

Report Numbers: TRC-96-V006

Frontal Full-Scale Crash Testing

for Upgrade of

FMVSS 208 Test Procedure V2522

15° Crabbed Deformable Impactor into Front of

1996 Mitsubishi Galant S

at 113 kph at a 30° Angle

TRC Test Number: 970225

Prepared By:

Transportation Research Center Inc.

10820 State Route 347

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March 18, 1997

Final Report

Prepared for:

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Vehicle Crashworthiness Division, DTS-74

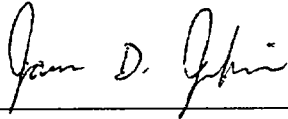
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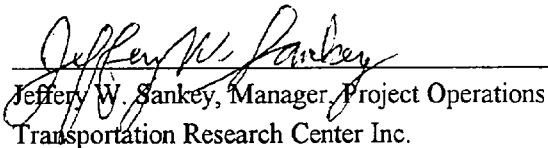


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16. Abstract  A 15° crabbed deformable impactor into a 1996 Mitsubishi Galant S 4-door sedan, NHTSA No. RT5603, was conducted at Transportation Research Center Inc. on February 25, 1997. This frontal full-scale crash testing was conducted for upgrade of Federal Motor Vehicle Safety Standard (FMVSS) 208 Test Procedure. The deformable impactor's velocity was 116.2 kph. The vehicle's test weight was 1525 kg. The vehicle's maximum crush was 746 millimeters. The ambient temperature was 5° C.  The driver's Head Injury Criteria (HIC) was 283. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47.3 g. The driver's chest maximum deflection was 25 mm. the driver's left and right femur maximum axial forces were 11,639 N and 9,499 N, respectively.  The passenger's Head Injury Criteria (HIC) was 191. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 39.1 g. The passenger's chest maximum deflection was 37 mm. The passenger's left and right femur maximum axial forces were 4,192 N and 5,068 N, respectively.					
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# METRIC CONVERSION FACTORS

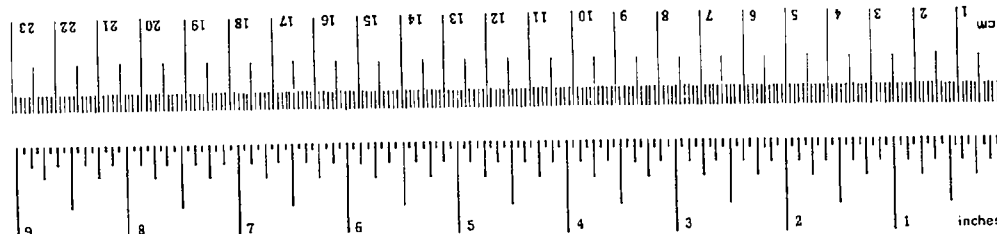
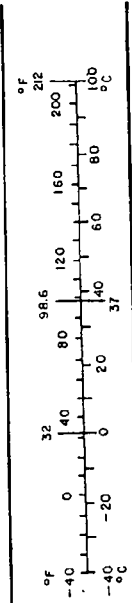
## Approximate Conversions to Metric Measures

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

\*1 in = 2.54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10.286.

## Approximate Conversions from Metric Measures

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



## Table of Contents

<u>Section</u>	<u>Description</u>	<u>Page</u>
1.0	Purpose and Test Procedure	1-1
2.0	Frontal Deformable Barrier Impact Test Summary	2-1
3.0	FMVSS 208 and 301 Data	3-1
4.0	Vehicle, Moving Deformable Barrier, Occupant, and Camera Measurements	4-1
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1
Appendix C	Dummy Calibration Information	C-1
Appendix D	Miscellaneous Test Information	D-1

List of Tables

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	Crash Test Summary	2-4
2	Test Vehicle Information	2-6
3	Post-Impact Data	2-9
4	Dummy Injury Criteria	3-2
5	Fuel System Data	3-3
6	FMVSS 301 Post-Impact Test Data	3-4
7	Impacted Vehicle Measurements	4-4
8	Pre-Test Vehicle Measurements	4-6
9	Test Vehicle Front Profile Data	4-8
10	Vehicle Accelerometer Locations and Data Summary	4-13
11	Moving Deformable Barrier Load Cell Placement and Data Summary	4-17
12	Moving Deformable Barrier Face Static Crush	4-19
13	Dummy Measurement Data for Front Seat Occupants	4-21
14	Motion Picture Camera Locations	4-24

## List of Figures

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	Impact Velocity Measurement System	2-10
2	Accident Investigation Division Data	2-11
3	FMVSS 301 Static Rollover Test Data	3-5
4	Pre-Test and Post-Test Measurement Points	4-2
5	Vehicle Target Locations	4-7
6	Vehicle Crush	4-11
7	Vehicle Accelerometer Mounting Locations	4-12
8	Moving Deformable Barrier Load Cell Placement	4-16
9	Moving Deformable Barrier Face Crush	4-18
10	Dummy Measurement Locations for Front Seat Occupants	4-20
11	Seat Belt Positioning Data	4-22
12	Camera Positions	4-23

## List of Photographs

- Figure A-1 Pre-Test Front View
- Figure A-2 Post-Test Front View
- Figure A-3 Pre-Test Left Front Three-Quarter View
- Figure A-4 Post-Test Left Front Three-Quarter View
- Figure A-5 Pre-Test Left Side View
- Figure A-6 Post-Test Left Side View
- Figure A-7 Pre-Test Left Rear Three-Quarter View
- Figure A-8 Post-Test Left Rear Three-Quarter View
- Figure A-9 Pre-Test Rear View
- Figure A-10 Post-Test Rear View
- Figure A-11 Pre-Test Right Rear Three-Quarter View
- Figure A-12 Post-Test Right Rear Three-Quarter View
- Figure A-13 Pre-Test Right Side View
- Figure A-14 Post-Test Right Side View
- Figure A-15 Pre-Test Right Front Three-Quarter View
- Figure A-16 Post-Test Right Front Three-Quarter View
- Figure A-17 Pre-Test Vehicle and Barrier View
- Figure A-18 Pre-Test Overhead View
- Figure A-19 Post-Test Overhead View
- Figure A-20 Pre-Test Fuel Filler Cap View
- Figure A-21 Post-Test Fuel Filler Cap View
- Figure A-22 Pre-Test Engine Compartment View
- Figure A-23 Post-Test Engine Compartment View
- Figure A-24 Post-Test Windshield View
- Figure A-25 Pre-Test Front Underbody View
- Figure A-26 Post-Test Front Underbody View
- Figure A-27 Pre-Test Left Front Underbody View
- Figure A-28 Post-Test Left Front Underbody View
- Figure A-29 Pre-Test Rear Underbody View
- Figure A-30 Post-Test Rear Underbody View

## List of Photographs

- Figure A-31 Pre-Test Driver Dummy Position View
- Figure A-32 Post-Test Driver Dummy Position View
- Figure A-33 Pre-Test Passenger Dummy Position View
- Figure A-34 Post-Test Passenger Dummy Position View
- Figure A-35 Pre-Test Driver Dummy and Vehicle Interior - View 1
- Figure A-36 Pre-Test Driver Dummy and Vehicle Interior - View 2
- Figure A-37 Pre-Test Passenger Dummy and Vehicle Interior - View 1
- Figure A-38 Pre-Test Passenger Dummy and Vehicle Interior - View 2
- Figure A-39 Post-Test Driver Dummy Contact - View 1
- Figure A-40 Post-Test Driver Dummy Contact - View 2
- Figure A-41 Post-Test Driver Dummy Head Contact - View 1
- Figure A-42 Post-Test Driver Dummy Head Contact - View 2
- Figure A-43 Post-Test Driver Dummy Knee Contact - View 1
- Figure A-44 Post-Test Driver Dummy Knee Contact - View 2
- Figure A-45 Post-Test Passenger Dummy Contact - View 1
- Figure A-46 Post-Test Passenger Dummy Contact - View 2
- Figure A-47 Post-Test Passenger Dummy Head Contact - View 1
- Figure A-48 Post-Test Passenger Dummy Head Contact - View 2
- Figure A-49 Post-Test Passenger Dummy Knee Contact - View 1
- Figure A-50 Post-Test Passenger Dummy Knee Contact - View 2
- Figure A-51 Post-Test Deformable Barrier - View 1
- Figure A-52 Post-Test Deformable Barrier - View 2
- Figure A-53 Post-Test Deformable Barrier - View 3
- Figure A-54 Post-Test Driver Door Damage View
- Figure A-55 Vehicle on Static Rollover Machine View

Section 1.0

Purpose and Test Procedure

Purpose

This crash test was conducted to determine vehicle and occupant response in the 113 kph frontal impact with a 15° crabbed cart at 30° to the target vehicle. The test was performed on a 1996 Mitsubishi Galant S passenger car.

## Test Procedure

This test was conducted per Contract No. DTRS57-95-C-00011, Technical Task Directive No. 3, "Frontal Full-Scale Crash Testing for Upgrade of FMVSS 208 Frontal Test Procedure."

The test vehicle was instrumented with fifteen (15) accelerometers to measure longitudinal axis accelerations; eight (8) accelerometers to measure lateral axis accelerations; and six (6) accelerometers to measure vertical accelerations.

The test vehicle contained two (2) Part 572 E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedure specified in Appendix C of the Laboratory Test Procedure TP-208-09.

The deformable impactor was instrumented with five (5) force load cells to measure longitudinal axis forces on the barrier face.

The impactor's specified velocity range was 111.5 to 114.5 kph.

Both dummies were instrumented with head center of gravity and Position 1, 2, and 3 accelerometers to measure longitudinal, lateral, and vertical accelerations; neck upper and lower 6-axis load cells to measure longitudinal, lateral, and vertical force and moments; chest and pelvis accelerometers to measure longitudinal, lateral, and vertical axis accelerations; and with left and right femur load cells and upper and lower tibia load cells to measure axial forces. Each dummy was instrumented to measure knee displacements. Each Part 572 E dummy's instrumentation also included a chest potentiometer to measure longitudinal deflection. Also, each dummy was instrumented with an 8-string pot thorax to measure longitudinal and lateral rib displacement. Additionally, the driver dummy was instrumented with a shoulder belt load cell.

The one-hundred-thirty-four (134) data channels were digitally sampled at 12,500 samples per second and processed per Sections 11.13 through 11.15 of the Laboratory Test Procedure.

The crash event was recorded by twelve (12) high-speed motion picture cameras and a real-time panning camera.

The vehicle and occupant data are summarized in Section 2.0. The FMVSS 301 data are presented in Section 3.0. The vehicle, moving deformable barrier, occupant, and camera measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy calibration information. Appendix D contains miscellaneous test information.

Section 2.0

Frontal Deformable Barrier Impact Test Summary

### Test Results Summary

This 113 kph frontal crash test with a 15° crabbed cart at 30° to the test vehicle was conducted at TRC on February 25, 1997.

The test vehicle, a 1996 Mitsubishi Galant S passenger car, was equipped with airbags and three-point unibelts at the driver's and right front passenger's seating positions. The vehicle's test weight was 1525 kg. The vehicle's maximum static crush was 746 mm.

The driver's HIC was 283. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47.3 g. The driver's chest maximum deflection was 25 mm. The driver's left and right femur maximum compressive forces were 11,639 N and 9,499 N, respectively.

The right front passenger's HIC was 191. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 39.1 g. The right front passenger's chest maximum deflection was 37 mm. The right front passenger's left and right femur maximum compressive forces were 4,192 N and 5,068 N, respectively.

### Data Acquisition Explanations

The vehicle's left shock tower Z-axis acceleration data channel, SFLZG1, lost data at approximately 50 milliseconds.

The vehicle's left engine X-axis acceleration data channel, ENGXG1, did not record any data throughout the event.

The vehicle's left front frame rail X-axis acceleration data channel, FFRXG1, lost data from approximately 25 to 70 milliseconds.

The vehicle's left front frame rail Y-axis acceleration data channel, FFRYG1, lost data from approximately 0 to 40 milliseconds.

The vehicle's left front frame rail Z-axis acceleration data channel, FFRZG1, lost data from approximately 25 to 40 milliseconds.

The vehicle's left front frame rail resultant calculation, FFRRG1, was affected by the loss of the left front frame rail accelerometer data channels as noted above.

The vehicle's toepan Y-axis acceleration data channel, LFFYG1, lost data at approximately 52 milliseconds. This affected the vehicle's toepan resultant calculation.

The vehicle's left top hinge on the A-pillar X-axis acceleration data channel, LPAXG1, lost data after approximately 40 milliseconds.

Table 1 Crash Test Summary

Test type:	113 kph 15° crabbed moving deformable barrier at 30° into test vehicle
Test date:	02/25/97
Test time:	1553
Ambient temperature at impact area:	5° C
Vehicle year/make/model/body style:	1996/Mitsubishi/Galant S/passenger car
Vehicle test weight:	1525 kg
Impact angle <sup>1</sup> :	345°
Impact velocity <sup>2</sup> :	
Primary:	116.2 kph
Secondary:	116.2 kph
Maximum static crush:	746 mm
Number of cameras:	
High-speed:	12
Door opening data:	
Left-front:	Needed tools
Left-rear:	Needed tools
Right-front:	Difficult
Right-rear:	Difficult

<sup>1</sup> With respect to the stationary vehicle's centerline.

<sup>2</sup> Speed trap measurement (± .08 kph accuracy)

Table 1 Crash Test Summary, Cont'd.

Dummies:	<u>Driver #177</u>	<u>Passenger #134</u>
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag/3-point unbelt	Airbag/3-point unbelt
Number of data channels:	50	50
Front seat data:		
Seat track failure:	None	None
Seat back failure:	None	None
Visible dummy contact points:		
Head:	Airbag	Airbag
Chest:	Airbag	None
Abdomen:	None	None
Left knee:	Instrument panel	Instrument panel
Right knee:	Instrument panel	Instrument panel

Table 2 Test Vehicle Information

Vehicle year/make/  
model/body style: 1996/Mitsubishi/Galant S/passenger car

Color: Blue

VIN: 4A3AJ46GXTE424593

Engine data:

Placement: Transverse

Cylinders: 4

Displacement: 2.4 liters

Transmission data: 4 speed, \_\_\_ manual, X automatic, \_\_\_ overdrive

Final drive: X fwd, \_\_\_ rwd, \_\_\_ 4wd

Date vehicle received: NA

Odometer reading: 250

Dealer's name  
and address: N/A

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	No	Tilting steering wheel	No
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	No
Clock	Yes	Rear window defroster	Yes

Certification data from vehicle's label:

Vehicle manufactured by: Mitsubishi Motor Mfg. of America, Inc.

Date of manufacture: 06/96

VIN: 4A3AJ46GXTE424593

GVWR: 1780 kg

GAWR: Front: 971 kg

Rear: 809 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires on vehicle: P185/70R14  
Spare tire: Goodyear T125/70D15  
Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P185/70R14  
Recommended cold tire pressure:  
Front: 221 kPa  
Rear: 200 kPa  
Designated Seating Capacity:  
Front 2  
Rear 3  
Total 5  
Vehicle Capacity Weight: 375 kg

Test vehicle attitudes:

Delivered attitude:	LF: 677 mm	RF: 680 mm	LR: 675 mm	RR: 676 mm
Pre-test attitude:	LF: 668 mm	RF: 667 mm	LR: 645 mm	RR: 644 mm
Post-test attitude:	LF: 830 mm	RF: 550 mm	LR: 570 mm	RR: 740 mm

Table 2 Test Vehicle Information, Cont'd.

Weight of test vehicle as received (with maximum fluids):

Right front	410.0 kg	Right rear	248.1 kg
Left front	410.5 kg	Left rear	248.6 kg
Total front weight	820.5 kg	(62.3% of total vehicle weight)	
Total rear weight	496.7 kg	(37.7% of total vehicle weight)	
Total delivered weight	1317.2 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (1317.3 kg)

VCW = Vehicle Capacity Weight = 375 kg

DSC = Designated Seating Capacity (5)

RCLW = VCW - 68 (DSC) = 375 - 68 (5) = 35 kg

Target test weight = UDW + RCLW<sup>1</sup> + (Number of Hybrid III dummies x 76 kg per dummy)

Target test weight = 1317.2 + 35 + 152 = 1504.2 kg

Weight of test vehicle with required dummies and 21.3 kg of cargo weight:

Right front	451.3 kg	Right rear	318.4 kg
Left front	441.4 kg	Left rear	313.9 kg
Total front weight	892.7 kg	(58.5% of total vehicle weight)	
Total rear weight	632.3 kg	(41.5% of total vehicle weight)	
Total test weight	1525.0 kg	(15.8% over target test weight)	

Weight of ballast secured in vehicle cargo area: 0

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 1095 mm

Vehicle Wheelbase: 2640 mm

<sup>1</sup> From vehicle's tire load label.

Table 3 Post-Impact Data

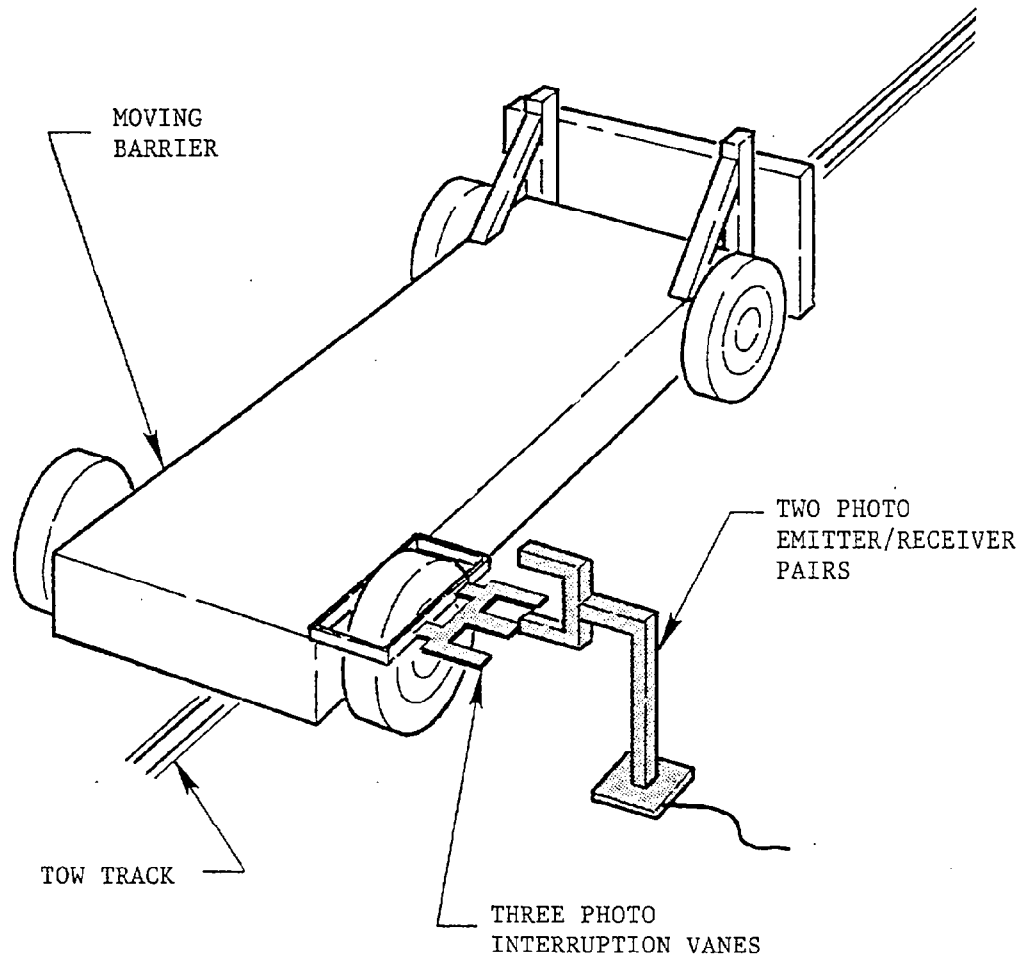
Test number: 970225  
Test date: 02/25/97  
Test time: 1553  
Test type: 113 kph 15° crabbed moving deformable barrier into test vehicle at a 30° angle  
Impact angle:<sup>1</sup> 345°  
Ambient temperature at impact area: 5° C  
Temperature in occupant compartment: NA  
Impact velocity:  
  Primary: 116.2 kph  
  Secondary: 116.2 kph  
  Specified range: 111.5 to 114.5 kph  
Distance from vehicle to barrier:  
  Entering velocity trap: 356 mm  
  Exiting velocity trap: 51 mm

Test vehicle static crush:

Overall length of test vehicle:  
Pre-test: L: 4405 mm C: 4627 mm R: 4393 mm  
Post-test: L: 3659 mm C: 4167 mm R: 4520 mm  
Total crush: L: 746 mm C: 460 mm R: -127 mm  
Average crush: 360 mm

<sup>1</sup> With respect to the stationary vehicle's centerline.

Figure 1 Impact Velocity Measurement System



The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 305-millimeter spacing.

Figure 2 Accident Investigation Division Data

Test date: 02/25/97  
 Vehicle year/make/  
 model/body style: 1996/Mitsubishi/Galant S/passenger car  
 Volpe No.: RT5603  
 VIN: 4A3AJ46GXTE424593  
 Build date: 06/96  
 Test weight: 1525 kg  
 Vehicle wheelbase: 2640 mm  
 Maximum width: 1725 mm  
 Front overhang: 1000 mm

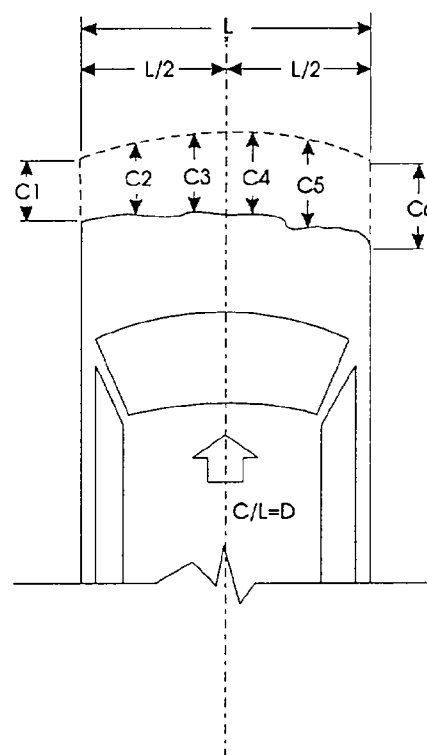
Collision Deformation

Classification (CDC) Code: 11FDEW1

Crush depth  
 measurements: C1: 746 mm  
 C2: 704 mm  
 C3: 555 mm  
 C4: 358 mm  
 C5: 111 mm  
 C6: -127 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline  
 4627 mm

Length of damaged  
 region: L: 1524 mm



Section 3.0

FMVSS 208 and 301 Data

Table 4 Dummy Injury Criteria

Maximum Acceleration

	Head				Chest		
	X	Y	Z	R	X	Y	Z
Driver	48.6 g	55.1 g	-26.3 g	57.7 g	-44.3 g	-36.8 g	-21.3 g
Passenger	-29.6 g	-58.8 g	-27.4 g	61.5 g	-38.2 g	-23.1 g	9.3 g

Maximum Femur Compressive Force

	Left Femur	Right Femur
Driver	11,639 N	9,499 N
Passenger	4,192 N	5,068 N

Head Injury Criteria<sup>1</sup>

	HIC	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	283	55.8 ms	91.8 ms
Passenger	191	111.8 ms	123.5 ms

Head Maximum Resultant Acceleration<sup>2</sup>

	Acceleration	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	42.3 g	72.7 ms	75.7 ms
Passenger	53.5 g	115.7 ms	118.7 ms

Chest Maximum Resultant Acceleration<sup>2</sup>

	Acceleration	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	47.3 g	74.3 ms	77.4 ms
Passenger	39.1 g	62.6 ms	65.6 ms

Maximum Chest Deflection

Driver	25 mm
Passenger	37 mm

<sup>1</sup> As defined in FMVSS No. 208

<sup>2</sup> Defined as equal to or exceeding 0.003 sec. duration

Table 5 Fuel System Data

Vehicle year/make/model/body style:	1996/Mitsubishi/Galant S/passenger car
Volpe No.:	RT5603
Fuel system capacity:	N/A (from owner's manual)
Usable capacity:	64.0 liters (furnished by COTR)
Test volume range:	58.9 liters to 60.2 liters (92-94% of usable)
Actual test volume:	59.5 liters (with entire fuel system filled)
Test fluid type:	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	purple
Type of fuel pump:	electric
Does the electric fuel pump operate with ignition switch "on" and the engine not operating.	No
Details of fuel system:	The fuel tank is located forward of the rear axle. The fuel filler neck was located on the right side and entered the right rear corner of the tank. The fuel lines ran along the right side of the vehicle.

Table 6 FMVSS 301 Post-Impact Test Data

Test date: 02/25/97

Volpe No.: RT5603

Vehicle year/make/model/body style: 1996/Mitsubishi/Galant S/passenger car

Test requirements:

Test vehicle fuel tank filled to 92 to 94% of manufacturer's usable capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

Test vehicle impact type:

- Frontal (113 kph)
- Oblique (48 kph) with \_\_\_° barrier face first contacting (driver's/passenger's) side
- Rear moving barrier (80 kph)
- Lateral moving barrier (32 kph)

Fuel system fluid spillage measurements:

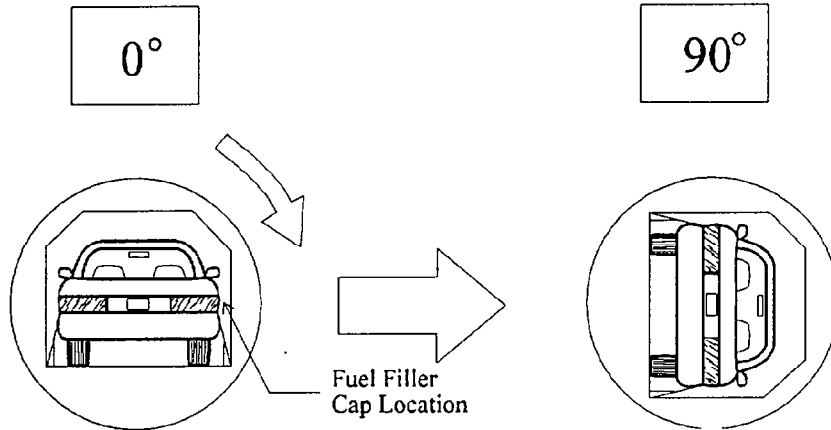
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 g	28 g
2. 5-Minute period after vehicle motion ceases	0 g	140 g
3. Next 25 minutes after 5-minute period	0 g	28 g/1 min

Fuel system fluid spillage location(s): None

Figure 3 FMVSS 301 Static Rollover Test Data

Volpe No: RT5603

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds  
 FMVSS 301 position hold time = 5 minutes, 0 seconds  
 Total = 7 minutes, 0 seconds  
 Next whole minute interval = 7 minutes

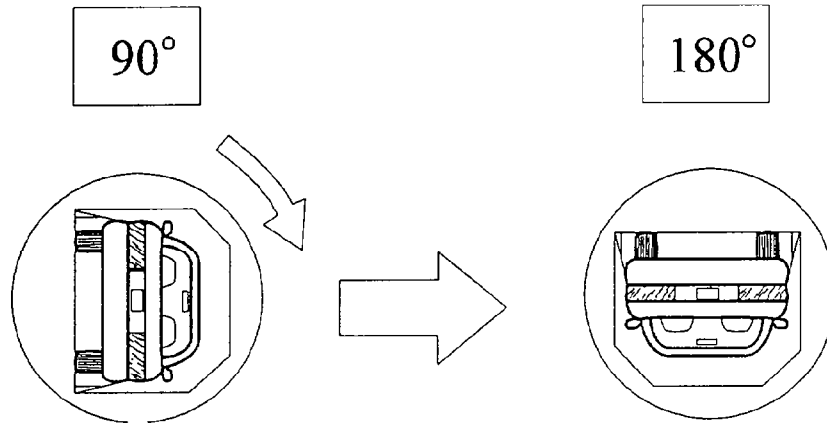
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>0° to 90° rotation (fuel filler cap down)</u>		
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 3 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds  
 FMVSS 301 position hold time = 5 minutes, 0 seconds  
 Total = 7 minutes, 0 seconds  
 Next whole minute interval = 14 minutes

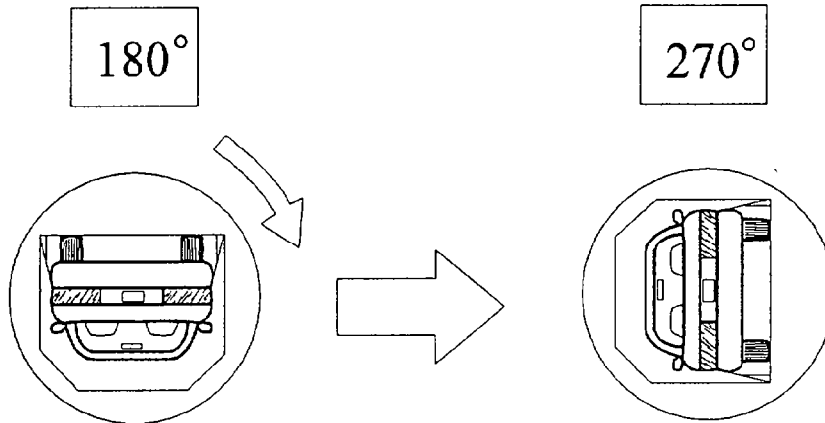
Fuel system fluid spillage measurements:

<u>90° to 180° rotation</u>	<u>Test Results</u>	<u>Maximum Allowable</u>
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 3 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds  
 FMVSS 301 position hold time = 5 minutes, 0 seconds  
 Total = 7 minutes, 0 seconds  
 Next whole minute interval = 21 minutes

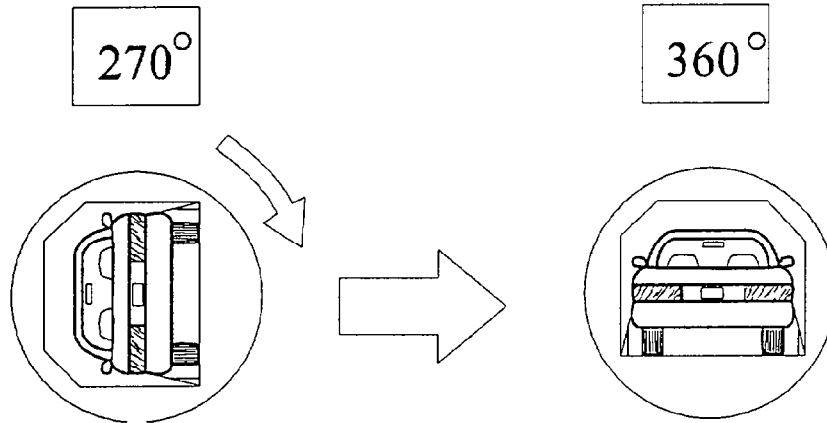
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>180 to 270° rotation</u>		
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 3 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds  
 FMVSS 301 position hold time = 5 minutes, 0 seconds  
 Total = 7 minutes, 0 seconds  
 Next whole minute interval = 28 minutes

Fuel system fluid spillage measurements:

<u>270° to 360° rotation</u>	<u>Test Results</u>	<u>Maximum Allowable</u>
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Section 4.0

Vehicle, Moving Deformable Barrier, Occupant, and Camera Measurements

Figure 4 Pre-test and Post-test Measurement Points

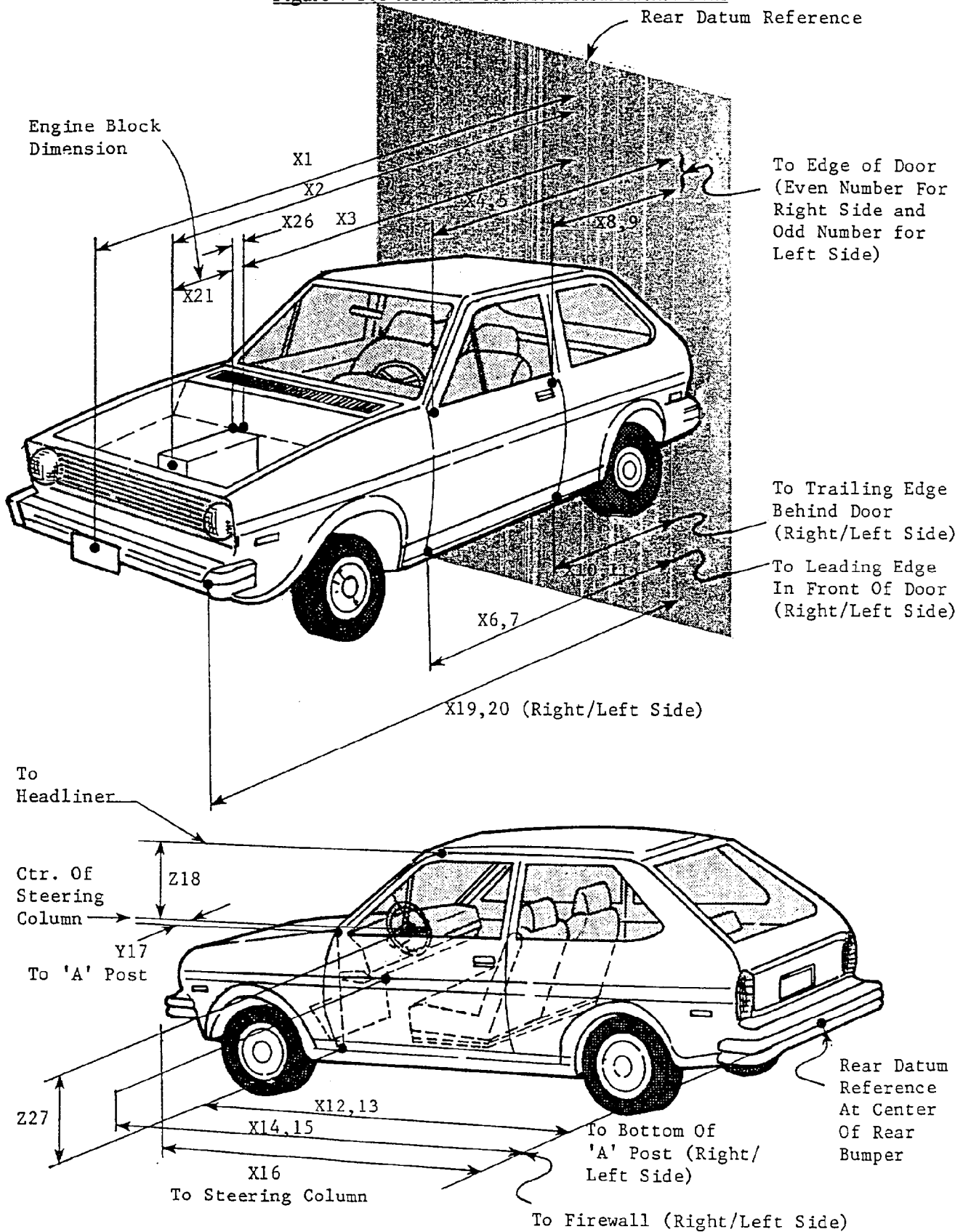


Figure 4 Pre-test and Post-test Measurement Points, Cont'd.

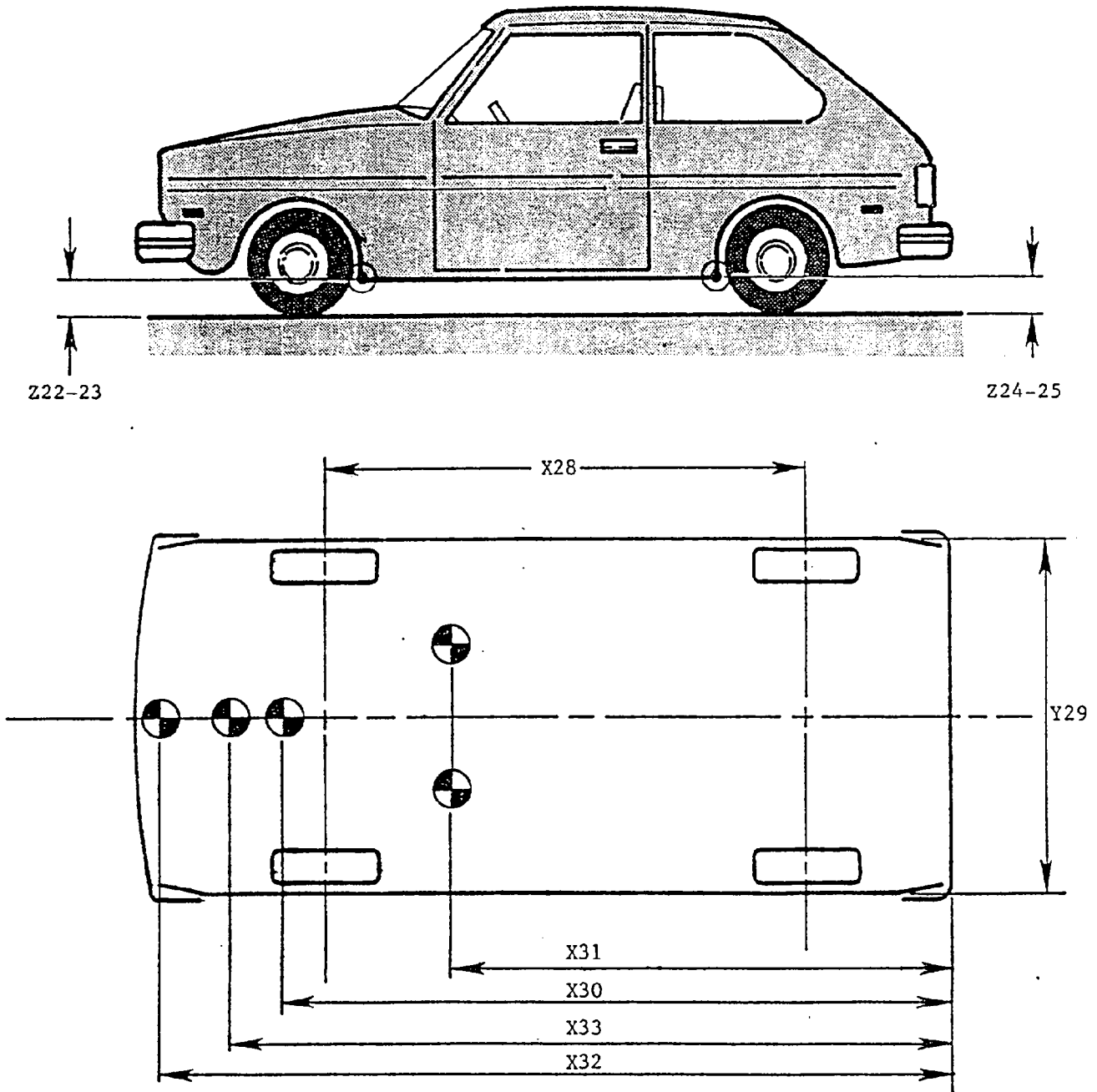


Table 7 Impacted Vehicle Measurements

Vehicle year/make/model/body style: 1996/Mitsubishi/Galant S/passenger car    Test Number: 970225

No.	Type of measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	4627 mm	4167 mm	460 mm
X2	Rear surface of vehicle to front of engine block	3996 mm	3582 mm	414 mm
X3	Rear surface of vehicle to firewall	3393 mm	3197 mm	196 mm
X4	Rear surface of vehicle to upper leading edge of right door	2999 mm	2988 mm	11 mm
X5	Rear surface of vehicle to upper leading edge of left door	3007 mm	2808 mm	199 mm
X6	Rear surface of vehicle to lower leading edge of right door	3072 mm	3037 mm	35 mm
X7	Rear surface of vehicle to lower leading edge of left door	3063 mm	2960 mm	103 mm
X8	Rear surface of vehicle to upper trailing edge of right door	2075 mm	2079 mm	-4 mm
X9	Rear surface of vehicle to upper trailing edge of left door	2080 mm	2030 mm	50 mm
X10	Rear surface of vehicle to lower trailing edge of right door	2088 mm	2054 mm	34 mm
X11	Rear surface of vehicle to lower trailing edge of left door	2082 mm	2005 mm	77 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	3018 mm	2960 mm	58 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	3013 mm	2672 mm	341 mm
X14	Rear surface of vehicle to firewall - right side	3333 mm	3304 mm	29 mm
X15	Rear surface of vehicle to firewall - left side	3355 mm	2961 mm	394 mm
X16	Rear surface of vehicle to steering wheel center	2635 mm	2420 mm	215 mm
X17	Center of steering column to "A" post	312 mm	442 mm	-130 mm
X18	Center of steering column to headliner	448 mm	466 mm	-18 mm
X19	Rear surface of vehicle to right side of front bumper	4393 mm	4520 mm	-127 mm
X20	Rear surface of vehicle to left side of front bumper	4405 mm	3659 mm	746 mm
X21	Length of engine block	490 mm	490 mm	0 mm

Table 7 Impacted Vehicle Measurements, Cont'd.

Vehicle year/make/model/body style: 1996/Mitsubishi/Galant S/passenger car      Test Number: 970225

No.	Type of measurement	Pre-test	Post-test	Difference
Z22	Right front sill to ground plane	NA	90 mm	NA
X23	Left front sill to ground plane	NA	0 mm	NA
Z24	Right rear sill to ground plane	NA	225 mm	NA
Z25	Left rear sill to ground plane	NA	73 mm	NA
X26	Firewall to engine or transaxle	400 mm	255 mm	145 mm
Z27	Vertical dimension from rear sill to centerline of steering column	NA	739 mm	NA
X28	Wheelbase of vehicle	2640 mm	2340 mm	300 mm
Y29	Width of vehicle at maximum width point	1725 mm	1820 mm	-95 mm
X30	Rear surface of vehicle to engine target	3996 mm	3582 mm	414 mm
X31	Rear surface of vehicle to compartment target	2196 mm	2278 mm	-82 mm
X32	Rear surface of vehicle to bumper target	4562 mm	4118 mm	444 mm
X33	Rear surface of vehicle to frame crossmember	3447 mm	3292 mm	155 mm

Table 8 Pre-Test Vehicle Measurements

M1	Front axle to reference plane (RPD)	969
M2	Heel point to toeboard/floorboard intersection	85
M3	RPD to toeboard/floorboard intersection	520
M4	RPD to firewall	662
M5	RPD to bottom of dashboard	325
M6	RPD to steering wheel pivot point	55
M7	Windshield/dashboard intersection to edge of dashboard	350
M8	RPD to edge of dashboard	172
M9	RPD to foremost point of header	-83
M10	RPD to rearmost point of seat cushion	505
M11	Seat travel from rearmost to foremost position	220
M12	RPD to H-point	N/A
M13	Windshield/dashboard intersection to floor	710
M14	Bottom of dashboard to floor	323
M15	Steering wheel pivot point to floor	545
M16	Foremost ppoint of header to floor	1075
M17	Seat rise from rearmost to foremost position	19
M18	Rearmost point of seat cushion to floor	200
M19	H-point to floor	N/A
M20	Toeboard angle	63°
M21	Steering column angle	22°
M22	Length of windshield	645
M23	Windshield angle	22°
M24	Seat cushion angle	11°
M25	Length of seat cushion	530
M26	Length of seat back	535

All measurements are referenced to the X-Z plane of seated occupant.

Figure 5 Vehicle Target Locations

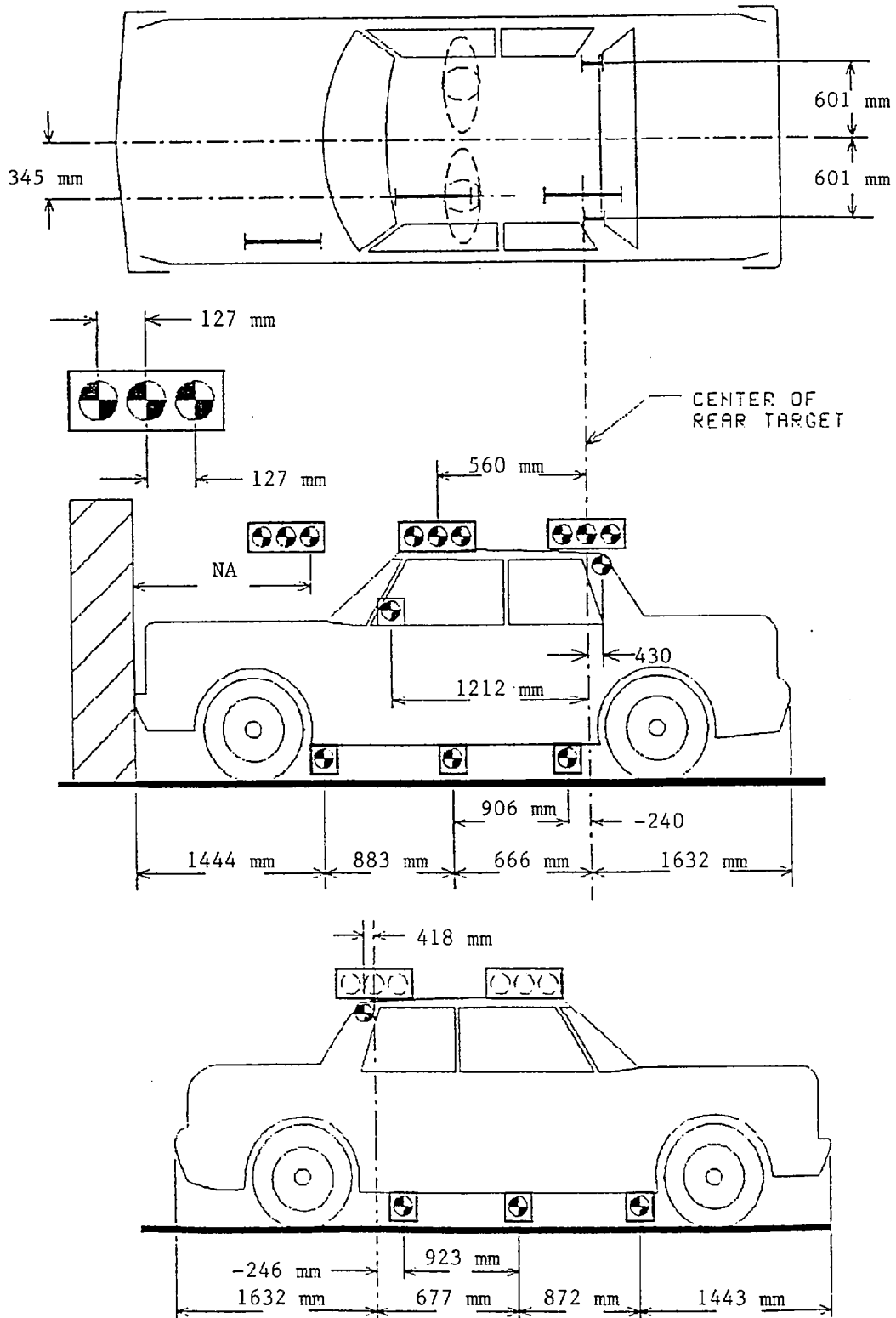


Table 9 Test Vehicle Front Profile Data

X-axis measurements referenced to a plane 5000 millimeters forward of the rear bumper centerline. Y-axis measurements are left and right of the original vehicle centerline. Y-axis measurements (6 points) should divide the width of the car and be clearly indicated on the form. Z-axis (height) measurements are from the ground.

		Pre-Test Profile					
		Vehicle Left			Vehicle Right		
		pt. 1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6
Bottom of front bumper	X	642	563	491	500	568	650
	Y	755	465	153	-152	-462	-758
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Top of front bumper	X	582	465	368	379	470	602
	Y	763	460	150	-150	-455	-760
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Center of Grill	X	699	575	522	529	576	720
	Y	760	455	148	-154	-457	-763
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Front of hood	X	787	690	662	680	692	765
	Y	753	455	150	-155	-458	-745
	Z	N/A	N/A	N/A	N/A	N/A	N/A

Table 9 Test Vehicle Front Profile Data, Cont'd.

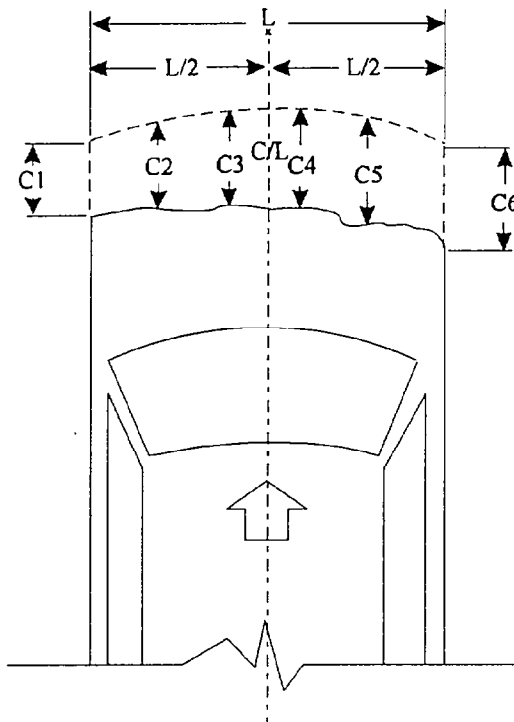
		Post-Test Profile					
		Vehicle Left			Vehicle Right		
		pt. 1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6
Bottom of front bumper	X	1423	1153	965	776	618	492
	Y	755	422	153	-153	-420	-755
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Top of front bumper	X	1467	1186	939	746	584	476
	Y	875	455	152	-150	-450	-755
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Center of Grill	X	N/A	N/A	N/A	894	N/A	N/A
	Y	N/A	N/A	N/A	-157	N/A	N/A
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Front of hood	X	1574	1428	1240	977	815	800
	Y	715	450	150	-155	-452	-705
	Z	N/A	N/A	N/A	N/A	N/A	N/A

Table 9 Test Vehicle Front Profile Data, Cont'd.

		Change					
		Vehicle Left			Vehicle Right		
		pt. 1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6
Bottom of front bumper	X	-781	-590	-474	-276	-50	158
	Y	0	43	0	1	-42	-3
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Top of front bumper	X	-885	-721	-571	-367	-114	126
	Y	-112	5	-2	0	-5	-5
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Center of Grill	X	N/A	N/A	N/A	-365	N/A	N/A
	Y	N/A	N/A	N/A	3	N/A	N/A
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Front of hood	X	-787	-738	-578	-297	-123	-35
	Y	38	5	0	0	-6	-40
	Z	N/A	N/A	N/A	N/A	N/A	N/A

+X: Forward from a reference plane 5000 mm forward of the vehicle rear bumper centerline  
 +Y: Left from vehicle longitudinal centerline  
 +Z: Up from ground

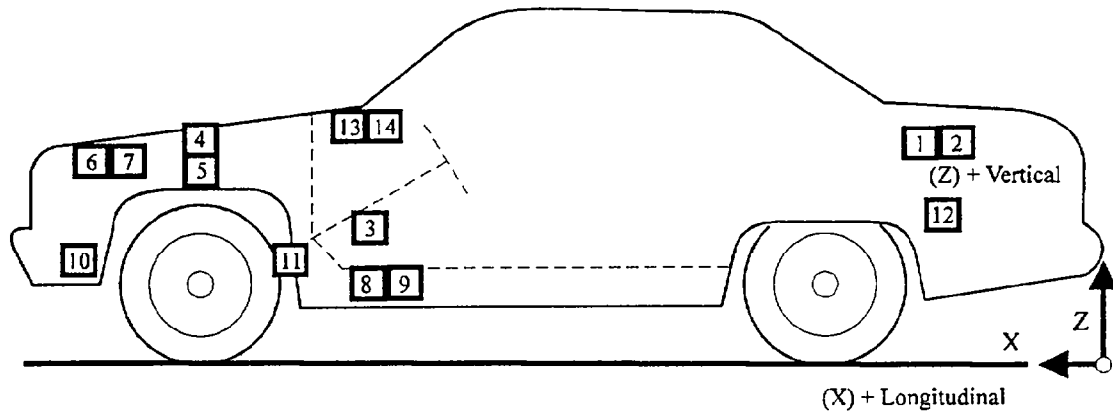
Figure 6 Vehicle Crush



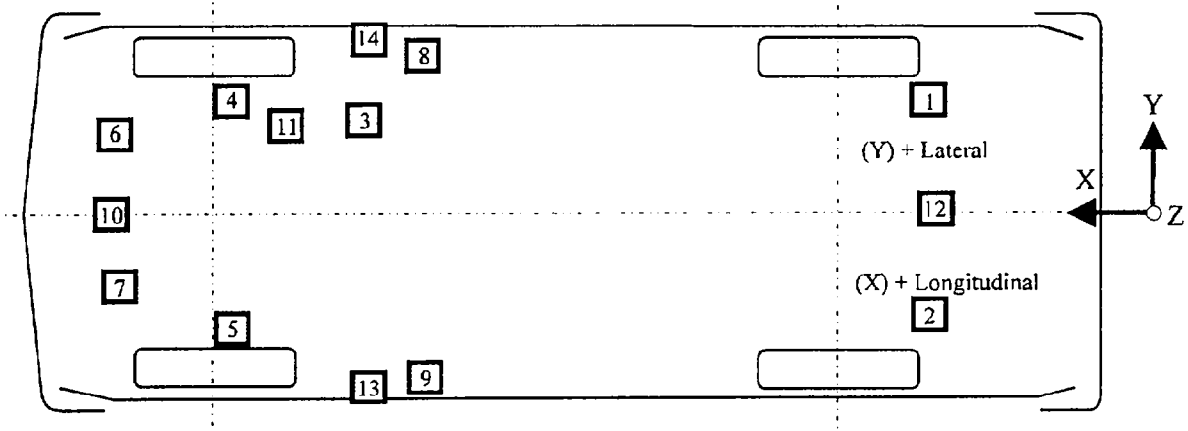
Notes: L is pre-test length of contact surface.  
 C1 through C6 are spaced equally apart.  
 CL is vehicle centerline.

	Pre-test	Post-test	Crush
L	1524 mm		
C1	4405 mm	3659 mm	746 mm
C2	4528 mm	3824 mm	704 mm
C3	4625 mm	4070 mm	555 mm
C4	4626 mm	4268 mm	358 mm
C5	4530 mm	4419 mm	111 mm
C6	4393 mm	4520 mm	-127 mm
CL	4627 mm	4167 mm	460 mm

Figure 7 Vehicle Accelerometer Mounting Locations



Side View



Bottom View

Table 10 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 970225 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR COMPARTMENT LONGITUDINAL LATERAL	NA	NA	NA	1.0 g @ 282.2 ms 5.3 g @ 77.8 ms	33.4 g @ 49.0 ms 18.2 g @ 37.0 ms
2 RIGHT REAR COMPARTMENT LONGITUDINAL LATERAL	NA	NA	NA	2.0 g @ 112.2 ms 7.9 g @ 79.1 ms	36.9 g @ 45.5 ms 19.0 g @ 46.6 ms
3 BRAKE PEDAL LONGITUDINAL LATERAL VERTICAL RESULTANT	NA	NA	NA	472.7 g @ 48.4 ms 152.3 g @ 45.0 ms 235.3 g @ 56.7 ms 517.9 g @ 48.3 ms	259.4 g @ 40.3 ms 196.3 g @ 55.6 ms 207.4 g @ 47.2 ms
4 LEFT SHOCK TOWER LONGITUDINAL VERTICAL <sup>1</sup>	NA	NA	NA	77.1 g @ 50.2 ms ---	163.2 g @ 36.4 ms ---
5 RIGHT SHOCK TOWER LONGITUDINAL LATERAL	NA	NA	NA	5.6 g @ 116.8 ms 13.0 g @ 40.6 ms	46.4 g @ 45.4 ms 46.8 g @ 55.9 ms
6 ENGINE LEFT LONGITUDINAL <sup>1</sup>	NA	NA	NA	---	---

Table 10 Vehicle Accelerometer Locations and Data Summary. Cont'd.

TEST NUMBER: No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
7 ENGINE RIGHT LONGITUDINAL	NA	NA	NA	43.5 g @ 59.4 ms	128.1 g @ 35.4 ms
8 LEFT FRONT FRAME RAIL LONGITUDINAL <sup>1</sup>	NA	NA	NA	---	---
LATERAL <sup>1</sup>	---	---	---	---	---
VERTICAL <sup>1</sup>	---	---	---	---	---
RESULTANT <sup>1</sup>	---	---	---	---	---
9 RIGHT FRONT FRAME RAIL LONGITUDINAL	NA	NA	NA	7.5 g @ 8.9 ms	41.6 g @ 53.5 ms
LATERAL	87.6 g			@ 37.8 ms	@ 75.5 g @ 5.9 ms
VERTICAL	14.1 g			@ 45.8 ms	@ 16.0 g @ 5.0 ms
RESULTANT	89.3 g			@ 37.8 ms	
10 ENGINE BOTTOH LONGITUDINAL	NA	NA	NA	58.2 g @ 43.2 ms	171.1 g @ 36.2 ms
LATERAL	17.7 g			@ 103.2 ms	@ 57.5 g @ 38.1 ms
11 TOE PAN LONGITUDINAL	NA	NA	NA	127.4 g @ 53.7 ms	101.1 g @ 37.4 ms
LATERAL <sup>1</sup>	---	---	---	---	---
VERTICAL	99.0 g			@ 54.2 ms	@ 97.2 g @ 37.8 ms
RESULTANT <sup>1</sup>	---	---	---	---	---

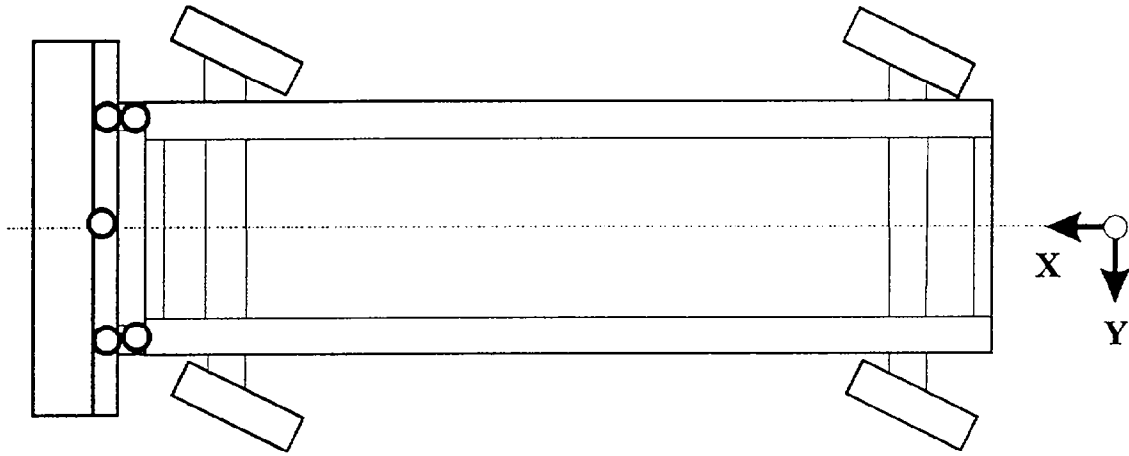
Table 10 Vehicle Accelerometer Locations and Data Summary, Cont'd.

TEST NUMBER: 970225 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
12 REAR COMPARTMENT CENTER LONGITUDINAL VERTICAL	NA	NA	NA	7.8 g @ 100.4 ms 17.6 g @ 51.6 ms	35.2 g @ 58.1 ms 14.1 g @ 46.8 ms
13 TOP HINGE ON A-PILLAR RIGHT LONGITUDINAL	NA	NA	NA	2.0 g @ 274.1 ms	37.5 g @ 45.7 ms
14 TOP HINGE ON A-PILLAR LEFT LONGITUDINAL <sup>1</sup>	NA	NA	NA	---	---

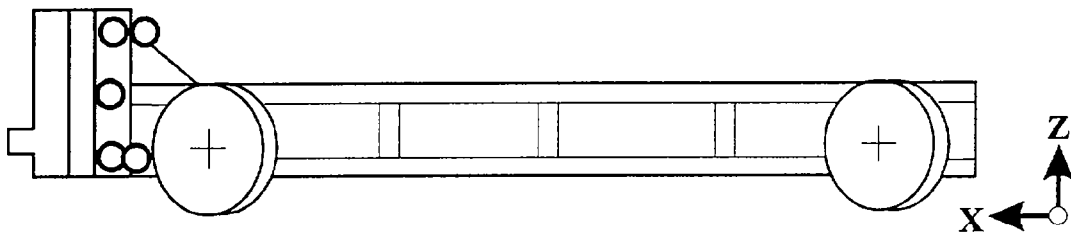
REFERENCE: X: + FORWARD FROM REAR SURFACE OF VEHICLE  
 Y: + LEFTWARD FROM VEHICLE CENTERLINE  
 Z: + UPWARD FROM GROUND LEVEL

<sup>1</sup>See DATA ACQUISITION EXPLANATIONS

Figure 8 Moving Deformable Barrier Load Cell Placement



Top View



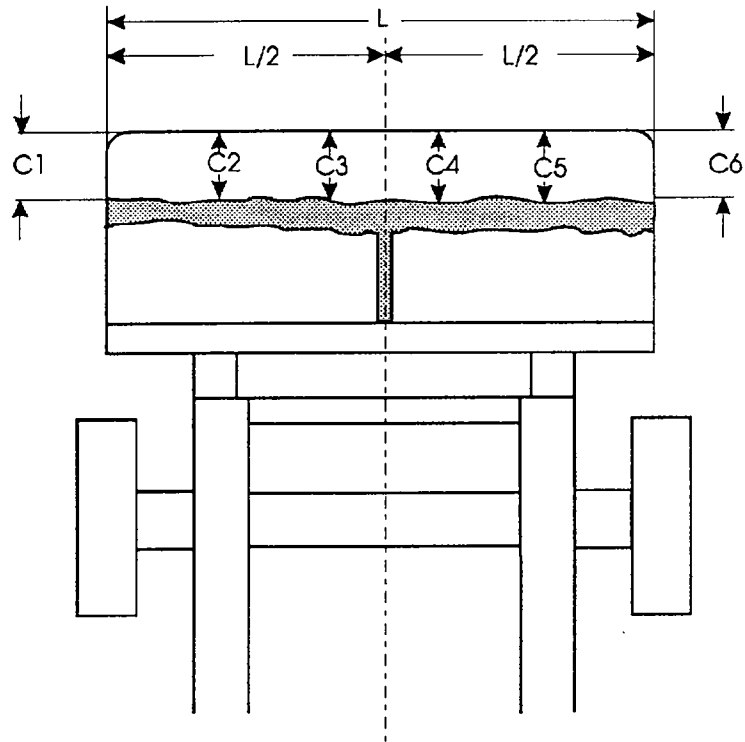
Side View

Table 11 Moving Deformable Barrier Load Cell Placement and Data Summary

TEST NUMBER: No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 HOVING DEFORMABLE BARRIER FORCE	NA	NA	NA		
LEFT UPPER			63.7 kN	@ 61.0 ms	@ 36.7 ms
RIGHT UPPER			62.7 kN	@ 76.6 ms	@ 283.5 ms
CENTER			23.9 kN	@ 248.6 ms	@ 38.7 ms
LEFT LOWER <sup>1</sup>			-----	@ -----	@ 30.5 ms
RIGHT LOWER			22.0 kN	@ 302.4 ms	@ 45.2 ms

<sup>1</sup>NO POSITIVE VALUE IN THE TIMEFRAME OF INTEREST

Figure 9 Moving Deformable Barrier Face Crush



Notes: L is pre-test length of contact surface.  
 C1 through C6 are spaced equally apart.  
 CL is moving barrier centerline.

	Pre-test	Post-test	Crush
L	1676 mm		
C1	473 mm	N/A	N/A
C2	469 mm	N/A	N/A
C3	468 mm	N/A	N/A
C4	463 mm	N/A	N/A
C5	462 mm	N/A	N/A
C6	460 mm	N/A	N/A
CL	466 mm	N/A	N/A

Table 12. Moving Barrier Face Static Crush

Location	Height	Pre-test Profile (distance in millimeters from reference plane <sup>1</sup> )																
		32	28	24	20	16	12	8	4	0	4	8	12	16	20	24	28	32
Top of face	813	473	473	471	469	470	467	468	467	466	465	463	464	461	462	459	460	460
Mid-face	559	476	475	475	473	471	469	471	469	467	469	465	466	464	464	460	460	460
Bumper	432	399	375	374	372	370	370	370	368	366	370	364	365	364	363	360	360	380
		Post-test profile <sup>2</sup> (distance in millimeters from reference plane)																
Top of face	813	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mid-face	559	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bumper	432	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Static crush																
Top of face	813	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mid-face	559	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bumper	432	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>1</sup> Reference plane is 914 mm forward of the rear surface of the deformable barrier face.

<sup>2</sup> Post-test damage was too severe to measure

All measurements are in millimeters

Figure 10 Dummy Measurement Locations for Front Seat Occupants

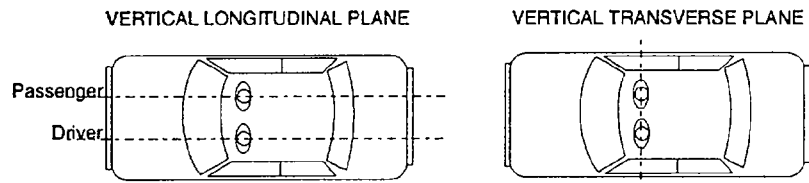
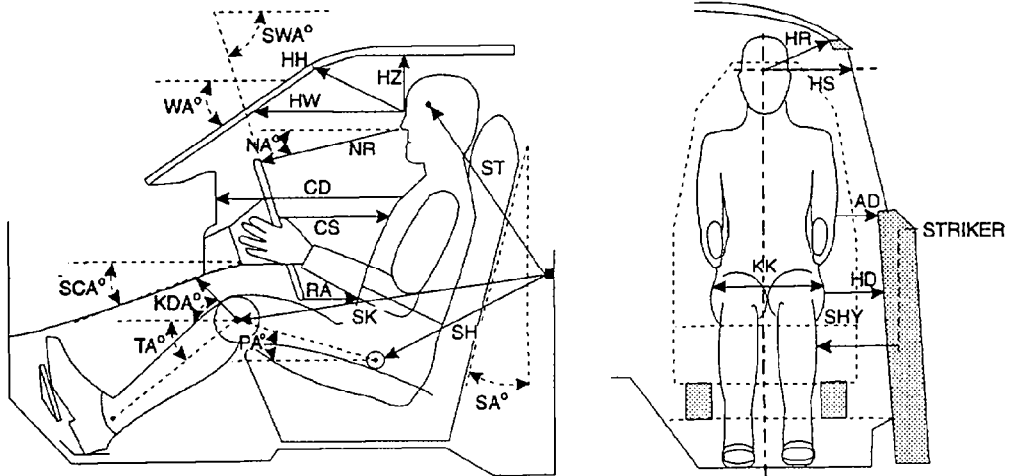
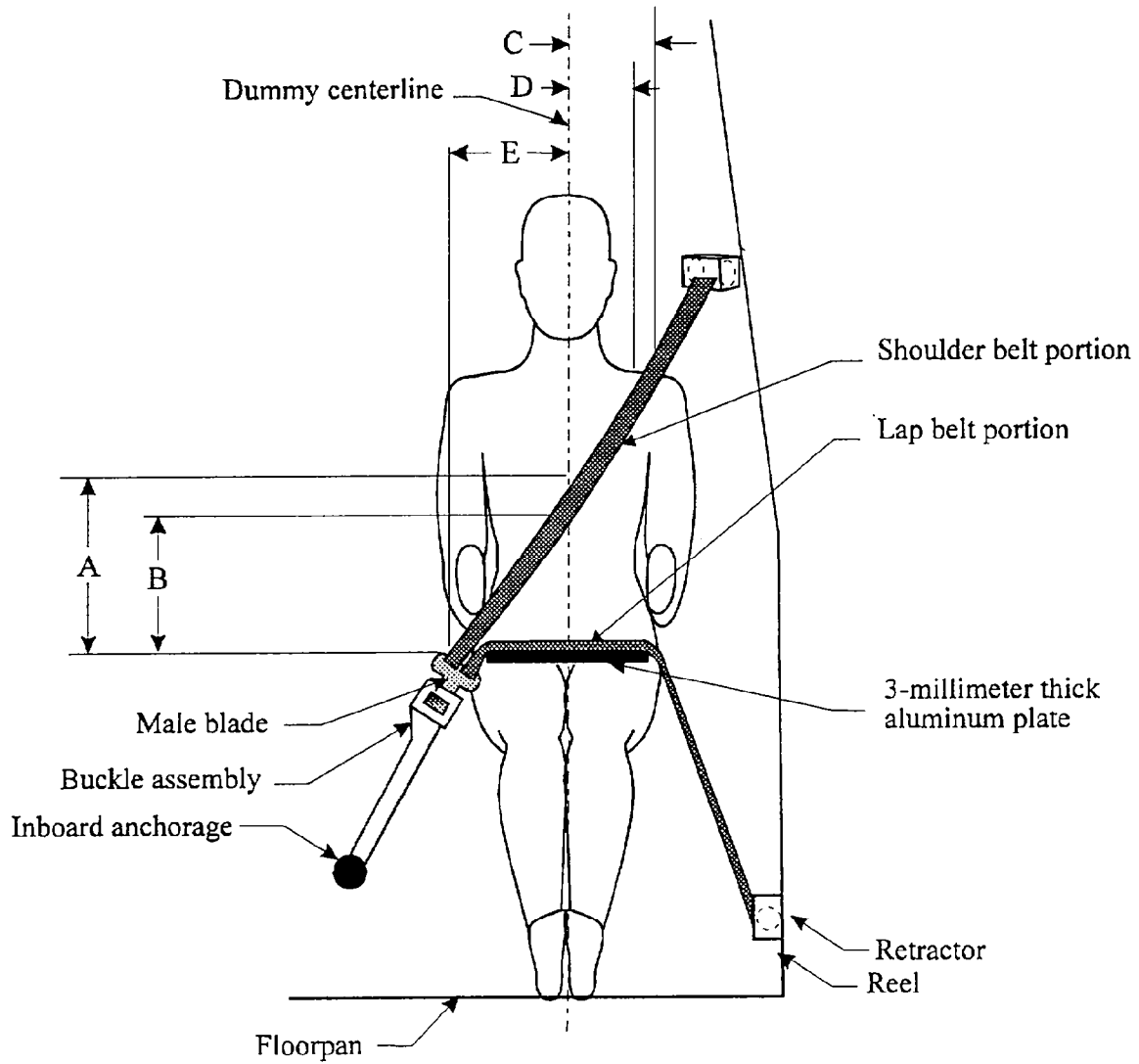


Table 13 Dummy Measurement Data For Front Seat Occupants

<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #177)</u>	<u>Passenger (Serial #134)</u>
WA	Windshield angle	29°	29°
SWA	Steering wheel angle	69°	NA
SCA	Steering column angle	21°	NA
SA	Seat back angle	24°	24°
HZ	Head to roof	297 mm	181 mm
HH	Head to header	343 mm	325 mm
HW	Head to windshield	595 mm	580 mm
HR	Head to side header	249 mm	238 mm
NR	Nose to rim	414 mm	NA
NA	Nose to rim angle	13°	NA
CD	Chest to dash	558 mm	566 mm
CS	Steering wheel to chest	313 mm	NA
RA	Rim to abdomen	215 mm	NA
KDL	Left knee to dash	187 mm	209 mm
KDR	Right knee to dash	195 mm	215 mm
KDA	Outboard knee to dash angle	21°	19°
PA	Pelvic angle	24°	23°
TA	Tibial angle	44°	40°
KK	Knee to knee	280 mm	268 mm
ST <sup>1</sup>	Striker to head	503 mm	496 mm
	Striker to head angle	-84°	-82°
SK <sup>1</sup>	Striker to knee	568 mm	538 mm
	Striker to knee angle	-3°	-2°
SH <sup>1</sup>	Striker to H-point	231 mm	212 mm
	Striker to H-point angle	32°	34°
SHY	Striker to H-point (Y dir.)	239 mm	254 mm
HS	Head to side window	315 mm	317 mm
HD	H-point to door	153 mm	145 mm
AD	Arm to door	112 mm	124 mm

The seat back angle (SA°) is measured relative to vertical, all other angles are measured relative to horizontal.

Figure 11. Seat Belt Positioning Data



		Driver	Passenger
A	Top surface of aluminum plate to belt upper edge	309 mm	305 mm
B	Top surface of aluminum plate to belt lower edge	242 mm	228 mm
C	Dummy centerline to outer edge of belt at chest flesh top	127 mm	169 mm
D	Dummy centerline to inner edge of belt at chest flesh top	68 mm	104 mm
E	Dummy centerline to intersection of upper torso belt and lap belt	3 lbs.	3 lbs.

Figure 12 Camera Positions

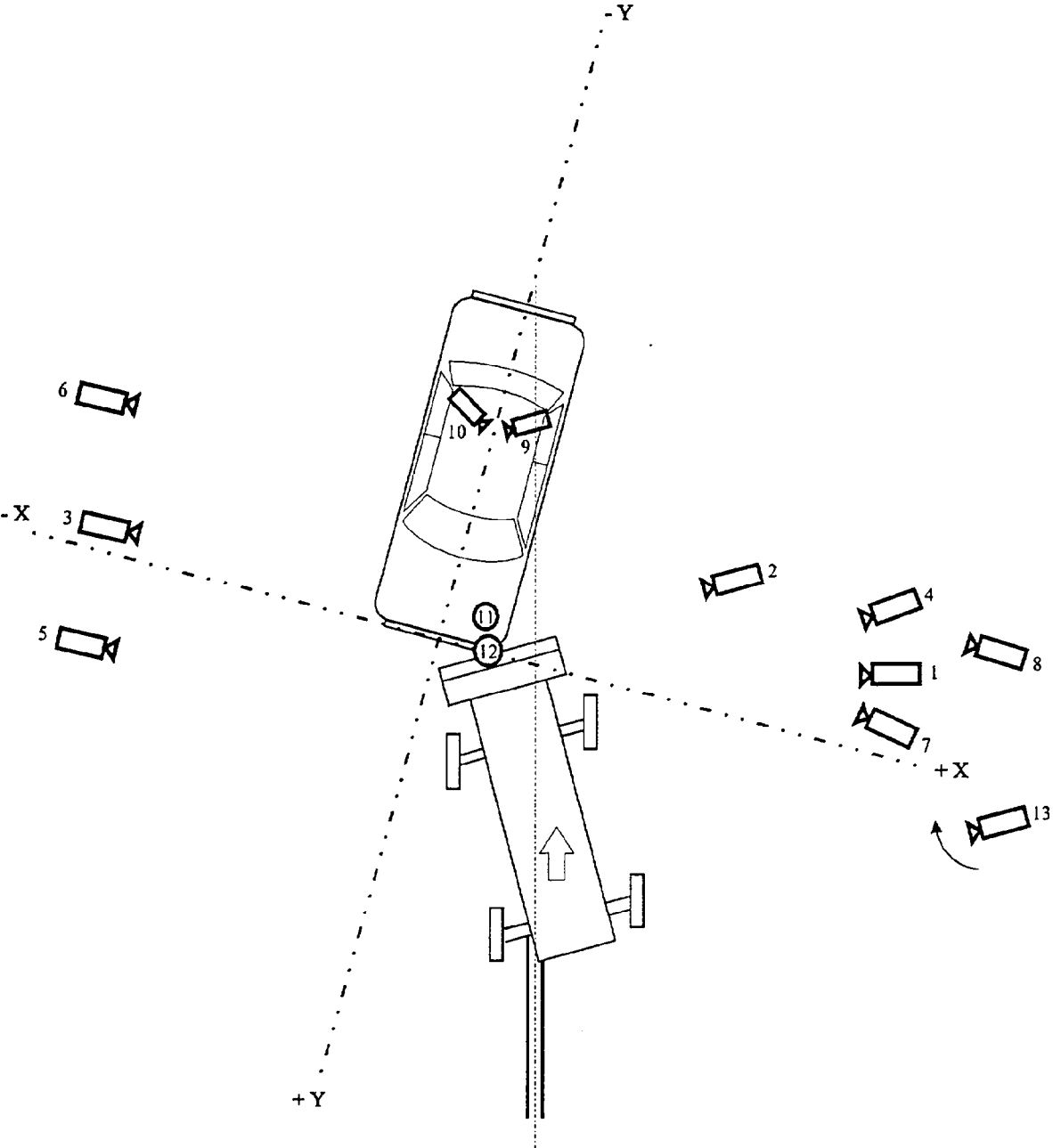


Table 14 Motion Picture Camera Locations

Vehicle year/make/model/body style: 1996/Mitsubishi/Galant S/passenger car

Test number: 970225

Camera Number	View	Camera Positions <sup>1</sup>			Angle of Inclination <sup>2</sup>	Angle of Rotation <sup>3</sup>	Camera Lens	Film Speed
		X	Y	Z				
1	Overall right wide	7341	-2489	1321	NA	NA	13 mm	968 frames/s
2	Impact point	2896	-3632	1118	NA	NA	25 mm	958 frames/s
3	Left side impact point	-7925	-279	1295	NA	NA	25 mm	970 frames/s
4	Moving barrier - right side	7239	-4470	1245	NA	NA	25 mm	985 frames/s
5	Moving barrier - left side	-6528	3912	1067	NA	NA	25 mm	1002 frames/s
6	Car - passenger side	-9296	-2210	1245	NA	NA	25 mm	1002 frames/s
7	Car - driver side	8560	-813	1295	NA	NA	25 mm	875 frames/s
8	Driver and Int. view - right side	9423	-2159	1867	NA	NA	50 mm	1068 frames/s
9	Onboard passenger D-ring	NA	NA	NA	NA	NA	8 mm	998 frames/s
10	Onboard driver D-ring	NA	NA	NA	NA	NA	8 mm	1008 frames/s
11	Overhead - overall wide	940	-500	9805	NA	NA	13 mm	998 frames/s
12	Overhead - tight	940	-300	9805	NA	NA	25 mm	1002 frames/s
13	Real-time panning	NA	NA	NA	NA	NA	N/A	24 frames/s

<sup>1</sup> +X: Forward from impact point MDB face

+Y: Rightward from monorail centerline

+Z: Upward from ground level

<sup>2</sup> +Angle of Inclination: Camera lens (upward from horizontal)

<sup>3</sup> +Angle of Rotation: Camera lens toward barrier from line perpendicular to monorail centerline

Appendix A

Photographs

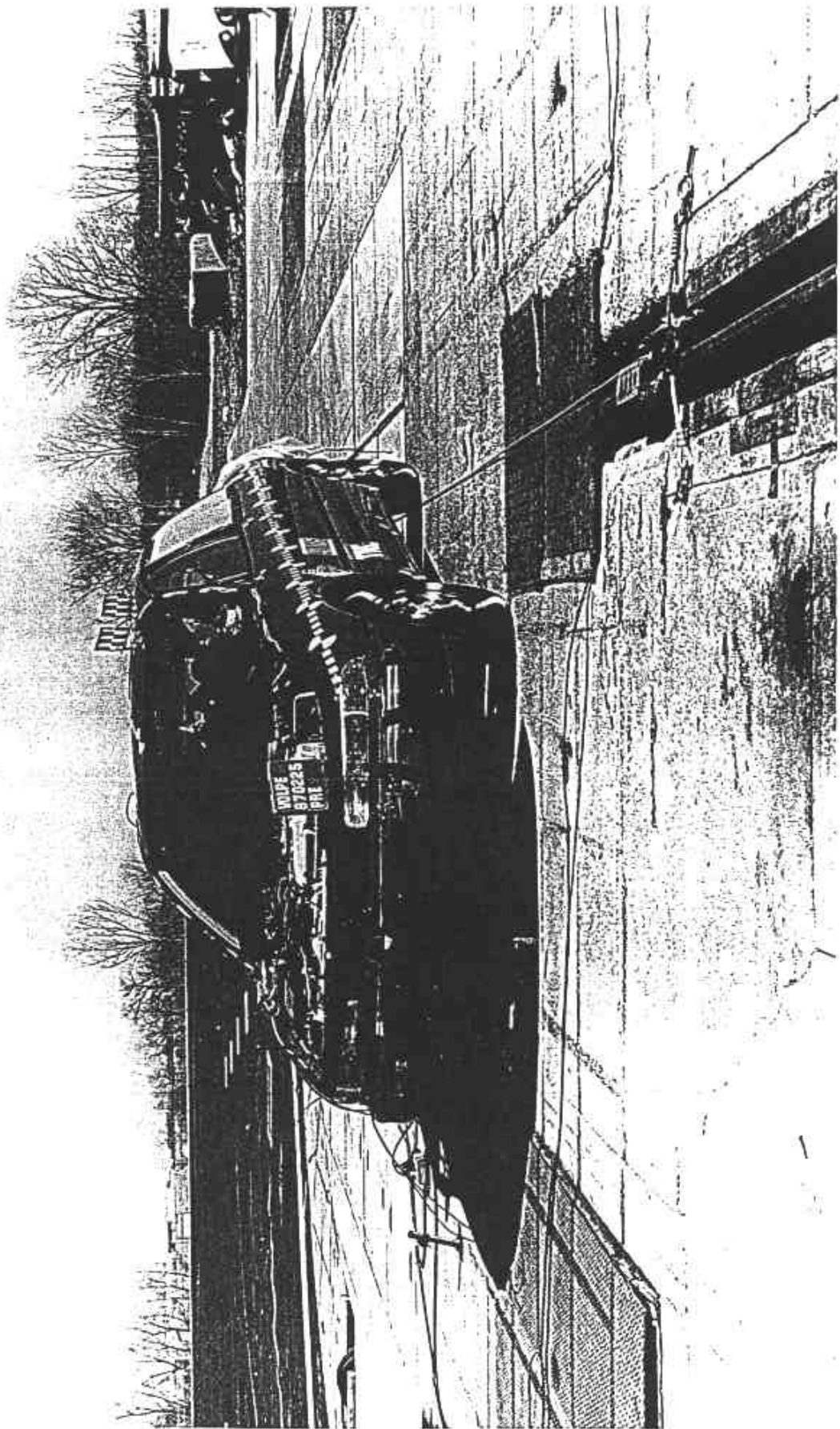


Figure A-1 Pre-Test Front View

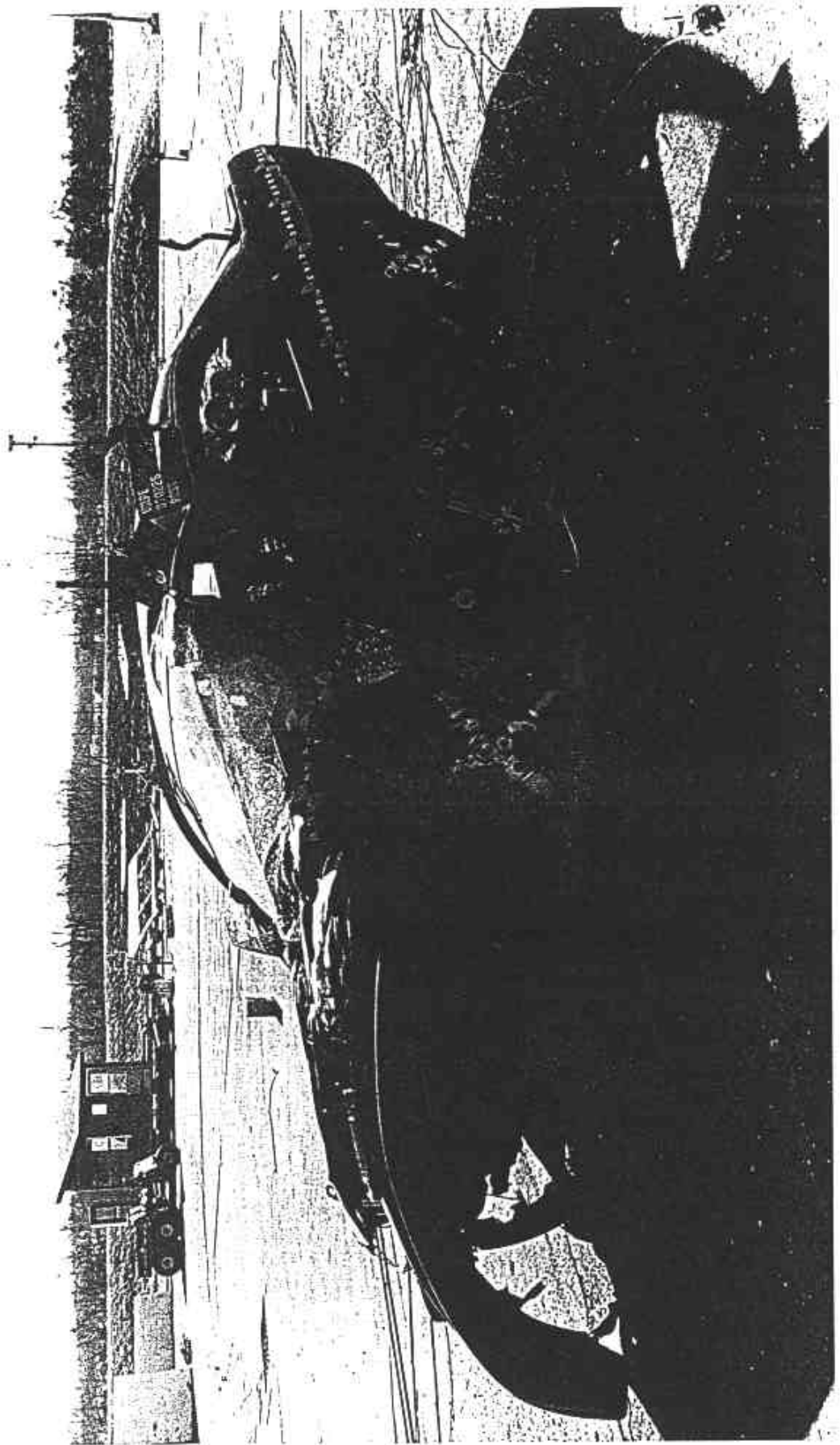


Figure A-2 Post-Test Front View

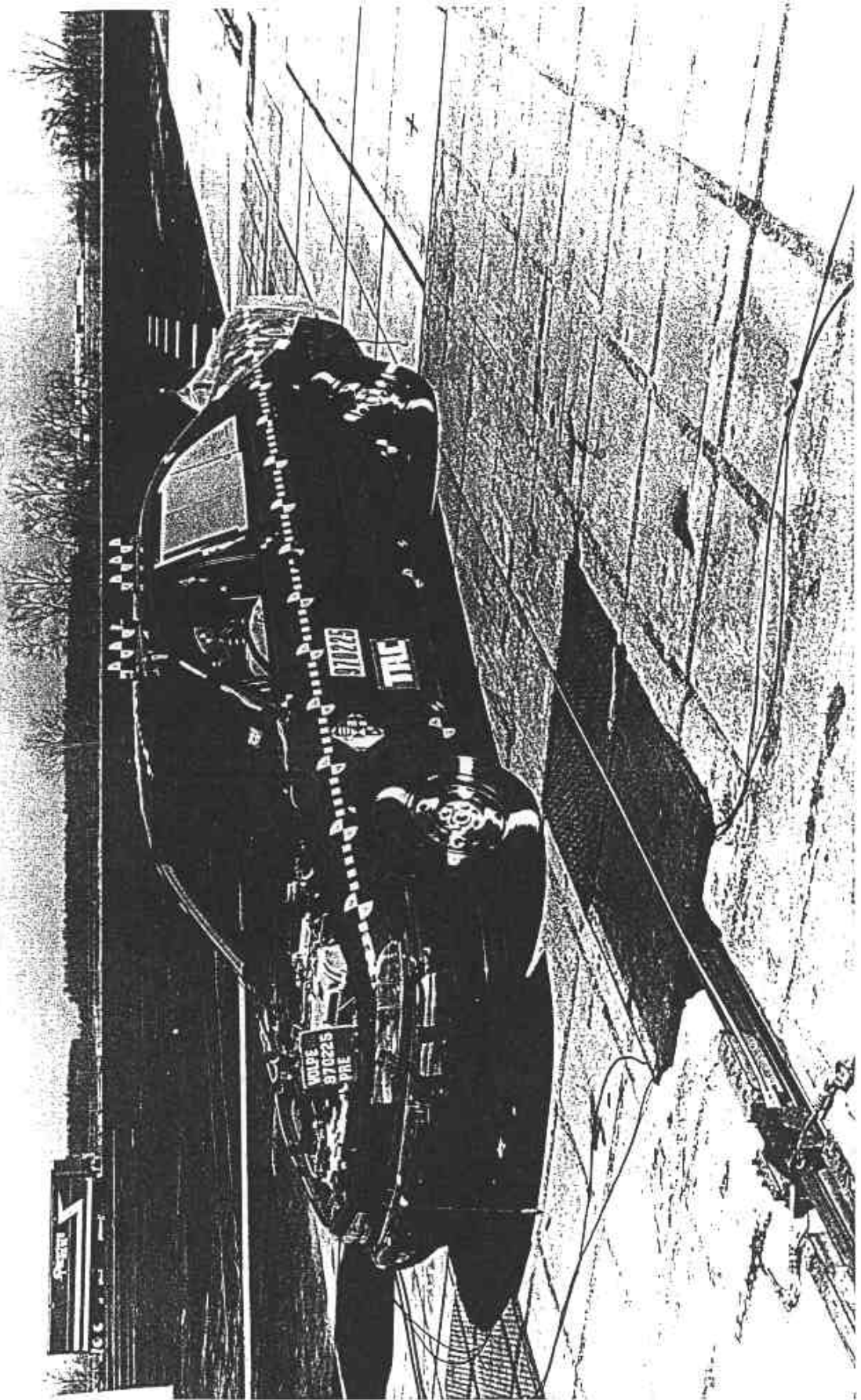


Figure A-3 Pre-Test Left Front Three-Quarter View

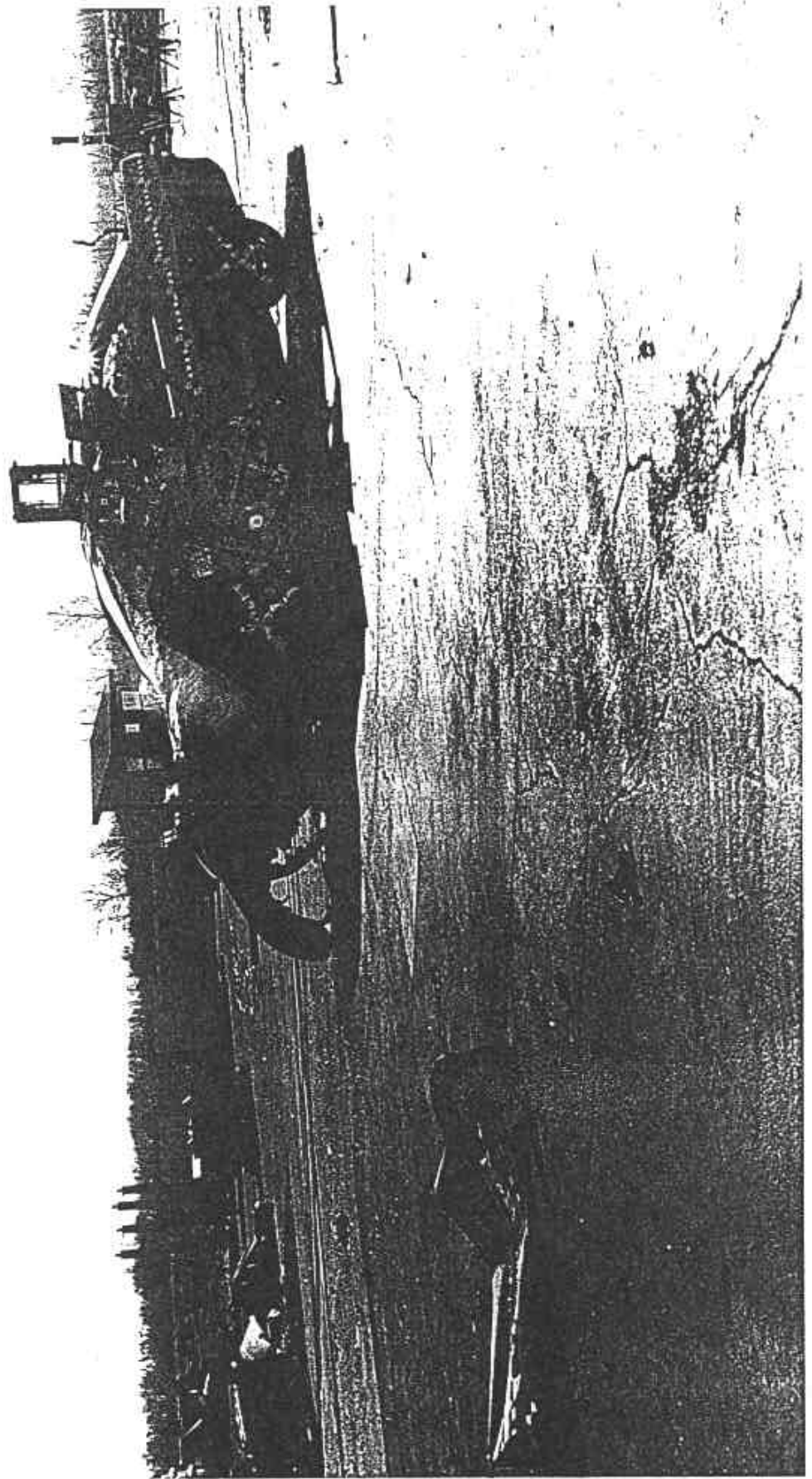


Figure A-4 Post-Test Left Front Three-Quarter View

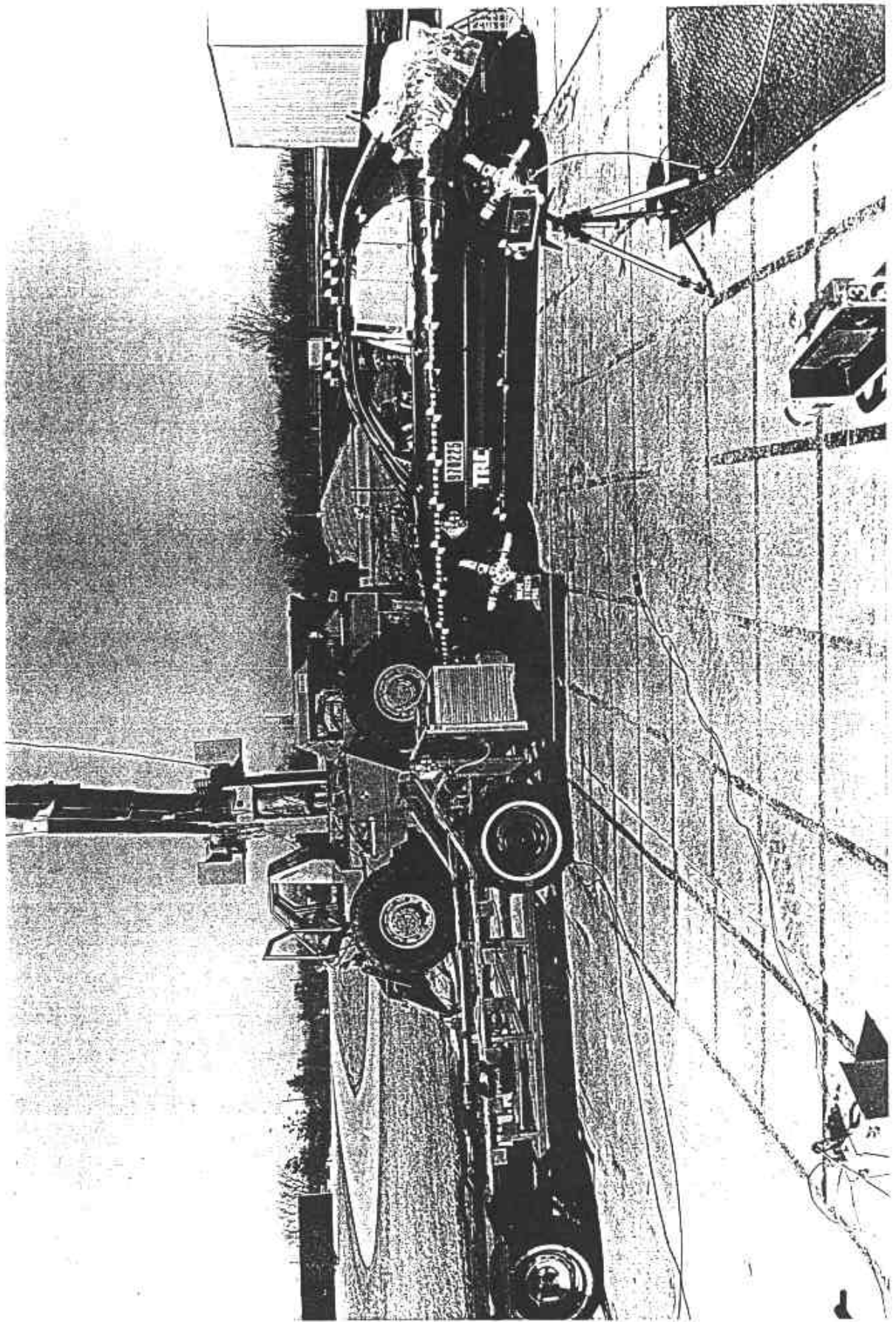


Figure A-5 Pre-Test Left Side View

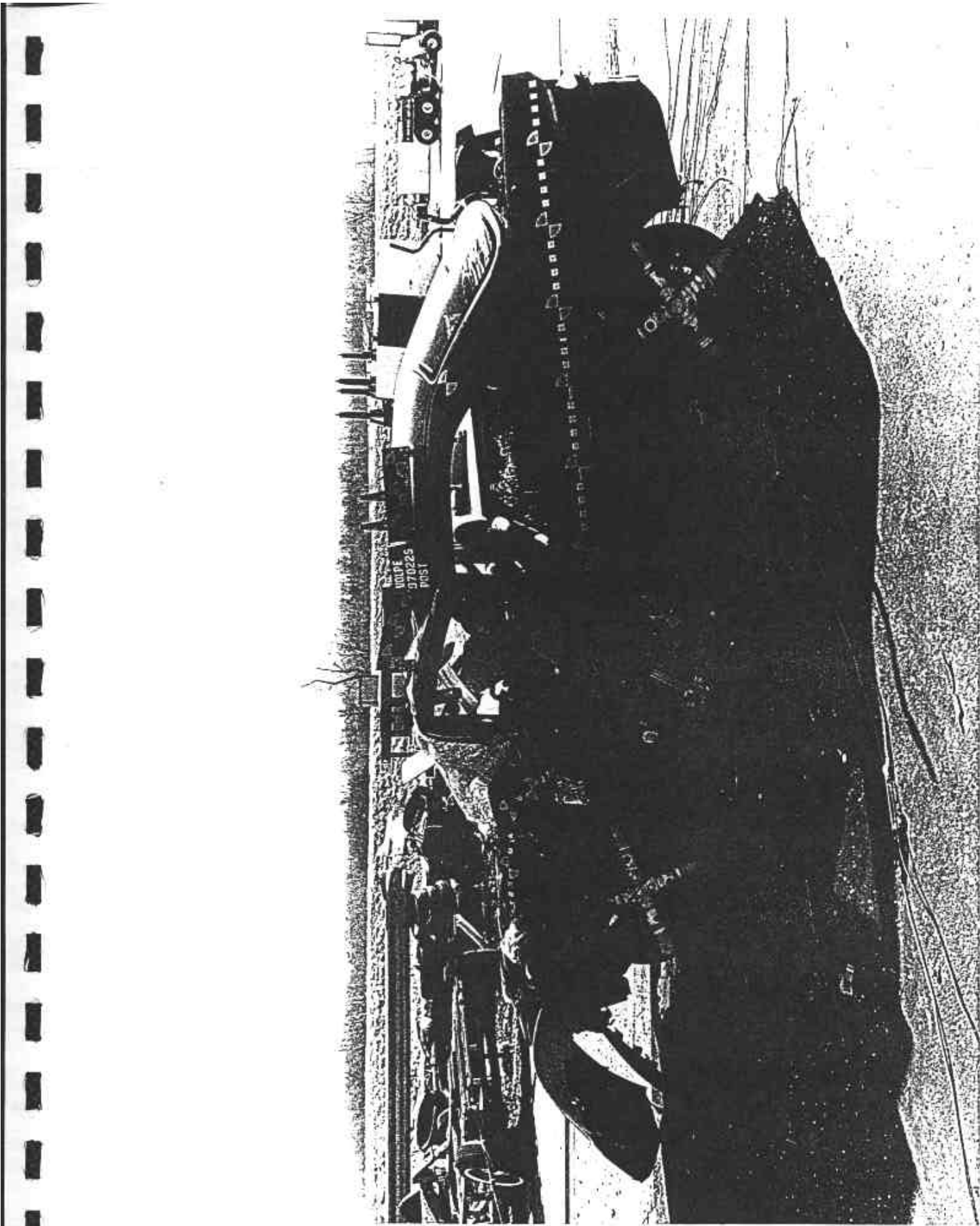


Figure A-6 Post-Test Left Side View

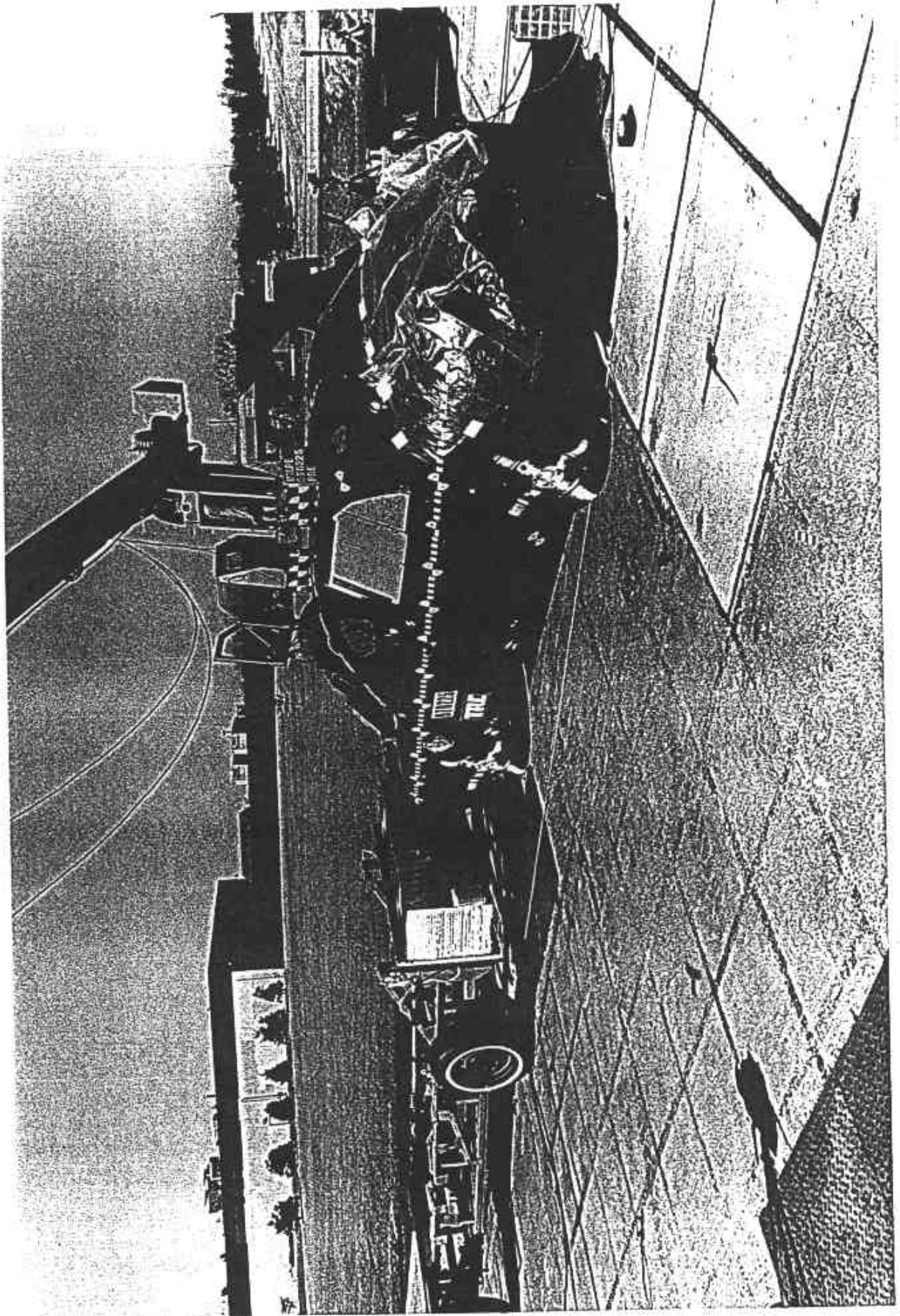


Figure A-7 Pre-Test Left Rear Three-Quarter View

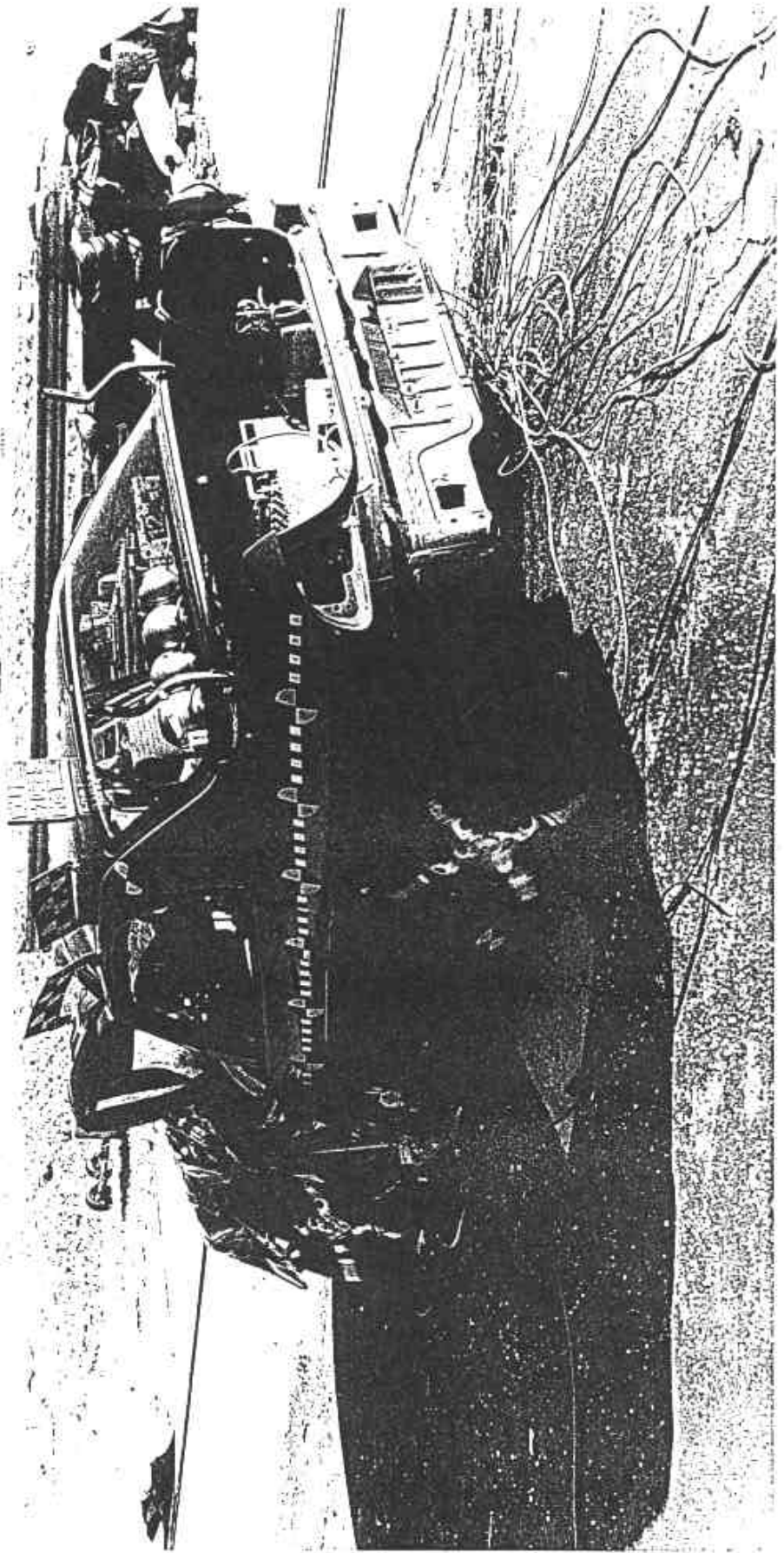


Figure A-8 Post-Test Left Rear Three-Quarter View

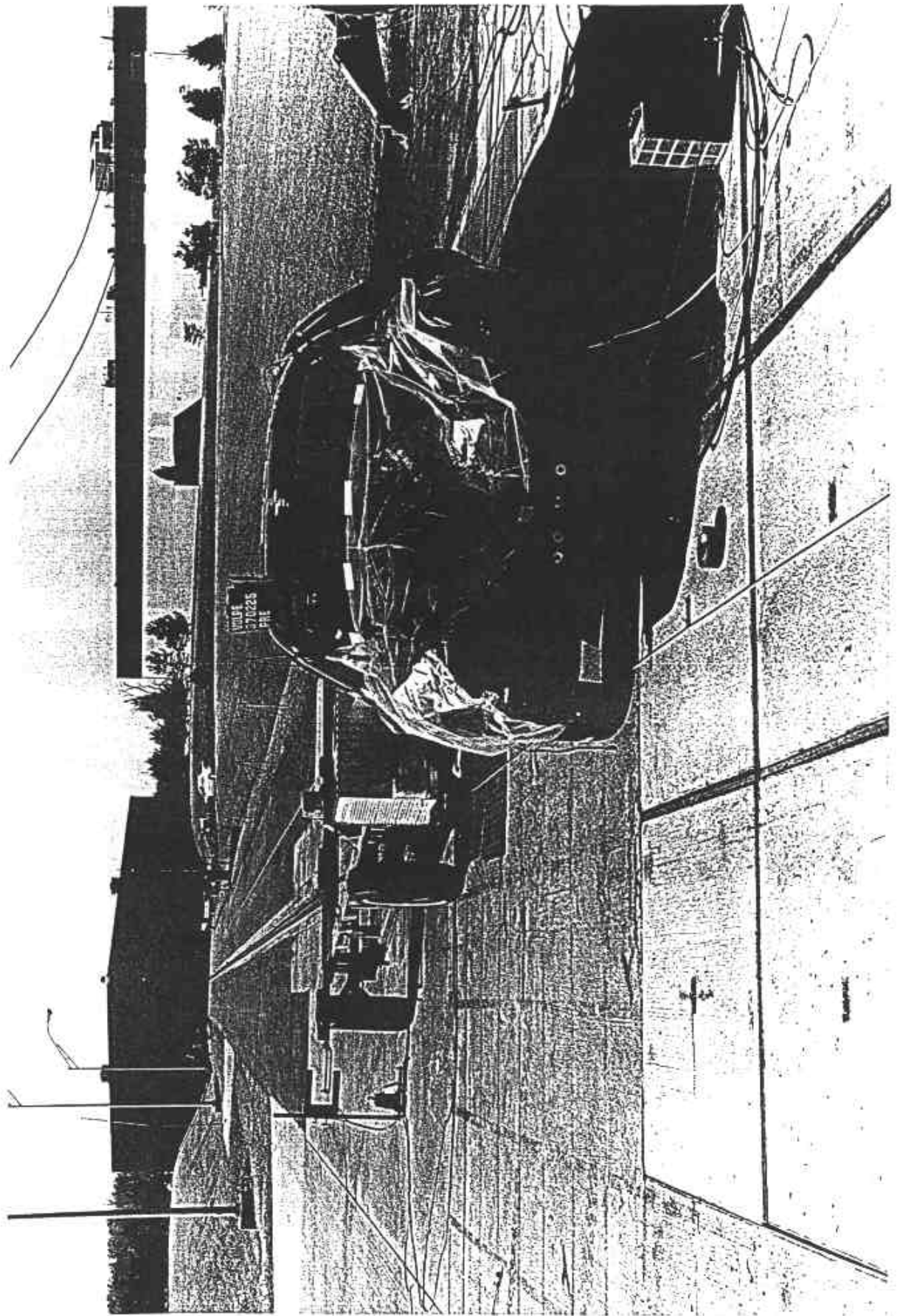


Figure A-9 Pre-Test Rear View



Figure A-10 Post-Test Rear View

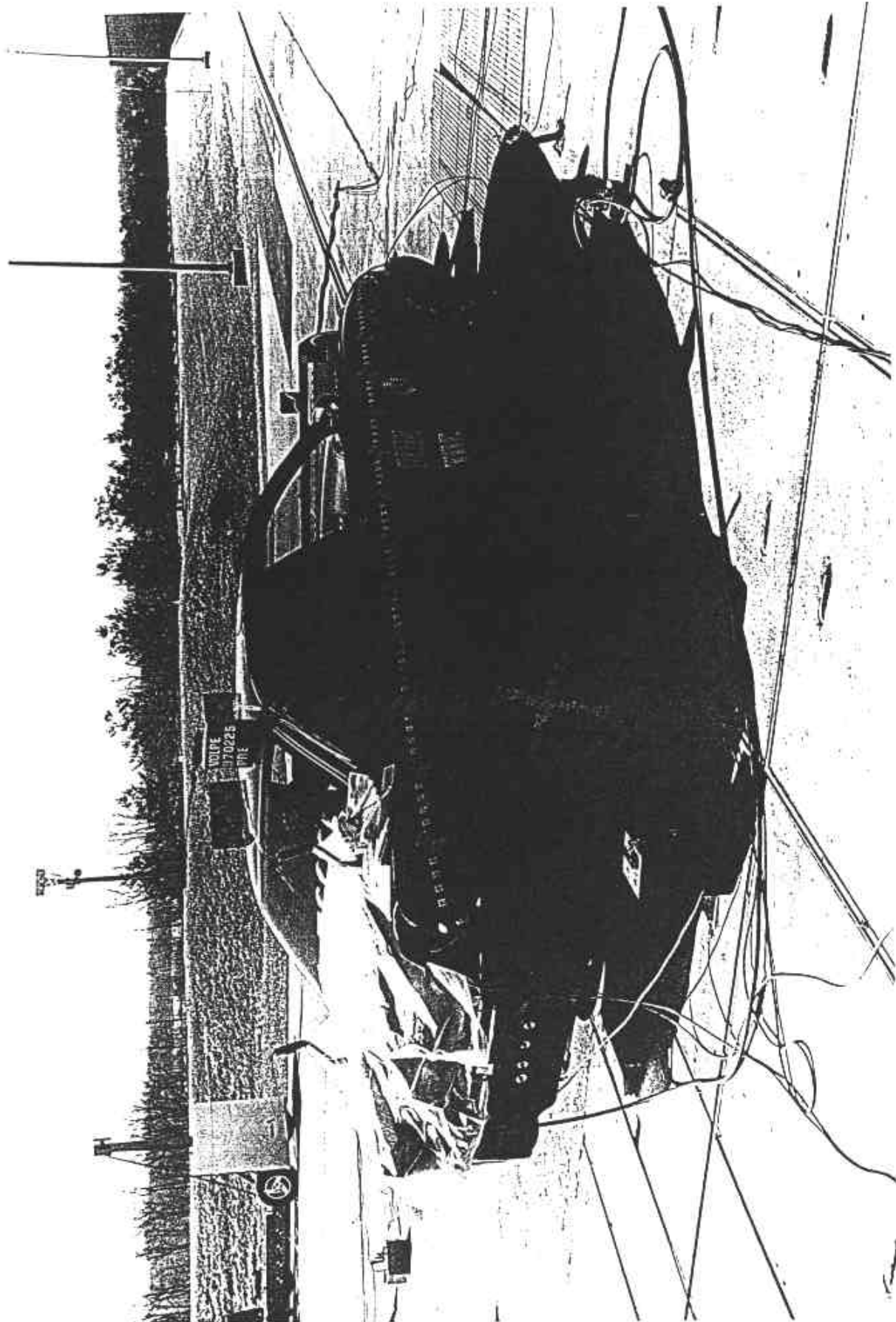


Figure A-11 Pre-Test Right Rear Three-Quarter View

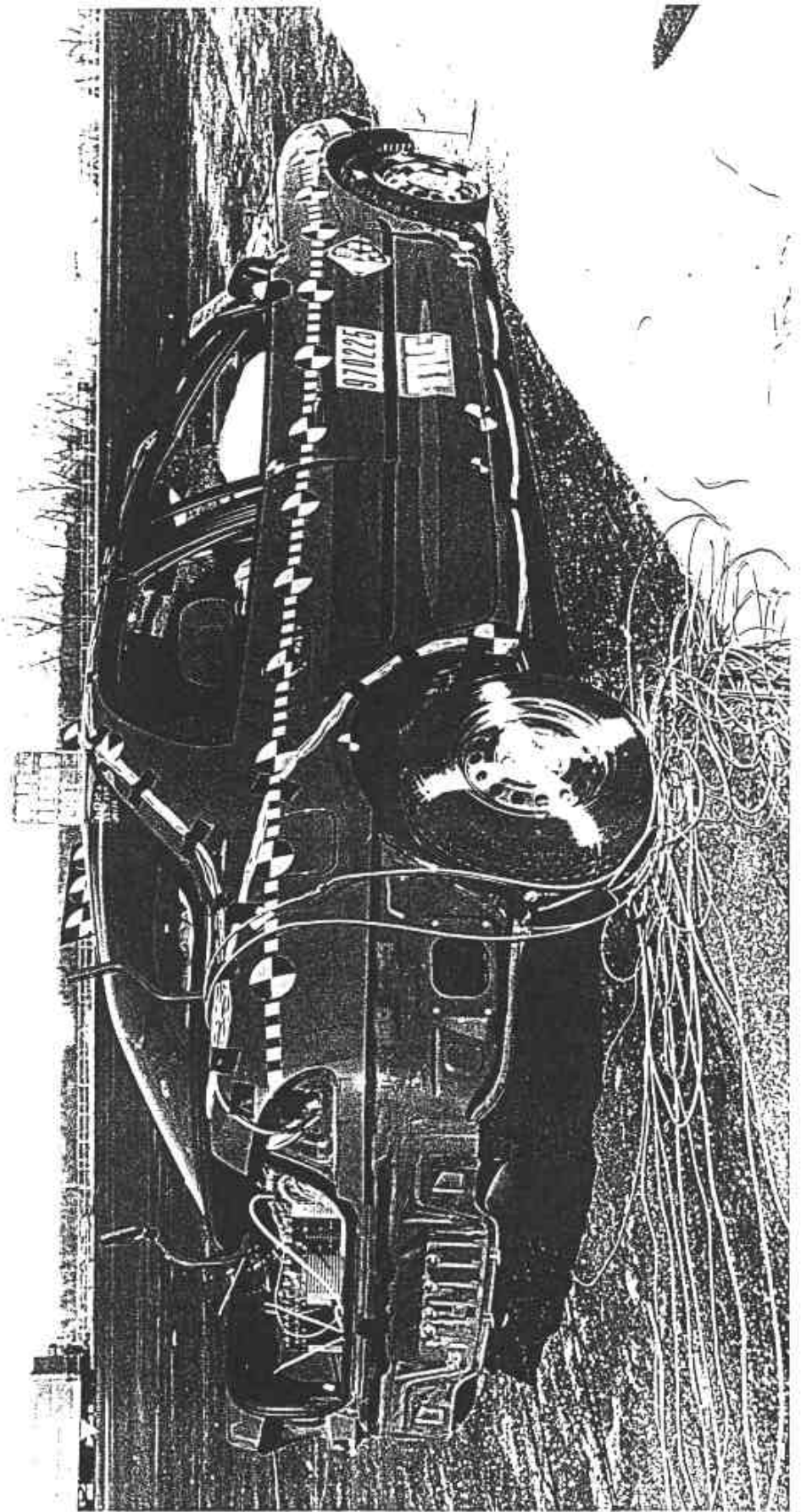


Figure A-12 Post-Test Right Rear Three-Quarter View

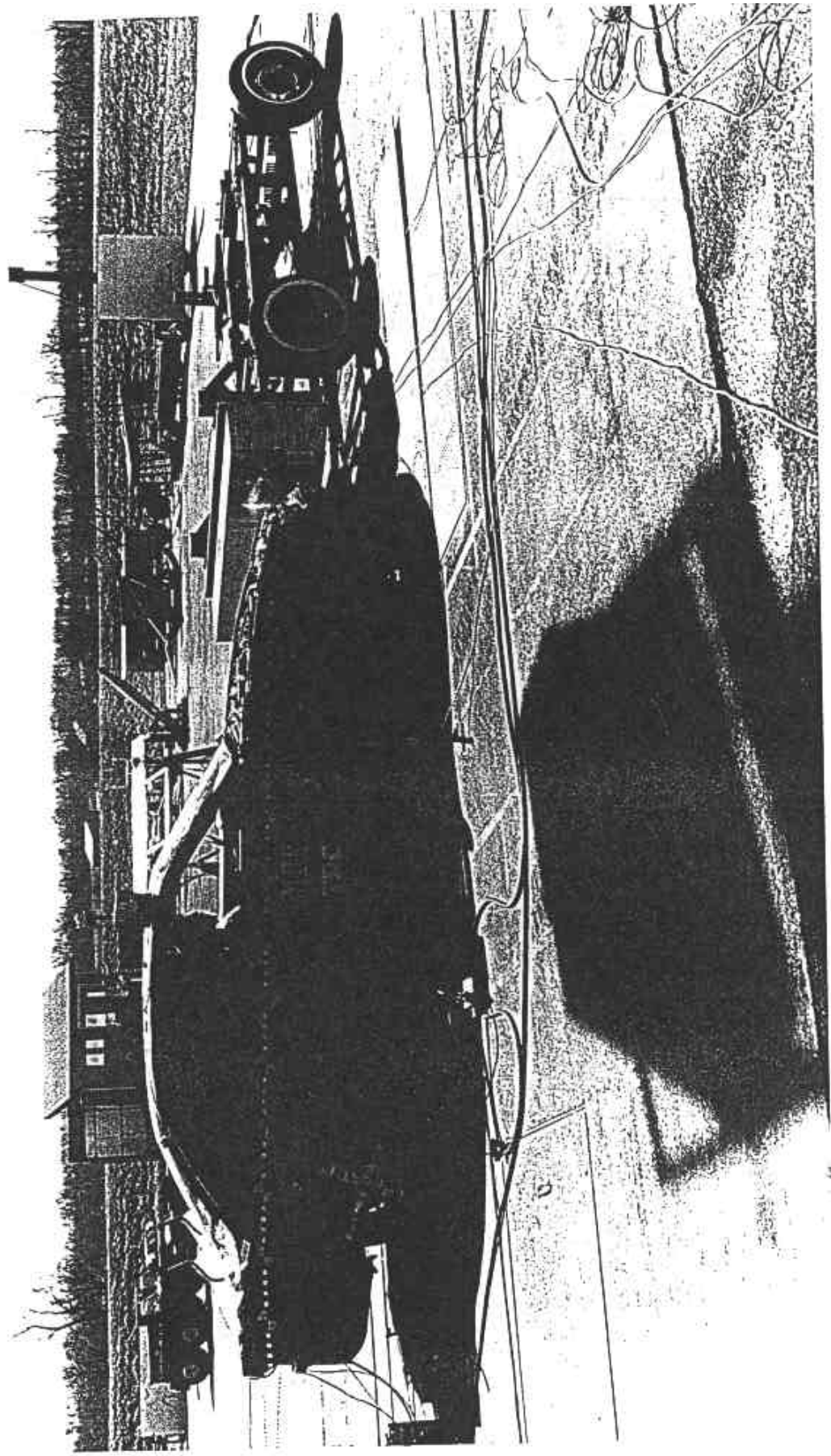


Figure A-13 Pre-Test Right Side View

A-14

970225

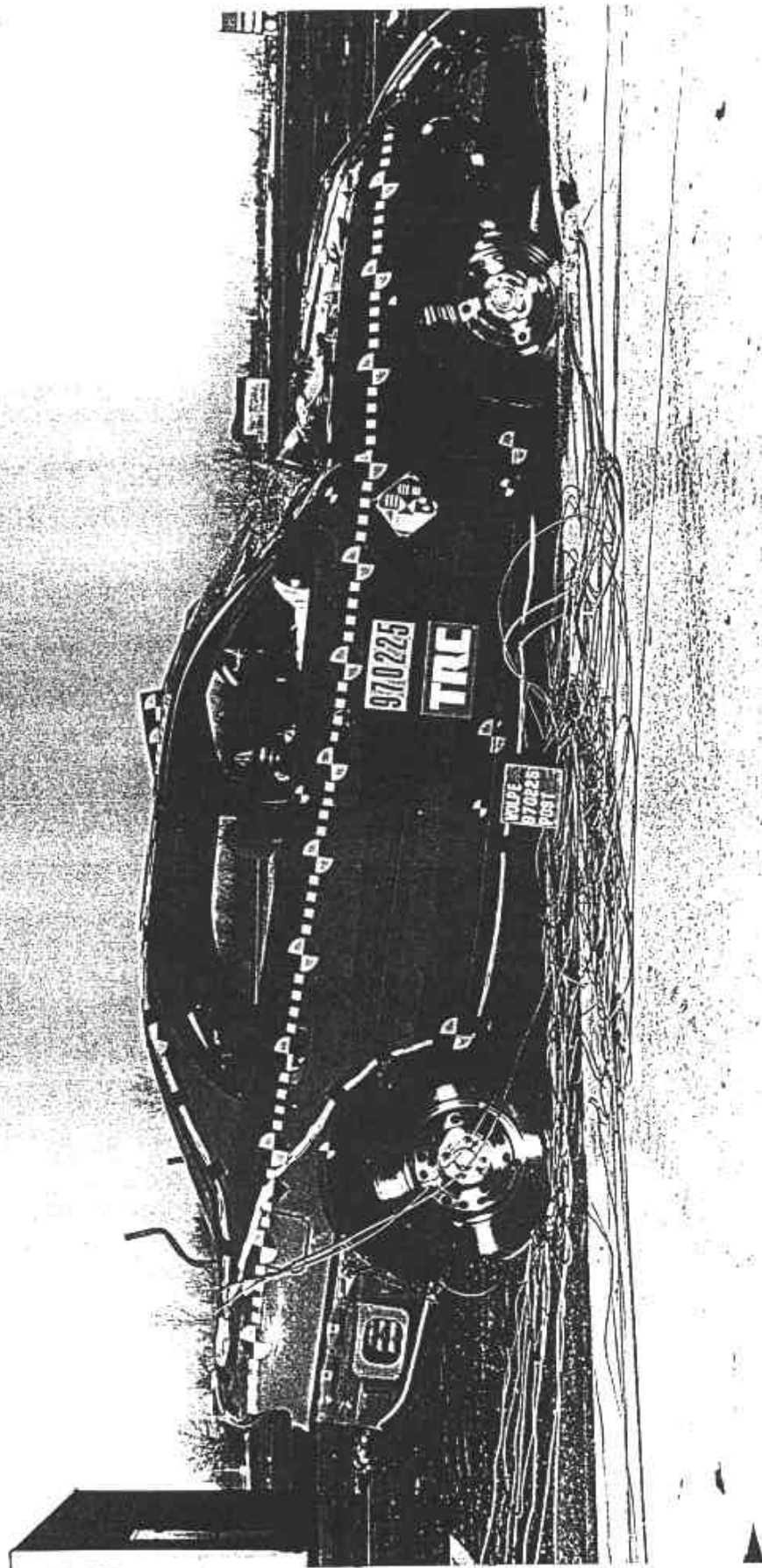


Figure A-14 Post-Test Right Side View

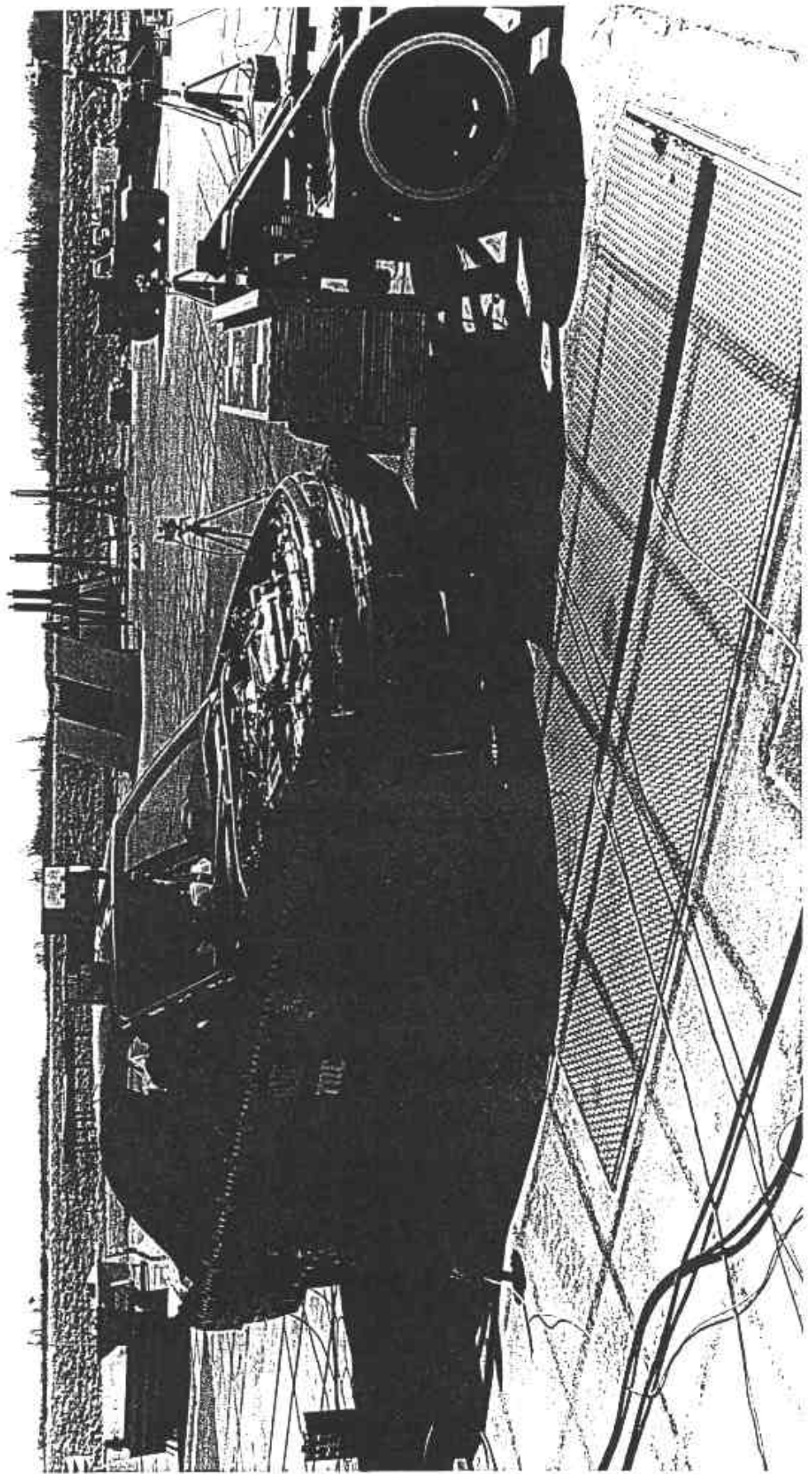


Figure A-15 Pre-Test Right Front Three-Quarter View

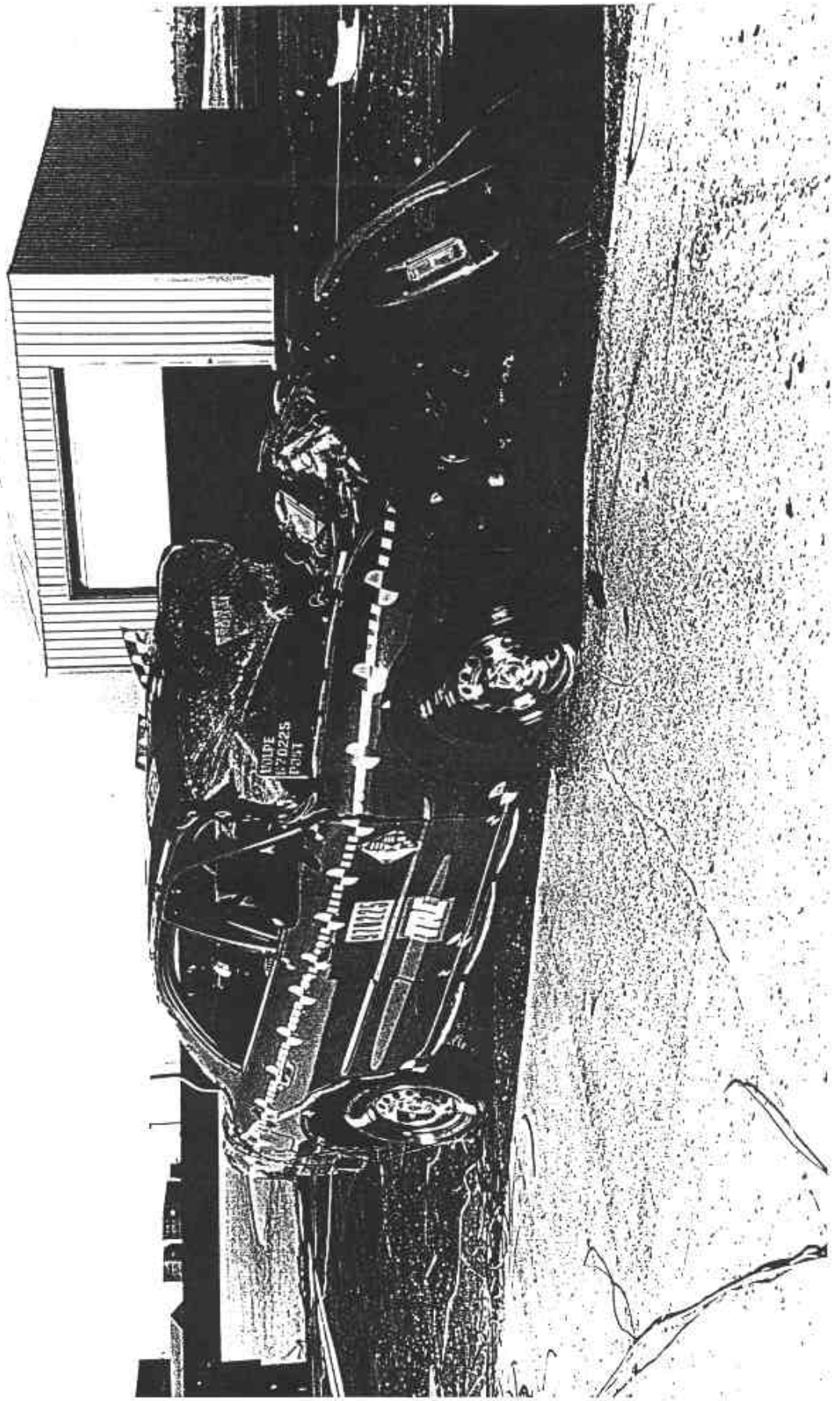


Figure A-16 Post-Test Right Front Three-Quarter View

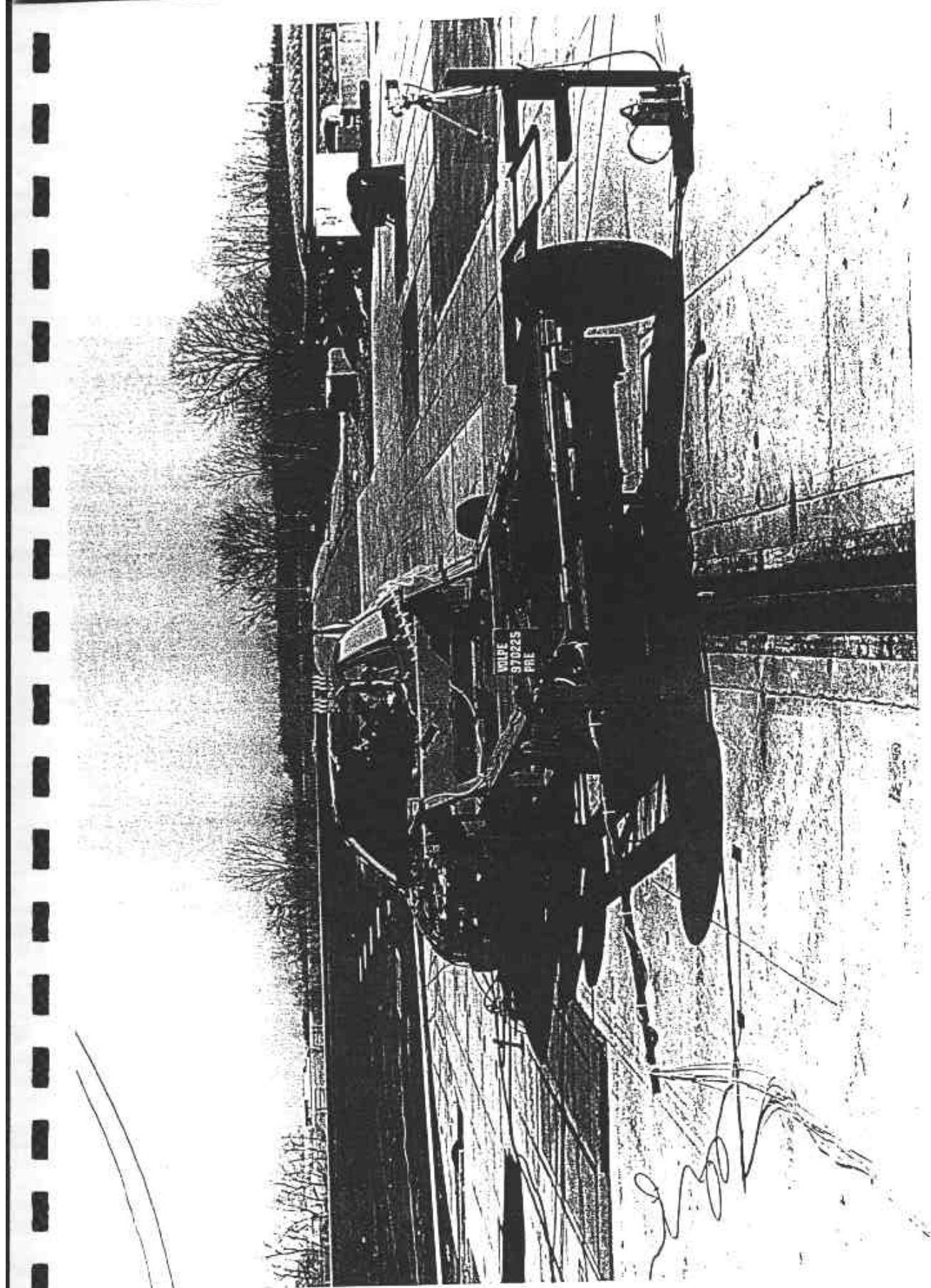


Figure A-17 Pre-Test Vehicle and Barrier View

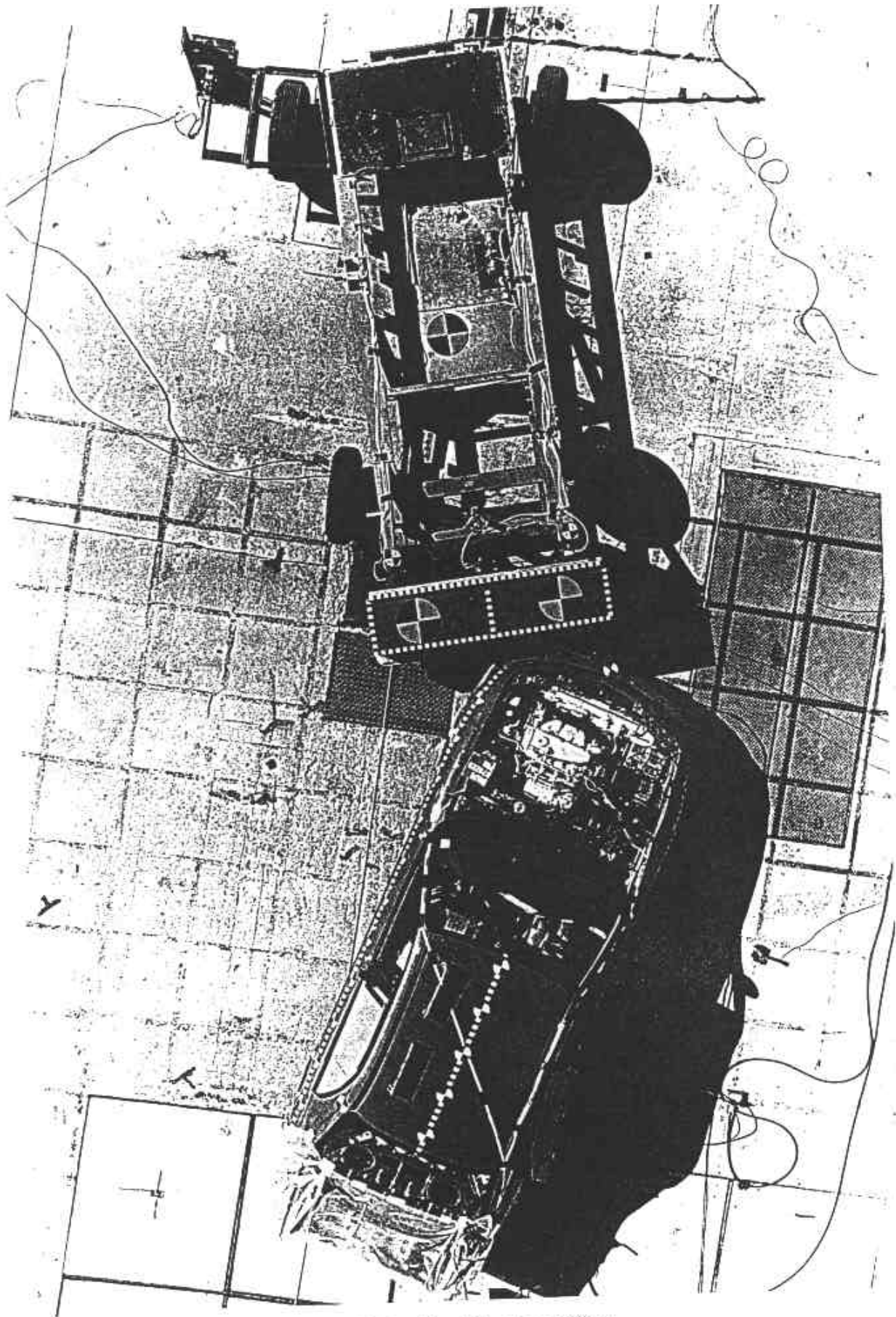


Figure A-18 Pre-Test Overhead View

A-19

970225

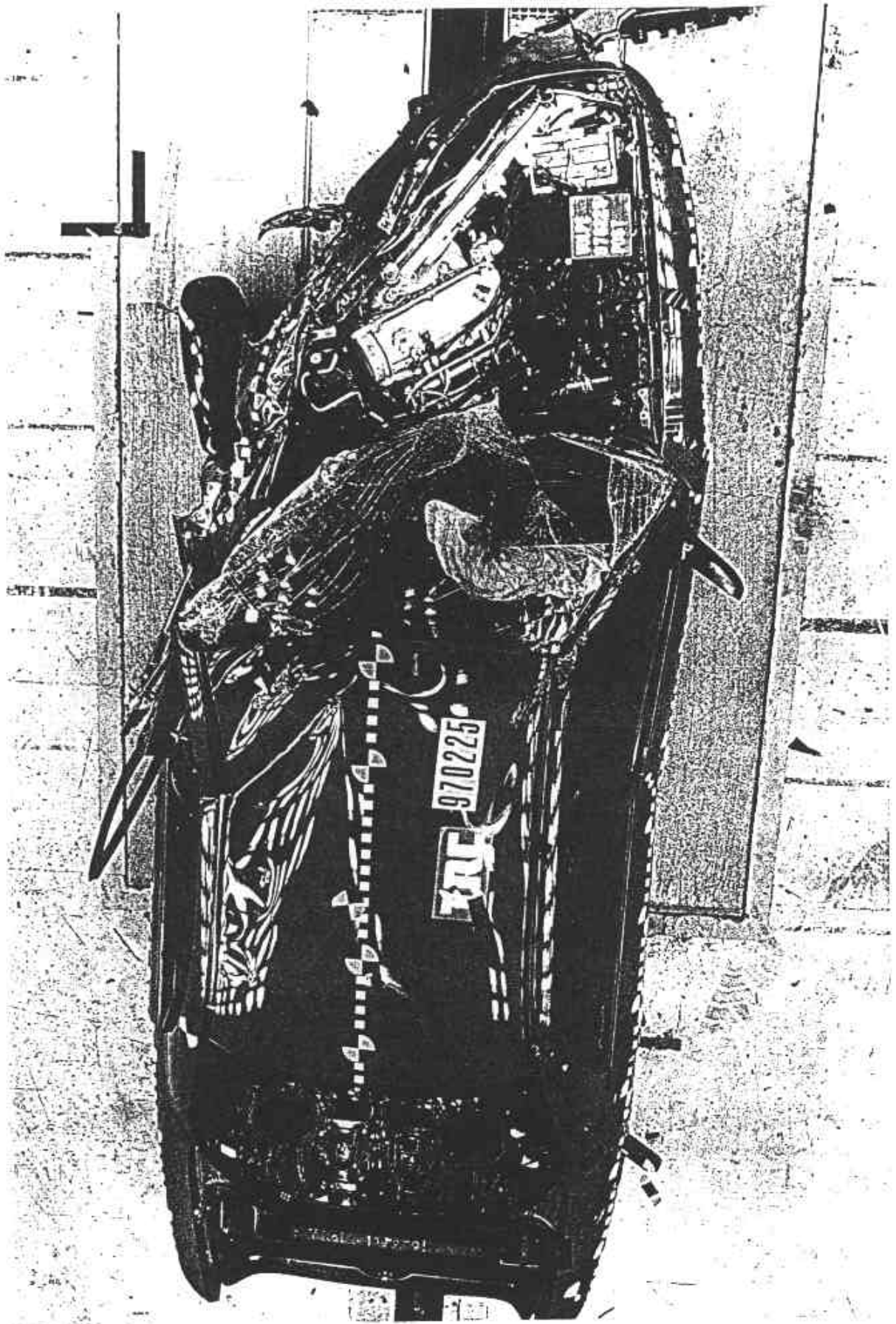


Figure A-19 Post-Test Overhead View



Figure A-20 Pre-Test Fuel Filler Cap View

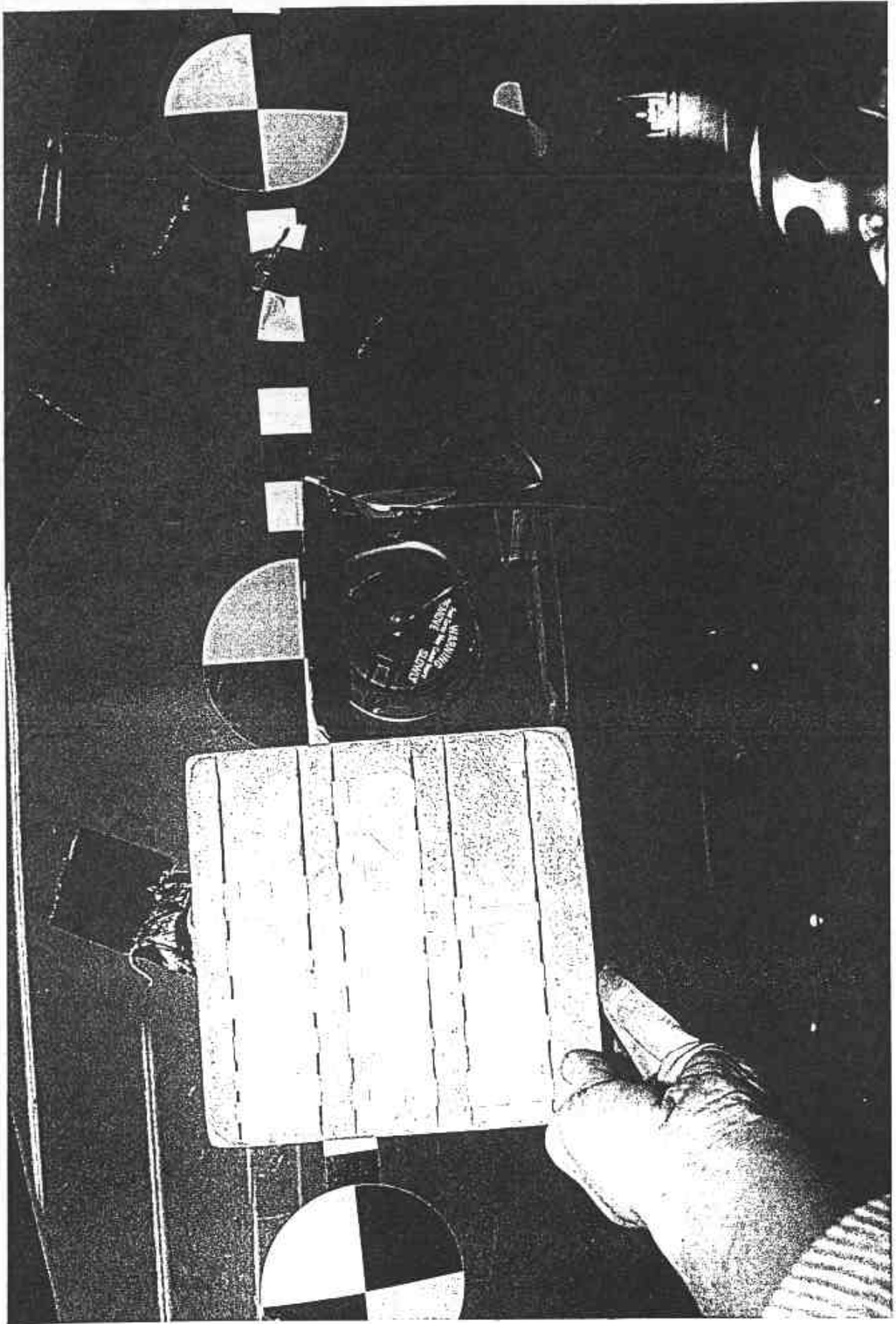


Figure A-21 Post-Test Fuel Filler Cap View

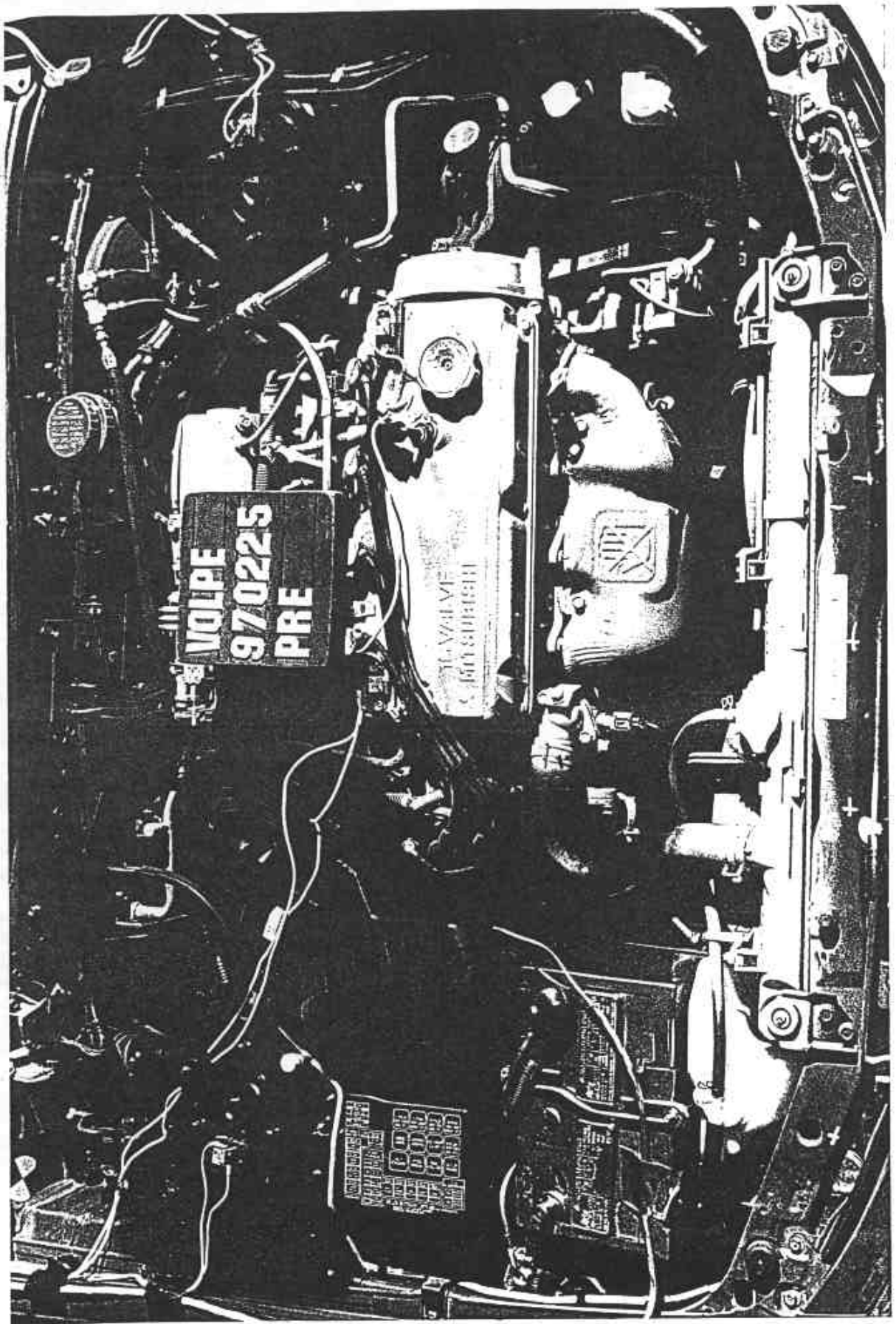


Figure A-22 Pre-Test Engine Compartment View

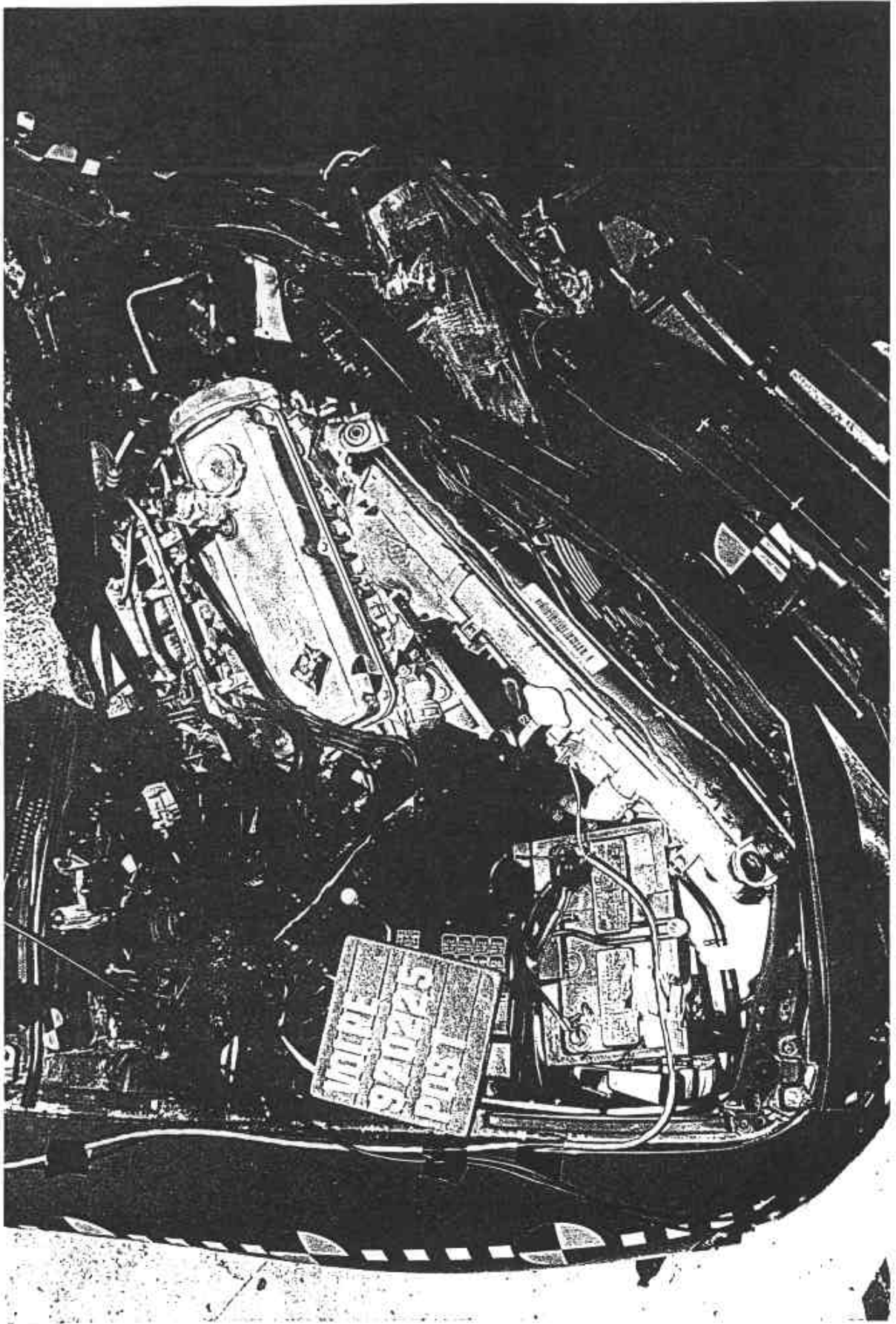


Figure A-23 Post-Test Engine Compartment View

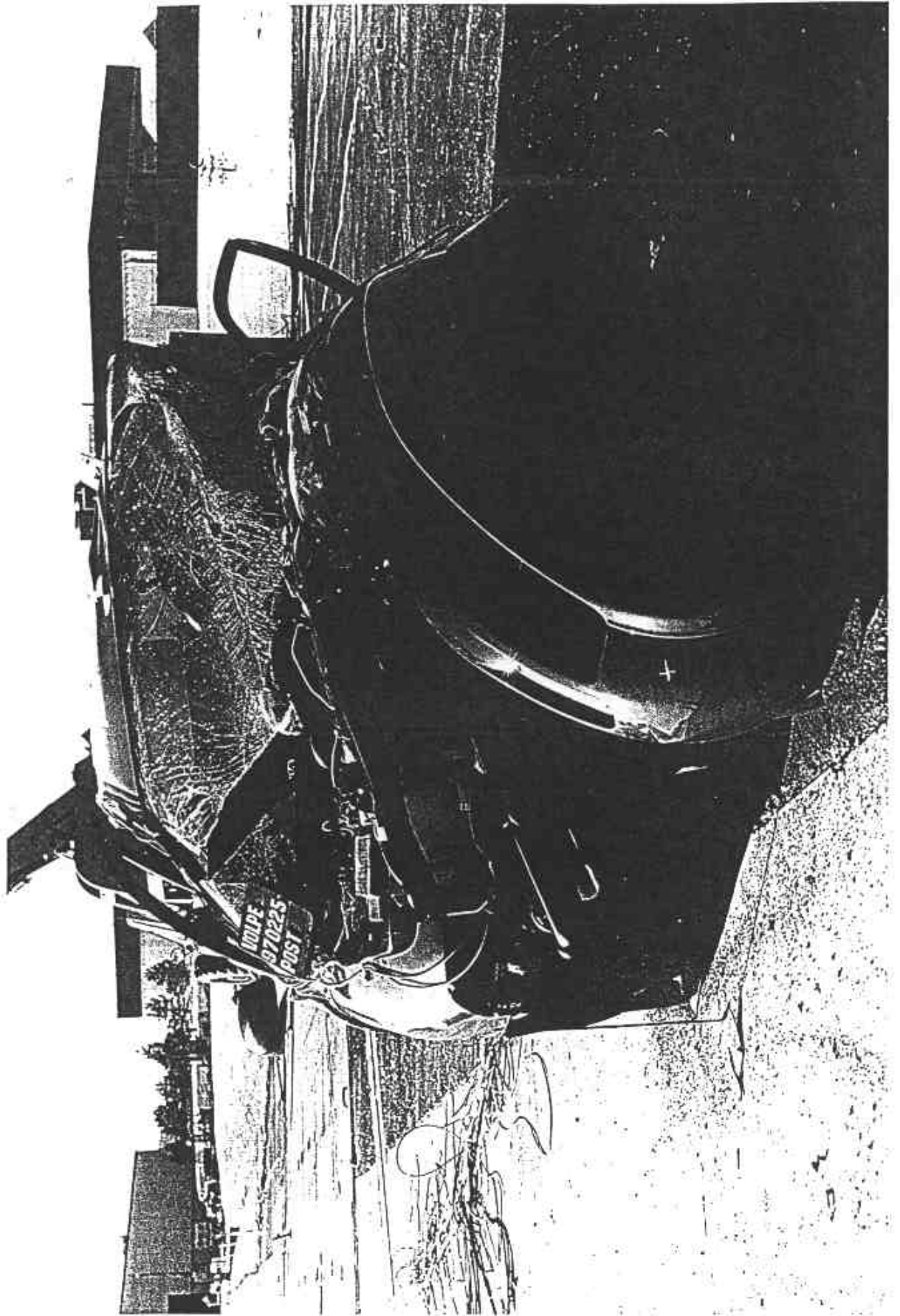


Figure A-24 Post-Test Windshield View

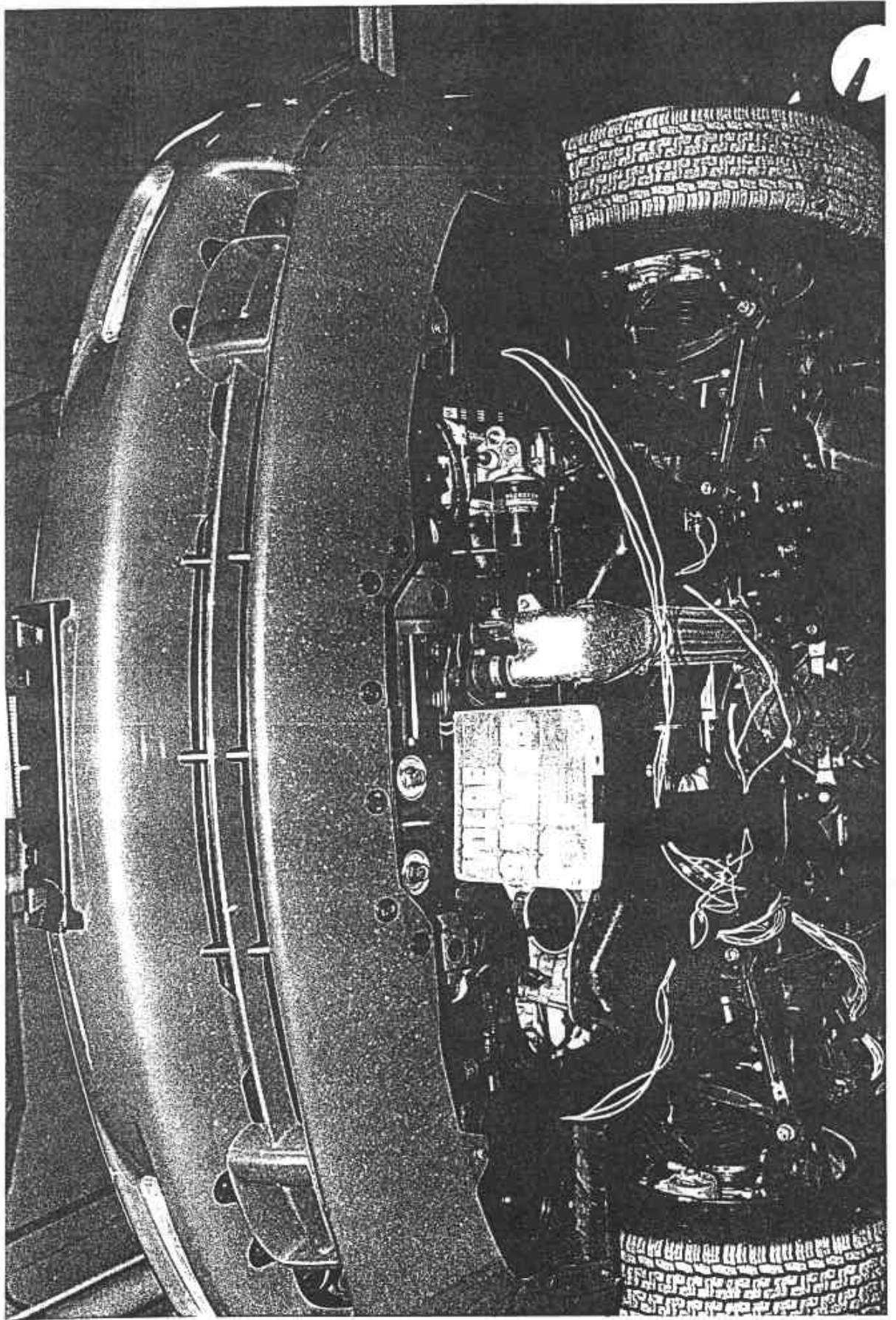


Figure A-25 Pre-Test Front Underbody View

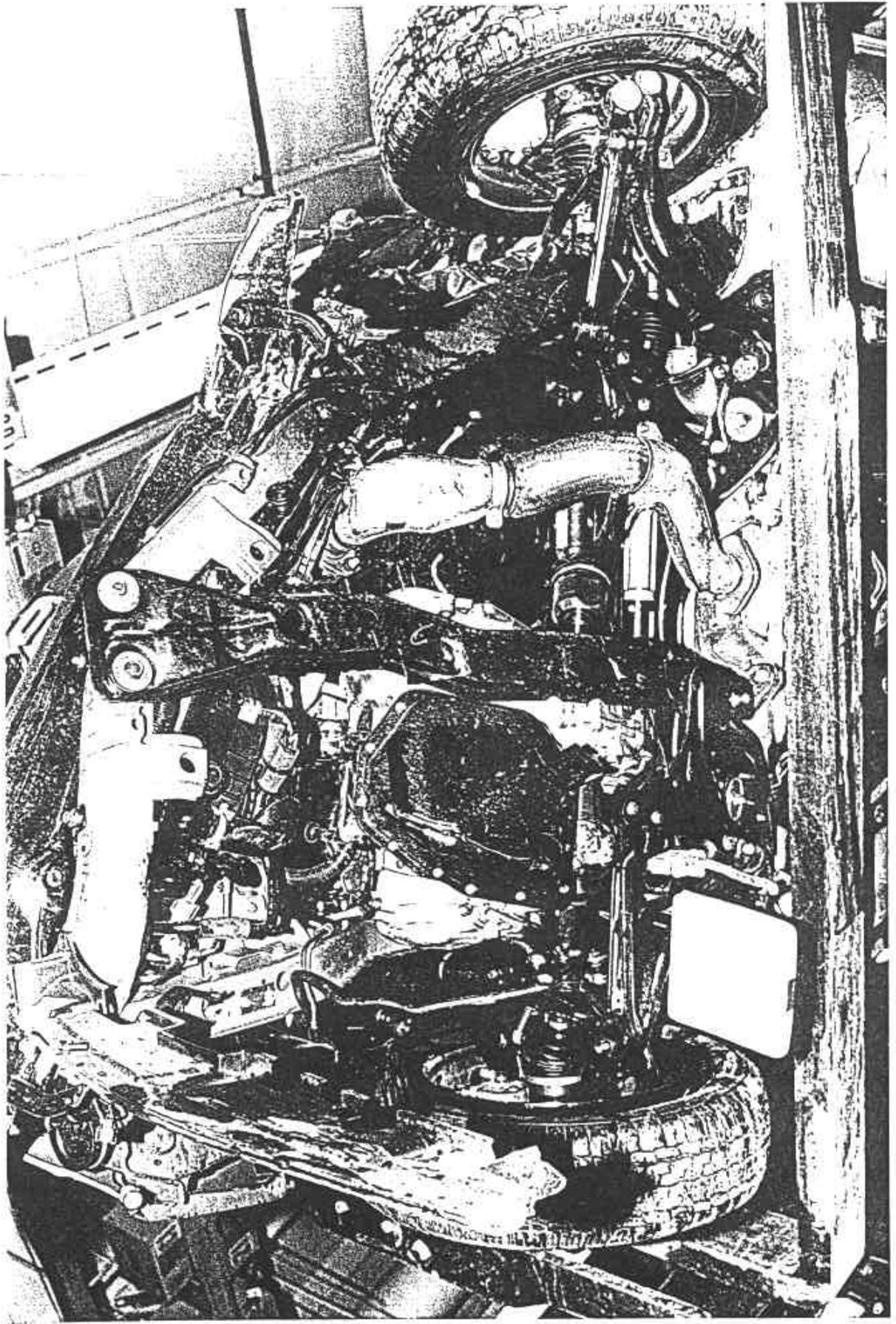


Figure A-26 Post-Test Front Underbody View

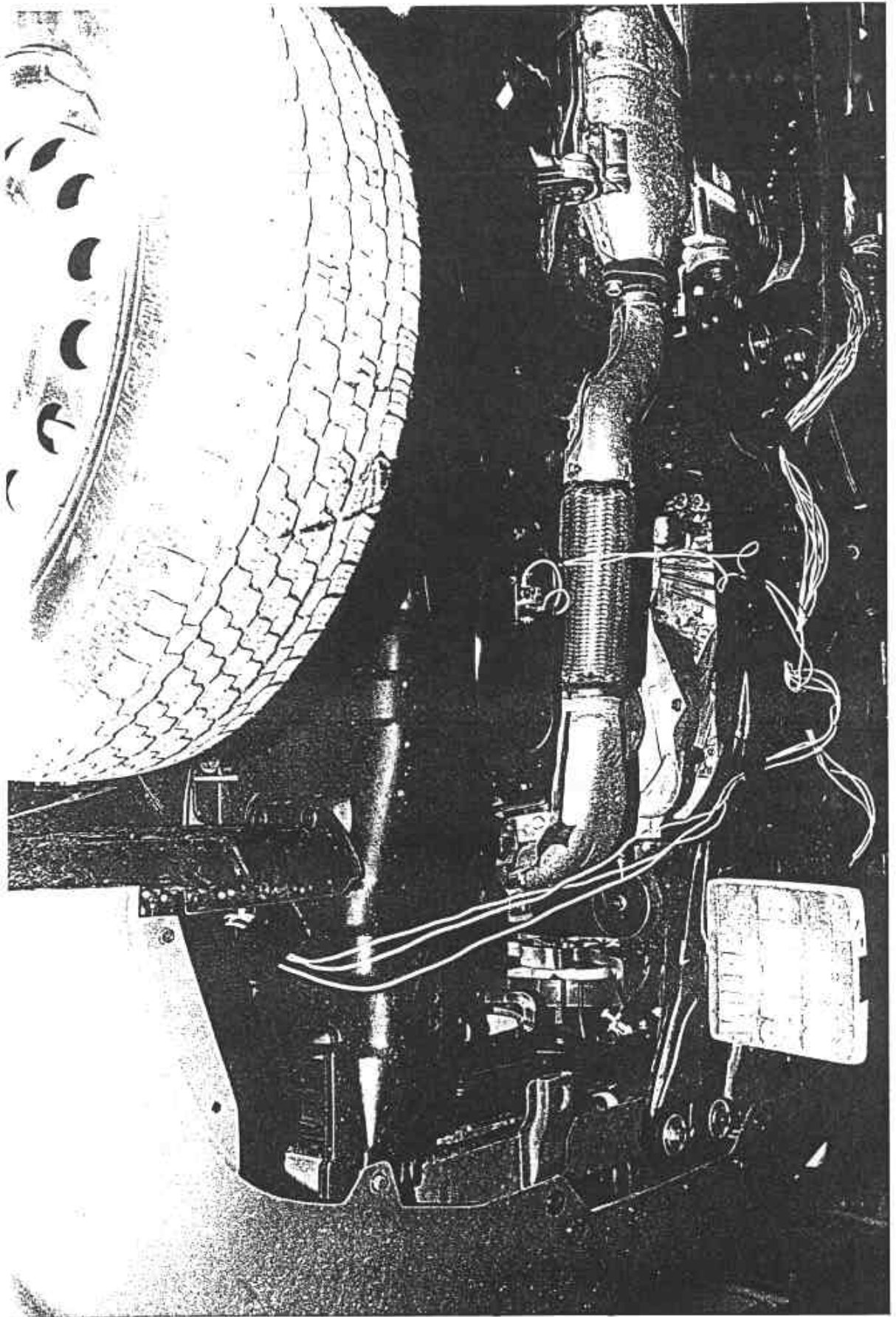


Figure A-27 Pre-Test Left Front Underbody View

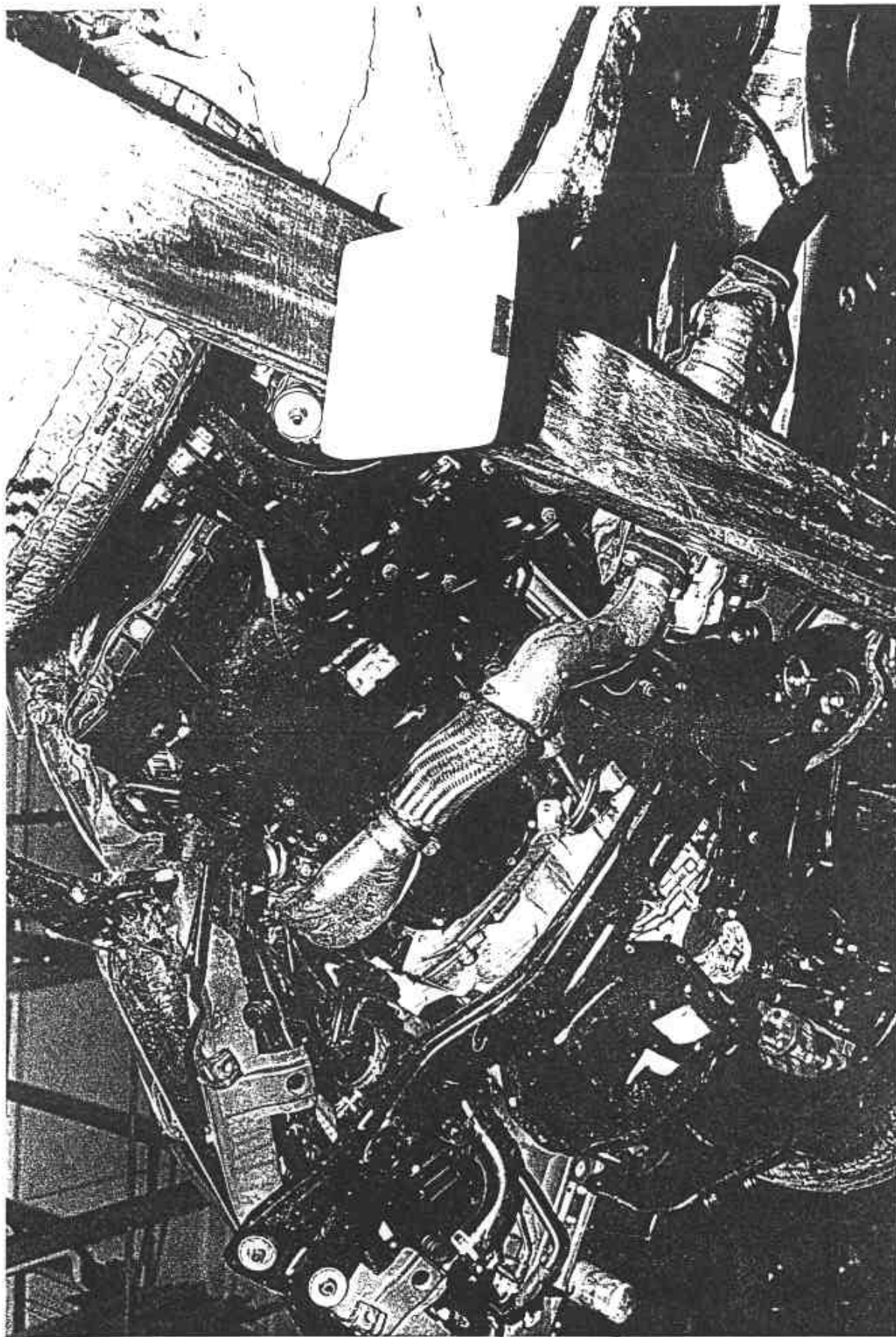


Figure A-28 Post-Test Left Front Underbody View

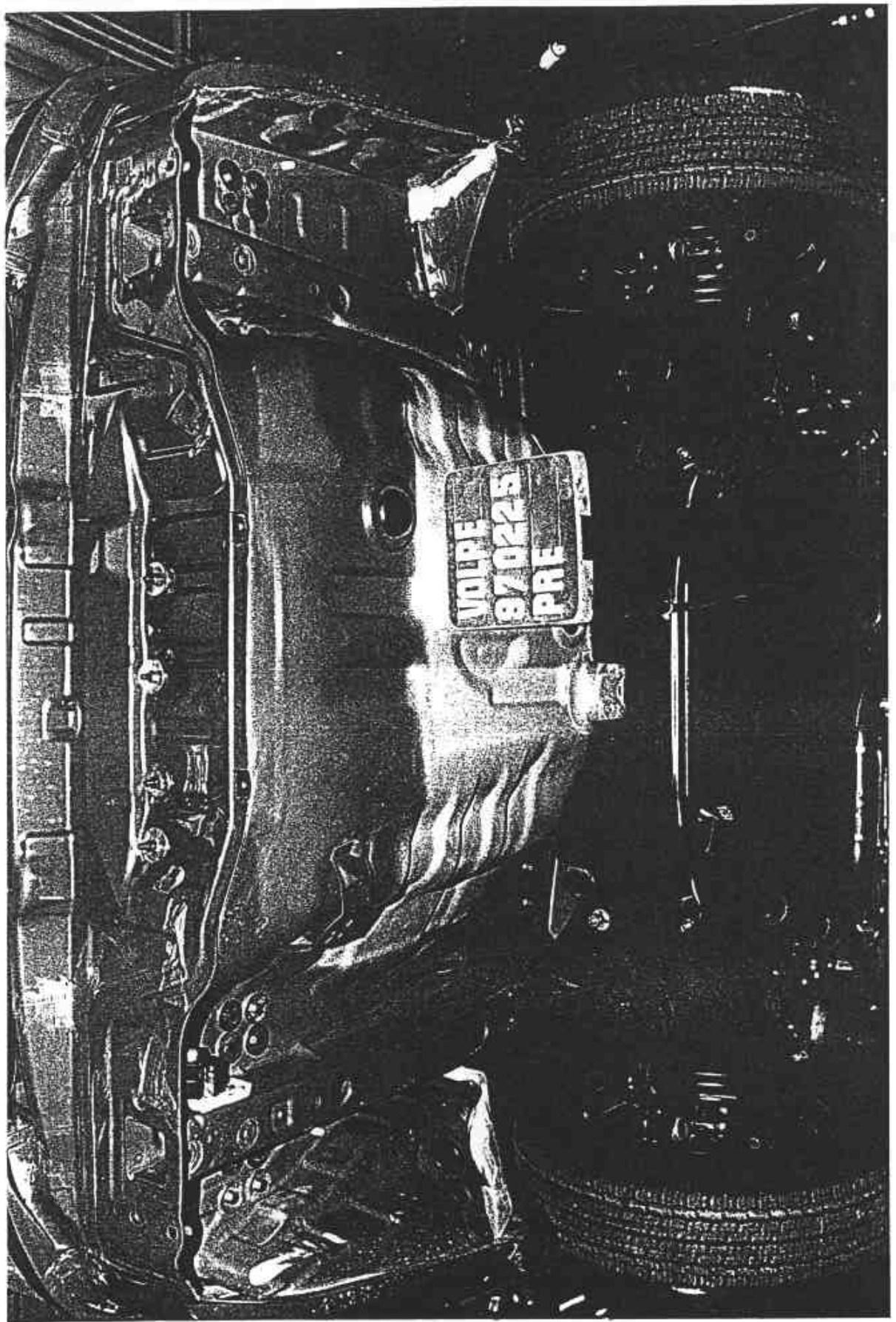


Figure A-29 Pre-Test Rear Underbody View

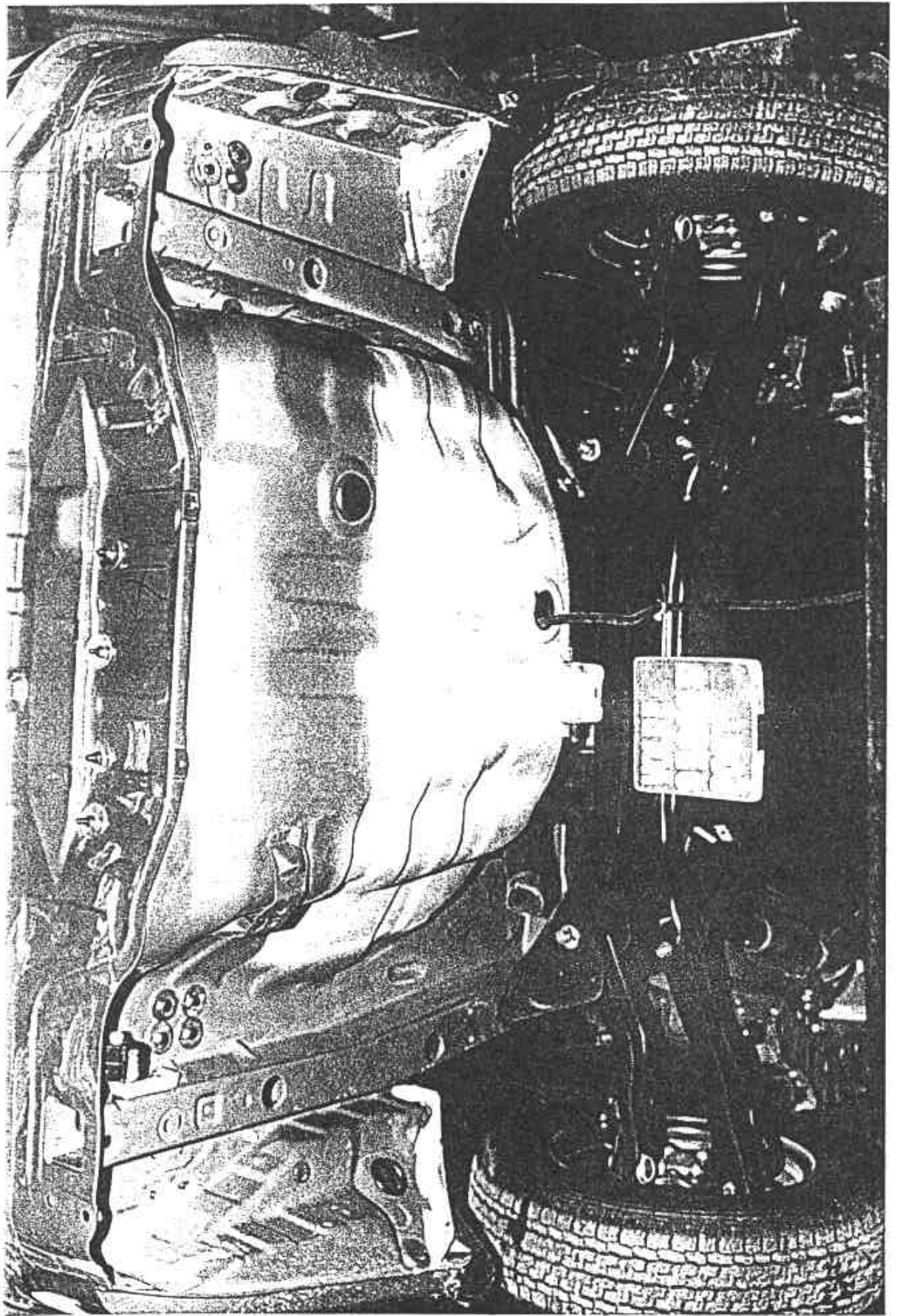


Figure A-30 Post-Test Rear Underbody View

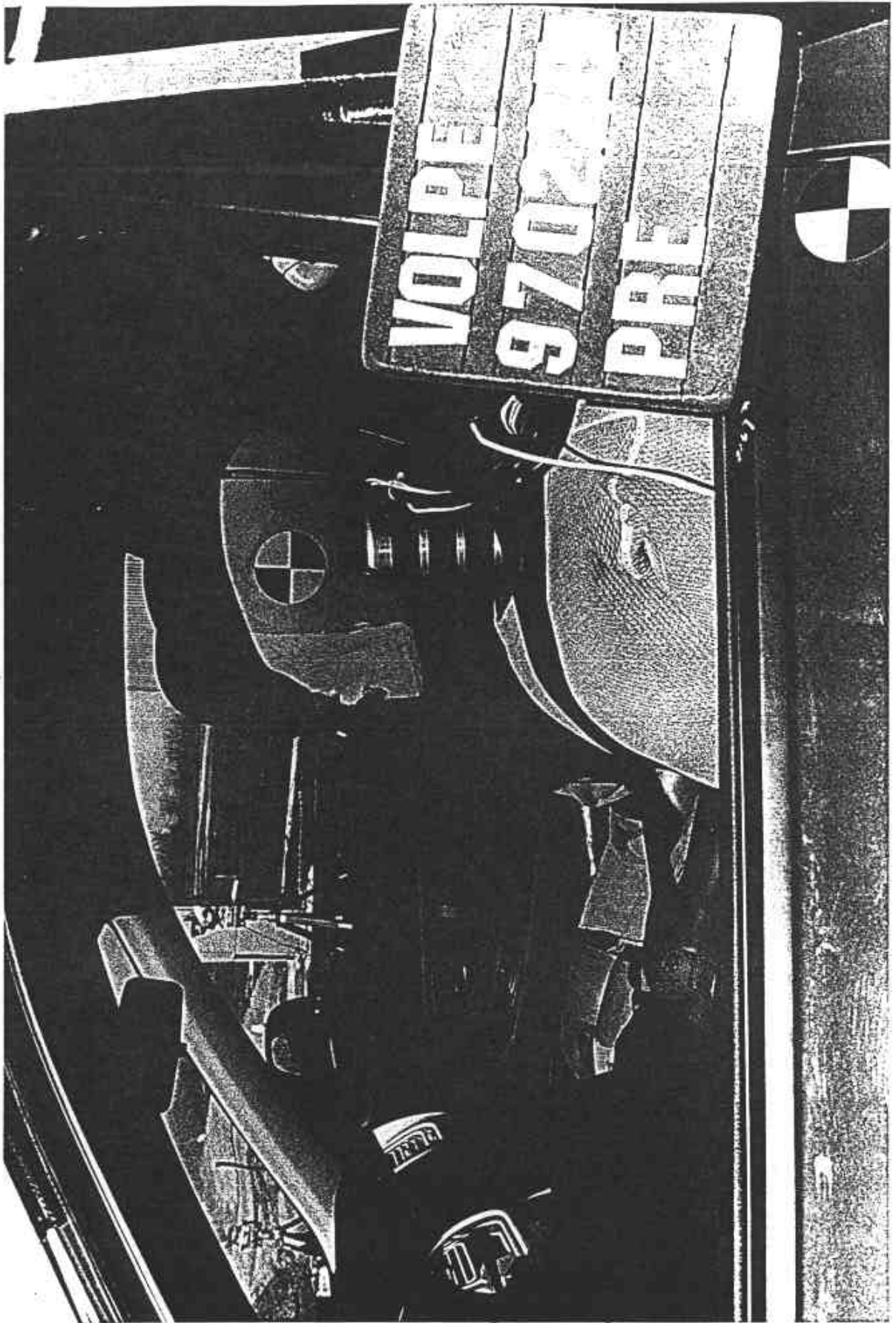


Figure A-31 Pre-Test Driver Dummy Position View

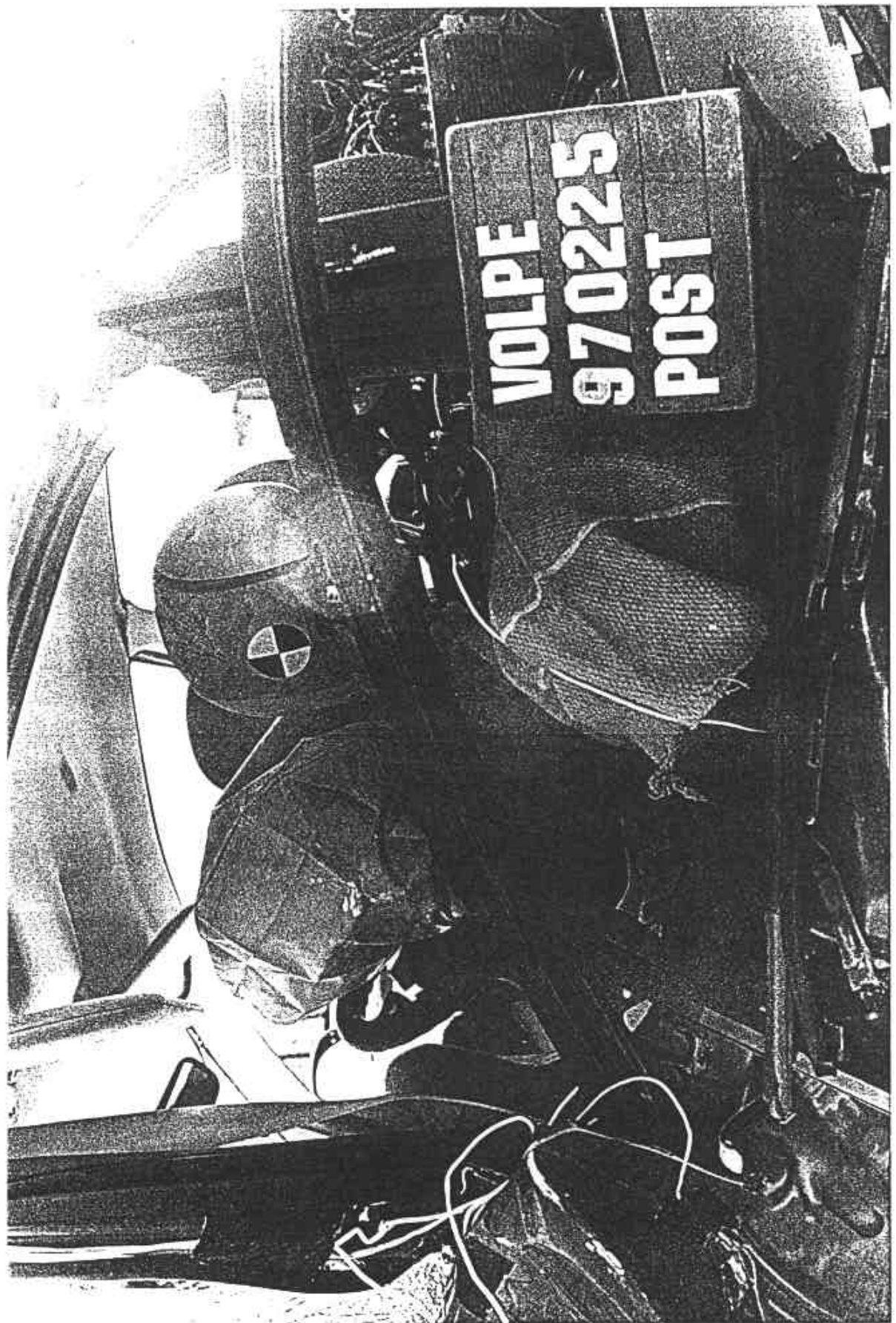


Figure A-32 Post-Test Driver Dummy Position View



Figure A-33 Pre-Test Passenger Dummy Position View



Figure A-34 Post-Test Passenger Dummy Position View

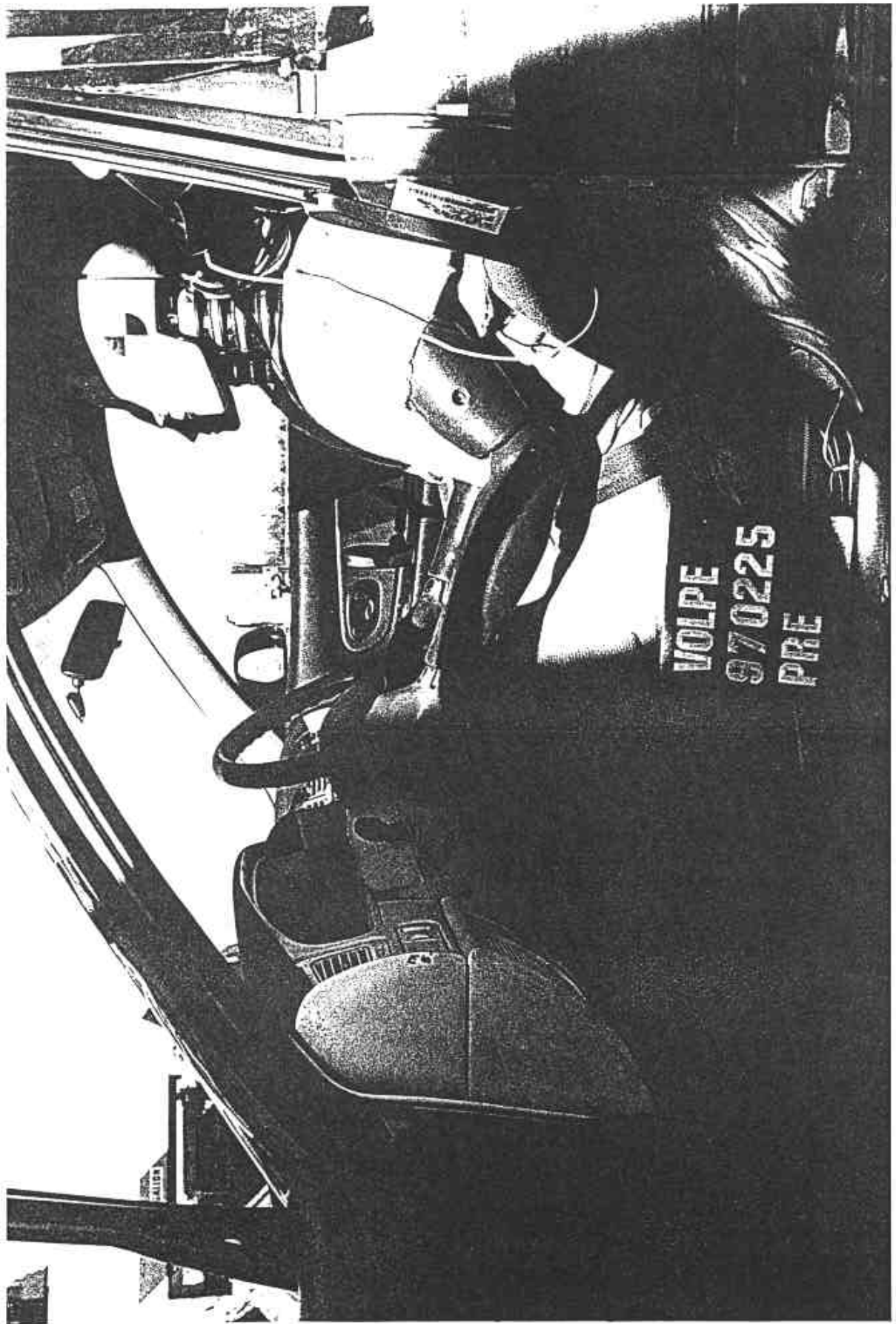


Figure A-35 Pre-Test Driver Dummy and Vehicle Interior - View 1

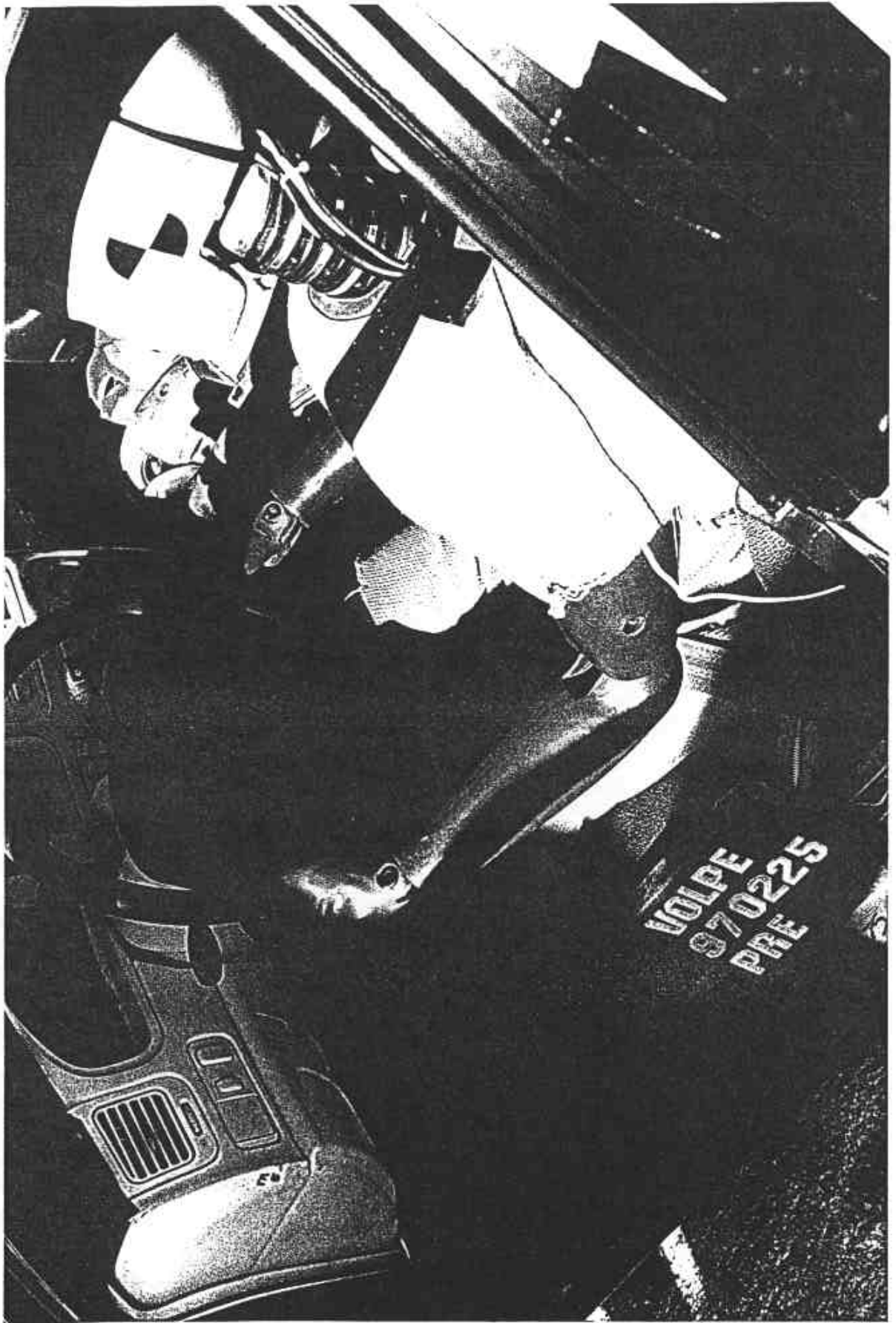


Figure A-36 Pre-Test Driver Dummy and Vehicle Interior - View 2

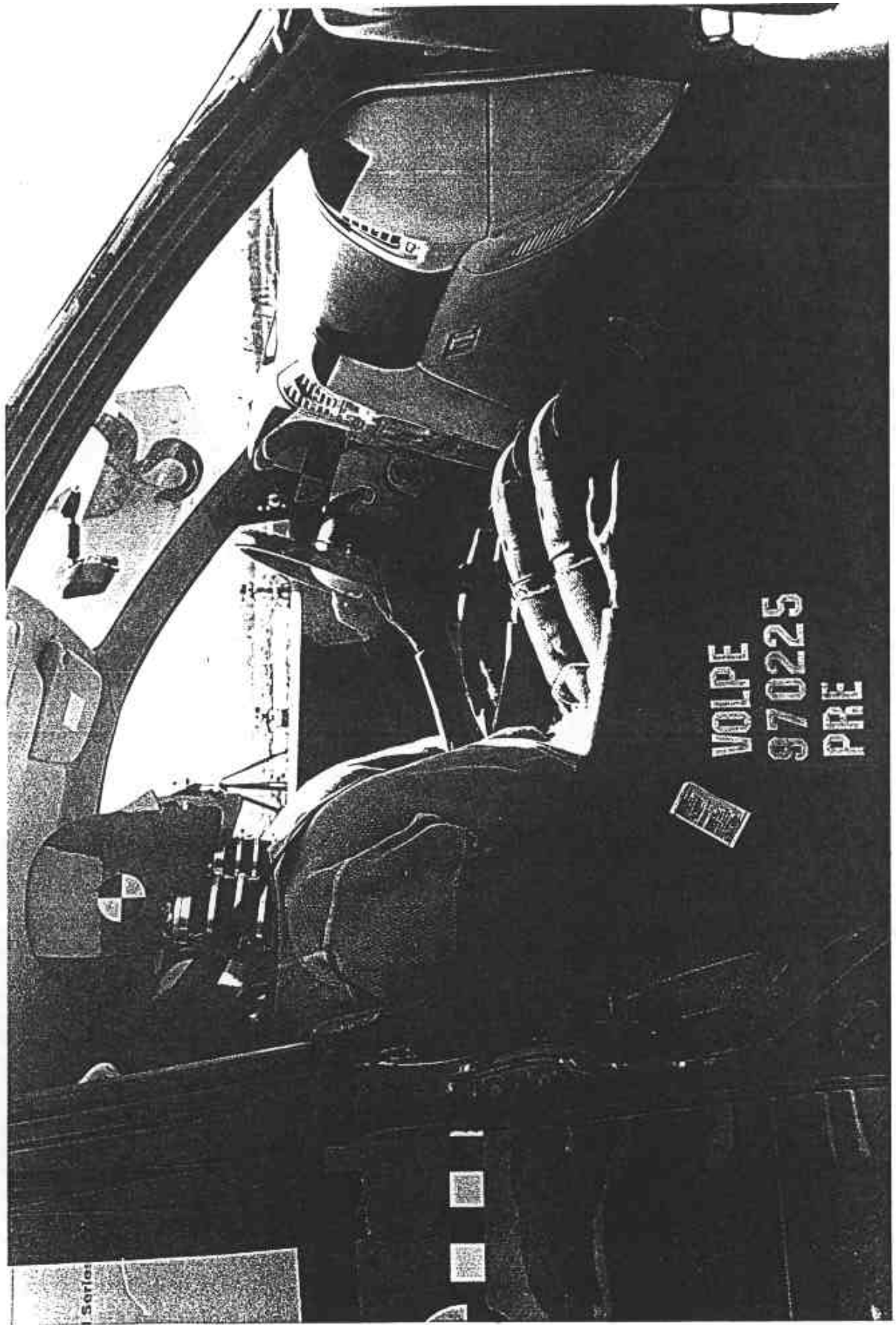


Figure A-37 Pre-Test Passenger Dummy and Vehicle Interior - View 1

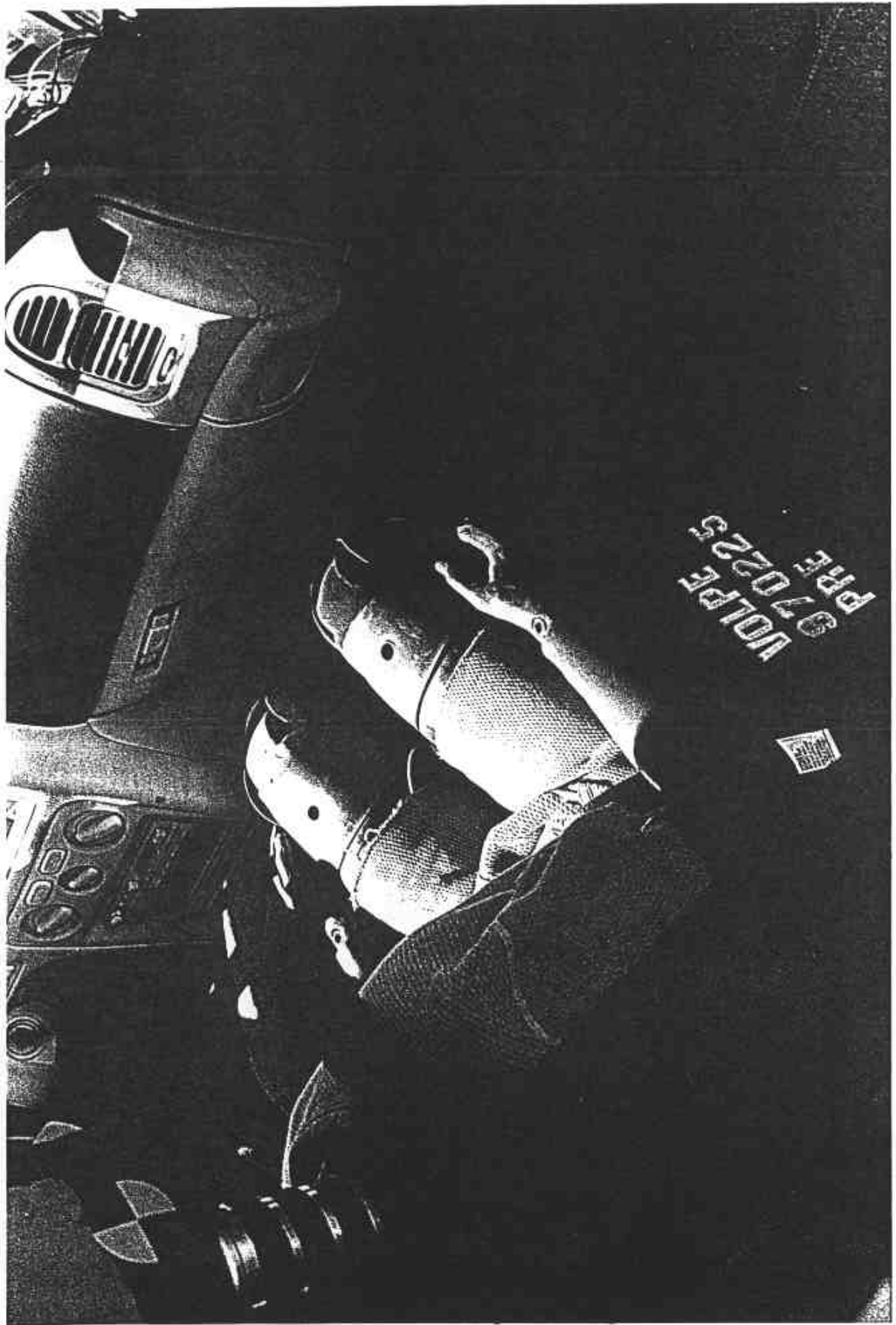


Figure A-38 Pre-Test Passenger Dummy and Vehicle Interior - View 2



Figure A-39 Post-Test Driver Dummy Contact - View 1



Figure A-40 Post-Test Driver Dummy Contact - View 2

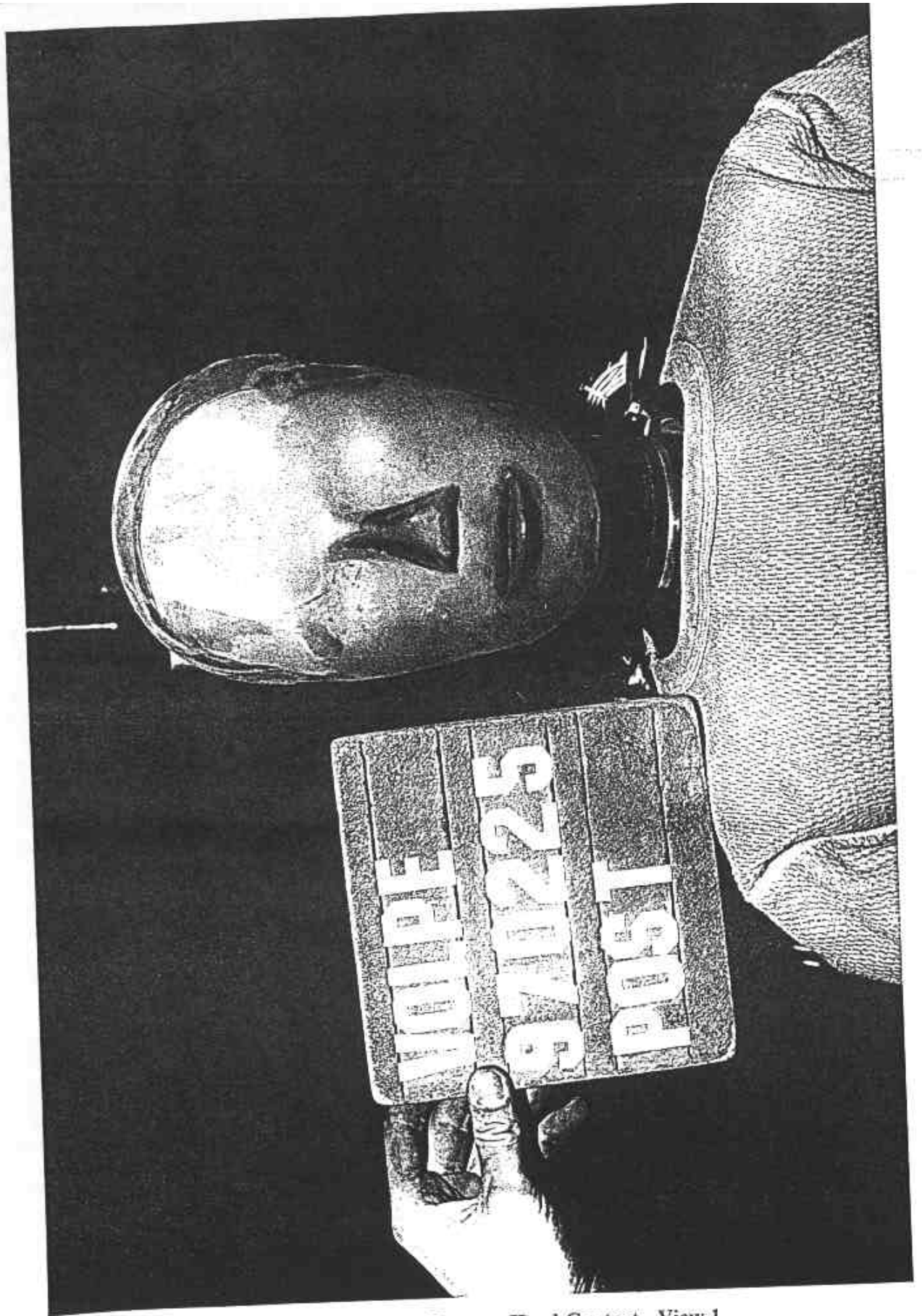


Figure A-41 Post-Test Driver Dummy Head Contact - View 1



Figure A-42 Post-Test Driver Dummy Head Contact - View 2

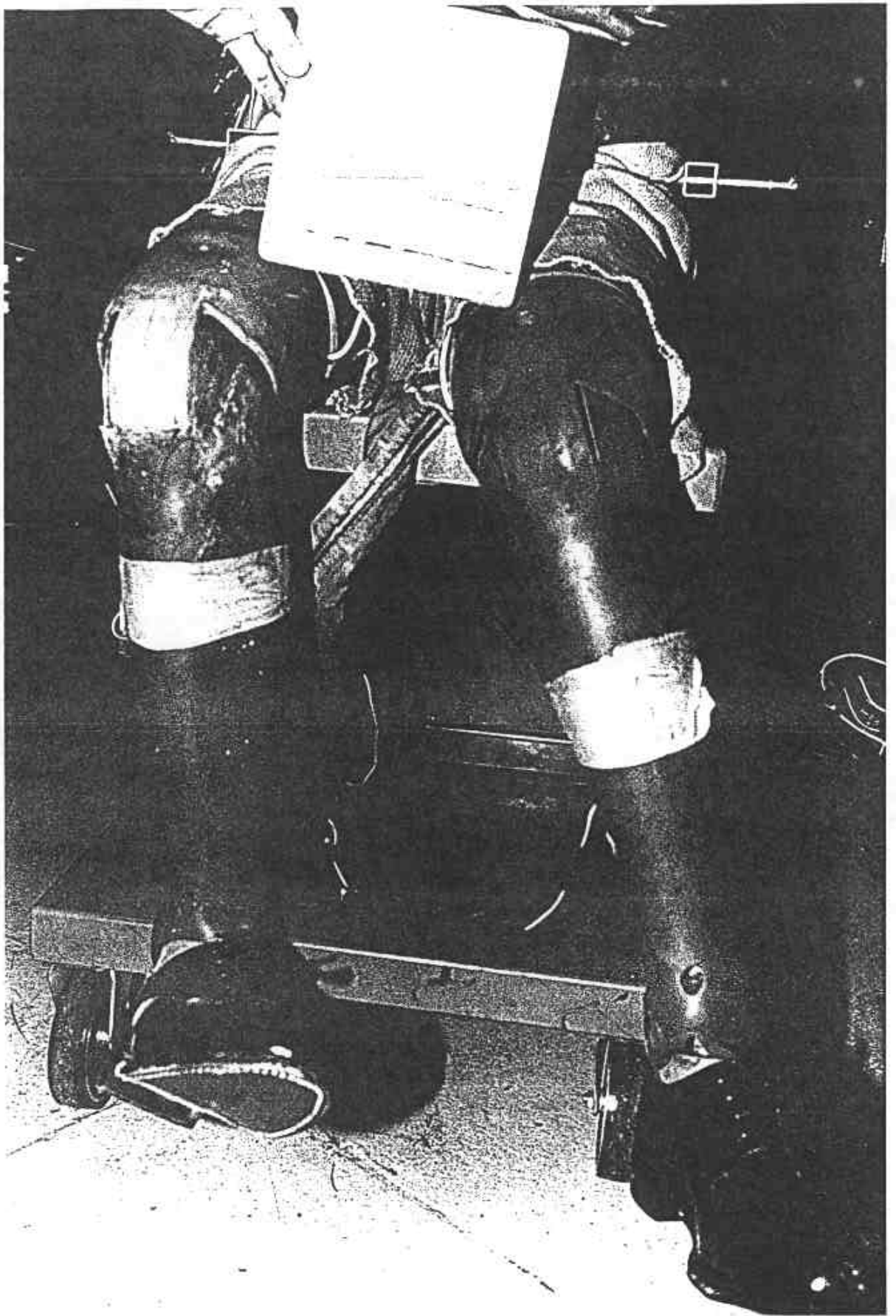


Figure A-43 Post-Test Driver Dummy Knee Contact - View 1



Figure A-44 Post-Test Driver Dummy Knee Contact - View 2

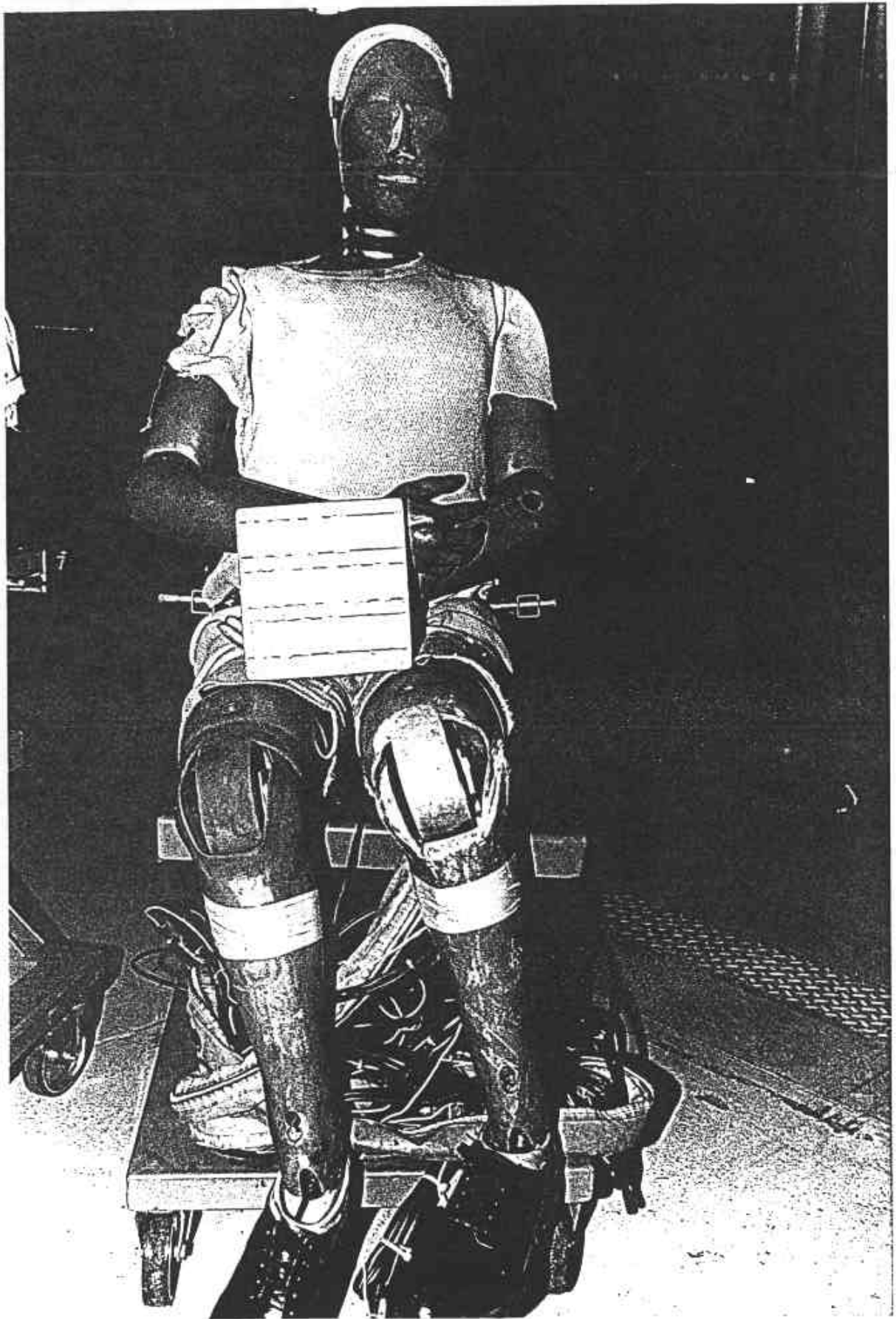


Figure A-45 Post-Test Passenger Dummy Contact - View 1

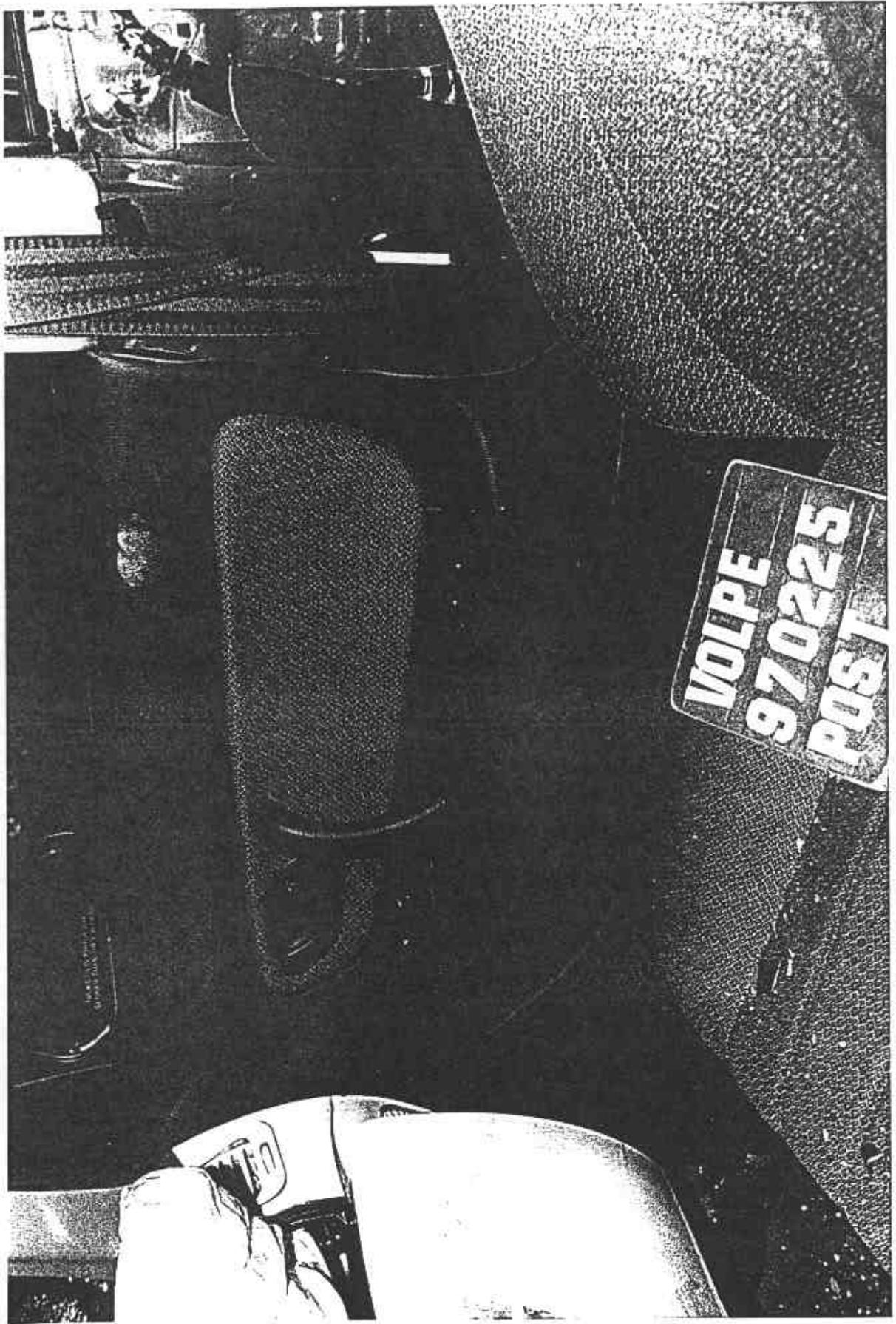


Figure A-46 Post-Test Passenger Dummy Contact - View 2

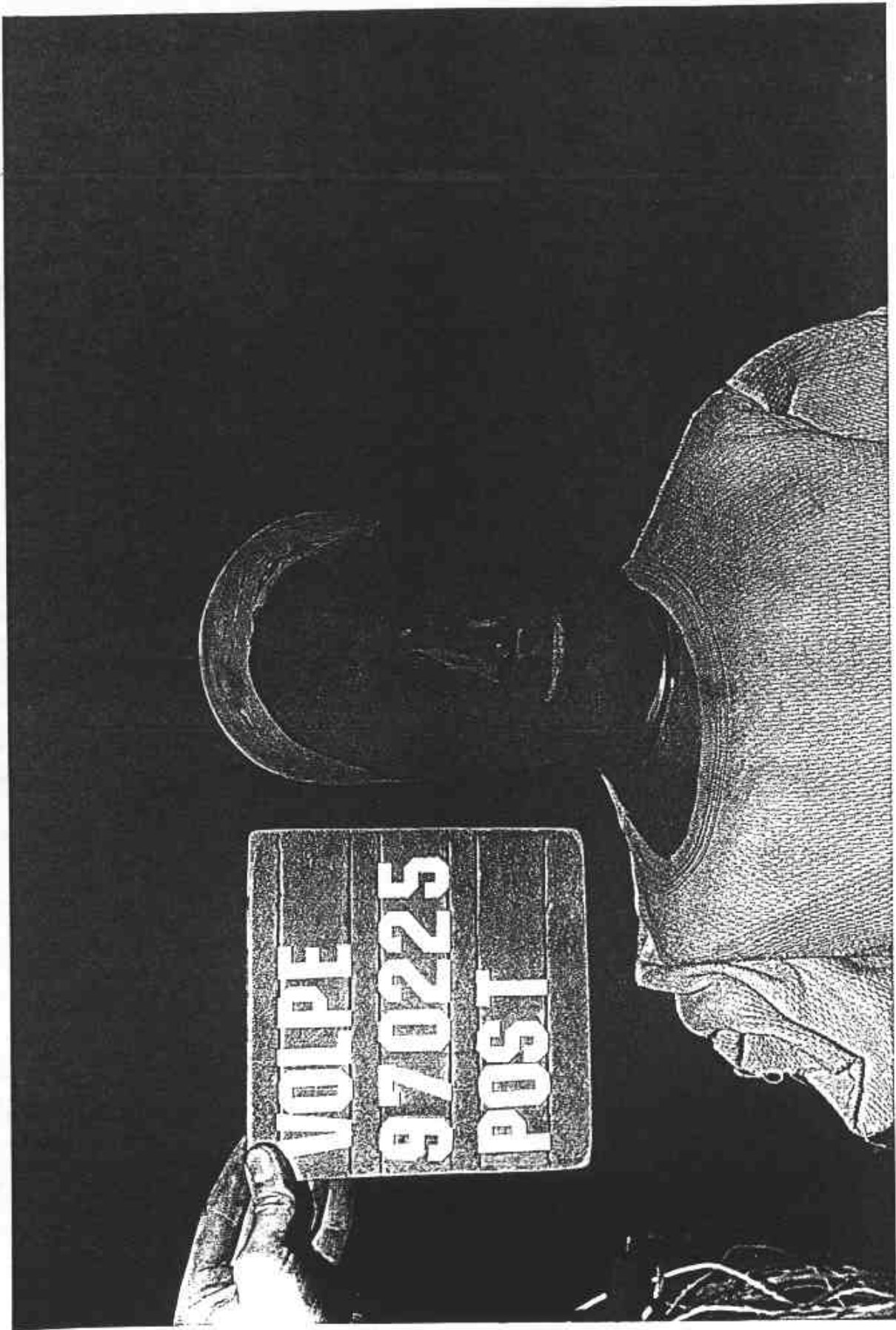


Figure A-47 Post-Test Passenger Dummy Head Contact - View 1

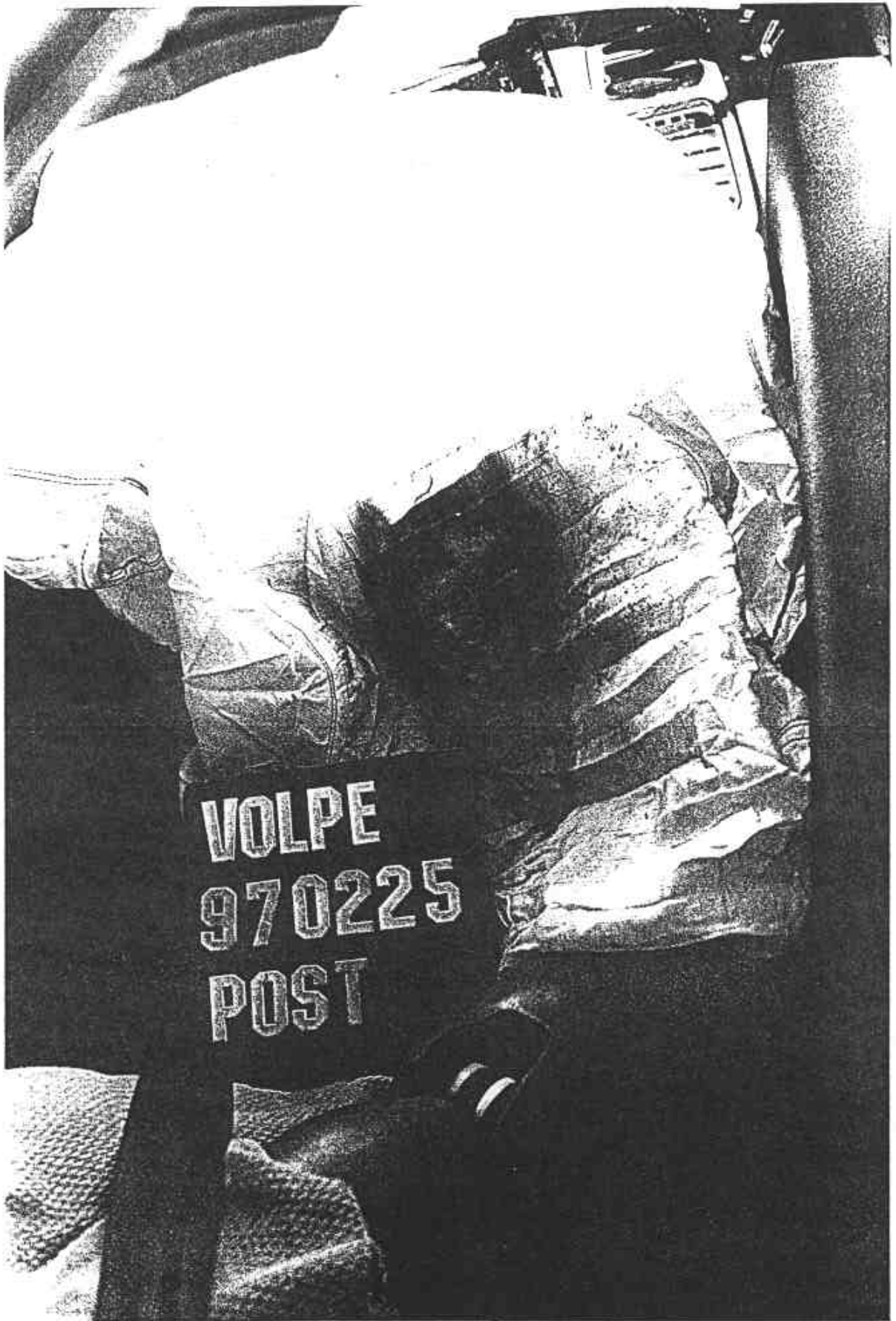


Figure A-48 Post-Test Passenger Dummy Head Contact - View 2



Figure A-49 Post-Test Passenger Dummy Knee Contact - View 1

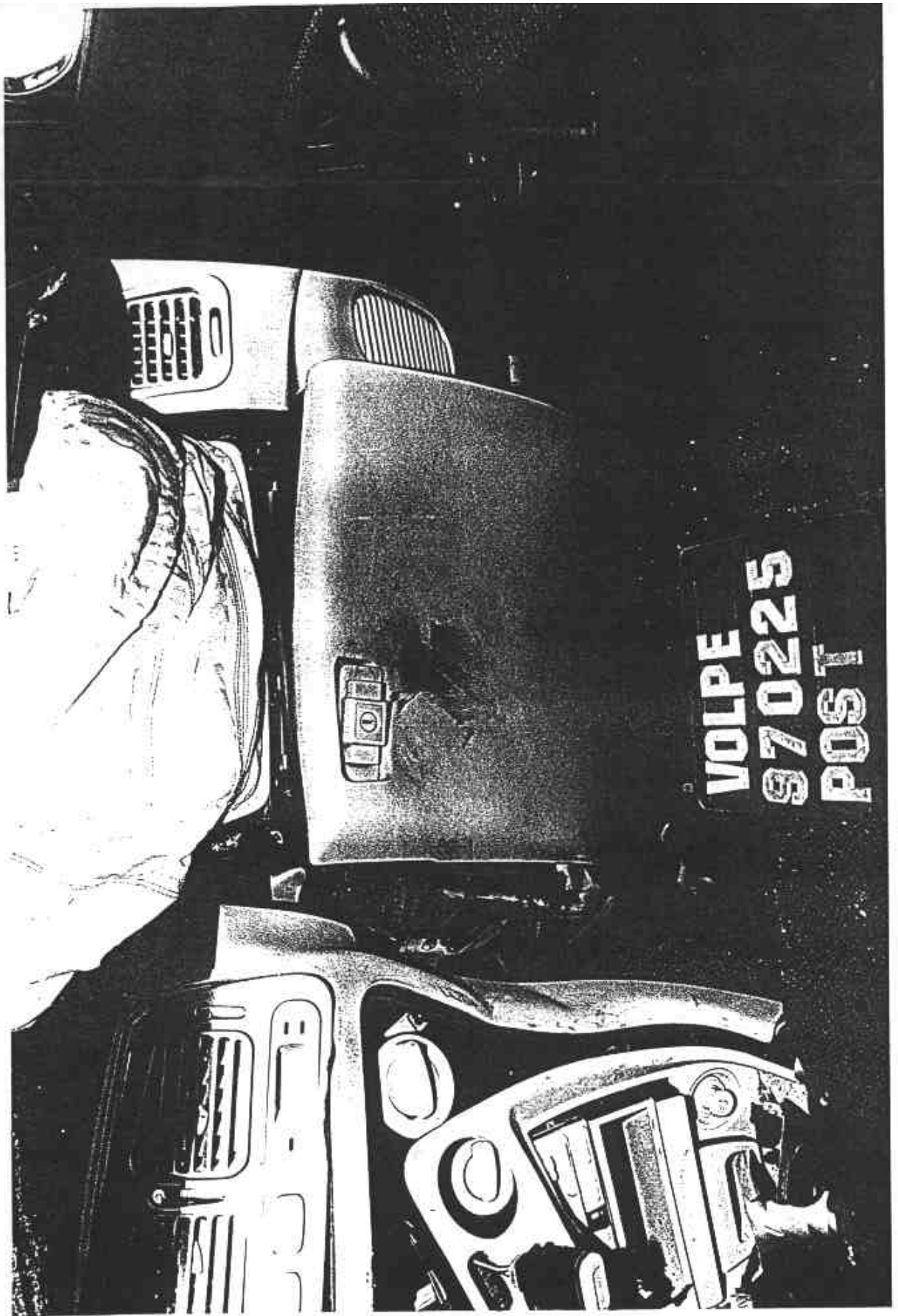


Figure A-50 Post-Test Passenger Dummy Knee Contact - View 2

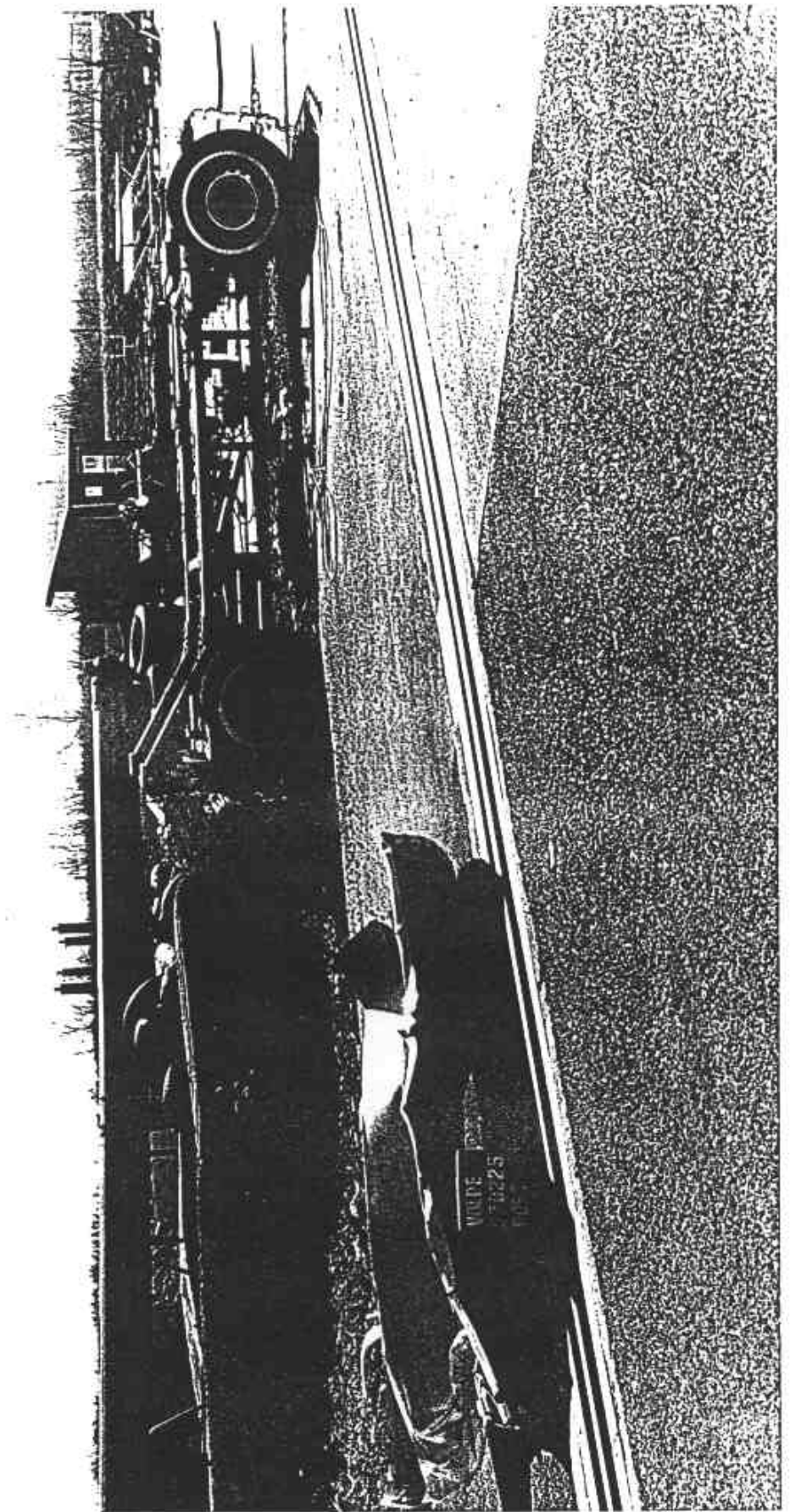


Figure A-51 Post-Test Deformable Barrier - View 1

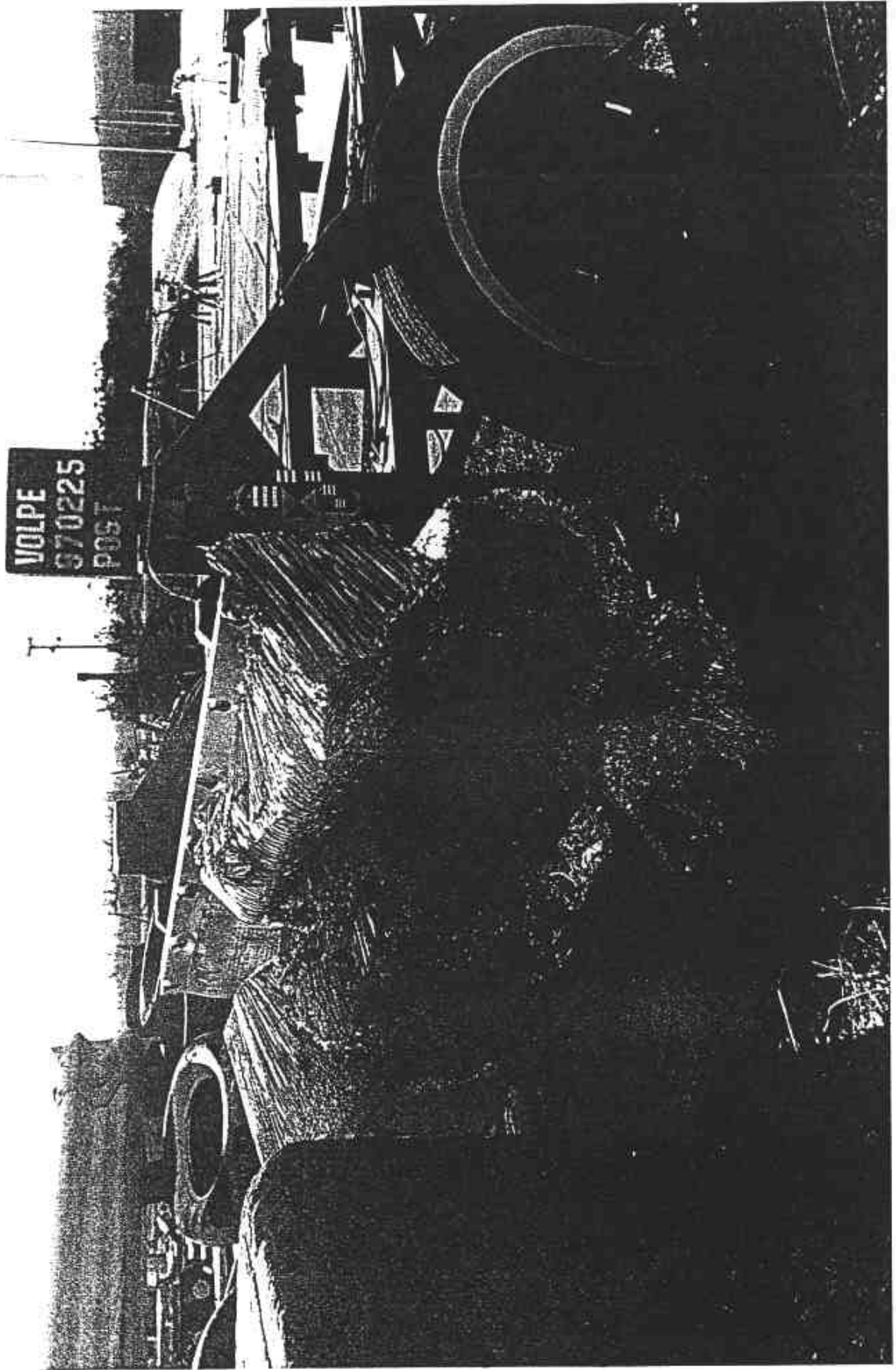


Figure A-52 Post-Test Deformable Barrier - View 2

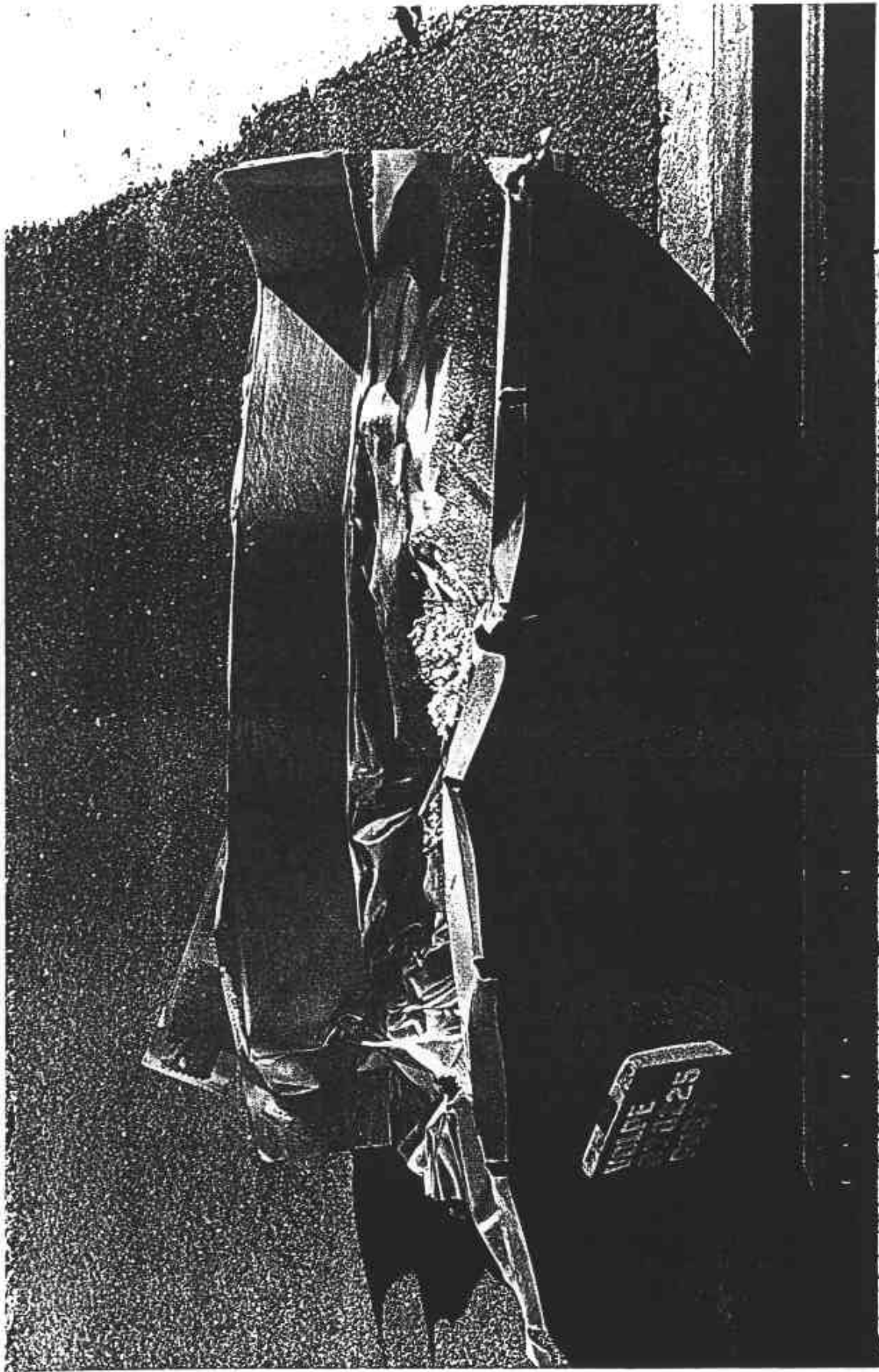


Figure A-53 Post-Test Deformable Barrier - View 3

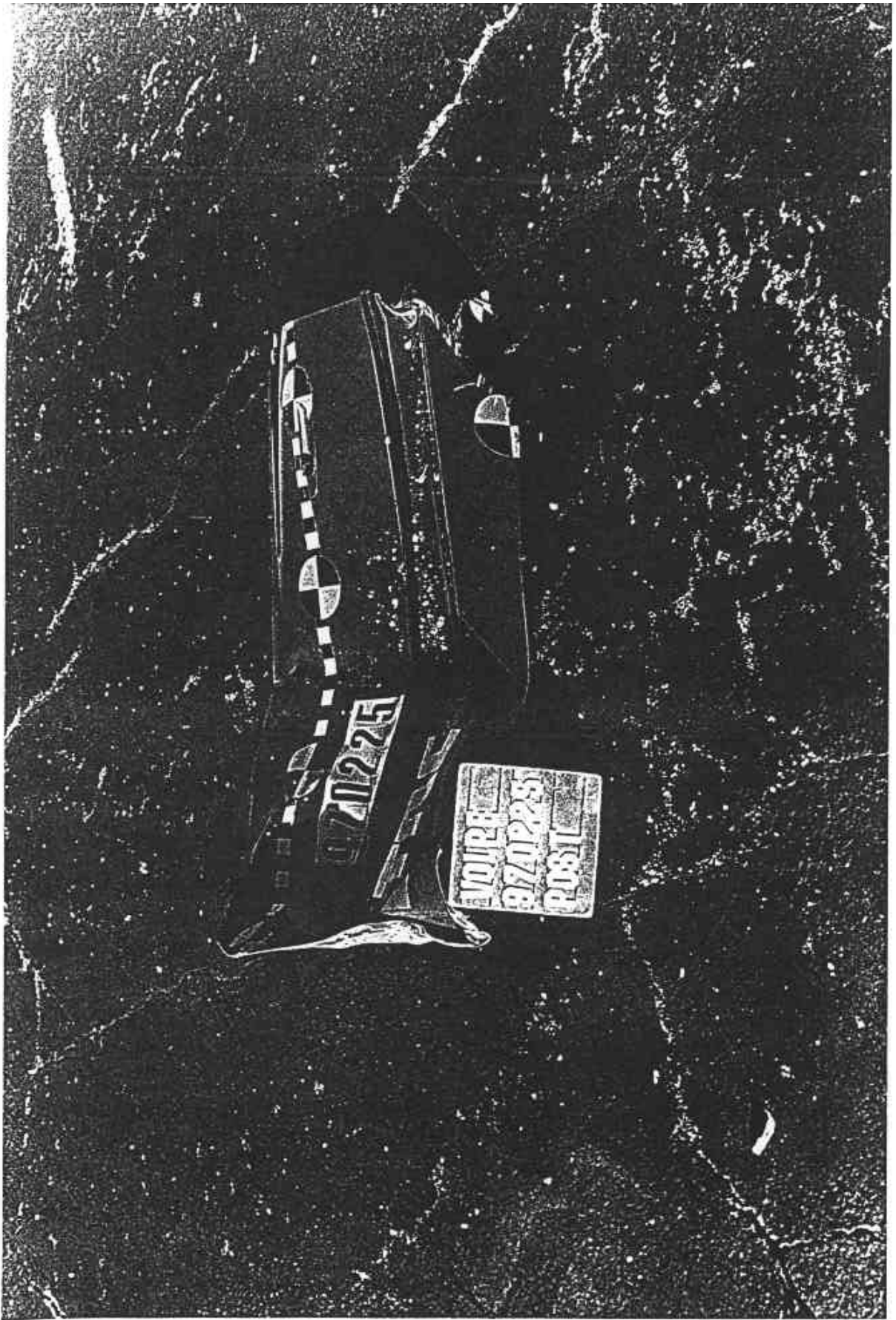


Figure A-54 Post-Test Driver Door Damage View

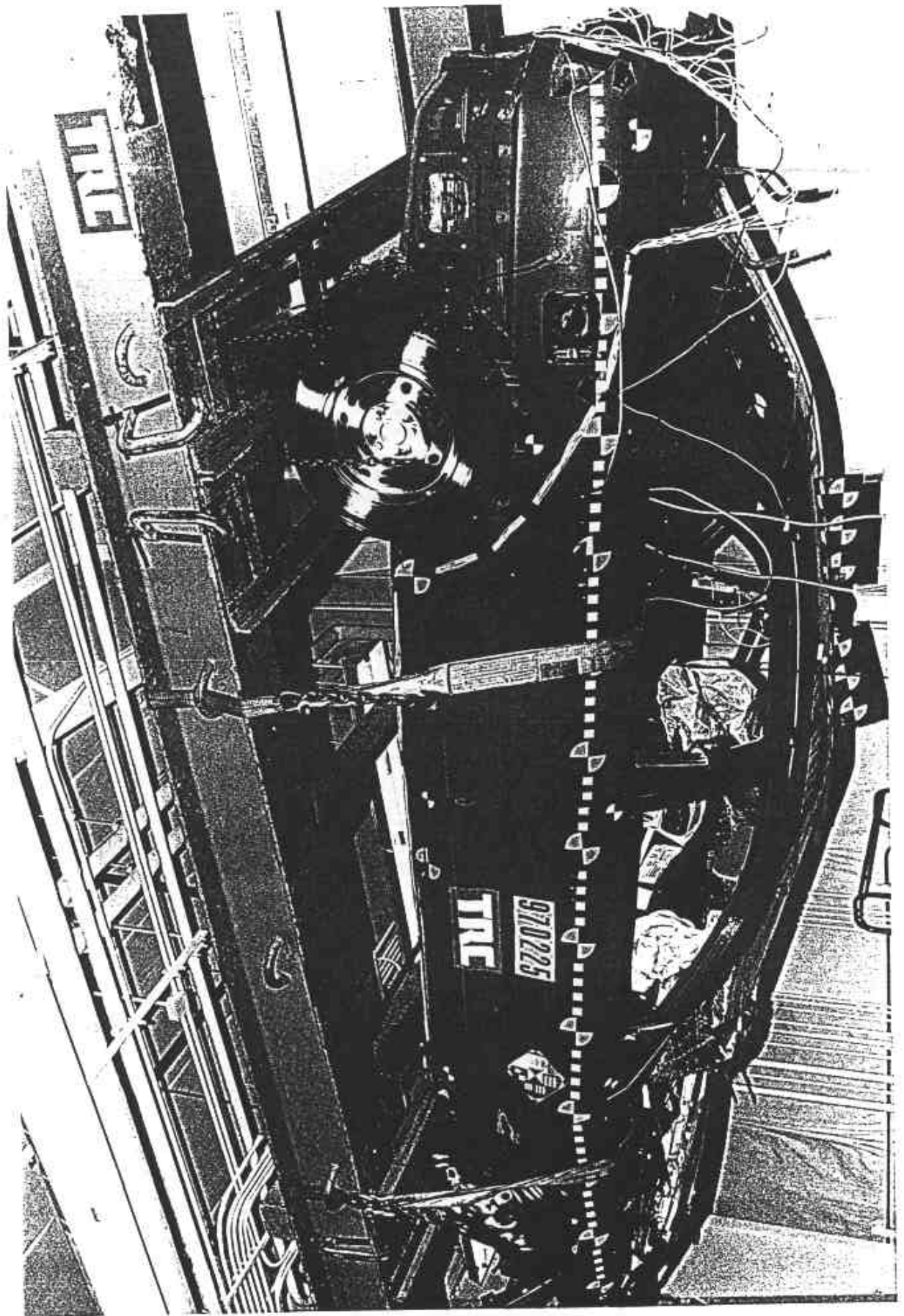


Figure A-55 Vehicle on Static Rollover Machine View

Appendix B

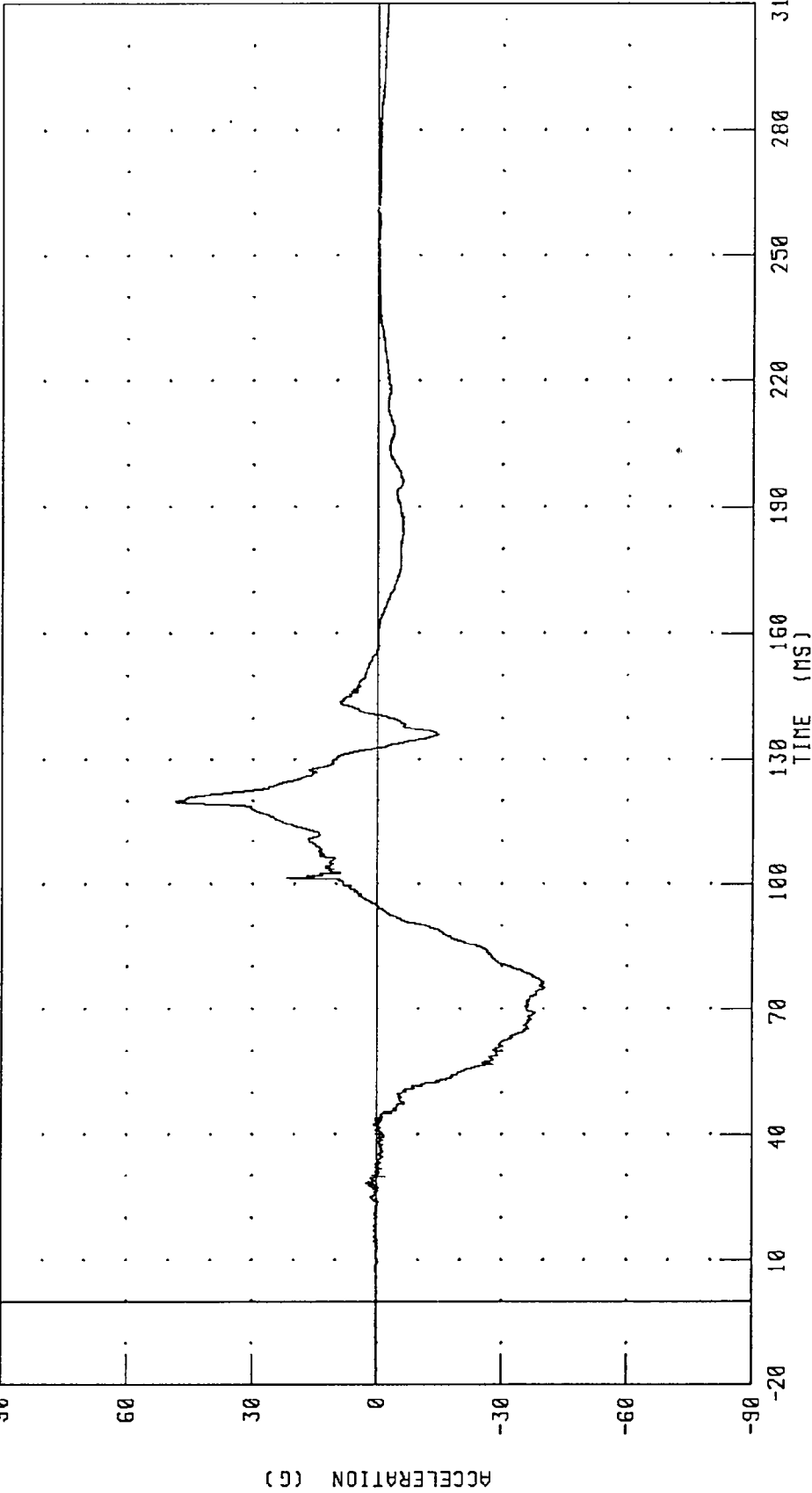
Data Plots

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD LONGITUDINAL AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

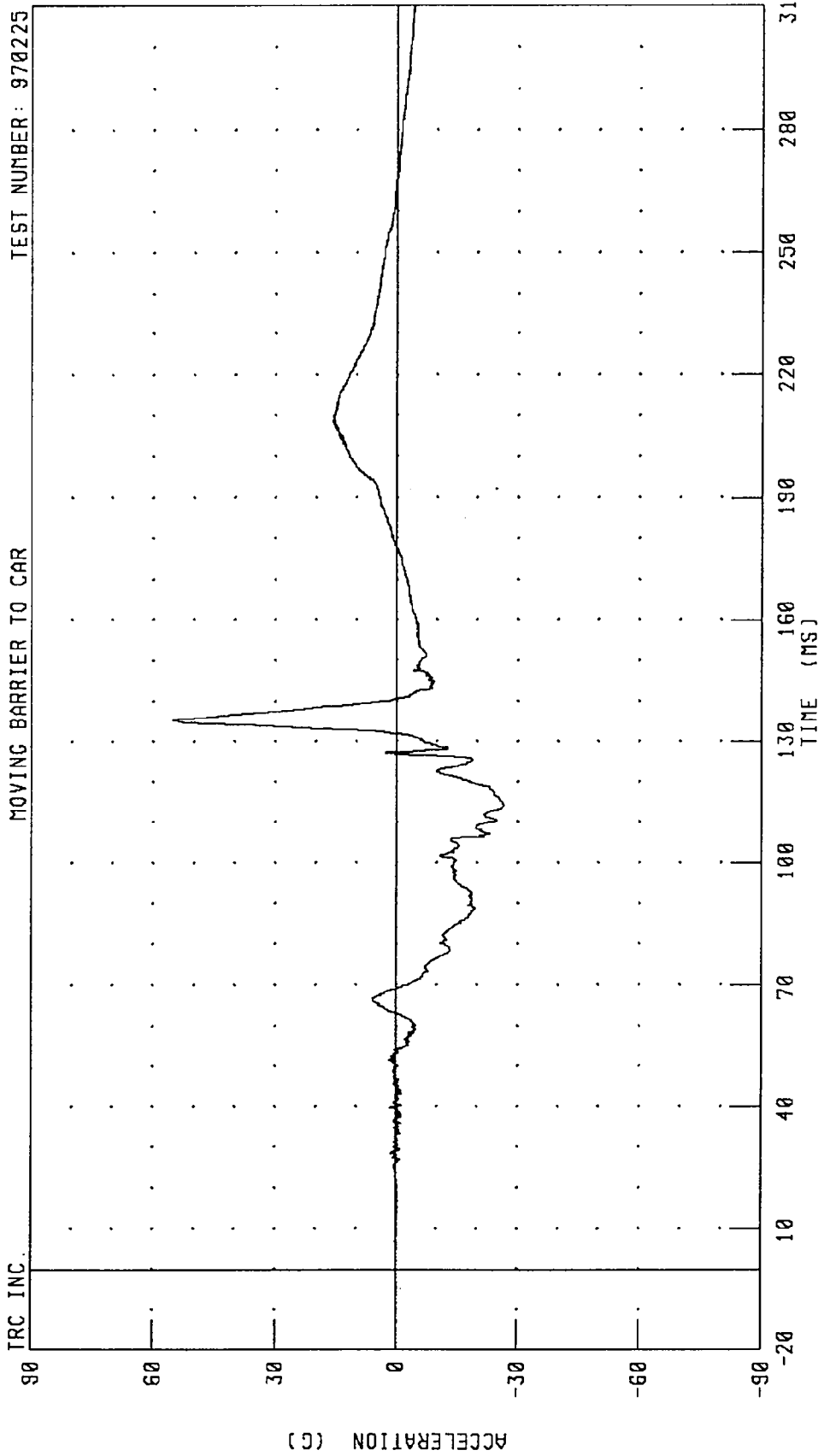


CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 48.61 G @ 119.92 MS; -40.39 G @ 75.04 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD LATERAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

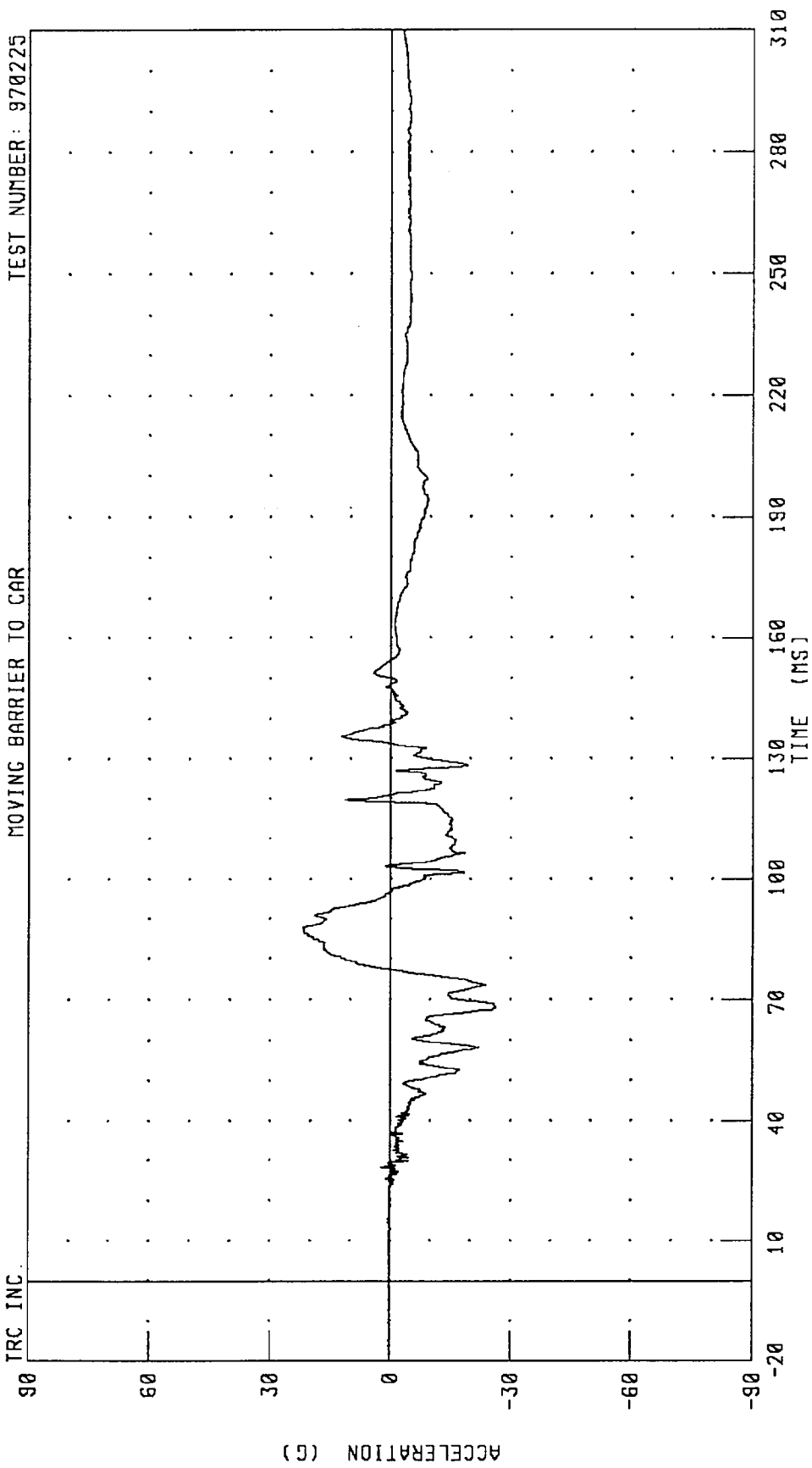
TEST NUMBER: 970225



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000 PEAK DATA: 55.12 G @ 135.28 MS; -26.53 G @ 114.32 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD VERTICAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



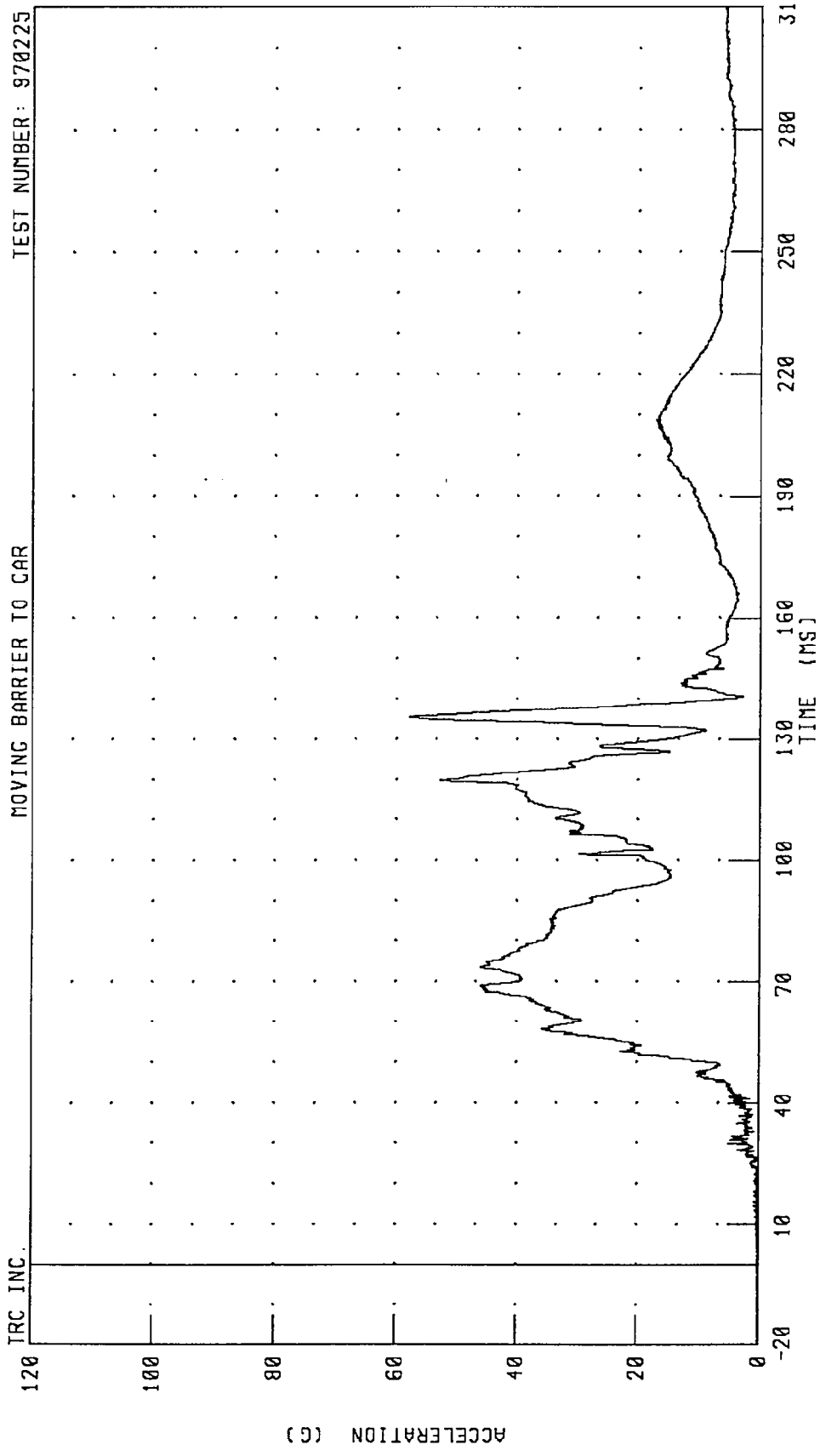
TRC INC.

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

PEAK DATA: 21.77 G @ 86.96 MS; -26.30 G @ 130.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

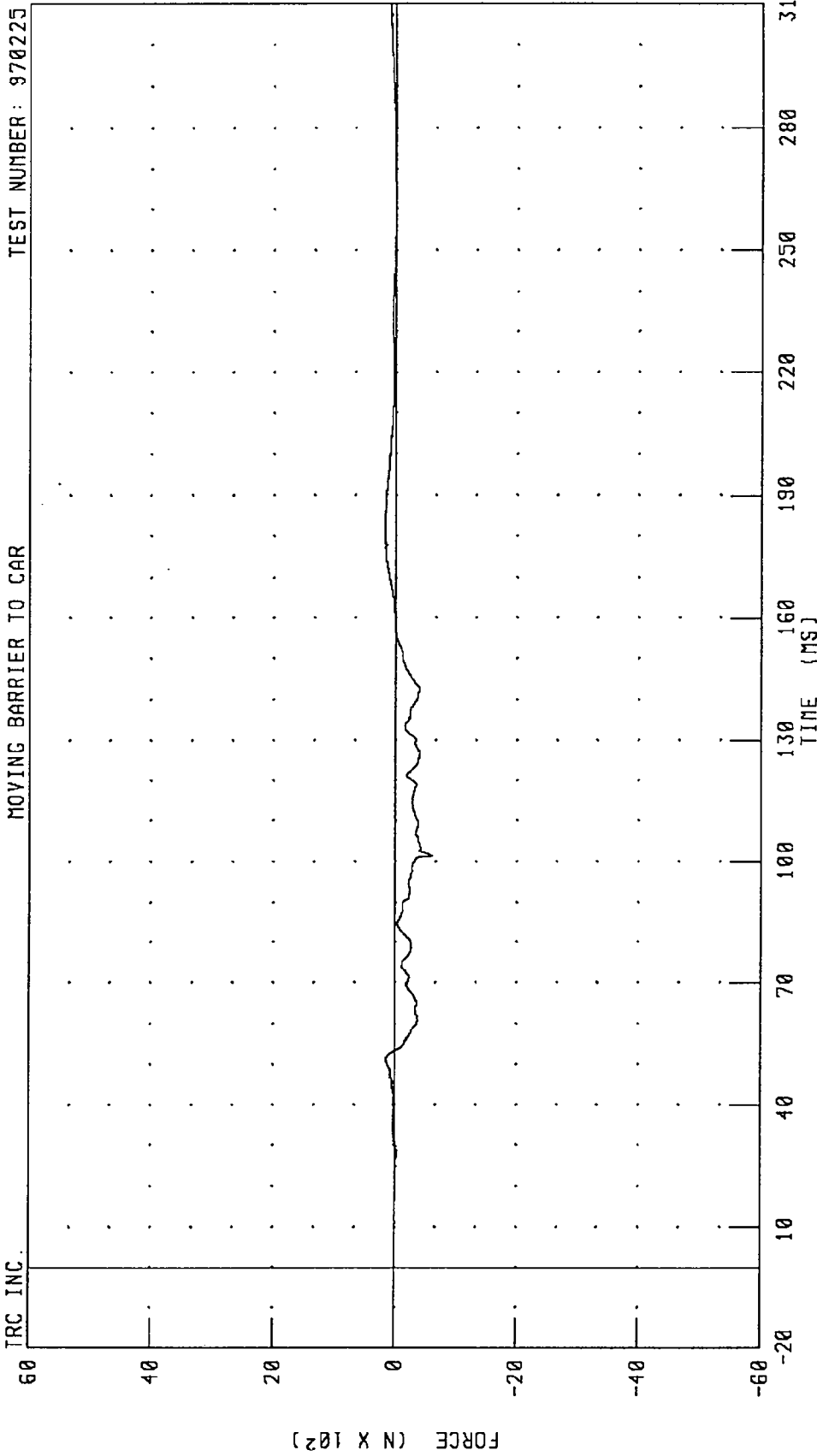
TEST NUMBER: 970225



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000 PEAK DATA: 57.74 G @ 135.36 MS; 0.03 G @ -19.84 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER NECK X-AXIS SHEAR FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000 PEAK DATA: 173.31 N @ 183.28 MS; -609.48 N @ 101.44 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER NECK Y-AXIS SHEAR FORCE

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

60

40

20

0

-20

-40

-60

FORCE (N X 10<sup>2</sup>)

-20

10

40

70

100

130

160

190

220

250

280

310

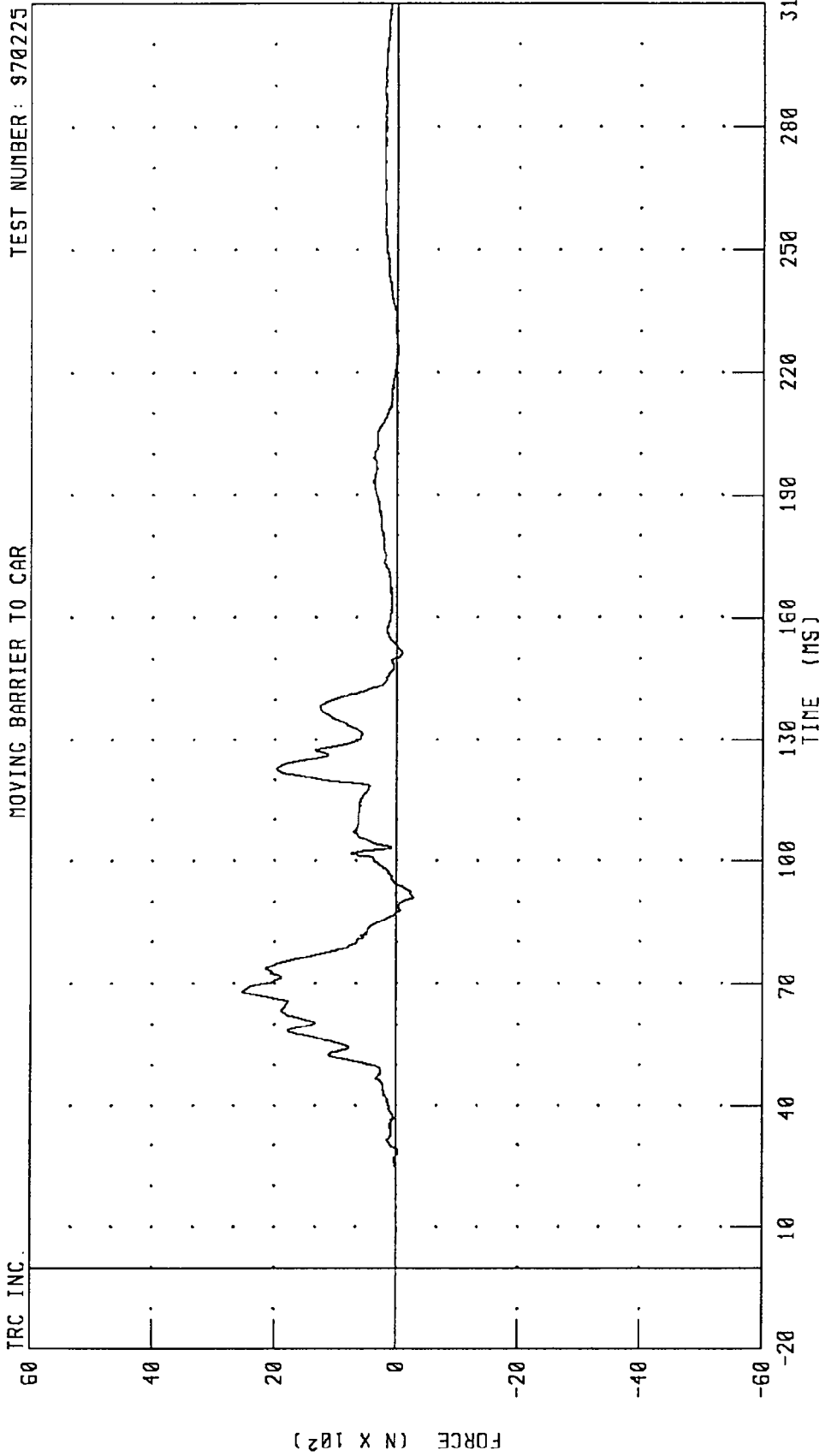
TIME (MS)

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 864.34 N @ 126.96 MS; -317.04 N @ 203.76 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER NECK Z-AXIS AXIAL FORCE

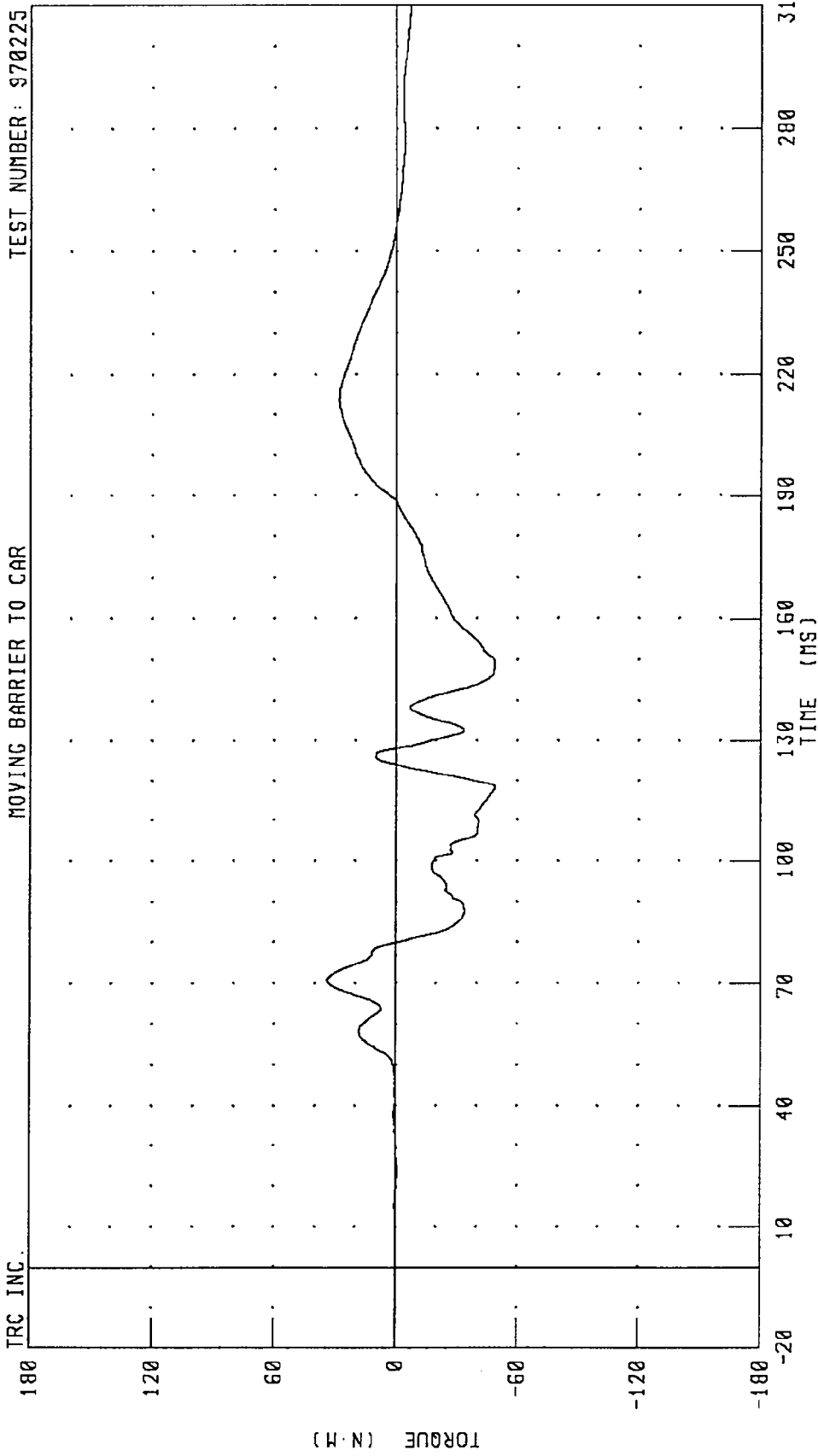
MOVING BARRIER TO CAR TEST NUMBER: 970225



TRC INC. CHANNEL: NEKZF1 FILTER: CH. CLASS 1000 PEAK DATA: 2523.20 N @ 68.08 MS; -280.00 N @ 91.04 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER NECK MOMENT ABOUT X-AXIS  
MOVING BARRIER TO CAR

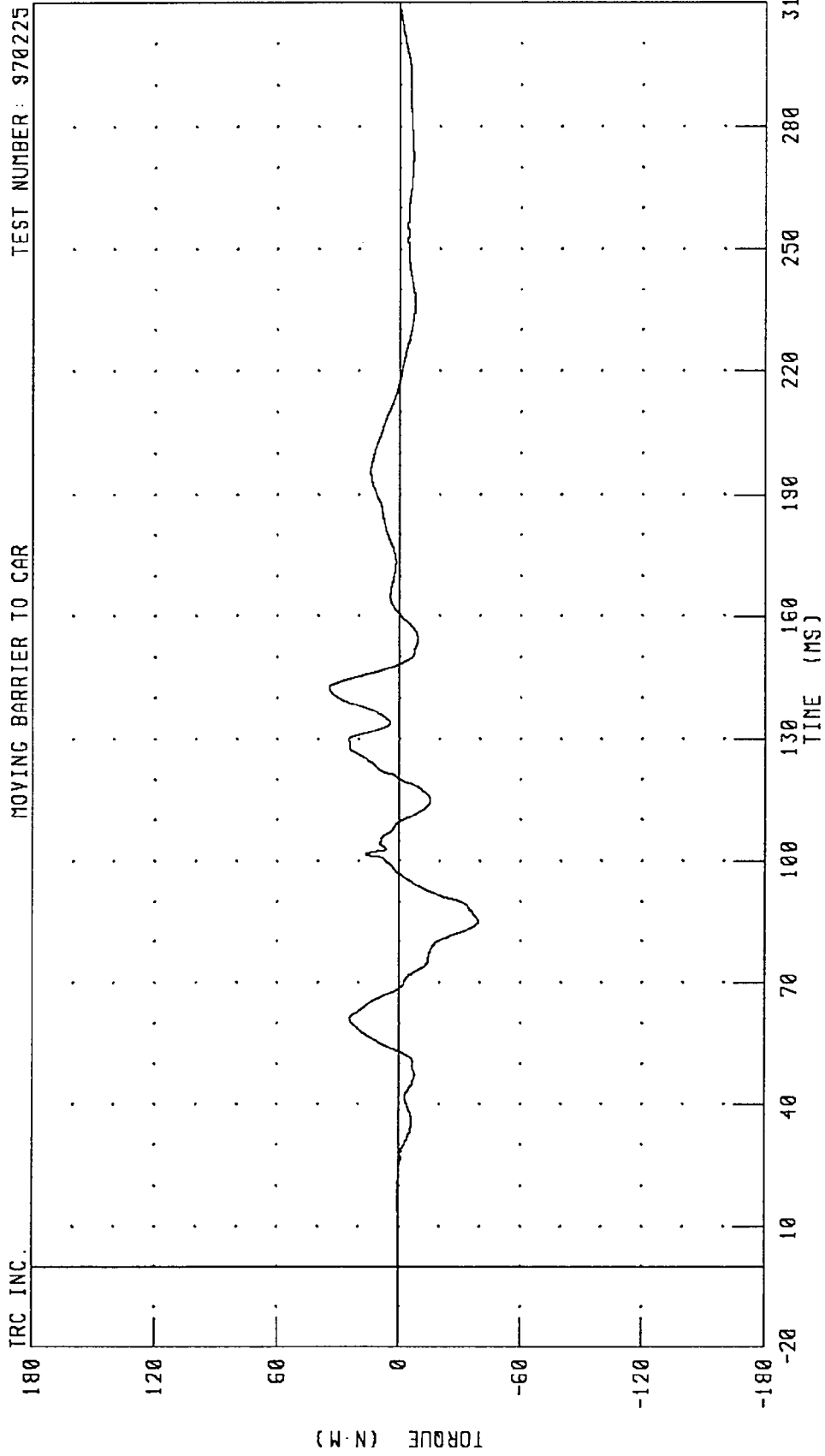
TEST NUMBER: S70225



TRC INC. CHANNEL: NEKXMI FILTER: CH. CLASS 600 PEAK DATA: 33.86 N.M @ 70.80 MS; -48.97 N.M @ 118.64 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER NECK MOMENT ABOUT Y-AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



TRC INC. CHANNEL: NEKYMI FILTER: CH. CLASS 600  
PEAK DATA: 34.78 N·M @ 142.56 MS; -39.22 N·M @ 85.28 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER NECK MOMENT ABOUT Z-AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

180

120

60

0

-60

-120

-180

TORQUE (N-M)

-20

40

70

100

130

160

190

220

250

280

310

TIME (MS)

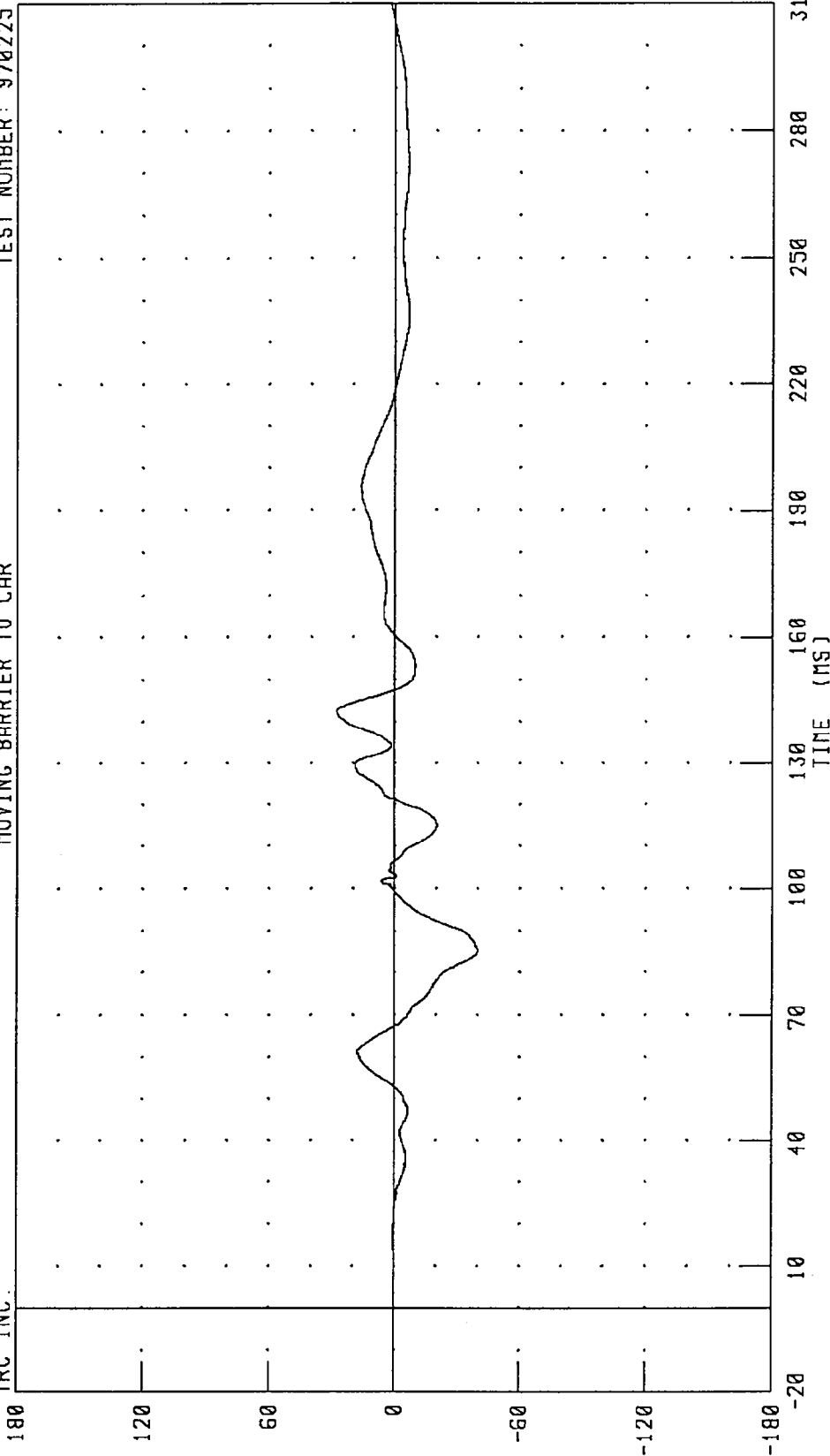
CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 10.44 N-M @ 68.72 MS; -53.68 N-M @ 148.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER NECK CORRECTED MOMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



PEAK DATA: 27.76 N-M @ 142.72 MS; -40.12 N-M @ 85.28 MS

CHANNEL: NEKOM1 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER CHEST LONGITUDINAL AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

60

40

20

0

-20

-40

-60

ACCELERATION (G)

310

280

250

220

190

160

130

100

70

40

10

-20

TIME (MS)

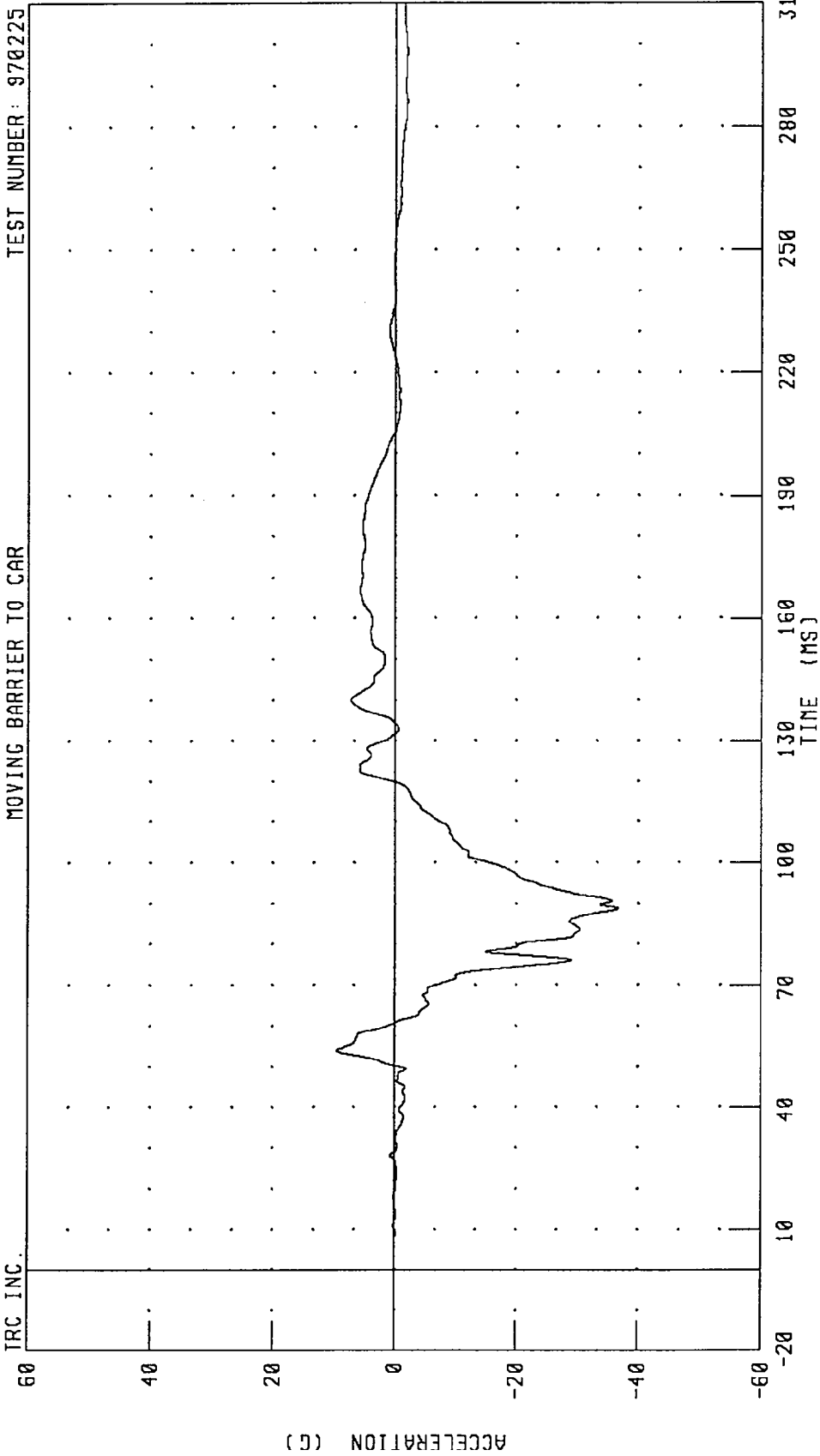
CHANNEL: CSTXG1 FILTER: CH. CLASS 180

PEAK DATA: 11.16 G @ 123.12 MS; -44.27 G @ 76.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER CHEST LATERAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

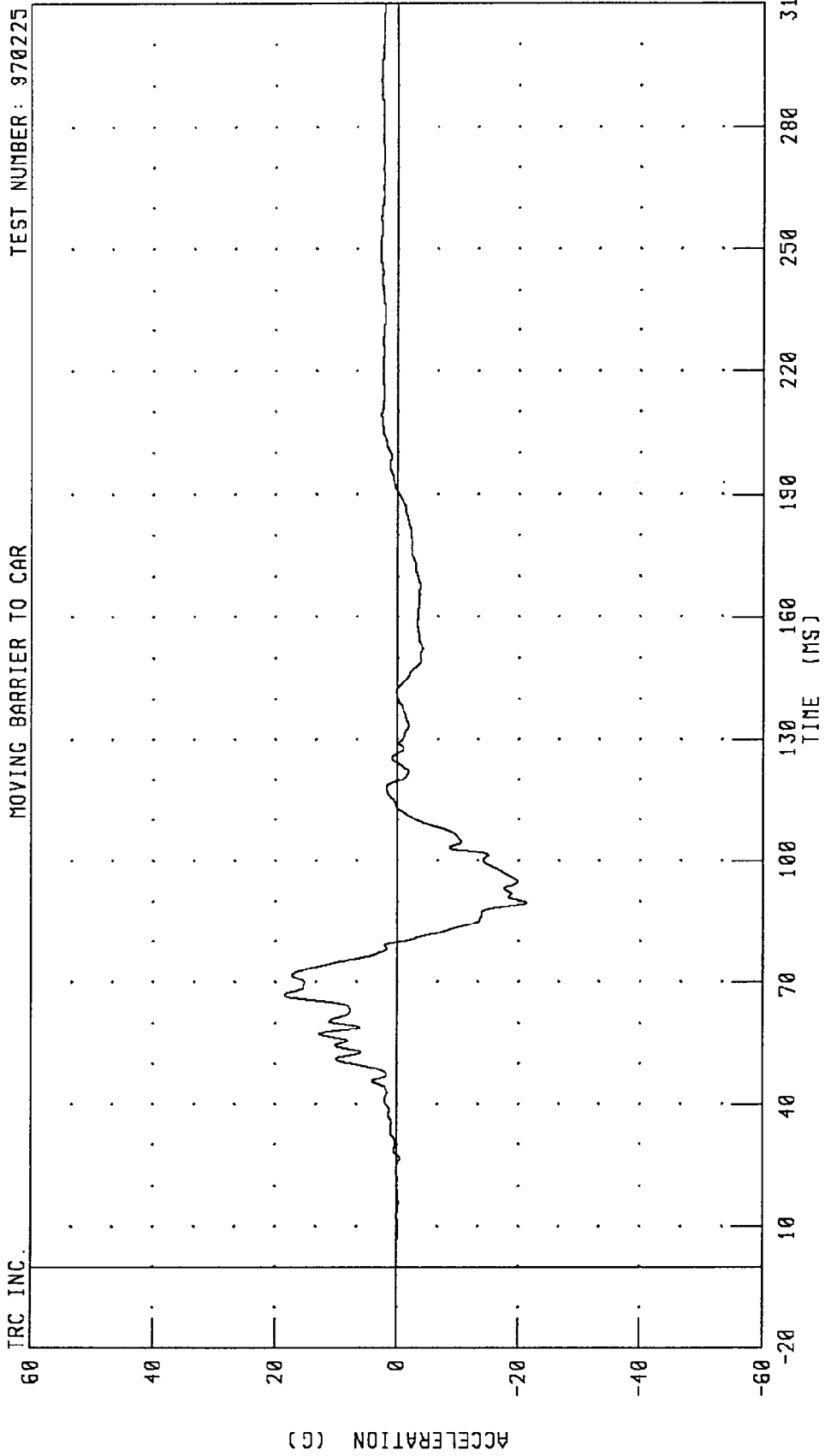


CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 9.50 G @ 54.00 MS; -36.75 G @ 88.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER CHEST VERTICAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



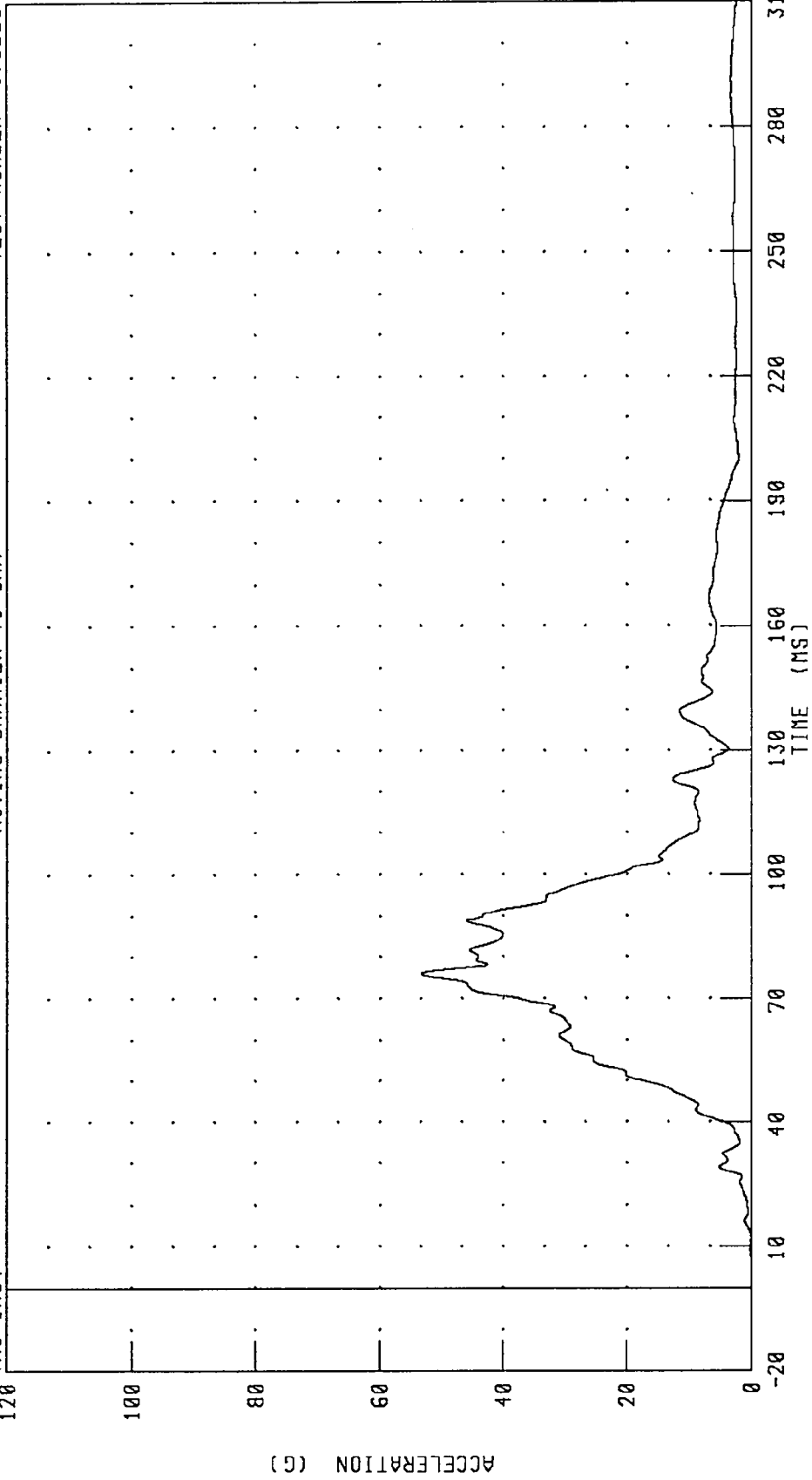
CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 18.46 G @ 66.88 MS; -21.34 G @ 89.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER CHEST RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

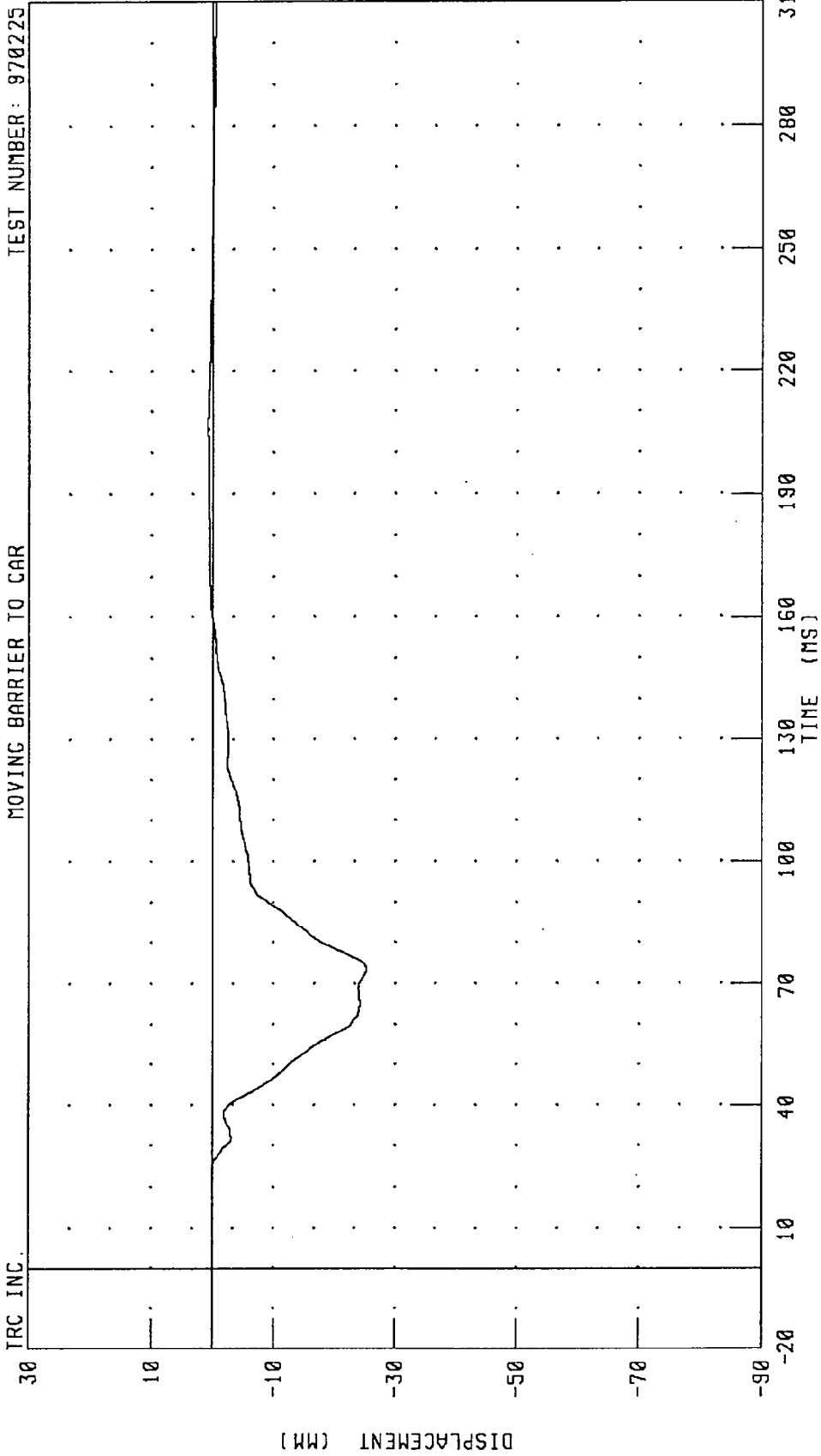


CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 53.30 G @ 76.00 MS; 0.00 G @ -20.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER CHEST DEFLECTION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



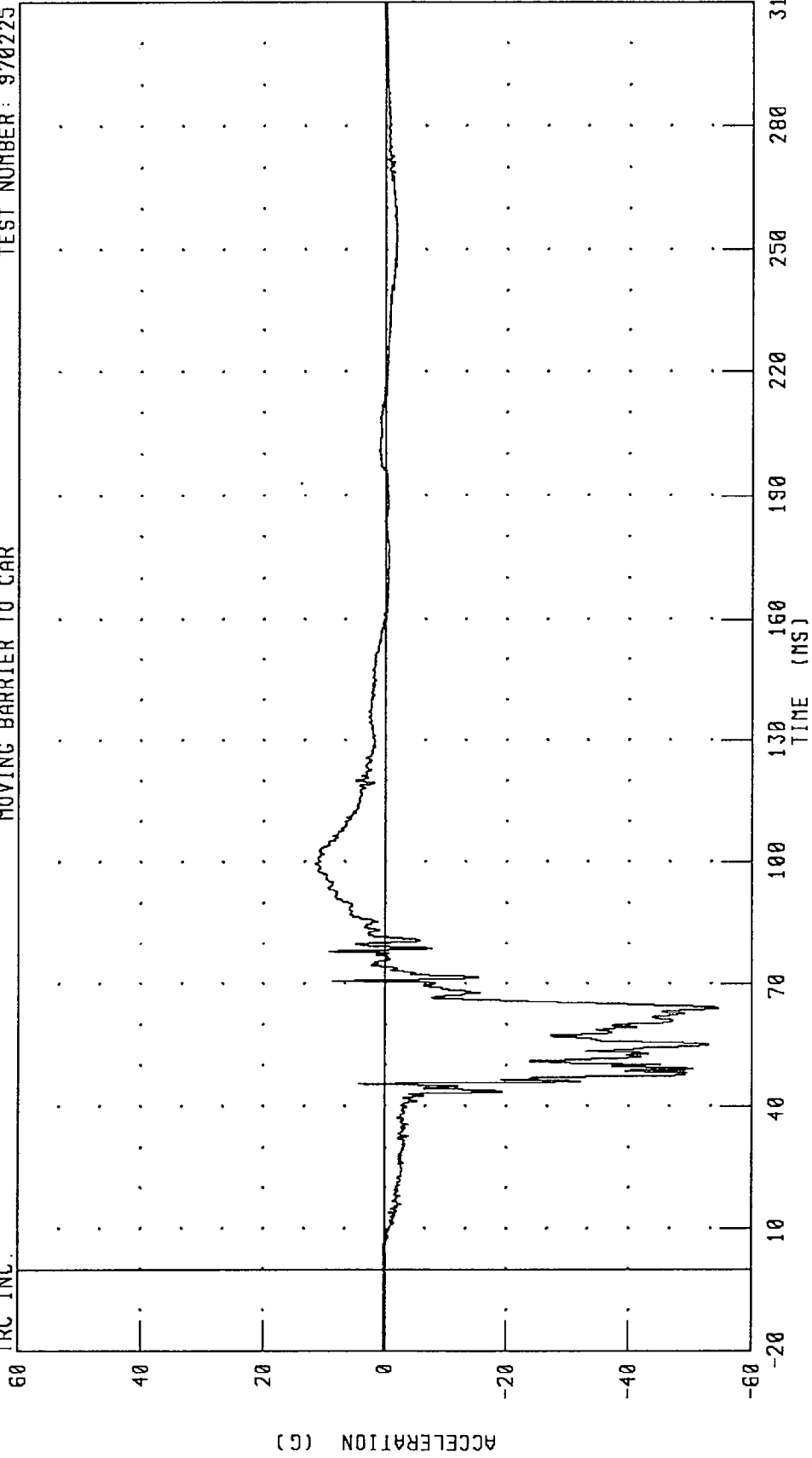
CHANNEL: CSTXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.75 MM @ 206.96 MS, -25.26 MM @ 73.60 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER PELVIS LONGITUDINAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



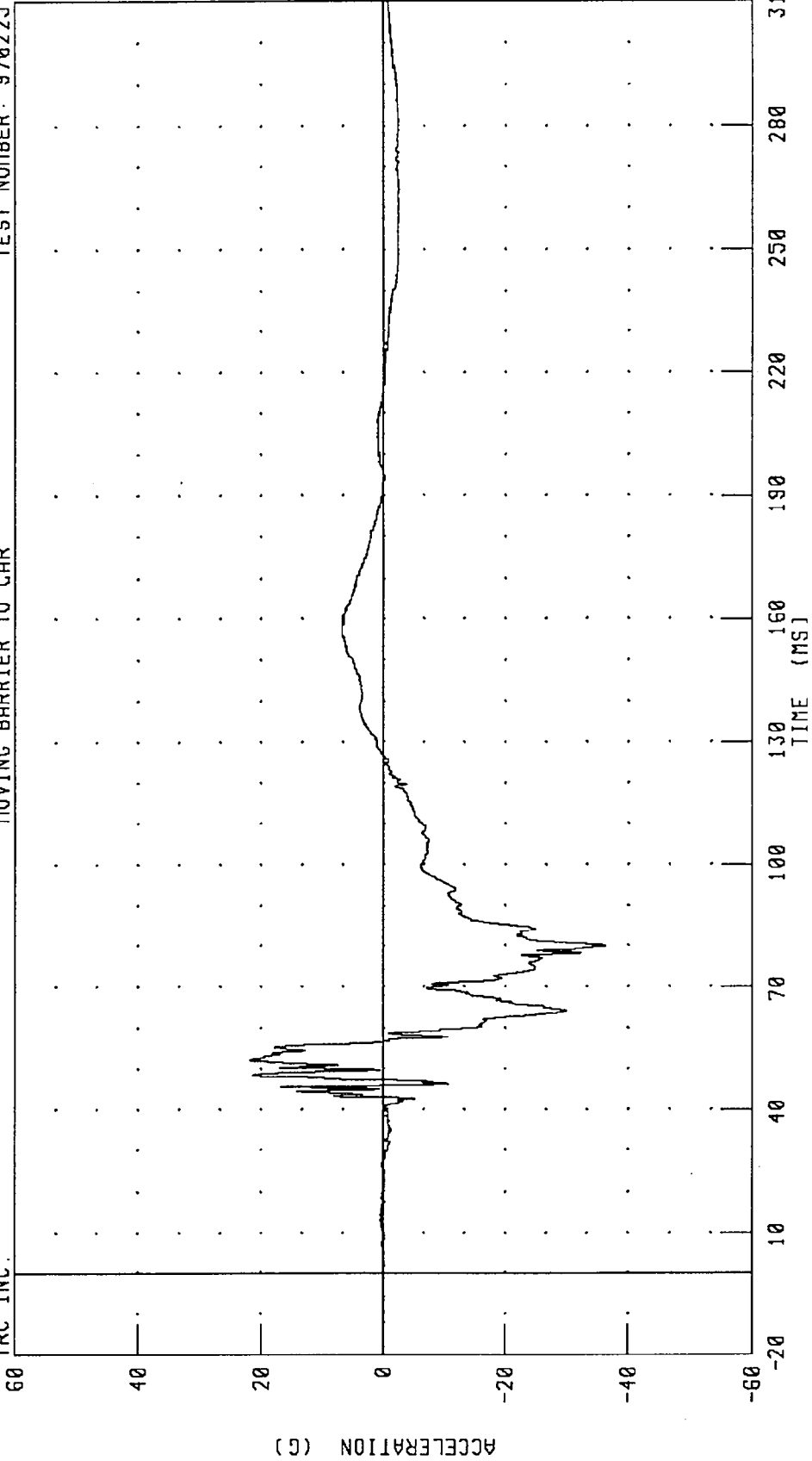
CHANNEL: PEYXG1 FILTER: CH. CLASS 1000

PEAK DATA: 11.46 G @ 99.52 MS; -54.55 G @ 64.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER PELVIS LATERAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

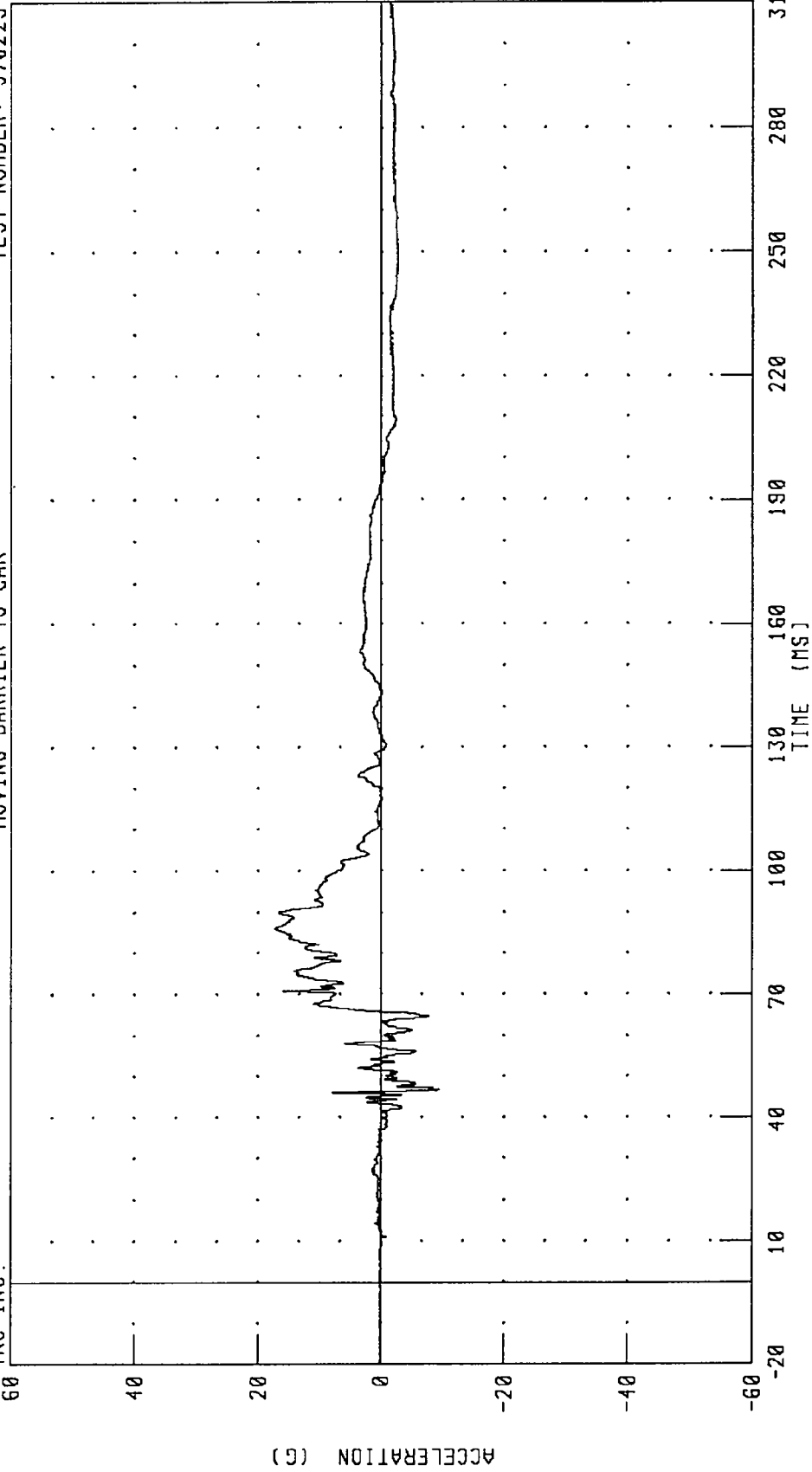


CHANNEL: PEVYG1 FILTER: CH. CLASS 1000 PEAK DATA: 21.89 G @ 52.16 MS; -36.28 G @ 80.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER PELVIS VERTICAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

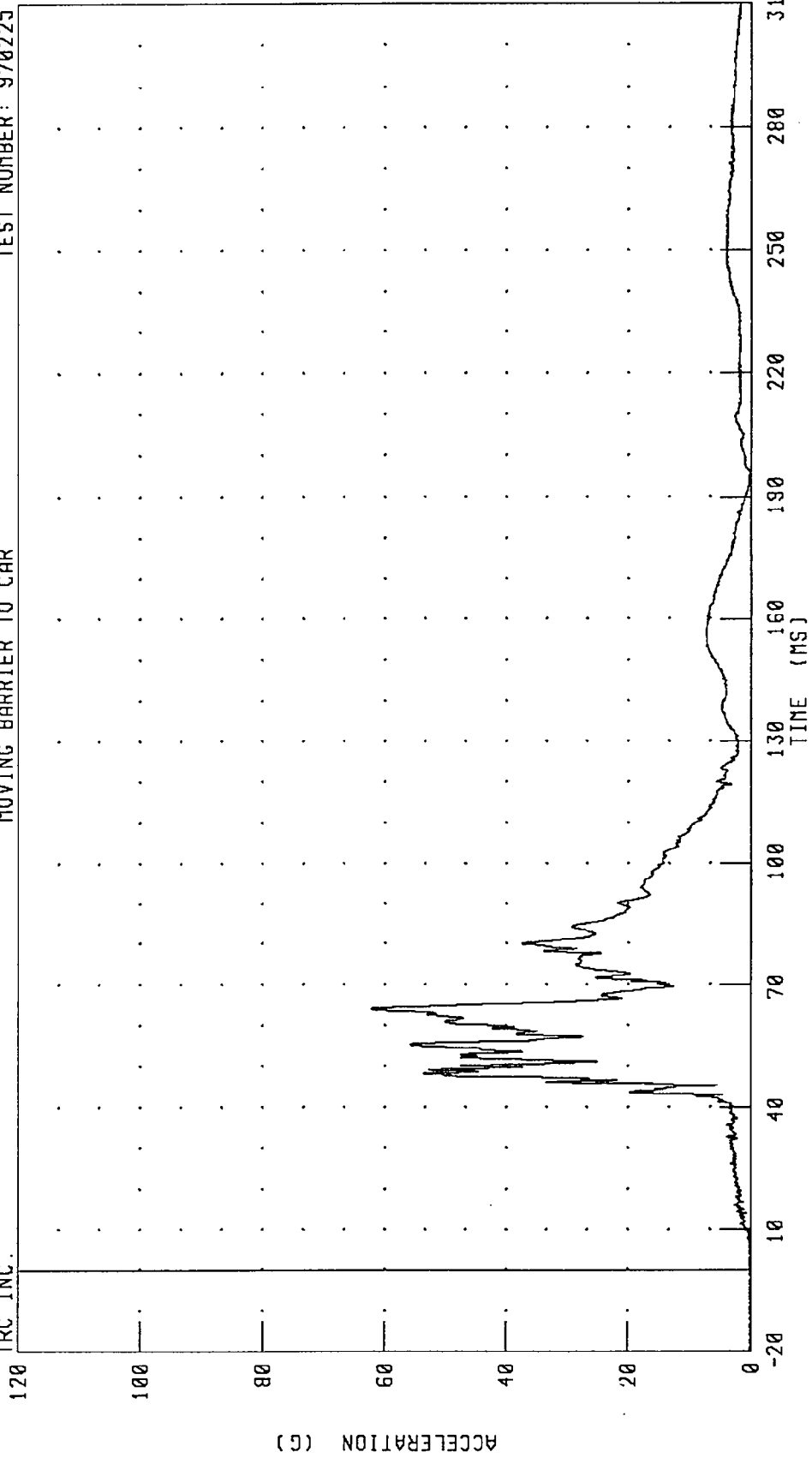


CHANNEL: PEVZG1 FILTER: CH. CLASS 1000 PEAK DATA: 17.31 G @ 86.16 MS; -9.47 G @ 46.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER PELVIS RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

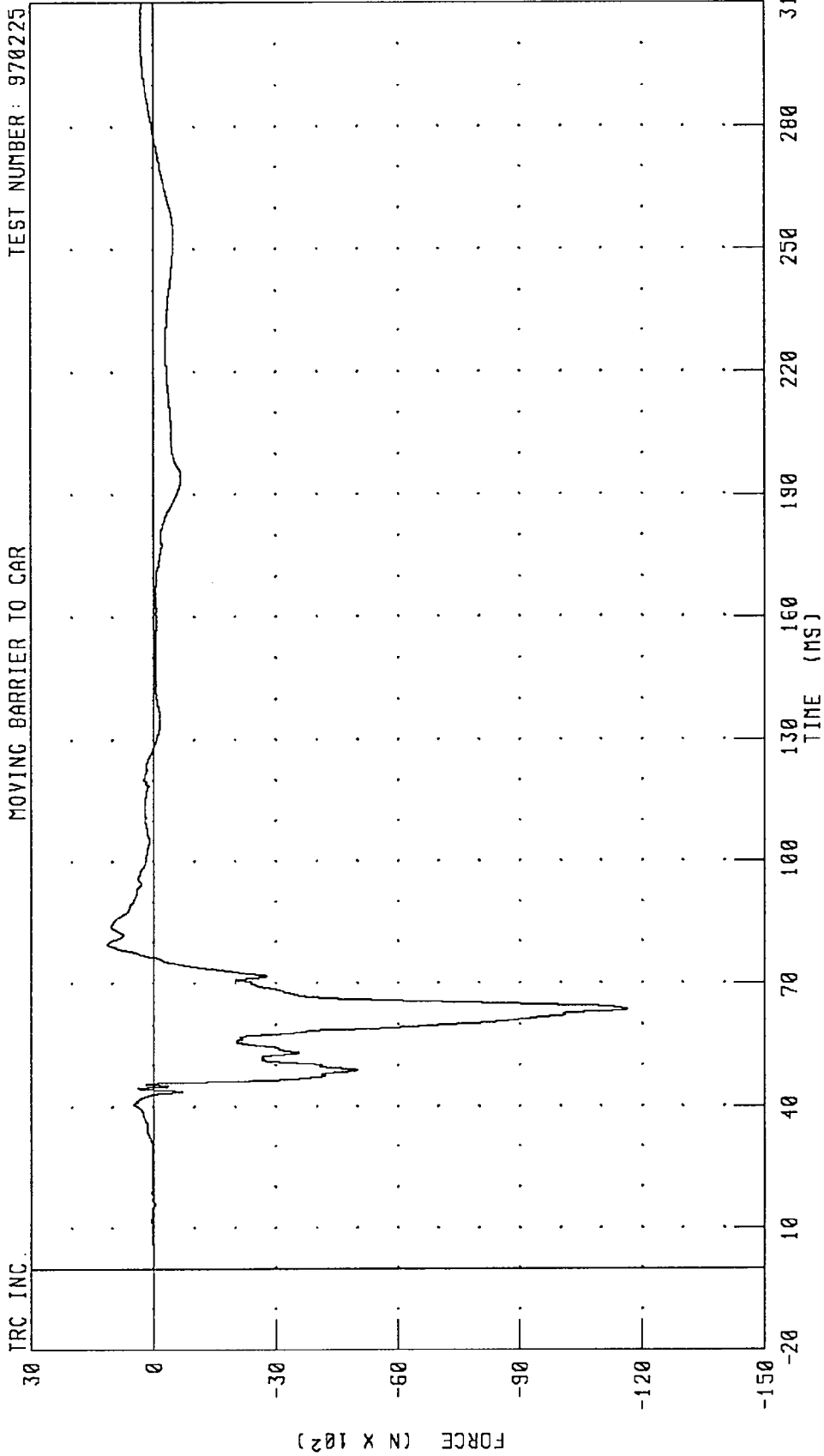
TRC INC.



CHANNEL: PEVRG1 FILTER: CH. CLASS 1000  
PEAK DATA: 62.18 G @ 64.16 MS; 0.09 G @ -20.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT FEMUR FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

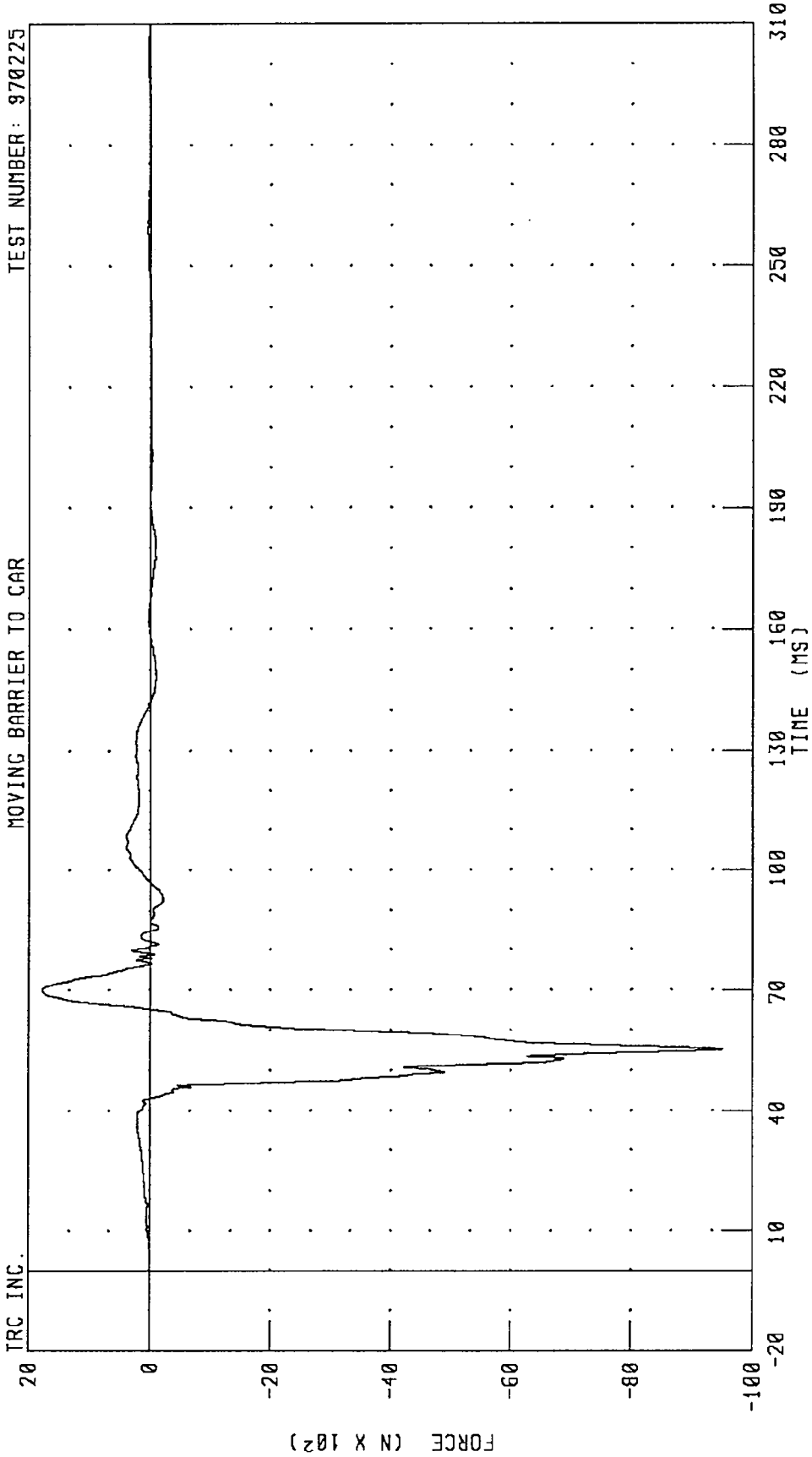


CHANNEL: LFMF1 FILTER: CH. CLASS 600

PEAK DATA: 1132.92 N @ 79.60 MS; -11639.24 N @ 63.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT FEMUR FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



CHANNEL: RFMFI FILTER: CH. CLASS 600

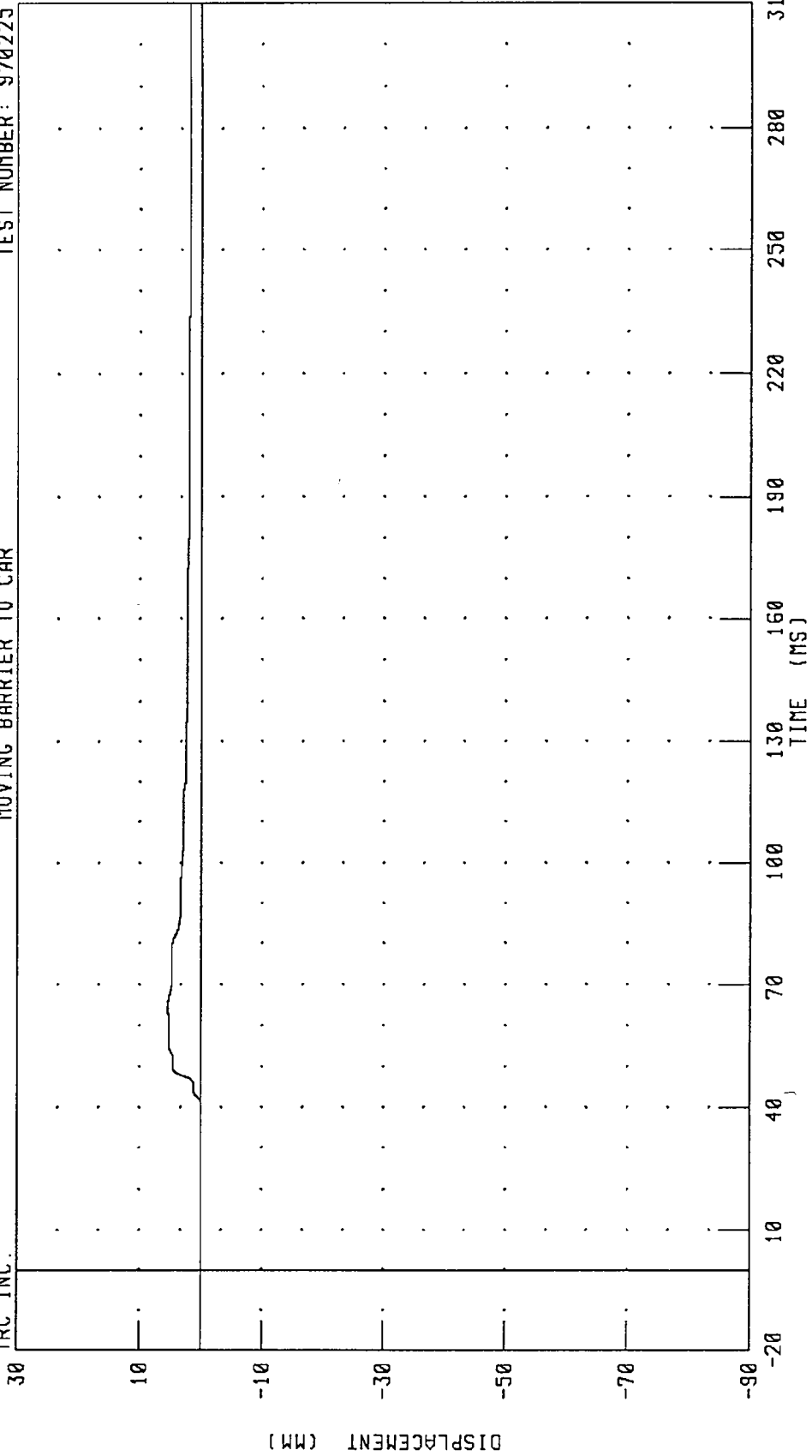
PEAK DATA: 1783.73 N @ 70.08 MS; -9498.90 N @ 55.20 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT KNEE DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

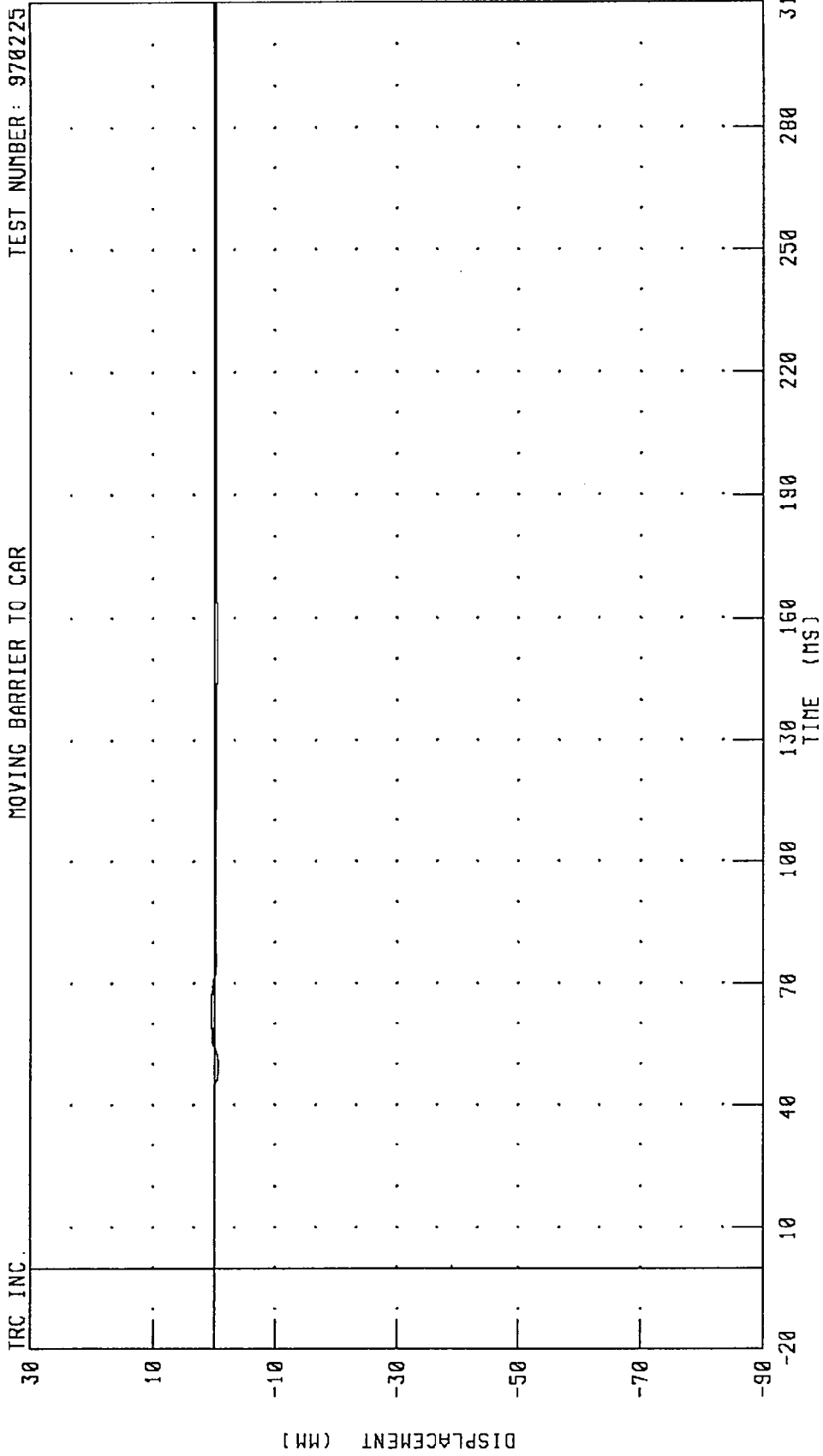


PEAK DATA: 5.37 MM @ 64.88 MS; 0.00 MM @ -2.88 MS

CHANNEL: KNLXD1 FILTER: CH. CLASS 180

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 DRIVER RIGHT KNEE DISPLACEMENT  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225



PEAK DATA: 0.53 NM @ 60.72 MS; -0.63 NM @ 50.16 MS

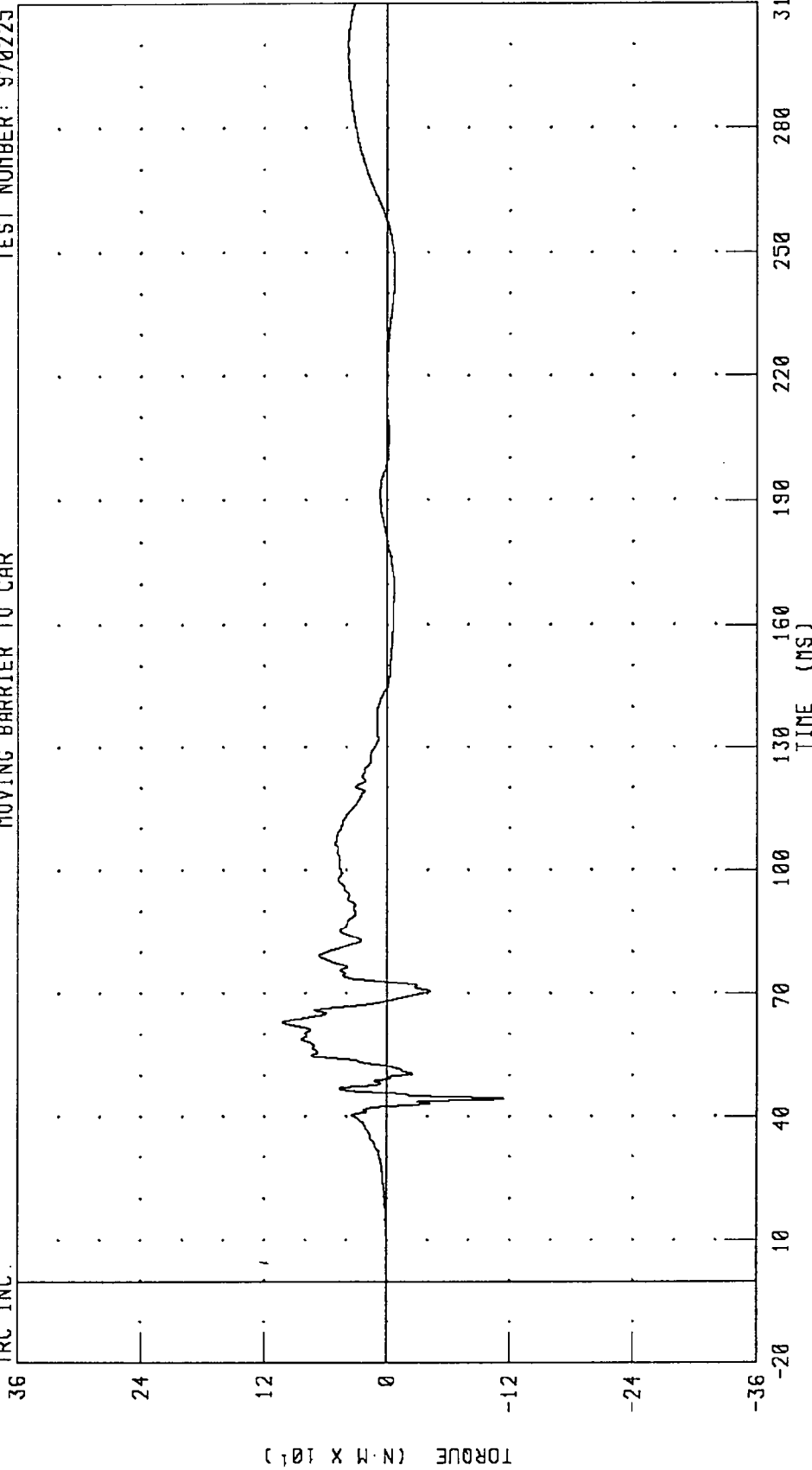
CHANNEL: KNRXD1 FILTER: CH. CLASS 180

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT UPPER TIBIA X MOMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

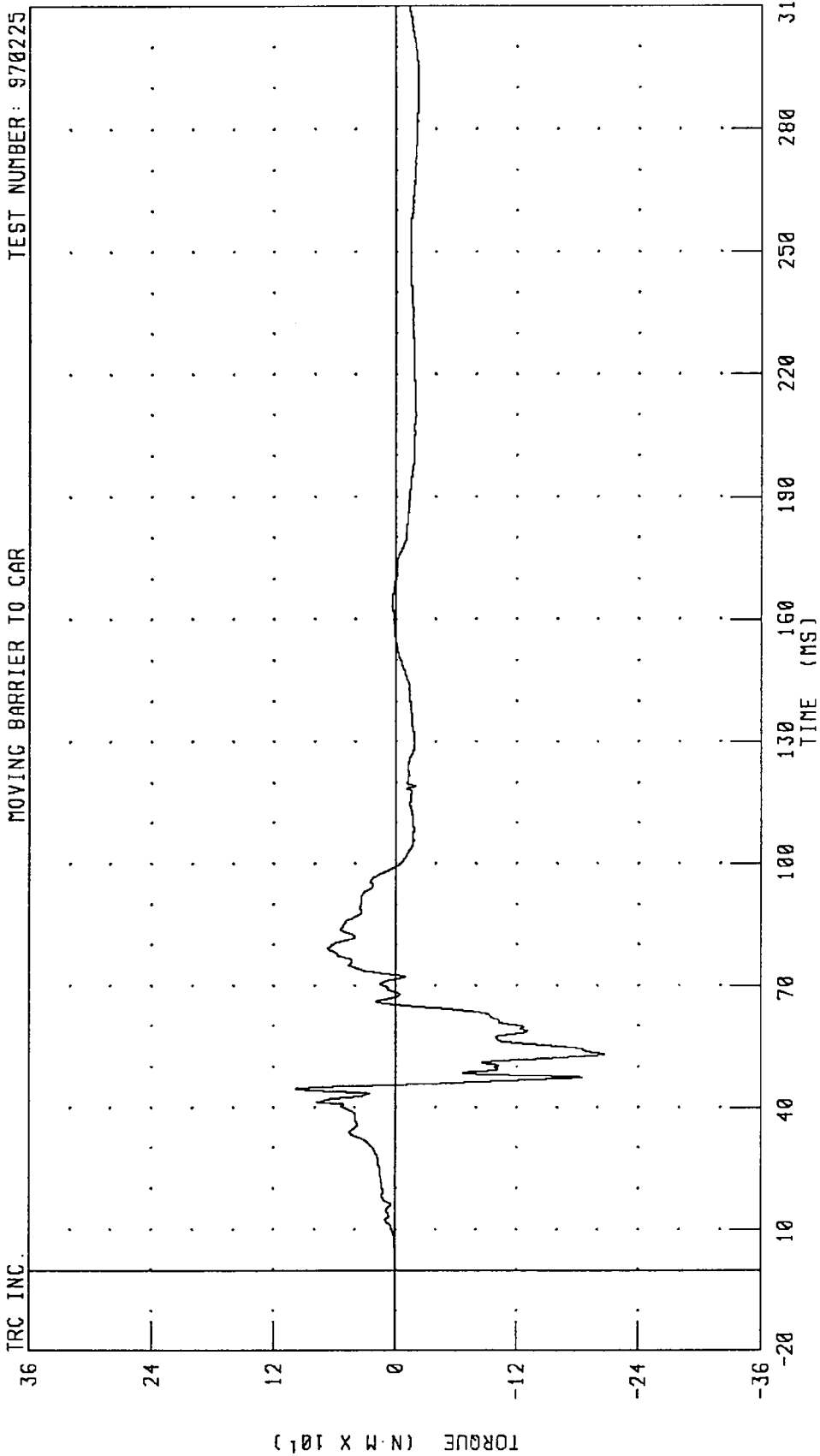


PEAK DATA: 102.27 N·M @ 62.96 MS; -114.80 N·M @ 44.32 MS

CHANNEL: TBLXMI FILTER: CH. CLASS 600

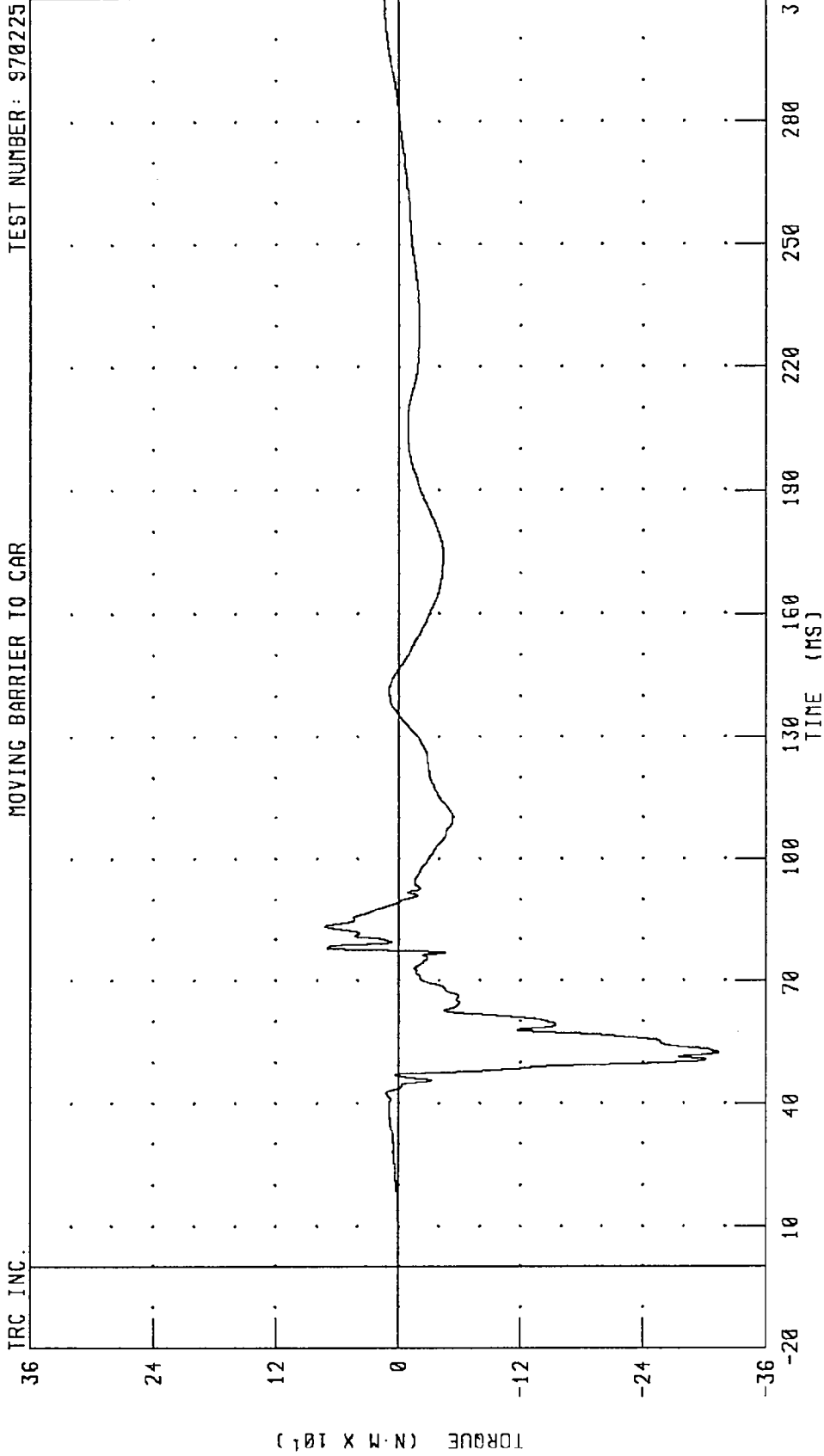
70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 DRIVER LEFT UPPER TIBIA Y MOMENT  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225



CHANNEL: TBL Y M1 FILTER: CH. CLASS 600  
 PEAK DATA: 99.09 N.M @ 44.64 MS; -206.68 N.M @ 53.04 MS

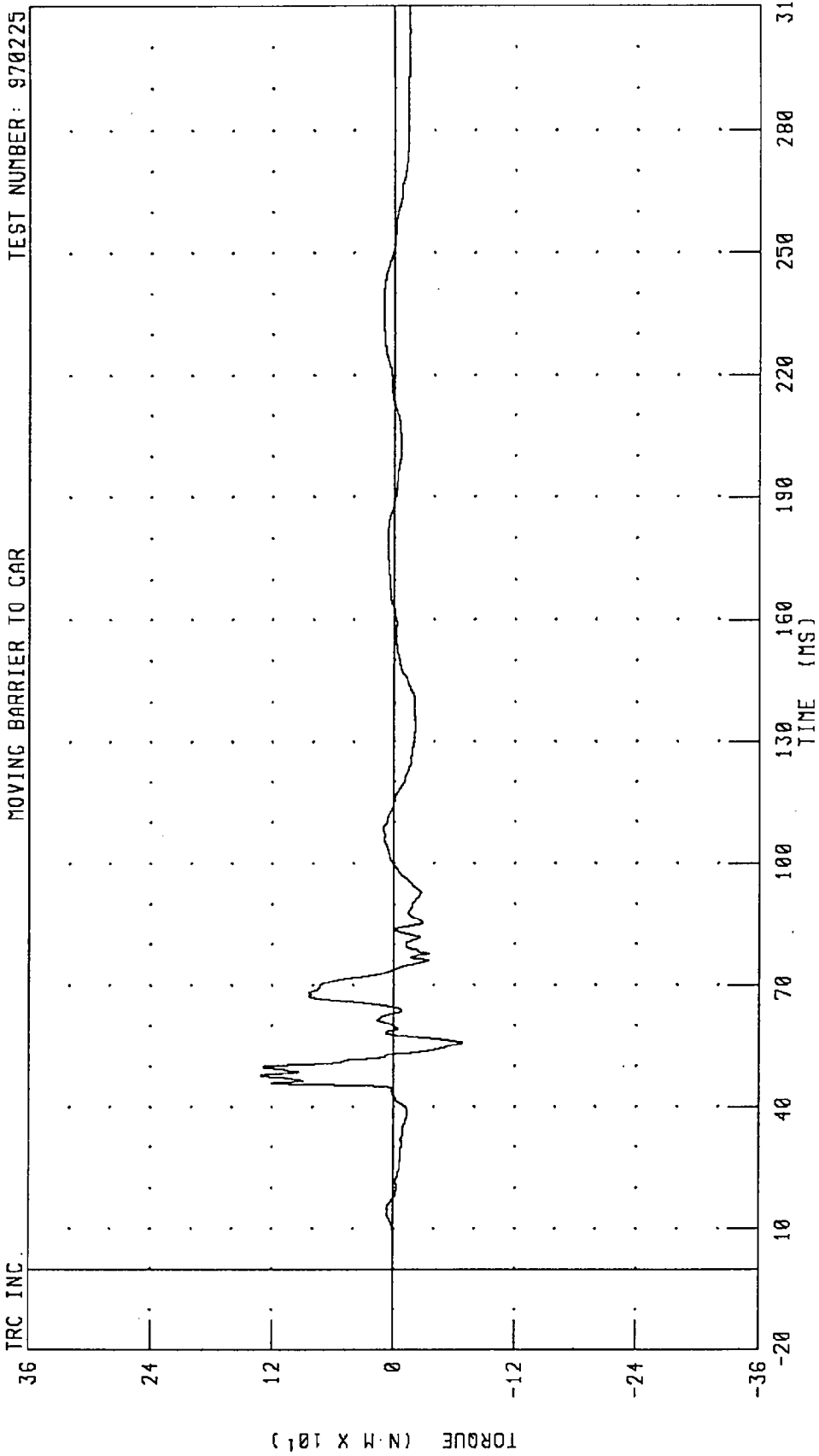
70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT UPPER TIBIA X MOMENT  
MOVING BARRIER TO CAR



CHANNEL: TBRXMI FILTER: CH. CLASS 600 PEAK DATA: 71.78 N·M @ 83.36 MS; -313.55 N·M @ 52.40 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 DRIVER RIGHT UPPER TIBIA Y MOMENT  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225

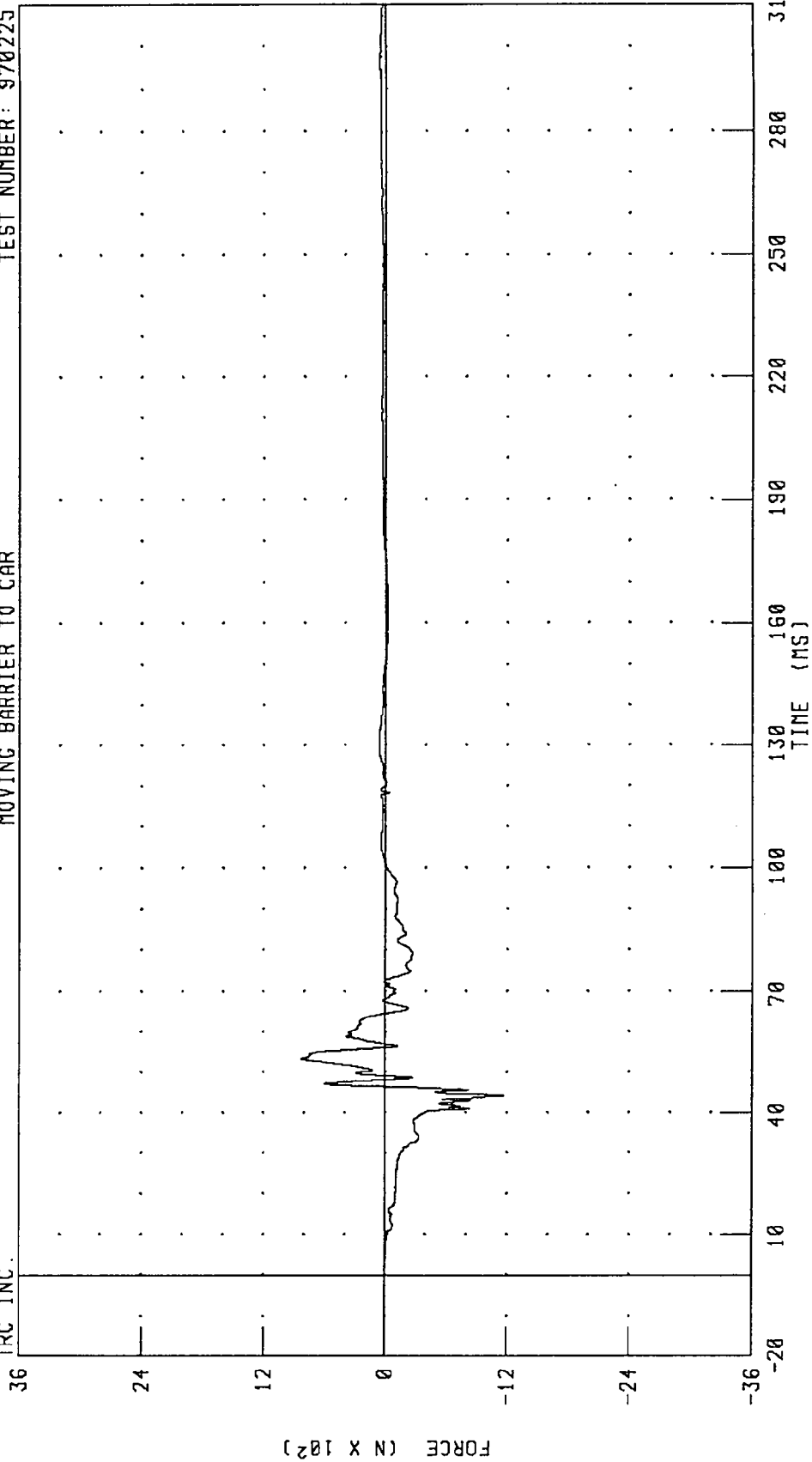


CHANNEL: TBRYM1 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT LOWER TIBIA X-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

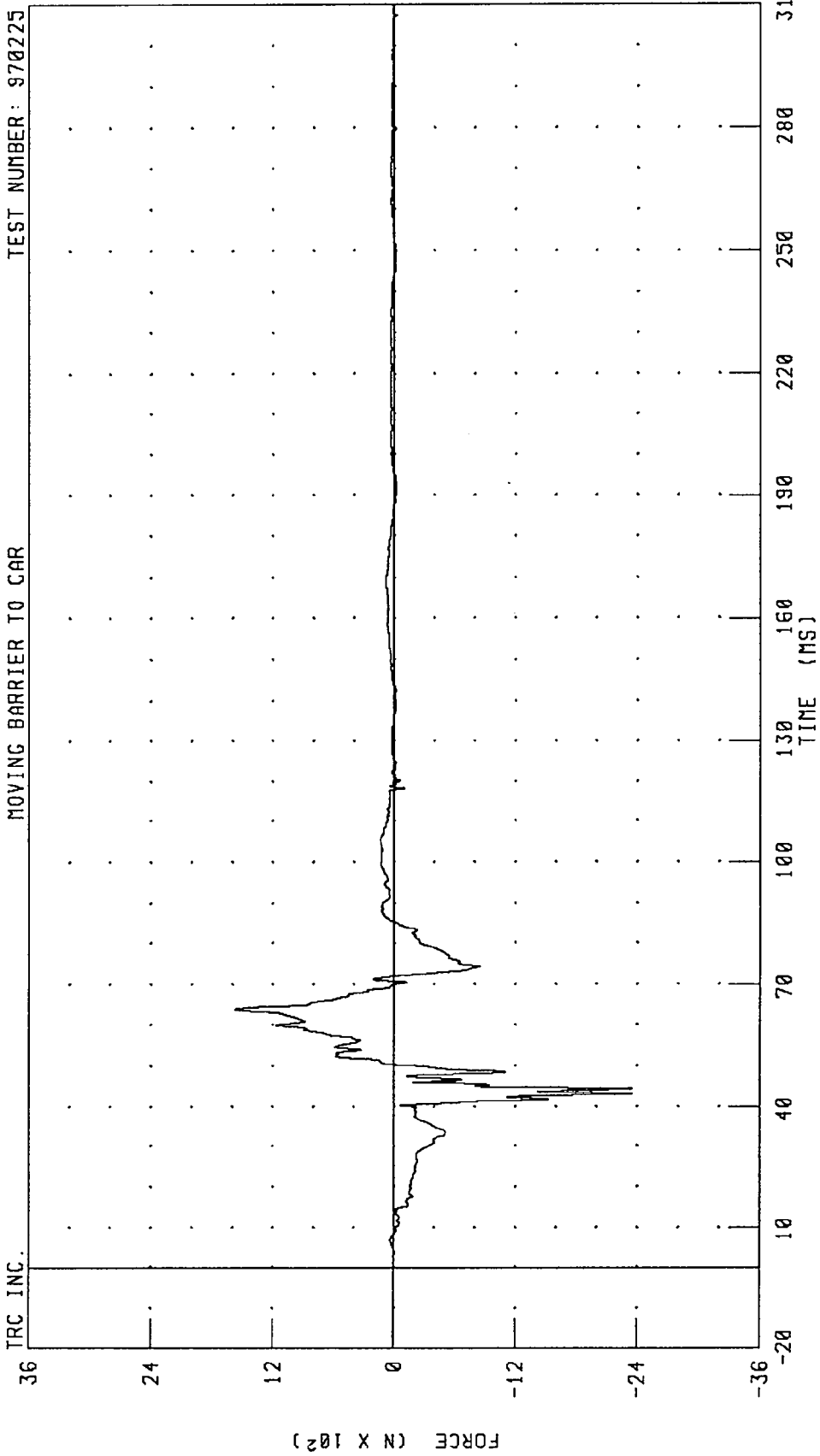
TRC INC.



CHANNEL: ANLXF1 FILTER: CH. CLASS 600  
PEAK DATA: 822.38 N @ 53.28 MS; -1165.62 N @ 44.24 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE  
MOVING BARRIER TO CAR

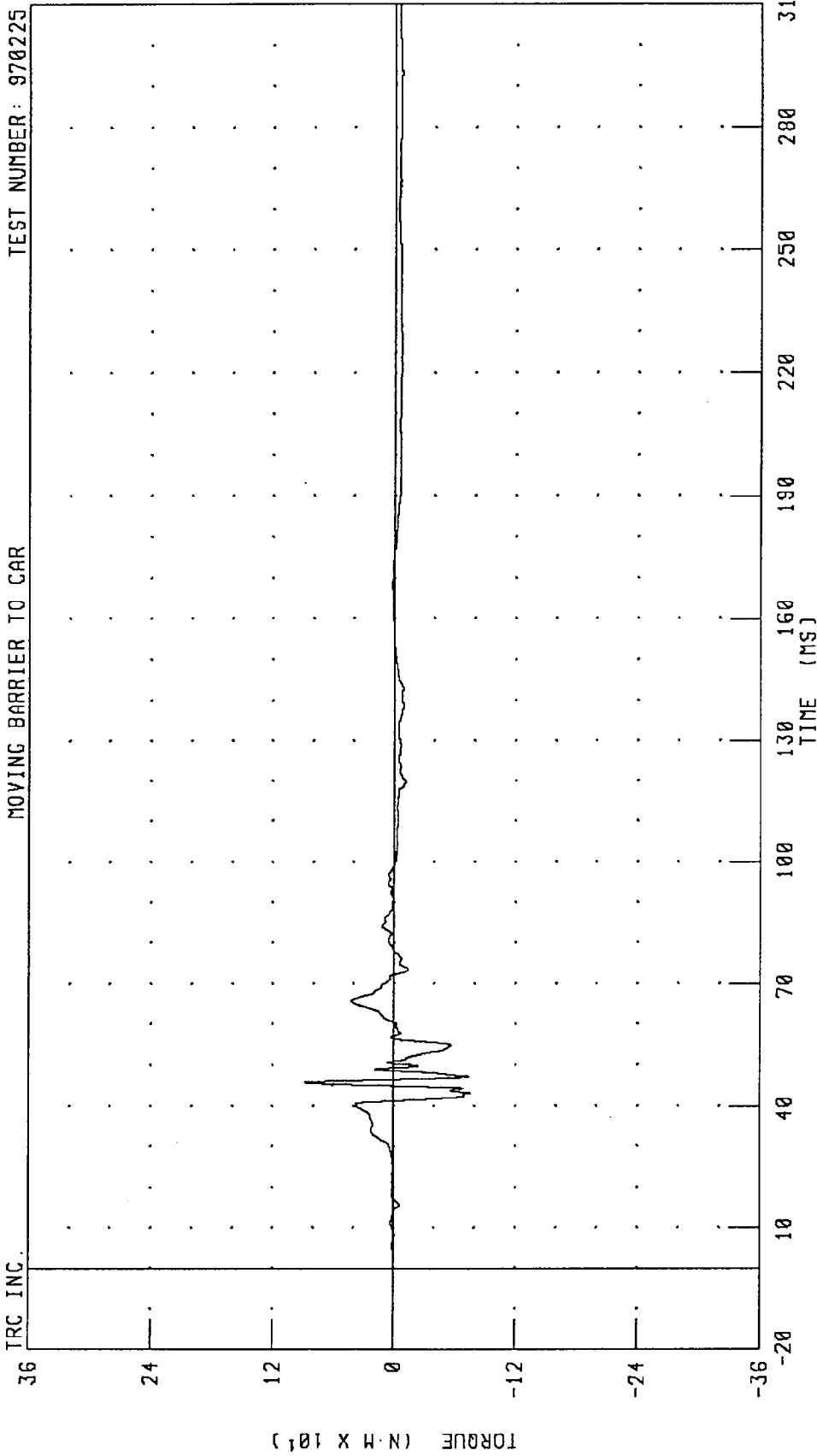
TEST NUMBER: 970225



CHANNEL: ANLZF1 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXJS  
MOVING BARRIER TO CAR

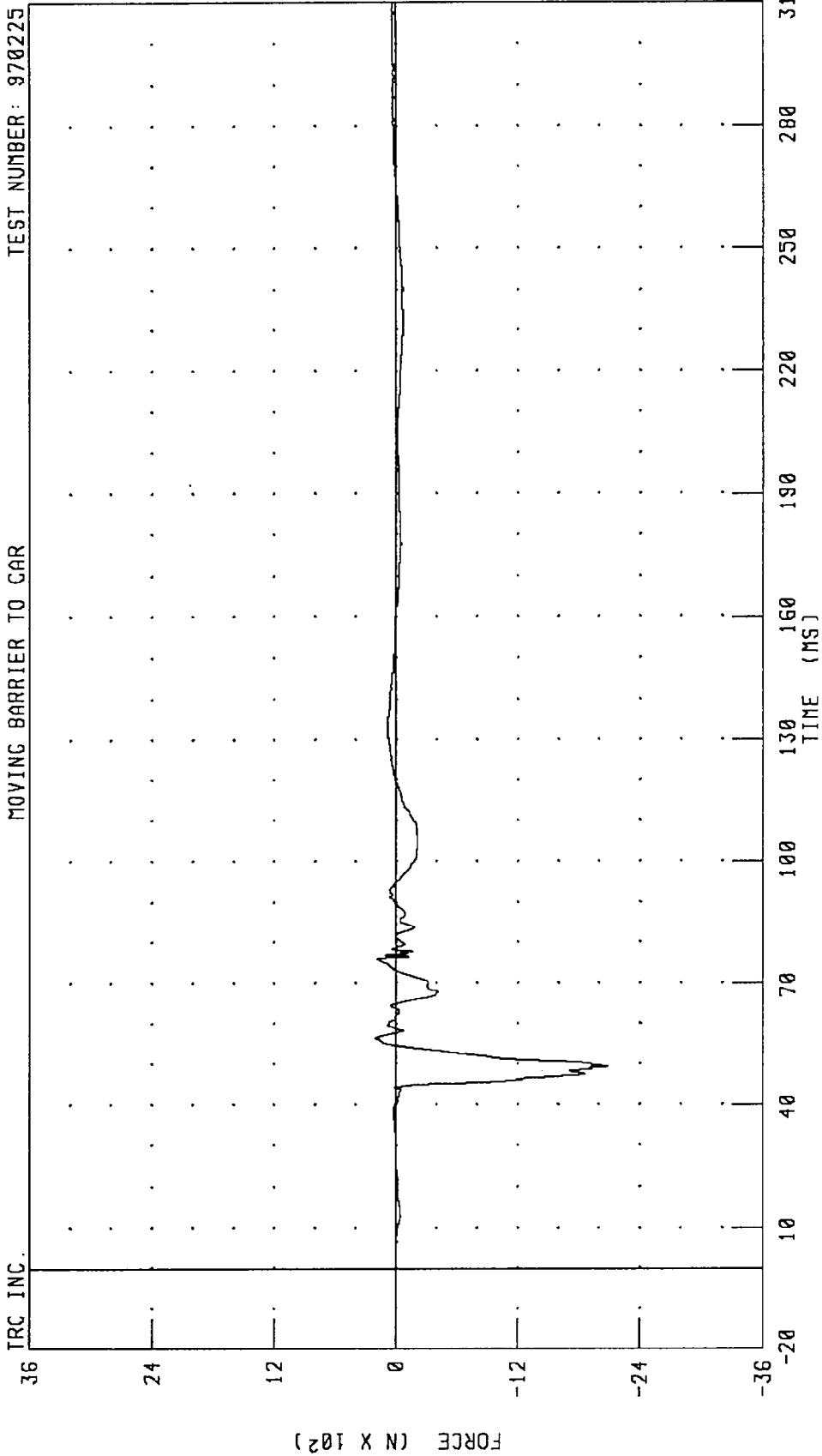
TEST NUMBER: 970225



CHANNEL: ANLYM1 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT LOWER TIBIA X-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

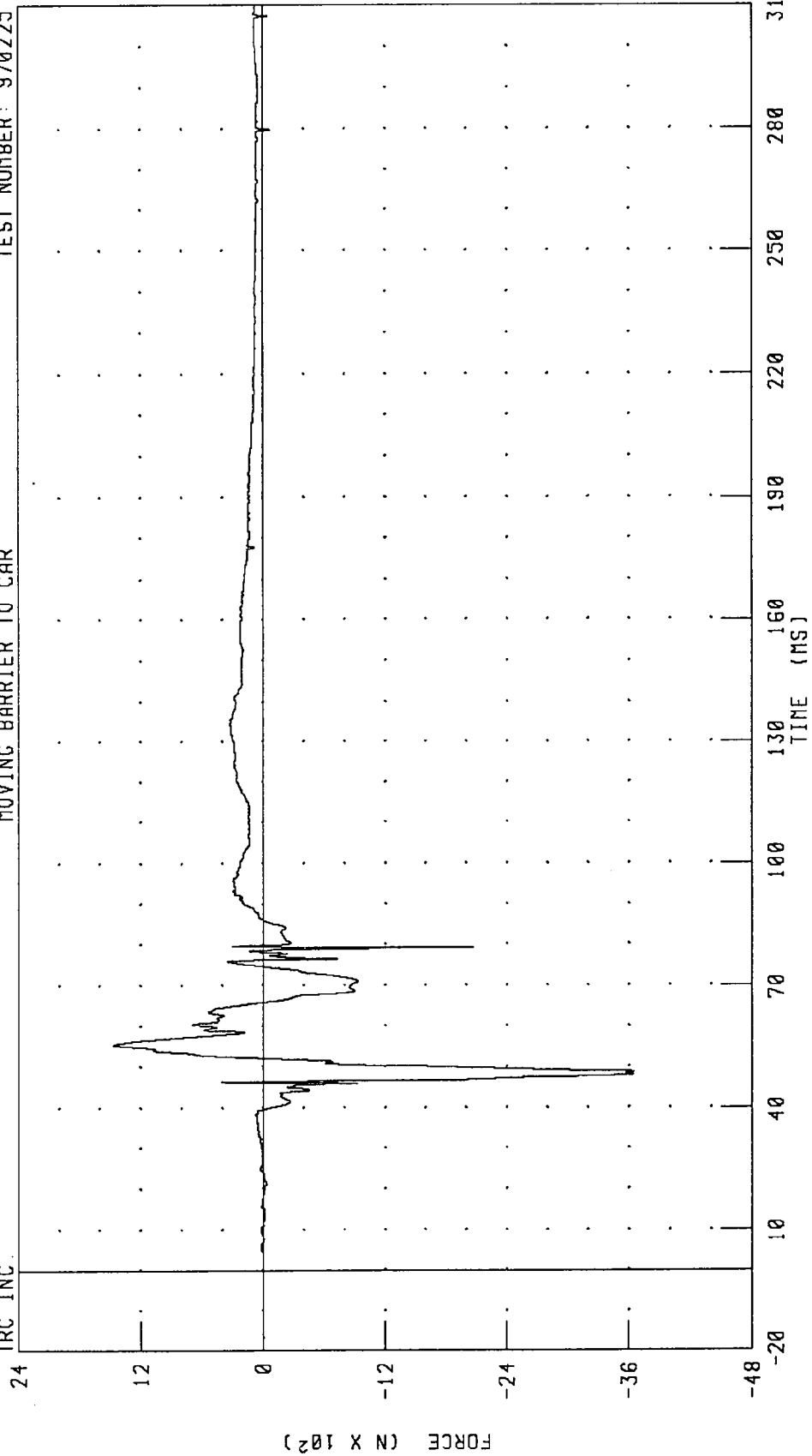


CHANNEL: ANRXF1 FILTER: CH. CLASS 600  
PEAK DATA: 199.45 N e 56.32 MS; -2085.01 N e 49.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



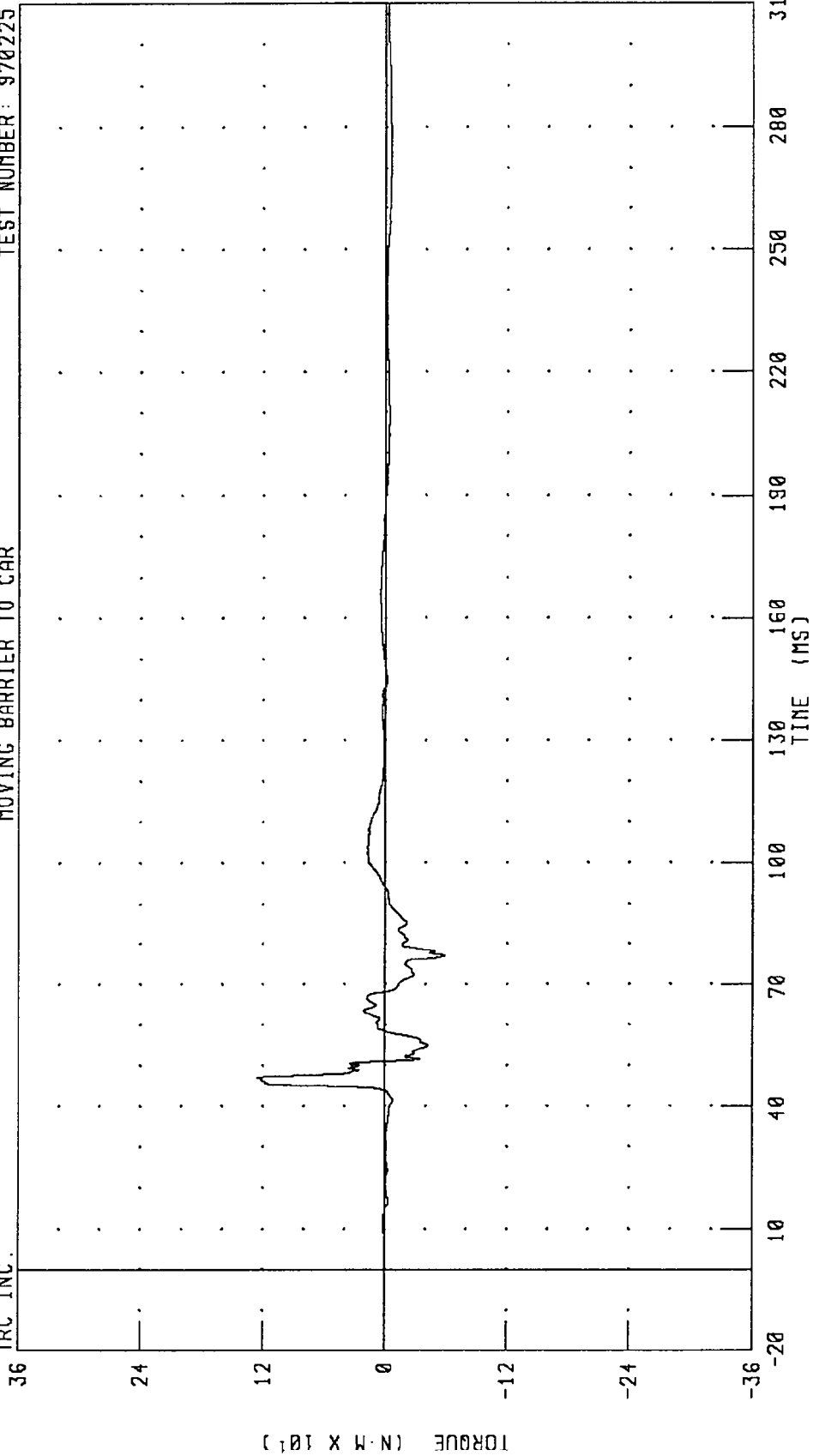
CHANNEL: ANRZF1 FILTER: CH. CLASS 600 PEAK DATA: 1461.79 N @ 55.36 MS; -3646.39 N @ 48.64 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



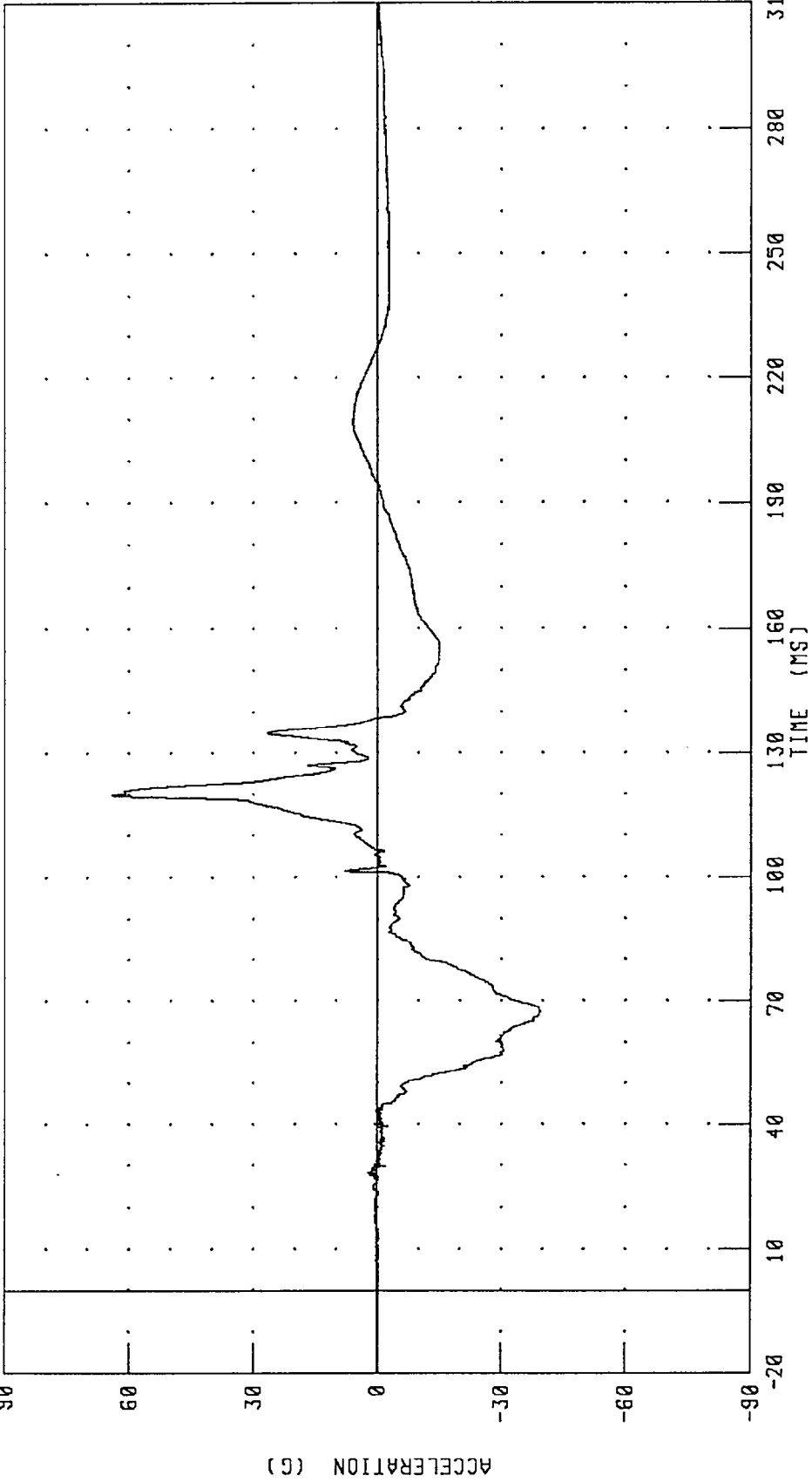
PEAK DATA: 125.30 N.M @ 46.96 MS; -59.01 N.M @ 77.20 MS

CHANNEL: ANRYM1 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD ARRAY 1 X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

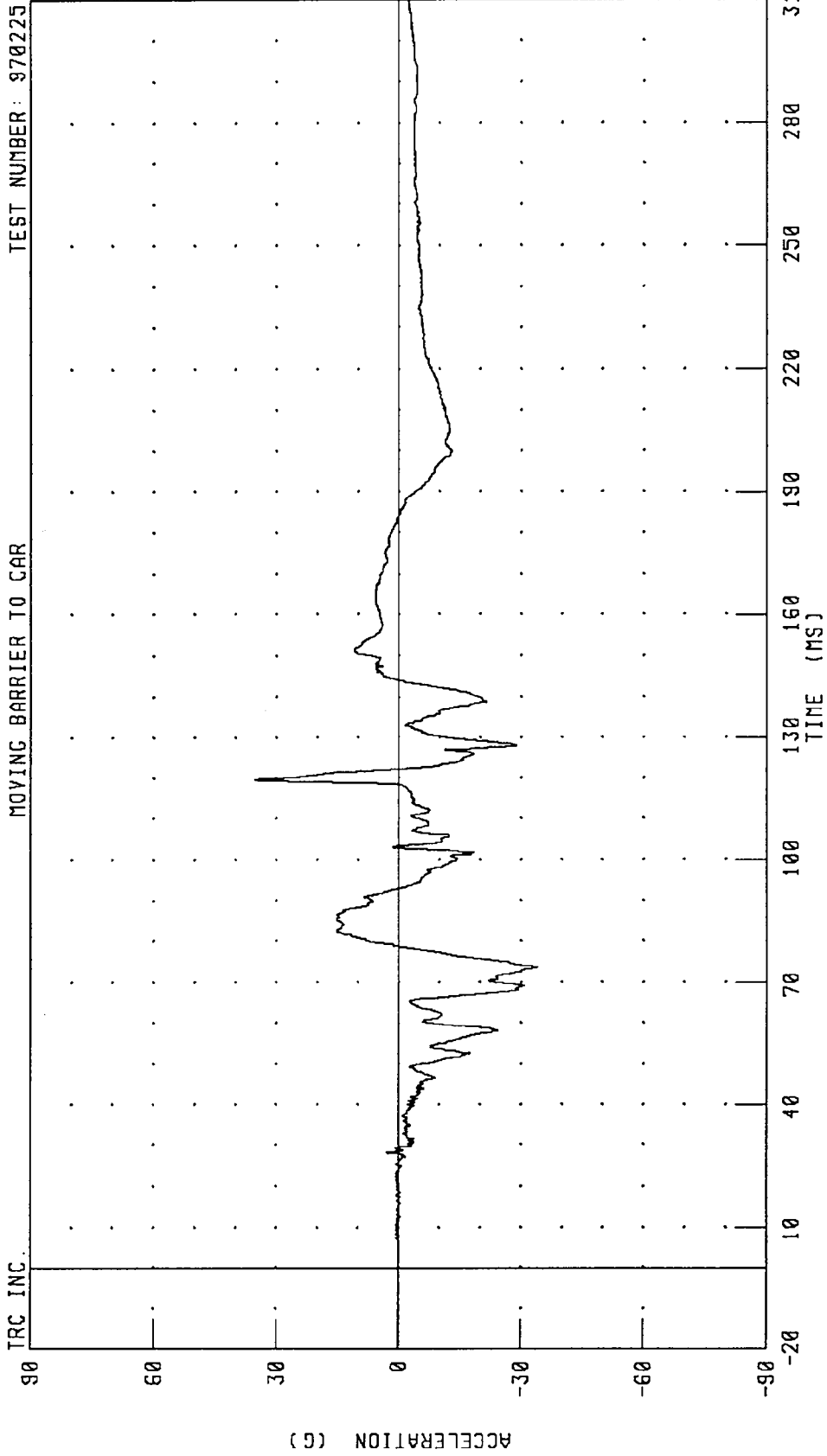
TRC INC.



CHANNEL: HD1XG1 FILTER: CH. CLASS 1000

PEAK DATA: 64.09 G @ 119.92 MS; -39.60 G @ 67.44 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD ARRAY 1 Z-AXIS ACCELERATION  
MOVING BARRIER TO CAR



CHANNEL: HD1ZG1 FILTER: CH. CLASS 1000 PEAK DATA: 35.24 G @ 119.68 MS; -34.03 G @ 73.76 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD ARRAY 2 Y-AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

90

60

30

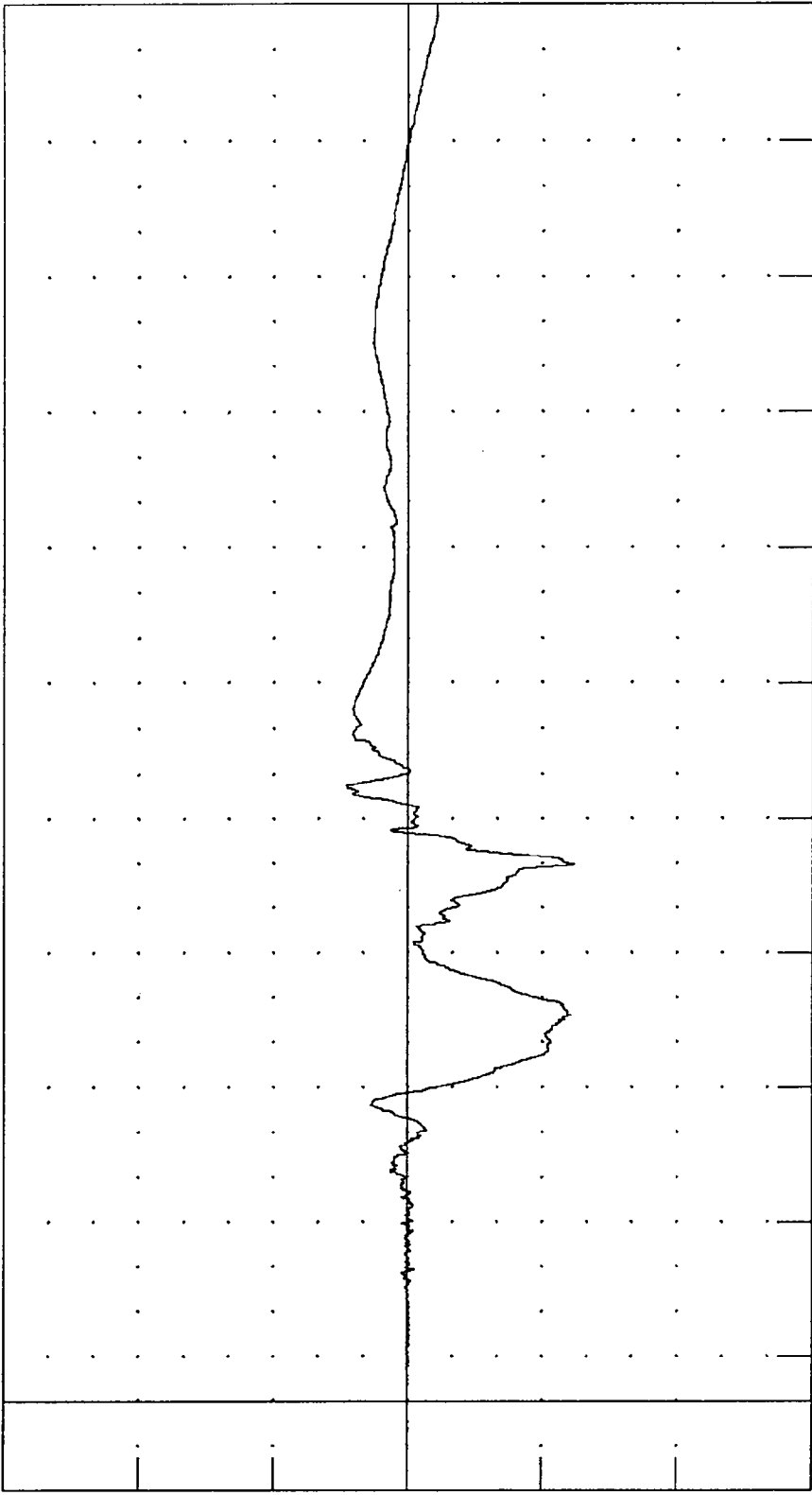
0

-30

-60

-90

ACCELERATION (G)



TIME (MS)

130

160

190

220

250

280

310

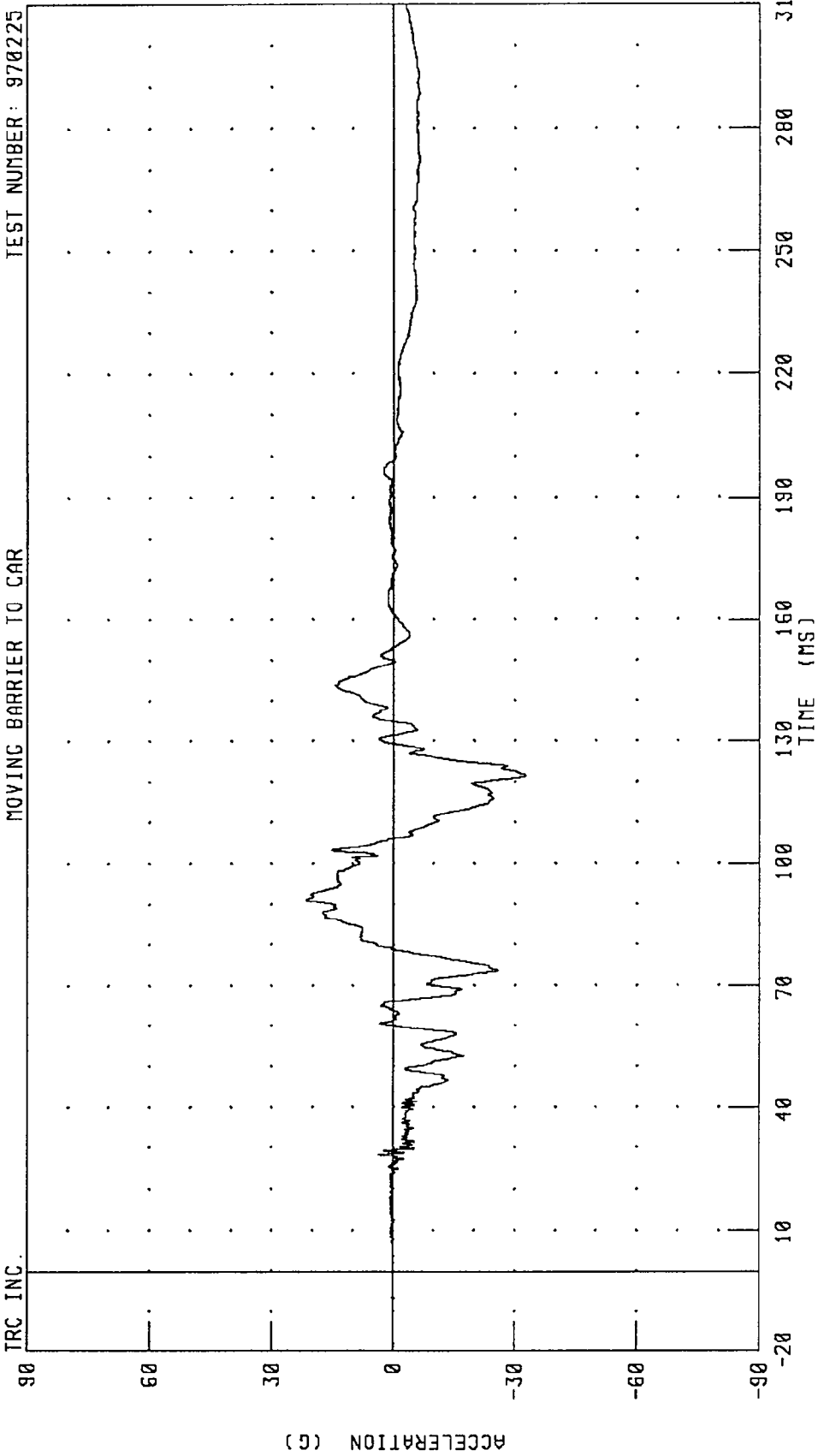
PEAK DATA: 13.80 G @ 137.20 MS; -37.04 G @ 119.92 MS

CHANNEL: HD2YG1 FILTER: CH. CLASS 1000

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD ARRAY 2 Z-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



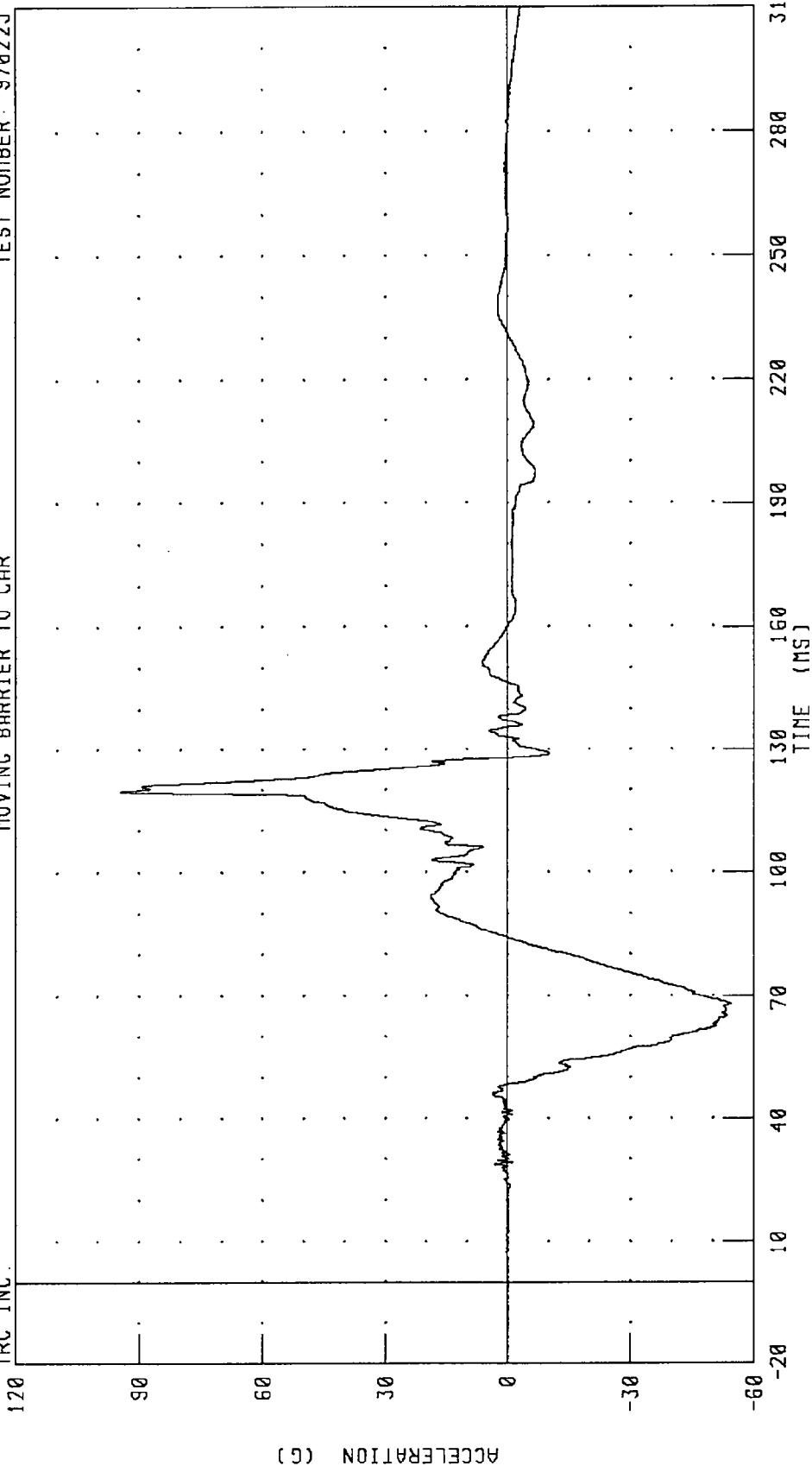
CHANNEL: HD2ZG1 FILTER: CH. CLASS 1000

PEAK DATA: 21.55 G @ 91.04 MS; -32.79 G @ 121.44 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD ARRAY 3 X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



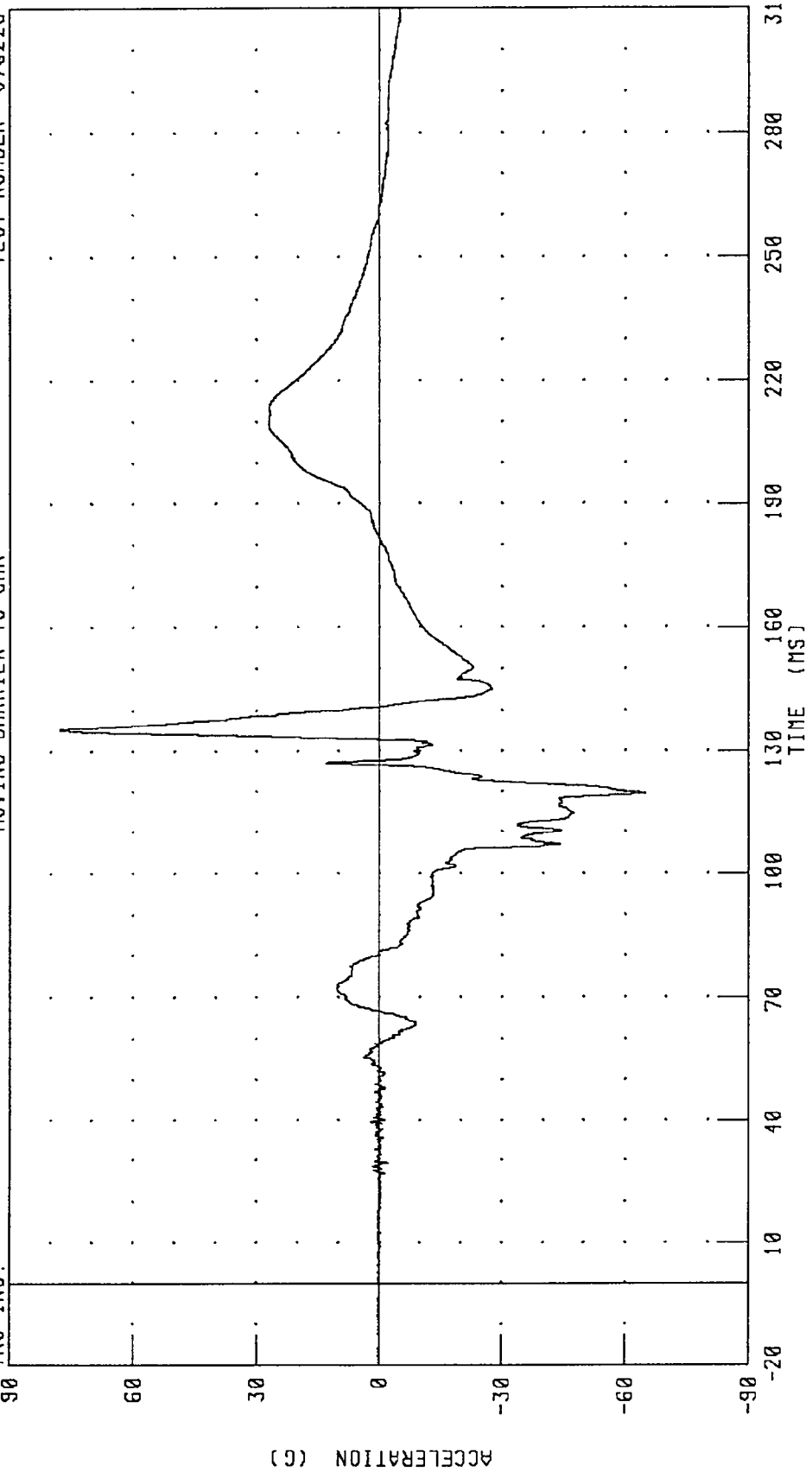
CHANNEL: HD3XG1 FILTER: CH. CLASS 1000

PEAK DATA: 94.48 G @ 119.76 MS; -54.32 G @ 68.08 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER HEAD ARRAY 3 Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



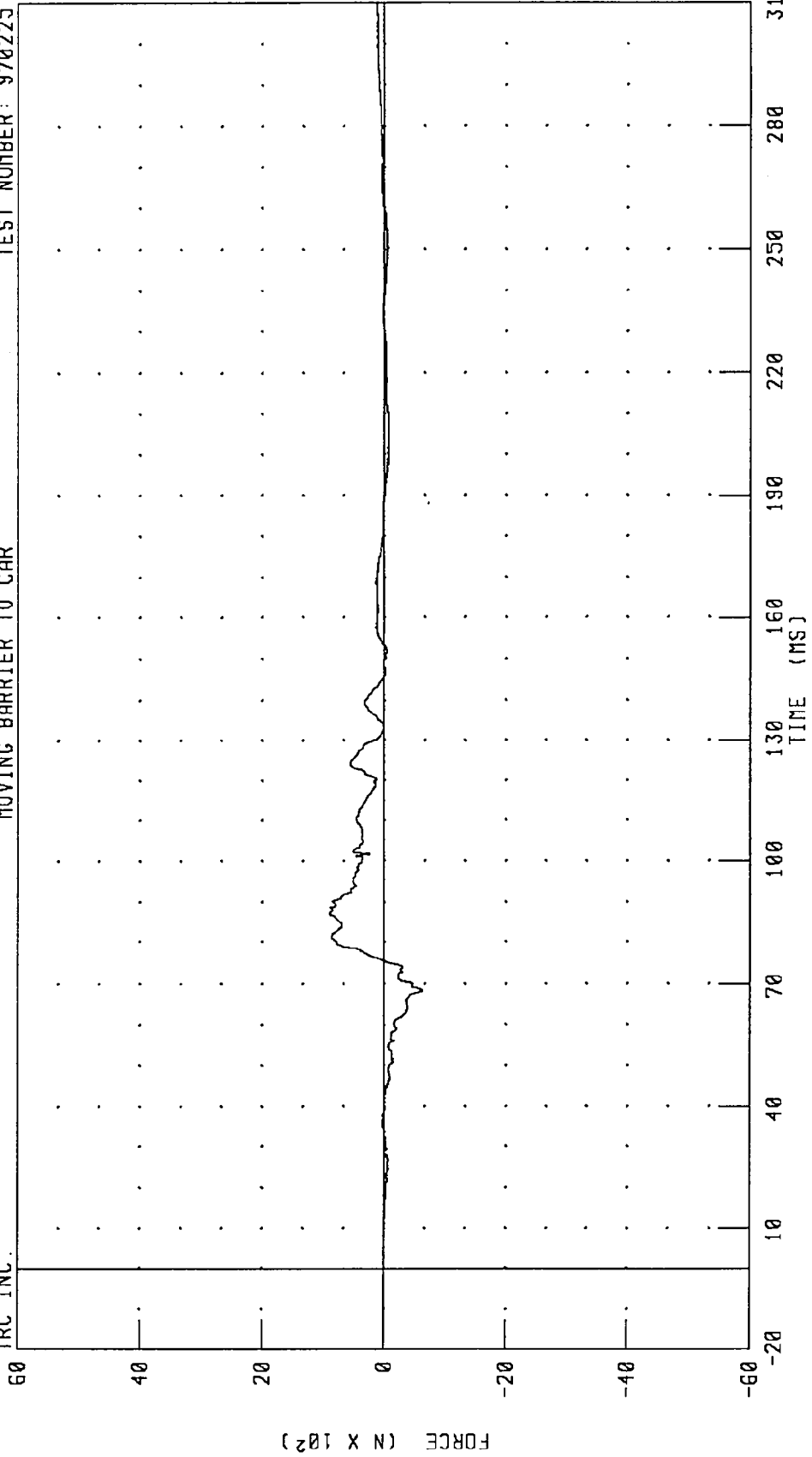
PEAK DATA: 77.73 G @ 135.36 MS; -64.92 G @ 119.60 MS

CHANNEL: HD3YG1 FILTER: CH. CLASS 1000

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LOWER NECK X-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

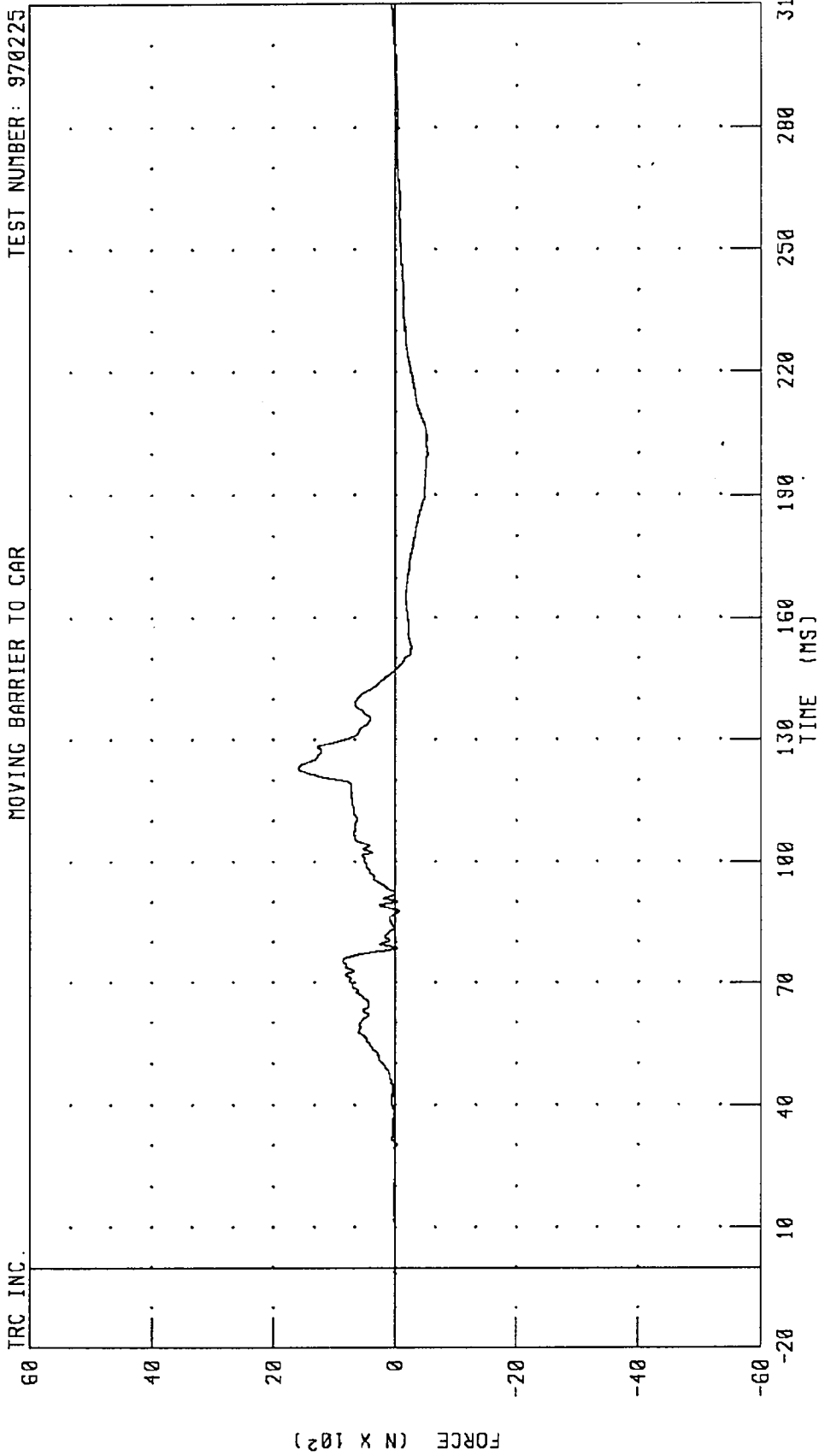


PEAK DATA: 905.95 N @ 87.04 MS; -625.82 N @ 68.40 MS

CHANNEL: NKLXF1 FILTER: CH. CLASS 1000

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LOWER NECK Y-AXIS FORCE  
MOVING BARRIER TO CAR

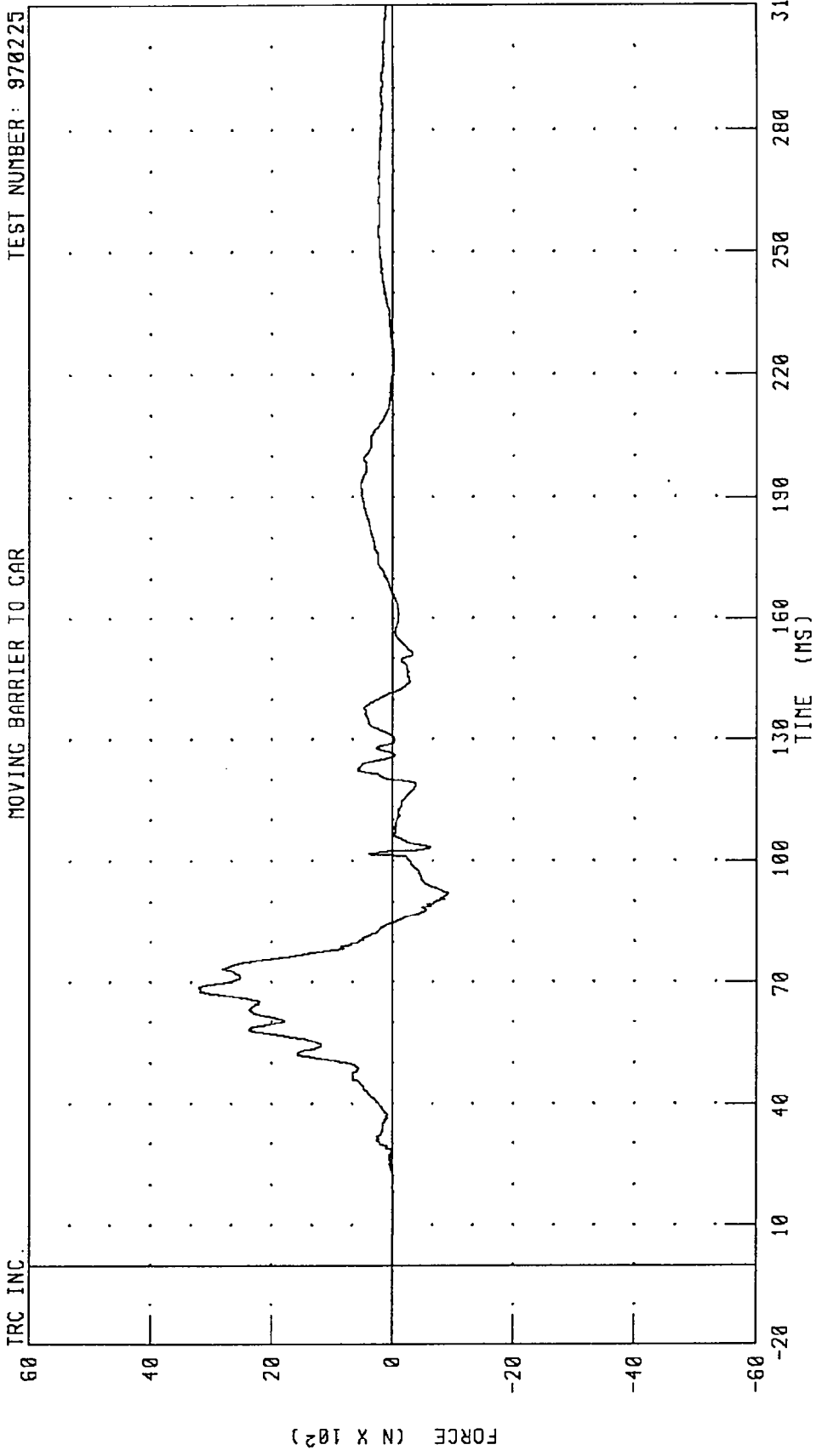
TEST NUMBER: 970225



CHANNEL: NKLYF1 FILTER: CH. CLASS 1000 PEAK DATA: 1595.98 N @ 122.88 MS, -534.61 N @ 199.76 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LOWER NECK Z-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

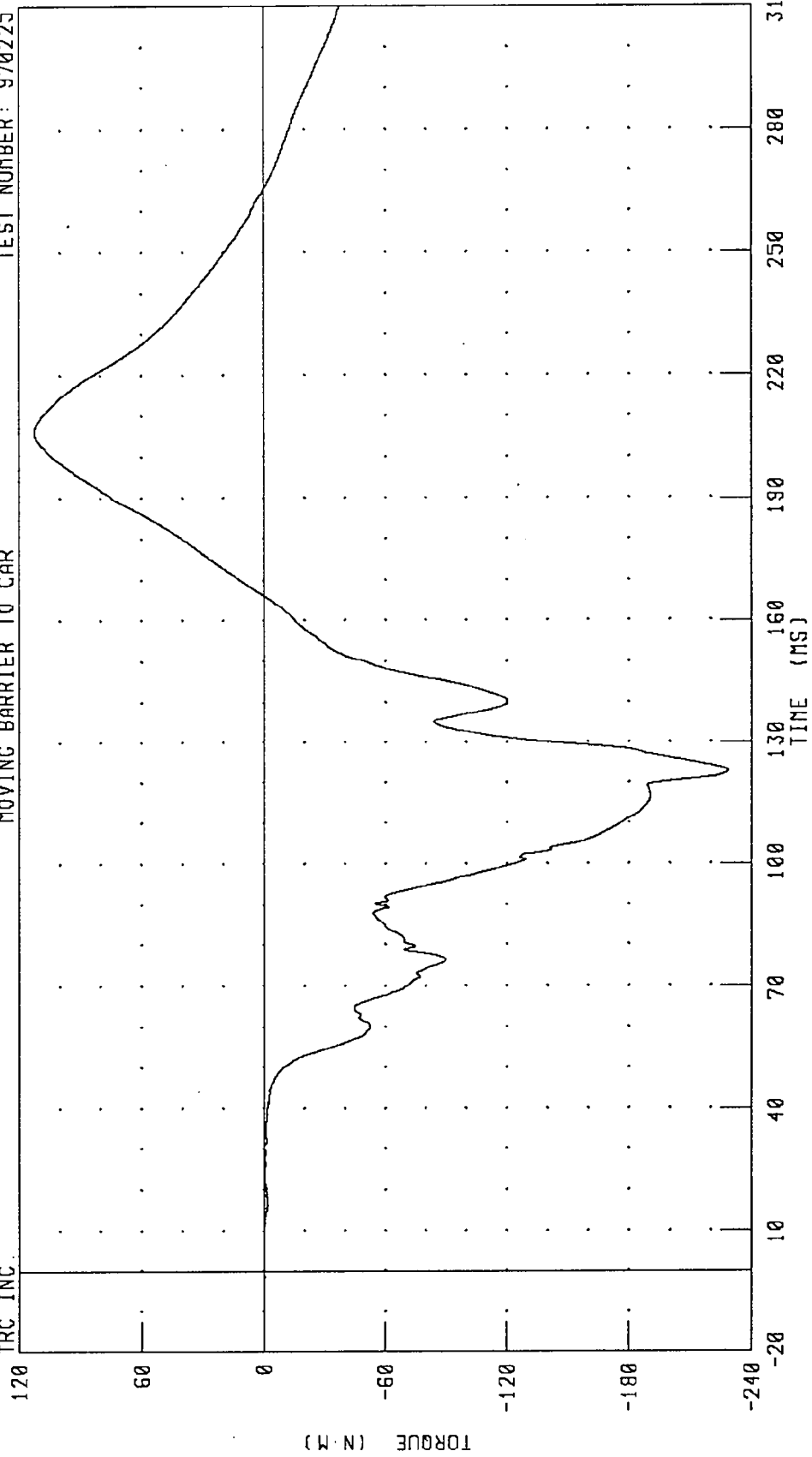


TRC INC. CHANNEL: NKLZF1 FILTER: CH. CLASS 1000 PEAK DATA: 3213.16 N @ 68.64 MS, -915.32 N @ 91.92 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LOWER NECK MOMENT ABOUT X AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



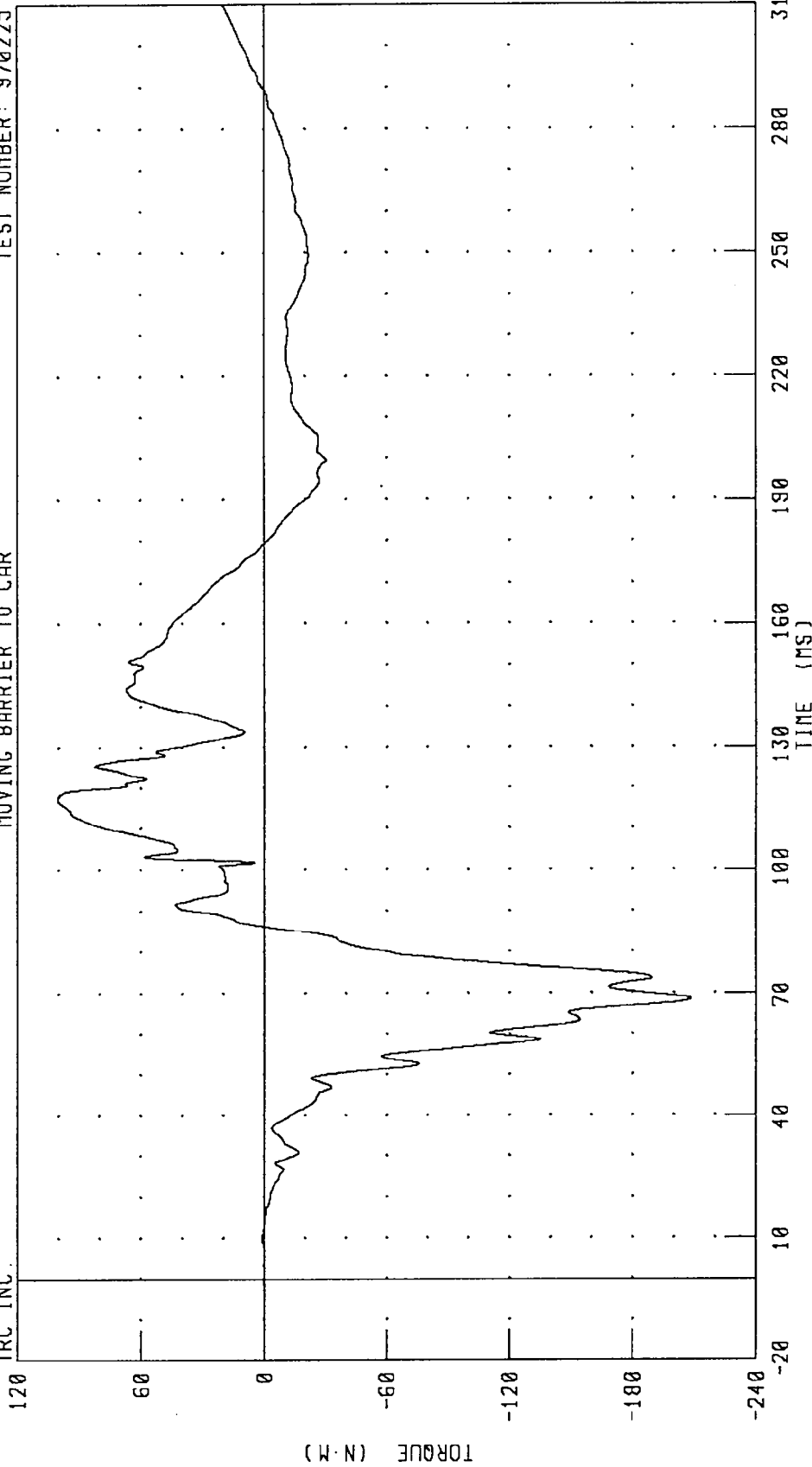
CHANNEL: NKLXMI FILTER: CH. CLASS. 600 PEAK DATA: 112.49 N·M @ 206.40 MS; -228.50 N·M @ 122.88 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LOWER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

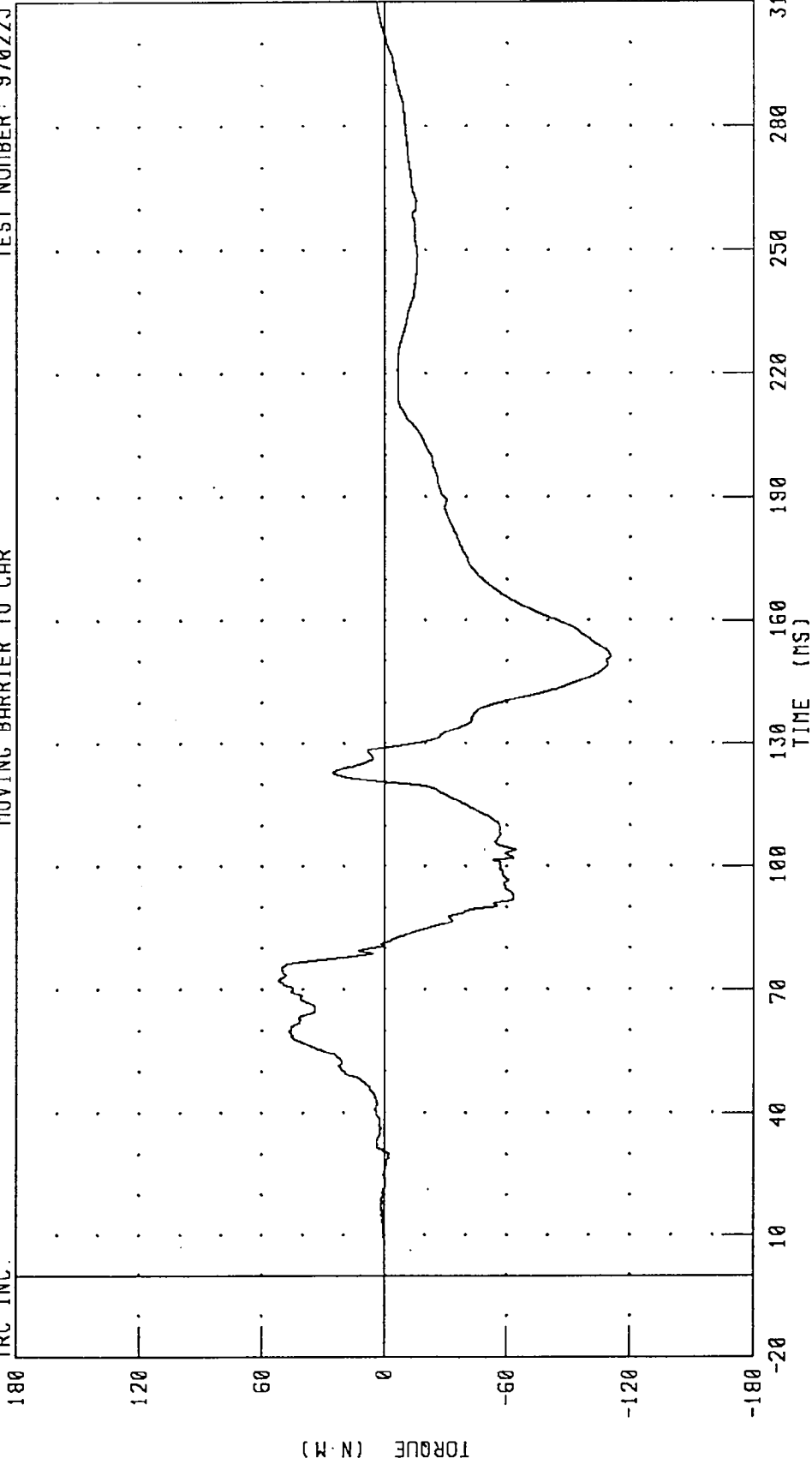


CHANNEL: NKLYM1 FILTER: CH. CLASS 600 PEAK DATA: 100.15 N.M @ 117.28 MS; -208.24 N.M @ 68.72 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LOWER NECK MOMENT ABOUT Z AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

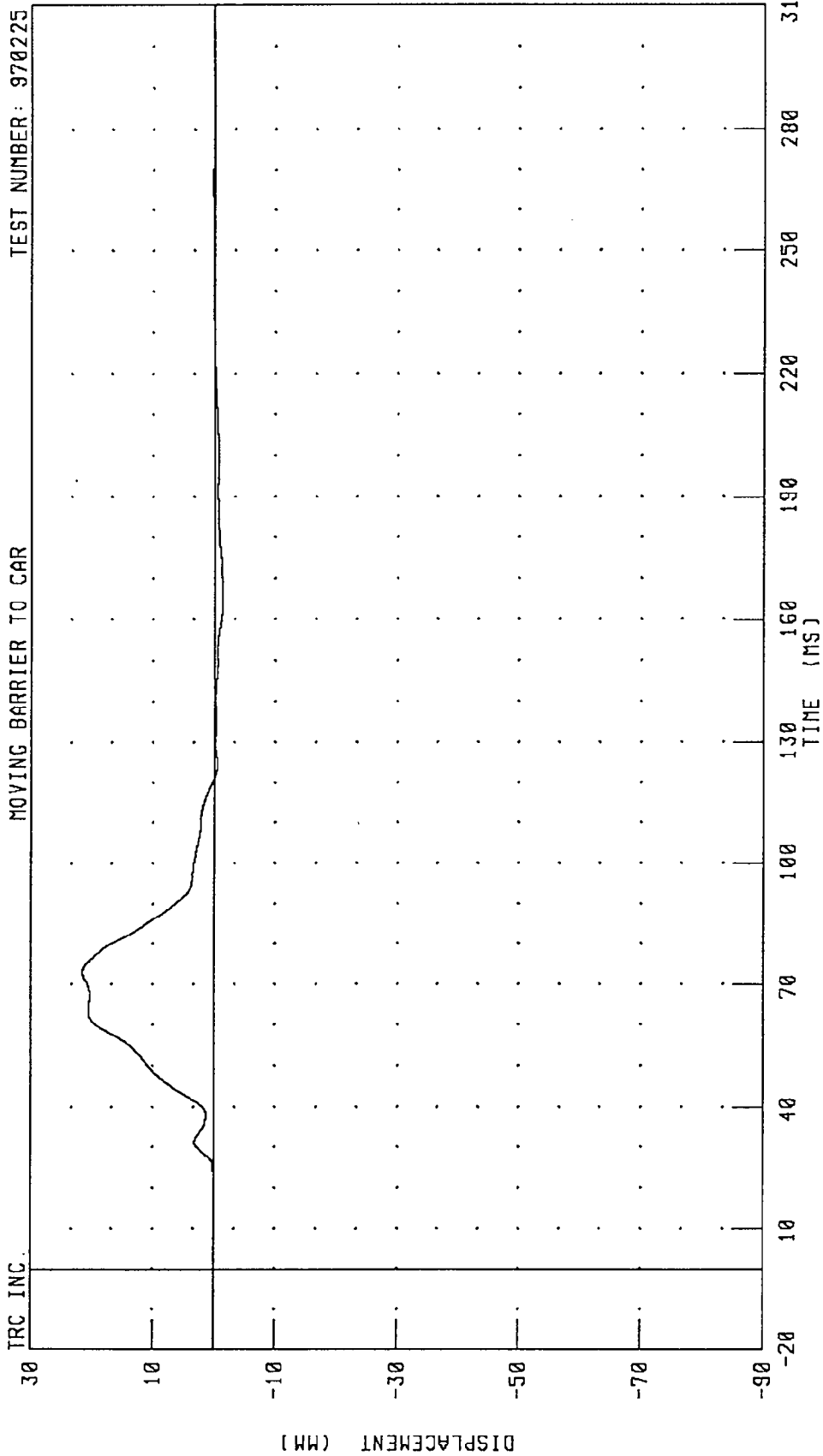
TRC INC.



CHANNEL: NKLZM1 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT UPPER RIB STRAIGHT DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

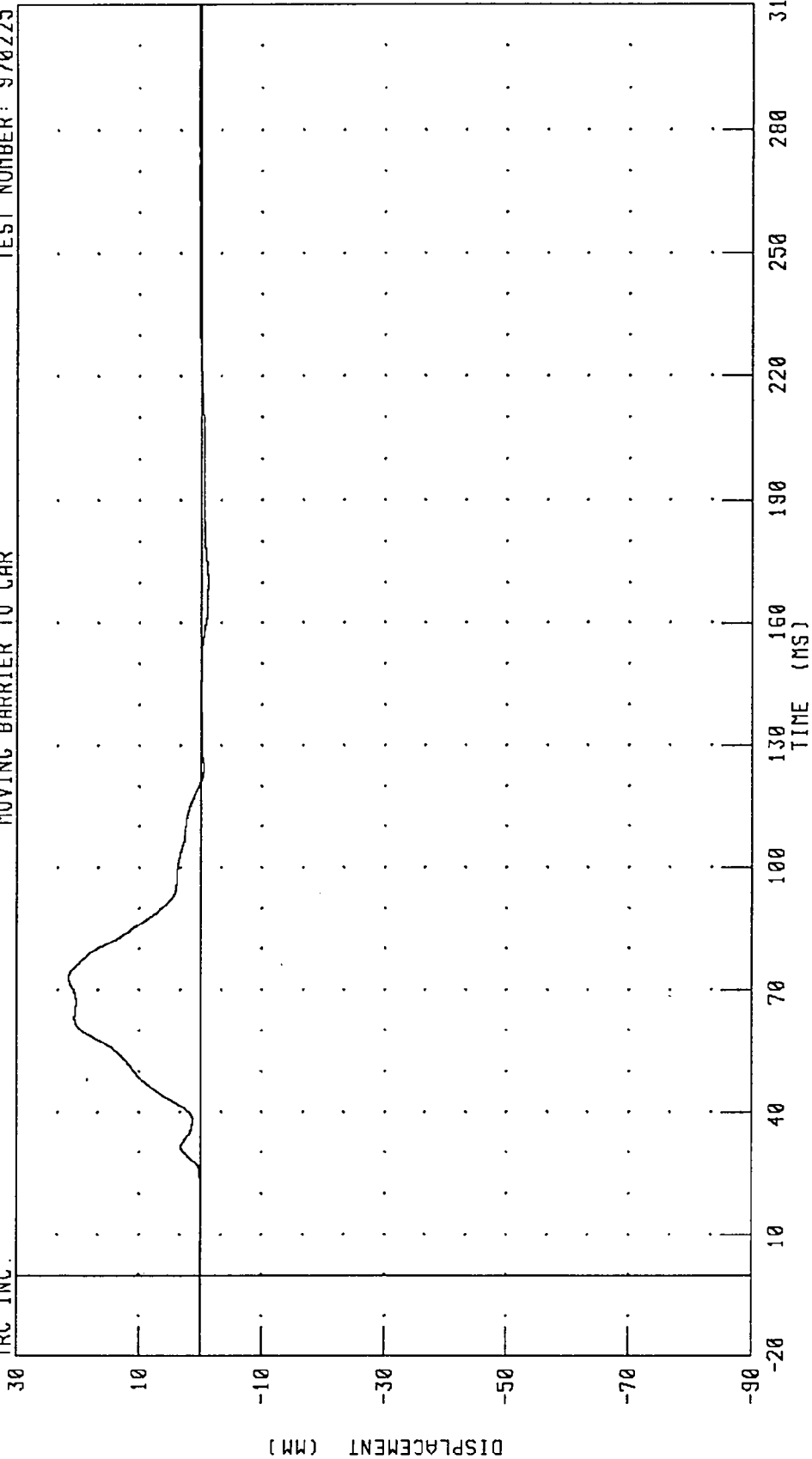


CHANNEL: LURSD1 FILTER: CH. CLASS 180 PEAK DATA: 21.50 MM @ 73.04 MS; -1.35 MM @ 163.12 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT UPPER RIB X-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



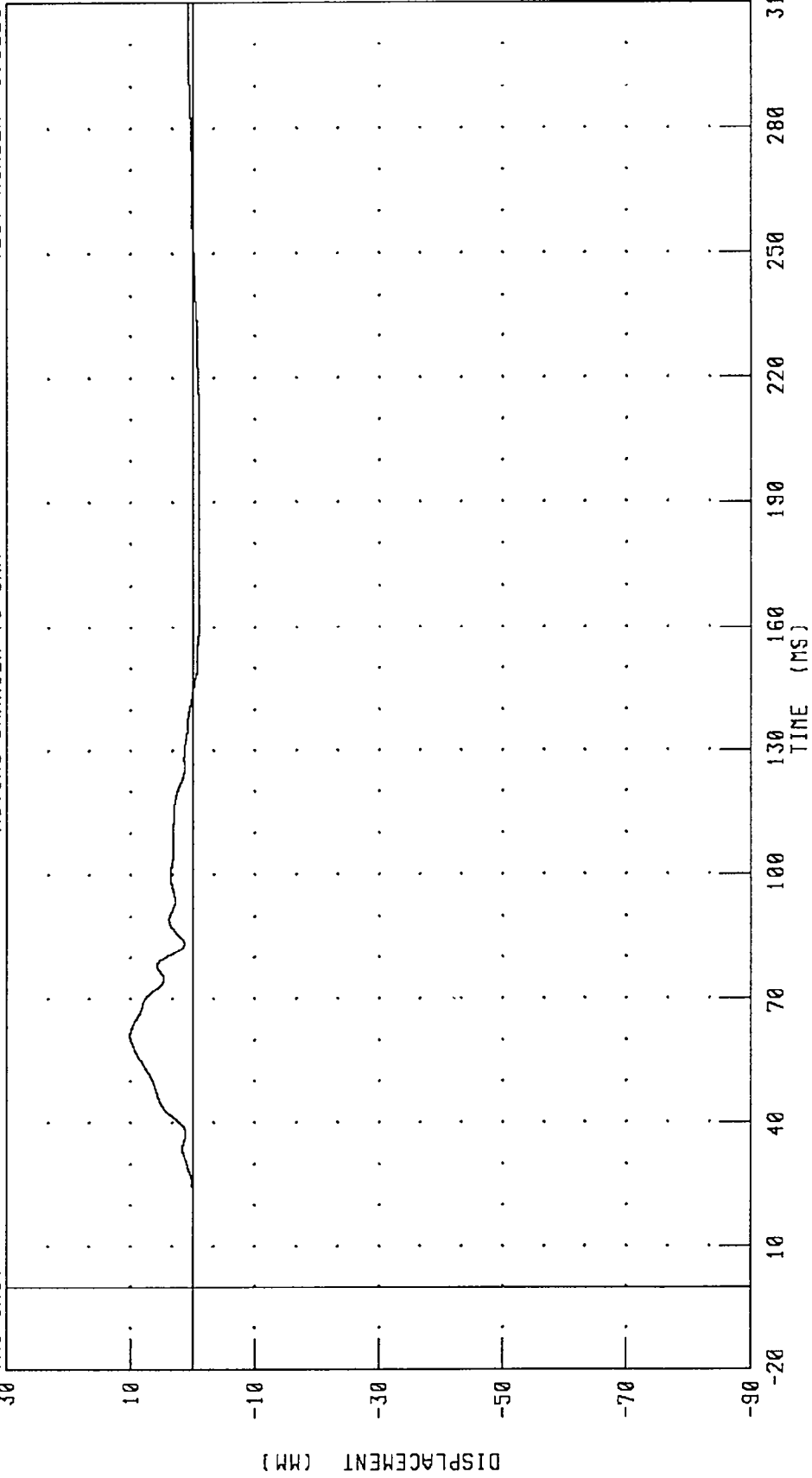
CHANNEL: LURXD1 FILTER: CH CLASS 180

PEAK DATA: 21.51 MM @ 73.04 MS; -1.13 MM @ 170.40 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT LOWER RIB STRAIGHT DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

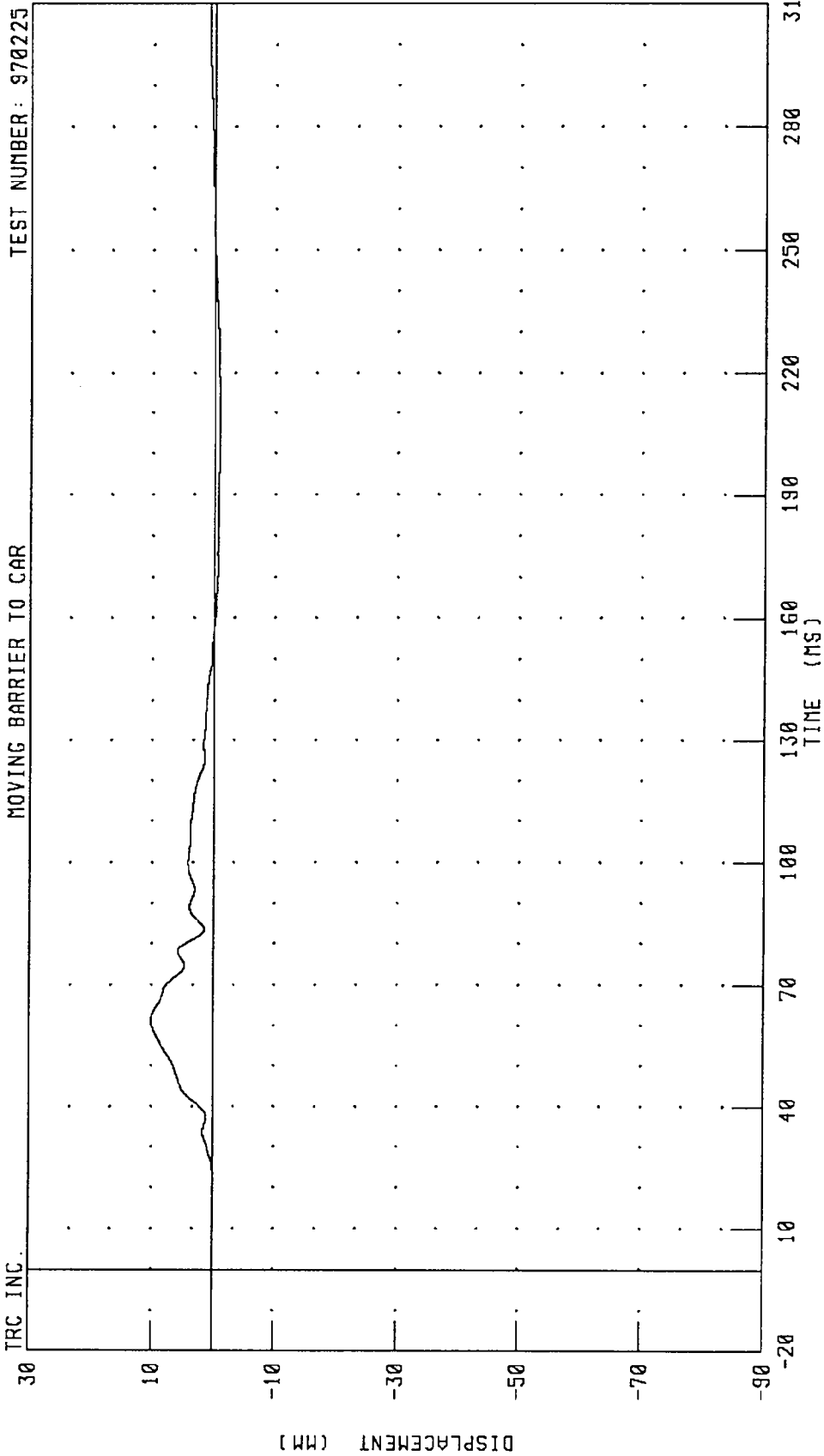


CHANNEL: LLRSD1 . FILTER: CH. CLASS 180 PEAK DATA: 10.09 MM @ 61.28 MS; -1.11 MM @ 203.12 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT LOWER RIB X-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



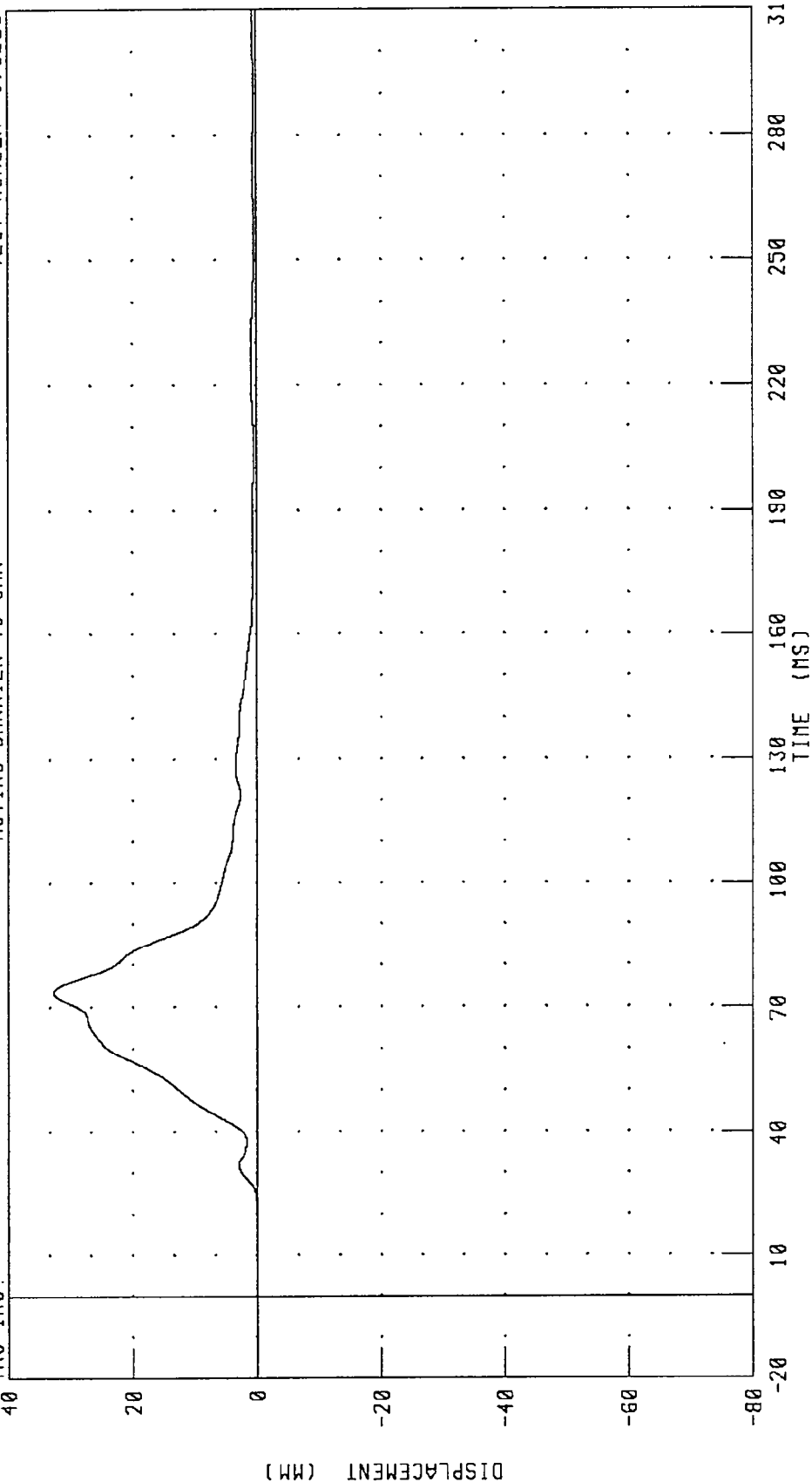
CHANNEL: LLRXD1 FILTER: CH. CLASS 180

PEAK DATA: 10.12 MM @ 61.36 MS; -0.91 MM @ 210.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT UPPER RIB STRAIGHT DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



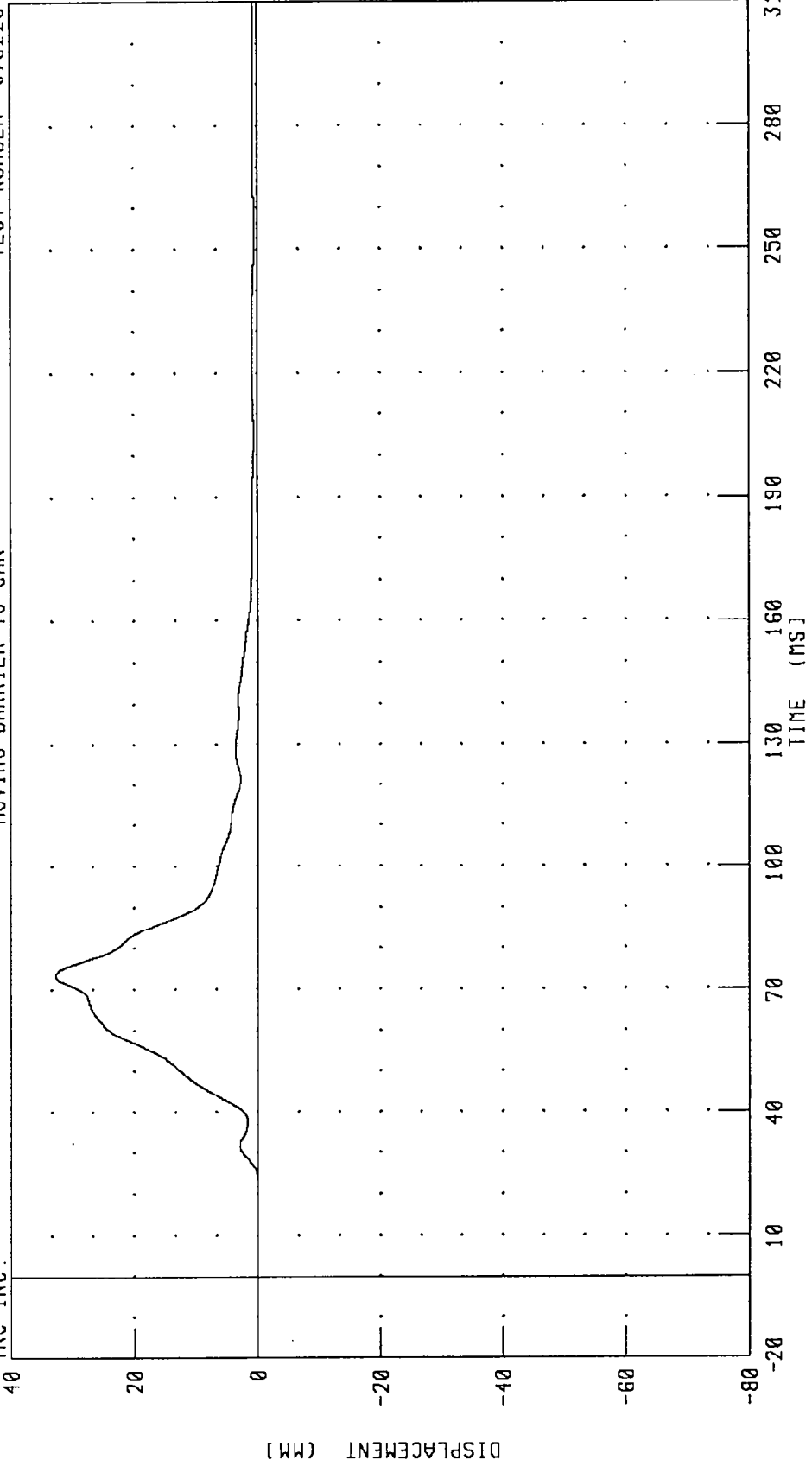
CHANNEL: RURS01 FILTER: CH. CLASS 180  
PEAK DATA: 32.66 MM @ 73.52 MS; -0.01 MM @ 17.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT UPPER RIB X-AXIS DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



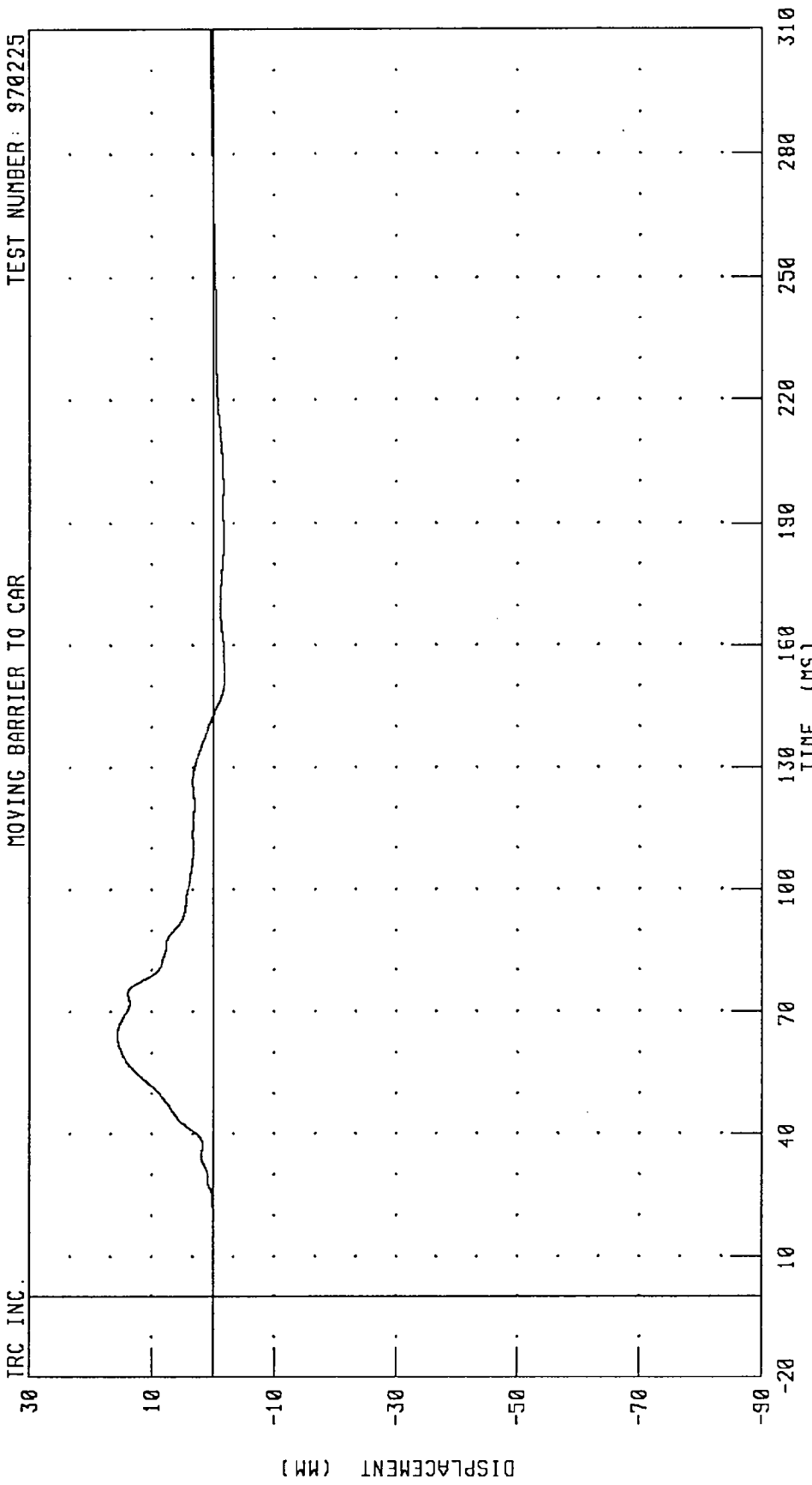
PEAK DATA: 32.74 MM @ 73.52 MS; -0.01 MM @ 17.36 MS

CHANNEL: RURXD1 FILTER: CH. CLASS 180

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT LOWER RIB STRAIGHT DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



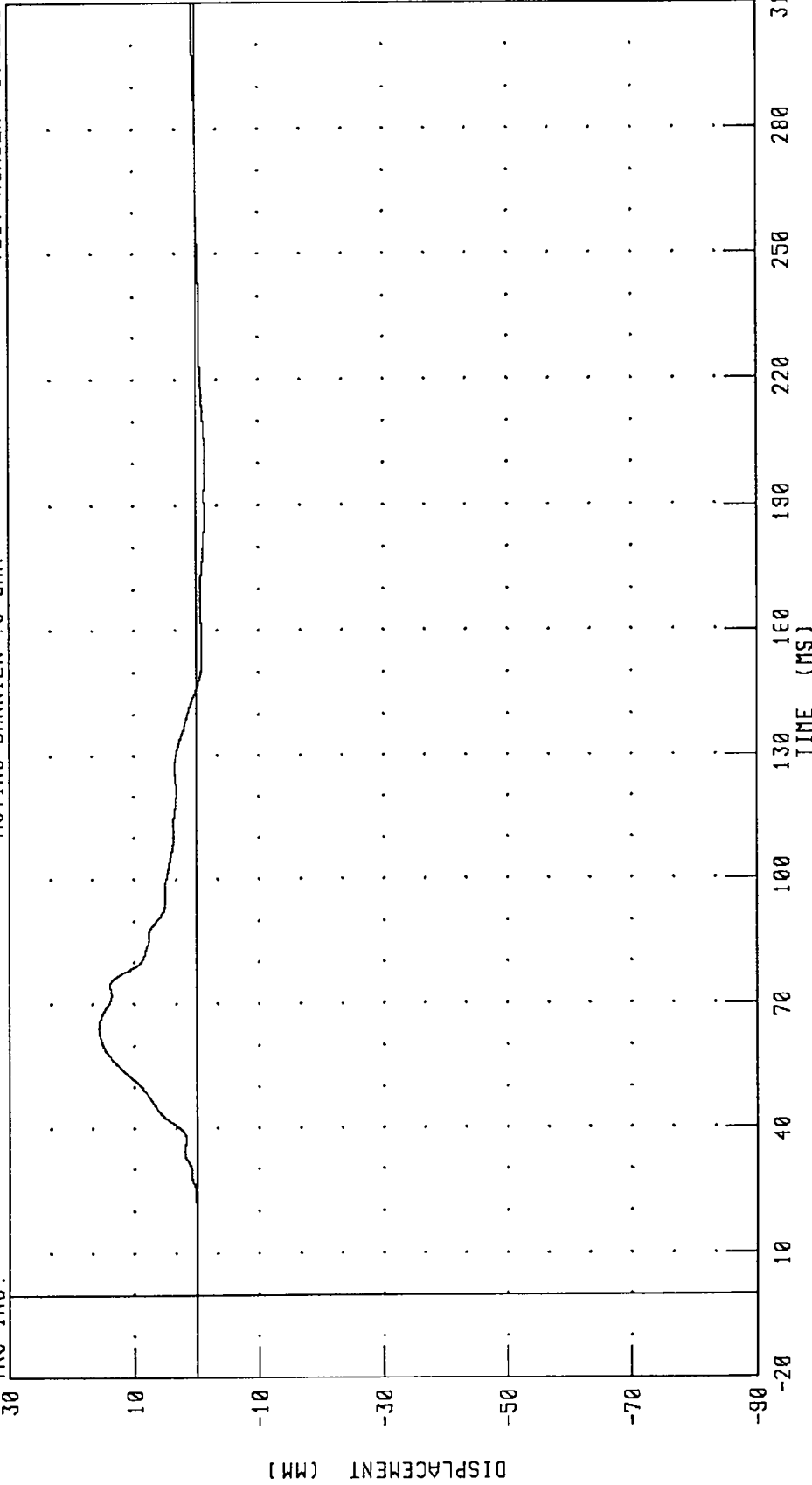
CHANNEL: RLRSD1 FILTER: CH. CLASS 180 PEAK DATA: 15.64 MM @ 64.08 MS; -1.91 MM @ 152.40 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT LOWER RIB X-AXIS DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



CHANNEL: RLXD1 FILTER: CH. CLASS 180

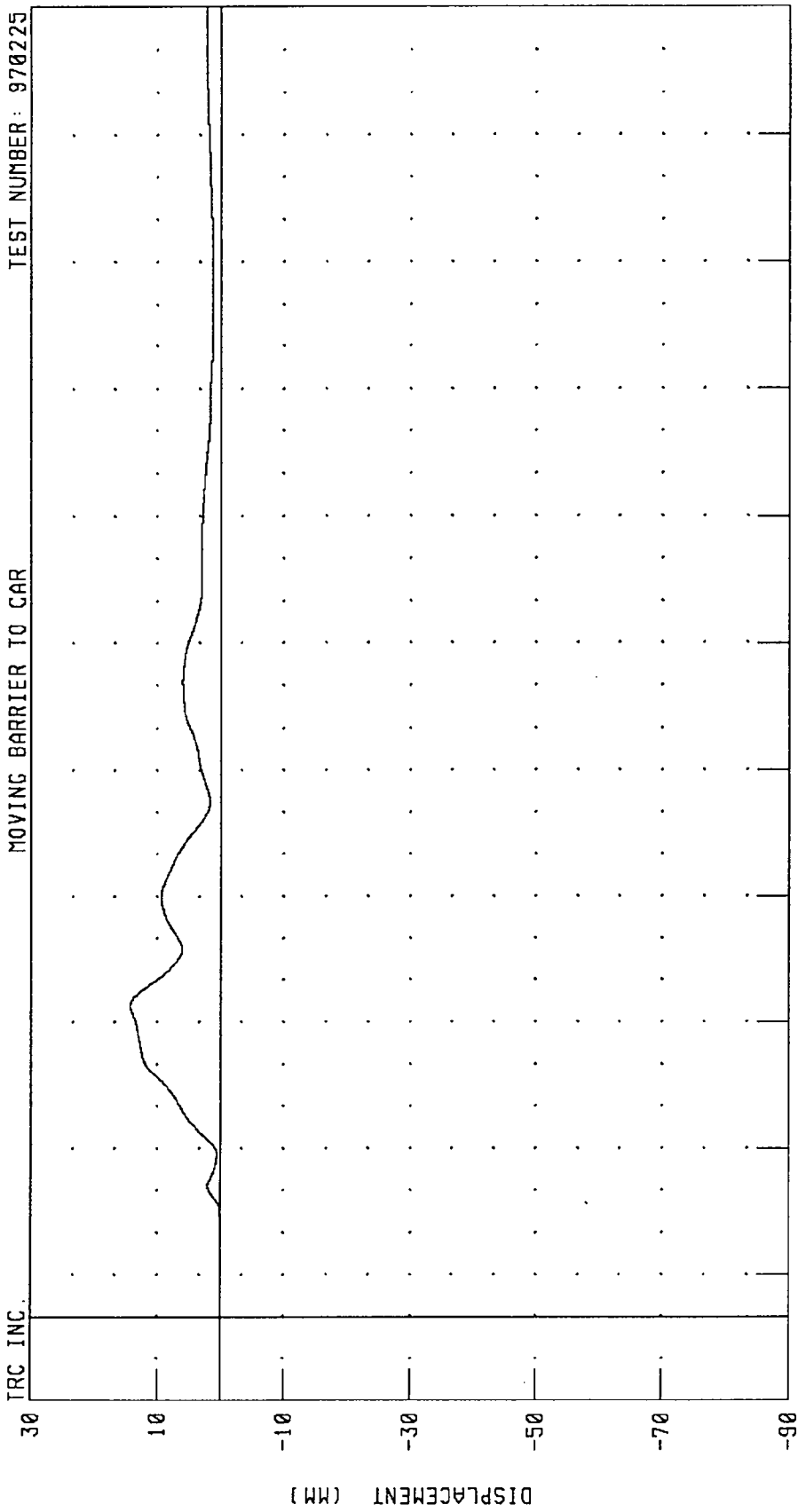
PEAK DATA: 15.64 MM @ 64.08 MS; -1.38 MM @ 199.52 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT UPPER RIB CROSSOVER DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

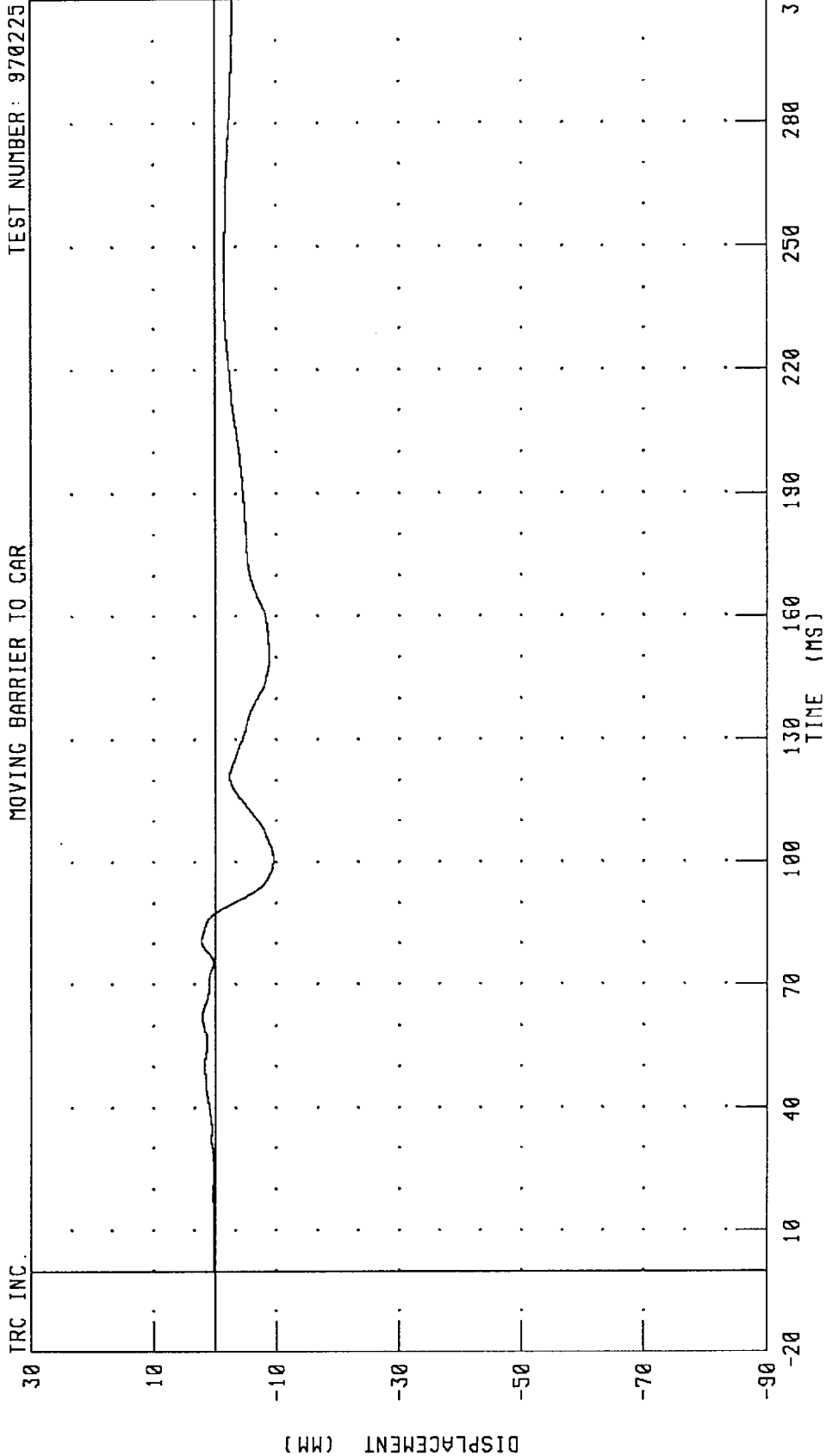


CHANNEL: LURCD1 FILTER: CH. CLASS 180

-PEAK DATA: 14.18 MM @ 73.92 MS; -0.05 MM @ 19.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 DRIVER LEFT UPPER RIB Y-AXIS DISPLACEMENT  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225



CHANNEL: LURY01 FILTER: CH. CLASS 180

970225

PEAK DATA: 2.16 MM @ 80.72 MS; -9.47 MM @ 100.72 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT LOWER RIB CROSSOVER DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

30

10

-10

-30

-50

-70

-90

DISPLACEMENT (MM)

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310

TIME (MS)

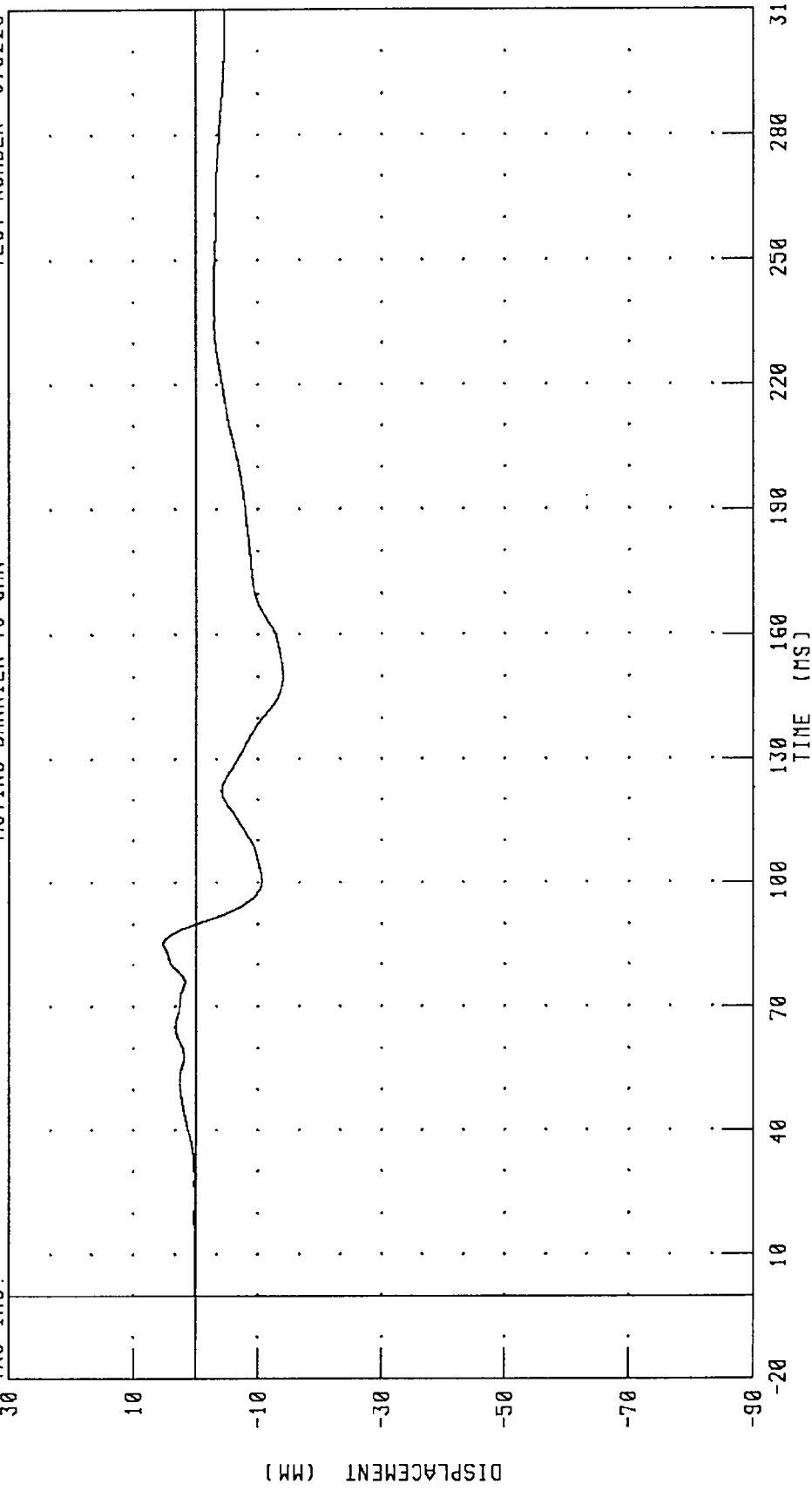
PEAK DATA: 10.39 MM @ 100.32 MS; -2.25 MM @ 84.16 MS

CHANNEL: LLRCD1 FILTER: CH. CLASS 180

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER LEFT LOWER RIB Y-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



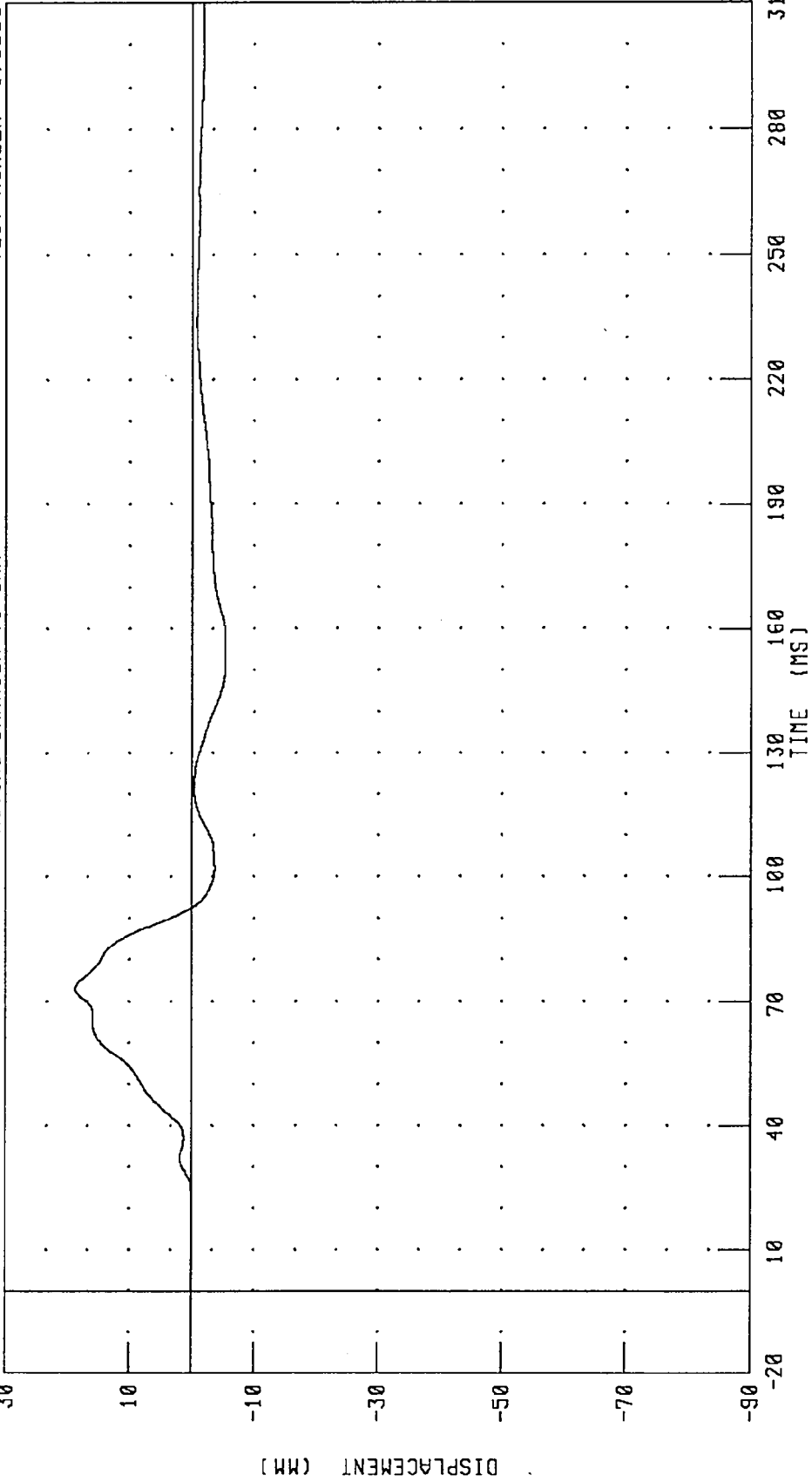
CHANNEL: LRLYD1 FILTER: CH. CLASS 180

PEAK DATA: 5.20 MM @ 85.36 MS; -14.04 MM @ 150.24 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT UPPER RIB CROSSOVER DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

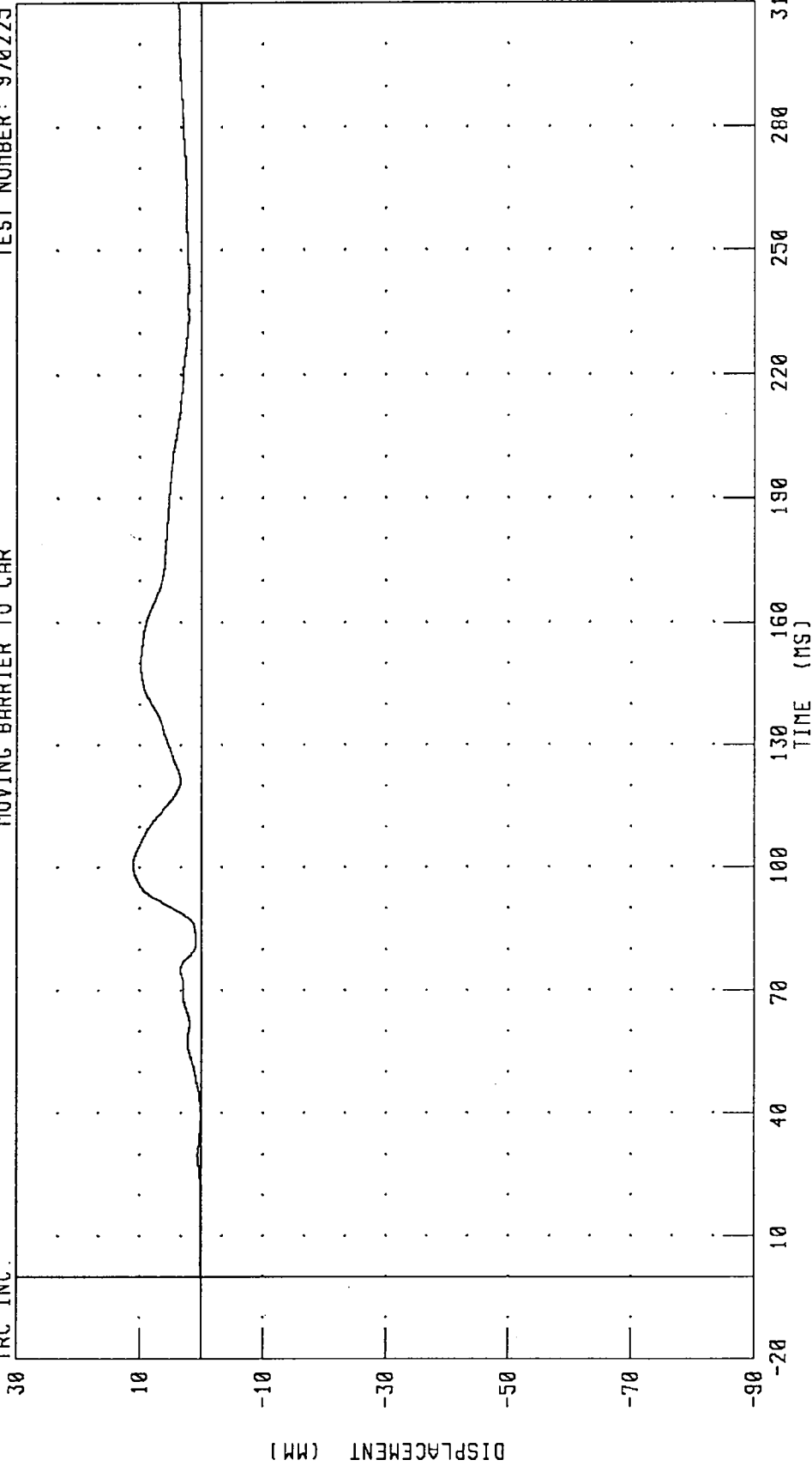


CHANNEL: RURCD1 FILTER: CH. CLASS 180  
PEAK DATA: 18.72 MM @ 73.20 MS; -5.35 MM @ 152.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT UPPER RIB Y-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



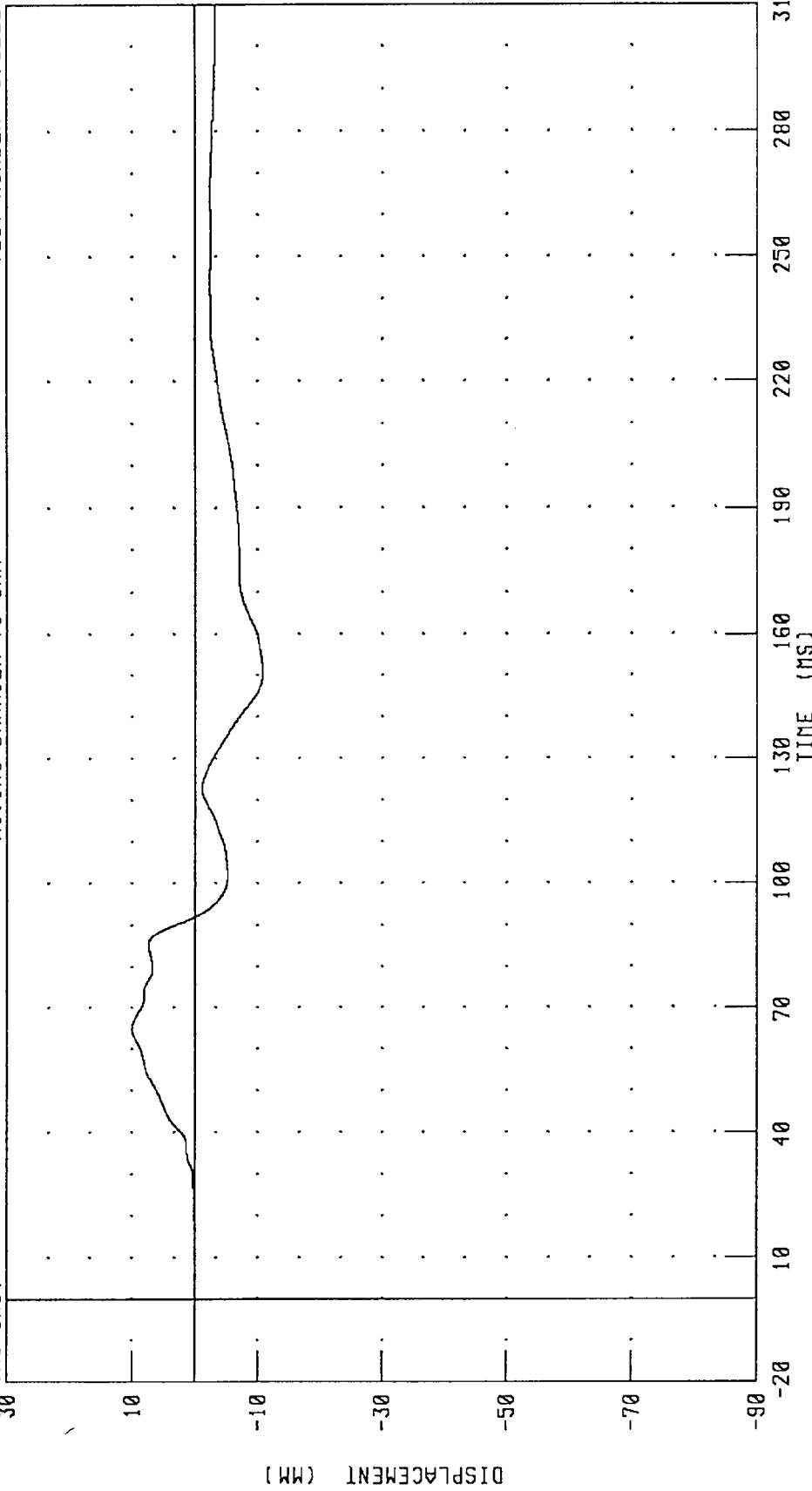
CHANNEL: RURYD1 FILTER: CH. CLASS 180

PEAK DATA: 11.02 MM @ 100.48 MS; 0.02 MM @ 39.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT LOWER RIB CROSSOVER DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

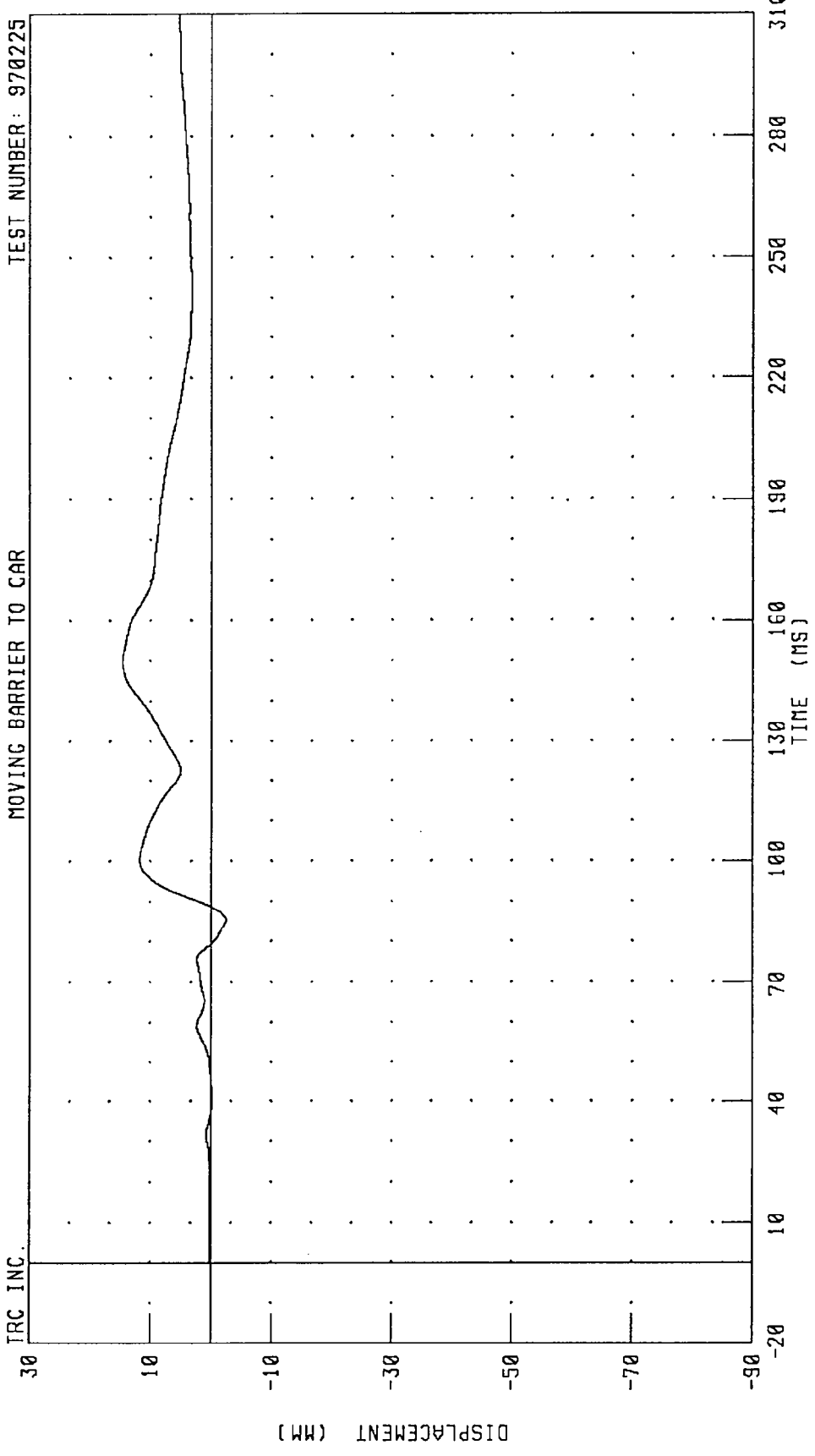


CHANNEL: RLRC01 FILTER: CH. CLASS 180  
PEAK DATA: 10.01 MM @ 64.88 MS; -10.93 MM @ 151.04 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER RIGHT LOWER RIB Y-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

IRC INC.

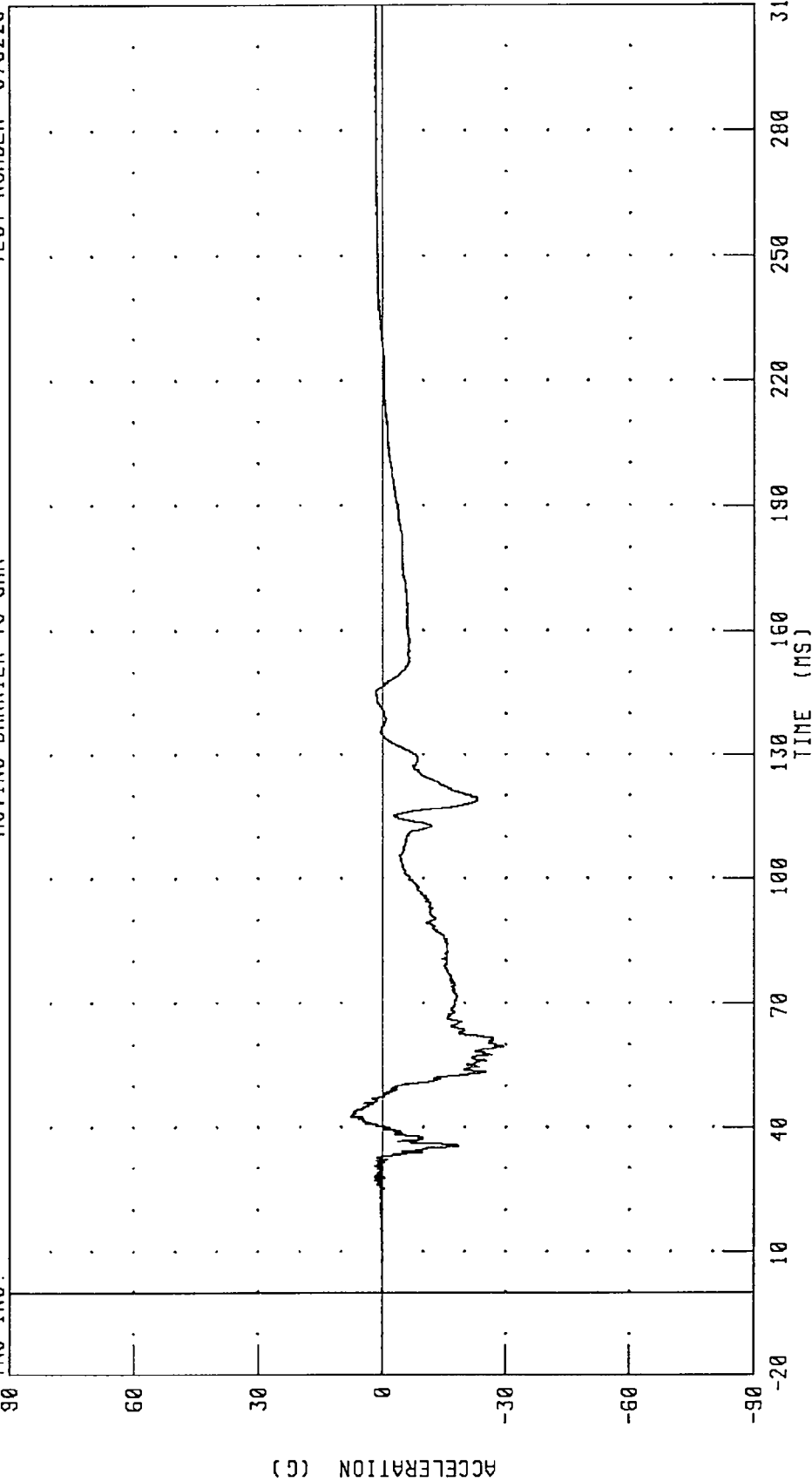


CHANNEL: RLRD1 FILTER: CH. CLASS 180 PEAK DATA: 14.56 MM @ 149.92 MS; -2.50 MM @ 85.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD LONGITUDINAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

JRC INC.

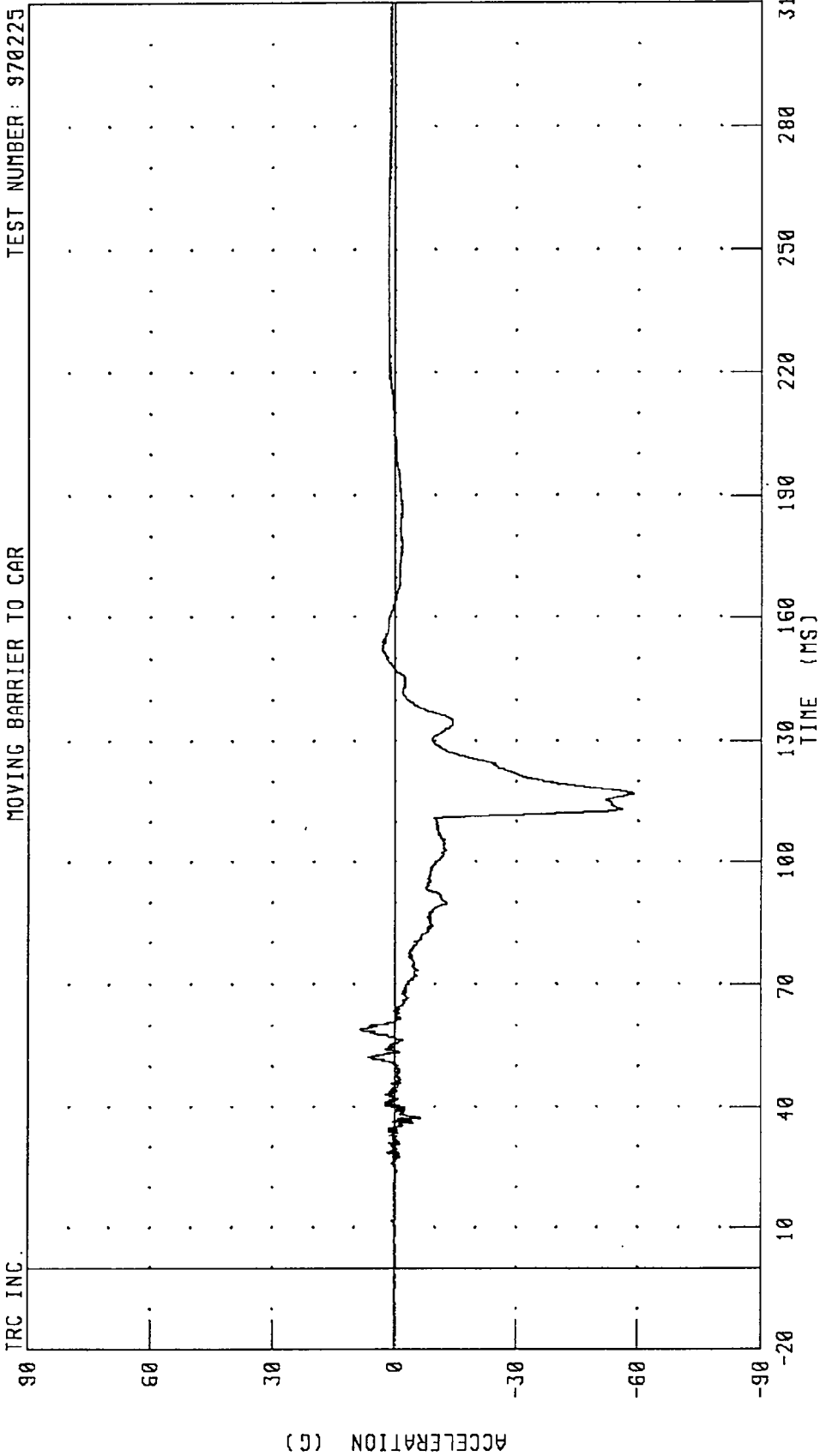


CHANNEL: HEDXG2 FILTER: CH. CLASS 1000  
PEAK DATA: 7.63 G @ 42.64 MS; -29.55 G @ 59.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD LATERAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



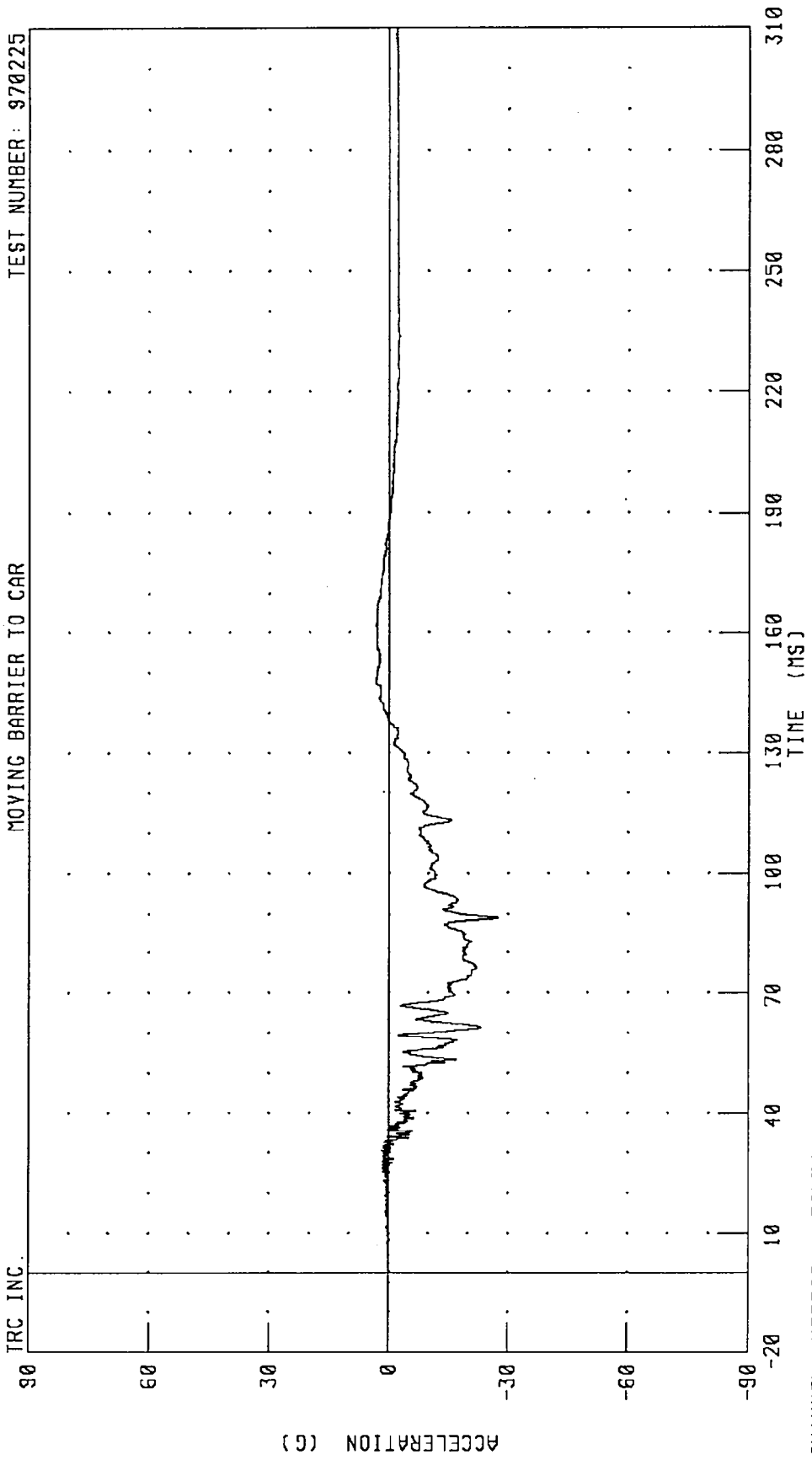
CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

PEAK DATA: 8.67 G @ 59.12 MS; -58.80 G @ 117.12 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD VERTICAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

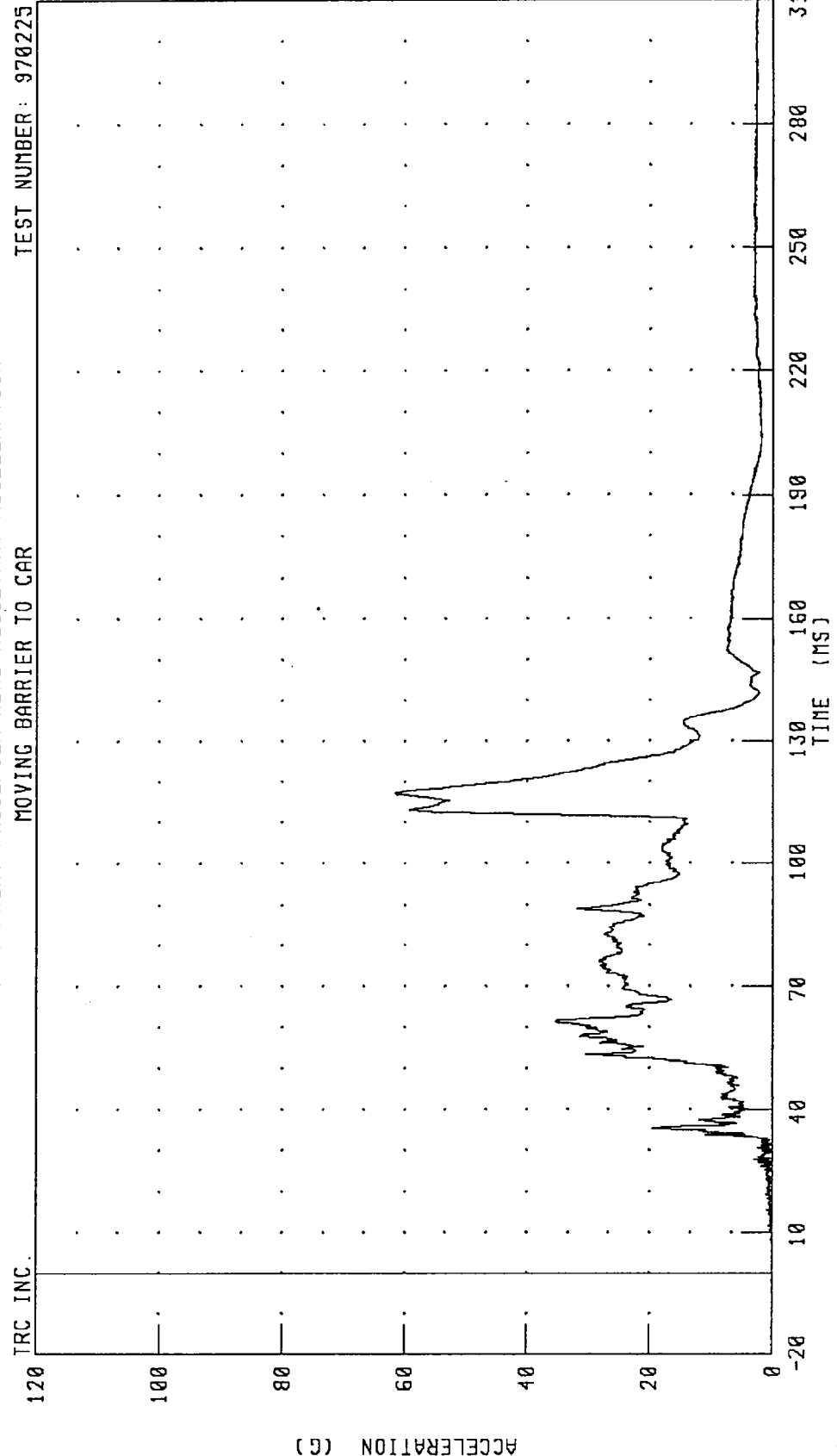
TEST NUMBER: 970225

TRC INC.



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000 PEAK DATA: 3.33 G @ 147.28 MS; -27.39 G @ 89.04 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION  
MOVING BARRIER TO CAR



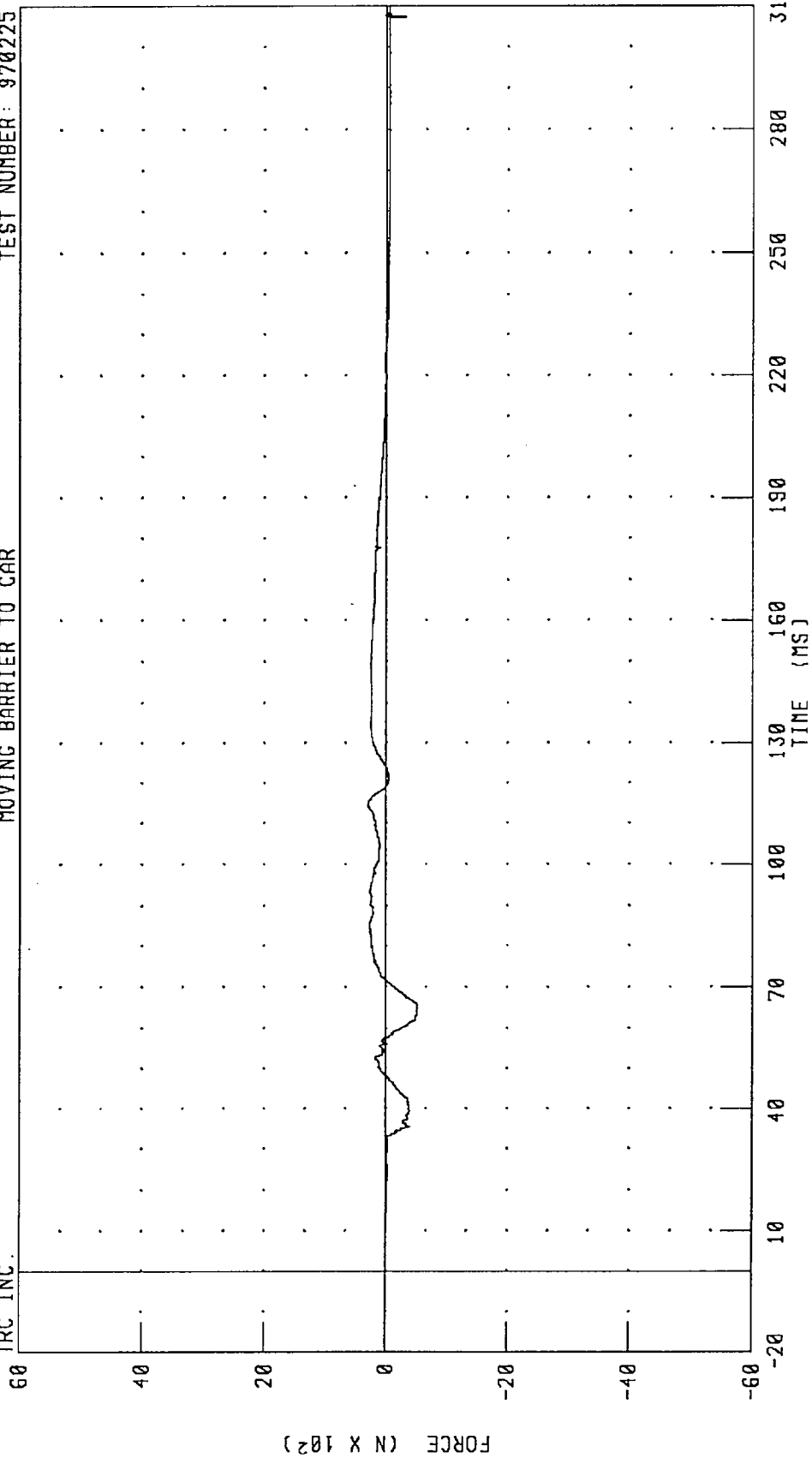
CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

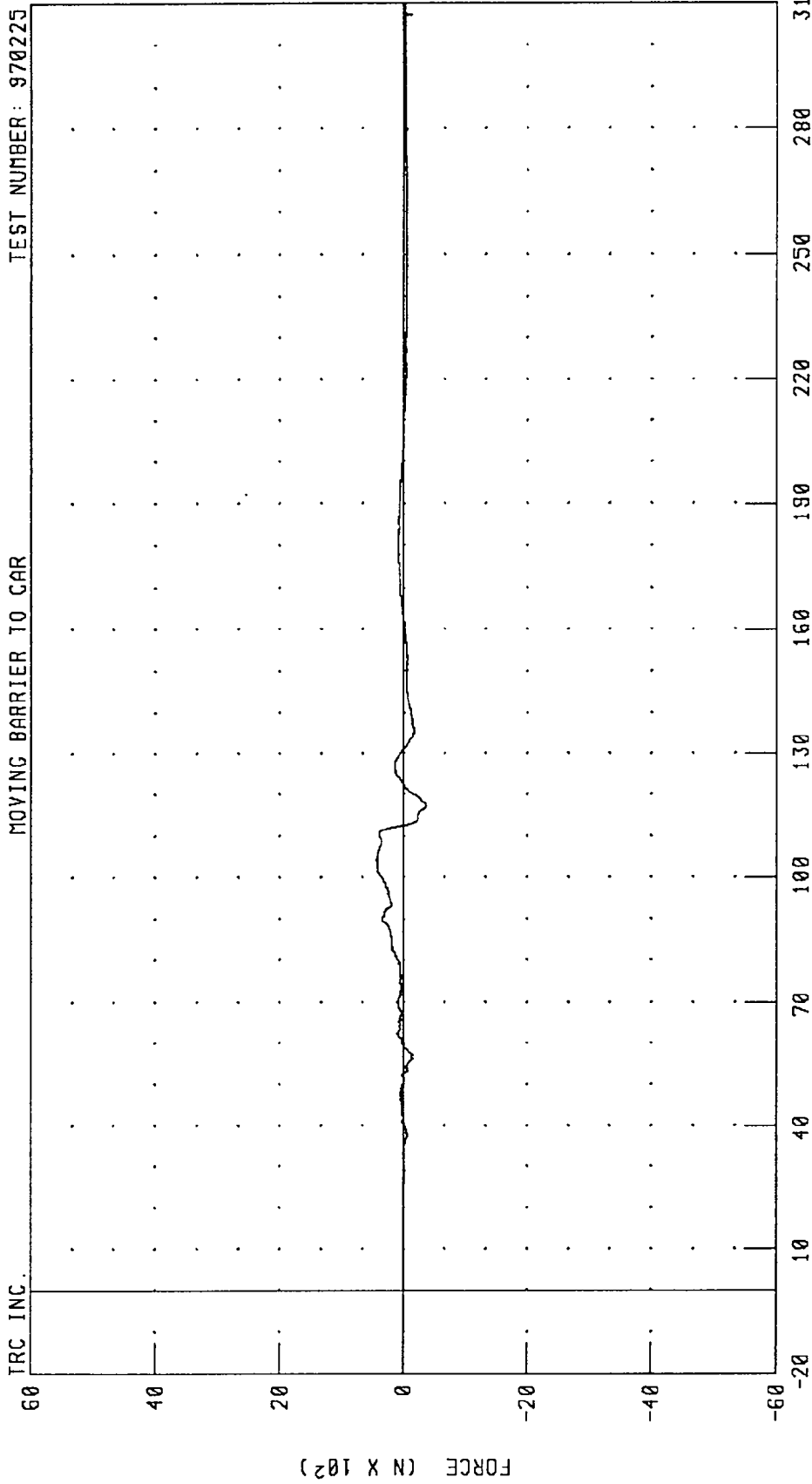


CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

PEAK DATA: 295.83 N @ 115.04 MS; -526.11 N @ 65.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



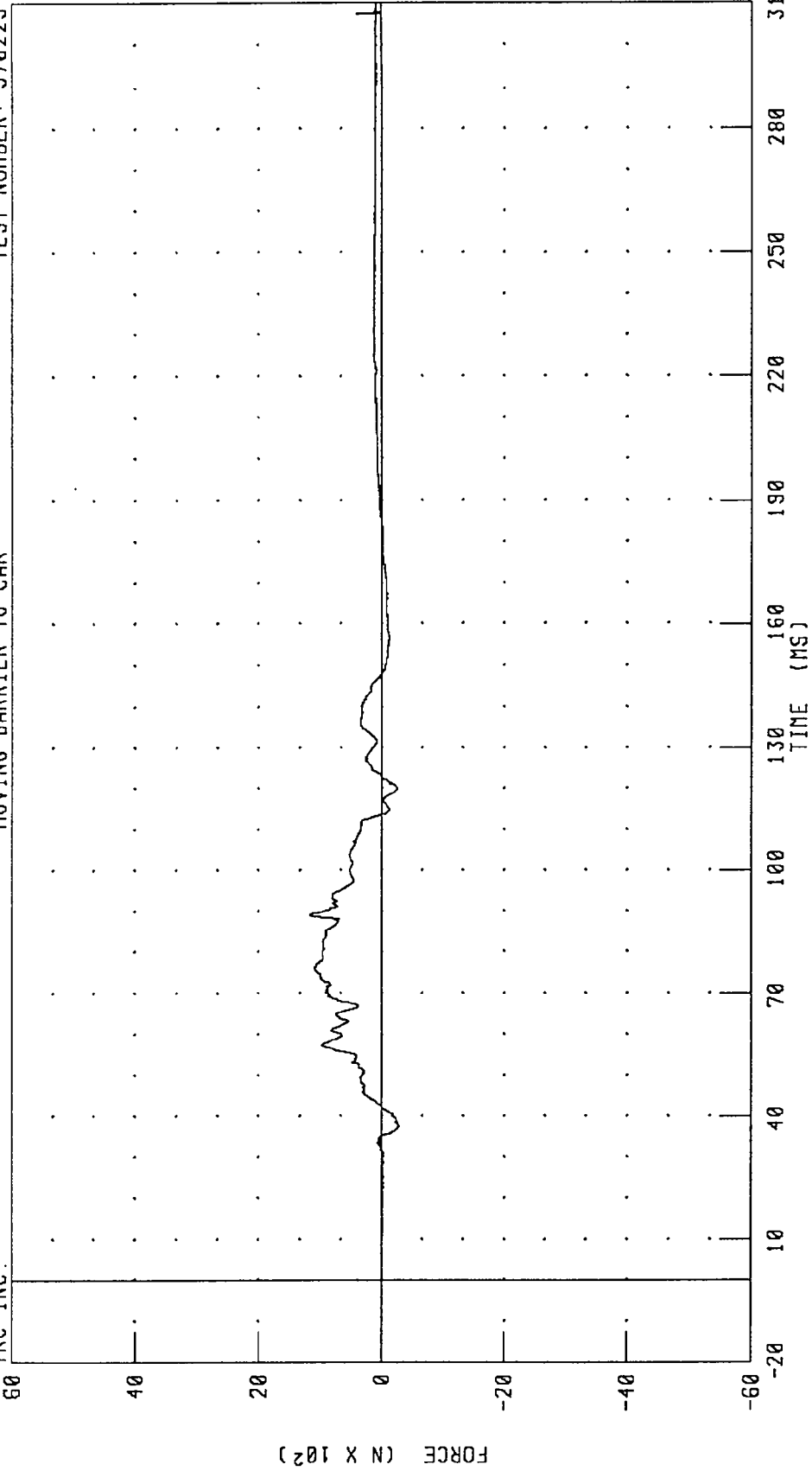
CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

PEAK DATA: 436.41 N @ 104.00 MS, -363.41 N @ 117.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

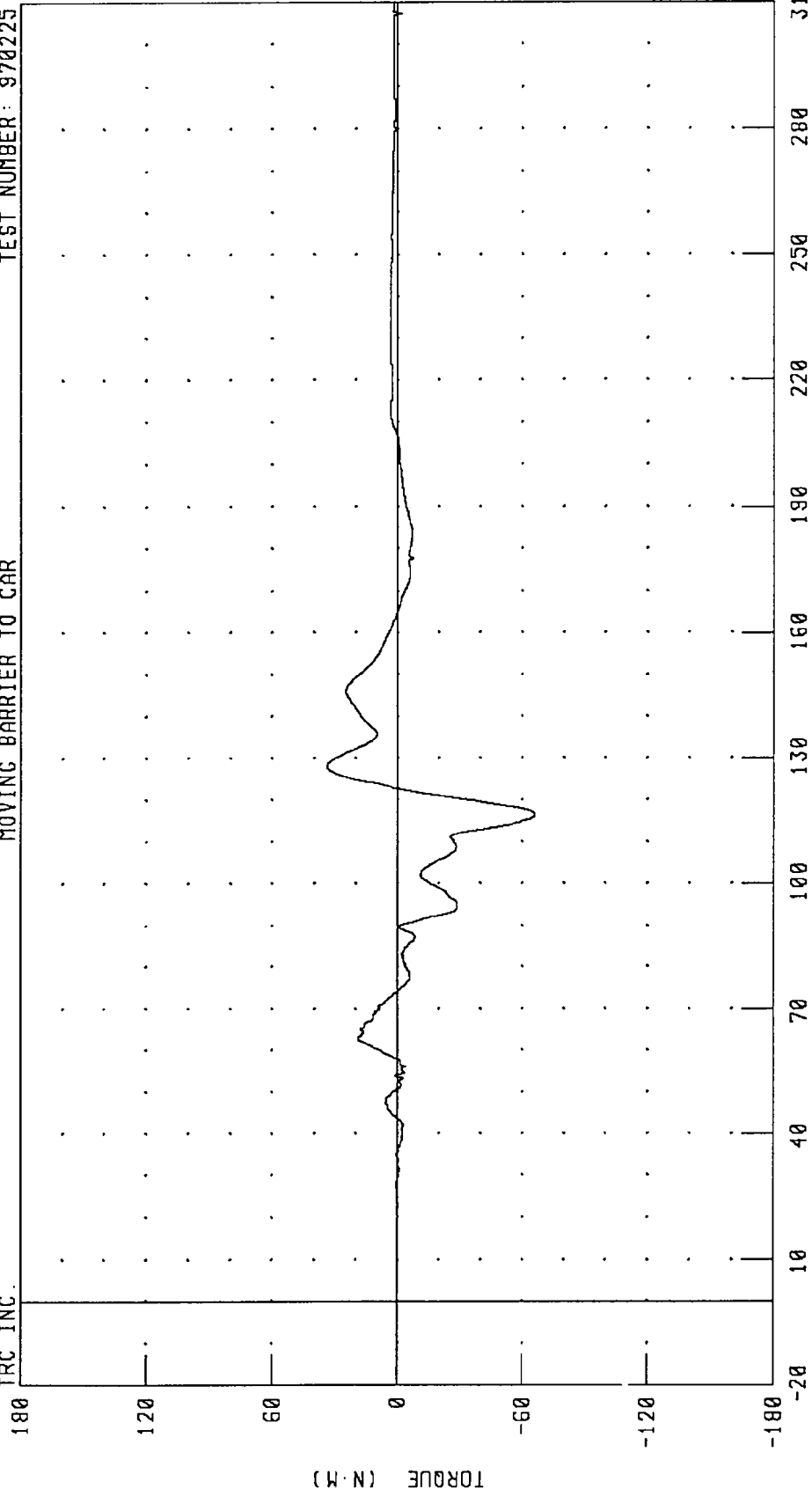


CHANNEL: NEKZF2 FILTER: CH. CLASS 1000 PEAK DATA: 1161.85 N @ 89.04 MS; -291.28 N @ 37.60 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X-AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



CHANNEL: NEKX12 FILTER: CH. CLASS 600

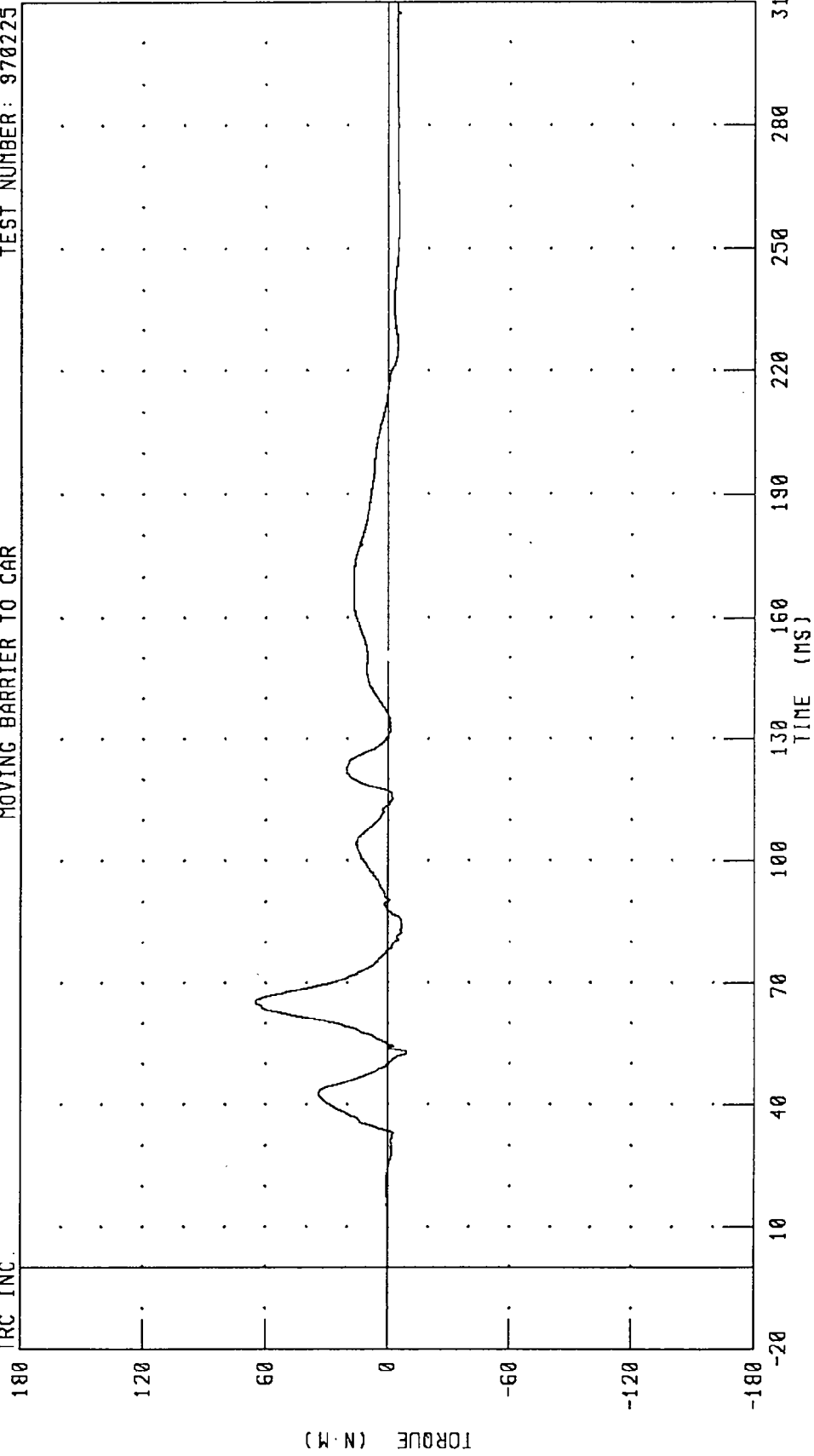
PEAK DATA: 34.06 N·M @ 127.84 MS; -66.26 N·M @ 166.72 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y-AXIS

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



PEAK DATA: 65.21 N·M @ 65.36 MS; -9.17 N·M @ 52.88 MS

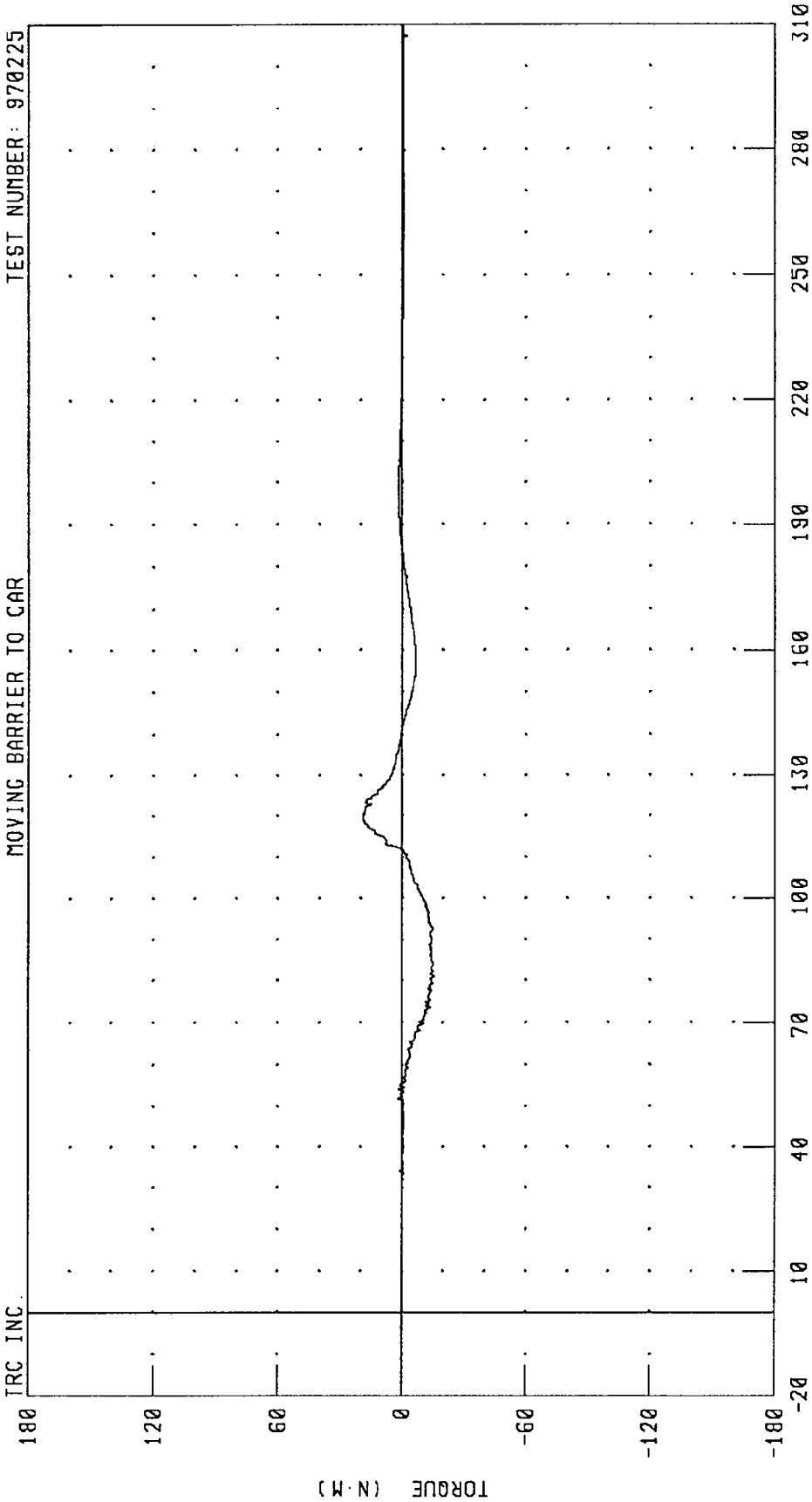
CHANNEL: NEKYM2 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1986 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z-AXIS

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



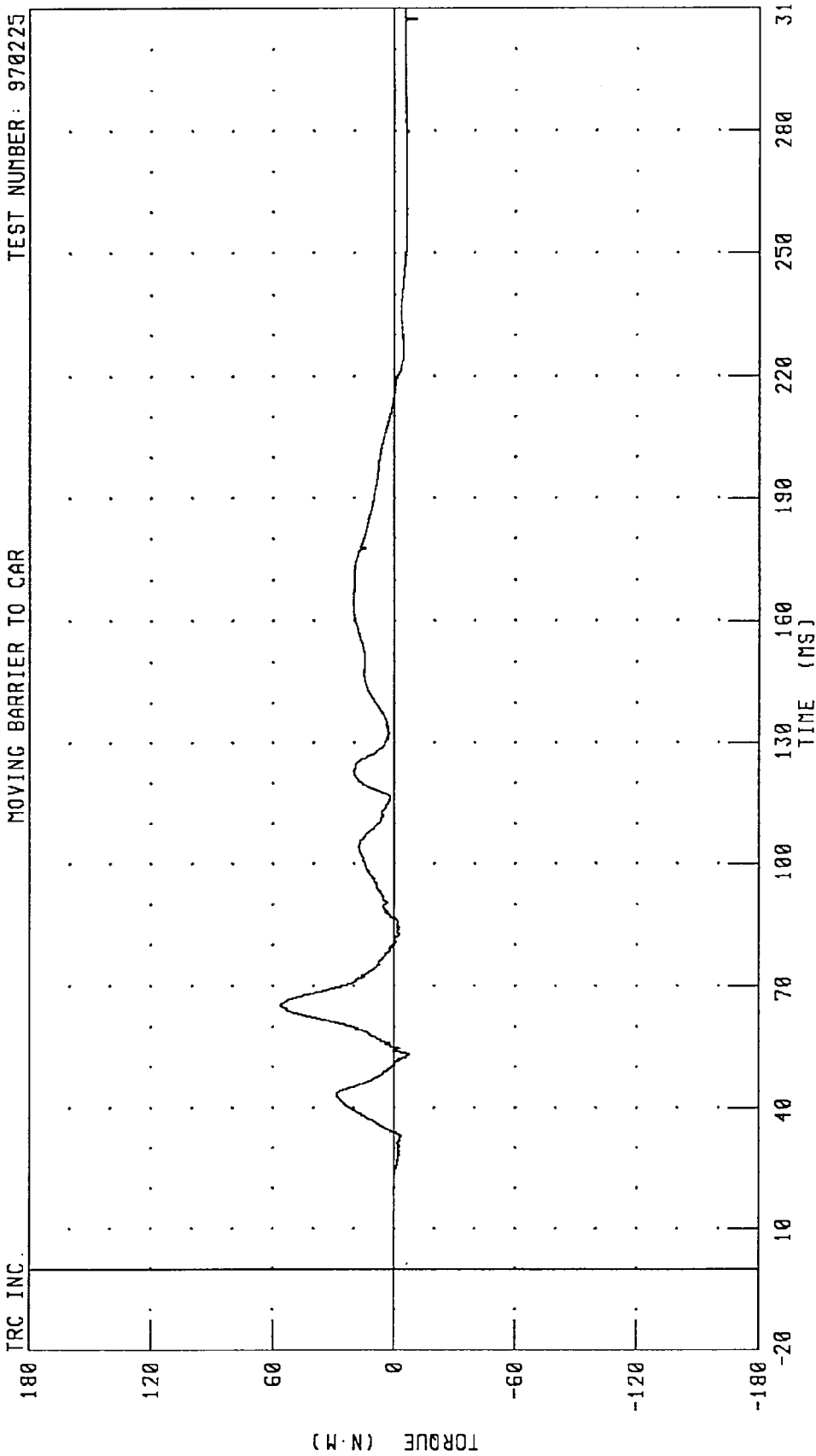
CHANNEL: NEKZM2 FILTER: CH. CLASS 600

PEAK DATA: 19.01 N·M @ 119.20 MS; -15.80 N·M @ 81.12 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER NECK CORRECTED MOMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

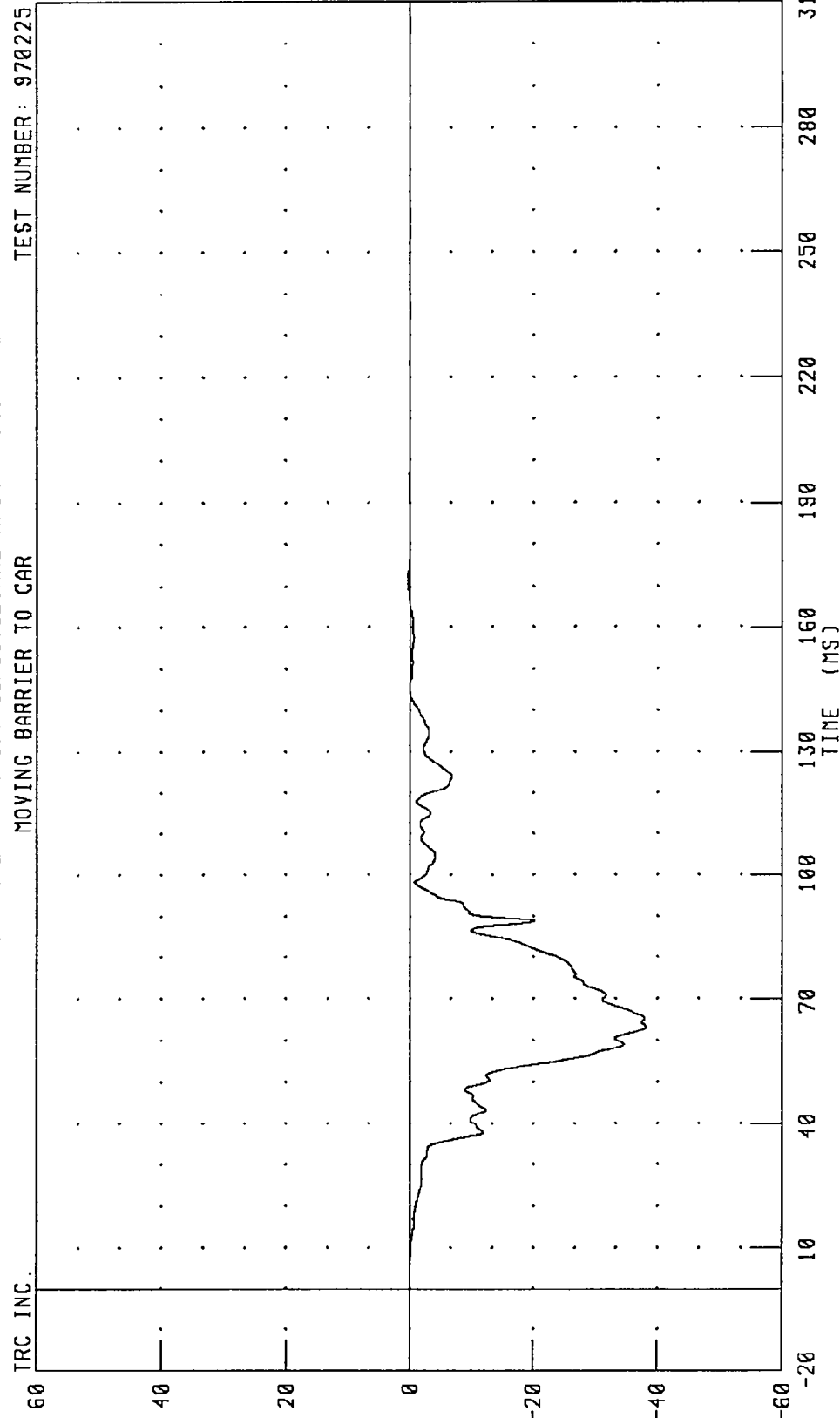
TRC INC.



PEAK DATA: 56.23 N.M @ 65.28 MS; -10.94 N.M @ 307.36 MS

CHANNEL: NEK012 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 RIGHT FRONT PASSENGER CHEST LONGITUDINAL AXIS ACCELERATION  
 MOVING BARRIER TO CAR



TEST NUMBER: 970225

CHANNEL: CSTXG2 FILTER: CH. CLASS 180 PEAK DATA: 0.37 G @ 170.64 MS; -38.23 G @ 63.36 MS

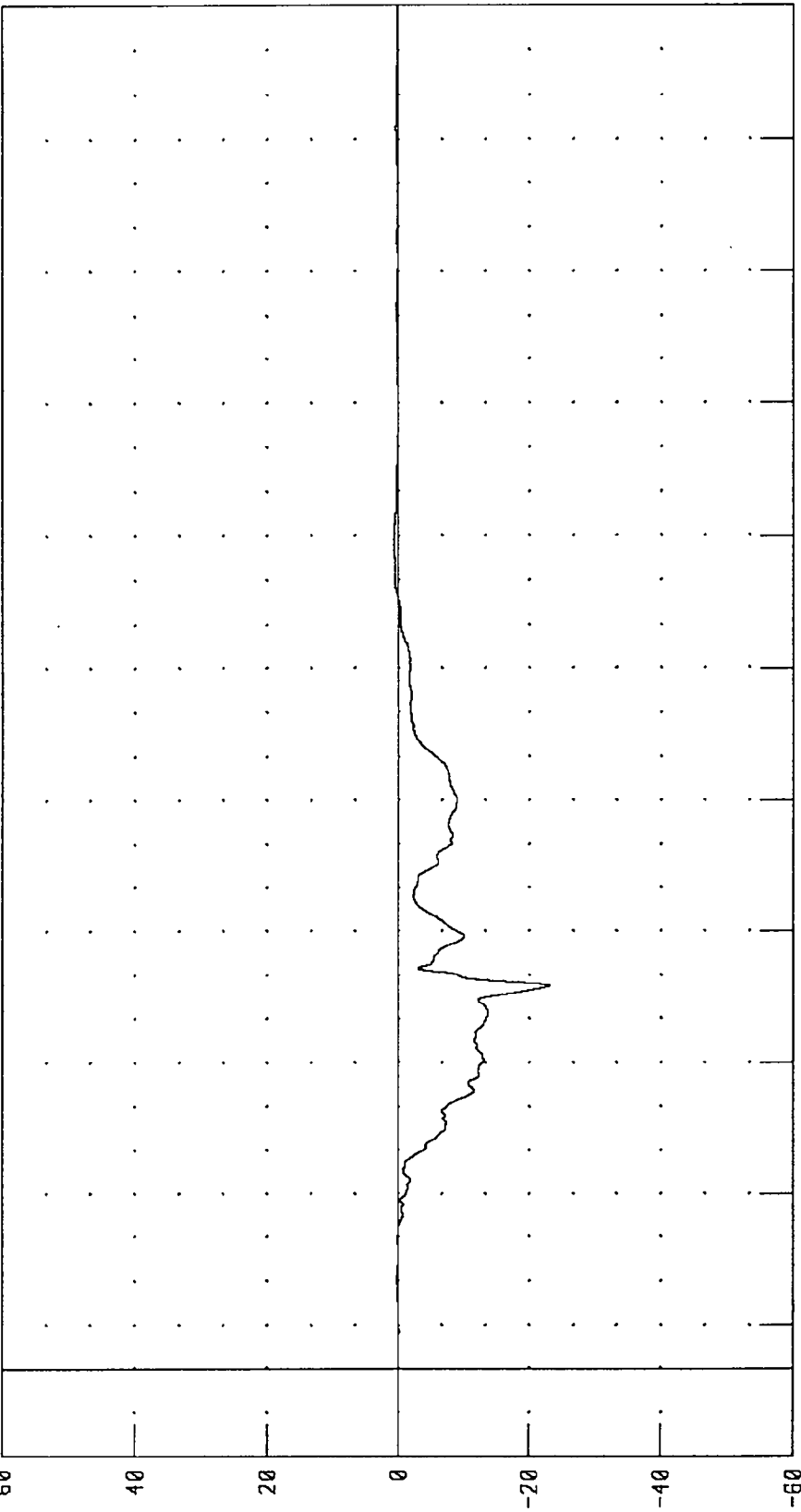
70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER CHEST LATERAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

ACCELERATION (G)

TIME (MS)



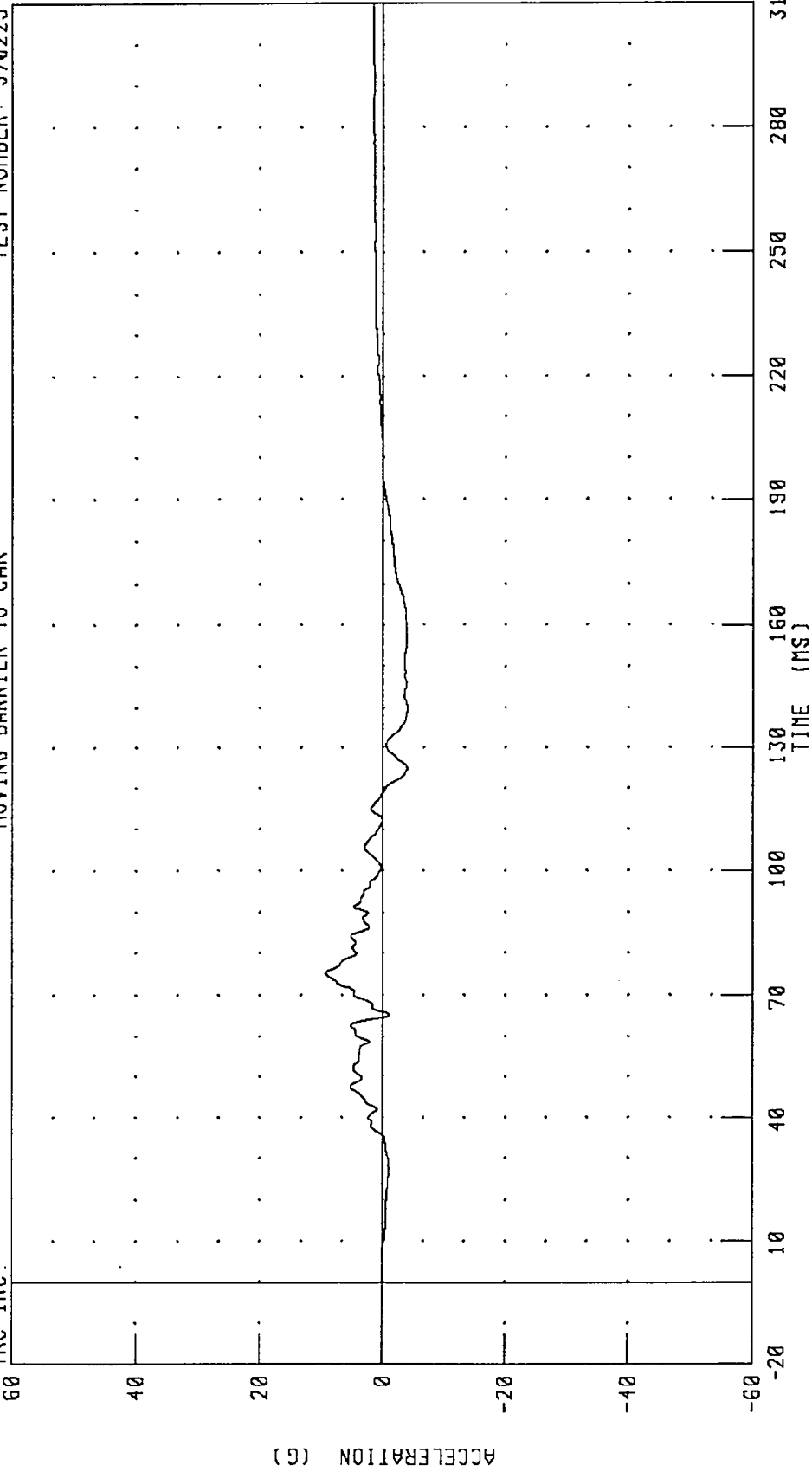
CHANNEL: CSTYG2 FILTER: CH. CLASS 180  
PEAK DATA: 0.72 G @ 187.84 MS; -23.14 G @ 87.76 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER CHEST VERTICAL AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

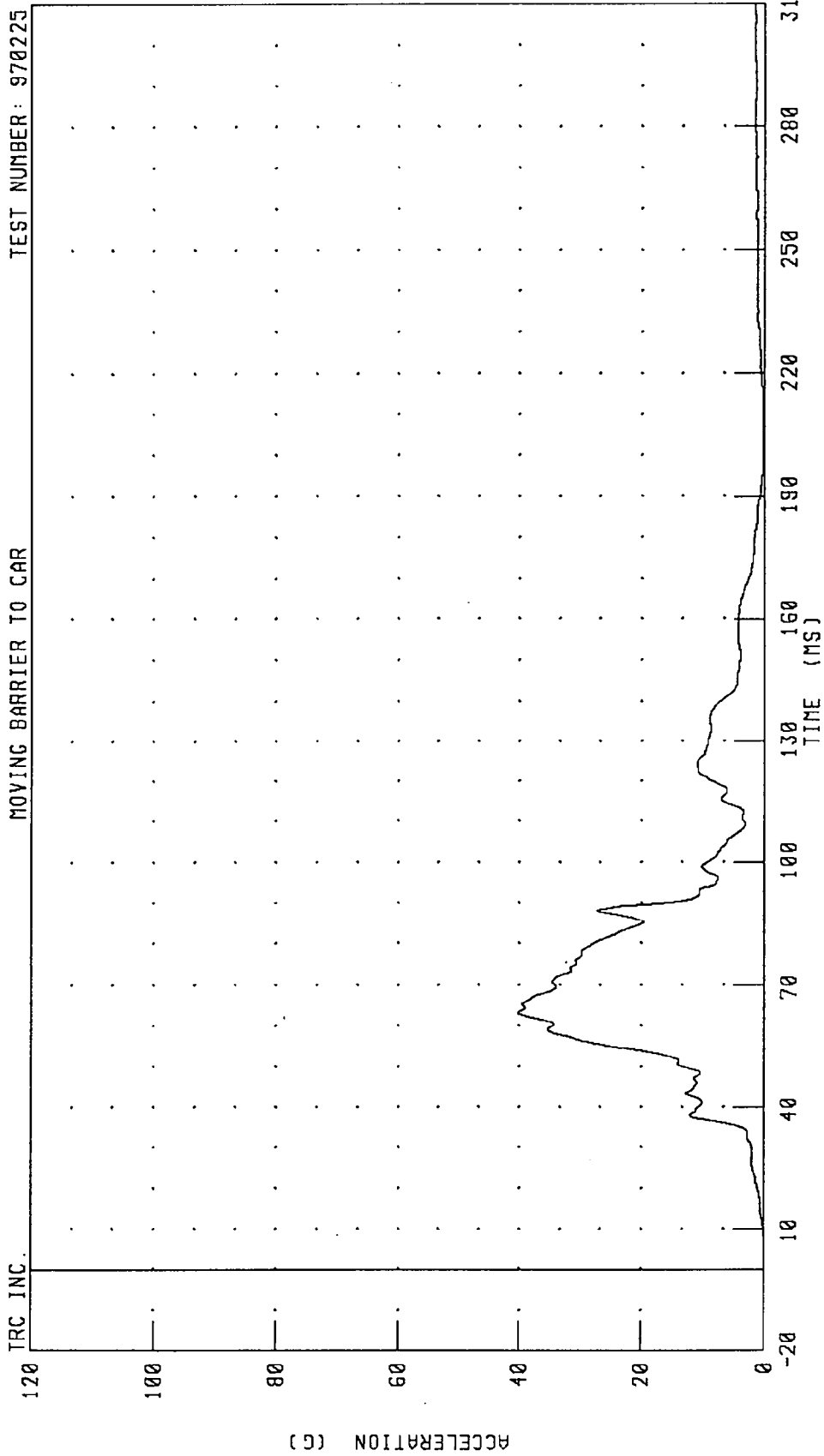


CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 9.34 G @ 75.28 MS; -4.04 G @ 139.92 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

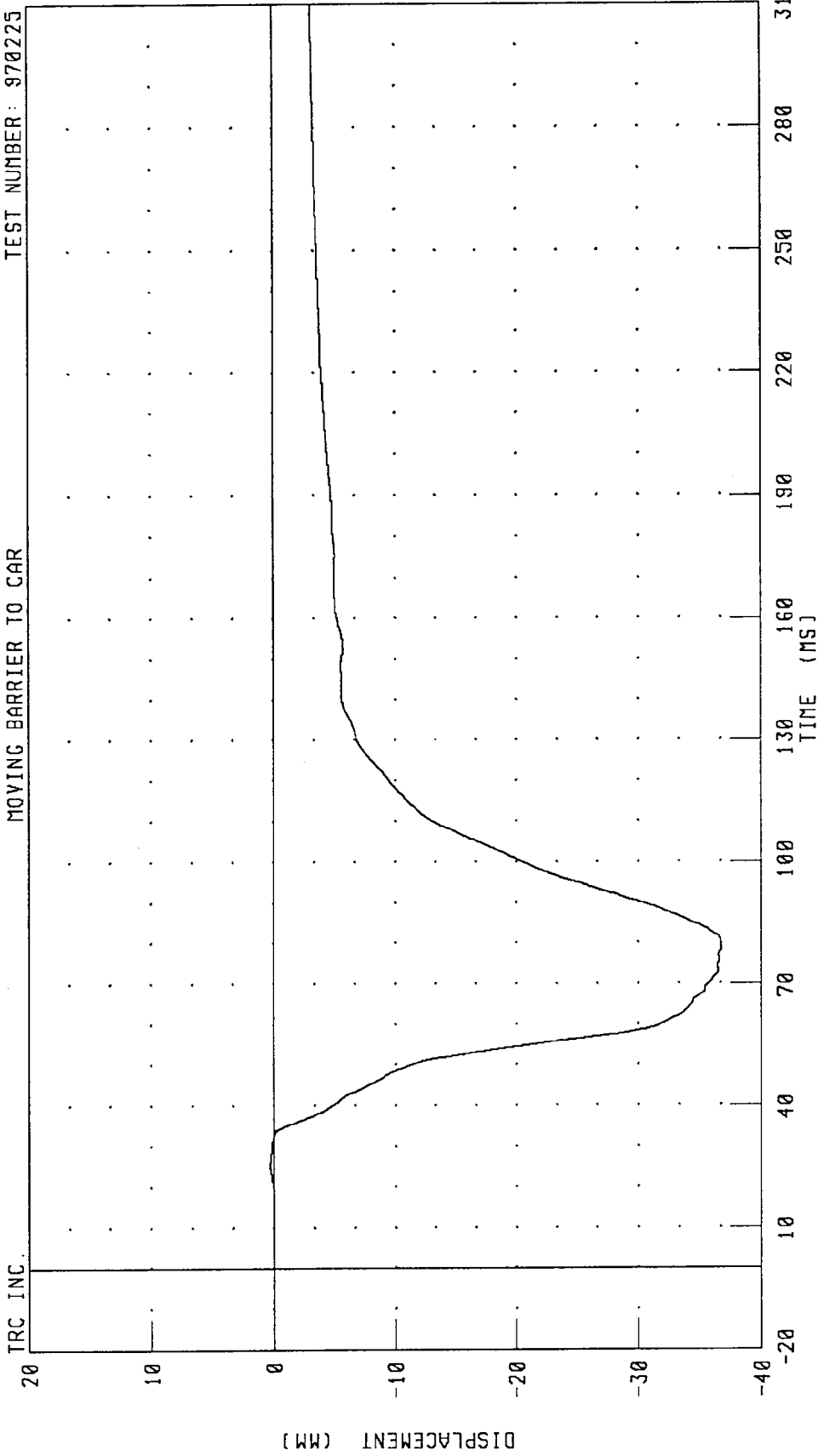


CHANNEL: CSTRG2 FILTER: CH CLASS 180

PEAK DATA: 40.18 G @ 63.28 MS; 0.00 G @ 0.08 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER CHEST DEFLECTION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

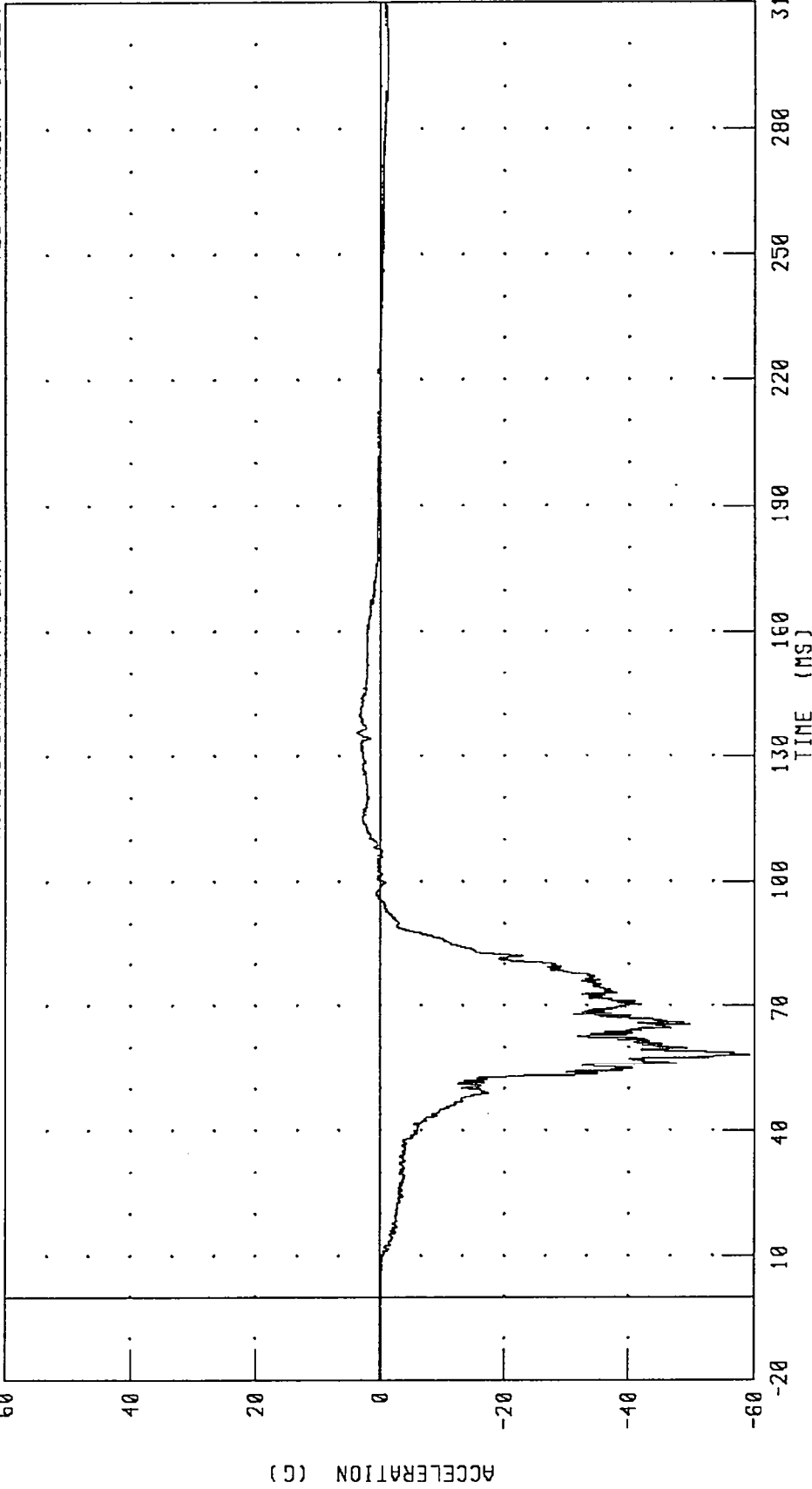


CHANNEL: CSTXD2 FILTER: CH. CLASS 180 PEAK DATA: 0.31 MM @ 25.20 MS; -36.78 MM @ 78.88 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER PELVIS LONGITUDINAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



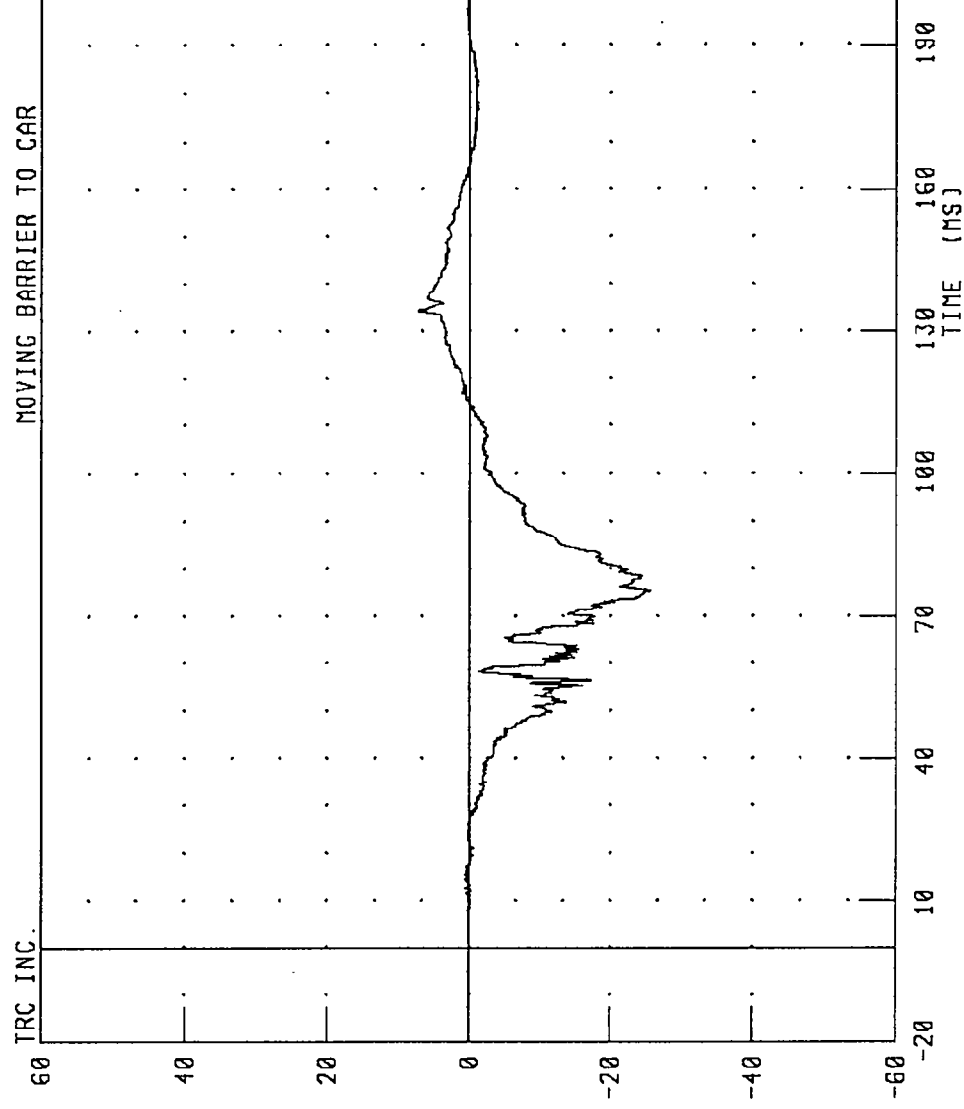
CHANNEL: PEVXG2 FILTER: CH. CLASS 1000

PEAK DATA: 3.83 G @ 135.76 MS; -59.02 G @ 58.16 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER PELVIS LATERAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

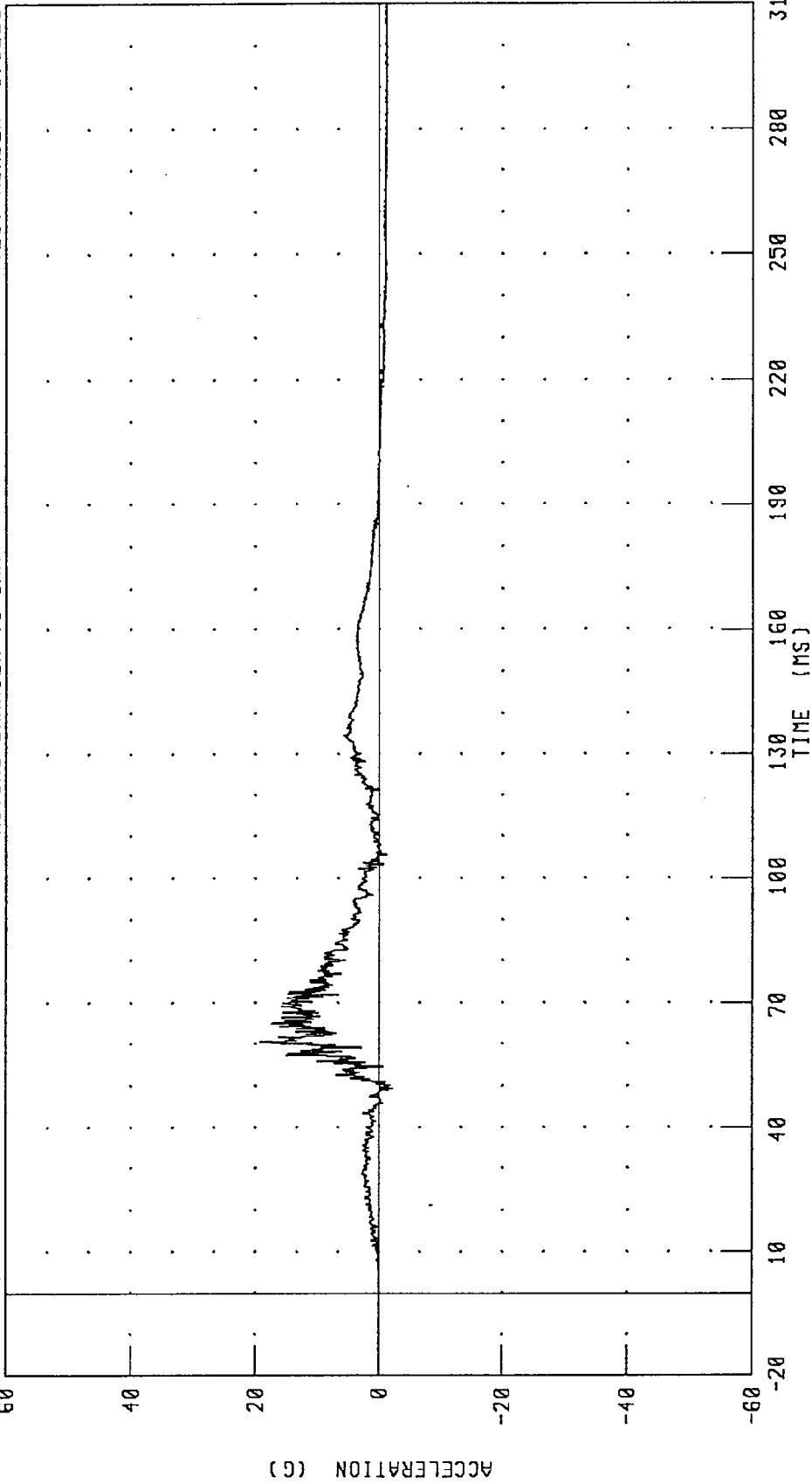


CHANNEL: PEVYG2 FILTER: CH: CLASS 1000 PEAK DATA: 7.31 G @ 134.08 MS; -25.71 G @ 75.52 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER PELVIS VERTICAL AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



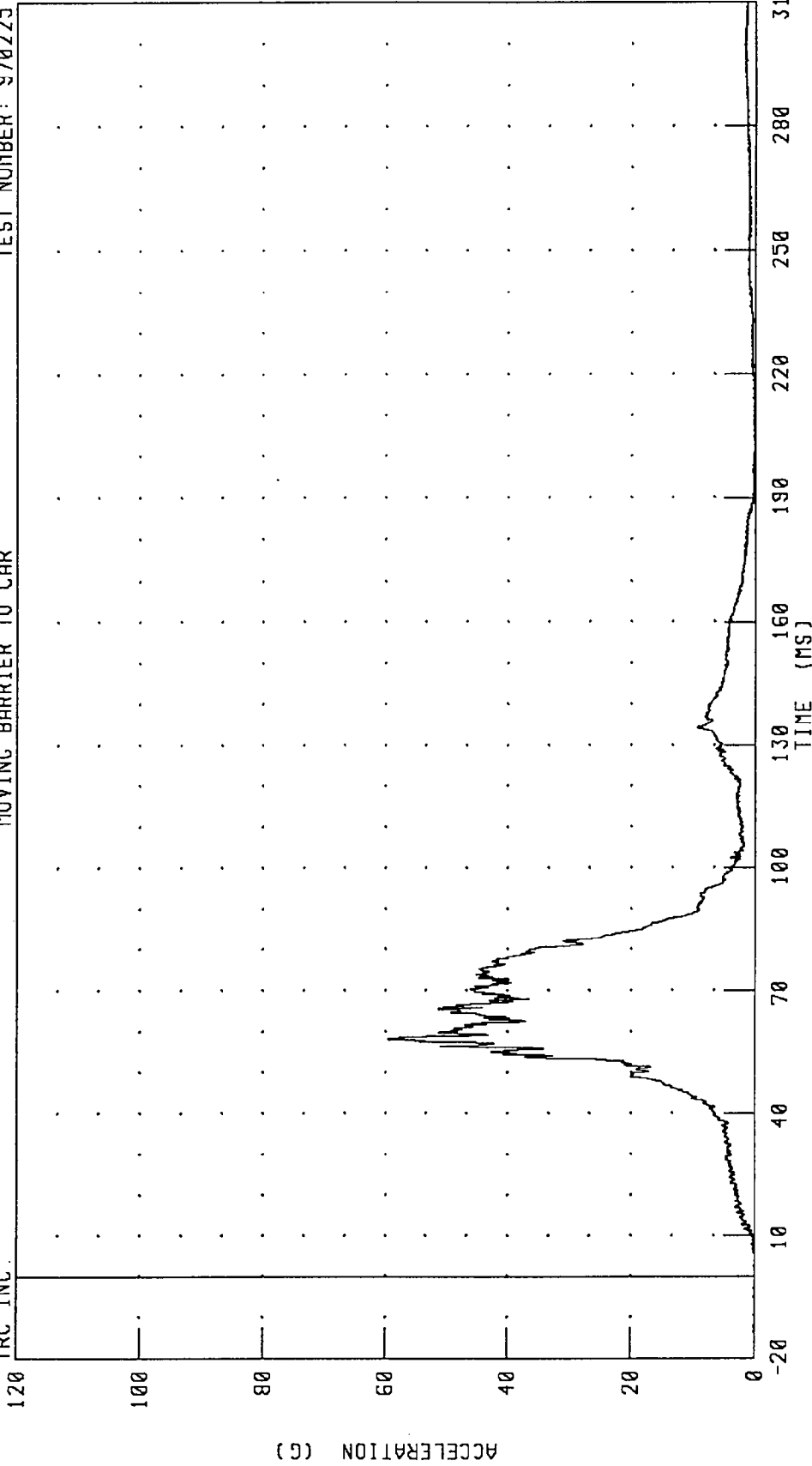
CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

PEAK DATA: 19.26 G @ 60.56 MS; -2.16 G @ 49.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER PELVIS RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

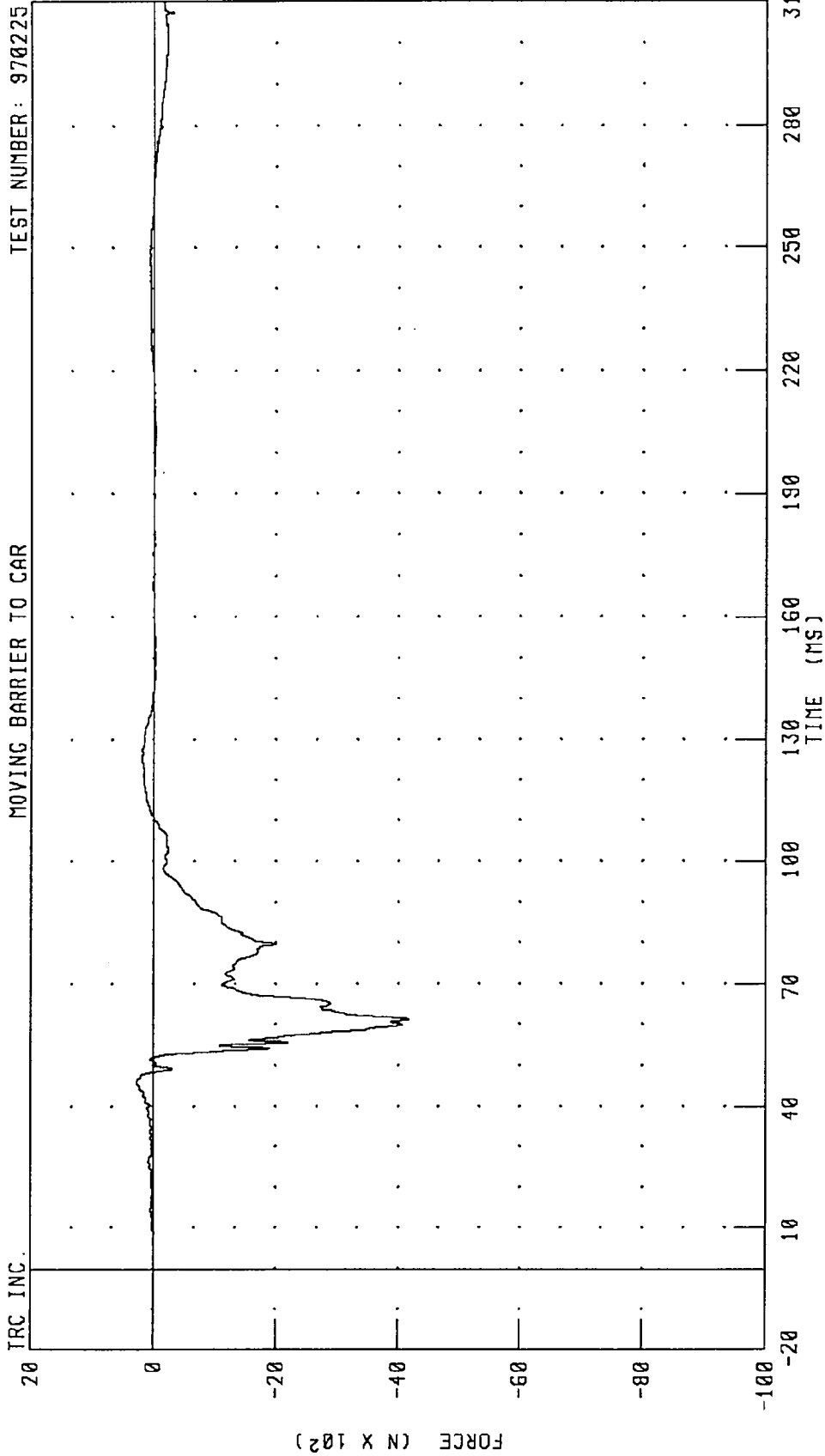


PEAK DATA: 59.59 G @ 58.08 MS; 0.08 G @ -19.92 MS

CHANNEL: PEVRG2 FILTER: CH. CLASS 1000

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT FEMUR FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

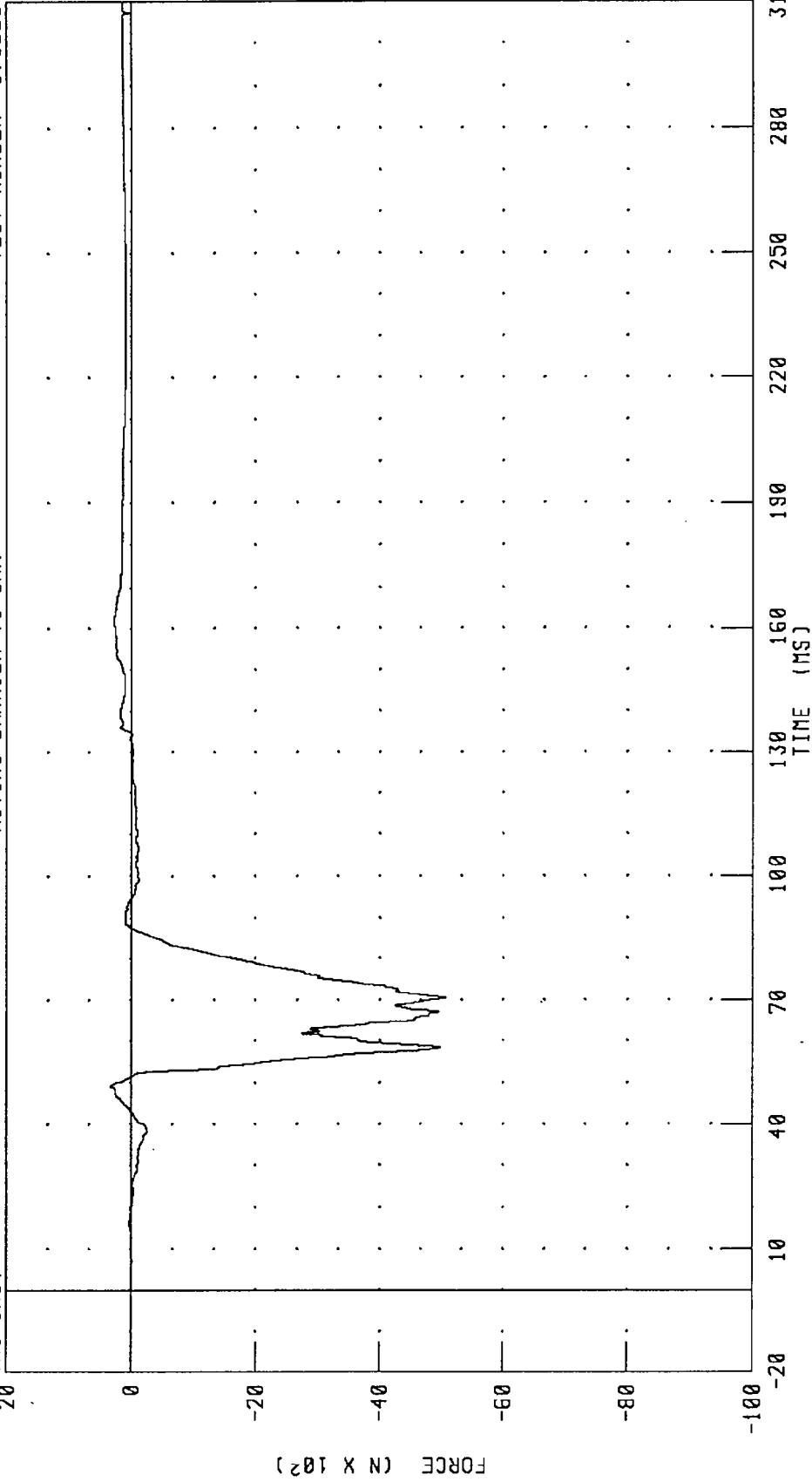


CHANNEL: LFMF2 FILTER: CH. CLASS 600 PEAK DATA: 275.15 N @ 45.92 MS; -4192.48 N @ 61.28 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

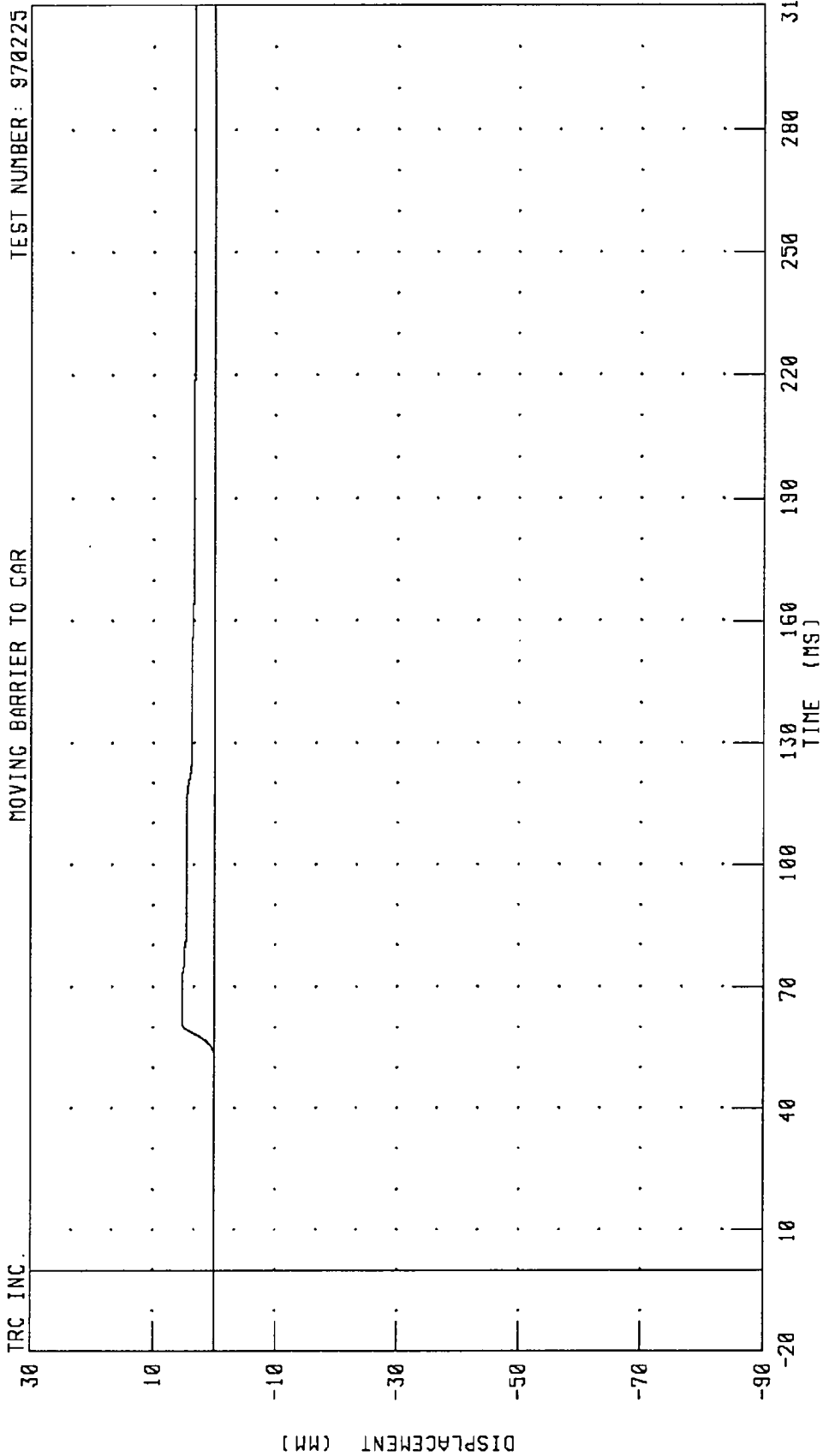
TRC INC.



CHANNEL: RFMF2 FILTER: CH. CLASS 600  
PEAK DATA: 323.17 N e 49.20 MS, -5068.12 N e 70.56 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT KNEE DISPLACEMENT

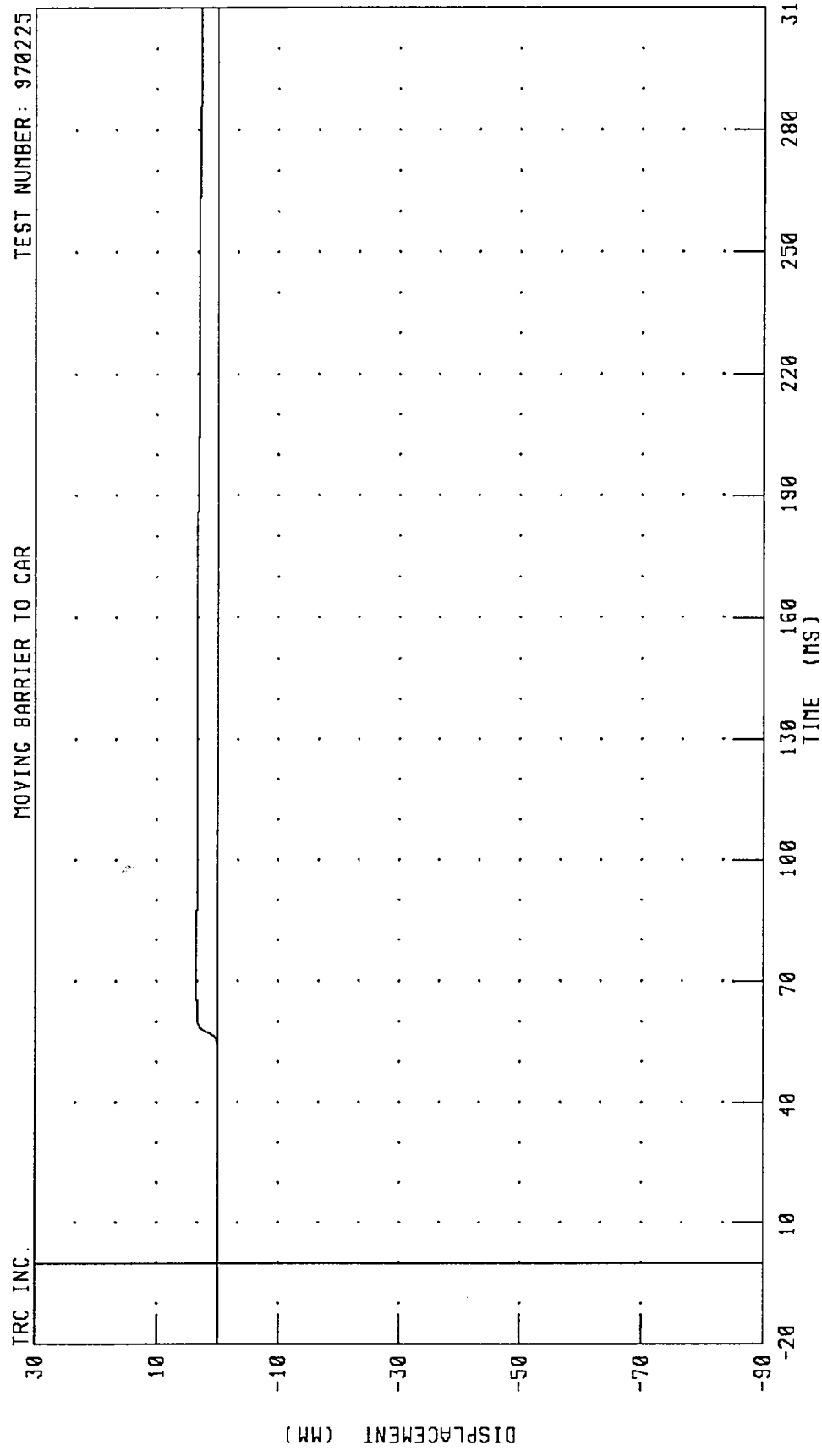
TRC INC. MOVING BARRIER TO CAR TEST NUMBER: 970225



CHANNEL: KNLXD2 FILTER: CH. CLASS 180 PEAK DATA: 5.26 MM @ 66.56 MS; -0.01 MM @ 52.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 RIGHT FRONT PASSENGER RIGHT KNEE DISPLACEMENT  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225

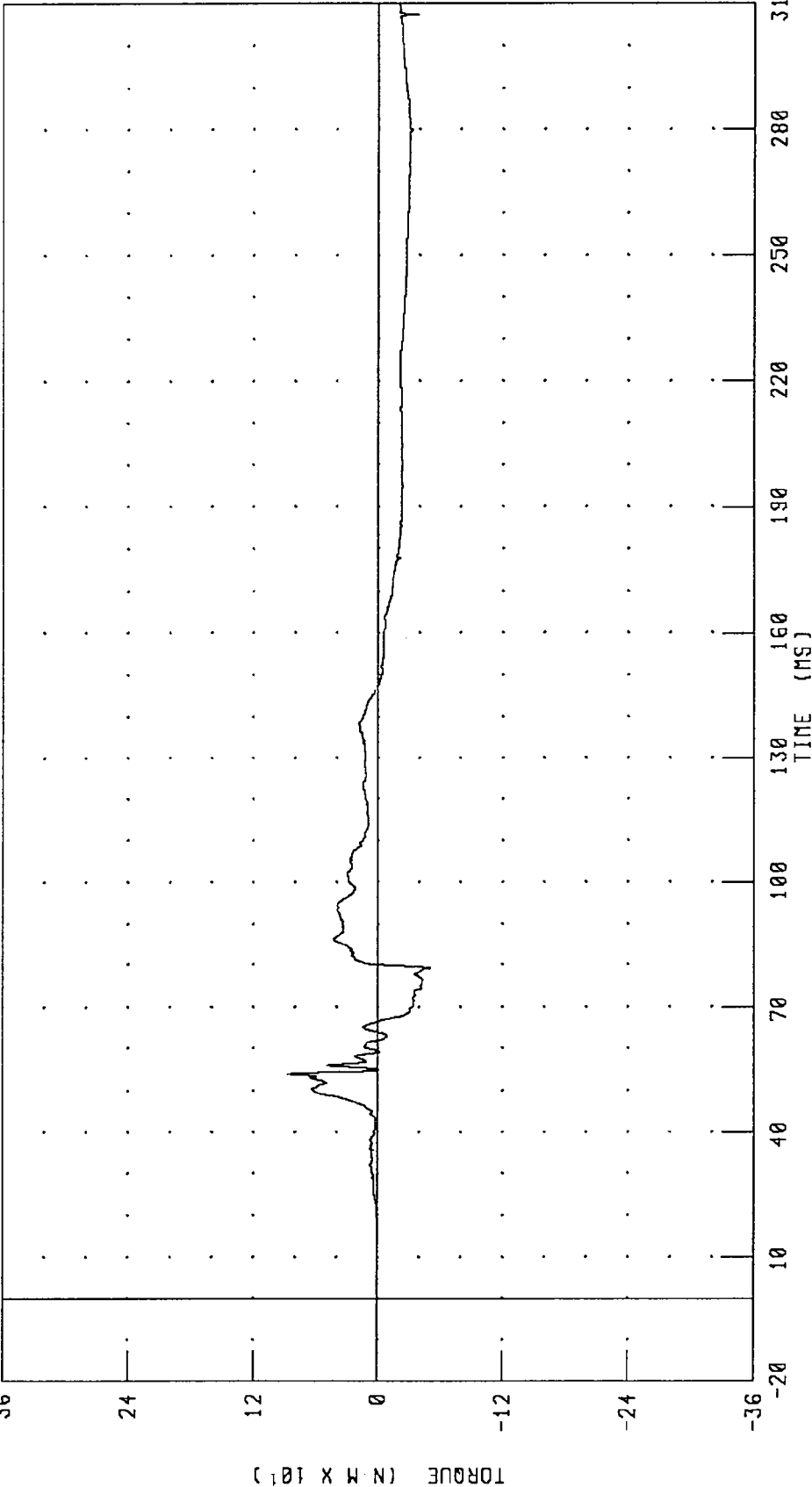


CHANNEL: KNRXD2 FILTER: CH. CLASS 180 PEAK DATA: 3.51 MM @ 77.36 MS; 0.00 MM @ -1.20 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT UPPER TIBIA X MOMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



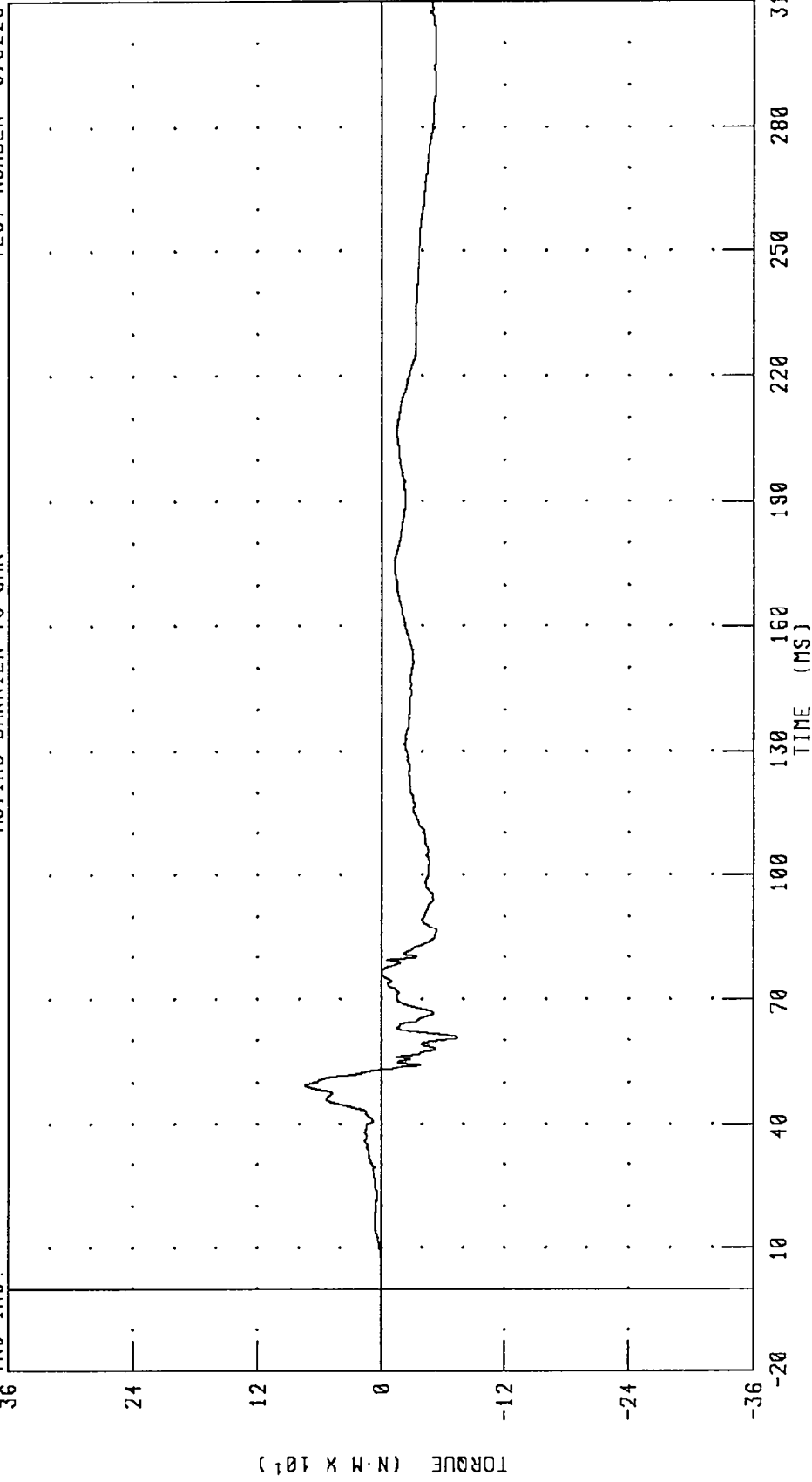
CHANNEL: TBLXM2 FILTER: CH. CLASS 600

PEAK DATA: 87.01 N.M @ 53.92 MS; -50.73 N.M @ 79.28 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT UPPER TIBIA Y MOMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

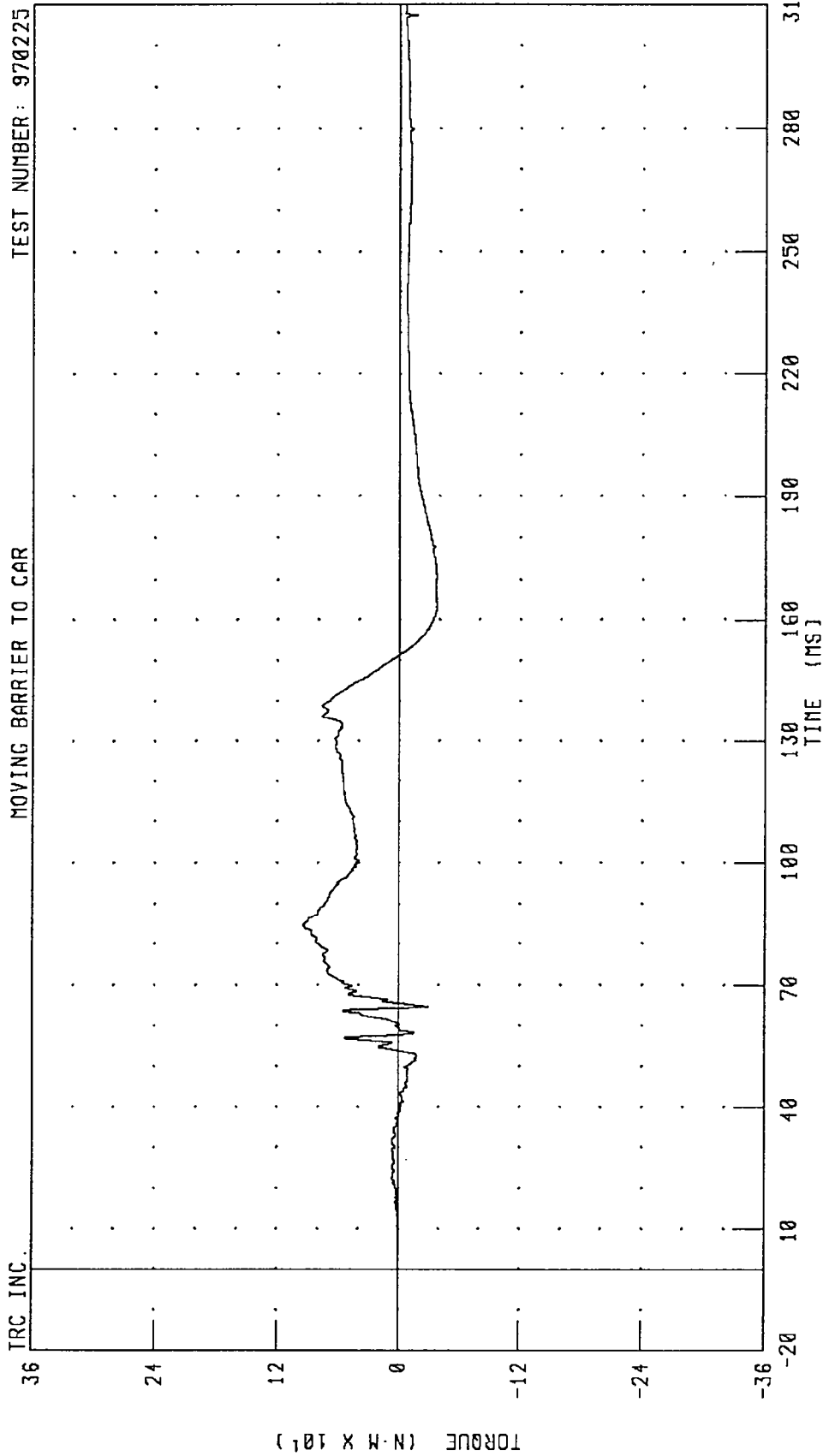
TRC INC.



CHANNEL: TBLM2 FILTER: CH. CLASS 600 PEAK DATA: 74.36 N·M @ 49.36 MS; -73.81 N·M @ 60.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT UPPER TIBIA X MOMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

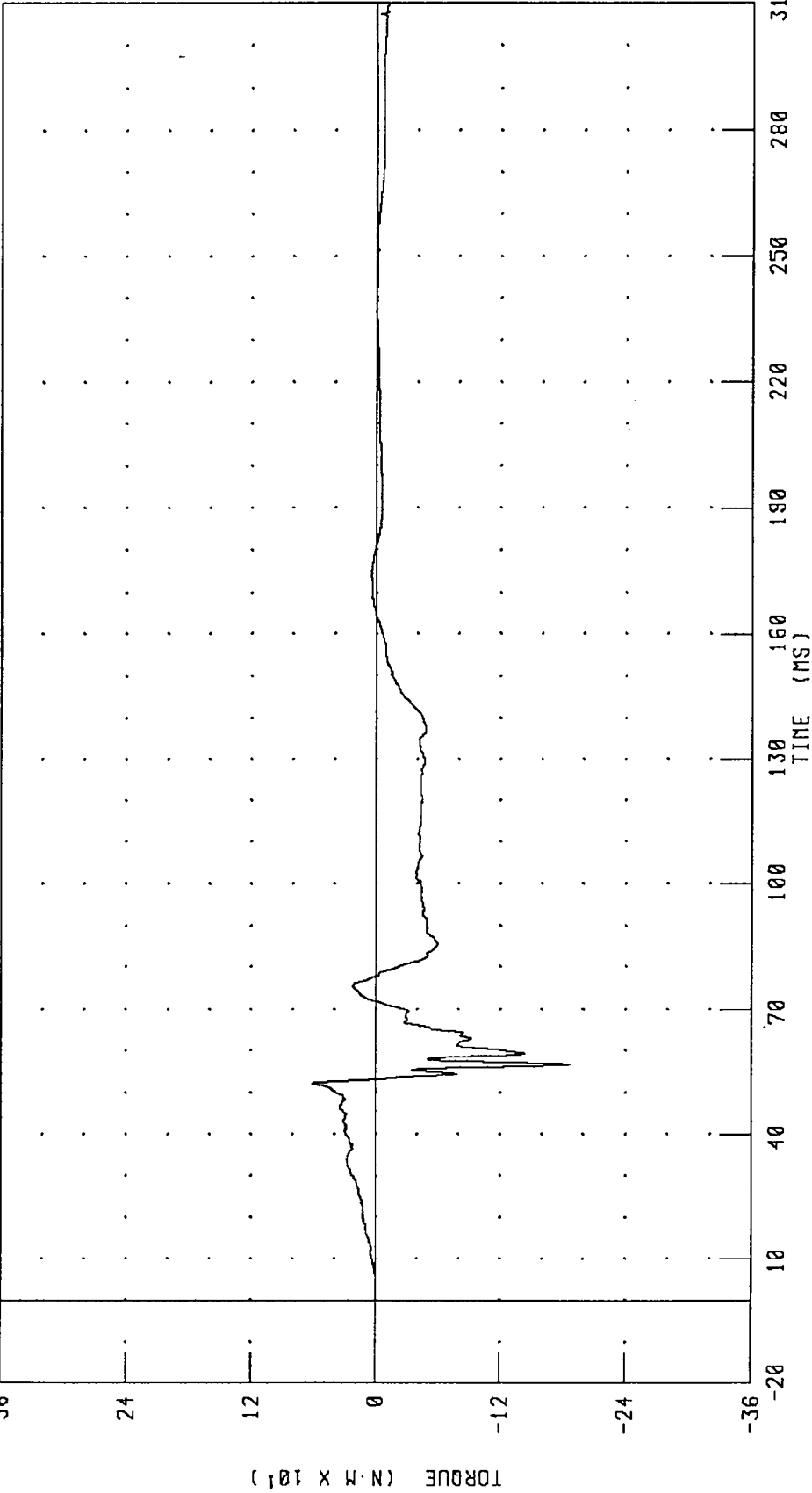


CHANNEL: TBRXM2 FILTER: CH. CLASS 600  
PEAK DATA: 94.38 N·M @ 84.64 MS; -37.31 N·M @ 170.88 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT UPPER TIBIA Y MOMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



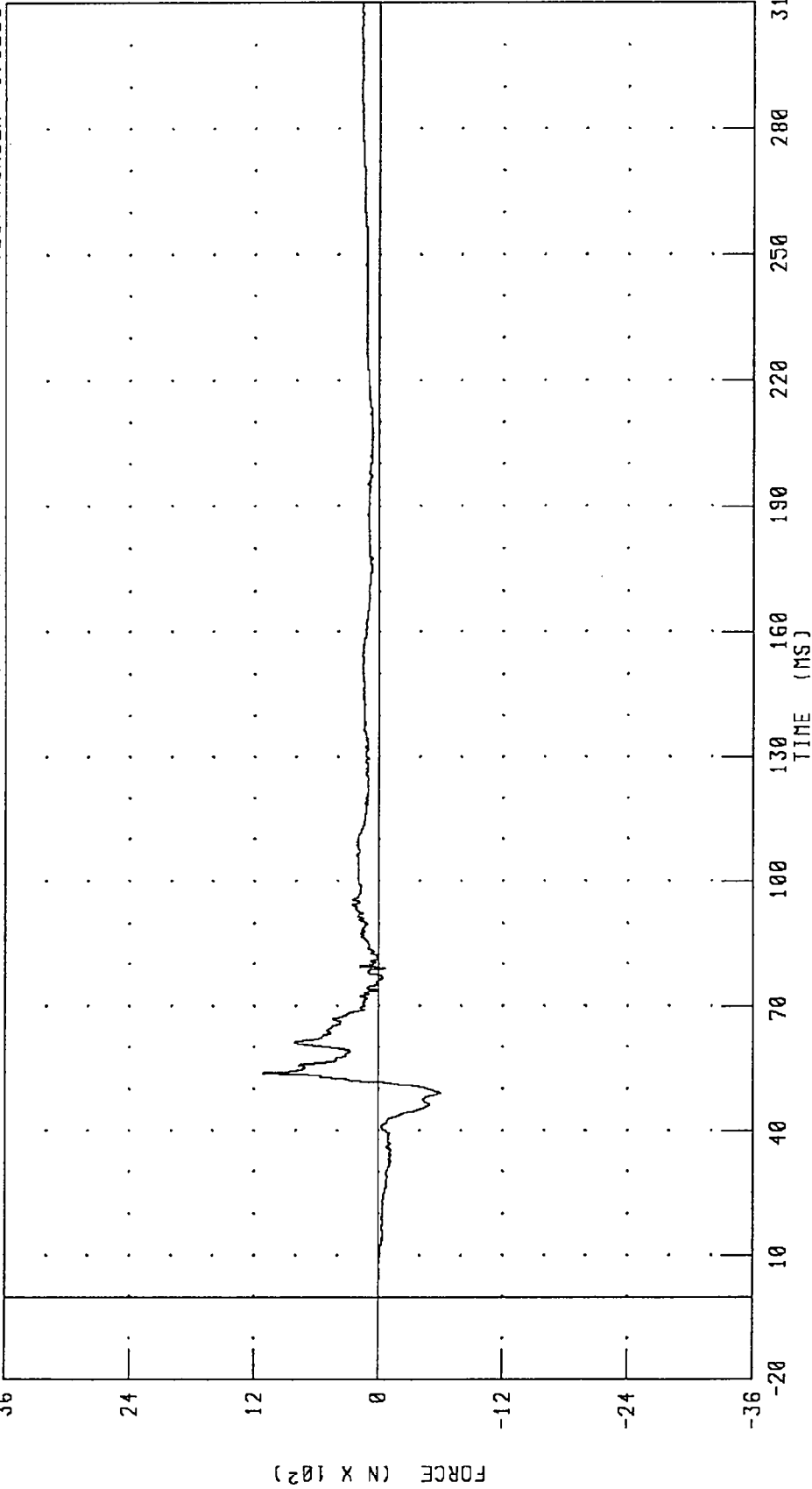
CHANNEL: TBRYM2 FILTER: CH. CLASS 600

PEAK DATA: 61.49 N·M @ 52.16 MS; -186.66 N·M @ 56.72 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT LOWER TIBIA X-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

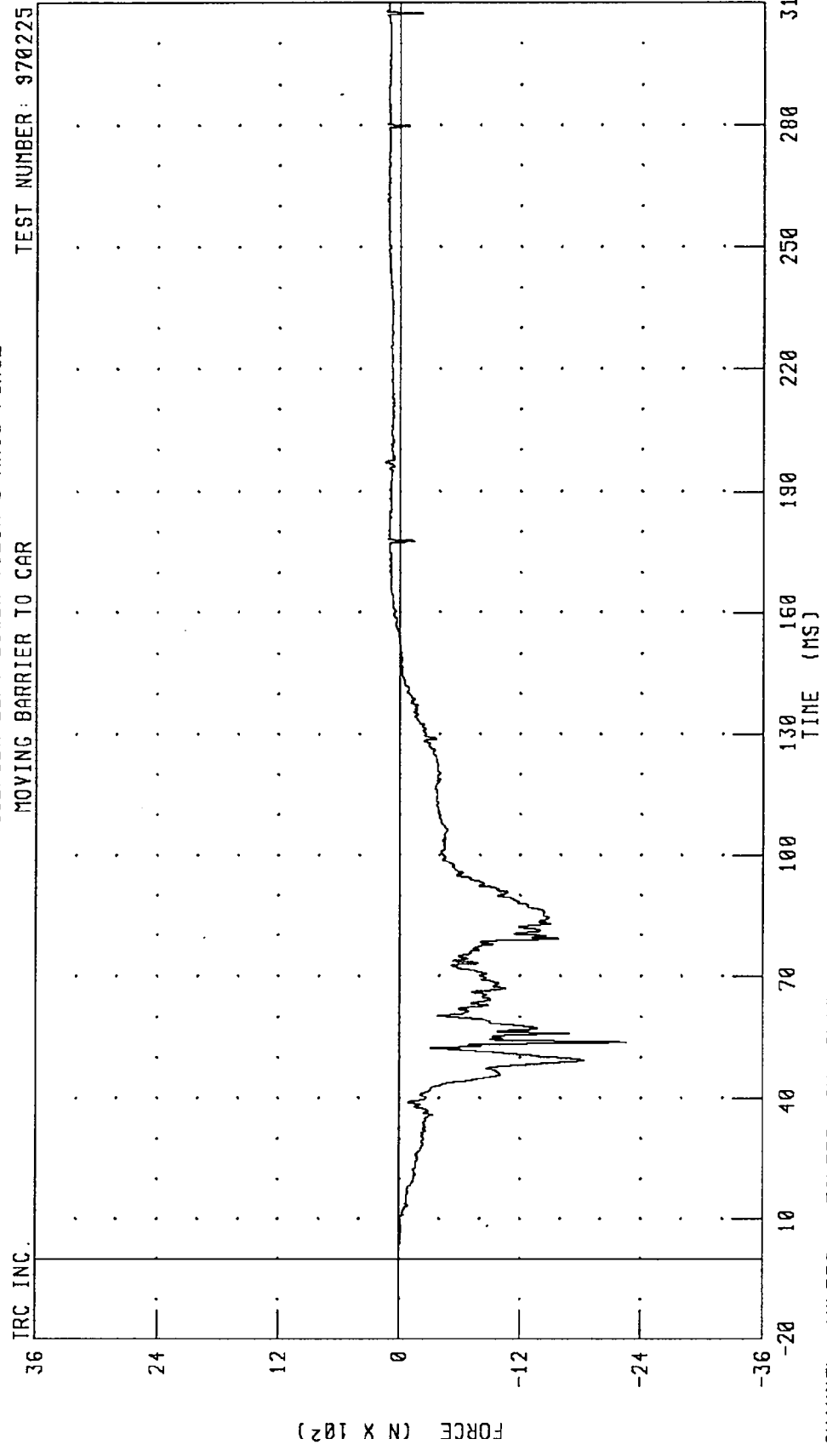
TRC INC.



PEAK DATA: 1121.31 N @ 53.76 MS; -601.03 N @ 49.04 MS

CHANNEL: ANLXF2 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE  
MOVING BARRIER TO CAR



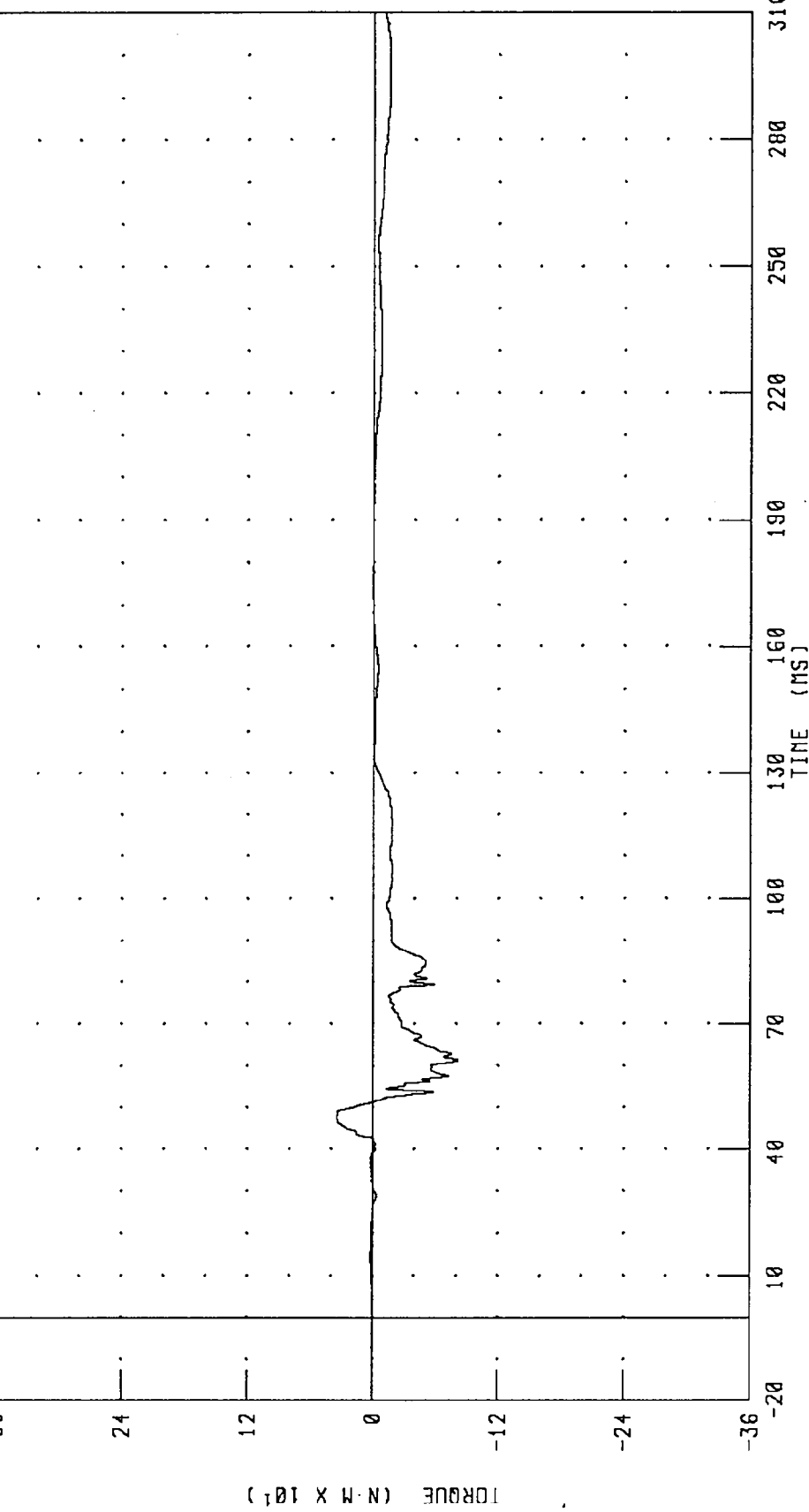
CHANNEL: ANLZF2 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



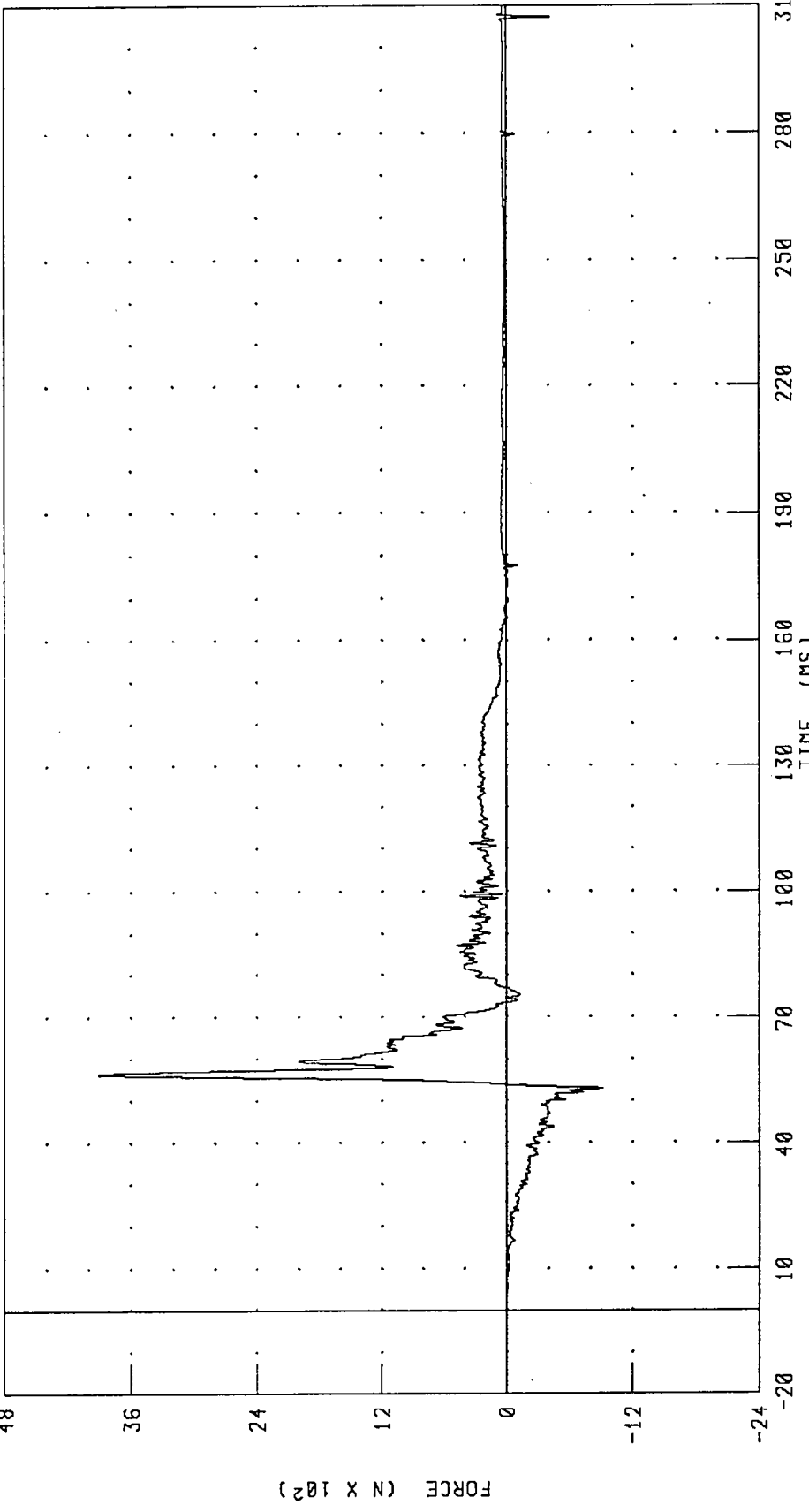
CHANNEL: ANLYM2 FILTER: CH. CLASS 600 PEAK DATA: 34.99 N·M @ 47.76 MS; -81.12 N·M @ 61.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE

TEST NUMBER: 970225

MOVING BARRIER TO CAR

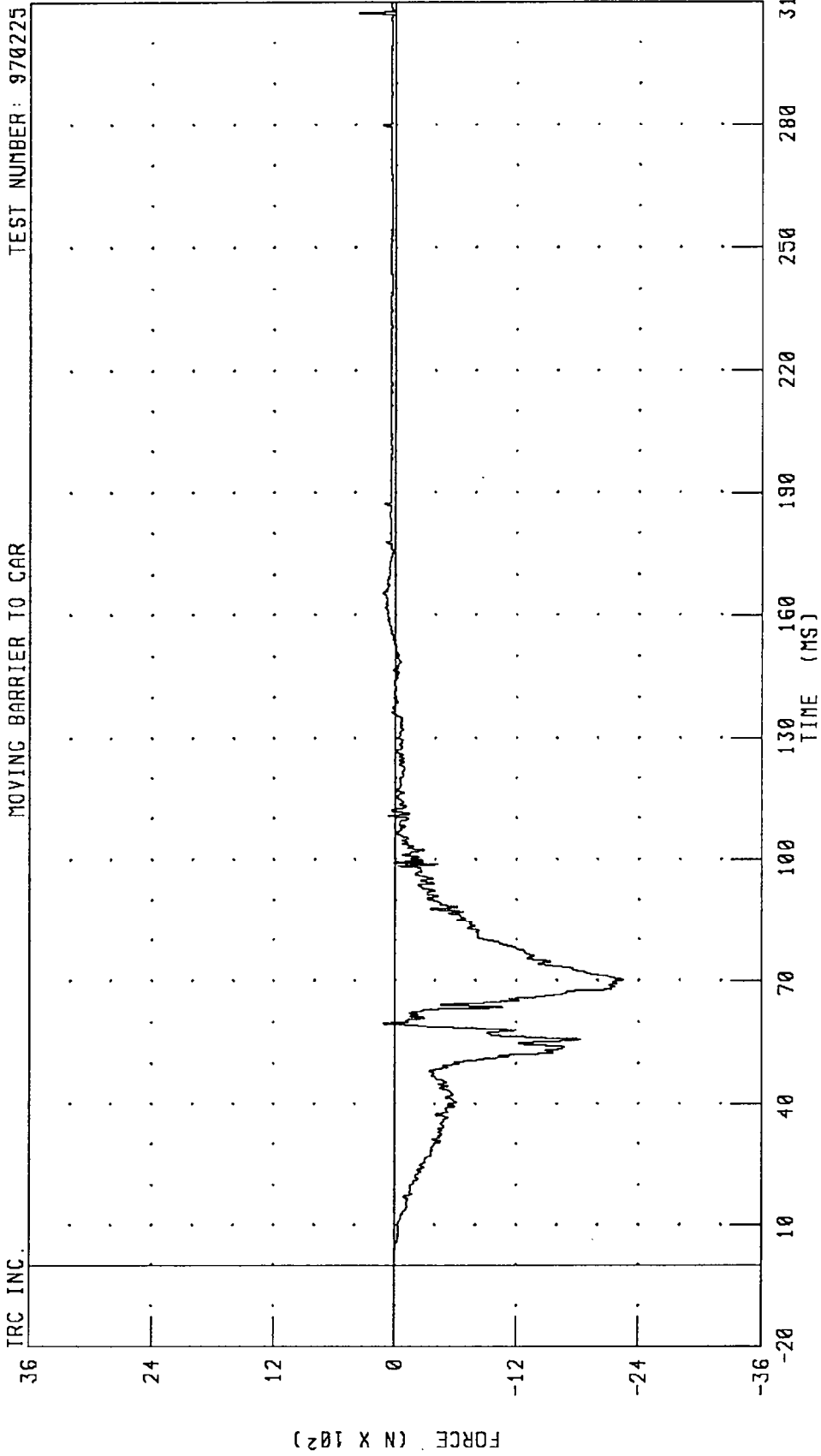
TRC INC.



CHANNEL: ANRXF2 FILTER: CH. CLASS 600 PEAK DATA: 3904.54 N @ 56.40 MS; -908.22 N @ 52.88 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

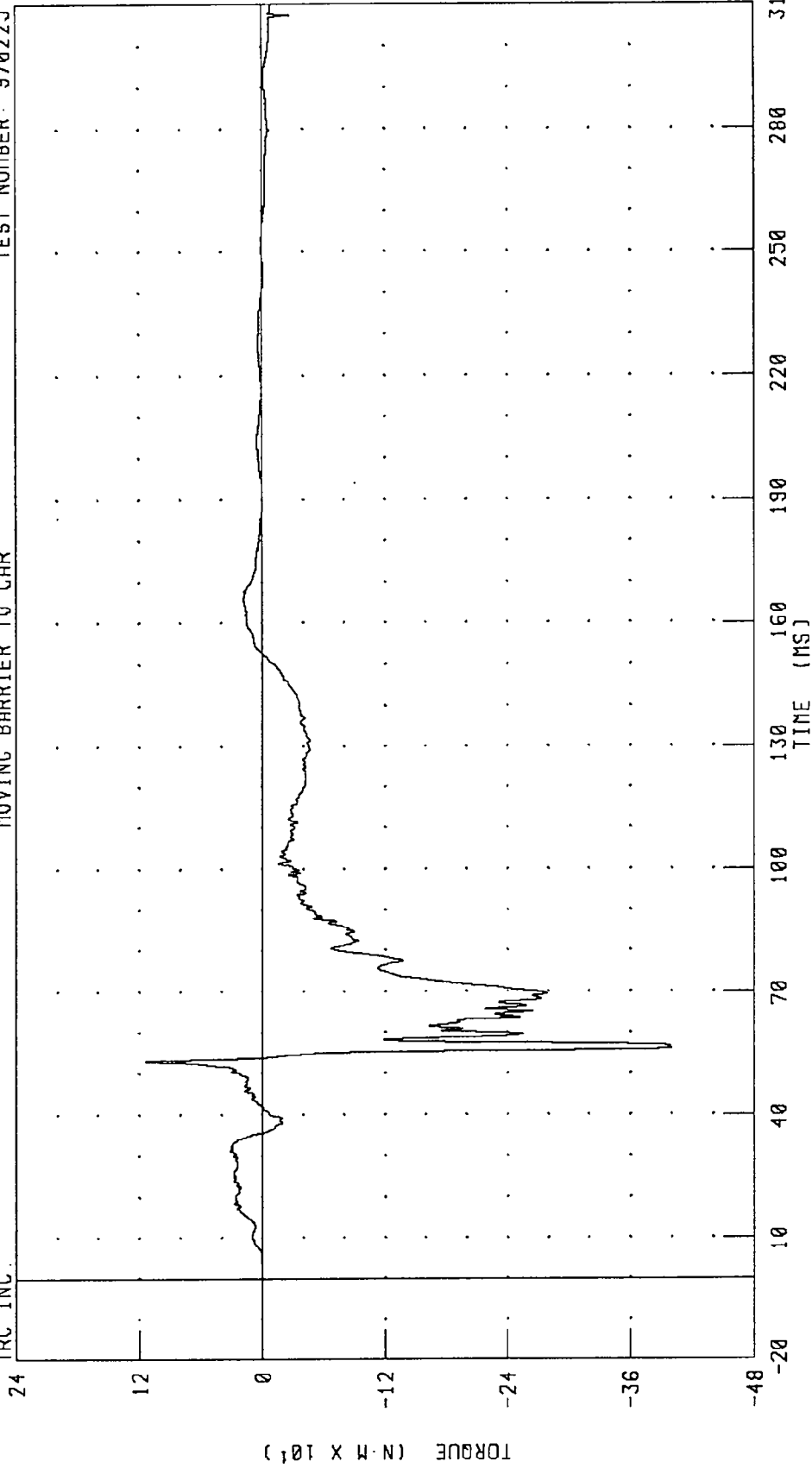


CHANNEL: ANRZF2 FILTER: CH. CLASS 600 PEAK DATA: 365.68 N @ 307.36 MS; -2241.26 N @ 70.16 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

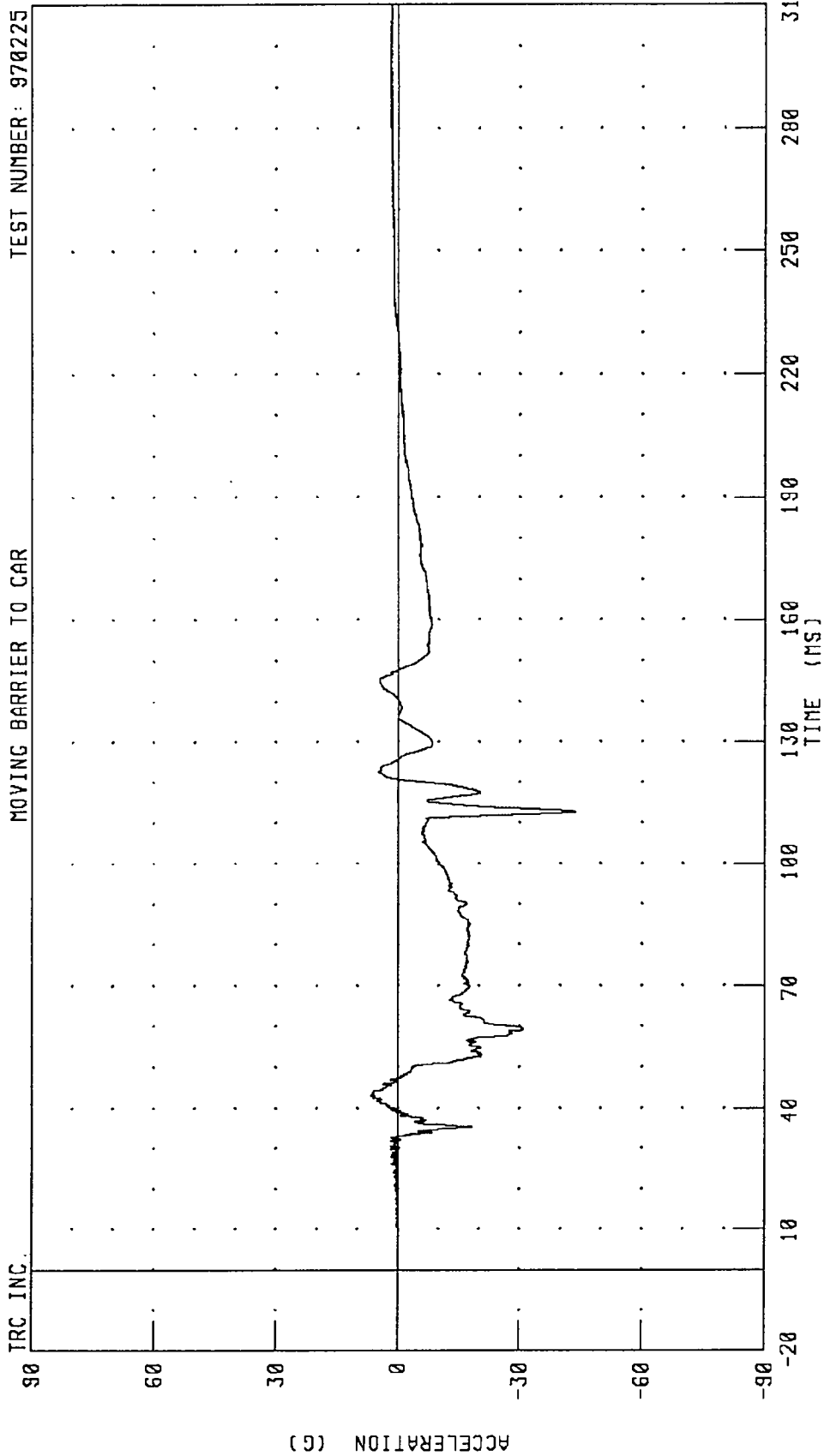


PEAK DATA: 113.52 N·M @ 53.04 MS; -400.79 N·M @ 56.08 MS

CHANNEL: ANRYM2 FILTER: CH. CLASS 600

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD ARRAY 1 X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



CHANNEL: HD1XG2 FILTER: CH. CLASS 1000

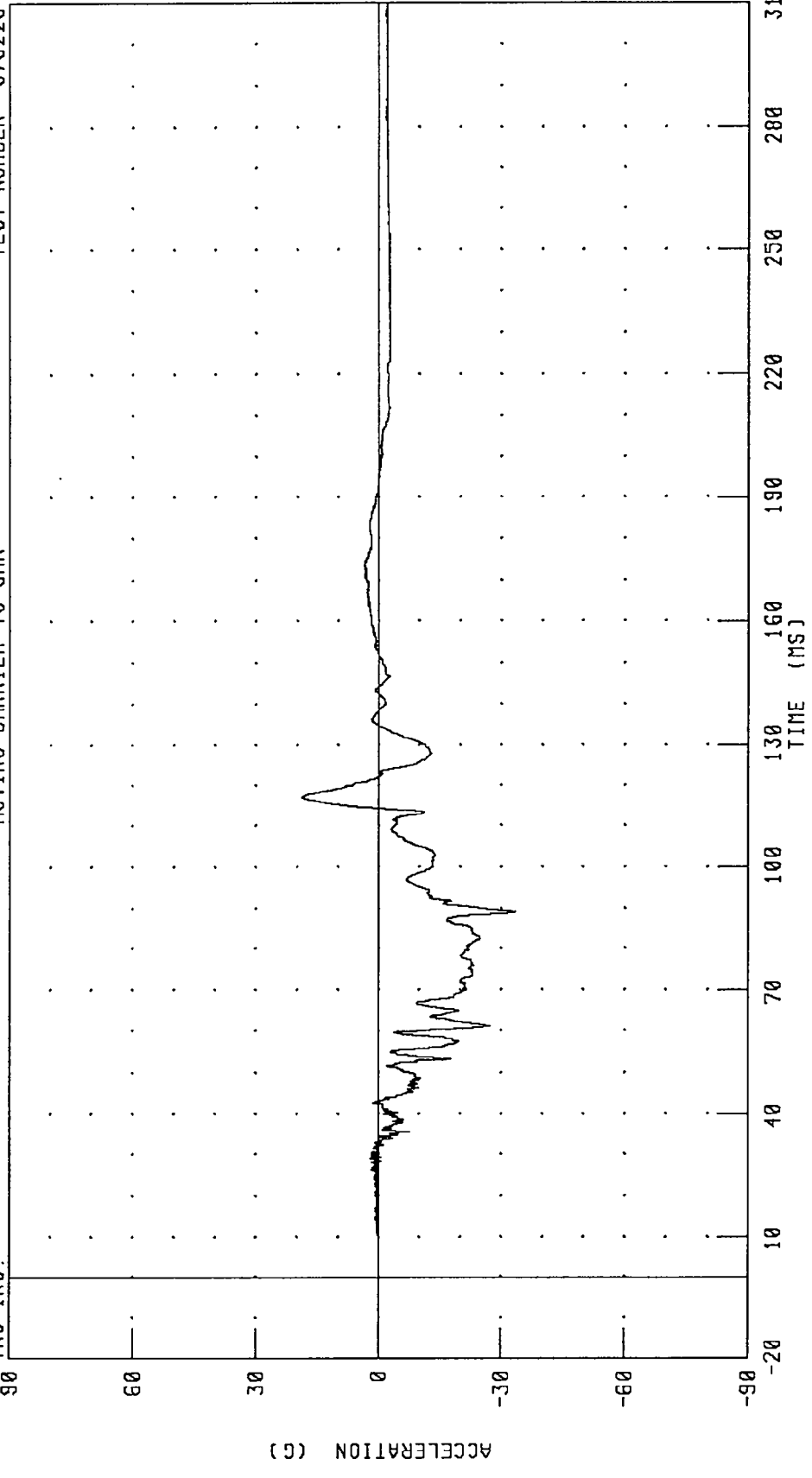
PEAK DATA: 6.61 G @ 43.12 MS; -43.58 G @ 112.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD ARRAY 1 Z-AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

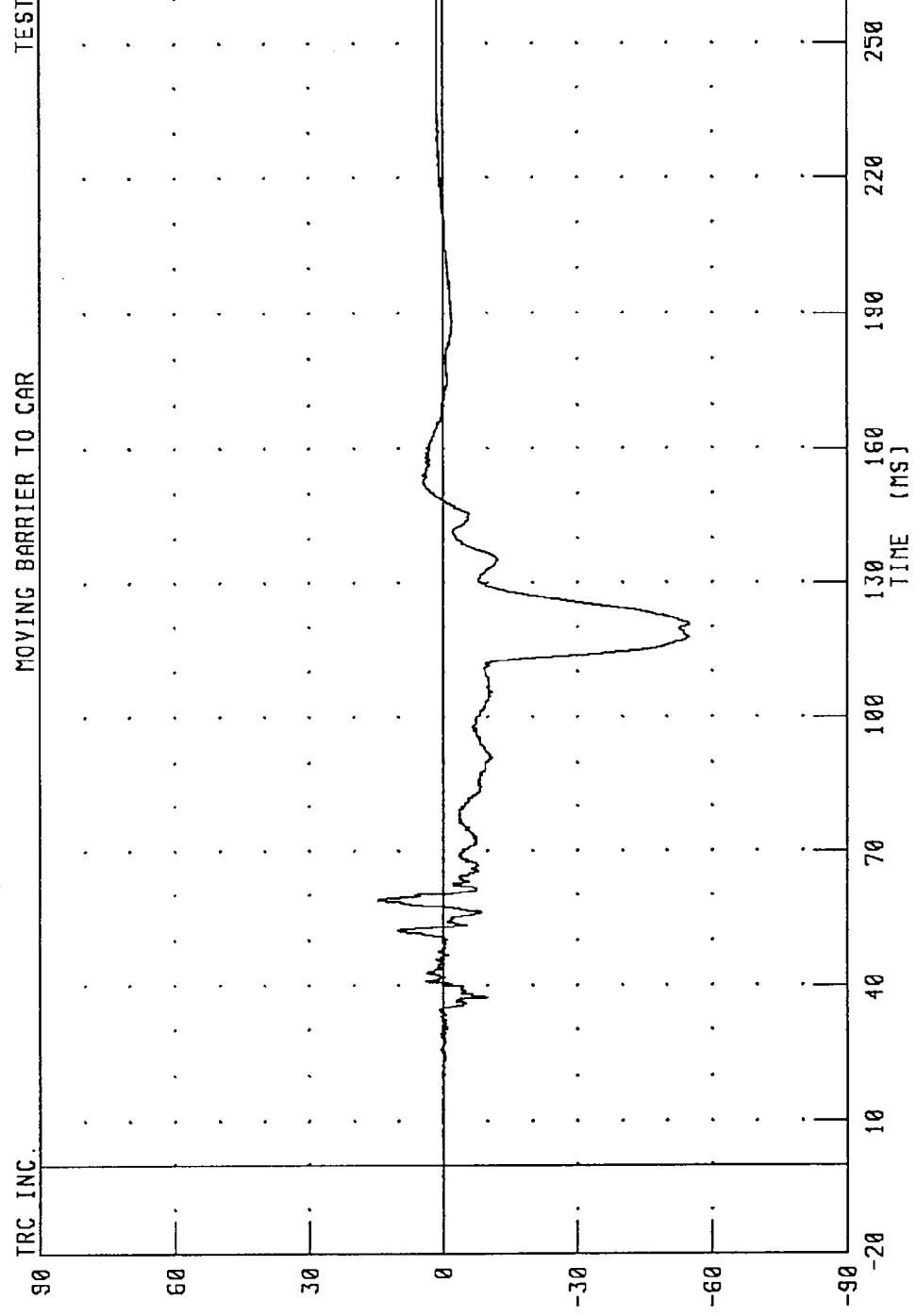


CHANNEL: HD1ZG2 FILTER: CH. CLASS 1000

PEAK DATA: 18.84 G @ 117.04 MS; -33.42 G @ 89.20 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD ARRAY 2 Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



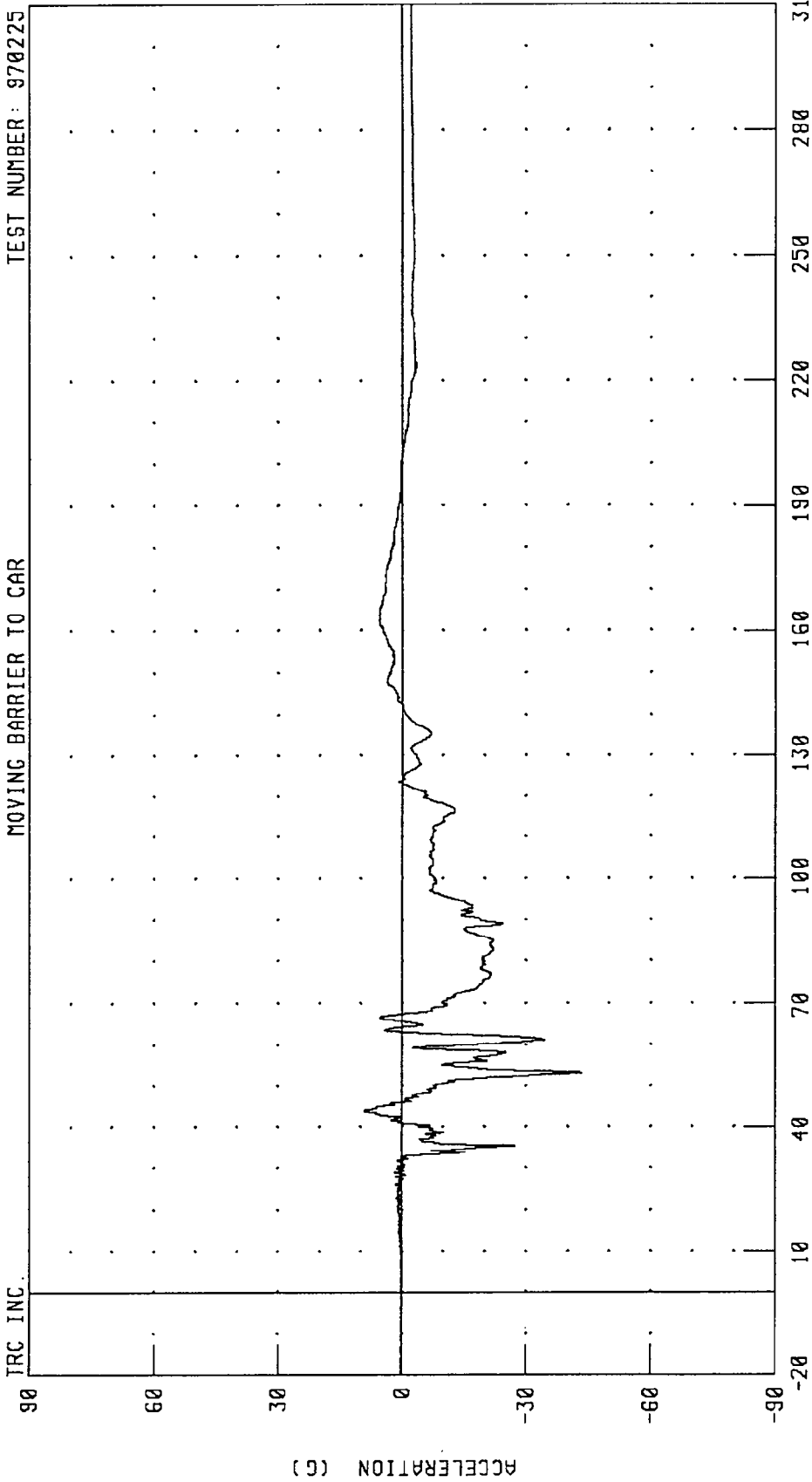
CHANNEL: HD2YG2 FILTER: CH. CLASS 1000 PEAK DATA: 14.76 G @ 58.80 MS; -54.95 G @ 120.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD ARRAY 2 Z-AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



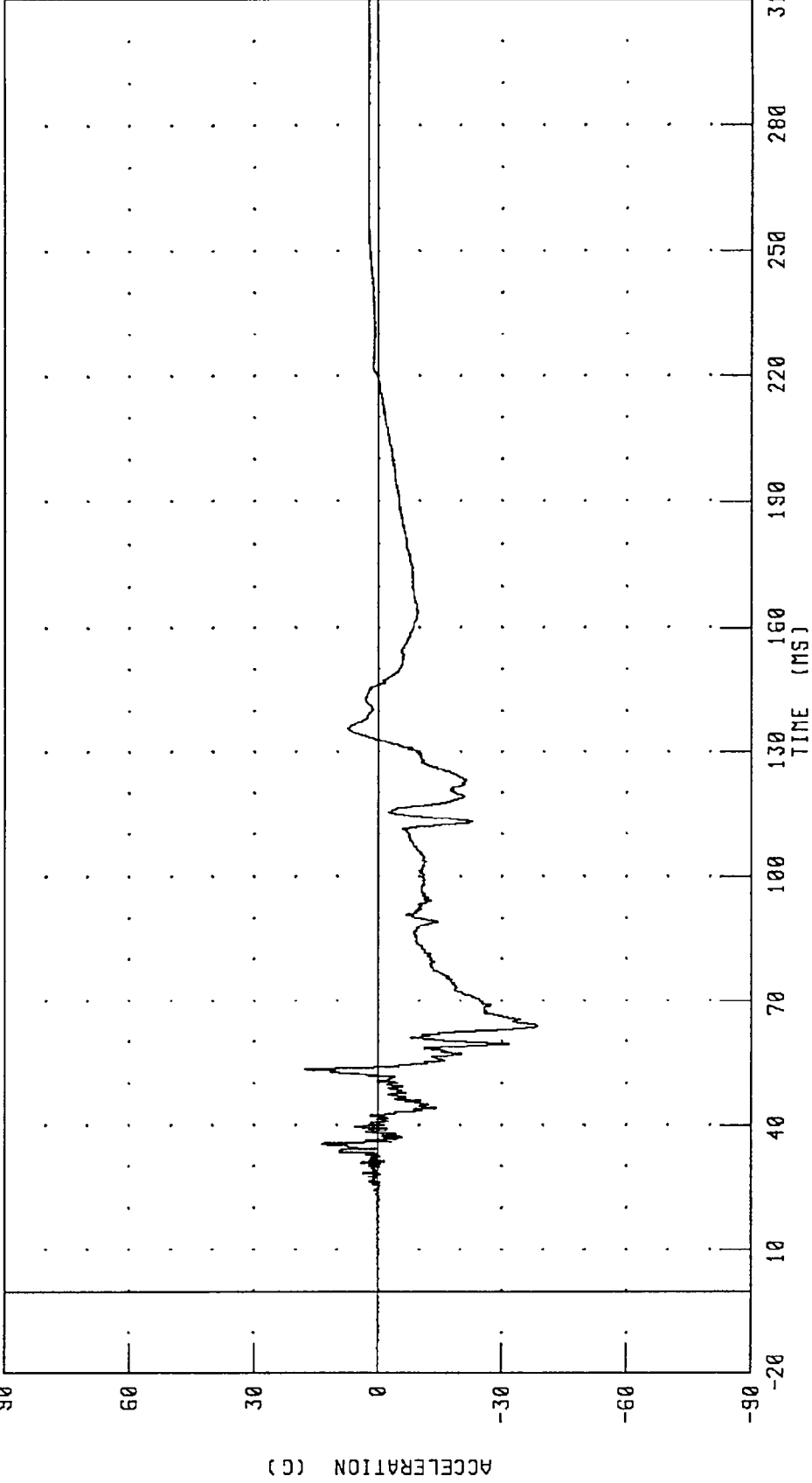
CHANNEL: HD2ZG2 FILTER: CH. CLASS 1000

PEAK DATA: 9.18 G @ 43.92 MS; -43.37 G @ 53.28 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD ARRAY 3 X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



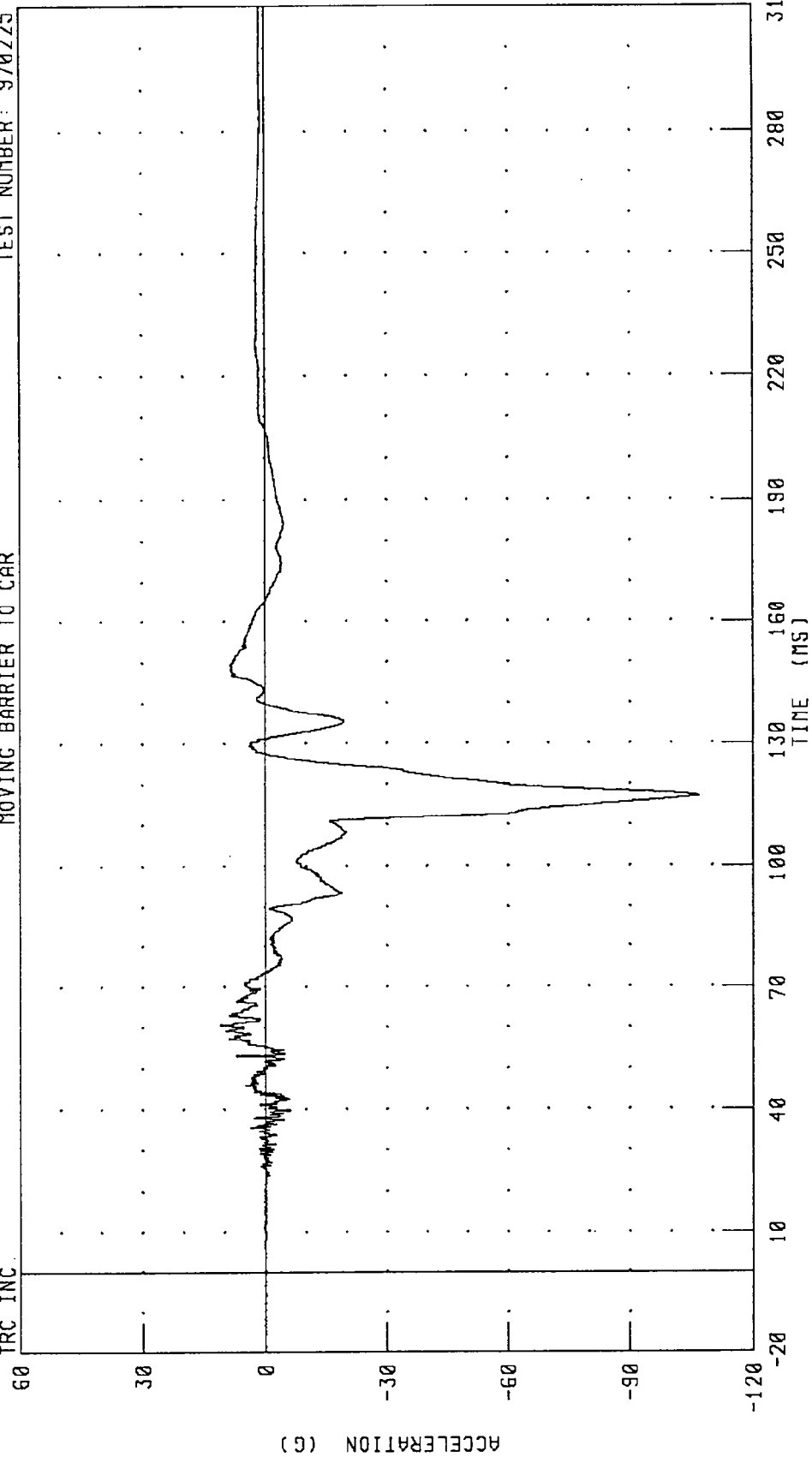
CHANNEL: HD3XC2 FILTER: CH. CLASS 1000

PEAK DATA: 17.81 G @ 53.44 MS; -38.59 G @ 63.84 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER HEAD ARRAY 3 Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



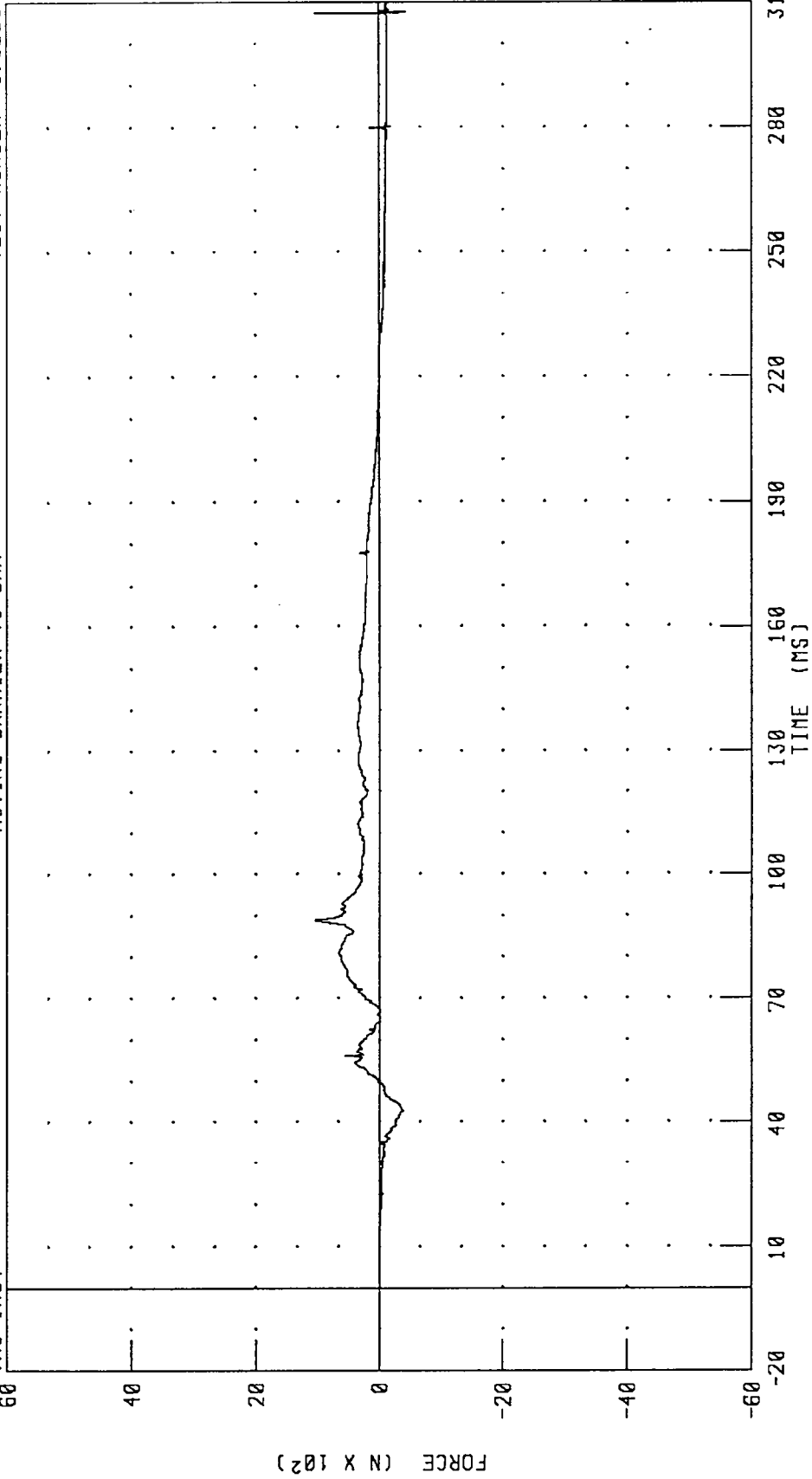
CHANNEL: HD3YG2 FILTER: CH. CLASS 1000

PEAK DATA: 10.95 G @ 60.72 MS; -106.63 G @ 117.12 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LOWER NECK X-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

IRC INC.

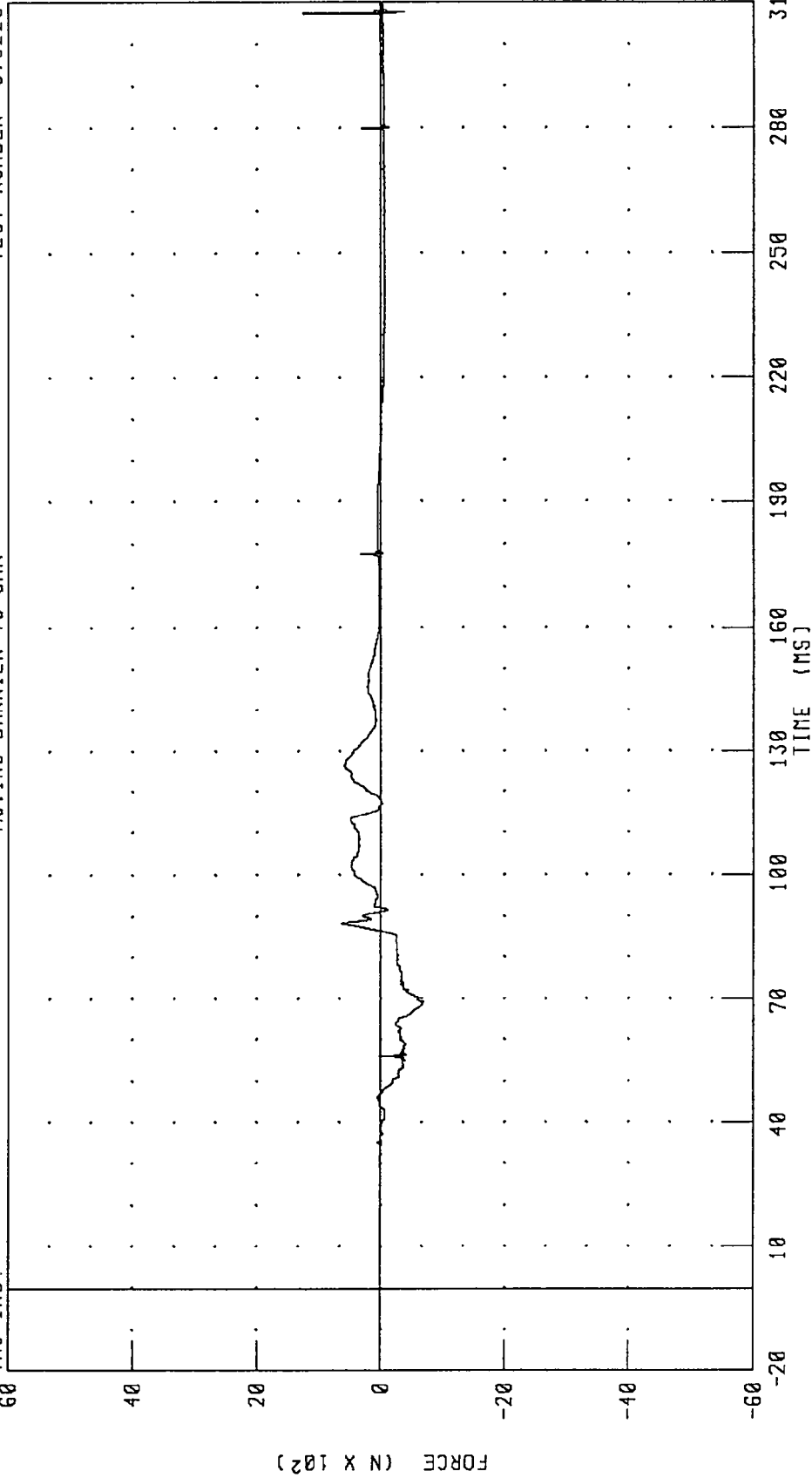


CHANNEL: NKLXF2 · FILTER: CH. CLASS 1000  
PEAK DATA: 1058.96 N @ 307.36 MS; -421.69 N @ 307.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LOWER NECK Y-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



PEAK DATA: 1251.69 N @ 307.36 MS; -697.45 N @ 69.36 MS

CHANNEL: NKLYF2 FILTER: CH. CLASS 1000

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LOWER NECK Z-AXIS FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

60

40

20

0

-20

-40

-60

FORCE (N X 10<sup>2</sup>)

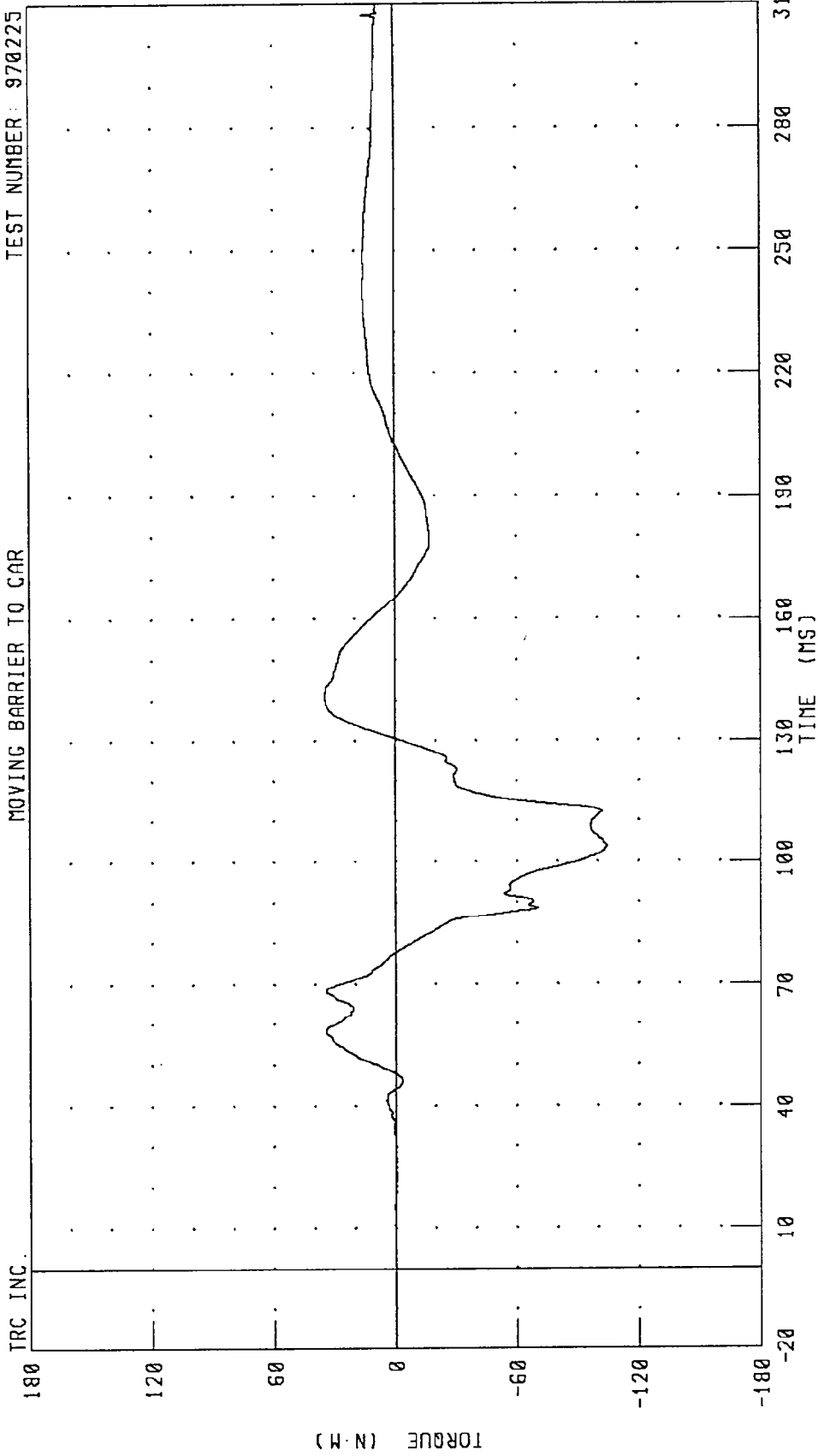
10 40 70 100 130 160 190 220 250 280 310  
TIME (MS)

CHANNEL: NKLZF2 FILTER: CH. CLASS 1000

PEAK DATA: 1645.70 N @ 76.08 MS; -538.19 N @ 307.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LOWER NECK MOMENT ABOUT X AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

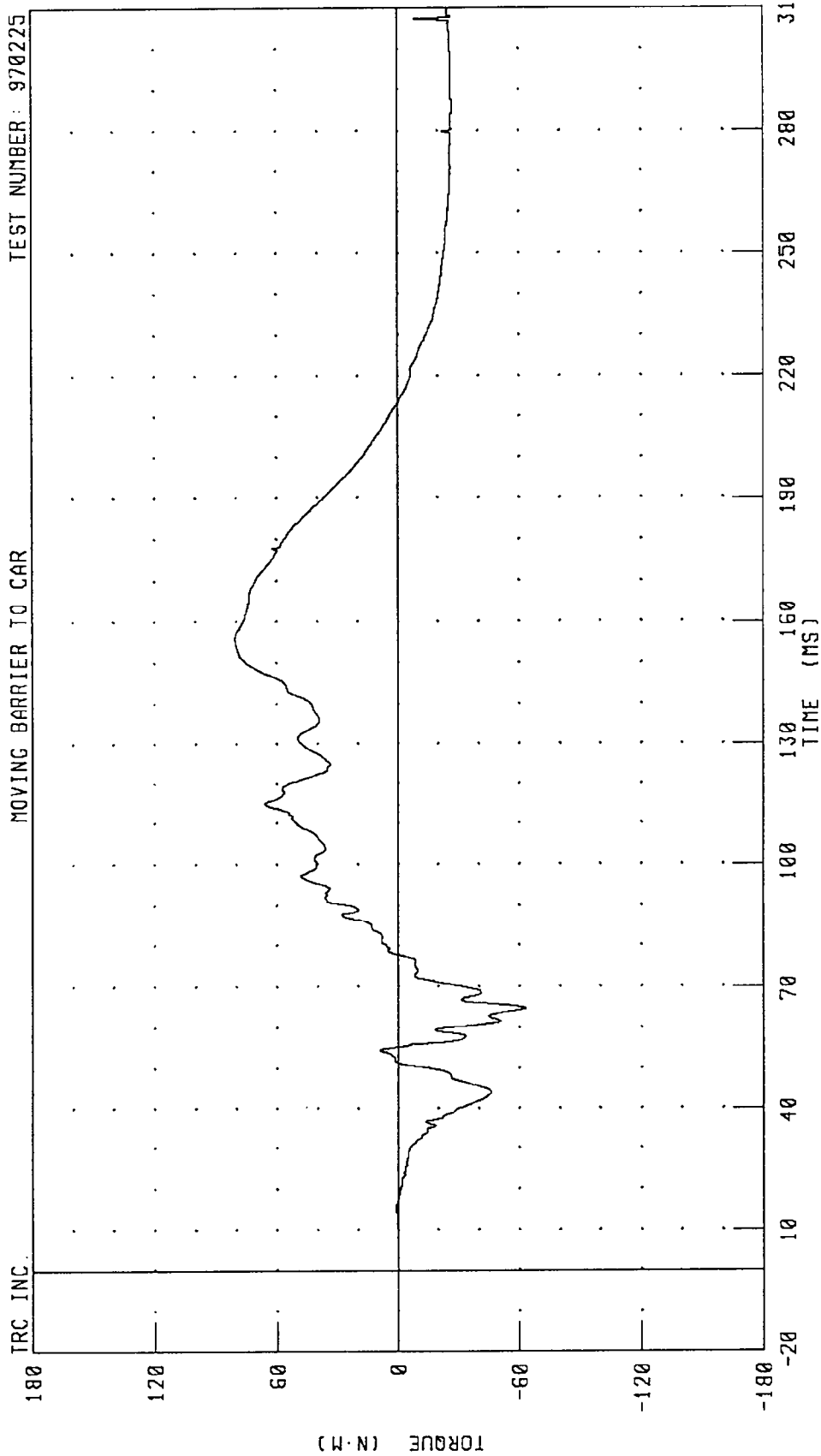


CHANNEL: NKLXM2 FILTER: CH. CLASS 600 PEAK DATA: 35.13 N.M @ 141.44 MS; -104.39 N.M @ 103.60 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LOWER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 970225

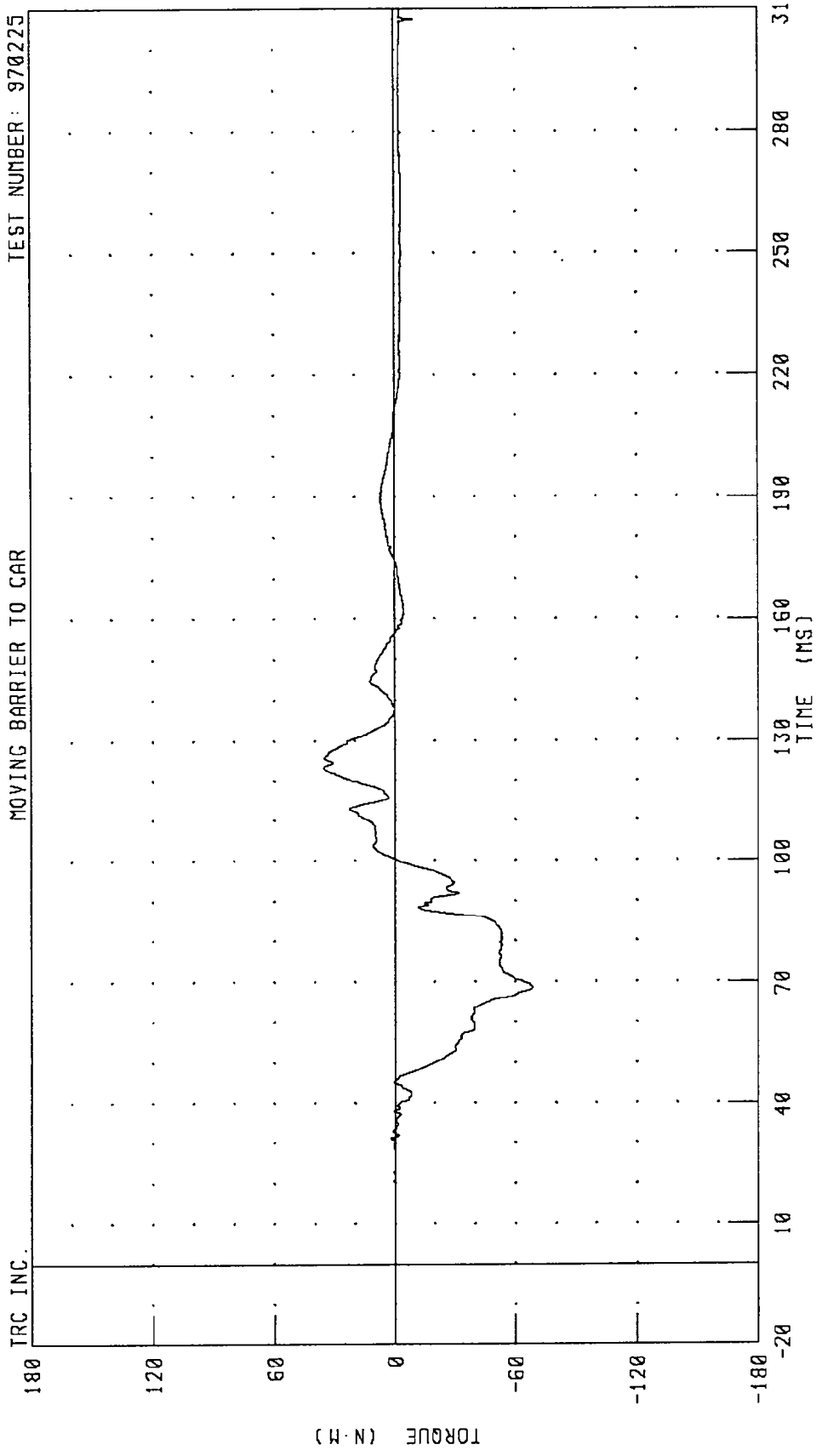
MOVING BARRIER TO CAR



CHANNEL: NKLYM2 FILTER: CH. CLASS 600 PEAK DATA: 80.61 N·M @ 156.00 MS; -62.81 N·M @ 64.80 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LOWER NECK MOMENT ABOUT Z AXIS  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

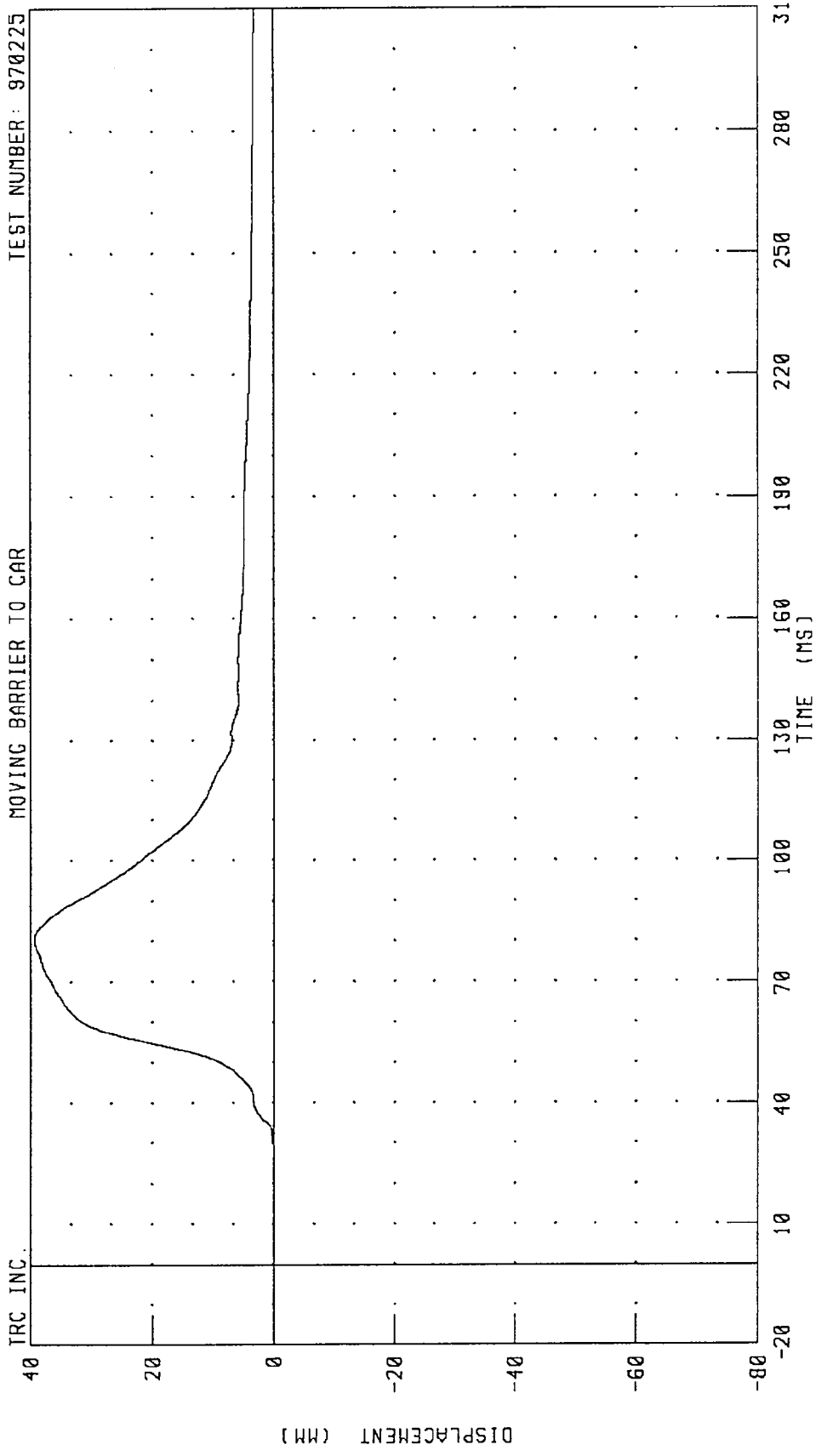


CHANNEL: NKLZM2 FILTER: CH. CLASS 600 PEAK DATA: 35.51 N.M @ 123.36 MS; -68.52 N.M @ 68.56 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT UPPER RIB STRAIGHT DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR



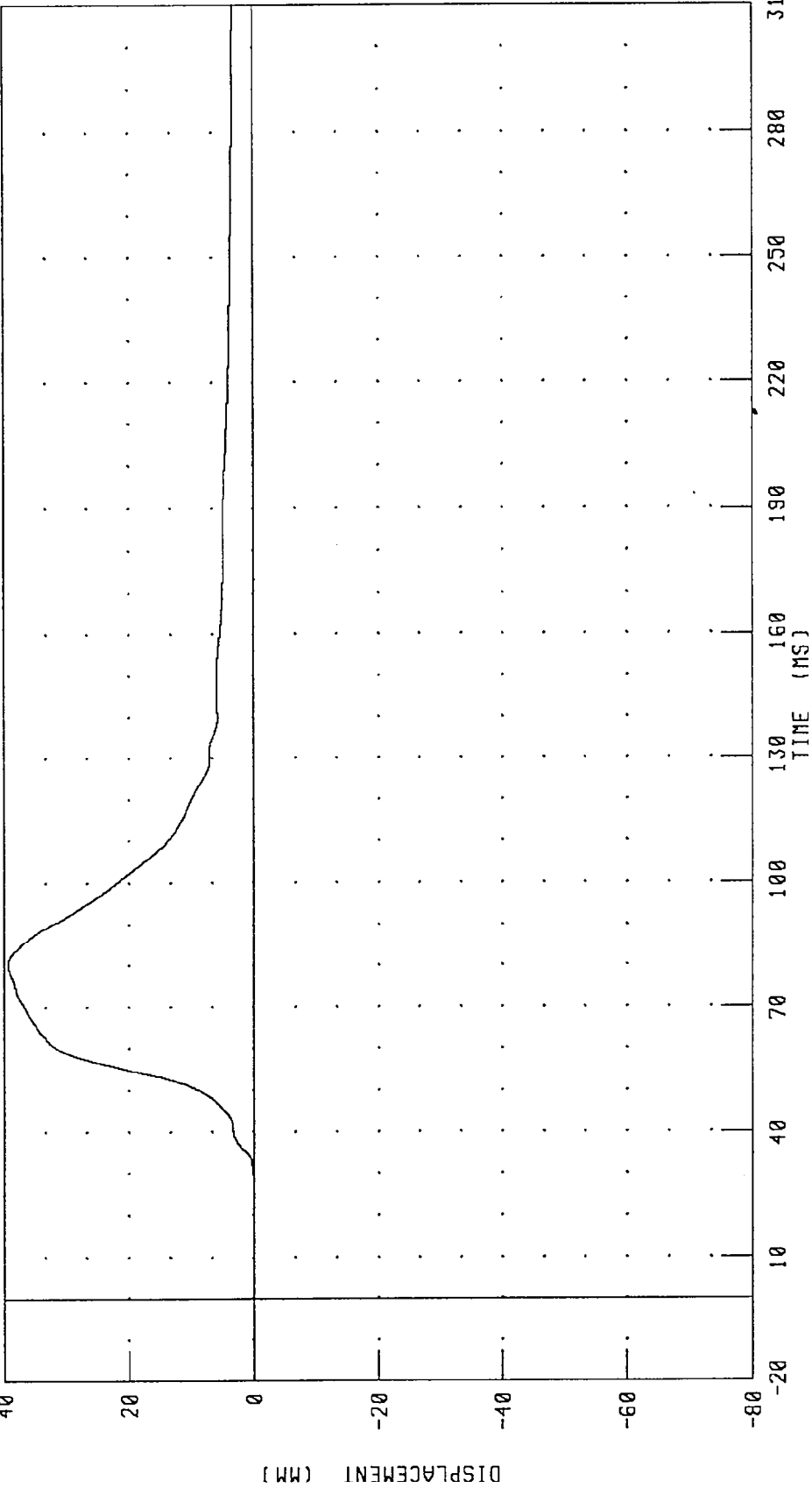
CHANNEL: LURSD2 FILTER: CH. CLASS 180 PEAK DATA: 39.35 MM @ 80.32 MS, -0.05 MM @ 22.08 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT UPPER RIB X-AXIS DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



CHANNEL: LURXD2 FILTER: CH. CLASS 180

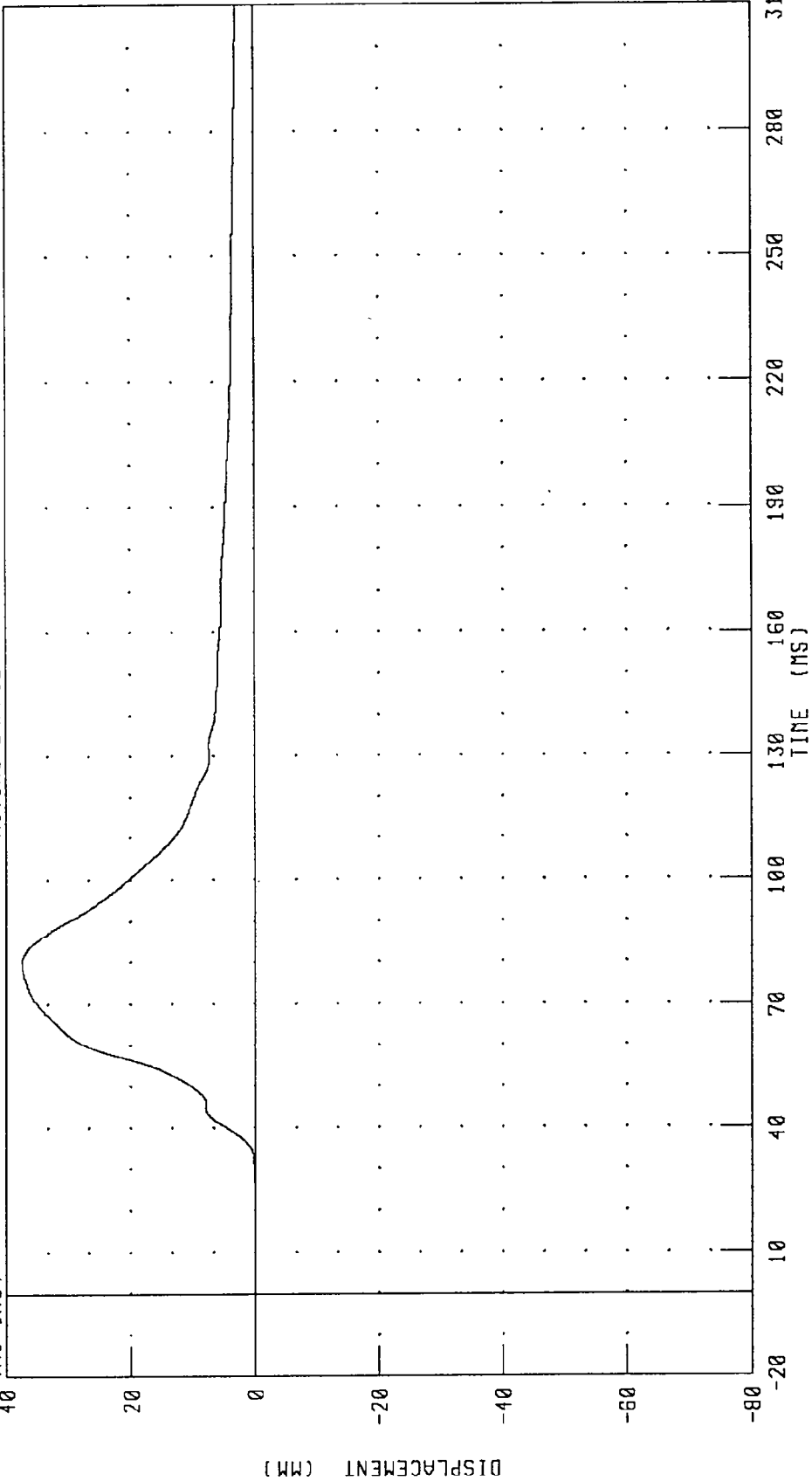
PEAK DATA: 39.36 MM @ 80.24 MS; -0.05 MM @ 22.08 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1986 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT LOWER RIB STRAIGHT DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



PEAK DATA: 37.43 MM @ 79.76 MS; 0.00 MM @ 23.52 MS

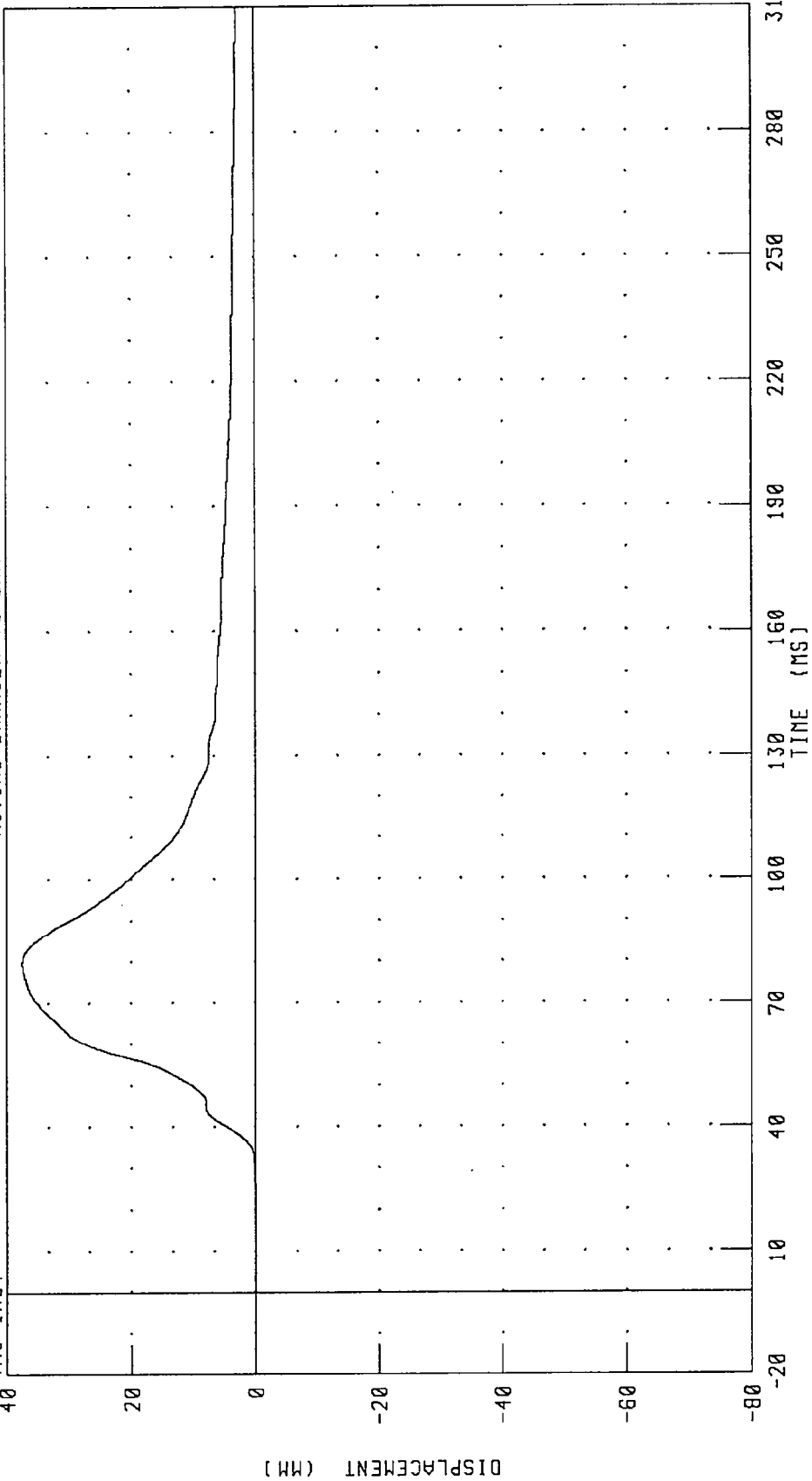
CHANNEL: LLRSD2 FILTER: CH. CLASS 180

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT LOWER RIB X-AXIS DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



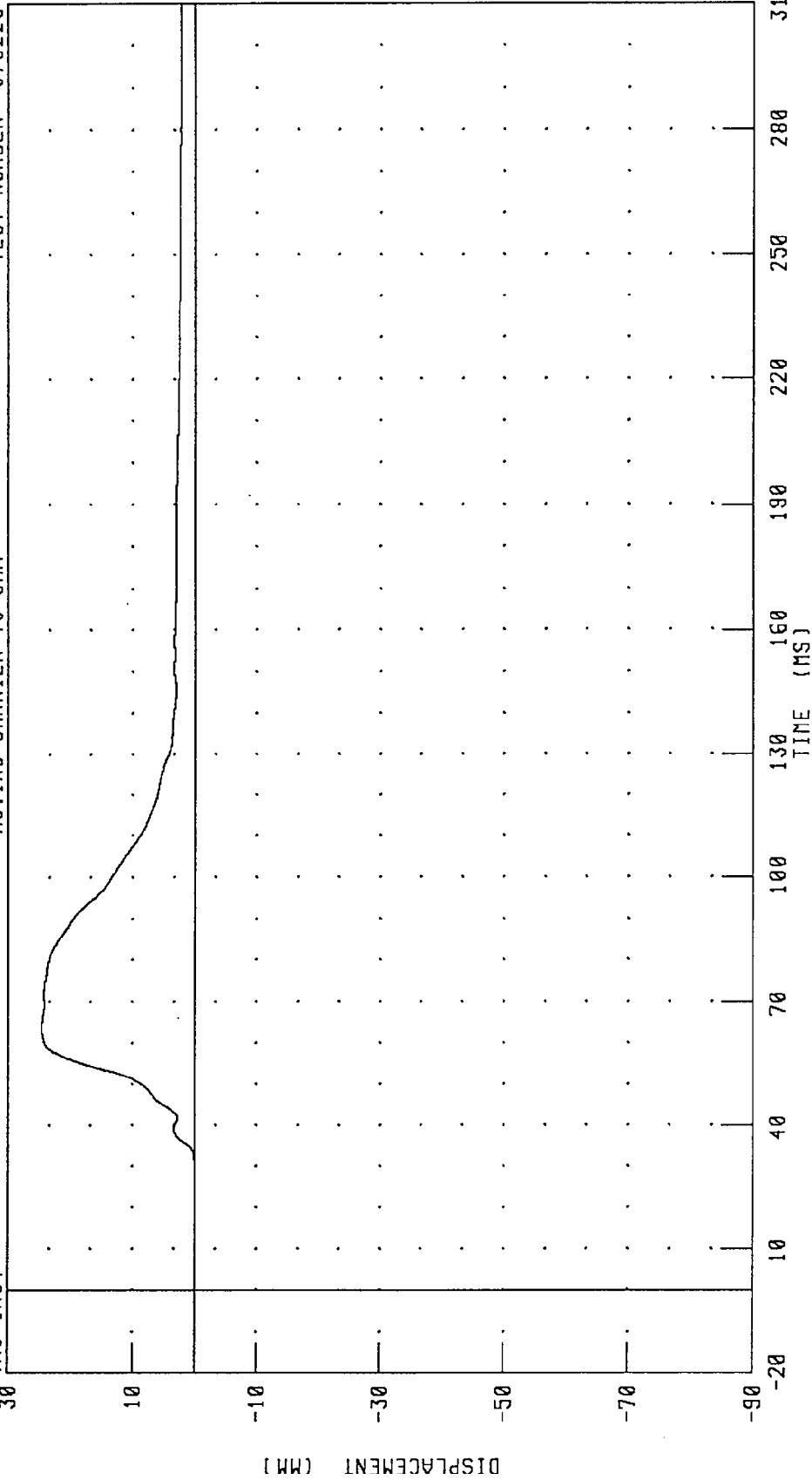
PEAK DATA: 37.51 MM @ 79.68 MS; 0.00 MM @ 23.52 MS

CHANNEL: LLRXD2 FILTER: CH. CLASS 180

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT UPPER RIB STRAIGHT DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

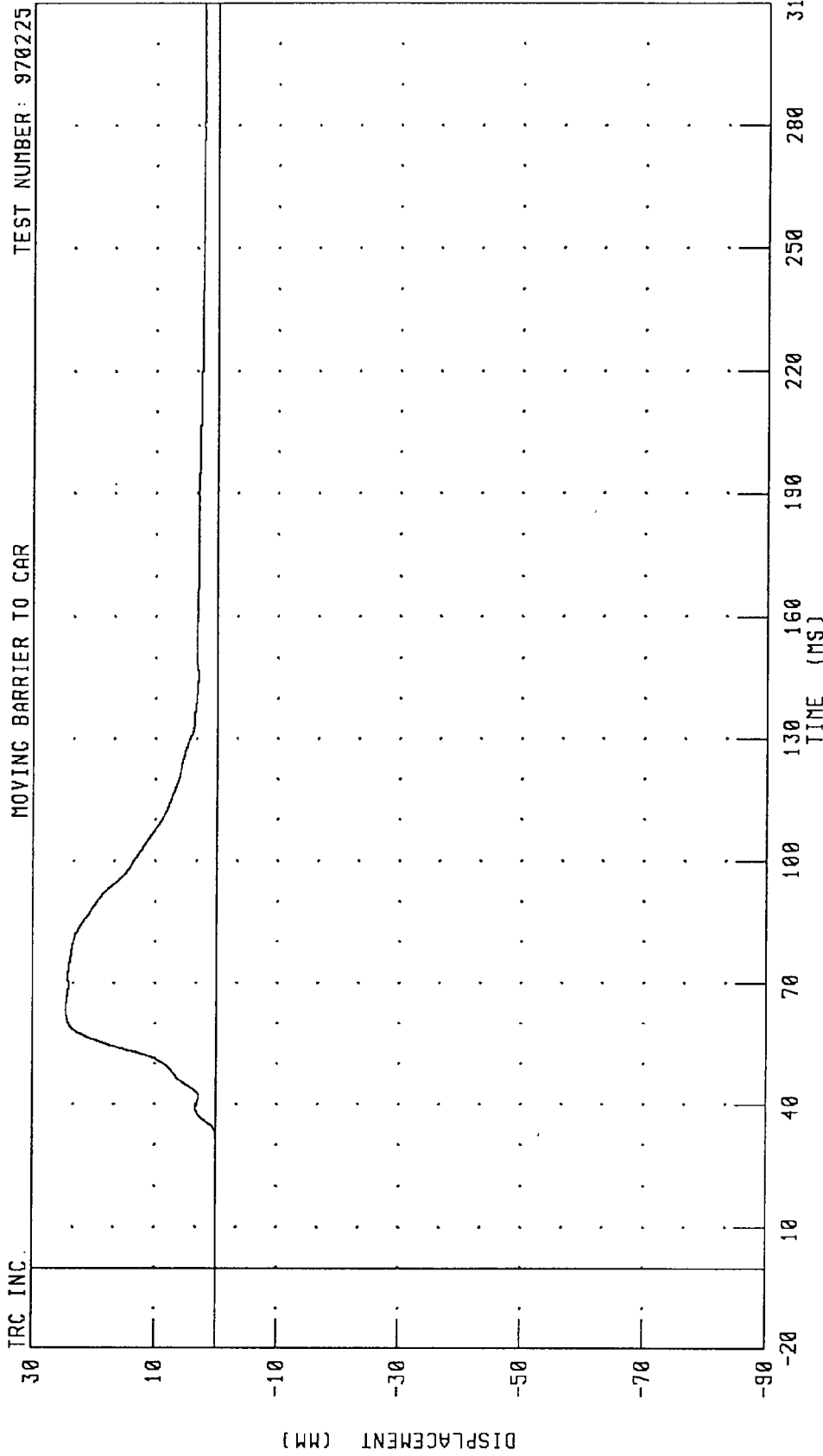


CHANNEL: RURSD2 FILTER: CH. CLASS 180

PEAK DATA: 24.58 MM @ 63.60 MS; -0.05 MM @ 19.44 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT UPPER RIB X-AXIS DISPLACEMENT

MOVING BARRIER TO CAR TEST NUMBER: 970225

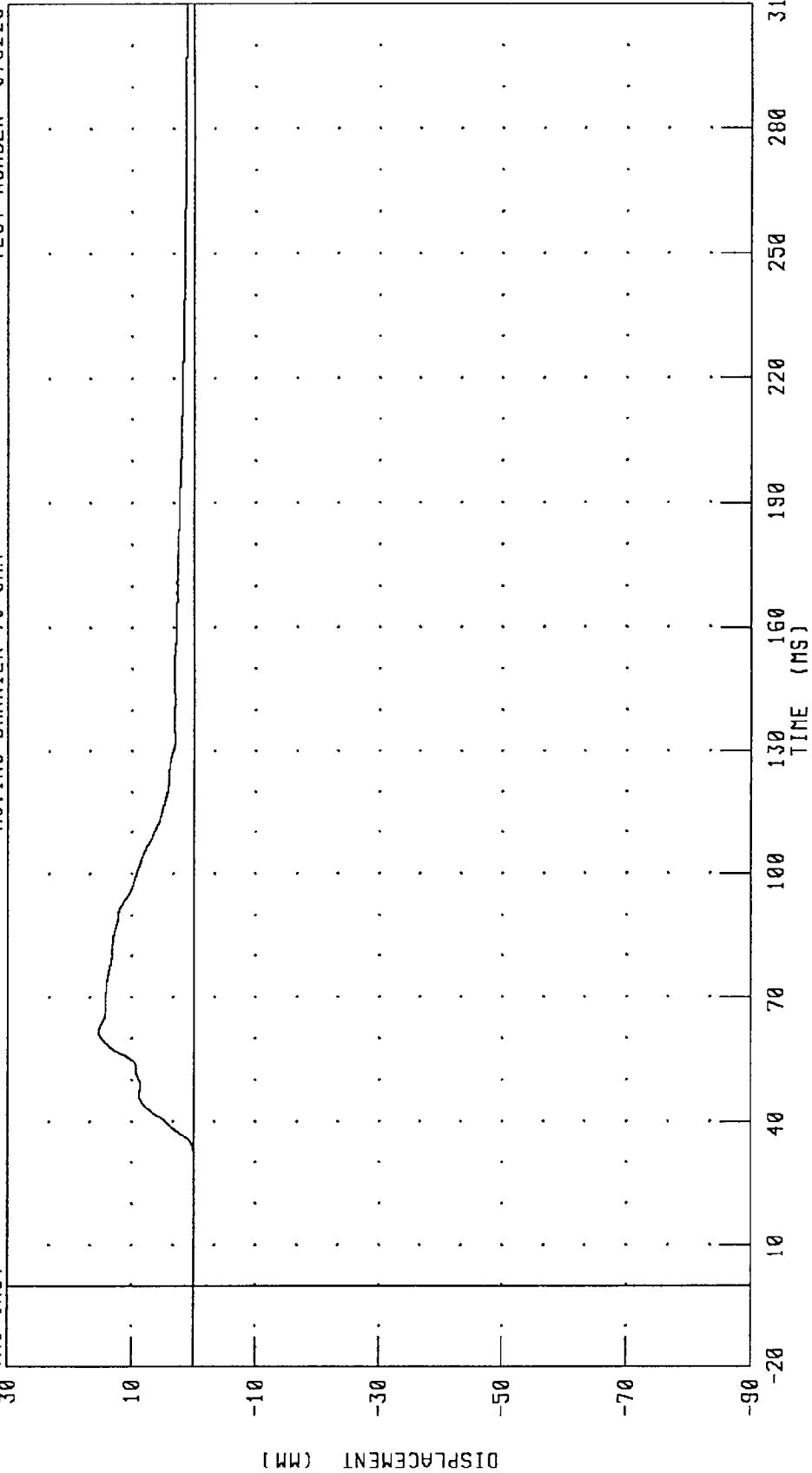


CHANNEL: RURXD2 FILTER: CH. CLASS 180  
PEAK DATA: 24.59 MM @ 63.60 MS; -0.05 MM @ 19.44 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT LOWER RIB STRAIGHT DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

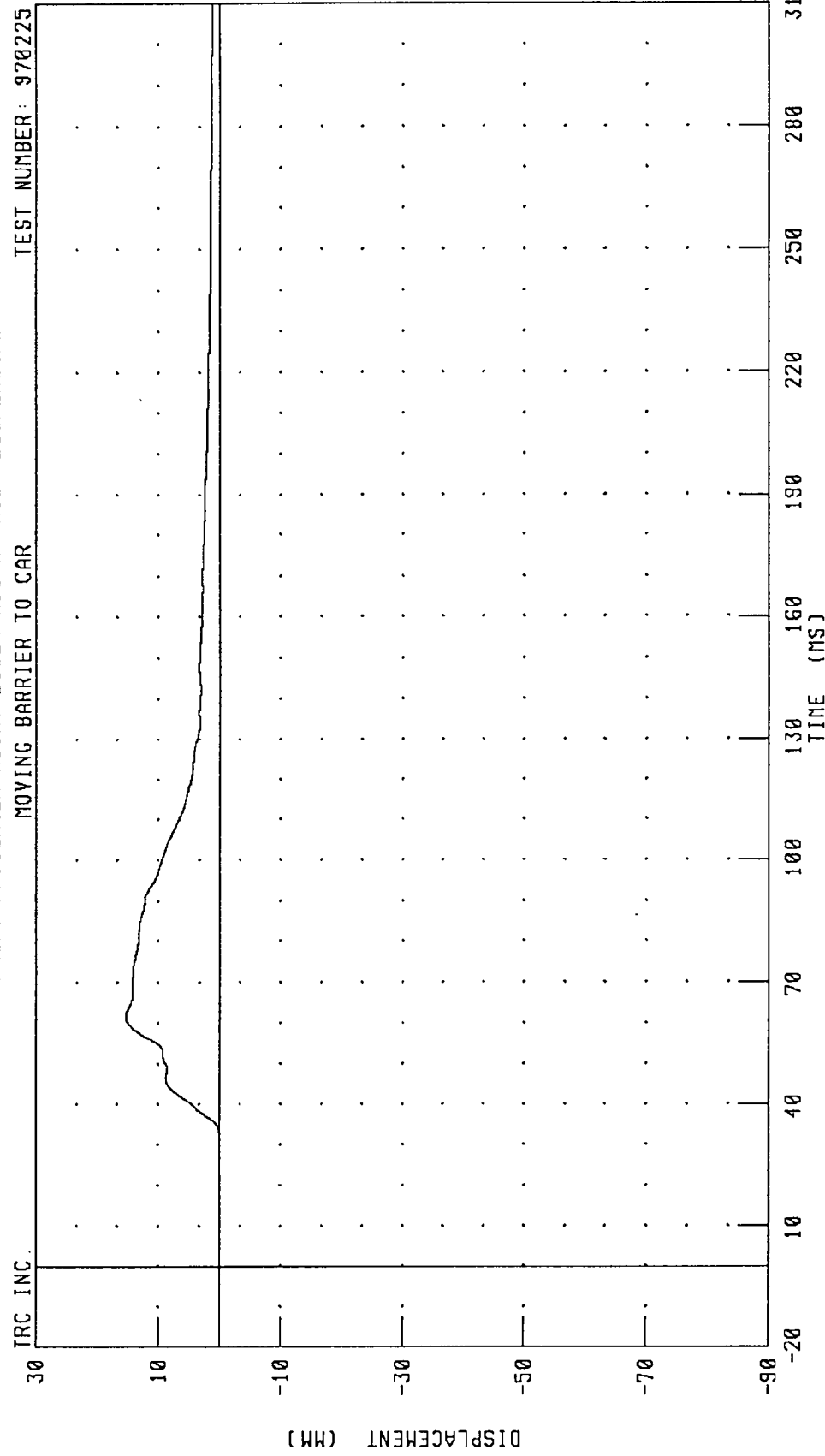
TRC INC.



CHANNEL: RLRSD2 FILTER: CH. CLASS 180

PEAK DATA: 15.27 MM @ 61.68 MS; -0.03 MM @ 23.20 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT LOWER RIB X-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR



TEST NUMBER: 970225

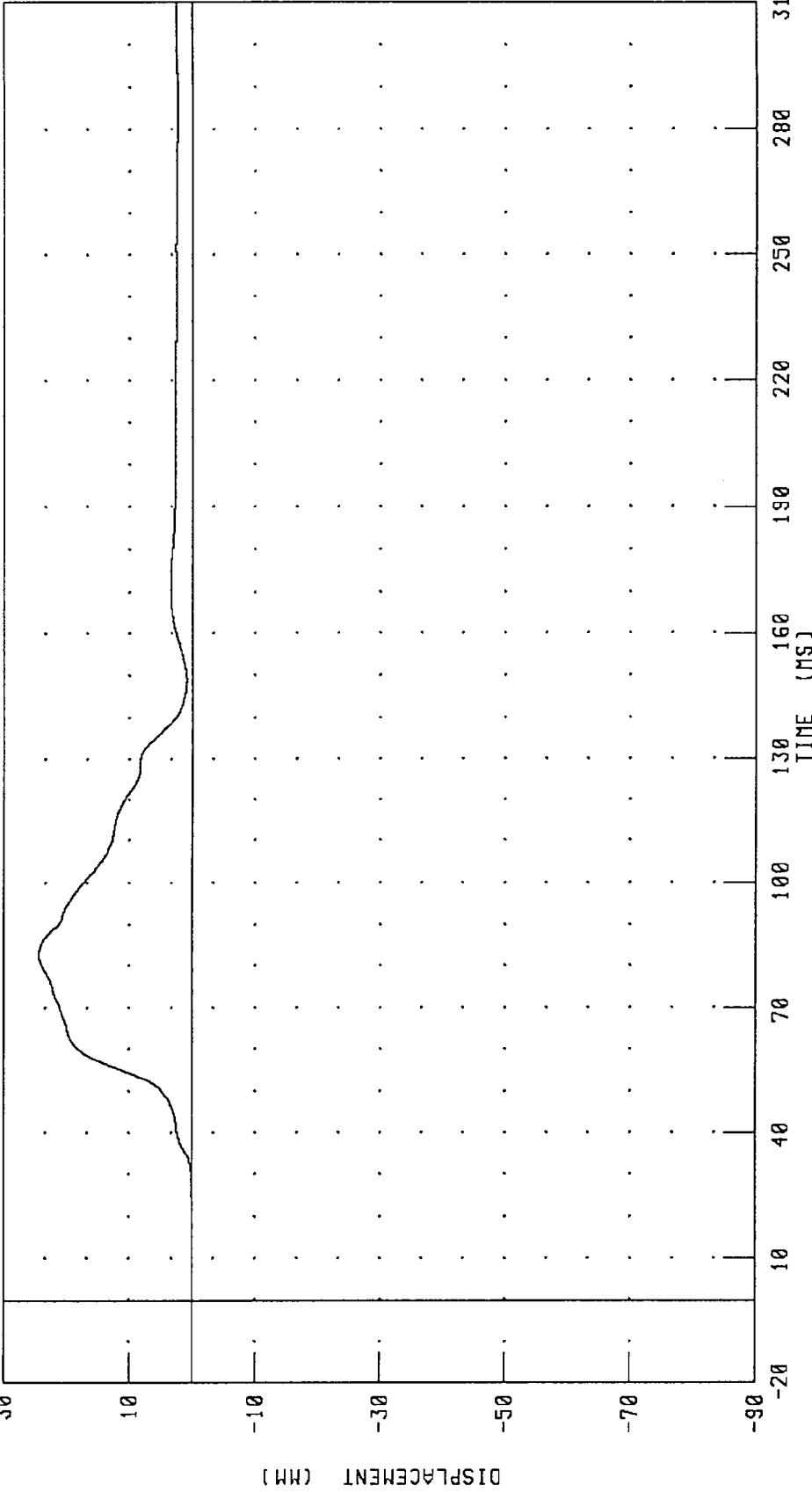
CHANNEL: RLRX02 FILTER: CH. CLASS 180 PEAK DATA: 15.29 MM @ 61.68 MS; -0.03 MM @ 23.20 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1986 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT UPPER RIB CROSSOVER DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



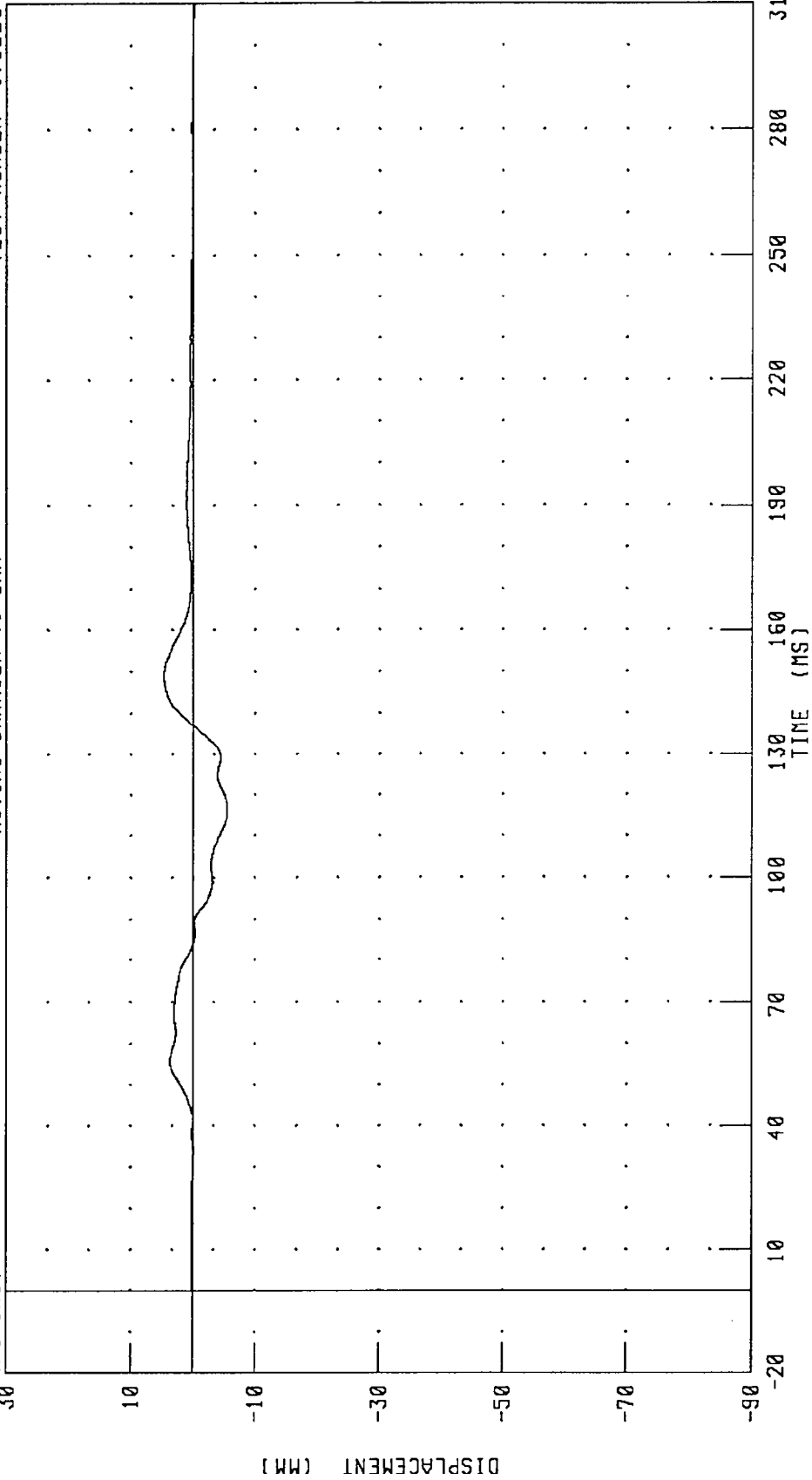
CHANNEL: LURCD2 FILTER: CH. CLASS 180

PEAK DATA: 24.37 MM @ 82.72 MS, -80.03 MM @ 19.84 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT UPPER RIB Y-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



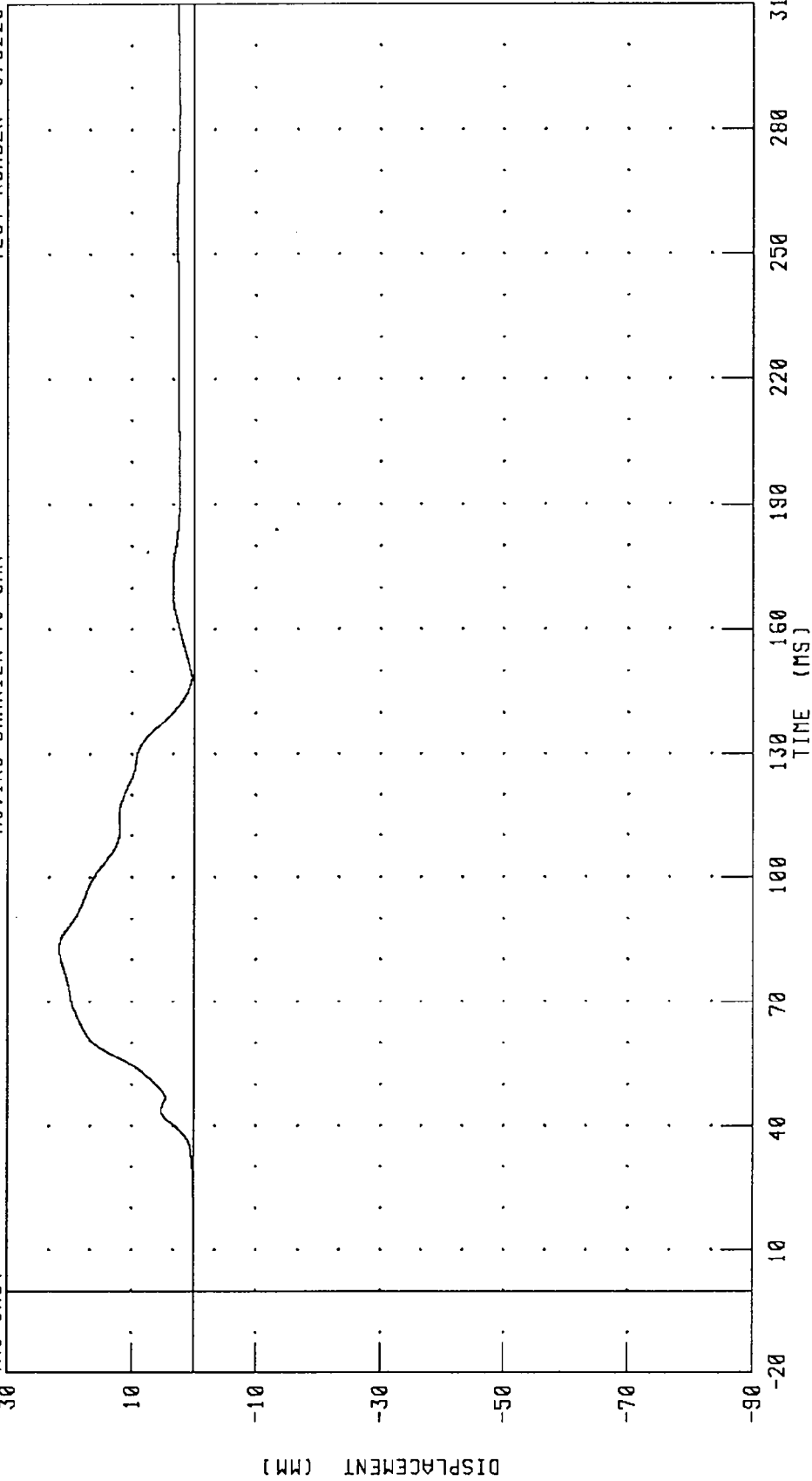
PEAK DATA: 4.69 MM @ 149.20 MS; -5.50 MM @ 116.16 MS

CHANNEL: LURYD2 FILTER: CH. CLASS 100

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT LOWER RIB CROSSOVER DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



CHANNEL: LLRCD2 FILTER: CH. CLASS 180

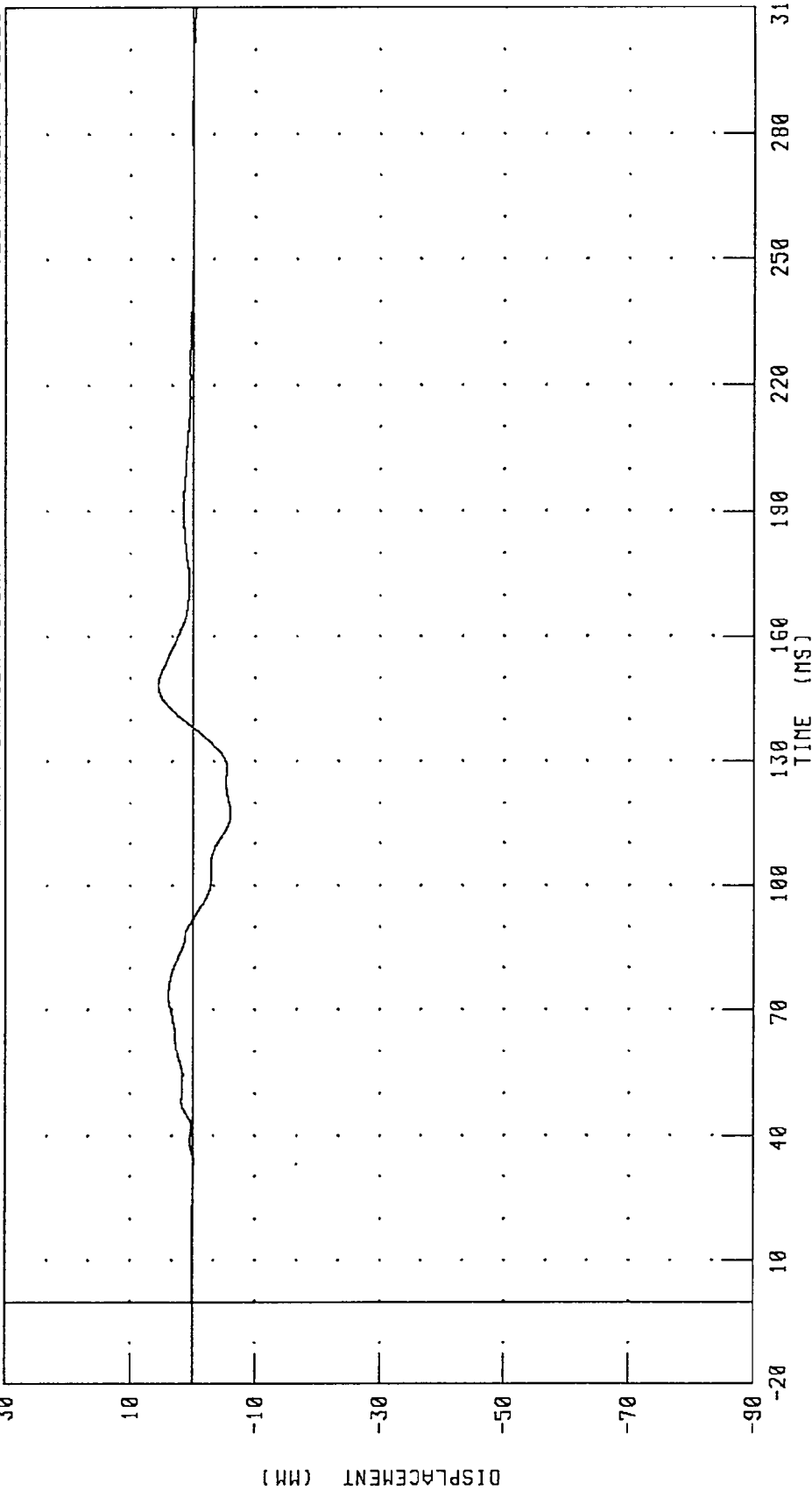
PEAK DATA: 21.64 MM @ 82.80 MS; 0.00 MM @ 9.68 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER LEFT LOWER RIB Y-AXIS DISPLACEMENT

TEST NUMBER: 970225

MOVING BARRIER TO CAR

IRC INC.



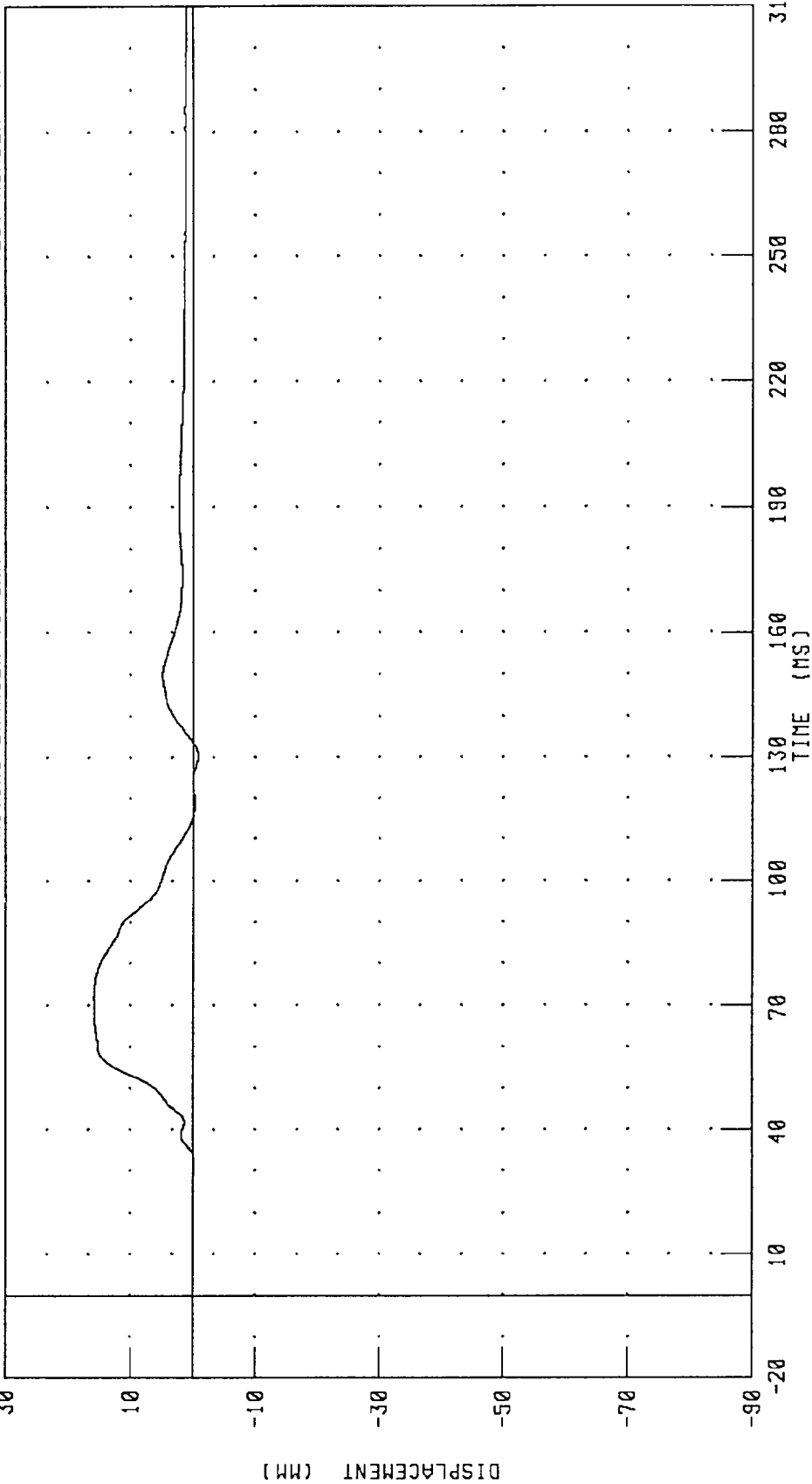
CHANNEL: LRLRYD2 FILTER: CH. CLASS 180

PEAK DATA: 5.50 MM @ 148.32 MS; -6.01 MM @ 117.52 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT UPPER RIB CROSSOVER DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



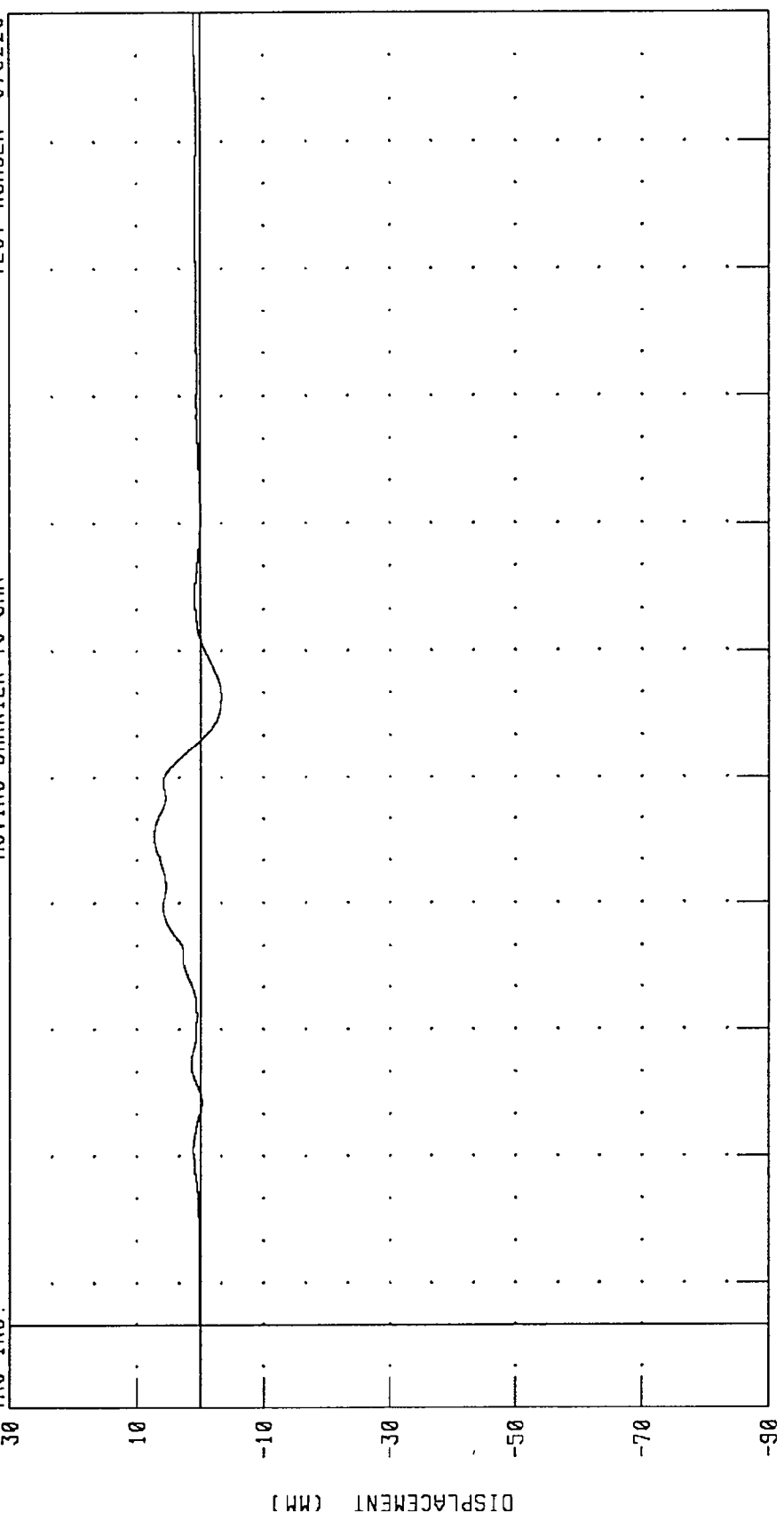
CHANNEL: RURCD2 FILTER: CH. CLASS 180

PEAK DATA: 15.82 MM @ 71.84 MS; -0.89 MM @ 130.40 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT UPPER RIB Y-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

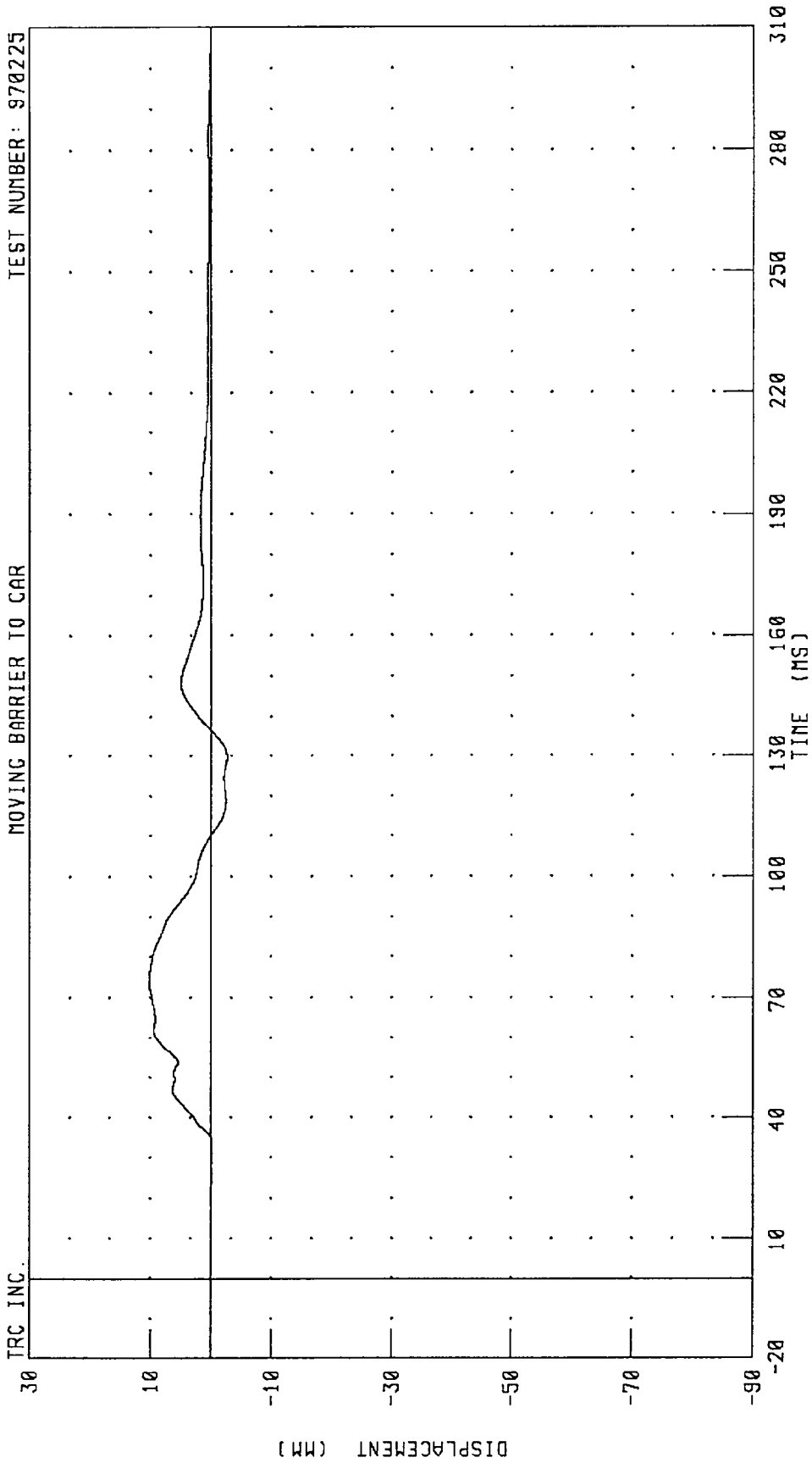


CHANNEL: RURY02 FILTER: CH. CLASS 180

PEAK DATA: 7.28 MM @ 116.00 MS; -3.34 MM @ 149.12 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT LOWER RIB CROSSOVER DISPLACEMENT

MOVING BARRIER TO CAR TEST NUMBER: 970225

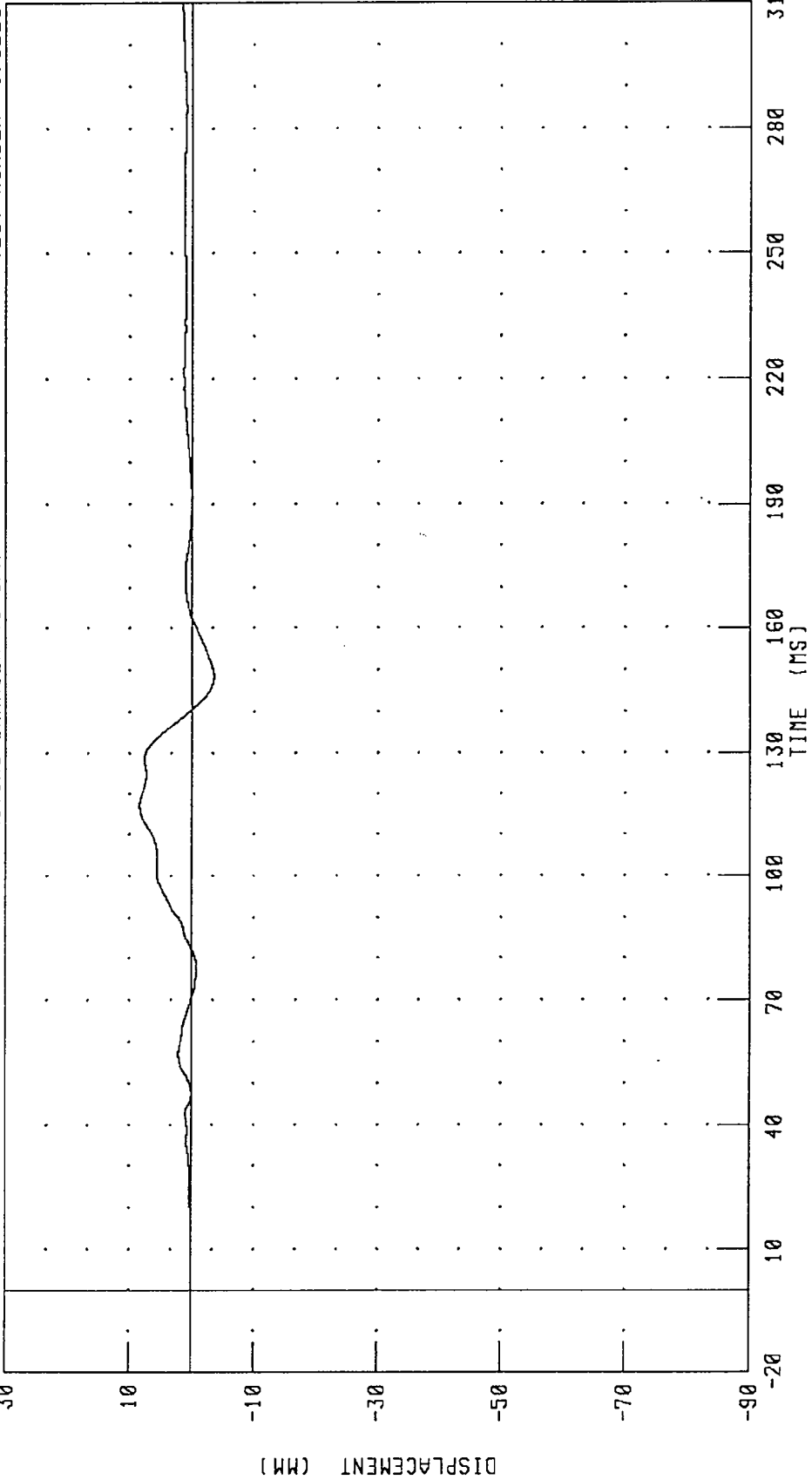


CHANNEL: RLRC02 FILTER: CH. CLASS 180 PEAK DATA: 10.20 MM @ 73.76 MS; -2.67 MM @ 129.76 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT PASSENGER RIGHT LOWER RIB Y-AXIS DISPLACEMENT  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

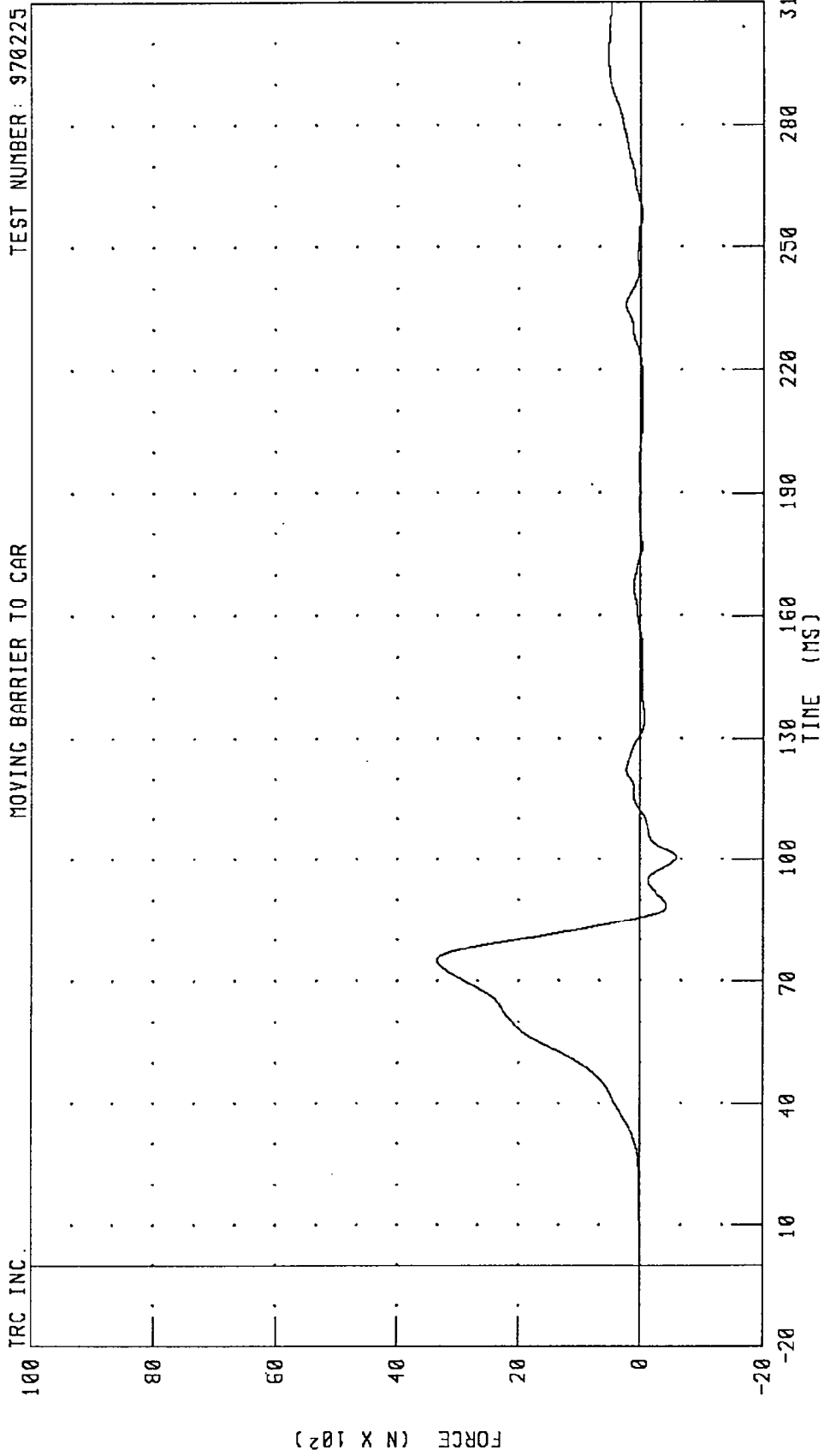


CHANNEL: RLRY02 FILTER: CH. CLASS 180

PEAK DATA: 8.41 MM @ 117.36 MS; -3.52 MM @ 148.64 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
DRIVER SHOULDER BELT FORCE  
MOVING BARRIER TO CAR

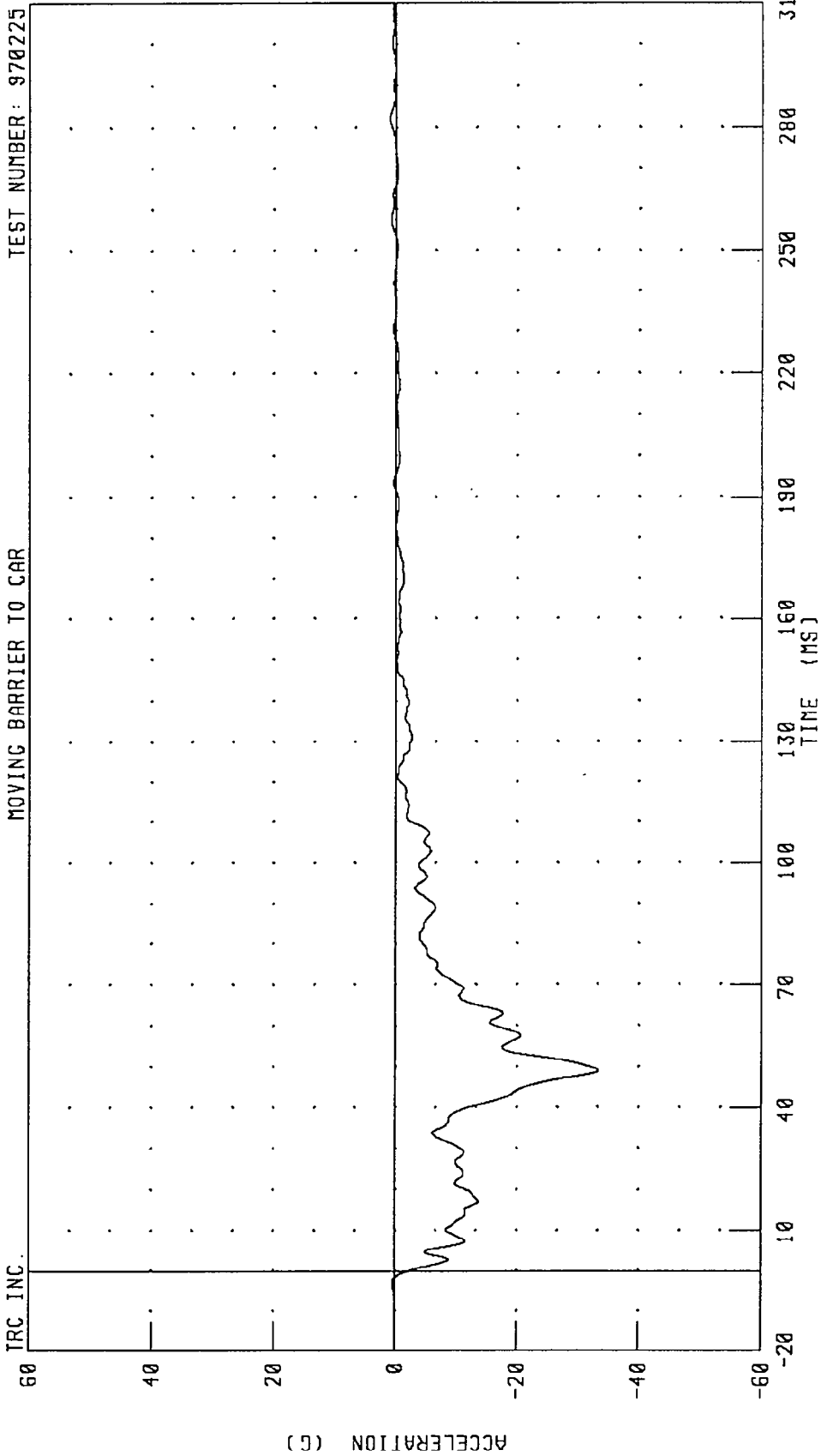
TEST NUMBER: 970225



CHANNEL: SHBF1 FILTER: CH. CLASS 60  
PEAK DATA: 3339.66 N @ 75.04 MS; -593.66 N @ 100.56 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
LEFT REAR COMPARTMENT X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

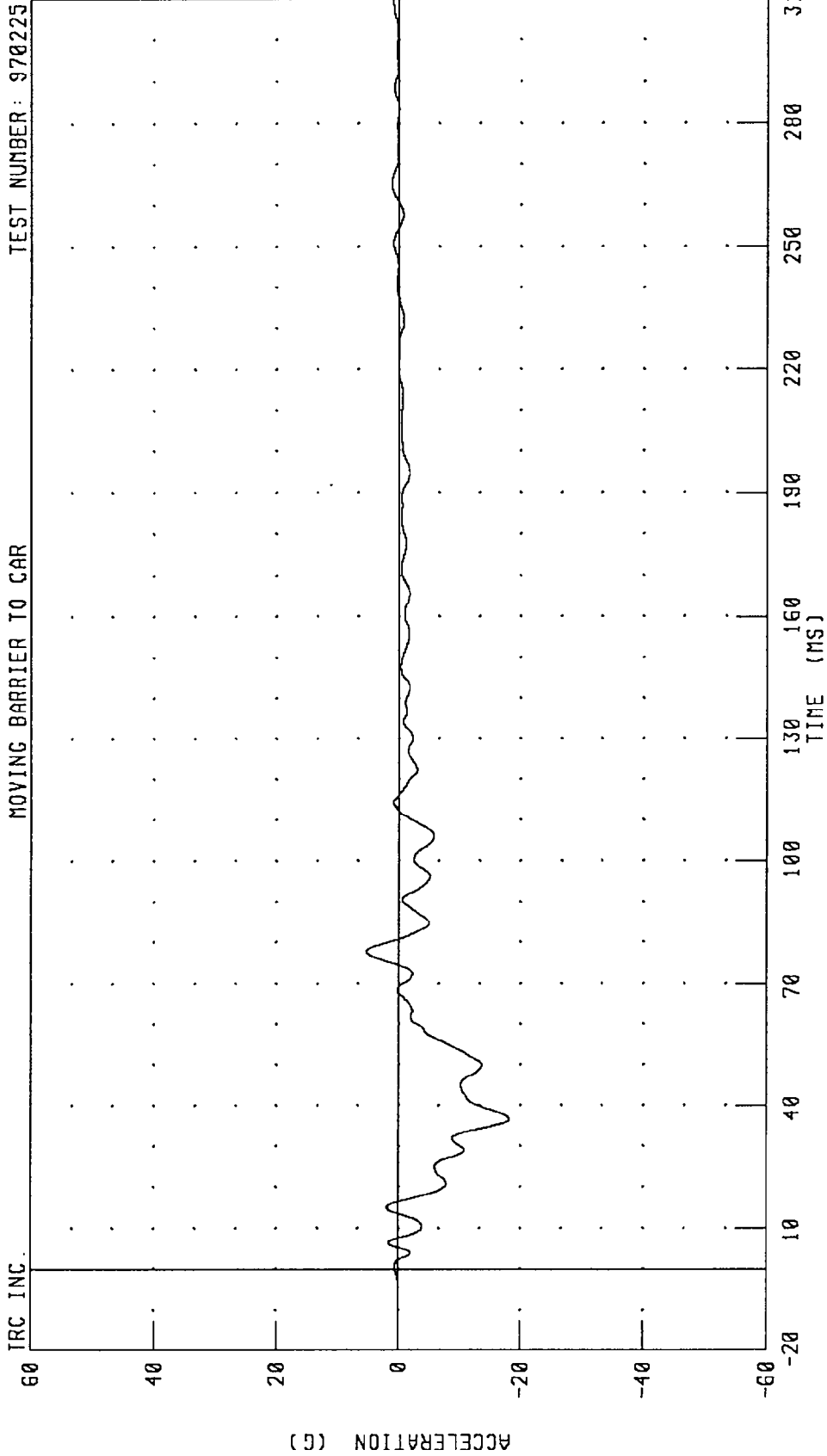


TRC INC.

CHANNEL: LRFXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.00 G @ 282.16 MS; -33.37 G @ 49.04 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
LEFT REAR COMPARTMENT Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR



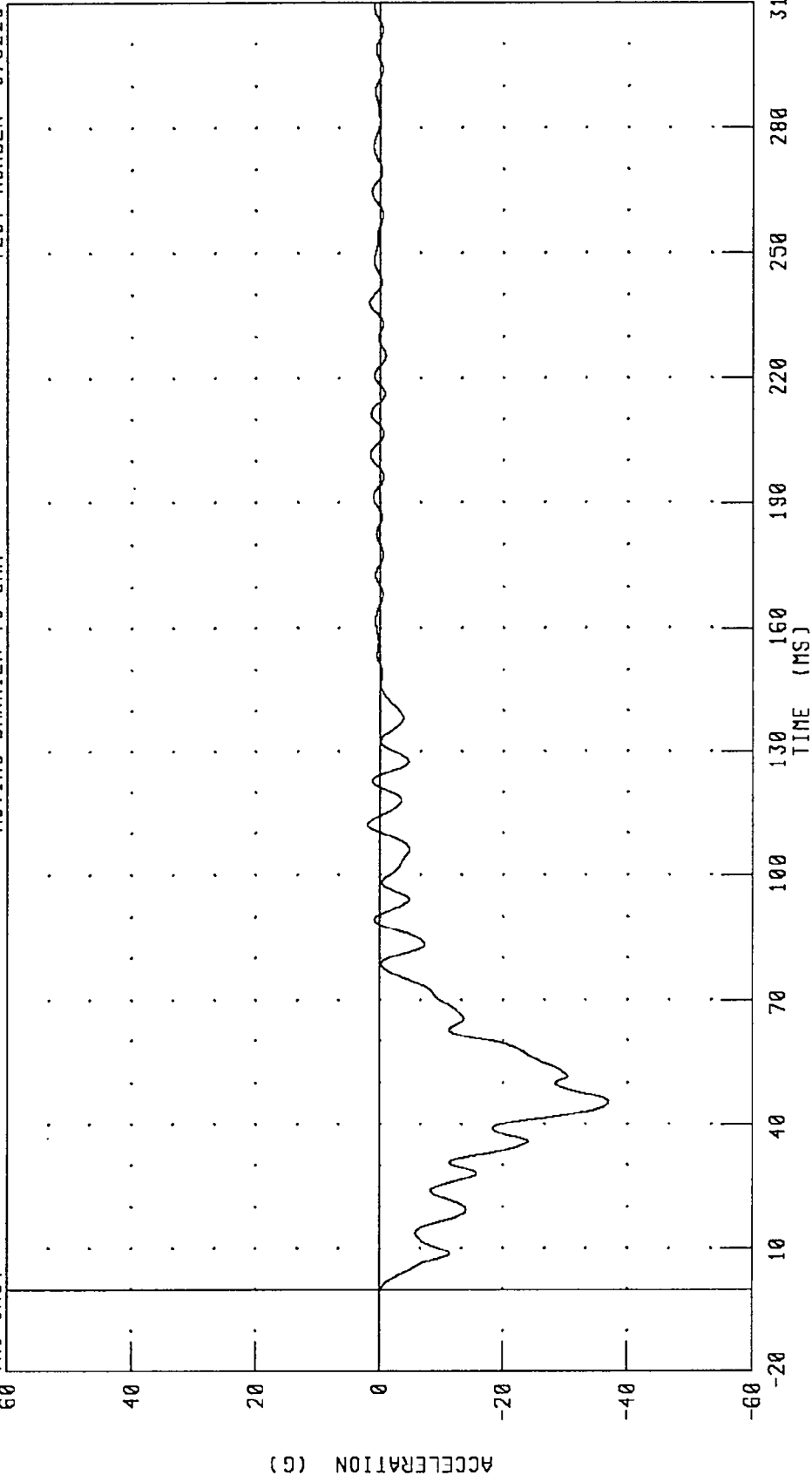
CHANNEL: LRFY61 FILTER: CH. CLASS 60

PEAK DATA: 5.30 G @ 77.84 MS; -18.18 G @ 36.96 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT REAR COMPARTMENT X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

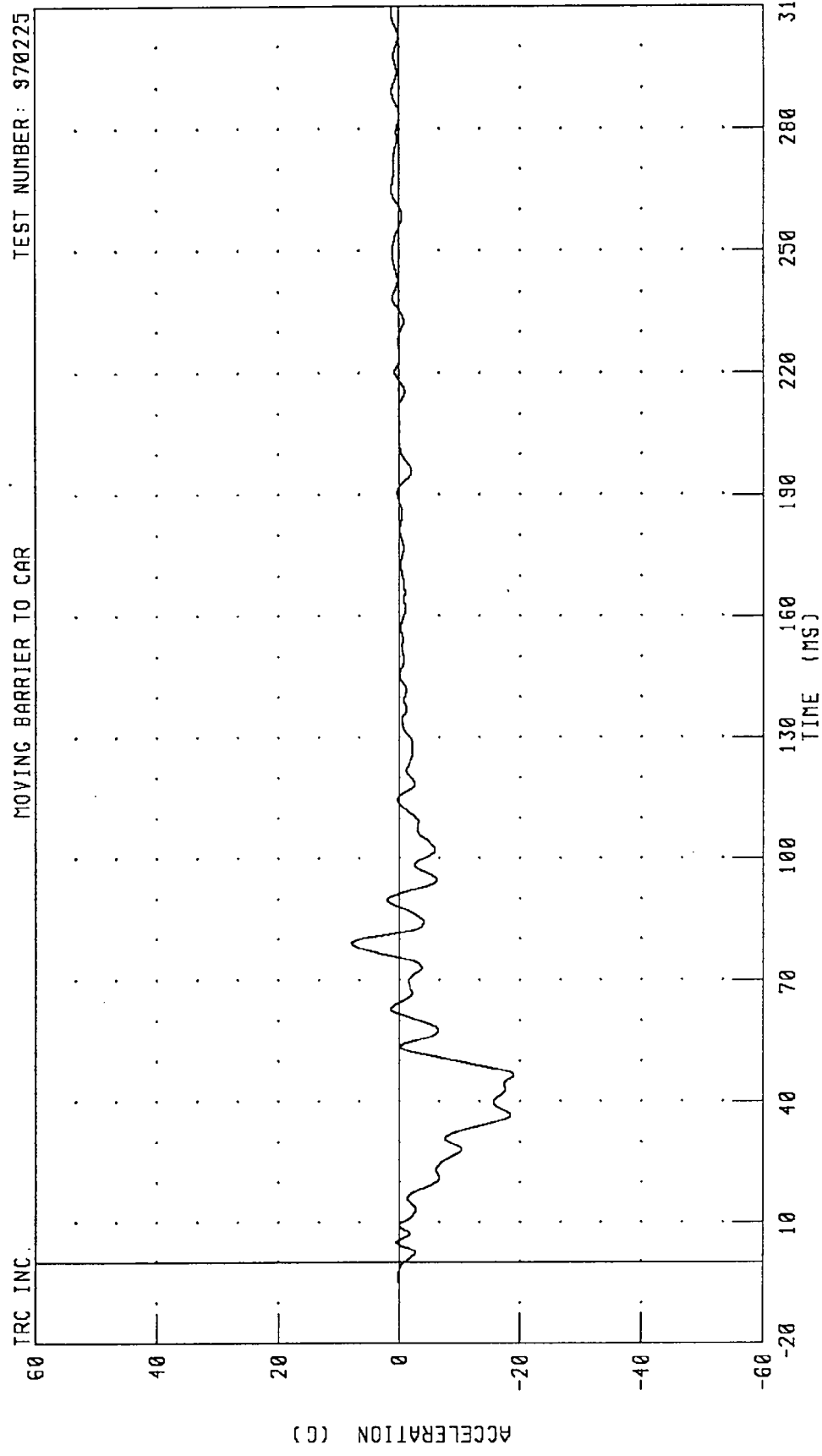
TRC INC.



CHANNEL: RRFXG1 FILTER: CH. CLASS 60  
PEAK DATA: 1.98 G @ 12.16 MS; -36.90 G @ 45.52 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT REAR COMPARTMENT Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

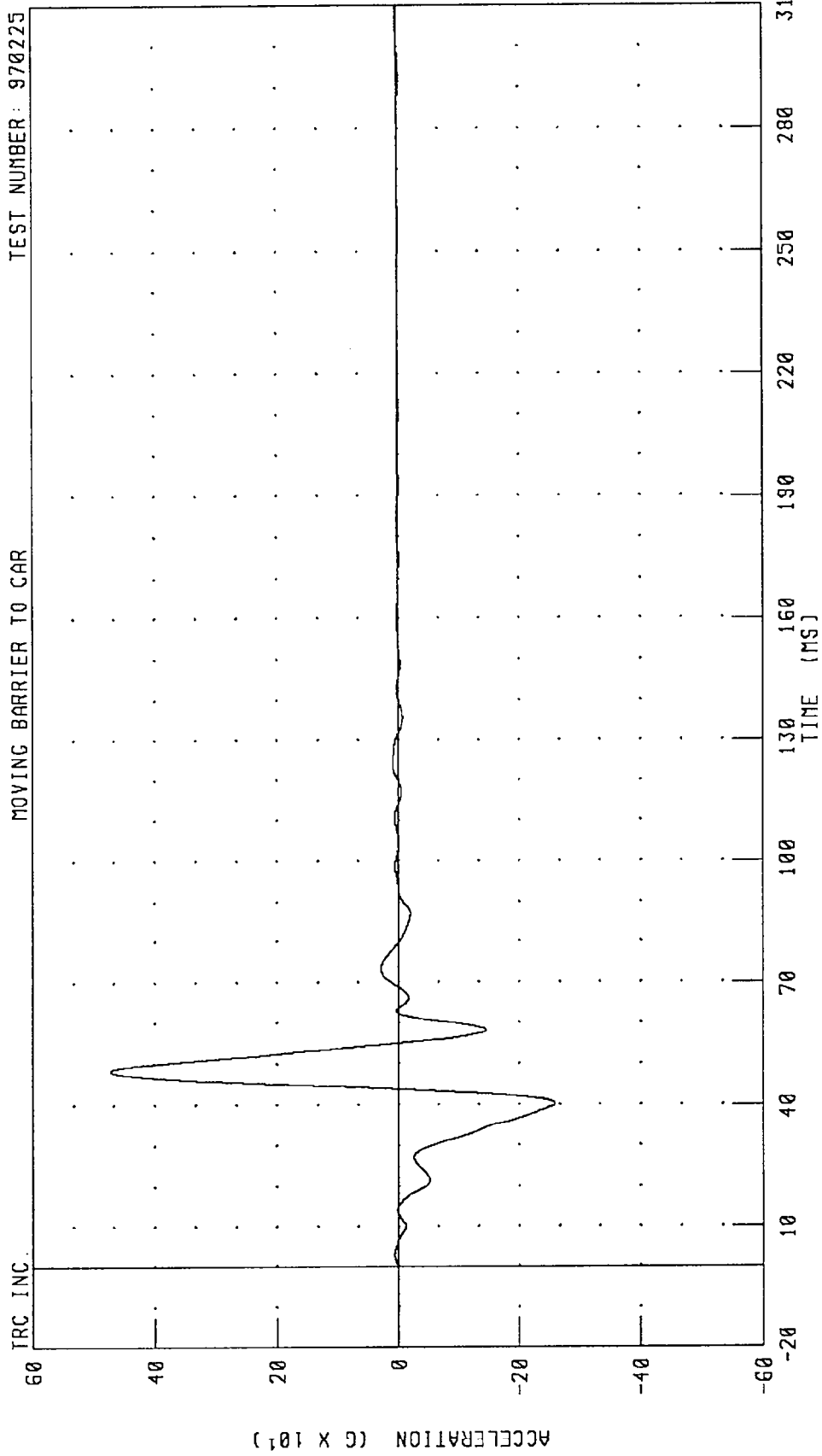


CHANNEL: RRFYGI FILTER: CH. CLASS 60

PEAK DATA: 7.90 G @ 79.12 MS; -18.99 G @ 46.56 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
BRAKE PEDAL X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

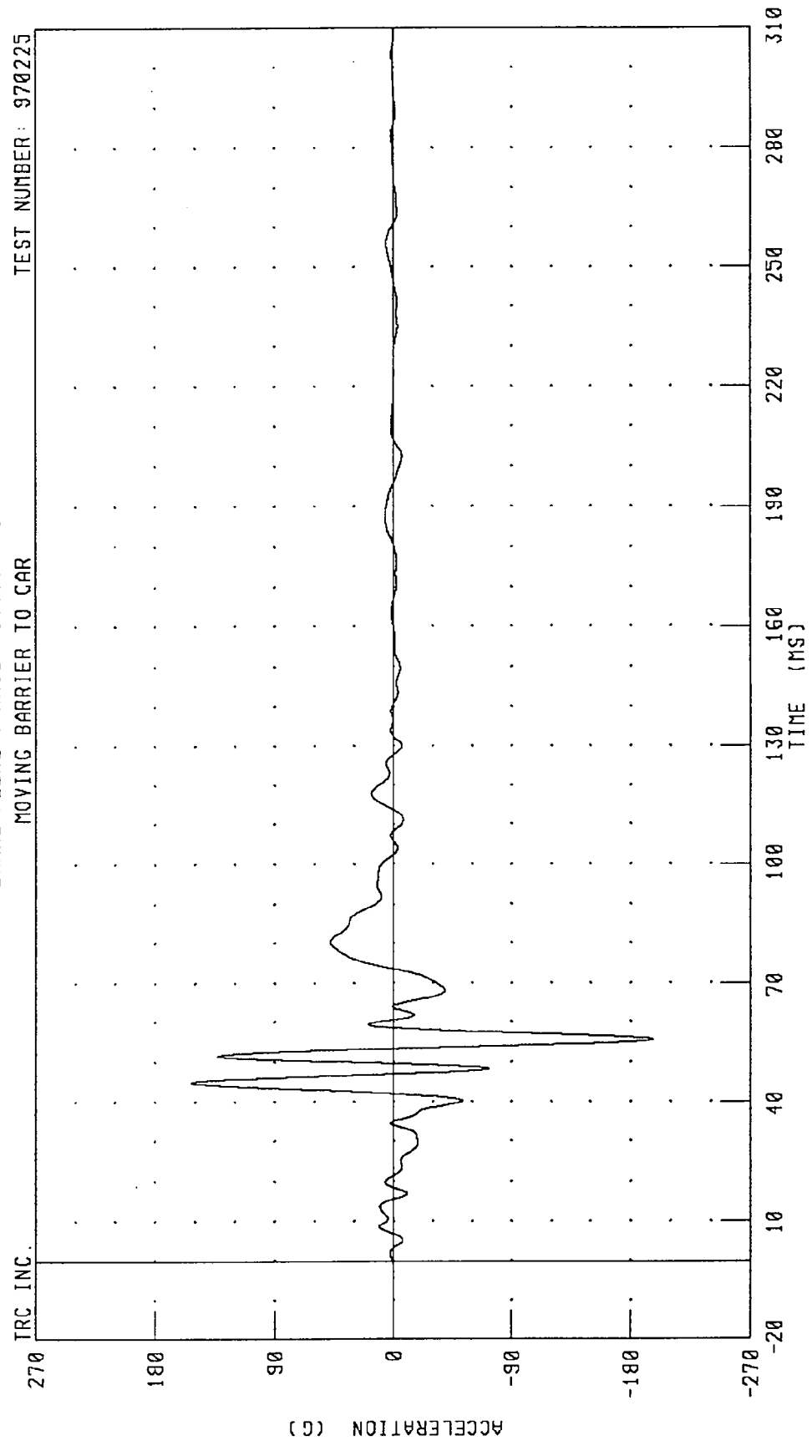
TEST NUMBER: 970225



CHANNEL: PEDXG1 FILTER: CH. CLASS 60 PEAK DATA: 472.68 G @ 48.40 MS; -259.40 G @ 40.32 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
BRAKE PEDAL Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

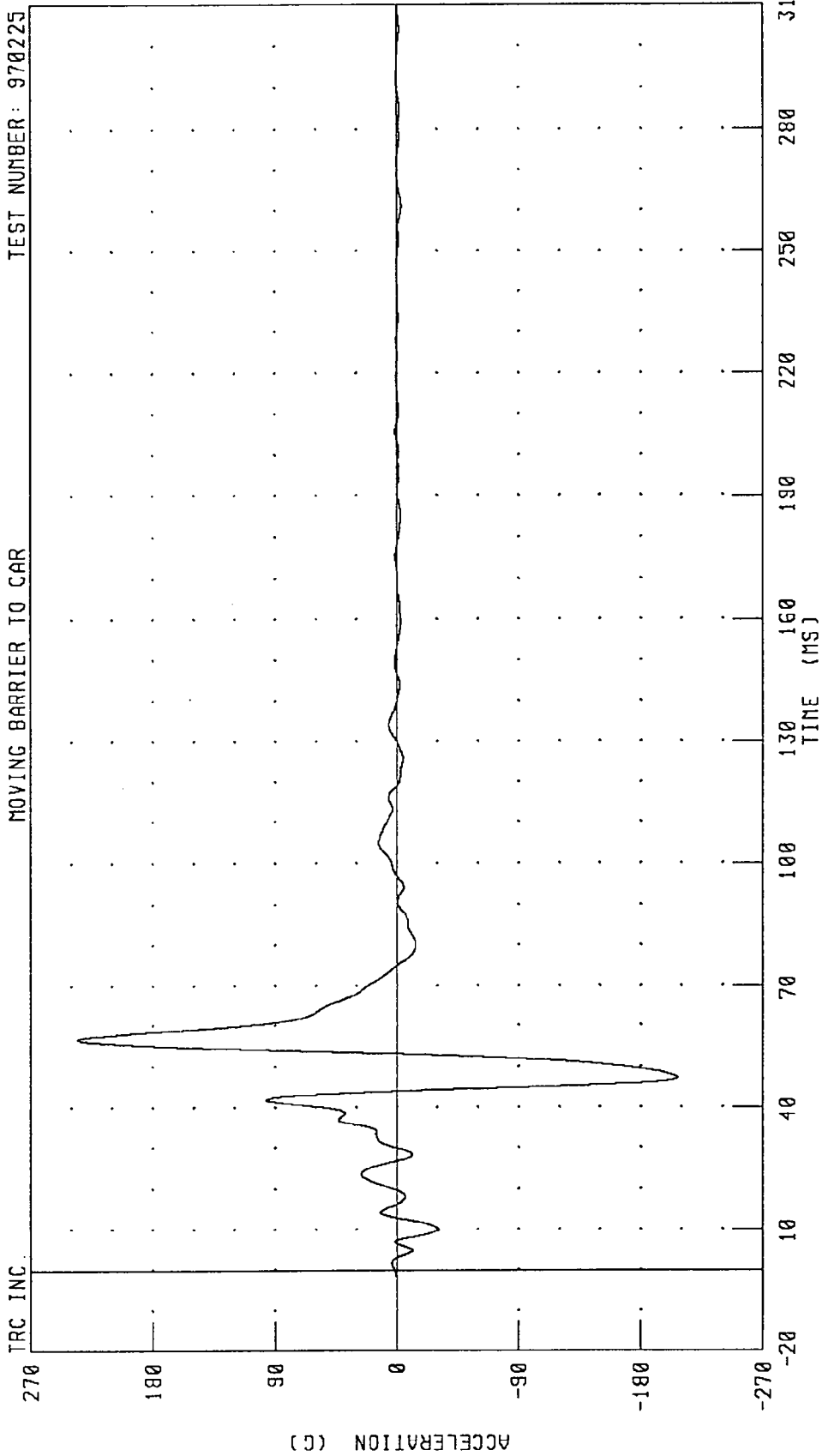


CHANNEL: PEDYG1 FILTER: CH. CLASS 60

PEAK DATA: 152.34 G @ 44.96 MS; -196.30 G @ 55.60 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
BRAKE PEDAL Z-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



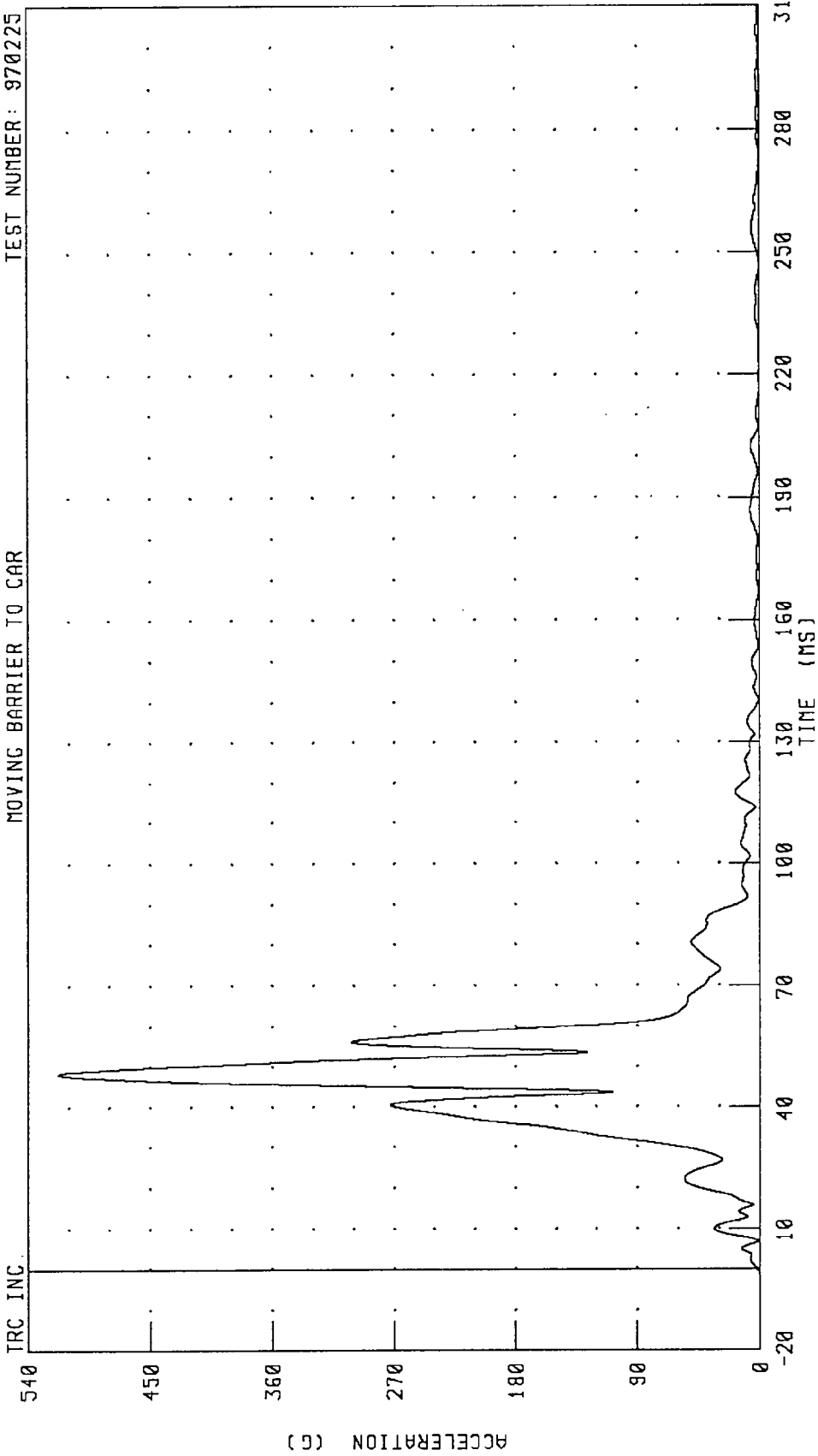
CHANNEL: PEDZG1 FILTER: CH. CLASS 60

PEAK DATA: 235.34 G @ 56.72 MS; -207.42 G @ 47.20 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
BRAKE PEDAL RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

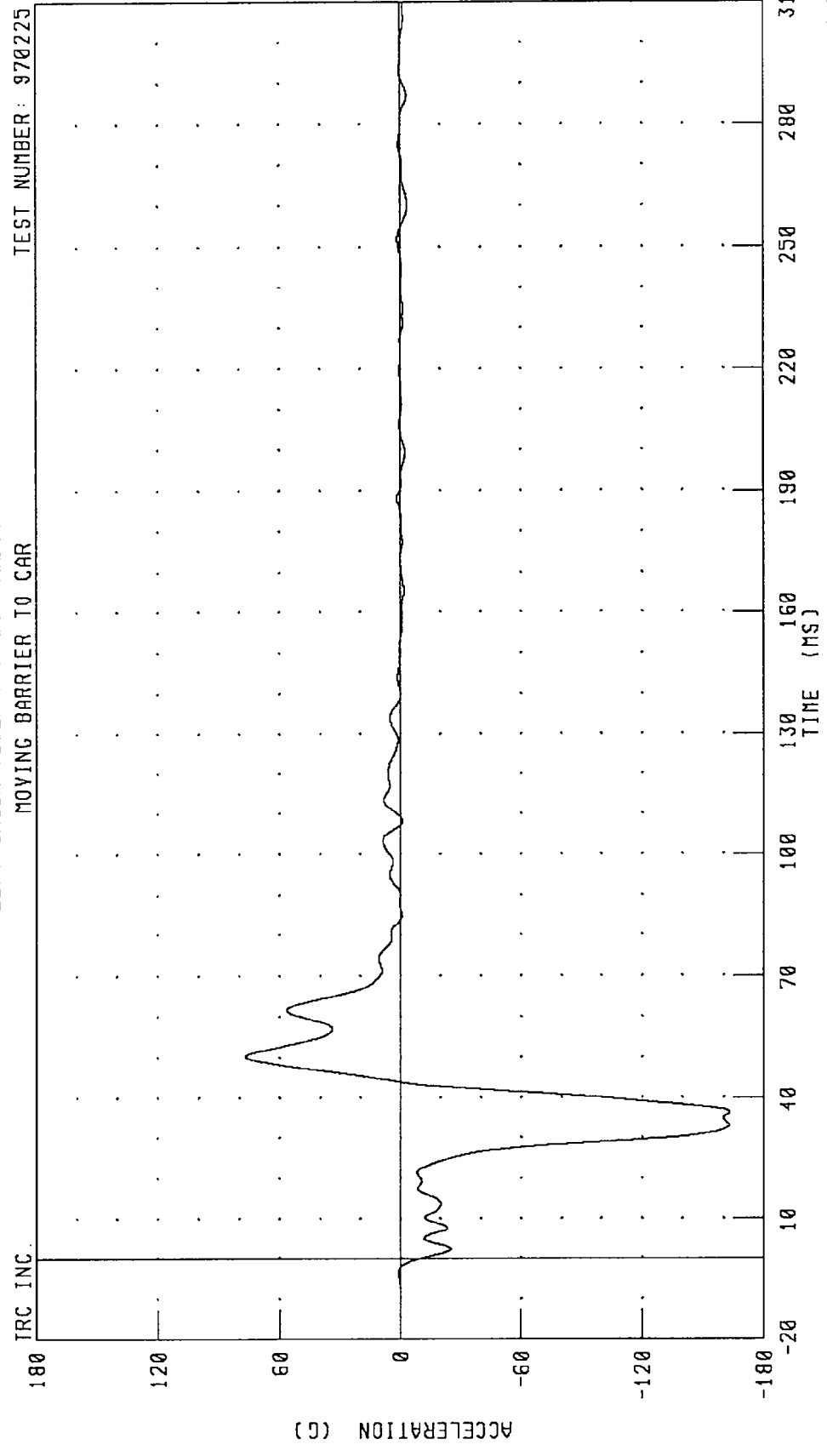
TRC INC.



PEAK DATA: 517.86 G @ 48.32 MS; 0.01 G @ -10.88 MS

CHANNEL: PEDRG1 FILTER: CH. CLASS 60

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
LEFT SHOCK TOWER X-AXIS ACCELERATION  
MOVING BARRIER TO CAR



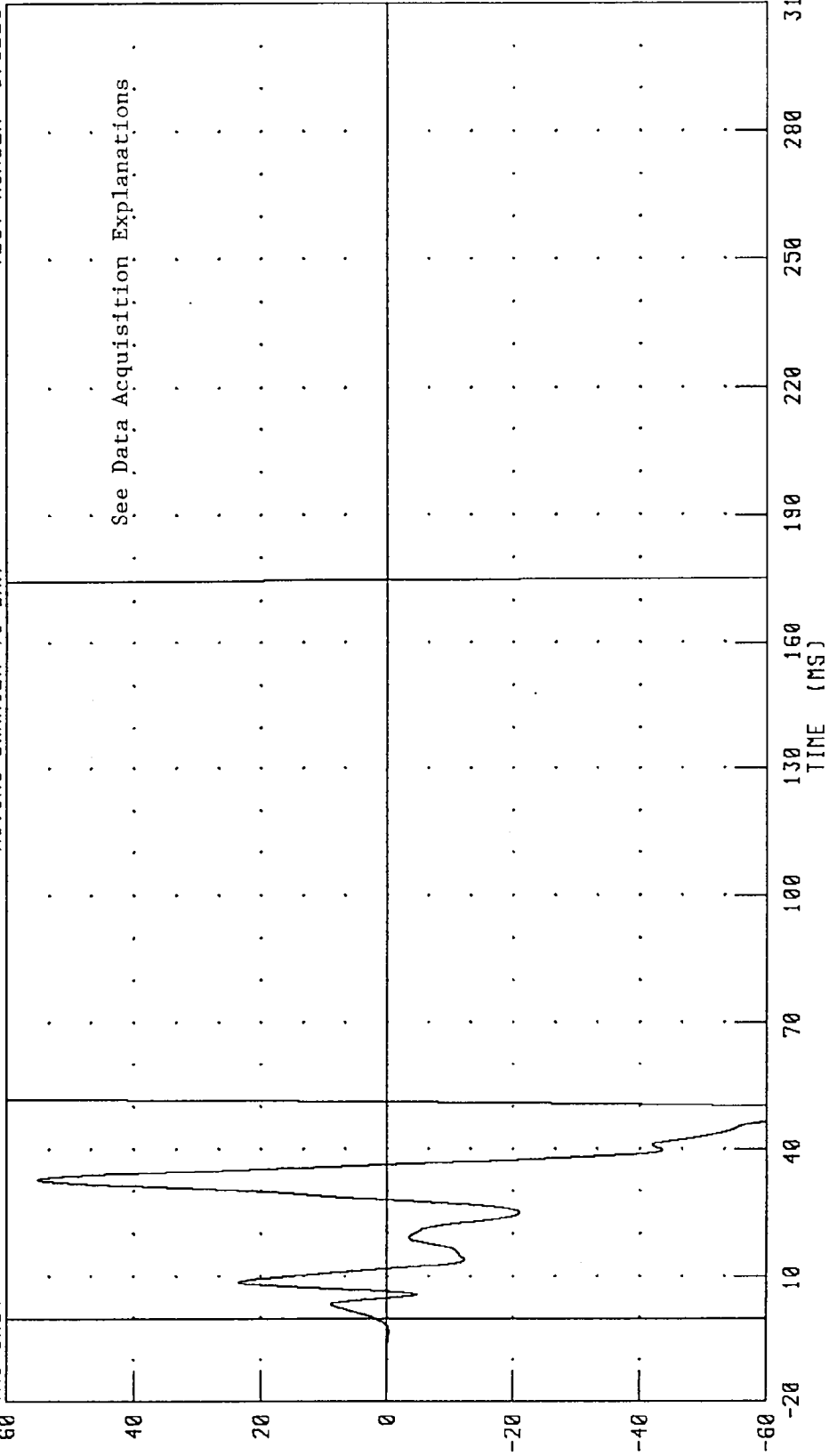
CHANNEL: SFLXG1 FILTER: CH. CLASS 60 PEAK DATA: 77.12 G @ 50.24 MS; -163.16 G @ 36.40 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 LEFT SHOCK TOWER Z-AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.



See Data Acquisition Explanations

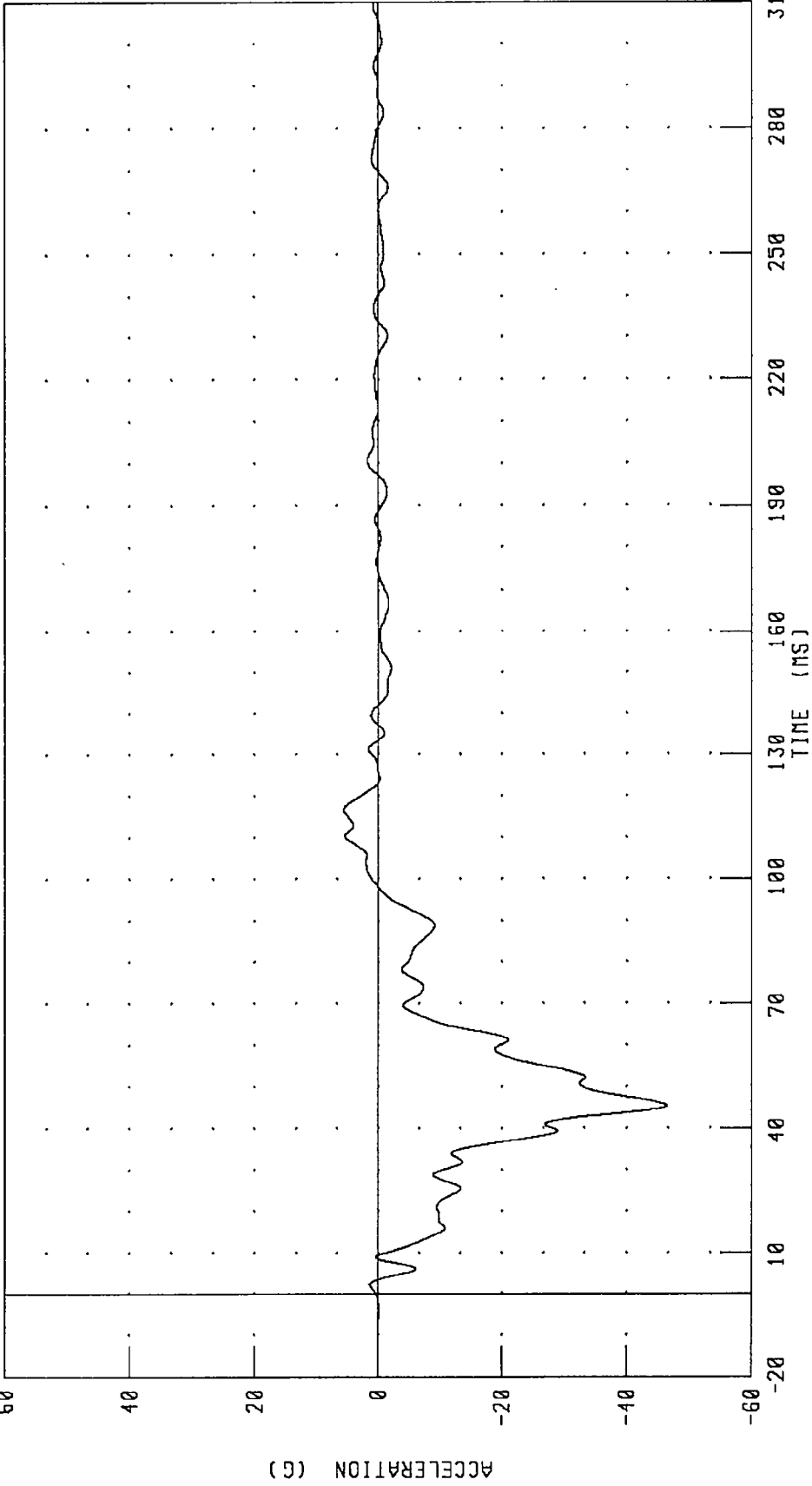
CHANNEL: SFLZ01 FILTER: CH. CLASS 60

PEAK DATA: 1052.98 G @ 58.00 MS; -1013.93 G @ 186.88 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT SHOCK TOWER X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

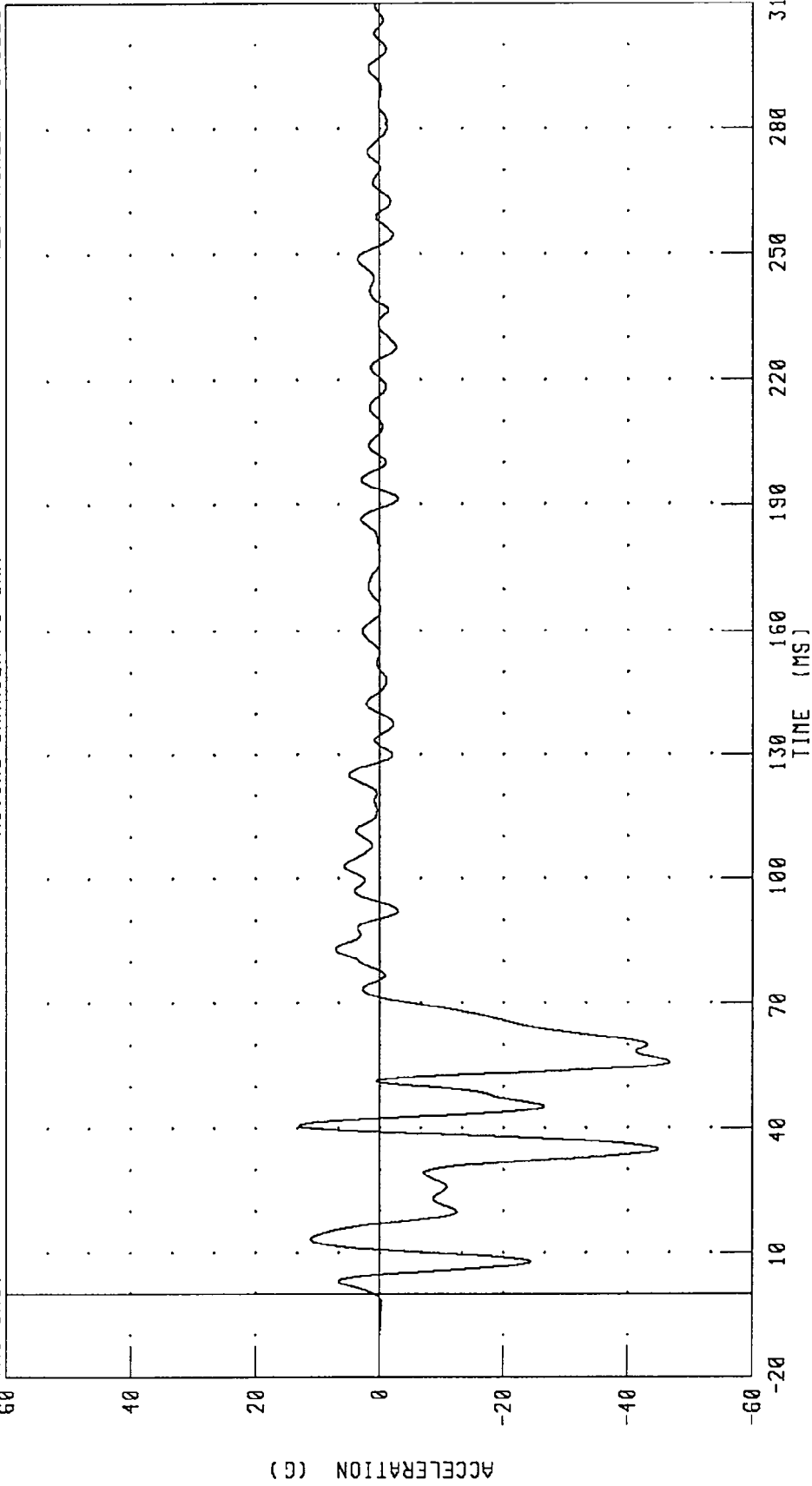


CHANNEL: SFRXG1 FILTER: CH. CLASS 60  
PEAK DATA: 5.63 G @ 116.80 MS; -46.40 G @ 45.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT SHOCK TOWER Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

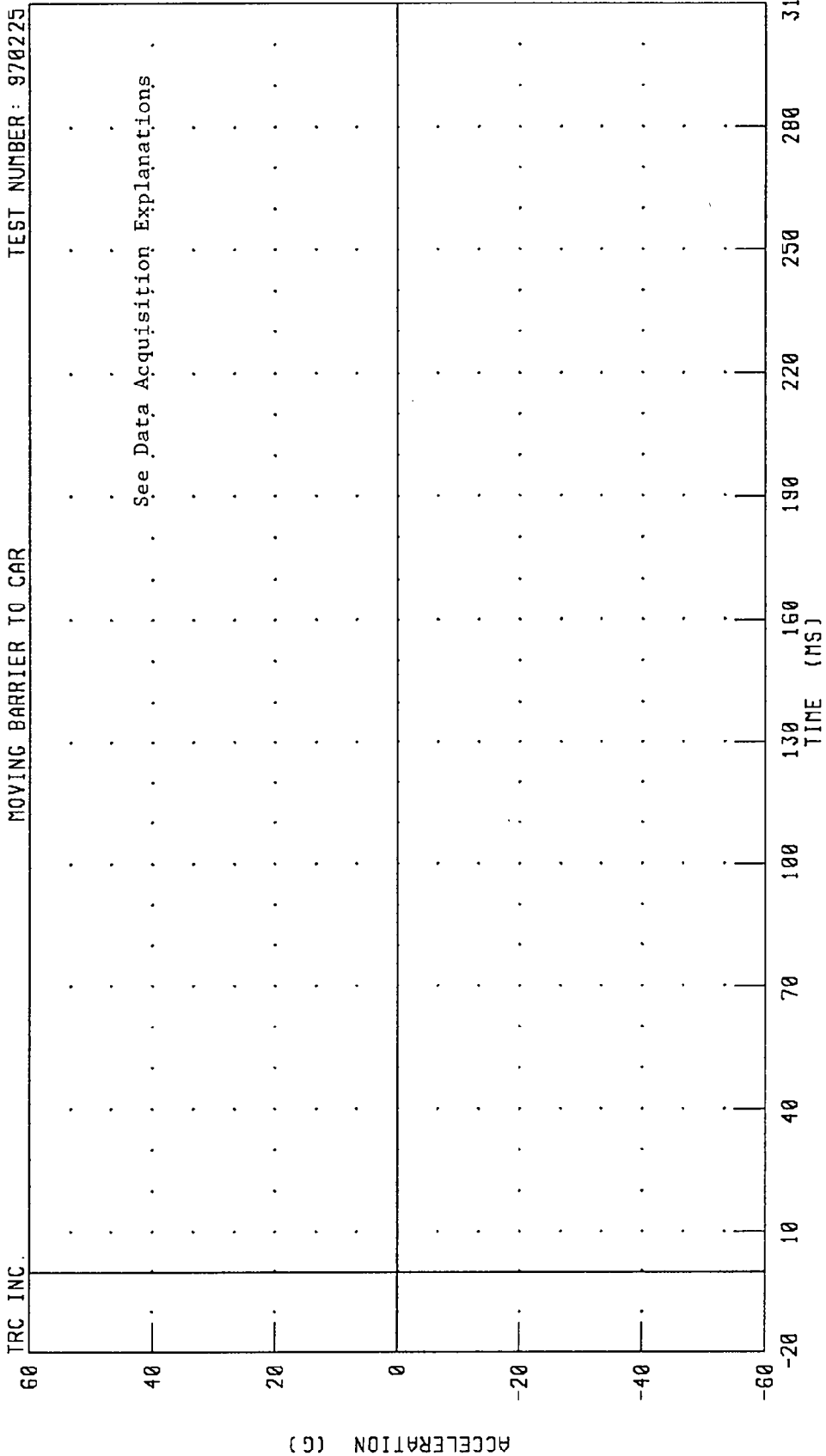
TRC INC.



CHANNEL: SFRYG1 FILTER: CH. CLASS 60  
PEAK DATA: 13.04 G @ 40.64 MS; -46.76 G @ 55.92 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 LEFT ENGINE X-AXIS ACCELERATION  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225

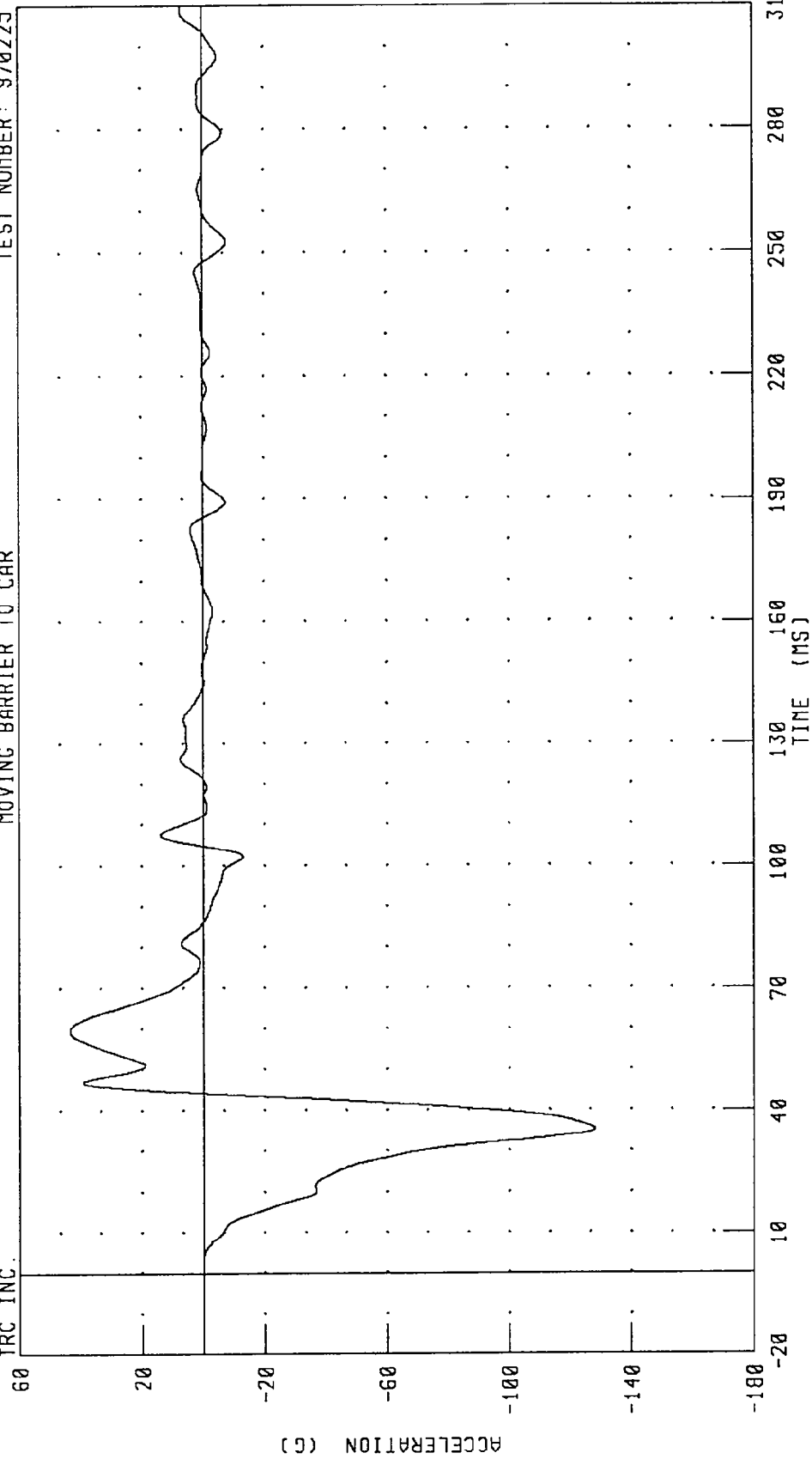


CHANNEL: ENGXG1 FILTER: CH. CLASS 60 PEAK DATA: 0.00 G @ 310.00 MS; 0.00 G @ -20.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT ENGINE X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



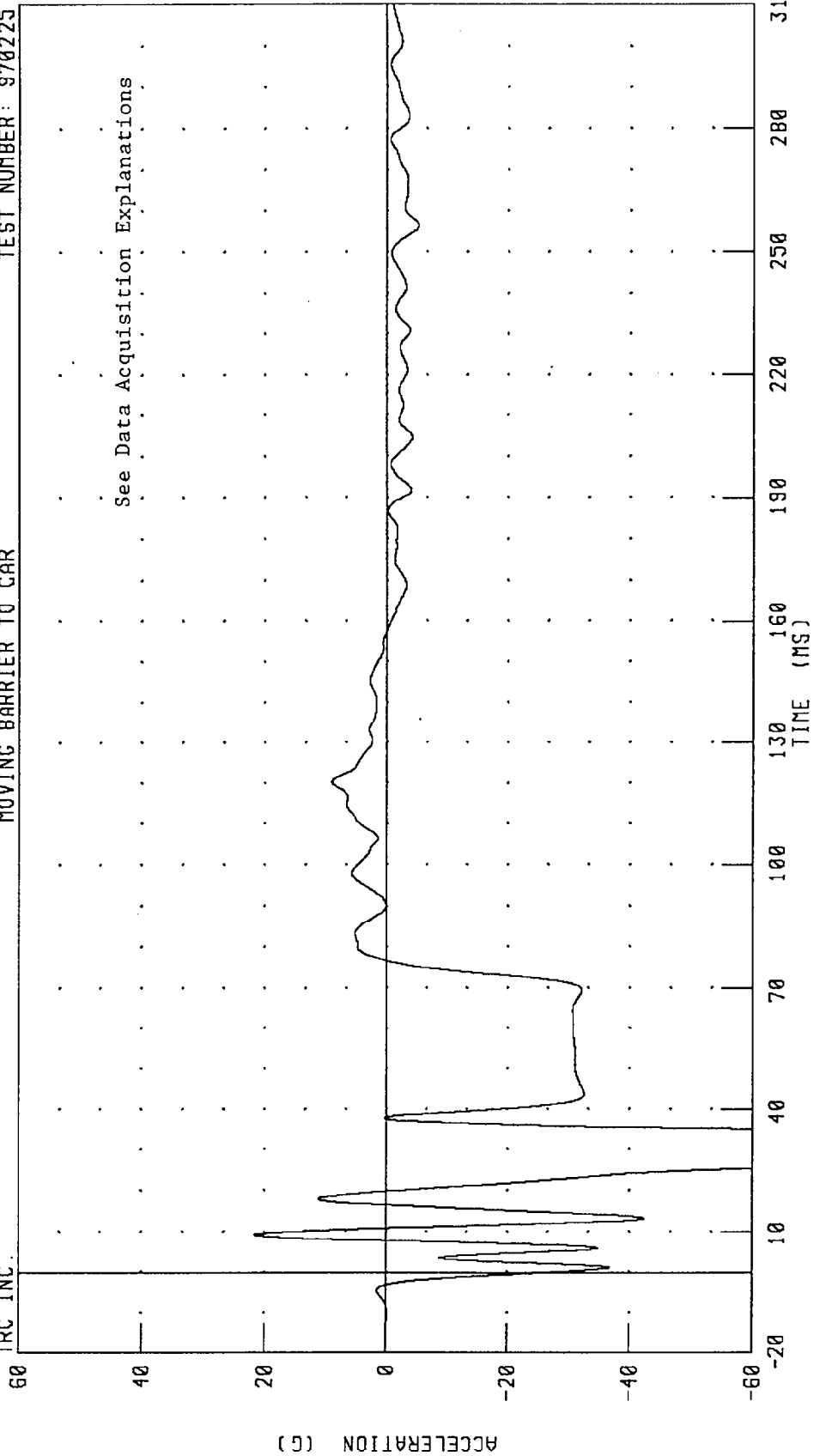
CHANNEL: ENGXC2 FILTER: CH. CLASS 60

PEAK DATA: 43.45 G @ 59.44 MS; -128.10 G @ 35.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
LEFT FRONT FRAME RAIL X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

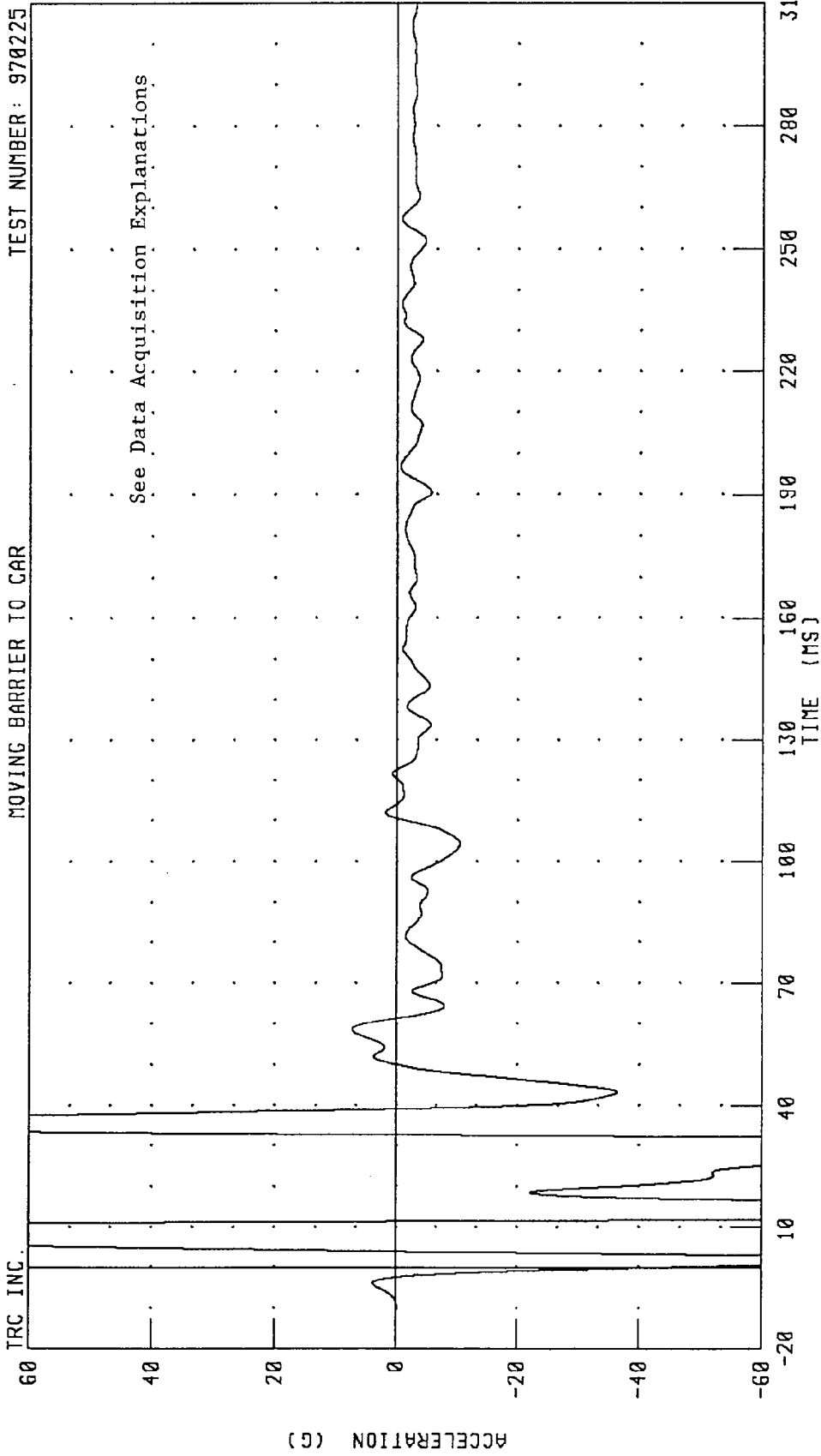


CHANNEL: FFRXG1 FILTER: CH. CLASS 60

PEAK DATA: 21.67 G @ 9.28 MS; -340.51 G @ 30.88 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 LEFT FRONT FRAME RAIL Y-AXIS ACCELERATION  
 MOVING BARRIER TO CAR

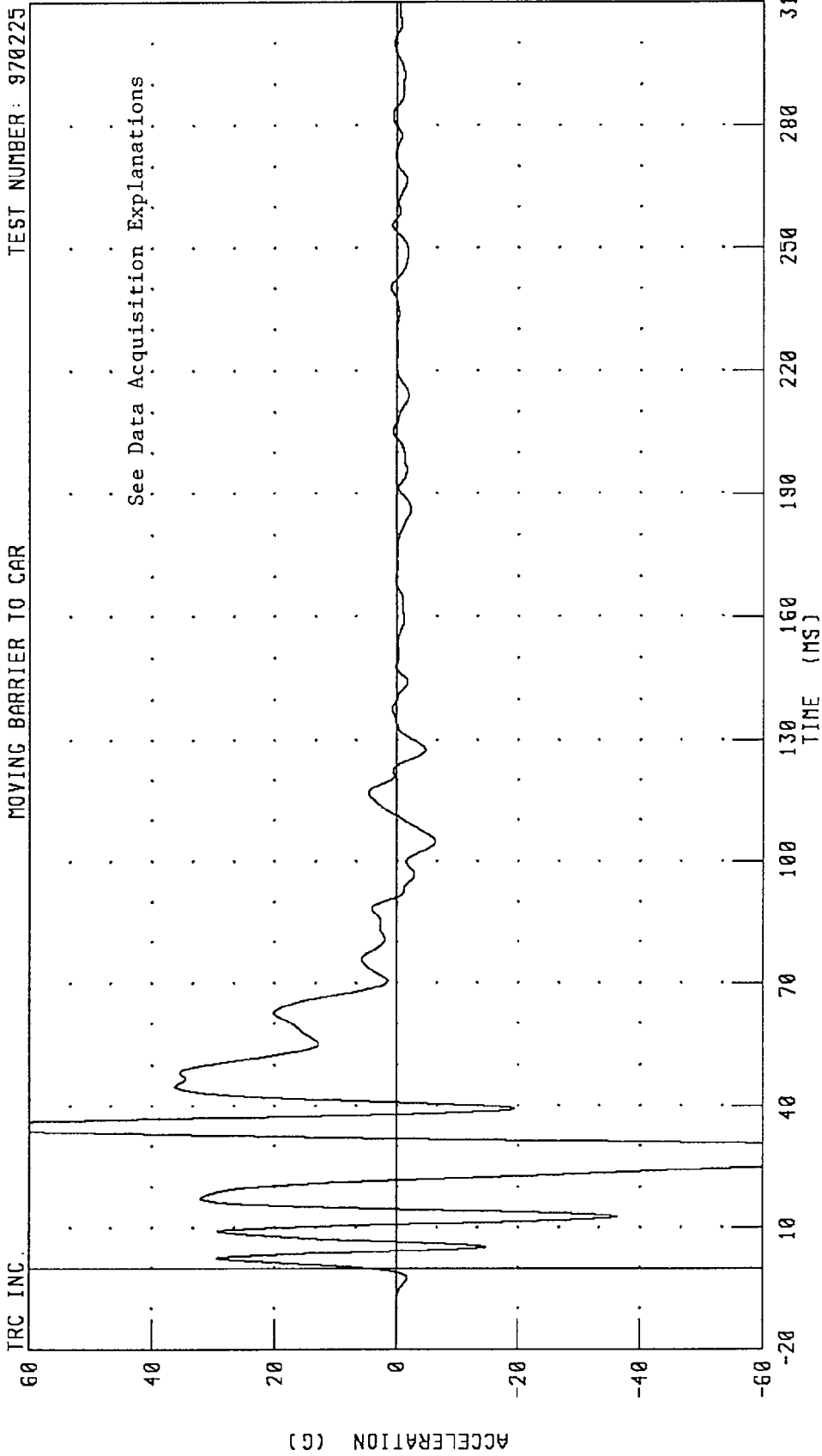
TEST NUMBER: 970225



CHANNEL: FFRY61 FILTER: CH. CLASS 60 PEAK DATA: 215.38 G @ 8.96 MS, -212.44 G @ 29.84 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 LEFT FRONT FRAME RAIL Z-AXIS ACCELERATION  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225

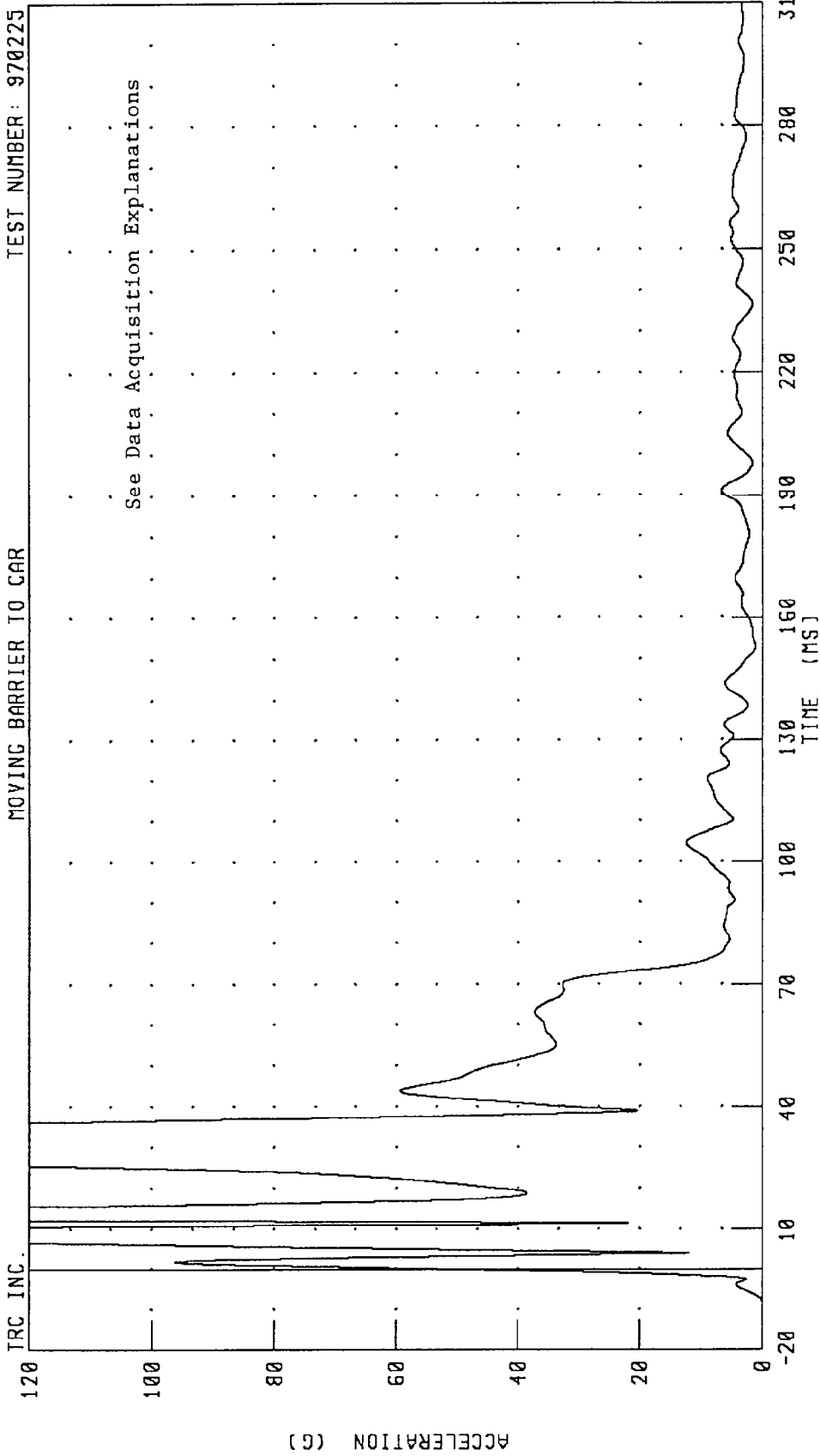


CHANNEL: FFRZG1 FILTER: CH. CLASS 60 PEAK DATA: 92.09 G @ 35.04 MS; -106.16 G @ 28.08 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
LEFT FRONT FRAME RAIL RESULTANT ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR



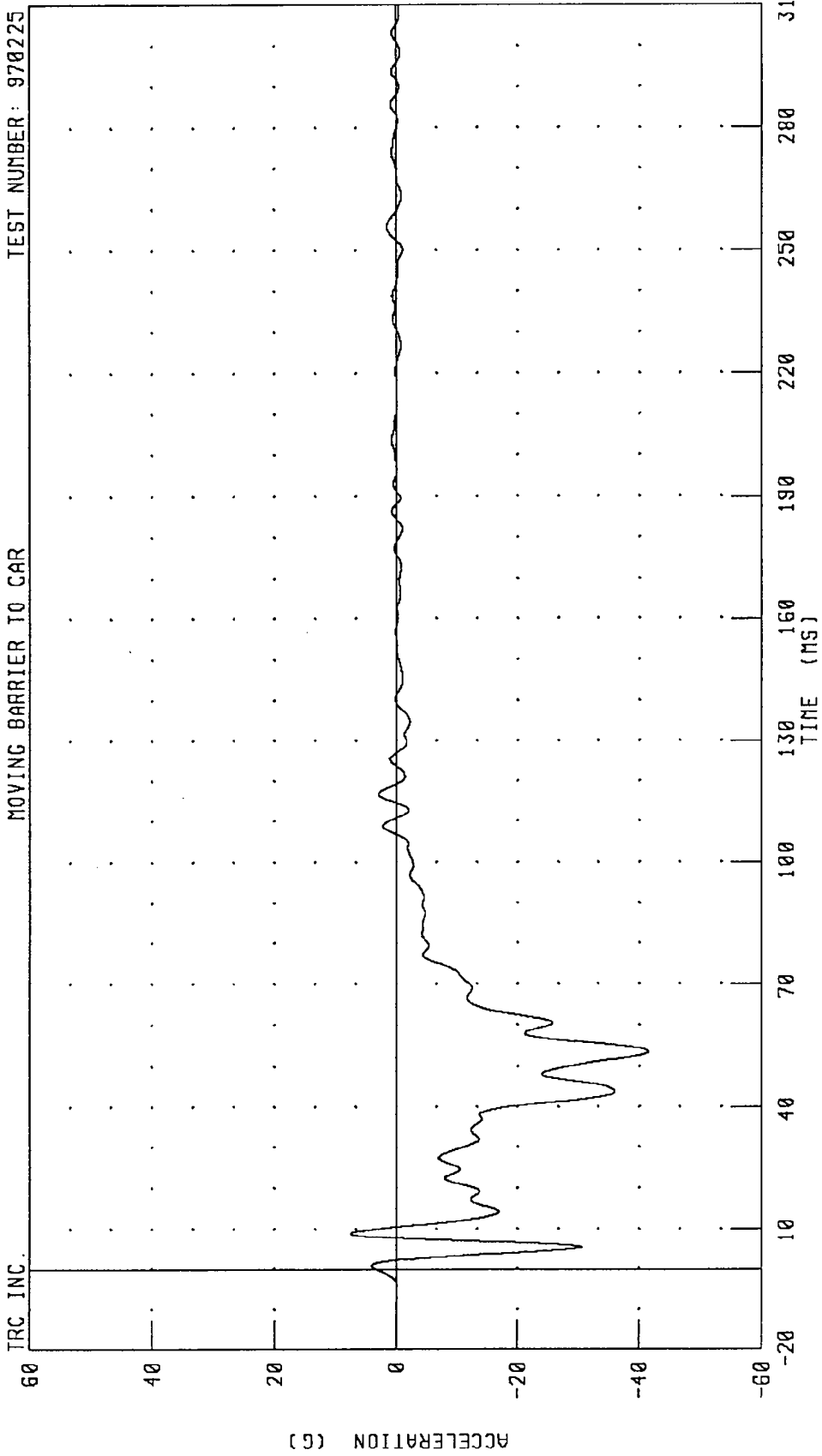
CHANNEL: FFRG1 FILTER: CH. CLASS 60

PEAK DATA: 394.88 G @ 30.48 MS; 0.01 G @ -8.40 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT FRAME RAIL X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



CHANNEL: FFRXG2 FILTER: CH. CLASS 60

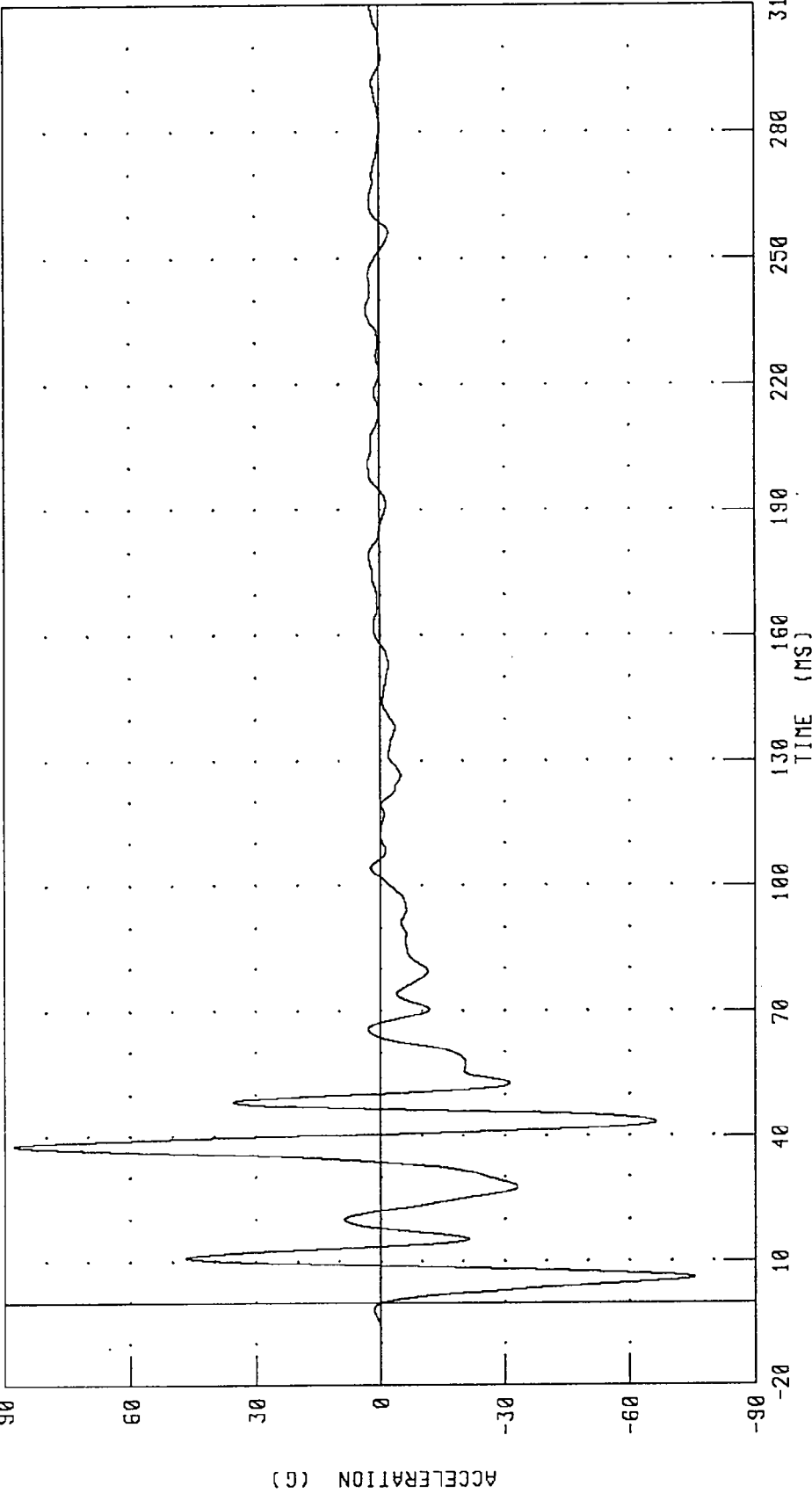
PEAK DATA: 7.49 G @ 8.88 MS; -41.56 G @ 53.52 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT FRAME RAIL Y-AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

TRC INC.

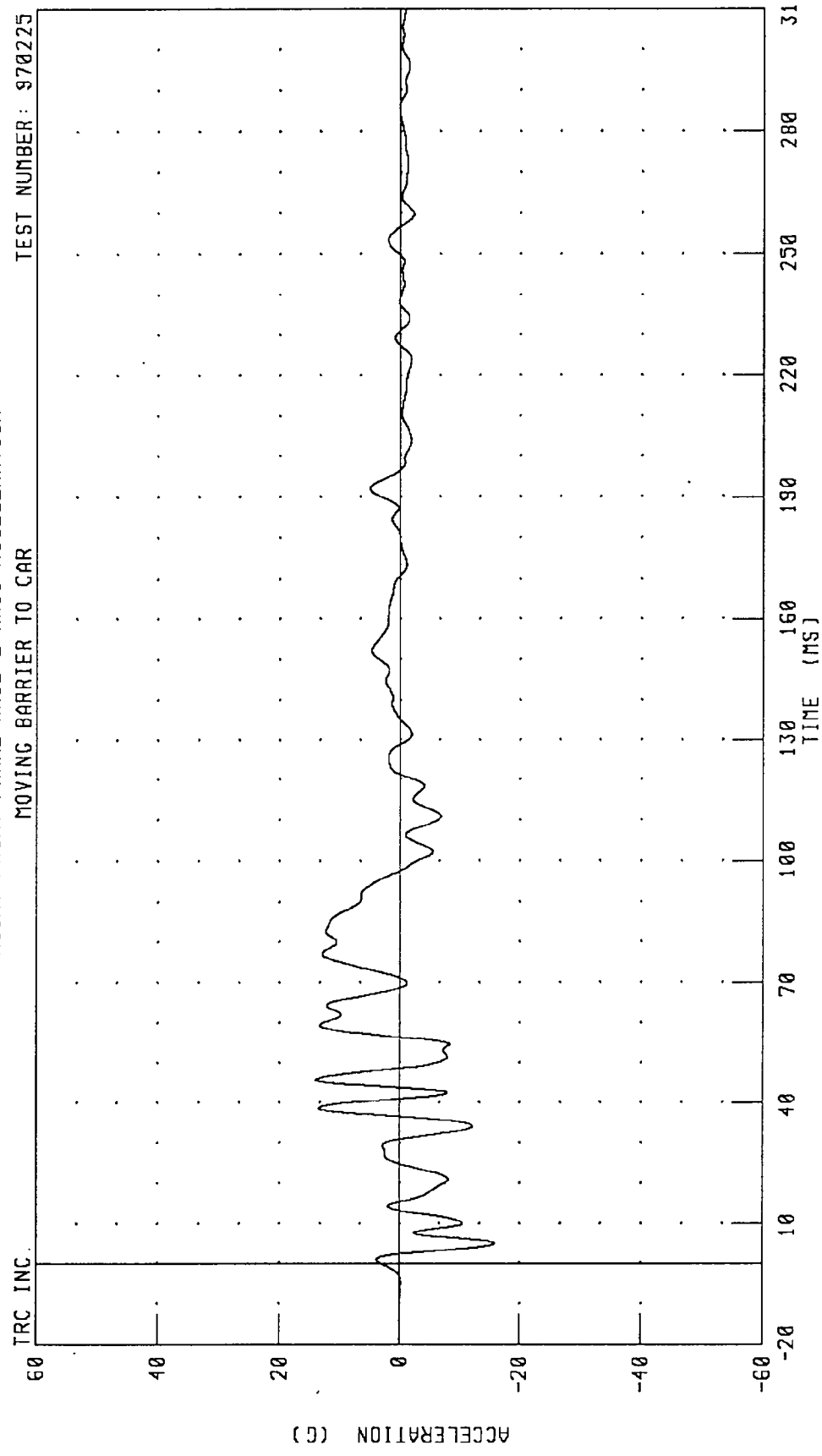


PEAK DATA: 87.57 G @ 37.84 MS; -75.55 G @ 5.92 MS

CHANNEL: FFRY62 FILTER: CH. CLASS 60

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT FRAME RAIL Z-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



PEAK DATA: 14.05 G @ 45.76 MS; -15.96 G @ 5.04 MS

CHANNEL: FFRZG2 FILTER: CH. CLASS 60

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT FRONT FRAME RAIL RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.

120

100

80

60

40

20

0

ACCELERATION (G)

-20

70

100

130

160

190

220

250

280

310

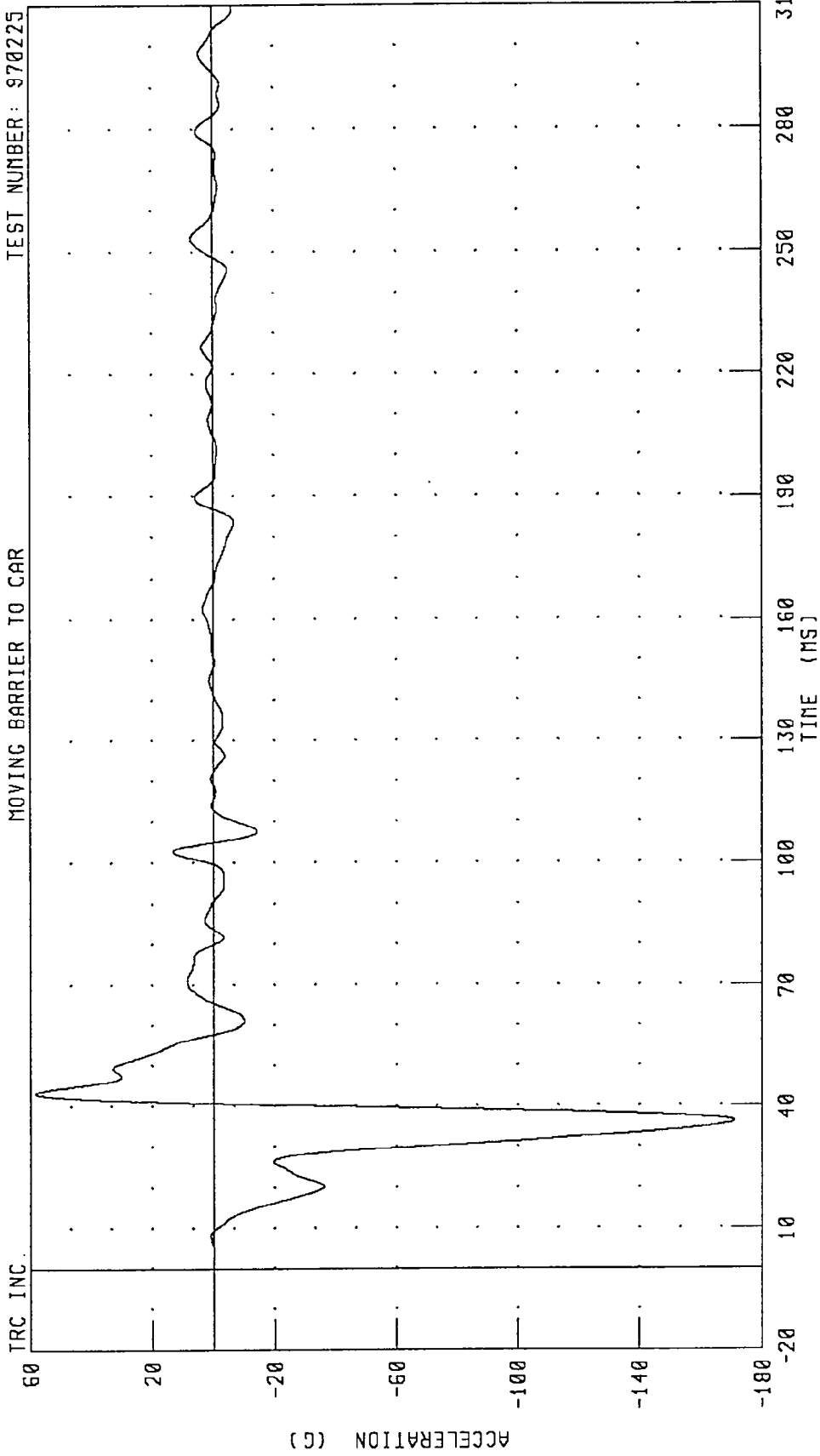
TIME (MS)

CHANNEL: FFRG2 FILTER: CH. CLASS 60

PEAK DATA: 89.35 G @ 37.84 MS; 0.01 G @ -20.00 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
ENGINE BOTTOM X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

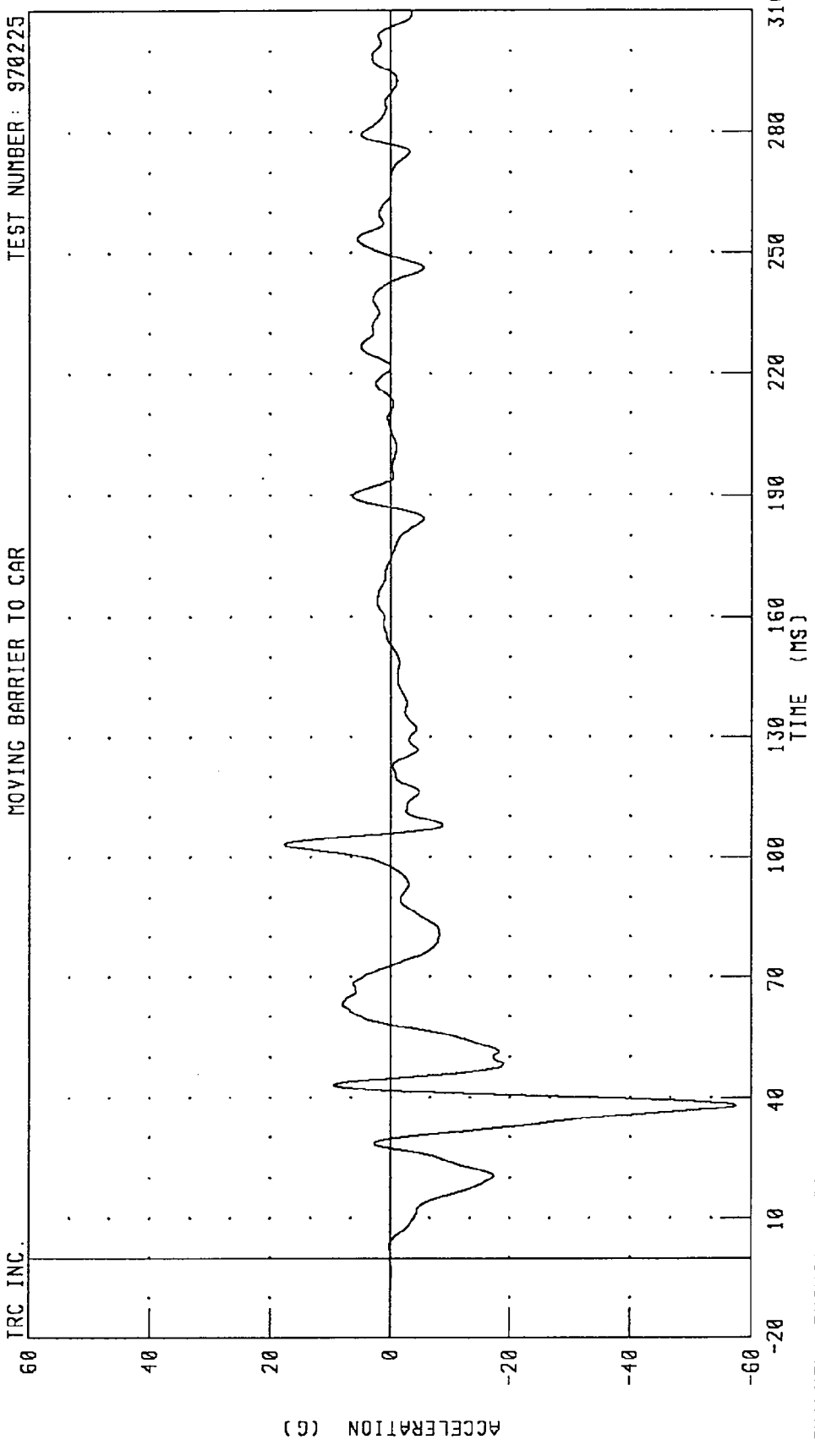


CHANNEL: ENXG3 FILTER: CH. CLASS 60 PEAK DATA: 58.20 G @ 43.20 MS, -171.06 G @ 36.24 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
ENGINE BOTTOM Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

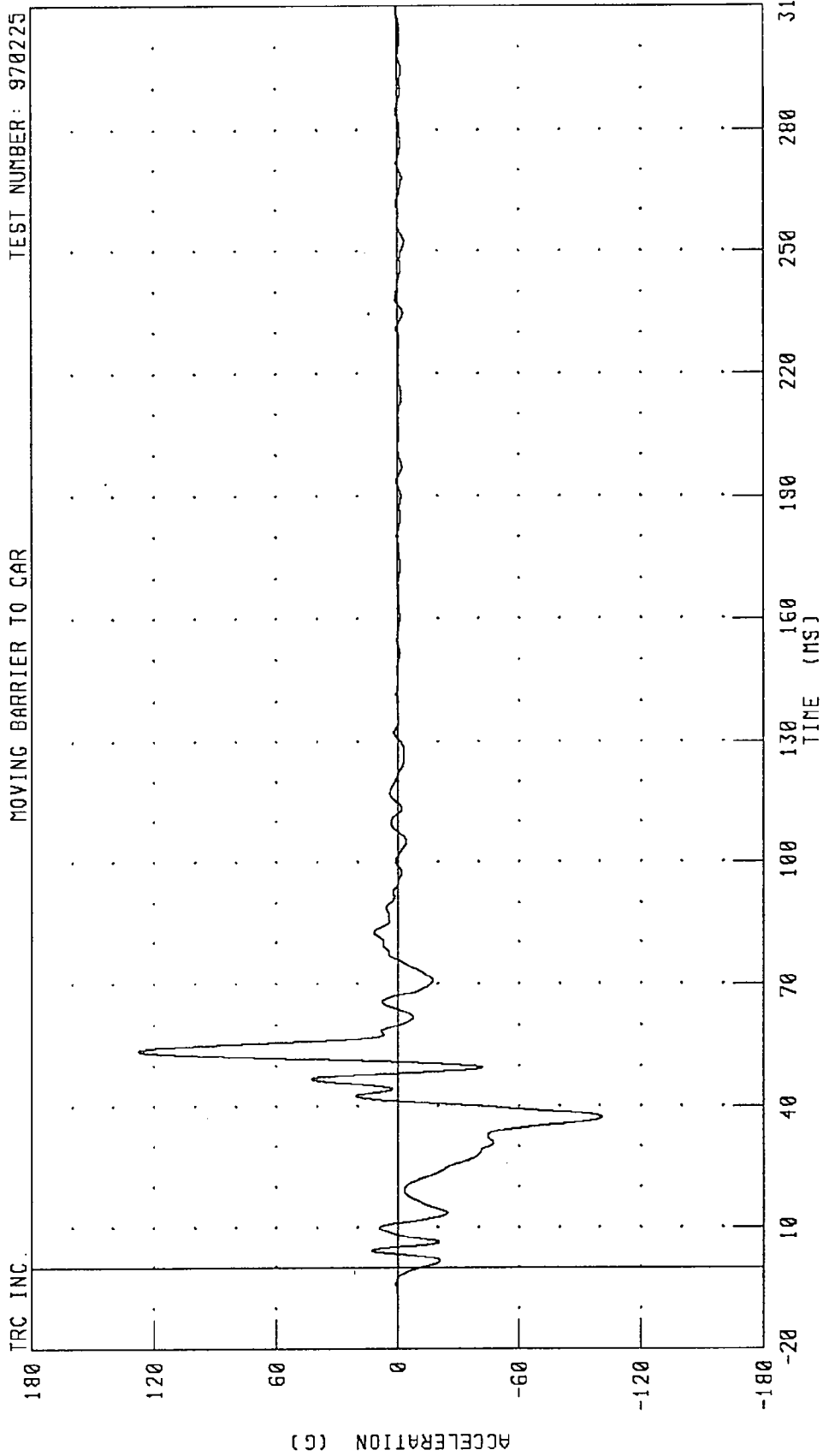
TRC INC.



CHANNEL: ENCYG1 FILTER: CH. CLASS 60  
PEAK DATA: 17.72 G @ 103.20 MS; -57.45 G @ 38.08 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
TOEPAN X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

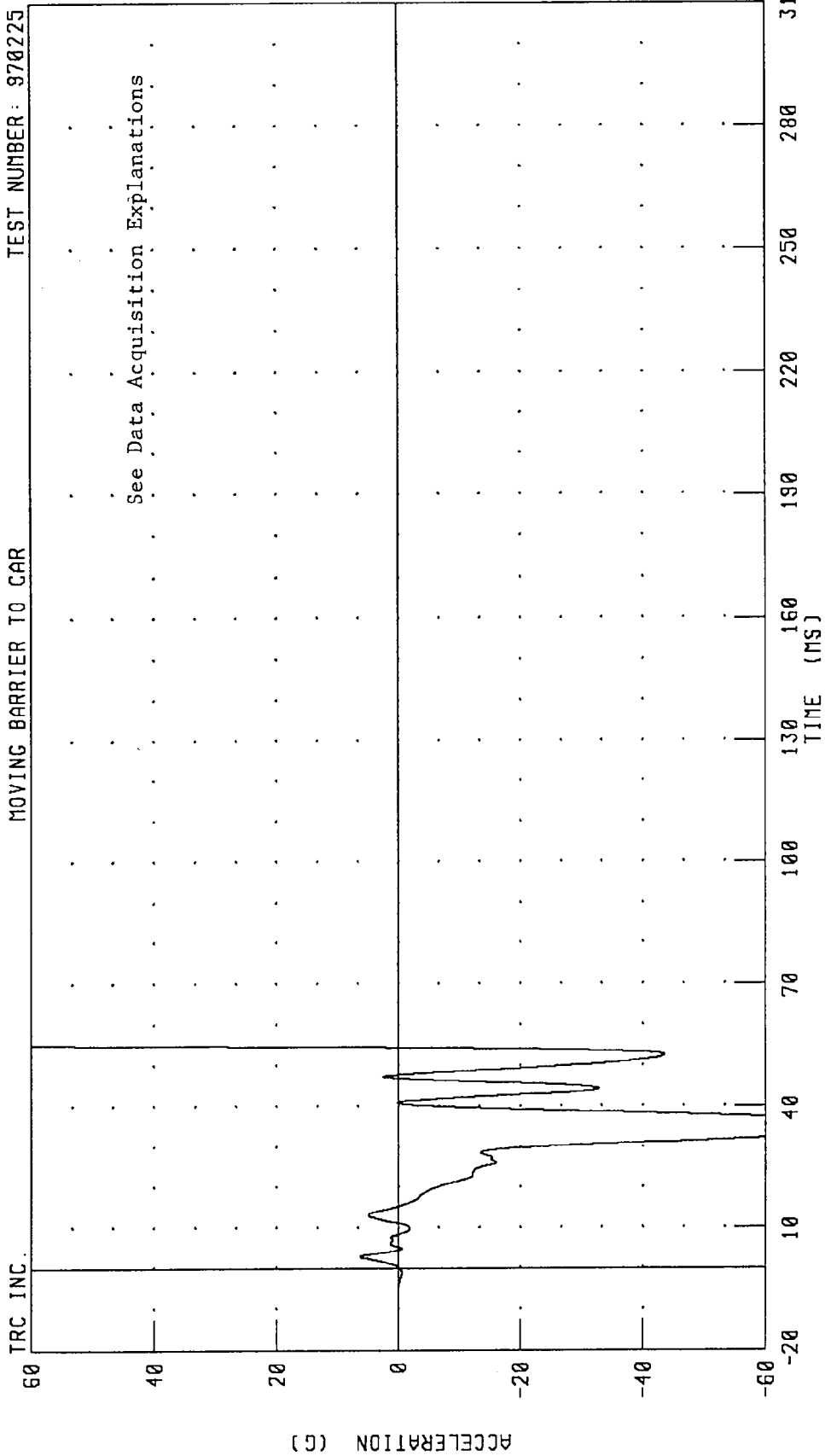
TEST NUMBER: 970225



CHANNEL: LFFXG1 FILTER: CH. CLASS 60 PEAK DATA: 127.40 G @ 53.68 MS; -101.13 G @ 37.36 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
TOEPAN Y-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

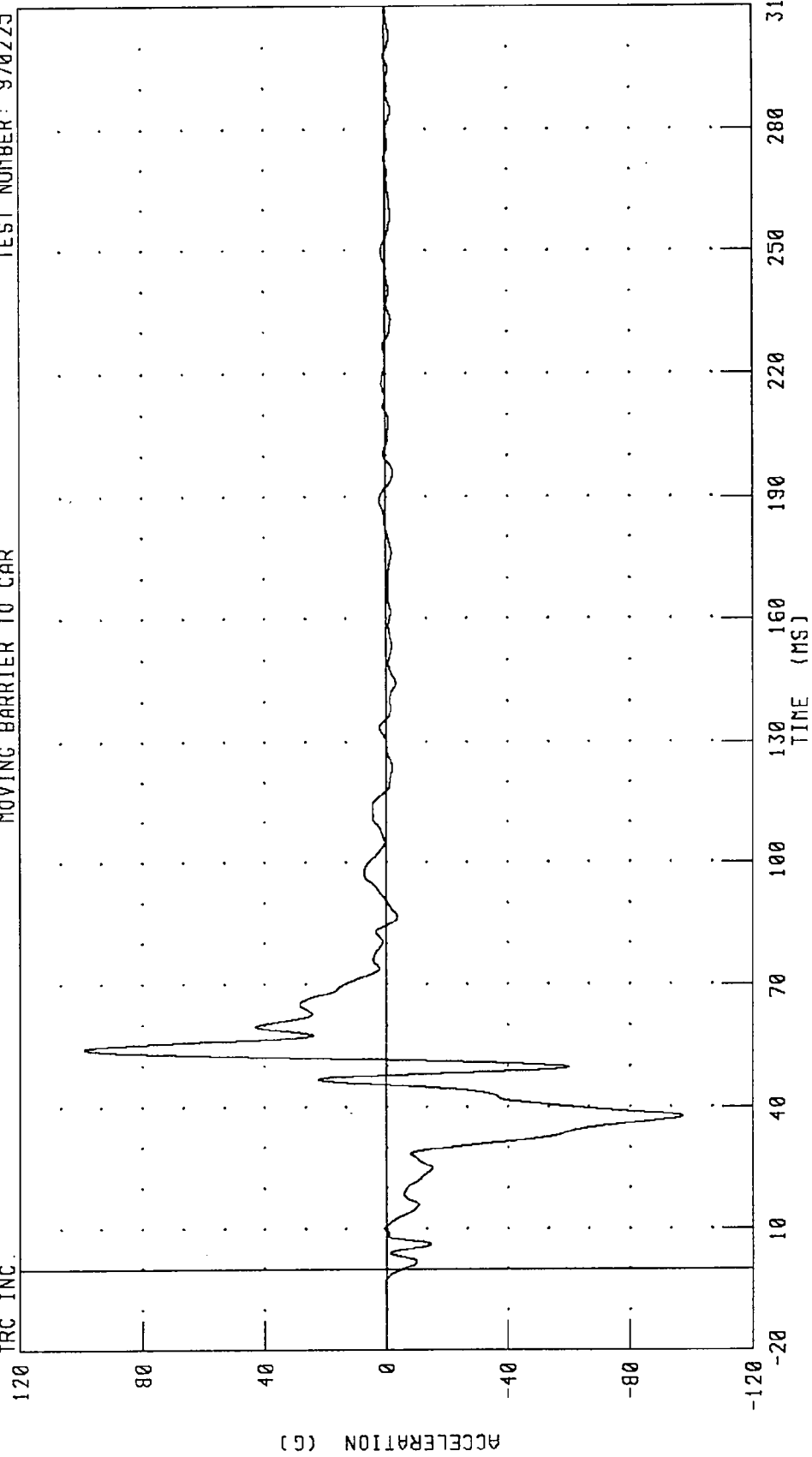


CHANNEL: LFFYG1 FILTER: CH. CLASS 60  
PEAK DATA: 1042.49 G @ 61.28 MS; -84.35 G @ 34.96 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
TOEPAN Z-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

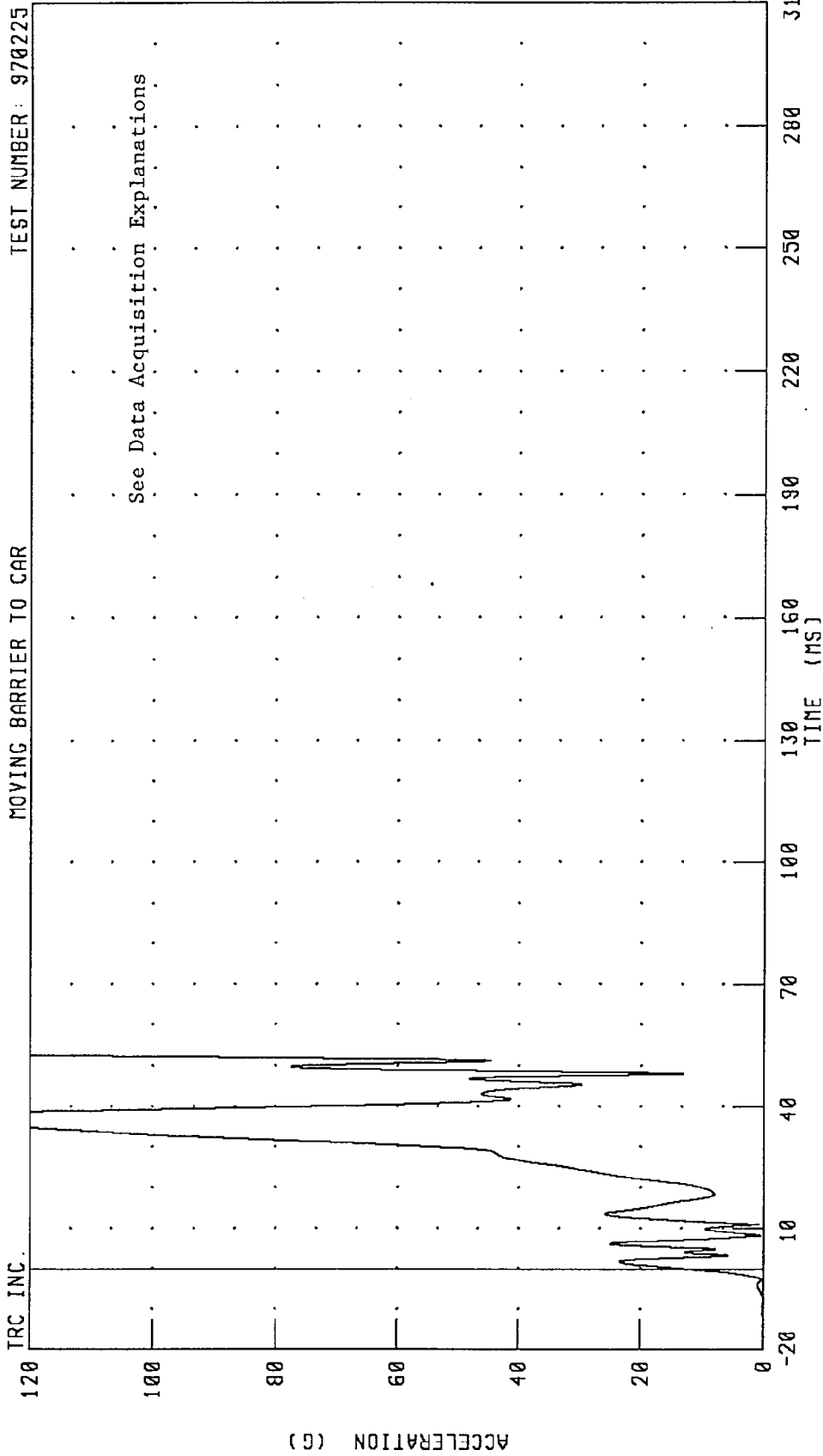
TRC INC.



CHANNEL: LFFZG1 FILTER: CH. CLASS 60 PEAK DATA: 99.00 G @ 54.16 MS; -97.16 G @ 37.84 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
TOEPAN RESULTANT ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



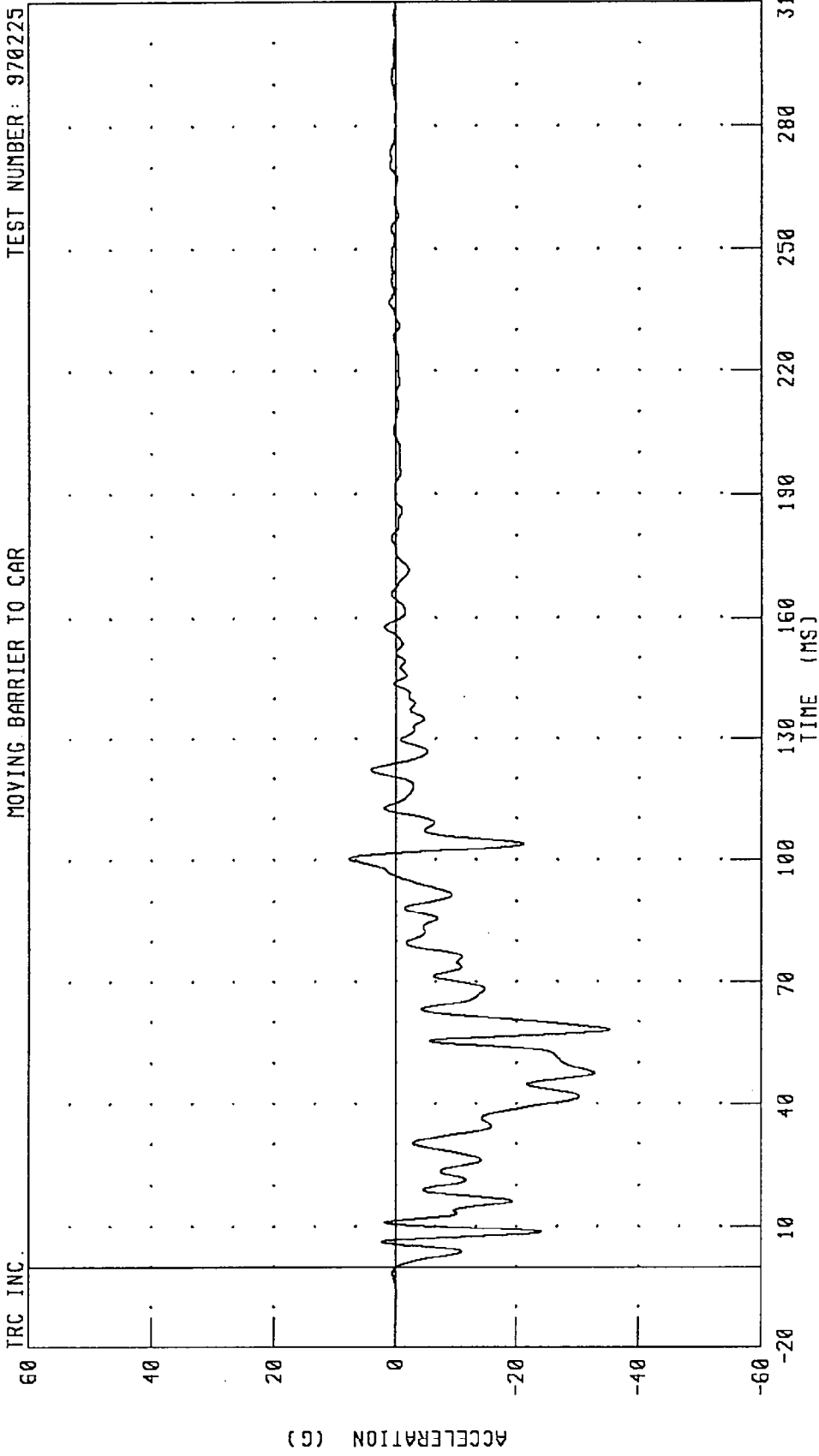
CHANNEL: LFFRG1 FILTER: CH. CLASS 60

PEAK DATA: 1043.01 G @ 61.28 MS; 0.00 G @ -19.28 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
REAR COMPARTMENT CENTER X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



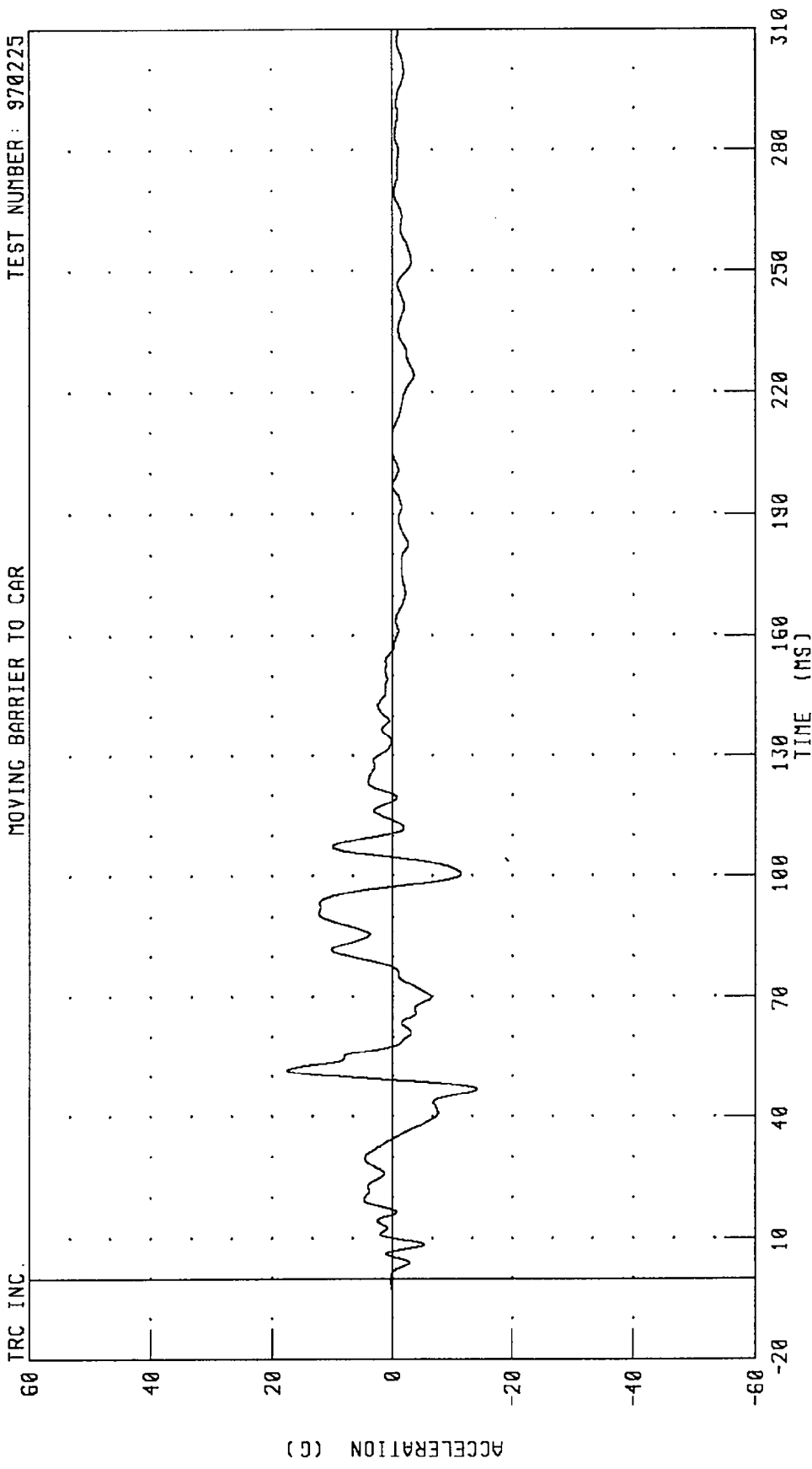
CHANNEL: FTUXG1 FILTER: CH. CLASS 60

PEAK DATA: 7.81 G @ 100.40 MS; -35.21 G @ 58.08 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
REAR COMPARTMENT CENTER Z-AXIS ACCELERATION

TEST NUMBER: 970225

MOVING\_BARRIER TO CAR

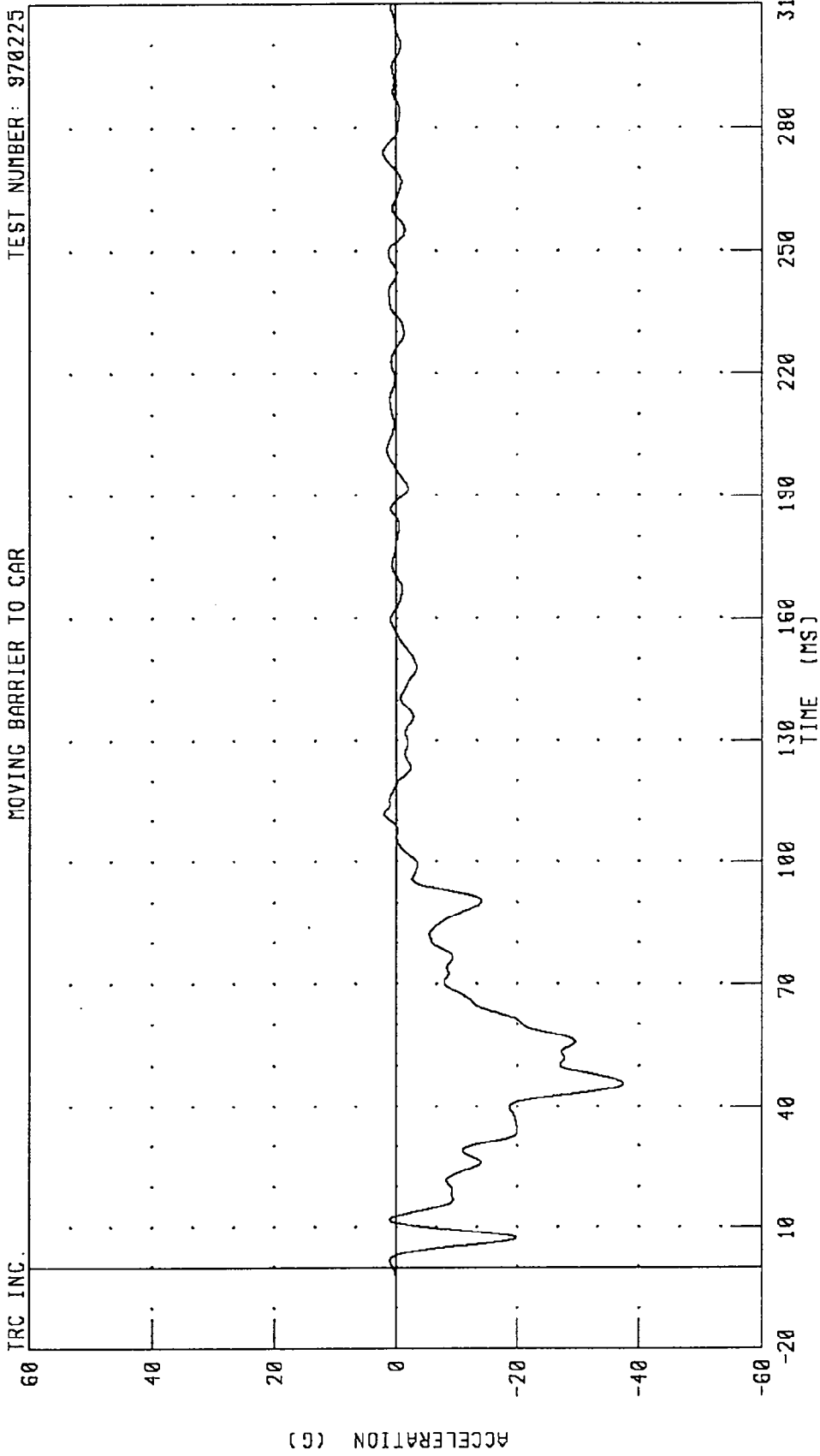


PEAK DATA: 17.59 G @ 51.60 MS; -14.07 G @ 46.80 MS

CHANNEL: FTUZG1 FILTER: CH. CLASS 60

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
RIGHT TOP HINGE ON A-PILLAR X-AXIS ACCELERATION  
MOVING BARRIER TO CAR

TEST NUMBER: 970225



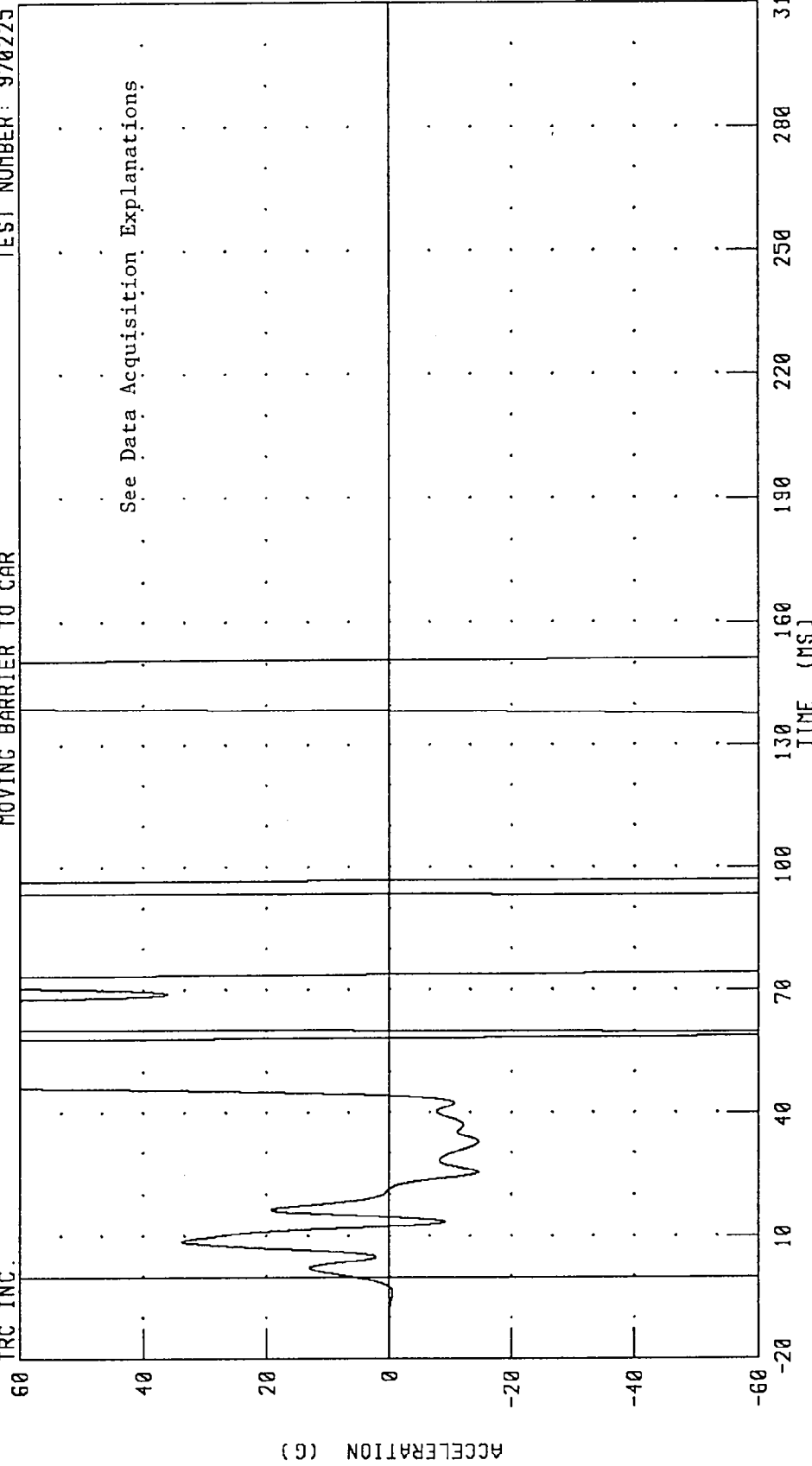
CHANNEL: RPXG1 FILTER: CH. CLASS 60

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
LEFT TOP HINGE ON A-PILLAR X-AXIS ACCELERATION

TEST NUMBER: 970225

MOVING BARRIER TO CAR

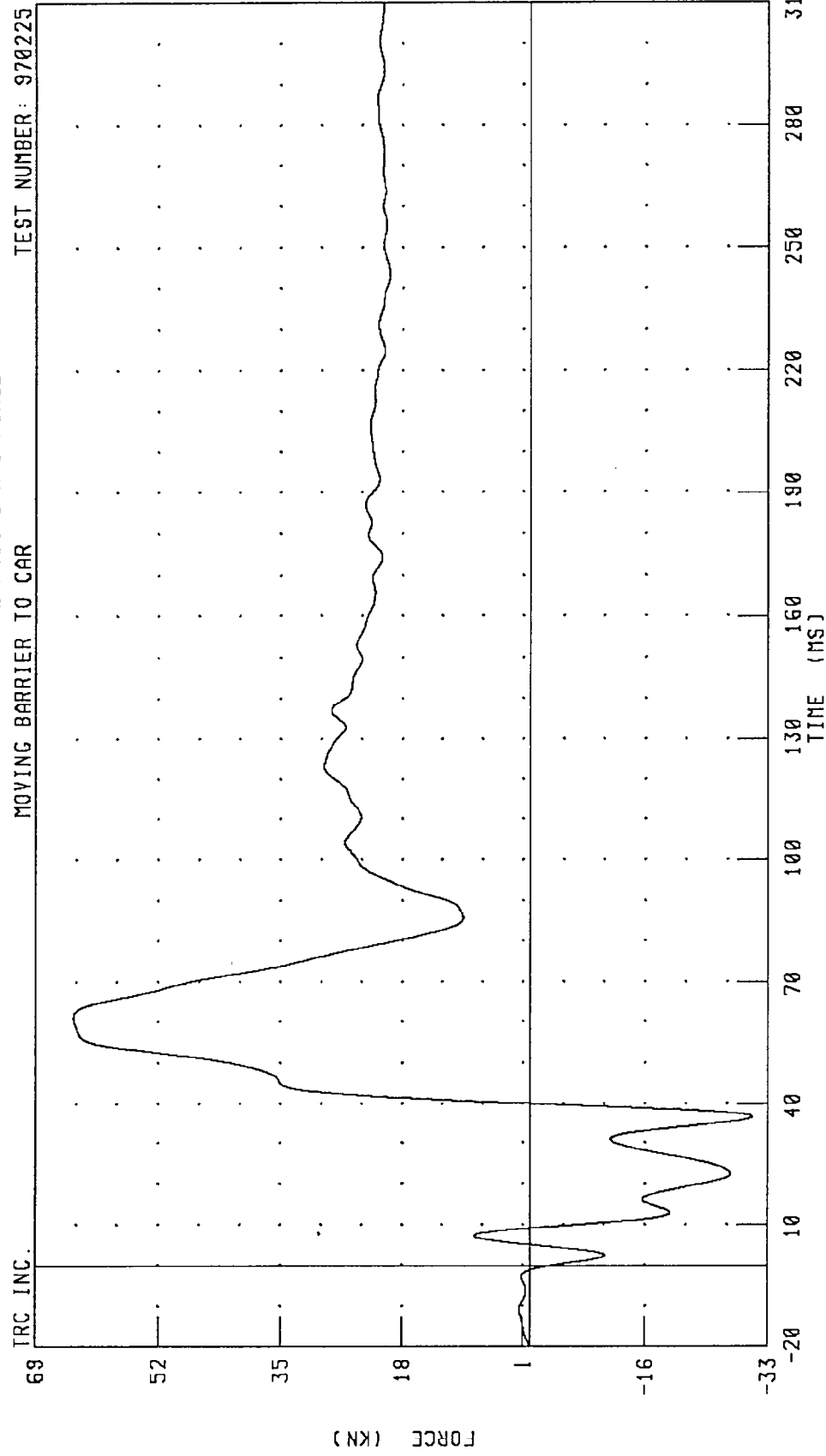
TRC INC.



CHANNEL: LPXG1 FILTER: CH. CLASS 60 PEAK DATA: 1036.14 G @ 53.20 MS; -1051.47 G @ 88.56 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
MOVING DEFORMABLE BARRIER FACE POSITION 1 FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

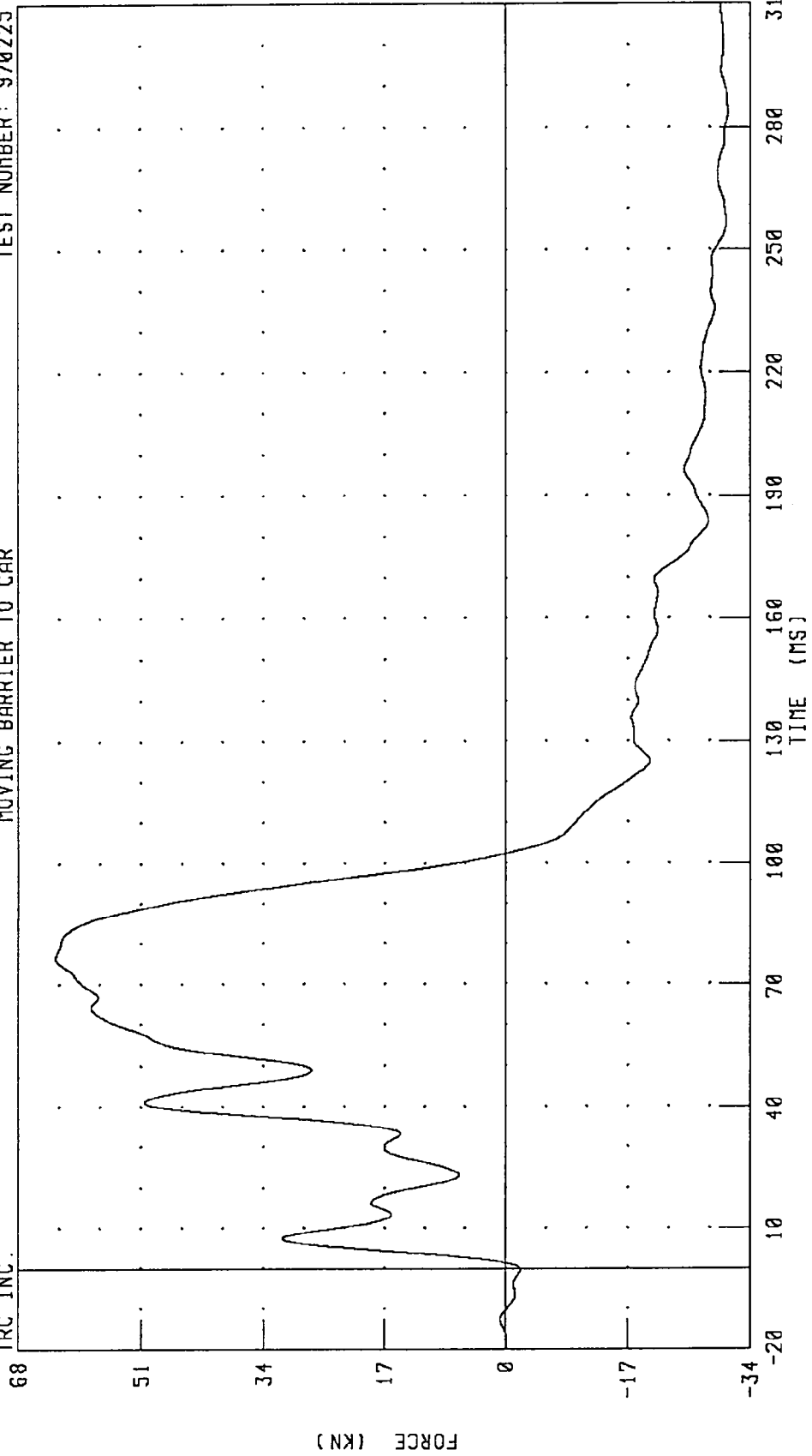


CHANNEL: MOBFI FILTER: CH. CLASS 60  
PEAK DATA: 63.71 KN @ 61.04 MS; -30.85 KN @ 36.72 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
MOVING DEFORMABLE BARRIER FACE POSITION 2 FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

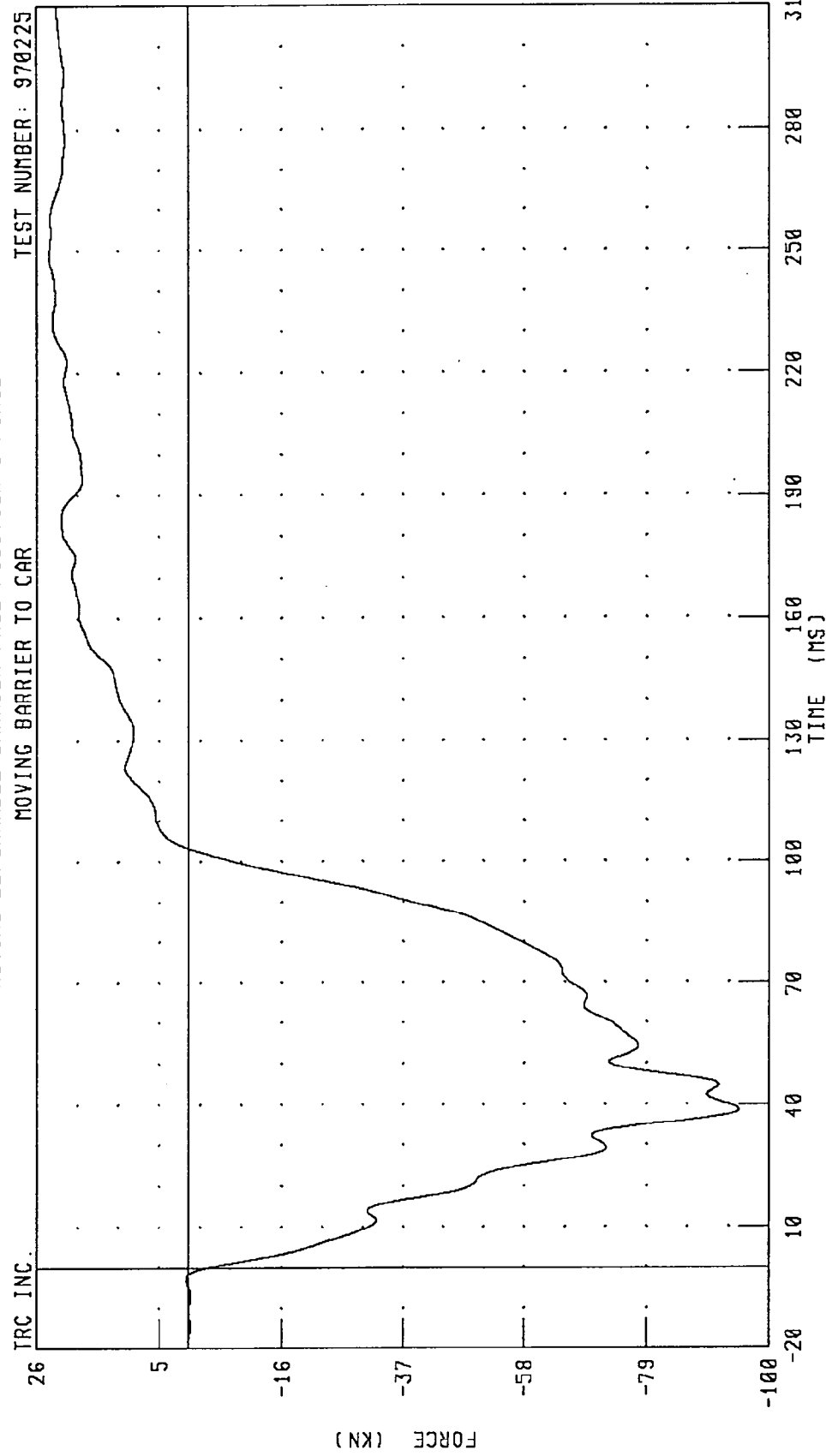
TRC INC.



CHANNEL: MDBF2 FILTER: CH. CLASS 60  
PEAK DATA: 62.75 KN @ 76.64 MS; -30.92 KN @ 283.52 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
MOVING DEFORMABLE BARRIER FACE POSITION 3 FORCE  
MOVING BARRIER TO CAR

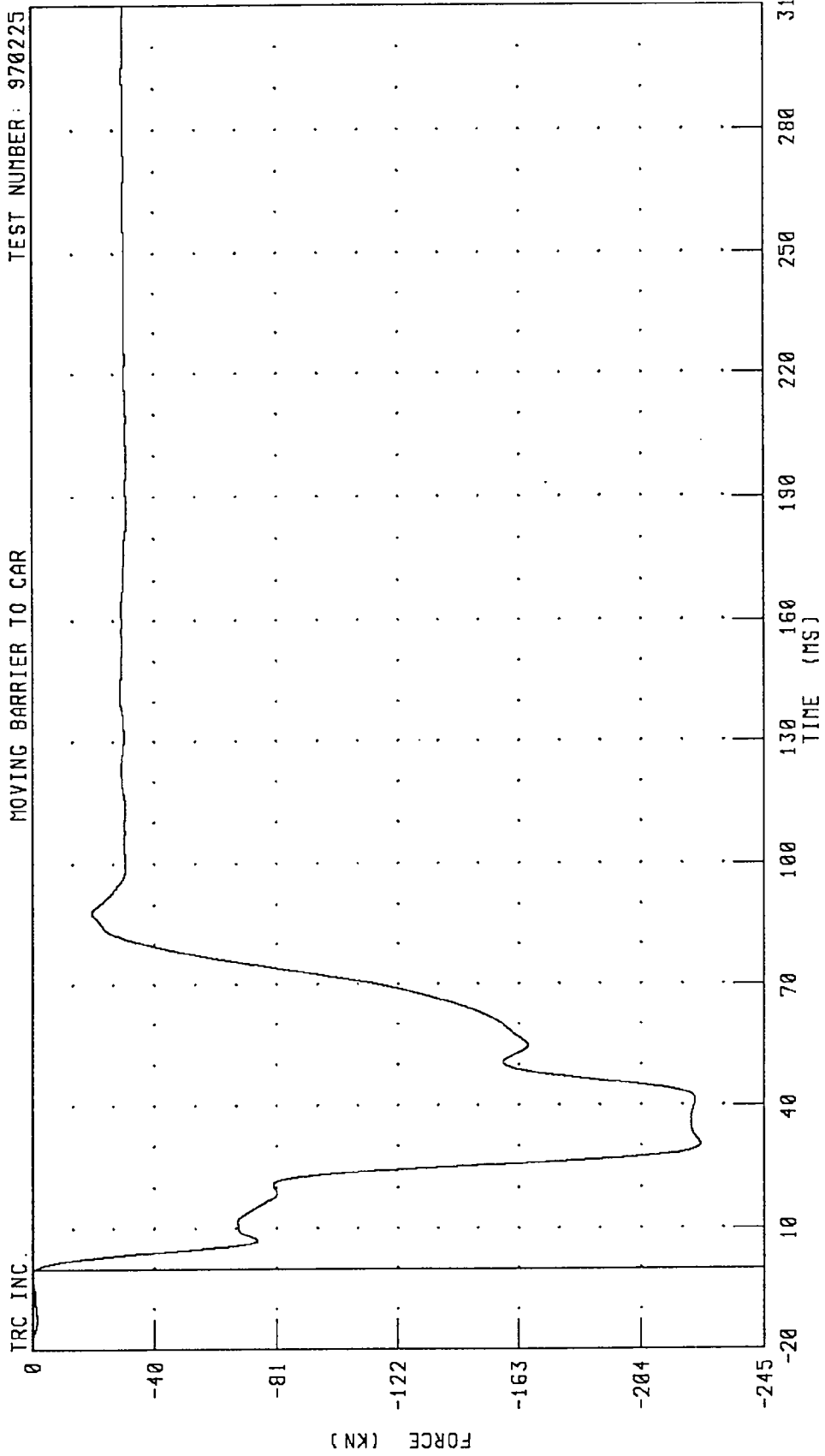
TEST NUMBER: 970225



CHANNEL: NOBF3 FILTER: CH. CLASS 60  
PEAK DATA: 23.87 KN @ 248.64 MS; -94.82 KN @ 38.72 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
MOVING DEFORMABLE BARRIER FACE POSITION 4 FORCE  
MOVING BARRIER TO CAR

TEST NUMBER: 970225

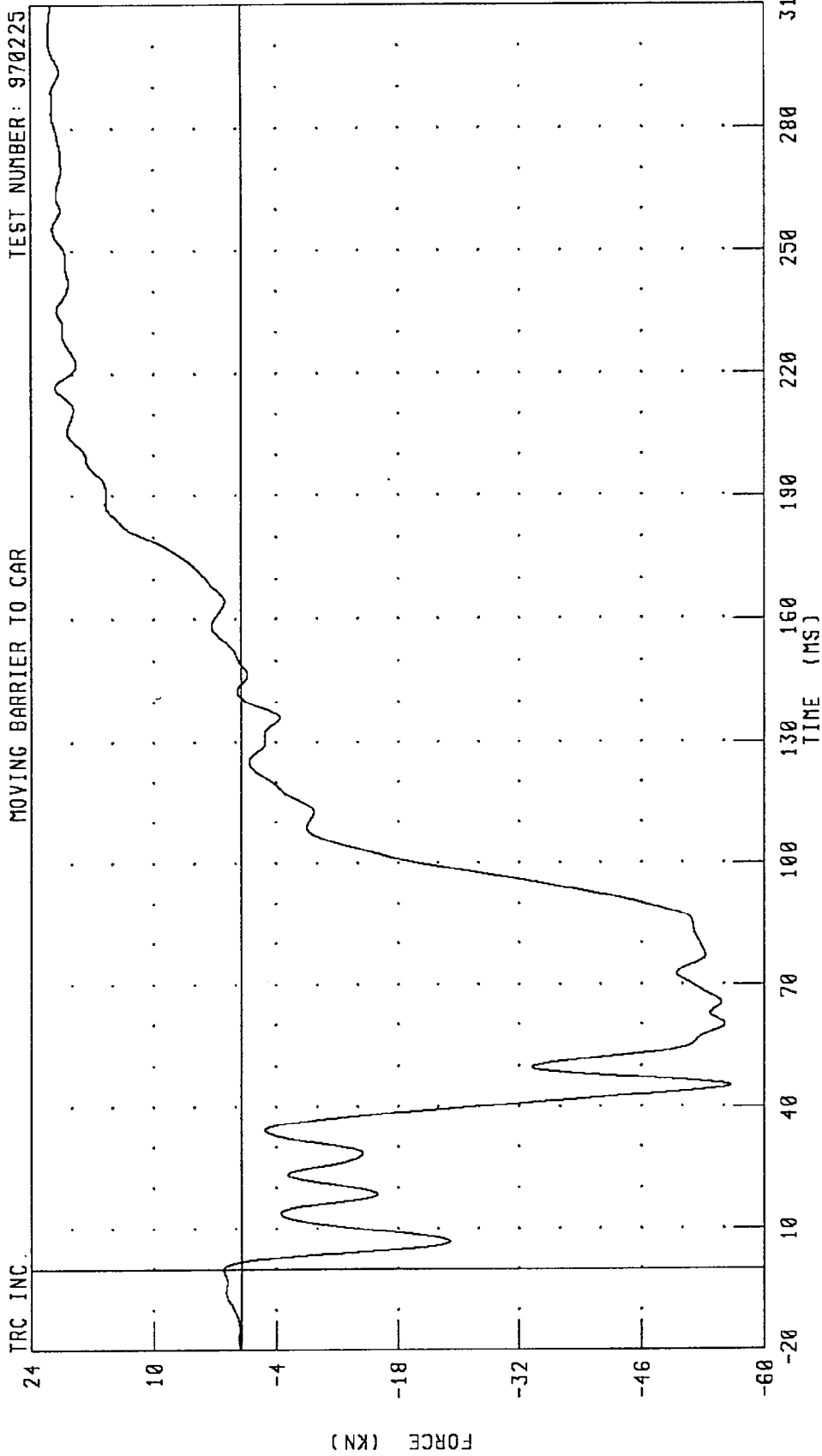


PEAK DATA: 0.54 KN @ -1.60 MS; -224.21 KN @ 30.48 MS

CHANNEL: MDBF4 FILTER: CH. CLASS 60

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
MOVING DEFORMABLE BARRIER FACE POSITION 5 FORCE  
MOVING BARRIER TO CAR

TEST NUMBER : 970225

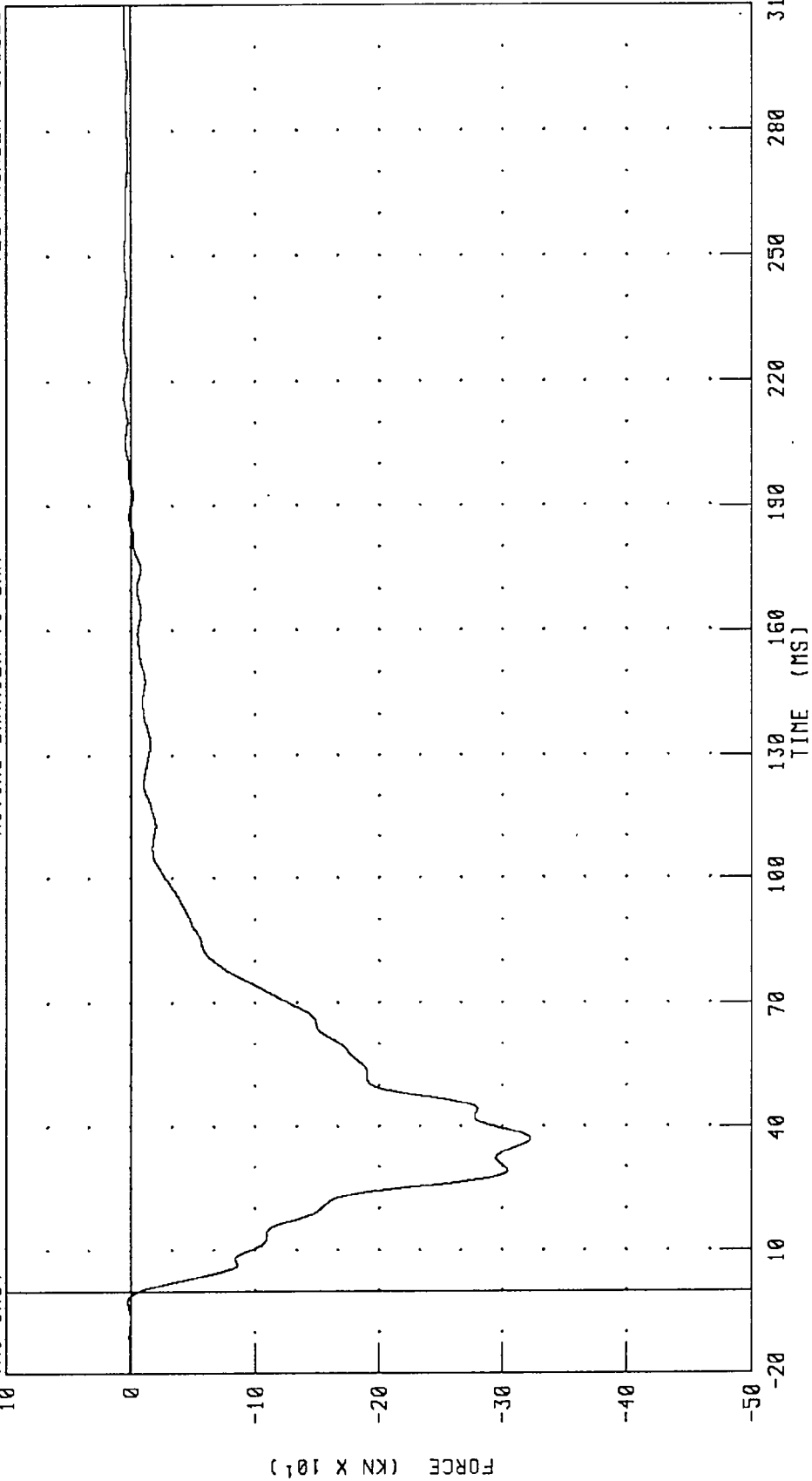


CHANNEL : NOBF5 FILTER : CH. CLASS 60 PEAK DATA : 21.97 KN e 302.40 MS; -56.11 KN e 45.20 MS

70.2 MPH MOVING DEFORMABLE BARRIER INTO 1996 MITSUBISHI GALANT  
 MOVING DEFORMABLE BARRIER FACE TOTAL FORCE  
 MOVING BARRIER TO CAR

TEST NUMBER: 970225

TRC INC.



PEAK DATA: 6.14 KN @ 230.16 MS; -322.96 KN @ 37.12 MS

CHANNEL: MOBFT FILTER: CH. CLASS 60

Appendix C

Dummy Calibration Information

Pre-Test Calibration

Serial Number 177

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III EXTERNAL DIMENSIONS

SN 177 ALDERSON

30-JAN-97

TRC INC.

TEST NO: 177C72ED1

572E SN177 EXT.DIMENSION CAL72

TEST PARAMETER (DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE (AA)	429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE (BB)	226 - 231 MM	229. MM
CHEST CIRCUMFERENCE (Y)	970 -1001 MM	980. MM
WAIST CIRCUMFERENCE (Z)	836 - 866 MM	848. MM
CHEST DEPTH (O)	213 - 229 MM	216. MM
H-POINT HEIGHT (C)	84 - 89 MM	86. MM
H-POINT FROM SEATBACK (D)	135 - 140 MM	137. MM
SKULL CAP TO BACKLINE (H)	41 - 46 MM	46. MM
TOTAL SITTING HEIGHT (A)	879 - 889 MM	881. MM
THIGH CLEARANCE (F)	140 - 155 MM	145. MM
BUTTOCK KNEE LENGTH (K)	579 - 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH (N)	452 - 478 MM	475. MM
POPLITEAL HEIGHT (L)	429 - 455 MM	450. MM
KNEE PIVOT HEIGHT (M)	485 - 500 MM	493. MM
FOOT LENGTH (P)	252 - 267 MM	259. MM
FOOT BREADTH (W)	91 - 107 MM	102. MM
SHOULDER PIVOT FROM BACKLINE (E)	84 - 94 MM	91. MM
SHOULDER BREADTH (V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT (B)	506 - 521 MM	508. MM
ELBOW REST HEIGHT (J)	191 - 211 MM	206. MM
SHOULDER-ELBOW LENGTH (I)	330 - 345 MM	338. MM
BACK OF ELBOW TO WRIST PIVOT (G)	290 - 305 MM	295. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

*Richard L. ...*

RUN NUMBER: 031997.1305

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

31-JAN-97

TRC INC.

TEST NO: 177C72HD2

572E SN177 HEAD DROP CAL 72

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	259.97 G
PEAK LATERAL ACCELERATION	15 G MAX	-4.15 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

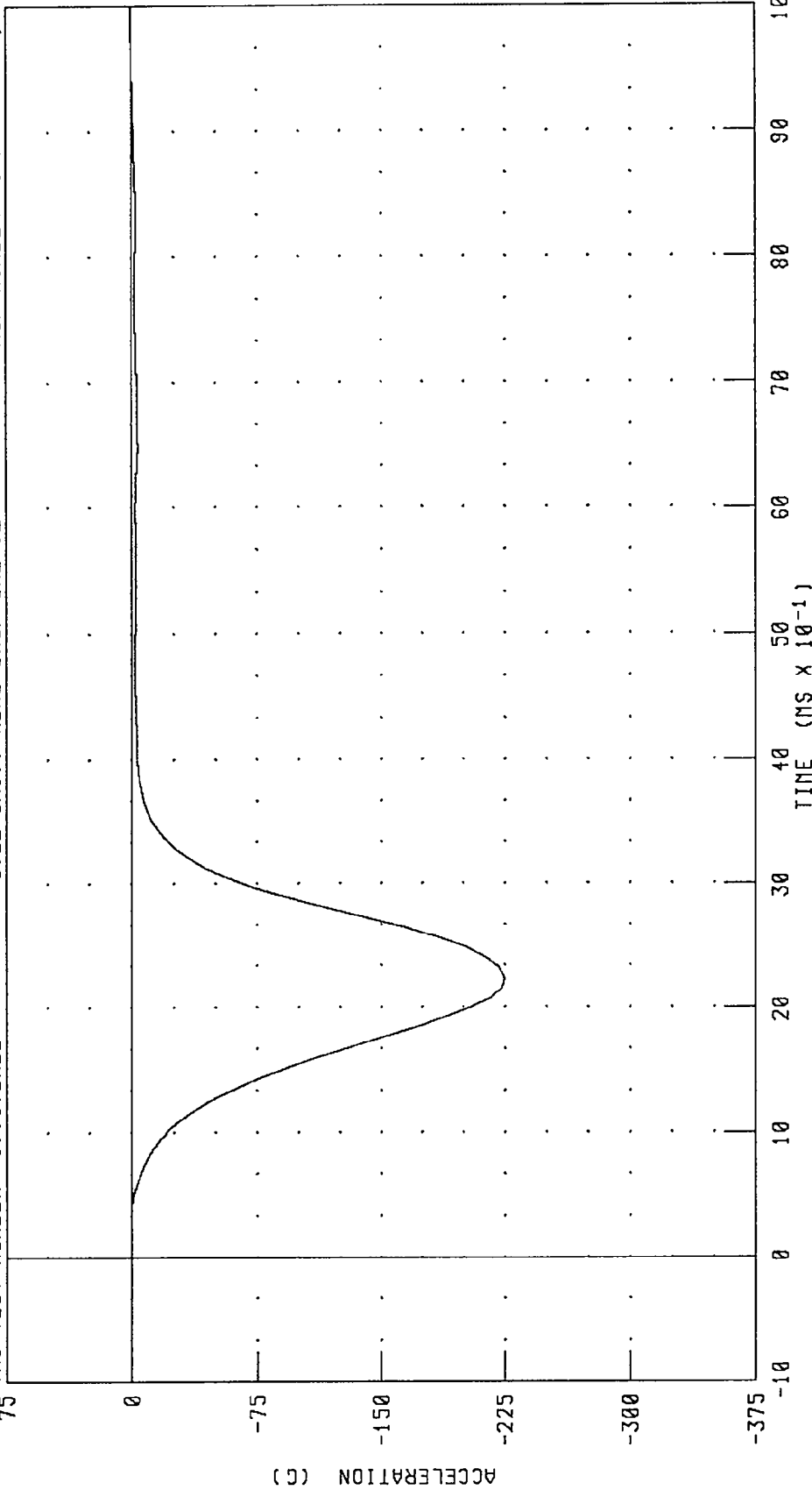
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan

RUN NUMBER: 013197.1255;1

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 177C72HD2      572E SNI77 HEAD DROP CAL 72      RUN NUMBER: 040897.1016.1



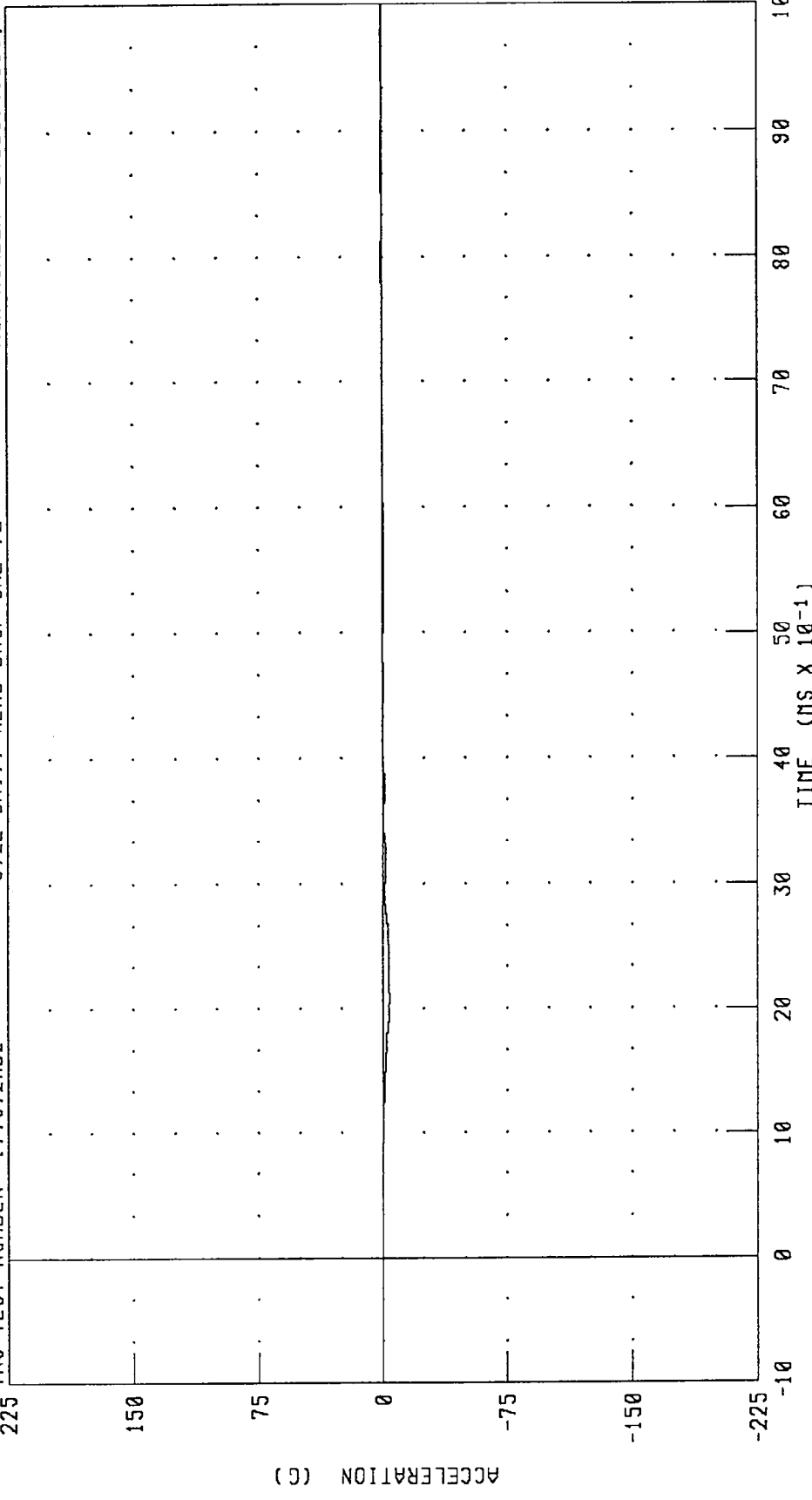
CHANNEL: HEDXG      FILTER: CH. CLASS 1000      PEAK DATA: 0.47 G @ 9.92 MS; -224.79 G @ 2.24 MS

PART 572-E HYBRID III HEAD CALIBRATION  
 HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: L77C72H02

572E SN177 HEAD DROP CAL 72

RUN NUMBER: 040897.1016;1

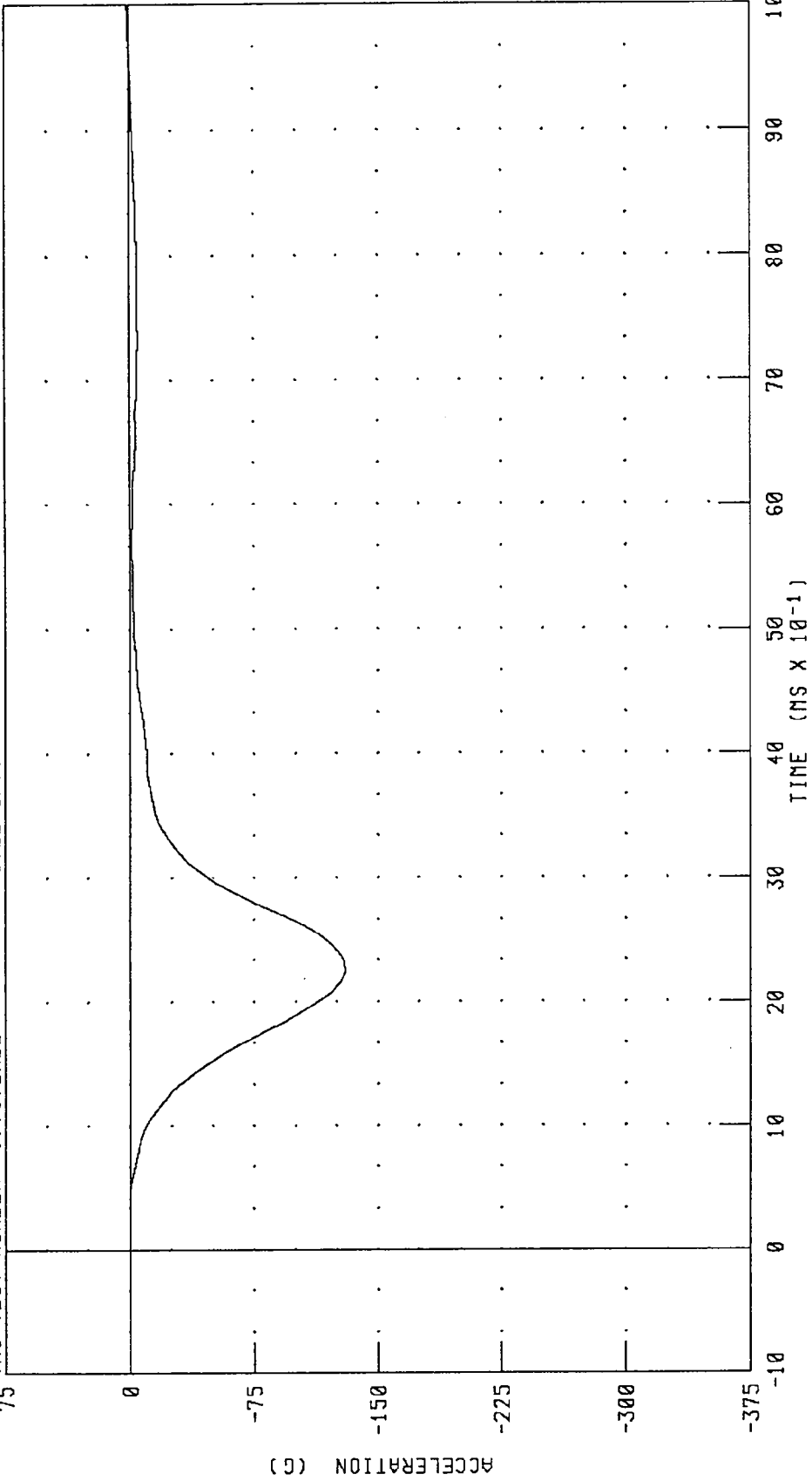


PEAK DATA: 0.77 G @ 8.80 MS; -4.15 G @ 2.08 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 177C72HD2      572E SN177 HEAD DROP CAL 72      RUN NUMBER: 040897.1016.1

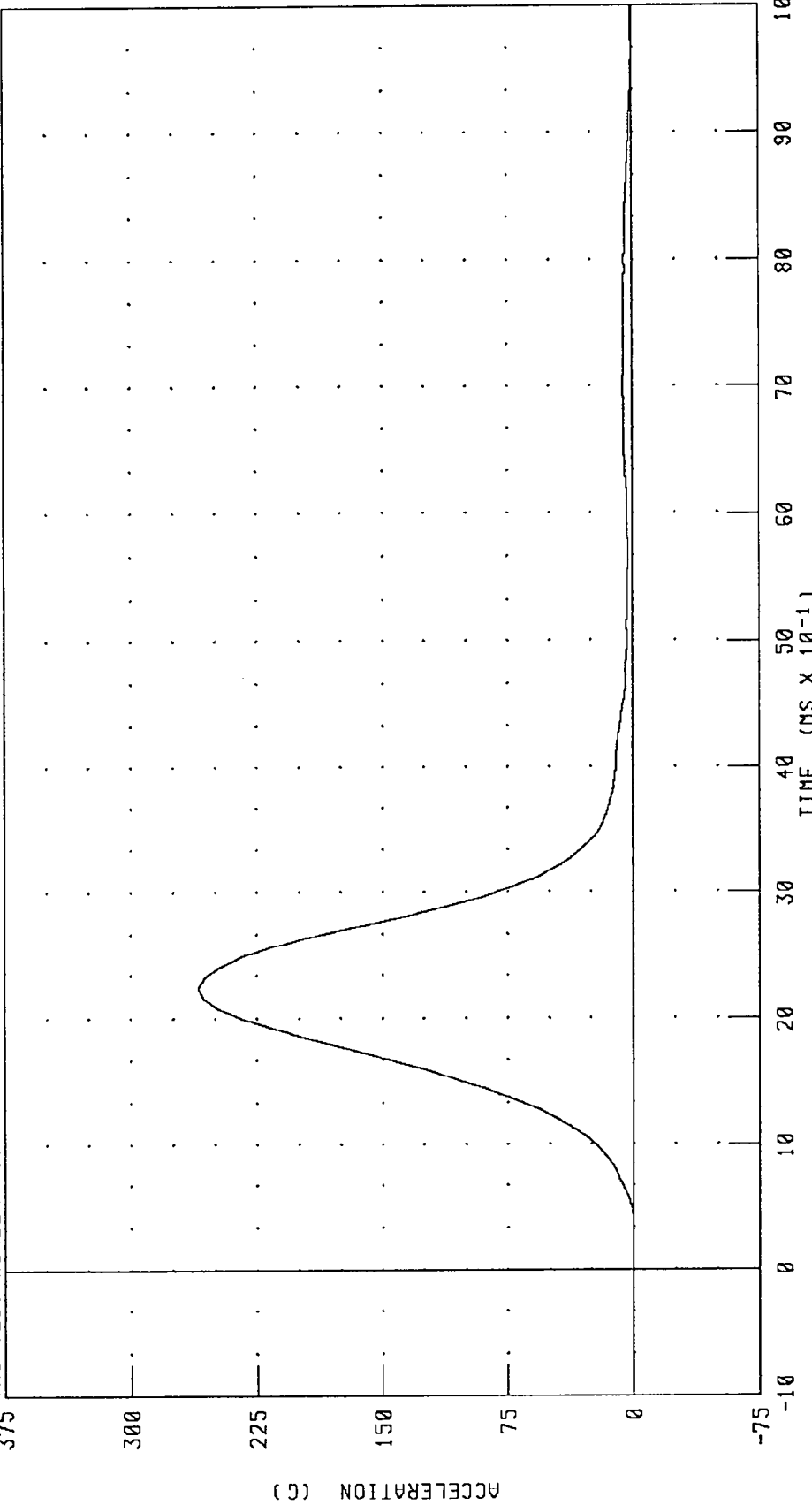


CHANNEL: HEDZG      FILTER: CH. CLASS 1000      PEAK DATA: 0.95 G @ 10.00 MS; -130.54 G @ 2.24 MS

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD RESULTANT ACCELERATION  
572E SN177 HEAD DROP CAL 72

RUN NUMBER: 040897.1016;1

TRC TEST NUMBER: 177C72HD2



PEAK DATA: 259.98 G @ 2.24 MS; 0.03 G @ 0.00 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

31-JAN-97

TRC INC. TEST NO: 177C72NF1 572E SN177 NECK FLEXION CAL72

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	6.99 M/S
PENDULUM DECELERATION	10 MS   22.50 - 27.50 G	22.92 G
	20 MS   17.60 - 22.60 G	20.35 G
	30 MS   12.50 - 18.50 G	16.73 G
MAX PENDULUM G	29 G MAX	23.65 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	16.71 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	36.88 MS
D PLANE	MAX   64 - 78 DEG.	69.23 DEG.
ROTATION	TIME   57 - 64 MS	58.96 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX   88.2 - 108.5 NM	90.47 NM
	TIME   47 - 58 MS	50.32 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	116.88 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	102.80 MS

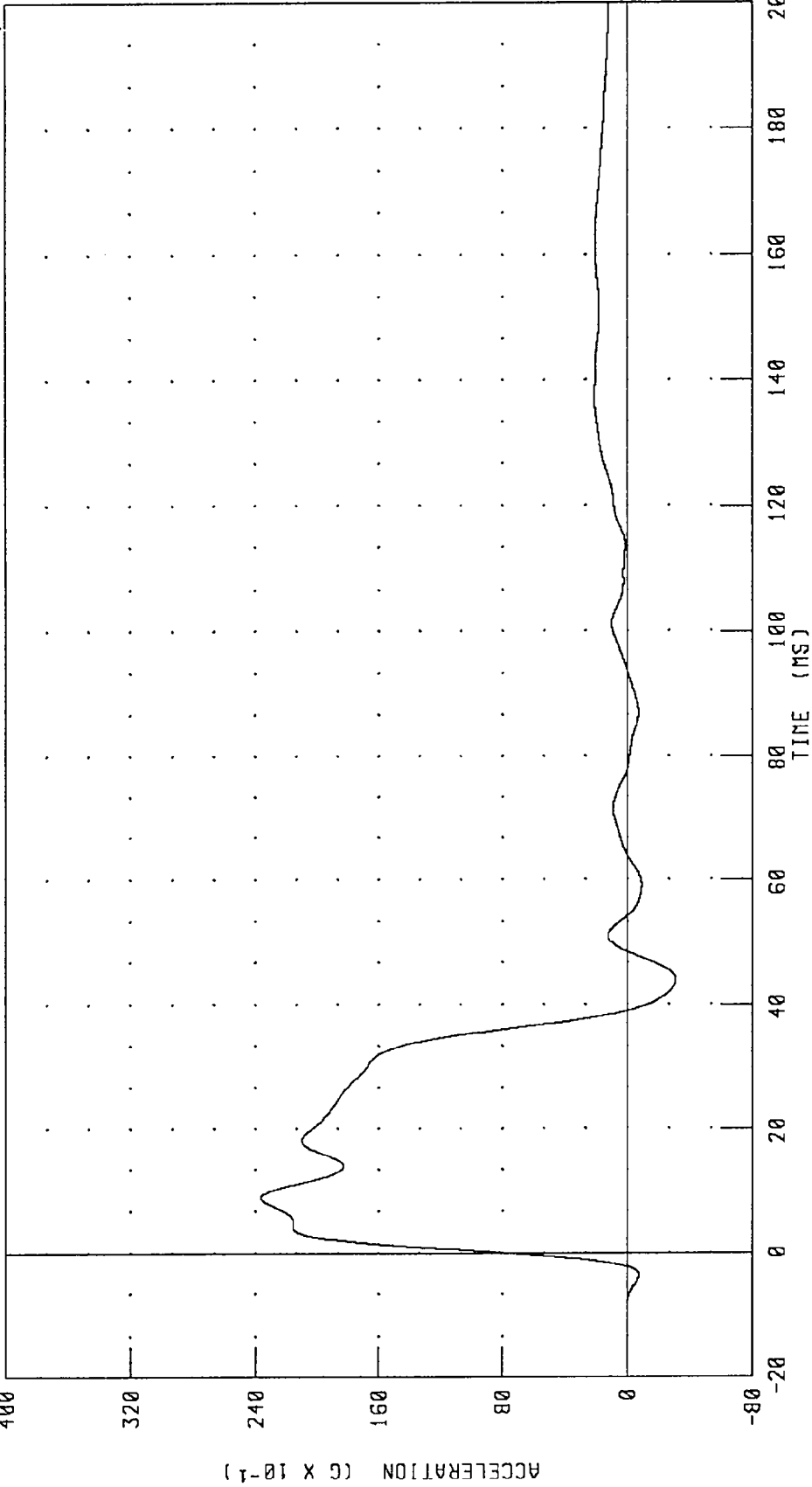
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 013197.1449;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
PENDULUM DECELERATION

TRC TEST NUMBER: 177C72NF1      572E SN177 NECK FLEXION CAL72      RUN NUMBER: 040897 1016;1



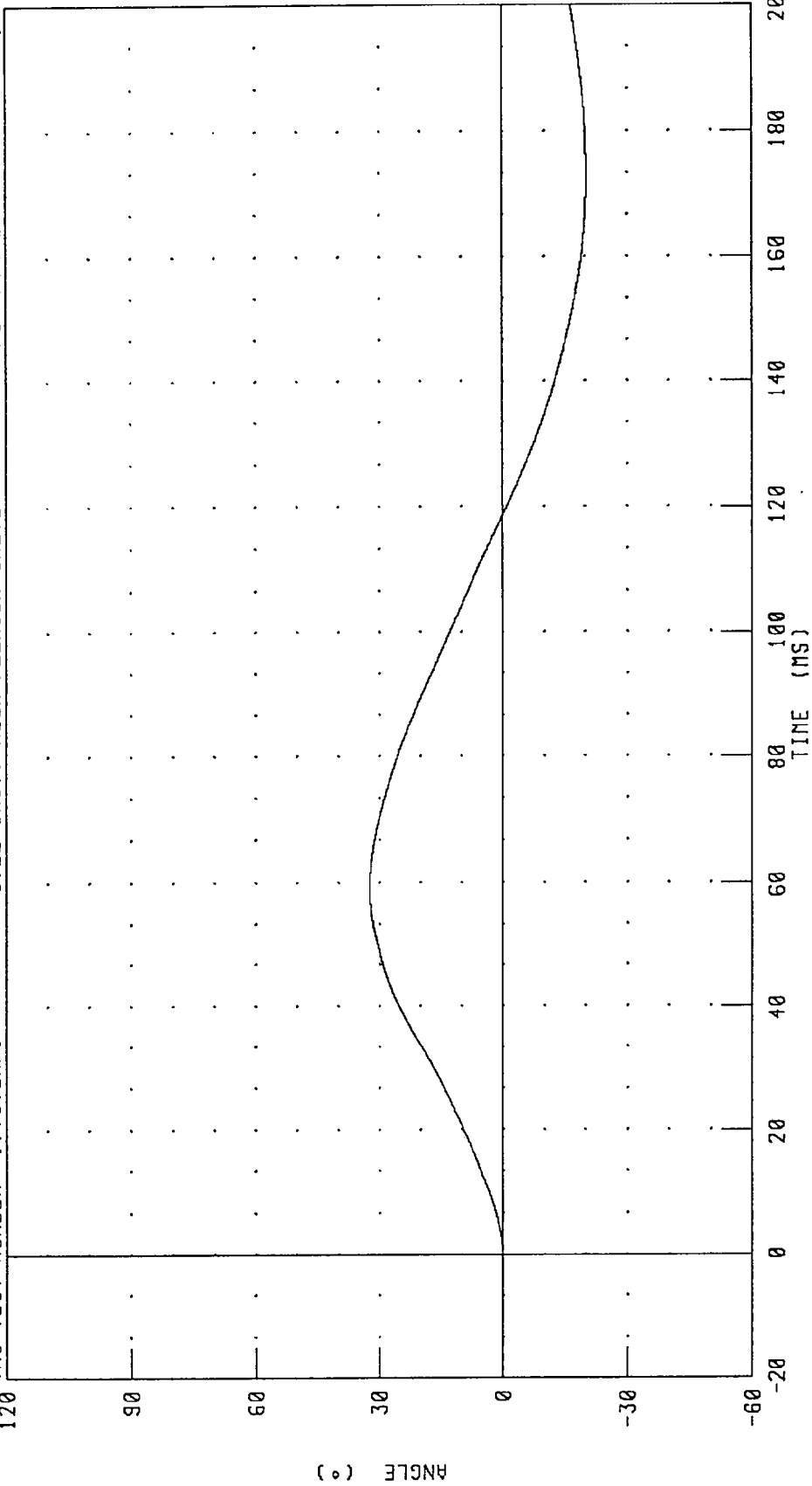
CHANNEL: PENXG      FILTER: CH. CLASS 60      PEAK DATA: 23.66 G @ 8.88 MS; -3.12 G @ 43.92 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 177C72NF1

572E SN177 NECK FLEXION CAL72

RUN NUMBER: 040897.1016;1



CHANNEL: BETA FILTER: CH. CLASS 60

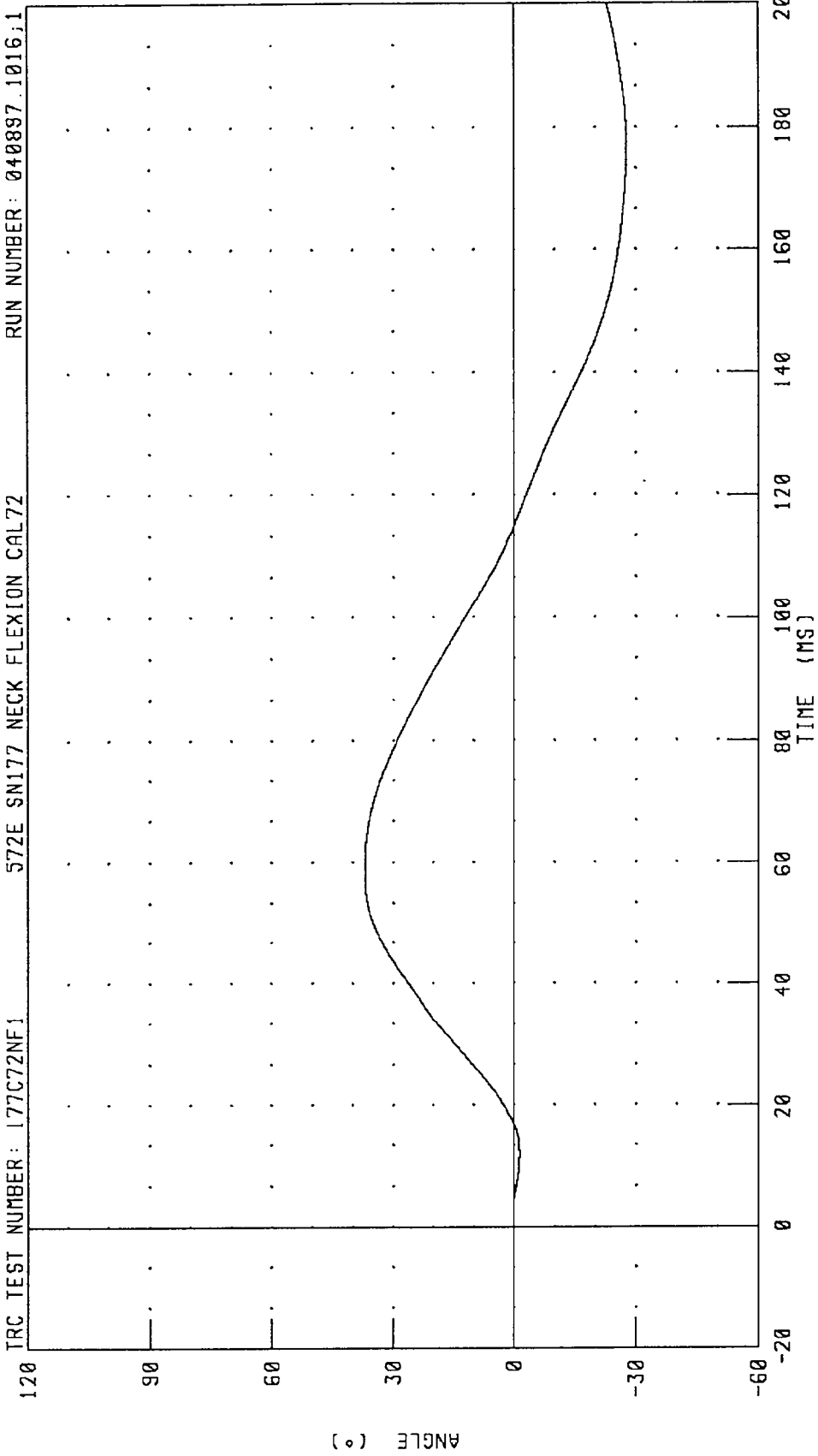
PEAK DATA: 32.29 ° @ 59.04 MS; -20.23 ° @ 172.56 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 177C72NF1

572E SN177 NECK FLEXION CAL72

RUN NUMBER: 040897.1016;1

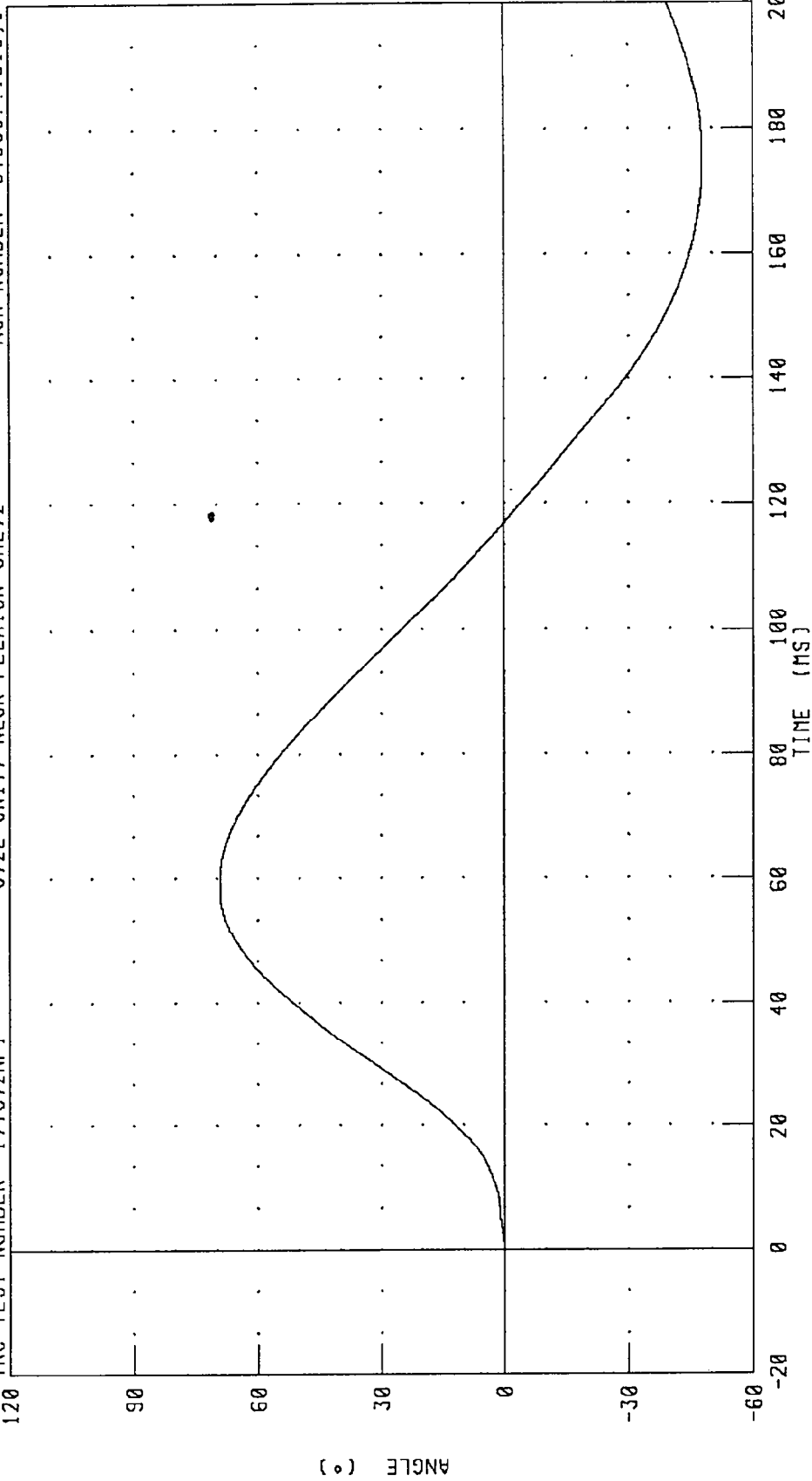


CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 36.95 ° @ 58.48 MS; -27.64 ° @ 176.32 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
TOTAL ROTATION

TRC TEST NUMBER: 177C72NF1      572E SN177 NECK FLEXION CAL72      RUN NUMBER: 040897.1016.1



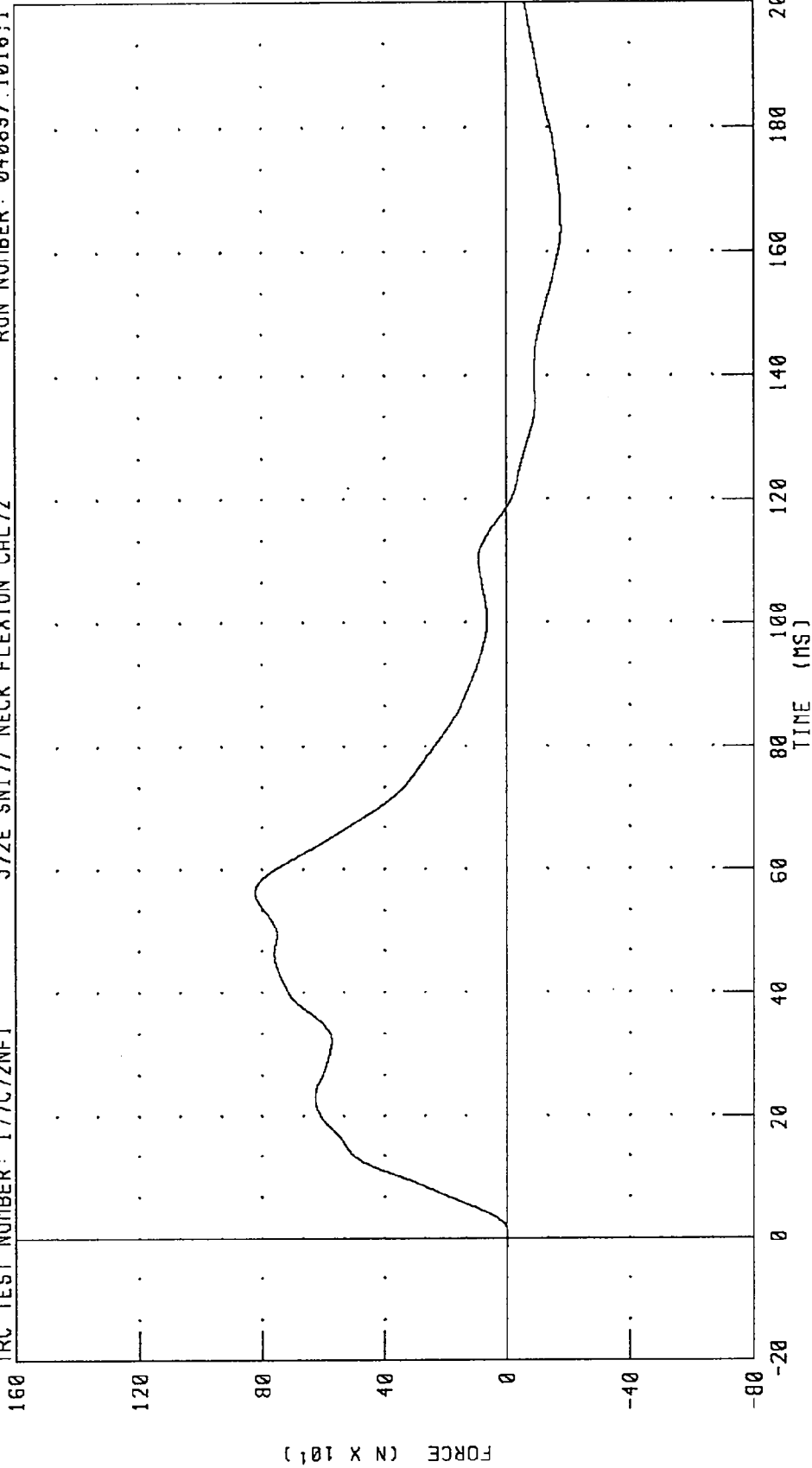
CHANNEL: TOTAN      FILTER: CH. CLASS 60      PEAK DATA: 69.24 ° @ 58.96 MS; -47.83 ° @ 174.48 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
NECK FORCE X AXIS

TRC TEST NUMBER: 177C72NF1

572E SN177 NECK FLEXION CAL72

RUN NUMBER: 040897.1016;1



CHANNEL: NEKXF FILTER: CH. CLASS 60

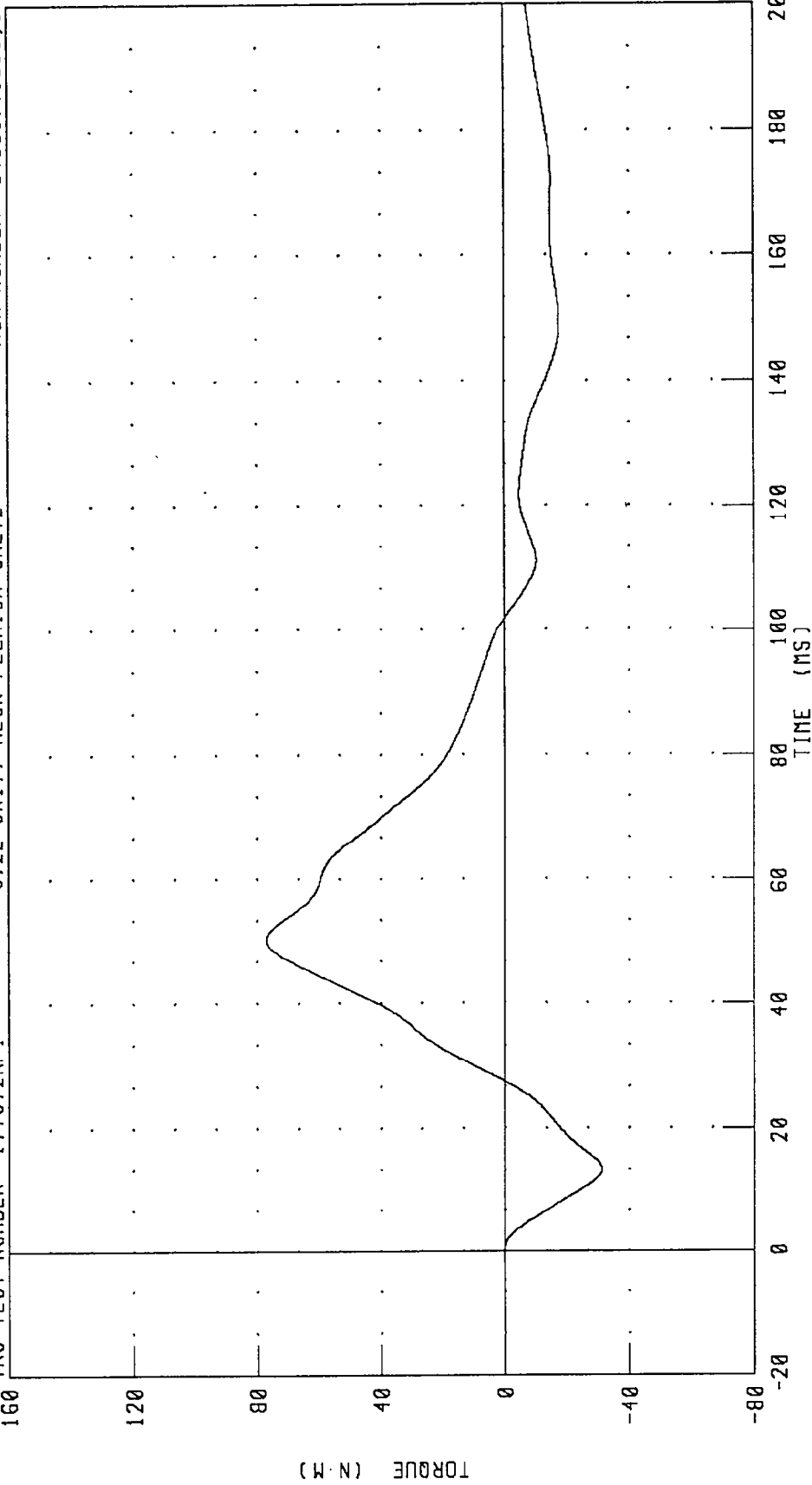
PEAK DATA: 823.51 N @ 56.32 MS; -177.27 N @ 163.52 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
NECK MOMENT Y AXIS

TRC TEST NUMBER: 177C72NF1

572E SN177 NECK FLEXION CAL72

RUN NUMBER: 040897.1016;1



PEAK DATA: 77.04 N.M @ 50.24 MS; -31.09 N.M @ 13.44 MS

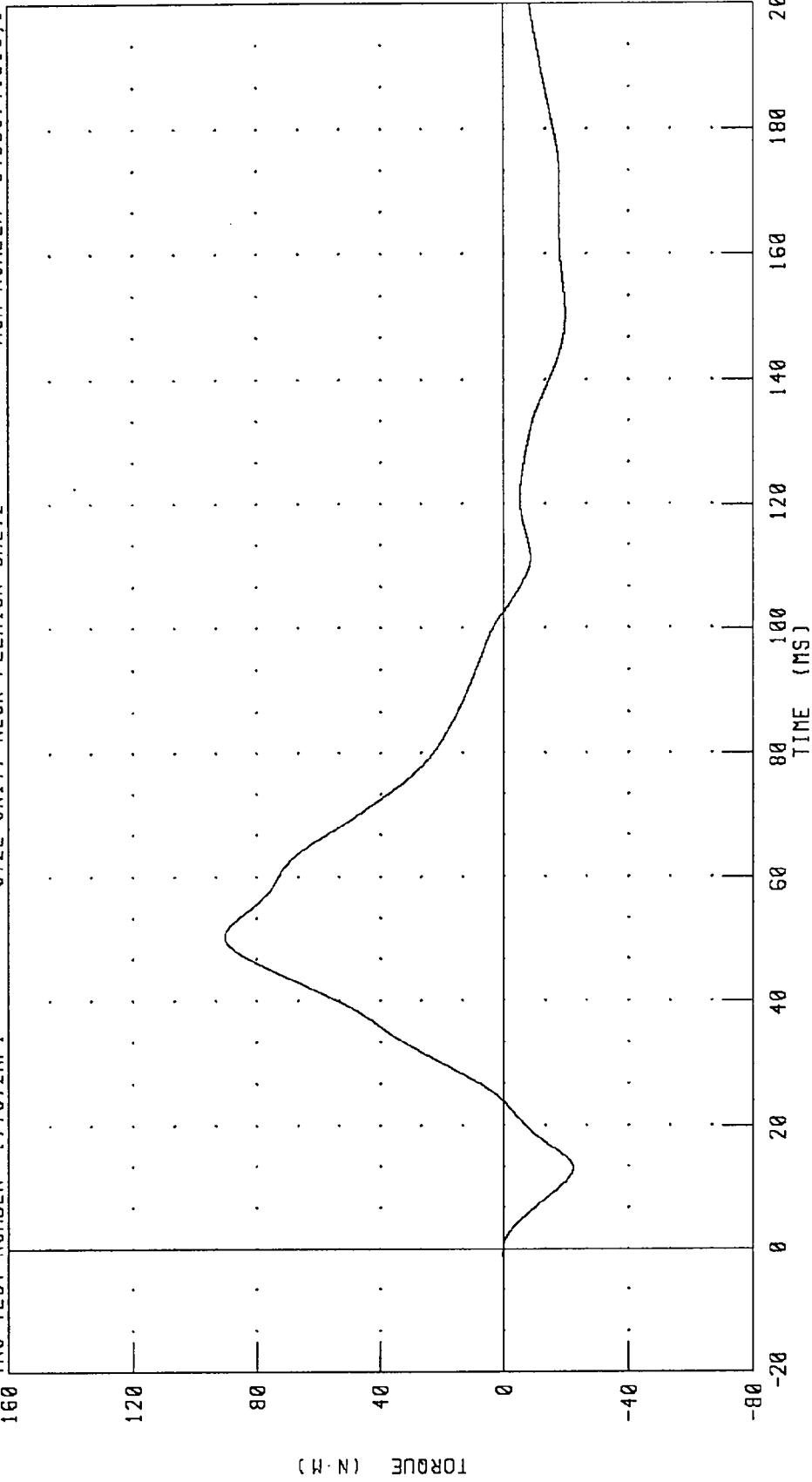
CHANNEL: NEKYM FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 177C72NF1

RUN NUMBER: 040897.1016j1

572E SN177 NECK FLEXION CAL72



CHANNEL: NEKOM FILTER: CH. CLASS 60

PEAK DATA: 90.47 N·M @ 50.32 MS; -22.24 N·M @ 13.12 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

31-JAN-97

TRC INC. TEST NO: 177C72NE2 572E SN177 NECK EXT. CAL72

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS   17.20 - 21.20 G	18.78 G
	20 MS   14.00 - 19.00 G	17.02 G
	30 MS   11.00 - 16.00 G	15.23 G
MAX PENDULUM G	22 G MAX	19.01 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	15.18 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	38.08 MS
D PLANE	MAX   81 - 106 DEG.	94.01 DEG.
ROTATION	TIME   72 - 82 MS	74.80 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN   -80.0/-52.9 NM	-69.65 NM
	TIME   65 - 79 MS	70.48 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	152.56 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	138.32 MS

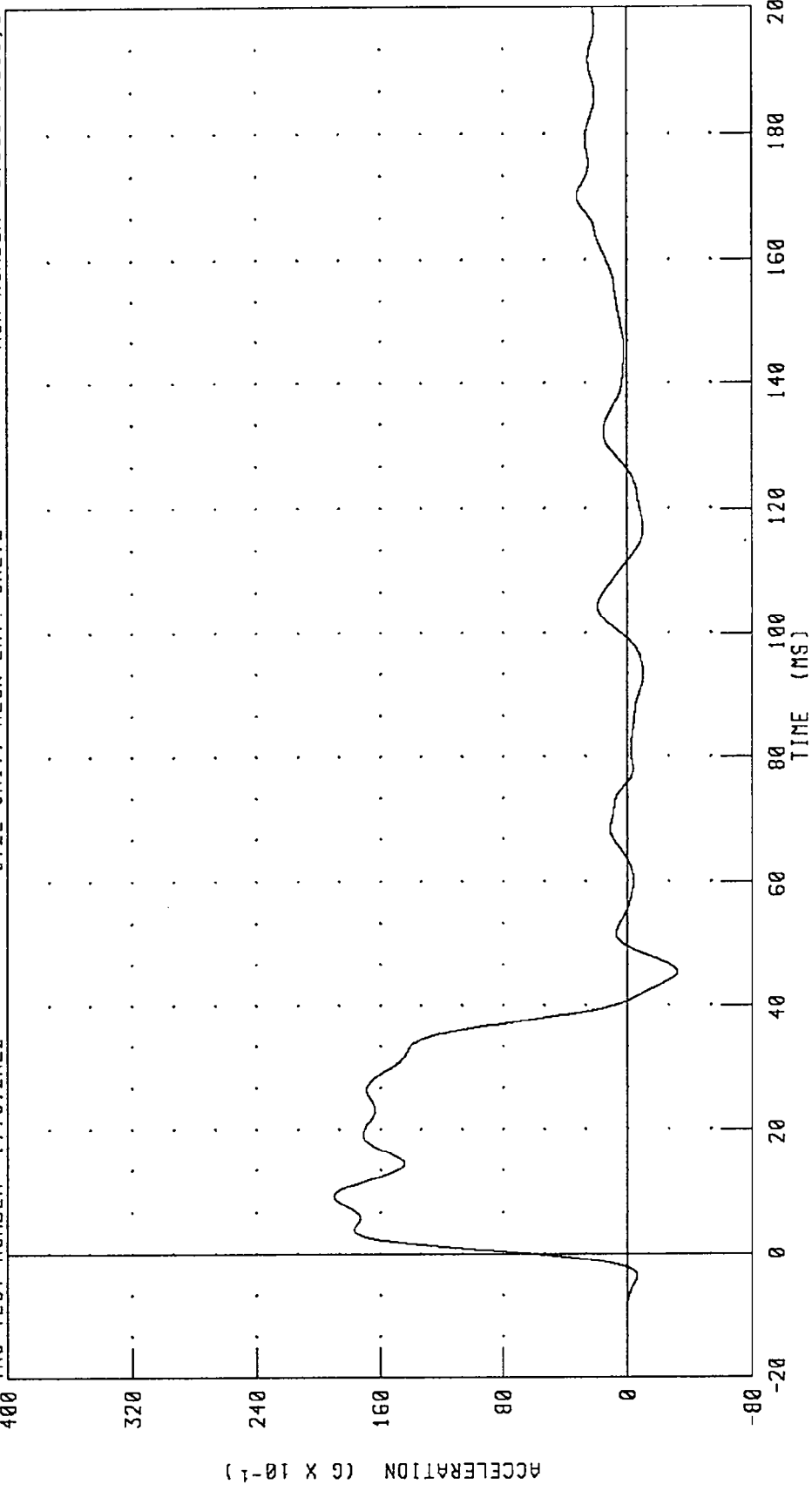
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 013197.1605;3

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
PENDULUM DECELERATION

TRC TEST NUMBER: 177C72NE2      572E SN177 NECK EXT. CAL72      RUN NUMBER: 040897.1016.3



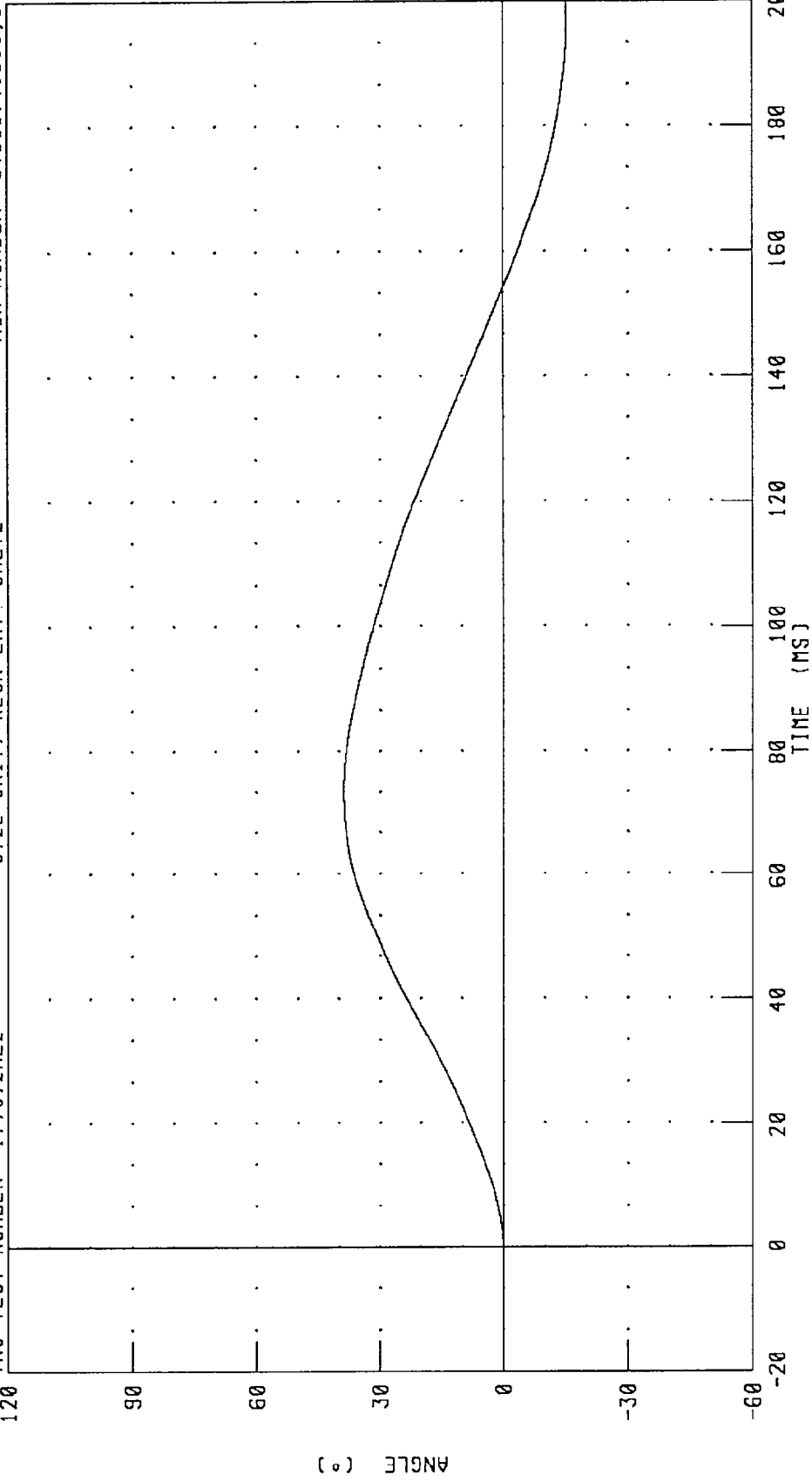
CHANNEL: PENXG      FILTER: CH. CLASS 60      PEAK DATA: 19.02 G @ 9.28 MS, -3.19 G @ 45.52 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
 ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 177C72NE2

572E SN177 NECK EXT. CAL72

RUN NUMBER: 040897.1016;3



CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 38.81 @ 73.52 MS; -15.31 @ 197.44 MS

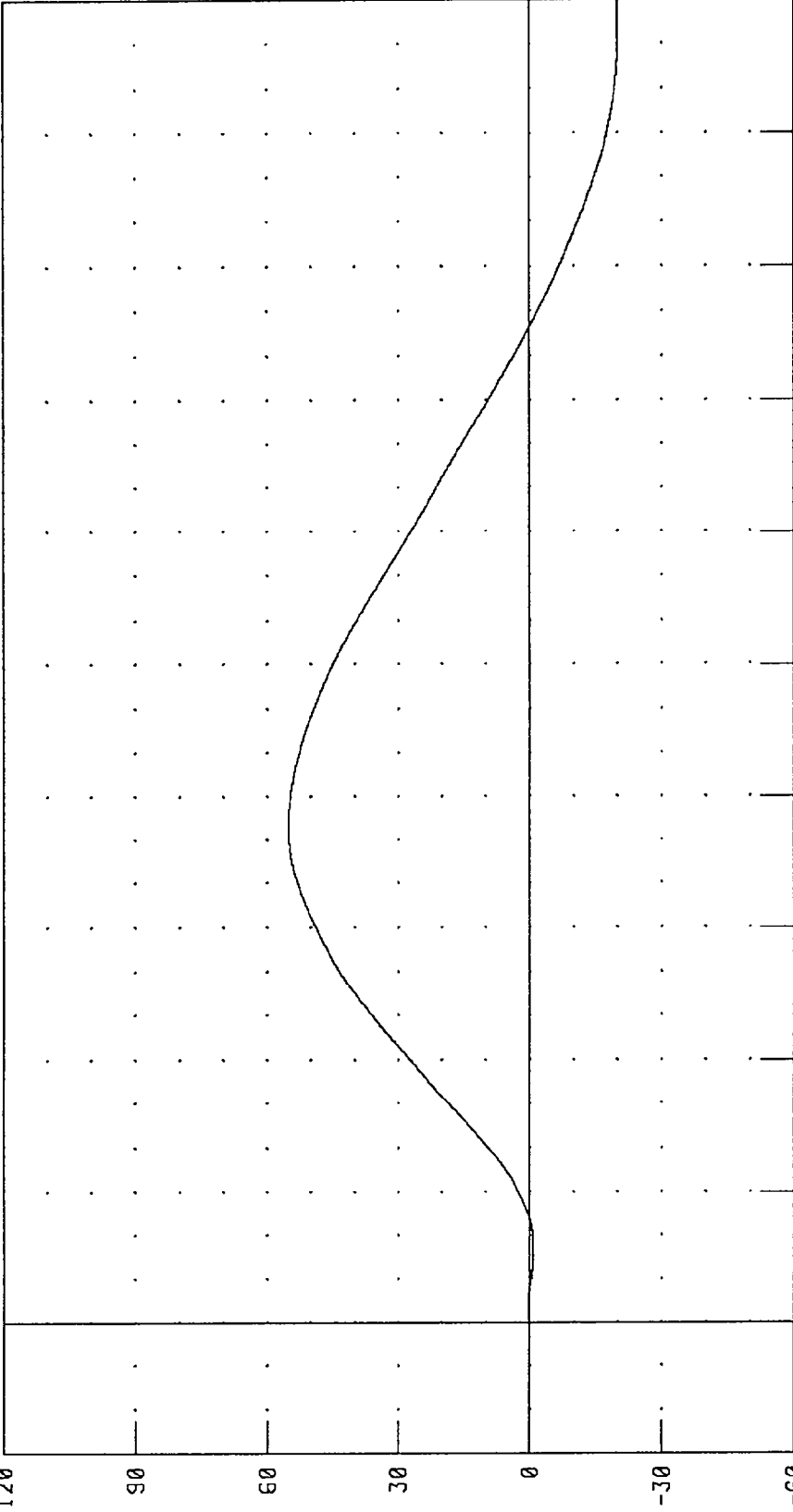
PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 177C72NE2

572E SN177 NECK EXT. CAL72

RUN NUMBER: 040897.1016.3

120



ANGLE (°)

200

180

160

140

120

100

80

60

40

20

0

-20

-60

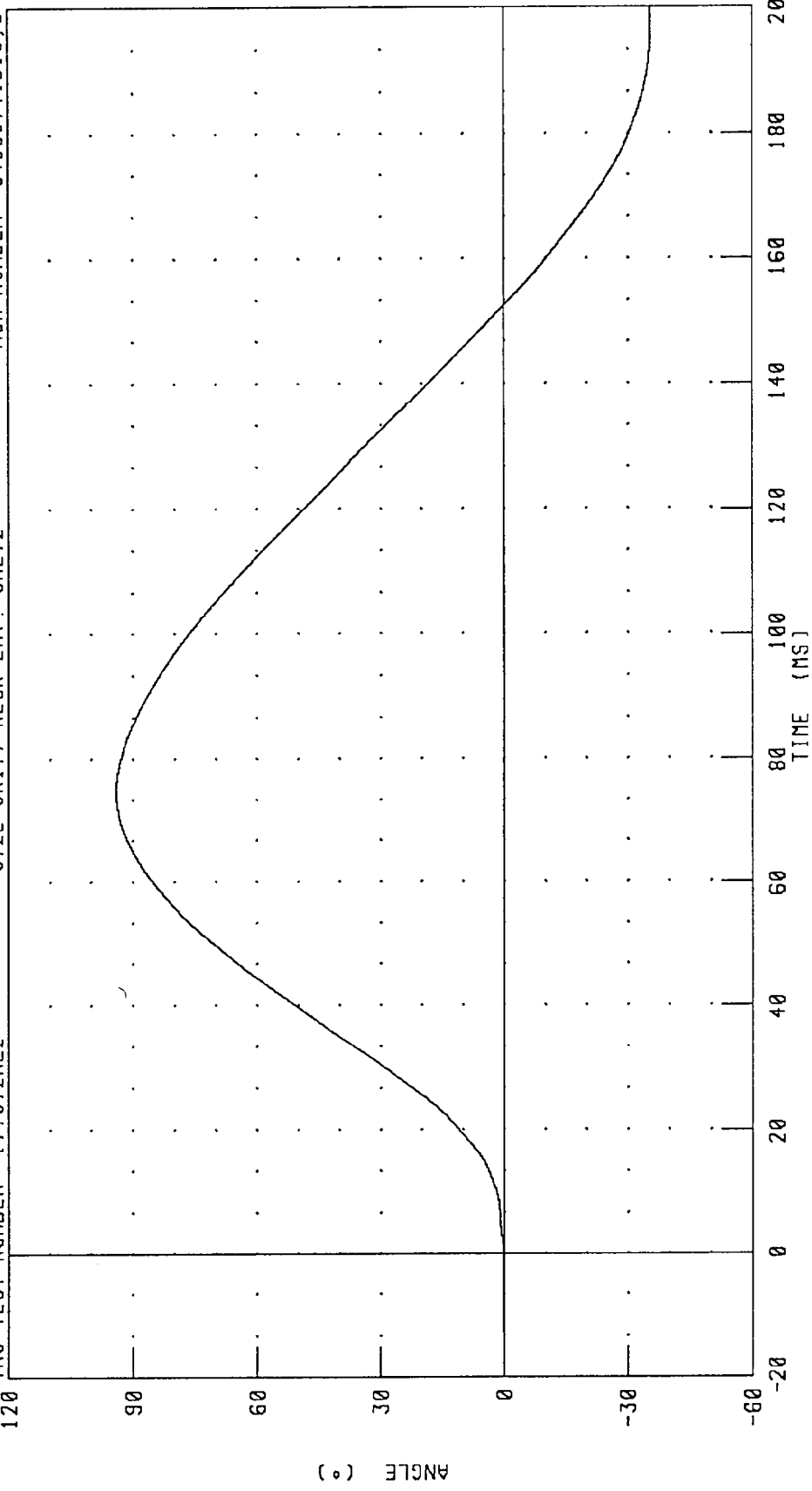
TIME (MS)

PEAK DATA: 55.23 ° @ 75.36 MS, -20.03 ° @ 195.68 MS

CHANNEL: THETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
TOTAL ROTATION

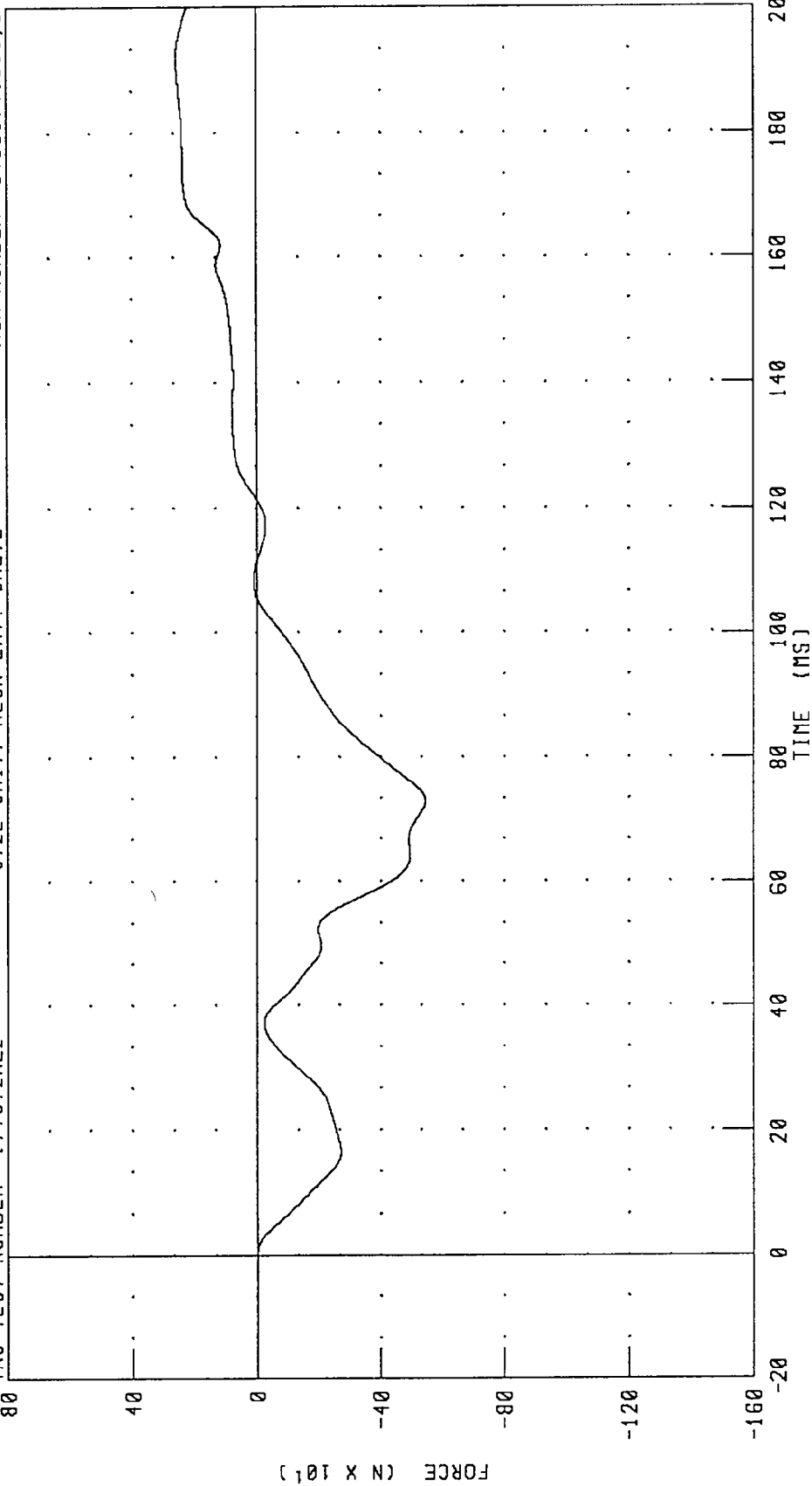
TRC TEST NUMBER: 177C72NE2      572E SN177 NECK EXT. CAL72      RUN NUMBER: 040897.1016j3



CHANNEL: TOTAL      FILTER: CH. CLASS 60      PEAK DATA: 94.01 ° @ 74.80 MS; -35.33 ° @ 197.12 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
NECK FORCE X AXIS

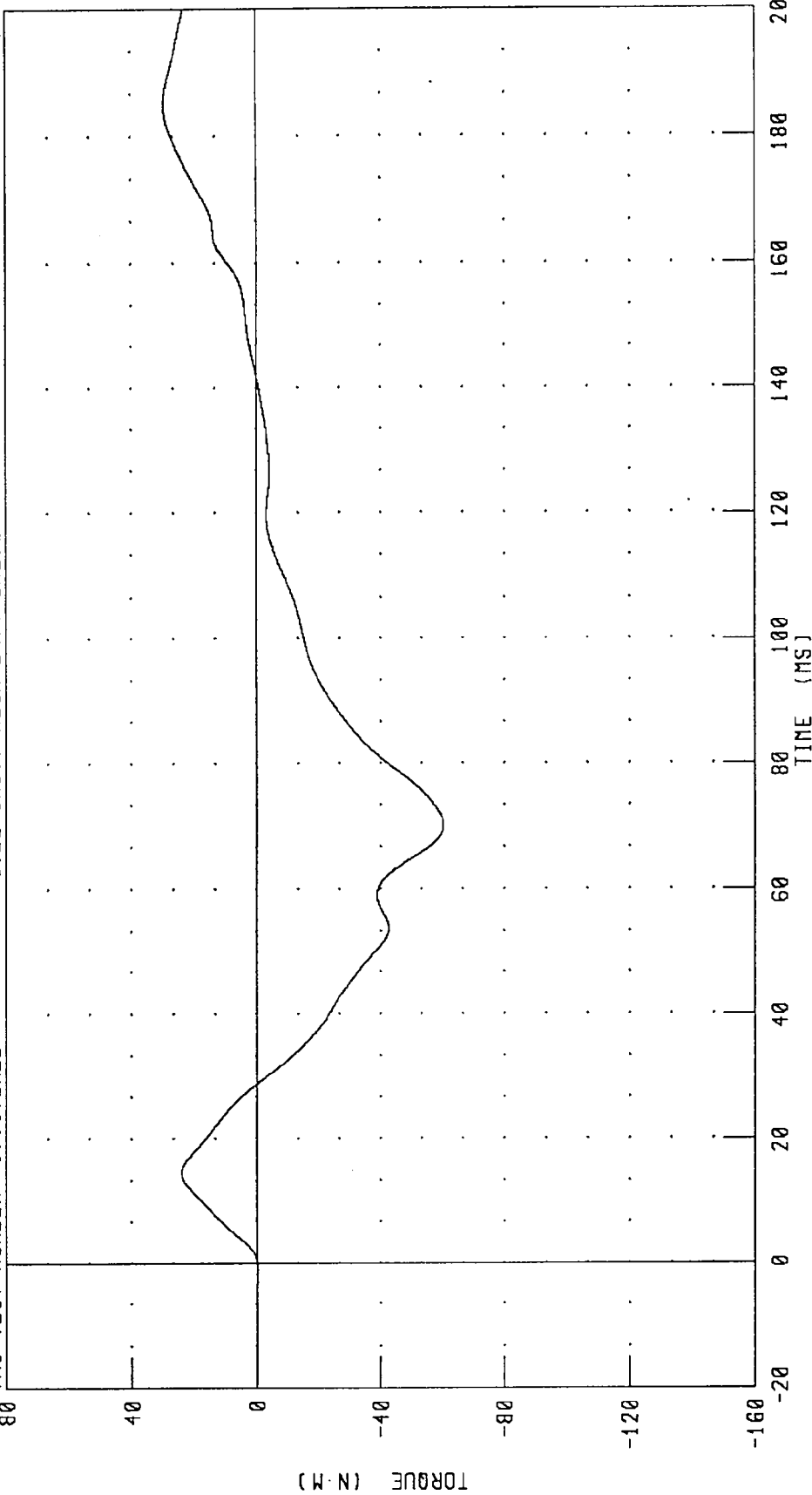
TRC TEST NUMBER: 177C72NE2      572E SN177 NECK EXT. CAL72      RUN NUMBER: 040897.1016;3



CHANNEL: NEKXF      FILTER: CH. CLASS 60      PEAK DATA: 257.09 N @ 191.92 MS; -545.72 N @ 72.96 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
NECK MOMENT Y AXIS

TRC TEST NUMBER: 177C72NE2      572E SN177 NECK EXT. CAL72      RUN NUMBER: 040897.1016.3



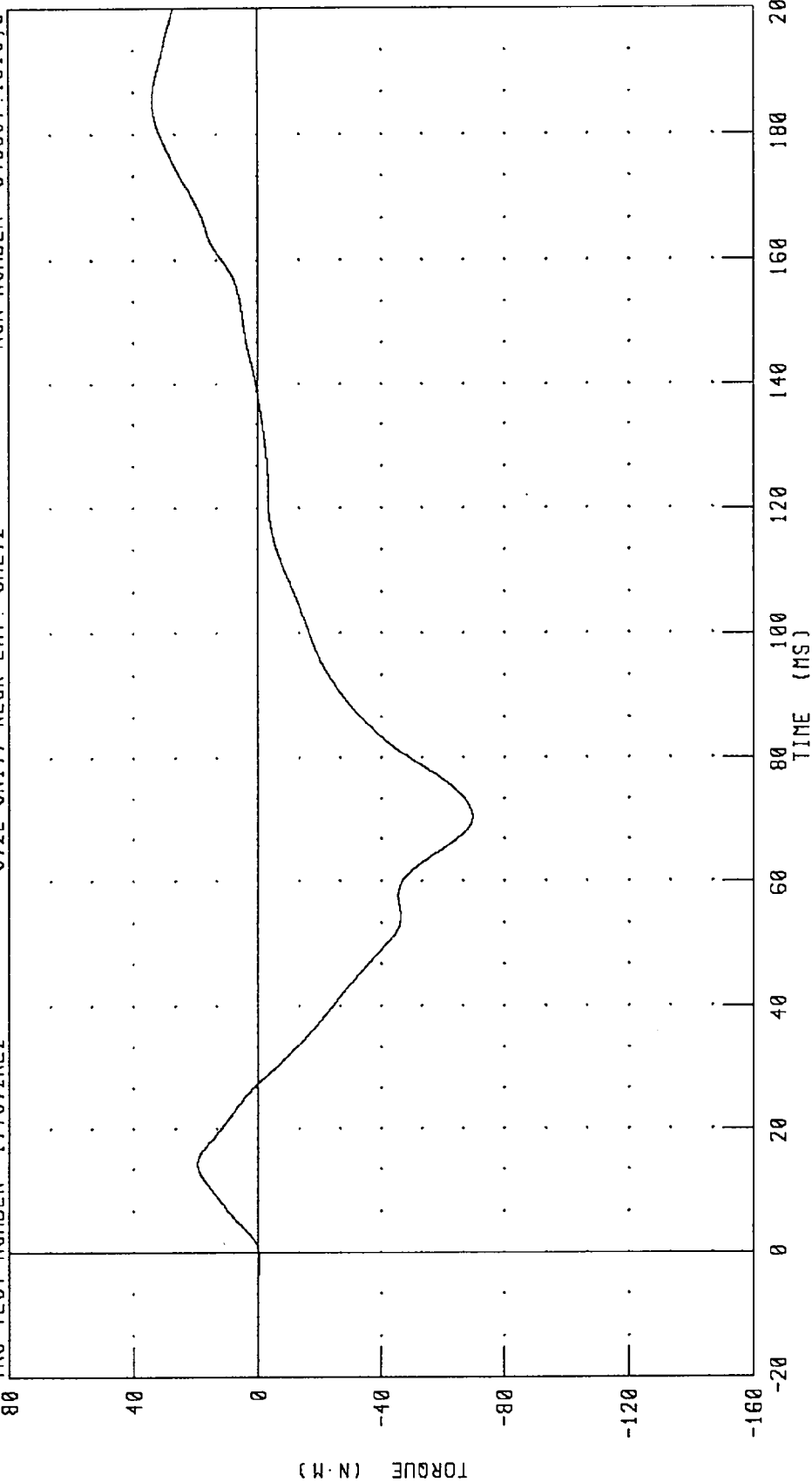
CHANNEL: NEKYM      FILTER: CH. CLASS 60      PEAK DATA: 29.43 N.M @ 185.12 MS; -60.40 N.M @ 70.08 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 177C72NE2

572E SNI77 NECK EXT. CAL72

RUN NUMBER: 040897.1016j3



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 33.85 N·M @ 185.36 MS; -69.65 N·M @ 70.48 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

01-FEB-97

TRC INC.

TEST NO: 177C72TH1

572E SN177 H.S.THORAX CAL72

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.8 DEG. C
RELATIVE HUMIDITY	10 - 70 %	35.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	69.0 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5561. N
INTERNAL HYSTERESIS	69% - 85%	74.7%

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan

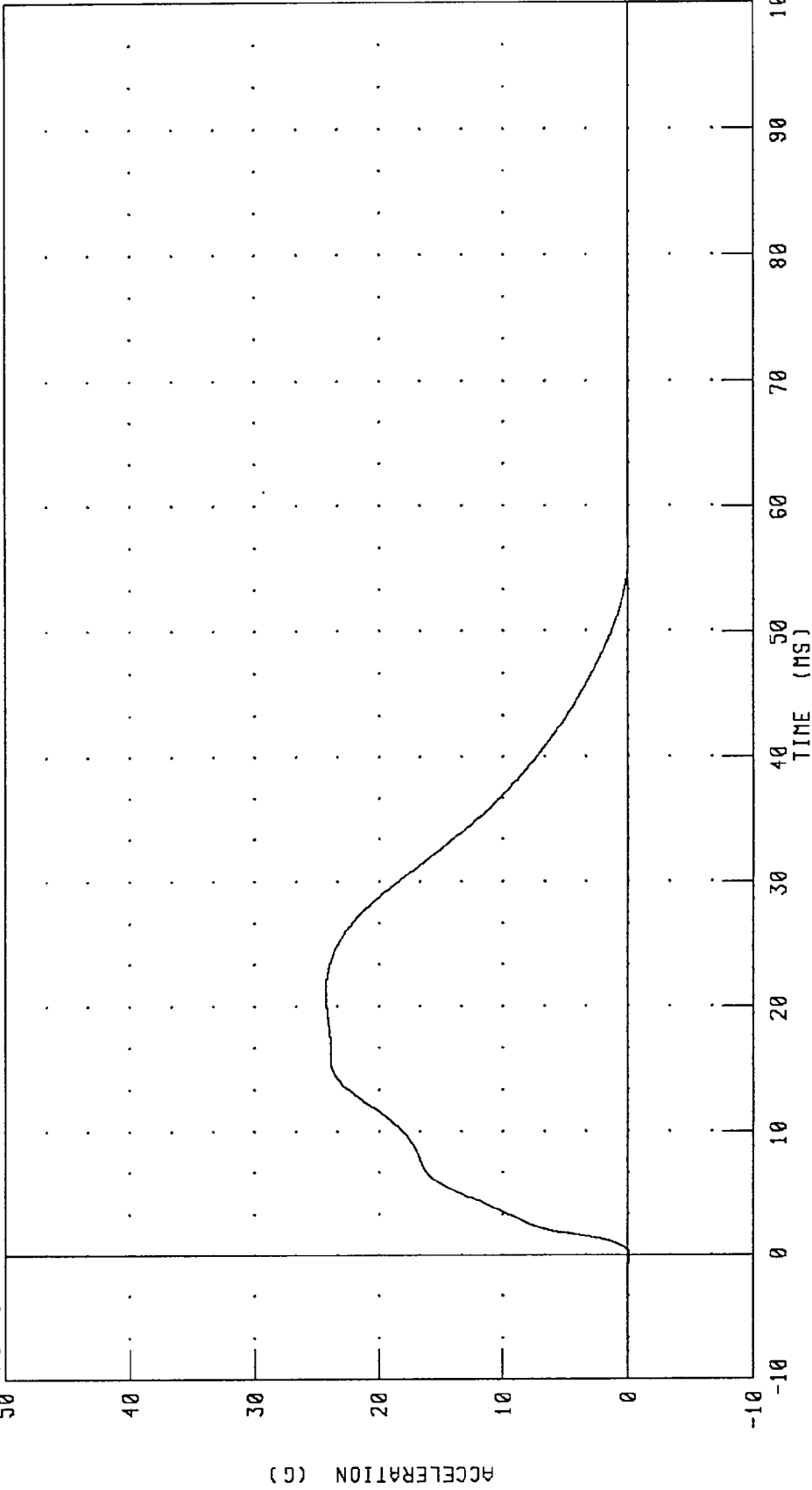
RUN NUMBER: 020197.1646;4

PART 572-E HYBRID III THORAX CALIBRATION  
PENDULUM DECELERATION

TRC TEST NUMBER: 177C72TH1

572E SN177 H.S. THORAX CAL72

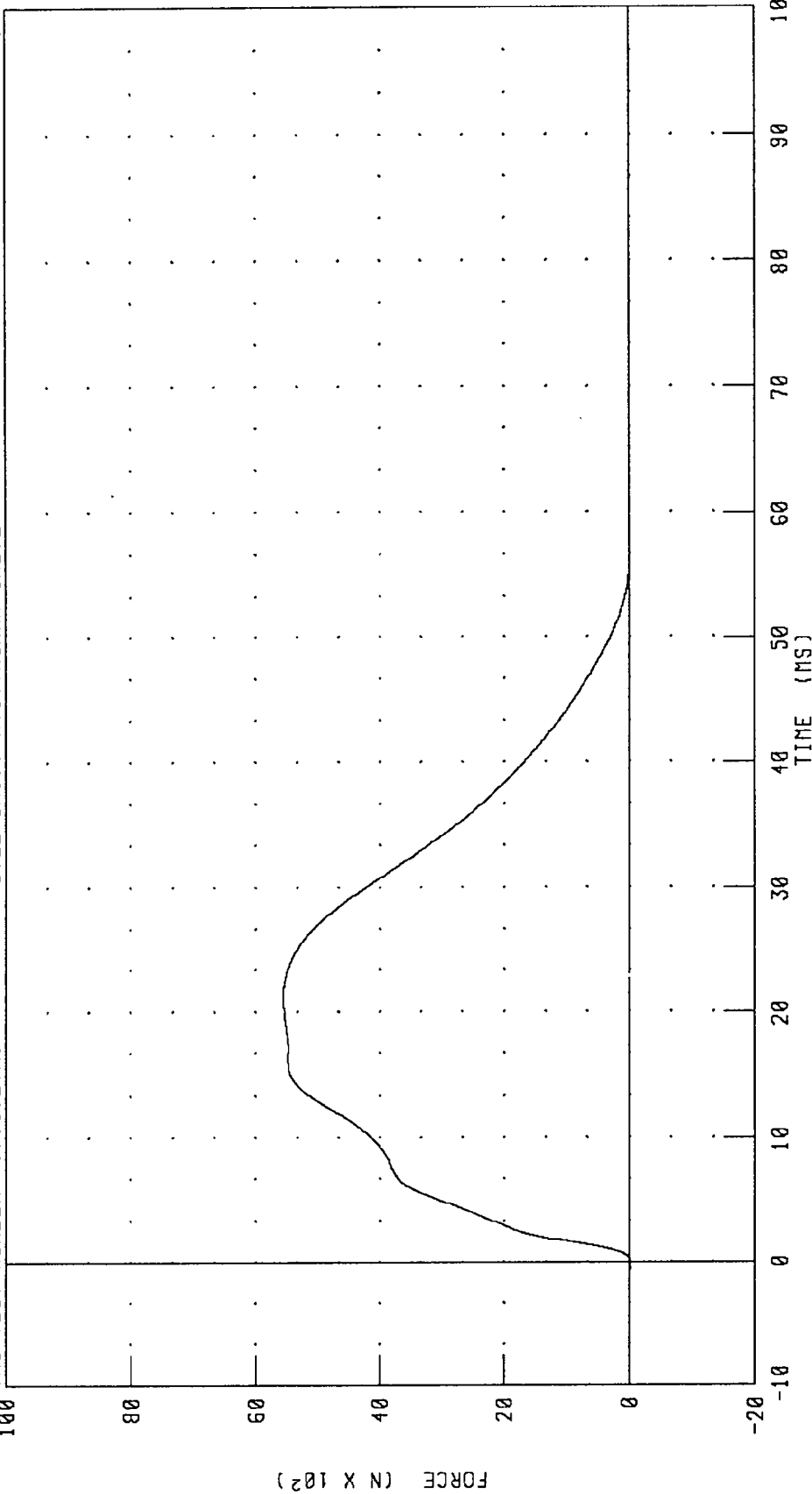
RUN NUMBER: 040897.1016;4



CHANNEL: PENXG FILTER: CH CLASS 180 PEAK DATA: 24.28 G @ 21.20 MS; -0.08 G @ -0.08 MS

PART 572-E HYBRID III THORAX CALIBRATION  
PENDULUM FORCE

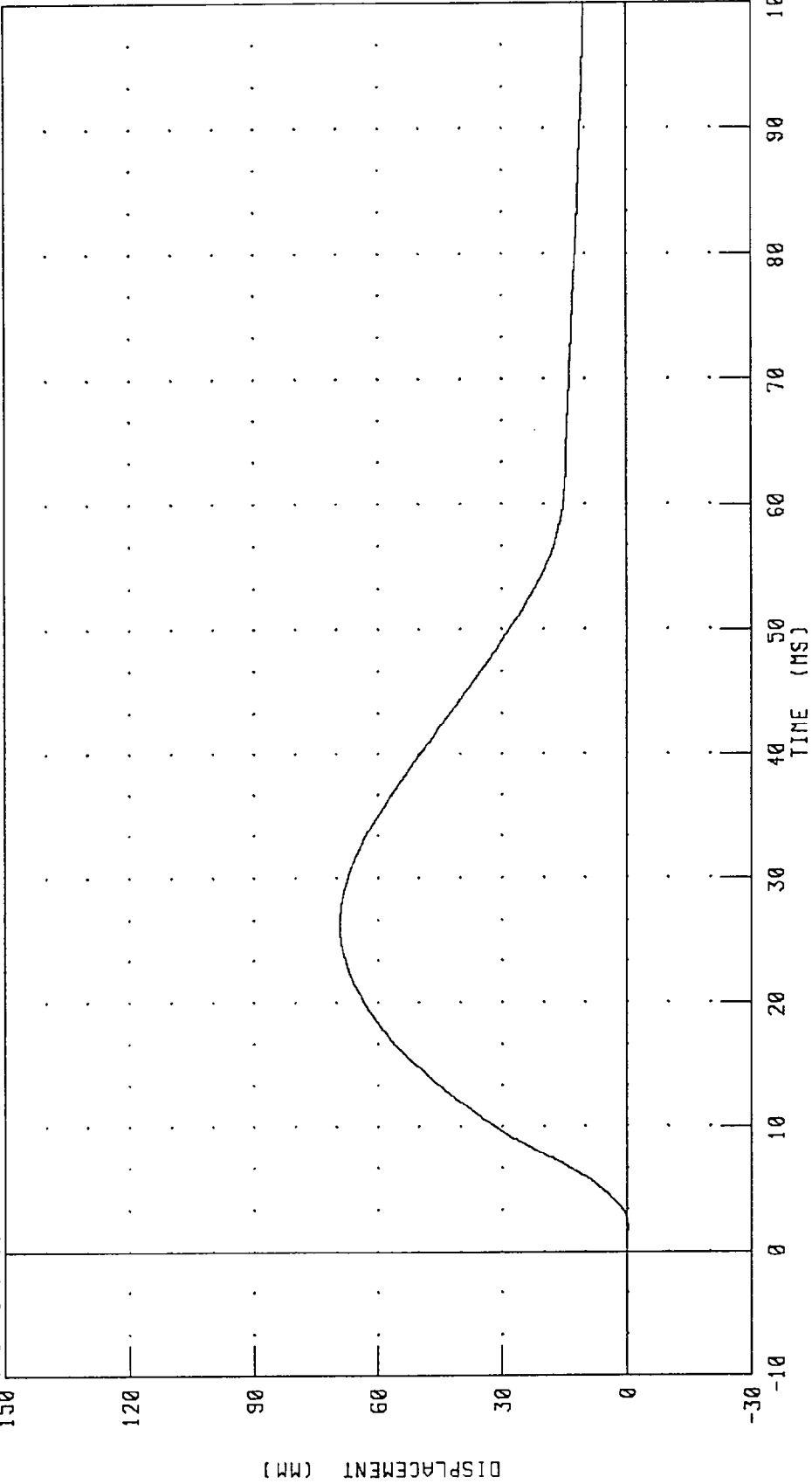
TRC TEST NUMBER: 177C72TH1      572E SN177 H.S. THORAX CAL72      RUN NUMBER: 040897.1016;4



CHANNEL: PENXF      FILTER: CH. CLASS 180      PEAK DATA: 5561.76 N @ 21.20 MS; -17.65 N @ -0.08 MS

PART 572-E HYBRID III THORAX CALIBRATION  
STERNUM DISPLACEMENT

TRC TEST NUMBER: 177C72TH1      572E SN177 H.S. THORAX CAL72      RUN NUMBER: 040897.1016;4



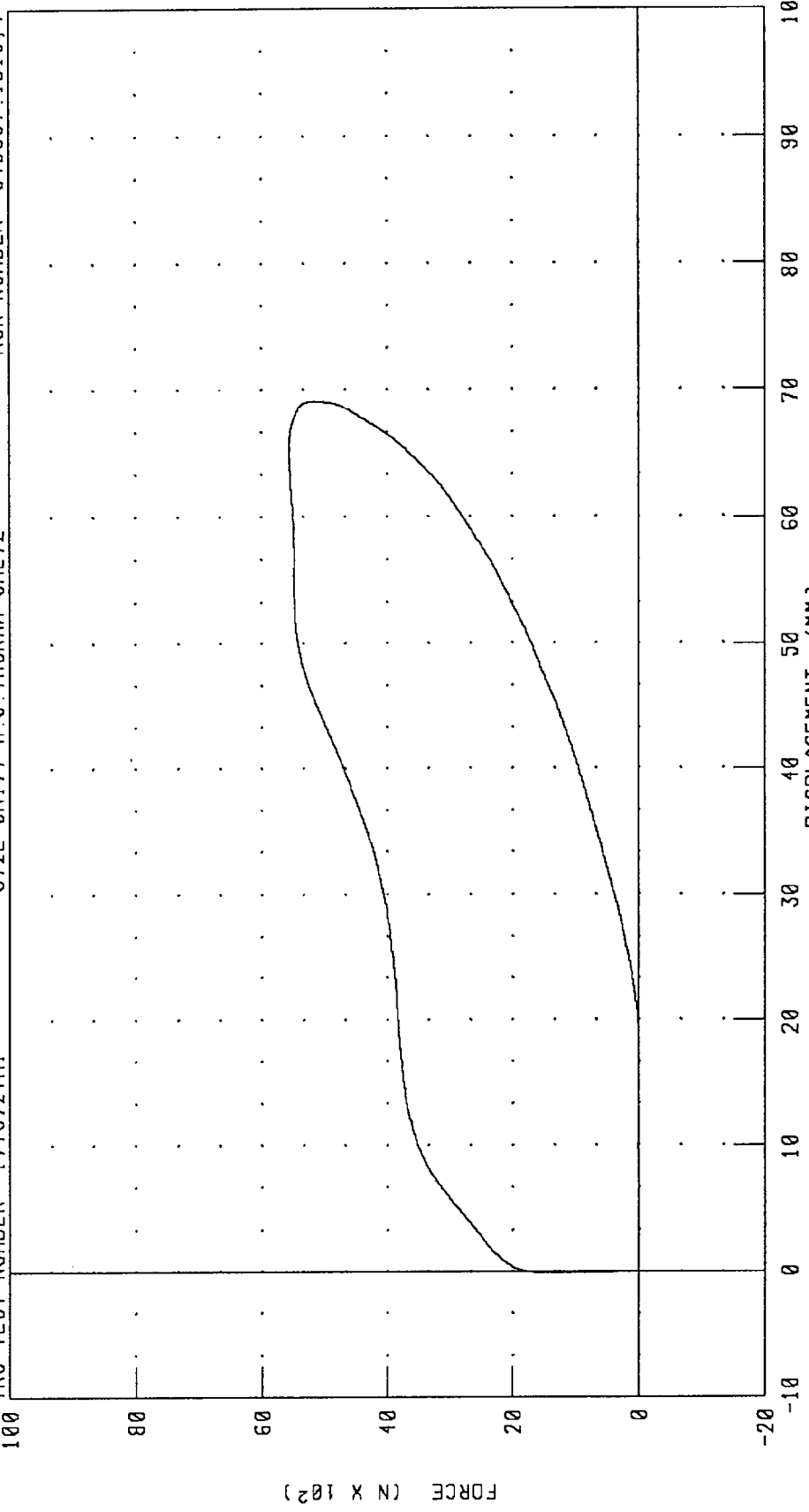
CHANNEL: CSTXD      FILTER: CH. CLASS 180      PEAK DATA: 69.10 MM @ 26.16 MS; -0.07 MM @ 2.00 MS

PART 572-E HYBRID III THORAX CALIBRATION  
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 177C72TH1

572E SN177 H.S.THORAX CAL72

RUN NUMBER: 040897.1016.4



CHANNEL: CSTXD FILTER: CH. CLASS 180  
PENXF CH. CLASS 180  
PEAK DATA: 69.10 MM @ 26.16 MS; -0.07 MM @ 2.00 MS  
5561.76 N @ 21.20 MS; -17.65 N @ -0.08 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

30-JAN-97

TRC INC.

TEST NO: 177C72RK1

572E SN177 RIGHT KNEE CAL 72

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5572.7 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Richard L. Van*

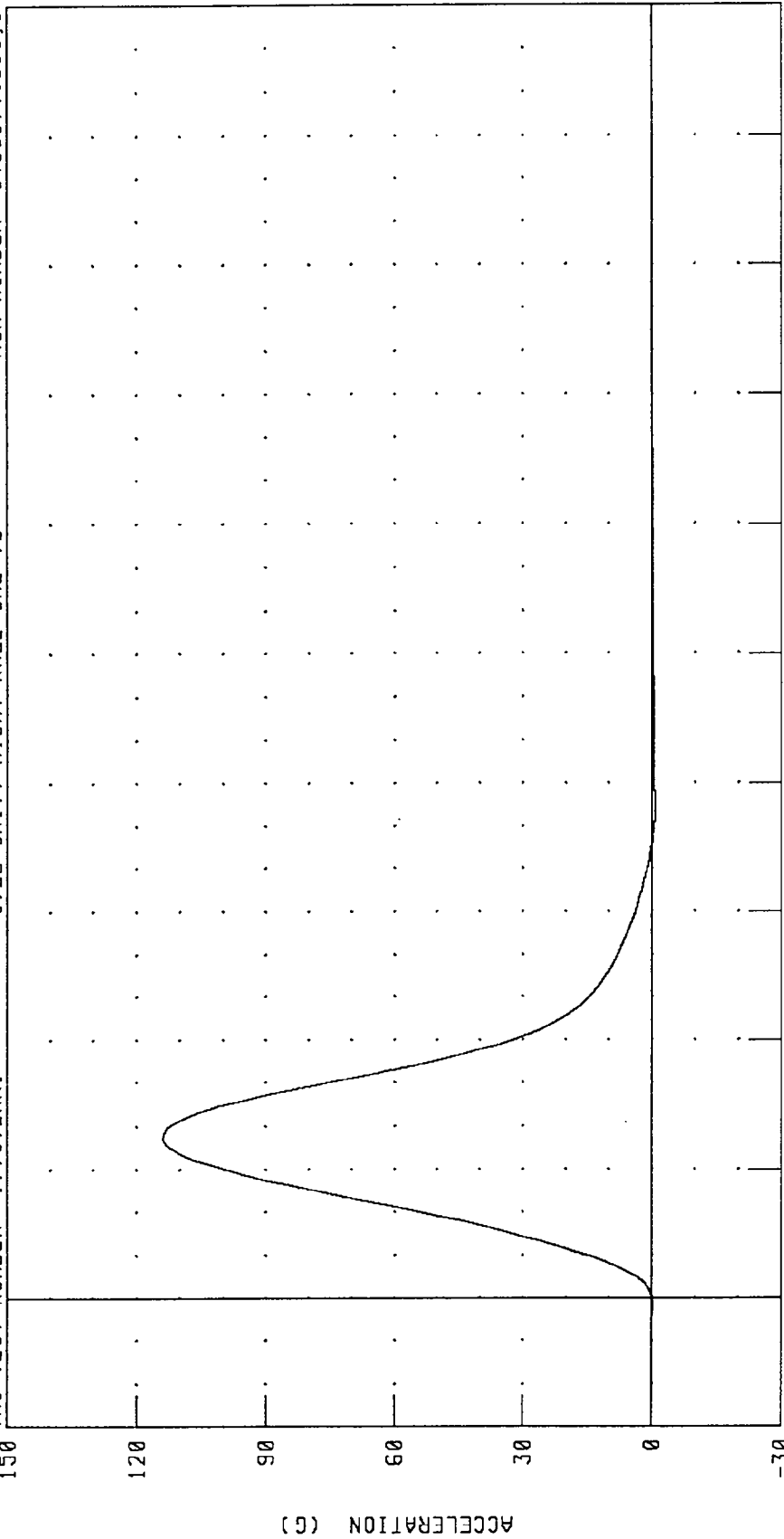
RUN NUMBER: 013097.0914;1

PART 572-E HYBRID III RIGHT KNEE CALIBRATION  
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 177C72RK1

572E SN177 RIGHT KNEE CAL 72

RUN NUMBER: 040897.1016;1



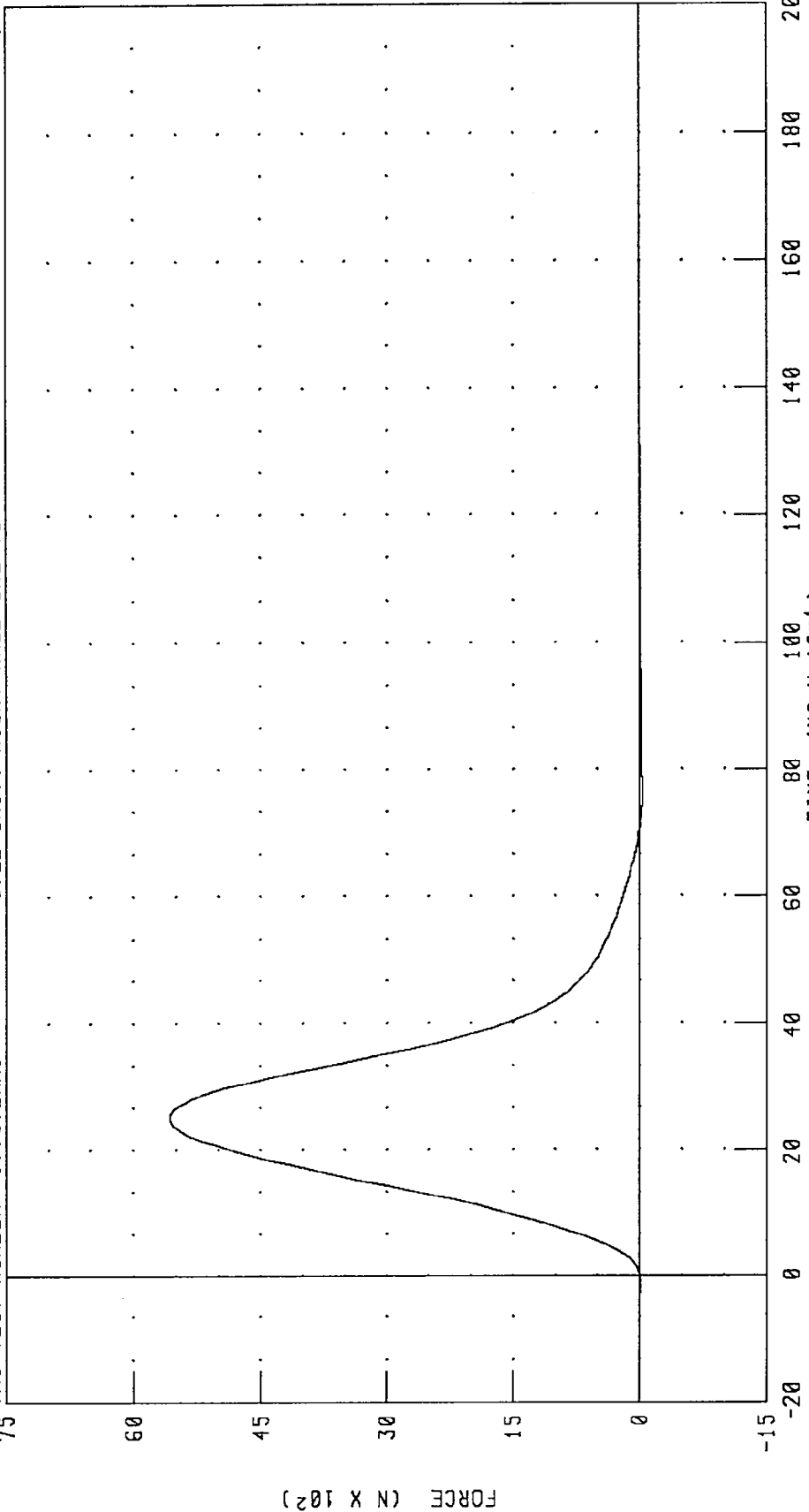
CHANNEL: PENXG FILTER: CH. CLASS 600  
PEAK DATA: 113.90 G @ 2.48 MS; -0.70 G @ 7.60 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION  
PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 177C72RK1

572E SN177 RIGHT KNEE CAL 72

RUN NUMBER: 040897.1016;1



CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

30-JAN-97

TRC INC. TEST NO: 177C72LK1 572E SN177 LEFT KNEE CAL 72

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5593.1 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Lee

RUN NUMBER: 013097.0905;1

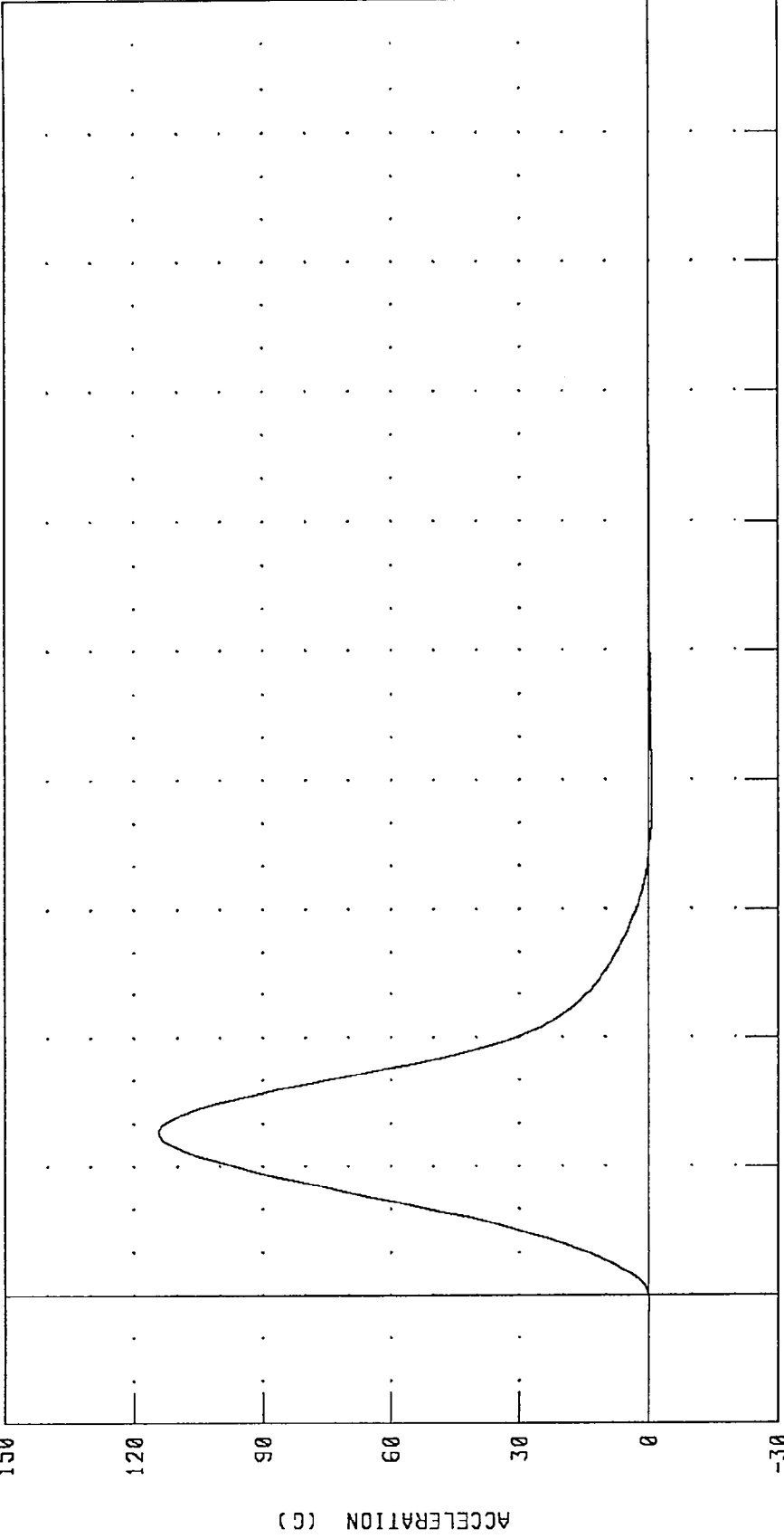
PART 572-E HYBRID III LEFT KNEE CALIBRATION  
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 177C72LK1

572E SN177 LEFT KNEE CAL 72

RUN NUMBER: 040897.1016.1

150



CHANNEL: PENXG FILTER: CH. CLASS 600

PEAK DATA: 114.31 G @ 2.56 MS; -0.75 G @ 7.60 MS

ACCELERATION (G)

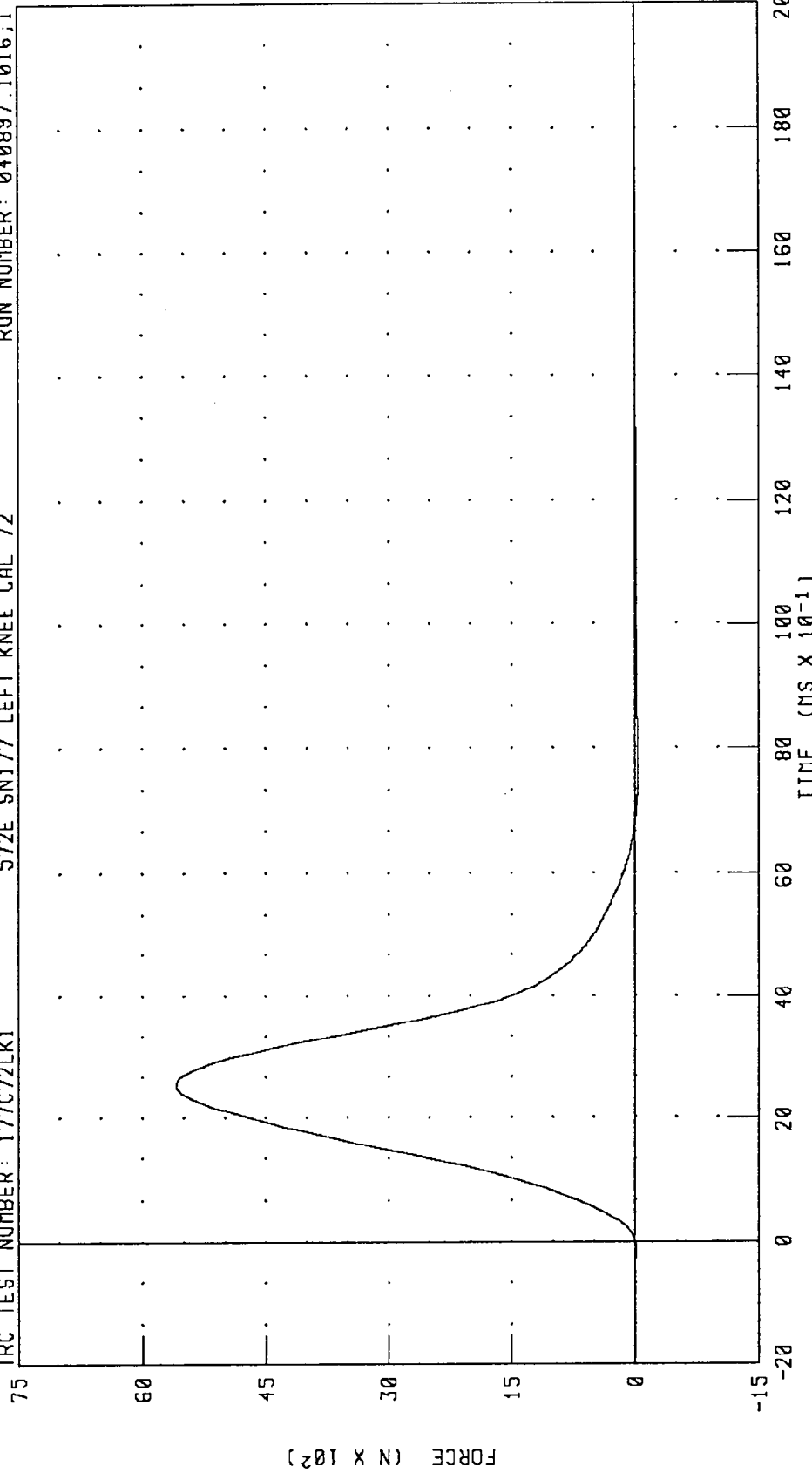
TIME (MS X 10<sup>-1</sup>)

PART 572-E HYBRID III LEFT KNEE CALIBRATION  
PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 177C72LK1

572E SN177 LEFT KNEE CAL 72

RUN NUMBER: 040897.1016.1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 5593.11 N @ 2.56 MS; -36.88 N @ 7.60 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE SLIDER TEST

HYBRID III

31-JAN-97

TRC INC.

TEST NO: 177C72RS1

572E SN177 RIGHT SLIDER CAL72

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	2.70-2.80 M/S	2.76 M/S
FORCE AT 10.0 MM DISPLACEMENT	1259 - 1721 N	1282. N
FORCE AT 18.0 MM DISPLACEMENT	2268 - 3096 N	2364. N

TEST MEETS SPECIFICATIONS

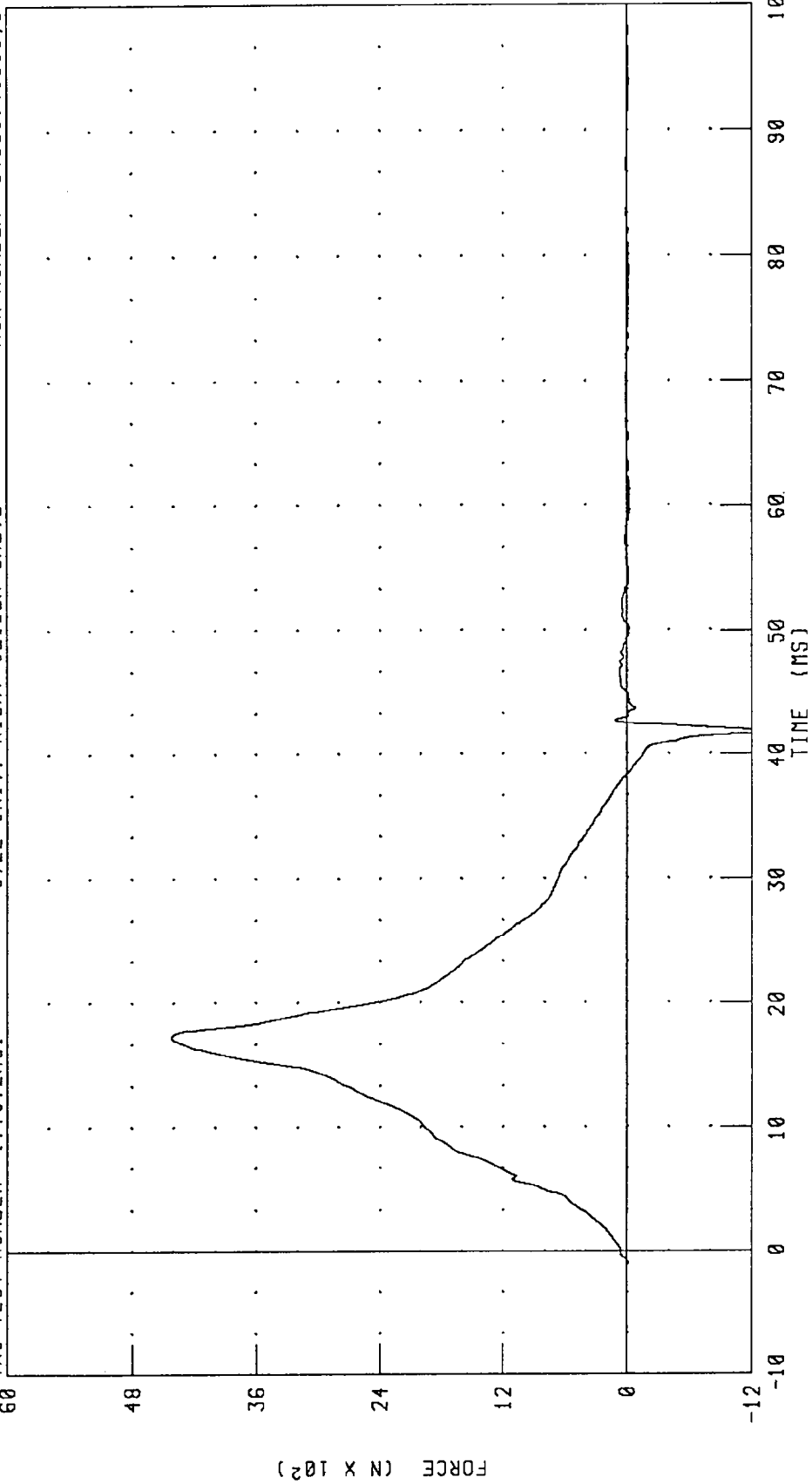
TECHNICIAN

*Richard LeVan*

RUN NUMBER: 013197.1454;3

PART 572-E HYBRID III RIGHT KNEE SLIDER CALIBRATION  
RIGHT FEMUR FORCE

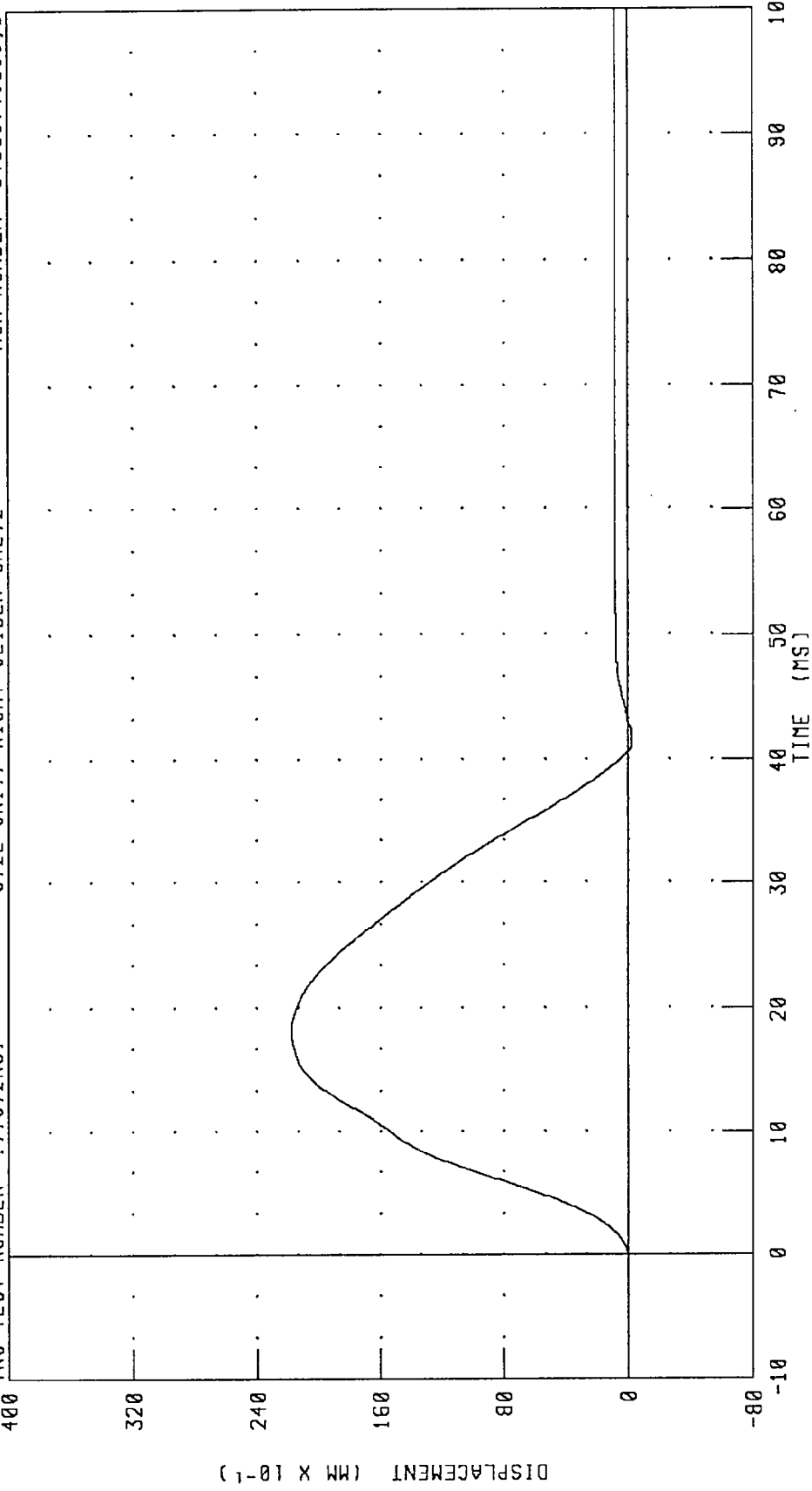
TRC TEST NUMBER: 177C72RS1      572E SN177 RIGHT SLIDER CAL72      RUN NUMBER: 040897.1016,3



CHANNEL: RFMF      FILTER: CH. CLASS 600      PEAK DATA: 4421.63 N e 17.28 MS, -1309.19 N e 41.76 MS

PART 572-E HYBRID III RIGHT KNEE SLIDER CALIBRATION  
RIGHT KNEE DISPLACEMENT

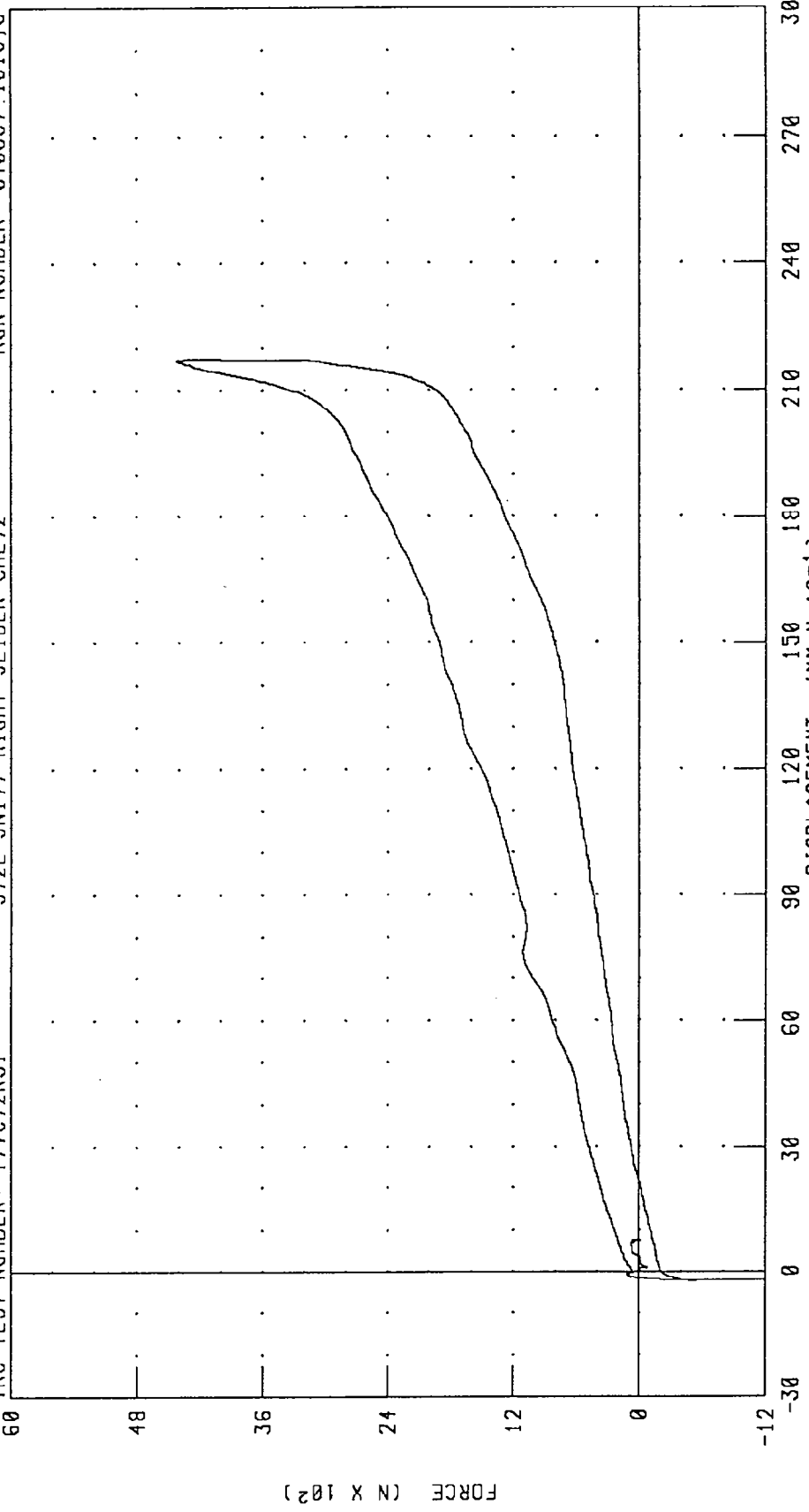
TRC TEST NUMBER: 177C72RS1      572E SN177 RIGHT SLIDER CAL72      RUN NUMBER: 040897.1016.3



CHANNEL: KNRXD      FILTER: CH. CLASS 600      PEAK DATA: 21.74 MM @ 17.76 MS; -0.22 MM @ 41.12 MS

PART 572-E HYBRID III RIGHT KNEE SLIDER CALIBRATION  
RIGHT KNEE DISPLACEMENT VS FEMUR FORCE

TRC TEST NUMBER: 177C72RS1      572E SN177 RIGHT SLIDER CAL72      RUN NUMBER: 040897.1016.3



CHANNEL: KNRXD      FILTER: CH. CLASS 600  
RPMF                      CH. CLASS 600  
PEAK DATA:      21.74 NM @ 17.76 MS;      -0.22 NM @ 41.12 MS  
                    4421.63 N @ 17.28 MS;      -1309.19 N @ 41.76 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE SLIDER TEST

HYBRID III

31-JAN-97

TRC INC.

TEST NO: 177C72LS1

572E SN177 LEFT SLIDER CAL72

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	2.70-2.80 M/S	2.75 M/S
FORCE AT 10.0 MM DISPLACEMENT	1259 - 1721 N	1554. N
FORCE AT 18.0 MM DISPLACEMENT	2268 - 3096 N	2735. N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Richard L. L.

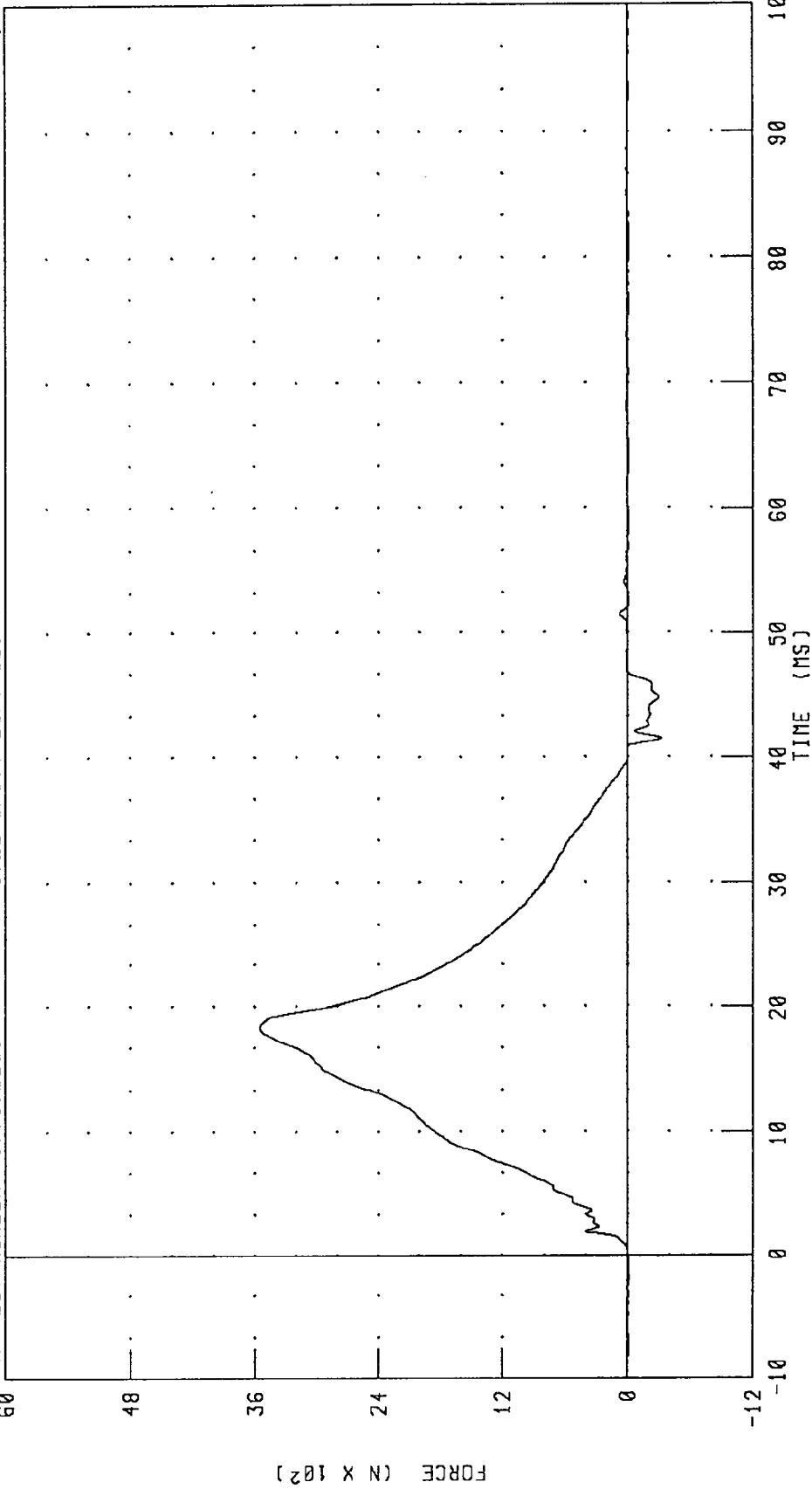
RUN NUMBER: 013197.1356;1

PART 572-E HYBRID III LEFT KNEE SLIDER CALIBRATION  
LEFT FEMUR FORCE

TRC TEST NUMBER: 177C72LS1

572E SN177 LEFT SLIDER CAL72

RUN NUMBER: 040897.1016.1

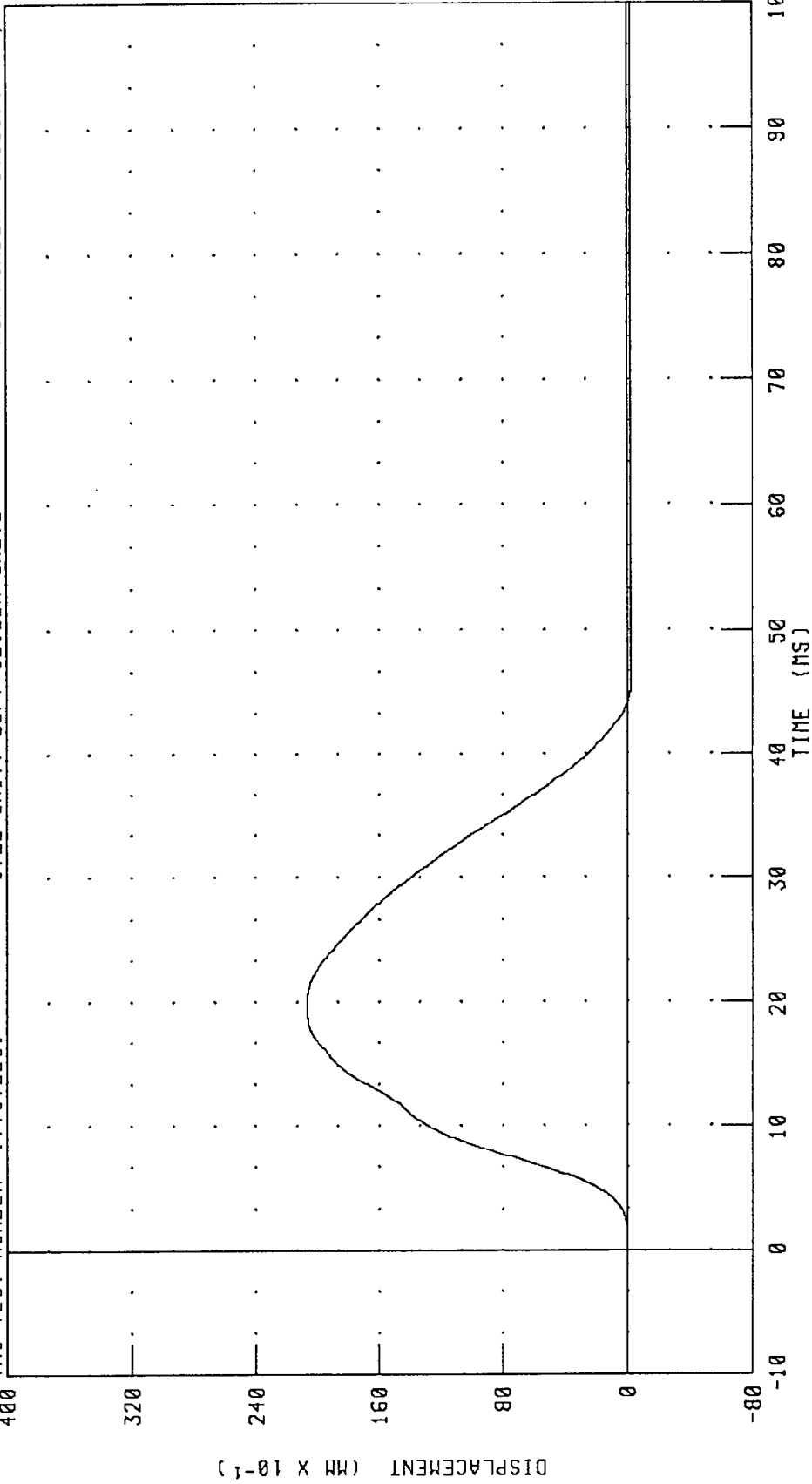


CHANNEL: LFMF FILTER: CH. CLASS 600

PEAK DATA: 3547.12 N @ 18.32 MS; -318.69 N @ 41.44 MS

PART 572-E HYBRID III LEFT KNEE SLIDER CALIBRATION  
LEFT KNEE DISPLACEMENT

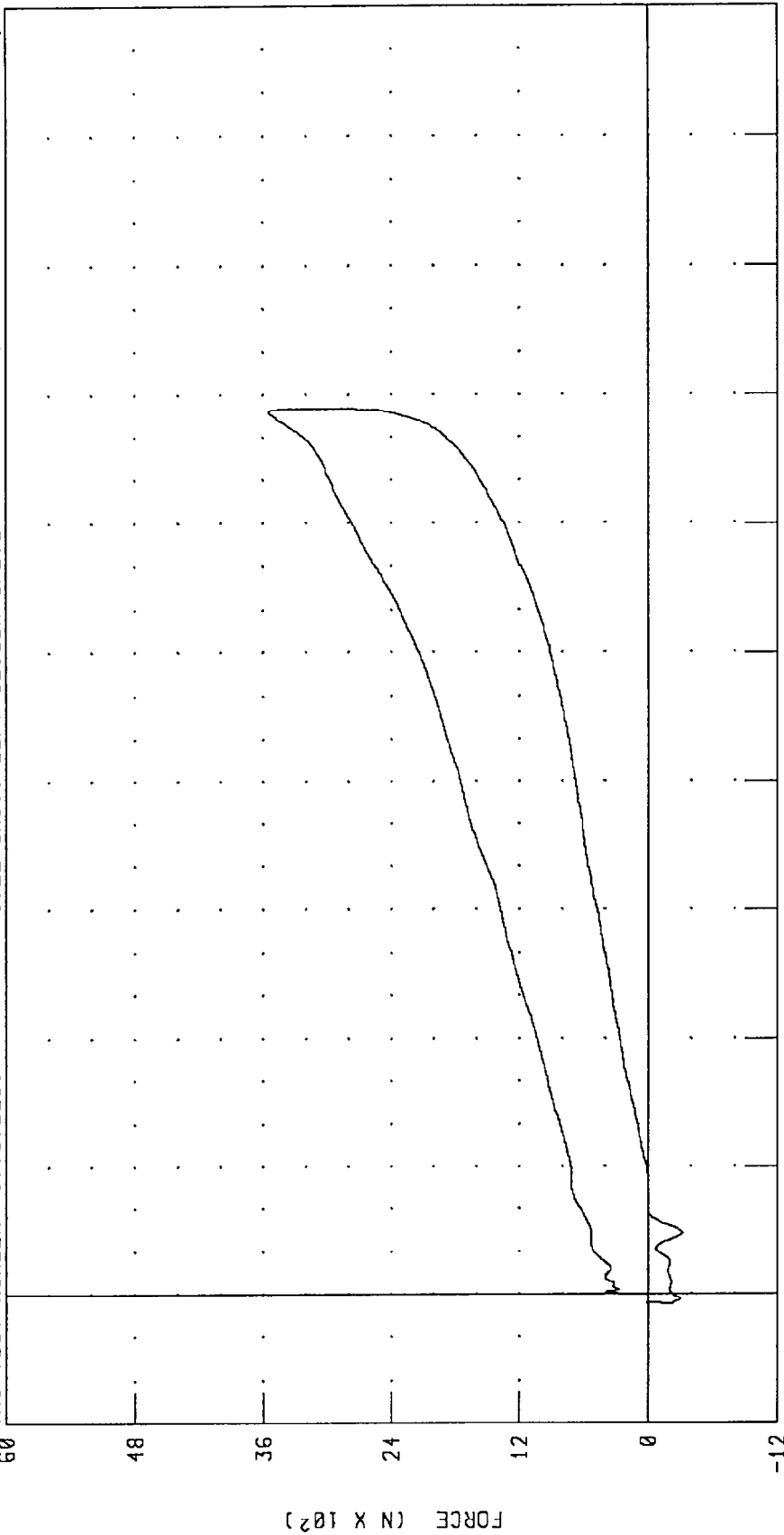
TRC TEST NUMBER: 177C72LS1      572E SN177 LEFT SLIDER CAL72      RUN NUMBER: 040897.1016;1



CHANNEL: KNLXD      FILTER: CH. CLASS 600      PEAK DATA: 20.67 MM @ 19.28 MS; -0.21 MM @ 88.56 MS

PART 572-E HYBRID III LEFT KNEE SLIDER CALIBRATION  
 LEFT KNEE DISPLACEMENT VS FEMUR FORCE

TRC TEST NUMBER: 177C72LS1      572E SN177 LEFT SLIDER CAL72      RUN NUMBER: 040897.1016.1



CHANNEL: KNLXD      FILTER: CH. CLASS 600  
 LFMF                      CH. CLASS 600

PEAK DATA: 20.67 MM @ 19.28 MS; -0.21 NM @ 46.08 MS  
 3547.12 N @ 18.32 MS; -318.69 N @ 41.44 MS

Pre-Test Calibration

Serial Number 134

TRANSPORTATION RESEARCH CENTER INC.  
 HYBRID III EXTERNAL DIMENSIONS  
 SN 134 ALDERSON

30-JAN-97

TRC INC. TEST NO: 134C68ED1 572E SN134 EXT.DIMENSION CAL68

TEST PARAMETER (DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE (AA)	429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE (BB)	226 - 231 MM	229. MM
CHEST CIRCUMFERENCE (Y)	970 -1001 MM	986. MM
WAIST CIRCUMFERENCE (Z)	836 - 866 MM	843. MM
CHEST DEPTH (O)	213 - 229 MM	216. MM
H-POINT HEIGHT (C)	84 - 89 MM	86. MM
H-POINT FROM SEATBACK (D)	135 - 140 MM	137. MM
SKULL CAP TO BACKLINE (H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT (A)	879 - 889 MM	879. MM
THIGH CLEARANCE (F)	140 - 155 MM	150. MM
BUTTOCK KNEE LENGTH (K)	579 - 605 MM	594. MM
BUTTOCK POPLITEAL LENGTH (N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT (L)	429 - 455 MM	437. MM
KNEE PIVOT HEIGHT (M)	485 - 500 MM	495. MM
FOOT LENGTH (P)	252 - 267 MM	259. MM
FOOT BREADTH (W)	91 - 107 MM	99. MM
SHOULDER PIVOT FROM BACKLINE (E)	84 - 94 MM	86. MM
SHOULDER BREADTH (V)	422 - 437 MM	427. MM
SHOULDER PIVOT HEIGHT (B)	506 - 521 MM	513. MM
ELBOW REST HEIGHT (J)	191 - 211 MM	198. MM
SHOULDER-ELBOW LENGTH (I)	330 - 345 MM	340. MM
BACK OF ELBOW TO WRIST PIVOT (G)	290 - 305 MM	292. MM

DUMMY MEETS SPECIFICATIONS  
 TECHNICIAN Richard L. L...

RUN NUMBER: 031997.1301

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

31-JAN-97

TRC INC.

TEST NO: 134C68HD1

572E SN134 HEAD DROP CAL 68

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	239.28 G
PEAK LATERAL ACCELERATION	15 G MAX	-6.07 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Richard L. Van*

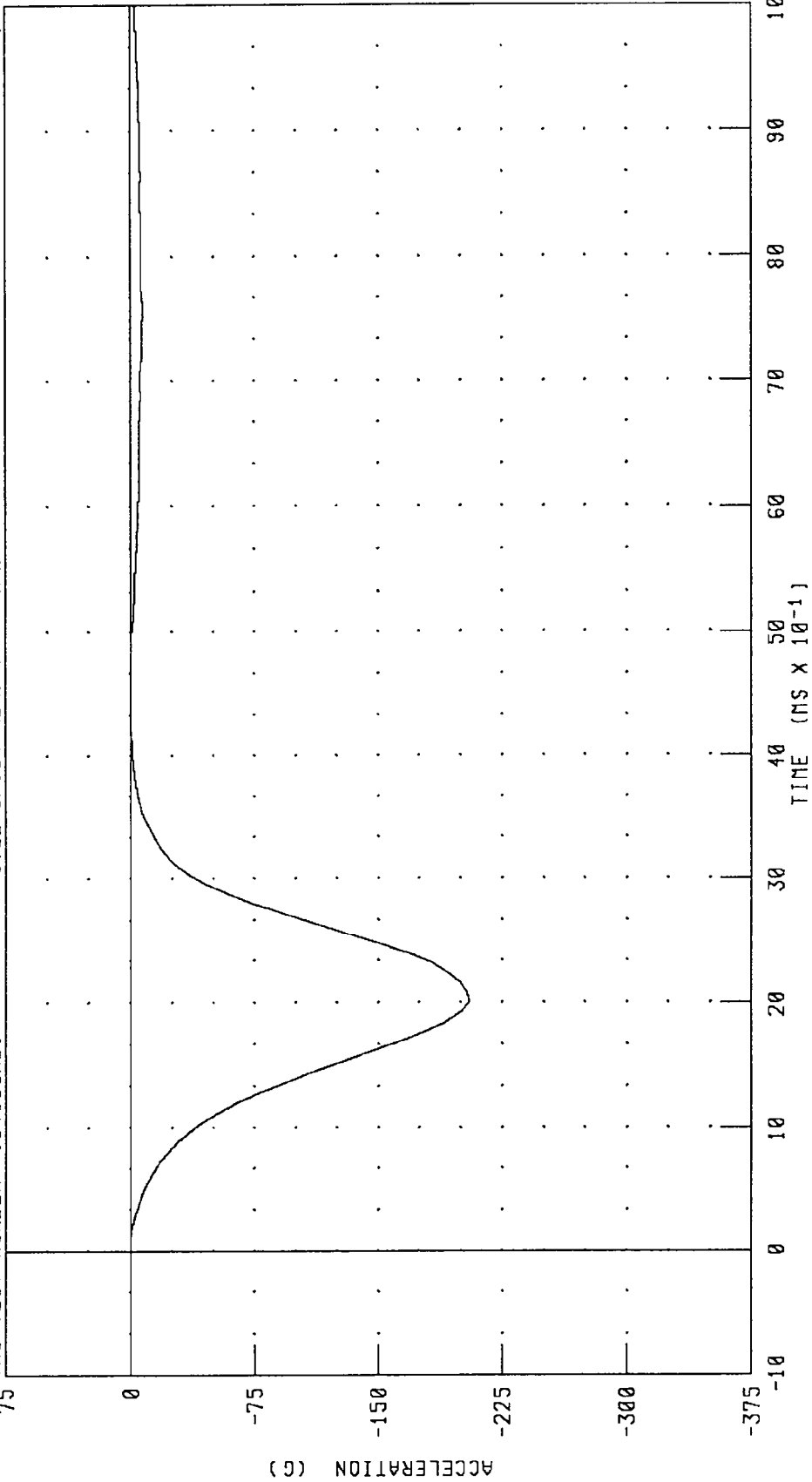
RUN NUMBER: 013197.0824;4

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 134C68HD1

572E SN134 HEAD DROP CAL 68

RUN NUMBER: 040897.1041.4



CHANNEL: HEDXG FILTER: CH. CLASS 1000

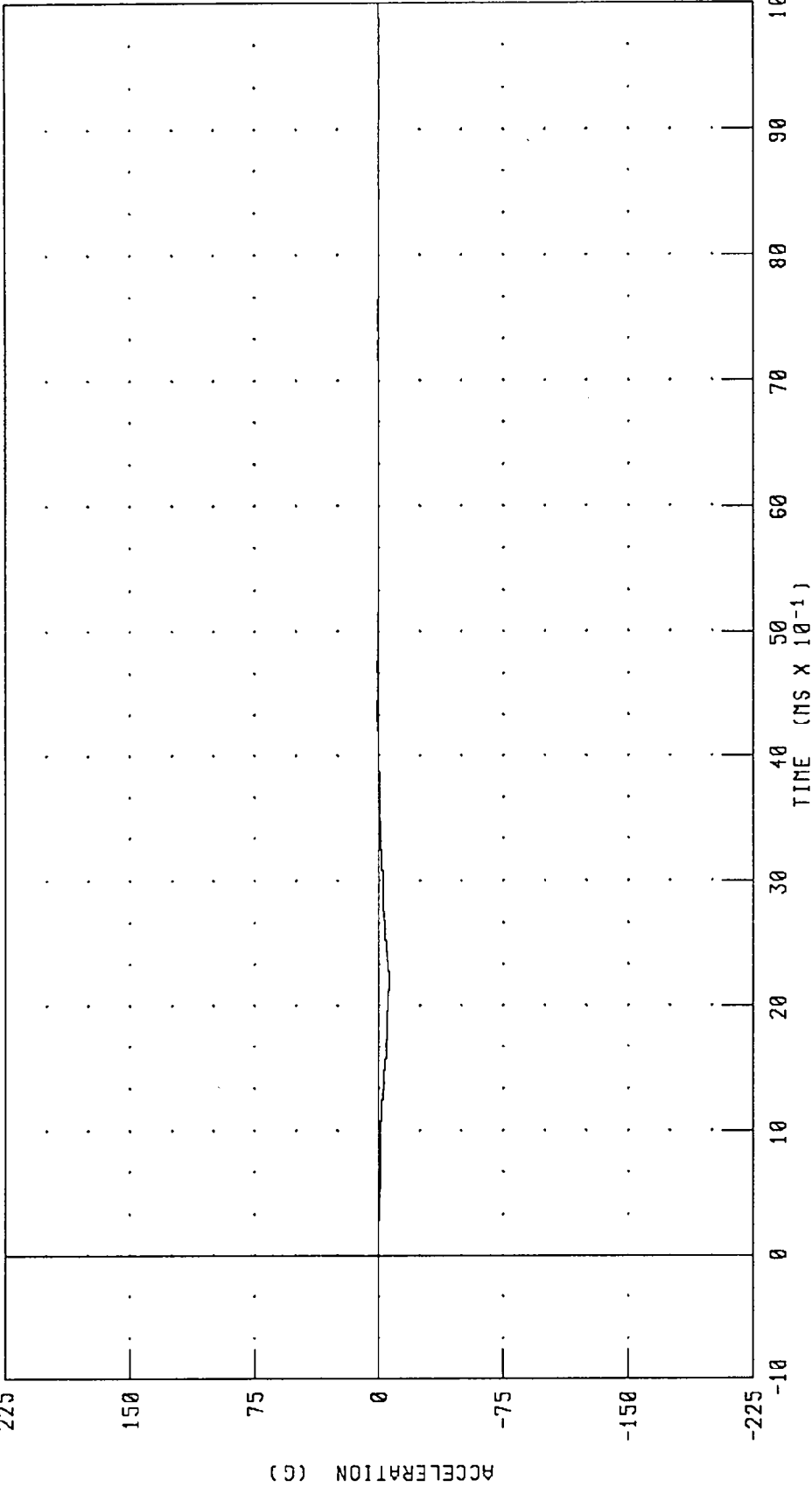
PEAK DATA: 0.20 G @ 0.00 MS, -205.04 G @ 2.00 MS

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: 134C68HD1

572E SN134 HEAD DROP CAL 68

RUN NUMBER: 040897.1041.4



PEAK DATA: 1.18 G @ 4.40 MS; -6.07 G @ 2.16 MS

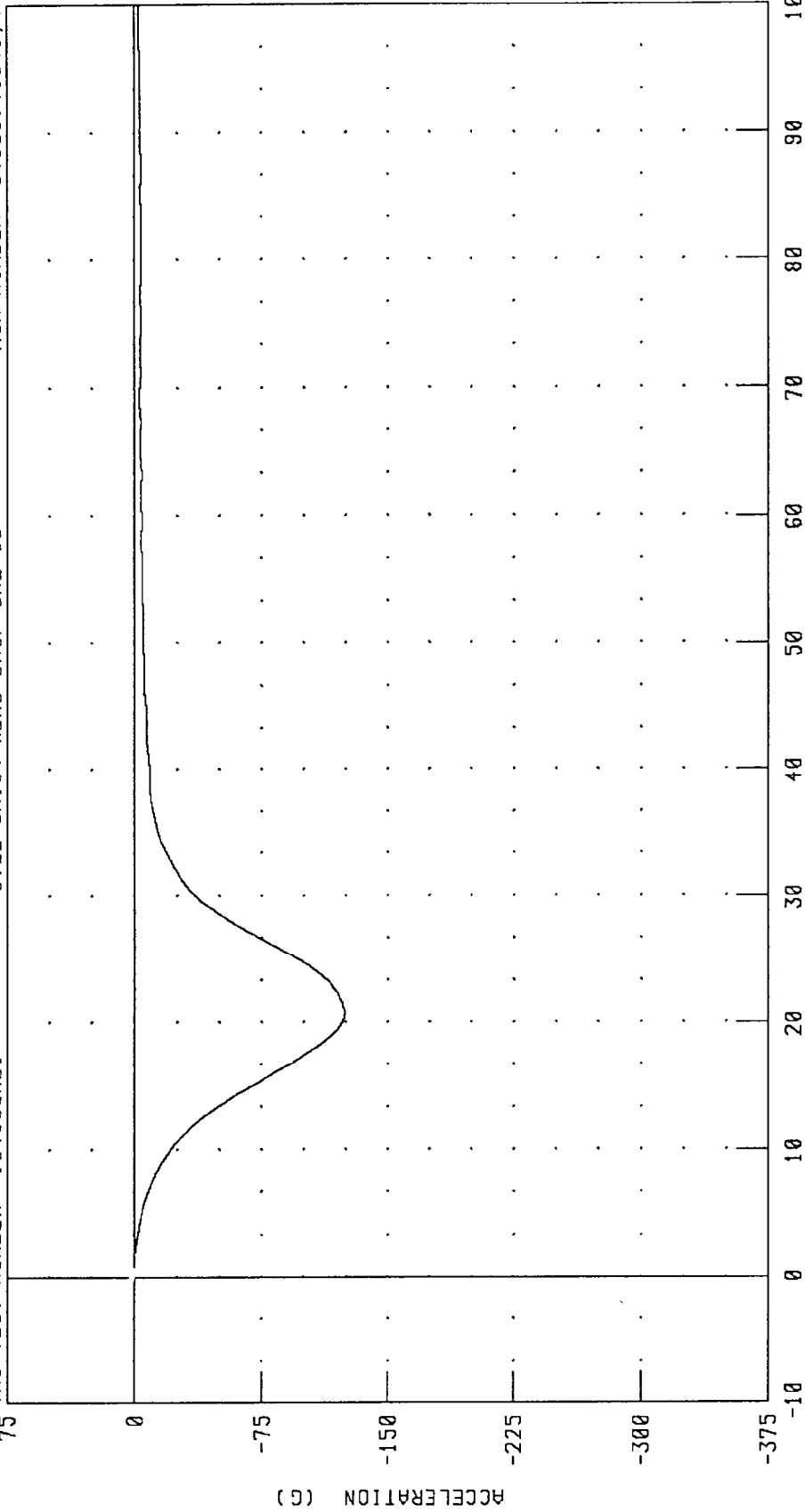
CHANNEL: HEDYG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 134C68HD1

572E SN134 HEAD DROP CAL 68

RUN NUMBER: 040897.1041.4



CHANNEL: HEDZG FILTER: CH. CLASS 1000

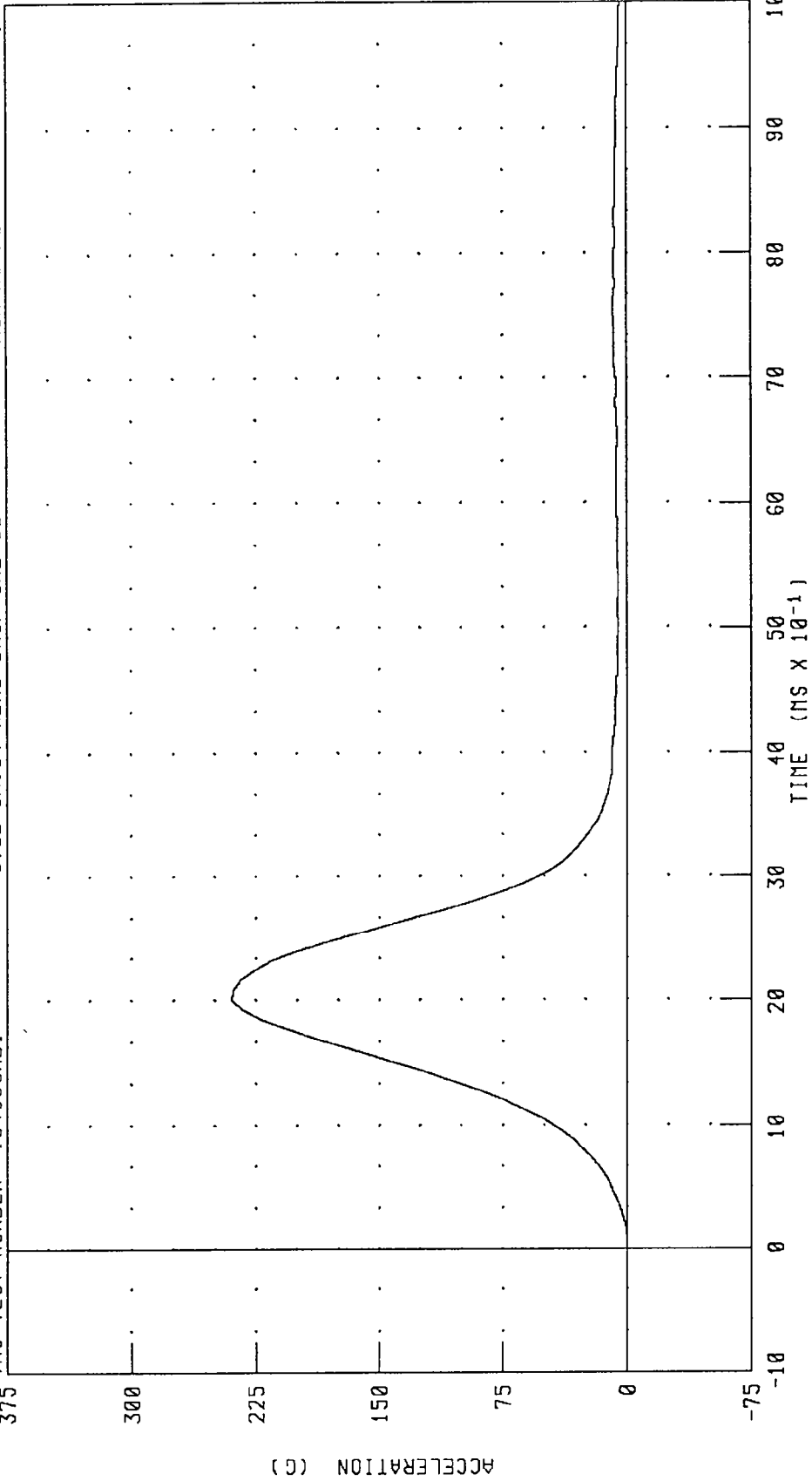
PEAK DATA: 0.08 G @ -0.32 MS; -124.26 G @ 2.08 MS

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 134C68HD1

572E SN134 HEAD DROP CAL 68

RUN NUMBER: 040897.1041.4



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 239.28 G @ 2.00 MS; 0.01 G @ -0.80 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

31-JAN-97

TRC INC. TEST NO: 134C68NF2 572E SN134 NECK FLEXION CAL68

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS   22.50 - 27.50 G	23.16 G
	20 MS   17.60 - 22.60 G	21.78 G
	30 MS   12.50 - 18.50 G	17.55 G
MAX PENDULUM G	29 G MAX	24.25 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	17.49 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	35.20 MS
D PLANE	MAX   64 - 78 DEG.	70.66 DEG.
ROTATION	TIME   57 - 64 MS	59.52 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX   88.2 - 108.5 NM	90.31 NM
	TIME   47 - 58 MS	48.72 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	116.40 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	97.68 MS

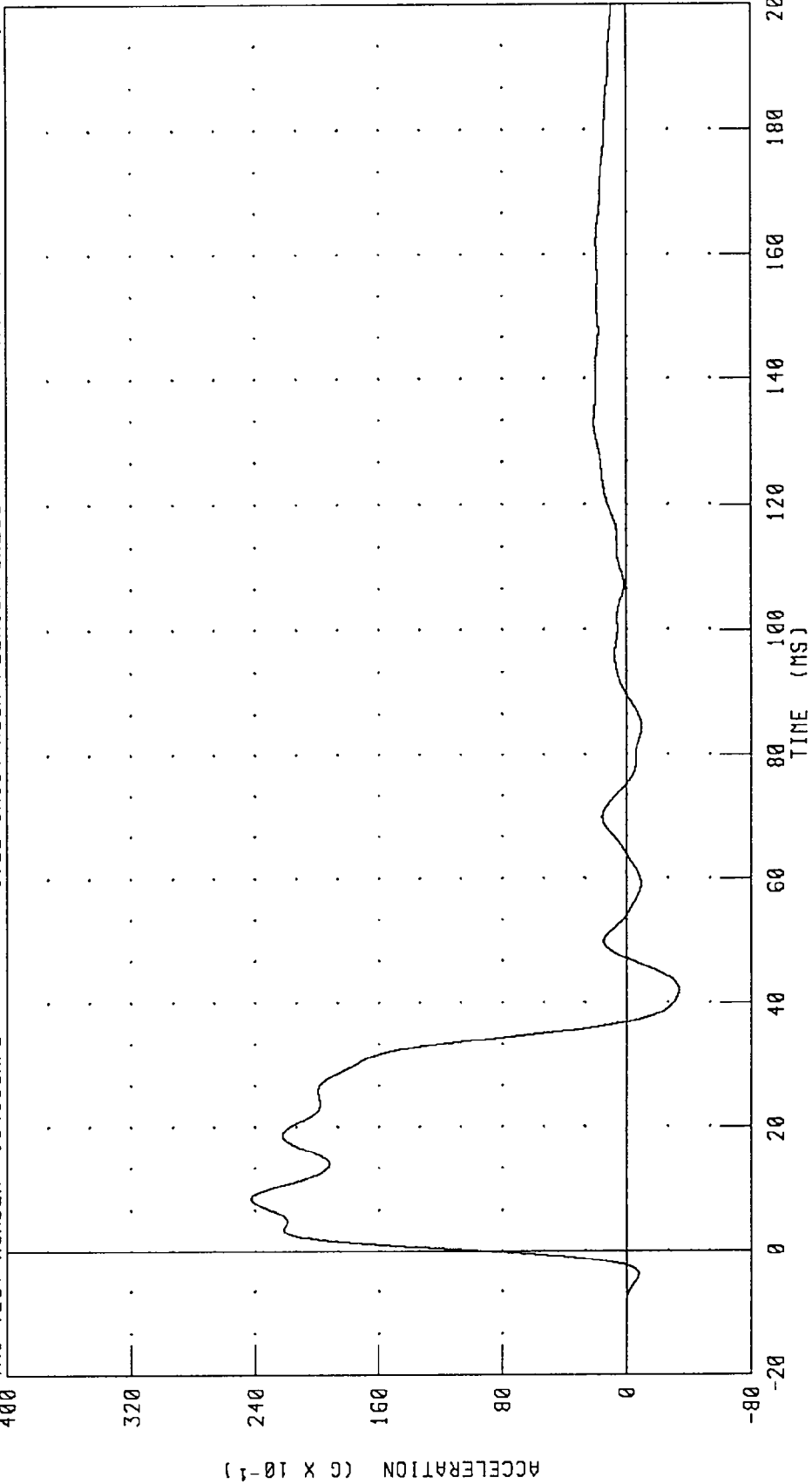
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 013197.1133;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
PENDULUM DECELERATION

TRC TEST NUMBER: 134C68NF2      572E SN134 NECK FLEXION CAL68      RUN NUMBER: 040897.1041.1



CHANNEL: PENXG      FILTER: CH. CLASS 60      PEAK DATA: 24.25 G @ 8.48 MS; -3.36 G @ 42.00 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
ROTATION ABOUT BASE OF NECK

IRC TEST NUMBER: 134C68NF2

572E SN134 NECK FLEXION CAL68

RUN NUMBER: 040897.1041;1

120

90

60

30

0

-30

-60

-20

0

20

40

60

80

100

120

140

160

180

200

ANGLE (°)

TIME (MS)

PEAK DATA: 33.14 ° @ 58.64 MS; -17.61 ° @ 168.40 MS

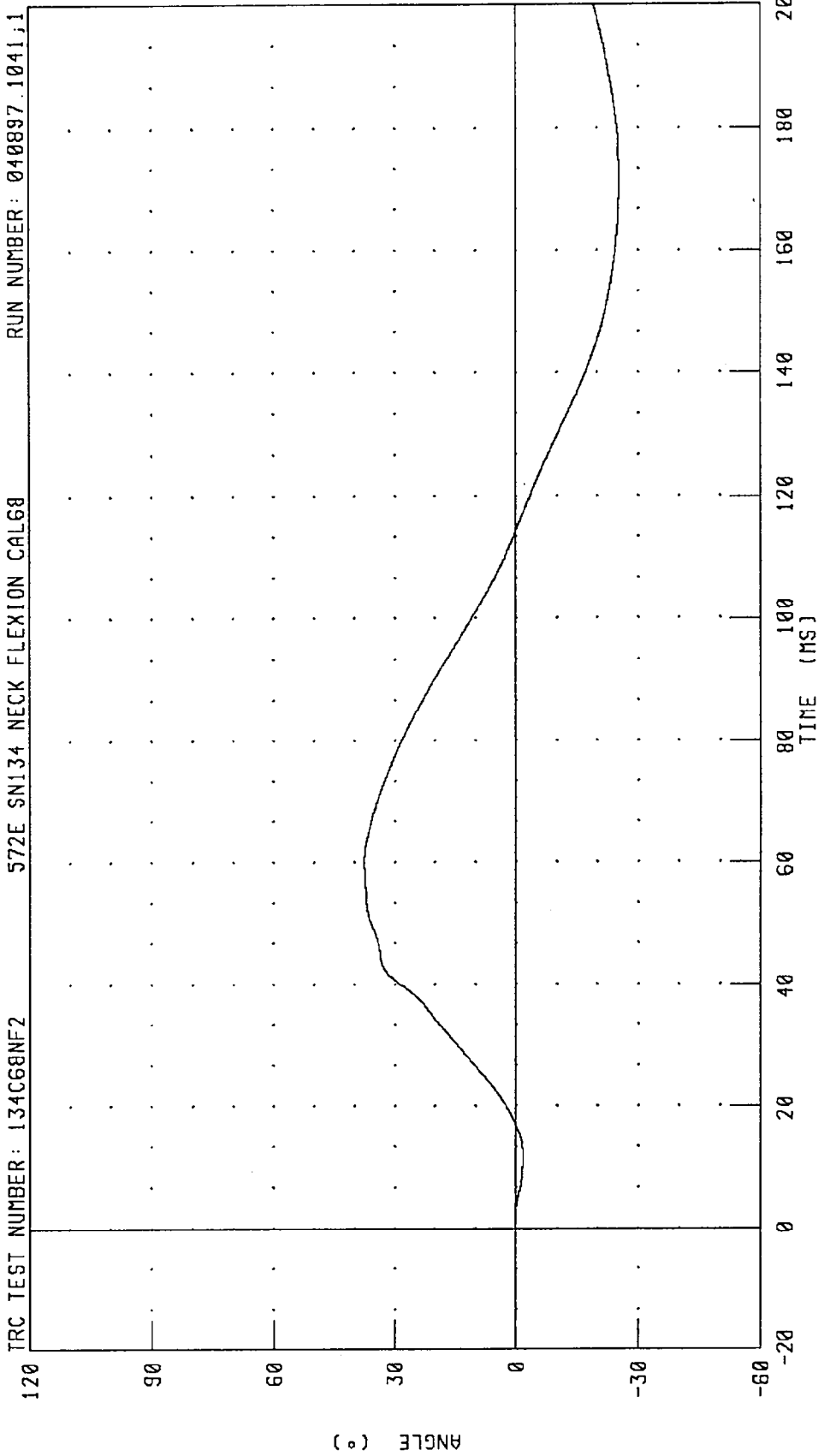
CHANNEL: BETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 134C68NF2

572E SN134 NECK FLEXION CAL68

RUN NUMBER: 040897.1041.j1



CHANNEL: THETA FILTER: CH. CLASS 60

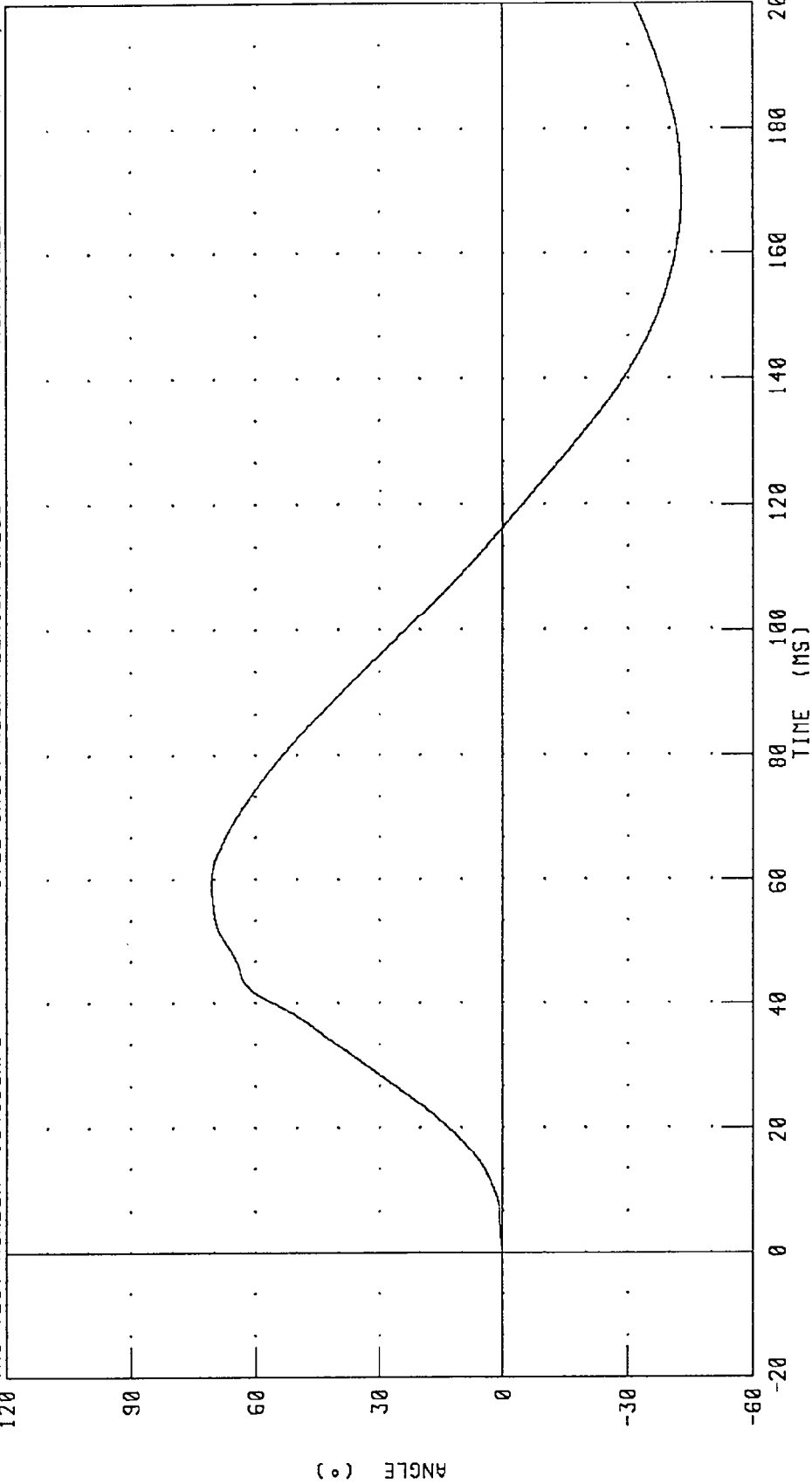
PEAK DATA: 37.55 ° @ 60.08 MS; -25.26 ° @ 171.44 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
TOTAL ROTATION

IRC TEST NUMBER: 134C68NF2

572E SN134 NECK FLEXION CAL68

RUN NUMBER: 040897.1041.1

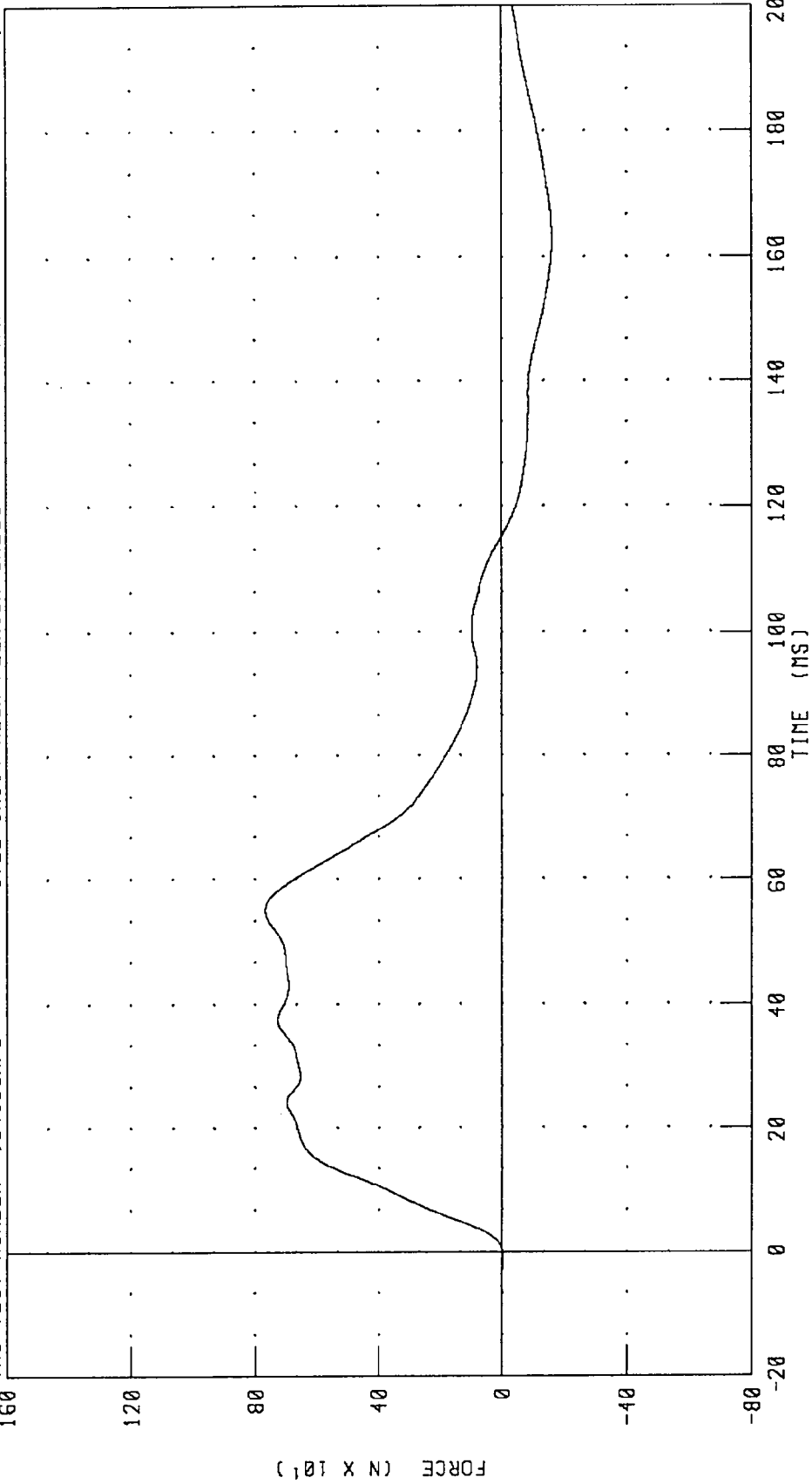


CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 70.67 ° @ 59.52 MS; -42.84 ° @ 169.44 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
NECK FORCE X AXIS

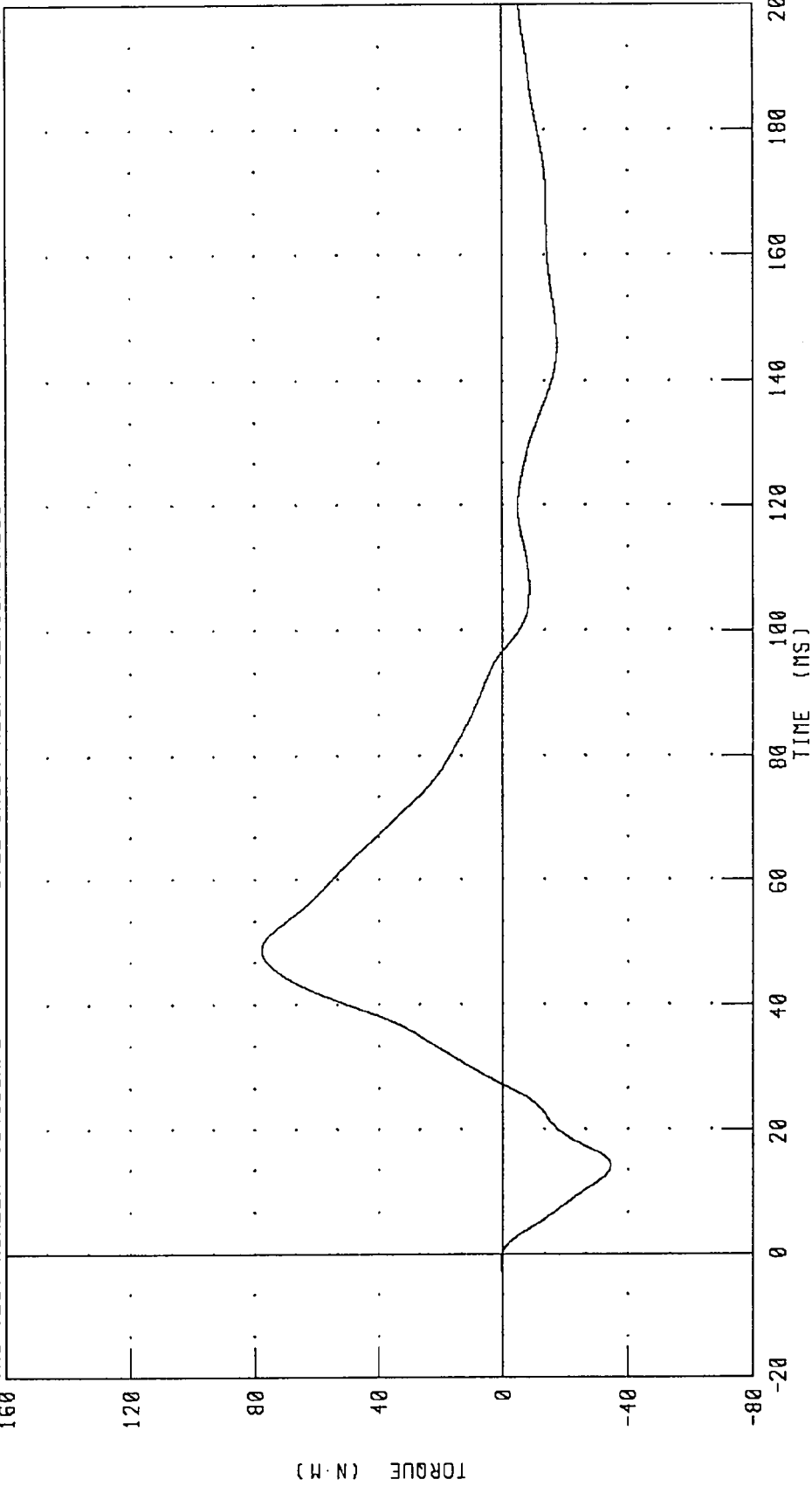
TRC TEST NUMBER: 134C68NF2      572E SN134 NECK FLEXION CAL68      RUN NUMBER: 040897.1041.1



CHANNEL: NEKXF      FILTER: CH. CLASS 60      PEAK DATA: 768.23 N @ 55.04 MS; -161.21 N @ 162.64 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
NECK MOMENT Y AXIS

TRC TEST NUMBER: 134C68NF2 572E SN134 NECK FLEXION CAL68 RUN NUMBER: 040897.1041.1



CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 77.77 N.M @ 48.64 MS; -34.47 N.M @ 14.08 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 134C6BNF2

572E SN134 NECK FLEXION CAL68

RUN NUMBER: 040897.1041,1

160

120

80

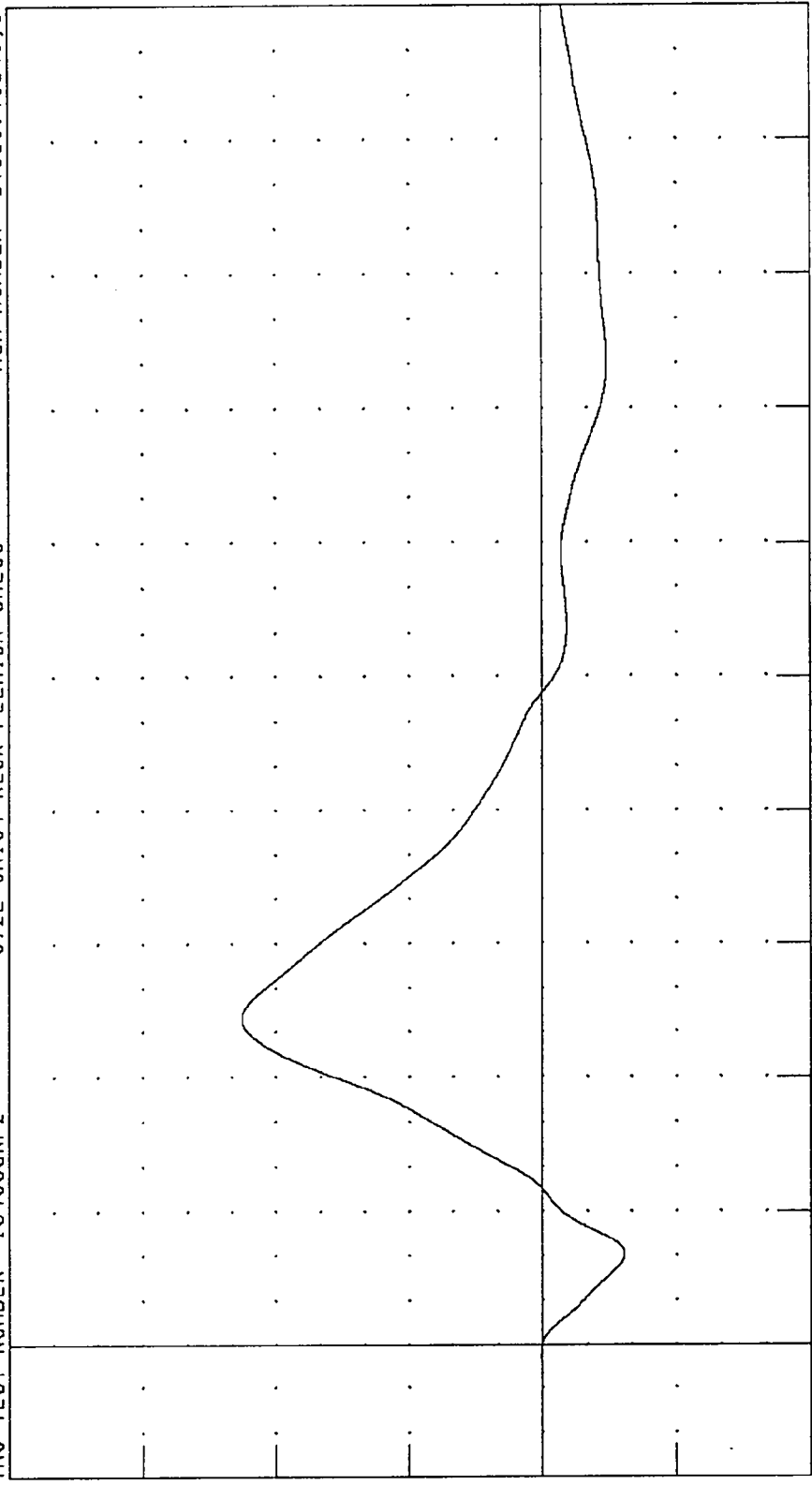
40

0

-40

-80

TORQUE (N·M)



80 100 120 140 160 180 200  
TIME (MS)

CHANNEL: NEKOM FILTER: CH. CLASS 60

PEAK DATA: 90.31 N·M @ 48.72 MS; -24.45 N·M @ 13.52 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

31-JAN-97

TRC INC. TEST NO: 134C68NE1 572E SN134 NECK EXT. CAL68

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS   17.20 - 21.20 G	18.62 G
	20 MS   14.00 - 19.00 G	17.20 G
	30 MS   11.00 - 16.00 G	14.68 G
MAX PENDULUM G	22 G MAX	19.14 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	14.62 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	38.00 MS
D PLANE	MAX   81 - 106 DEG.	93.33 DEG.
ROTATION	TIME   72 - 82 MS	74.96 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN   -80.0/-52.9 NM	-54.27 NM
	TIME   65 - 79 MS	70.16 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	156.56 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	137.76 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan

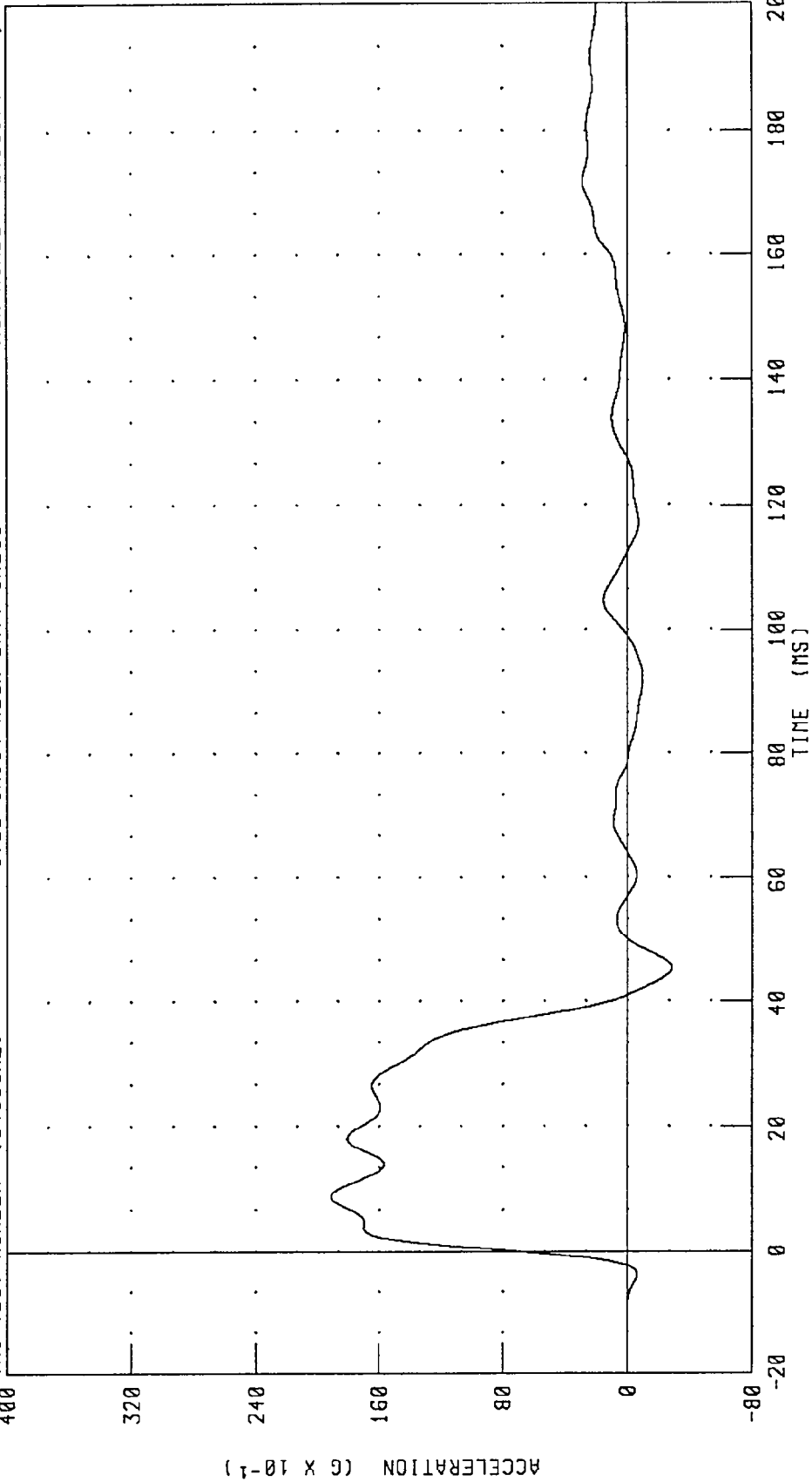
RUN NUMBER: 013197.1222;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
PENDULUM DECELERATION

TRC TEST NUMBER: 134C68NE1

572E SN134 NECK EXT. CAL68

RUN NUMBER: 040897.1041.1



CHANNEL: PENXG FILTER: CH. CLASS 60

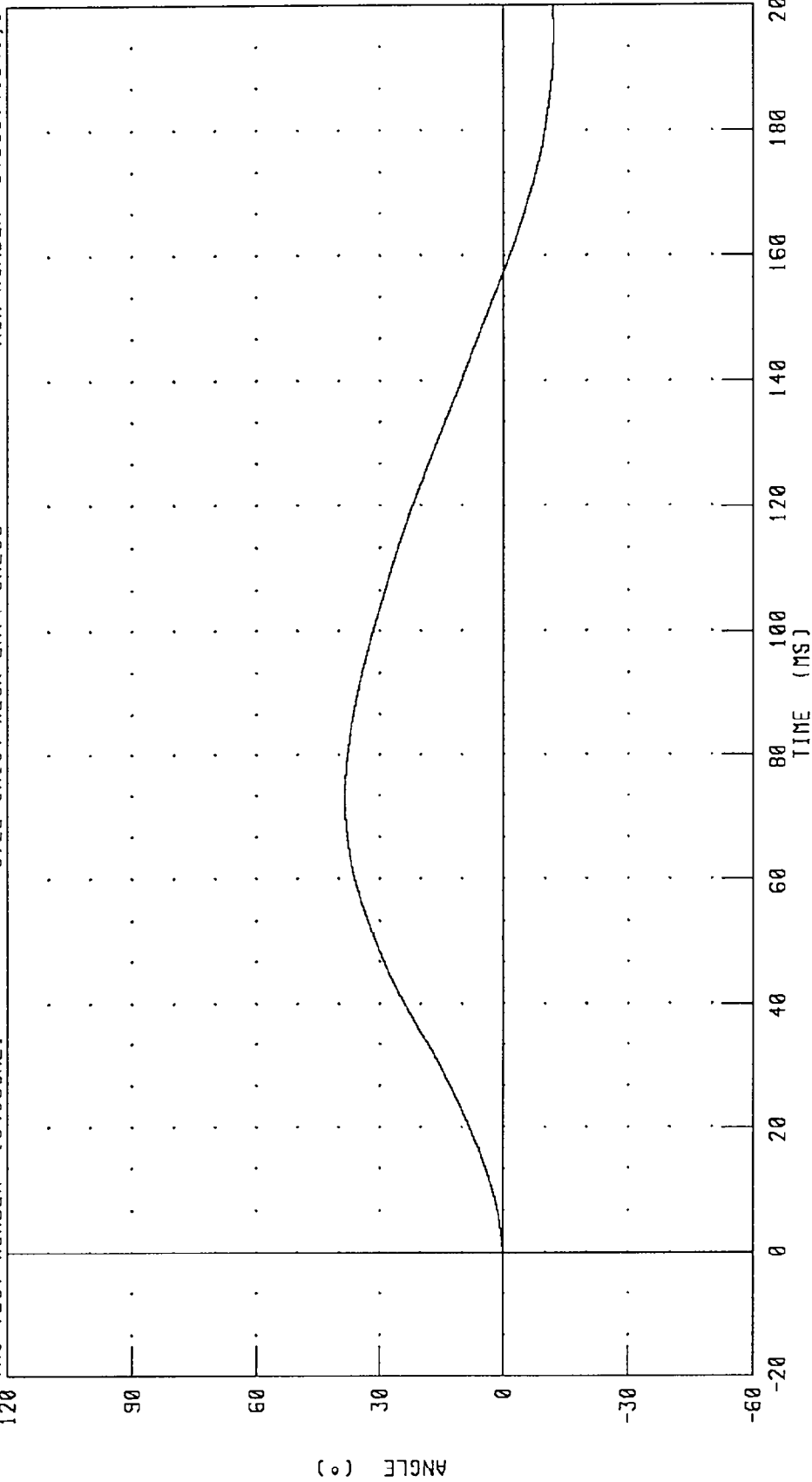
PEAK DATA: 19.14 G @ 8.80 MS; -2.83 G @ 45.44 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 134C68NE1

572E SN134 NECK EXT. CAL68

RUN NUMBER: 040897.1041;1



CHANNEL: BETA FILTER: CH. CLASS 60

PEAK DATA: 38.47 ° @ 73.04 MS; -12.05 ° @ 195.84 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 134C68NE1

572E SN134 NECK EXT. CAL68

RUN NUMBER: 040897.1041;1

120

90

60

30

0

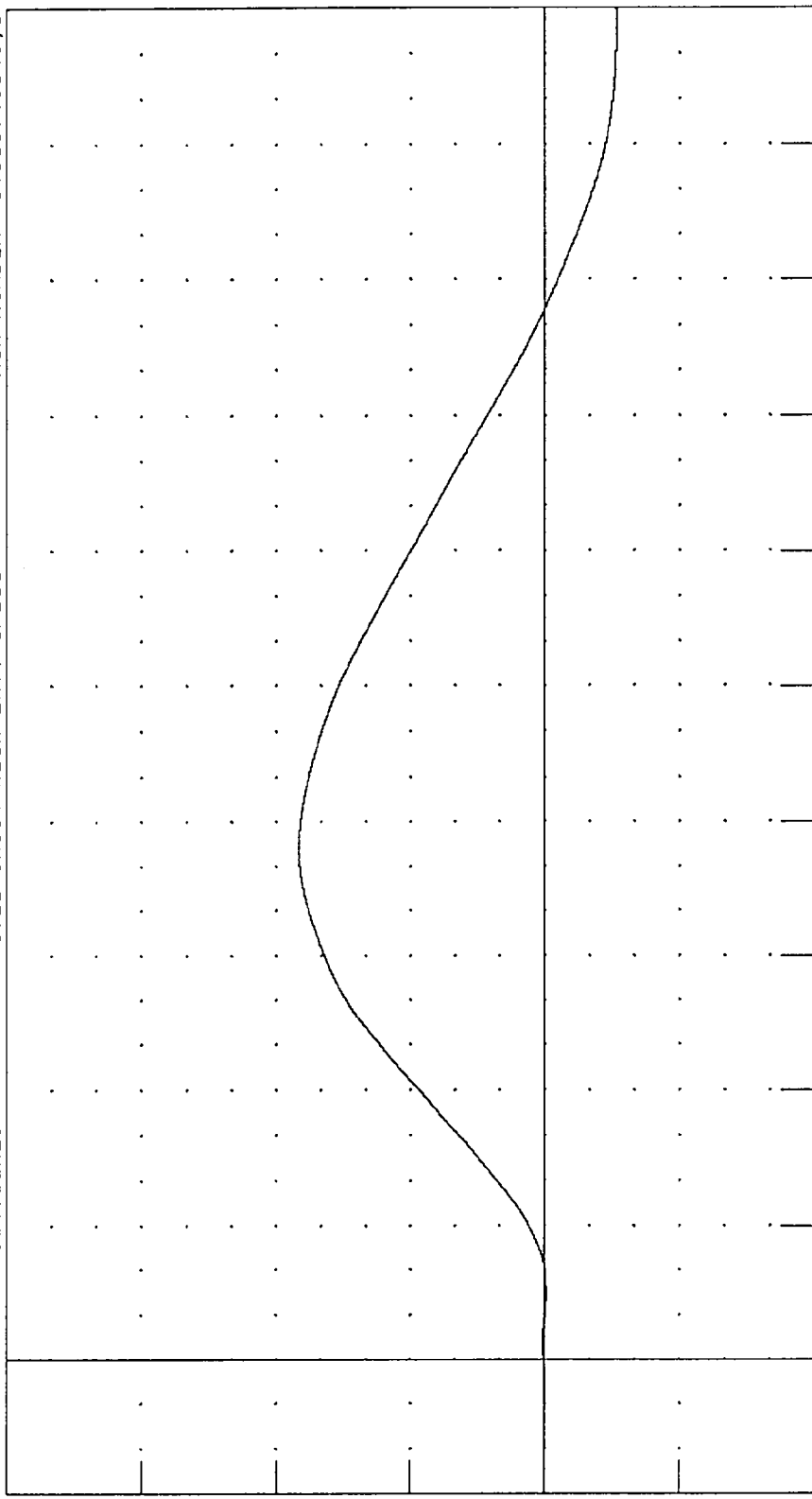
-30

-60

-90

-120

ANGLE (°)



200  
180  
160  
140  
120  
100  
80  
60  
40  
20  
0  
-20  
-40  
-60

TIME (MS)

PEAK DATA: 54.95 ° @ 76.08 MS; -15.89 ° @ 197.60 MS

CHANNEL: THETA FILTER: CH. CLASS 60

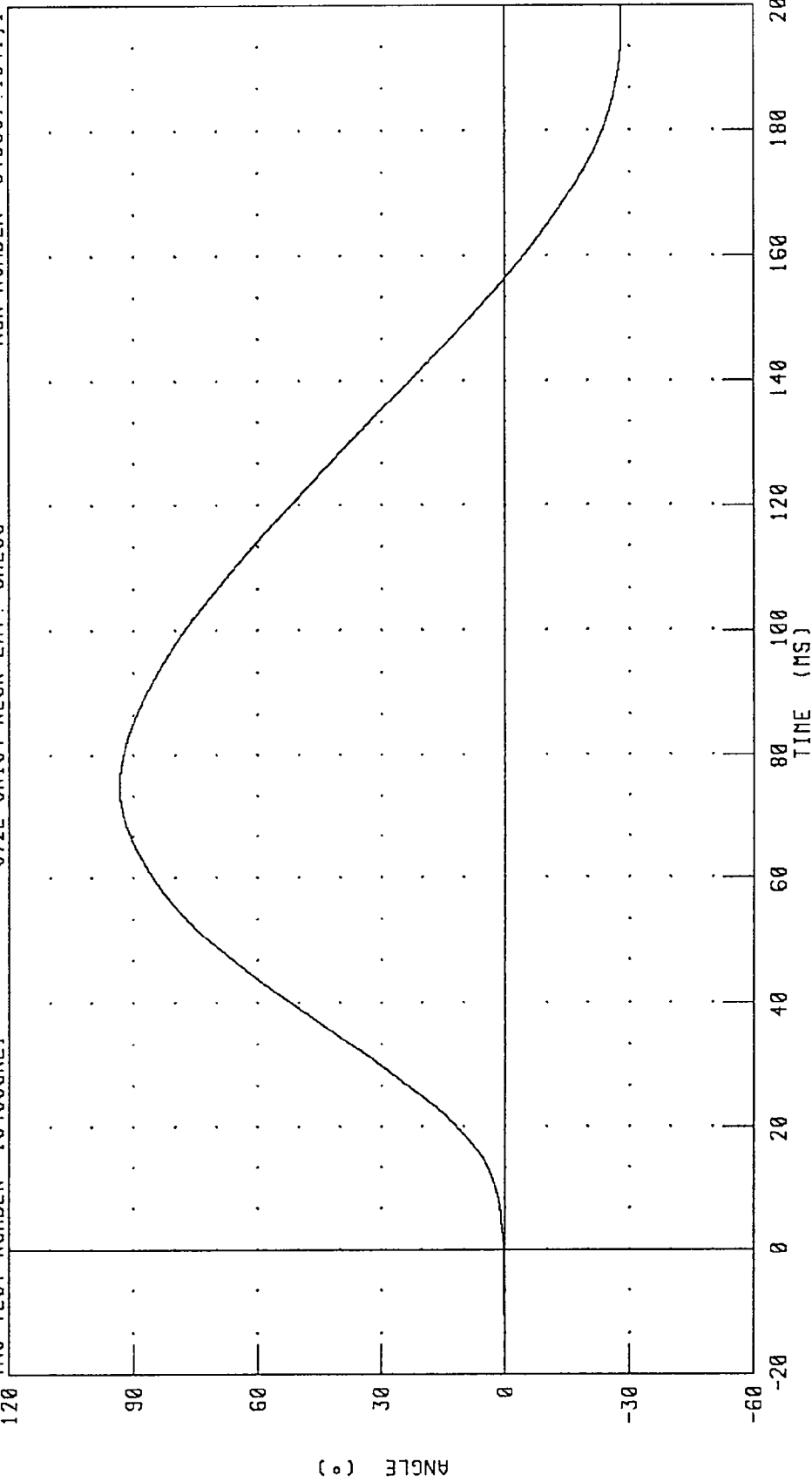
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 134C68NE1

572E SN134 NECK EXT. CAL68

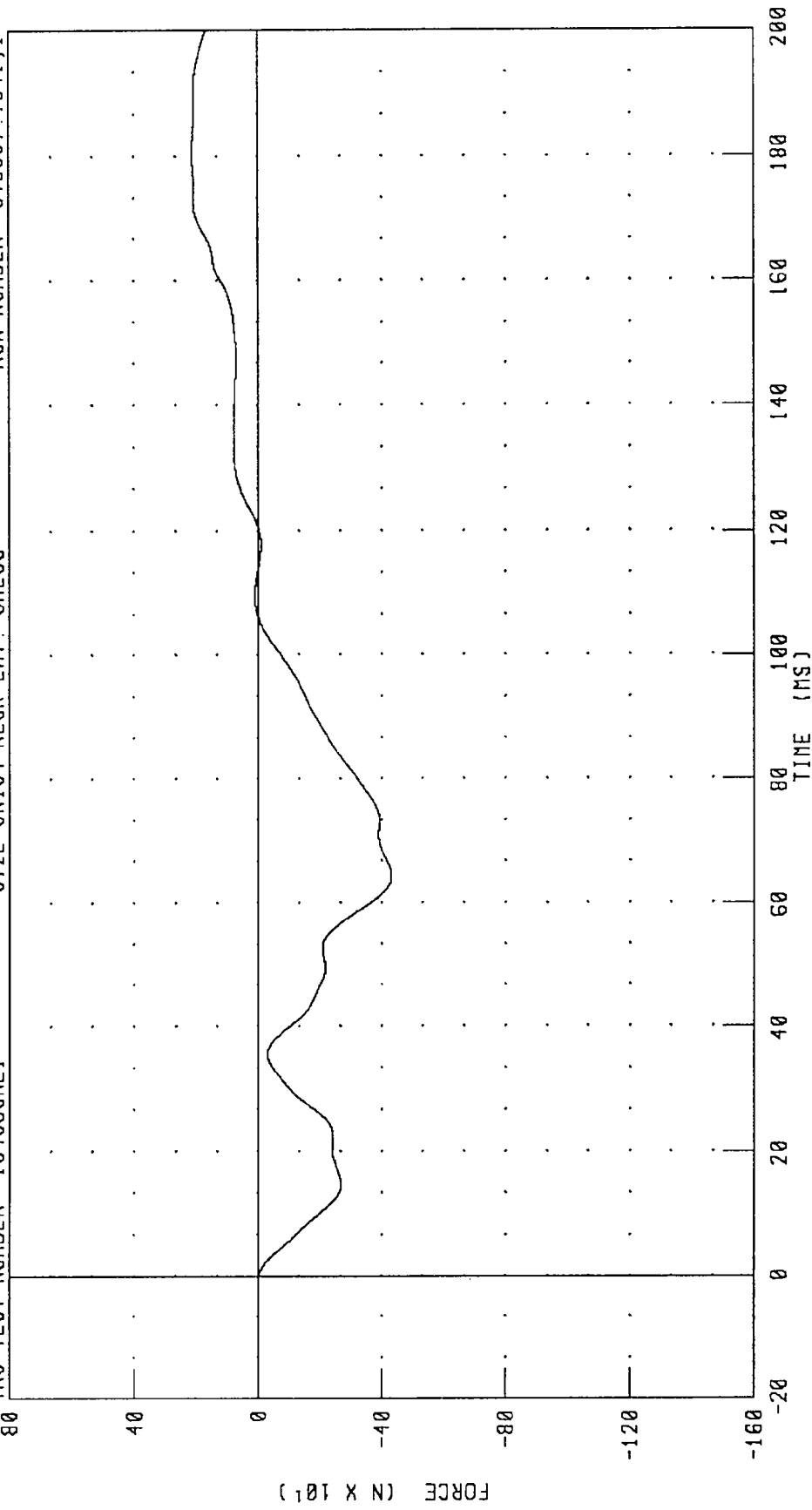
RUN NUMBER: 040897.1041.1



CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 93.33 ° @ 74.96 MS; -27.93 ° @ 196.48 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
NECK FORCE X AXIS

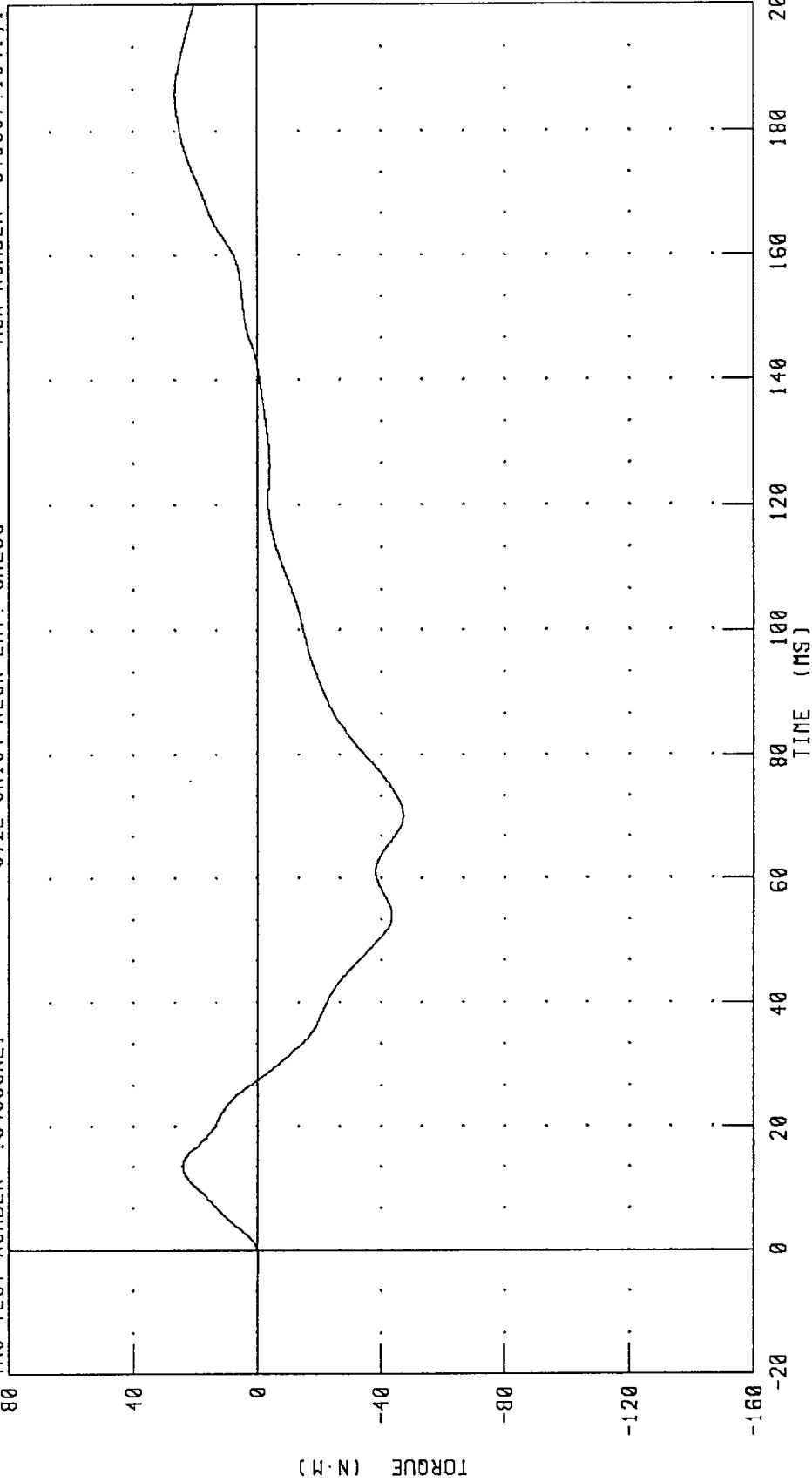
TRC TEST NUMBER: 134C68NE1      572E SN134 NECK EXT. CAL68      RUN NUMBER: 040897.1041;1



CHANNEL: NEKXF      FILTER: CH. CLASS 60      PEAK DATA: 213.36 N @ 180.40 MS; -431.98 N @ 64.24 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
NECK MOMENT Y AXIS

TRC TEST NUMBER: 134C68NE1      572E SN134 NECK EXT. CAL68      RJN NUMBER: 040897.1041;1



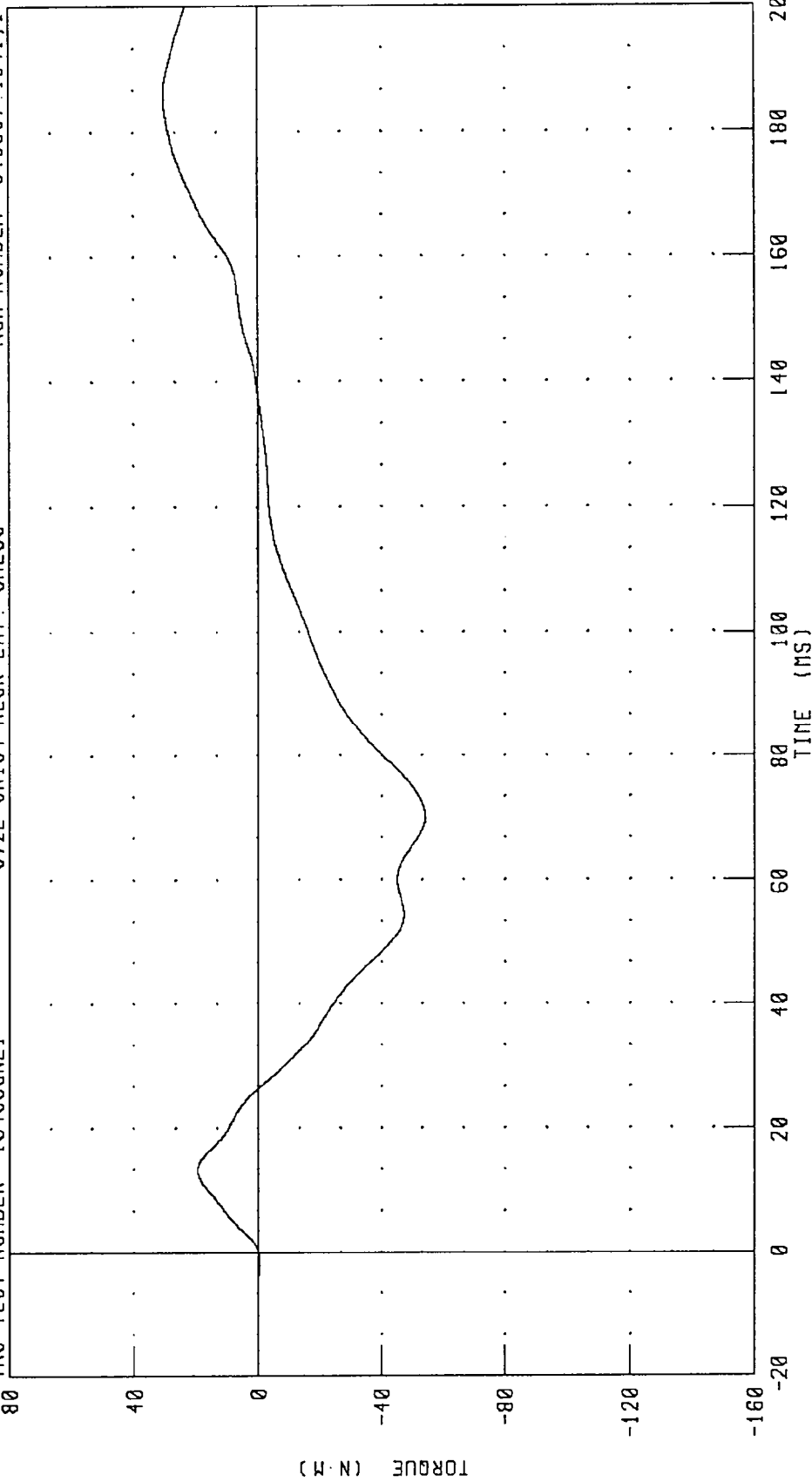
CHANNEL: NEKYM      FILTER: CH. CLASS 60      PEAK DATA: 26.57 N.M @ 185.84 MS; -47.30 N.M @ 70.24 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 134C68NE1

572E SN134 NECK EXT. CAL68

RUN NUMBER: 040897.1041.1



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 30.25 N.M @ 185.76 MS; -54.27 N.M @ 70.16 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

01-FEB-97

TRC INC.

TEST NO: 134C68TH4

572E SN134 H.S.THORAX CAL68

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	34.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.62 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	65.4 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5873. N
INTERNAL HYSTERESIS	69% - 85%	74.2%

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Richard L. Van*

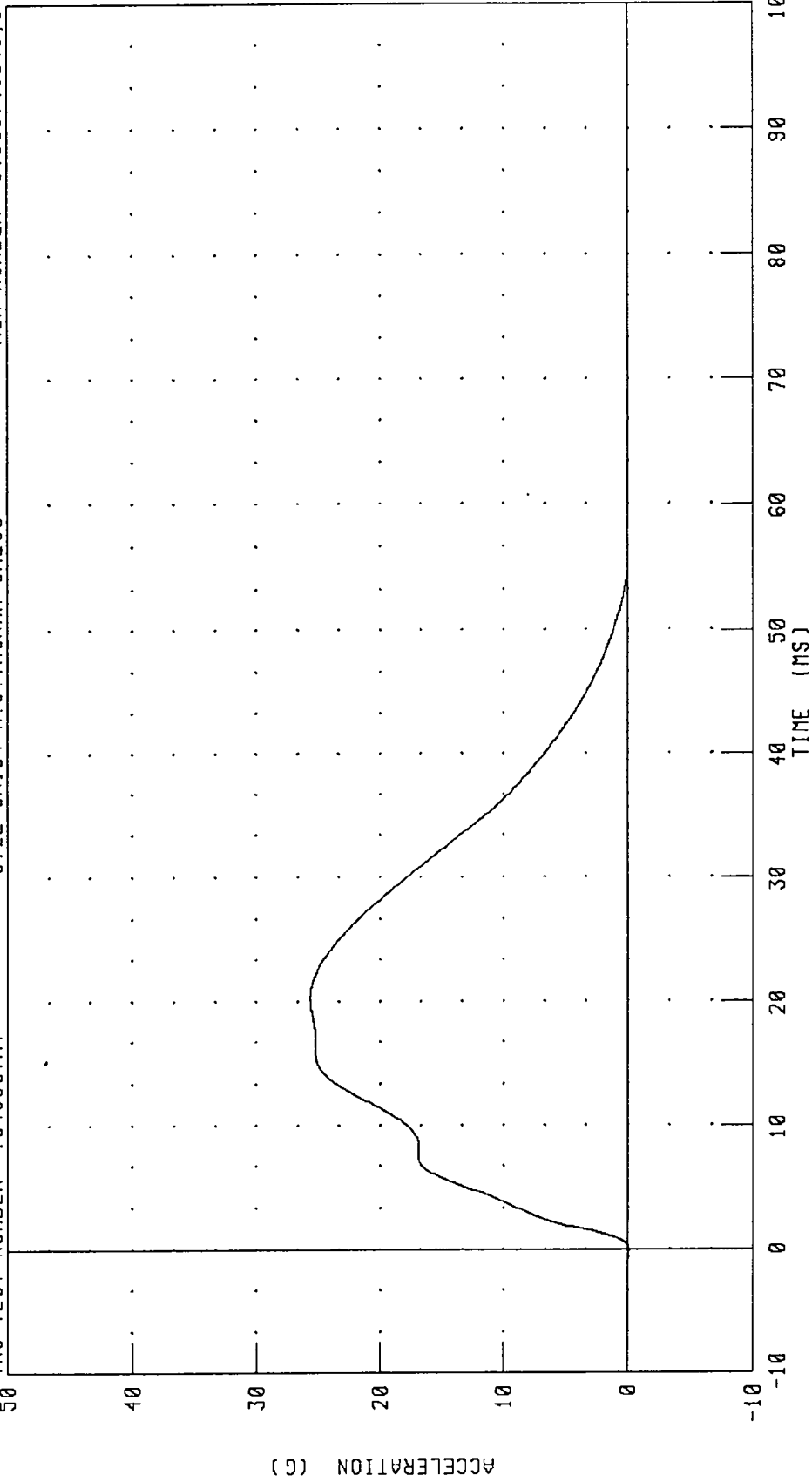
RUN NUMBER: 020697.1449;1

PART 572-E HYBRID III THORAX CALIBRATION  
PENDULUM DECELERATION

TRC TEST NUMBER: 134C68TH4

572E SN134 H.S. THORAX CAL68

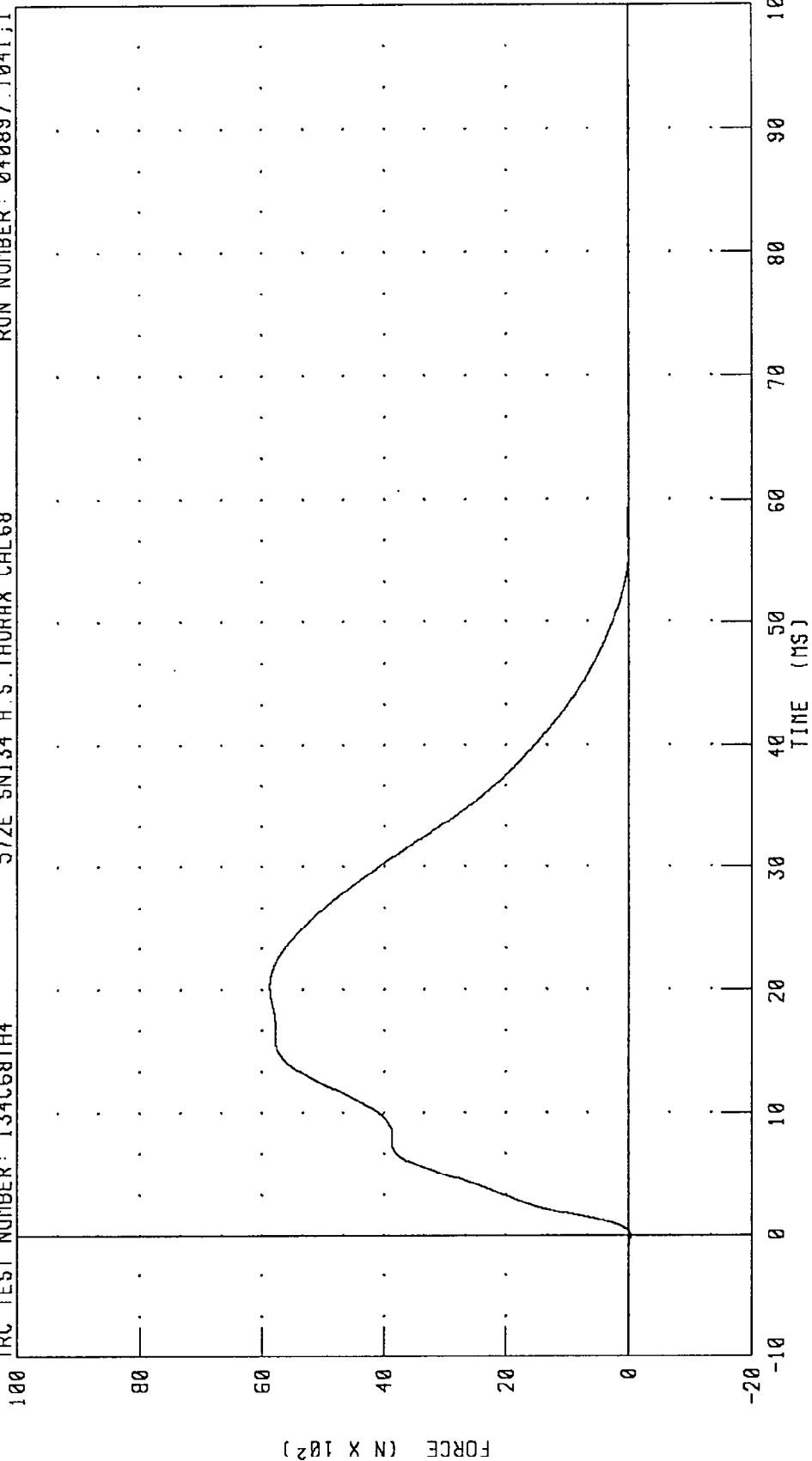
RUN NUMBER: 040897.1041.1



CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 25.64 G @ 20.24 MS; -0.10 G @ -0.08 MS

PART 572-E HYBRID III THORAX CALIBRATION  
PENDULUM FORCE

TRC TEST NUMBER: 134C68TH4      572E SN134 H.S. THORAX CAL68      RUN NUMBER: 040897.1041;1



CHANNEL: PENXF      FILTER: CH. CLASS 180

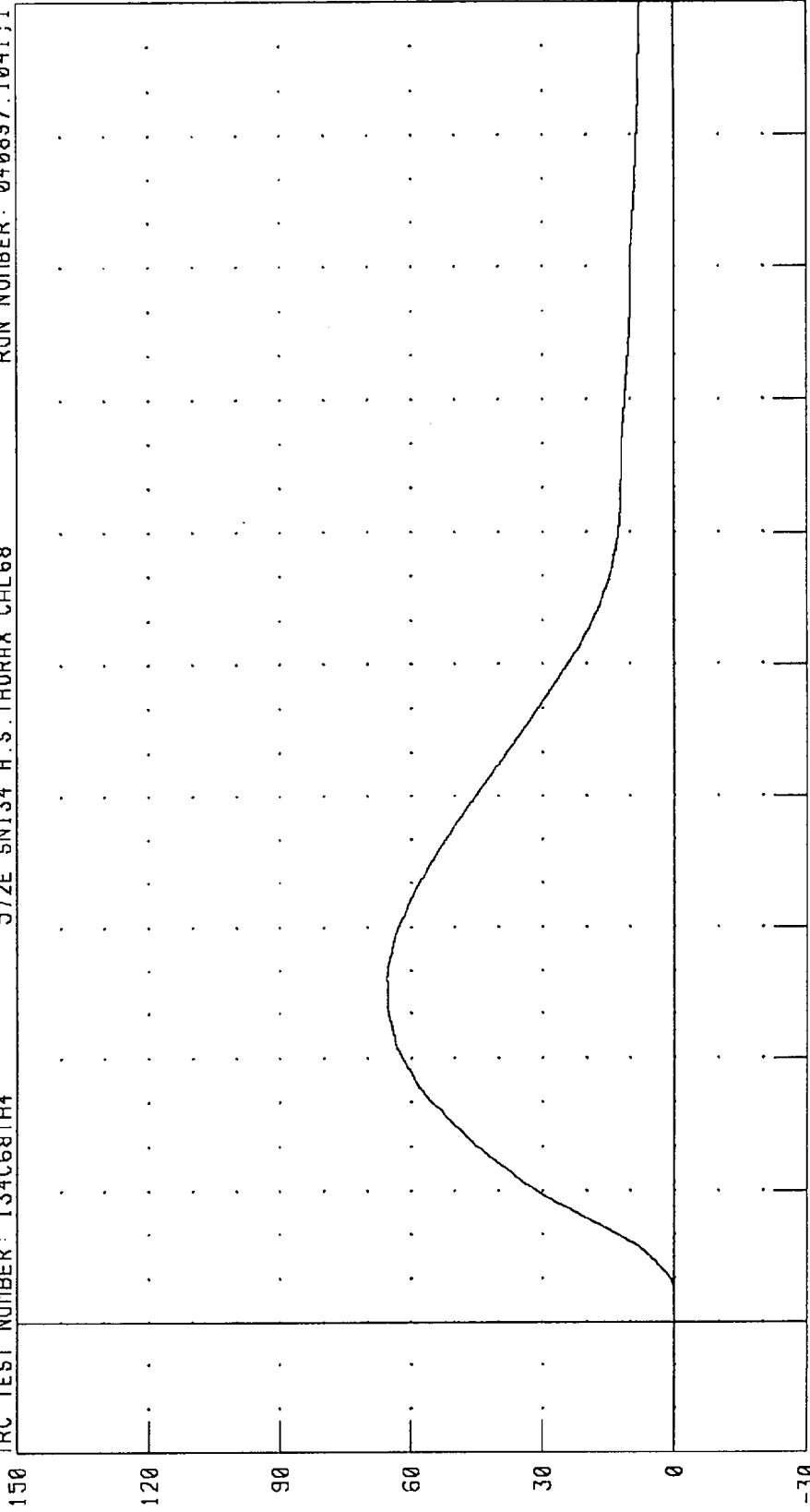
PEAK DATA: 5873.15 N @ 20.24 MS; -23.37 N @ -0.08 MS

PART 572-E HYBRID III THORAX CALIBRATION  
STERNUM DISPLACEMENT

RUN NUMBER: 040897.1041;1

572E SN134 H.S.THORAX CAL68

TRC TEST NUMBER: 134C68TH4



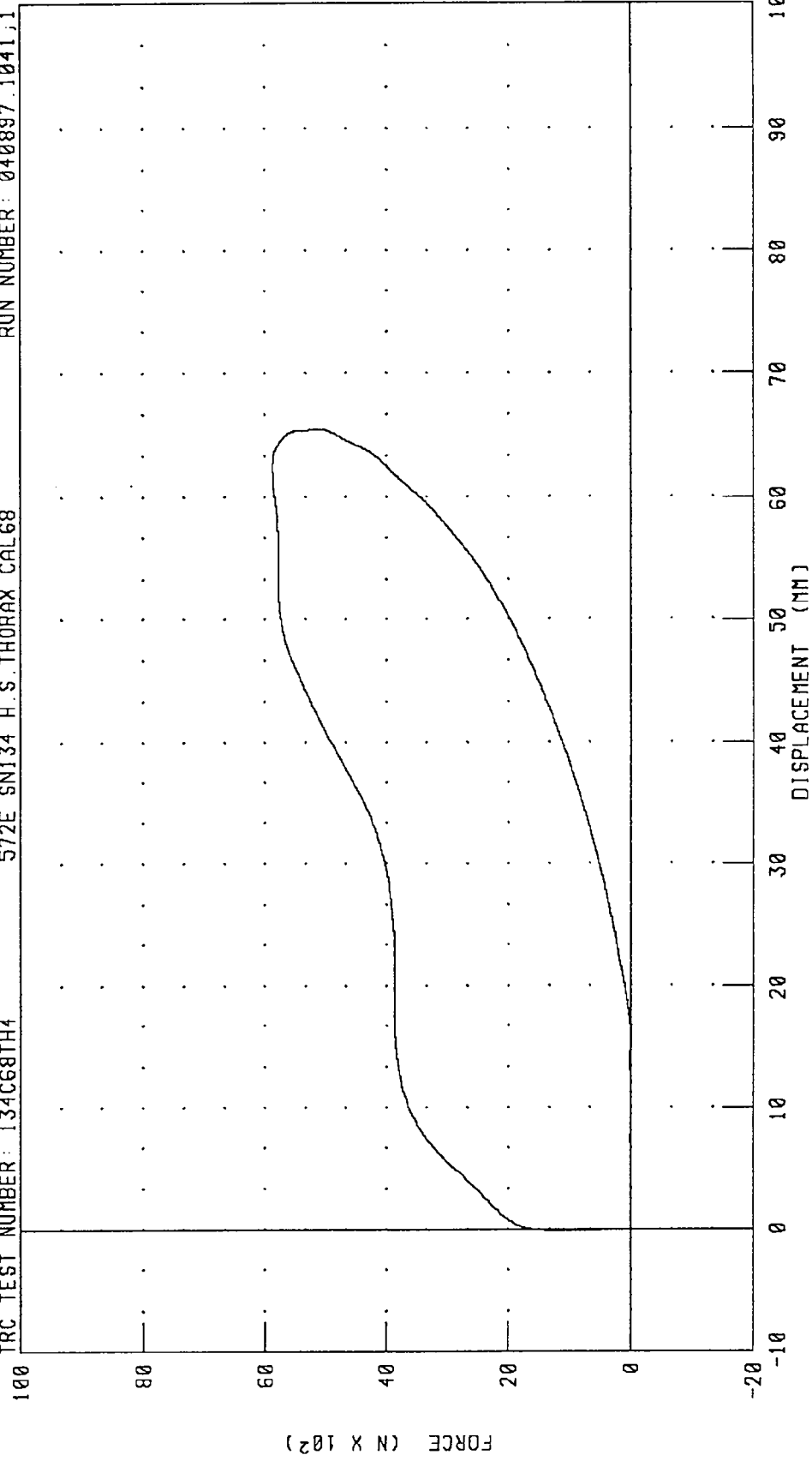
CHANNEL: CSTXD FILTER: CH. CLASS 180  
PEAK DATA: 65.49 MM @ 26.00 MS; -0.05 MM @ 1.92 MS

PART 572-E HYBRID III THORAX CALIBRATION  
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 134C68TH4

572E SN134 H.S.THORAX CAL68

RUN NUMBER: 040897.1041.1



CHANNEL: CSTXD FILTER: CH. CLASS 180  
PENXF CH. CLASS 180  
PEAK DATA: 65.49 MM @ 26.08 MS; -0.05 MM @ 1.92 MS  
5873.15 N @ 20.24 MS; -23.37 N @ -0.08 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

30-JAN-97

TRC INC.

TEST NO: 134C68RK1

572E SN134 RIGHT KNEE CAL 68

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5517.1 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Richard L. Van*

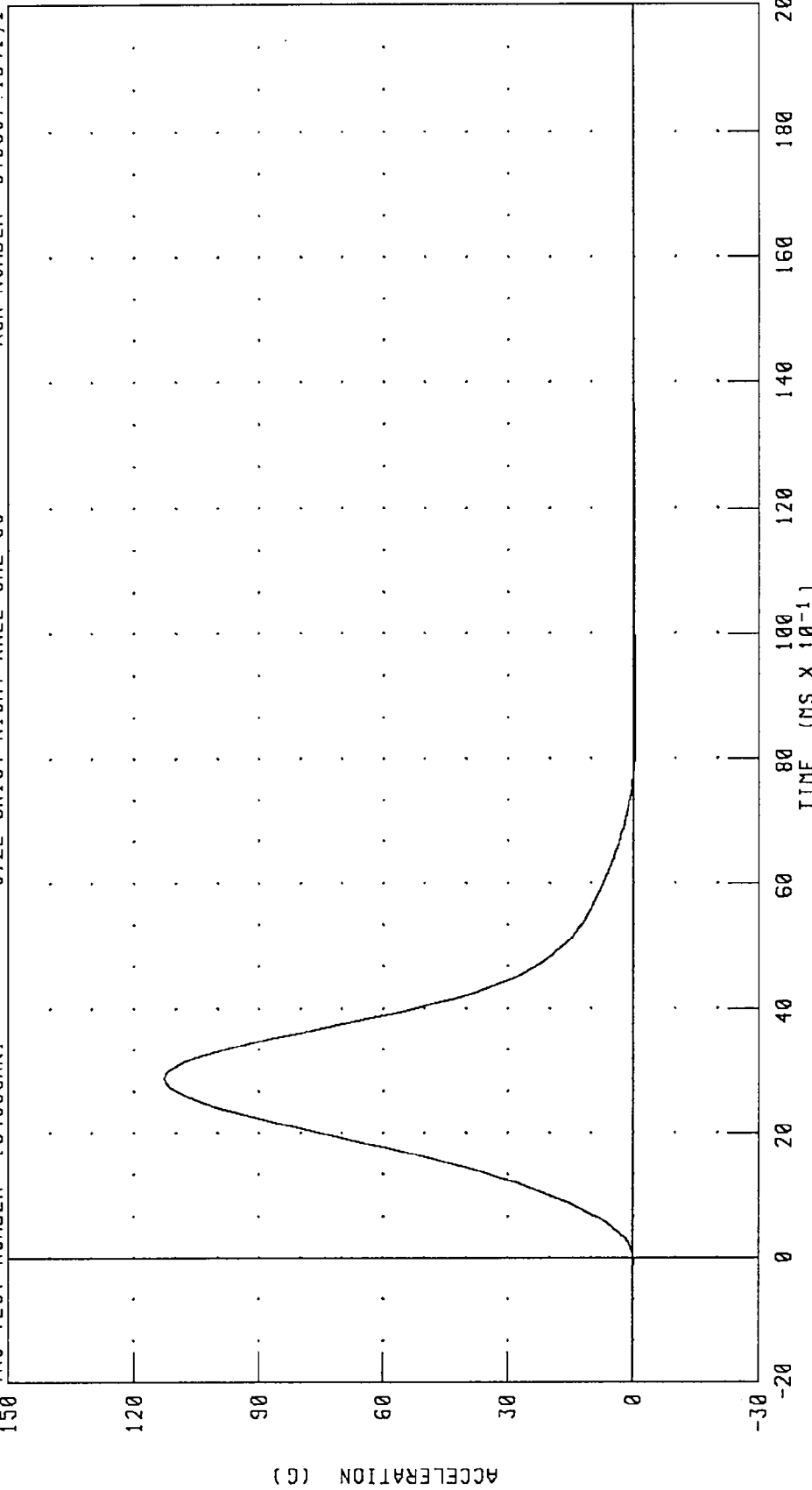
RUN NUMBER: 013097.0913;1

PART 572-E HYBRID III RIGHT KNEE CALIBRATION  
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 134C68RK1

572E SN134 RIGHT KNEE CAL 68

RUN NUMBER: 040897.1041.1

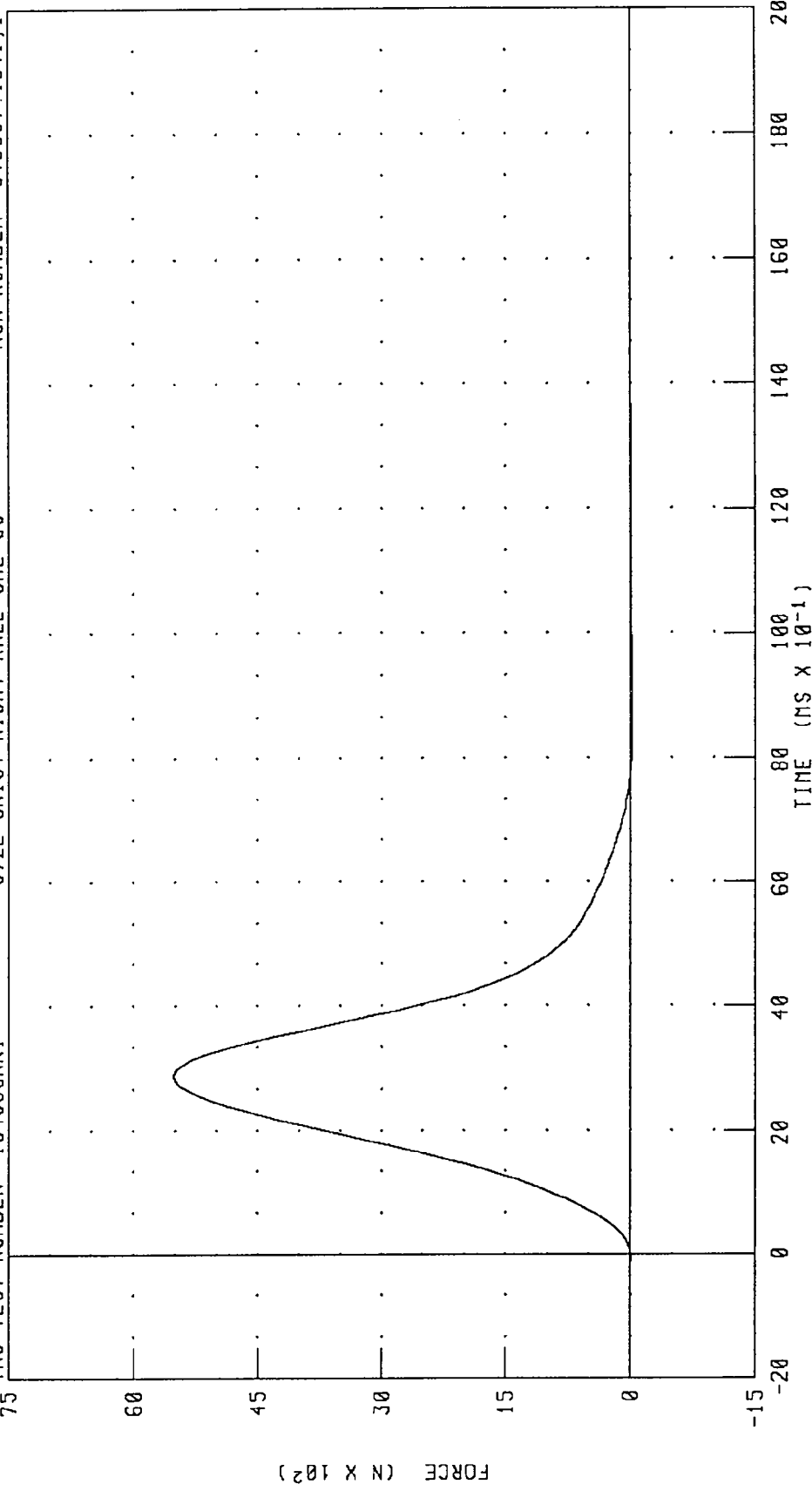


CHANNEL: PENXG FILTER: CH. CLASS 600

PEAK DATA: 112.76 G @ 2.88 MS; -0.54 G @ 8.48 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION  
PENDULUM FORCE (5 KC PEND.)

TRC TEST NUMBER: 134C68RK1  
572E SN134 RIGHT KNEE CAL 68  
RUN NUMBER: 040897.1041.1



CHANNEL: PENXF FILTER: CH. CLASS 600  
PEAK DATA: 5517.13 N @ 2.88 MS; -26.36 N @ 8.48 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

30-JAN-97

TRC INC.

TEST NO: 134C68LK1

572E SN134 LEFT KNEE CAL 68

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5514.1 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Lee

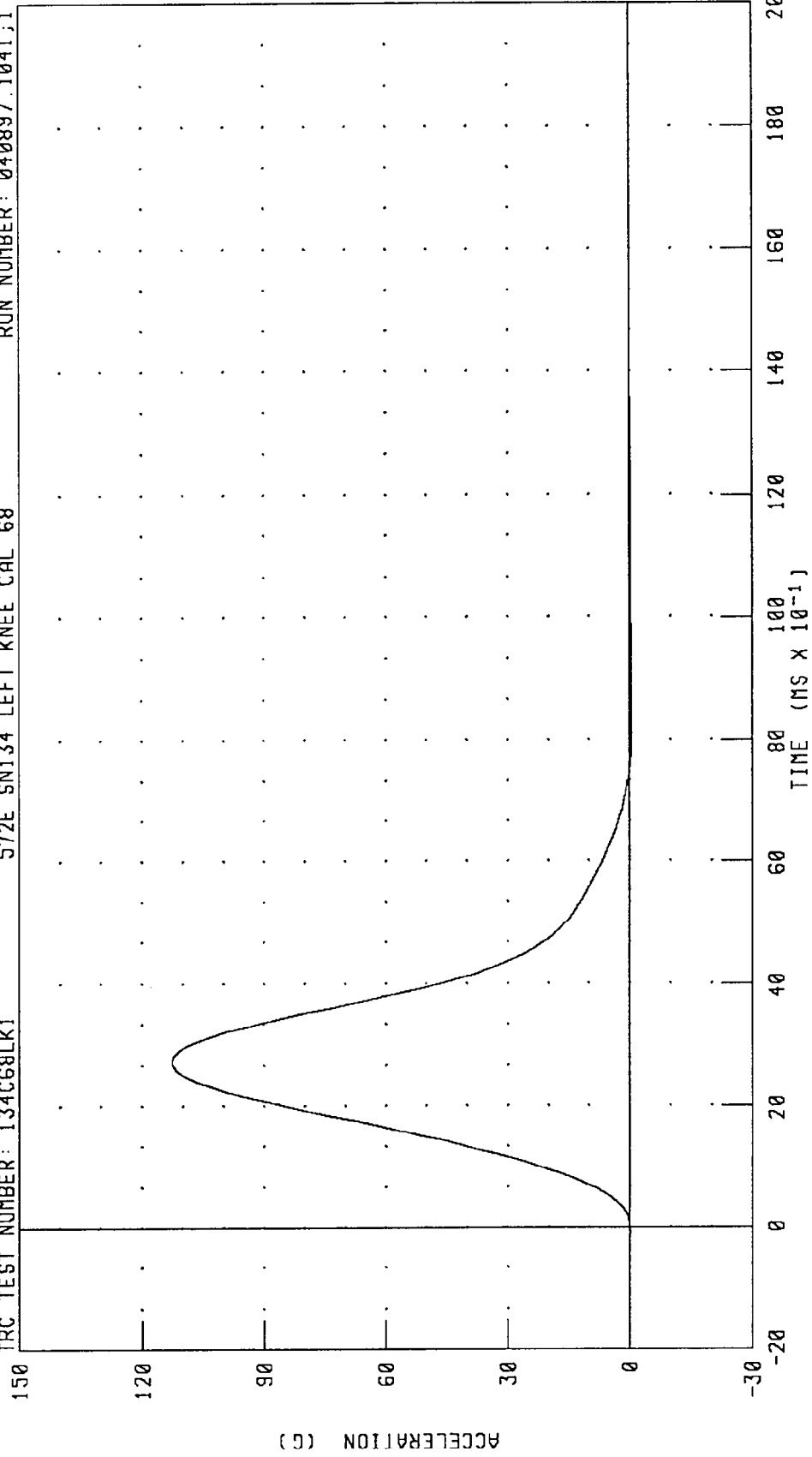
RUN NUMBER: 013097.0906;1

PART 572-E HYBRID III LEFT KNEE CALIBRATION  
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 134C68LK1

572E SN134 LEFT KNEE CAL 68

RUN NUMBER: 040897.1041;1



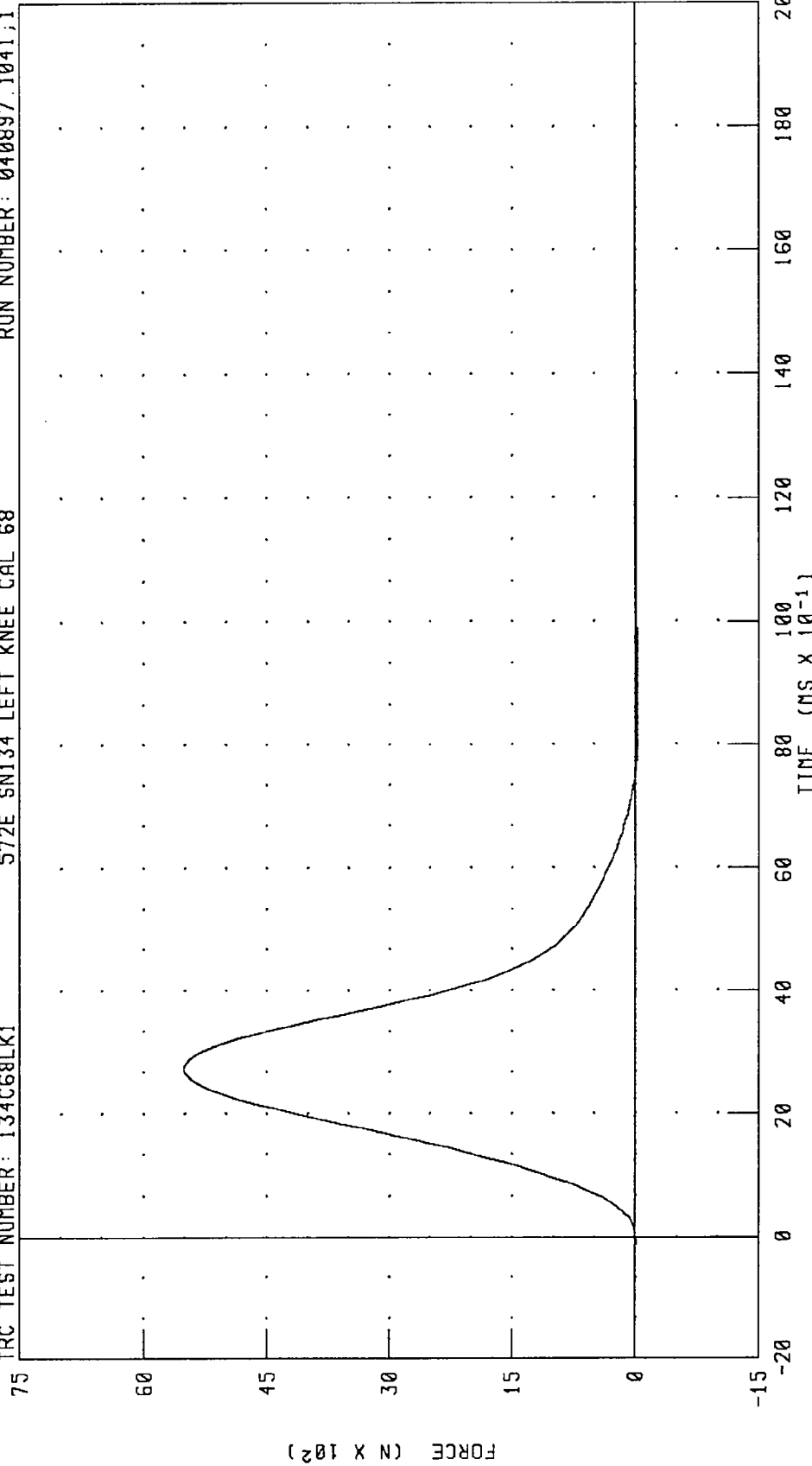
CHANNEL: PENXC FILTER: CH. CLASS 600 PEAK DATA: 112.70 G @ 2.72 MS; -0.53 G @ 8.16 MS

PART 572-E HYBRID III LEFT KNEE CALIBRATION  
PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: I34C68LK1

572E SN134 LEFT KNEE CAL 68

RUN NUMBER: 040897.1041;1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 5514.11 N @ 2.72 MS; -26.12 N @ 8.16 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE SLIDER TEST

HYBRID III

31-JAN-97

TRC INC.

TEST NO: 134C68RS2

572E SN134 RIGHT SLIDER CAL68

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	2.70-2.80 M/S	2.75 M/S
FORCE AT 10.0 MM DISPLACEMENT	1259 - 1721 N	1542. N
FORCE AT 18.0 MM DISPLACEMENT	2268 - 3096 N	2618. N

TEST MEETS SPECIFICATIONS

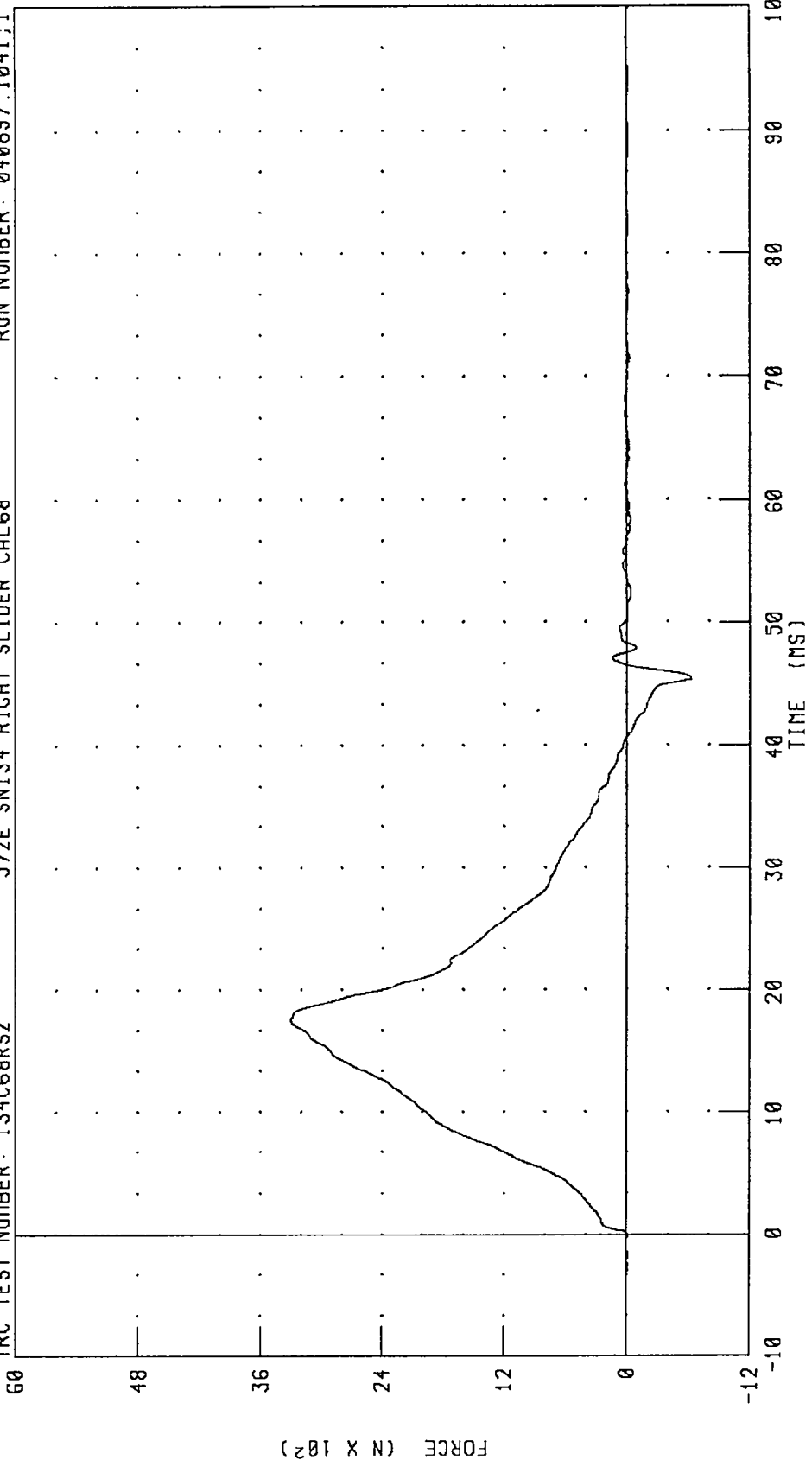
TECHNICIAN

*Richard L. L...*

RUN NUMBER: 013197.1030;1

PART 572-E HYBRID III RIGHT KNEE SLIDER CALIBRATION  
RIGHT FEMUR FORCE

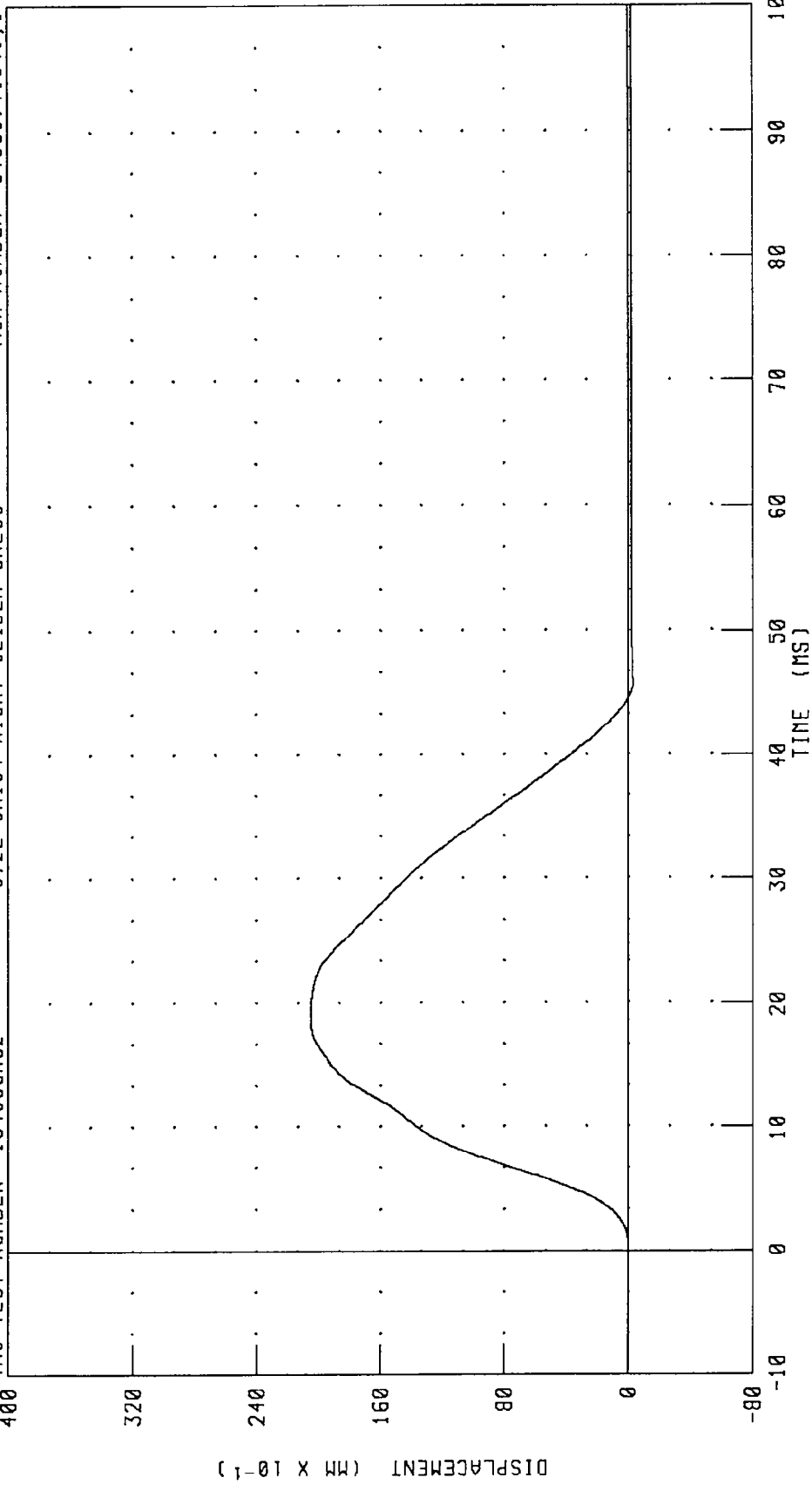
TRC TEST NUMBER: 134C68RSZ      572E SN134 RIGHT SLIDER CAL68      RUN NUMBER: 040897.1041.1



CHANNEL: RFMF      FILTER: CH. CLASS 600      PEAK DATA: 3302.51 N @ 17.52 MS; -631.13 N @ 45.44 MS

PART 572-E HYBRID III RIGHT KNEE SLIDER CALIBRATION  
RIGHT KNEE DISPLACEMENT

TRC TEST NUMBER: 134C68RS2      572E SN134 RIGHT SLIDER CAL68      RUN NUMBER: 040897.1041.1



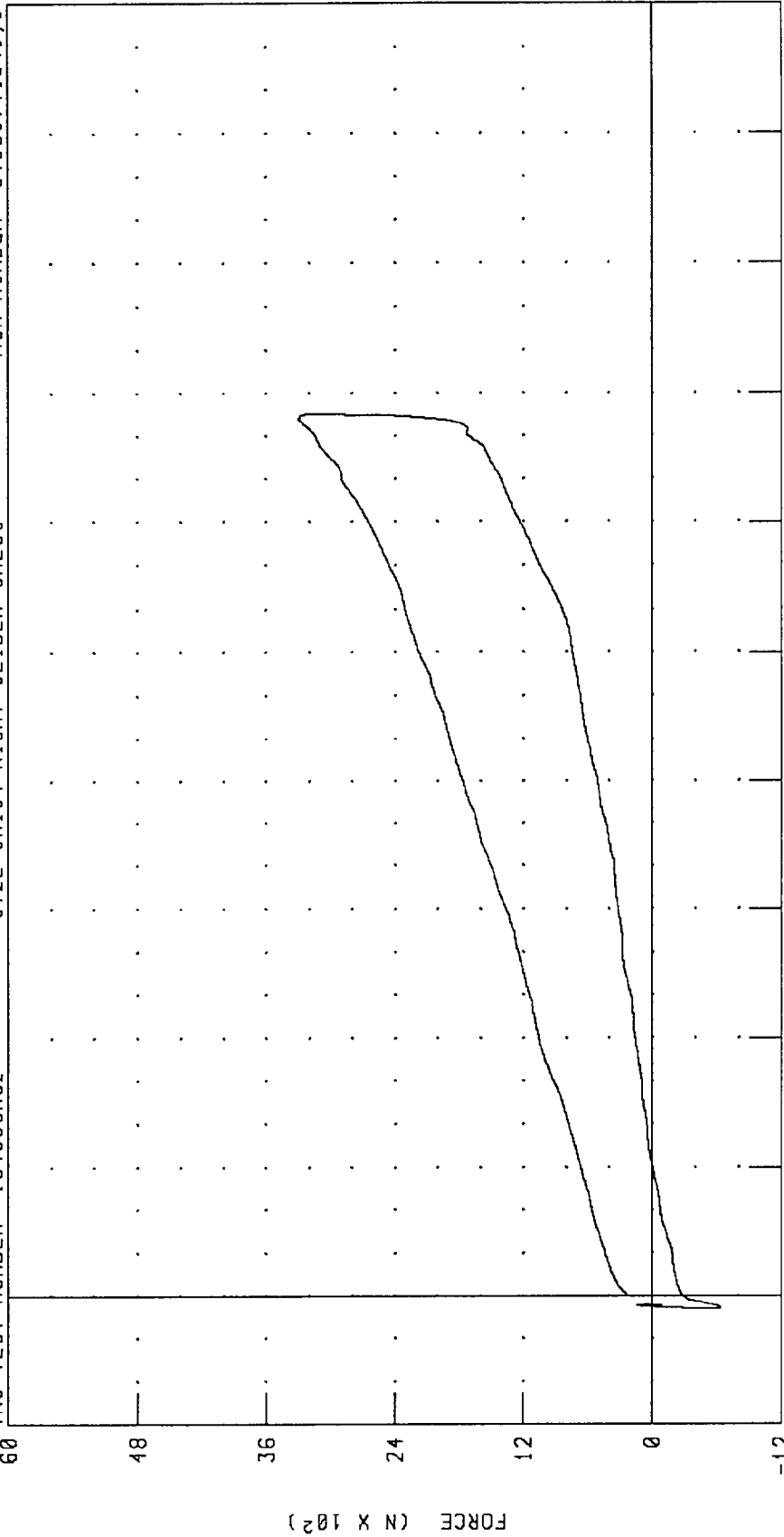
CHANNEL: KNRXD      FILTER: CH. CLASS 600      PEAK DATA: 20.50 MM @ 18.64 MS; -0.31 MM @ 45.76 MS

PART 572-E HYBRID III RIGHT KNEE SLIDER CALIBRATION  
 RIGHT KNEE DISPLACEMENT VS FEMUR FORCE

TRC TEST NUMBER: 134C68RS2

572E SN134 RIGHT SLIDER CAL68

RUN NUMBER: 040897.1041;1



CHANNEL: KNRXD FILTER: CH. CLASS 600  
 RFMF CH. CLASS 600

DISPLACEMENT (MM X 10<sup>-1</sup>)

PEAK DATA: 20.50 MM @ 18.64 MS; -0.31 MM @ 45.76 MS  
 3302.51 N @ 17.52 MS; -631.13 N @ 45.44 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE SLIDER TEST

HYBRID III

31-JAN-97

TRC INC.

TEST NO: 134C68LS2

572E SN134 LEFT SLIDER CAL68

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	2.70-2.80 M/S	2.77 M/S
FORCE AT 10.0 MM DISPLACEMENT	1259 - 1721 N	1425. N
FORCE AT 18.0 MM DISPLACEMENT	2268 - 3096 N	2442. N

TEST MEETS SPECIFICATIONS

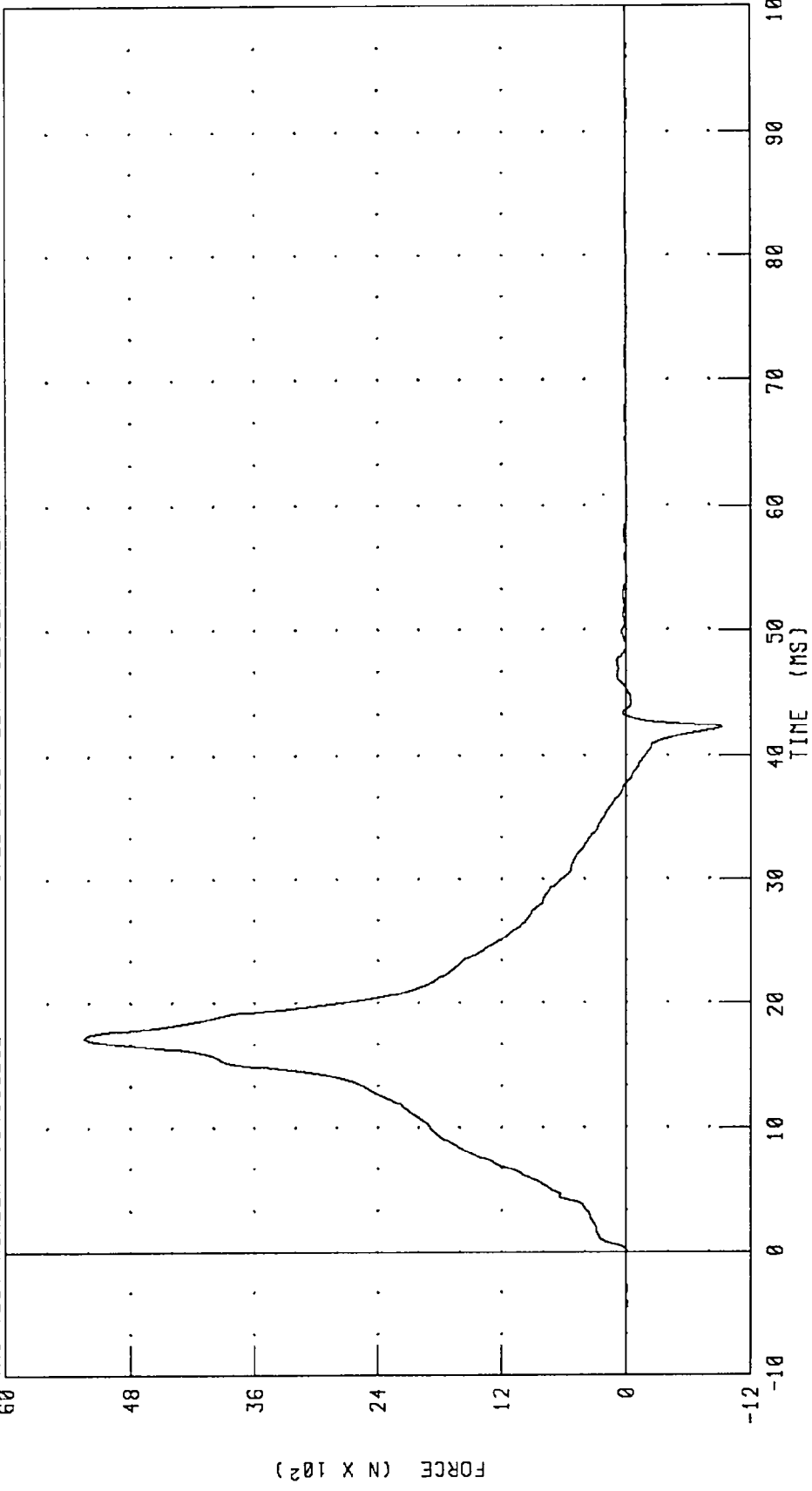
TECHNICIAN

*Richard L. ...*

RUN NUMBER: 013197.1317;4

PART 572-E HYBRID III LEFT KNEE SLIDER CALIBRATION  
LEFT FEMUR FORCE

TRC TEST NUMBER: 134C68LS2      572E SN134 LEFT SLIDER CAL68      RUN NUMBER: 040897.1041;4



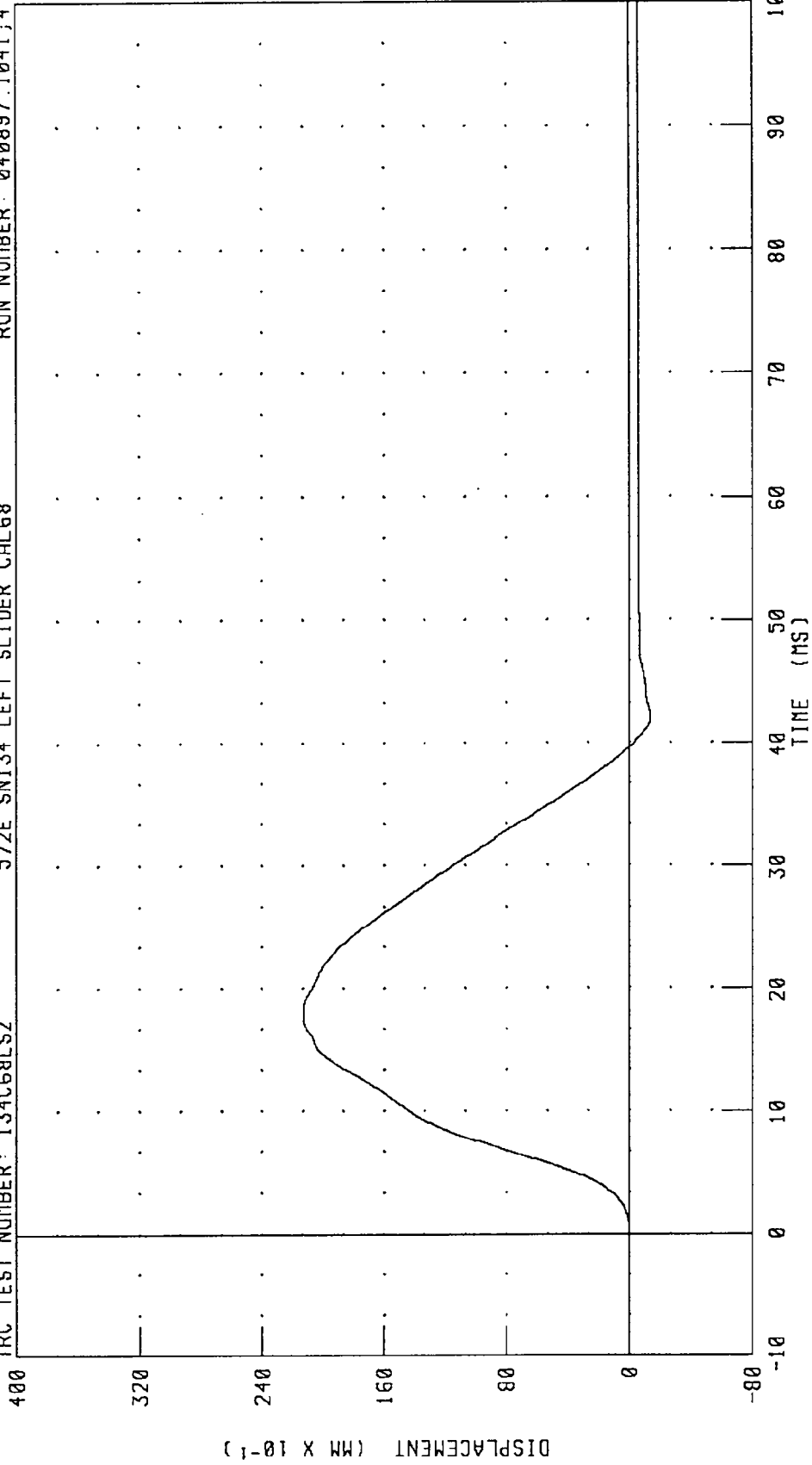
CHANNEL: LFMF      FILTER: CH. CLASS 600      PEAK DATA: 5241.53 N @ 17.20 MS; -919.48 N @ 42.16 MS

PART 572-E HYBRID III LEFT KNEE SLIDER CALIBRATION  
LEFT KNEE DISPLACEMENT

IRC TEST NUMBER: 134C68LS2

572E SN134 LEFT SLIDER CAL68

RUN NUMBER: 040897.1041;4



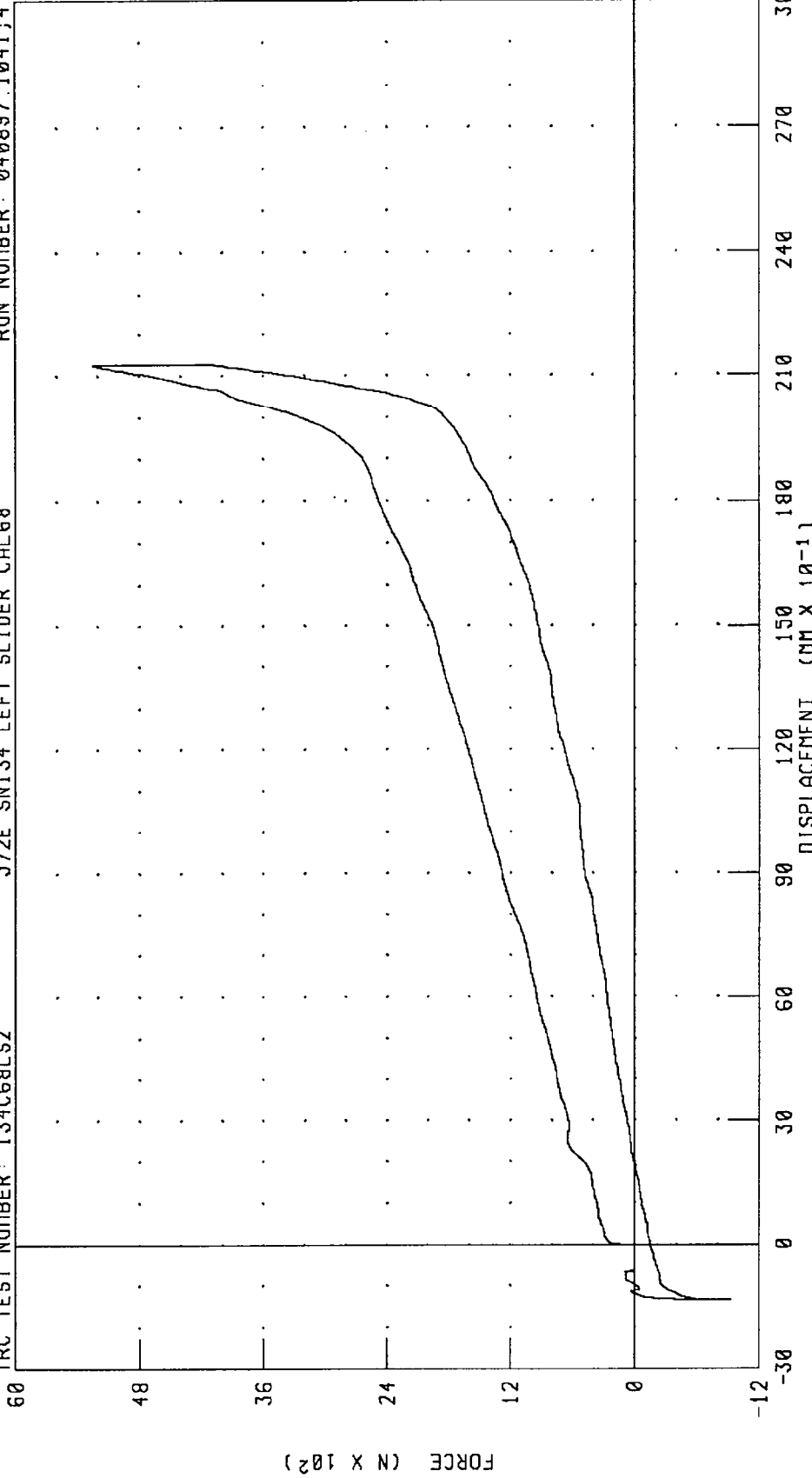
CHANNEL: KNLXD FILTER: CH. CLASS 600 PEAK DATA: 21.30 MM @ 17.60 MS; -1.32 MM @ 41.92 MS

PART 572-E HYBRID III LEFT KNEE SLIDER CALIBRATION  
 LEFT KNEE DISPLACEMENT VS FEMUR FORCE

TRC TEST NUMBER: 134C68LS2

572E SN134 LEFT SLIDER CAL68

RUN NUMBER: 040897.1041.4



CHANNEL: KNLXD FILTER: CH. CLASS 600  
 LFMF CH. CLASS 600

PEAK DATA: 21.30 MM @ 17.60 MS; -1.32 MM @ 41.92 MS  
 5241.53 N @ 17.20 MS; -919.48 N @ 42.16 MS

Appendix D

Miscellaneous Test Information

Sign Convention  
NHTSA Data Tape Reference Guide

Accelerometers:

+X: Forward  
+Y: Leftward  
+Z: Upward

Potentiometers:

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

Load cells:

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

Neck load cells:

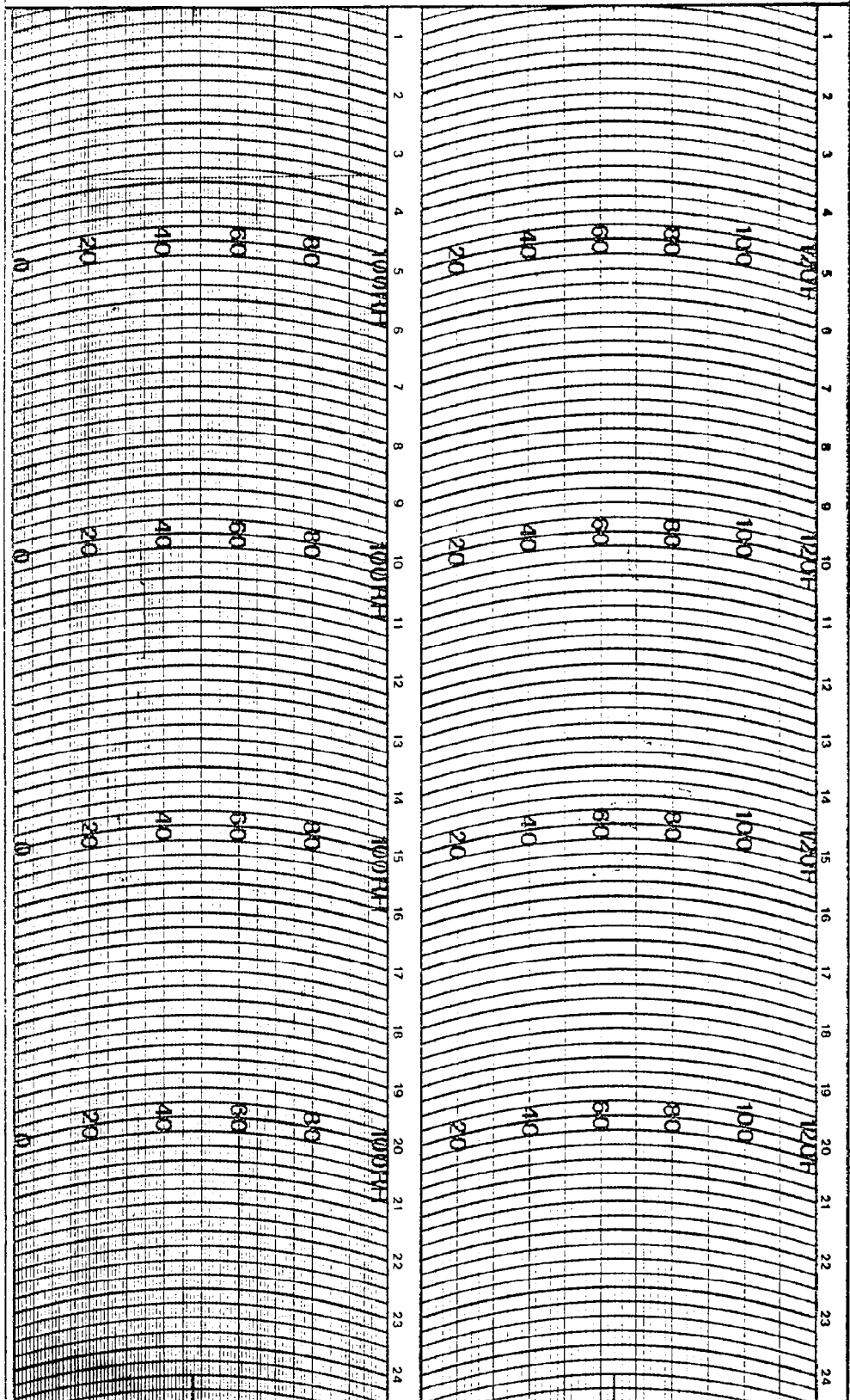
+X force: Head pushed forward  
+y force: Head pushed leftward  
+Z force: Head pulled upward (tension on neck)  
+X moment: Right ear rotating toward right shoulder  
+Y moment: Chin rotating toward chest  
+Z moment: Chin rotating toward left shoulder

Tibia load cells:

+X force: Tension  
+Y force: Tension  
+Z force: Tension  
+X moment: Bottom of tibia moving leftward  
+Y moment: Bottom of tibia moving rearward

Frequency Response Classes  
SAE J211 OCT88

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	180
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000



WEATHER MEASURE  
 P.O. BOX 41257  
 SACRAMENTO, CA. 95841  
 PHONE (916) 481-7565

HYGROTHERMOGRAPH - *50pc*  
 1 DAY

CHART # C311 D HF  
 PART # 699123

STATION \_\_\_\_\_ DATE ON *10/25/07* DATE OFF \_\_\_\_\_