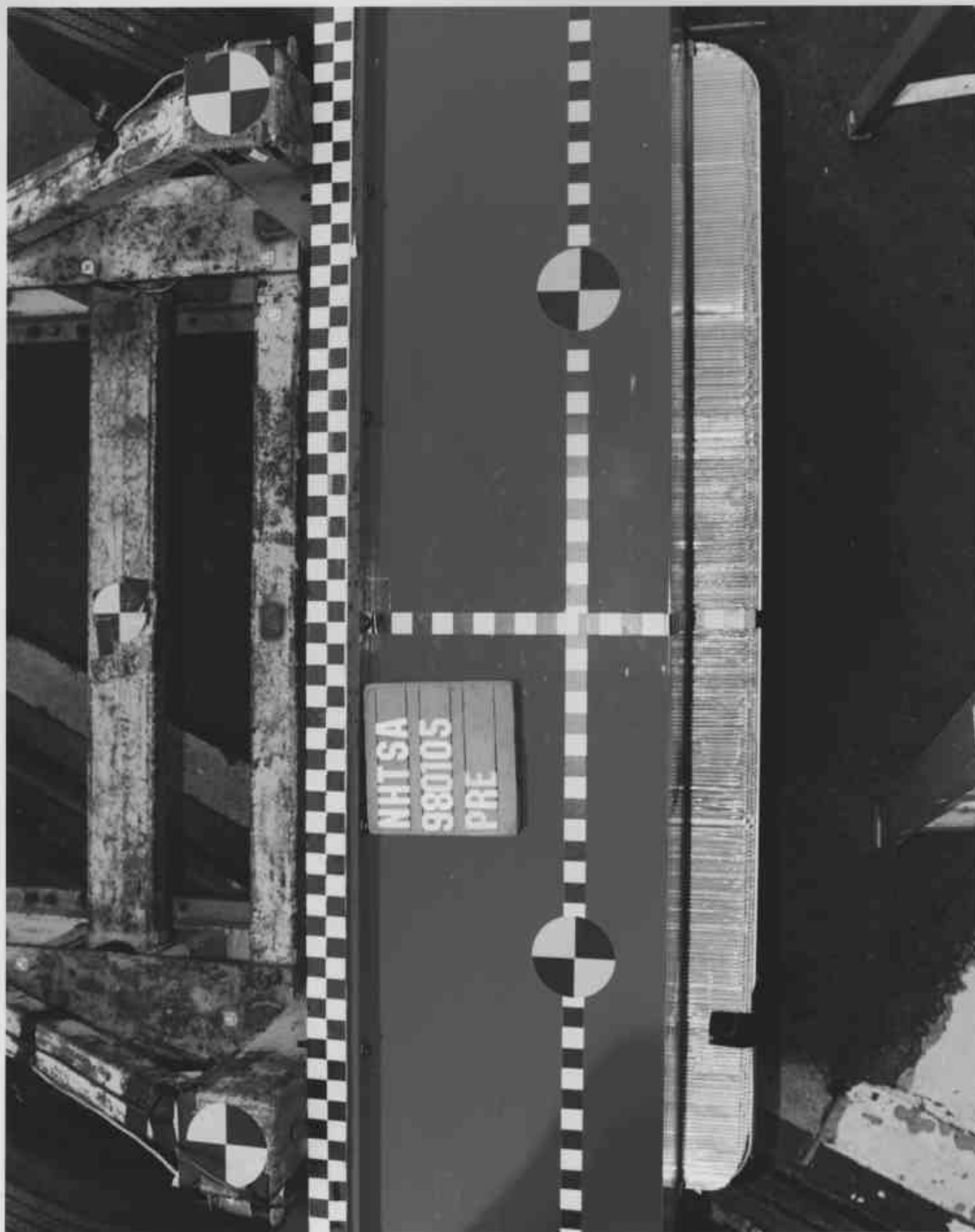


Figure A-14 Pre-Test Top View of Impactor Face
A-16

980105

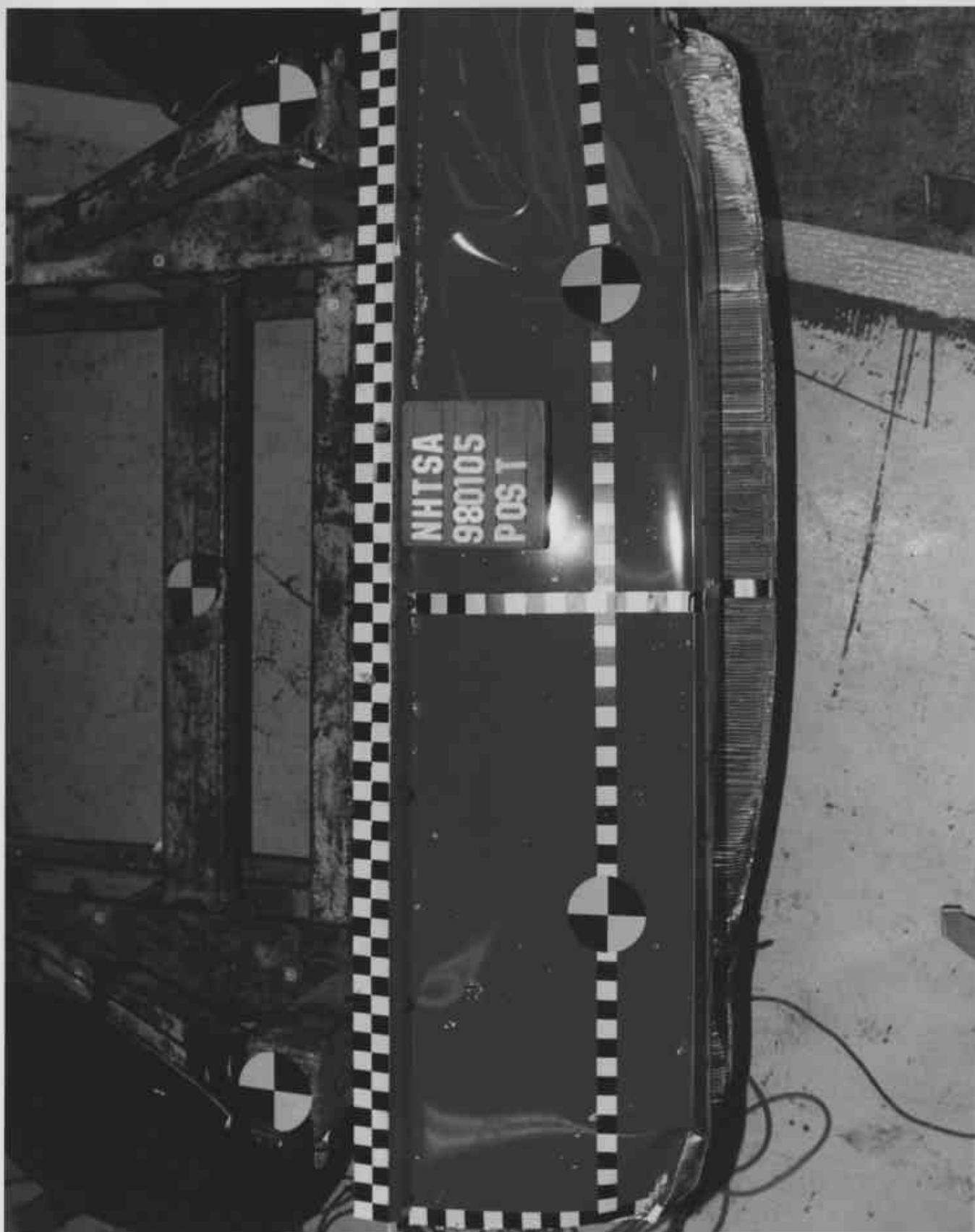


Figure A-15 Post-Test Top View of Impactor Face
A-17

980105



Figure A-16 Pre-Test Overhead View of Aligned MDB and Vehicle

A-18

980105



Figure A-18 Pre-Test Right Occupant Compartment View of Front SID

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Figure A-19 Post-Test Right Occupant Compartment View of Front SID

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980105



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

A-22

980105



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

A-23

980105

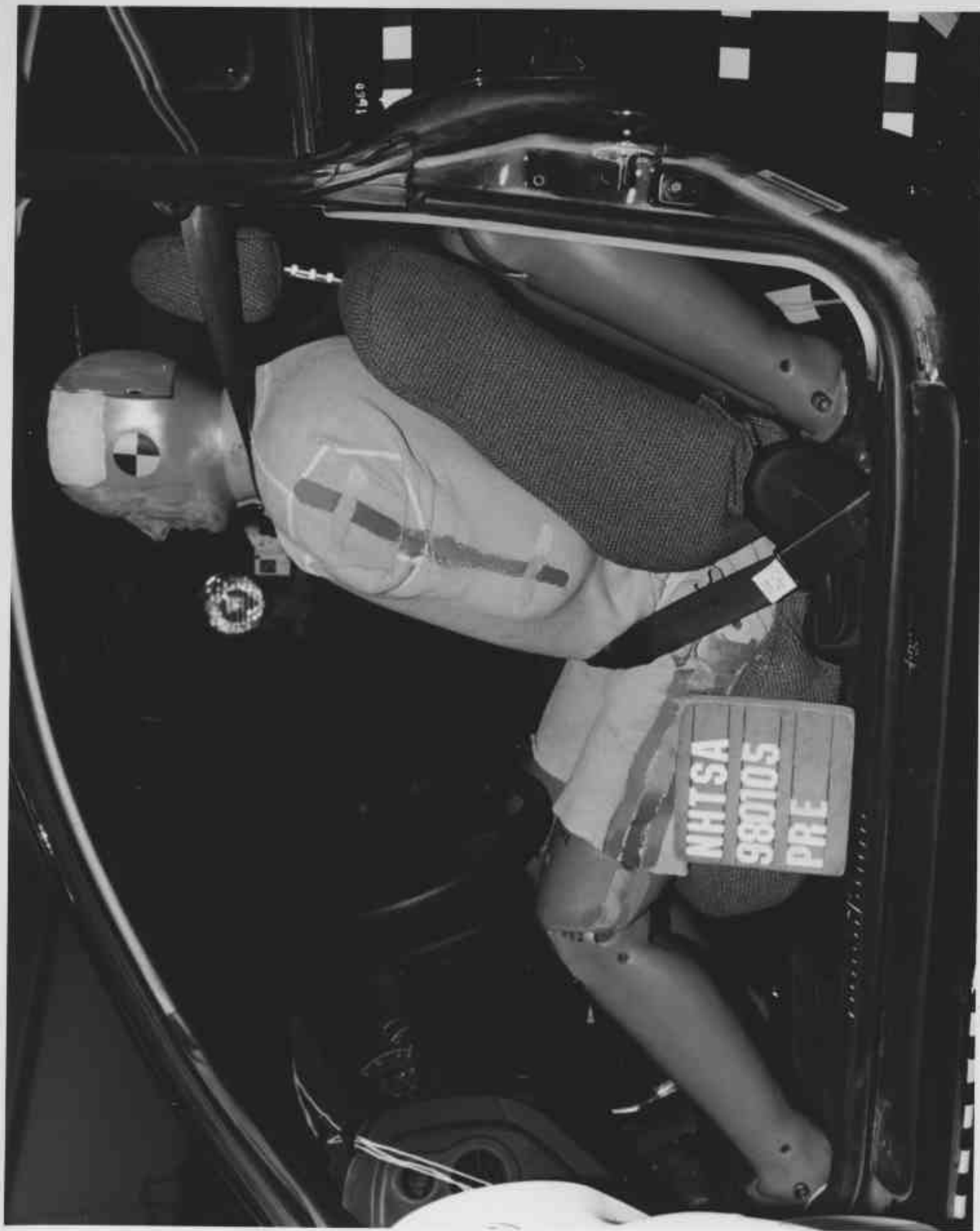


Figure A-22 Pre-Test Left Occupant Compartment View of Front SID

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980105



Figure A-23 Post-Test Left Occupant Compartment View of Front SID

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980105



Figure A-24 Pre-Test Left Occupant Compartment View of Rear SID

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980105



Figure A-25 Post-Test Left Occupant Compartment View of Rear SID
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Figure A-26 Pre-Test Interior Of Front Door
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980105



Figure A-27 Post-Test Interior of Front Door Showing SID Impact Locations
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Figure A-28 Post-Test Interior Of Rear Panel Showing SID Impact Locations
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Figure A-29 Pre-Test Left Side View Of MDB With Impactor Face In Position
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Figure A-30 Post-Test Close-Up View of Impact Point Target
A-32

980105



Figure A-31 Pre-Test Vehicle Certification Label View

TIRE INFLATION PRESSURE					
VEHICLE CAPACITY WEIGHT LBS: 700					
SEATING CAPACITY: TOTAL 4 FRONT 2 REAR 2					
TIRE PRESSURES-COLD . KPA(P.SI):					
TIRE SIZE	LOAD UP TO 2 PERSONS		MAX. VEHICLE WEIGHT LIMIT		
	FRT	RR	FRT	RR	
P195/60 R14	210(30)	210(30)	210(30)	210(30)	210(30)
P195/55 R15	210(30)	210(30)	210(30)	210(30)	210(30)
T125/70 D15	420(60)	420(60)	420(60)	420(60)	420(60)

V.I.N. KMHJG24FXWU089051

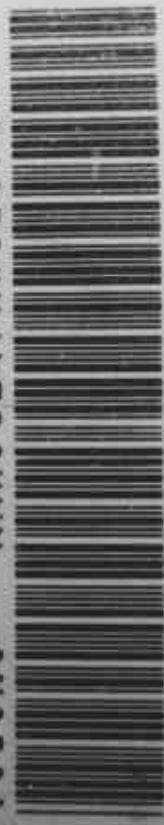


Figure A-32 Pre-Test Vehicle Recommended Tire Pressure Label View



Figure A-33 Impact Event
A-35

980105

Appendix B

Data Plots

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Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 1000

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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
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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

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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
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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
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39	LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY	B-46
40	LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION	B-47
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45	RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY	B-52
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55	LOWER A-POST Y-AXIS VELOCITY	B-62
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57	UPPER A-POST Y-AXIS VELOCITY	B-64
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59	LOWER B-POST Y-AXIS VELOCITY	B-66
60	UPPER B-POST Y-AXIS ACCELERATION	B-67
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64	VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION	B-73
65	VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY	B-74
66	VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION	B-75
67	VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY	B-76
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69	VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY	B-78
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MDB Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

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72	MDB CENTER OF GRAVITY X-AXIS VELOCITY	B-82
73	MDB CENTER OF GRAVITY Y-AXIS ACCELERATION	B-83
74	MDB CENTER OF GRAVITY Y-AXIS VELOCITY	B-84
75	MDB CENTER OF GRAVITY Z-AXIS ACCELERATION	B-85
76	MDB CENTER OF GRAVITY Z-AXIS VELOCITY	B-86
77	MDB CENTER OF GRAVITY RESULTANT ACCELERATION	B-87
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Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

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85	DRIVER LOWER RIB Y-AXIS VELOCITY	B-96
86	DRIVER LOWER SPINE Y-AXIS ACCELERATION	B-97
87	DRIVER LOWER SPINE Y-AXIS VELOCITY	B-98
88	DRIVER PELVIS Y-AXIS ACCELERATION	B-99
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90	PASSENGER UPPER RIB Y-AXIS ACCELERATION	B-101
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92	PASSENGER LOWER RIB Y-AXIS ACCELERATION	B-103
93	PASSENGER LOWER RIB Y-AXIS VELOCITY	B-104
94	PASSENGER LOWER SPINE Y-AXIS ACCELERATION	B-105
95	PASSENGER LOWER SPINE Y-AXIS VELOCITY	B-106
96	PASSENGER PELVIS Y-AXIS ACCELERATION	B-107
97	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>
98	DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION	B-110
99	DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-111
100	DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-112
101	DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-113
102	DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-114
103	DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-115
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105	DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY	B-117
106	PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION	B-118
107	PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY	B-119
108	PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION	B-120
109	PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY	B-121
110	PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION	B-122
111	PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY	B-123
112	PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION	B-124
113	PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY	B-125

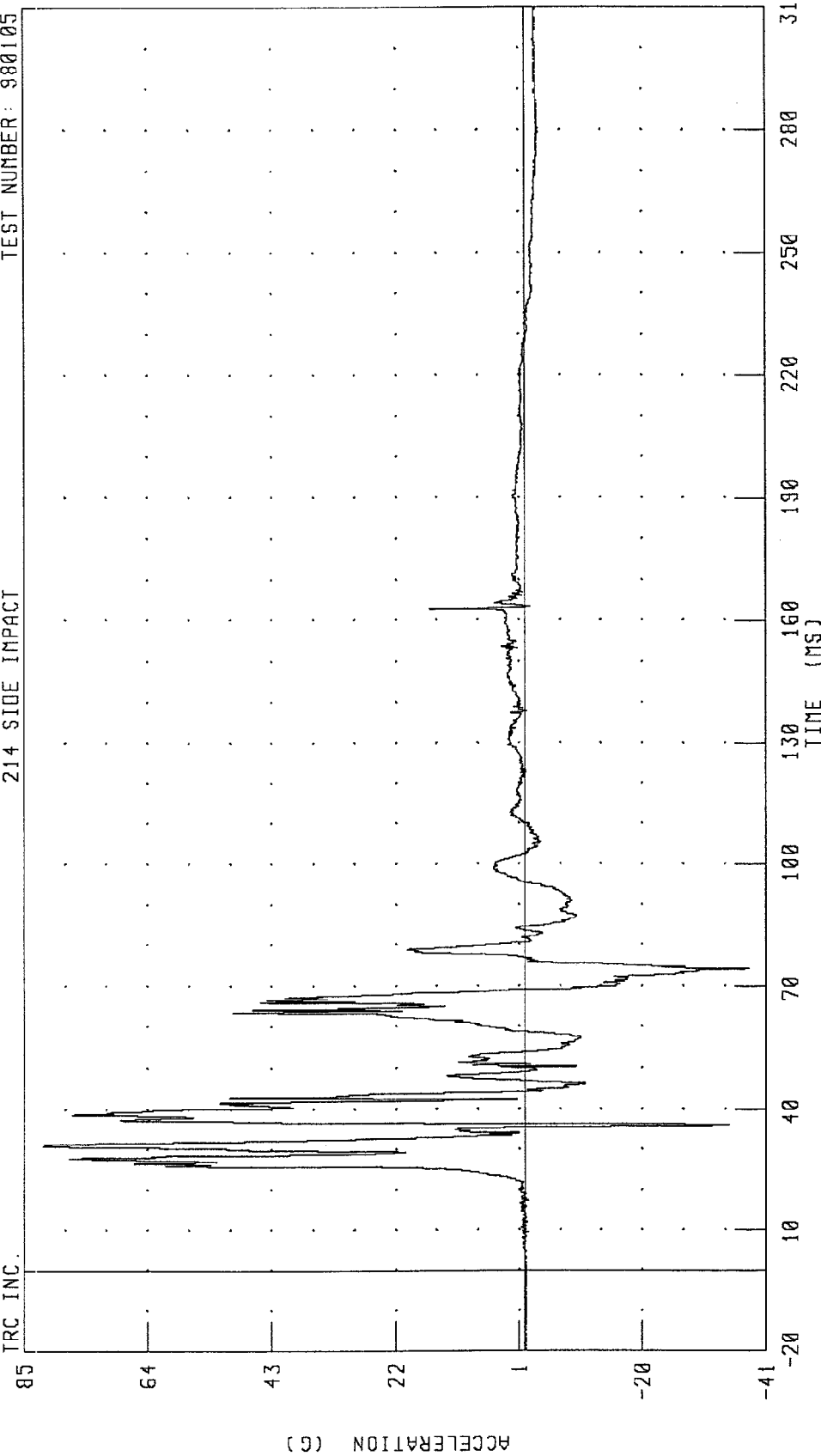
Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - Filter Class 1000
Integration Data - Filter Class 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
DRIVER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



PEAK DATA: 81.72 G @ 30.88 MS, -38.11 G @ 74.24 MS

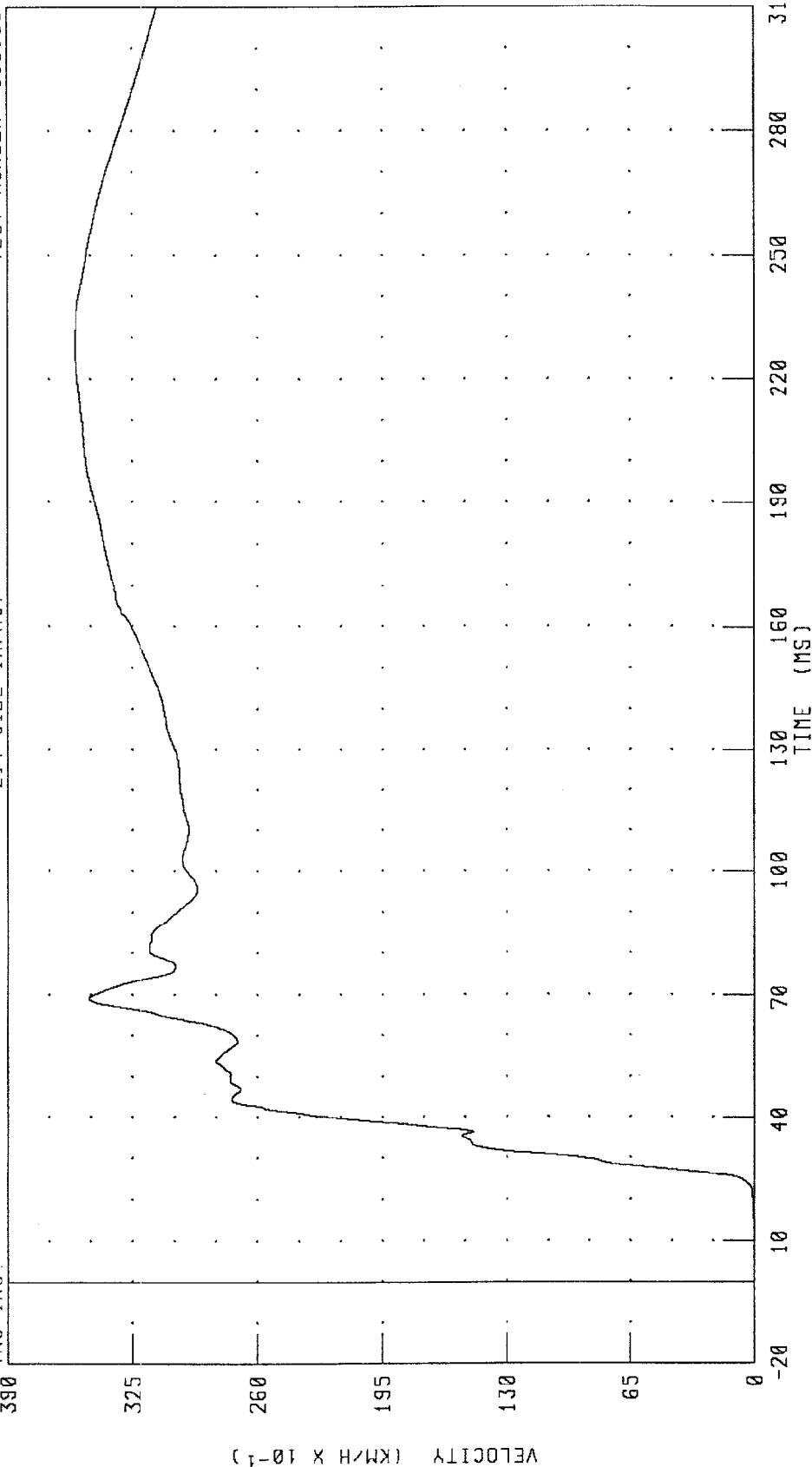
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MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
DRIVER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



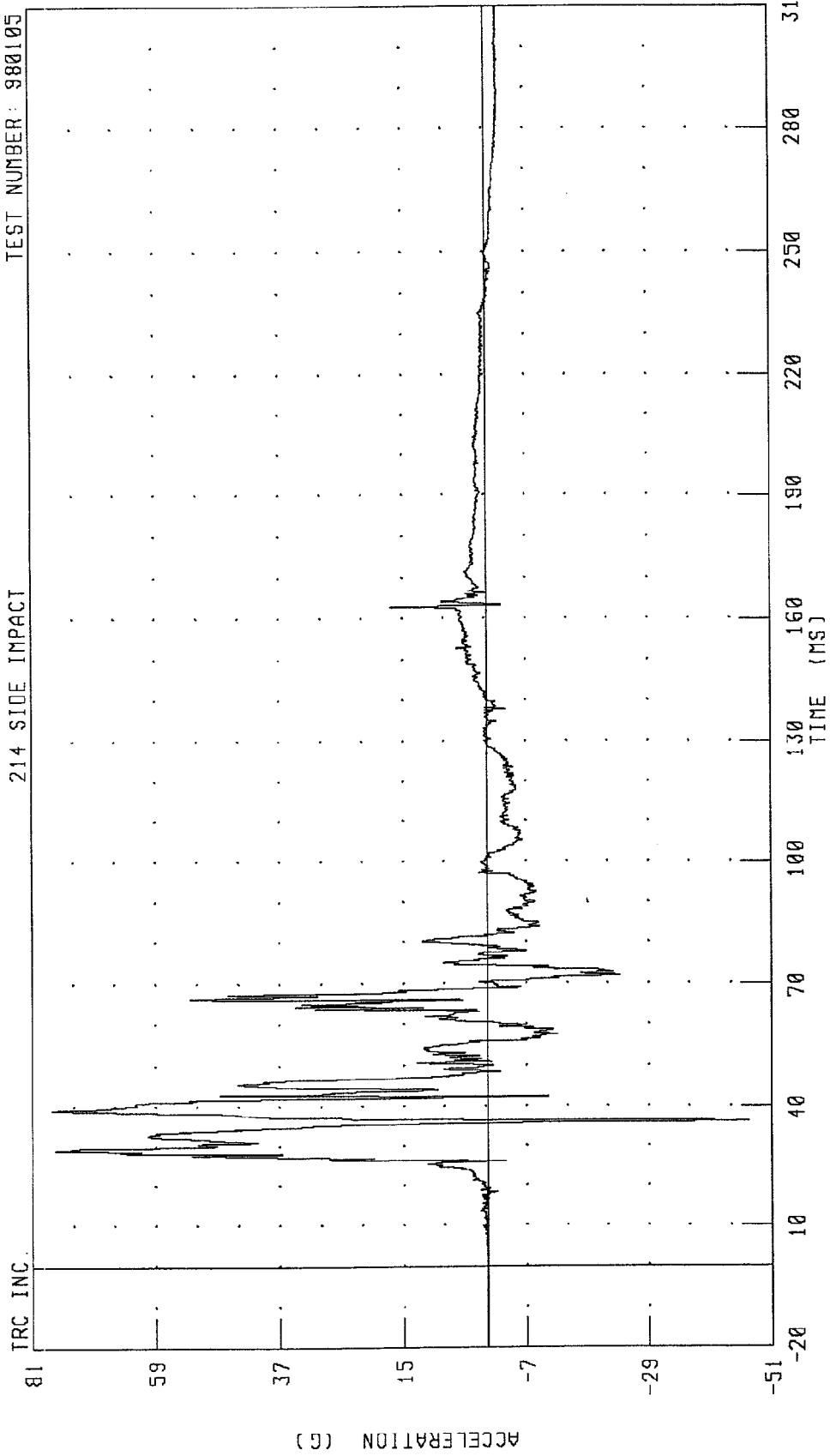
CHANNEL: LURYU1 FILTER: CH. CLASS 1000

PEAK DATA: 35.46 KM/H @ 228.16 MS; 0.00 KM/H @ 1.84 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT



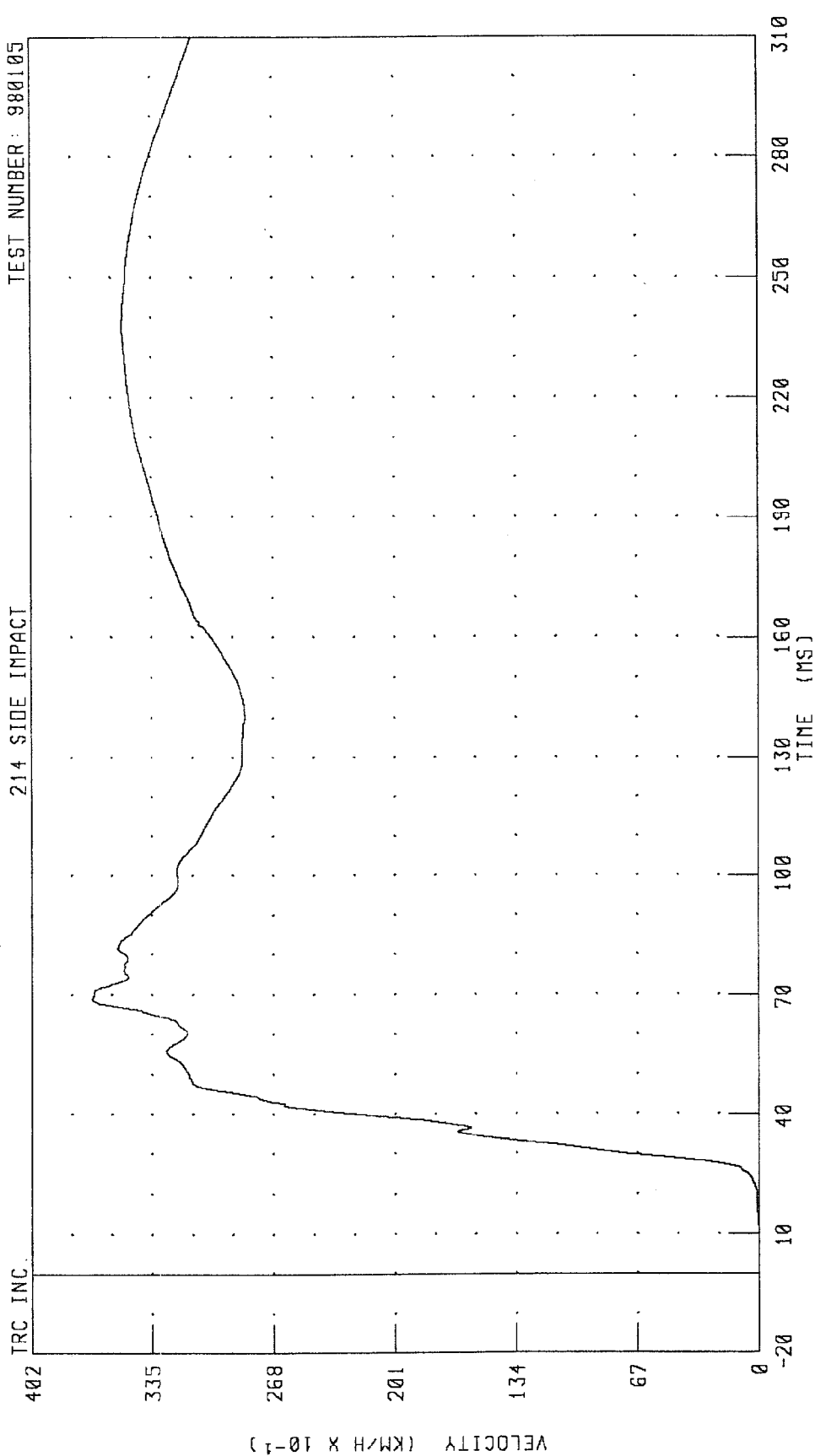
CHANNEL: LLRYG1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: LLRYU1 FILTER: CH. CLASS 1000

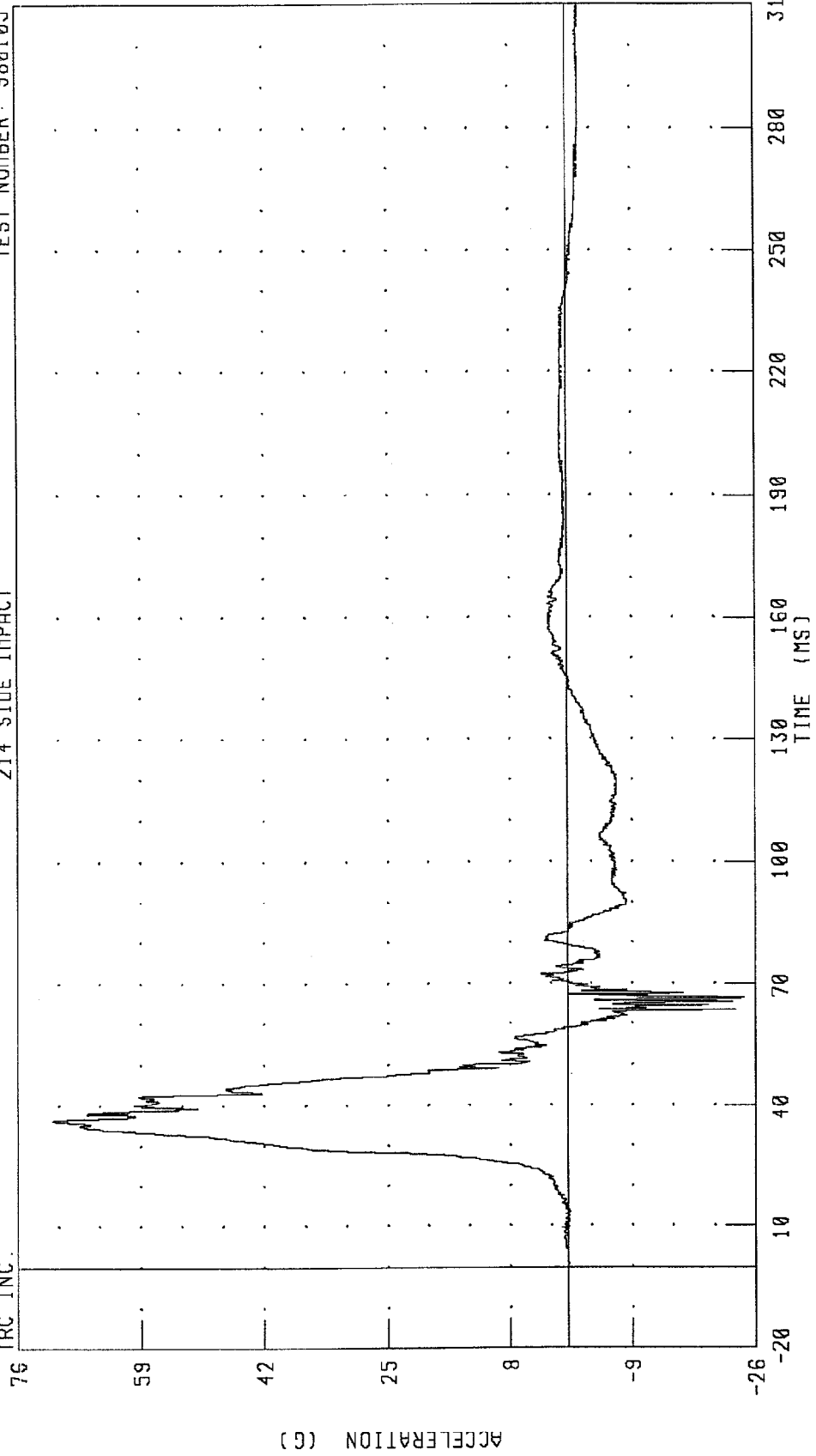
PEAK DATA: 36.84 KM/H @ 68.88 MS; 0.00 KM/H @ 0.72 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: T12YG1 FILTER: CH. CLASS 1000

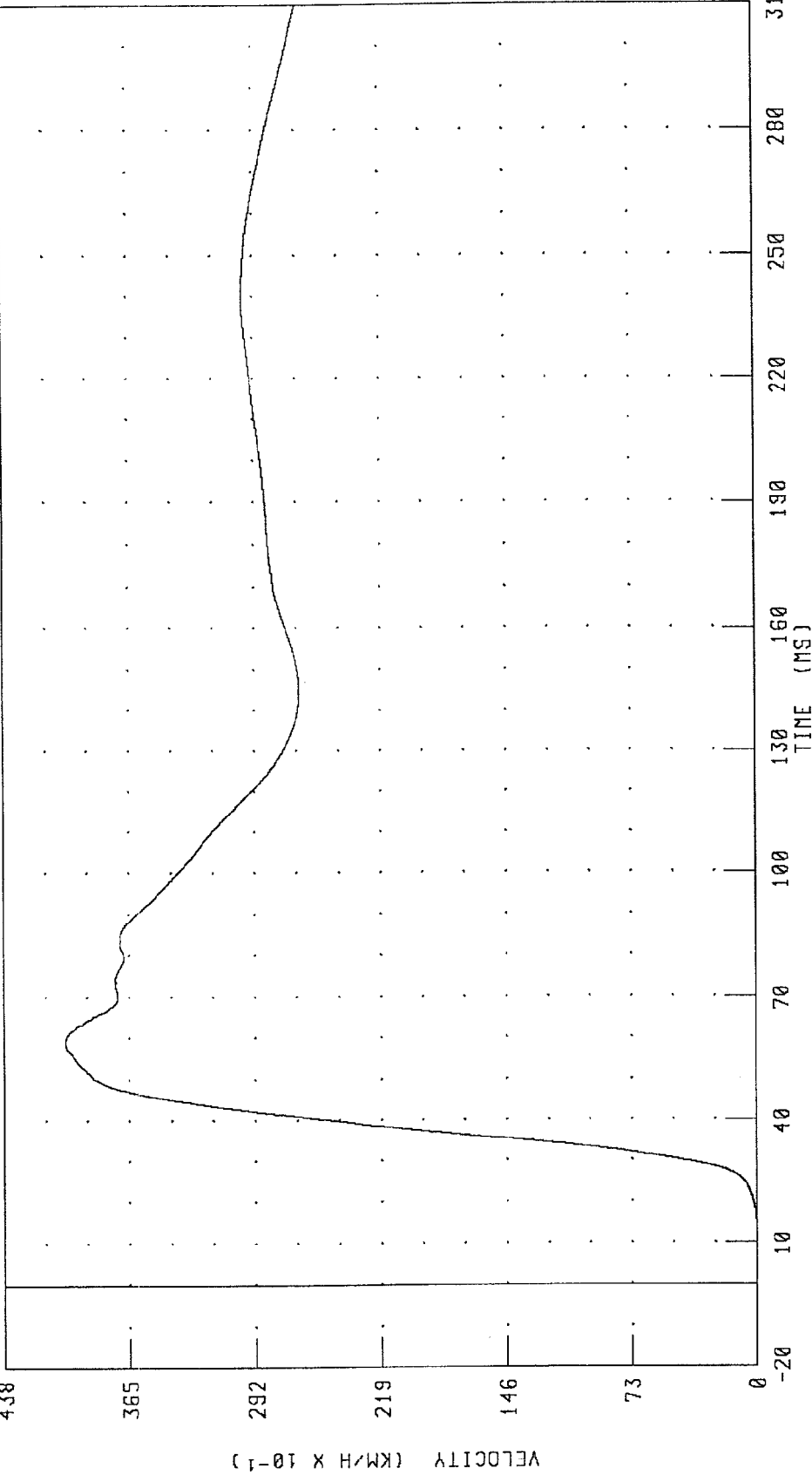
PEAK DATA: 71.20 G @ 36.16 MS; -24.32 G @ 66.40 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

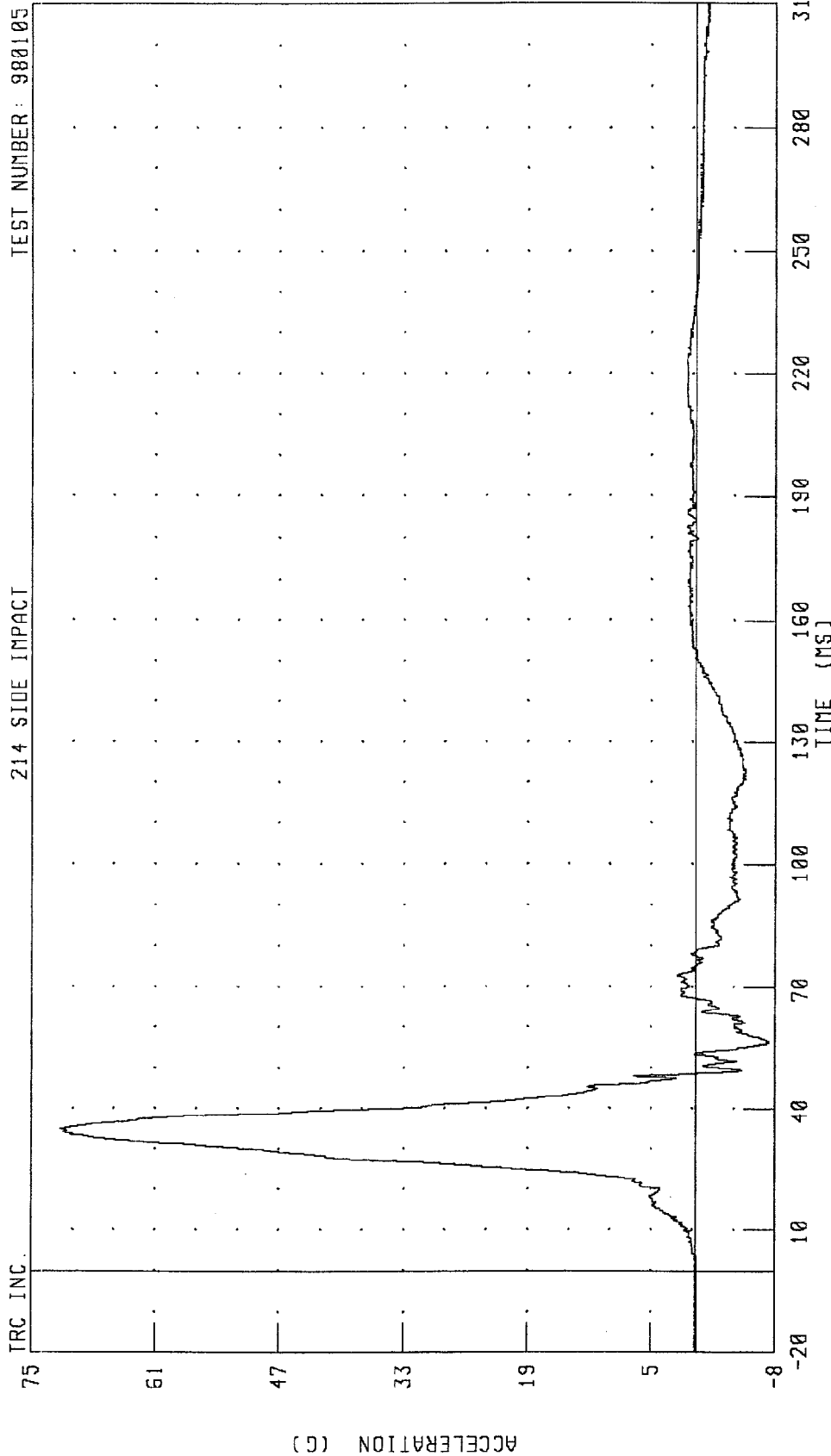


PEAK DATA: 40.21 KM/H @ 59.04 MS; 0.00 KM/H @ 1.04 MS

CHANNEL: T12YU1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER PELVIS Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 980105



PEAK DATA: 71.86 G @ 34.88 MS; -8.10 G @ 55.92 MS

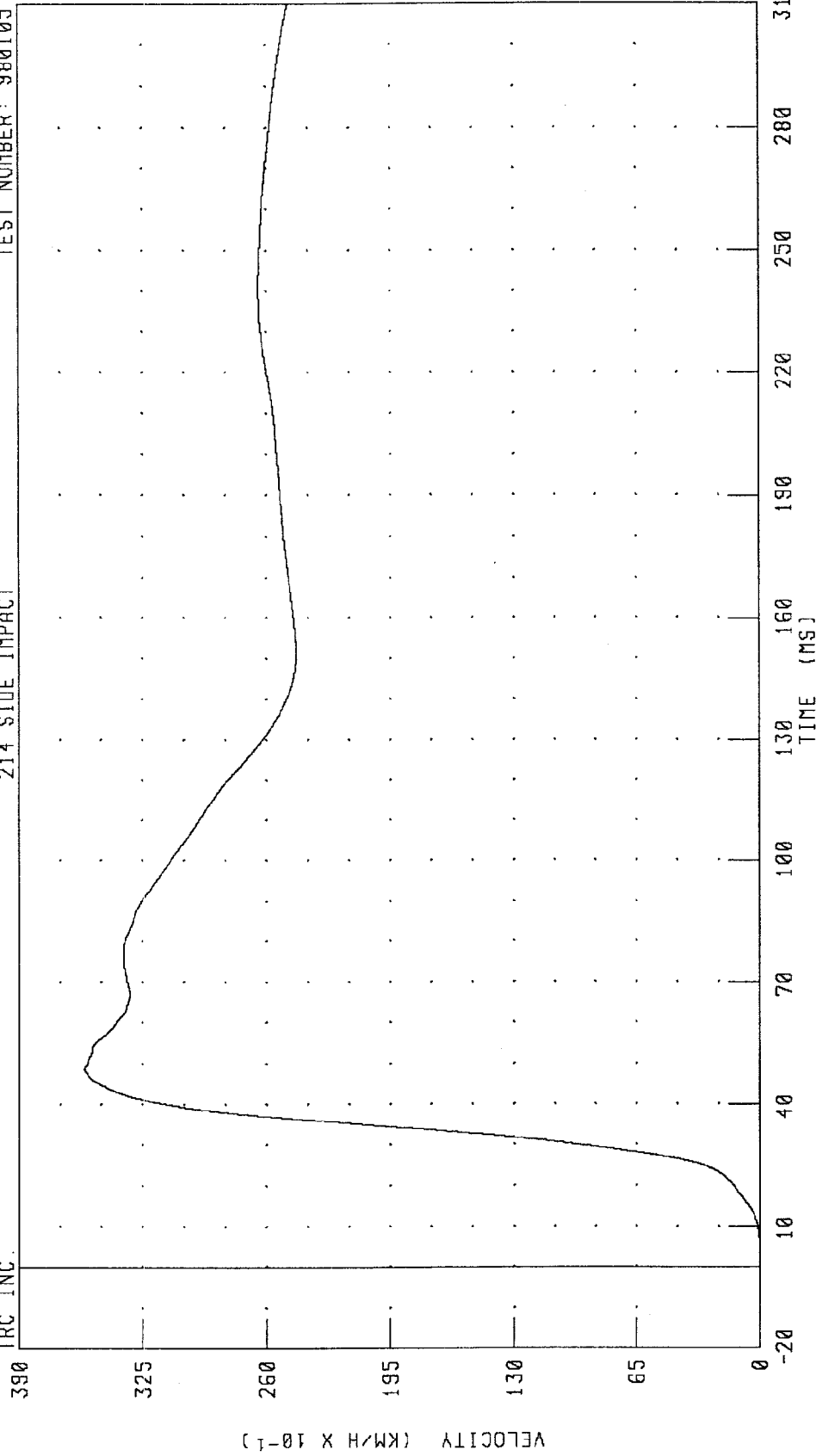
CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

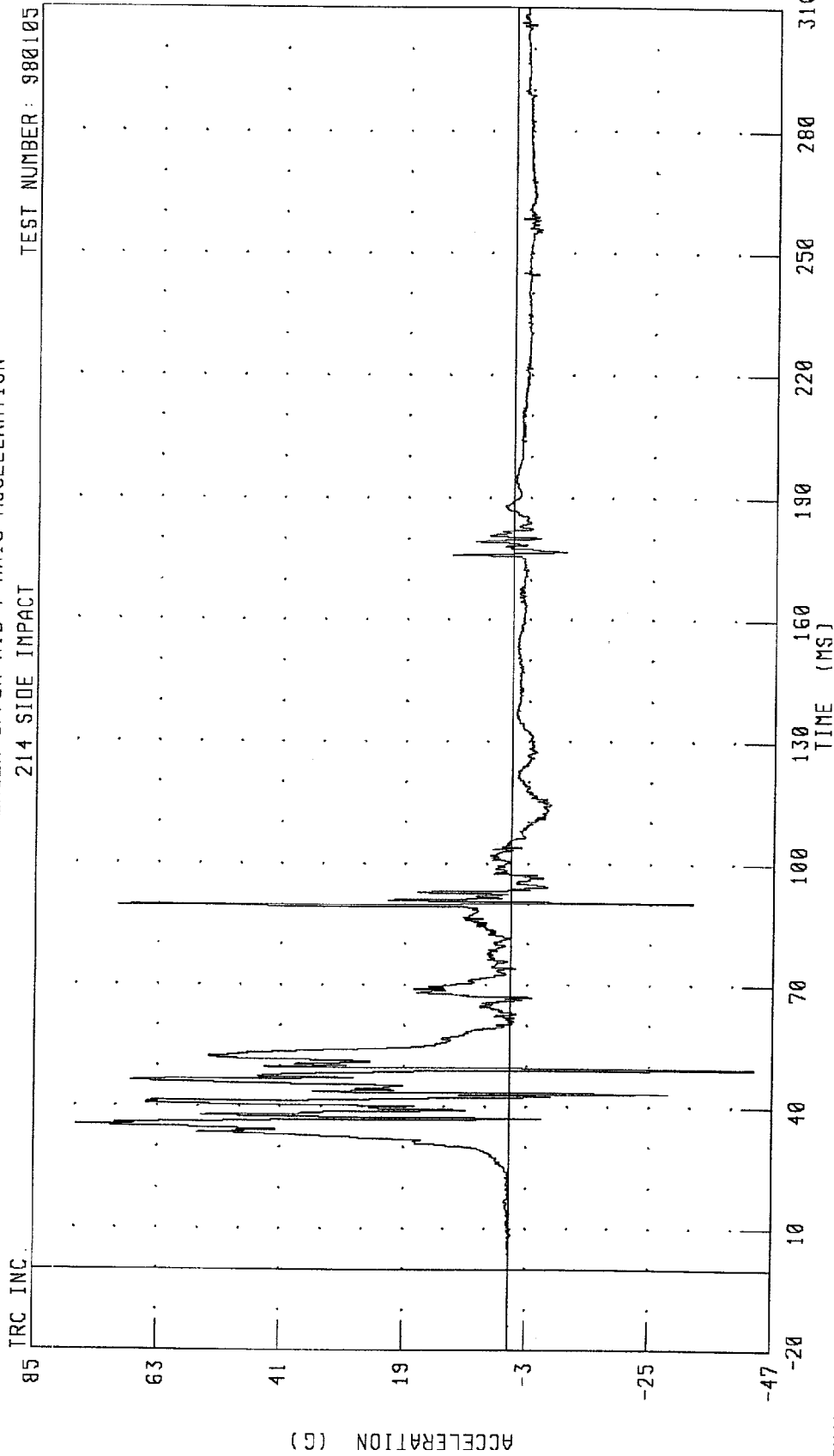
TRC INC.



CHANNEL: PEVYU1 FILTER: CH. CLASS 1000

PEAK DATA: 35.55 KM/H @ 48.72 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION



CHANNEL: LURY04 FILTER: CH. CLASS 1000

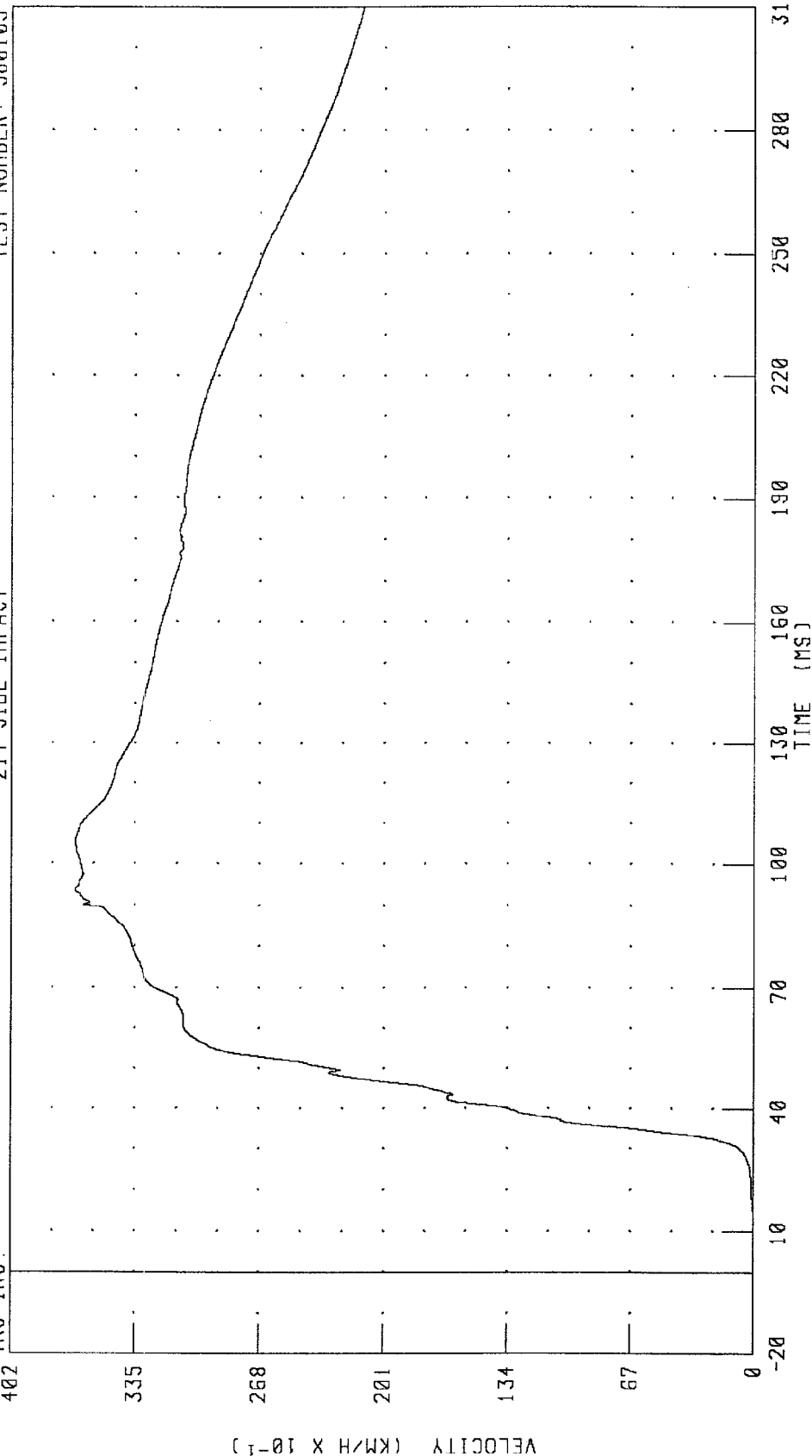
PEAK DATA: 77.57 G @ 35.44 MS, -43.59 G @ 49.28 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

IRC INC.



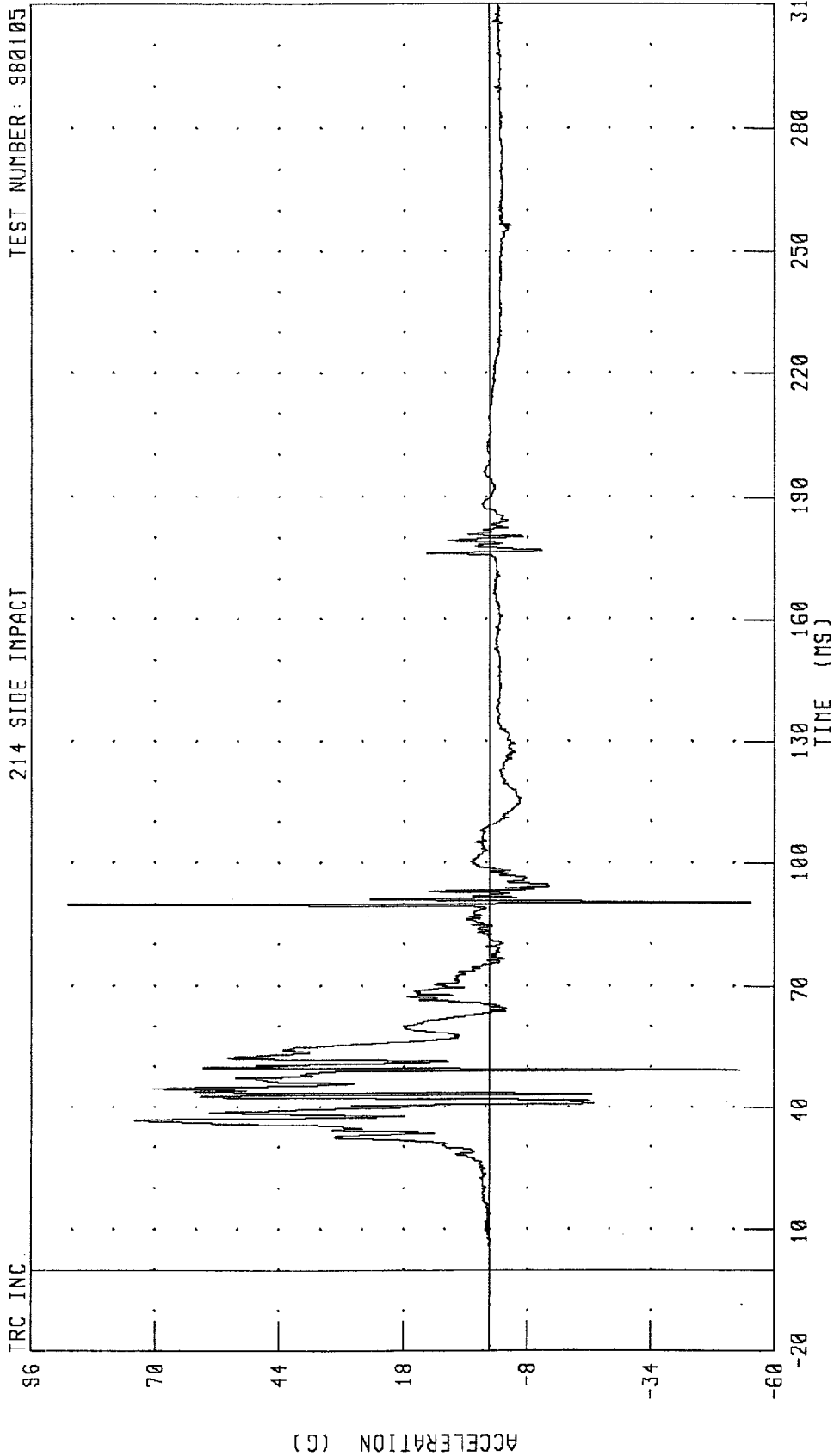
PEAK DATA: 36.74 KM/H @ 93.44 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LURYU4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT



PEAK DATA: 88.34 G @ 88.92 MS; -54.90 G @ 90.40 MS

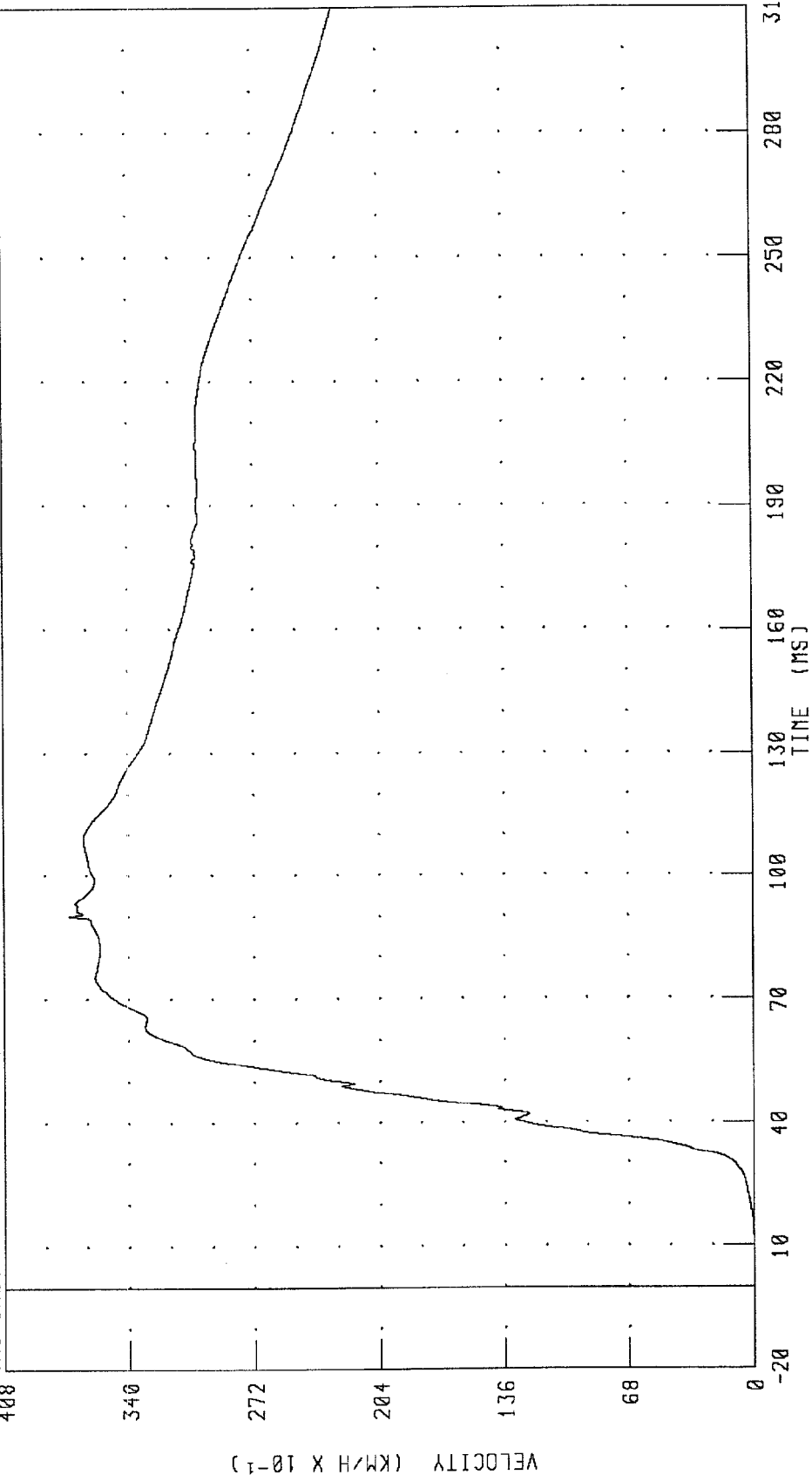
CHANNEL: LLRYG4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



PEAK DATA: 37.19 KM/H @ 90.16 MS, 0.00 KM/H @ 0.48 MS

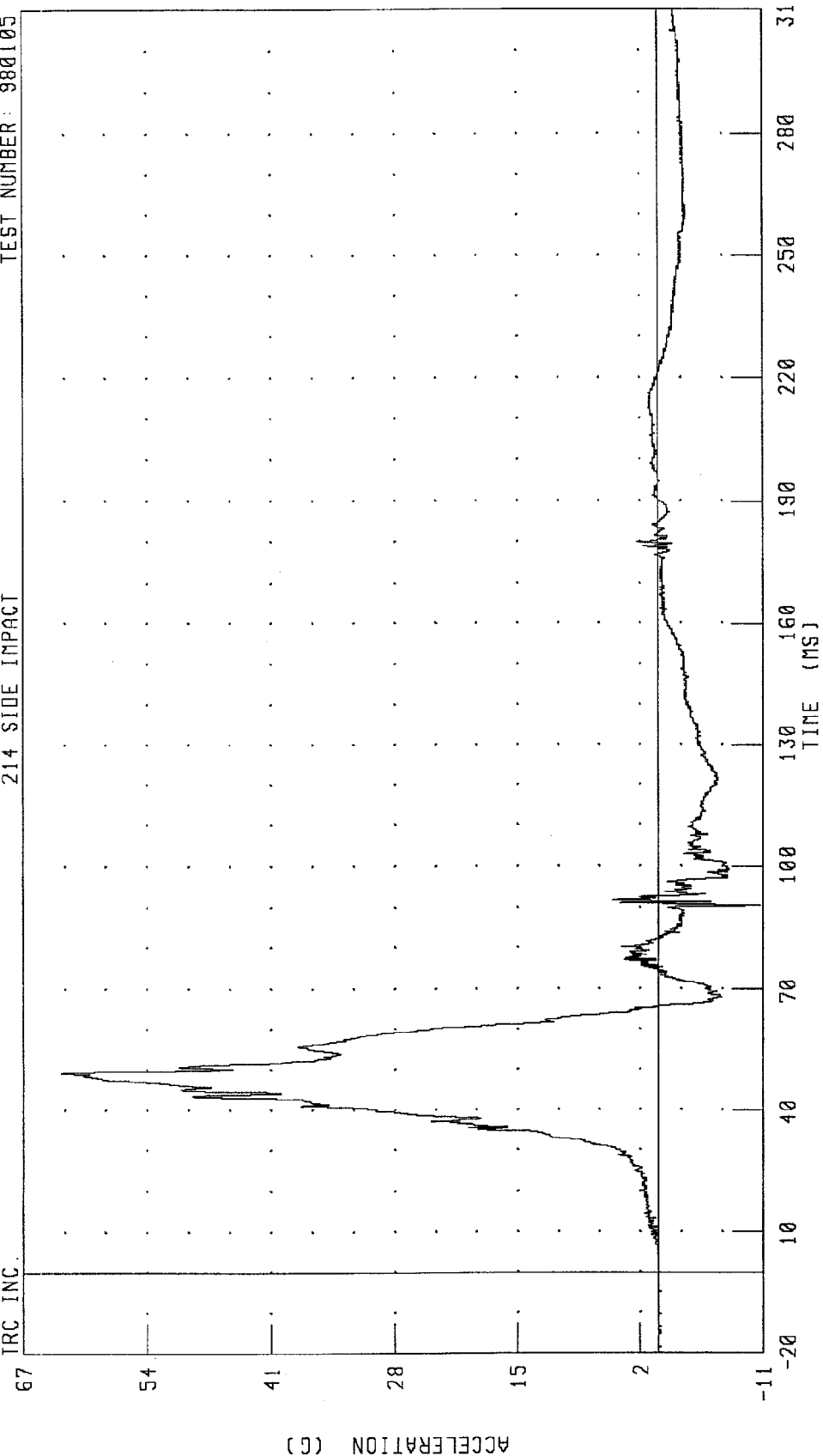
CHANNEL: LLRYU4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

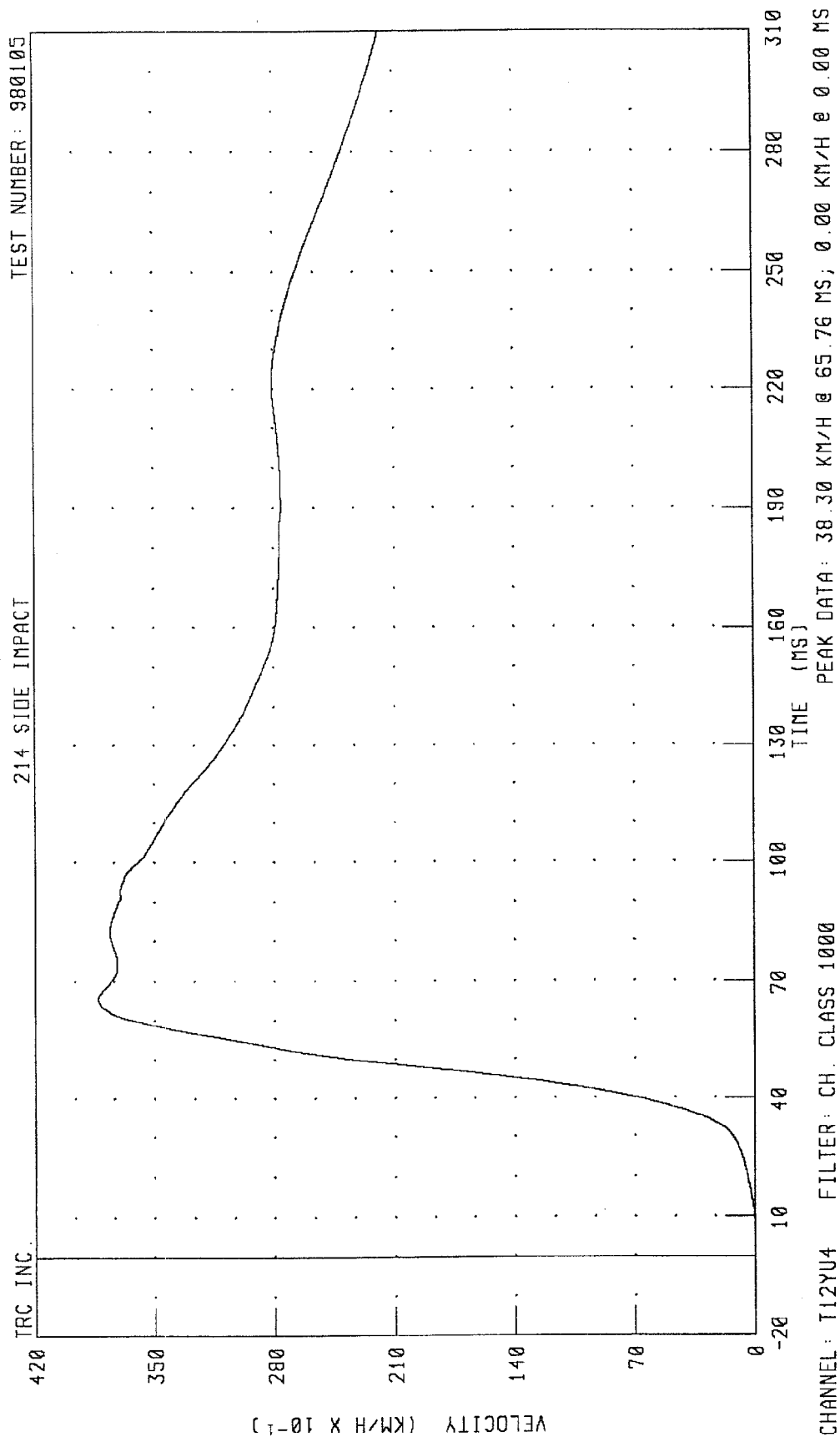
TRC INC.



CHANNEL: T12YC4 FILTER: CH. CLASS 1000

PEAK DATA: 63.02 G @ 49.20 MS; -10.59 G @ 90.48 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

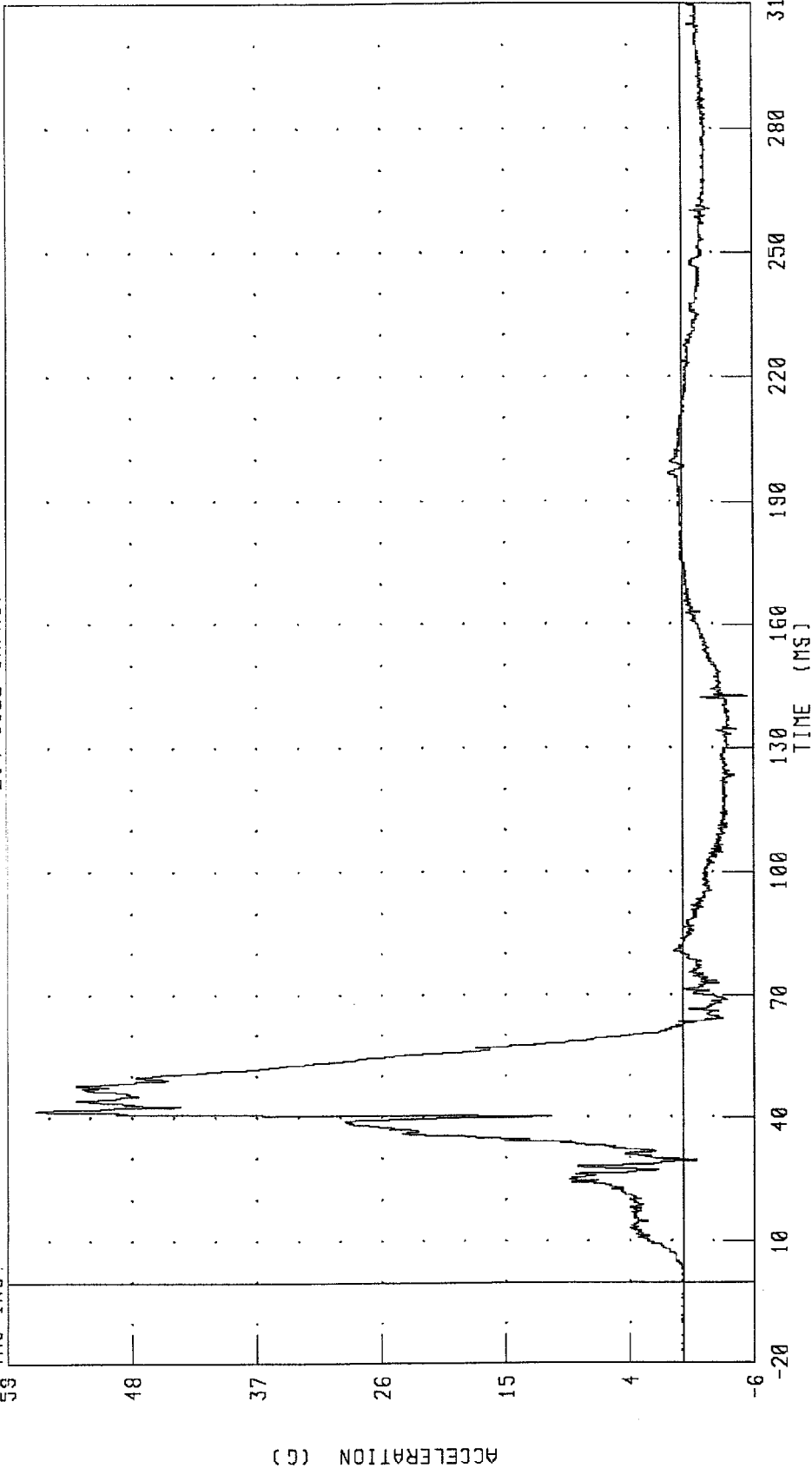


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1988 HYUNDAI TIBURON
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



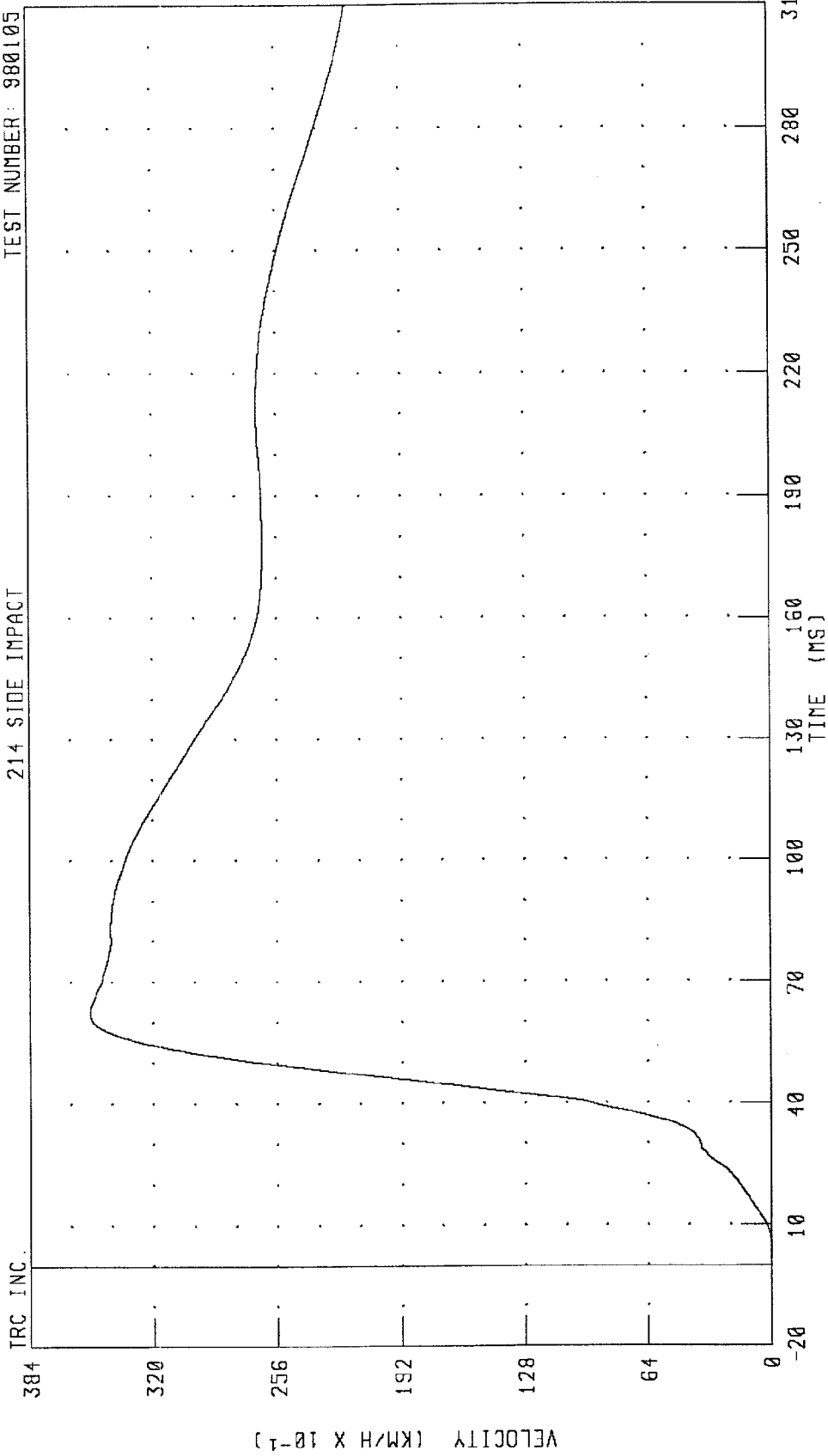
PEAK DATA: 57.20 G @ 41.52 MS; -5.73 G @ 142.64 MS

CHANNEL: PEVYG4 FILTER: CH. CLASS 1000

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT



PEAK DATA: 35.26 KM/H @ 62.72 MS; 0.00 KM/H @ 0.16 MS

CHANNEL: PEVYU4 FILTER: CH. CLASS 1000

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

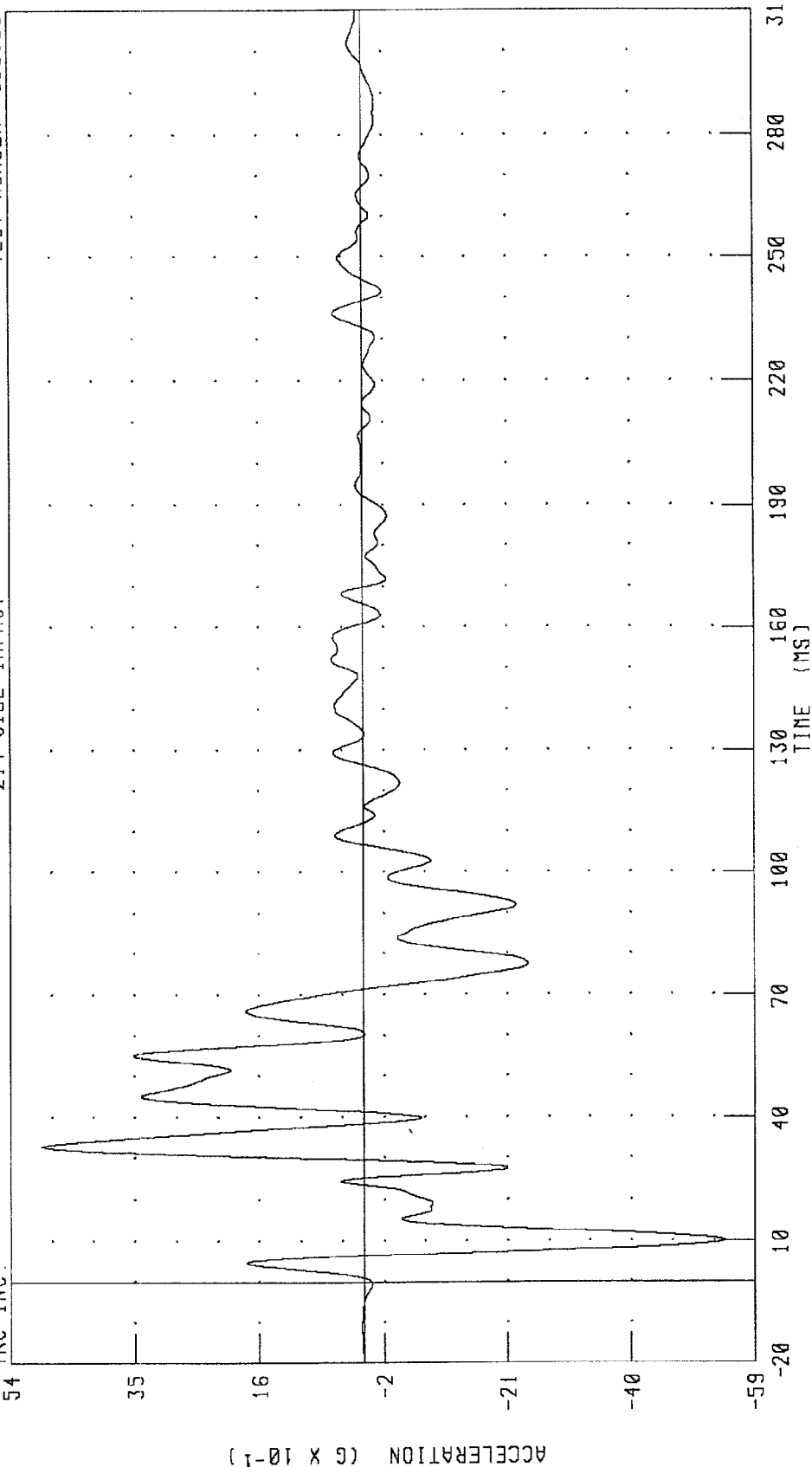
Integration Data - Filter Class 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
RIGHT SIDE SILL AT FRONT SEAT X-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

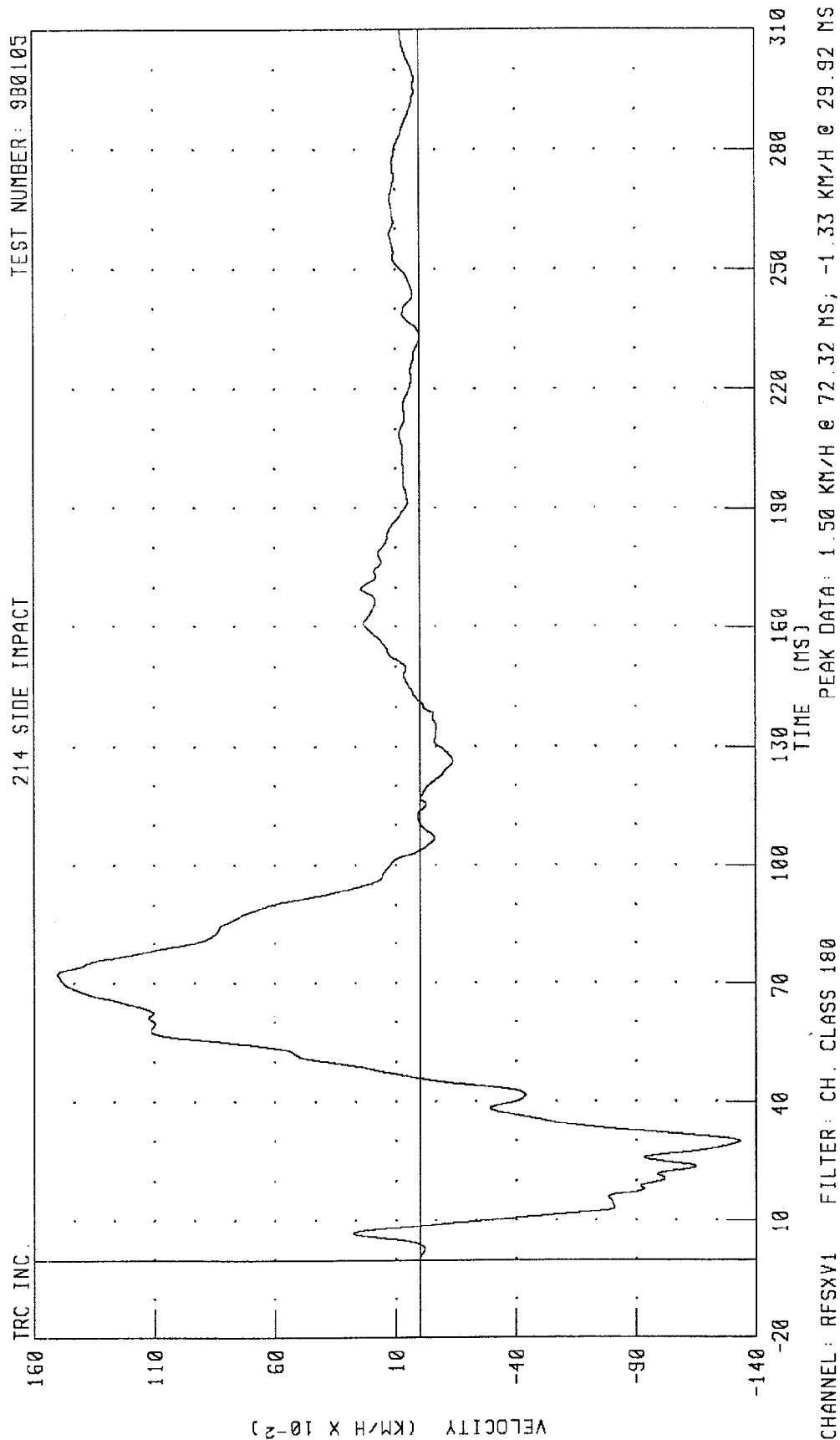
TRC INC.



CHANNEL: RFSXG1 FILTER: CH. CLASS 60

PEAK DATA: 4.92 G @ 32.80 MS; -5.52 G @ 10.08 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT FRONT SEAT X-AXIS VELOCITY



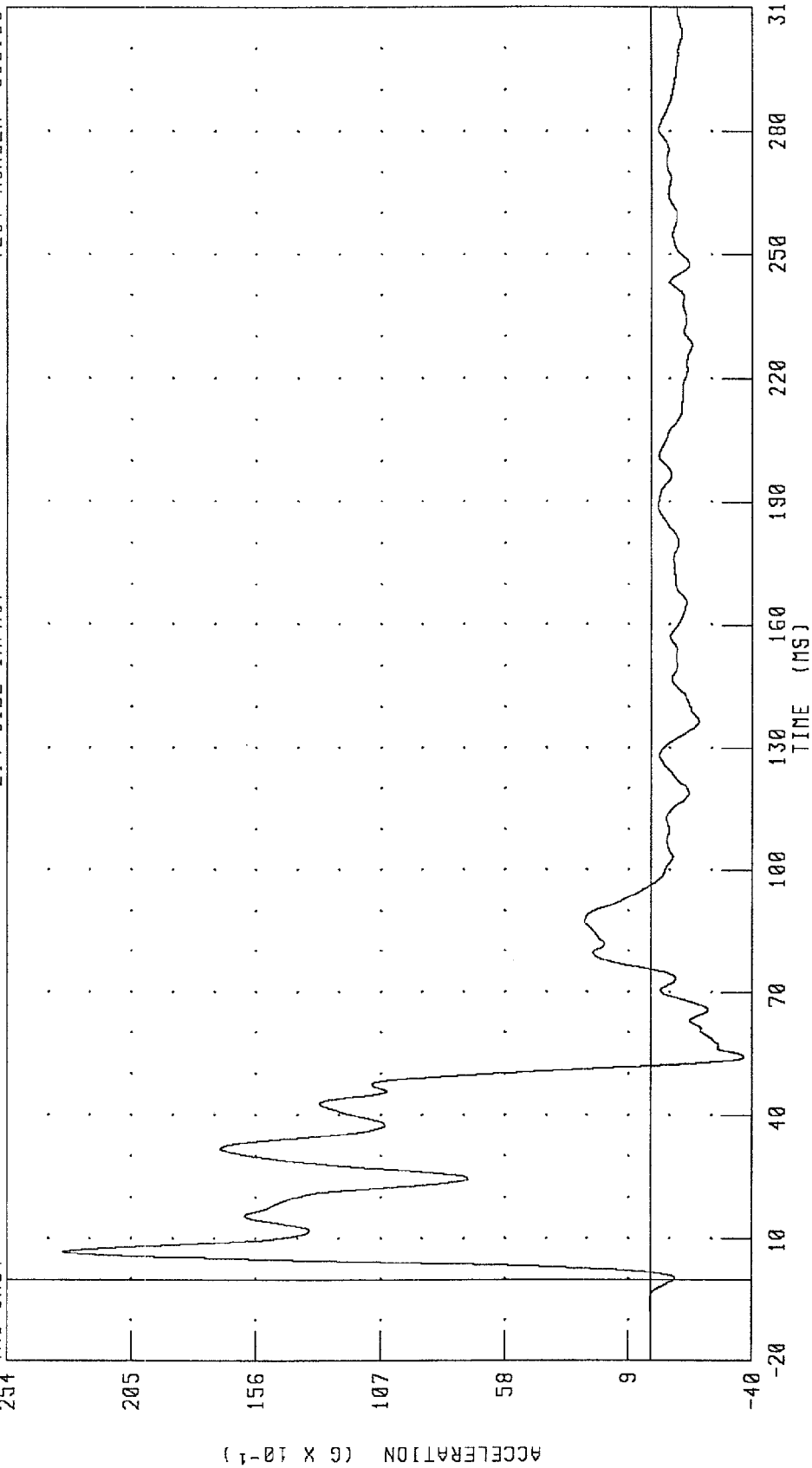
CHANNEL: RFSXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: RFSYG1 FILTER: CH. CLASS 60

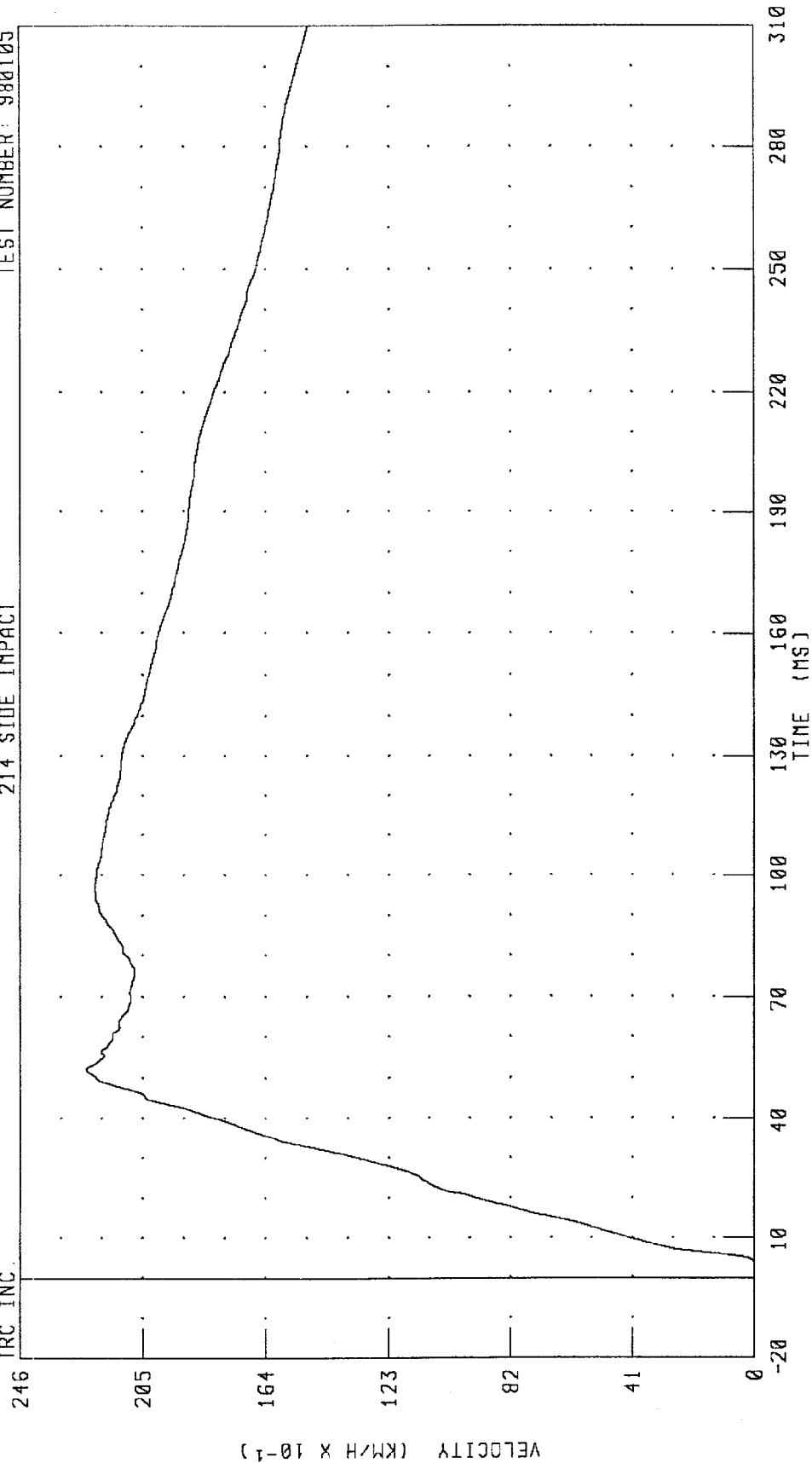
PEAK DATA: 23.18 G @ 6.56 MS; -3.66 G @ 54.16 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



PEAK DATA: 22.38 KM/H @ 52.00 MS, -0.02 KM/H @ 2.80 MS

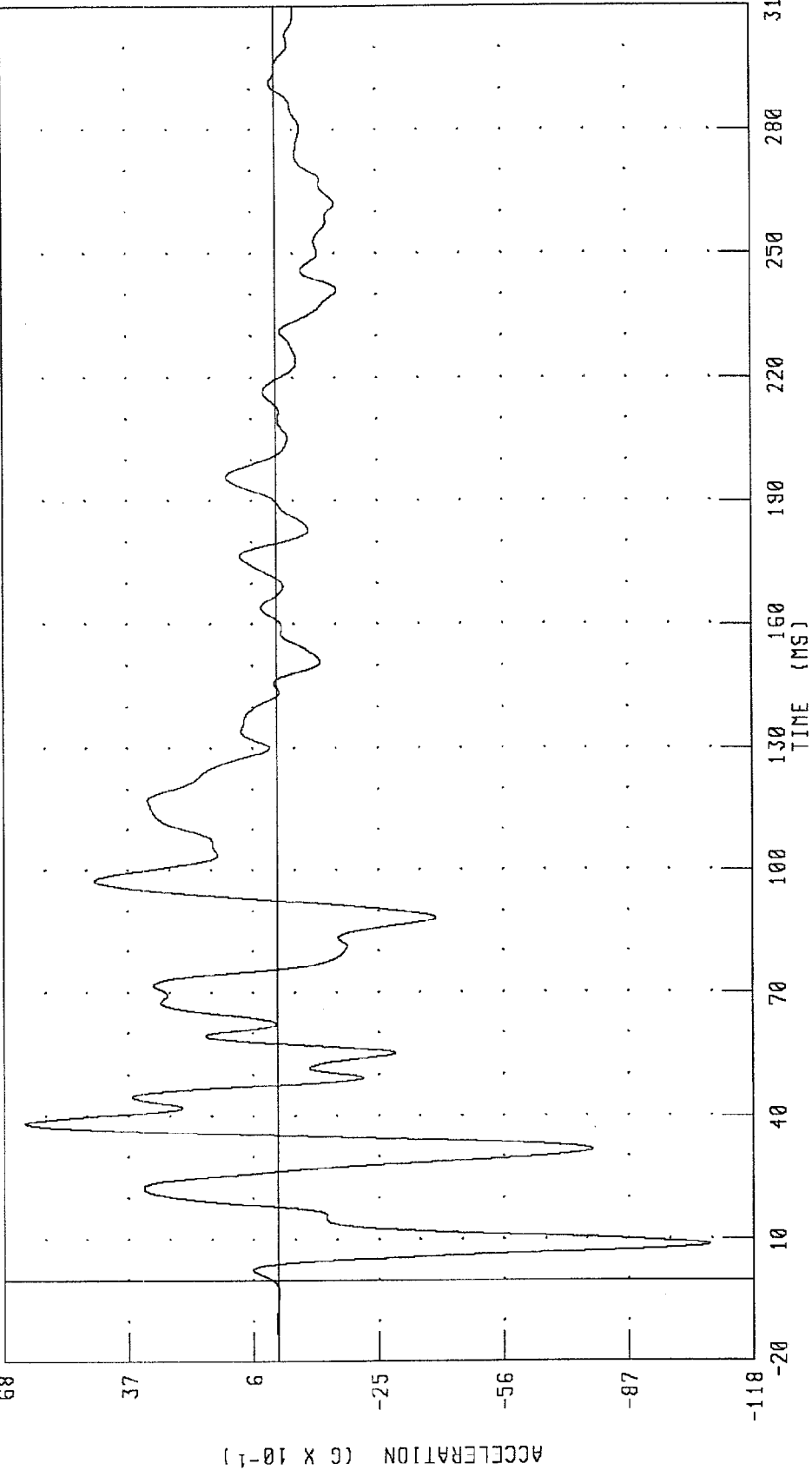
CHANNEL: RFSYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
RIGHT SIDE SILL AT FRONT SEAT Z-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: RFSZG1 FILTER: CH. CLASS 60

PEAK DATA: 6.26 G @ 38.24 MS; -10.72 G @ 8.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

150

75

VELOCITY (KM/H X 10⁻²)

0

-75

-150

-225

-300

310

280

250

220

190

160

130

100

70

40

10

-20

TIME (MS)

PEAK DATA: 1.41 KM/H @ 200.88 MS; -2.95 KM/H @ 35.12 MS

FILTER: CH. CLASS 180

CHANNEL: RFSZV1

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

264

220

ACCELERATION (G X 10⁻¹)

176

132

88

44

0

-20

10

40

70

100

130

160

190

220

250

280

310

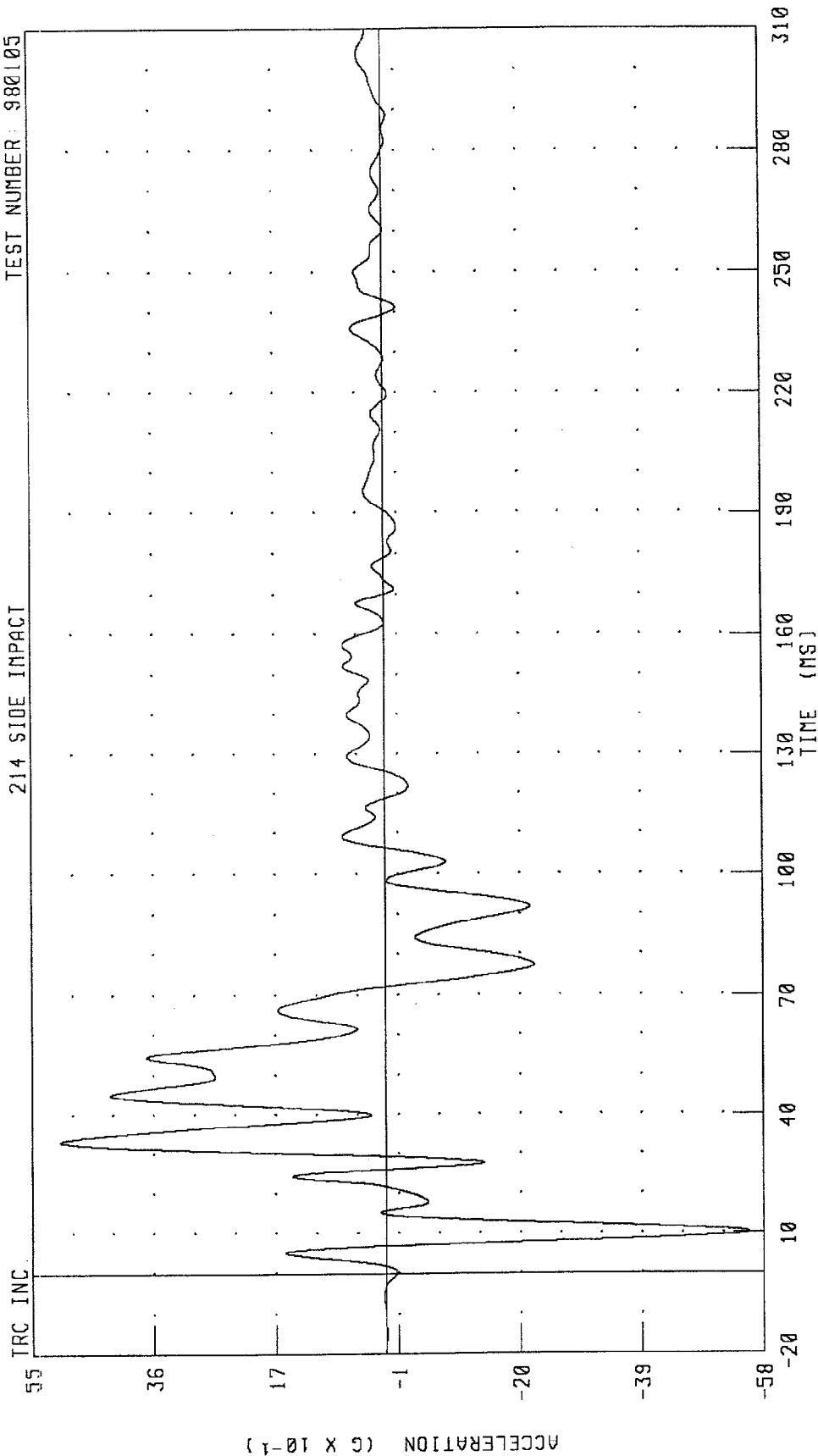
TIME (MS)

CHANNEL: RFSRG1 FILTER: CH. CLASS 60

PEAK DATA: 24.18 G @ 6.80 MS; 0.01 G @ -18.64 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 980105



PEAK DATA: 5.06 G @ 33.04 MS; -5.67 G @ 10.16 MS

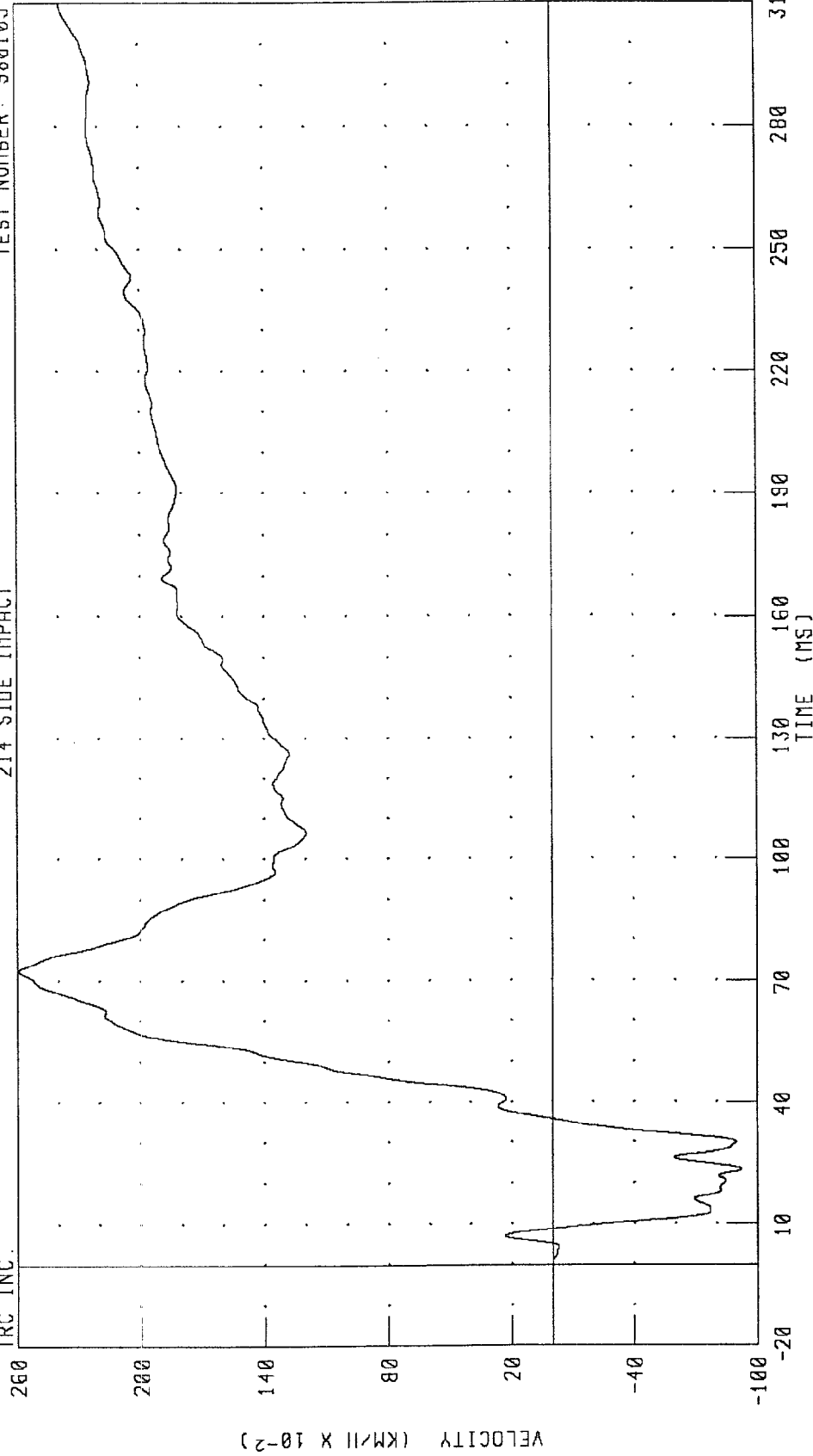
CHANNEL: RRSXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: RRSXY1 FILTER: CH. CLASS 180

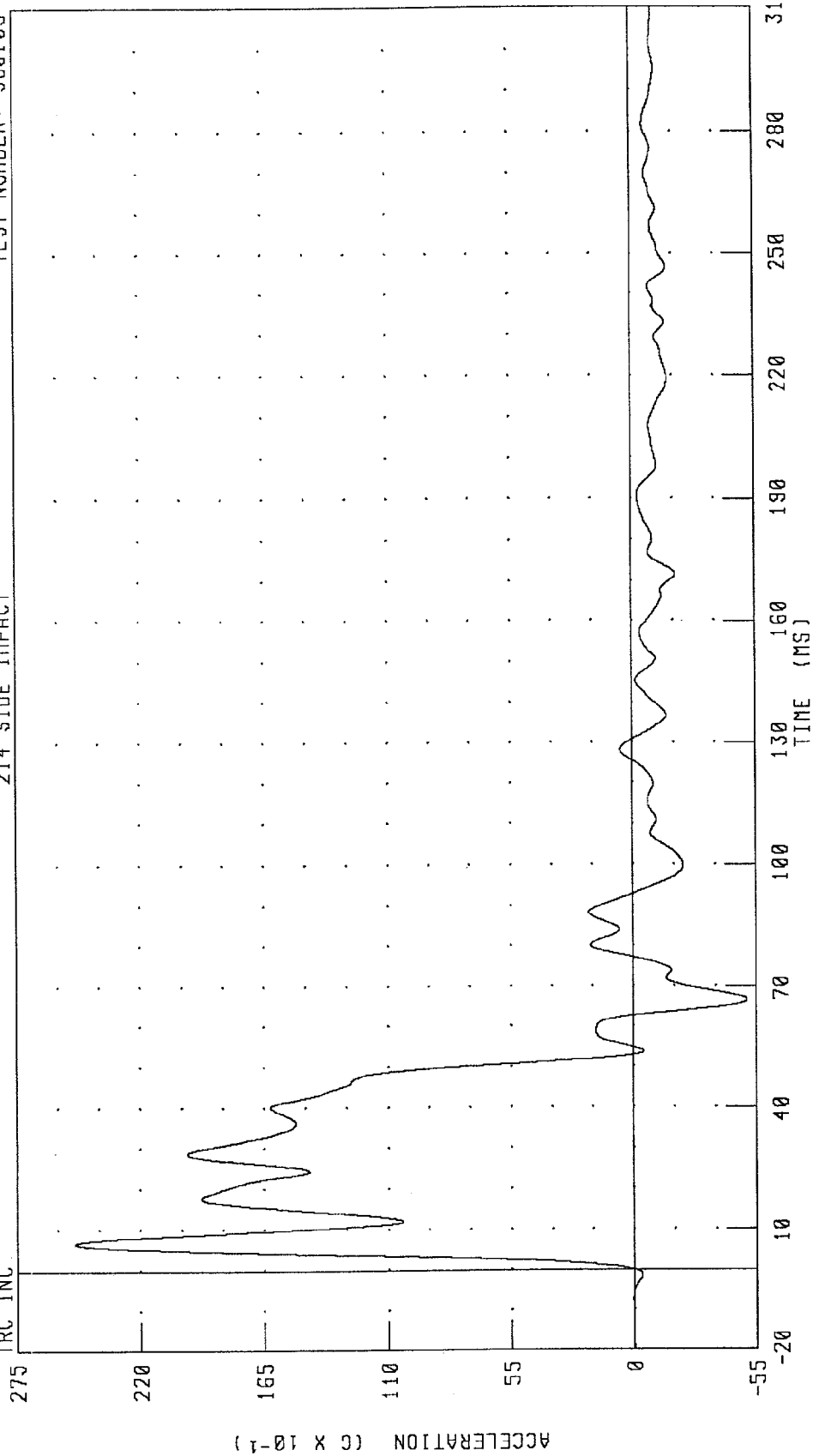
PEAK DATA: 2.59 KM/H @ 72.48 MS; -0.92 KM/H @ 23.36 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



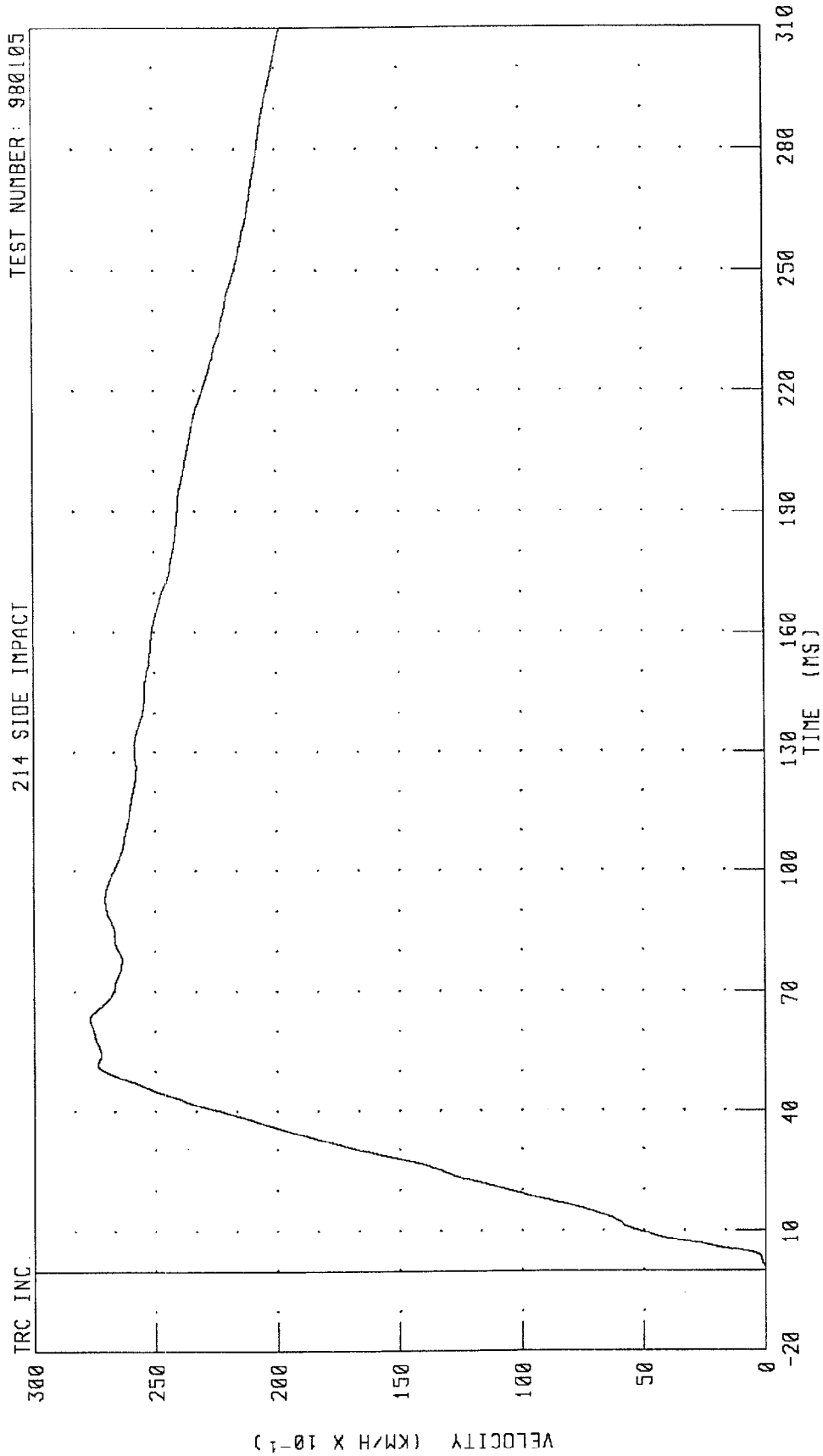
CHANNEL: RRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 24.92 G @ 6.64 MS; -5.08 G @ 66.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT



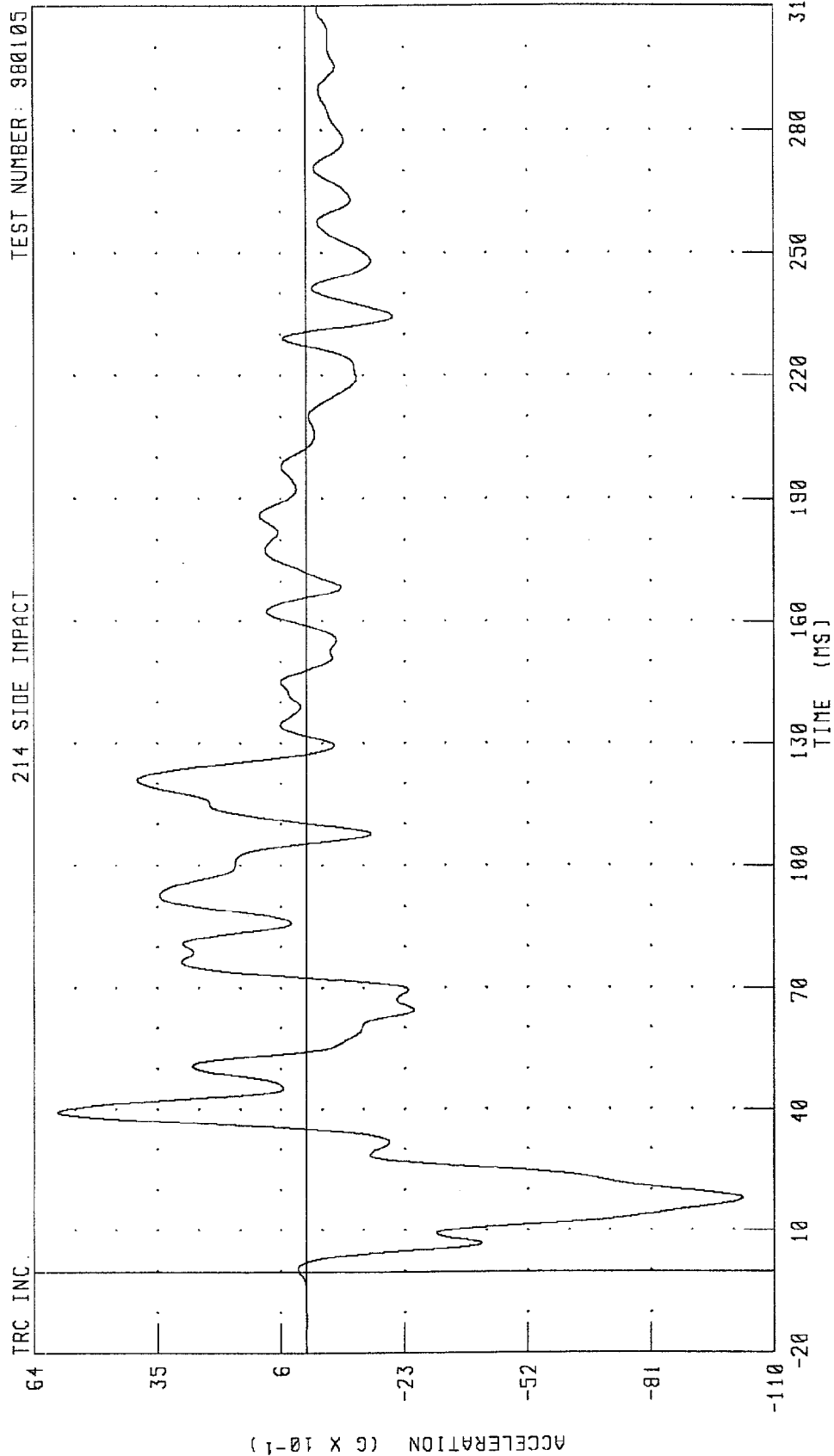
PEAK DATA: 27.71 KM/H @ 63.20 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: RRSYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT



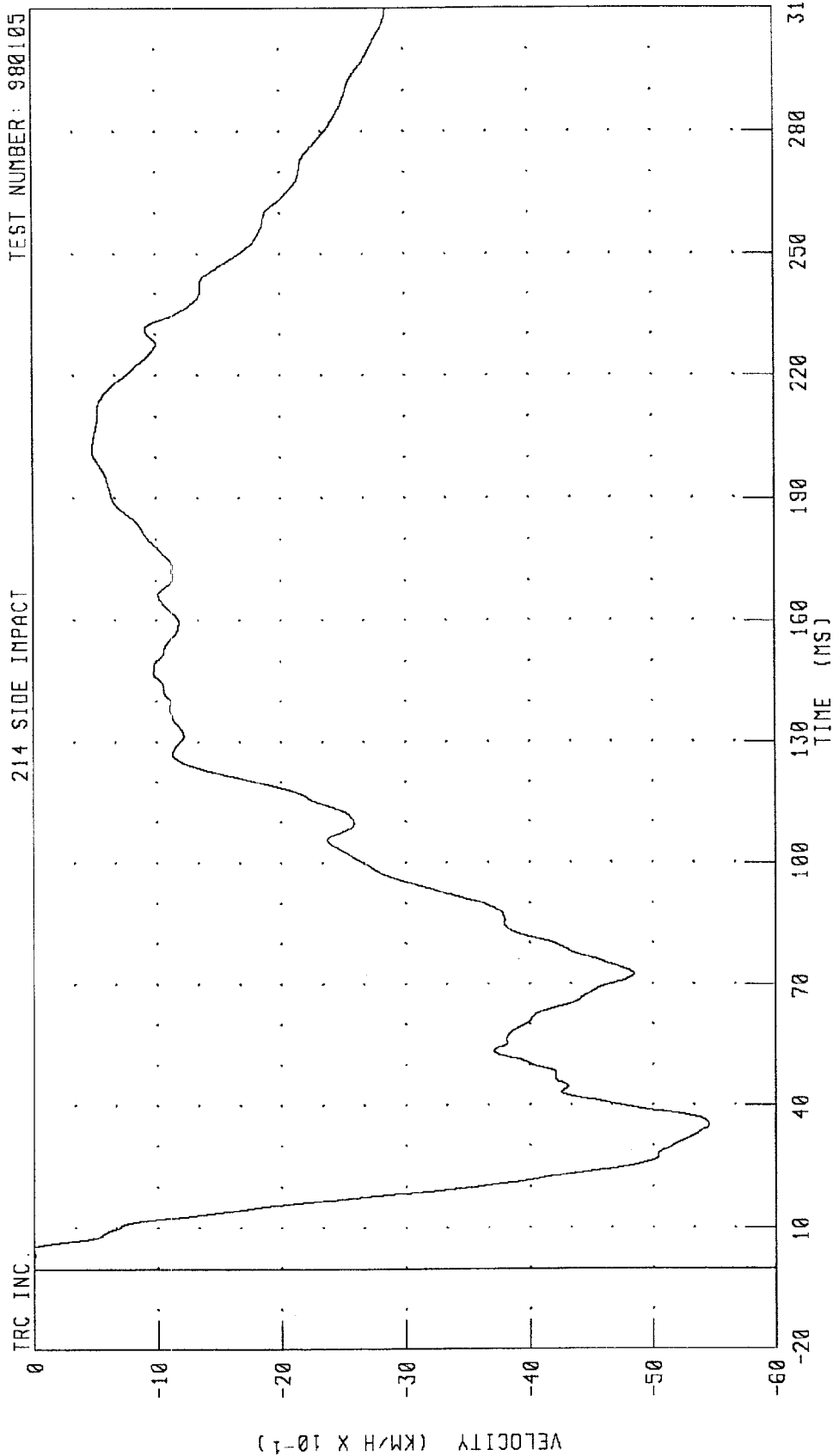
CHANNEL: RRSZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.85 G @ 39.28 MS; -10.25 G @ 17.84 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

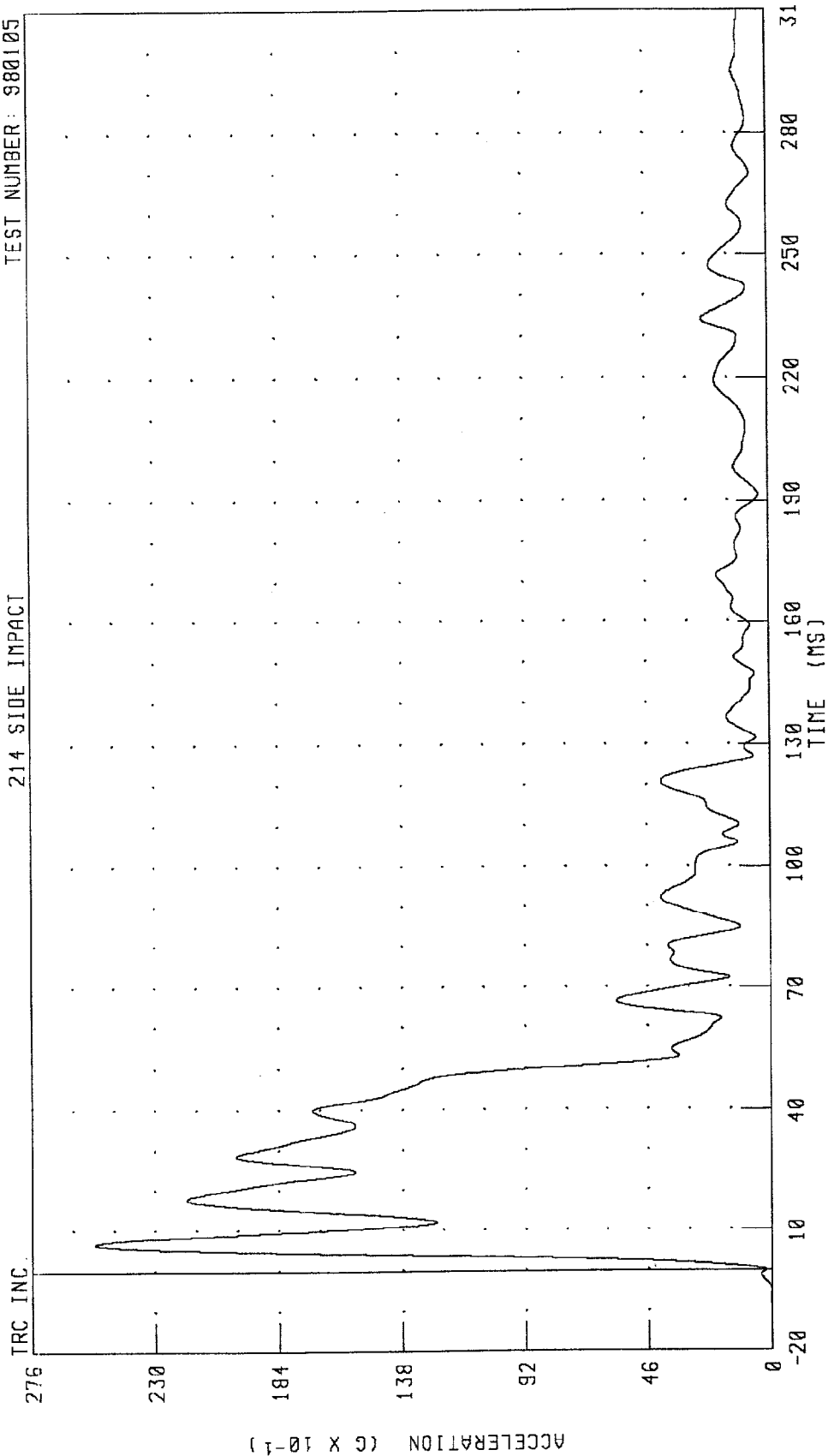


CHANNEL: RRSZV1 FILTER: CH. CLASS 180

PEAK DATA: 0.03 KM/H @ 4.72 MS; -5.46 KM/H @ 35.12 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 980105



CHANNEL: RRSRG1 FILTER: CH. CLASS 60

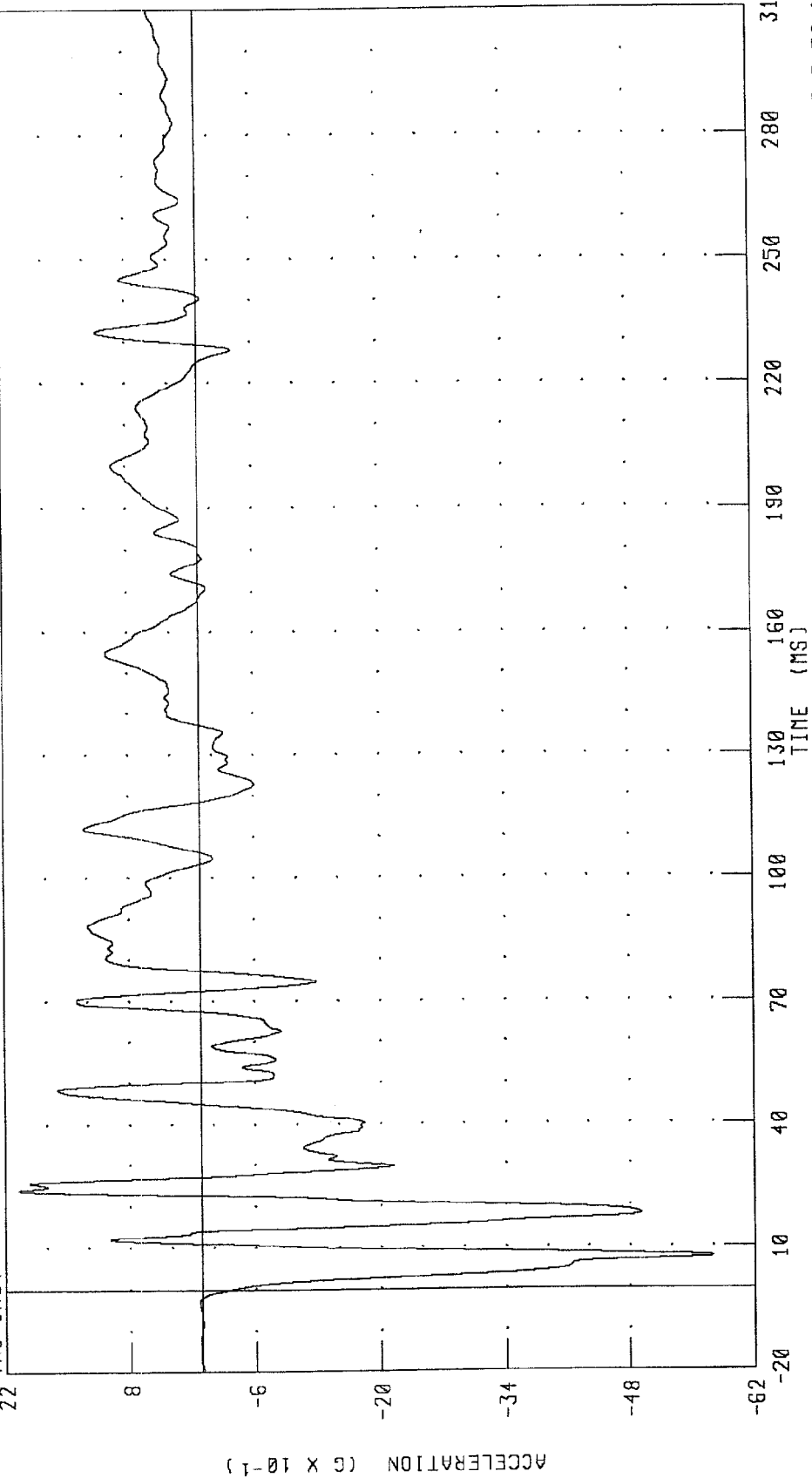
PEAK DATA: 25.26 G @ 6.64 MS; 0.01 G @ -18.32 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: ROKXG1 FILTER: CH. CLASS 60

PEAK DATA: 2.05 G @ 23.92 MS; -5.73 G @ 7.52 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 REAR FLOORPAN ABOVE AXLE X-AXIS VELOCITY

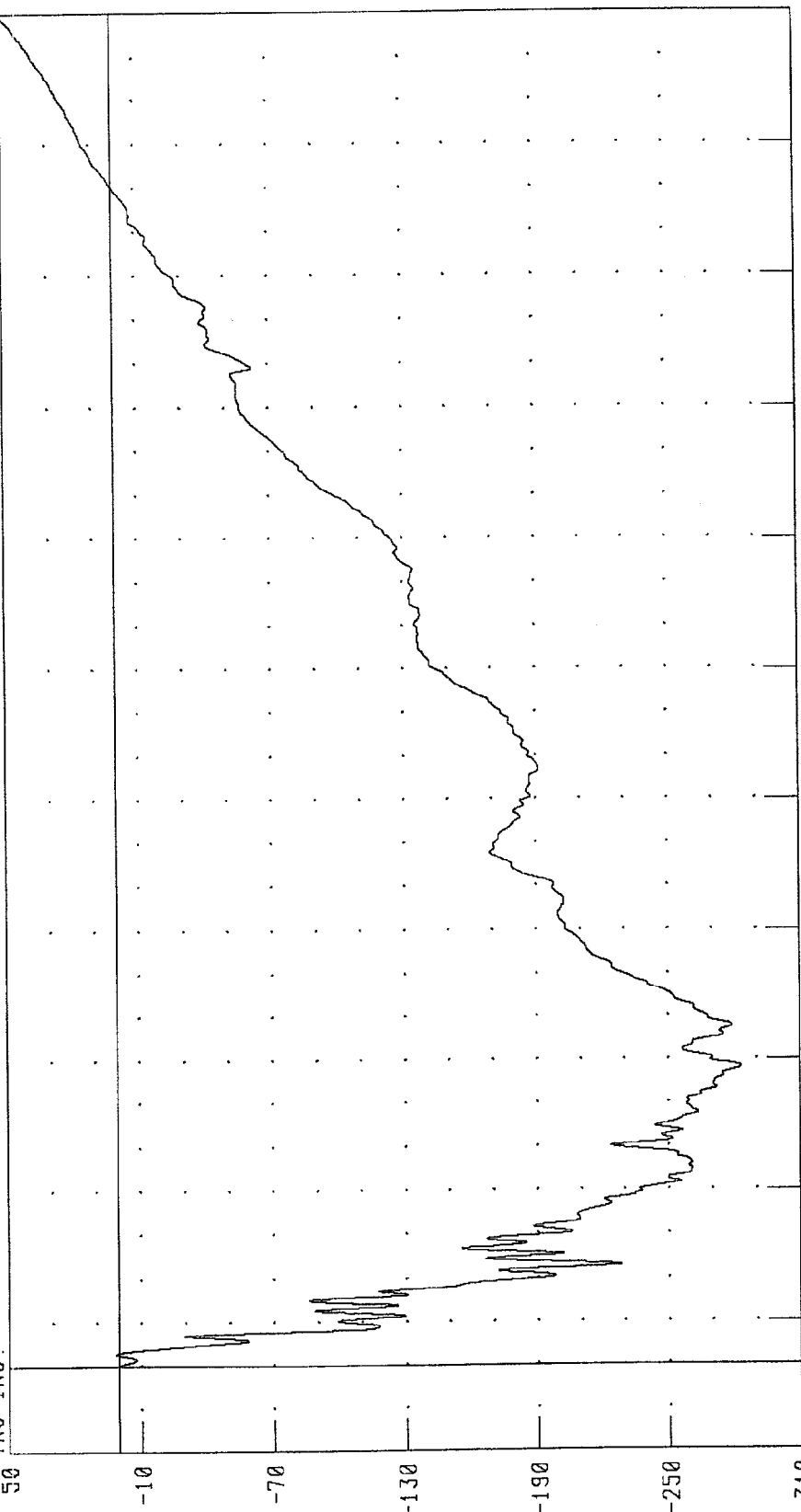
TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

50

VELOCITY (KM/H X 10⁻²)



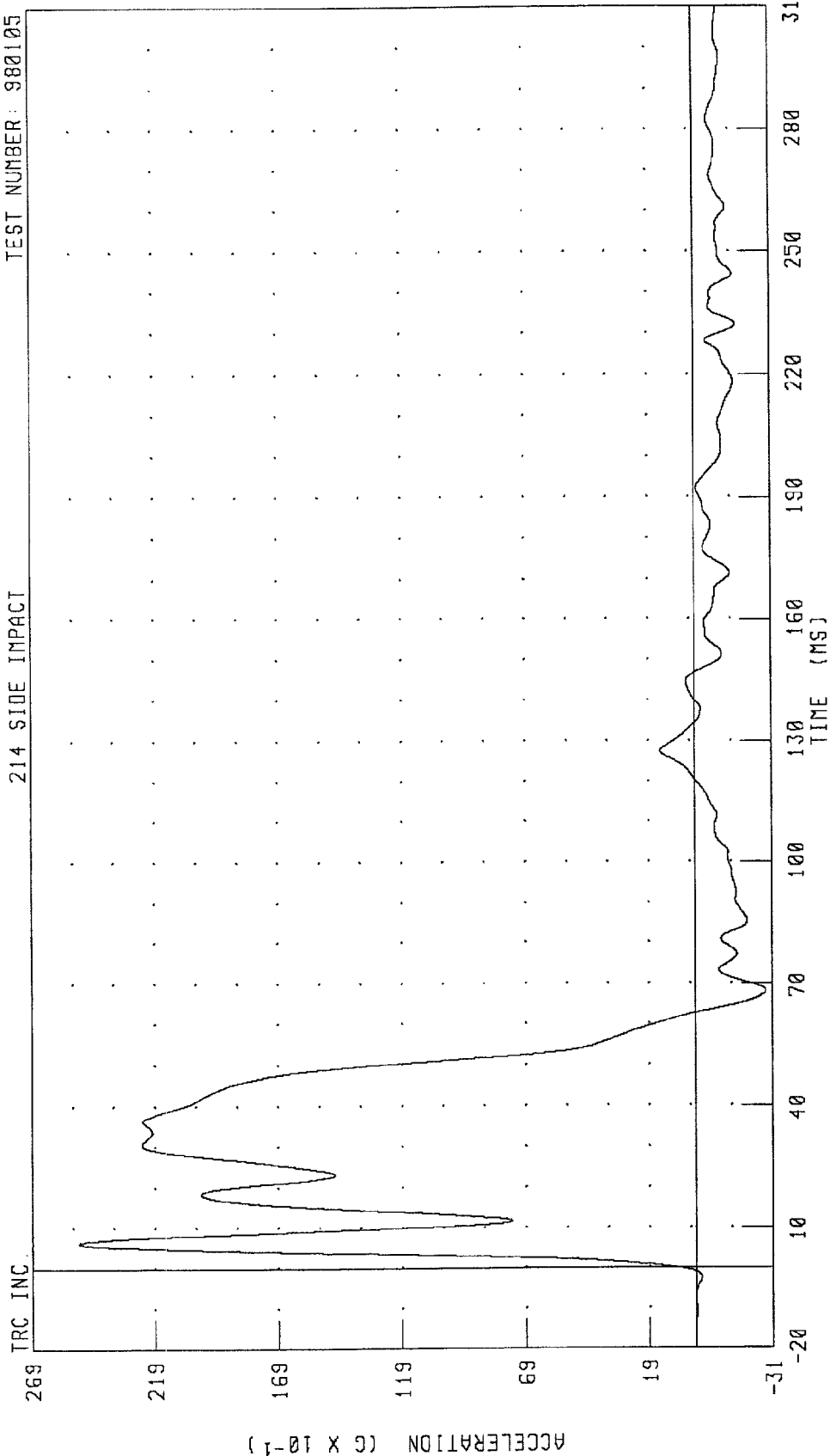
PEAK DATA: 0.52 KM/H @ 310.00 MS; -2.83 KM/H @ 68.32 MS

CHANNEL: RDKXV1 FILTER: CH CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 REAR FLOORPAN ABOVE AXLE Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT



CHANNEL: ROKYG1 FILTER: CH. CLASS 60

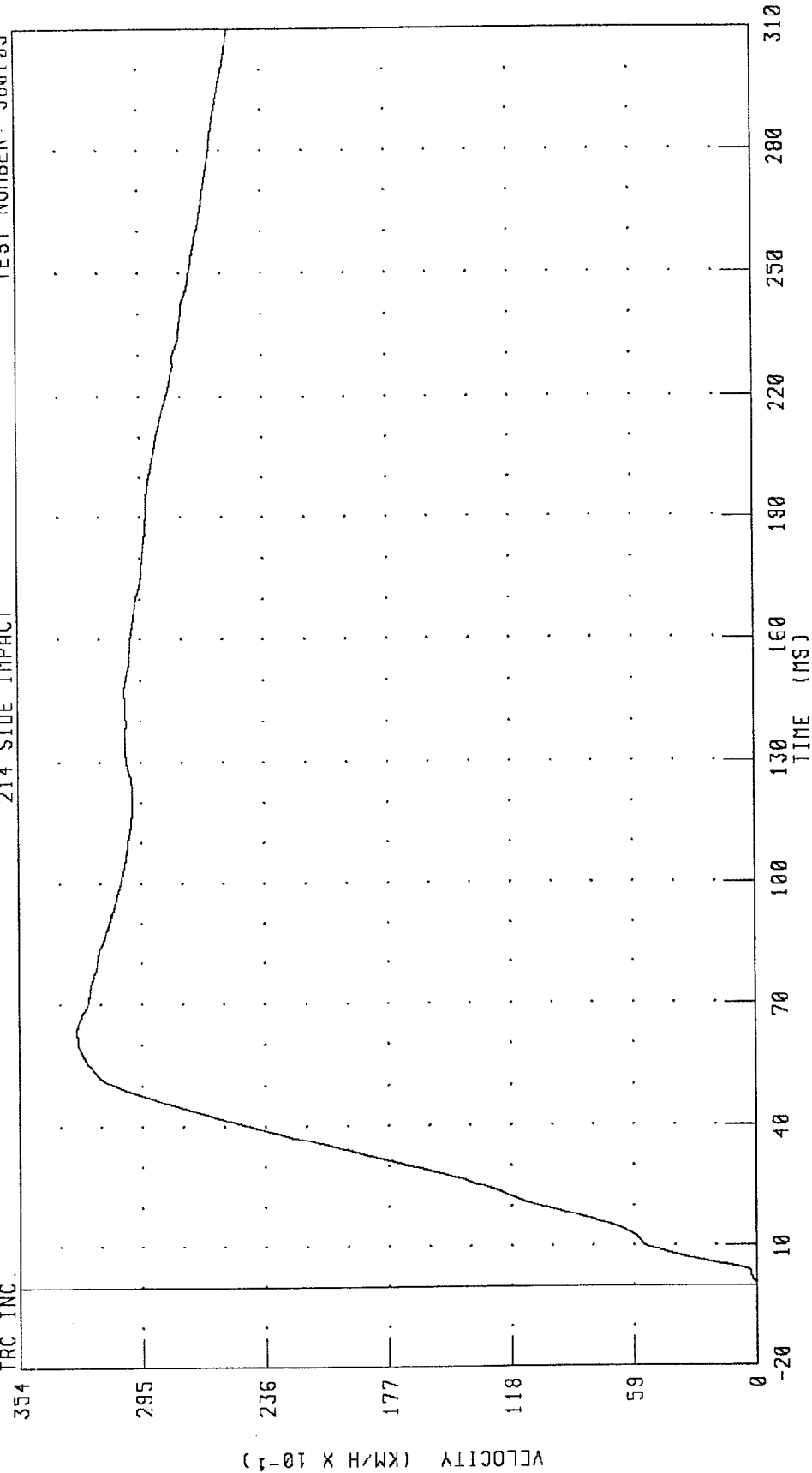
PEAK DATA: 24.98 G @ 6.16 MS; -2.82 G @ 68.08 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

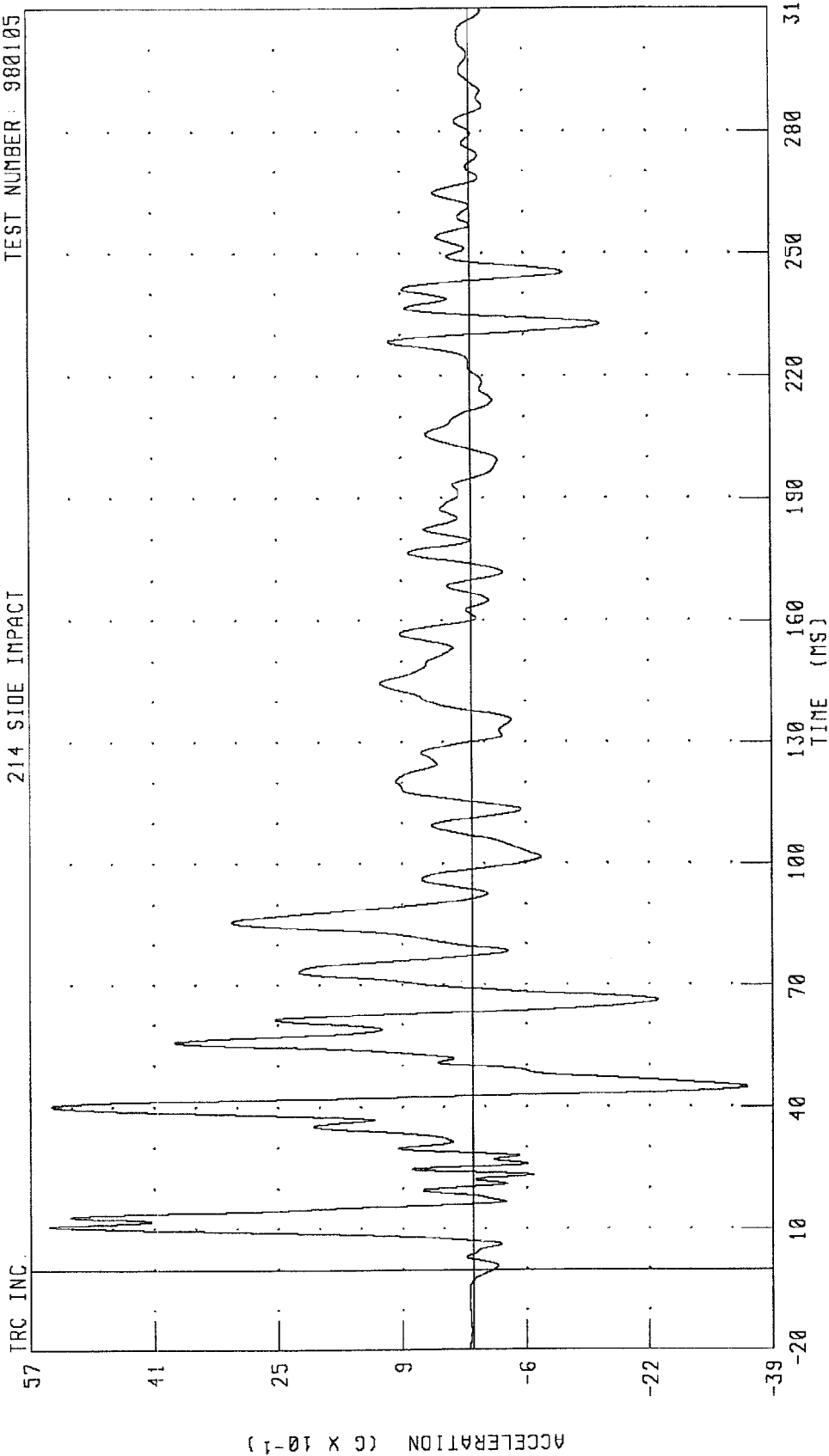


PEAK DATA: 32.65 KM/H @ 62.88 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: ROKYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 980105



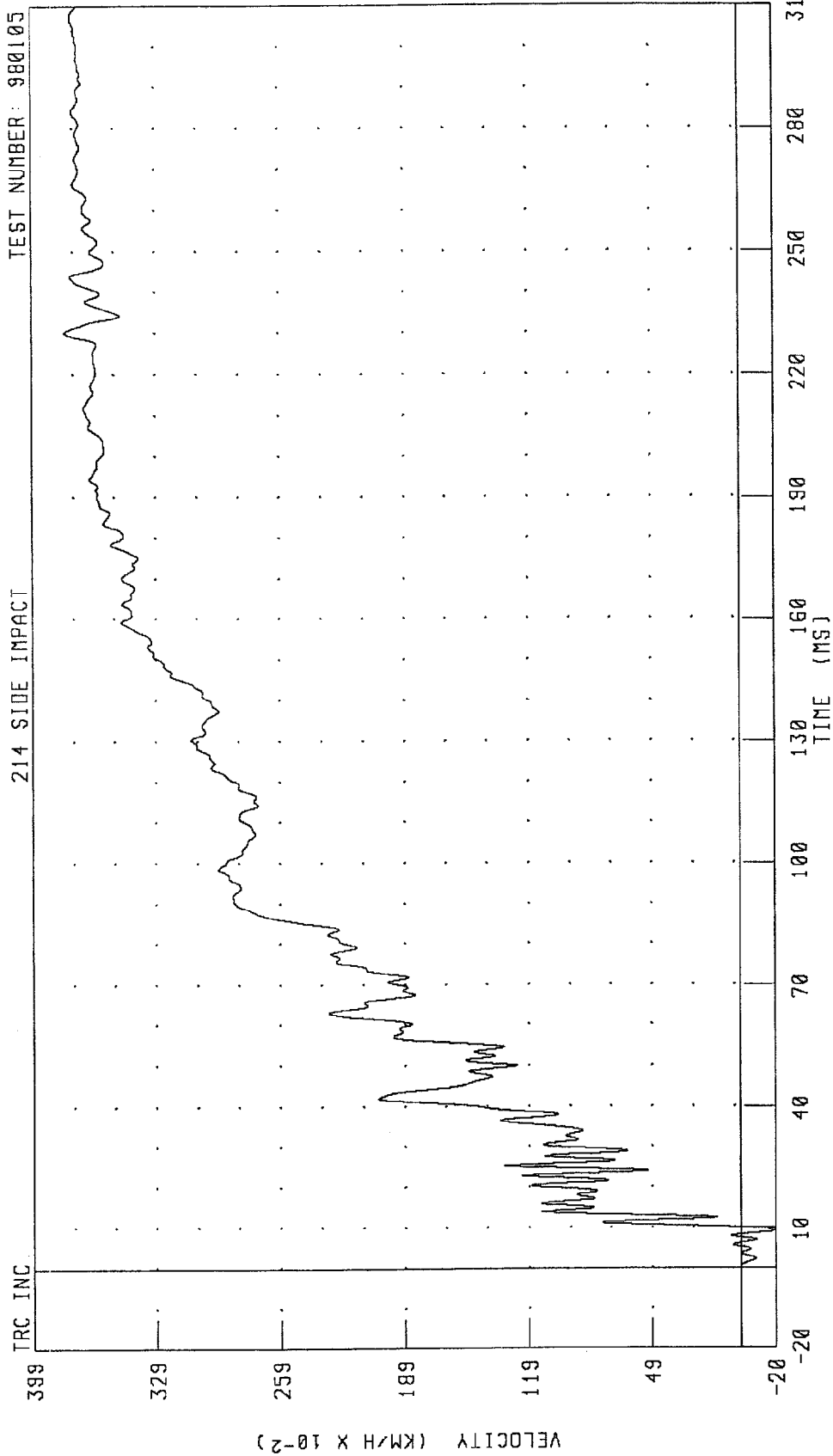
CHANNEL: RDKZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.45 G @ 10.64 MS; -3.57 G @ 44.80 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT



CHANNEL: RDKZV1 FILTER: CH. CLASS 180

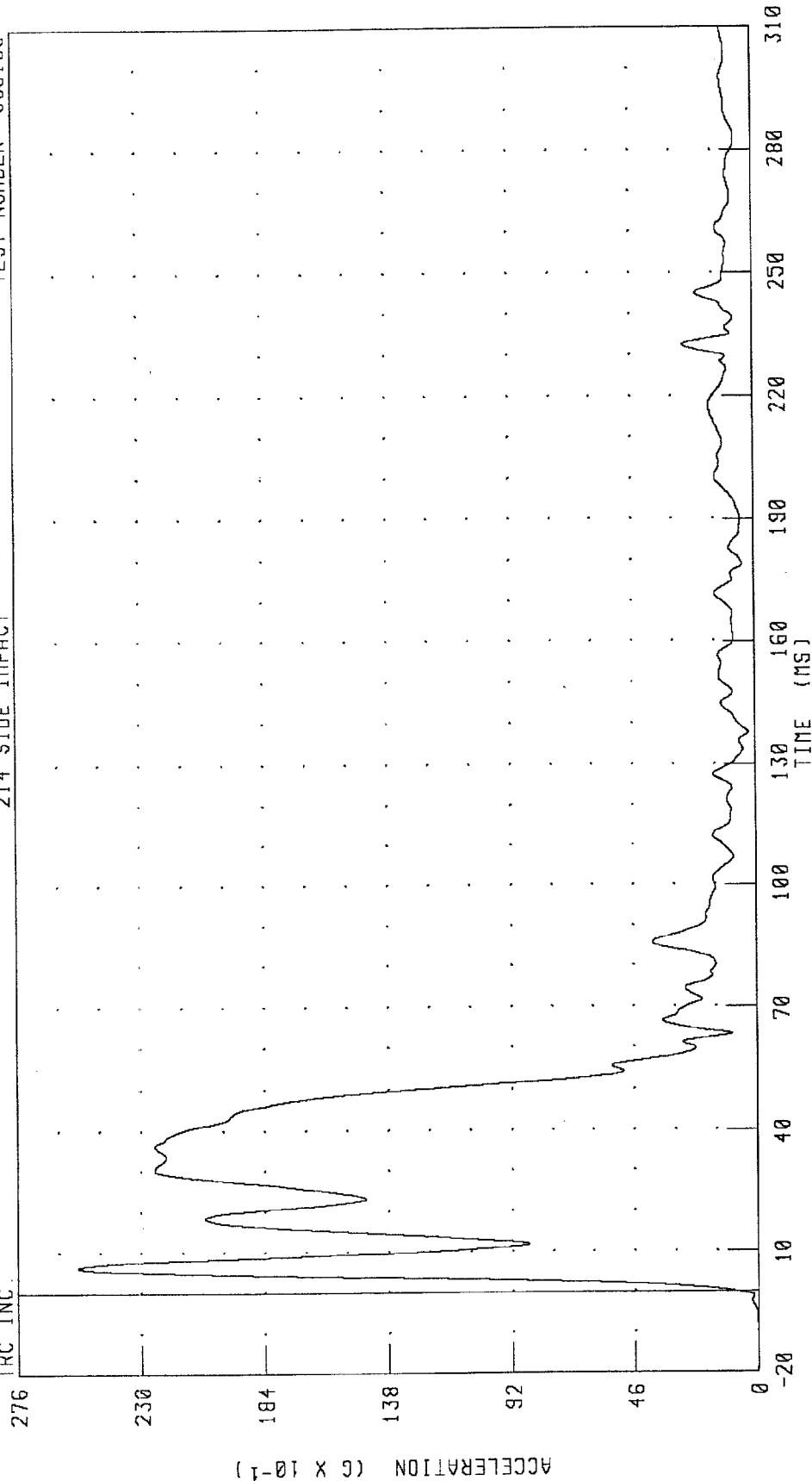
PEAK DATA: 3.81 KM/H @ 230.16 MS; -0.22 KM/H @ 9.28 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

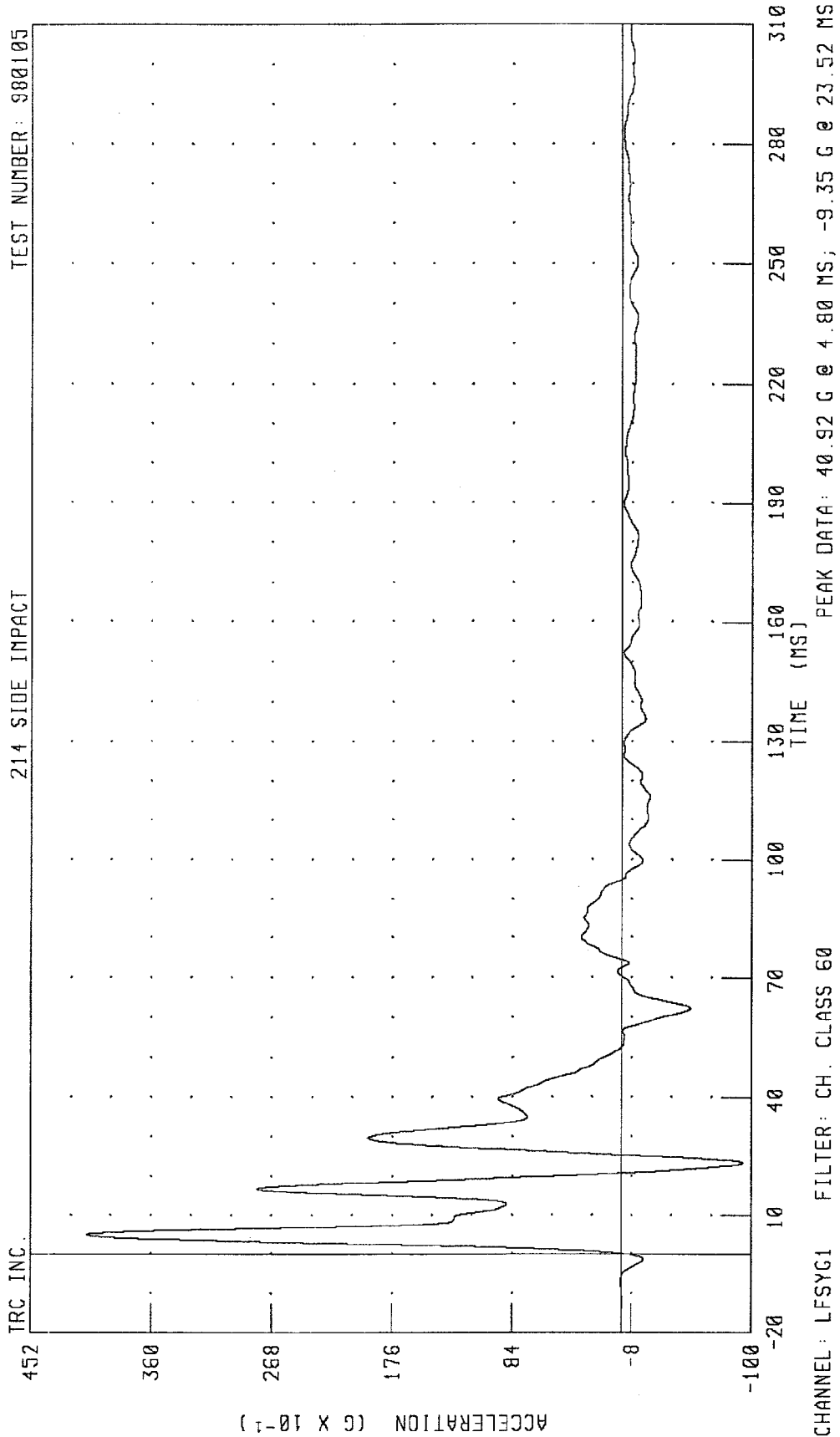
TRC INC.



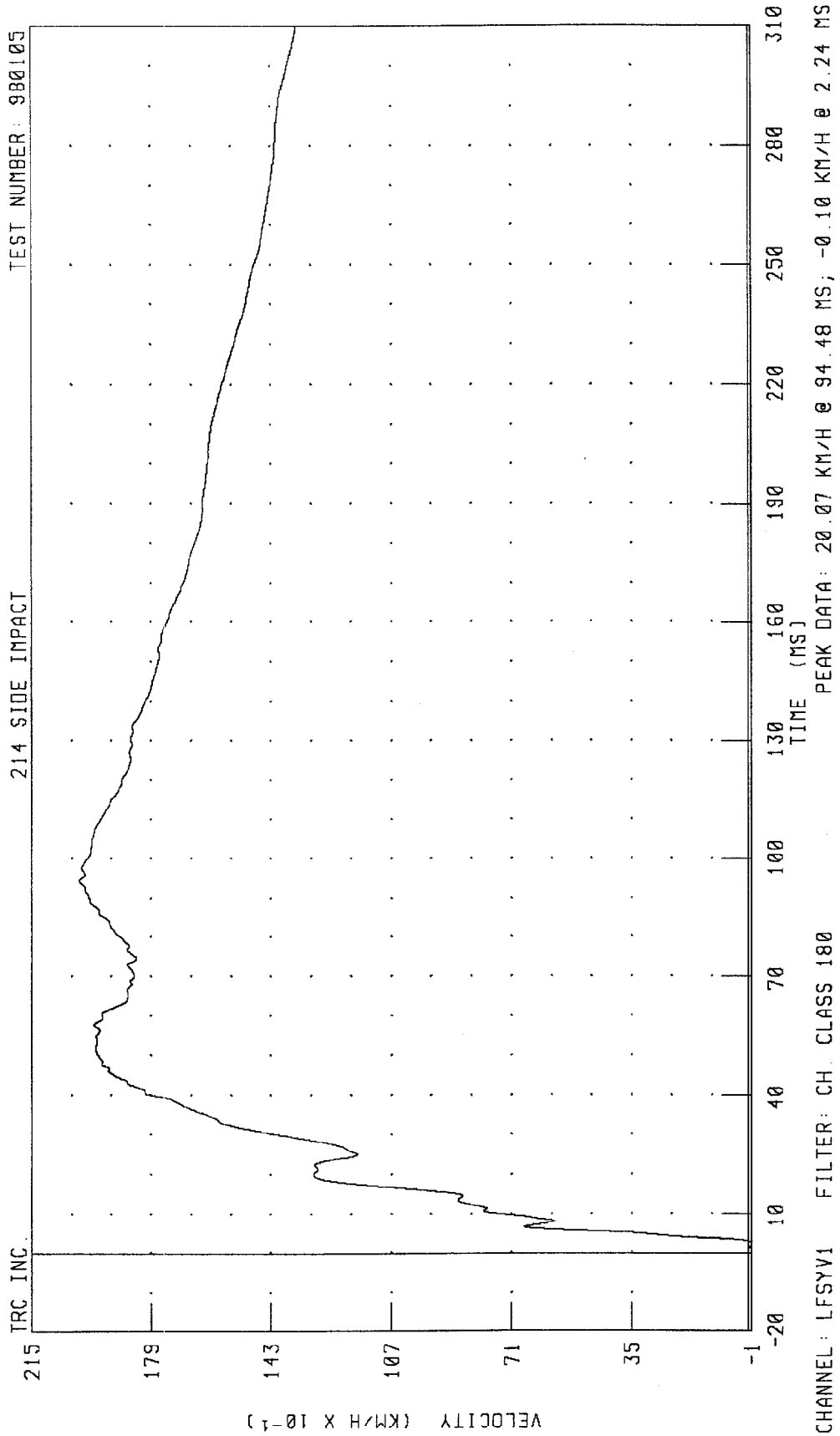
CHANNEL: RDKRG1 FILTER: CH. CLASS 60

PEAK DATA: 25.34 G @ 6.16 MS; 0.02 G @ -13.28 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT SIDE SILL AT FRONT SEAT Y-AXIS ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

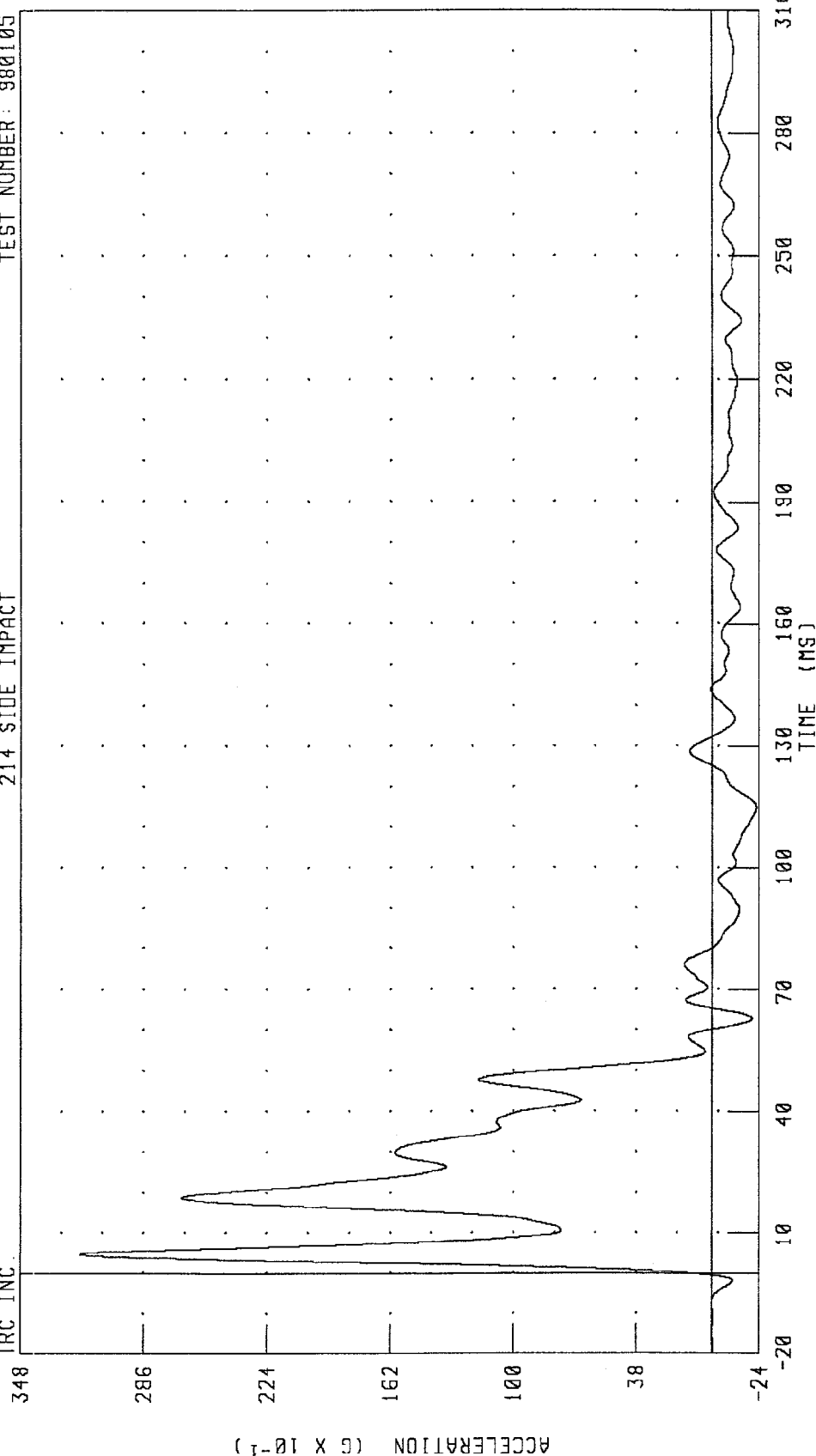


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



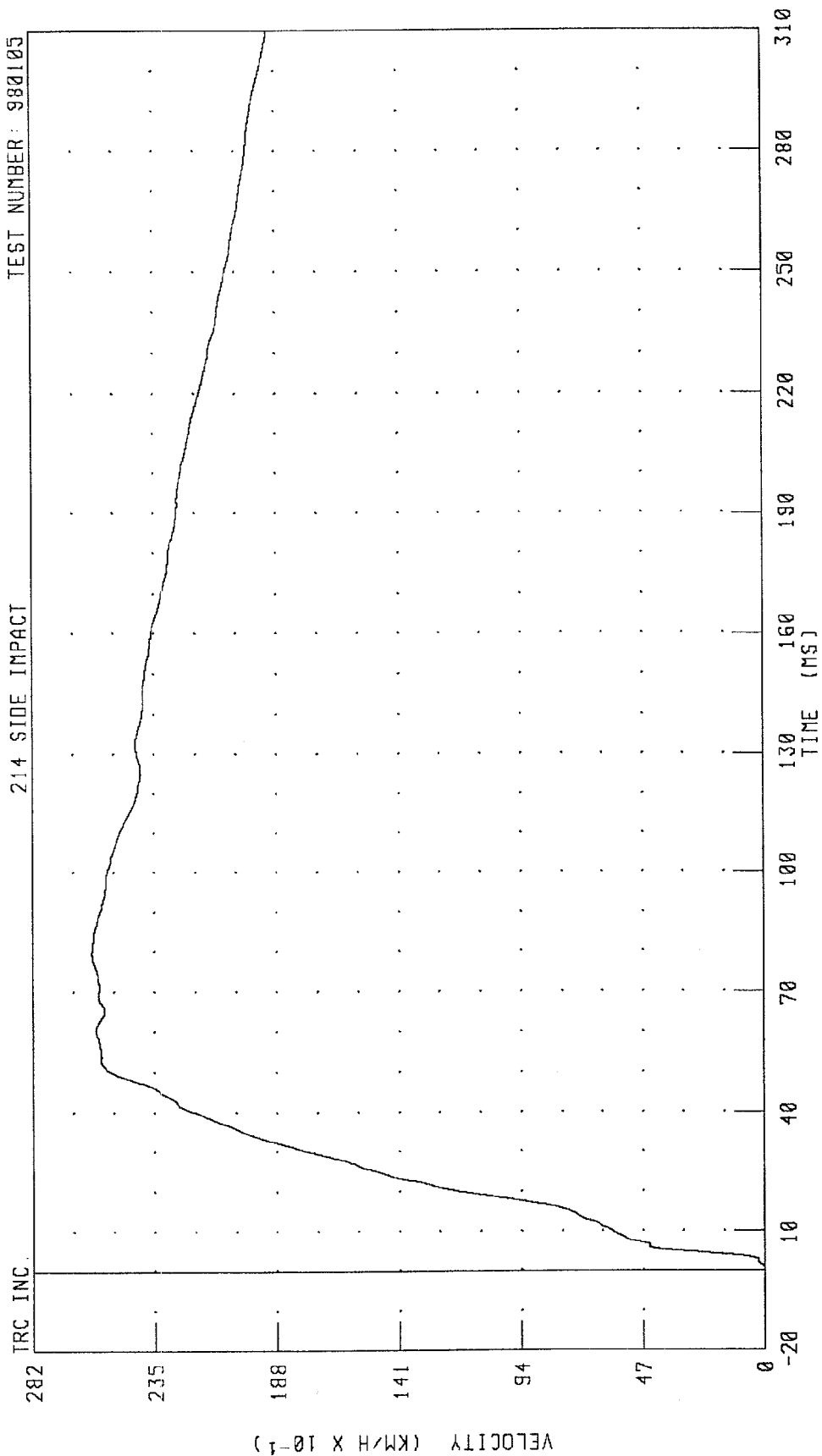
CHANNEL: LRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 31.79 G @ 4.56 MS, -2.25 G @ 114.96 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT



CHANNEL: LRSYV1 FILTER: CH. CLASS 180

PEAK DATA: 25.92 KM/H @ 79.76 MS; -0.01 KM/H @ 0.40 MS

Left Front Door On Centerline Accelerometer #6 Was Not Installed
(no accessible mounting location)

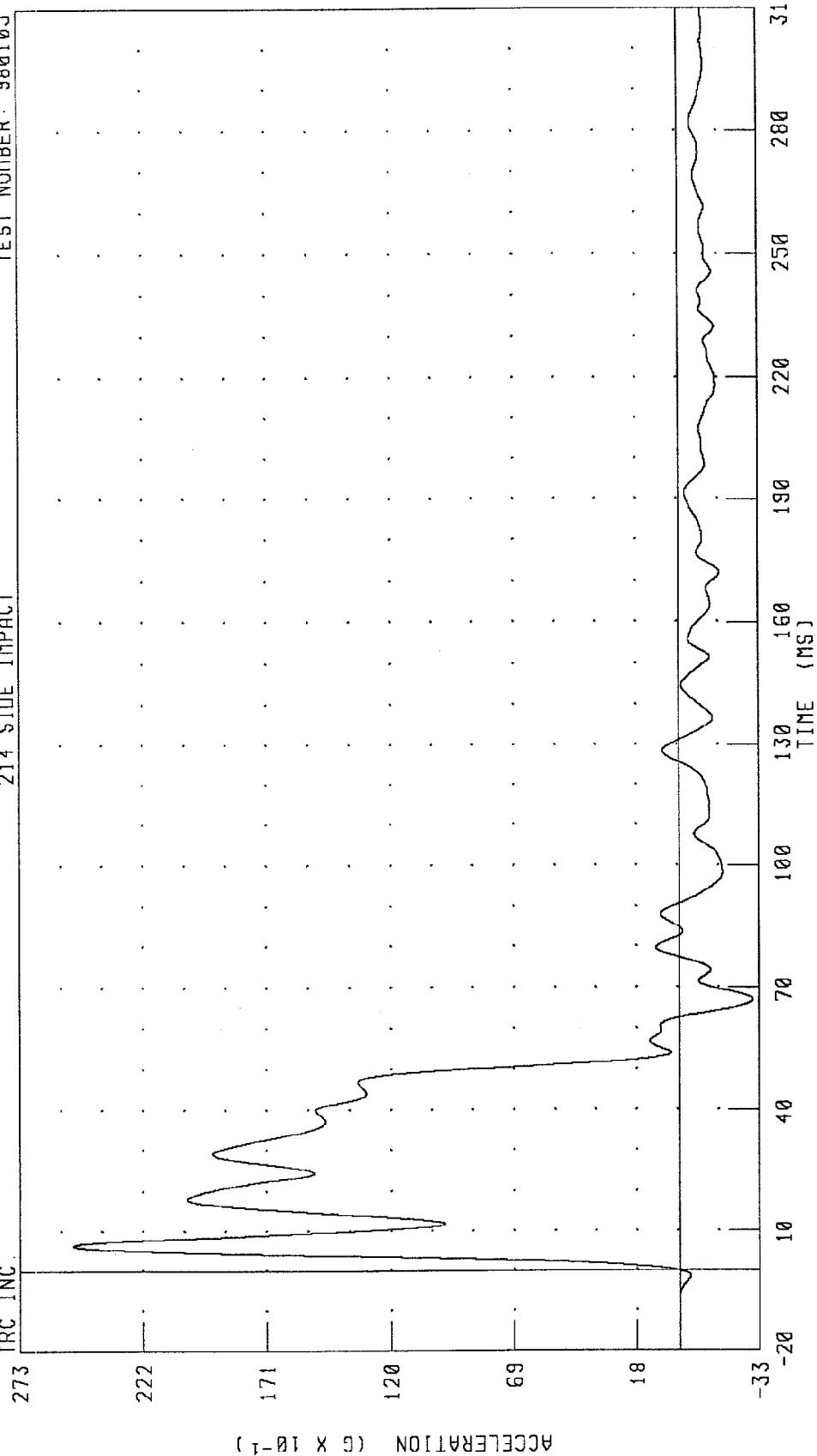
Left Front Door On Centerline Accelerometer #6 Was Not Installed
(no accessible mounting location)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

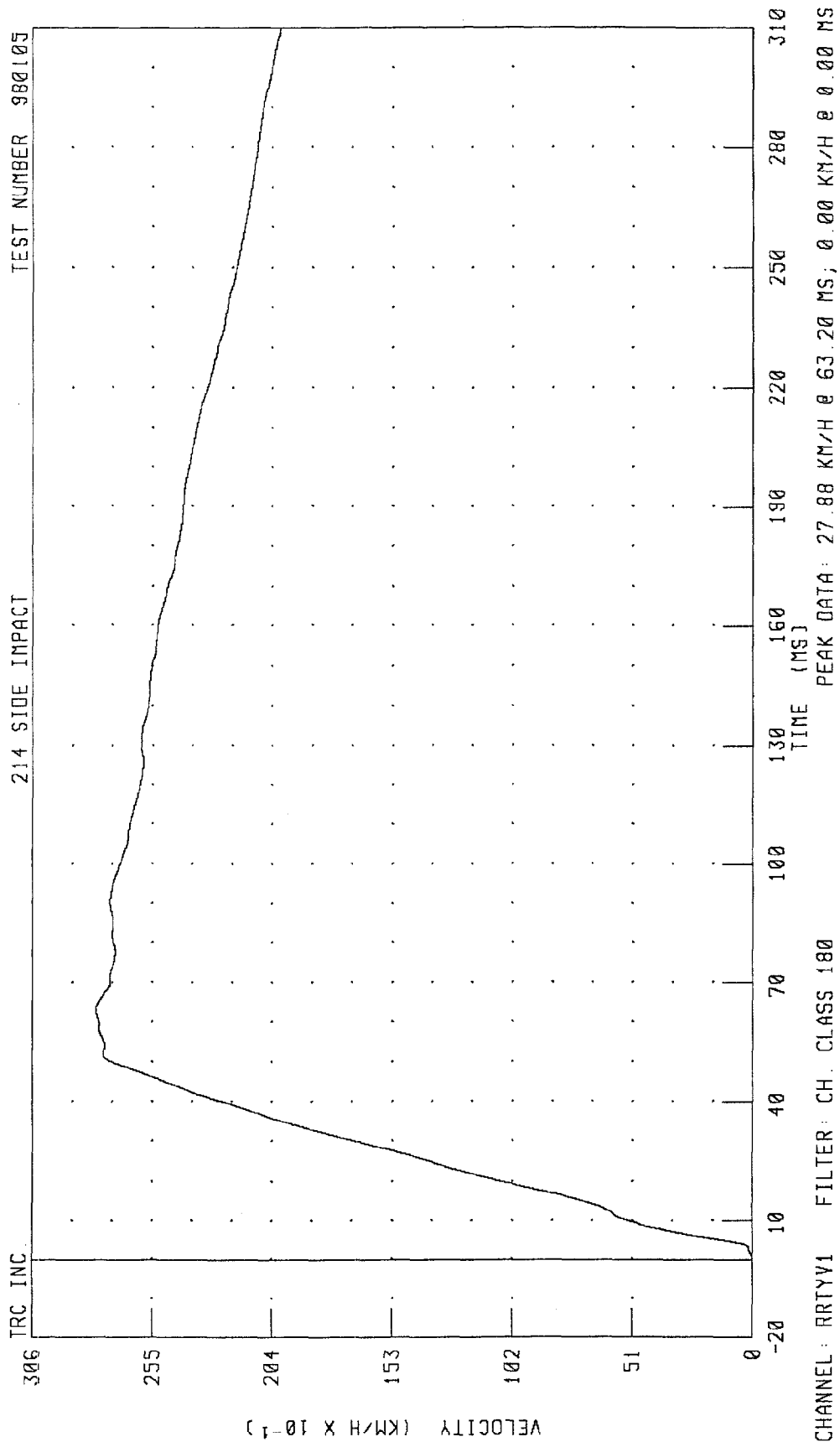
TRC INC.



CHANNEL: RRTYG1 FILTER: CH. CLASS 60

PEAK DATA: 25.09 G @ 6.16 MS; -3.02 G @ 67.04 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS VELOCITY



Mid Rear Of Left Front Door Accelerometer #8 Was Not Installed
(no accessible mounting location)

Mid Rear Of Left Front Door Accelerometer #8 Was Not Installed
(no accessible mounting location)

Left Front Door Upper Centerline Accelerometer #9 Was Not Installed
(no accessible mounting location)

Left Front Door Upper Centerline Accelerometer #9 Was Not Installed
(no accessible mounting location)

Mid Rear Of Left Rear Door Accelerometer #10 Was Not Installed
(no accessible mounting location)

Mid Rear Of Left Rear Door Accelerometer #10 Was Not Installed
(no accessible mounting location)

Left Rear Door Upper Centerline Accelerometer #11 Was Not Installed
(no accessible mounting location)

Left Rear Door Upper Centerline Accelerometer #11 Was Not Installed
(no accessible mounting location)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LOWER A-POST Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

IRC INC.

282

233

184

135

86

37

-12
-20

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

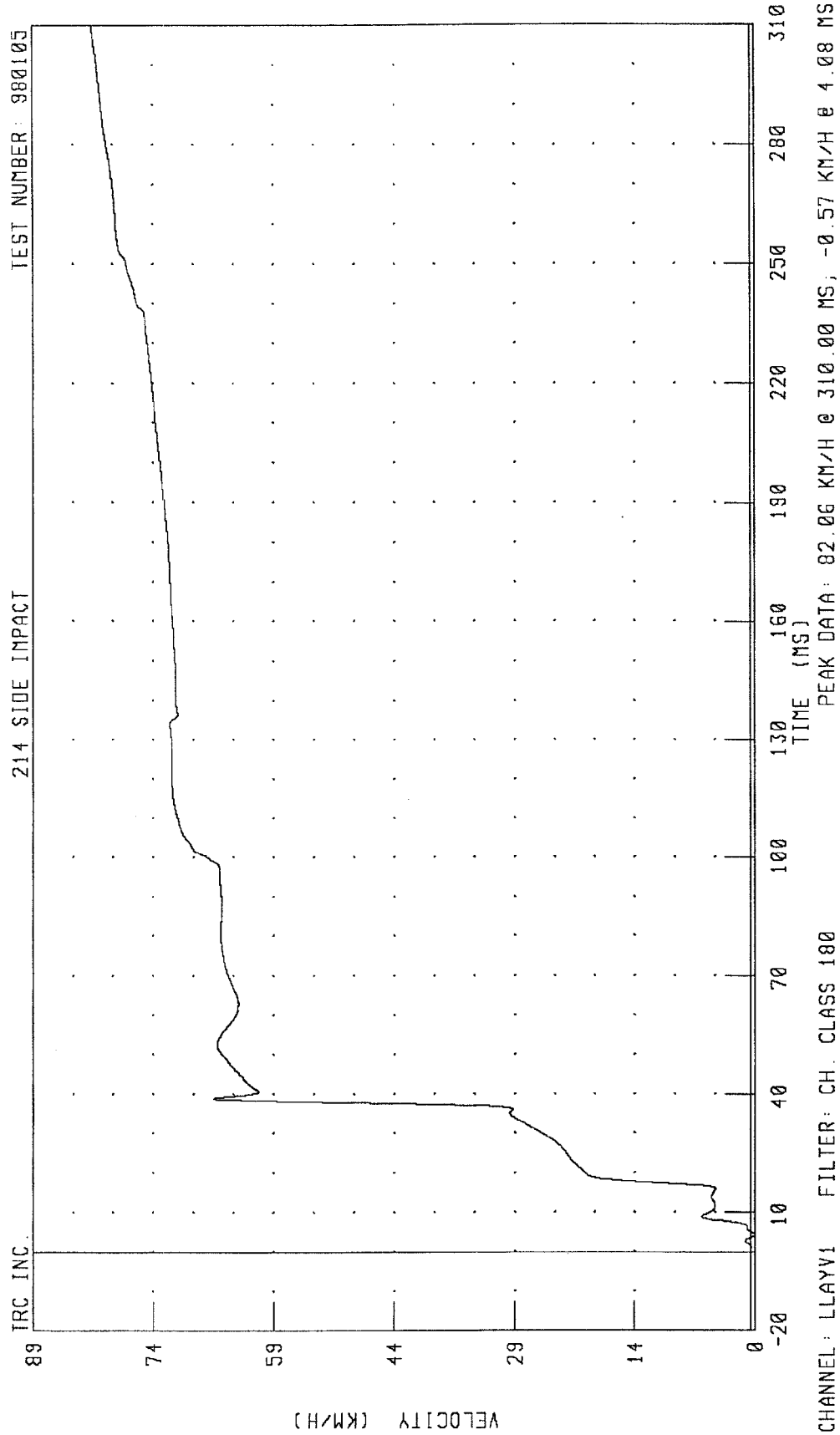
40

10

CHANNEL: LLAYG1 FILTER: CH. CLASS 60

PEAK DATA: 255.85 G @ 37.76 MS; -11.45 G @ 56.96 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LOWER A-POST Y-AXIS VELOCITY

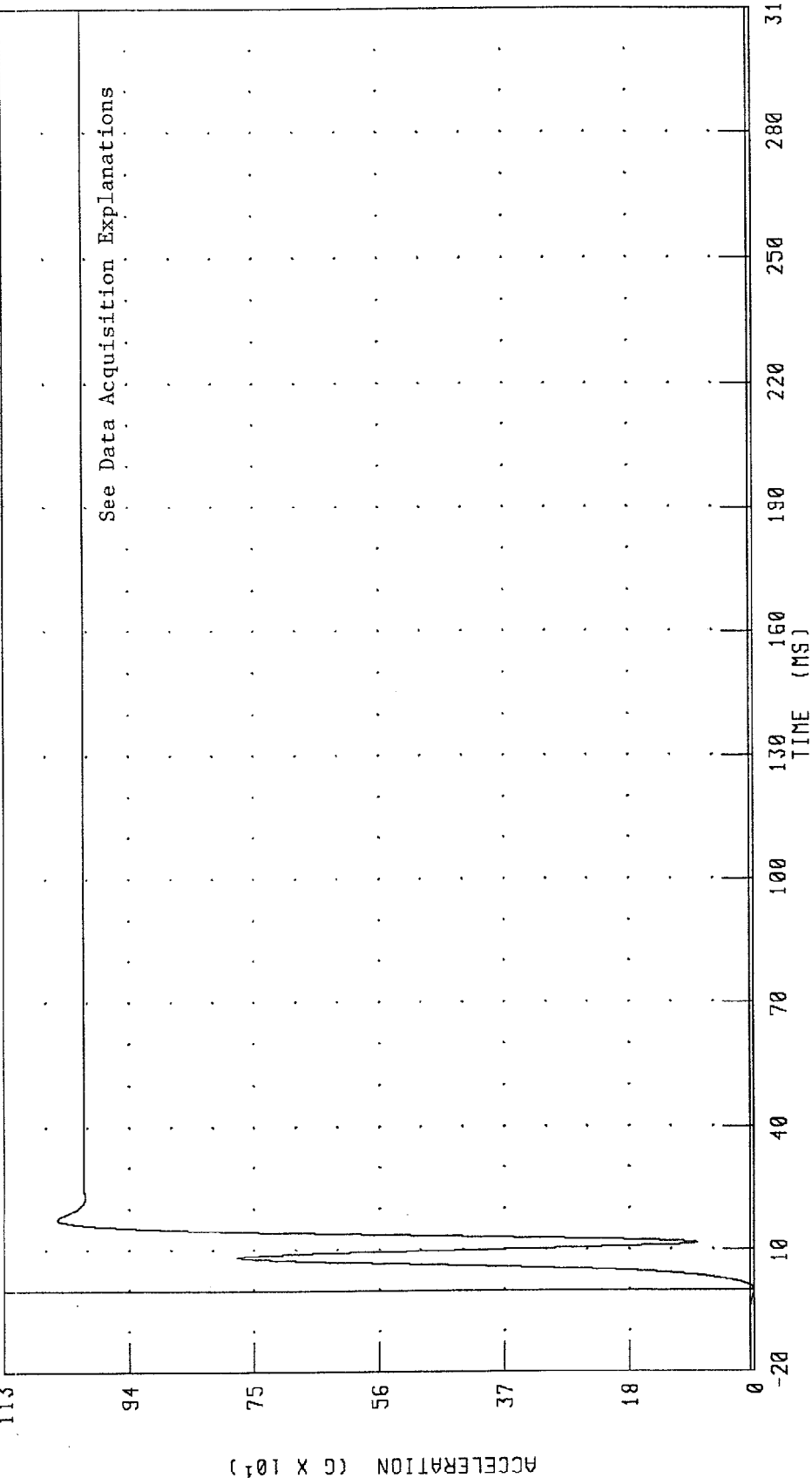


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
UPPER A-POST Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: LMAYG1 FILTER: CH. CLASS 60

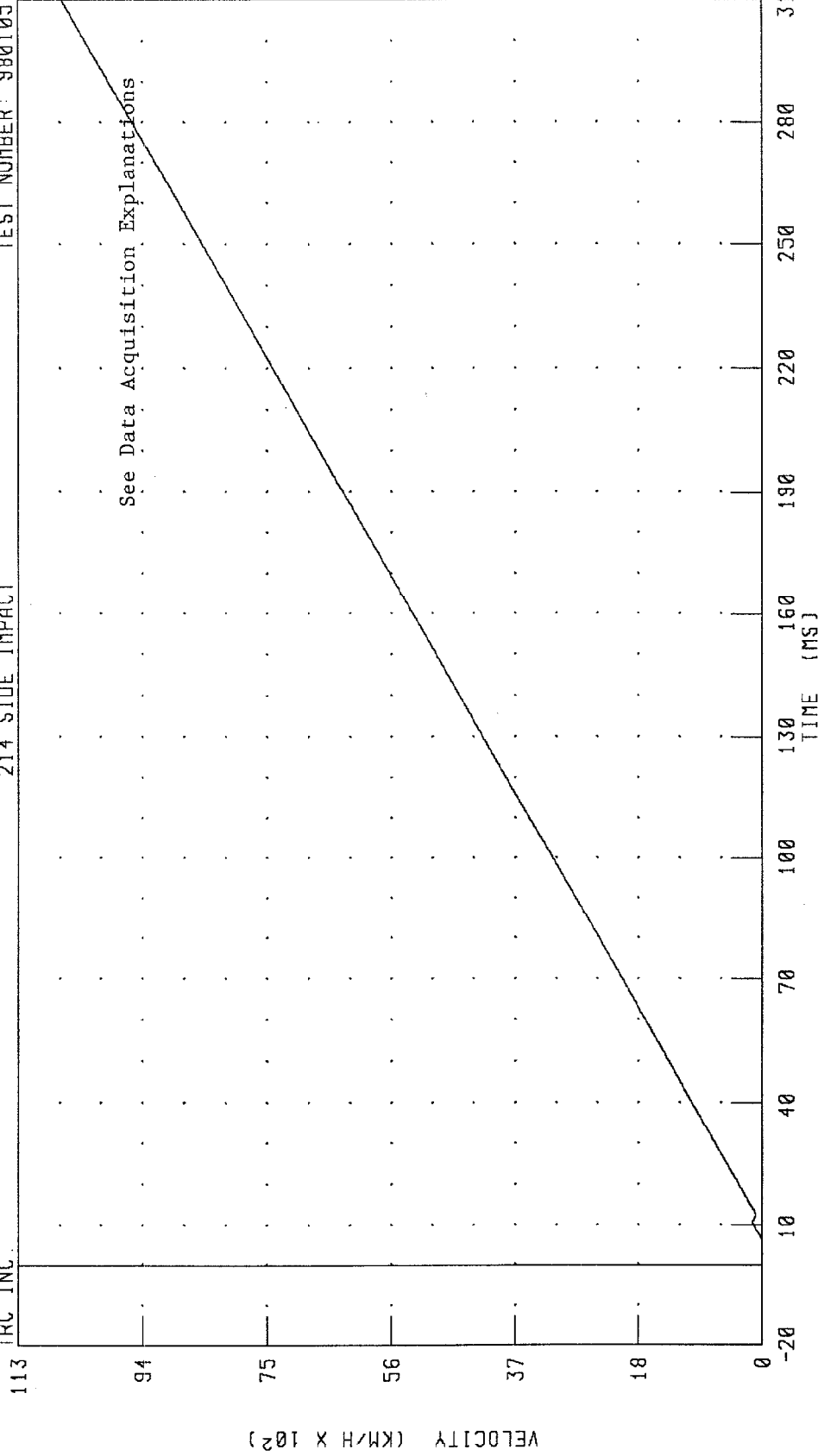
PEAK DATA: 1052.24 G @ 17.36 MS, -6.19 G @ -0.40 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
UPPER A-POST Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



PEAK DATA: 10728.16 KM/H @ 310.00 MS; -0.38 KM/H @ 1.68 MS

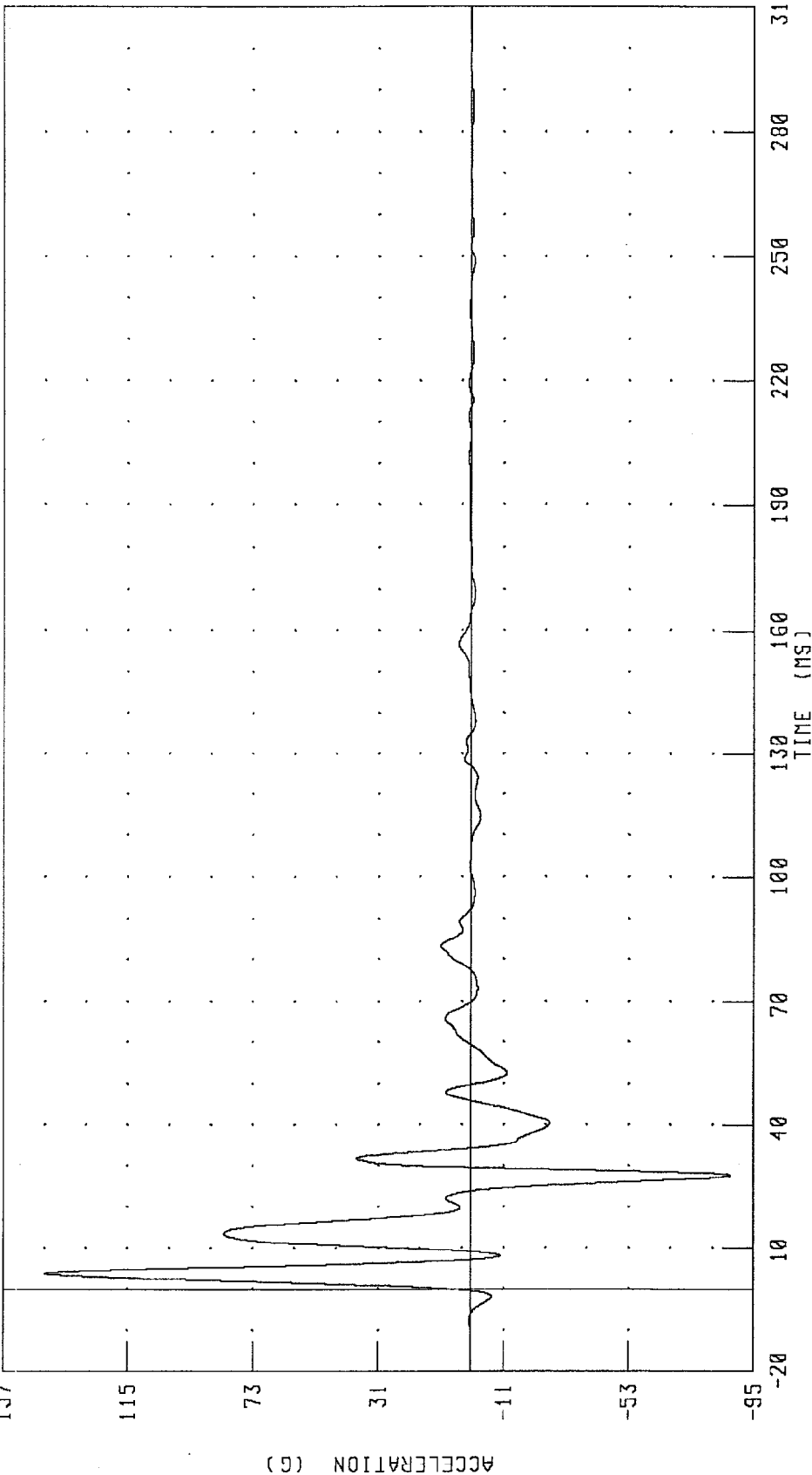
CHANNEL: LMAYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LOWER B-POST Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: LLBYG1 FILTER: CH. CLASS 60

PEAK DATA: 142.98 G @ 3.68 MS; -87.01 G @ 27.76 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LOWER B-POST Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

407

338

VELOCITY (KM/H X 10⁻¹)

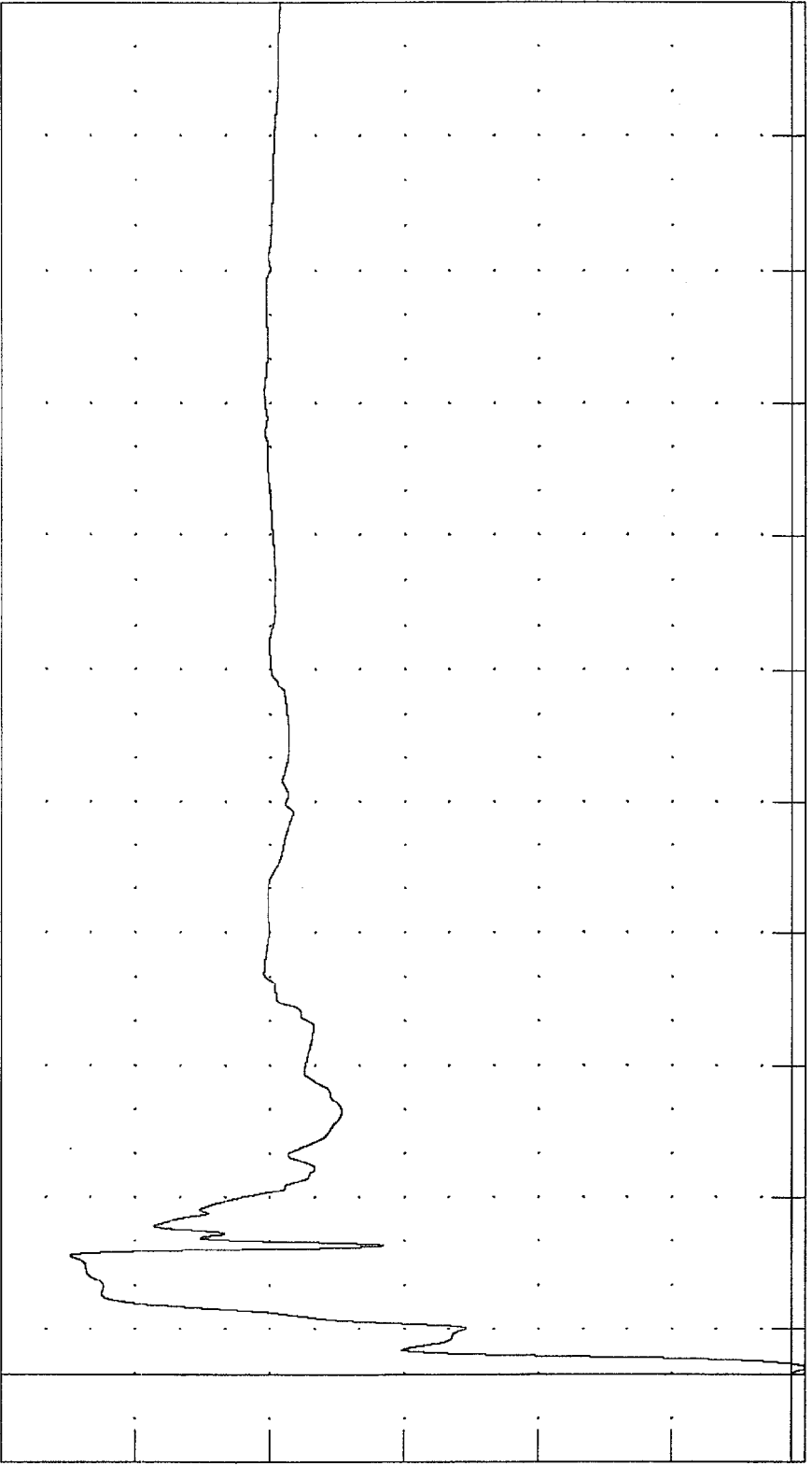
269

200

131

62

-7



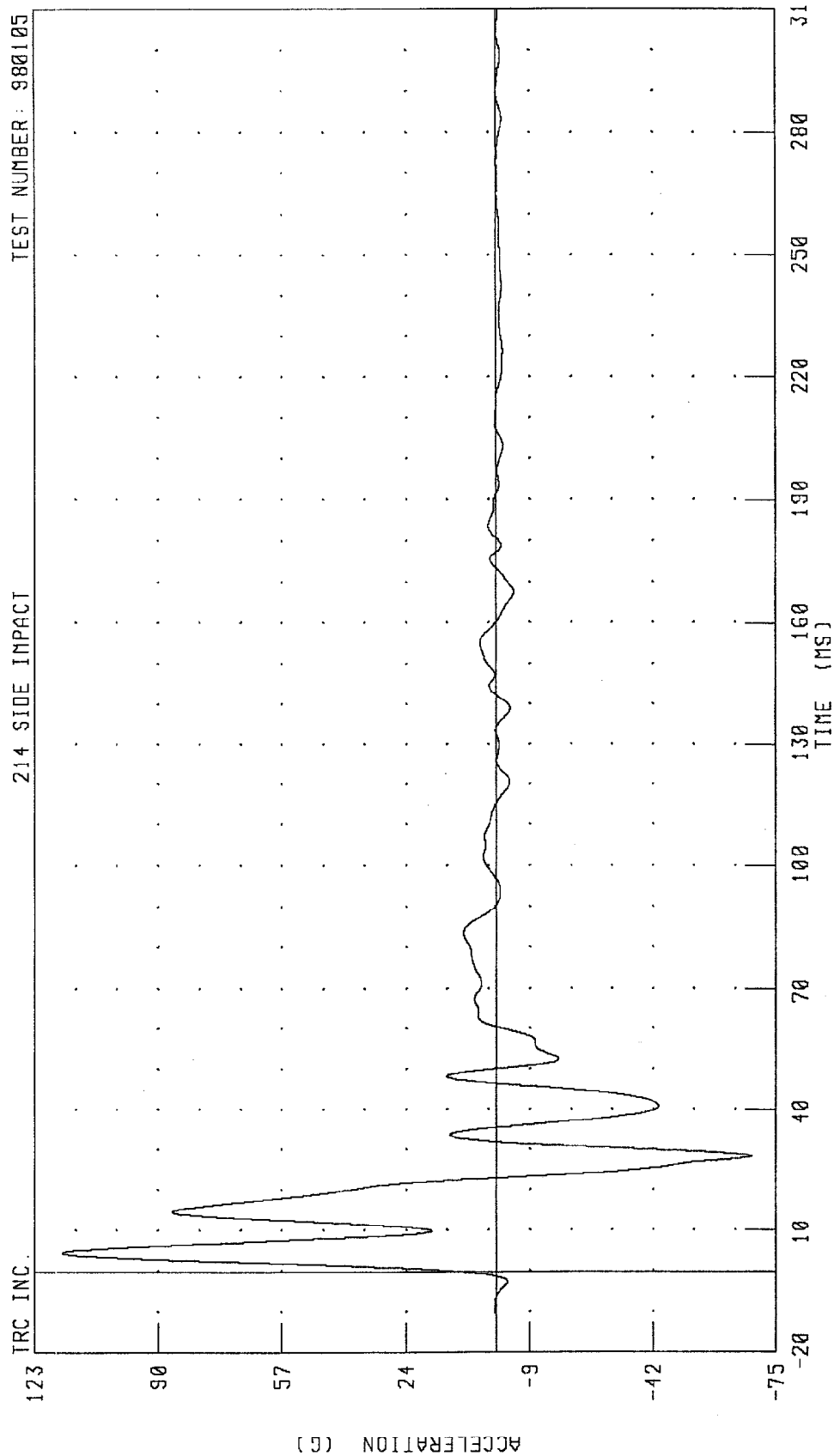
PEAK DATA: 37.13 KM/H @ 26.72 MS; -0.72 KM/H @ 1.44 MS

CHANNEL: LLBYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
UPPER B-POST Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

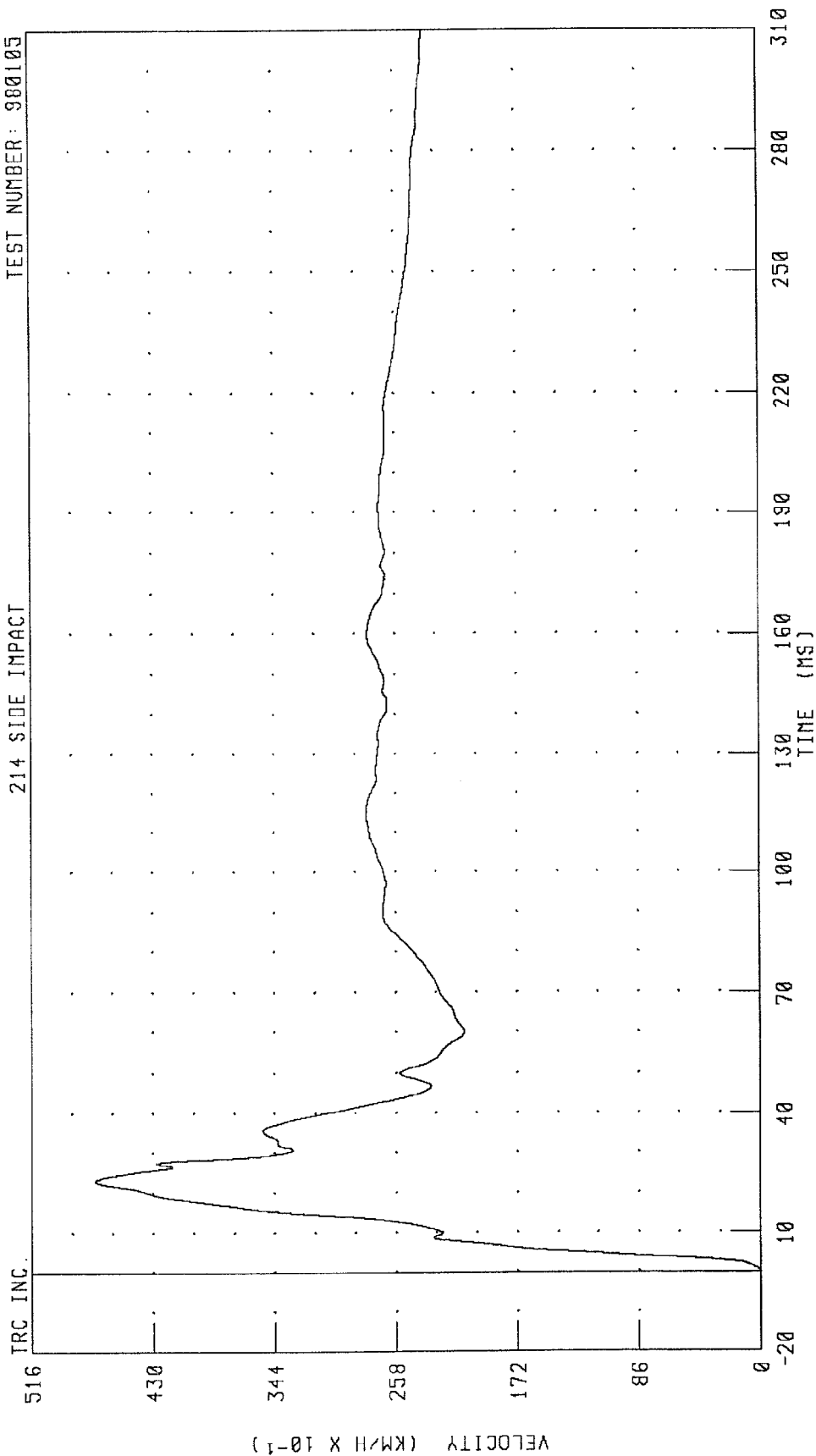


CHANNEL: LMBYG1 FILTER: CH. CLASS 60

PEAK DATA: 115.56 G @ 4.48 MS; -68.57 G @ 28.40 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 UPPER B-POST Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 980105



PEAK DATA: 47.07 KM/H @ 23.04 MS; 0.00 KM/H @ 0.00 MS

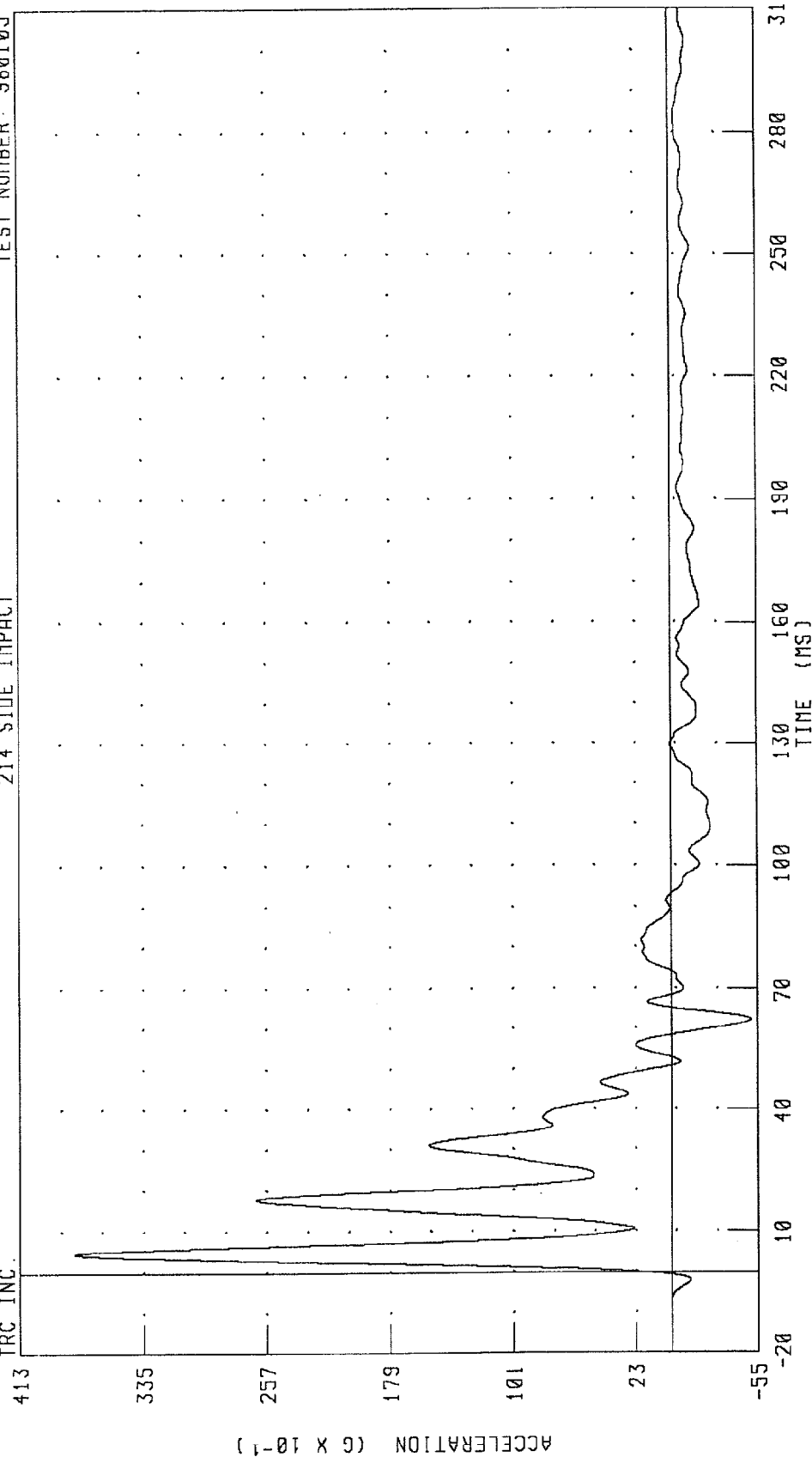
CHANNEL: LMBYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
FRONT SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

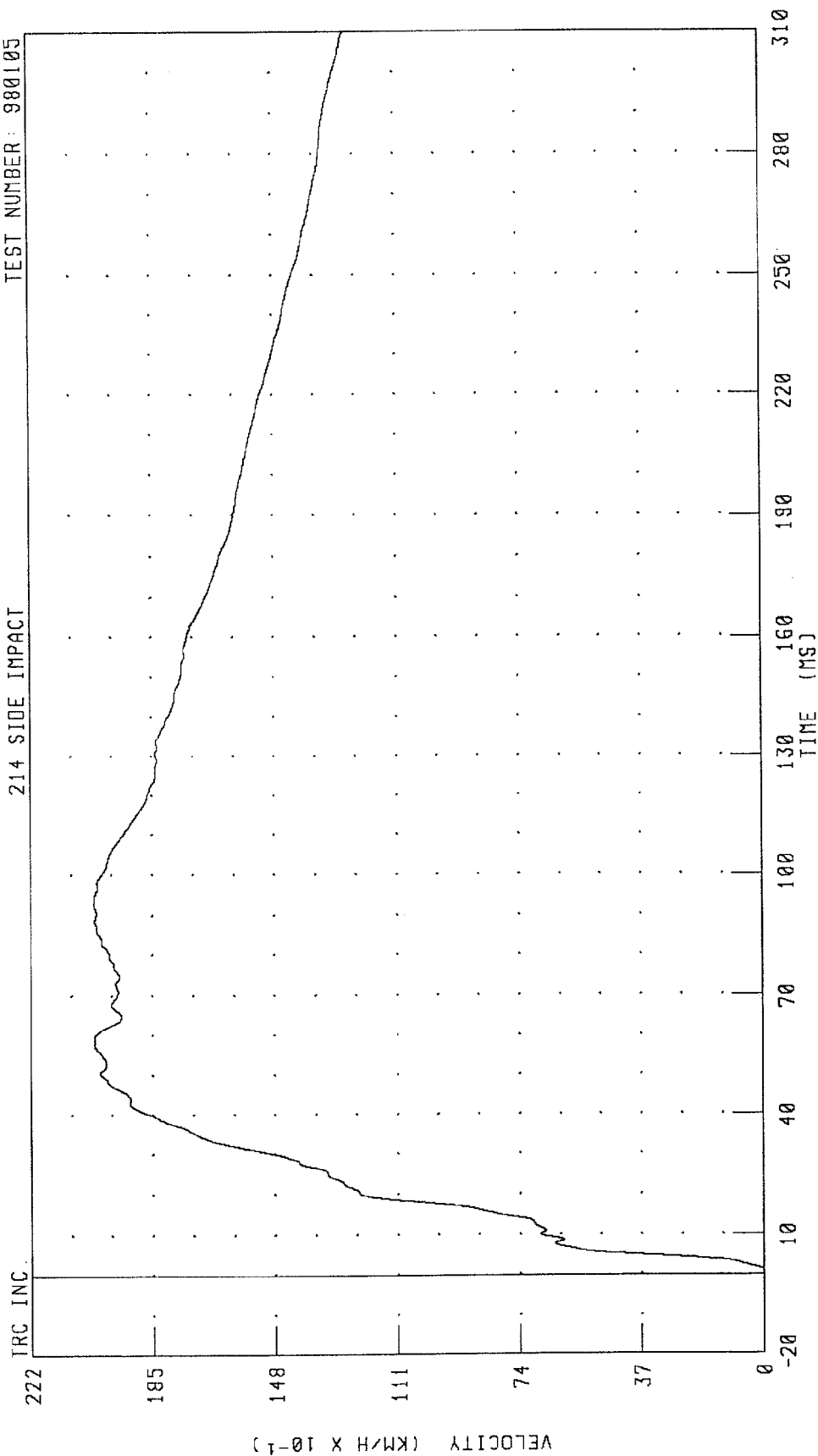


CHANNEL: LFTYG1 FILTER: CH. CLASS 60

PEAK DATA: 37.86 G @ 4.64 MS; -5.06 G @ 62.16 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 FRONT SEAT TRACK Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 980105



PEAK DATA: 20.27 KM/H @ 92.80 MS; -0.03 KM/H @ 0.64 MS

CHANNEL: LFTYV1 FILTER: CH. CLASS 180

Vehicle Channel Rear Seat Track Y-Axis Accelerometer #17 Was Not Installed
(no accessible mounting location)

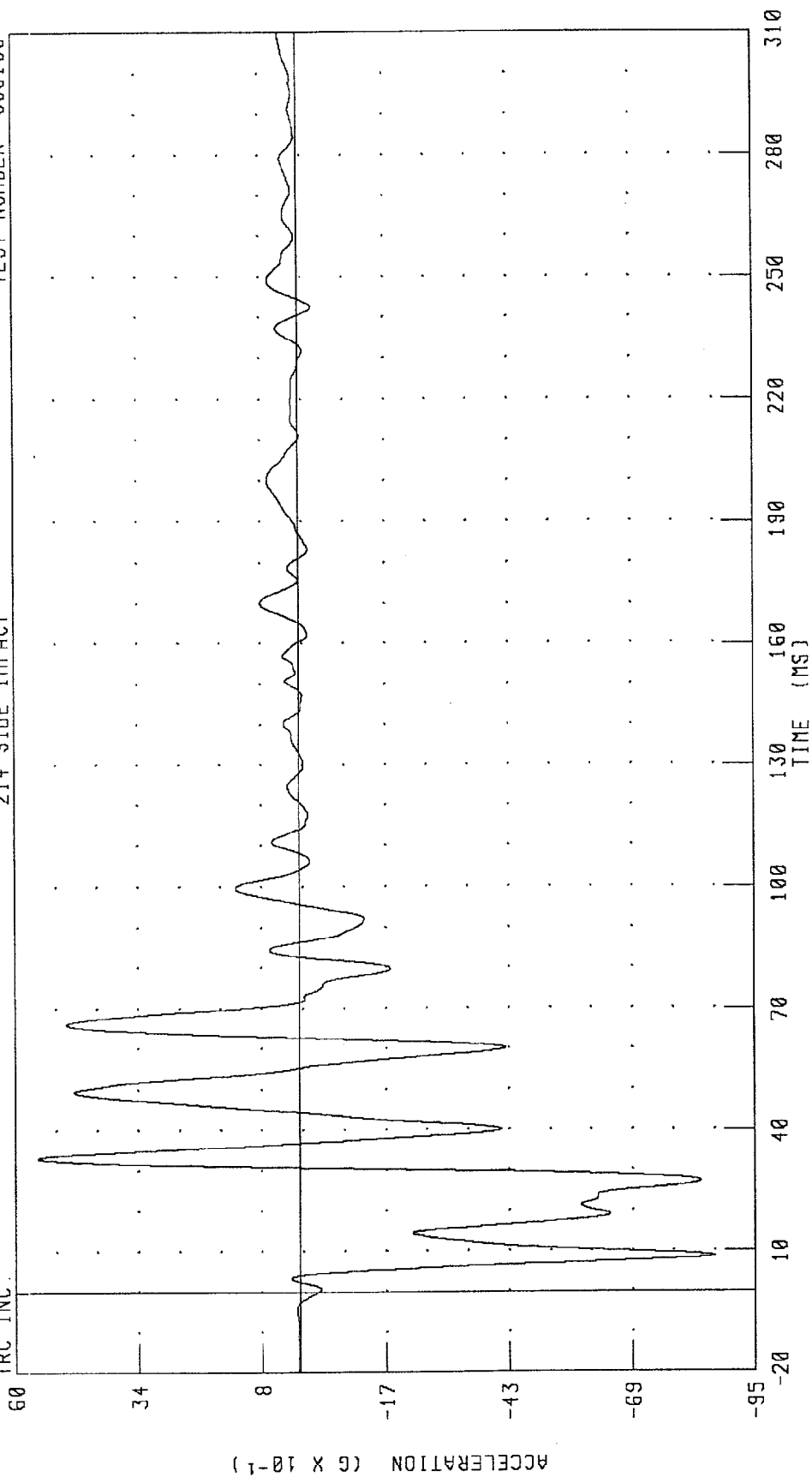
Vehicle Channel Rear Seat Track Y-Axis Accelerometer #17 Was Not Installed
(no accessible mounting location)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: VCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 5.51 G @ 33.12 MS, -8.73 G @ 8.64 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

0

-90

-180

-270

-360

-450

-540

VELOCITY (KM/H X 10⁻²)

TIME (MS)

130

160

190

220

250

280

310

PEAK DATA: 0.00 KM/H @ 0.00 MS; -5.36 KM/H @ 30.64 MS

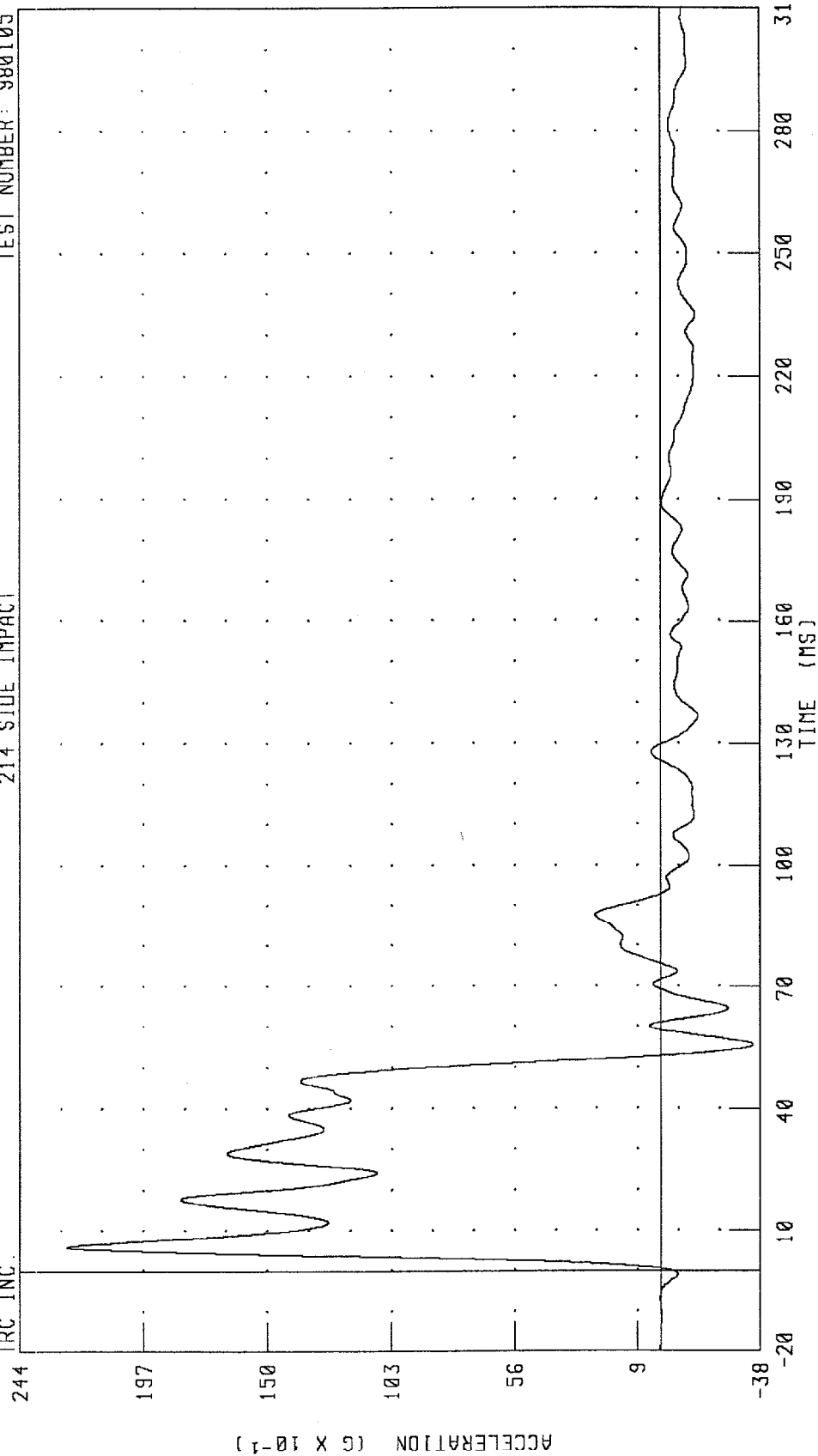
CHANNEL: VCGXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

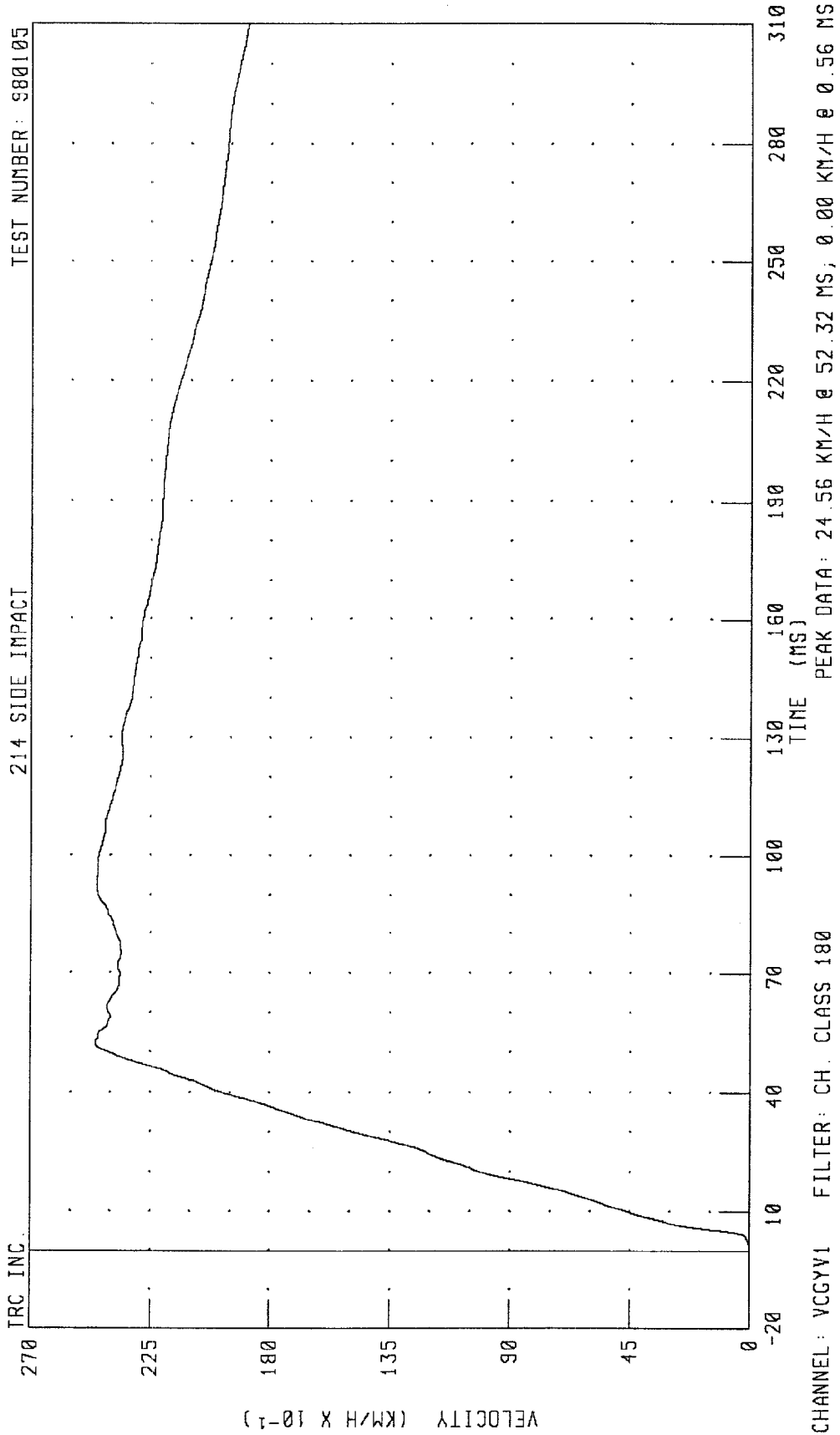
TRC INC.



PEAK DATA: 22.58 G @ 5.84 MS; -3.51 G @ 55.52 MS

CHANNEL: VCGYG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

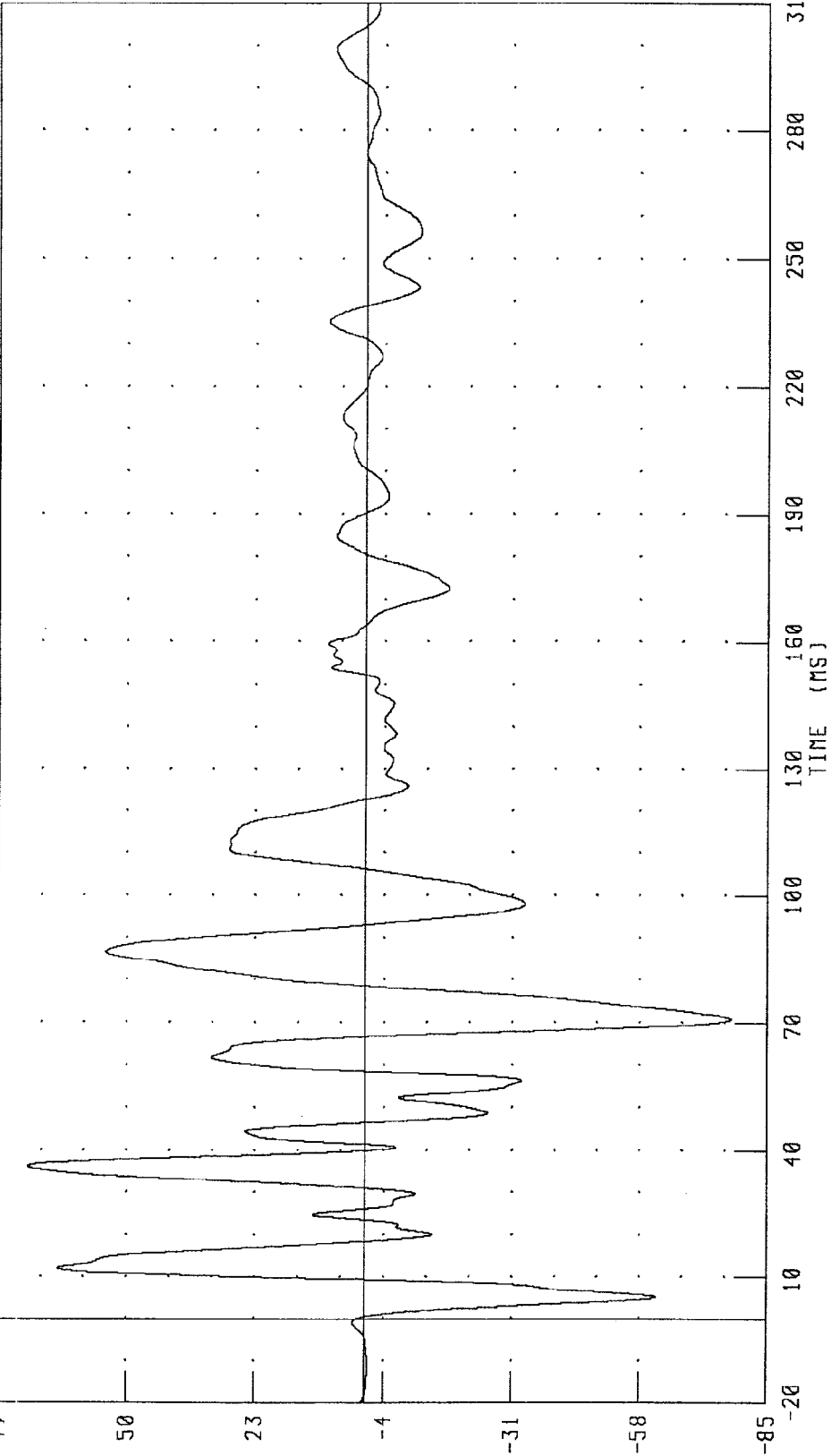


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

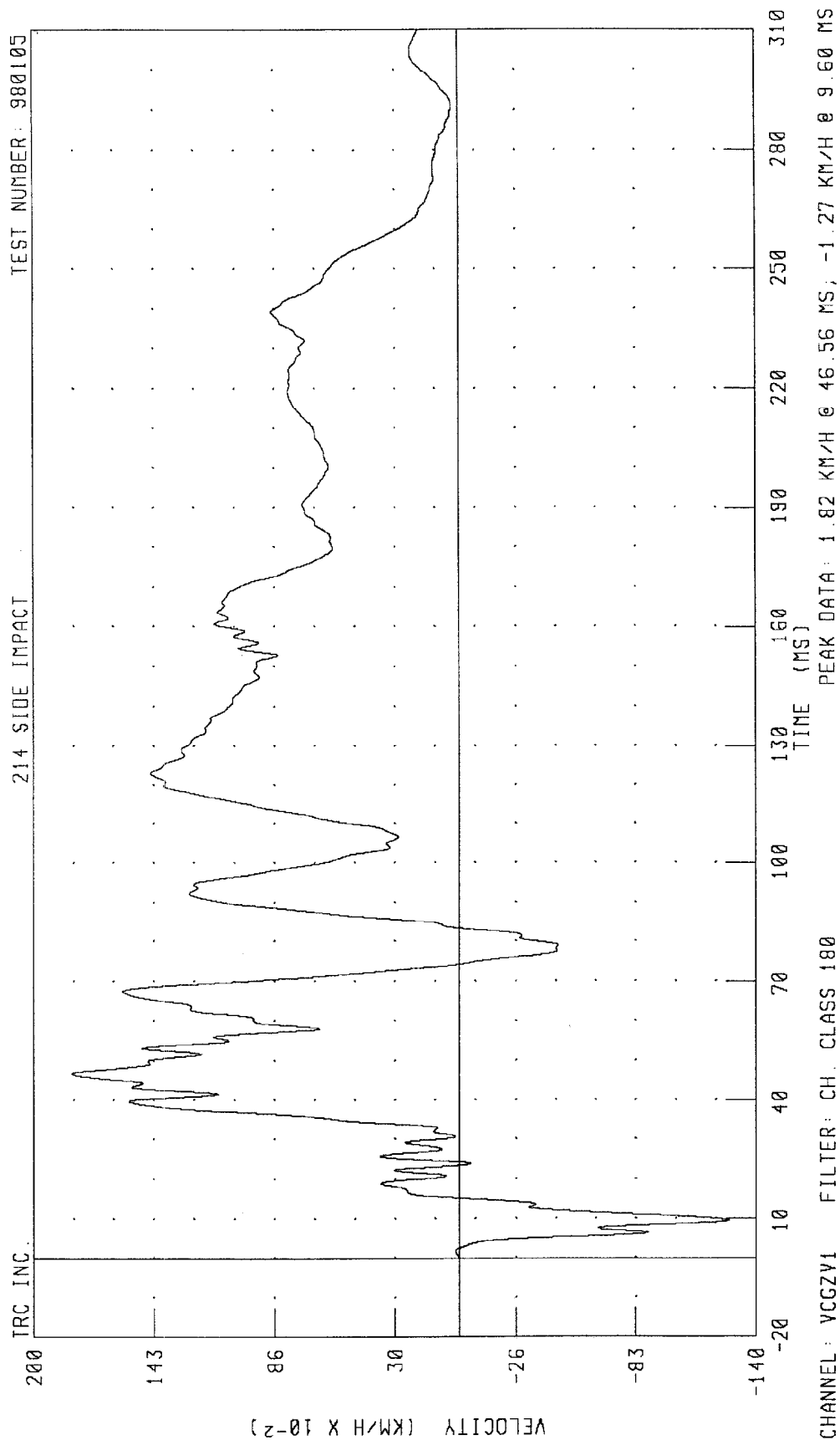
TRC INC.



CHANNEL: VCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 7.08 G @ 36.32 MS; -7.73 G @ 70.80 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

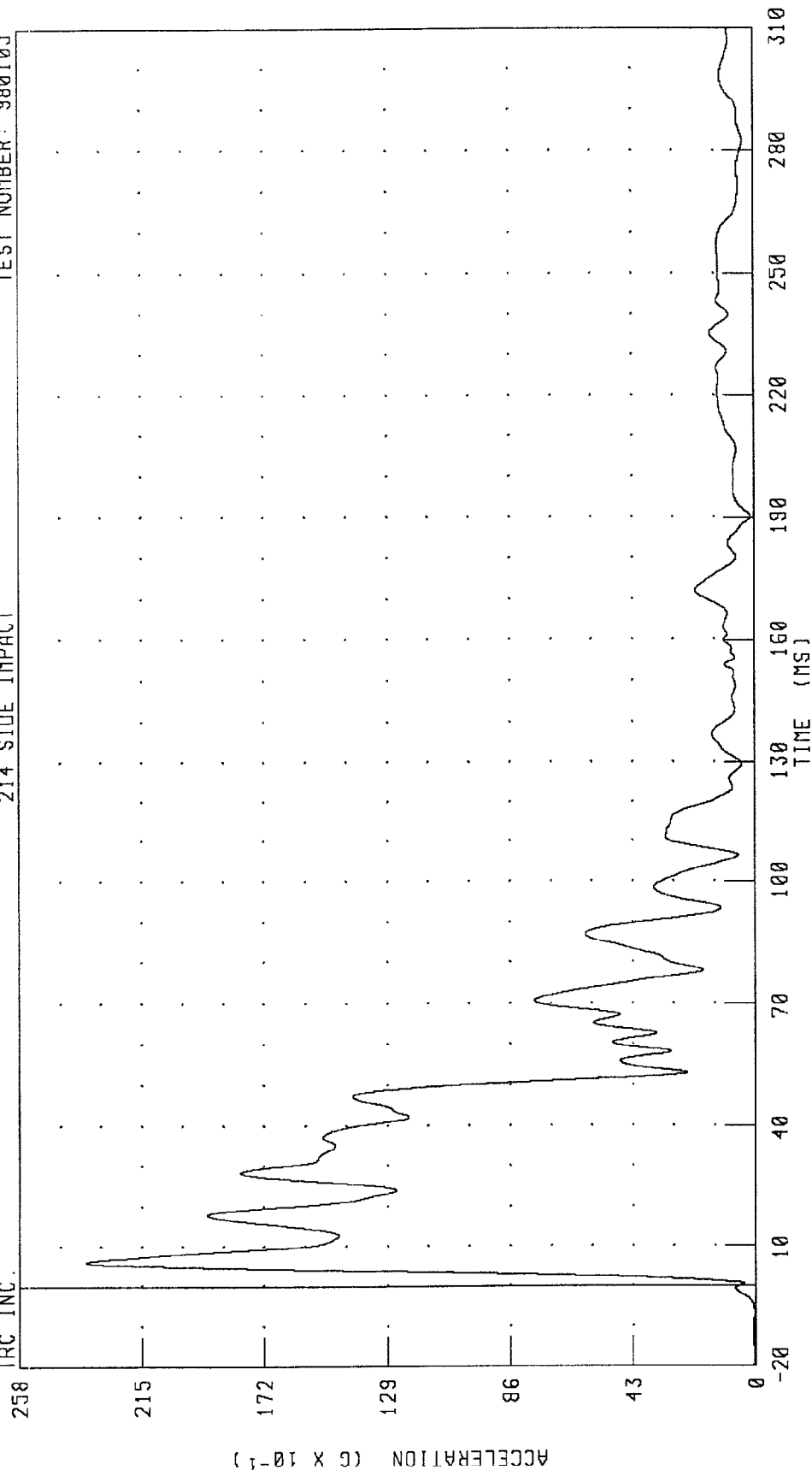


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

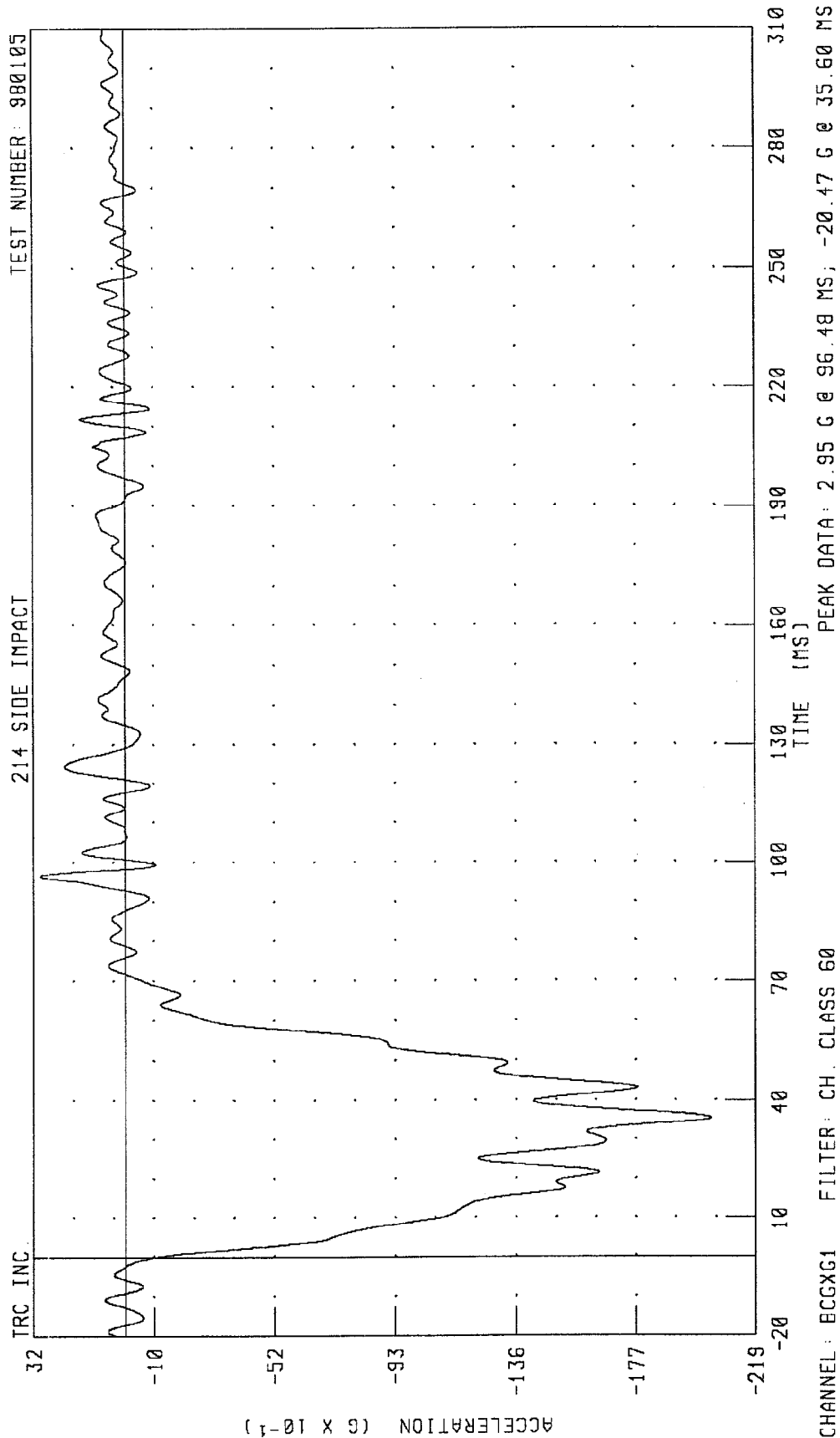


CHANNEL: VCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 23.46 G @ 5.84 MS; 0.05 G @ -18.48 MS

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION



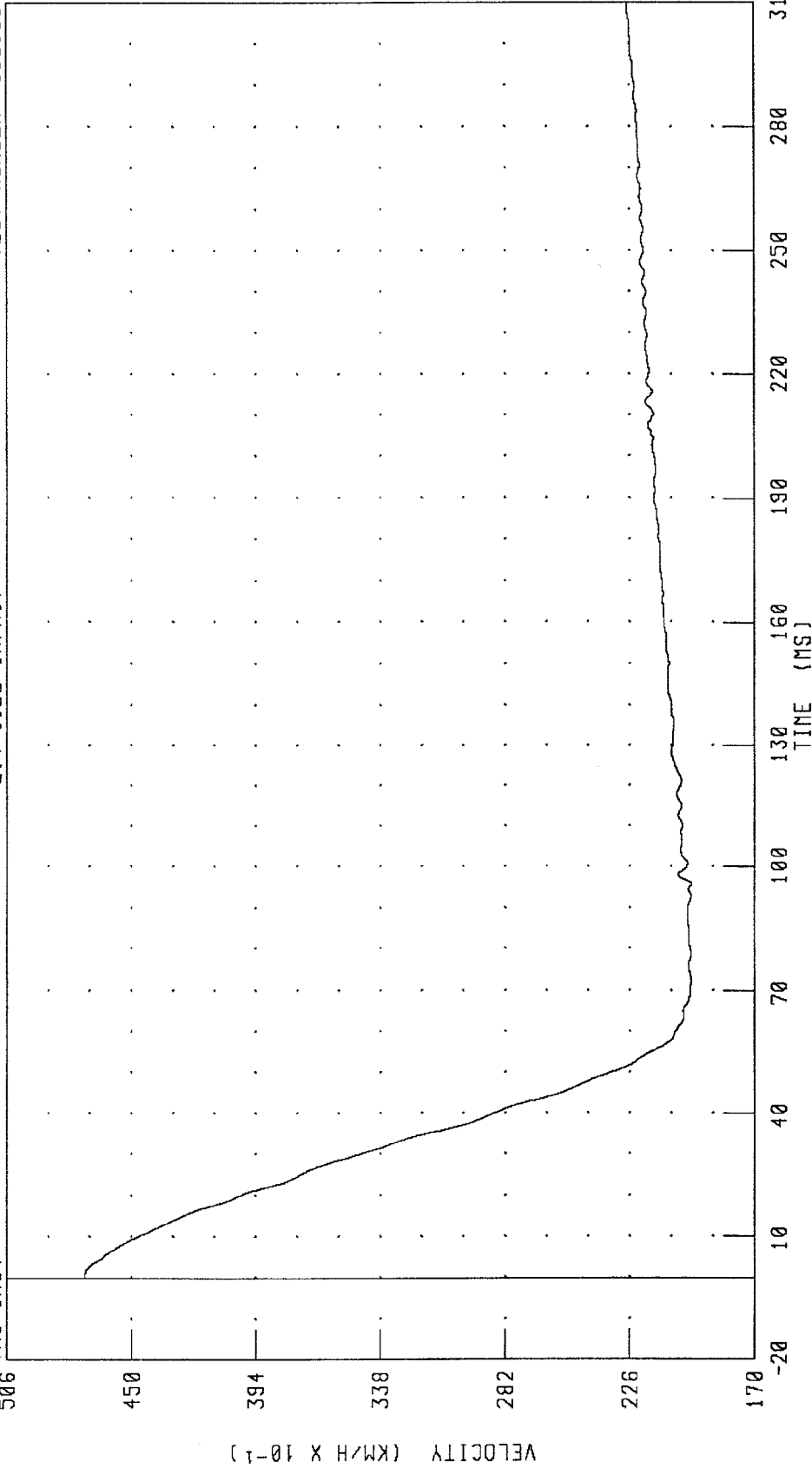
CHANNEL: BCGXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: BCGXV1 FILTER: CH. CLASS 180

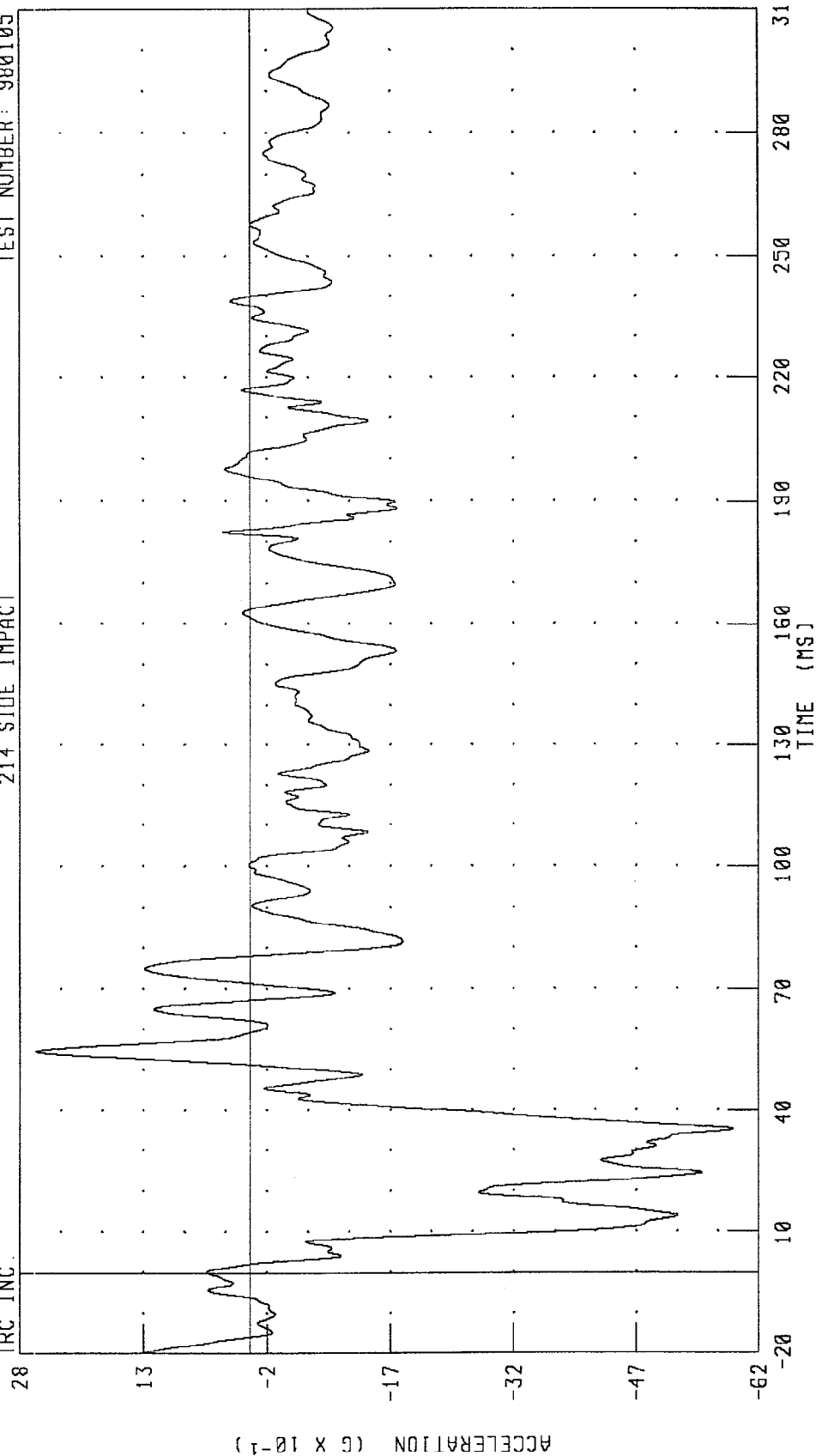
PEAK DATA: 47.10 KM/H @ 0.00 MS; 19.80 KM/H @ 95.76 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

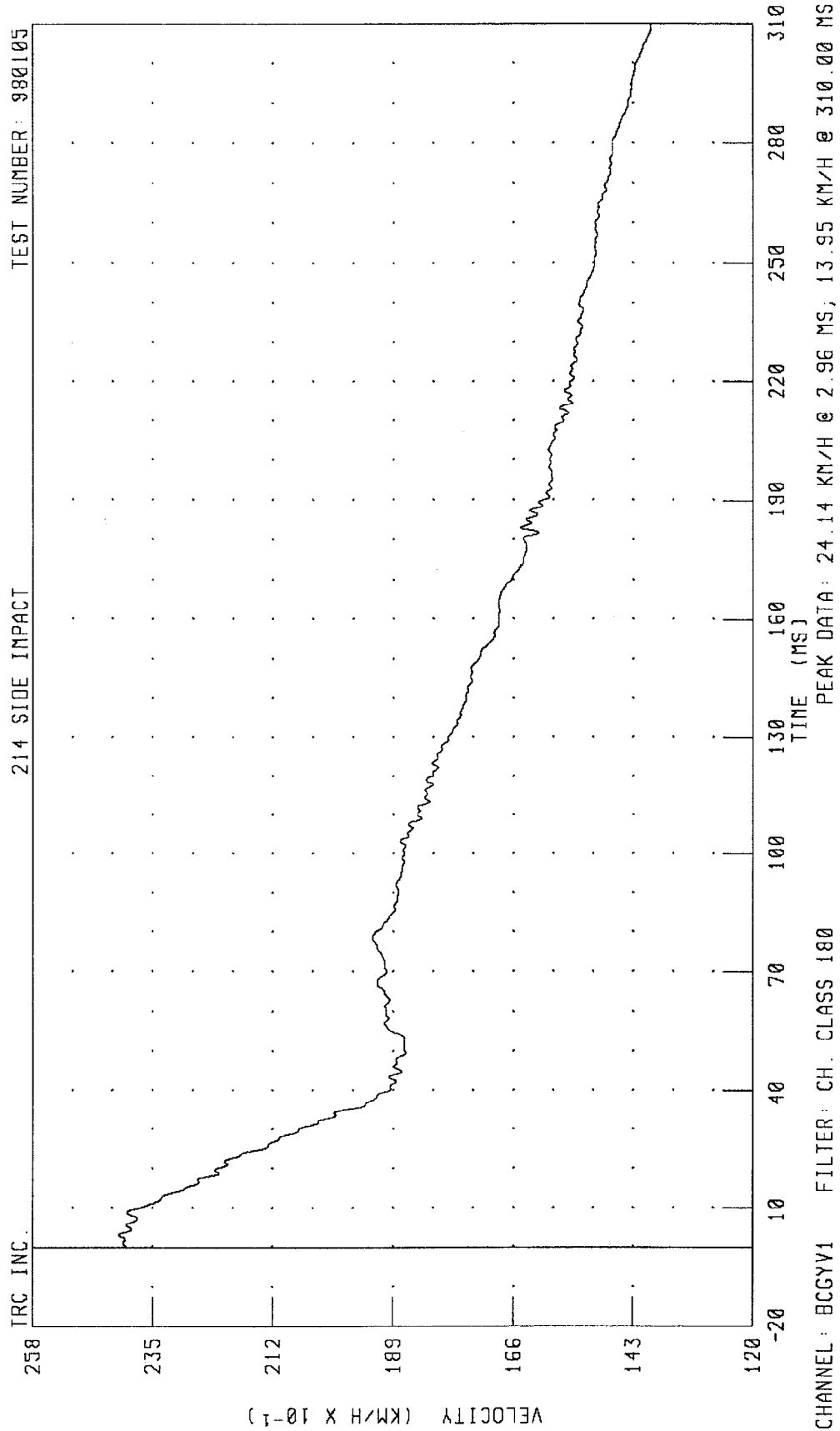
TRC INC.



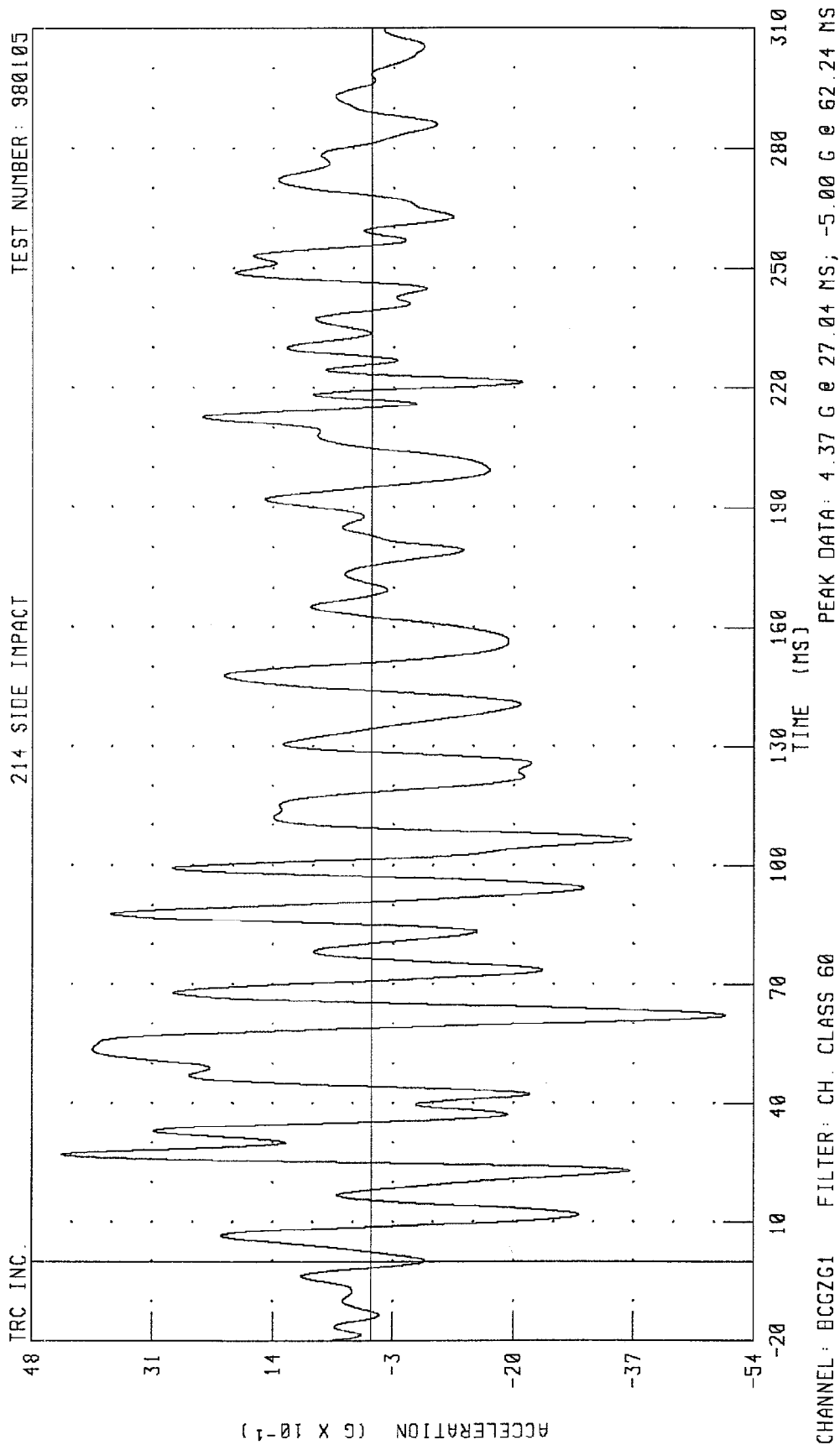
CHANNEL: BCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 2.60 G @ 54.48 MS; -5.89 G @ 35.28 MS

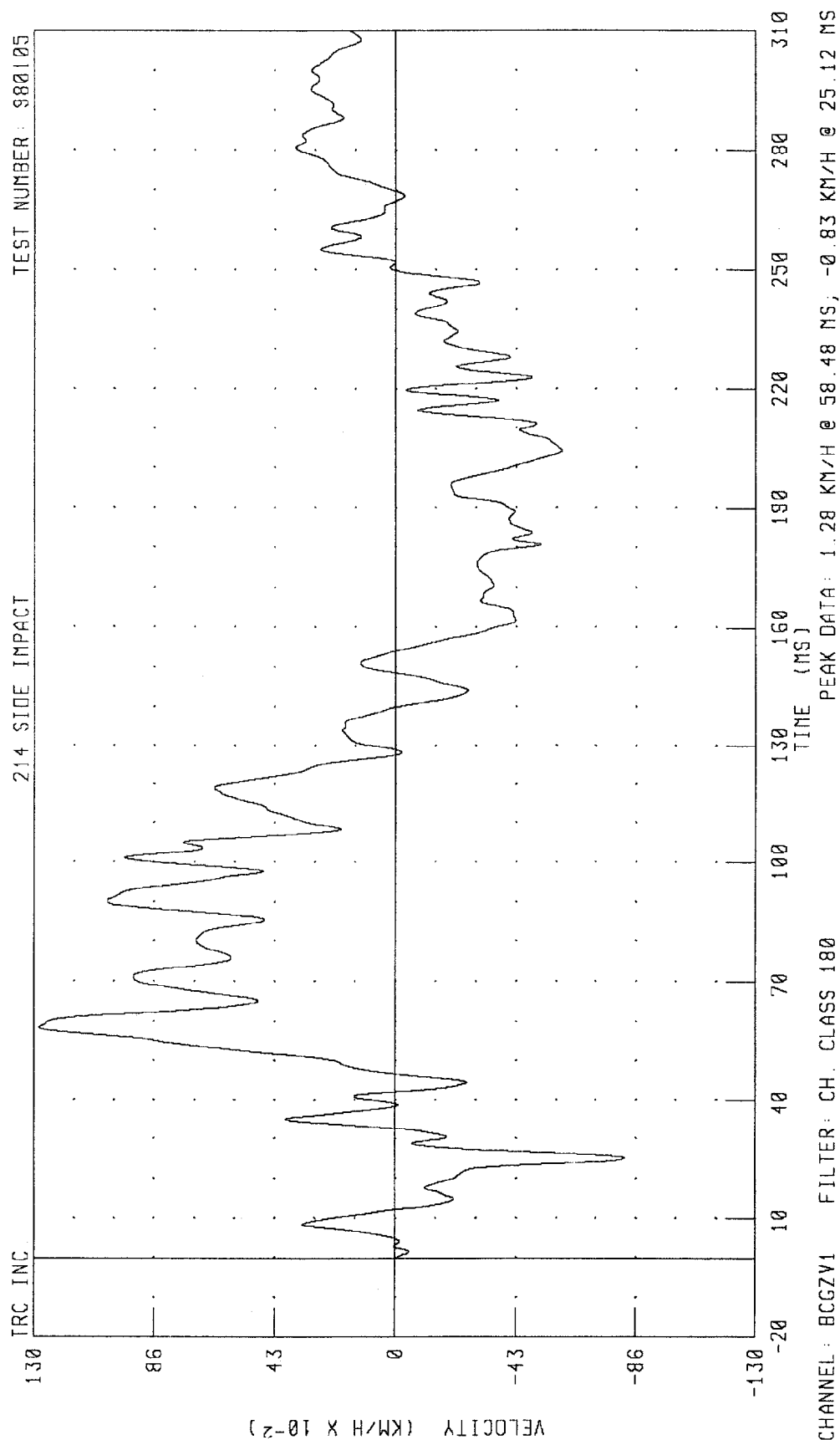
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION



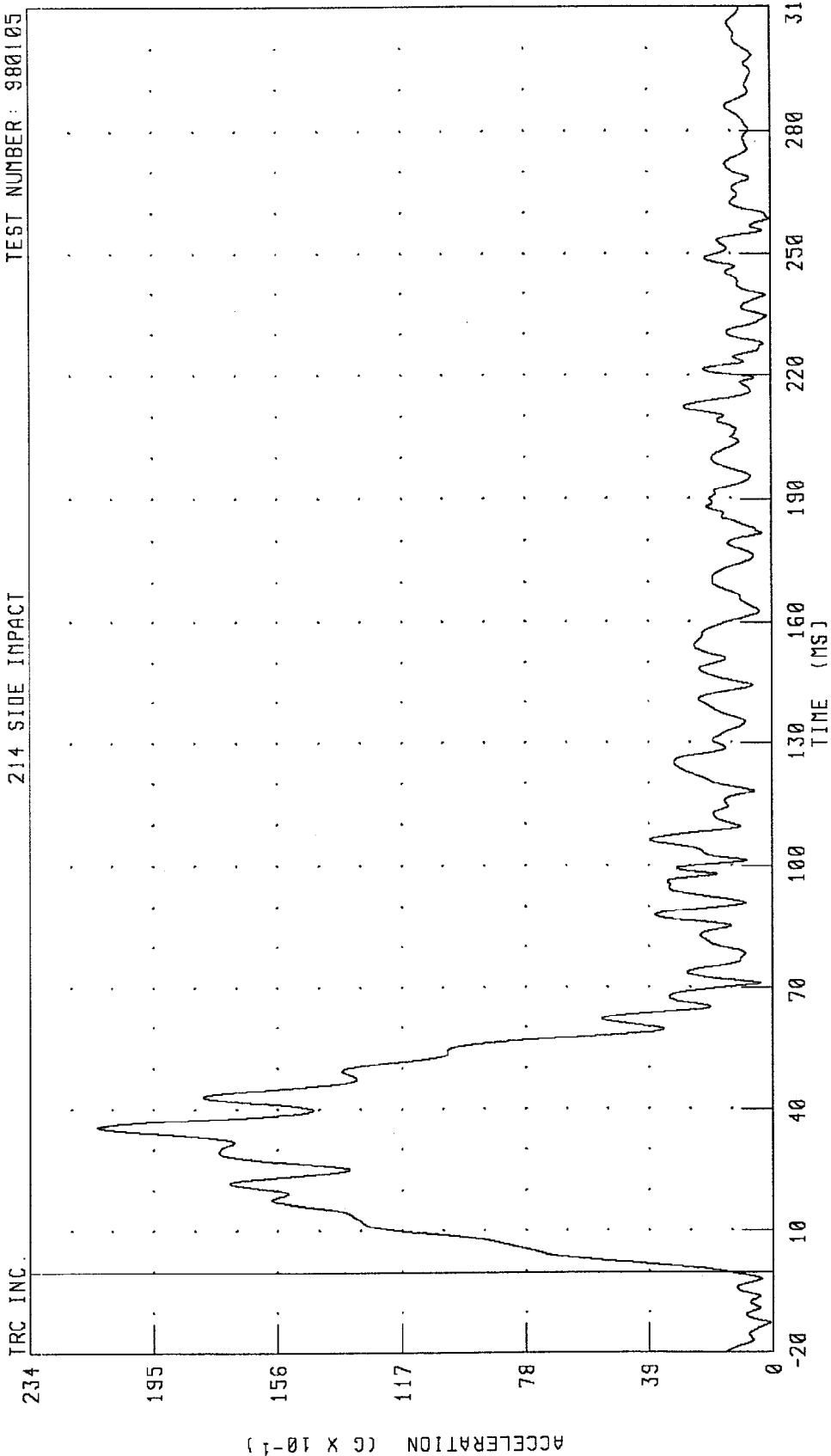
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY Z-AXIS VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 980105

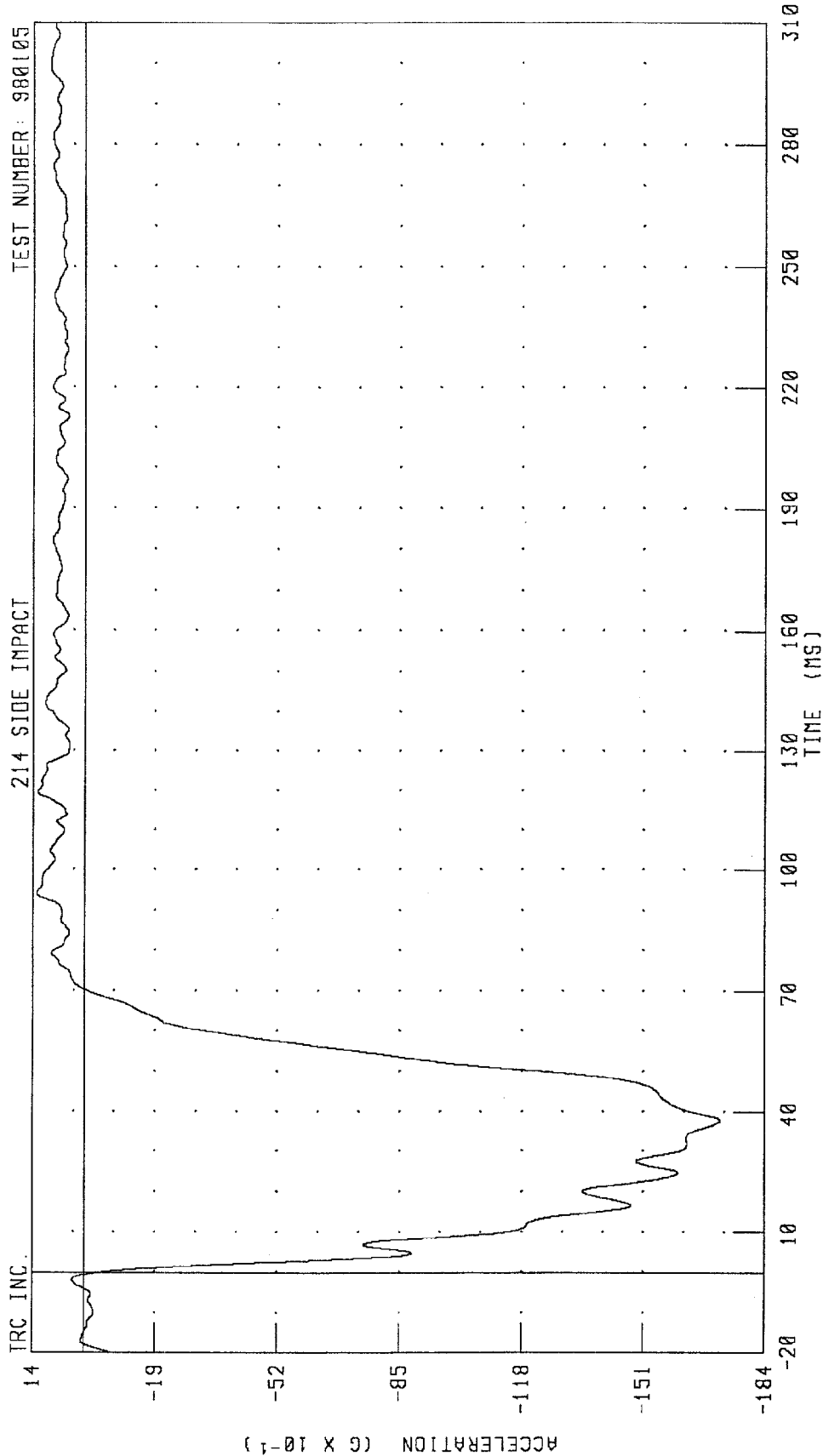
214 SIDE IMPACT



CHANNEL: BCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 21.28 G @ 35.52 MS; 0.06 G @ 258.56 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER REAR X-AXIS ACCELERATION



PEAK DATA: 1.29 G @ 94.08 MS, -17.19 G @ 37.76 MS

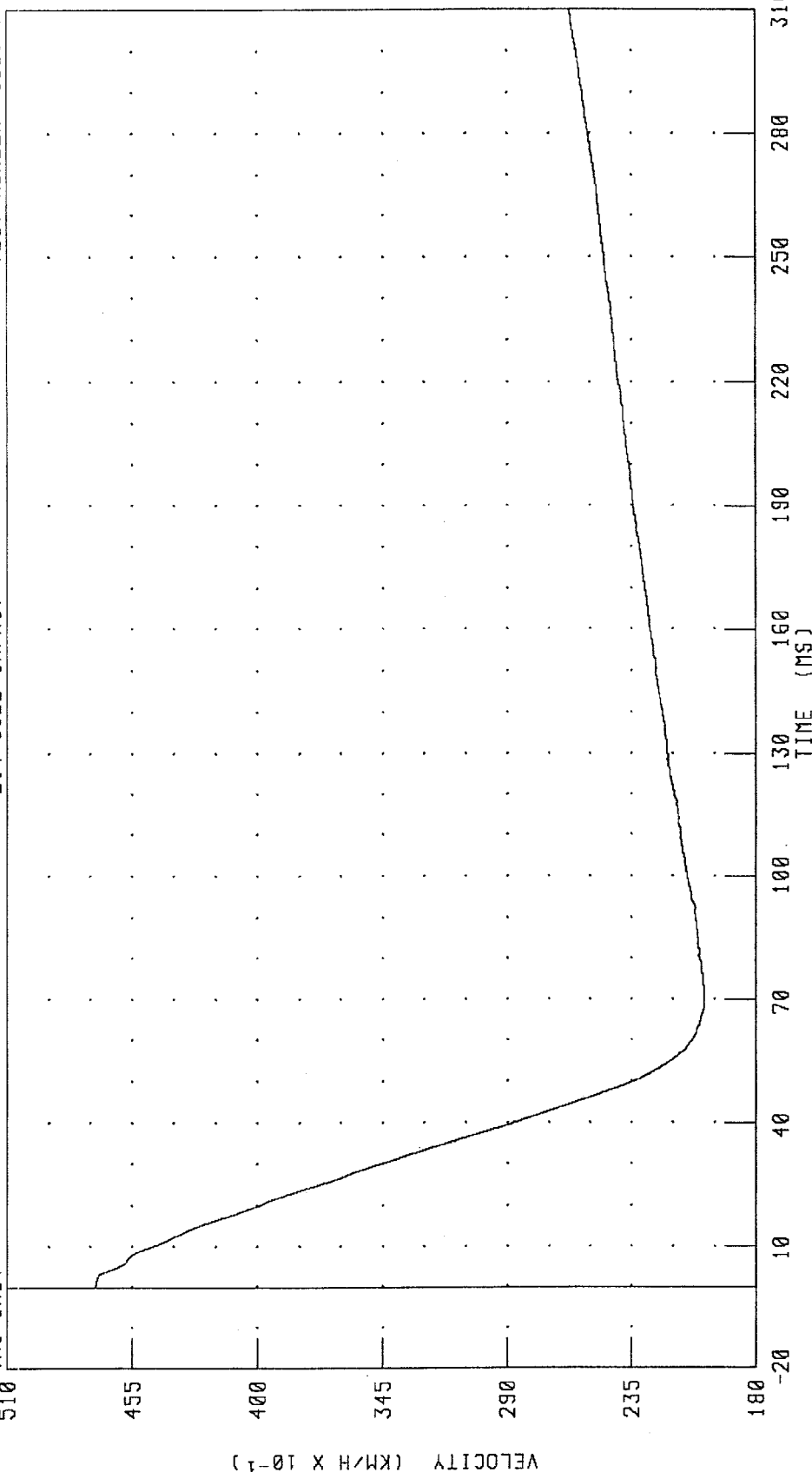
CHANNEL: LRRXG1 FILTER: CH. CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER REAR X-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

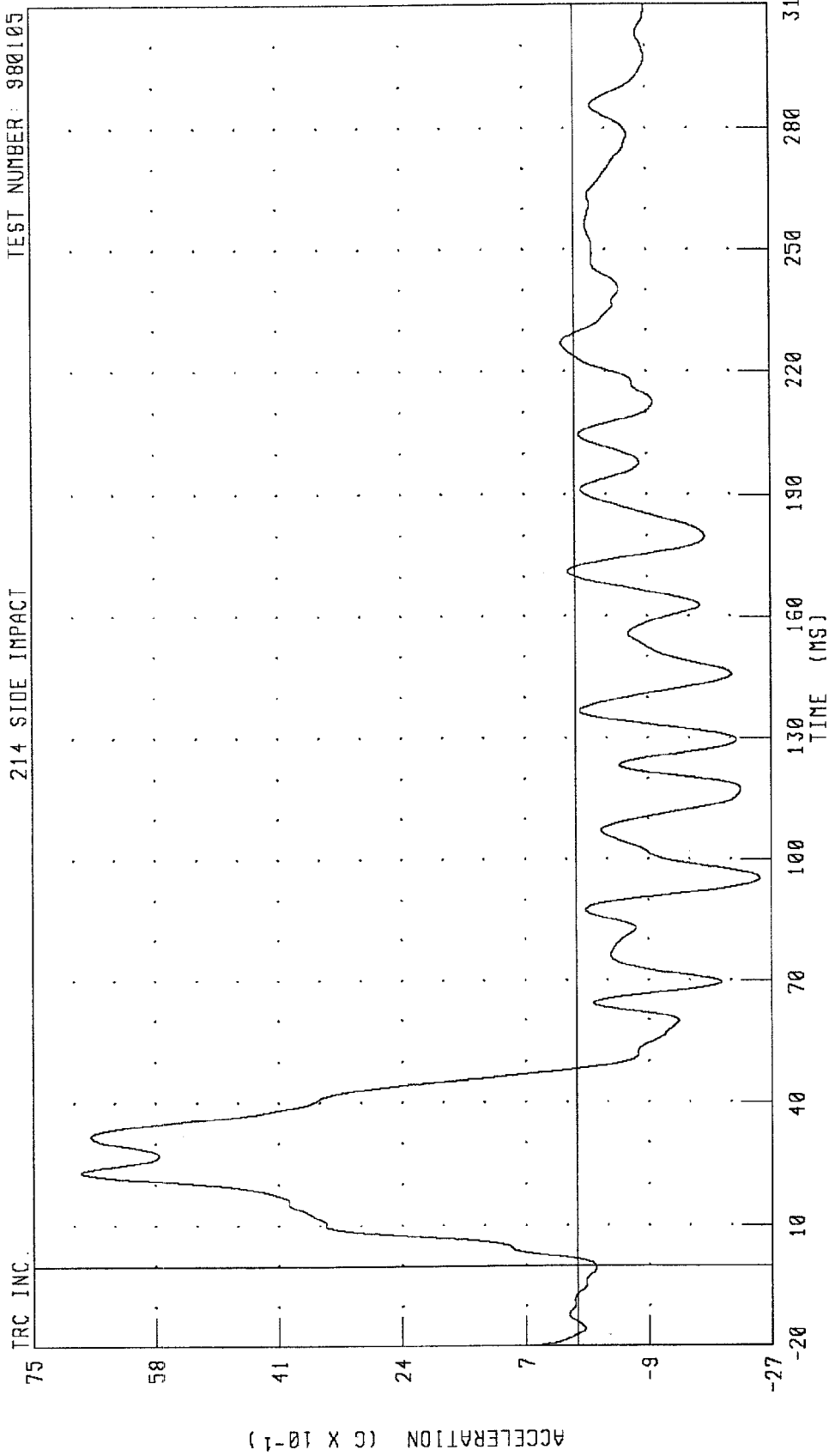


PEAK DATA: 47.10 KM/H @ 0.24 MS; 20.29 KM/H @ 70.24 MS

CHANNEL: LRRXV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 MOVING DEFORMABLE BARRIER REAR Y-AXIS ACCELERATION
 214 SIDE IMPACT

TEST NUMBER: 980105



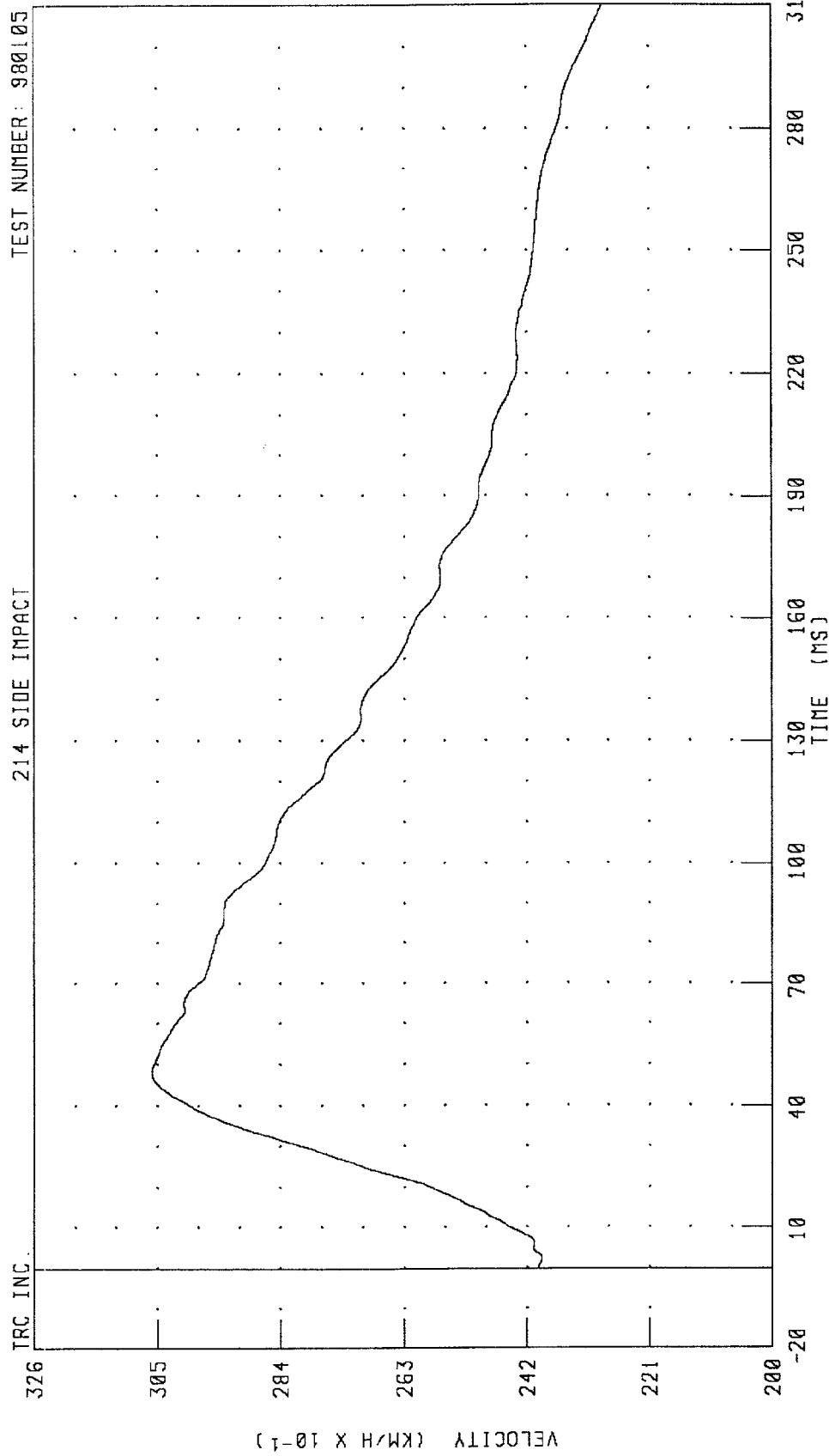
CHANNEL: LRRYG1 FILTER: CH. CLASS 60

PEAK DATA: 6.84 G @ 22.96 MS; -2.53 G @ 95.36 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
MOVING DEFORMABLE BARRIER REAR Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT



CHANNEL: LRRYV1 FILTER: CH. CLASS 180

PEAK DATA: 30.59 KM/H @ 48.08 MS; 22.89 KM/H @ 310.00 MS

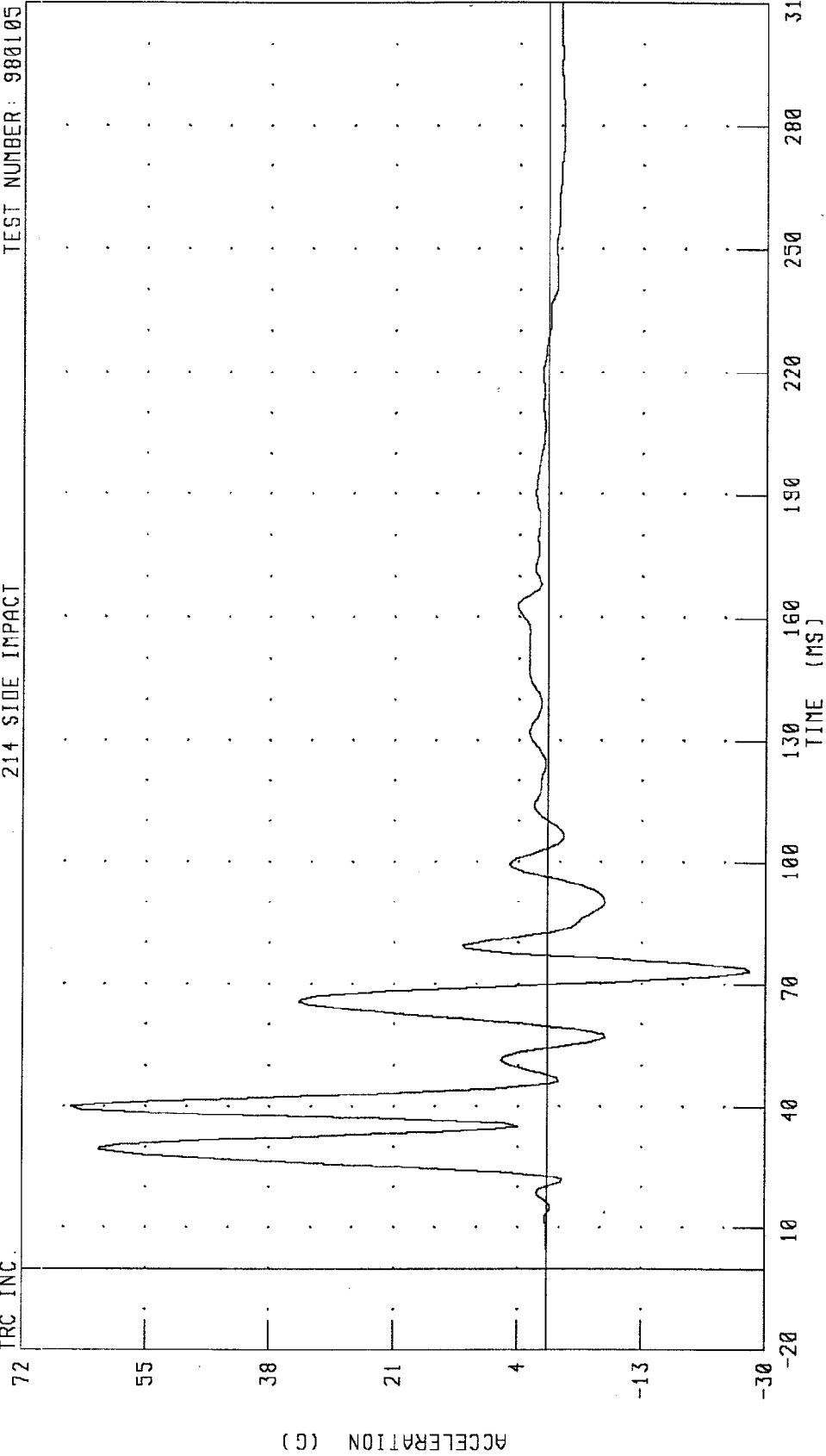
Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Primary

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: LURYG1 FILTER: FIR 100

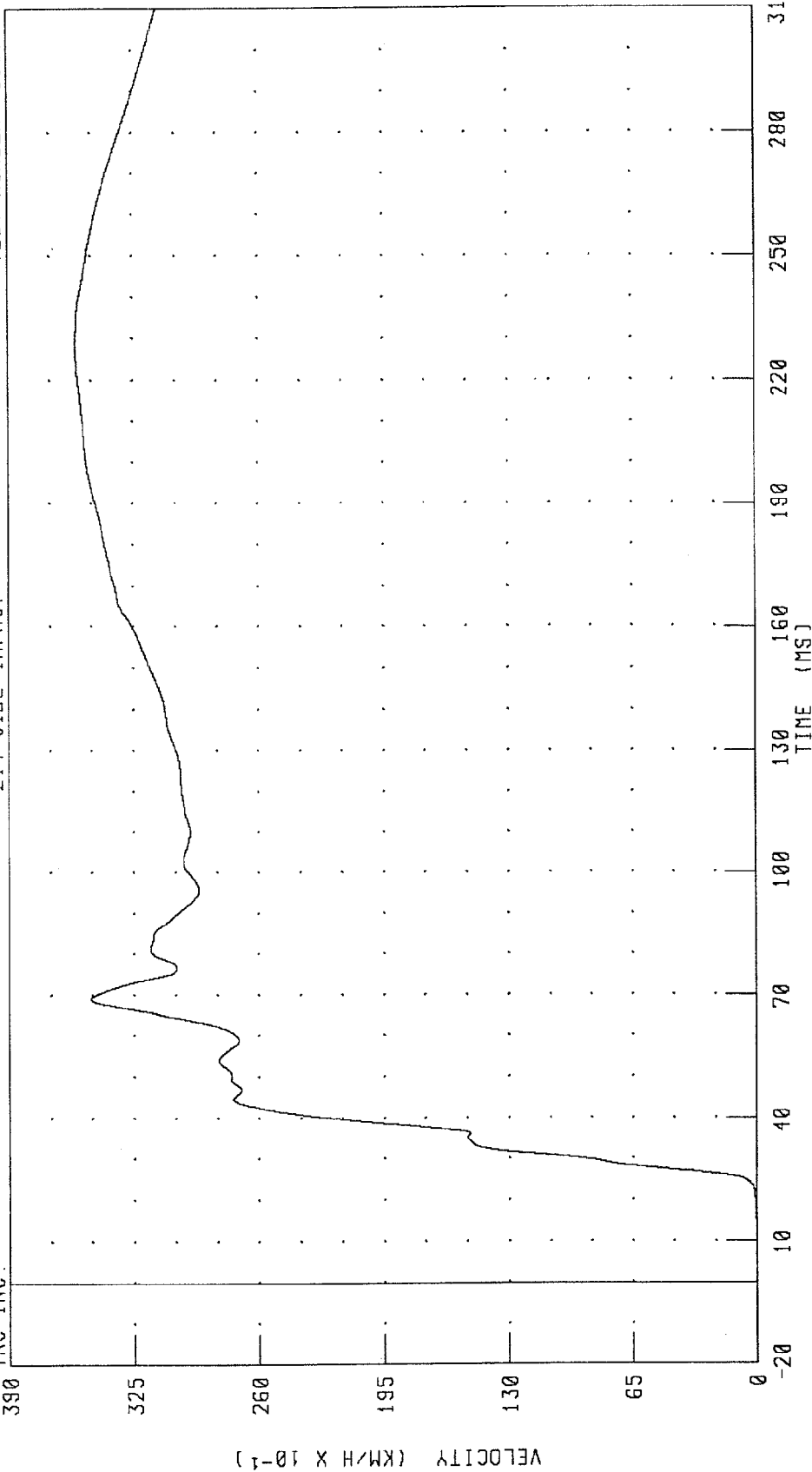
PEAK DATA: 65.37 G @ 40.00 MS; -27.78 G @ 73.13 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

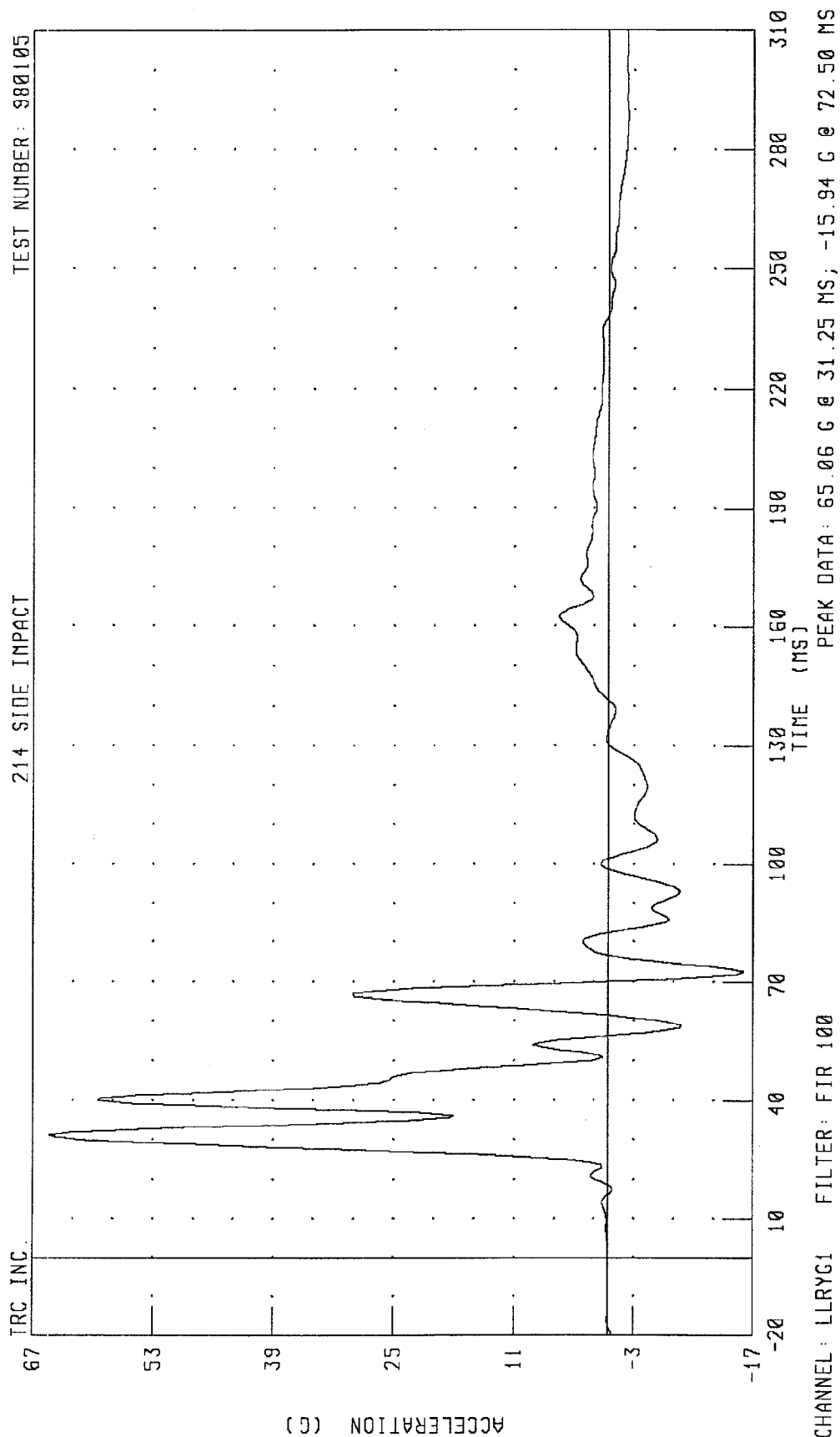
TRC INC.



CHANNEL: LURVY1 FILTER: CH. CLASS 180

PEAK DATA: 35.46 KM/H @ 228.32 MS, 0.00 KM/H @ 1.44 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER RIB Y-AXIS ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER RIB Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 980105

TRC INC.

402

335

268

201

134

67

0

VELOCITY (KM/H X 10⁻¹)

TIME (MS)

130 160 190 220 250 280 310

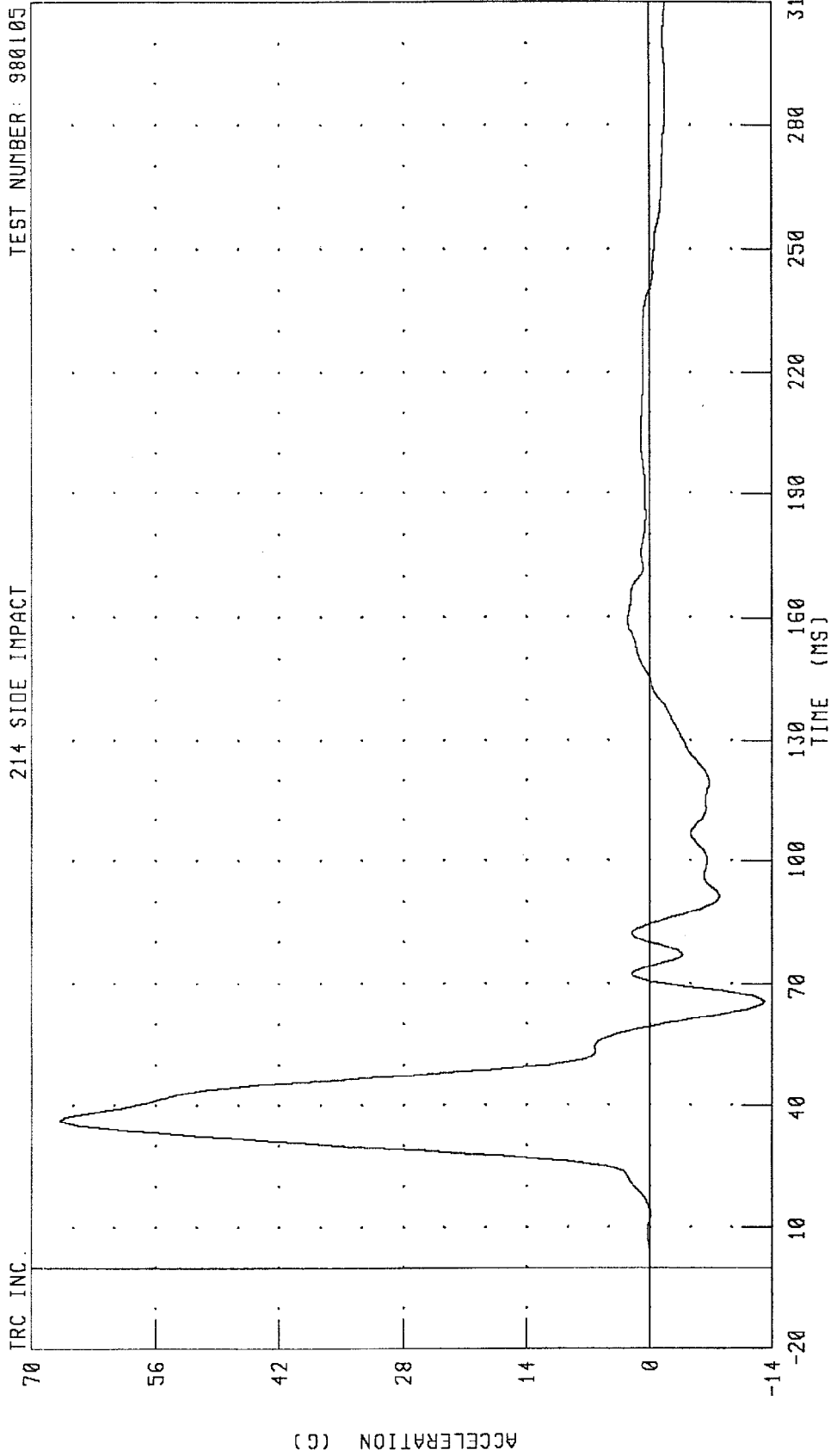
PEAK DATA: 36.83 KM/H @ 69.12 MS; 0.00 KM/H @ 0.72 MS

CHANNEL: LLRYV1 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT



PEAK DATA: 66.73 G @ 36.25 MS; -13.13 G @ 65.63 MS

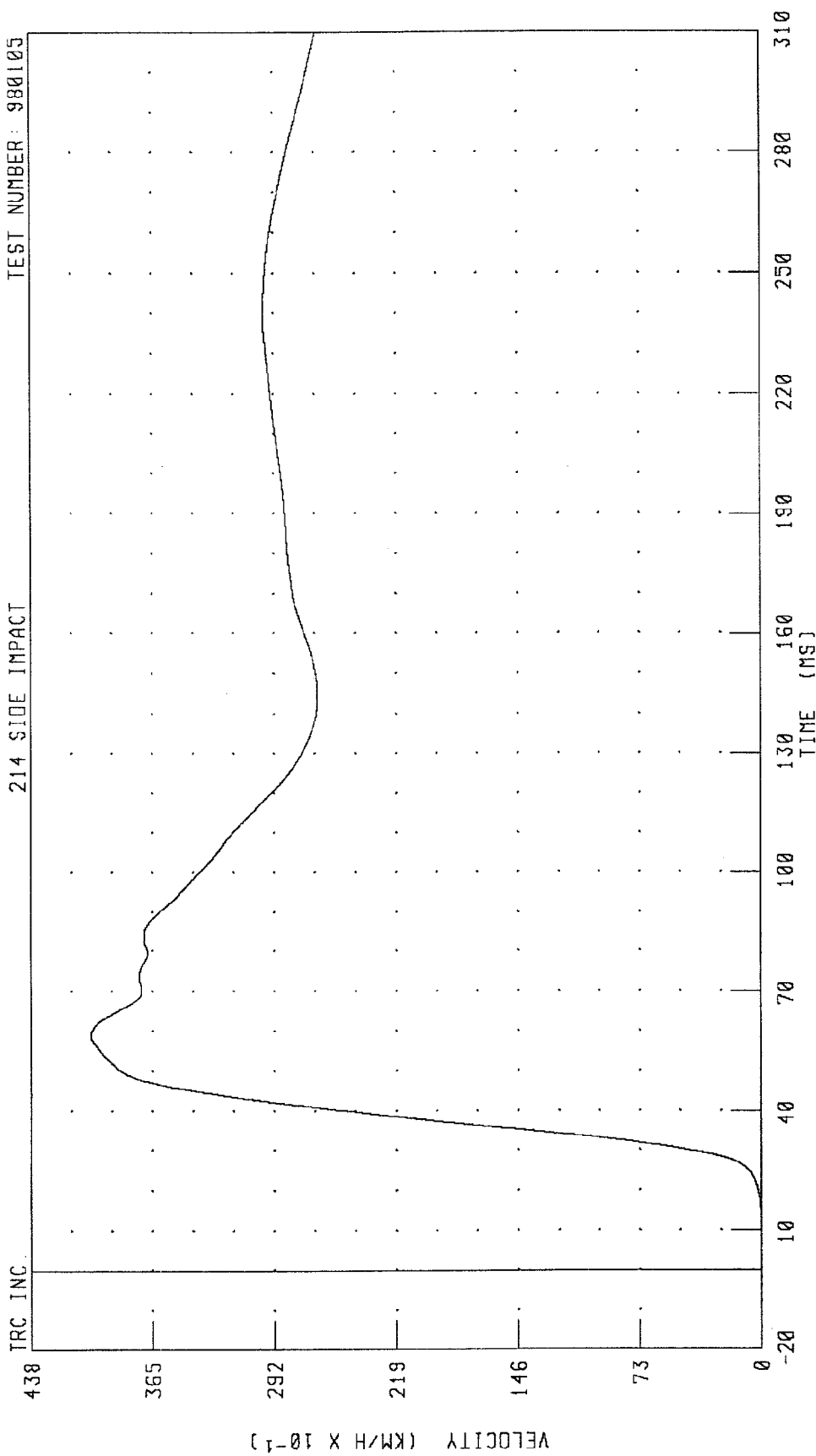
CHANNEL: T12YG1 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: T12YV1 FILTER: CH. CLASS 180

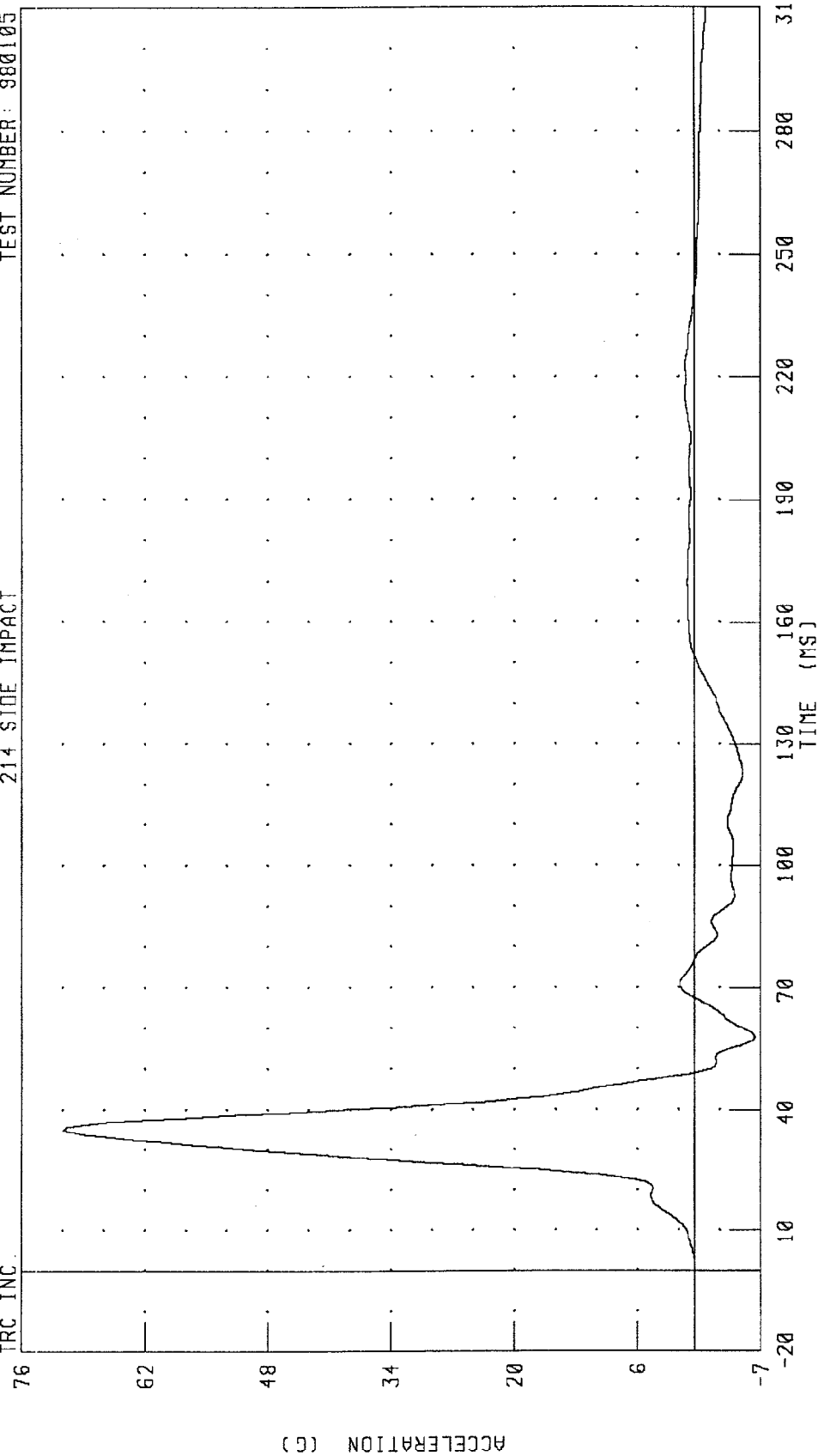
PEAK DATA: 40.21 KM/H @ 58.88 MS; 0.00 KM/H @ 1.84 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: PEVYG1 FILTER: FIR 100

PEAK DATA: 71.76 G @ 35.00 MS, -6.87 G @ 57.50 MS

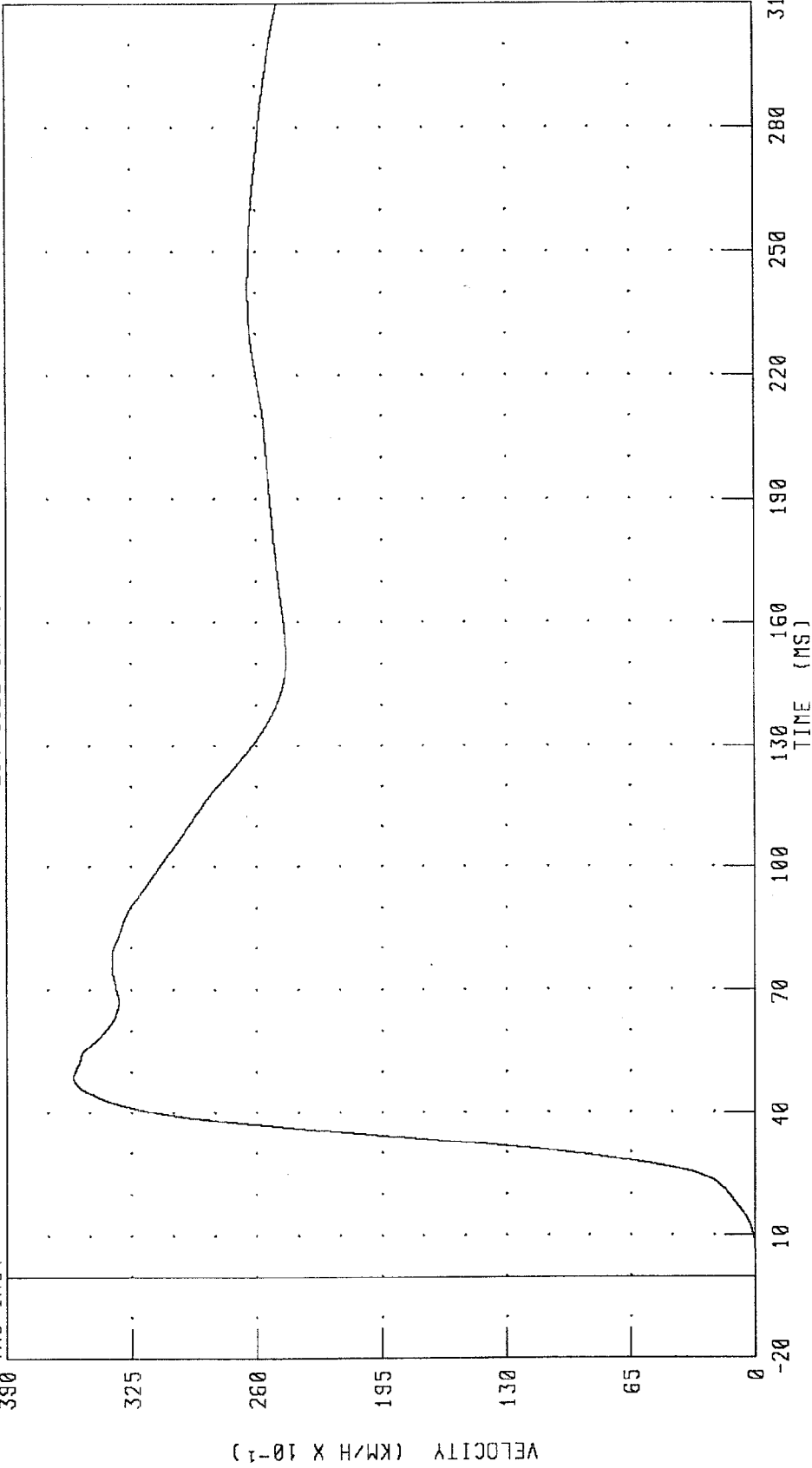
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON

DRIVER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



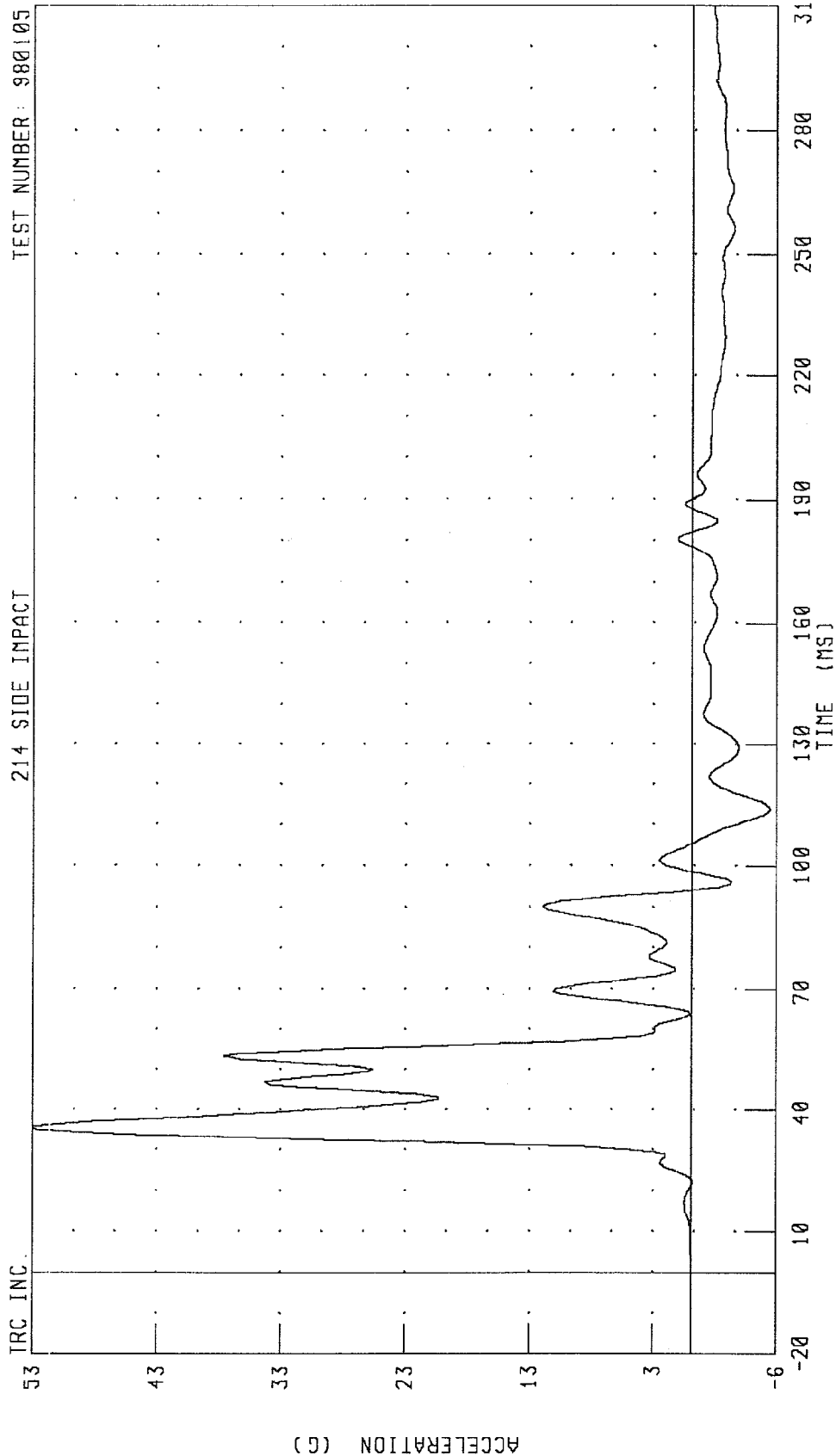
CHANNEL: PEVYV1 FILTER: CH. CLASS 180

PEAK DATA: 35.53 KM/H @ 48.72 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER: 980105

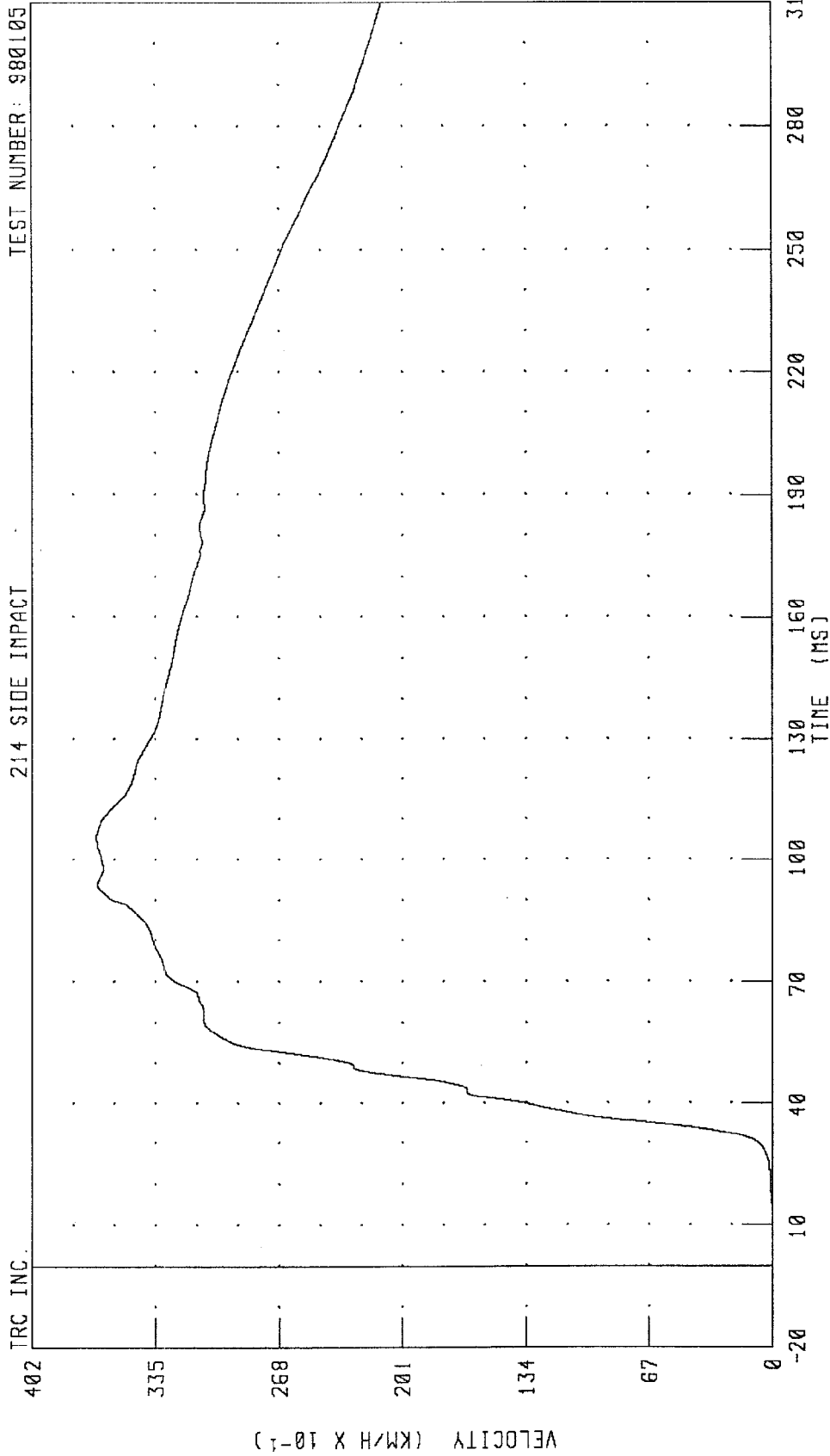
214 SIDE IMPACT



CHANNEL: LURYG4 FILTER: FIR 100

PEAK DATA: 53.16 G @ 35.63 MS; -6.34 G @ 113.75 MS

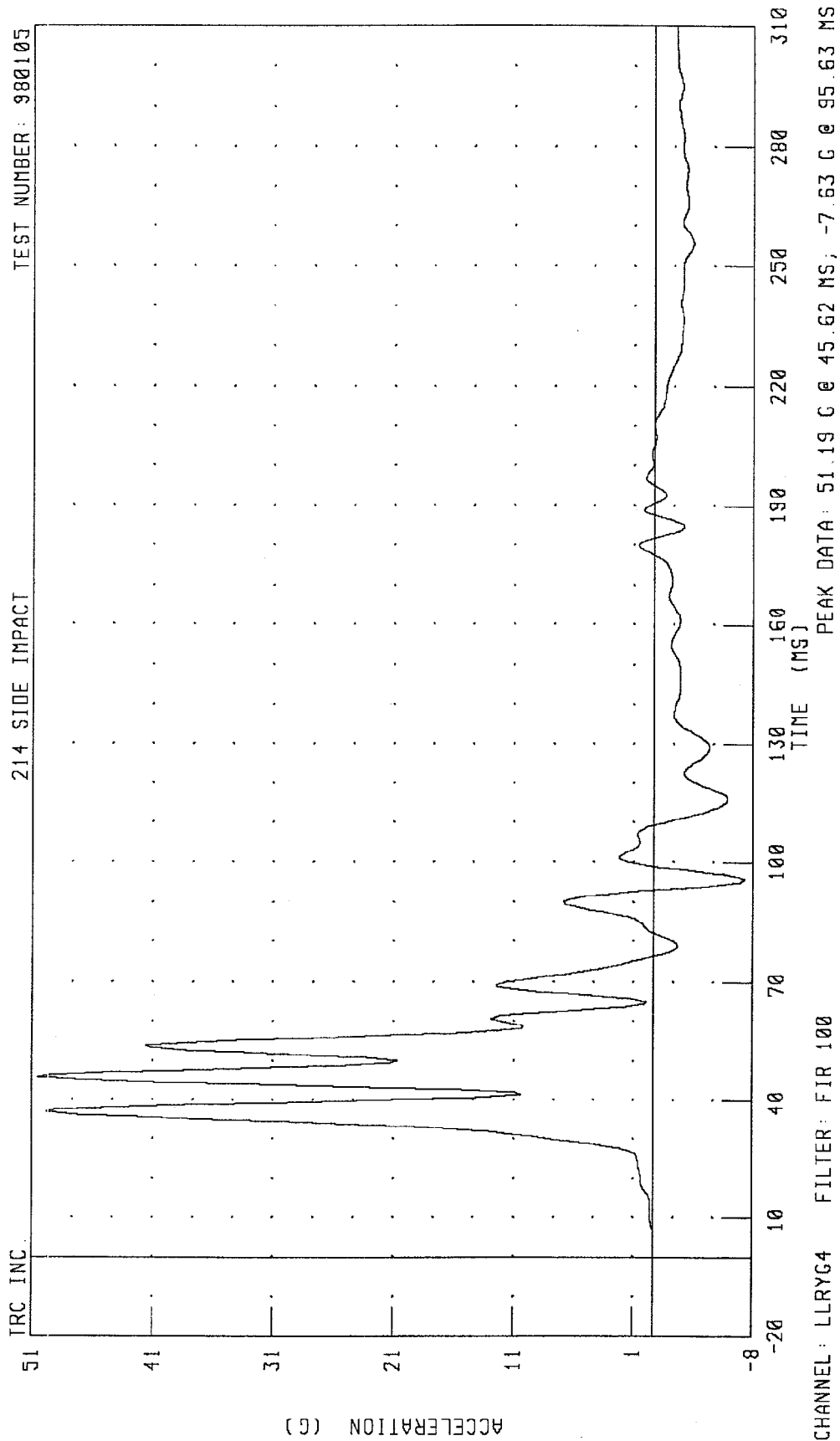
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER UPPER RIB Y-AXIS VELOCITY



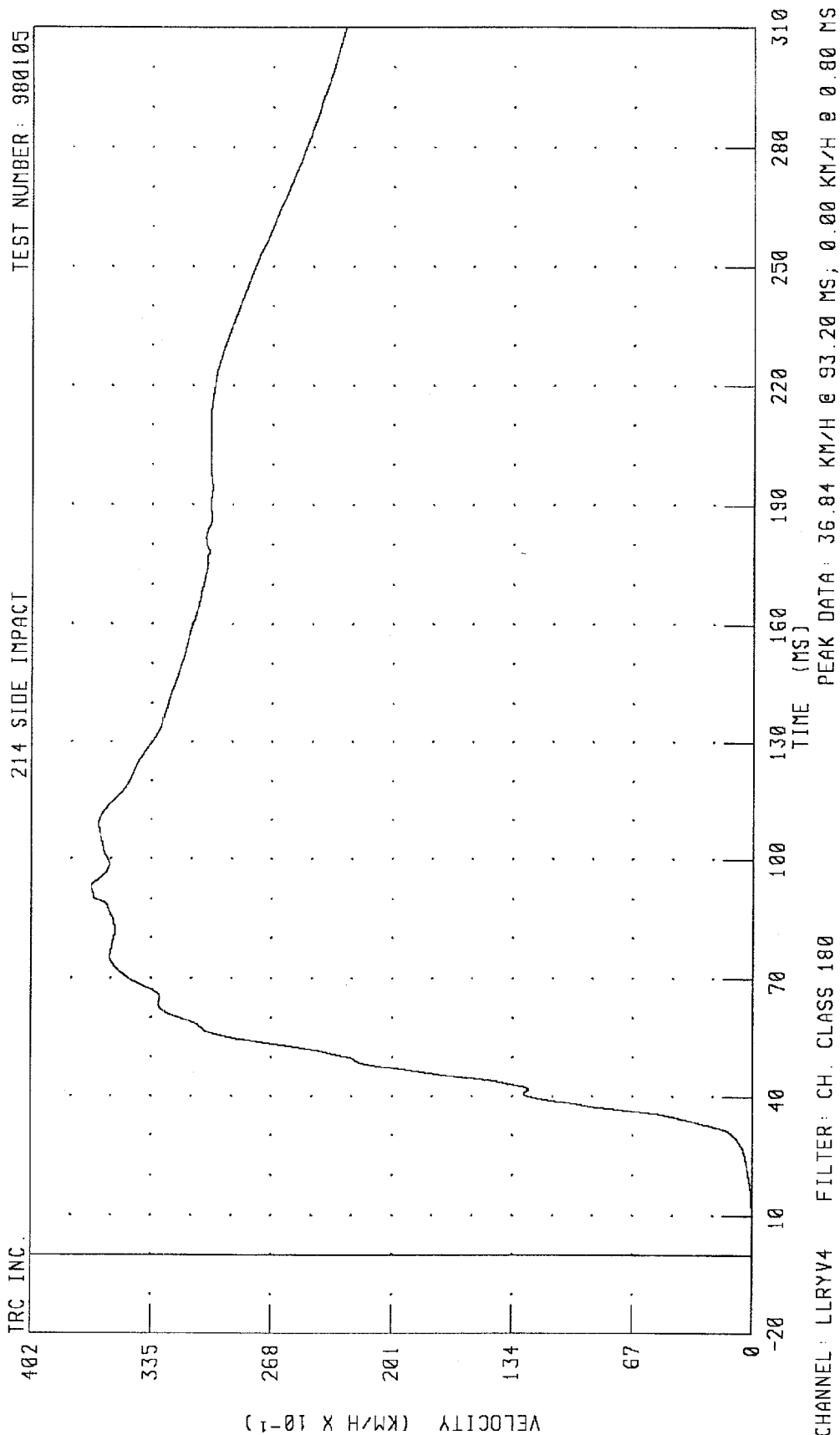
PEAK DATA: 36.71 KM/H @ 105.52 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: LURYV4 FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

IRC INC.

58

47

36

25

14

3

-7

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

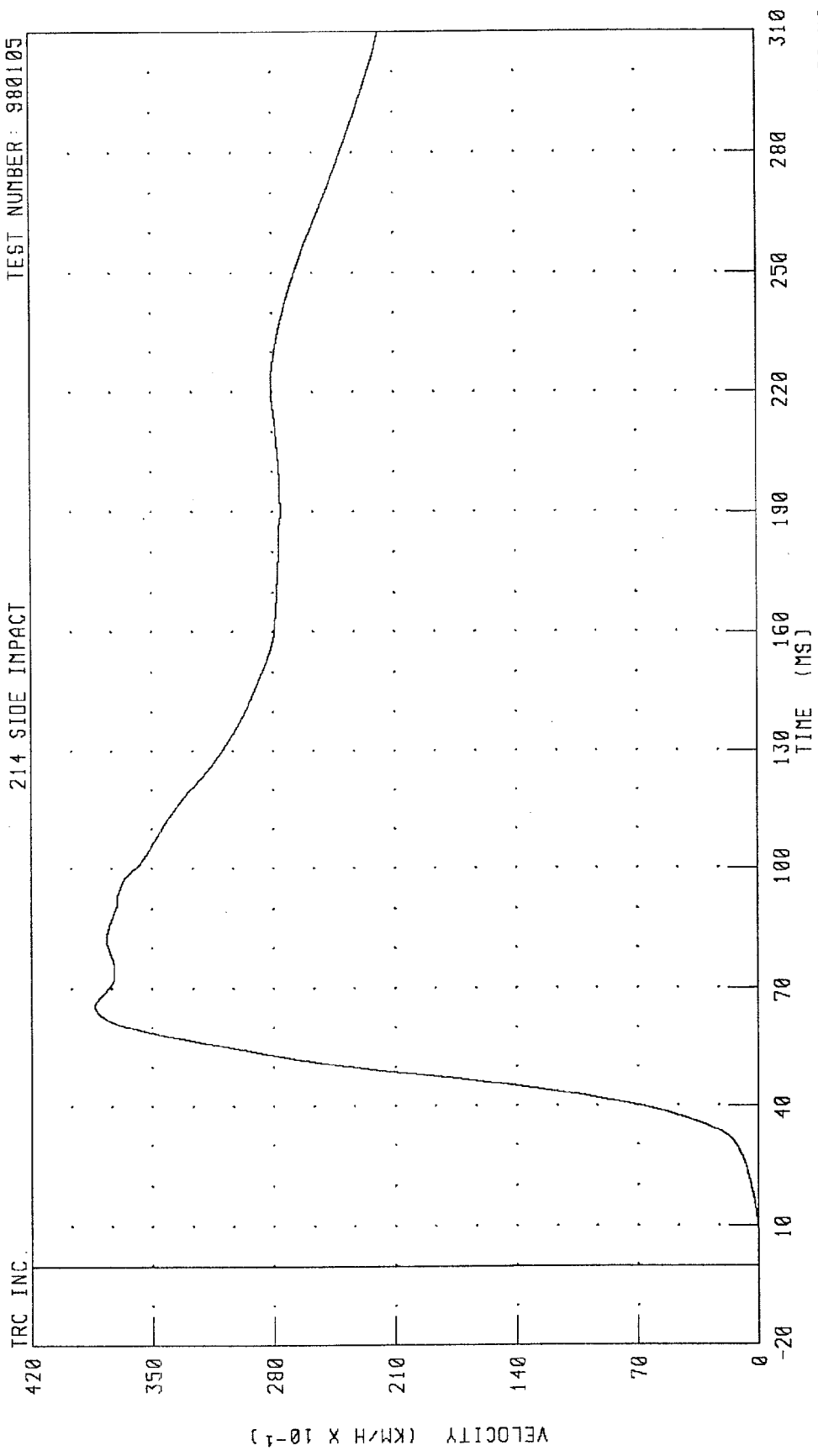
-20

CHANNEL: T12YC4 FILTER: FIR 100

PEAK DATA: 57.89 G @ 48.75 MS, -6.79 G @ 100.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY
 214 SIDE IMPACT

TEST NUMBER: 980105



PEAK DATA: 38.29 KM/H @ 65.60 MS; 0.00 KM/H @ 0.00 MS

CHANNEL: T12YV4 FILTER: CH. CLASS 180

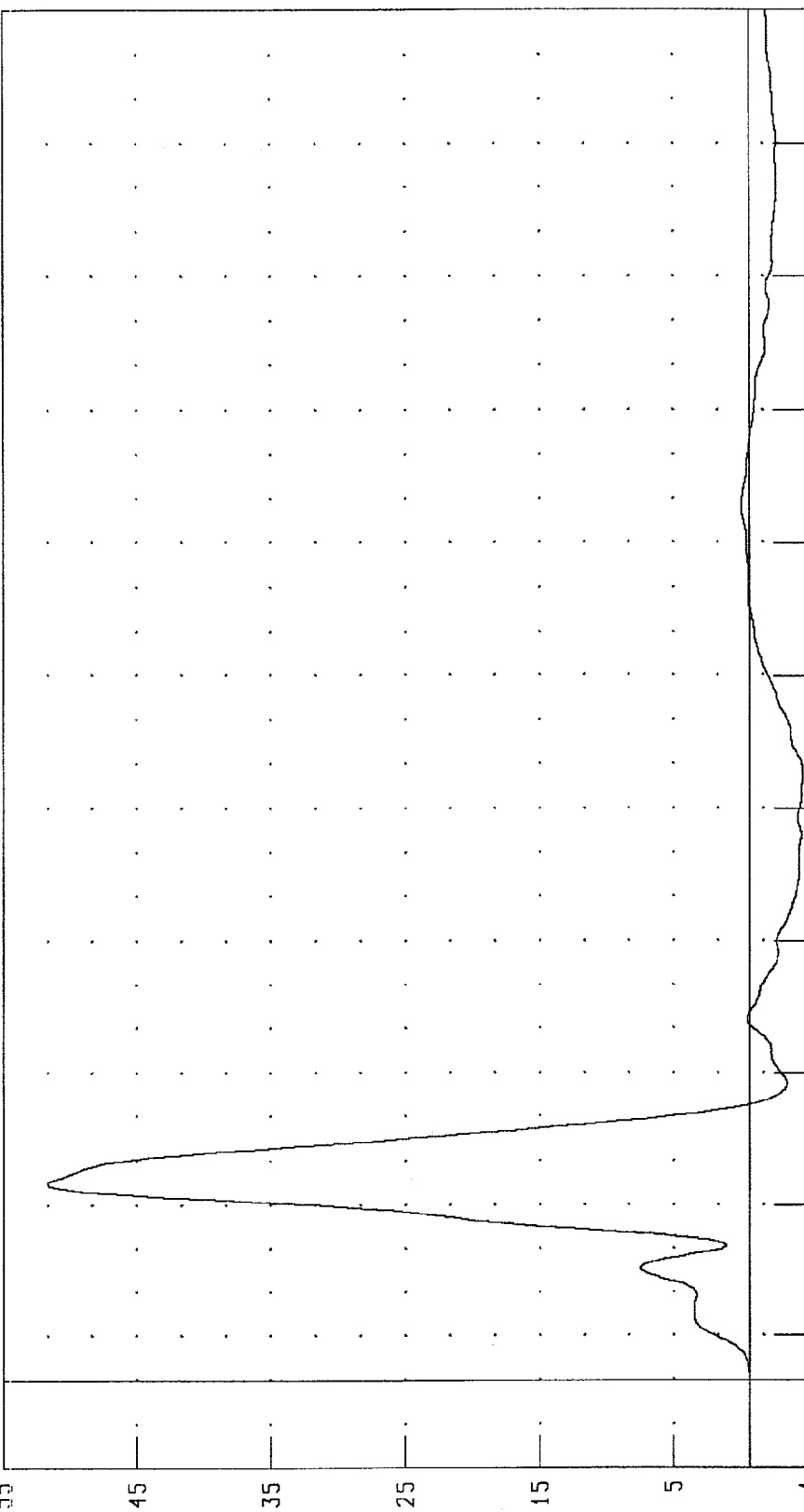
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

55



ACCELERATION (G)

TIME (MS)

CHANNEL: PEY64 FILTER: FIR 100

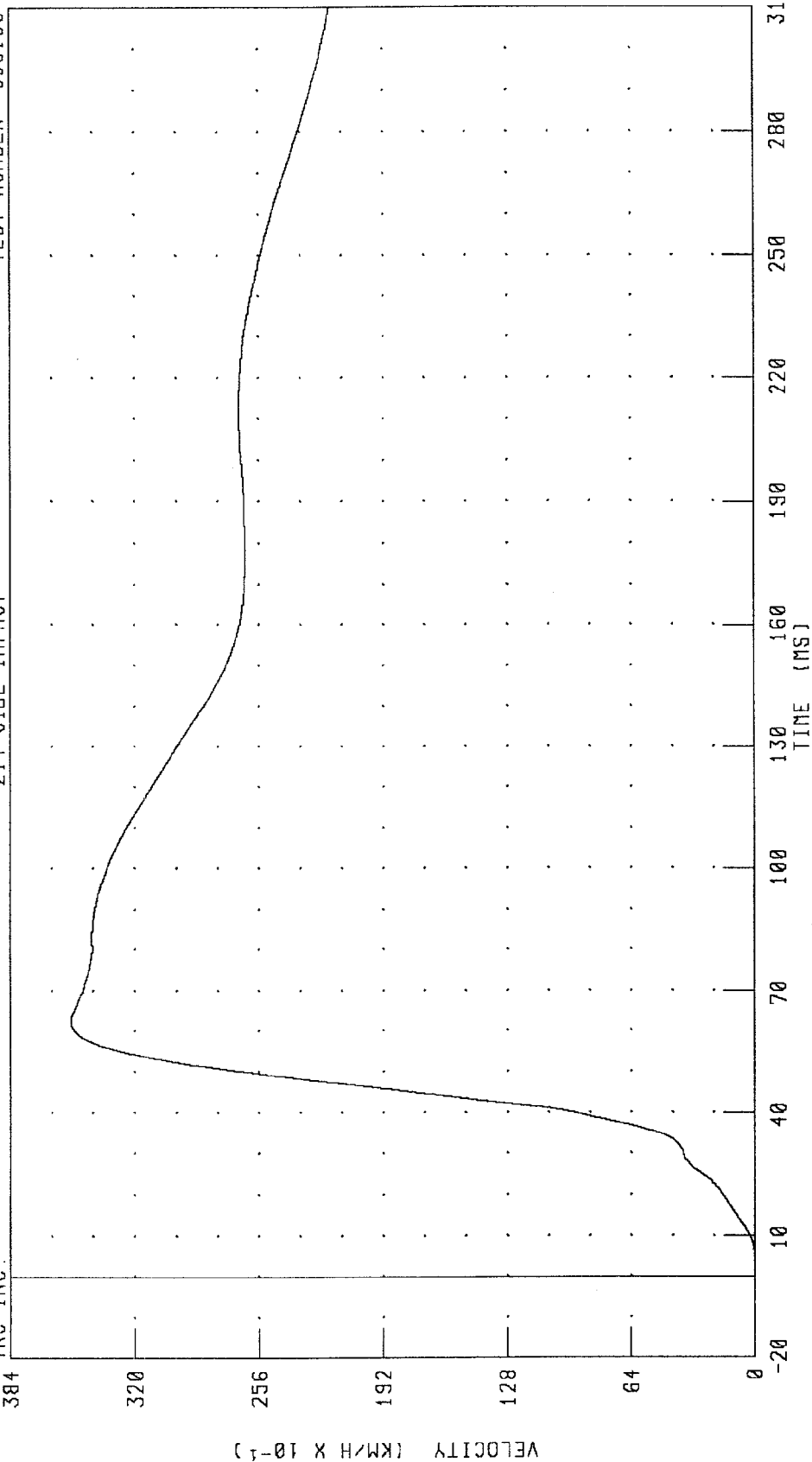
PEAK DATA: 52.34 G @ 45.00 MS, -3.97 G @ 138.13 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

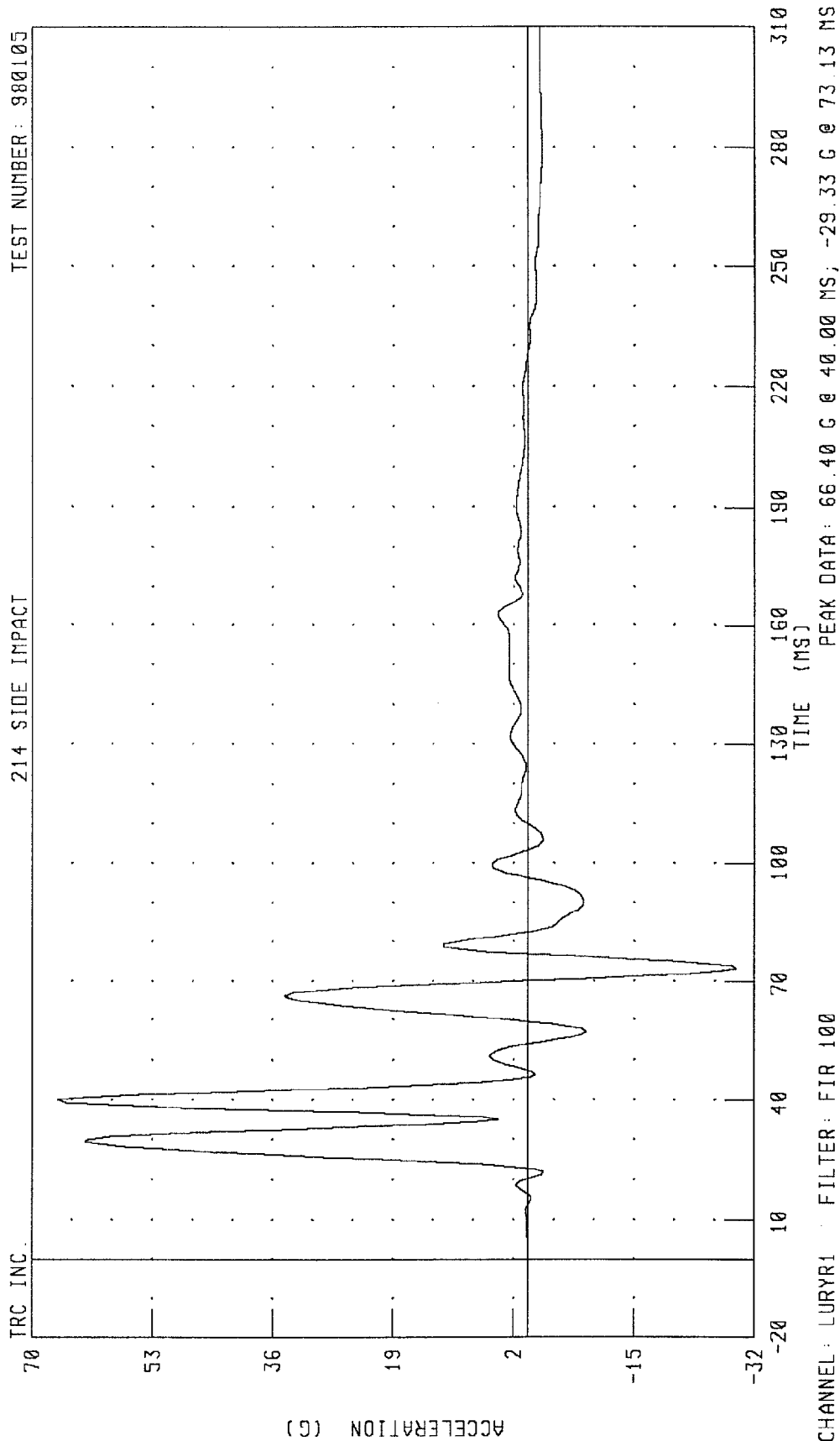


CHANNEL: PEVYV4 FILTER: CH. CLASS 180

PEAK DATA: 35.26 KM/H @ 62.72 MS; 0.00 KM/H @ 1.76 MS

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

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

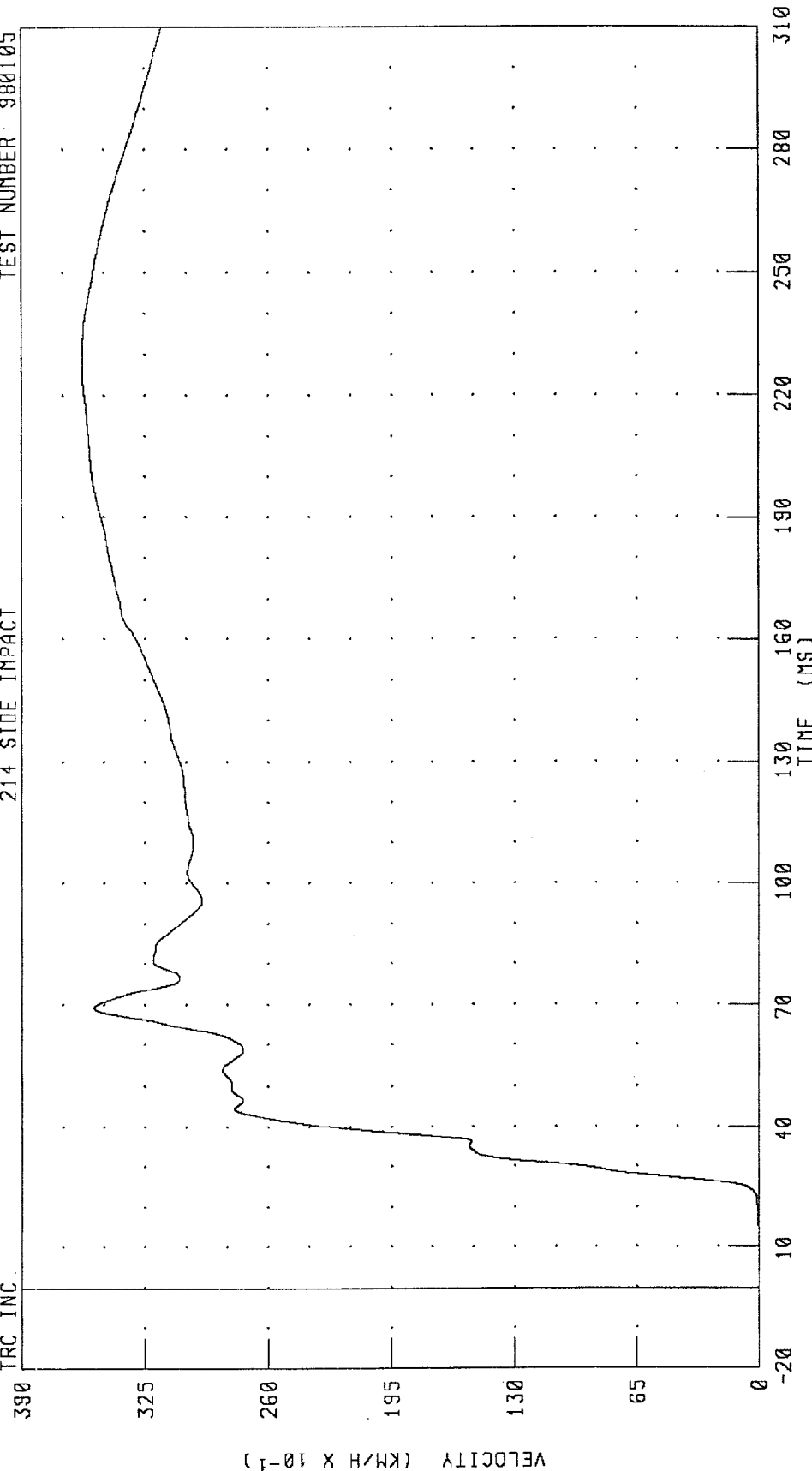


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: LURYVI FILTER: CH. CLASS 180

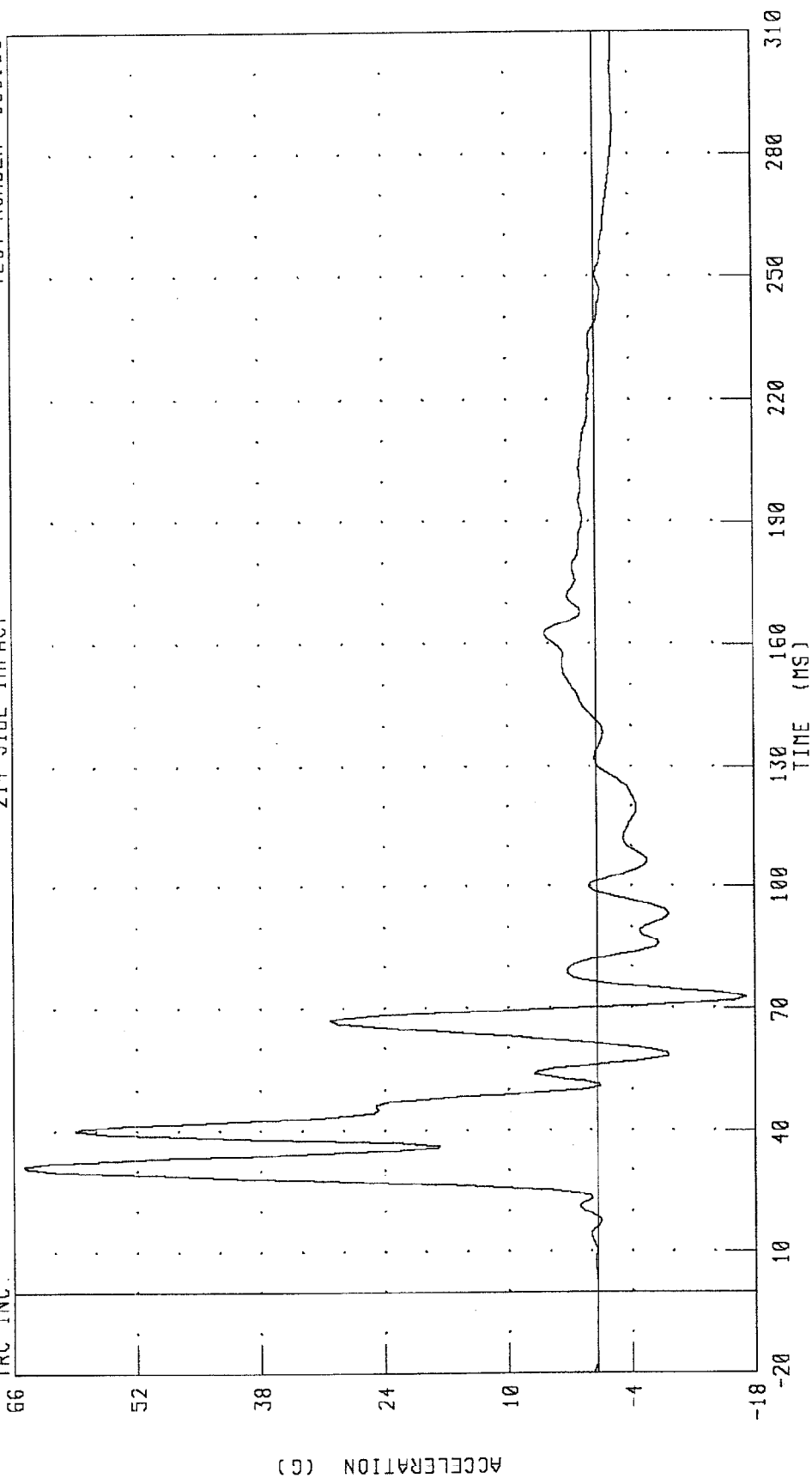
PEAK DATA: 35.81 KM/H @ 228.24 MS; 0.00 KM/H @ 2.80 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: LLRYR1 FILTER: FIR 100

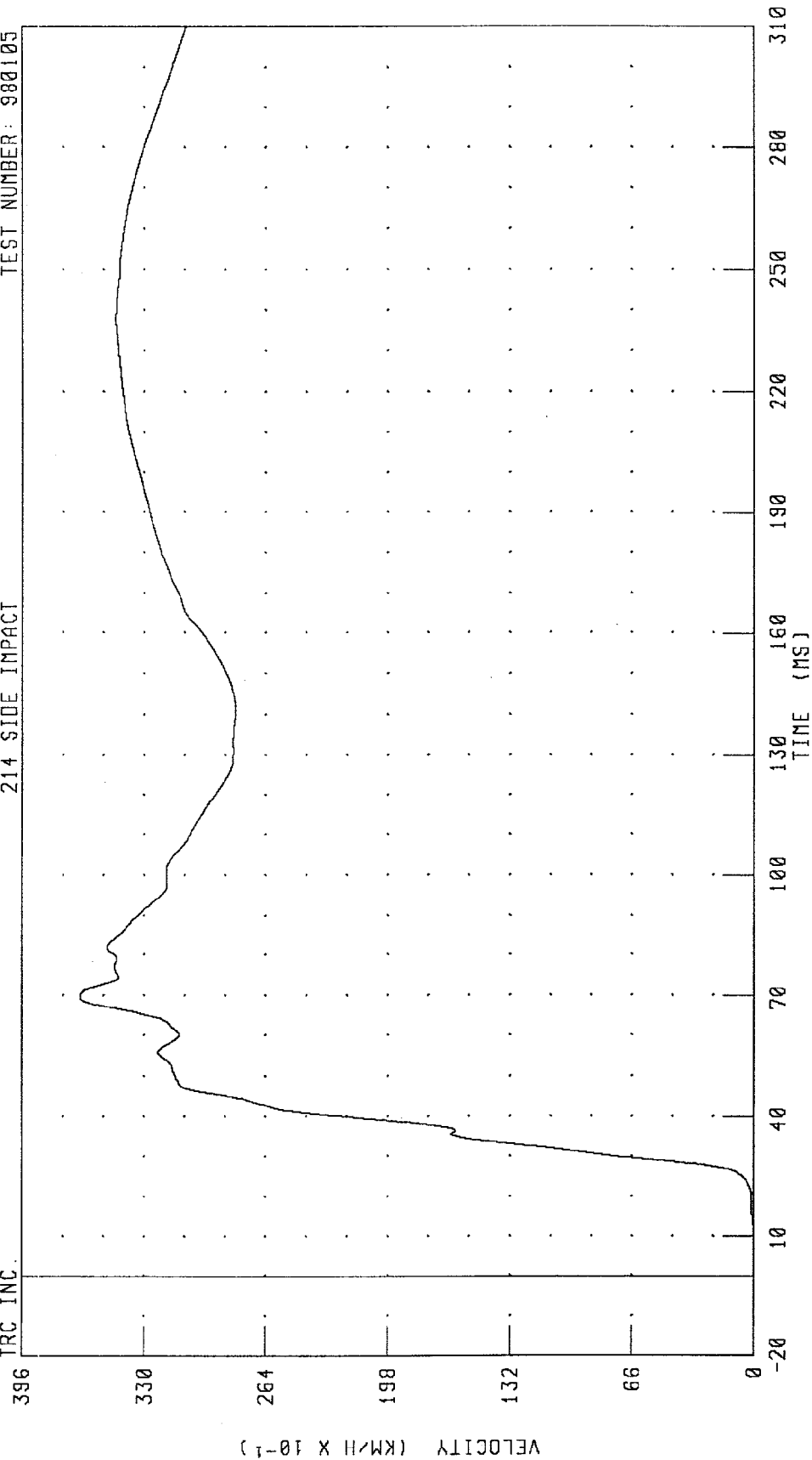
PEAK DATA: 64.75 G @ 31.25 MS; -17.05 G @ 72.50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



CHANNEL: LLRYVI FILTER: CH. CLASS 180

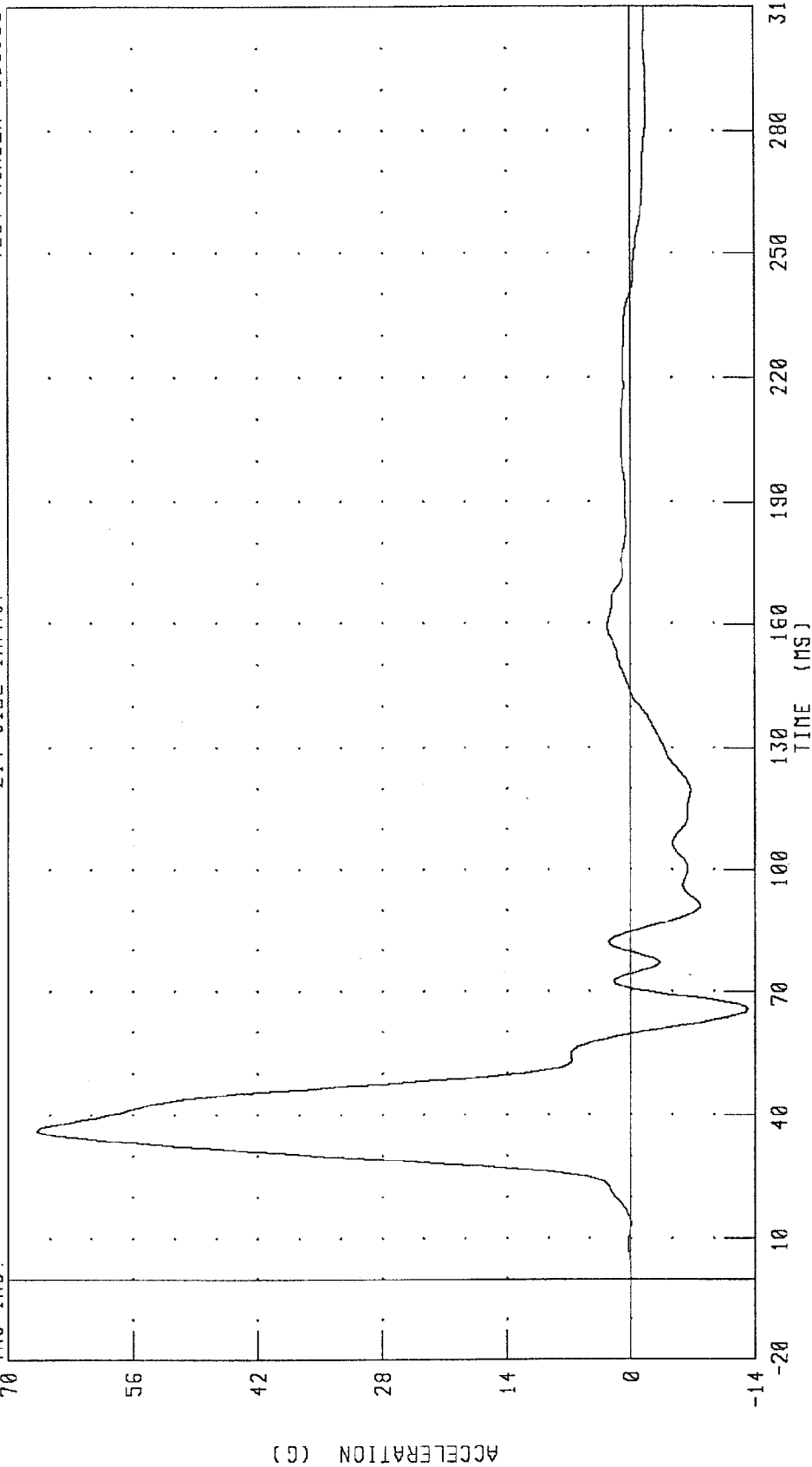
PEAK DATA: 36.46 KM/H @ 69.52 MS; 0.00 KM/H @ 0.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

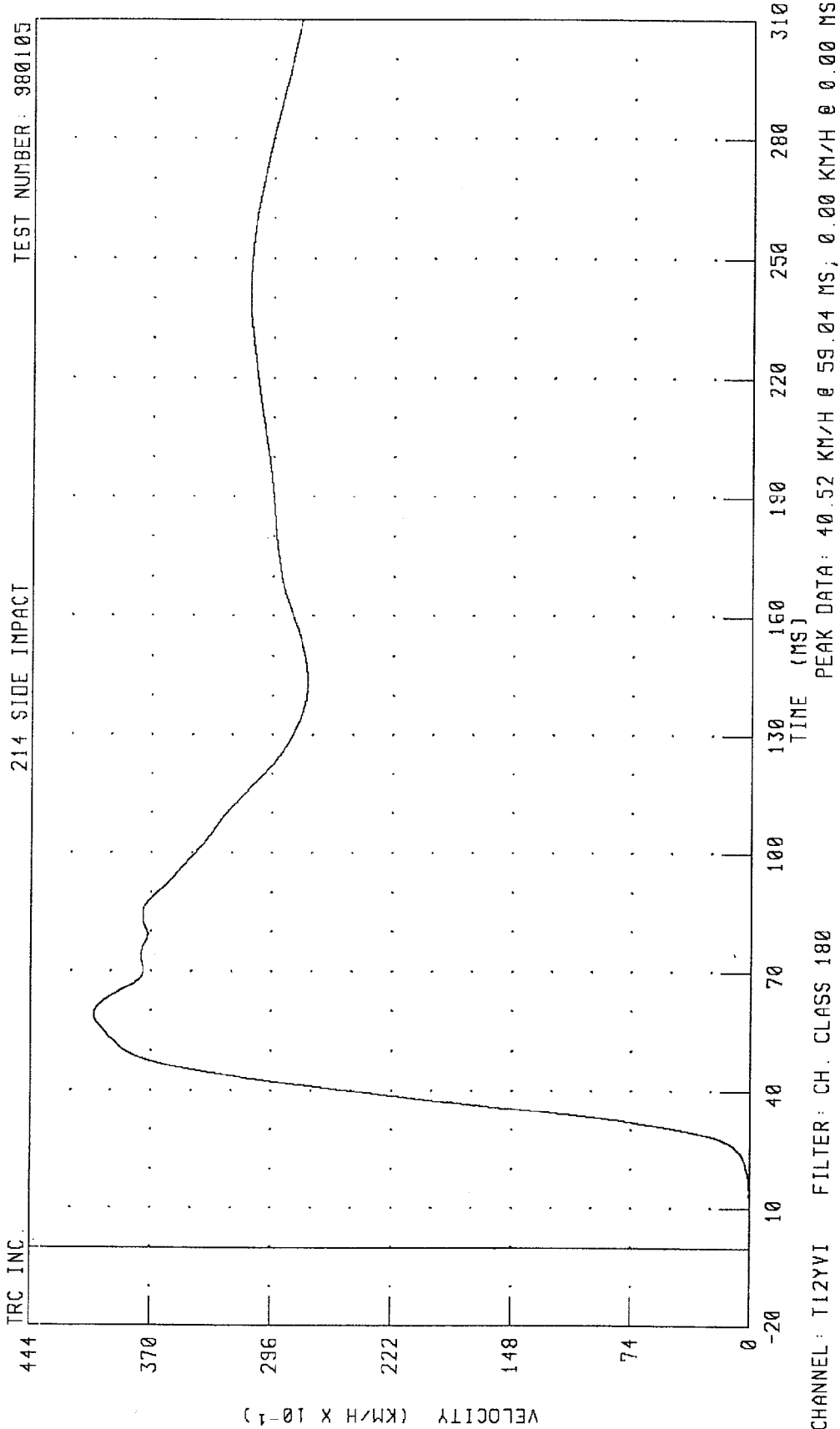
TRC INC.



CHANNEL: T12YR1 FILTER: FIR 100

PEAK DATA: 66.78 G @ 36.25 MS; -13.16 G @ 65.63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

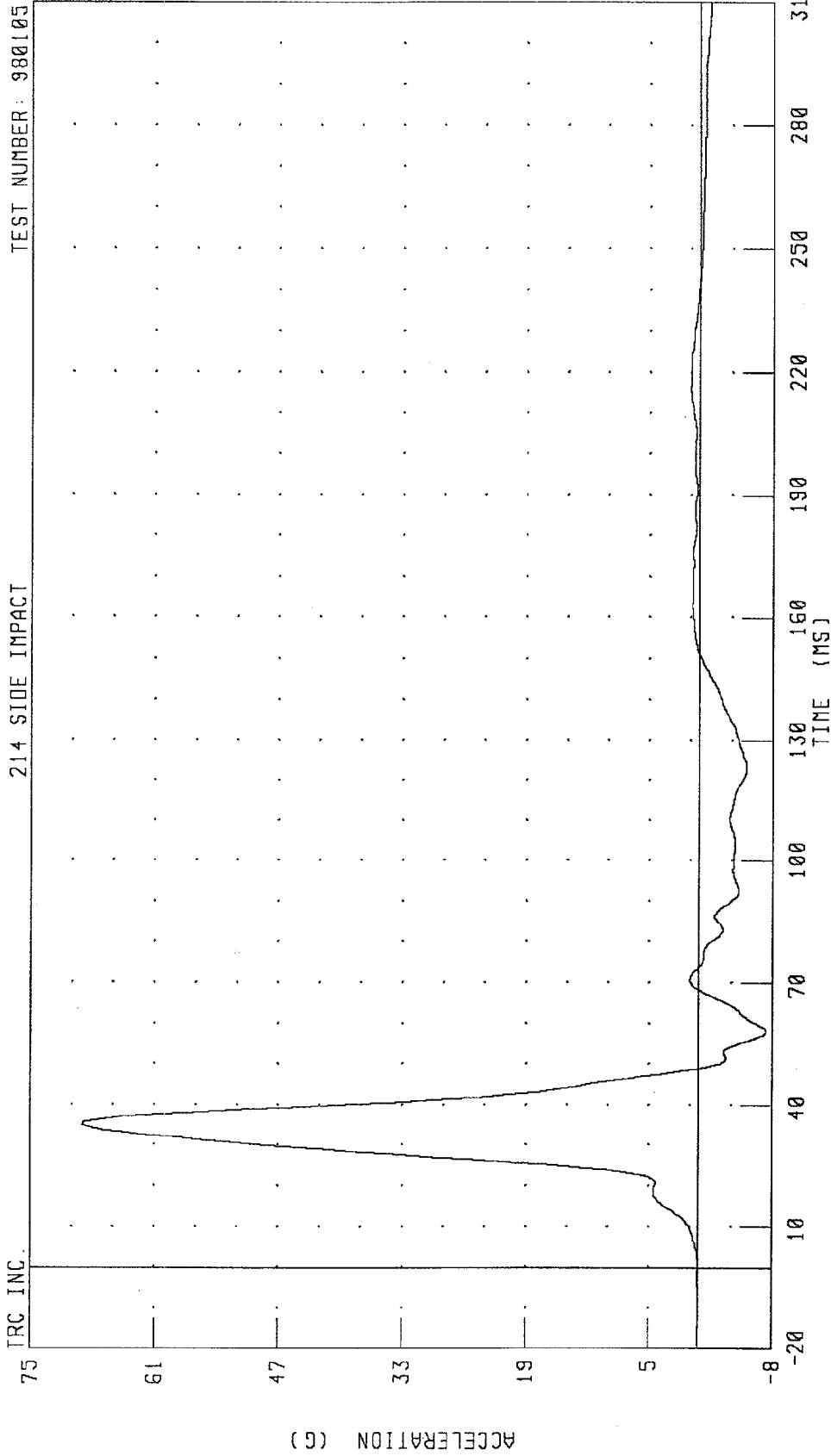


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

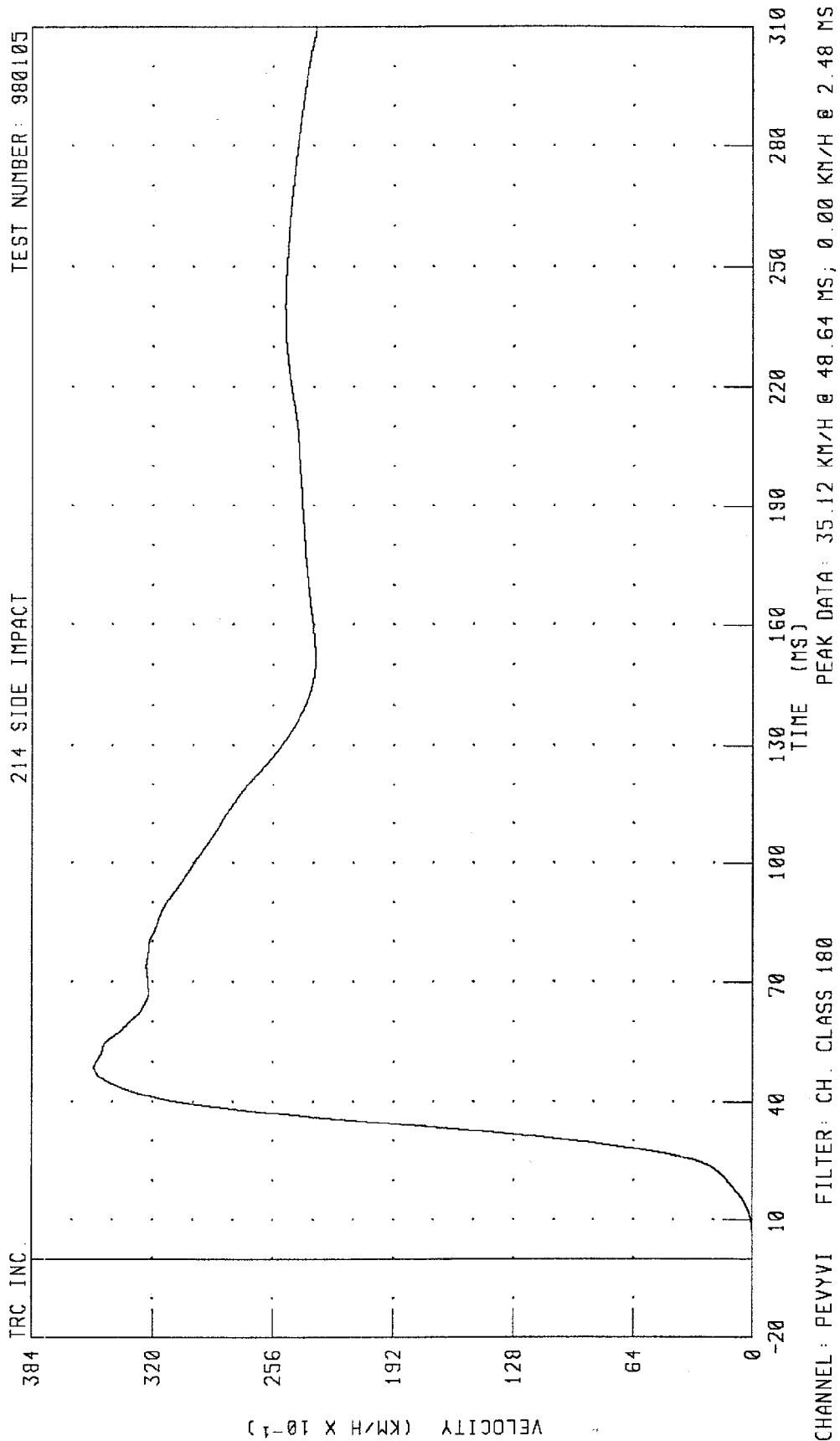
TRC INC.



CHANNEL: PEVYR1 FILTER: FIR 100

PEAK DATA: 69.79 G @ 35.00 MS; -7.64 G @ 58.13 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 DRIVER PELVIS Y-AXIS REDUNDANT VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.

53

43

33

23

13

3

-6

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

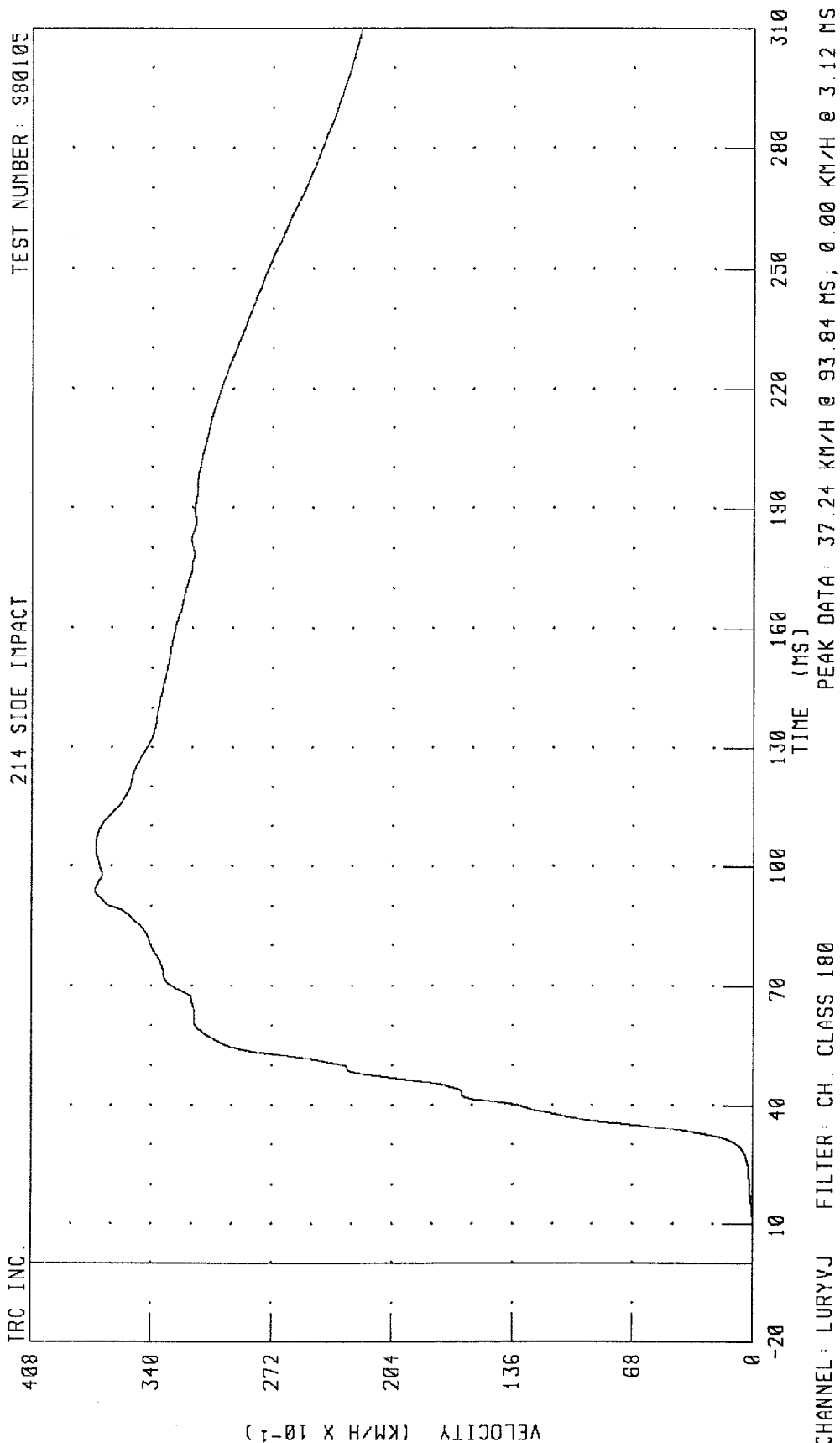
10

-20

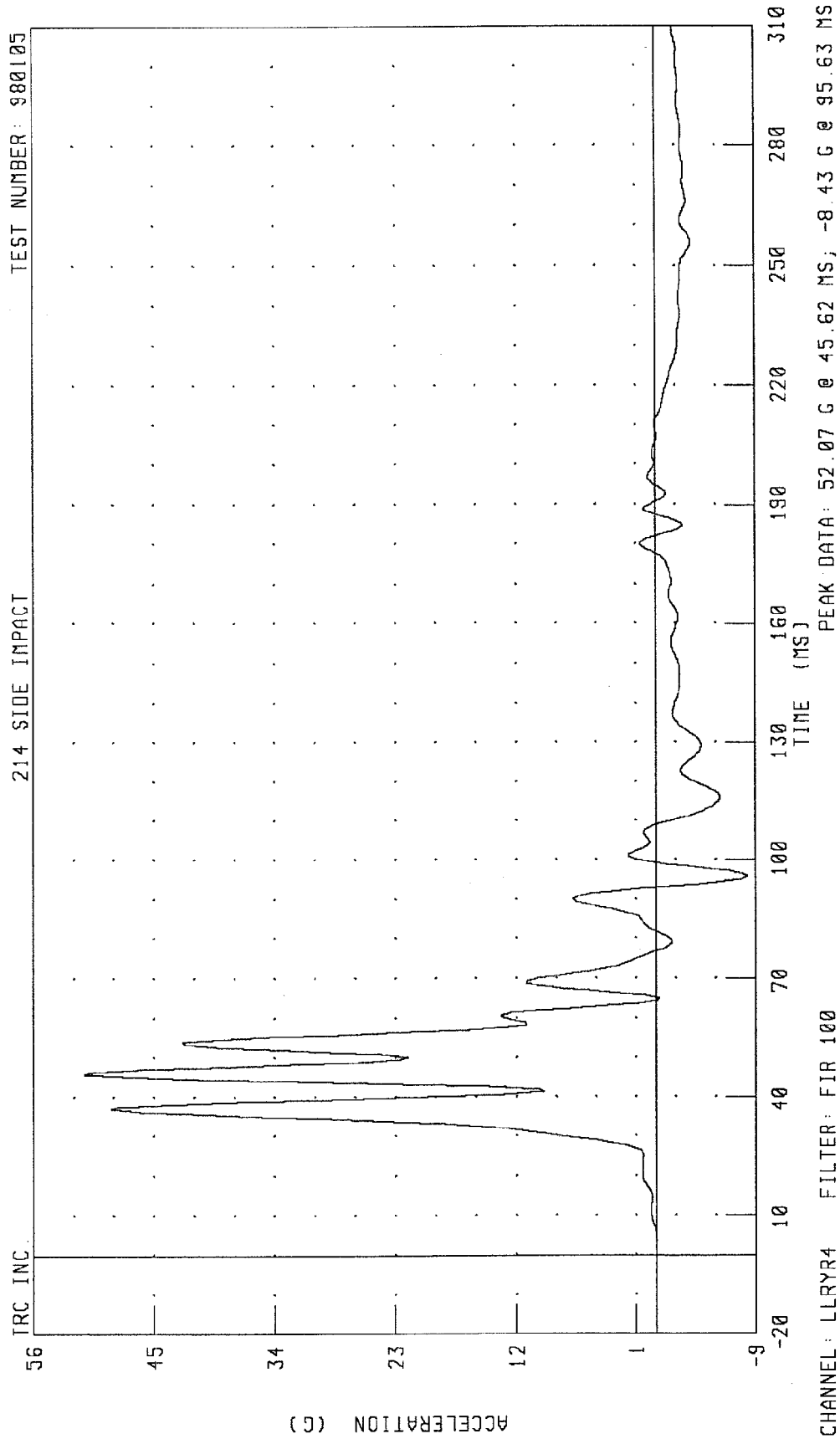
CHANNEL: LURYR4 FILTER: FIR 100

PEAK DATA: 52.11 G @ 35.63 MS; -6.02 G @ 113.75 MS

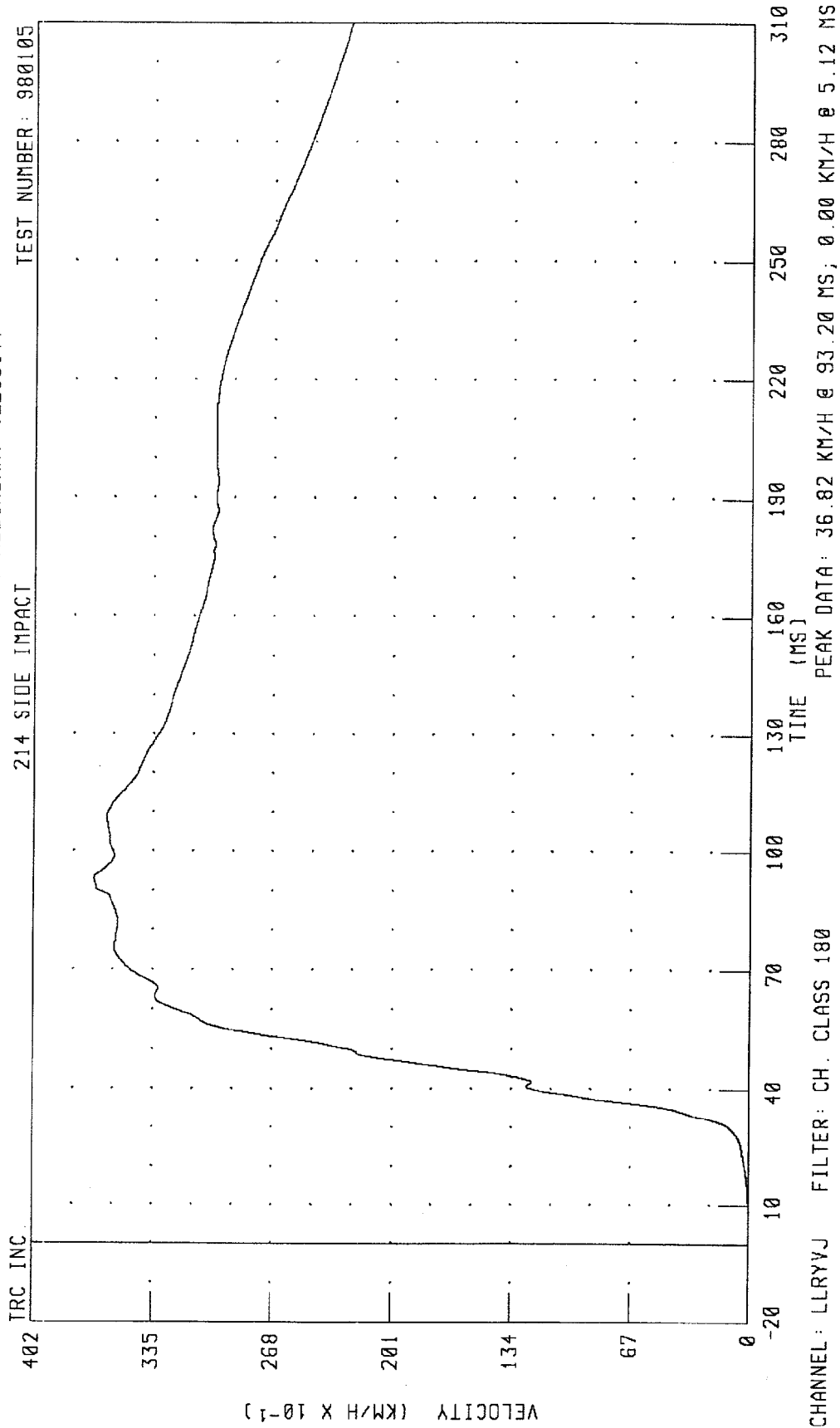
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY



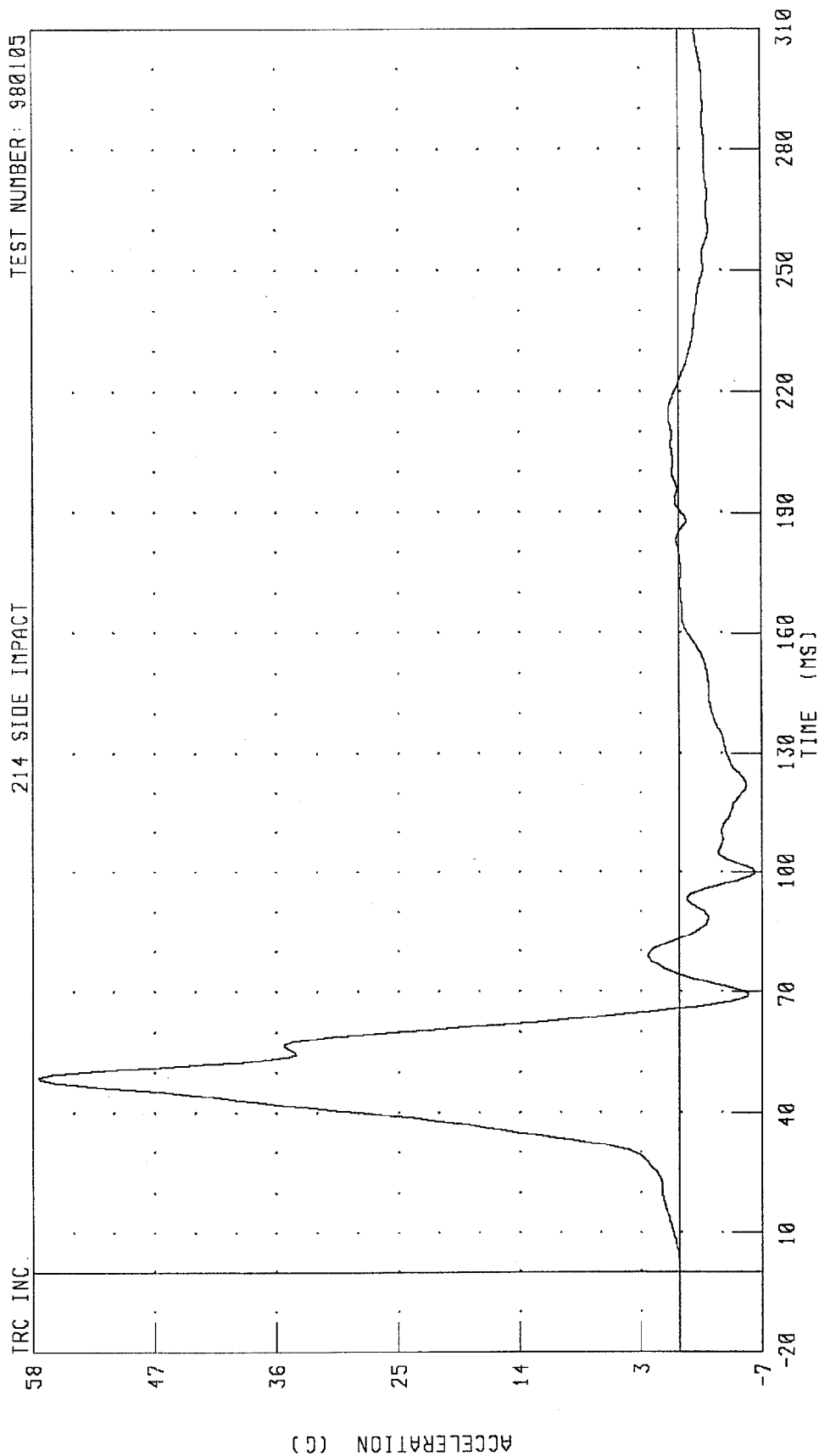
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
 LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT VELOCITY



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

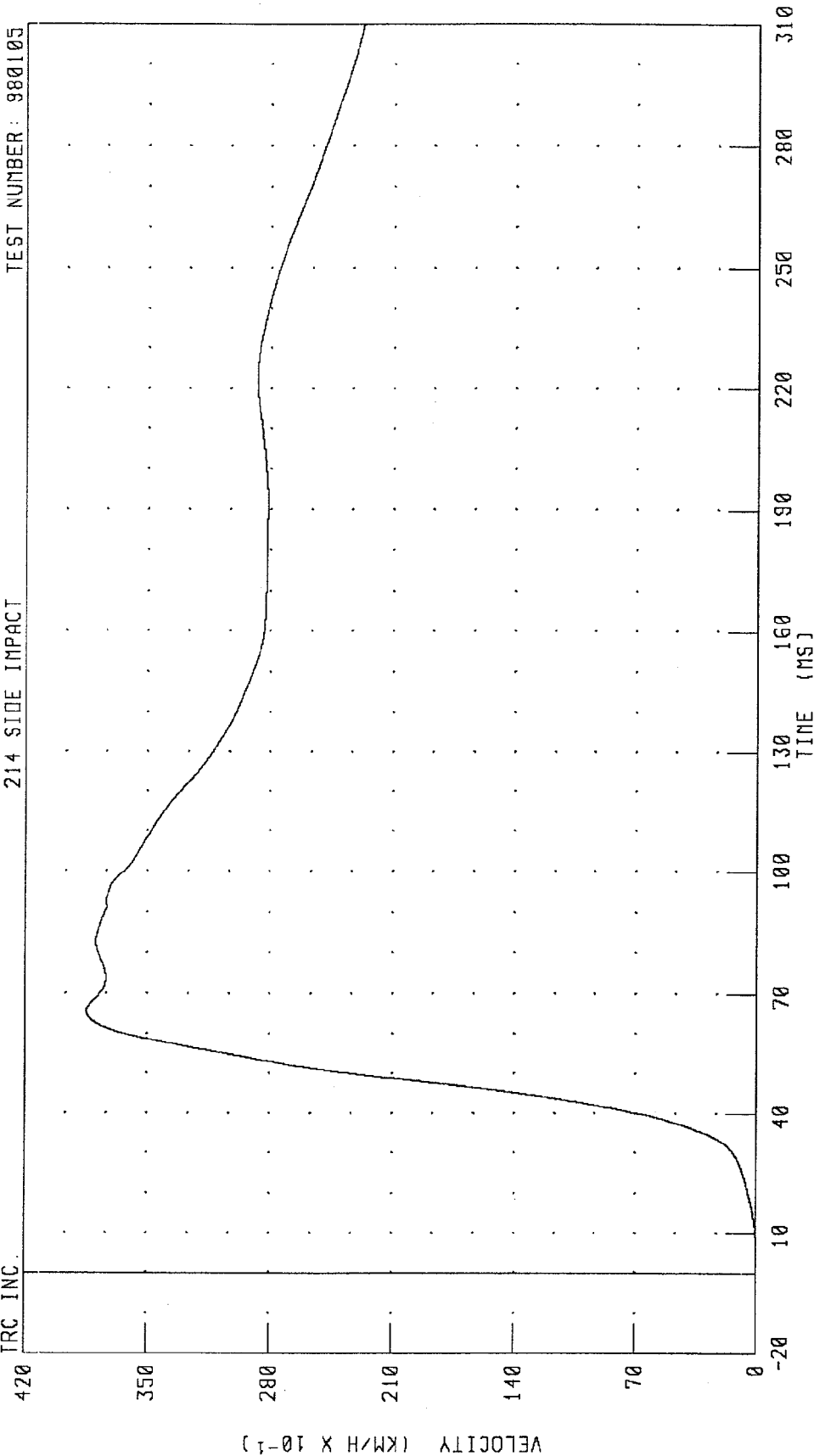


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 980105

214 SIDE IMPACT

TRC INC.



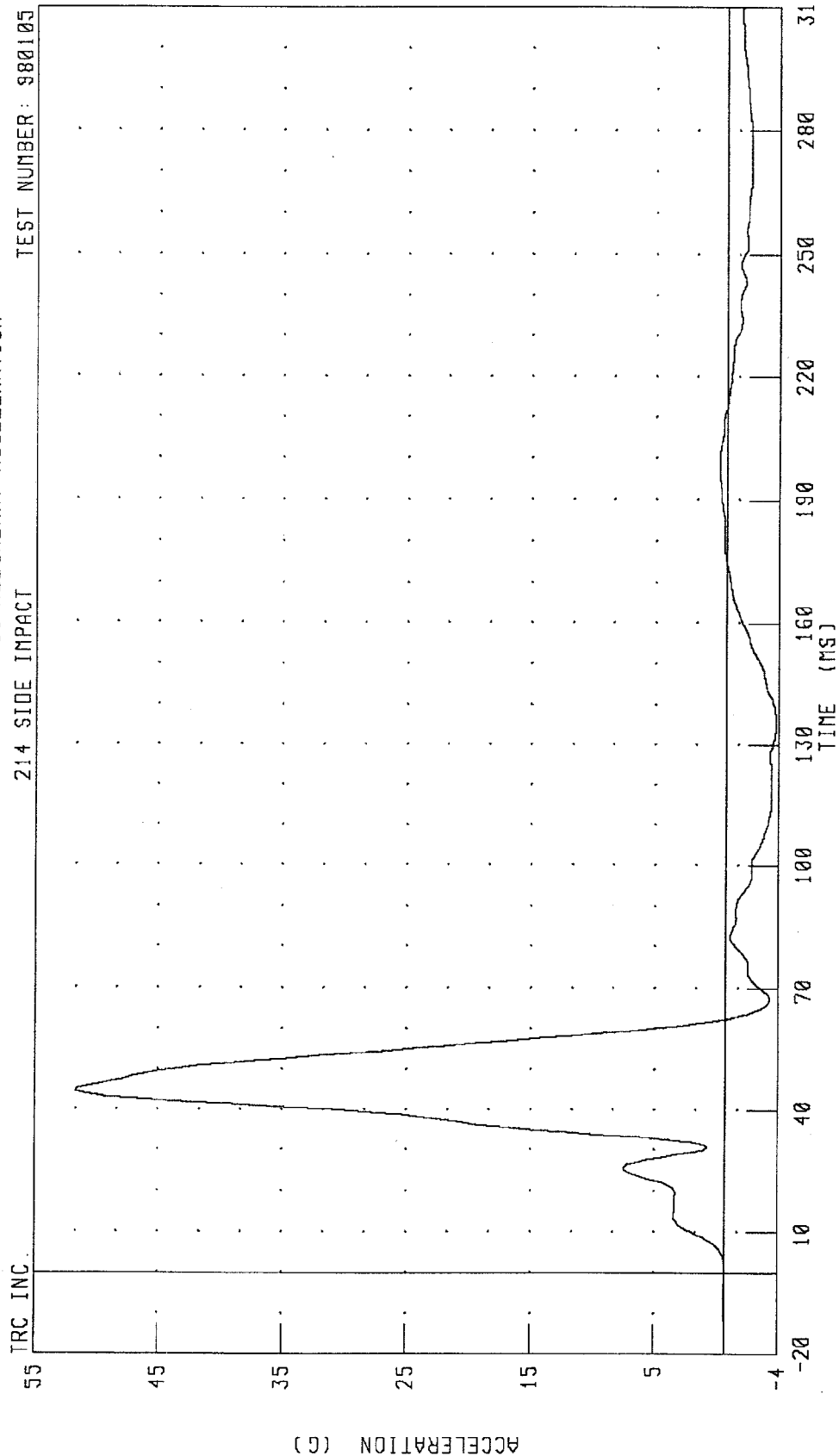
PEAK DATA: 38.48 KM/H @ 65.68 MS; 0.00 KM/H @ 3.12 MS

CHANNEL: T12YVJ FILTER: CH. CLASS 180

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 980105

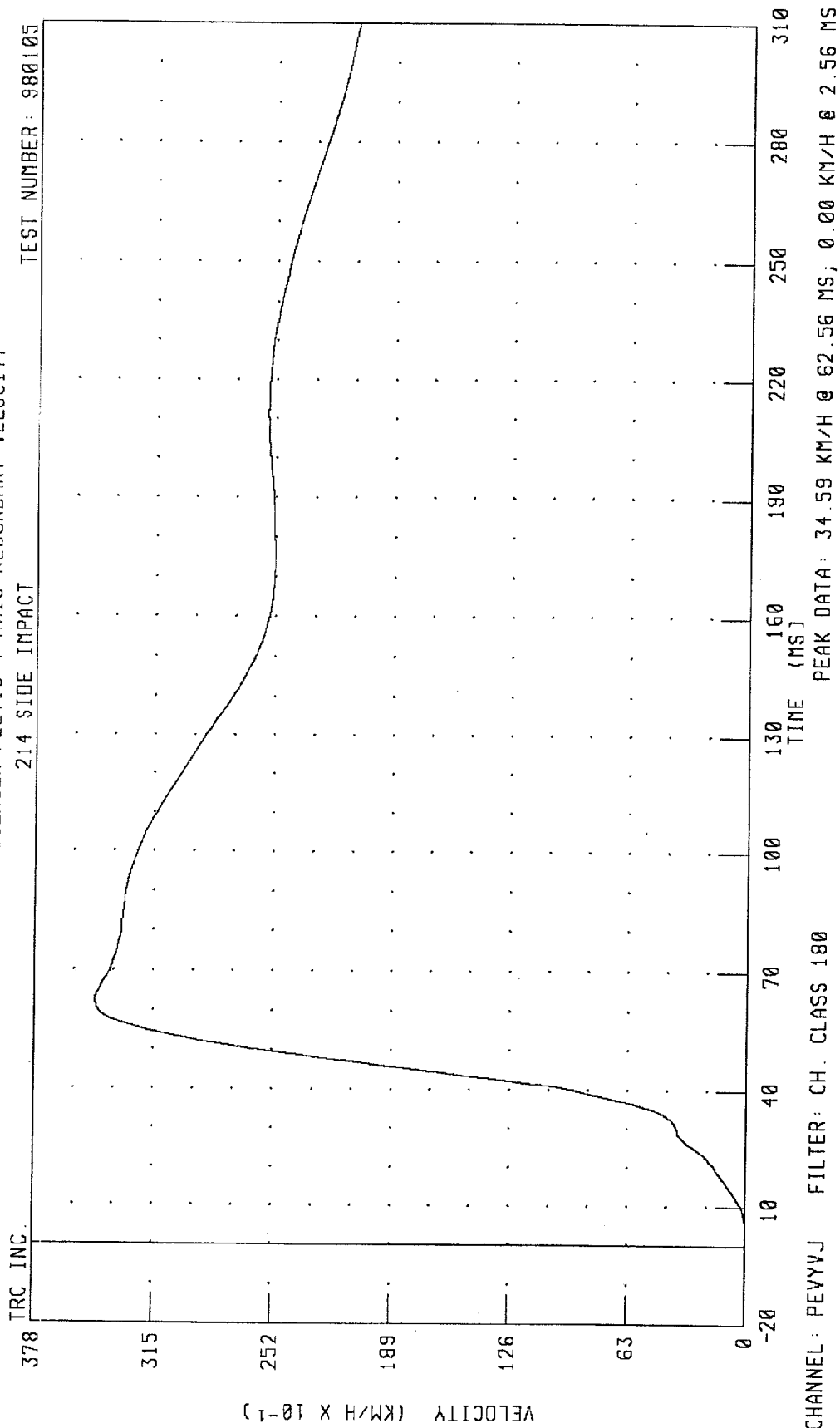
214 SIDE IMPACT



CHANNEL: PEVYR4 FILTER: FIR 100

PEAK DATA: 52.36 G @ 44.38 MS; -3.99 G @ 136.25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1998 HYUNDAI TIBURON
LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY



APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE-TEST AND POST-TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 12/23/97 TRC sequential test number: ED5204
Laboratory Technician: S. Ericksen, B. Crabtree

Test Parameter	Specification	SID 052		SID 051	
		Pre-	Post-	Pre-	Post-
		Test	Test	Test	Test
SH - seated height (mm)	889-909	894.1	894.1	894.1	894.1
RH - Rib Height (mm)	502-520	508.0	508.0	515.6	515.6
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	241.3	241.3
KV - Knee Pivot from Back Line (mm)	511-526	525.8	525.8	525.8	525.8
SW - Knee Pivot to Floor (mm)	490-505	490.2	490.2	492.8	492.8
HW - Hip Width (mm)	356-391	373.4	373.4	370.8	370.8
THORAX IMPACTS					
Temperature (°C)	18.9-25.5	21.7	21.1	21.1	21.1
Relative Humidity (%)	10-70	35	54	35	54
Probe Speed (m/s)	4.27-4.33	4.31	4.22	4.30	4.30
Upper Rib (g's)	37-46	-40.6	-44.1	-39.2	-38.5
Lower Rib (g's)	37-46	-39.5	-42.9	-37.7	-39.6
Lower Spine (g's)	15-22	-16.5	-18.0	-17.4	-17.3
PELVIS IMPACTS					
Temperature (°C)	18.9-25.5	21.7	21.1	21.1	21.1
Relative Humidity (%)	10-70	35	54	35	54
Probe Speed (m/s)*	4.27-4.33	4.22	4.23	4.22	4.23
Pelvis (g's)*	40-60	-45.5	-46.5	-47.7	-43.9

Note: The probe speeds for the thorax and pelvis impacts are not in spec.

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 SN52 VECTOR

23-DEC-97

TRC INC. TEST NO: ED5204 572F SN52 EXT.DIMENSION CAL04

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		60.0 %
SH	SEATED HEIGHT	889 - 909 MM	894.1 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	525.8 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	490.2 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	508.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 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

Scott Eubank

RUN NUMBER: 111997.1313

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

23-DEC-97

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: STL5204A

572F SN52 LEFT THORAX CAL04

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	35.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.31 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-40.6 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-39.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-16.5 G

TEST MEETS SPECIFICATIONS

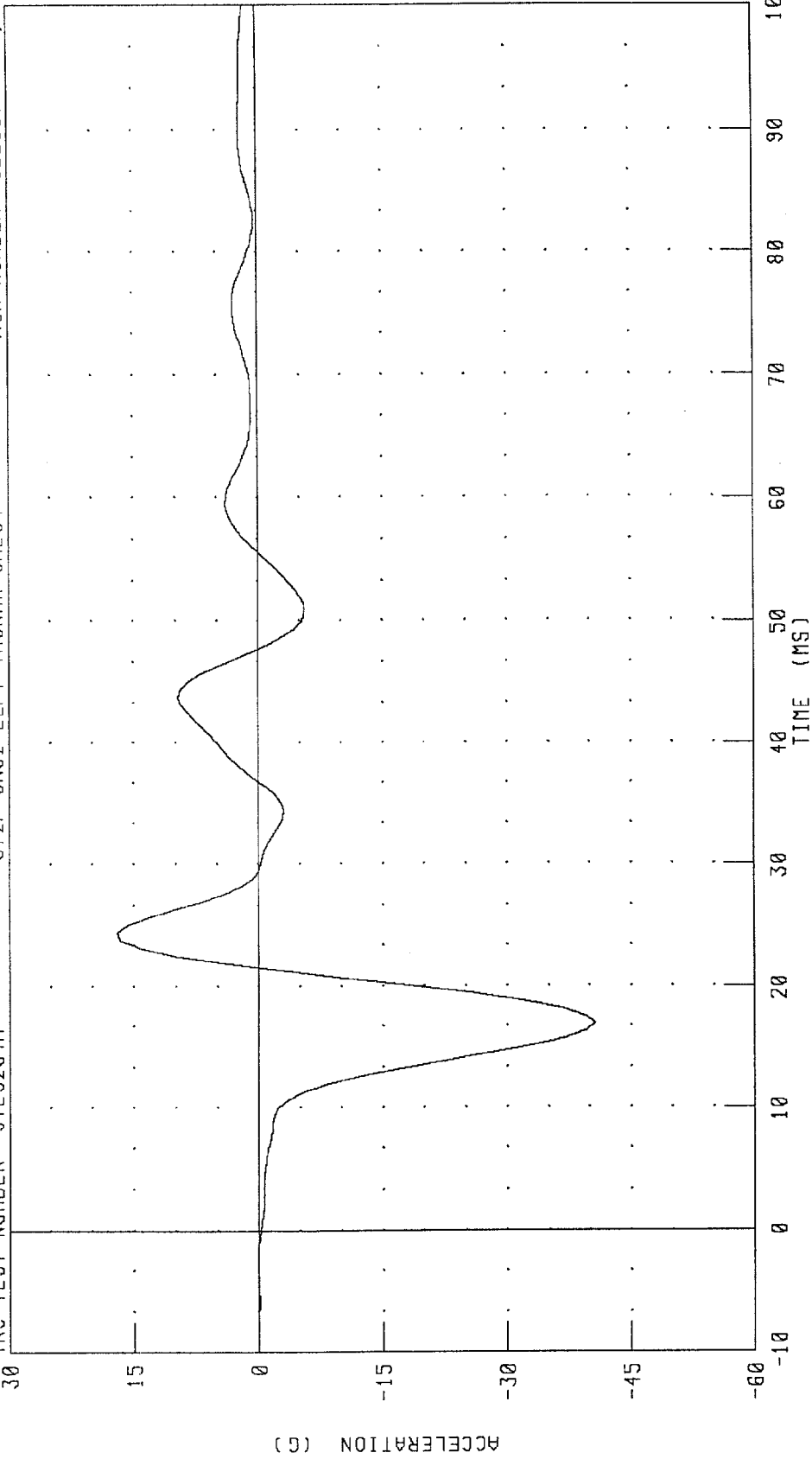
TECHNICIAN

By Calt

RUN NUMBER: 122397.1332;1

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

TRC TEST NUMBER STL5204A 572F SN52 LEFT THORAX CAL04 RUN NUMBER 122397.1333,1



CHANNEL: LURYC FILTER: FIR 100

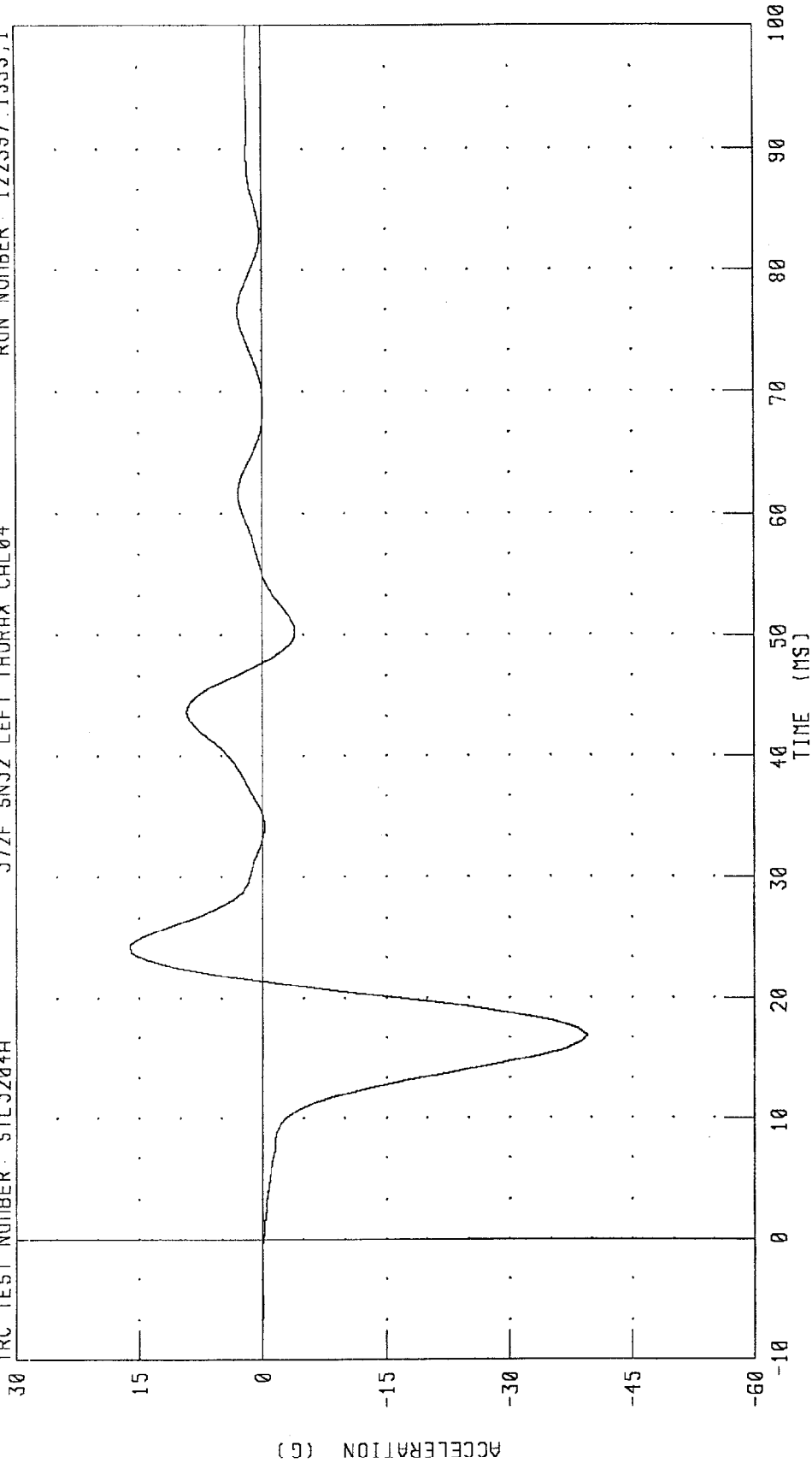
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL5204A

572F SN52 LEFT THORAX CAL04

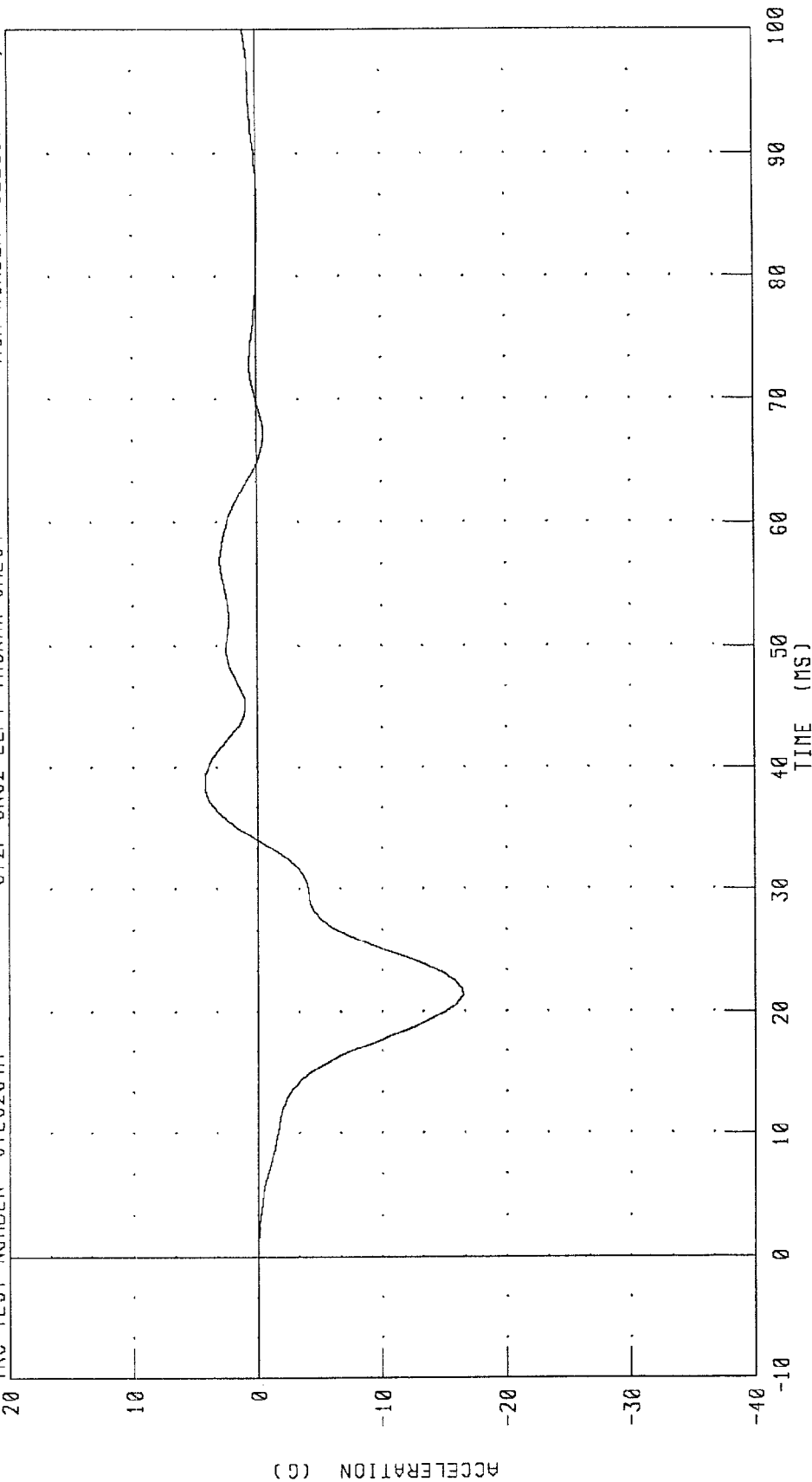
RUN NUMBER: 122397 1333,1



CHANNEL: LLRYG FILTER: FIR 100

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

TRC TEST NUMBER: STL5204A 572F SN52 LEFT THORAX CAL04 RUN NUMBER: 122397.1333;1



CHANNEL: T12YG FILTER: FIR 100

PEAK DATA: 4.27 G @ 38.75 MS; -16.48 G @ 21.25 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

23-DEC-97

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5204

572F SN52 LEFT PELVIS CAL04

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	35.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.22 M/S *
PEAK PELVIC ACCELERATION	40 - 60 G	-45.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.7 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

* TEST DOES NOT MEET SPECIFICATIONS

TECHNICIAN *V. W. Walter*

RUN NUMBER: 122397.1259;1

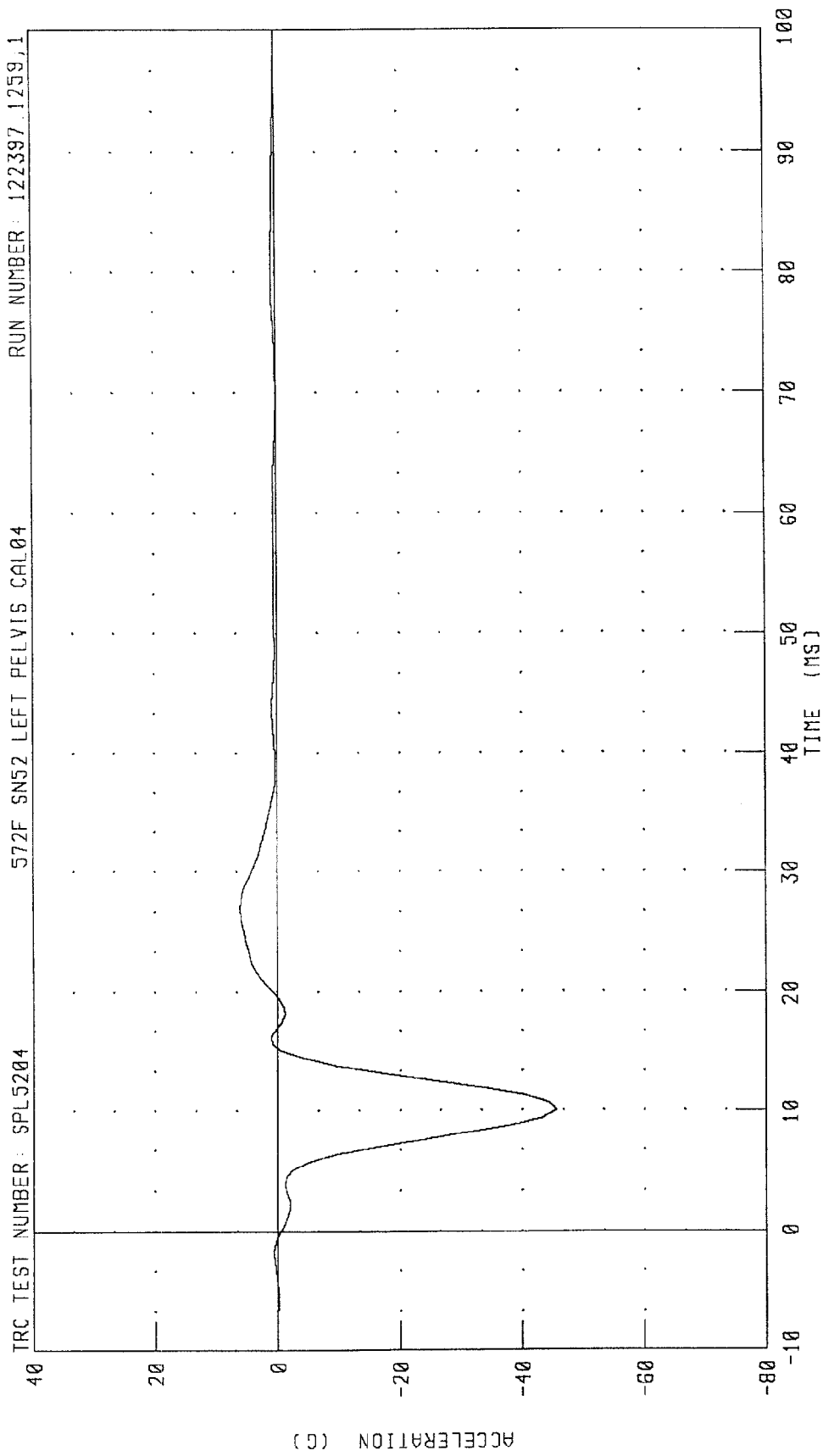
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN52 LEFT PELVIS CAL04

TRC TEST NUMBER: SPL5204

RUN NUMBER: 122397.1259,1



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 6.08 G @ 26.87 MS; -45.49 G @ 10.00 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

23-DEC-97

TRC INC.

572F SN52 DAMPER TEST CAL04

TEST NUMBER: DP5204A

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	35.0 %
VELOCITY	FORCE	856 - 1146 N	909 N
3.07 M/S	DISPLACEMENT	30.2 - 35.2 MM	33.2 MM
VELOCITY	FORCE	1733 - 2100 N	1750 N
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	36.6 MM
VELOCITY	FORCE	3743 - 4448 N	4068 N
6.10 M/S	DISPLACEMENT	33.3 - 39.5 MM	38.9 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN B. J. Calk

RUN NUMBER: 010798.1019;3

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

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5204A

572F SN52 DAMPER TEST CAL04

RUN NUMBER: 010798.1019;3

50

40

30

20

10

0

-10

FORCE (N X 10²)

TIME (MS)

PEAK DATA: 909.27 N @ 5.44 MS; -5.68 N @ -2.48 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

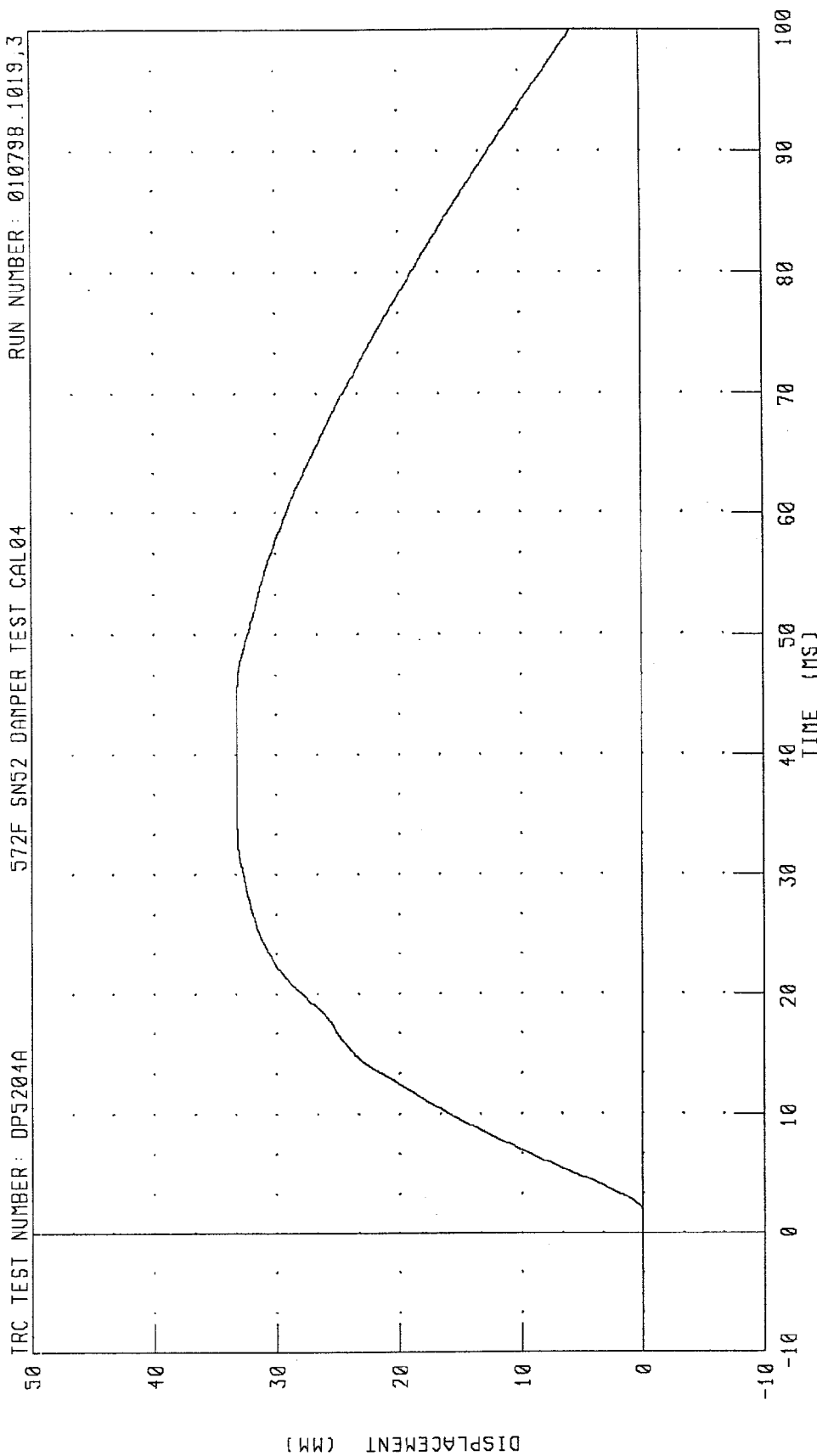
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL04

TRC TEST NUMBER: DP5204A

RUN NUMBER: 01079B.1019,3

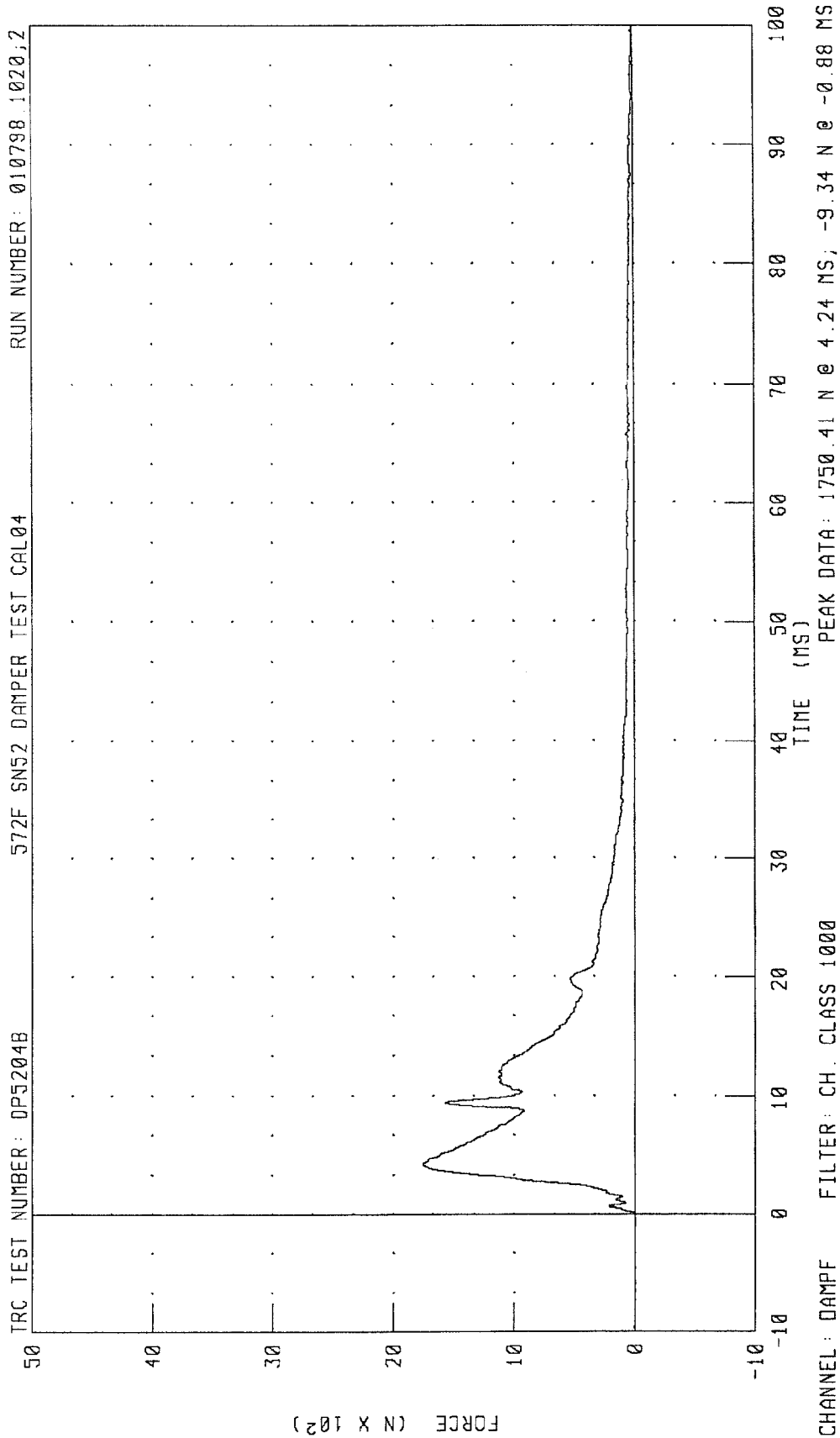


PEAK DATA: 33.20 MM @ 35.20 MS; -0.01 MM @ -6.24 MS

FILTER: CH. CLASS 1000

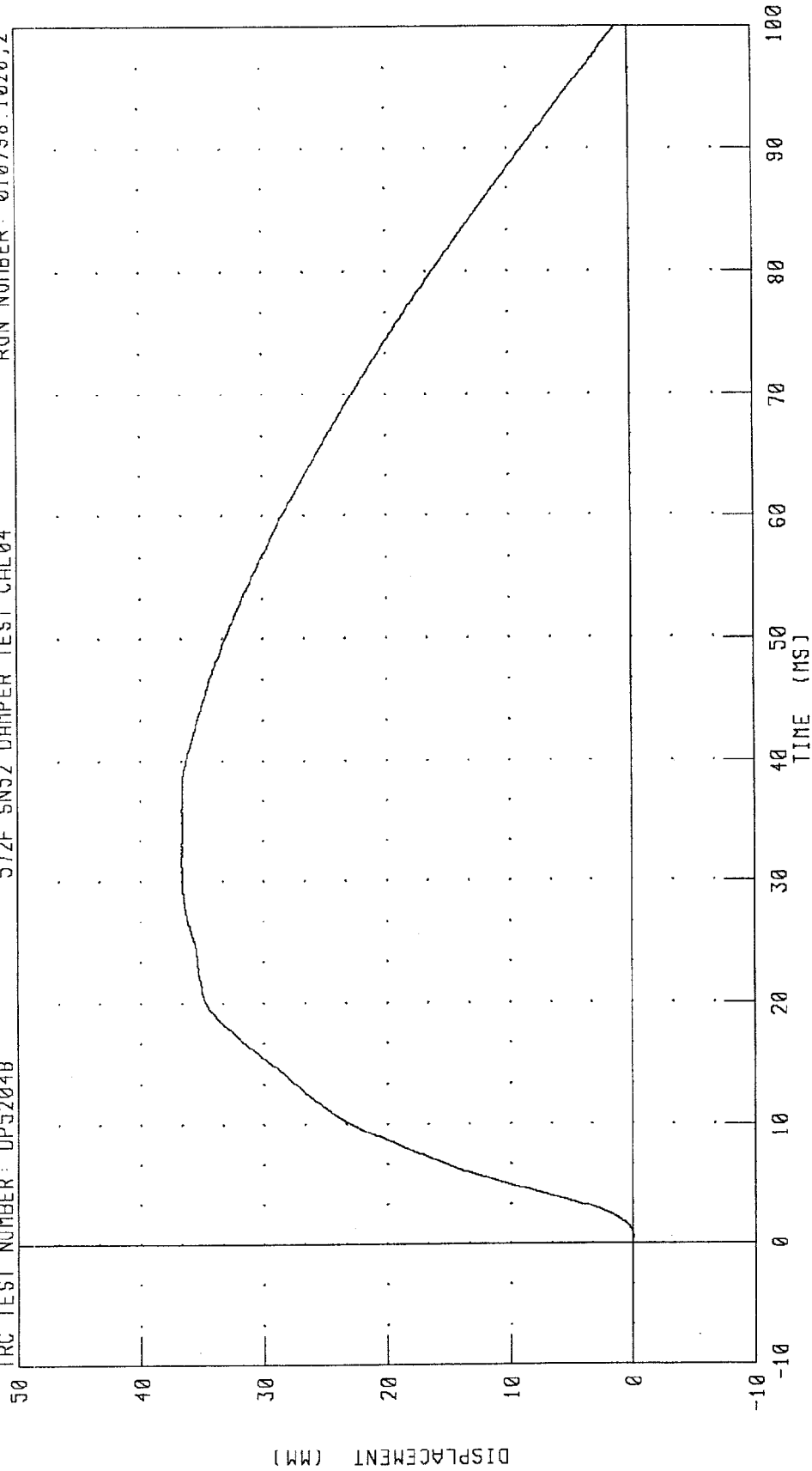
CHANNEL: CSTYD

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



PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)
SHOCK ABSORBER DISPLACEMENT
572F SN52 DAMPER TEST CAL04

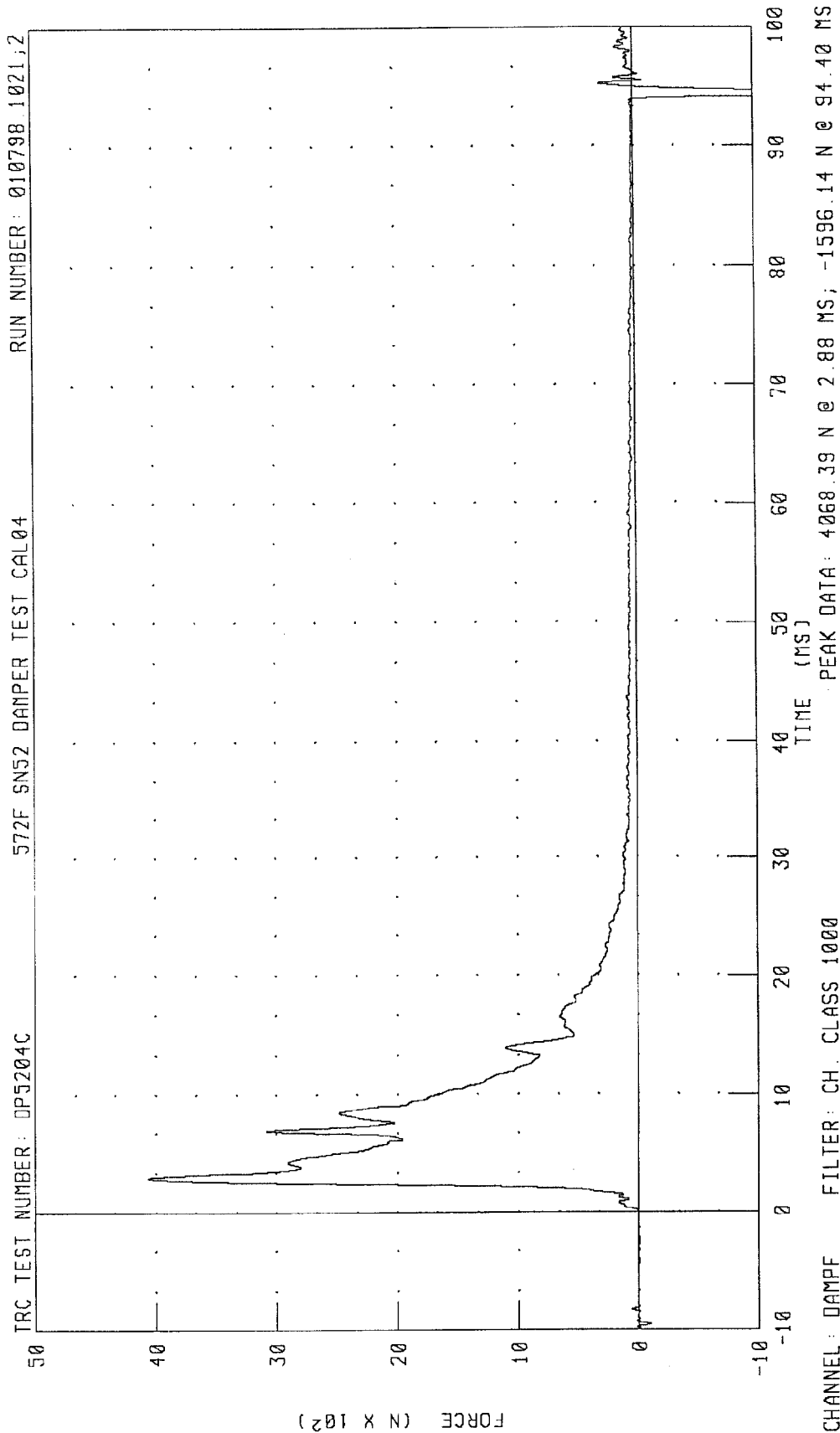
TRC TEST NUMBER: DP5204B RUN NUMBER: 010798.1020;2



PEAK DATA: 36.65 MM @ 31.92 MS; -0.05 MM @ 0.64 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



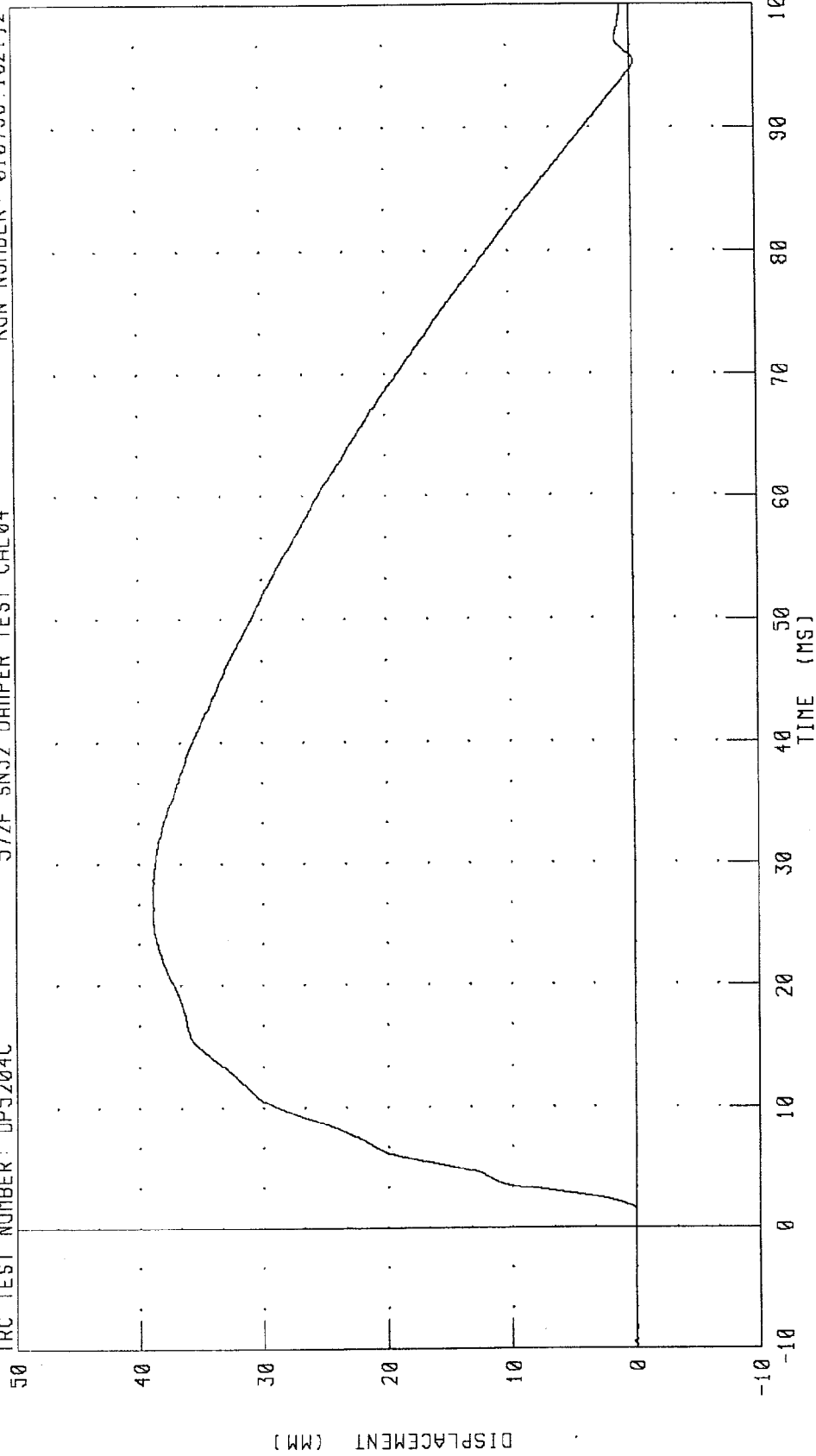
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5204C

572F SN52 DAMPER TEST CAL04

RUN NUMBER: 010798.1021;2



PEAK DATA: 38.86 MM @ 25.92 MS; -0.35 MM @ 95.28 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

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 SN51 VECTOR

23-DEC-97

TRC INC. TEST NO: ED5104 572F SN51 EXT.DIMENSION CAL04

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		60.0 %
SH	SEATED HEIGHT	889 - 909 MM	894.1 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	525.8 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	492.8 MM
HW	HIP WIDTH	356 - 391 MM	370.8 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	515.6 MM
RD	RIB FROM BACKLINE	229 - 241 MM	241.3 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	175.3 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	175.3 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Scott Jackson

RUN NUMBER: 111997.1307

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

23-DEC-97

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5104

572F SN51 LEFT THORAX CAL04

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	35.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.30 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-39.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-37.7 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-17.4 G

TEST MEETS SPECIFICATIONS

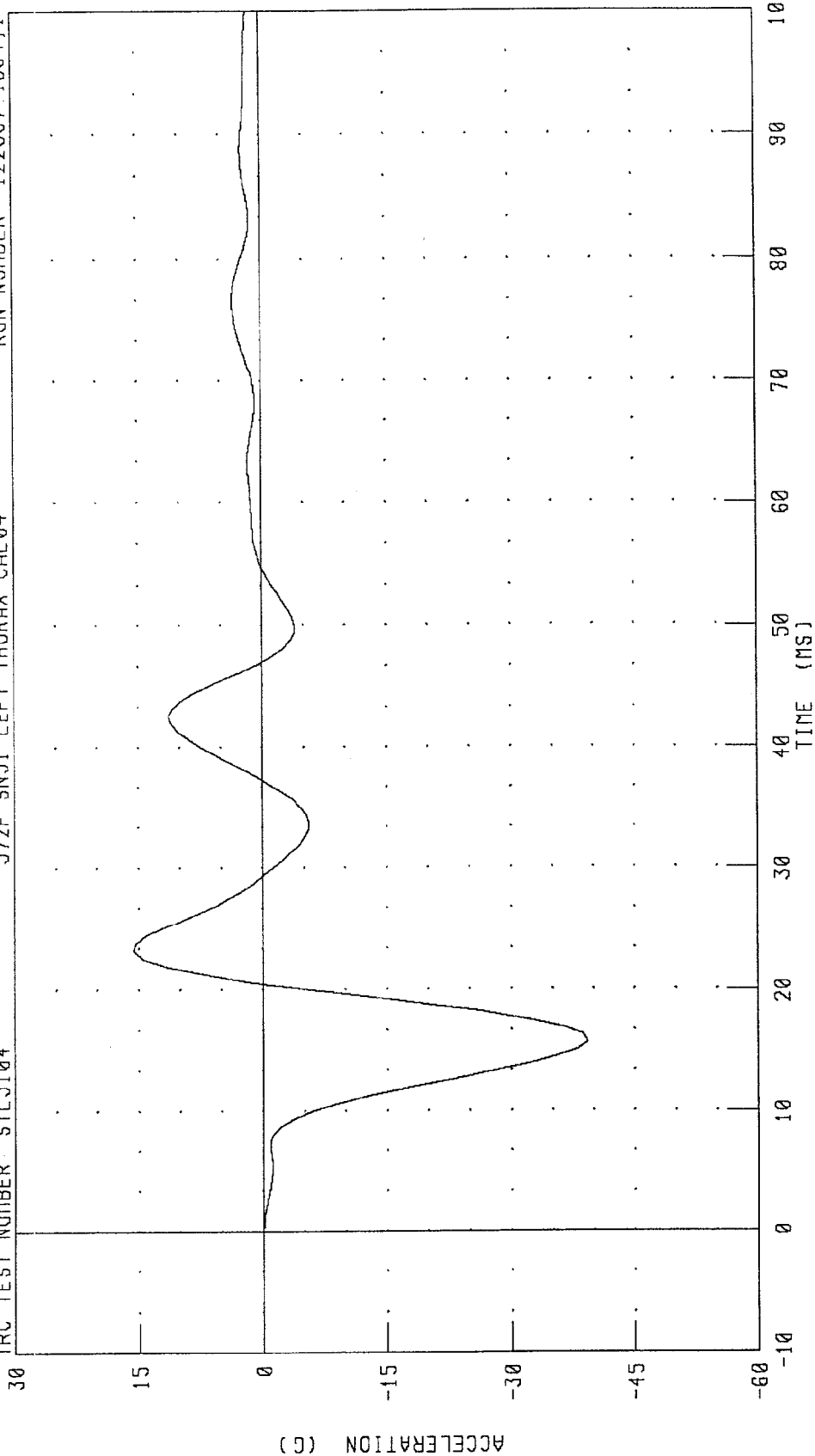
TECHNICIAN

By Calt

RUN NUMBER: 122397.1354;1

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

TRC TEST NUMBER: STL5104 572F SN51 LEFT THORAX CAL04 RUN NUMBER: 122397.1354.1

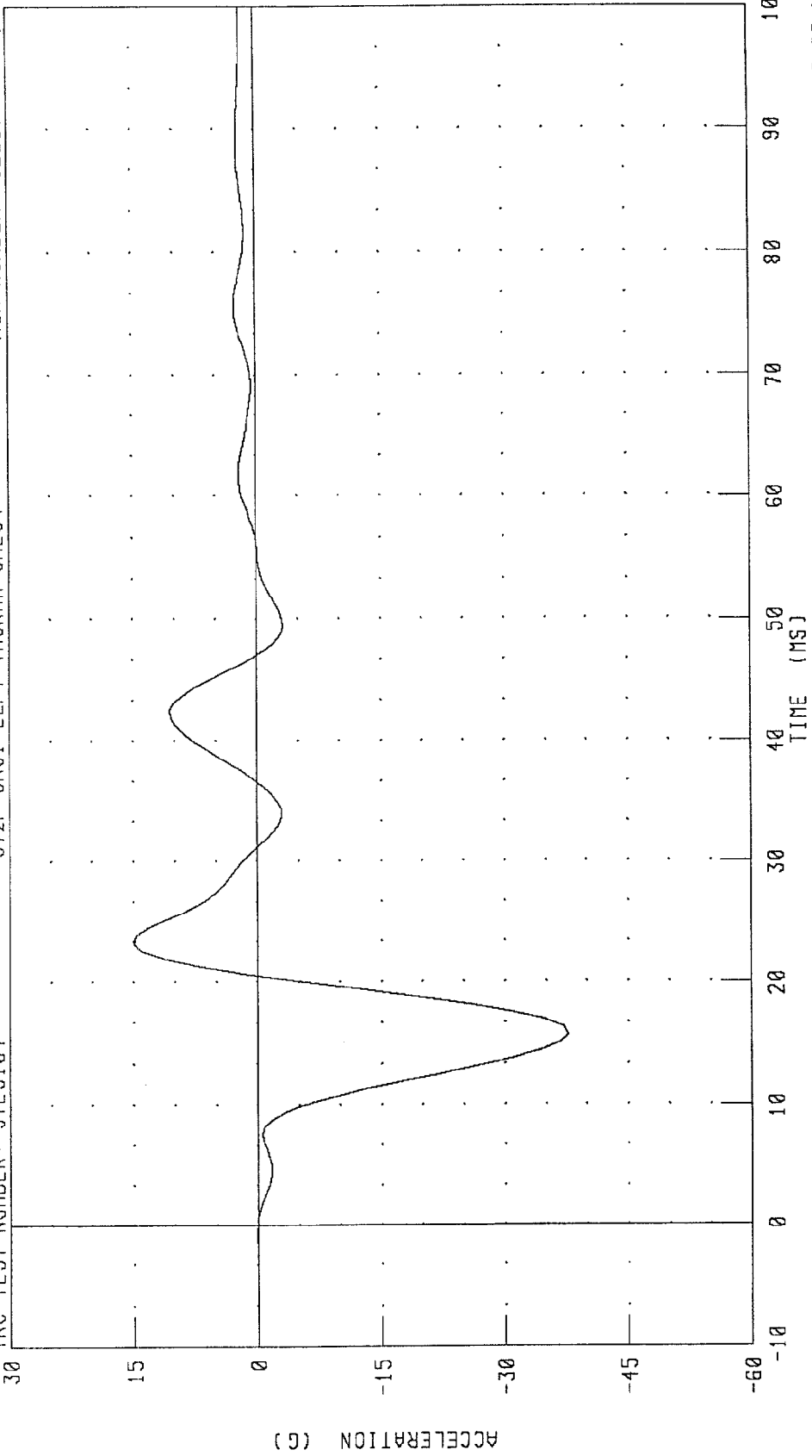


PEAK DATA: 15.60 G @ 23.13 MS; -39.20 G @ 15.63 MS

CHANNEL: LURYG FILTER: FIR 100

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

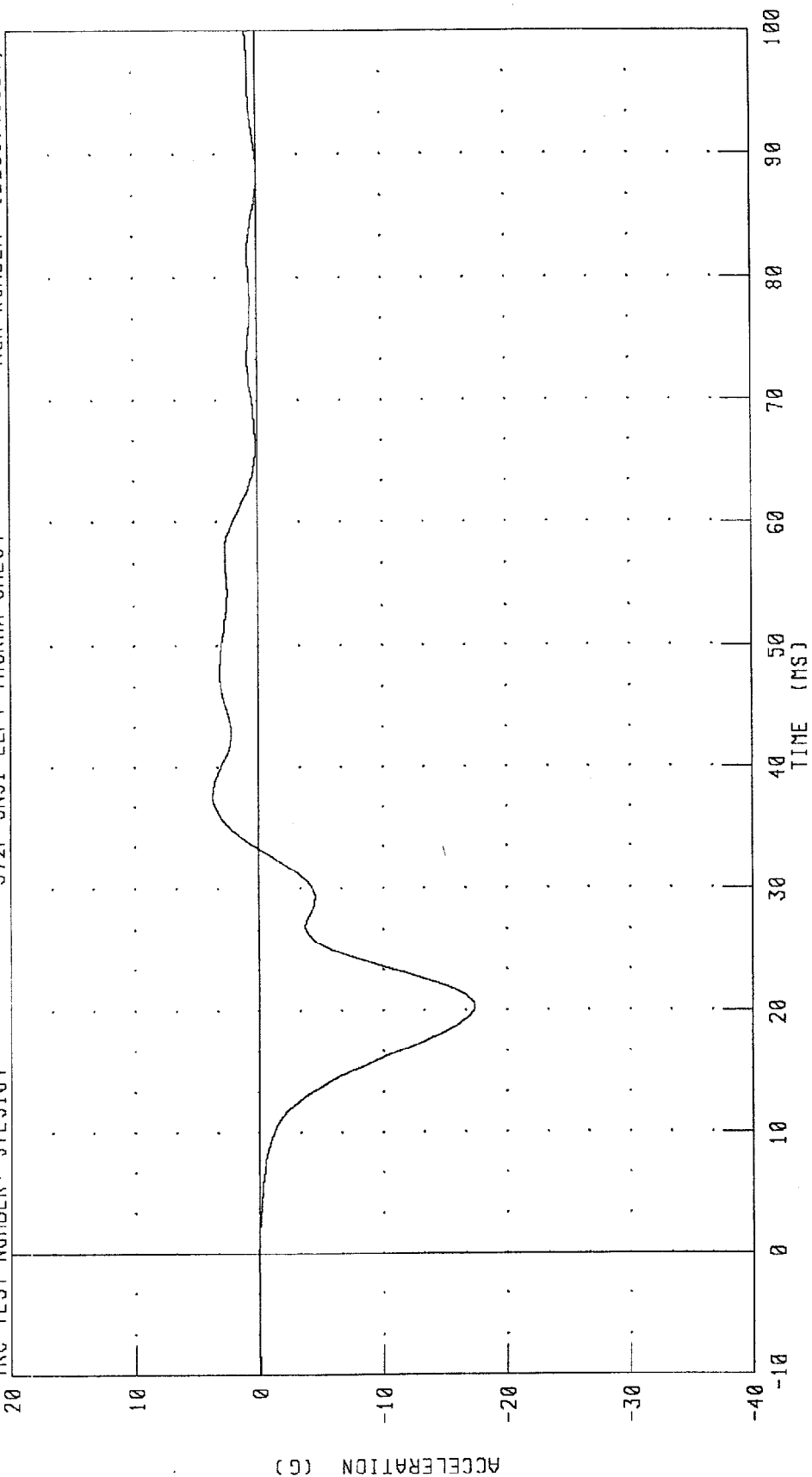
TRC TEST NUMBER: STL5104 572F SN51 LEFT THORAX CAL04 RUN NUMBER: 122397 1354,1



CHANNEL: LLRYG FILTER: FIR 100 PEAK DATA: 15.00 G @ 23.13 MS; -37.68 G @ 15.63 MS

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

TRC TEST NUMBER: STL5104 572F SN51 LEFT THORAX CAL04 RUN NUMBER: 122397 1354;1



CHANNEL: T12YC FILTER: FIR 100 PEAK DATA: 3.69 G @ 37.50 MS; -17.36 G @ 20.00 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

23-DEC-97

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5104

572F SN51 LEFT PELVIS CAL04

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	35.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.22 M/S *
PEAK PELVIC ACCELERATION	40 - 60 G	-47.7 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.7 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

* TEST DOES NOT MEET SPECIFICATIONS

TECHNICIAN

K. J. Watters

RUN NUMBER: 122397.1359;1

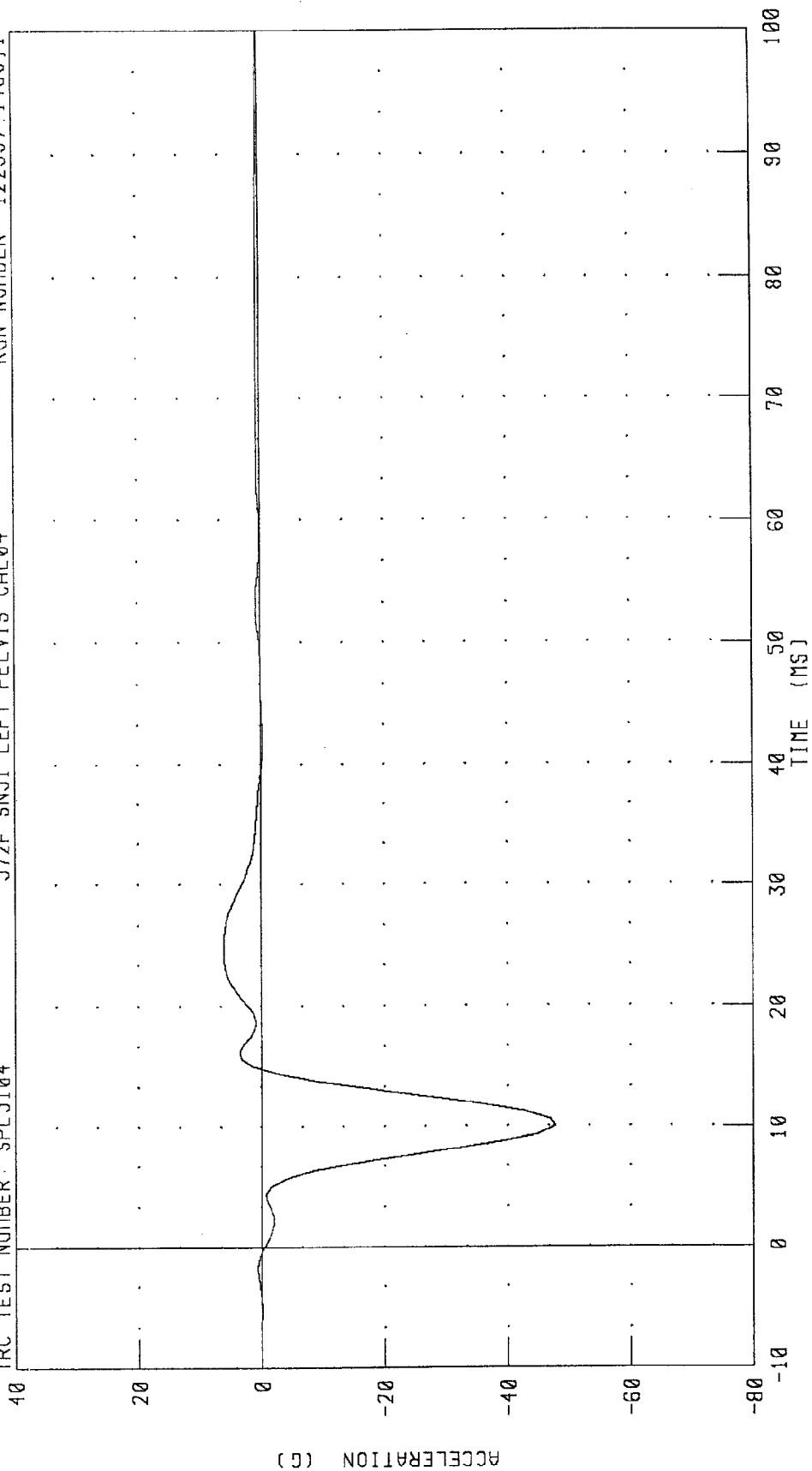
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN51 LEFT PELVIS CAL04

TRC TEST NUMBER: SPL5104

RUN NUMBER: 122397.1400.1



PEAK DATA: 6.15 G @ 24.38 MS; -47.68 G @ 10.00 MS

CHANNEL: PEVYG FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

23-DEC-97

TRC INC.

572F SN51 DAMPER TEST CAL04

TEST NUMBER: DP5104A

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	35.0 %
VELOCITY	FORCE	856 - 1146 N	990 N
3.07 M/S	DISPLACEMENT	30.2 - 35.2 MM	31.2 MM
VELOCITY	FORCE	1733 - 2100 N	1854 N
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	35.0 MM
VELOCITY	FORCE	3743 - 4448 N	4248 N
6.10 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.5 MM

DAMPER SETTING = 5.8

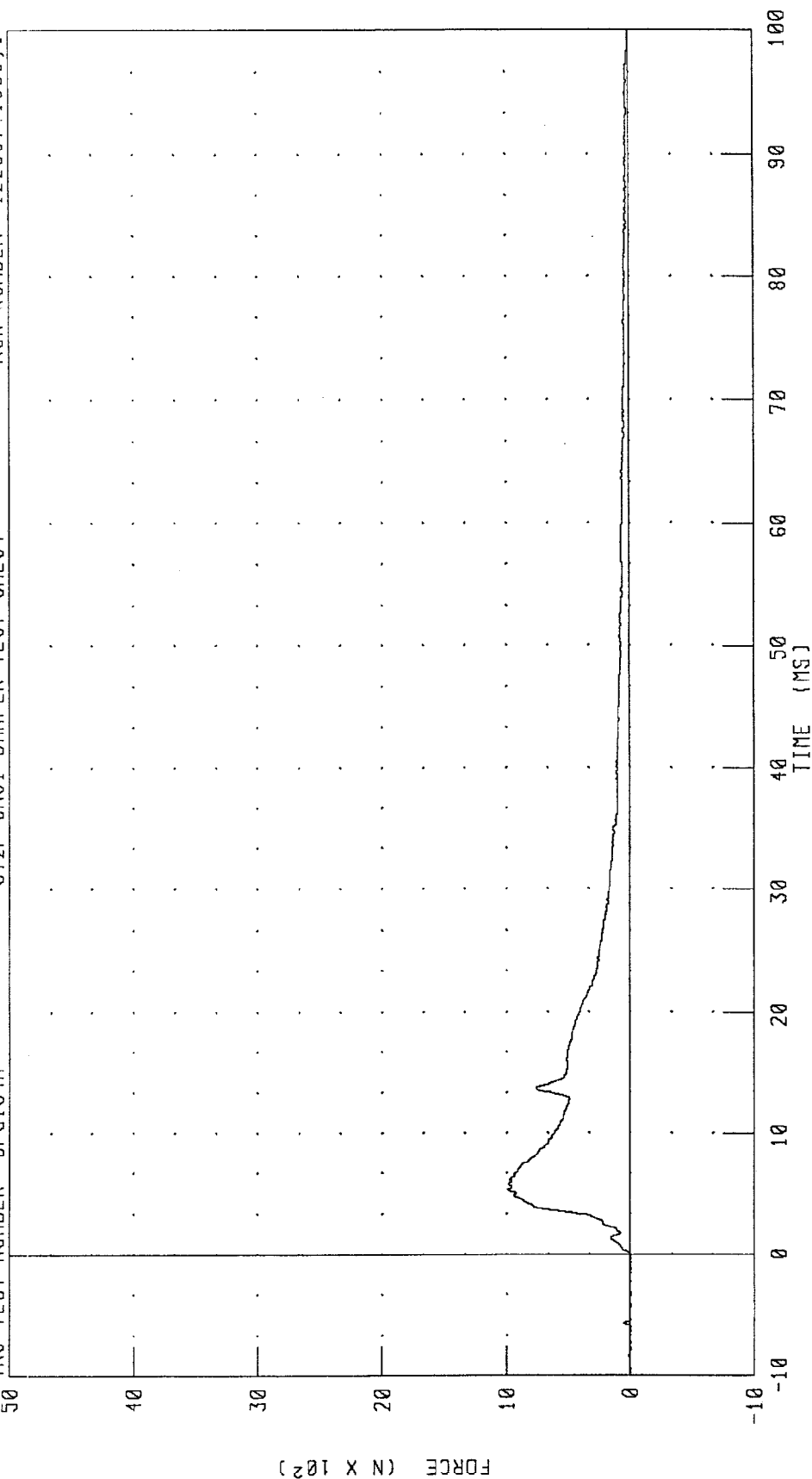
TEST MEETS SPECIFICATIONS

TECHNICIAN By cult

RUN NUMBER: 122397.1104;1

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

TRC TEST NUMBER: DPS104A 572F SN51 DAMPER TEST CAL04 RUN NUMBER: 122397 1058;1



PEAK DATA: 989.90 N @ 5.36 MS; -10.07 N @ -5.92 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

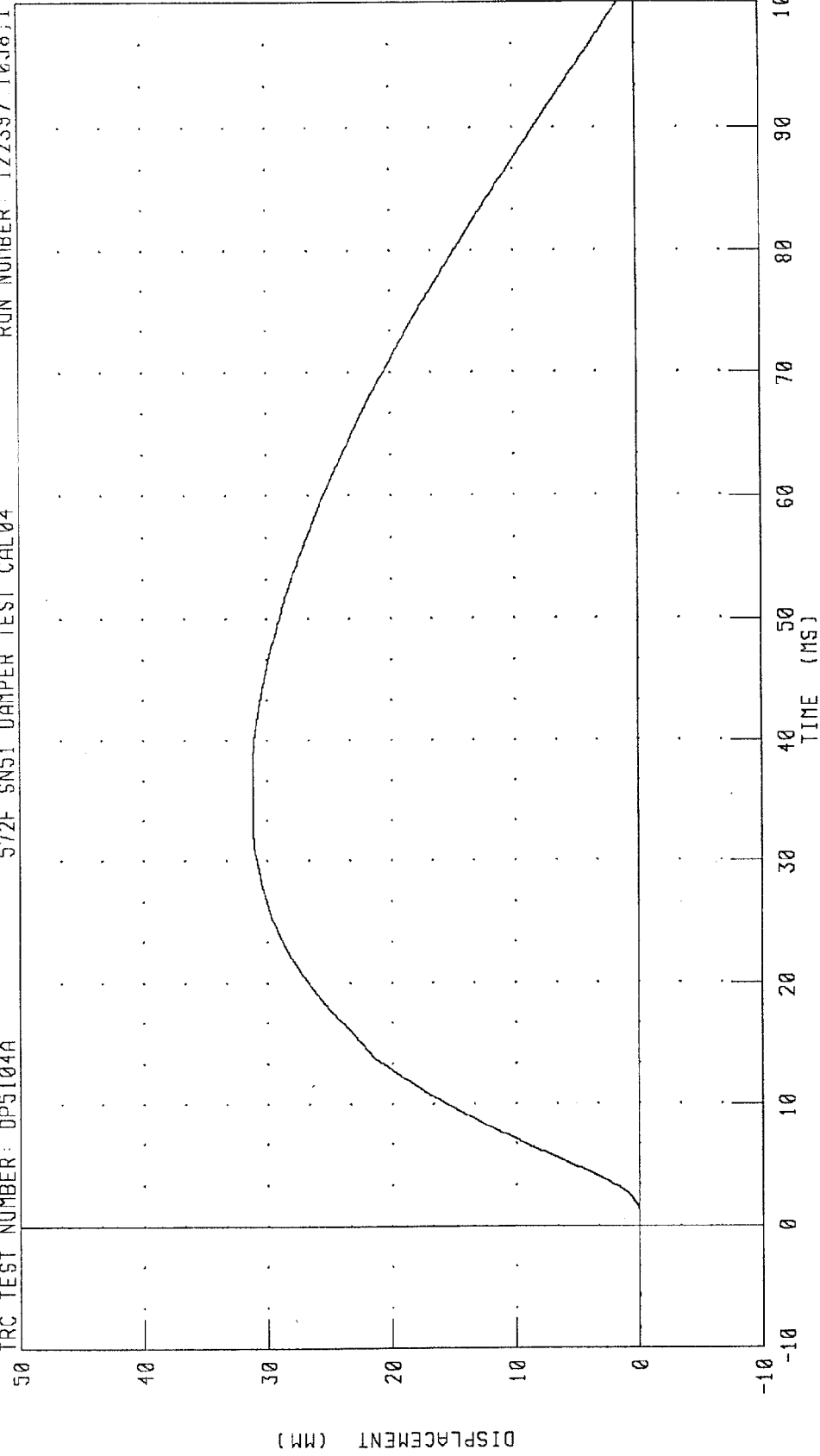
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5104A

572F SN51 DAMPER TEST CAL04

RUN NUMBER: 122397 1058;1



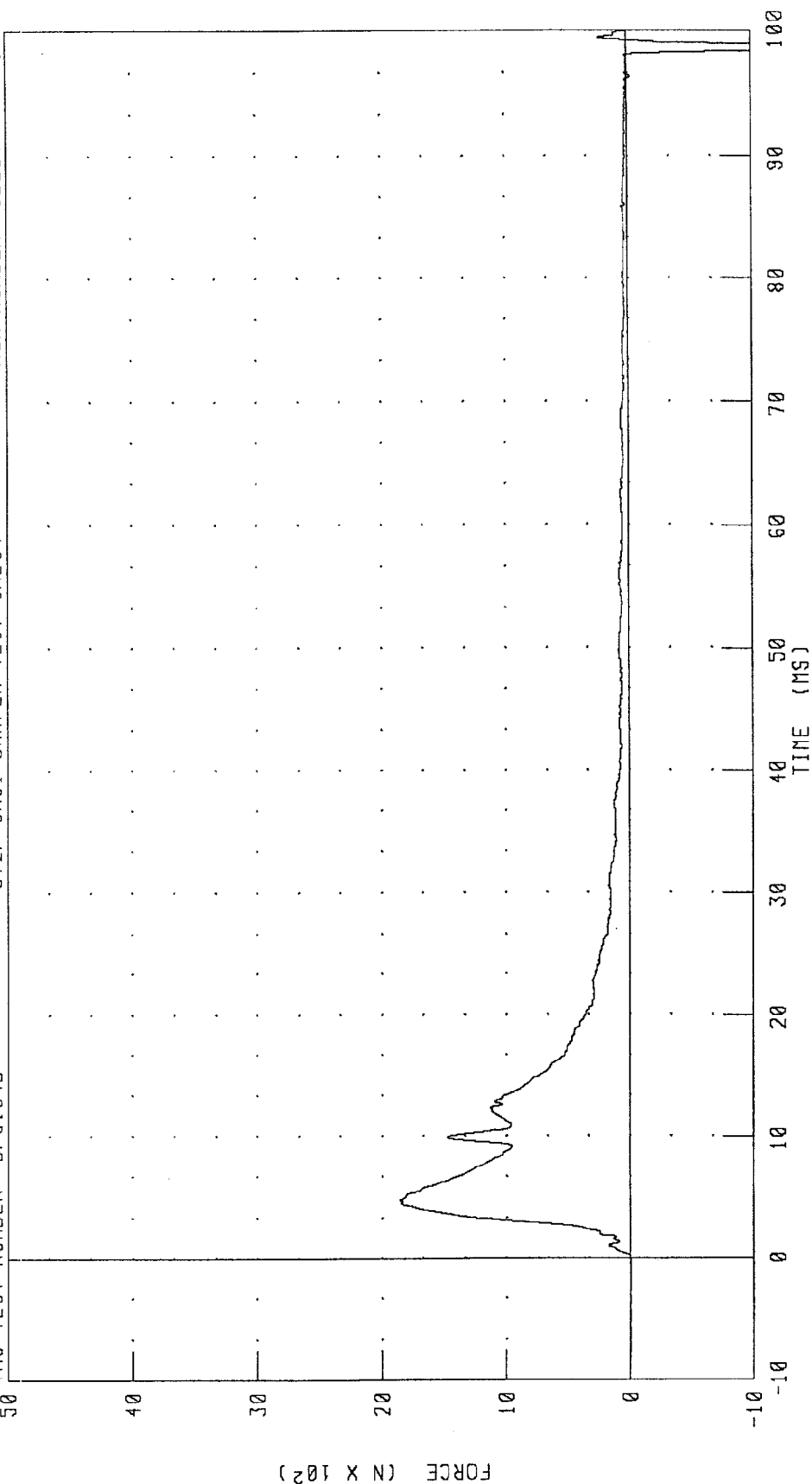
CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 31.21 MM @ 36.32 MS; -0.10 MM @ -5.68 MS

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

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5104B 572F SN51 DAMPER TEST CAL04 RUN NUMBER: 122397.1050.1



PEAK DATA: 1854.19 N @ 4.88 MS; -1580.39 N @ 98.72 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

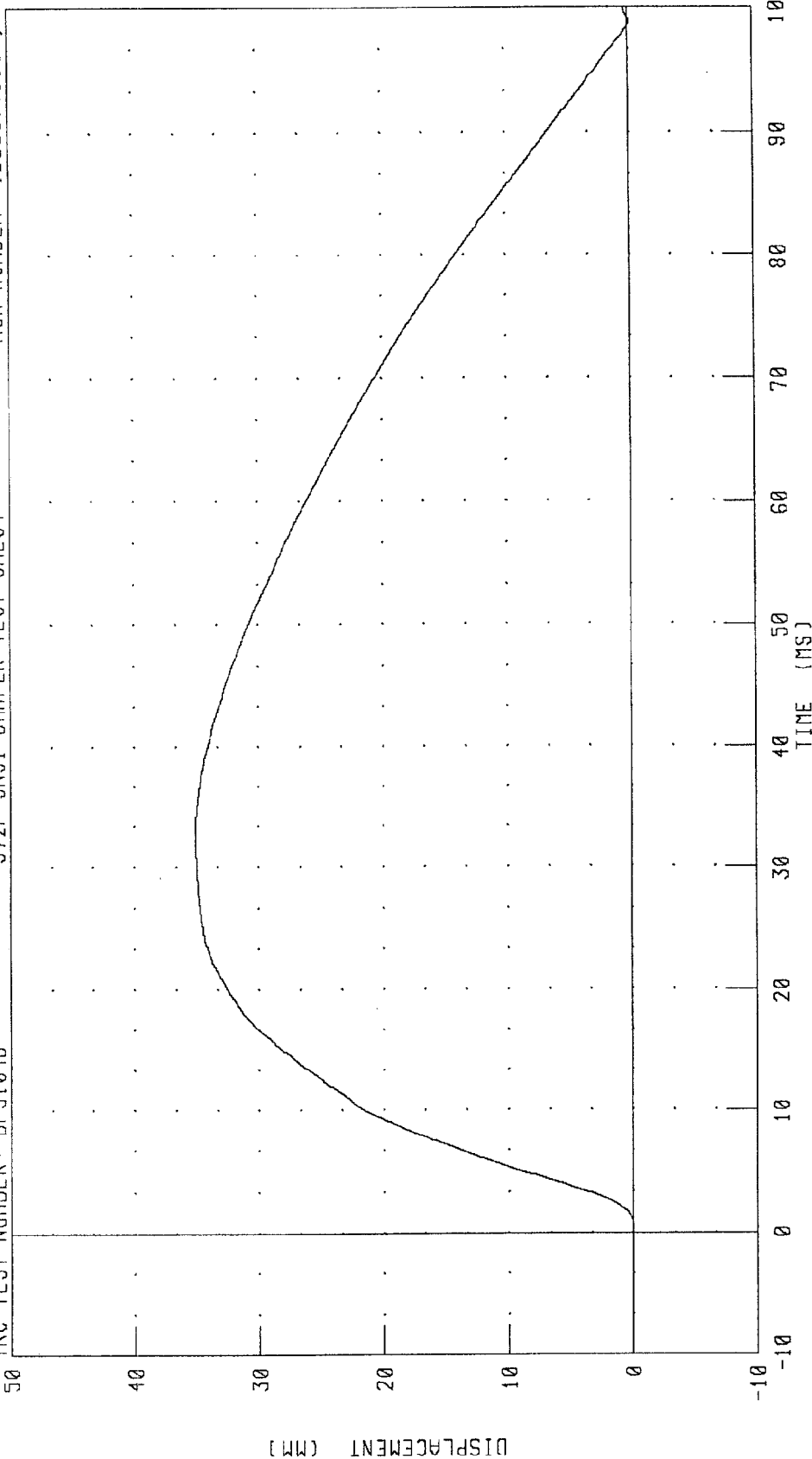
PART 572-F S I O. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5104B

572F SN51 DAMPER TEST CAL04

RUN NUMBER: 122397 1050;1



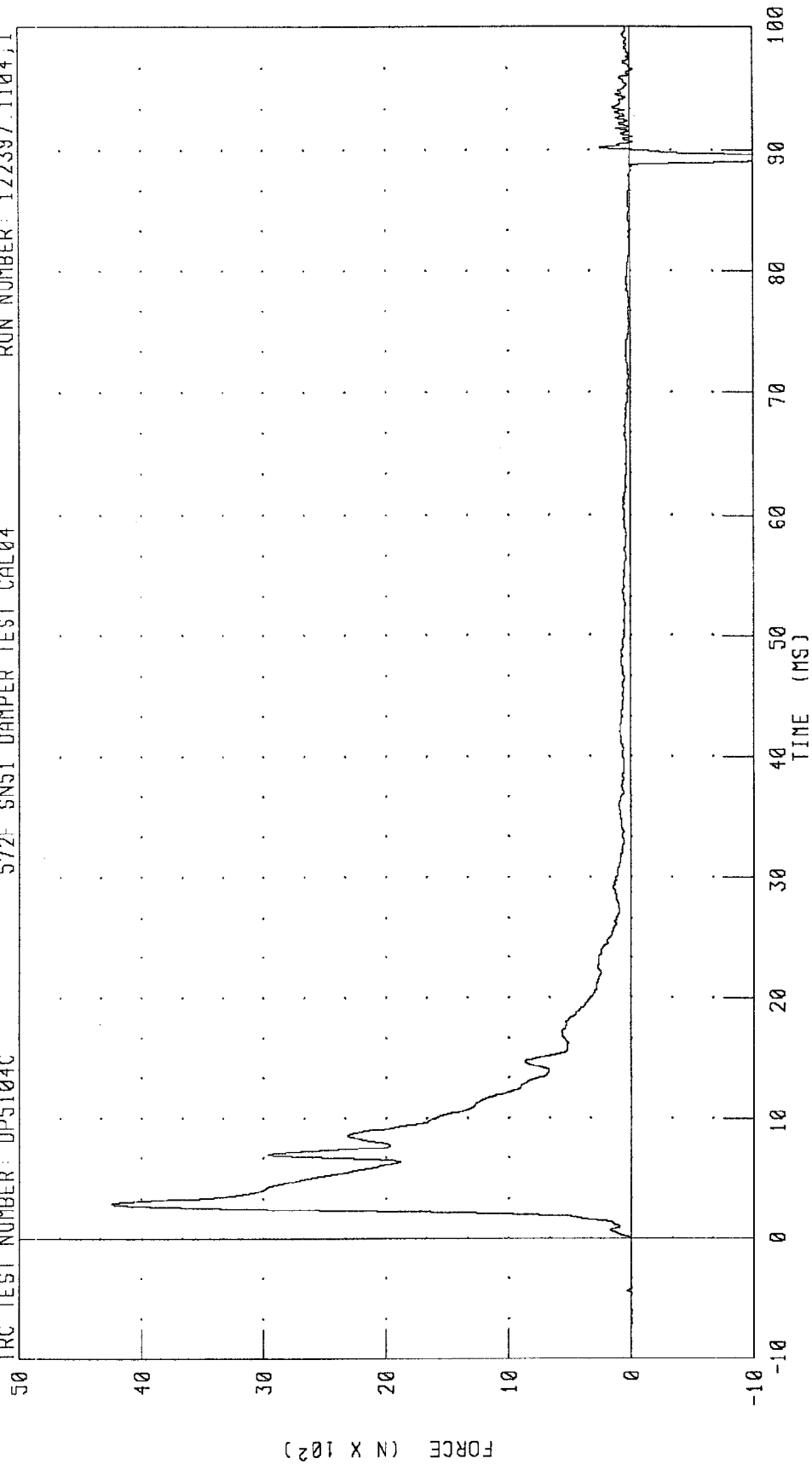
PEAK DATA: 35.05 MM @ 33.44 MS; -0.07 MM @ 98.72 MS

CHANNEL: CSTYD FILTER: CH. CLASS 1000

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

SHOCK ABSORBER RESISTIVE FORCE

IRC TEST NUMBER: DP5104C 572F SN51 DAMPER TEST CAL04 RUN NUMBER: 122397.1104,1



PEAK DATA: 4248.34 N @ 2.88 MS; -1672.63 N @ 89.44 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

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

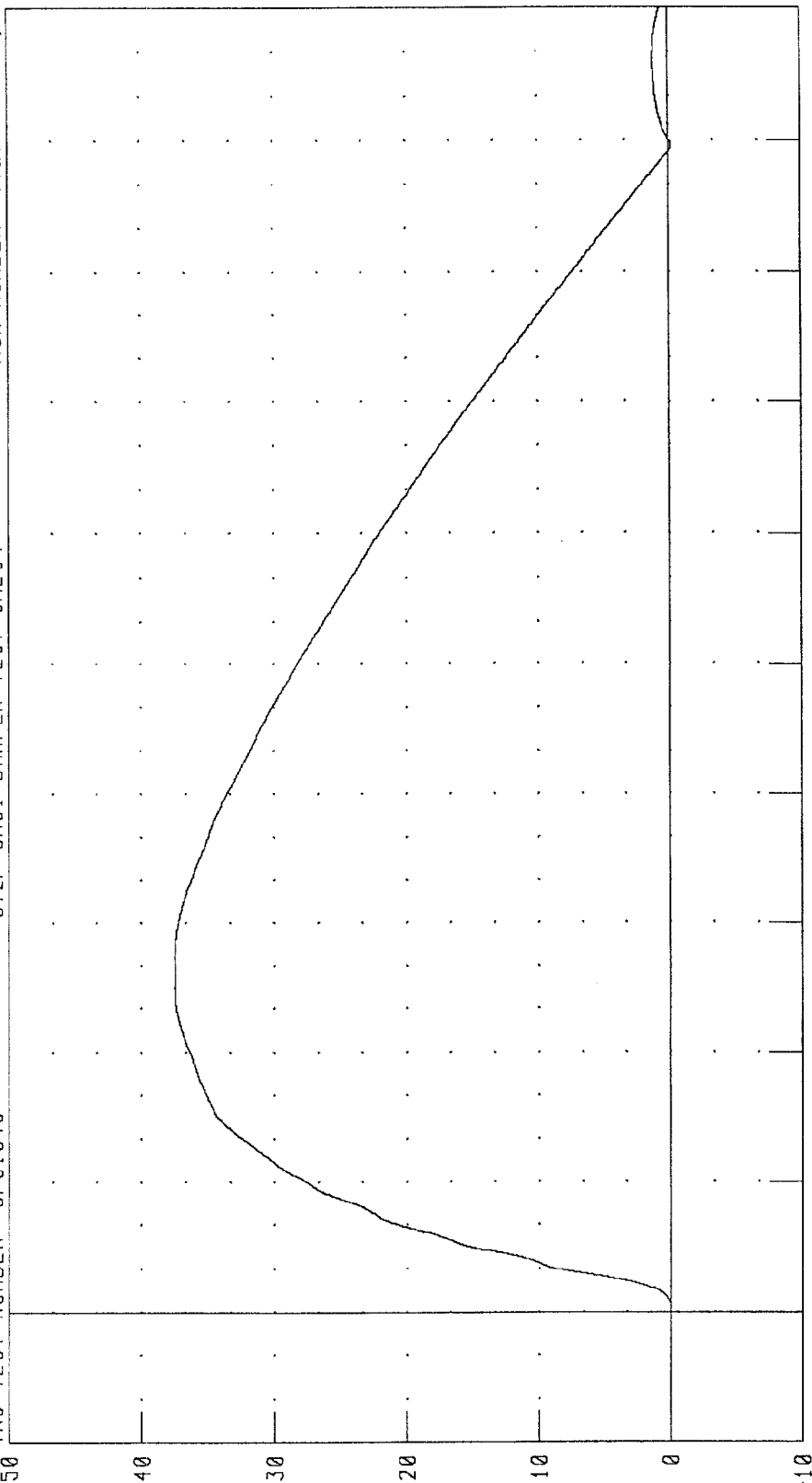
SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP5104C

572F SN51 DAMPER TEST CAL04

RUN NUMBER: 122397 1104.1

50



PEAK DATA: 37.49 MM @ 27.28 MS; -0.17 MM @ 89.52 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 SN SN52 VECTOR

22/JAN/98

TRC INC. TEST NO: ED5205 572F SN52 EXT.DIMENSION CAL05

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		46.0 %
SH	SEATED HEIGHT	889 - 909 MM	894.1 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	525.8 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	490.2 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	508.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 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

Scott Tucker

RUN NUMBER: 012698.0918

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

23-JAN-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5205C

572F SN52 LEFT THORAX CAL05

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	54.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.28 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-44.1 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-42.9 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-18.0 G

TEST MEETS SPECIFICATIONS

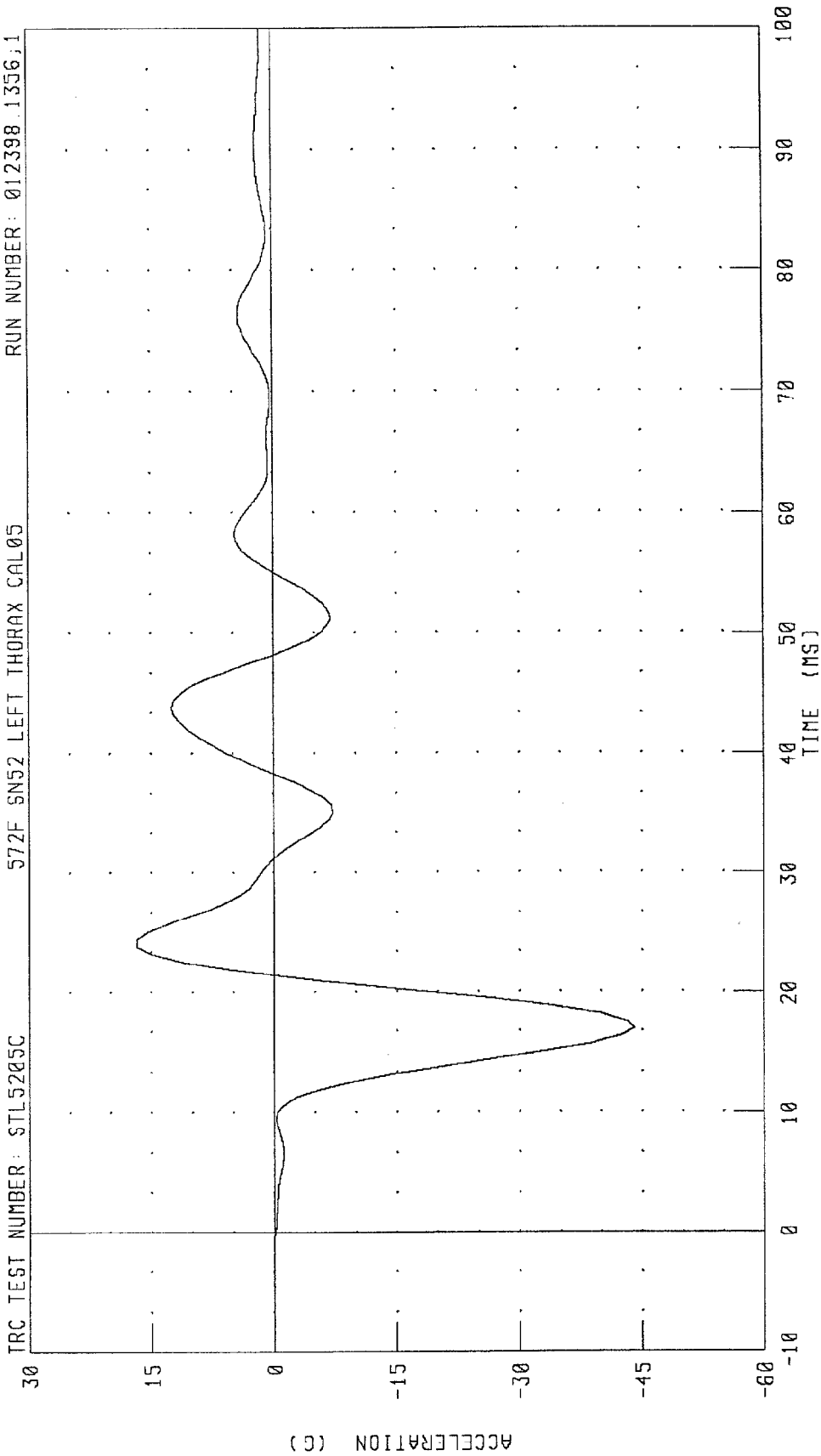
TECHNICIAN

Ray C. Holt

RUN NUMBER: 012398.1356;1

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

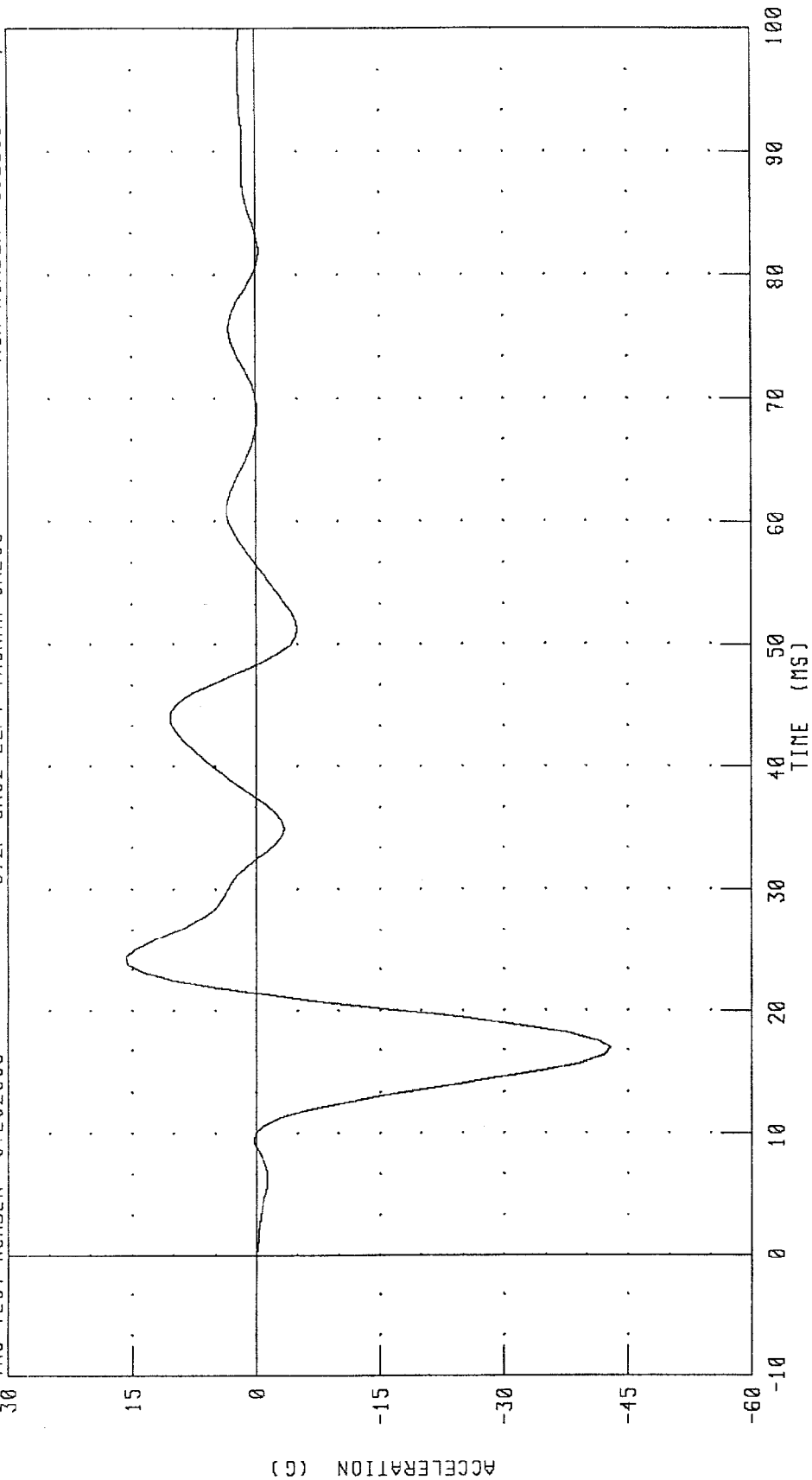
TRC TEST NUMBER: STL5205C 572F SN52 LEFT THORAX CAL05 RUN NUMBER: 012398.1356;1



CHANNEL: LURYG FILTER: FIR 100 PEAK DATA: 16.78 G @ 24.38 MS; -44.06 G @ 16.87 MS

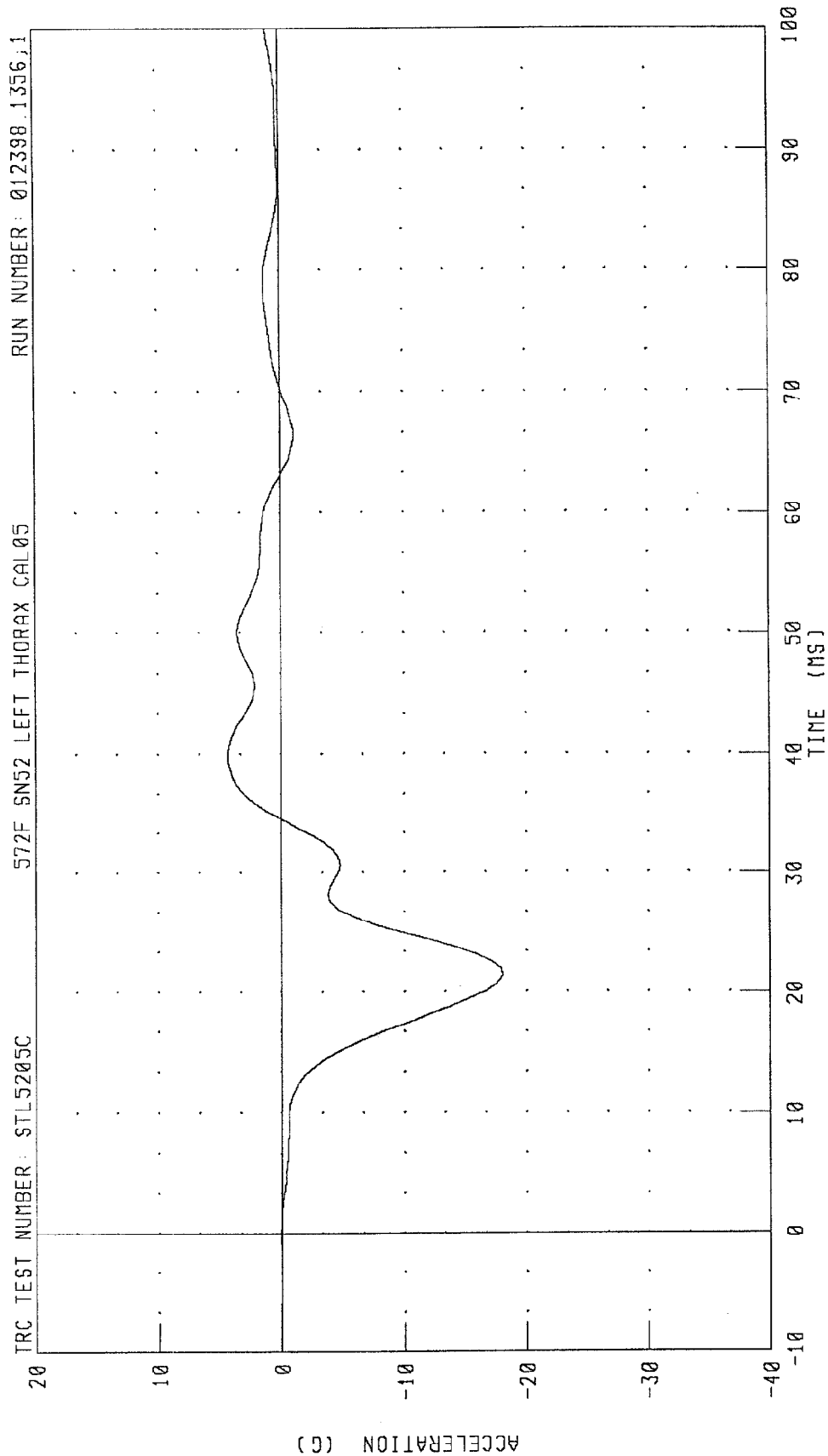
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL5205C 572F SN52 LEFT THORAX CAL05 RUN NUMBER: 012398.1356;1



CHANNEL: LLRYG FILTER: FIR 100 PEAK DATA: 15.77 G @ 24.38 MS; -42.88 G @ 16.87 MS

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



CHANNEL: T12YG FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

23-JAN-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5205

572F SN52 LEFT PELVIS CAL05

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	54.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.28 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-46.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.8 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

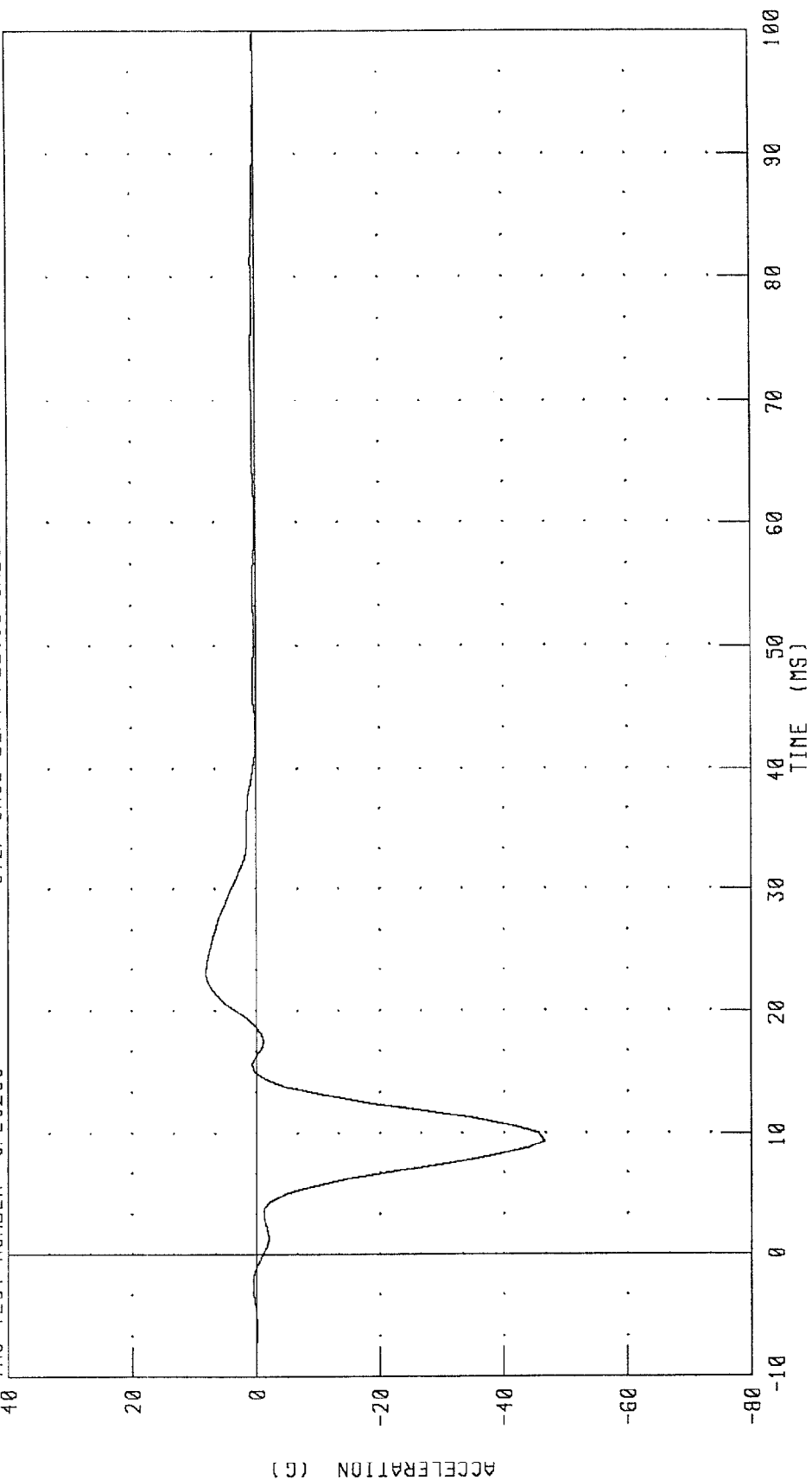
TECHNICIAN By Calt

RUN NUMBER: 012398.1038;1

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

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL5205 572F SN52 LEFT PELVIS CAL05 RUN NUMBER: 012390.1039;1



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 8.04 G @ 23.13 MS; -46.49 G @ 9.37 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

23-JAN-98

TRC INC.

572F SN52 DAMPER TEST CAL05

TEST NUMBER: DP5205A

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	54.0 %
VELOCITY	FORCE	856 - 1146 N	922 N
3.08 M/S	DISPLACEMENT	30.2 - 35.2 MM	32.7 MM
VELOCITY	FORCE	1733 - 2100 N	1787 N
4.27 M/S	DISPLACEMENT	31.6 - 37.2 MM	35.5 MM
VELOCITY	FORCE	3784 - 4495 N	4149 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	36.4 MM

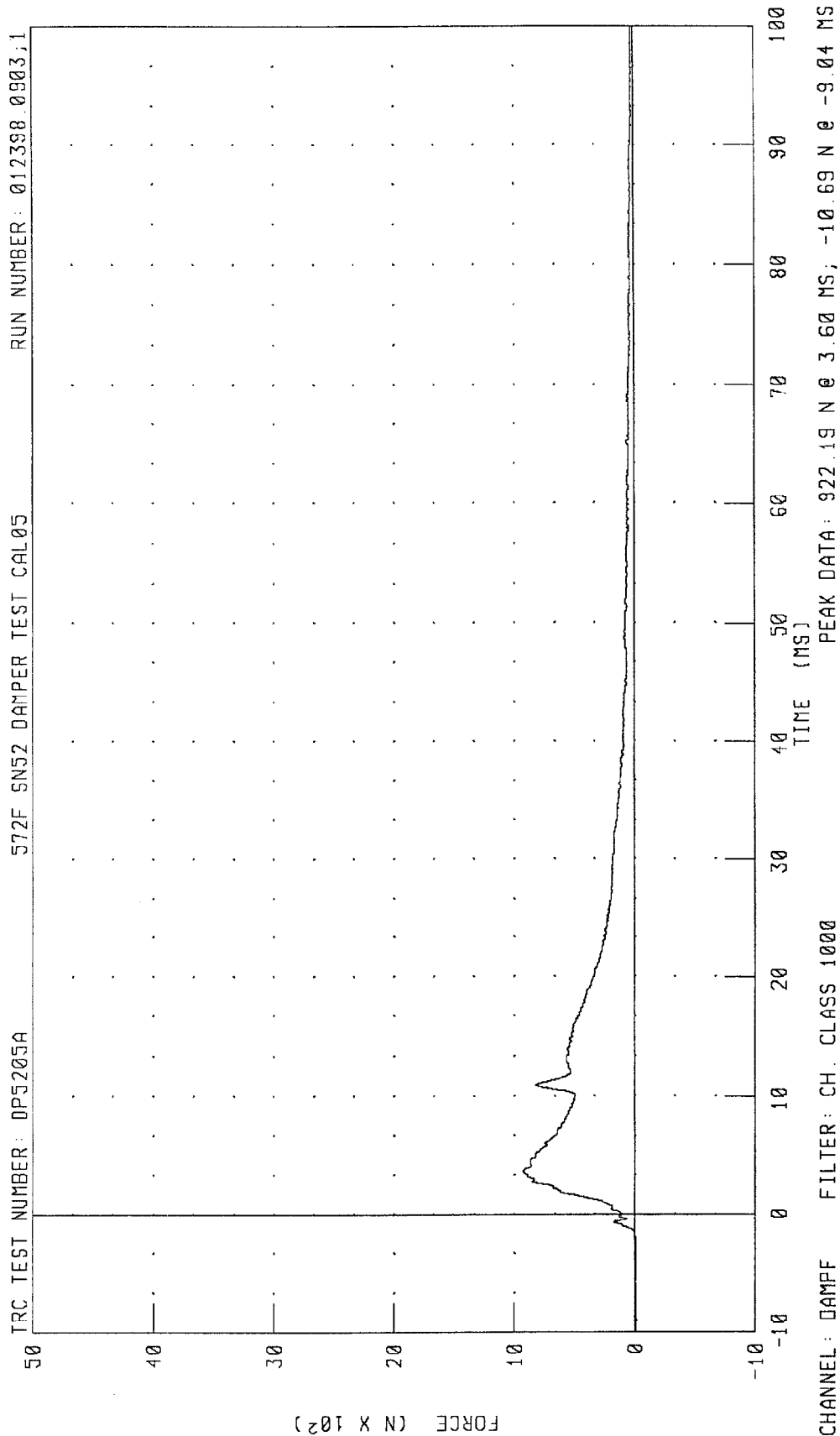
DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN Byg Calt

RUN NUMBER: 012398.0903;1

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



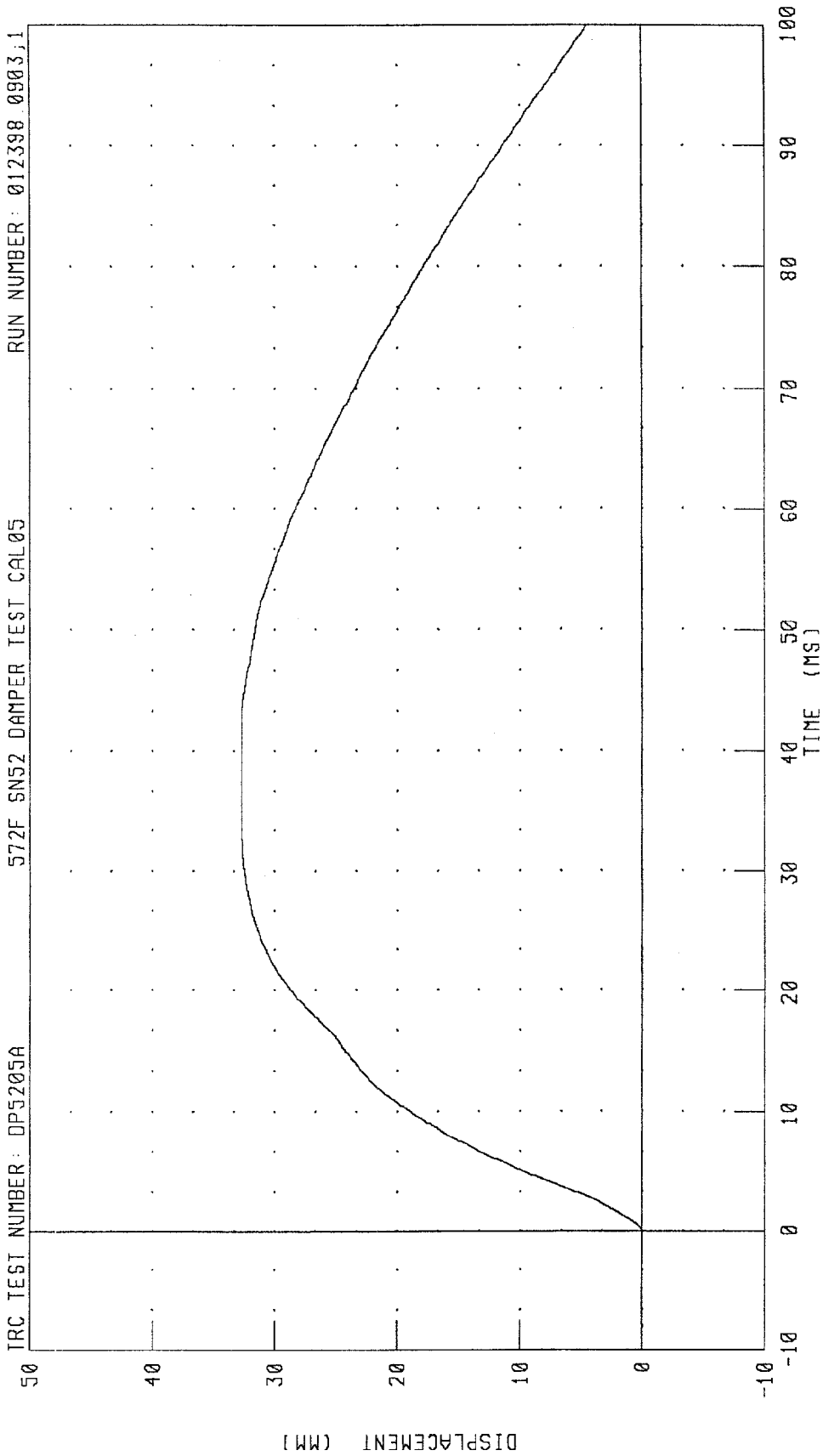
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL05

IRC TEST NUMBER: DP5205A

RUN NUMBER: 012398 0903.1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 32.72 MM @ 36.40 MS; -0.03 MM @ -7.92 MS

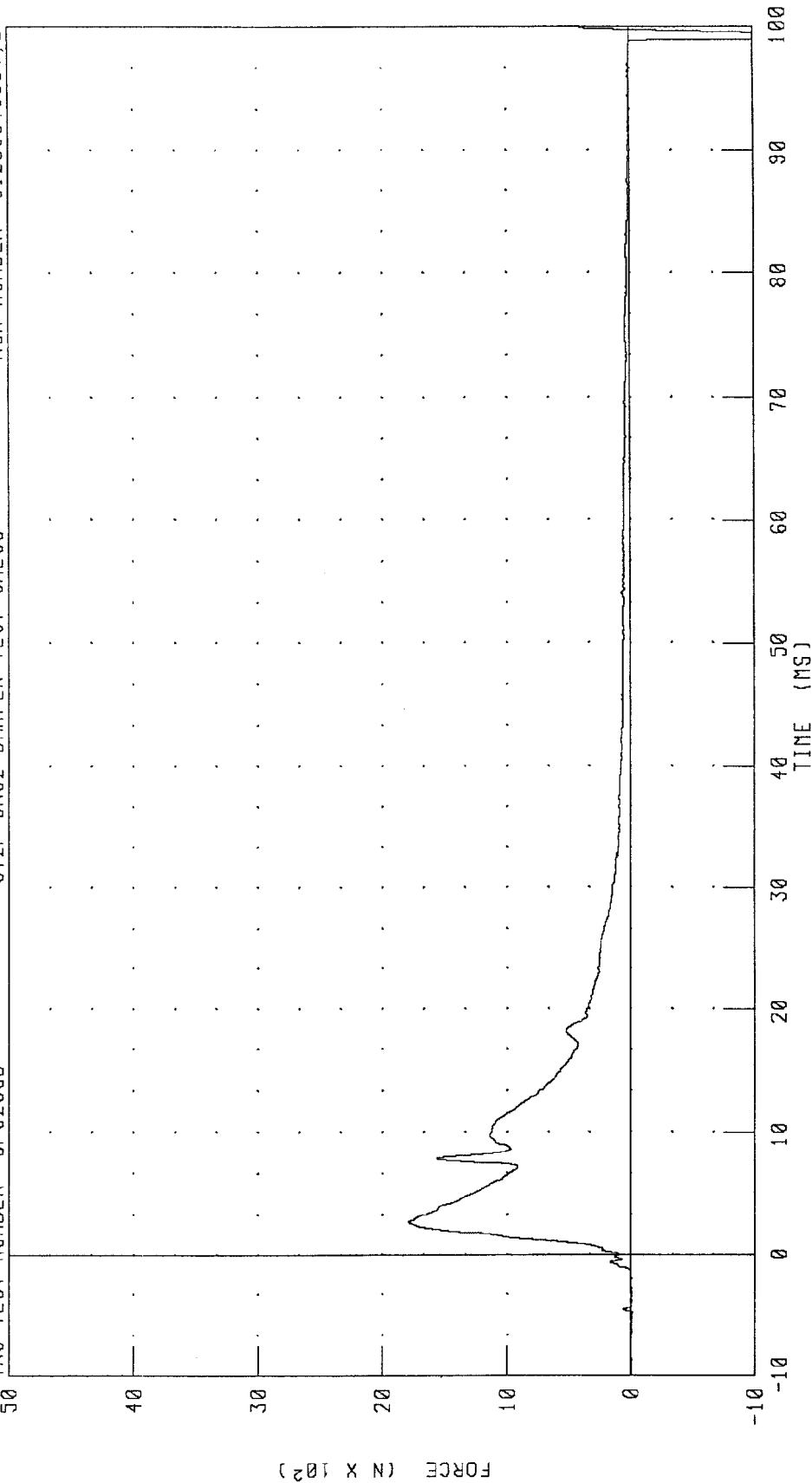
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5205B

572F SN52 DAMPER TEST CAL05

RUN NUMBER: 012398.0904,3



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 1786.92 N @ 2.72 MS; -1906.40 N @ 99.20 MS

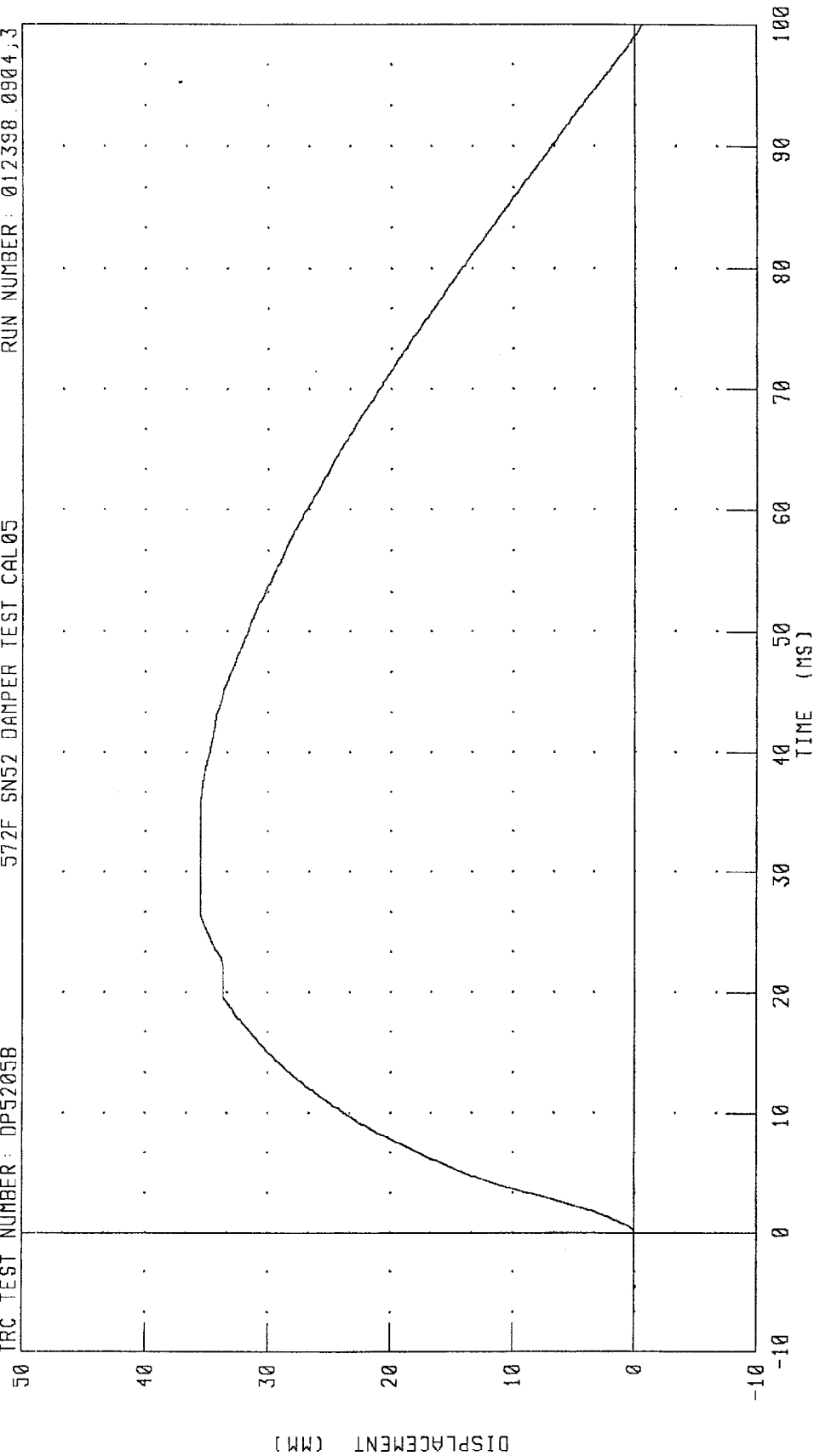
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN52 DAMPER TEST CAL05

TRC TEST NUMBER: DP5205B

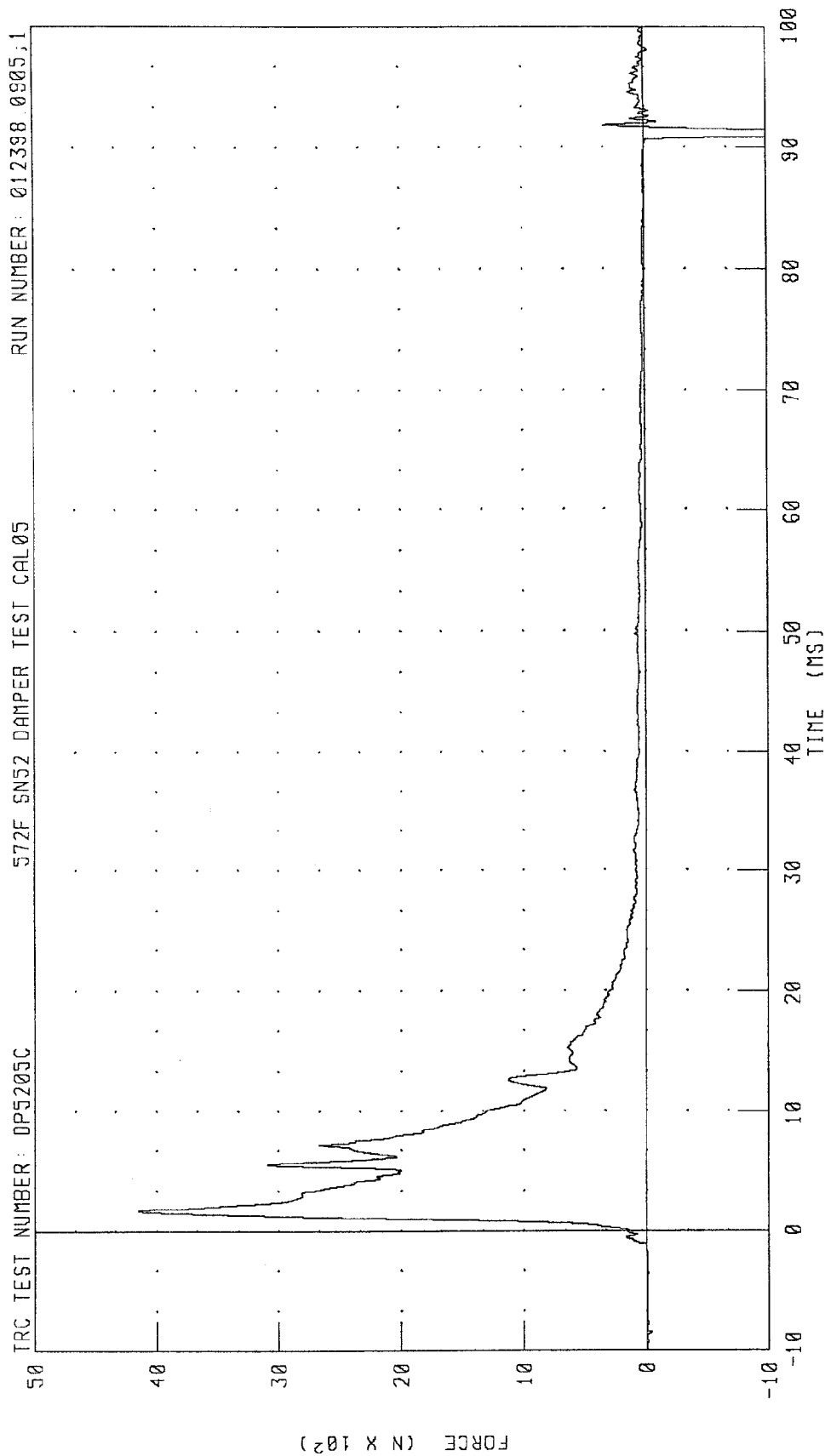
RUN NUMBER: 012398 0904.3



PEAK DATA: 35.54 MM @ 29.76 MS; -0.65 MM @ 100.00 MS

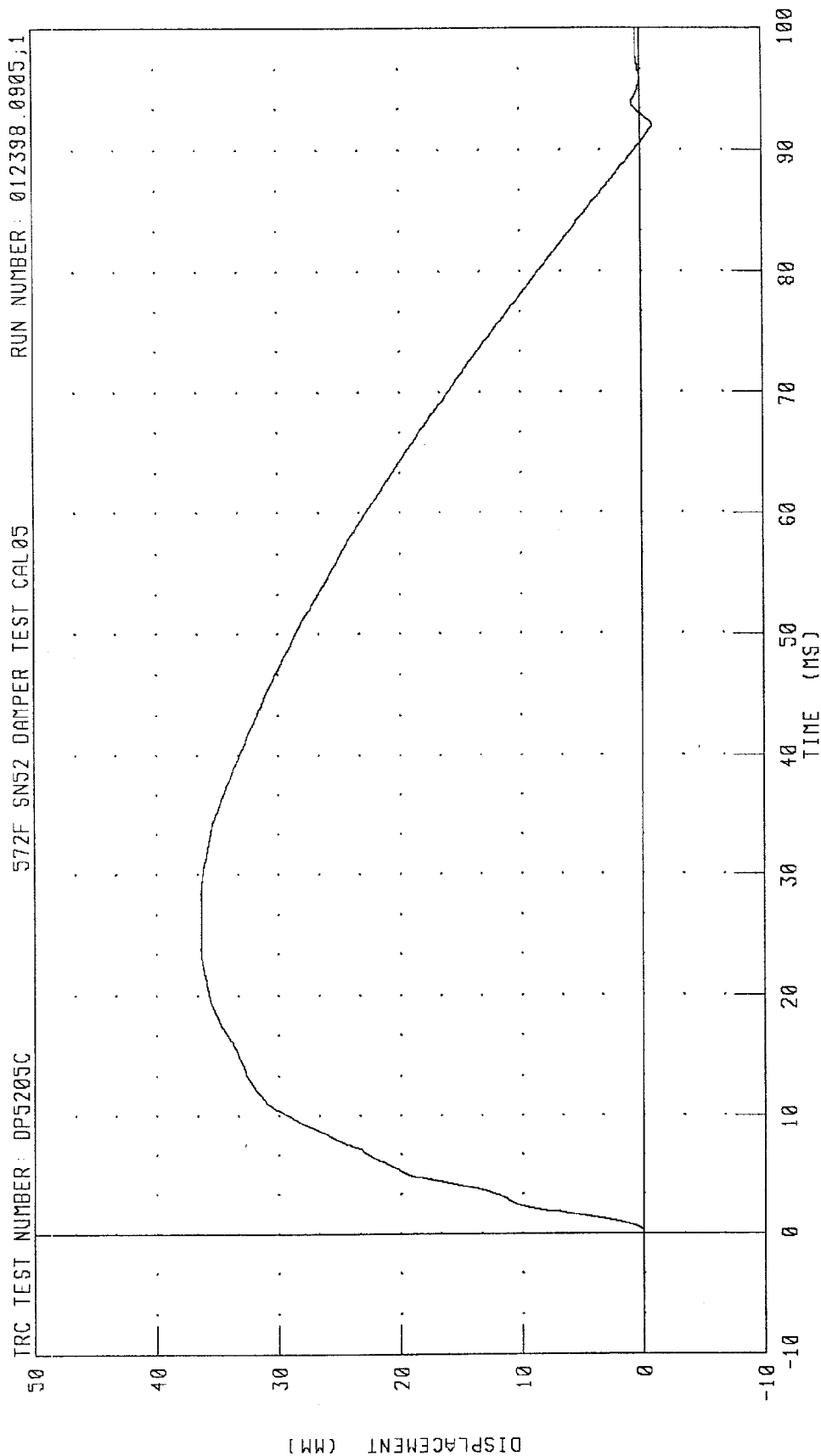
CHANNEL: CSTYD FILTER: CH. CLASS 1000

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



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)
 SHOCK ABSORBER DISPLACEMENT
 572F SN52 DAMPER TEST CAL05 RUN NUMBER: 012398.0905;1



PEAK DATA: 36.39 MM @ 28.40 MS; -0.96 MM @ 92.00 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 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 SN SN51 VECTOR

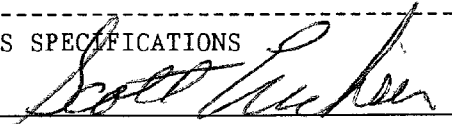
22/JAN/98

TRC INC. TEST NO: ED5105 572F SN51 EXT.DIMENSION CAL05

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		46.0 %
SH	SEATED HEIGHT	889 - 909 MM	894.1 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	525.8 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	492.8 MM
HW	HIP WIDTH	356 - 391 MM	370.8 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	515.6 MM
RD	RIB FROM BACKLINE	229 - 241 MM	241.3 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	175.3 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	175.3 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 012698.0924

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

23-JAN-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL5105A

572F SN51 LEFT THORAX CAL05

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	54.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.30 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-38.5 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-39.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-17.3 G

TEST MEETS SPECIFICATIONS

TECHNICIAN

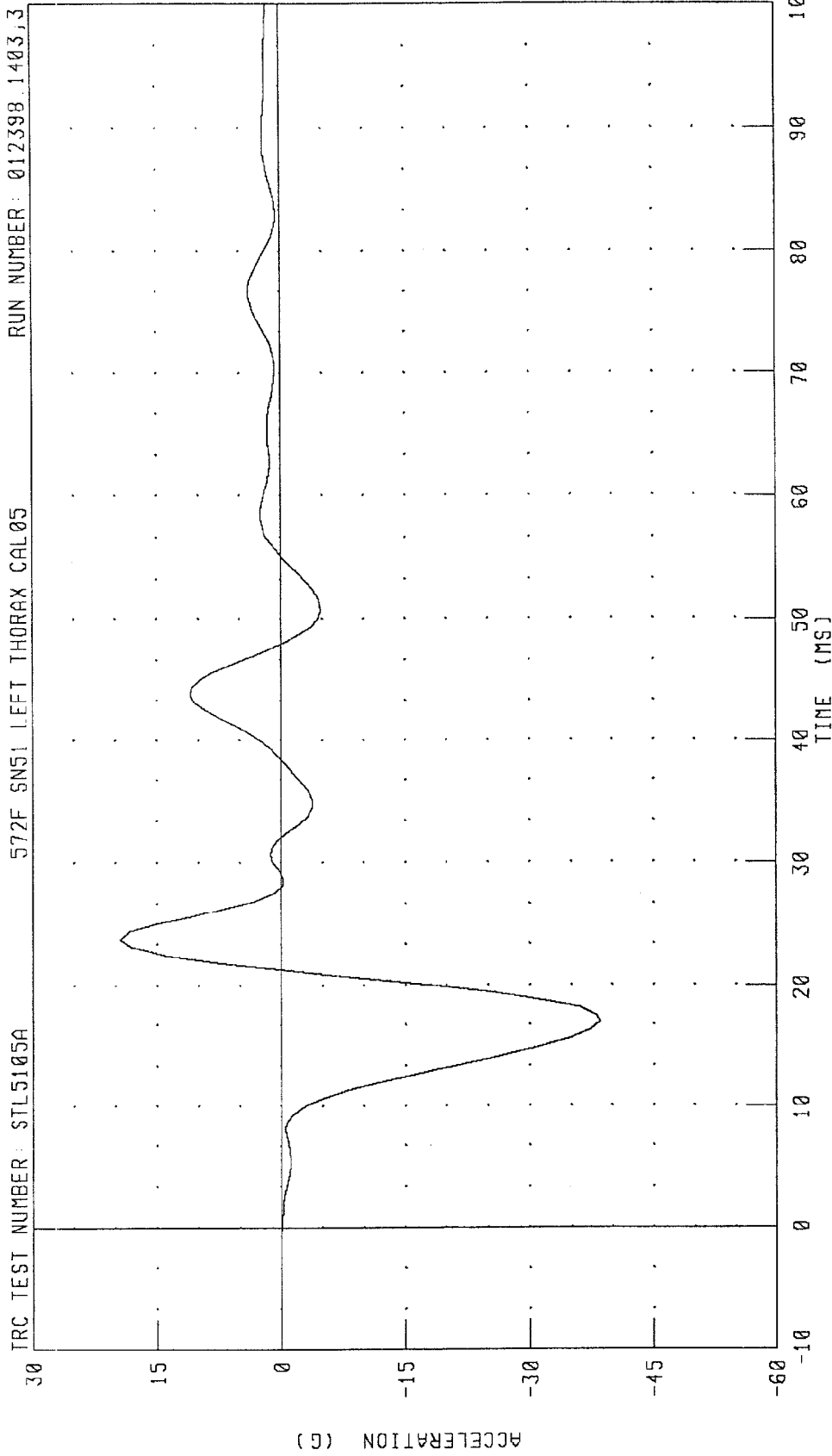
By C. C. C.

RUN NUMBER: 012398.1403;3

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

LEFT UPPER RIB ACCELERATION Y AXIS

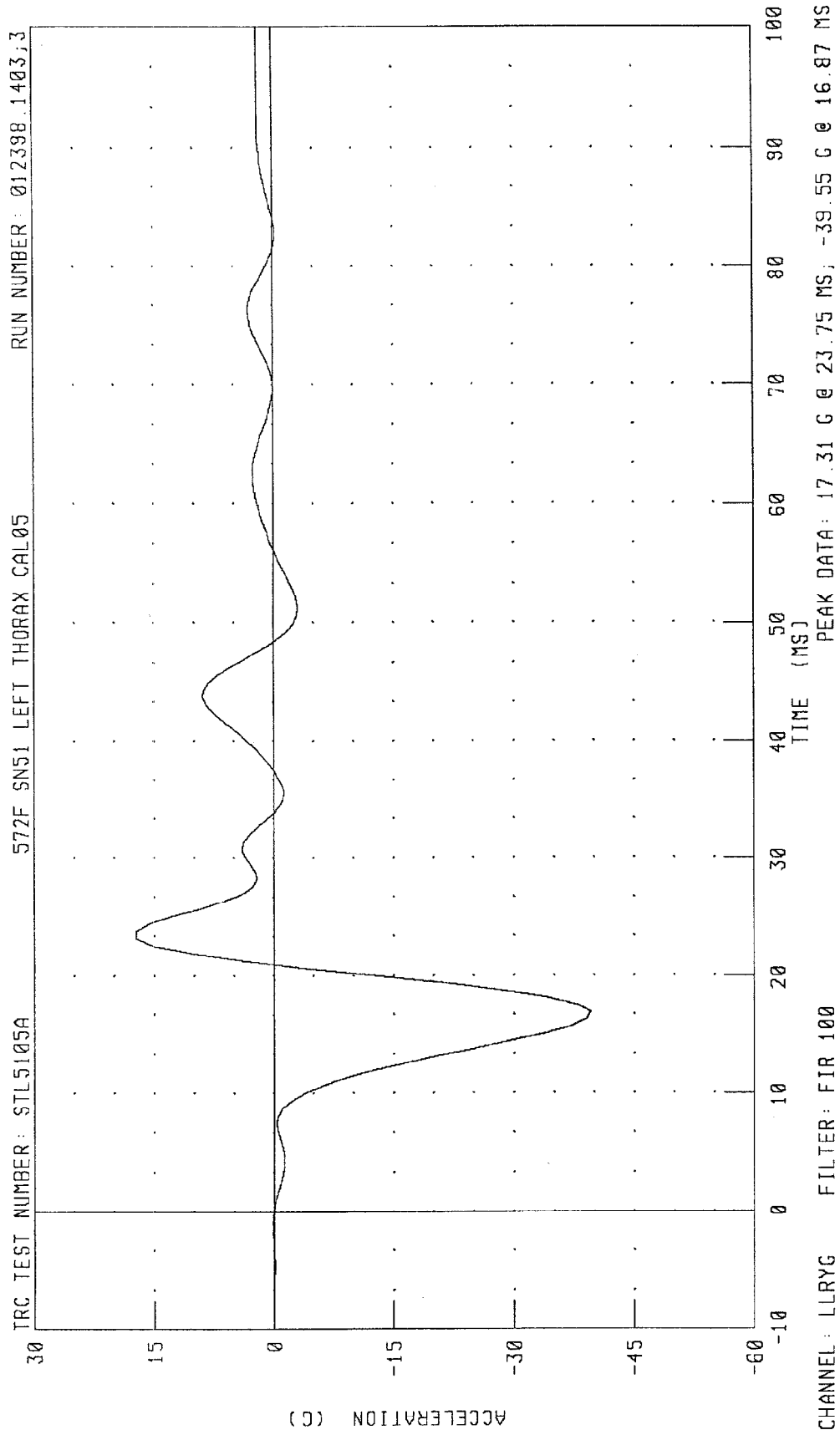
TRC TEST NUMBER: STL5105A 572F SN51 LEFT THORAX CAL05 RUN NUMBER: 012398.1403,3



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 19.43 G @ 23.75 MS, -38.51 G @ 16.87 MS

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



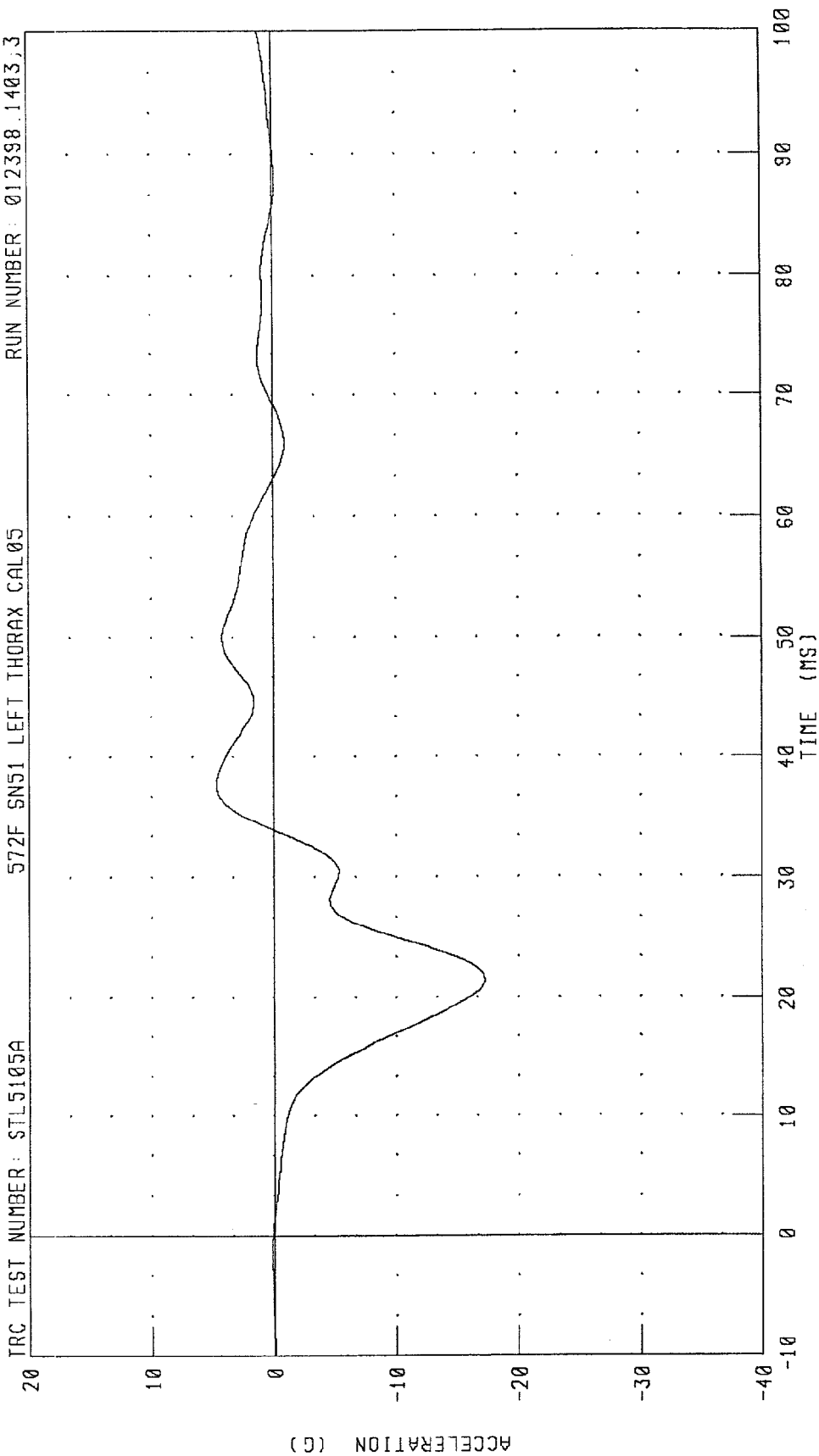
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL5105A

572F SN51 LEFT THORAX CAL05

RUN NUMBER: 012398.1403,3



CHANNEL: T12YG FILTER: FIR 100

PEAK DATA: 4.68 G @ 37.50 MS; -17.26 G @ 21.25 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

23-JAN-98

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL5105

572F SN51 LEFT PELVIS CAL05

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	54.0 %
PENDULUM VELOCITY	4.27 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	-43.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	5.6 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Buy Calt

RUN NUMBER: 012398.1408;5

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

PELVIS ACCELERATION Y AXIS

572F SN51 LEFT PELVIS CAL05 RUN NUMBER: 012398 1409,5

IRC TEST NUMBER: SPL5105

40

20

0

-20

-40

-60

-80

ACCELERATION (G)

TIME (MS)

100

90

80

70

60

50

40

30

20

10

0

CHANNEL: PEVYG

FILTER: FIR 100

PEAK DATA: 6.55 G @ 24.38 MS; -43.87 G @ 10.00 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

22-JAN-98

TRC INC.

572F SN51 DAMPER TEST CAL05

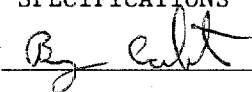
TEST NUMBER: DP5105A

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	838 - 1125 N	927 N
3.05 M/S	DISPLACEMENT	30.2 - 35.2 MM	30.3 MM
VELOCITY	FORCE	1733 - 2100 N	1787 N
4.28 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.0 MM
VELOCITY	FORCE	3743 - 4448 N	3842 N
6.10 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.3 MM

DAMPER SETTING = 6.0

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 012298.1531;1

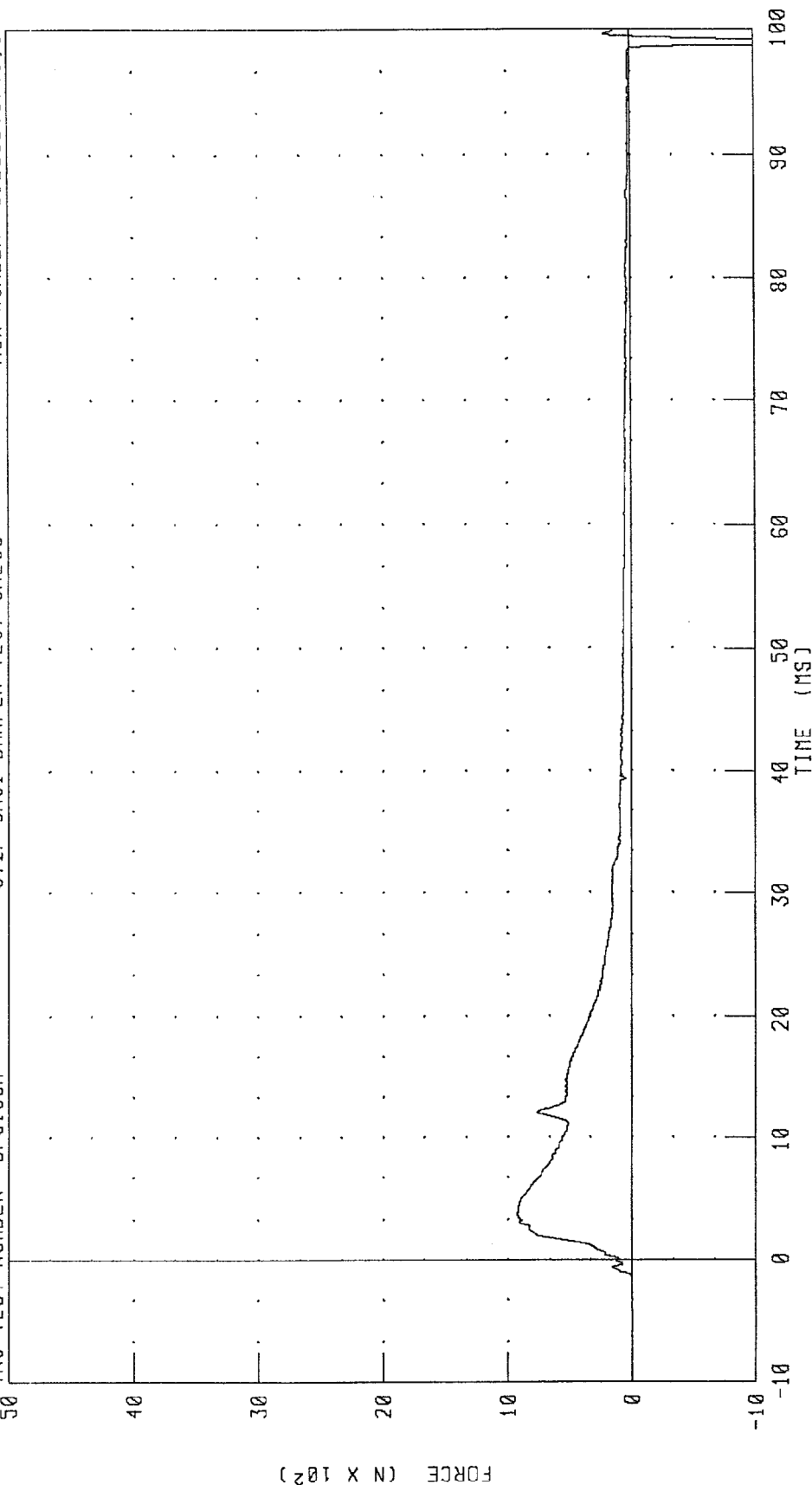
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP5105A

572F SN51 DAMPER TEST CAL05

RUN NUMBER: 012398 0741.1

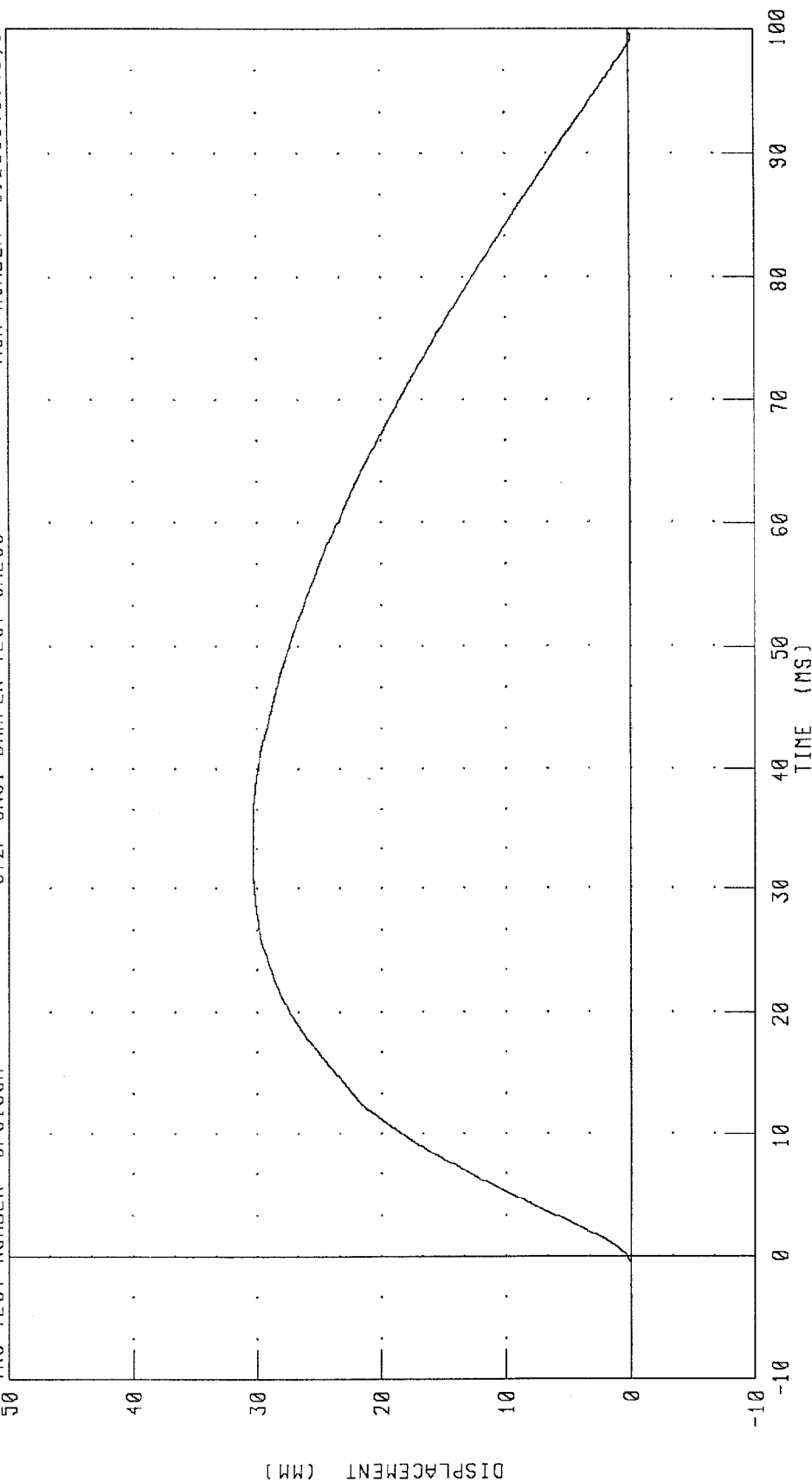


CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 927.07 N @ 3.76 MS; -1582.64 N @ 98.96 MS

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

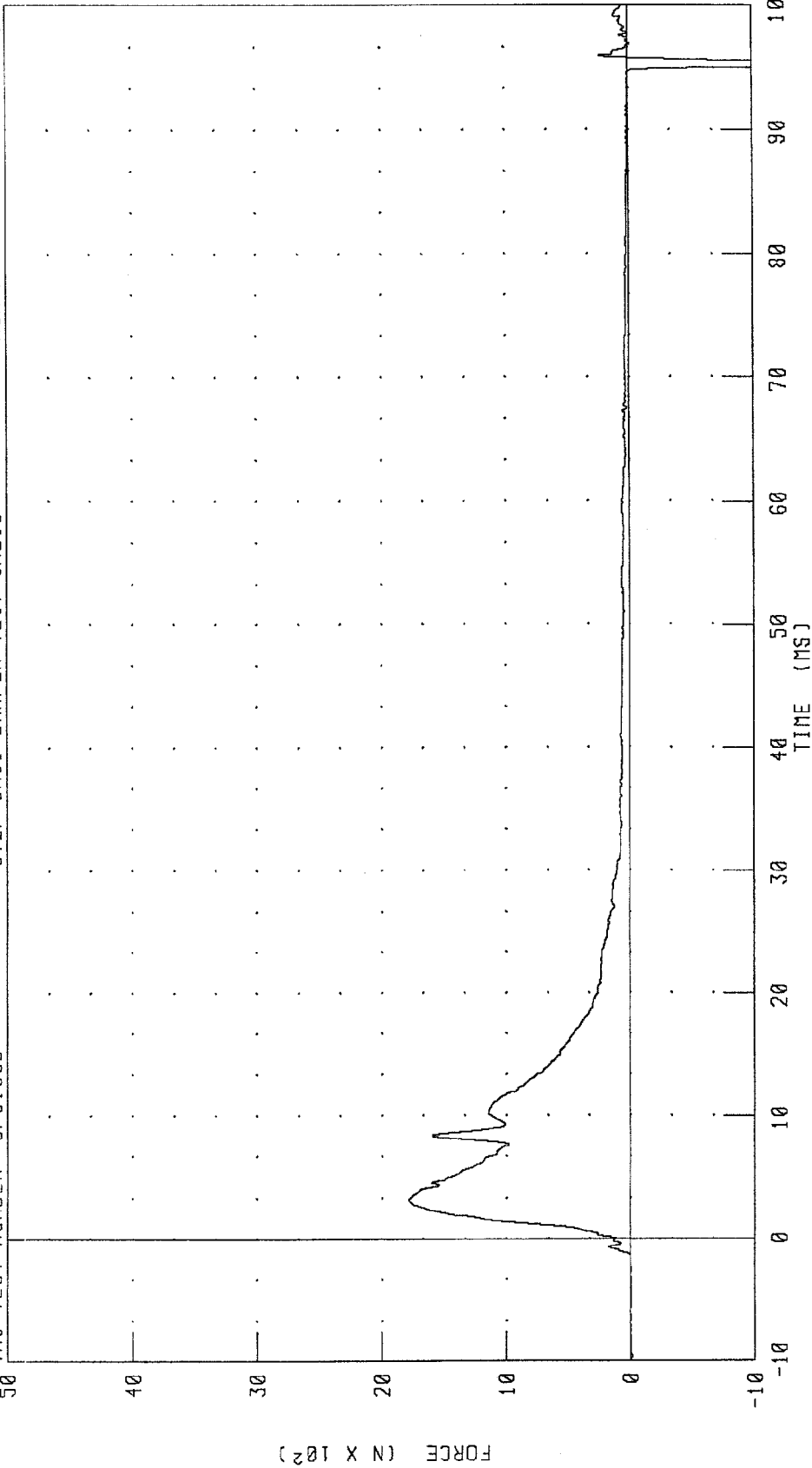
TRC TEST NUMBER: 0P5105A 572F SN51 DAMPER TEST CAL05 RUN NUMBER: 012398.0741,1



CHANNEL: CSTYD FILTER: CH. CLASS 1000 PEAK DATA: 30.34 MM @ 32.48 MS, -0.19 MM @ 99.28 MS

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

TRC TEST NUMBER: DP5105B 572F SN51 DAMPER TEST CAL05 RUN NUMBER: 012398.0743;1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

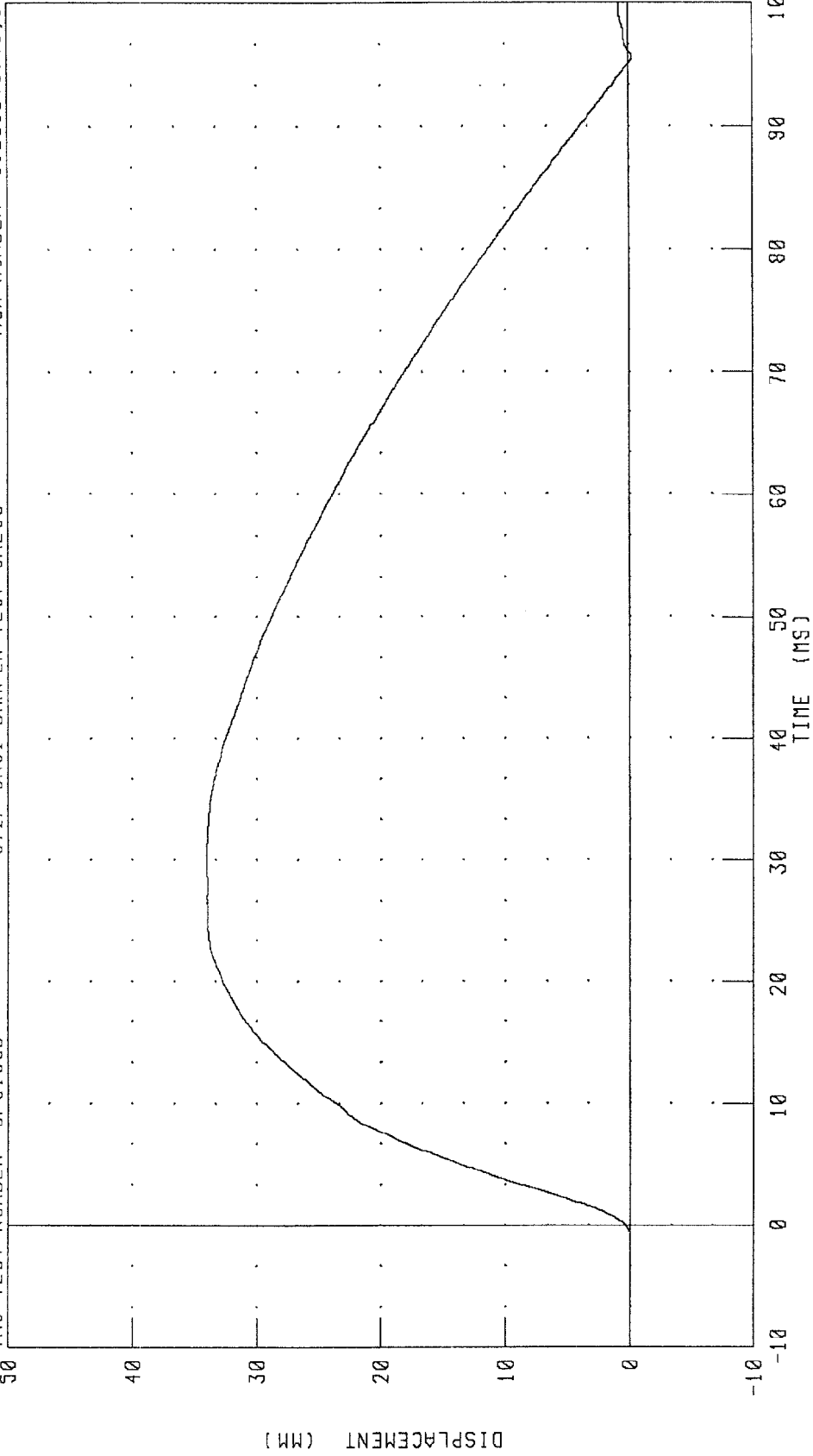
PEAK DATA: 1787.10 N @ 3.20 MS; -1788.46 N @ 95.36 MS

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

SHOCK ABSORBER DISPLACEMENT

572F SN51 DAMPER TEST CAL05 RUN NUMBER: 012398 0743.1

IRC TEST NUMBER: DP5105B



CHANNEL: CSTYD FILTER: CH. CLASS 1000

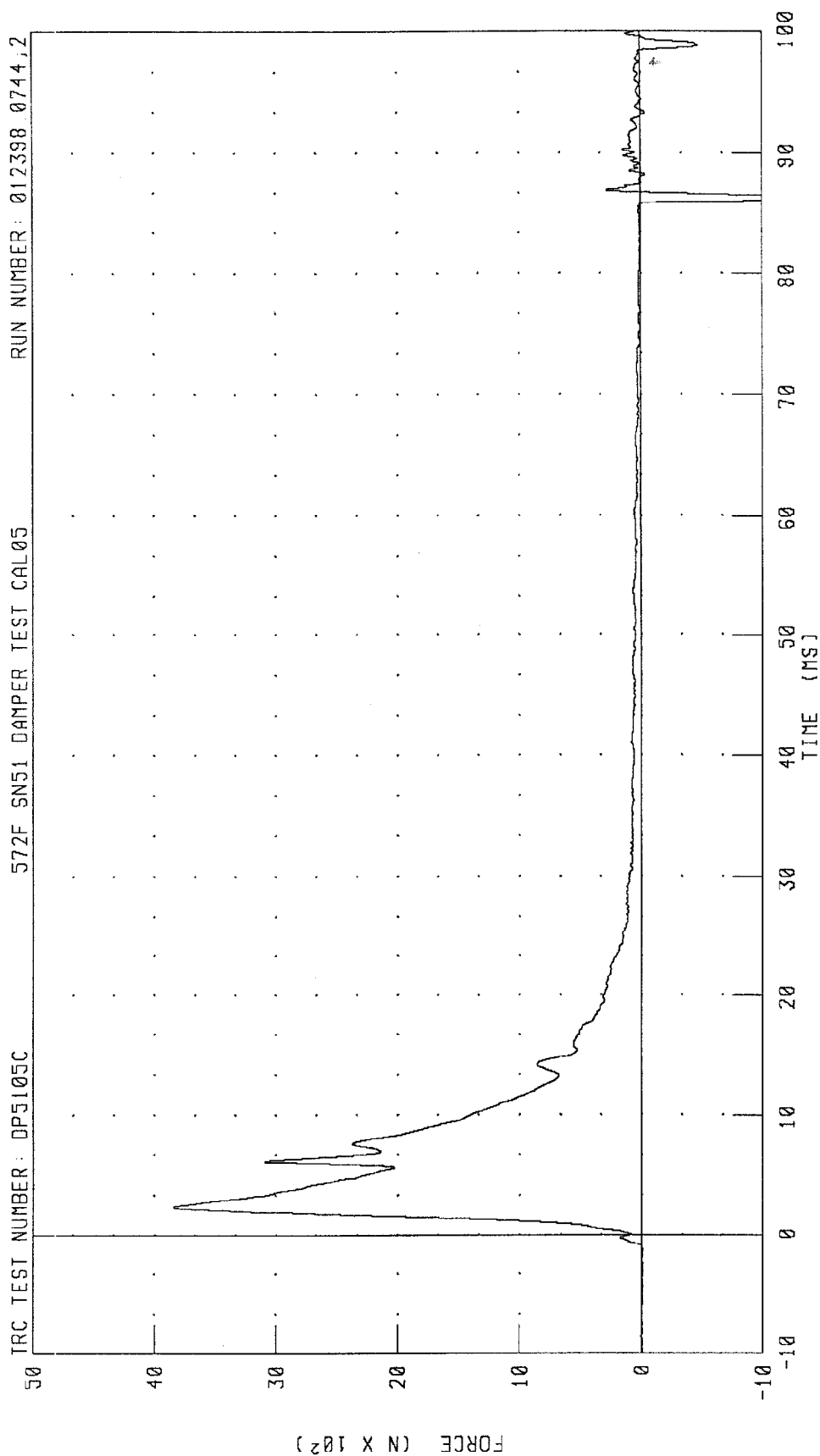
PEAK DATA: 34.02 MM @ 28.80 MS; -0.26 MM @ 95.68 MS

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

SHOCK ABSORBER RESISTIVE FORCE

572F SN51 DAMPER TEST CAL05 RUN NUMBER: 012398 0744,2

TRC TEST NUMBER: DP5105C

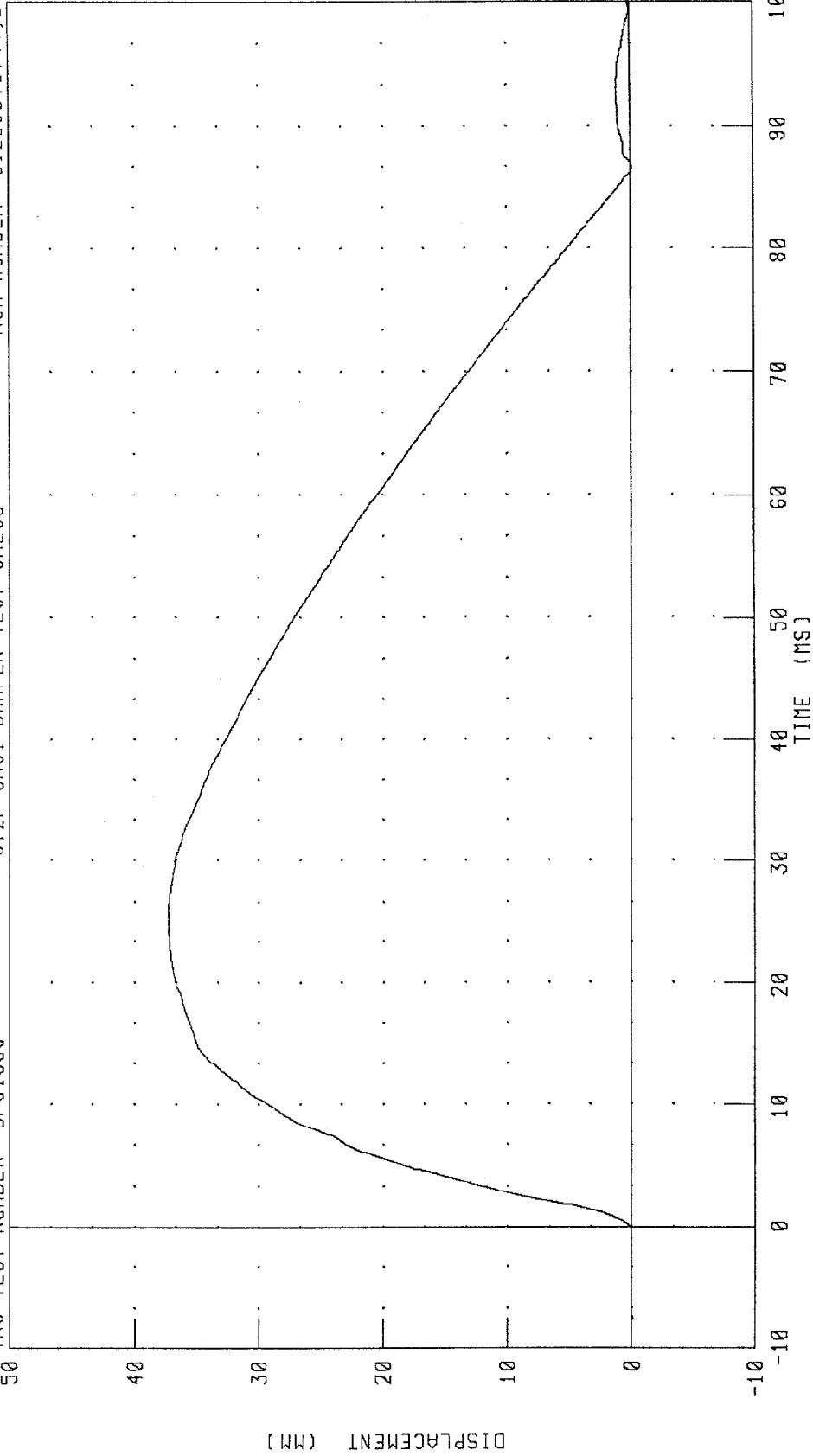


PEAK DATA: 3841.55 N @ 2.32 MS; -1938.80 N @ 86.24 MS

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: DP5105C 572F SN51 DAMPER TEST CAL05 RUN NUMBER: 012398.0744;2



PEAK DATA: 37.30 MM @ 25.92 MS; -0.11 MM @ 86.56 MS

CHANNEL: CSTYD FILTER: CH CLASS 1000

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID INSTRUMENTATION

FRONT SID NO.: 052			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Upper Rib	J20148	Endevco	10/97
Lower Rib	J18811	Endevco	10/97
Lower Spine	J19303	Endevco	10/97
Pelvis	J20243	Endevco	10/97
Upper Rib Redundant	J20005	Endevco	10/97
Lower Rib Redundant	J20561	Endevco	10/97
Lower Spine Redundant	J20025	Endevco	10/97
Pelvis Redundant	J20462	Endevco	10/97

REAR SID NO.: 051			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Upper Rib	J22075	Endevco	10/97
Lower Rib	J22047	Endevco	10/97
Lower Spine	J19577	Endevco	10/97
Pelvis	J22197	Endevco	10/97
Upper Rib Redundant	J20184	Endevco	10/97
Lower Rib Redundant	J22046	Endevco	10/97
Lower Spine Redundant	J20024	Endevco	10/97
Pelvis Redundant	J20387	Endevco	10/97

VEHICLE AND MDB INSTRUMENTATION

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Right Front Sill (X)	J18895	Endevco	08/97
Right Front Sill (Y)	J20268	Endevco	10/97
Right Front Sill (Z)	J19951	Endevco	08/97
Right Rear Sill (X)	J20185	Endevco	10/97
Right Rear Sill (Y)	J20266	Endevco	08/97
Right Rear Sill (Z)	J20013	Endevco	10/97
Rear Floorpan Above Axle (X)	J20177	Endevco	10/97
Rear Floorpan Above Axle (Y)	ACB93	Endevco	09/97
Rear Floorpan Above Axle (Z)	J20261	Endevco	08/97
Left Rear Sill (Y)	J22049	Endevco	09/97
Left Front Sill (Y)	J18844	Endevco	11/97
Right Rear Seat Occupant Comp. (Y)	J14339	Endevco	10/97
Lower Left B-Pillar (Y)	J22166	Endevco	11/97
Middle Left B-Pillar (Y)	J22210	Endevco	11/97
Lower Left A-Pillar (Y)	J19253	Endevco	10/97
Middle Left A-Pillar (Y)	J19309	Endevco	09/97
Front Seat Track (Y)	J11527	Endevco	11/97
Rear Seat Track (Y)	-----	-----	-----
Vehicle CG (X)	J19557	Endevco	10/97
Vehicle CG (Y)	J20284	Endevco	09/97
Vehicle CG (Z)	J20009	Endevco	08/97
Mdb CG (X)	J19942	Endevco	08/97
Mdb CG (Y)	ANBG4	Endevco	12/97
Mdb CG (Z)	J22168	Endevco	11/97
MDB Rear Frame Member (X)	J20265	Endevco	08/97
MDB Rear Frame Member (Y)	J20036	Endevco	10/97