

Report Number NCAP-TRC-01-001

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Nissan Motor Company, Ltd.

2001 Nissan Quest

NHTSA Number: NI0001

TRC Test Number: 001016-1

Prepared By:

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Final Report

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16. Abstract A 56 km/h (35 mph) frontal load cell barrier impact test was conducted on a 2001 Nissan Quest, NHTSA No. NI0001, at Transportation Research Center Inc. on October 16, 2000. This test was conducted in accordance with Office of Crashworthiness Standards NCAPTP090196 for the determination of vehicle crashworthiness. The barrier impact velocity was 56.3 km/h. The vehicle's maximum static crush was 580 millimeters. The ambient temperature was 21° C. The driver's Head Injury Criteria (HIC) was 418. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 38.0 g. The driver's maximum chest deflection was 34 millimeters. The driver's left and right femur maximum axial forces were 2364 N and 3623 N, respectively. The passenger's HIC was 403. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 37.6 g. The passenger's maximum chest deflection was 36 millimeters. The passenger's left and right femur maximum axial forces were 2541 N and 3550 N, respectively.			
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Section 1.0

Purpose and Test Procedure

Purpose

This 56 km/h (35 mph) frontal barrier impact test is part of the New Car Assessment Program (NCAP) conducted for the National Highway Traffic Safety Administration's (NHTSA) Office of Crashworthiness Standards by Transportation Research Center Inc. (TRC Inc.).

The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for the subject vehicle, a 2001 Nissan Quest, NHTSA Number NI0001, at an impact speed in excess of the current 48 km/h (30 mph) FMVSS 208, 212, 219, and 301 requirements.

Test Procedure

This 56 km/h (35 mph) test was conducted in accordance with NHTSA's Office of Crashworthiness Standards Laboratory Indicant Test Procedure, NCAPTP090196. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations. The driver's and passenger's restraint systems were instrumented with load cells to measure lap and shoulder belt forces and potentiometers to measure shoulder belt stretch and spoolout. The vehicle impacted a frontal load cell barrier instrumented with thirty-six (36) barrier face load cells. The vehicle's specified impact velocity range was 55.5 to 57.1 km/h.

The test vehicle contained two (2) Part 572E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendix B of the Laboratory Indicant Test Procedure. This test was the first use of the driver dummy and the first use of the passenger dummy after calibration.

Both dummies were instrumented with head, chest, and pelvis, accelerometers to measure longitudinal, lateral, and vertical accelerations, with redundant accelerometers in the head and chest, and with left and right femur load cells to measure axial forces. The dummies were also instrumented with neck moment and force load cells, chest deflection potentiometers, foot accelerometers to measure longitudinal and vertical axis accelerations, and upper and lower tibia load cells to measure forces and moments.

The one-hundred-thirty-seven (137) data channels were digitally sampled and recorded at 12,500 samples per second and processed per Section 11.13 of the Laboratory Indicant Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and fourteen (14) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

The vehicle, occupant, and load cell barrier data are presented in Section 2.0. The occupant, camera, and vehicle measurements are presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the dummy, vehicle, and load cell barrier data plots. Appendix C contains the dummy certification data. Appendix D contains miscellaneous test information.

Section 2.0

Frontal Barrier Impact Test Summary

Test Results Summary

This frontal load cell barrier test was conducted at TRC on October 16, 2000.

The test vehicle, a 2001 Nissan Quest MPV, NHTSA Number NI0001, was equipped with a 3.3-liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 2056.2 kg. The vehicle's impact speed was 56.3 km/h. The vehicle sustained 580 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 418. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 38.0 g. The driver's maximum chest deflection was 34 mm. The driver's left and right femur maximum axial forces were 2364 N and 3623 N, respectively.

The right front passenger's HIC was 403. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 37.6 g. The passenger's maximum chest deflection was 36 mm. The passenger's left and right femur maximum axial forces were 2541 N and 3550 N, respectively.

There was 100% windshield periphery retention.

There was no penetration through the windshield.

Following the impact, no fluid spilled from the vehicle's fuel system prior to the static rollover test or during the static rollover test.

Data Acquisition Explanations

The passenger's chest Z-axis acceleration redundant data channel, CSTZR2, recorded no valid data after approximately 130 milliseconds. This affected the calculated redundant chest resultant acceleration.

The passenger's pelvis Y-axis acceleration data channel, PEVYG2, recorded no valid data. This affected the calculated pelvis resultant acceleration.

Electronic data spikes at approximately 1, 68, and 101 milliseconds occurred on load cell data channels in the driver and passenger dummies. The values reported in Table 7 Hybrid III Data Summary exclude the electronic spikes. The magnitude of at least one of the spikes exceeded the peak load of the interest on the following data channels:

- NEKXF1, driver neck X-axis shear force
- NEKYF1, driver neck Y-axis shear force
- NEKZF1, driver neck Z-axis axial force
- NEKXM1, driver neck moment about X-axis
- TBLZF1, driver left upper tibia Z-axis force
- NEKYF2, passenger neck Y-axis shear force
- TBRZF2, passenger right upper tibia Z-axis force

On the following additional data channels, the magnitude of the two anomalous spikes was relatively high compared to the measured load:

- ANLZF1, driver left lower tibia Z-axis force
- TBRZF1, driver right upper tibia Z-axis force
- ANRZF1, driver right lower tibia Z-axis force
- NEKXF2, passenger neck X-axis shear force

The driver and passenger dummies' calculated Y-axis moment about the occipital condyle, NEKOM1 and NEKOM2, was also affected.

The vehicle's engine top X-axis acceleration data channel, ENGXG1, exceeded the data channel's full scale at approximately 27 milliseconds.

The following barrier load cell channels did not fully return to the zero level following impact: BA5F, BA8F, BB1F, BB2F, BB3F, BB8F, BB9F, BC2F, BC3F, BC6F, BC7F, BC8F, BD2F, and BD7F. This affected group totals for the barrier load cell.

Table 1 Crash Test Summary

NHTSA number:	NI0001	
Test type:	Frontal Load Cell Barrier	
Test date:	10/16/00	
Test time:	1508	
Ambient temperature:	21.1° C	
Vehicle year/make/ model/body style:	2001/Nissan/Quest/MPV	
Vehicle test weight:	2056.2 kg	
Impact angle ¹ :	0°	
Impact velocity ² :	Primary	= 56.3 km/h
	Secondary	= 56.3 km/h
Maximum static crush:	580 mm	
Average rebound:	590 mm	
Dummies:	Driver #192	Passenger #142
Type:	Part 572E	Part 572E
Location:	Left front	Right front
Restraint:	3-point unbelt and airbag	3-point unbelt and airbag
Number of data channels:	43	43
Number of cameras:	High-speed	14
	Real-time	1

¹ With respect to tow track centerline.

² Speed trap measurement (± .08 km/h accuracy)

Table 2 Test Vehicle Information

Vehicle year/make/
model/body style: 2001/Nissan/Quest/MPV

Color: Silver

VIN: 4N2ZN15T01D801195

NHTSA number: NI0001

Engine data:

 Placement: Transverse

 Cylinders: 6

 Displacement 3.3 liters

Transmission data: 4 speed, manual, X automatic, overdrive
 X FWD, RWD, 4WD

Date vehicle received: 10/6/00

Odometer reading: 5

Dealer's name
and address: N/A

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	Yes	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	Yes
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	Yes
Other	Power door locks		

Certification data from vehicle's label:

Vehicle manufactured by: Ford Motor Company U.S.A. for Nissan Motor Company, Ltd.

Date of manufacture: 10/00

VIN: 4N2ZN15T01D801195

GVWR: 5445 lbs.

GAWR: Front: 2716 lbs.
Rear: 2844 lbs.

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P215/65R16
Tire pressure with maximum capacity vehicle load:
Front: 44 psi
Rear: 44 psi
Spare tire: T13590D16
Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P215/65RX165
Recommended cold tire pressure:
Front: 35 psi
Rear: 35 psi

Designated seating capacity:

Front	2
Mid	2
Rear	3
Total	7

Vehicle capacity weight: 1290 lbs.

Test vehicle attitude:

Delivered attitude:	LF 782 mm;	RF 788 mm;	LR 795 mm;	RR 791 mm
Fully loaded attitude:	LF 769 mm;	RF 771 mm;	LR 750 mm;	RR 740 mm
Pre-test attitude:	LF 757 mm;	RF 764 mm;	LR 748 mm;	RR 752 mm
Post-test attitude:	LF 823 mm;	RF 812 mm;	LR 766 mm;	RR 748 mm

Table 2 Test Vehicle Information Cont'd

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

Right front	488.1 kg	Right rear	392.8 kg
Left front	539.3 kg	Left rear	381.0 kg
Total front weight	1027.4 kg	(57.0%% of total vehicle weight)	
Total rear weight	773.8 kg	(43.0%% of total vehicle weight)	
Total delivered weight	1801.2 kg		

Calculation of test vehicle's target test weight:

RCLW¹ = Rated cargo and luggage weight

GVWR = Gross Vehicle Weight Rating (2386 kg)

UDW = Unloaded delivered weight (1801.2 kg)

VCW = Vehicle capacity weight = GVWR - UDW = 2386 - 1801.2 = 584.8 kg

DSC = Designated seating capacity (7)

RCLW¹ = GVWR - UDW - 68 (DSC) = 2386 - 1801.2 - 68(7) = 108.8 kg

Target test weight = UDW + RCLW¹ + (Number of Hybrid III dummies x 76 kg/dummy)

Target test weight = 1801.2 + 108.8 + 152 = 2062.0 kg

Target test weight = 2062.0 kg

Weight of test vehicle with required dummies and 103.0 kg of cargo weight:

Right front	541.8 kg	Right rear	476.6 kg
Left front	572.6 kg	Left rear	465.2 kg
Total front weight	1114.4 kg	(54.2% of total vehicle weight)	
Total rear weight	941.8 kg	(45.8% of total vehicle weight)	
Total test weight	2056.2 kg	(0.3% under target test weight)	

Weight of ballast secured in vehicle: 34.0 kg

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 1305 mm

¹ Cargo weight for multipurpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kilograms, whichever is less.

Table 3 Post-Impact Data

Test number: 001016-1
NHTSA number: NI0001
Test date: 10/16/00
Test time: 1508
Test type: Frontal Load Cell Barrier
Impact angle: 0°
Ambient temperature at impact area: 21° C
Temperature in occupant compartment: 21° C
Impact velocity:
 Primary 56.3 km/h
 Secondary 56.3 km/h
 Specified range 55.5 to 57.1 km/h

Distance from vehicle to barrier:
 Entering velocity trap 661 mm
 Exiting velocity trap 51 mm

Test vehicle static crush:

Overall length of test vehicle:

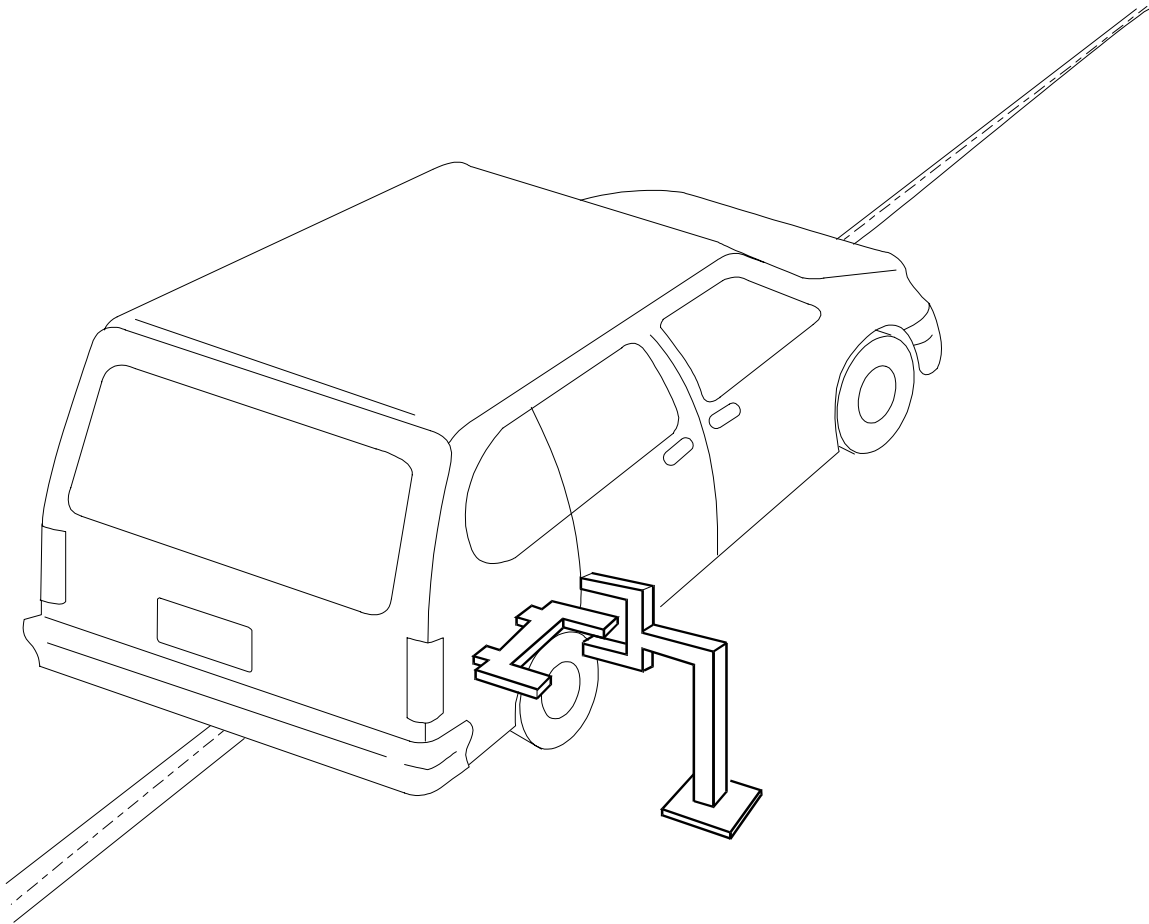
Pre-test: L 5229 mm; C 5387 mm; R 5235 mm
Post-test: L 4930 mm; C 4892 mm; R 4767 mm
Total crush: L 299 mm; C 495 mm; R 468 mm
Average crush: 421 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test: L 600 mm; C 562 mm; R 608 mm
Average rebound 590 mm

Figure 1 Impact Velocity Measurement System



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

The vanes have 610-millimeter spacing.

Figure 2 Accident Investigation Division Data
for 56 km/h (35 mph) Frontal Barrier Impact

NHTSA number: NI0001
 Test date: 10/16/00
 Vehicle year/make/
 model/body style: 2001/Nissan/Quest/MPV
 Vehicle size category: Van
 VIN: 4N2ZN15T01D801195
 Build date: 10/00
 Test weight: 2056.2 kg
 Vehicle wheelbase: 1885 mm
 Maximum width: 2850 mm
 Front overhang: 975 mm

Collision Deformation
 Classification (CDC) code: 12FDEW3

Crush depth
 measurements:

C1	=	299 mm
C2	=	422 mm
C3	=	466 mm
C4	=	541 mm
C5	=	580 mm
C6	=	468 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1524 mm

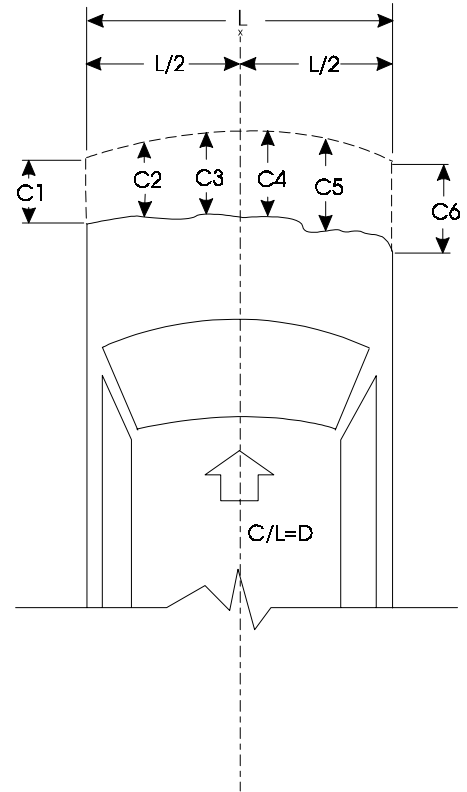
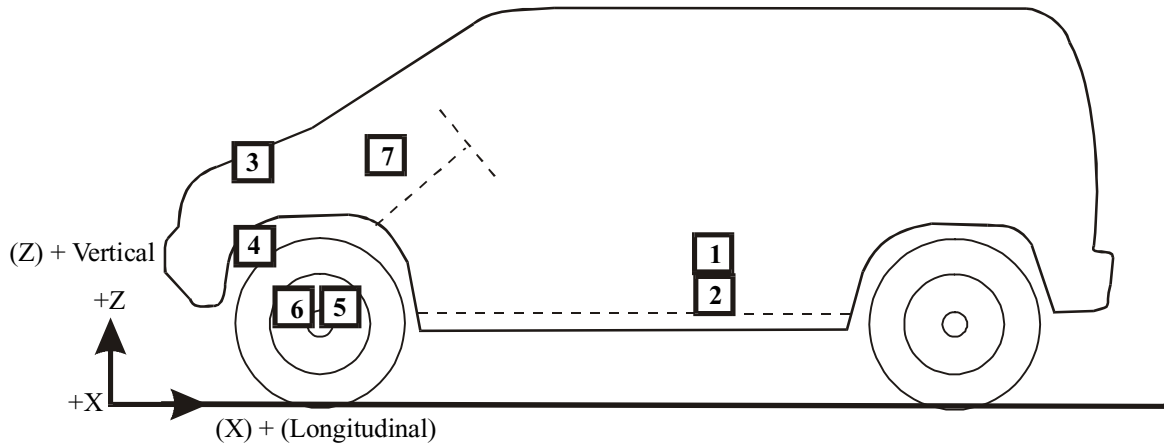
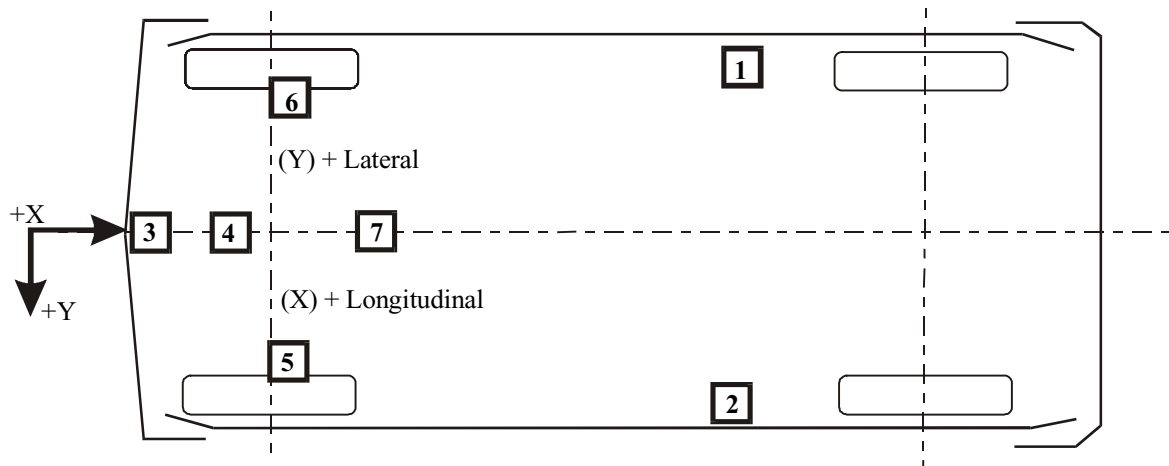


Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 001016-1	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
No. LOCATION					
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	PRE 2609 mm	650 mm	NA		
	POST 2630 mm	650 mm	NA	2.0 g @ 143.0 ms	@ 41.3 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	PRE 2625 mm	-650 mm	NA		
	POST 2607 mm	-650 mm	NA	1.9 g @ 148.2 ms	@ 42.6 ms
3 ENGINE TOP LONGITUDINAL ¹	PRE 4818 mm	-126 mm	NA		
	POST 4549 mm	-80 mm	NA	1.9 g @ 148.3 ms	@ 42.6 ms
4 ENGINE BOTTOM LONGITUDINAL	PRE 4770 mm	-290 mm	NA		
	POST 4657 mm	-270 mm	NA	65.0 g @ 42.1 ms	@ 27.0 ms
5 RIGHT BRAKE CALIPER LONGITUDINAL	PRE 4495 mm	-710 mm	NA		
	POST 4410 mm	-705 mm	NA	39.5 g @ 40.9 ms	@ 29.7 ms
				34.0 g @ 70.4 ms	@ 44.3 ms

Table 4 Vehicle Accelerometer Locations and Data Summary, Cont'd.

TEST NUMBER: 001016-1		X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
No. LOCATION						
6	LEFT BRAKE CALIPER	PRE 4500 mm	710 mm	NA		
		POST 4422 mm	705 mm	NA		
LONGITUDINAL					44.6 g @ 63.7 ms	145.6 g @ 41.8 ms
7	INSTRUMENT PANEL	PRE 3907 mm	0 mm	NA		
	CENTER	POST 3950 mm	0 mm	NA		
LONGITUDINAL					14.0 g @ 29.0 ms	45.3 g @ 36.3 ms

DIMENSION MEASUREMENTS SIGN CONVENTION:

- X: + FORWARD OF REAR BUMPER
- Y: + LEFT FROM VEHICLE CENTERLINE
- Z: + UPWARD FROM GROUND LEVEL

SEE REPORT SIGN CONVENTION IN APPENDIX D FOR DATA CHANNEL SIGN CONVENTION
¹SEE DATA ACQUISITION EXPLANATIONS

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver #192</u>	<u>Passenger #142</u>
Head	Airbag/headrest	Airbag/headrest
Chest	Airbag	Airbag
Abdomen	None	None
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door Opening:

	<u>Left</u>	<u>Right</u>
Front	Easy	Easy
Rear	Easy	Easy

Seat Movement:

	<u>Seat Back Failure</u>	<u>Seat Shift</u>
Front	None	None
Rear	None	None

Glazing Damage: Damage to lower corners of windshield.

Other Notable Impact Effects: None

Table 6 FMVSS 208 Data Summary

Vehicle year/make/
model/body style: 2001/Nissan/Quest/MPV
Vehicle NHTSA number: NI0001
Test date: 10/16/00

	Driver Dummy #192		Passenger Dummy #142	
<u>Maximum Accelerations:</u>				
Head X-axis	-60.9	g	-48.6	g
Head Y-axis	5.2	g	5.0	g
Head Z-axis	18.2	g	31.3	g
Head resultant	61.0	g	56.5	g
Chest X-axis	-38.5	g	-38.8	g
Chest Y-axis	-3.9	g	4.4	g
Chest Z-axis	-12.6	g	-8.7	g
Chest resultant ¹	38.0	g	37.6	g
Chest resultant time interval ¹	.061-.064	sec	.057-.060	sec
<u>Head Injury Criteria (HIC) Values:</u>				
HIC ²	418		403	
HIC starting time	.058	sec	.060	sec
HIC ending time	.092	sec	.096	sec
Average head resultant acceleration during HIC time interval	42.9	g	41.6	g
<u>Maximum Chest Deflections:</u>				
Chest X-axis	-34.0	mm	-36.5	mm
Maximum chest deflection time	.075	sec	.084	sec
<u>Maximum Compressive Femur Forces:</u>				
Left femur	2364	N	2541	N
Right femur	3623	N	3550	N
<u>Maximum Seat Belt Forces:</u>				
Lap belt	6131	N	6265	N
Shoulder belt	5458	N	5647	N

Note: All values listed must be occurring during primary impact event.
(Head accelerations listed must be during HIC time interval.)

¹ 0.003 Sec. Minimum duration.

² The maximum HIC time interval is 36 milliseconds.

Table 7 Hybrid III Data Summary

Vehicle year/make/
model/body style: 2001/Nissan/Quest/MPV
Vehicle NHTSA number: NI0001
Test date: 10/16/00

	Driver Dummy #192	Passenger Dummy #142
<u>Maximum Forces</u>		
Neck X-axis shear force	479 N ¹	-598 N ¹
Neck Y-axis shear force	106 N ¹	147 N ¹
Neck Z-axis axial force	1185 N ¹	1387 N
<u>Maximum Moments</u>		
Neck moment about X-axis	10.3 N·m ¹	16.9 N·m
Neck moment about Y-axis	39.7 N·m	35.7 N·m
Neck moment about Z-axis	-8.2 N·m	-4.4 N·m
Neck moment about Y-axis at Occipital Condyle	40.2 N·m	43.2 N·m
<u>Maximum Accelerations:</u>		
Pelvis X-axis	-59.5 g	-58.0 g
Pelvis Y-axis	-9.9 g	6.9 g ¹
Pelvis Z-axis	-19.2 g	-22.6 g
Pelvis resultant	61.9 g	59.9 g ¹

¹ See Data Acquisition Explanations

Table 7 Hybrid III Data Summary, Cont'd.

Vehicle year/make/
model/body style: 2001/Nissan/Quest/MPV
Vehicle NHTSA number: NI0001
Test date: 10/16/00

	Driver Dummy #192	Passenger Dummy #142
Left upper tibia Z-axis force	-2212 N ¹	-2810 N
Left upper tibia moment about X-axis	85.1 N·m	-57.7 N·m
Left upper tibia moment about Y-axis	-122.0 N·m	107.0 N·m
Right upper tibia Z-axis force	-3344 N ¹	-1756 N ¹
Right upper tibia moment about X-axis	64.3 N·m	26.0 N·m
Right upper tibia moment about Y-axis	-140.8 N·m	83.4 N·m
Left lower tibia Z-axis force	-2629 N ¹	-1984 N
Left lower tibia moment about Y-axis	232.5 N·m	127.9 N·m
Left lower tibia moment about X-axis	85.4 N	-10.3 N
Right lower tibia Z-axis force	-3985 N ¹	-3634 N
Right lower tibia moment about Y-axis	102.2 N·m	101.9 N·m
Right lower tibia moment about X-axis	127.9 N·m	-42.6 N·m
Left foot X-axis acceleration at heel	-62.7 g	-132.3 g
Left foot Z-axis acceleration at heel	-89.7 g	50.3 g
Left foot Z-axis acceleration at toe	-171.5 g	-108.9 g
Right foot X-axis acceleration at heel	-146.9 g	-52.7 g
Right foot Z-axis acceleration at heel	-159.2 g	-64.5 g
Right foot Z-axis acceleration at toe	-160.5 g	-111.7 g

Note: All values listed must be occurring during primary impact event.

¹ See Data Acquisition Explanations

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest were restrained by the driver's airbag as the dummy's torso was restrained by the three-point unbelt. The dummy's head rotated rearward into the head restraint as the dummy rebounded into the seat back. The dummy came to rest seated in the driver's seat, restrained by the three-point unbelt.

Right Front Passenger Dummy

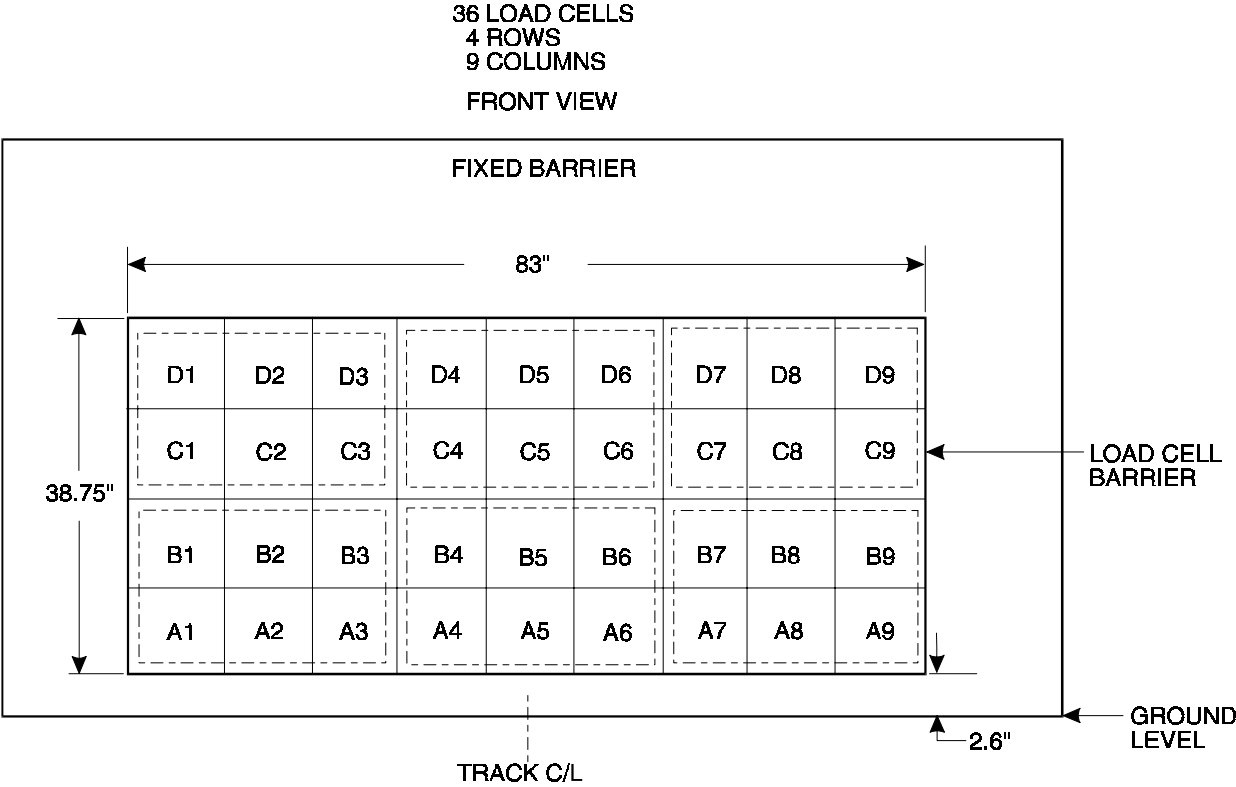
Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward as the dummy's head and chest were restrained by the passenger's airbag and the dummy's torso was restrained by the three-point unbelt. The dummy's head rotated rearward into the head restraint as the dummy rebounded into the seat back. The dummy came to rest seated upright in the right front passenger's seat, restrained by the three-point unbelt.

Table 8 Seat Belt Performance Assessment Test Data

	Driver	Passenger
<u>Belt length data:</u>		
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	N/A mm	N/A mm
Shoulder belt length as measured on Part 572 dummy.	N/A mm	N/A mm
Lap belt length as measured on Part 572 dummy.	N/A mm	N/A mm
<u>Shoulder belt spool-off length:</u>		
As determined by film analysis	mm	mm
As determined mechanically	30 mm	67 mm
As determined electronically	27 mm	52 mm
<u>Belt stretch length:</u>		
As measured mechanically	.00 mm/m	.01 mm/m
As measured electronically	17.27 mm/m	24.55 mm/m
<u>Retractor lock-up time:</u>		
As determined by shoulder belt spool-off ¹	84 ms	96 ms

¹ Retractor lock-up time was determined electronically from belt spool-off potentiometer.

Figure 4 Load Cell Barrier Configuration



- Group 1: A1 through B3
- Group 2: A4 through B6
- Group 3: A7 through B9
- Group 4: C1 through D3
- Group 5: C4 through D6
- Group 6: C7 through D9

Table 9 Load Cell Barrier Data Summary

Location	Positive direction				Negative direction			
Total group 1 ¹	2.4	kN	@	3.0 ms	93.8	kN	@	21.8 ms
Total group 2 ¹	0.5	kN	@	207.4 ms	272.5	kN	@	51.3 ms
Total group 3 ¹	1.8	kN	@	2.2 ms	183.0	kN	@	31.4 ms
Total group 4 ¹	2.2	kN	@	5.0 ms	83.6	kN	@	44.0 ms
Total group 5 ¹	0.8	kN	@	2.1 ms	101.4	kN	@	54.0 ms
Total group 6 ¹	0.8	kN	@	4.2 ms	63.5	kN	@	31.2 ms
Total load cell force ¹	0.8	kN	@	158.1 ms	656.6	kN	@	50.6 ms

Tension is positive
 Compression is negative

¹ See Data Acquisition Explanations

Section 3.0

FMVSS 212, 219 (partial), and 301 Data

Figure 5 FMVSS 212 Test Data

Details of windshield mounting such as retention method, trim type, etc.: Adhesive used; plastic trim

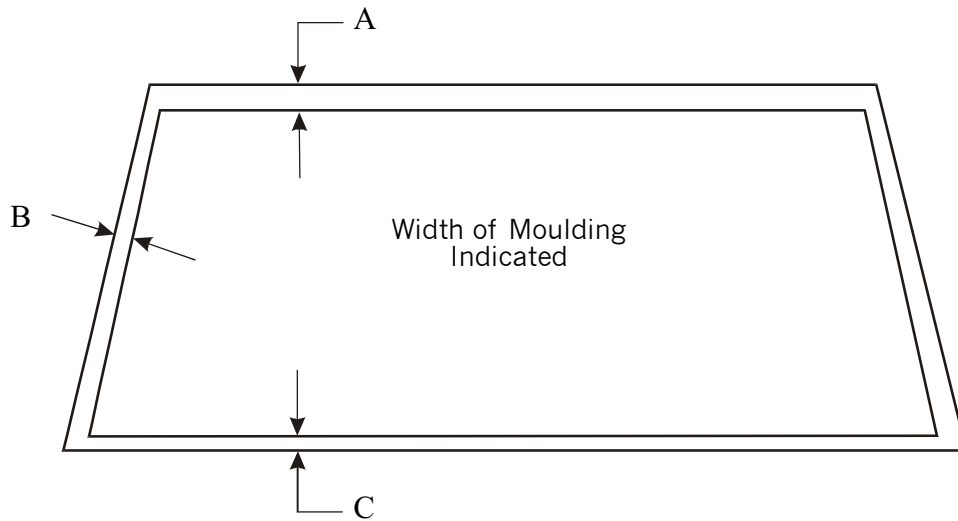
FMVSS 212 requirements: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

Windshield periphery measurements:

	<u>Pre-test</u>	<u>Post-test</u>	<u>Percent retention</u>
Right side	2243 mm	2243 mm	100
Left side	2243 mm	2243 mm	100
Total	4486 mm	4486 mm	100

Pre-test windshield mounting material temperature: 21° C

- A = 15 mm
- B = 25 mm
- C = 15 mm



Front view of windshield¹

Loss of windshield retention lengths: None

¹ Indicate areas of loss of retention, if any, on windshield diagram.

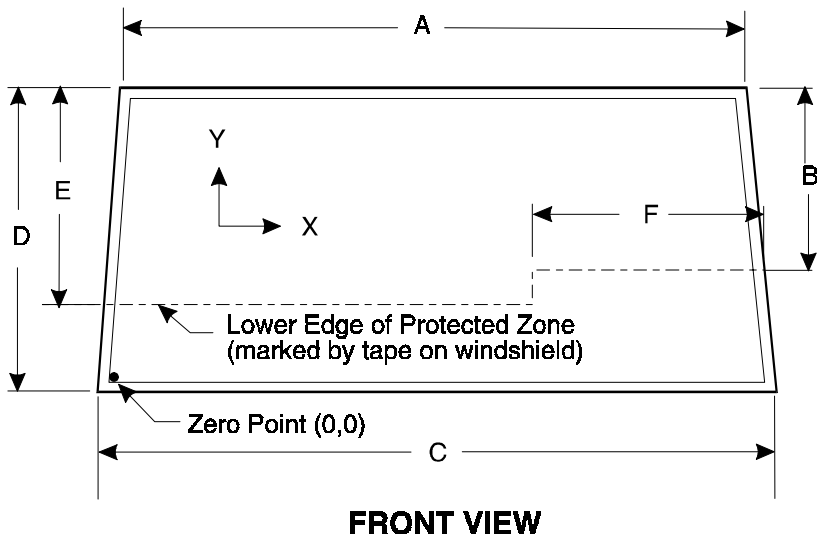
Figure 6 FMVSS 219 Test Data

Protected zone lower edge requirement:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 13 millimeters from the locus line. The **lower edge of the protected zone** is the longitudinal projection onto the outer surface of the windshield of this line.

Windshield measurements:

- A = 1290 mm
- B = 433 mm
- C = 1695 mm
- D = 750 mm
- E = 525 mm
- F = 713 mm



Method of adhering protected zone template to windshield: Liquid nails

Areas of windshield template penetration greater than 6 mm: None

Coordinates	
X	Y
1.	
2.	
3.	

Areas of windshield penetration, below the protected zone, through the inner surface of the windshield: None

- 1.
- 2.
- 3.

Table 10 Fuel System Data

Vehicle year/make/ model/body style:	2001/Nissan/Quest/MPV
NHTSA number:	NI0001
Fuel system capacity:	N/A gallons (from owner's manual)
Usable capacity:	20.0 gallons (furnished by manufacturer)
Test volume range:	18.4 gallons to 18.8 gallons (92-94% of usable)
Actual test volume:	19.0 gallons (with entire fuel system filled)
Test fluid type:	Stoddard
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	Purple
Did electric fuel pump operate with ignition switch "on" and the engine not operating.	No
Details of fuel system:	Fuel tank is in front of rear axle, off center to the left side. Fuel filler neck is on driver side above rear tire. Fuel lines come out front of tank and extend forward along left frame rail.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: NI0001
Test date: 10/16/00
Vehicle year/make/
model/body style: 2001/Nissan/Quest/MPV

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 (56 km/h)
- Oblique (48 km/h) with ___° barrier face first contacting ___ (driver/pass.) side
- Rear moving barrier (48 km/h)
- Lateral moving barrier (32 km/h)

Fuel system fluid spillage measurements:

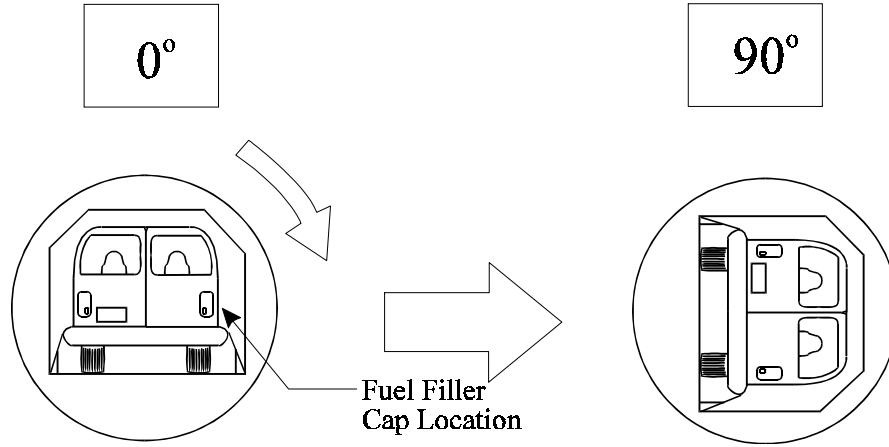
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 g	28 g
2. 5-minute period after vehicle motion ceases	0 g	142 g
3. Next 25 minutes after 5-minute period	0 g	28 g/min

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data

NHTSA number: NI0001

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

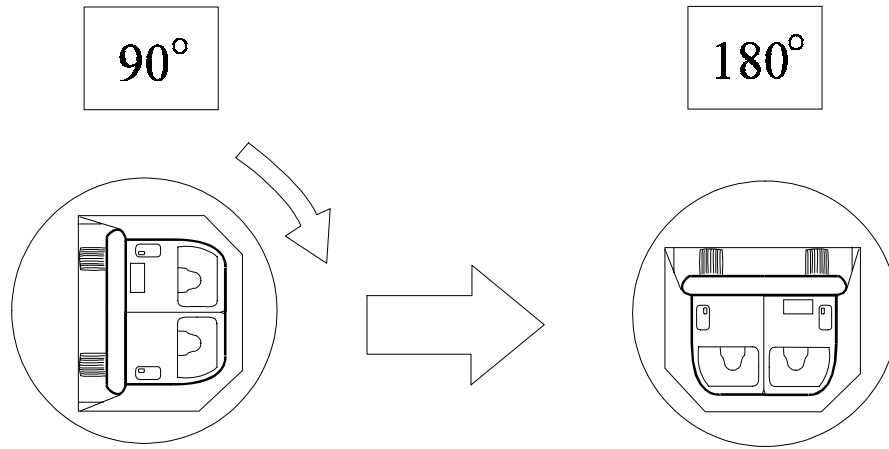
Fuel system fluid spillage measurements:

	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 7 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

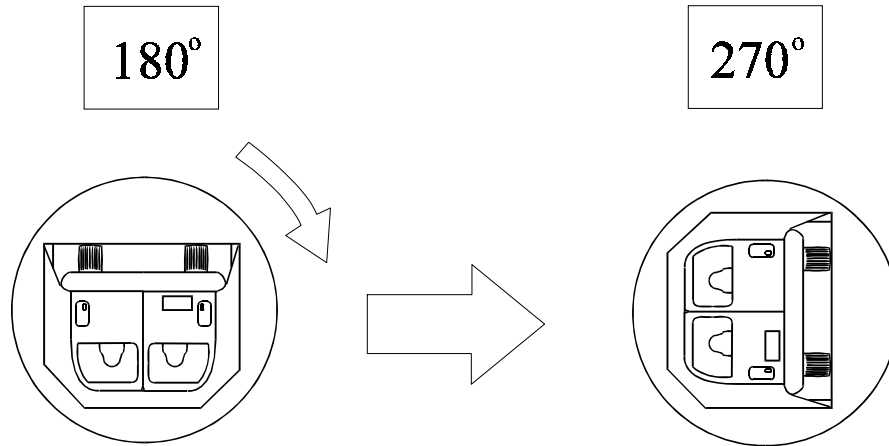
Fuel system fluid spillage measurements:

<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 7 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

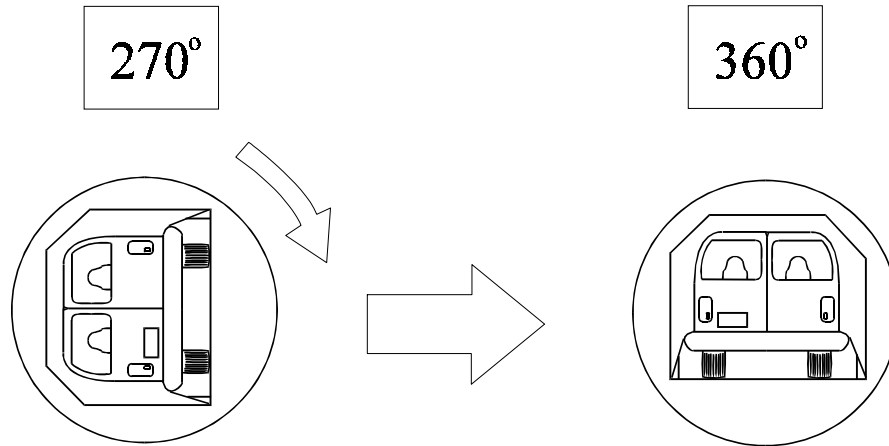
Fuel system fluid spillage measurements:

<u>180° to 270° 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 7 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>	Test Results	Maximum Allowable
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

Occupant, Camera, and Vehicle Information

Figure 8 Dummy Measurement Locations for Front Seat Occupants

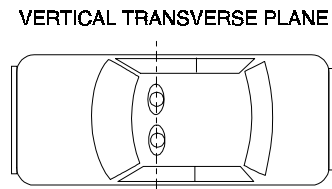
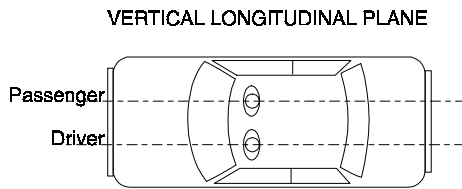
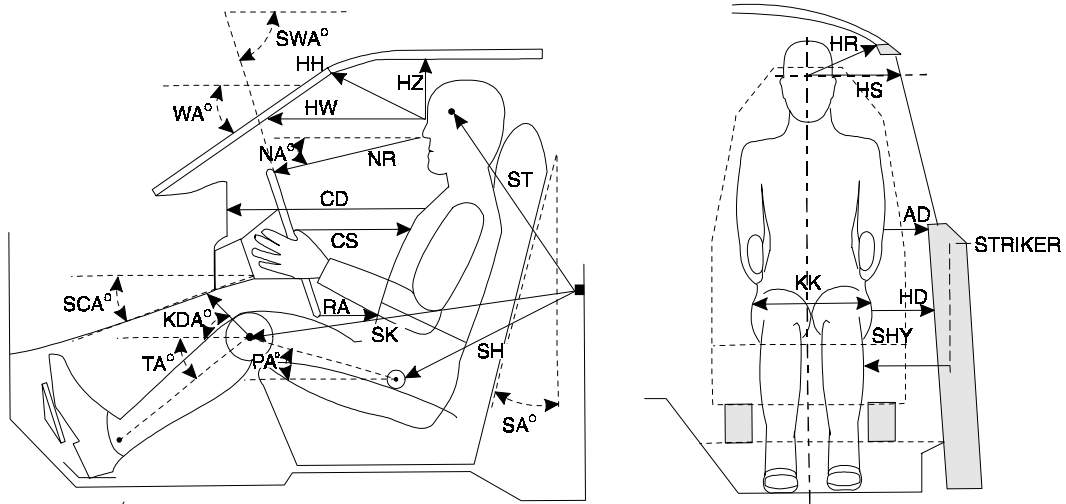


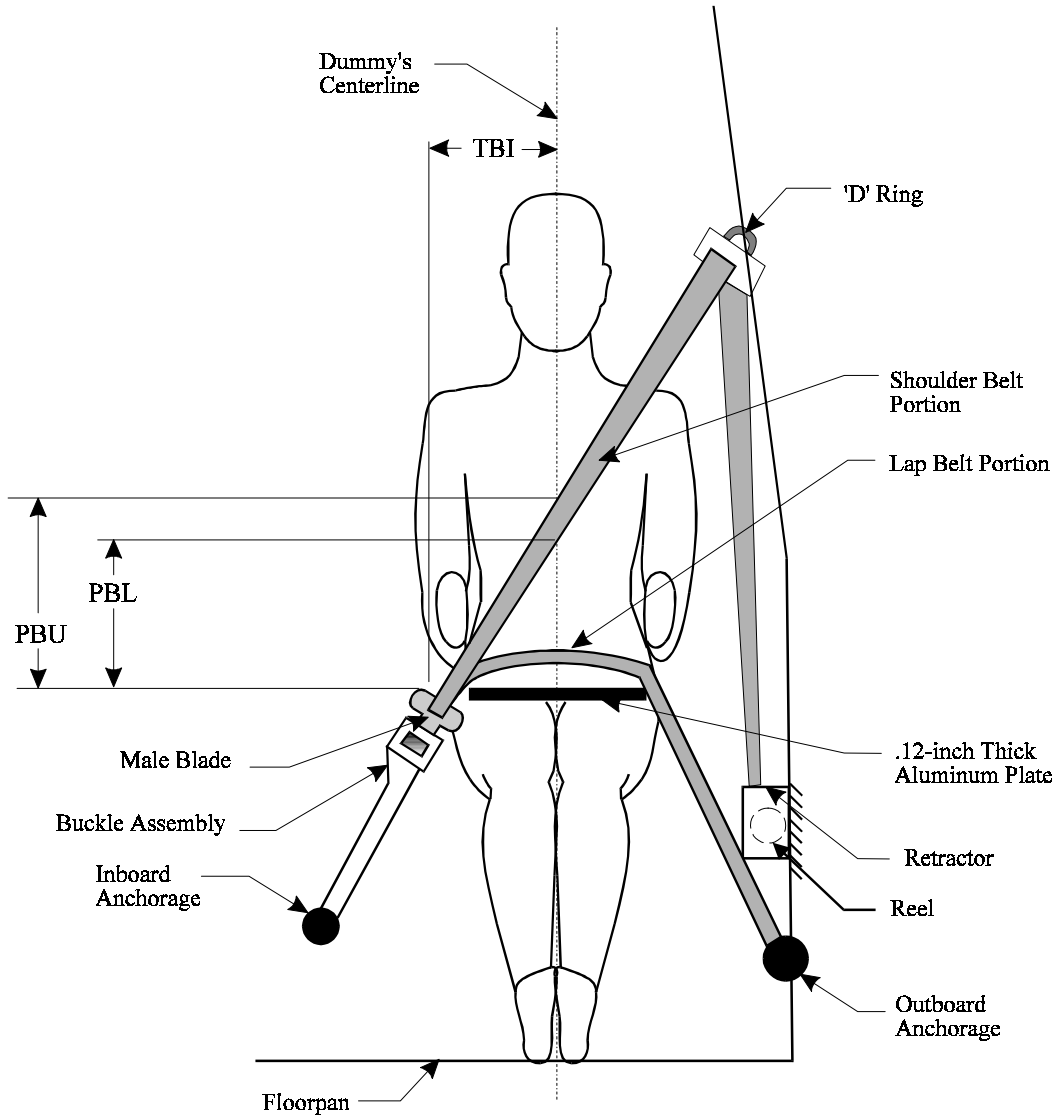
Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #192)	Passenger (Serial #142)
WA	Windshield angle	32.0°	32.0°
SWA	Steering wheel angle	63.3°	NA
SCA	Steering column angle	26.7°	NA
SA	Seat back angle	21.3°	21.3°
HZ	Head to roof	230 mm	235 mm
HH	Head to header	423 mm	430 mm
HW	Head to windshield	653 mm	648 mm
HR	Head to side header	227 mm	215 mm
NR	Nose to rim	411 mm	NA
NA	Nose to rim angle	12.6°	NA
CD	Chest to dash	570 mm	545 mm
CS	Steering wheel to chest	317 mm	NA
RA	Rim to abdomen	188 mm	NA
KDL	Left knee to dash	145 mm	169 mm
KDR	Right knee to dash	142 mm	165 mm
KDA	Outboard knee to dash angle	39.9°	27.2°
PA	Pelvic angle	21.5°	23.4°
TA	Tibial angle	50.2°	53.9°
KK	Knee to knee	322 mm	270 mm
ST ¹	Striker to head	622 mm	615 mm
	Striker to head angle	-75.9°	-78.3°
SK ¹	Striker to knee	646 mm	663 mm
	Striker to knee angle	-4.8°	-6.3°
SH ¹	Striker to H-point	273 mm	291 mm
	Striker to H-point angle	6.3°	5.2°
SHY	Striker to H-point (Y dir.)	268 mm	255 mm
HS	Head to side window	349 mm	342 mm
HD	H-point to door	160 mm	156 mm
AD	Arm to door	148 mm	155 mm

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

¹ A negative angle indicates the measurement point was above the striker.

Figure 9 Seat Belt Positioning Data



	Driver	Passenger
PBU - Top surface of aluminum plate to belt upper edge	346 mm	346 mm
PBL - Top surface of aluminum plate to belt lower edge	277 mm	267 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	305 mm	312 mm

Figure 10 Camera Positions

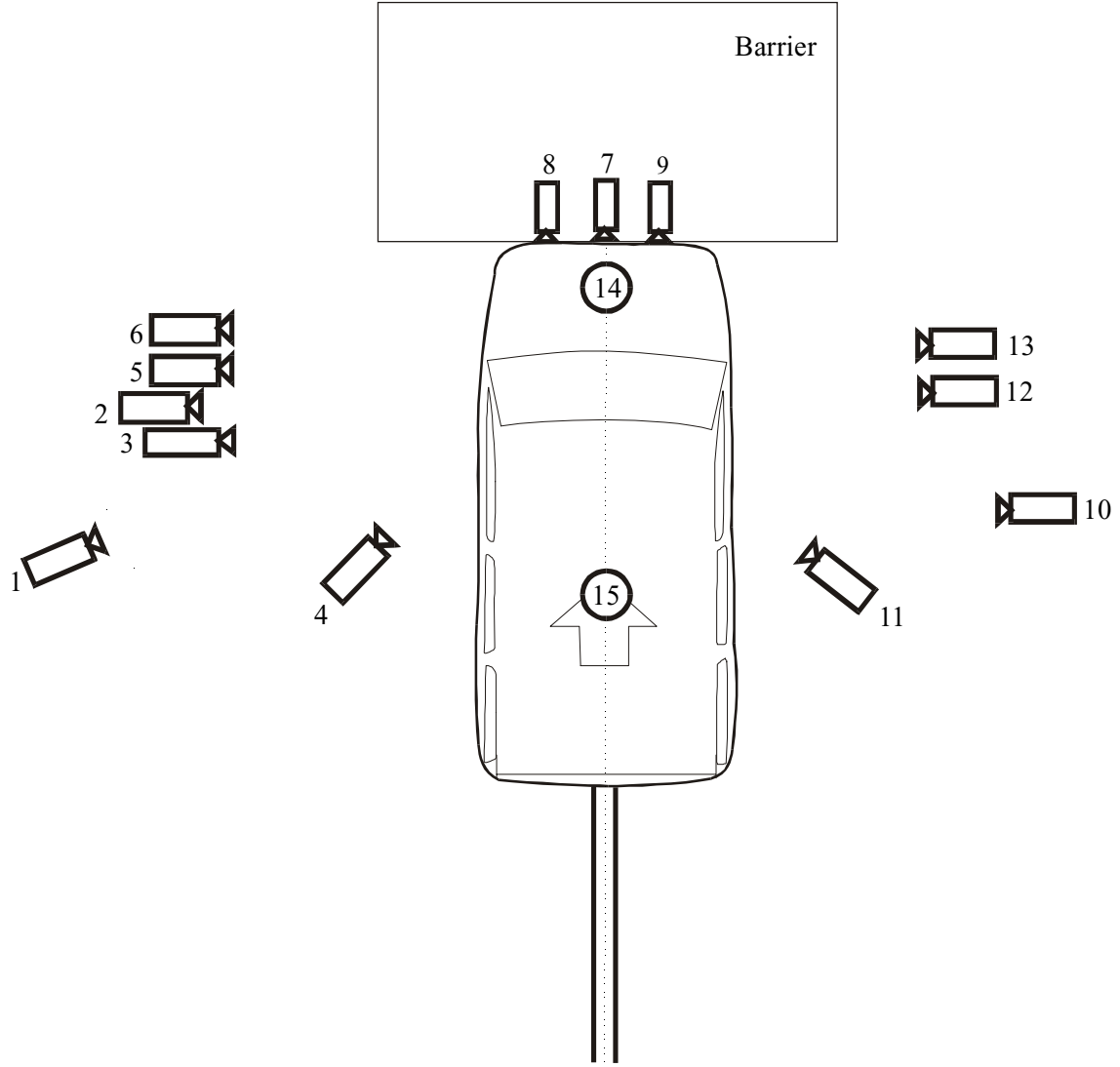


Table 13 Motion Picture Camera Locations

Test Number: 001016-1

Vehicle Year/Make/Model/Body Style: 2001/Nissan/Quest/MPV

Camera Number	View	Camera Positions ¹			Angle ²	Film Plane to Head Target	Lens	Film Speed
		X	Y	Z				
1	Real-time panning	NA	NA	NA	NA	NA	16 mm	24 frames/s
2	Column movement - upper	-1651 mm	8230 mm	2713 mm	NA	NA	25 mm	997 frames/s
3	Column movement - lower	-1651 mm	8230 mm	1651 mm	NA	NA	25 mm	975 frames/s
4	Dummy angled view	-2548 mm	2438 mm	2057 mm	NA	NA	25 mm	970 frames/s
5	Left medium tight	-1168 mm	6706 mm	1529 mm	NA	NA	25 mm	1007 frames/s
6	Left windshield intrusion	-914 mm	6629 mm	1422 mm	NA	NA	50 mm	997 frames/s
7	Windshield - barrier center	-25 mm	0 mm	2565 mm	NA	NA	8.5 mm	997 frames/s
8	Driver - barrier view	-76 mm	4699 mm	2489 mm	NA	NA	17 mm	997 frames/s
9	Passenger - barrier view	-76 mm	-4470 mm	2489 mm	NA	NA	17 mm	1000 frames/s
10	Right side overall	-2667 mm	-8153 mm	1384 mm	NA	NA	13 mm	1000 frames/s
11	Passenger angled view	-211 mm	-2489 mm	2121 mm	NA	NA	25 mm	1025 frames/s
12	Right medium tight	-1346 mm	-6604 mm	1473 mm	NA	NA	25 mm	1030 frames/s
13	Right windshield intrusion	-1016 mm	-6604 mm	1326 mm	NA	NA	50 mm	1000 frames/s
14	Crush & fluid spillage - front pit	NA	NA	NA	NA	NA	13 mm	1000 frames/s
15	Fluid spillage - rear pit	NA	NA	NA	NA	NA	13 mm	1000 frames/s

¹ +X = Film plane forward of barrier face
+Y = Film plane to left of monorail centerline
+Z = Film plane above ground level
² +Angle = Film plane angled upward from horizontal plane

Figure 11 Vehicle Target Locations

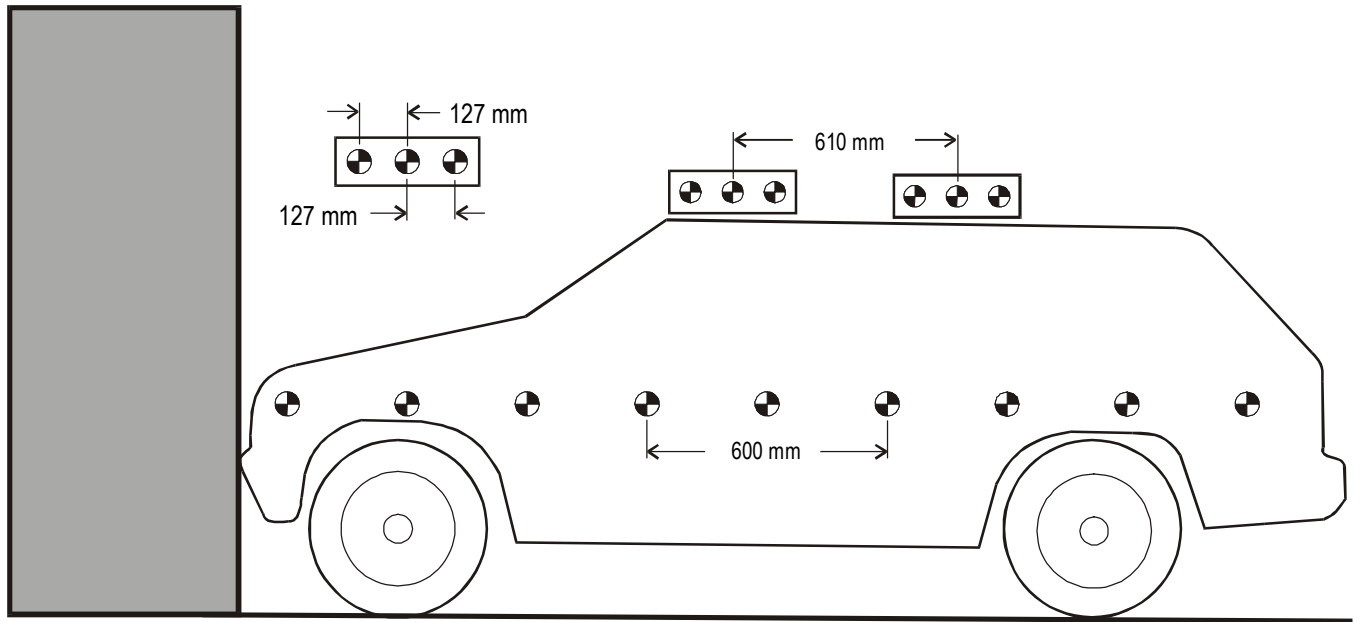


Figure 12 Pre-Test And Post-Test Measurement Points

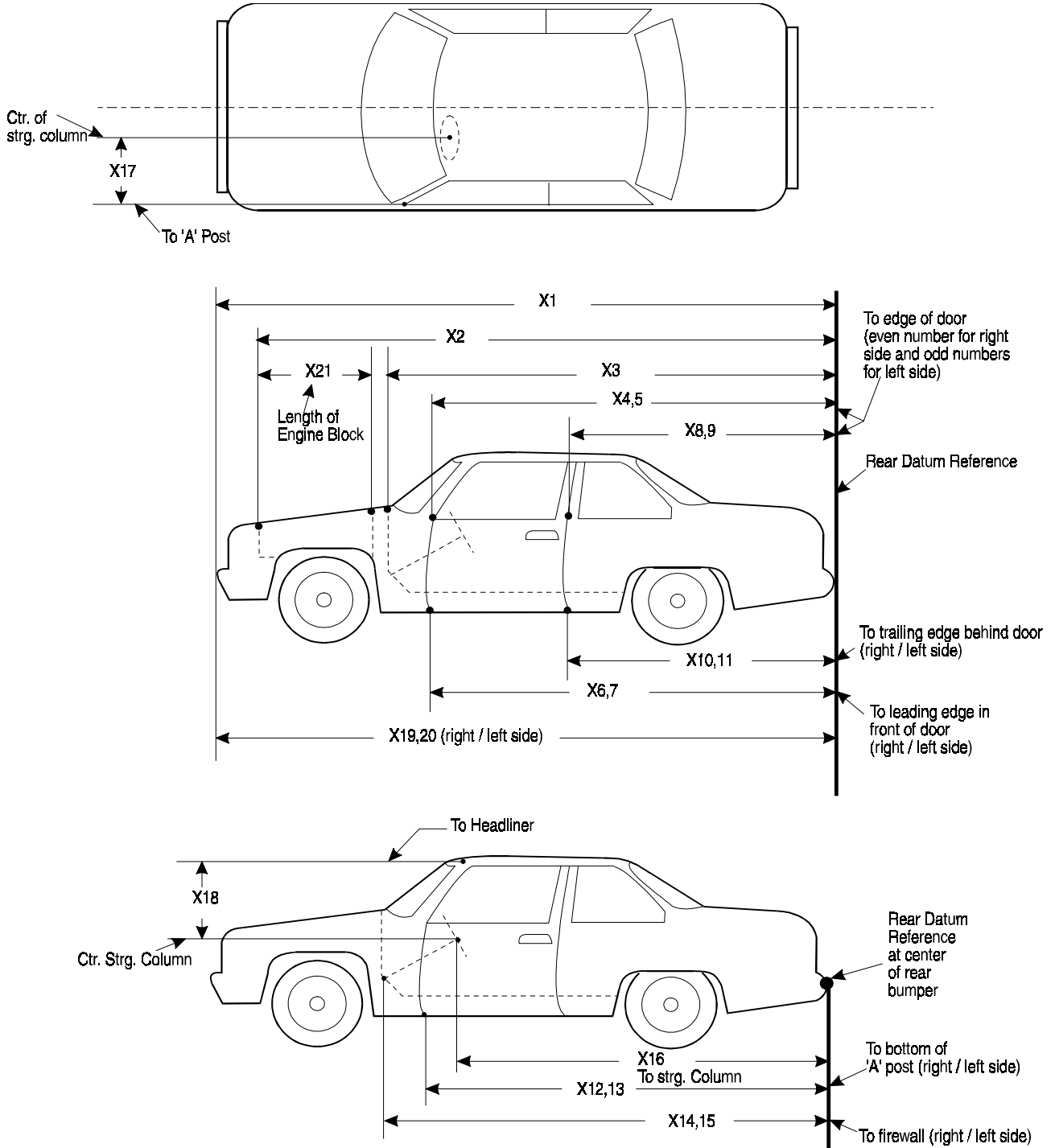


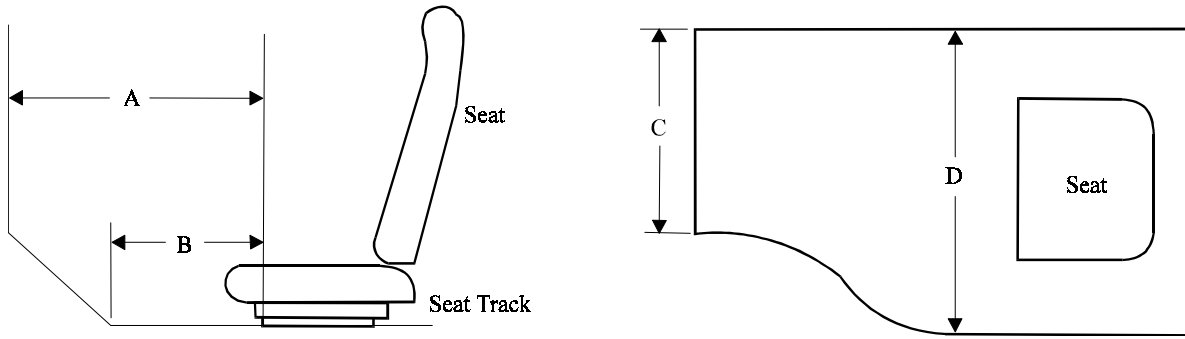
Table 14 Impacted Vehicle Measurements

Test number: 001016-1

Vehicle year/make/model/body style: 2001/Nissan/Quest/MPV

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Veh. at Centerline	5387	4892	495
X2	Rear Surface of Veh. to Front of Engine Block	4863	4584	279
X3	Rear Surface of Veh. to Firewall	4453	4439	14
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3966	3956	10
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3962	3955	7
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3877	3850	27
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3875	3860	15
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2851	2841	10
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2847	2839	8
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2881	2854	27
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2885	2859	26
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3955	3933	22
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3958	3946	12
X14	Rear Surface of Veh. to Firewall--Right Side	4359	4310	49
X15	Rear Surface of Vehicle to Firewall --Left Side	4359	4295	64
X16	Rear Surface of Veh. to Steering Wheel Center	3515	3483	32
X17	Center of Steering Column to " A " Post	298	334	-36
X18	Center of Steering Column to Headliner	449	405	44
X19	Rear Surface of Veh. to Right Side of Front Bumper	5235	4767	468
X20	Rear Surface of Veh. to Left Side of Front Bumper	5229	4930	299
X21	Length of Engine Block	400	400	0

Figure 13 Vehicle Intrusion Measurements
Static Footwell Deformation



Driver's Side

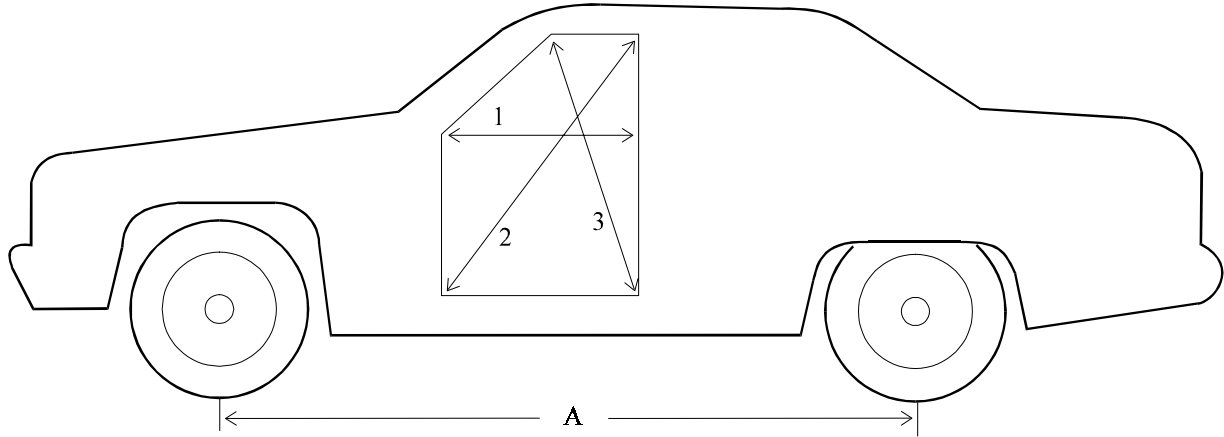
Measurement	Pre-Test	Post-Test	Difference
A	730 mm	678 mm	52 mm
B	597 mm	563 mm	34 mm
C	490 mm	457 mm	33 mm
D	490 mm	490 mm	0 mm

Passenger's Side

Measurement	Pre-Test	Post-Test	Difference
A	660 mm	580 mm	80 mm
B	592 mm	560 mm	32 mm
C	425 mm	410 mm	15 mm
D	442 mm	435 mm	7 mm

Figure 14 Vehicle Intrusion Measurements

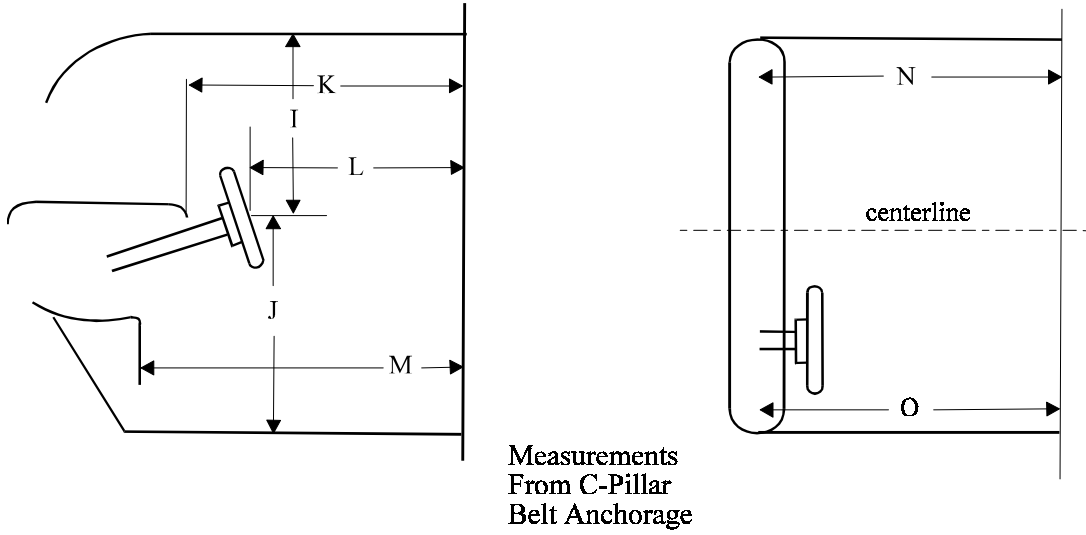
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1070 mm	1540 mm	1185 mm	1070 mm	1545 mm	1181 mm
Post-Test	1052 mm	1536 mm	1192 mm	158 mm	1541 mm	1185 mm
Difference	18 mm	4 mm	-7 mm	912 mm	4mm	-4 mm

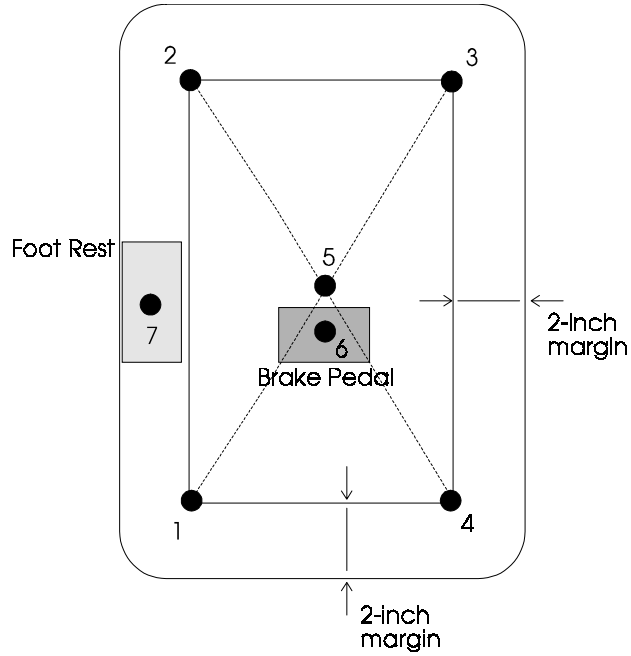
Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2850 mm	2850 mm
Post-Test	2753 mm	2750 mm
Difference	97 mm	100 mm

Figure 15 Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



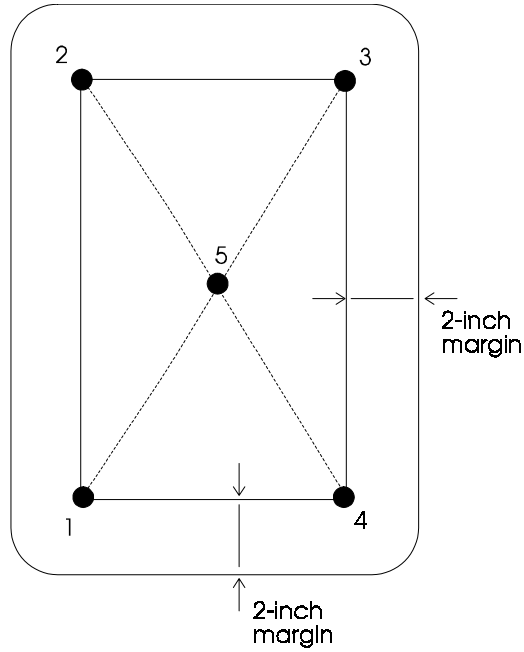
Measurement	Pre-Test	Post-Test	Difference
I	420 mm	446 mm	-26 mm
J	725 mm	725 mm	0 mm
K (driver's side)	1922 mm	1912 mm	10 mm
L	1721 mm	1655 mm	66 mm
M (driver's side)	2065 mm	2005 mm	60 mm
N	1900 mm	1870 mm	30 mm
O	1950 mm	1930 mm	20 mm
Passenger's side	2050 mm	2030 mm	20 mm
Passenger's side	2180 mm	2130 mm	50 mm

Figure 16 Driver Toeboard Measurements



Driver Side			
		X	Z
1	Pre-Test	835 mm	358 mm
	Post-Test	826 mm	357 mm
	Crush	9 mm	1 mm
2	Pre-Test	1420 mm	589 mm
	Post-Test	1365 mm	650 mm
	Crush	55 mm	-61 mm
3	Pre-Test	1484 mm	511 mm
	Post-Test	1346 mm	593 mm
	Crush	138 mm	-82 mm
4	Pre-Test	862 mm	370 mm
	Post-Test	863 mm	378 mm
	Crush	-1 mm	-8 mm
5	Pre-Test	1167 mm	365 mm
	Post-Test	1110 mm	468 mm
	Crush	57 mm	-103 mm
6	Pre-Test	1290 mm	523 mm
	Post-Test	1184 mm	641 mm
	Crush	106 mm	-118 mm
7	Pre-Test	1360 mm	495 mm
	Post-Test	1330 mm	537 mm
	Crush	30 mm	-42 mm

Figure 17 Passenger Toeboard Measurements



Passenger Side			
		X	Z
1	Pre-Test	872 mm	350 mm
	Post-Test	880 mm	360 mm
	Crush	-8 mm	-10 mm
2	Pre-Test	1481 mm	554 mm
	Post-Test	1315 mm	560 mm
	Crush	166 mm	-6 mm
3	Pre-Test	1371 mm	548 mm
	Post-Test	1320 mm	580 mm
	Crush	51 mm	-32 mm
4	Pre-Test	814 mm	365 mm
	Post-Test	814 mm	362 mm
	Crush	0 mm	3 mm
5	Pre-Test	1174 mm	361 mm
	Post-Test	1125 mm	410 mm
	Crush	49 mm	-49 mm

Appendix A

Photographs

Appendix B

Data Plots

Appendix C

Dummy Certification Data

Pre-Test Certification Data

Driver Dummy S/N: 192

Pre-Test Certification Data

Passenger Dummy S/N: 142

Appendix D

Miscellaneous Test Information

Dummy Instrument Calibrations
Driver Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Head X-axis accelerometer	AFW91	7264	Endevco	09/13/00	03/13/01
Head X-axis accelerometer-redundant	AGRY2	7264	Endevco	09/13/00	03/13/01
Head Y-axis accelerometer	AAKB3	7264	Endevco	09/11/00	03/13/01
Head Y-axis accelerometer-redundant	ACCP9	7264	Endevco	09/11/00	03/13/01
Head Z-axis accelerometer	AGRP4	7264	Endevco	09/13/00	03/13/01
Head Z-axis accelerometer-redundant	AGMY3	7264	Endevco	09/13/00	03/13/01
Chest X-axis accelerometer	AAKE2	7264	Endevco	09/13/00	03/13/01
Chest X-axis accelerometer-redundant	AF9Y3	7264	Endevco	09/13/00	03/13/01
Chest Y-axis accelerometer	AGAG0	7264	Endevco	09/13/00	03/13/01
Chest Y-axis accelerometer-redundant	AF973	7264	Endevco	09/13/00	03/13/01
Chest Z-axis accelerometer	AAJY4	7264	Endevco	09/11/00	03/11/01
Chest Z-axis accelerometer-redundant	AGN47	7264	Endevco	09/13/00	03/13/01
Left femur force load cell	0263	2121	Denton	09/20/00	03/20/01
Right femur force load cell	0264	2121	Denton	09/20/00	03/20/01
Neck X-axis force load cell	261	IF-205	First Tech.	08/31/00	03/03/01
Neck Y-axis force load cell	261	IF-205	First Tech.	08/31/00	03/03/01
Neck Z-axis force load cell	261	IF-205	First Tech.	08/31/00	03/03/01
Neck Moment about X-axis load cell	261	IF-205	First Tech.	08/31/00	03/03/01
Neck Moment about Y-axis load cell	261	IF-205	First Tech.	08/31/00	03/03/01
Neck Moment about Z-axis load cell	261	IF-205	First Tech.	08/31/00	03/03/01
Pelvis X-axis accelerometer	AALG2	7264	Endevco	09/13/00	03/20/01
Pelvis Y-axis accelerometer	AGN98	7264	Endevco	09/11/00	03/11/01
Pelvis Z-axis accelerometer	AC9P8	7264	Endevco	09/13/00	03/13/01
Chest deflection potentiometer	87313-96	14CB1-2981	Servo	10/12/00	04/12/01
Lap belt force load cell	134	3419	Lebow	04/14/00	10/14/00
Shoulder belt force load cell	610	3419	Celesco	06/06/00	12/06/00

Dummy Instrument Calibrations, Cont'd.
Driver Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left upper tibia moment about X-axis load cell	110-MX	3292	Denton	09/20/00	03/20/01
Left upper tibia moment about Y-axis load cell	110-MY	3292	Denton	09/20/00	03/20/01
Left upper tibia Z-axis Force load cell	110-FZ	3292	Denton	09/20/00	03/20/01
Right upper tibia moment about X-axis load cell	111-MX	3292	Denton	09/20/00	03/20/01
Right upper tibia moment about Y-axis load cell	111-MY	3292	Denton	09/20/00	03/20/01
Right upper tibia Z-axis Force load cell	111-FZ	3292	Denton	09/20/00	03/20/01
Left Lower tibia X-axis moment about X-axis load cell	139-MX	3093	Denton	09/20/00	03/20/01
Left Lower tibia Z-axis force load cell	139-FZ	3093	Denton	09/20/00	03/20/01
Left Lower tibia moment about Y-axis load cell	139-MY	3093	Denton	09/20/00	03/20/01
Right Lower tibia X-axis moment about X-axis load cell	142-MX	3093	Denton	09/20/00	03/20/01
Right Lower tibia Z-axis force load cell	142-FZ	3093	Denton	09/20/00	03/20/01
Right Lower tibia moment about Y-axis load cell	142-MY	3093	Denton	09/20/00	03/20/01
Left foot X-axis accelerometer	J19873	7264	Endevco	10/11/00	04/11/01
Left foot heel Z-axis accelerometer	J19236	7264	Endevco	10/11/00	04/11/01
Left foot toe Z-axis accelerometer	J23772	7264	Endevco	10/11/00	04/11/01
Right foot X-axis accelerometer	J23918	7264	Endevco	10/11/00	04/11/01
Right foot heel Z-axis accelerometer	EH75J	7264	Endevco	10/11/00	04/11/01
Right foot toe Z-axis accelerometer	FJ66J	7264	Endevco	10/11/00	04/11/01

Dummy Instrument Calibrations, Cont'd.
Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Head X-axis accelerometer	J27523	7264	Endevco	09/19/00	03/19/01
Head X-axis accelerometer-redundant	J35562	7264	Endevco	09/13/00	03/13/01
Head Y-axis accelerometer	J29023	7264	Endevco	09/19/00	03/19/01
Head Y-axis accelerometer-redundant	J27461	7264	Endevco	09/19/00	03/19/01
Head Z-axis accelerometer	J29006	7264	Endevco	09/19/00	03/19/01
Head Z-axis accelerometer-redundant	J27457	7264	Endevco	09/19/00	03/19/01
Chest X-axis accelerometer	J27466	7264	Endevco	09/20/00	03/20/01
Chest X-axis accelerometer-redundant	AAL32	7264	Endevco	09/13/00	03/13/01
Chest Y-axis accelerometer	J27470	7264	Endevco	09/20/00	03/20/01
Chest Y-axis accelerometer-redundant	AGT82	7264	Endevco	09/13/00	03/13/01
Chest Z-axis accelerometer	J27509	7264	Endevco	09/20/00	03/20/01
Chest Z-axis accelerometer-redundant	AGR67	7264	Endevco	09/13/00	03/13/01
Left femur force load cell	0257	2121	Denton	09/20/00	03/20/01
Right femur force load cell	0258	2121	Denton	09/20/00	03/20/01
Neck X-axis force load cell	260-FX	IF-205	First Tech.	08/30/00	03/02/01
Neck Y-axis force load cell	260-FY	IF-205	First Tech.	08/30/00	03/02/01
Neck Z-axis force load cell	260-FZ	IF-205	First Tech.	08/30/00	03/02/01
Neck Moment about X-axis load cell	260-MX	IF-205	First Tech.	08/30/00	03/02/01
Neck Moment about Y-axis load cell	260-MY	IF-205	First Tech.	08/30/00	03/02/01
Neck Moment about Z-axis load cell	260-MZ	IF-205	First Tech.	08/30/00	03/02/01
Pelvis X-axis accelerometer	AAKA1	7264	Endevco	09/13/00	03/13/01
Pelvis Y-axis accelerometer	ADAL2	7264	Endevco	09/13/00	03/13/01
Pelvis Z-axis accelerometer	AAKA2	7264	Endevco	09/13/00	03/13/01
Chest deflection potentiometer	142	14CB1-2981	Servo	10/11/00	04/11/01
Lap belt force load cell	612	3419	Lebow	04/14/00	10/14/00
Shoulder belt force load cell	571	3419	Lebow	06/05/00	12/05/00

Dummy Instrument Calibrations, Cont'd.
Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left upper tibia moment about X-axis load cell	107-MX	3292	Denton	09/21/00	03/21/01
Left upper tibia moment about Y-axis load cell	107-MY	3292	Denton	09/21/00	03/21/01
Left upper tibia Z-axis Force load cell	107-FZ	3292	Denton	09/21/00	03/21/01
Right upper tibia moment about X-axis load cell	108-MX	3292	Denton	09/21/00	03/21/01
Right upper tibia moment about Y-axis load cell	108-MY	3292	Denton	09/21/00	03/21/01
Right upper tibia Z-axis Force load cell	108-FZ	3292	Denton	09/21/00	03/21/01
Left Lower tibia moment about X-axis load cell	137-MX	3093	Denton	09/21/00	03/21/01
Left Lower tibia Z-axis force load cell	137-FZ	3093	Denton	09/21/00	03/21/01
Left Lower tibia moment about Y-axis load cell	137-MY	3093	Denton	09/21/00	03/21/01
Right Lower tibia moment about X-axis load cell	136-MX	3093	Denton	09/21/00	03/21/01
Right Lower tibia Z-axis force load cell	136-FZ	3093	Denton	09/21/00	03/21/01
Right Lower tibia moment about Y-axis load cell	136-MY	3093	Denton	09/21/00	03/21/01
Left foot heel X-axis accelerometer	AJ507	7264	Endevco	10/11/00	04/21/01
Left foot heel Z-axis accelerometer	J19925	7264	Endevco	10/11/00	04/21/01
Left foot toe Z-axis accelerometer	J35564	7264	Endevco	09/13/00	03/13/01
Right foot heel X-axis accelerometer	J14232	7264	Endevco	10/11/00	04/21/01
Right foot heel Z-axis accelerometer	AJ4R3	7264	Endevco	10/11/00	04/21/01
Right foot toe Z-axis accelerometer	J17988	7264	Endevco	10/01/00	04/01/01

Vehicle and Calibration Laboratory Instrument Calibrations

Vehicle Accelerometers

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left rear seat crossmember X-axis	J3616	7264	Endevco	08/07/00	02/07/01
Left rear seat crossmember X-axis redundant	J34531	7264	Endevco	10/04/00	04/04/01
Right rear seat crossmember X-axis	J36141	7264	Endevco	08/07/00	02/07/01
Right rear seat Crossmember X-axis redundant	J30364	7264	Endevco	09/13/00	03/13/01
Engine top X-axis	J21941	7264	Endevco	10/04/00	04/04/01
Engine bottom X-axis	A34FJ	7264	Endevco	09/22/00	03/22/01
Right brake caliper X-axis	J27684	7264	Endevco	10/03/00	04/03/01
Left brake caliper X-axis	J25527	7264	Endevco	05/31/00	12/01/00
Instrument panel center X-axis	J36270	7264	Endevco	07/14/00	01/14/01

Calibration Laboratory Instruments

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco	04/28/00	10/28/00
Neck bending rotary potentiometer	9439EG (Beta3)	6657S-1-102	Bourns	04/28/00	10/28/00
Neck bending rotary potentiometer	9618EL (Theta3)	6657S-1-102	Bourns	04/28/00	10/28/00
Thorax/Hybrid III femur pendulum accelerometer	CC64	7232	Endevco	04/28/00	10/28/00
Hybrid III femur pendulum accelerometer	CB35	7232	Endevco	04/28/00	10/28/00
Hip flexion torque transducer	940	2110-5K	Eaton	10/21/99	10/21/00
Hybrid III femur pendulum accelerometer	0218	6209-2038	JDK	04/05/00	10/05/00

Sign Convention
SAE J211 Sign Convention
(used for NHTSA format data diskettes)

Accelerometers:

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

Potentiometers:

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

Load cells:

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

Neck load cells:

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

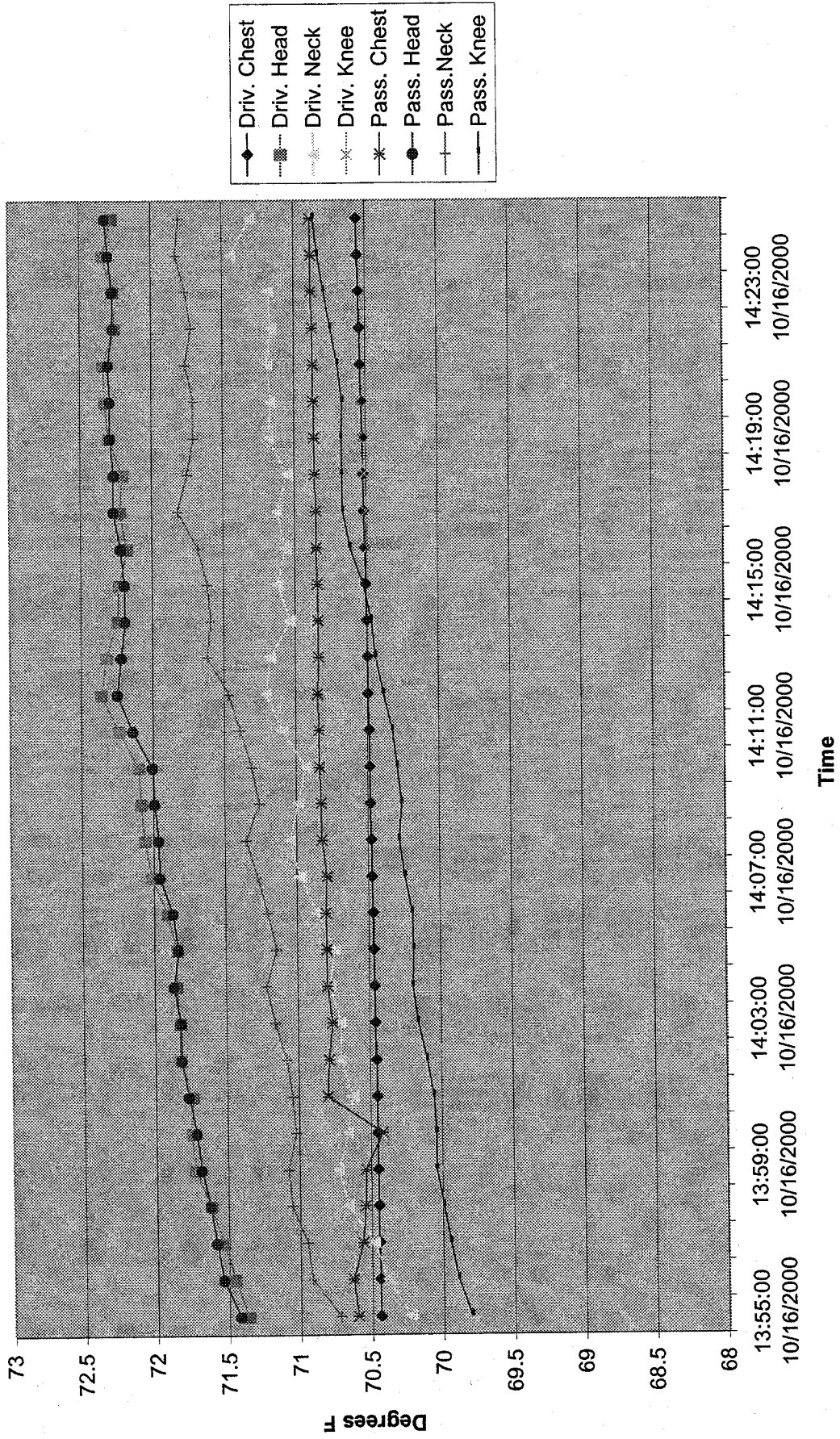
Tibia load cells:

+X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Ankle downward, femur upward (tension)
+X moment: Ankle leftward, holding knee in place
+Y moment: Ankle forward, bottom of knee clevis 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

Temperature Data 001016-1



Type: HIII S/N: 192 Mfr: Alderson Test Date: 10/16/00
Proj./Seg. No.: 20000270-0100 Test Eng. G. Watters

Item	Pre-Use
Head:	
Head Skin Condition	X
Neck:	
Rubber Condition	X
Arms and Hands:	
Skin Condition	X
Thorax:	
Jacket Condition	X
Rib Damping Material and Stiffeners Condition	X
Chest Pot Arm and Ball Movement	X
Pelvis:	
Illioc Crest Bone	X
Flesh Condition	X
Range of Motion Bumpers and Leg Cavity	X
Legs and Feet:	
Knee Skins, Inserts, and Castings Condition	X
Leg Skin Condition and Position	X
Foot Condition	X

Notes: No damage to report.

Inspection Completed By: J. Clarridge Date: 10/17/00

Type: HIII S/N: 142 Mfr: Humanoid Test Date: 10/16/00
 Proj./Seg. No.: 20000270-0100 Test Eng. G. Watters

Item	Pre-Use
Head:	
Head Skin Condition	X
Neck:	
Rubber Condition	X
Arms and Hands:	
Skin Condition	X
Thorax:	
Jacket Condition	X
Rib Damping Material and Stiffeners Condition	X
Chest Pot Arm and Ball Movement	X
Pelvis:	
Illiac Crest Bone	X
Flesh Condition	X
Range of Motion Bumpers and Leg Cavity	X
Legs and Feet:	
Knee Skins, Inserts, and Castings Condition	X
Leg Skin Condition and Position	X
Foot Condition	X

Notes: No damage to report.

Inspection Completed By: J. Clarridge Date: 10/17/00

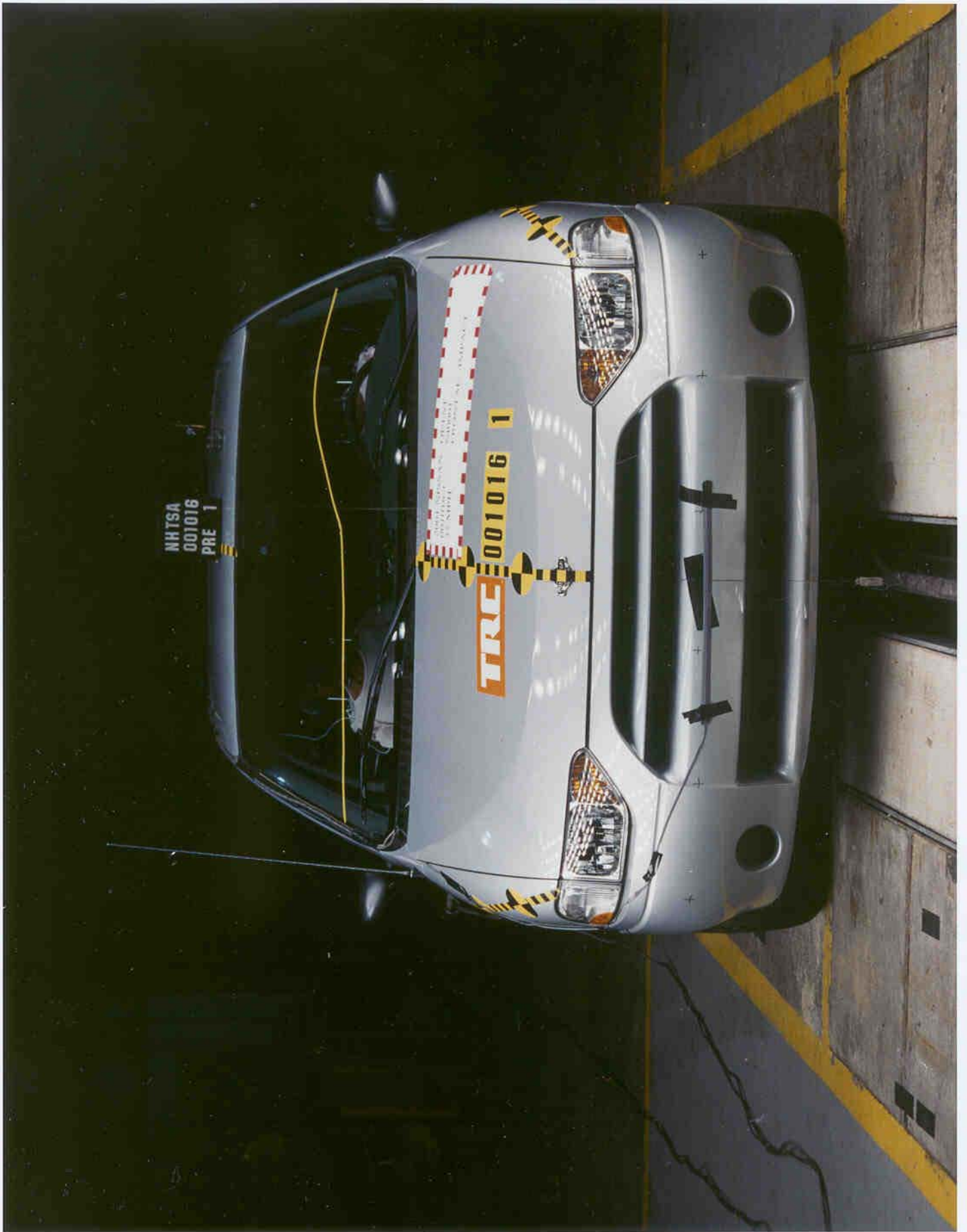


Figure A-1 Pre-Test Front View
A-2

001016-1



Figure A-2 Post-Test Front View
A-3

001016-1



Figure A-3 Pre-Test Left Side View
A-4

001016-1



Figure A-4 Post-Test Left Side View
A-5

001016-1

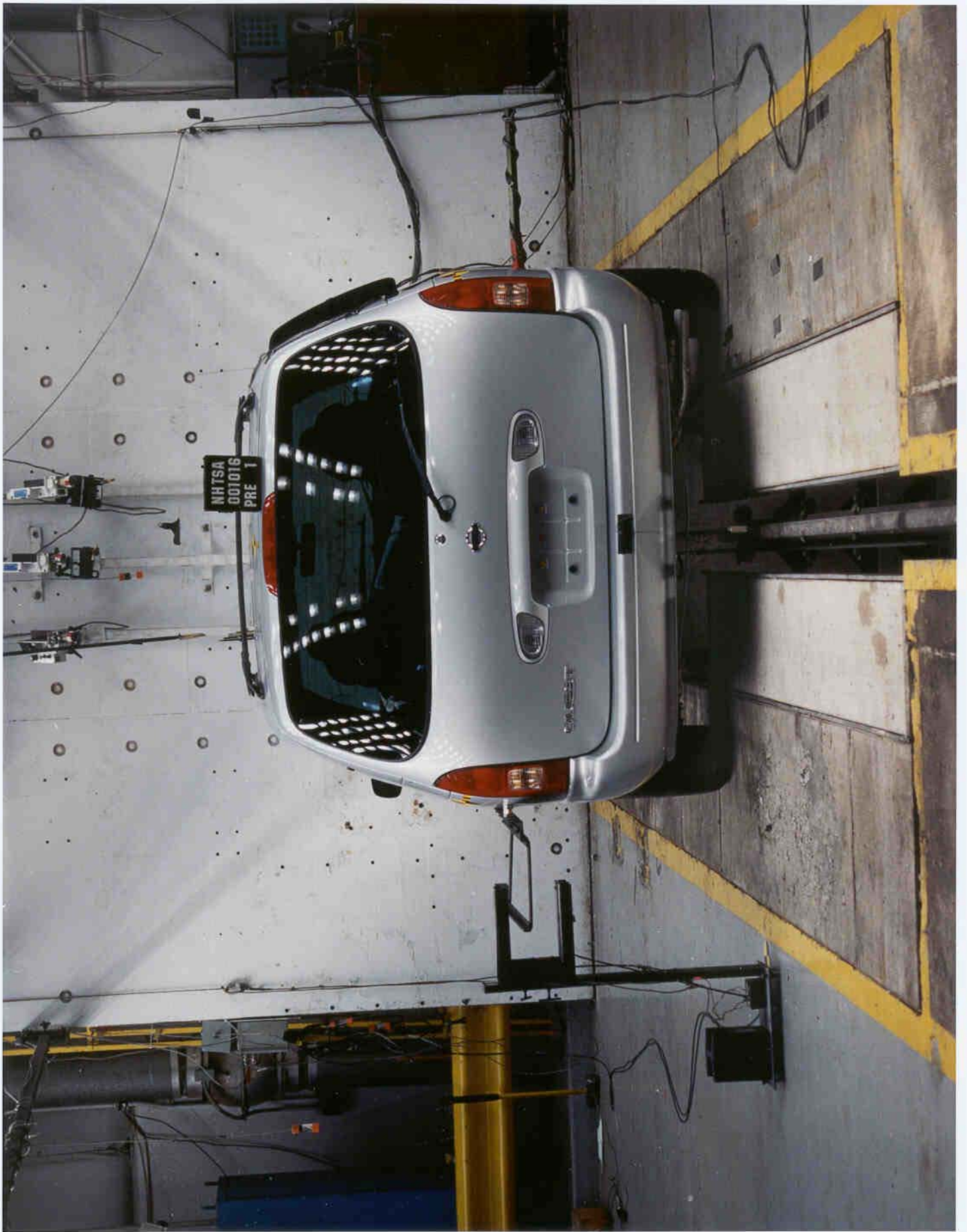


Figure A-5 Pre-Test Rear View
A-6

001016-1



Figure A-6 Post-Test Rear View
A-7

001016-1

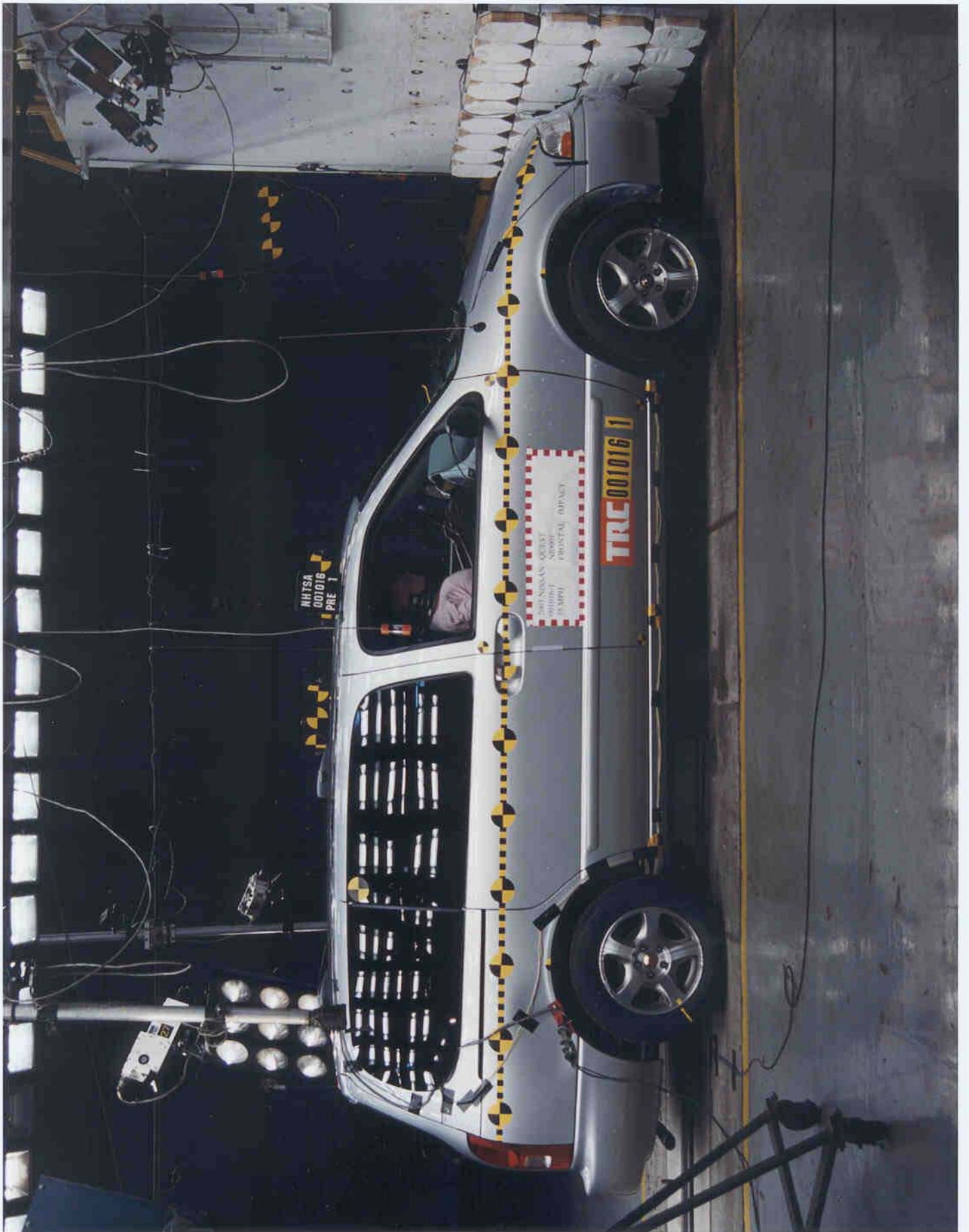


Figure A-7 Pre-Test Right Side View
A-8

001016-1

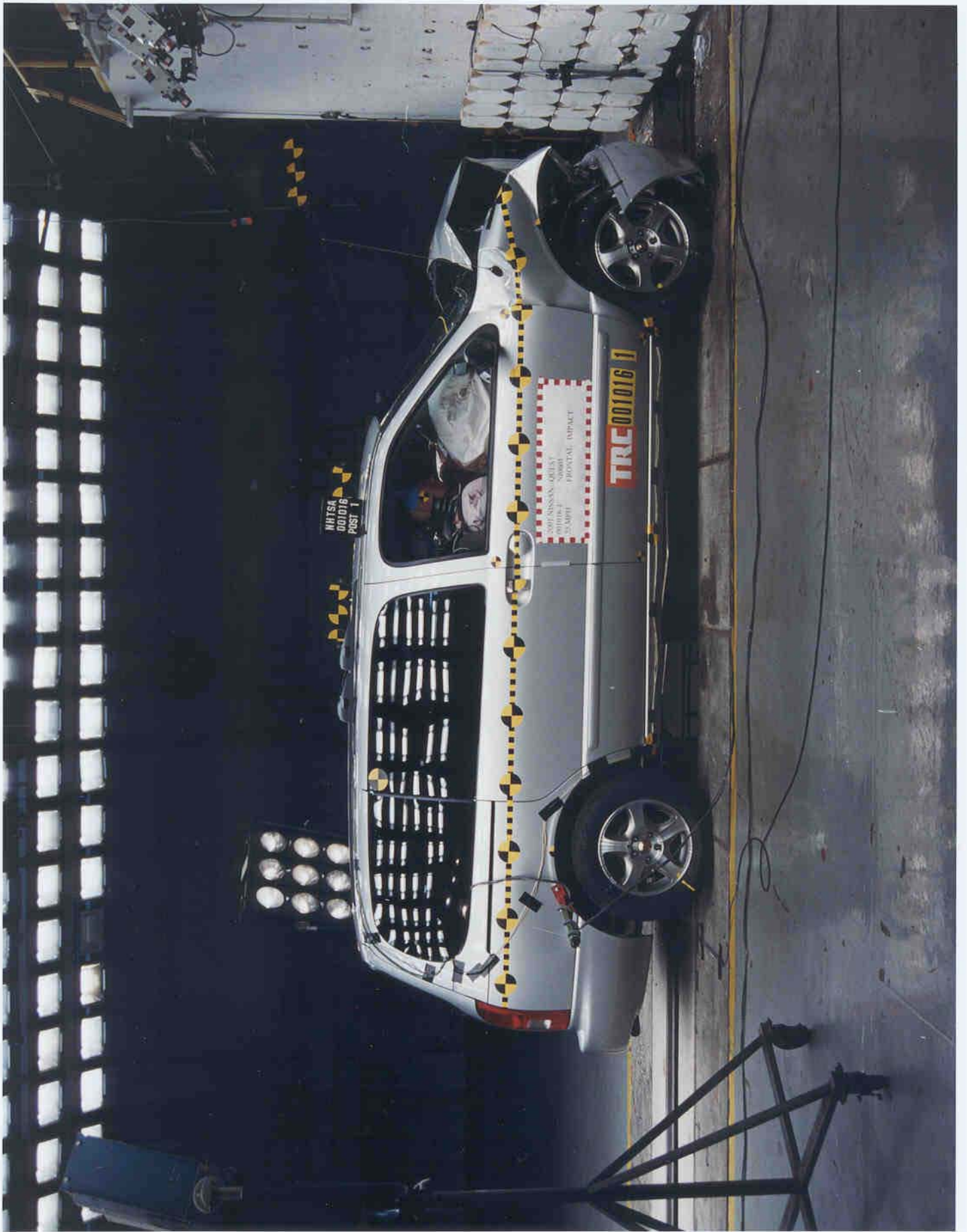


Figure A-8 Post-Test Right Side View
A-9

001016-1

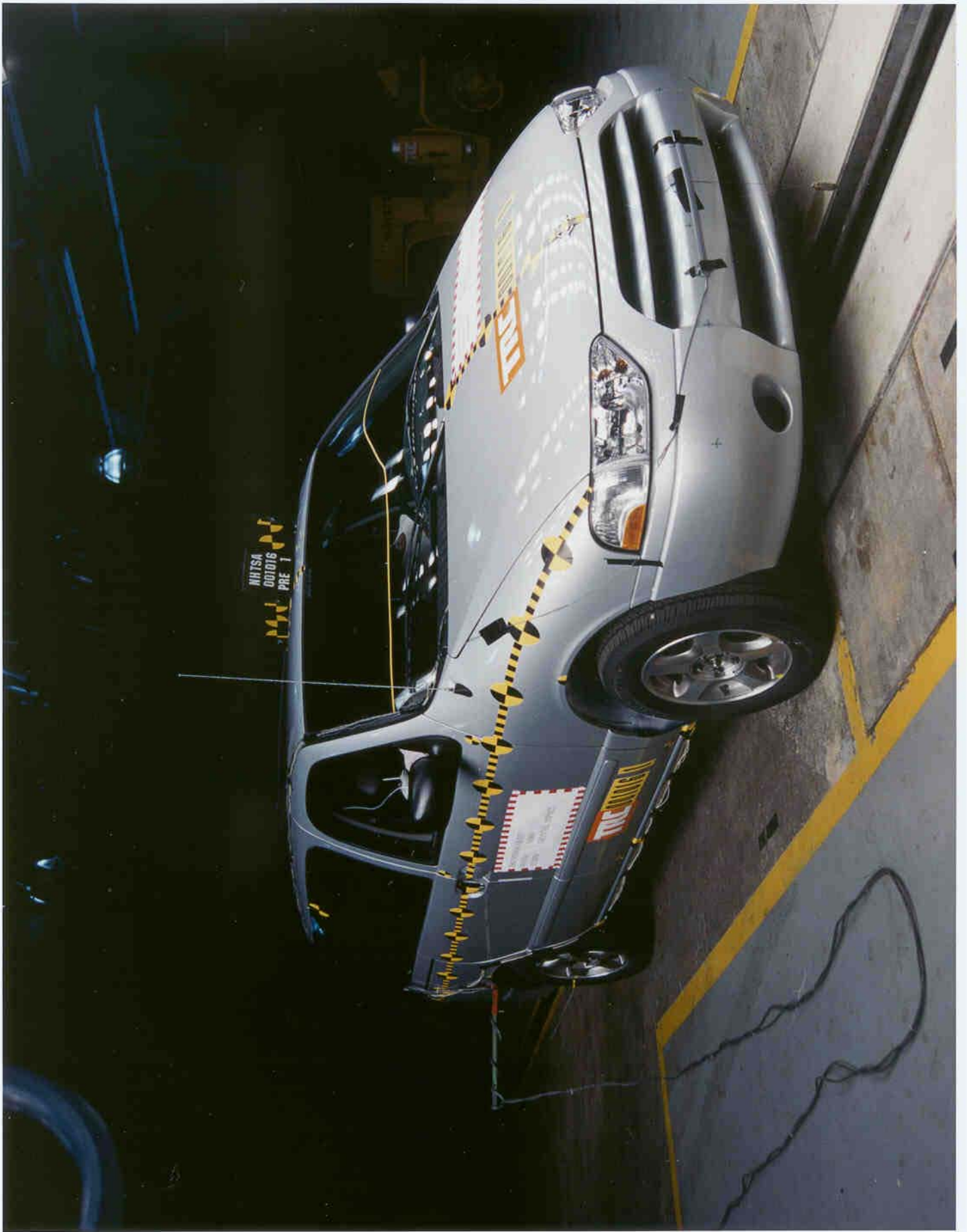


Figure A-9 Pre-Test Right Front Three-Quarter View

A-10

001016-1

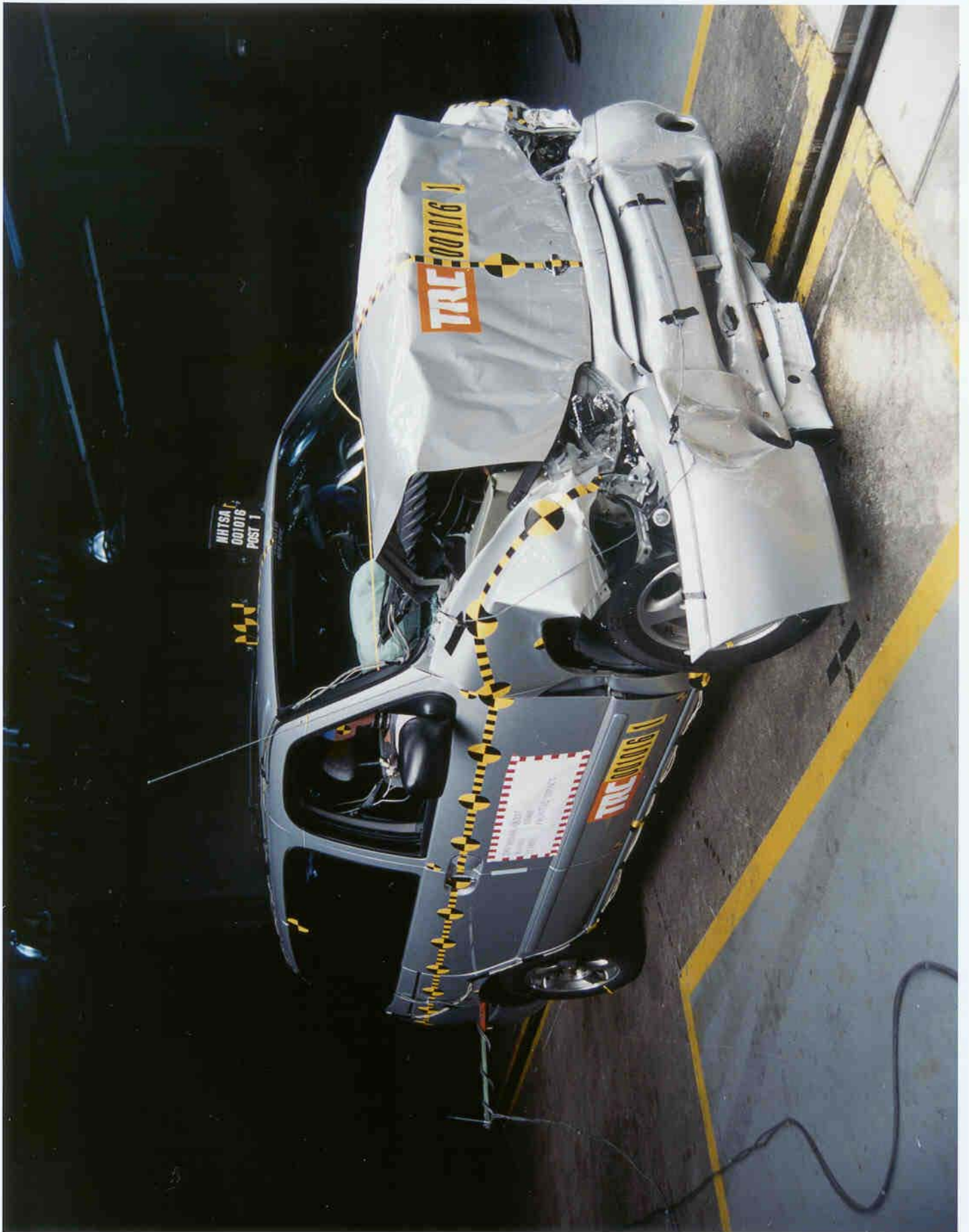


Figure A-10 Post-Test Right Front Three-Quarter View
A-11

001016-1



Figure A-11 Pre-Test Left Rear Three-Quarter View
A-12

001016-1



Figure A-12 Post-Test Left Rear Three-Quarter View
A-13

001016-1

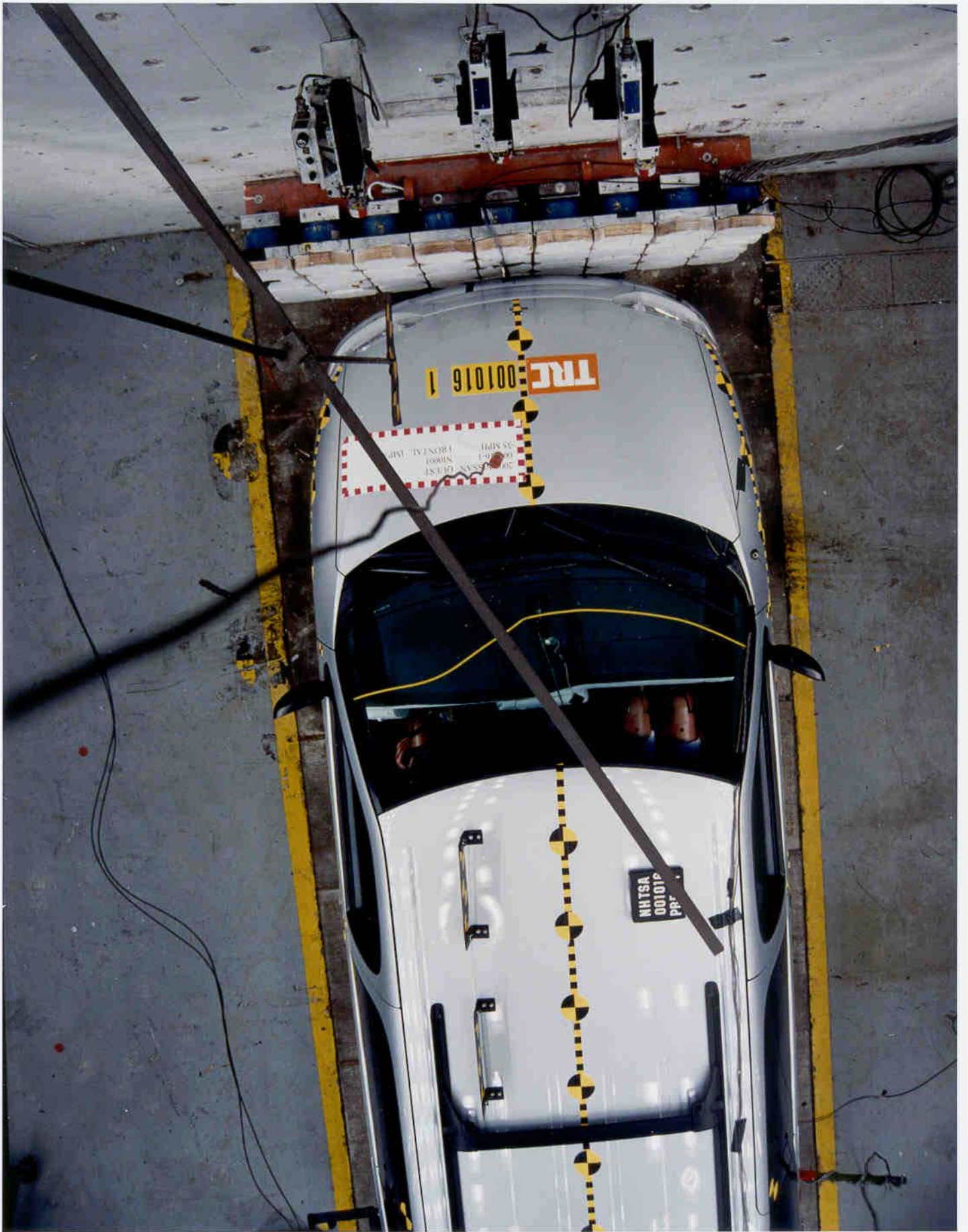


Figure A-13 Pre-Test Overhead View
A-14

001016-1

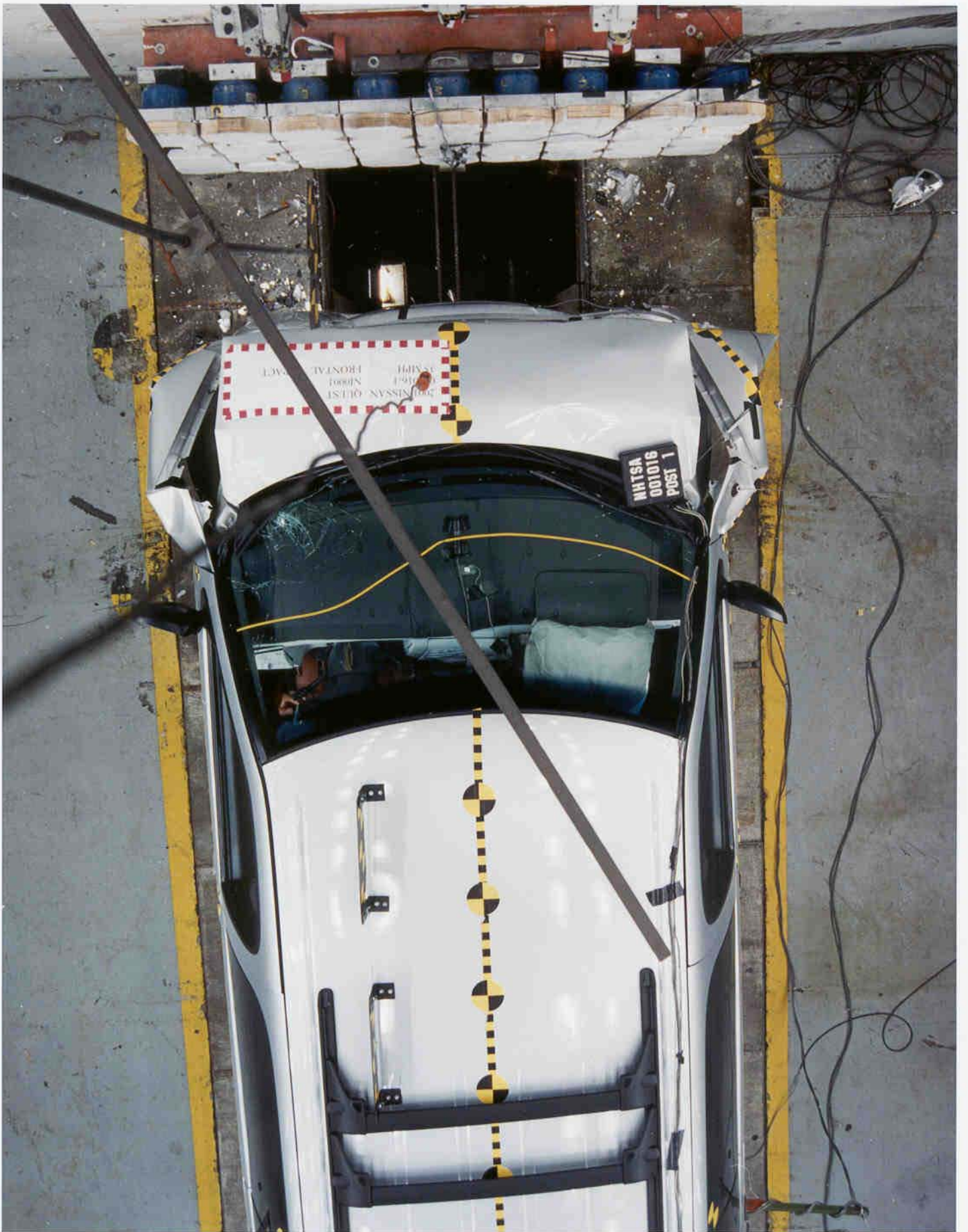


Figure A-14 Post-Test Overhead View
A-15

001016-1



Figure A-15 Pre-Test Windshield View
A-16

001016-1

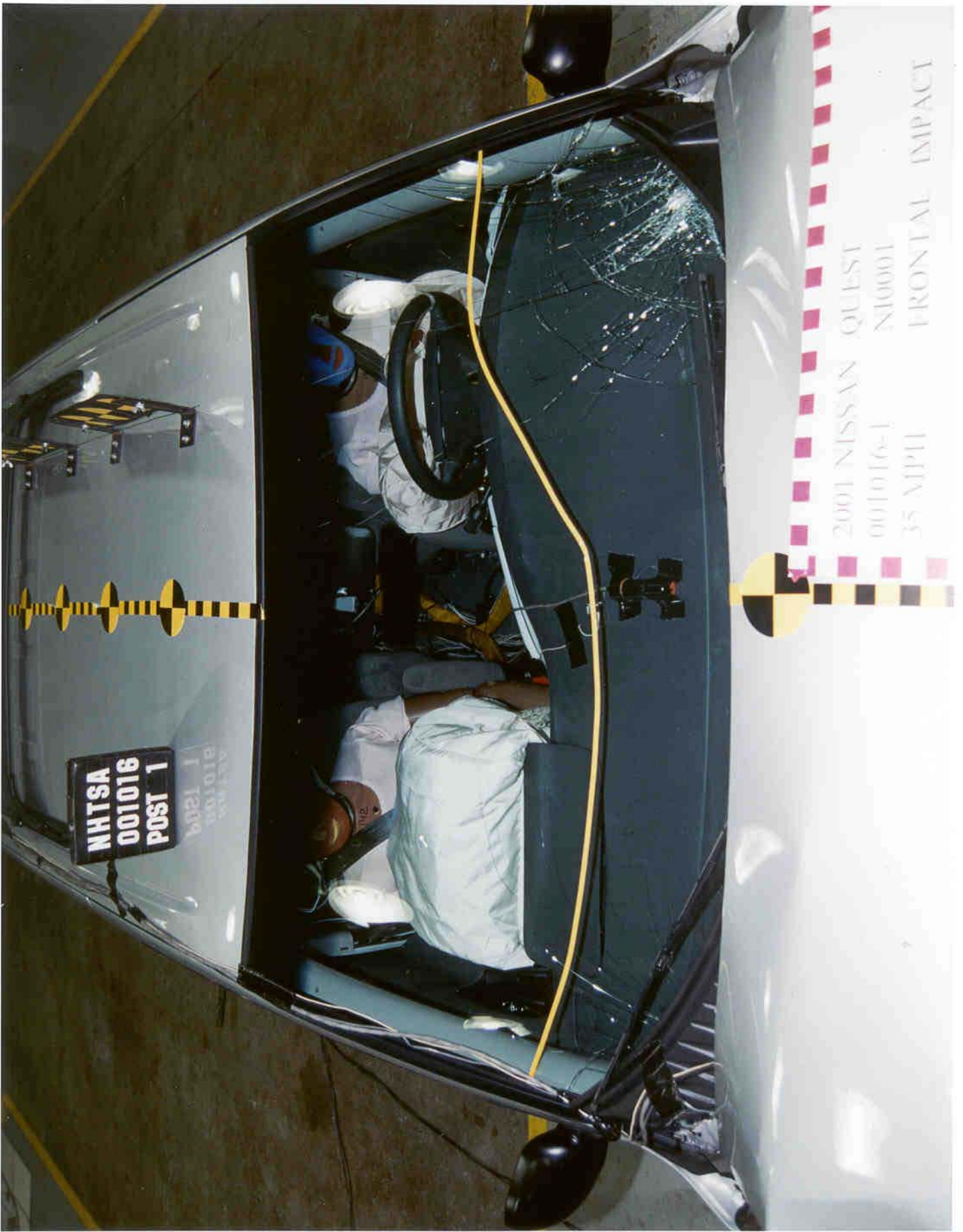


Figure A-16 Post-Test Windshield - View 1

A-17

001016-1

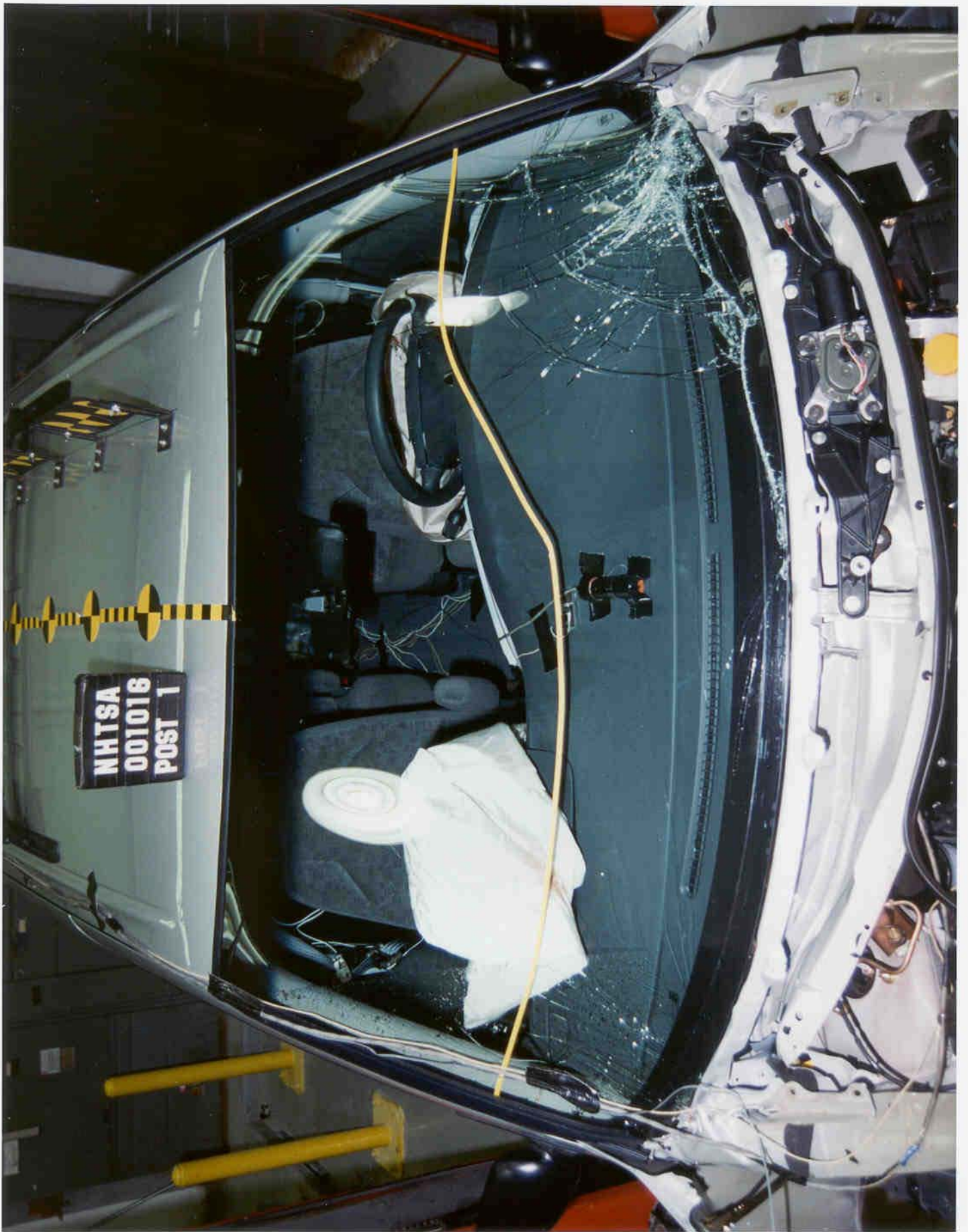


Figure A-17 Post-Test Windshield - View 2

A-18

001016-1

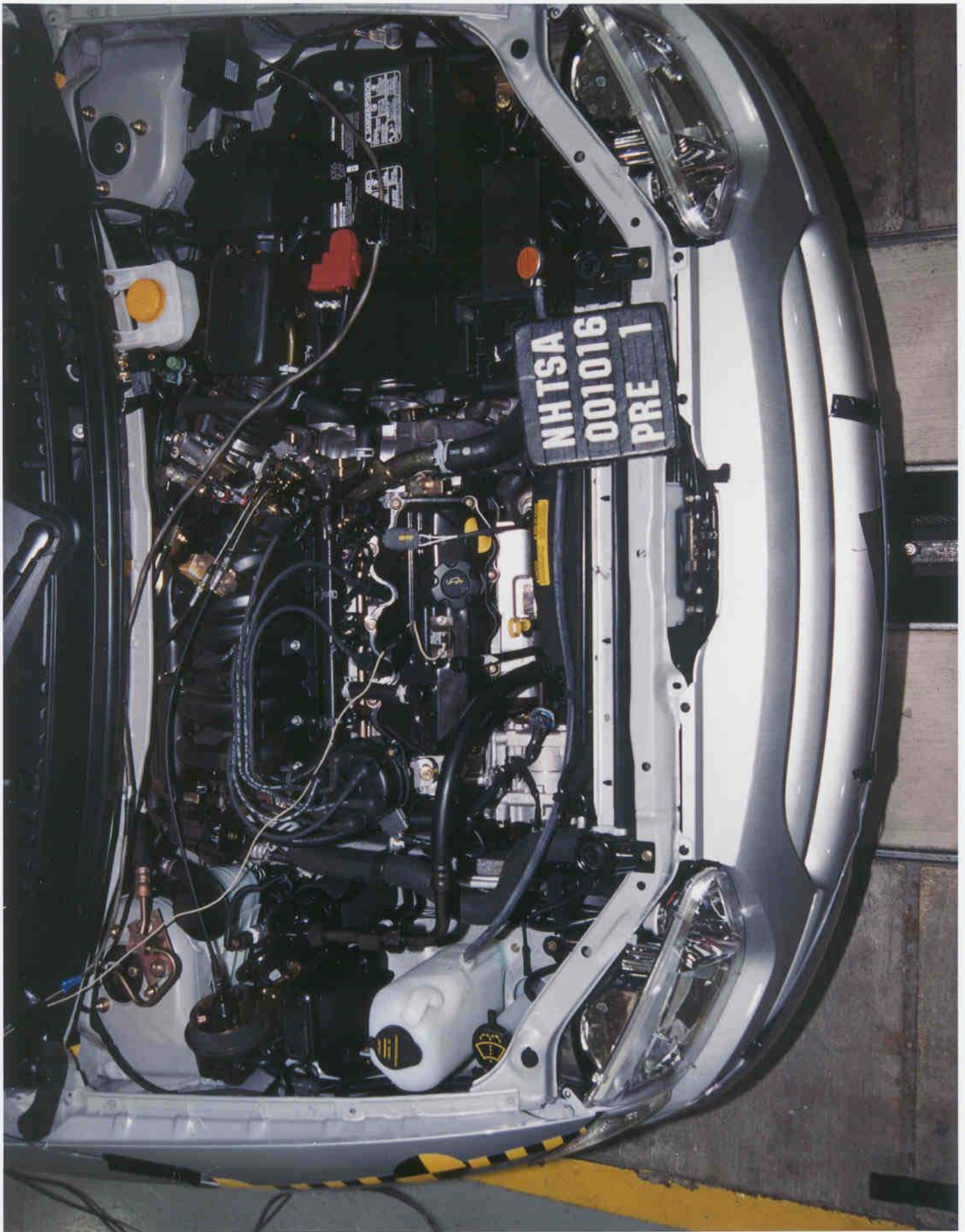


Figure A-18 Pre-Test Engine Compartment View
A-19

001016-1

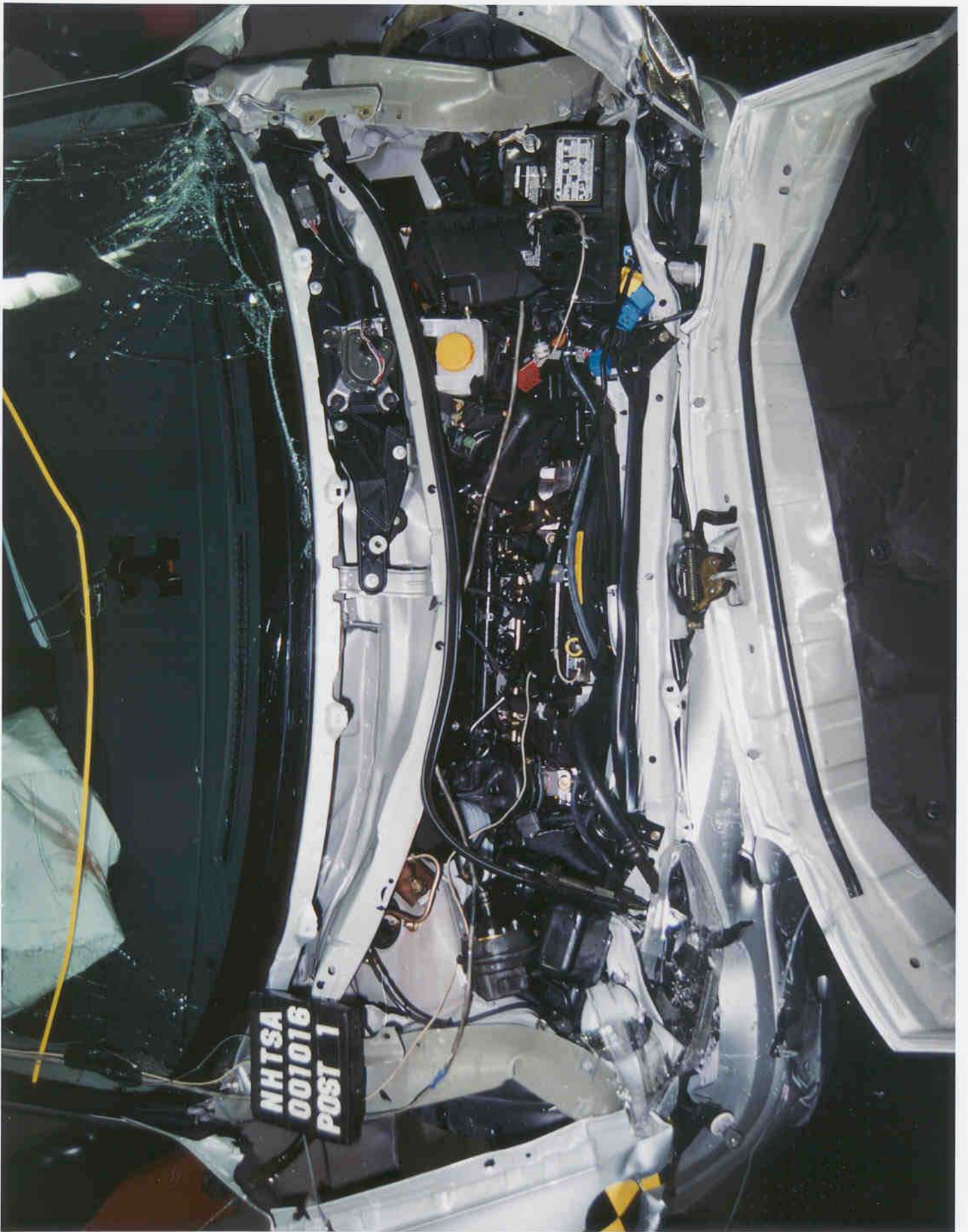


Figure A-19 Post-Test Engine Compartment View
A-20

001016-1

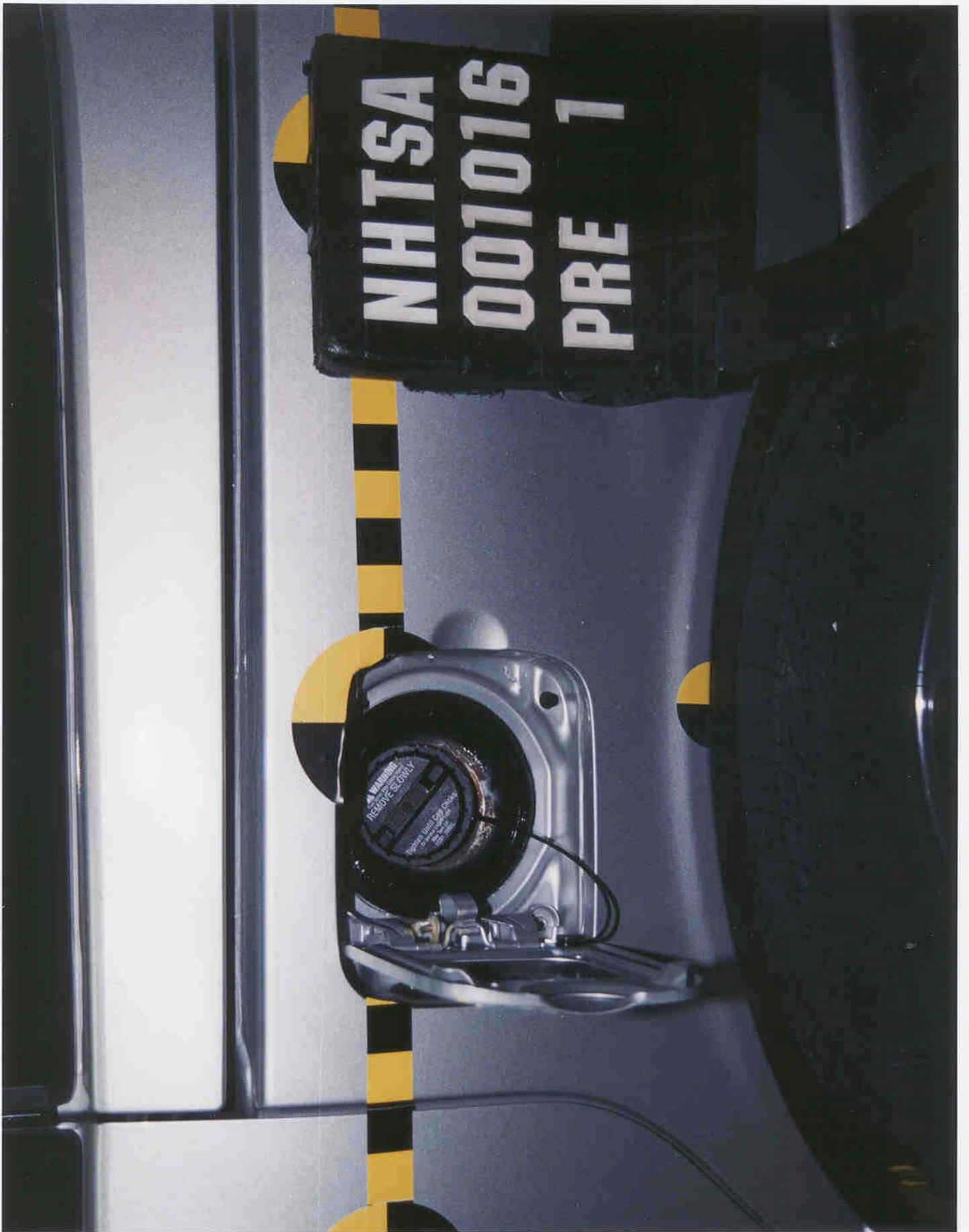


Figure A-20 Pre-Test Fuel Filler Cap View

A-21

001016-1

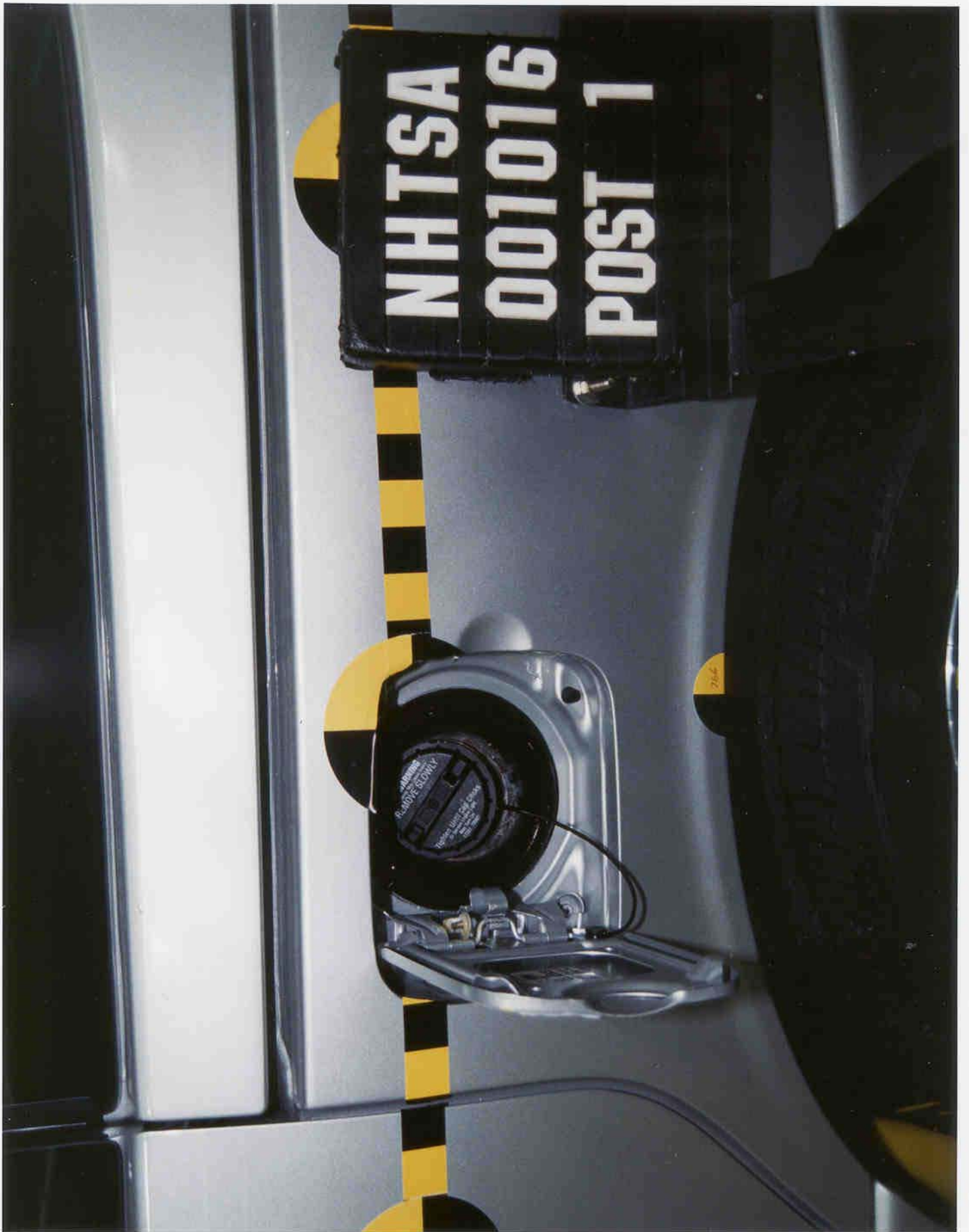


Figure A-21 Post-Test Fuel Filler Cap View
A-22

001016-1

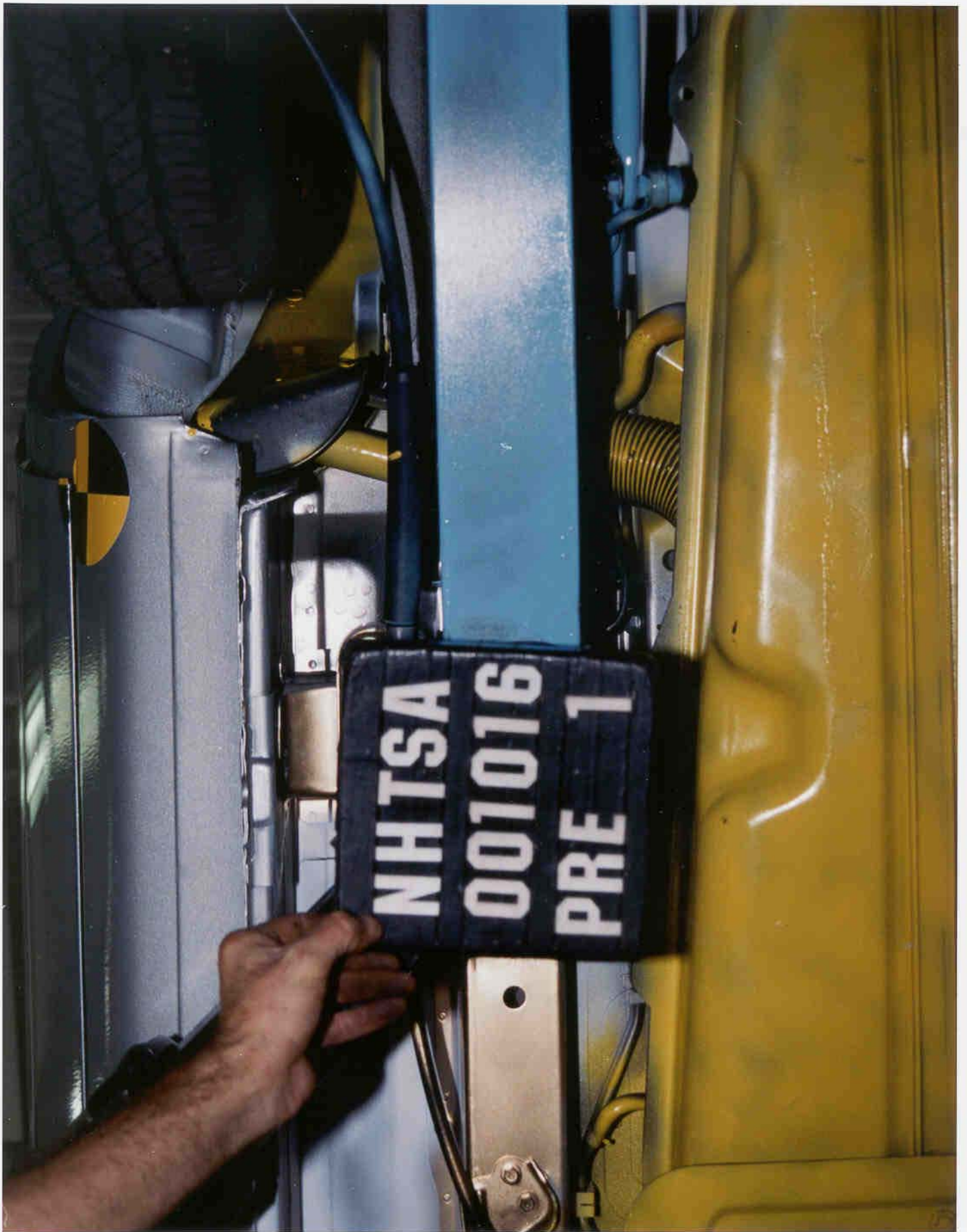


Figure A-22 Pre-Test Fuel Filler Neck View
A-23

001016-1

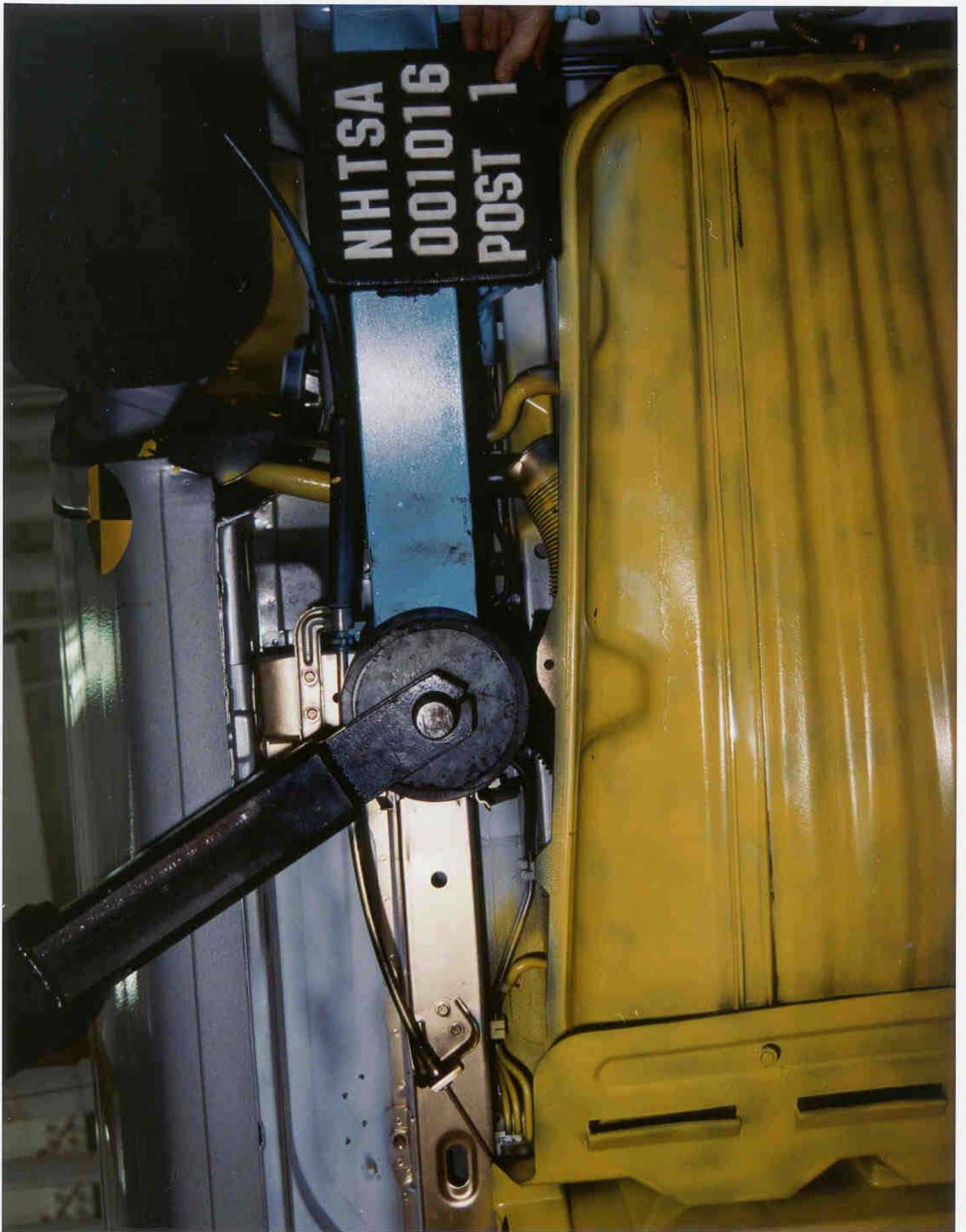


Figure A-23 Post-Test Fuel Filler Neck View

A-24

001016-1

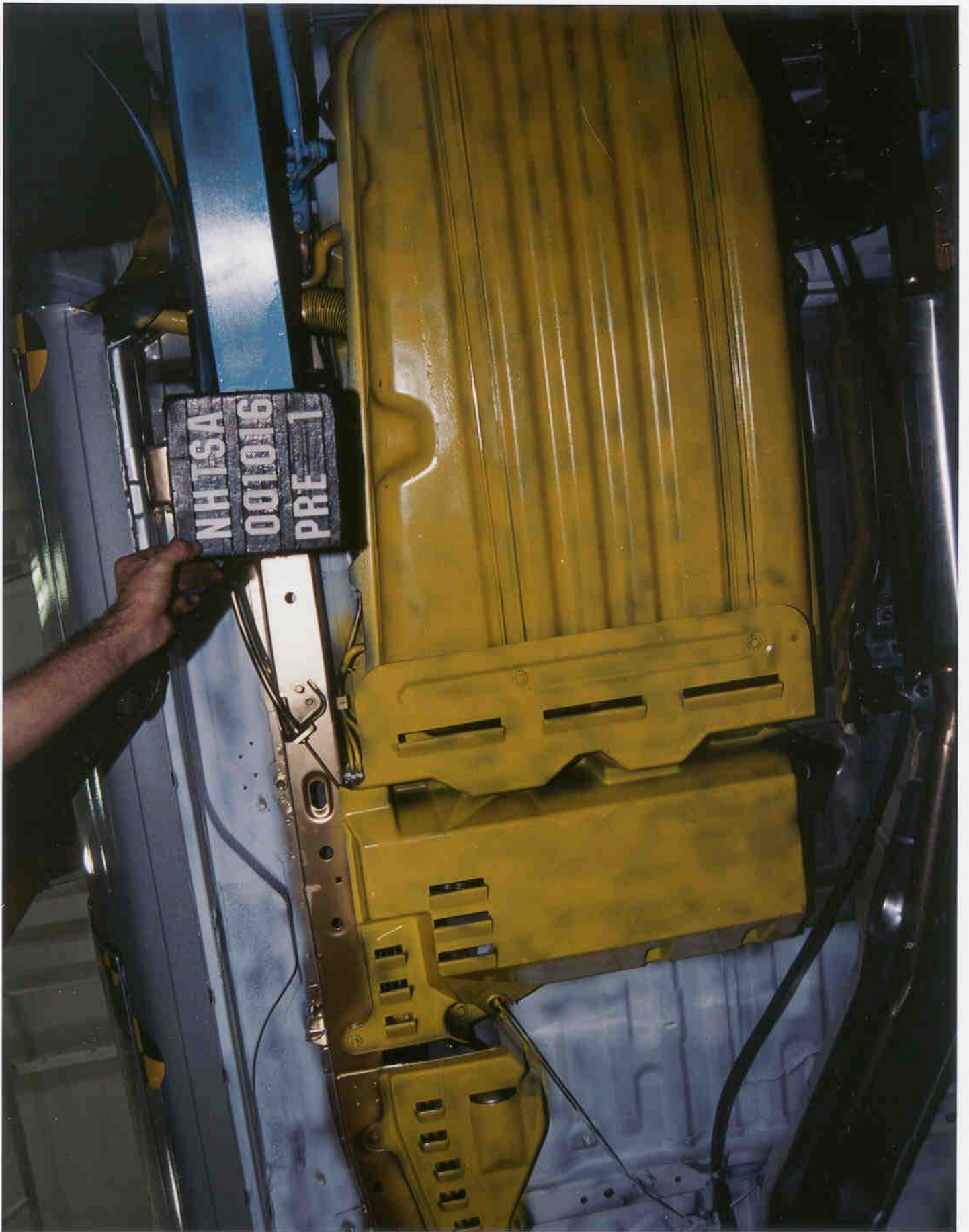


Figure A-24 Pre-Test Fuel Tank View
A-25

001016-1

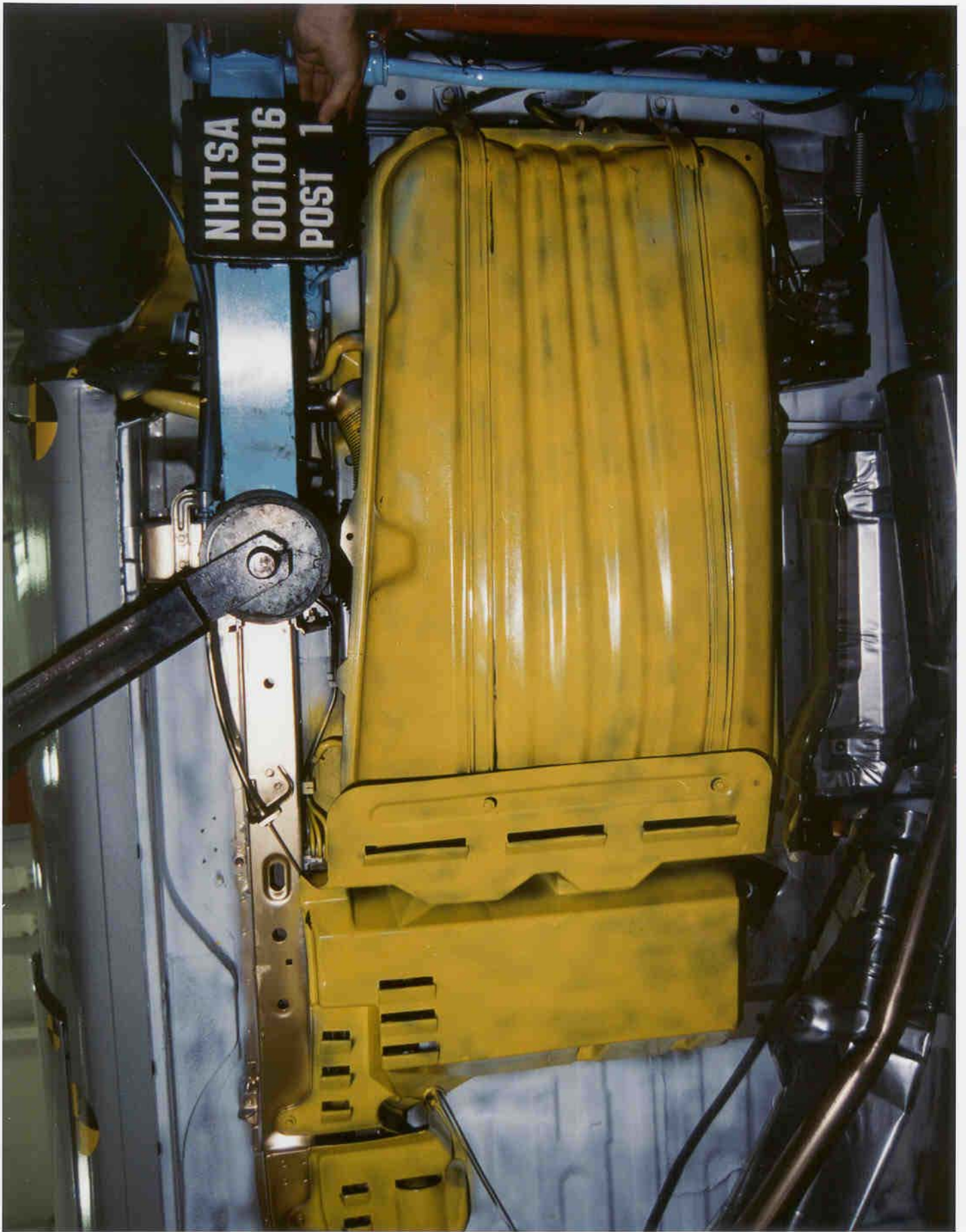


Figure A-25 Post-Test Fuel Tank View
A-26

001016-1



Figure A-26 Pre-Test Front Underbody View
A-27

001016-1

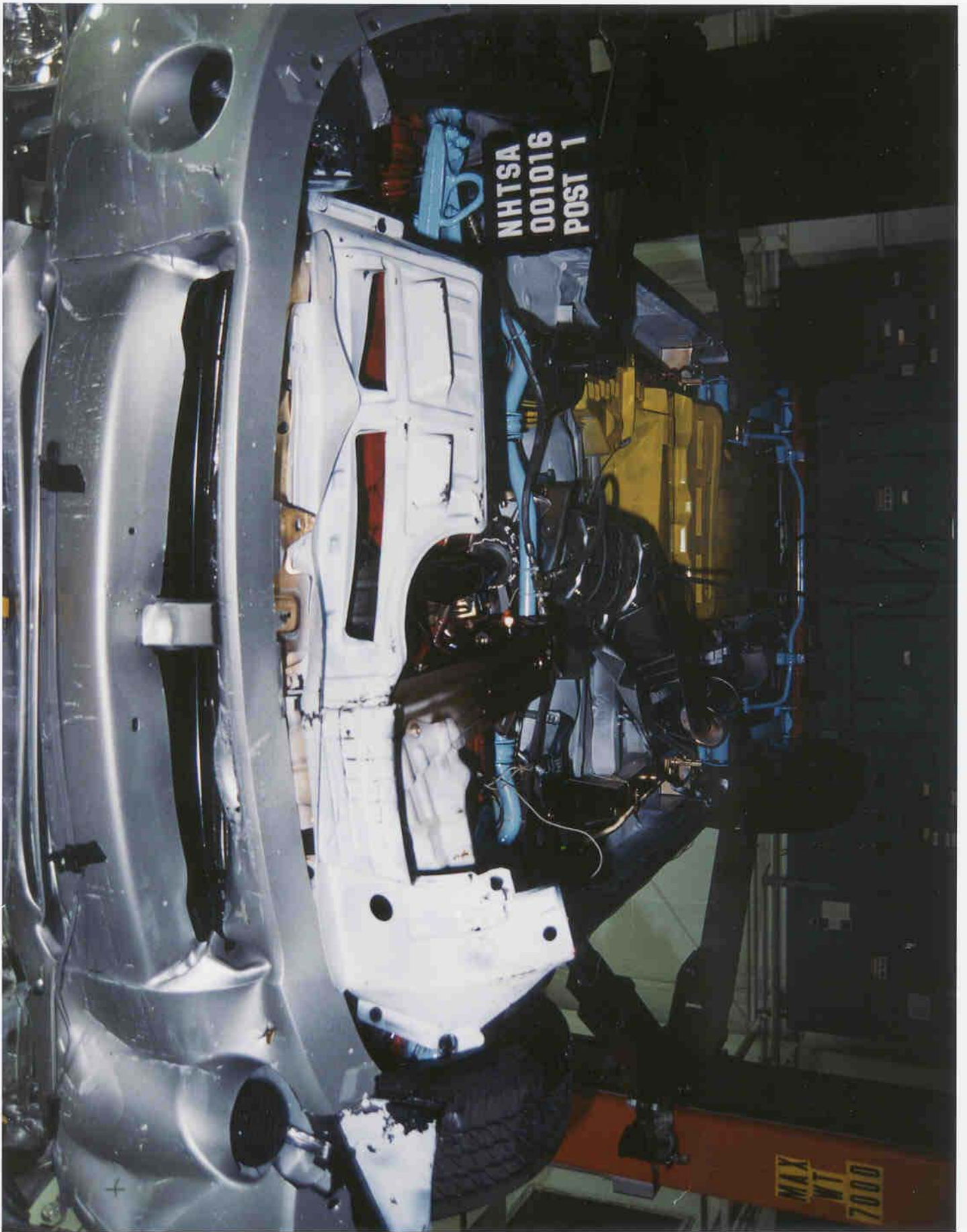


Figure A-27 Post-Test Front Underbody View

A-28

001016-1

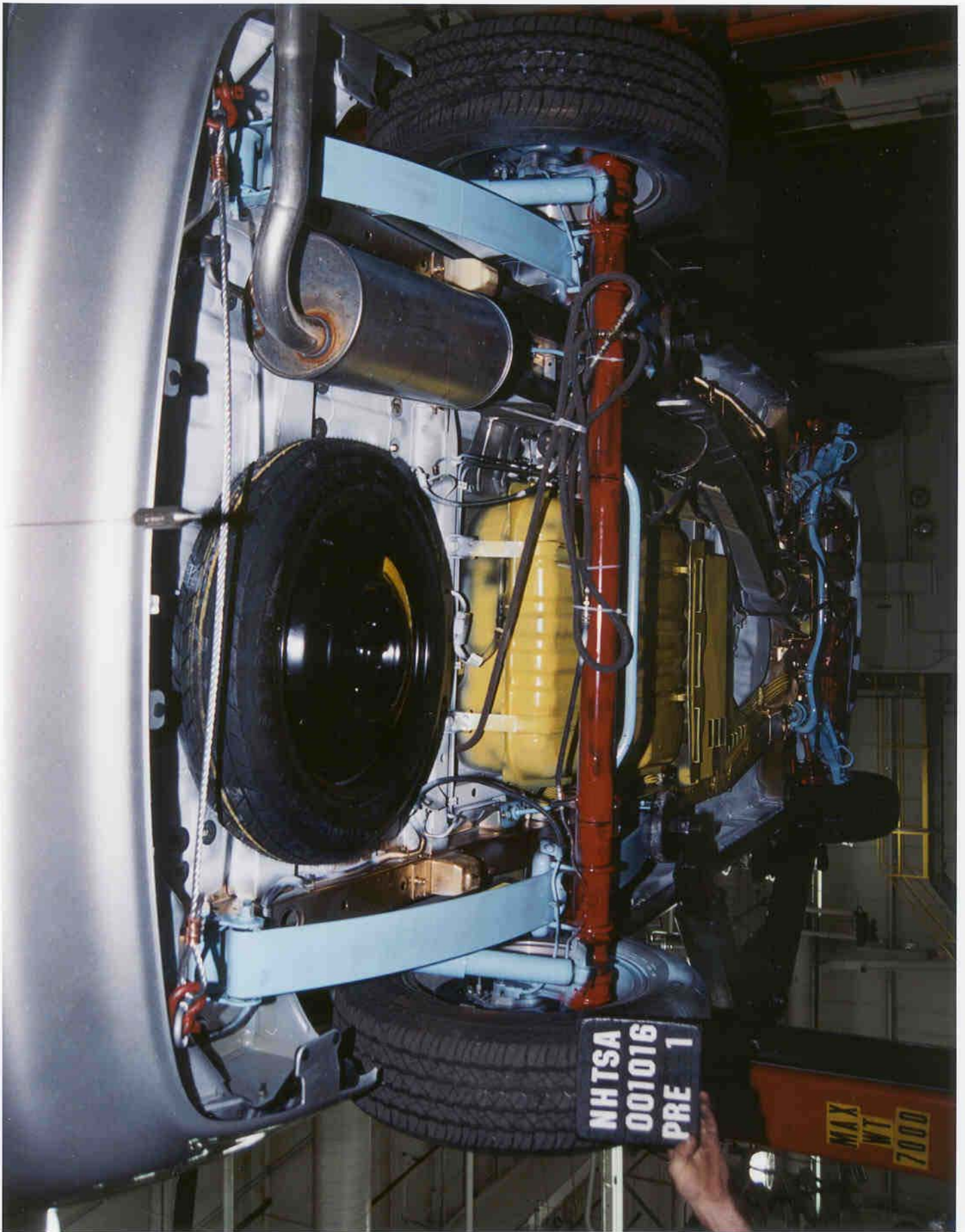


Figure A-28 Pre-Test Rear Underbody View
A-29

001016-1

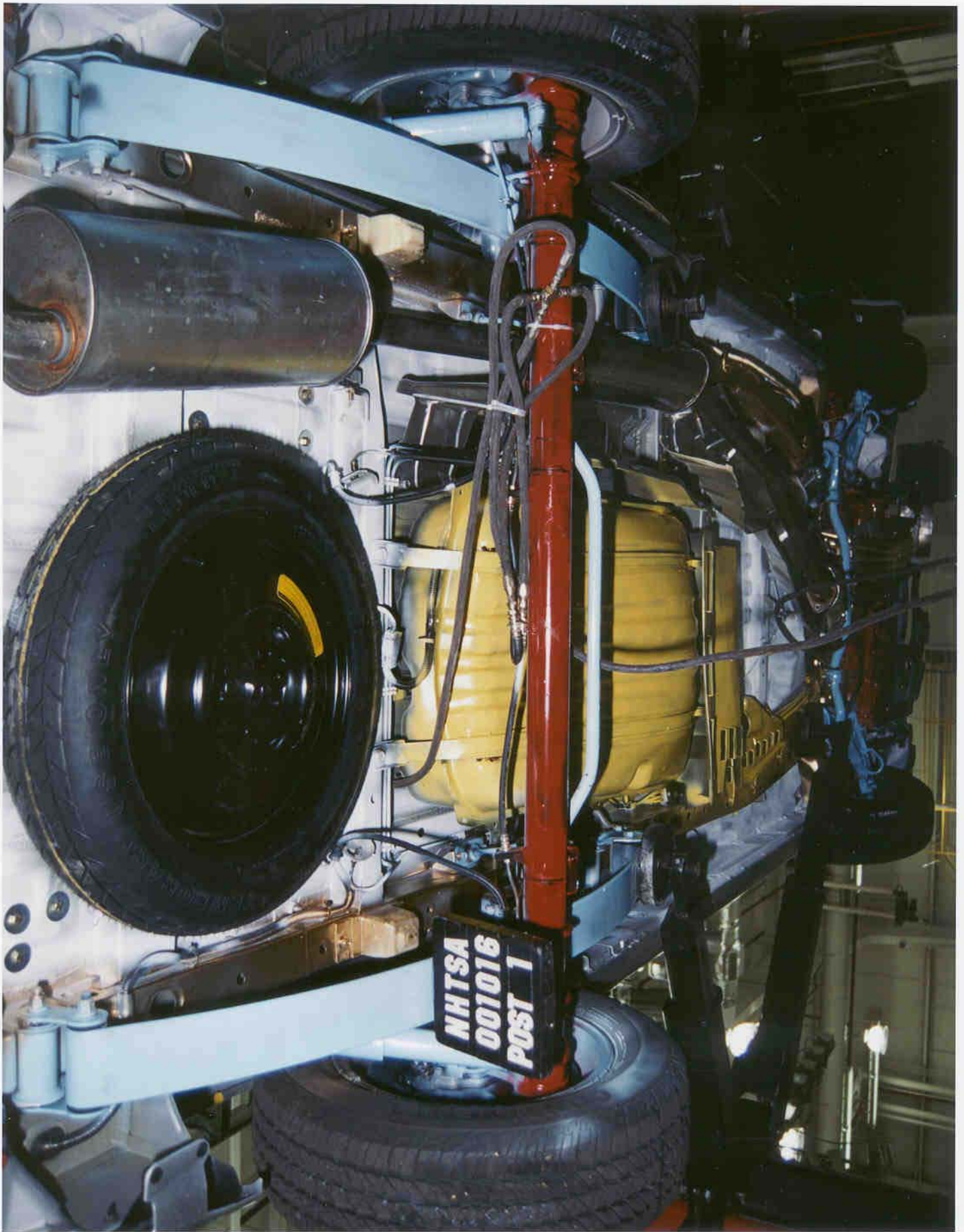


Figure A-29 Post-Test Rear Underbody View
A-30

001016-1

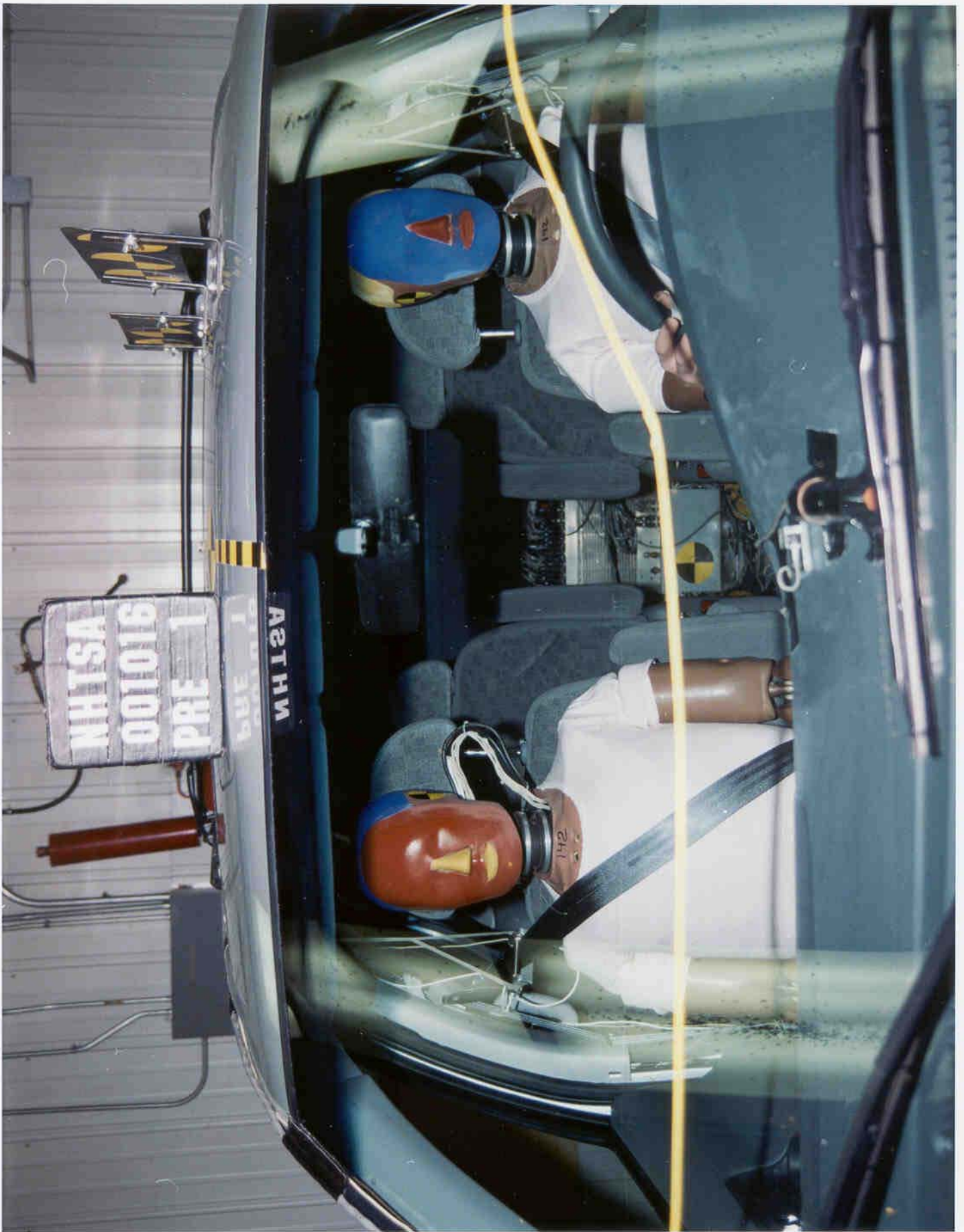


Figure A-30 Pre-Test Driver and Passenger Dummy through Windshield

A-31

001016-1



Figure A-31 Post-Test Driver and Passenger Dummy through Windshield

A-32

001016-1

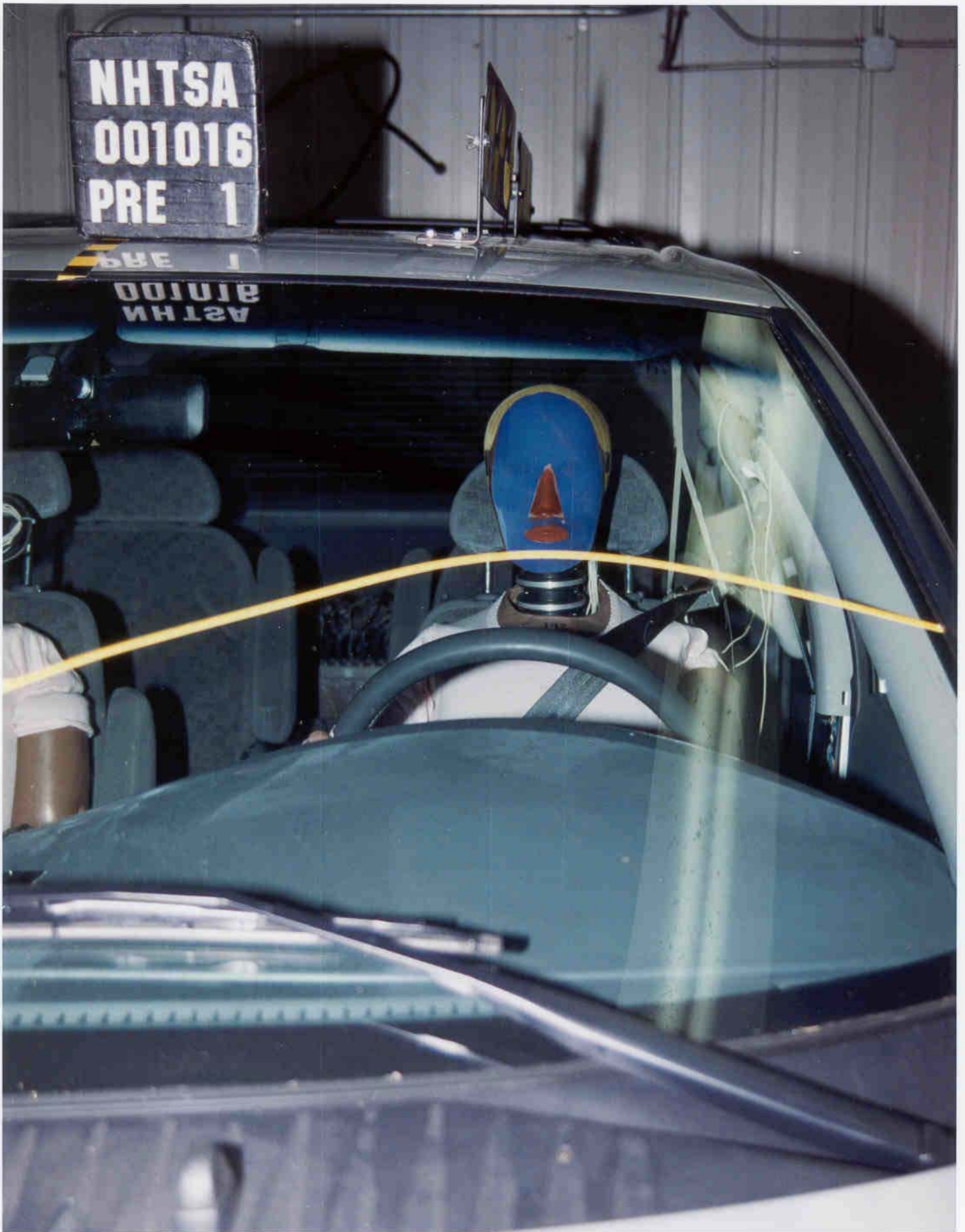


Figure A-32 Pre-Test Driver Dummy Position - View 1

A-33

001016-1

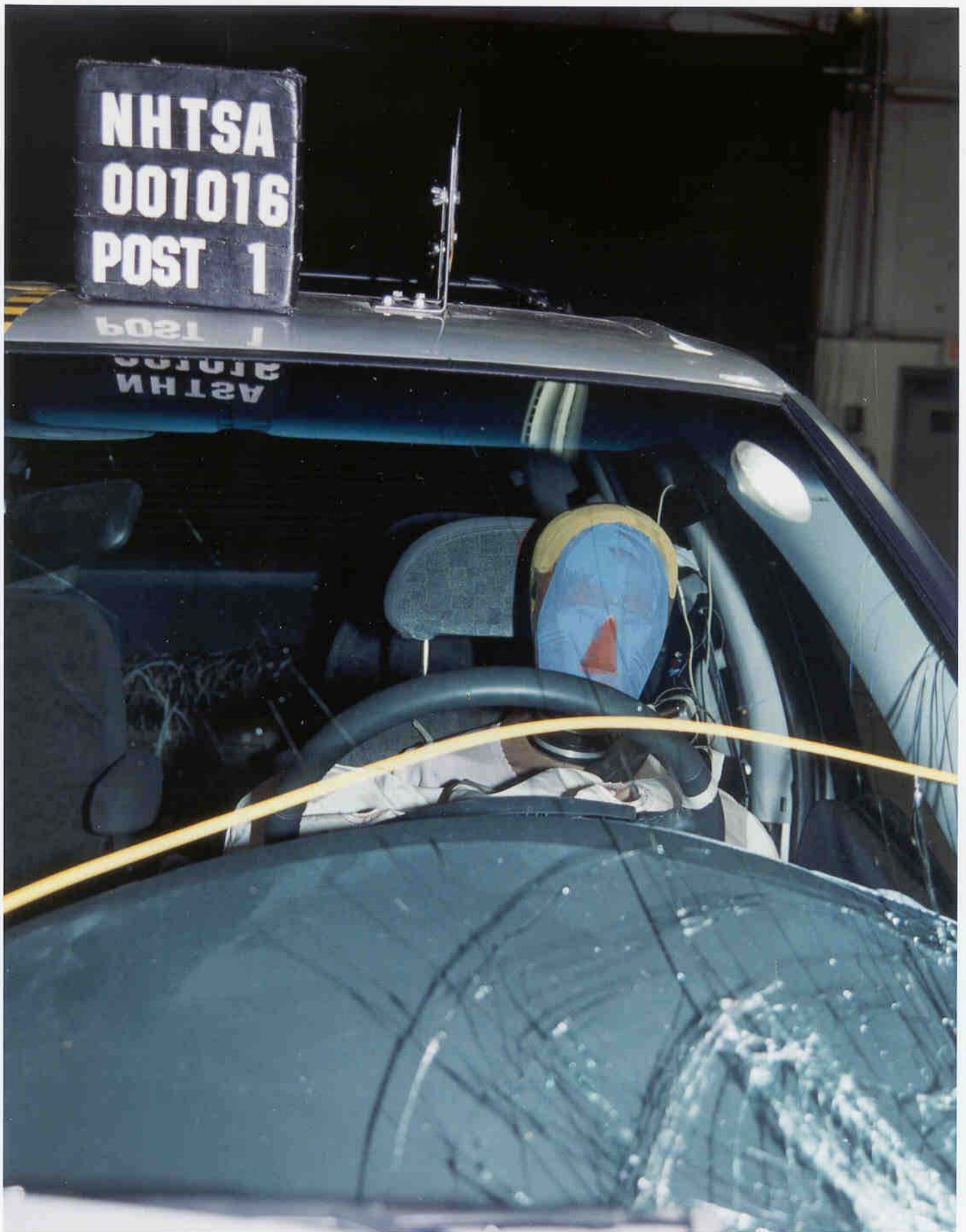


Figure A-33 Post-Test Driver Dummy Position - View 1

A-34

001016-1

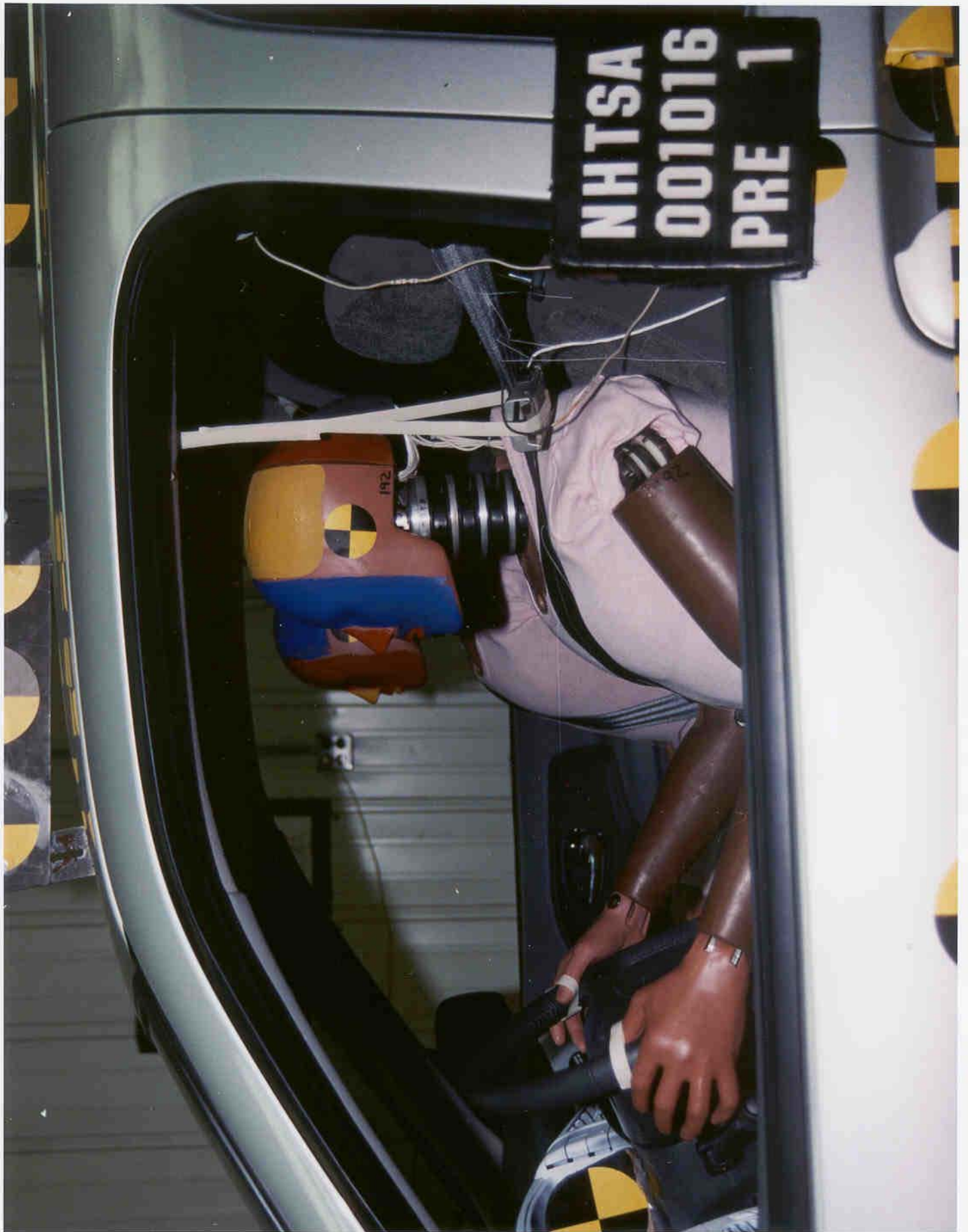


Figure A-34 Pre-Test Driver Dummy Position - View 2

A-35

001016-1



Figure A-35 Post-Test Driver Dummy Position - View 2

A-36

001016-1

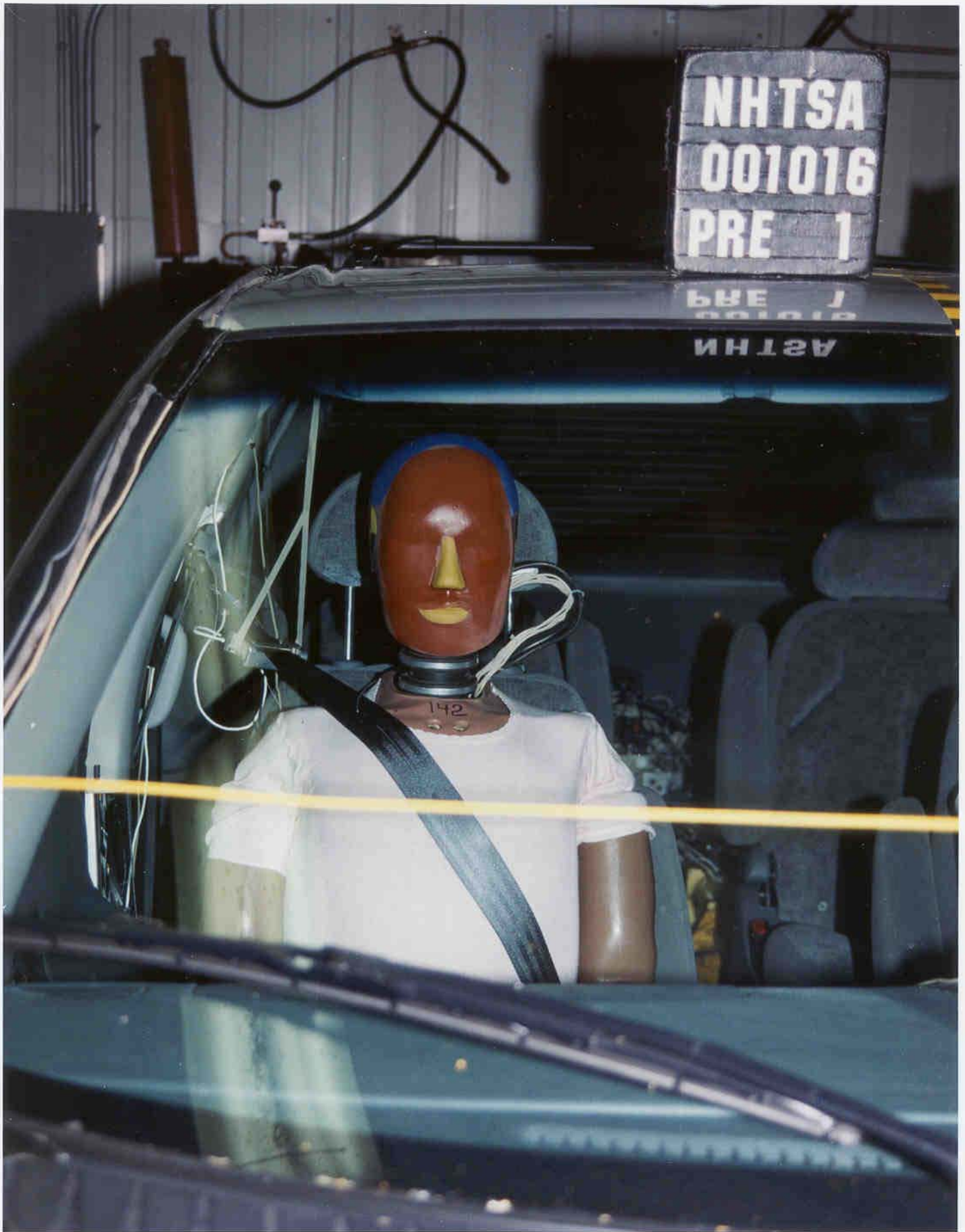


Figure A-36 Pre-Test Passenger Dummy Position - View 1

A-37

001016-1

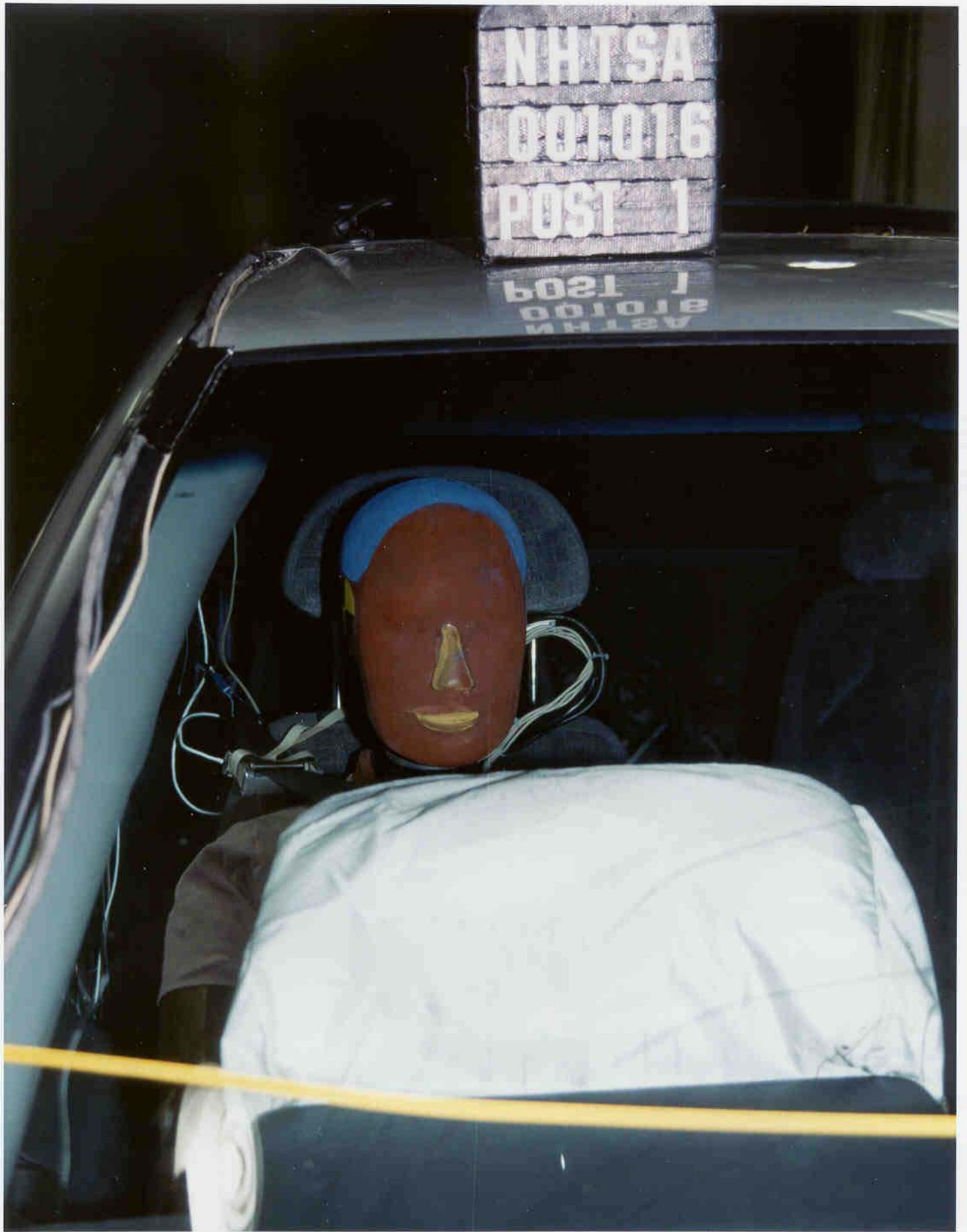


Figure A-37 Post-Test Passenger Dummy Position - View 1

A-38

001016-1

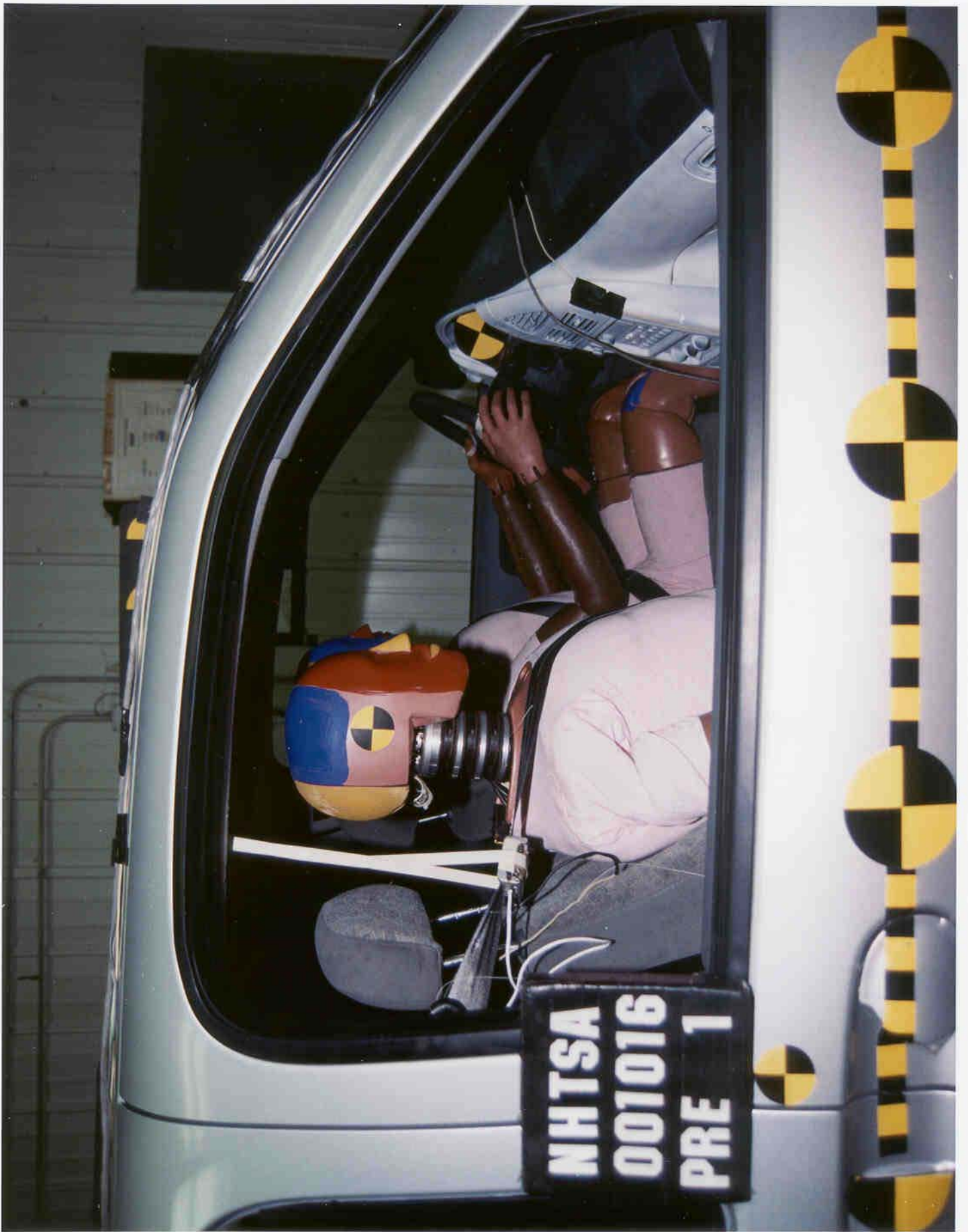


Figure A-38 Pre-Test Passenger Dummy Position - View 2

A-39

001016-1



Figure A-39 Post-Test Passenger Dummy Position - View 2
A-40

001016-1



Figure A-40 Pre-Test Driver Dummy & Vehicle Interior - View 1

A-41

001016-1



Figure A-41 Post-Test Driver Dummy & Vehicle Interior - View 1

A-42

001016-1



Figure A-42 Pre-Test Driver Dummy & Vehicle Interior - View 2

A-43

001016-1



Figure A-43 Post-Test Driver Dummy & Vehicle Interior - View 2

A-44

001016-1



Figure A-44 Pre-Test Passenger Dummy & Vehicle Interior - View 1

A-45

001016-1



Figure A-45 Post-Test Passenger Dummy & Vehicle Interior - View 1

A-46

001016-1



Figure A-46 Pre-Test Passenger Dummy & Vehicle Interior - View 2

A-47

001016-1



Figure A-47 Post-Test Passenger Dummy & Vehicle Interior - View 2

A-48

001016-1



Figure A-48 Post-Test Driver Dummy Overall View
A-49

001016-1



Figure A-49 Post-Test Driver Dummy Head Contact - View 1

A-50

001016-1



Figure A-50 Post-Test Driver Dummy Head Contact - View 2

A-51

001016-1

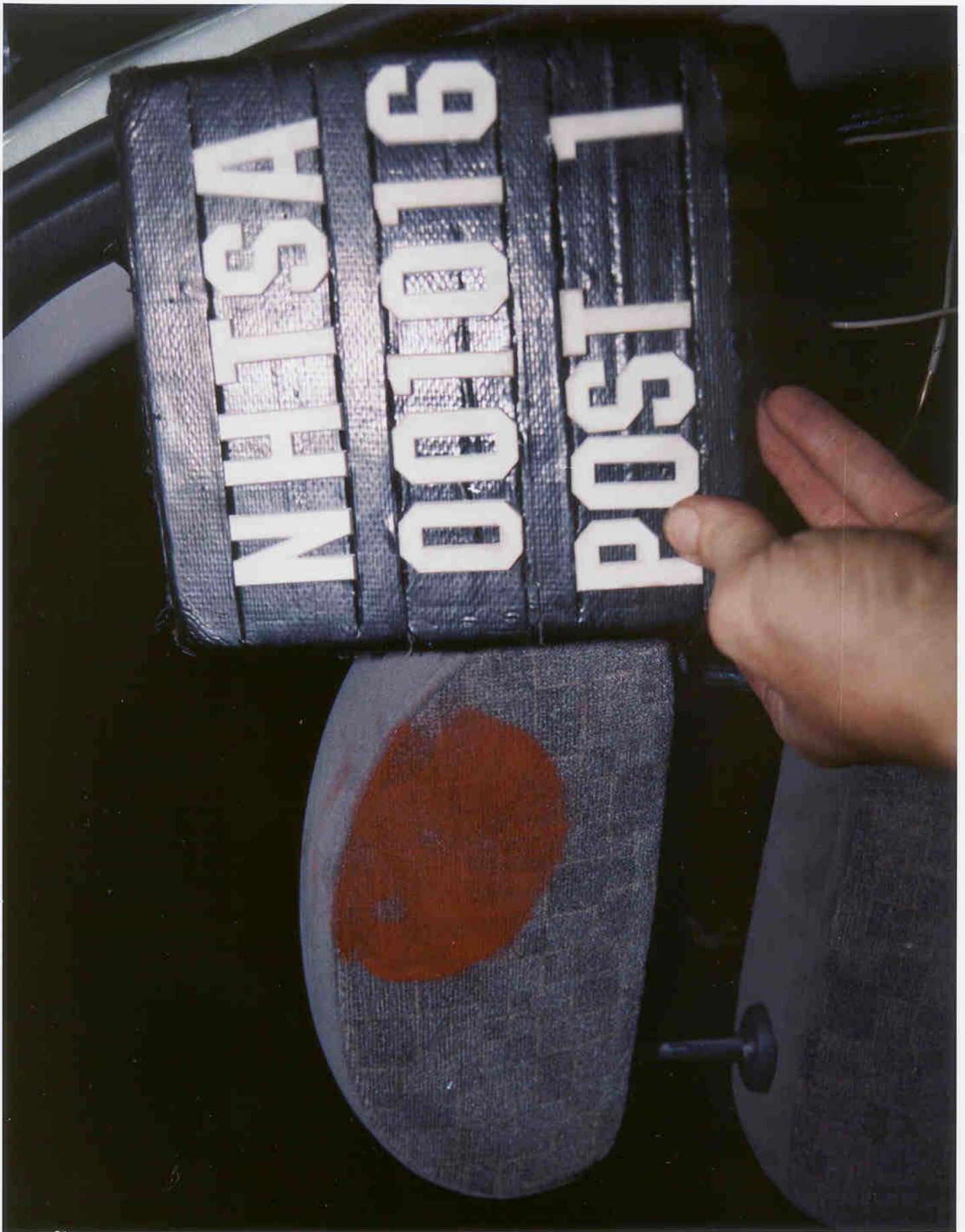


Figure A-51 Post-Test Driver Dummy Head Contact - View 3

A-52

001016-1



Figure A-52 Post-Test Driver Dummy Knee Contact - View 1

A-53

001016-1



Figure A-53 Post-Test Driver Dummy Knee Contact - View 2



Figure A-54 Post-Test Passenger Dummy Overall View
A-55

001016-1



Figure A-55 Post-Test Passenger Dummy Head Contact - View 1

A-56

001016-1



Figure A-56 Post-Test Passenger Dummy Head Contact - View 2

A-57

001016-1

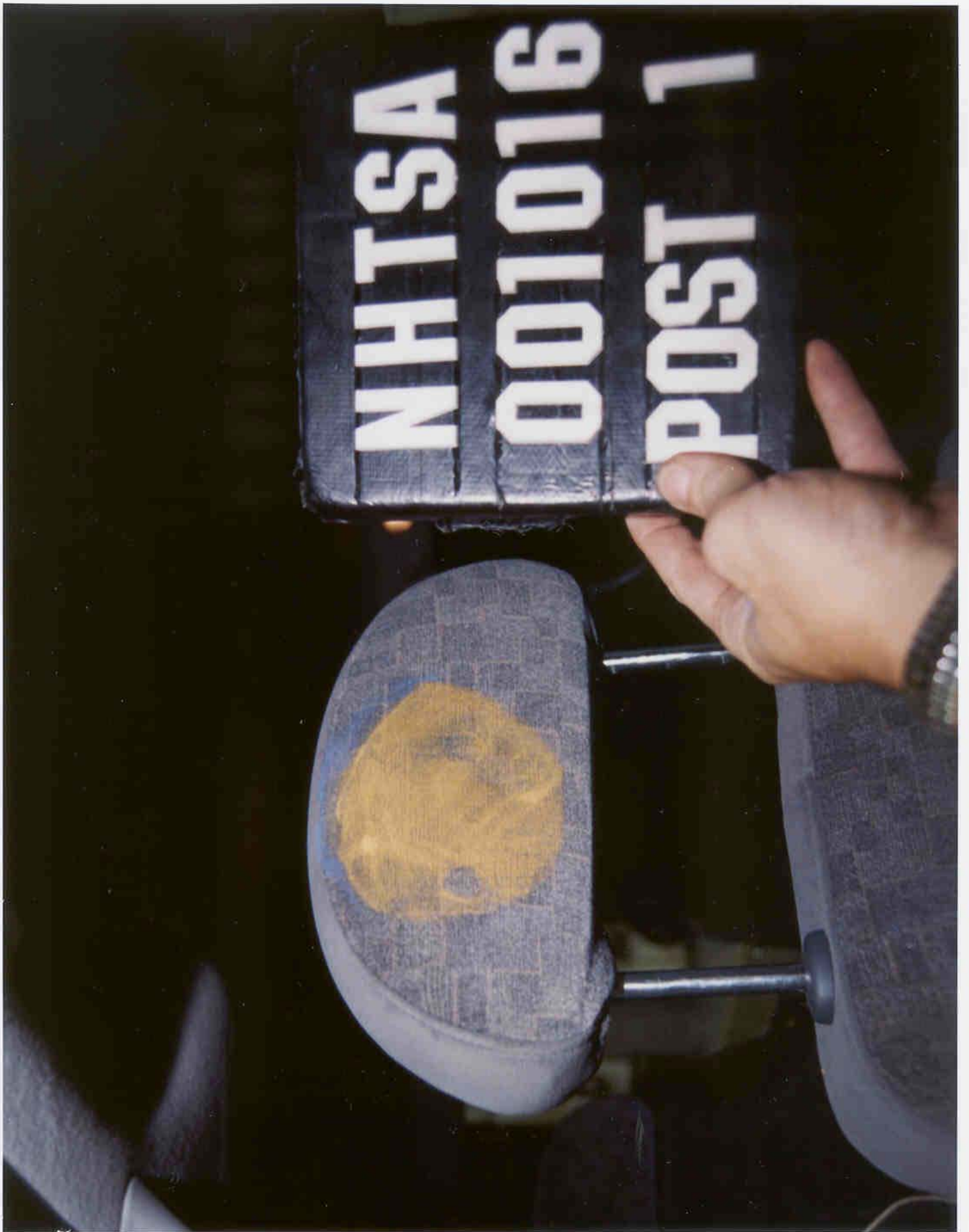


Figure A-57 Post-Test Passenger Dummy Head Contact - View 3

A-58

001016-1



Figure A-58 Post-Test Passenger Dummy Knee Contact - View 1

A-59

001016-1

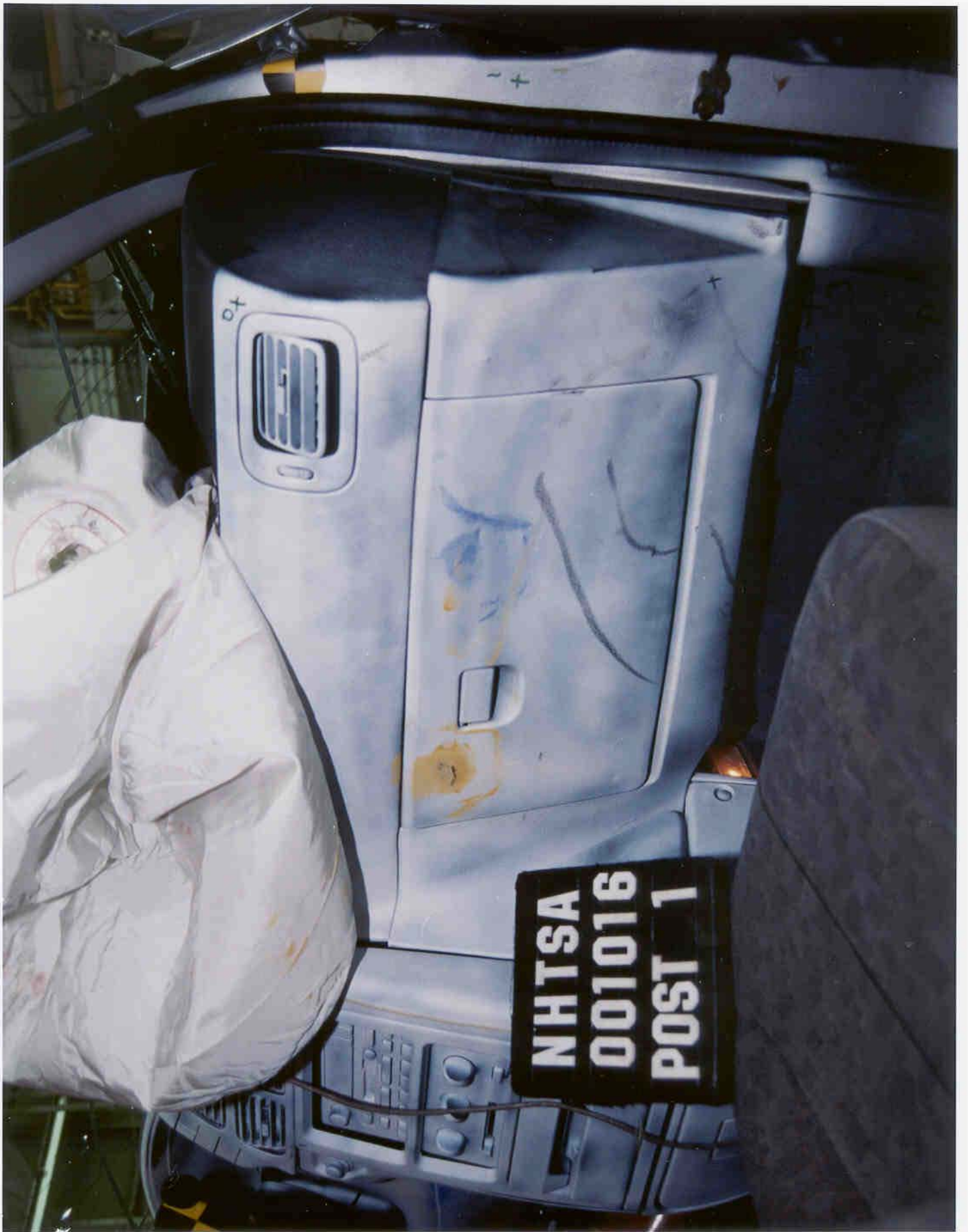


Figure A-59 Post-Test Passenger Dummy Knee Contact - View 2

A-60

001016-1

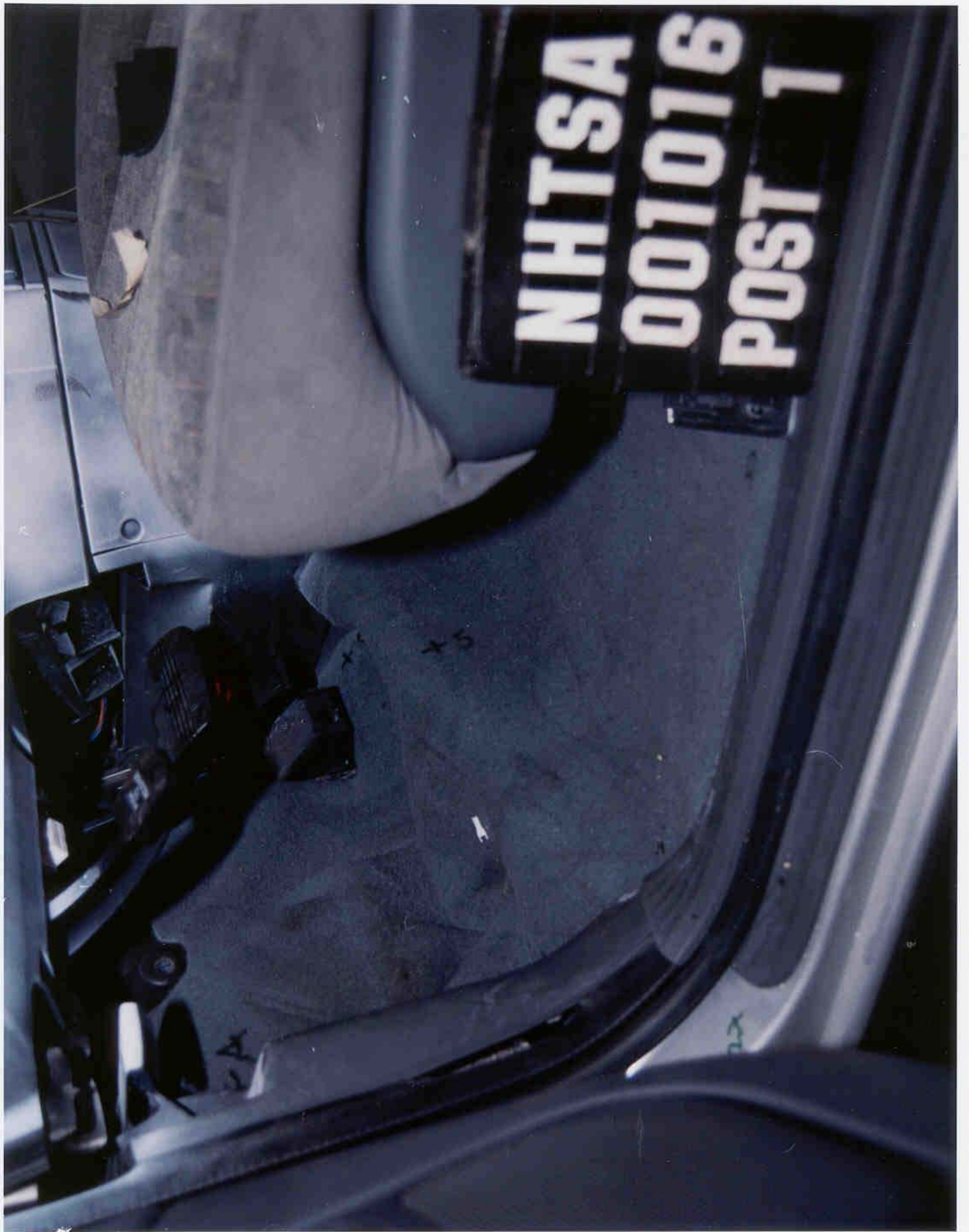


Figure A-60 Post-Test Driver Floor Deformation View
A-61

001016-1



Figure A-61 Post-Test Passenger Floor Deformation View
A-62

001016-1

MFD. BY FORD MOTOR CO. U.S.A. FOR NISSAN MOTOR CO. LTD.
DATE: 10/00
FRONT GAWR: 2716LB/1231KG
WITH P215/65RX16S TIRES WITH 16X6.0JJ RIMS AT 35 PSI/ 241 kPa COLD SINGLE
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE
VIH: 4N2ZNT5T01D801195

GVWR: 5445LB/2469KG
REAR GAWR: 2844LB/1290KG
WITH P215/65RX16S TIRES WITH 16X6.0JJ RIMS AT 35 PSI/ 241 kPa COLD SINGLE
TYPE: MPV

COLOR BK | **L2** | **TRIM CK** | **NTC 120R010043290 08200**

FO077
T0106

Figure A-62 Pre-Test Vehicle Certification Label View

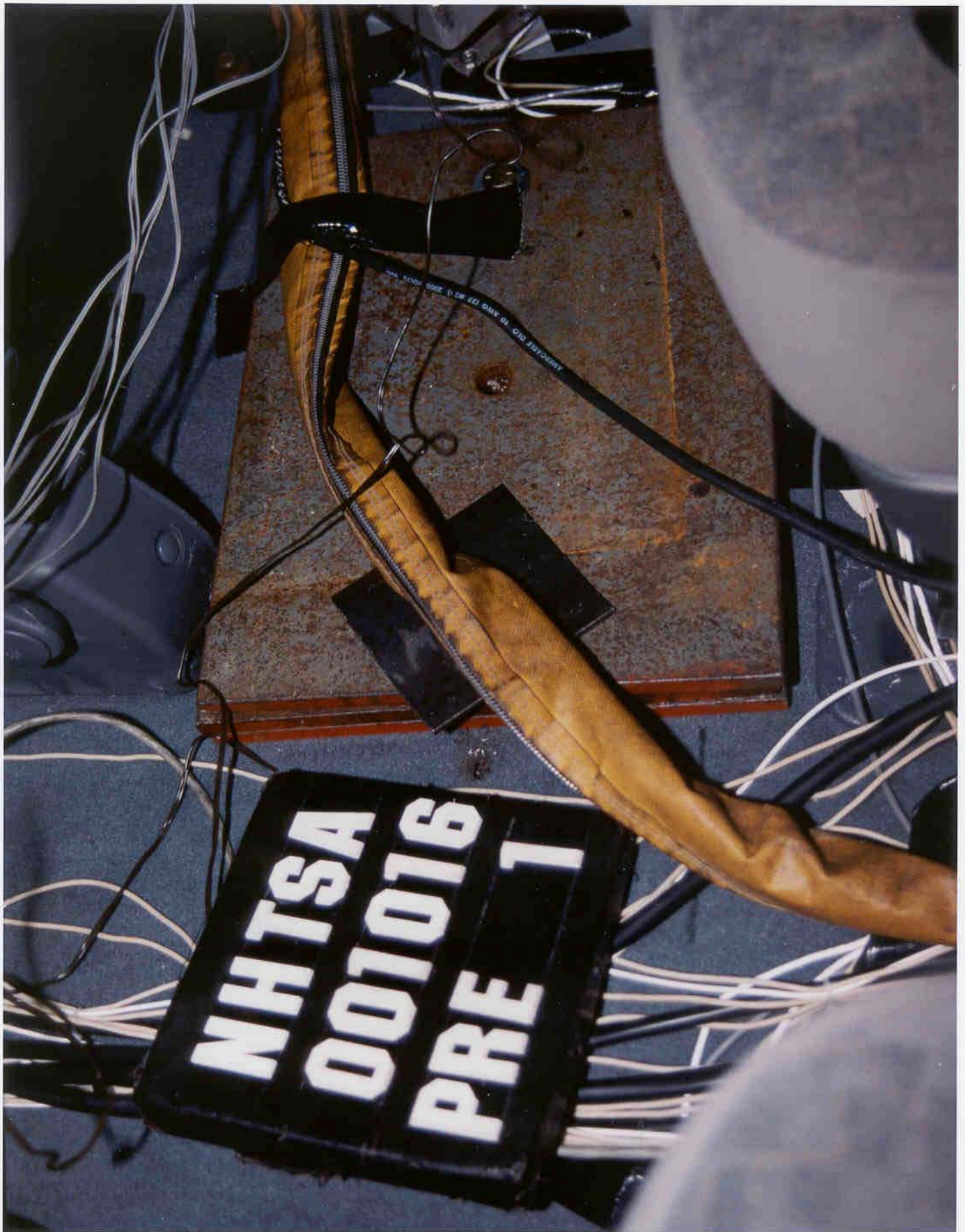


Figure A-63 Pre-Test Ballast Location View

A-64

001016-1

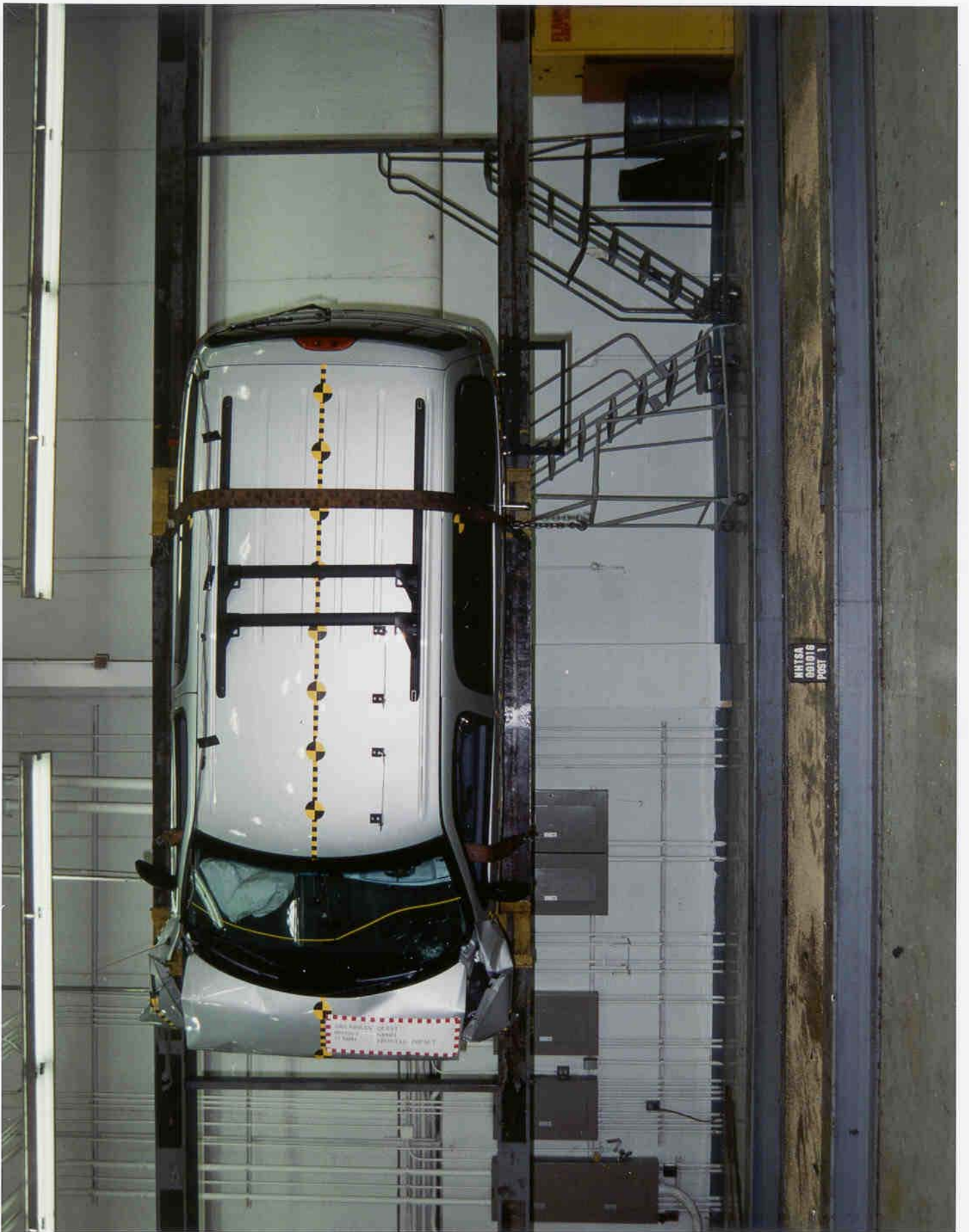


Figure A-64 Post-Test Vehicle on Static Rollover Machine View

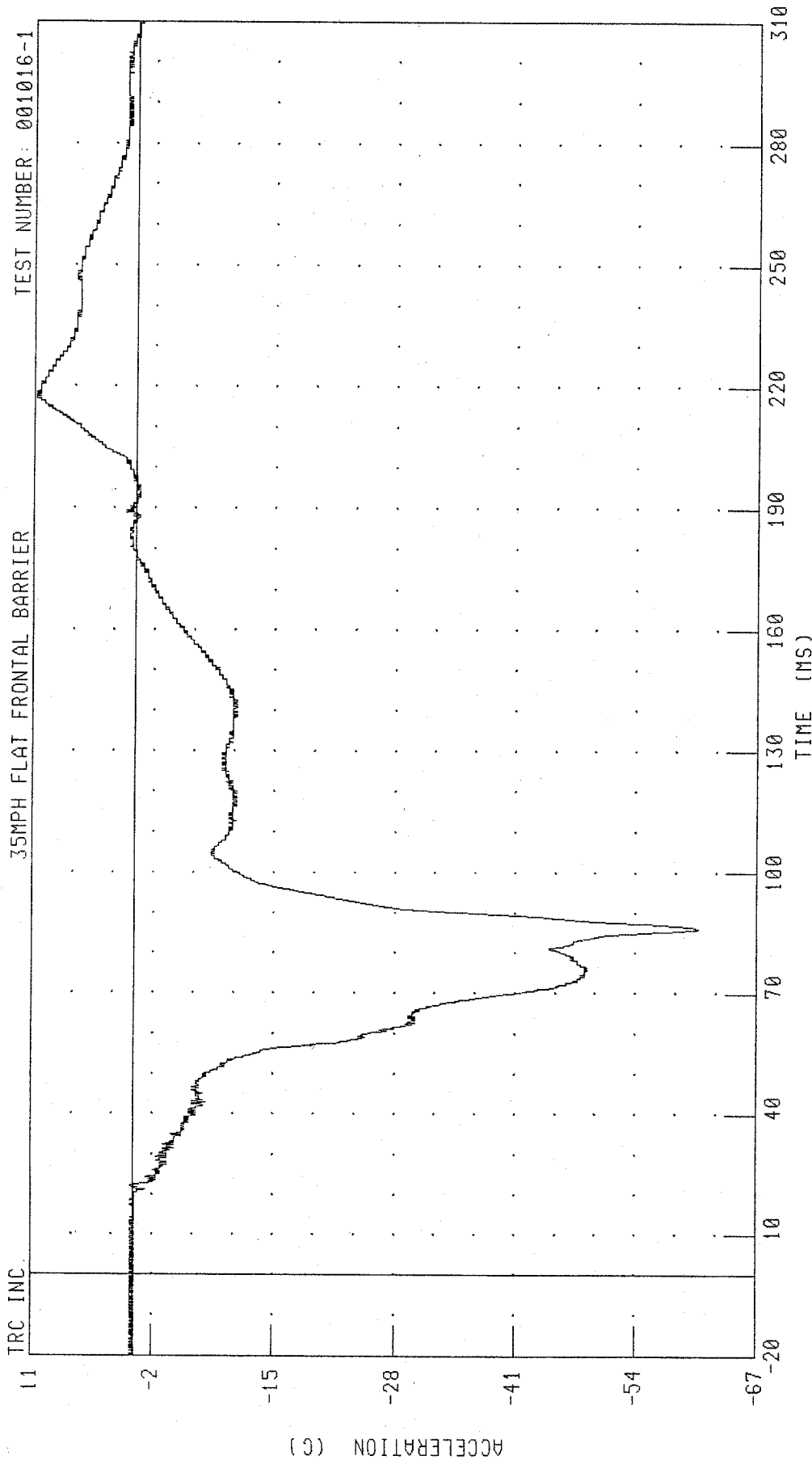
A-65

001016-1

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TRC INC.

TEST NUMBER: 001016-1



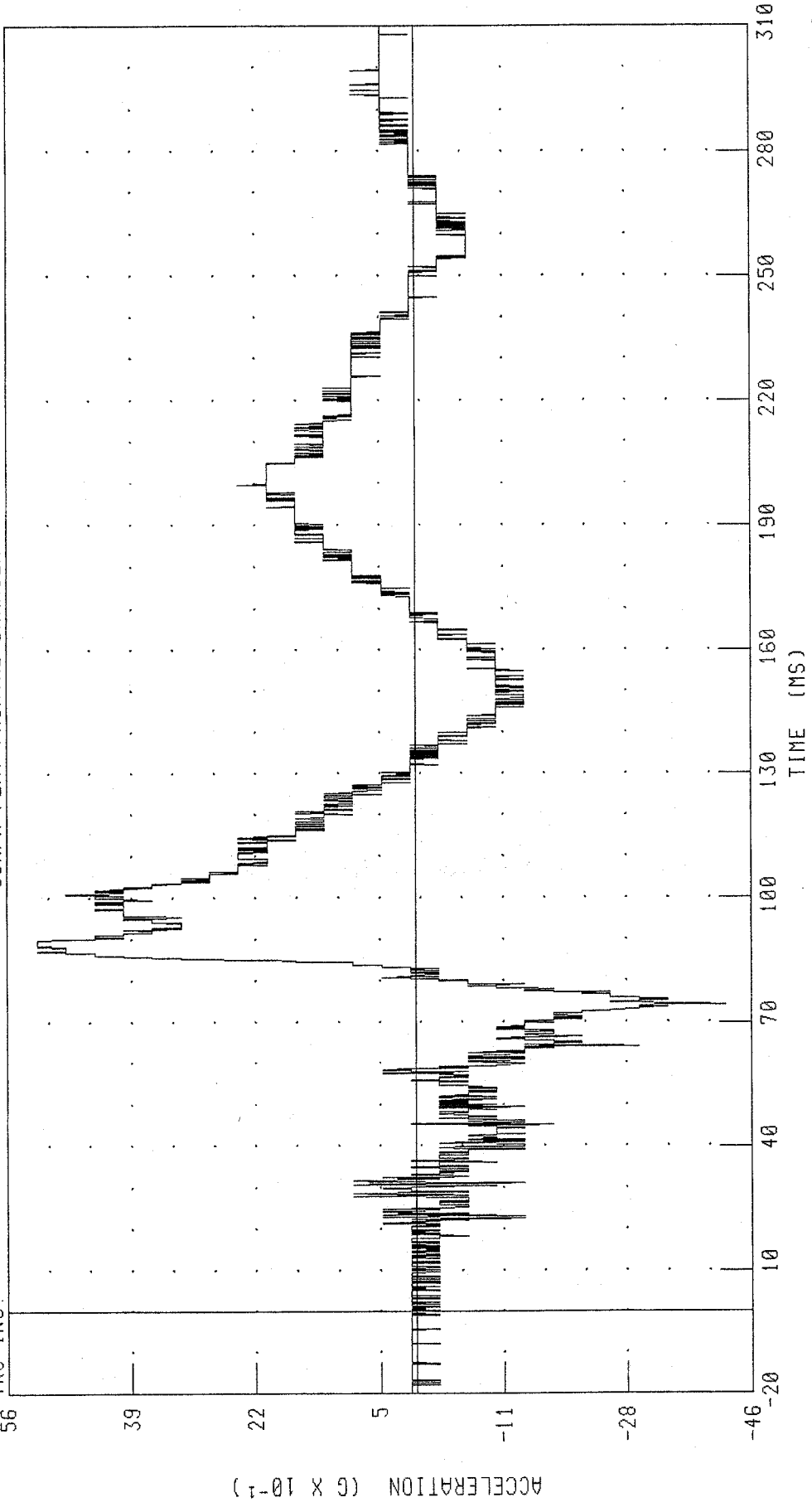
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 10.75 G @ 217.04 MS; -60.89 G @ 86.08 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



PEAK DATA: 5.19 G @ 87.12 MS; -4.25 G @ 74.32 MS

CHANNEL: HEDYC1 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

217

172

ACCELERATION (G X 10⁻¹)

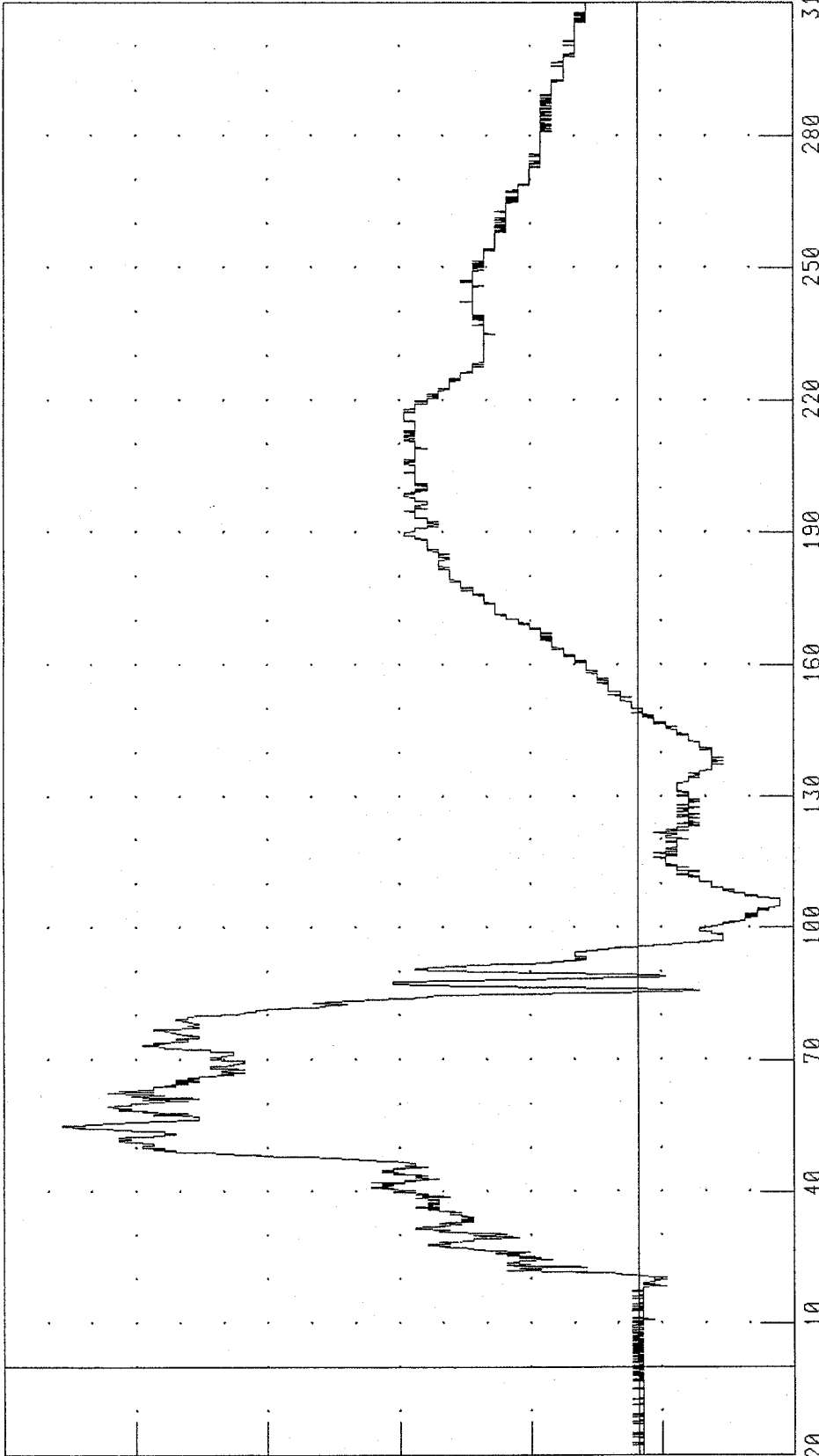
127

82

37

-8

-53



TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

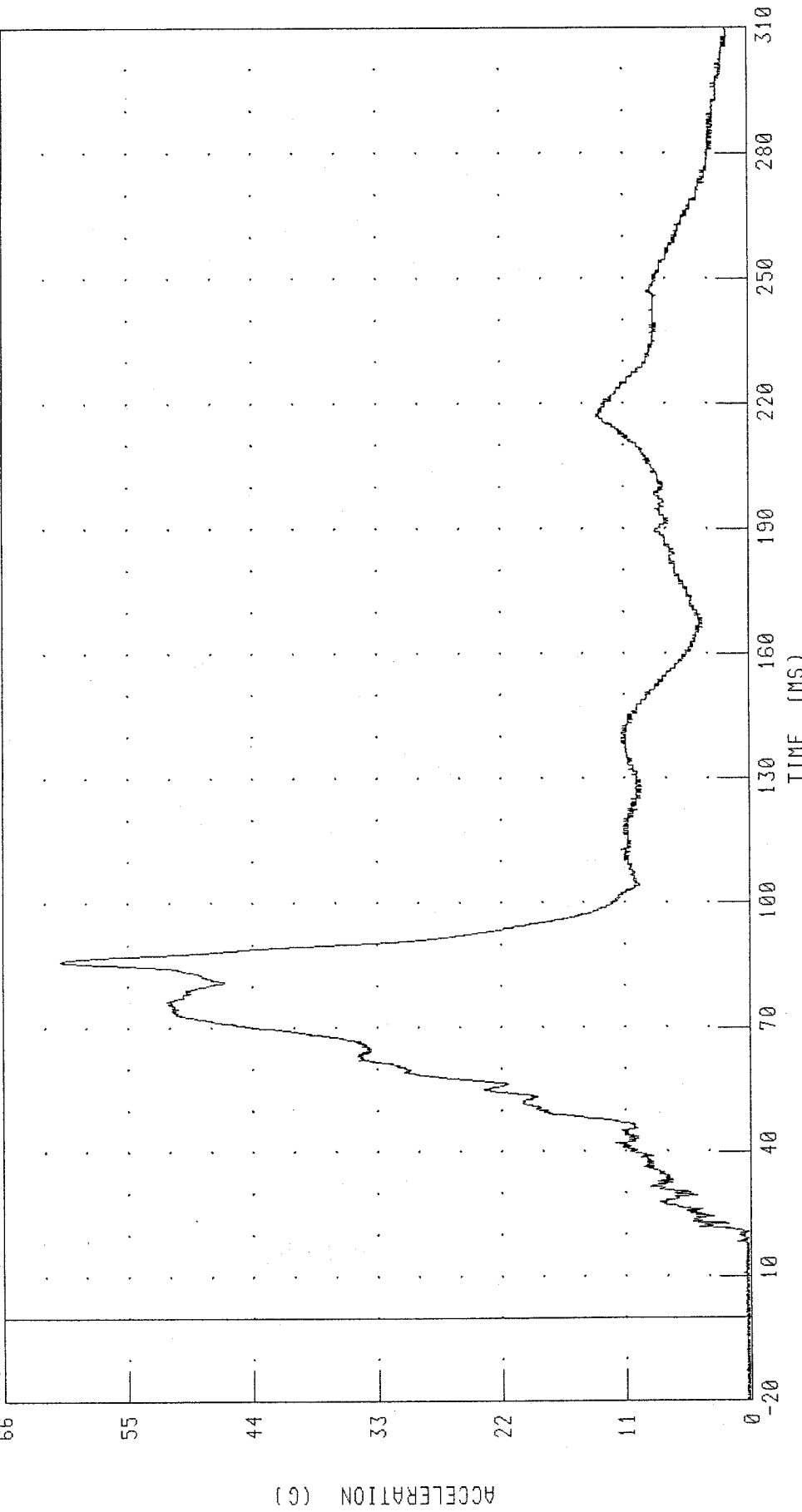
PEAK DATA: 19.72 G @ 54.88 MS; -4.85 G @ 104.88 MS

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
35MPH FLAT FRONTAL BARRIER

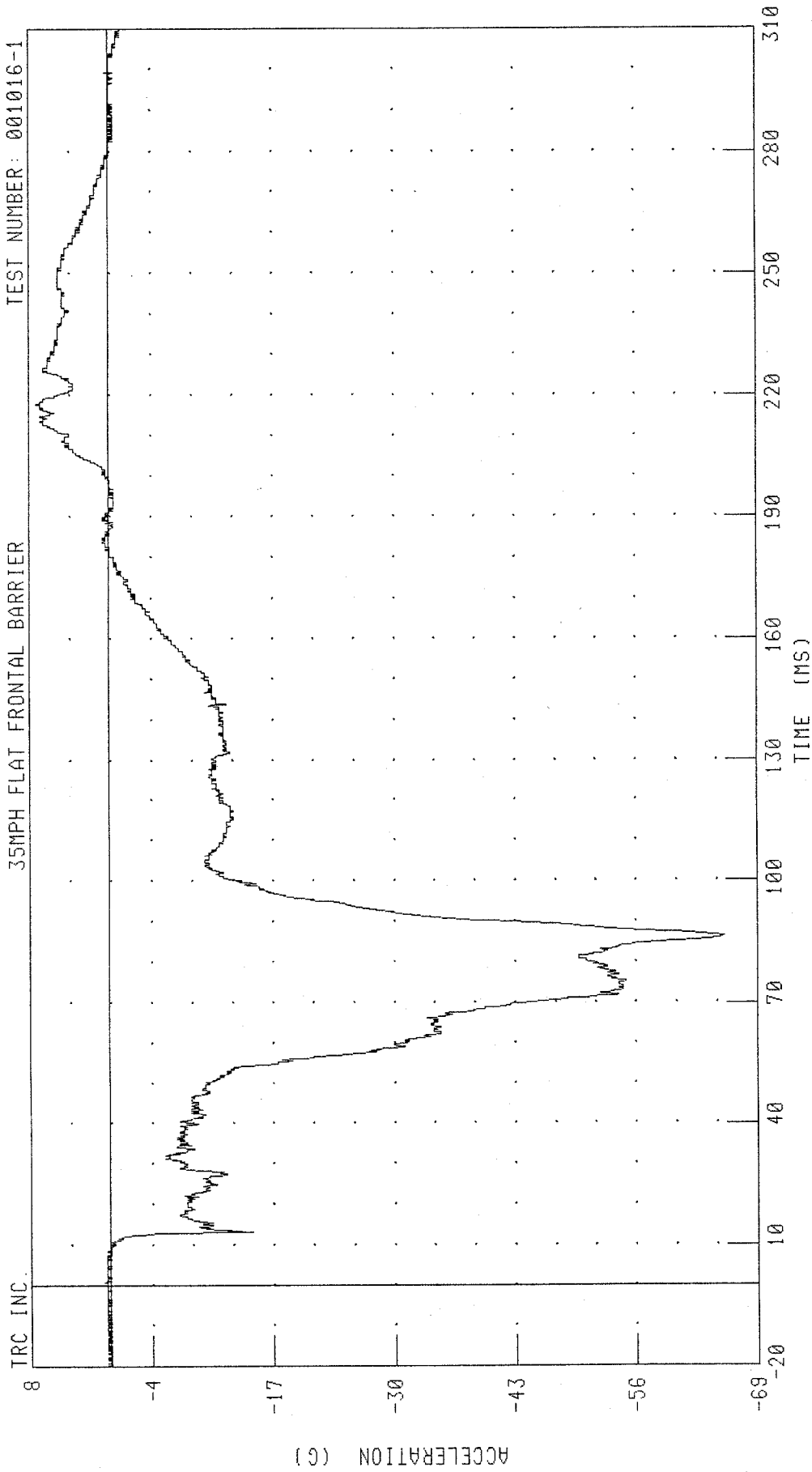
TEST NUMBER: 001016-1

TRC INC.



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000 PEAK DATA: 61.02 G @ 86.08 MS; 0.20 G @ -20.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER



TRC INC.

TEST NUMBER: 001016-1

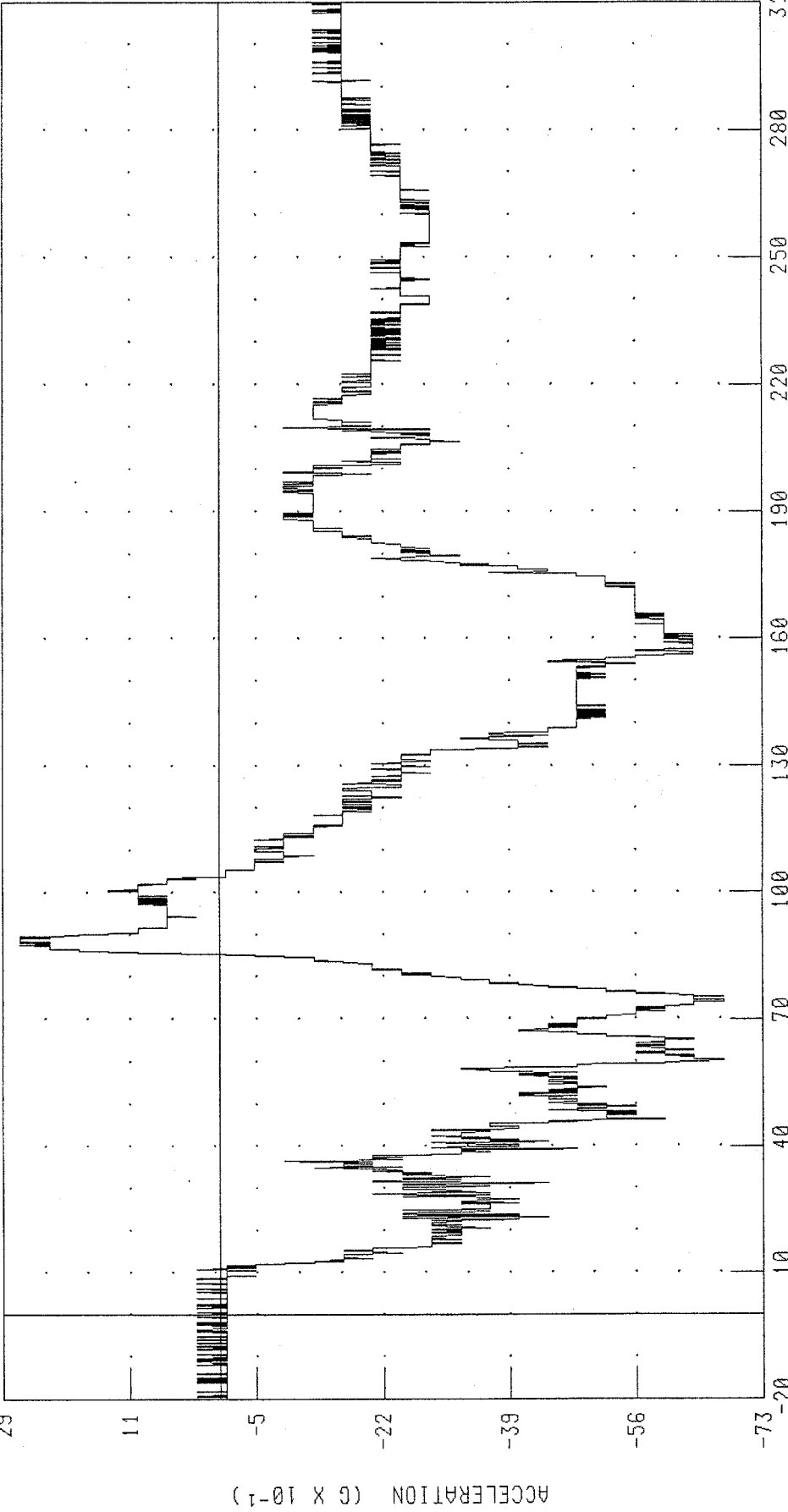
CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

PEAK DATA: 7.74 G @ 217.76 MS; -65.97 G @ 86.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

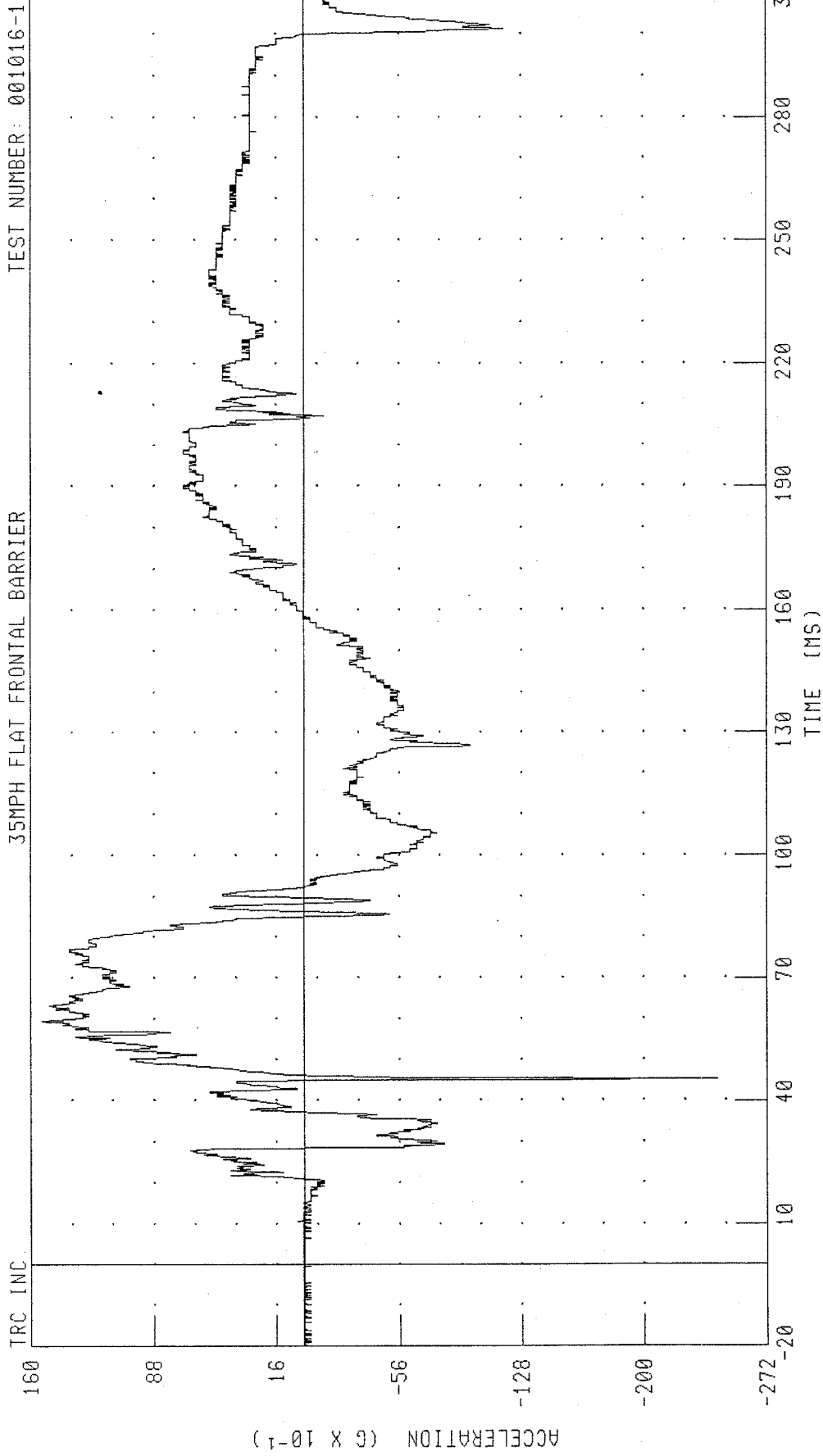
TRC INC.



PEAK DATA: 2.67 G @ 87.60 MS; -6.78 G @ 60.16 MS

CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

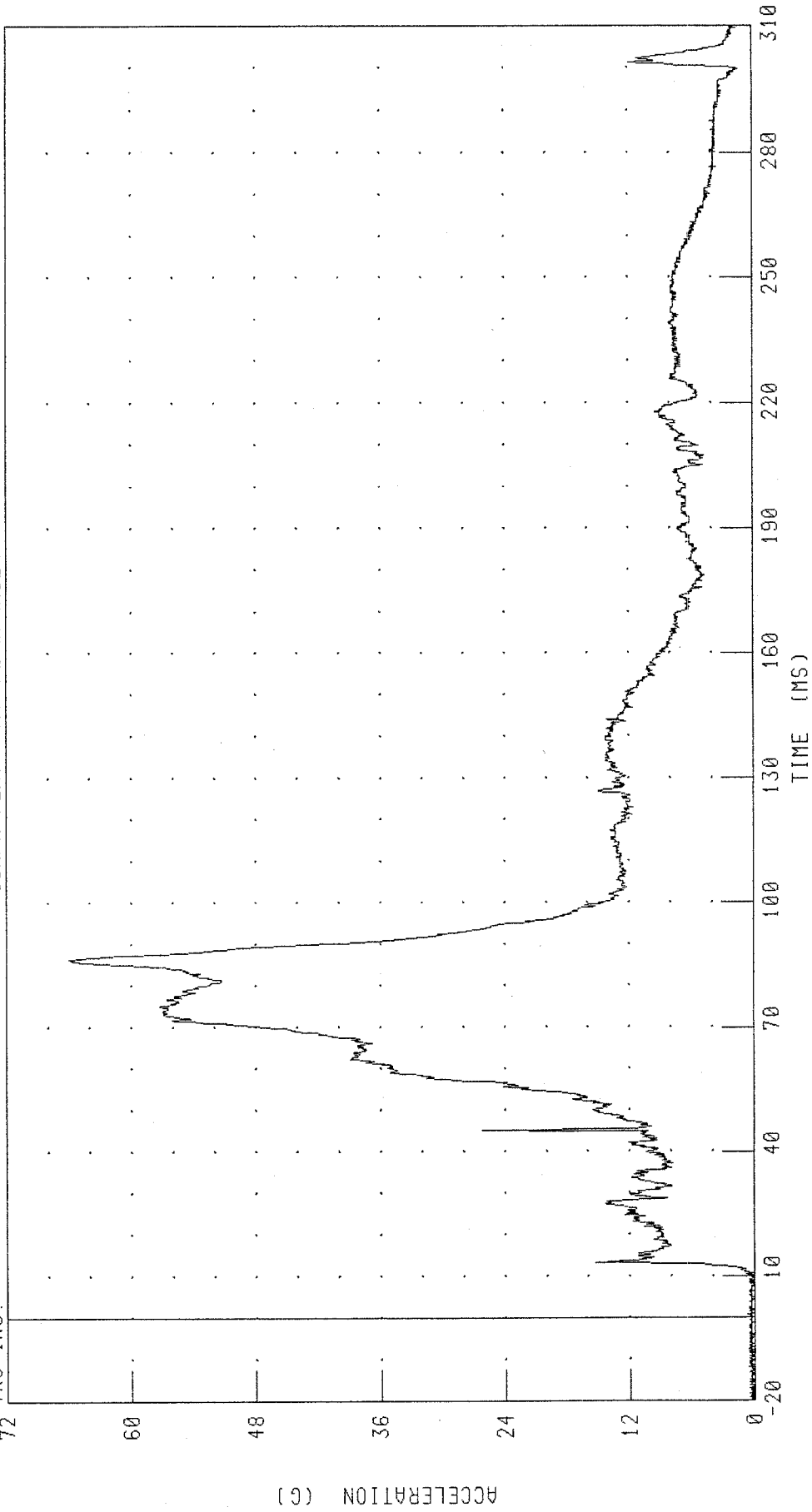


CHANNEL: HEDZR1 FILTER: CH. CLASS 1000 PEAK DATA: 15.32 G @ 59.36 MS; -24.31 G @ 45.20 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

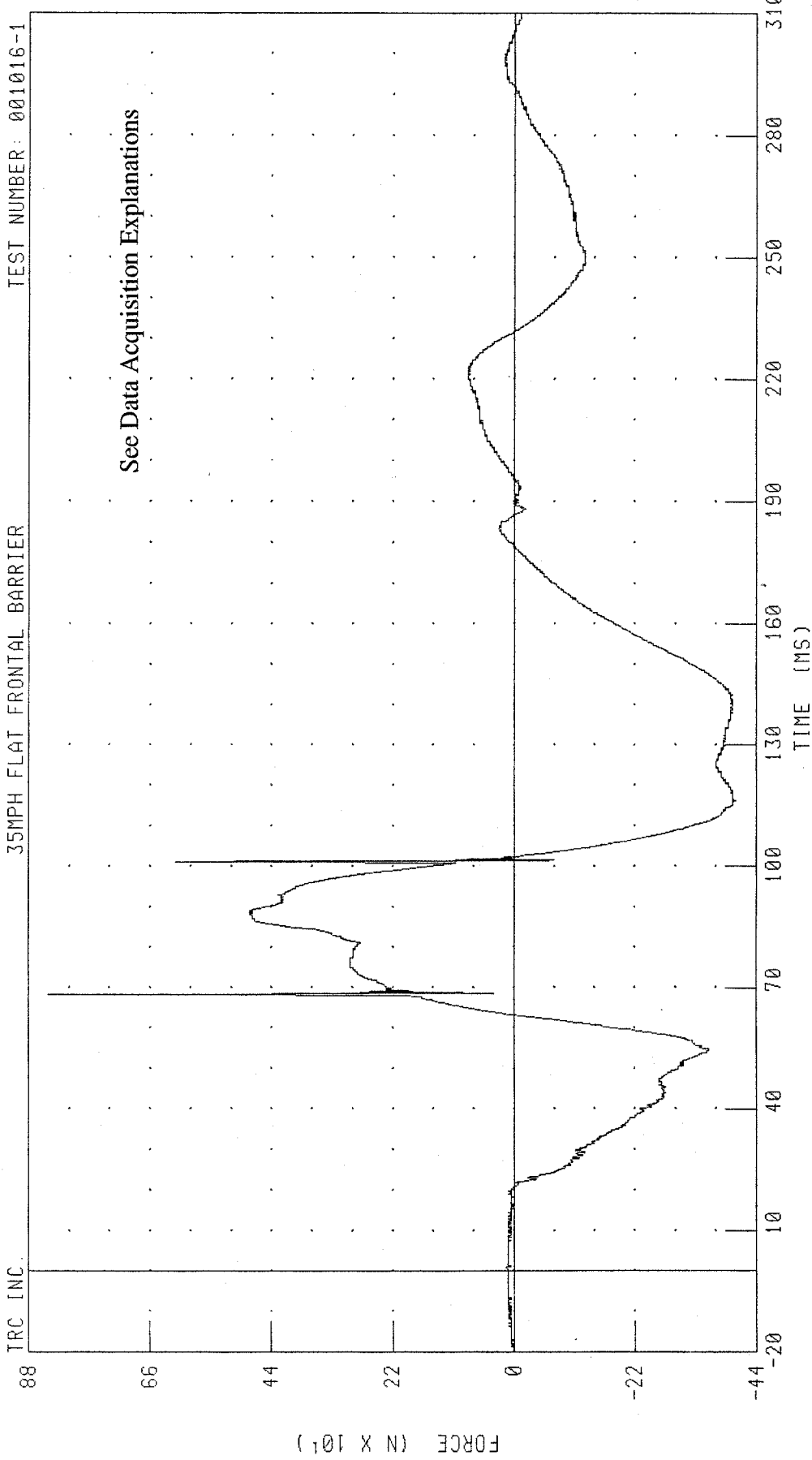


PEAK DATA: 66.00 G @ 86.32 MS; 0.11 G @ -20.00 MS

CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK X-AXIS SHEAR FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



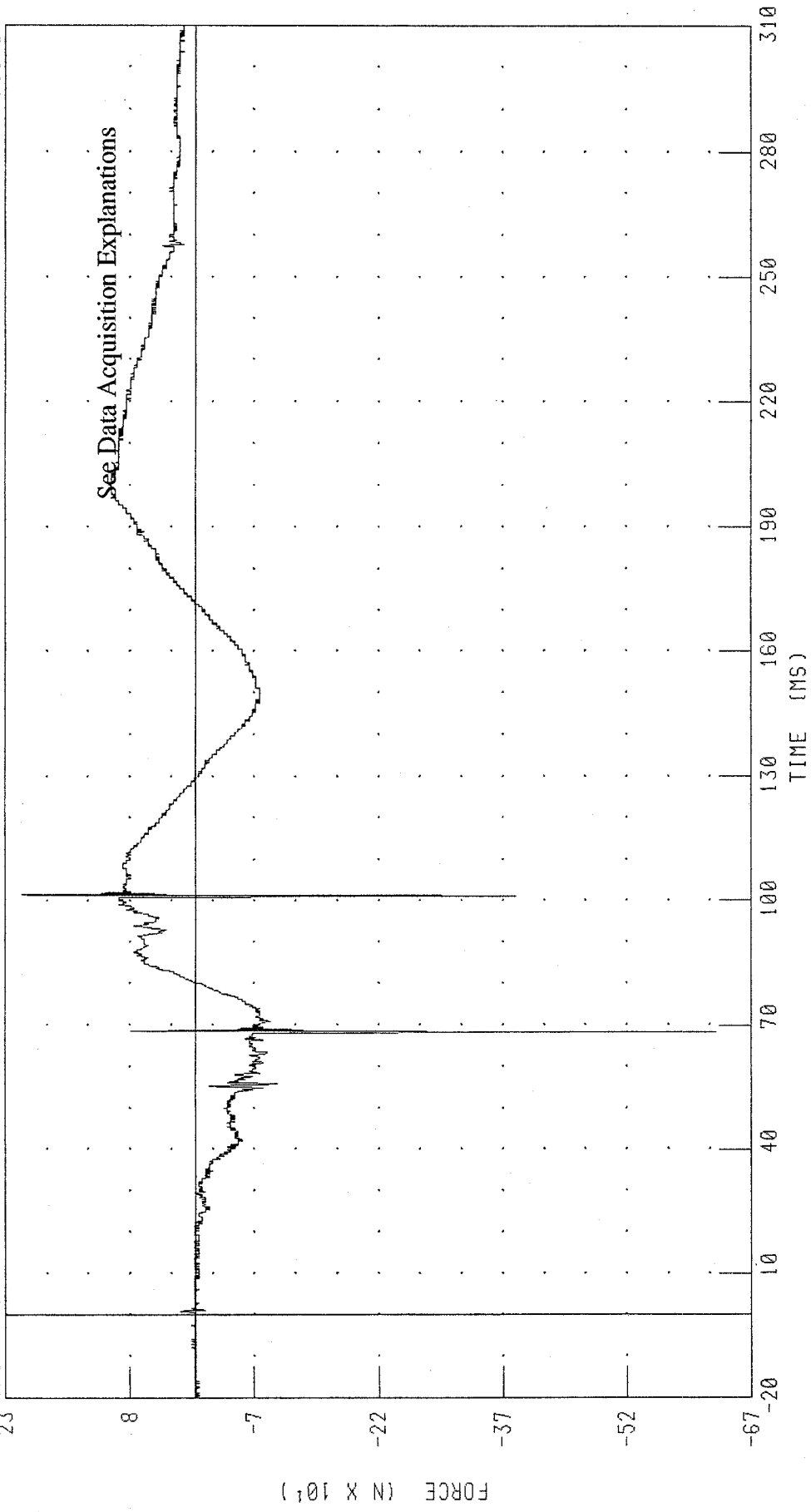
See Data Acquisition Explanations

CHANNEL: NEKXF1 FILTER: CH. CLASS 1000
PEAK DATA: 844.16 N @ 68.40 MS; -402.58 N @ 116.24 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Y-AXIS SHEAR FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



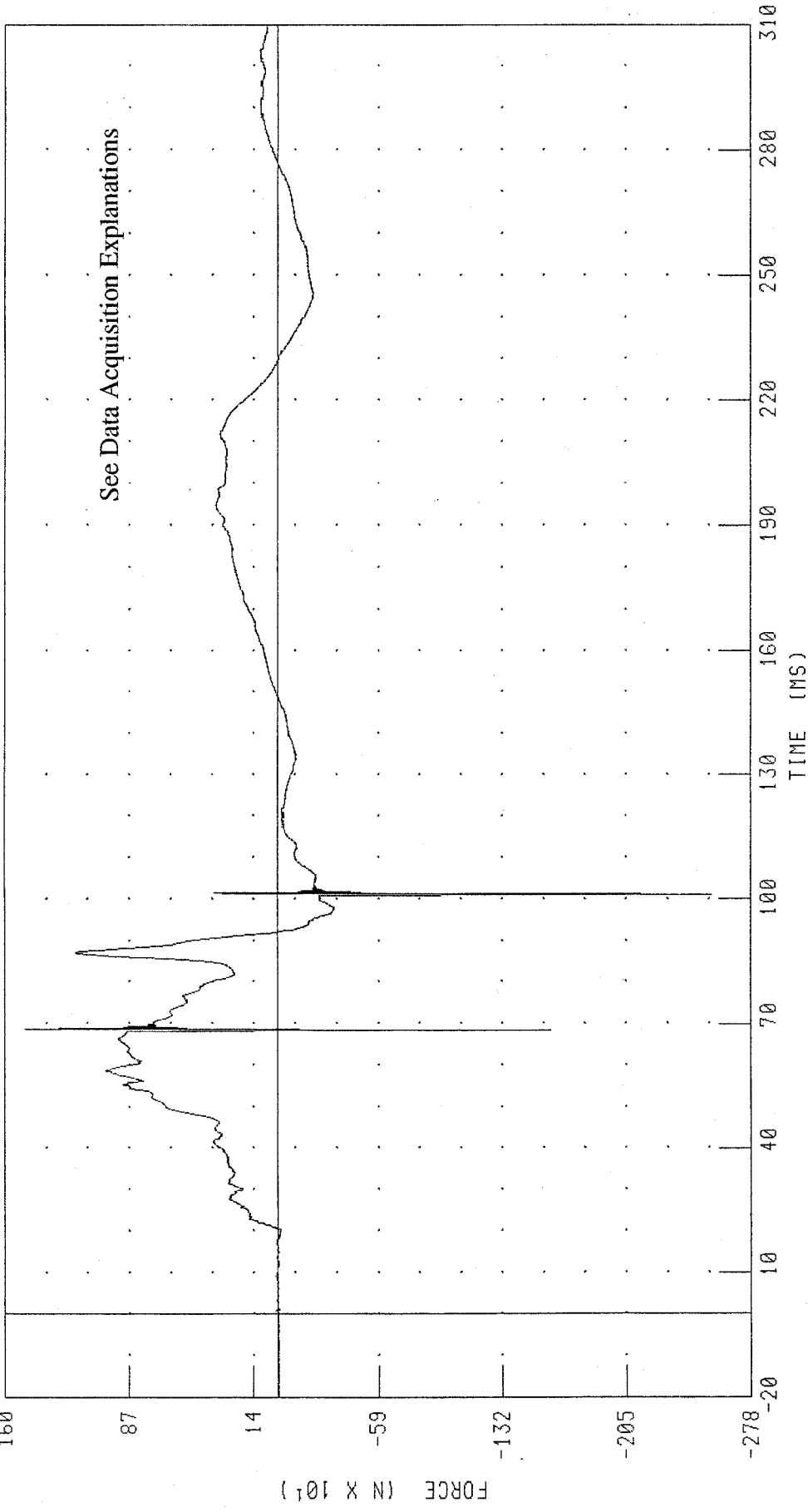
PEAK DATA: 210.05 N @ 101.52 MS; -628.62 N @ 68.40 MS

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Z-AXIS AXIAL FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

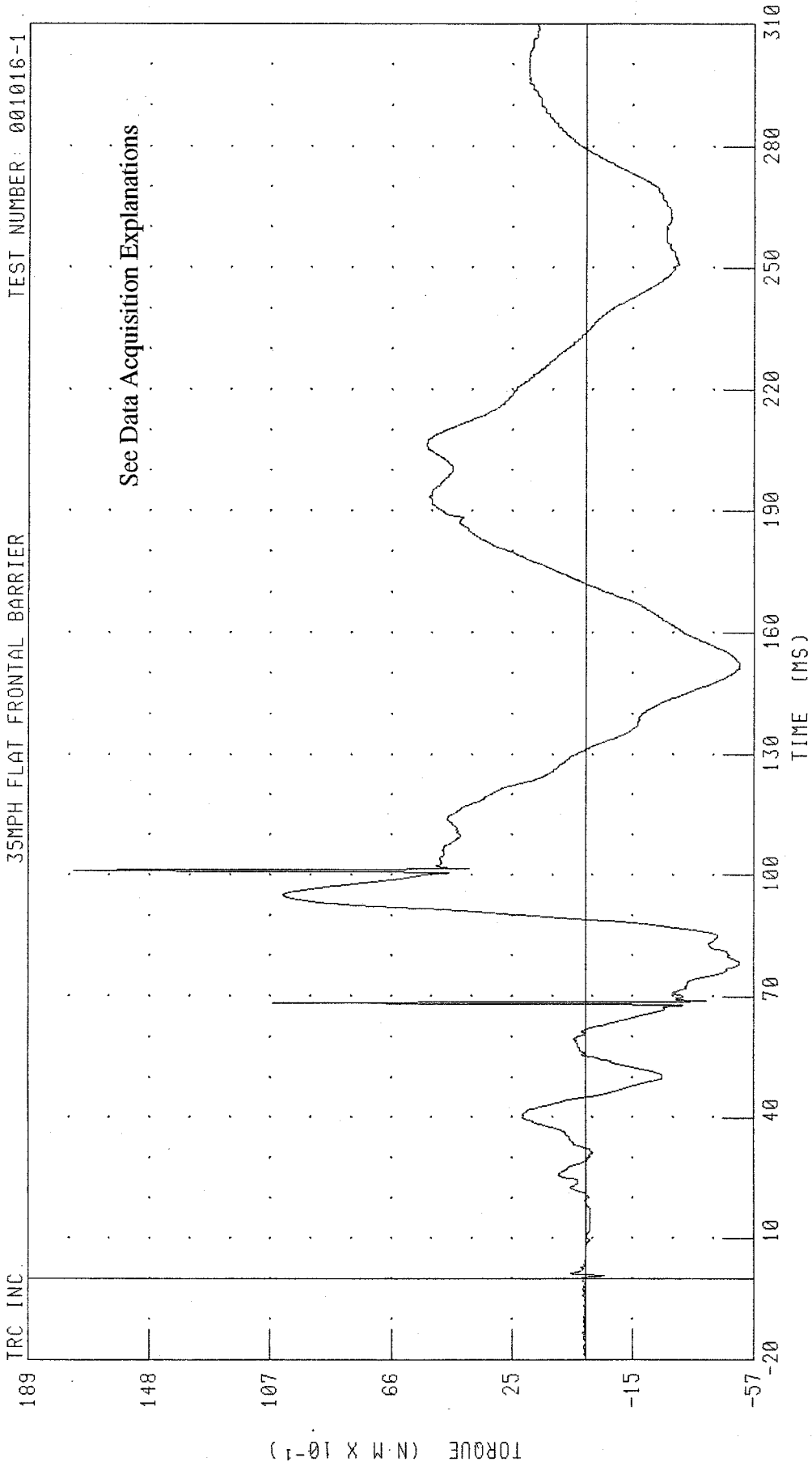
TRC INC.



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 1484.94 N @ 68.72 MS; -2549.26 N @ 101.20 MS

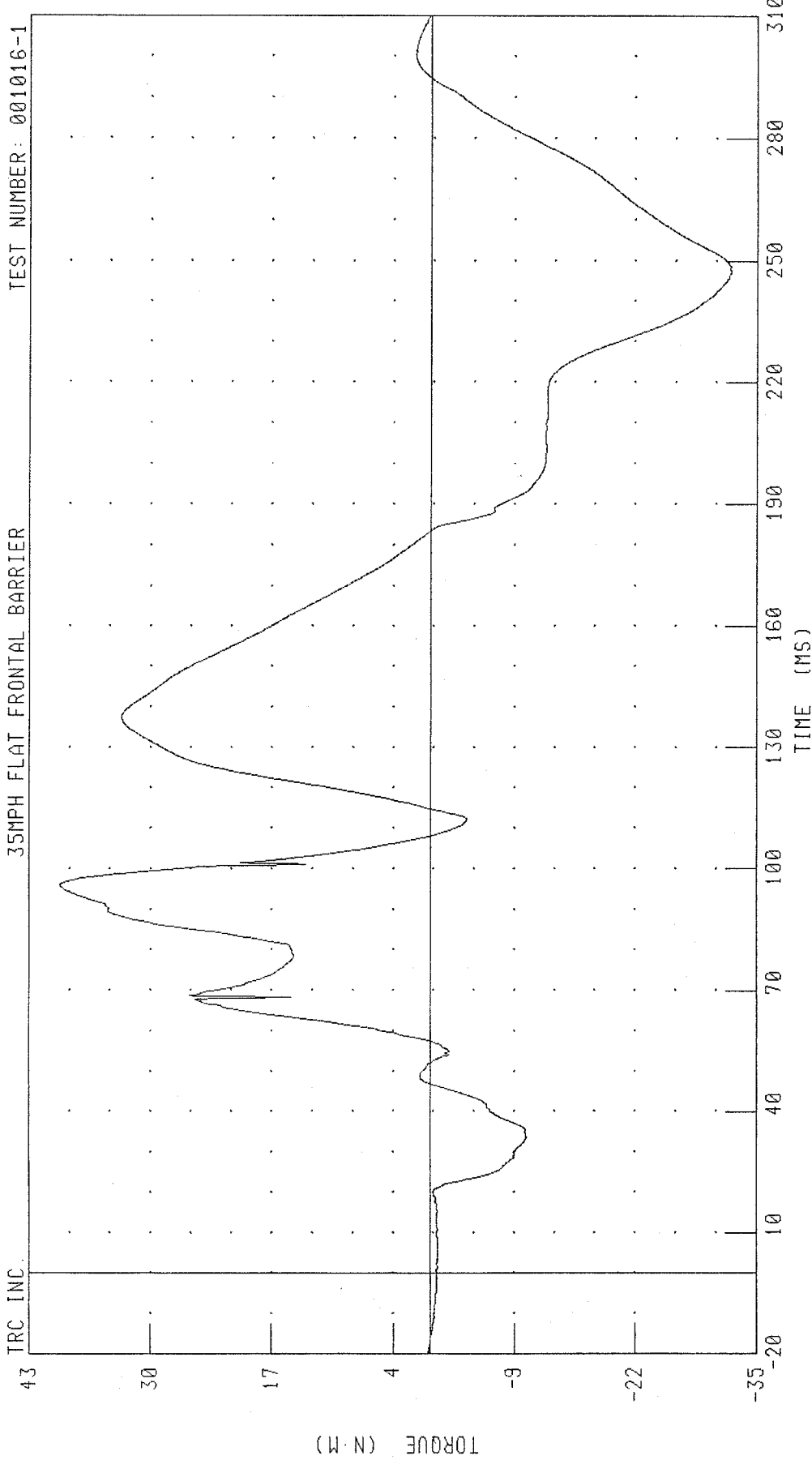
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER



CHANNEL: NEKXM1 FILTER: CH. CLASS 600 PEAK DATA: 17.38 N·M @ 101.12 MS; -5.23 N·M @ 78.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

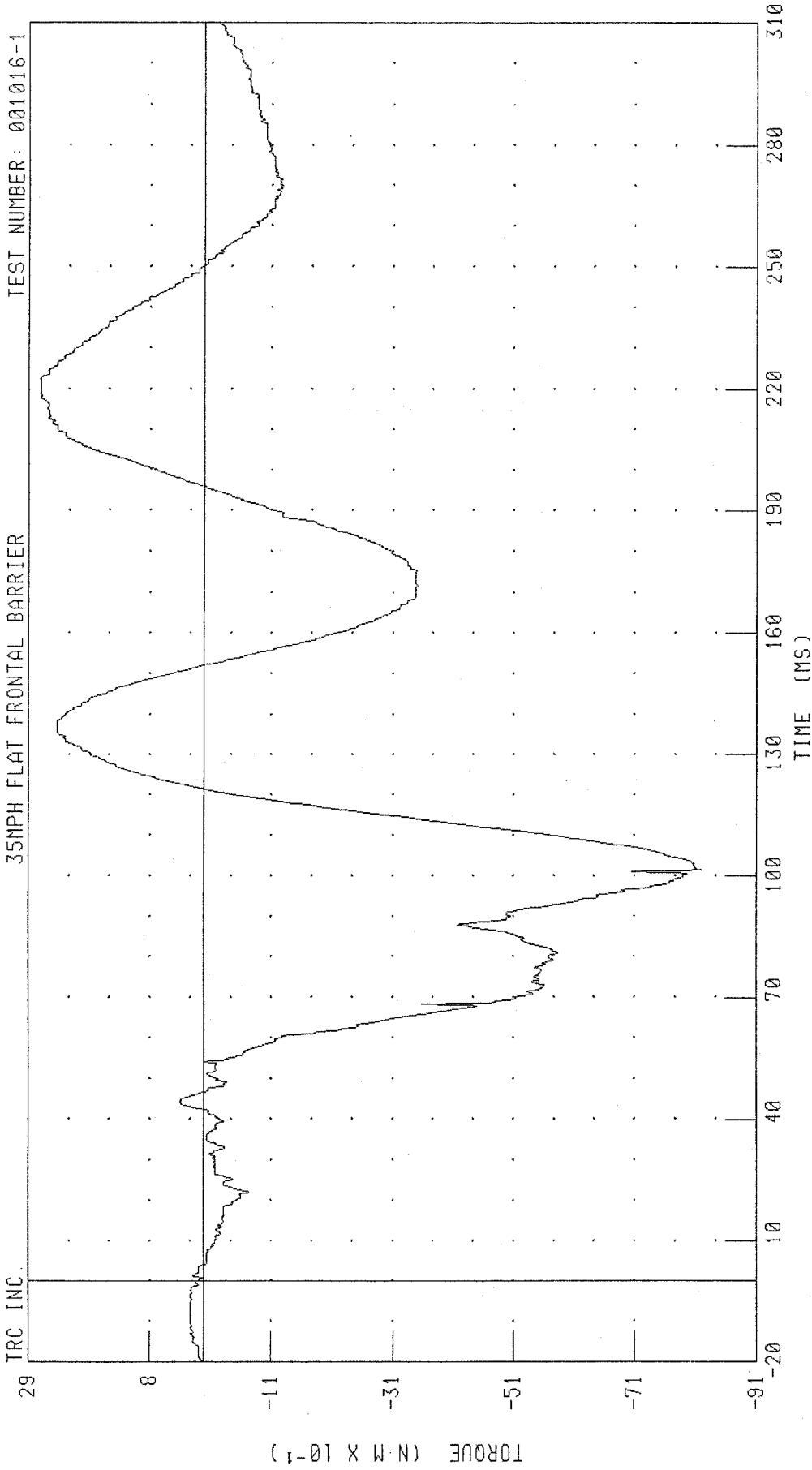
TEST NUMBER: 001016-1



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 39.71 N·M @ 95.92 MS, -32.29 N·M @ 247.28 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS
35MPH FLAT FRONTAL BARRIER



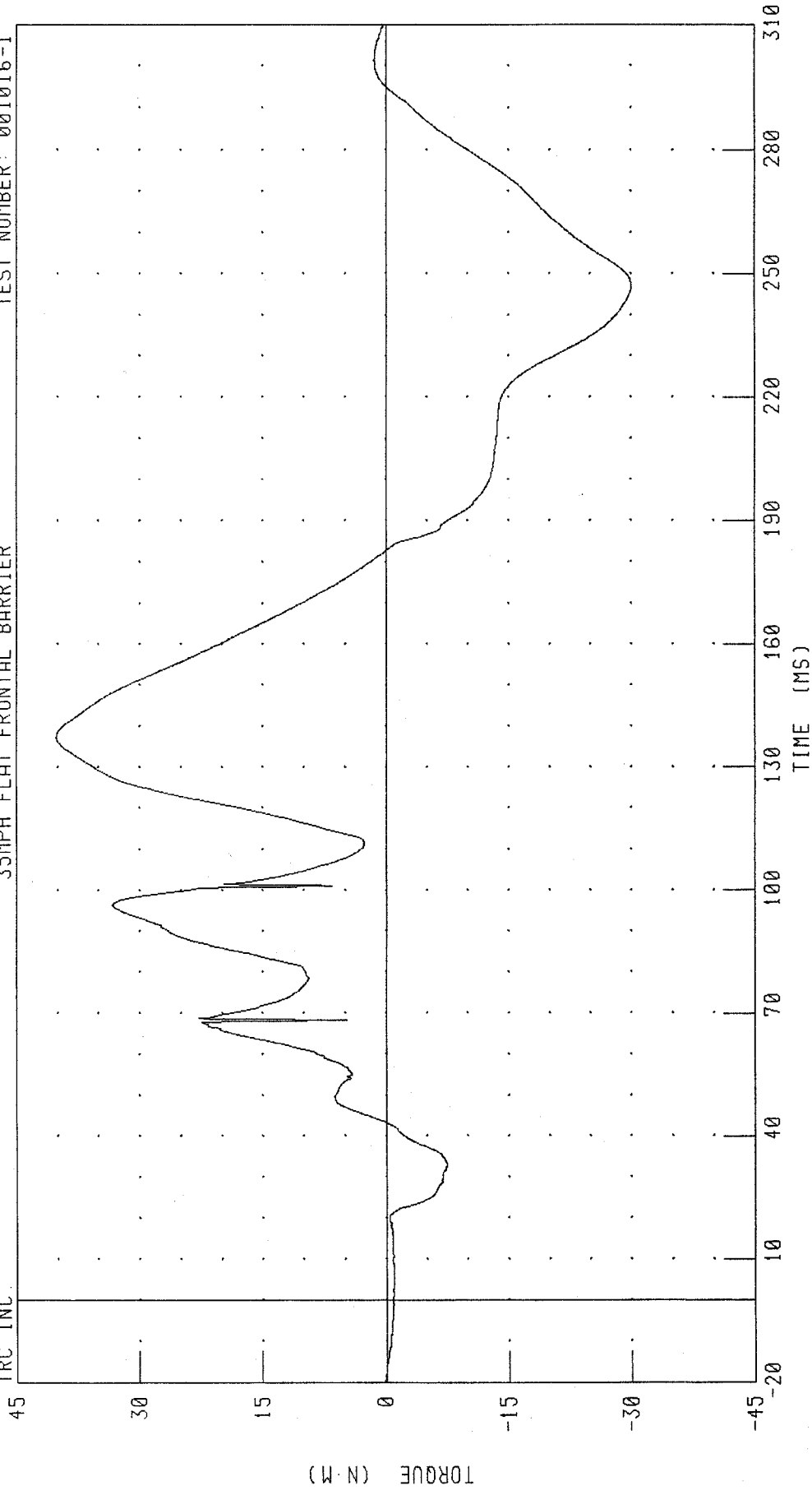
CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 2.71 N·M @ 218.96 MS; -8.21 N·M @ 101.60 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT OCCIPITAL CONDYLE ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

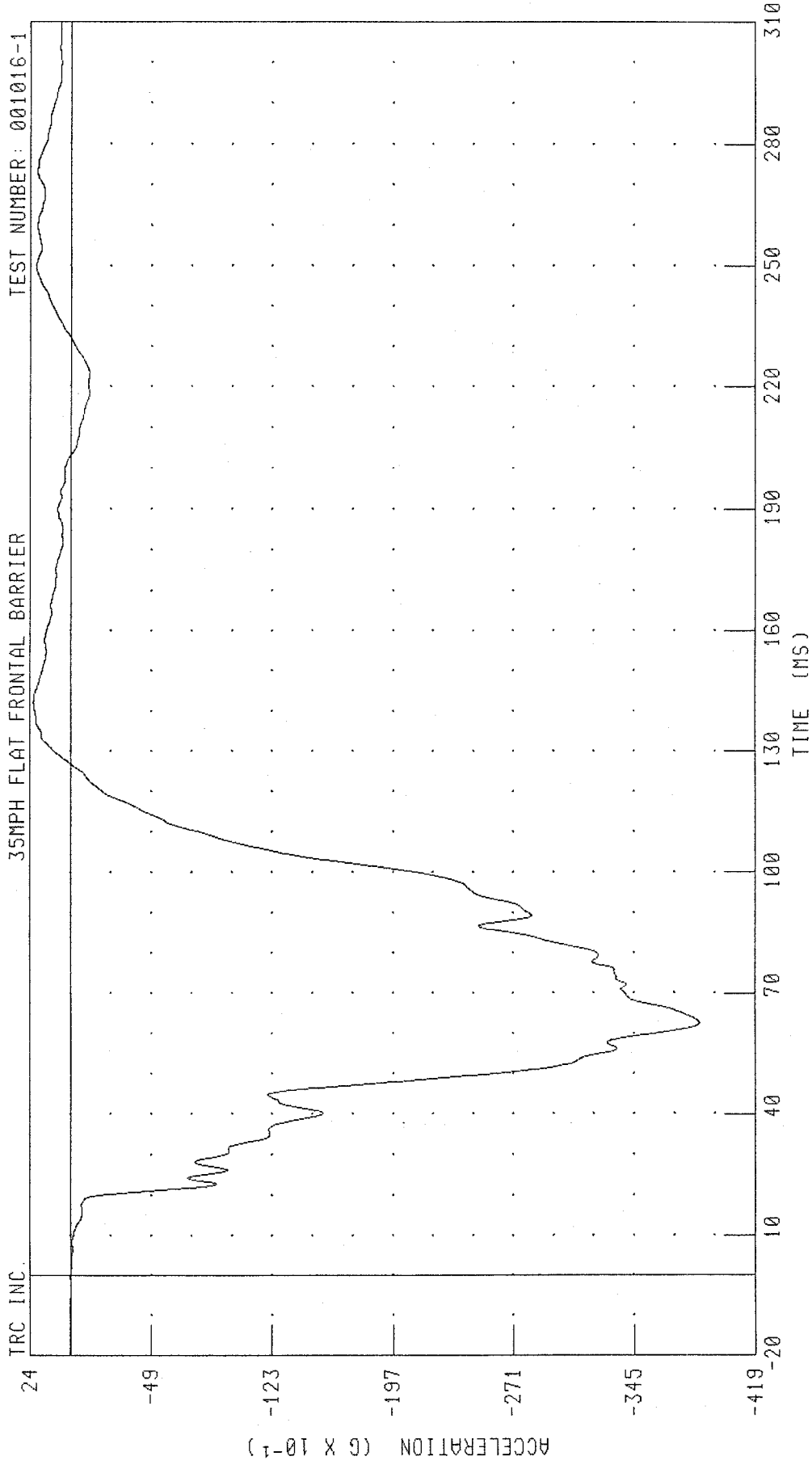
TRC INC.



PEAK DATA: 40.17 N·M @ 137.36 MS, -30.07 N·M @ 247.28 MS

CHANNEL: NEKOM1 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

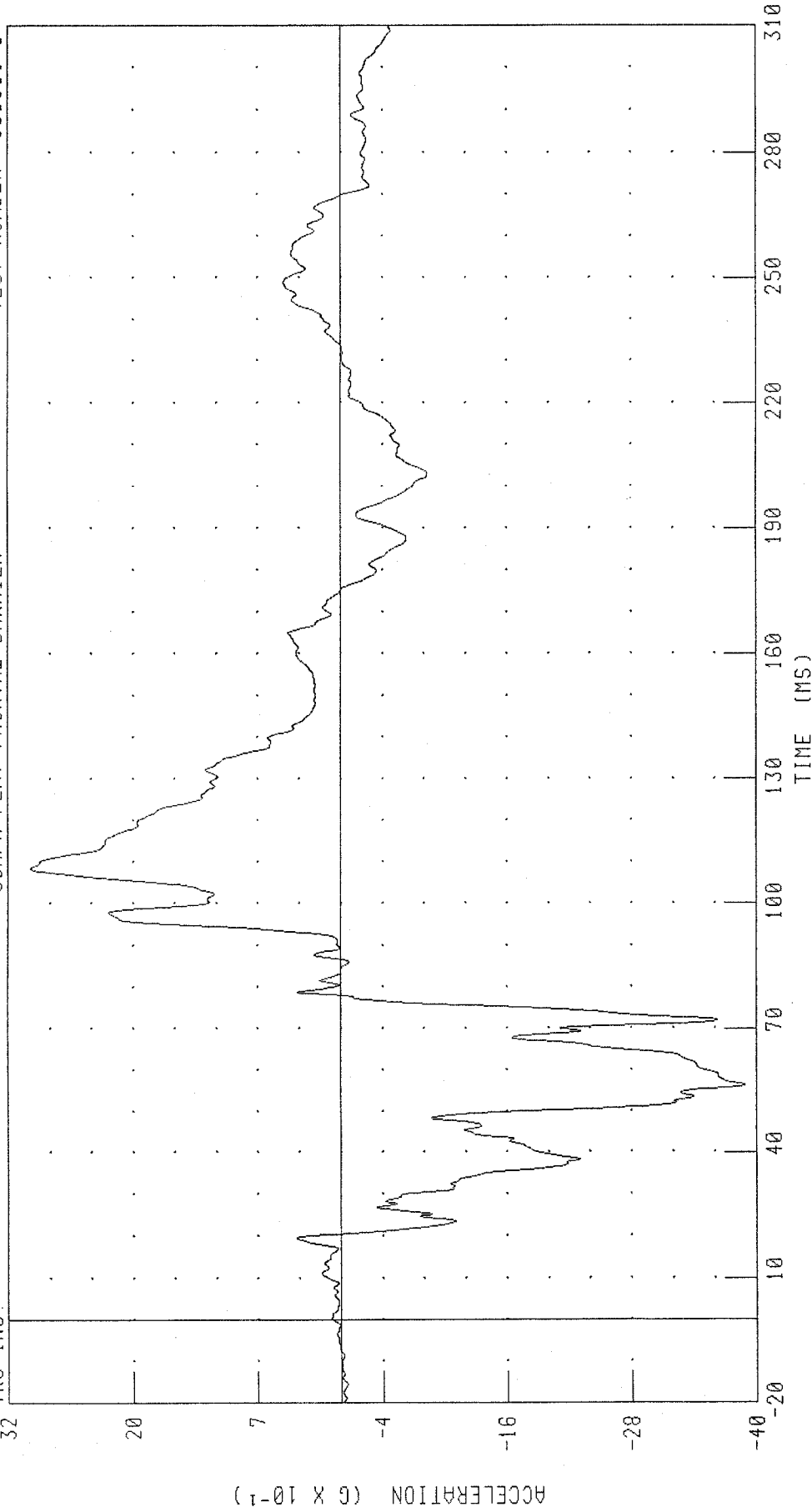


CHANNEL: CSTXC1 FILTER: CH. CLASS 180 PEAK DATA: 2.30 G @ 142.24 MS; -38.50 G @ 62.56 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



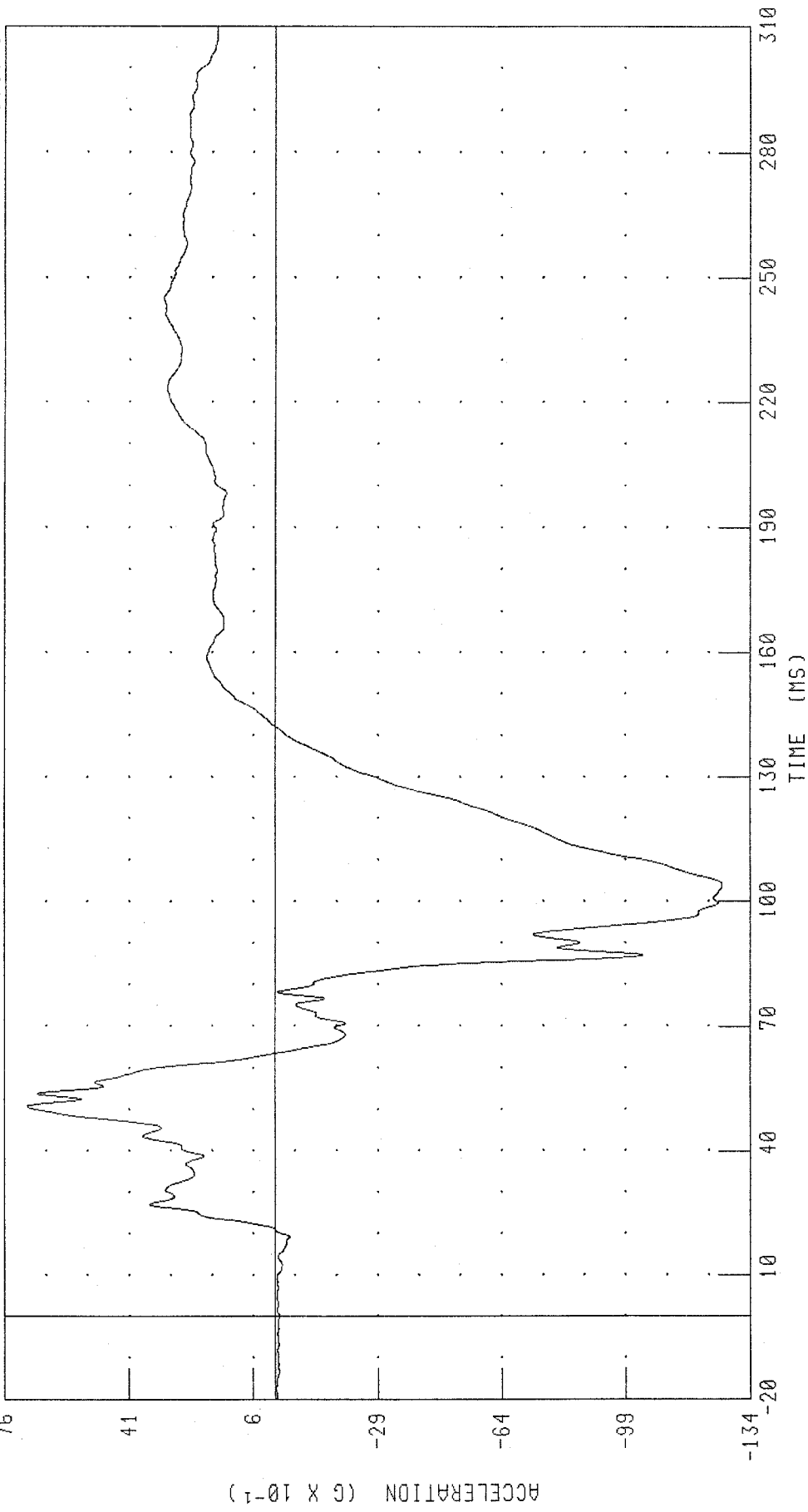
PEAK DATA: 2.98 G @ 108.40 MS; -3.89 G @ 56.24 MS

CHANNEL: CSTYG1 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



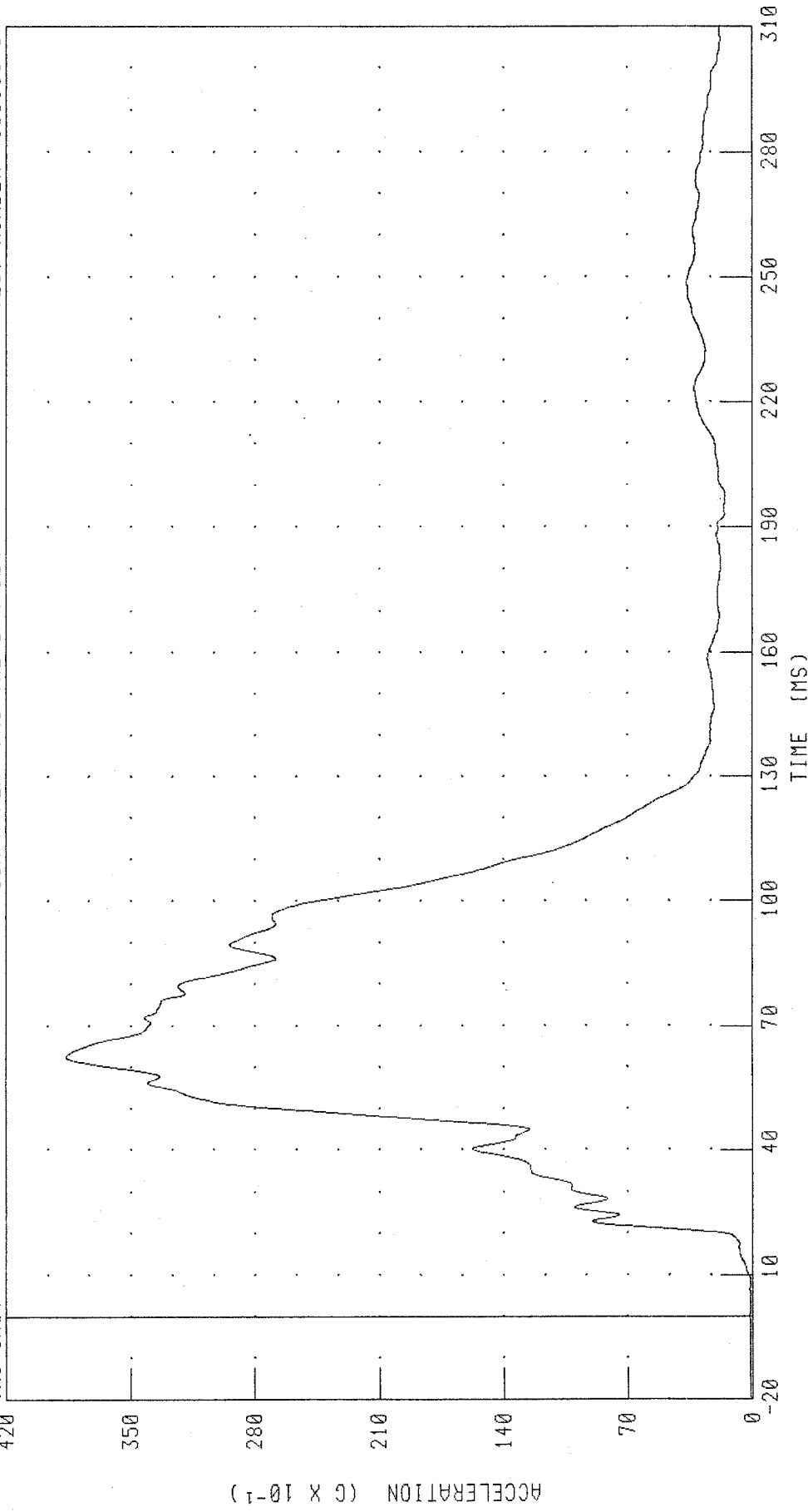
CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 6.97 G @ 50.80 MS; -12.61 G @ 104.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

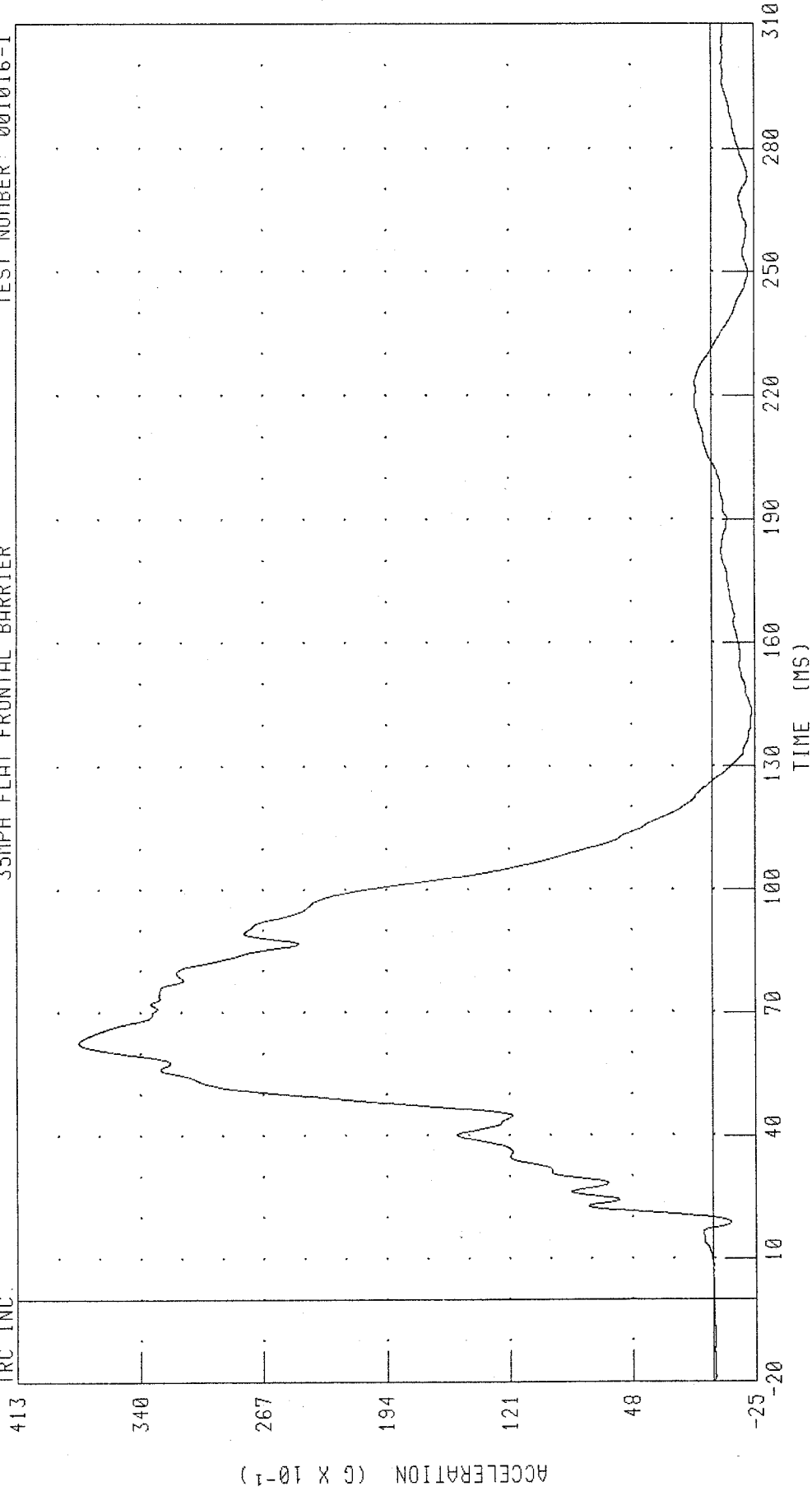


CHANNEL: CSTRG1 FILTER: CH. CLASS 180 PEAK DATA: 38.65 G @ 62.56 MS; 0.01 G @ -20.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

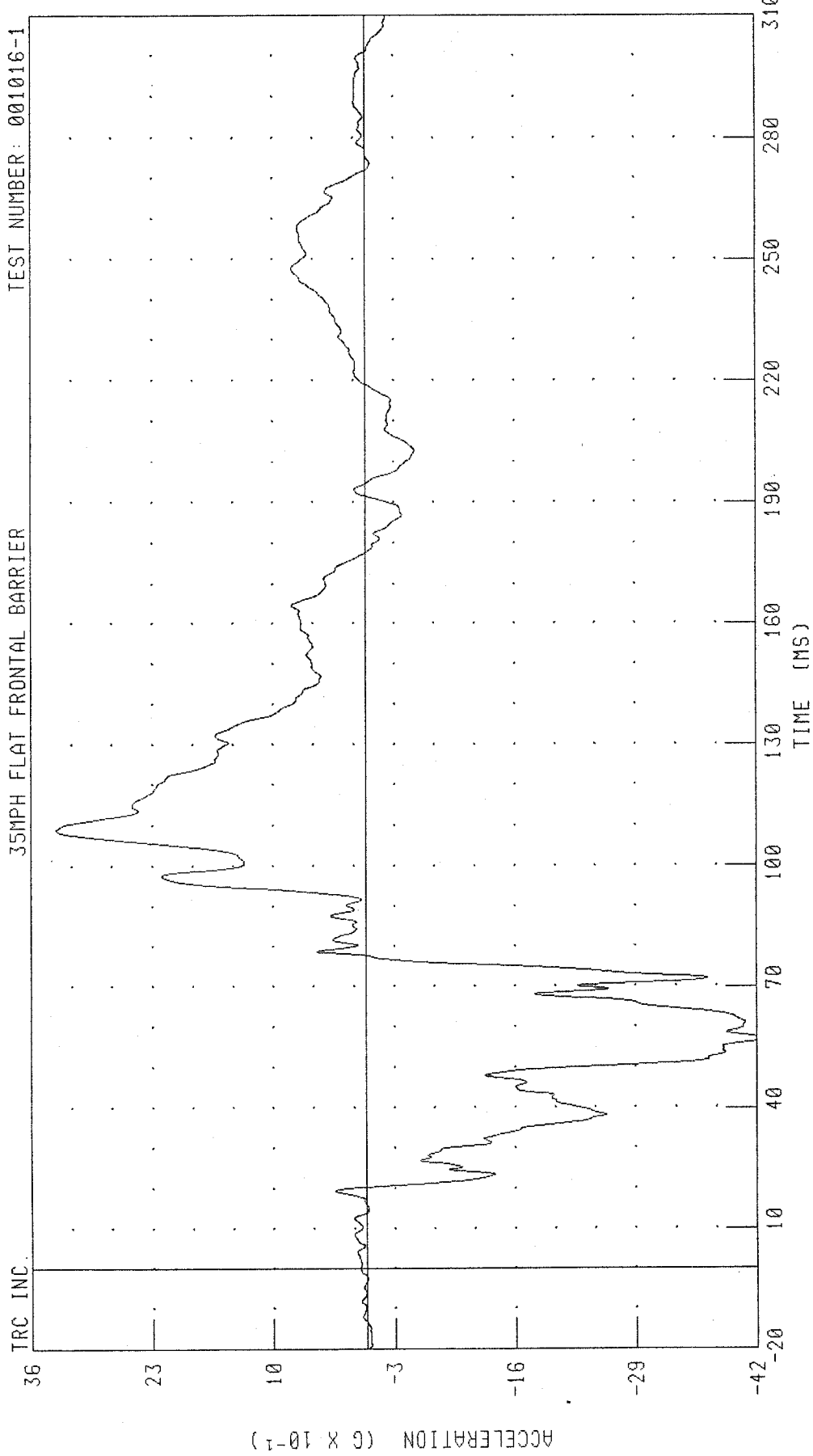


CHANNEL: CSTXR1 FILTER: CH. CLASS 180

PEAK DATA: 37.65 G @ 62.64 MS; -2.33 G @ 143.20 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

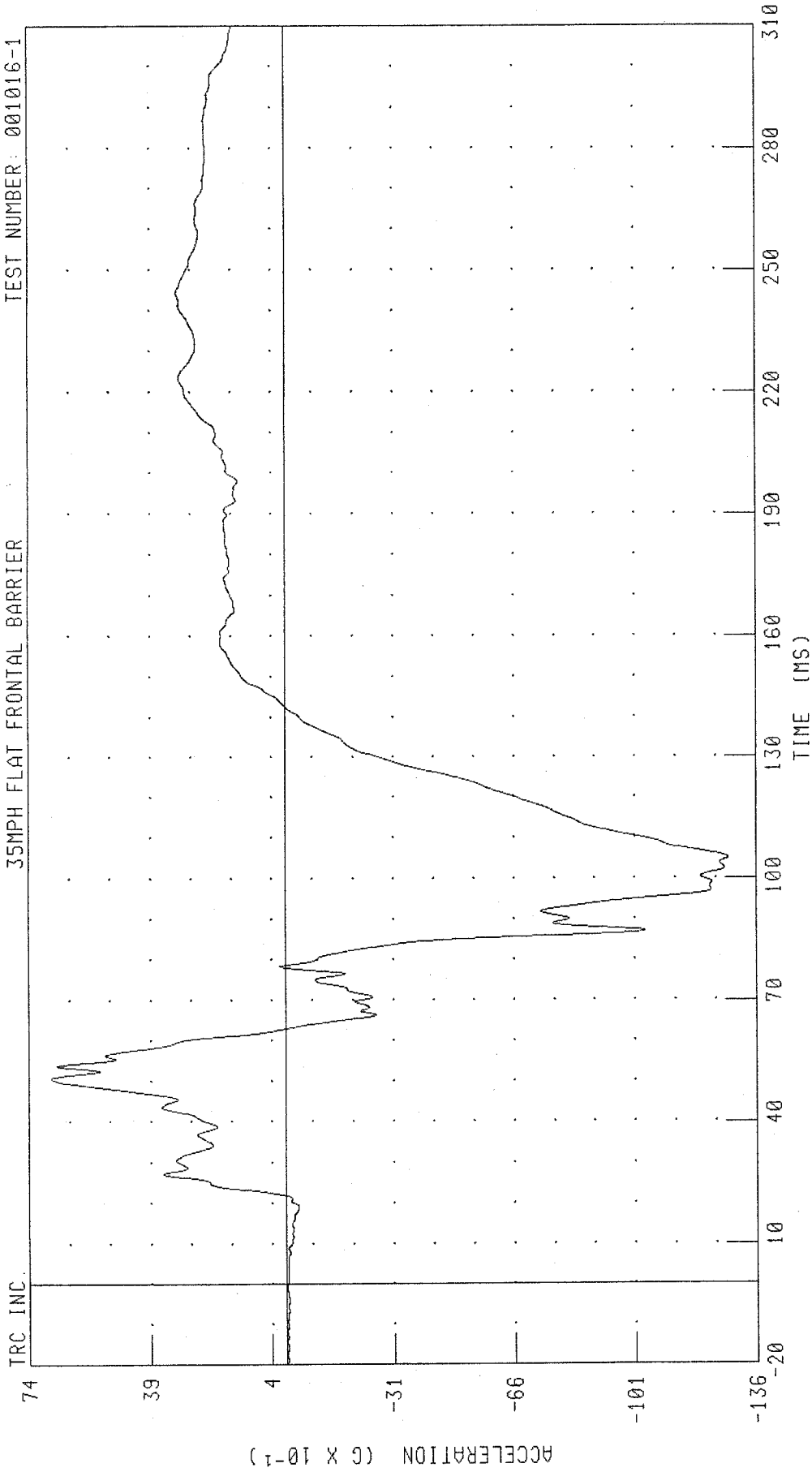
TEST NUMBER: 001016-1



CHANNEL: CSTYR1 FILTER: CH. CLASS 180 PEAK DATA: 3.33 G @ 108.88 MS; -4.30 G @ 56.96 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

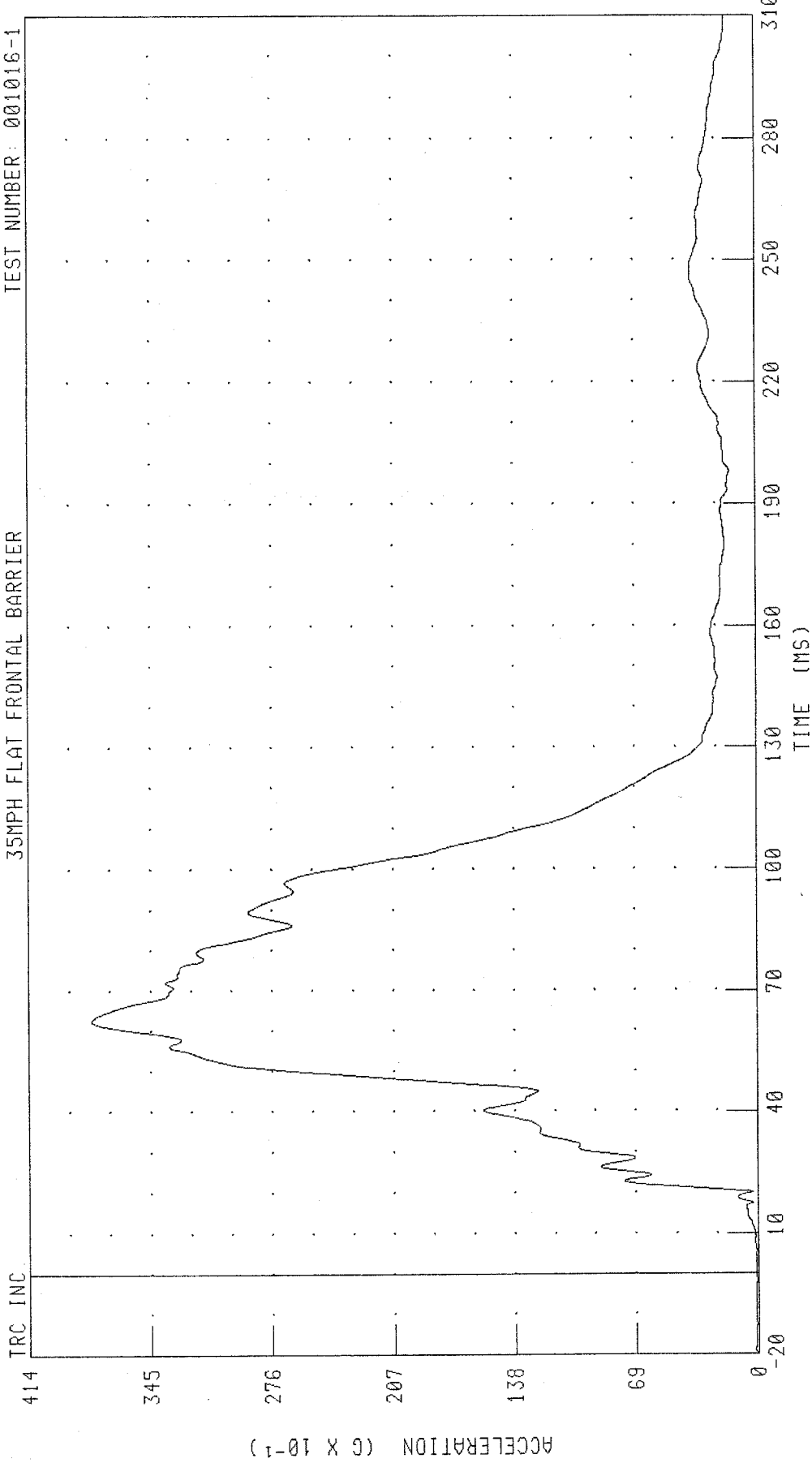
TEST NUMBER: 001016-1



CHANNEL: CSTZR1 FILTER: CH. CLASS 180 PEAK DATA: 6.77 G @ 50.72 MS; -12.79 G @ 105.12 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



PEAK DATA: 37.86 G @ 62.64 MS; 0.01 G @ -20.00 MS

CHANNEL: CSTRR1 FILTER: CH. CLASS 180

TRC INC
414

345

ACCELERATION (G X 10⁻¹)

276

207

138

69

0

-20

TIME (MS)

100

70

40

10

130

160

190

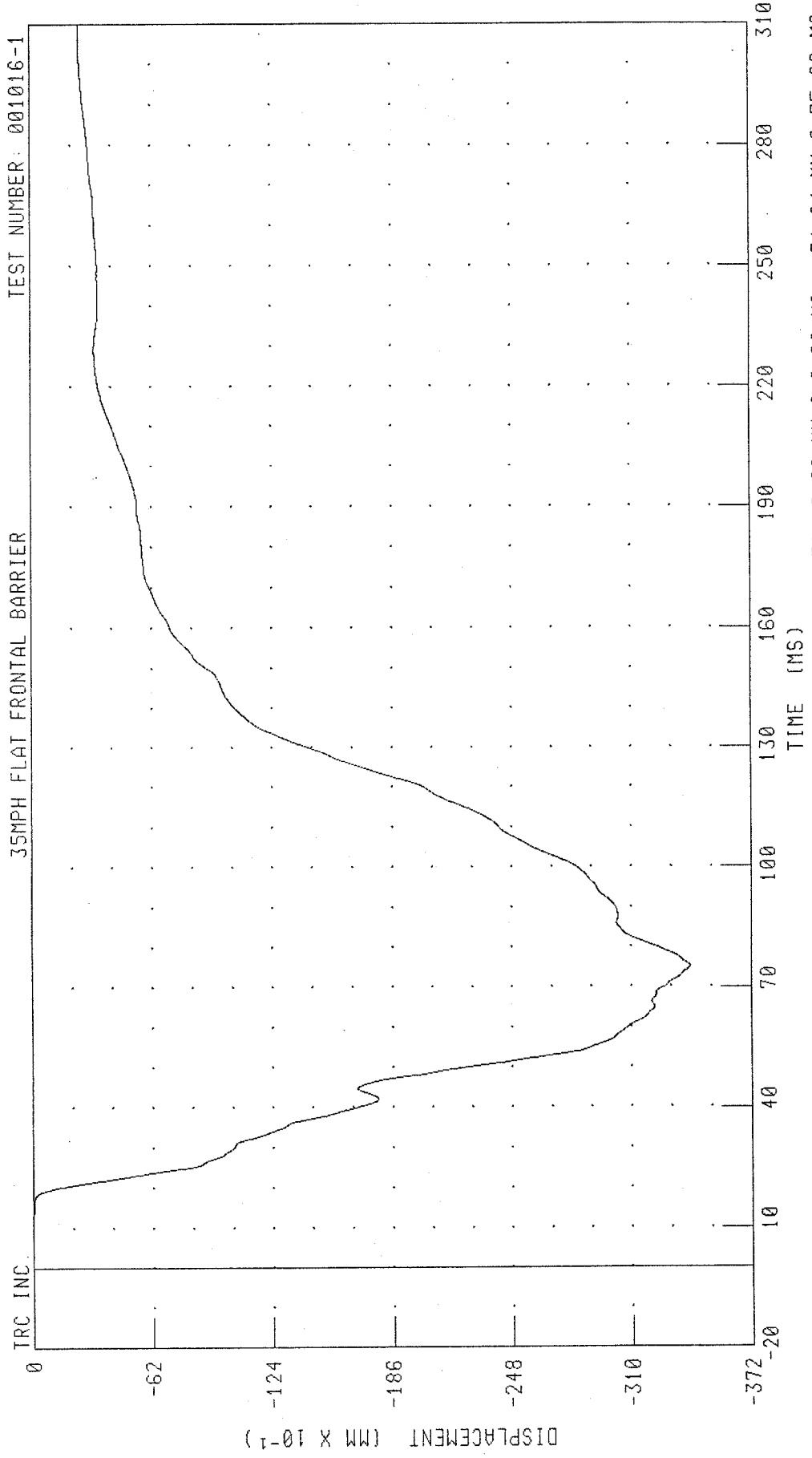
220

250

280

310

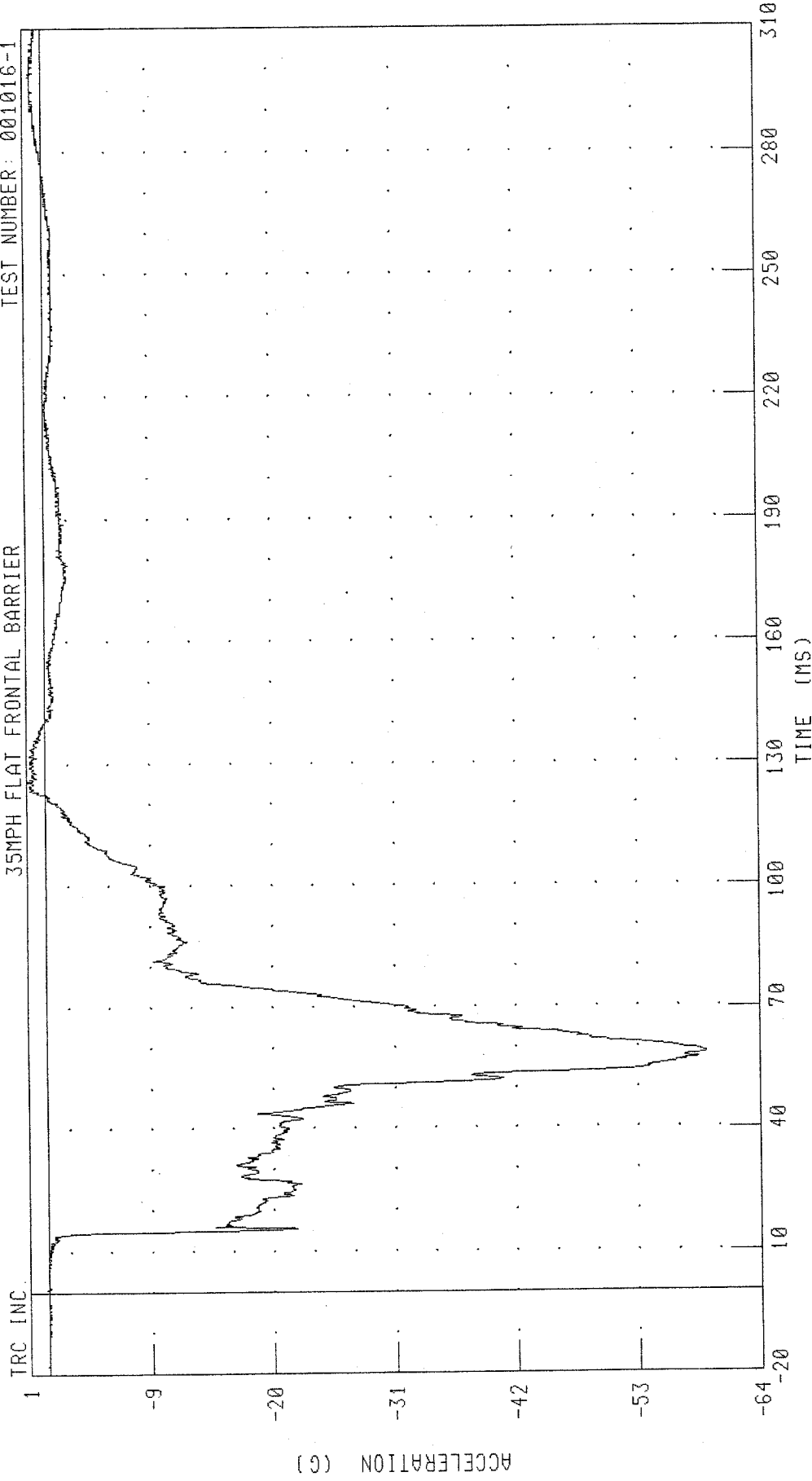
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST DEFLECTION
35MPH FLAT FRONTAL BARRIER



CHANNEL: CSTXD1 FILTER: CH. CLASS 180 PEAK DATA: 0.02 MM @ 2.08 MS, -34.04 MM @ 75.20 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

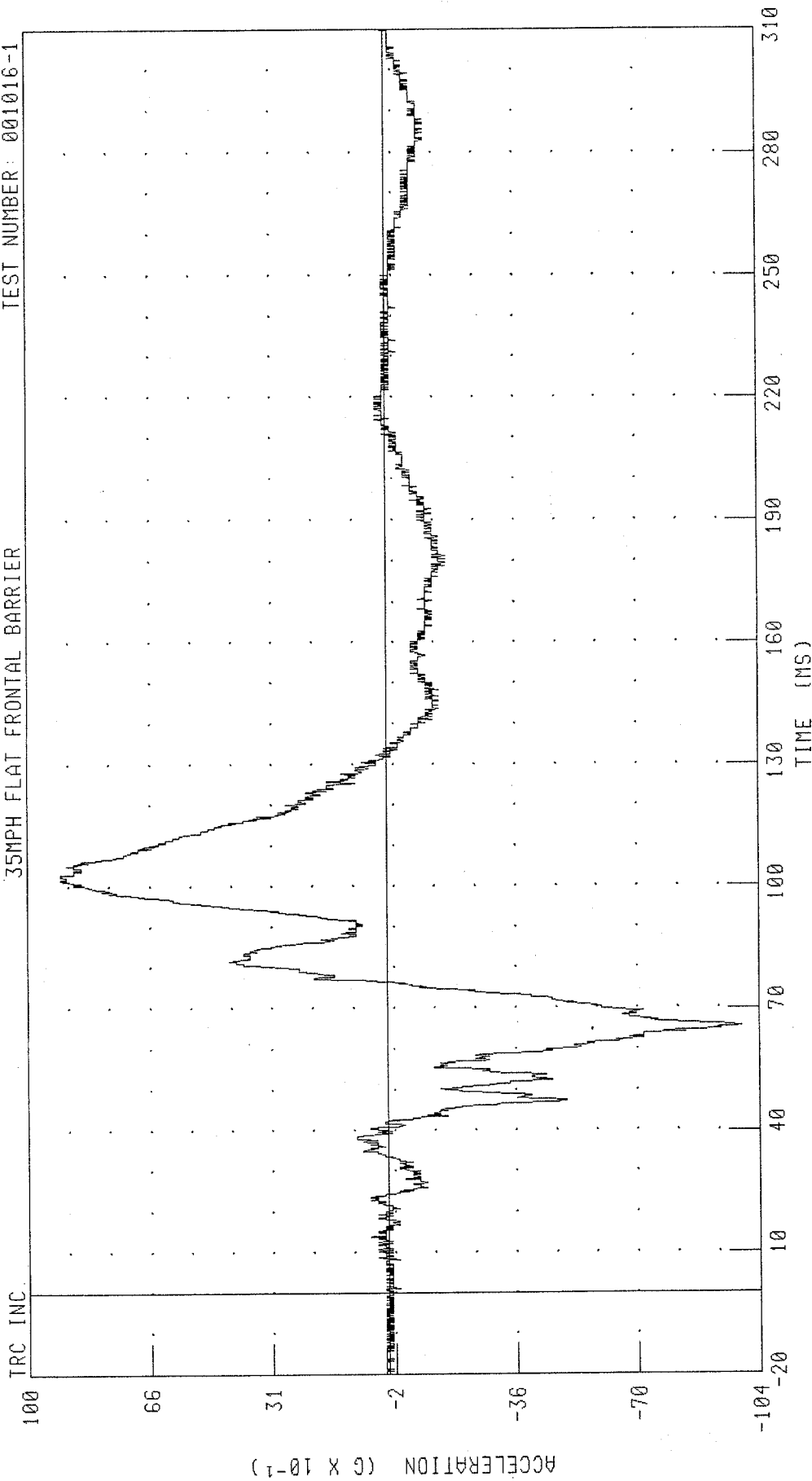


PEAK DATA: 1.61 G @ 125.84 MS; -59.50 G @ 58.64 MS

CHANNEL: PEVXG1 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Y-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

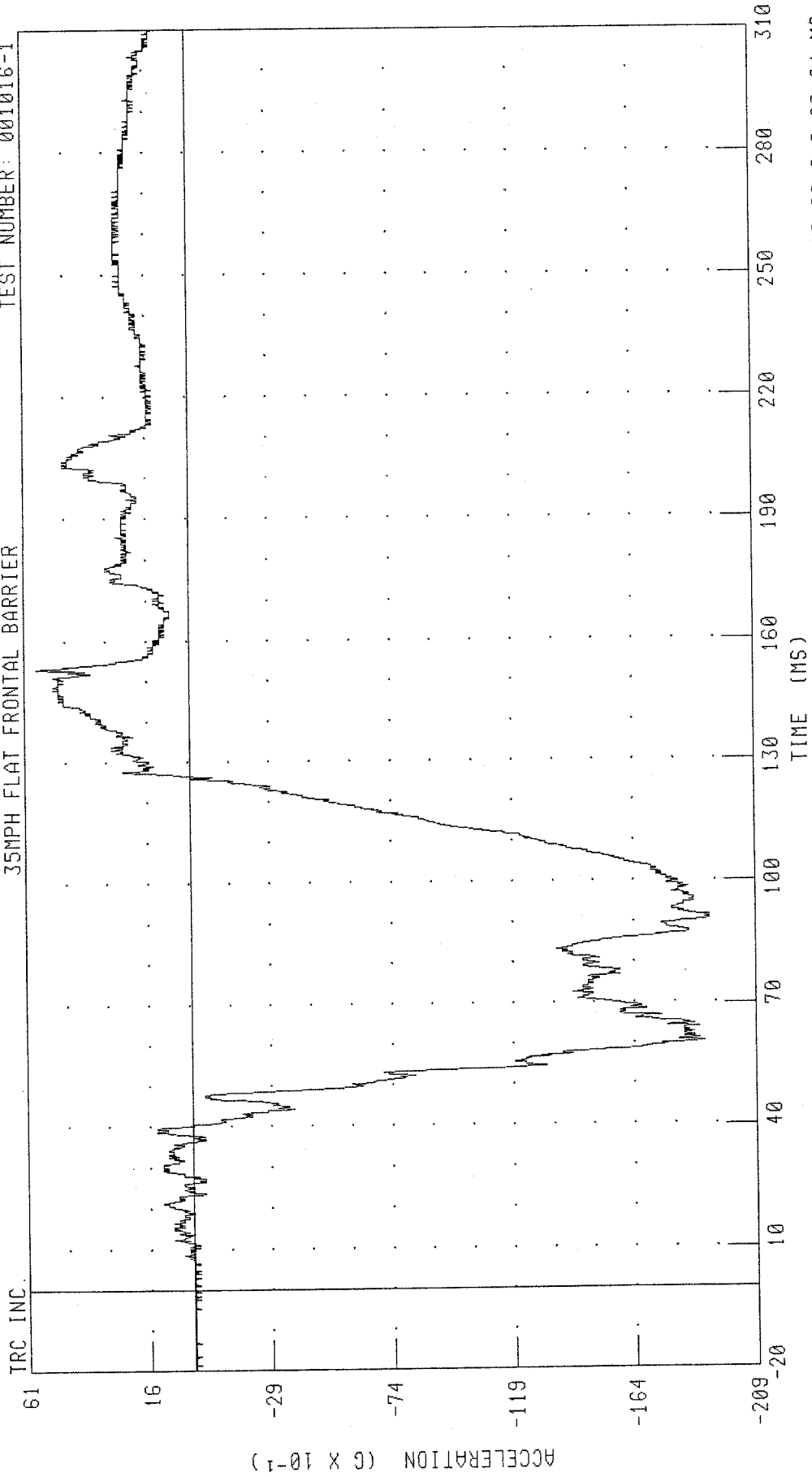
TEST NUMBER: 001016-1



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000
PEAK DATA: 9.10 G @ 101.52 MS, -9.92 G @ 65.44 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Z-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

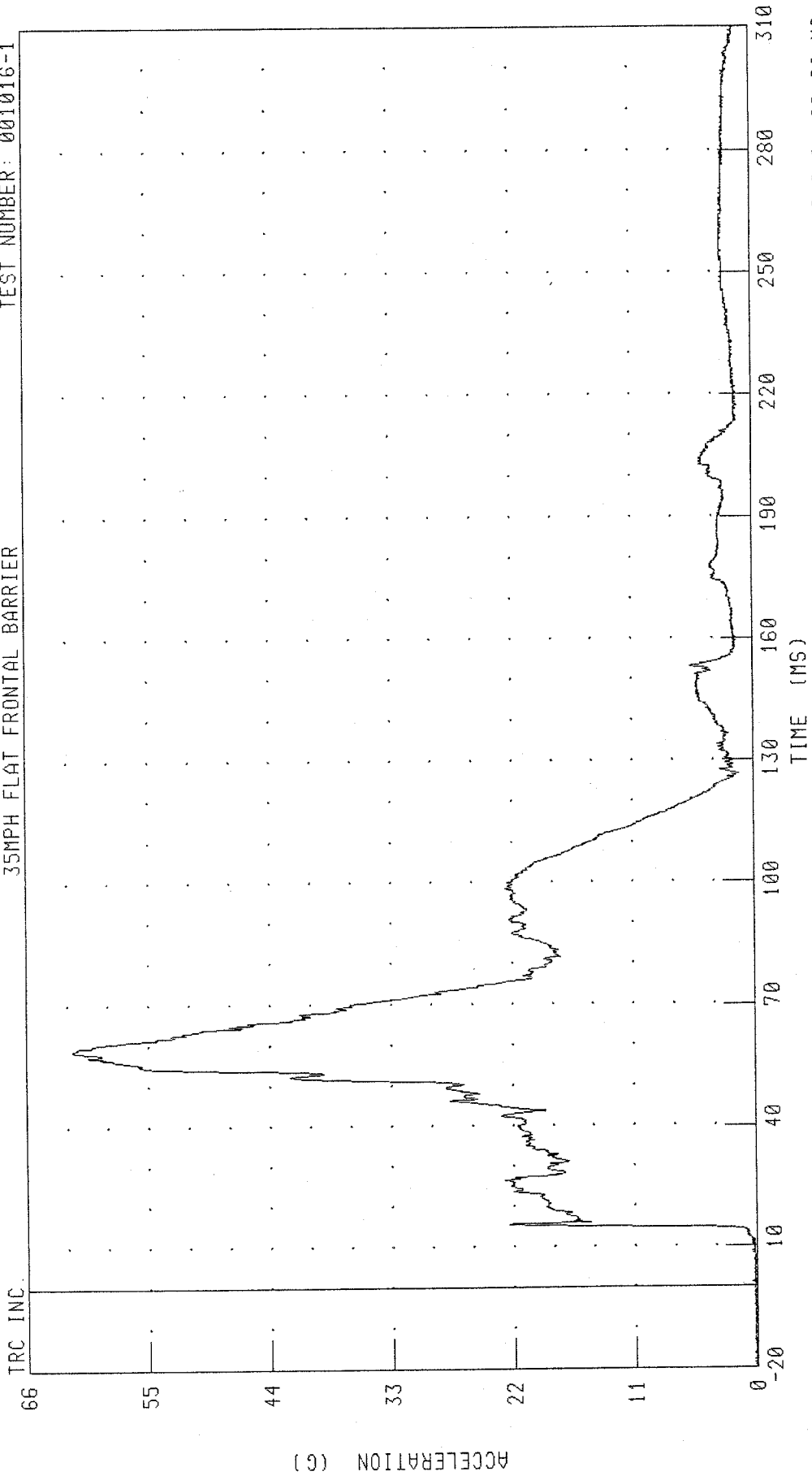


PEAK DATA: 5.63 G @ 153.20 MS; -19.20 G @ 90.64 MS

CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS RESULTANT ACCELERATION
35MPH FLAT FRONTAL BARRIER

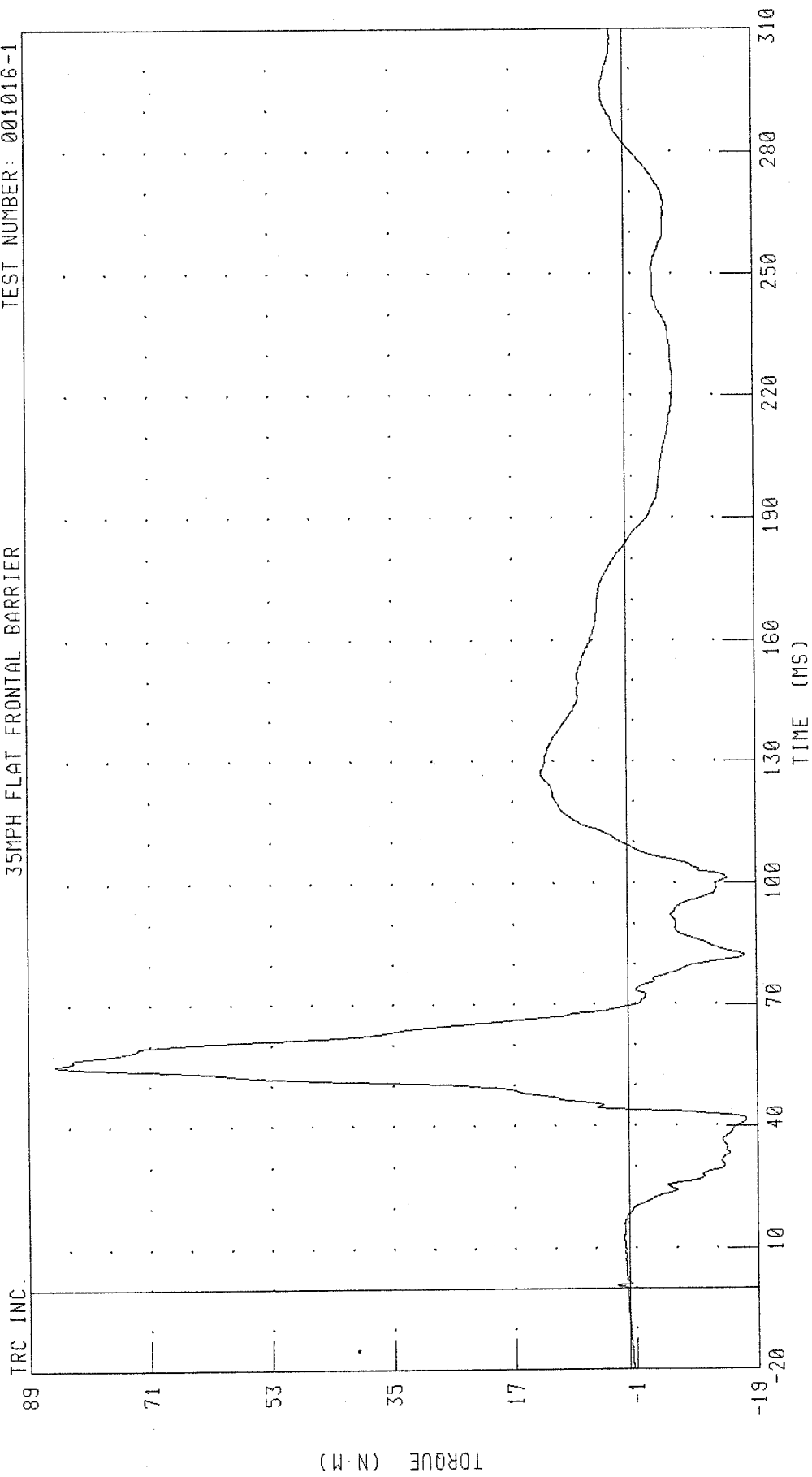
TEST NUMBER: 001016-1



CHANNEL: PEVRC1 FILTER: CH. CLASS 1000 PEAK DATA: 61.87 G @ 58.96 MS; 0.10 G @ -20.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

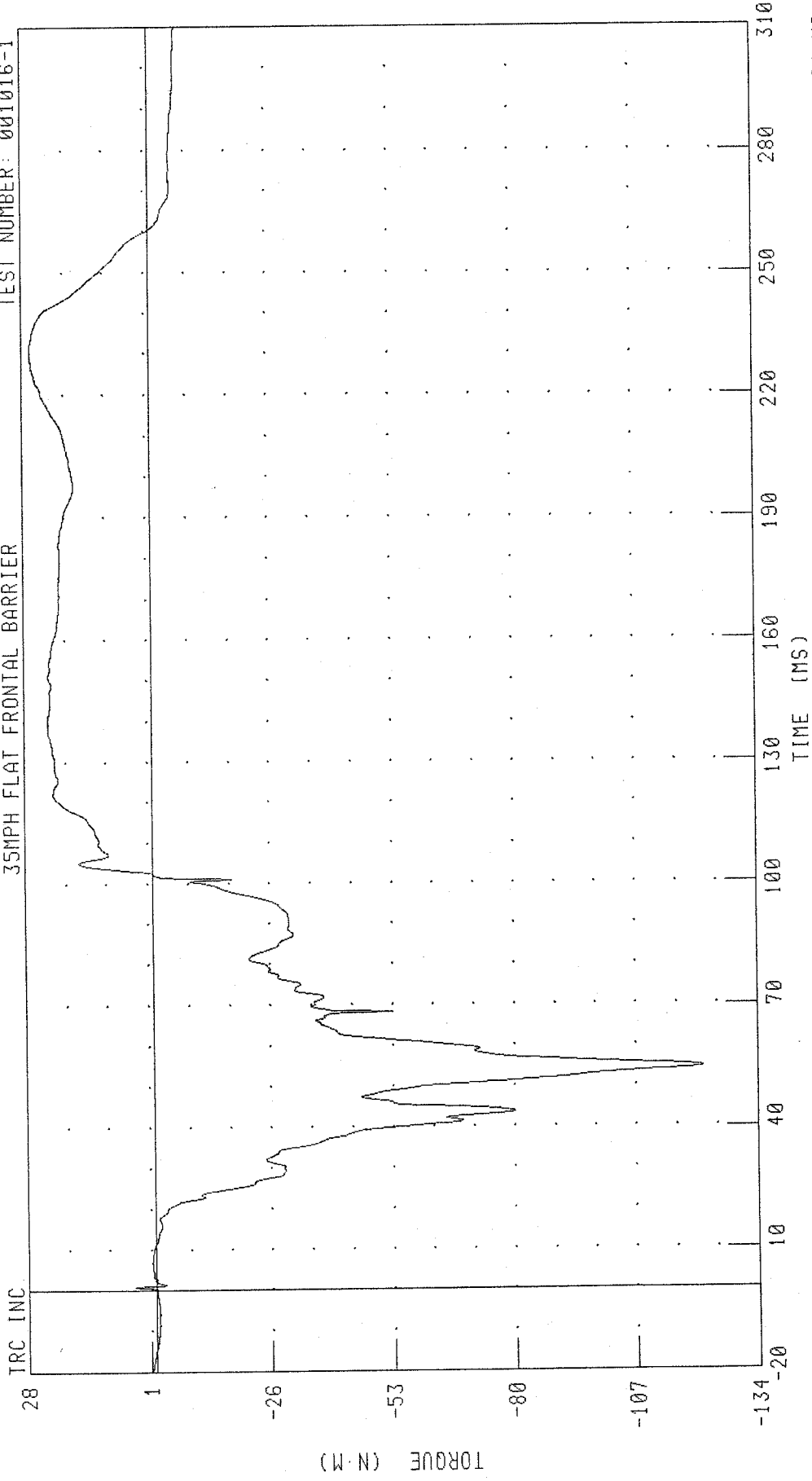
TEST NUMBER: 001016-1



CHANNEL: TBLX11 FILTER: CH. CLASS 600
PEAK DATA: 85.08 N·M @ 55.20 MS; -17.39 N·M @ 41.60 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

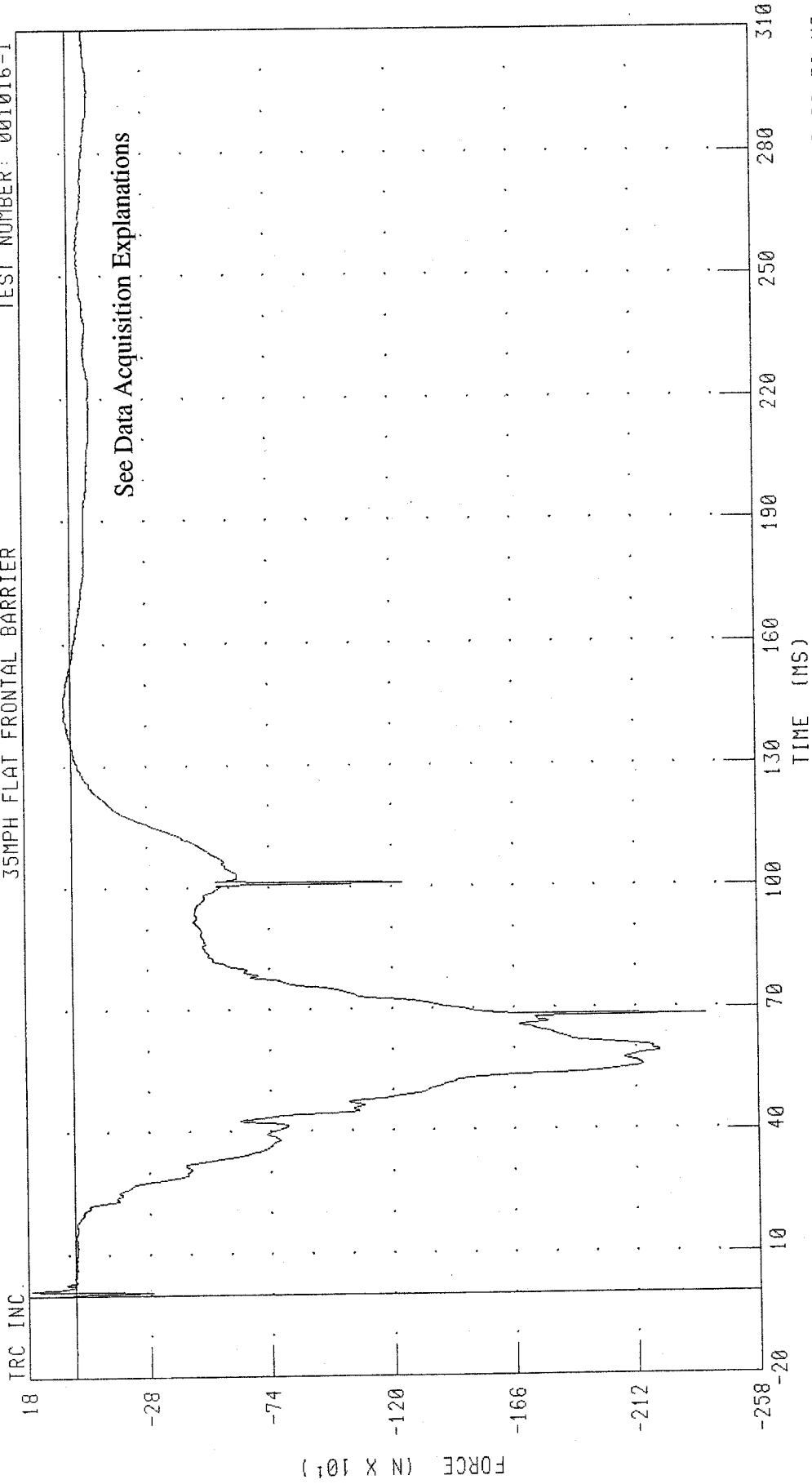
TEST NUMBER: 001016-1



CHANNEL: TBLYM1 FILTER: CH. CLASS 600
PEAK DATA: 26.29 N·M @ 228.72 MS; -122.00 N·M @ 54.64 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

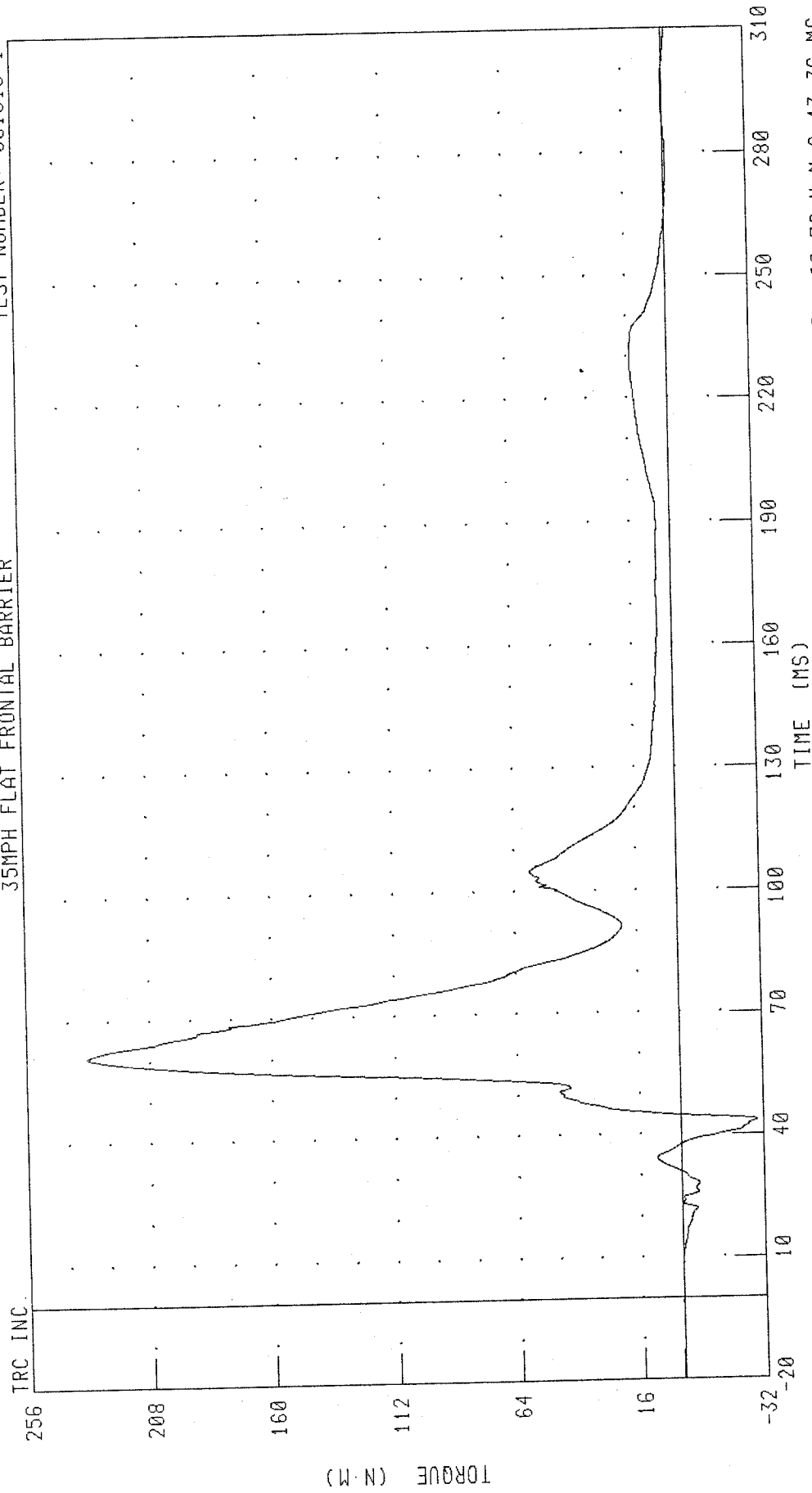


CHANNEL: TBLZF1 FILTER: CH. CLASS 600

PEAK DATA: 168.76 N @ 1.28 MS; -2386.67 N @ 68.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

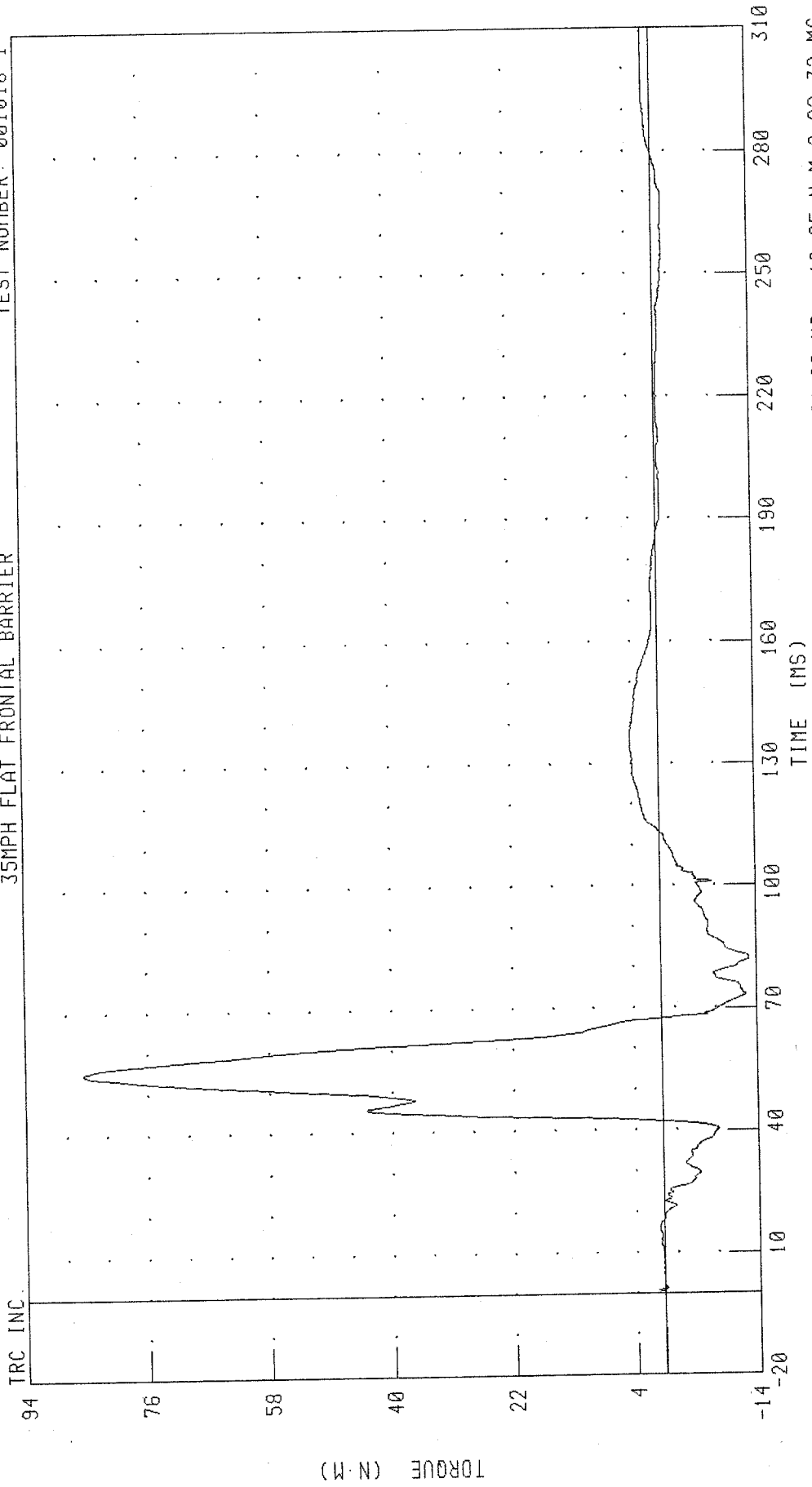


CHANNEL: ANLYM1 FILTER: CH. CLASS 600

PEAK DATA: 232.45 N·M @ 60.96 MS; -29.78 N·M @ 43.36 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

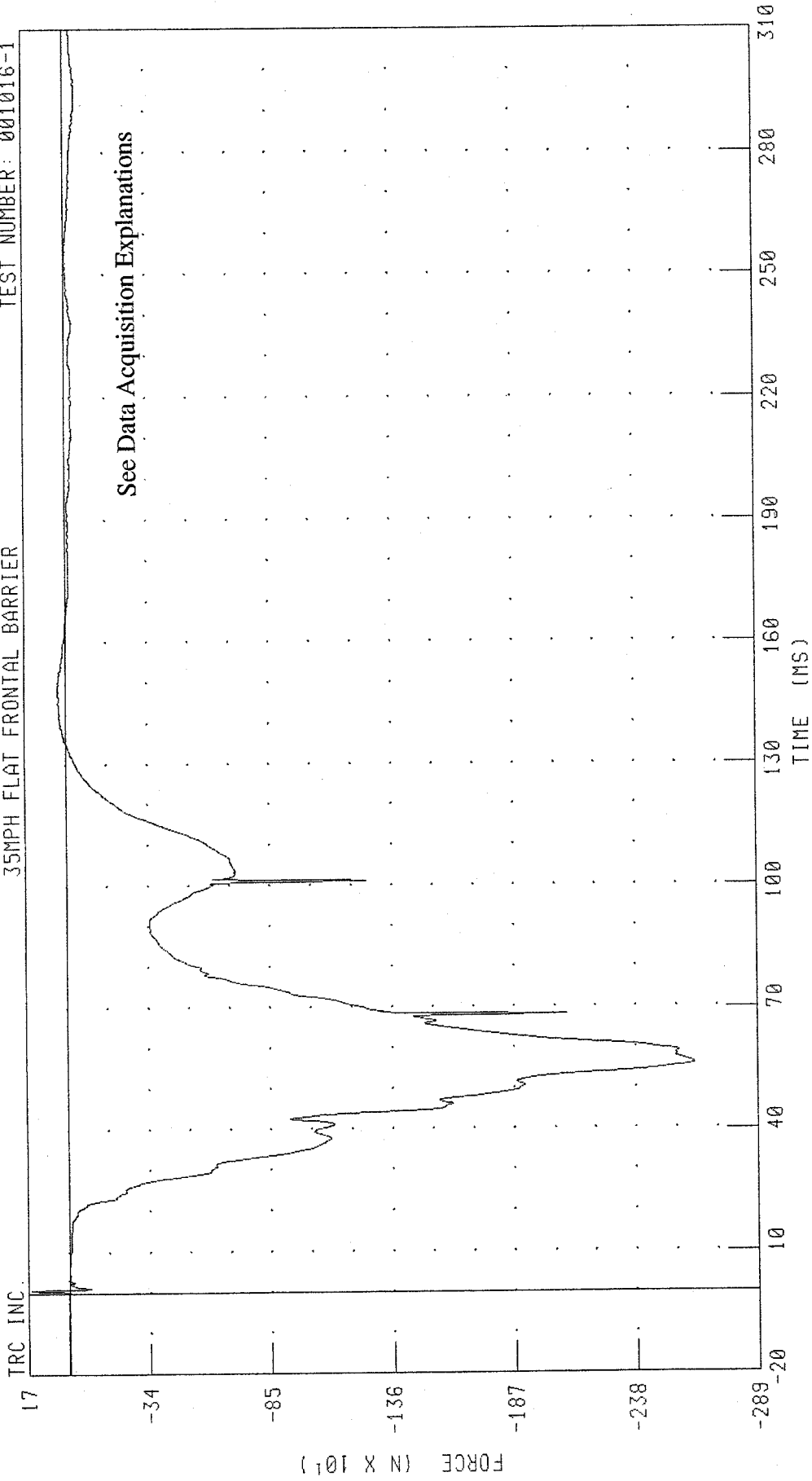


PEAK DATA: 85.44 N·M @ 54.96 MS; -12.95 N·M @ 82.32 MS

CHANNEL: ANLXM1 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

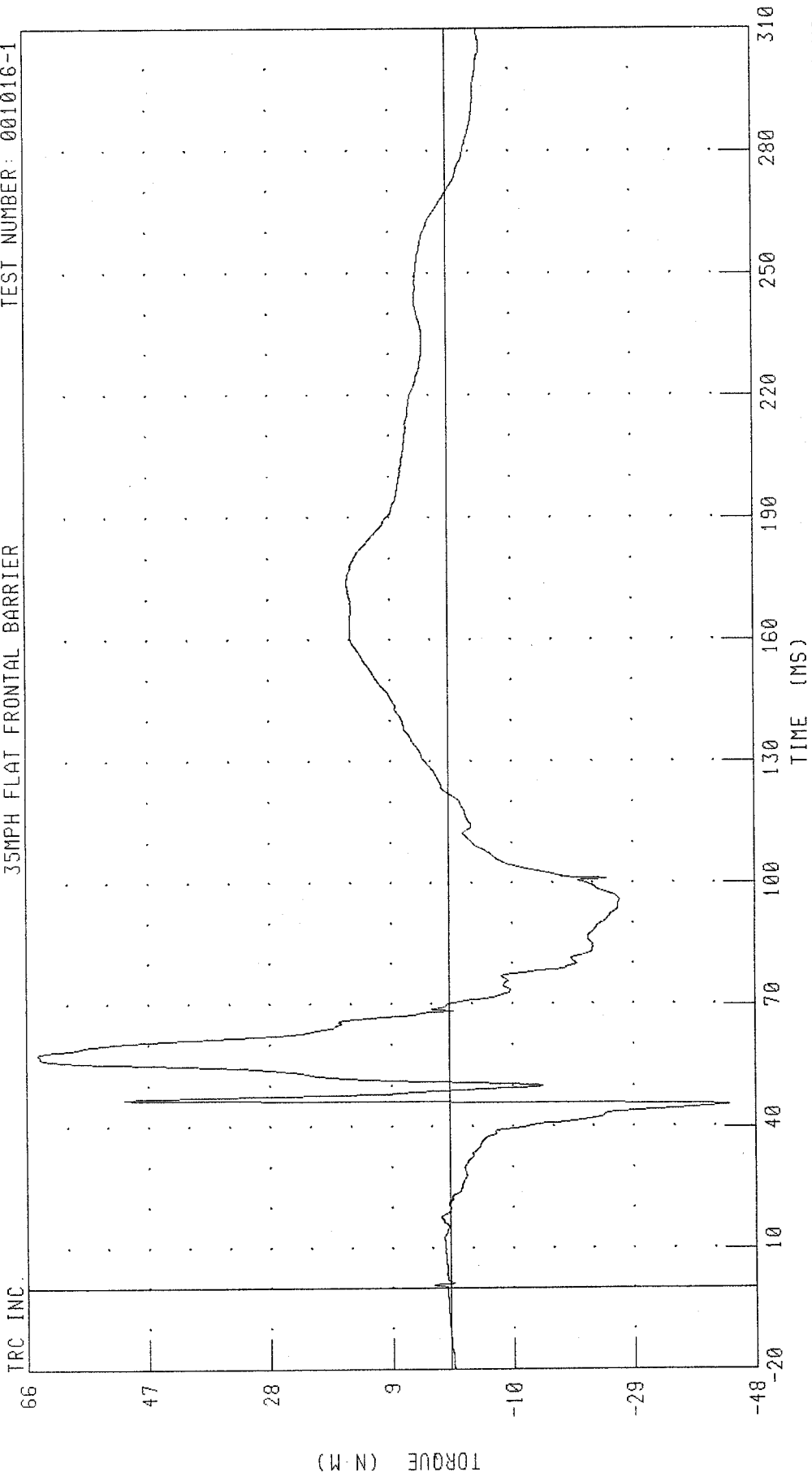


CHANNEL: ANLZF1 FILTER: CH. CLASS 600

PEAK DATA: 157.04 N @ 0.80 MS; -2629.03 N @ 56.16 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



TRC INC.

PEAK DATA: 64.33 N·M @ 57.60 MS; -43.94 N·M @ 45.44 MS

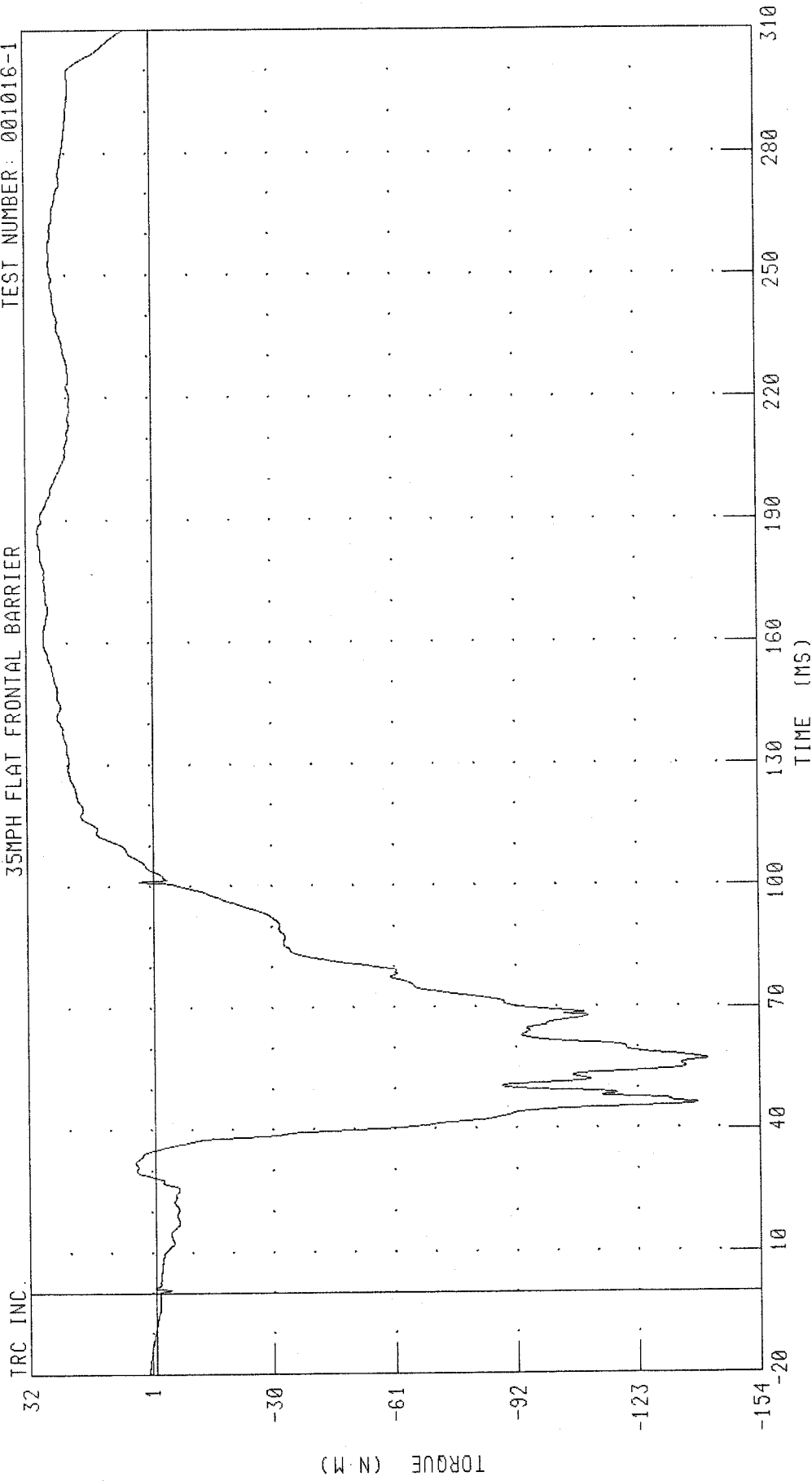
CHANNEL: TBRX11 FILTER: CH. CLASS 600

TORQUE (N-M)

TIME (MS)

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

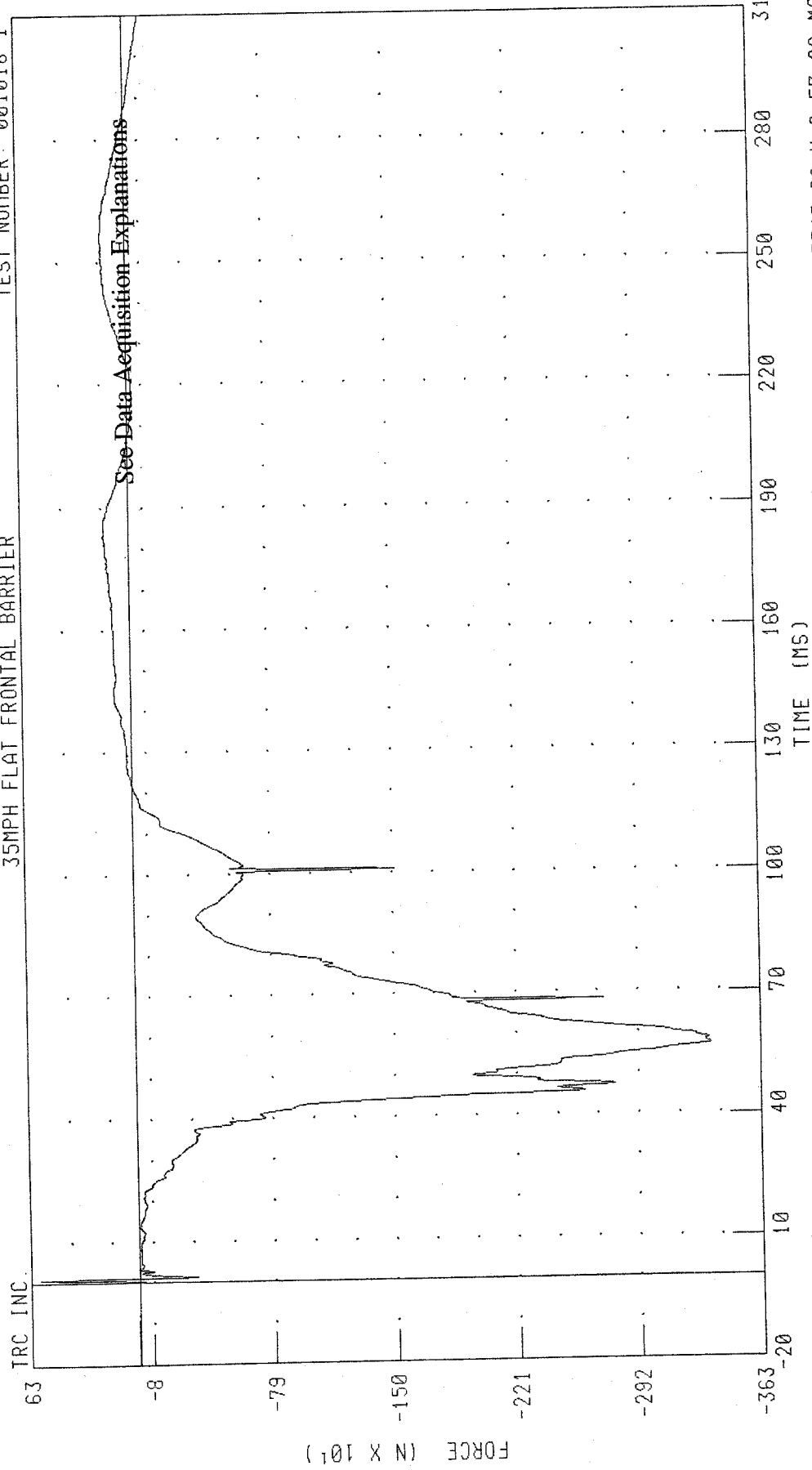


PEAK DATA: 29.19 N·M @ 187.52 MS; -140.78 N·M @ 57.28 MS

CHANNEL: TBRYM1 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER

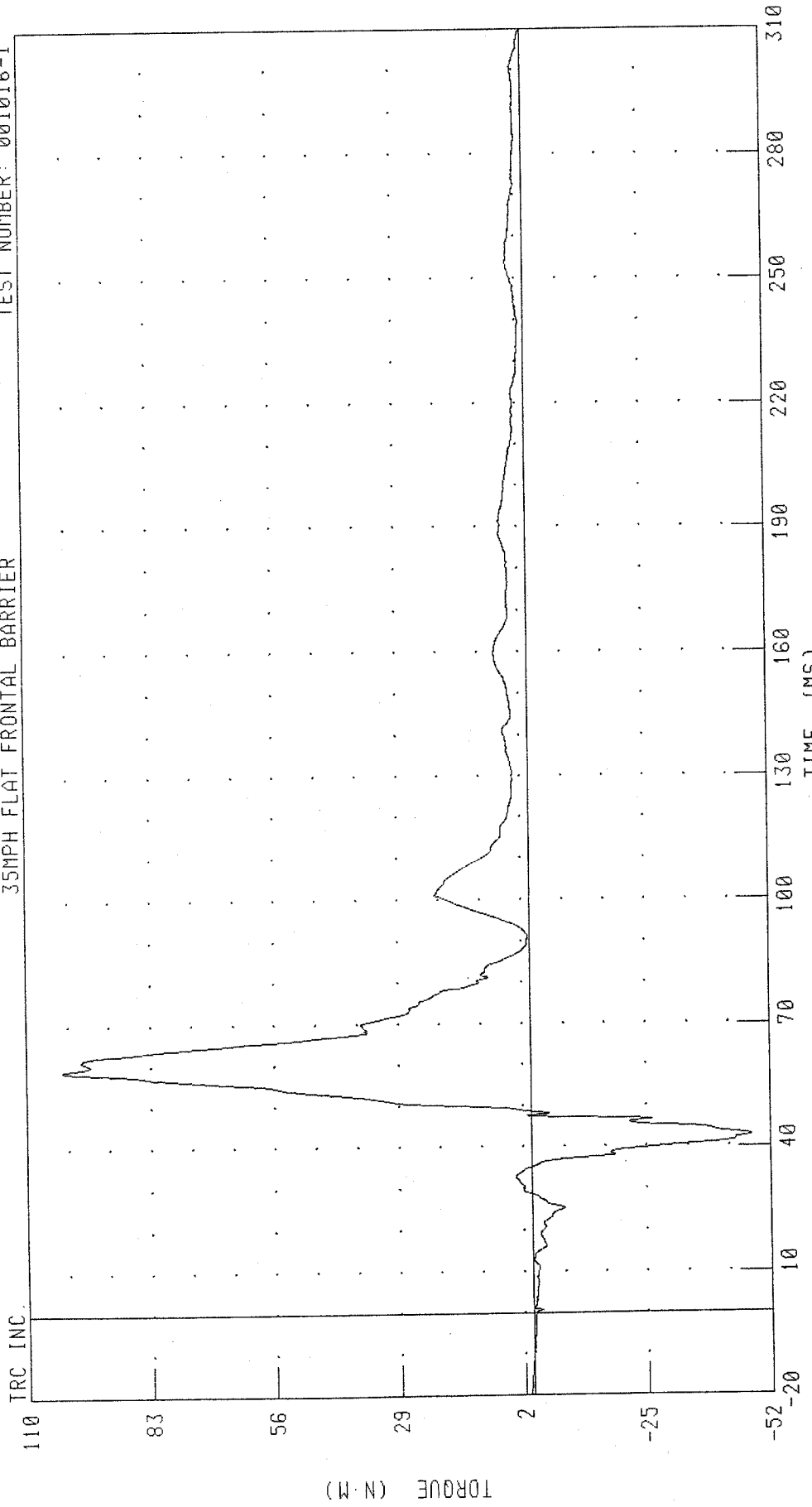
TEST NUMBER: 001016-1



CHANNEL: TBRZF1 FILTER: CH. CLASS 600
PEAK DATA: 578.15 N @ 0.80 MS; -3343.66 N @ 57.20 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



PEAK DATA: 102.22 N·M @ 58.96 MS; -47.98 N·M @ 42.88 MS

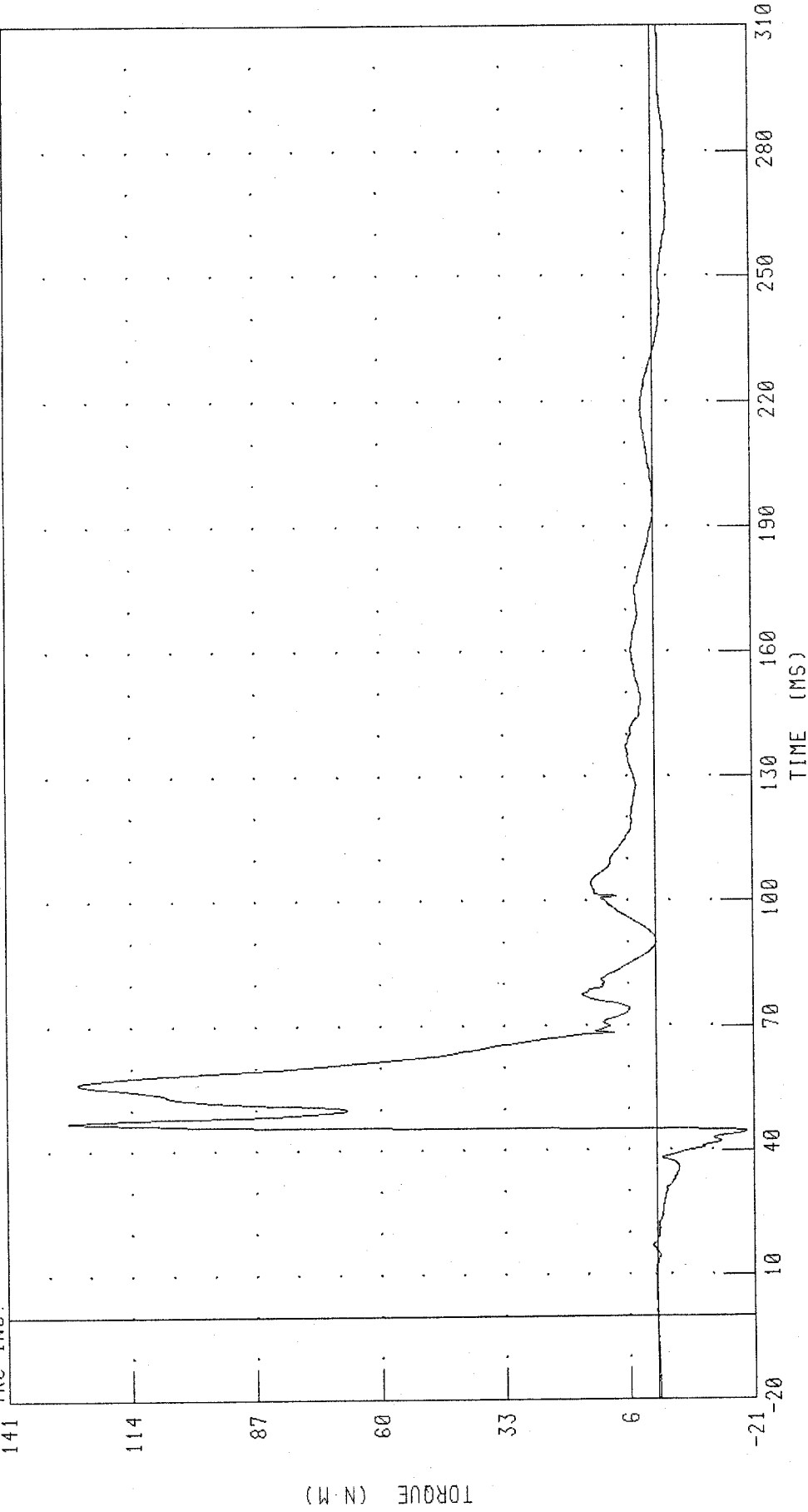
CHANNEL: ANRYM1 FILTER: CH. CLASS 600

TRC INC.

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

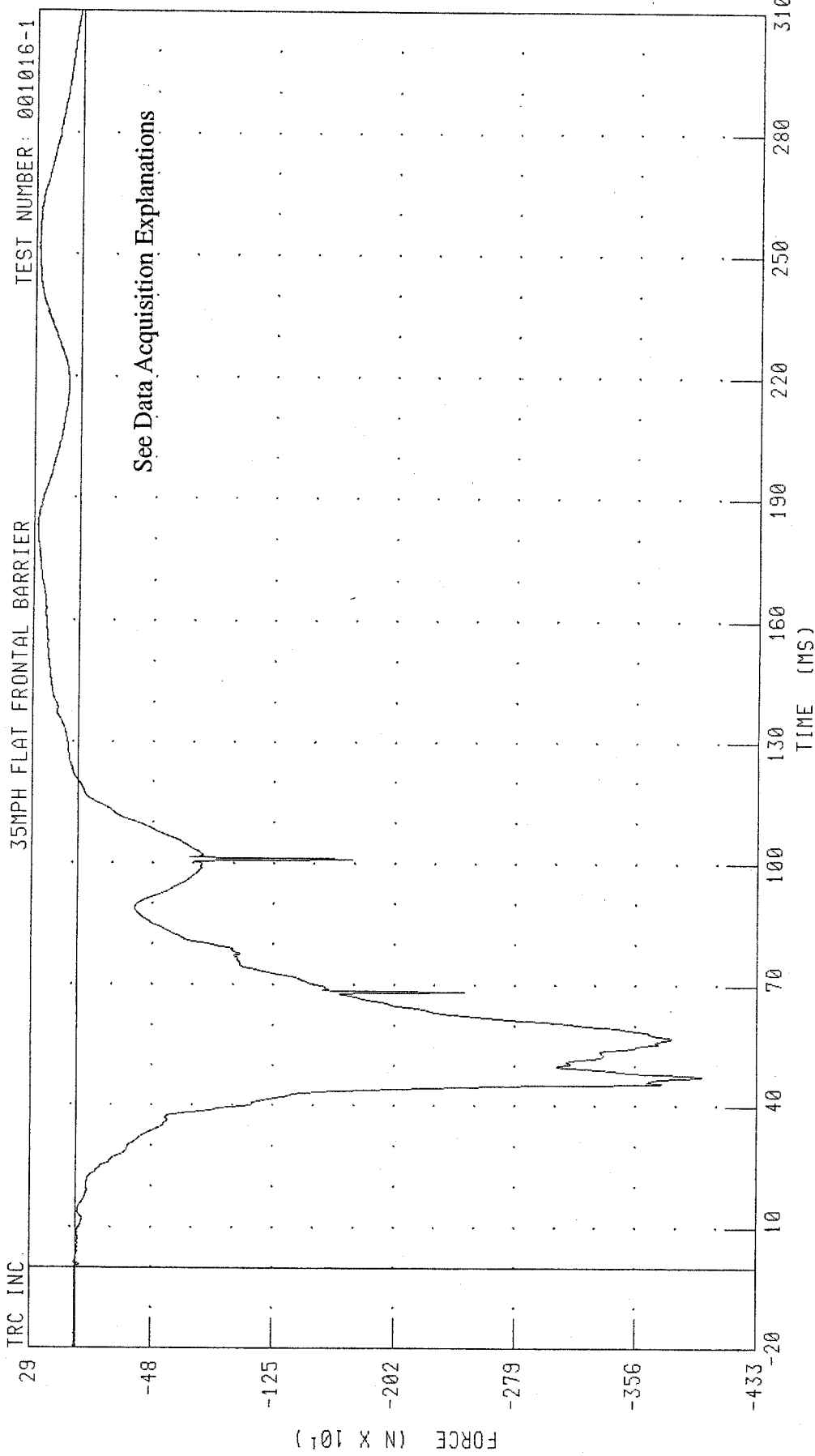


PEAK DATA: 127.89 N.M @ 47.12 MS; -19.52 N.M @ 44.56 MS

CHANNEL: ANRXM1 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

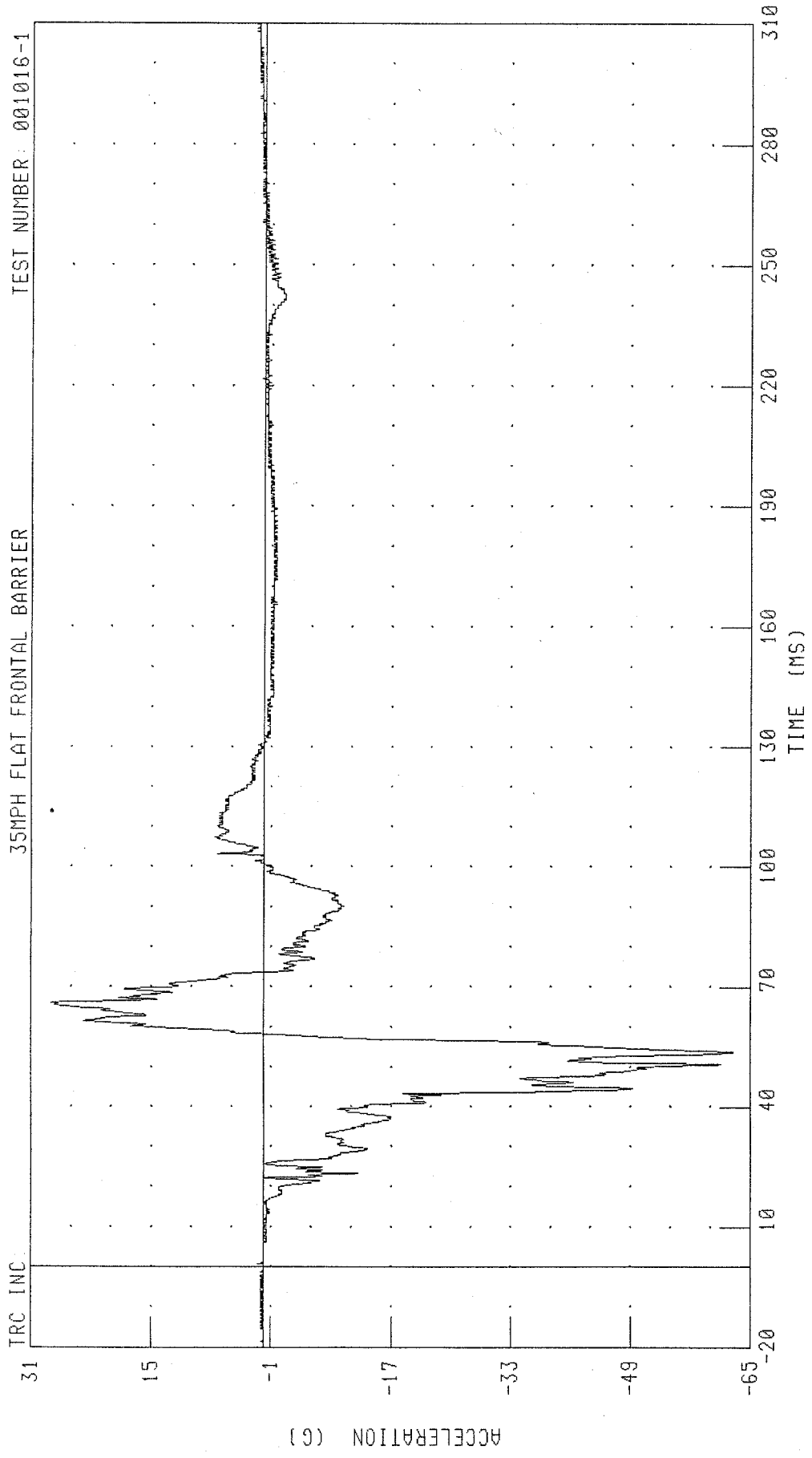


See Data Acquisition Explanations

CHANNEL: ANRZF1 FILTER: CH. CLASS 600
PEAK DATA: 269.54 N @ 251.44 MS; -3984.67 N @ 47.44 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT X-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER

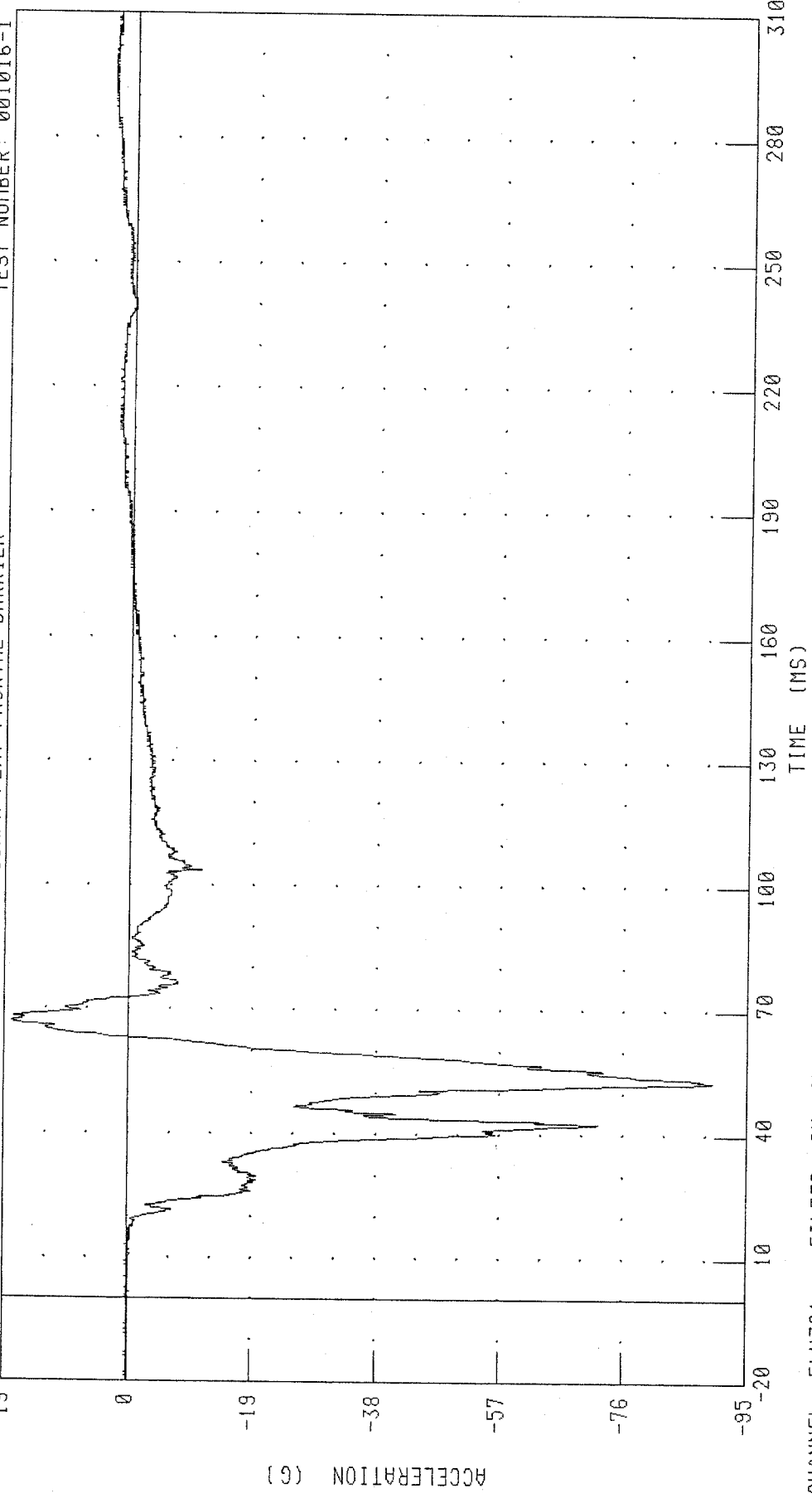
TEST NUMBER: 001016-1



CHANNEL: FLHXG1 FILTER: CH. CLASS 1000
PEAK DATA: 28.38 G @ 66.08 MS; -62.66 G @ 53.68 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER

TRC INC.
TEST NUMBER: 001016-1

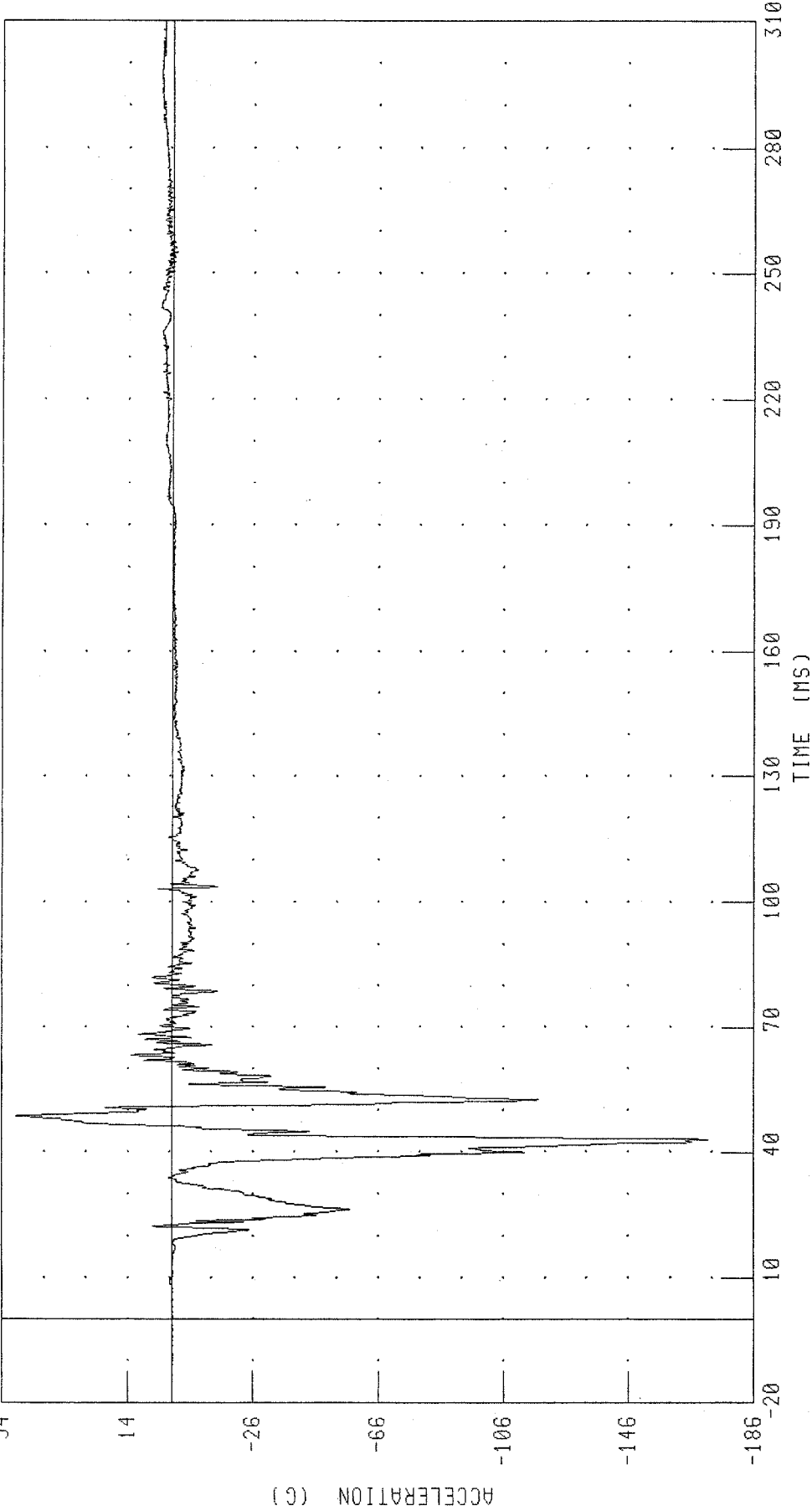


CHANNEL: FLHZG1 FILTER: CH. CLASS 1000
PEAK DATA: 17.92 G @ 67.12 MS; -89.75 G @ 52.80 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT TOE Z-AXIS ACCELERATION AT TOE
35MPH FLAT FRONTAL BARRIER

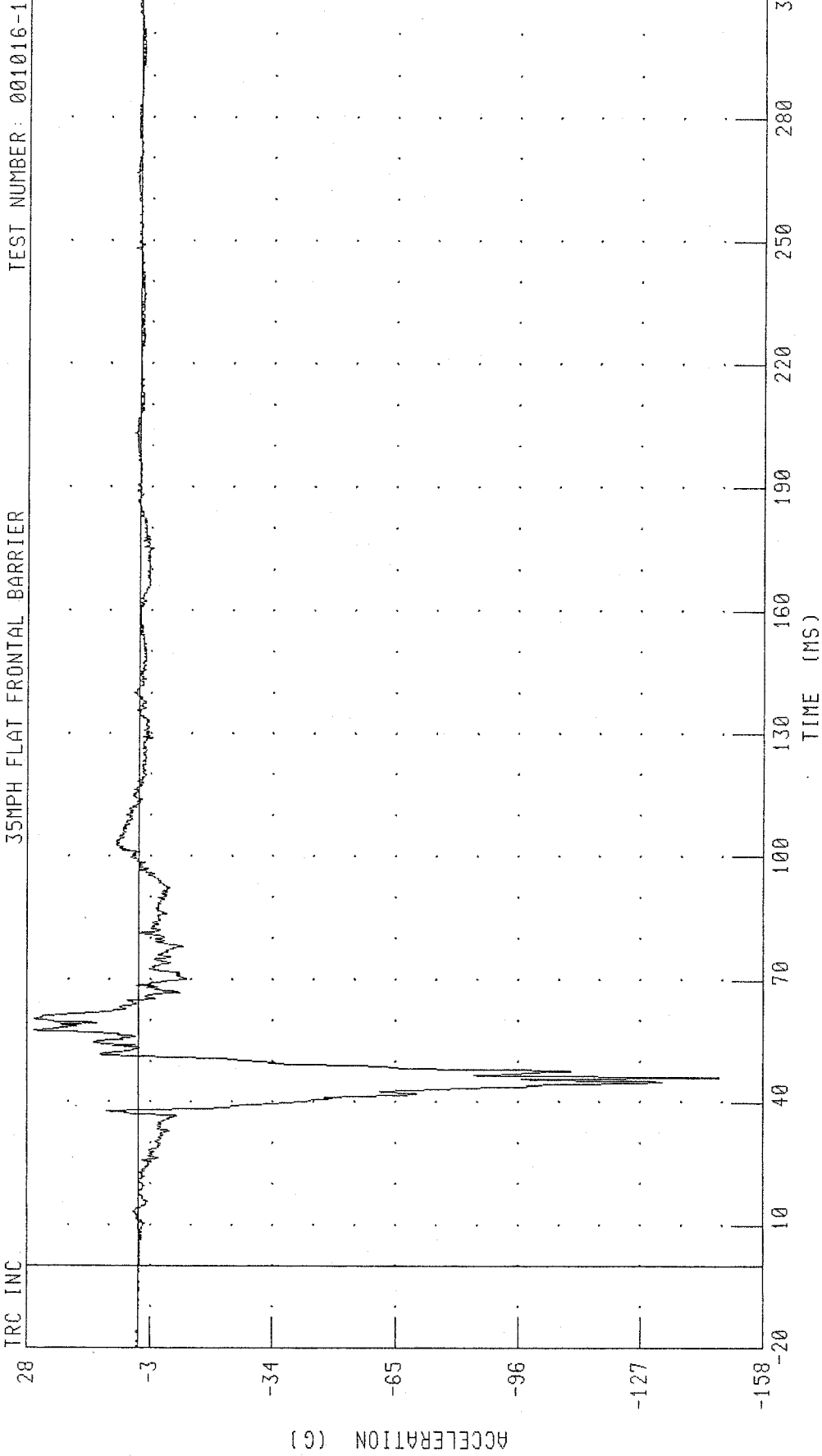
TEST NUMBER: 001016-1

TRC INC.

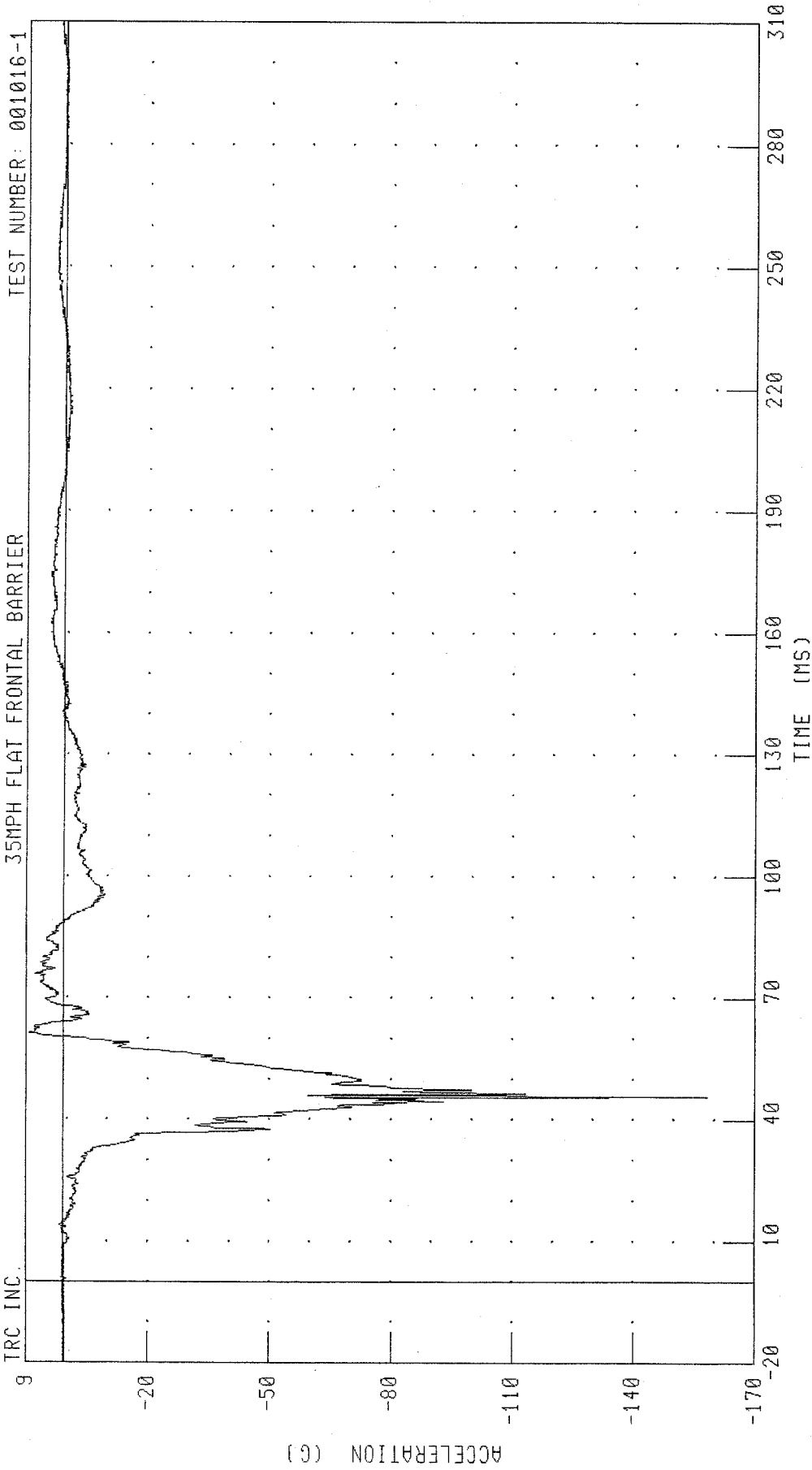


CHANNEL: FLTZG1 FILTER: CH. CLASS 1000 PEAK DATA: 49.58 G @ 48.64 MS; -171.52 G @ 43.04 MS

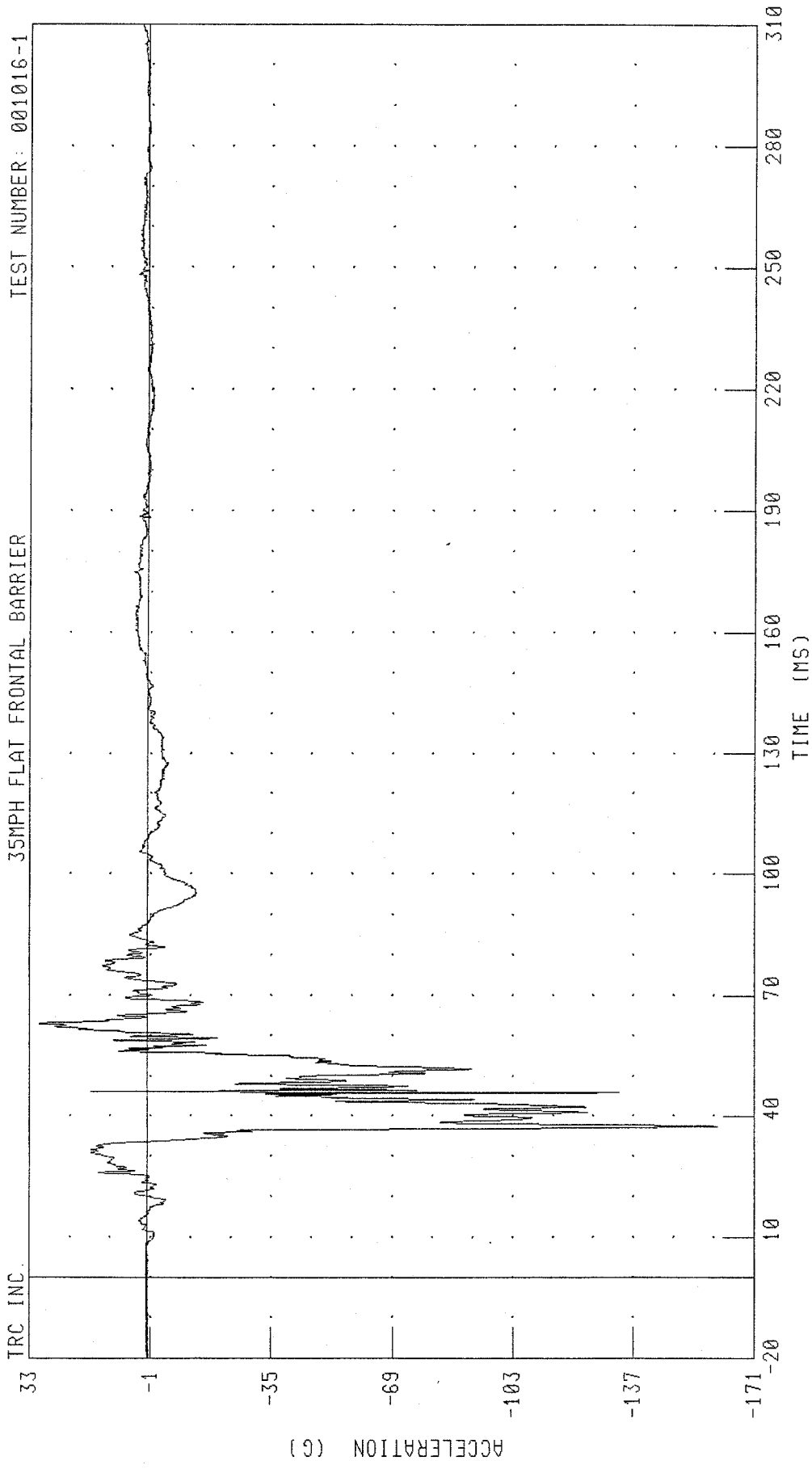
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT X-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER



2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER



2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT TOE Z-AXIS ACCELERATION AT TOE
35MPH FLAT FRONTAL BARRIER

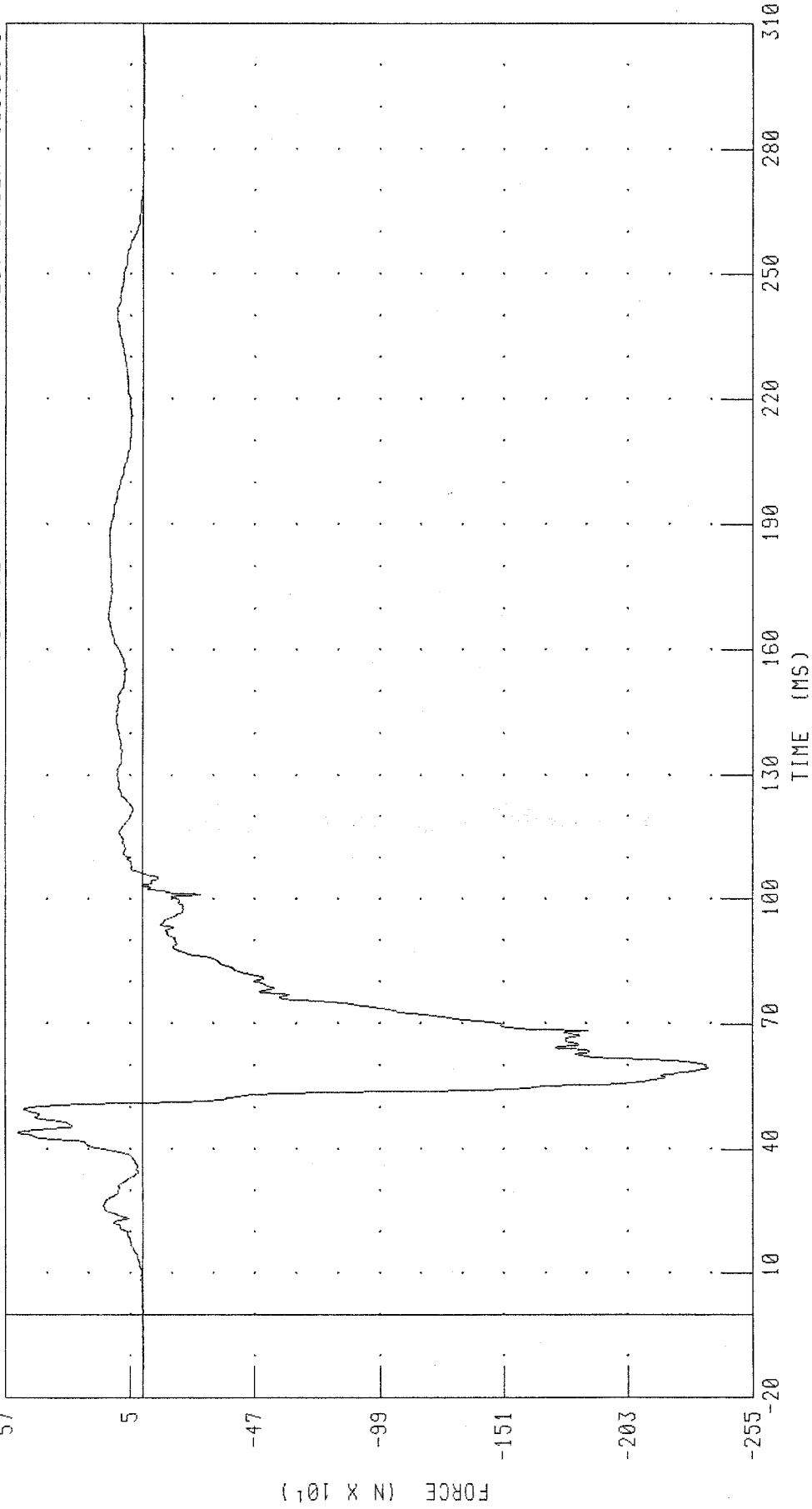


CHANNEL: FRTZG1 FILTER: CH. CLASS 1000 PEAK DATA: 30.27 G @ 62.88 MS; -160.53 G @ 37.44 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE
35MPH FLAT FRONTAL BARRIER

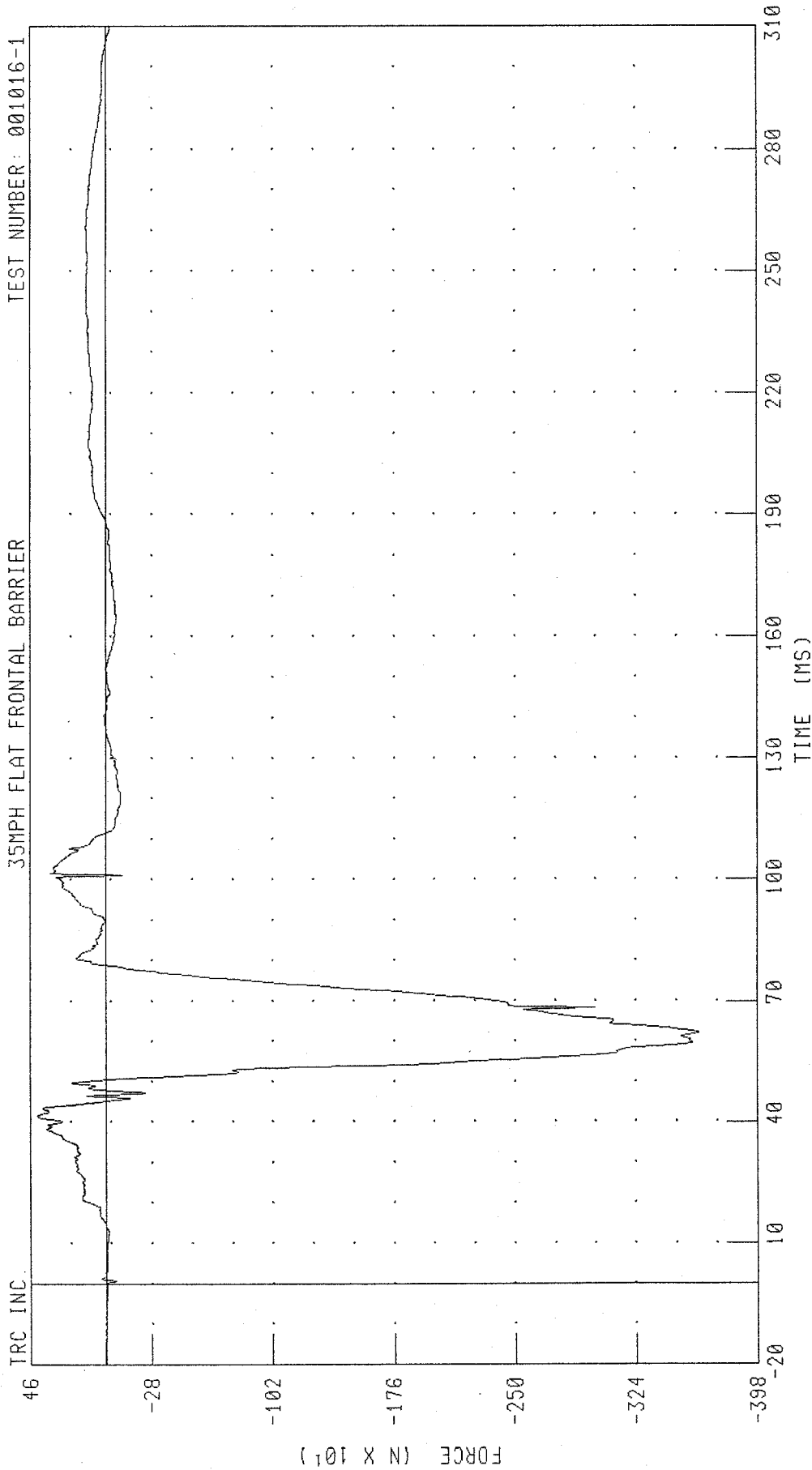
TRC INC.

TEST NUMBER: 001016-1



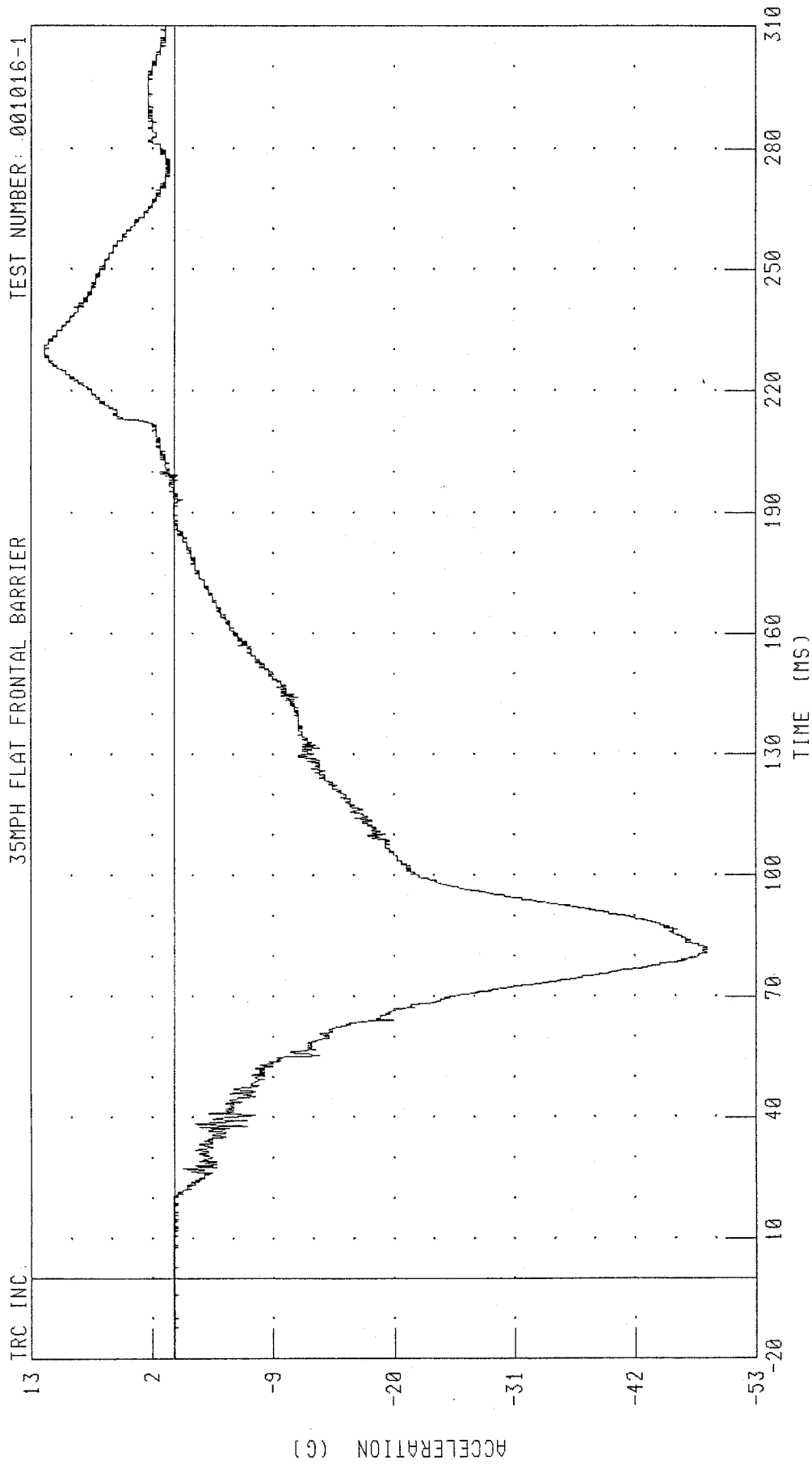
CHANNEL: LFMZF1 FILTER: CH. CLASS 600 PEAK DATA: 518.81 N @ 44.16 MS, -2364.39 N @ 59.44 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE
35MPH FLAT FRONTAL BARRIER



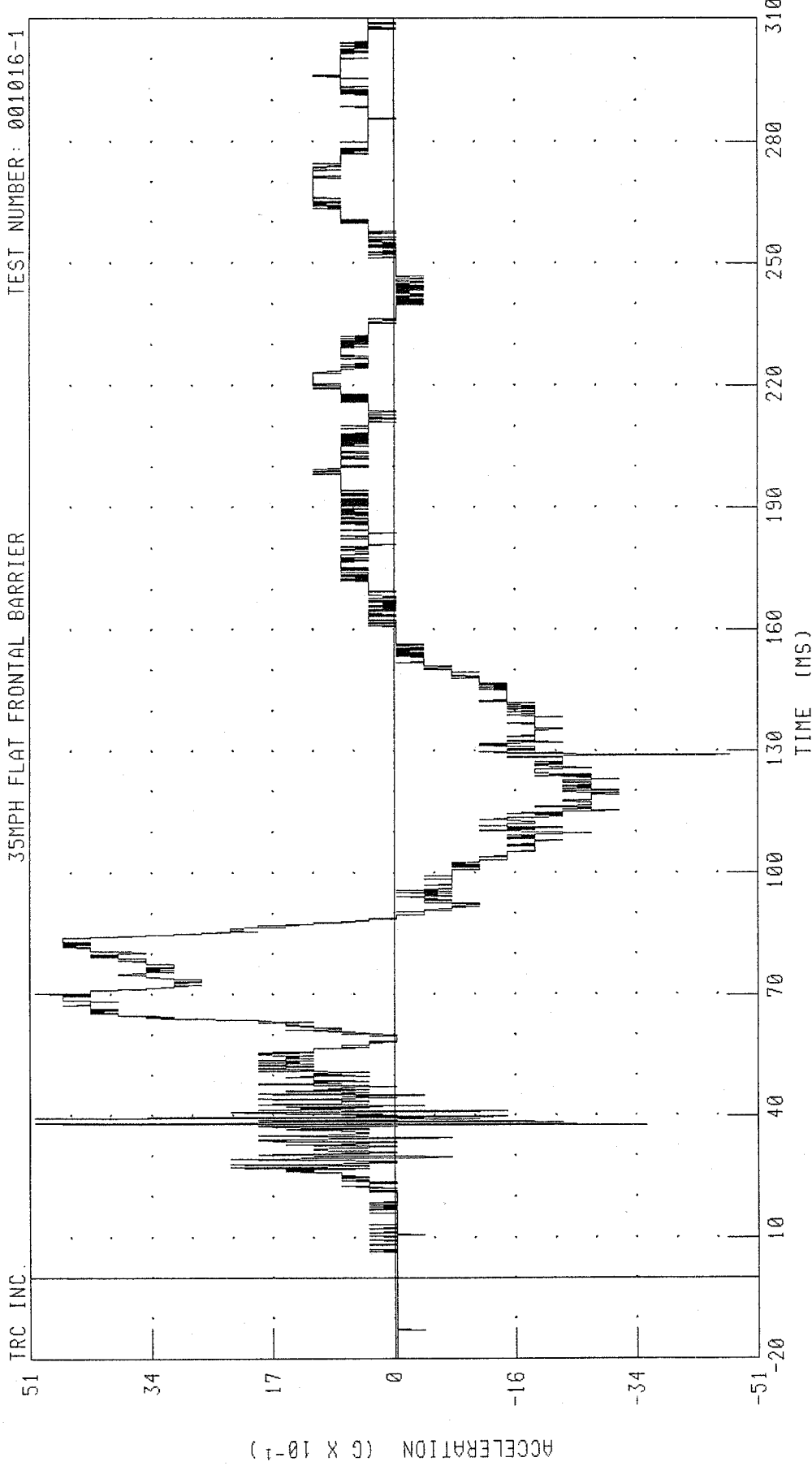
CHANNEL: RFMZFI FILTER: CH. CLASS 600 PEAK DATA: 420.08 N @ 41.44 MS; -3623.27 N @ 62.08 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER



2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

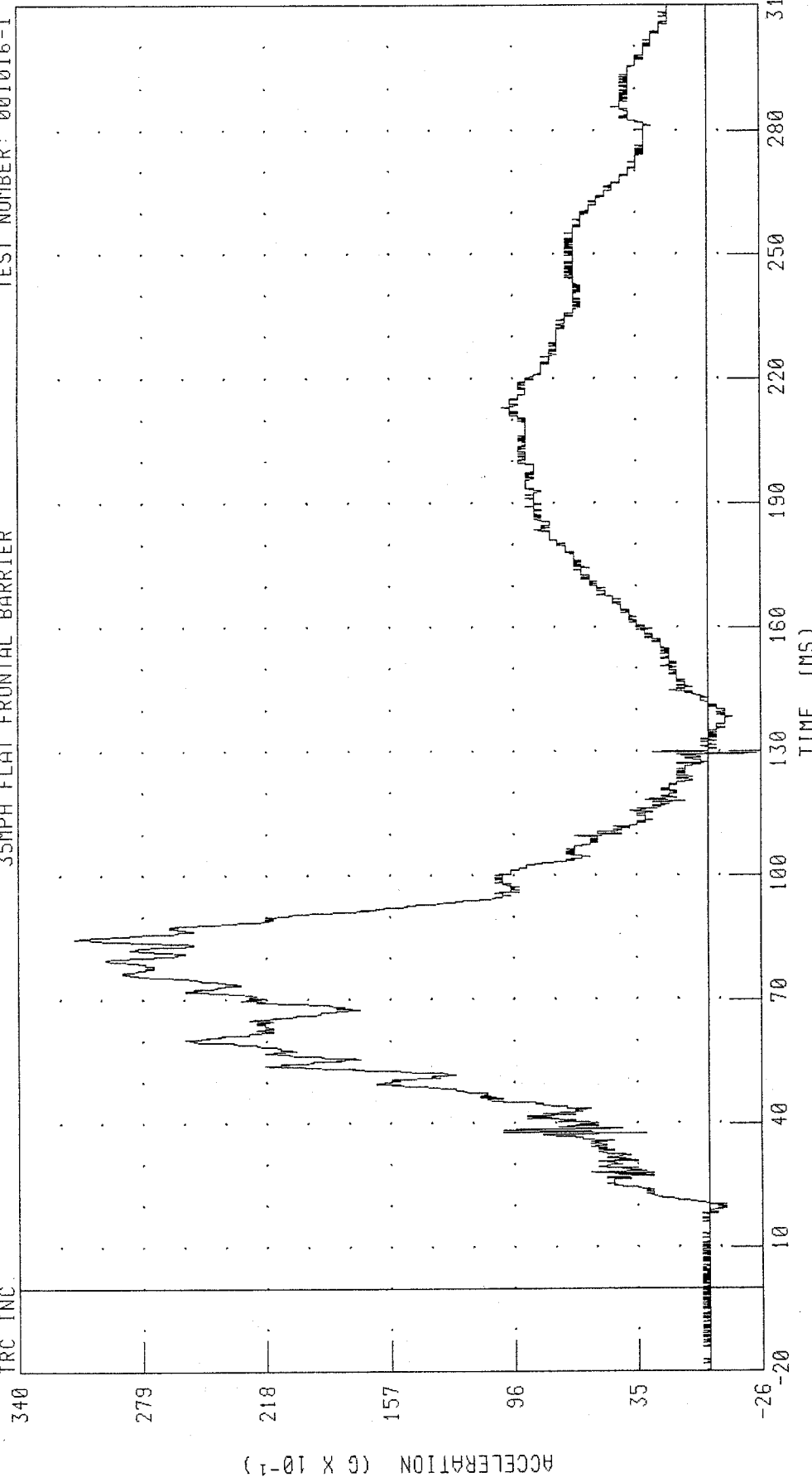
TEST NUMBER: 001016-1



2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

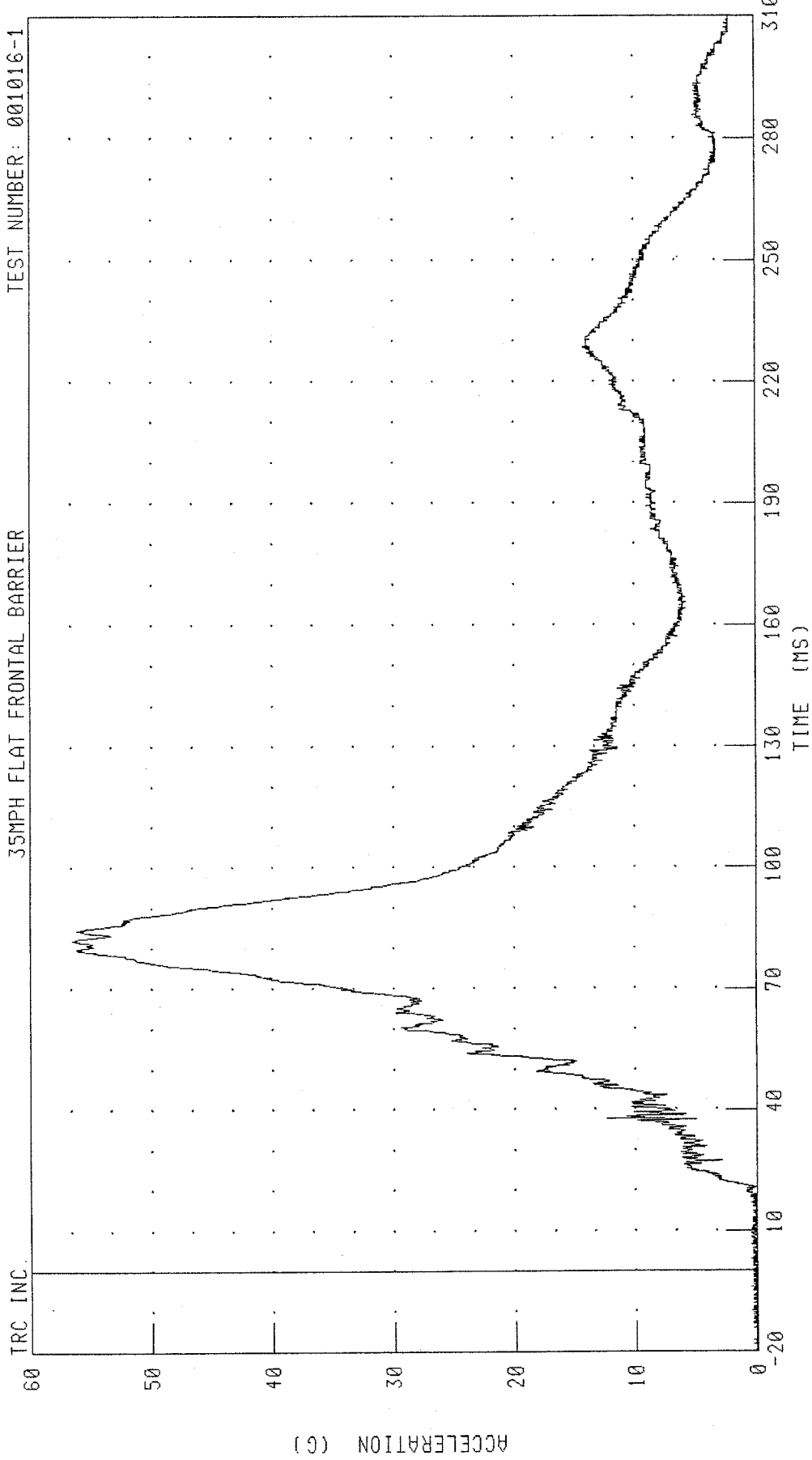


PEAK DATA: 31.26 G @ 84.72 MS; -2.39 G @ 129.52 MS

CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



PEAK DATA: 56.53 G @ 82.08 MS; 0.09 G @ -20.00 MS

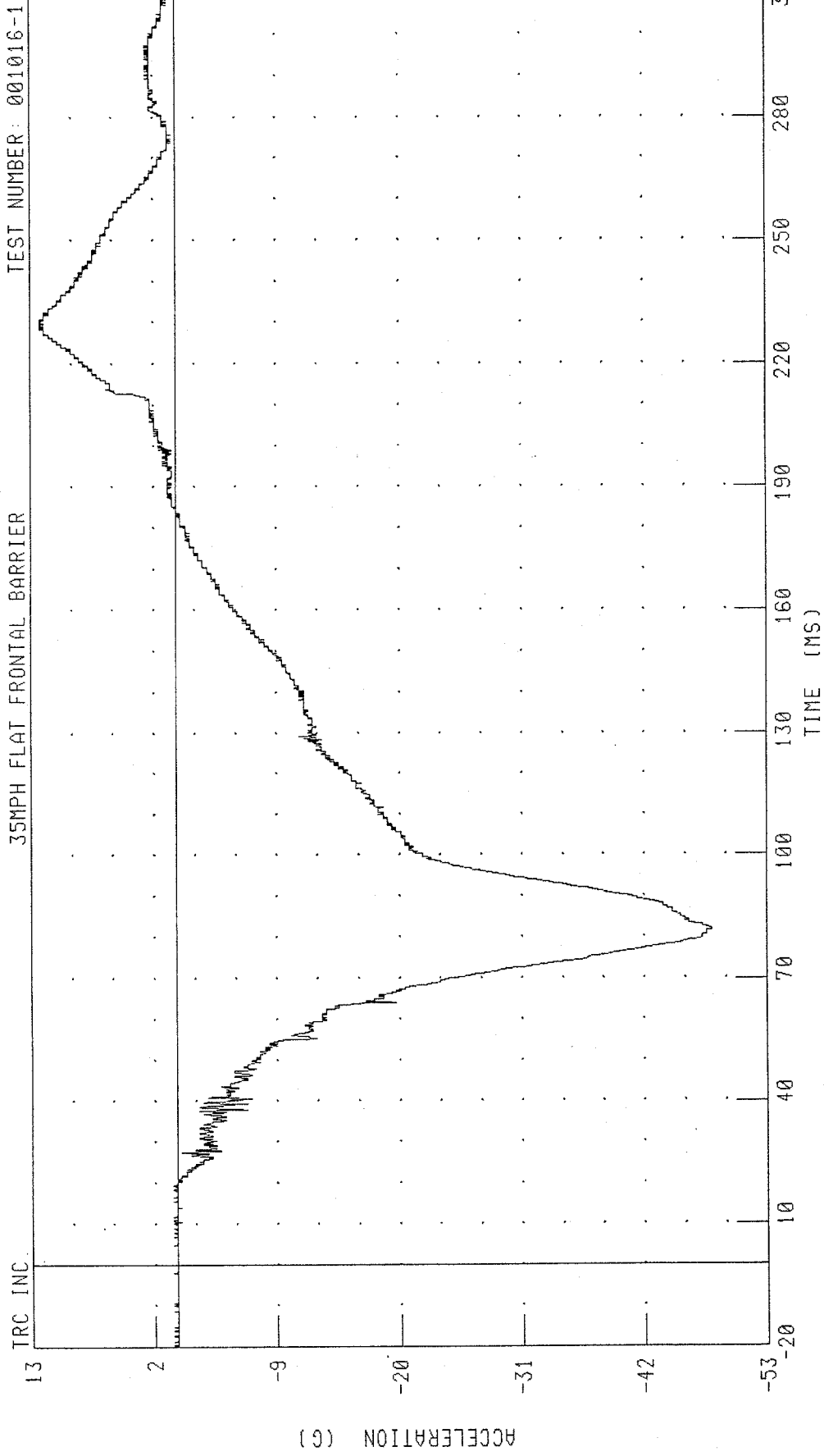
CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

TRC INC.

ACCELERATION (G)

TIME (MS)

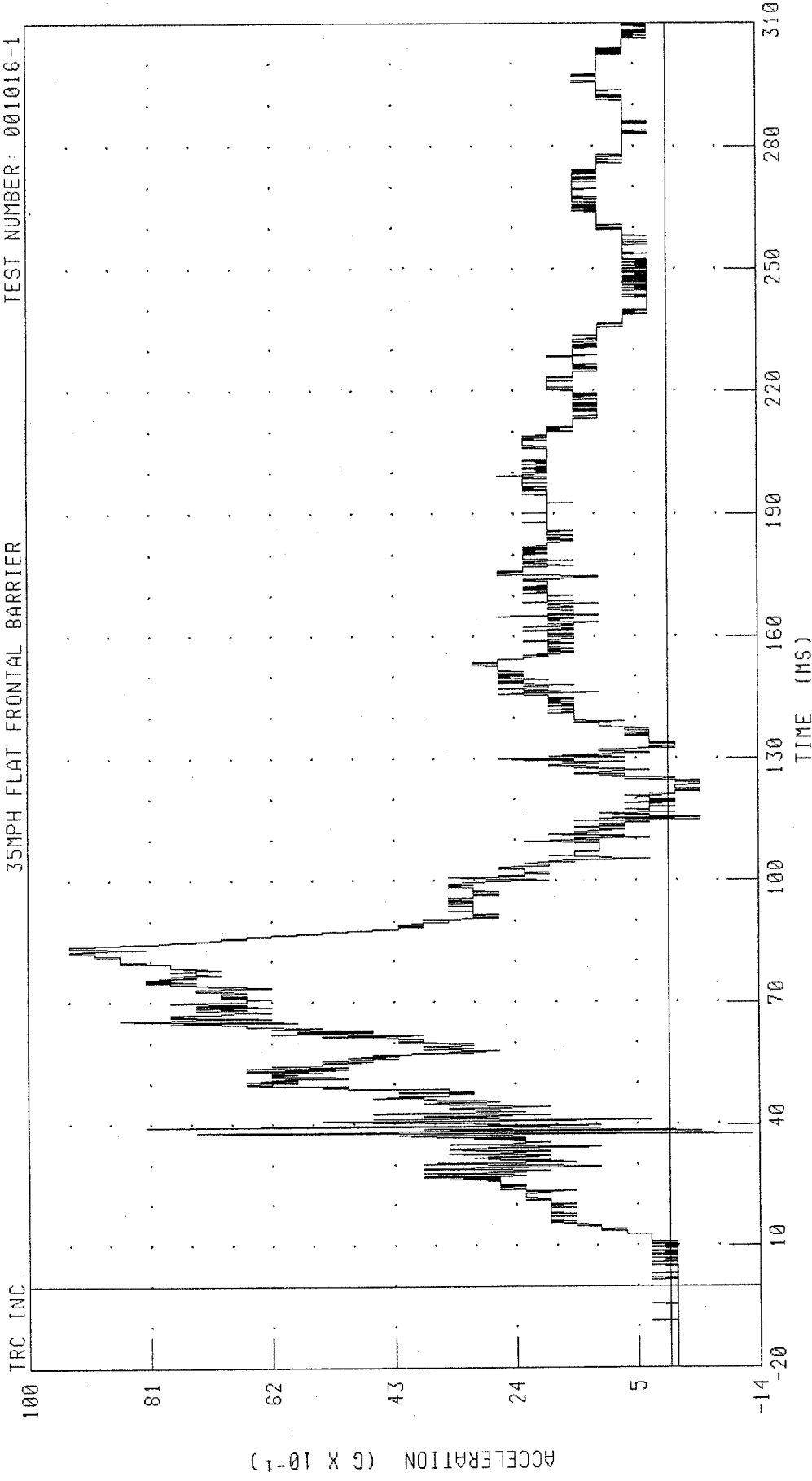
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER



CHANNEL: HEDXR2 FILTER: CH. CLASS 1000 PEAK DATA: 12.16 G @ 228.48 MS; -48.03 G @ 81.52 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

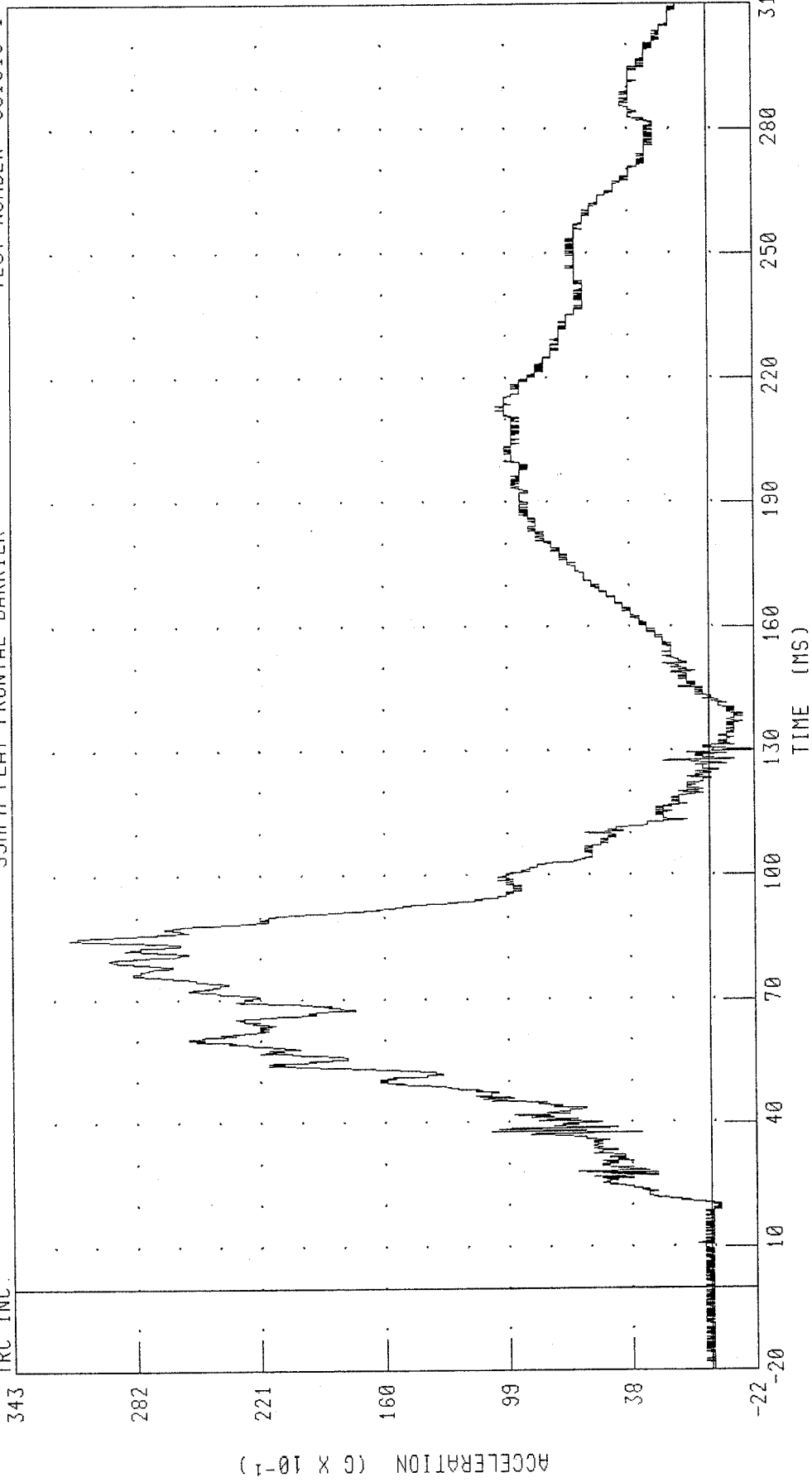


CHANNEL: HEDYR2 FILTER: CH. CLASS 1000 PEAK DATA: 9.36 G @ 82.24 MS; -1.29 G @ 37.68 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

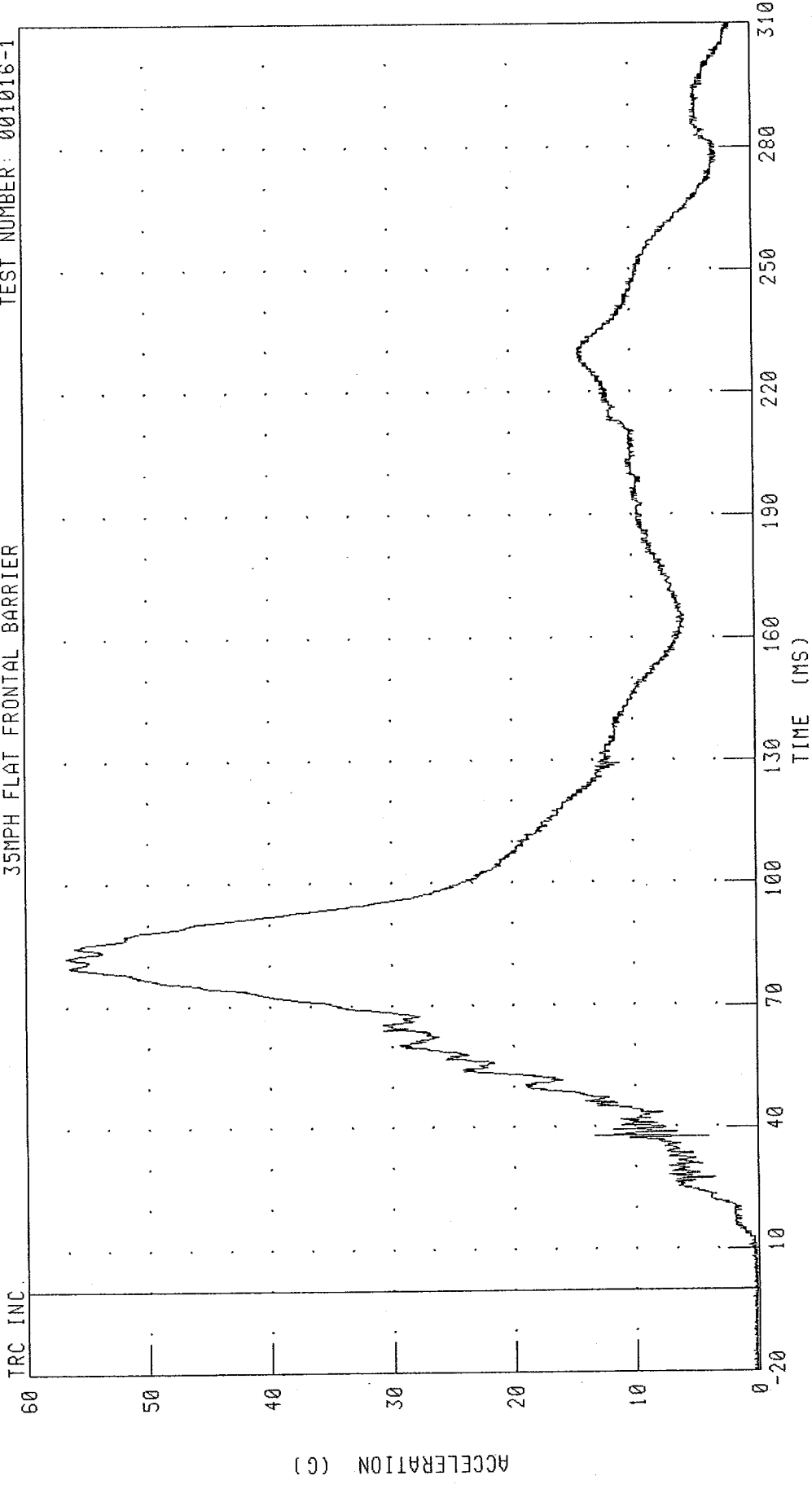


PEAK DATA: 31.61 G @ 84.56 MS; -2.03 G @ 129.92 MS

CHANNEL: HEDZR2 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

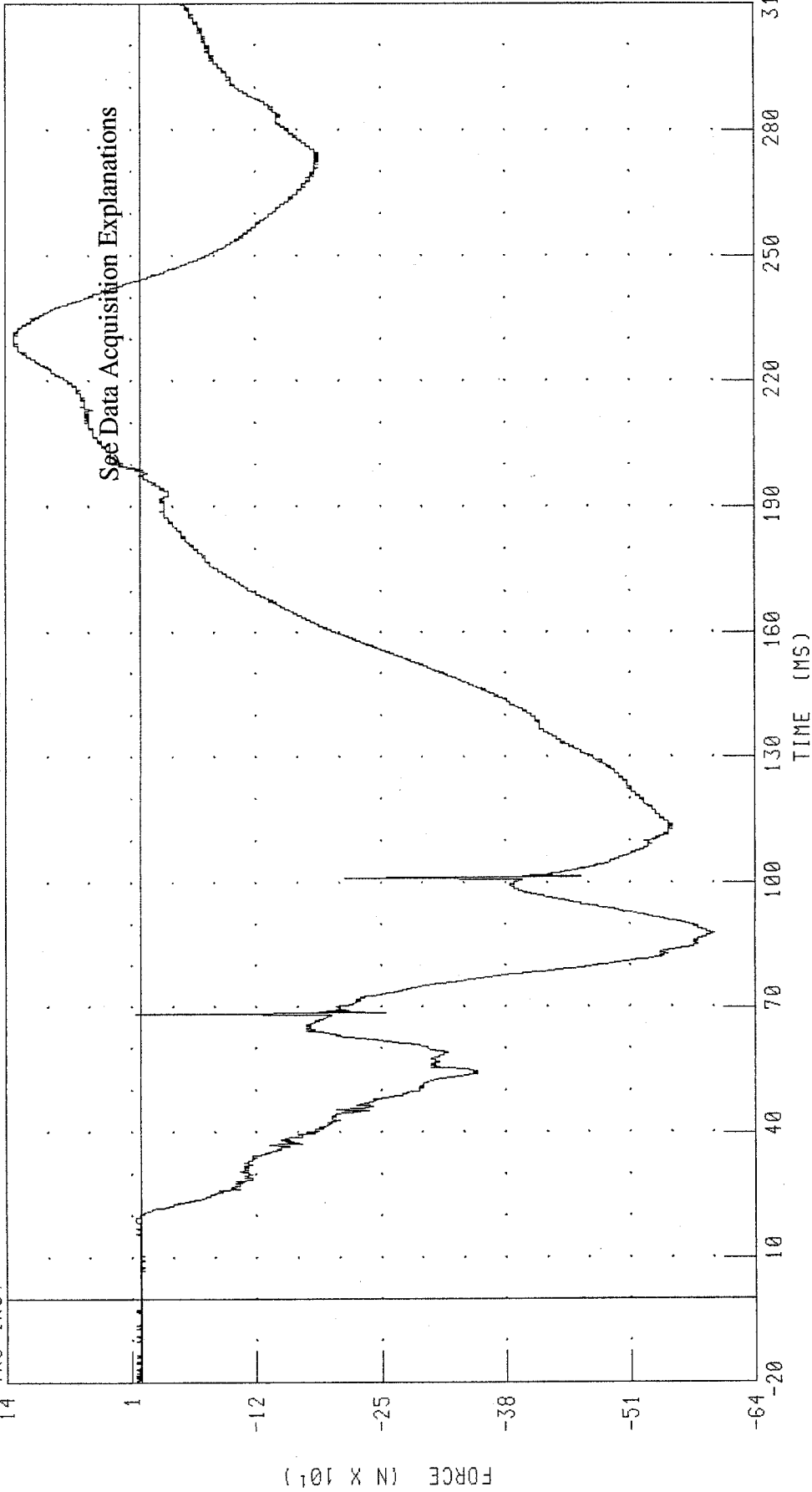


CHANNEL: HEDRR2 FILTER: CH. CLASS 1000
PEAK DATA: 56.75 G @ 82.16 MS; 0.14 G @ -20.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

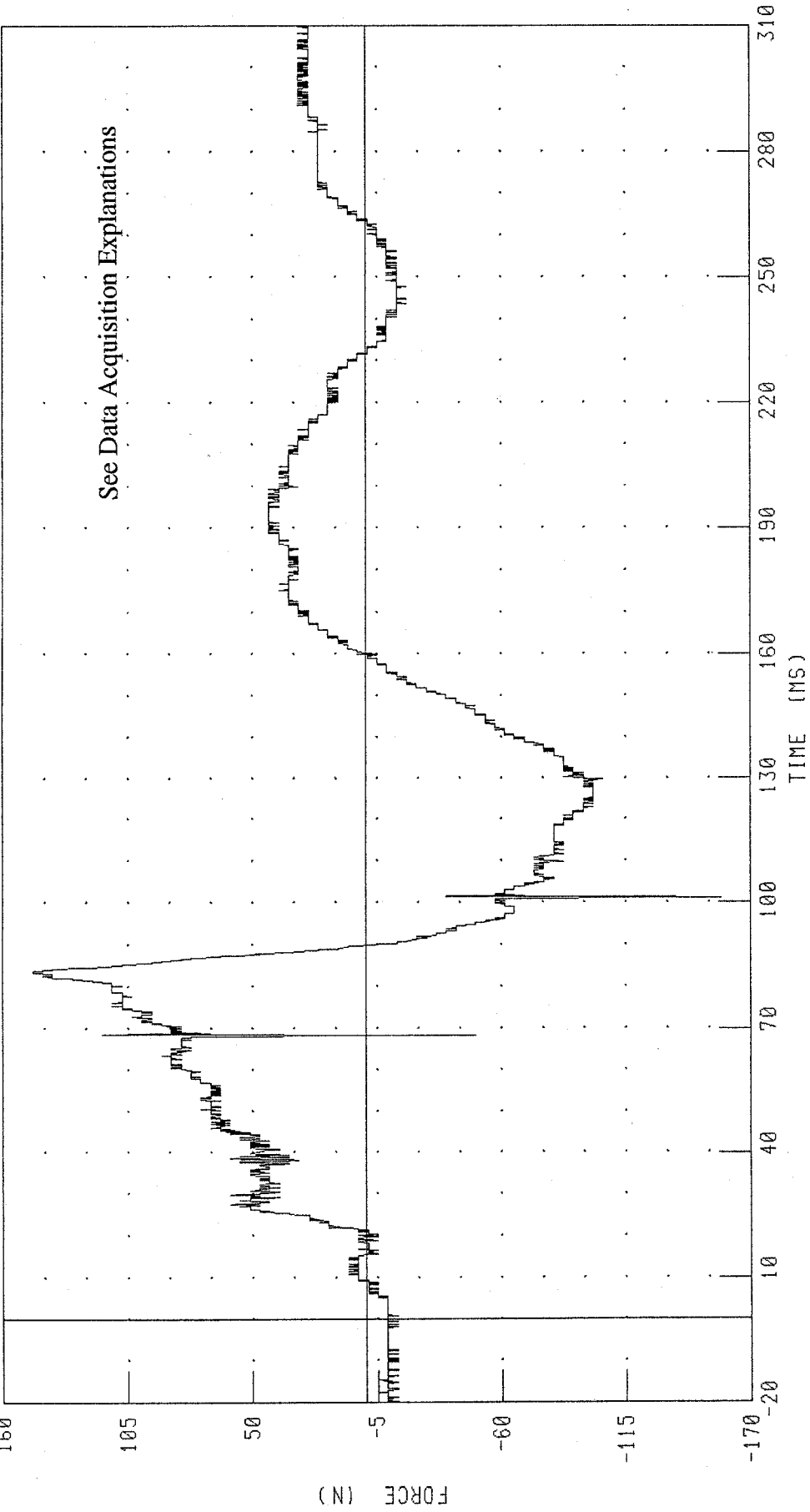


CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 131.48 N @ 228.72 MS, -598.00 N @ 87.84 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



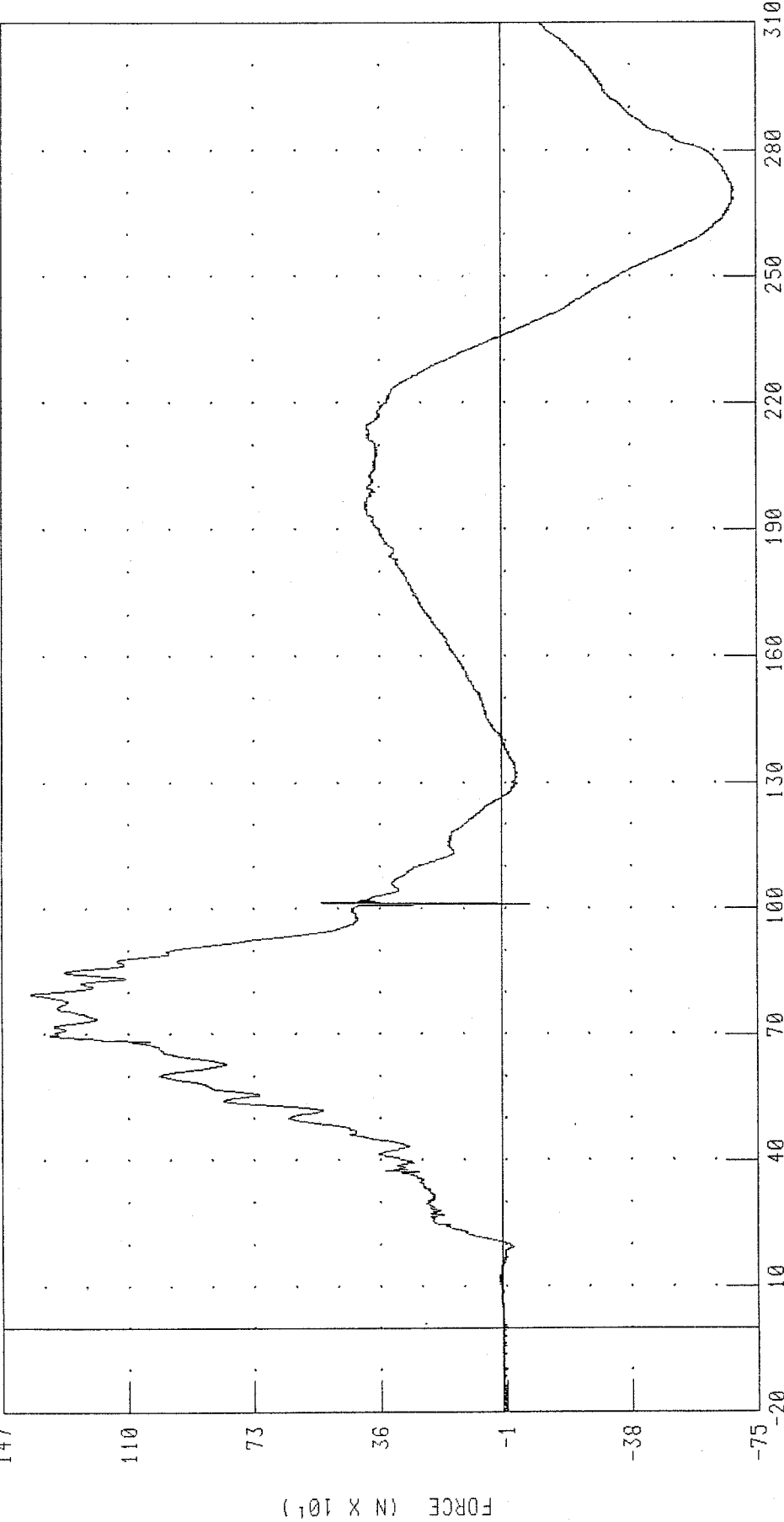
PEAK DATA: 146.73 N @ 83.44 MS; -157.14 N @ 101.12 MS

CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



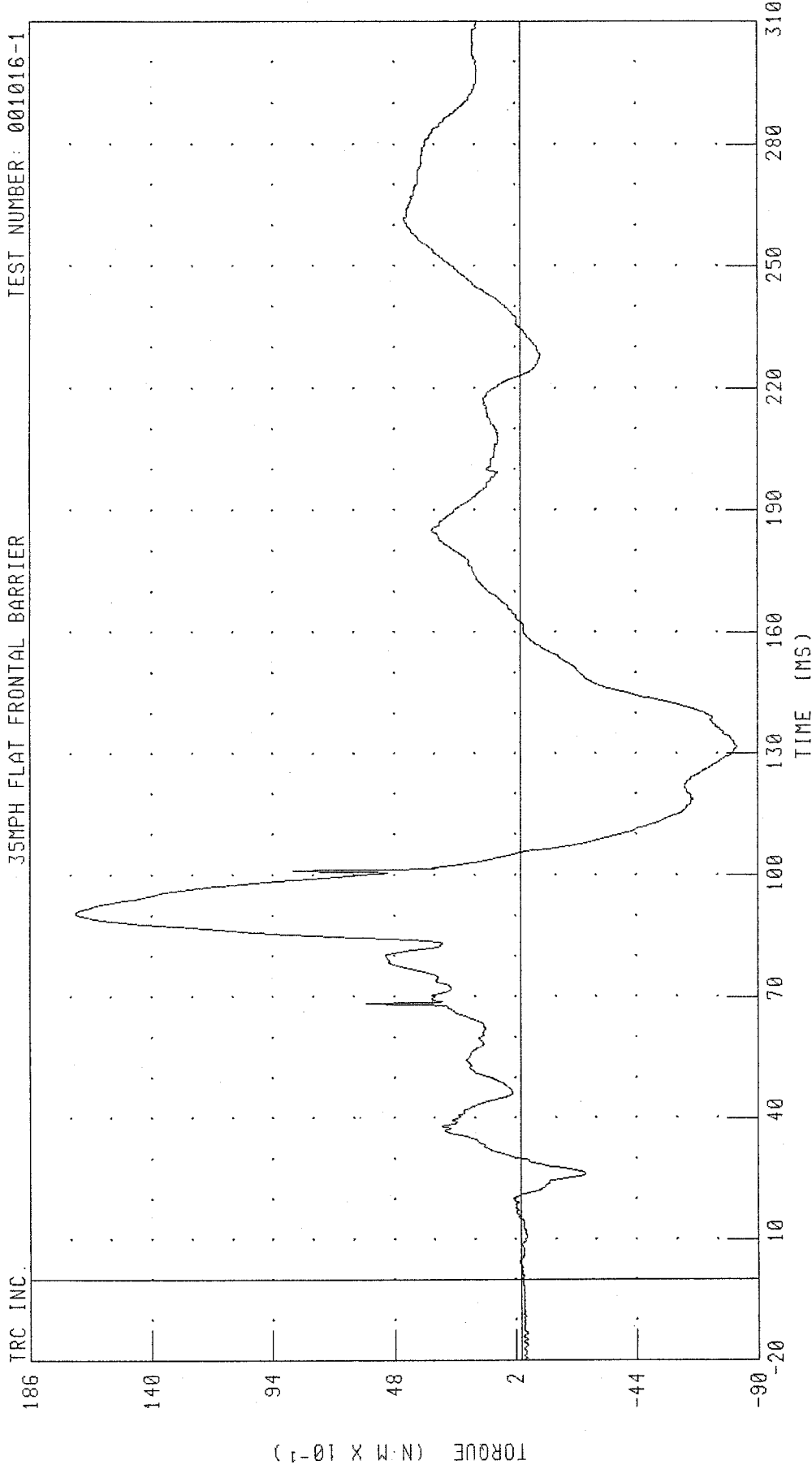
TIME (MS)

PEAK DATA: 1387.46 N @ 79.60 MS; -684.95 N @ 268.24 MS

CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

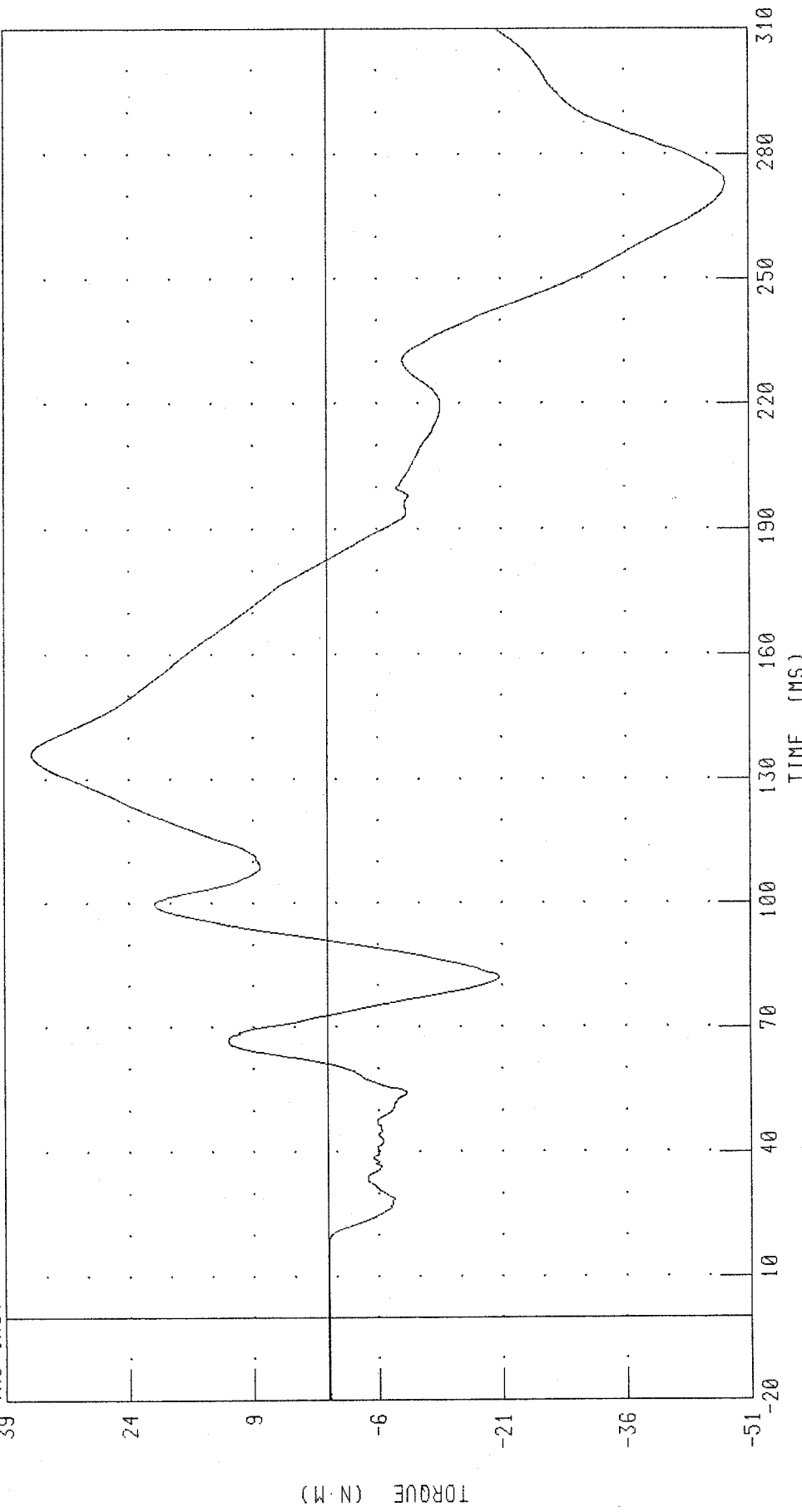


CHANNEL: NEKXN2 FILTER: CH. CLASS 600 PEAK DATA: 16.87 N·M @ 90.40 MS; -8.23 N·M @ 131.68 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

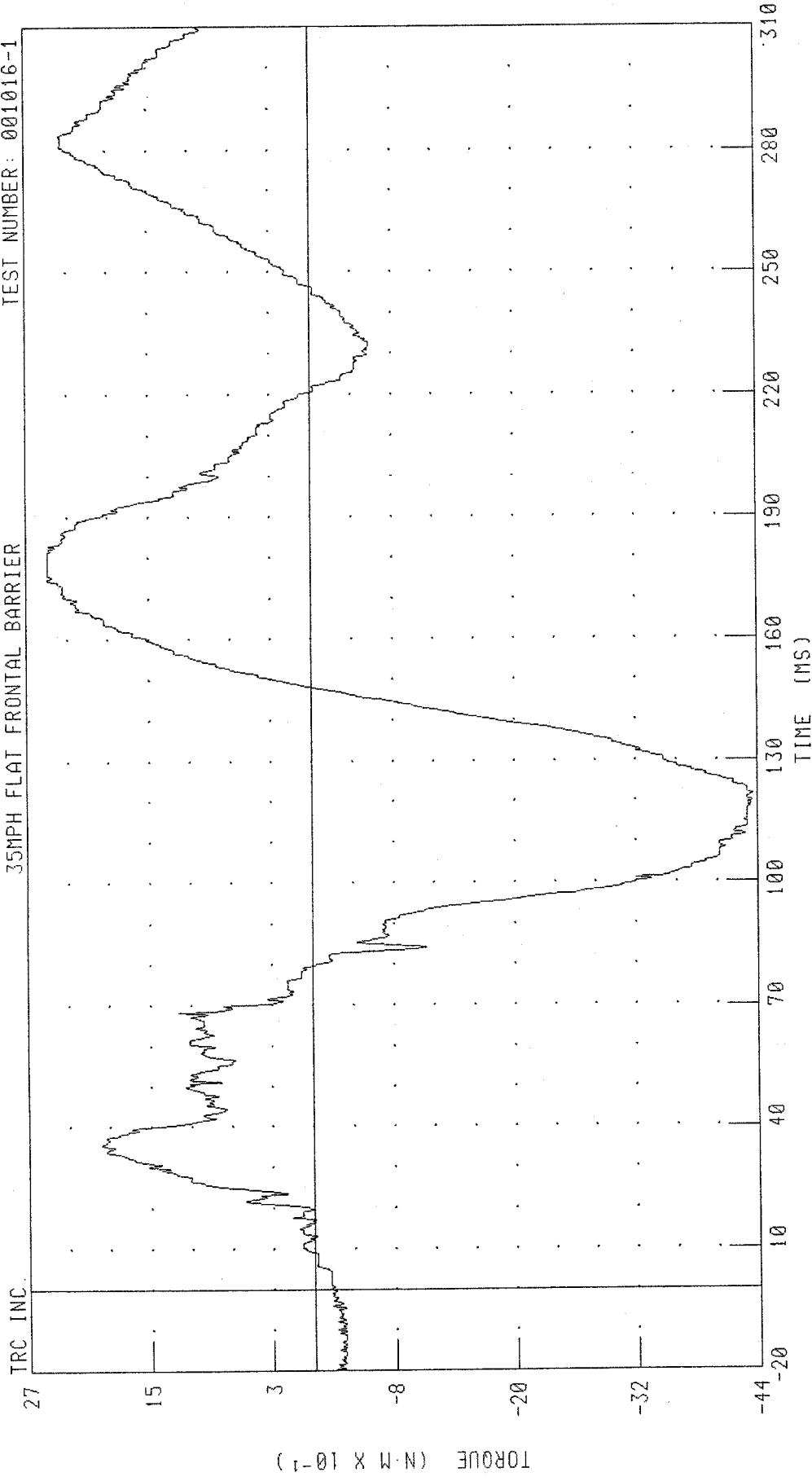


PEAK DATA: 35.72 N·M @ 135.92 MS; -48.23 N·M @ 272.88 MS

CHANNEL: NEKYM2 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS
35MPH FLAT FRONTAL BARRIER

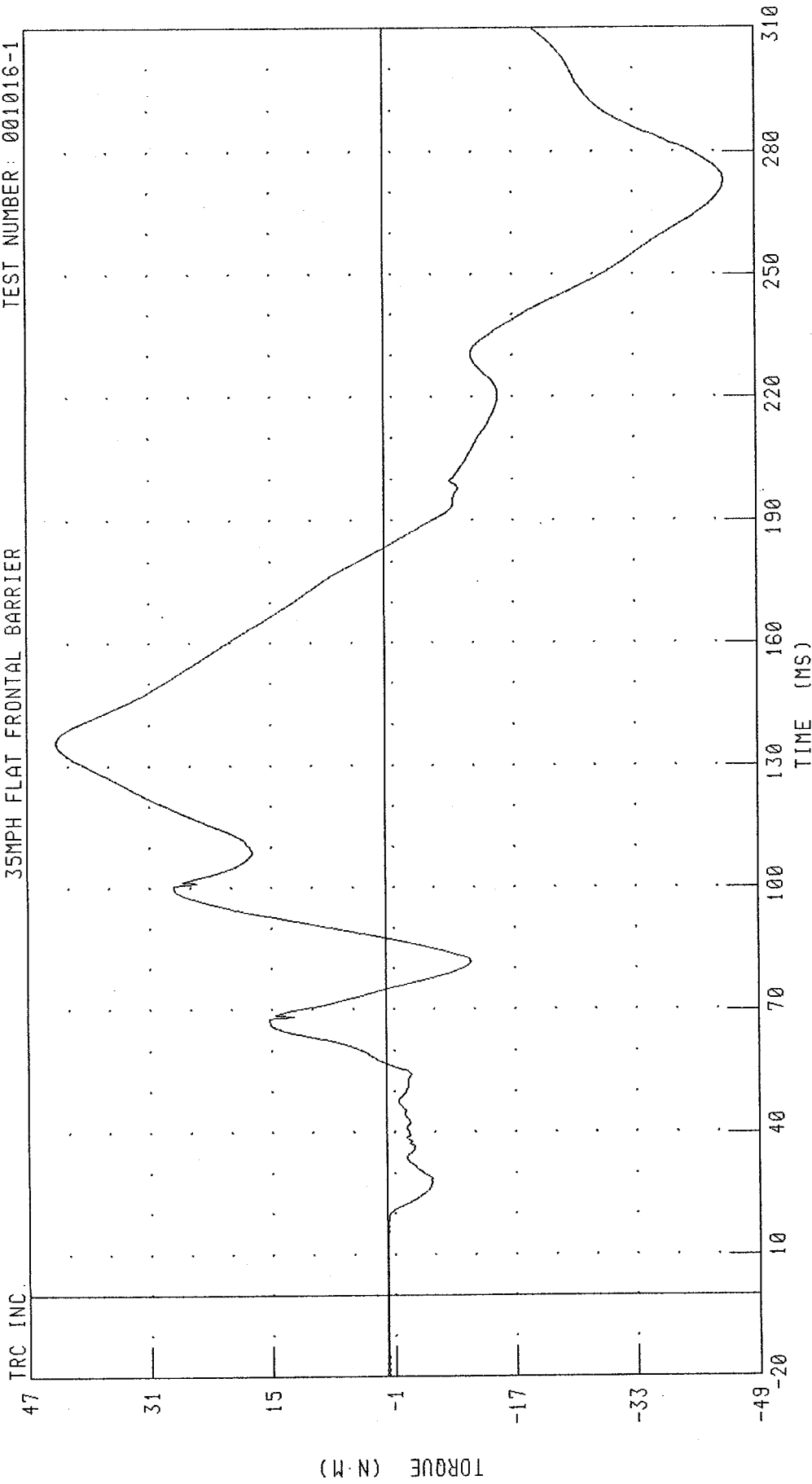
TEST NUMBER: 001016-1



CHANNEL: NEKZM2 FILTER: CH. CLASS 600 PEAK DATA: 2.59 N·M @ 174.80 MS; -4.36 N·M @ 121.60 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT OCCIPITAL CONDYLE ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

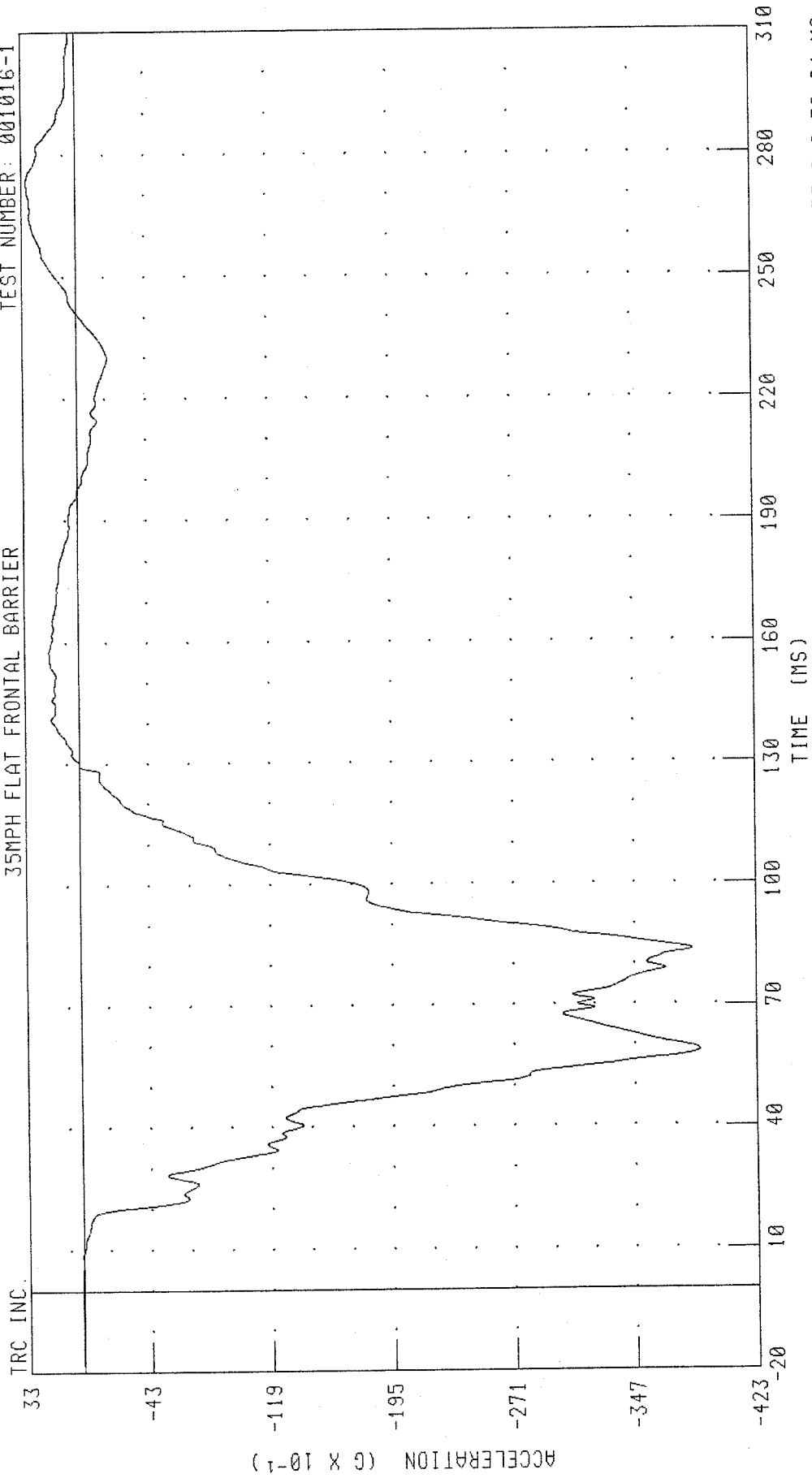


PEAK DATA: 43.24 N·M @ 135.84 MS; -44.97 N·M @ 272.72 MS

CHANNEL: NEKOM2 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

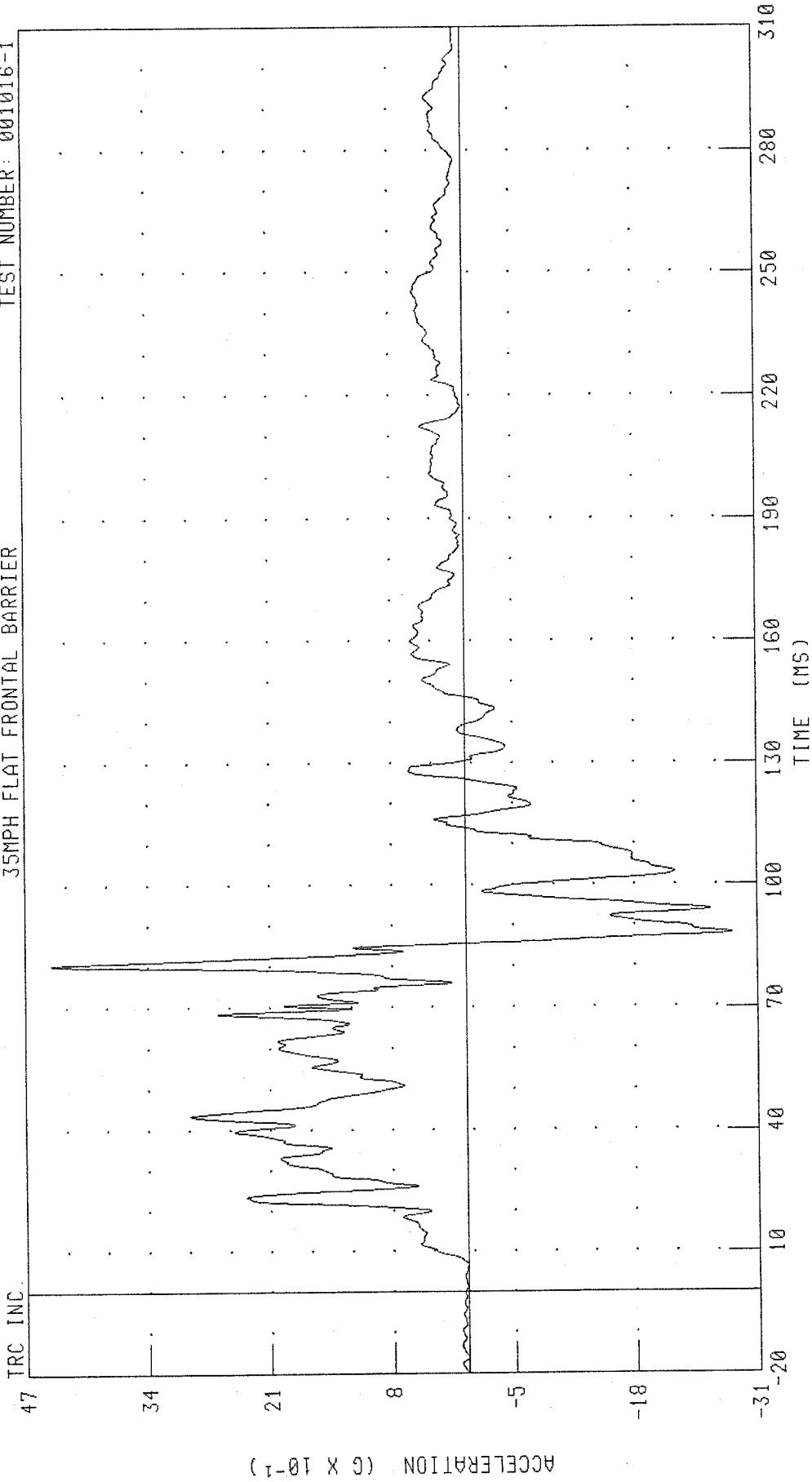


PEAK DATA: 3.07 G @ 273.20 MS, -38.75 G @ 58.64 MS

CHANNEL: CSTXG2 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

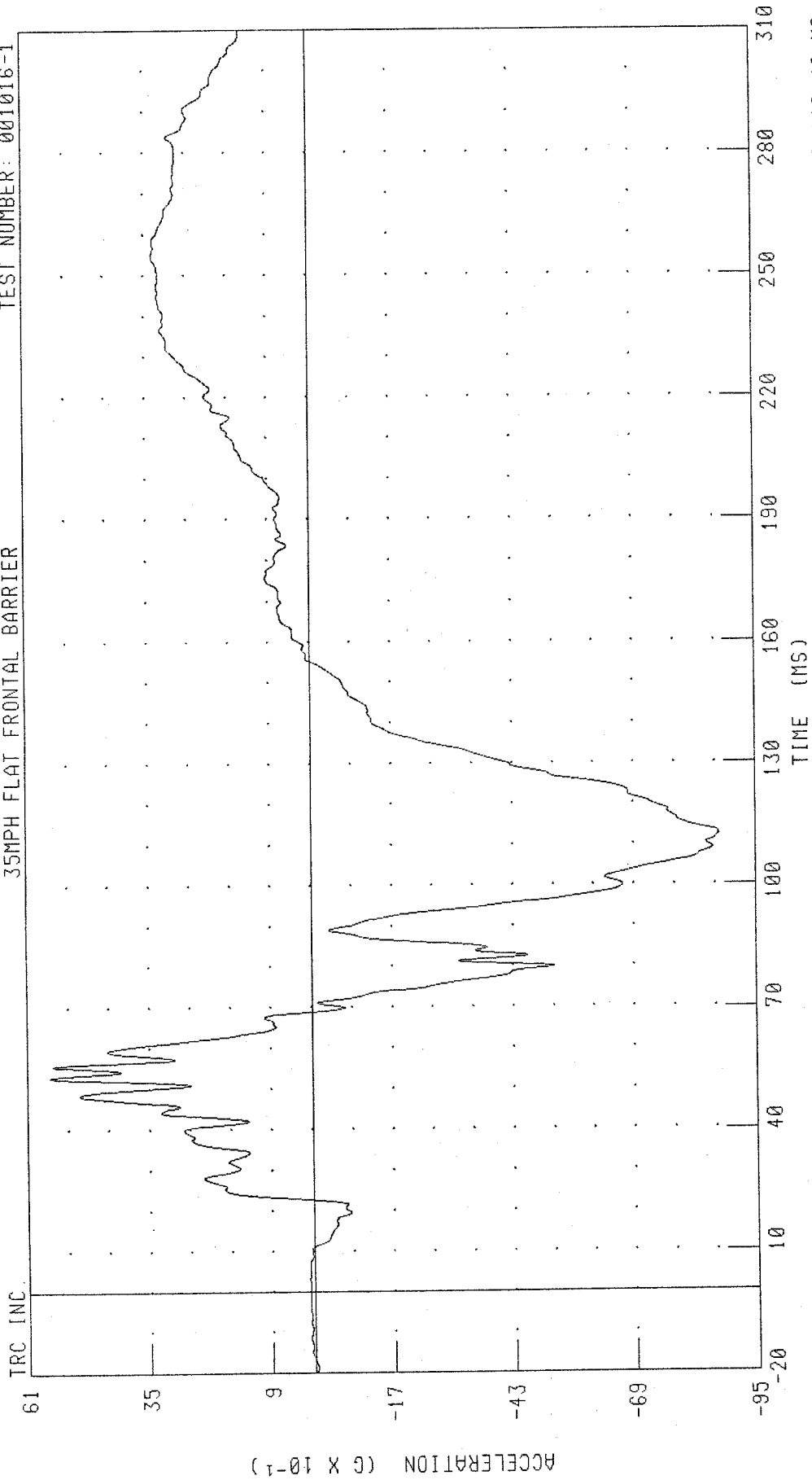


PEAK DATA: 4.43 G @ 80.48 MS; -2.83 G @ 88.08 MS

CHANNEL: CSTYG2 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

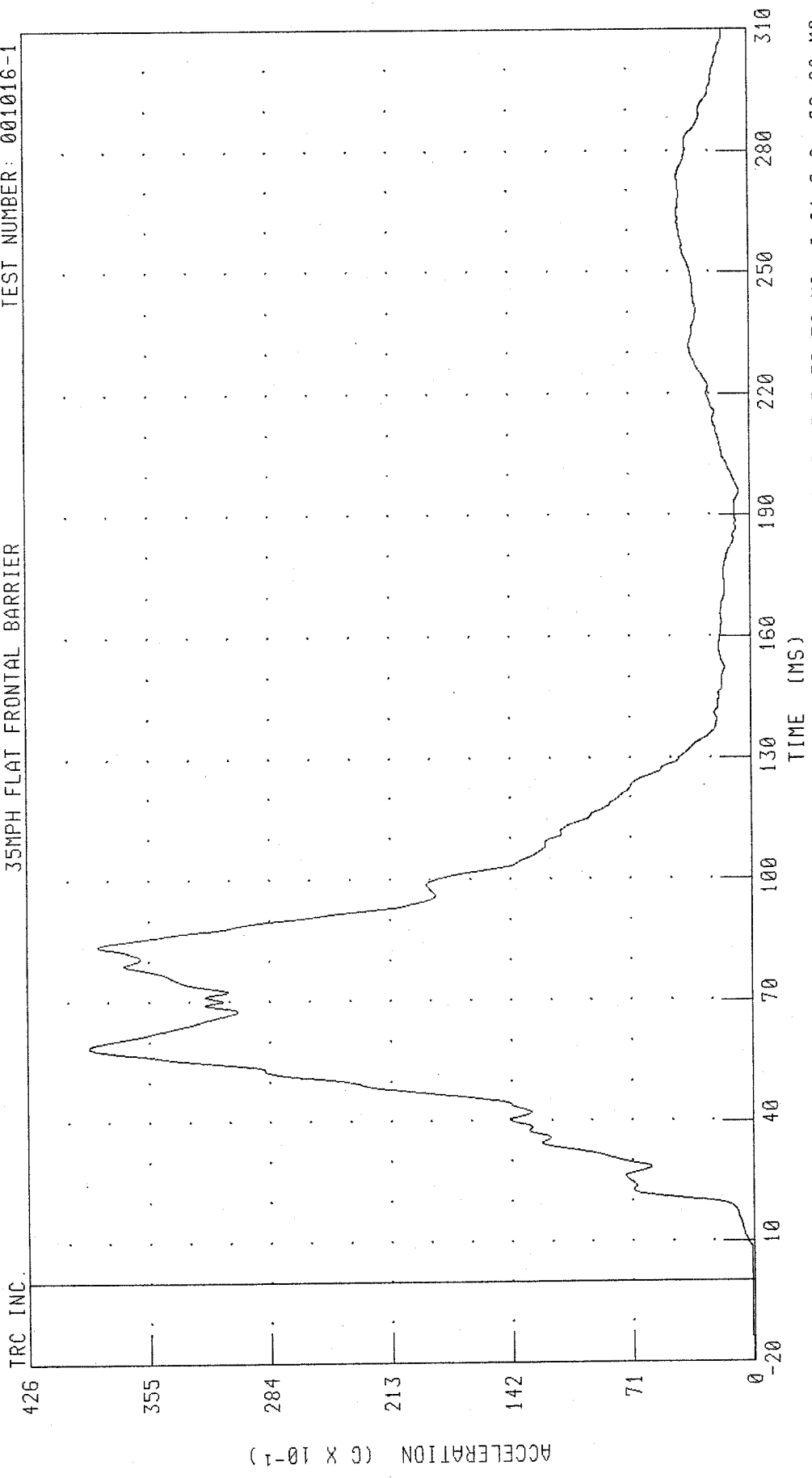


PEAK DATA: 5.62 G @ 52.96 MS; -8.72 G @ 112.40 MS

CHANNEL: CSTZG2 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



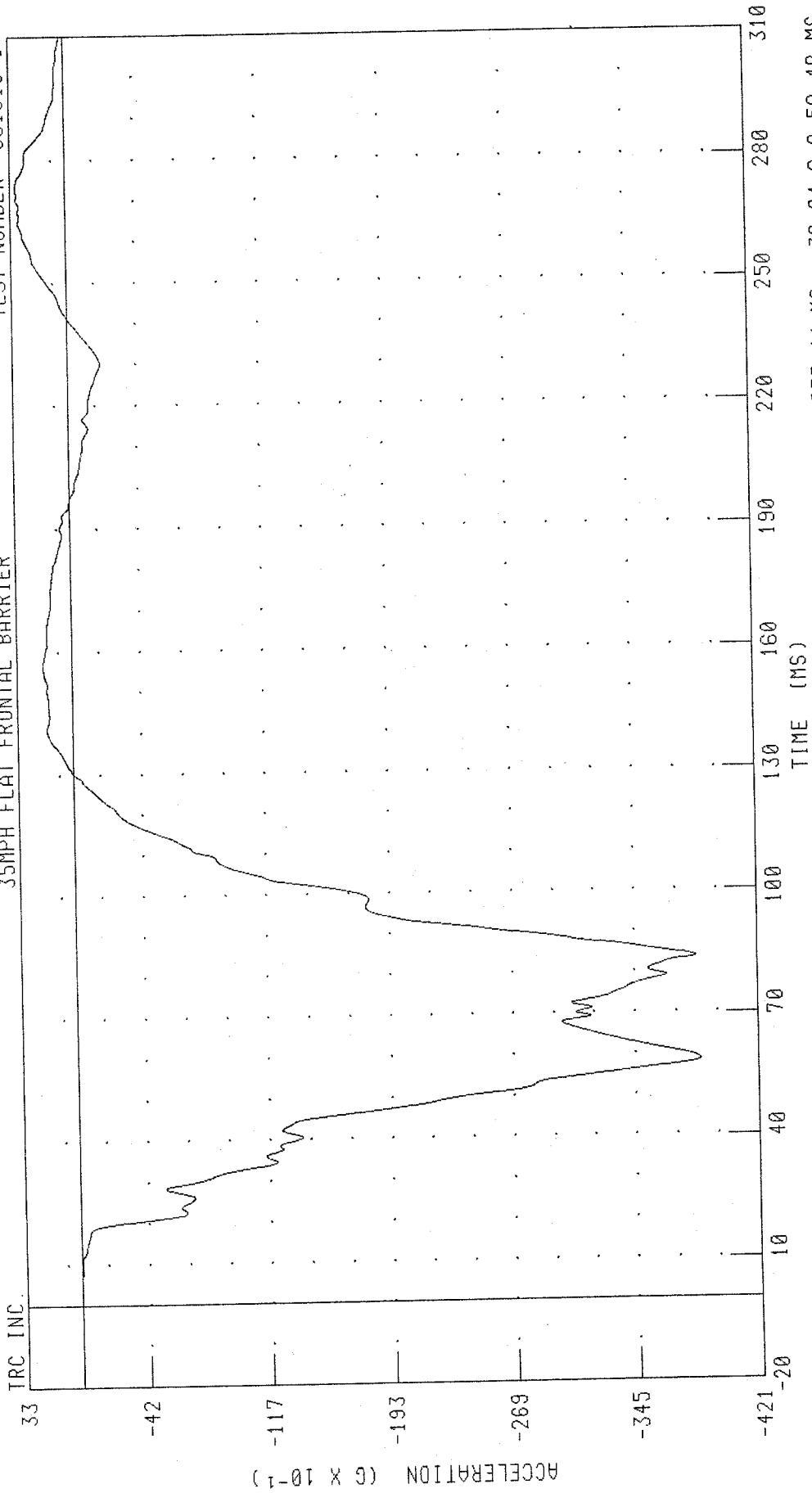
TRC INC.

PEAK DATA: 39.01 G @ 58.72 MS, 0.01 G @ -20.00 MS

CHANNEL: CSTRG2 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

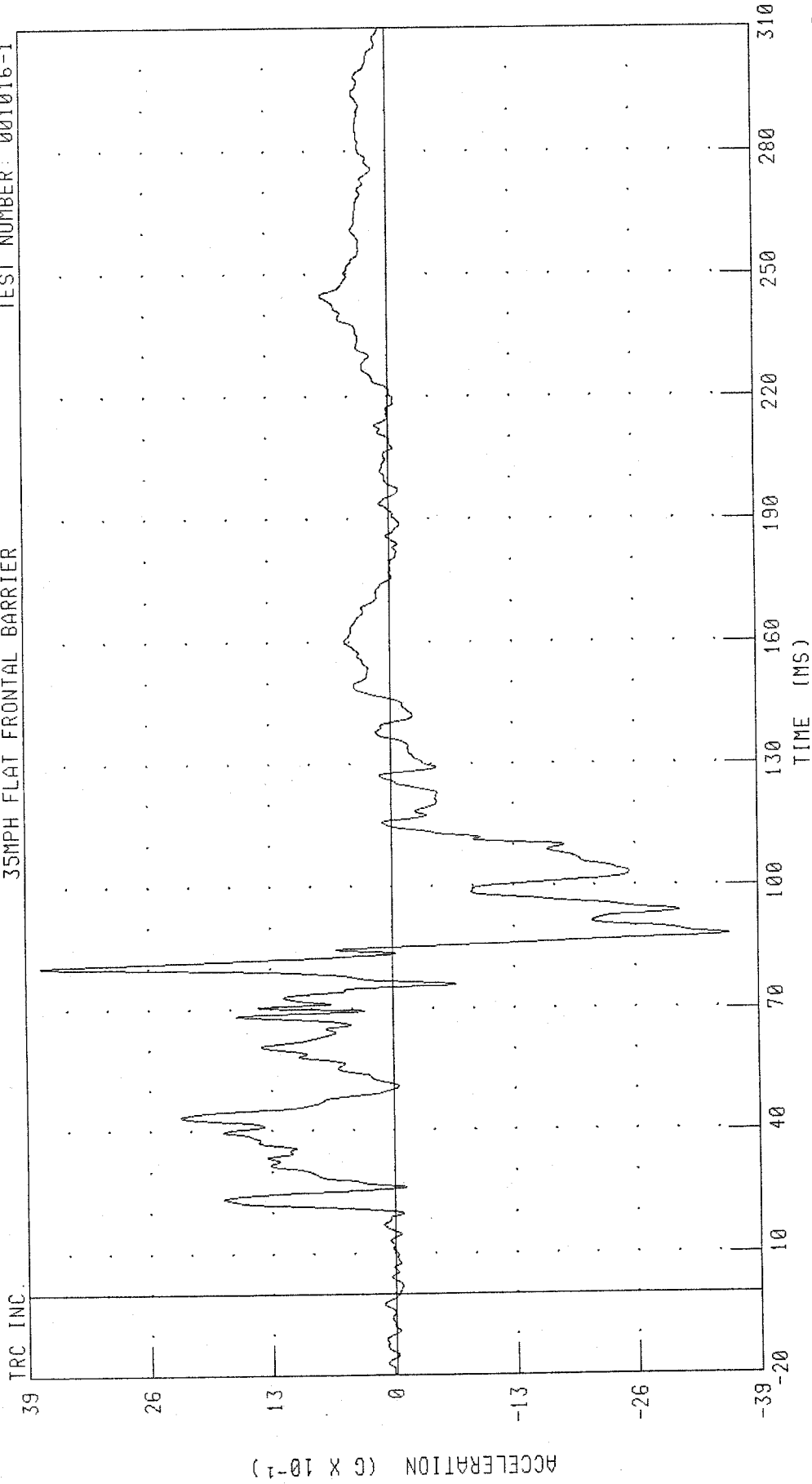


PEAK DATA: 3.11 G @ 273.44 MS; -38.64 G @ 58.48 MS

CHANNEL: CSTXR2 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

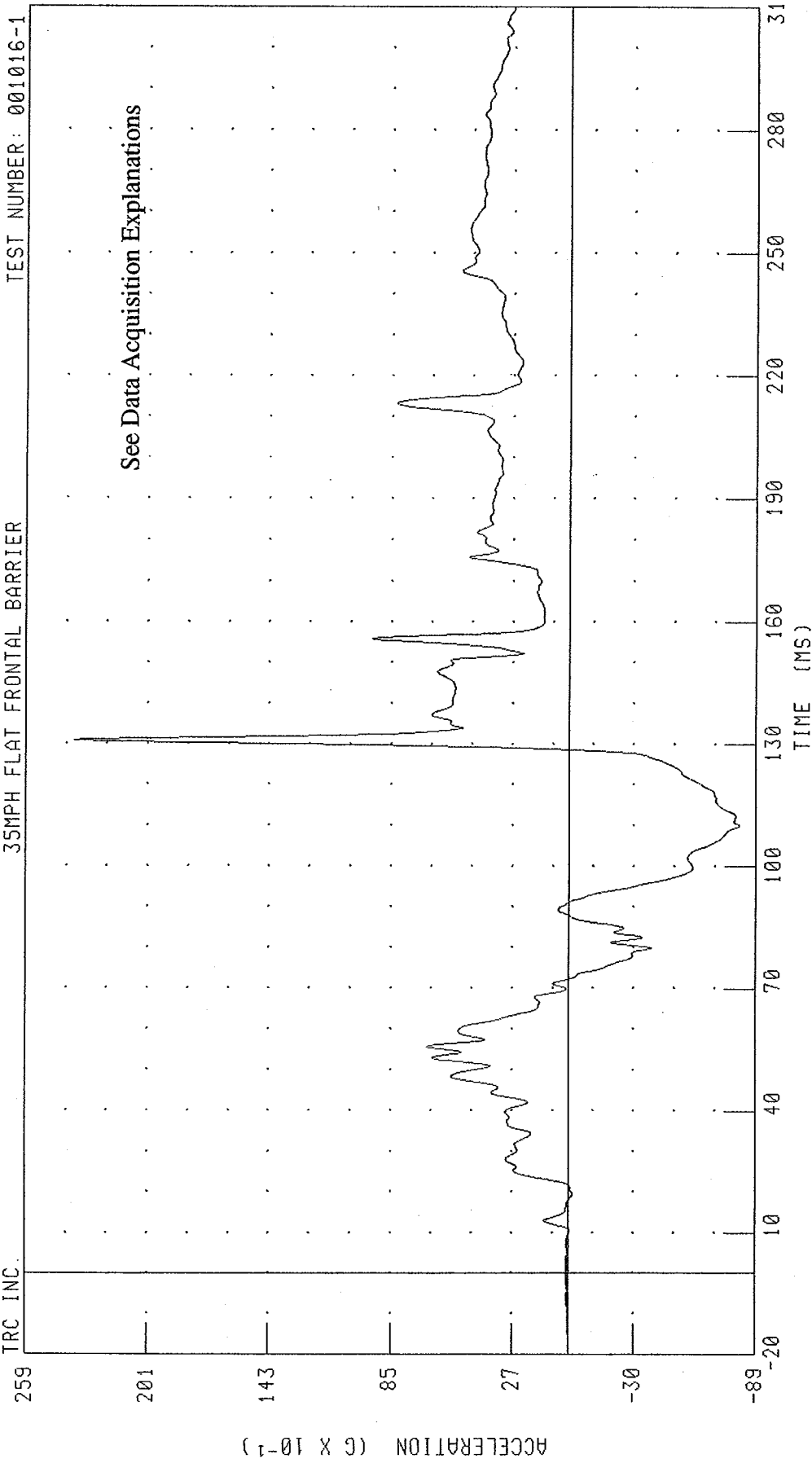


PEAK DATA: 3.75 G @ 80.48 MS, -3.59 G @ 88.00 MS

CHANNEL: CSTYR2 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

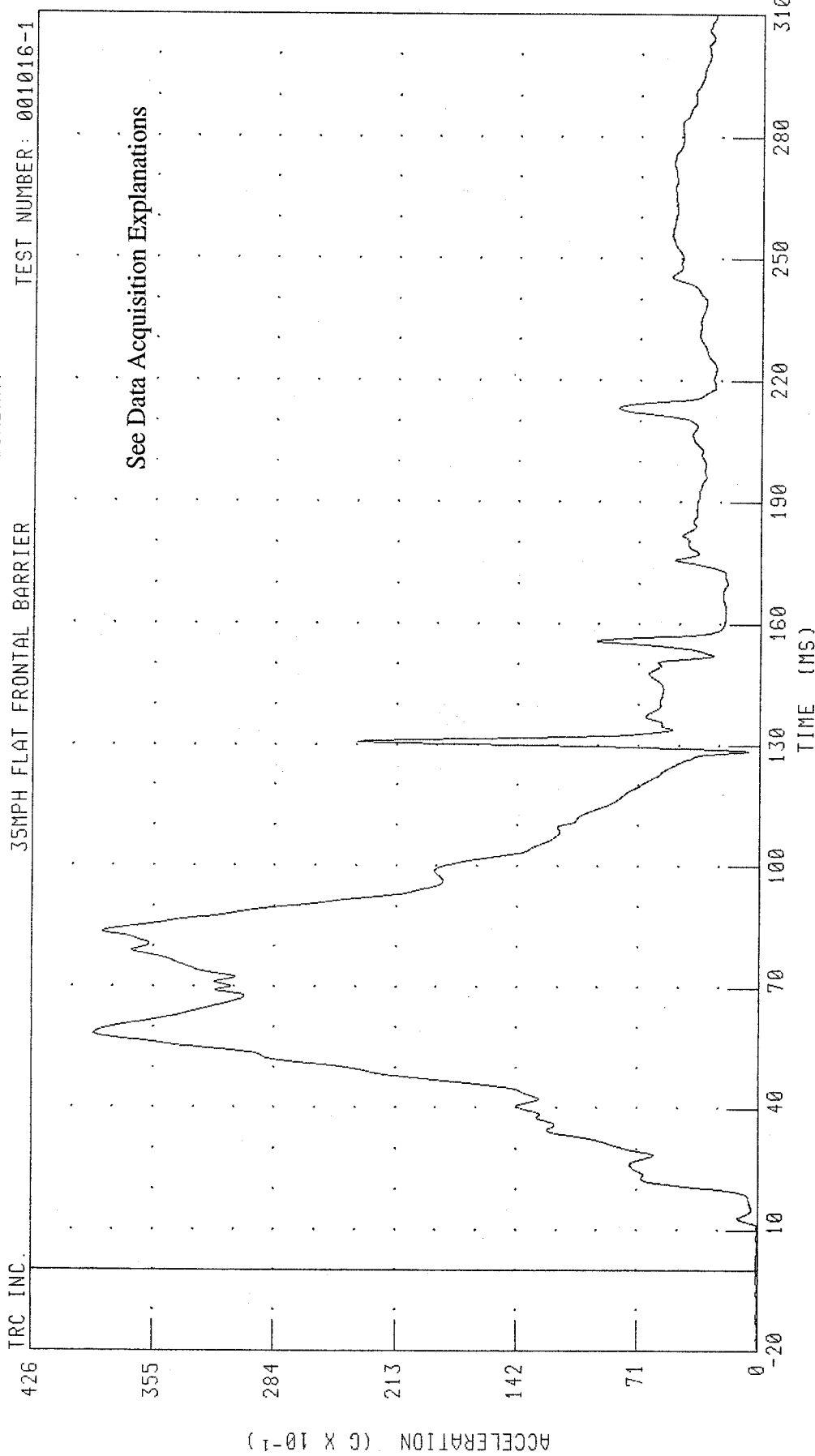
TRC INC. TEST NUMBER: 001016-1



CHANNEL: CSTZR2 FILTER: CH. CLASS 180 PEAK DATA: 23.60 G @ 130.88 MS; -8.13 G @ 110.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION - REDUNDANT
35MPH FLAT FRONTAL BARRIER

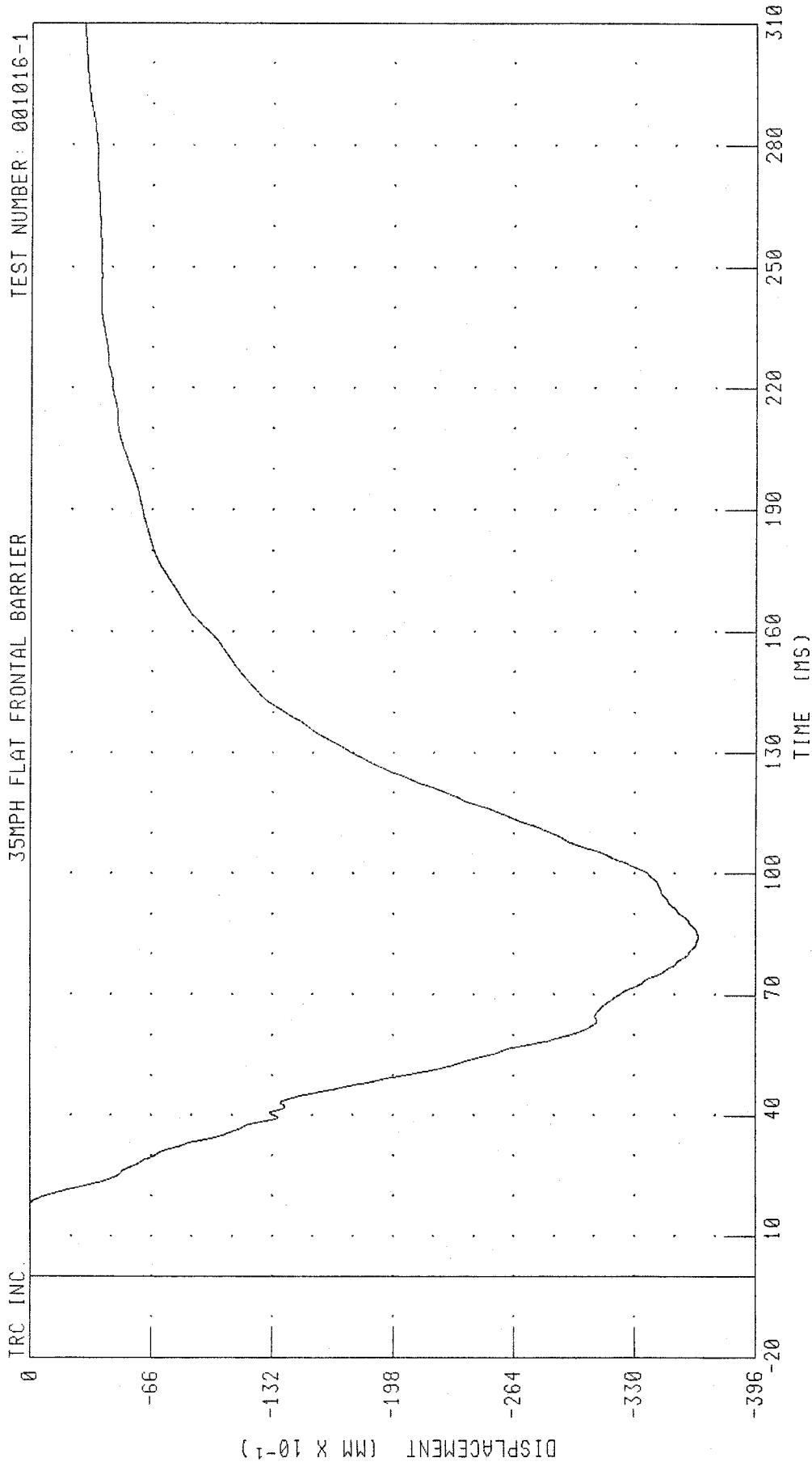
TEST NUMBER: 001016-1



CHANNEL: CSTRR2 FILTER: CH. CLASS 180 PEAK DATA: 38.98 G @ 58.56 MS; 0.00 G @ -20.00 MS

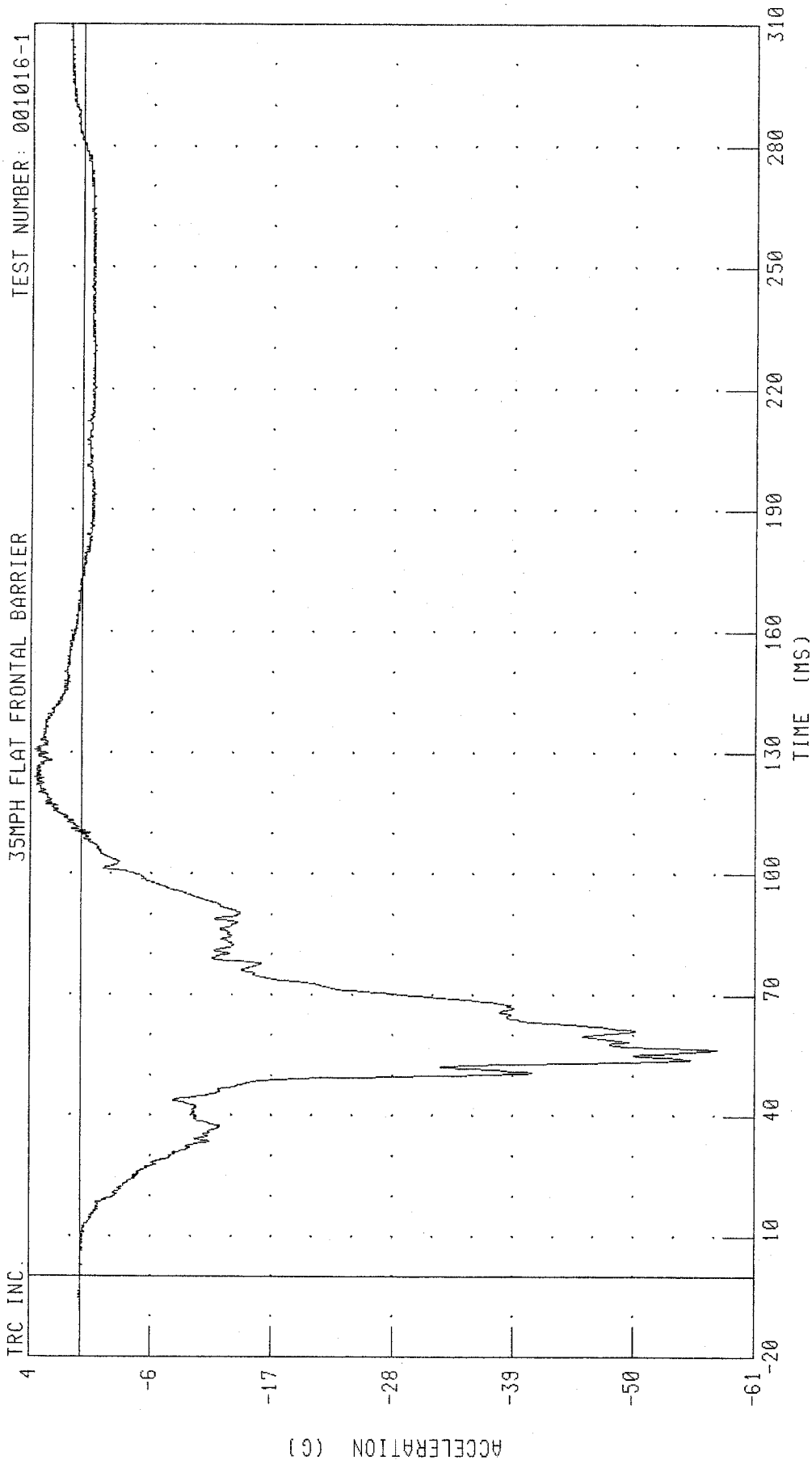
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST DEFLECTION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



CHANNEL: CSTXD2 FILTER: CH. CLASS 180 PEAK DATA: 0.01 MM @ 17.68 MS; -36.50 MM @ 84.24 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER



CHANNEL: PEVXC2 FILTER: CH. CLASS 1000 PEAK DATA: 4.24 G @ 124.00 MS; -58.02 G @ 56.40 MS

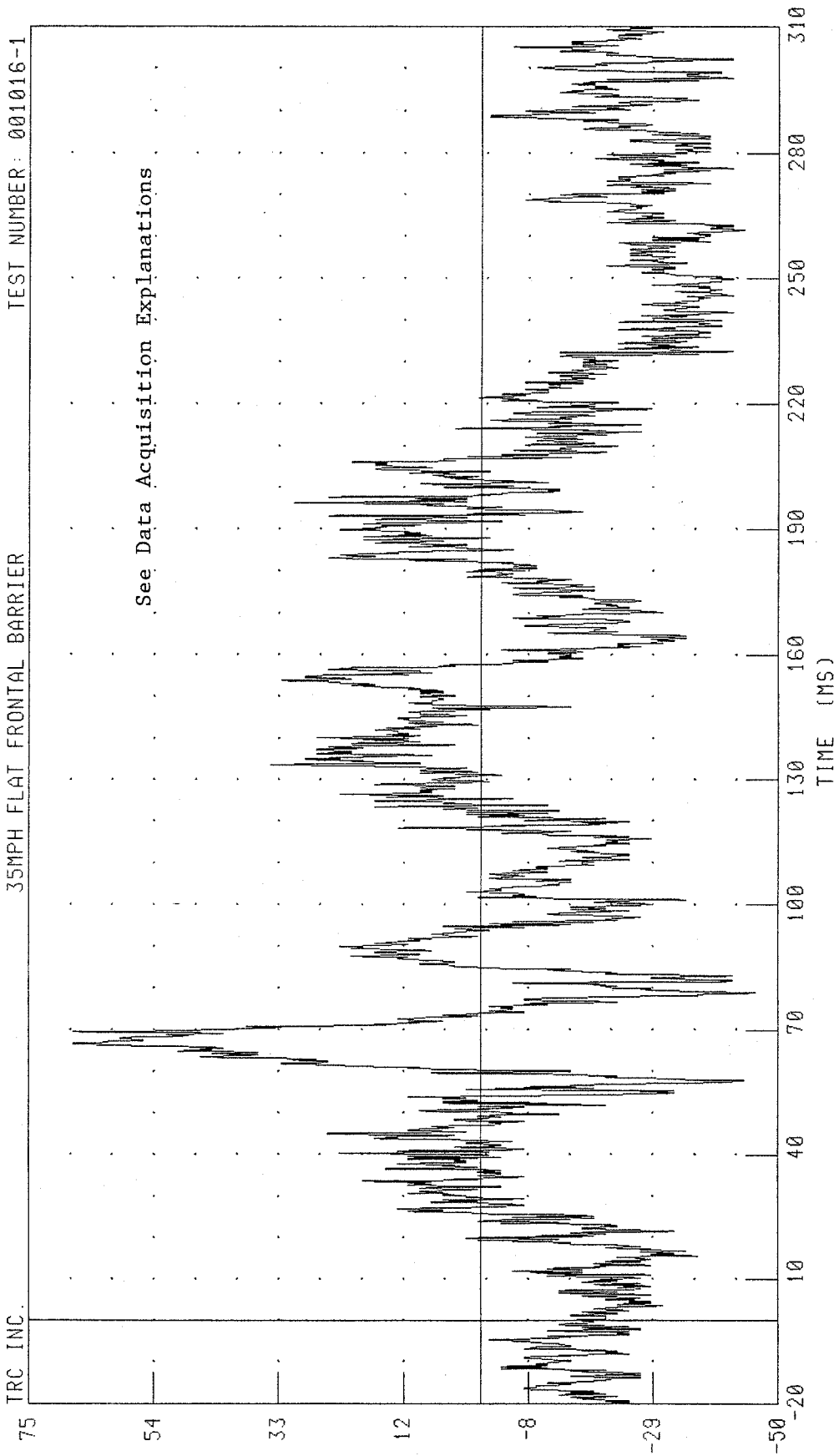
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Y-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

See Data Acquisition Explanations

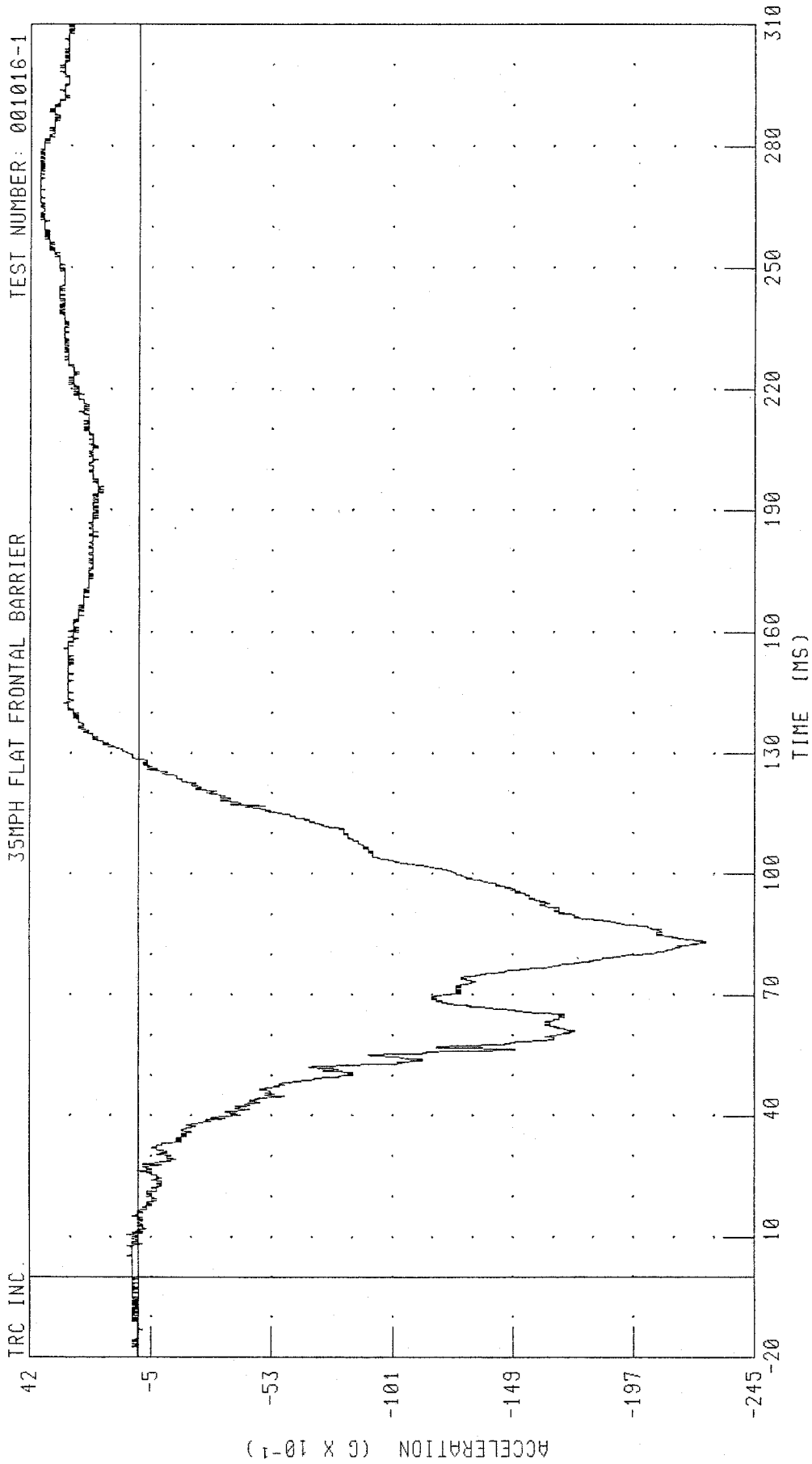
ACCELERATION (G X 10⁻¹)



PEAK DATA: 6.86 G @ 66.56 MS; -4.63 G @ 78.96 MS

CHANNEL: PEVYC2 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Z-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER



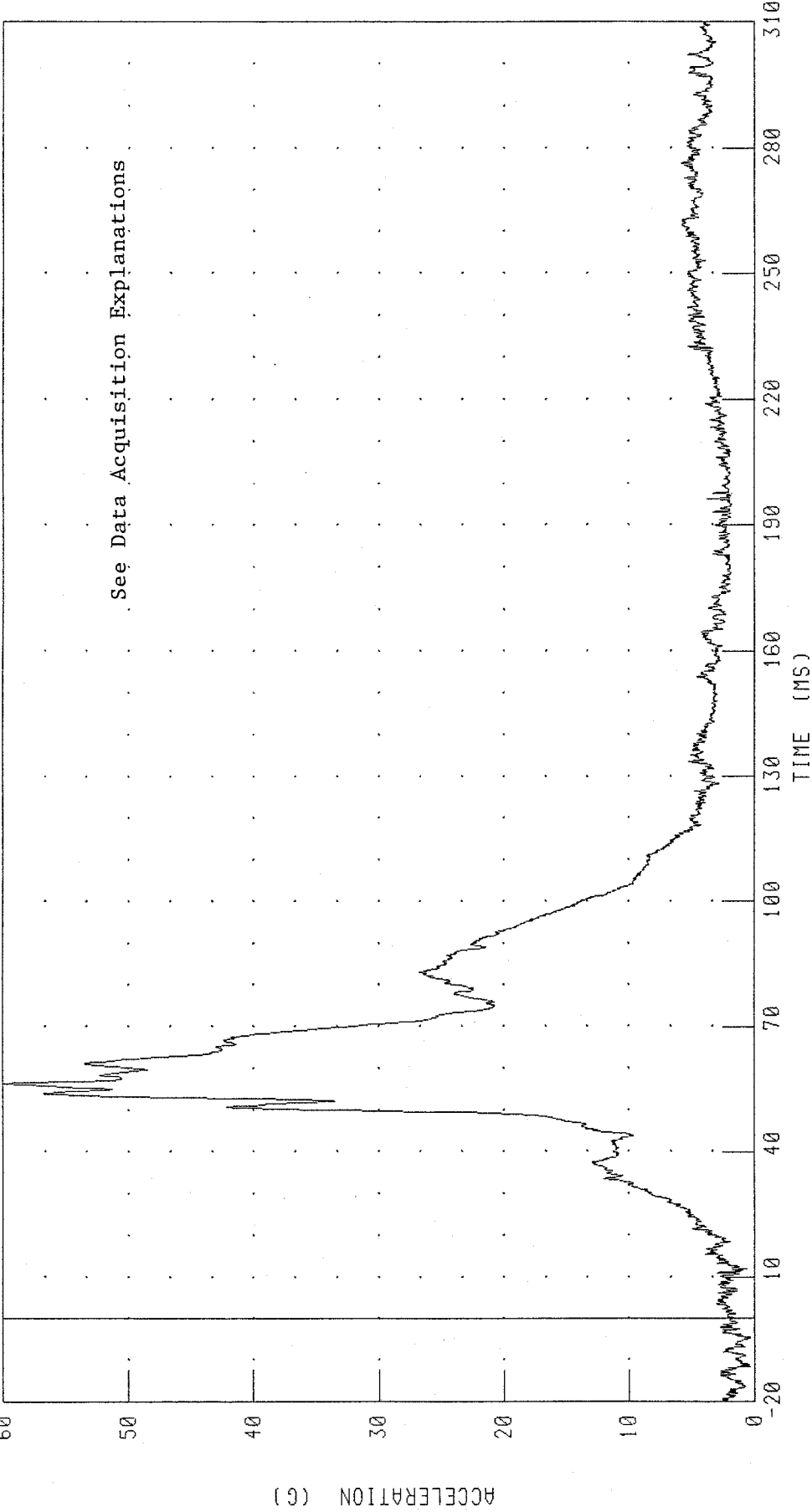
CHANNEL: PEVZ62 FILTER: CH. CLASS 1000

PEAK DATA: 3.96 G @ 261.92 MS; -22.61 G @ 83.04 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS RESULTANT ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

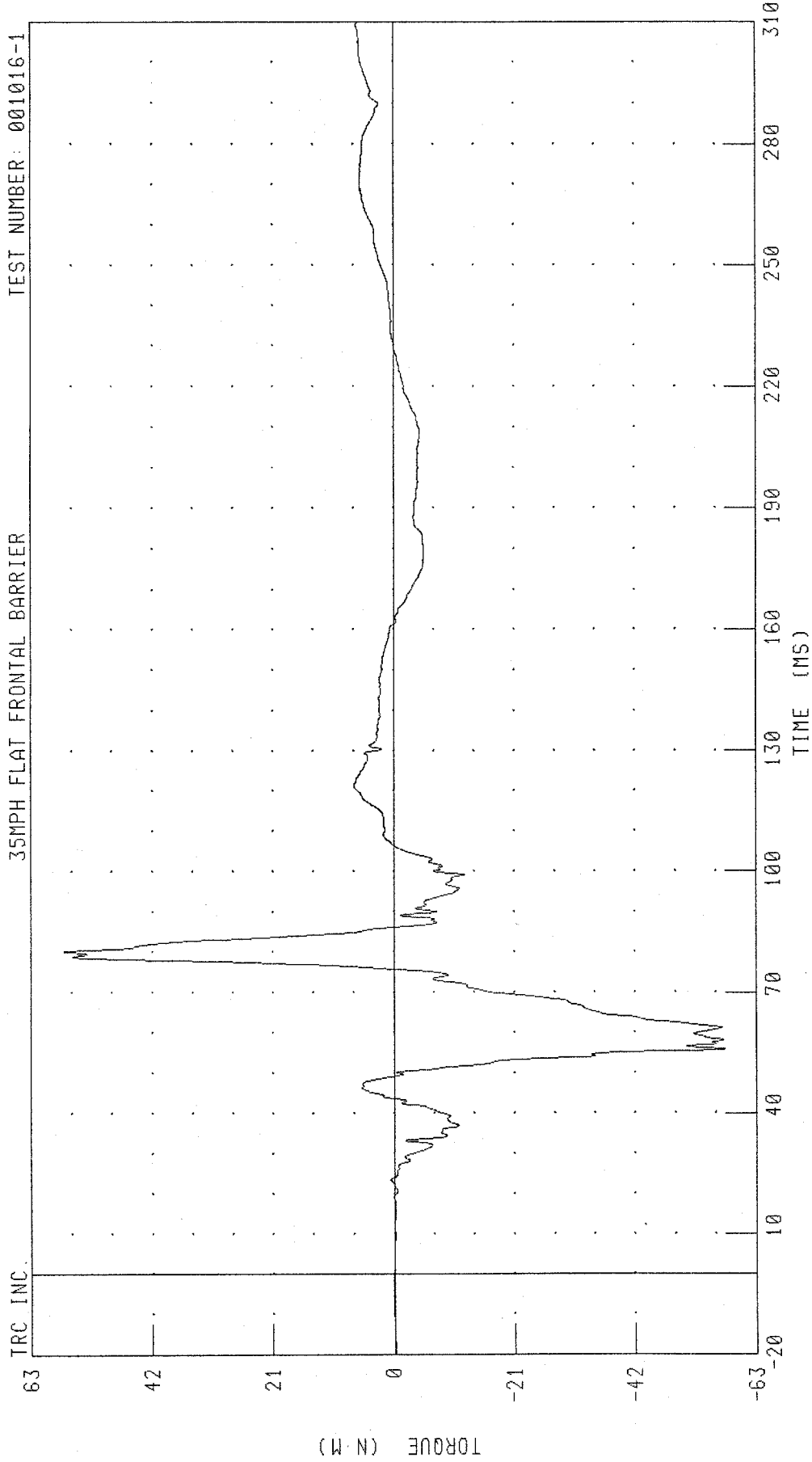
TRC INC.



CHANNEL: PEVR02 FILTER: CH. CLASS 1000 PEAK DATA: 59.90 G @ 56.40 MS; 0.30 G @ -4.80 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

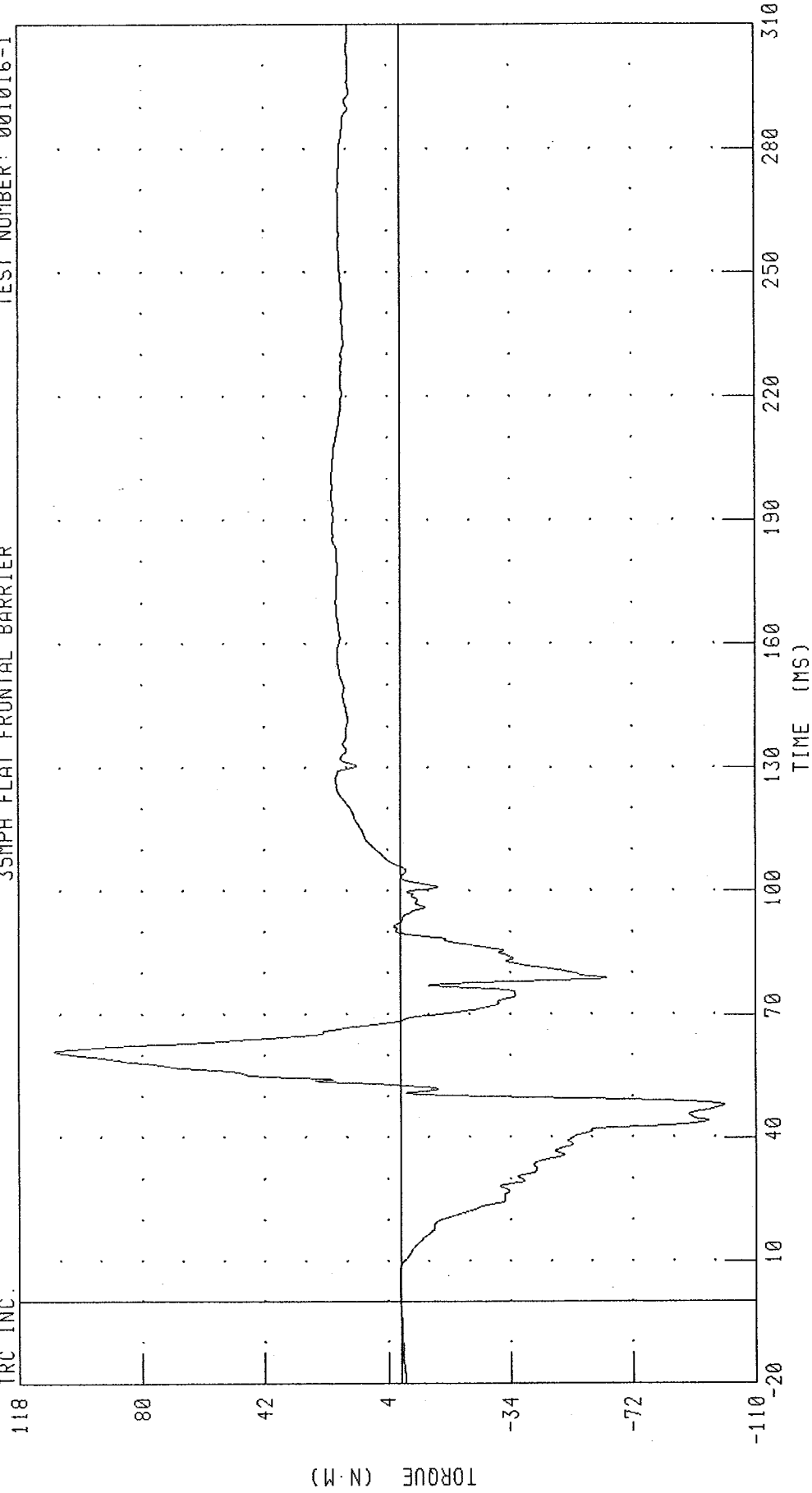


CHANNEL: TBLXM2 FILTER: CH. CLASS 600 PEAK DATA: 57.41 N·M @ 80.16 MS; -57.68 N·M @ 55.84 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

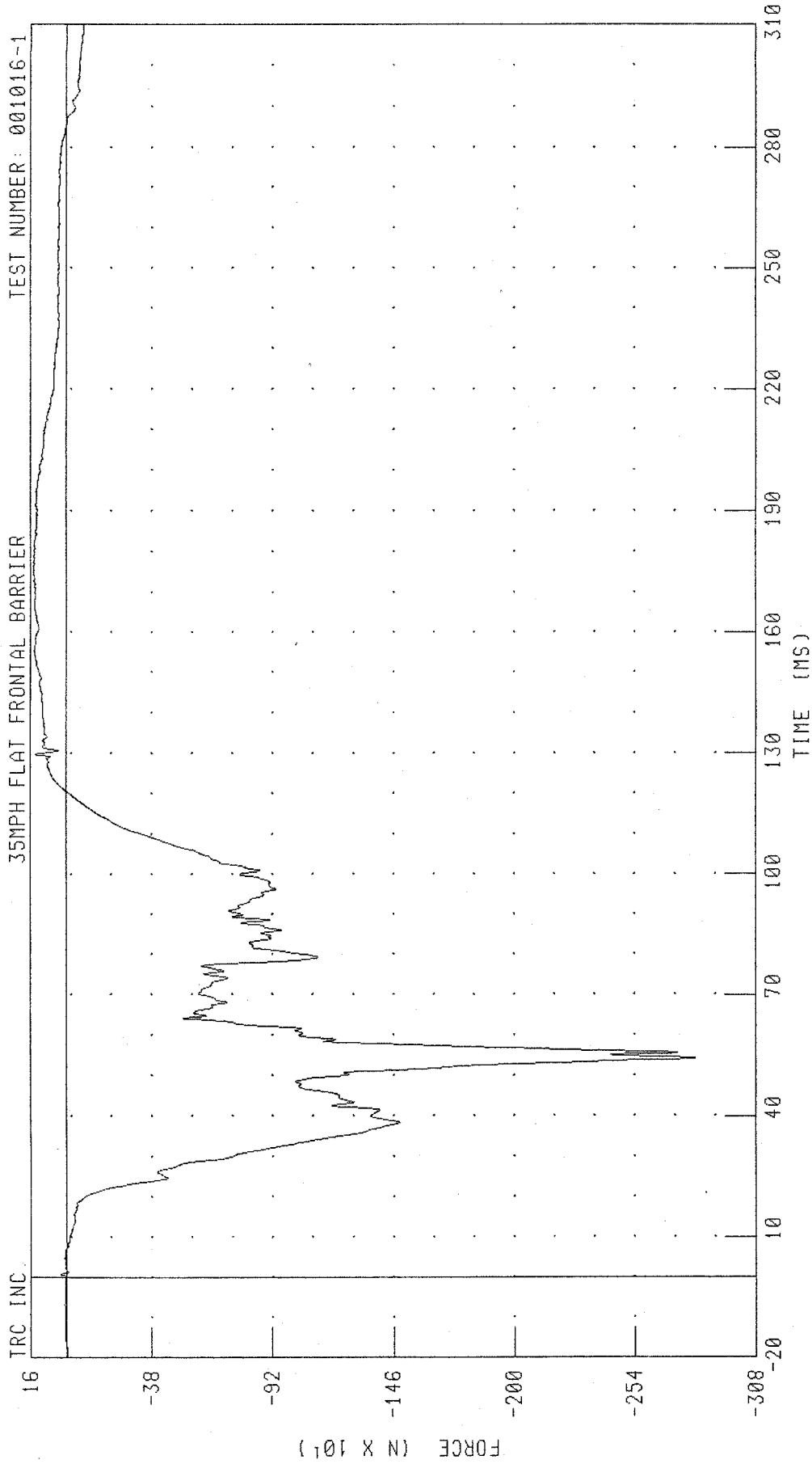
TRC INC.



PEAK DATA: 107.03 N·M @ 61.04 MS; -100.48 N·M @ 47.92 MS

CHANNEL: TBLYM2 FILTER: CH. CLASS 600

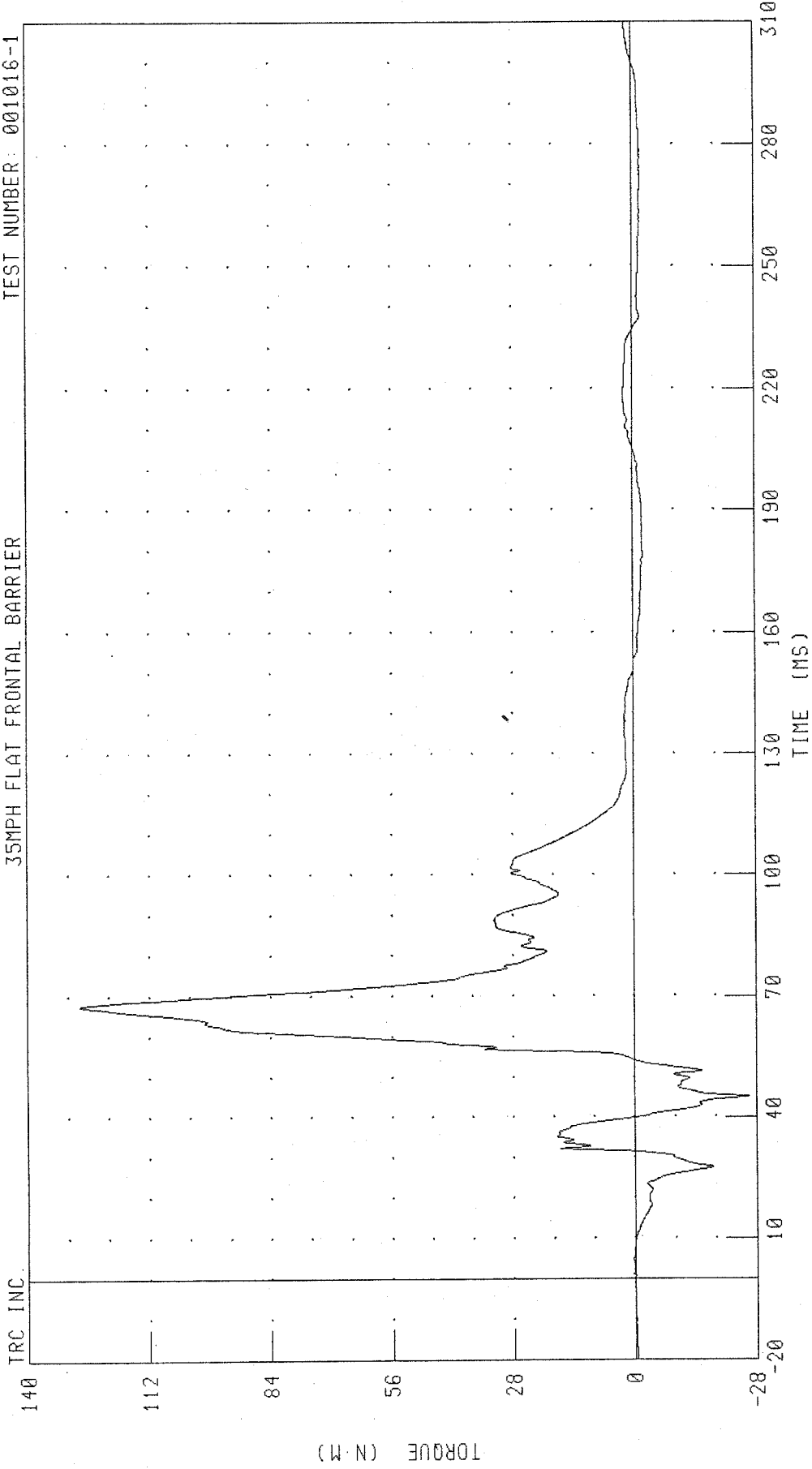
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER



CHANNEL: TBLZF2 FILTER: CH. CLASS 600 PEAK DATA: 148.61 N @ 176.16 MS; -2809.62 N @ 54.24 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

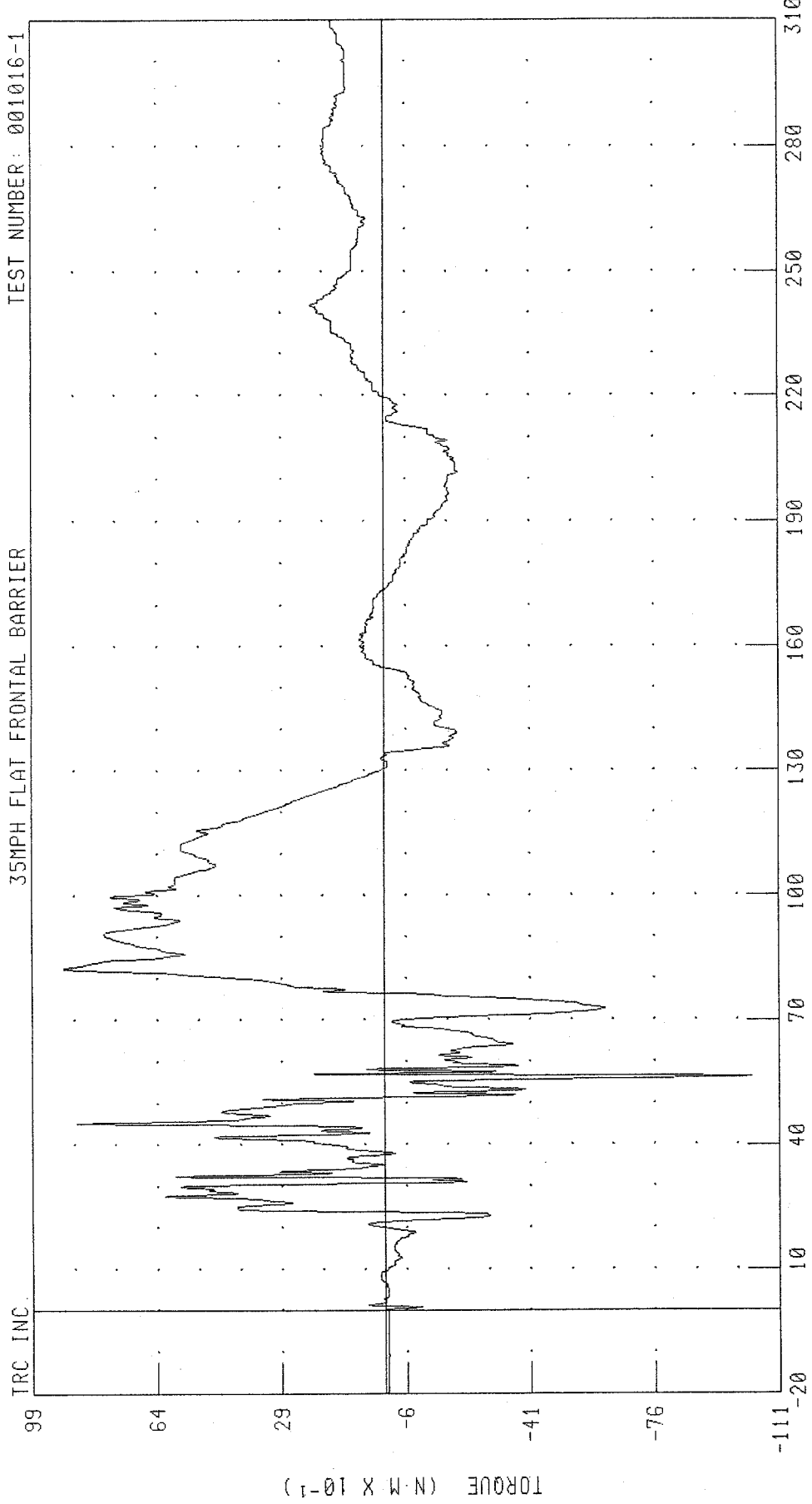
TEST NUMBER: 001016-1



CHANNEL: ANLYM2 FILTER: CH. CLASS 600
PEAK DATA: 127.85 N·M @ 67.68 MS; -26.29 N·M @ 45.12 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

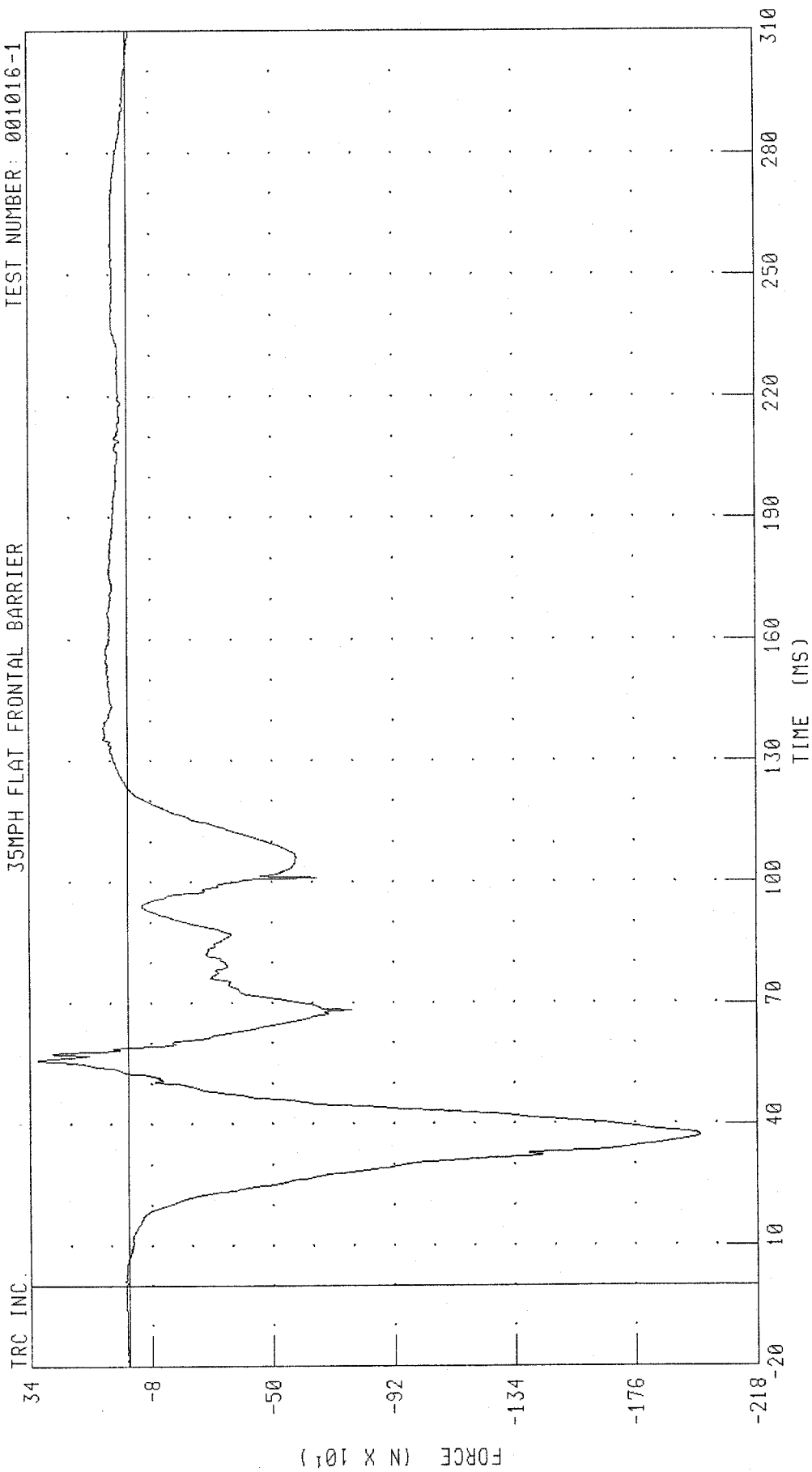


PEAK DATA: 9.01 N·M @ 82.48 MS; -10.34 N·M @ 56.32 MS

CHANNEL: ANLXM2 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER

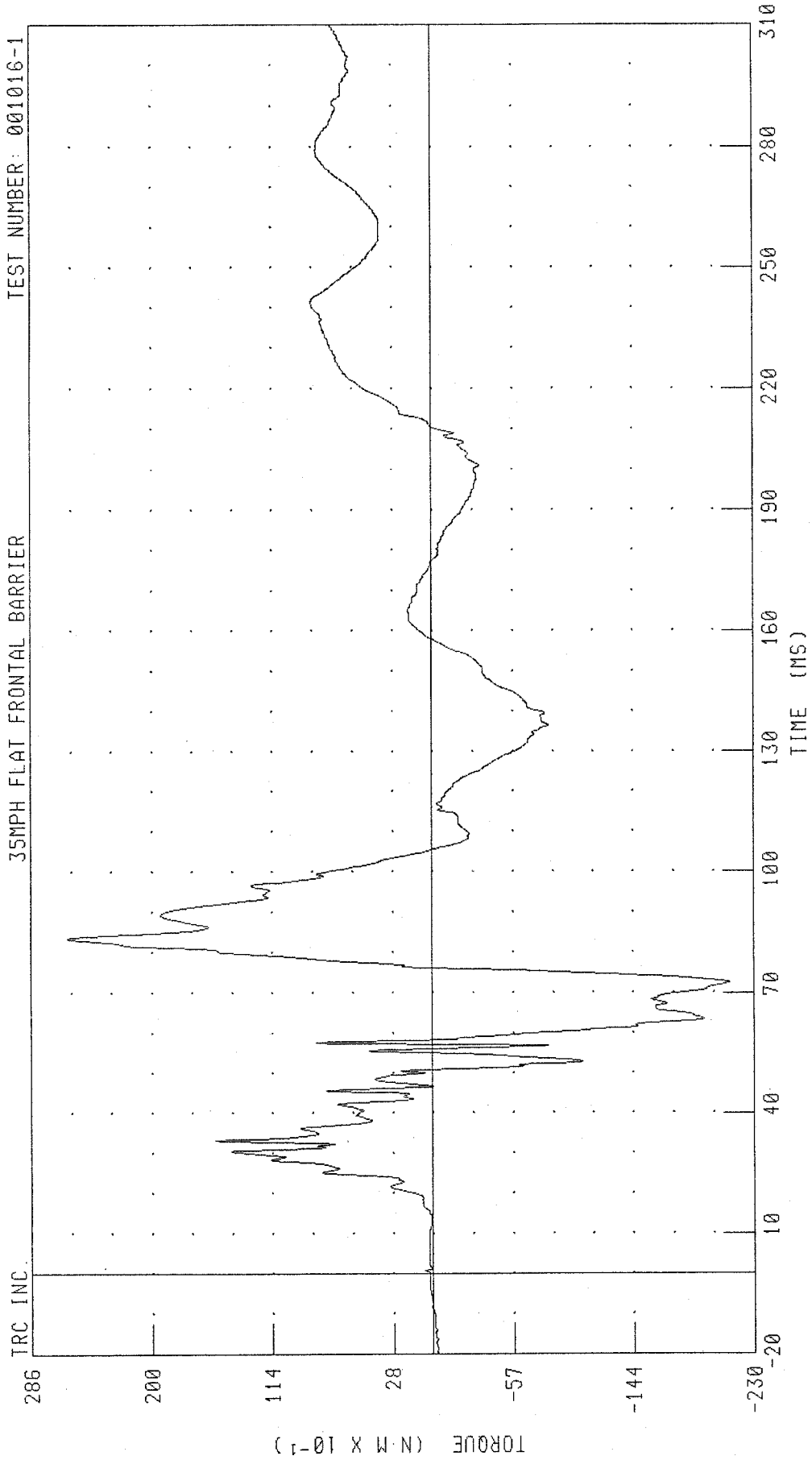
TEST NUMBER: 001016-1



CHANNEL: ANLZF2 FILTER: CH. CLASS 600
PEAK DATA: 313.62 N @ 55.76 MS, -1984.47 N @ 37.28 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

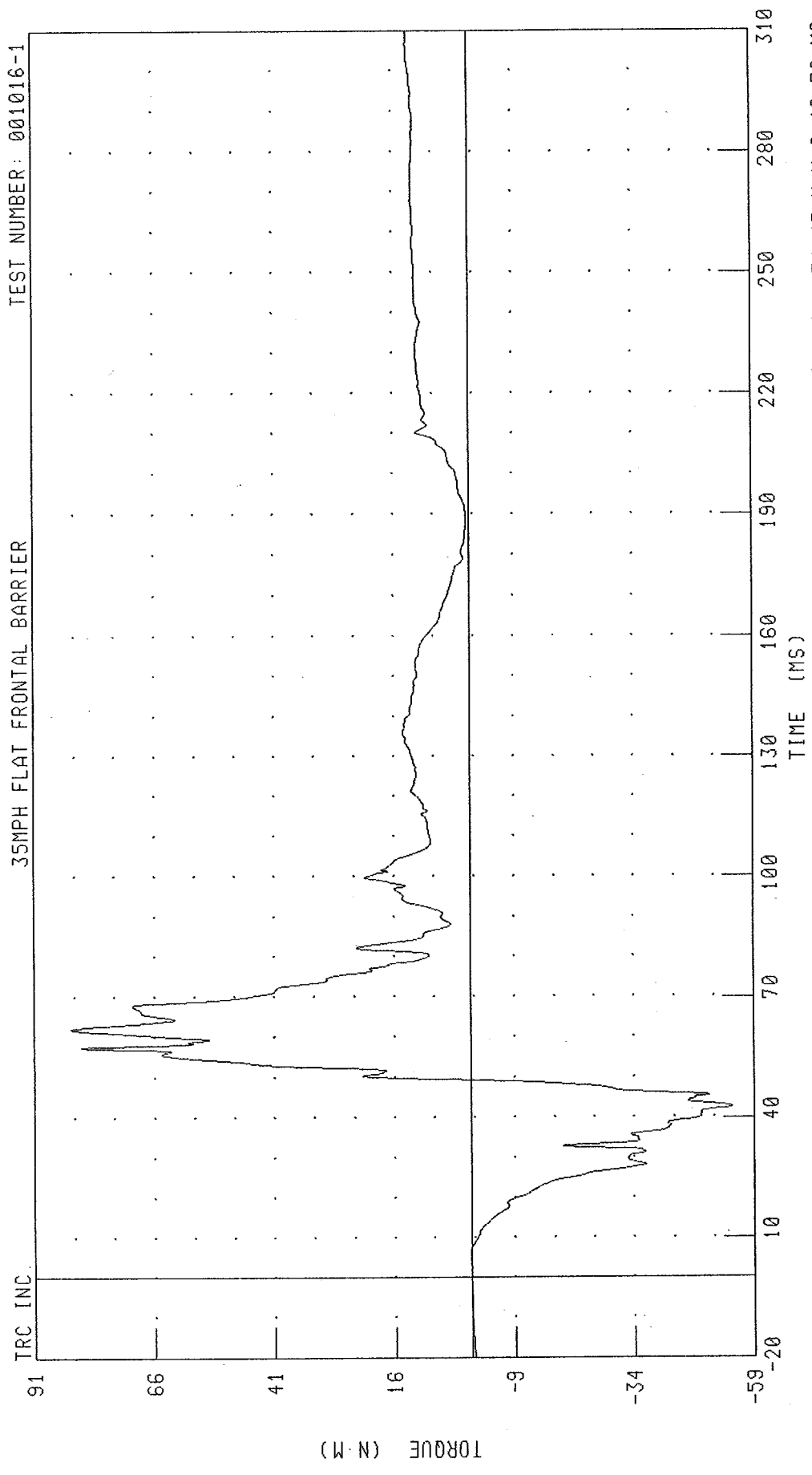
TEST NUMBER: 001016-1



CHANNEL: TBRX1M2 FILTER: CH. CLASS 600 PEAK DATA: 25.99 N·M @ 83.60 MS; -21.25 N·M @ 72.56 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

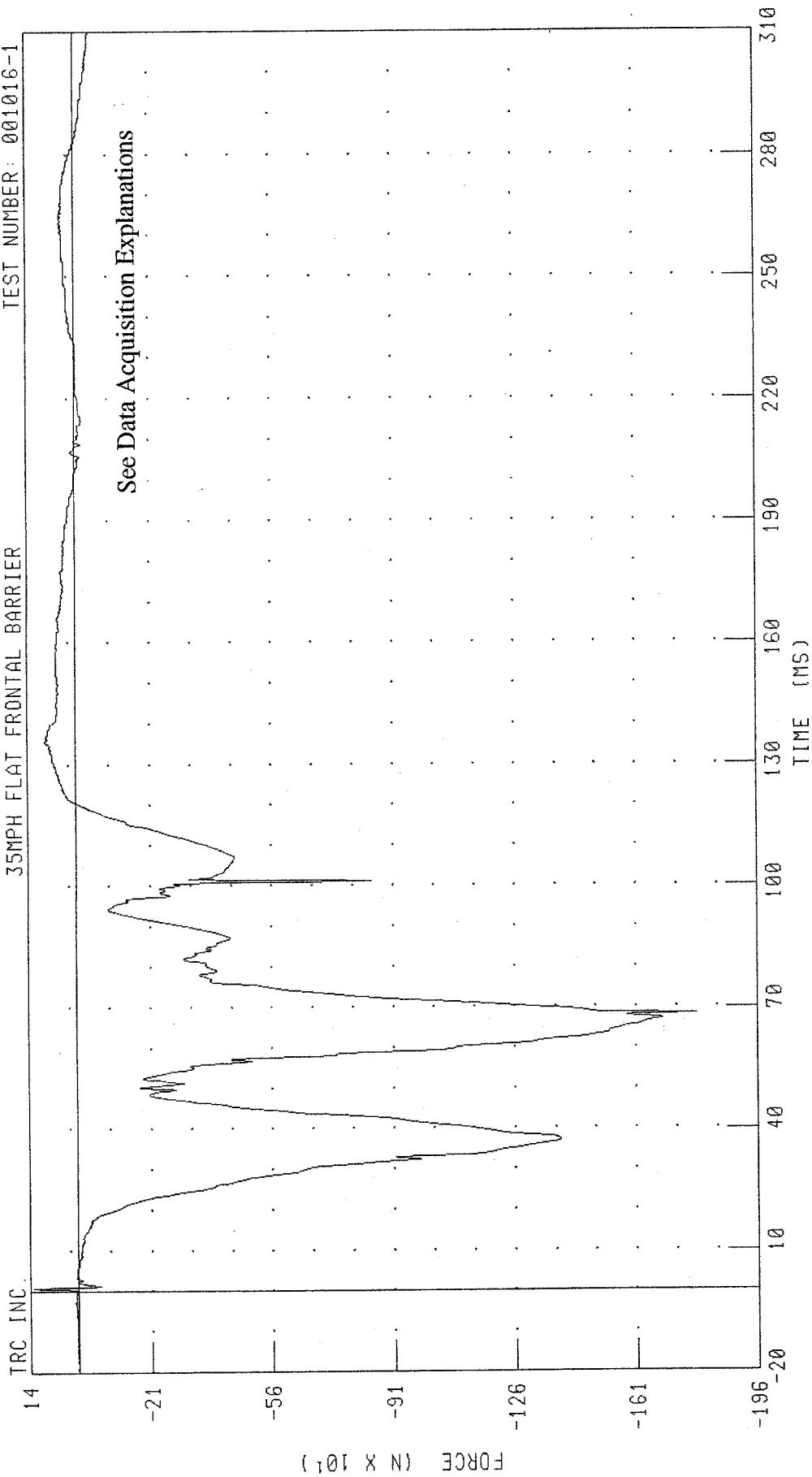


PEAK DATA: 83.45 N·M @ 62.00 MS; -54.47 N·M @ 42.72 MS

CHANNEL: TBRYM2 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



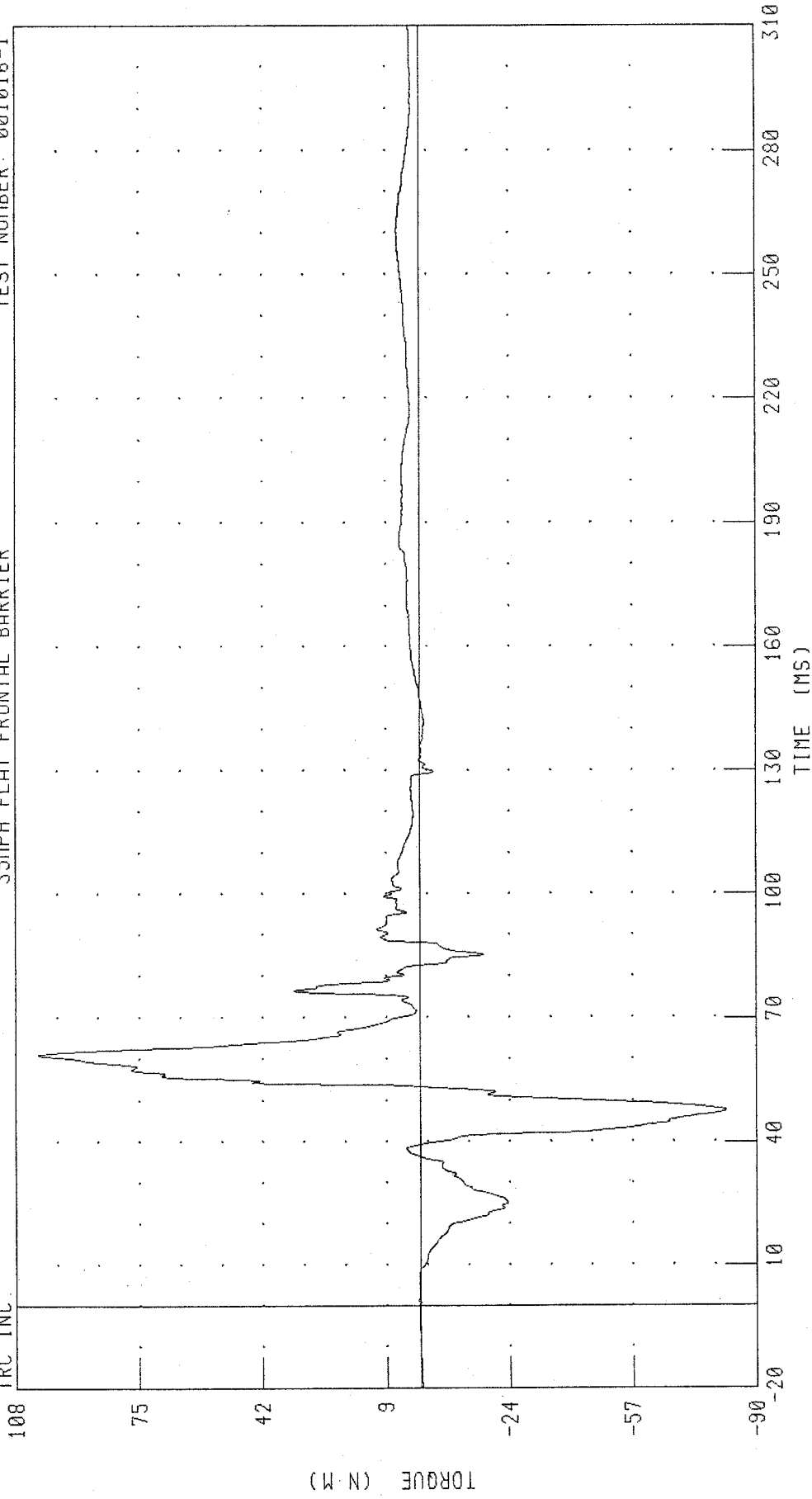
See Data Acquisition Explanations

CHANNEL: TBRZF2 FILTER: CH. CLASS 600
PEAK DATA: 133.01 N @ 68.32 MS, -1785.67 N @ 68.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

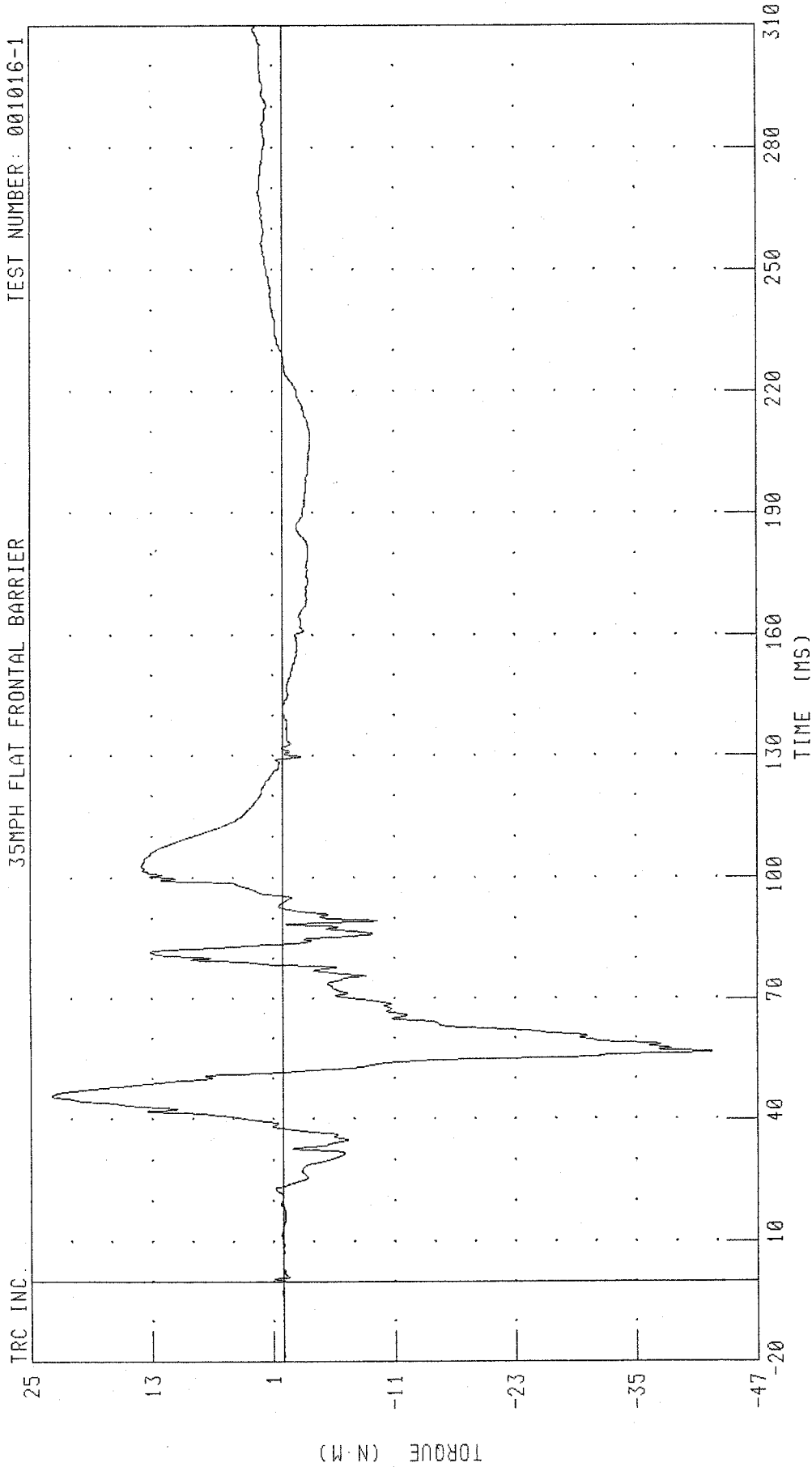


PEAK DATA: 101.91 N·M @ 61.04 MS, -81.93 N·M @ 47.60 MS

CHANNEL: ANRYM2 FILTER: CH. CLASS 600

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS
35MPH FLAT FRONTAL BARRIER

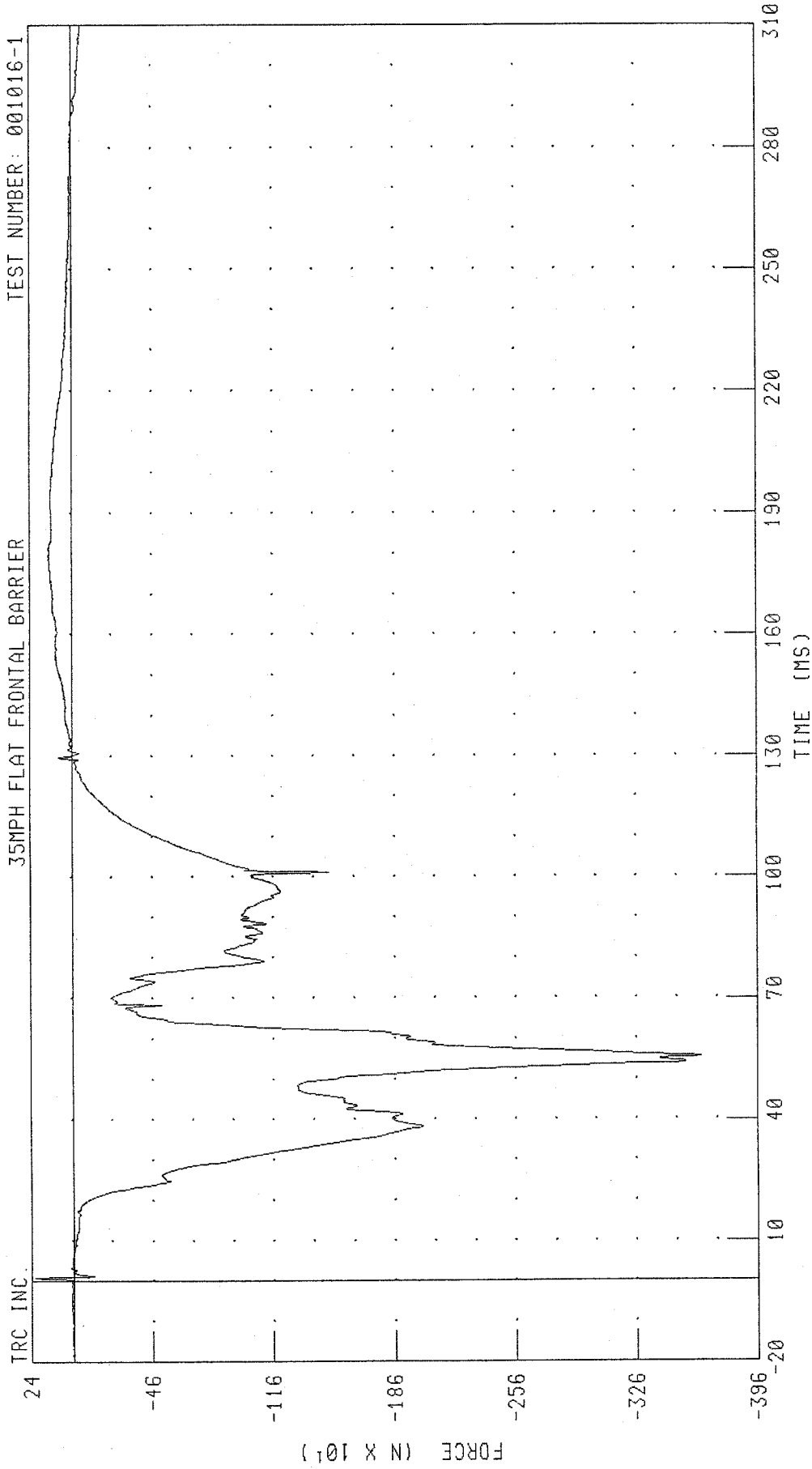
TEST NUMBER: 001016-1



CHANNEL: ANRXN2 FILTER: CH. CLASS 600 PEAK DATA: 22.88 N·M @ 45.84 MS; -42.57 N·M @ 56.48 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE
35MPH FLAT FRONTAL BARRIER

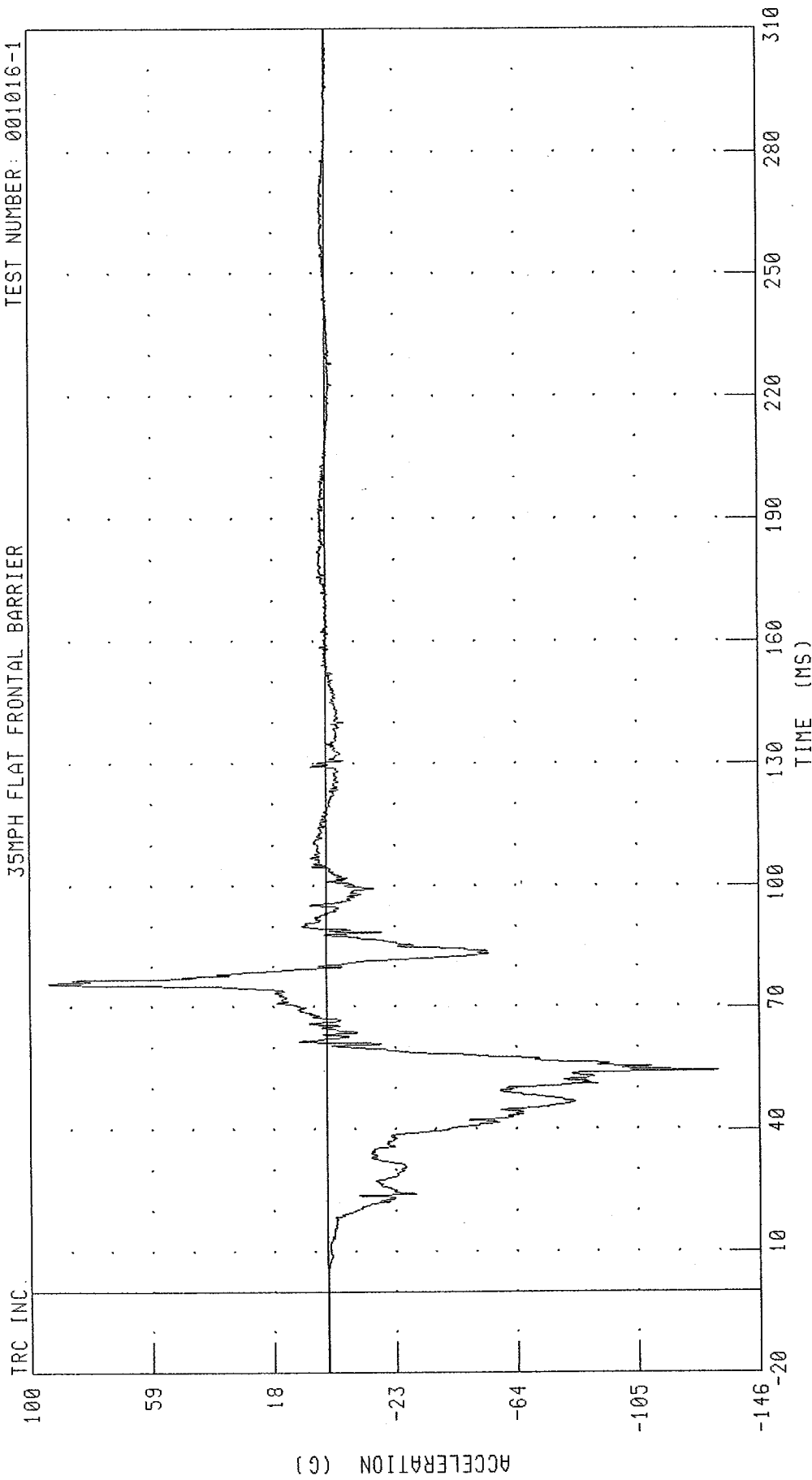
TEST NUMBER: 001016-1



CHANNEL: ANRZF2 FILTER: CH. CLASS 600
PEAK DATA: 225.48 N @ 0.80 MS; -3633.59 N @ 55.68 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT X-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



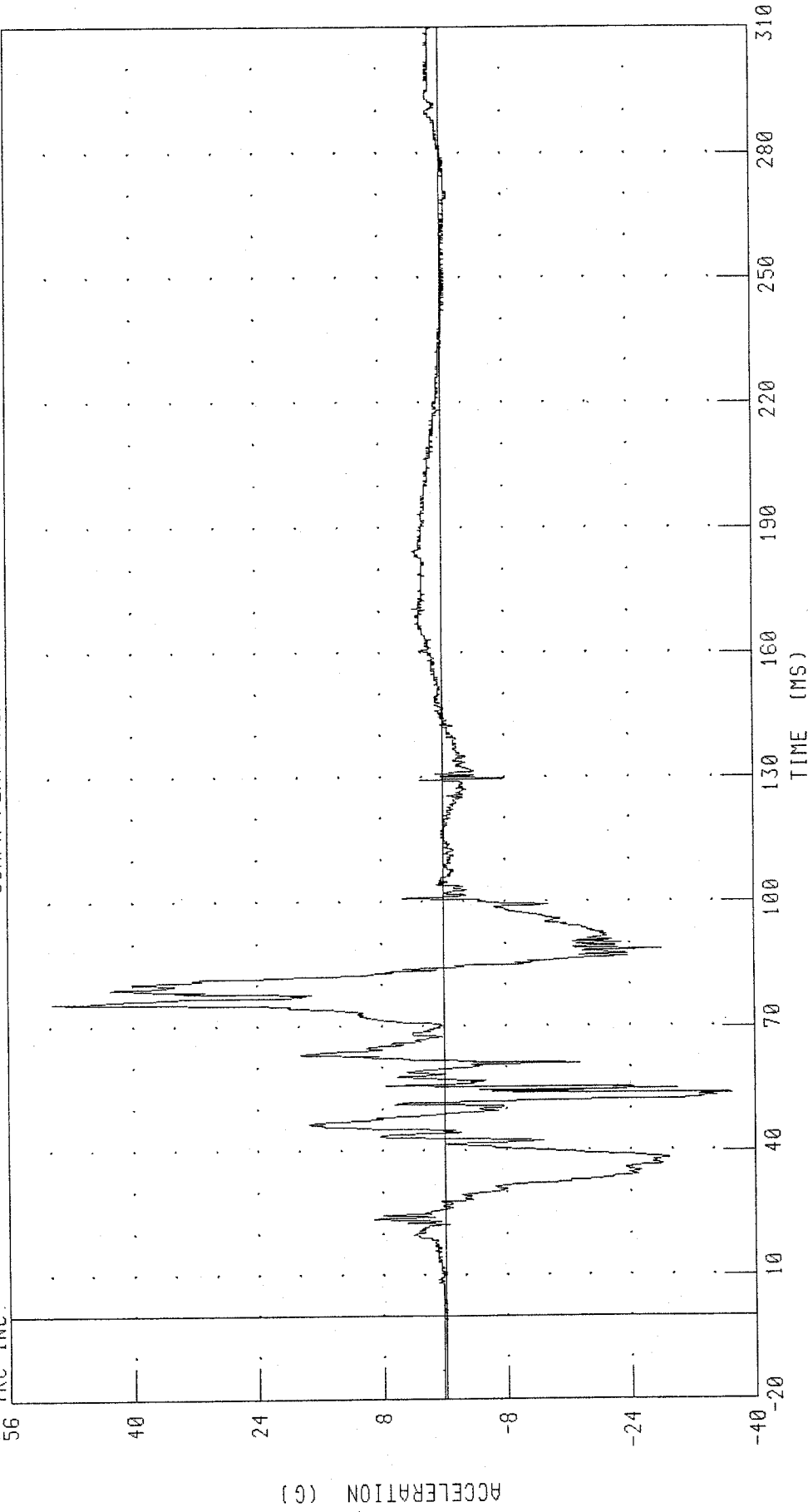
PEAK DATA: 93.89 G @ 75.92 MS; -132.27 G @ 54.32 MS

CHANNEL: FLHXG2 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.
56



TIME (MS)

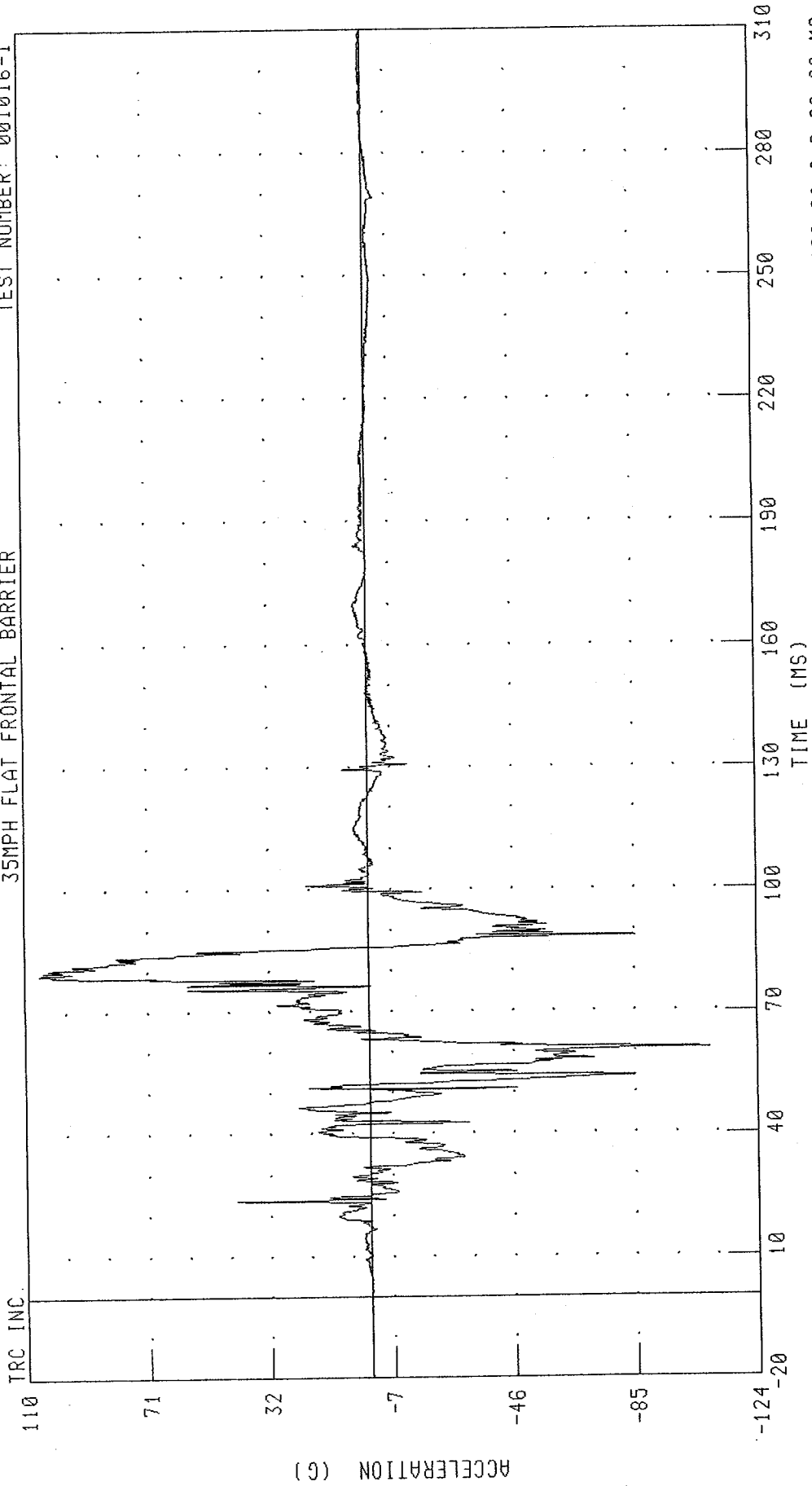
PEAK DATA: 50.31 G @ 75.60 MS; -37.07 G @ 53.68 MS

CHANNEL: FLHZC2 FILTER: CH. CLASS 1000

ACCELERATION (G)

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT TOE Z-AXIS ACCELERATION AT TOE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

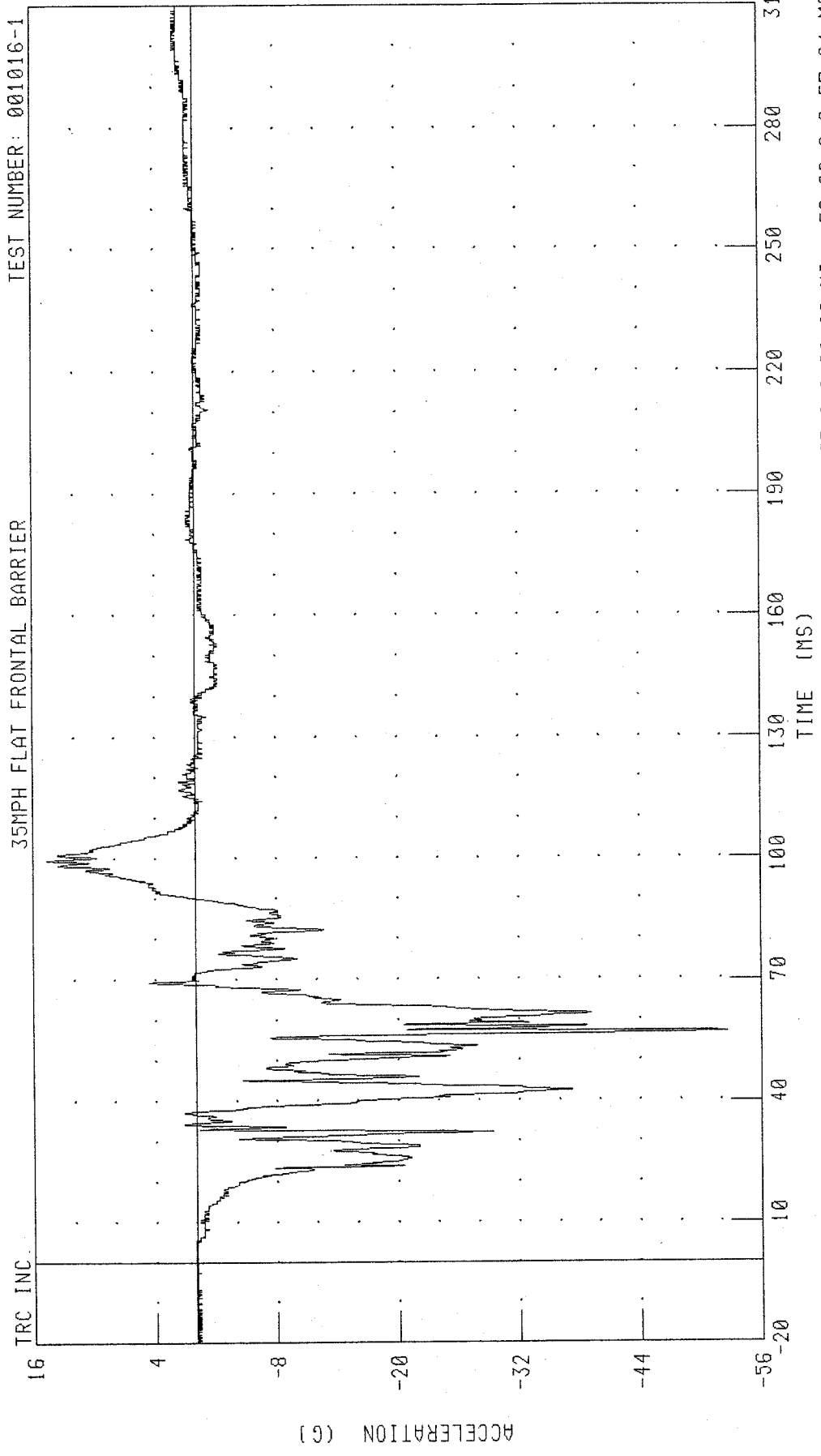


PEAK DATA: 105.58 G @ 79.36 MS; -108.88 G @ 60.80 MS

CHANNEL: FLTZG2 FILTER: CH. CLASS 1000

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT X-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER

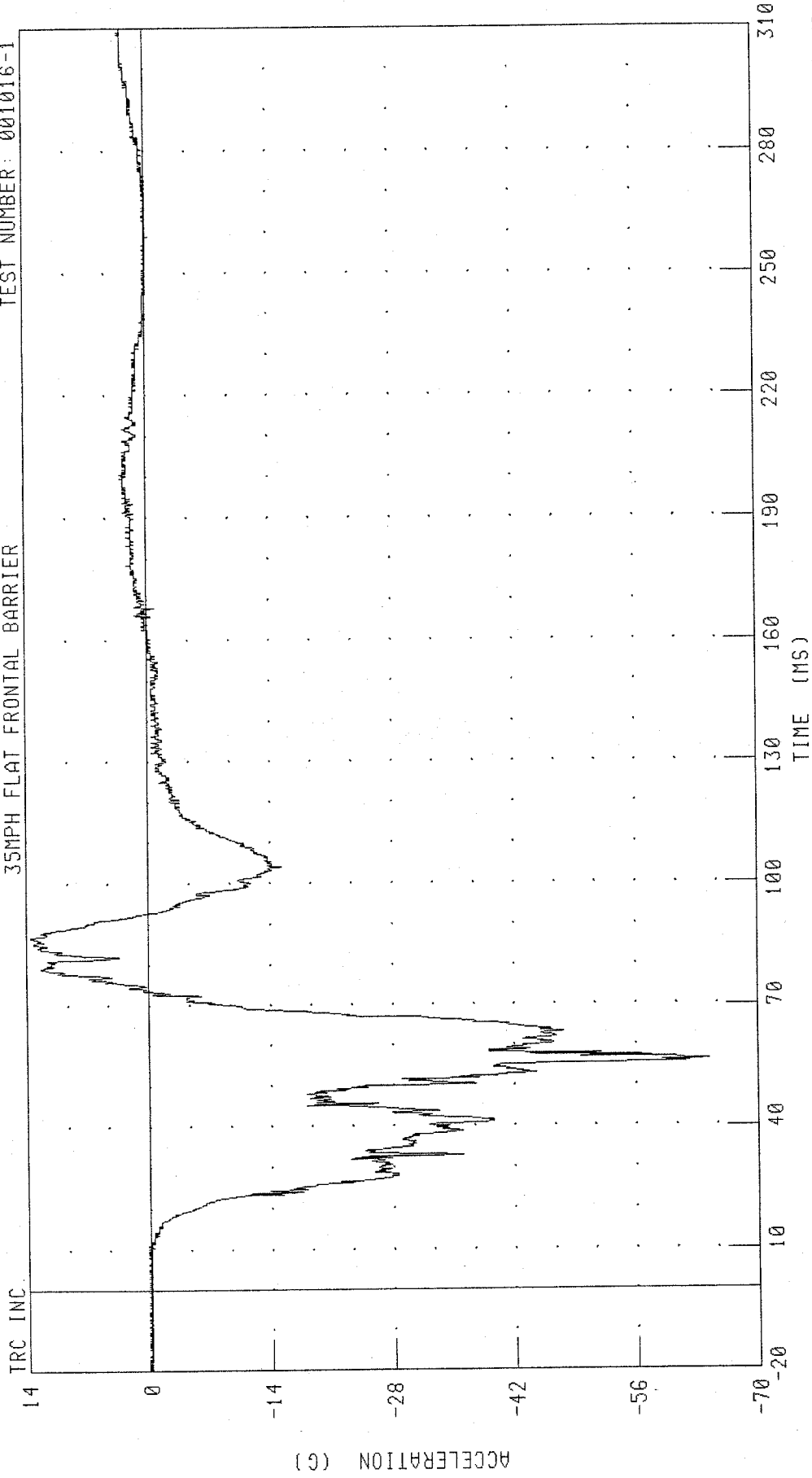
TEST NUMBER: 001016-1



CHANNEL: FRHXG2 FILTER: CH. CLASS 1000 PEAK DATA: 14.75 G @ 99.60 MS; -52.66 G @ 57.04 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL
35MPH FLAT FRONTAL BARRIER

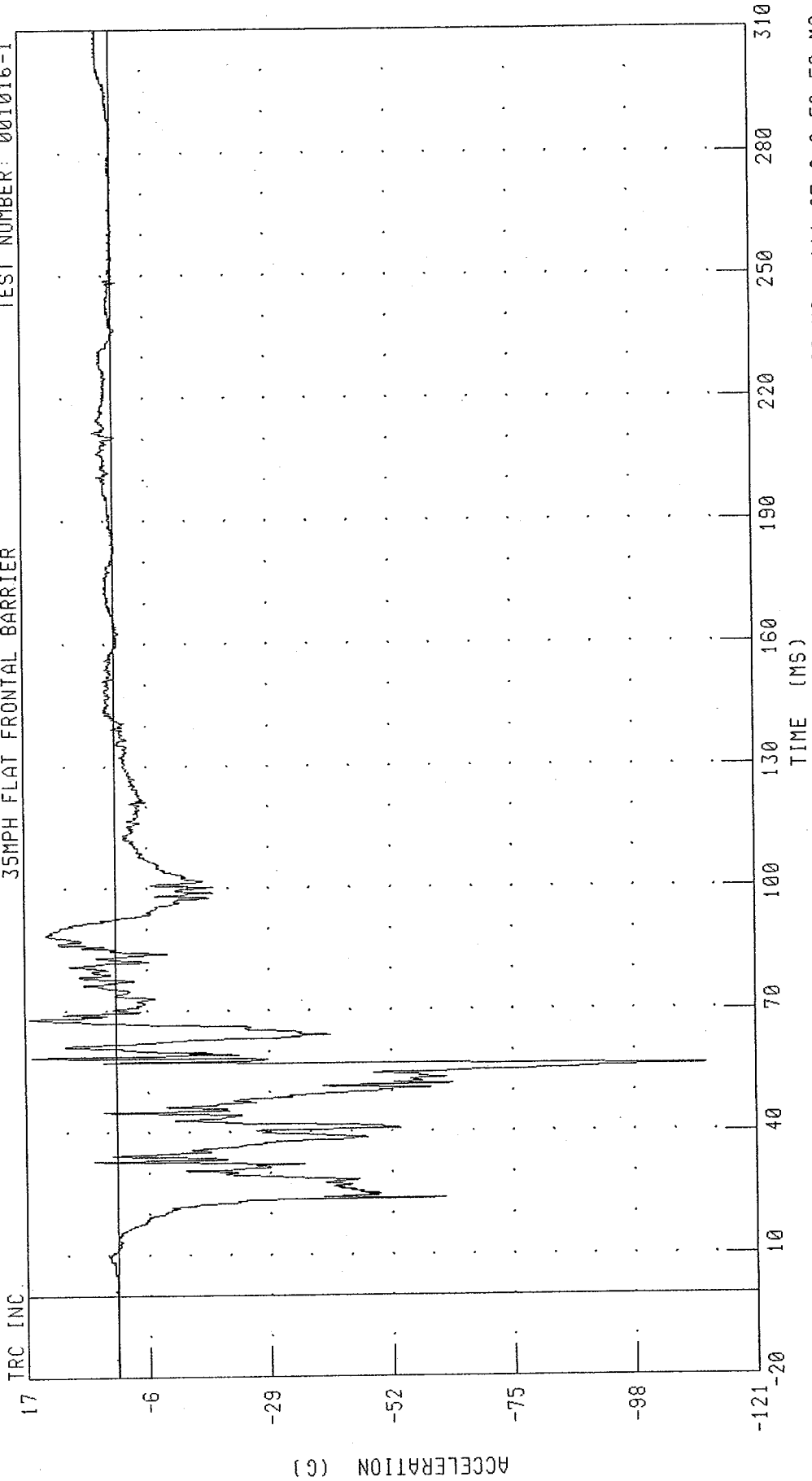
TEST NUMBER: 001016-1



CHANNEL: FRHZG2 FILTER: CH. CLASS 1000 PEAK DATA: 13.56 G @ 86.96 MS; -64.47 G @ 56.32 MS

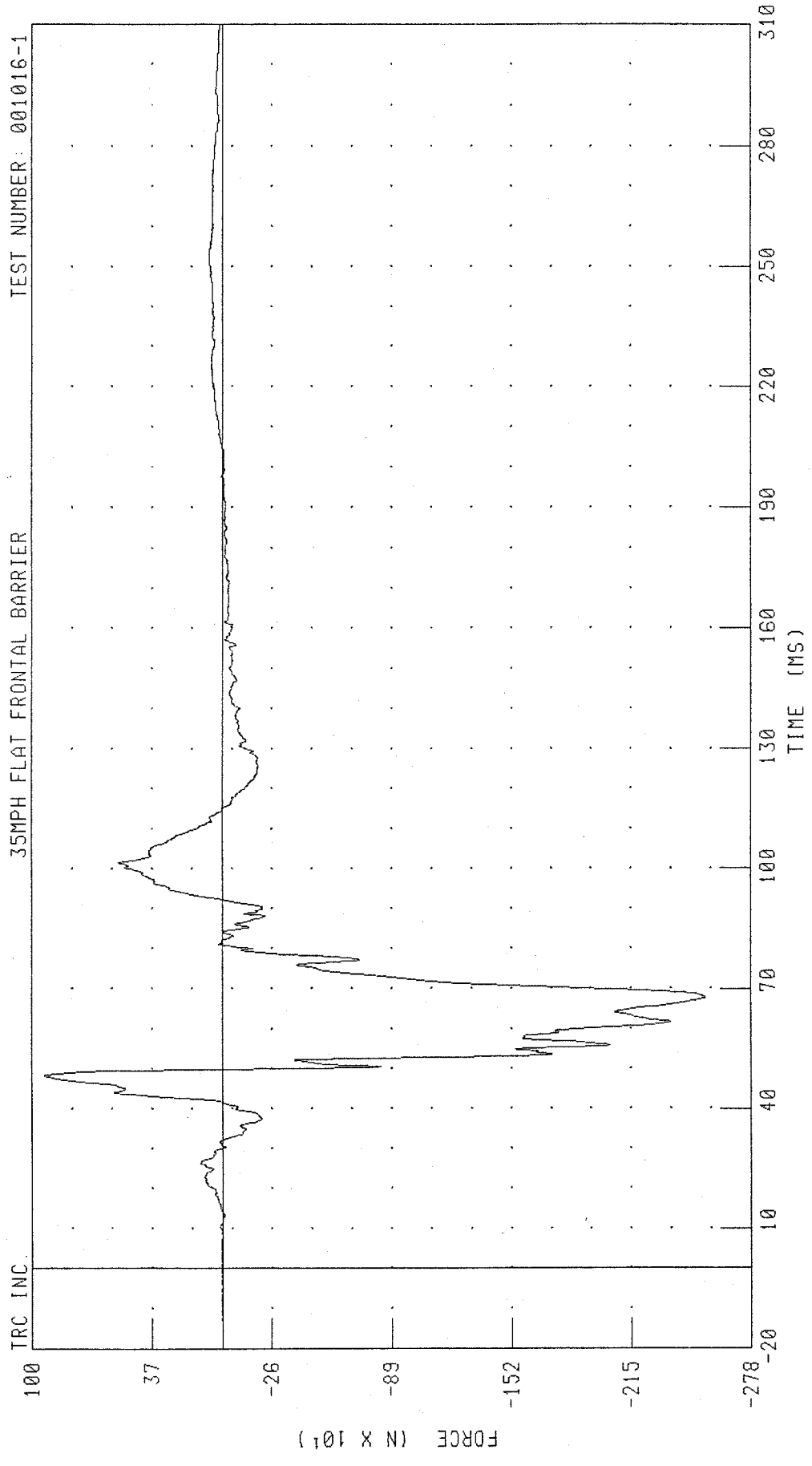
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT TOE Z-AXIS ACCELERATION AT TOE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



CHANNEL: FRTZG2 FILTER: CH. CLASS 1000
PEAK DATA: 16.20 G @ 68.08 MS; -111.67 G @ 56.56 MS

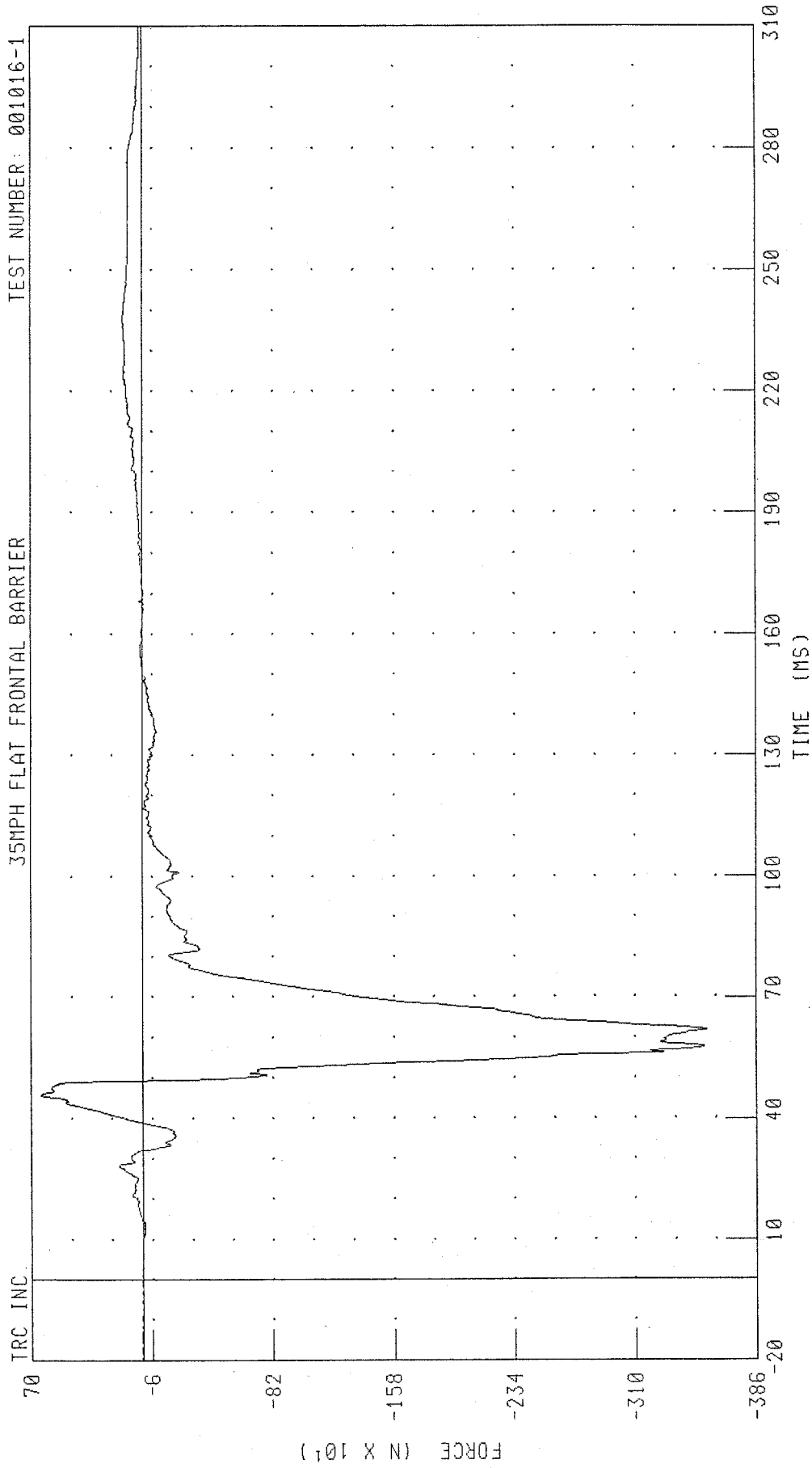
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE
35MPH FLAT FRONTAL BARRIER



CHANNEL: LFMZF2 FILTER: CH. CLASS 600 PEAK DATA: 936.37 N @ 48.32 MS; -2541.31 N @ 67.76 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
35MPH FLAT FRONTAL BARRIER

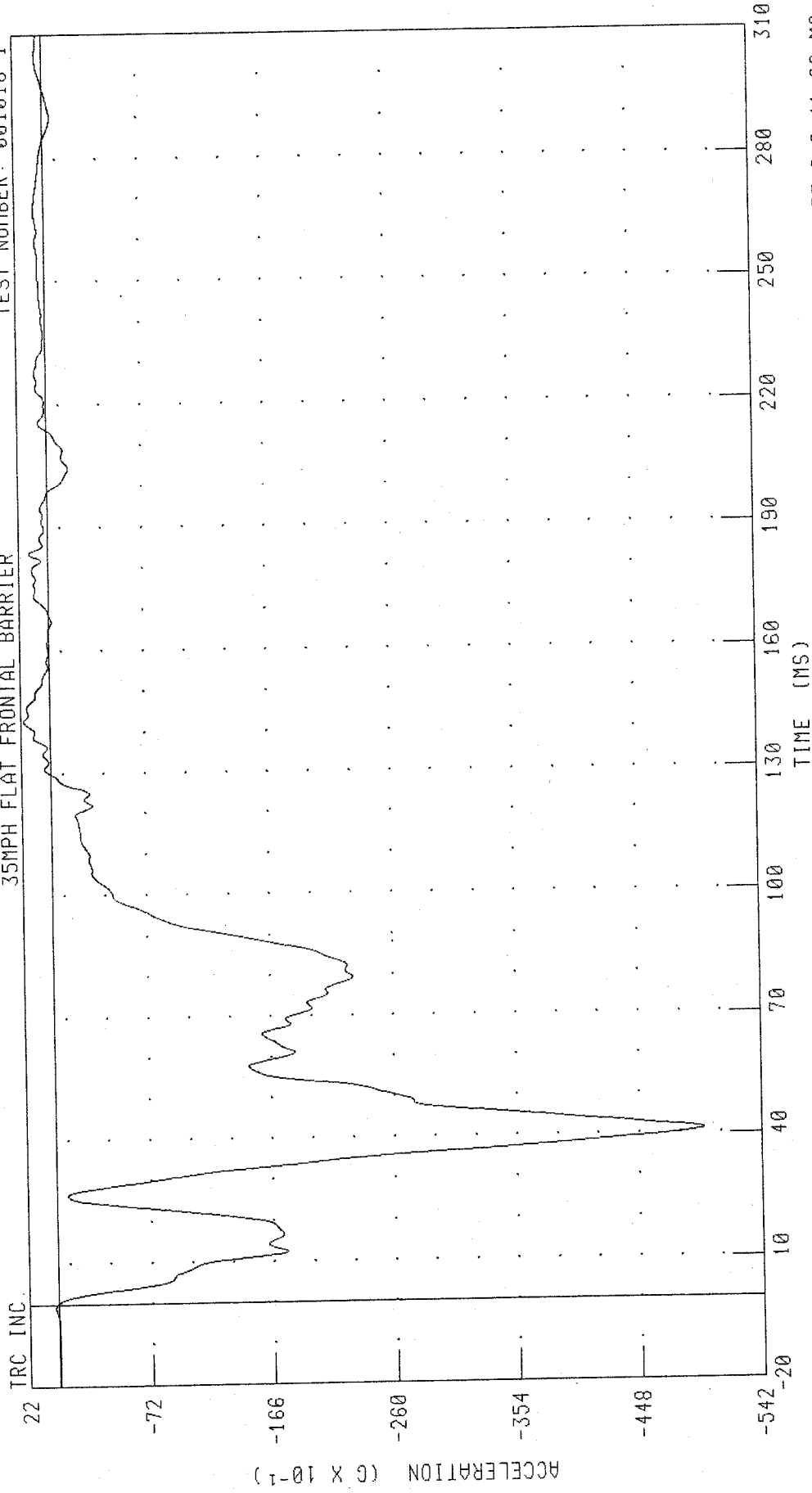
TEST NUMBER: 001016-1



CHANNEL: RFMF2 FILTER: CH. CLASS 600
PEAK DATA: 637.17 N @ 45.84 MS; -3549.54 N @ 61.92 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

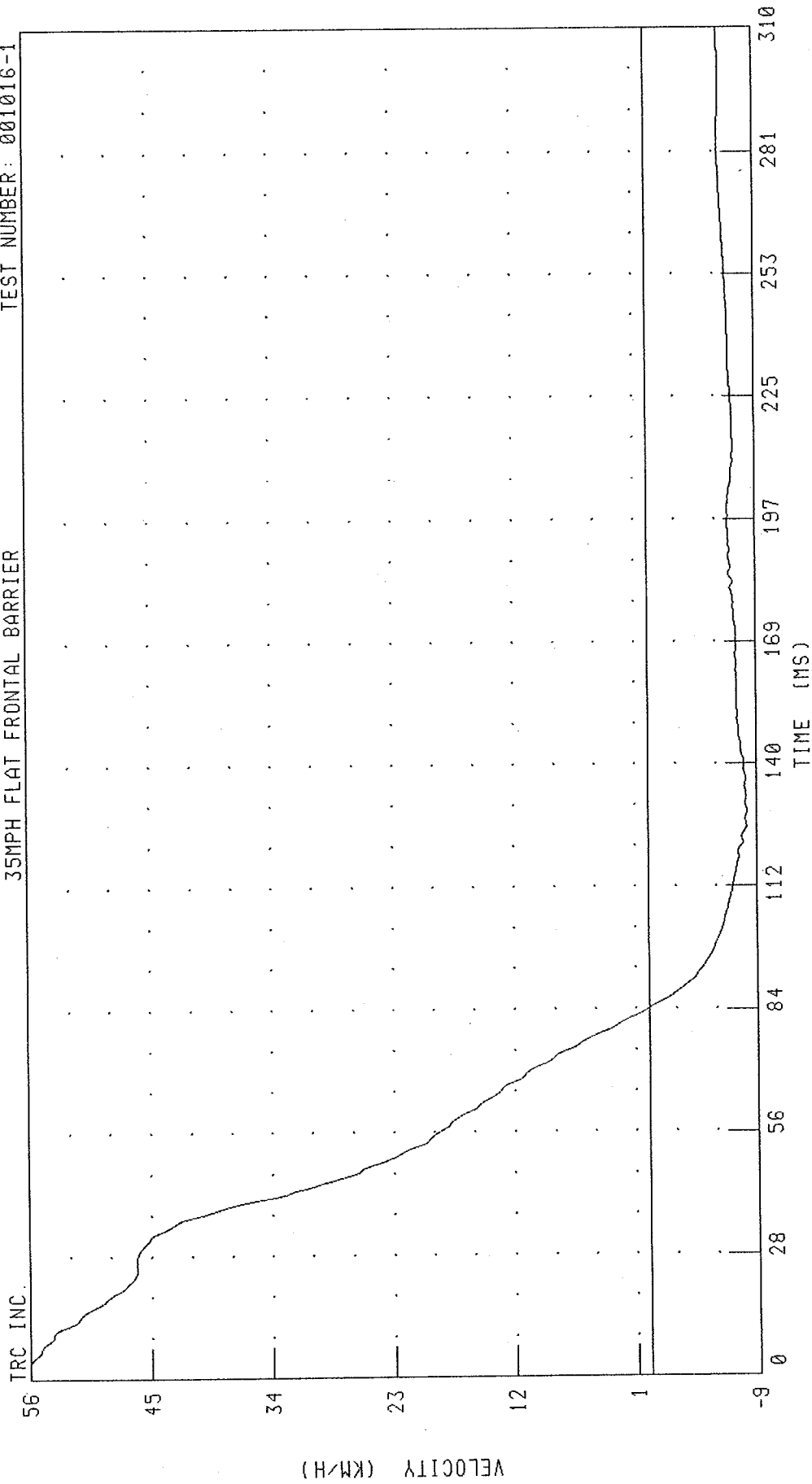


PEAK DATA: 2.02 G @ 142.96 MS; -49.77 G @ 41.28 MS

CHANNEL: TLRXC1 FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS VELOCITY
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

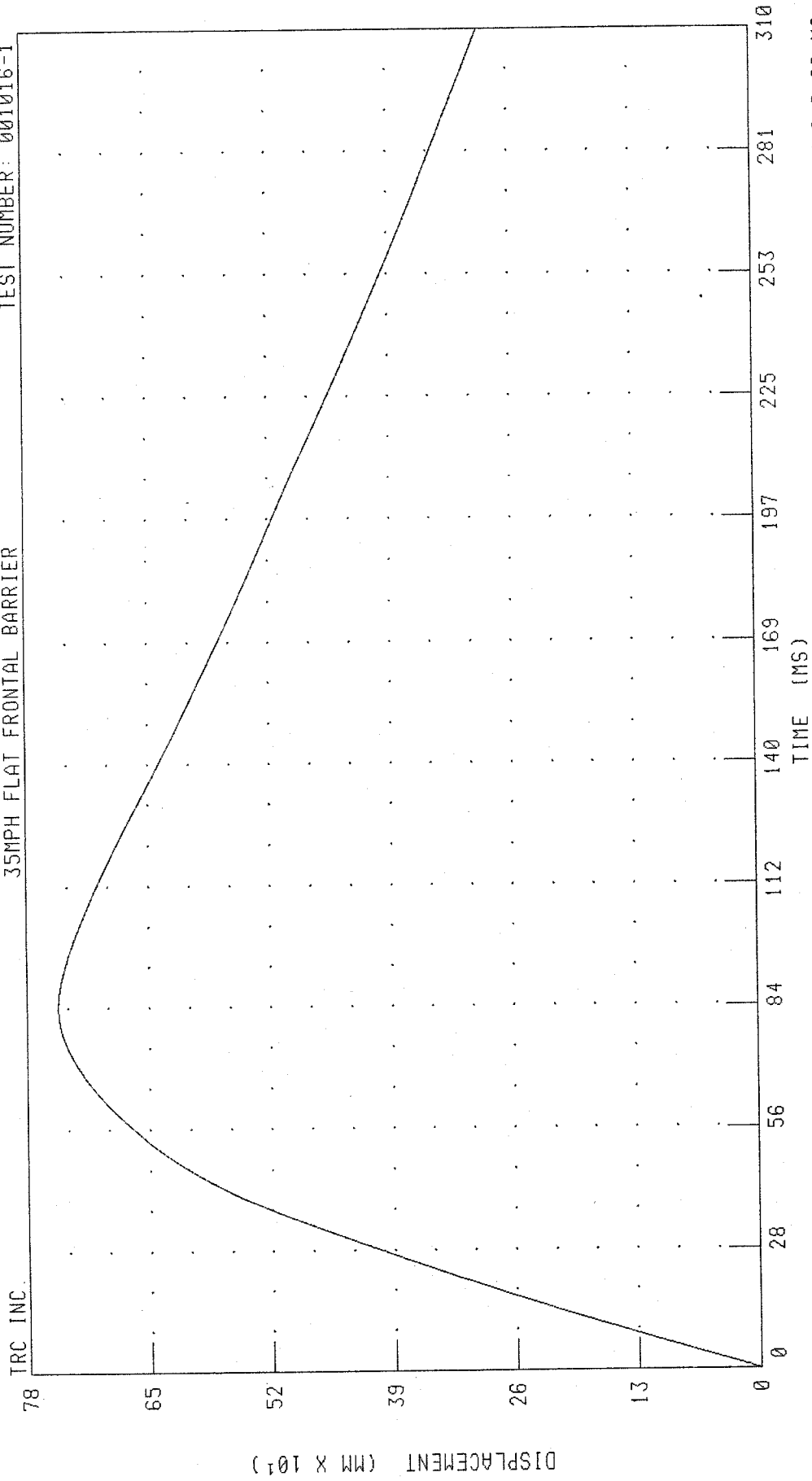


PEAK DATA: 56.30 KM/H @ 0.00 MS; -8.97 KM/H @ 130.00 MS

CHANNEL: TLRXV1 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT
35MPH FLAT FRONTAL BARRIER

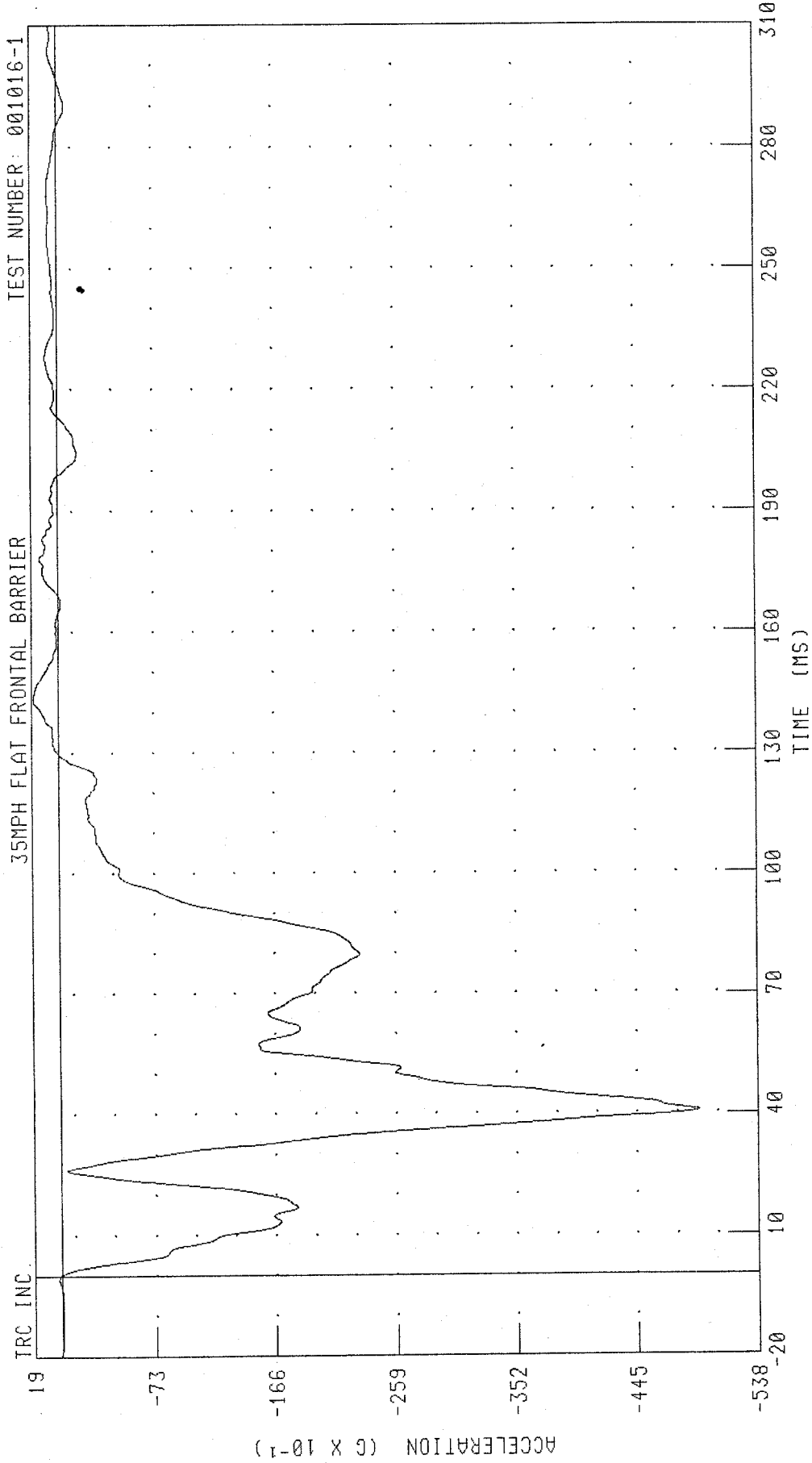
TEST NUMBER: 001016-1



PEAK DATA: 746.77 MM @ 84.80 MS; 0.00 MM @ 0.00 MS

CHANNEL: TLRXD1 FILTER: CH. CLASS 180

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

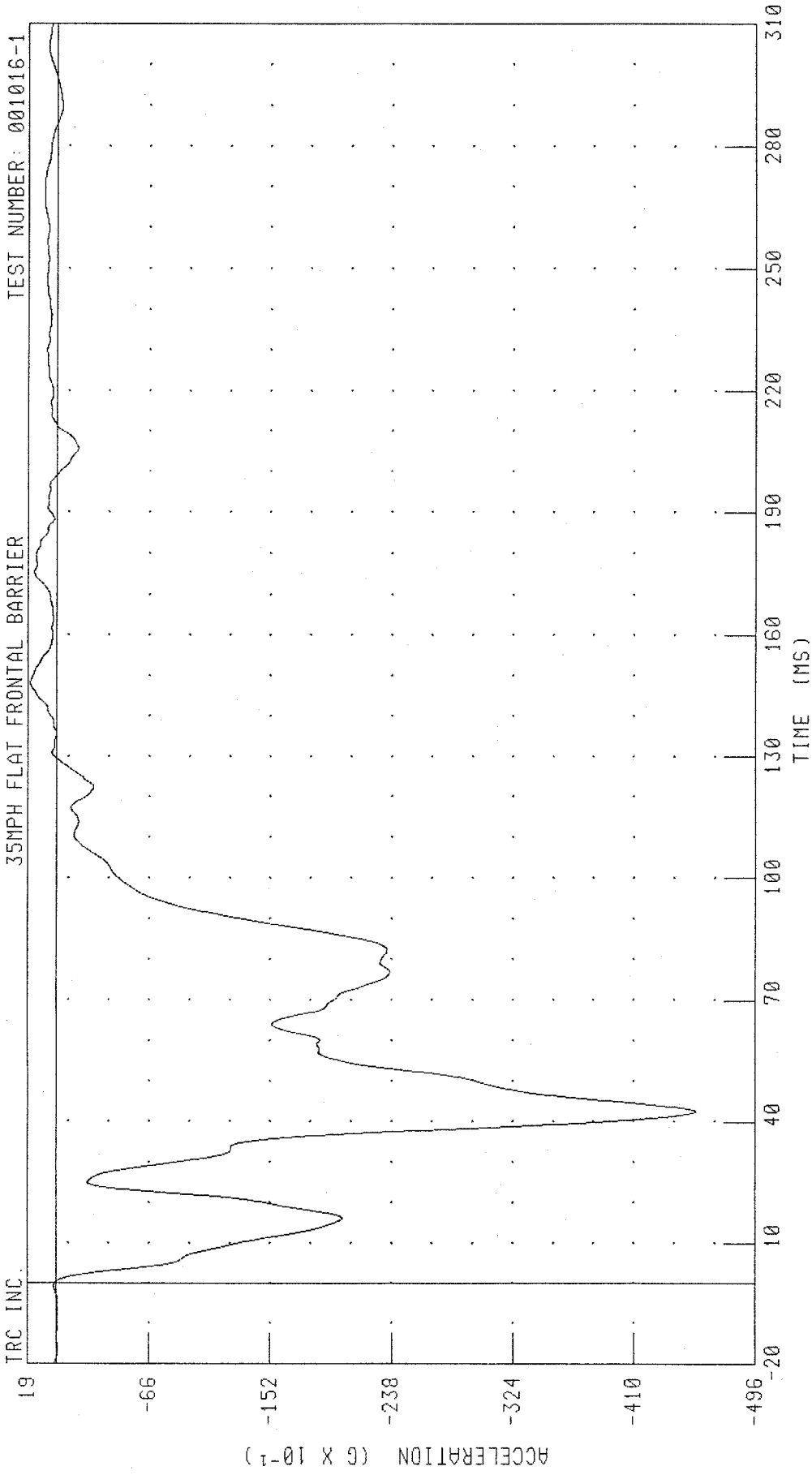


PEAK DATA: 1.87 G @ 143.12 MS, -49.29 G @ 40.64 MS

CHANNEL: TLRXGA FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

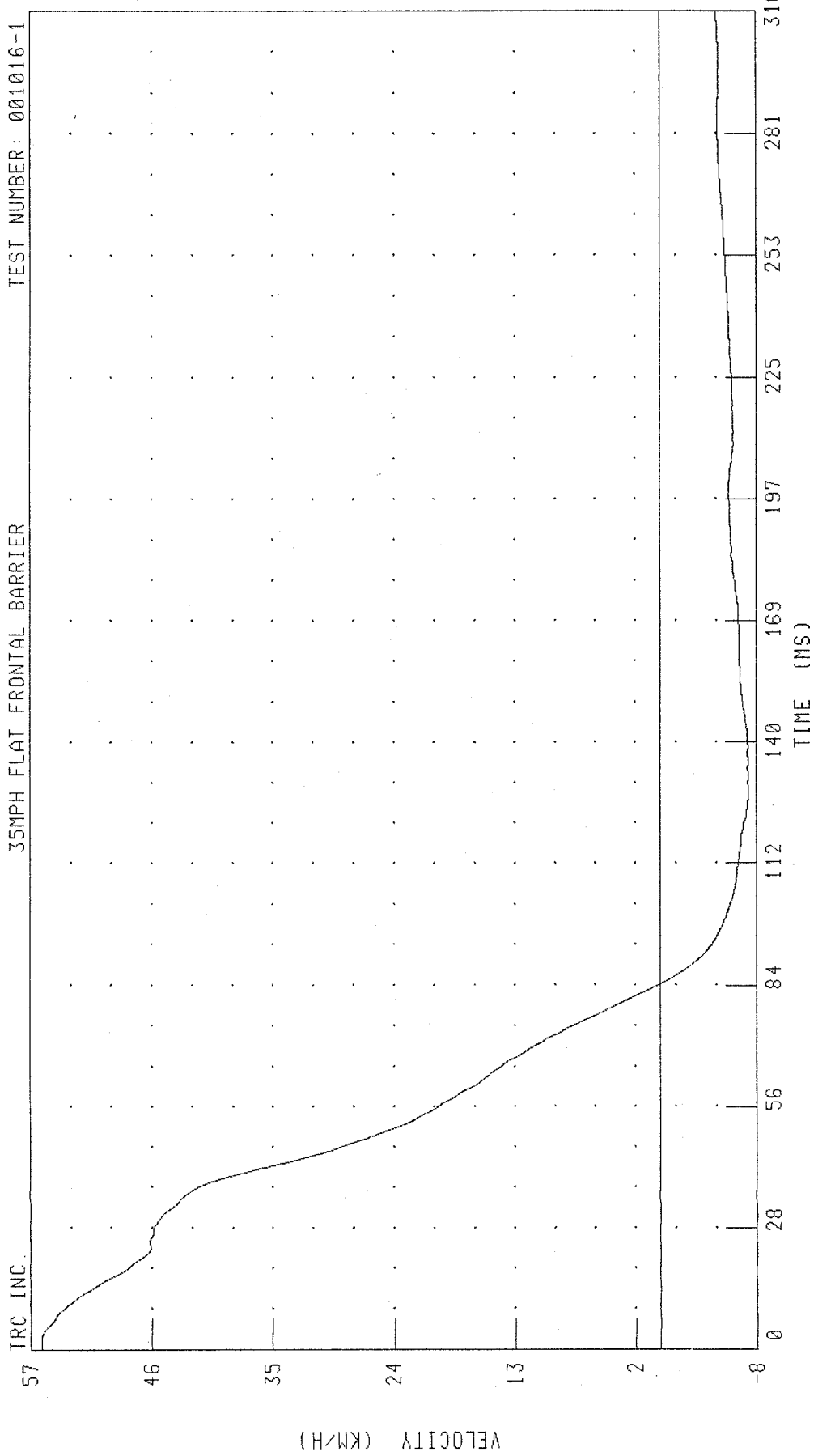


PEAK DATA: 1.86 G @ 148.24 MS; -45.39 G @ 42.64 MS

CHANNEL: TRRXG1 FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS VELOCITY
35MPH FLAT FRONTAL BARRIER

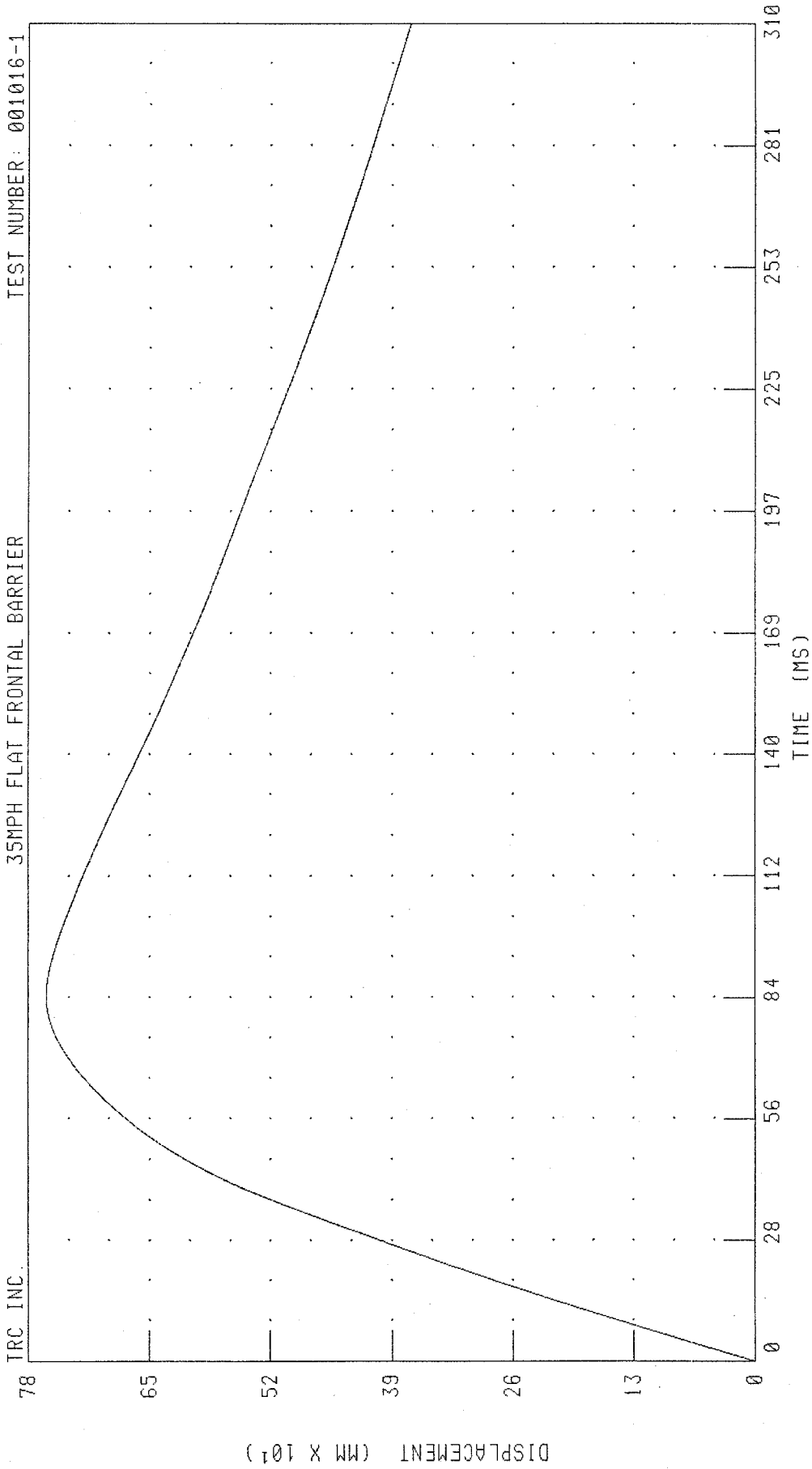
TEST NUMBER: 001016-1



CHANNEL: TRRXV1 FILTER: CH. CLASS 100 PEAK DATA: 56.30 KM/H @ 0.00 MS; -7.99 KM/H @ 130.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT
35MPH FLAT FRONTAL BARRIER

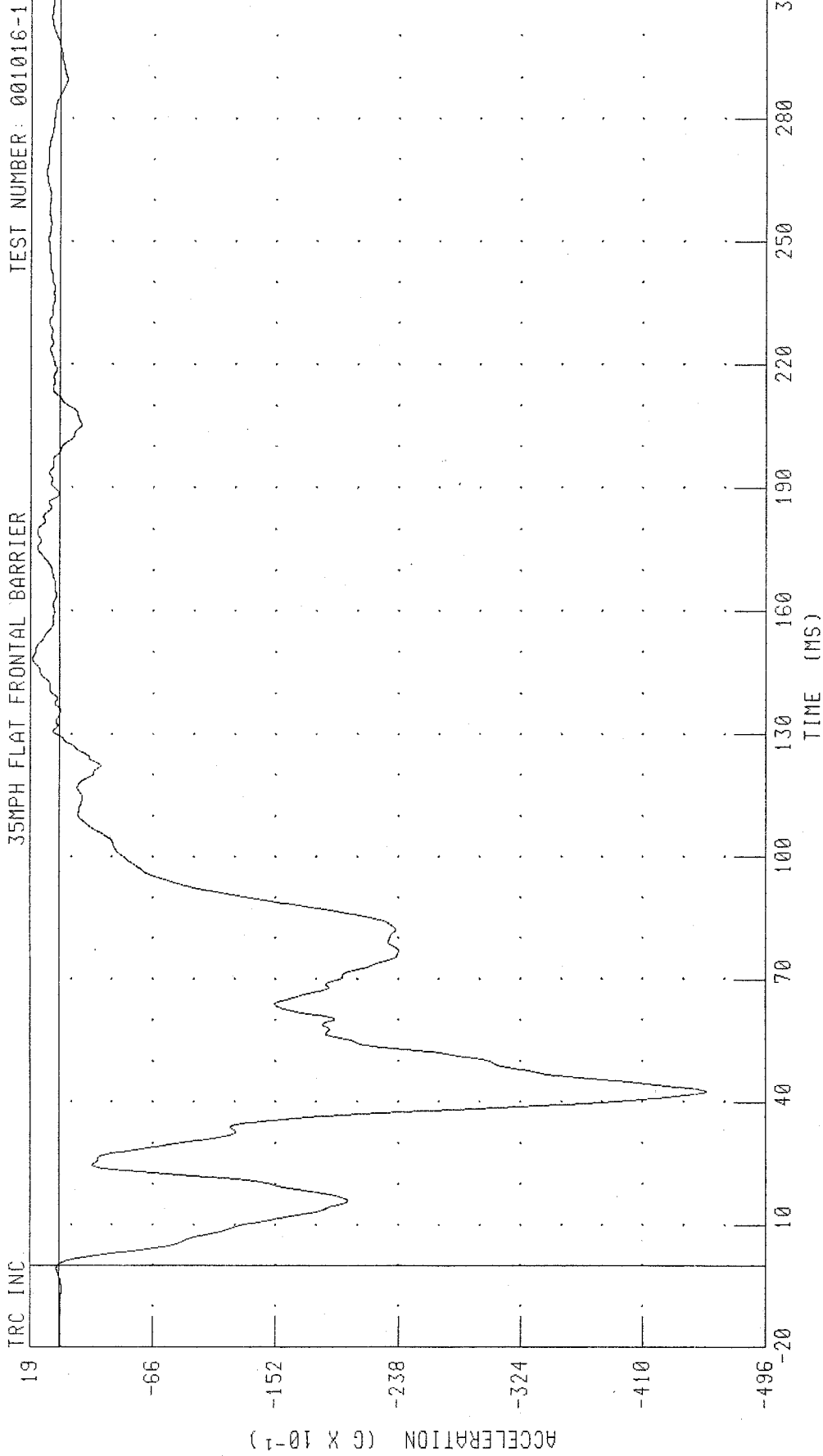
TEST NUMBER: 001016-1



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CHANNEL: TRRXD1 FILTER: CH. CLASS 180
PEAK DATA: 760.70 MM @ 84.88 MS; 0.00 MM @ 0.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

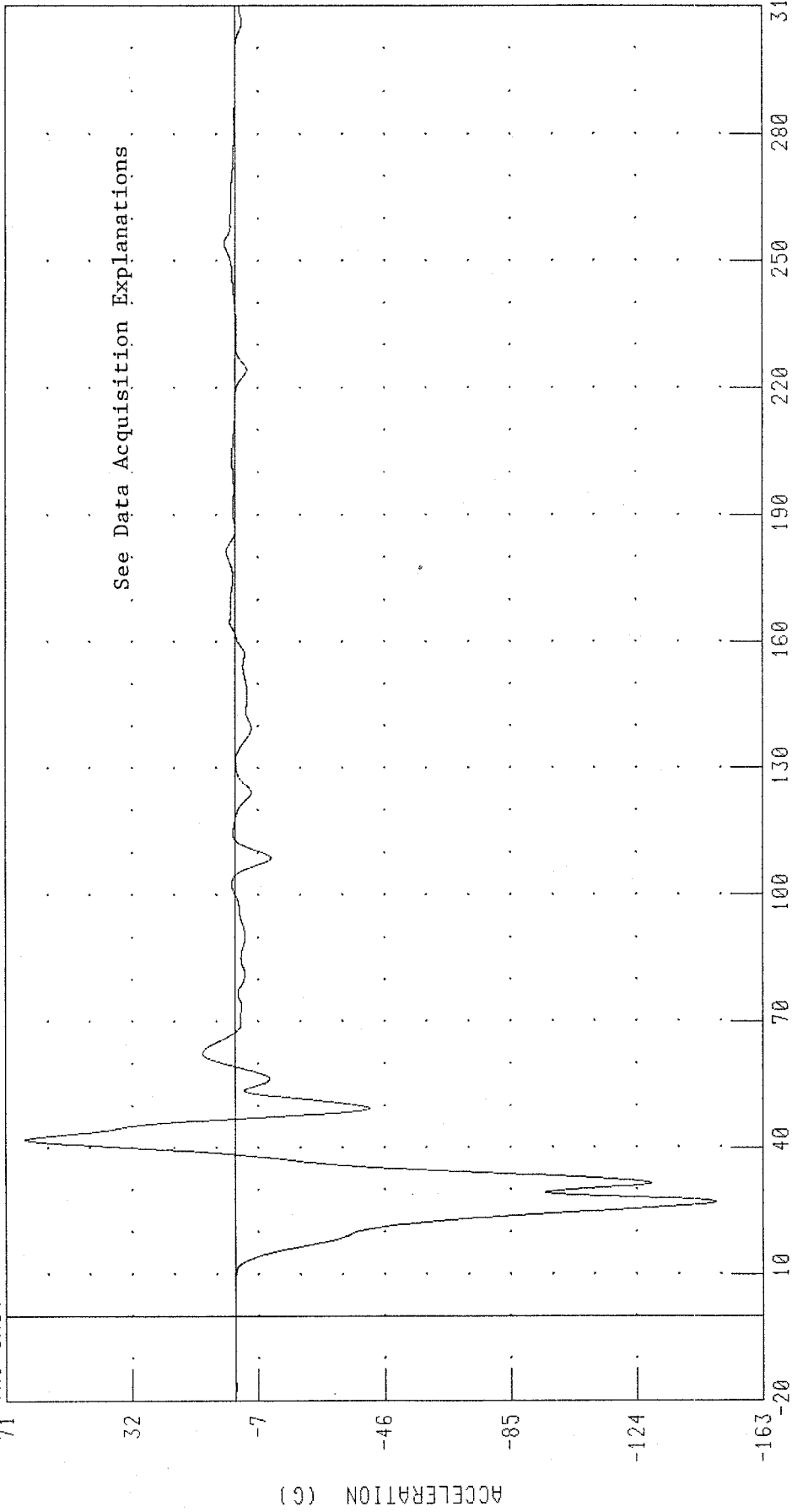


CHANNEL: TRRXGA FILTER: CH. CLASS 60 PEAK DATA: 1.88 G @ 148.32 MS; -45.46 G @ 42.56 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



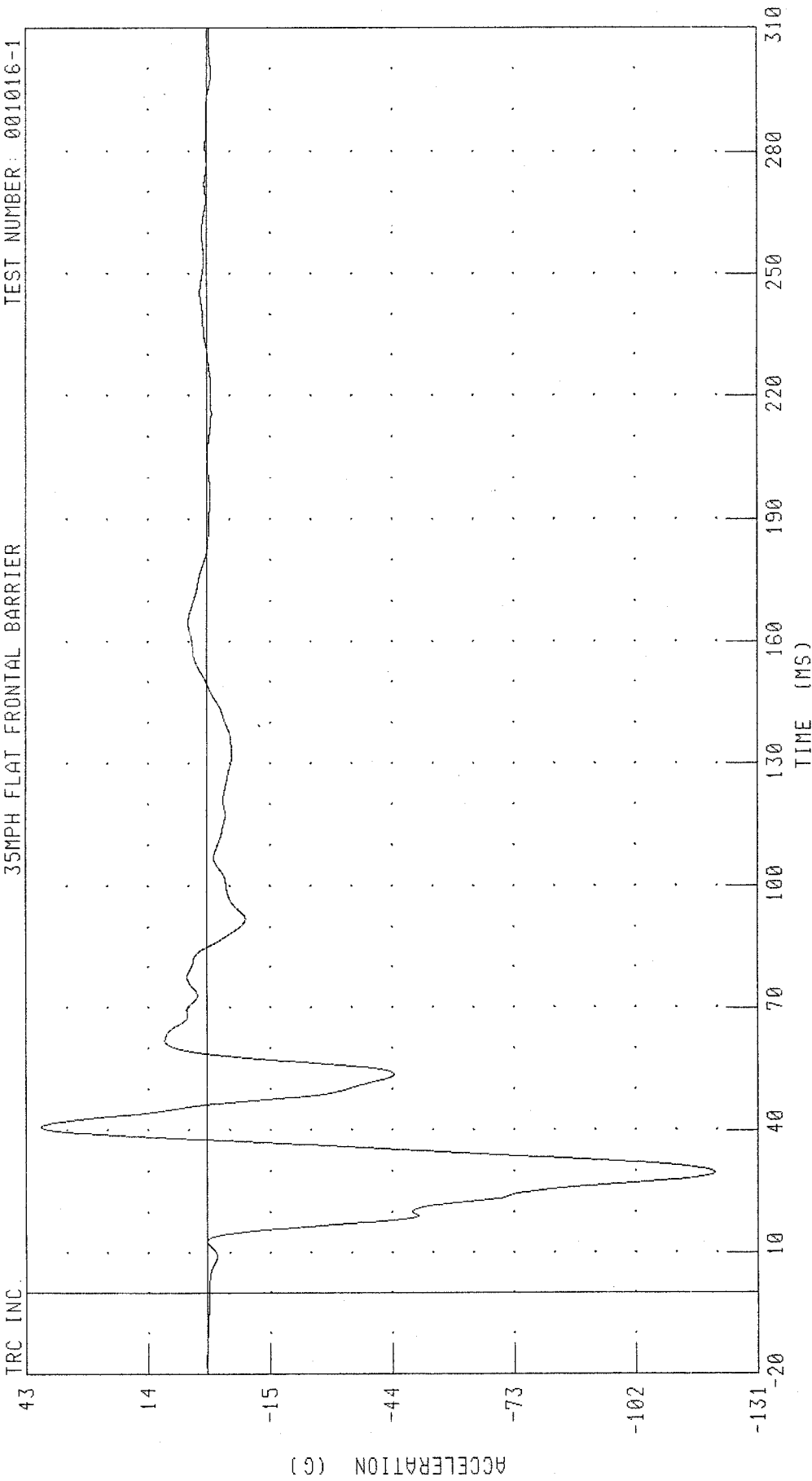
CHANNEL: ENCXC1 FILTER: CH. CLASS 60

PEAK DATA: 65.02 G @ 42.08 MS; -148.61 G @ 27.04 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

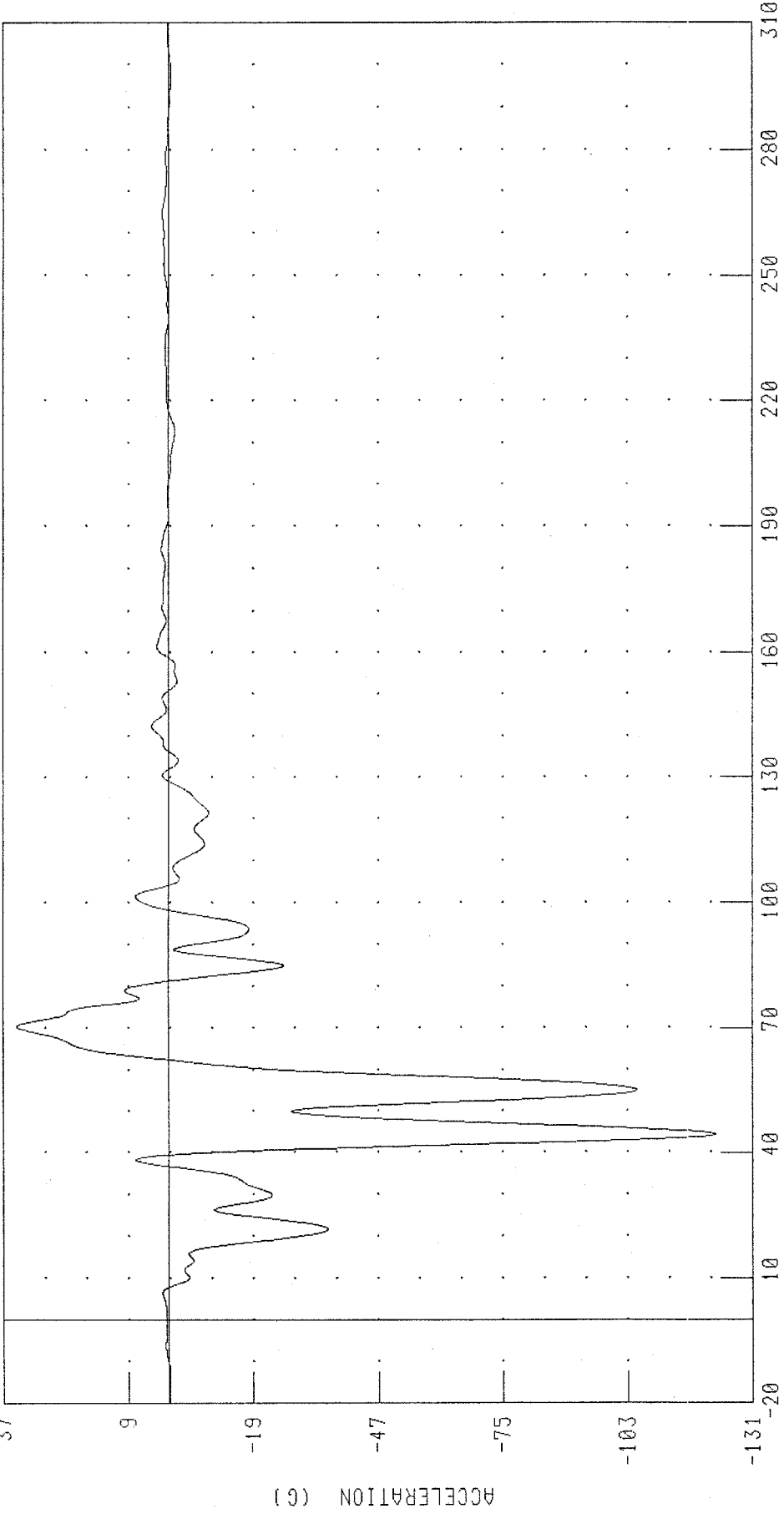


CHANNEL: ENXC62 FILTER: CH. CLASS 60
PEAK DATA: 39.54 G @ 40.88 MS; -120.85 G @ 29.68 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

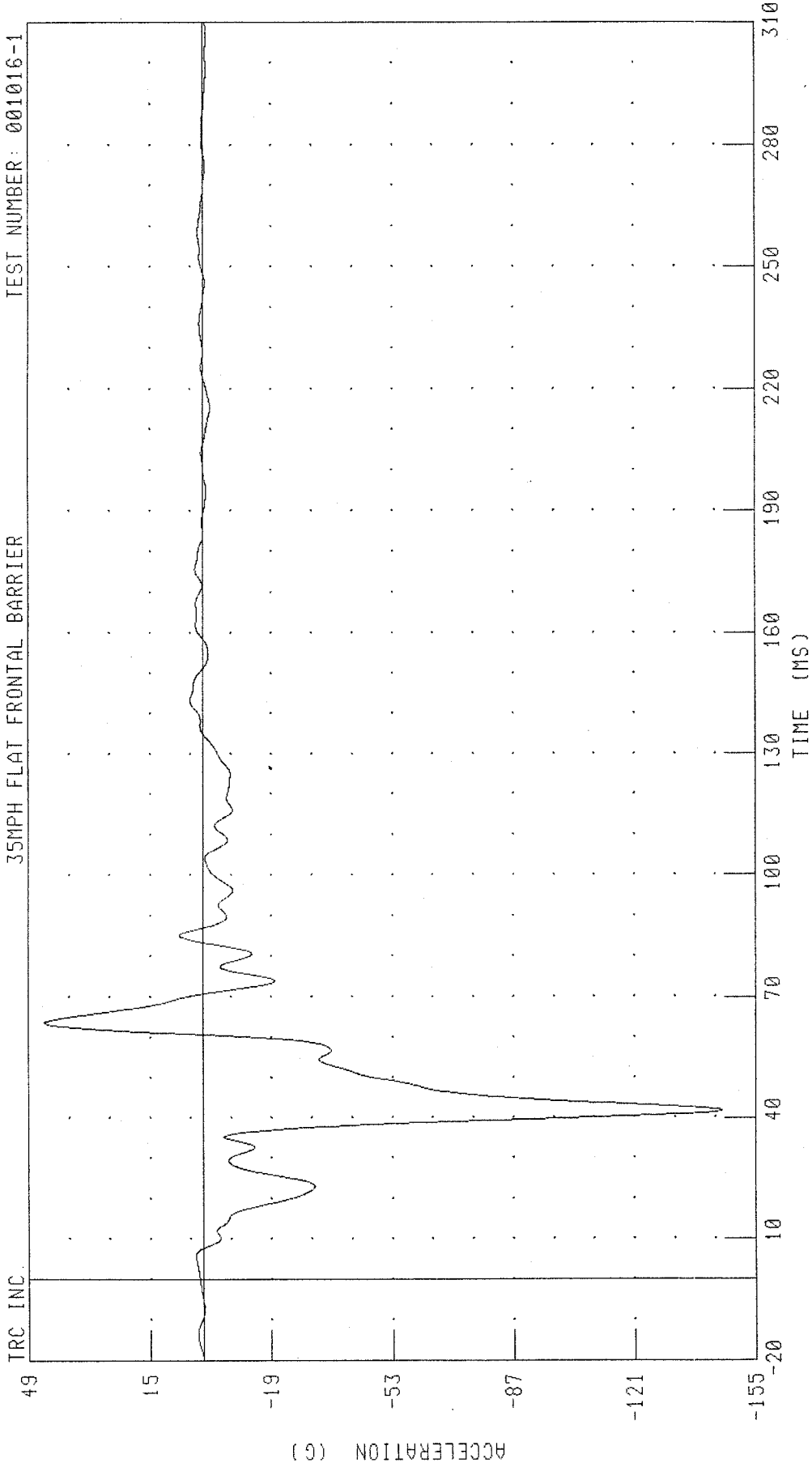
TRC INC.



CHANNEL: BCRXC1 FILTER: CH. CLASS 60 PEAK DATA: 33.95 G @ 70.40 MS; -122.73 G @ 44.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

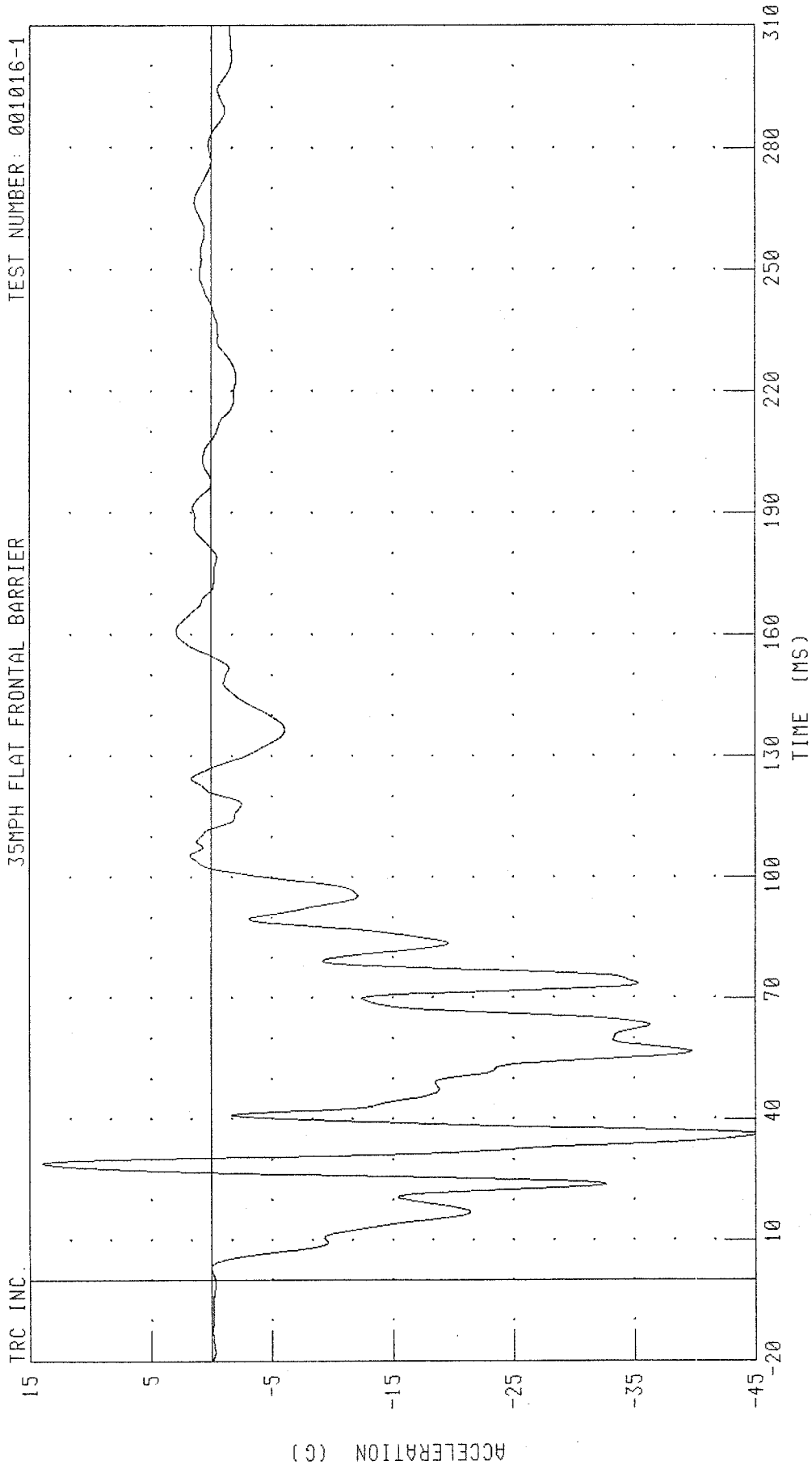
TEST NUMBER: 001016-1



CHANNEL: BCLXG1 FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

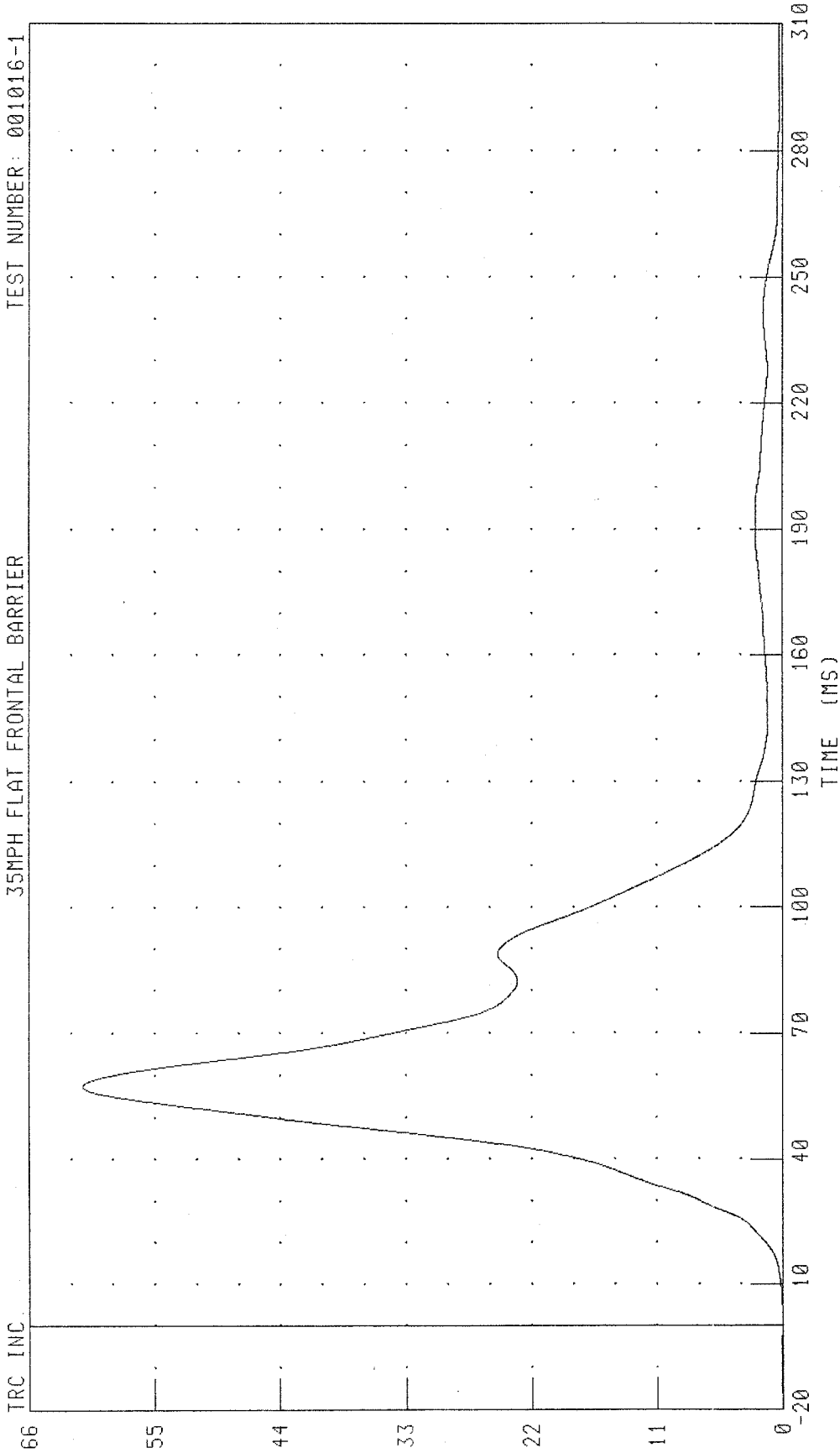


CHANNEL: DPCXG1 FILTER: CH. CLASS 60

PEAK DATA: 13.97 G @ 29.04 MS; -45.34 G @ 36.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER LAP BELT OUTBOARD FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

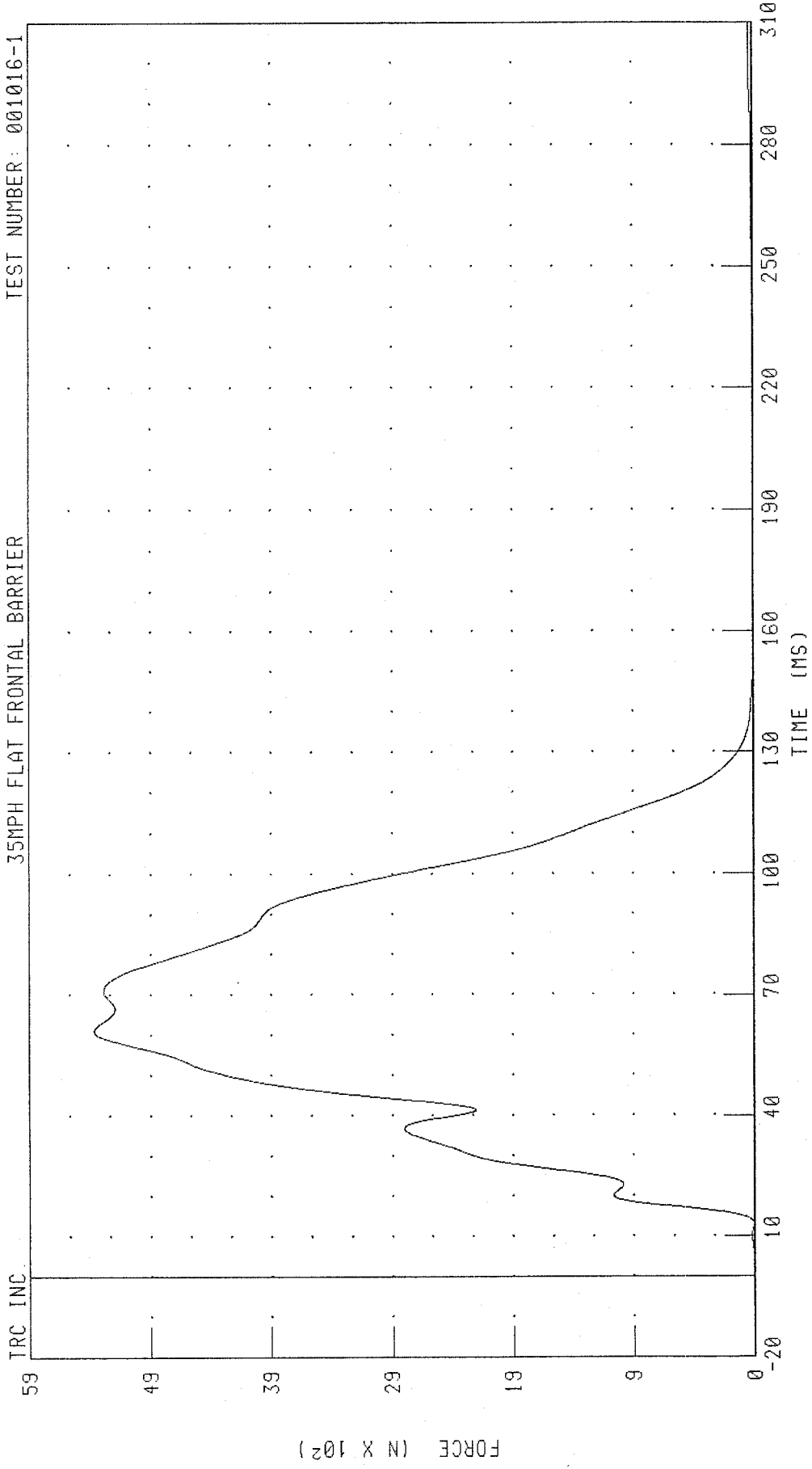


CHANNEL: LB0F1 FILTER: CH. CLASS 60

PEAK DATA: 6130.94 N @ 57.52 MS; 0.02 N @ -20.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT FORCE
35MPH FLAT FRONTAL BARRIER

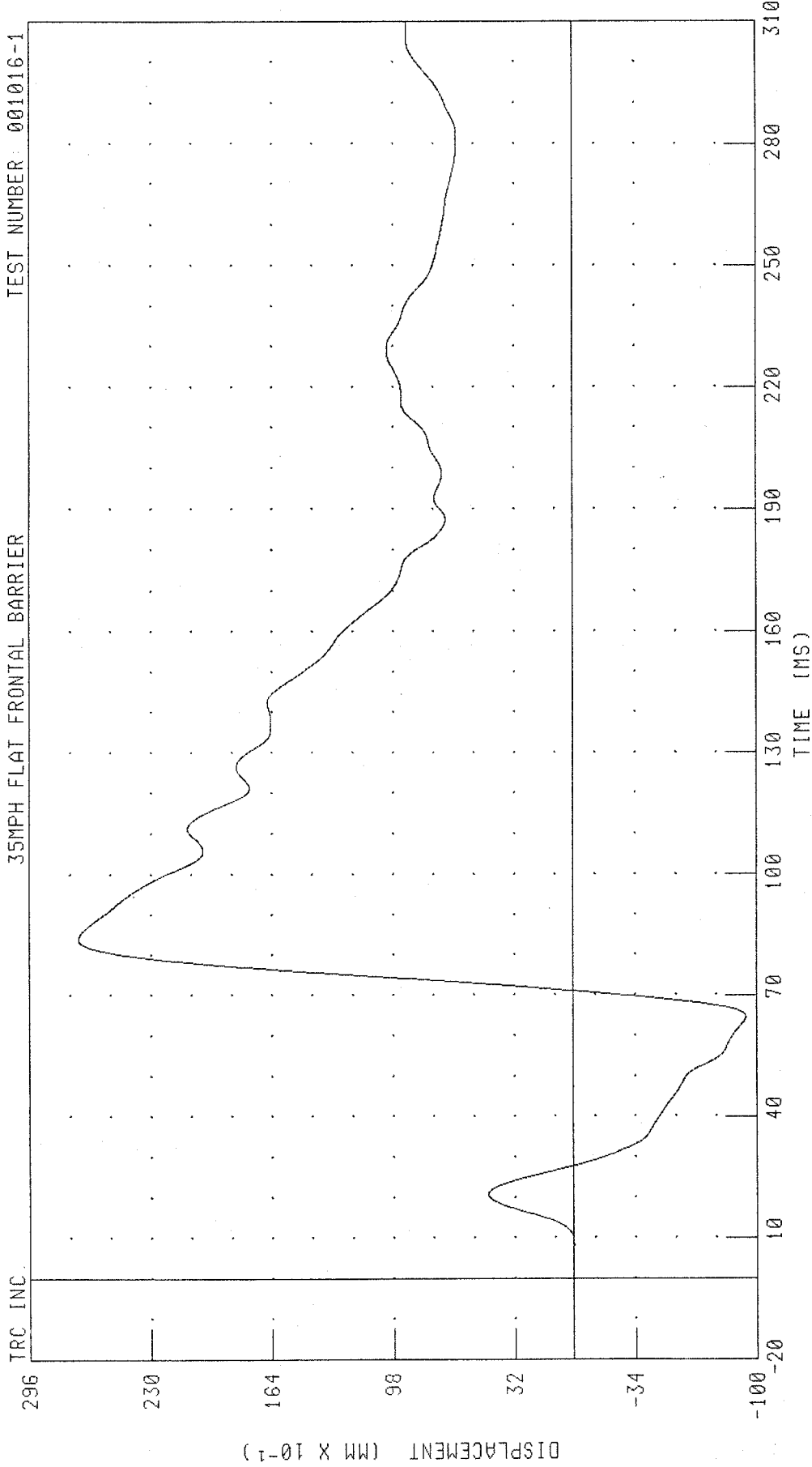
TEST NUMBER: 001016-1



CHANNEL: SHBF1 FILTER: CH. CLASS 60 PEAK DATA: 5458.25 N @ 61.04 MS; -6.05 N @ 172.72 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT
35MPH FLAT FRONTAL BARRIER

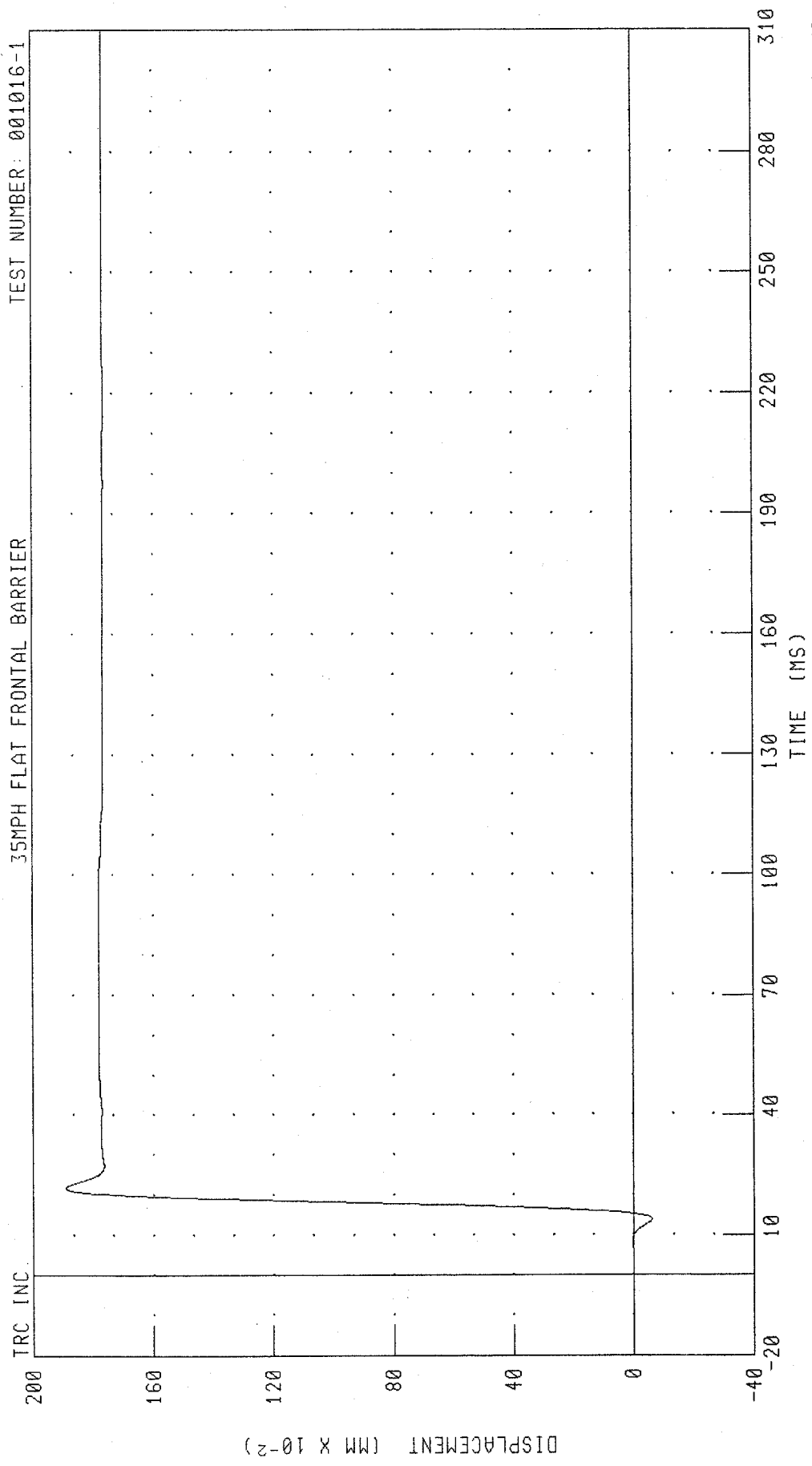
TEST NUMBER: 001016-1



CHANNEL: SHBD1 FILTER: CH. CLASS 60 PEAK DATA: 26.94 MM @ 84.00 MS; -9.42 MM @ 64.56 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
DRIVER SEAT BELT EXTENSION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



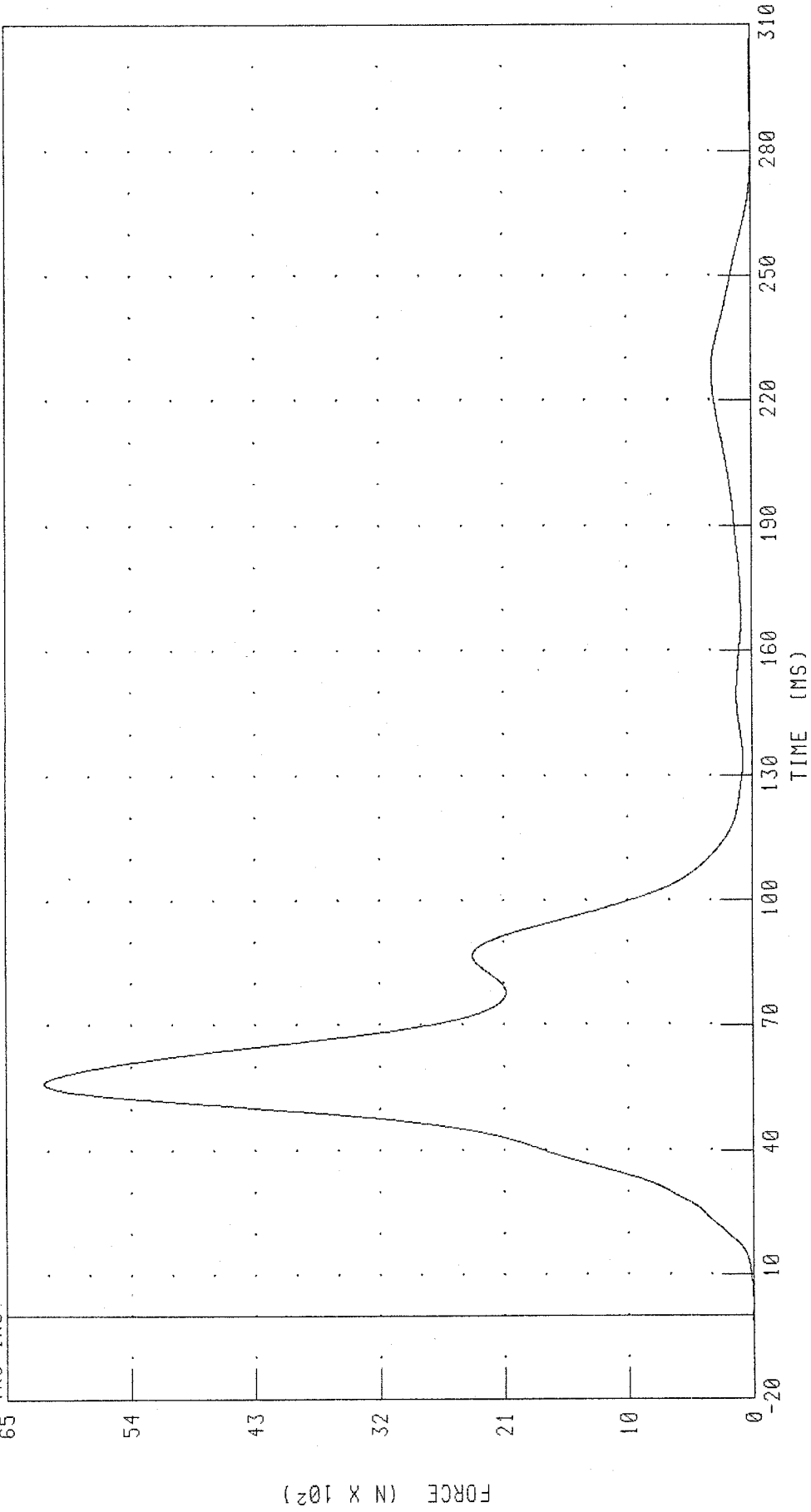
PEAK DATA: 1.89 MM @ 21.76 MS; -0.06 MM @ 13.92 MS

CHANNEL: SBED1 FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
35MPH FLAT FRONTAL BARRIER

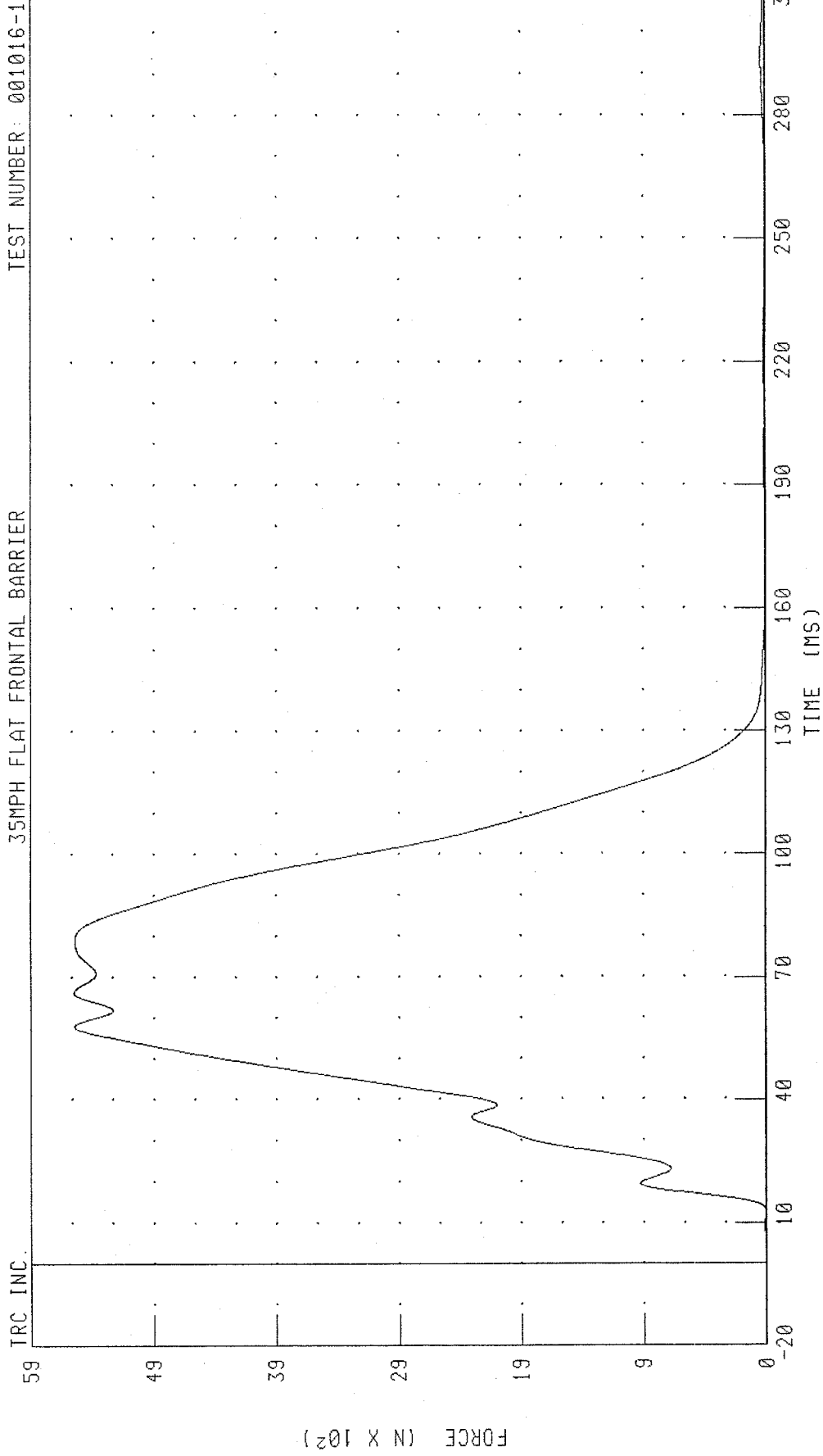
TEST NUMBER: 001016-1

TRC INC.



CHANNEL: LBOF2 FILTER: CH. CLASS 60 PEAK DATA: 6264.71 N @ 56.16 MS; -0.62 N @ -18.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
35MPH FLAT FRONTAL BARRIER



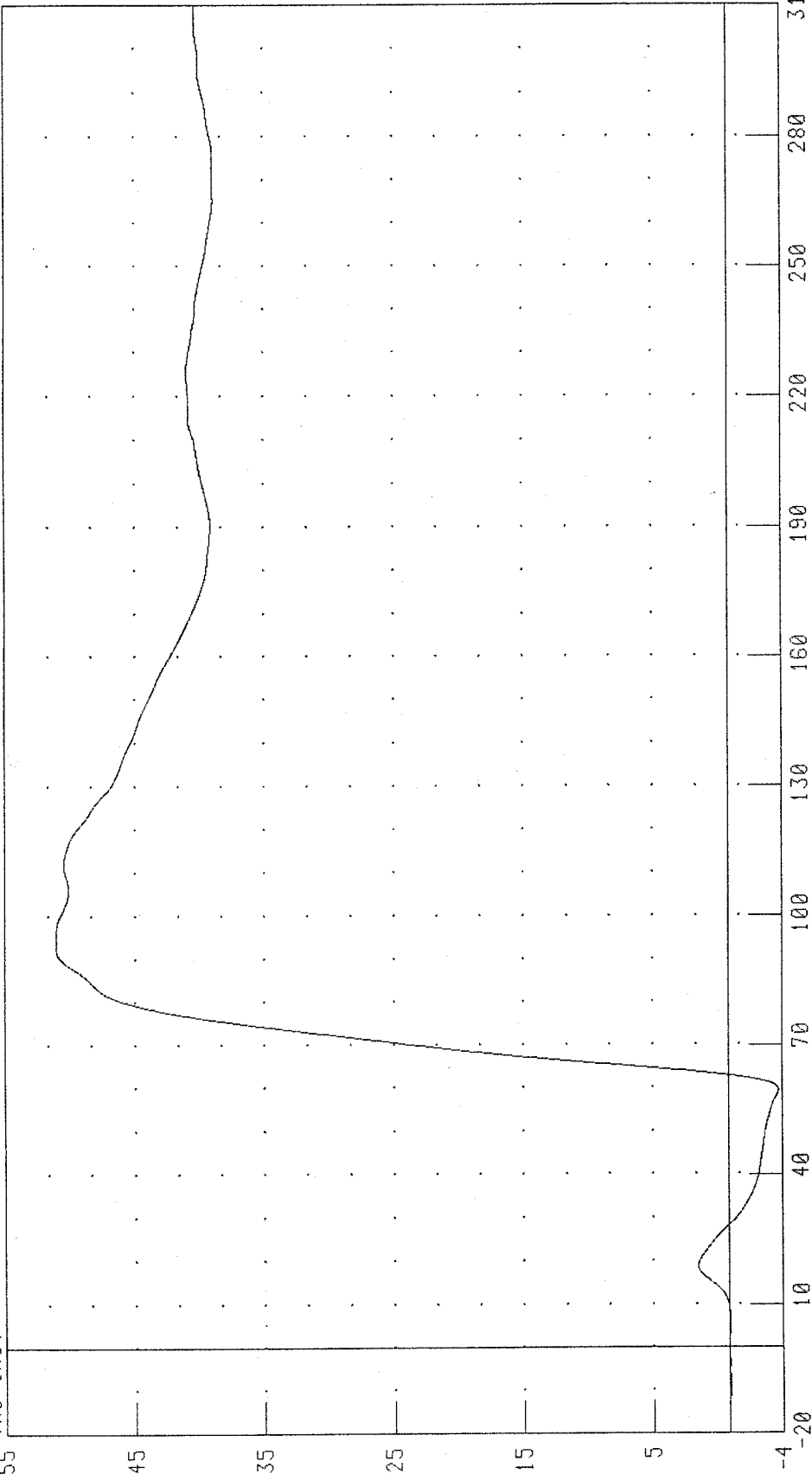
CHANNEL: SHBF2 FILTER: CH. CLASS 60

PEAK DATA: 5646.92 N @ 66.32 MS; -3.72 N @ -15.76 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



PEAK DATA: 51.95 MM @ 96.24 MS; -3.82 MM @ 59.36 MS

CHANNEL: SHBD2 FILTER: CH. CLASS 60

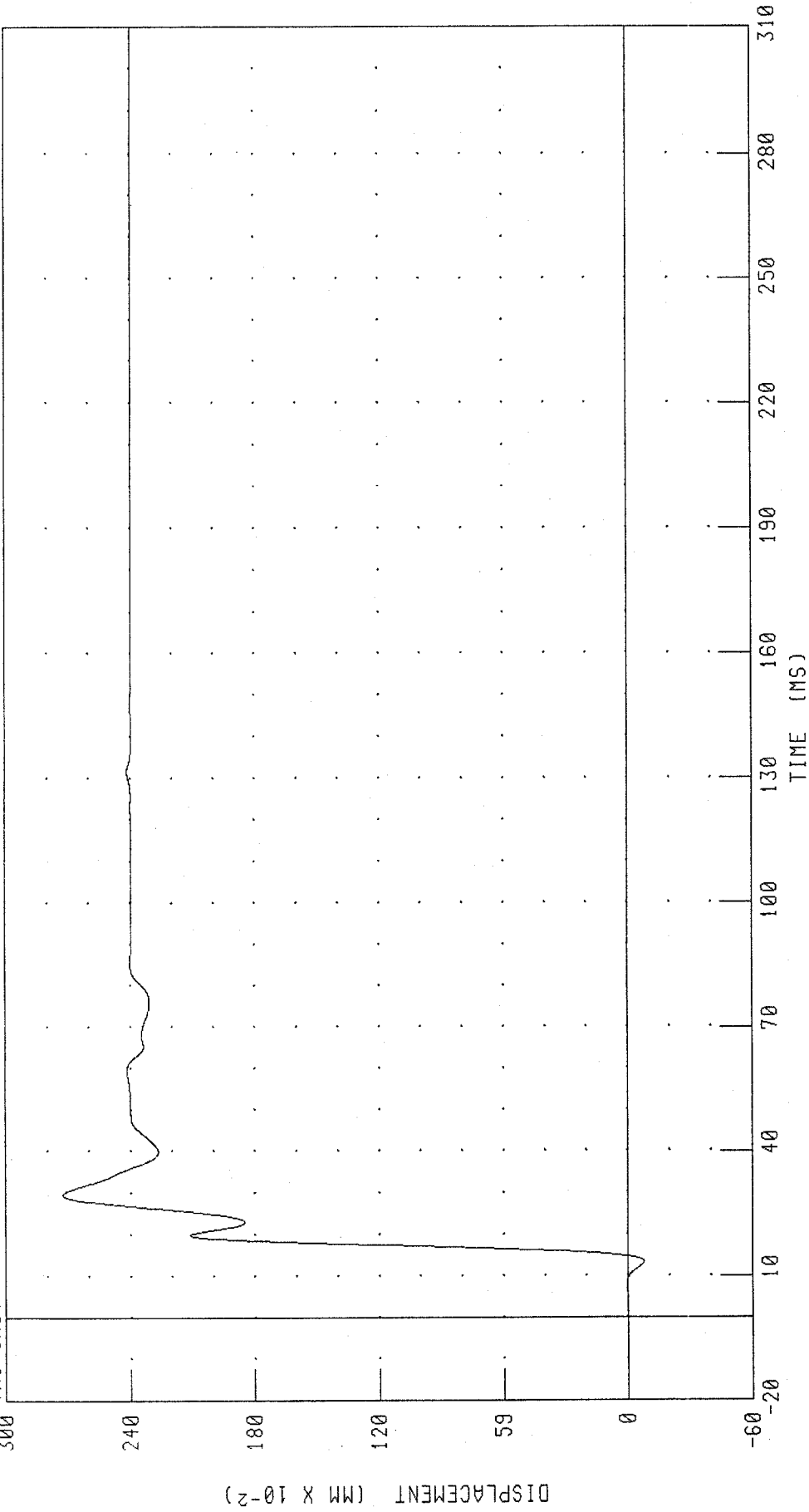
DISPLACEMENT (MM)

TIME (MS)

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

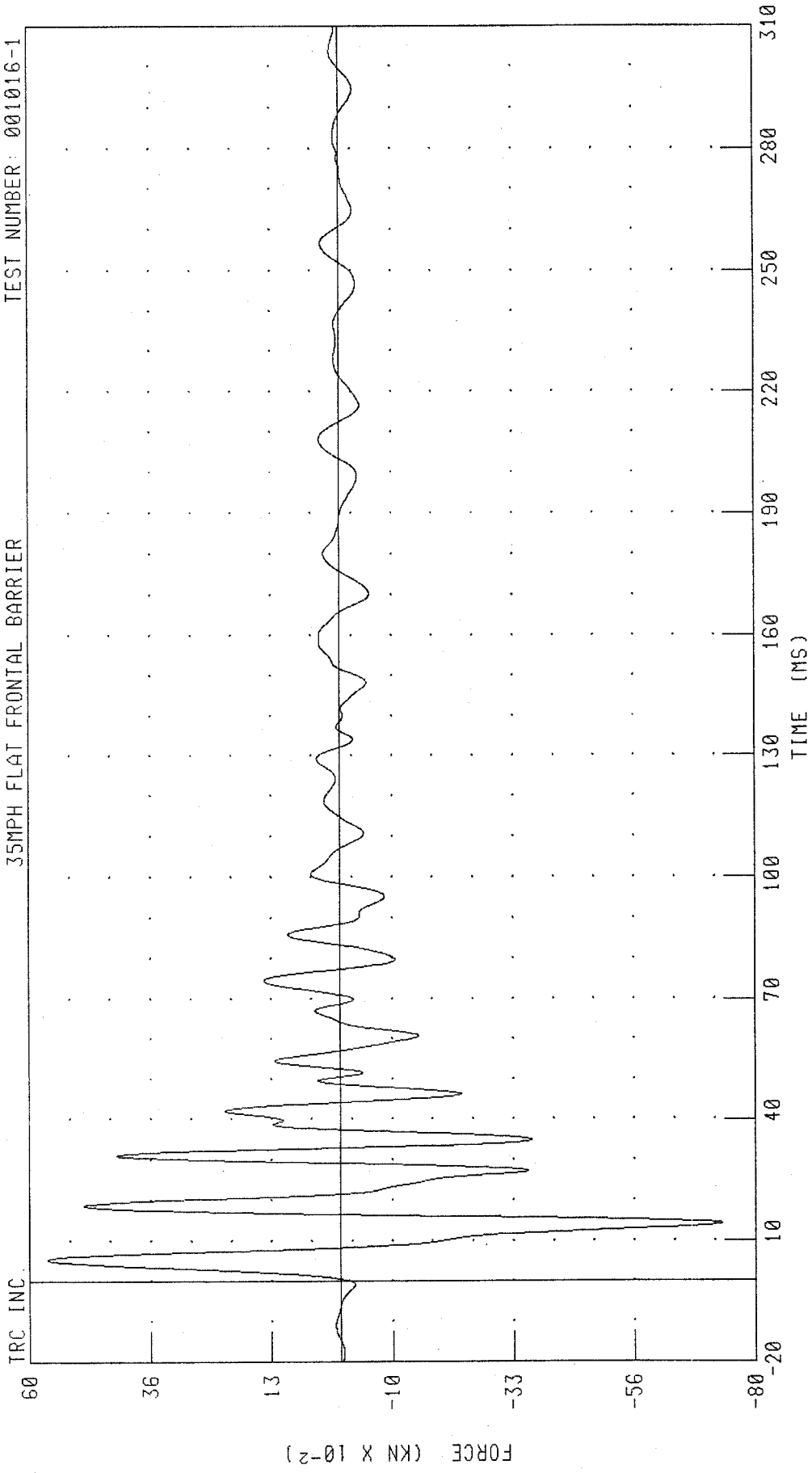


CHANNEL: SBED2 FILTER: CH. CLASS 60

PEAK DATA: 2.73 MM @ 29.68 MS; -0.08 MM @ 13.36 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



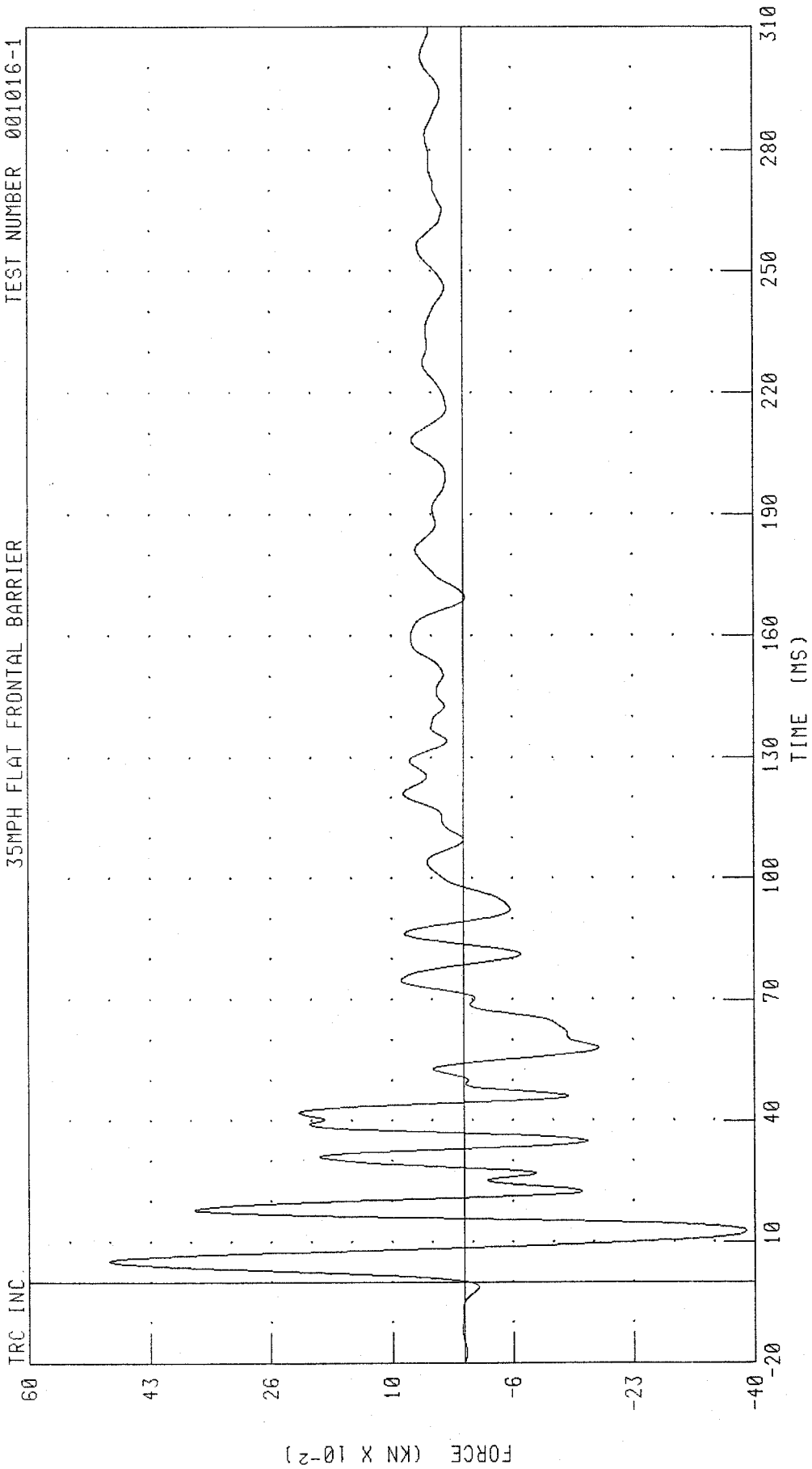
TRC INC.

PEAK DATA: 0.57 KN @ 5.28 MS; -0.74 KN @ 14.24 MS

CHANNEL: BA1F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE
35MPH FLAT FRONTAL BARRIER

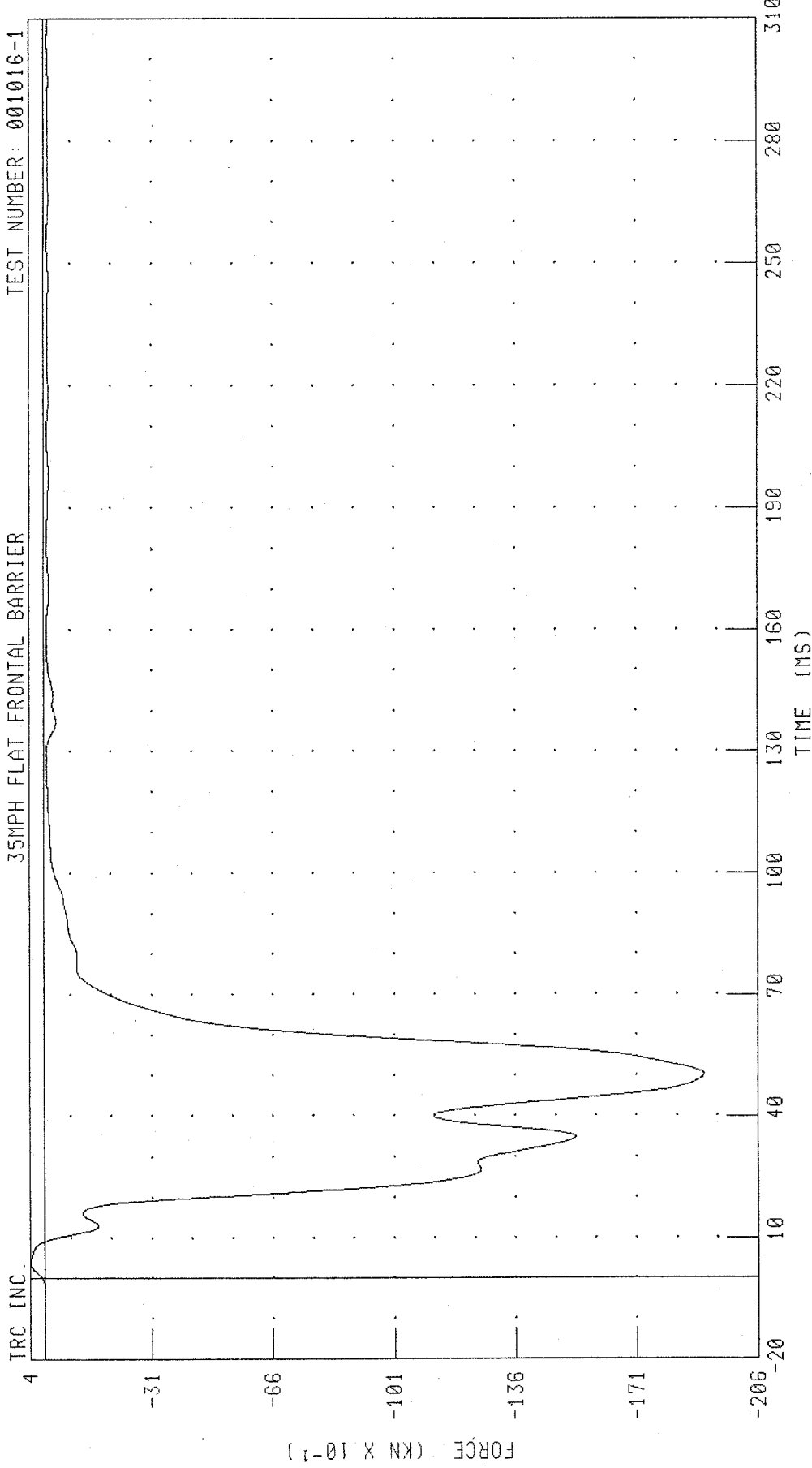
TEST NUMBER 001016-1



TRC INC. CHANNEL: BA2F FILTER: CH. CLASS 60
PEAK DATA: 0.49 KN @ 5.36 MS; -0.39 KN @ 12.72 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE
35MPH FLAT FRONTAL BARRIER

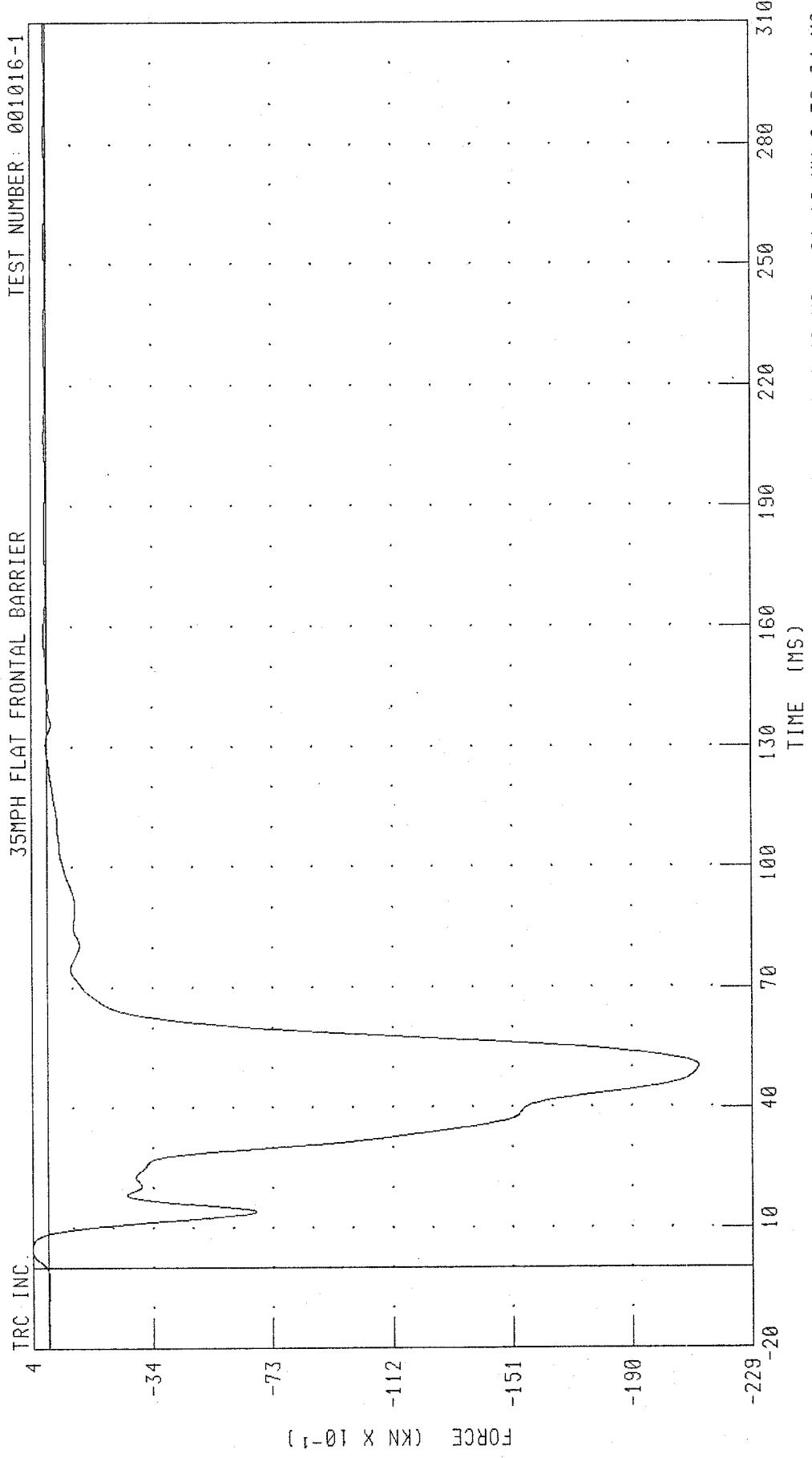
TEST NUMBER: 001016-1



CHANNEL: BA3F FILTER: CH. CLASS 60 PEAK DATA: 0.39 KN @ 3.84 MS; -19.06 KN @ 50.32 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE
35MPH FLAT FRONTAL BARRIER

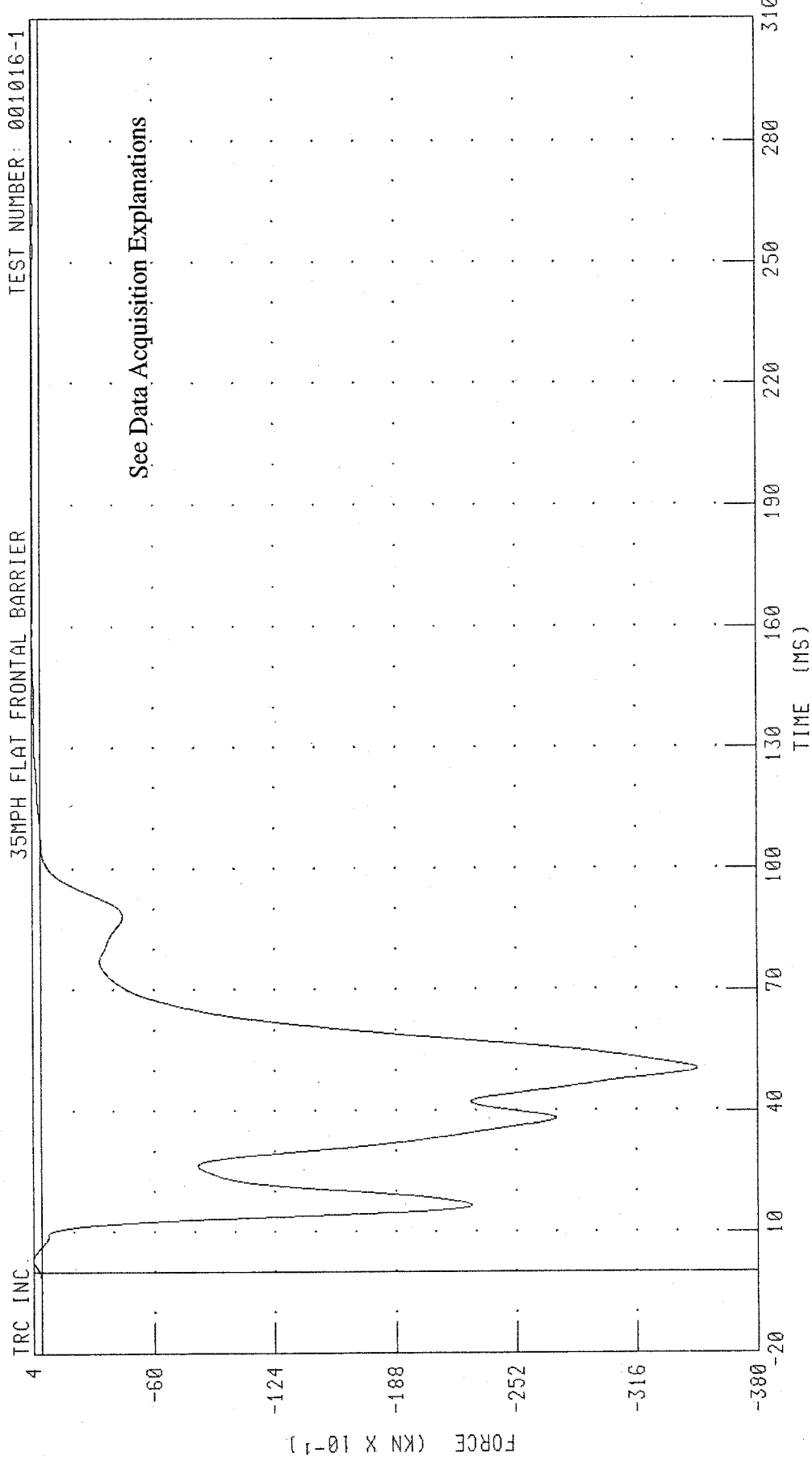
TEST NUMBER: 001016-1



TRC INC. CHANNEL: BA4F FILTER: CH. CLASS 60
PEAK DATA: 0.53 KN @ 4.48 MS; -21.18 KN @ 50.24 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



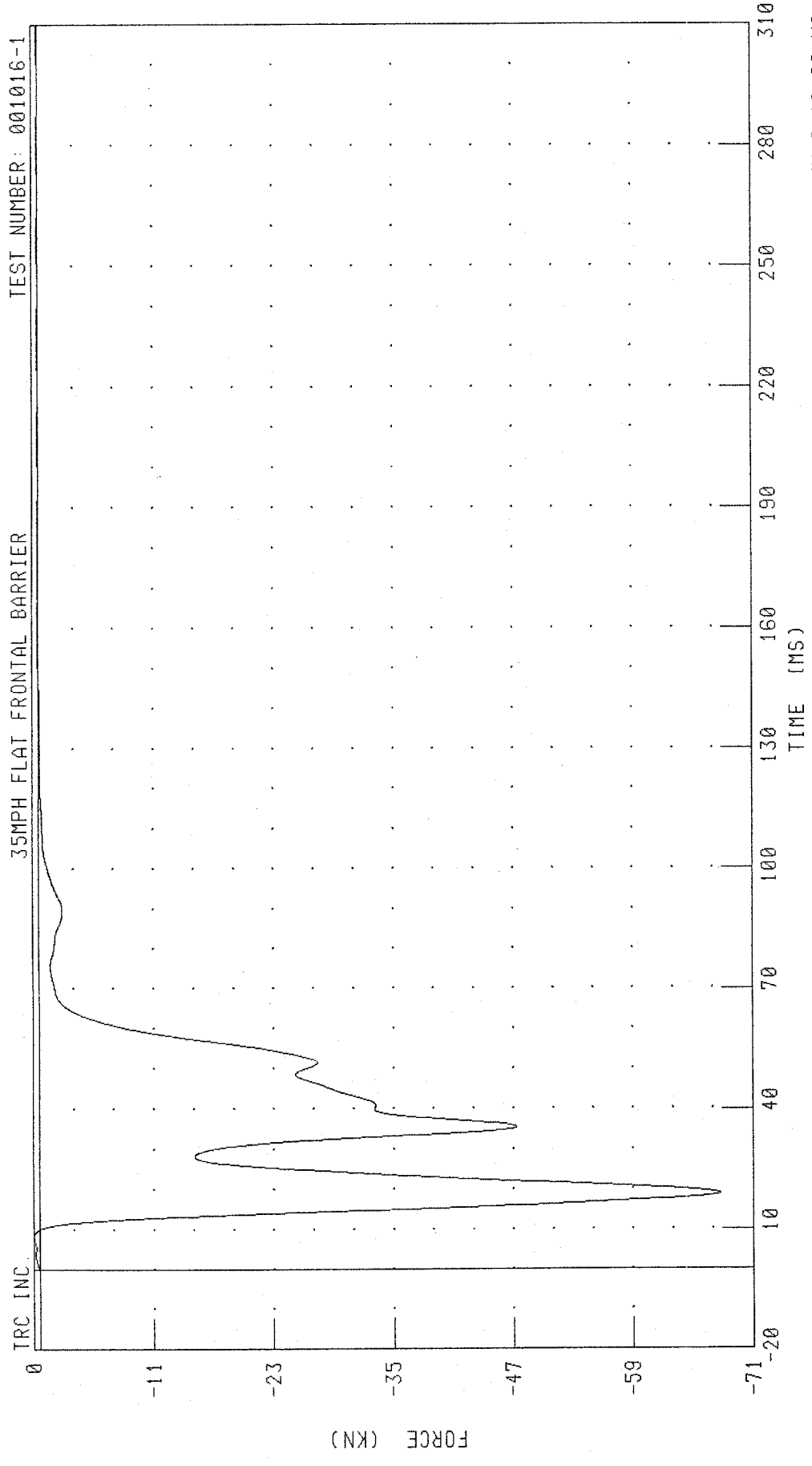
See Data Acquisition Explanations

PEAK DATA: 0.42 KN @ 2.96 MS; -34.83 KN @ 50.40 MS

CHANNEL: BA5F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE
35MPH FLAT FRONTAL BARRIER

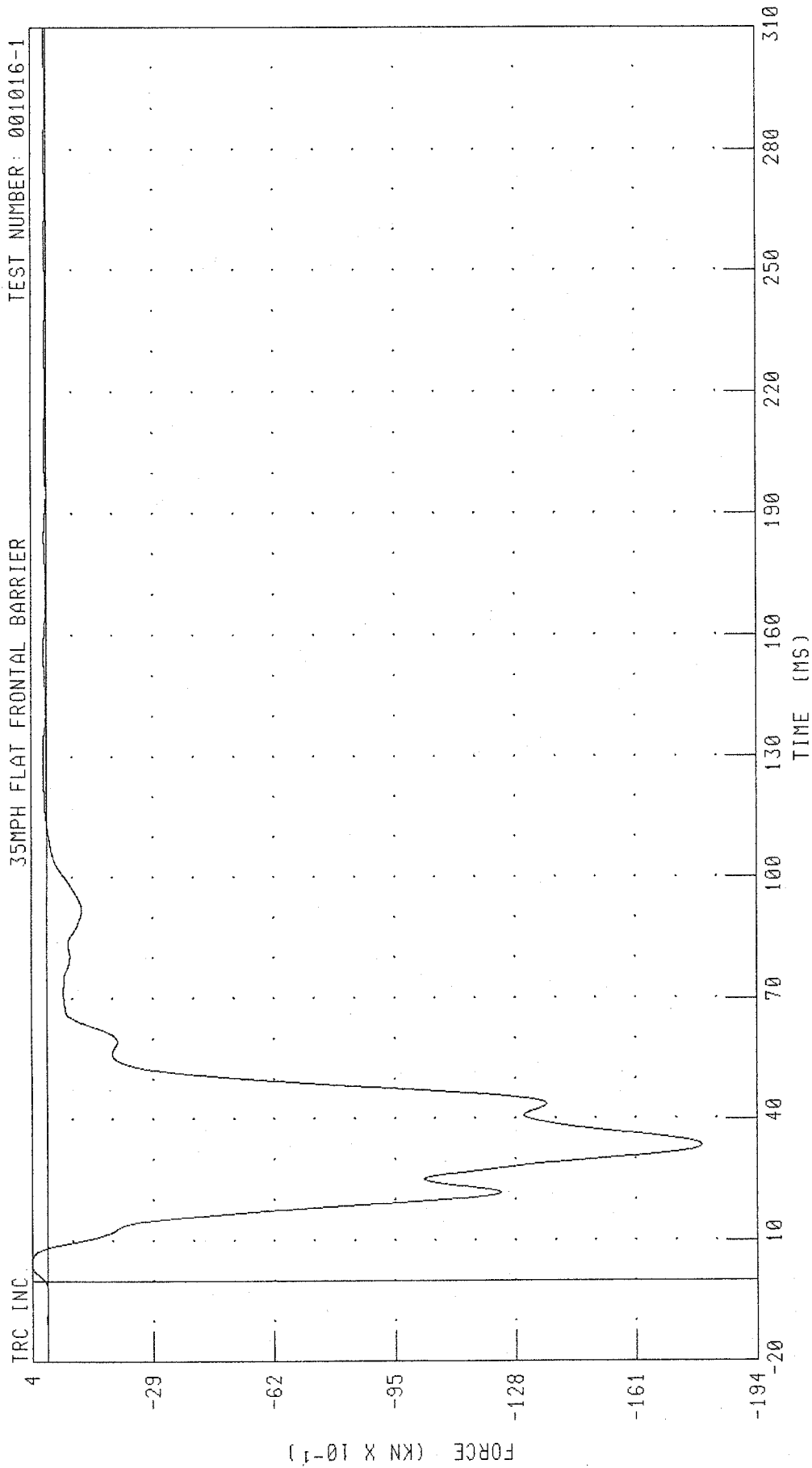
TEST NUMBER: 001016-1



CHANNEL: BAGF FILTER: CH. CLASS 60 PEAK DATA: 0.59 KN @ 8.32 MS; -68.21 KN @ 18.96 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION #7 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



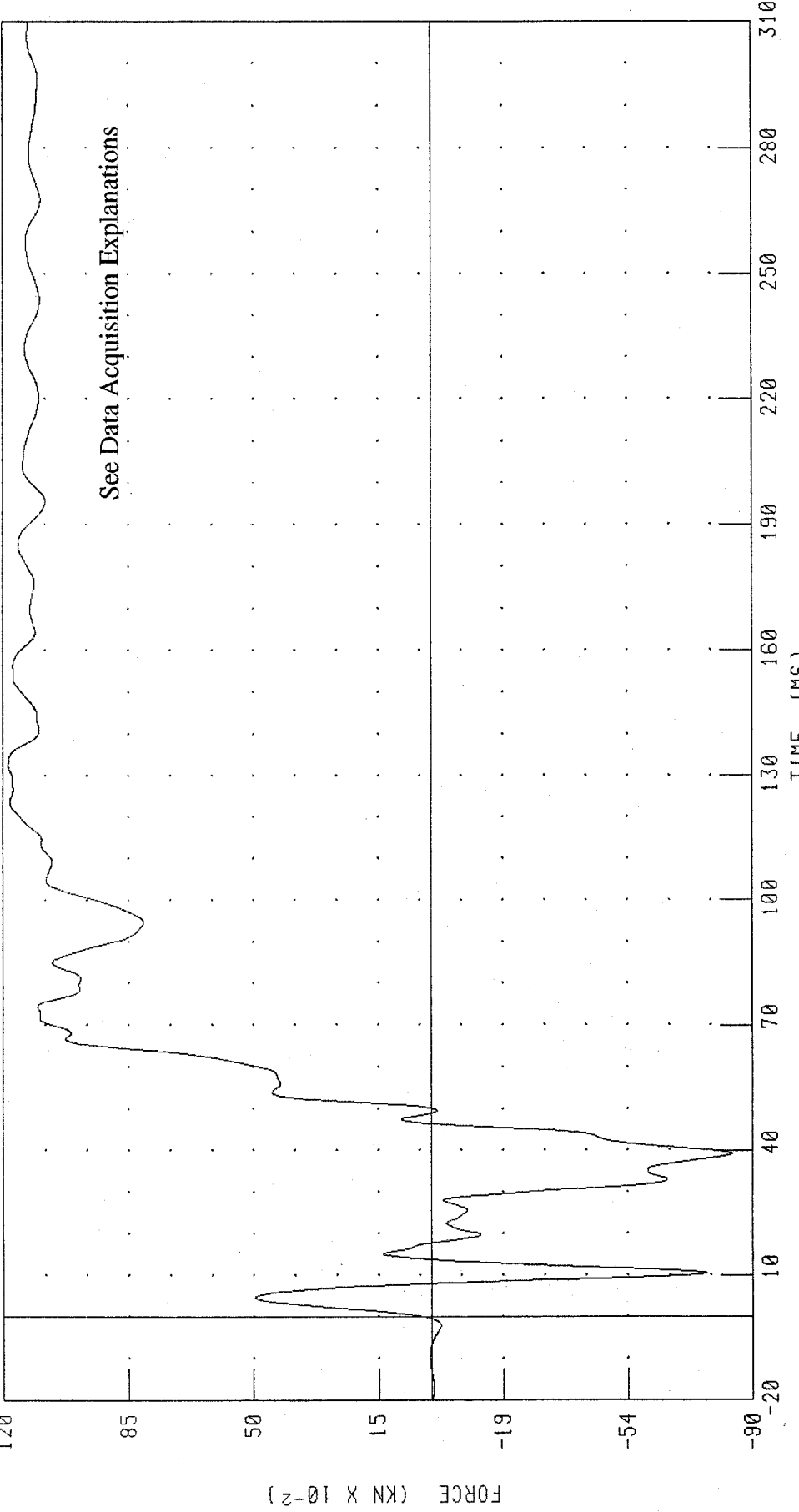
PEAK DATA: 0.43 KN @ 4.24 MS; -17.91 KN @ 33.52 MS

CHANNEL: BA7F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A8 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER 001016-1

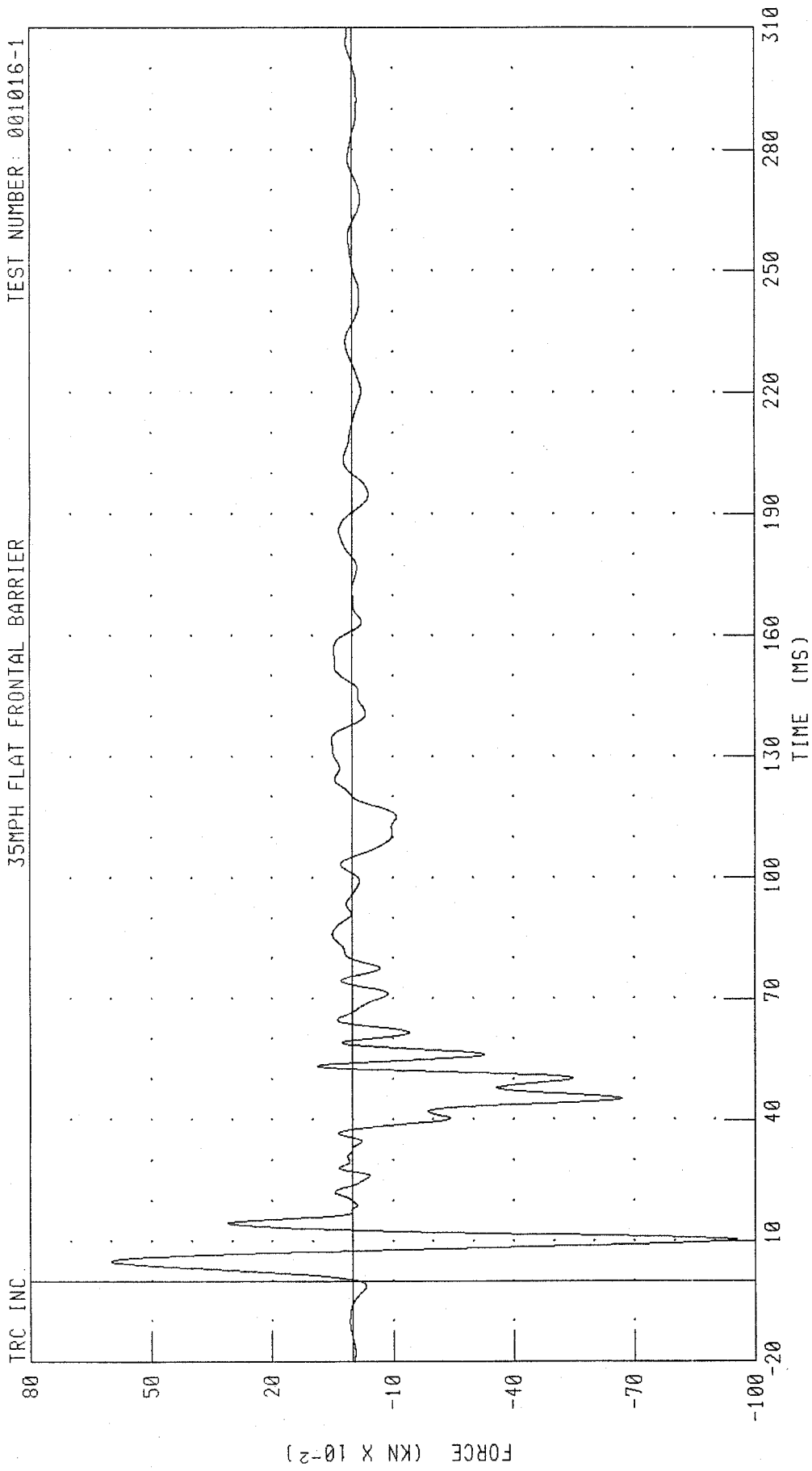
TRC INC



CHANNEL: BA8F FILTER: CH. CLASS 60
PEAK DATA: 1.18 KN @ 132.56 MS, -0.85 KN @ 39.20 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



TRC INC.

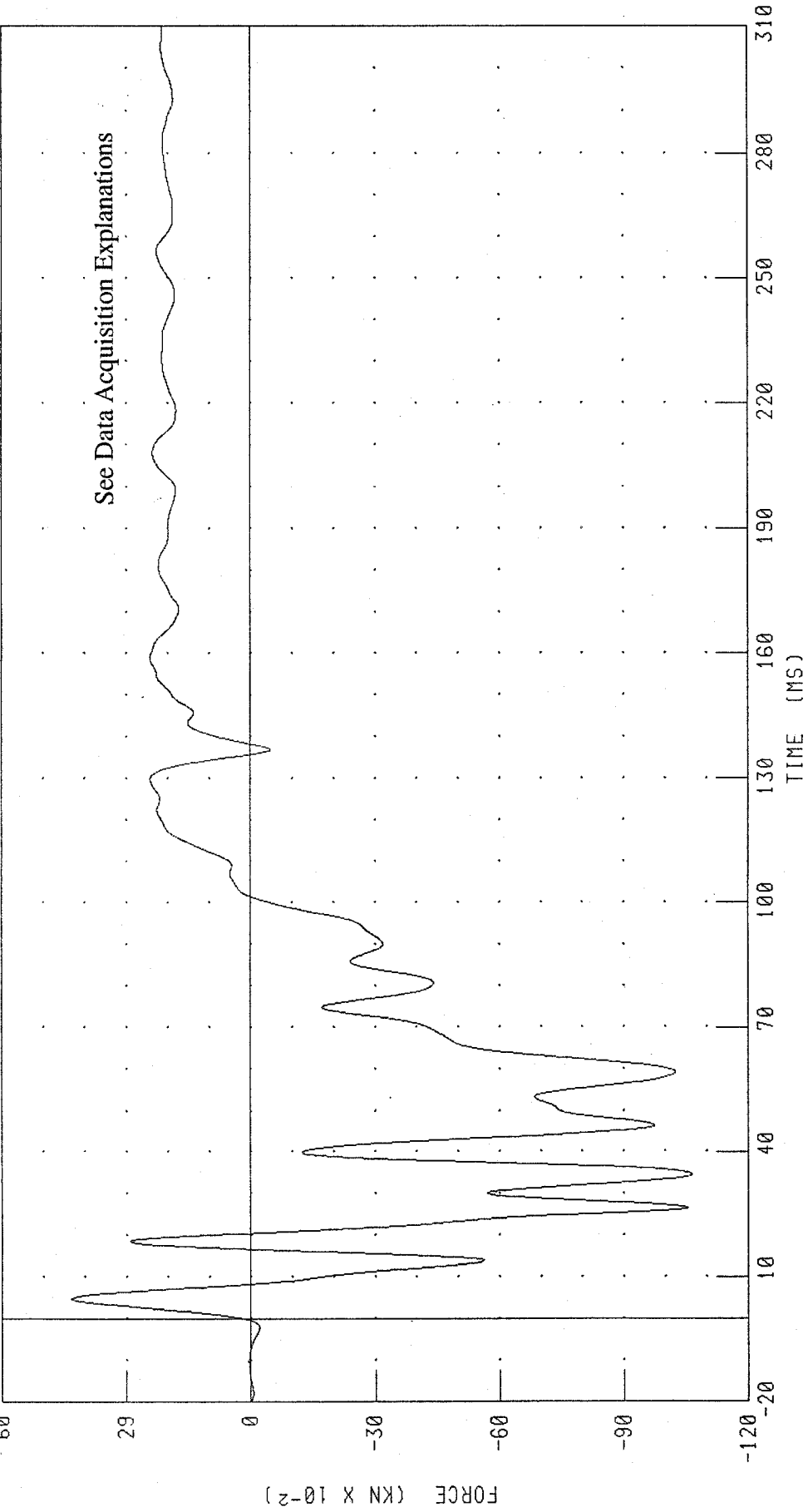
PEAK DATA: 0.60 KN @ 5.04 MS; -0.95 KN @ 10.32 MS

CHANNEL: BA9F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.

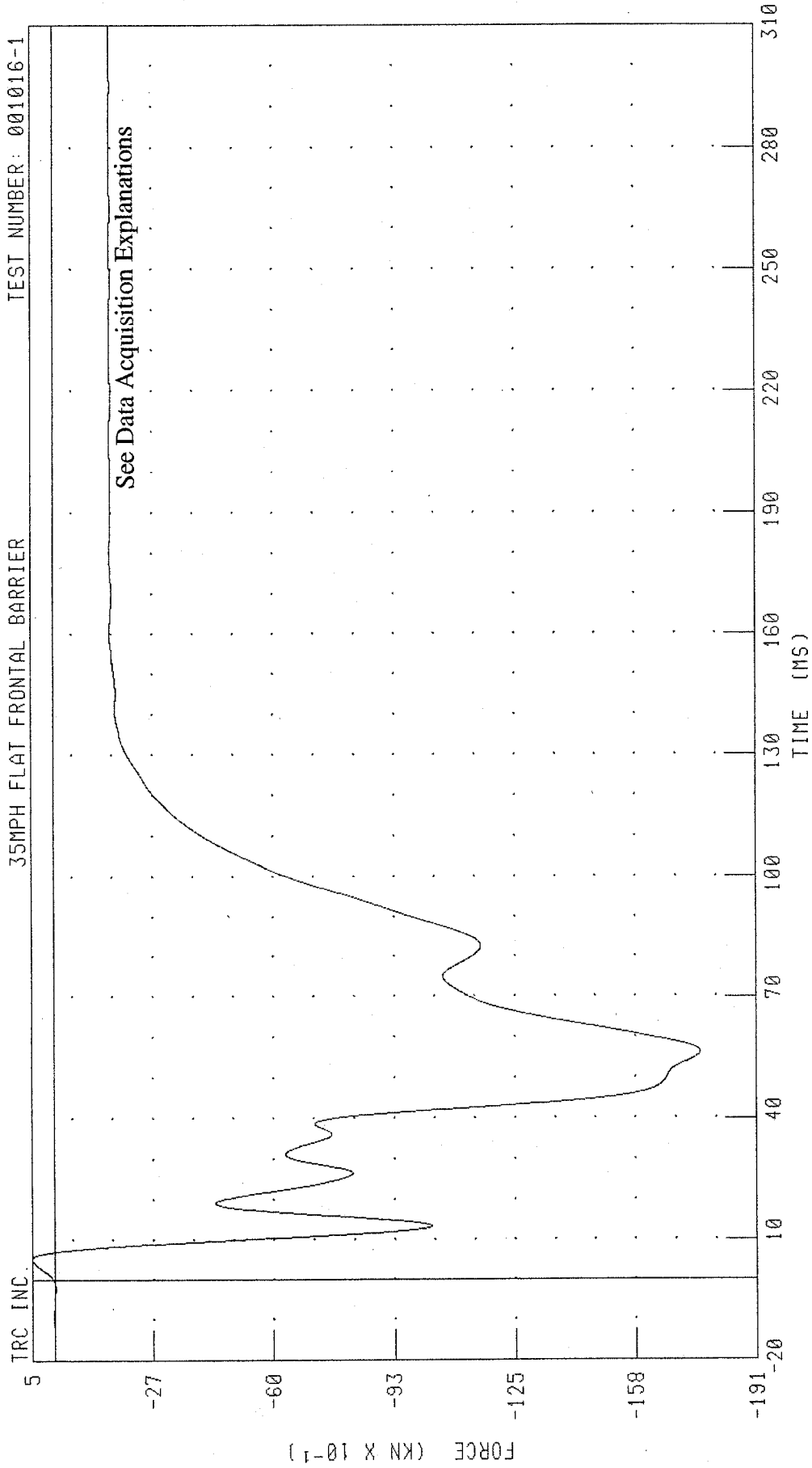


CHANNEL: BB1F FILTER: CH. CLASS 60

PEAK DATA: 0.43 KN @ 4.80 MS; -1.06 KN @ 34.64 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



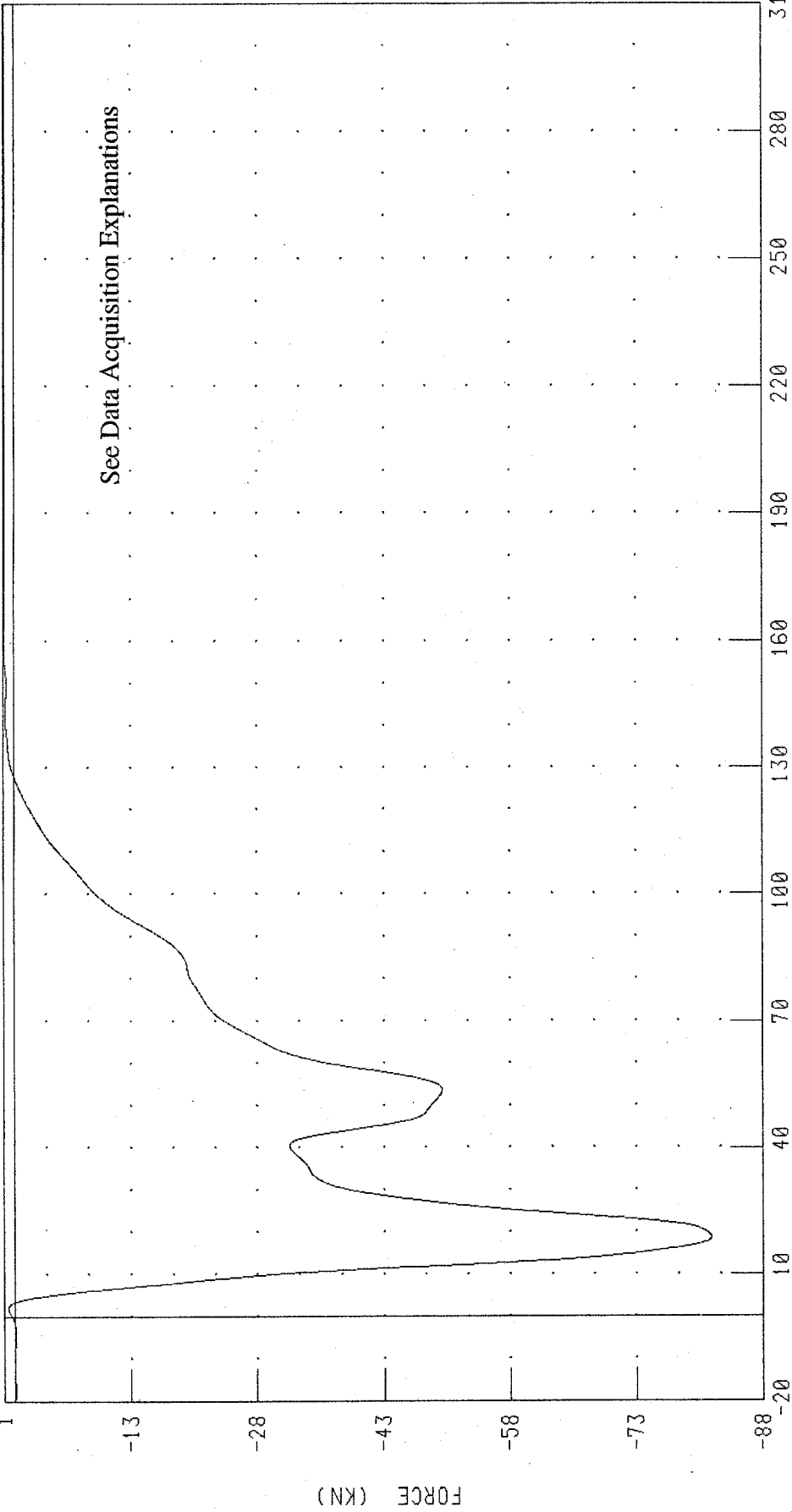
PEAK DATA: 0.62 KN @ 5.12 MS; -17.67 KN @ 56.24 MS

CHANNEL: BB2F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

TRC INC.



See Data Acquisition Explanations

CHANNEL: BB3F FILTER: CH. CLASS 60

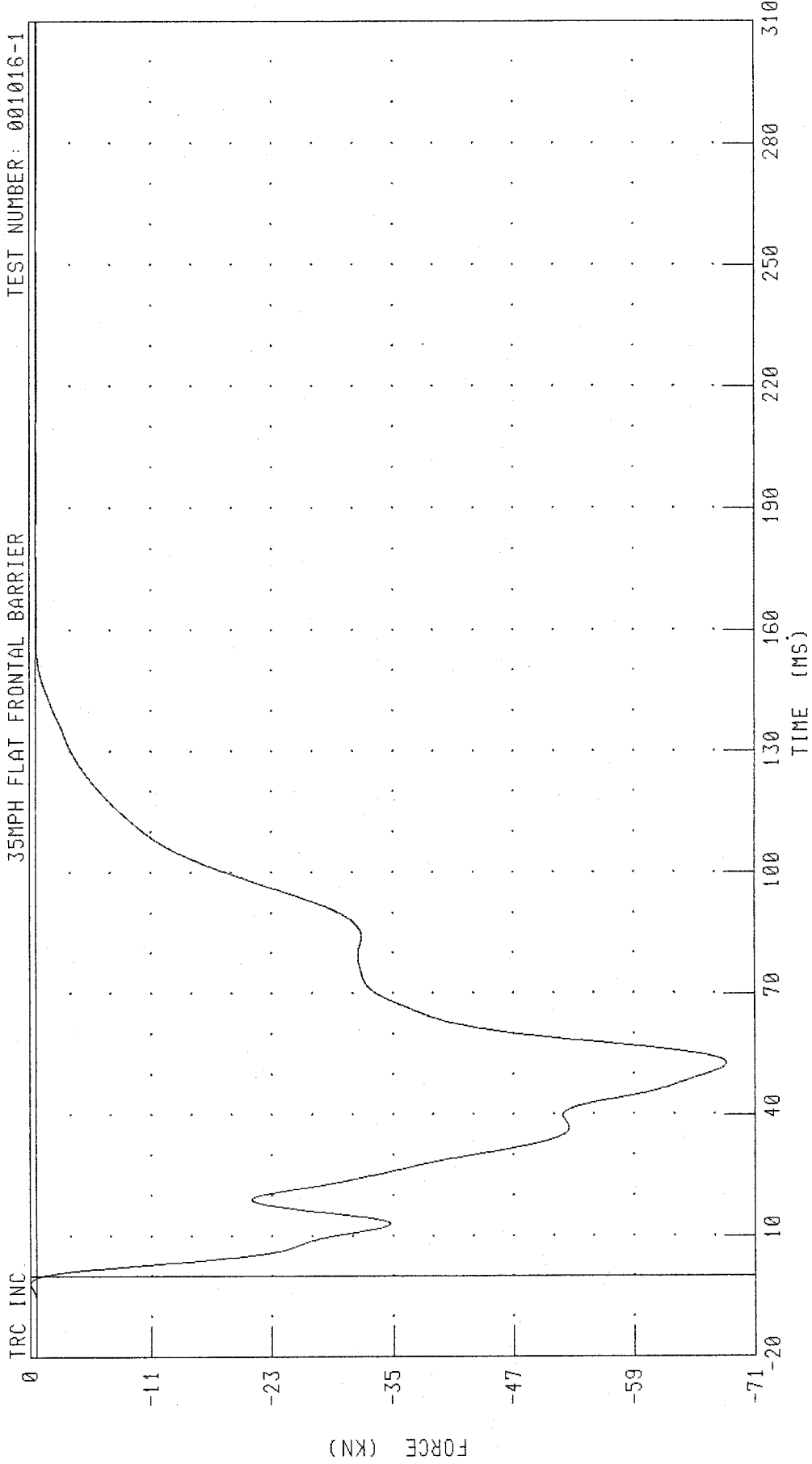
PEAK DATA: 1.25 KN @ 162.48 MS; -82.65 KN @ 18.72 MS

FORCE (KN)

TIME (MS)

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

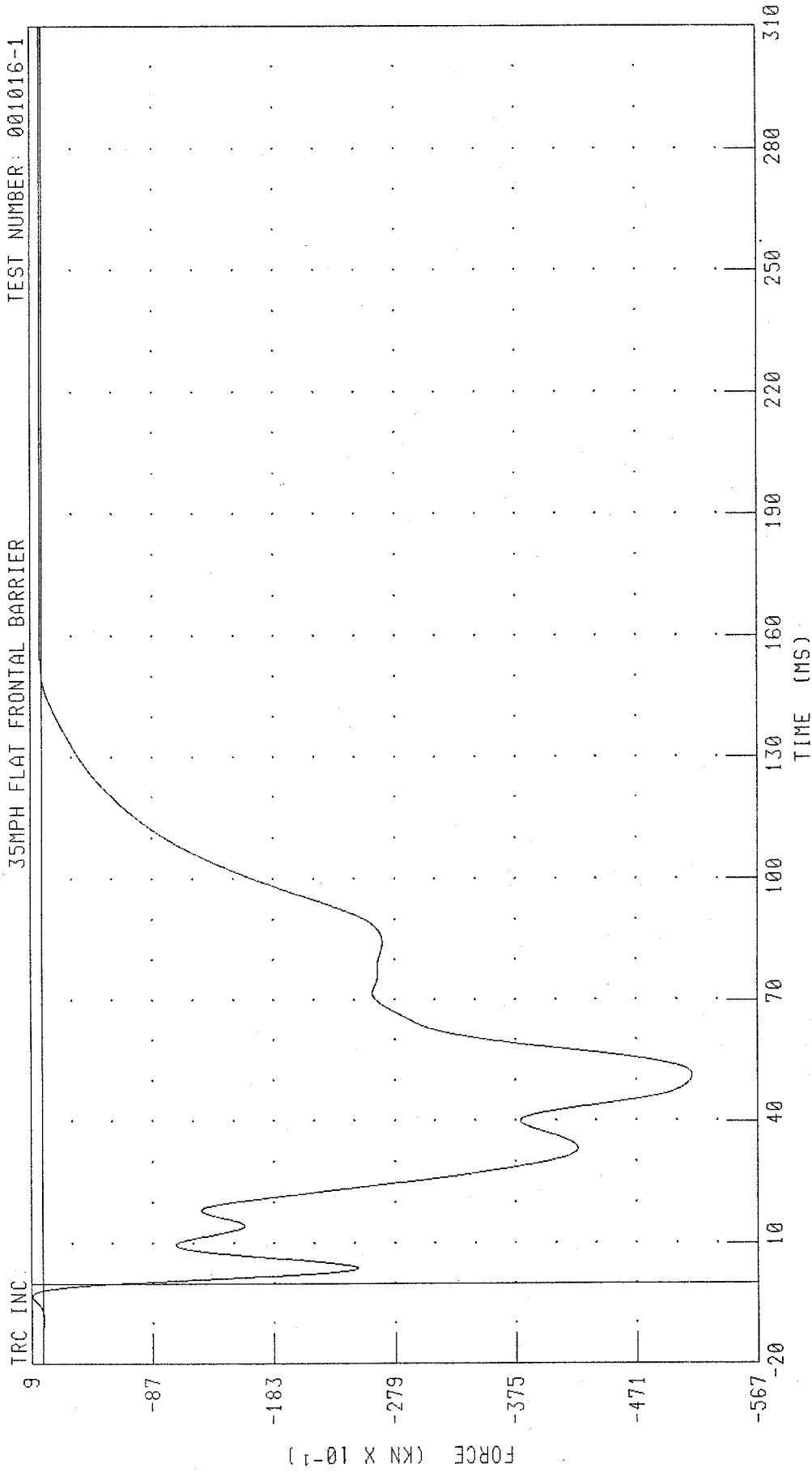


PEAK DATA: 0.60 KN @ -1.84 MS; -68.61 KN @ 52.72 MS

CHANNEL: BB4F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

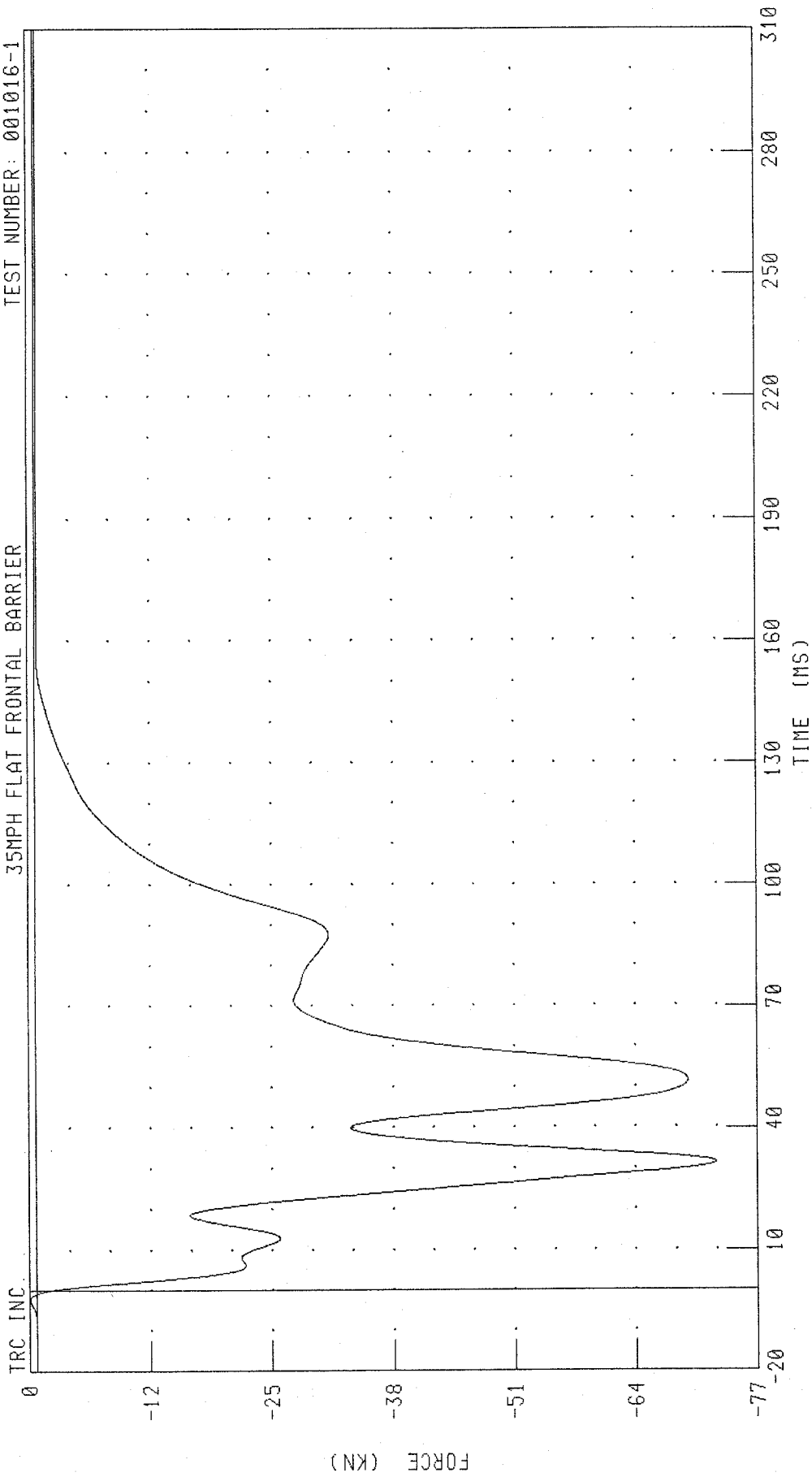


CHANNEL: BB5F FILTER: CH. CLASS 60

PEAK DATA: 0.87 KN @ -3.04 MS; -51.54 KN @ 51.28 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



TRC INC.

CHANNEL: BB6F

FILTER: CH. CLASS 60

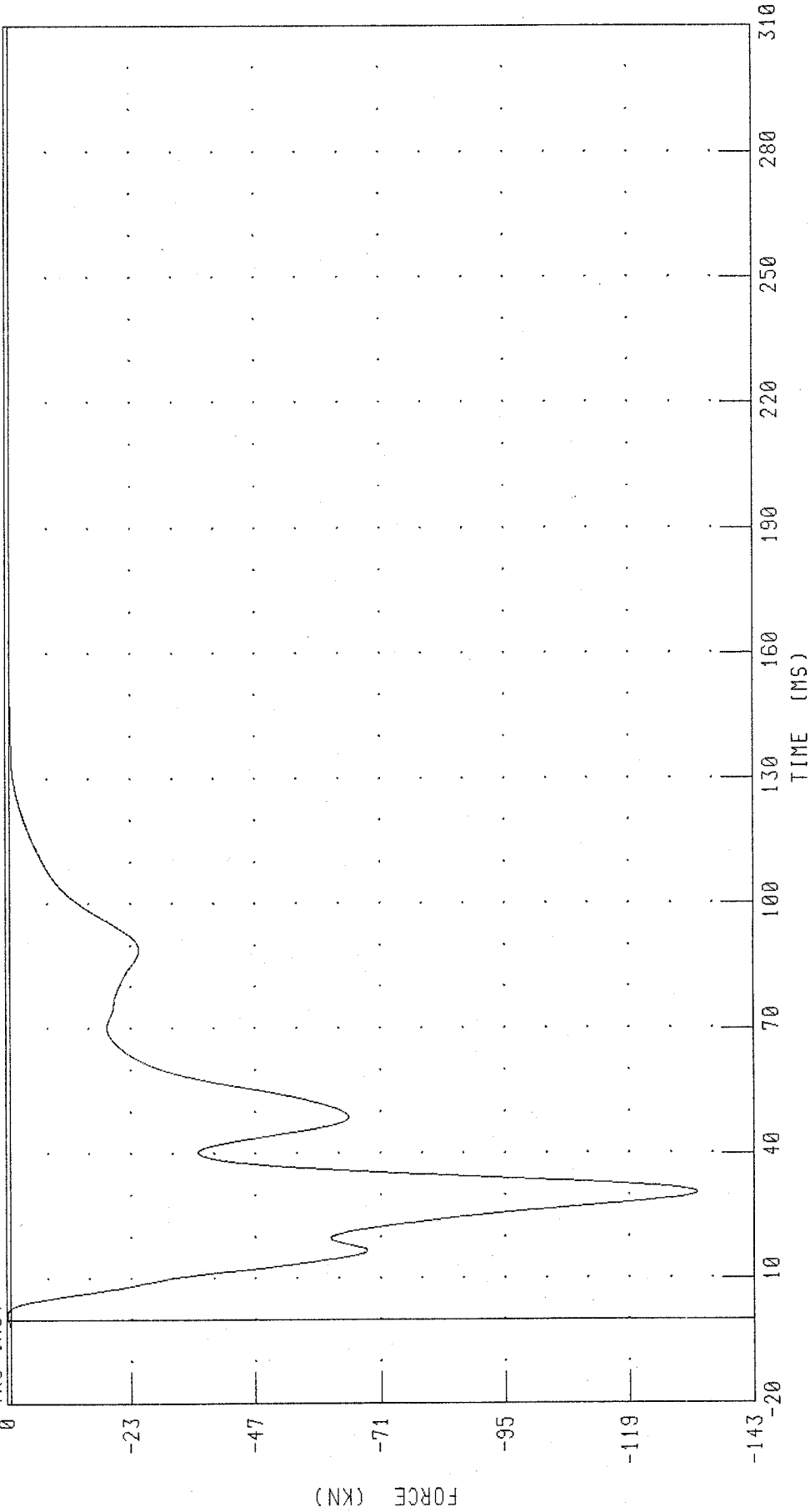
PEAK DATA: 0.65 KN @ -2.24 MS, -72.92 KN @ 31.44 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE

TEST NUMBER: 001016-1

35MPH FLAT FRONTAL BARRIER

TRC INC.

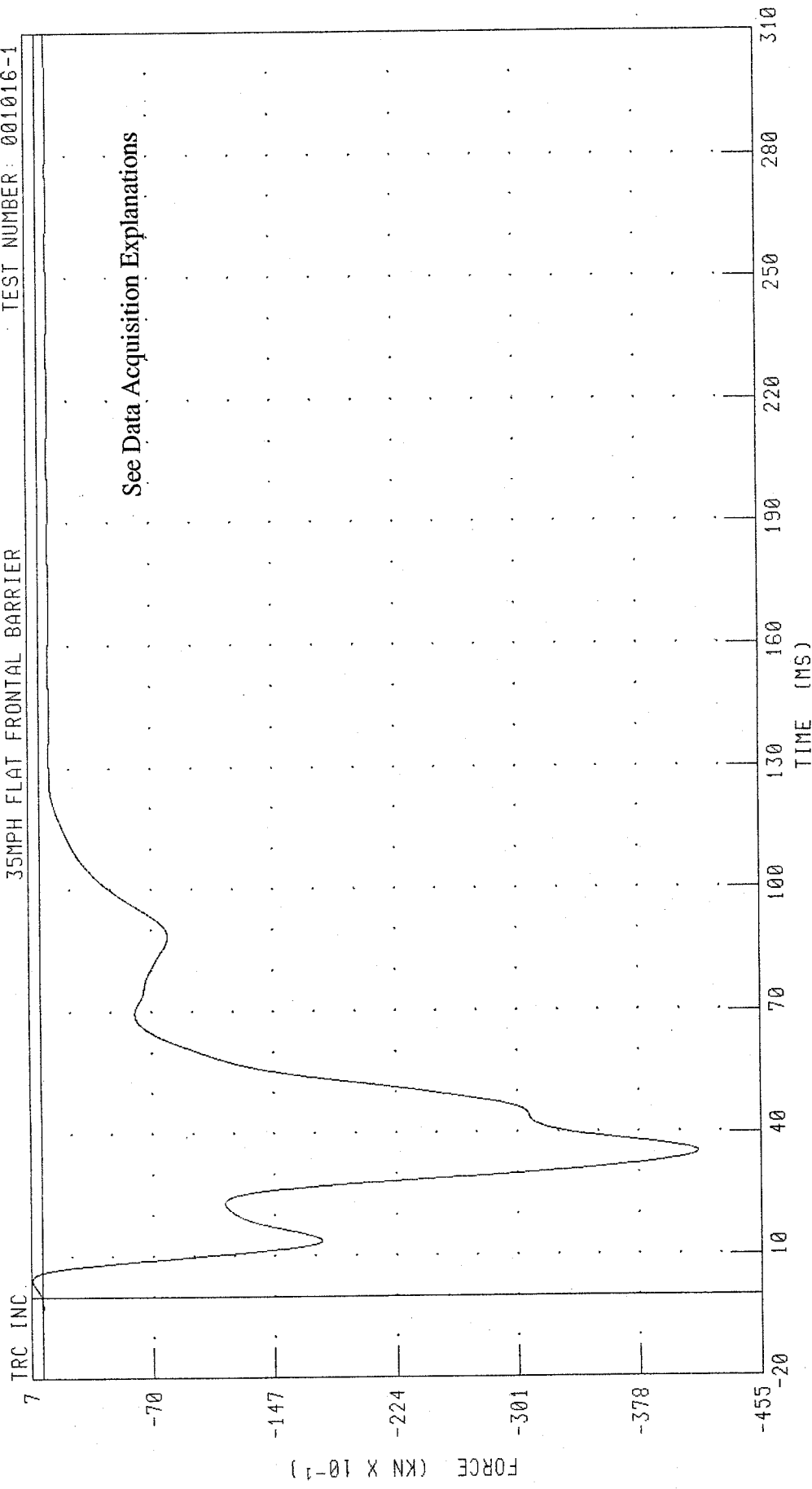


PEAK DATA: 0.75 KN @ 1.28 MS; -132.34 KN @ 30.64 MS

CHANNEL: BB7F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

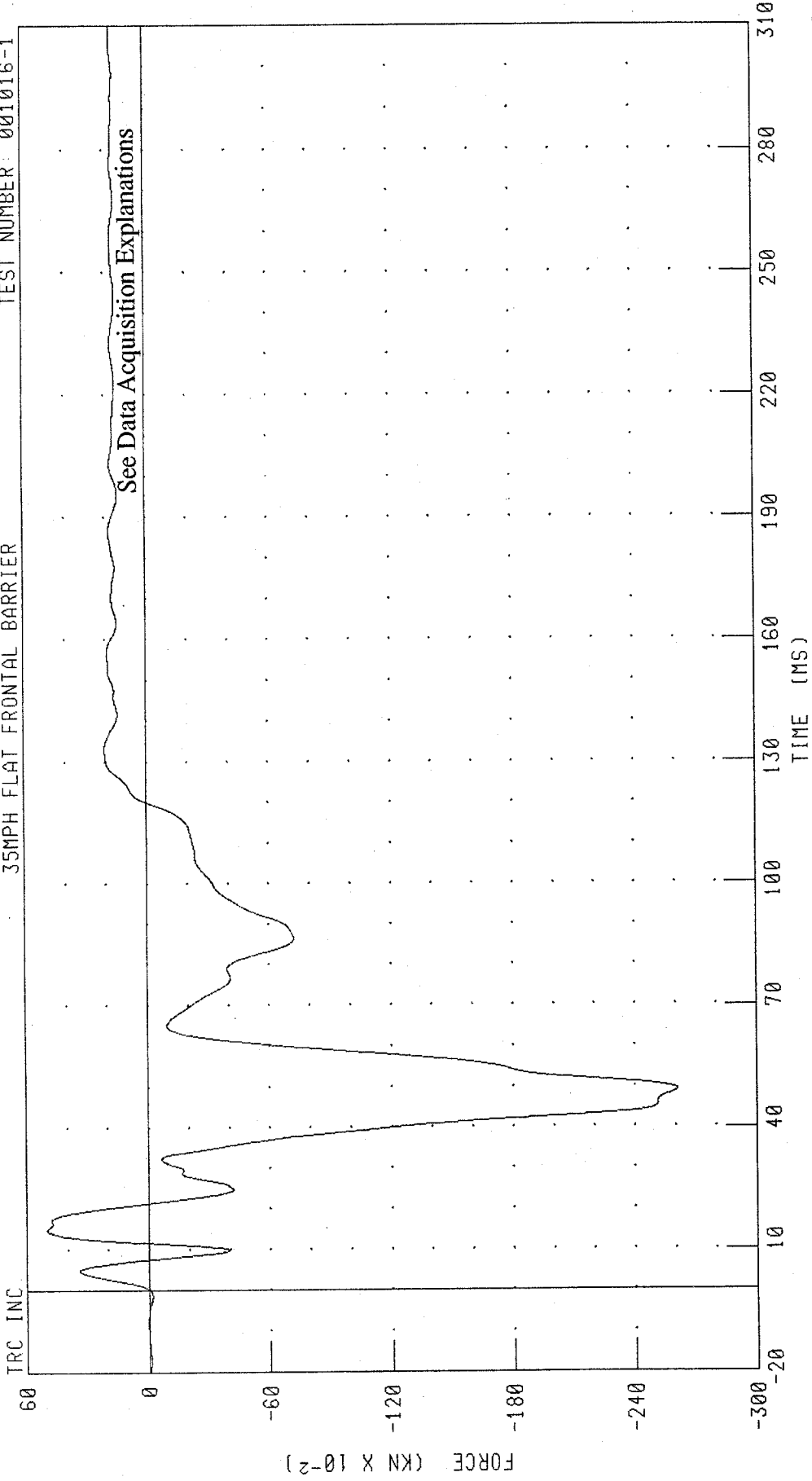


PEAK DATA: 0.65 KN @ 4.24 MS; -41.55 KN @ 35.20 MS

CHANNEL: BB8F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

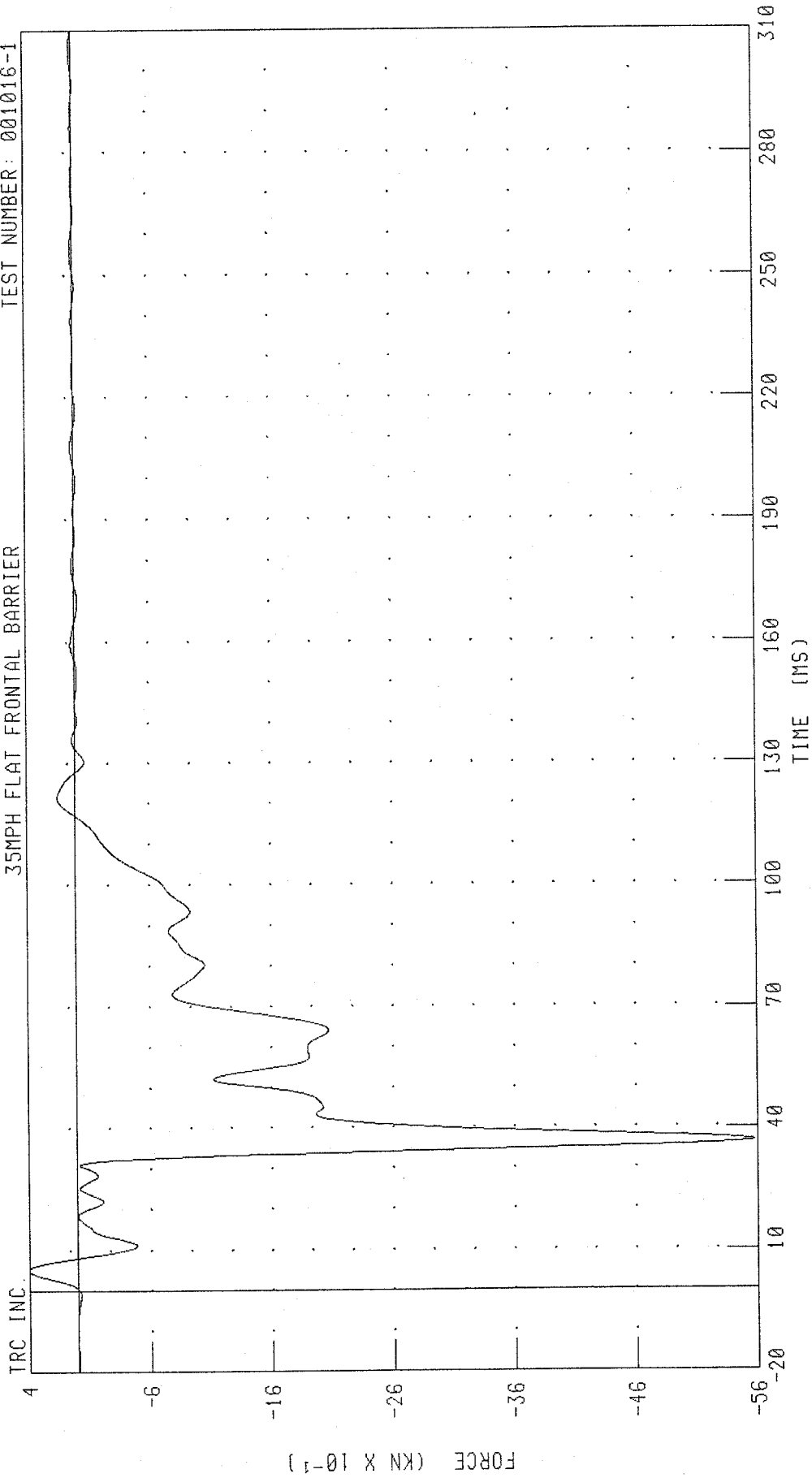


PEAK DATA: 0.50 KN @ 14.72 MS; -2.61 KN @ 49.28 MS

CHANNEL: BB9F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE
35MPH FLAT FRONTAL BARRIER

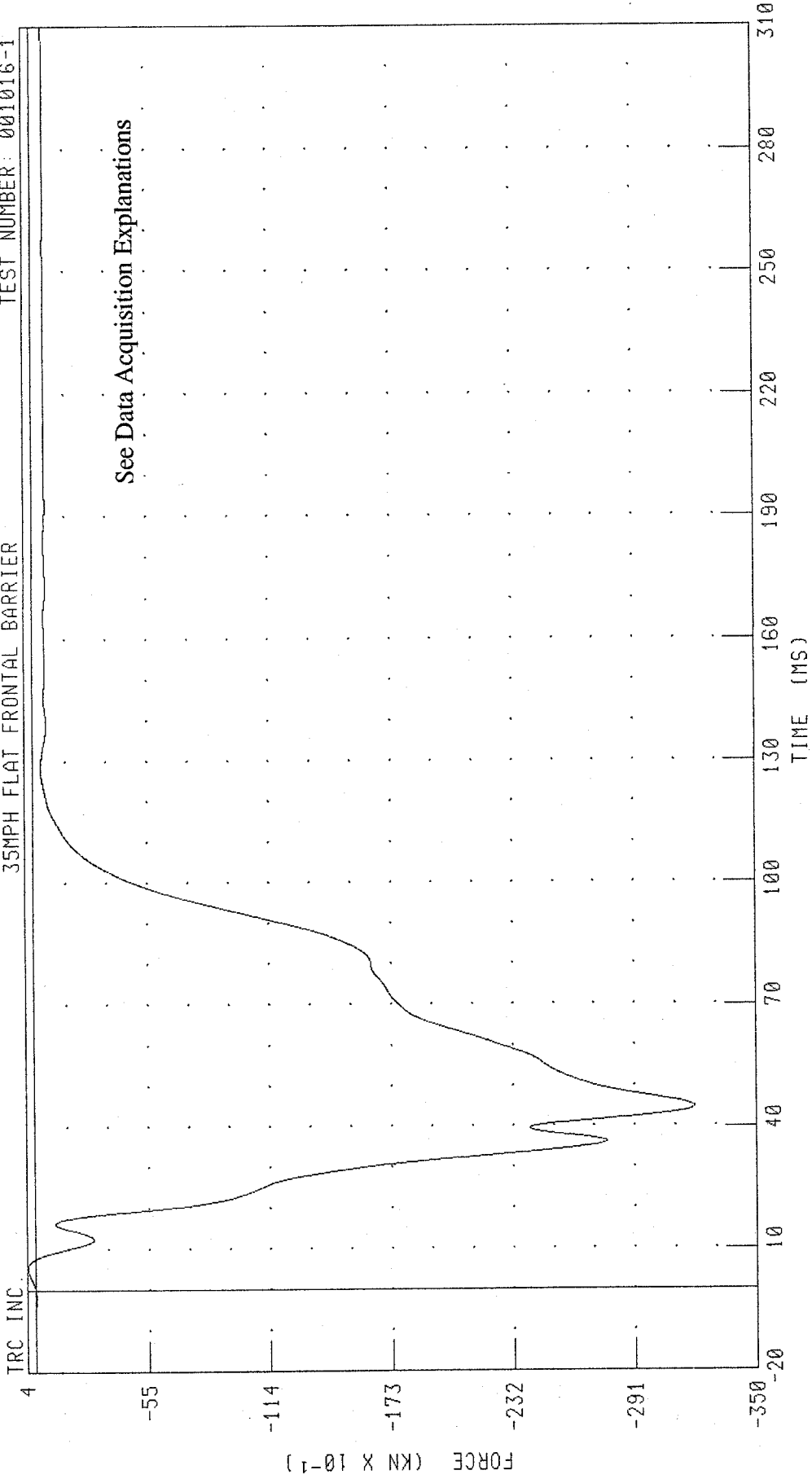
TEST NUMBER: 001016-1



CHANNEL: BC1F FILTER: CH. CLASS 60 PEAK DATA: 0.41 KN @ 5.20 MS; -5.57 KN @ 36.64 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

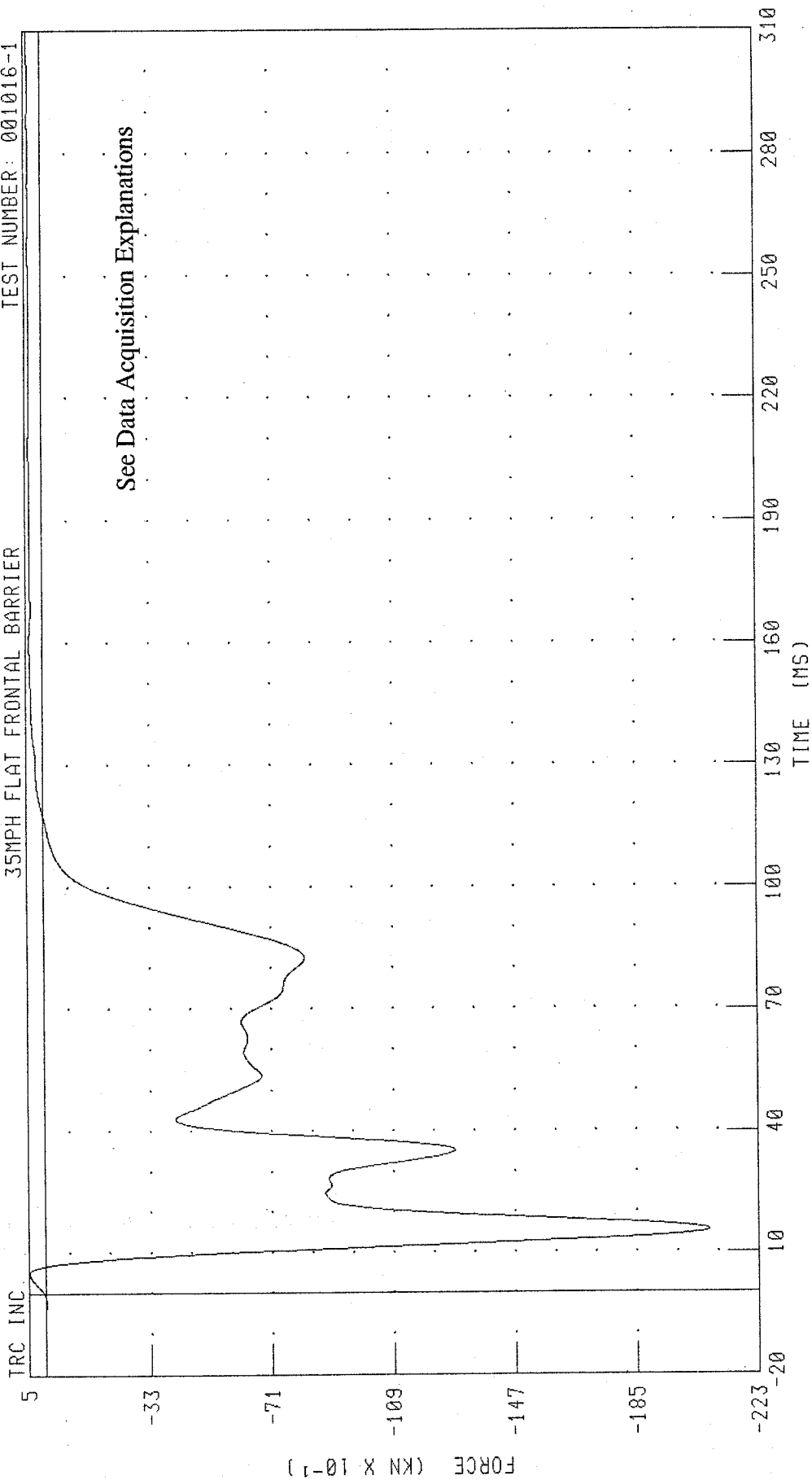


PEAK DATA: 0.37 KN @ 5.44 MS, -32.02 KN @ 44.88 MS

CHANNEL: BC2F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

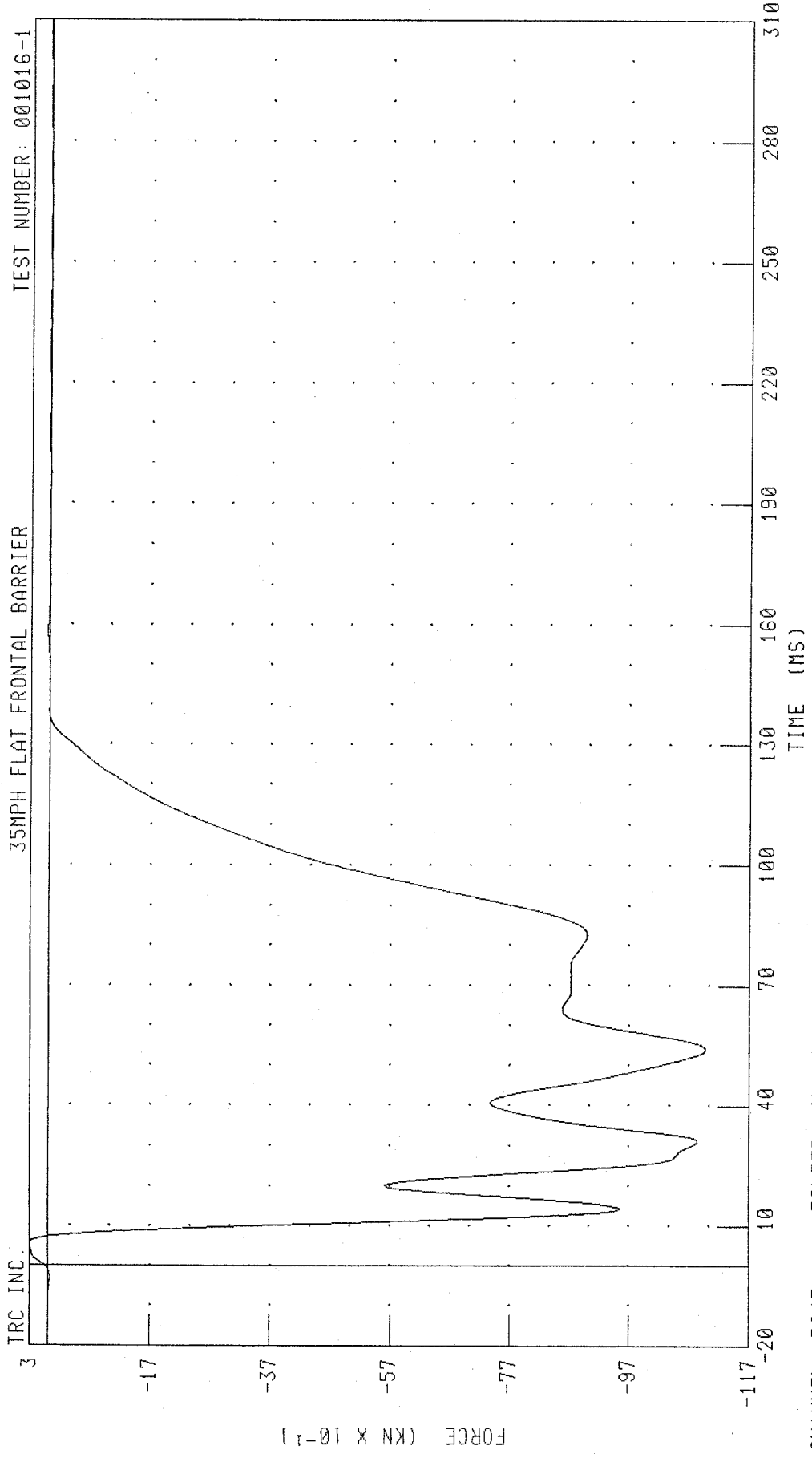


See Data Acquisition Explanations

PEAK DATA: 0.49 KN @ 4.96 MS; -20.77 KN @ 15.44 MS

CHANNEL: BC3F FILTER: CH. CLASS 60

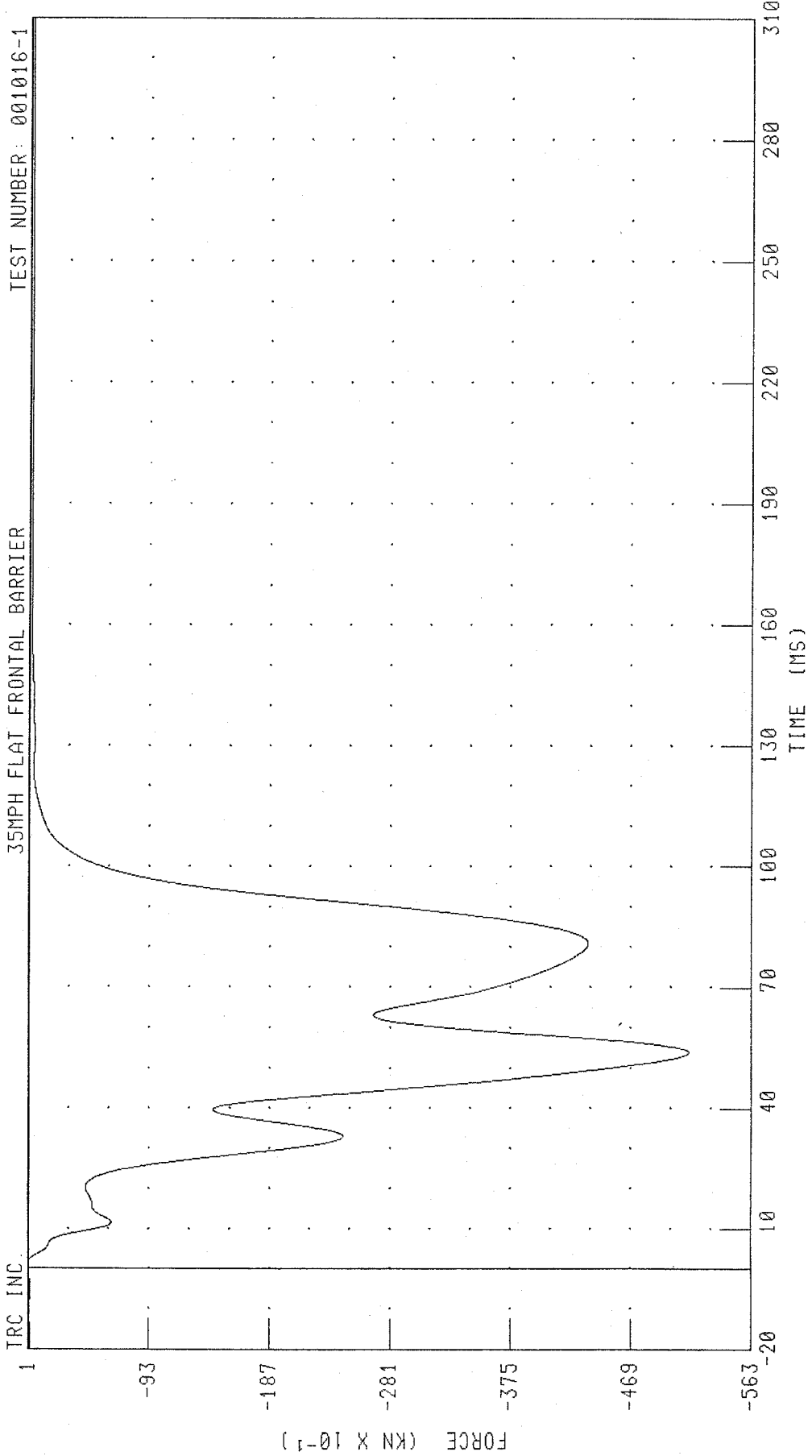
2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE
35MPH FLAT FRONTAL BARRIER



CHANNEL: BC4F FILTER: CH. CLASS 60 PEAK DATA: 0.32 KN @ 5.44 MS, -10.98 KN @ 54.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE
35MPH FLAT FRONTAL BARRIER

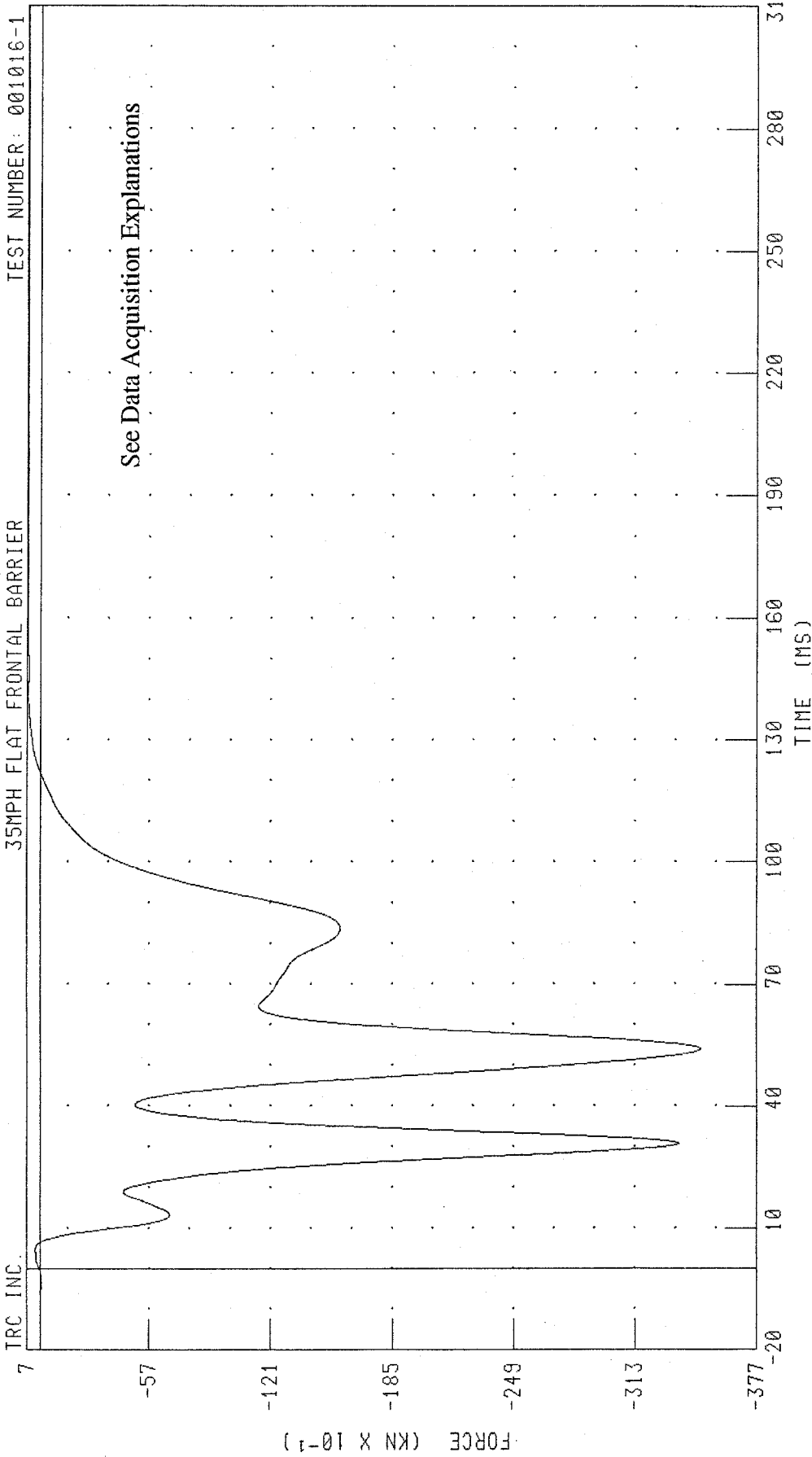
TEST NUMBER: 001016-1



CHANNEL: BC5F FILTER: CH. CLASS 60
PEAK DATA: 0.17 KN @ 0.88 MS; -51.46 KN @ 54.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

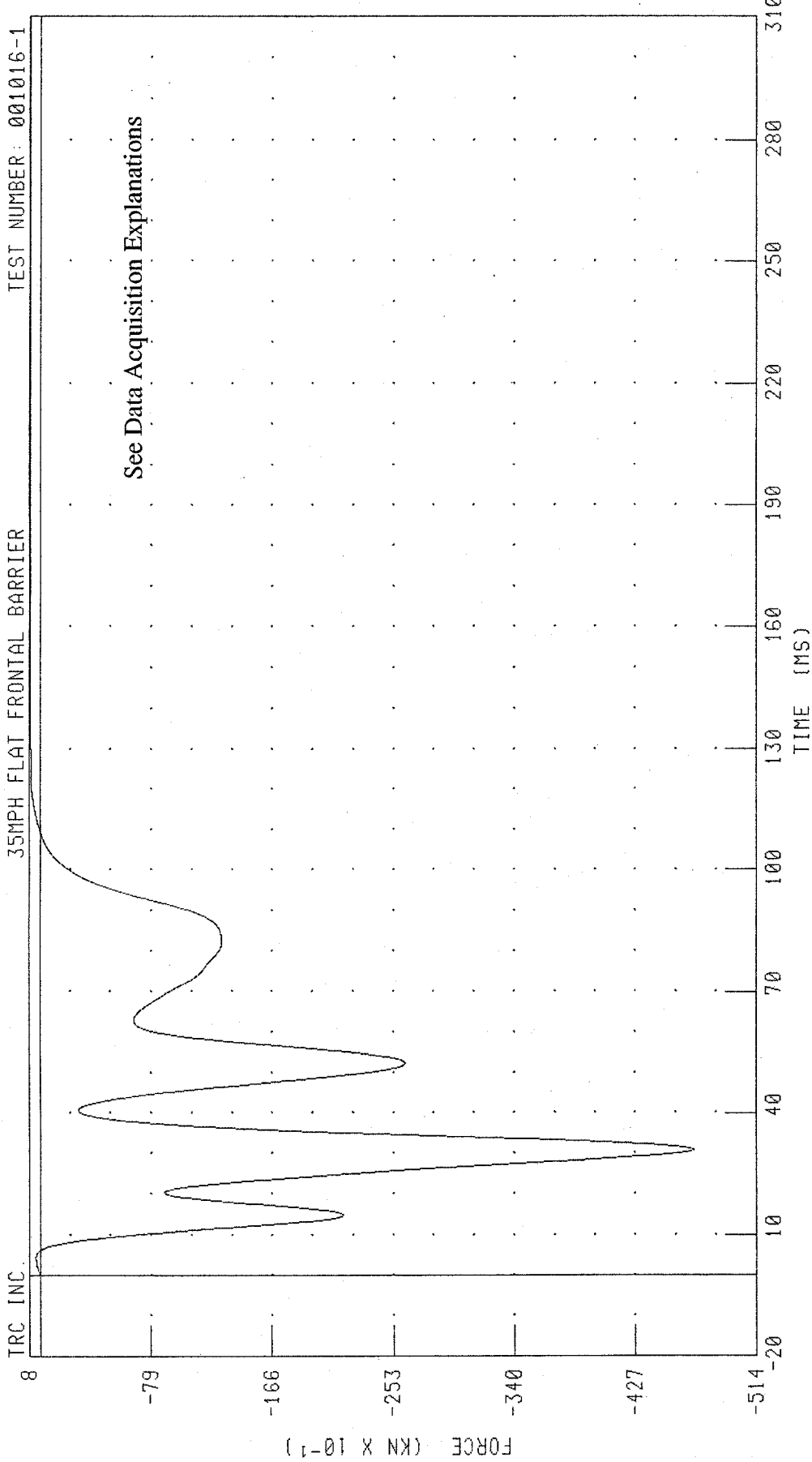


See Data Acquisition Explanations

CHANNEL: BC6F FILTER: CH. CLASS 60
PEAK DATA: 0.67 KN @ 155.76 MS; -34.77 KN @ 54.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



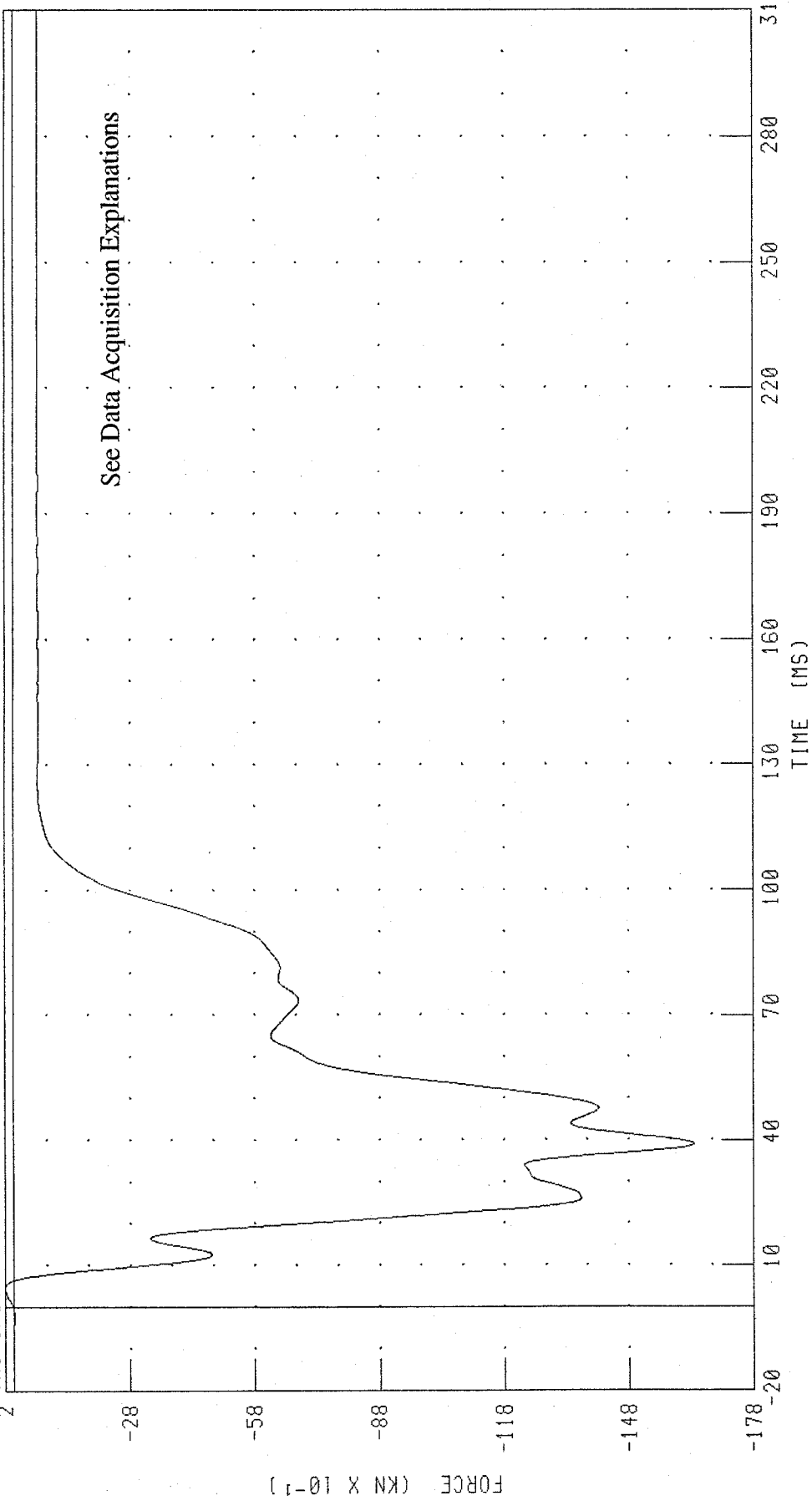
CHANNEL: BC7F FILTER: CH. CLASS 60

PEAK DATA: 0.77 KN @ 156.40 MS; -46.91 KN @ 30.88 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C8 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

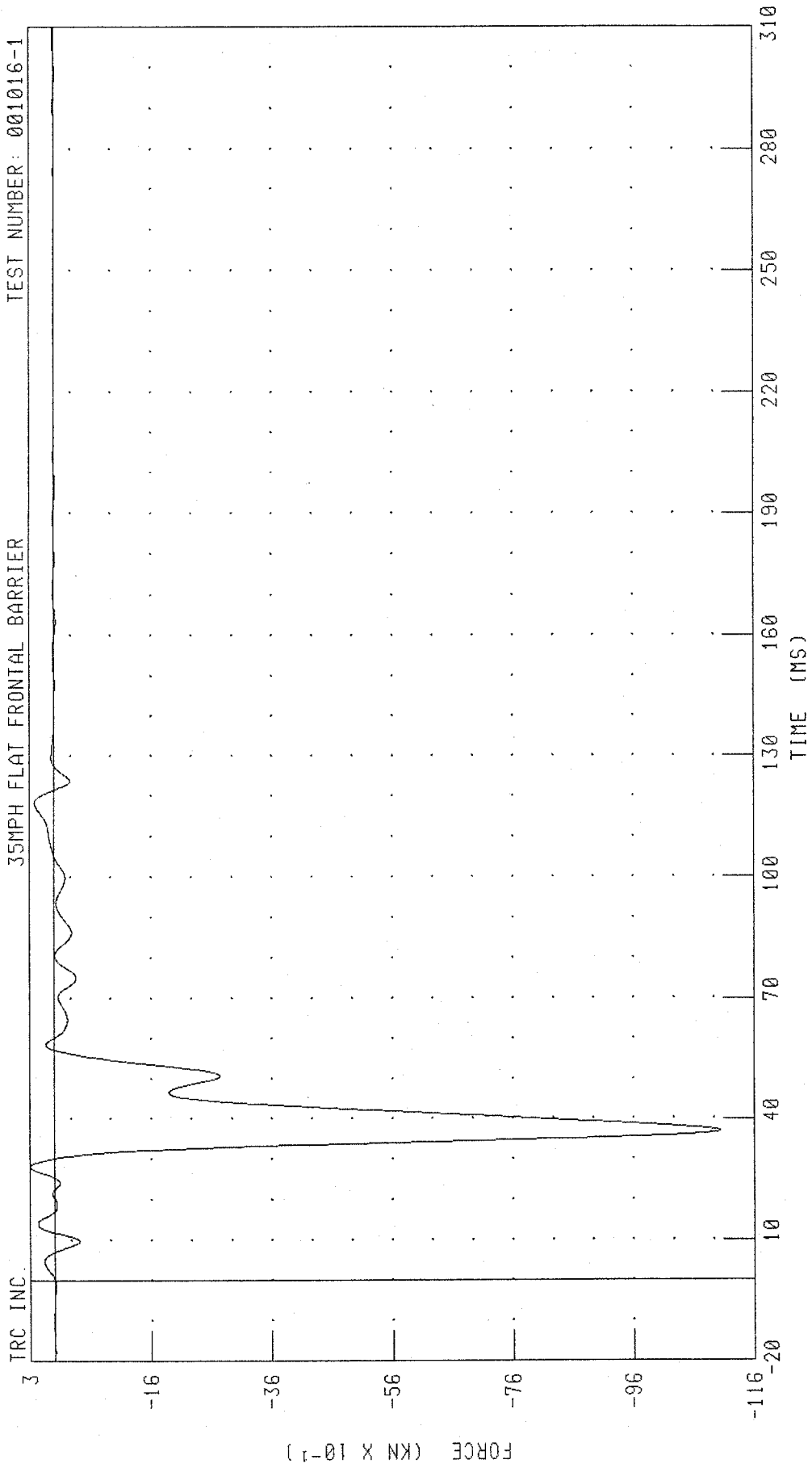
TRC INC.



CHANNEL: BC8F FILTER: CH. CLASS 60 PEAK DATA: 0.21 KN @ 4.48 MS; -16.38 KN @ 39.04 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

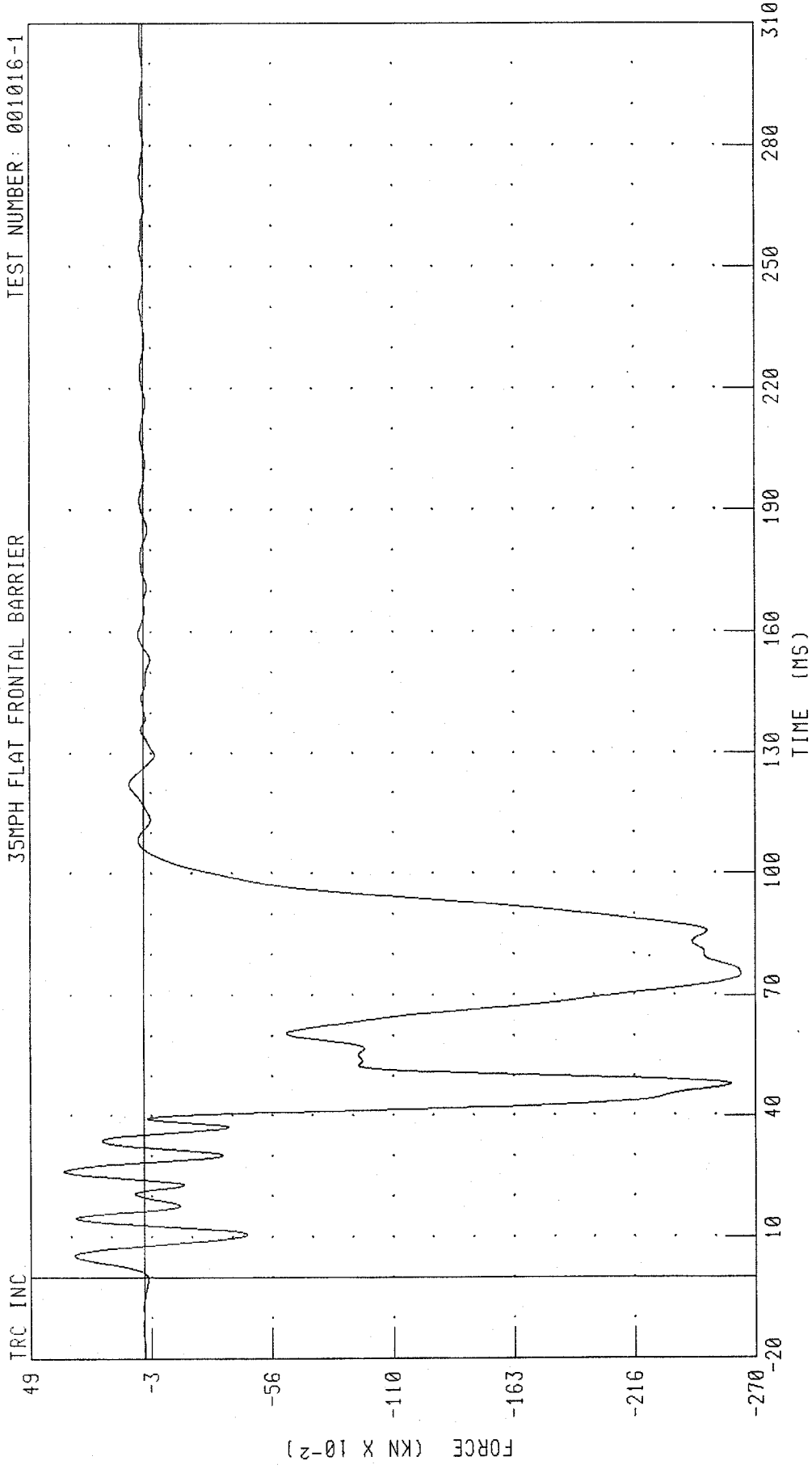


PEAK DATA: 0.41 KN @ 28.16 MS; -11.05 KN @ 36.96 MS

CHANNEL: BC9F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE
35MPH FLAT FRONTAL BARRIER

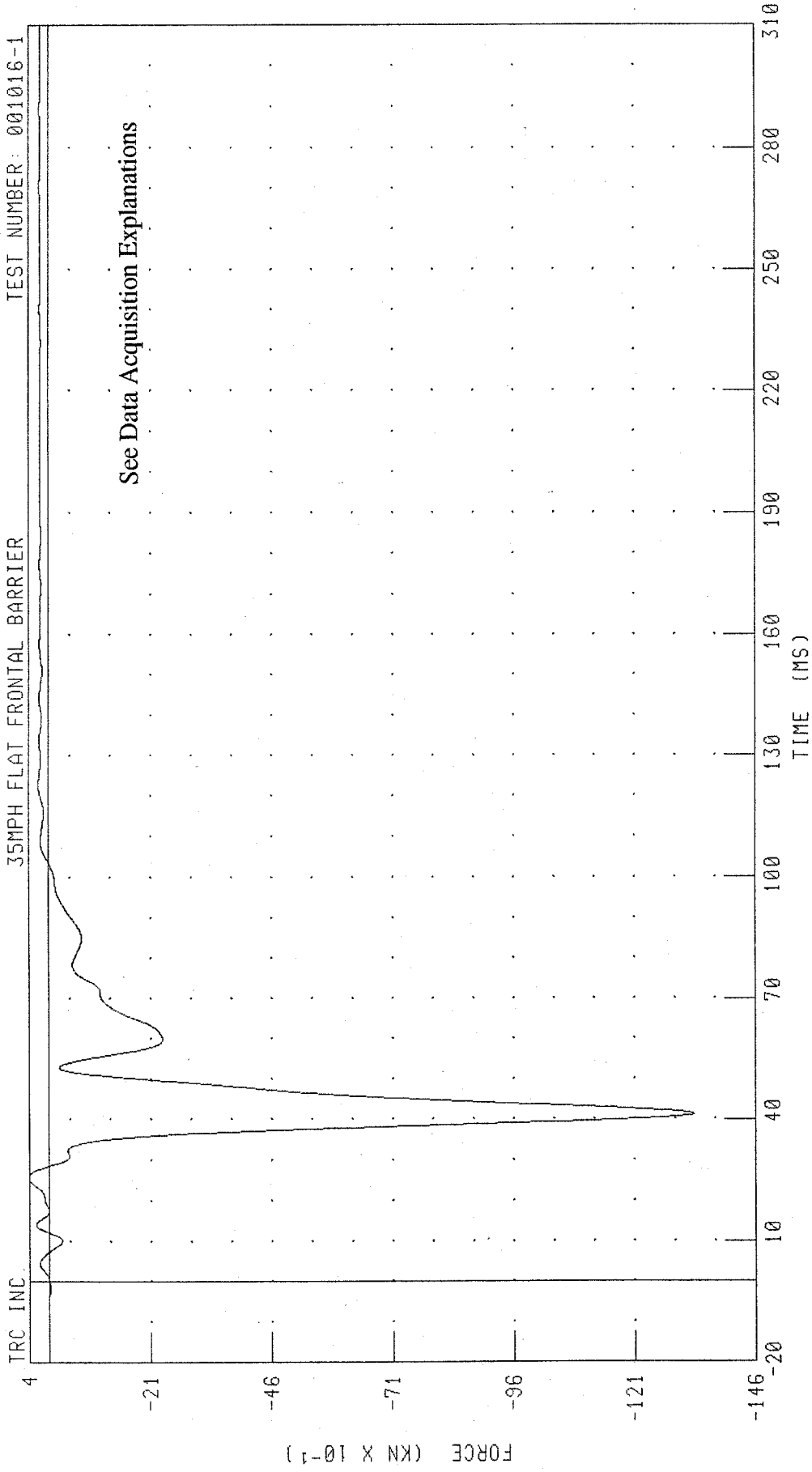
TEST NUMBER: 001016-1



CHANNEL: BD1F FILTER: CH. CLASS 60 PEAK DATA: 0.35 KN @ 26.24 MS; -2.64 KN @ 75.28 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE
35MPH FLAT FRONTAL BARRIER

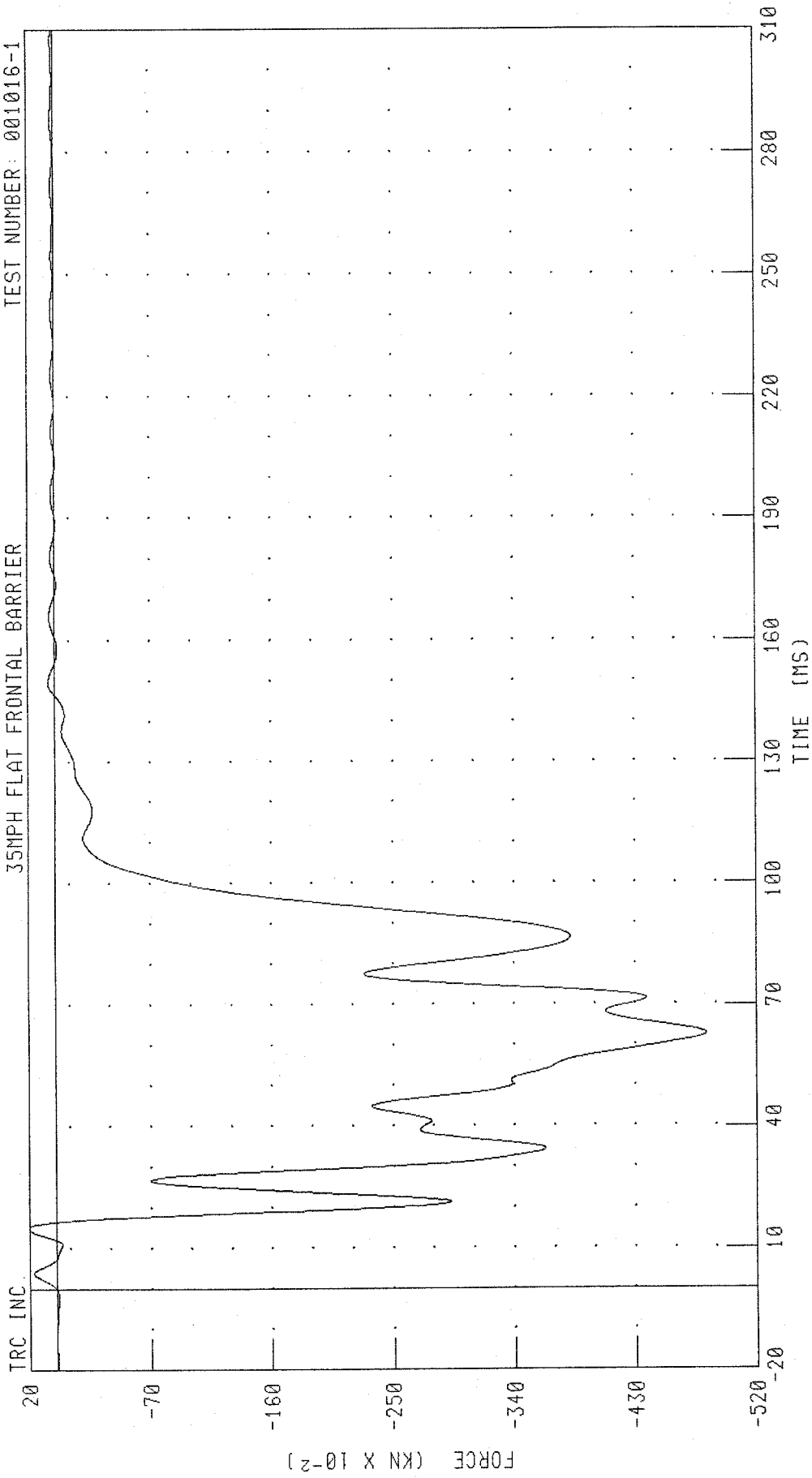
TEST NUMBER: 001016-1



CHANNEL: BD2F FILTER: CH CLASS 60 PEAK DATA: 0.42 KN @ 25.84 MS; -13.32 KN @ 41.28 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

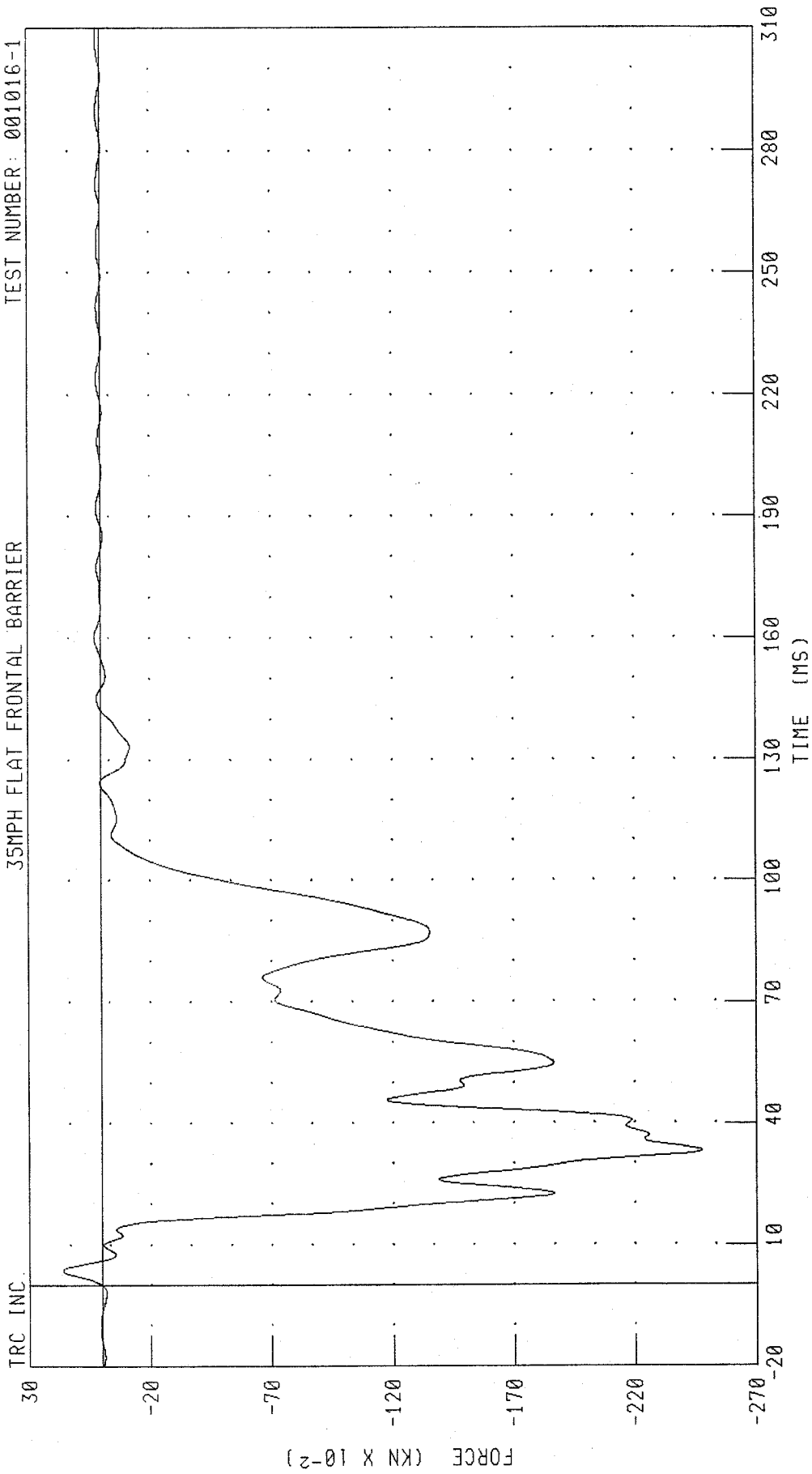


CHANNEL: BD3F FILTER: CH. CLASS 60

PEAK DATA: 0.21 KN @ 15.12 MS; -4.83 KN @ 62.72 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

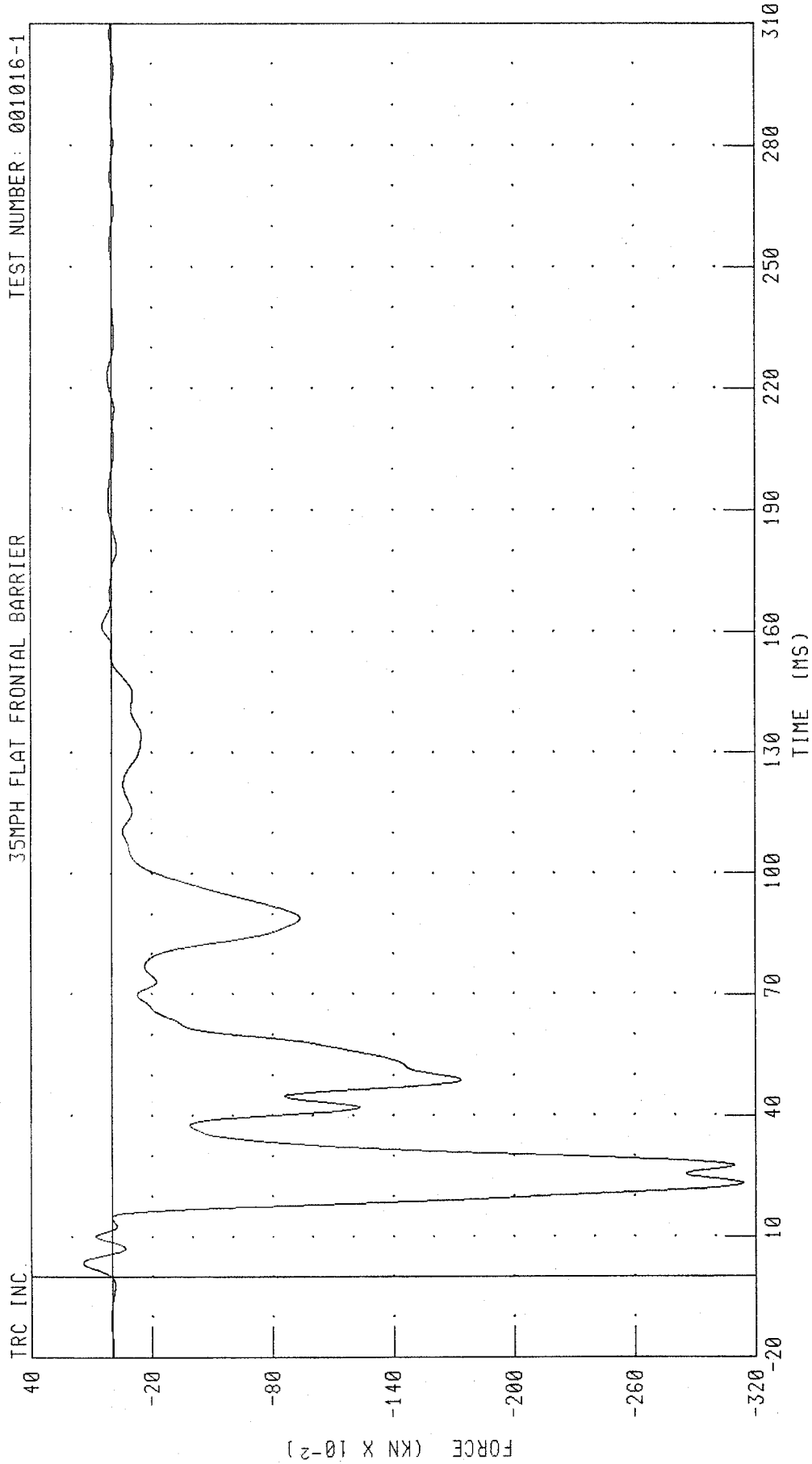


PEAK DATA: 0.16 KN @ 3.68 MS; -2.48 KN @ 33.20 MS

CHANNEL: BD4F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

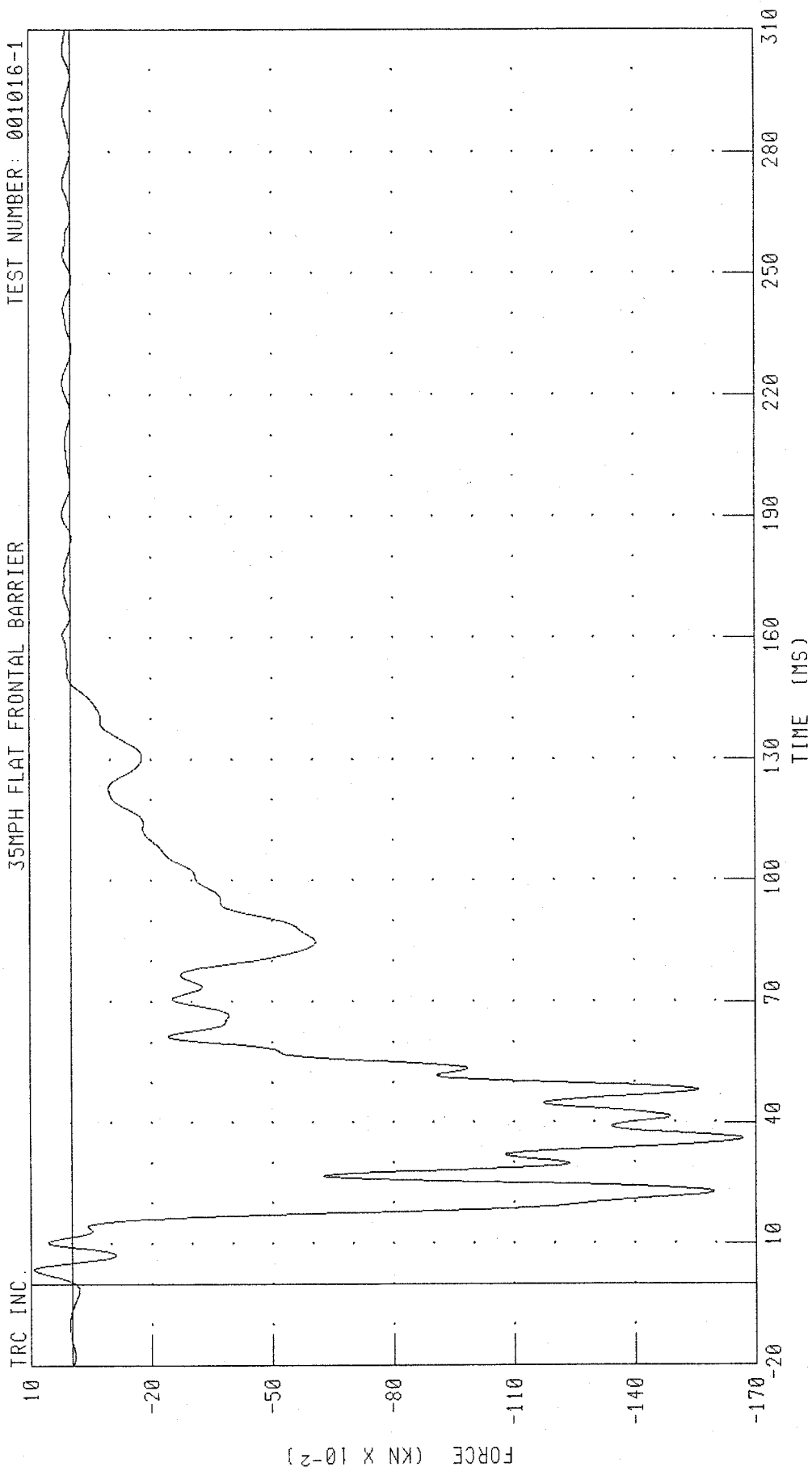


PEAK DATA: 0.14 KN @ 3.44 MS; -3.14 KN @ 23.28 MS

CHANNEL: BD5F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



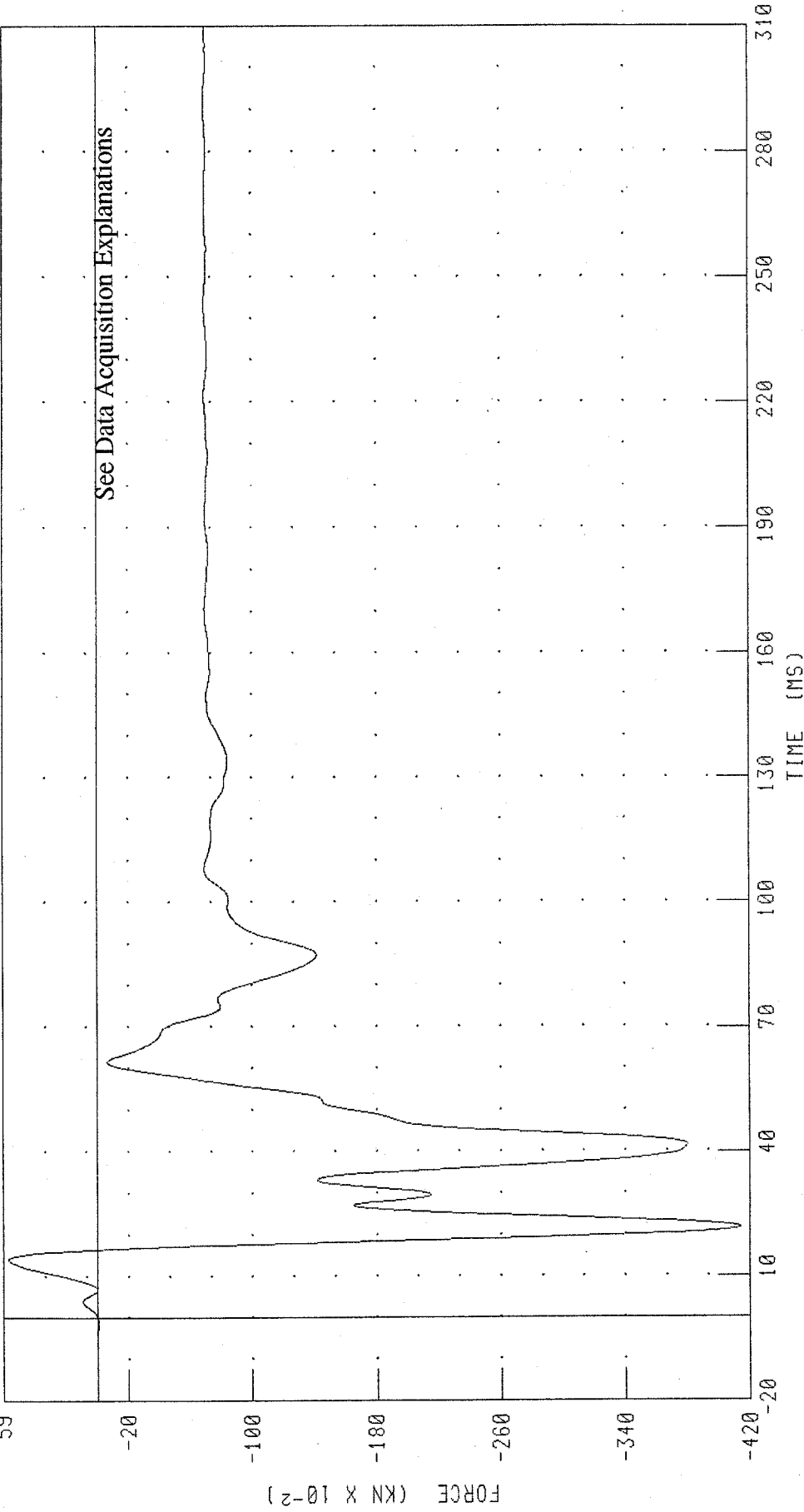
CHANNEL: BD6F FILTER: CH. CLASS 60

PEAK DATA: 0.09 KN @ 3.52 MS; -1.67 KN @ 36.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D7 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

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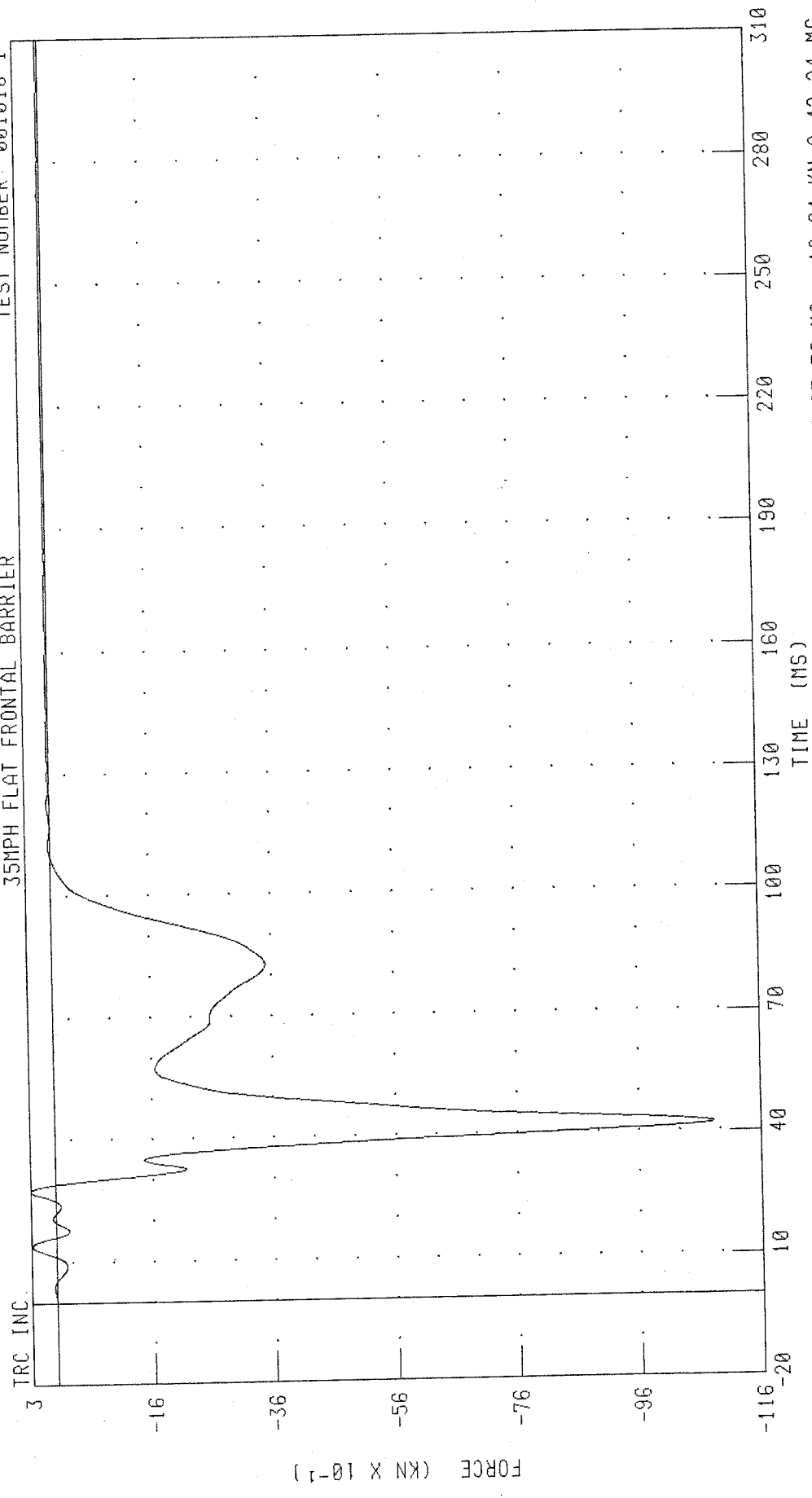


PEAK DATA: 0.57 KN @ 14.16 MS; -4.14 KN @ 21.84 MS

CHANNEL: BD7F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

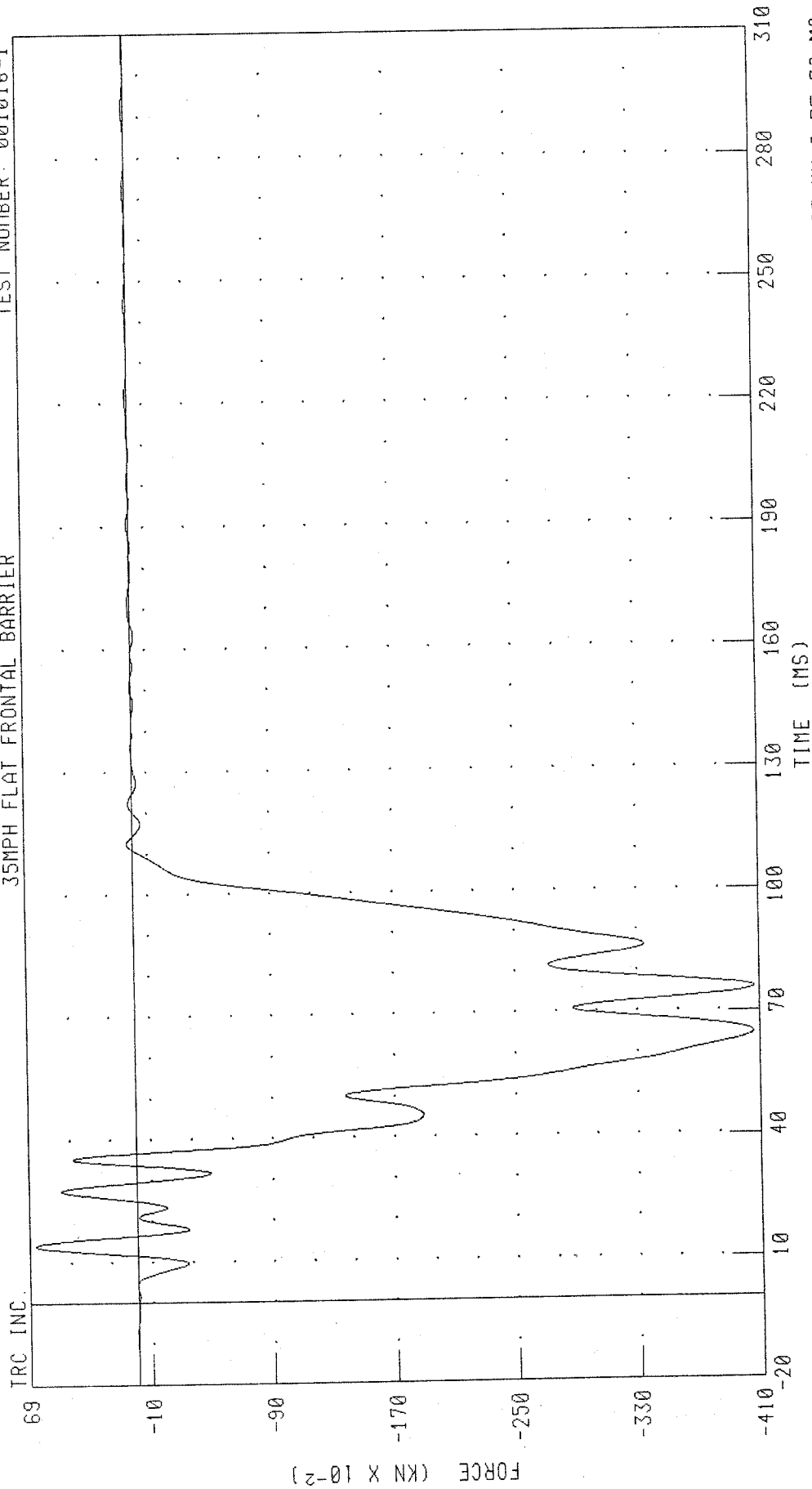


PEAK DATA: 0.42 KN @ 27.52 MS; -10.84 KN @ 42.24 MS

CHANNEL: B08F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

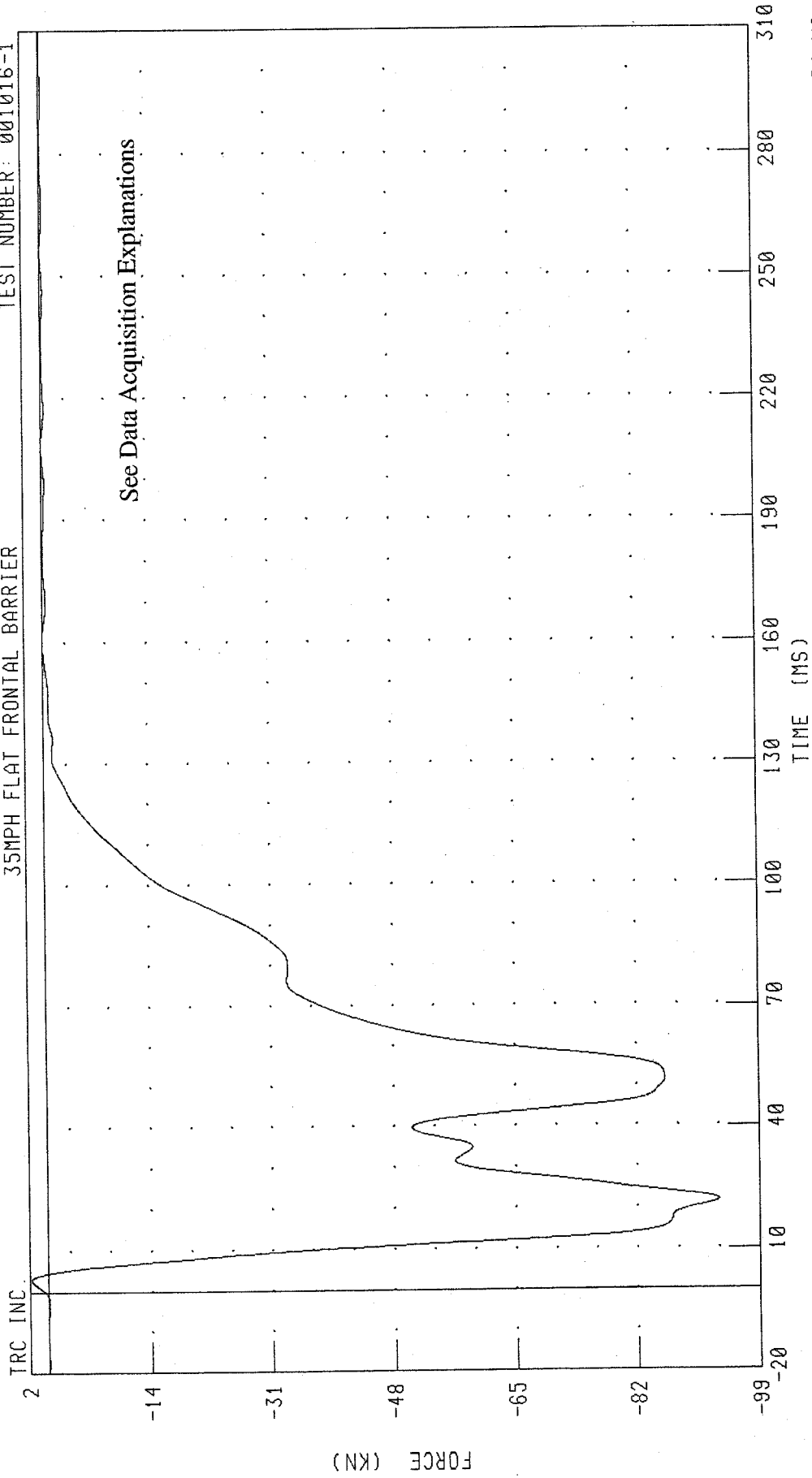


PEAK DATA: 0.66 KN @ 14.16 MS, -4.07 KN @ 75.76 MS

CHANNEL: BD9F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1

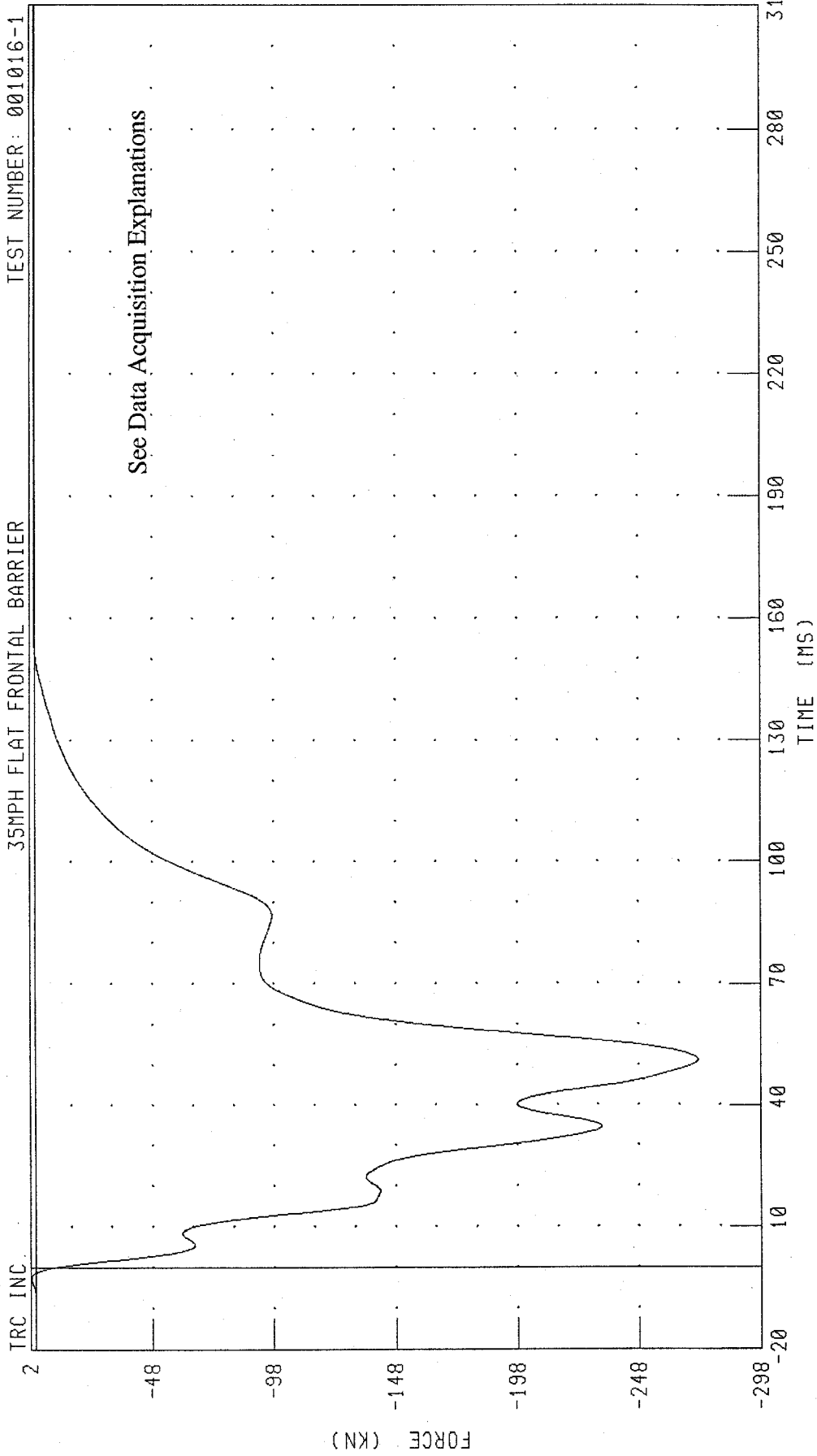


PEAK DATA: 2.39 KN @ 3.04 MS; -93.78 KN @ 21.84 MS

CHANNEL: LCBG1F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
35MPH FLAT FRONTAL BARRIER

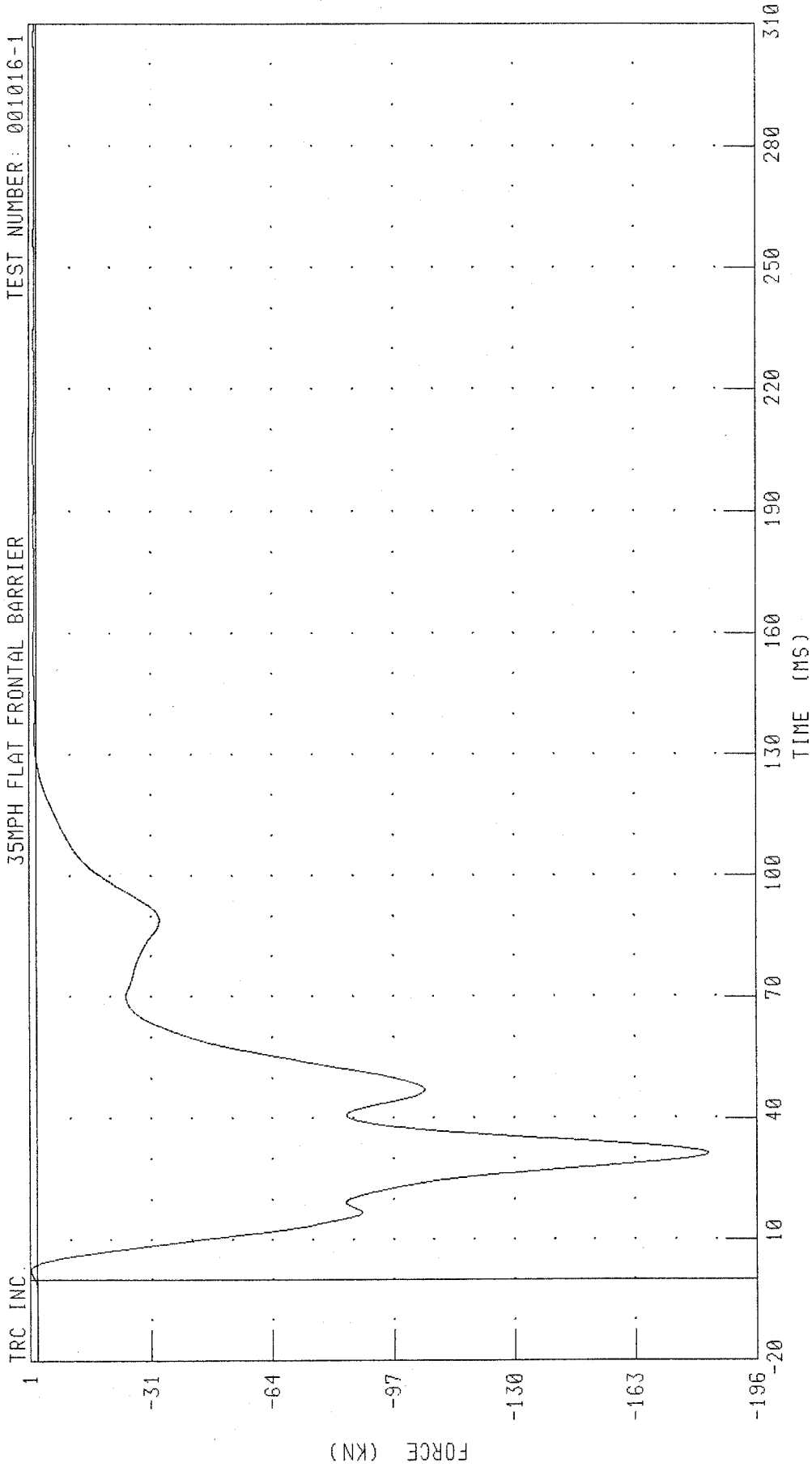
TEST NUMBER: 001016-1



CHANNEL: LCB02F FILTER: CH. CLASS 60
PEAK DATA: 1.86 KN @ -2.64 MS; -272.46 KN @ 51.28 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



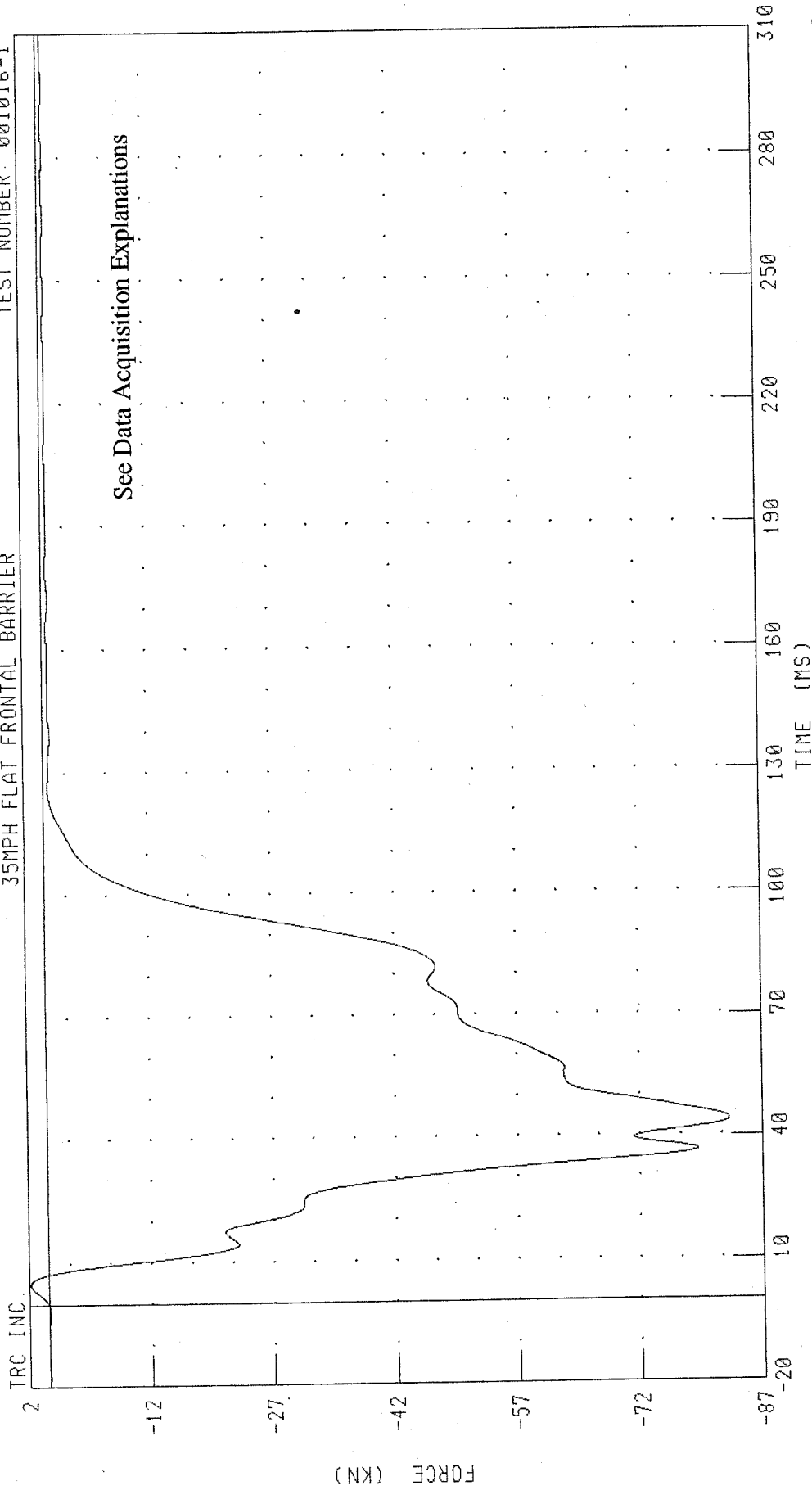
TRC INC

CHANNEL: LCBG3F FILTER: CH. CLASS 60

PEAK DATA: 1.79 KN @ 2.24 MS; -182.96 KN @ 31.36 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL
35MPH FLAT FRONTAL BARRIER

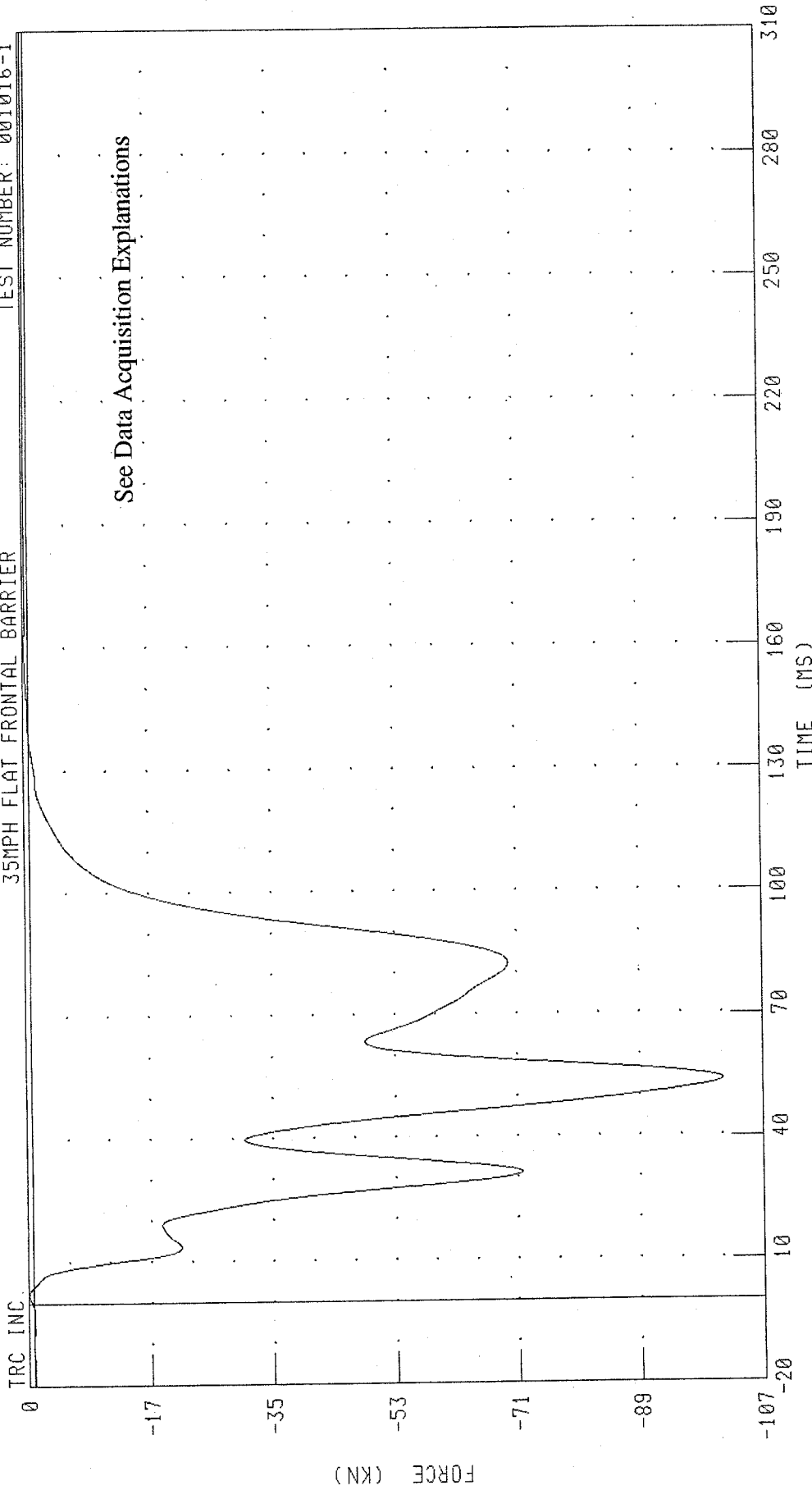
TEST NUMBER: 001016-1



TRC INC. CHANNEL: LCBC4F FILTER: CH. CLASS 60
PEAK DATA: 2.24 KN @ 5.04 MS; -83.61 KN @ 44.00 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



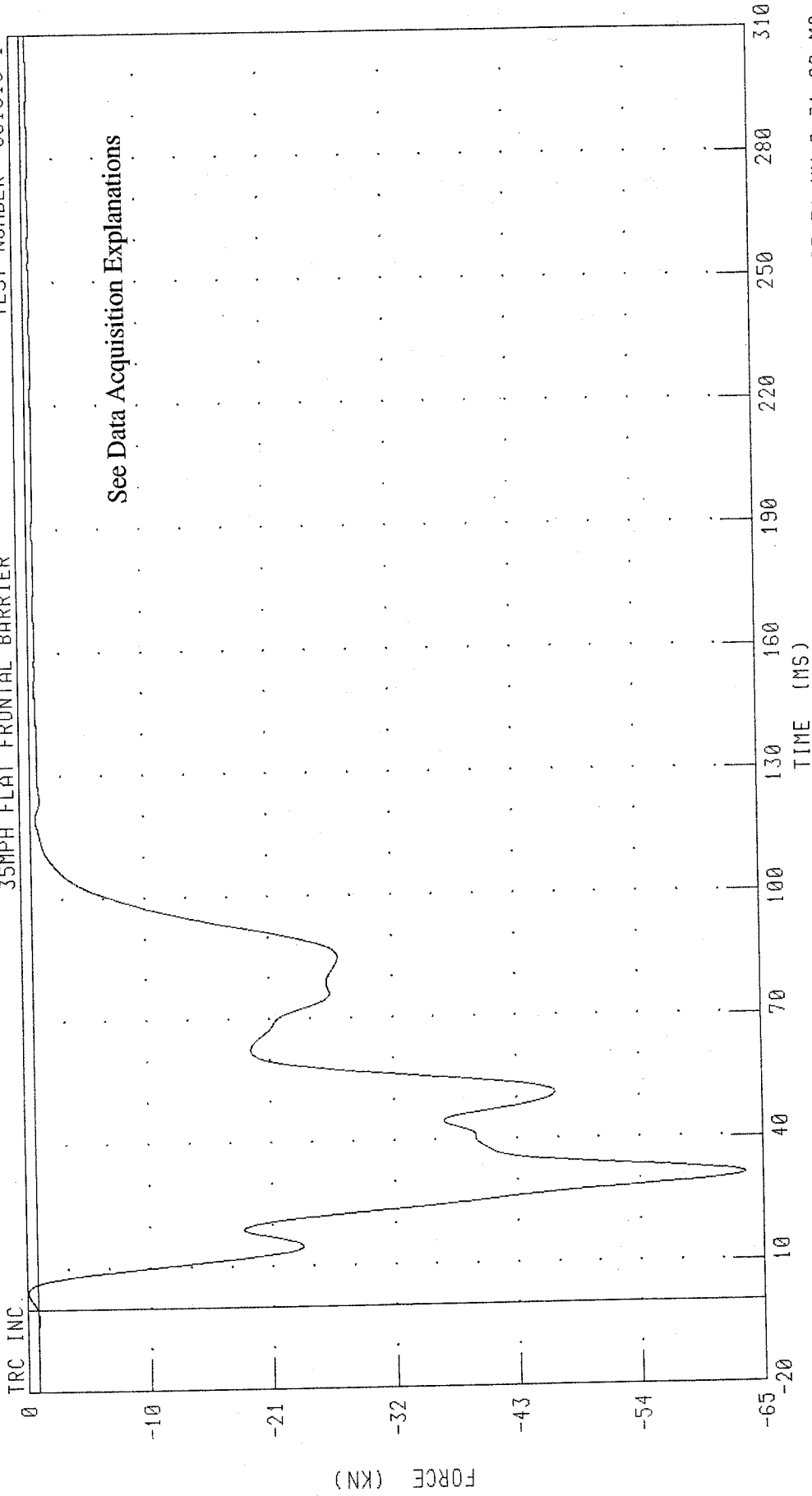
See Data Acquisition Explanations

PEAK DATA: 0.75 KN @ 2.08 MS; -101.41 KN @ 54.00 MS

CHANNEL: LCBC5F FILTER: CH. CLASS 60

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



See Data Acquisition Explanations

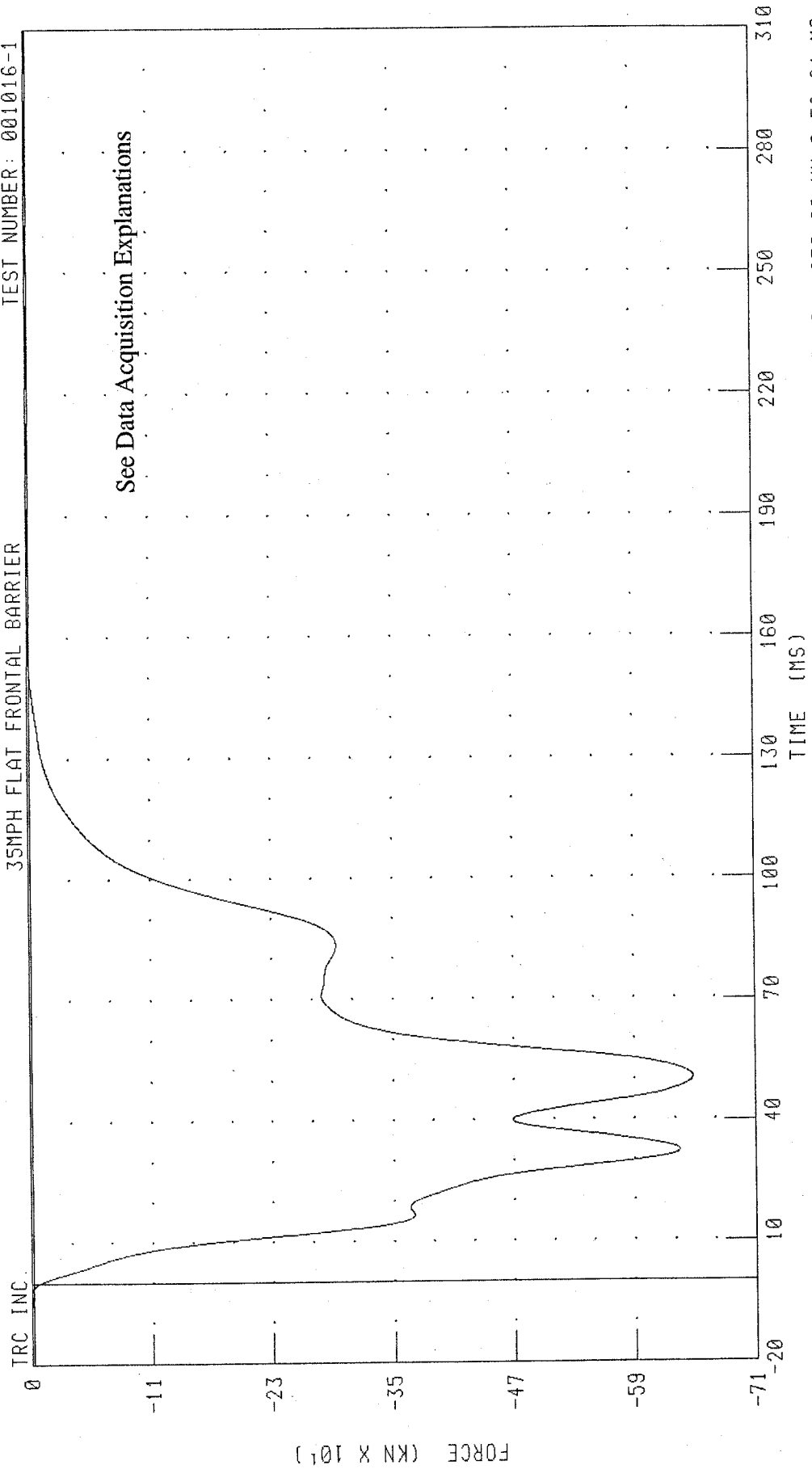
PEAK DATA: 0.83 KN @ 4.24 MS, -63.51 KN @ 31.20 MS

CHANNEL: LCBC66F FILTER: CH. CLASS 60

001016

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



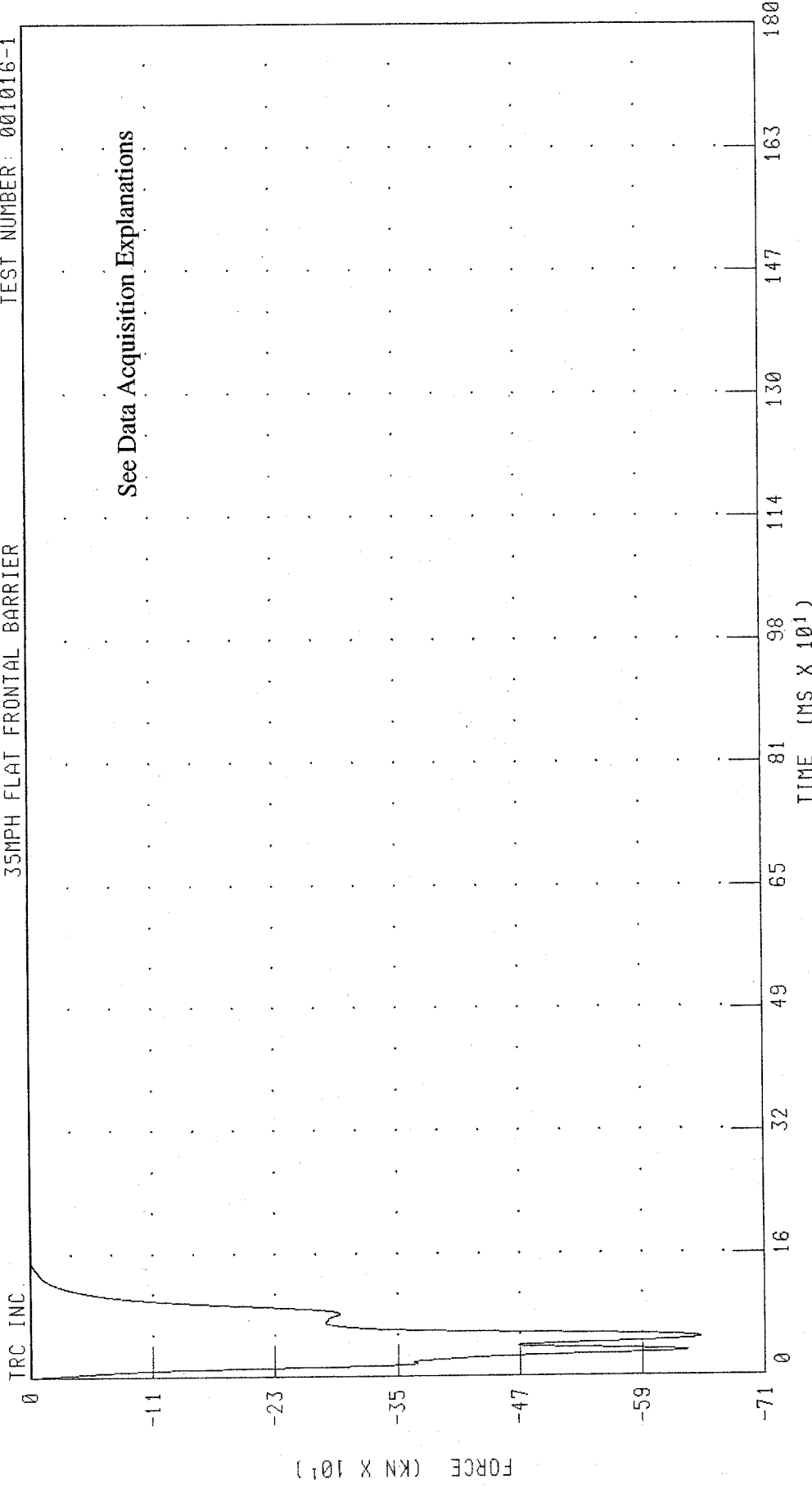
See Data Acquisition Explanations

CHANNEL: LCBCT FILTER: CH. CLASS 60

PEAK DATA: 1.31 KN @ -2.56 MS; -656.60 KN @ 50.64 MS

2001 NISSAN QUEST INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT
35MPH FLAT FRONTAL BARRIER

TEST NUMBER: 001016-1



See Data Acquisition Explanations

CHANNEL: LCBGT FILTER: CH. CLASS 60
PEAK DATA: 0.75 KN @ 158.08 MS; -656.60 KN @ 50.64 MS

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

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13-10-00

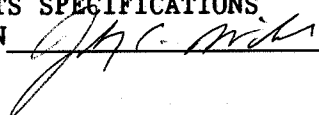
TRC INC. TEST NO: 192C42ED1 572F SN192 EXT.DIMENTION CAL42

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	991. MM
WAIST CIRCUMFERENCE (Z)	836 - 866 MM	843. MM
CHEST DEPTH (O)	213 - 229 MM	226. 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	886. MM
THIGH CLEARANCE (F)	140 - 155 MM	150. MM
BUTTOCK KNEE LENGTH (K)	579 - 605 MM	587. MM
BUTTOCK POPLITEAL LENGTH (N)	452 - 478 MM	475. MM
POPLITEAL HEIGHT (L)	429 - 455 MM	437. MM
KNEE PIVOT HEIGHT (M)	485 - 500 MM	485. MM
FOOT LENGTH (P)	252 - 267 MM	254. MM
FOOT BREADTH (W)	91 - 107 MM	102. MM
SHOULDER PIVOT FROM BACKLINE (E)	84 - 94 MM	89. MM
SHOULDER BREADTH (V)	422 - 437 MM	434. MM
SHOULDER PIVOT HEIGHT (B)	506 - 521 MM	511. MM
ELBOW REST HEIGHT (J)	191 - 211 MM	203. MM
SHOULDER-ELBOW LENGTH (I)	330 - 345 MM	338. MM
BACK OF ELBOW TO WRIST PIVOT (G)	290 - 305 MM	297. MM

572F SN192 EXT.DIMENTIO CAL42

DUMMY MEETS SPEGIFICATIONS

TECHNICIAN



RUN NUMBER: 101300.1642

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 50th

11-OCT-00

TRC INC.

TEST NO: 192C42HD1

572E SN192 HEAD DROP CAL 42

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	234.09 G
PEAK LATERAL ACCELERATION	15 G MAX	5.57 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

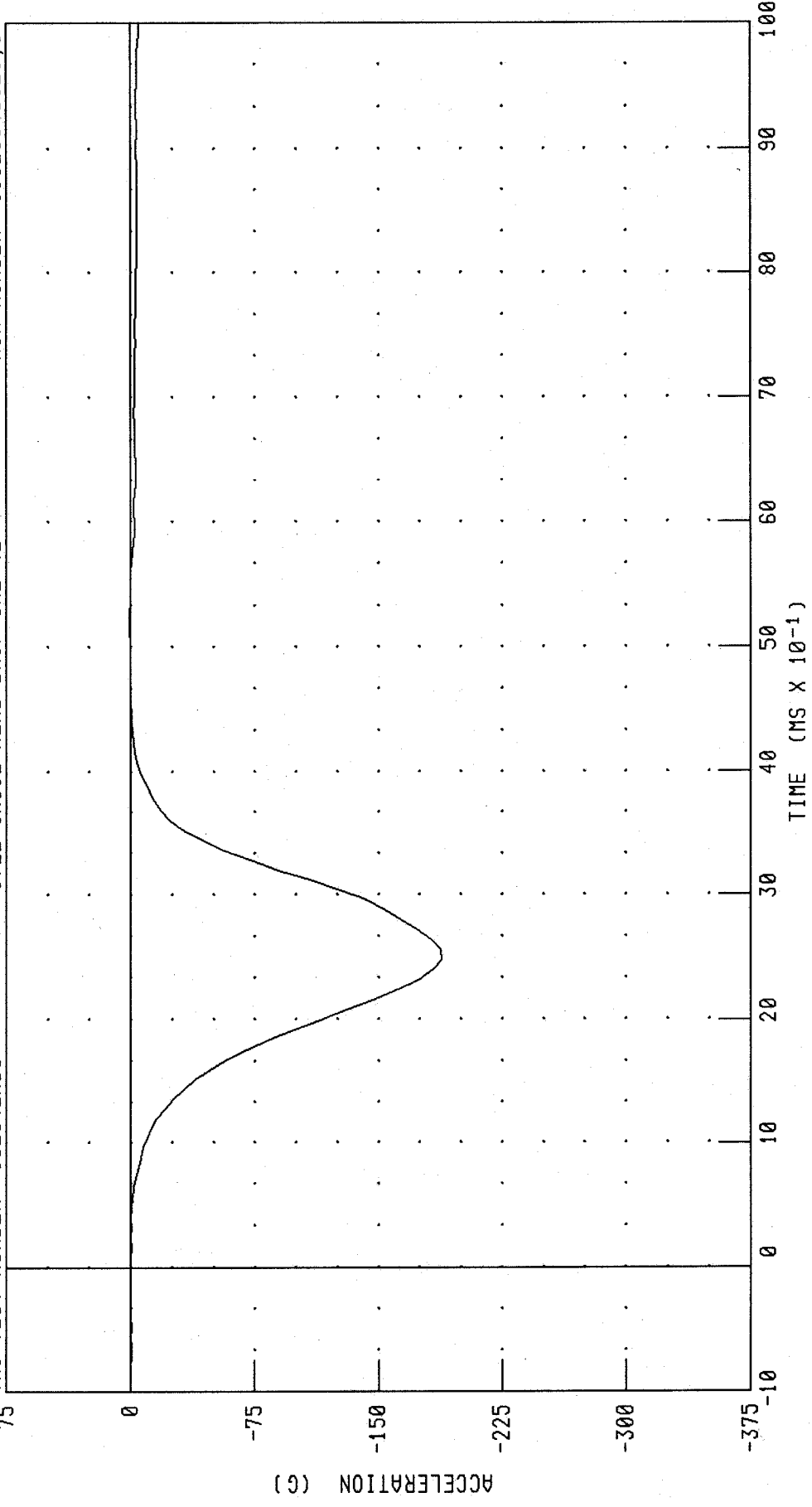
TECHNICIAN

Dustin Walker

RUN NUMBER: 101200.0827;2

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION X AXIS
572E SN192 HEAD DROP CAL 42

TRC TEST NUMBER: 192C42HD1
RUN NUMBER: 101200.0828,3



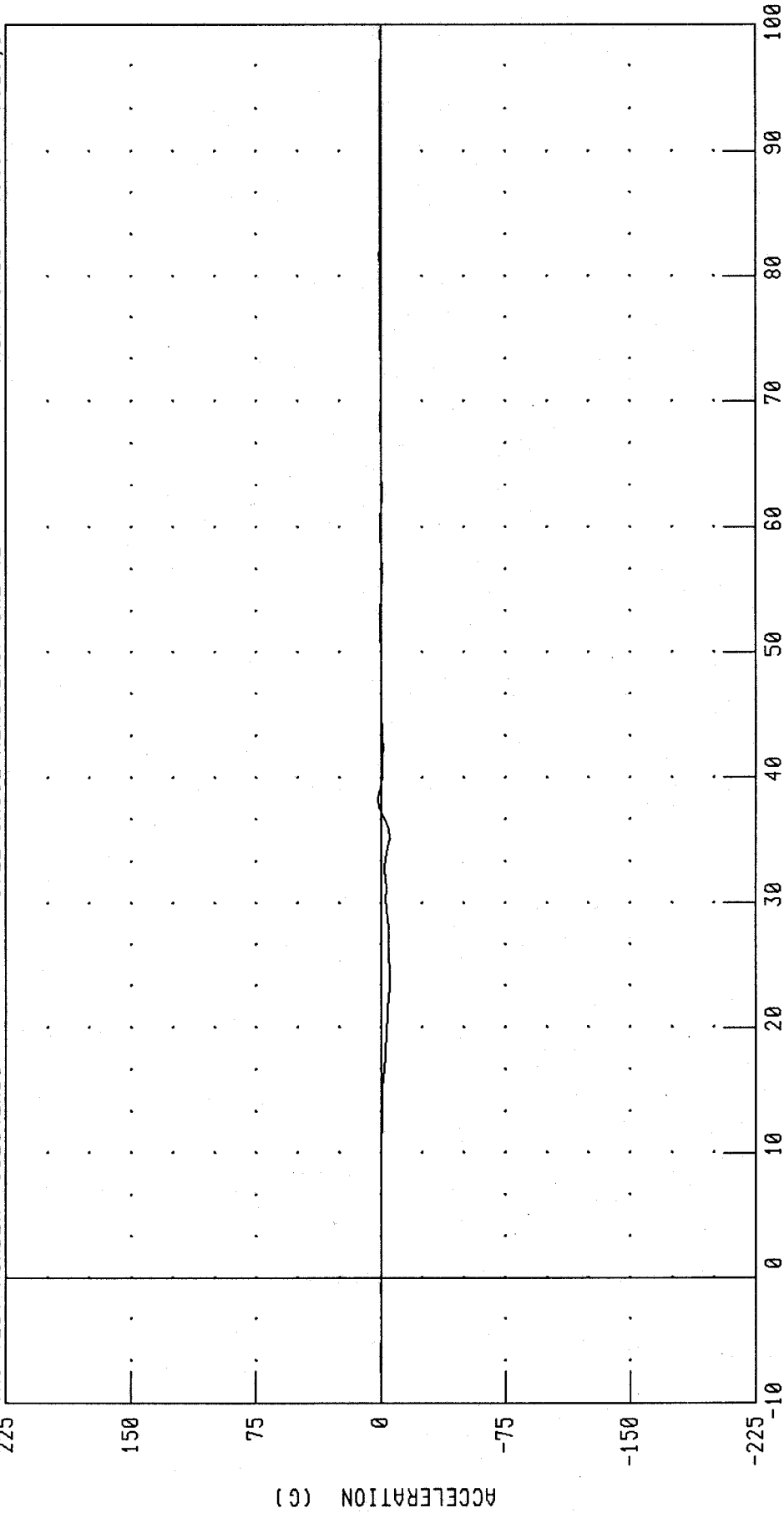
CHANNEL: HEDXG FILTER: CH. CLASS 1000
PEAK DATA: 0.61 G @ 5.28 MS; -188.30 G @ 2.48 MS

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

TRC TEST NUMBER: 192C42HD1

572E SN192 HEAD DROP CAL 42

RUN NUMBER: 101200.0828,3



CHANNEL: HEDYG FILTER: CH. CLASS 1000 PEAK DATA: 1.43 G @ 3.84 MS; -5.57 G @ 2.40 MS

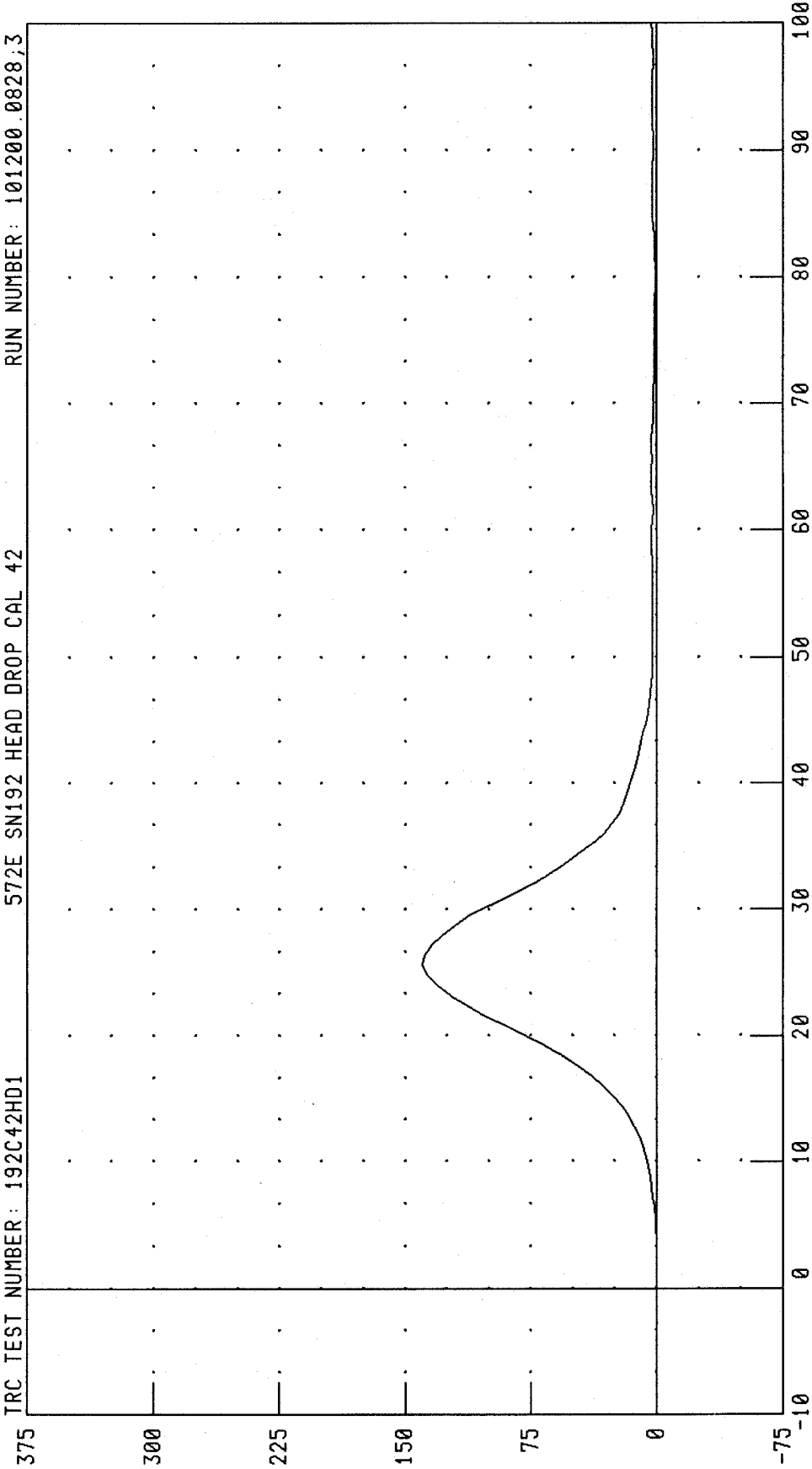
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Z AXIS

572E SN192 HEAD DROP CAL 42

RUN NUMBER: 101200.0828,3

TRC TEST NUMBER: 192C42HD1



ACCELERATION (G)

TIME (MS X 10⁻¹)

CHANNEL: HEDZG FILTER: CH. CLASS 1000 PEAK DATA: 139.64 G @ 2.56 MS; -0.02 G @ -0.88 MS

PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN192 HEAD DROP CAL 42

RUN NUMBER: 101200.0828,3

TRC TEST NUMBER: 192C42HD1

375

300

225

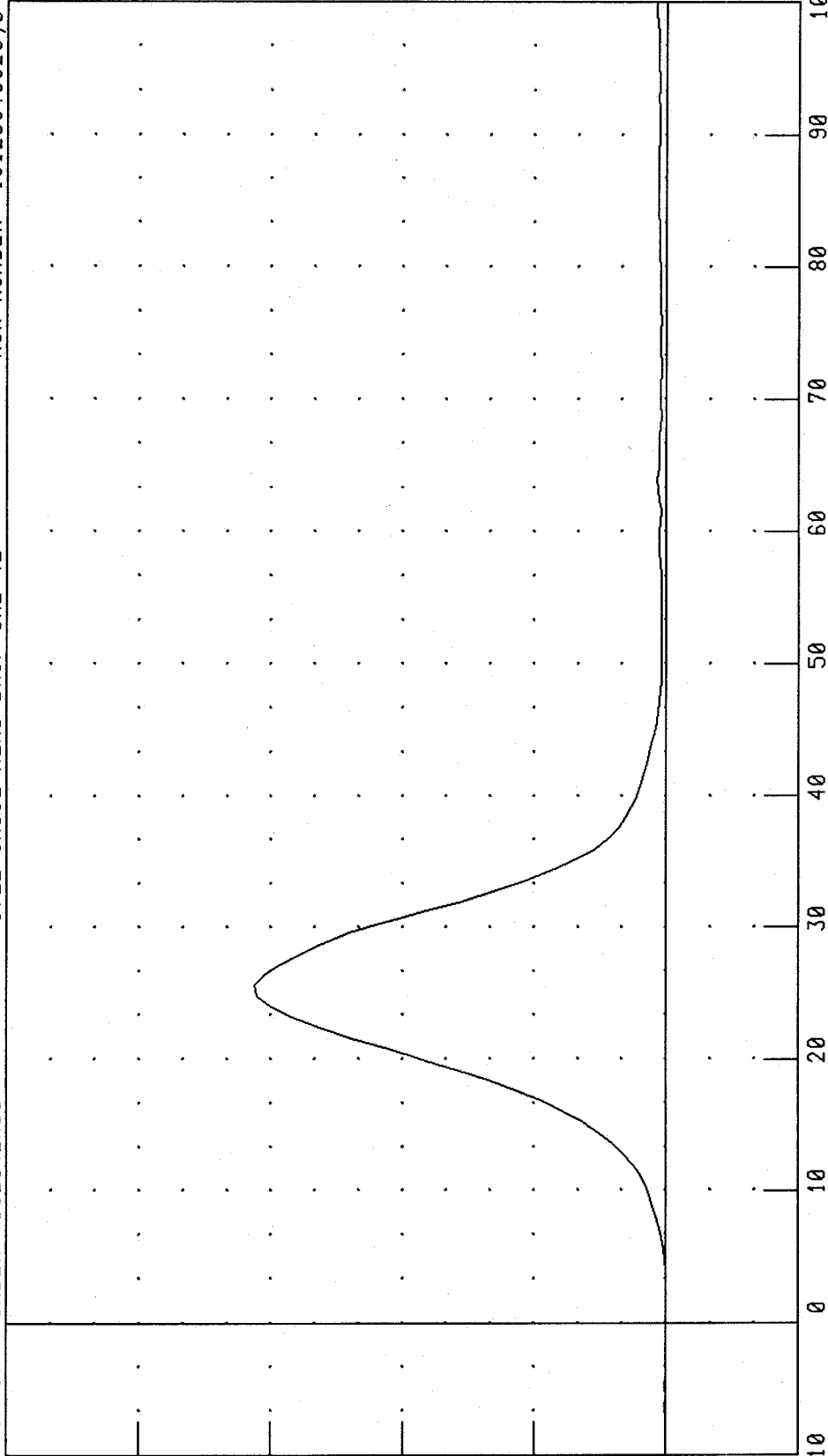
150

75

0

-75

ACCELERATION (G)



TIME (MS X 10⁻¹)

PEAK DATA: 234.10 G @ 2.56 MS; 0.06 G @ -0.80 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

12-OCT-00

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 192C42NF2 572E SN192 NECK FLEXION CAL42

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	7.12 M/S
PENDULUM	10 MS 22.50 - 27.50 G	22.86 G
DECELERATION	20 MS 17.60 - 22.60 G	21.84 G
	30 MS 12.50 - 18.50 G	18.00 G
MAX PENDULUM G	29 G MAX	23.54 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	17.93 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	38.48 MS
D PLANE	MAX 64 - 78 DEG.	69.13 DEG.
ROTATION	TIME 57 - 64 MS	57.68 MS
MOMENT ABOUT OCCIPITAL	MAX 88.2 - 108.5 NM	102.61 NM
CONDYLE	TIME 47 - 58 MS	50.32 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	113.28 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	98.32 MS

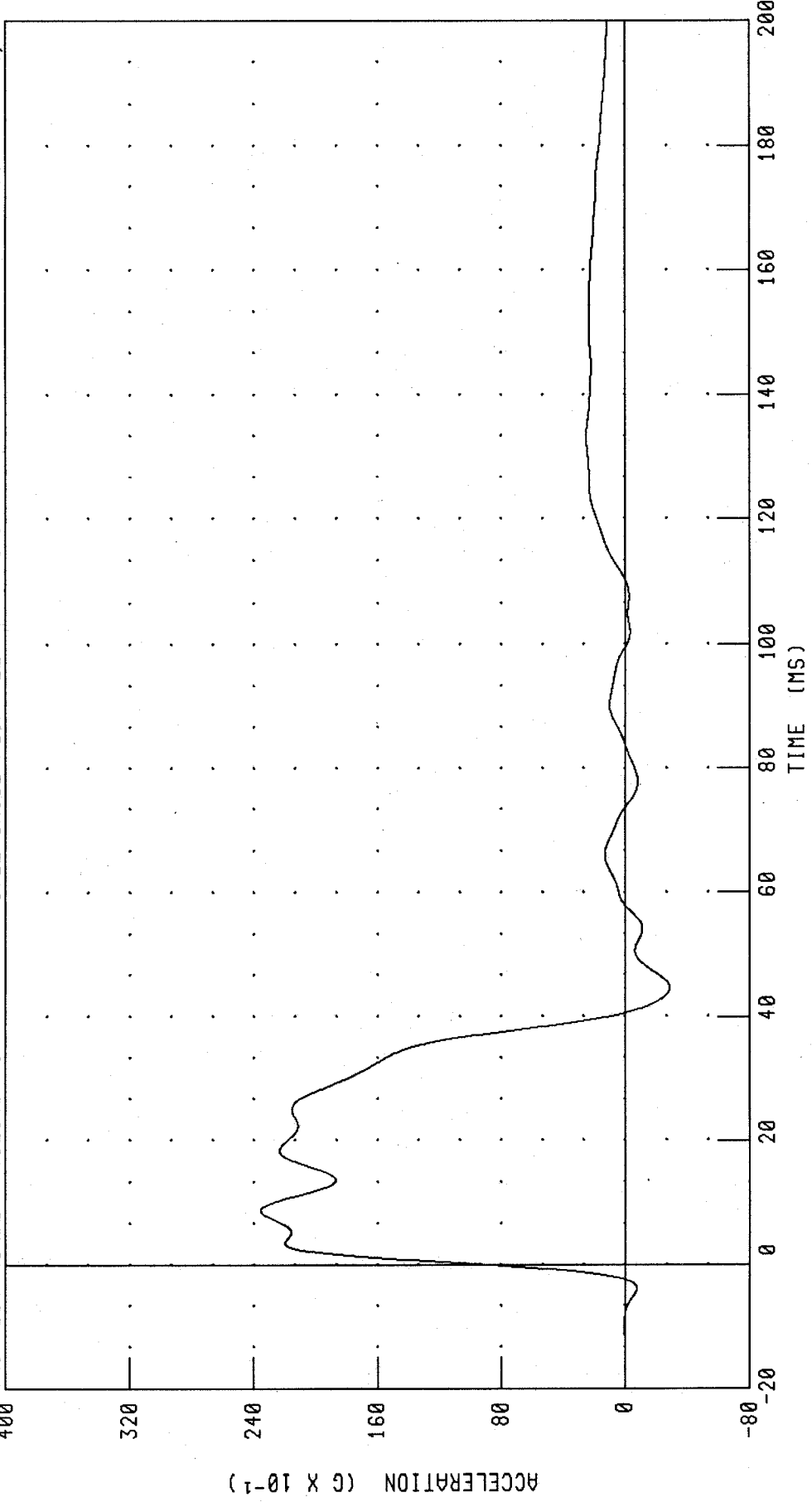
TEST MEETS SPECIFICATIONS

TECHNICIAN Dustin Walker

RUN NUMBER: 101200.1120;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C42NF2 572E SN192 NECK FLEXION CAL42 RUN NUMBER: 101200.1120;1



CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 23.55 G @ 8.80 MS; -2.88 G @ 44.56 MS

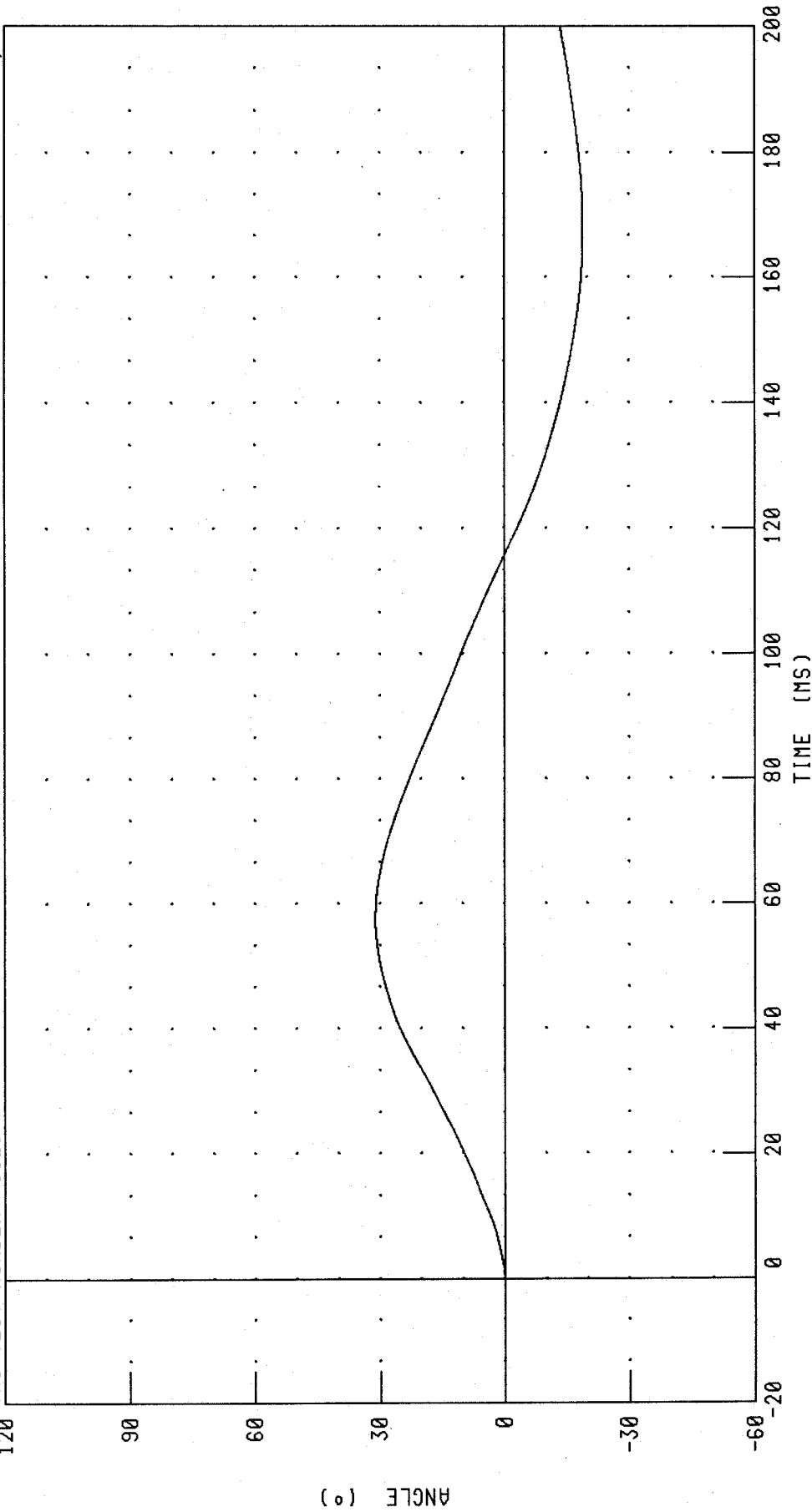
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C42NF2

572E SN192 NECK FLEXION CAL42

RUN NUMBER: 101200.1120;1



CHANNEL: BETA FILTER: CH. CLASS 60

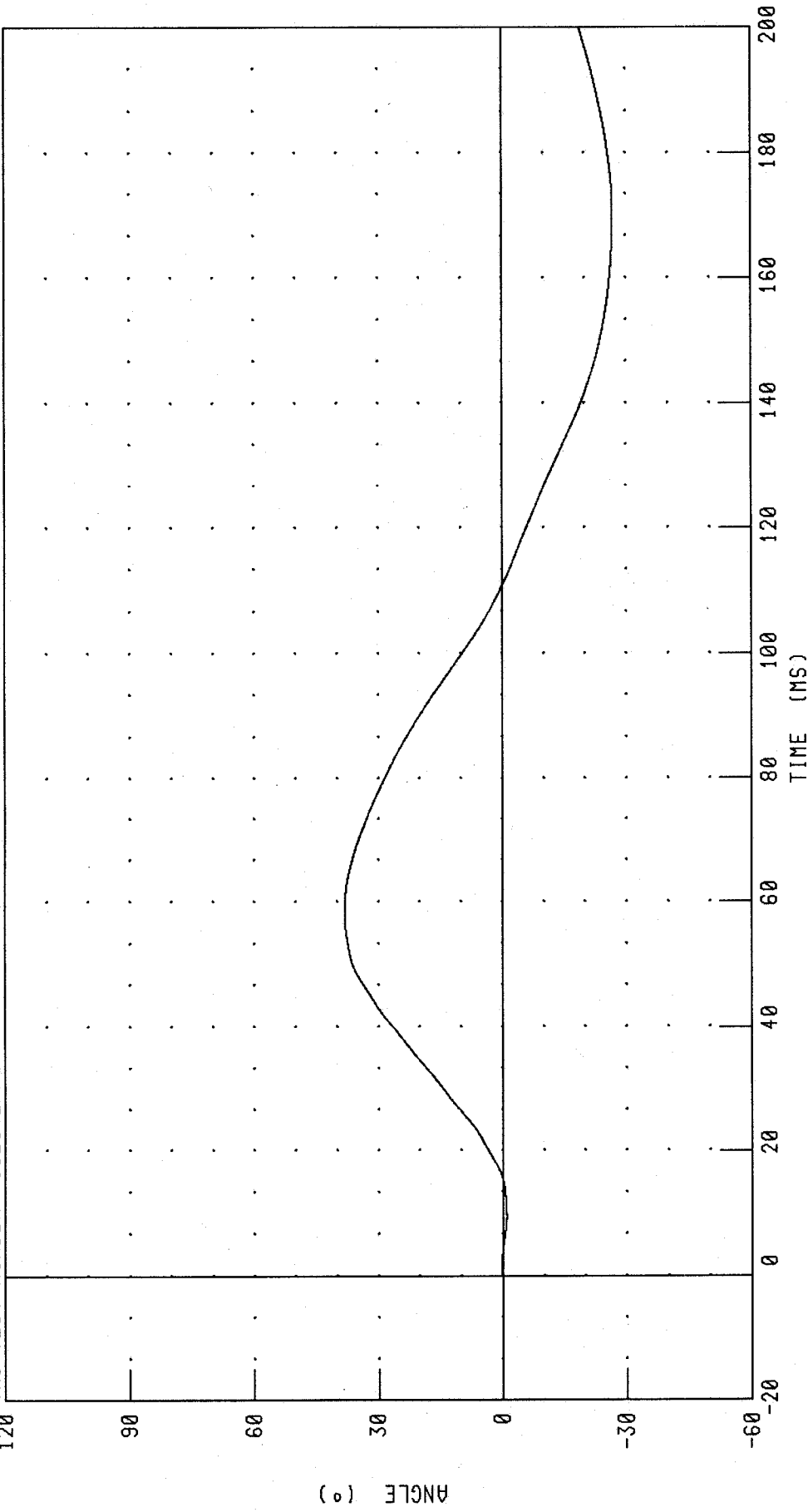
PEAK DATA: 31.06 ° @ 57.36 MS; -18.98 ° @ 167.04 MS

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

TRC TEST NUMBER: 192C42NF2

572E SN192 NECK FLEXION CAL42

RUN NUMBER: 101200.1120;1

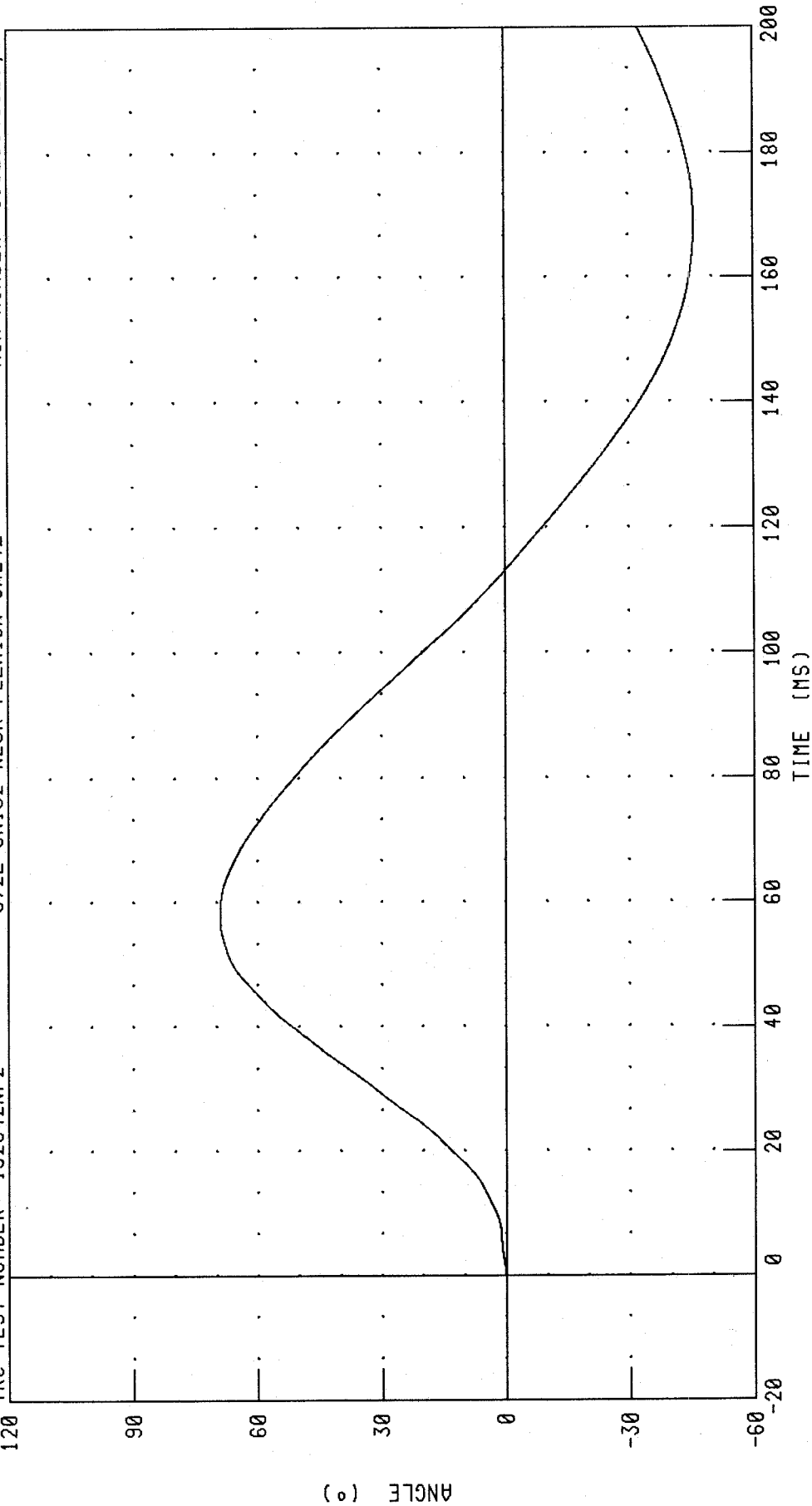


CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 38.07 ° @ 57.92 MS; -26.81 ° @ 169.76 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL ROTATION

TRC TEST NUMBER: 192C42NF2 572E SN192 NECK FLEXION CAL42 RUN NUMBER: 101200.1120;1



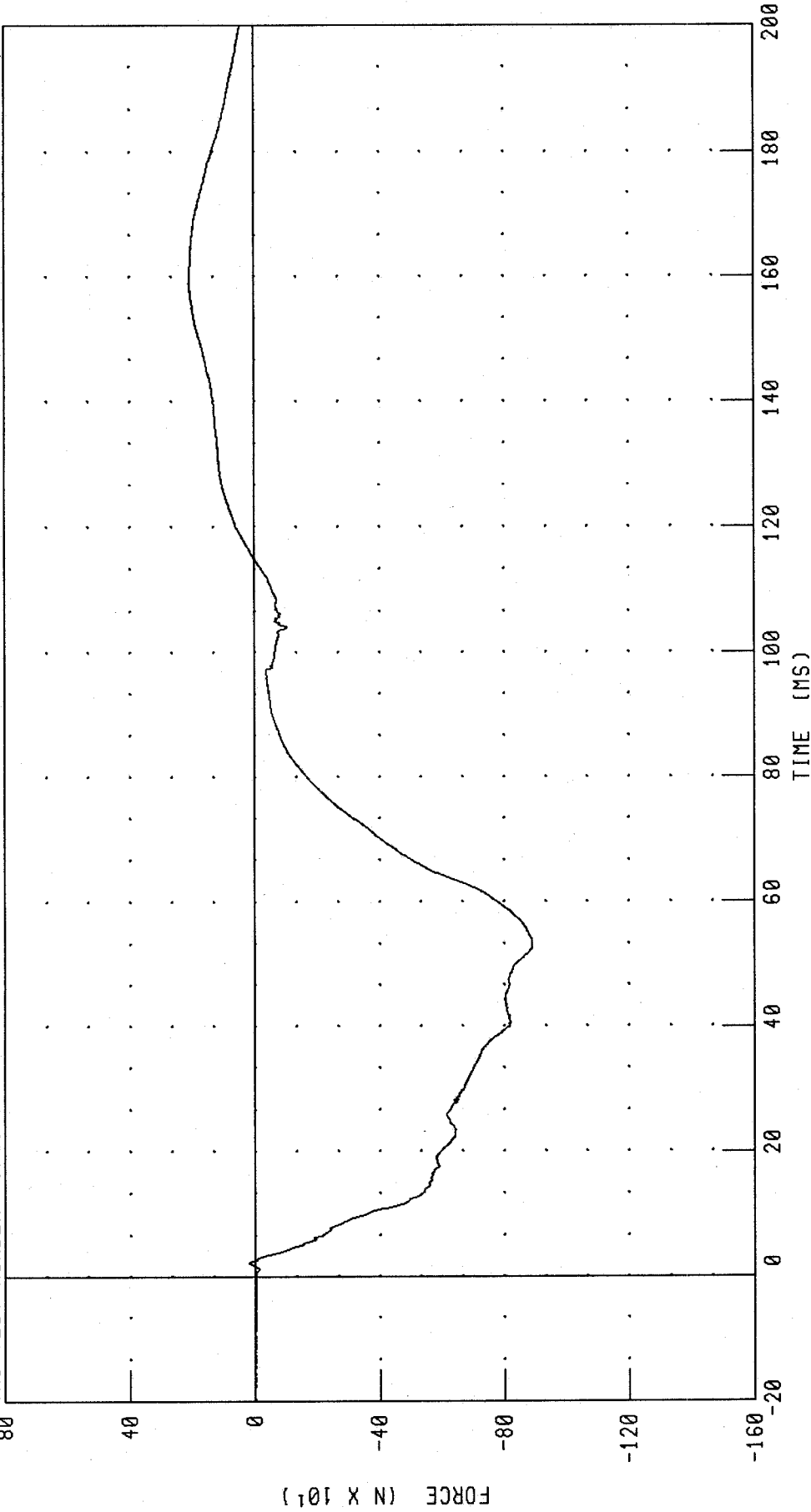
CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 69.13 ° @ 57.68 MS; -45.77 ° @ 168.08 MS

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

TRC TEST NUMBER: 192C42NF2

572E SN192 NECK FLEXION CAL42

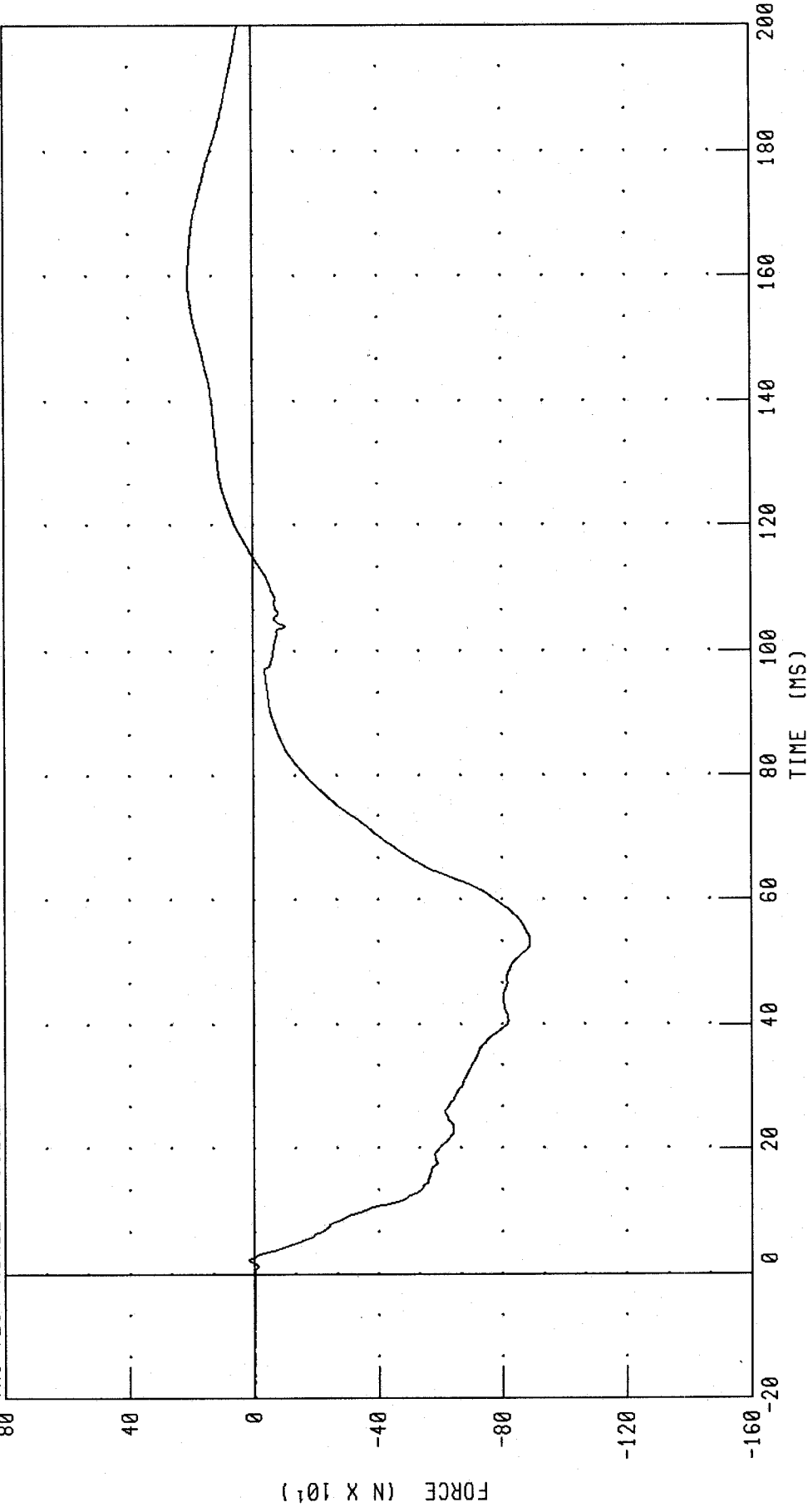
RUN NUMBER: 101200.1120;1



CHANNEL: NEKXF FILTER: CH. CLASS 1000 PEAK DATA: 209.90 N @ 159.04 MS; -890.42 N @ 53.36 MS

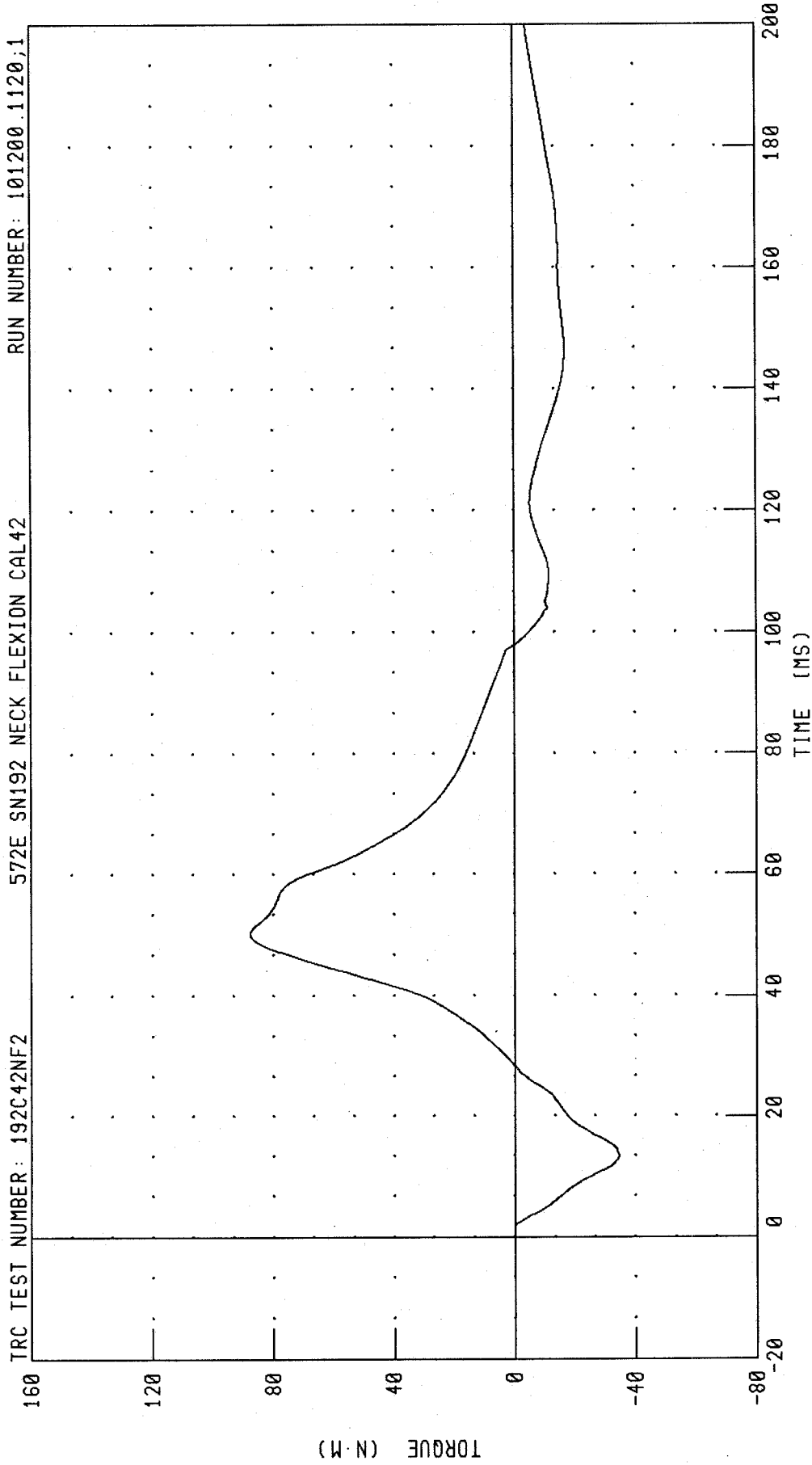
PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER: 192C42NF2 572E SN192 NECK FLEXION CAL42 RUN NUMBER: 101200.1120;1



CHANNEL: NEKXFC FILTER: CH. CLASS 600 PEAK DATA: 209.55 N @ 160.00 MS; -890.09 N @ 53.20 MS

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



CHANNEL: NEKYM FILTER: CH. CLASS 600 PEAK DATA: 87.69 N·M @ 50.16 MS; -34.56 N·M @ 13.36 MS

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

TRC TEST NUMBER: 192C42NF2 RUN NUMBER: 101200.1120;1

572E SN192 NECK FLEXION CAL42

160

120

80

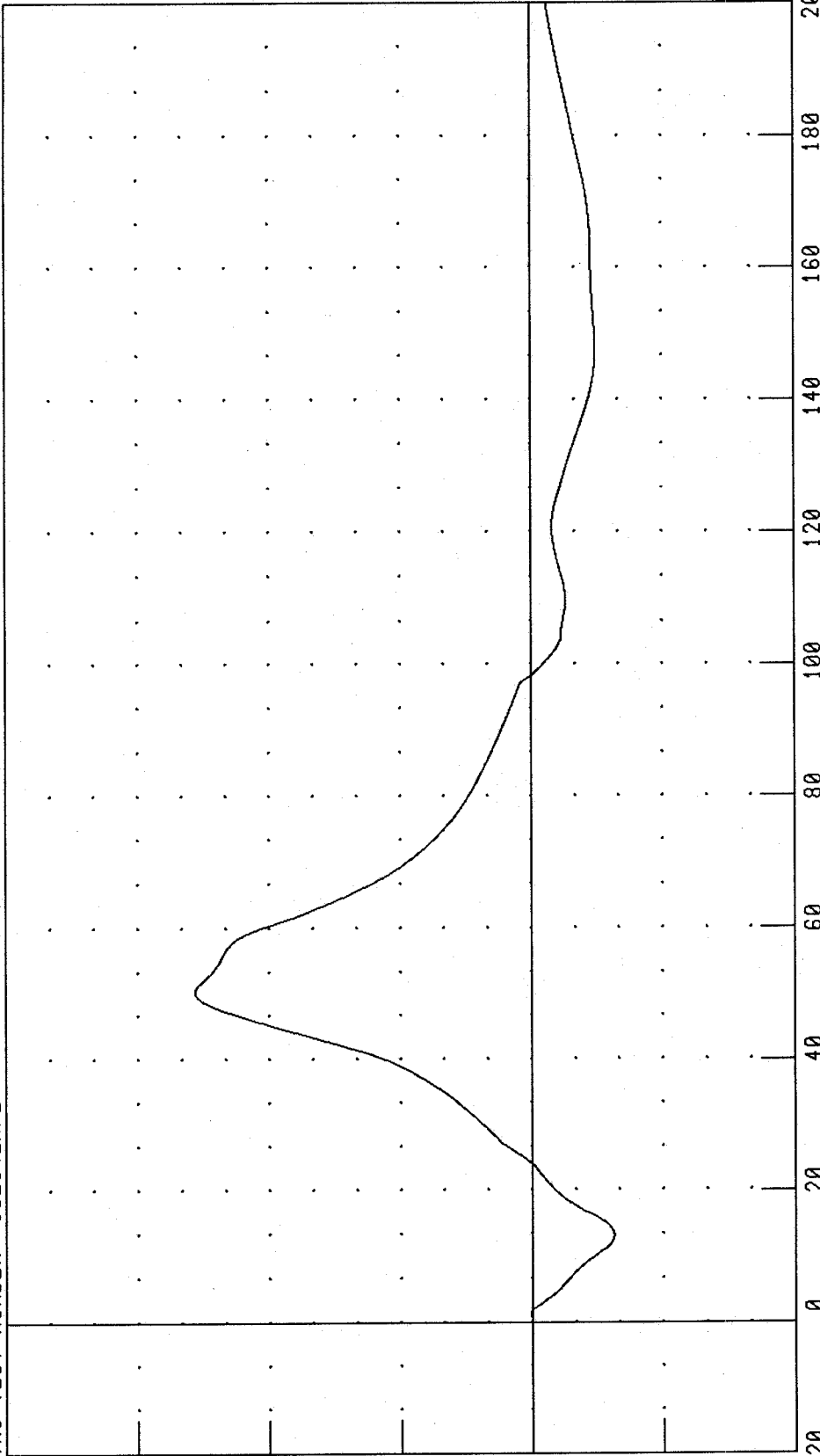
40

0

-40

-80

TORQUE (N·M)



TIME (MS)

PEAK DATA: 102.61 N·M @ 50.32 MS; -25.05 N·M @ 13.12 MS

CHANNEL: NEKOM FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

12-OCT-00

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 192C42NE1 572E SN192 NECK EXT CAL42

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS 17.20 - 21.20 G	20.25 G
	20 MS 14.00 - 19.00 G	18.07 G
	30 MS 11.00 - 16.00 G	15.32 G
MAX PENDULUM G	22 G MAX	20.57 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	15.30 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	38.40 MS
D PLANE	MAX 81 - 106 DEG.	93.01 DEG.
ROTATION	TIME 72 - 82 MS	73.76 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN -80.0/-52.9 NM	-60.04 NM
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	65 - 79 MS	70.72 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	154.96 MS
	120 - 148 MS	128.64 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

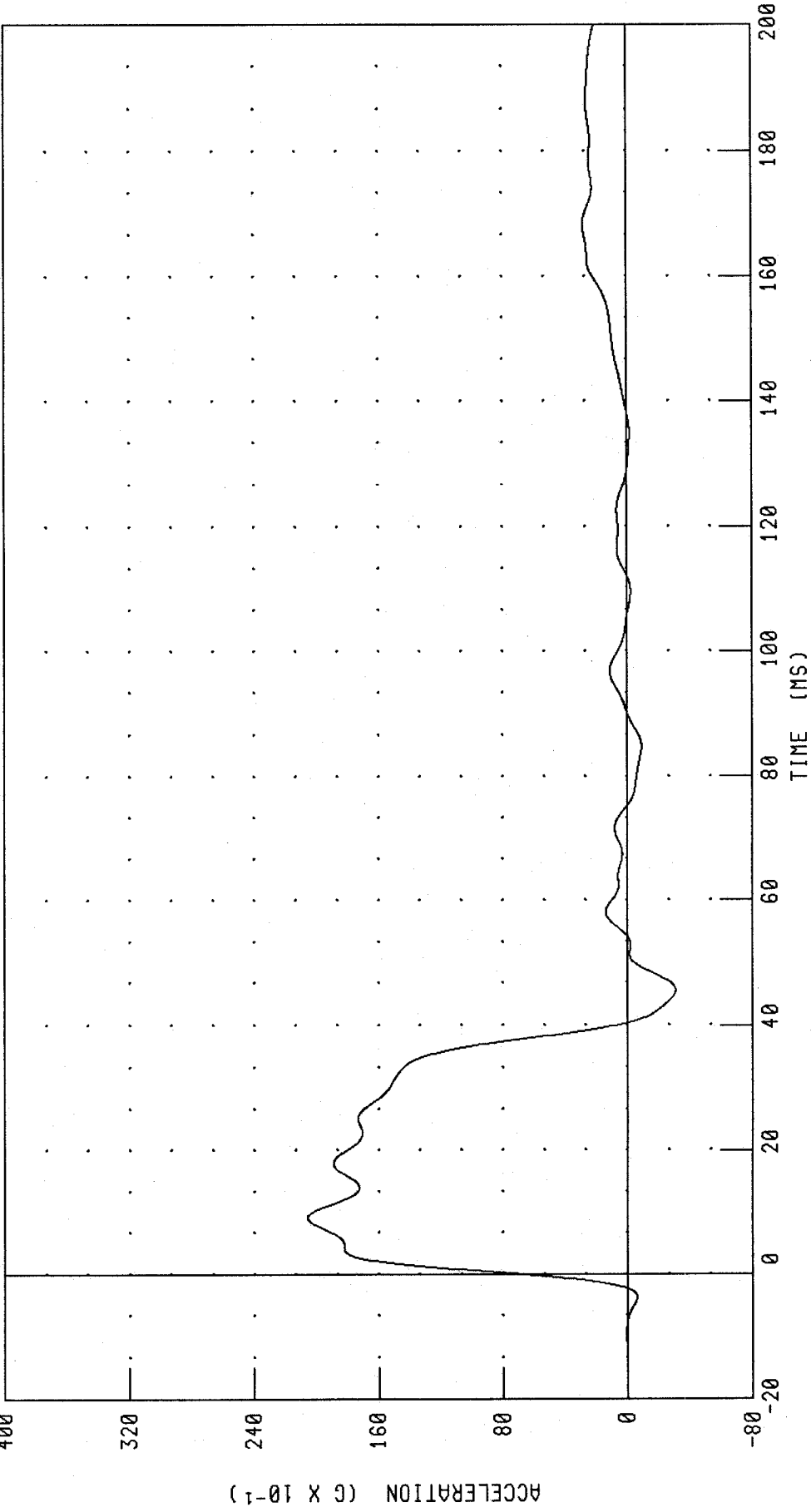
Dustin Walker

RUN NUMBER: 101200.1440;2

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C42NE1 RUN NUMBER: 101200.1441;2

572E SN192 NECK EXT CAL42

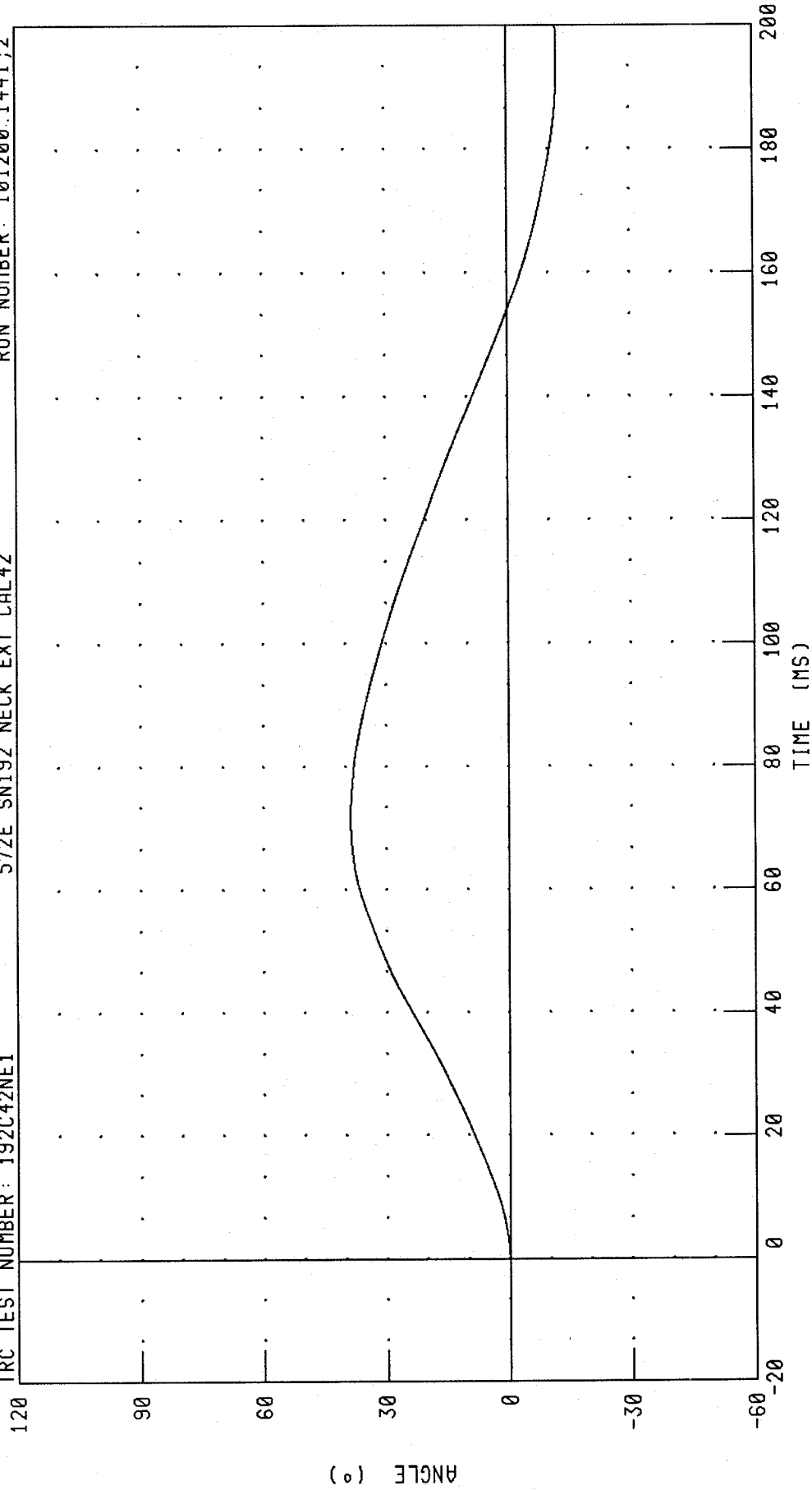


CHANNEL: PENXG FILTER: CH. CLASS 60 PEAK DATA: 20.57 G @ 9.12 MS; -3.11 G @ 45.52 MS

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

TRC TEST NUMBER: 192C42NE1 RUN NUMBER: 101200.1441;2

572E SN192 NECK EXT CAL42



PEAK DATA: 38.74 ° @ 71.76 MS; -12.40 ° @ 194.08 MS

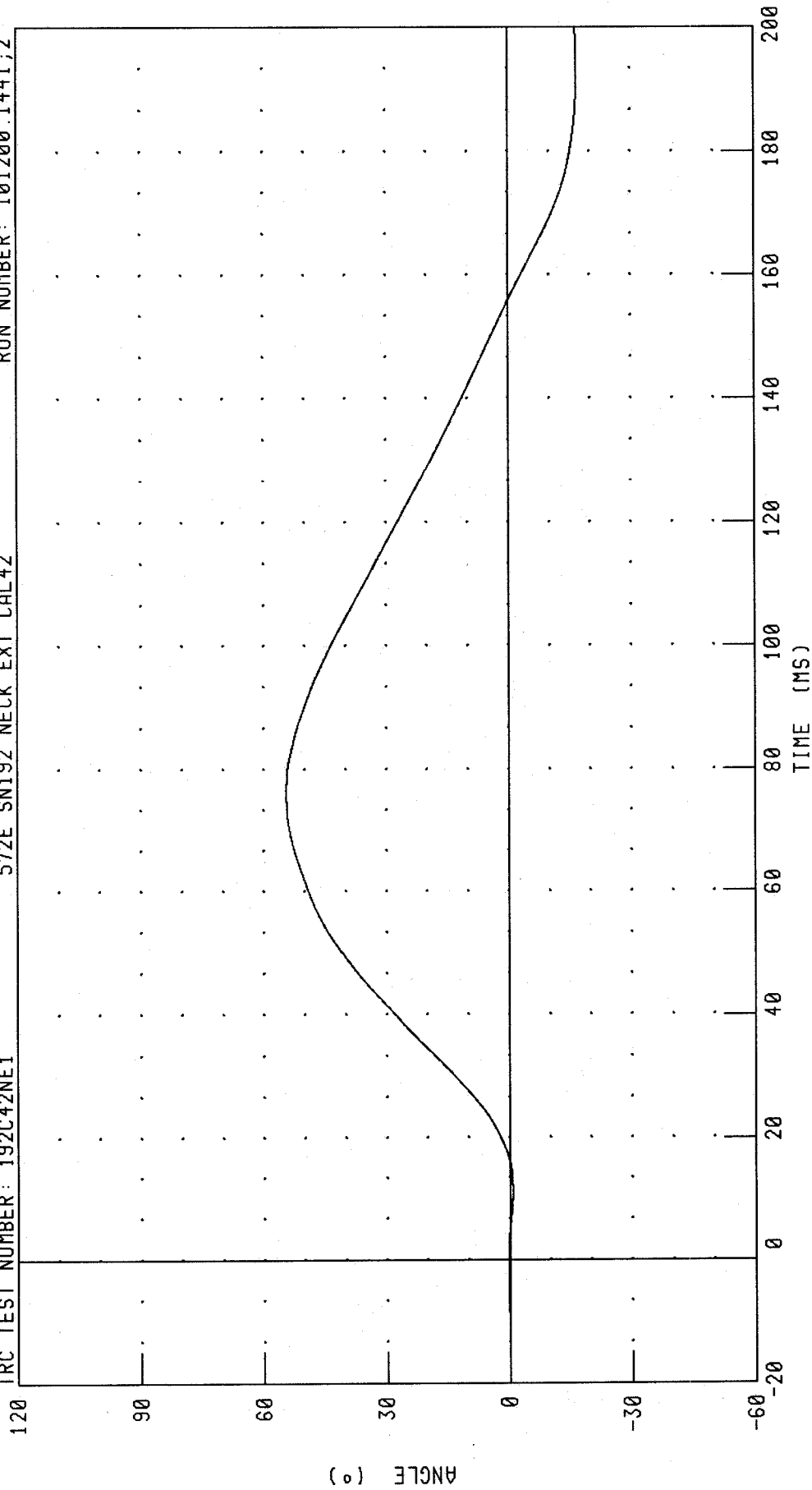
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C42NE1

572E SN192 NECK EXT CAL42

RUN NUMBER: 101200.1441;2



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 54.42 ° @ 76.24 MS; -16.92 ° @ 192.80 MS

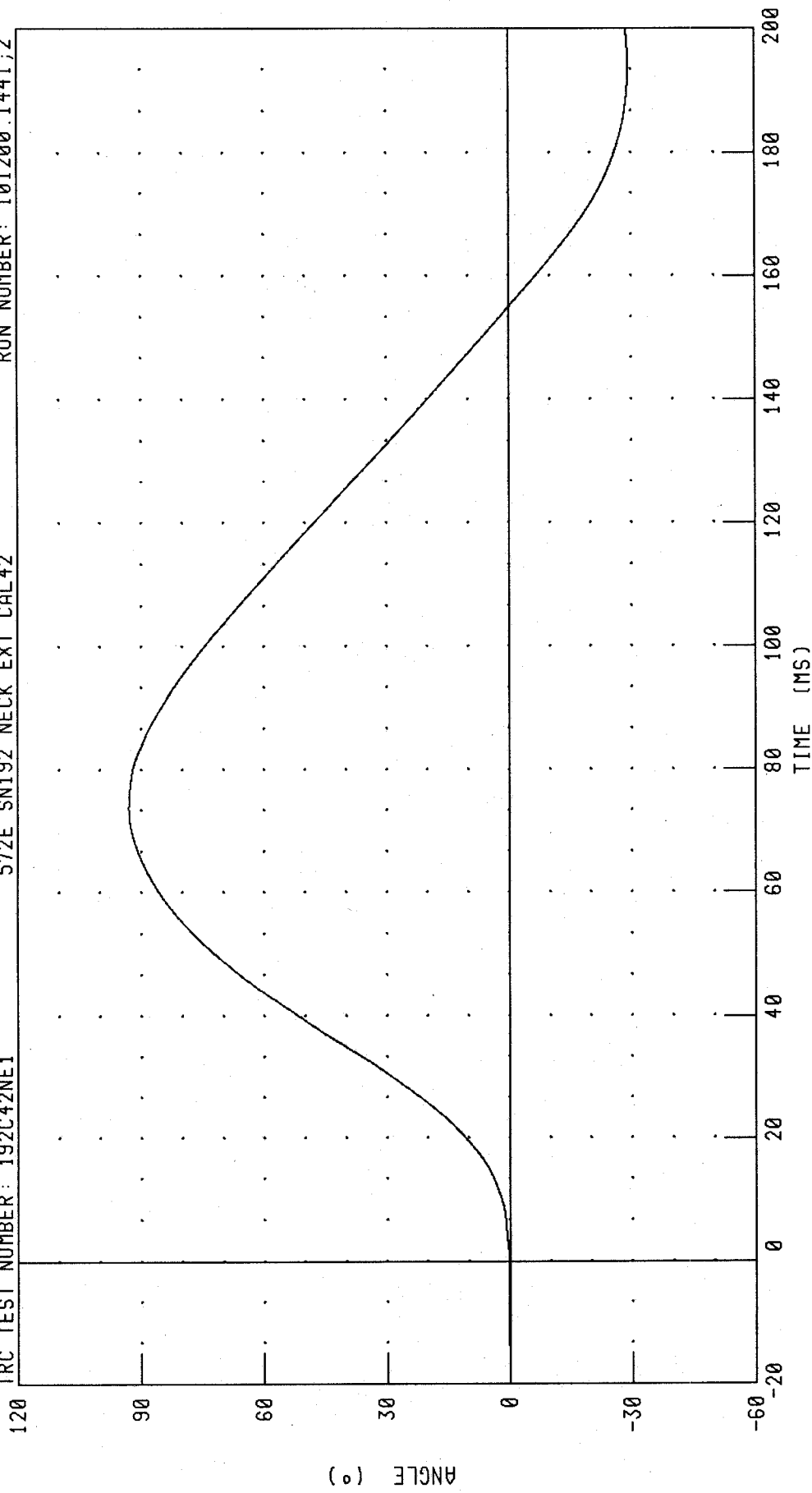
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C42NE1

572E SN192 NECK EXT CAL42

RUN NUMBER: 101200.1441;2

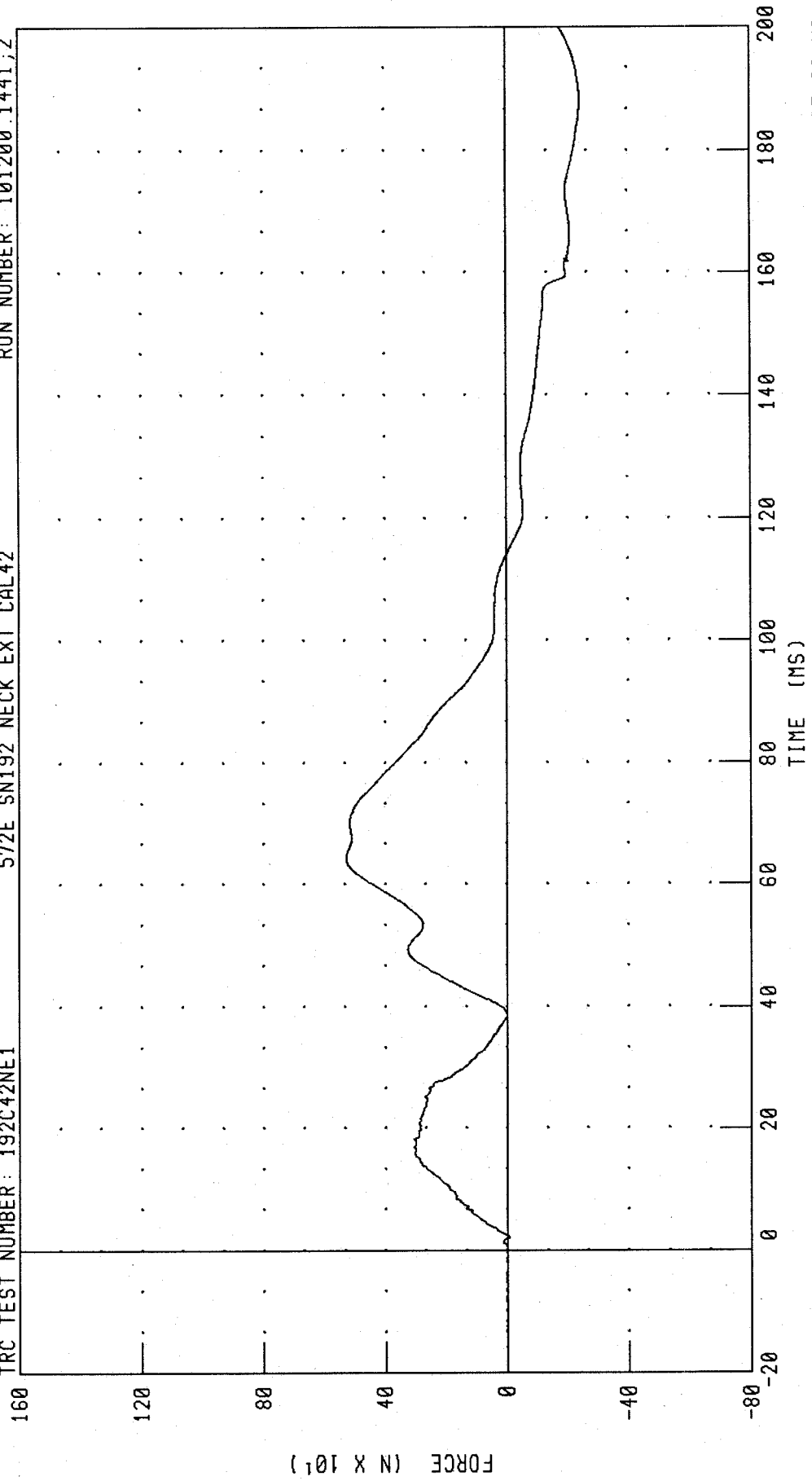


CHANNEL: TOTAL FILTER: CH. CLASS 60

PEAK DATA: 93.02 ° @ 73.76 MS; -29.32 ° @ 193.44 MS

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

TRC TEST NUMBER: 192C42NE1 572E SN192 NECK EXT CAL42 RUN NUMBER: 101200.1441;2



CHANNEL: NEKXF FILTER: CH. CLASS 1000 PEAK DATA: 527.81 N @ 64.08 MS; -246.39 N @ 187.60 MS

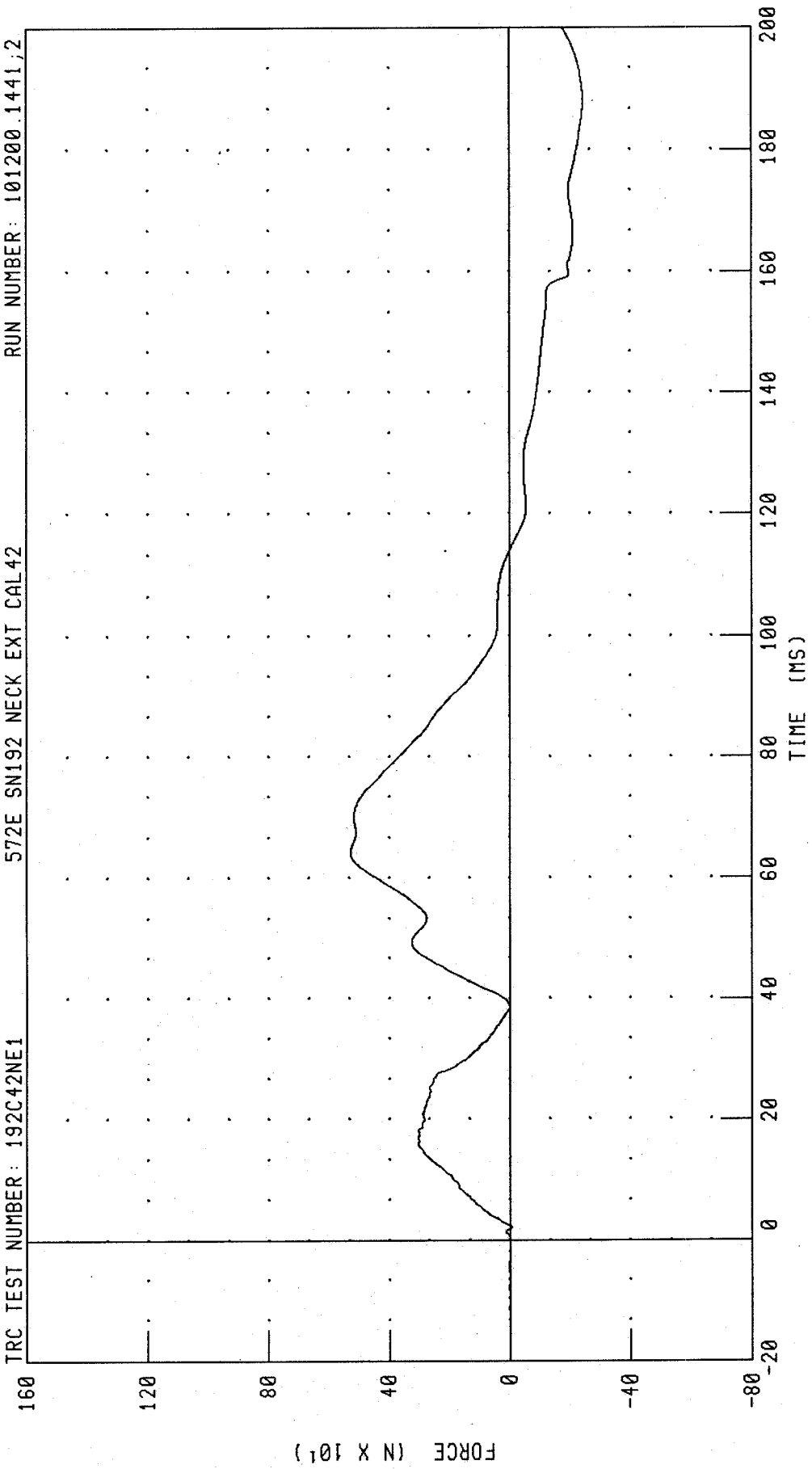
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER: 192C42NE1

572E SN192 NECK EXT CAL42

RUN NUMBER: 101200.1441;2



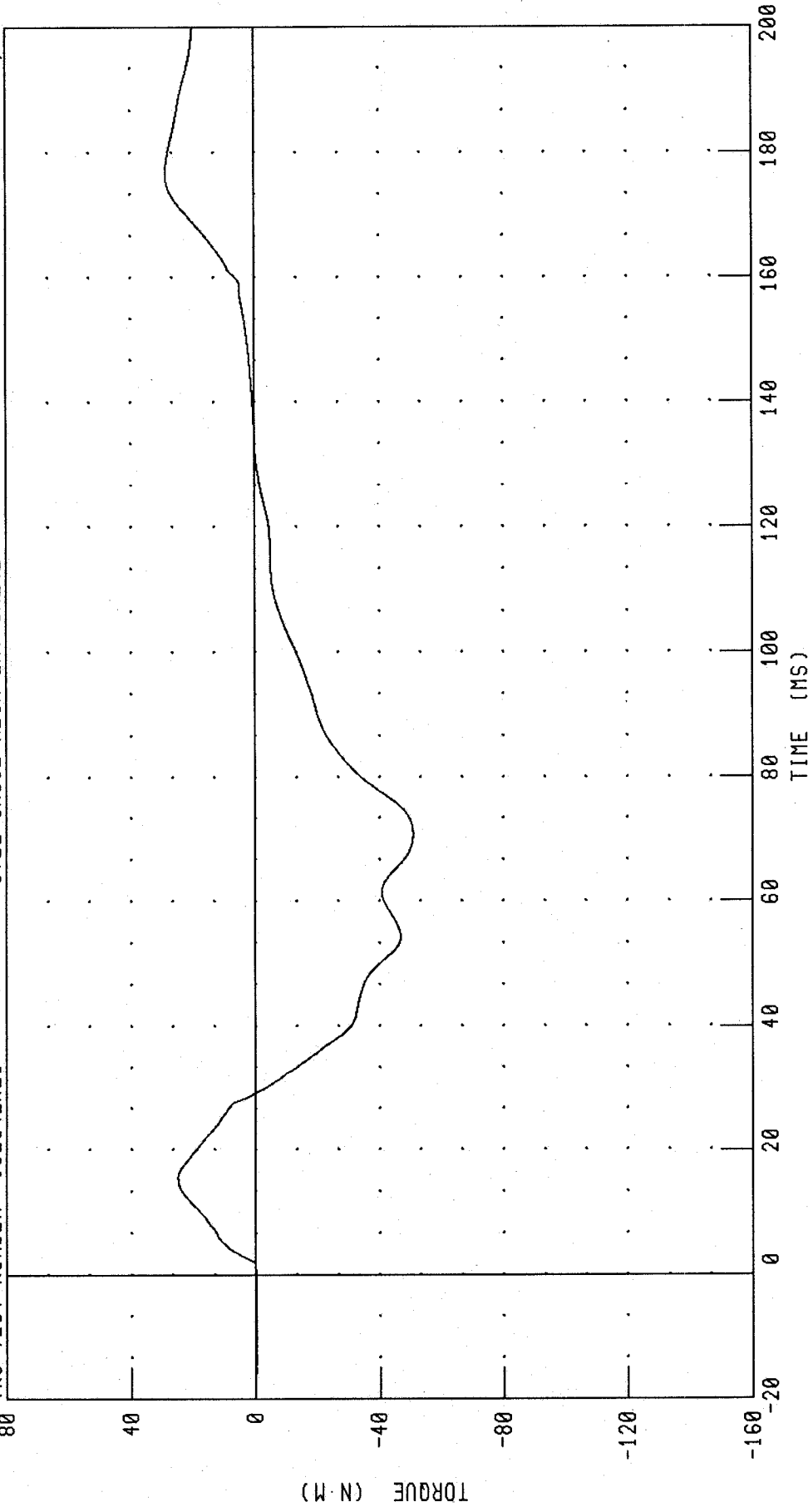
CHANNEL: NEKXFC FILTER: CH. CLASS 600 PEAK DATA: 527.72 N @ 64.24 MS; -246.06 N @ 188.40 MS

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

TRC TEST NUMBER: 192C42NE1

572E SN192 NECK EXT CAL42

RUN NUMBER: 101200.1441;2



PEAK DATA: 28.65 N·M @ 176.64 MS; -50.87 N·M @ 70.80 MS

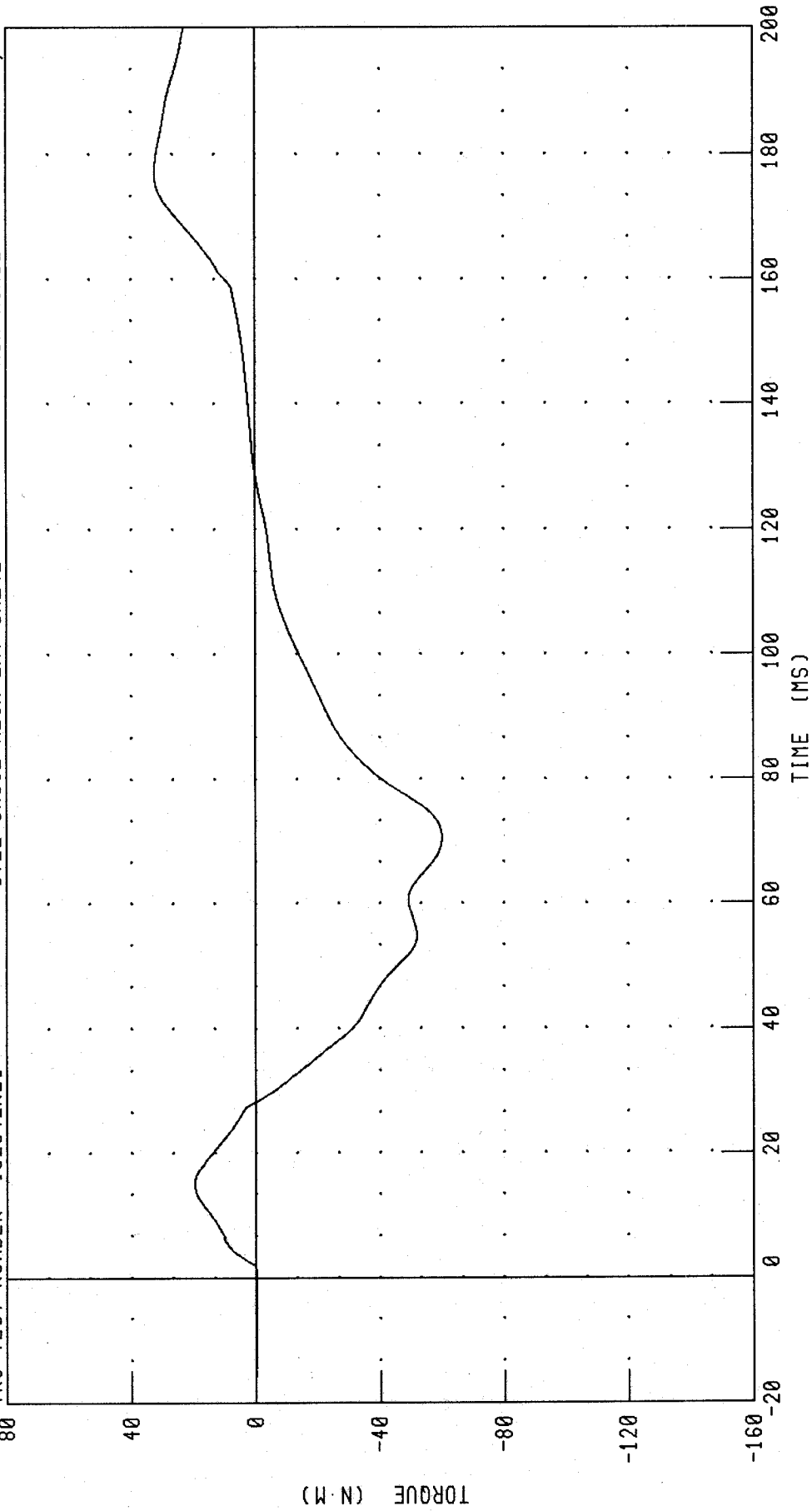
CHANNEL: NEKYM FILTER: CH. CLASS 600

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

TRC TEST NUMBER: 192C42NE1

572E SN192 NECK EXT CAL42

RUN NUMBER: 101200.1441,2



PEAK DATA: 32.38 N.M @ 177.04 MS; -60.04 N.M @ 70.72 MS

CHANNEL: NEKOM FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 50th

13-OCT-00

TRC INC.

TEST NO: 192C42TH1

572E SN192 H.S.THORAX CAL42

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.62 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	67.4 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5553. N
INTERNAL HYSTERESIS	69% - 85%	74.5%

TEST MEETS SPECIFICATIONS

TECHNICIAN

[Signature]

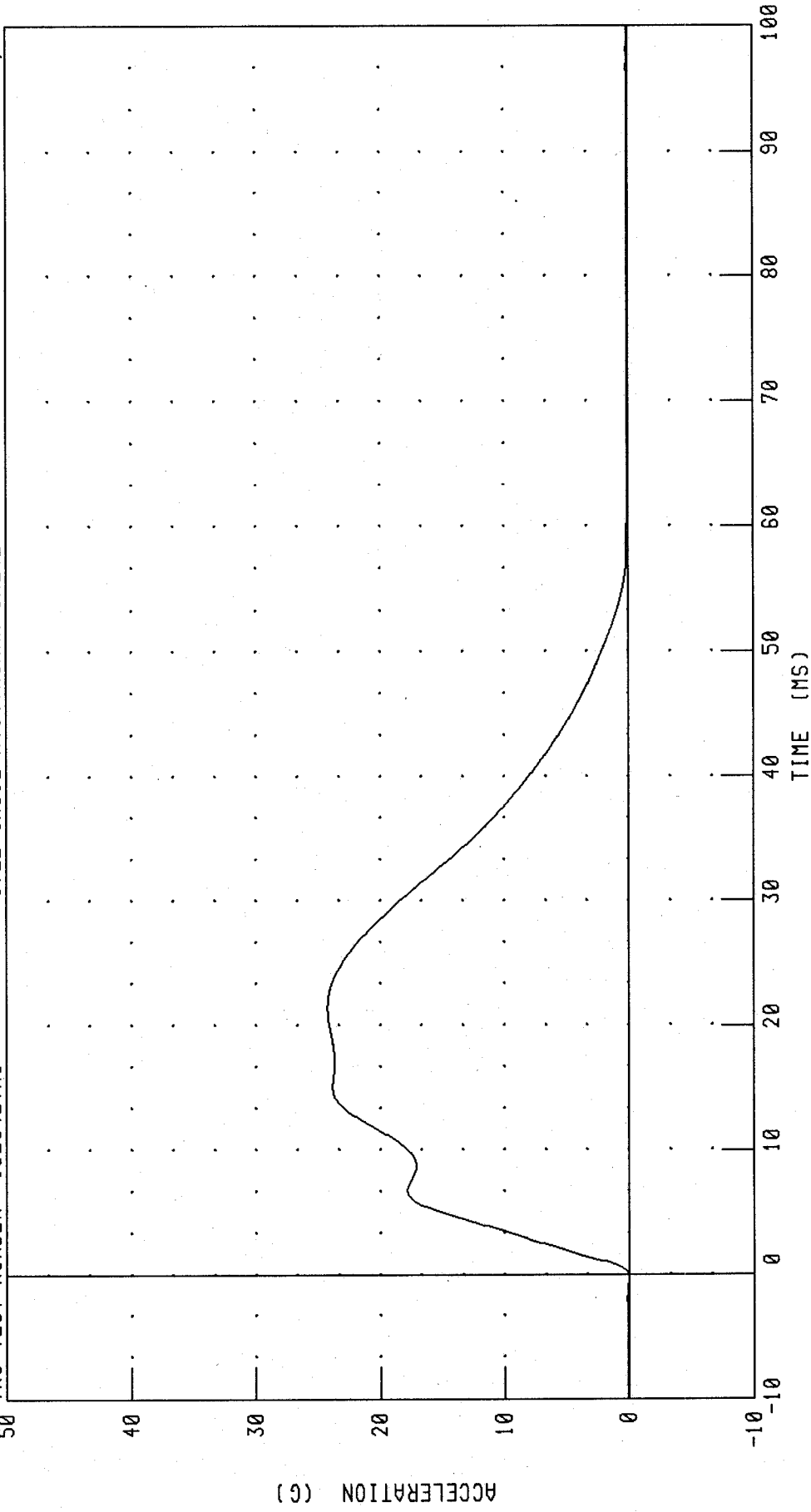
RUN NUMBER: 101300.1549;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C42TH1

572E SN192 H.S. THORAX CAL42

RUN NUMBER: 101300.1549;1



CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 24.24 G @ 21.44 MS; -0.02 G @ -0.32 MS

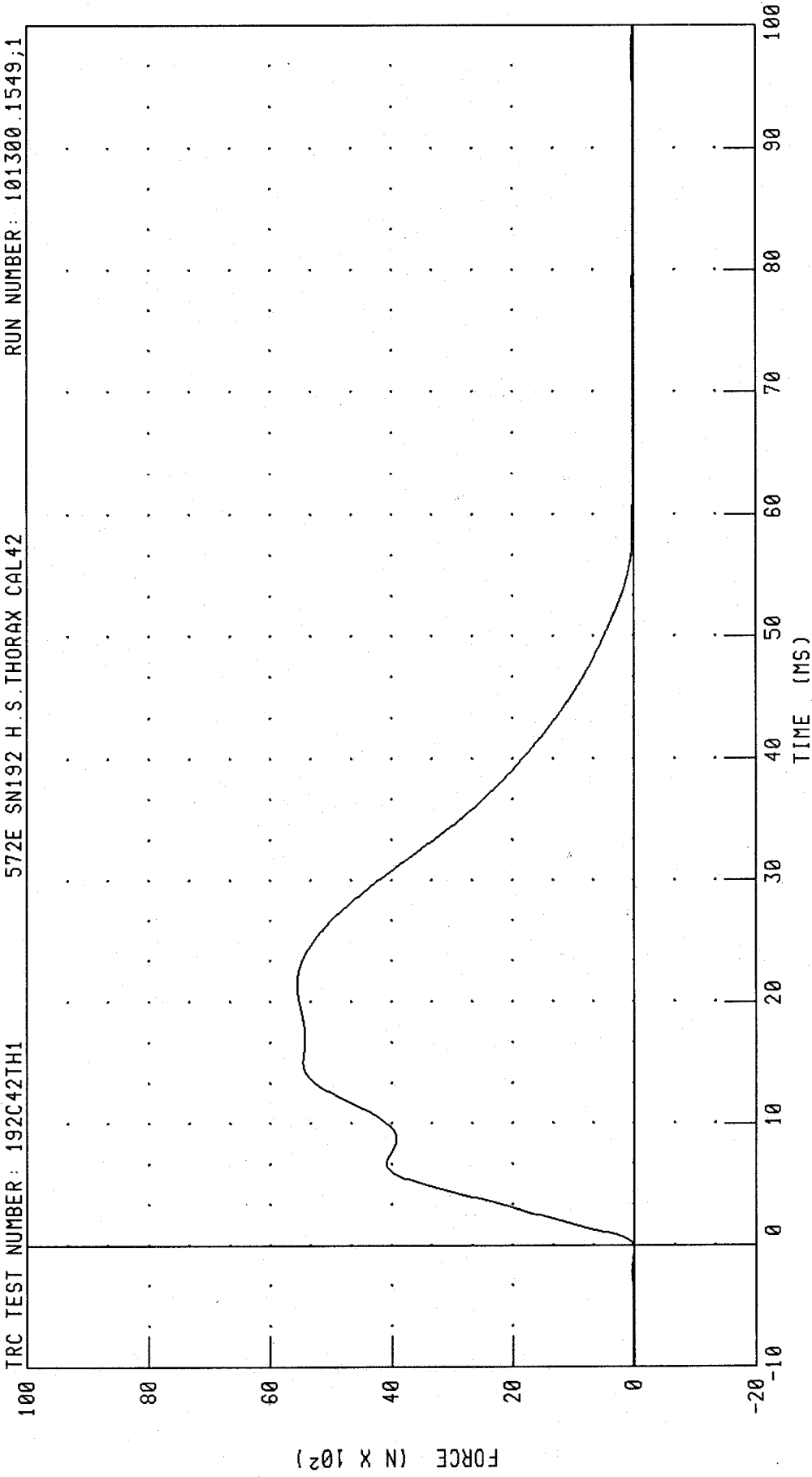
PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM FORCE

TRC TEST NUMBER: 192C42TH1

572E SN192 H.S.THORAX CAL42

RUN NUMBER: 101300.1549;1



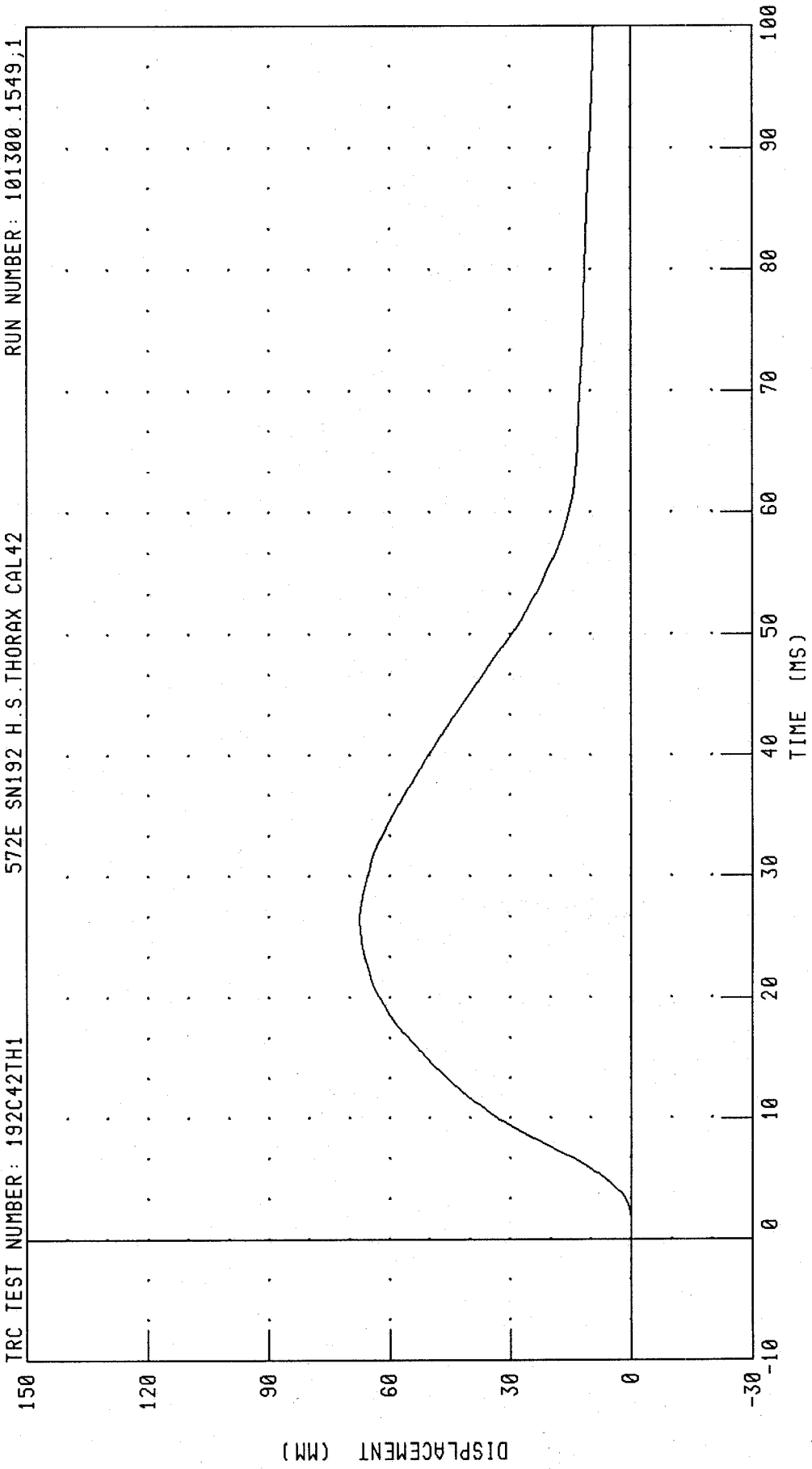
CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5553.68 N @ 21.44 MS; -4.53 N @ -0.32 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 192C42TH1

572E SN192 H.S.THORAX CAL42

RUN NUMBER: 101300.1549;1



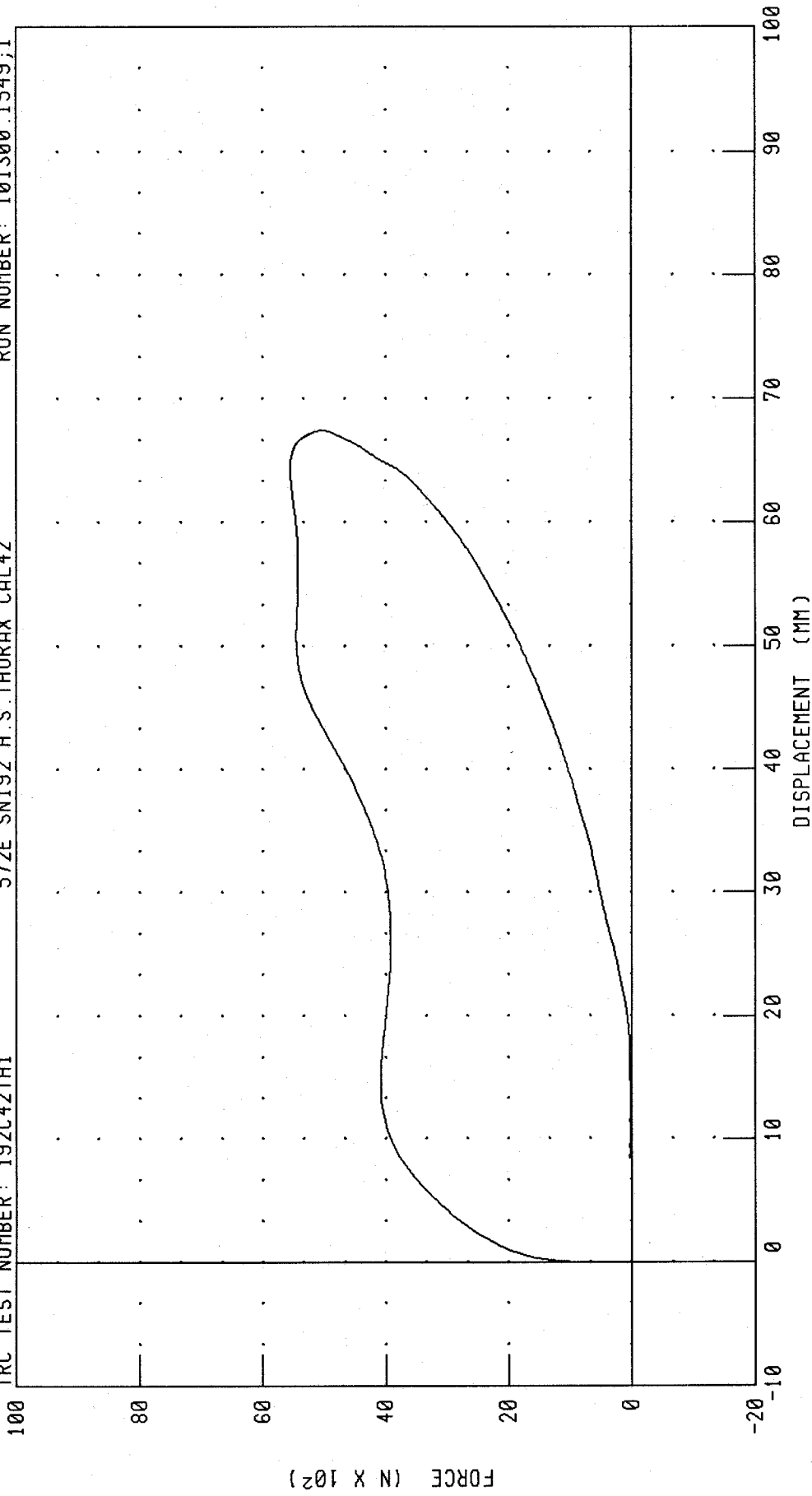
CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 67.45 MM @ 26.48 MS; -0.02 MM @ 1.12 MS

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

TRC TEST NUMBER: 192C42TH1

572E SN192 H.S. THORAX CAL42

RUN NUMBER: 101300.1549,1



CHANNEL: CSTXD
PENXF
FILTER: CH. CLASS 180
CH. CLASS 180
PEAK DATA: 67.45 MM @ 26.48 MS; -0.02 MM @ 1.12 MS
5553.68 N @ 21.44 MS; -4.53 N @ -0.32 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 50th

12-OCT-00

TRC INC.

TEST NO: 192C42LK2

572E SN192 LEFT KNEE CAL 42

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.07 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	4845.1 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Dustin Walker

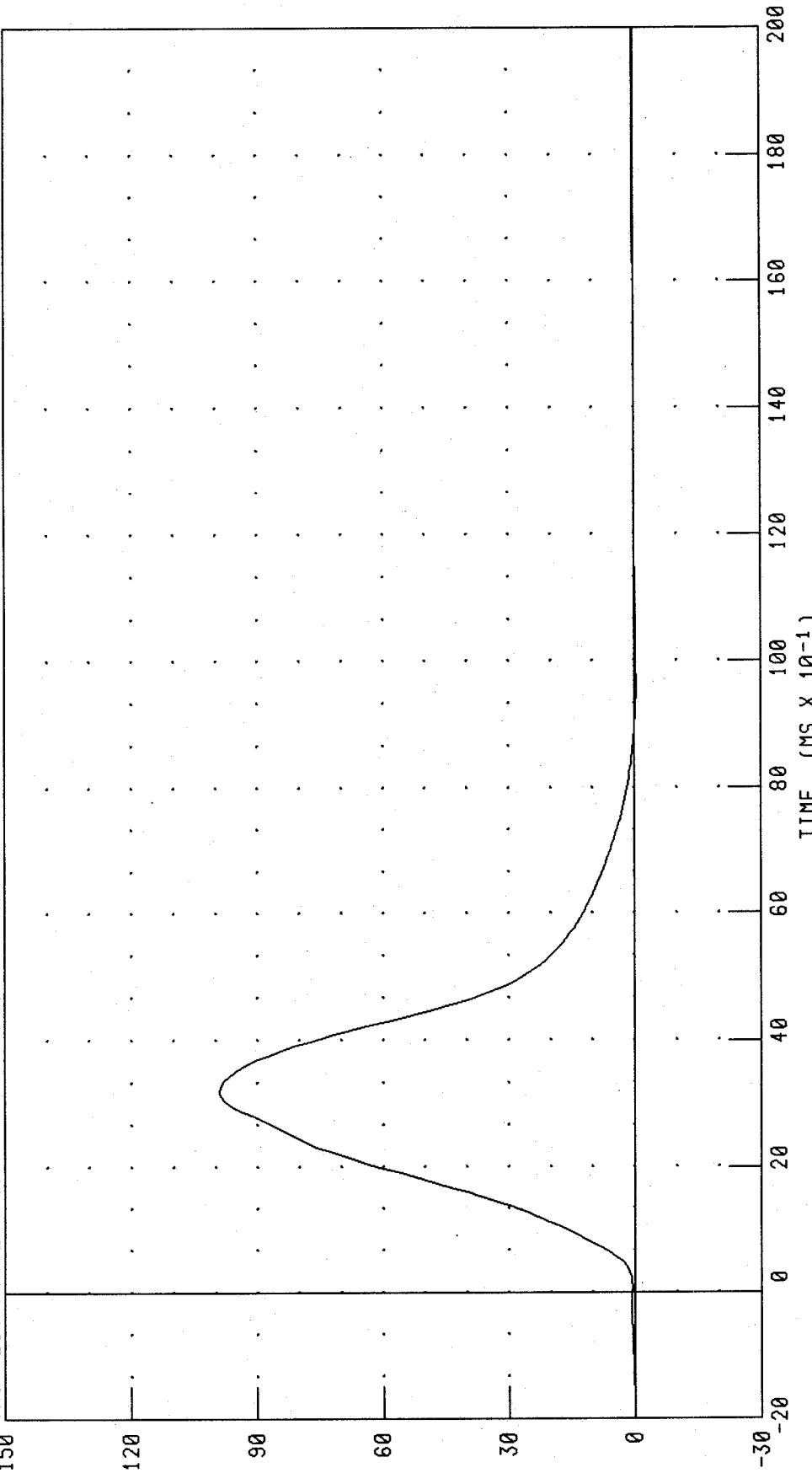
RUN NUMBER: 101200.1156;1

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

TRC TEST NUMBER: 192C42LK2

572E SN192 LEFT KNEE CAL 42

RUN NUMBER: 101200.1156;1



ACCELERATION (G)

TIME (MS X 10⁻¹)

CHANNEL: PENXC FILTER: CH. CLASS 600

PEAK DATA: 99.03 G @ 3.20 MS; -0.47 G @ 9.60 MS

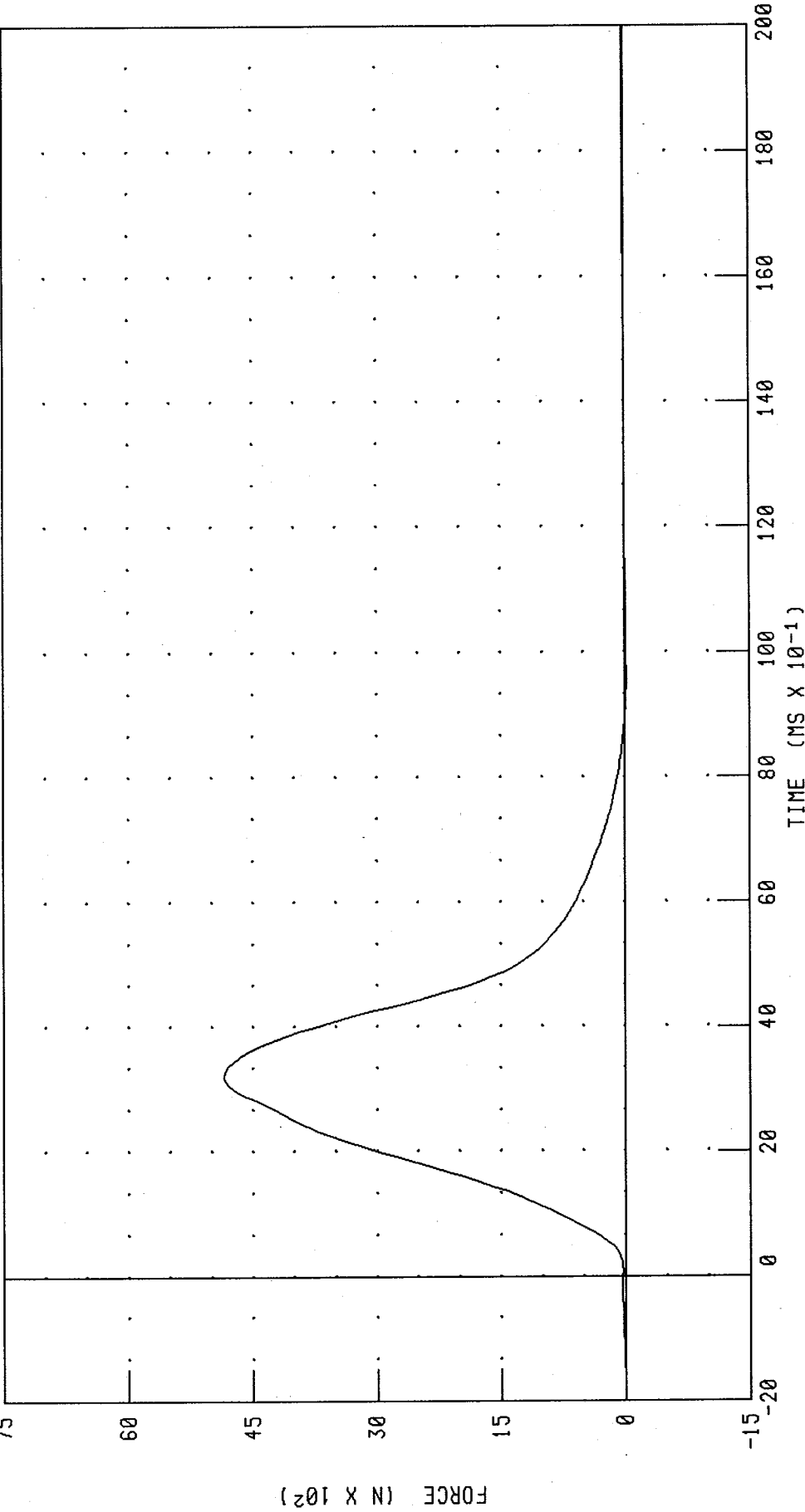
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C42LK2

572E SN192 LEFT KNEE CAL 42

RUN NUMBER: 101200.1156;1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 4845.18 N @ 3.20 MS; -23.21 N @ 9.60 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 50th

12-OCT-00

TRC INC.

TEST NO: 192C42RK2

572E SN192 RIGHT KNEE CAL 42

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.07 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	4725.5 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Dustin Wallen

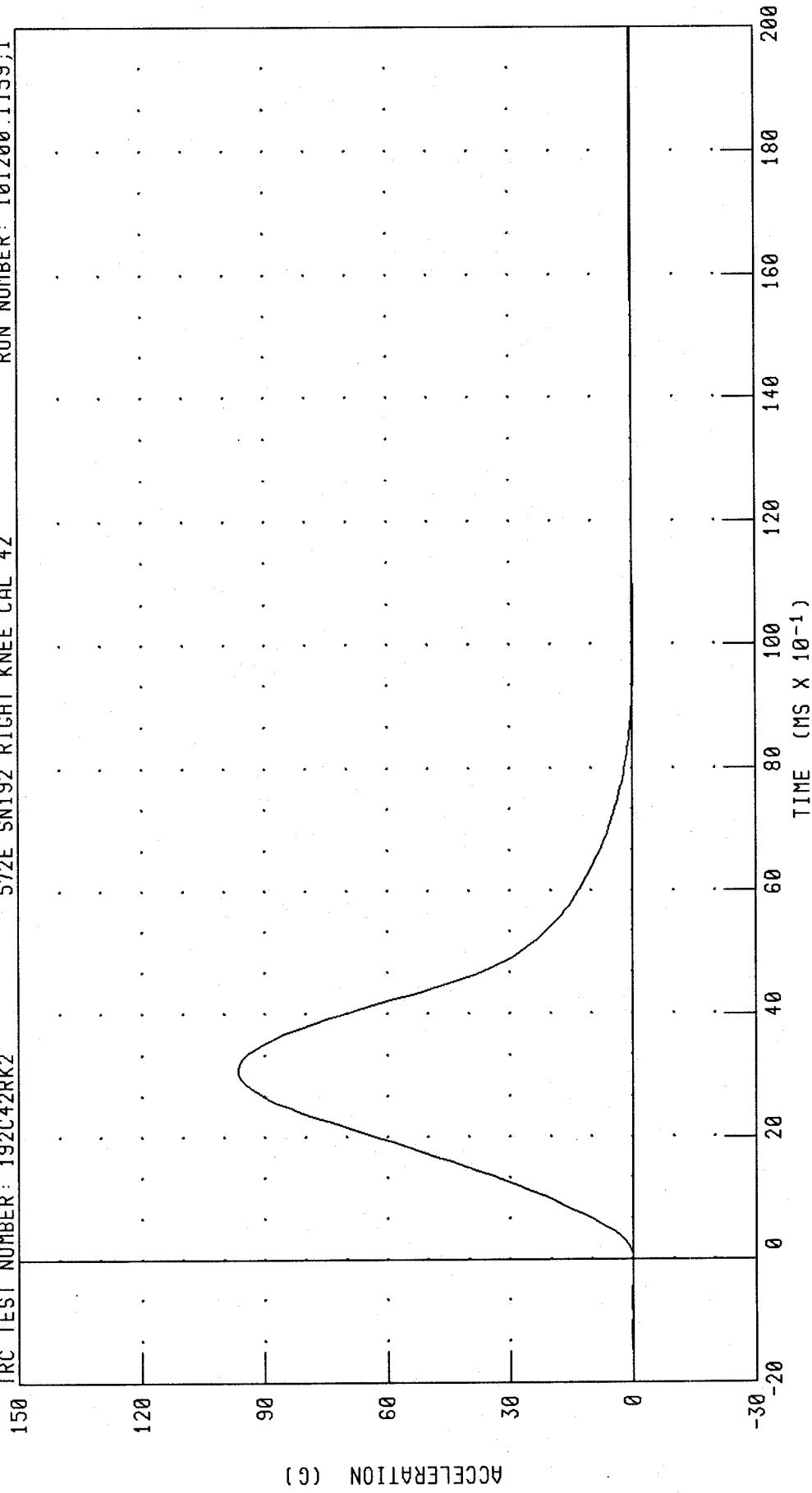
RUN NUMBER: 101200.1159;1

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

TRC TEST NUMBER: 192C42RK2

572E SN192 RIGHT KNEE CAL 42

RUN NUMBER: 101200.1159;1



CHANNEL: PENXC FILTER: CH. CLASS 600

PEAK DATA: 96.58 G @ 3.12 MS; -0.35 G @ 9.76 MS

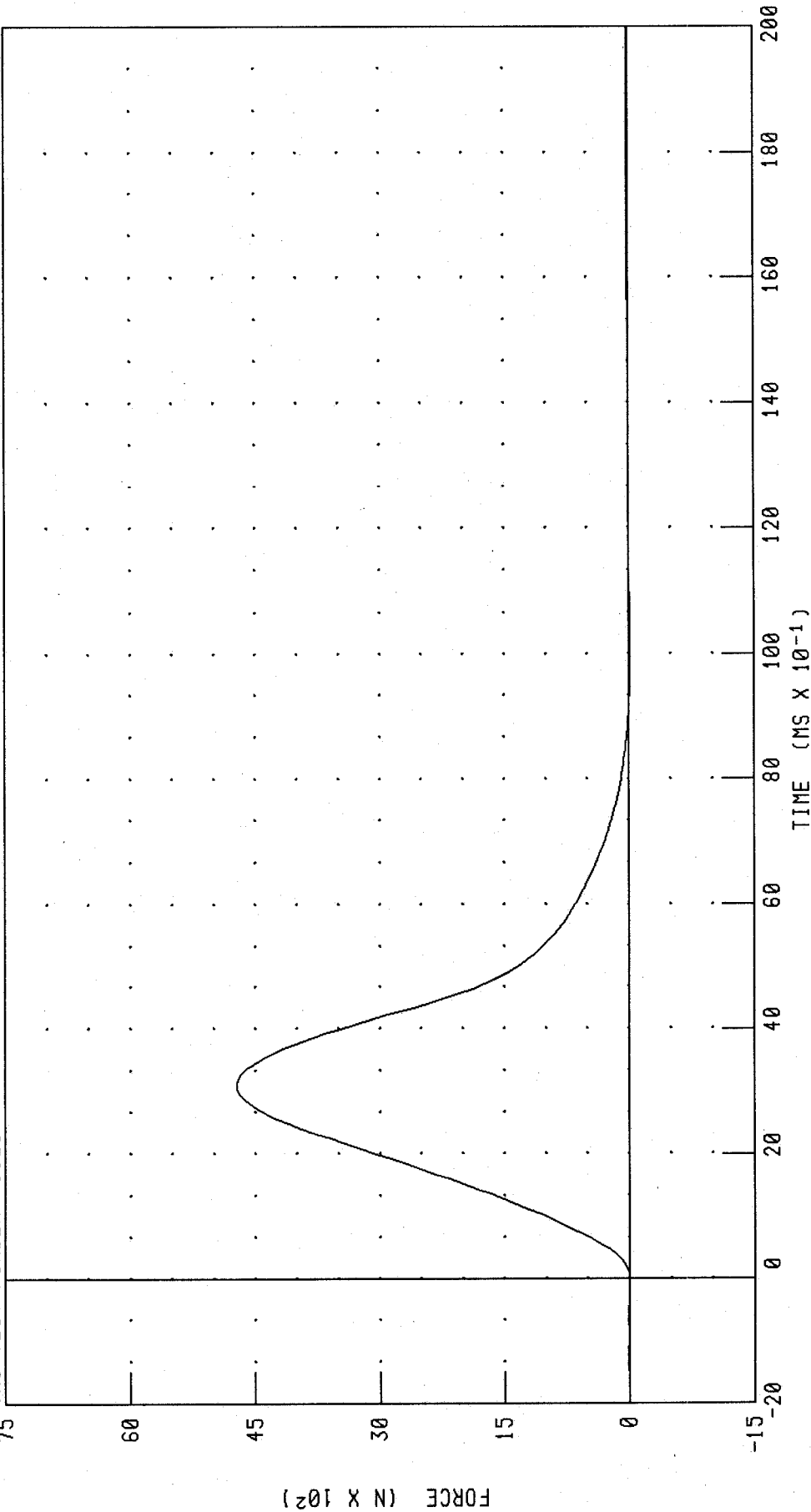
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C42RK2

572E SN192 RIGHT KNEE CAL 42

RUN NUMBER: 101200.1159;1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 4725.55 N @ 3.12 MS; -16.95 N @ 9.76 MS

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

142

13-10-00

TRC INC. TEST NO: 142C43ED1 572 SN142 EXT.DIMENTION CAL43

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	993. MM
WAIST CIRCUMFERENCE	(Z)	836 - 866 MM	856. 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	139. MM
SKULL CAP TO BACKLINE	(H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT	(A)	879 - 889 MM	881. MM
THIGH CLEARANCE	(F)	140 - 155 MM	150. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	599. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	442. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	485. MM
FOOT LENGTH	(P)	252 - 267 MM	254. 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	434. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	511. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	208. MM
SHOULDER-ELBOW LENGTH	(I)	330 - 345 MM	335. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	297. MM

572F SN142 EXT.DIMENTION CAL43

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

[Handwritten Signature]

RUN NUMBER: 101300.1641

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 50th

11-OCT-00

TRC INC.

TEST NO: 142C43HD1

572E SN142 HEAD DROP CAL 43

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	244.48 G
PEAK LATERAL ACCELERATION	15 G MAX	4.16 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Dustin Walker

RUN NUMBER: 101200.0825;2

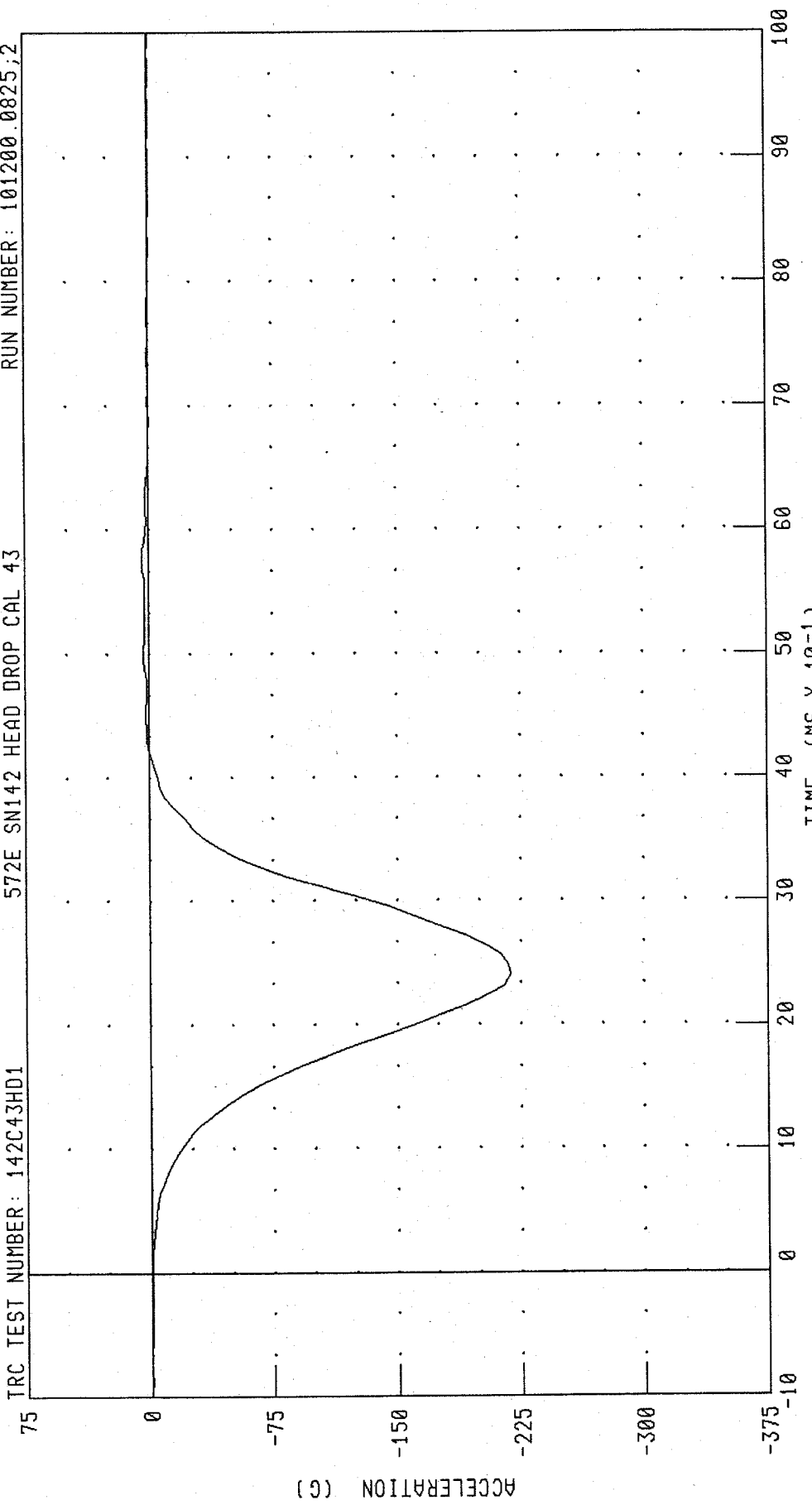
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION X AXIS

572E SN142 HEAD DROP CAL 43

RUN NUMBER: 101200.0825;2

TRC TEST NUMBER: 142C43HD1



PEAK DATA: 4.35 G @ 5.76 MS; -218.55 G @ 2.40 MS

CHANNEL: HEDXC FILTER: CH. CLASS 1000

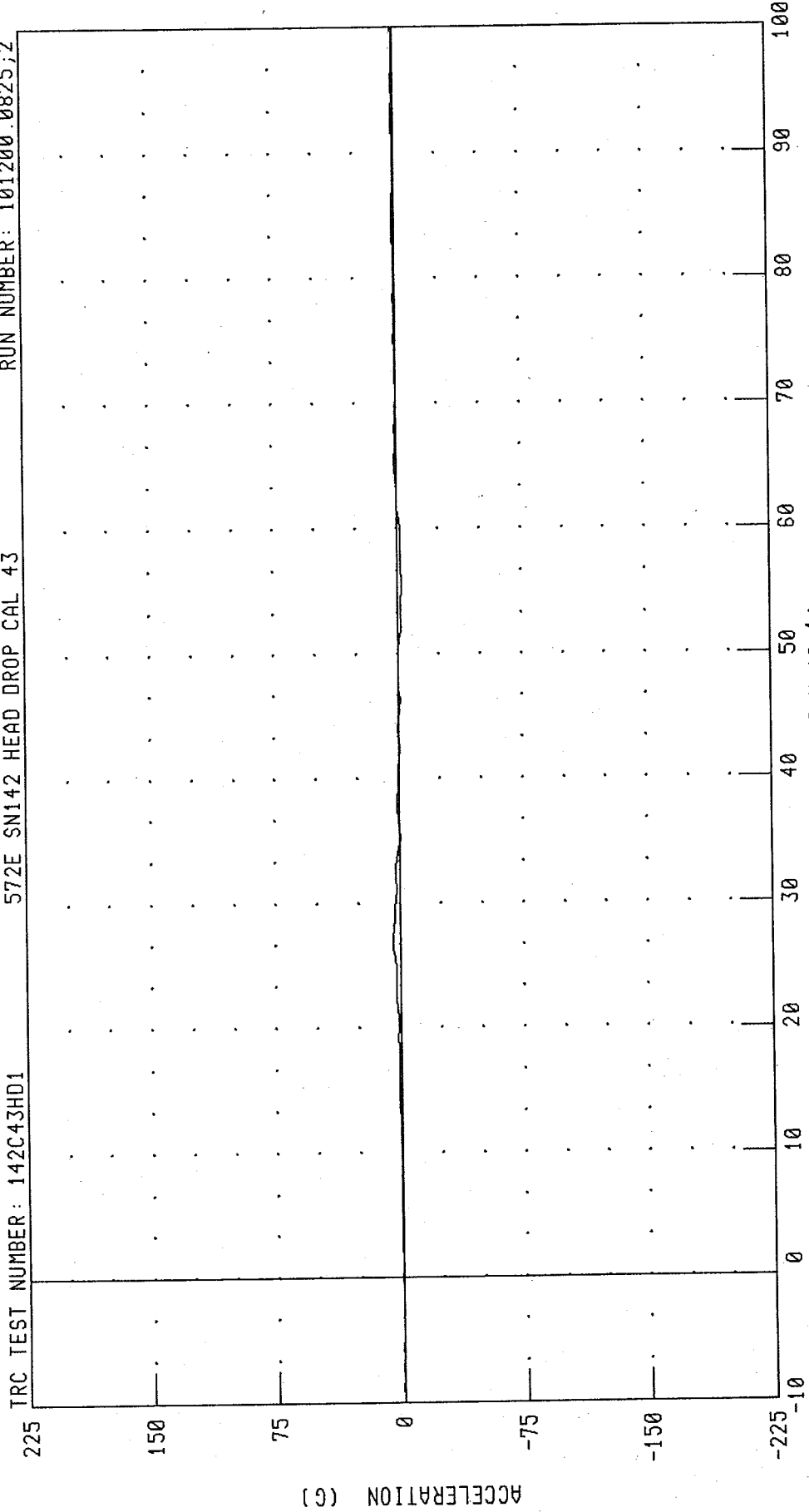
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

RUN NUMBER: 101200.0825;2

TRC TEST NUMBER: 142C43HD1

572E SN142 HEAD DROP CAL 43



PEAK DATA: 4.17 G @ 2.72 MS; -2.59 G @ 5.60 MS

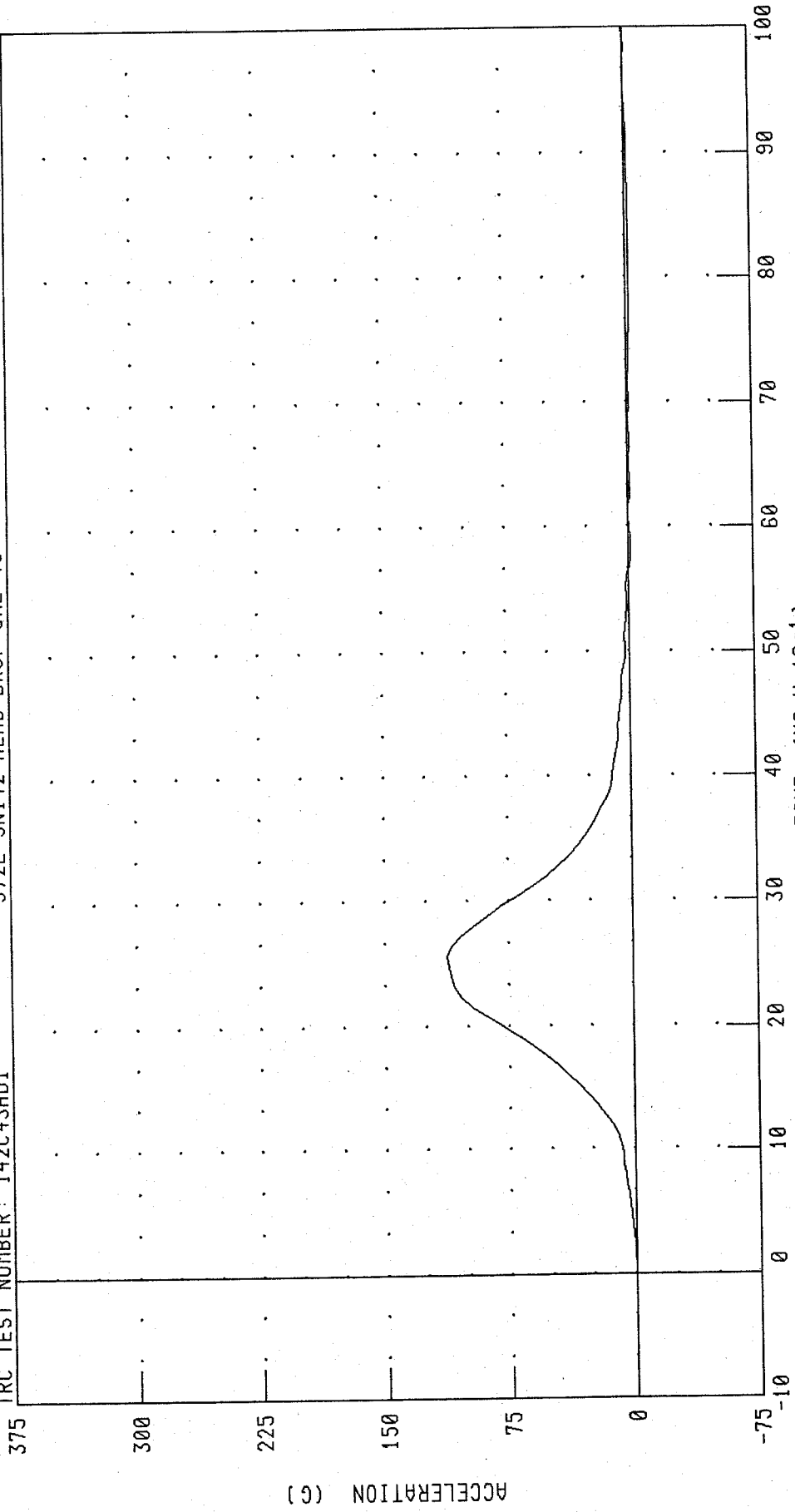
CHANNEL: HEDYC FILTER: CH. CLASS 1000

ACCELERATION (G)

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS
572E SN142 HEAD DROP CAL 43

RUN NUMBER: 101200.0825;2

TRC TEST NUMBER: 142C43HD1



PEAK DATA: 112.18 G @ 2.56 MS; -2.34 G @ 7.84 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

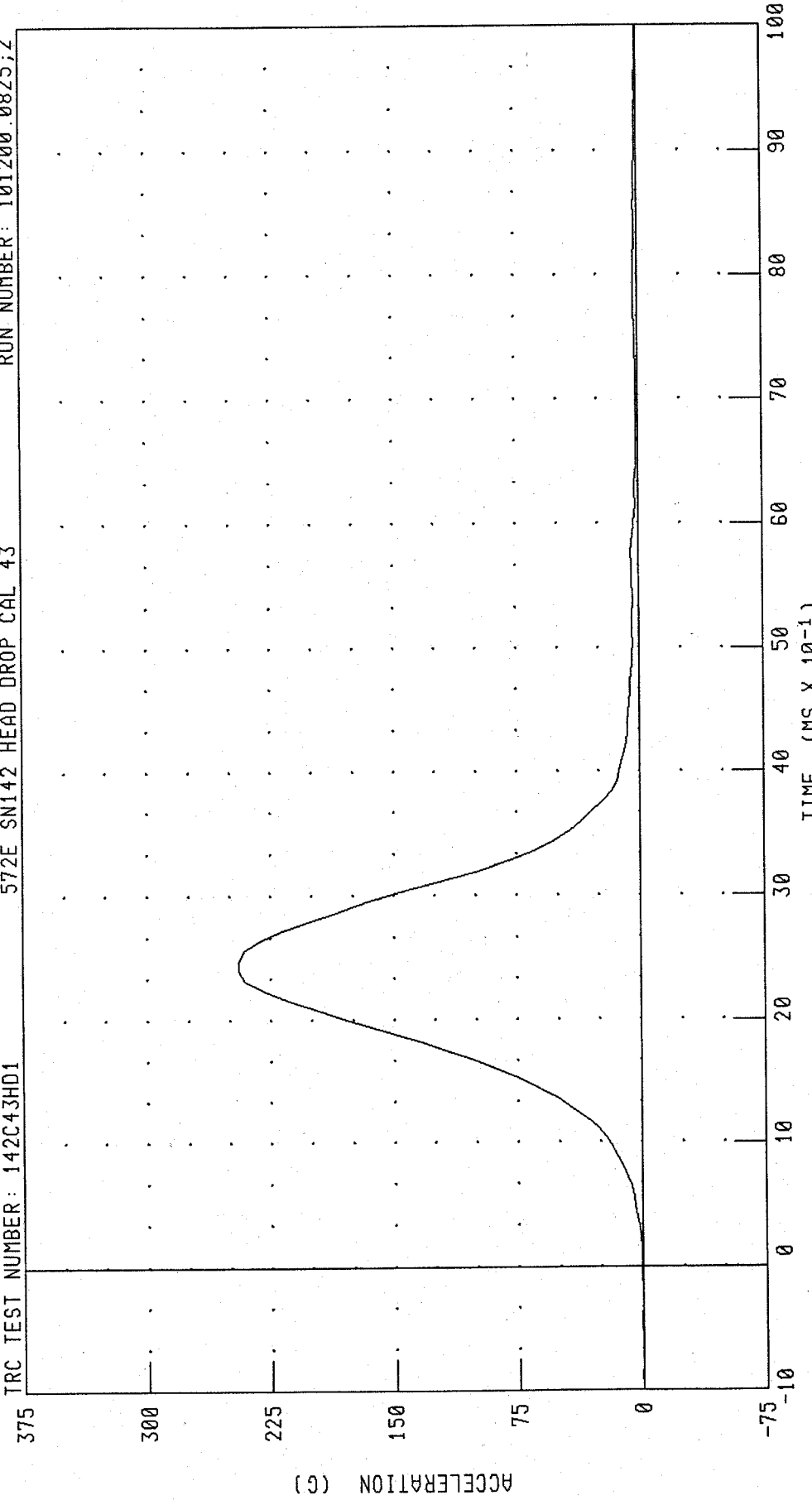
PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN142 HEAD DROP CAL 43

RUN NUMBER: 101200.0825;2

TRC TEST NUMBER: 142C43HD1



PEAK DATA: 244.49 G @ 2.40 MS; 0.08 G @ -0.96 MS

CHANNEL: HEDRC FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

12-OCT-00

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 142C43NF1 572E SN142 NECK FLEXION CAL43

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	6.99 M/S
PENDULUM DECELERATION	10 MS 22.50 - 27.50 G	22.63 G
	20 MS 17.60 - 22.60 G	20.33 G
	30 MS 12.50 - 18.50 G	16.69 G
MAX PENDULUM G	29 G MAX	22.97 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	16.60 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	39.68 MS
D PLANE ROTATION	MAX 64 - 78 DEG.	69.04 DEG.
	TIME 57 - 64 MS	60.96 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX 88.2 - 108.5 NM	93.78 NM
	TIME 47 - 58 MS	54.16 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	118.48 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	100.08 MS

TEST MEETS SPECIFICATIONS

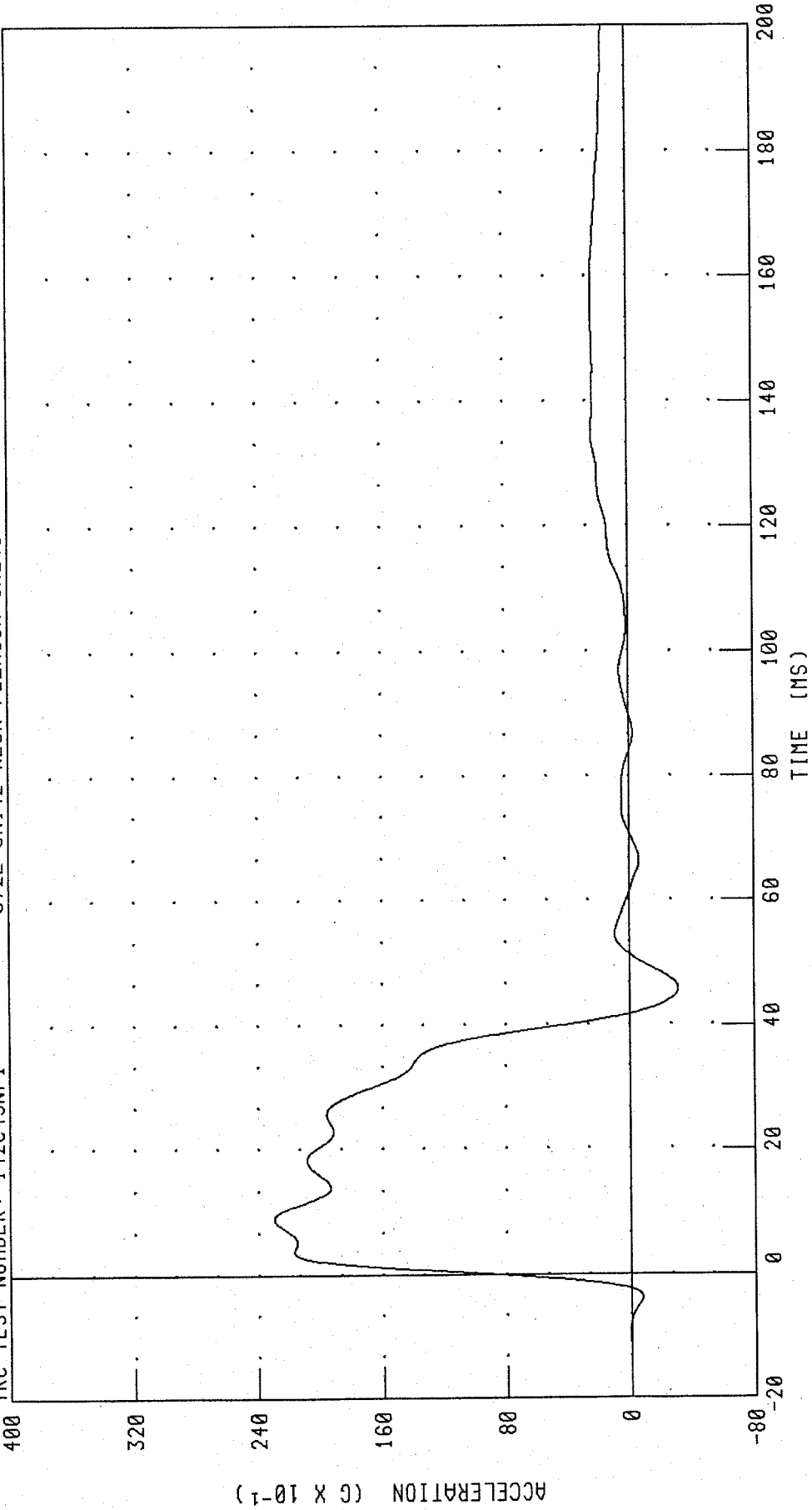
TECHNICIAN Dustin Walker

RUN NUMBER: 101200.1512;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 142C43NF1 RUN NUMBER: 101200.1512;1

572E SN142 NECK FLEXION CAL43



PEAK DATA: 22.98 G @ 8.96 MS; -3.16 G @ 45.84 MS

CHANNEL: PENXC FILTER: CH. CLASS 60

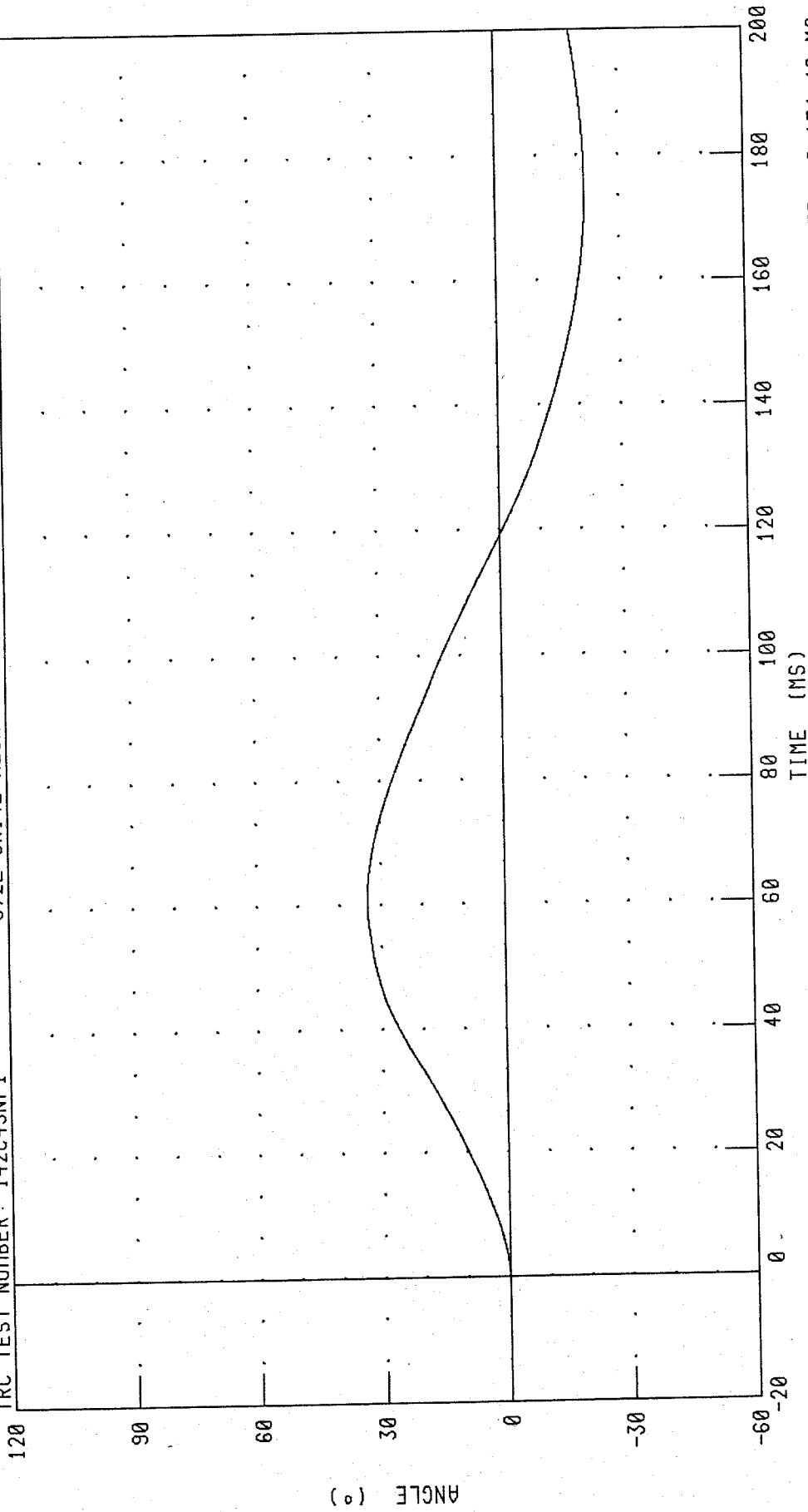
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

RUN NUMBER: 101200.1512;1

TRC TEST NUMBER: 142C43NF1

572E SN142 NECK FLEXION CAL43



PEAK DATA: 33.25 ° @ 60.32 MS; -21.73 ° @ 174.48 MS

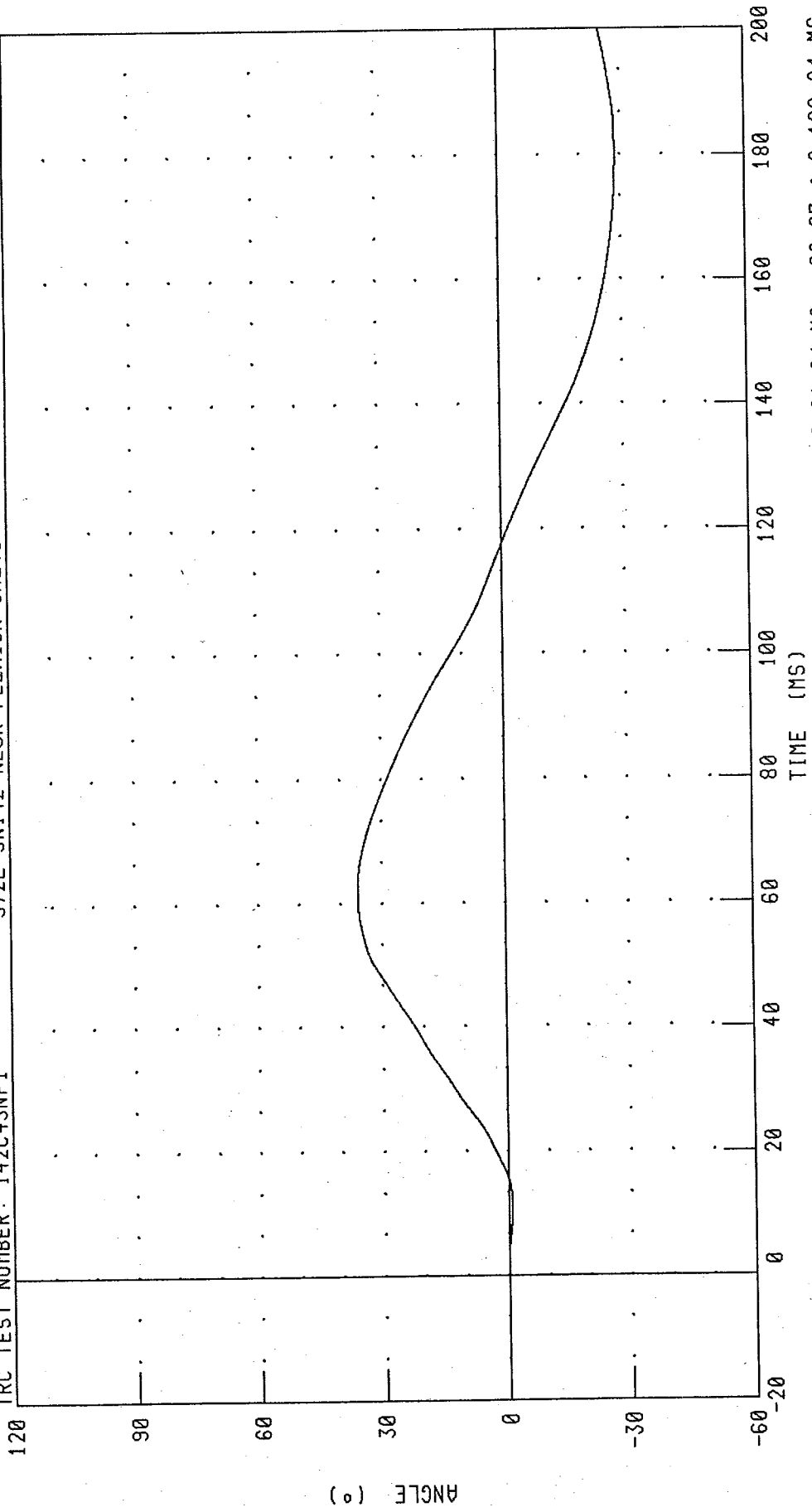
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C43NF1

572E SN142 NECK FLEXION CAL43

RUN NUMBER: 101200.1512;1



PEAK DATA: 35.82 ° @ 61.84 MS; -28.67 ° @ 180.24 MS

CHANNEL: THETA FILTER: CH. CLASS 60

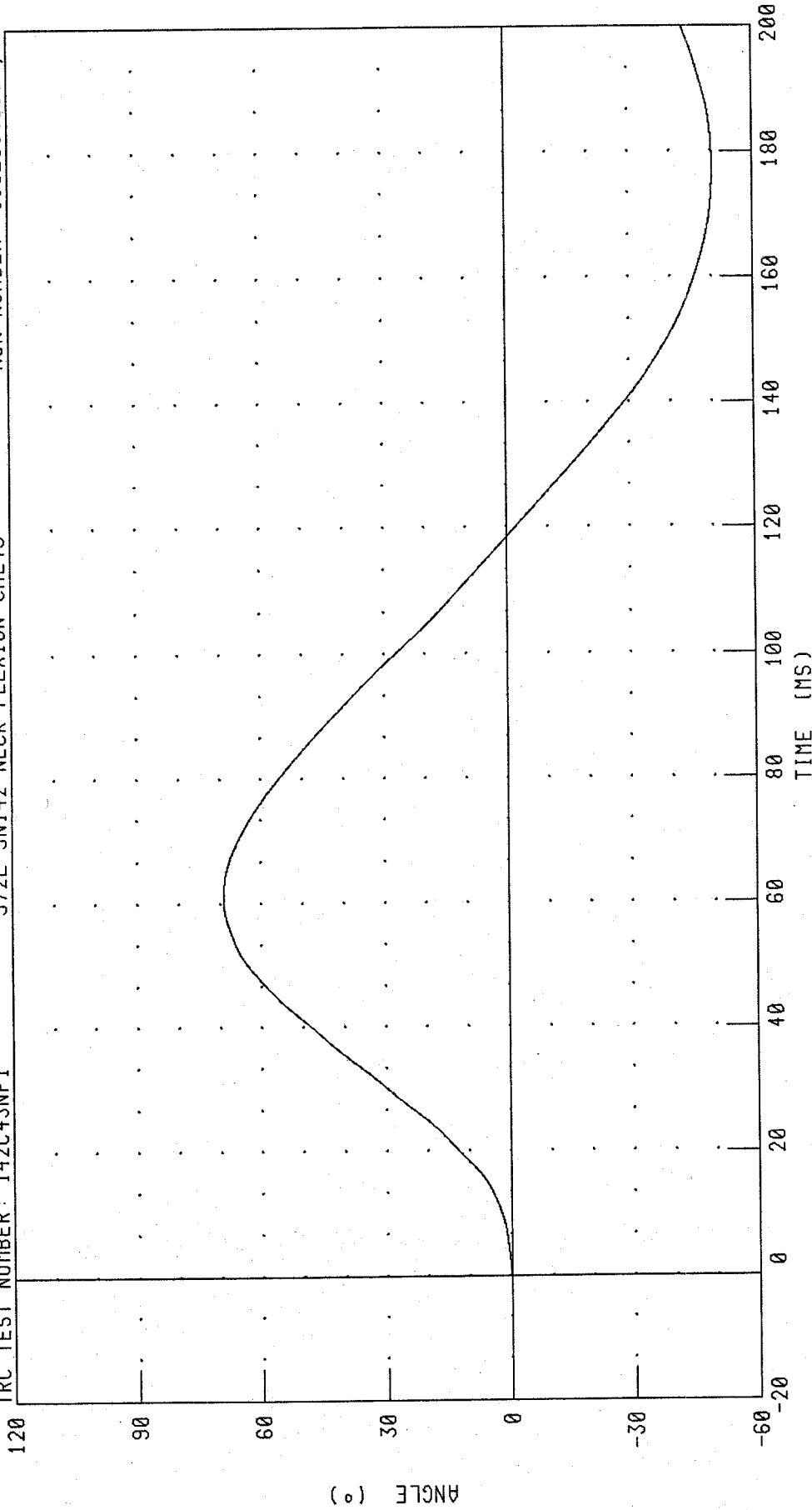
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C43NF1

572E SN142 NECK FLEXION CAL43

RUN NUMBER: 101200.1512;1



CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 69.04 ° @ 60.96 MS; -50.34 ° @ 177.12 MS

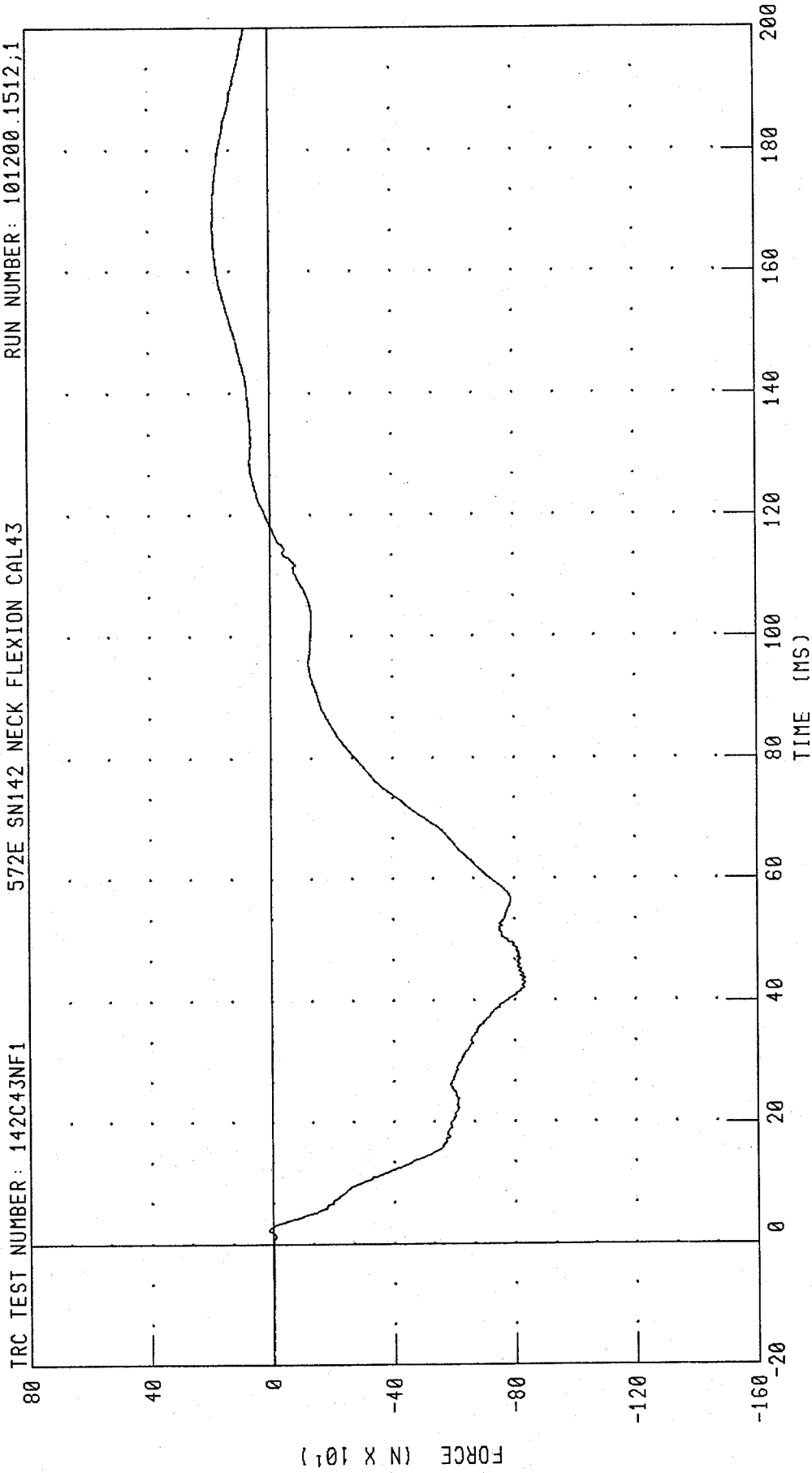
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 101200.1512;1

572E SN142 NECK FLEXION CAL43

TRC TEST NUMBER: 142C43NF1



PEAK DATA: 187.20 N @ 167.36 MS; -834.24 N @ 43.12 MS

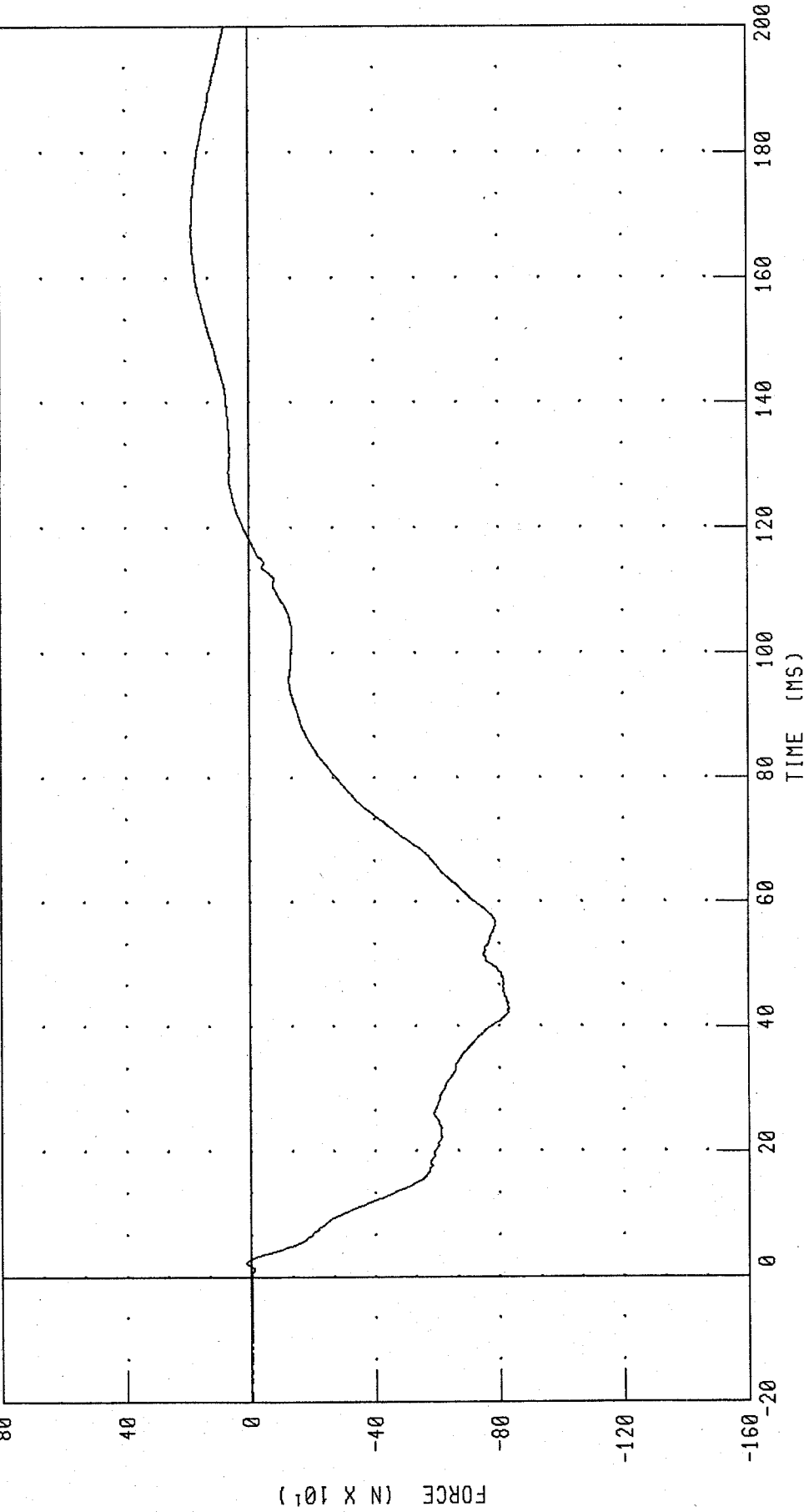
CHANNEL: NEKXF FILTER: CH. CLASS 1000

PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER: 142C43NF1

572E SN142 NECK FLEXION CAL43

RUN NUMBER: 101200.1512;1



CHANNEL: NEKXFC FILTER: CH. CLASS 600

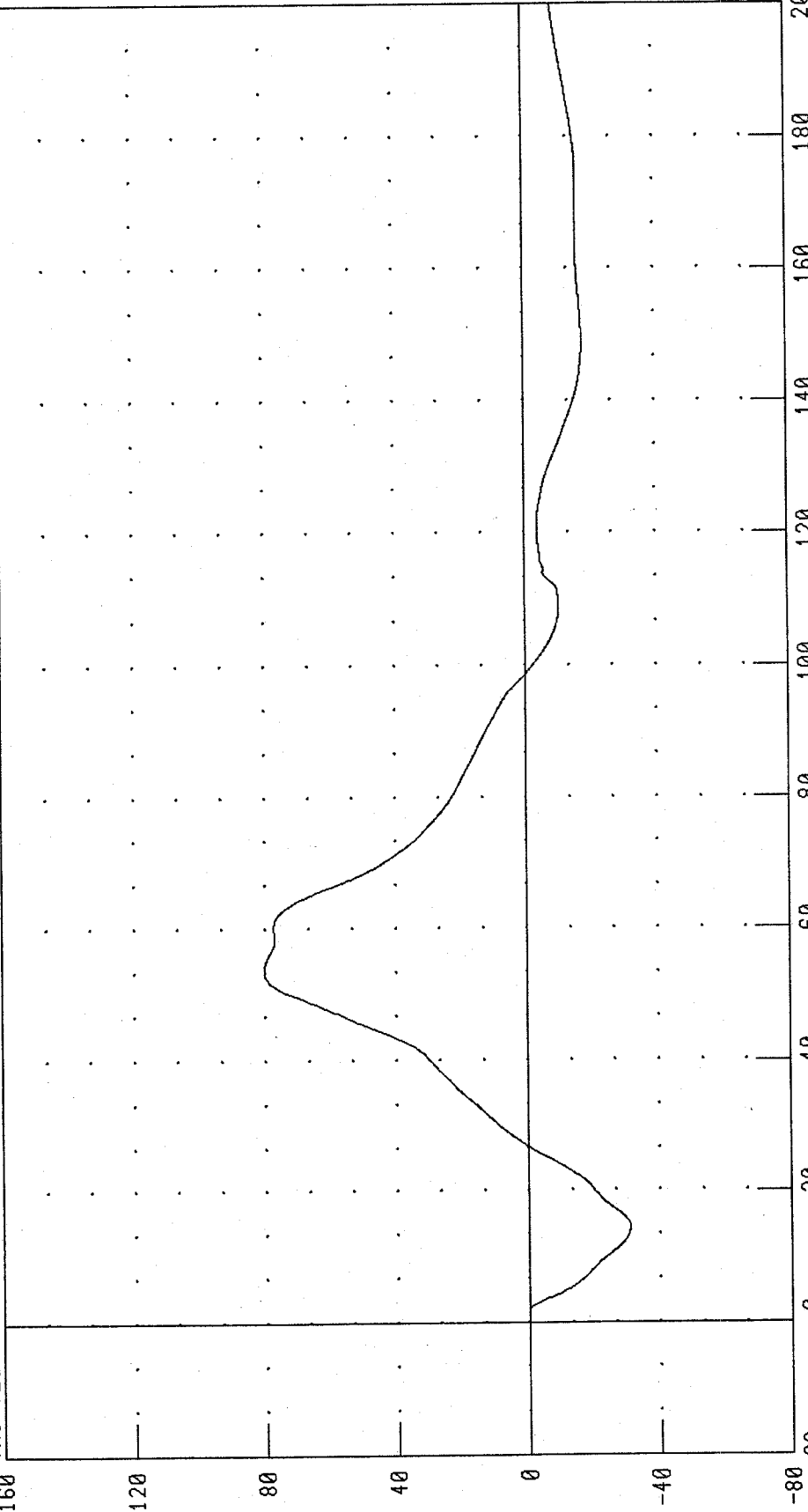
PEAK DATA: 186.92 N @ 167.28 MS; -832.31 N @ 43.04 MS

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

RUN NUMBER: 101200.1512;1

TRC TEST NUMBER: 142C43NF1 572E SN142 NECK FLEXION CAL43

160



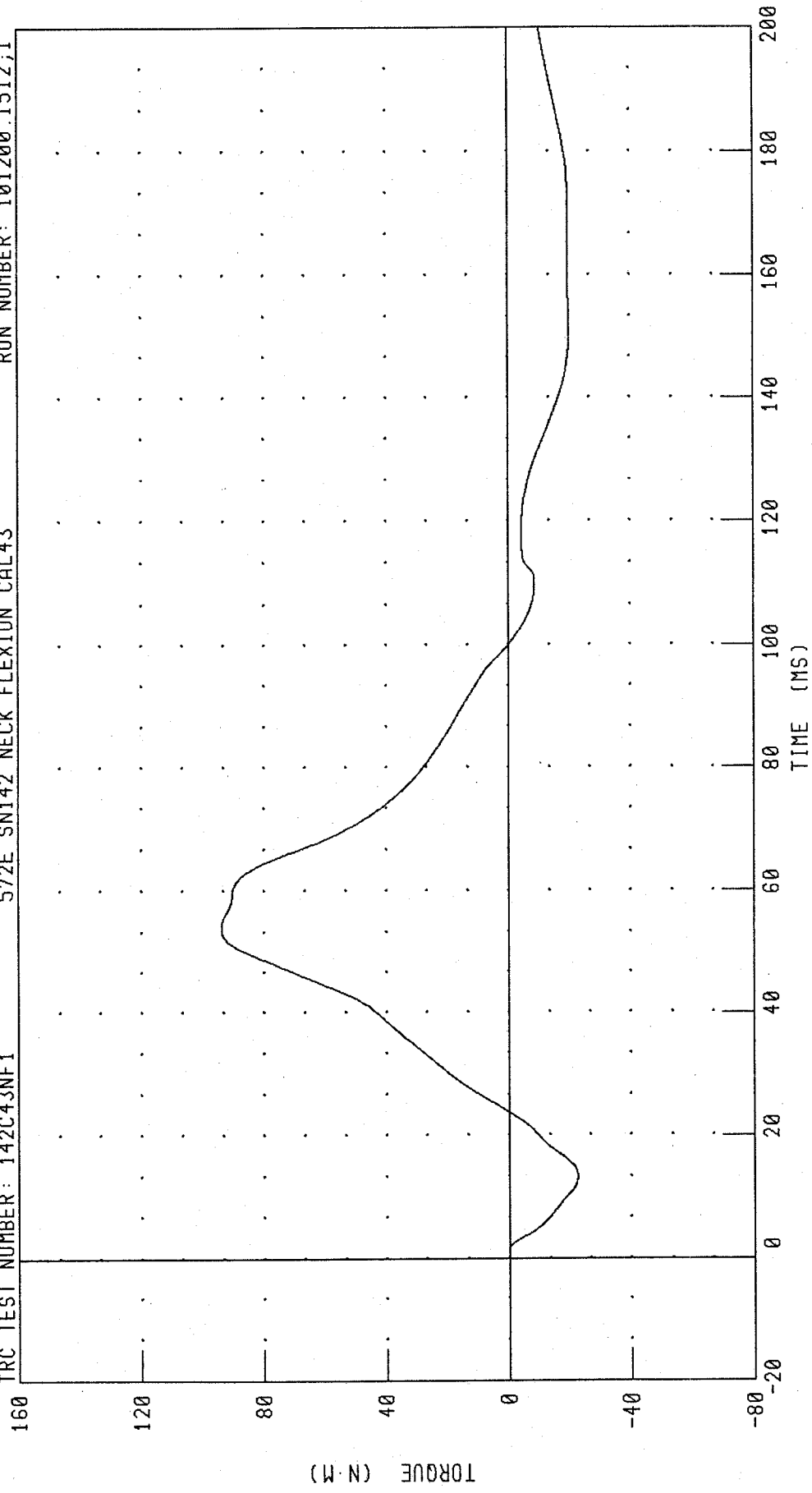
PEAK DATA: 80.13 N.M @ 53.28 MS; -31.03 N.M @ 14.48 MS

CHANNEL: NEKYM FILTER: CH. CLASS 600

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

TRC TEST NUMBER: 142C43NF1 RUN NUMBER: 101200.1512;1

572E SN142 NECK FLEXION CAL43



PEAK DATA: 93.78 N·M @ 54.16 MS; -22.35 N·M @ 13.28 MS

CHANNEL: NEKOM FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

12-OCT-00

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 142C43NE1 572E SN142 NECK EXT CAL43

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS 17.20 - 21.20 G	17.98 G
	20 MS 14.00 - 19.00 G	16.85 G
	30 MS 11.00 - 16.00 G	14.68 G
MAX PENDULUM G	22 G MAX	18.45 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	14.65 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	41.92 MS
D PLANE	MAX 81 - 106 DEG.	96.75 DEG.
ROTATION	TIME 72 - 82 MS	77.44 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN -80.0/-52.9 NM	-71.39 NM
	TIME 65 - 79 MS	73.76 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	156.64 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	141.68 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Dustin Walker

RUN NUMBER: 101200.1541;1

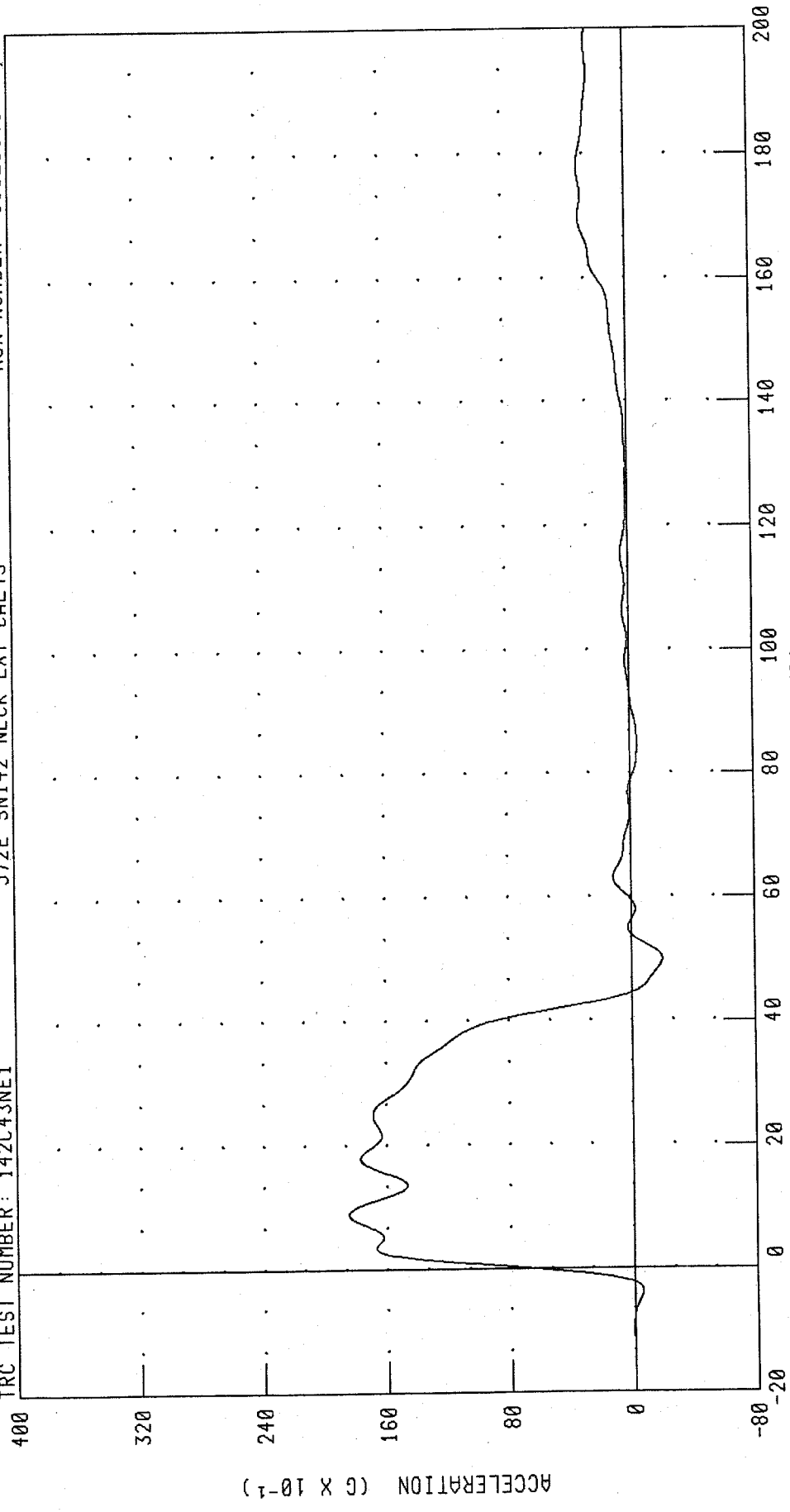
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

RUN NUMBER: 101200.1541;1

572E SN142 NECK EXT CAL43

TRC TEST NUMBER: 142C43NE1



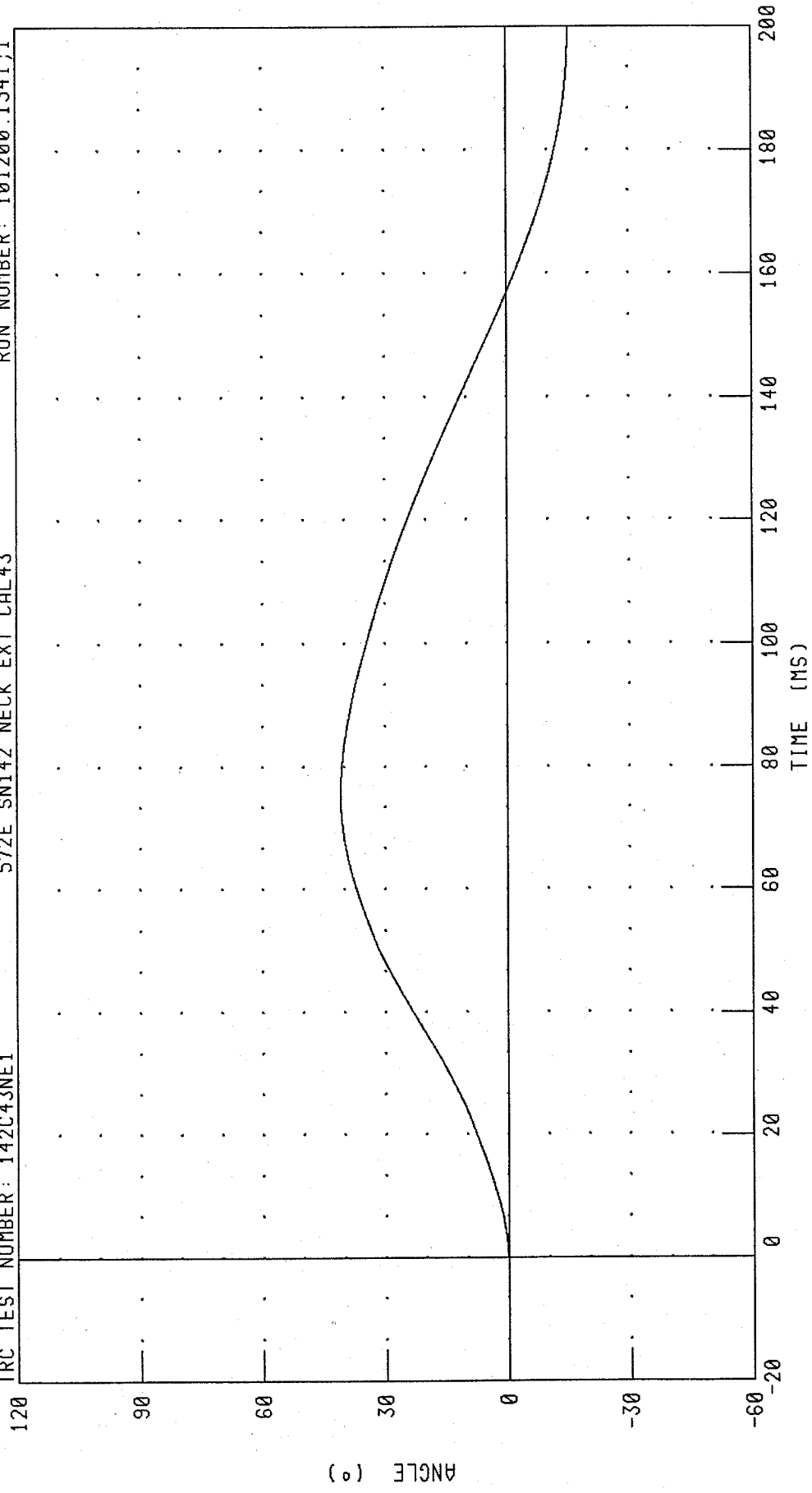
PEAK DATA: 18.46 G @ 8.88 MS; -2.03 G @ 49.92 MS

CHANNEL: PENXC FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C43NE1 RUN NUMBER: 101200.1541;1

572E SN142 NECK EXT CAL43



PEAK DATA: 40.82 ° @ 75.44 MS; -15.30 ° @ 199.92 MS

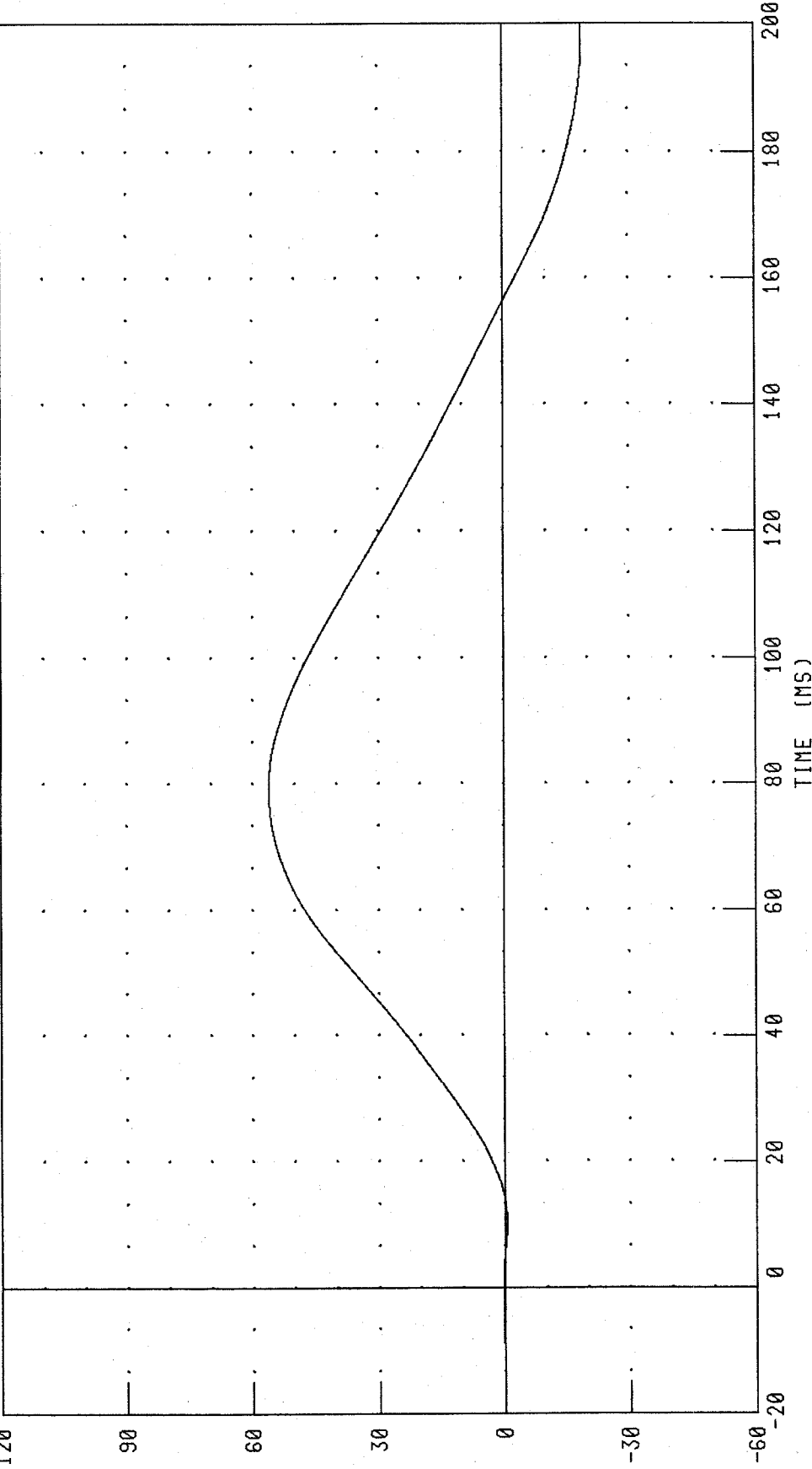
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C43NE1

572E SN142 NECK EXT CAL43

RUN NUMBER: 101200.1541;1



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 56.06 ° @ 79.44 MS; -18.91 ° @ 196.80 MS

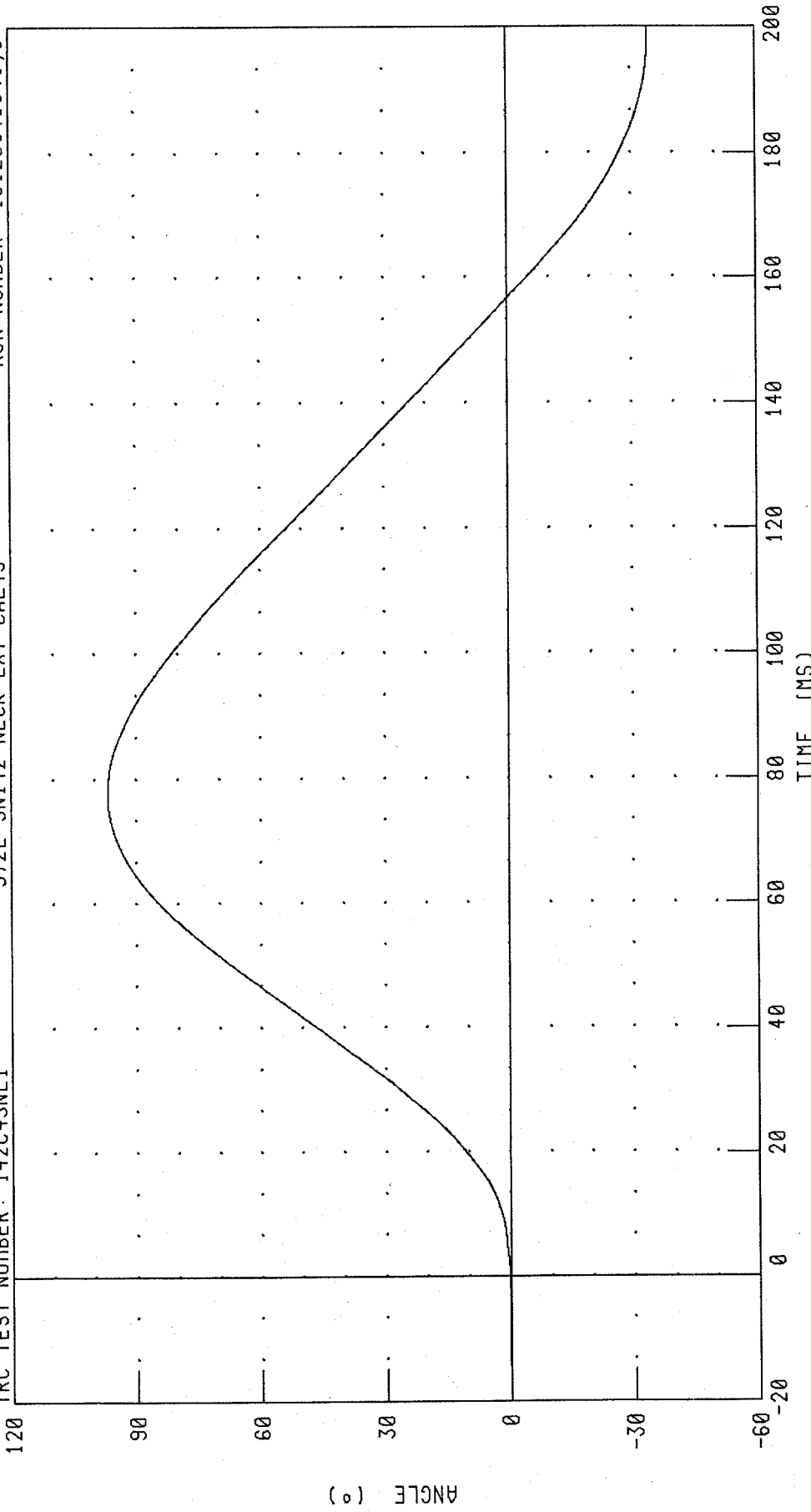
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C43NE1

572E SN142 NECK EXT CAL43

RUN NUMBER: 101200.1541;1



CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 96.76 ° @ 77.44 MS; -34.16 ° @ 198.16 MS

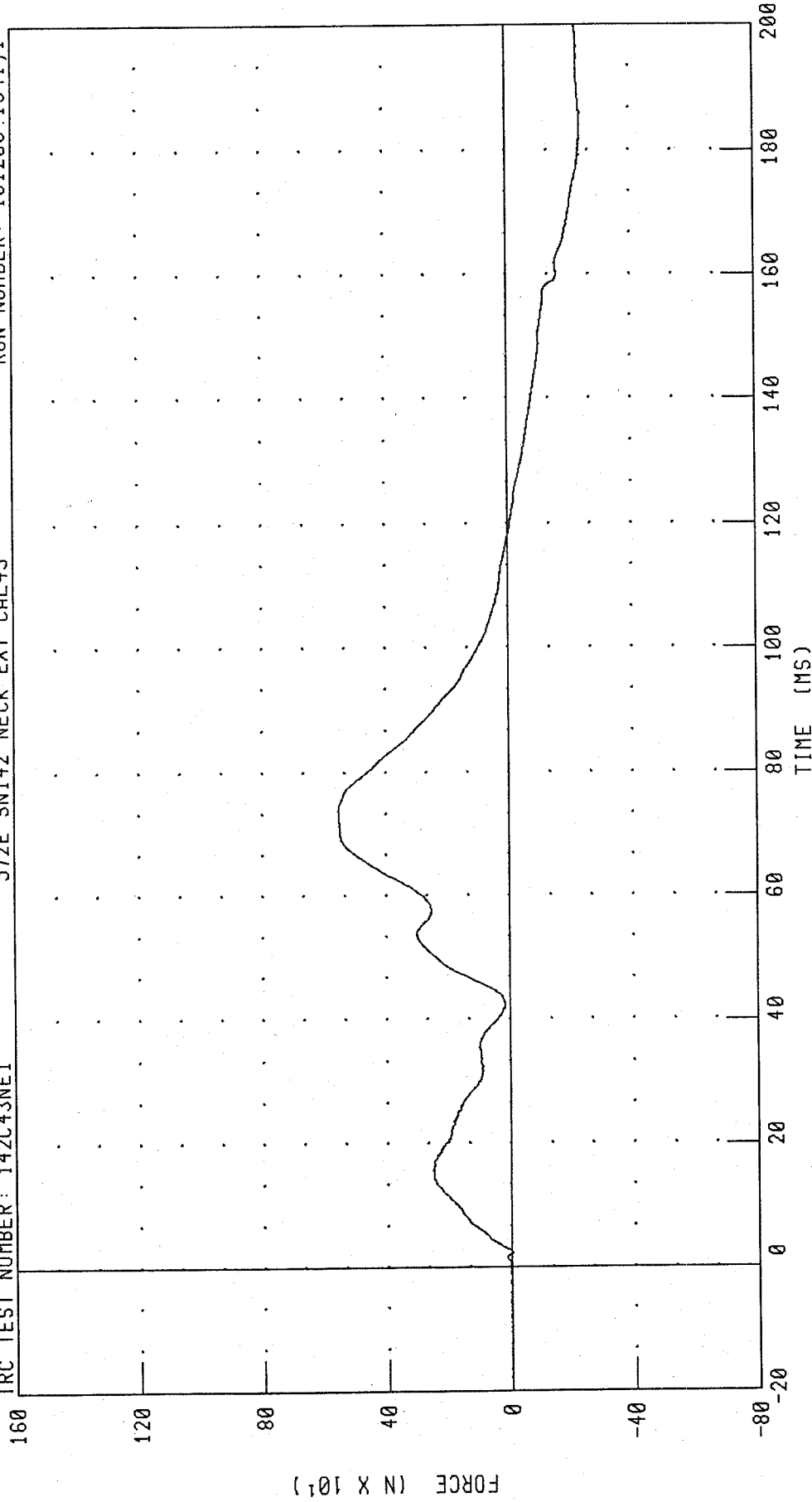
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 101200.1541,1

572E SN142 NECK EXT CAL43

TRC TEST NUMBER: 142C43NE1

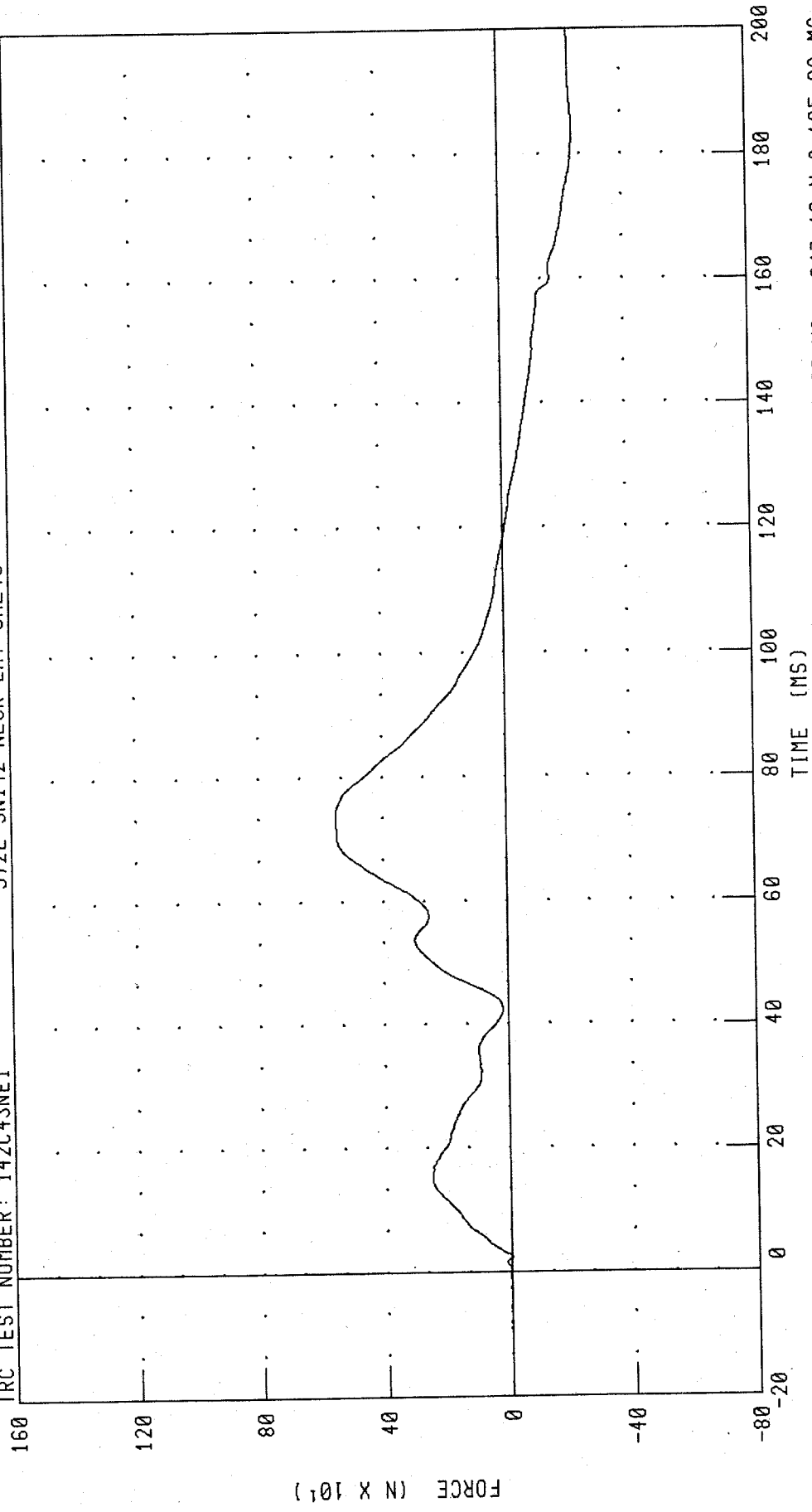


PEAK DATA: 552.86 N @ 73.92 MS; -244.89 N @ 186.00 MS

CHANNEL: NEKXF FILTER: CH. CLASS 1000

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER: 142C43NE1 572E SN142 NECK EXT CAL43 RUN NUMBER: 101200.1541;1



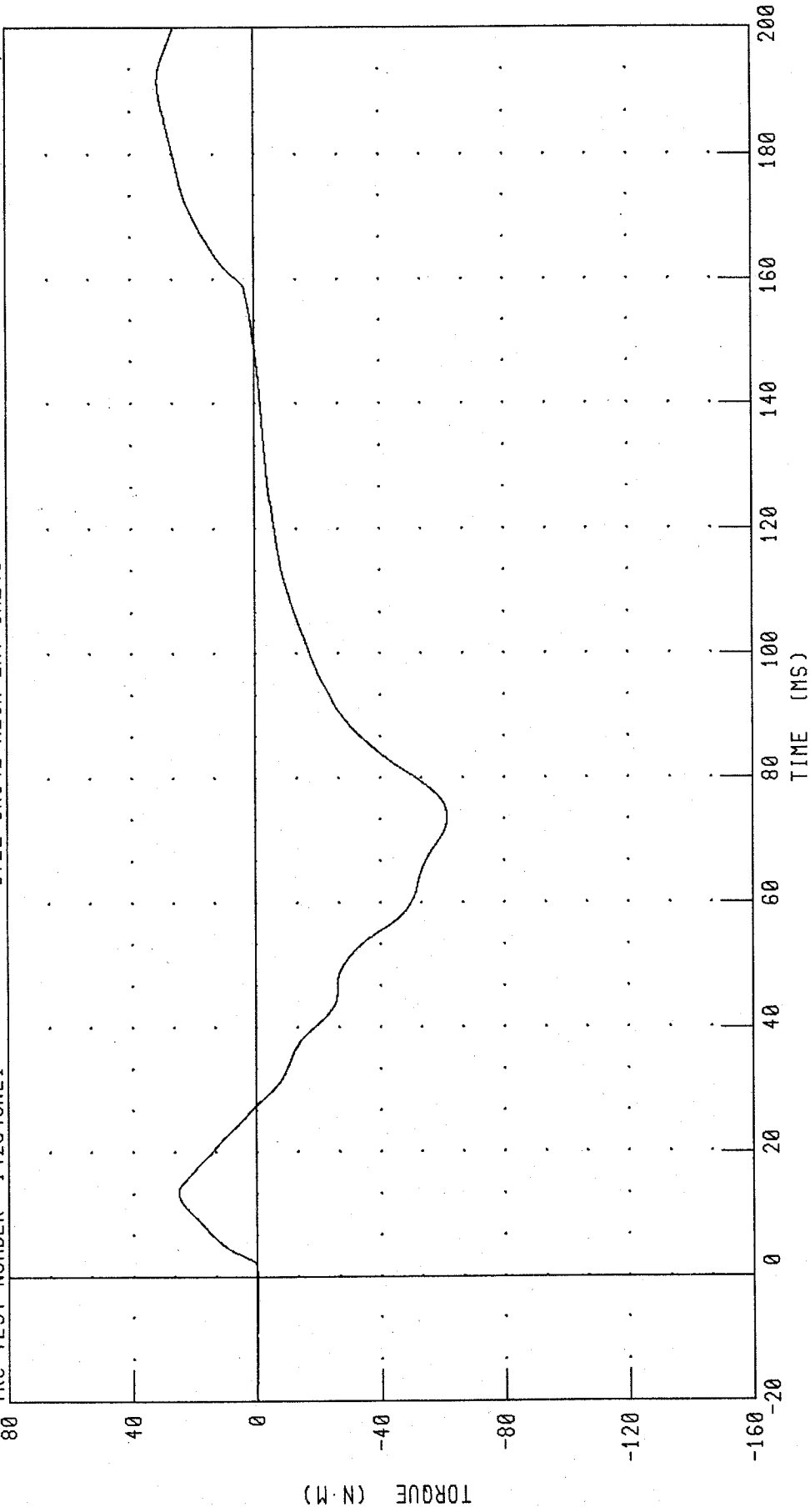
CHANNEL: NEKXFC FILTER: CH. CLASS 600 PEAK DATA: 552.29 N @ 73.92 MS; -243.10 N @ 185.92 MS

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

TRC TEST NUMBER: 142C43NE1

572E SN142 NECK EXT CAL43

RUN NUMBER: 101200.1541;1



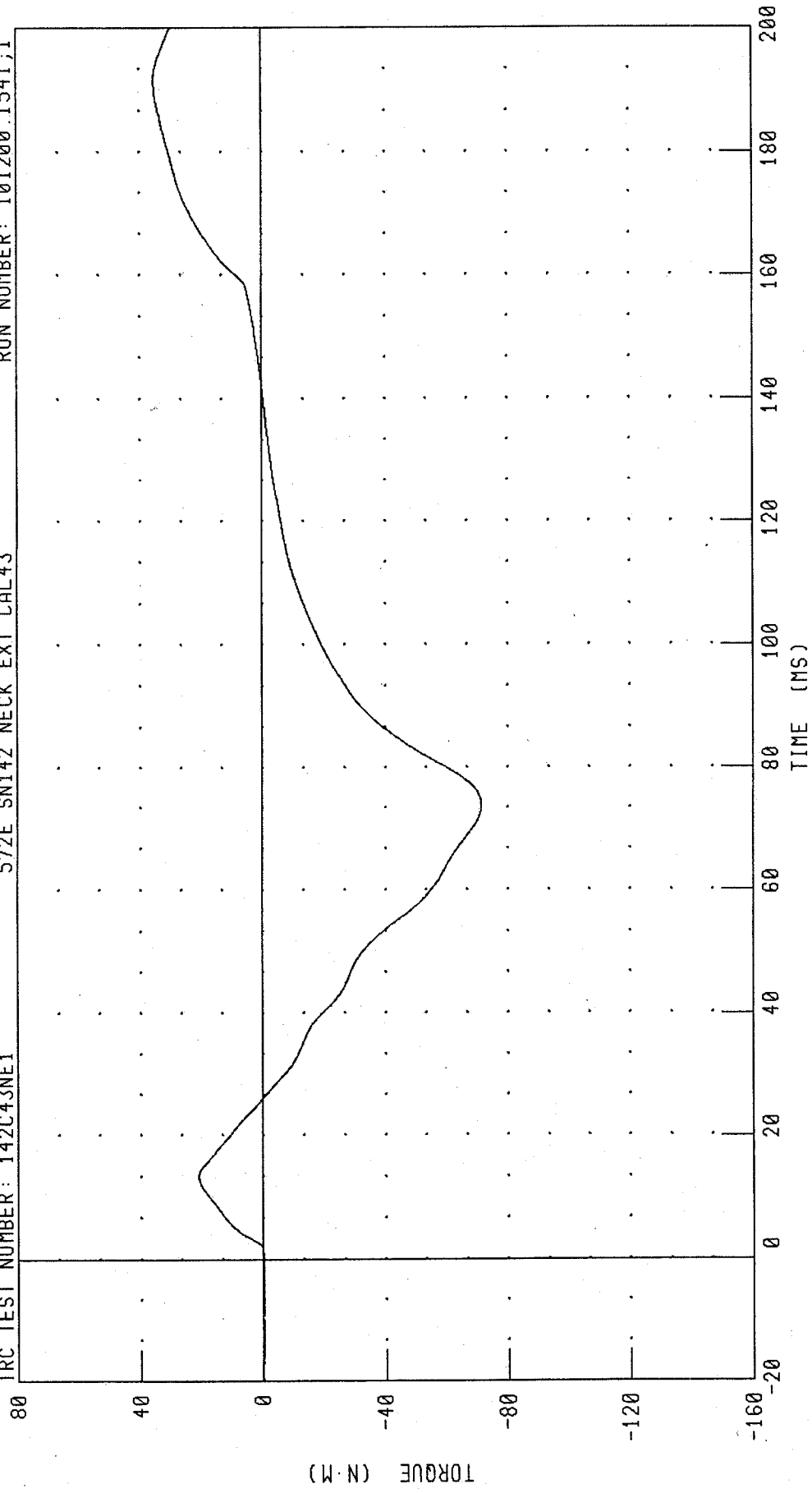
PEAK DATA: 31.18 N·M @ 191.52 MS; -61.57 N·M @ 73.68 MS

CHANNEL: NEKYM FILTER: CH. CLASS 600

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

TRC TEST NUMBER: 142C43NE1 RUN NUMBER: 101200.1541;1

572E SN142 NECK EXT CAL43



PEAK DATA: 35.28 N·M @ 191.52 MS; -71.39 N·M @ 73.76 MS

CHANNEL: NEKOM FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 50th

13-OCT-00

TRC INC.

TEST NO: 142C43TH1

572E SN142 H.S.THORAX CAL43

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.59 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	66.4 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5689. N
INTERNAL HYSTERESIS	69% - 85%	75.9%

TEST MEETS SPECIFICATIONS

TECHNICIAN

Dustin Walker

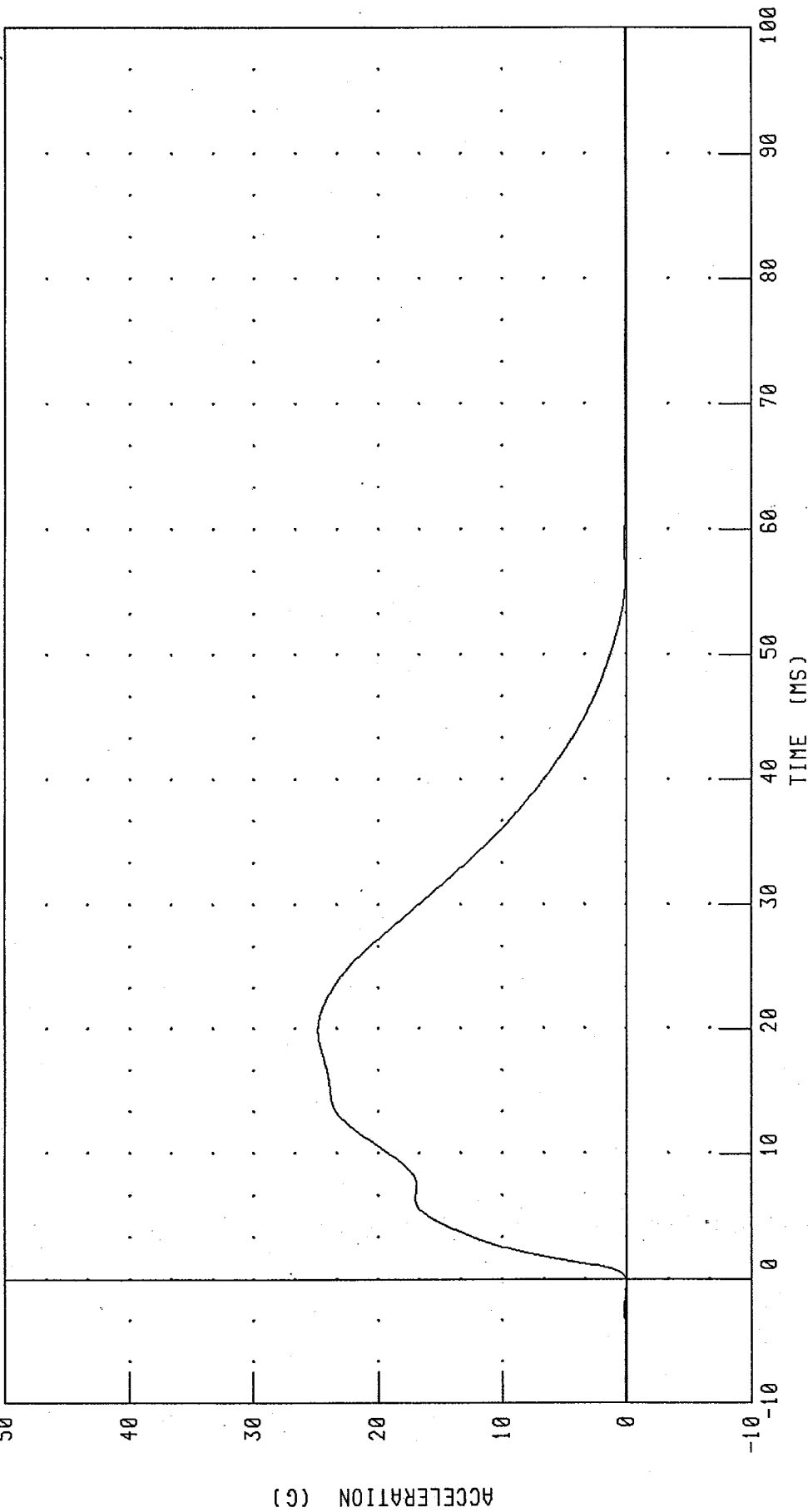
RUN NUMBER: 101300.1635;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 142C43TH1

572E SN142 H.S.THORAX CAL43

RUN NUMBER: 101300.1635;1



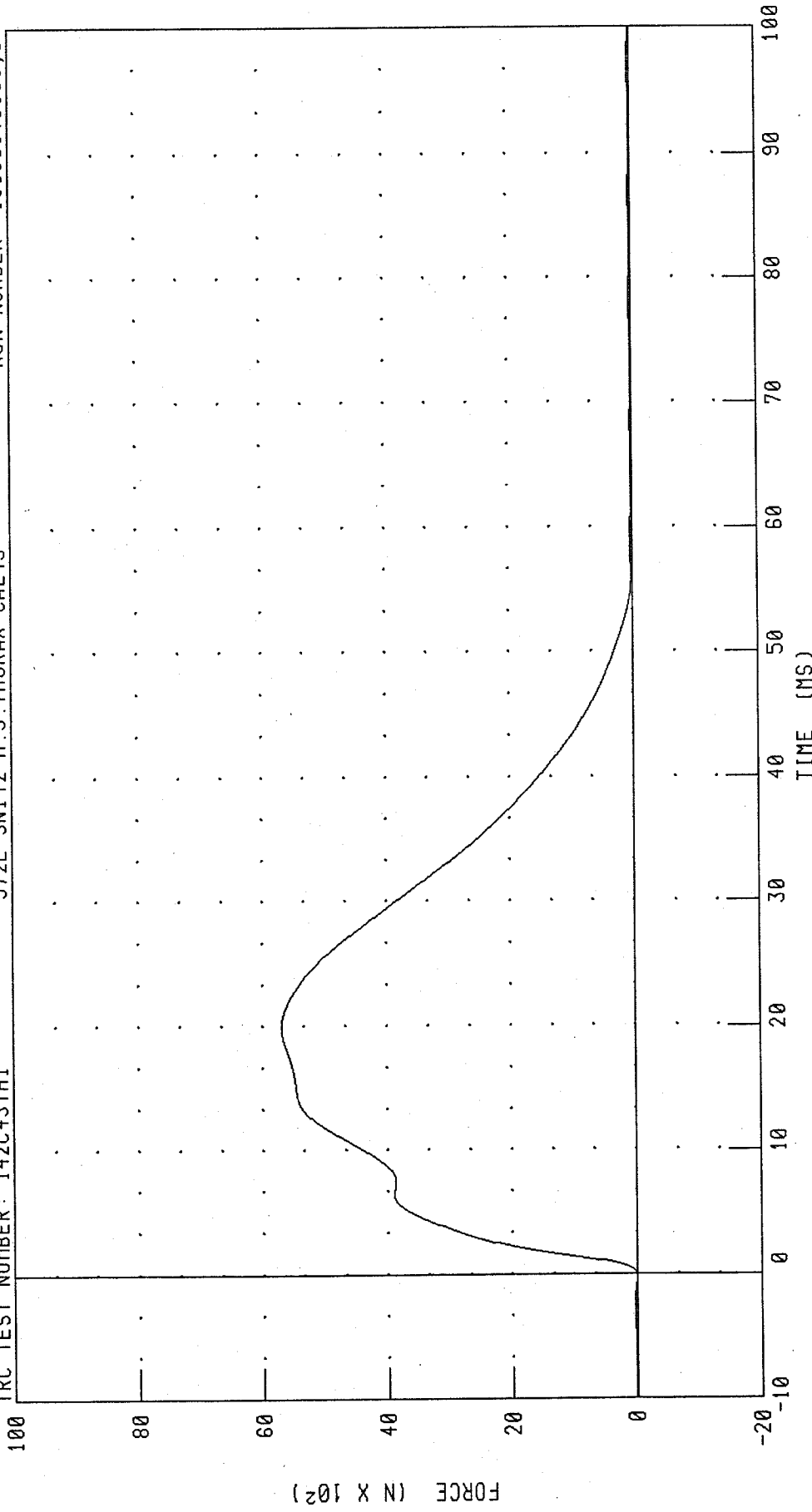
PEAK DATA: 24.83 G @ 19.92 MS; -0.05 G @ -0.24 MS

CHANNEL: PENXG FILTER: CH. CLASS 180

ACCELERATION (G)

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 142C43TH1 572E SN142 H.S. THORAX CAL43 RUN NUMBER: 101300.1635;1



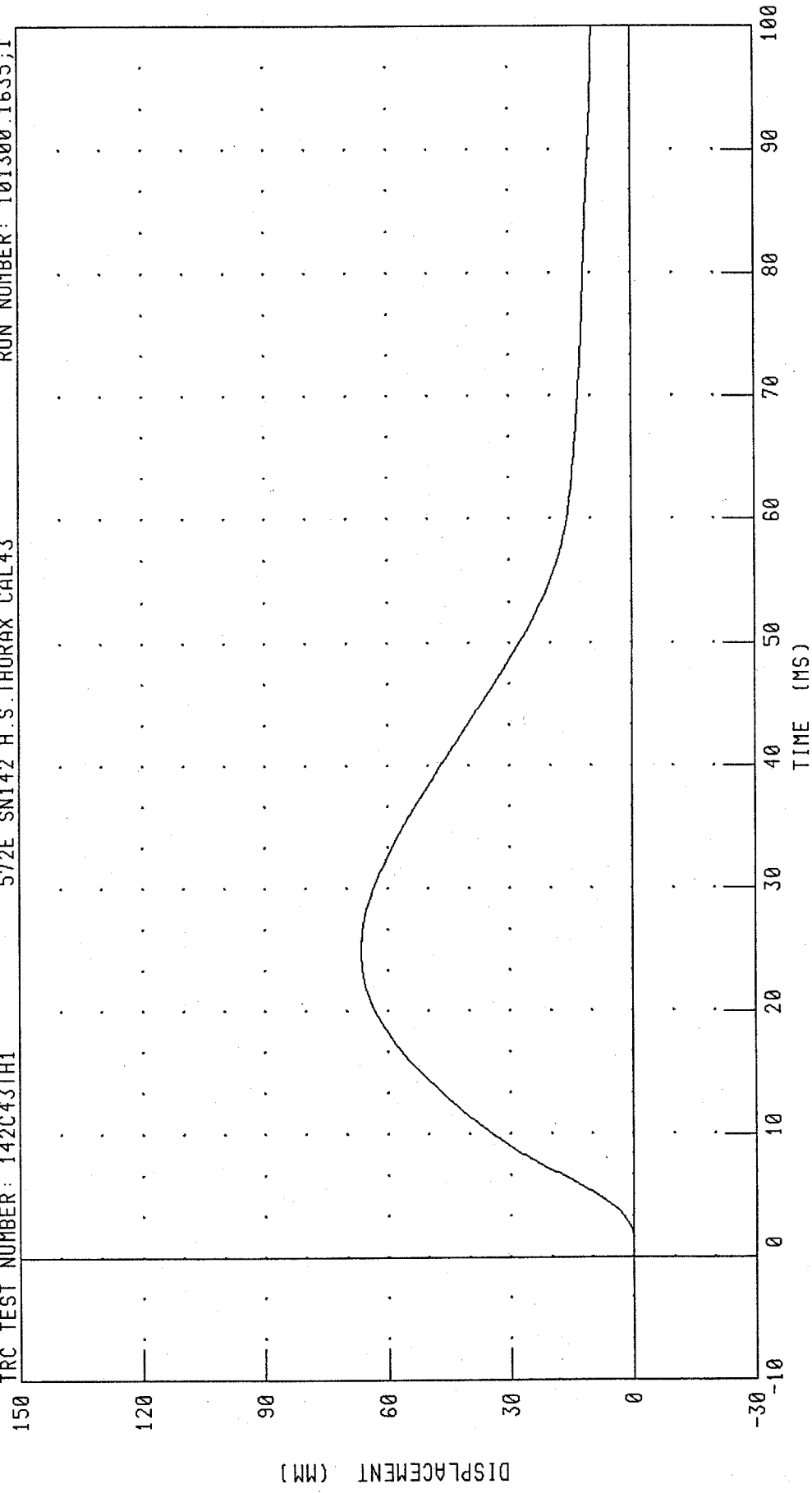
CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5689.22 N @ 19.92 MS; -10.39 N @ -0.24 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 142C43TH1

572E SN142 H.S.THORAX CAL43

RUN NUMBER: 101300.1635.1



PEAK DATA: 66.45 MM @ 25.04 MS; -0.06 MM @ 1.28 MS

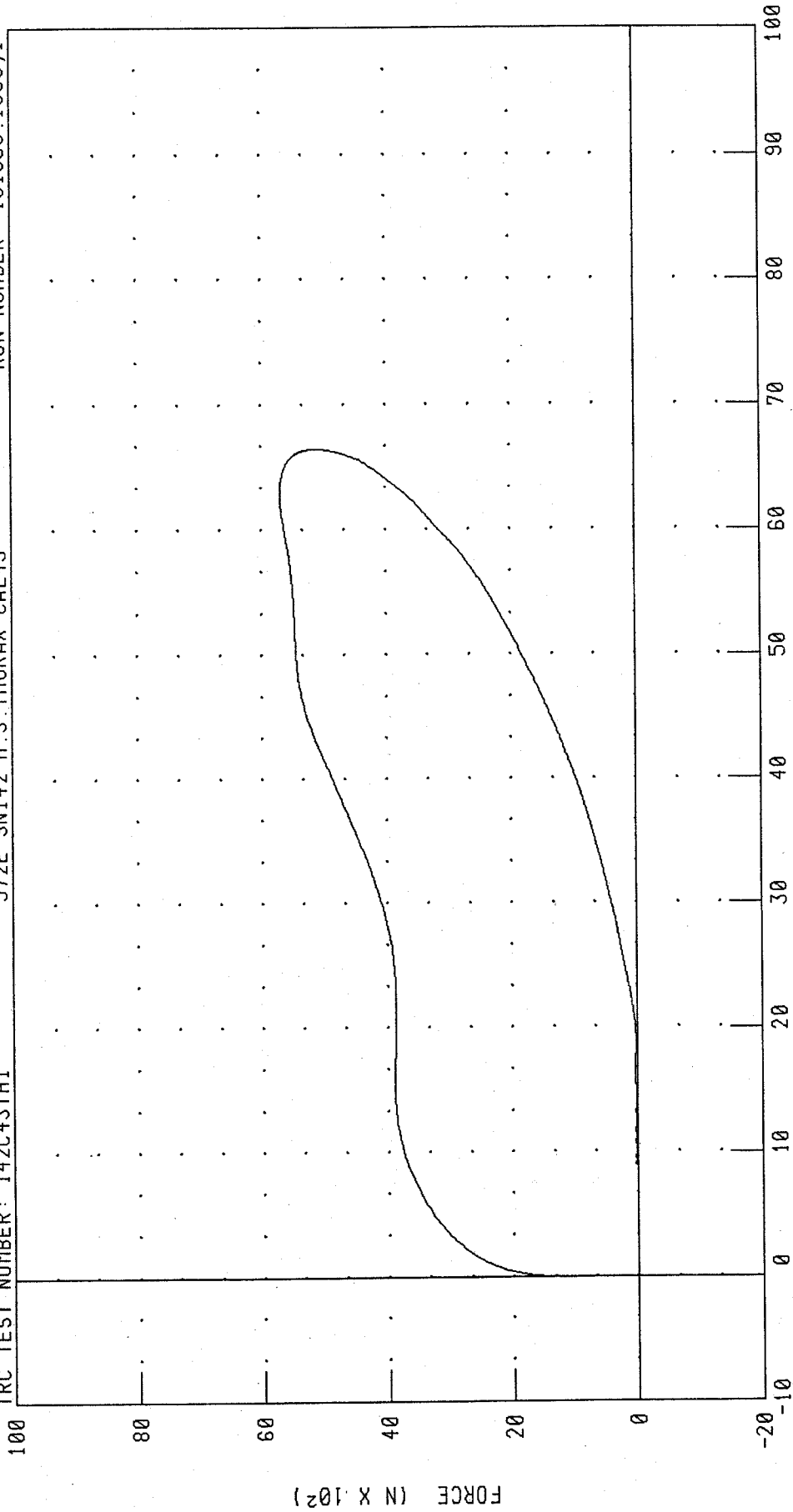
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 142C43TH1

572E SN142 H.S. THORAX CAL43

RUN NUMBER: 101300.1635;1



CHANNEL: CSTXD
PENXF
FILTER: CH. CLASS 180
CH. CLASS 180
PEAK DATA: 66.45 MM @ 25.04 MS; -0.06 MM @ 1.28 MS
5689.22 N @ 19.92 MS; -10.39 N @ -0.24 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 50th

12-OCT-00

TRC INC.

TEST NO: 142C43LK1

572E SN142 LEFT KNEE CAL 43

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.07 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5432.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Dustin Walker

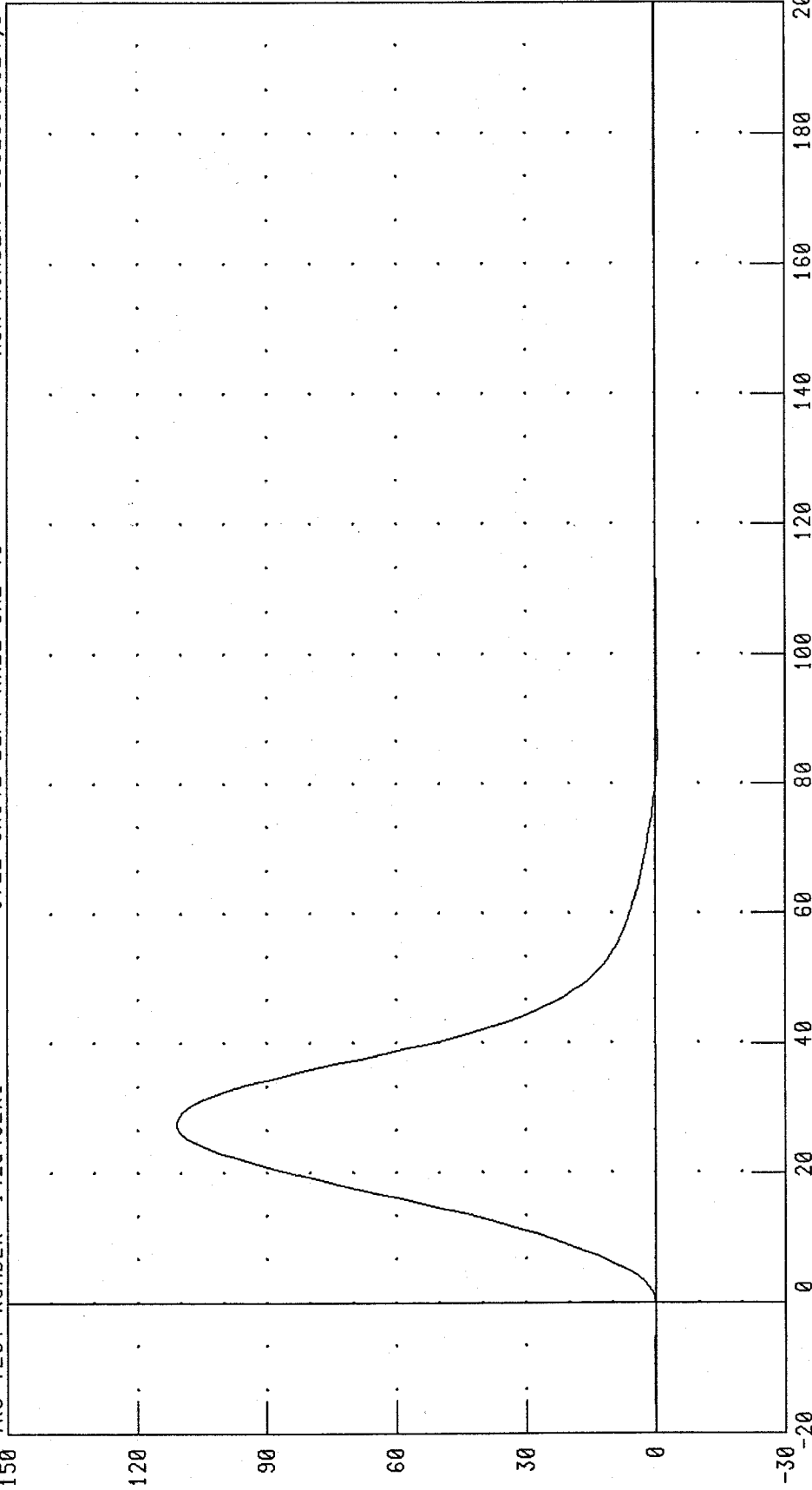
RUN NUMBER: 101200.1523;1

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

TRC TEST NUMBER: 142C43LK1

572E SN142 LEFT KNEE CAL 43

RUN NUMBER: 101200.1524;1



CHANNEL: PENXC FILTER: CH. CLASS 600
PEAK DATA: 111.03 G @ 2.80 MS; -0.50 G @ 8.56 MS

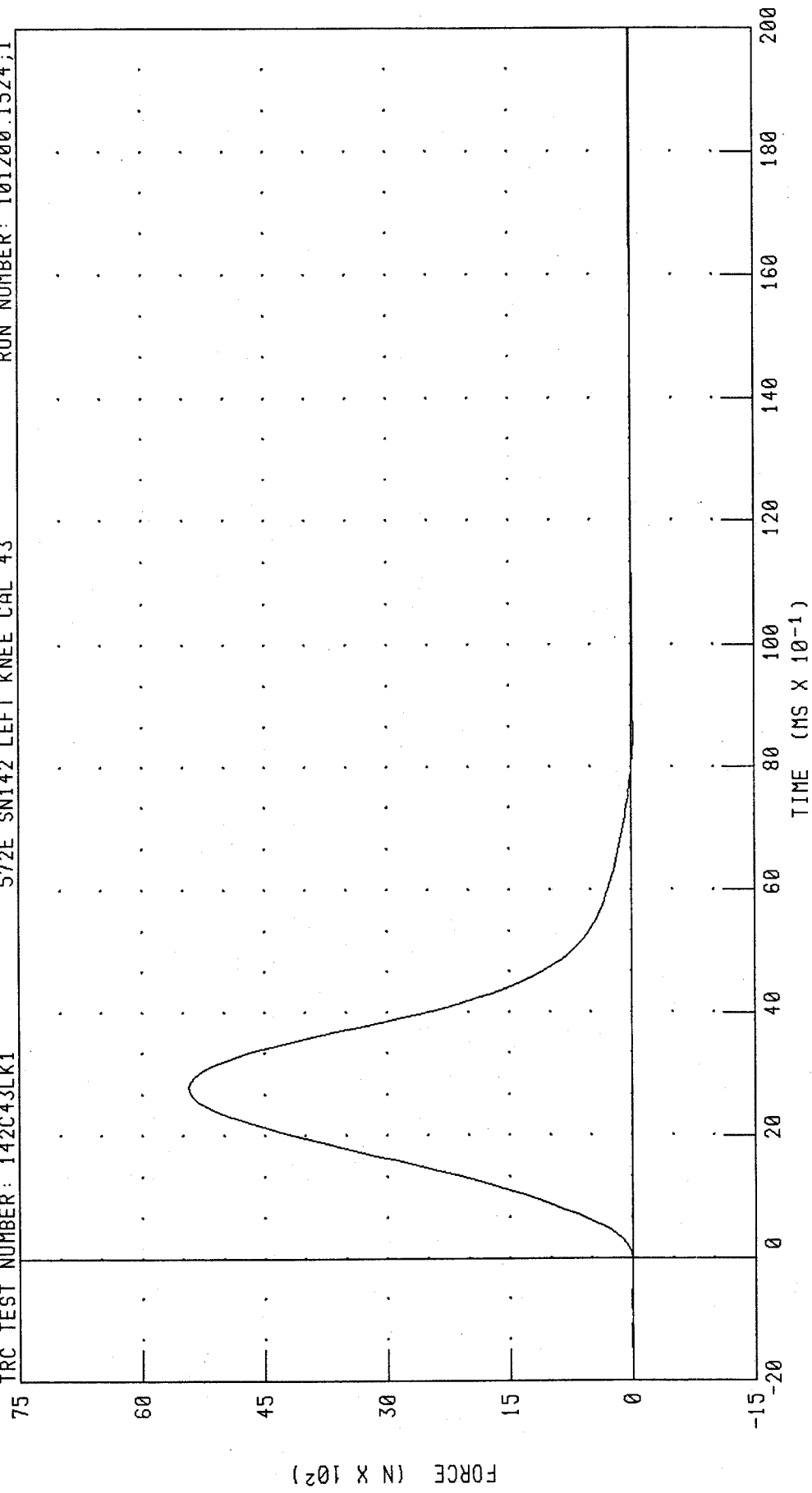
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 142C43LK1

572E SN142 LEFT KNEE CAL 43

RUN NUMBER: 101200.1524;1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5432.66 N @ 2.80 MS; -24.47 N @ 8.56 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 50th

12-OCT-00

TRC INC.

TEST NO: 142C43RK1

572E SN142 RIGHT KNEE CAL 43

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.07 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5481.2 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Dustin Walker

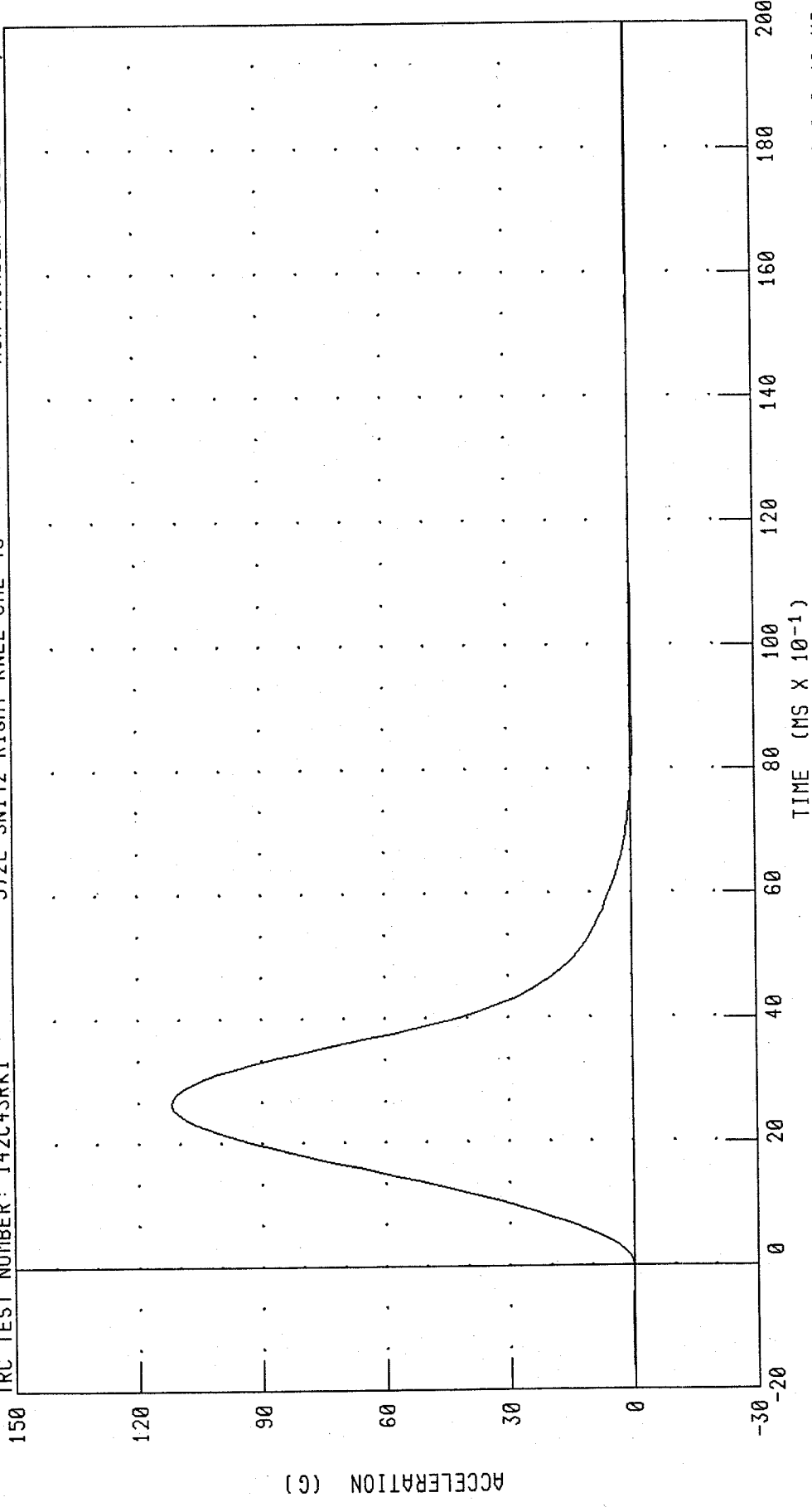
RUN NUMBER: 101200.1528;1

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

TRC TEST NUMBER: 142C43RK1

572E SN142 RIGHT KNEE CAL 43

RUN NUMBER: 101200.1528,1



CHANNEL: PENXC FILTER: CH. CLASS 600 PEAK DATA: 112.03 G @ 2.64 MS; -0.53 G @ 8.40 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN142 RIGHT KNEE CAL 43

RUN NUMBER: 101200.1528;1

TRC TEST NUMBER: 142C43RK1

75

60

45

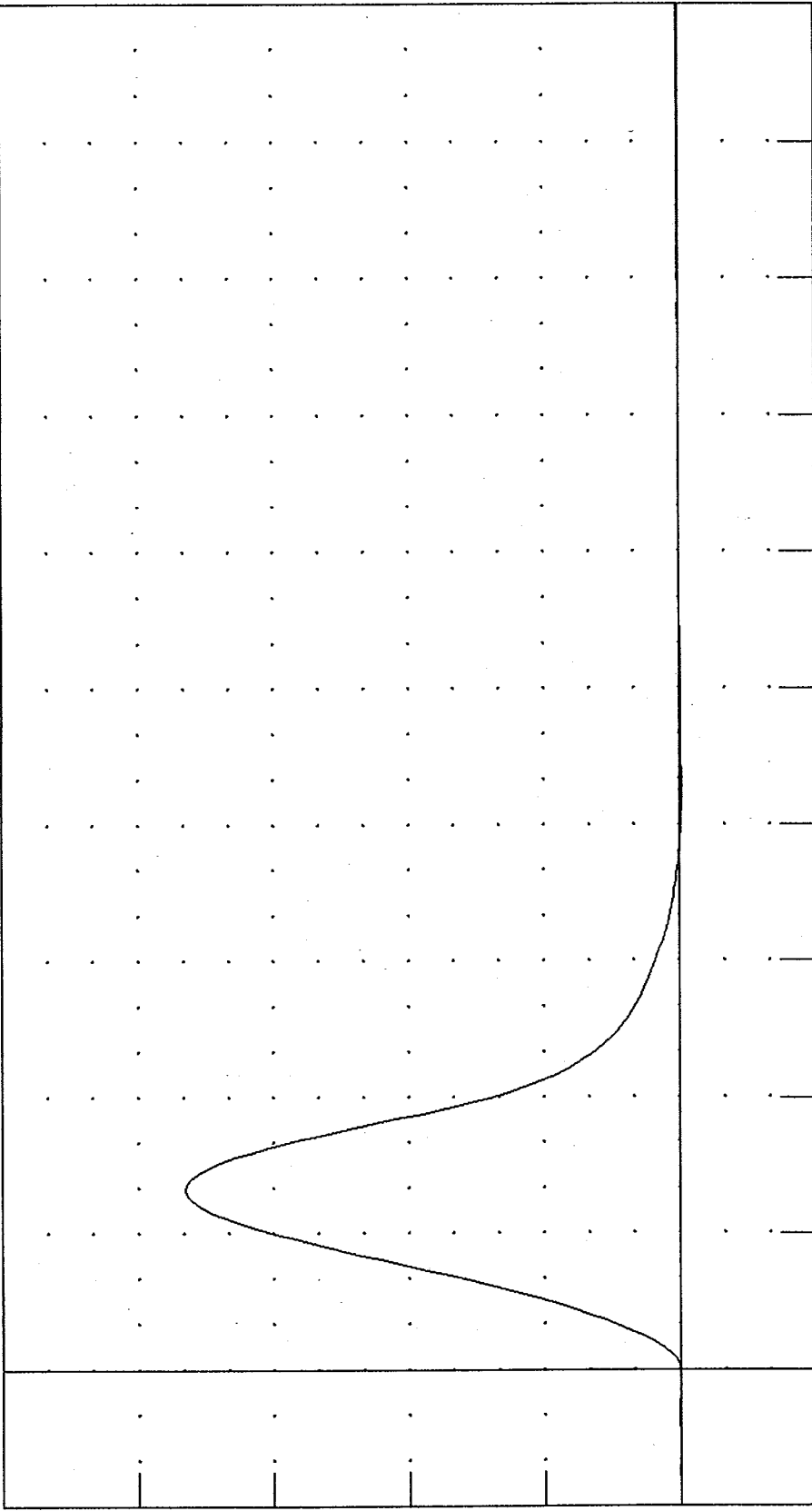
30

15

0

-15

FORCE (N X 10²)



TIME (MS X 10⁻¹)

PEAK DATA: 5481.27 N @ 2.64 MS; -26.00 N @ 8.40 MS

CHANNEL: PENXF FILTER: CH. CLASS 600