

**Vehicle Research and Test Center  
2002 Nissan Altima into  
Fixed 40% Left Offset Deformable  
Load Cell Barrier at 60 km/h  
TRC Inc. Test Number: 020819**

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Section 1.0

Purpose and Test Procedure

## Purpose

This 60.0 km/h (37.3 mph) fixed 40% left offset deformable load cell barrier impact test was conducted for the National Highway Traffic Safety Administration (NHTSA) and Vehicle Research and Test Center (VRTC) by Transportation Research Center Inc. (TRC Inc.).

The purpose of this test was to evaluate frontal crash protection in a 40% offset frontal barrier impact test. The subject vehicle was a 2002 Nissan Altima 4-door sedan.

## Test Procedure

This test was conducted in accordance with VRTC instructions for a vehicle into a fixed 40% left offset deformable load cell barrier test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; and FMVSS 219, "Windshield Zone Intrusion", performance in an increased speed test mode using 5<sup>th</sup> percentile female anthropomorphic test devices (dummies).

The test vehicle, a 2002 Nissan Altima, was instrumented with five (5) triaxial sets of accelerometers to measure longitudinal, lateral and vertical axis accelerations, one (1) additional vertical accelerometer, one (1) displacement potentiometer, and four (4) seat belt load cells. The driver's and passenger's primary and secondary airbag signals were monitored with inductive pickups. The vehicle impacted a fixed offset deformable load cell barrier. The vehicle's specified impact velocity range was 59.2 to 60.8 km/h.

The deformable barrier face was offset to the left so that the right edge of the face was 178 millimeters left of the vehicle centerline. The bottom edge of the barrier face was 200 millimeters above the floor. The offset deformable barrier was instrumented with fifty (50) load cells to measure longitudinal forces.

The test vehicle contained two (2) Part 572O small adult female Hybrid III dummies. The dummies were positioned in the front outboard designated seating positions according to FMVSS 208 (December 18, 2001). The driver dummy and the passenger dummy were both unbelted and were restrained with front dual stage airbags.

Both dummies were instrumented with an array of twelve (12) accelerometers in the head, plus six (6) chest, and three (3) pelvis, accelerometers to measure longitudinal, lateral, and vertical accelerations, and three (3) sternum accelerometers to measure longitudinal acceleration. The dummies were also instrumented with upper and lower neck moment and force load cells, lumbar moment and force load cells, left and right femur load cells to measure axial forces, and chest deflection potentiometers. Both dummies were also equipped with THOR-FLX legs, which included upper and lower tibia load cells to measure forces and

moments, tibia accelerometers in two axes, foot accelerometers in three axes, a tibia to femur displacement potentiometer at each knee, and three (3) rotary potentiometers at each ankle to measure foot rotations about three axes.

The 235 data channels were digitally sampled and recorded at 12,500 samples per second and processed per SAE J211 March 1995.

The crash event was recorded by one (1) real-time panning motion picture camera and nine (9) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

The barrier test summary data are presented in Section 2.0. The summary of FMVSS 208, 212, and 219 (partial) data are presented in Section 3.0. The occupant, camera, and vehicle measurements are presented in Section 4.0. Appendix A contains the still photographs. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy verification data. Appendix D contains miscellaneous test information. Appendix E contains INSIA Report on Structural Measurements which documents the procedure for the measurements provided in Table 8.

Section 2.0

Fixed 40% Left Offset Deformable Load Cell Barrier Test Summary

## Test Results Summary

This fixed 40% left offset load cell barrier test was conducted by TRC Inc. on August 19, 2002.

The test vehicle, a 2002 Nissan Altima 4-door sedan, was equipped with a 2.5-liter transverse engine, automatic transmission, power steering, power brakes and dual stage front airbags. The vehicle's test weight was 1554.8 kg. The vehicle's impact speed was 59.8 km/h. The vehicle impacted 5 millimeters to the left of the 40% offset target line.

The driver's 36 millisecond Head Injury Criteria (HIC) was 117. The driver's 15 millisecond HIC was 77. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 32.2 g. The driver's maximum chest deflection was 27 mm. The driver's left and right femur maximum axial compressive forces were 882 N and 2019 N, respectively. The driver dummy's neck injury calculations were as follows: NTF, 0.26; NTE, 0.43; NCF, 0.00; NCE, 0.38. The driver dummy's peak neck tension force was 908 N and peak neck compression force was 337 N.

The right front passenger's 36 millisecond HIC was 412. The passenger's 15 millisecond HIC was 255. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 34.5 g. The passenger's maximum chest deflection was 24 mm. The passenger's left and right femur maximum axial compressive forces were 1282 N and 102 N, respectively. The right front passenger's neck injury calculations were as follows: NTF, 0.17; NTE, 0.28; NCF, 0.18; NCE, 0.16. The right front passenger dummy's peak neck tension force was 367 N and peak neck compression force was 317 N.

There was 94.8% windshield periphery retention. There was no penetration through the windshield.

## Data Acquisition Explanations

There is no record to identify Wire A or Wire B as either the primary or secondary stage of the airbag.

One of the driver airbag events, Wire B data channel, DABETB, recorded no valid data throughout the impact event.

One of the passenger airbag events, Wire A data channel, PABETA, recorded no valid data throughout the impact event.

The passenger's lumbar X, Y and Z-axis force data channels, LMBXF2, LMBYF2, LMBZF2, recorded multiple data spikes at approximately 165, 168, 170, 196, 245, 250 and 327 milliseconds.

The passenger's right leg X-axis tibia to femur displacement data channel, KNRXD2, recorded multiple data spikes at approximately 97, 122 and 124 milliseconds.

The vehicle's rear deck Z-axis accelerometer data channel, RDKZG1, did not return to zero after impact.

Table 1 Crash Test Summary

Test mode:	Fixed 40% left offset load cell barrier		
Test date:	08/19/02		
Test time:	1247		
Ambient temperature:	21° C		
Vehicle year/make/ model/body style:	2002/Nissan/Altima/4-door sedan		
Vehicle test weight:	1554.8 kg		
Impact angle <sup>1</sup> :	0°		
Impact velocity <sup>2</sup> :	59.8 km/h		
Maximum static crush <sup>3</sup> :	529 mm		
Average rebound:	N/A mm		
Number of data channels:	235		
Number of cameras:	High-speed	9	Real-time 1
<u>Dummies:</u>	<u>Driver #416</u>		<u>Passenger #421</u>
Type:	Part 572O		Part 572O
Location:	Left front		Right front
Restraint:	Dual stage airbag, seat belt		Dual stage airbag, seat belt

Seat track position for test:

Driver:	Full forward
Passenger:	Full forward

Seat back position for test:

Driver:	18.5°
Passenger:	21.0°

Head restraint position for test:

Driver:	Full down
Passenger:	Full down

Steering column position: Mid: 64.5°

<sup>1</sup> With respect to tow track centerline.

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

<sup>3</sup> Measured (pre & post) with bumper fascia removed.

Table 2 General Test and Vehicle Parameter Data

Vehicle year/make/  
model/body style: 2002/Nissan/Altima/4-door sedan

VIN: 1N4AL11D32C275856

Model year: Altima

Body style: 4-door sedan

Color: Metallic green

Engine data:

    Cylinders: 4

    Displacement 2.5 liters

    Cylinder placement: Straight

    Engine placement: Transverse

Transmission data: 3 speed, \_\_\_ manual, X automatic, X overdrive

    Final drive: X FWD, \_\_\_ RWD, \_\_\_ 4WD

Date vehicle received: 08/15/2002

Odometer reading: 410

Dealer's name and address: Supplied by VRTC

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	No	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	Yes
Other	None	Power door locks	Yes

Certification data from vehicle's label:

Vehicle manufactured by: Nissan Motor Co. Ltd.

Date of manufacture: 05/02

VIN: 1N4AL11D32C275856

GVWR: 4202 lbs.

GAWR: Front: 2249 lbs.

        Rear: 1969 lbs.

Table 2 General Test and Vehicle Parameter Data, Cont'd.

Tires on vehicle (mfr., line, size): Bridgestone, Turanza, P205/65/R16

Tire pressure with maximum capacity vehicle load:

Front: 44 psi (300 kPa)  
Rear: 44 psi (300 kPa)

Spare tire (mfr., line, size): Firestone, Temp-O-Ramm, T135/70/R16

Type of seats:

Front Bucket  
Rear Bench

Maximum width: 1780 mm

Wheelbase: 2800 mm

Location of "Recommended Tire Pressure" label:

The label was located on the center console.

Data from vehicle's "Recommended Tire Pressure" label":

Recommended tire size: P205/65/R16

Recommended cold tire pressure:

Front: 29 psi (200 kPa)  
Rear: 29 psi (200 kPa)

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front 2  
Mid N/A  
Rear 3  
Total 5

Vehicle capacity weight: 390 kg

Rated cargo/luggage weight 50 kg (calculated from VCW)

Test vehicle attitude:

Delivered attitude: LF 726 mm; RF 729 mm; LR 700 mm; RR 703 mm  
Fully loaded attitude: LF 721 mm; RF 723 mm; LR 680 mm; RR 685 mm  
Pre-test attitude: LF 710 mm; RF 720 mm; LR 667 mm; RR 673 mm  
Post-test attitude: LF 890 mm; RF 715 mm; LR 643 mm; RR 689 mm

Table 2 General Test and Vehicle Parameter Data Cont'd

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

Right front	427.5 kg	Right rear	268.5 kg
Left front	434.0 kg	Left rear	277.0 kg
Total front weight	861.5 kg	(61.2 % of total vehicle weight)	
Total rear weight	545.5 kg	(38.8 % of total vehicle weight)	
Total delivered weight	1407.0 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1407.0 kg
Rated Cargo/Luggage Weight (RCLW) <sup>1</sup> =	50.0 kg
Weight of 2 Part 572O Dummies @ 49 kg each =	98.0 kg
Target test weight =	1555.0 kg

Weight of test vehicle with required dummies and 49.8 kg of cargo weight:

Right front	444.8 kg	Right rear	342.0 kg
Left front	438.0 kg	Left rear	330.0 kg
Total front weight	882.8 kg	(56.8% of total vehicle weight)	
Total rear weight	672.0 kg	(43.2% of total vehicle weight)	
Total test weight	1554.8 kg	(0.0% at target test weight)	

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: Rear door panels and glass, rear fascia, exhaust from catalytic converter back, and trunk lid.

Location of Vehicle's CG: 1210 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity	75.7 l (from owner's manual)
Actual test volume:	70.4 l (93% of usable)

<sup>1</sup> 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: 020819  
Test date: 08/19/02  
Test time: 1247  
Test type: Fixed 40% left offset deformable load cell barrier  
Impact angle: 0°  
Ambient temperature  
at impact area: 21° C  
Required impact velocity range: 59.2 to 60.8 km/h

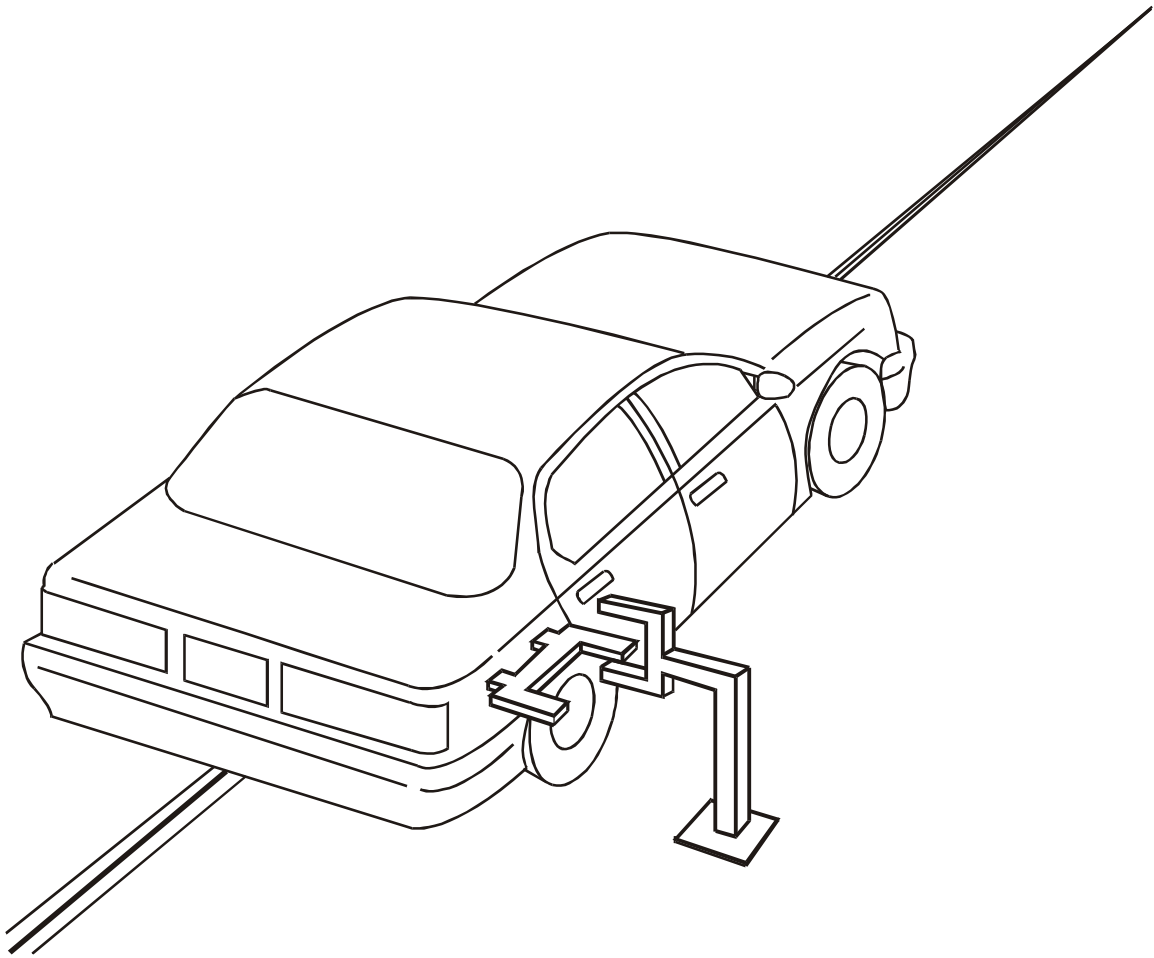
Barrier impact velocity:

Primary: 59.8 km/h  
Secondary: 59.8 km/h  
Distance from vehicle to barrier:  
Entering velocity trap: 661 mm  
Exiting velocity trap: 51 mm

Barrier offset (at right edge of barrier):

Target offset: 178 mm left of vehicle centerline  
Impact point variance: 5 mm left  
Actual offset: 183 mm left of vehicle centerline

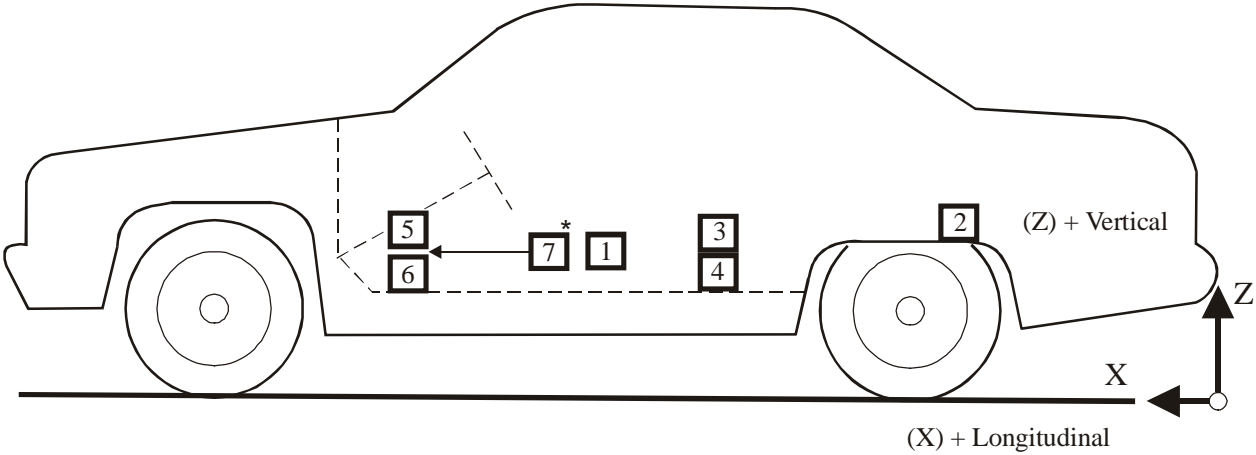
Figure 1 Impact Velocity Measurement System



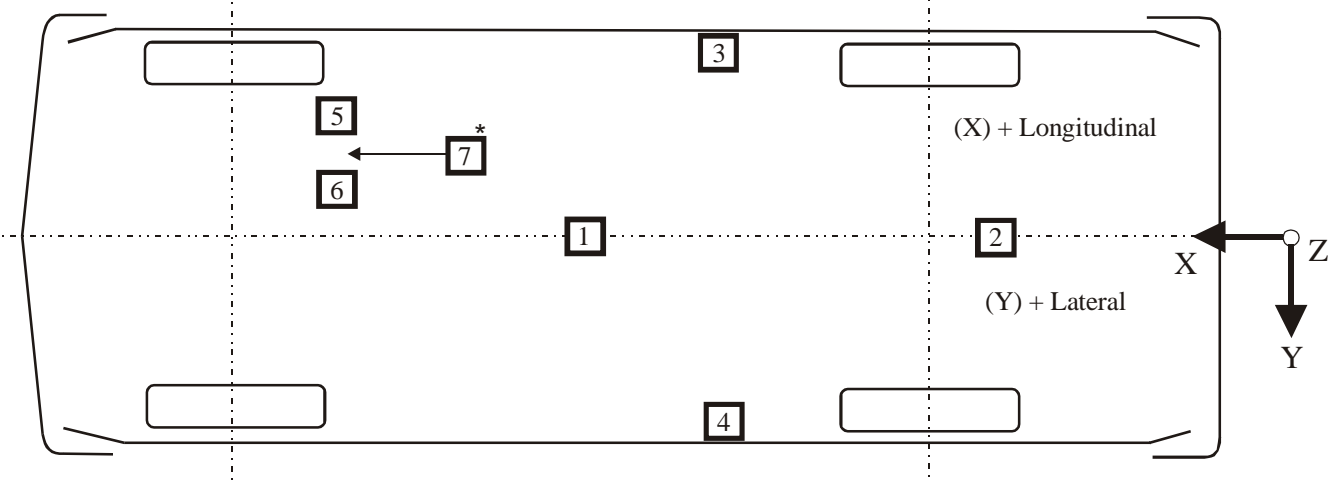
The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 610-millimeter spacing.

Figure 2 Vehicle Accelerometer and String Potentiometer Placement



Side View



Bottom View

\* String potentiometer mounted under driver seat with string attached to toeboard to measure displacement.

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 020819 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2675 mm	0 mm	-394 mm				
LONGITUDINAL				3.0 g	@ 173.0 ms	28.9 g	@ 106.9 ms
LATERAL				27.6 g	@ 97.8 ms	20.4 g	@ 115.8 ms
VERTICAL				10.6 g	@ 43.4 ms	15.8 g	@ 100.8 ms
RESULTANT				38.2 g	@ 81.1 ms		
2 REAR DECK VERTICAL <sup>1</sup>	NA	NA	-490 mm	6.2 g	@ 133.7 ms	10.8 g	@ 85.0 ms
3 LEFT REAR SEAT CROSSMEMBER	1893 mm	-630 mm	-353 mm				
LONGITUDINAL				2.5 g	@ 173.1 ms	28.1 g	@ 104.9 ms
LATERAL				3.1 g	@ 113.8 ms	11.1 g	@ 78.1 ms
VERTICAL				7.2 g	@ 82.2 ms	7.4 g	@ 120.4 ms
RESULTANT				28.5 g	@ 97.2 ms		
4 RIGHT REAR SEAT CROSSMEMBER	1893 mm	630 mm	-345 mm				
LONGITUDINAL				0.6 g	@ 202.6 ms	27.9 g	@ 97.5 ms
LATERAL				11.8 g	@ 77.0 ms	2.7 g	@ 114.0 ms
VERTICAL				5.9 g	@ 112.9 ms	5.7 g	@ 87.9 ms
RESULTANT				29.3 g	@ 97.4 ms		
5 DRIVERS LEFT SIDE TOE PAN	3506 mm	-552 mm	-293 mm				
LONGITUDINAL				9.2 g	@ 58.2 ms	35.3 g	@ 77.8 ms
LATERAL				25.6 g	@ 78.9 ms	17.3 g	@ 57.9 ms
VERTICAL				10.6 g	@ 104.6 ms	25.9 g	@ 91.8 ms
RESULTANT				44.0 g	@ 78.5 ms		

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

TEST NUMBER: 020819 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
6 DRIVERS RIGHT SIDE TOE PAN	3506 mm	-140 mm	-255 mm		
LONGITUDINAL				2.6 g @ 107.0 ms	37.8 g @ 80.0 ms
LATERAL				16.5 g @ 97.8 ms	35.1 g @ 91.0 ms
VERTICAL				17.1 g @ 73.7 ms	39.2 g @ 92.0 ms
RESULTANT				63.1 g @ 91.5 ms	
7 DRIVERS TOE PAN DISPLACEMENT	NA	NA	NA		
LONGITUDINAL				25.5 mm @ 57.0 ms	0.5 mm @ 175.8 ms
8 DRIVER SEAT BELT LOAD CELLS	NA	NA	NA		
LAP BELT				2239.2 N @ 60.3 ms	-2.0 N @ 0.0 ms
SHOULDER BELT				3294.8 N @ 61.7 ms	5.9 N @ 202.5 ms
9 PASSENGER SEAT BELT LOAD CELLS	NA	NA	NA		
LAP BELT				1939.1 N @ 103.3 ms	4.4 N @ 3.0 ms
SHOULDER BELT				3808.3 N @ 109.6 ms	18.4 N @ 203.9 ms

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

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

Section 3.0

Summary of FMVSS 208, 212 and 219 (partial) Data

Table 5 Dummy Injury Criteria Data

	<u>Maximum Acceleration<sup>1</sup></u>							
	Head				Chest			
	X	Y	Z	R	X	Y	Z	R
Driver	-30.5 g	36.0 g	14.3 g	45.1 g	-27.6 g	15.5 g	-11.6 g	32.6 g
Passenger	-44.5 g	20.2 g	23.5 g	53.1 g	-34.1 g	10.5 g	-5.4 g	34.6 g

	<u>Maximum Femur Compressive Force</u>	
	Left Femur	Right Femur
Driver	882 N	2019 N
Passenger	1282 N	102 N

	<u>Head Injury Criteria<sup>2</sup></u>		
	36 millisecond		
	HIC	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	117	61.1 ms	97.1 ms
Passenger	412	92.5 ms	128.1 ms

	15 millisecond		
	HIC	Time t <sub>1</sub>	Time t <sub>2</sub>
	Driver	77	146.2 ms
Passenger	255	104.0 ms	119.0 ms

	<u>Chest Maximum Resultant Acceleration<sup>3</sup></u>		
	Acceleration	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	32.2 g	117.3 ms	120.2 ms
Passenger	34.5 g	105.7 ms	108.6 ms

Table 5 Dummy Injury Criteria Data, Cont'd.

Maximum Chest Deflection

Driver	27 mm
Passenger	24 mm

Neck Injury Calculations (Nij)<sup>2</sup>

	NTF	NTE	NCF	NCE
Driver	0.26	0.43	0.00	0.38
Passenger	0.17	0.28	0.18	0.16

Neck Axial Force

	Neck Tension	Neck Compression
Driver	908 N	337 N
Passenger	367 N	317 N

Tibia Index

	Upper Tibia	Lower Tibia
Driver-left	0.32	0.43
Driver-right	0.61	0.94
Passenger-left	0.28	0.43
Passenger-right	0.25	0.44

<sup>1</sup> See Report Sign Convention in Appendix D.

<sup>2</sup> As defined in FMVSS No. 208.

<sup>3</sup> Defined as equal to or exceeding 0.003 sec. duration.

Table 6 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver</u>	<u>Passenger</u>
Head	Airbag, head restraint	Airbag, head restraint
Chest	Airbag	Airbag
Abdomen	None	None
Left knee	Knee bolster	Knee bolster
Right knee	Knee bolster	Knee bolster

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>
Left Front	None	None
Right Front	None	None
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: Windshield cracked all over; some loss of retention along bottom left.

Other notable impact effects: None

Figure 3 FMVSS 212 Test Data

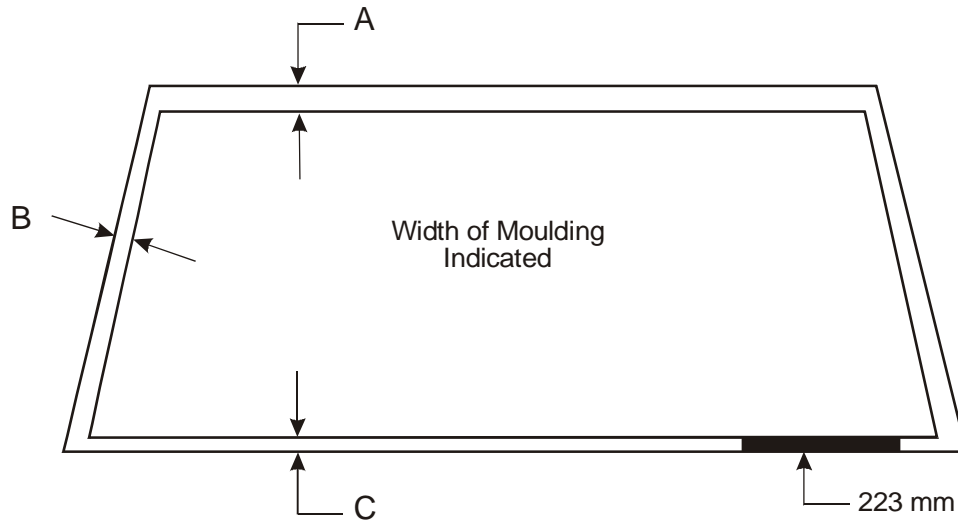
Details of windshield mounting such as retention method, trim type, etc.: Plastic trim around the perimeter.

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	2155 mm	2155 mm	100.0
Left side	2155 mm	1932 mm	89.7
Total	4310 mm	4087 mm	94.8

A = 15 mm  
 B = 19 mm  
 C = 9 mm



Front view of windshield<sup>1</sup>

Loss of windshield retention lengths: 223 mm

<sup>1</sup> Indicate areas of loss of retention, if any, on windshield diagram.

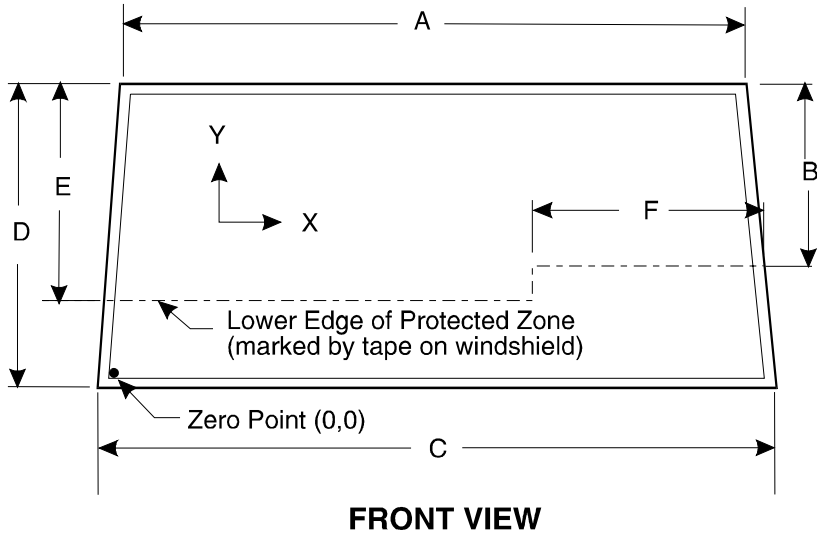
Figure 4 FMVSS 219 (partial) Test Data

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 = 1170 mm
- B = 564 mm
- C = 1545 mm
- D = 835 mm
- E = 568 mm
- F = 555 mm



Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

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.

Section 4.0

Occupant, Vehicle, Camera, and Barrier Information

## Dummy Kinematic Summary

### Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the knee bolster. The dummy's head rotated to the right as the head and chest impacted the airbag. As the dummy rebounded into the seat back, the neck went into extension and the head contacted the headrest. The driver dummy came to rest seated upright in the driver's seat.

### Right Front Passenger Dummy

Upon impact, the passenger dummy translated forward on the seat impacting both knees into the knee bolster. The dummy's head rotated forward with the neck in flexion as the head impacted the airbag. As the dummy rebounded into the seat back, the neck went into extension and the head contacted the headrest. The passenger dummy came to rest seated upright in the passenger's seat.

Figure 5 Dummy Measurement Locations for Front Seat Occupants

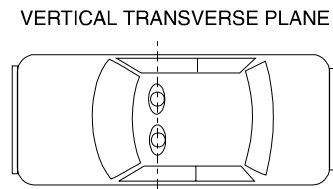
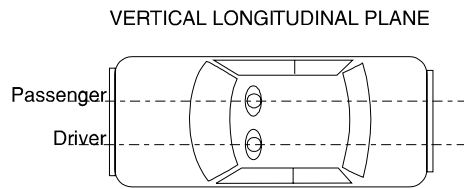
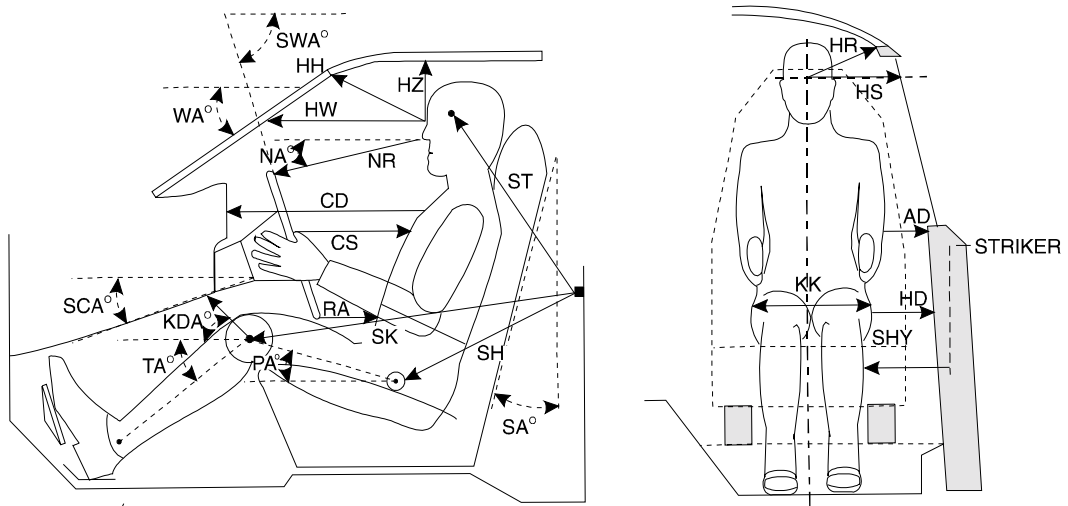


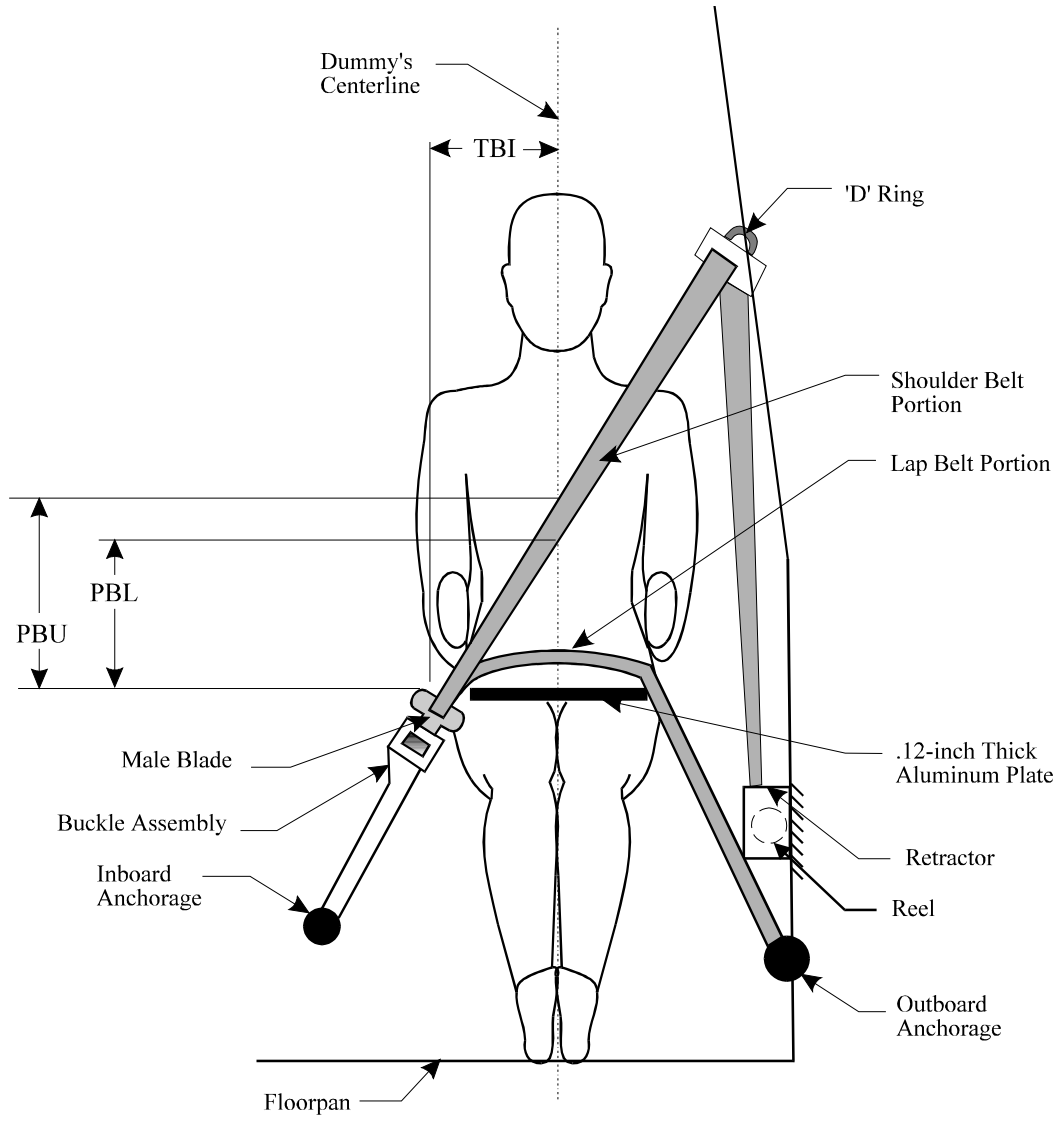
Table 7 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial # 416)	Passenger (Serial # 421)
WA	Windshield angle	25.5°	25.5°
SWA	Steering wheel angle	64.5°	N/A
SCA	Steering column angle	25.5°	N/A
SA	Seat back angle	8.8°	9.8°
HZ	Head to roof	235 mm	240 mm
HH	Head to header	274 mm	275 mm
HW	Head to windshield	603 mm	598 mm
HR	Head to side header	235 mm	240 mm
NR	Nose to rim	267 mm	N/A
NA	Nose to rim angle	5.0°	N/A
CD	Chest to dash	465 mm	434 mm
CS	Steering wheel to chest	200 mm	N/A
RA	Rim to abdomen	83 mm	N/A
KDL	Left knee to dash	132 mm	80 mm
KDR	Right knee to dash	115 mm	105 mm
KDA	Outboard knee to dash angle	54.0°	68.6°
PA	Pelvic angle	20.8°	22.1°
TA	Tibia angle	62.1°	70.4°
KK	Knee to knee	240 mm	160 mm
ST <sup>1</sup>	Striker to head	500 mm	494 mm
	Striker to head angle	-63.5°	-64.5°
SK <sup>1</sup>	Striker to knee	703 mm	715 mm
	Striker to knee angle	-2.9°	-0.1°
SH <sup>1</sup>	Striker to H-point	384 mm	400 mm
	Striker to H-point angle	19.6°	19.0°
SHY	Striker to H-point (Y dir.)	232 mm	280 mm
HS	Head to side window	275 mm	265 mm
HD	H-point to door	179 mm	178 mm
AD	Arm to door	169 mm	157 mm

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

<sup>1</sup> A negative angle indicates the measurement point was above the striker.

Figure 6 Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
PBU - Top surface of aluminum plate to belt upper edge	280 mm	274 mm
PBL - Top surface of aluminum plate to belt lower edge	205 mm	190 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	260 mm	250 mm

Table 8 Vehicle Structural Measurements<sup>1,2</sup>

	<b>Elements</b>	<b>Pre-Test</b>
1	Total Length	4854
2	Total Width	1780
3	Bumper Top Height	-504
4	Bumper Bottom Height	-404
5	Longitudinal Member Top Height	-504
6	Longitudinal Member Bottom Height	-404
7	Distance Between Longitudinal Members	1195
7'	Longitudinal Member Width	70
8	Engine Top Height	-885
9	Engine Bottom Height	-159
10	Engine and Gearbox Width	943
11	Front Bumper - Engine Distance	490
12	Front Shock Absorber Fixing Height	-874
13	Bonnet Leading Edge Height	-713
14	Front Shock Absorber Fixing Width	1089
15	Front Bumper - Front Axle Distance	955
16	Front Axle - A Pillar Distance	549
17	A Pillar - B Pillar Distance	1098
18	B Pillar - Rear Axle Distance	1168
19	B Pillar - C Pillar Distance	1571
20	Roof Sill Bottom Height	-1140
21	Roof Sill Top Height	-1295
22	Floor Sill Bottom Height	-186
23	Floor Sill Top Height	-337

All distance measurements are in millimeters.

<sup>1</sup> Taken from INSIA report, “Structural Survey of Cars, Methodology of the Main Resistant Elements in the Car Body”, March 1999. This report is included in Appendix E.

<sup>2</sup> These structural measurements are taken from a different 2002 Nissan Altima; the vertical measurements from the ground are adjusted based on the test vehicle’s pre-test attitude measurements.

Figure 7 Pre-Test And Post-Test Measurement Points

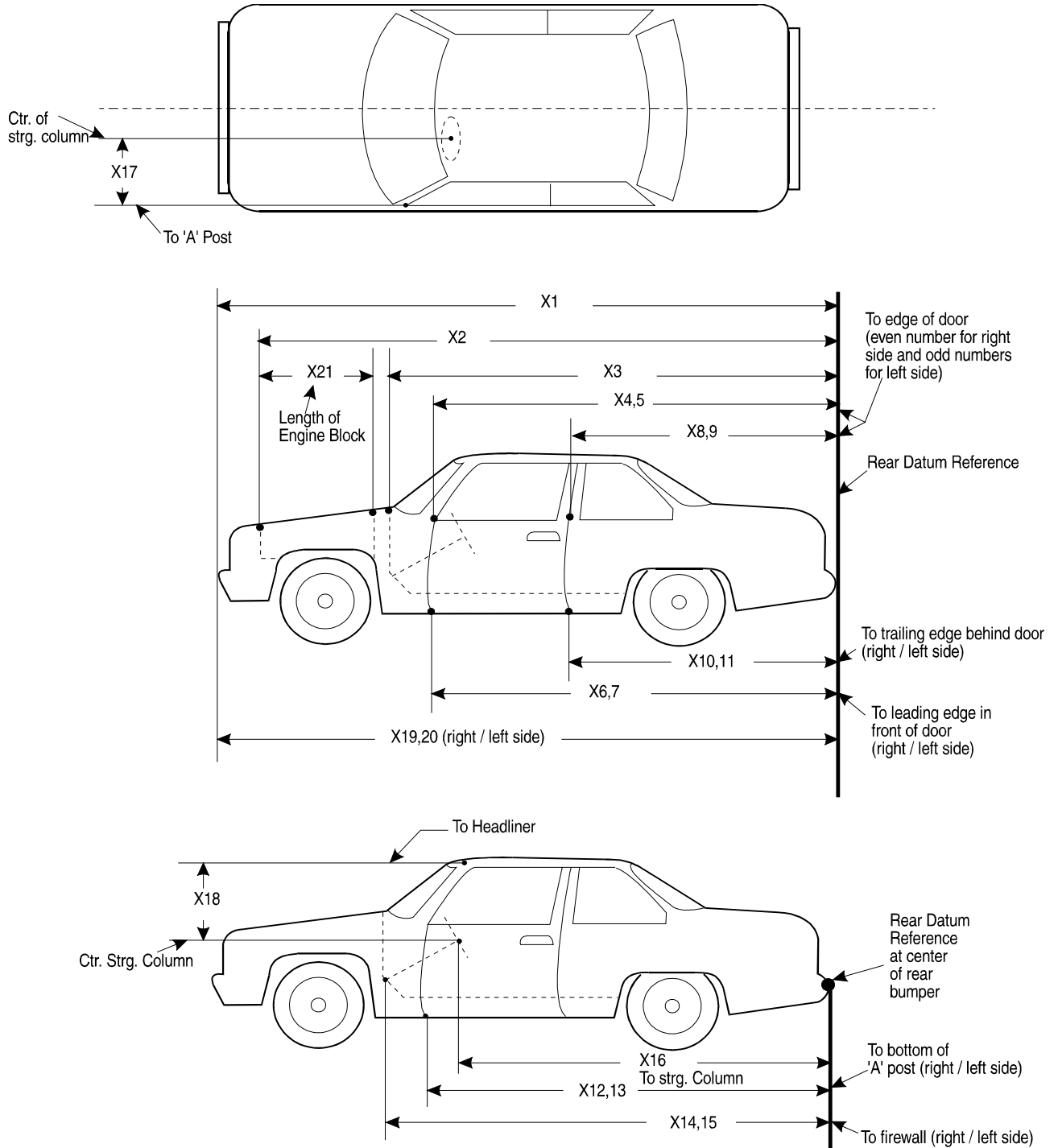


Table 9 Impacted Vehicle Measurements

Test number: 020819

Vehicle year/make/model/body style: 2002/Nissan/Altima/4-door sedan

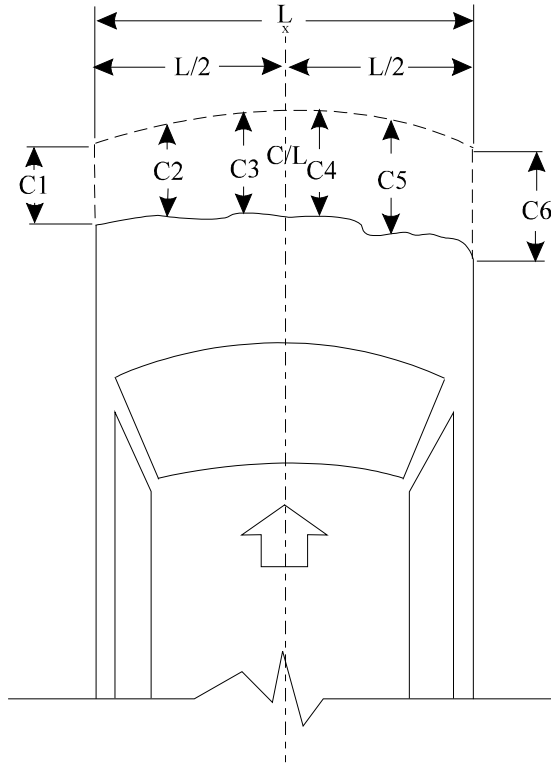
No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4854	4424 <sup>1,2</sup>	430 <sup>1,2</sup>
X2	Rear Surface of Vehicle to Front of Engine Block	4210	4069	141
X3	Rear Surface of Vehicle to Firewall	3724	3654	70
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3361	3360	1
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3361	3349	12
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3354	3345	9
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3359	3343	16
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2285	2284	1
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2286	2279	7
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2295	2284	11
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2297	2281	16
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3371	3373	-2
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3376	3356	20
X14	Rear Surface of Vehicle to Firewall--Right Side	3716	3713	3
X15	Rear Surface of Vehicle to Firewall --Left Side	3757	3533	224
X16	Rear Surface of Vehicle to Steering Wheel Center	2886	2853	33
X17	Center of Steering Column to " A " Post	300	356	-56
X18	Center of Steering Column to Headliner	422	420	2
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4711	N/A <sup>1</sup>	N/A <sup>1</sup>
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4691	N/A <sup>1</sup>	N/A <sup>1</sup>
X21	Length of Engine Block	533	533	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3224	3206	18
CD	Rear Surface of Vehicle to Center of Dash Panel	3036	3026	10
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3216	3226	-10

All distance measurements are in millimeters.

<sup>1</sup> The front bumper fascia separated from the vehicle during the impact.

<sup>2</sup> Post-test measurements included here were taken without bumper fascia attached. The calculated difference is also affected.

Figure 8 Vehicle Crush



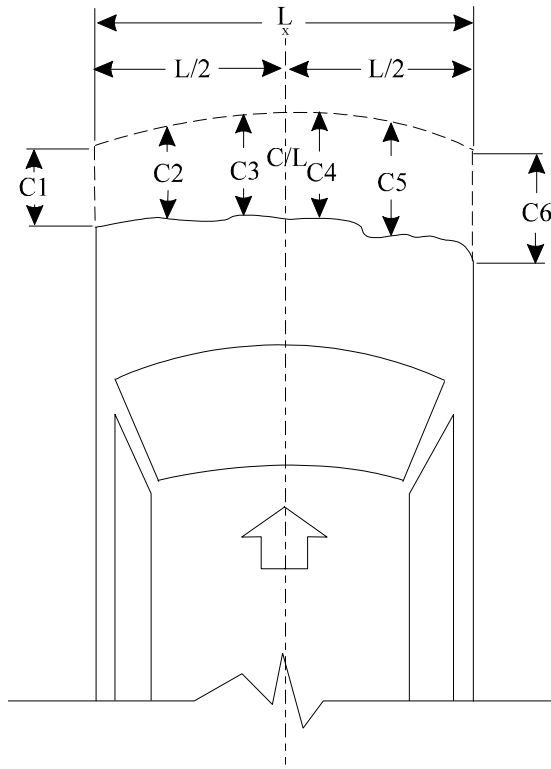
Notes: L is pre-test length of contact surface.  
 C1 through C6 are spaced equally apart.  
 CL is vehicle centerline.

Vehicle: 2002 Nissan Altima  
 Measured with bumper fascia:

Location	Pre-test	Post-test	Difference
L	1525 mm		
C1	4691 mm	N/A <sup>1</sup> mm	N/A <sup>1</sup> mm
C2	4807 mm	N/A <sup>1</sup> mm	N/A <sup>1</sup> mm
C3	4861 mm	N/A <sup>1</sup> mm	N/A <sup>1</sup> mm
C4	4858 mm	N/A <sup>1</sup> mm	N/A <sup>1</sup> mm
C5	4816 mm	N/A <sup>1</sup> mm	N/A <sup>1</sup> mm
C6	4711 mm	N/A <sup>1</sup> mm	N/A <sup>1</sup> mm
CL	4854 mm	N/A <sup>1</sup> mm	N/A <sup>1</sup> mm

<sup>1</sup> The front bumper fascia separated from the vehicle during the impact.

Figure 8 Vehicle Crush, Cont'd.



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

Vehicle: 2002 Nissan Altima

Measured to bumper beam without bumper fascia:

Location	Pre-test	Post-test	Difference
L <sup>1</sup>	1175 mm		
C1 <sup>1</sup>	4725 mm	4237 mm	488 mm
C2	4752 mm	4223 mm	529 mm
C3	4791 mm	4305 mm	486 mm
C4	4788 mm	4541 mm	247 mm
C5	4763 mm	4688 mm	75 mm
C6	4737 mm	4781 mm	-44 mm
CL <sup>1</sup>	4784 mm	4424 mm	360 mm

<sup>1</sup> Measurement points C1 and C6 were moved inboard to catch the end of the bumper beam.

Table 10 Test Vehicle Frontal Profile Data

		Pre-Test Profile					
		Vehicle Left			Vehicle Ri ght		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	4673 mm	4738 mm	4832 mm	4838 mm	4786 mm	4694 mm
	Y	-729 mm	-450 mm	-147 mm	144 mm	448 mm	737 mm
	Z	-287 mm	-290 mm	-286 mm	-286 mm	-297 mm	-291 mm
Top of Front Bumper	X	4657 mm	4767 mm	4818 mm	4813 mm	4779 mm	4689 mm
	Y	-765 mm	-459 mm	-155 mm	156 mm	463 mm	748 mm
	Z	-555 mm	-545 mm	-448 mm	-555 mm	-461 mm	-560 mm
Center of Grille	X	4618 mm	4732 mm	4801 mm	4797 mm	4750 mm	4662 mm
	Y	-760 mm	-465 mm	-154 mm	158 mm	469 mm	750 mm
	Z	-597 mm	-612 mm	-602 mm	-607 mm	-612 mm	-588 mm
Front of Hood	X	4541 mm	4680 mm	4742 mm	4740 mm	4686 mm	4284 mm
	Y	-765 mm	-454 mm	-134 mm	162 mm	488 mm	745 mm
	Z	-696 mm	-690 mm	-714 mm	-710 mm	-695 mm	-701 mm

		Post-Test Profile <sup>1</sup>					
		Vehicle Left			Vehicle Ri ght		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Top of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Center of Grille	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Front of Hood	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	4600 mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	569 mm
	Z	N/A mm	-748 mm	-730 mm	-762 mm	-813 mm	-704 mm

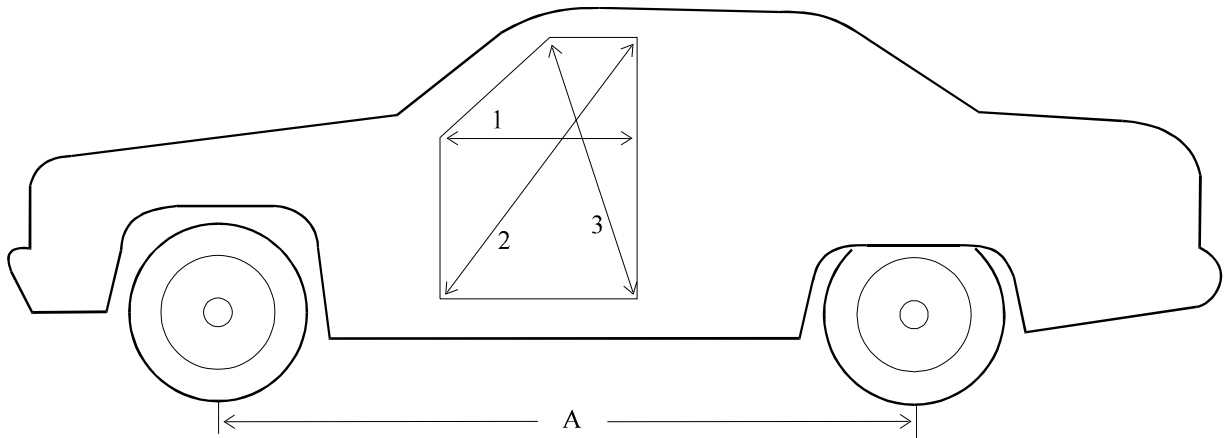
		Difference <sup>1</sup>					
		Vehicle Left			Vehicle Ri ght		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Top of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Center of Grille	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Front of Hood	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	-316 mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	176 mm
	Z	N/A mm	58 mm	16 mm	52 mm	118 mm	3 mm

Note: Six points divide the width of the car. Pre- and post-test measurement references: +X, forward of rear bumper; +Y, rightward from vehicle centerline; +Z, downward from ground level.

<sup>1</sup> Bumper fascia separated during impact; hood and grille points obscured during impact.

Figure 9 Vehicle Intrusion Measurements

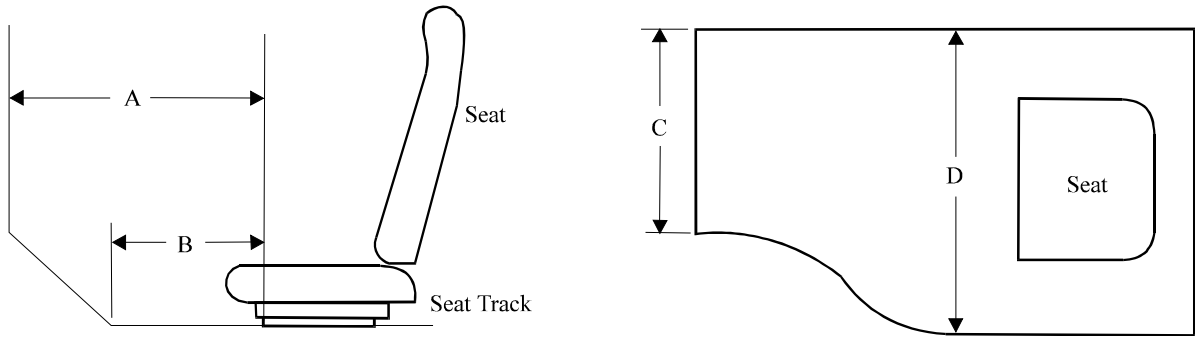
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1039 mm	1514 mm	984 mm	1053 mm	1500 mm	980 mm
Post-Test	1031 mm	1509 mm	999 mm	1039 mm	1497 mm	973 mm
Difference	8 mm	5 mm	-15 mm	14 mm	3 mm	7 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2800 mm	2800 mm
Post-Test	2731 mm	2780 mm
Difference	69 mm	20 mm

**Figure 10 Vehicle Intrusion Measurements**  
**Static Footwell Deformation**



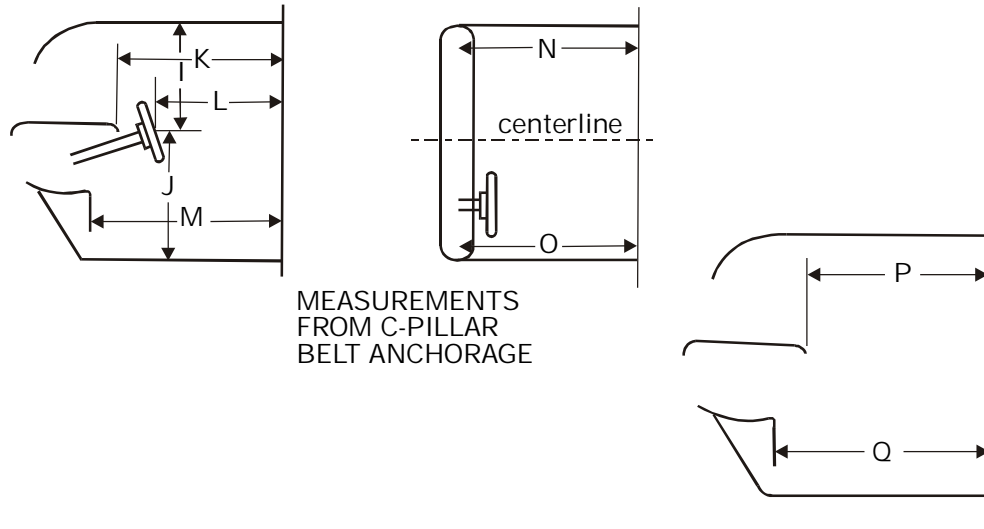
**Driver's Side**

Measurement	Pre-Test	Post-Test	Difference
A	798 mm	644 mm	154 mm
B	598 mm	590 mm	8 mm
C	410 mm	400 mm	10 mm
D	515 mm	515 mm	0 mm

**Passenger's Side**

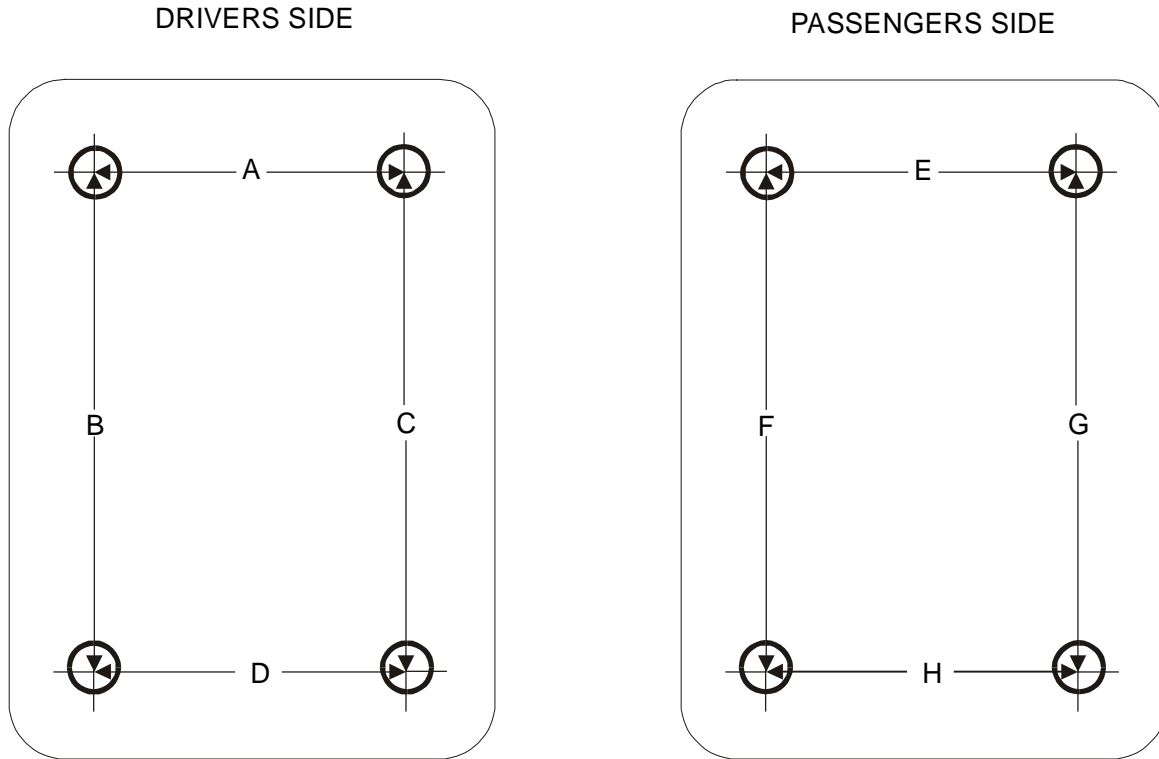
Measurement	Pre-Test	Post-Test	Difference
A	710 mm	710 mm	0 mm
B	600 mm	600 mm	0 mm
C	489 mm	480 mm	9 mm
D	500 mm	506 mm	-6 mm

Figure 11 Vehicle Intrusion Measurements  
Static Passenger Compartment Intrusion



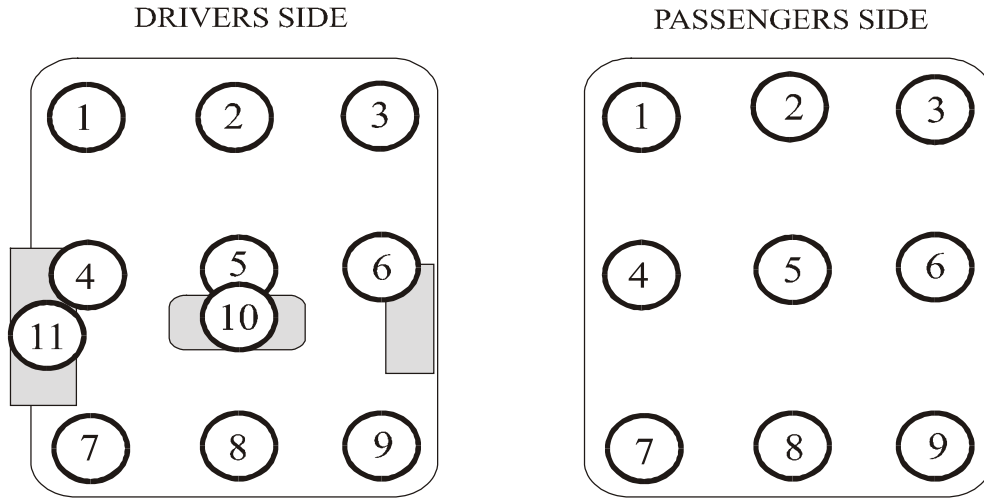
Measurement	Pre-Test	Post-Test	Difference
I	443 mm	420 mm	23 mm
J	675 mm	736 mm	-61 mm
K (driver's side)	1696 mm	1689 mm	7 mm
L	1389 mm	1359 mm	30 mm
M (driver's side)	1760 mm	1754 mm	6 mm
N (passenger's side)	1628 mm	1631 mm	-3 mm
O (driver's side)	1631 mm	1619 mm	12 mm
P (passenger's side)	1701 mm	1705 mm	-4 mm
Q (passenger's side)	1781 mm	1784 mm	-3 mm

Figure 12 Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	410 mm	400 mm	10 mm
B	500 mm	500 mm	0 mm
C	516 mm	488 mm	28 mm
D	515 mm	515 mm	0 mm
E	489 mm	480 mm	9 mm
F	515 mm	513 mm	2 mm
G	533 mm	533 mm	0 mm
H	500 mm	506 mm	-6 mm

Figure 13 Toeboard Measurements



Driver's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3572	-568	-385	3502	-534	-371	70	-34	-14
2	3585	-400	-346	3500	-371	-340	85	-29	-6
3	3629	-180	-347	3500	-157	-346	129	-23	-1
4	3545	-568	-283	3421	-552	-269	124	-16	-14
5	3516	-400	-287	3435	-394	-288	81	-6	1
6	3528	-180	-270	3467	-152	-253	61	-28	-17
7	3481	-568	-235	3457	-558	-197	24	-10	-38
8	3447	-400	-245	3382	-394	-215	65	-6	-30
9	3458	-180	-207	3428	-168	-162	30	-12	-45
10	3403	-360	-422	3332	-489	-418	71	129	-4
11	3462	-639	-332	3418	-606	-296	44	-33	-36

Passenger's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3618	200	-370	3591	228	-360	27	-28	-10
2	3604	350	-388	3597	377	-373	7	-27	-15
3	3551	575	-407	3549	585	-414	2	-10	7
4	3546	200	-294	3530	228	-289	16	-28	-5
5	3545	350	-311	3535	377	-307	10	-27	-4
6	3542	575	-349	3539	585	-339	3	-10	-10
7	3440	200	-214	3437	228	-187	3	-28	-27
8	3440	350	-229	3438	377	-214	2	-27	-15
9	3459	590	-224	3461	615	-220	-2	-25	-4

Pre- and post-test measurements references: +X, forward from rear bumper; +Y, rightward from vehicle centerline; +Z, downward from ground level

Table 11 Intrusion of Upper Instrument Panel

Pre-Test	X	Y	Z
Driver Left Knee	3116	-510	-705
Driver Right Knee	3120	-235	-700
Passenger Left Knee	3129	270	-676
Passenger Right Knee	3154	470	-676

Post-Test	X	Y	Z
Driver Left Knee	3105	-518	-670
Driver Right Knee	3105	-240	-663
Passenger Left Knee	3130	274	-660
Passenger Right Knee	3151	472	-668

Difference	X	Y	Z
Driver Left Knee	11	8	-35
Driver Right Knee	15	5	-37
Passenger Left Knee	-1	-4	-16
Passenger Right Knee	3	-2	-8

All measurements are in millimeters.

Knee intrusions are points measured pre and post, which are located just above where the four knees would be expected to contact the instrument panel.

Pre- and post-test measurement references: +X, forward of rear bumper; +Y, rightward from vehicle centerline; +Z, downward from ground level.

Table 12 Insurance Institute Measurement Locations and Floor Pan Deformation Data

**IIHS Measurement Location Data (in millimeters)**

Meas. Loc*	X-Axis Measurement			Y-Axis Measurement			Z-Axis Measurement		
	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference
1	2896	2843	53	-366	-341	-25	-879	-883	4
2	3168	3089	79	-524	-536	12	-652	-618	-34
3	3155	3119	36	-216	-225	9	-645	-619	-26
4	3403	3332	71	-333	-489	156	-422	-418	-4
5	3597	3509	88	-515	-456	-59	-374	-368	-6
6	3610	3525	85	-350	-308	-42	-380	-376	-4
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	3515	3452	63	-620	-570	-50	-410	-392	-18
17	3300	3288	12	-726	-736	10	-915	-881	-34
18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Floor Pan Deformation Measurement Data (in millimeters)**

Meas. Loc**	X-Axis Measurement			Y-Axis Measurement			Z-Axis Measurement		
	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference
P0	2857	2856	1	-588	-578	-10	-328	-289	-39
P1	3404	3380	24	-672	-642	-30	-206	-167	-39
P2	3397	3328	29	-387	-411	24	-220	-182	-38
P3	3386	3371	15	-153	-164	11	-240	-215	-25
P4	3210	3195	15	-672	-648	-24	-206	-170	-36
P5	3175	3193	-18	-387	-407	20	-219	-170	-49
P6	3195	3202	-7	-146	-145	-1	-210	-175	-35
P7	2943	2929	14	-655	-642	-13	-207	-170	-37
P8	2951	2942	9	-397	-439	42	-220	-171	-49
P9	2933	2930	3	-146	-132	-14	-210	-175	-35

Pre- and post-test measurement references: +X, forward of rear bumper; +Y, rightward from vehicle centerline; +Z, downward from ground level.

\* Measurement Location Descriptions

P0 Front Outside Seat Anchor Bolt

- 1 Steering Column - Geometric center of the steering wheel on airbag door.
- 2 Lower Instrument Panel Left - Taken 45 cm above floorpan and 15 cm to the left of the steering wheel center.
- 3 Lower Instrument Panel Right - Taken 45 cm above floorpan and 15 cm to the right of the steering wheel center.
- 4 Brake Pedal - Geometric center of the brake pedal.
- 5 Toepan Left - Taken 15 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
- 6 Toepan Center - Taken directly behind the brake pedal center on the same vertical plane on the vehicle.
- 7 Toepan Right - Taken 15 cm to the right of the brake pedal center on the same vertical plane on the vehicle toepan.
- 8 Left Footrest - Taken 25 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
- 17 A-Pillar - Taken on the vehicle exterior at the same vertical coordinate as the base of the left front window.
- 18 B-Pillar - Taken on the vehicle exterior at the same vertical coordinate as the lower A-pillar mark.

\*\* There is an equal spaced 3x3 floor pan matrix. Position 1 is floor pan left side forwardmost position; Position 9 is located on the right side rearmost position of the 3x3 grid.

Figure 14 Camera Positions

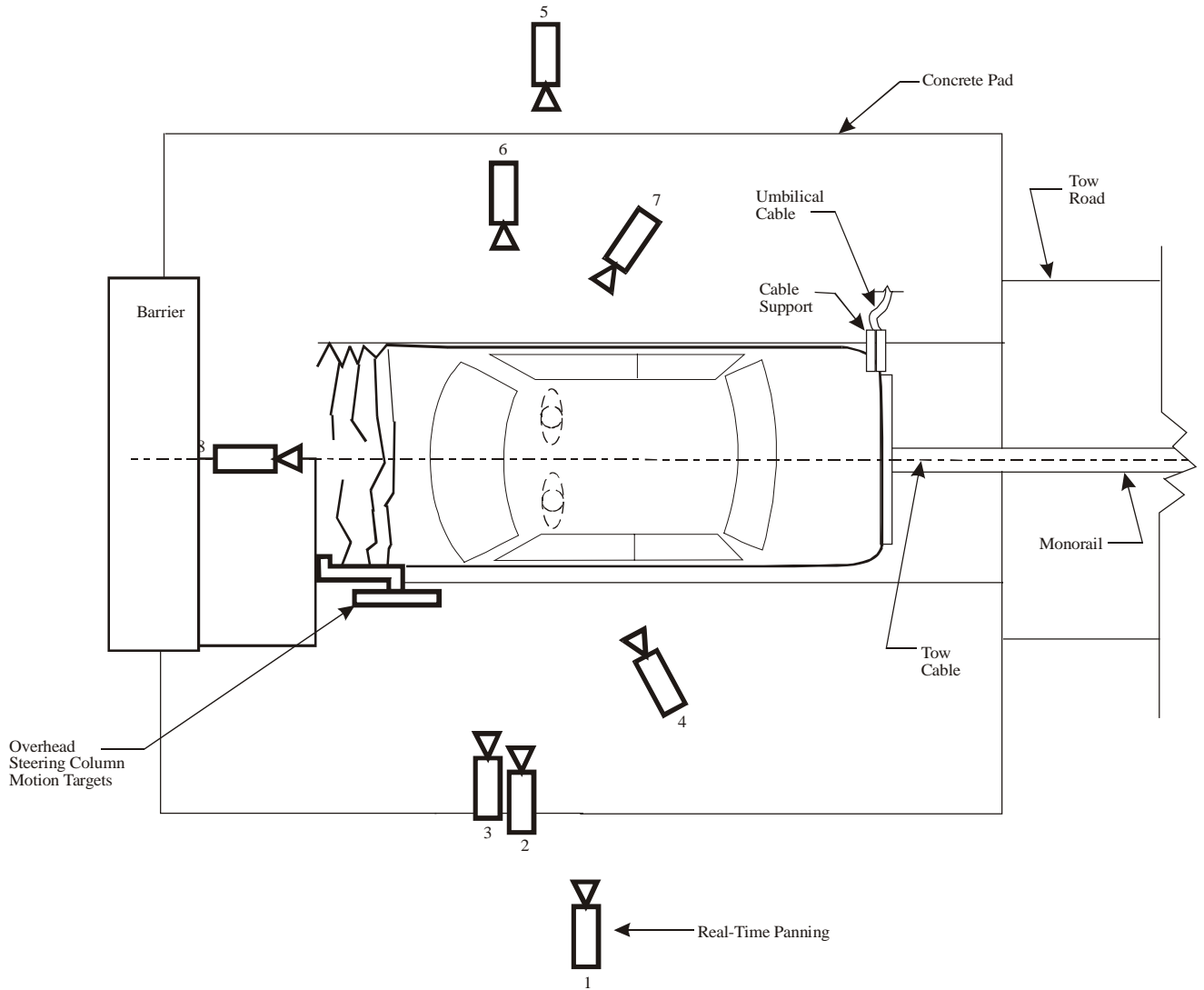


Figure 14 Camera Positions, Cont'd.

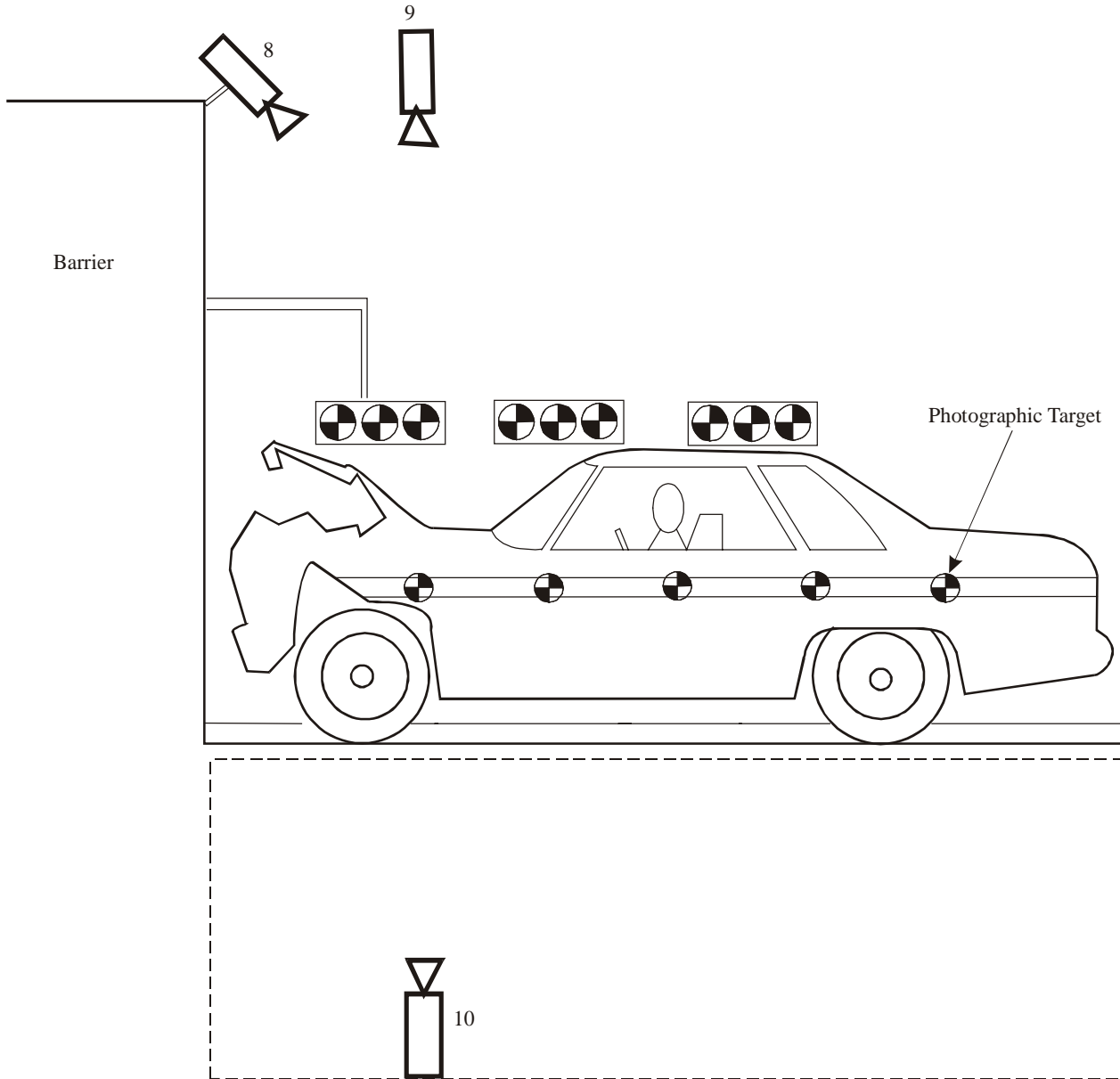
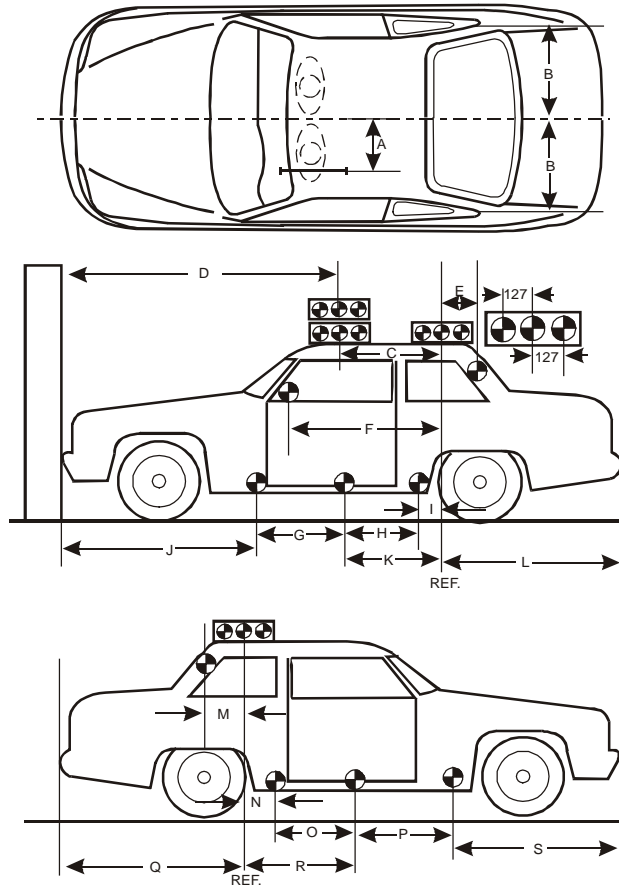


Table 13 Camera Information

Camera Number	Location	Type	Lens (mm)	Speed (fps)	Purpose of camera data
1	Panning	Bolex		24	Vehicle dynamics
2	Left perpendicular overall	Digital HG	13	1000	Vehicle crush
3	Left tight driver side	Digital HG	25	1000	Dummy kinematics
4	Left angled on driver	Digital HG	25	1000	Dummy and airbag
5	Right perpendicular overall	Digital HG	13	1000	Dummy kinematics
6	Right tight passenger side	Digital HG	Zoom	1000	Dummy kinematics
7	Right angled on passenger	Digital HG	25	1000	Dummy and airbag
8	Driver & passenger from barrier	Digital HG	13	1000	Airbag deployment
9	Overhead	Photosonic	25	1005	Vehicle dynamics
10	Pit front	Photosonic	17	1000	Vehicle crush

Figure 15 Vehicle Reference Photo Target Locations



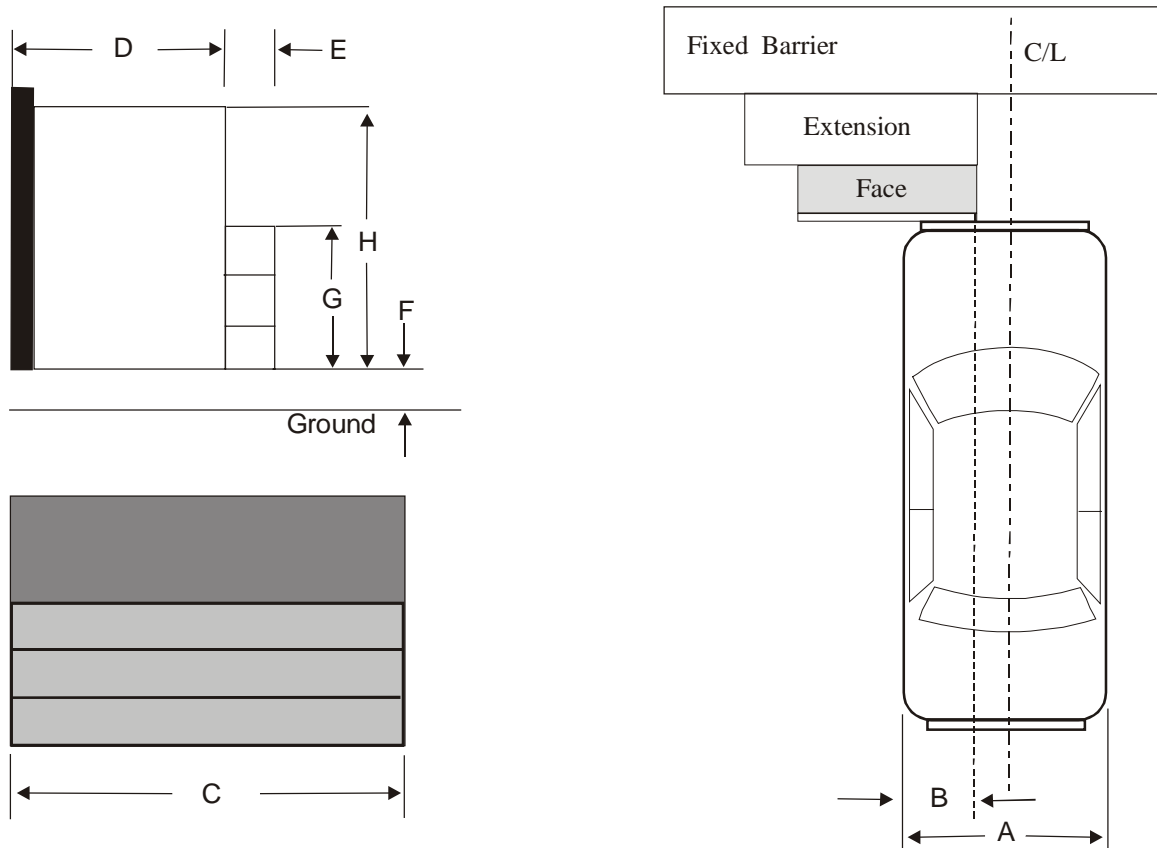
Measurement	Pre-Test
A	Left 362 mm Right 367 mm
B	705 mm
C	Left 610 mm Right 610 mm
D	1740 mm
E	840 mm
F	1246 mm
G	940 mm
H	775 mm
I	-254 mm
J	1383 mm
K	523 mm
L	1845 mm
M	863 mm
N	-278 mm
O	775 mm
P	940 mm
Q	861 mm
R	498 mm
S	1412 mm

Figure 16 Offset Barrier and Vehicle Orientation

Vehicle: 2002 Nissan Altima

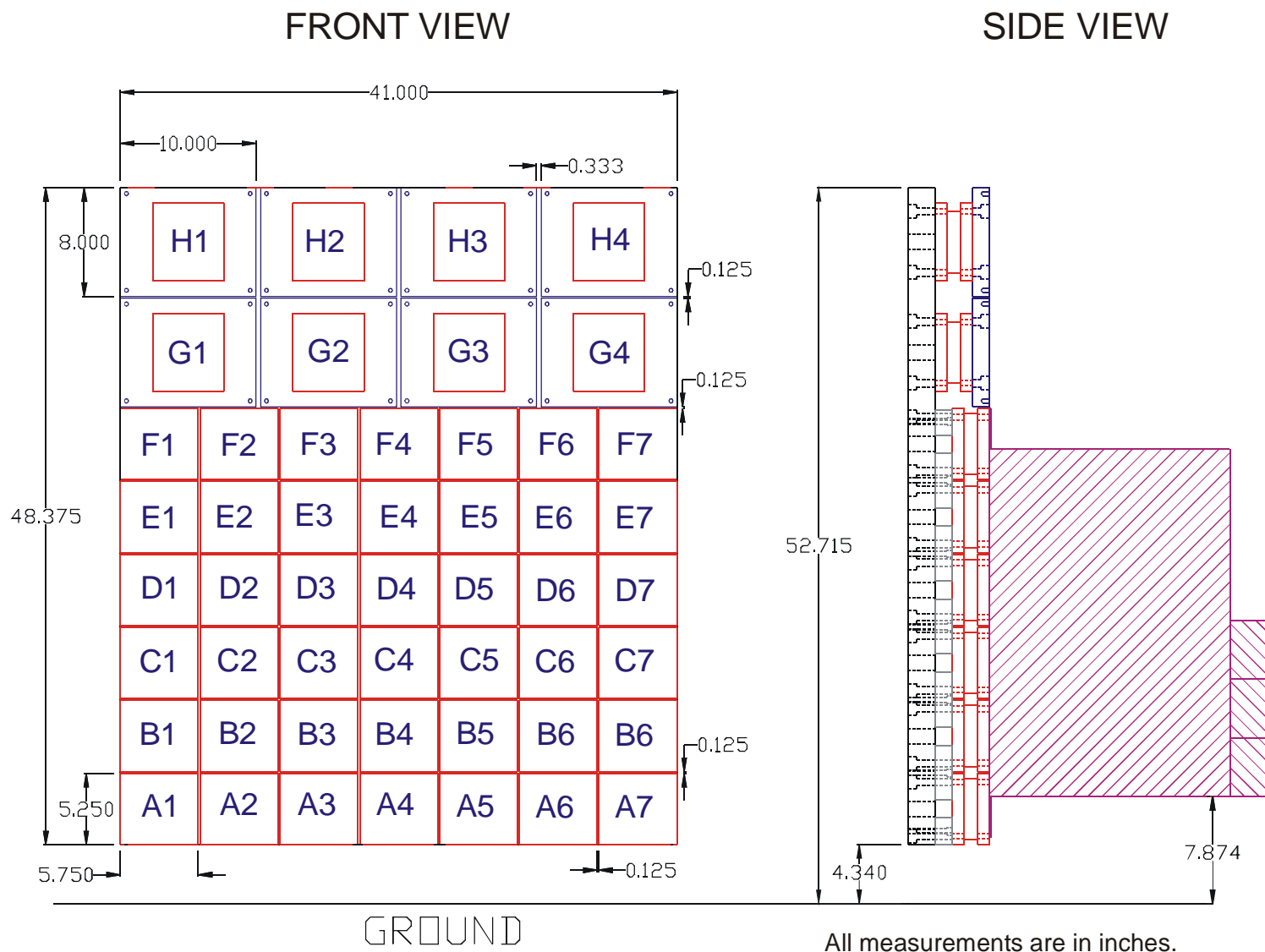
Barrier Manufacturer: Cellbond

Serial Number: CB076



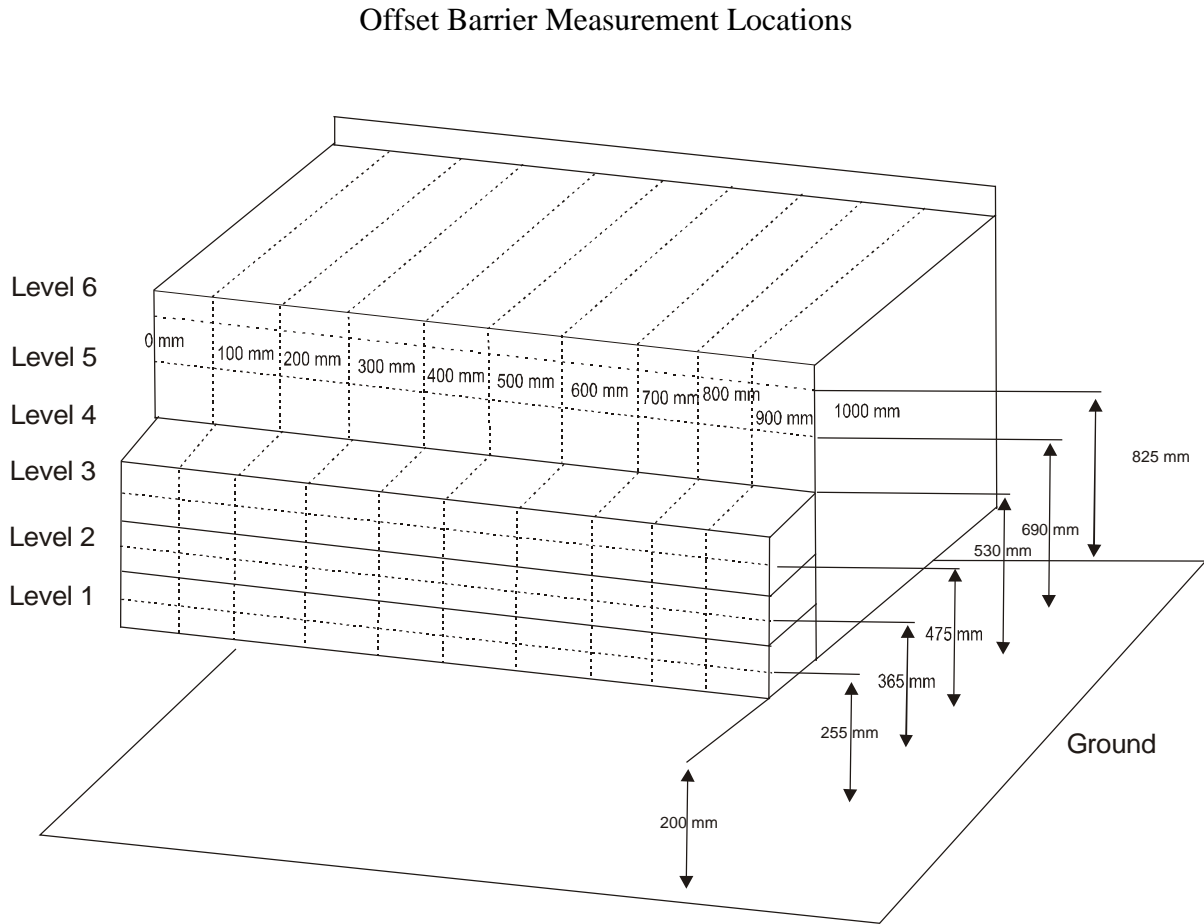
A	Total Vehicle Width	<u>1780</u>	mm
B	40% Overlap Distance	<u>712</u>	mm
C	Deformable Face Width	<u>1000</u>	mm
D	Single Stage Honeycomb Depth	<u>454</u>	mm
E	Bumper Element Depth	<u>90</u>	mm
F	Lower Edge Height From Ground	<u>200</u>	mm
G*	Bumper Element Height	<u>331</u>	mm
H	Deformable Barrier Honeycomb Height	<u>650</u>	mm

Figure 17 Load Cell Location on Fixed Offset Barrier<sup>1</sup>



<sup>1</sup>Load cell data is presented as plots in Appendix B.

Figure 18 Offset Barrier Deformation Measurement Locations



Height of levels at centerline:

Level 6 - Top stack	825 mm
Level 5 - Mid stack	690 mm
Level 4 - Stack at top of bumper	536 mm
Level 3 - Bumper top	475 mm
Level 2 - Bumper mid	365 mm
Level 1 - Bumper low	255 mm

Table 14 Deformable Barrier Face Profile

Level 6 Top Stack

Pre-Test			
Index	Xmm	Ymm	Zmm
1	454.8	-4.9	629.0
2	454.9	94.6	628.0
3	455.4	194.4	627.1
4	454.3	294.8	628.6
5	455.2	394.6	629.9
6	454.9	493.8	629.8
7	455.2	595.2	630.4
8	454.9	691.9	629.5
9	457.0	794.2	629.3
10	456.4	894.5	629.7
11	456.3	992.9	630.9

Post-Test			
Index	Xmm	Ymm	Zmm
1	533.8	146.2	549.4
2	492.6	232.5	549.1
3	472.2	332.0	552.4
4	444.9	427.4	555.8
5	401.4	515.2	551.0
6	340.8	591.7	549.0
7	288.4	648.0	574.3
8	252.3	729.0	564.2
9	193.7	807.3	560.0
10	149.7	894.5	542.1
11	94.9	974.6	529.2

Difference			
Index	Xmm	Ymm	Zmm
1	-79.1	-151.1	79.6
2	-37.8	-137.9	78.9
3	-16.8	-137.6	74.7
4	9.4	-132.7	72.8
5	53.8	-120.6	78.9
6	114.2	-98.0	80.8
7	166.9	-52.9	56.1
8	202.6	-37.1	65.4
9	263.4	-13.1	69.3
10	306.7	0.0	87.7
11	361.4	18.3	101.7

Level 5 Mid Stack

Pre-Test			
Index	Xmm	Ymm	Zmm
12	453.7	-5.0	494.0
13	455.1	96.1	493.4
14	453.9	195.5	494.1
15	455.4	295.7	493.4
16	456.2	395.6	493.0
17	454.9	496.7	494.9
18	455.8	596.2	494.9
19	454.3	697.2	496.3
20	455.8	795.5	494.8
21	455.5	894.4	495.5
22	457.1	992.2	496.1

Post-Test			
Index	Xmm	Ymm	Zmm
12	544.8	153.4	418.4
13	519.6	250.4	420.9
14	479.9	333.9	428.1
15	406.9	398.9	447.6
16	356.8	477.8	433.2
17	289.7	538.8	455.0
18	231.9	620.5	463.9
19	175.3	691.5	477.2
20	159.4	766.5	434.6
21	122.9	858.1	417.3
22	76.9	944.0	403.6

Difference			
Index	Xmm	Ymm	Zmm
12	-91.2	-158.4	75.7
13	-64.4	-154.3	72.5
14	-26.0	-138.4	66.0
15	48.6	-103.2	45.8
16	99.4	-82.2	59.8
17	165.2	-42.1	39.9
18	223.9	-24.4	31.0
19	279.1	5.6	19.1
20	296.5	29.0	60.2
21	332.7	36.3	78.3
22	380.3	48.2	92.6

Table 14 Deformable Barrier Face Profile Cont'd.

Level 4 Stack Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
23	455.9	-3.5	340.3
24	454.8	93.7	343.0
25	454.4	193.6	342.6
26	454.7	293.9	342.2
27	454.4	398.2	342.0
28	455.7	496.5	342.6
29	455.9	596.5	343.8
30	456.8	695.0	343.2
31	456.9	795.5	345.2
32	454.8	896.8	345.6
33	457.7	992.1	343.2

Post-Test

Index	Xmm	Ymm	Zmm
23	501.9	133.6	202.3
24	442.9	205.5	208.0
25	414.0	301.0	297.2
26	332.2	352.2	324.3
27	265.0	425.3	339.5
28	198.2	487.7	352.6
29	130.0	552.5	378.6
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A

Difference

Index	Xmm	Ymm	Zmm
23	-46.0	-137.0	138.0
24	11.9	-111.8	135.0
25	40.4	-107.5	45.4
26	122.5	-58.3	17.9
27	189.4	-27.1	2.5
28	257.5	8.8	-10.1
29	325.9	44.1	-34.9
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A

Level 3 Bumper Top

Pre-Test

Index	Xmm	Ymm	Zmm
34	545.6	-5.3	279.5
35	546.7	95.9	280.5
36	546.4	193.1	279.9
37	546.8	295.7	278.9
38	547.2	393.7	279.5
39	548.1	494.5	280.2
40	547.2	593.0	279.5
41	546.4	695.5	280.8
42	547.5	795.2	280.9
43	547.6	894.5	279.8
44	545.5	995.1	281.2

Post-Test

Index	Xmm	Ymm	Zmm
34	554.8	264.9	126.5
35	460.5	289.9	141.5
36	367.8	321.4	156.7
37	277.9	363.1	173.4
38	209.5	430.5	195.9
39	163.3	509.9	214.1
40	118.2	584.3	245.1
41	43.8	626.2	242.5
42	49.2	736.8	264.1
43	44.1	831.1	287.3
44	23.0	927.9	307.2

Difference

Index	Xmm	Ymm	Zmm
34	-9.2	-270.2	153.0
35	86.2	-194.0	139.0
36	178.6	-128.3	123.3
37	268.9	-67.4	105.5
38	337.8	-36.8	83.6
39	384.8	-15.4	66.1
40	429.0	8.8	34.4
41	502.7	69.3	38.4
42	498.3	58.4	16.9
43	503.5	63.4	-7.5
44	522.6	67.2	-26.0

Table 14 Deformable Barrier Face Profile Cont'd.

Level 2 Bumper Top

Pre-Test

Index	Xmm	Ymm	Zmm
45	545.5	-3.4	170.3
46	547.0	94.1	170.0
47	547.2	194.2	169.2
48	546.1	295.2	170.3
49	547.6	394.0	169.3
50	546.8	494.5	170.0
51	546.9	594.3	170.2
52	546.7	695.5	170.5
53	546.4	796.0	170.1
54	547.3	895.1	169.7
55	547.9	997.9	173.2

Post-Test

Index	Xmm	Ymm	Zmm
45	544.2	239.8	12.4
46	454.6	281.3	28.4
47	368.9	323.7	46.2
48	276.6	367.9	63.7
49	207.9	434.0	84.4
50	167.3	516.5	124.8
51	129.3	587.7	176.6
52	77.4	657.3	176.9
53	96.1	761.1	182.6
54	107.2	855.7	177.2
55	66.9	942.8	174.3

Difference

Index	Xmm	Ymm	Zmm
45	1.3	-243.2	157.9
46	92.5	-187.2	141.7
47	178.3	-129.5	123.1
48	269.5	-72.7	106.6
49	339.7	-40.0	84.9
50	379.5	-22.1	45.2
51	417.7	6.6	-6.4
52	469.4	38.2	-6.3
53	450.3	35.0	-12.5
54	440.1	39.5	-7.5
55	481.1	55.1	-1.2

Level 1 Bumper Low

Pre-Test

Index	Xmm	Ymm	Zmm
56	545.1	-3.7	58.9
57	545.6	93.5	60.5
58	548.0	195.4	60.0
59	548.2	295.6	57.5
60	547.6	394.3	57.9
61	546.4	490.9	60.2
62	547.3	593.3	60.4
63	547.6	694.4	61.6
64	546.7	792.7	61.1
65	547.1	893.6	61.5
66	548.3	992.9	60.6

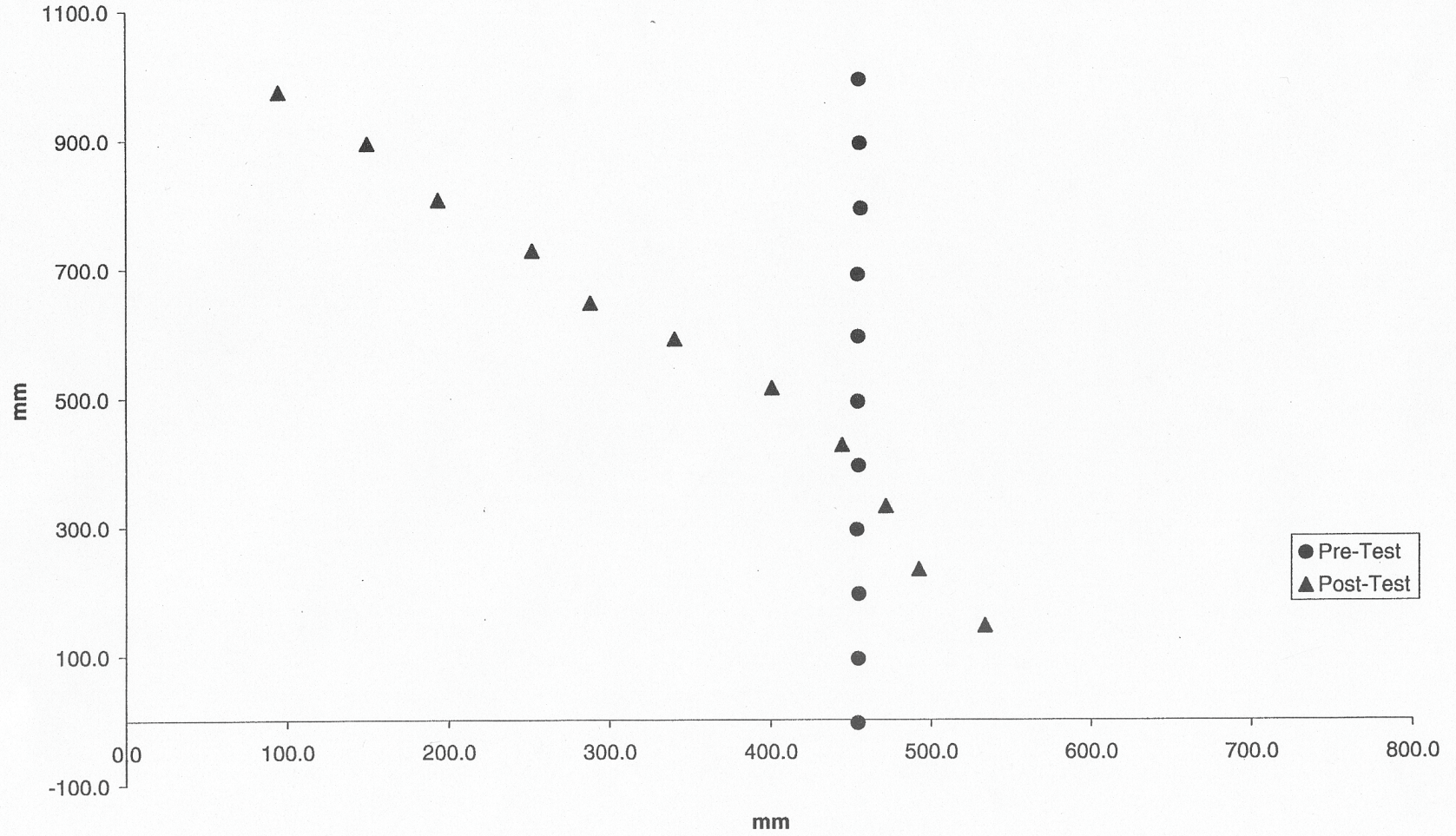
Post-Test

Index	Xmm	Ymm	Zmm
56	528.8	244.5	-94.5
57	439.3	284.8	-77.5
58	353.1	328.2	-61.2
59	272.4	387.1	-45.0
60	209.2	467.2	-16.3
61	176.4	548.8	20.0
62	107.7	589.5	72.4
63	110.6	648.8	61.6
64	81.8	737.1	70.7
65	85.5	836.6	76.1
66	50.0	905.0	90.0

Difference

Index	Xmm	Ymm	Zmm
56	16.4	-248.1	153.4
57	106.3	-191.4	137.9
58	194.9	-132.8	121.1
59	275.8	-91.5	102.5
60	338.5	-72.9	74.2
61	370.0	-57.9	40.3
62	439.6	3.8	-12.1
63	437.1	45.6	0.0
64	464.9	55.6	-9.6
65	461.7	56.9	-14.6
66	498.3	87.9	-29.5

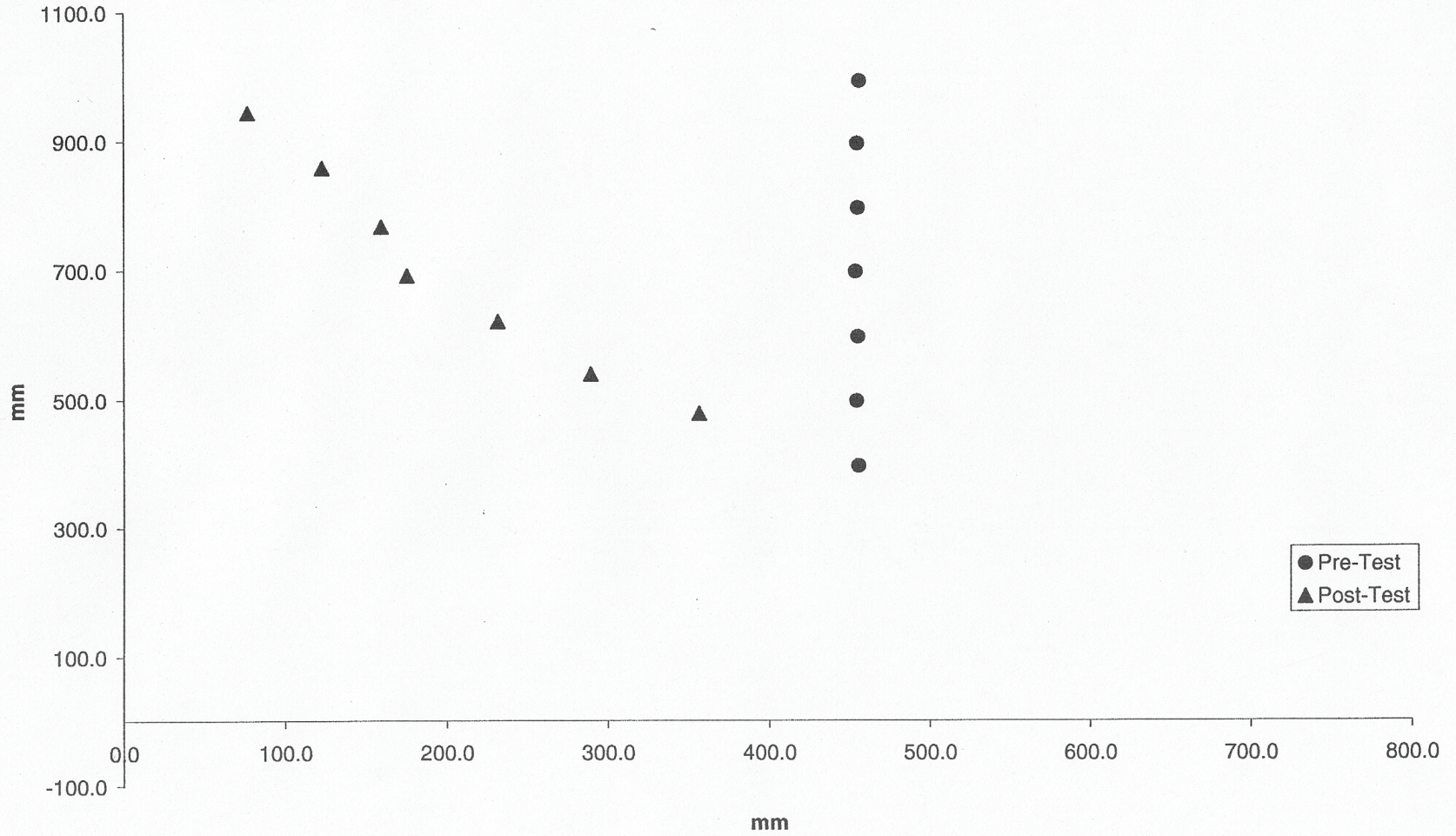
Figure 19 Deformable Barrier Face Profile 1-11 Level 6



4-29

020819

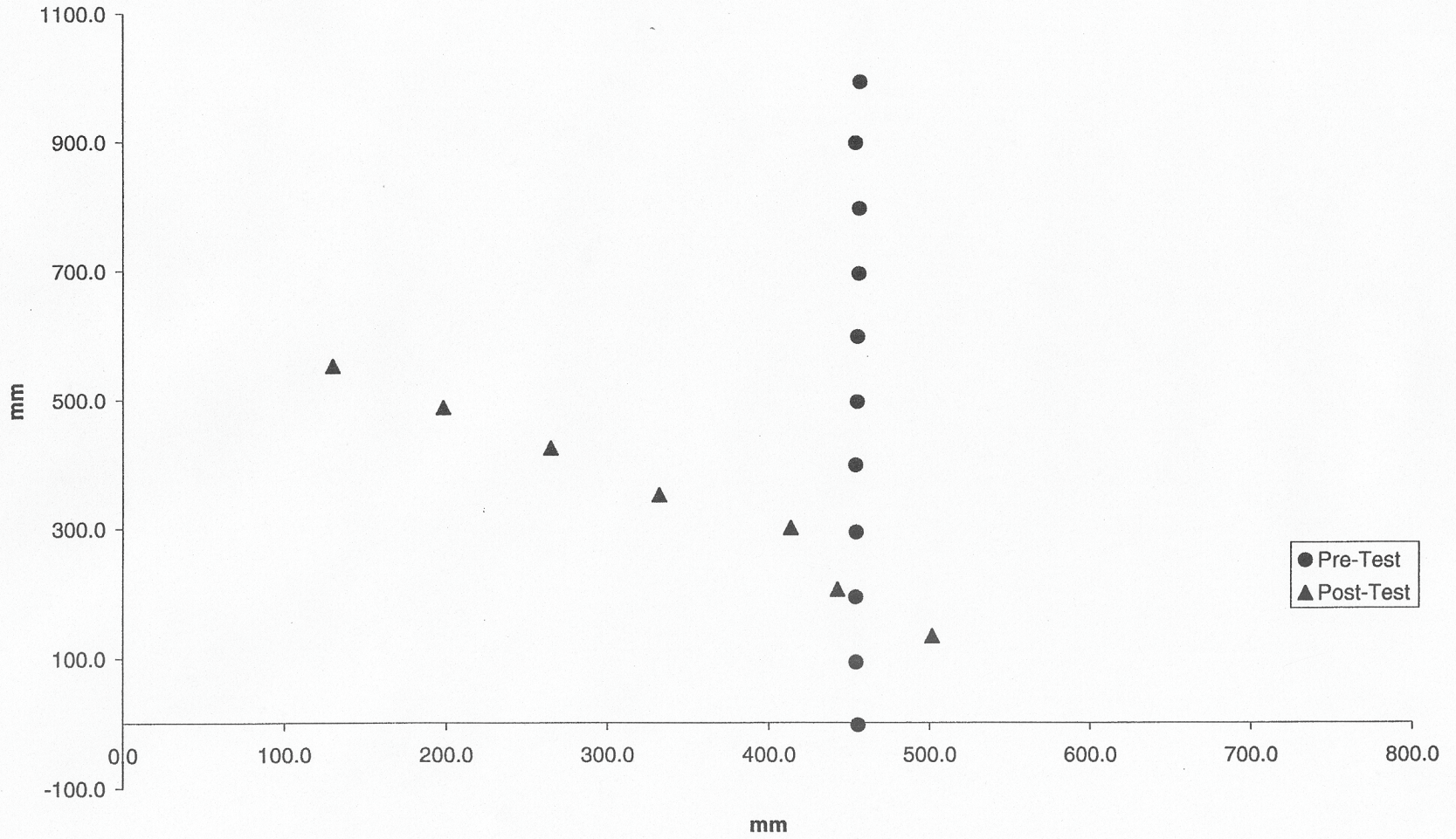
Figure 19 Deformable Barrier Face Profile 12-22 Level 5



4-30

020819

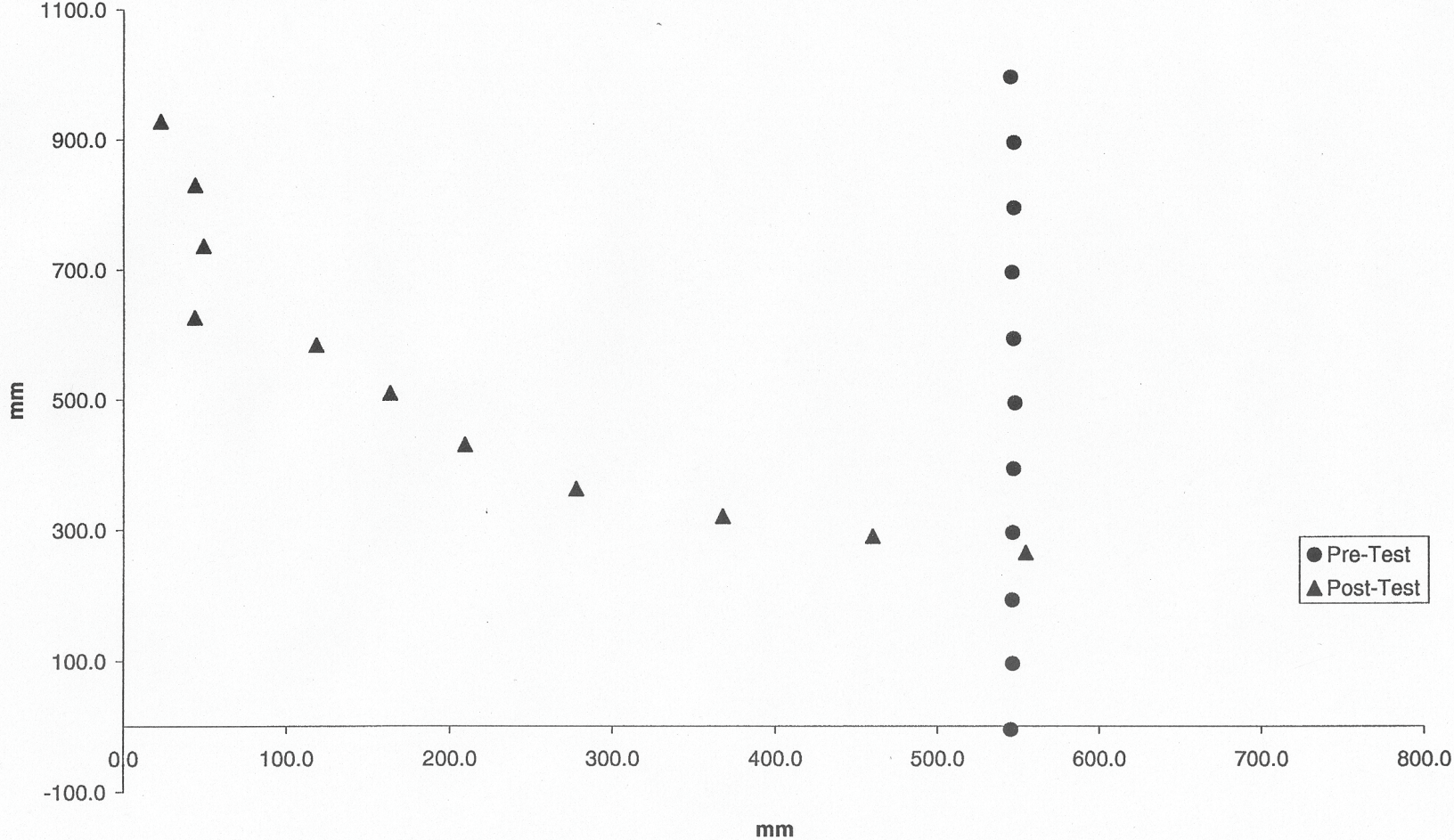
Figure 19 Deformable Barrier Face Profile 23-33 Level 4



4-31

020819

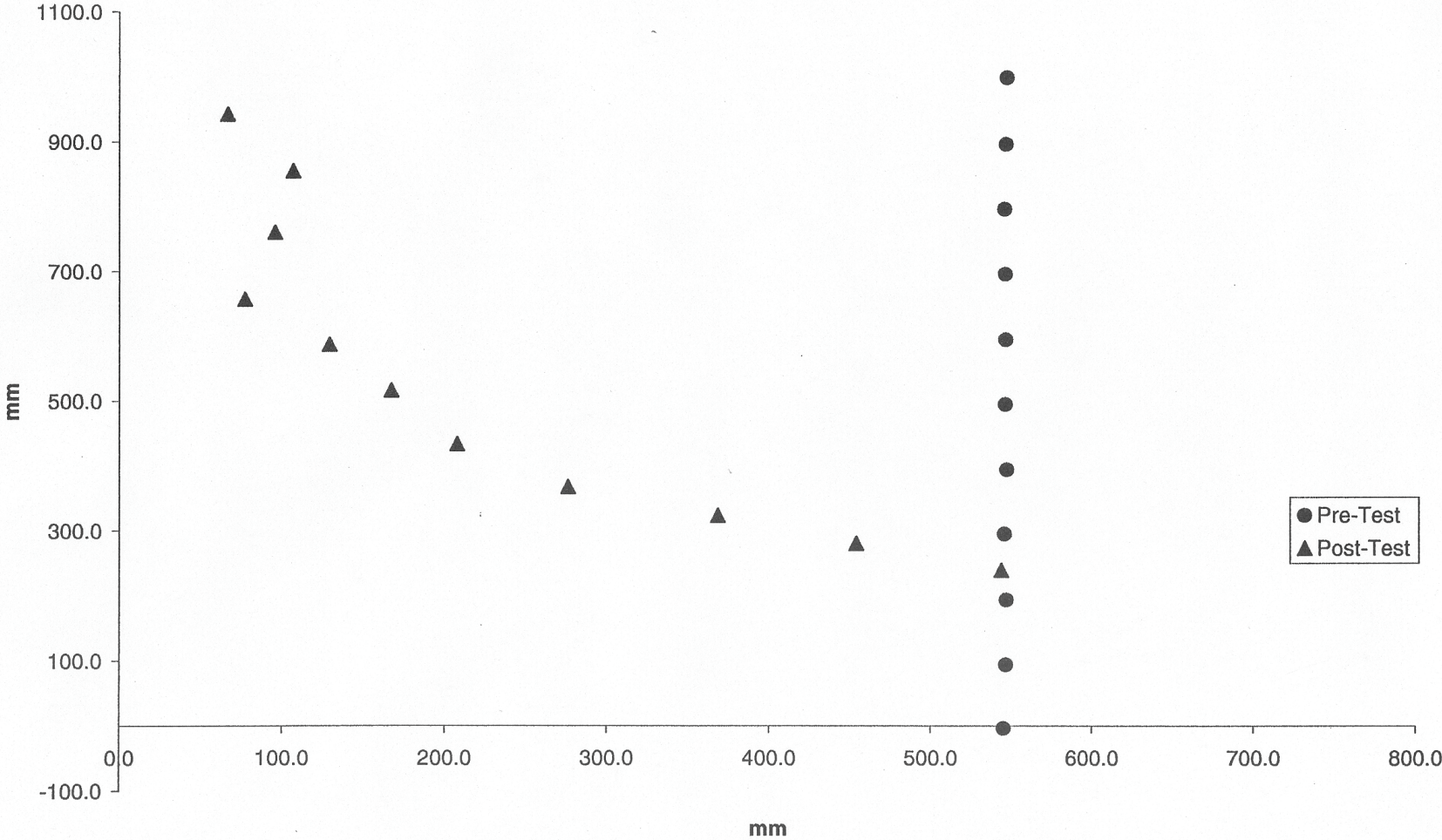
Figure 19 Deformable Barrier Face Profile 34-44 Level 3



4-32

020819

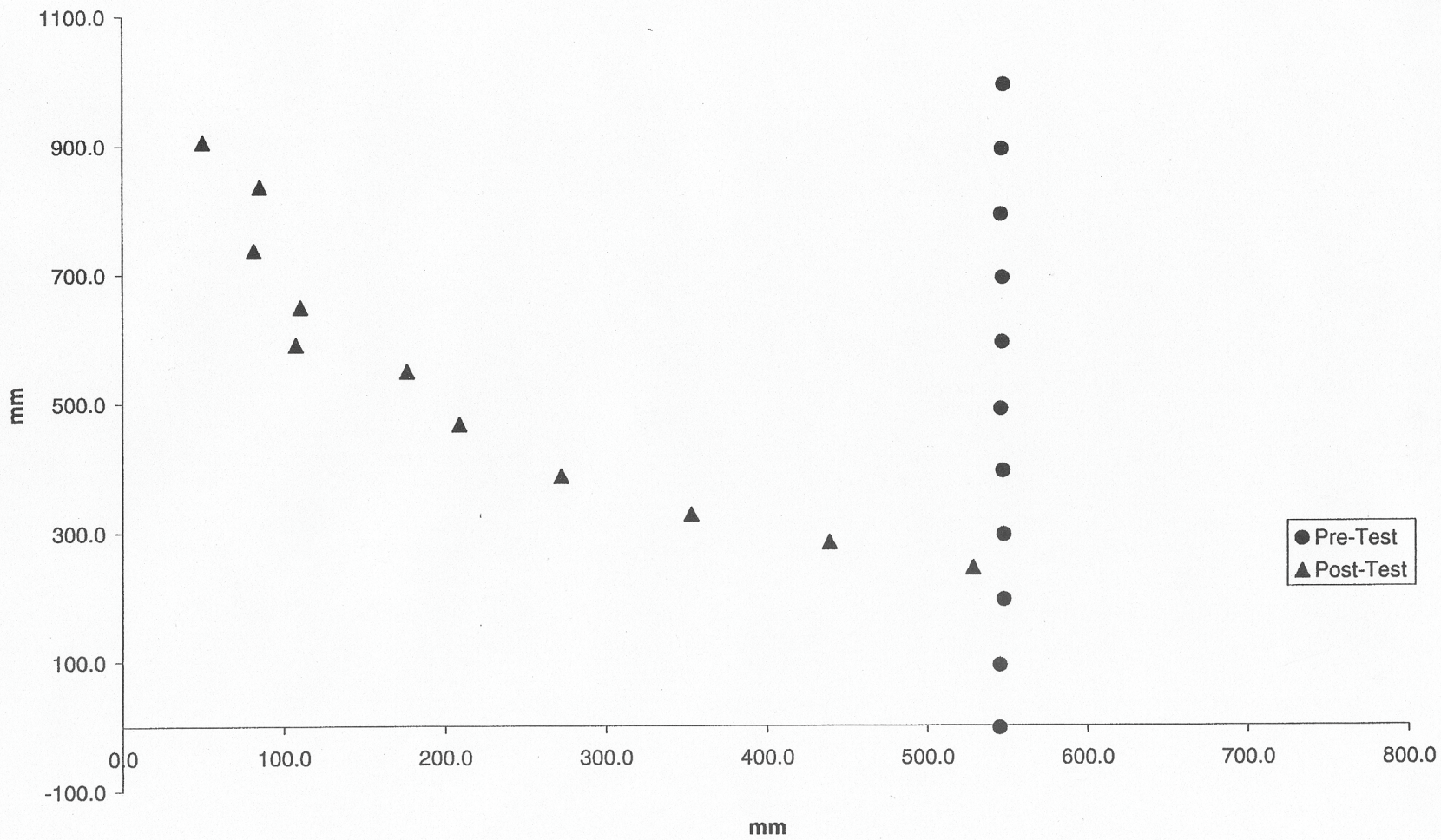
Figure 19 Deformable Barrier Face Profile 45-55 Level 2



4-33

020819

Figure 19 Deformable Barrier Face Profile 56-66 Level 1



Appendix A

Photographs



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



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



**Figure A-3 Pre-Test Left Front View**



**Figure A-4 Post-Test Left Front View**



Figure A-5 Pre-Test Left Side View



Figure A-6 Post-Test Left Side View



Figure A-7 Pre-Test Left Rear View



Figure A-8 Post-Test Left Rear View



Figure A-9 Pre-Test Rear View



Figure A-10 Post-Test Rear View



**Figure A-11 Pre-Test Right Rear View**



**Figure A-12 Post-Test Right Rear View**



**Figure A-13 Pre-Test Right Side View**



**Figure A-14 Post-Test Right Side View**



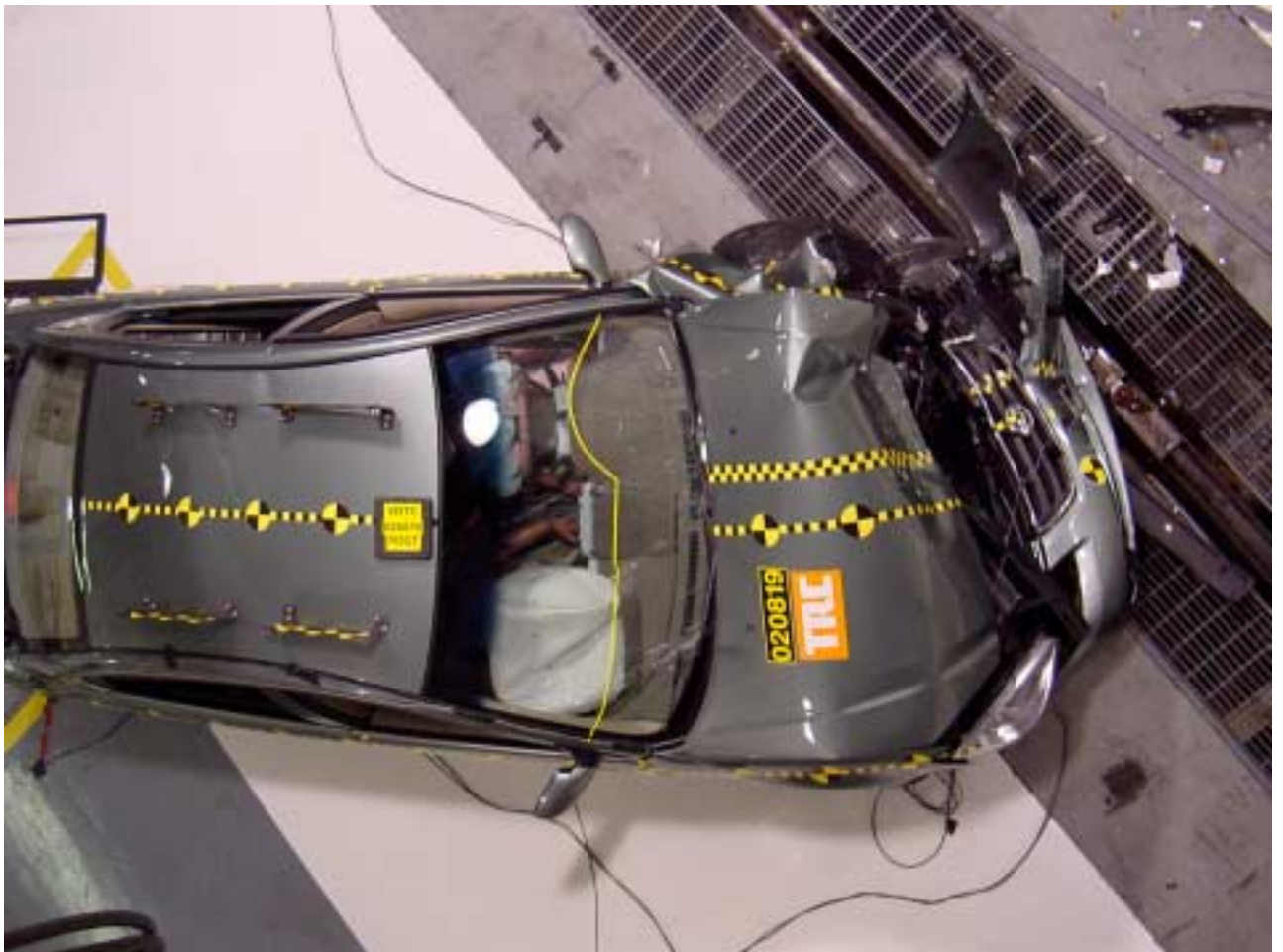
**Figure A-15 Pre-Test Right Front View**



**Figure A-16 Post-Test Right Front View**



**Figure A-17 Pre-Test Overhead View**



**Figure A-18 Post-Test Overhead View**



Figure A-19 Pre-Test Front Underbody View



Figure A-20 Post-Test Front Underbody View



Figure A-21 Pre-Test Front Mid Underbody View



Figure A-22 Post-Test Front Mid Underbody View



**Figure A-23 Pre-Test Rear Mid Underbody View**



**Figure A-24 Post-Test Rear Mid Underbody View**



Figure A-25 Pre-Test Rear Underbody View



Figure A-26 Post-Test Rear Underbody View



Figure A-27 Pre-Test Engine Compartment View



Figure A-28 Post-Test Engine Compartment View



Figure A-29 Pre-Test Windshield View

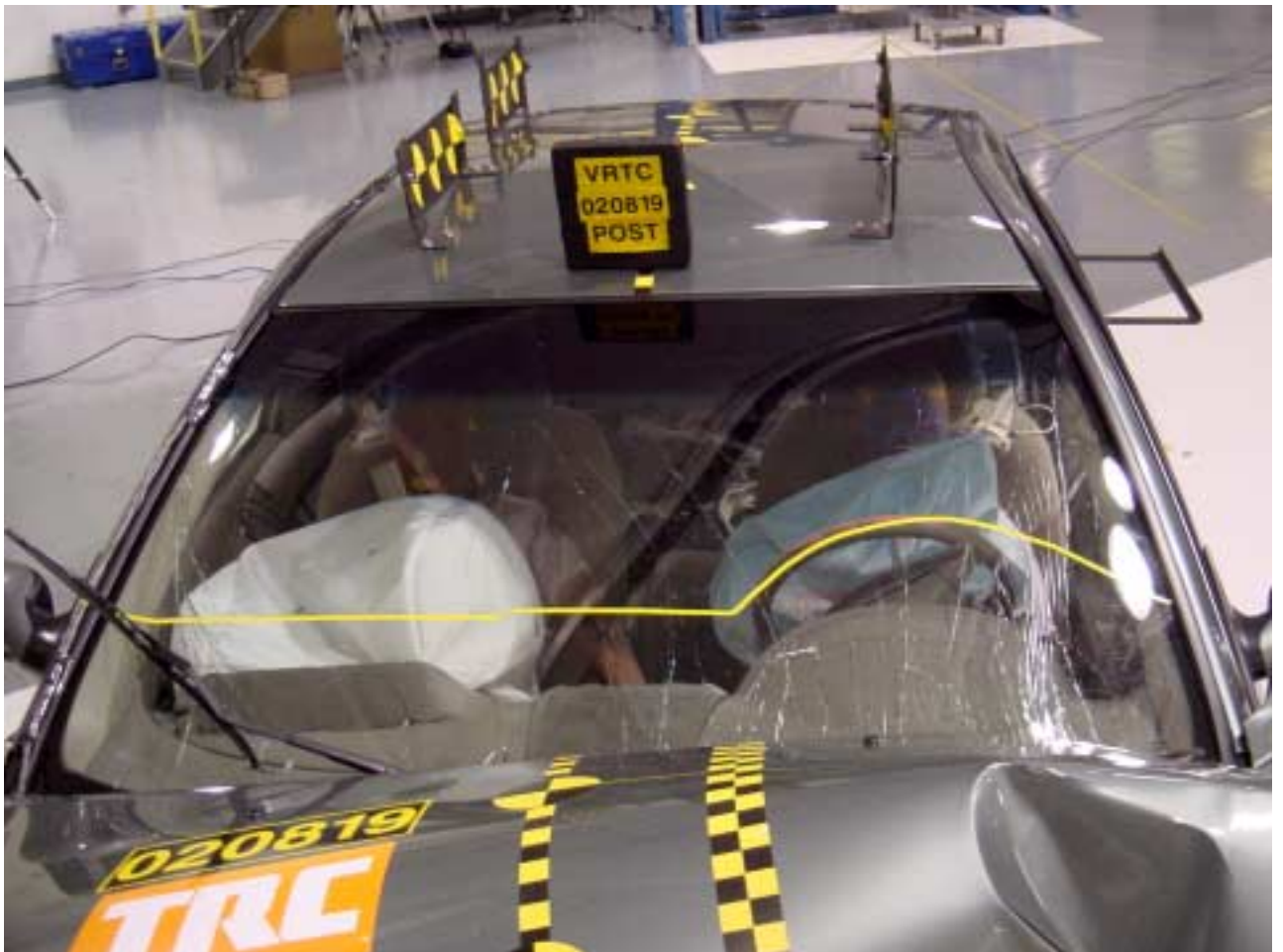


Figure A-30 Post-Test Windshield View



**Figure A-31 Pre-Test Left Side Angled Windshield View**



**Figure A-32 Post-Test Left Side Angled Windshield View**



**Figure A-33 Post-Test Left Side Windshield Close-up - View 1**



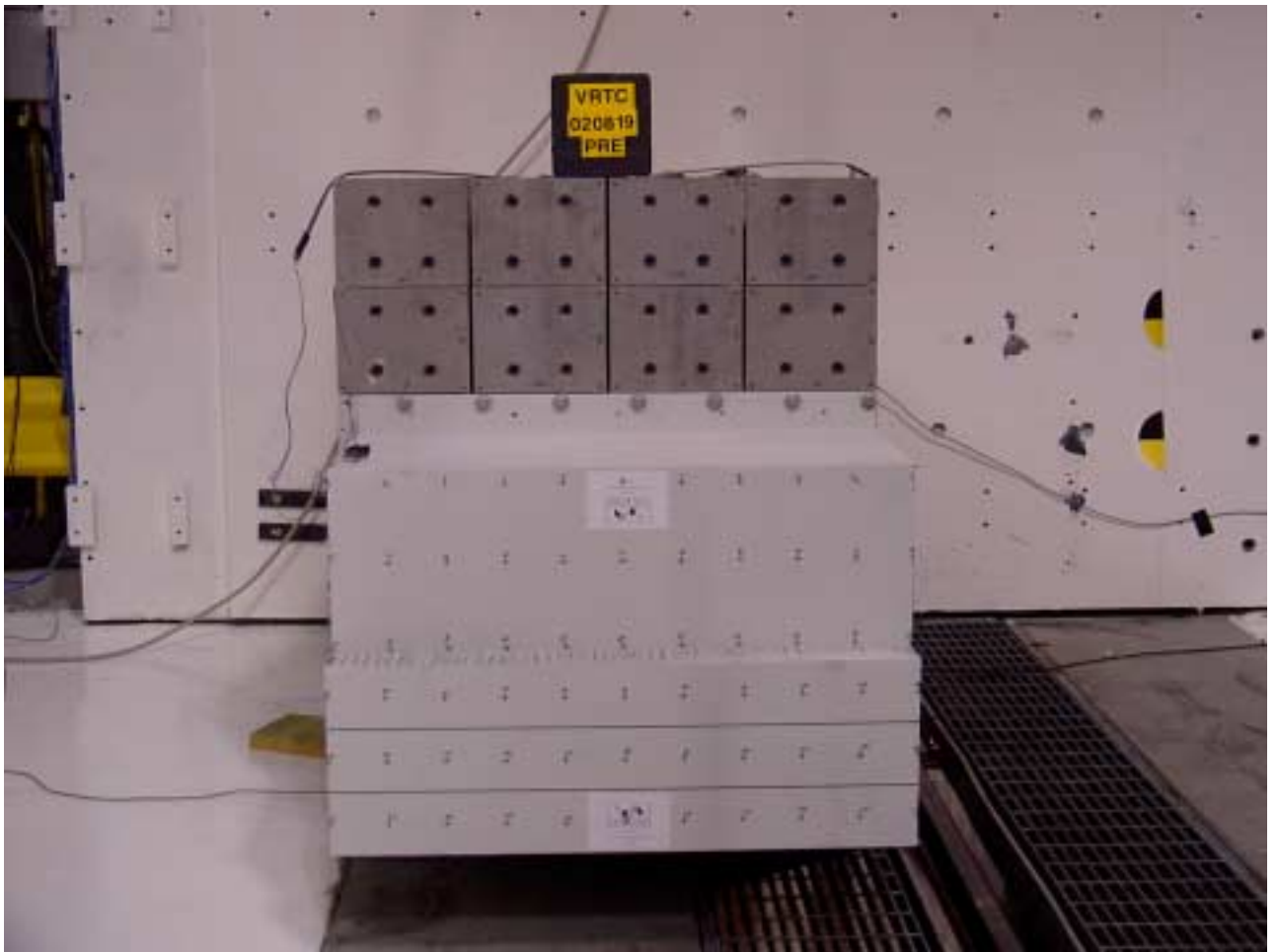
**Figure A-34 Post-Test Left Side Windshield Close-up - View 2**



**Figure A-35 Pre-Test Right Side Angled Windshield View**



**Figure A-36 Post-Test Right Side Angled Windshield View**



**Figure A-37 Pre-Test Front Barrier Face View**



**Figure A-38 Post-Test Front Barrier Face View**

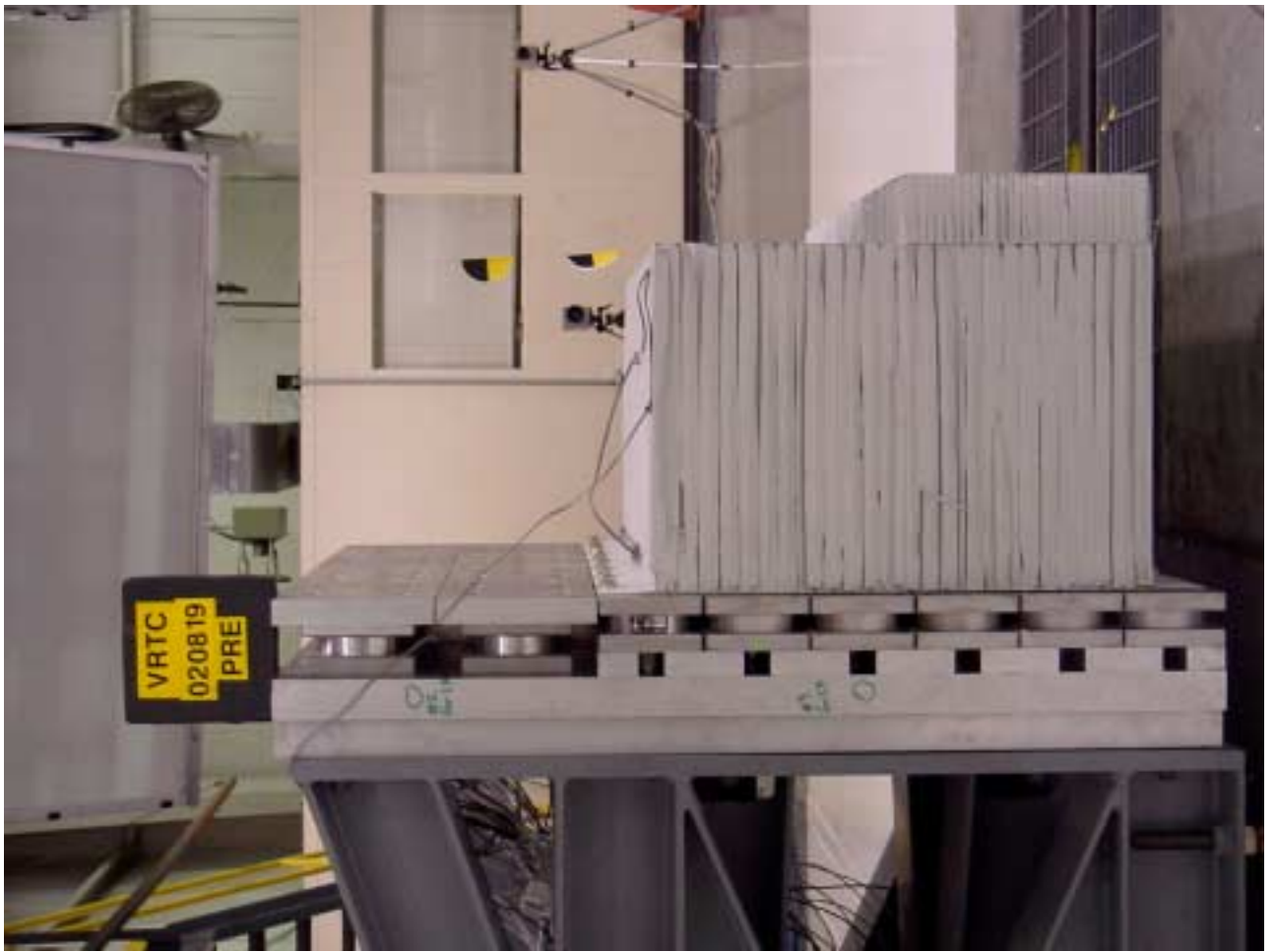


Figure A-39 Pre-Test Left Side Barrier Face View

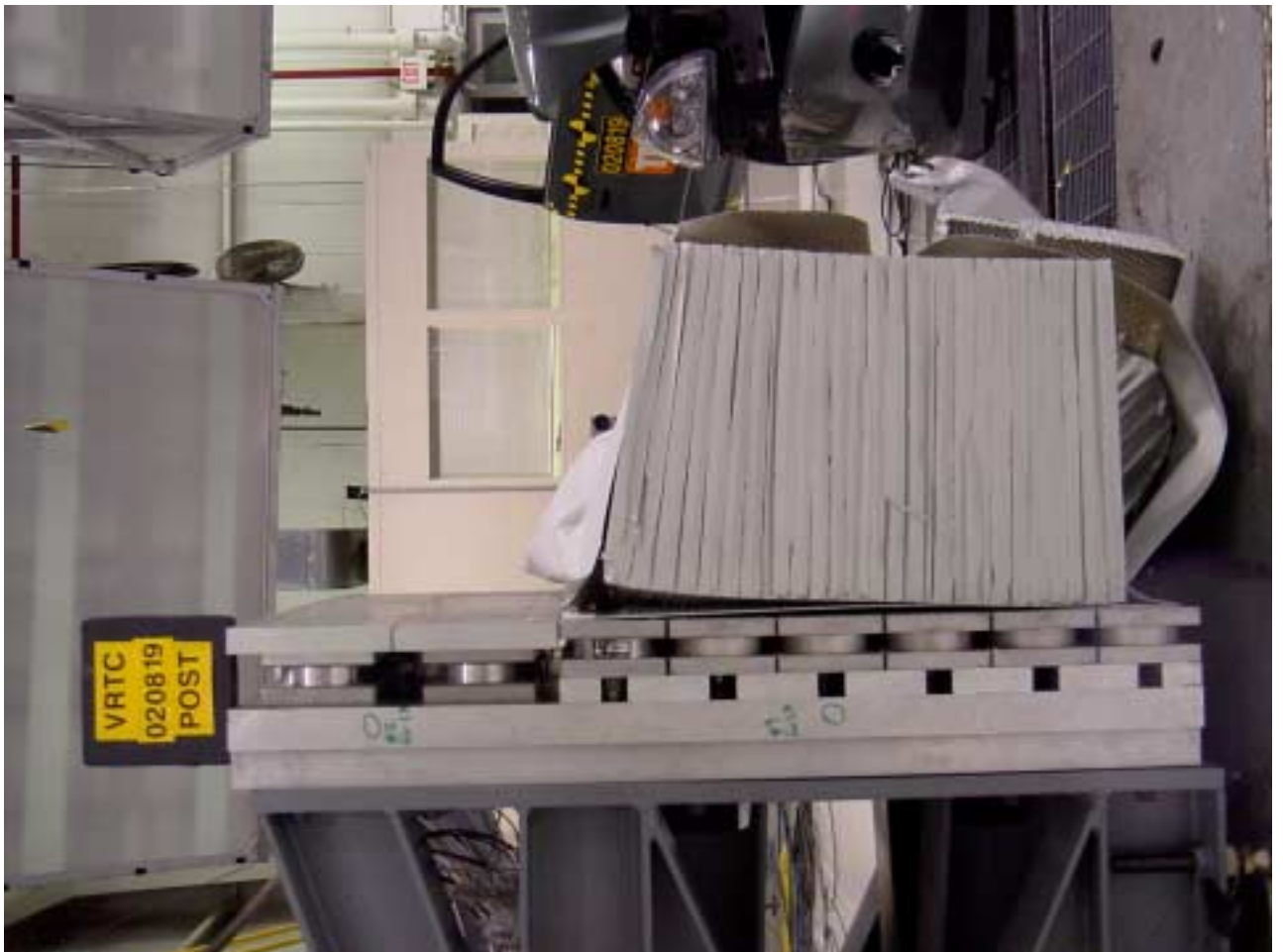


Figure A-40 Post-Test Left Side Barrier Face View

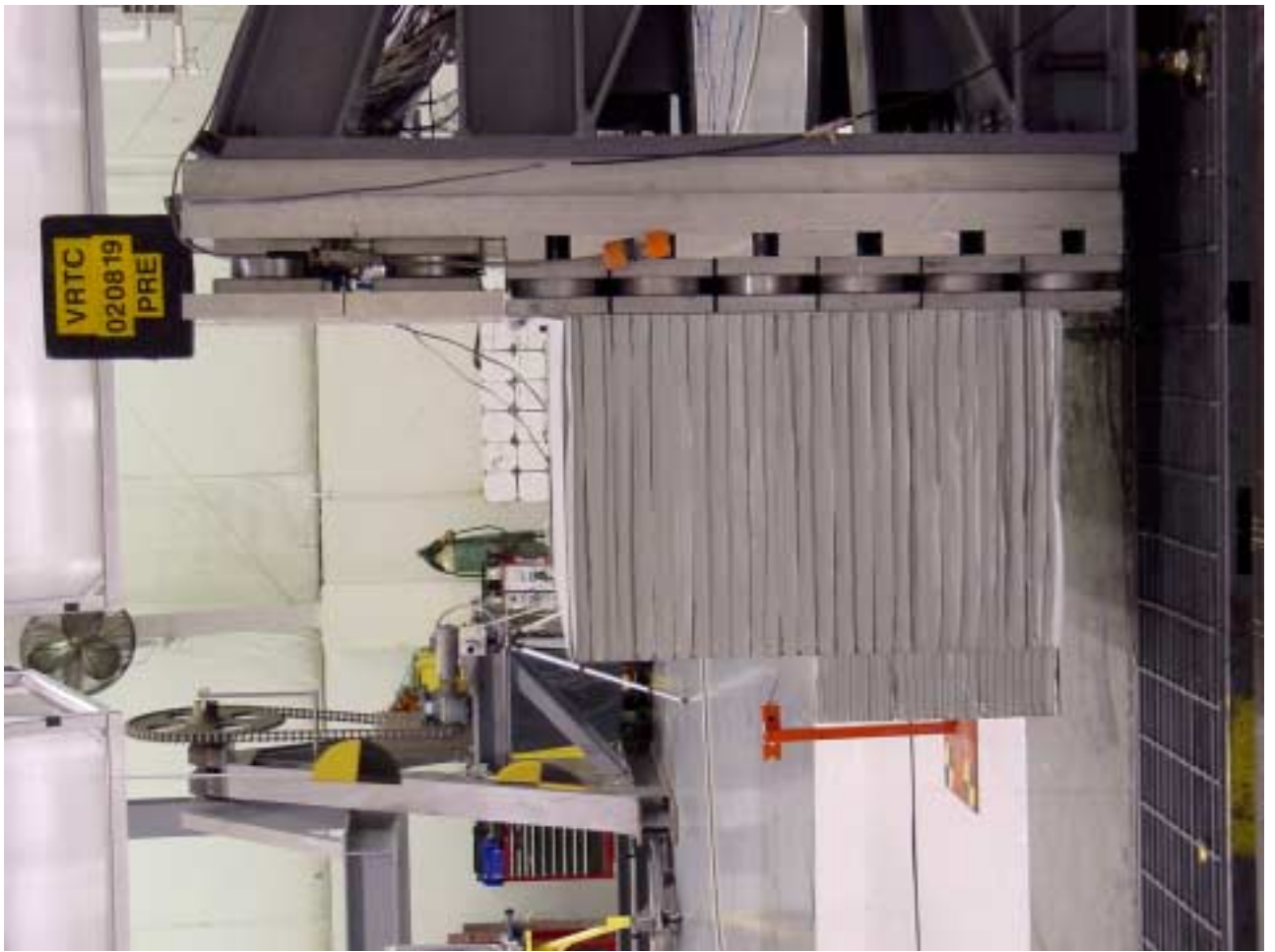


Figure A-41 Pre-Test Right Side Barrier Face View

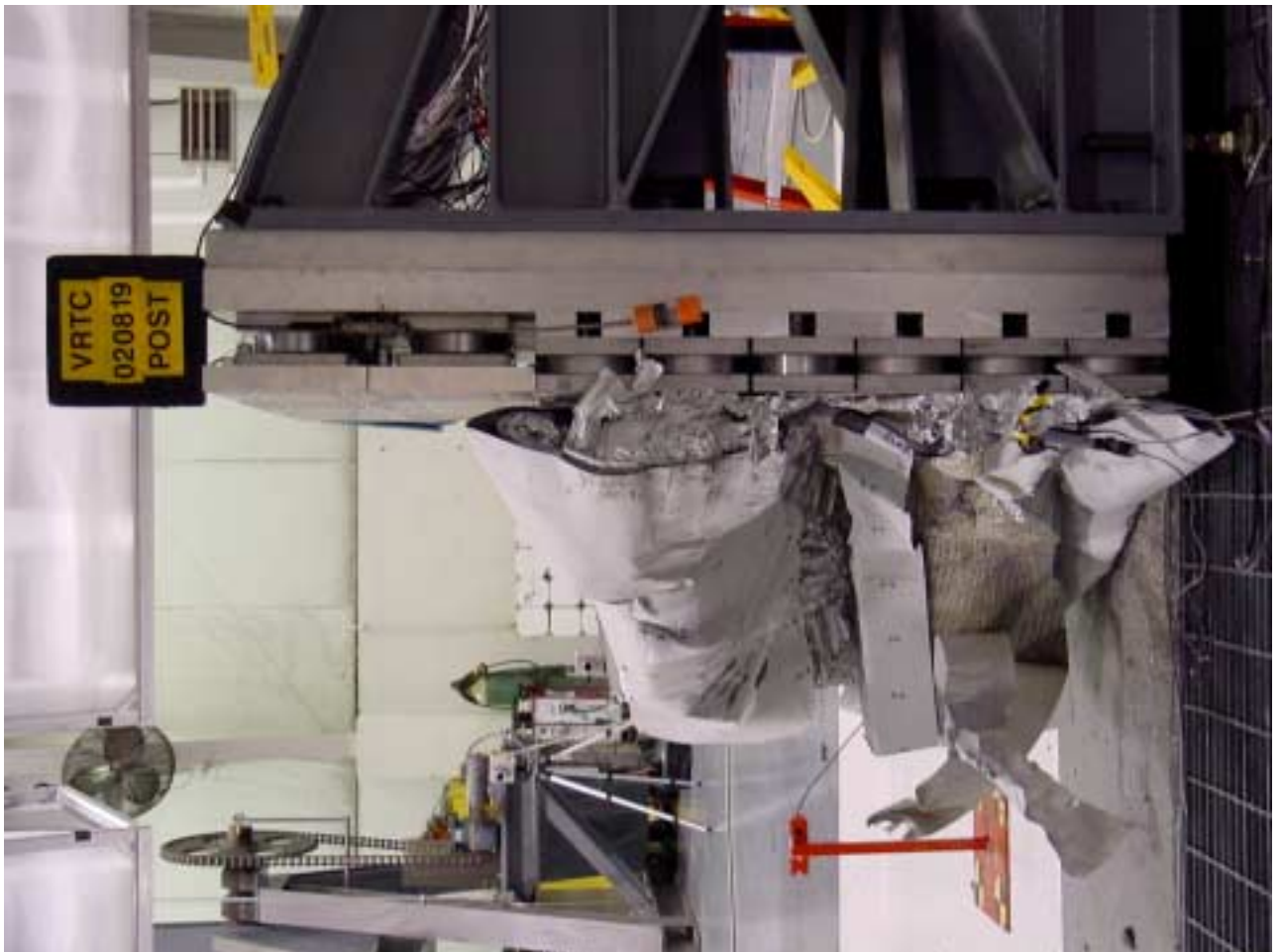


Figure A-42 Post-Test Right Side Barrier Face View



Figure A-43 Pre-Test Overhead Barrier Face View



Figure A-44 Post-Test Overhead Barrier Face View



**Figure A-45 Pre-Test Driver and Passenger Dummies Front View**



**Figure A-46 Post-Test Driver and Passenger Dummies Front View**



Figure A-47 Pre-Test Driver Dummy Position - View 1



Figure A-48 Post-Test Driver Dummy Position - View 1



Figure A-49 Pre-Test Driver Dummy Position - View 2



Figure A-50 Post-Test Driver Dummy Position - View 2



Figure A-51 Pre-Test Driver Dummy & Vehicle Interior - View 1



Figure A-52 Post-Test Driver Dummy & Vehicle Interior - View 1



Figure A-53 Pre-Test Driver Dummy & Vehicle Interior - View 2



Figure A-54 Post-Test Driver Dummy & Vehicle Interior - View 2



Figure A-55 Pre-Test Passenger Dummy Position - View 1

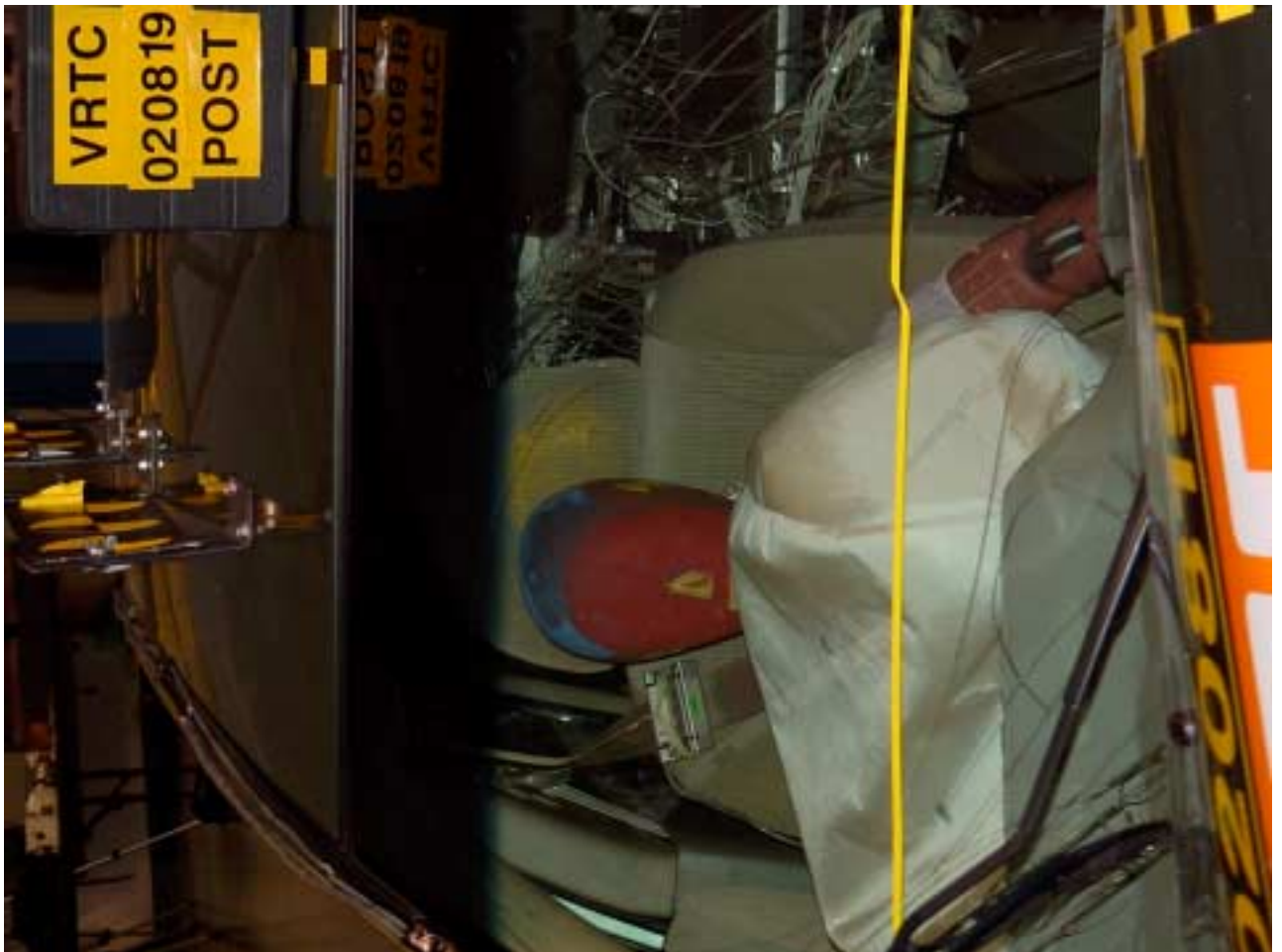


Figure A-56 Post-Test Passenger Dummy Position - View 1



Figure A-57 Pre-Test Passenger Dummy Position - View 2



Figure A-58 Post-Test Passenger Dummy Position - View 2



**Figure A-59 Pre-Test Passenger Dummy & Vehicle Interior - View 1**



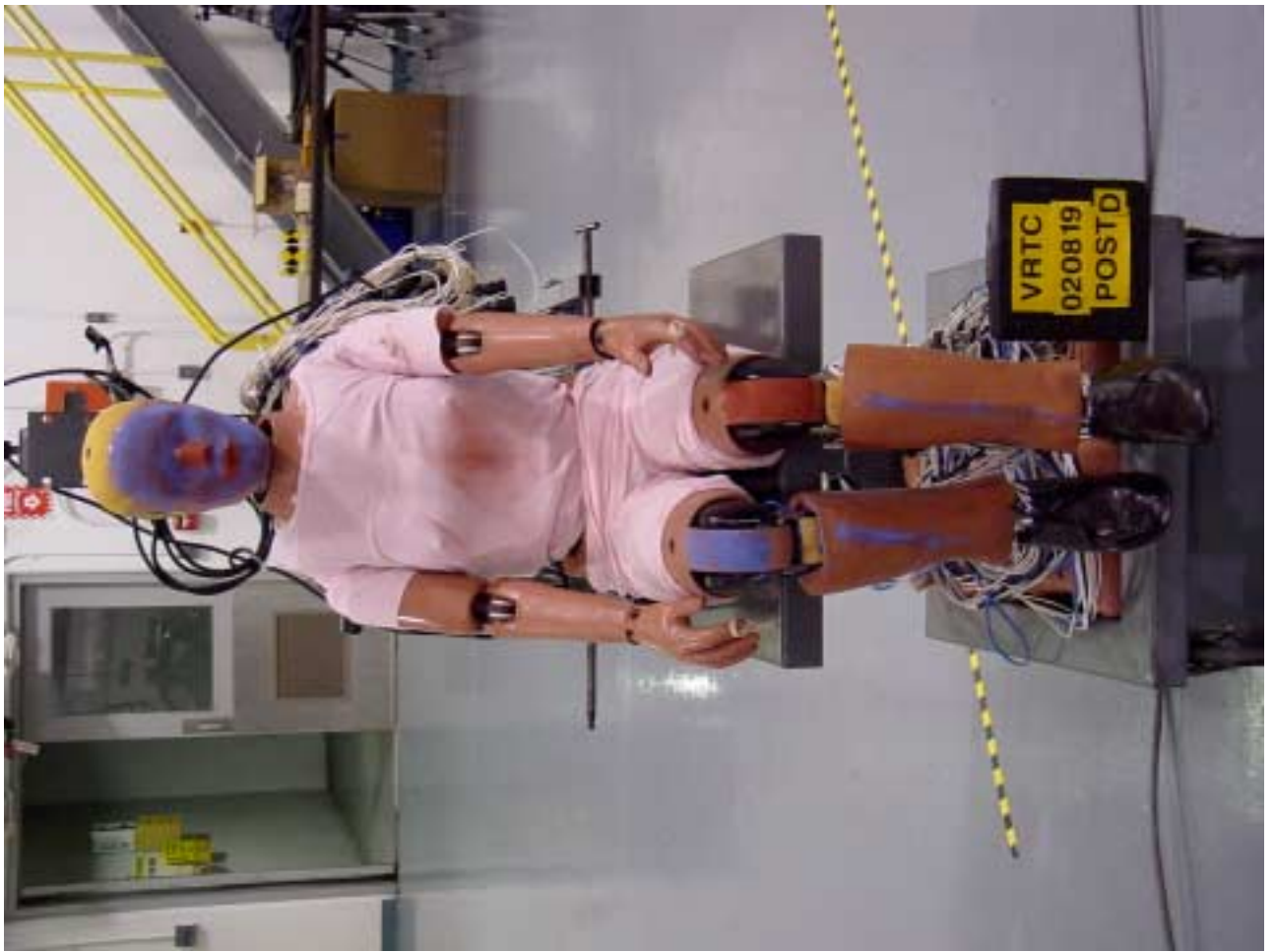
**Figure A-60 Post-Test Passenger Dummy & Vehicle Interior - View 1**



**Figure A-61 Pre-Test Passenger Dummy & Vehicle Interior - View 2**



**Figure A-62 Post-Test Passenger Dummy & Vehicle Interior - View 2**



**Figure A-63 Post-Test Driver Dummy Overall View**



**Figure A-64 Post-Test Driver Dummy Head Contact - View 1**



Figure A-65 Post-Test Driver Dummy Head Contact - View 2



Figure A-66 Post-Test Driver Dummy Head Contact - View 3



Figure A-67 Post-Test Driver Knee Contact - View 1



Figure A-68 Post-Test Driver Knee Contact - View 2



**Figure A-69 Post-Test Driver Knee Contact - View 3**

**Intentionally Left Blank**



**Figure A-70 Pre-Test Driver Feet Position**



**Figure A-71 Post-Test Driver Feet Position**



Figure A-72 Post-Test Driver Toeboard/Floorpan with Carpet Removed View



Figure A-73 Post-Test Passenger Dummy Overall View



Figure A-74 Post-Test Passenger Dummy Head Contact - View 1



Figure A-75 Post-Test Passenger Dummy Head Contact - View 2



Figure A-76 Post-Test Passenger Dummy Head Contact - View 3



Figure A-77 Post-Test Passenger Dummy Knee Contact - View 1



Figure A-78 Post-Test Passenger Dummy Knee Contact - View 2

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**Figure A-79 Pre-Test Passenger Feet Position**



**Figure A-80 Post-Test Passenger Feet Position**

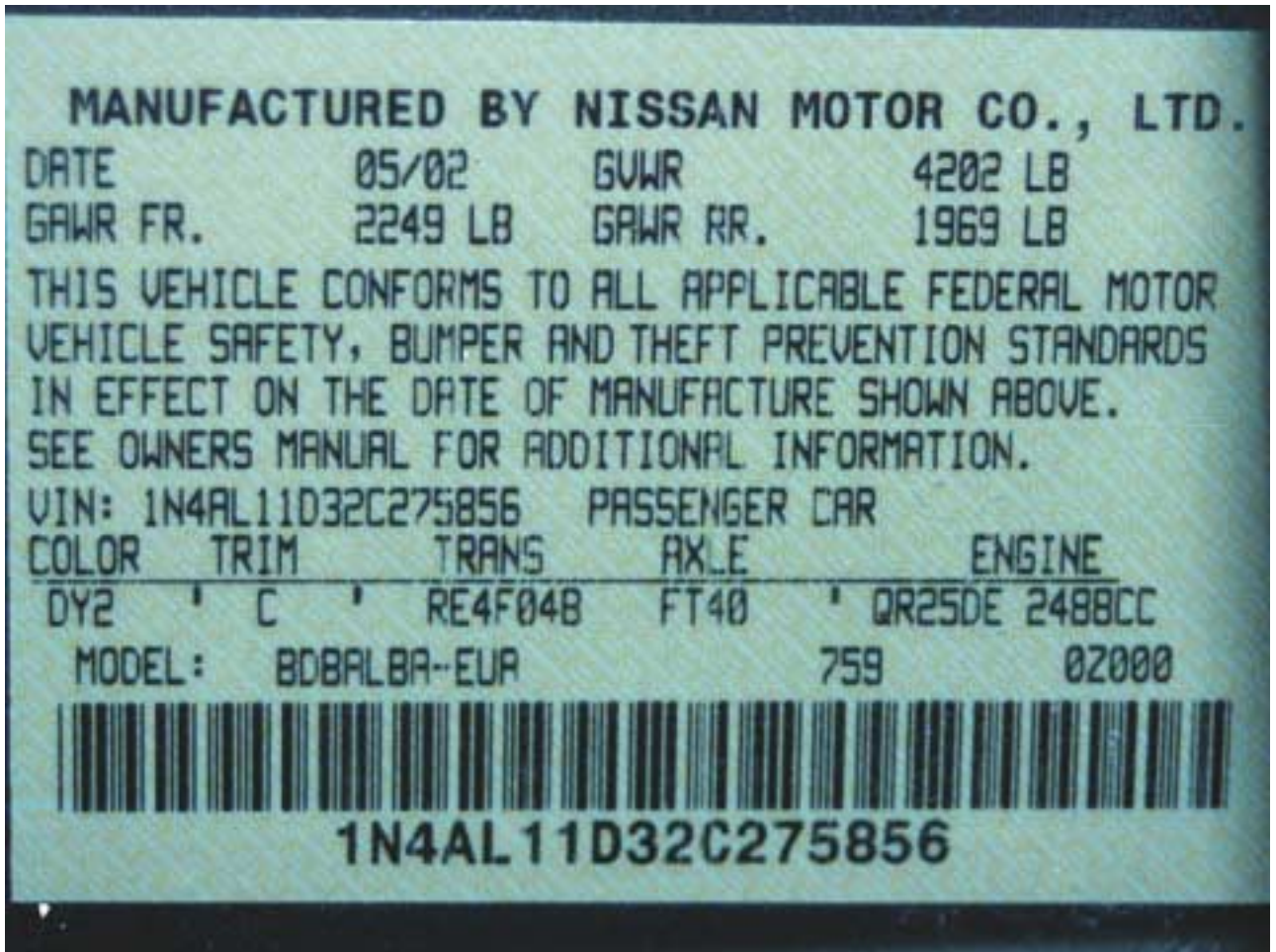


Figure A-81 Pre-Test Vehicle Certification Label View



Figure A-82 Pre-Test Tire Load Label View

Appendix B

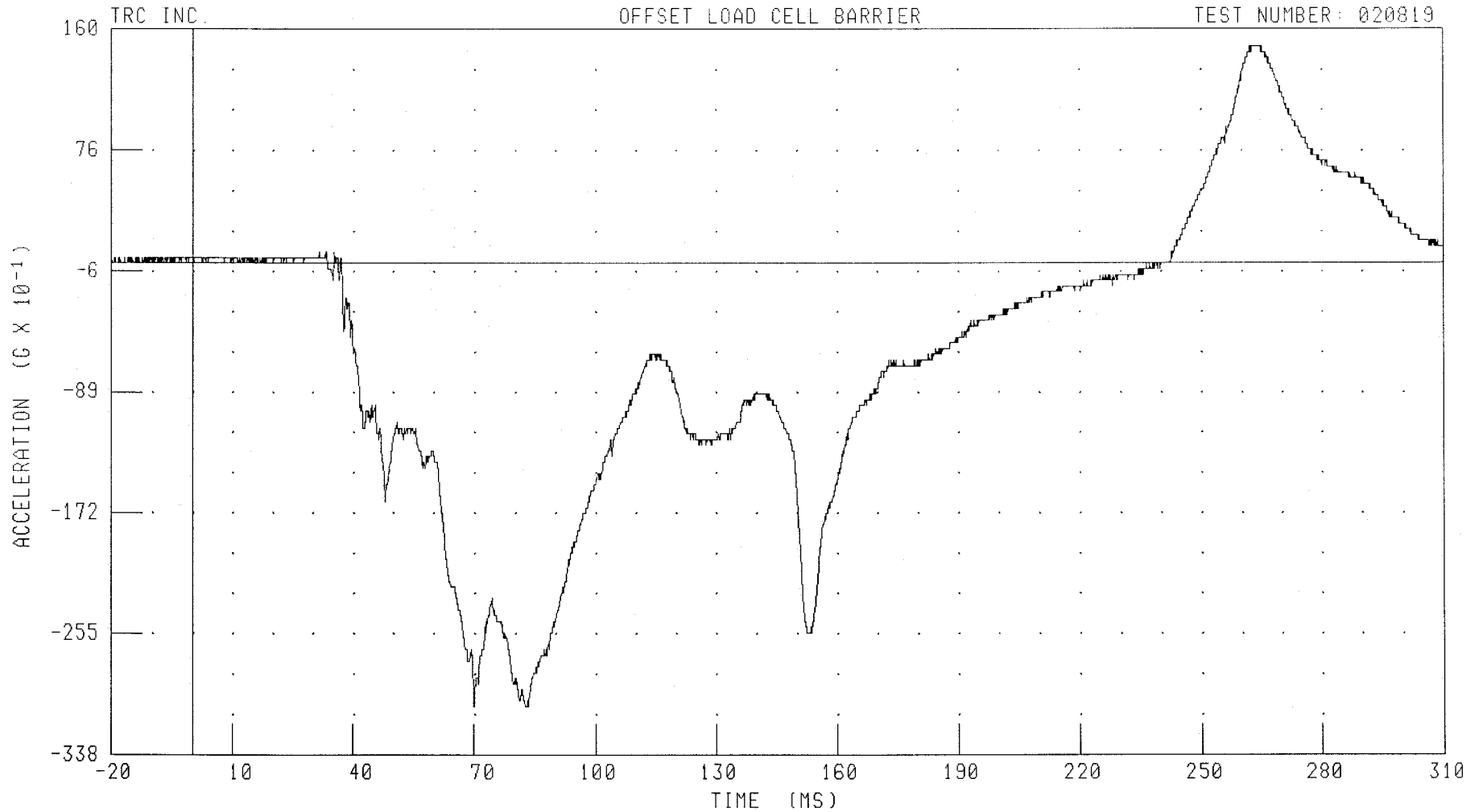
Data Plots

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDXG1

FILTER: CH. CLASS 1000

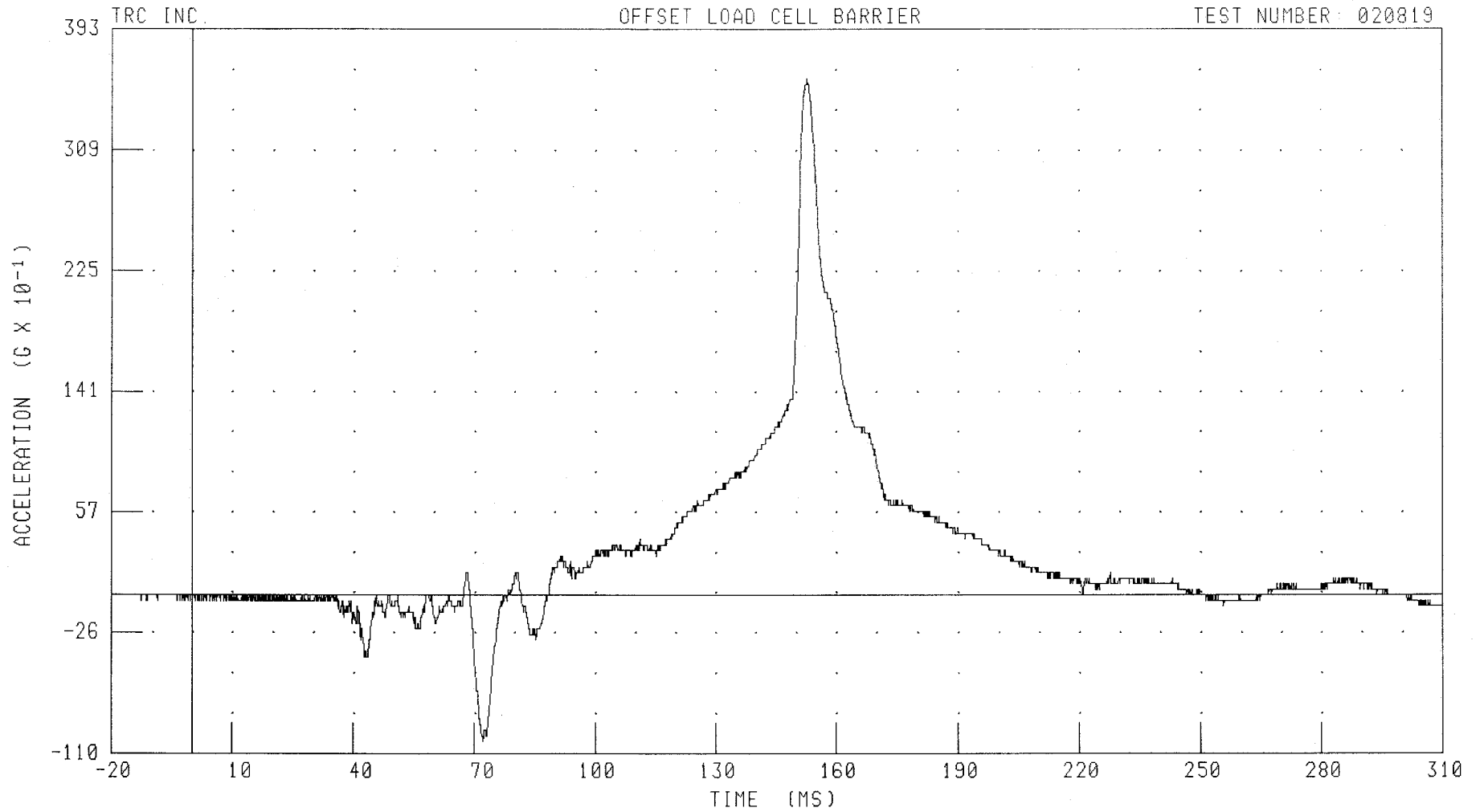
PEAK DATA: 14.80 G @ 262.16 MS; -30.51 G @ 70.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDYG1

FILTER: CH. CLASS 1000

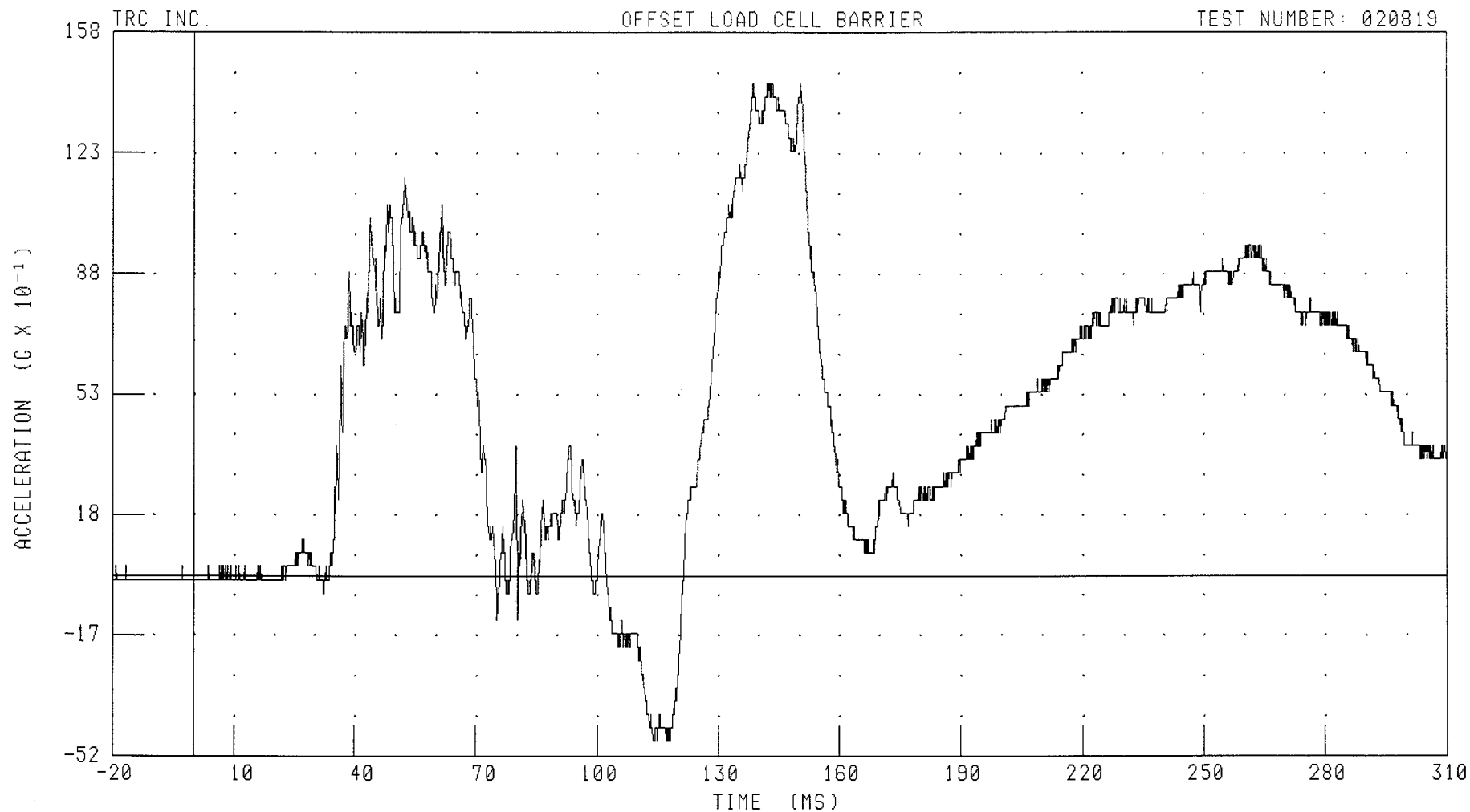
PEAK DATA: 35.98 G @ 152.96 MS; -10.17 G @ 72.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

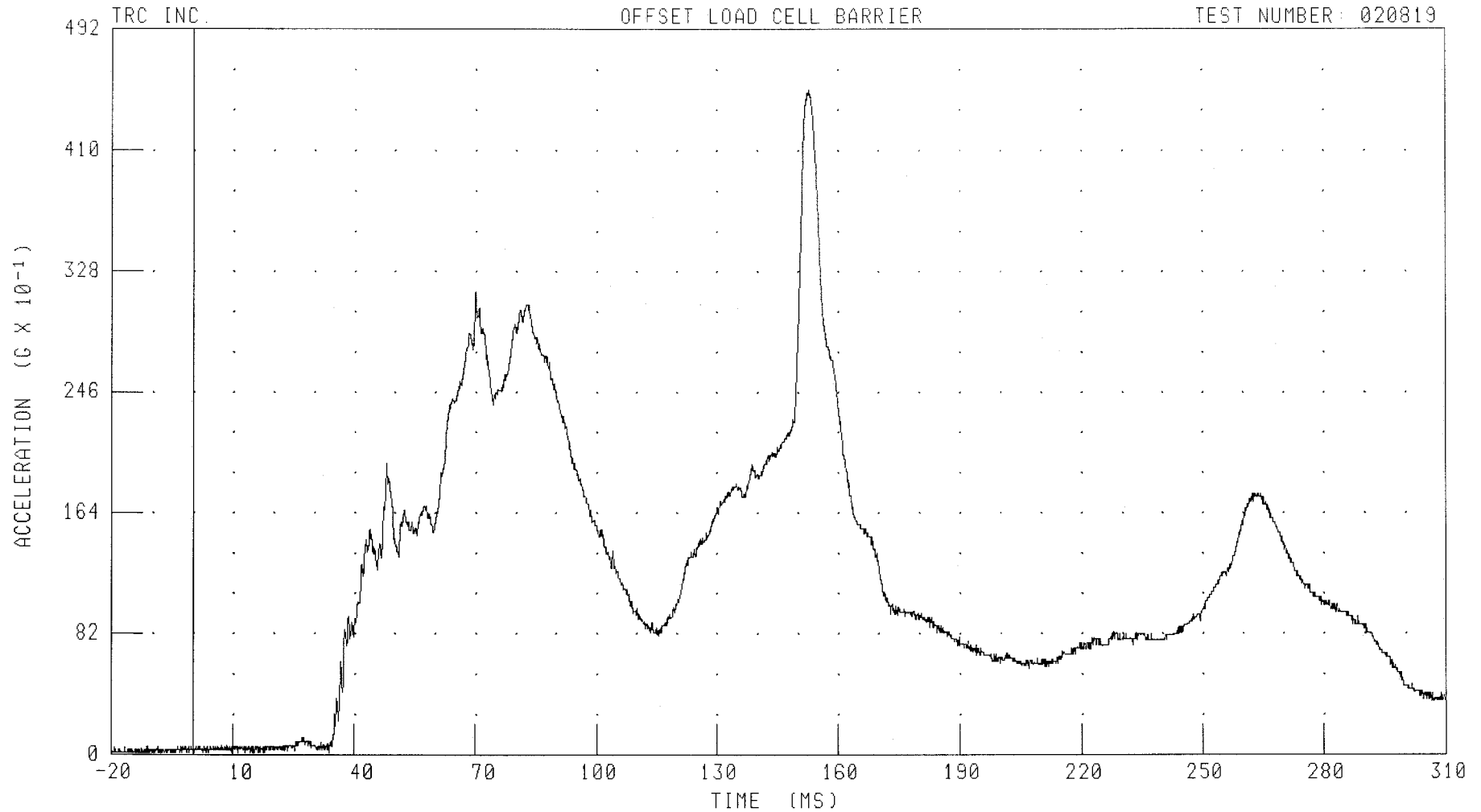
PEAK DATA: 14.33 G @ 138.80 MS; -4.77 G @ 113.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDRG1

FILTER: CH. CLASS 1000

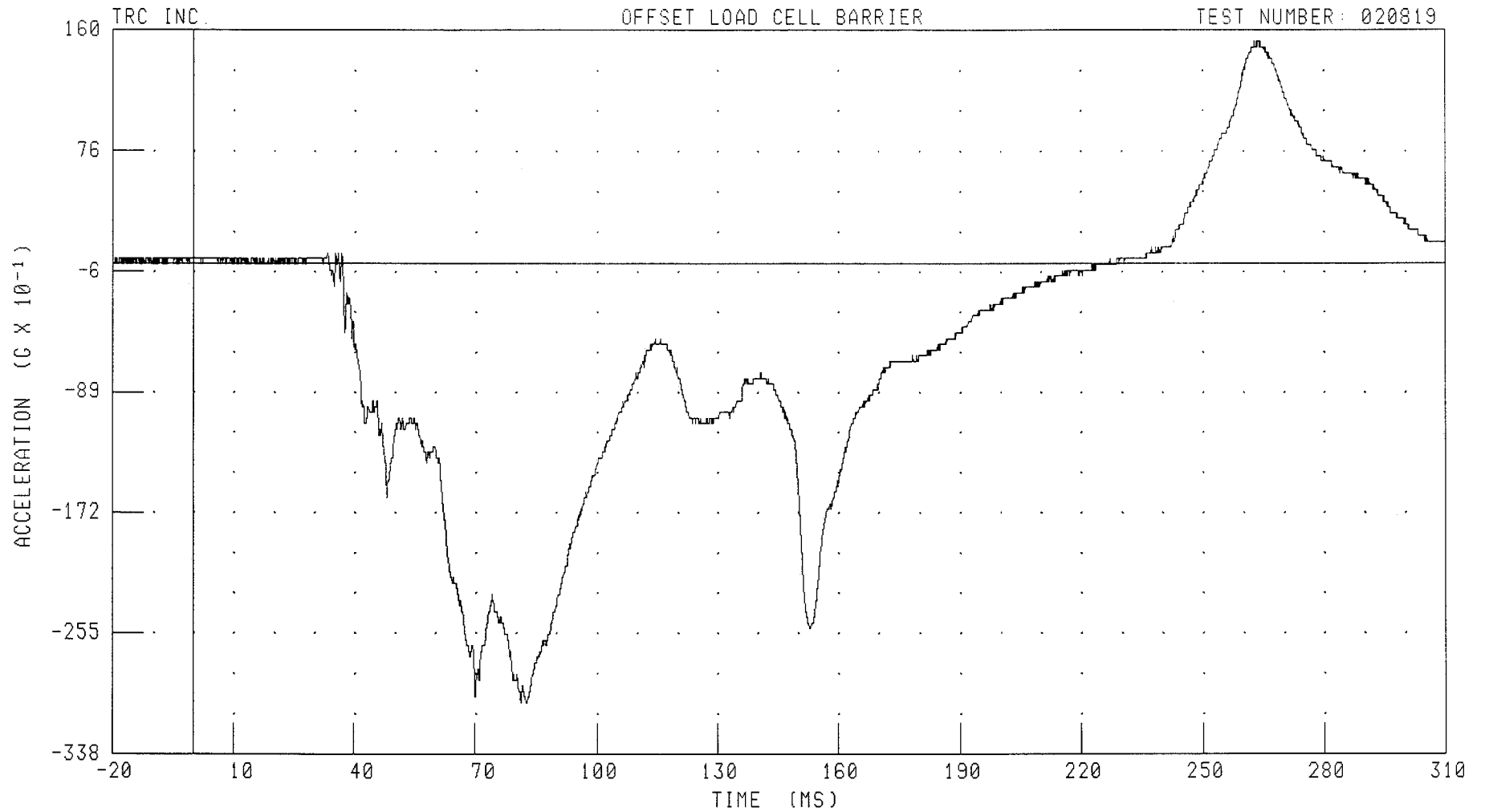
PEAK DATA: 45.10 G @ 152.96 MS; 0.10 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD X-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

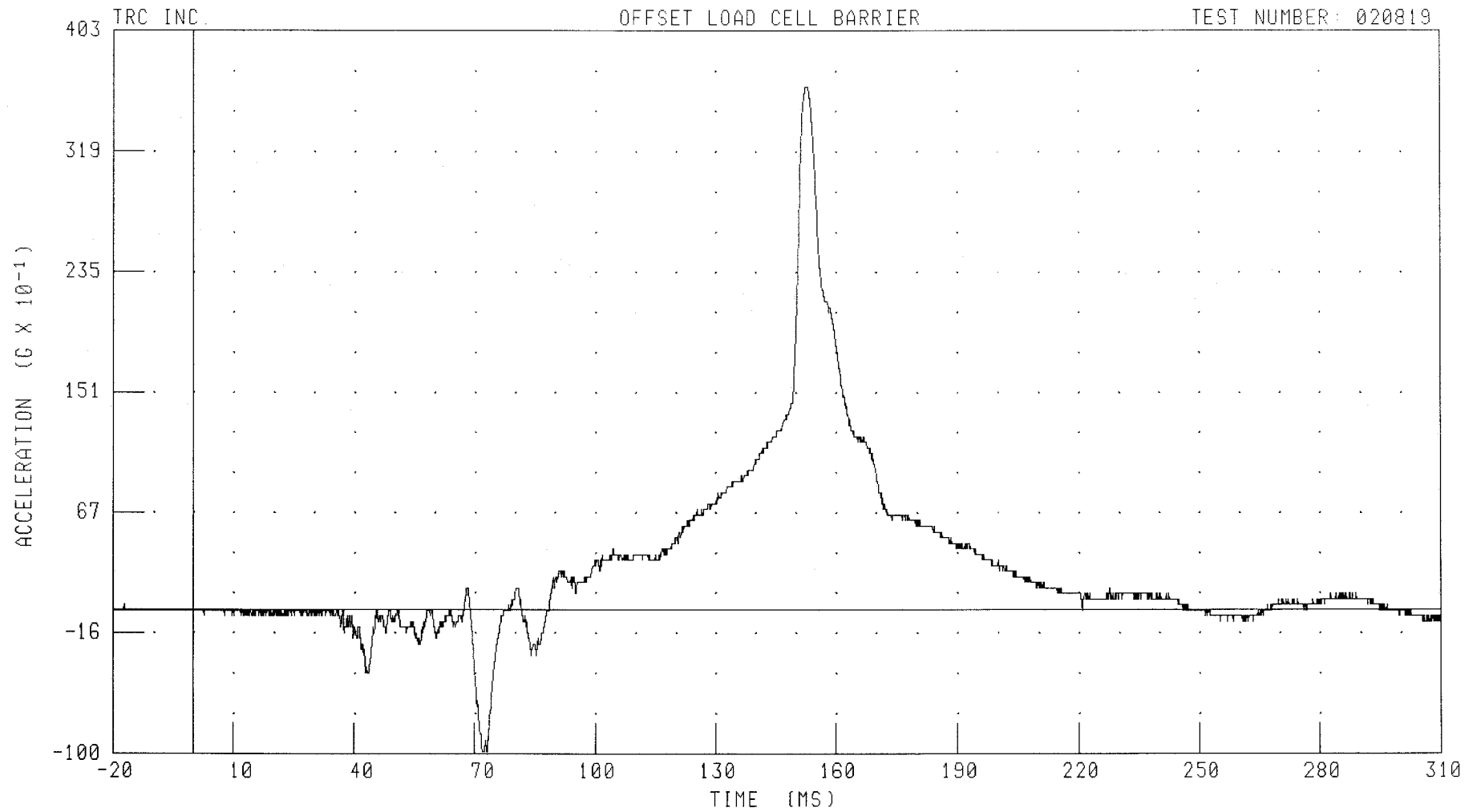
PEAK DATA: 15.23 G @ 262.96 MS; -30.30 G @ 81.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Y-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



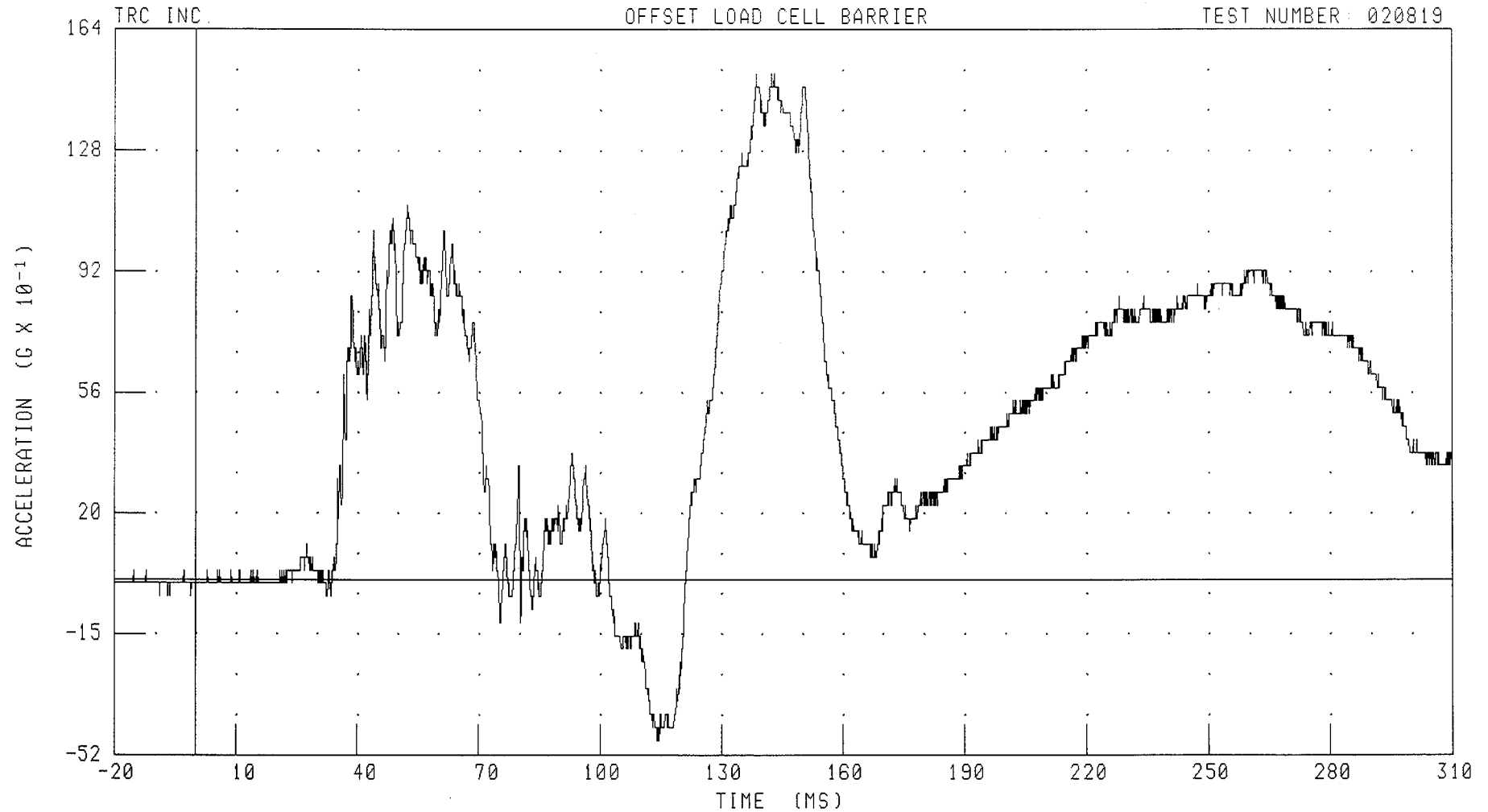
CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

PEAK DATA: 36.48 G @ 152.40 MS; -9.86 G @ 71.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER HEAD Z-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



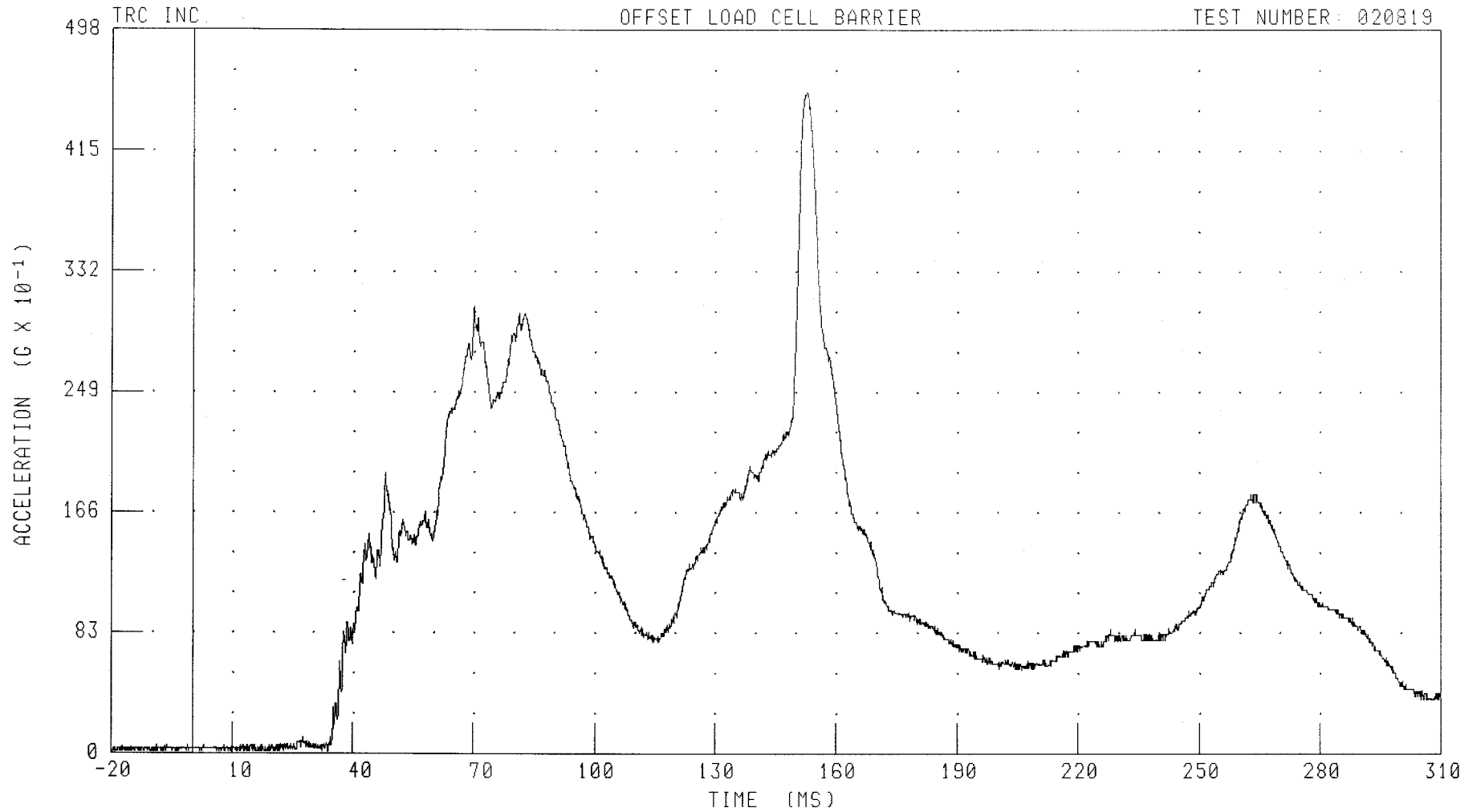
CHANNEL: HEDZR1 FILTER: CH. CLASS 1000

PEAK DATA: 15.10 G @ 138.72 MS; -4.77 G @ 114.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER HEAD RESULTANT ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDRR1

FILTER: CH. CLASS 1000

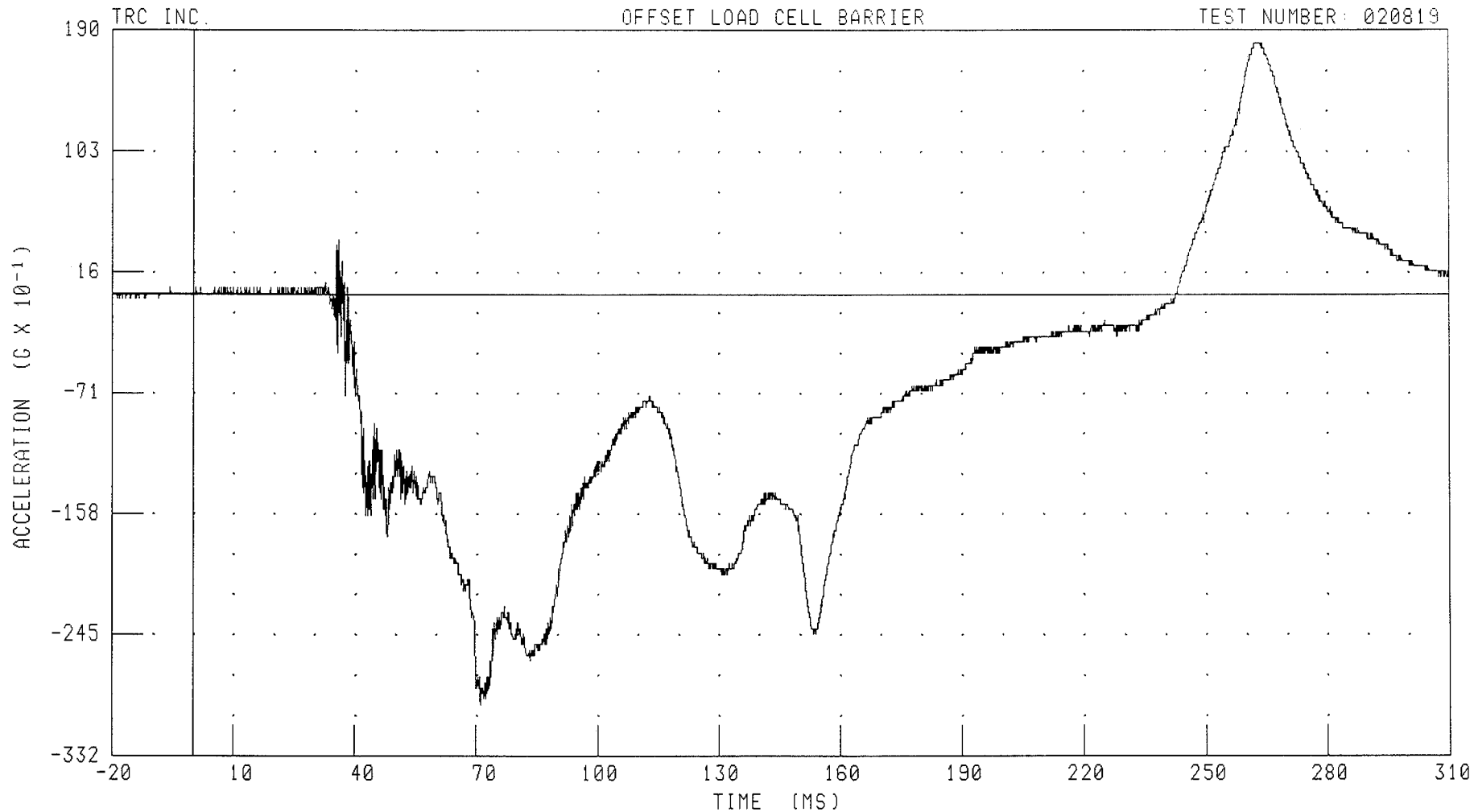
PEAK DATA: 45.54 G @ 152.88 MS; 0.13 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD X-AXIS (LT) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD1XC1 FILTER: CH. CLASS 1000

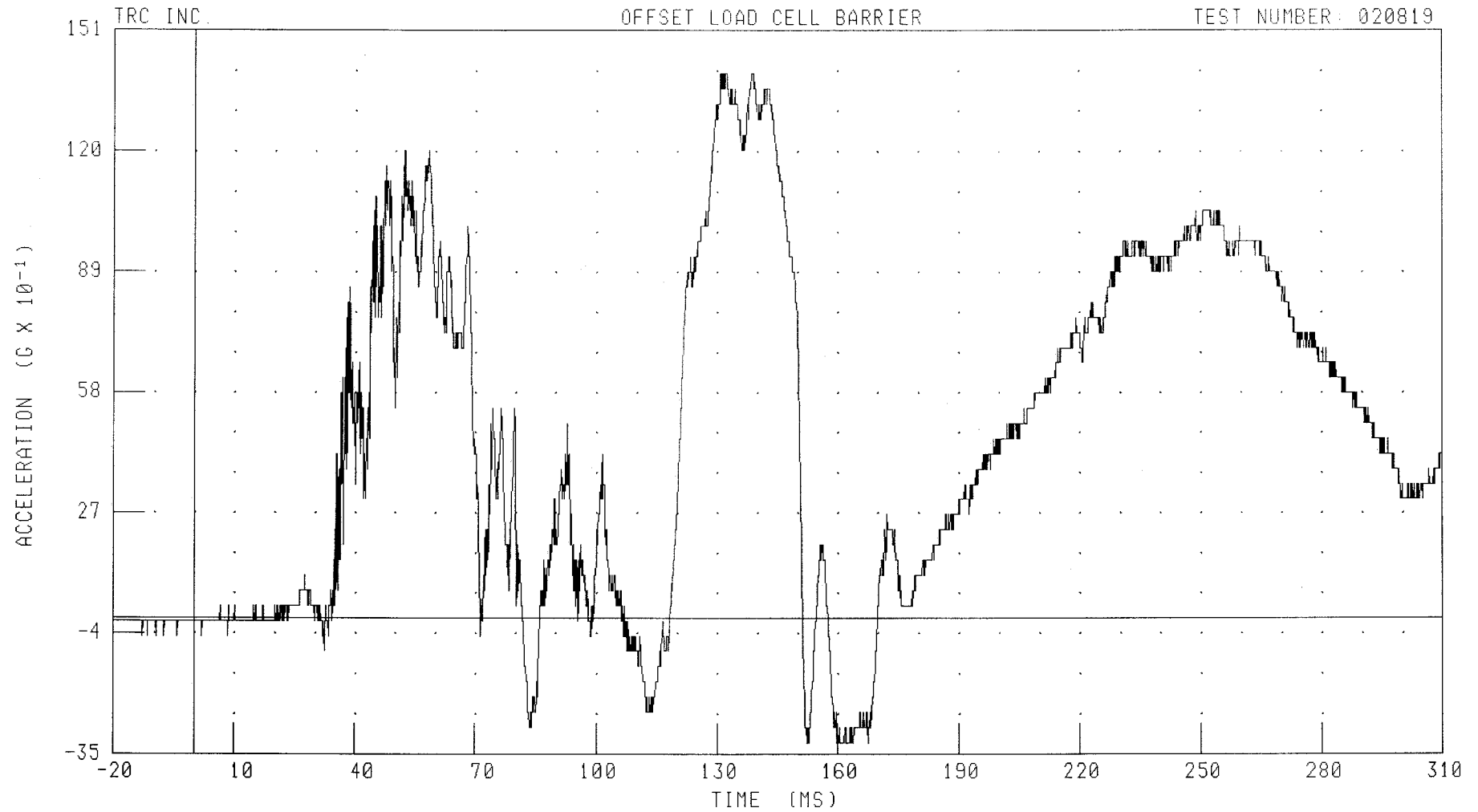
PEAK DATA: 18.05 G @ 262.24 MS; -29.50 G @ 71.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Z-AXIS (LT) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD1ZG1

FILTER: CH. CLASS 1000

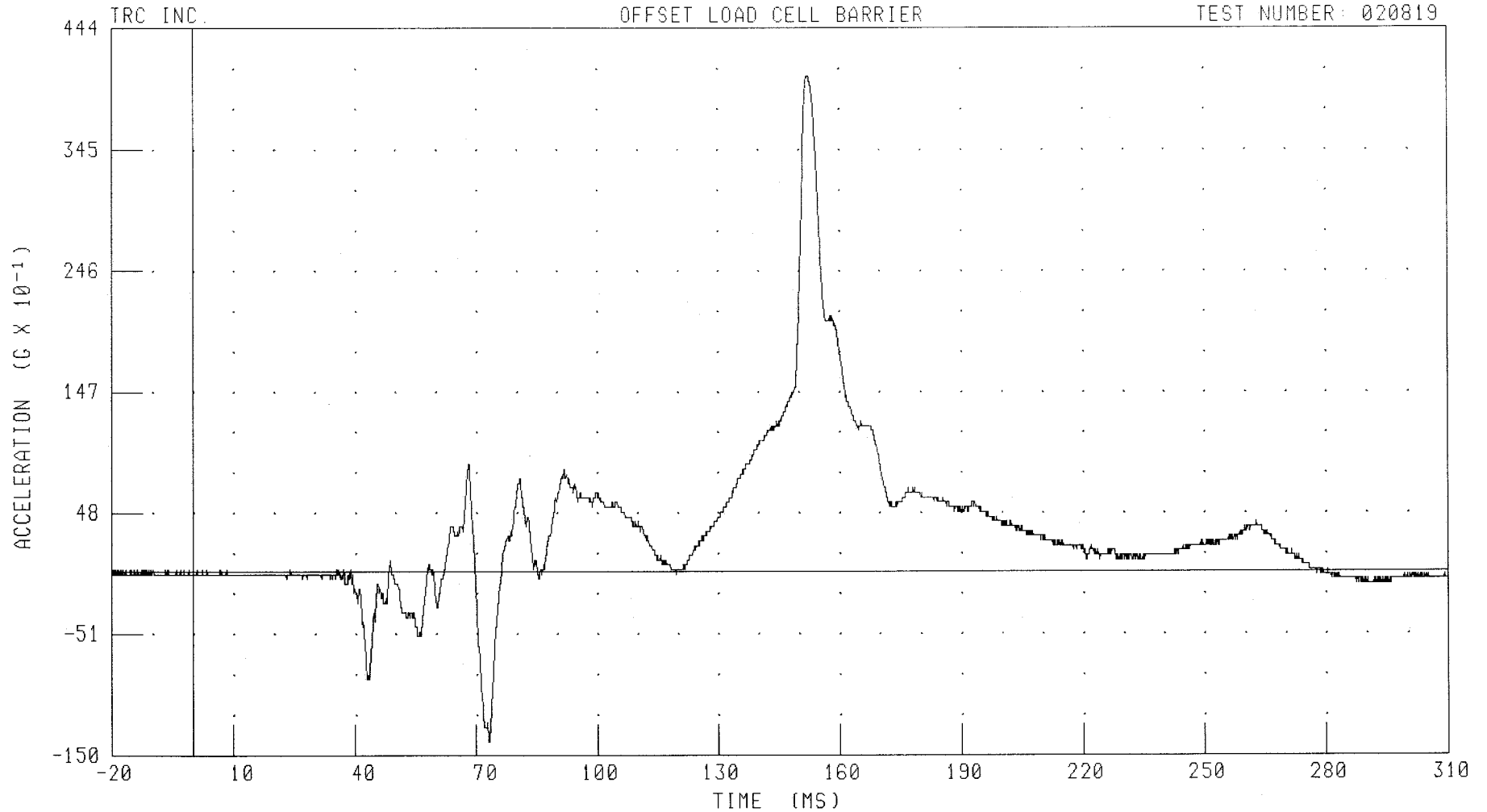
PEAK DATA: 13.99 G @ 130.80 MS; -3.21 G @ 152.32 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Y-AXIS (FT) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD2YC1 FILTER: CH. CLASS 1000

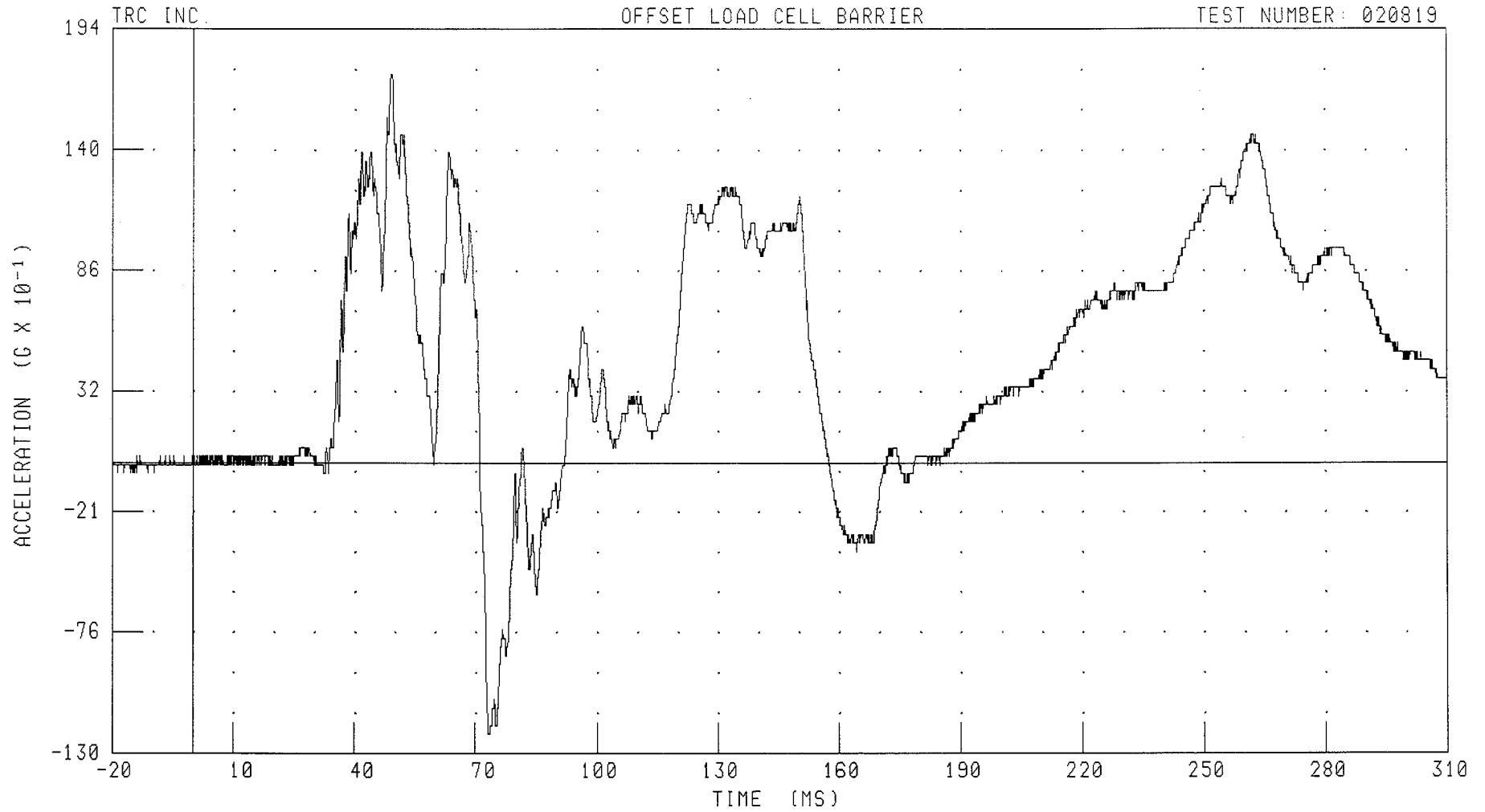
PEAK DATA: 40.48 G @ 152.08 MS; -13.91 G @ 73.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Z-AXIS (FT) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD2ZG1 FILTER: CH. CLASS 1000

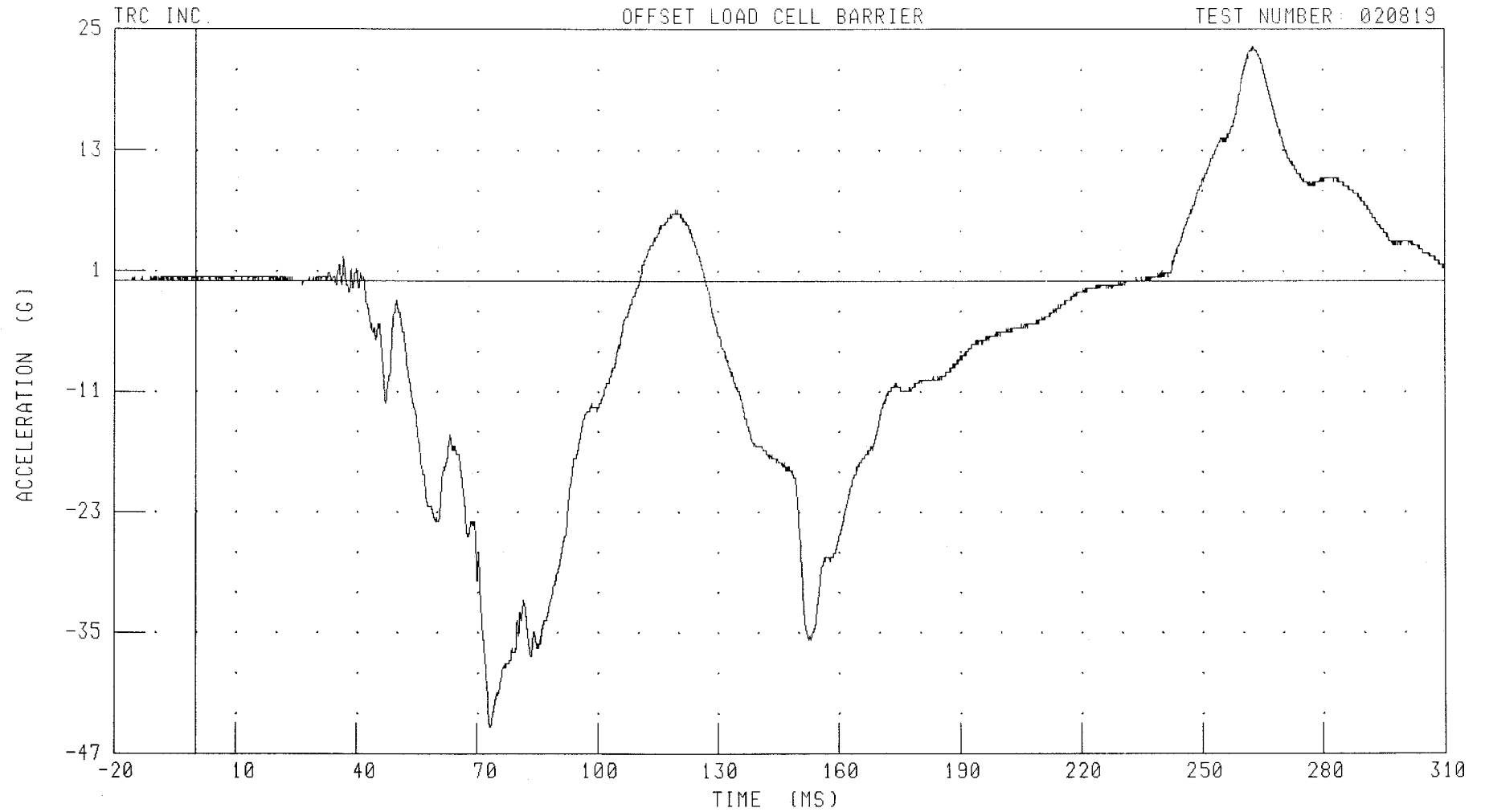
PEAK DATA: 17.40 G @ 48.96 MS; -12.14 G @ 73.28 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD X-AXIS (TP) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD3XG1 FILTER: CH. CLASS 1000

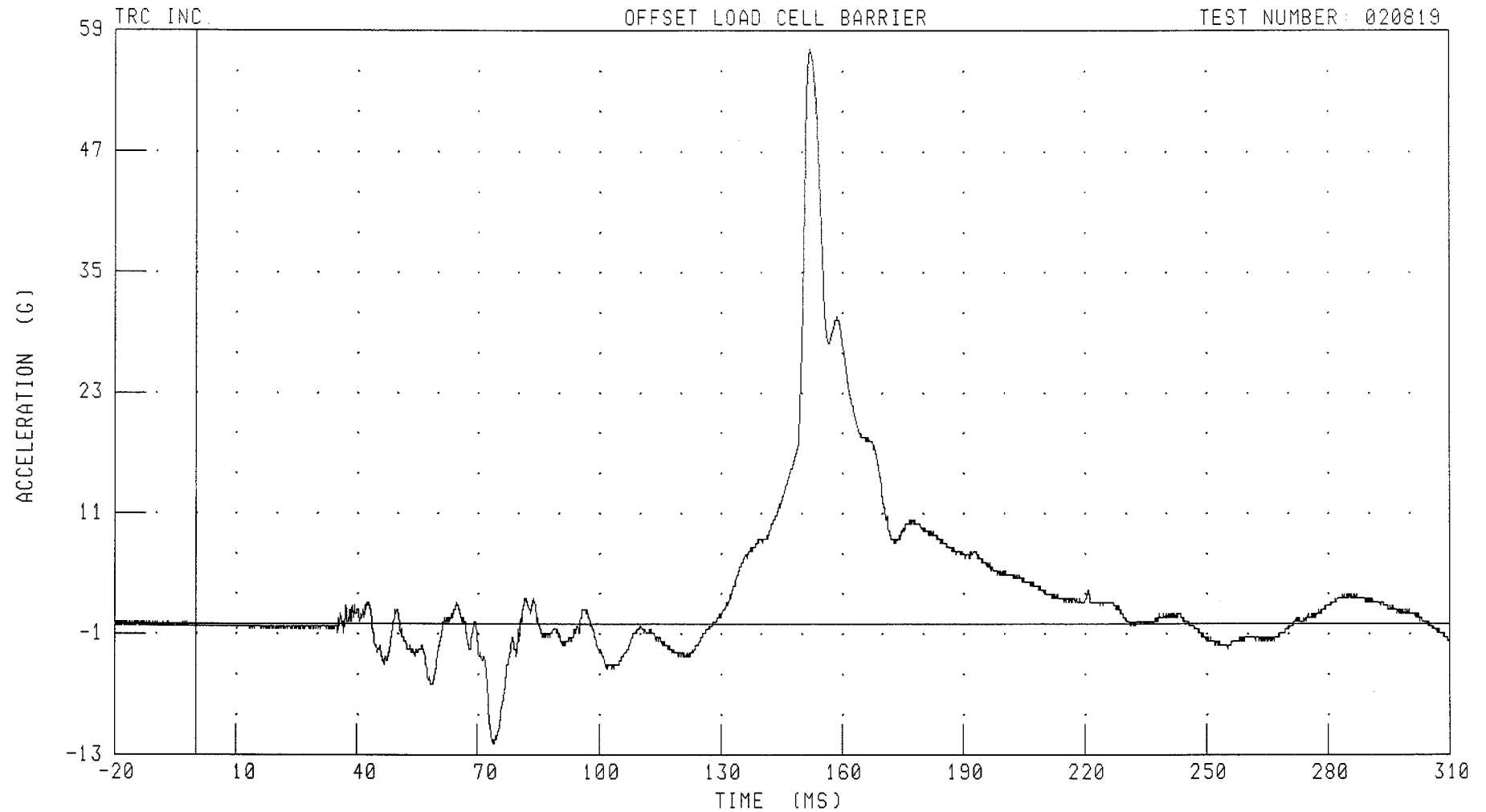
PEAK DATA: 23.28 G @ 262.56 MS; -44.41 G @ 73.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Y-AXIS (TP) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD3YG1 FILTER: CH. CLASS 1000

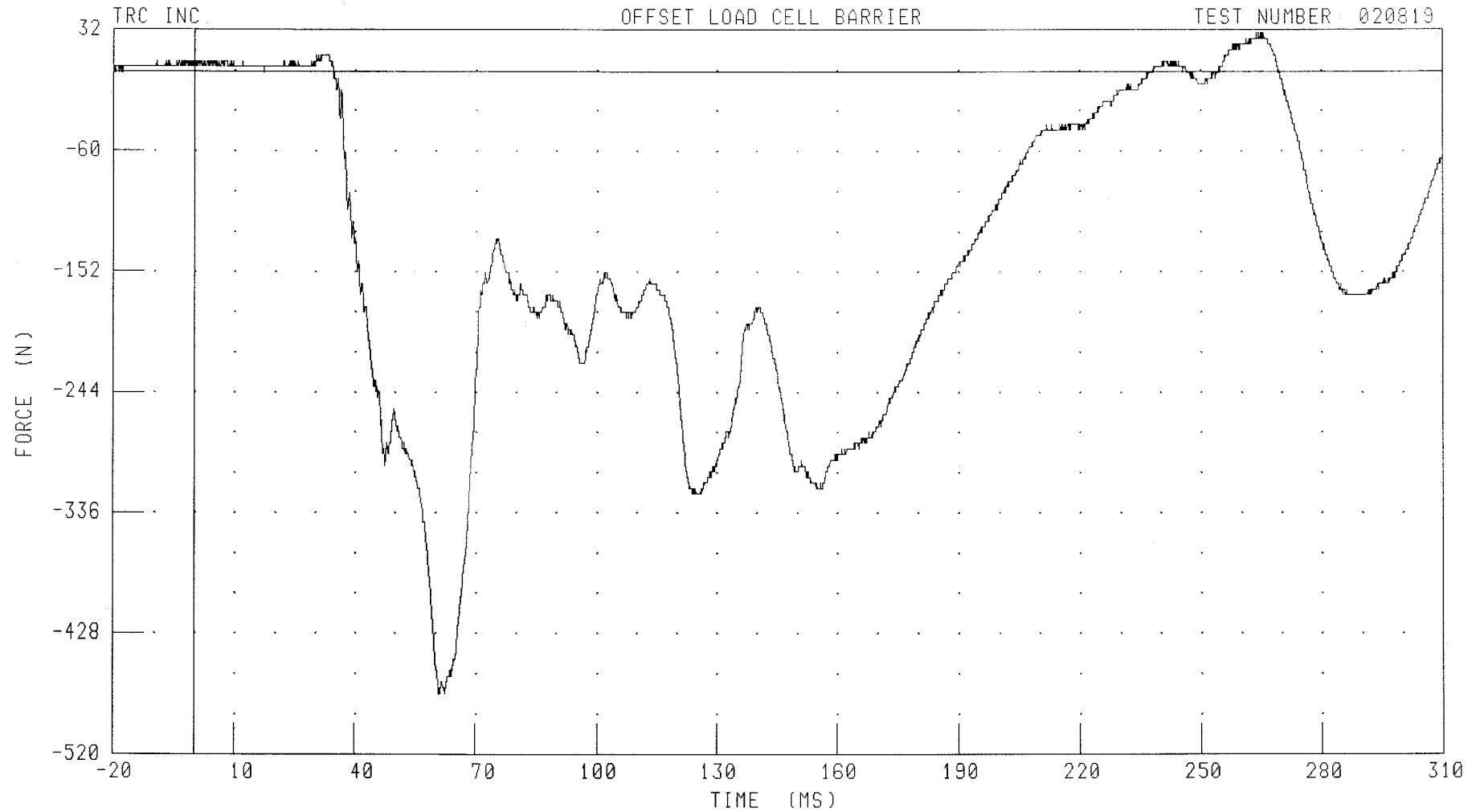
PEAK DATA: 57.21 G @ 152.24 MS; -11.88 G @ 73.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK X-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKXF1

FILTER: CH. CLASS 1000

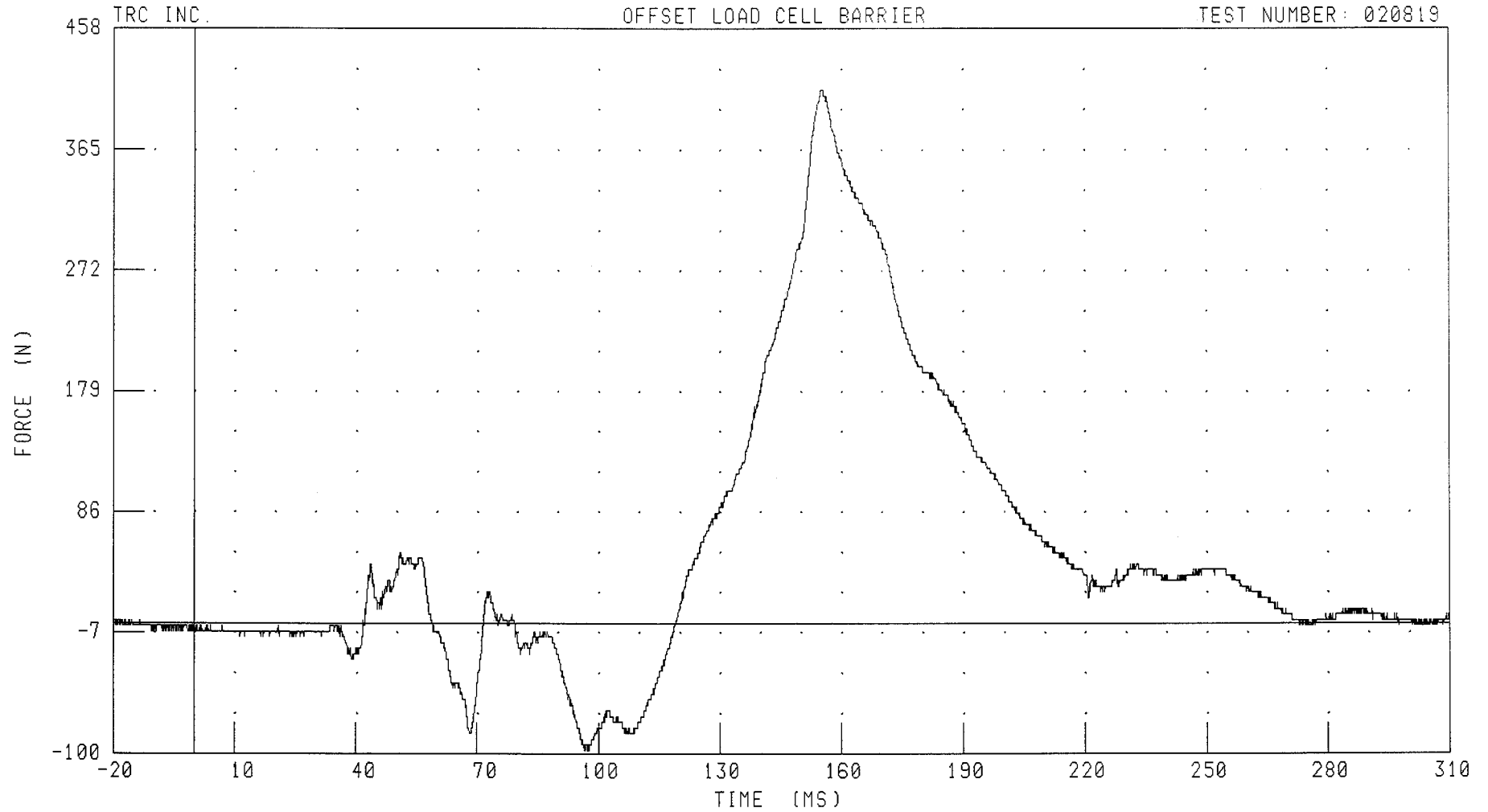
PEAK DATA: 29.89 N @ 263.92 MS; -473.79 N @ 60.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK Y-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

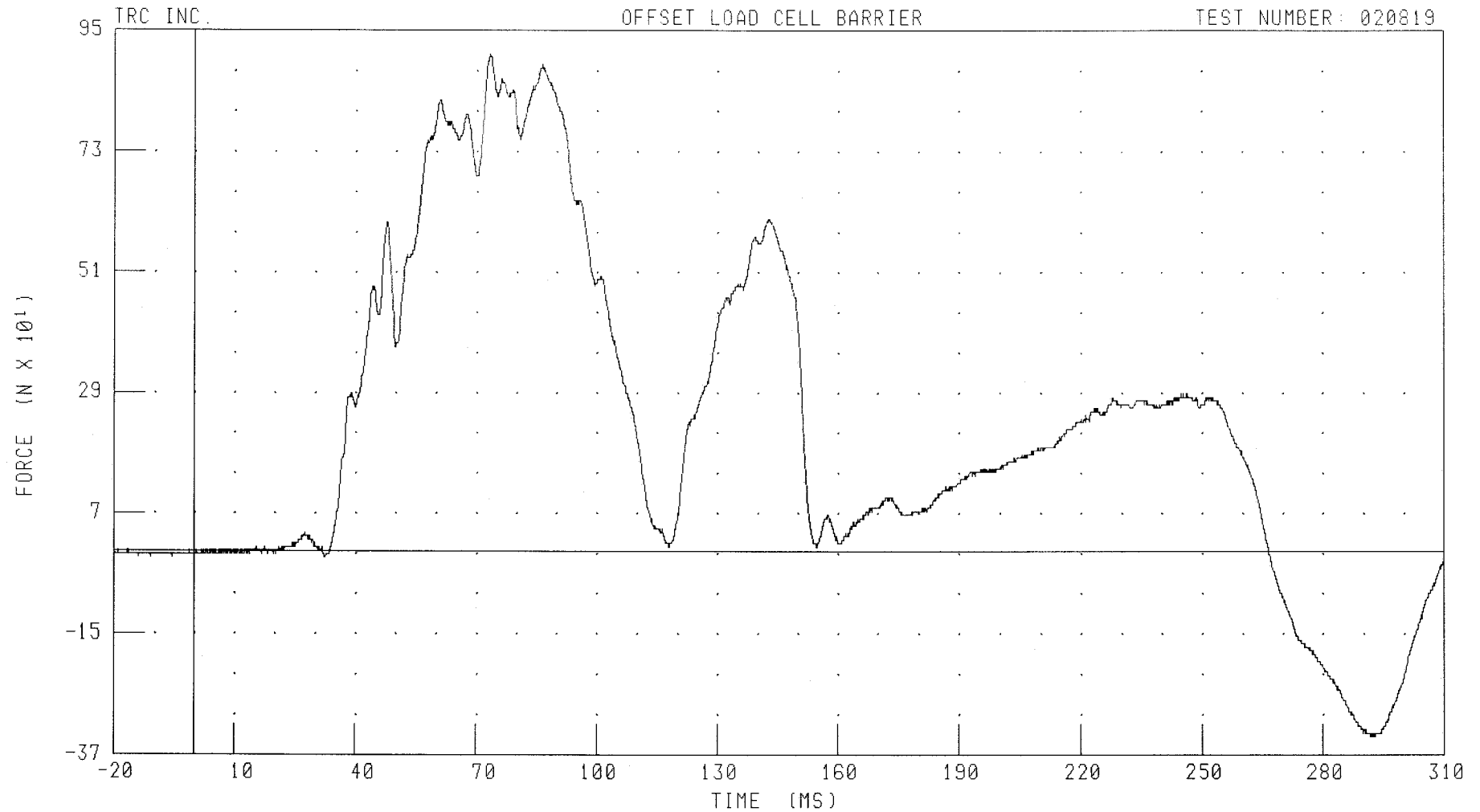
PEAK DATA: 410.90 N @ 155.04 MS; -97.51 N @ 96.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK Z-AXIS AXIAL FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKZF1

FILTER: CH. CLASS 1000

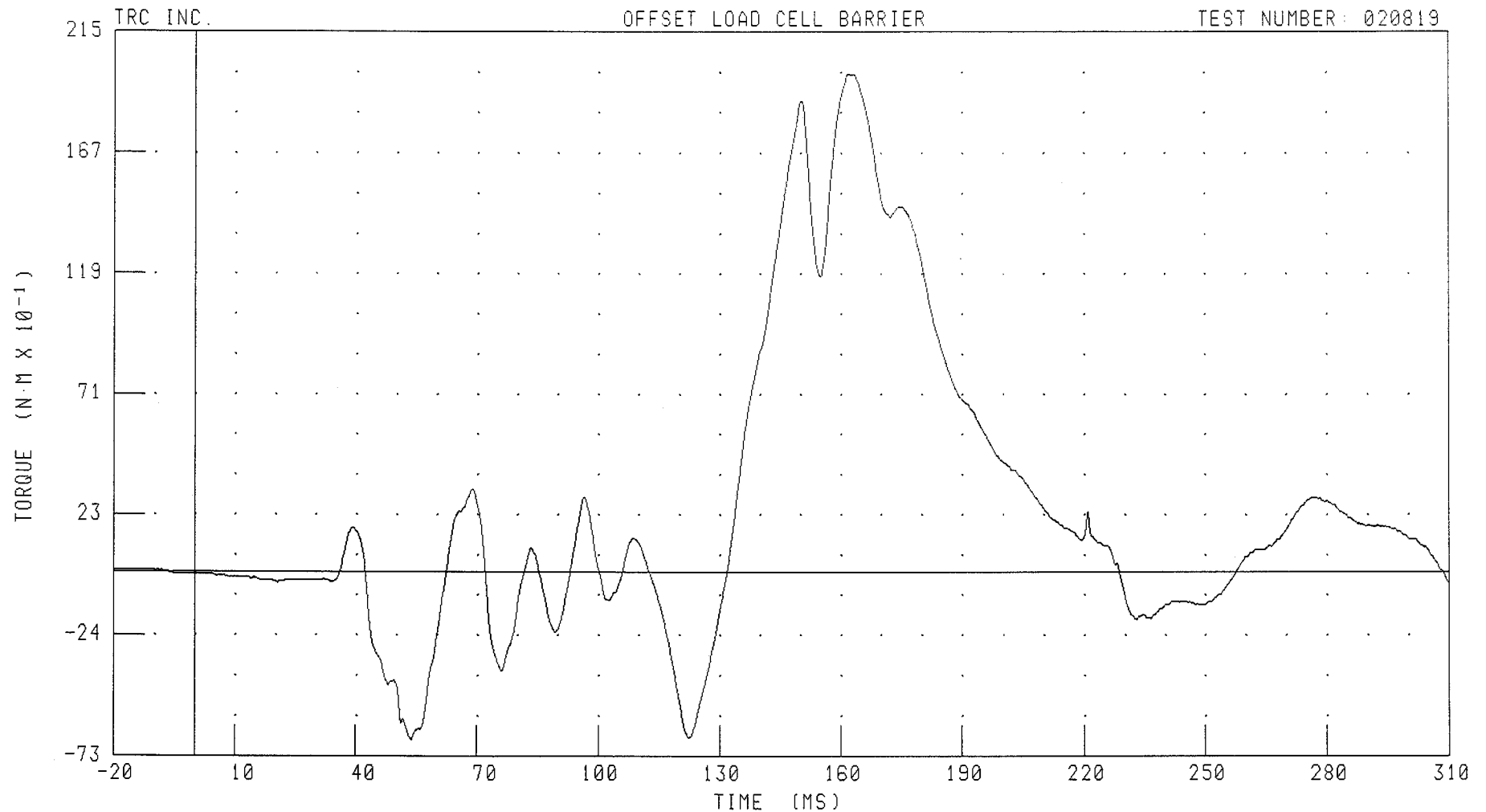
PEAK DATA: 907.92 N @ 73.52 MS; -337.28 N @ 291.68 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKXM1

FILTER: CH. CLASS 600

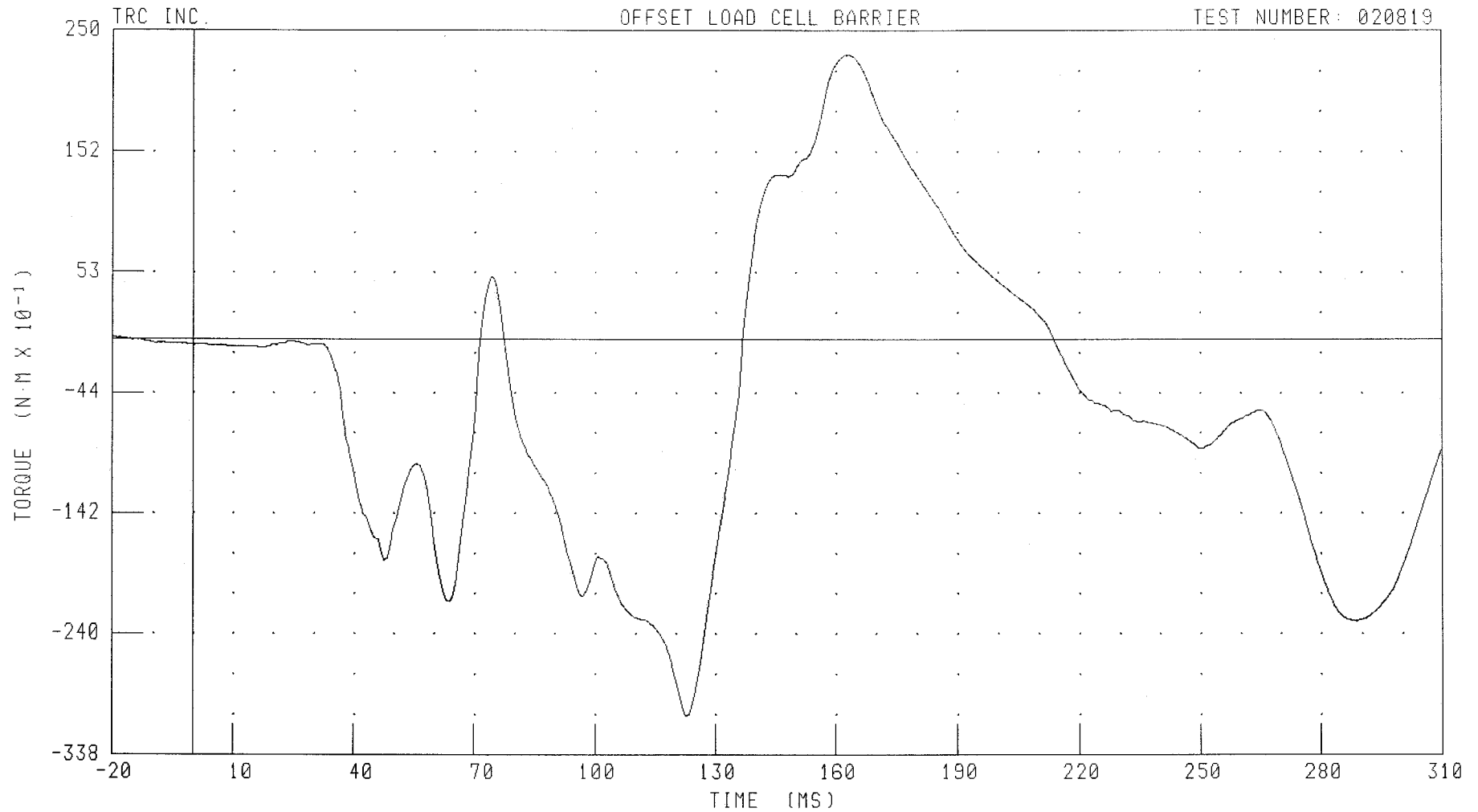
PEAK DATA: 19.82 N·M @ 161.92 MS; -6.65 N·M @ 53.68 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKYM1

FILTER: CH. CLASS 600

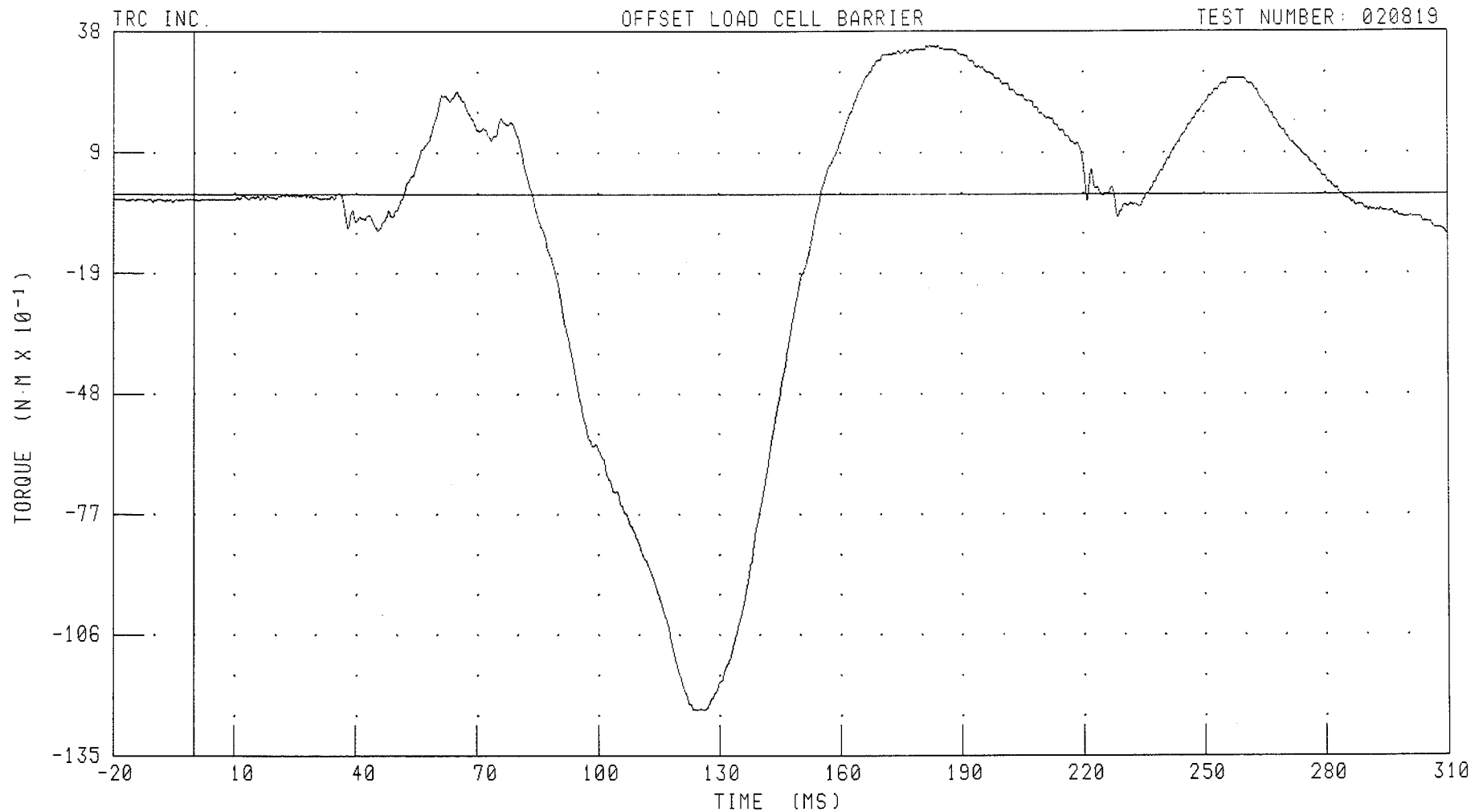
PEAK DATA: 23.03 N·M @ 163.44 MS; -30.65 N·M @ 122.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



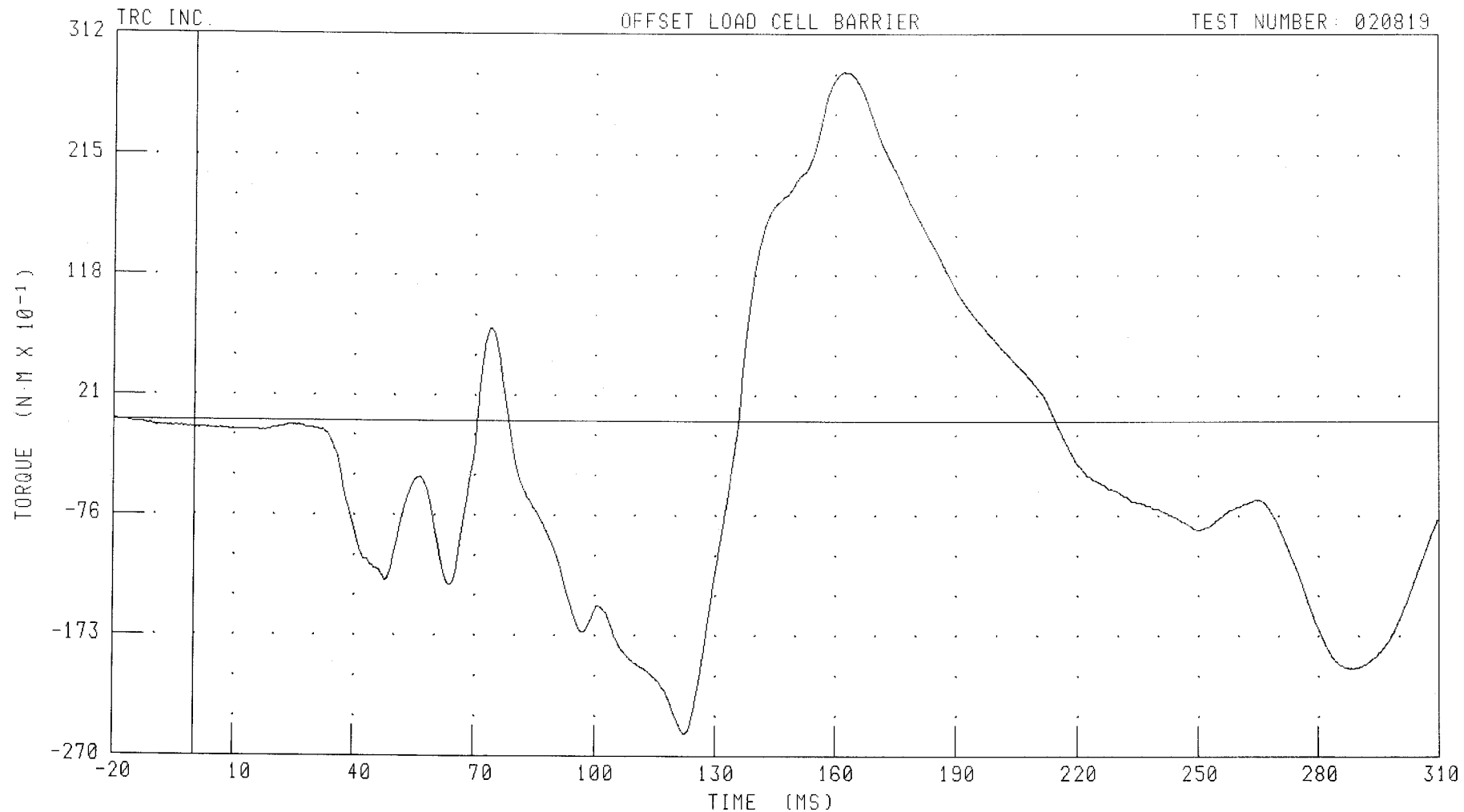
CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 3.56 N·M @ 182.48 MS; -12.41 N·M @ 123.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

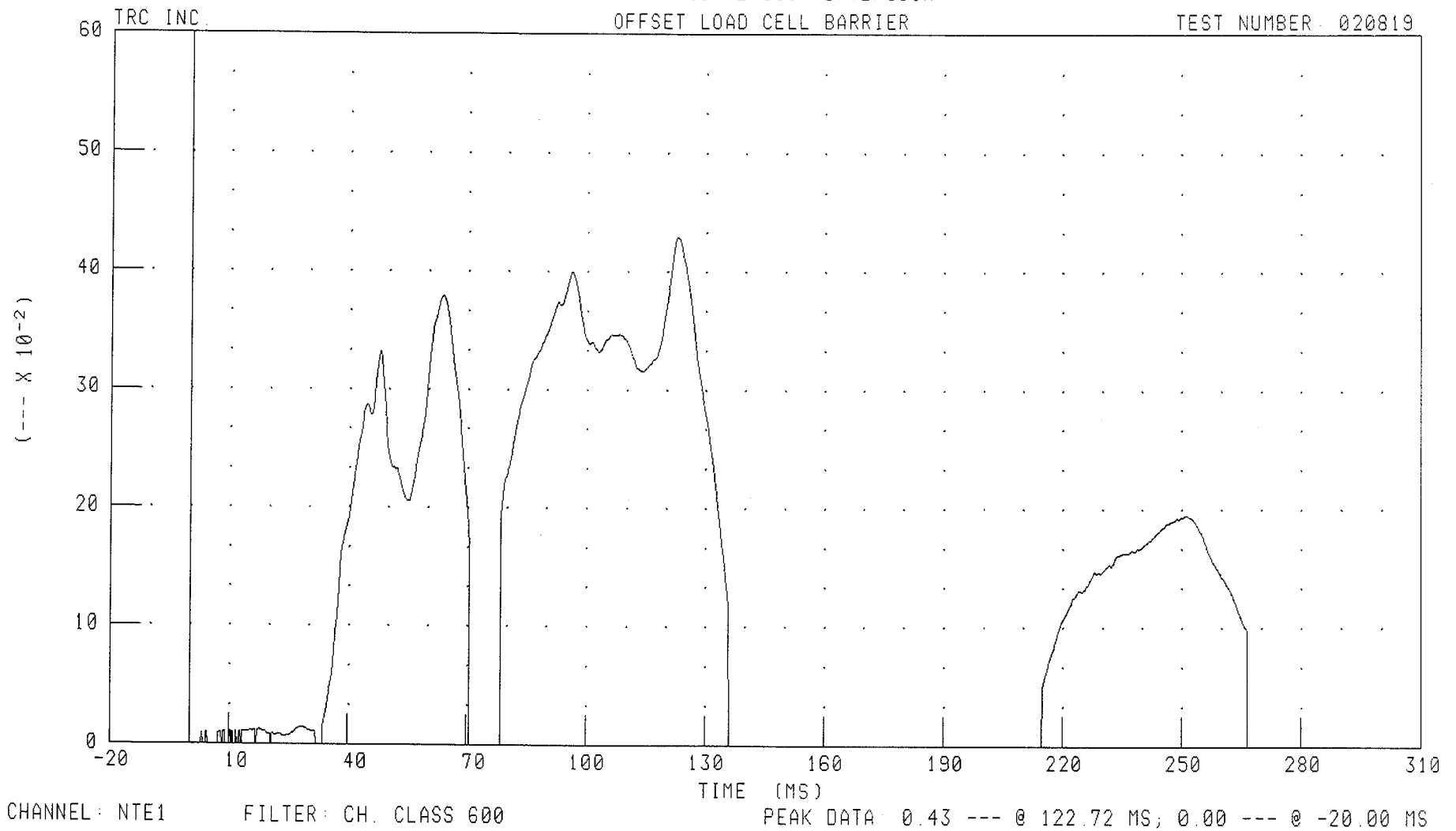


CHANNEL: NEKOM1 FILTER: CH. CLASS 600

PEAK DATA: 28.16 N·M @ 162.40 MS; -25.22 N·M @ 122.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER NIJ TENSION/EXTENSION  
OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

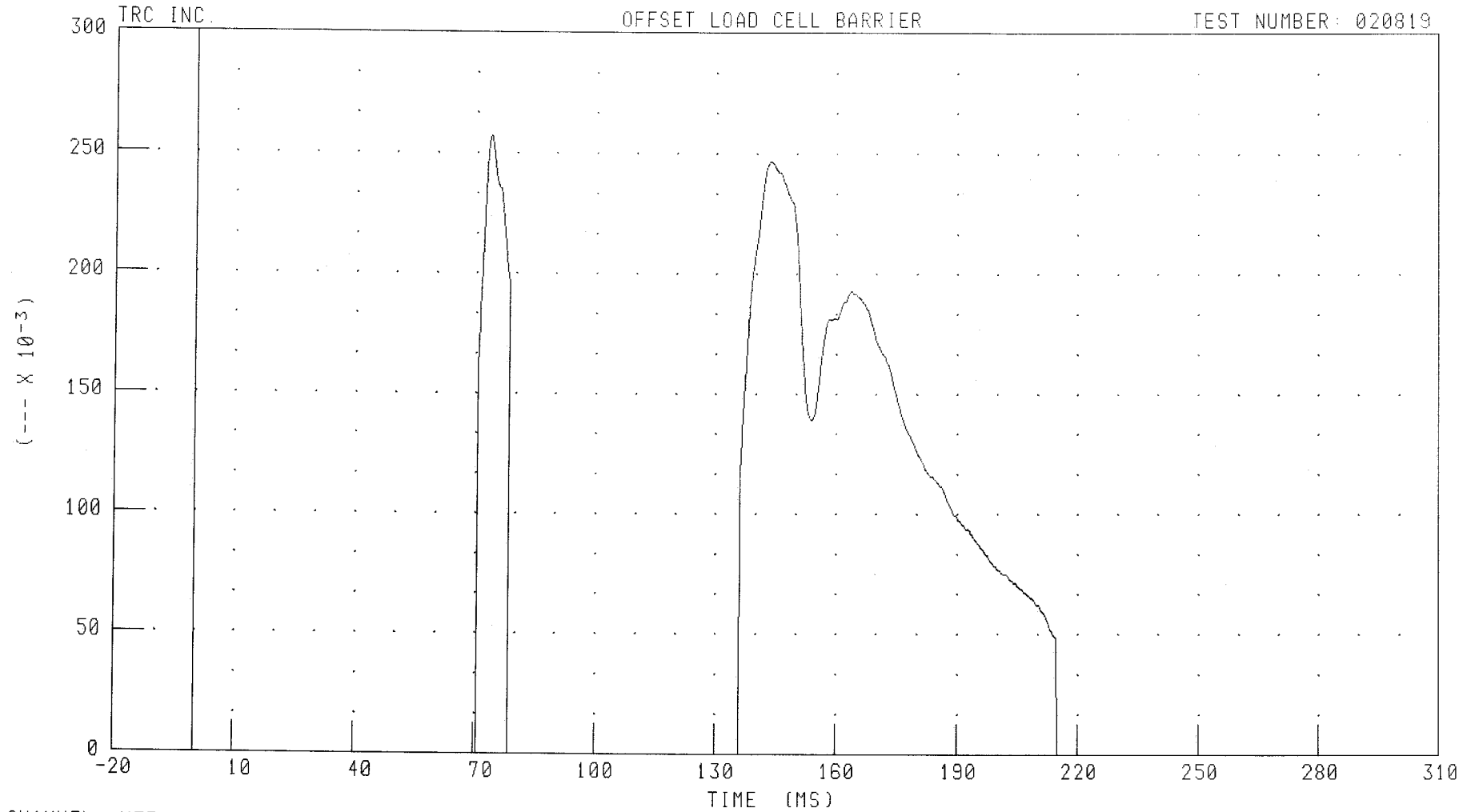


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NIJ TENSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NTF1

FILTER: CH. CLASS 600

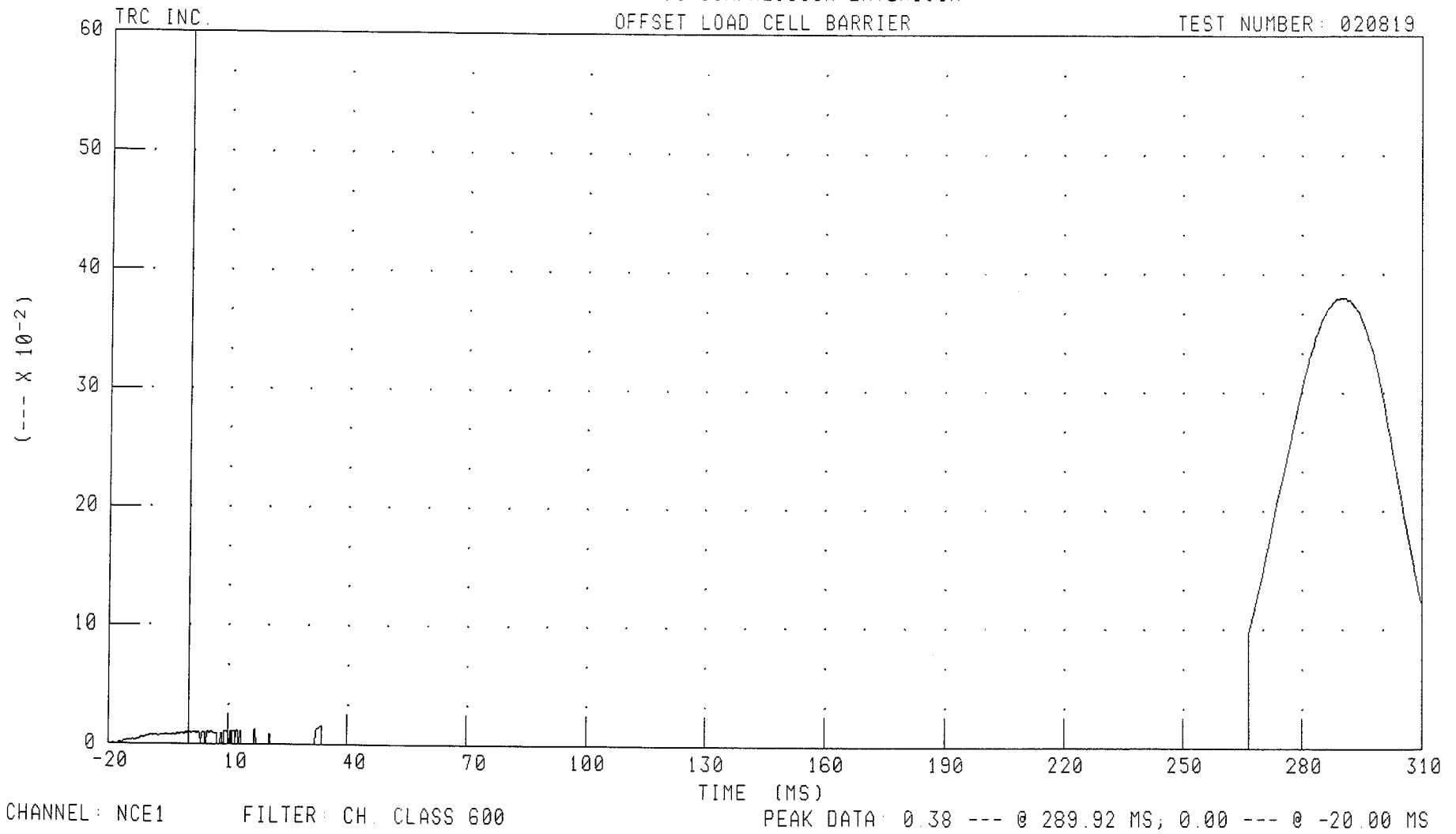
PEAK DATA: 0.26 --- @ 73.68 MS; 0.00 --- @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NIJ COMPRESSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

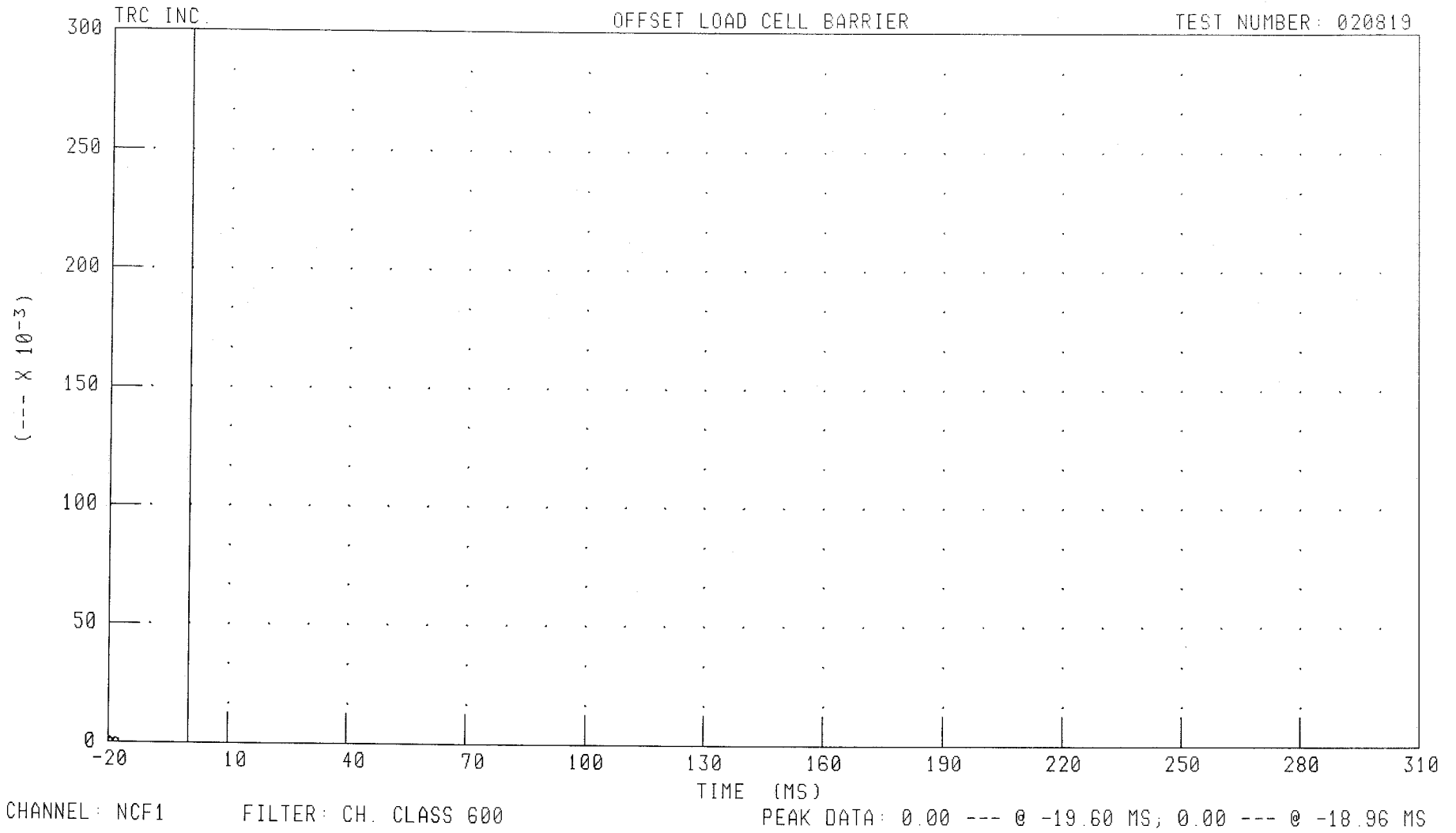


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NIJ COMPRESSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

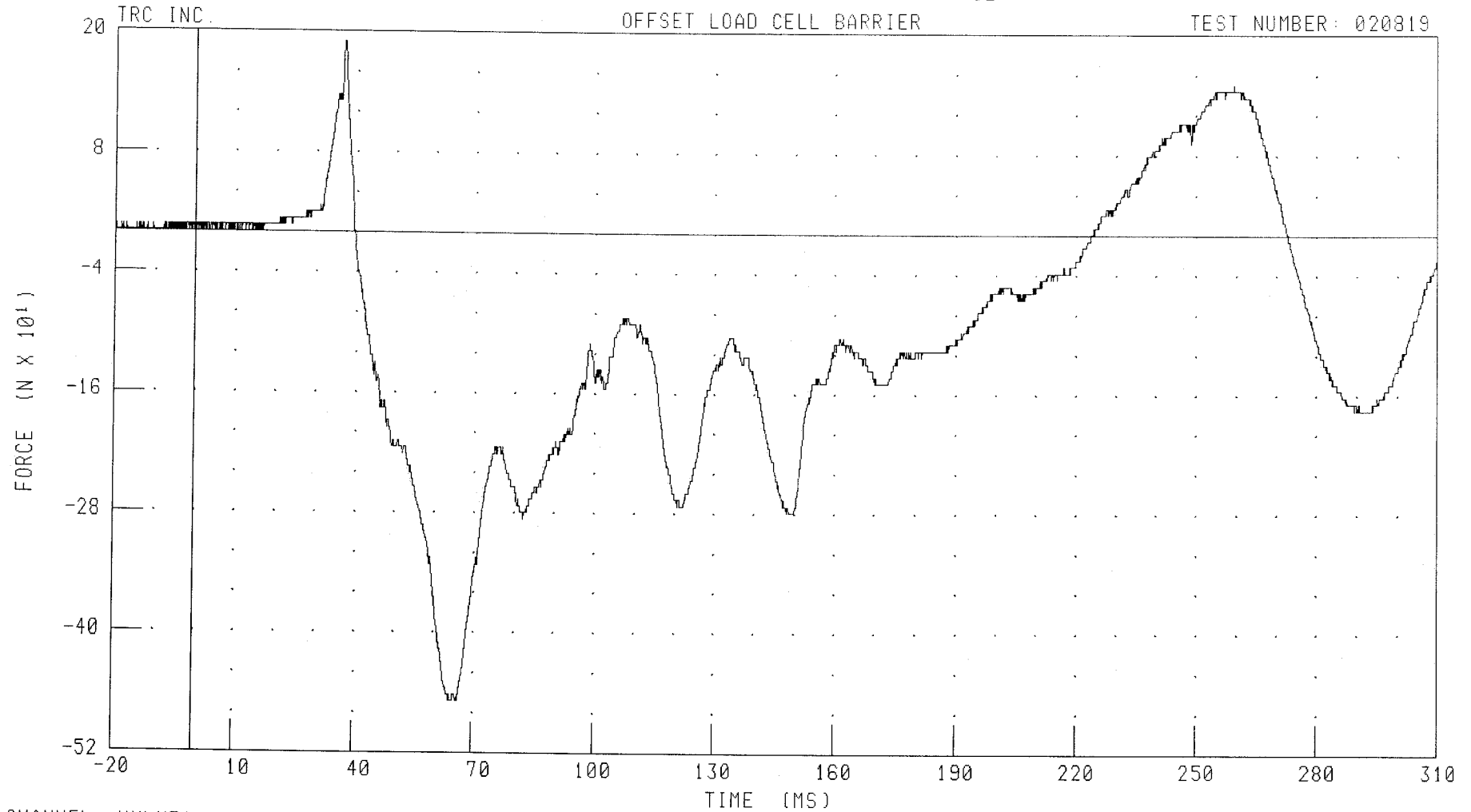


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK LOWER X-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NKLXF1 FILTER: CH. CLASS 1000

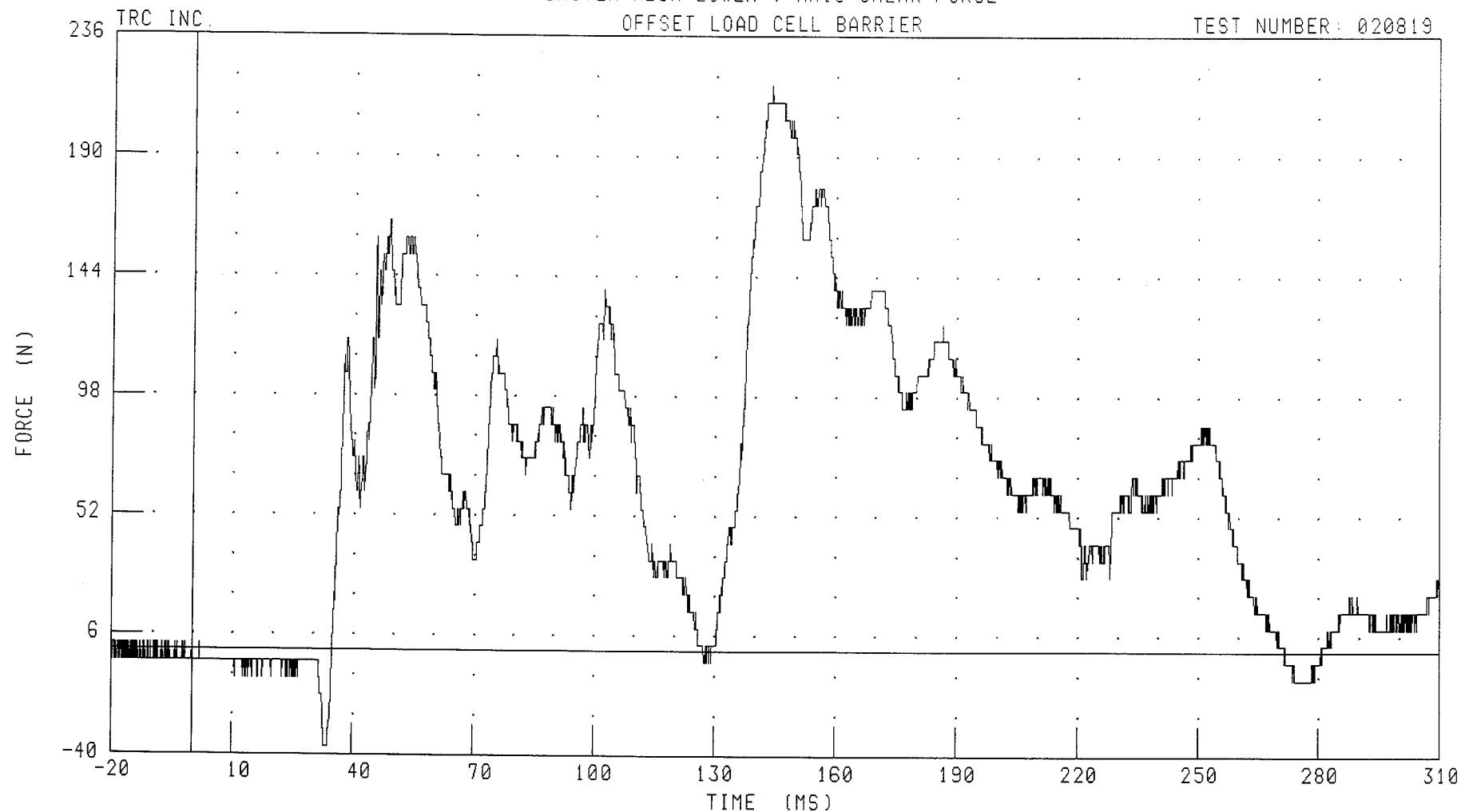
PEAK DATA: 189.78 N @ 36.88 MS; -468.60 N @ 64.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK LOWER Y-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

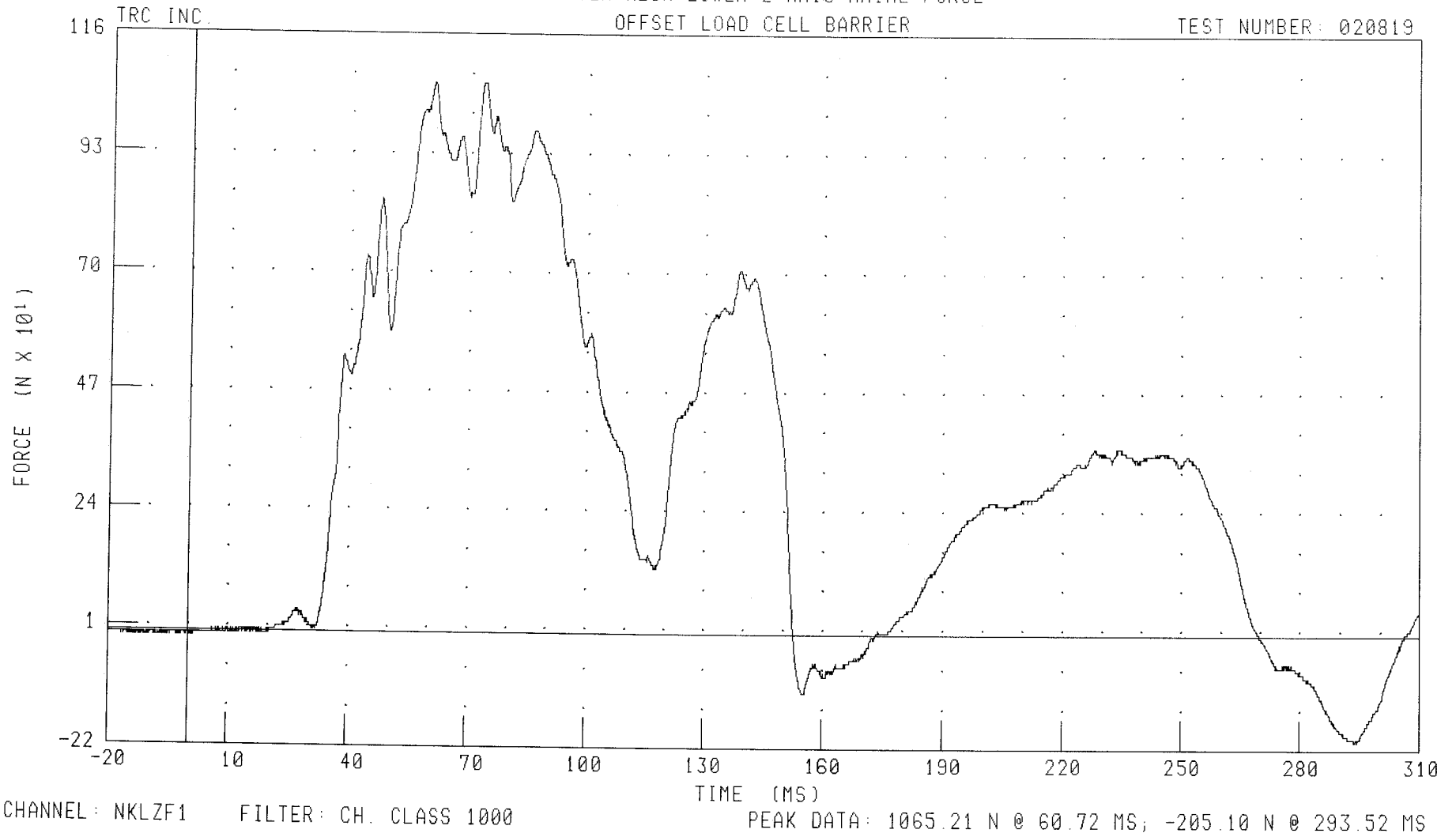


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK LOWER Z-AXIS AXIAL FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

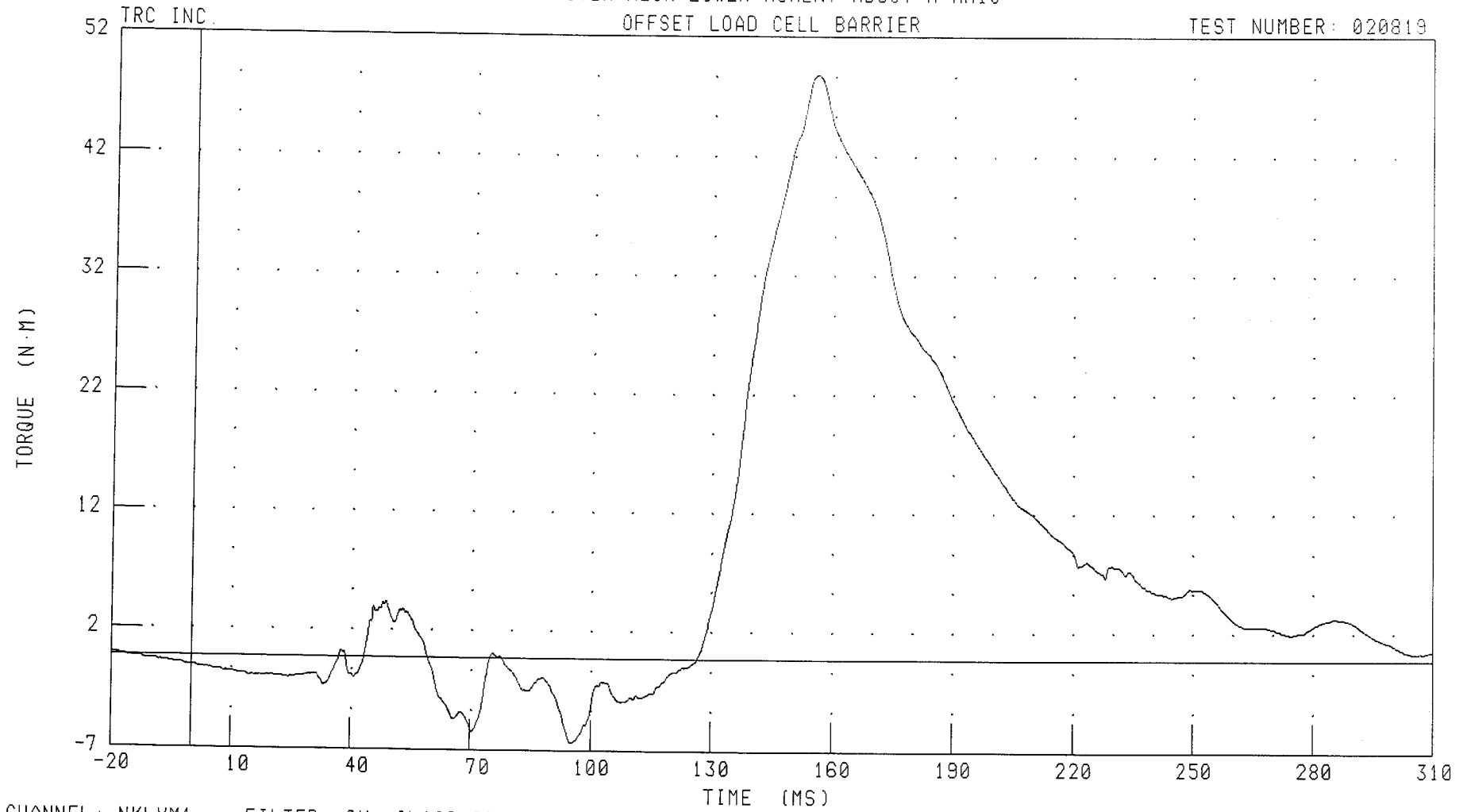


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER NECK LOWER MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



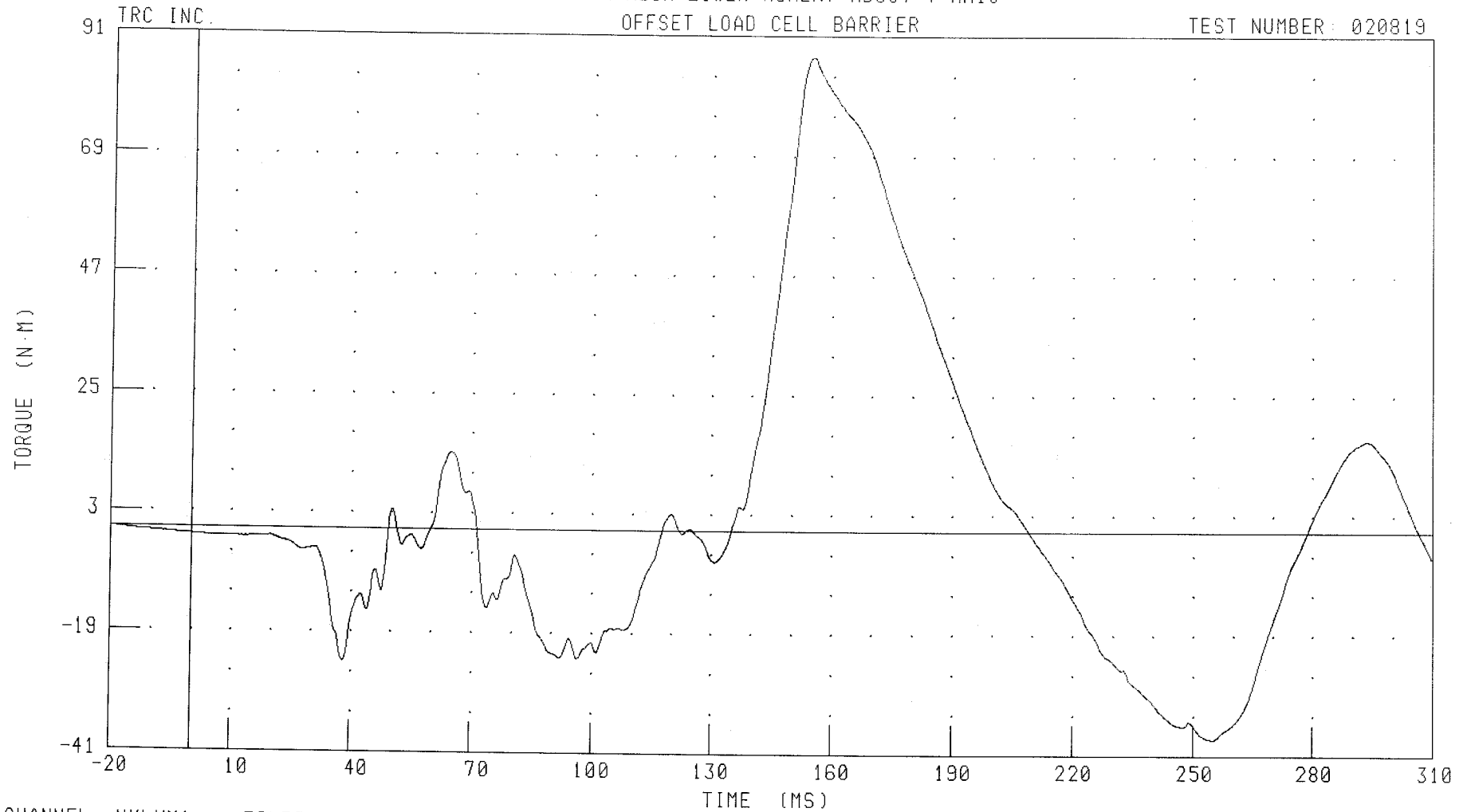
CHANNEL: NKLXM1 FILTER: CH. CLASS 600

PEAK DATA: 49.11 N·M @ 156.00 MS; -7.06 N·M @ 95.28 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER NECK LOWER MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



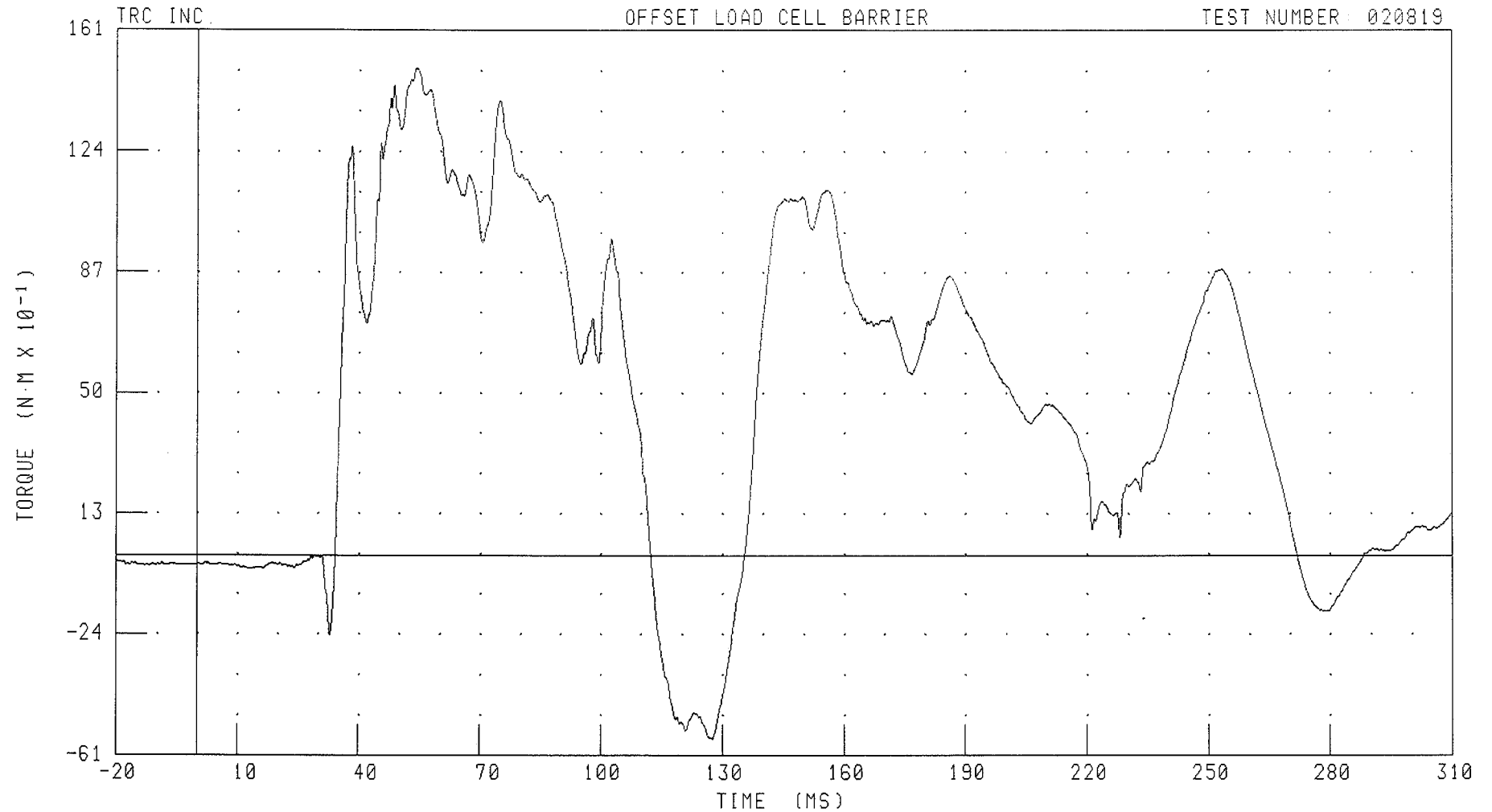
CHANNEL: NKLYM1 FILTER: CH. CLASS 600

PEAK DATA: 87.07 N·M @ 155.12 MS; -38.11 N·M @ 254.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER NECK LOWER MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NKLZM1 FILTER: CH. CLASS 600

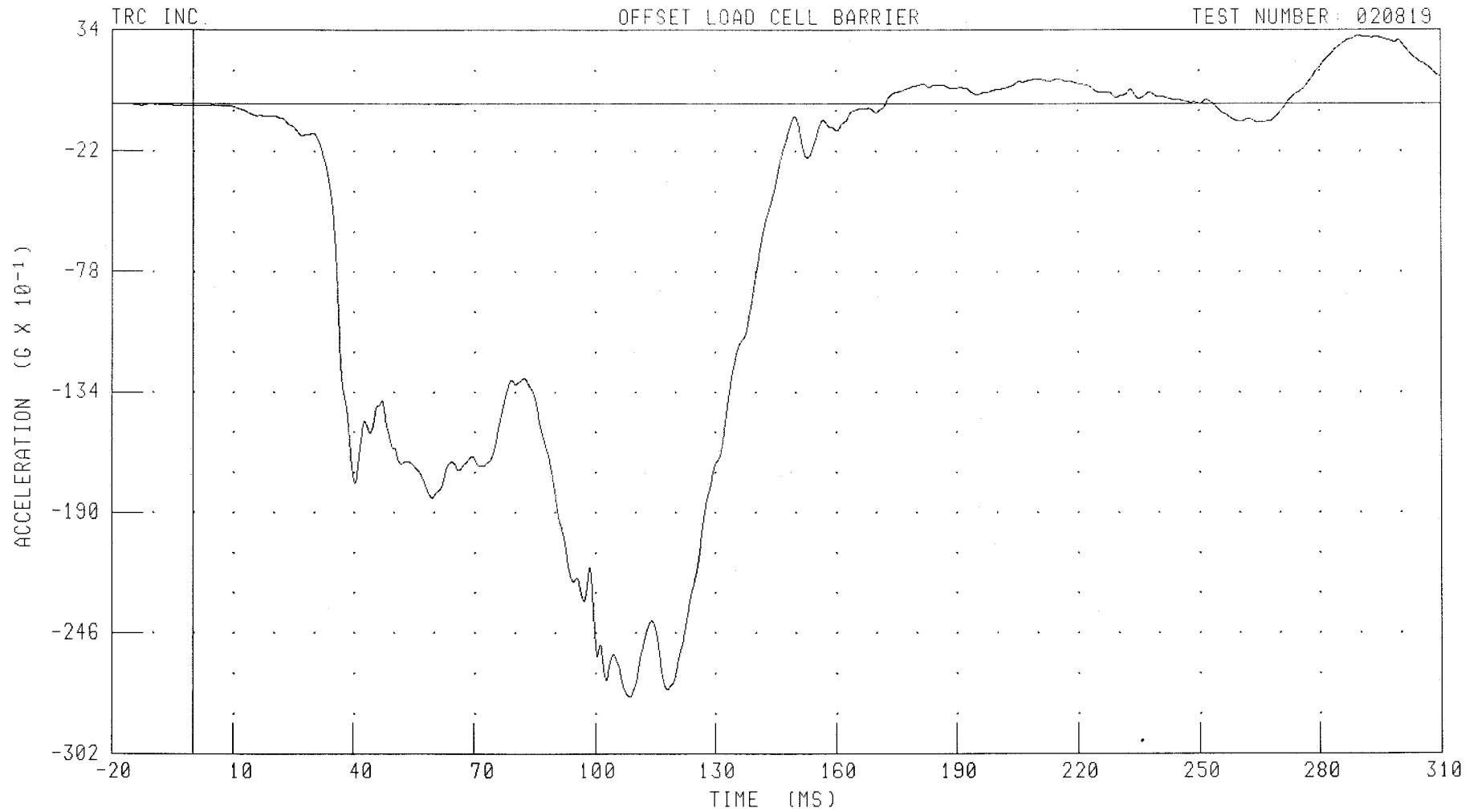
PEAK DATA: 14.94 N·M @ 54.40 MS; -5.59 N·M @ 127.60 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER CHEST X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTXG1 FILTER: CH. CLASS 100

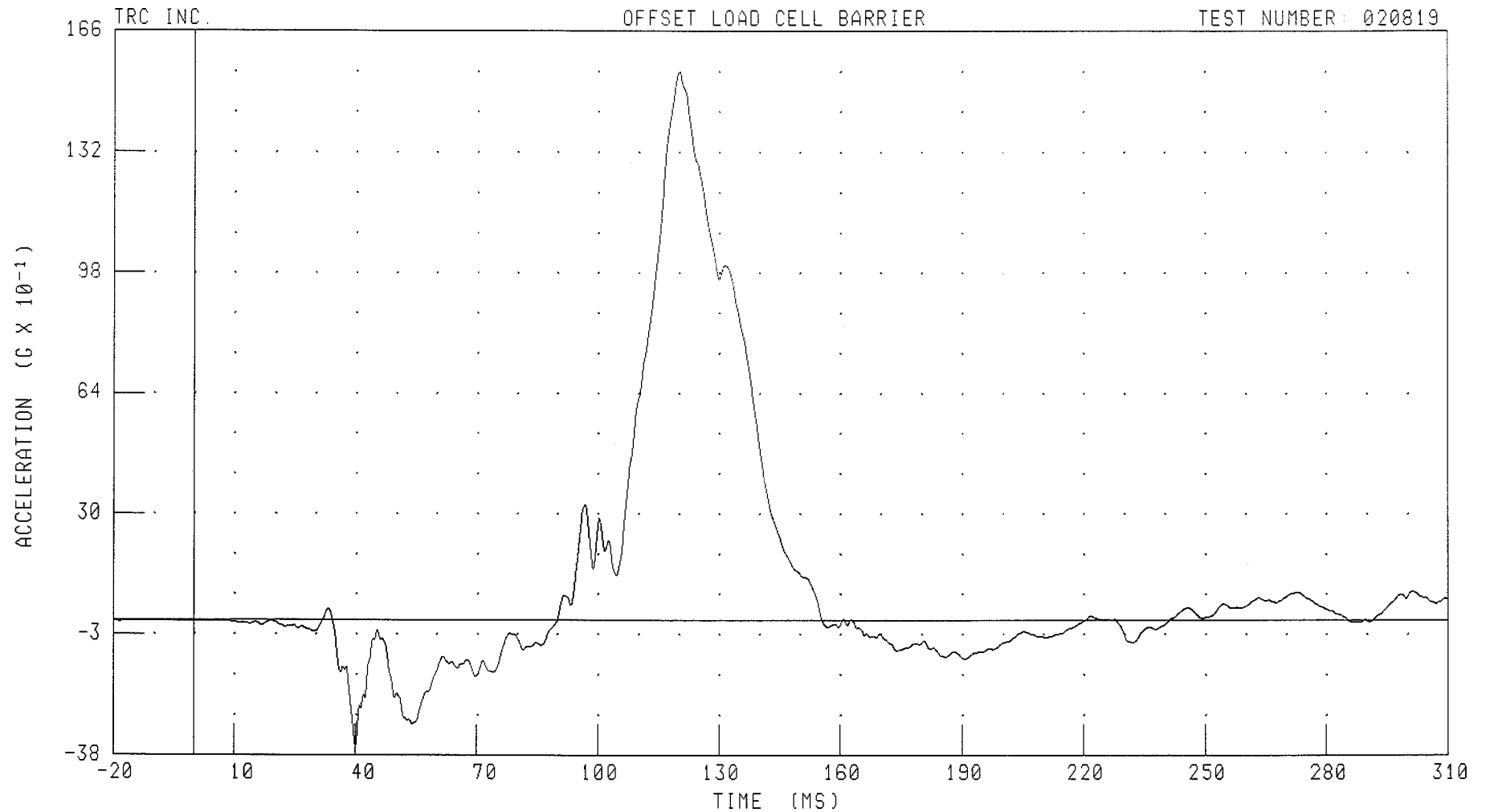
PEAK DATA: 3.14 G @ 290.00 MS; -27.57 G @ 108.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER CHEST Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTYG1 FILTER: CH. CLASS 180

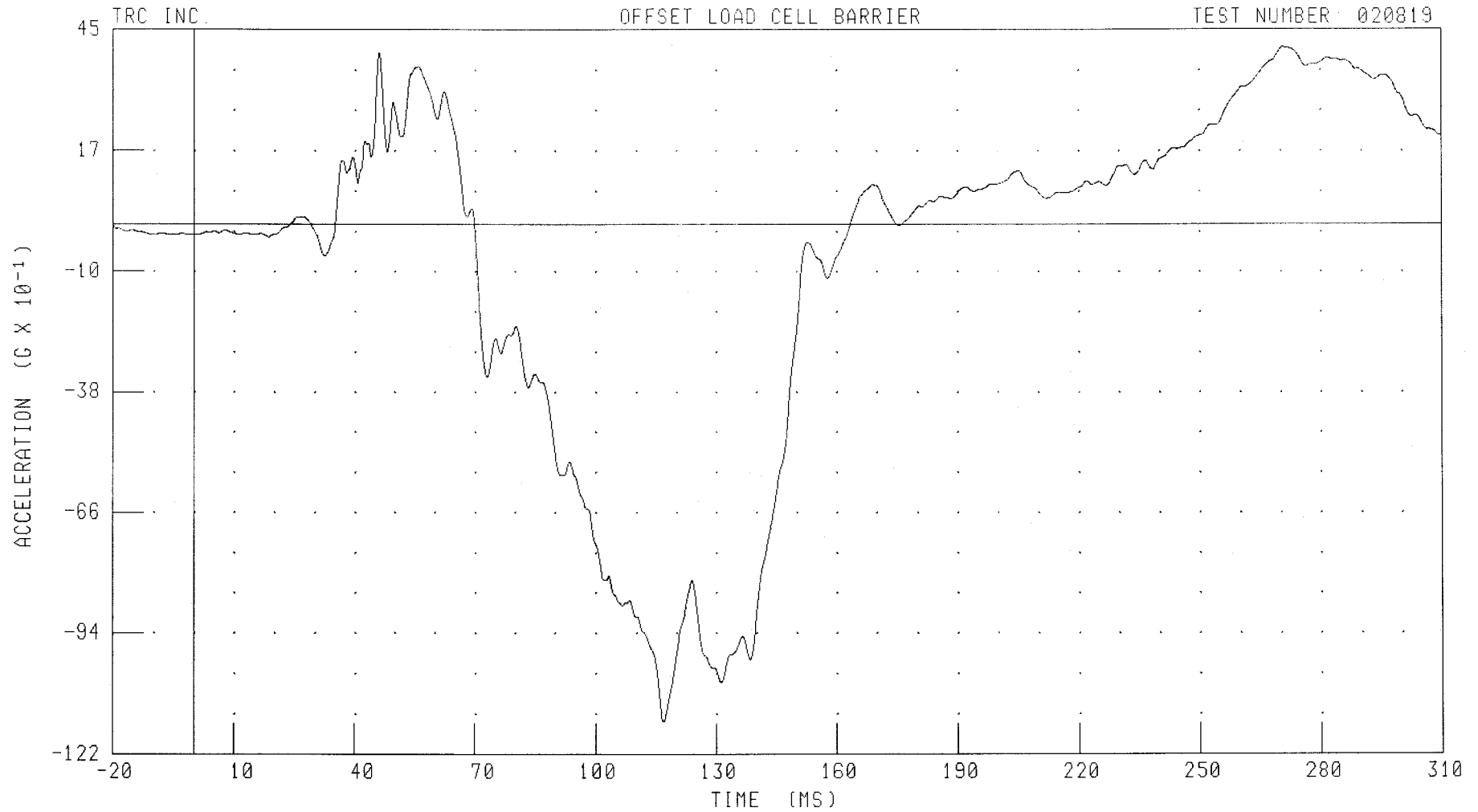
PEAK DATA: 15.46 G @ 120.16 MS; -3.54 G @ 40.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER CHEST Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTZG1 FILTER: CH. CLASS 100

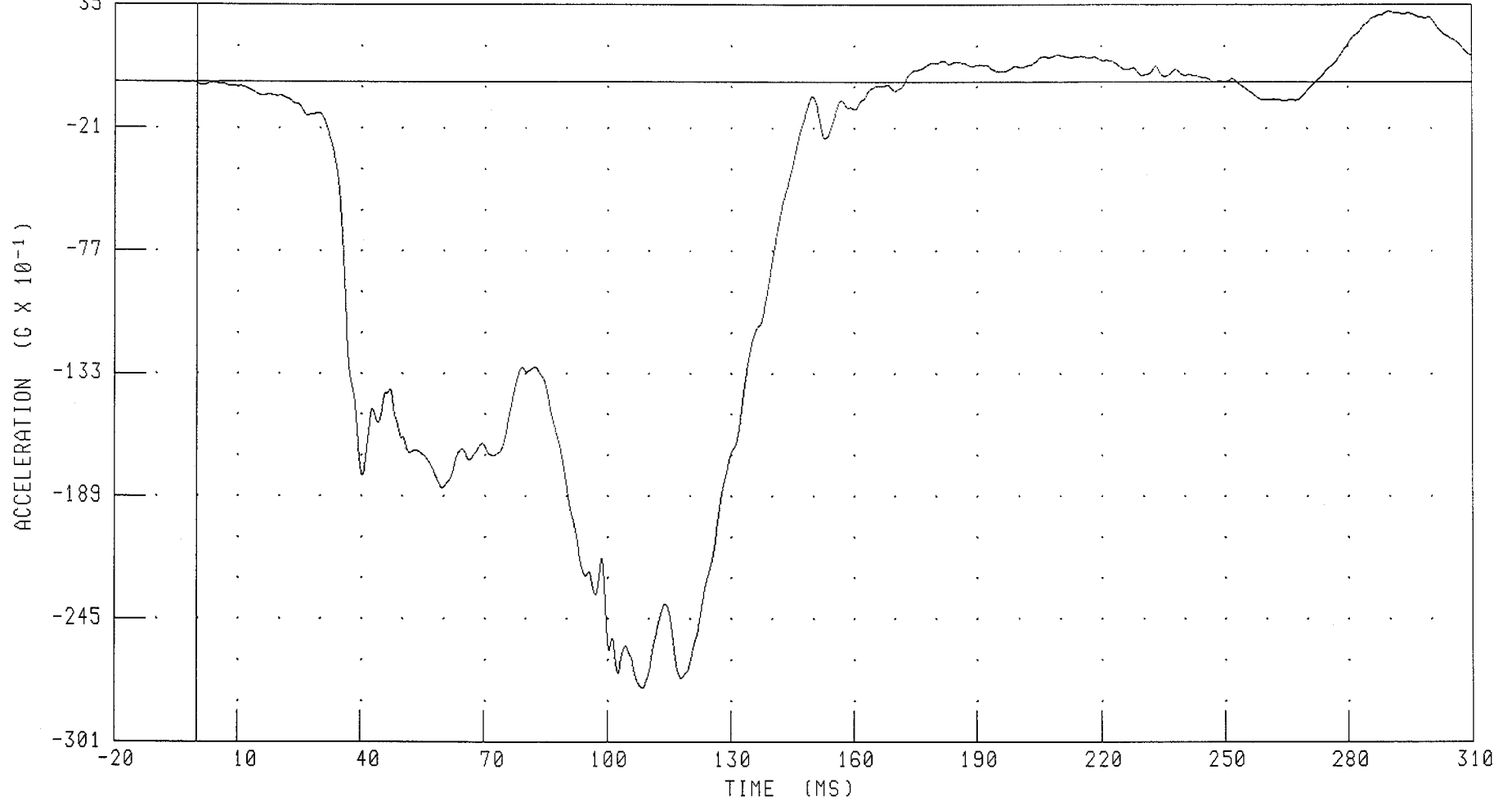
PEAK DATA: 4.10 G @ 270.80 MS; -11.56 G @ 116.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER CHEST X-AXIS REDUNDANT ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



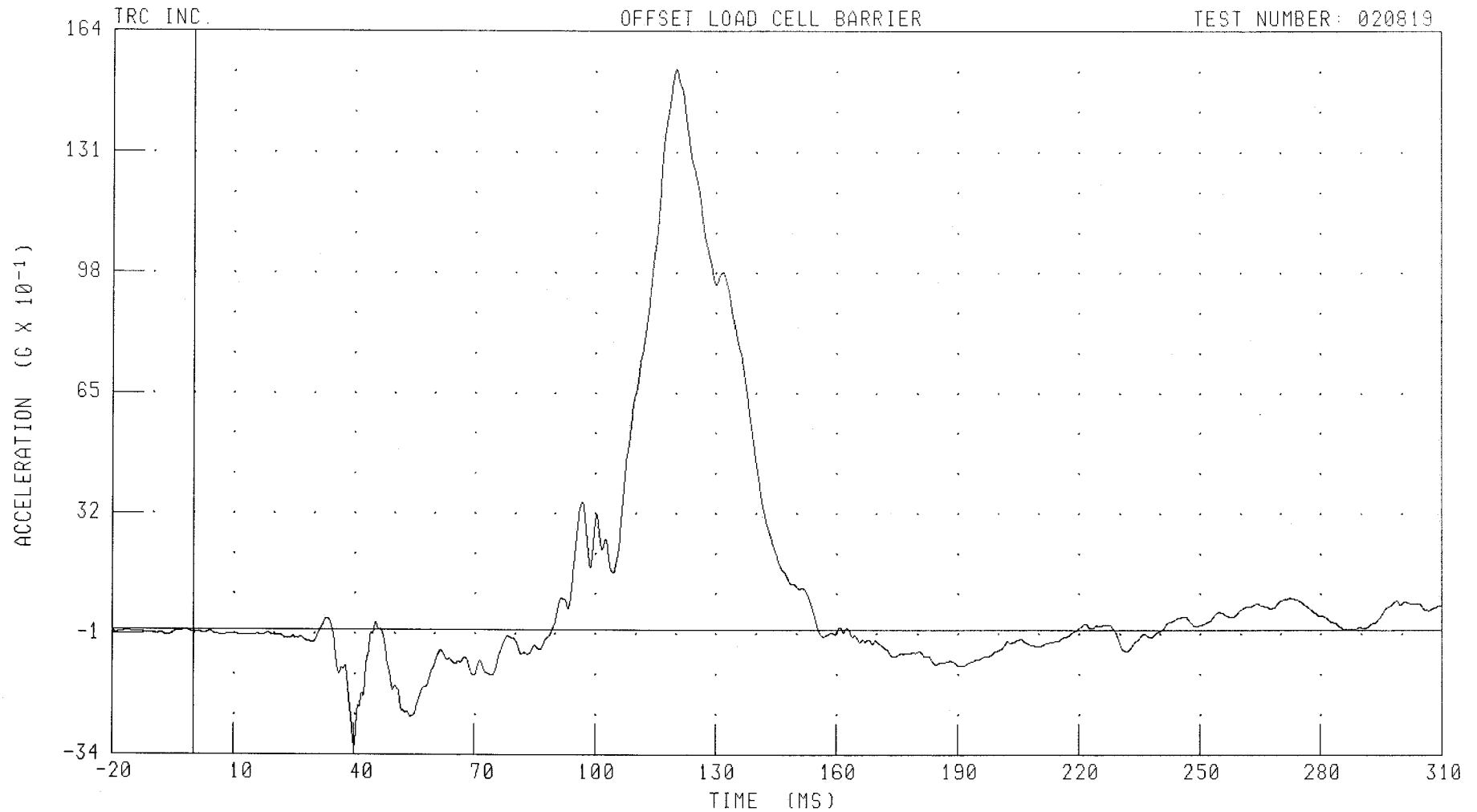
CHANNEL: CSTXR1 FILTER: CH. CLASS 180

PEAK DATA: 3.22 G @ 290.08 MS; -27.65 G @ 108.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER CHEST Y-AXIS REDUNDANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTYR1

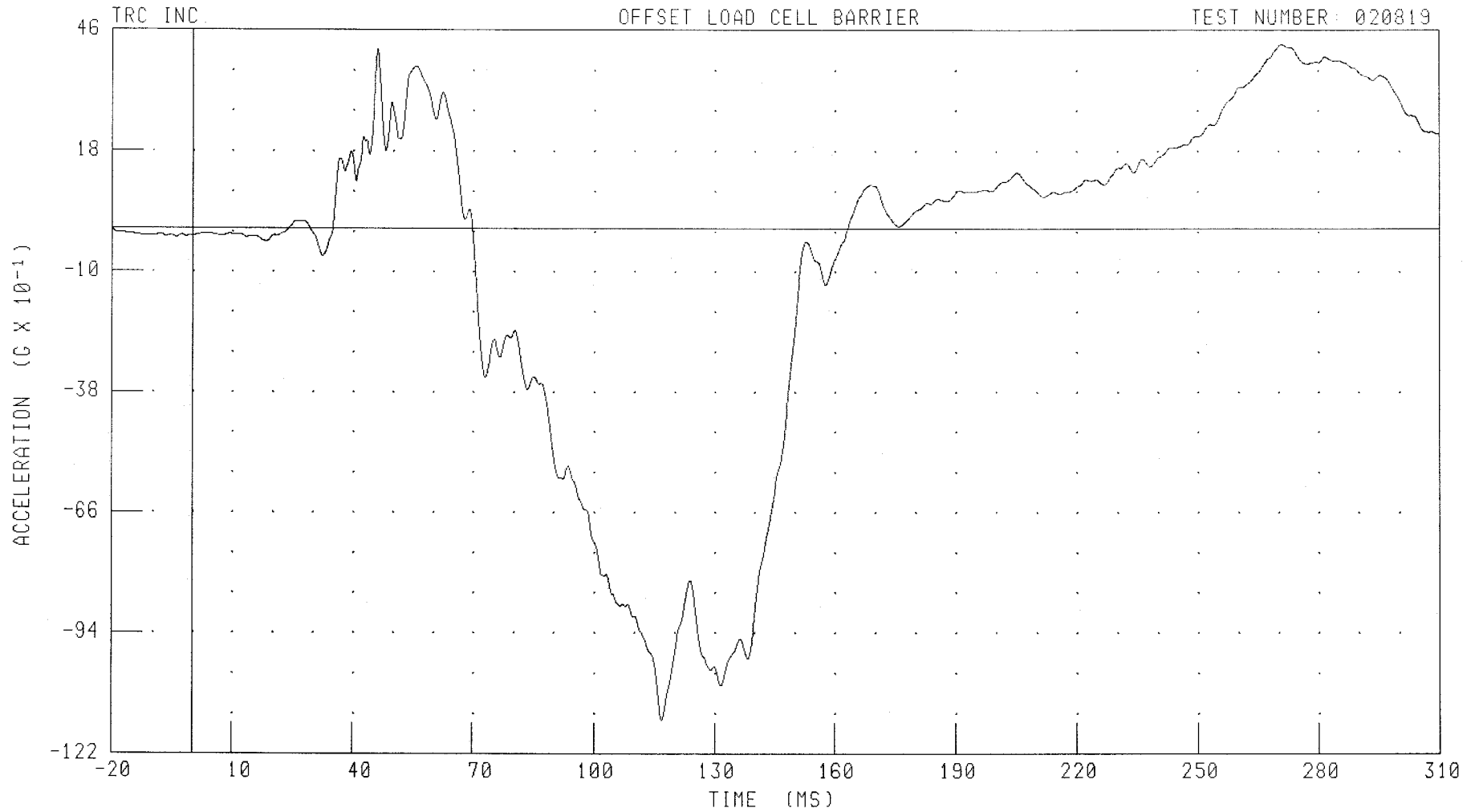
FILTER: CH. CLASS 180

PEAK DATA: 15.36 G @ 120.24 MS, -3.18 G @ 40.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER CHEST Z-AXIS REDUNDANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTZR1 FILTER: CH. CLASS 180

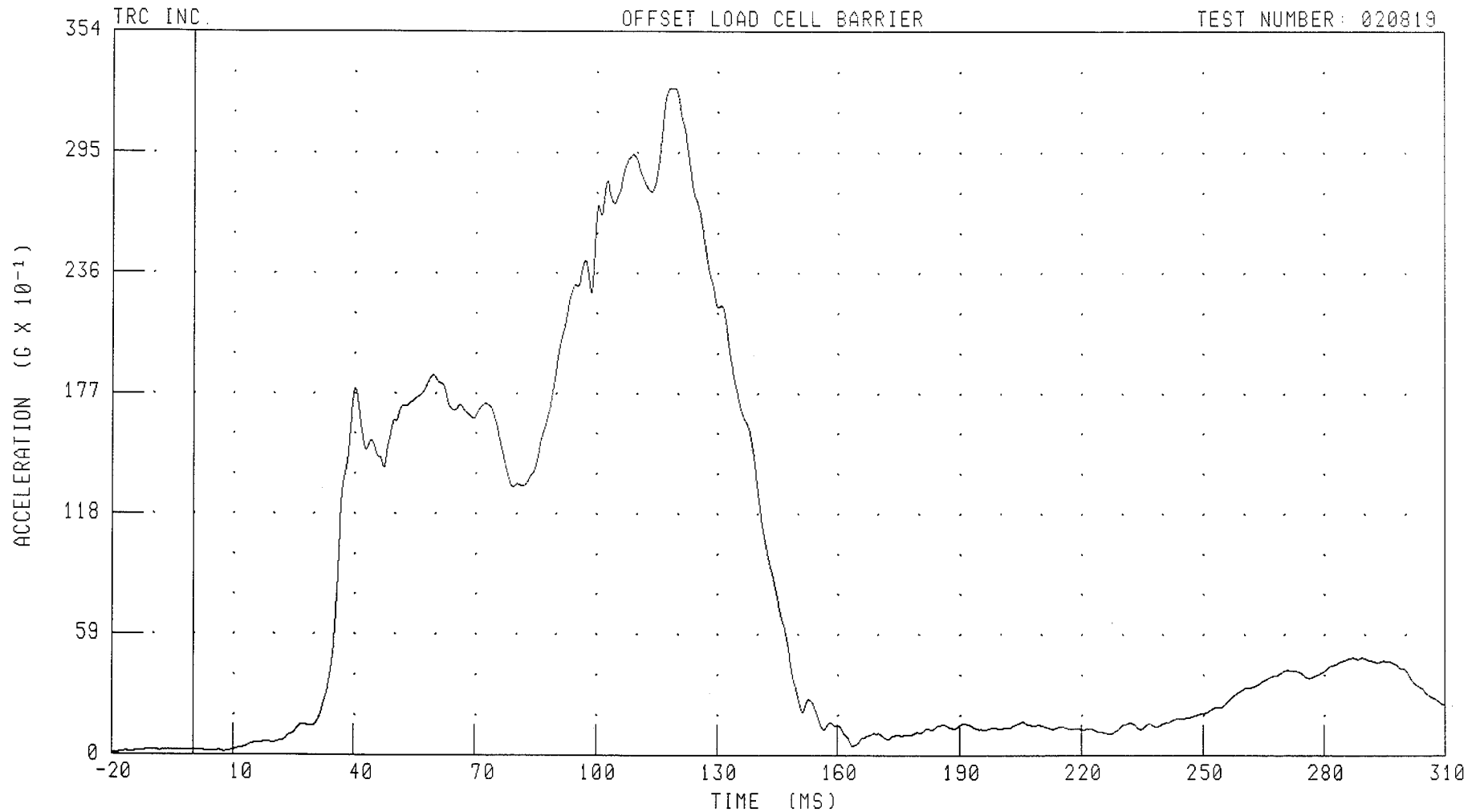
PEAK DATA: 4.27 G @ 270.96 MS; -11.41 G @ 116.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER CHEST RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

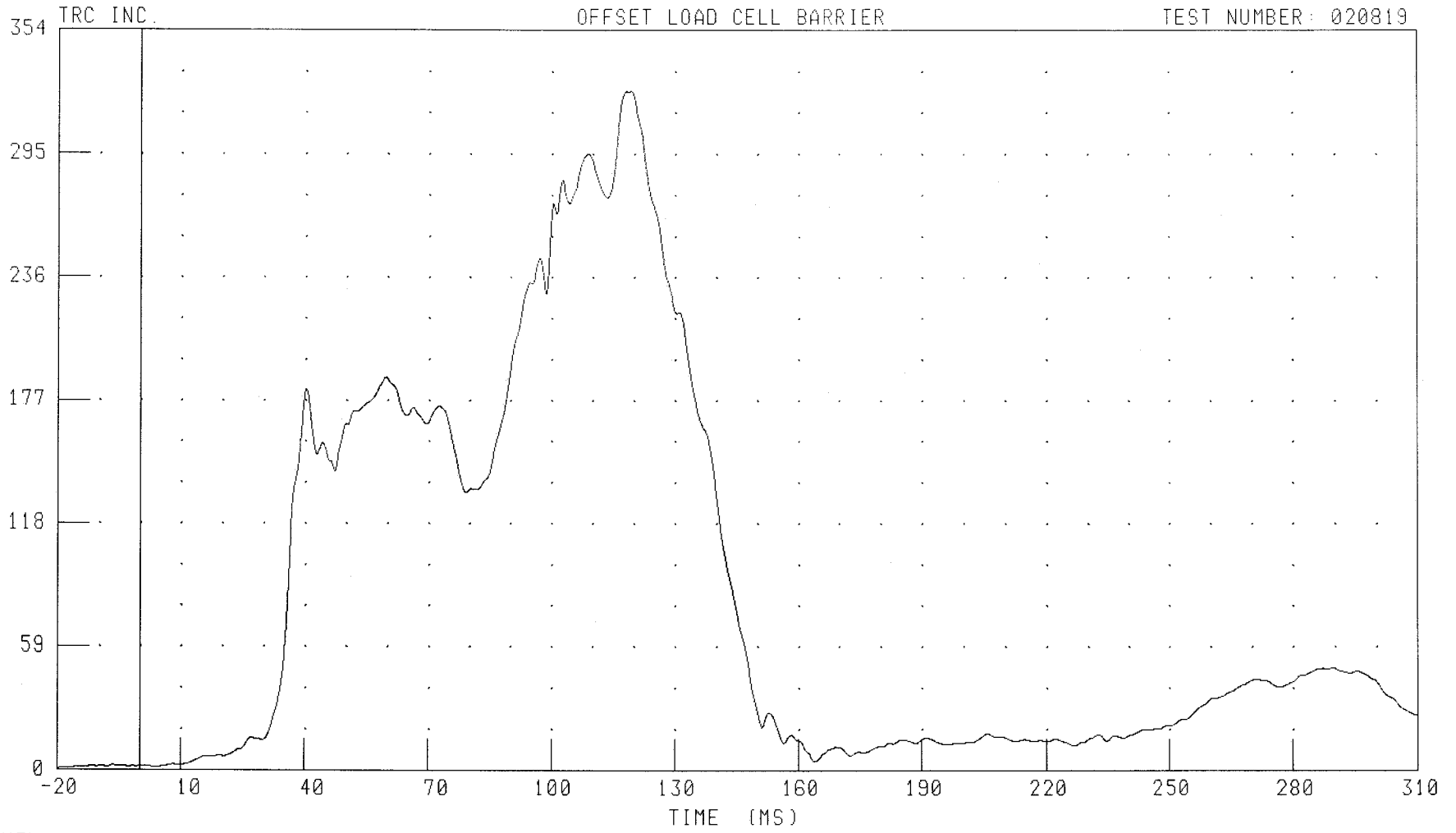
TEST NUMBER: 020819



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 32.64 G @ 119.36 MS; 0.01 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER CHEST REDUNDANT RESULTANT ACCELERATION



TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

CHANNEL: CSTRR1

FILTER: CH. CLASS 180

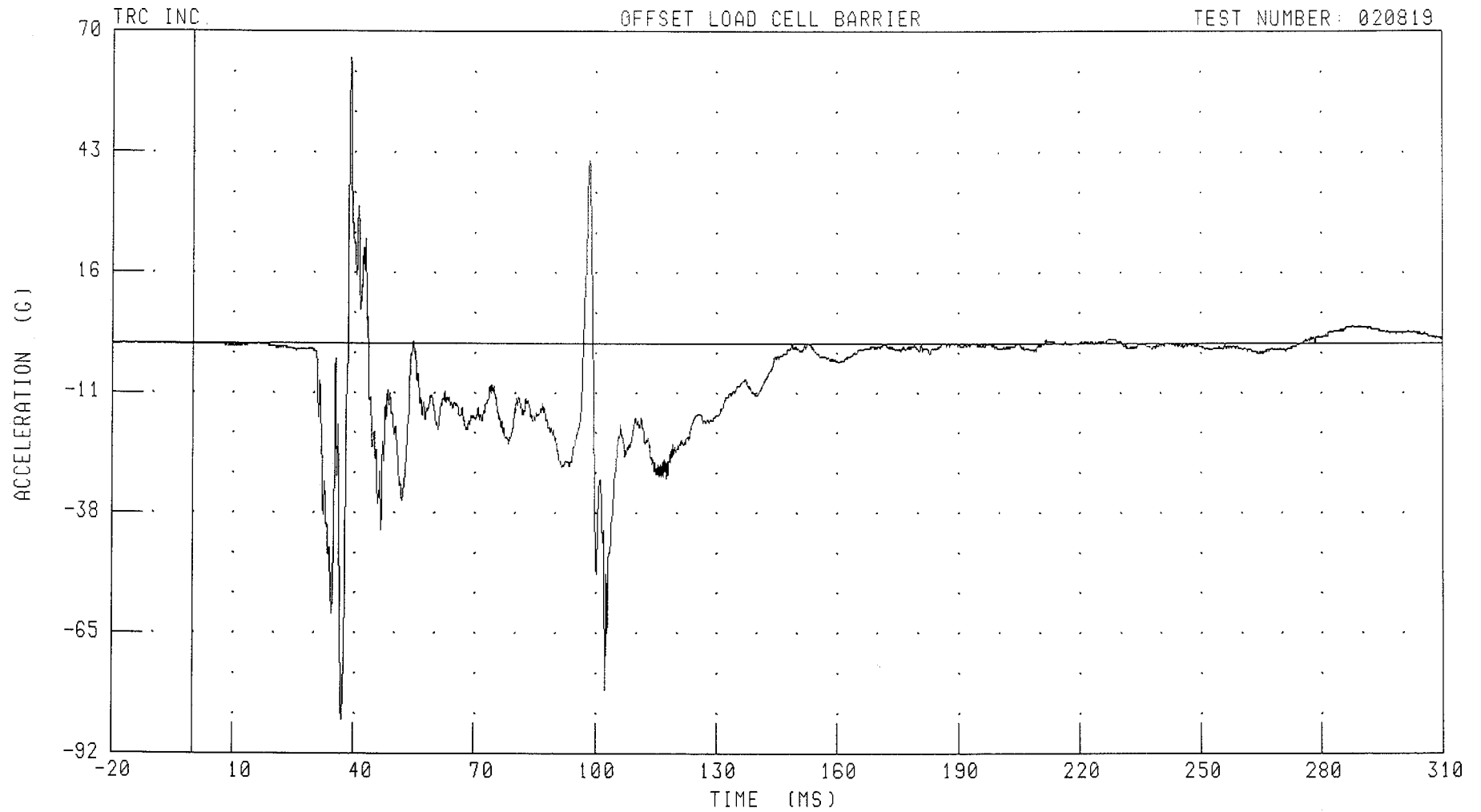
PEAK DATA: 32.50 G @ 119.36 MS; 0.01 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER STERNUM UPPER X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: STUXG1 FILTER: CH. CLASS 1000

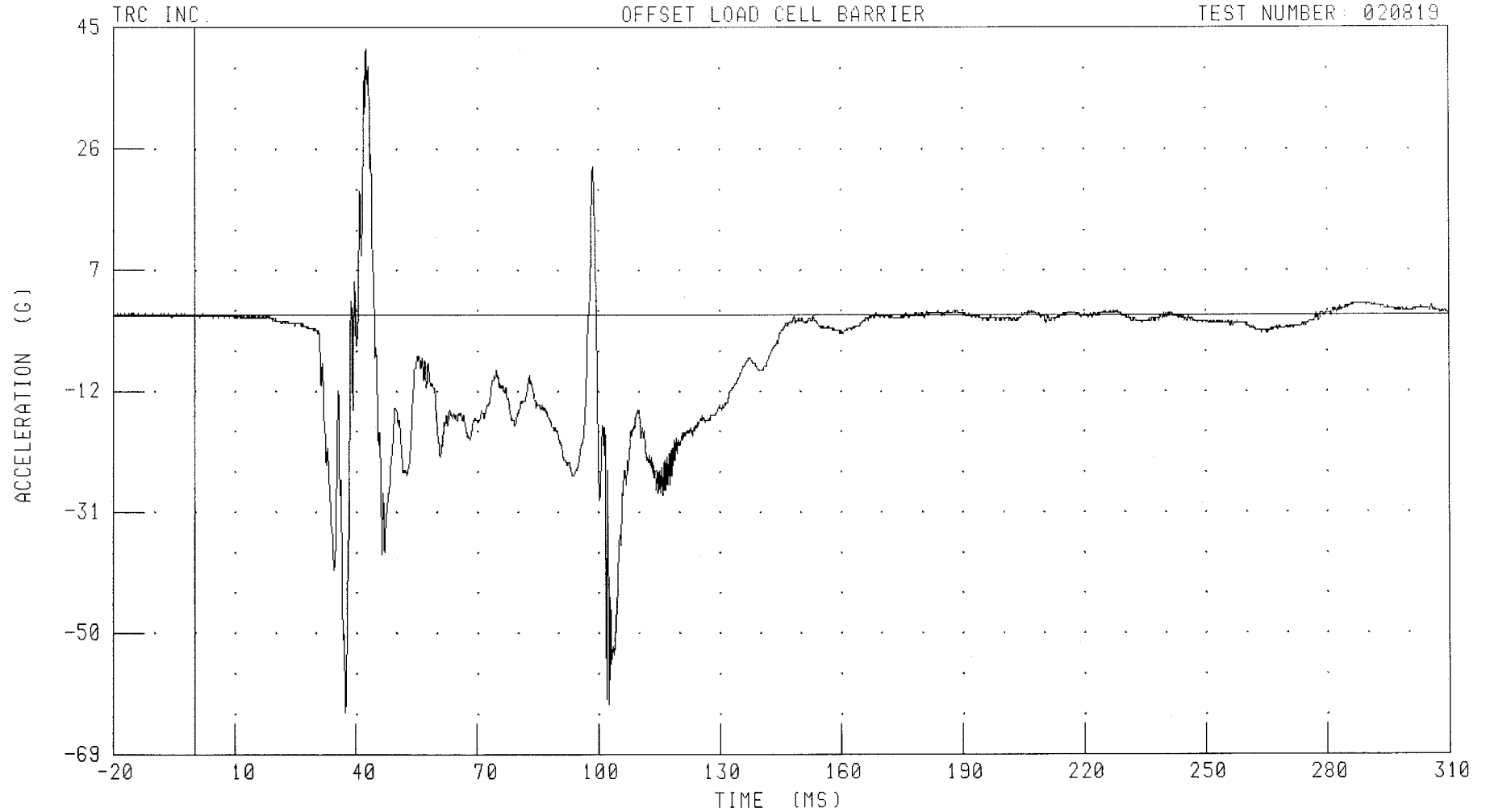
PEAK DATA: 64.17 G @ 39.20 MS; -84.47 G @ 37.12 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER STERNUM MID X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: STMXG1 FILTER: CH. CLASS 1000

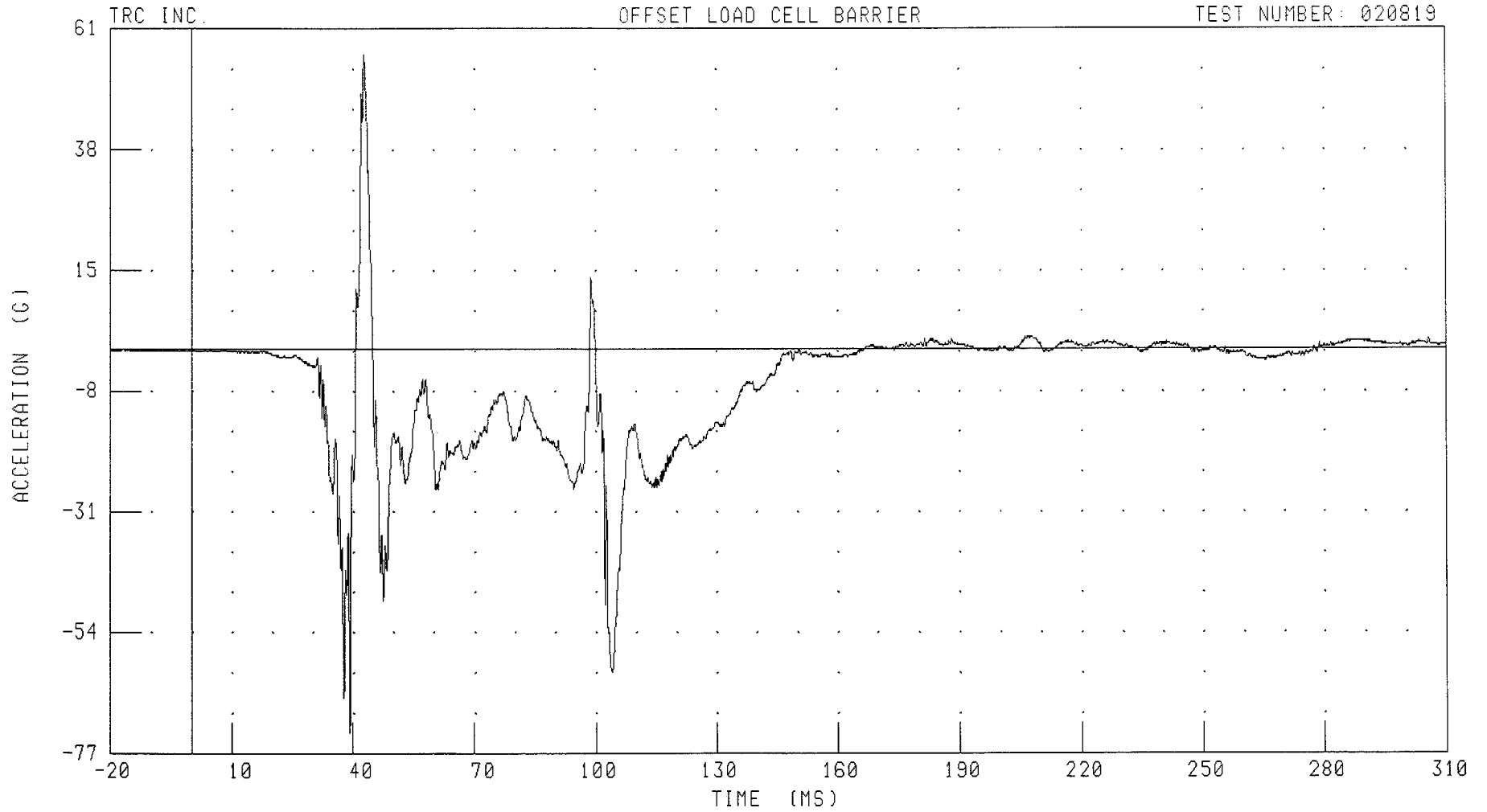
PEAK DATA: 41.73 G @ 42.64 MS; -62.36 G @ 37.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER STERNUM LOWER X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: STLXG1 FILTER: CH. CLASS 1000

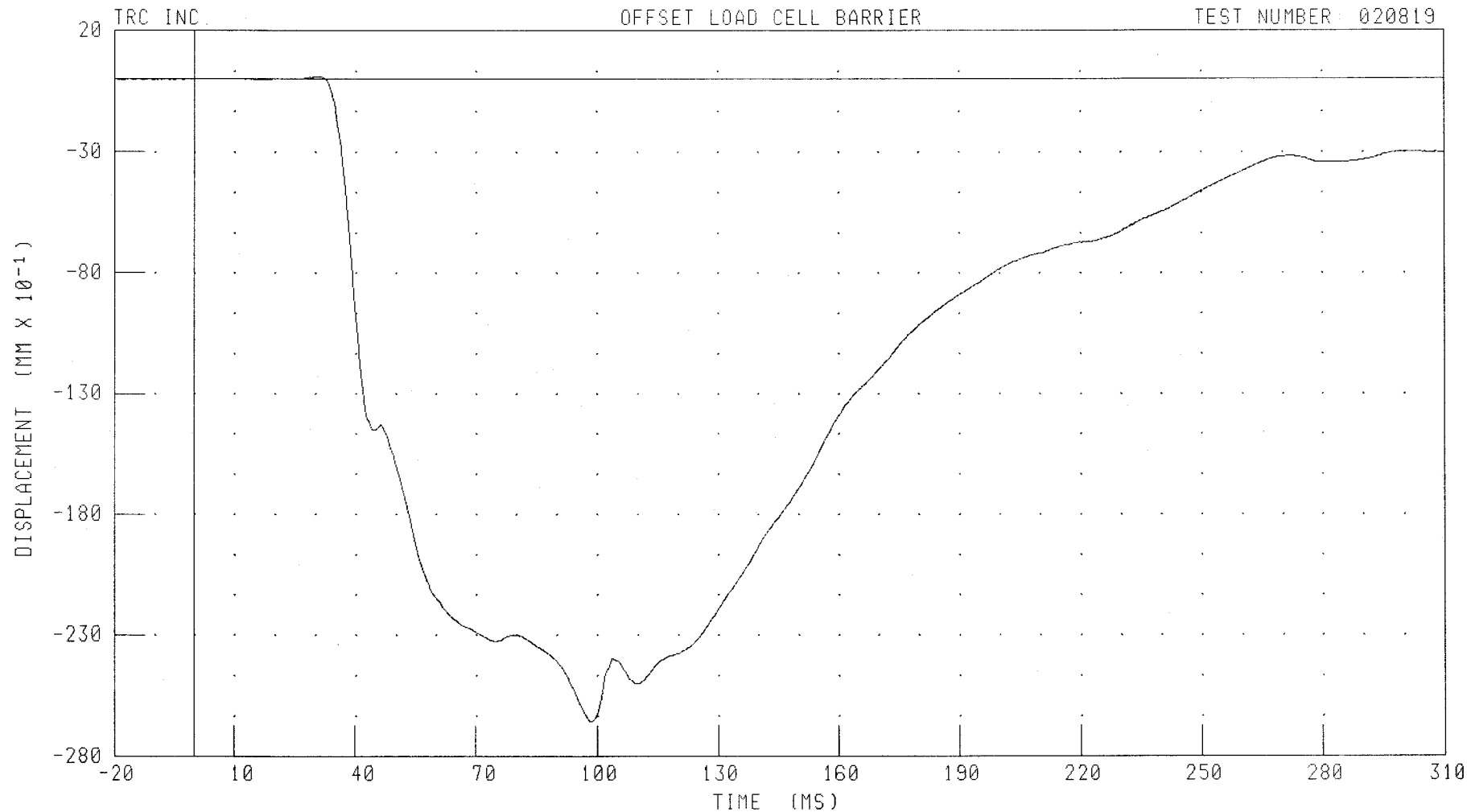
PEAK DATA: 56.19 G @ 42.96 MS; -73.09 G @ 39.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER CHEST DEFLECTION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTXD1

FILTER: CH. CLASS 600

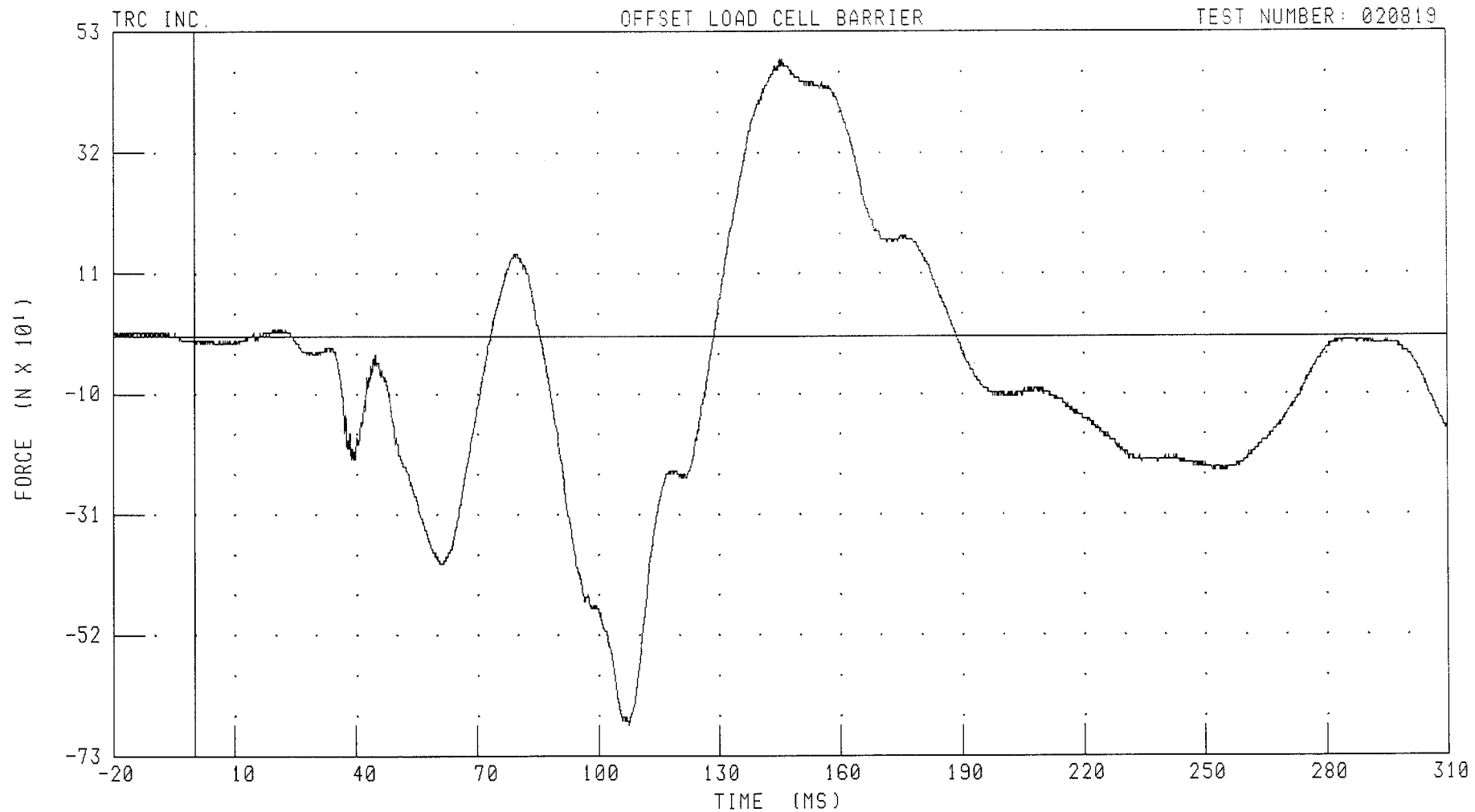
PEAK DATA: 0.09 MM @ 31.60 MS; -26.58 MM @ 98.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LUMBAR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LMBXF1 FILTER: CH. CLASS 1000

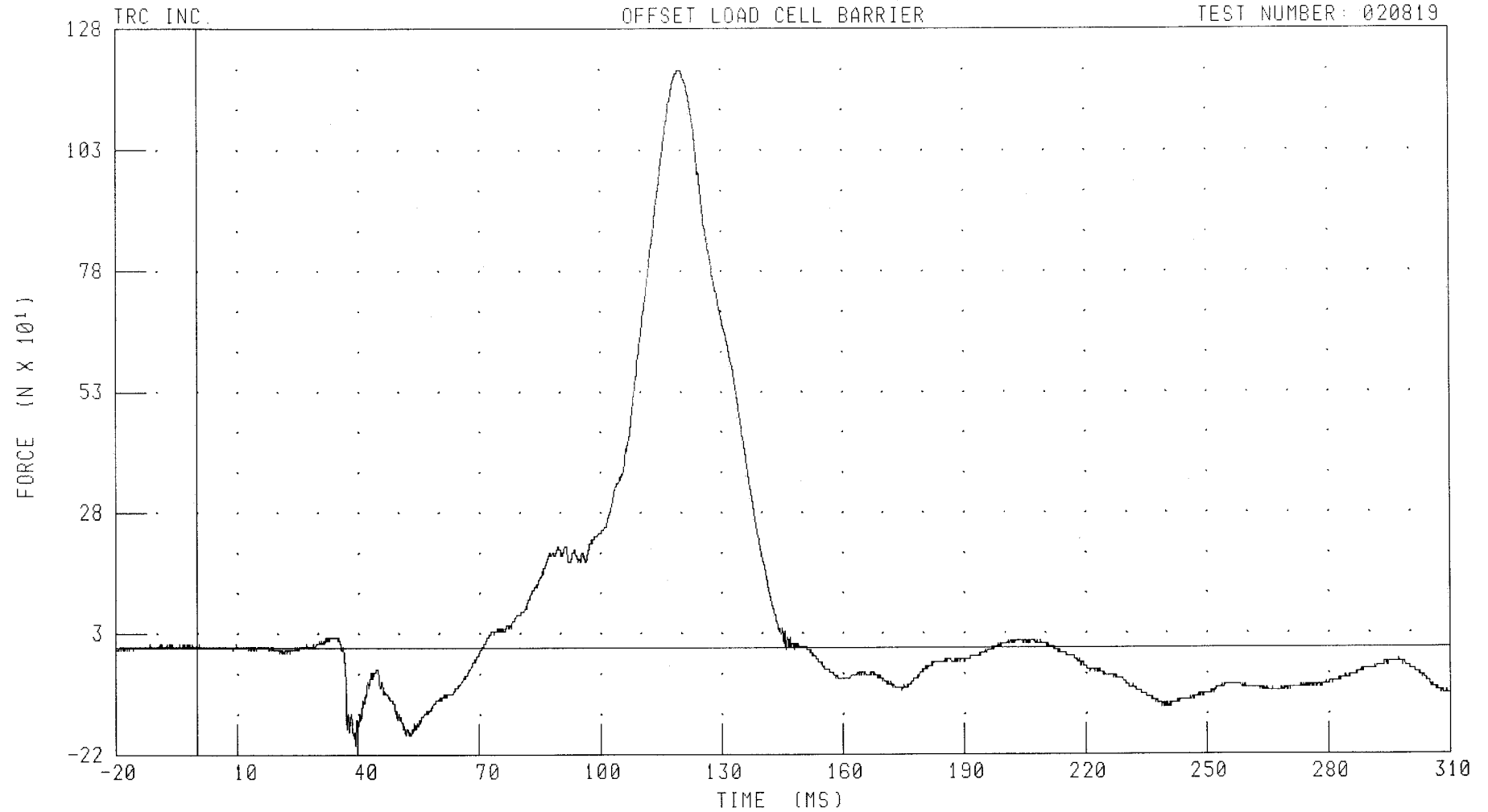
PEAK DATA: 482.42 N @ 145.52 MS; -676.41 N @ 107.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LUMBAR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LM BYF1 FILTER: CH. CLASS 1000

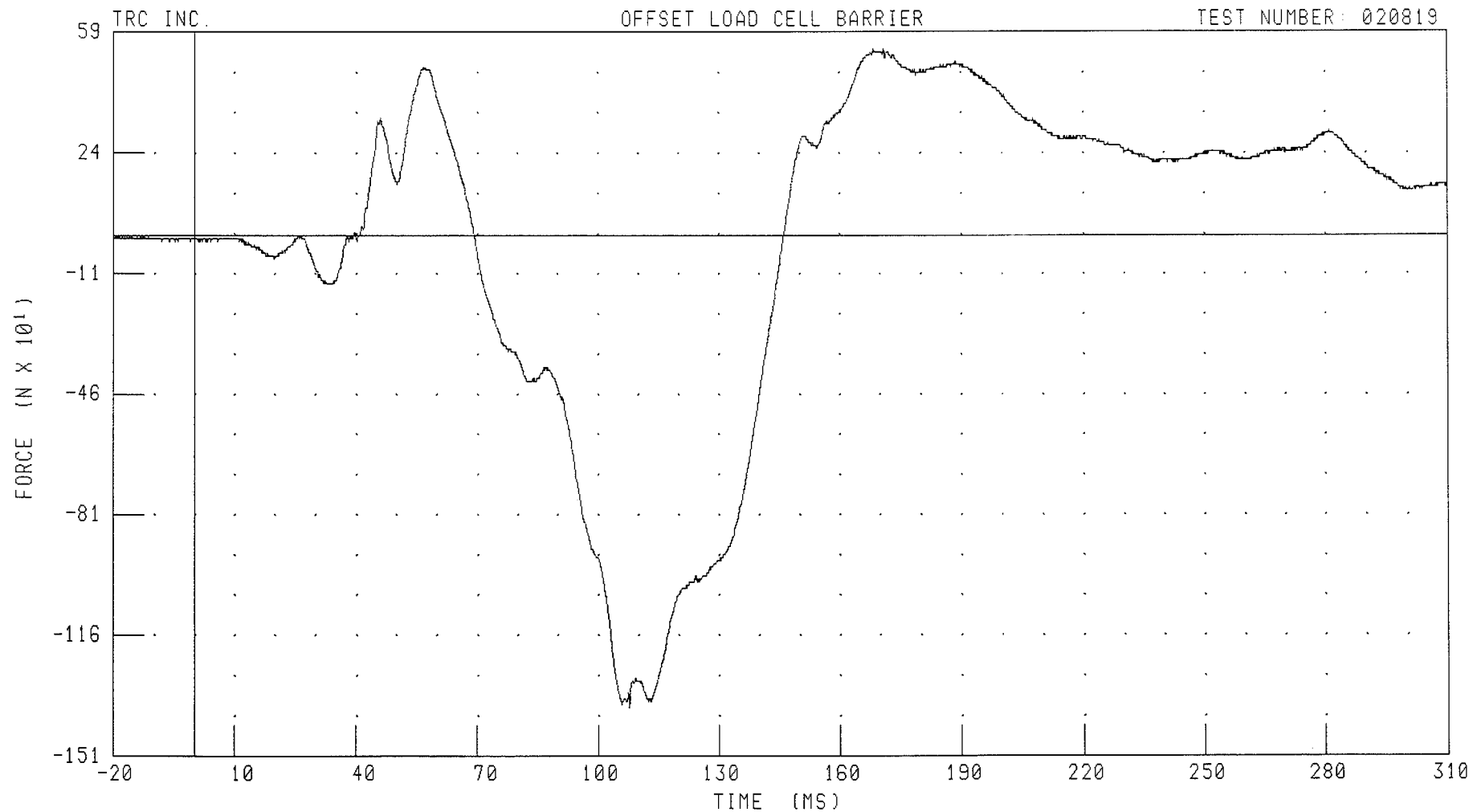
PEAK DATA: 1194.28 N @ 119.44 MS; -200.14 N @ 39.36 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LUMBAR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LMBZF1 FILTER: CH. CLASS 1000

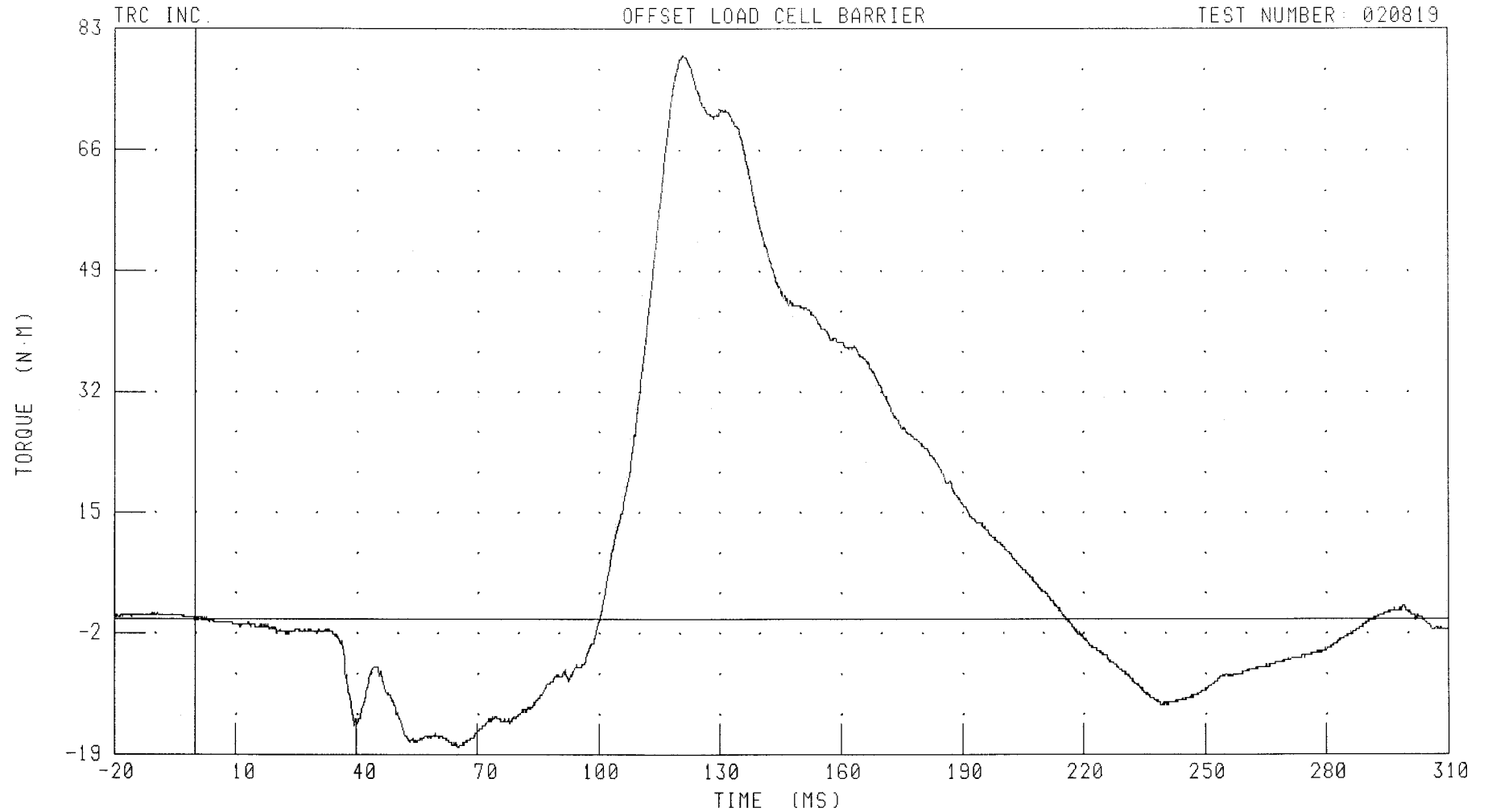
PEAK DATA: 540.37 N @ 168.72 MS; -1370.79 N @ 107.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LUMBAR X-AXIS MOMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LMBXM1 FILTER: CH. CLASS 1000

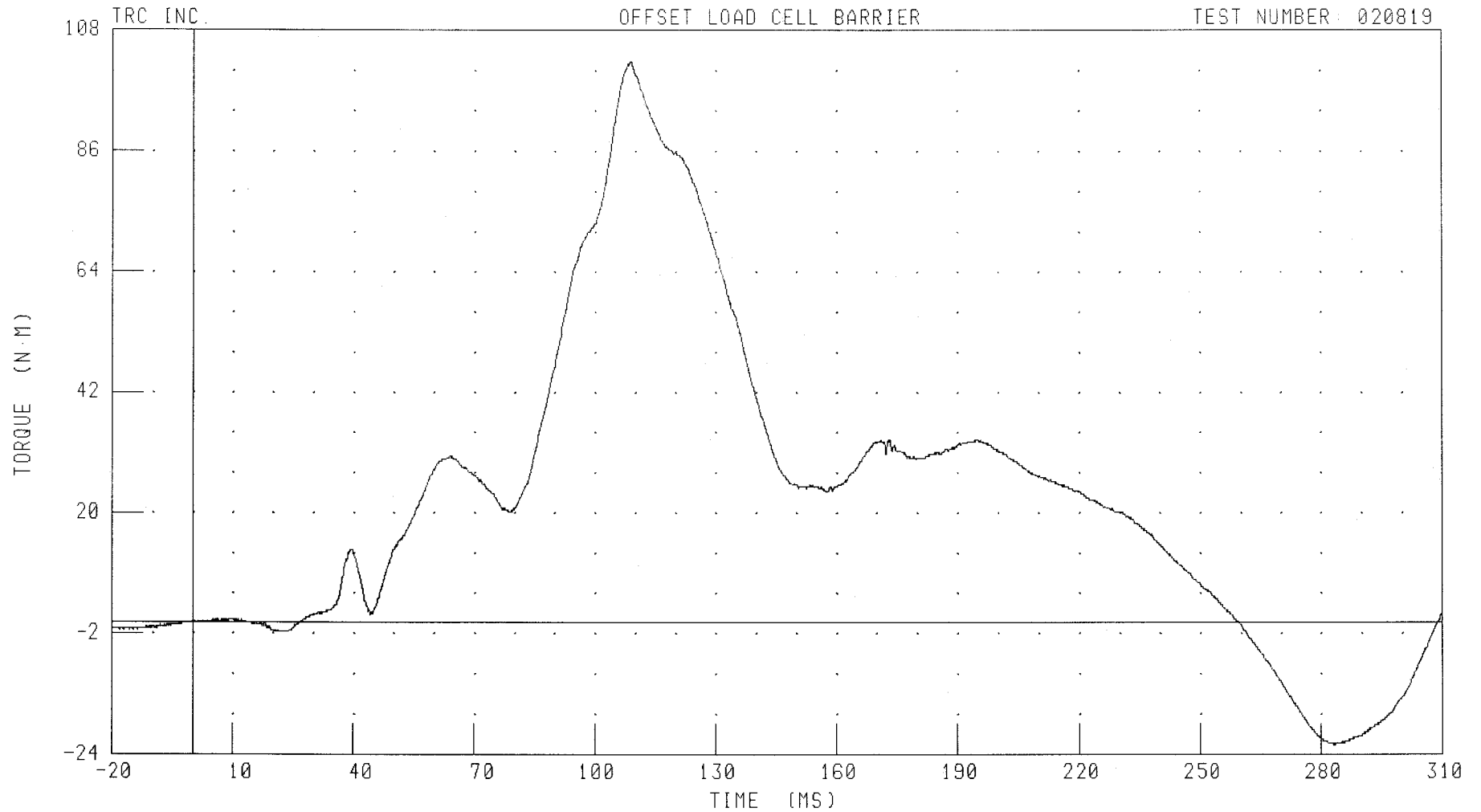
PEAK DATA: 79.34 N·M @ 120.96 MS, -18.01 N·M @ 64.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LUMBAR Y-AXIS MOMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LMBYM1 FILTER: CH. CLASS 1000

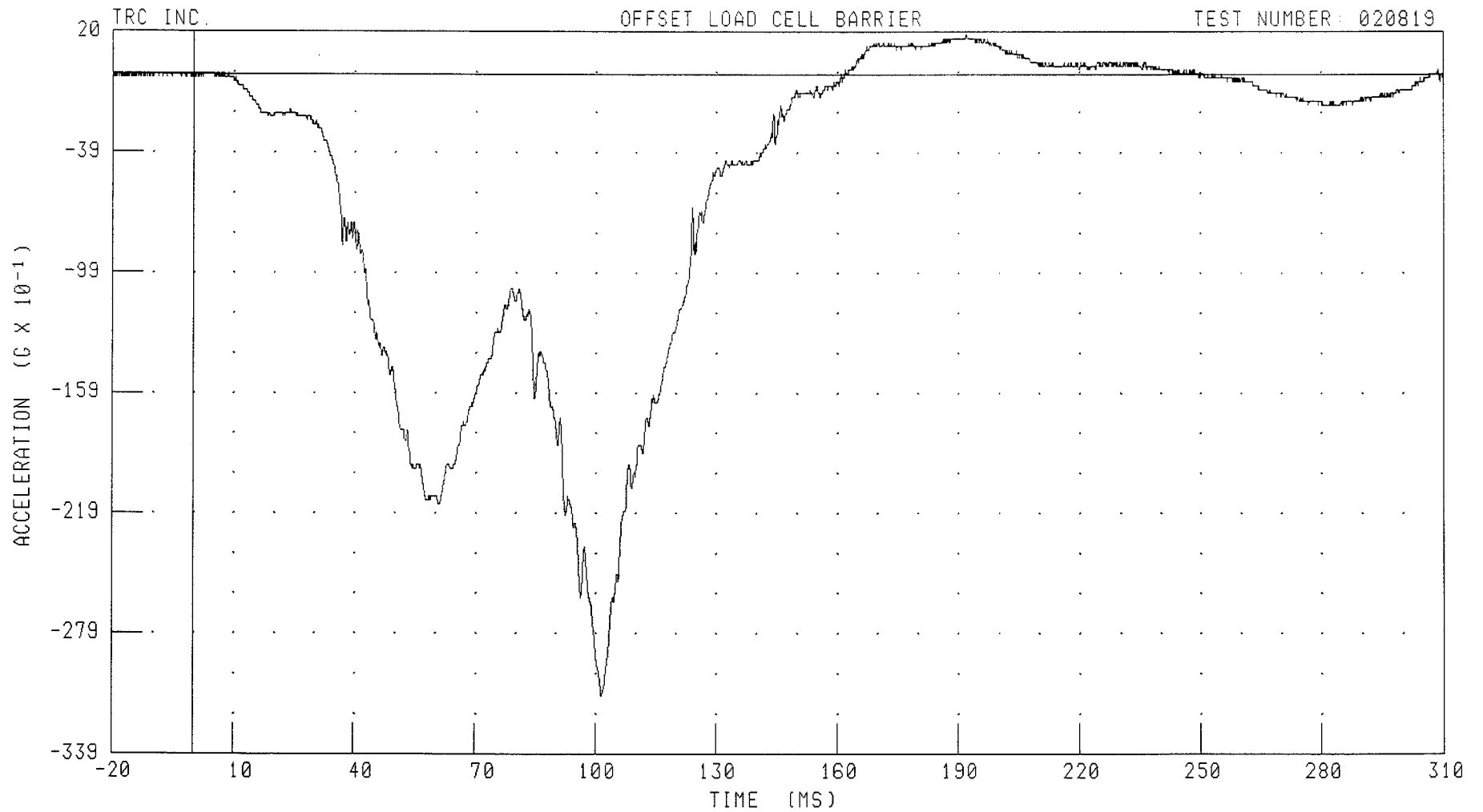
PEAK DATA: 102.23 N·M @ 108.80 MS; -22.25 N·M @ 283.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER PELVIS X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PEVXG1 FILTER: CH. CLASS 1000

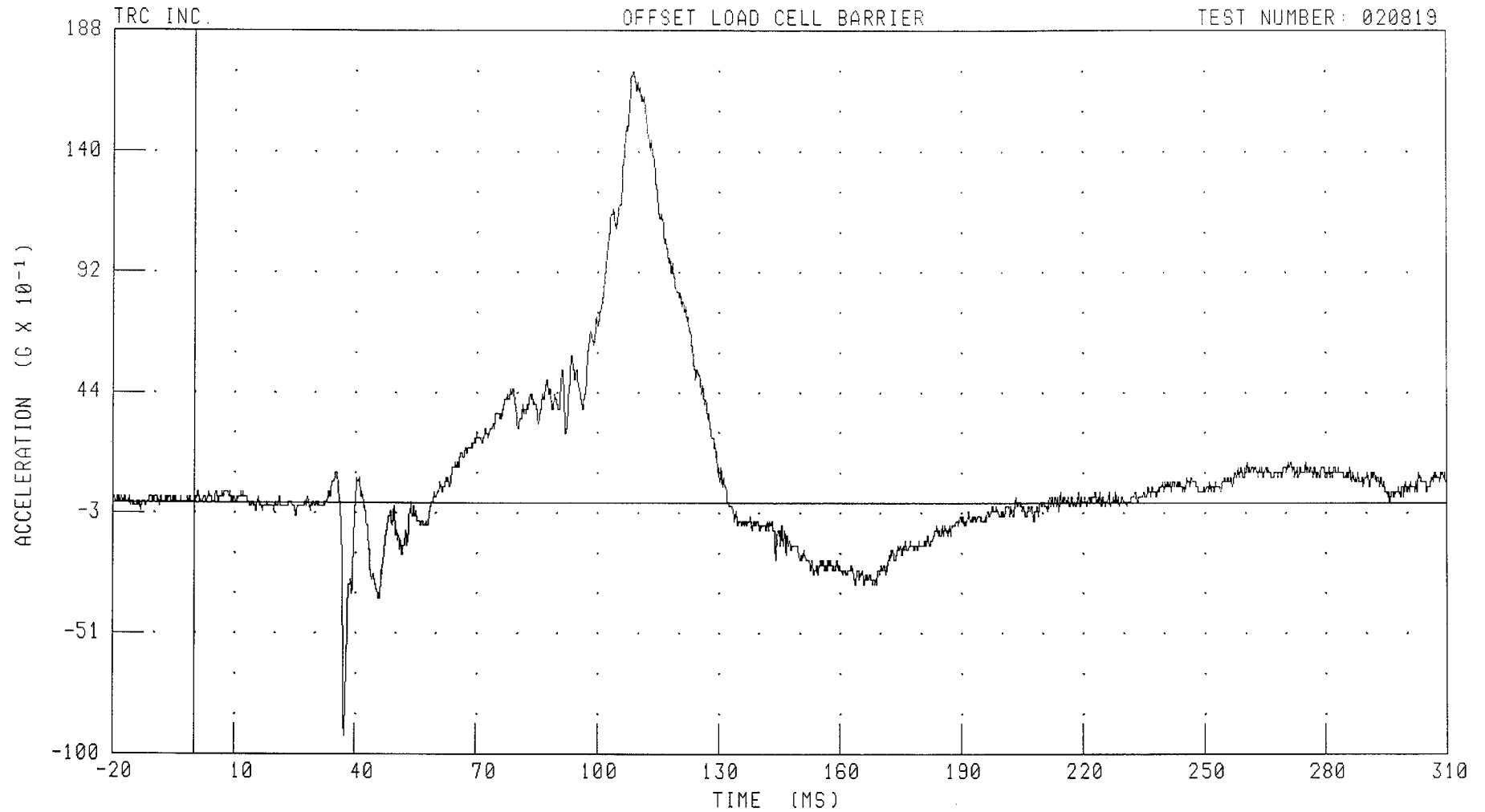
PEAK DATA: 1.97 G @ 192.08 MS; -30.99 G @ 101.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER PELVIS Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

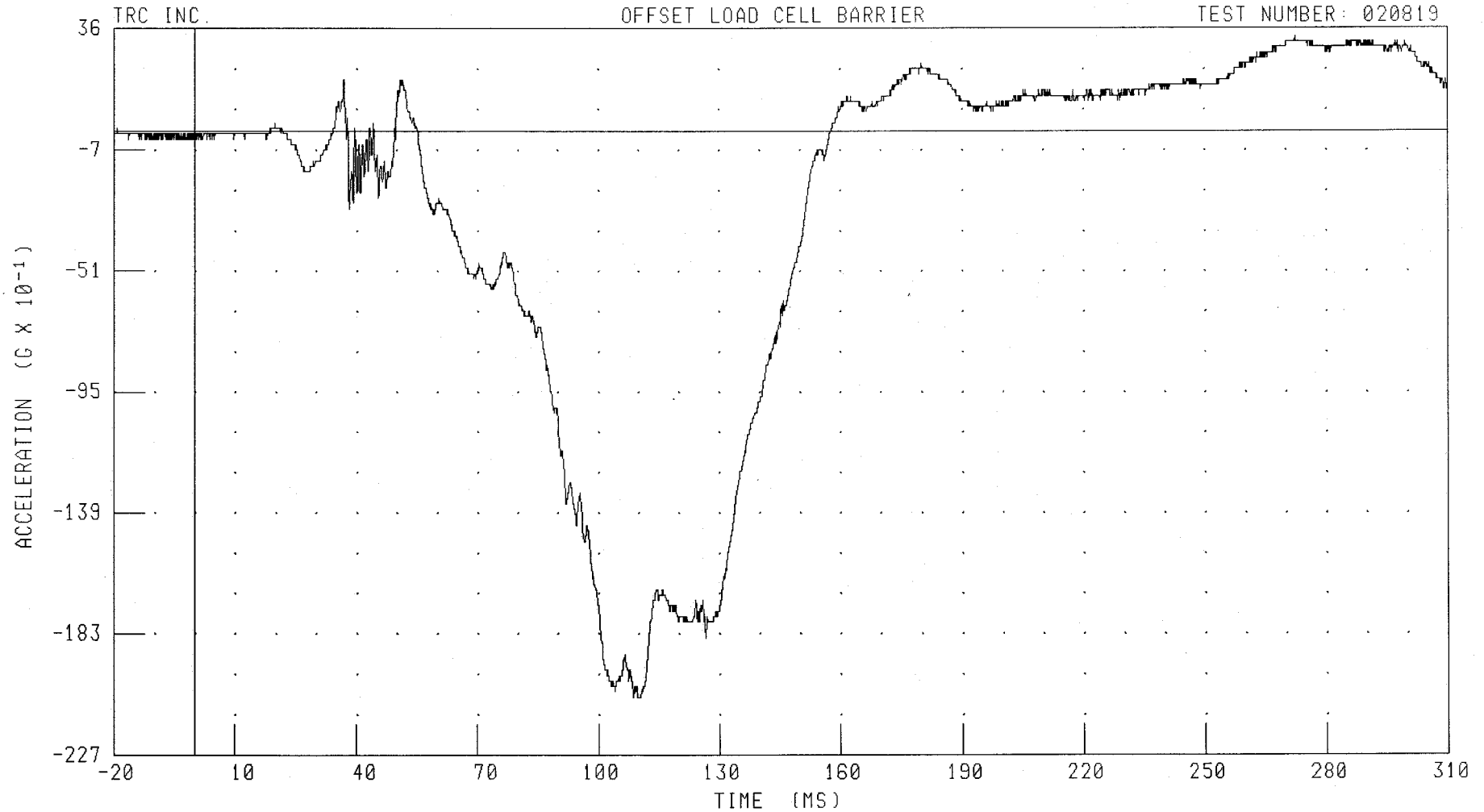
PEAK DATA: 17.17 G @ 108.64 MS; -9.28 G @ 37.28 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER PELVIS Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

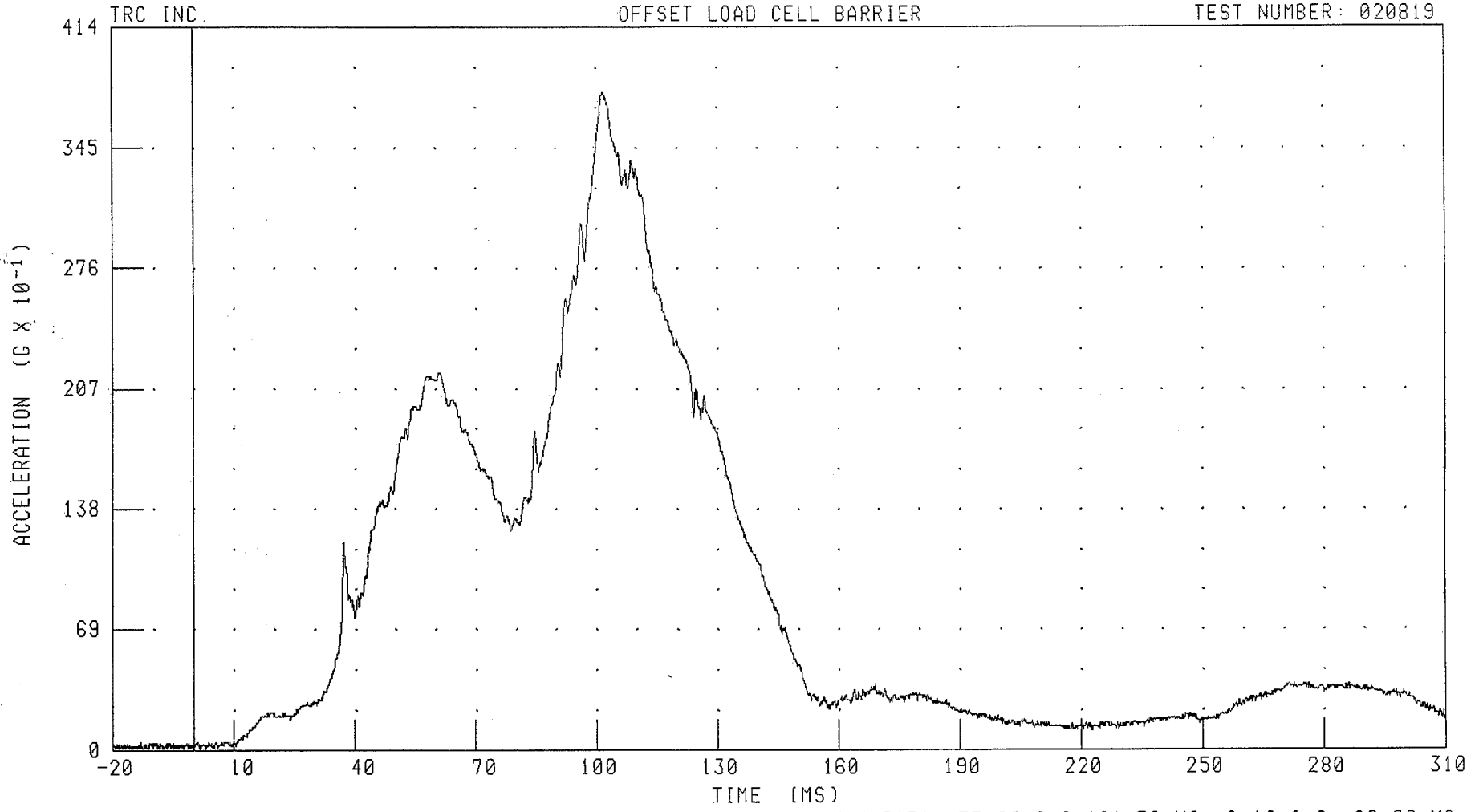
PEAK DATA: 3.41 G @ 272.48 MS; -20.60 G @ 108.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER PELVIS RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PEVRG1

FILTER: CH. CLASS 1000

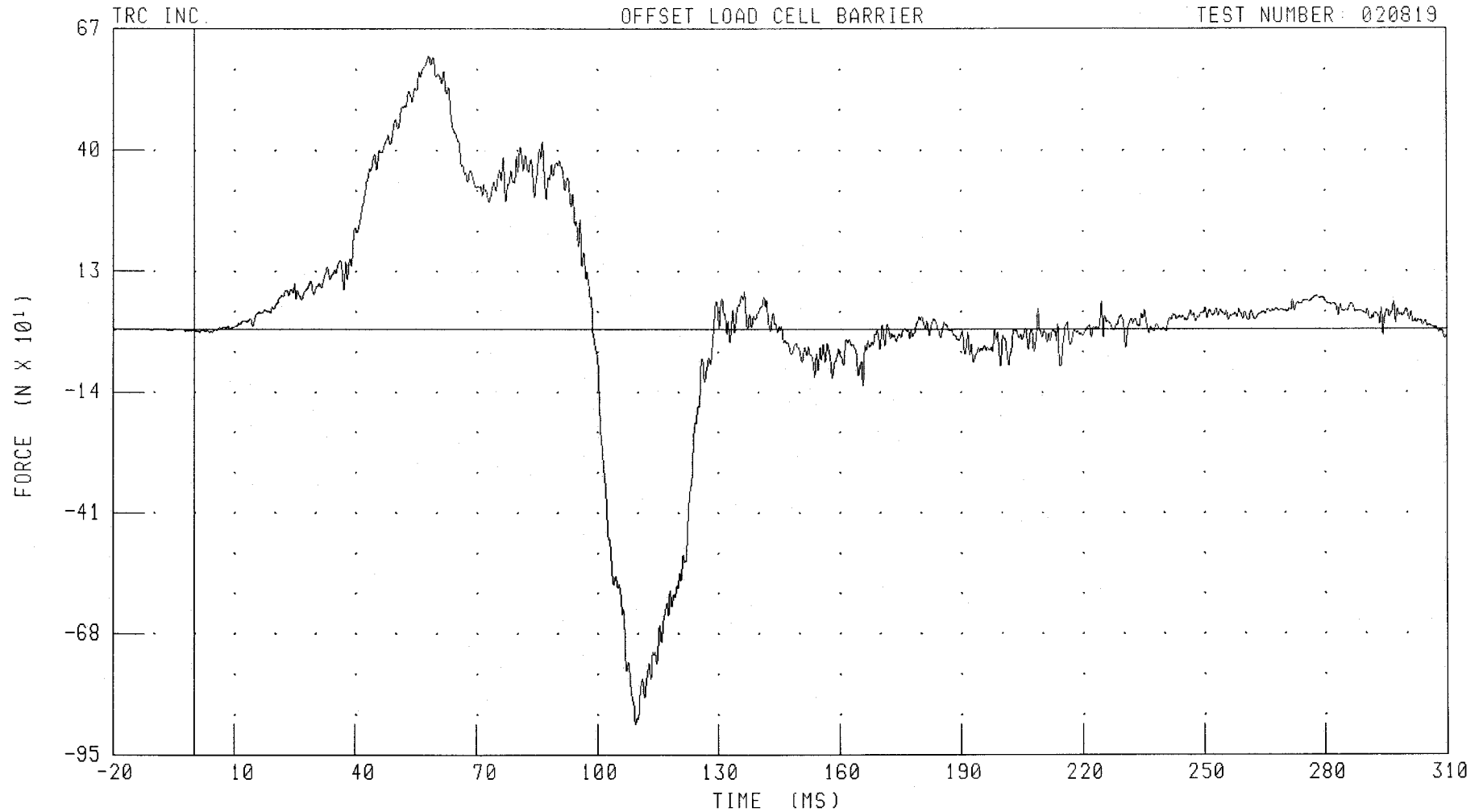
PEAK DATA: 37.68 G @ 101.76 MS; 0.12 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT FEMUR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



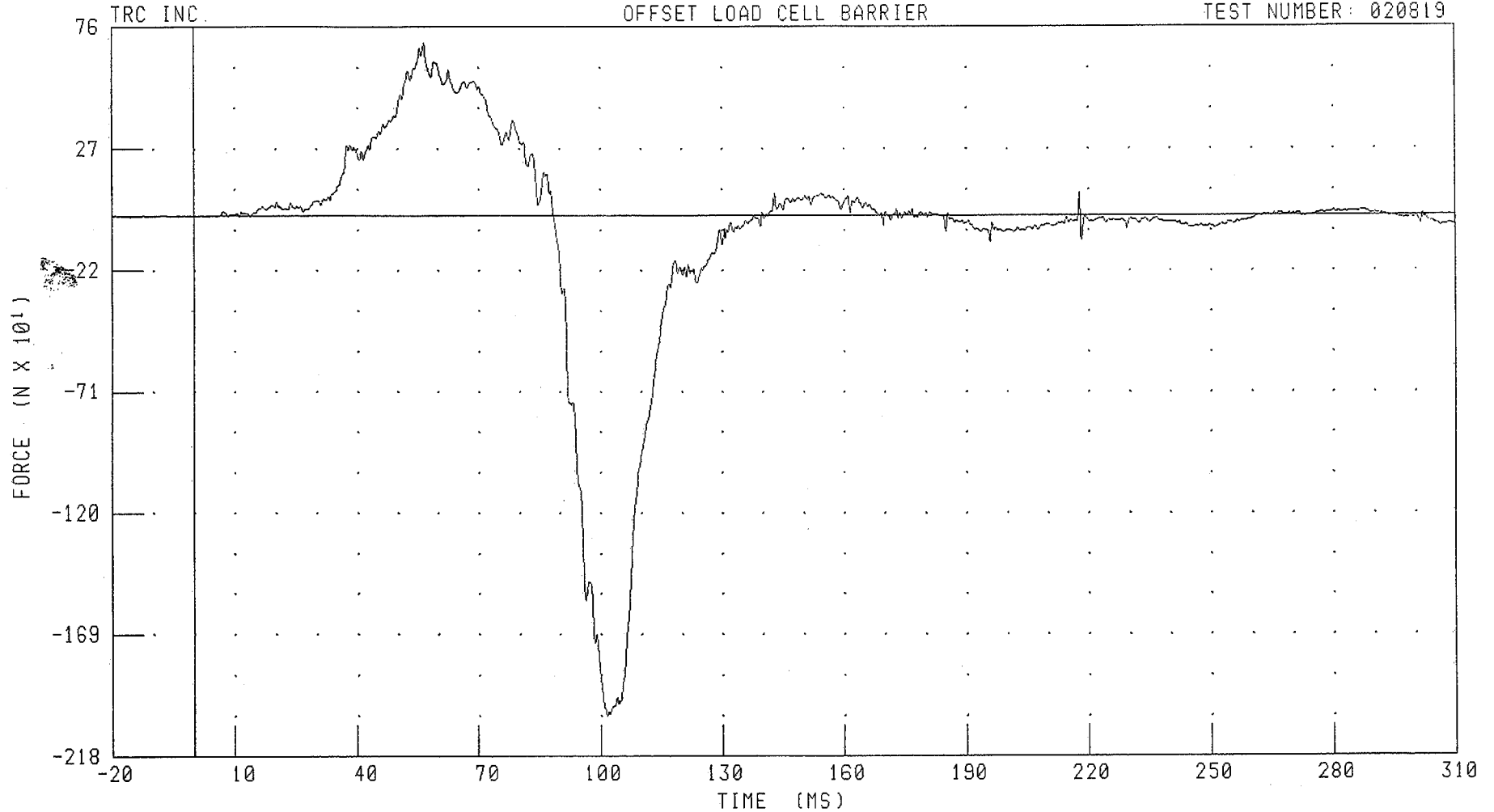
CHANNEL: LFMZF1 FILTER: CH. CLASS 600

PEAK DATA: 609.66 N @ 58.08 MS, -881.73 N @ 109.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT FEMUR FORCE  
OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



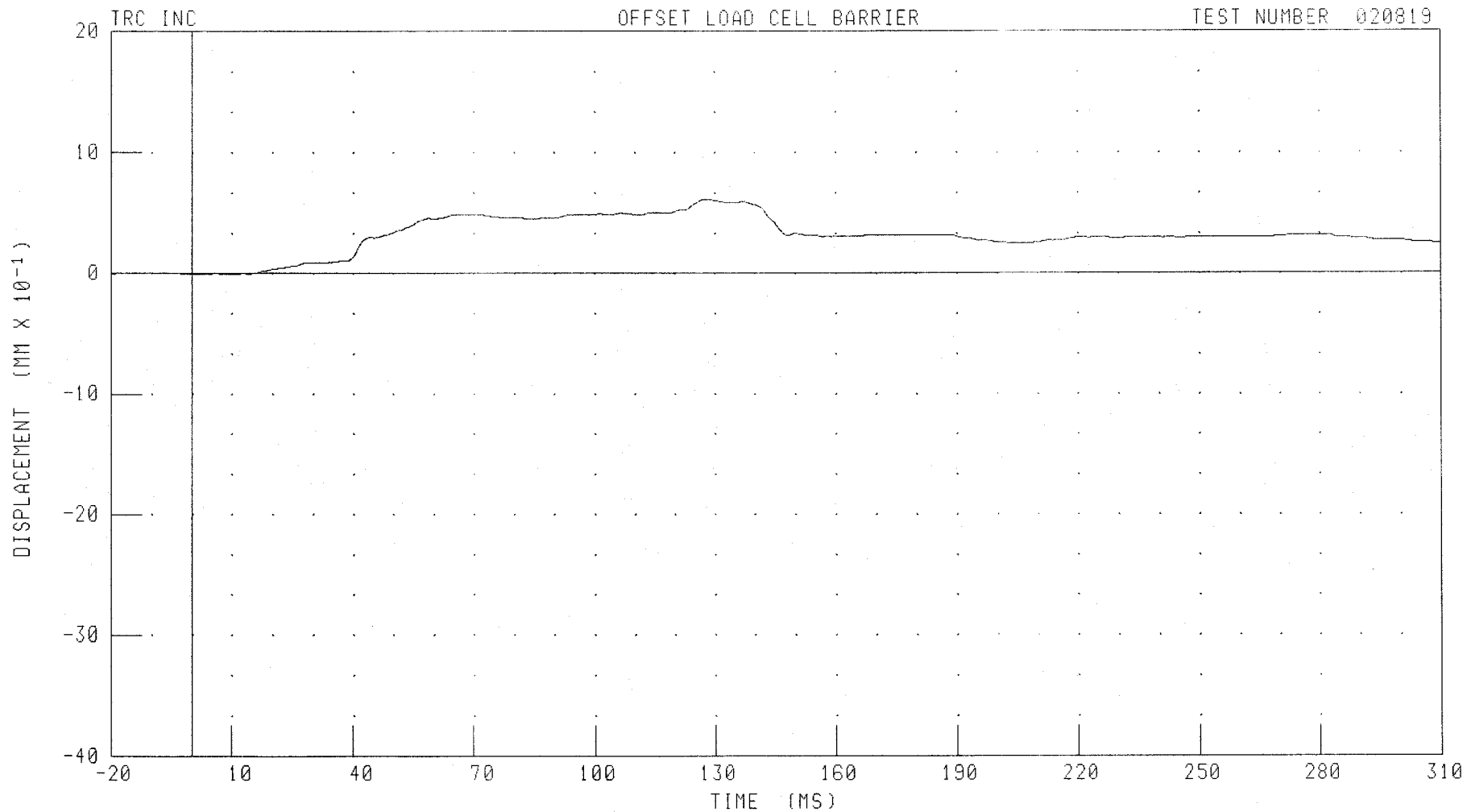
CHANNEL: RFMZFI FILTER: CH. CLASS 600

PEAK DATA: 692.97 N @ 56.64 MS; -2019.35 N @ 101.60 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT TIBIA TO FEMUR DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER 020819



CHANNEL: KNLXD1 FILTER: CH. CLASS 180

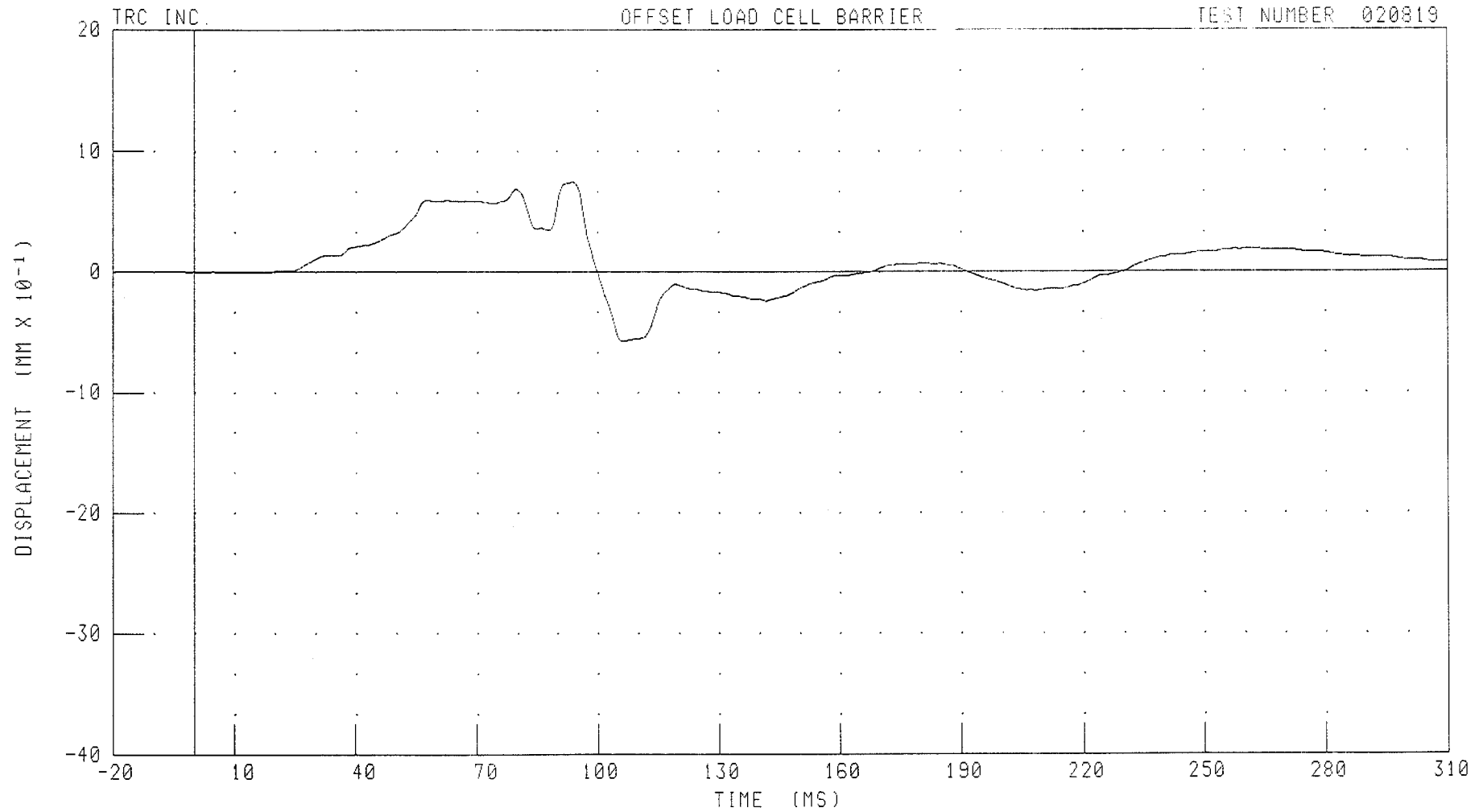
PEAK DATA: 0.61 MM @ 127.68 MS, -0.01 MM @ 10.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT TIBIA TO FEMUR DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER 020819



CHANNEL: KNRXD1 FILTER: CH. CLASS 180

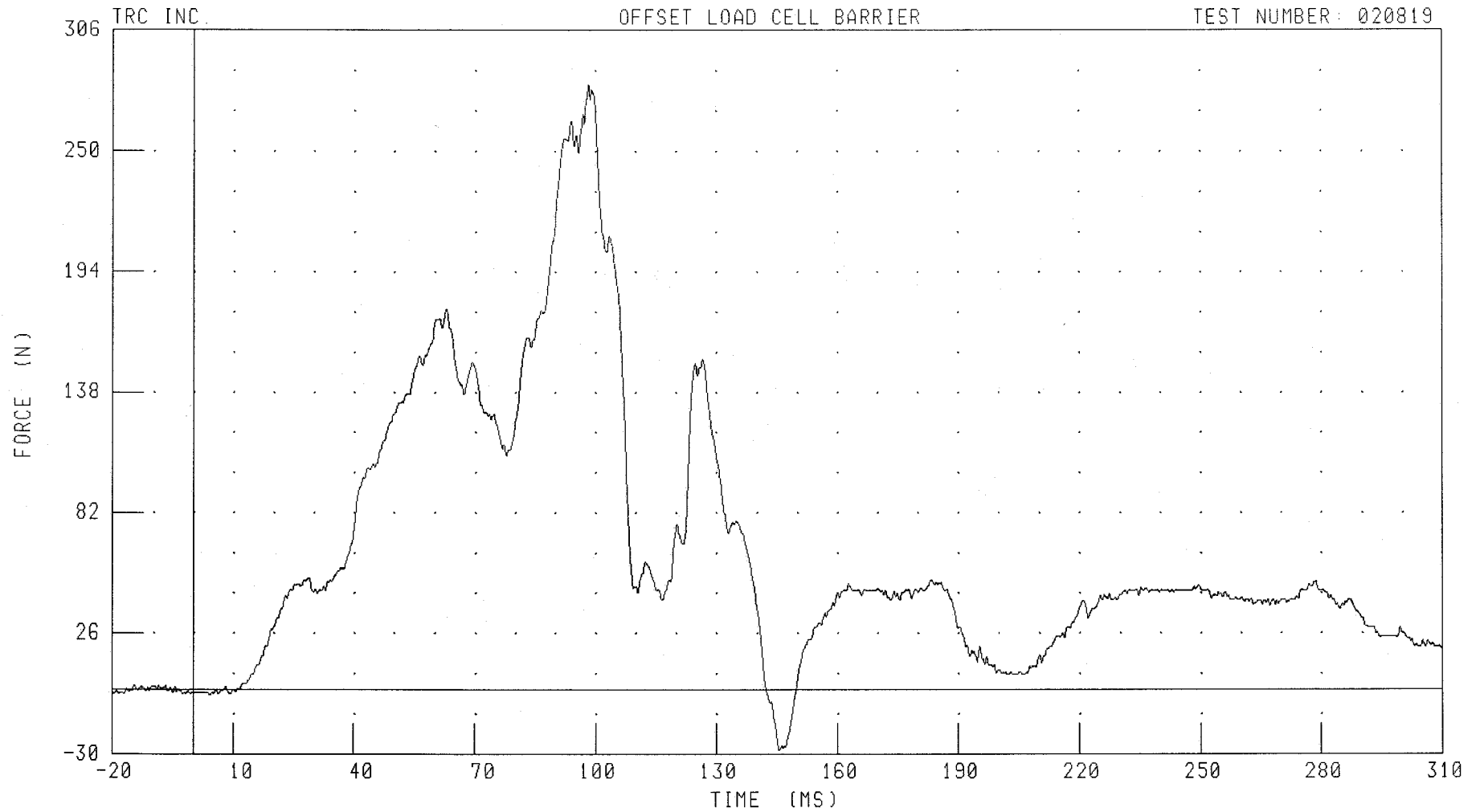
PEAK DATA: 0.75 MM @ 94.00 MS; -0.58 MM @ 106.32 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT UPPER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

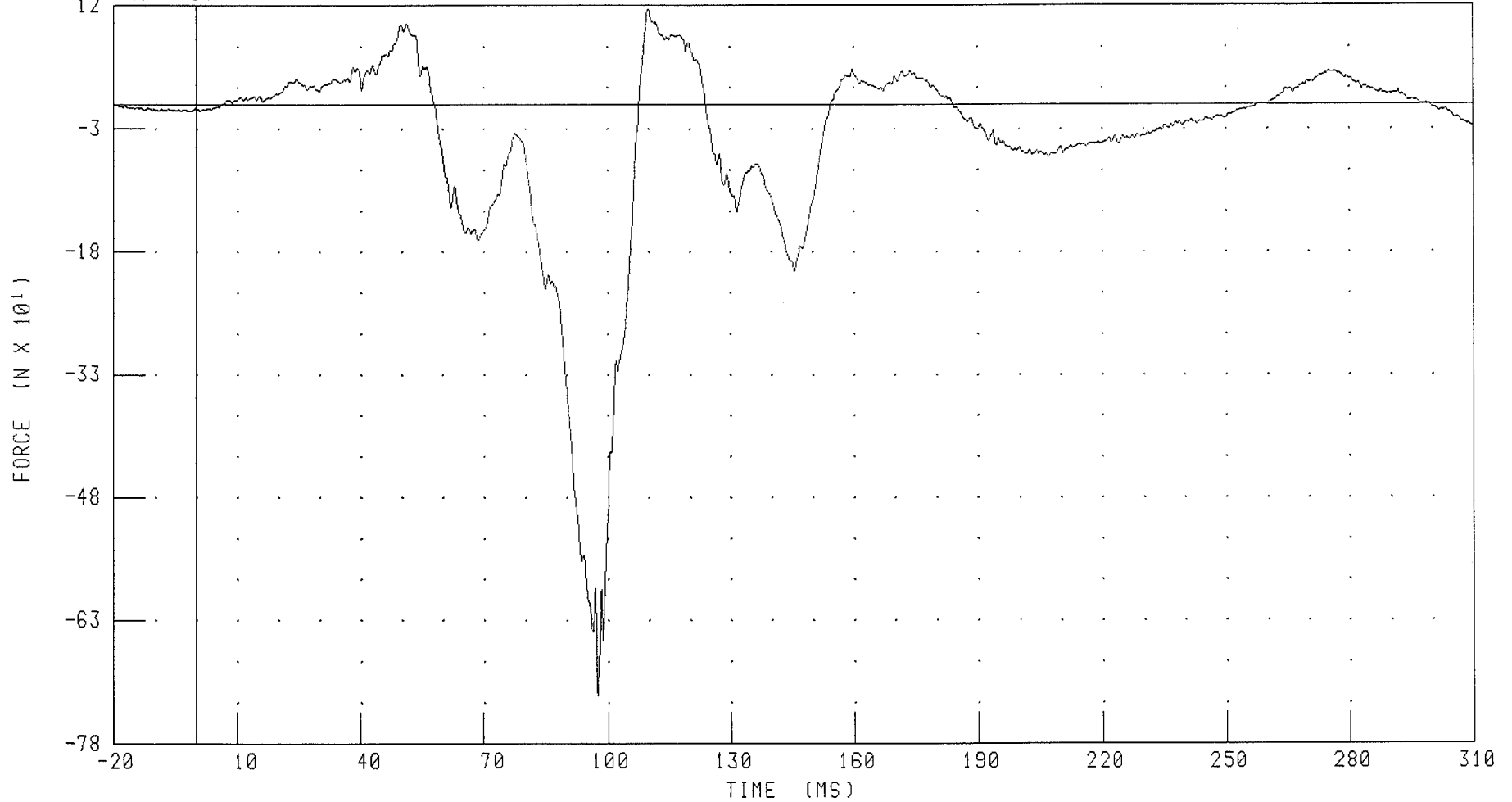


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT UPPER TIBIA Z-AXIS FORCE

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



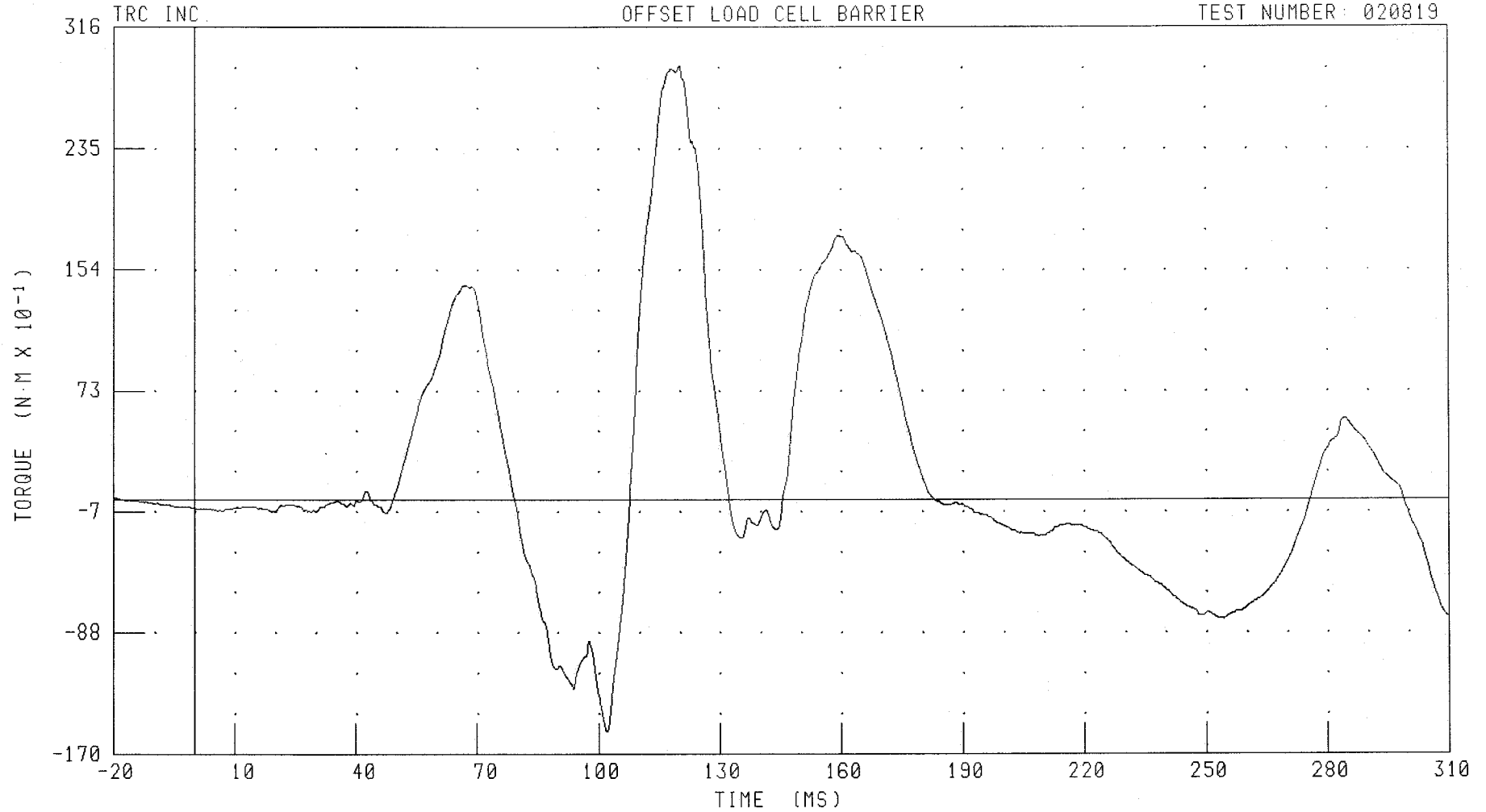
CHANNEL: TBLZF1 FILTER: CH. CLASS 600

PEAK DATA: 115.76 N @ 110.24 MS; -721.61 N @ 97.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



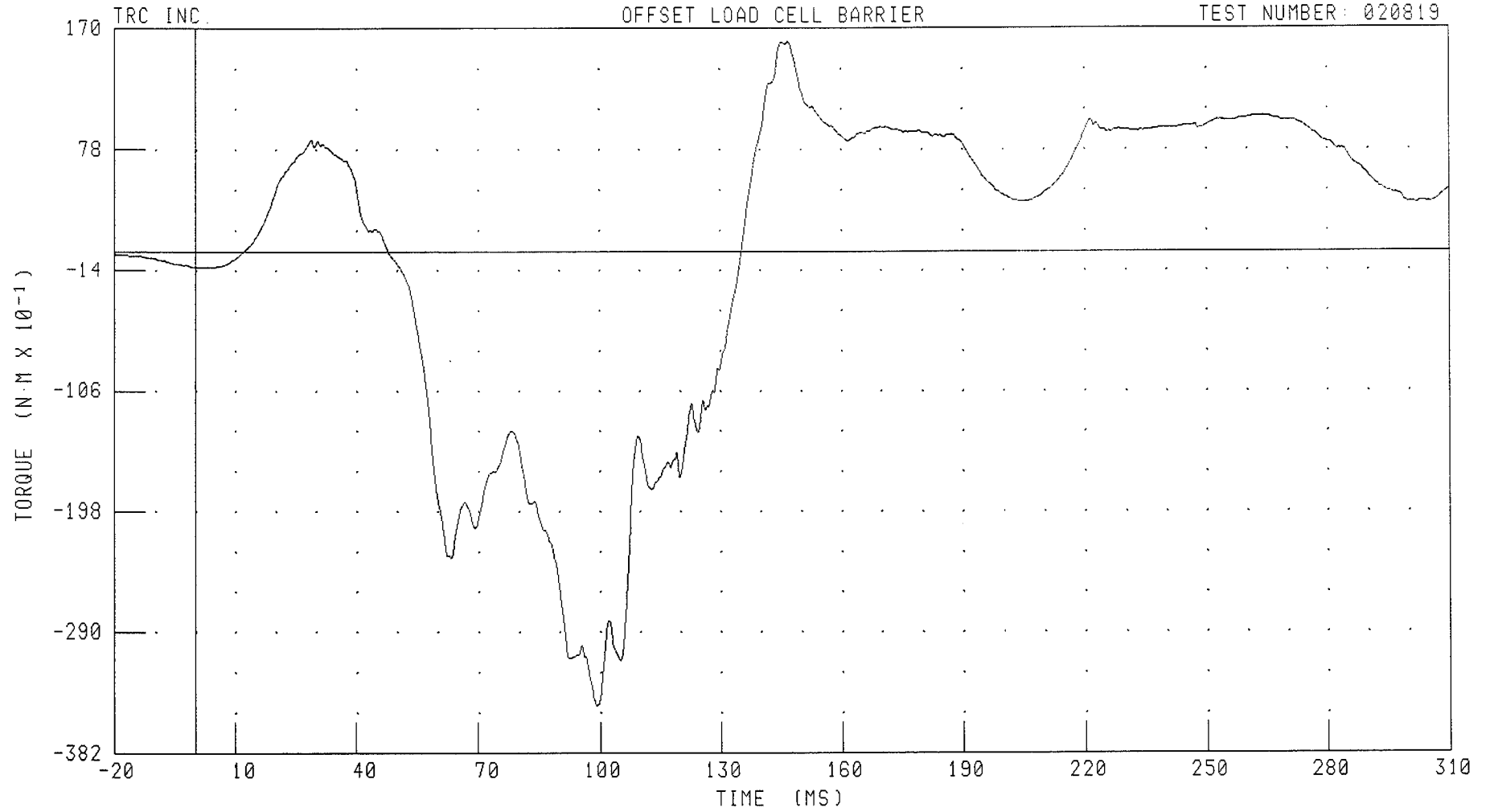
CHANNEL: TBLXM1 FILTER: CH. CLASS 600

PEAK DATA: 29.01 N·M @ 120.24 MS; -15.50 N·M @ 102.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBLYM1

FILTER: CH. CLASS 600

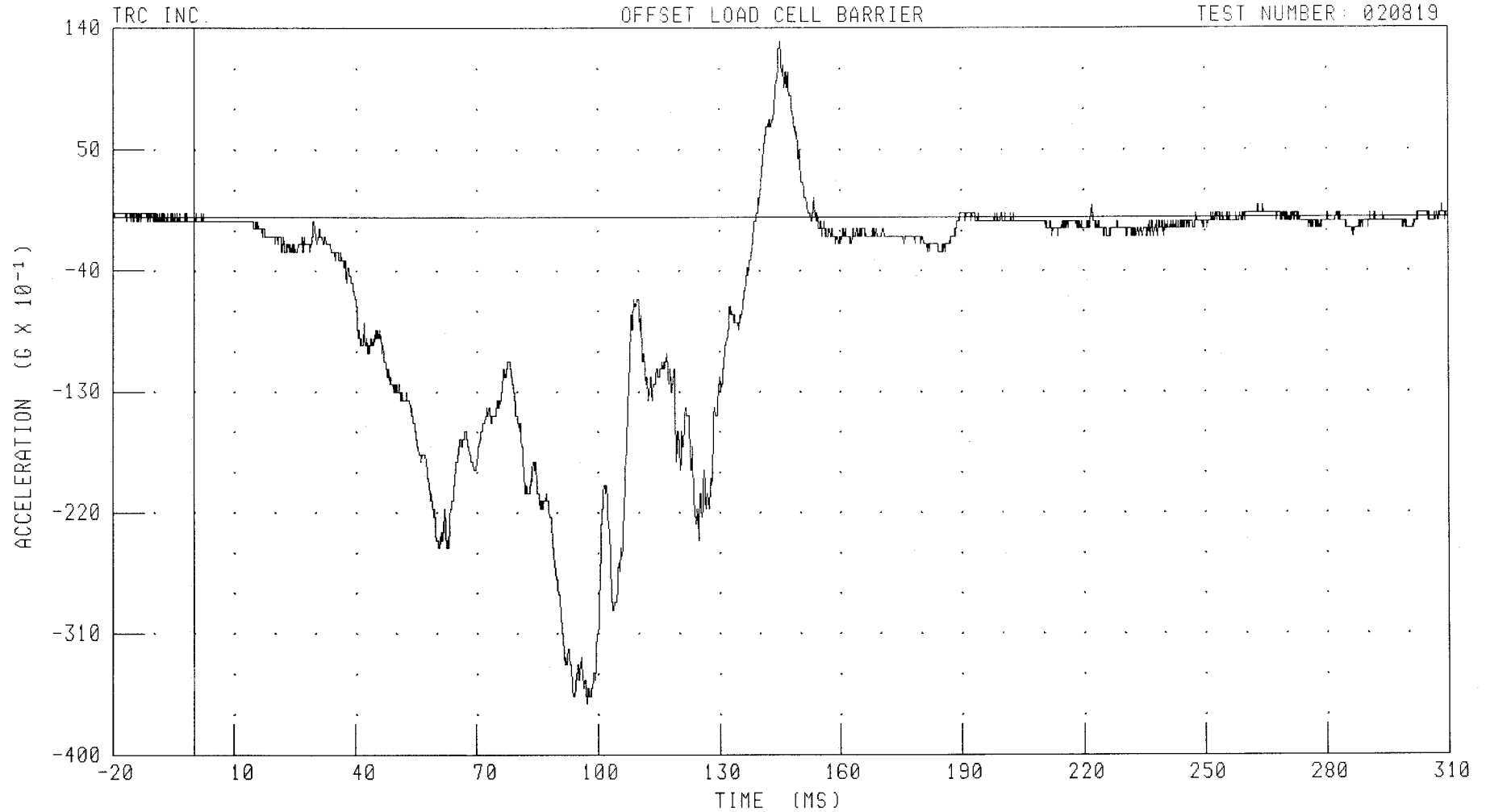
PEAK DATA: 15.98 N·M @ 147.04 MS; -34.64 N·M @ 99.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT TIBIA X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBLXG1 FILTER: CH. CLASS 1000

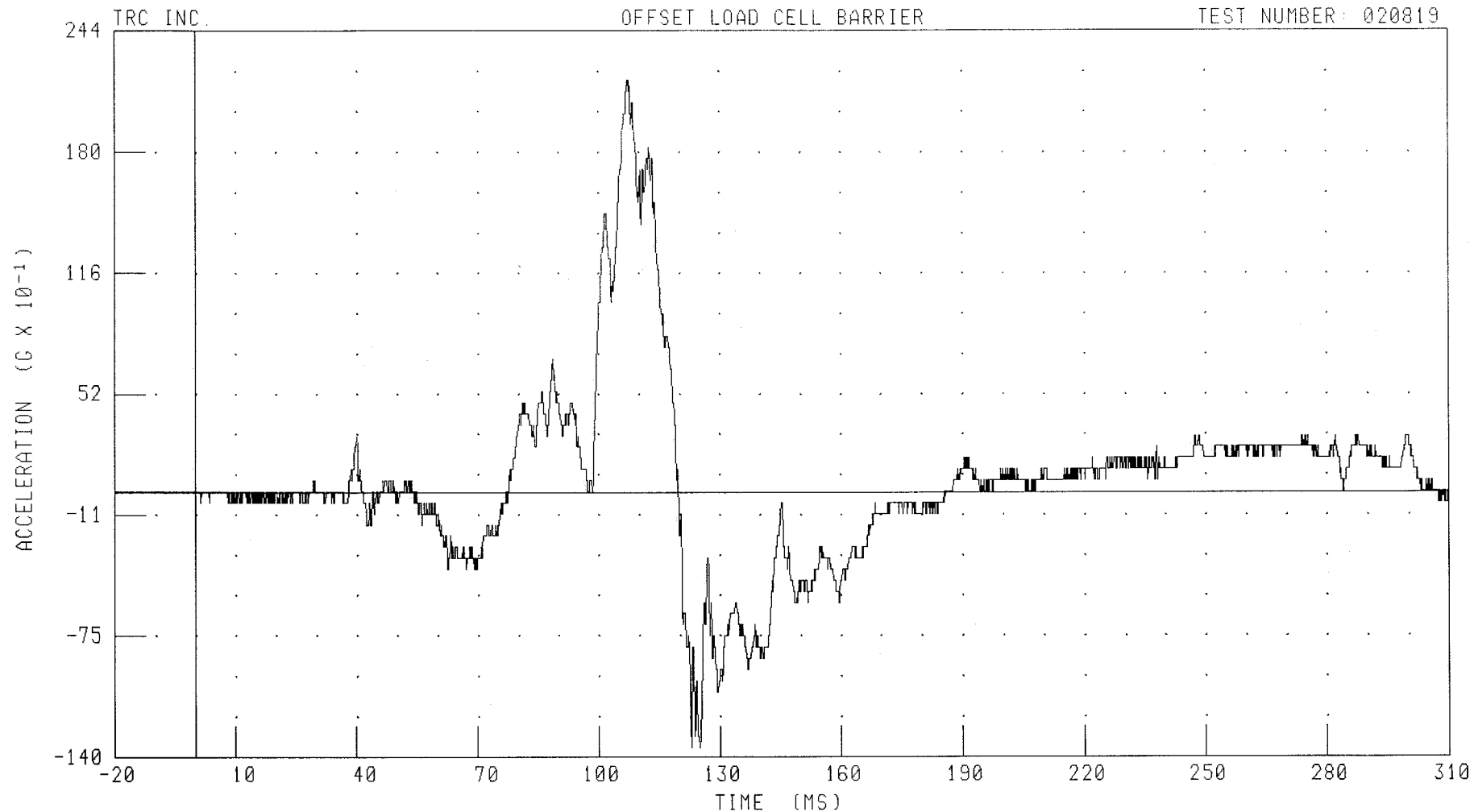
PEAK DATA: 13.05 G @ 145.28 MS; -36.21 G @ 97.28 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT TIBIA Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBLYG1 FILTER: CH. CLASS 1000

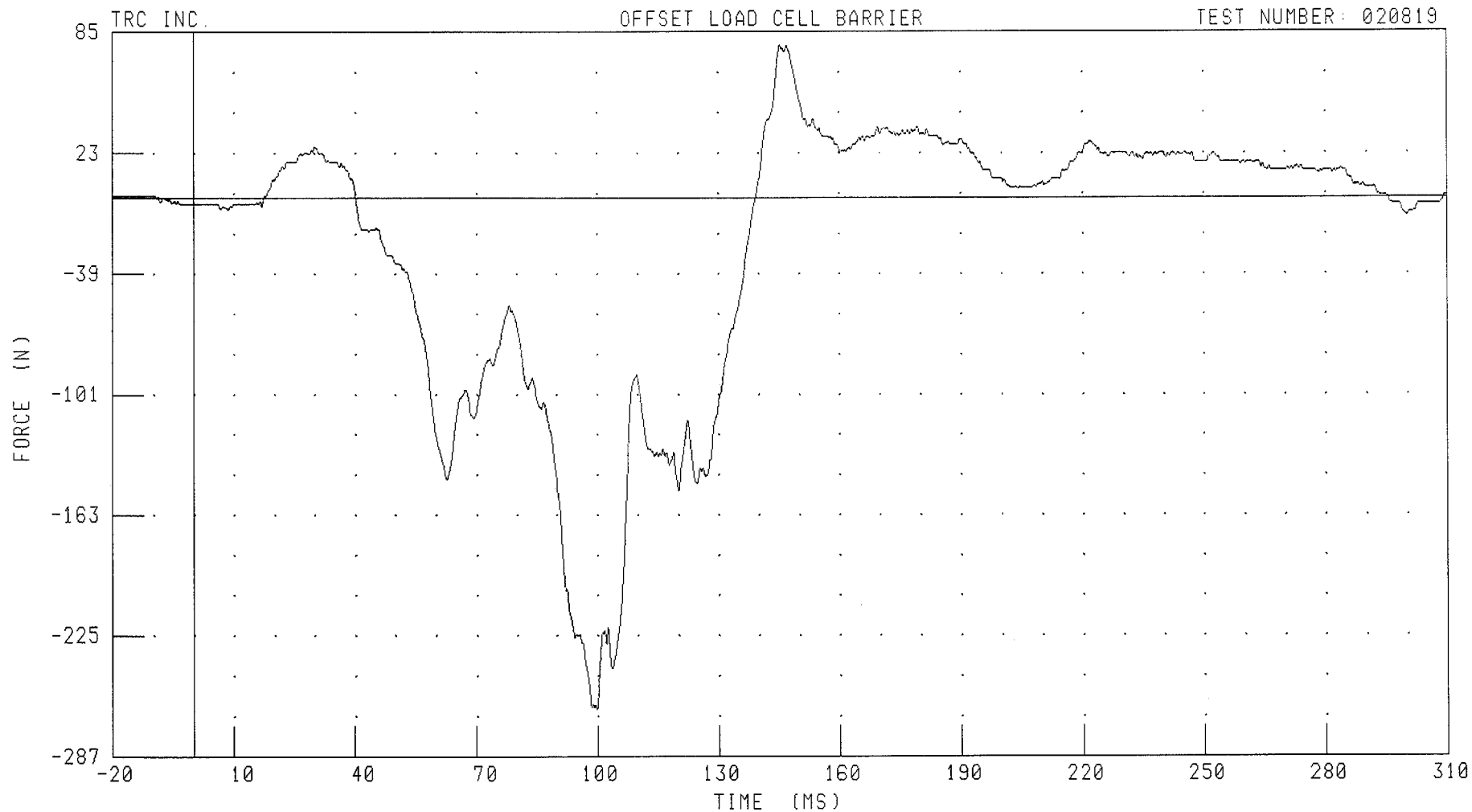
PEAK DATA: 21.82 G @ 107.20 MS; -13.51 G @ 122.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT LOWER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANLXF1 FILTER: CH. CLASS 600

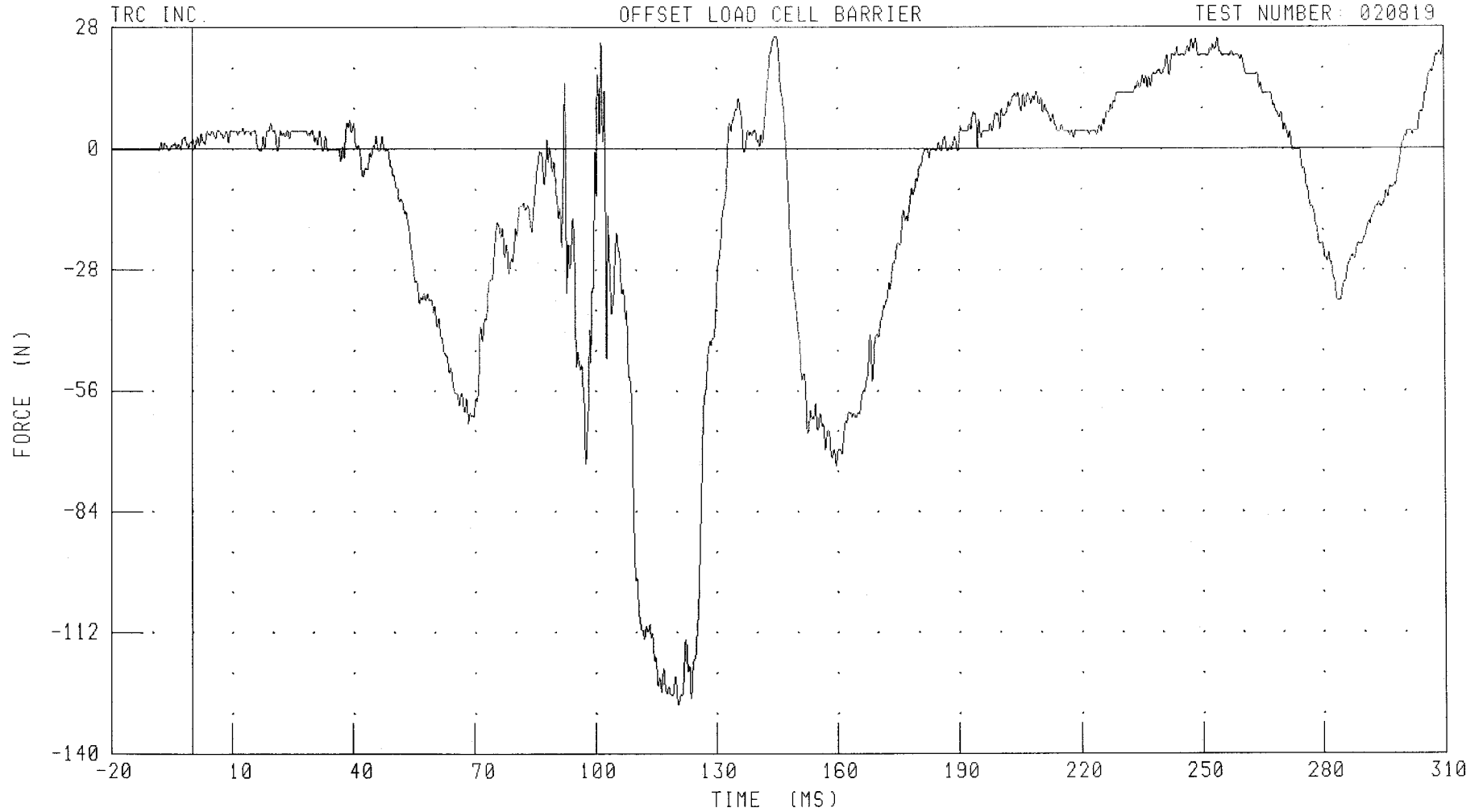
PEAK DATA: 78.18 N @ 145.52 MS; -262.92 N @ 99.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT LOWER TIBIA Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

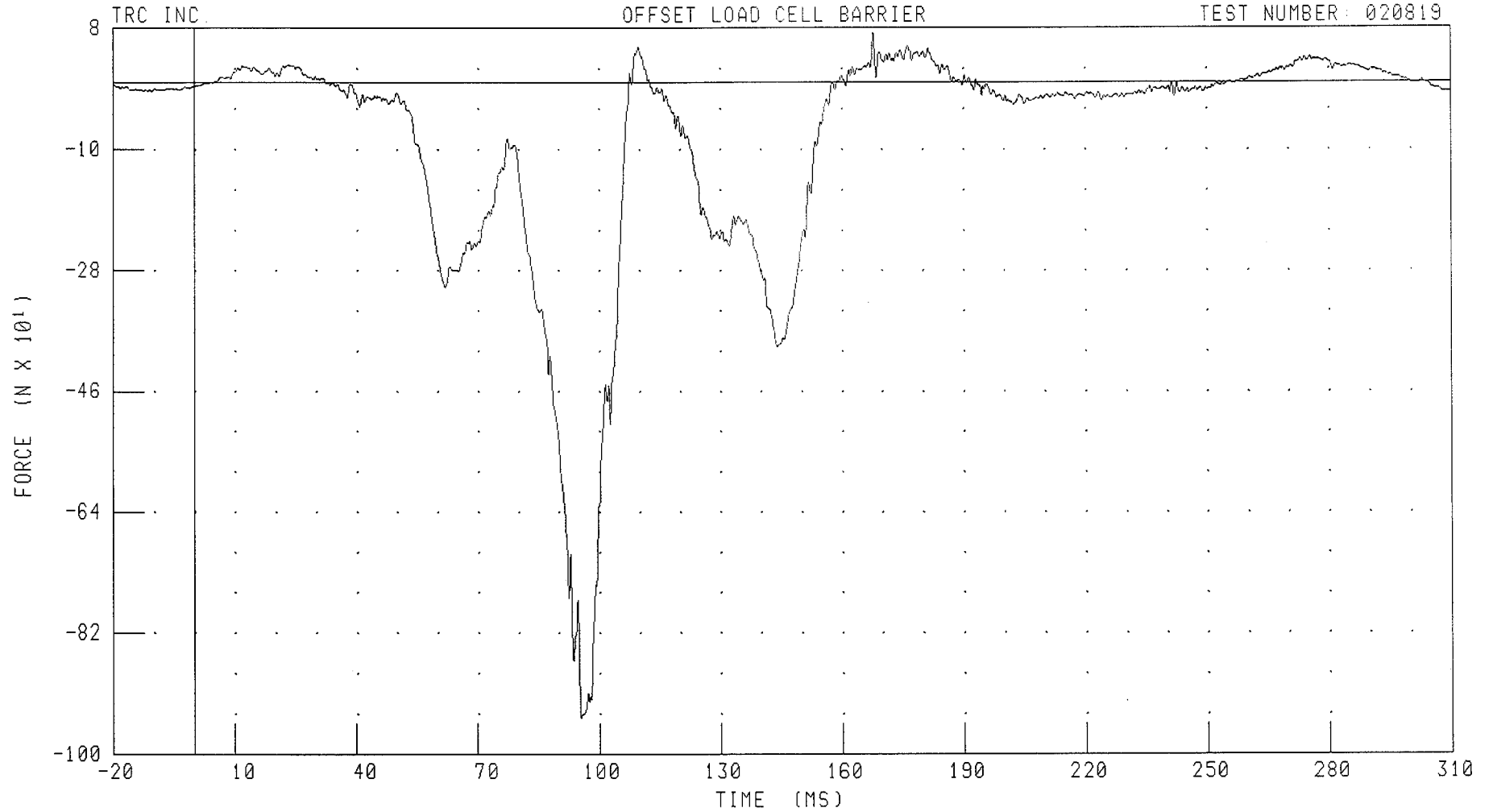


CHANNEL: ANLYF1 FILTER: CH. CLASS 600

PEAK DATA: 25.99 N @ 144.80 MS; -128.75 N @ 120.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

TEST NUMBER: 020819



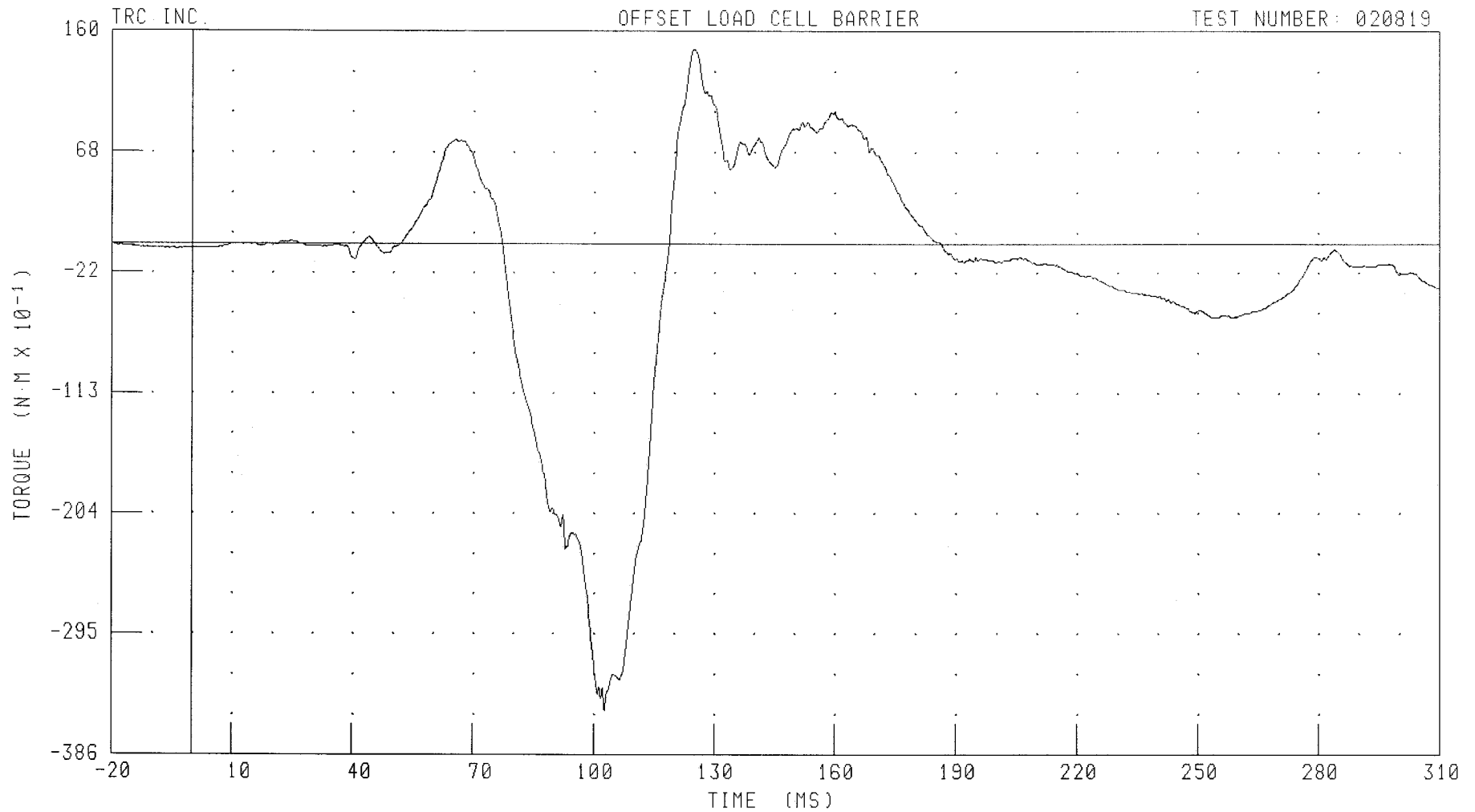
CHANNEL: ANLZF1 FILTER: CH. CLASS 600

PEAK DATA: 73.14 N @ 168.00 MS; -947.20 N @ 95.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANLXM1

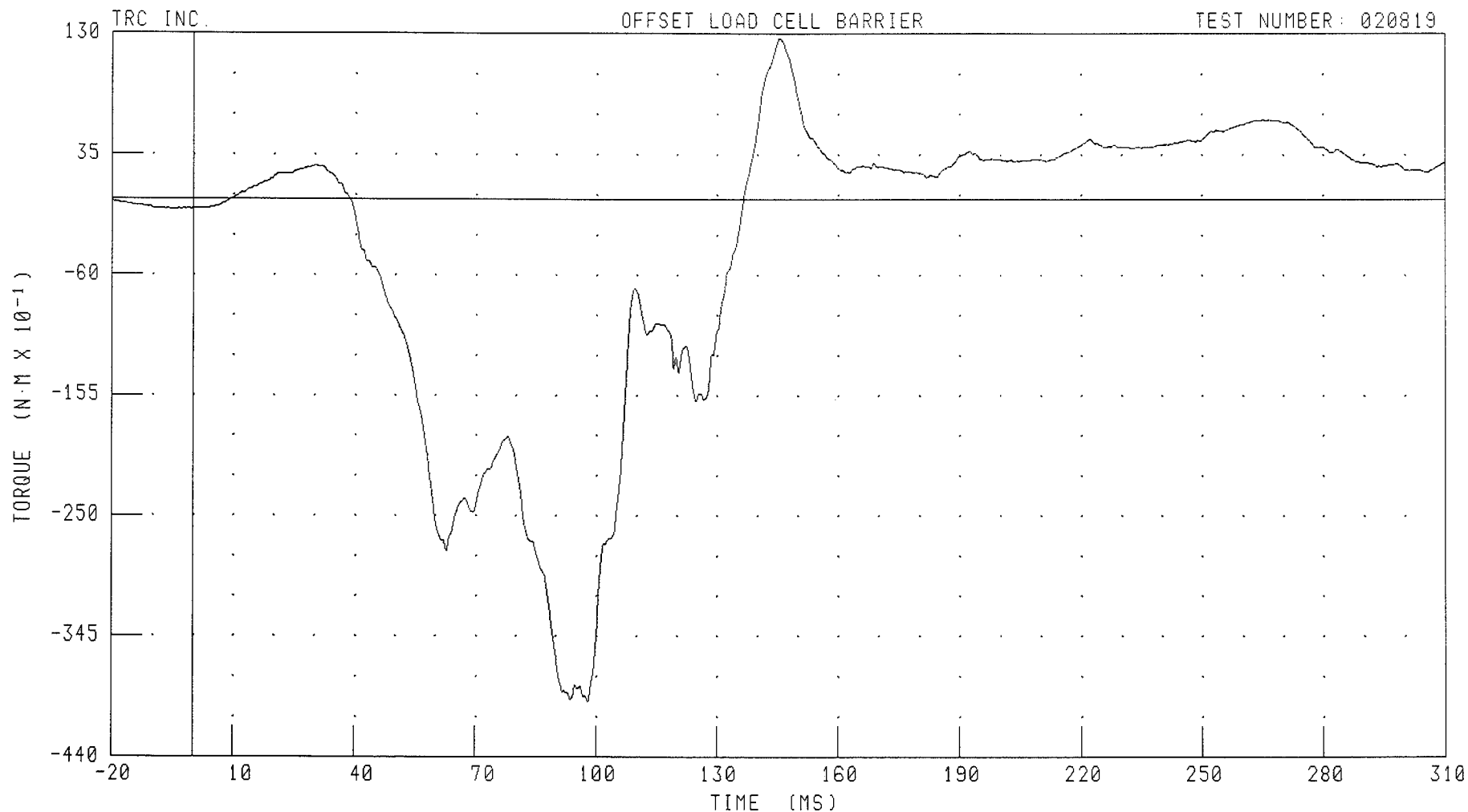
FILTER: CH. CLASS 600

PEAK DATA: 14.62 N·M @ 125.04 MS; -35.27 N·M @ 102.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANLYM1

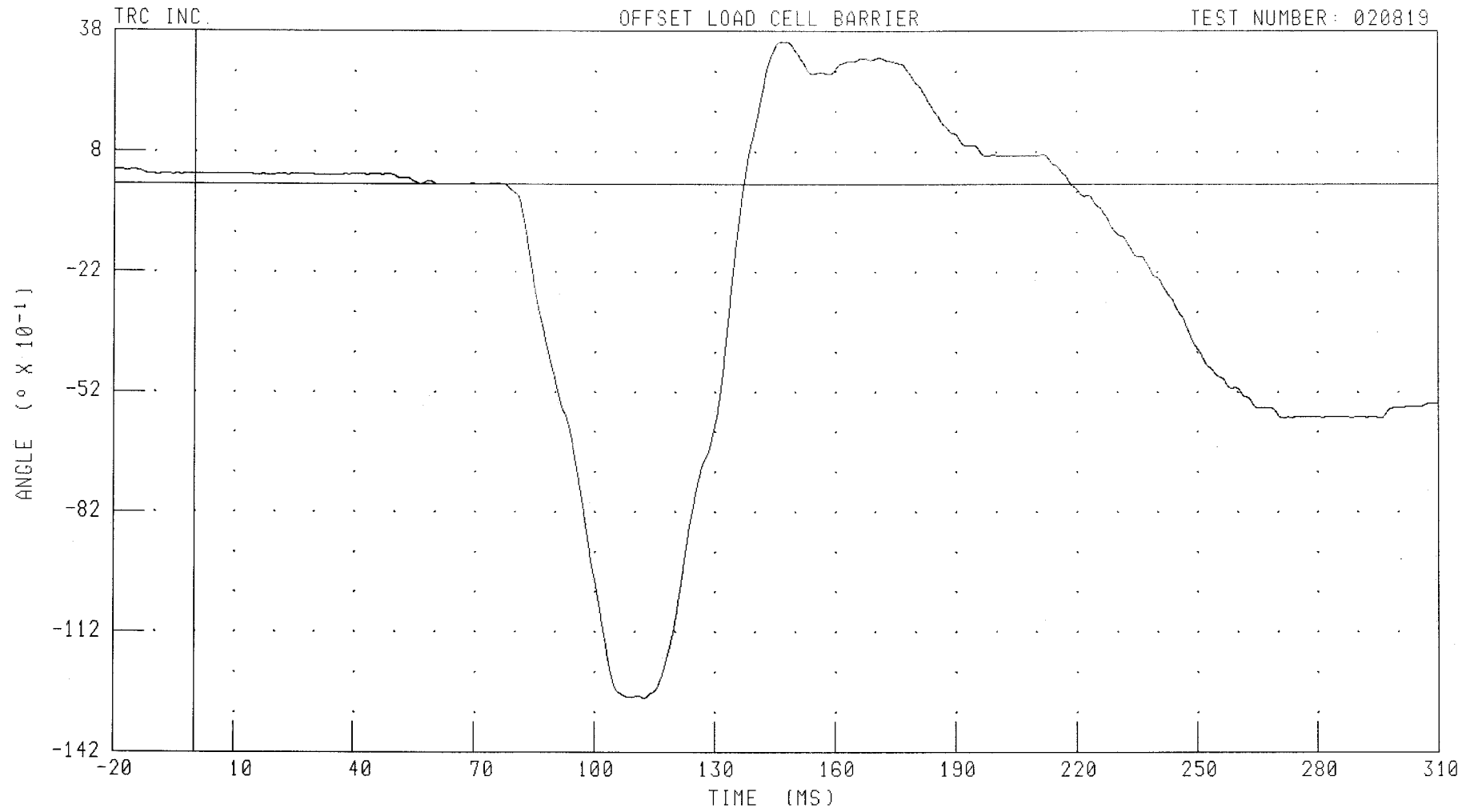
FILTER: CH. CLASS 600

PEAK DATA: 12.65 N·M @ 145.60 MS; -39.67 N·M @ 98.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT FOOT TO ANKLE X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLXD1

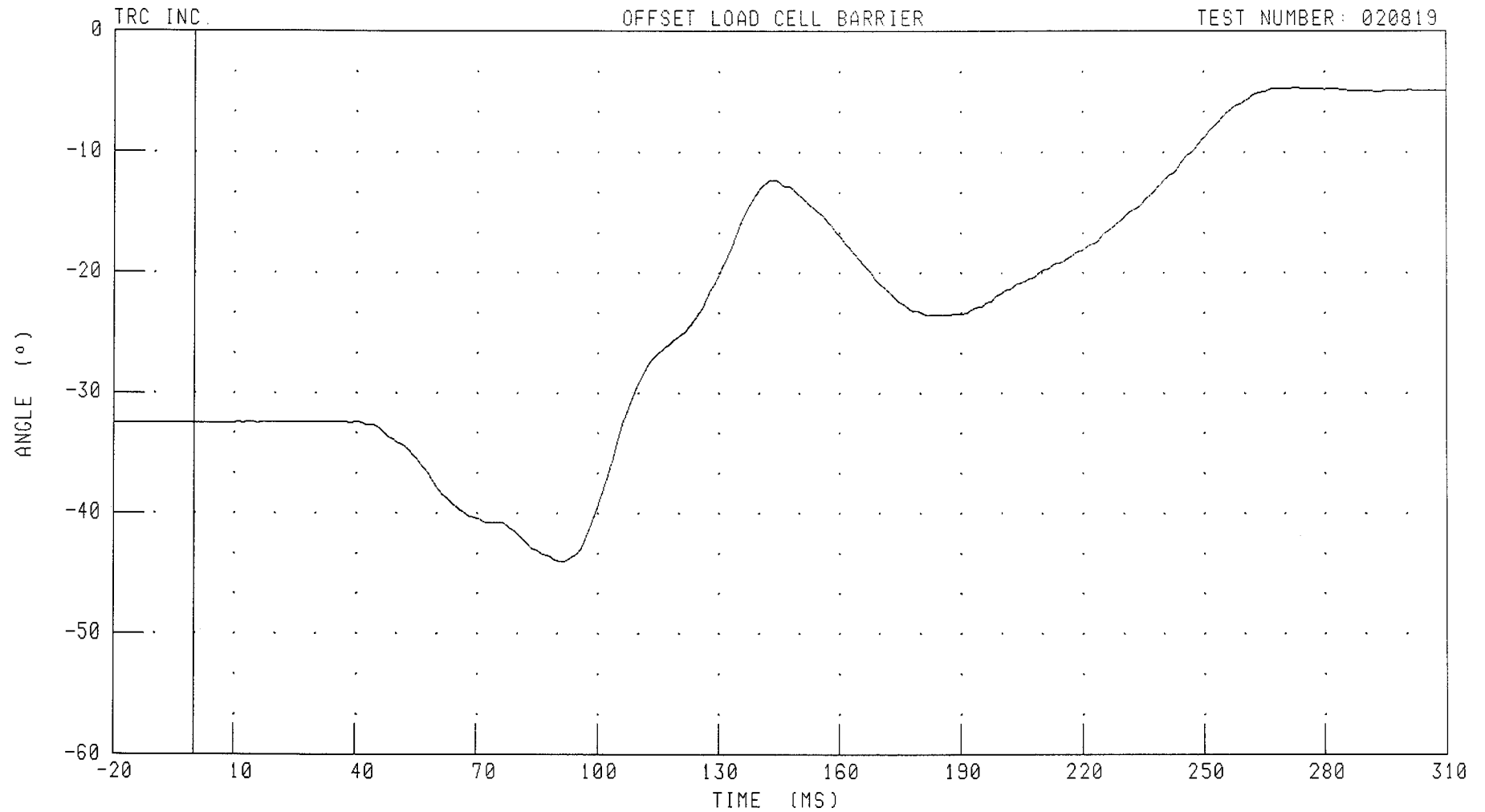
FILTER: CH. CLASS 180

PEAK DATA: 3.54 ° @ 147.04 MS; -12.86 ° @ 112.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT FOOT TO ANKLE Y-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



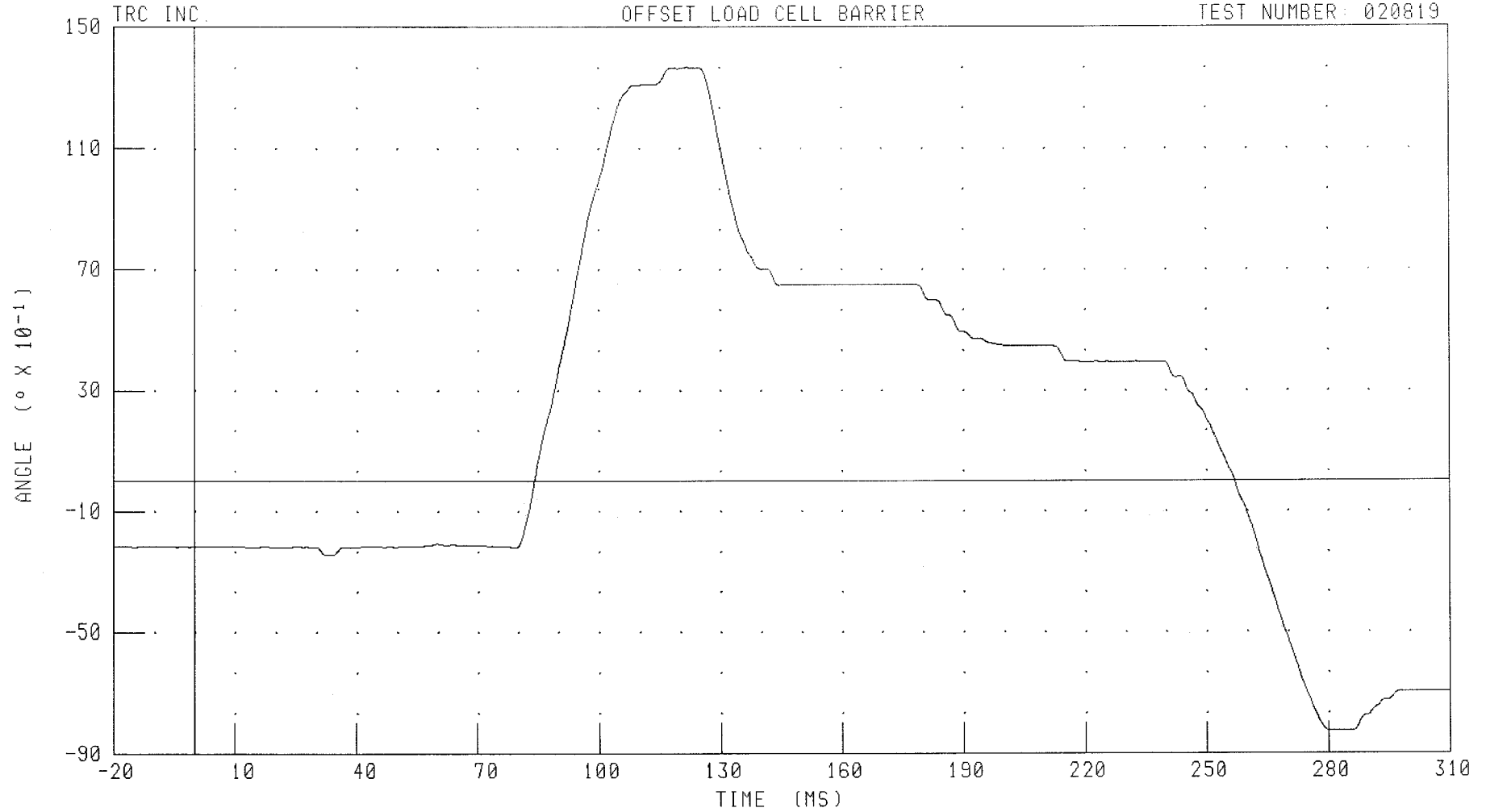
CHANNEL: FTLYD1 FILTER: CH. CLASS 180

PEAK DATA: -4.67 ° @ 273.04 MS; -44.02 ° @ 91.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT FOOT TO ANKLE Z-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLZD1 FILTER: CH. CLASS 180

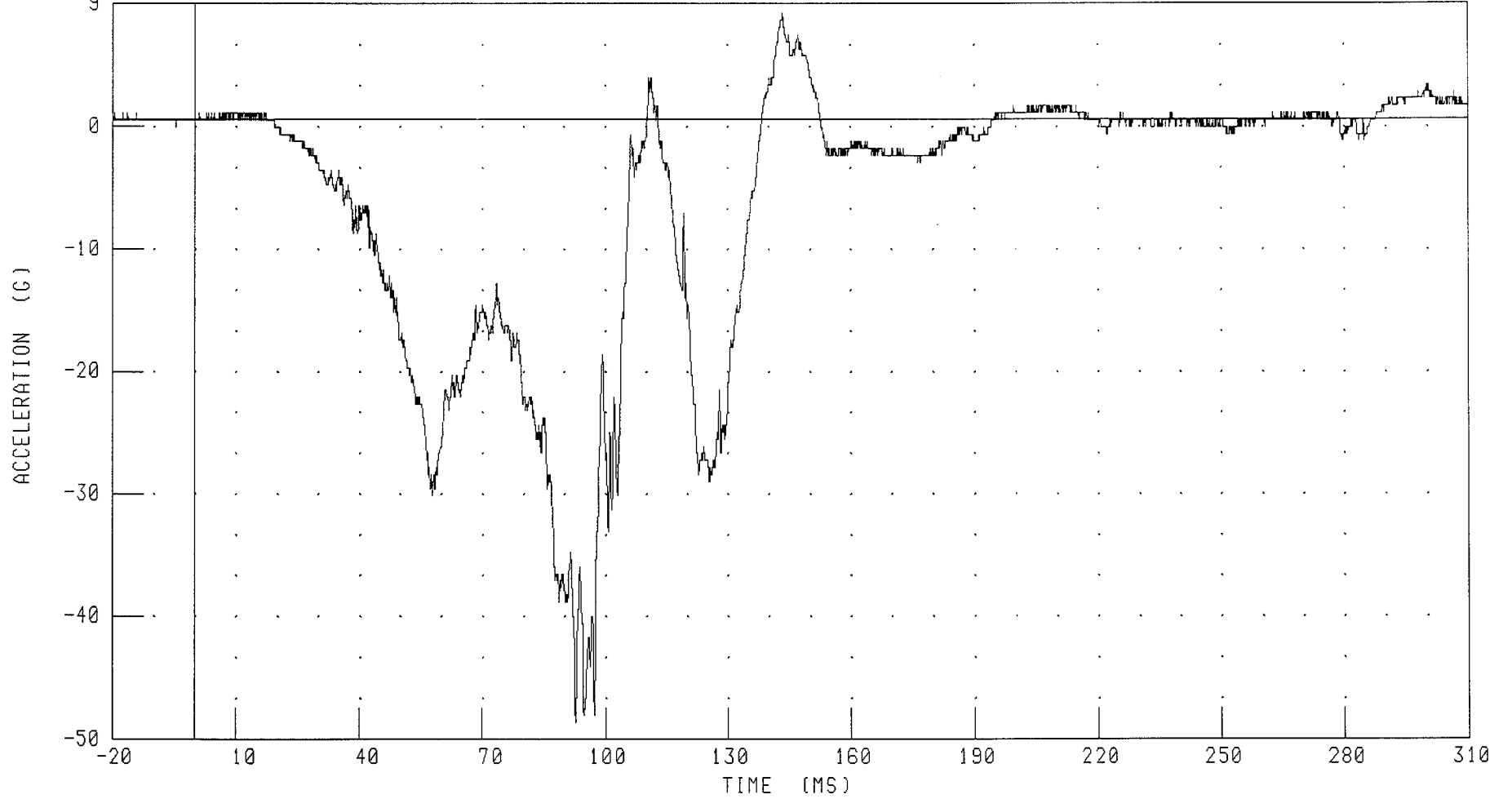
PEAK DATA: 13.67 ° @ 122.00 MS; -8.26 ° @ 285.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT FOOT X-AXIS ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLXG1 FILTER: CH. CLASS 1000

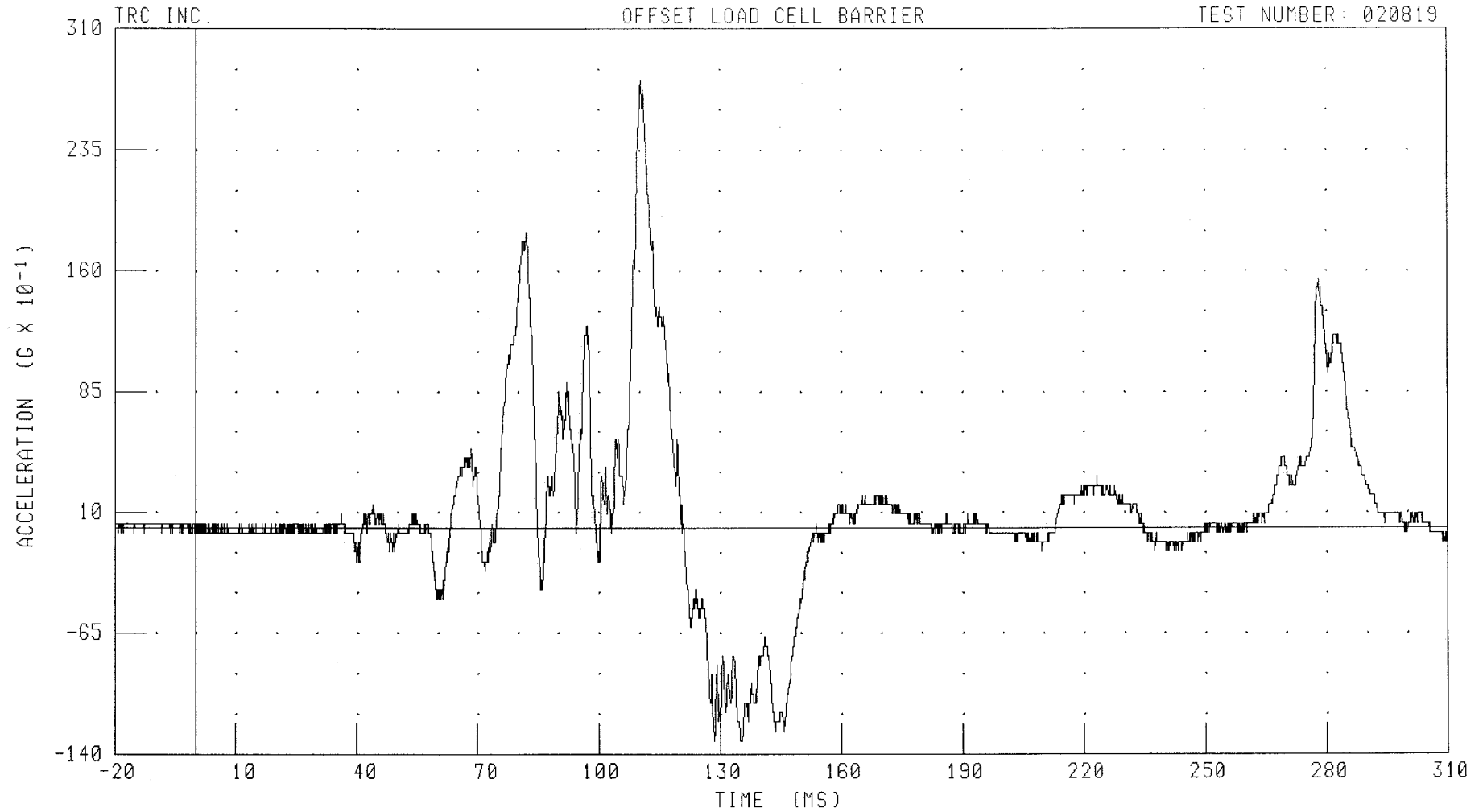
PEAK DATA: 8.63 G @ 143.52 MS; -49.28 G @ 92.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLYG1 FILTER: CH. CLASS 1000

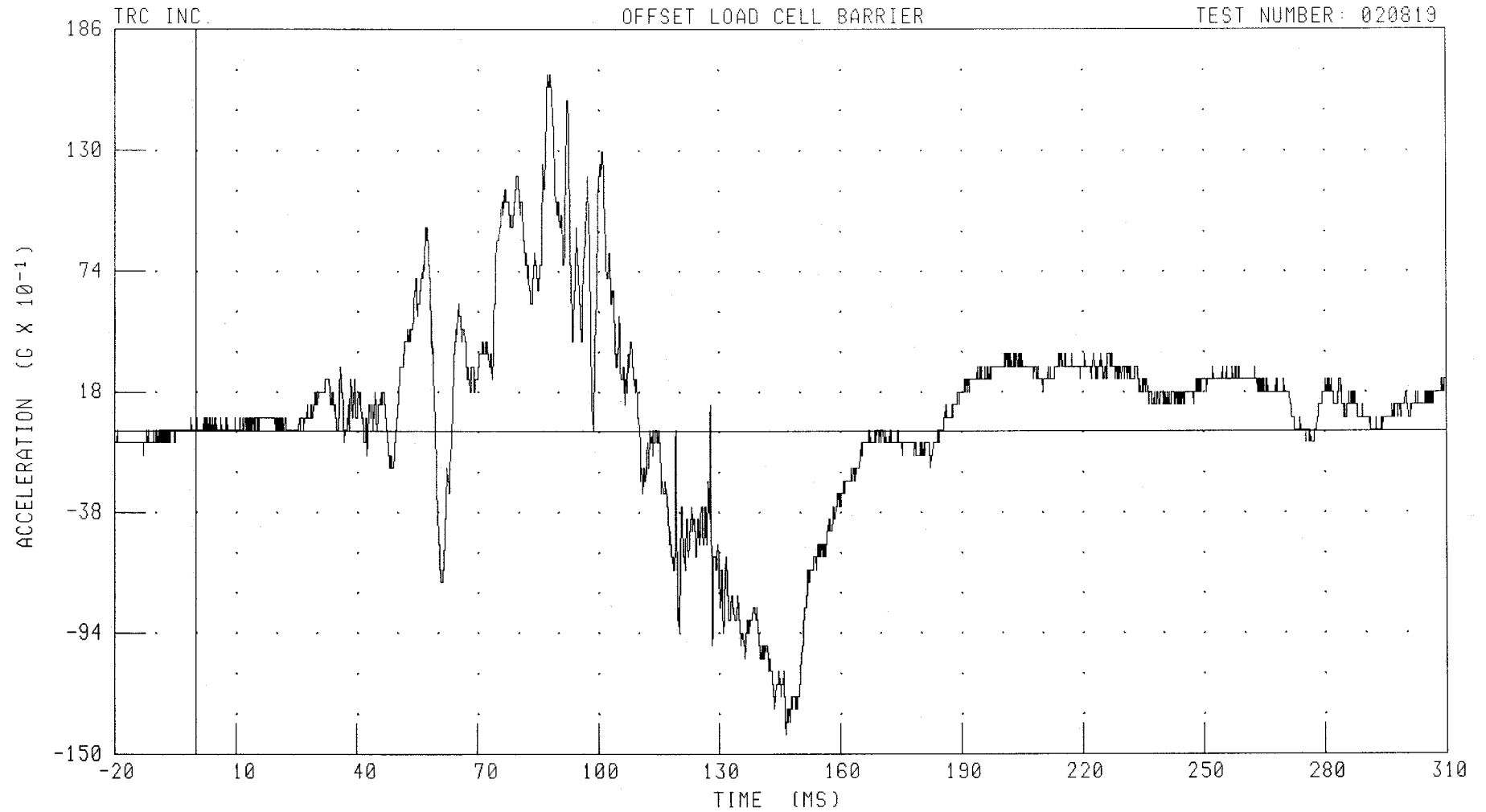
PEAK DATA: 27.85 G @ 110.40 MS; -13.17 G @ 128.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LEFT FOOT Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLZG1 FILTER: CH. CLASS 1000

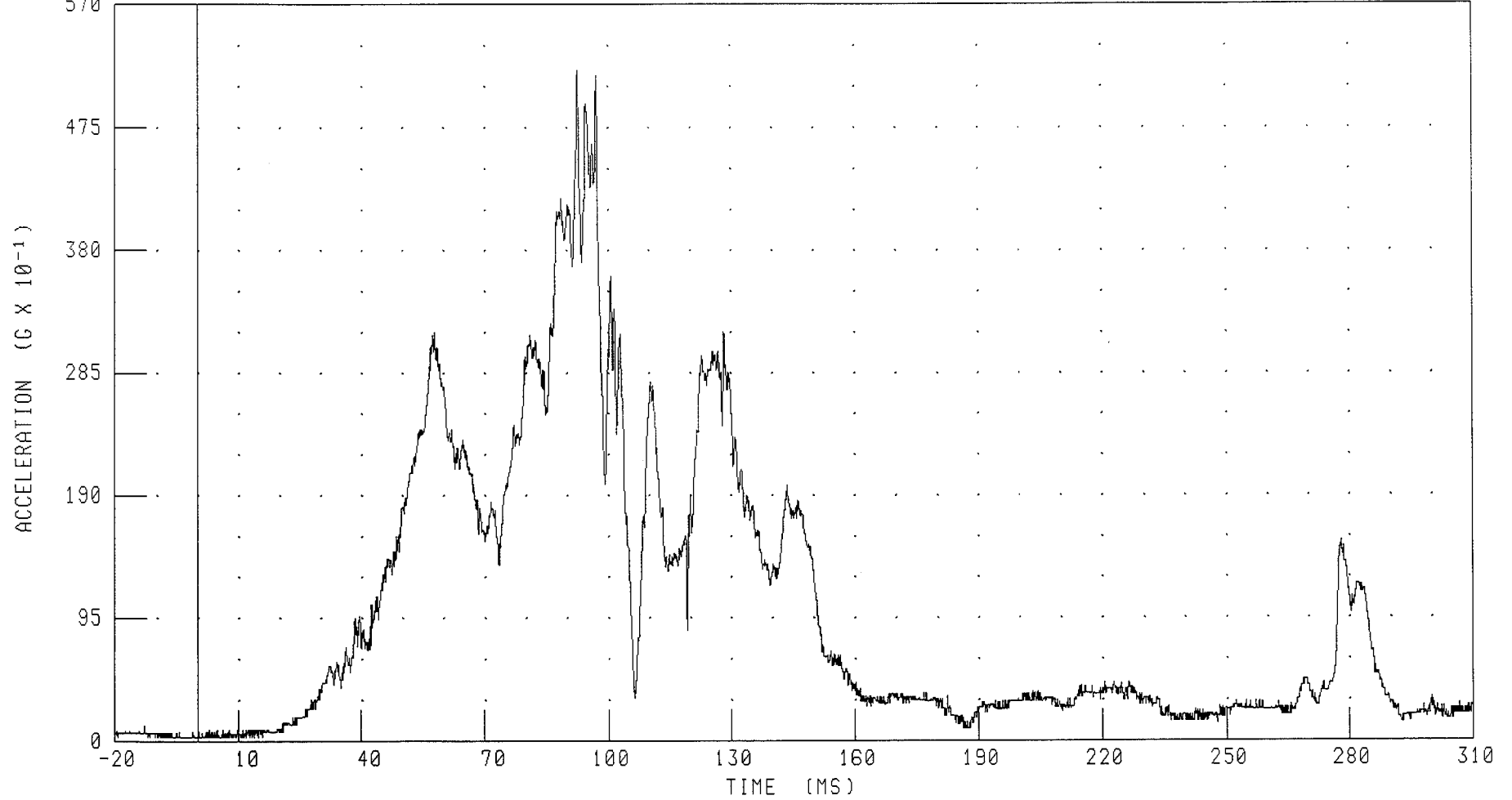
PEAK DATA: 16.53 G @ 87.44 MS; -14.12 G @ 146.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER LEFT FOOT RESULTANT ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLRG1 FILTER: CH. CLASS 1000

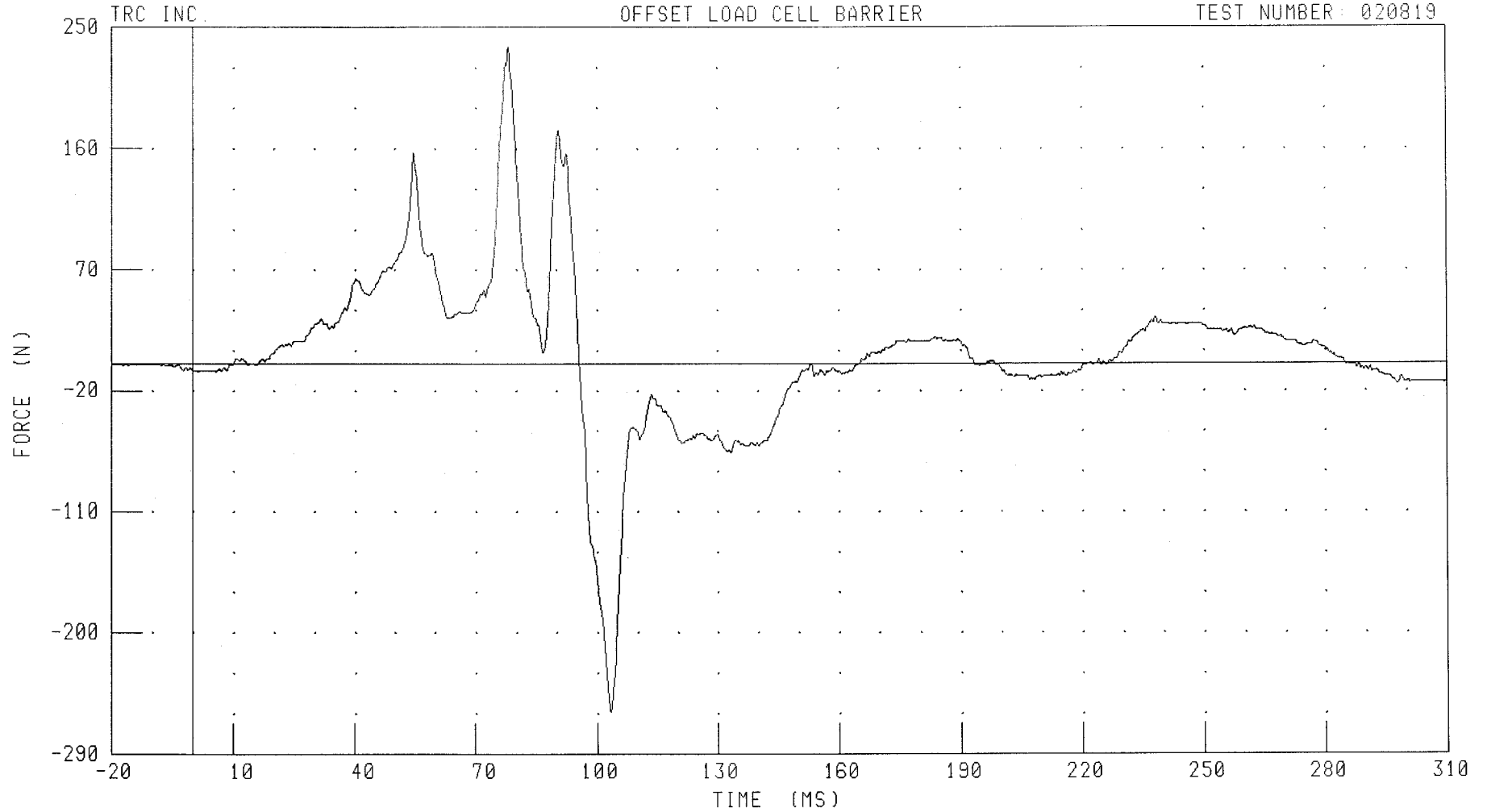
PEAK DATA: 51.98 G @ 92.64 MS; 0.29 G @ -6.40 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT UPPER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



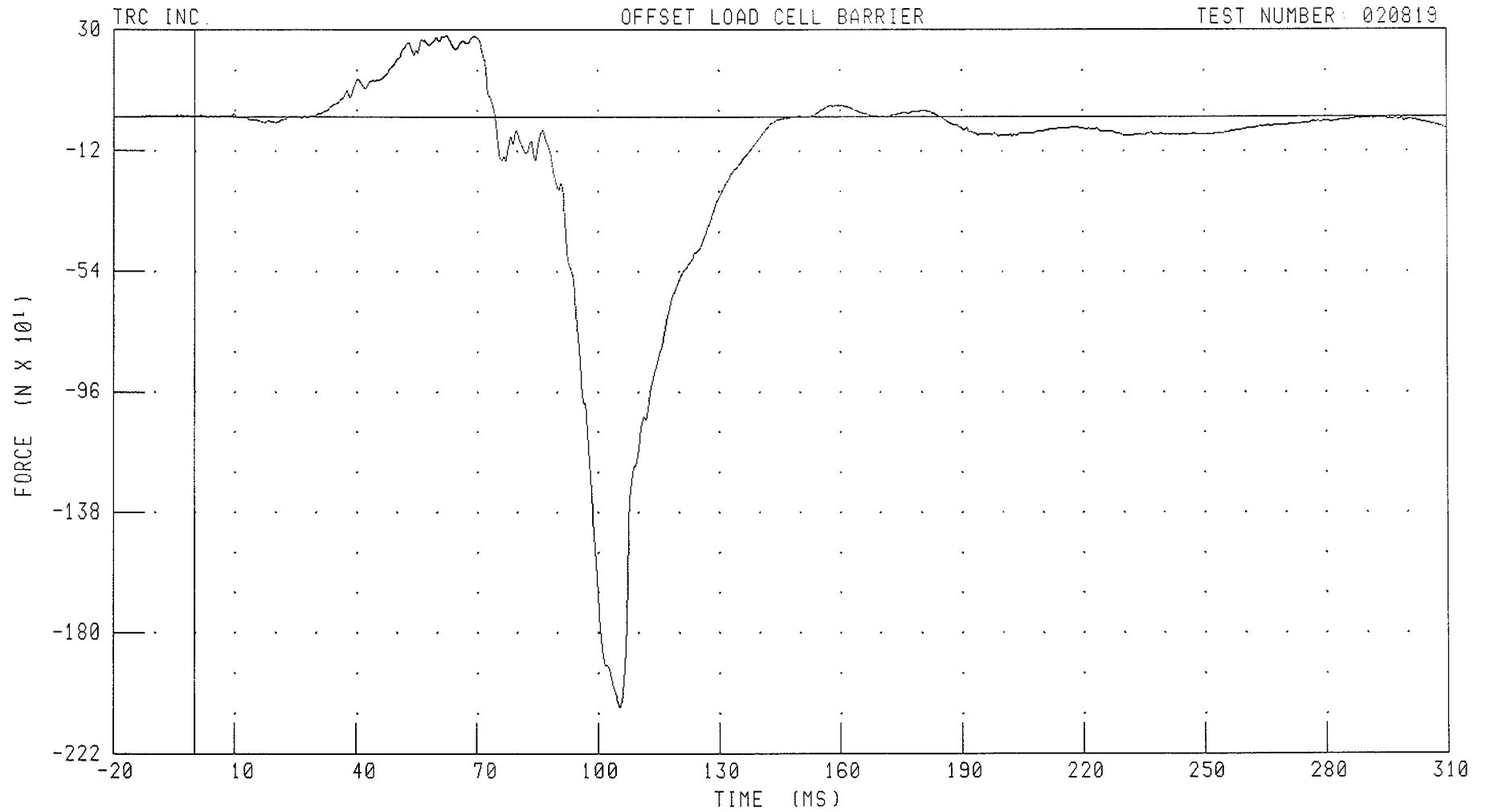
CHANNEL: TBRXF1 FILTER: CH. CLASS 600

PEAK DATA: 235.43 N @ 78.24 MS; -258.72 N @ 103.36 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT UPPER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



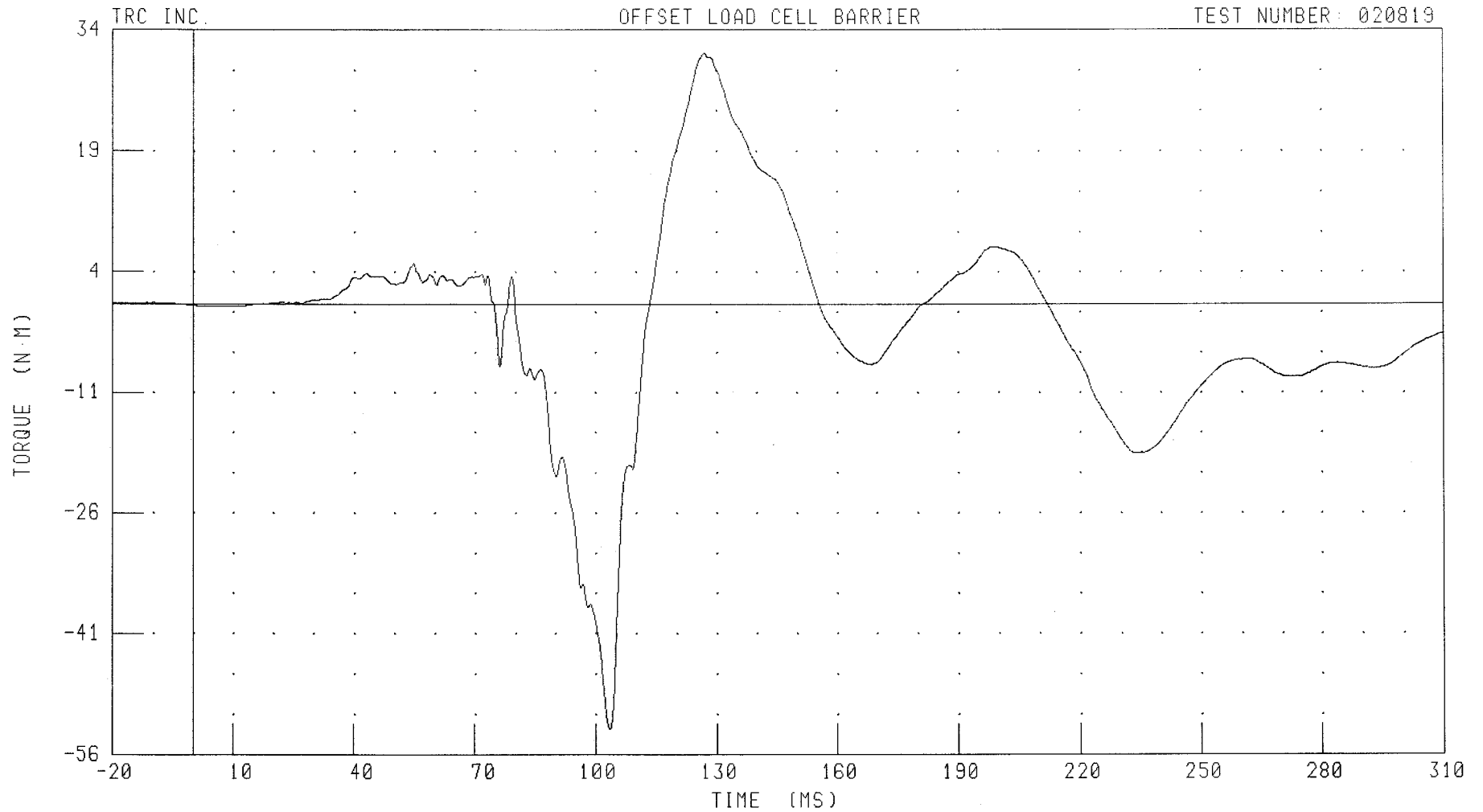
CHANNEL: TBRZF1 FILTER: CH. CLASS 600

PEAK DATA: 281.22 N @ 62.40 MS; -2058.95 N @ 105.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



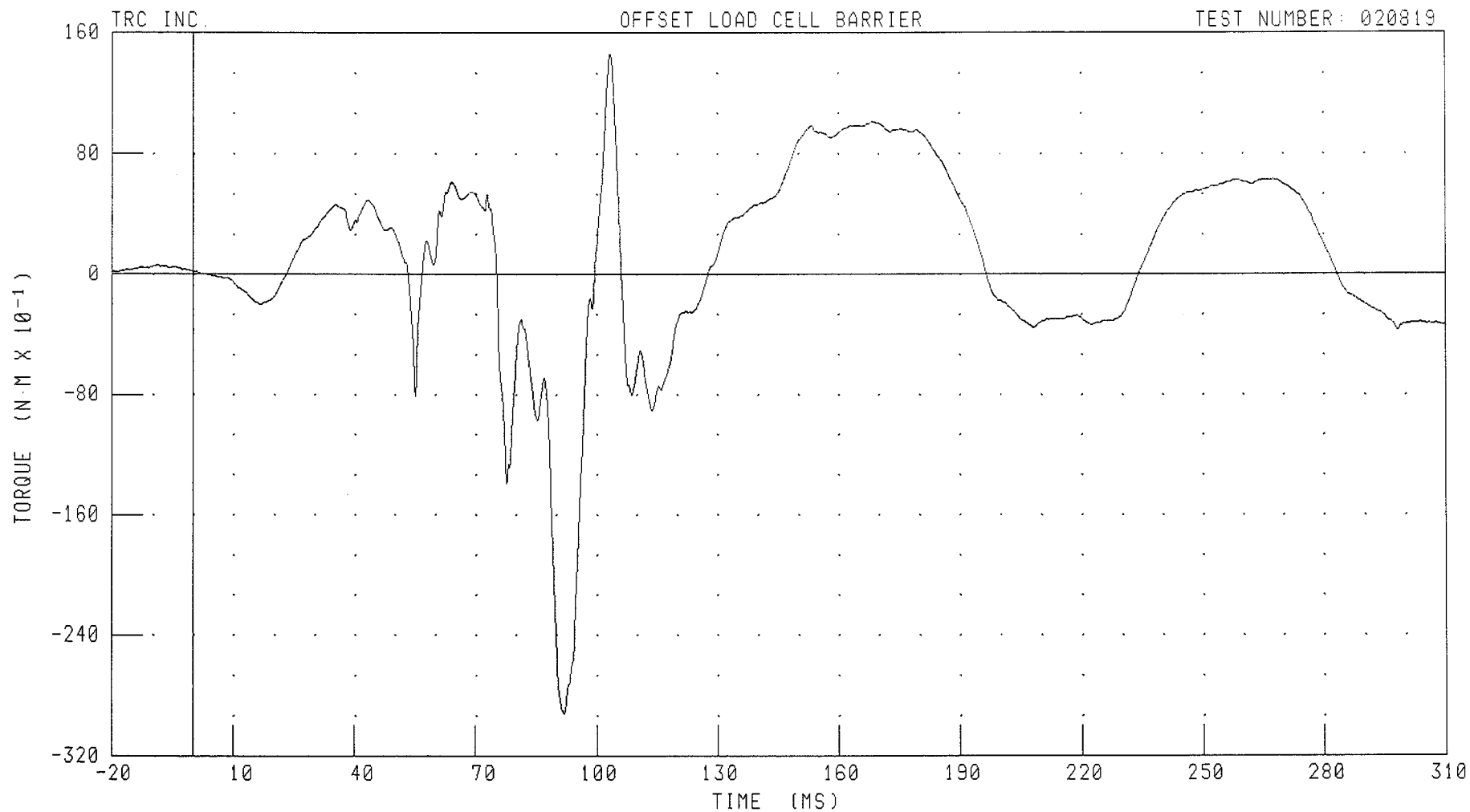
CHANNEL: TBRXM1 FILTER: CH. CLASS 600

PEAK DATA: 31.11 N·M @ 127.12 MS; -52.86 N·M @ 103.68 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBRYM1 FILTER: CH. CLASS 600

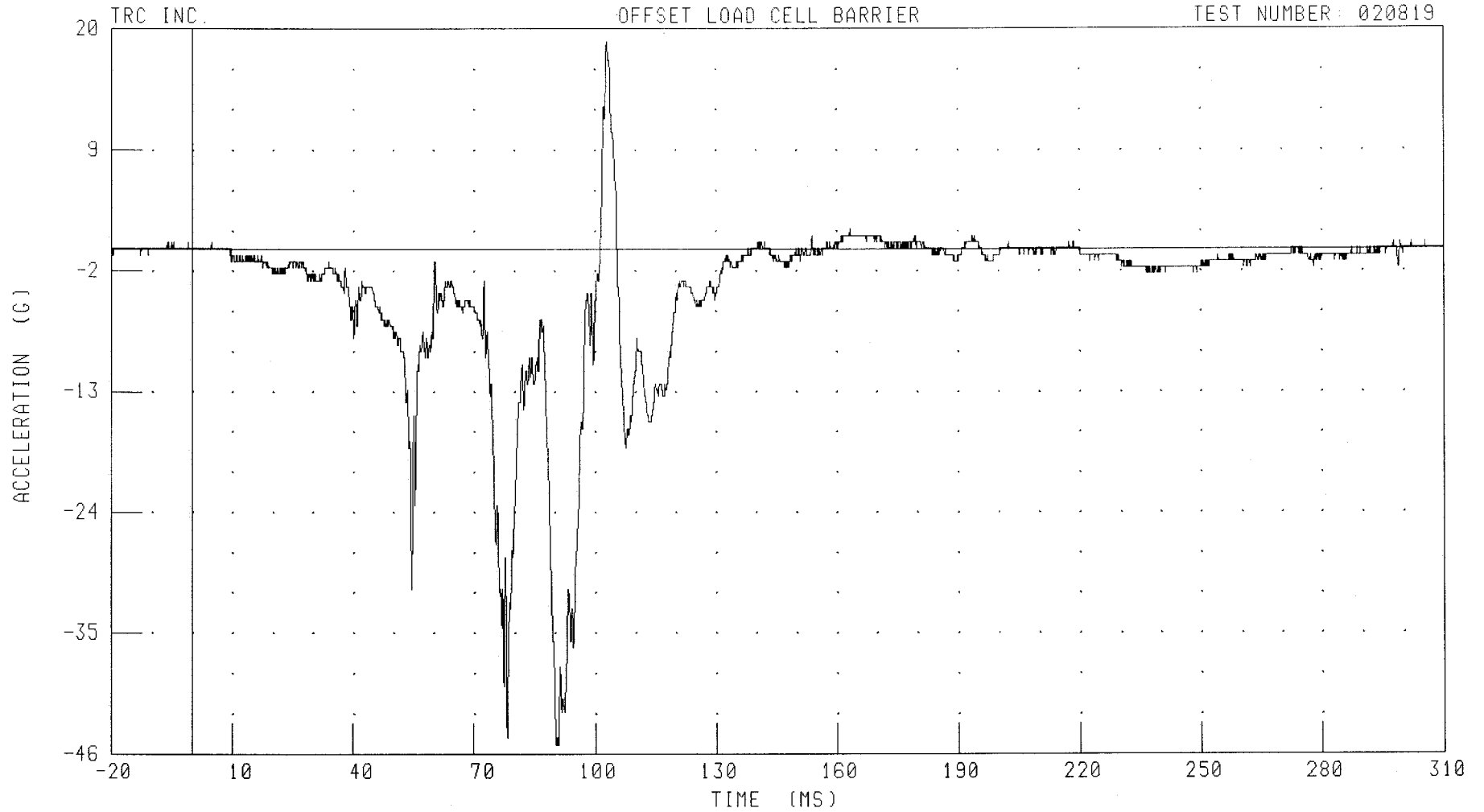
PEAK DATA: 14.58 N·M @ 103.60 MS; -29.20 N·M @ 92.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT TIBIA X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



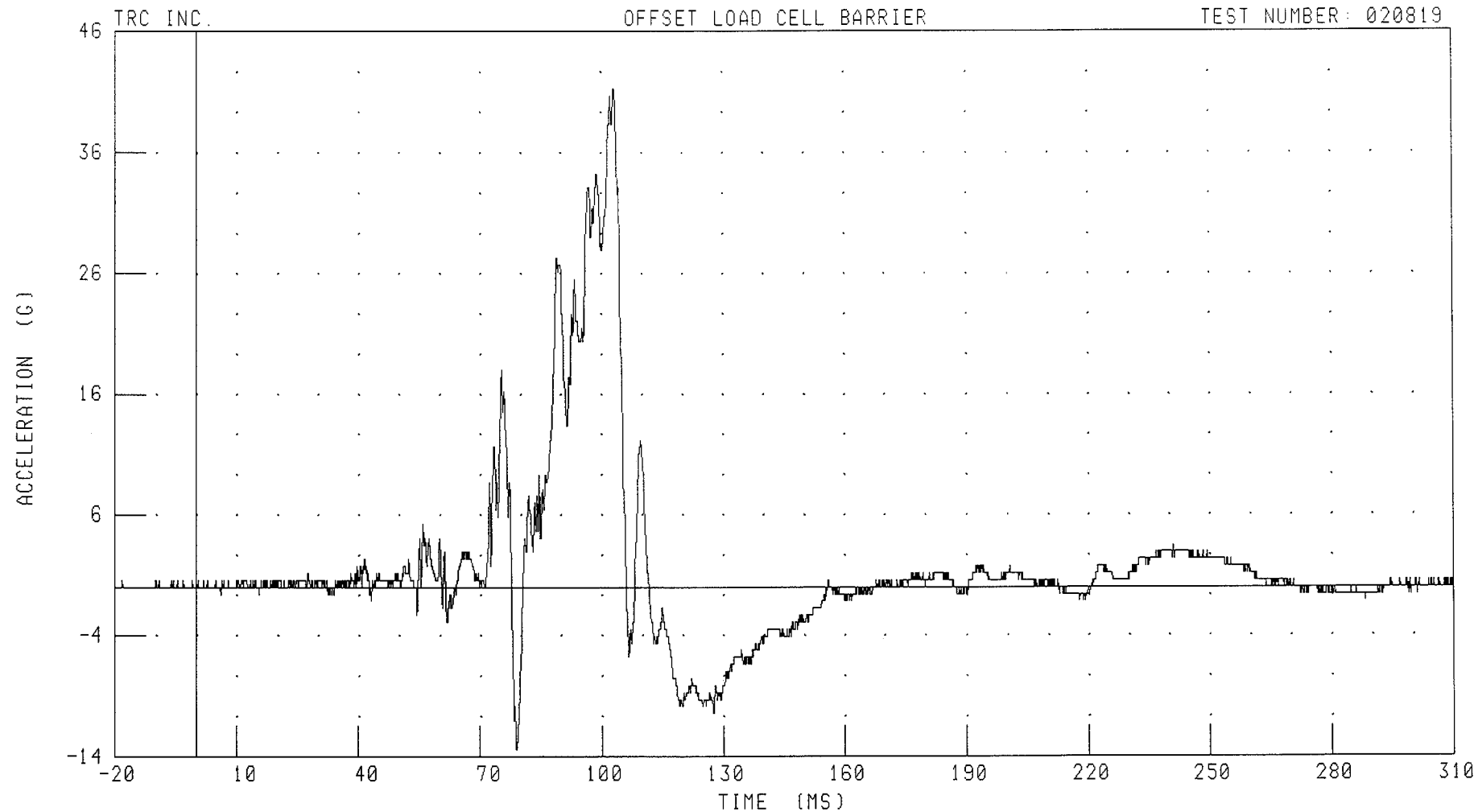
CHANNEL: TBRXG1 FILTER: CH. CLASS 1000

PEAK DATA: 18.86 G @ 103.04 MS; -45.13 G @ 90.32 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT TIBIA Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBRYG1 FILTER: CH. CLASS 1000

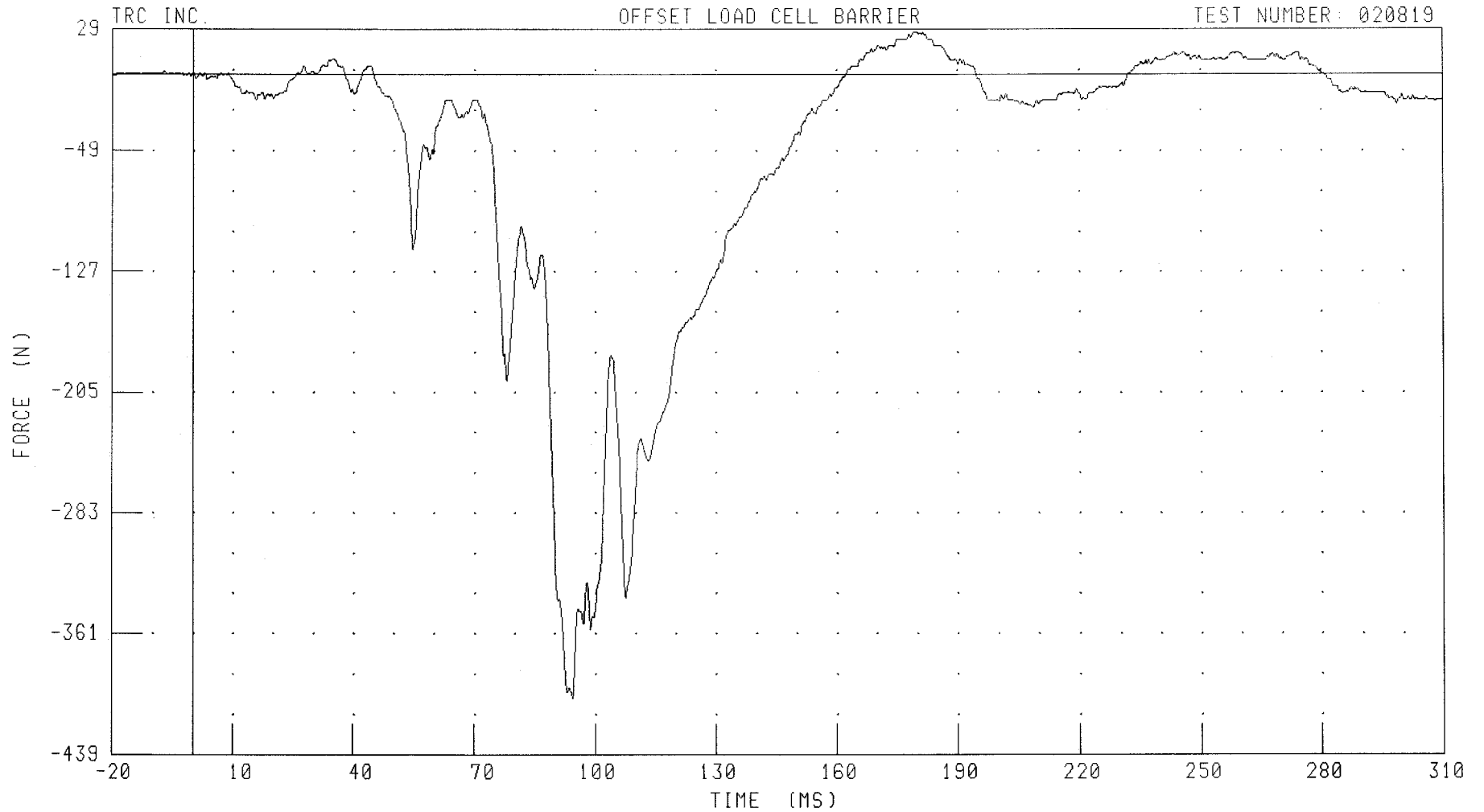
PEAK DATA: 41.25 G @ 103.28 MS; -13.38 G @ 78.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT LOWER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



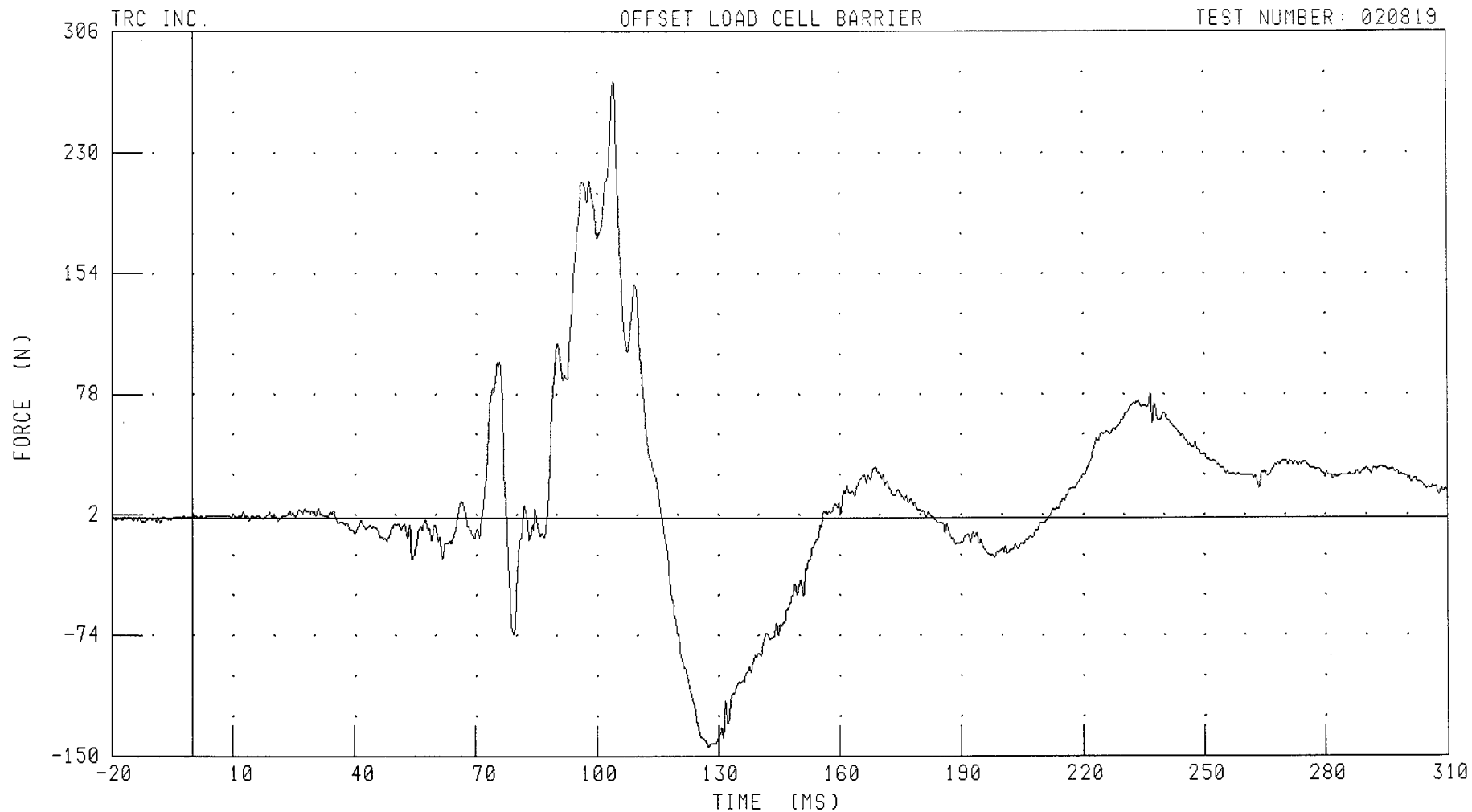
CHANNEL: ANRXF1 FILTER: CH. CLASS 600

PEAK DATA: 27.13 N @ 179.44 MS; -402.55 N @ 94.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT LOWER TIBIA Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANRYF1 FILTER: CH. CLASS 600

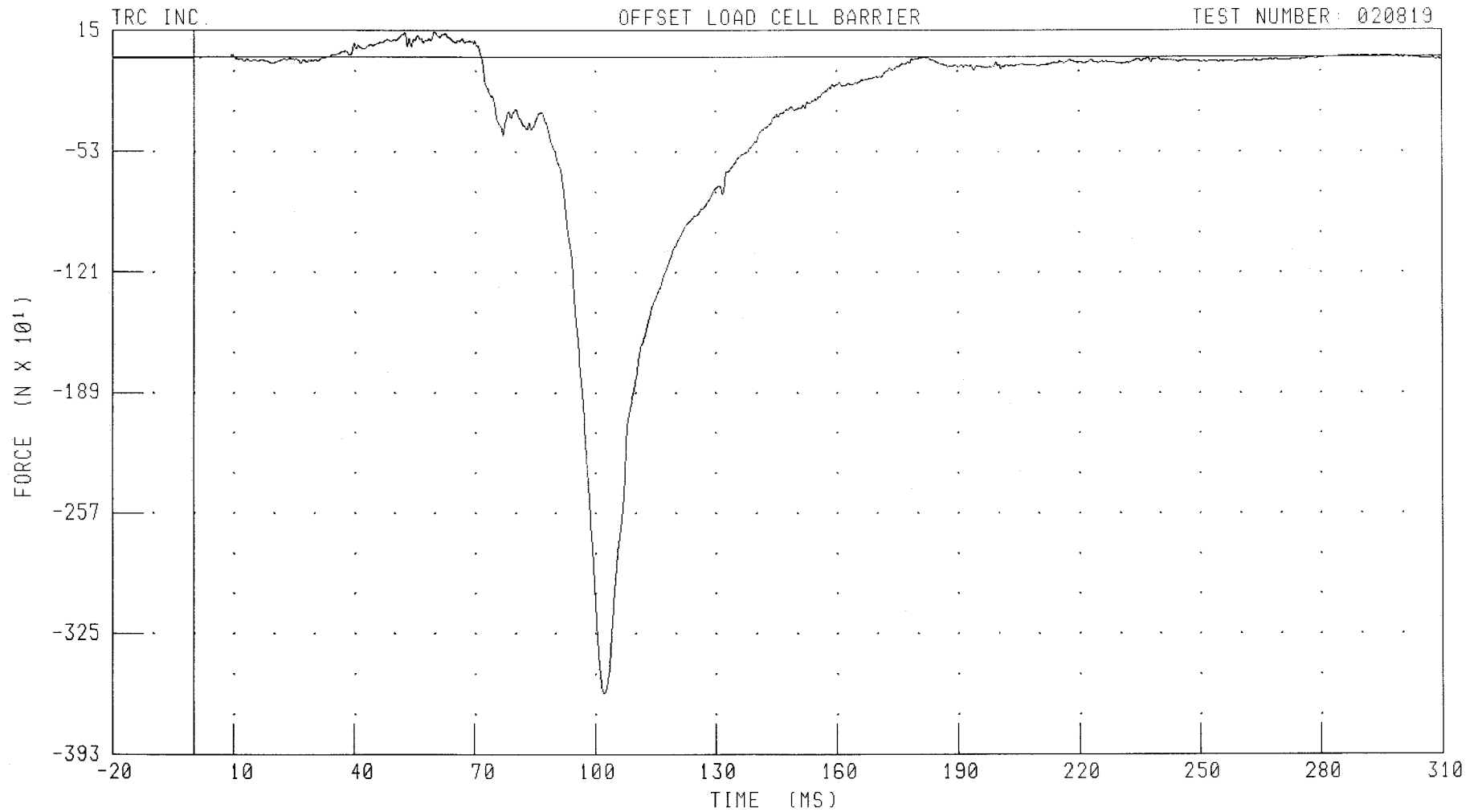
PEAK DATA: 274.37 N @ 104.24 MS; -144.39 N @ 127.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



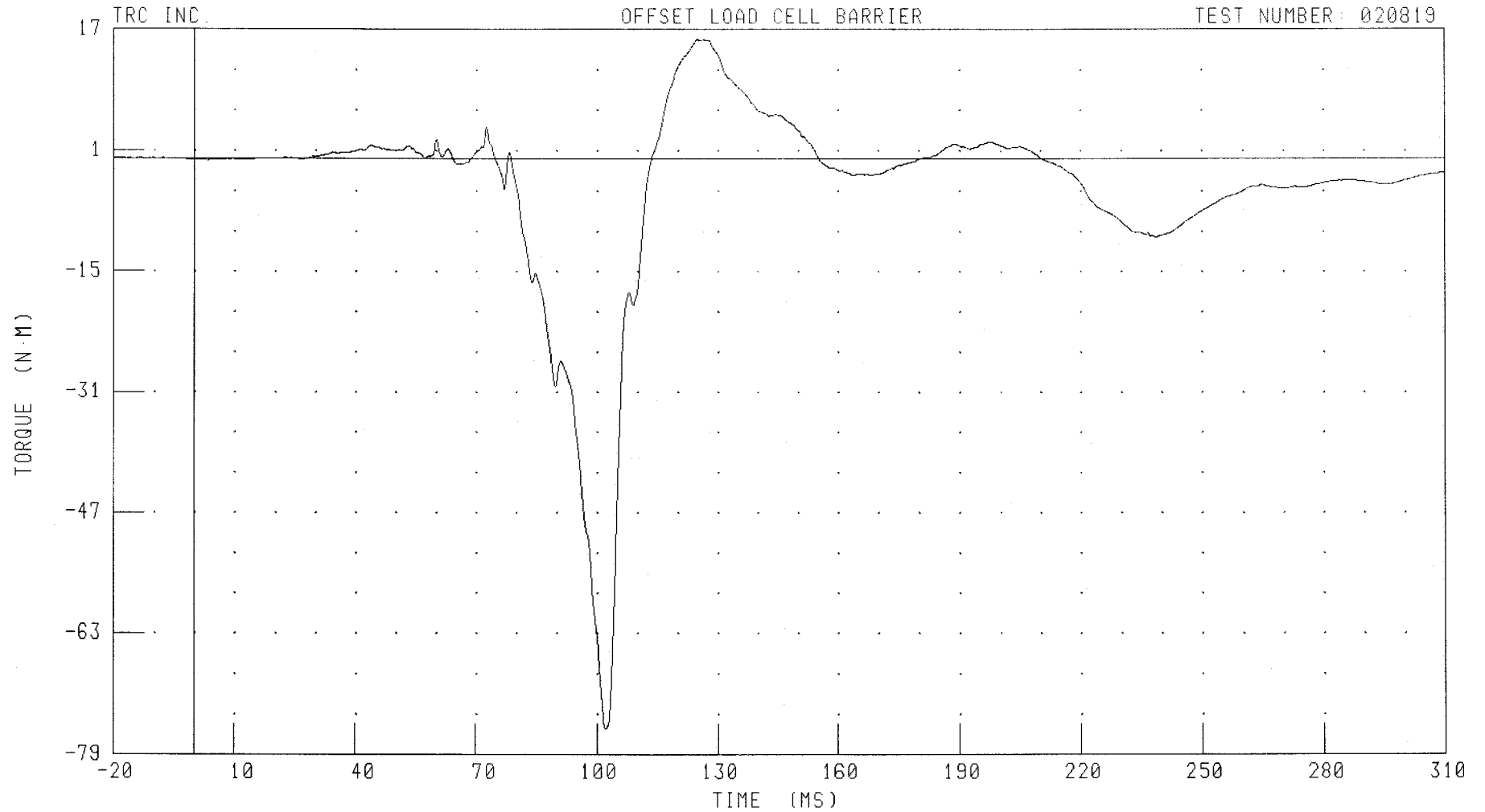
CHANNEL: ANRZF1 FILTER: CH. CLASS 600

PEAK DATA: 139.39 N @ 60.00 MS; -3585.99 N @ 102.32 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

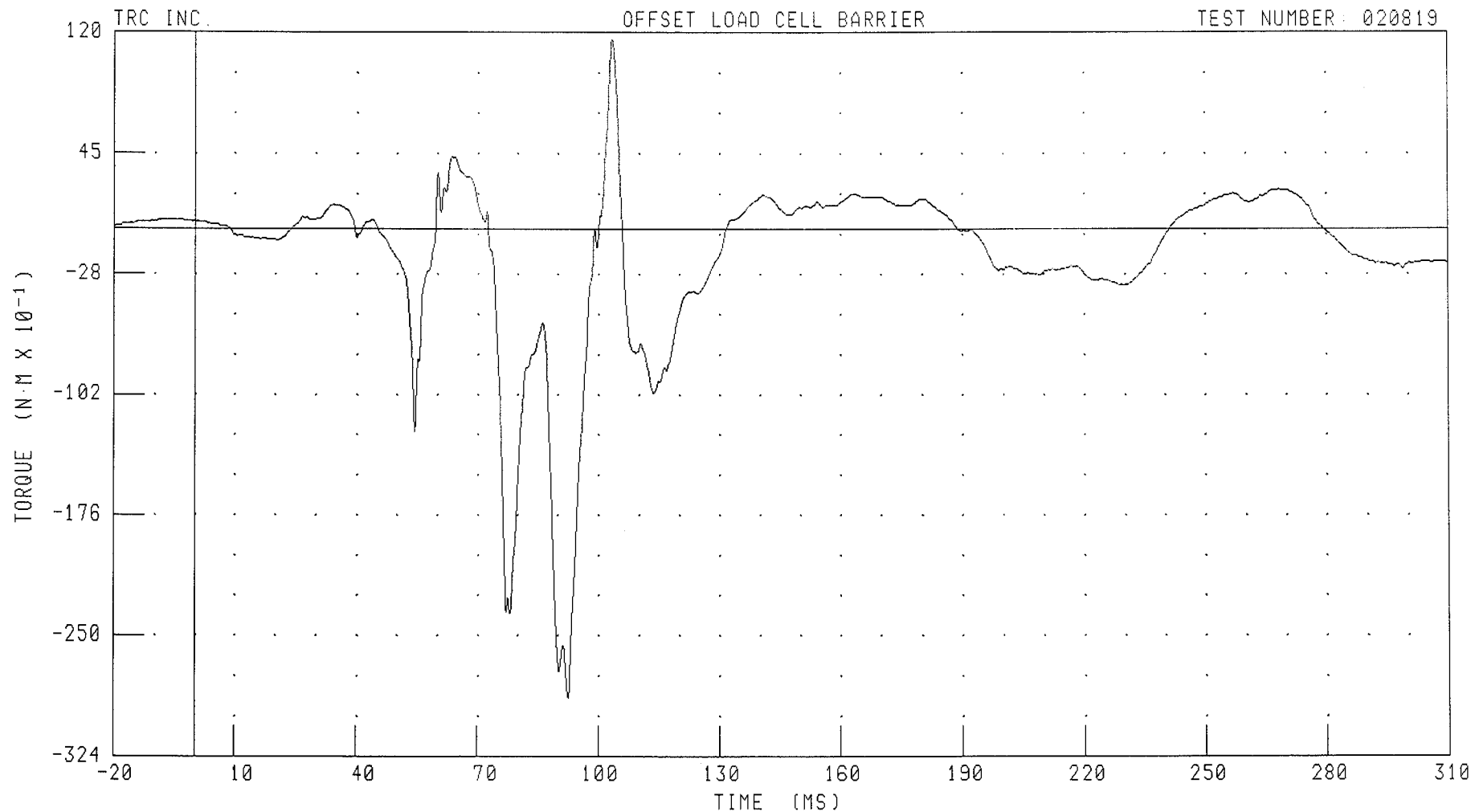


CHANNEL: ANRXM1 FILTER: CH. CLASS 600

PEAK DATA: 15.71 N.M @ 126.48 MS; -75.60 N.M @ 102.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 020819



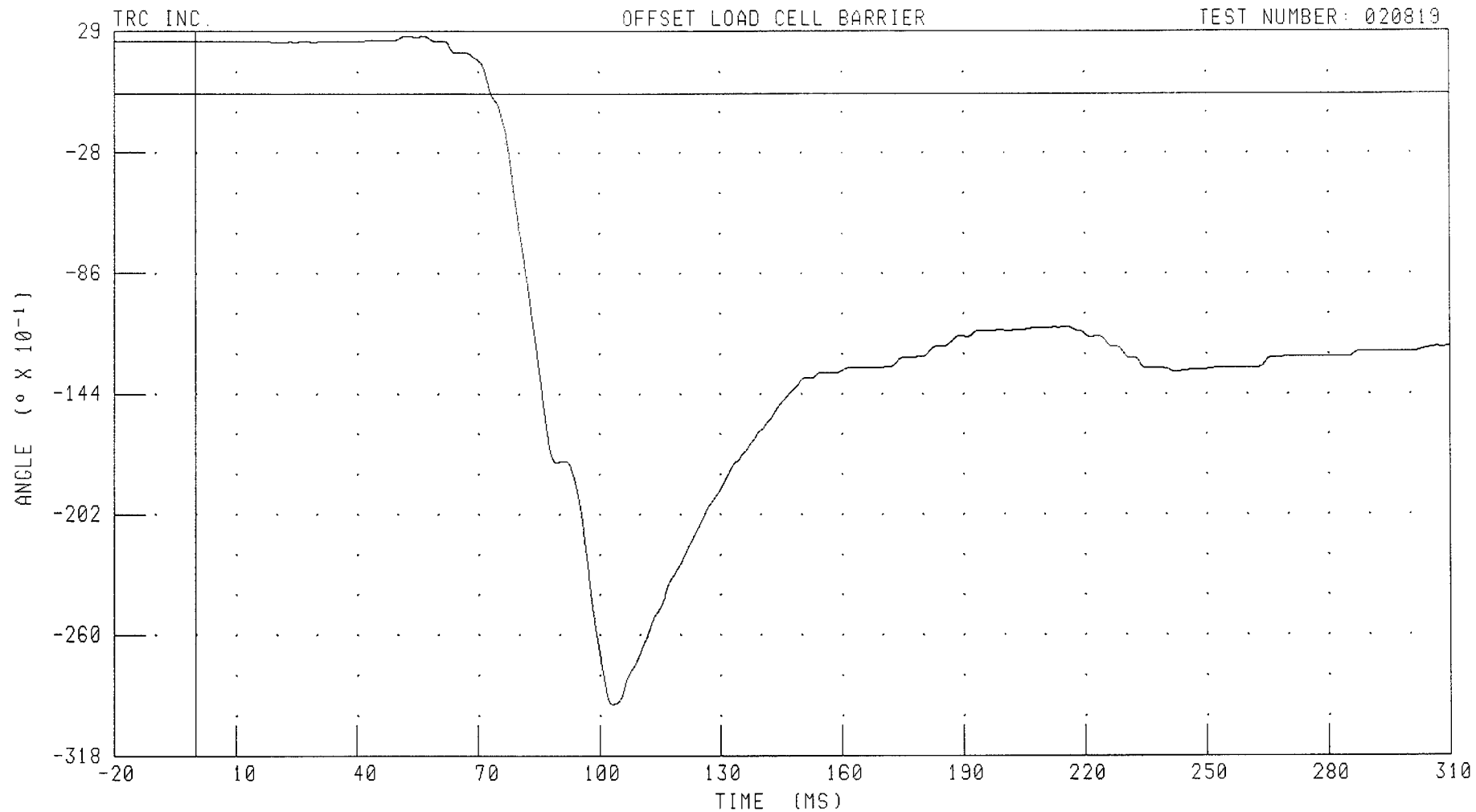
CHANNEL: ANRYM1 FILTER: CH. CLASS 600

PEAK DATA: 11.58 N·M @ 103.44 MS; -28.82 N·M @ 92.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT FOOT TO ANKLE X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

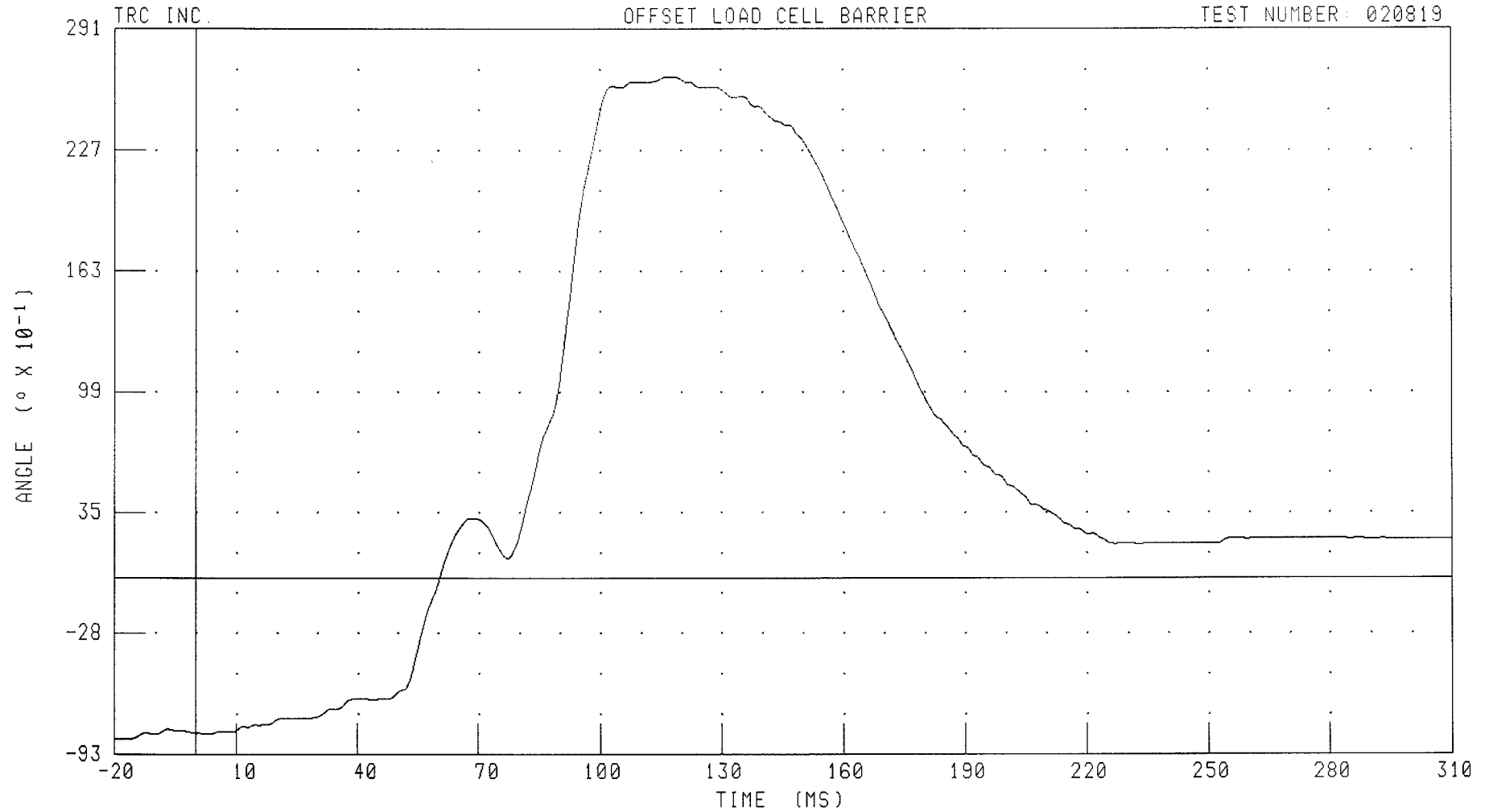


CHANNEL: FTRXD1 FILTER: CH. CLASS 180

PEAK DATA: 2.76 ° @ 52.08 MS; -293.36 ° @ 103.36 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT FOOT TO ANKLE Y-AXIS DISPLACEMENT

TEST NUMBER: 020819



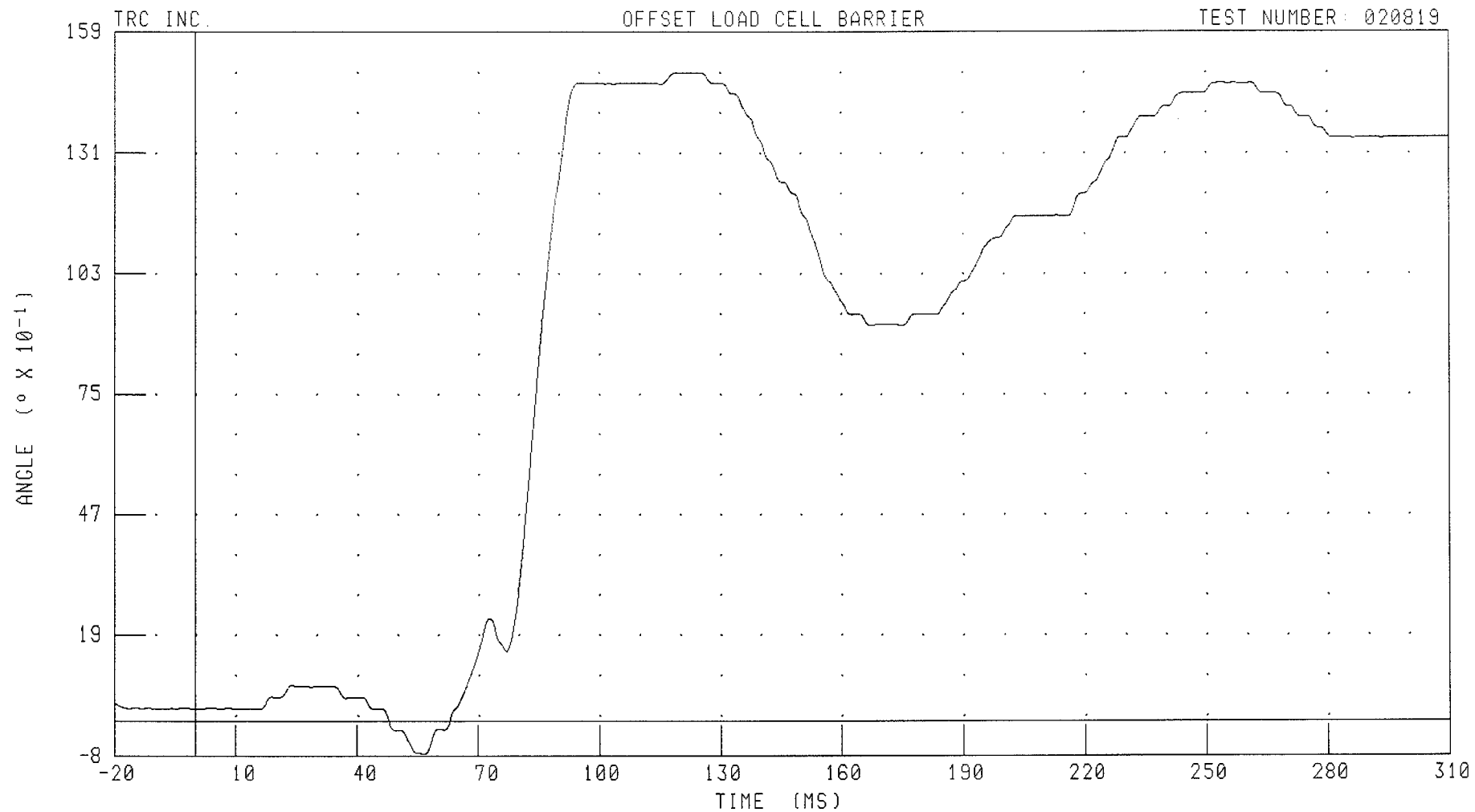
CHANNEL: FTRYD1 FILTER: CH. CLASS 180

PEAK DATA: 26.55  $^{\circ}$  @ 118.88 MS; -8.52  $^{\circ}$  @ -19.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT FOOT TO ANKLE Z-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



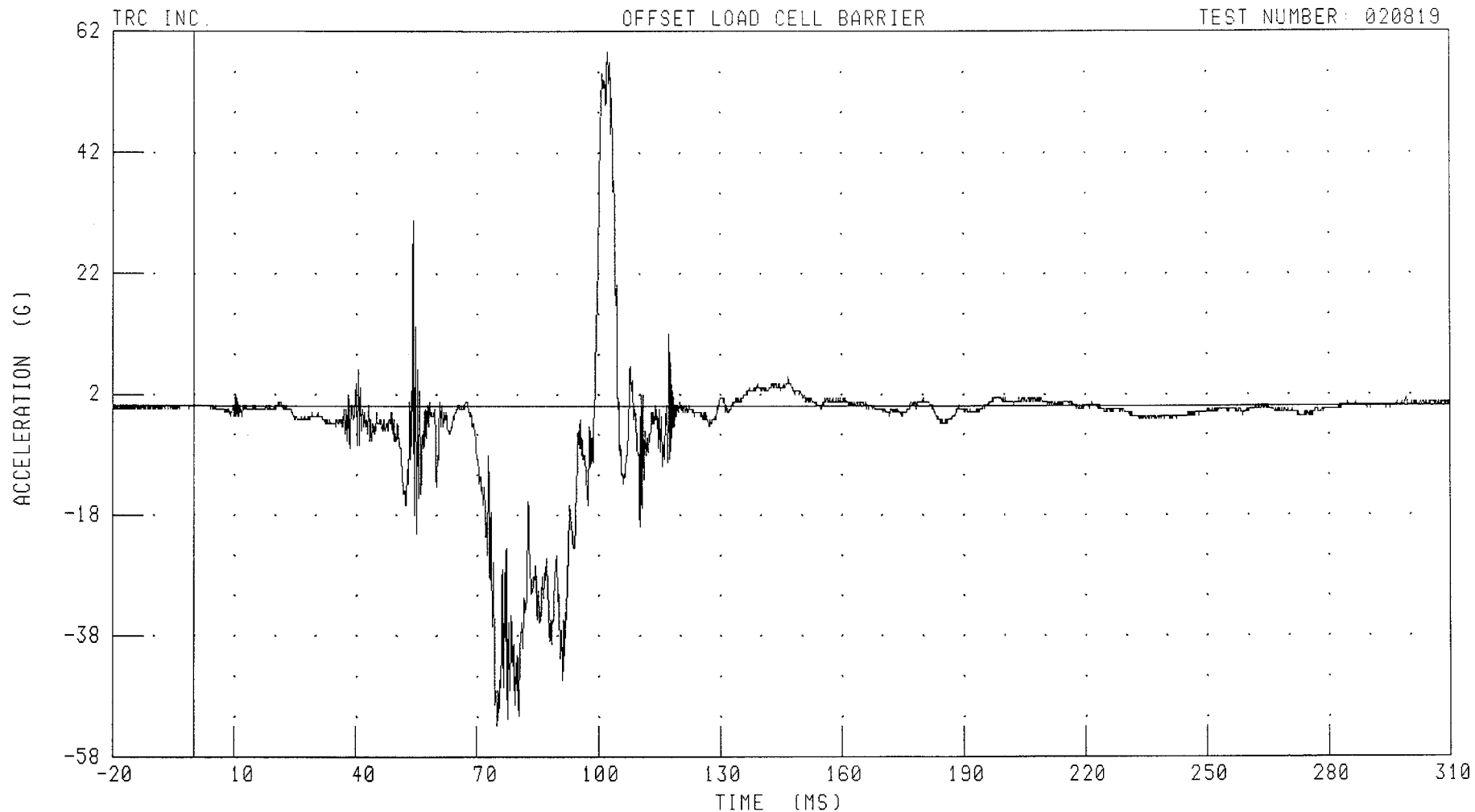
CHANNEL: FTRZD1 FILTER: CH. CLASS 180

PEAK DATA: 15.07 ° @ 120.80 MS; -0.75 ° @ 56.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT FOOT X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTRXG1 FILTER: CH. CLASS 1000

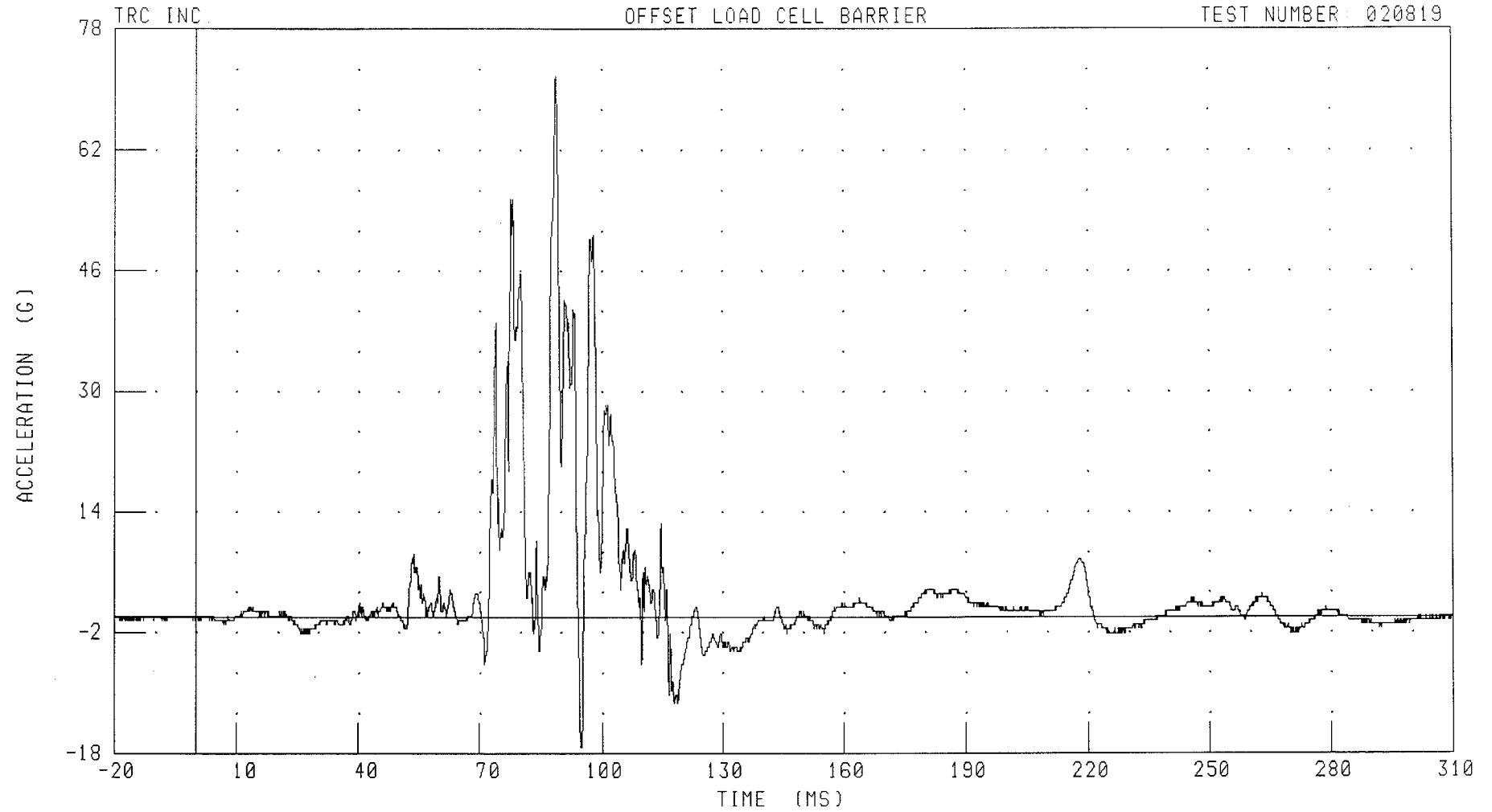
PEAK DATA: 58.71 G @ 102.40 MS; -52.99 G @ 75.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTRYG1 FILTER: CH. CLASS 1000

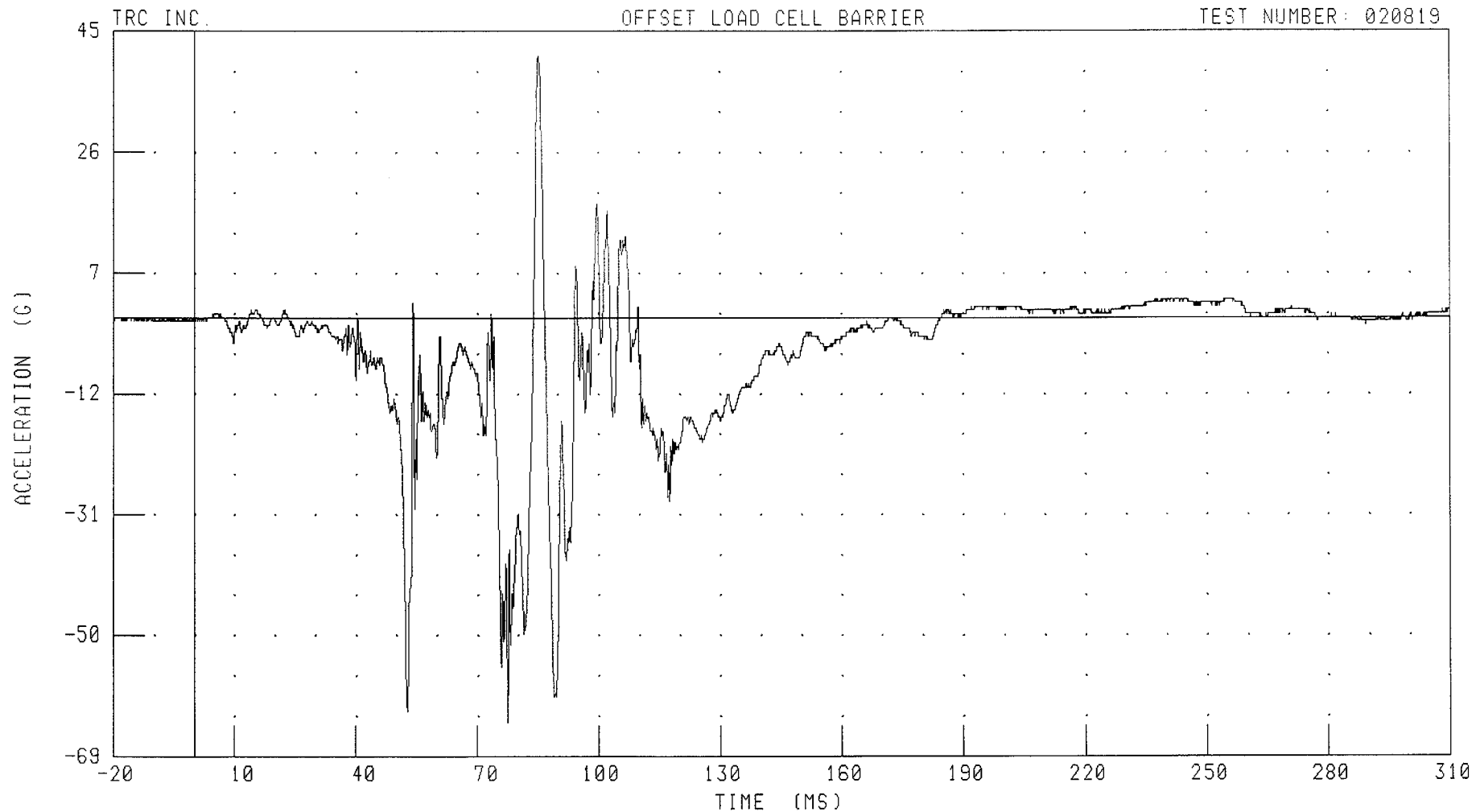
PEAK DATA: 71.77 G @ 88.88 MS; -17.25 G @ 94.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER RIGHT FOOT Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



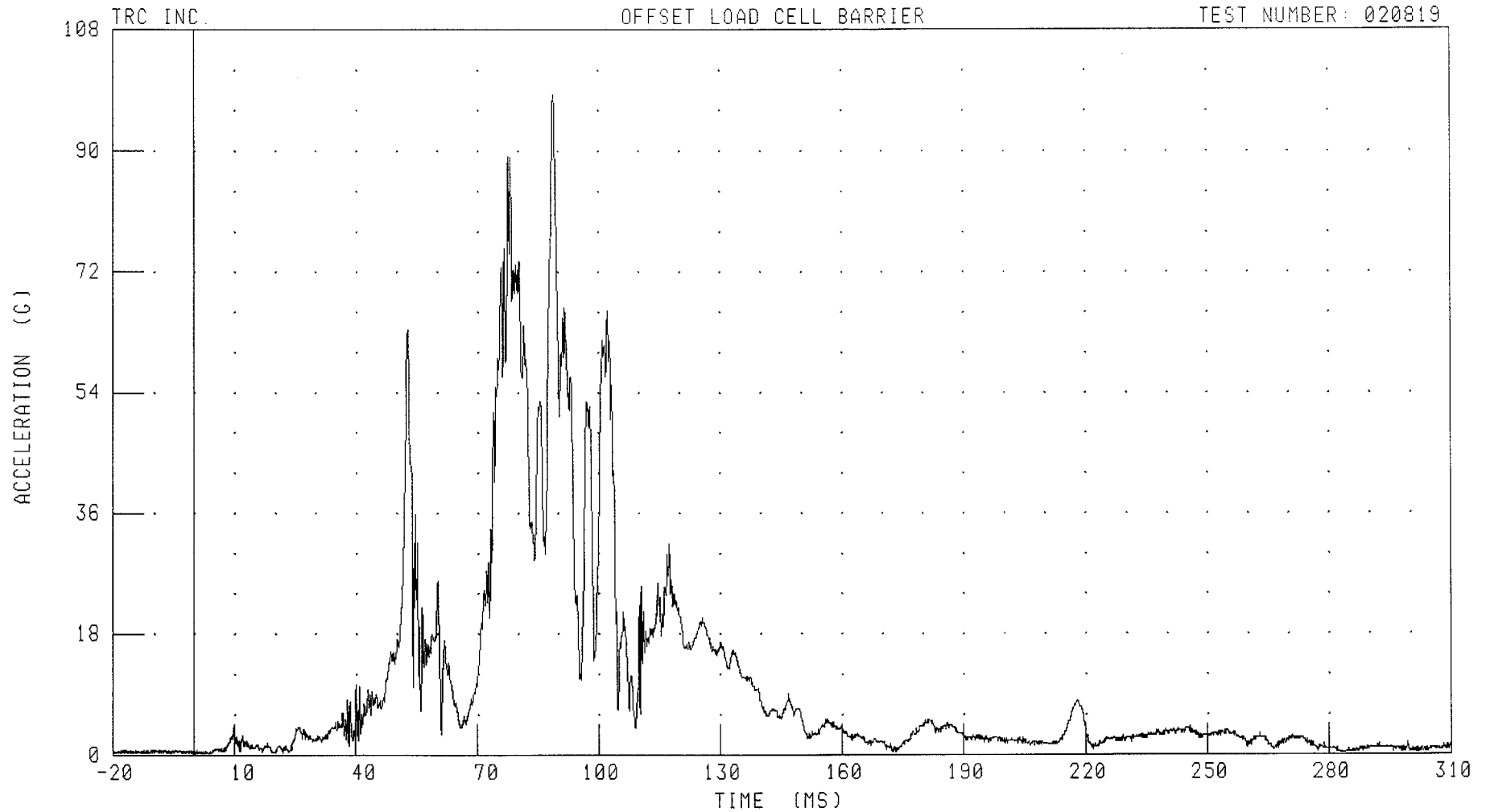
CHANNEL: FTRZG1 FILTER: CH. CLASS 1000

PEAK DATA: 41.23 G @ 85.28 MS; -63.73 G @ 77.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER RIGHT FOOT RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTTRG1 FILTER: CH. CLASS 1000

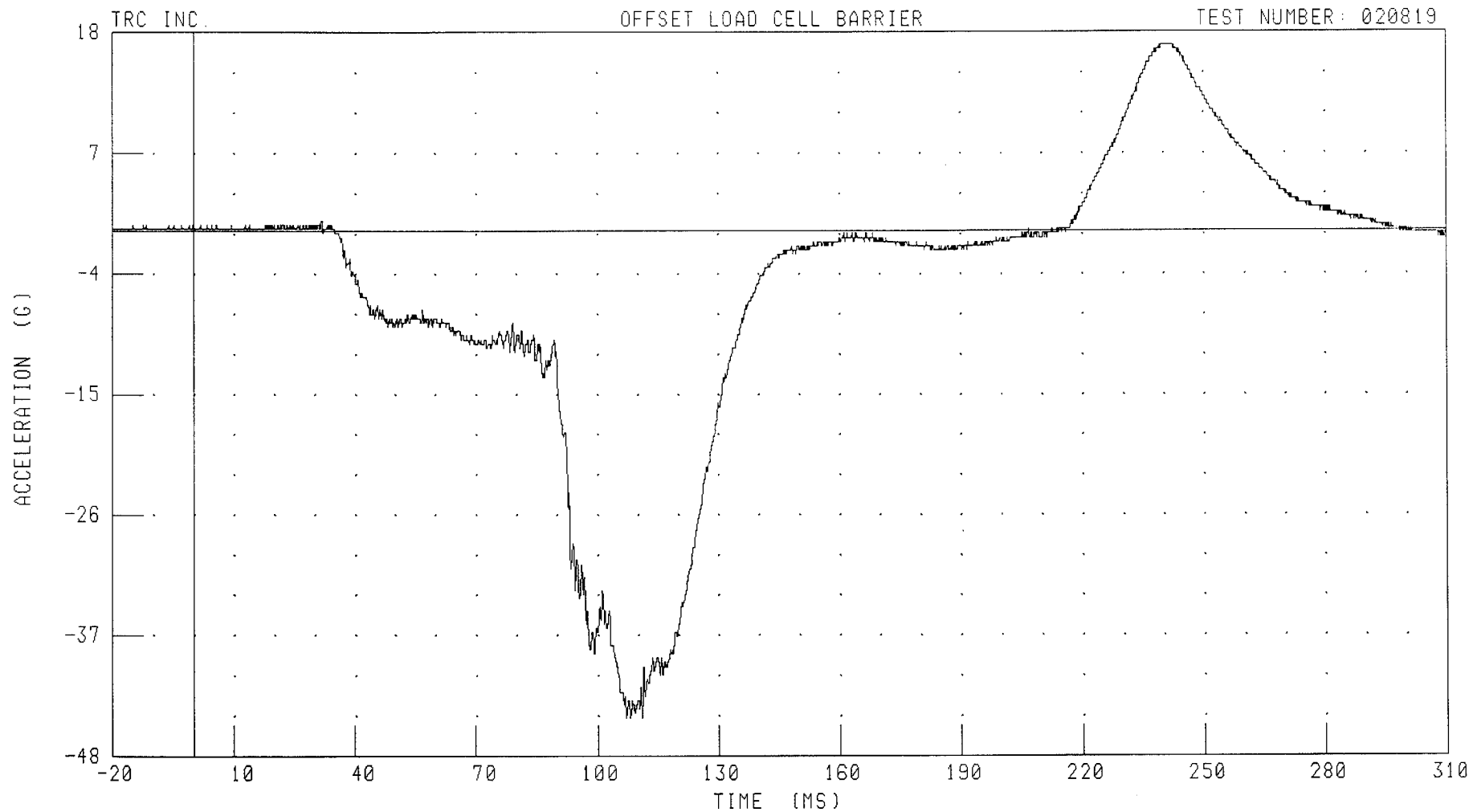
PEAK DATA: 98.46 G @ 88.96 MS; 0.29 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER HEAD X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

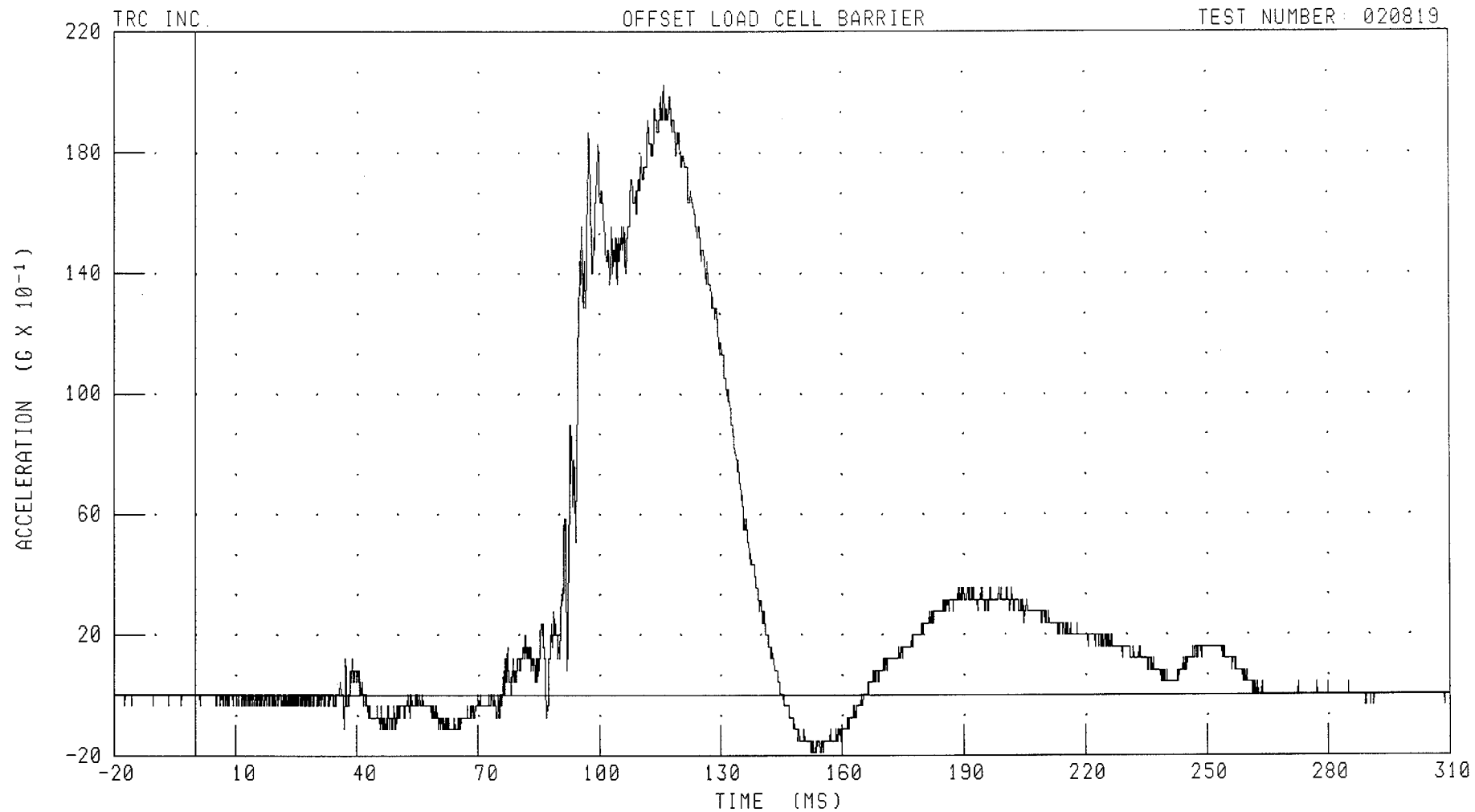
PEAK DATA: 16.81 G @ 239.20 MS; -44.53 G @ 106.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER HEAD Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

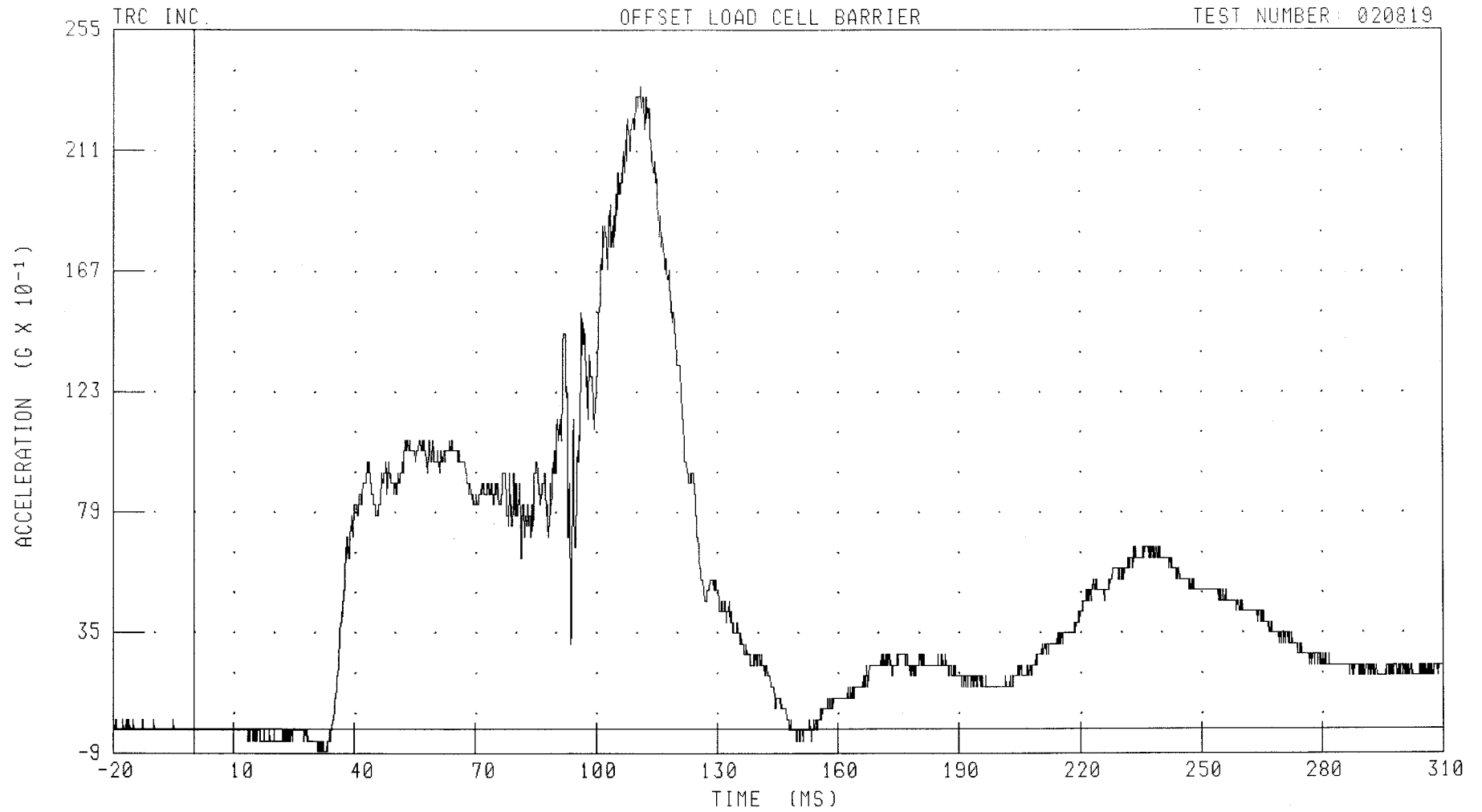
PEAK DATA: 20.25 G @ 116.24 MS; -1.91 G @ 152.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER HEAD Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

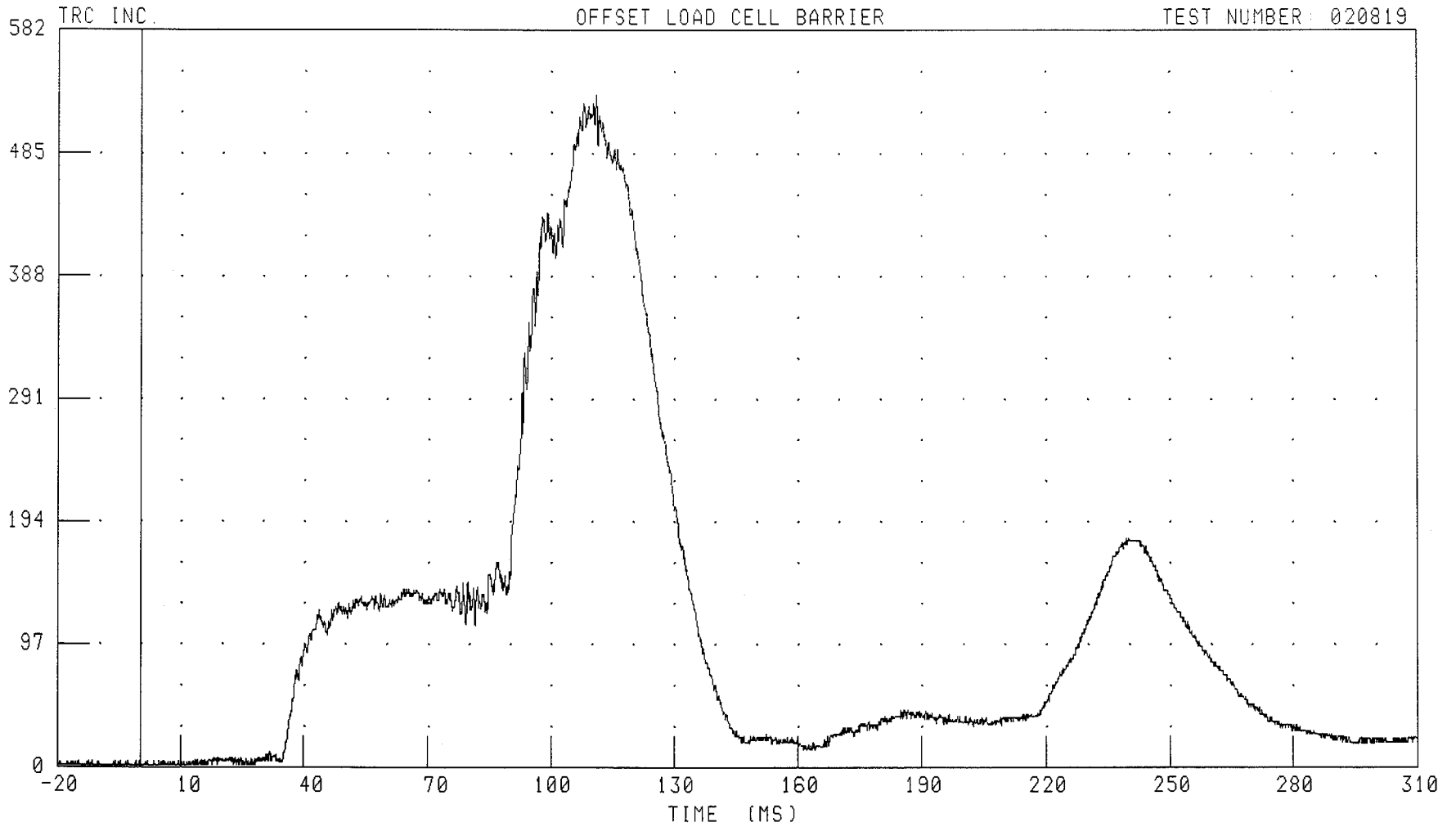
TEST NUMBER: 020819



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 23.47 G @ 111.28 MS; -0.84 G @ 30.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD RESULTANT ACCELERATION



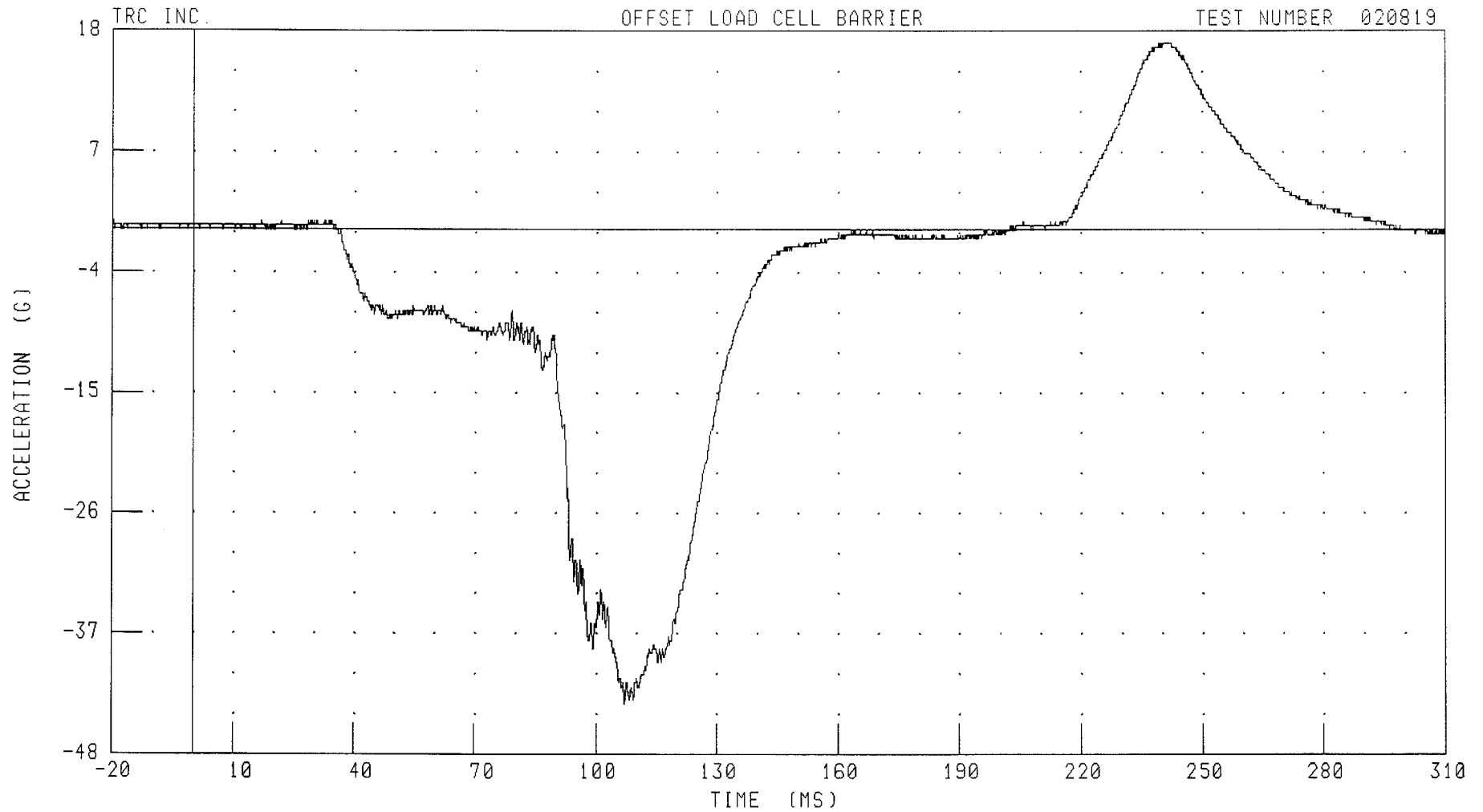
CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

PEAK DATA: 53.13 G @ 111.04 MS; 0.13 G @ -19.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD X-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER 020819



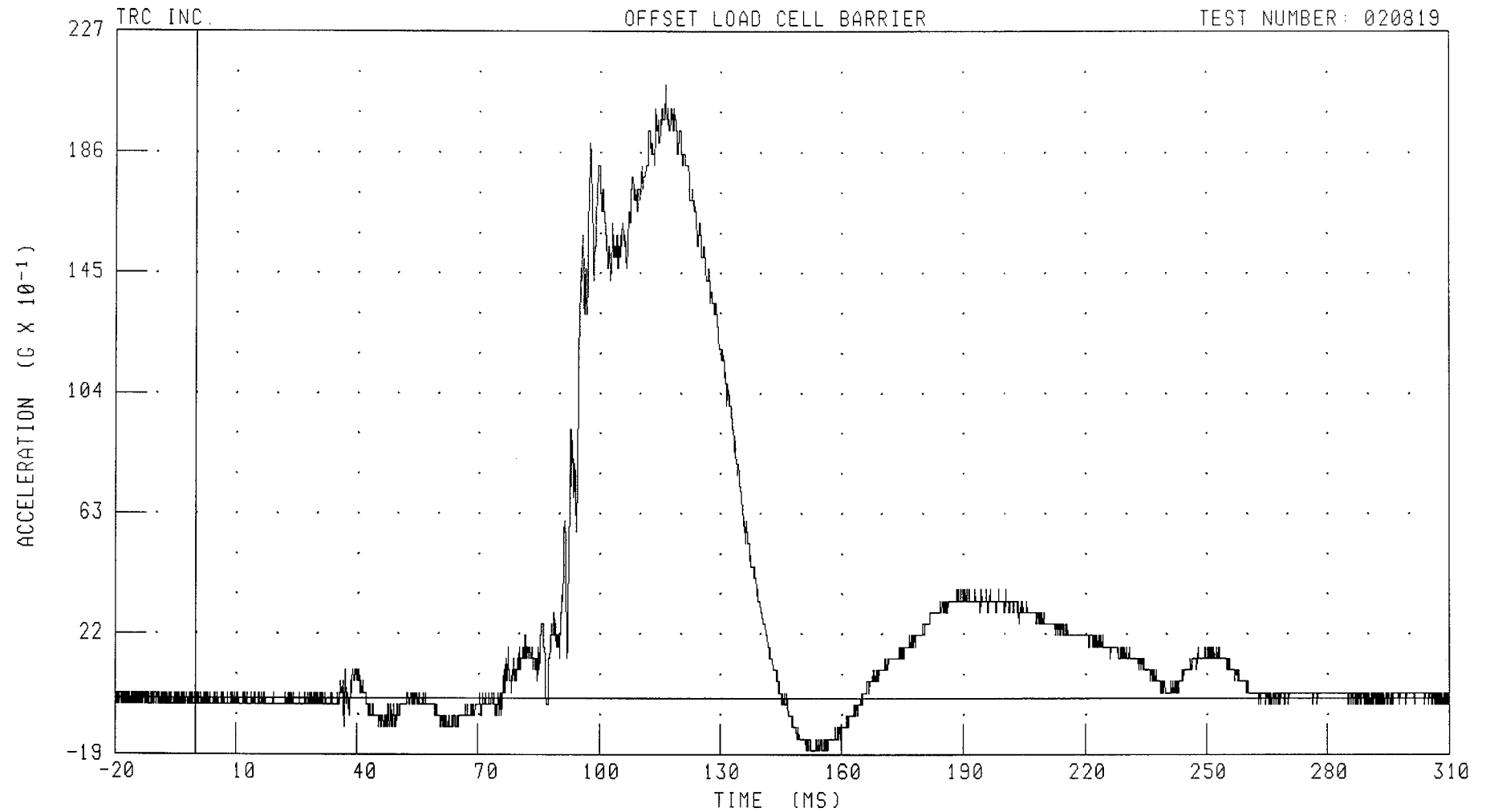
CHANNEL: HEDXR2 FILTER: CH. CLASS 1000

PEAK DATA: 16.94 G @ 239.28 MS; -43.46 G @ 106.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD Y-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



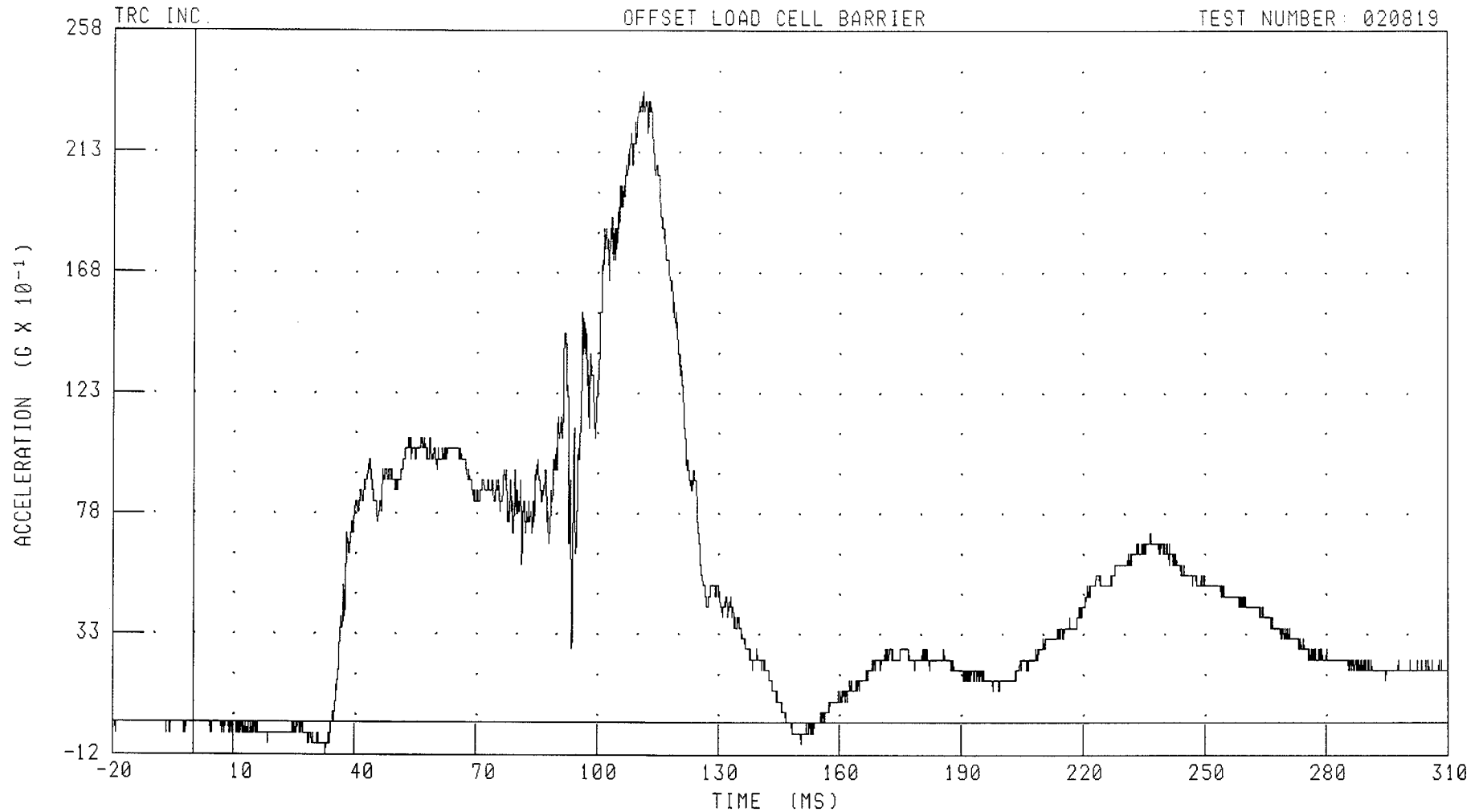
CHANNEL: HEDYR2 FILTER: CH. CLASS 1000

PEAK DATA: 20.89 G @ 116.32 MS; -1.76 G @ 151.36 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD Z-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HEDZR2 FILTER: CH. CLASS 1000

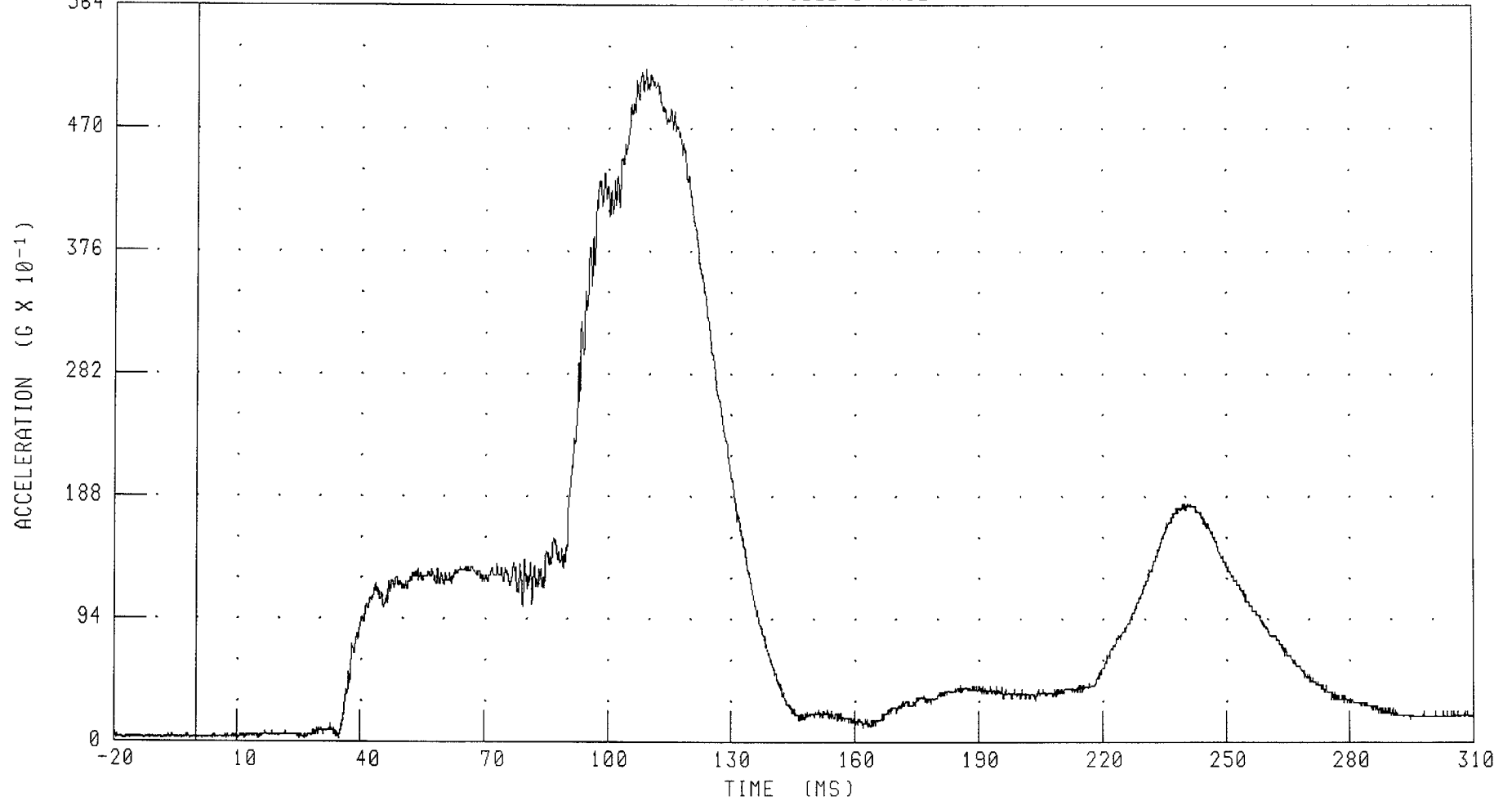
PEAK DATA: 23.58 G @ 111.20 MS; -1.18 G @ 32.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD RESULTANT ACCELERATION REDUNDANT

564 TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

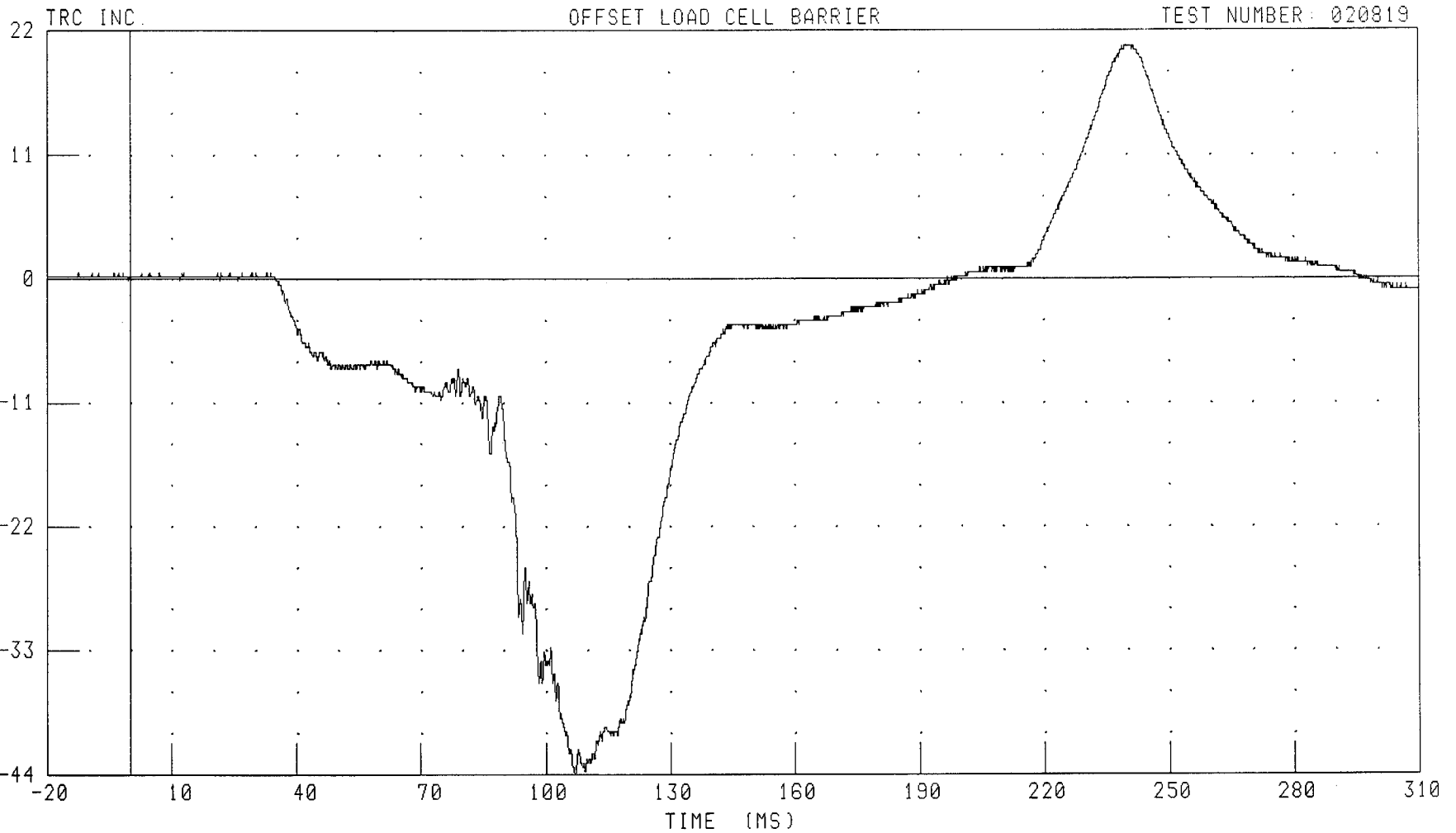


CHANNEL: HEDRR2

FILTER: CH. CLASS 1000

PEAK DATA: 51.57 G @ 109.28 MS; 0.21 G @ -17.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD X-AXIS (LT) ACCELERATION

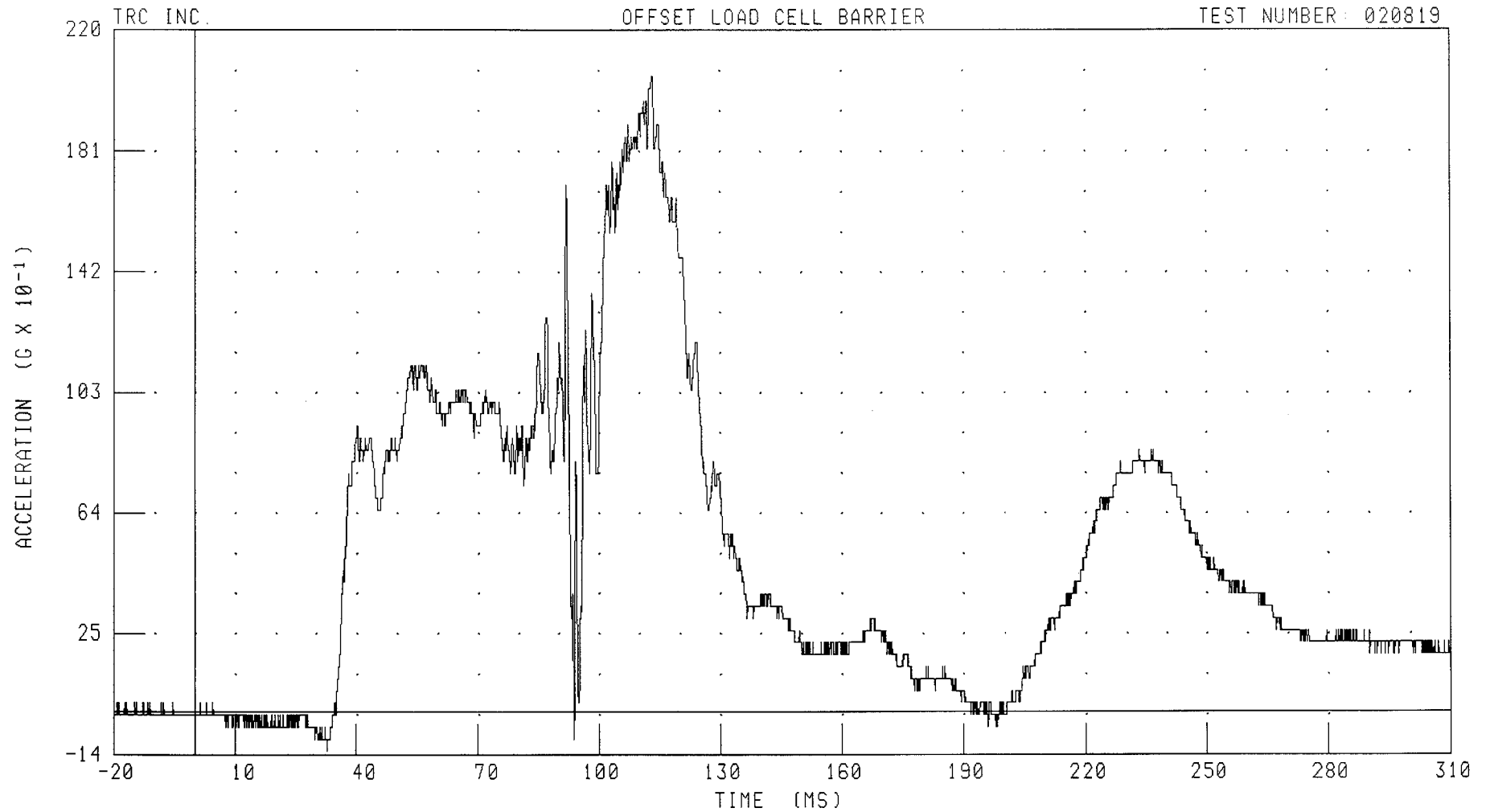


CHANNEL: HD1XG2 FILTER: CH. CLASS 1000

PEAK DATA: 20.66 G @ 239.04 MS; -44.14 G @ 106.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD Z-AXIS (LT) ACCELERATION

TEST NUMBER: 020819



CHANNEL: HD1ZG2 FILTER: CH. CLASS 1000

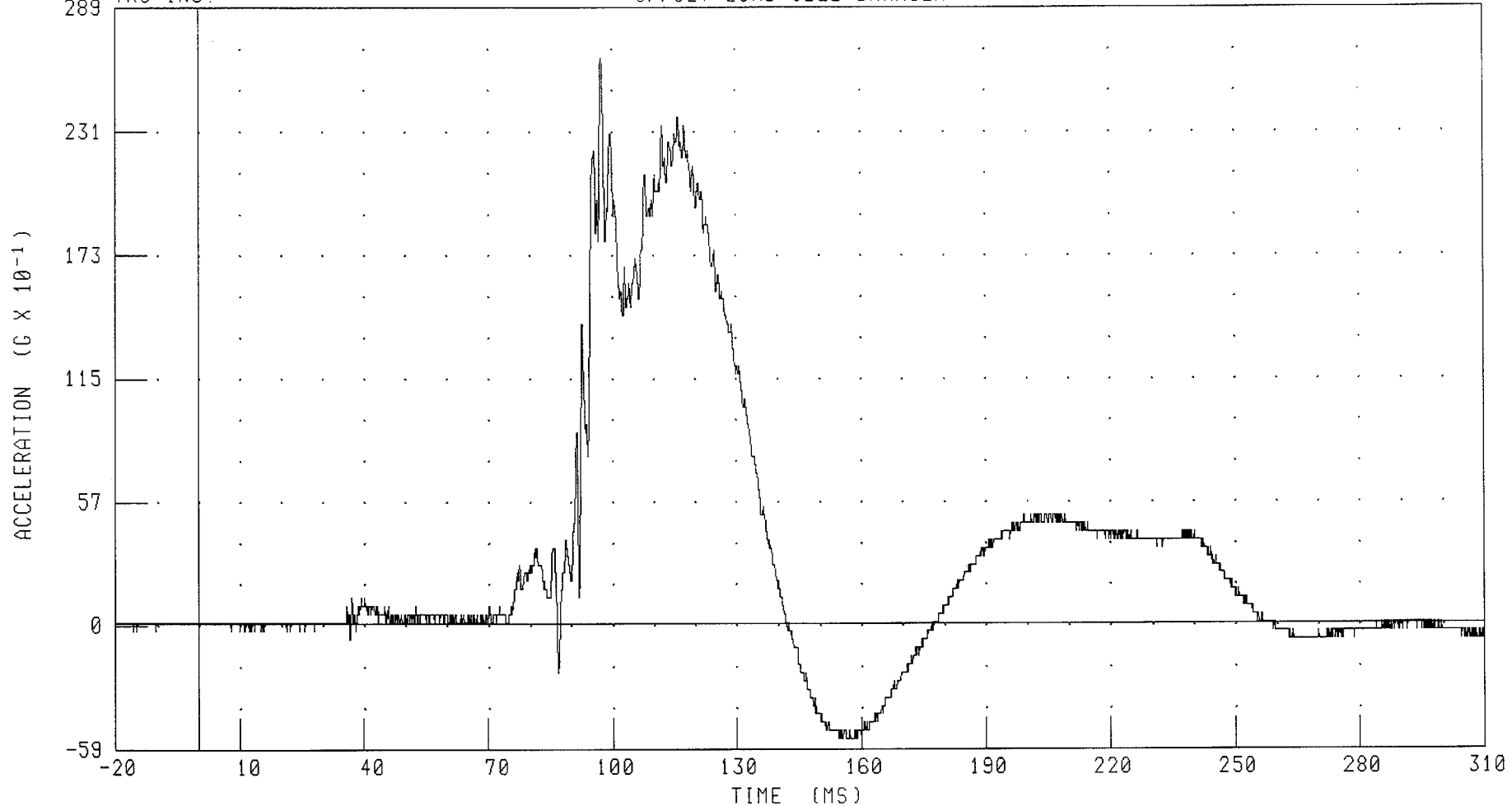
PEAK DATA: 20.52 G @ 113.20 MS; -1.29 G @ 32.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD Y-AXIS (FT) ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD2YG2

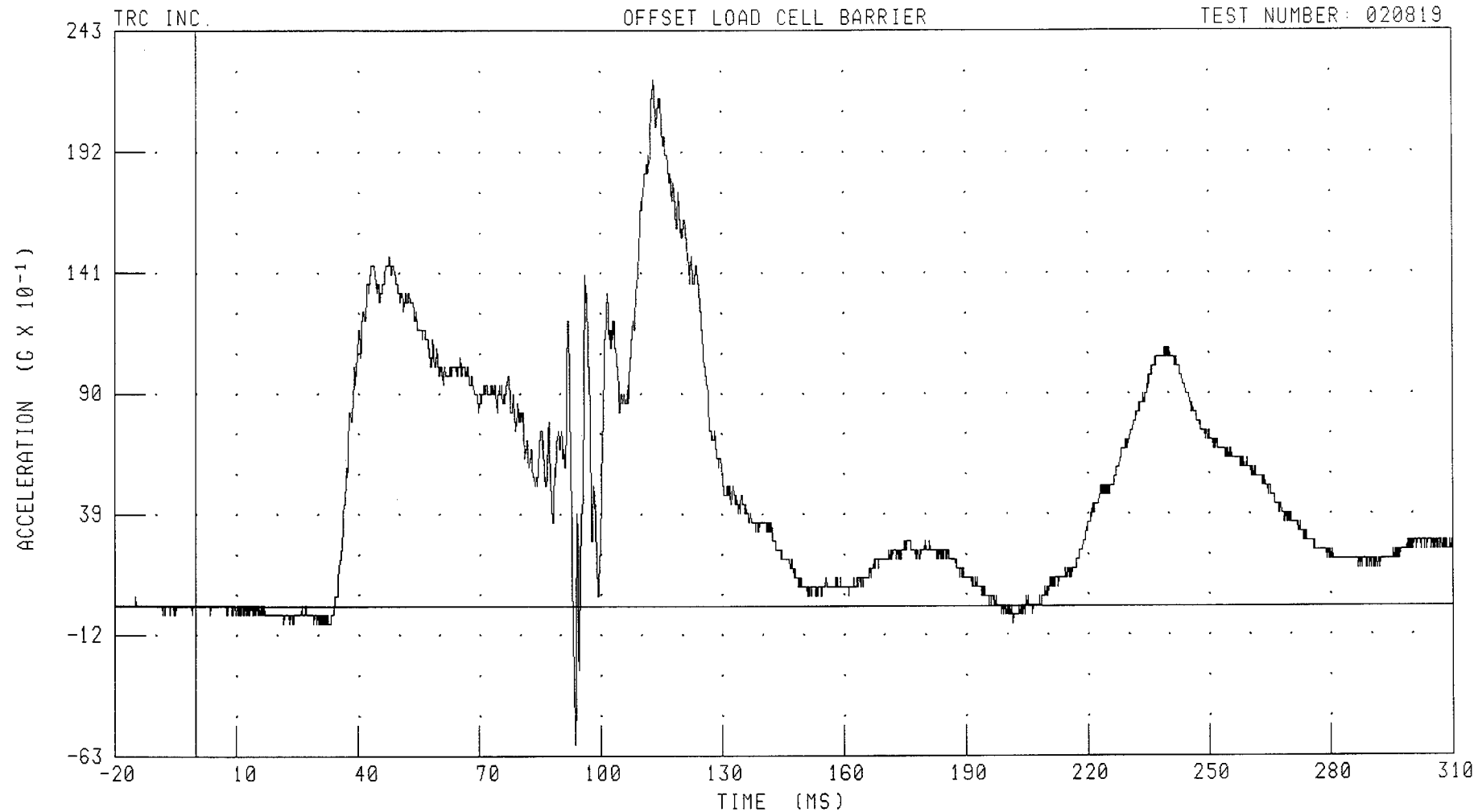
FILTER: CH. CLASS 1000

PEAK DATA: 26.54 G @ 97.52 MS; -5.43 G @ 154.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD Z-AXIS (FT) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



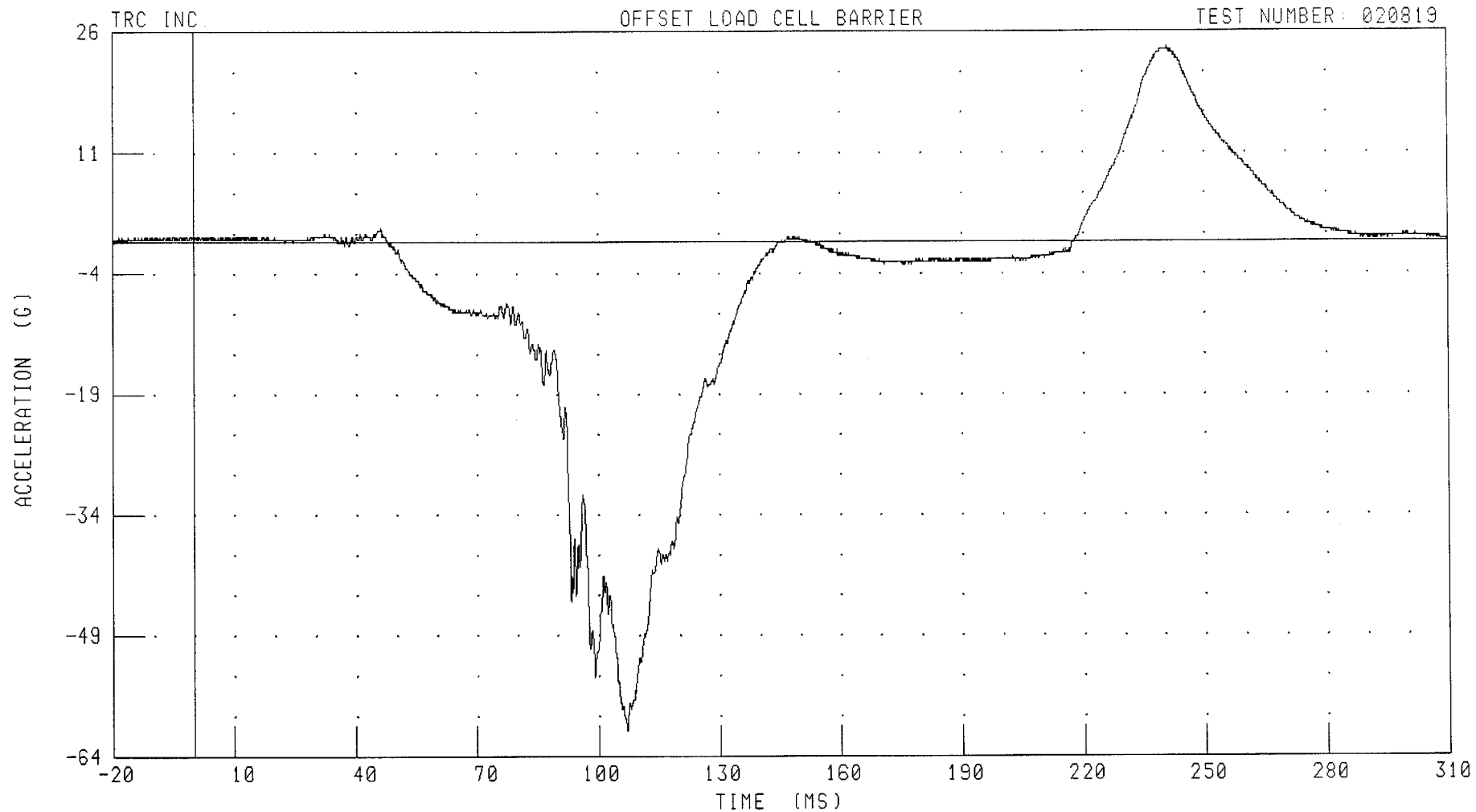
CHANNEL: HD2ZG2 FILTER: CH. CLASS 1000

PEAK DATA: 22.22 G @ 113.28 MS; -5.81 G @ 93.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER HEAD X-AXIS (TP) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD3XC2 FILTER: CH. CLASS 1000

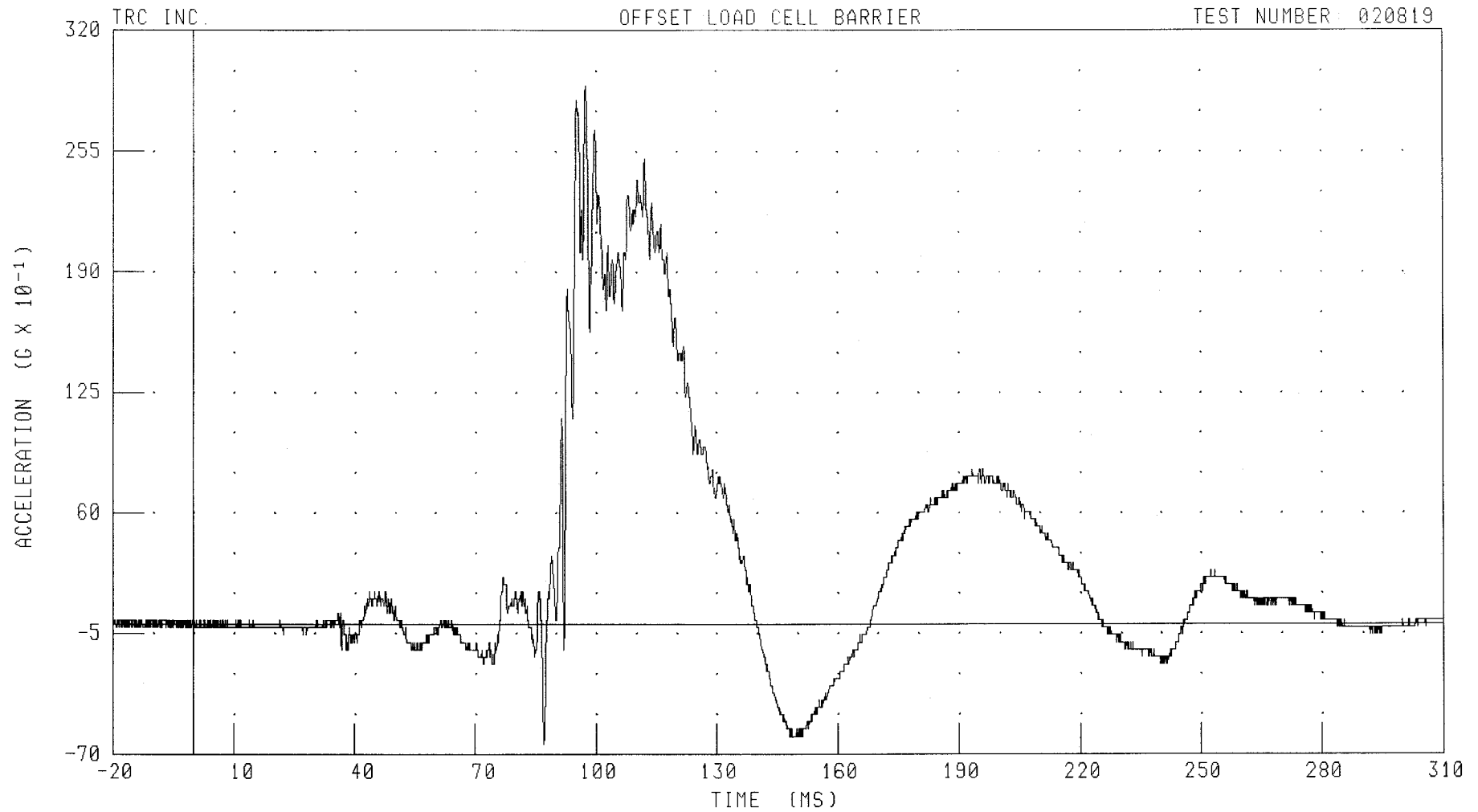
PEAK DATA: 24.12 G @ 241.20 MS; -60.89 G @ 107.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER HEAD Y-AXIS (TP) ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: HD3YG2 FILTER: CH. CLASS 1000

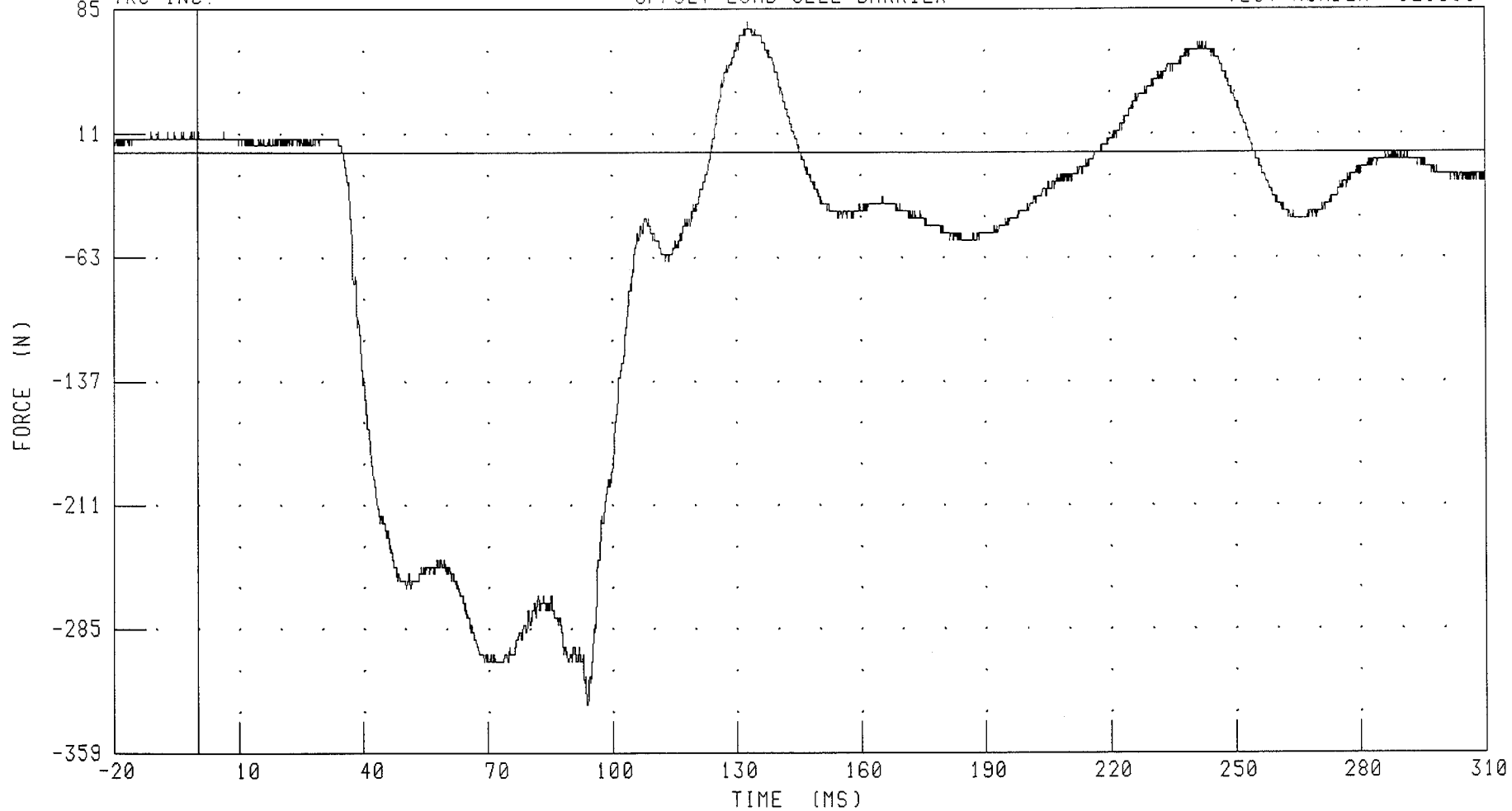
PEAK DATA: 29.02 G @ 97.52 MS; -6.43 G @ 86.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK X-AXIS SHEAR FORCE

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

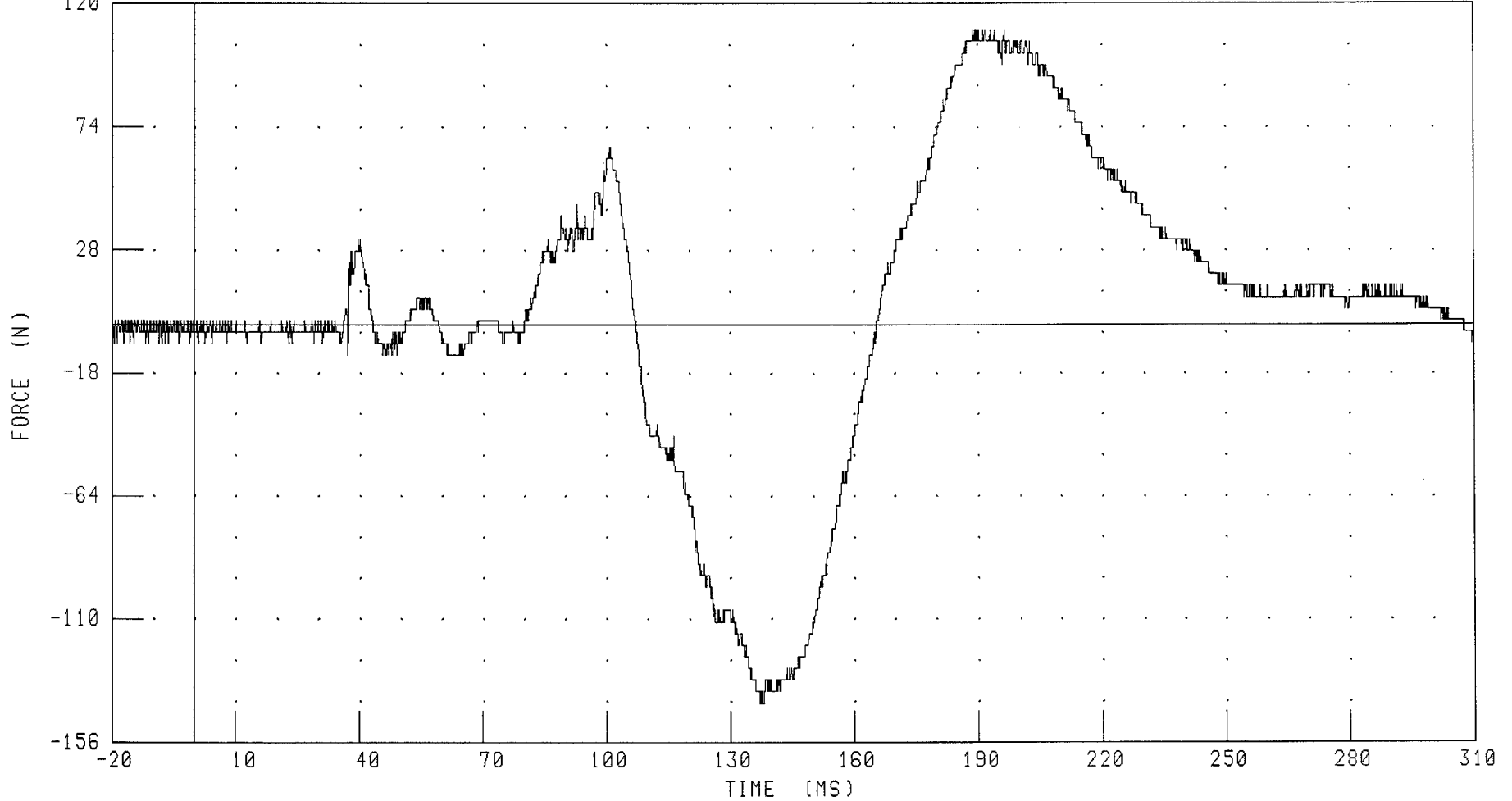
PEAK DATA: 77.87 N @ 133.12 MS; -330.42 N @ 93.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK Y-AXIS SHEAR FORCE

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

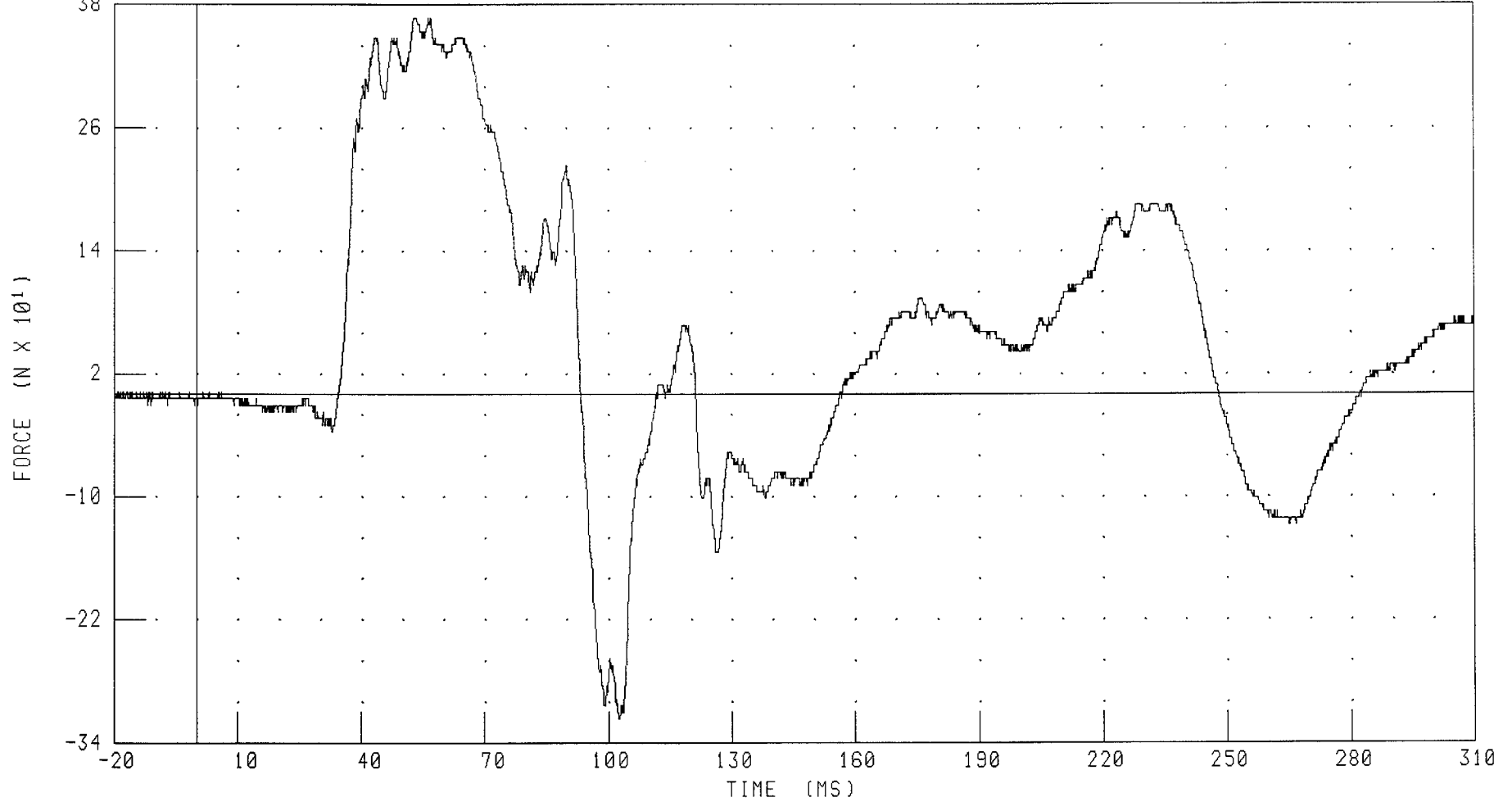
PEAK DATA: 110.28 N @ 189.12 MS; -141.48 N @ 137.28 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK Z-AXIS AXIAL FORCE

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

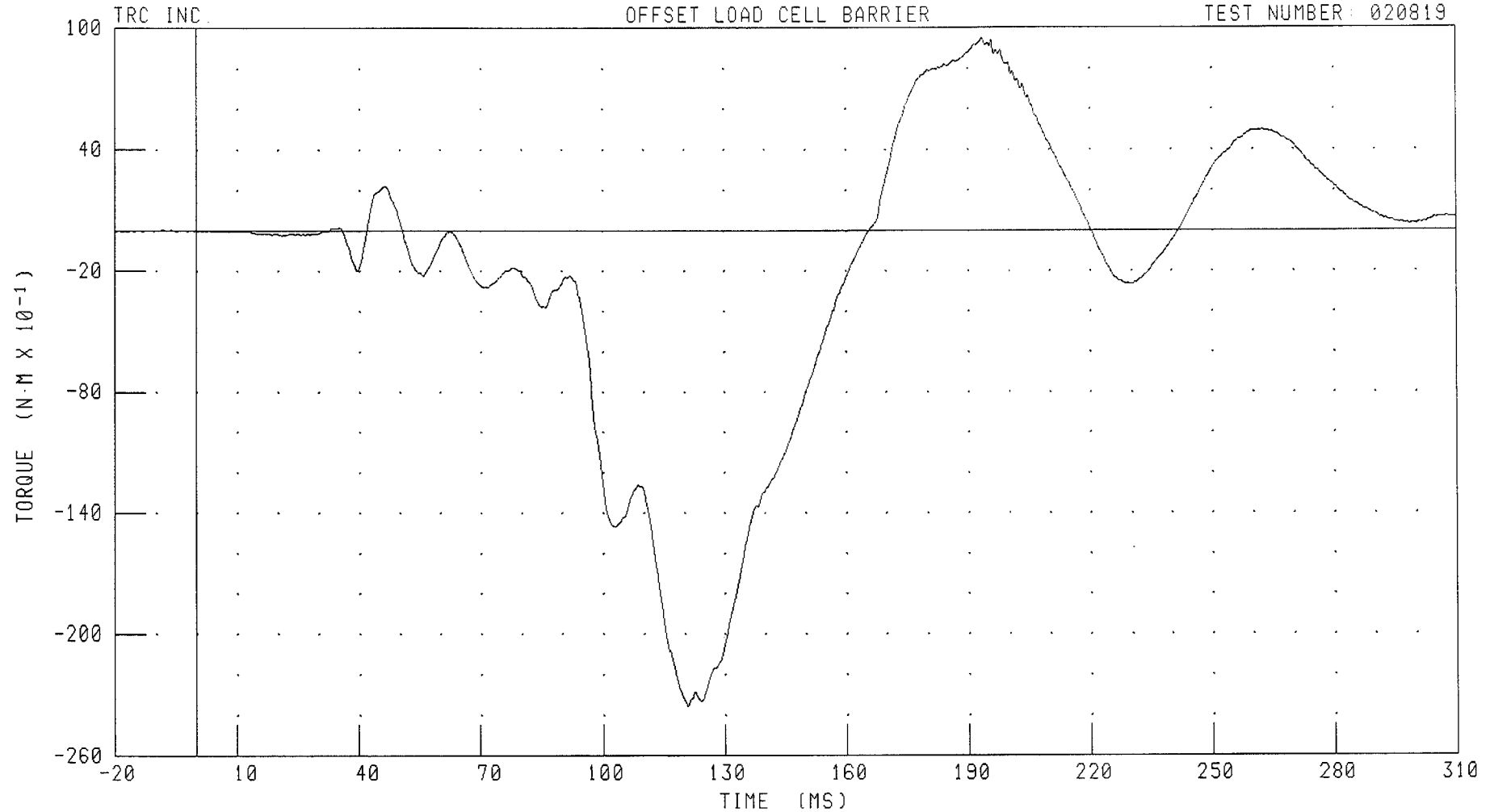
PEAK DATA: 367.23 N @ 52.80 MS; -316.67 N @ 102.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NECK MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKXM2 FILTER: CH. CLASS 600

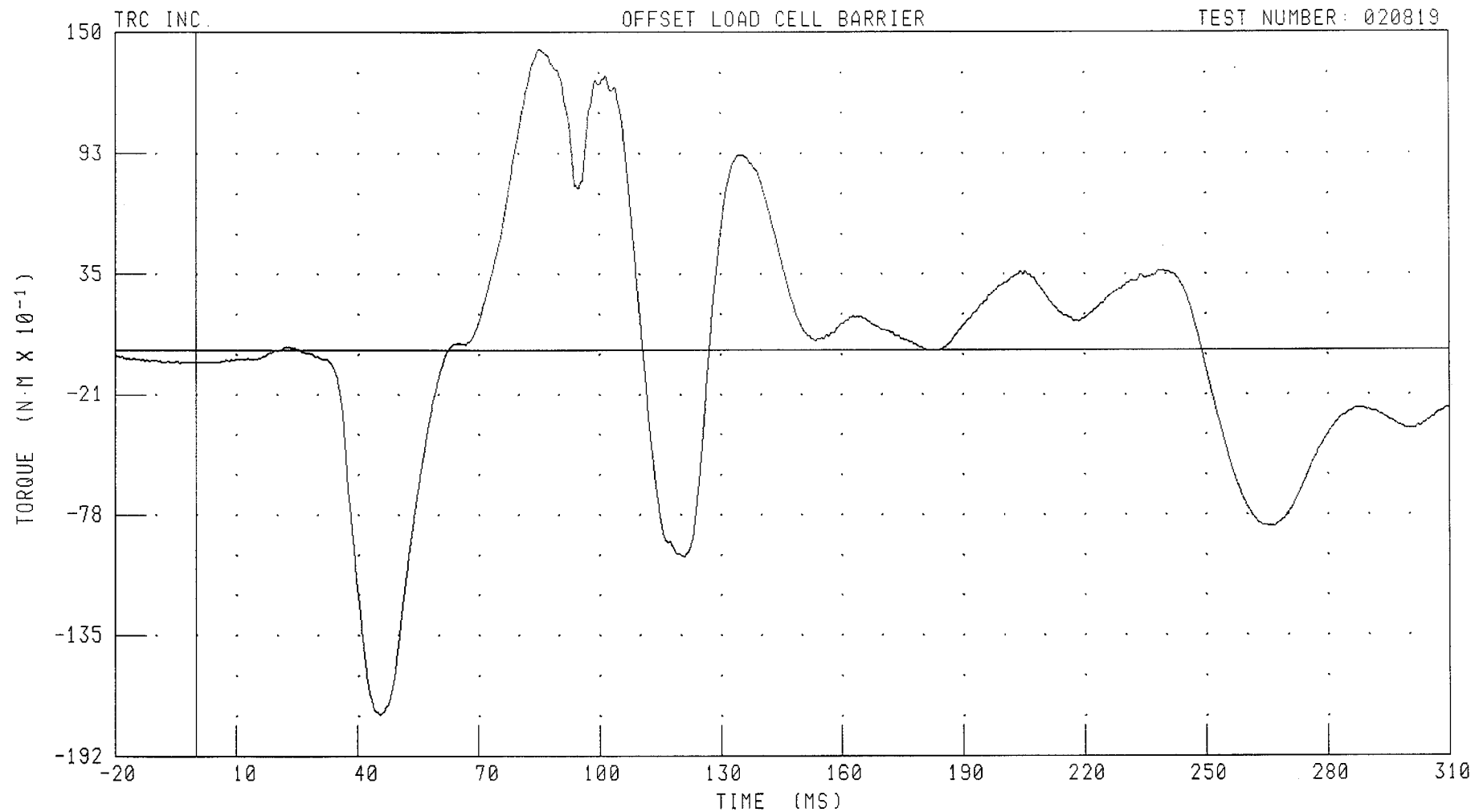
PEAK DATA: 9.49 N·M @ 193.68 MS; -23.58 N·M @ 120.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NECK MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

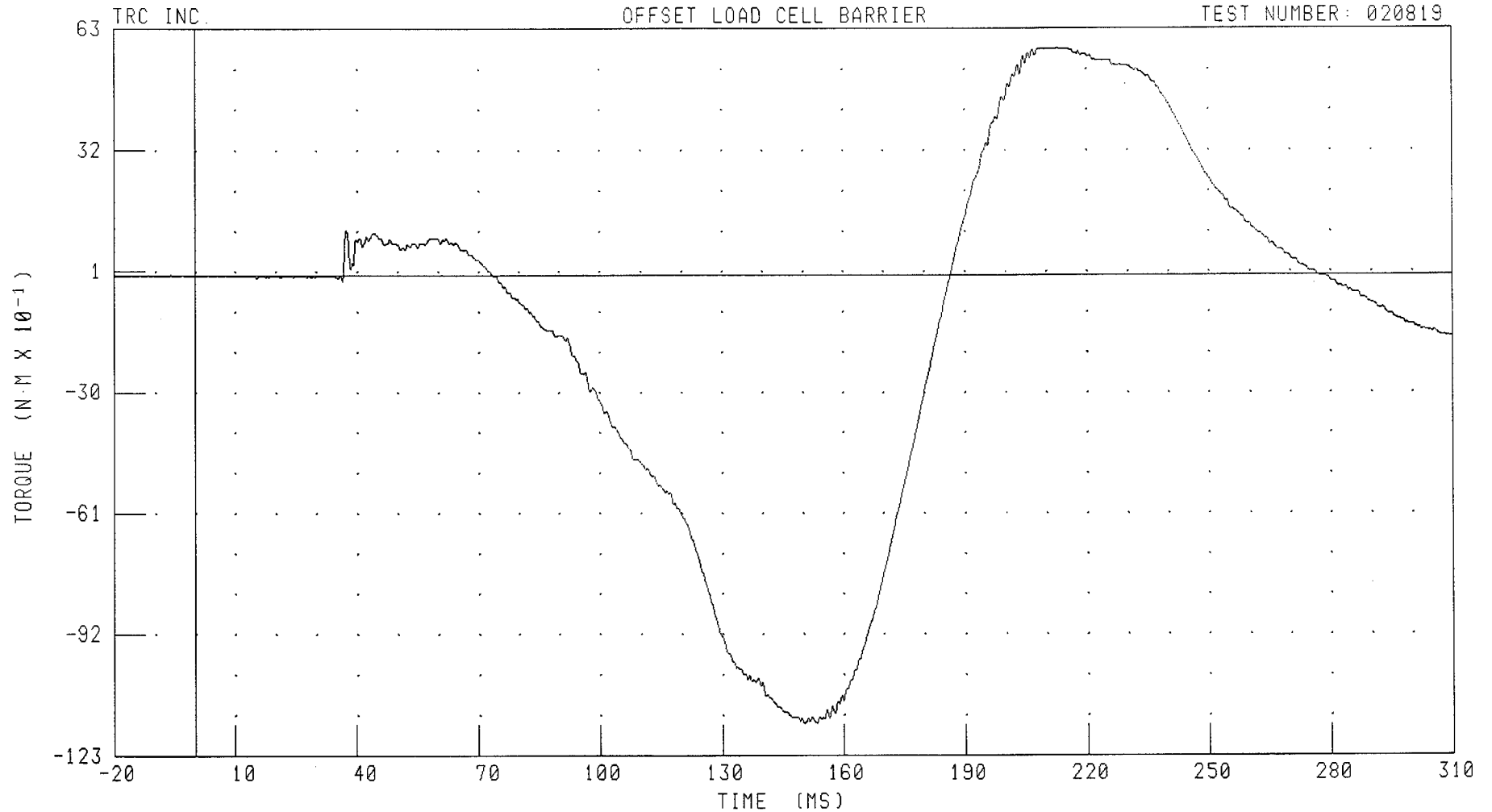
PEAK DATA: 14.20 N·M @ 85.76 MS; -17.25 N·M @ 45.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NECK MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



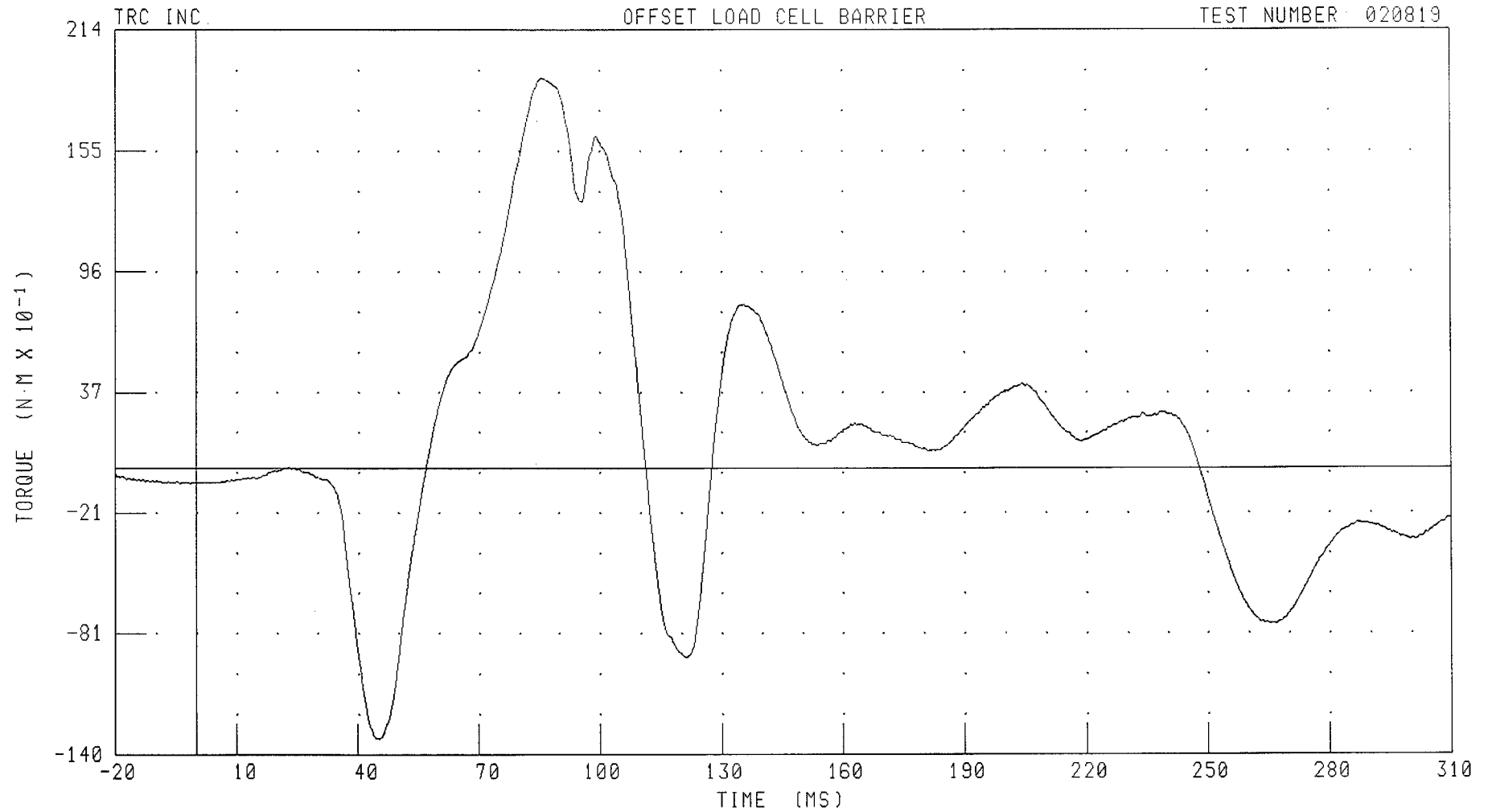
CHANNEL: NEKZM2 FILTER: CH. CLASS 600

PEAK DATA: 5.81 N·M @ 213.12 MS; -11.48 N·M @ 150.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NEKOM2 FILTER: CH. CLASS 600

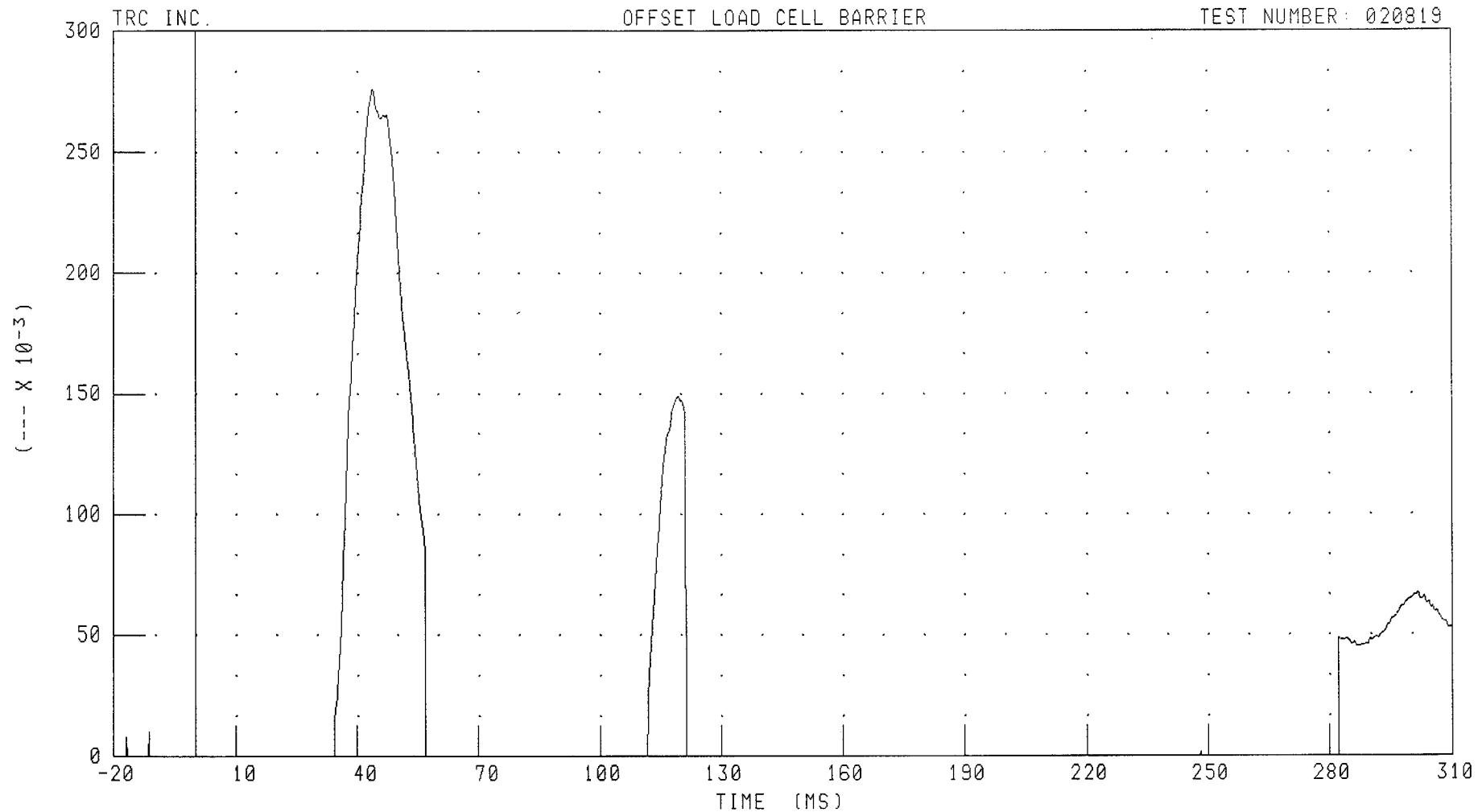
PEAK DATA: 19.08 N·M @ 85.84 MS; -13.23 N·M @ 45.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NIJ TENSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NTE2

FILTER: CH. CLASS 600

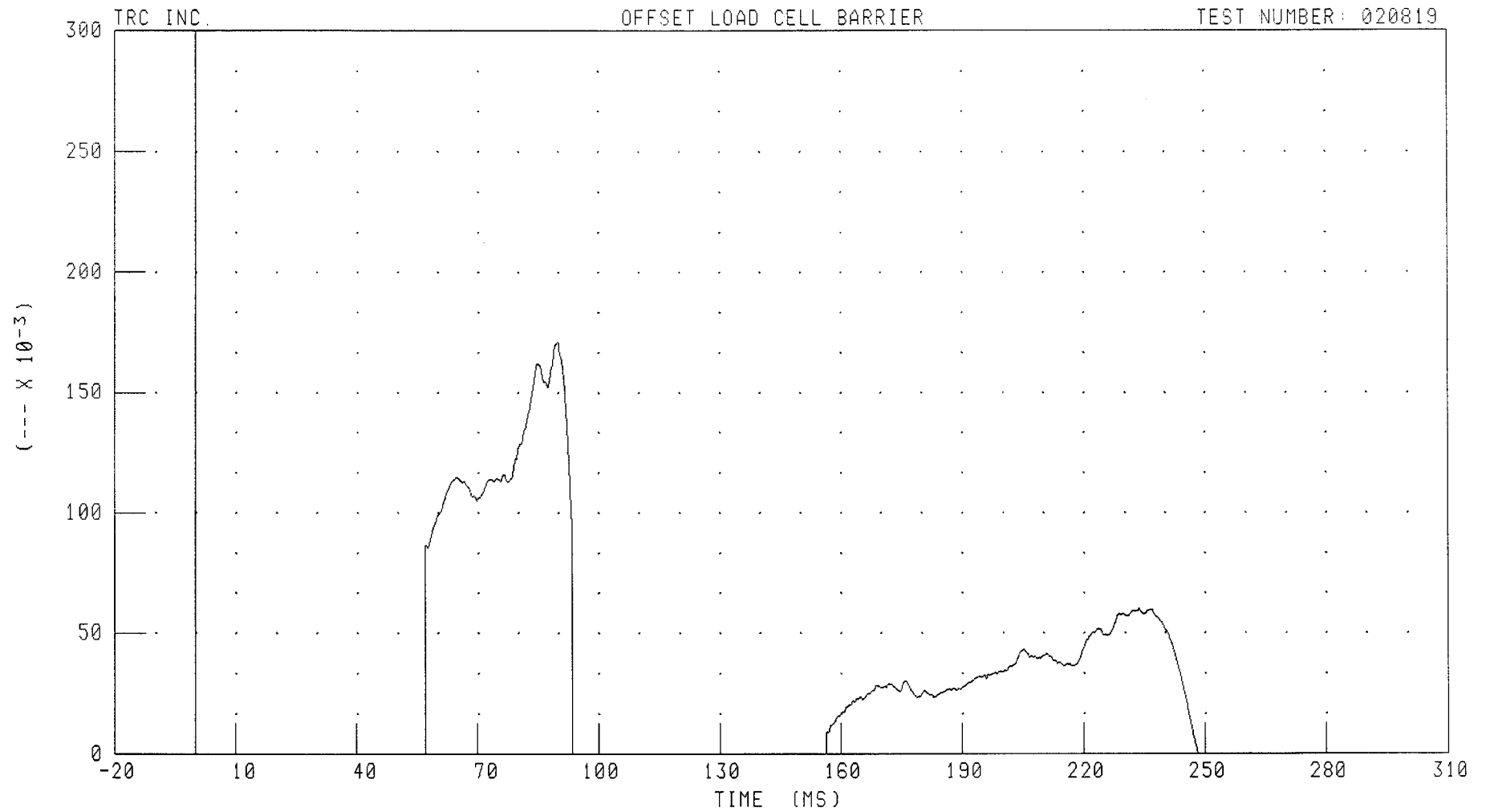
PEAK DATA: 0.28 --- @ 43.92 MS; 0.00 --- @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NIJ TENSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NTF2

FILTER: CH. CLASS 600

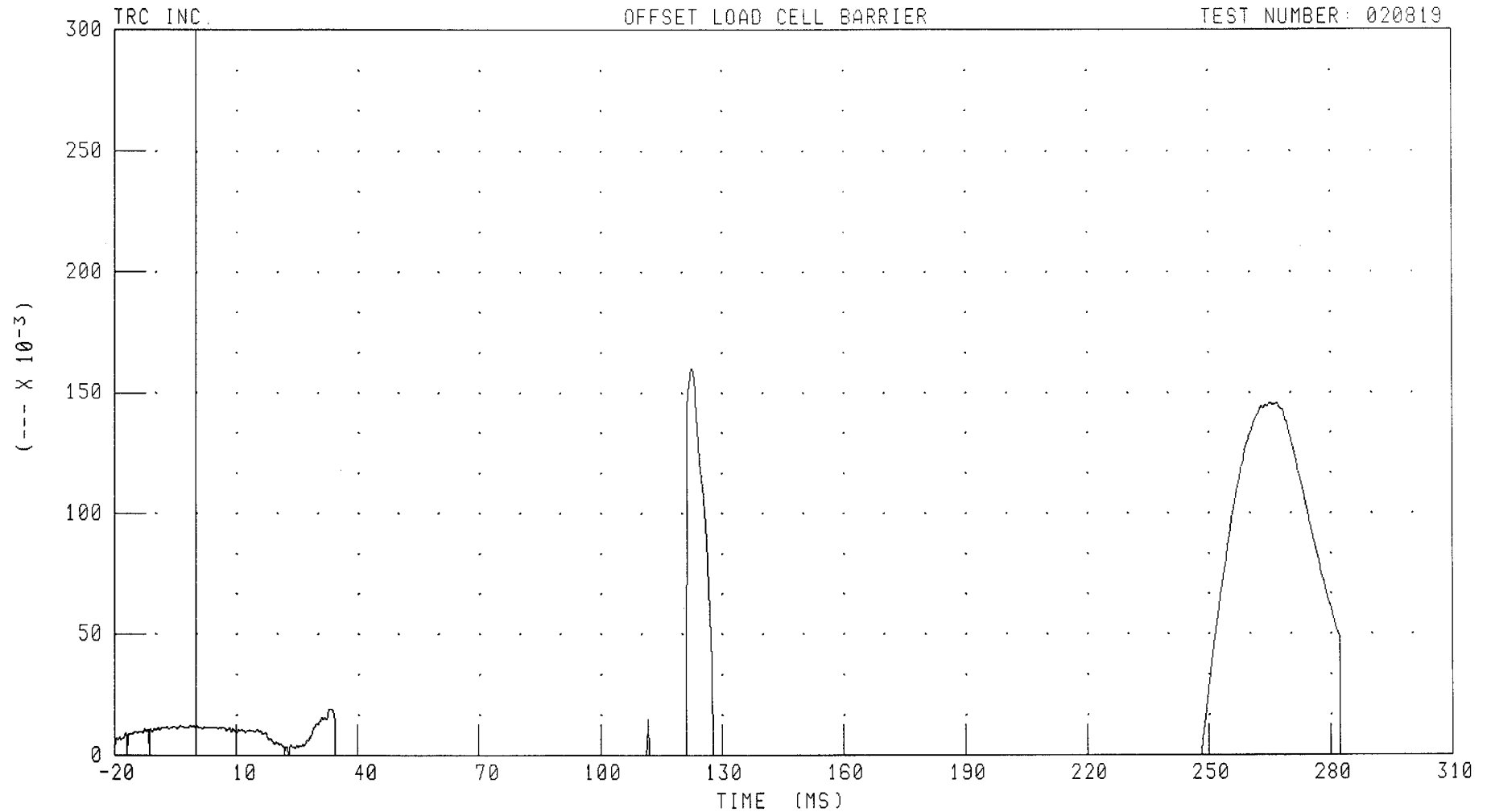
PEAK DATA: 0.17 --- @ 89.92 MS; 0.00 --- @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NIJ COMPRESSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NCE2

FILTER: CH. CLASS 600

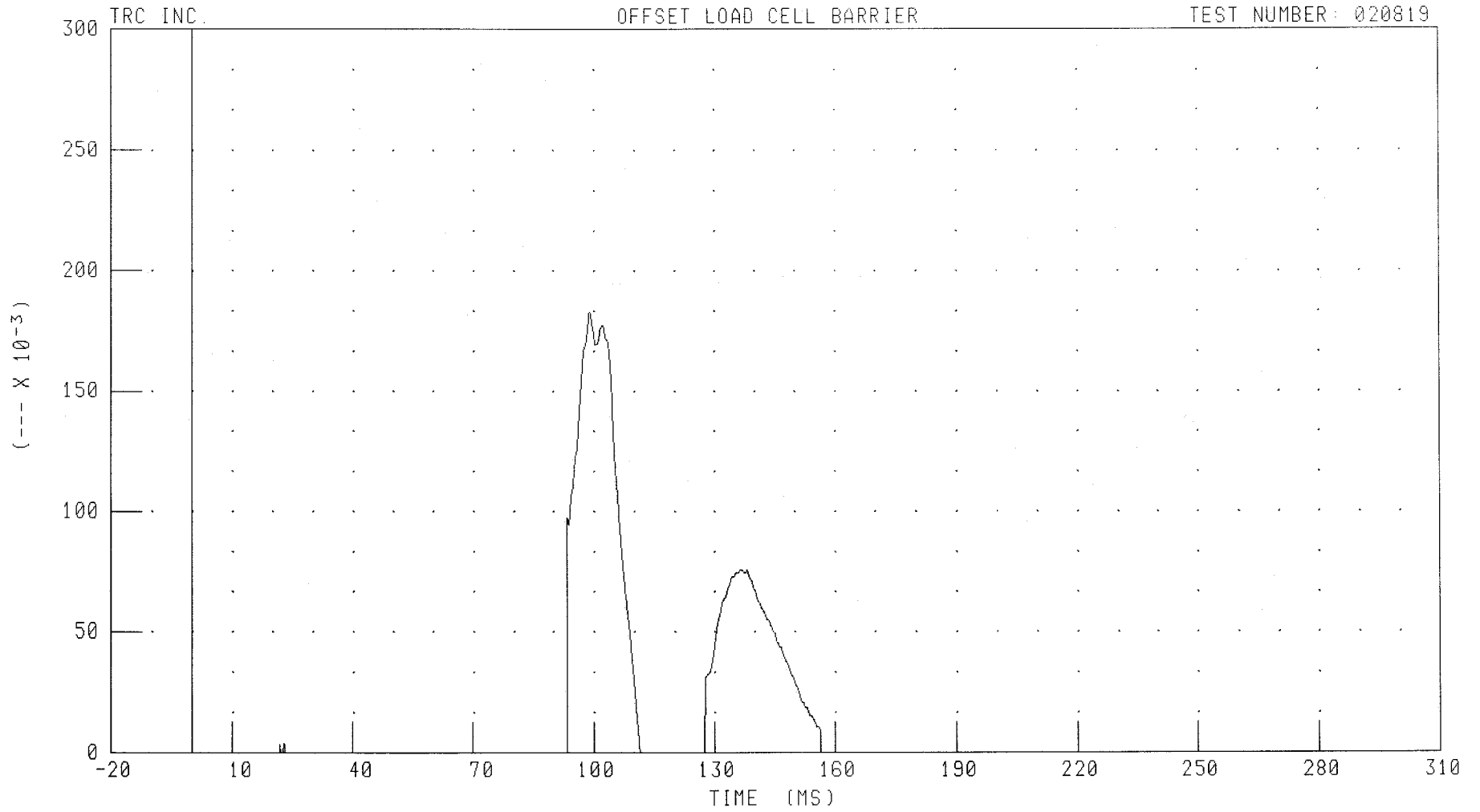
PEAK DATA: 0.16 --- @ 122.64 MS; 14.5 --- @ 267.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NIJ COMPRESSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NCF2

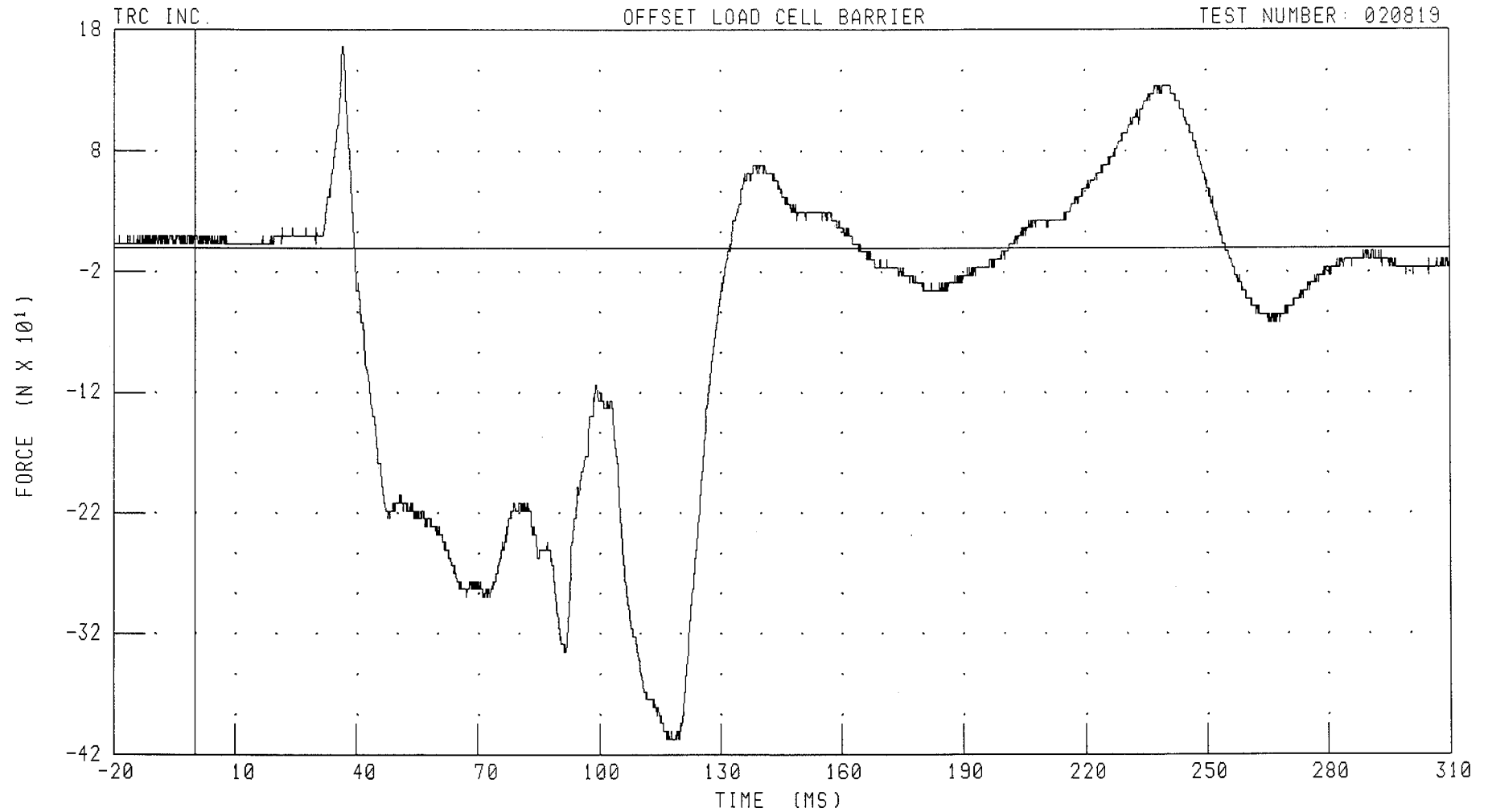
FILTER: CH. CLASS 600

PEAK DATA: 0.18 --- @ 99.12 MS; 0.00 --- @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK LOWER X-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



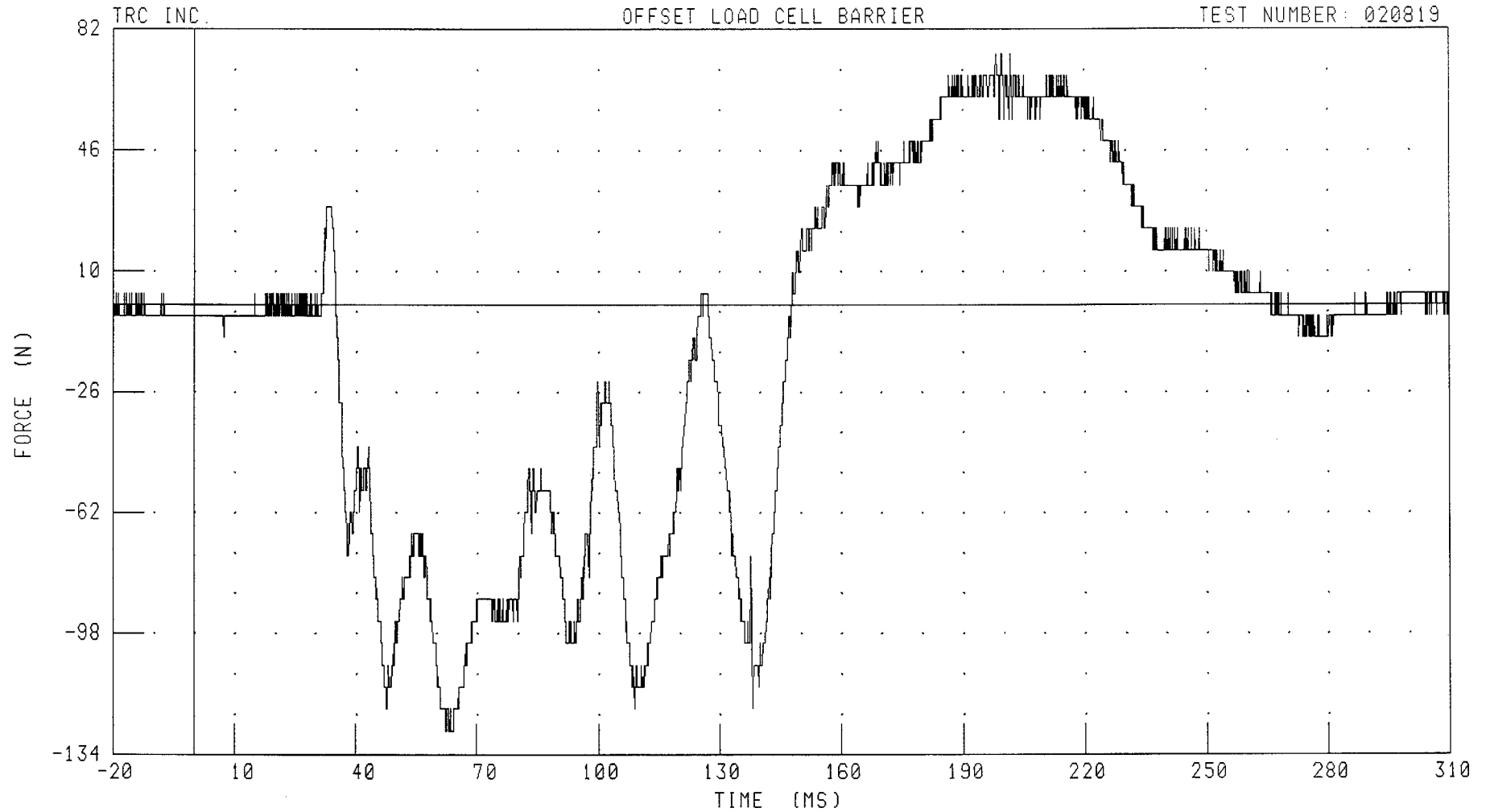
CHANNEL: NKLXF2 FILTER: CH. CLASS 1000

PEAK DATA: 166.35 N @ 36.48 MS; -407.20 N @ 116.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK LOWER Y-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NKLYF2

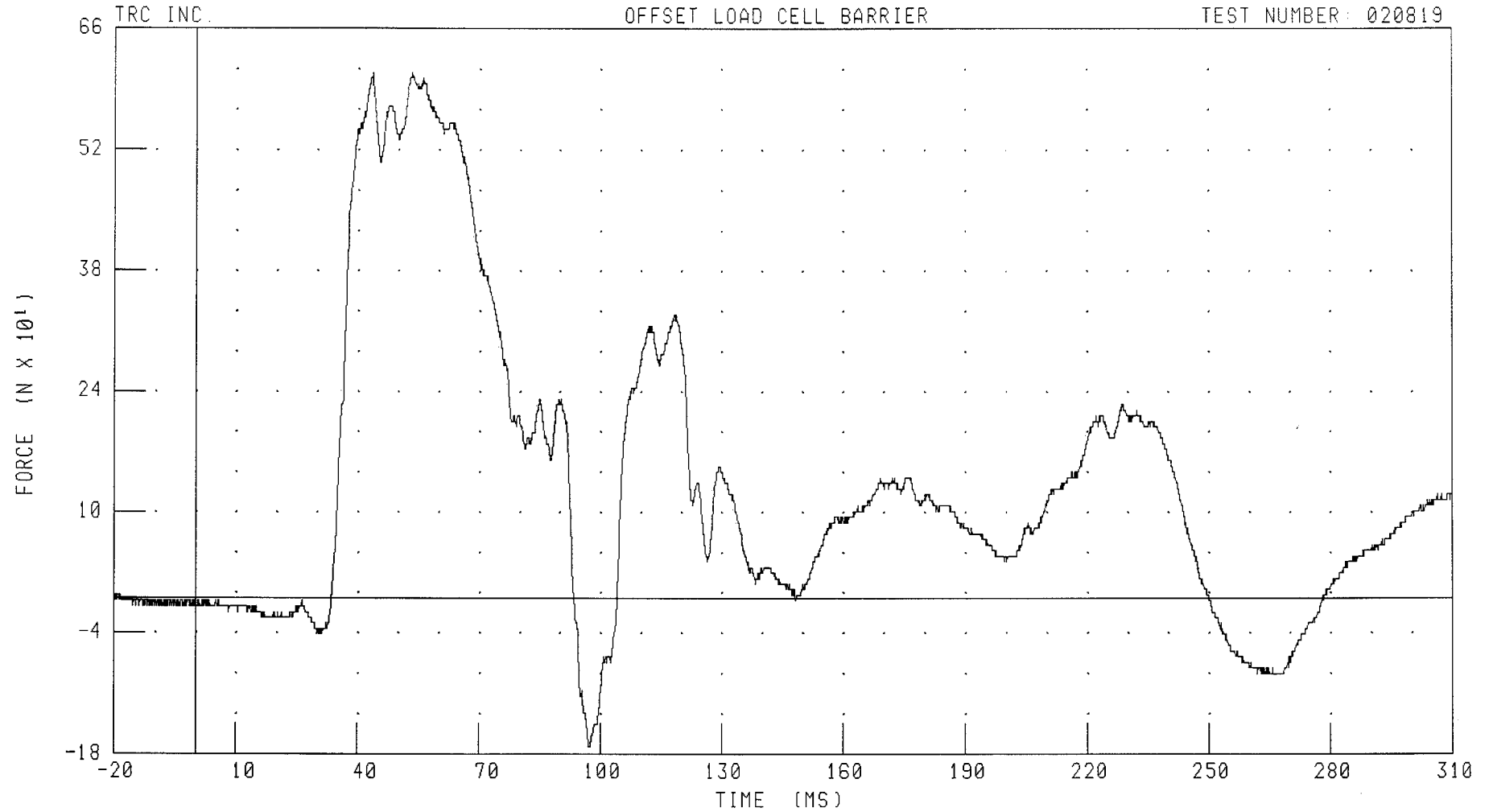
FILTER: CH. CLASS 1000

PEAK DATA: 74.90 N @ 198.32 MS; -126.89 N @ 62.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK LOWER Z-AXIS AXIAL FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



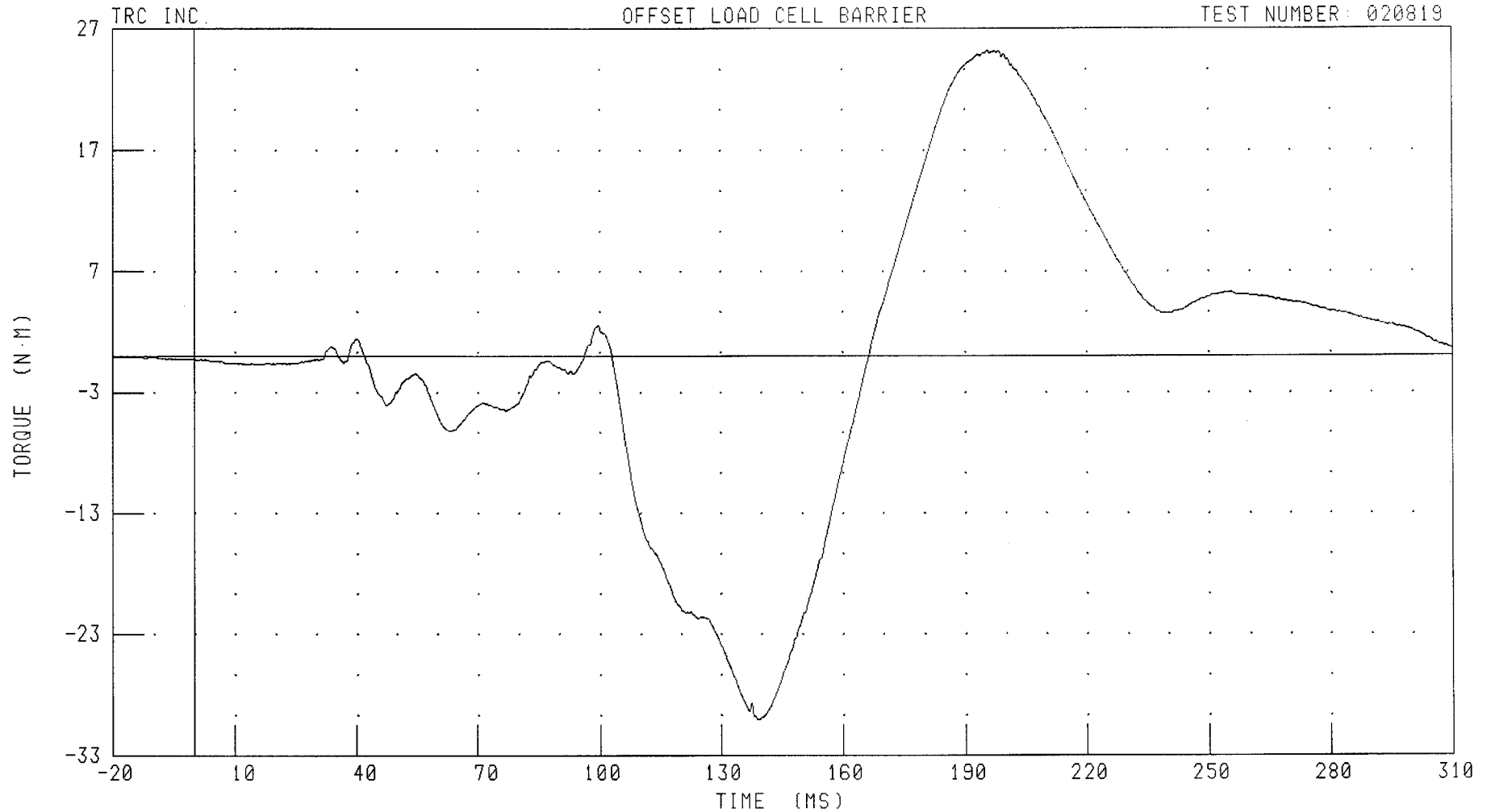
CHANNEL: NKLZF2 FILTER: CH. CLASS 1000

PEAK DATA: 609.45 N @ 43.68 MS; -172.28 N @ 97.12 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK LOWER MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NKLXM2 FILTER: CH. CLASS 600

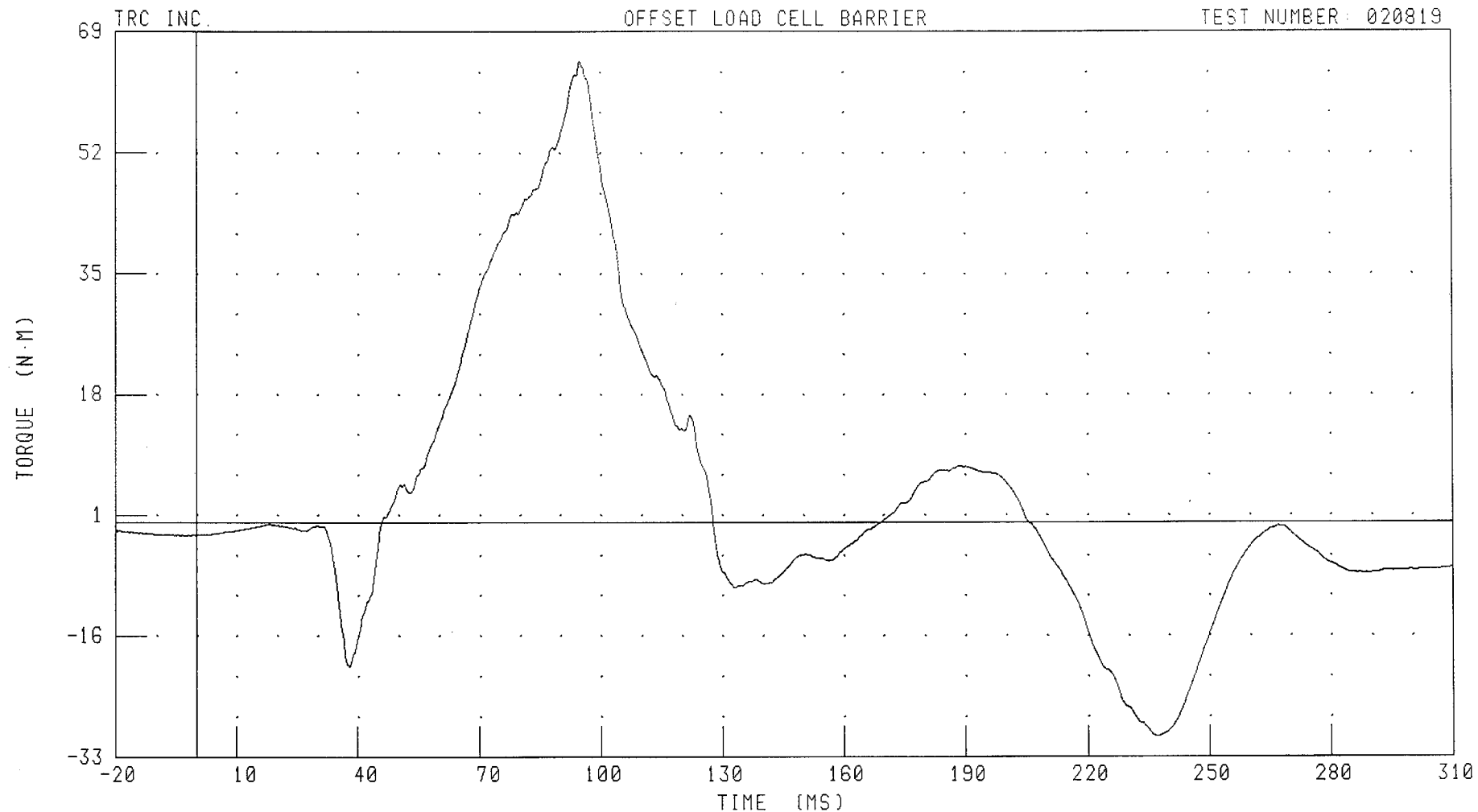
PEAK DATA: 25.21 N·M @ 195.76 MS; -30.04 N·M @ 139.36 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER NECK LOWER MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NKLYM2 FILTER: CH. CLASS 600

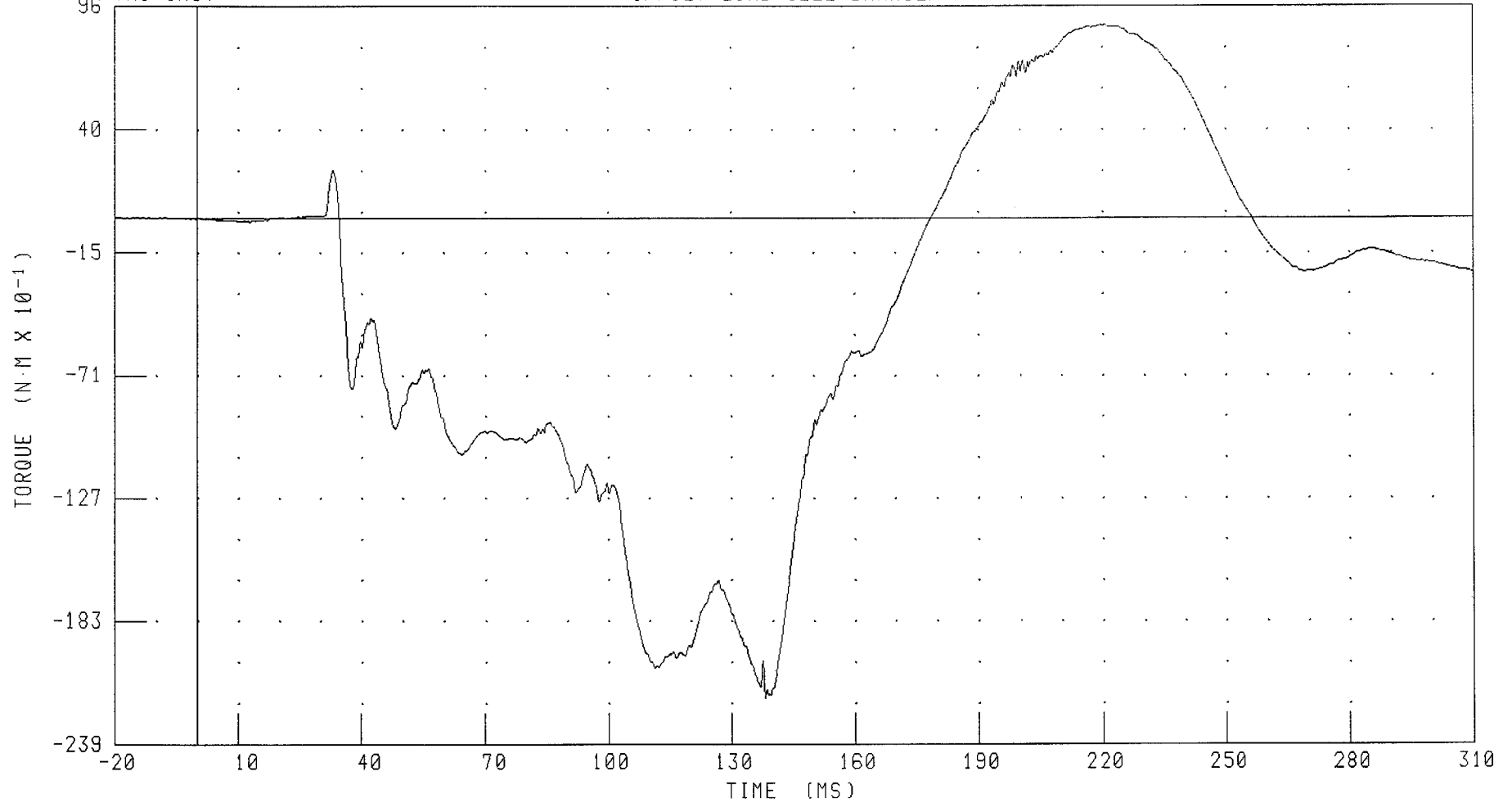
PEAK DATA: 64.88 N·M @ 95.04 MS; -30.19 N·M @ 237.28 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER NECK LOWER MOMENT ABOUT Z AXIS

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: NKLZM2 FILTER: CH. CLASS 600

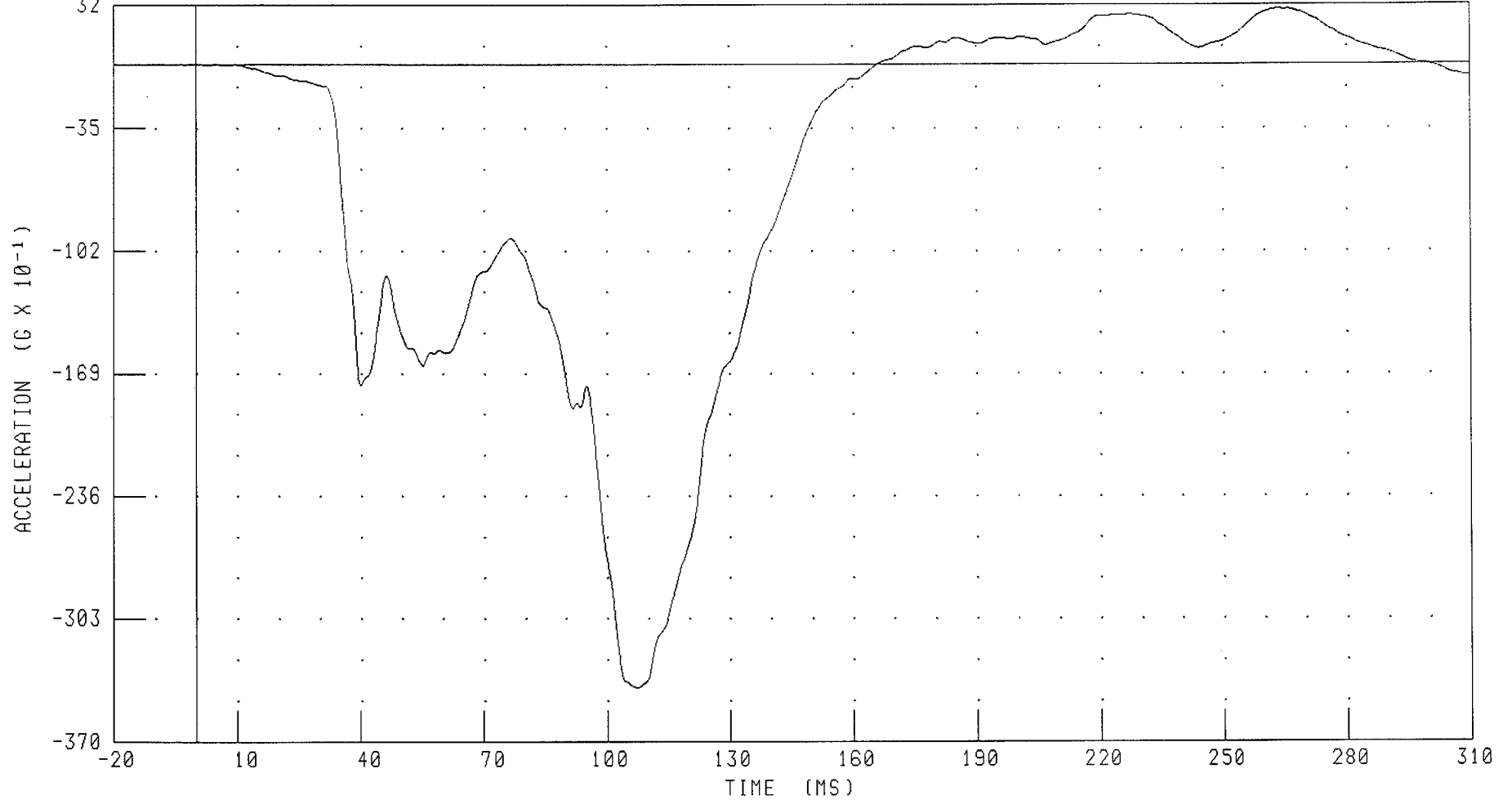
PEAK DATA: 8.74 N·M @ 220.96 MS; -21.91 N·M @ 138.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER CHEST X-AXIS ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



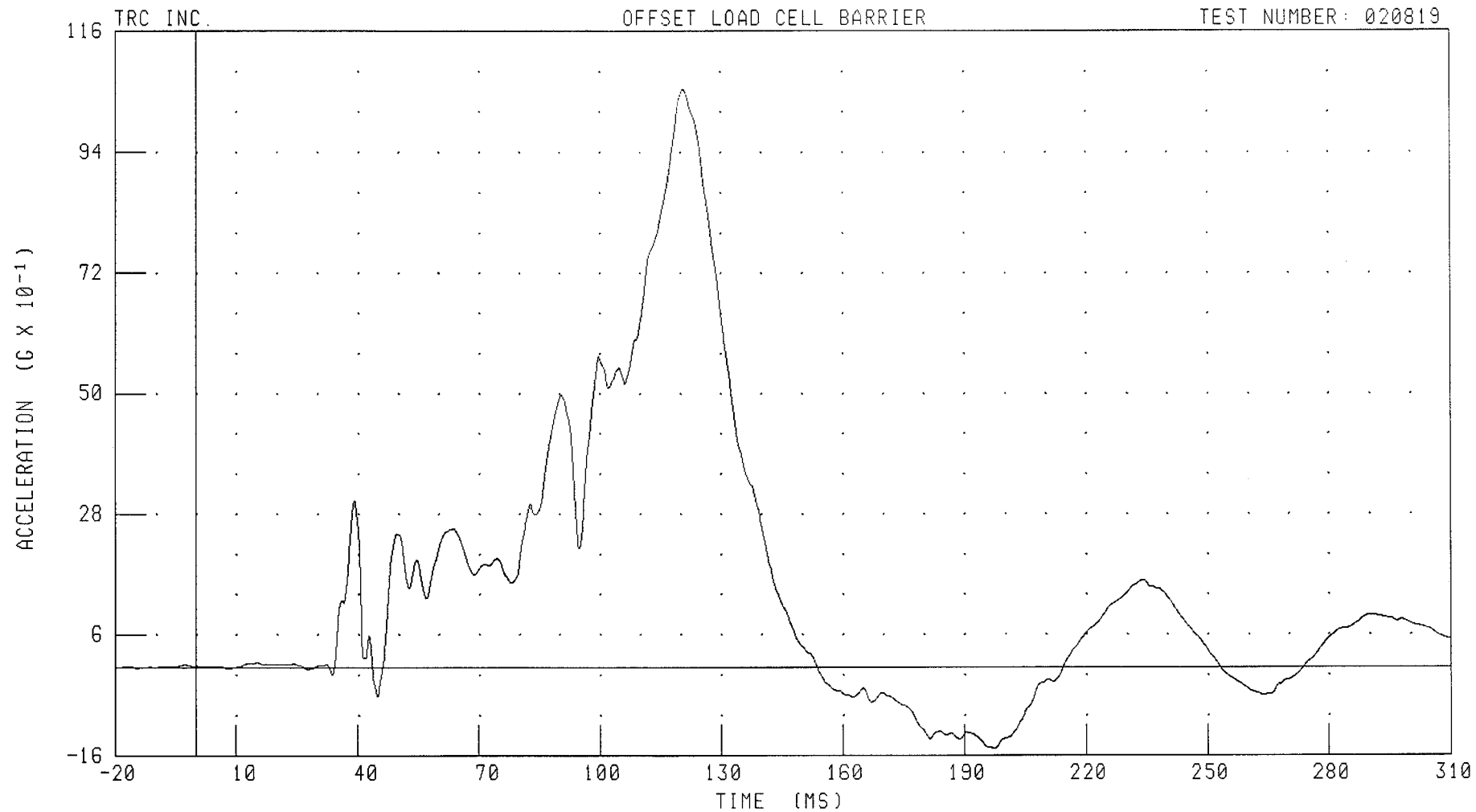
CHANNEL: CSTXC2 FILTER: CH. CLASS 180

PEAK DATA: 3.00 G @ 264.00 MS; -34.07 G @ 107.36 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER CHEST Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

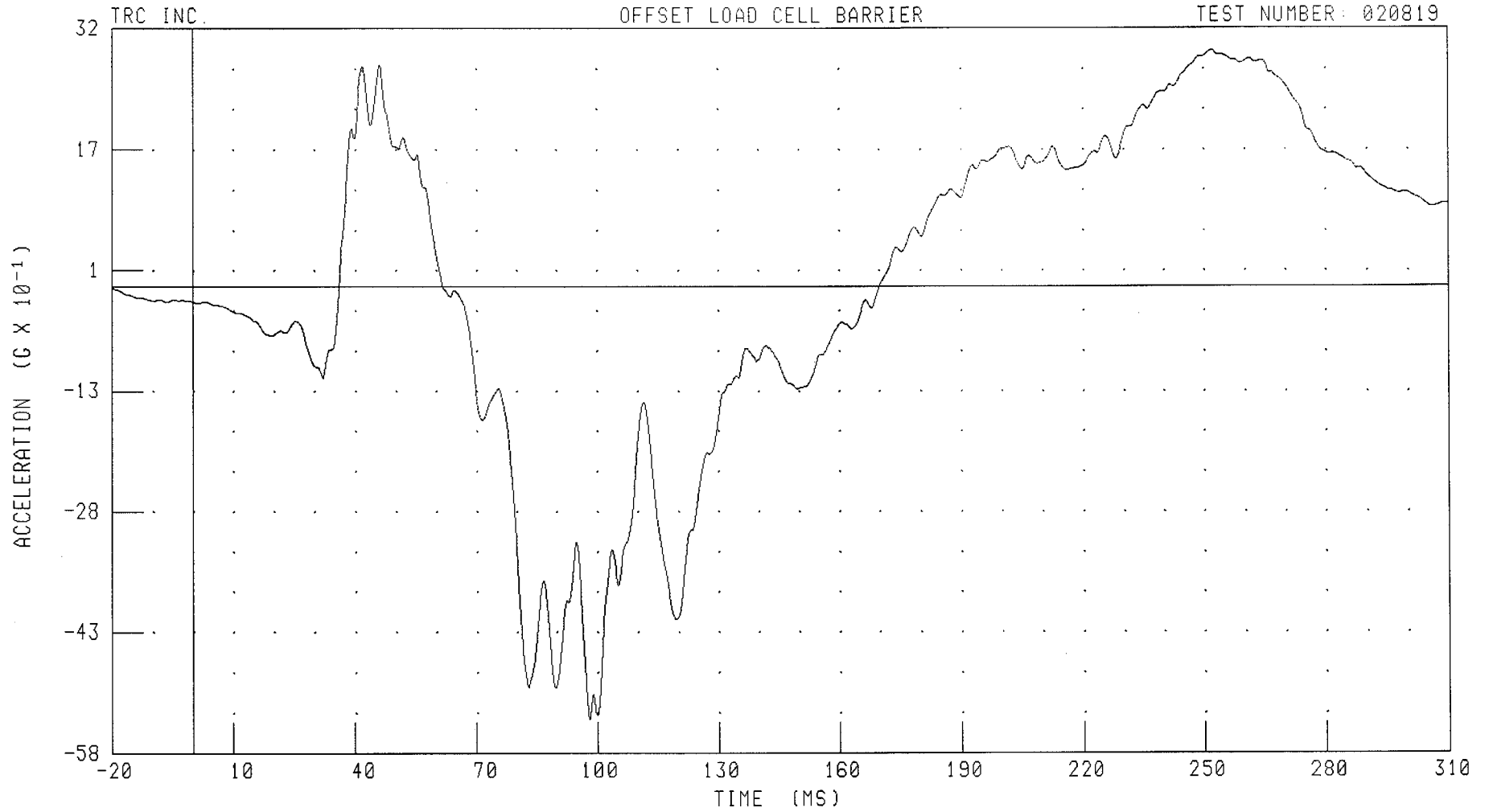
PEAK DATA: 10.55 G @ 120.88 MS; -1.47 G @ 197.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER CHEST Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



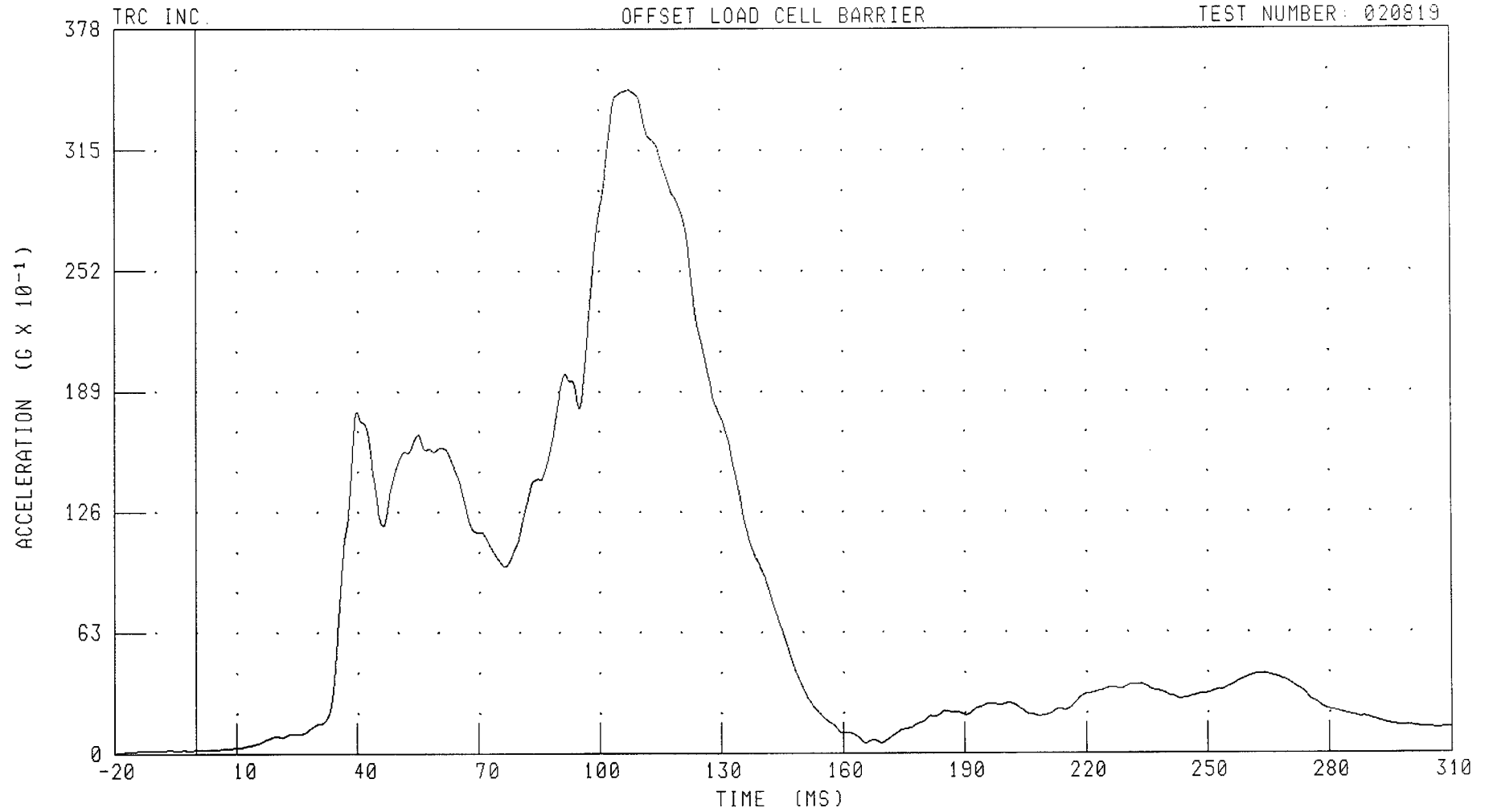
CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 2.92 G @ 252.08 MS; -5.38 G @ 98.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER CHEST RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

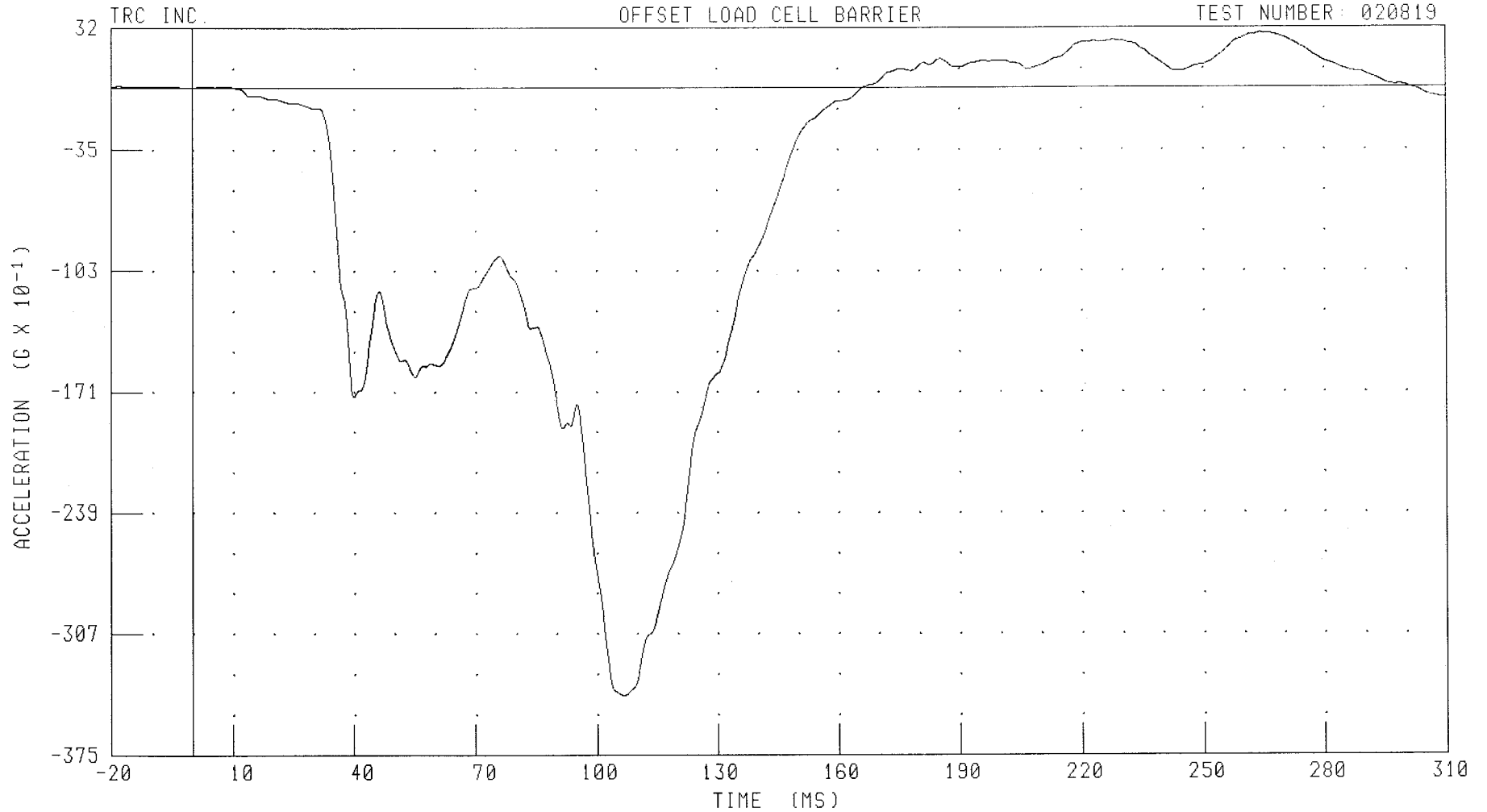
PEAK DATA: 34.65 G @ 107.52 MS; 0.00 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER CHEST X-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



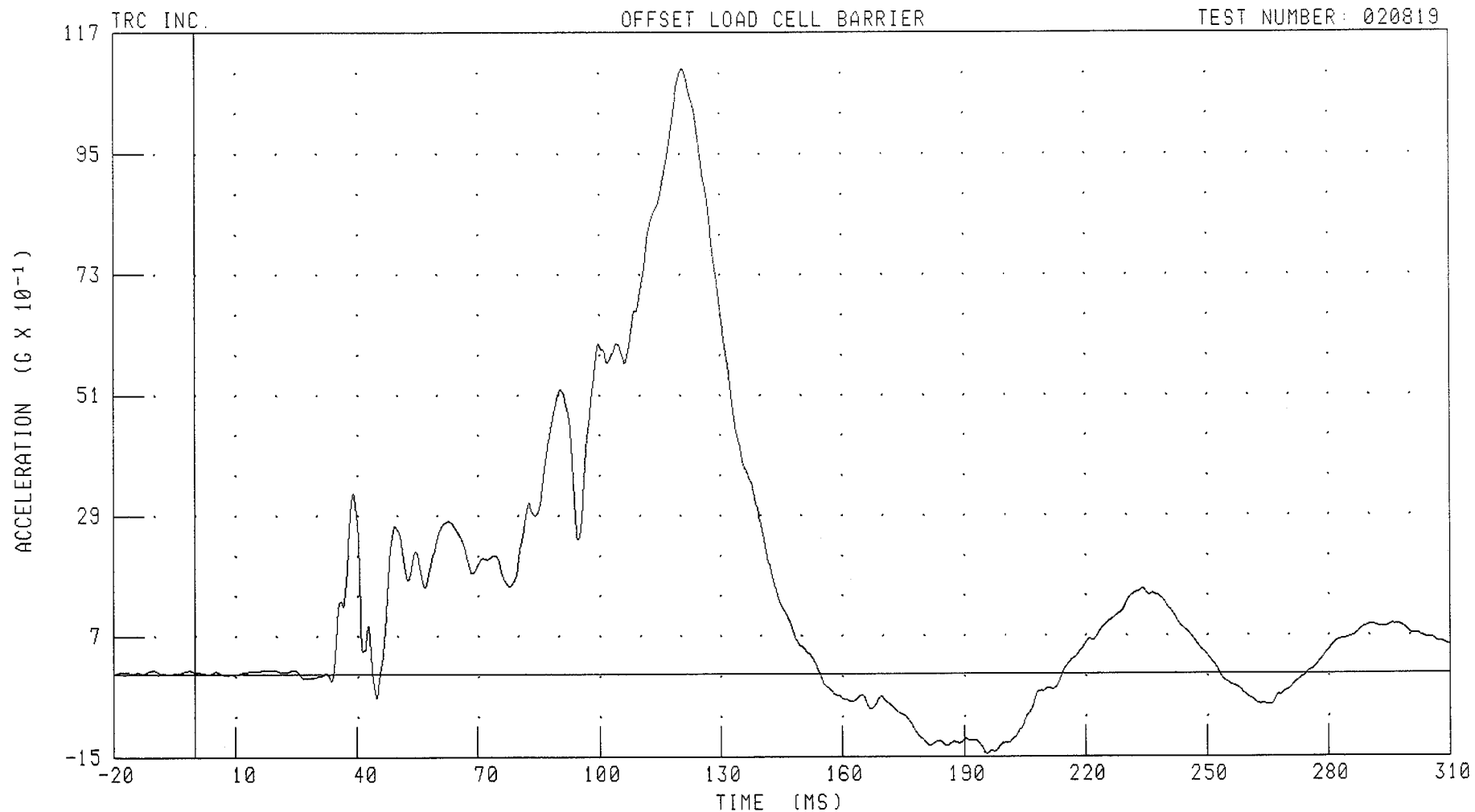
CHANNEL: CSTXR2 FILTER: CH. CLASS 180

PEAK DATA: 3.01 G @ 264.32 MS; -34.17 G @ 106.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER CHEST Y-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTYR2

FILTER: CH. CLASS 180

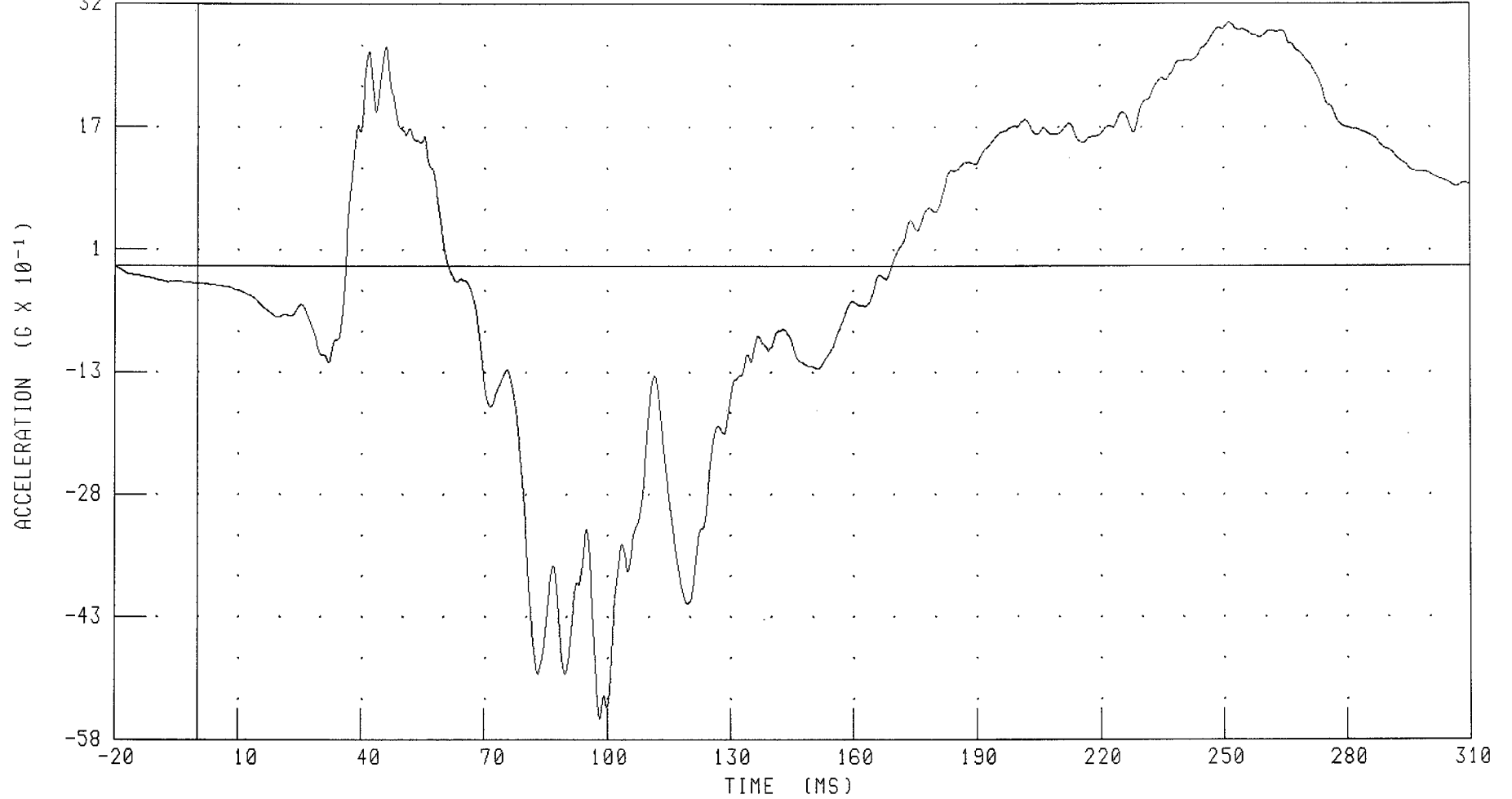
PEAK DATA: 11.05 G @ 120.88 MS; -1.44 G @ 195.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER CHEST Z-AXIS ACCELERATION REDUNDANT

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: CSTZR2 FILTER: CH. CLASS 180

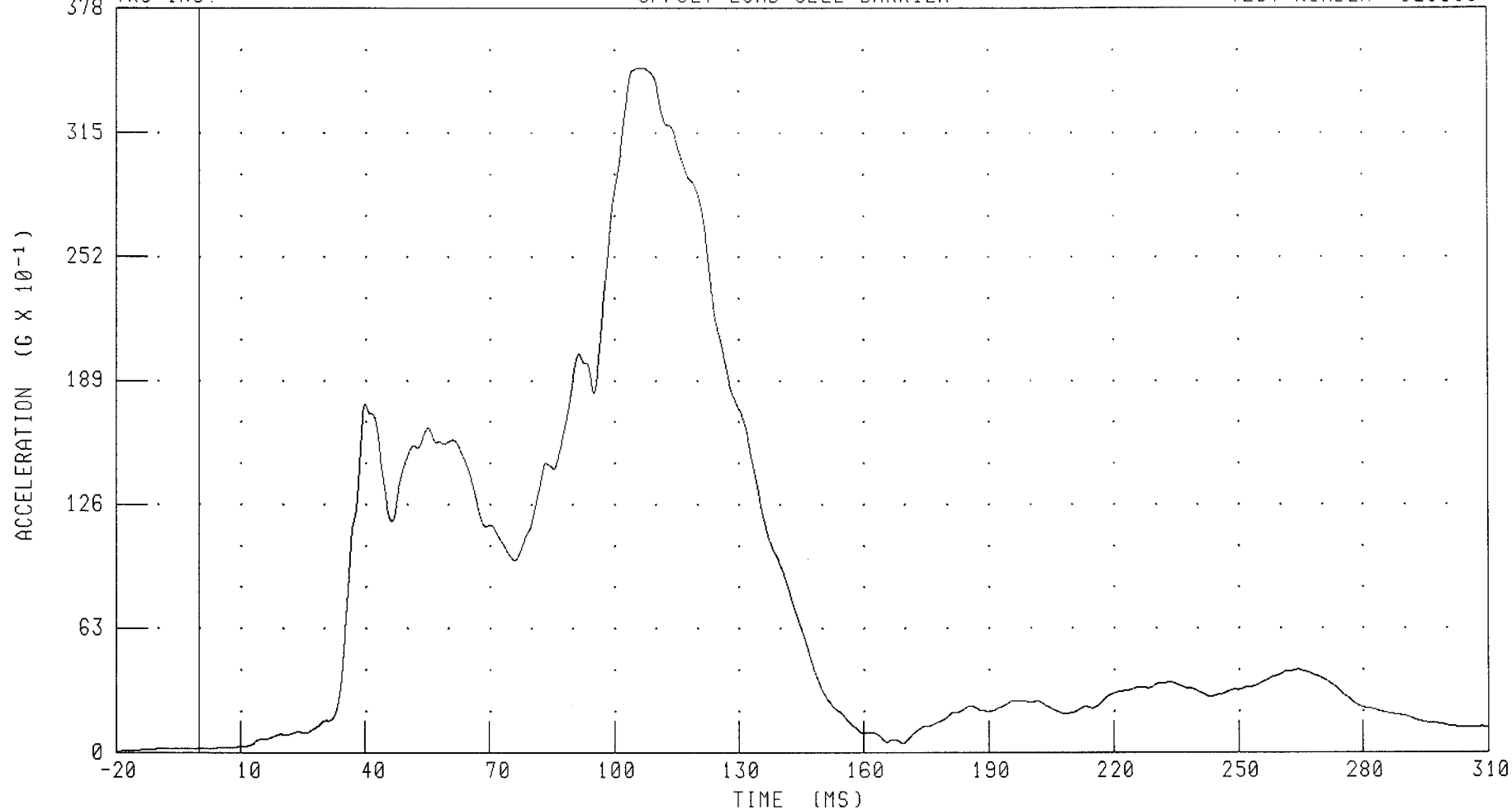
PEAK DATA: 2.97 G @ 251.68 MS; -5.55 G @ 98.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER CHEST RESULTANT ACCELERATION REDUNDANT

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



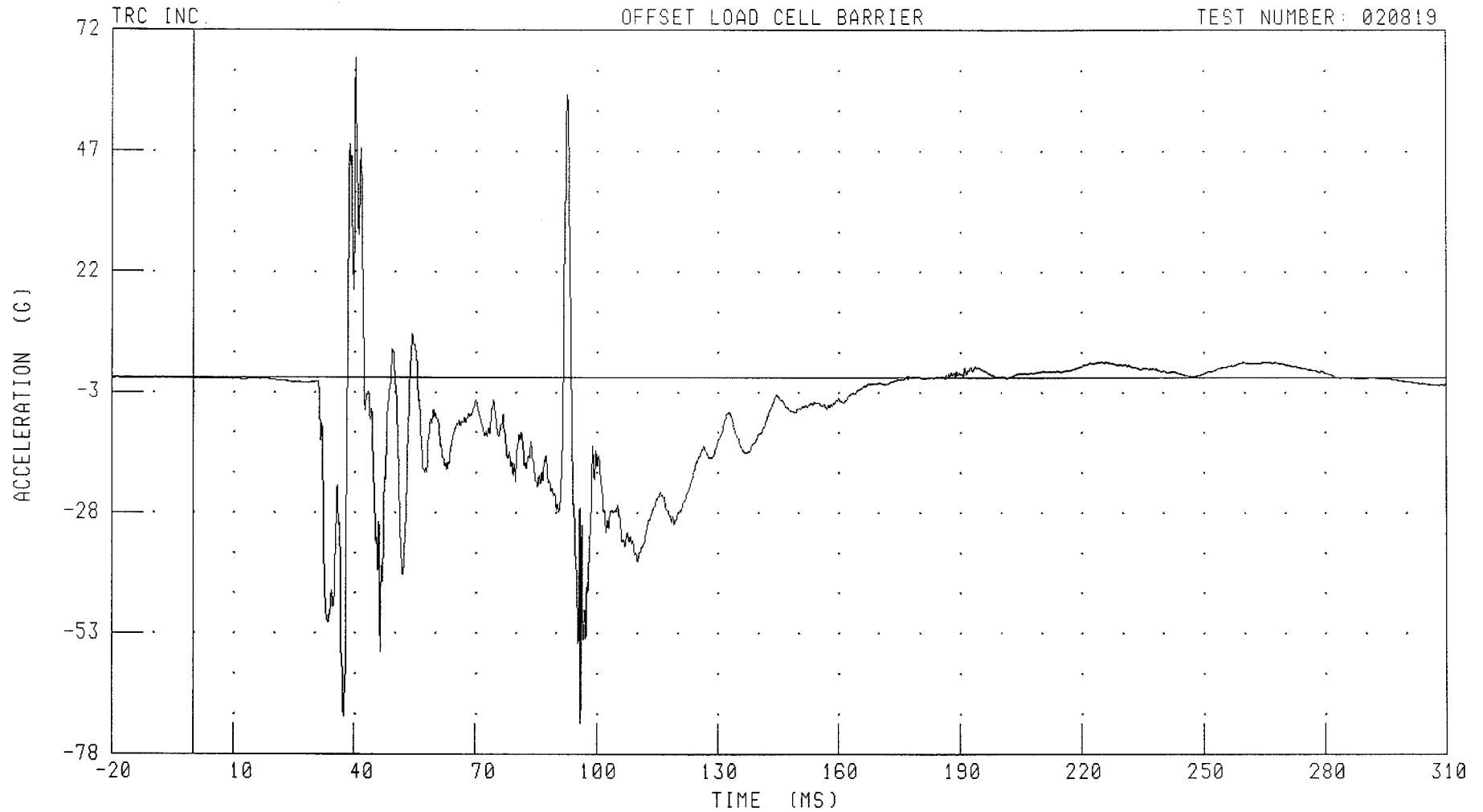
CHANNEL: CSTRR2 FILTER: CH. CLASS 180

PEAK DATA: 34.80 G @ 107.04 MS; 0.00 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER STERNUM UPPER X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



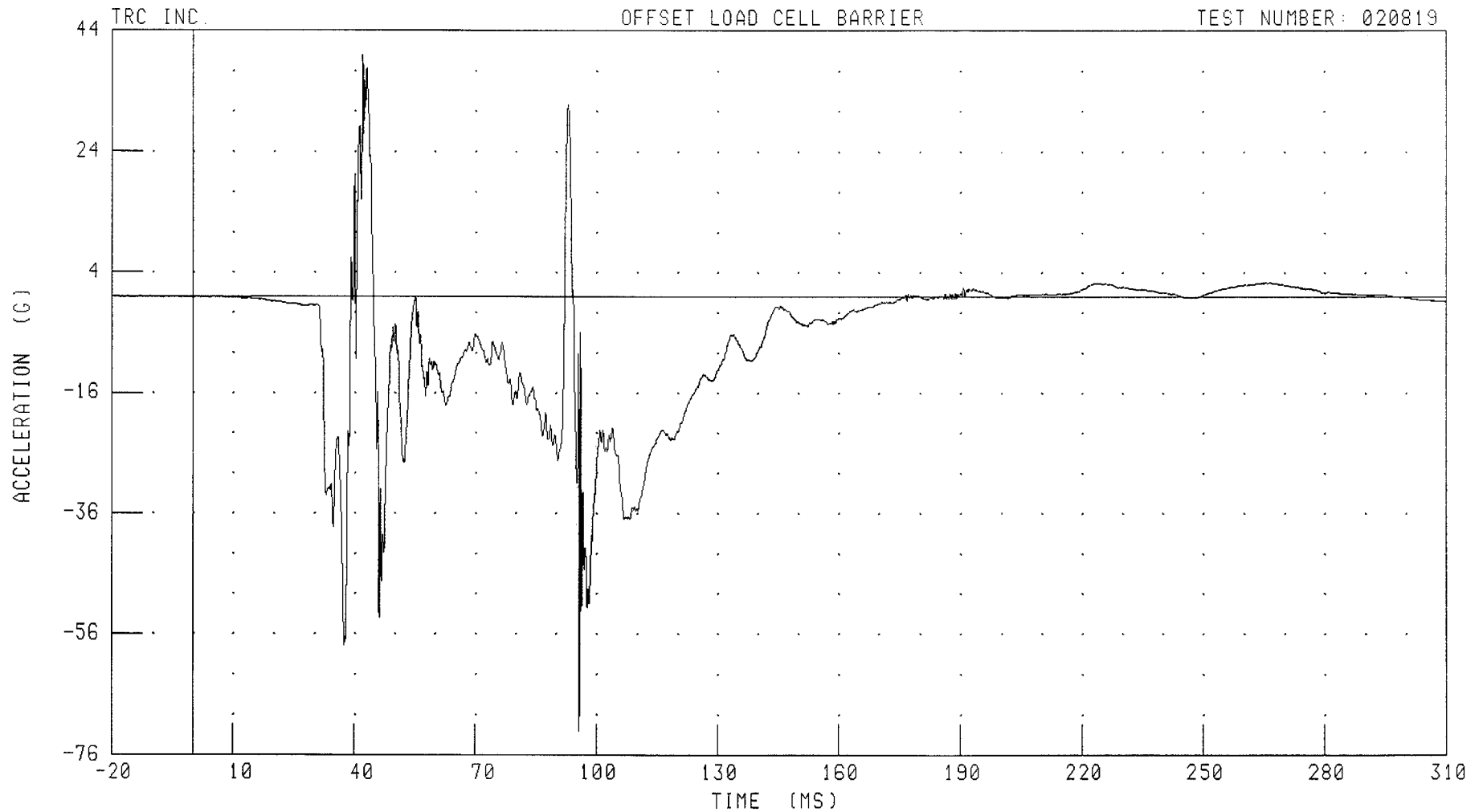
CHANNEL: STUXG2 FILTER: CH. CLASS 1000

PEAK DATA: 66.31 G @ 40.32 MS; -71.65 G @ 96.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER STERNUM MID X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: STMXG2 FILTER: CH. CLASS 1000

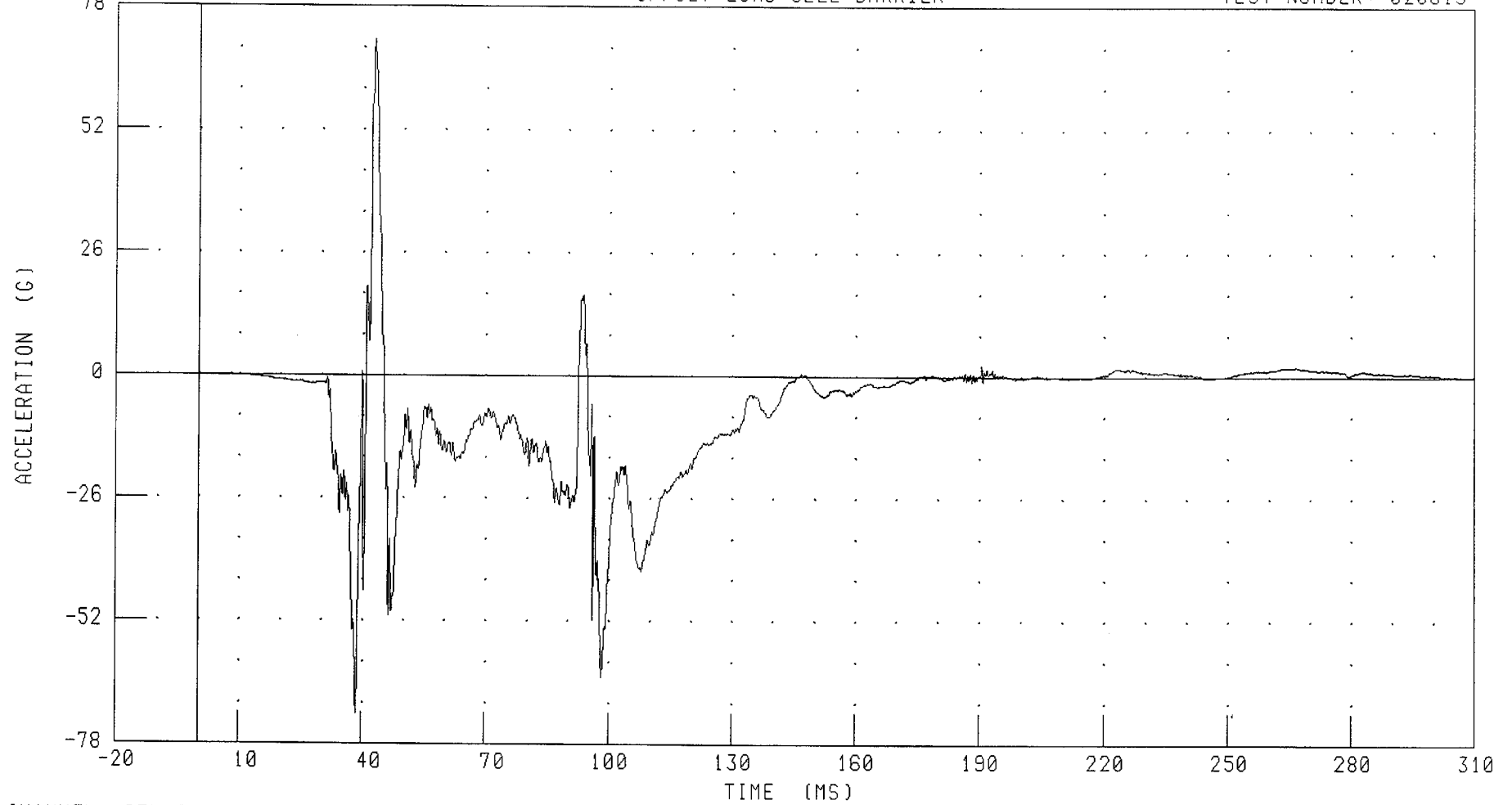
PEAK DATA: 40.03 G @ 42.00 MS; -72.13 G @ 95.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER STERNUM LOWER X-AXIS ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: STLXG2 FILTER: CH. CLASS 1000

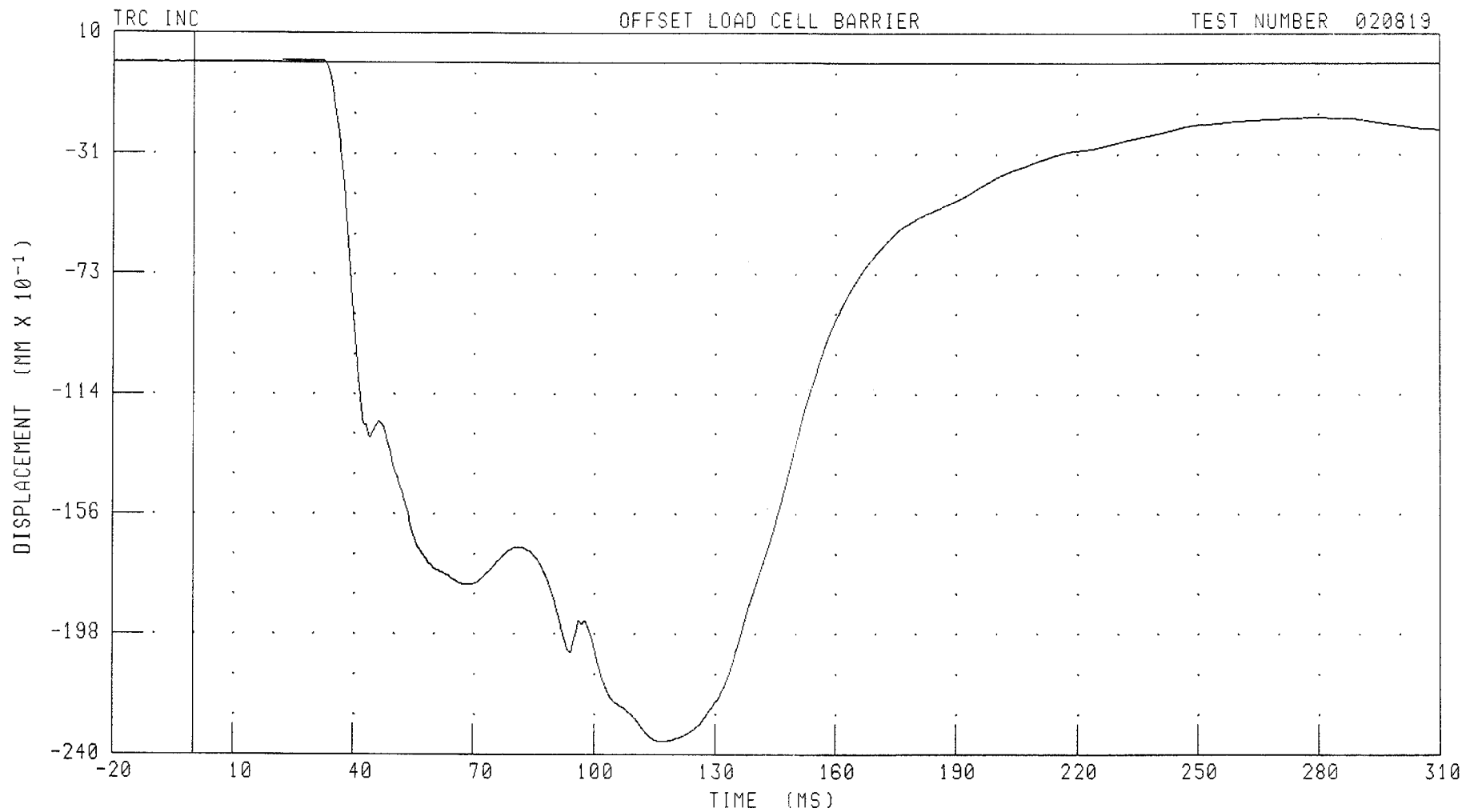
PEAK DATA: 71.02 G @ 42.96 MS; -71.60 G @ 38.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER CHEST DEFLECTION

OFFSET LOAD CELL BARRIER

TEST NUMBER 020819



CHANNEL: CSTXD2 FILTER: CH. CLASS 600

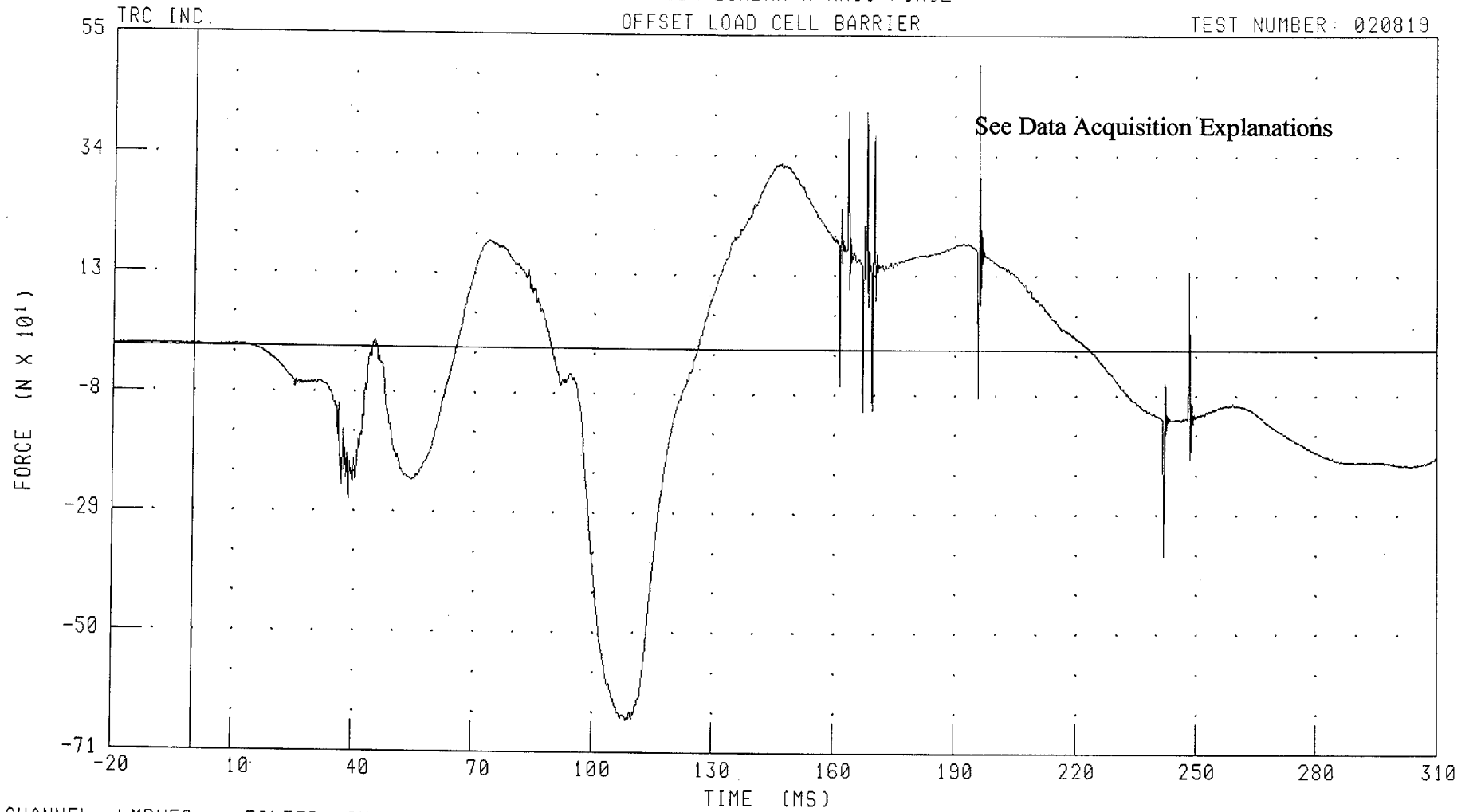
PEAK DATA: 0.06 MM @ 27.28 MS; -23.56 MM @ 116.40 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LUMBAR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LMBXF2 FILTER: CH. CLASS 1000

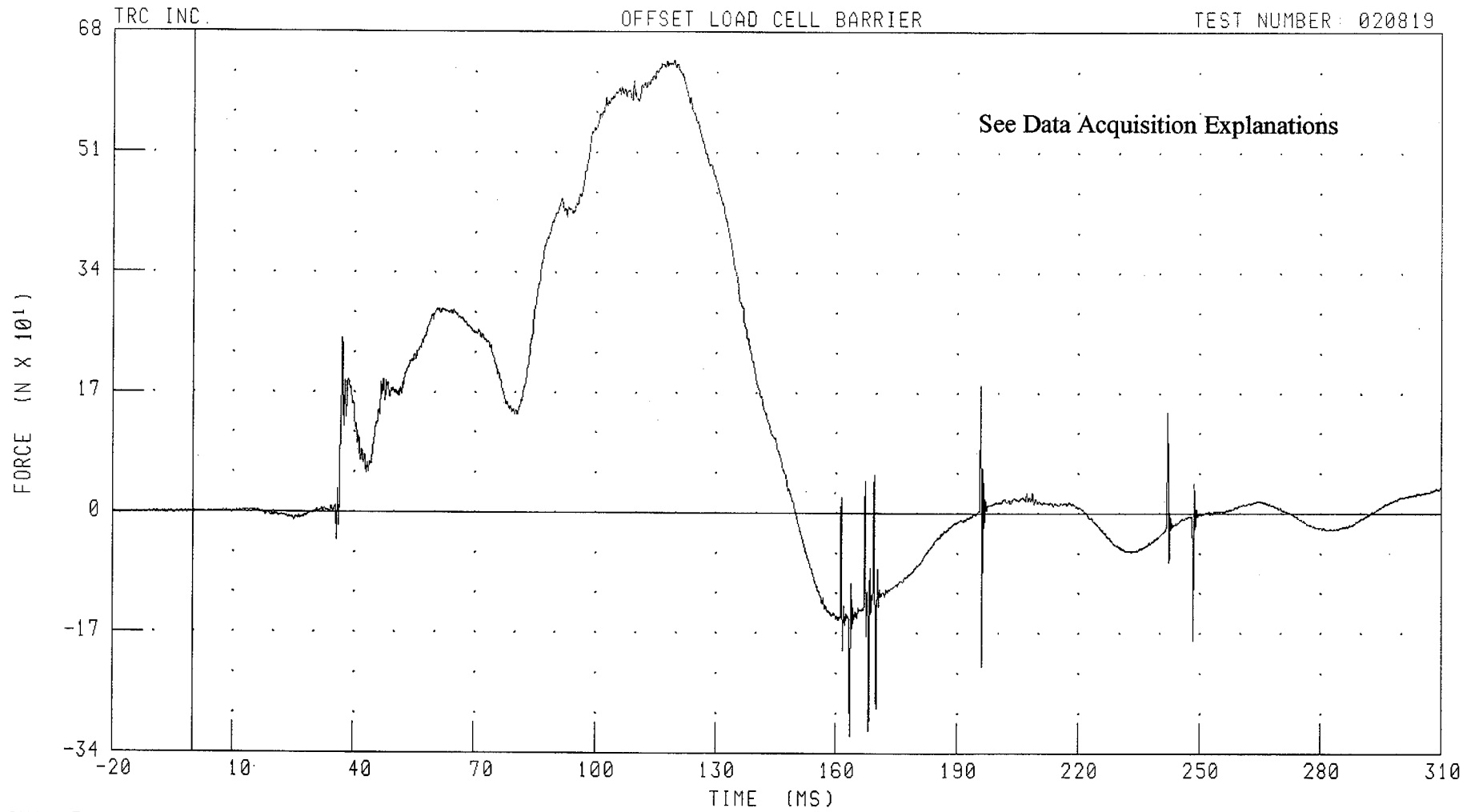
PEAK DATA: 501.39 N @ 196.16 MS; -653.83 N @ 108.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LUMBAR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LM BYF2 FILTER: CH. CLASS 1000

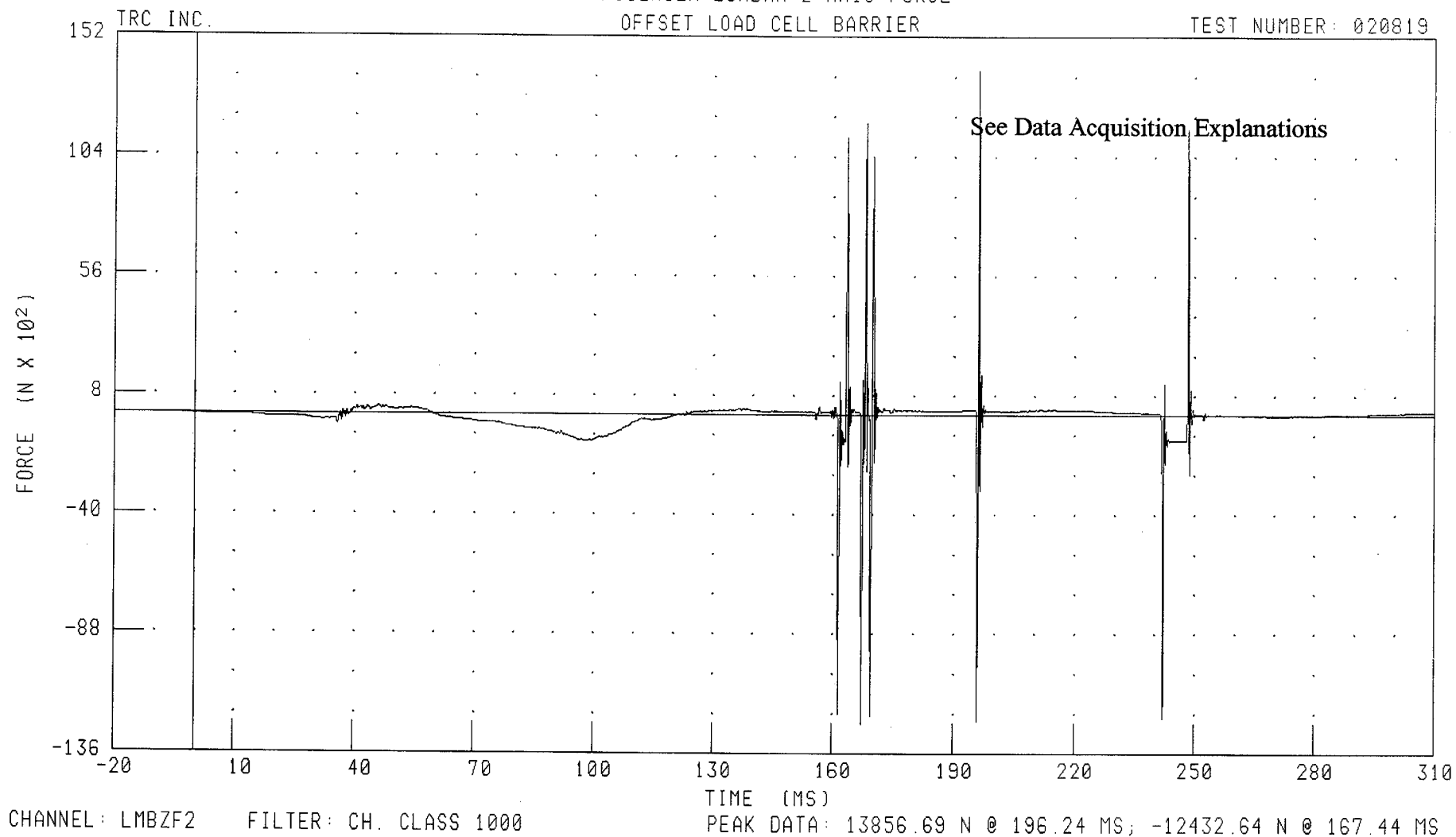
PEAK DATA: 640.50 N @ 119.52 MS; -315.38 N @ 163.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LUMBAR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

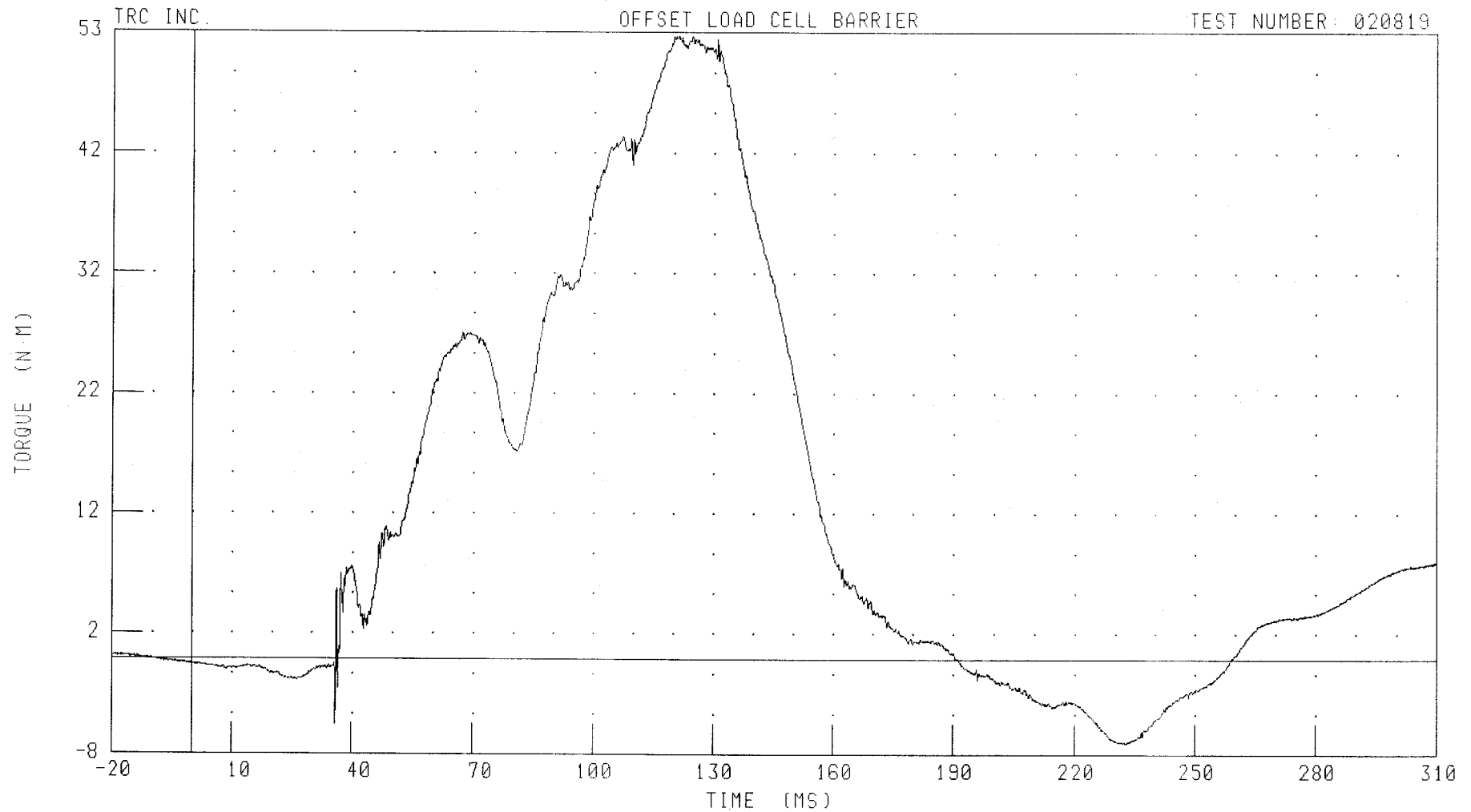


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LUMBAR X-AXIS MOMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



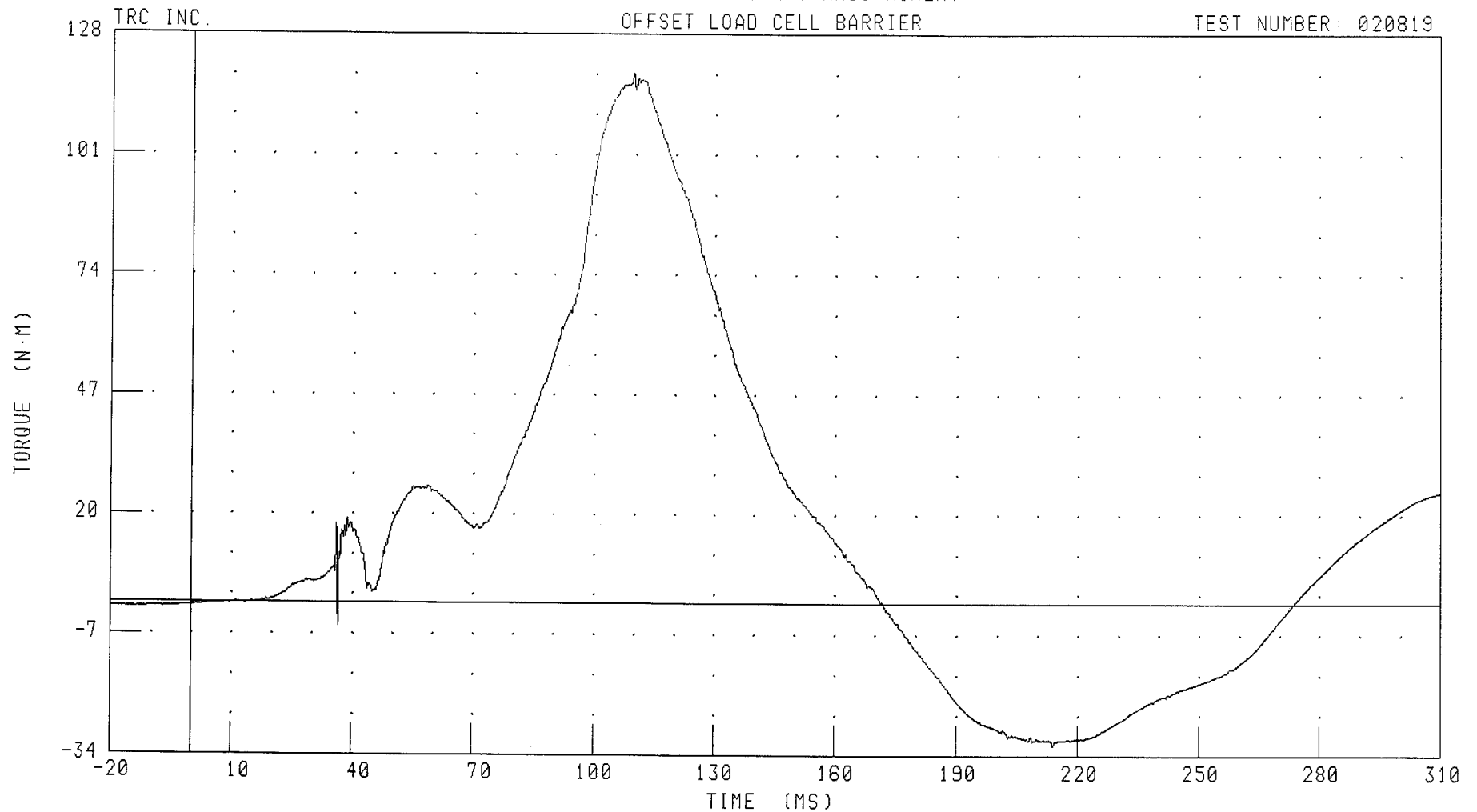
CHANNEL: LMBXM2 FILTER: CH. CLASS 1000

PEAK DATA: 52.70 N·M @ 120.72 MS, -7.05 N·M @ 232.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LUMBAR Y-AXIS MOMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LMBYM2 FILTER: CH. CLASS 1000

TIME (MS)

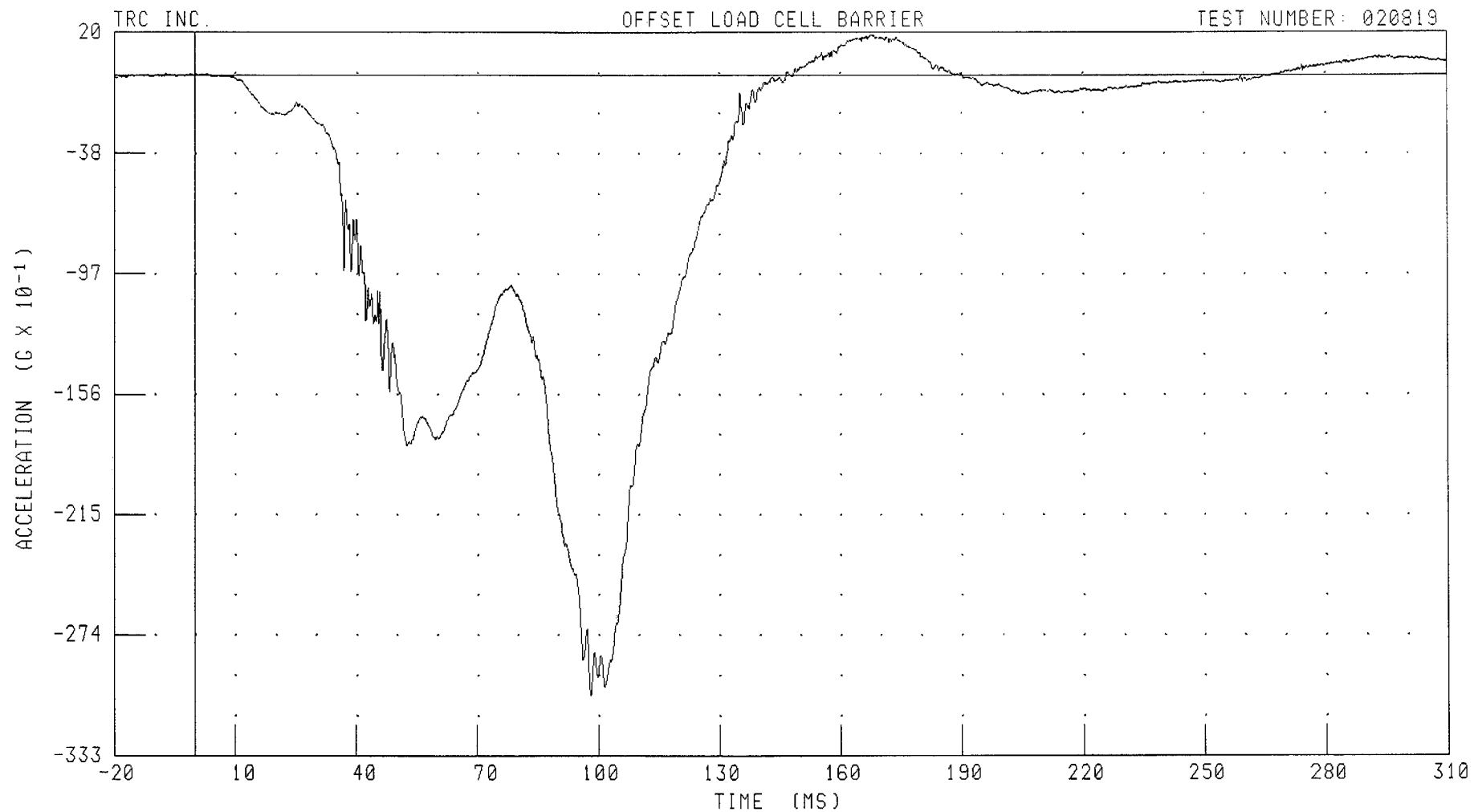
PEAK DATA: 119.45 N·M @ 109.60 MS; -31.72 N·M @ 213.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER PELVIS X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



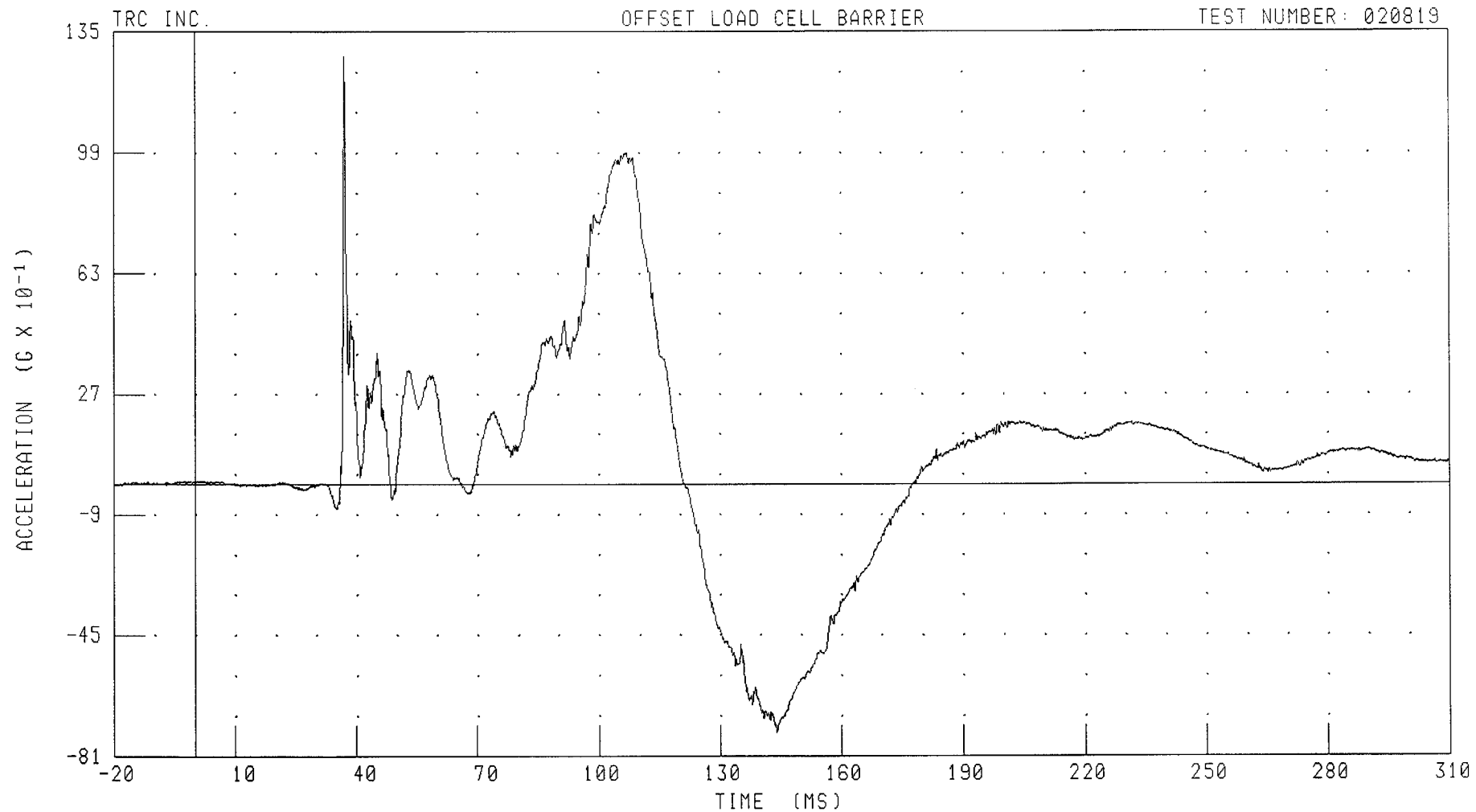
CHANNEL: PEVXC2 FILTER: CH. CLASS 1000

PEAK DATA: 1.98 G @ 167.92 MS; -30.34 G @ 98.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 020819



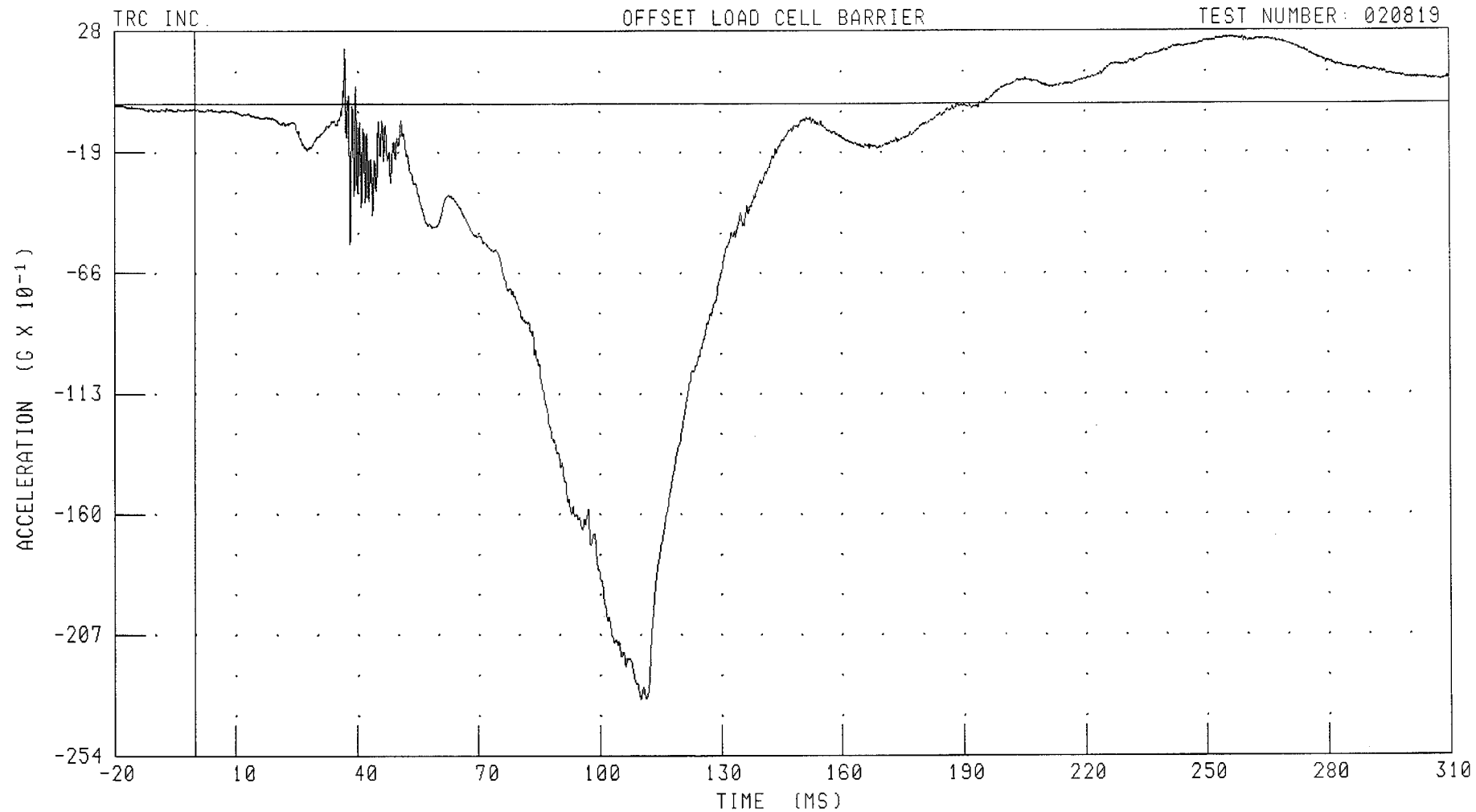
CHANNEL: PEVYG2 FILTER: CH. CLASS 1000

PEAK DATA: 12.78 G @ 37.20 MS; -7.39 G @ 144.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER PELVIS Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

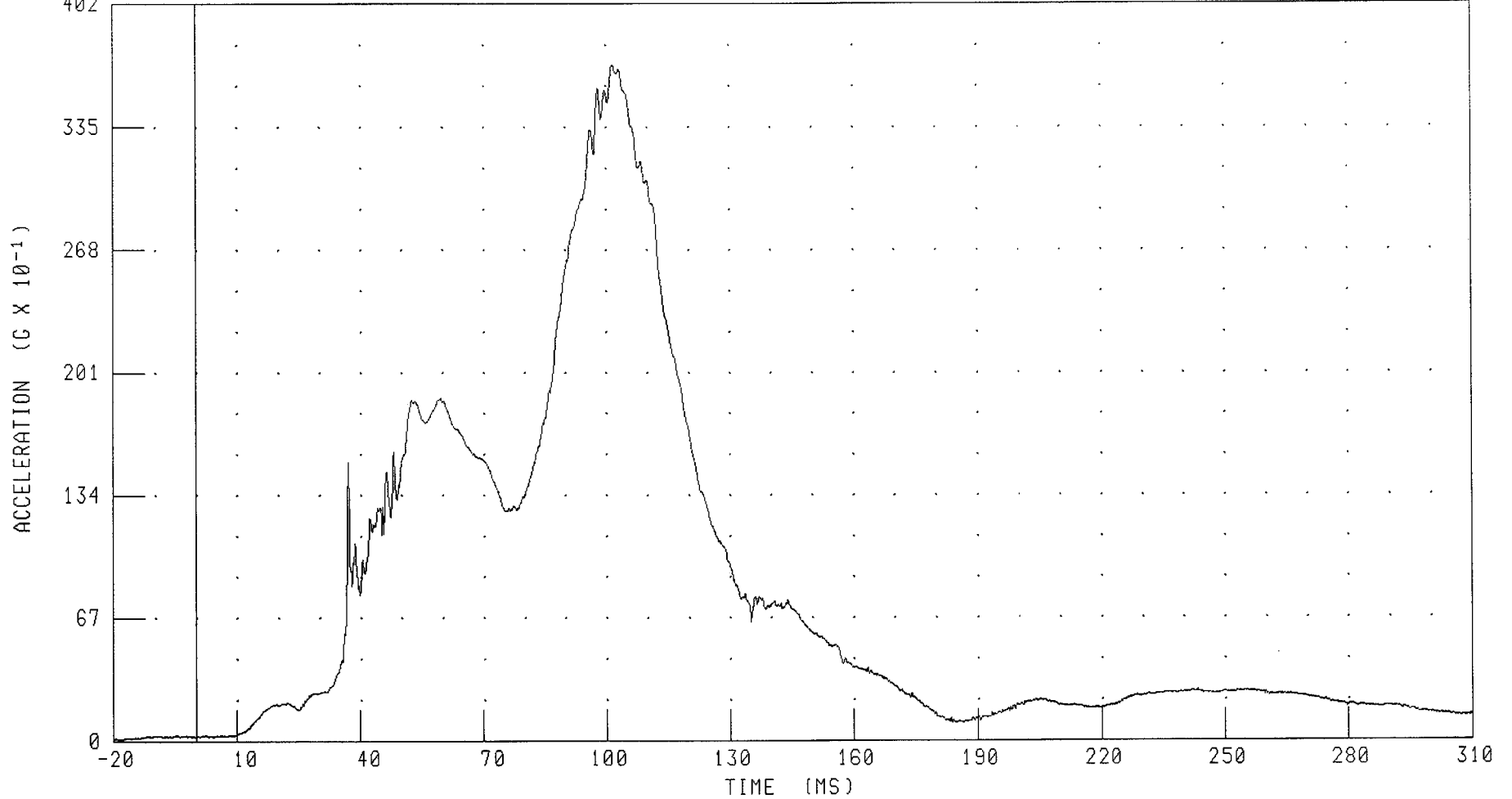
PEAK DATA: 2.57 G @ 254.80 MS; -23.20 G @ 110.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER PELVIS RESULTANT ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PEVRG2

FILTER: CH. CLASS 1000

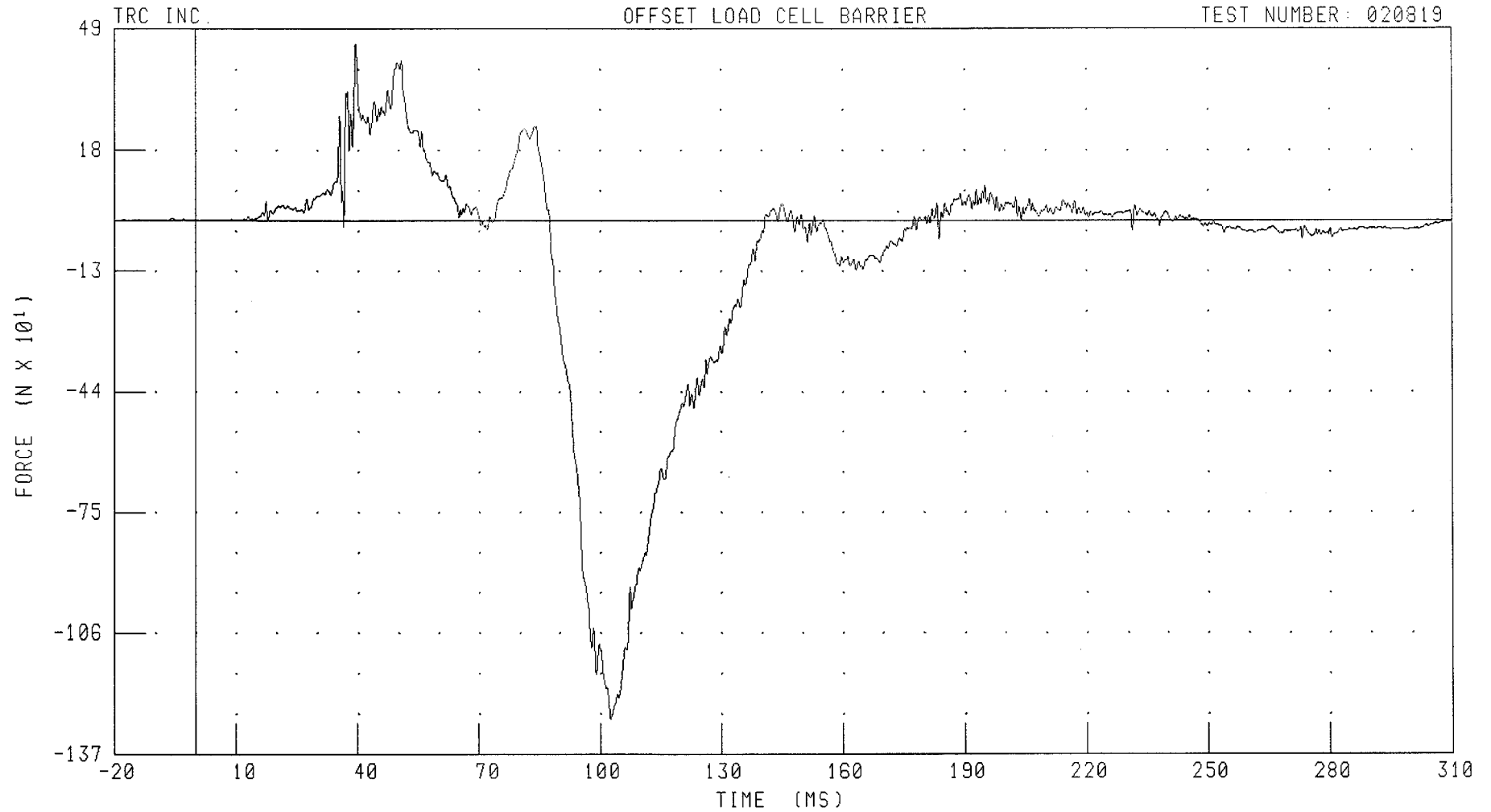
PEAK DATA: 36.89 G @ 101.68 MS; 0.07 G @ -18.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LEFT FEMUR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LFMZF2 FILTER: CH. CLASS 600

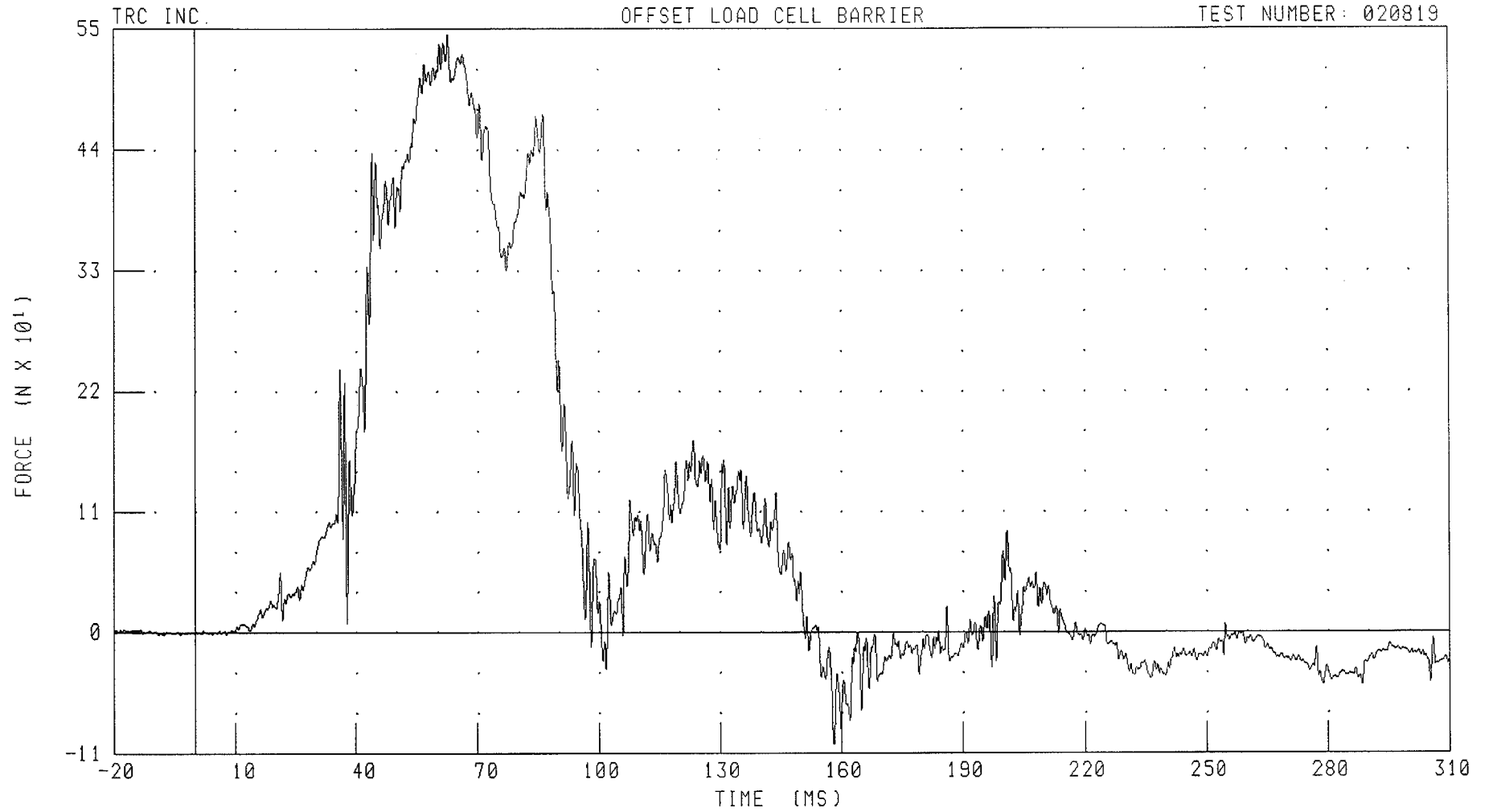
PEAK DATA: 451.70 N @ 39.60 MS; -1281.76 N @ 102.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER RIGHT FEMUR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



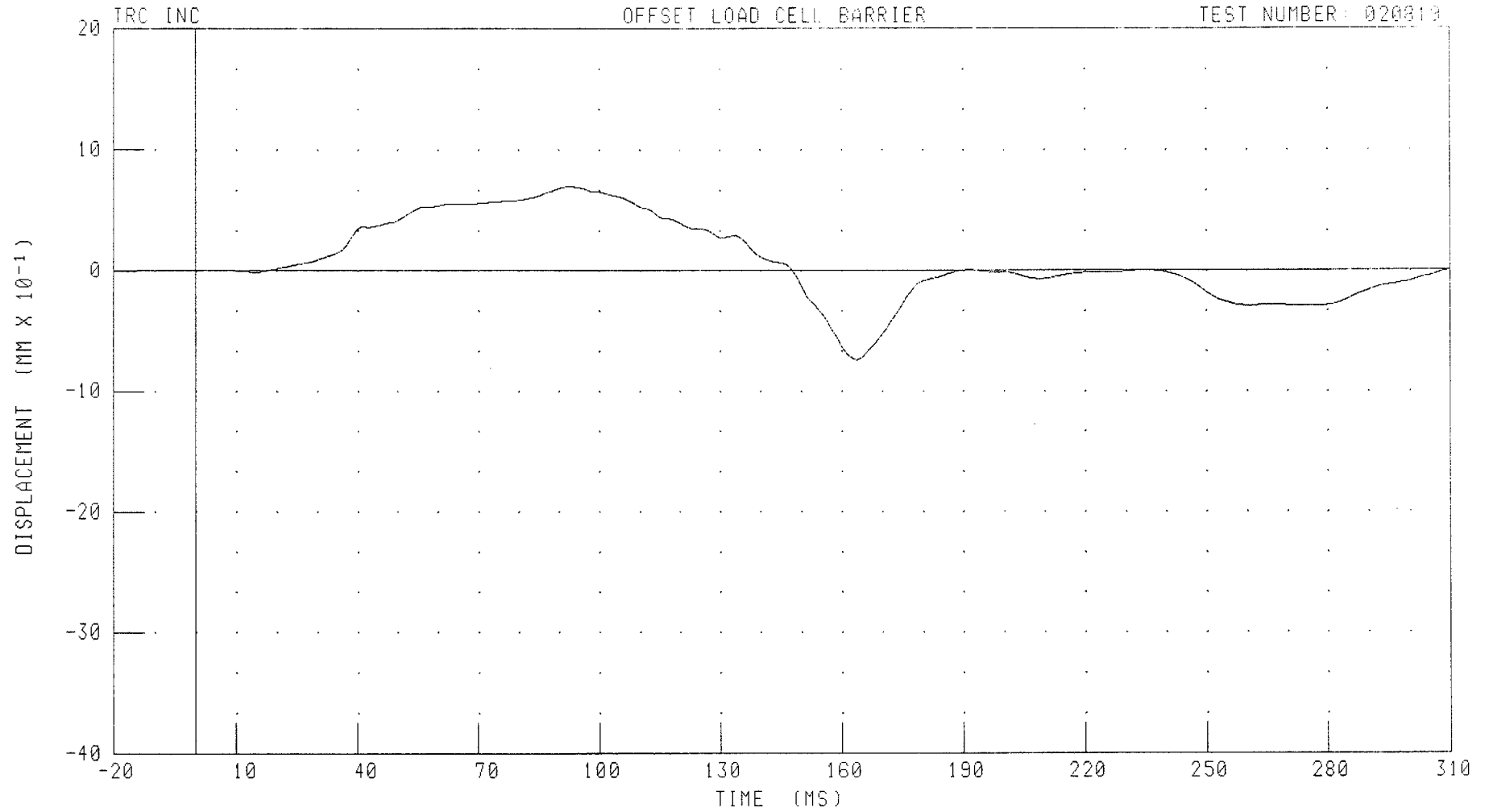
CHANNEL: RFMZ F2 FILTER: CH. CLASS 600

PEAK DATA: 544.88 N @ 62.96 MS; -102.08 N @ 158.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT TIBIA TO FEMUR DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020010



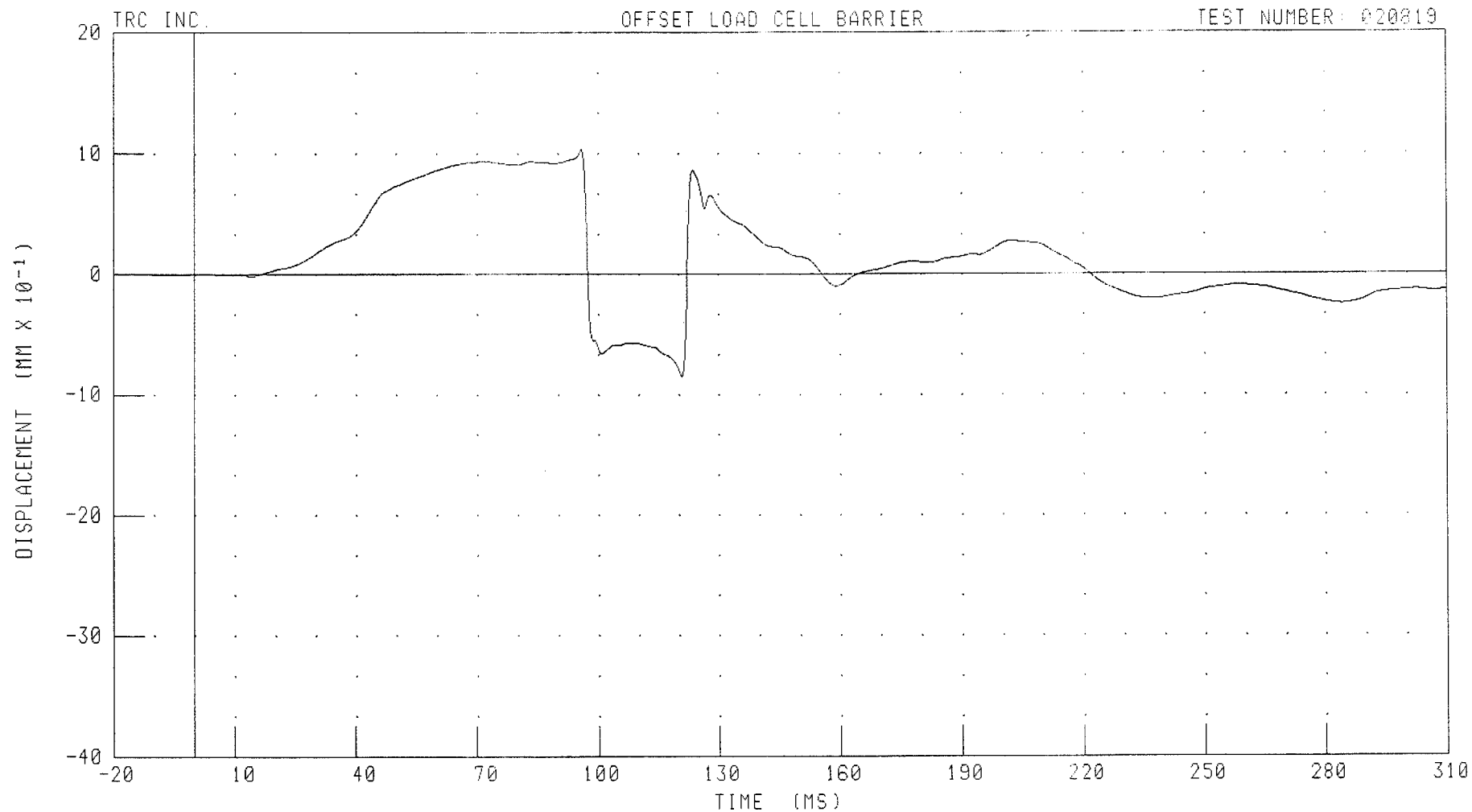
CHANNEL: KNLXD2 FILTER: CH. CLASS 100

PEAK DATA: 0.70 MM @ 93.04 MS, -0.74 MM @ 163.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT TIBIA TO FEMUR DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



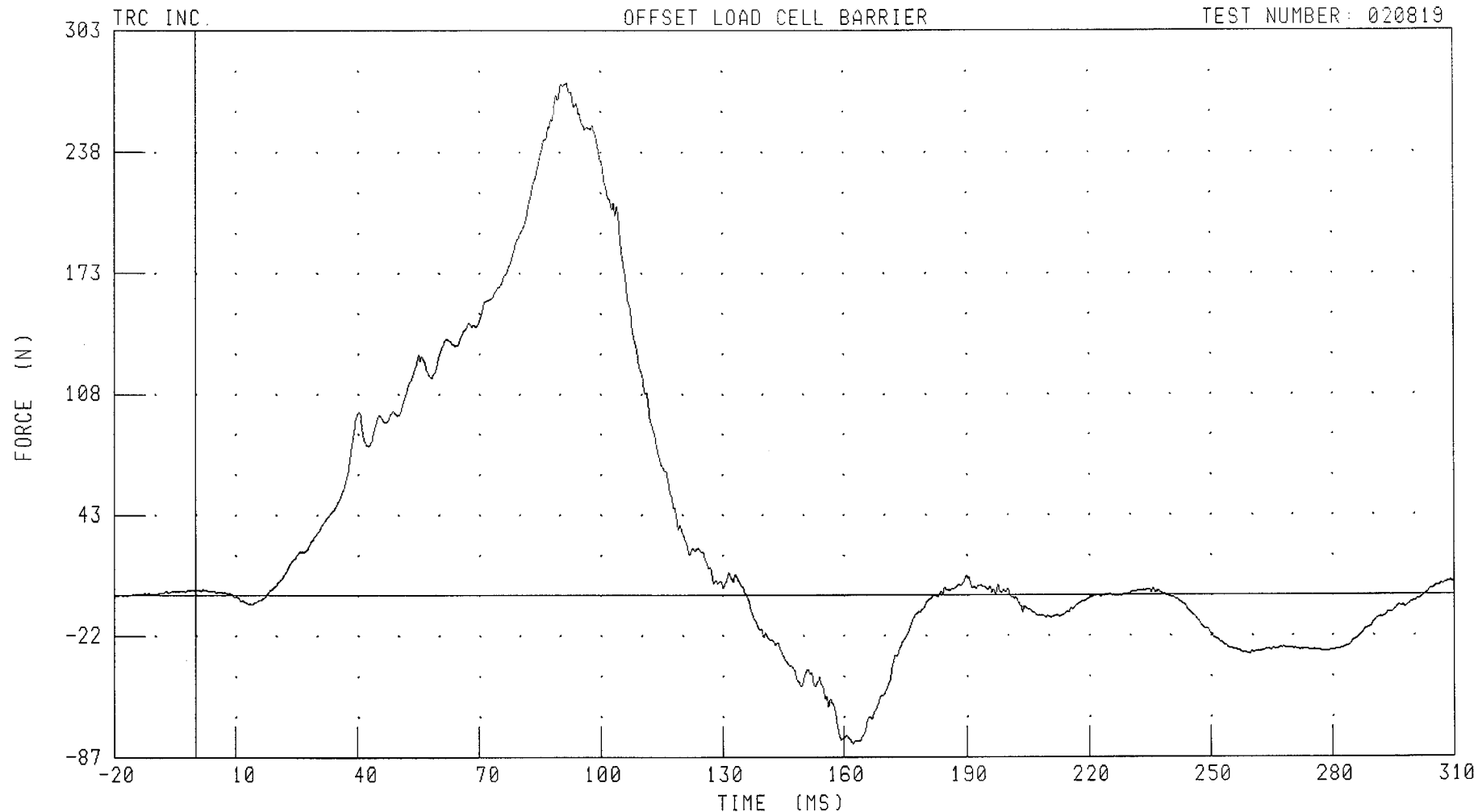
CHANNEL: KNRXD2 FILTER: CH. CLASS 180

PEAK DATA: 1.03 MM @ 95.92 MS; -0.85 MM @ 120.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT UPPER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBLXF2 FILTER: CH. CLASS 600

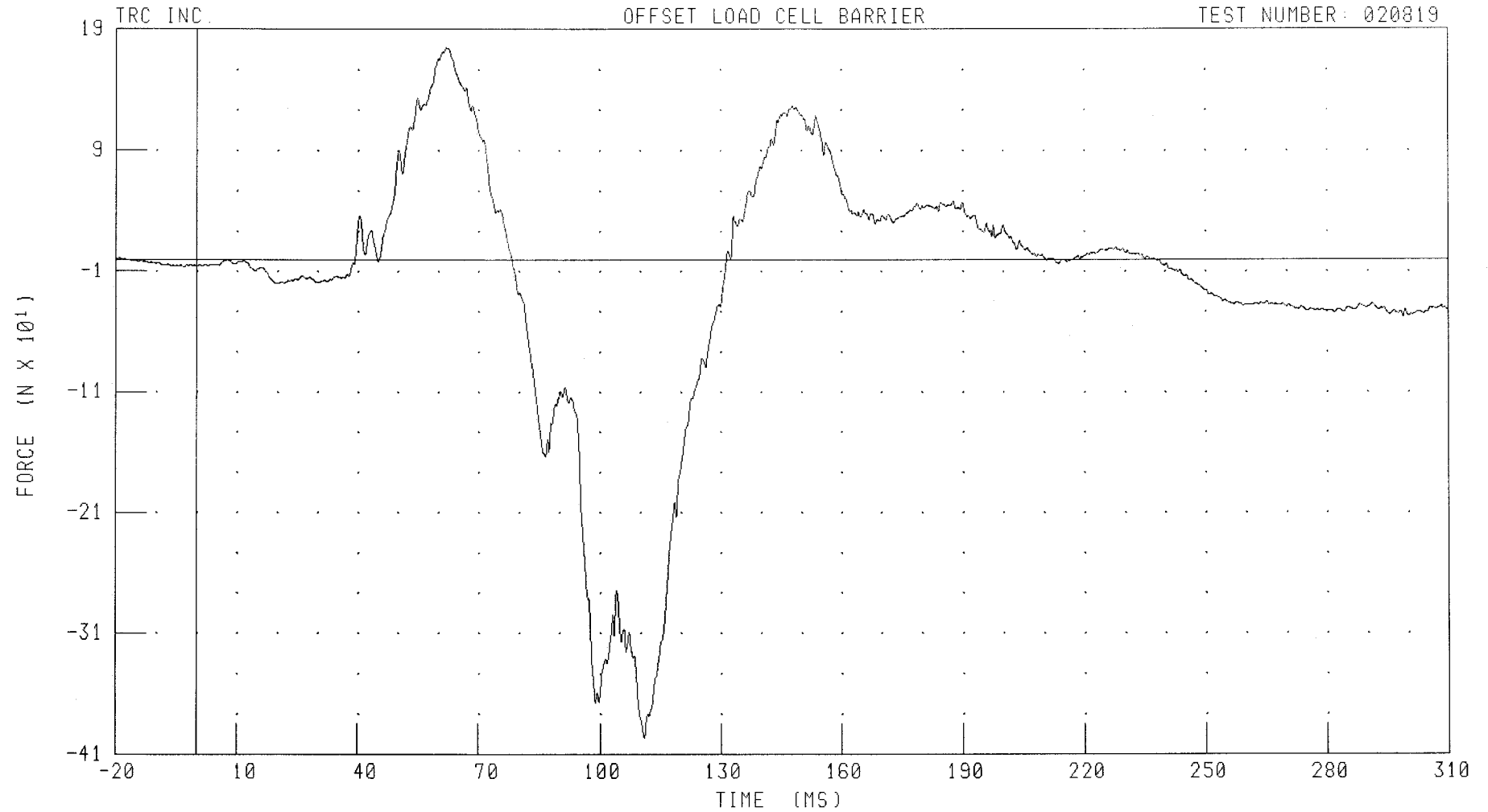
PEAK DATA: 275.31 N @ 91.84 MS; -79.87 N @ 162.32 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LEFT UPPER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



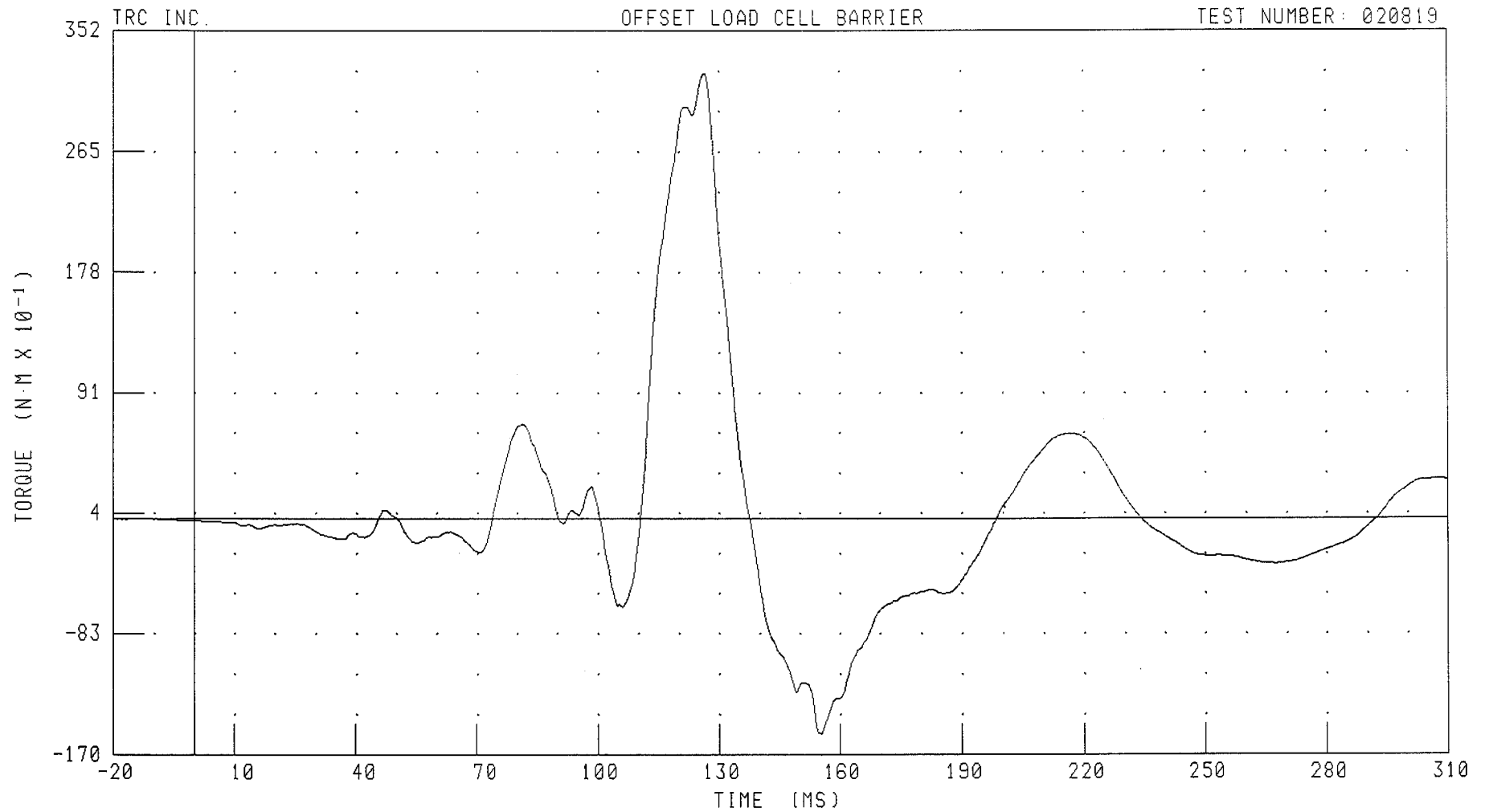
CHANNEL: TBLZF2 FILTER: CH. CLASS 600

PEAK DATA: 174.60 N @ 62.08 MS; -396.63 N @ 111.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



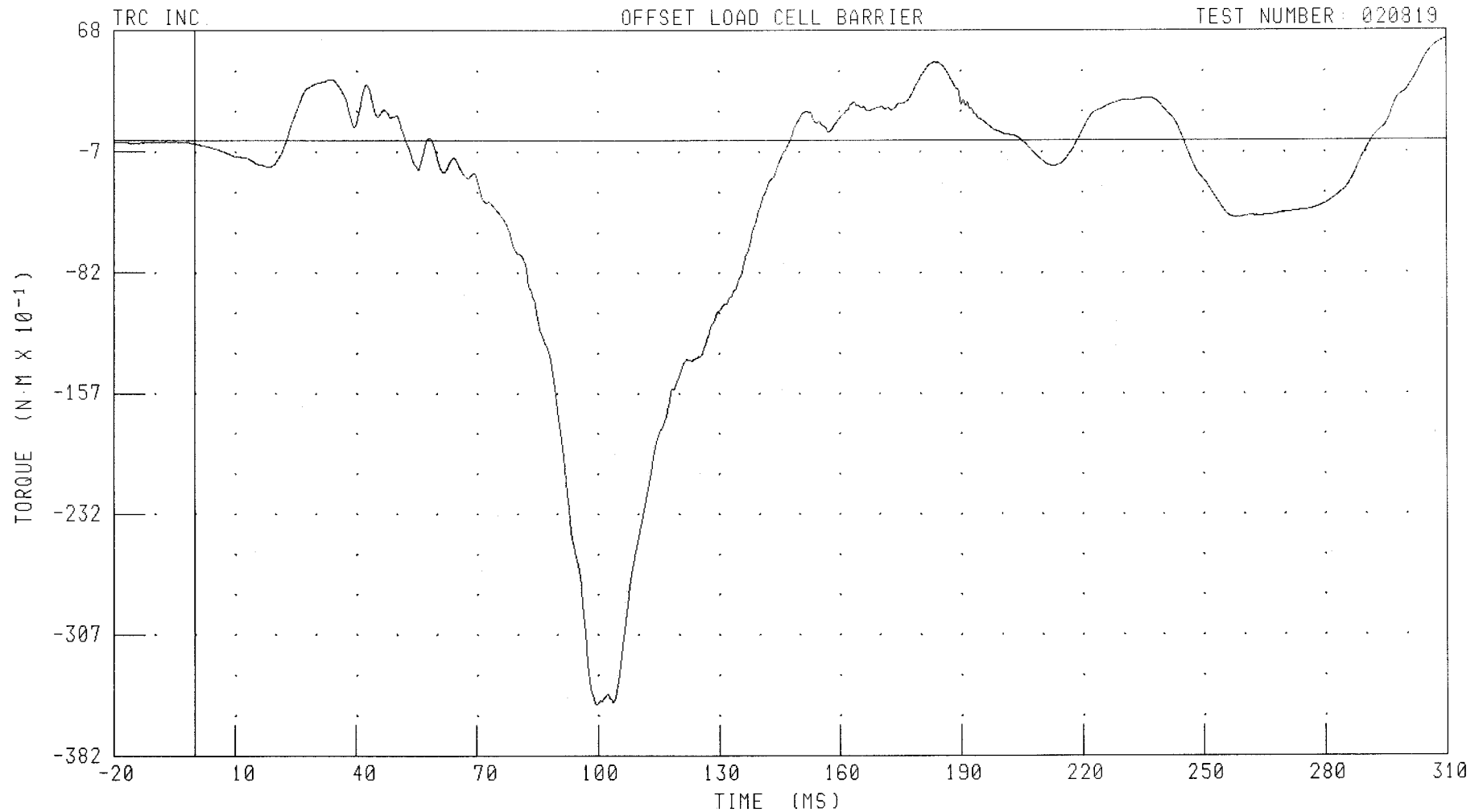
CHANNEL: TBLXM2 FILTER: CH. CLASS 600

PEAK DATA: 32.14 N·M @ 126.40 MS; -15.51 N·M @ 155.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020319



CHANNEL: TBLM2 FILTER: CH. CLASS 600

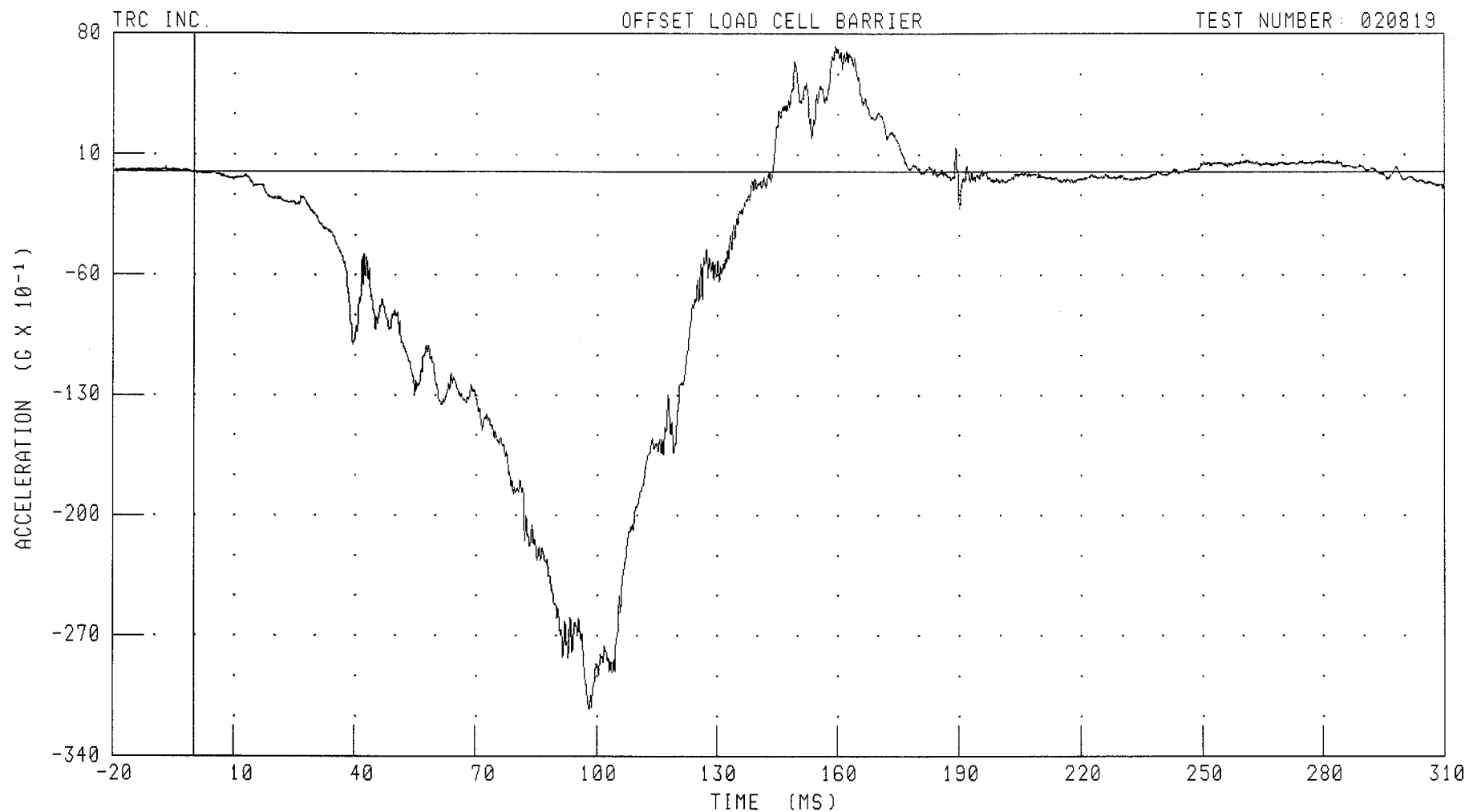
PEAK DATA: 6.26 N·M @ 309.76 MS; -35.05 N·M @ 99.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LEFT TIBIA X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBLXC2 FILTER: CH. CLASS 1000

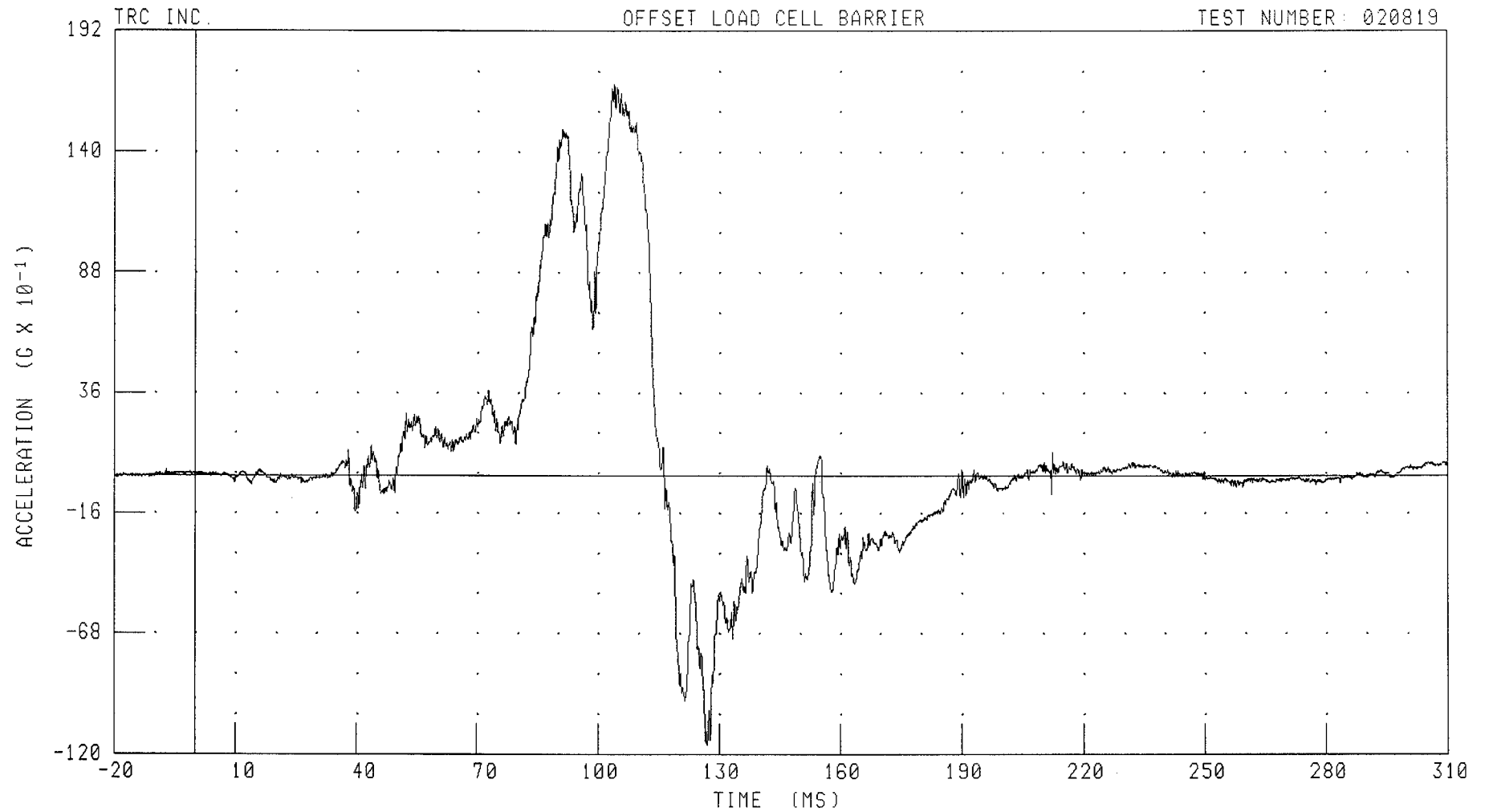
PEAK DATA: 7.30 G @ 159.60 MS; -31.30 G @ 98.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LEFT TIBIA Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBLYG2 FILTER: CH. CLASS 1000

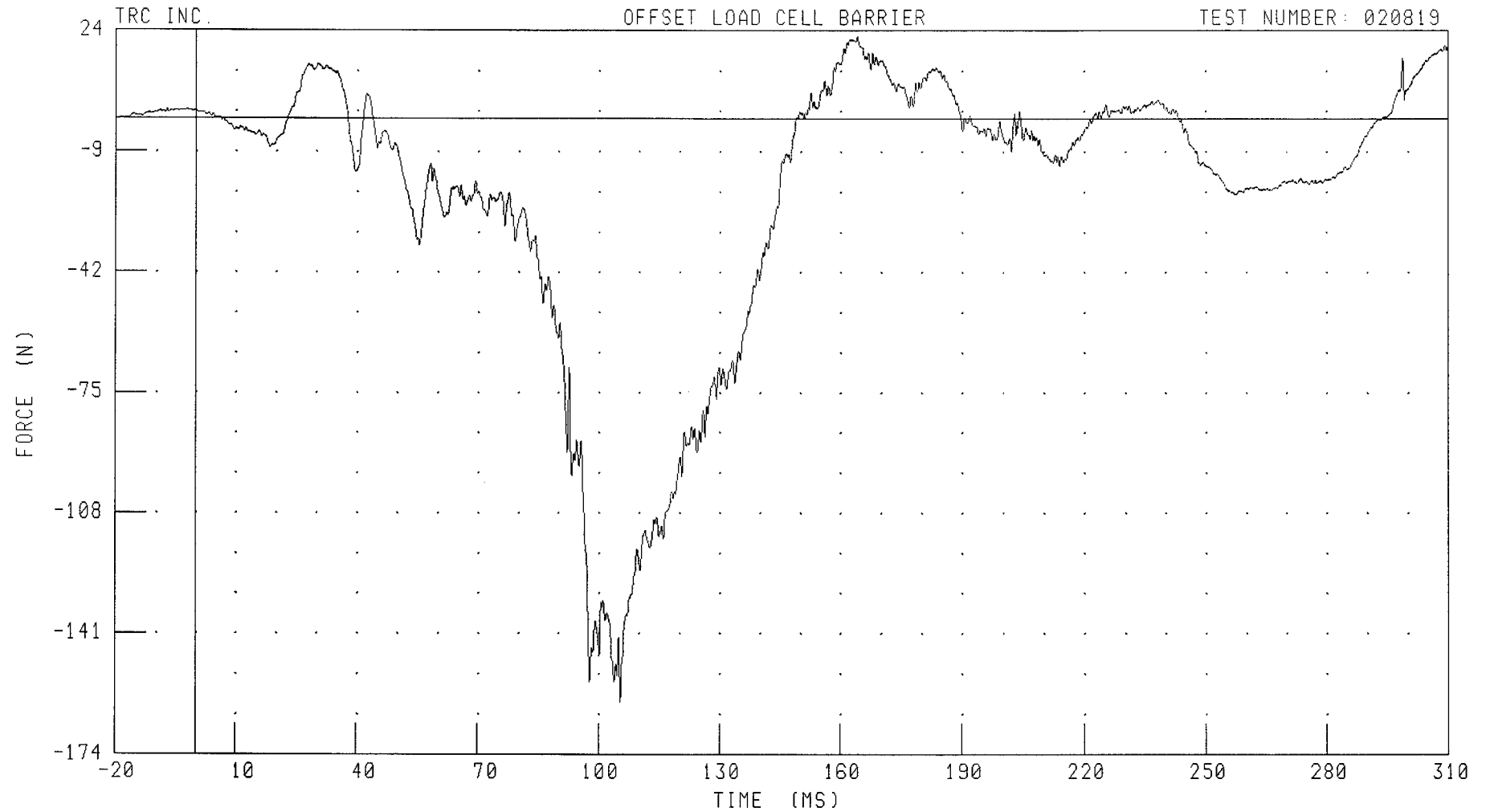
PEAK DATA: 16.94 G @ 104.00 MS; -11.61 G @ 126.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LEFT LOWER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANLXF2 FILTER: CH. CLASS 600

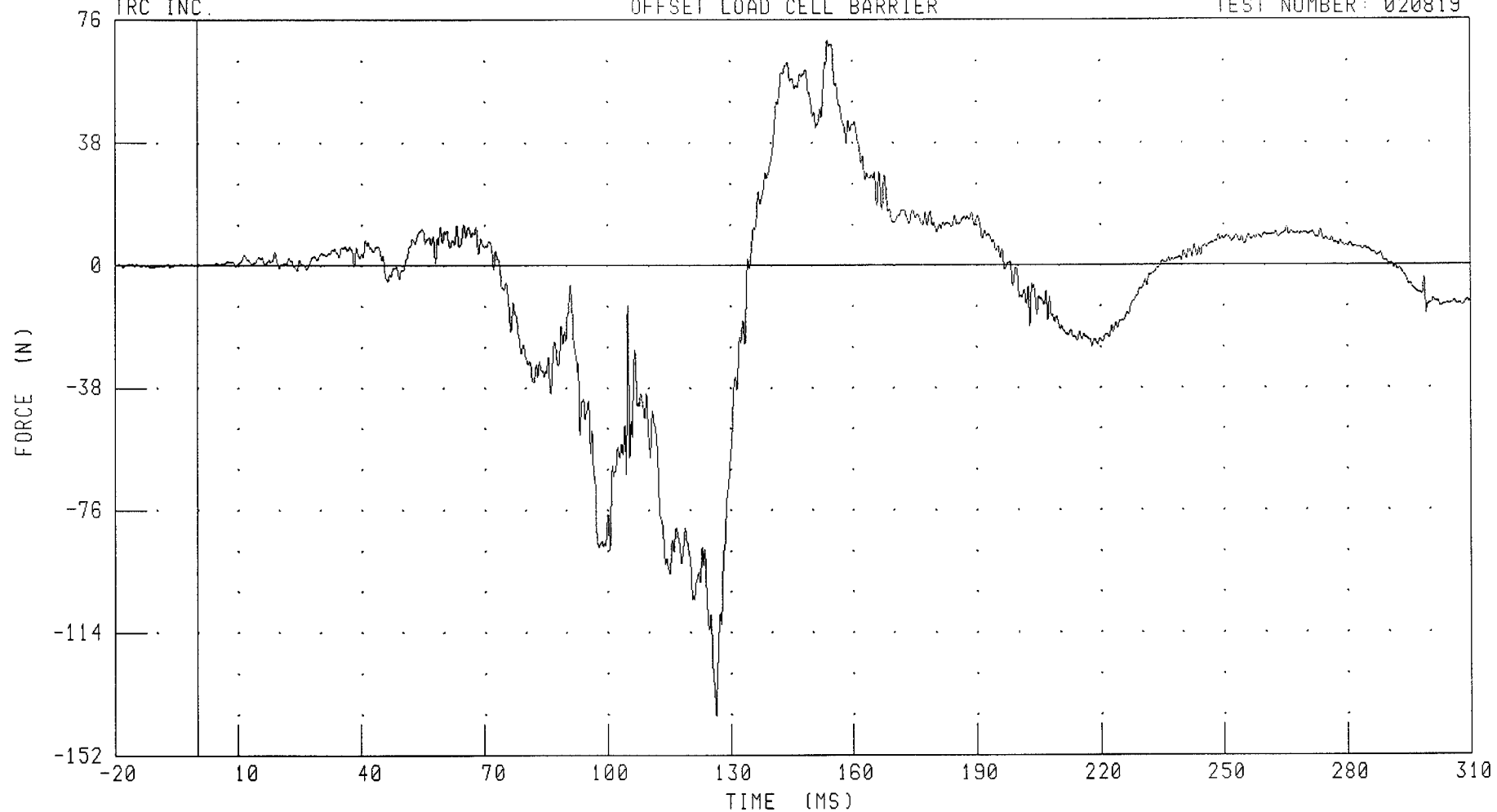
PEAK DATA: 22.45 N @ 164.32 MS; -159.76 N @ 105.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT LOWER TIBIA Y-AXIS FORCE

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANLYF2 FILTER: CH. CLASS 600

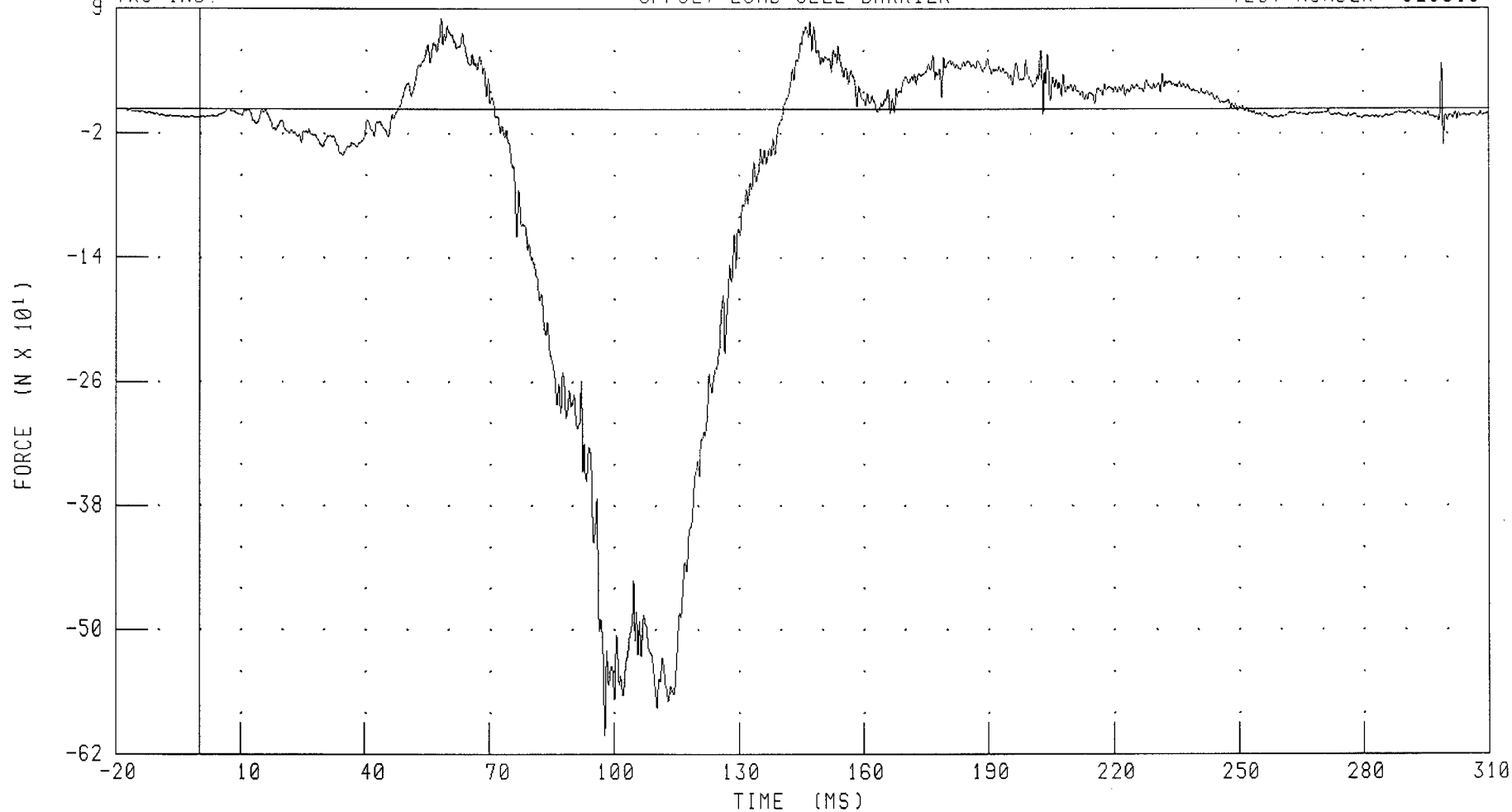
PEAK DATA: 69.78 N @ 154.16 MS; -139.70 N @ 126.40 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE

9 TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

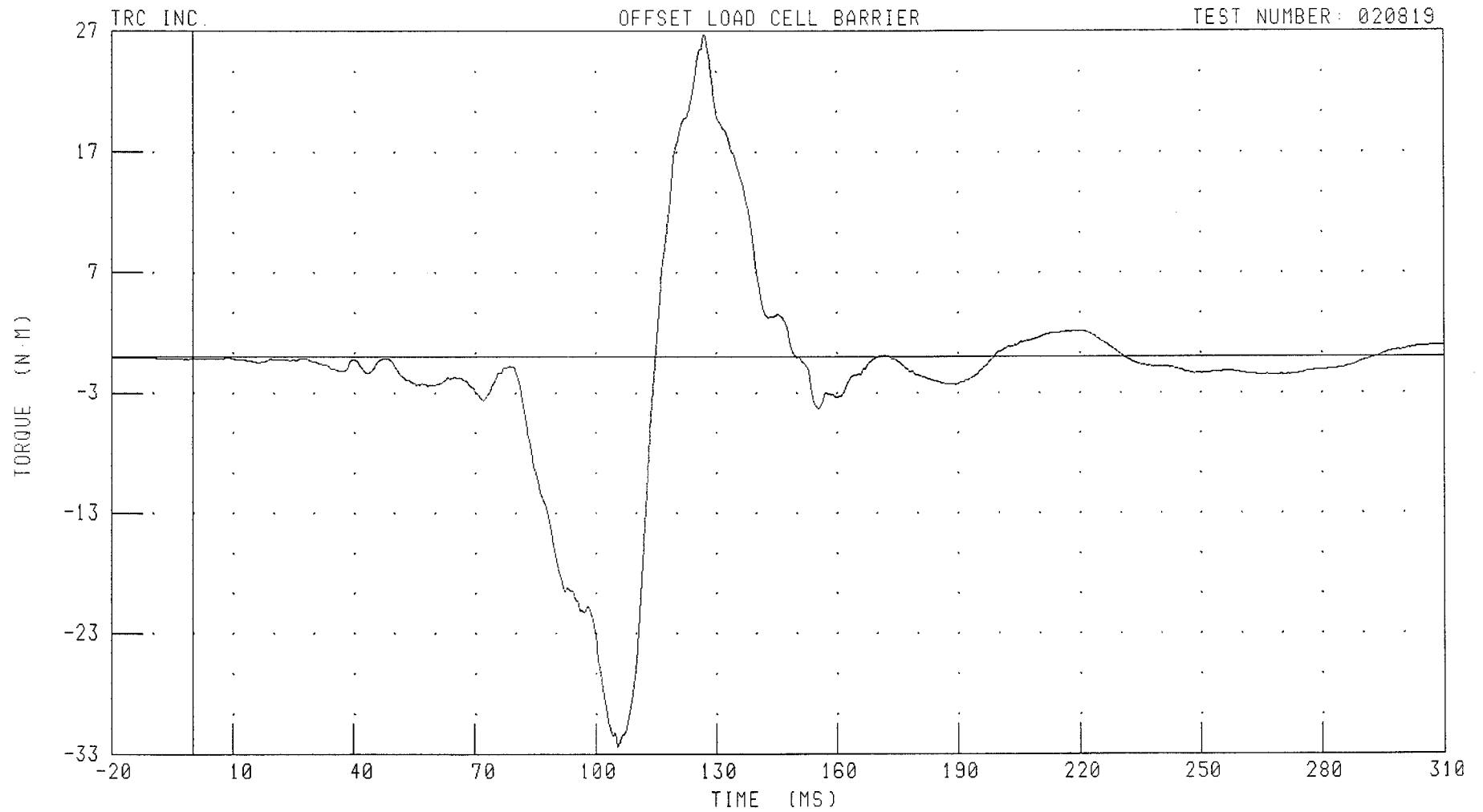


CHANNEL: ANLZF2 FILTER: CH. CLASS 600

PEAK DATA: 87.60 N @ 58.24 MS; -605.58 N @ 97.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 020819



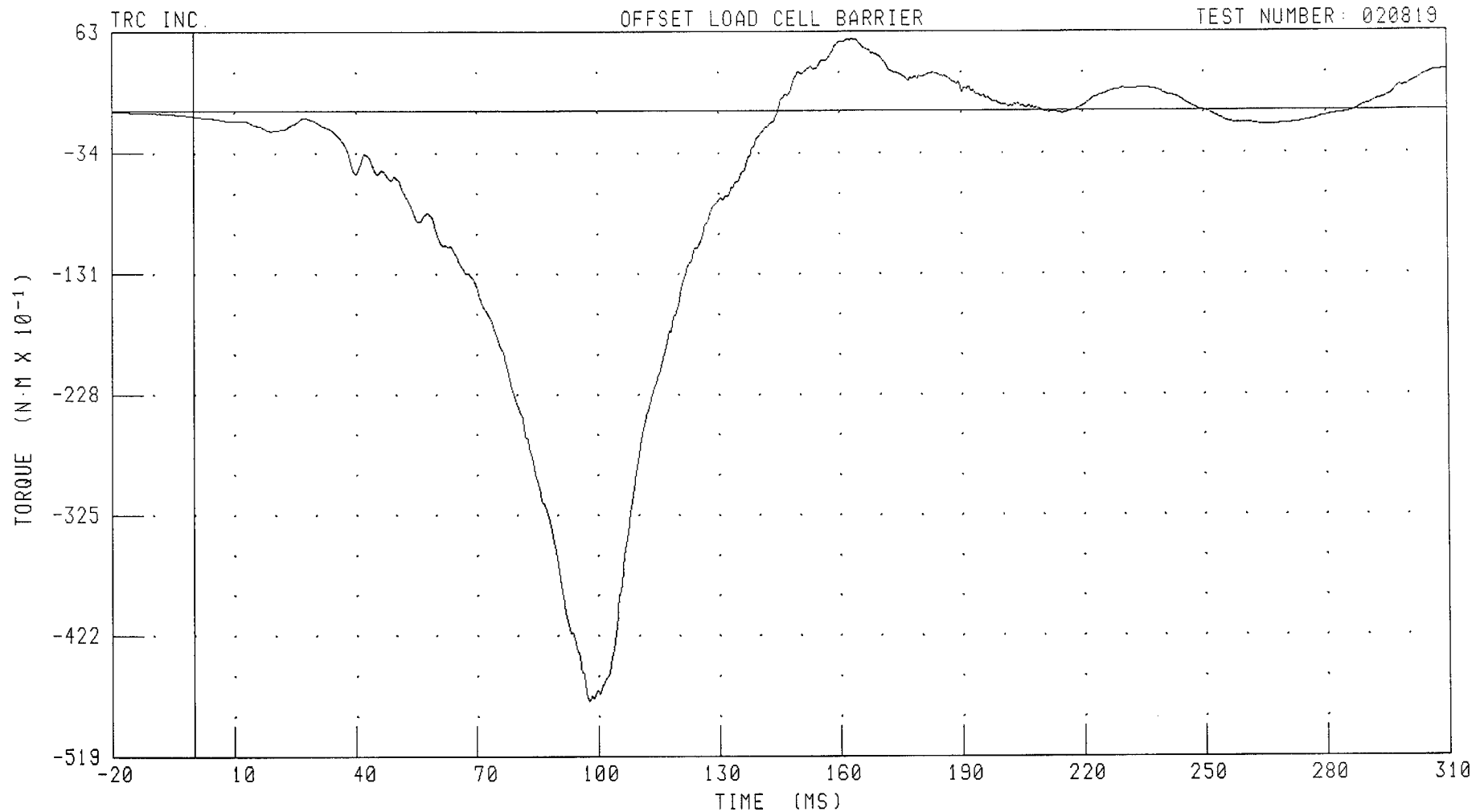
CHANNEL: ANLXM2 FILTER: CH. CLASS 600

PEAK DATA: 26.69 N·M @ 127.28 MS; -32.38 N·M @ 105.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



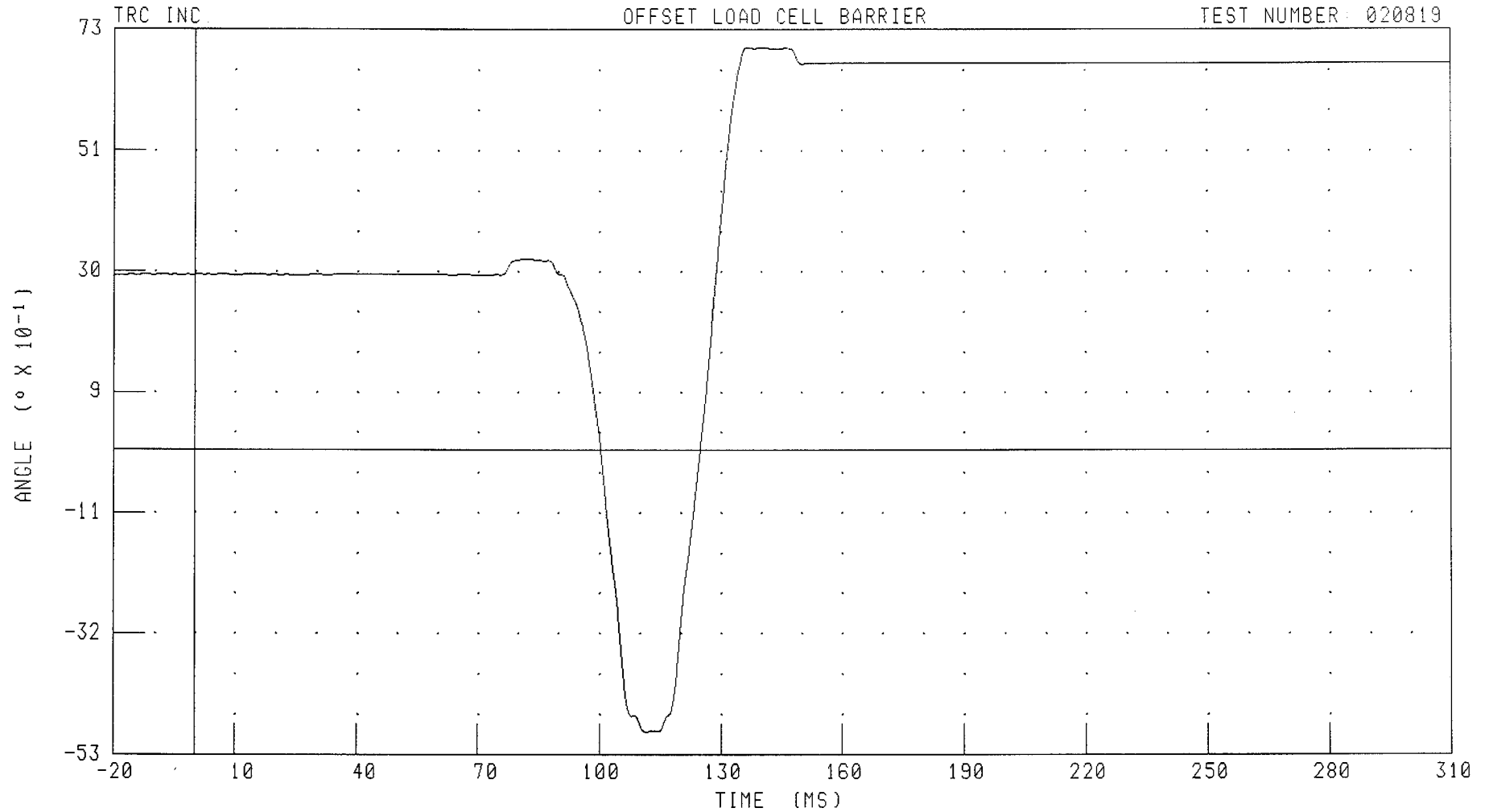
CHANNEL: ANLYM2 FILTER: CH. CLASS 600

PEAK DATA: 5.74 N·M @ 163.36 MS; -47.44 N·M @ 97.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT FOOT TO ANKLE X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



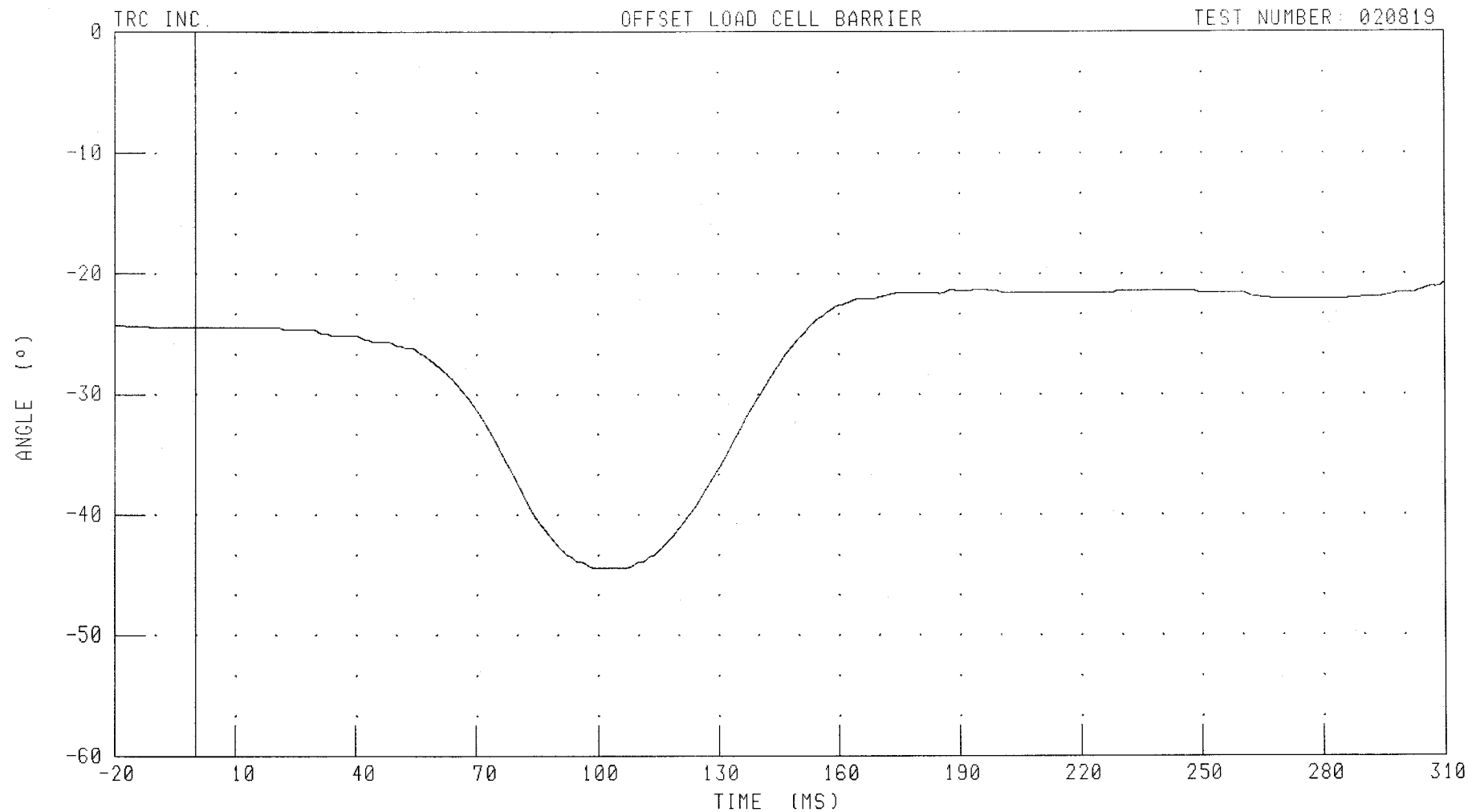
CHANNEL: FTLXD2 FILTER: CH. CLASS 180

PEAK DATA: 6.99 ° @ 136.72 MS; -4.91 ° @ 111.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT FOOT TO ANKLE Y-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



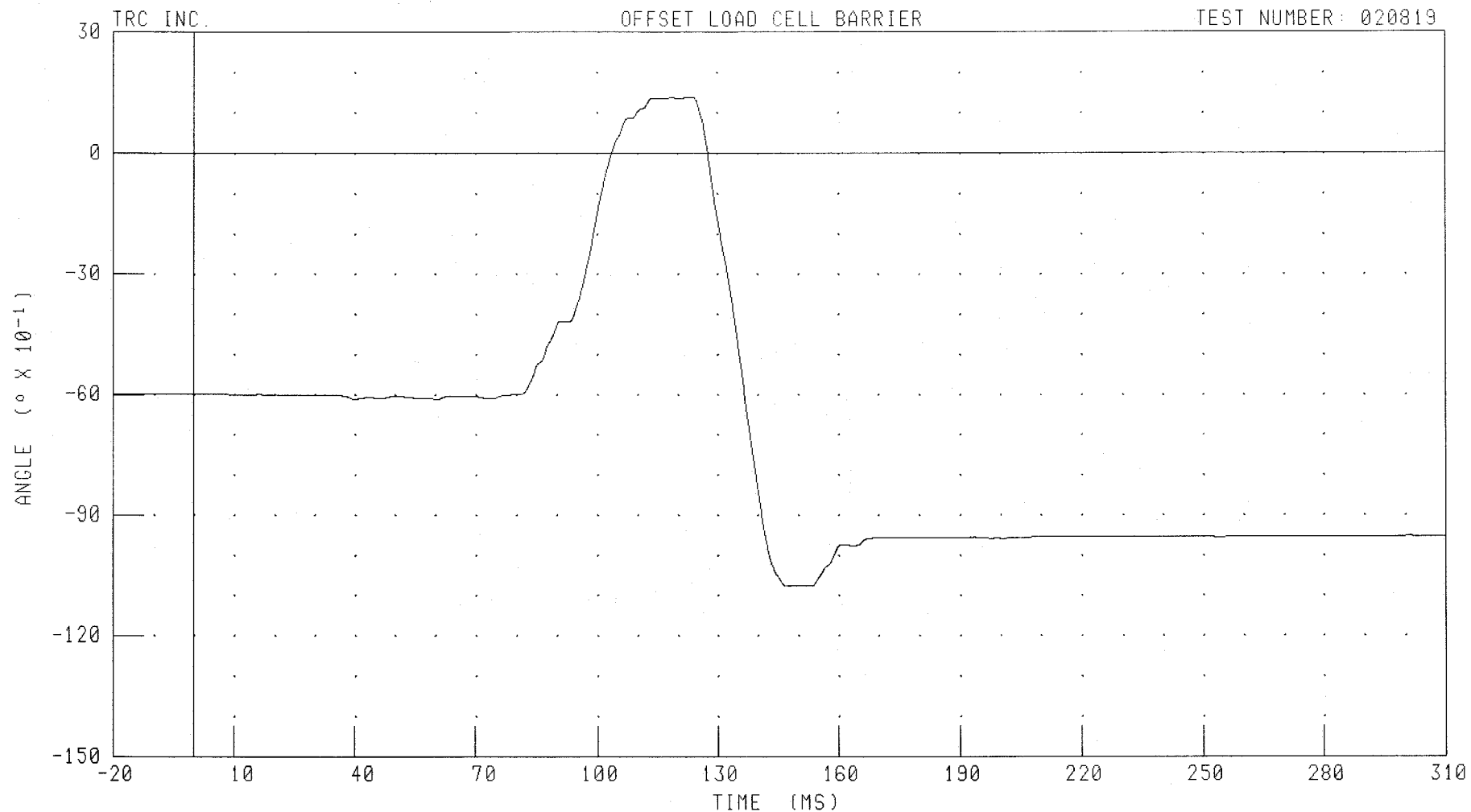
CHANNEL: FTLYD2 FILTER: CH. CLASS 180

PEAK DATA: -20.74 ° @ 310.00 MS; -44.46 ° @ 99.68 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT FOOT TO ANKLE Z-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

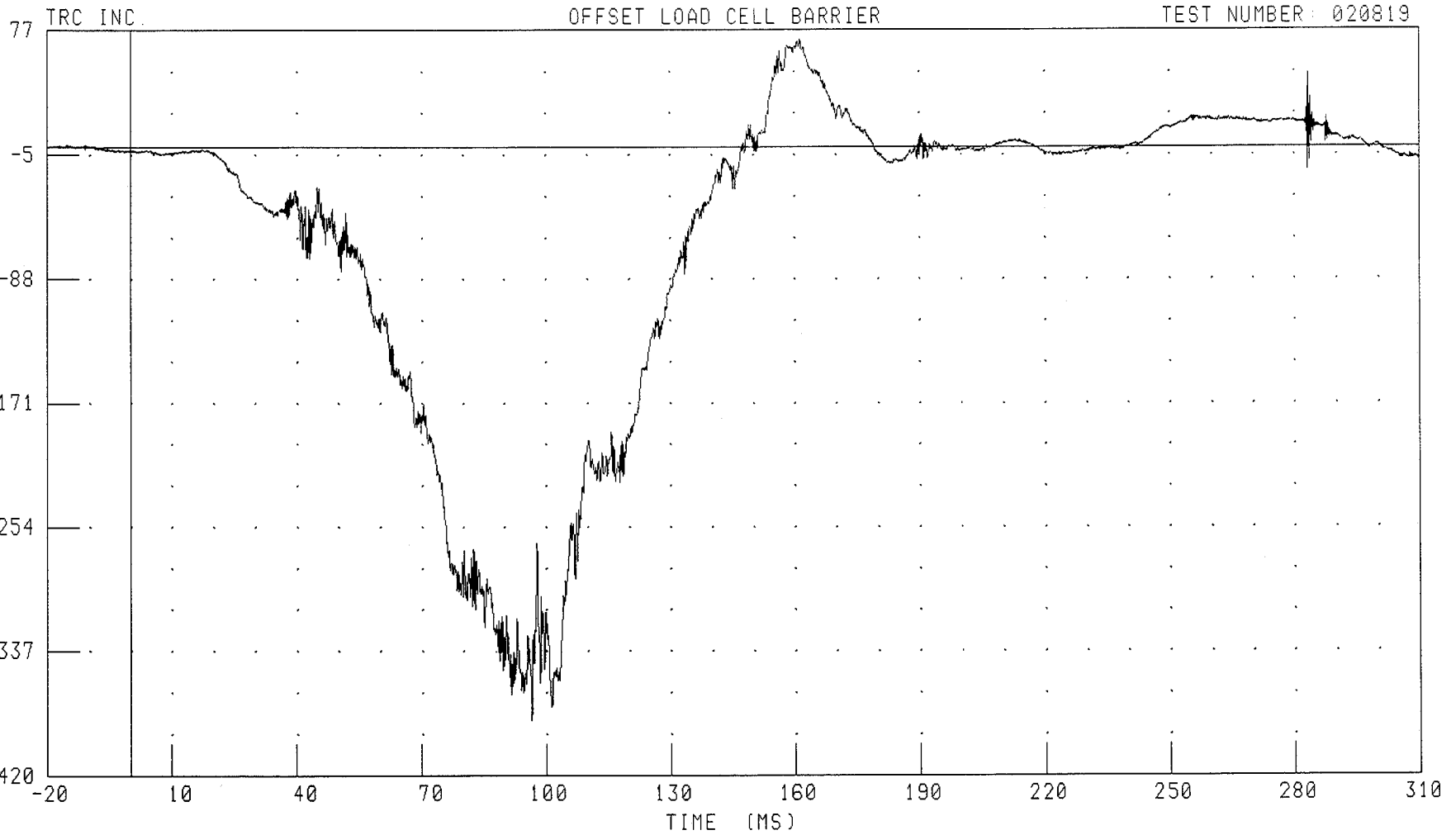
TEST NUMBER: 020819



CHANNEL: FTLZD2 FILTER: CH. CLASS 100

PEAK DATA: 1.39 ° @ 123.84 MS; -10.77 ° @ 147.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT FOOT X-AXIS ACCELERATION



CHANNEL: FTLXG2

FILTER: CH. CLASS 1000

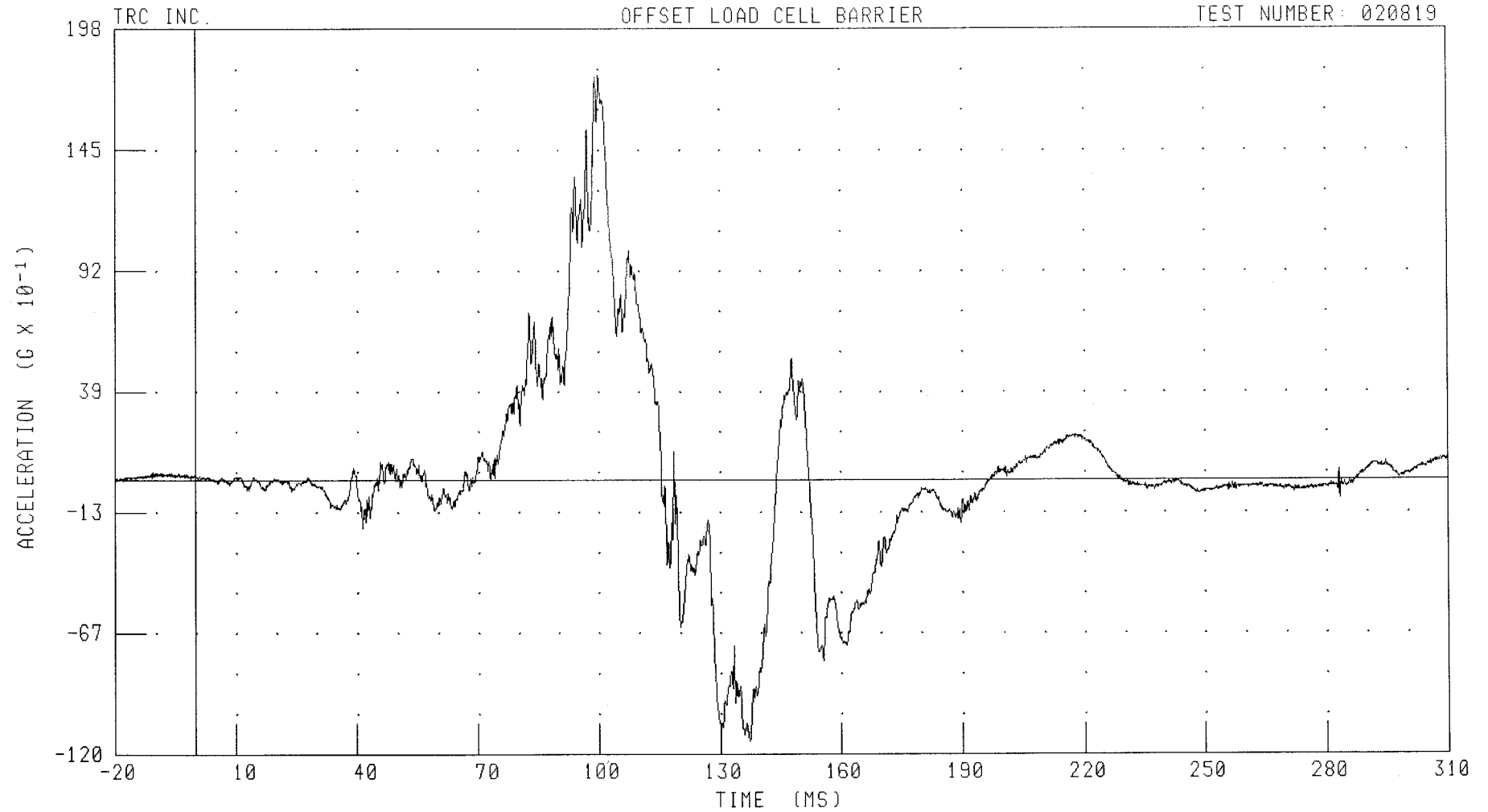
PEAK DATA: 7.16 G @ 161.68 MS; -38.34 G @ 96.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LEFT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLYC2 FILTER: CH. CLASS 1000

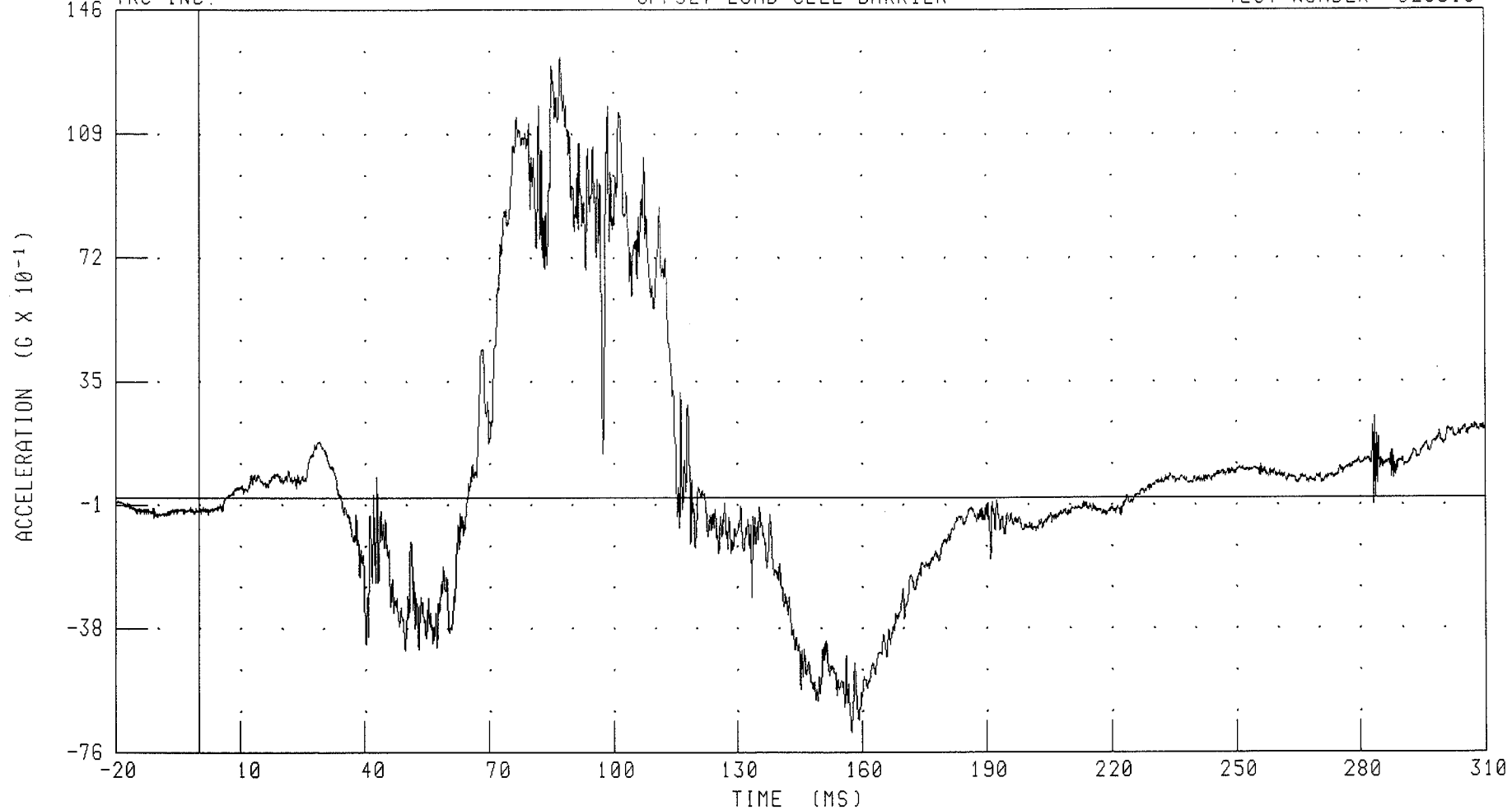
PEAK DATA: 17.80 G @ 100.16 MS; -11.44 G @ 137.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT FOOT Z-AXIS ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



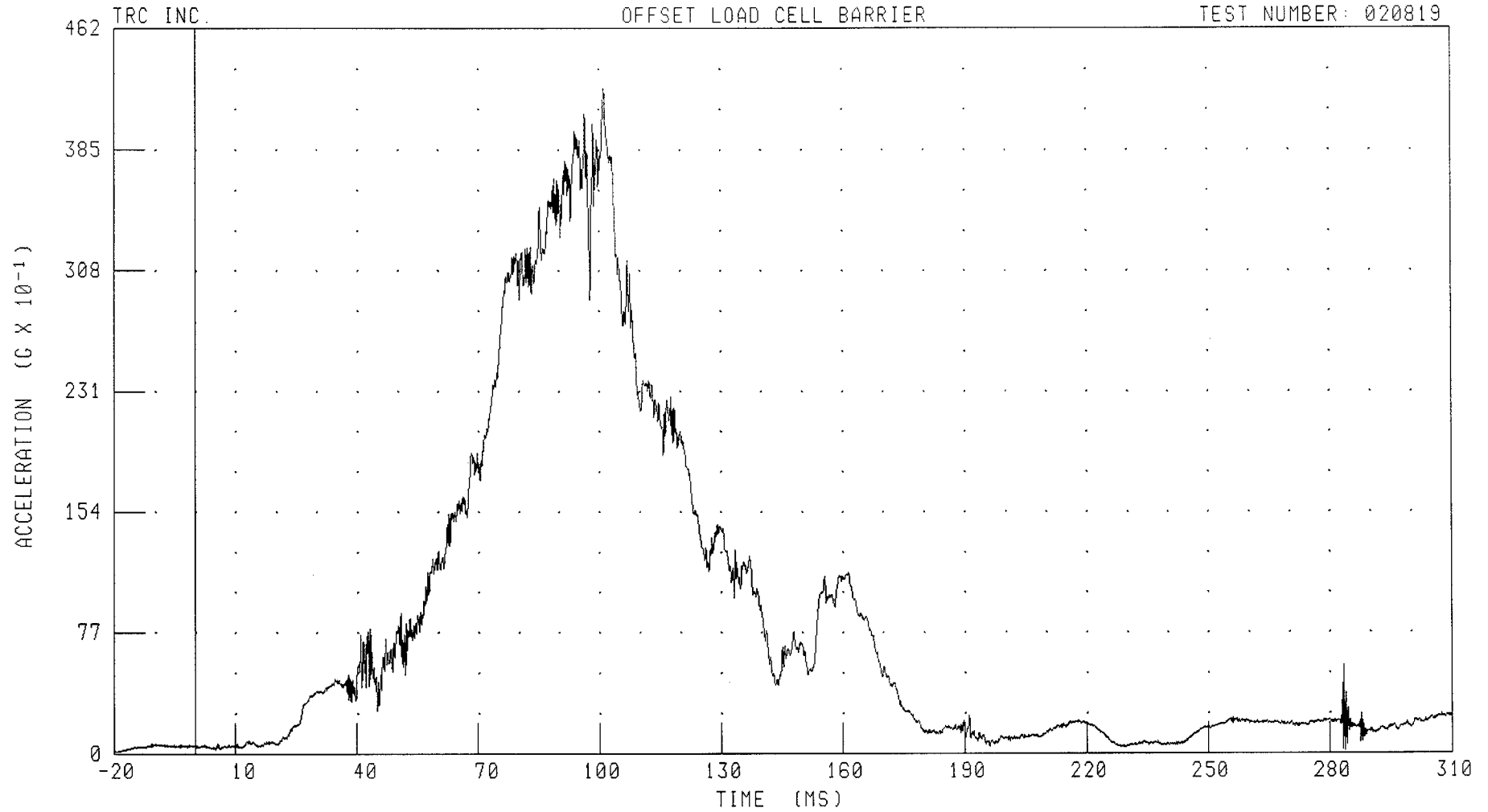
CHANNEL: FTLZG2 FILTER: CH. CLASS 1000

PEAK DATA: 13.20 G @ 87.28 MS; -6.99 G @ 157.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER LEFT FOOT RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTLRG2 FILTER: CH. CLASS 1000

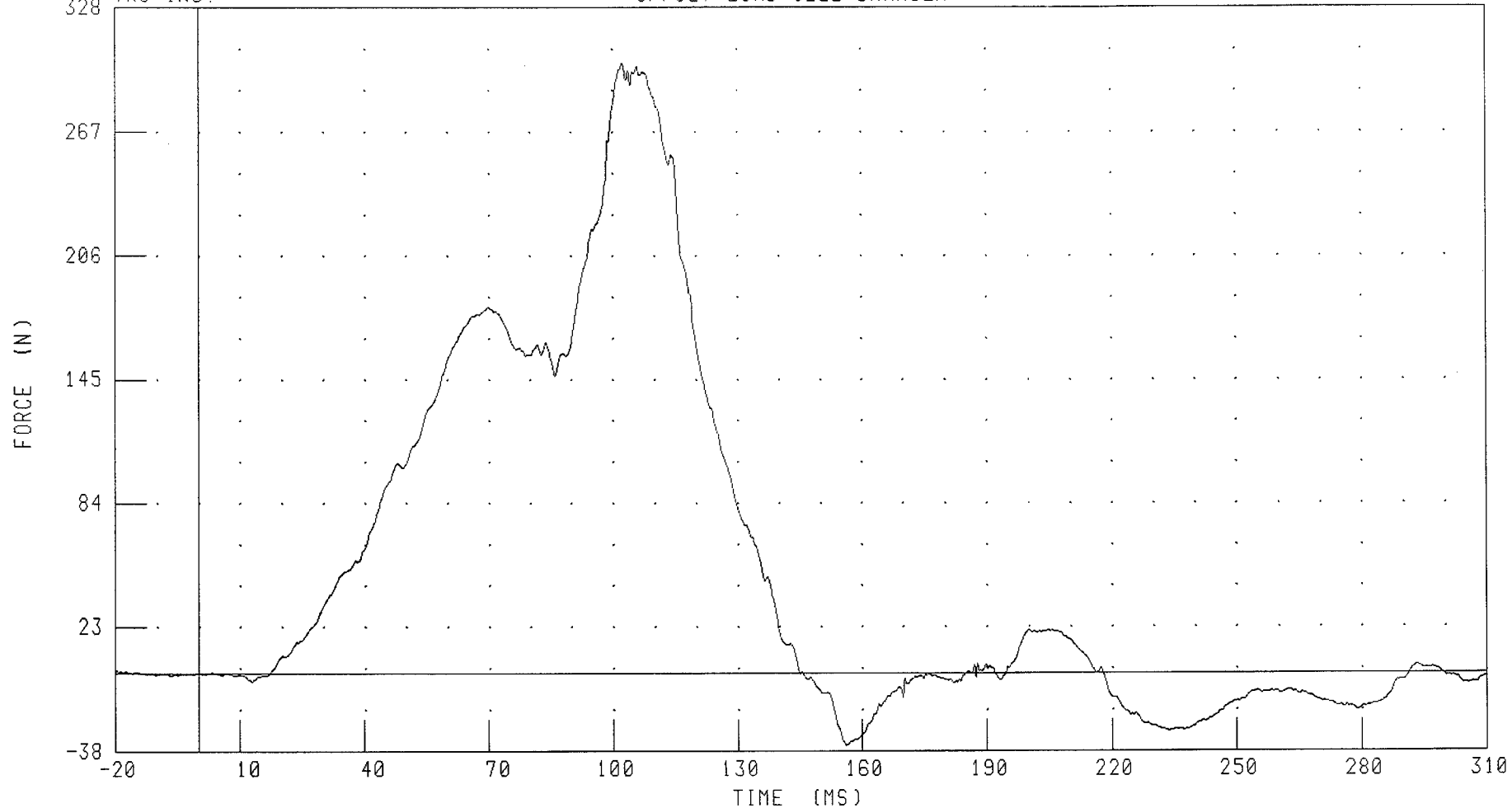
PEAK DATA: 42.42 G @ 101.36 MS; 0.08 G @ -20.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT UPPER TIBIA X-AXIS FORCE

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

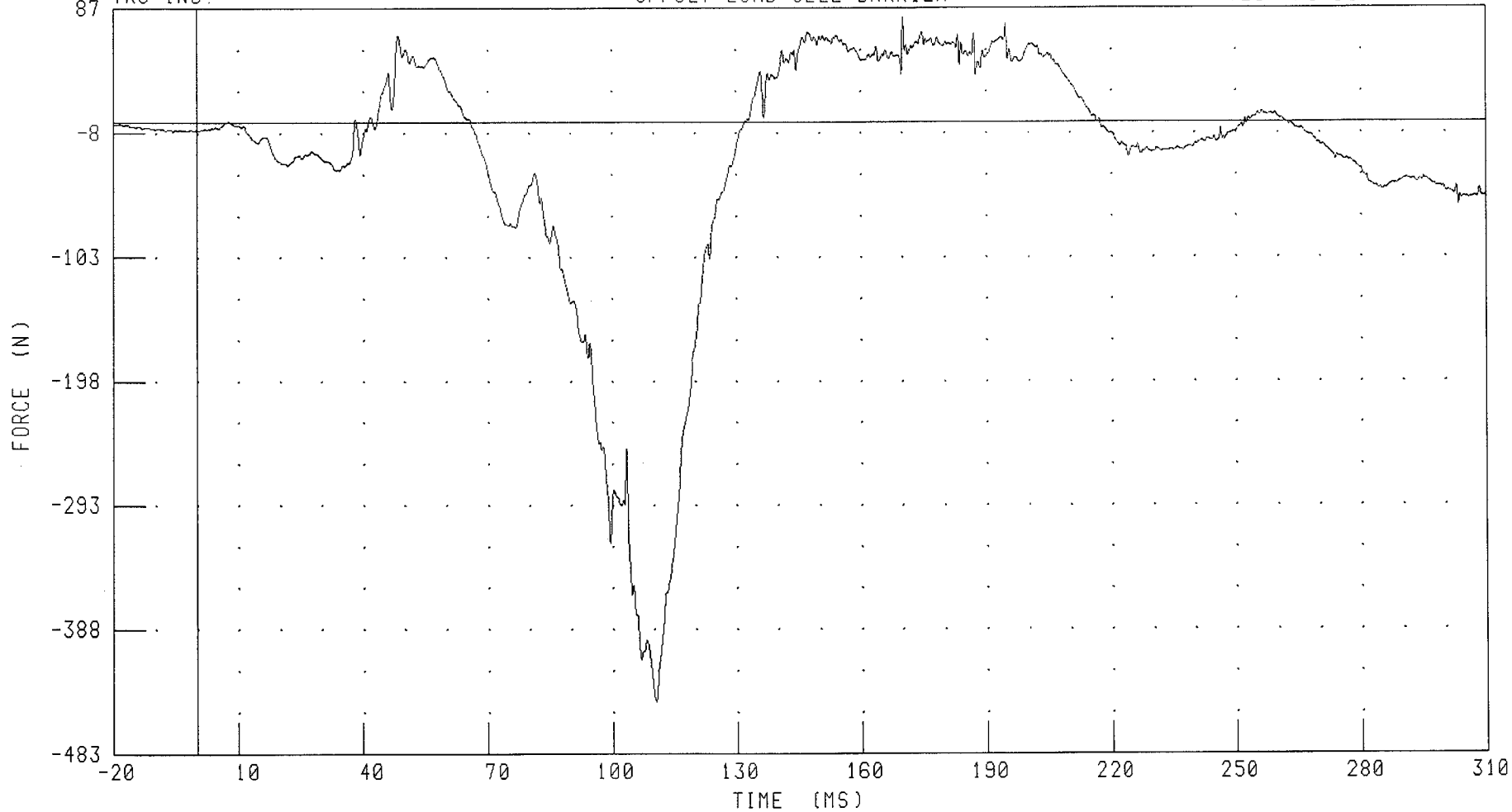


CHANNEL: TBRXF2 FILTER: CH. CLASS 600

PEAK DATA: 300.92 N @ 102.56 MS; -35.26 N @ 156.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT UPPER TIBIA Z-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020819



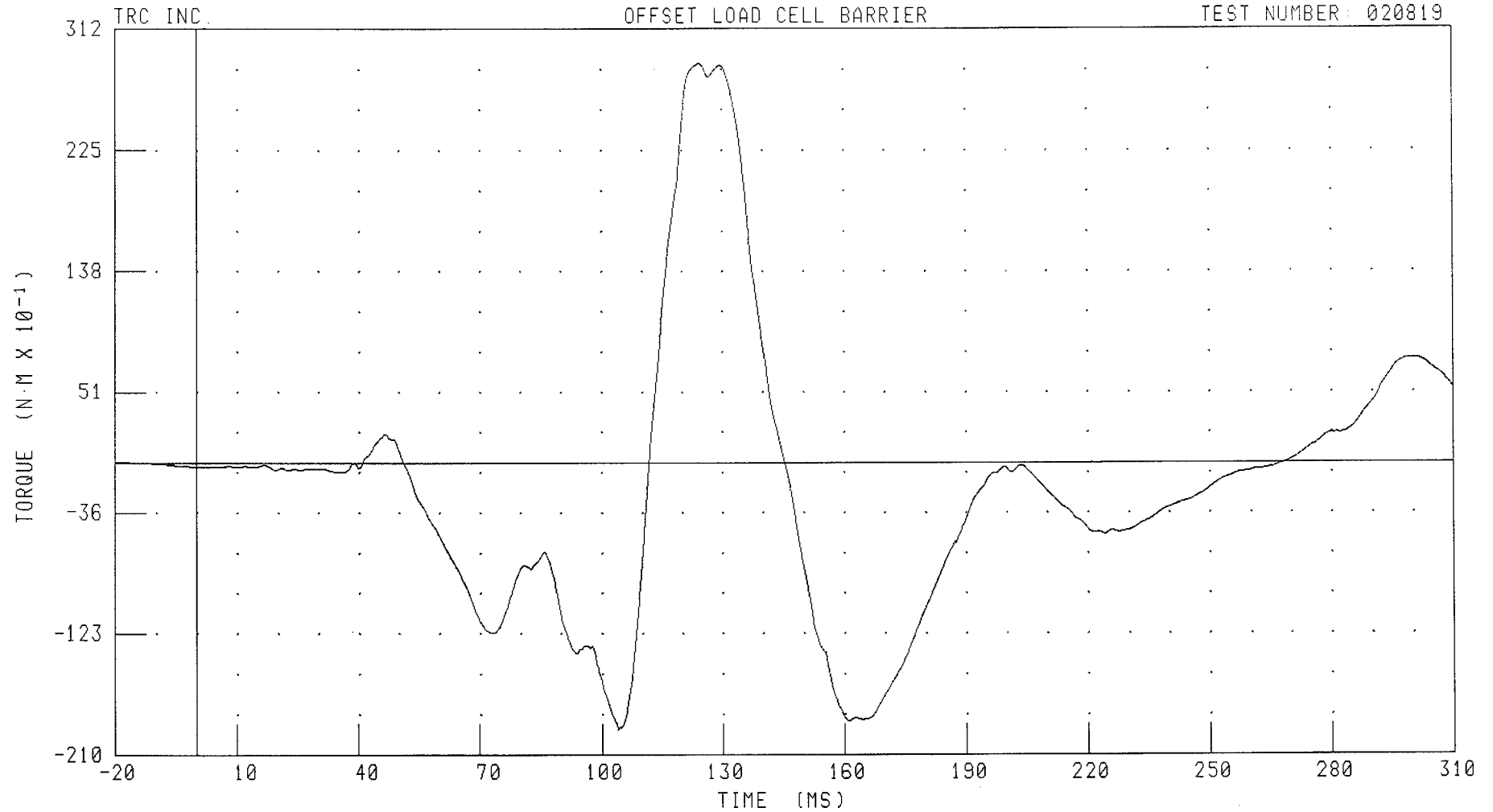
CHANNEL: TBRZF2 FILTER: CH. CLASS 600

PEAK DATA: 79.72 N @ 170.48 MS; -443.60 N @ 110.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBRXM2 FILTER: CH. CLASS 600

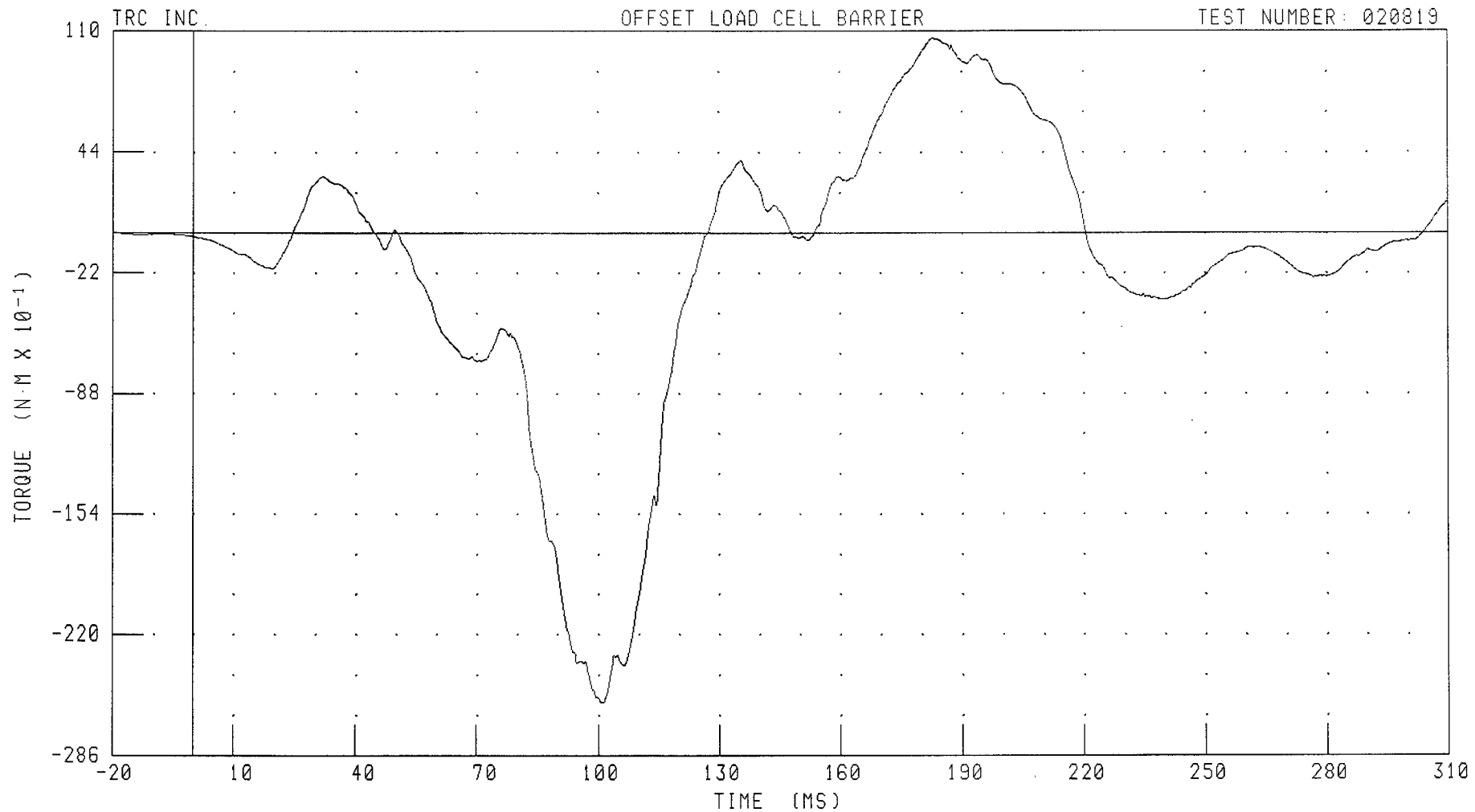
PEAK DATA: 28.73 N·M @ 124.56 MS; -19.20 N·M @ 104.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TBRYM2 FILTER: CH: CLASS 600

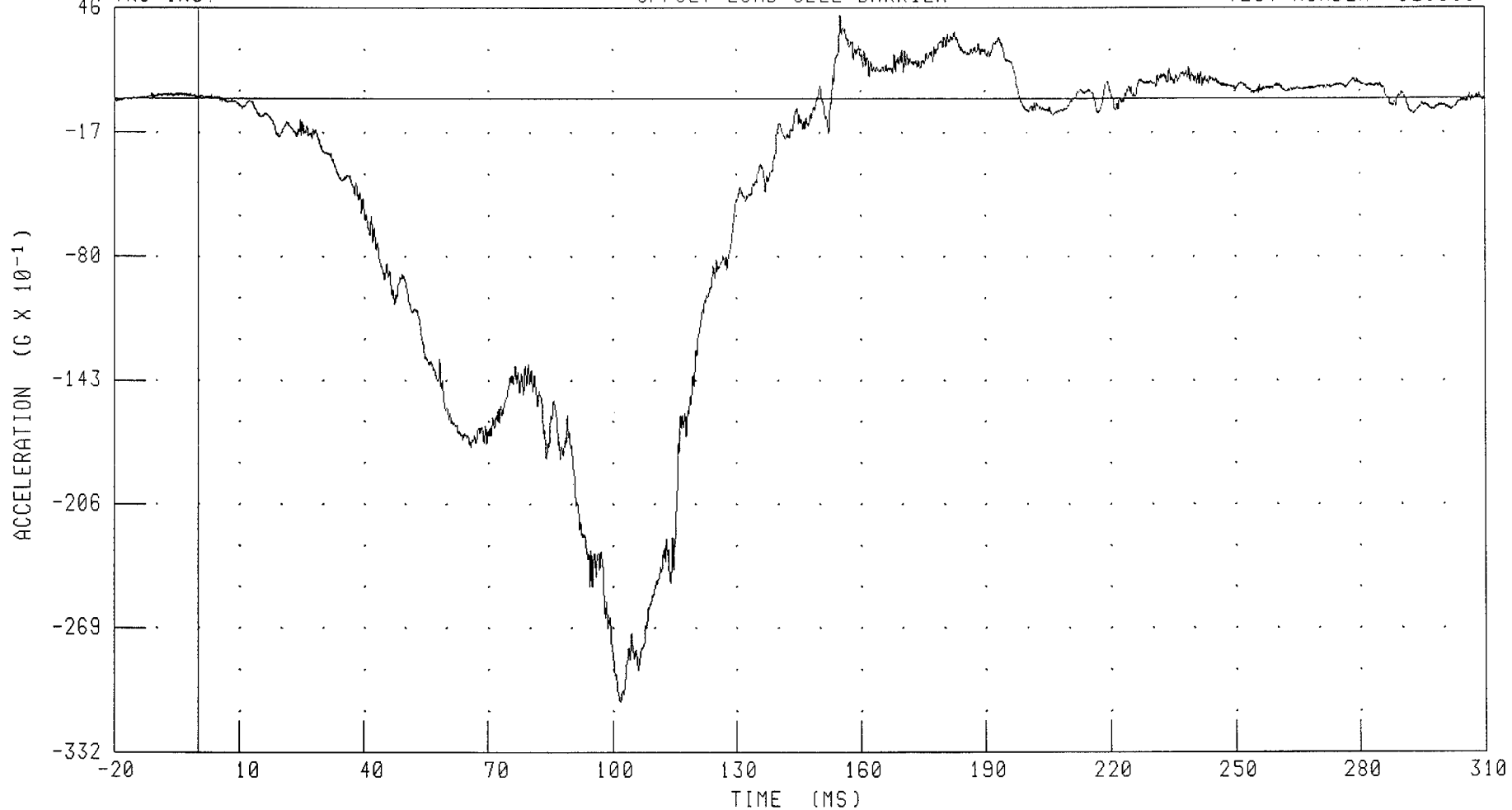
PEAK DATA: 10.63 N·M @ 183.20 MS; -25.72 N·M @ 101.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT TIBIA X-AXIS ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



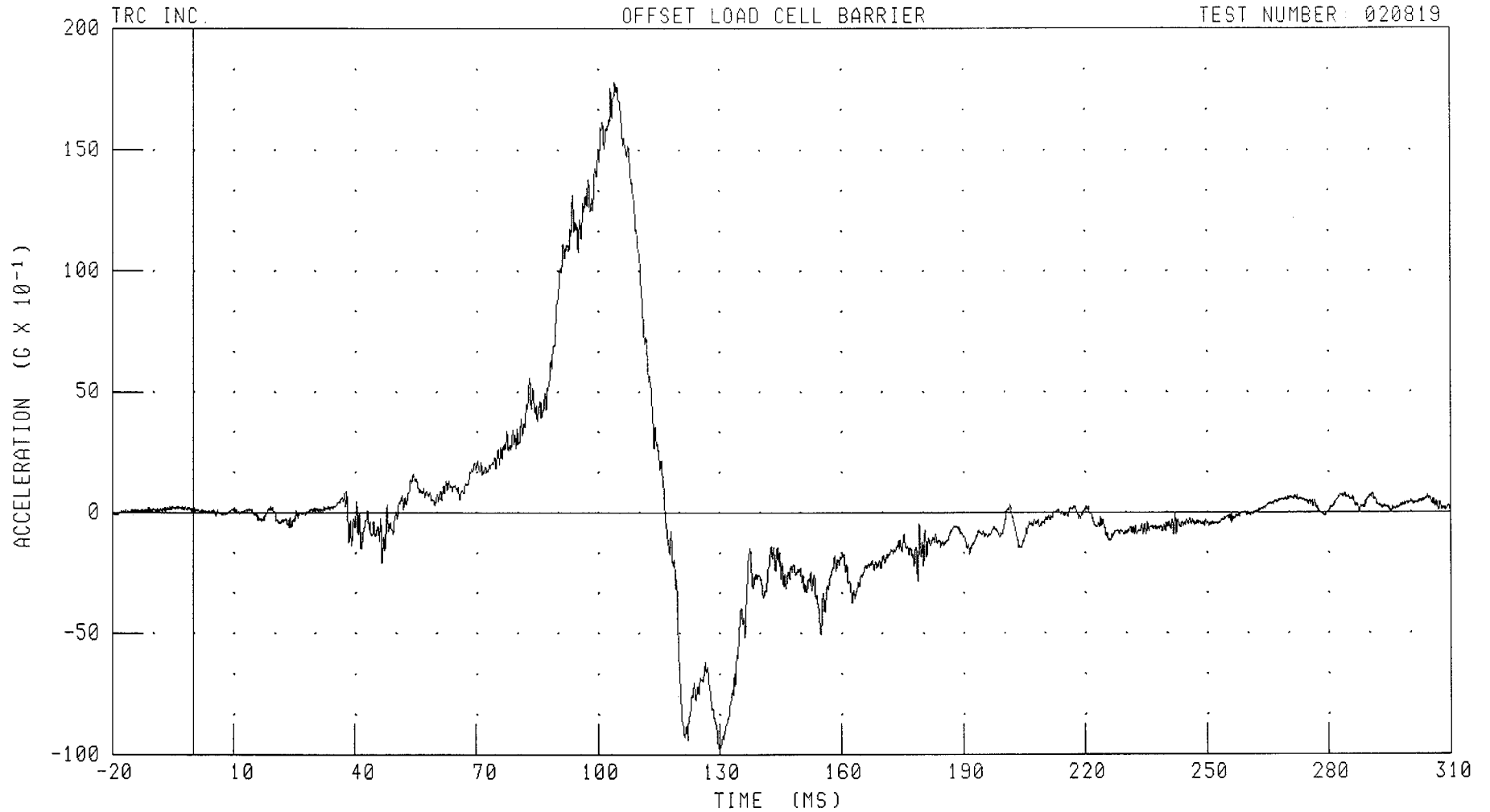
CHANNEL: TBRXG2 FILTER: CH. CLASS 1000

PEAK DATA: 4.24 G @ 155.28 MS; -30.64 G @ 101.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT TIBIA Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER 020819



CHANNEL: TBRYG2 FILTER: CH. CLASS 1000

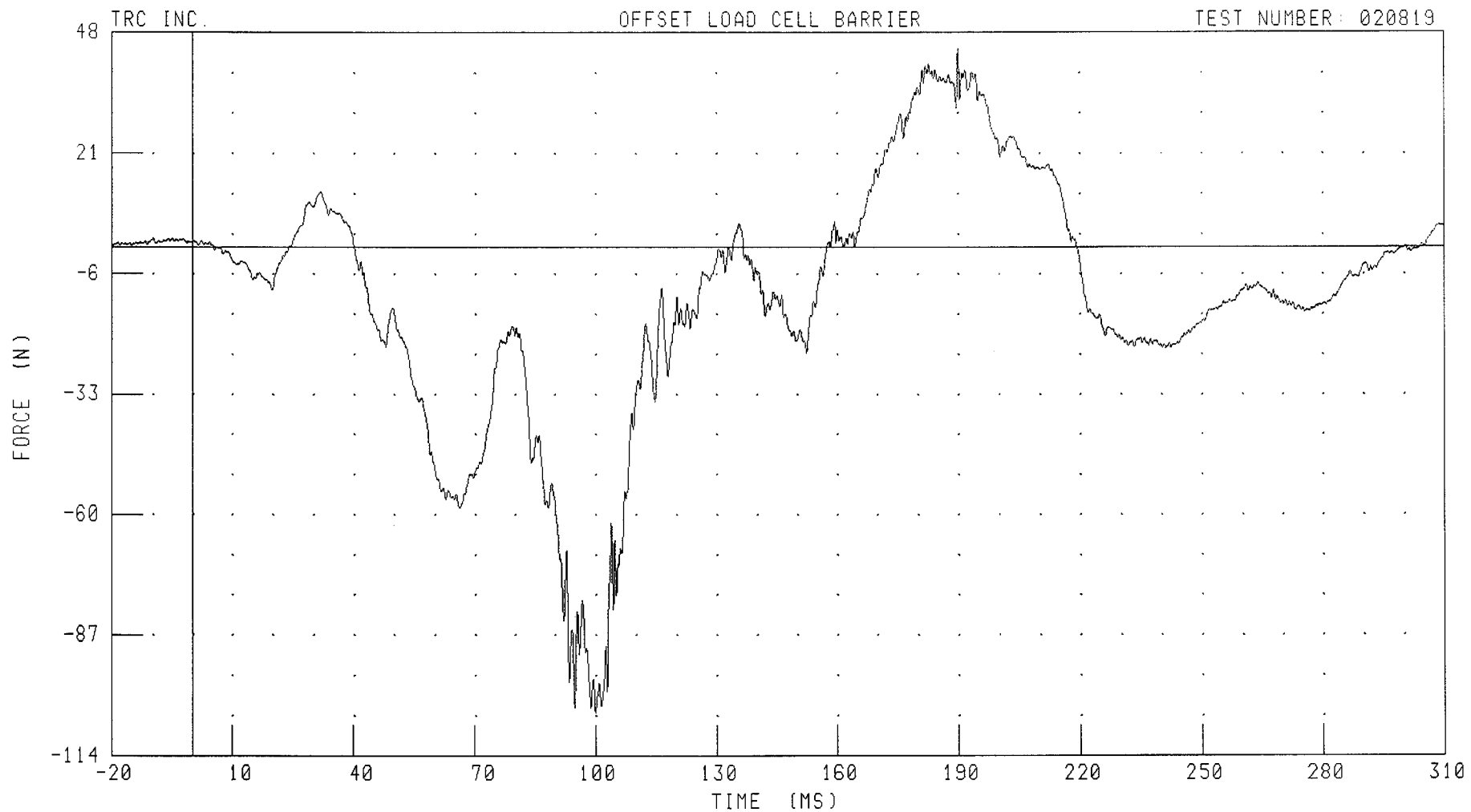
PEAK DATA: 17.81 G @ 104.24 MS; -9.73 G @ 129.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



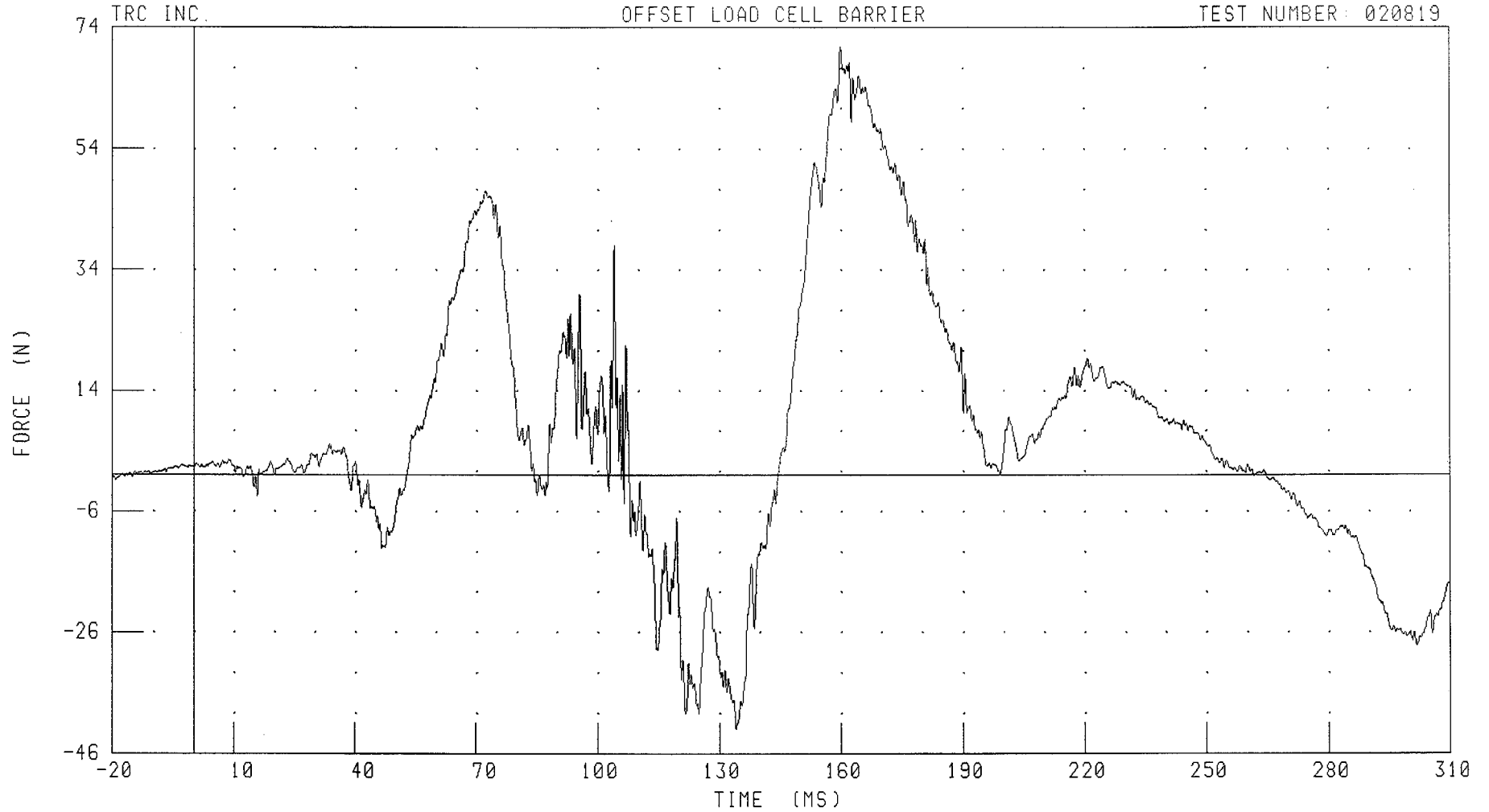
CHANNEL: ANRXF2 FILTER: CH. CLASS 600

PEAK DATA: 44.38 N @ 190.16 MS; -104.39 N @ 100.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT LOWER TIBIA Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANRYF2 FILTER: CH. CLASS 600

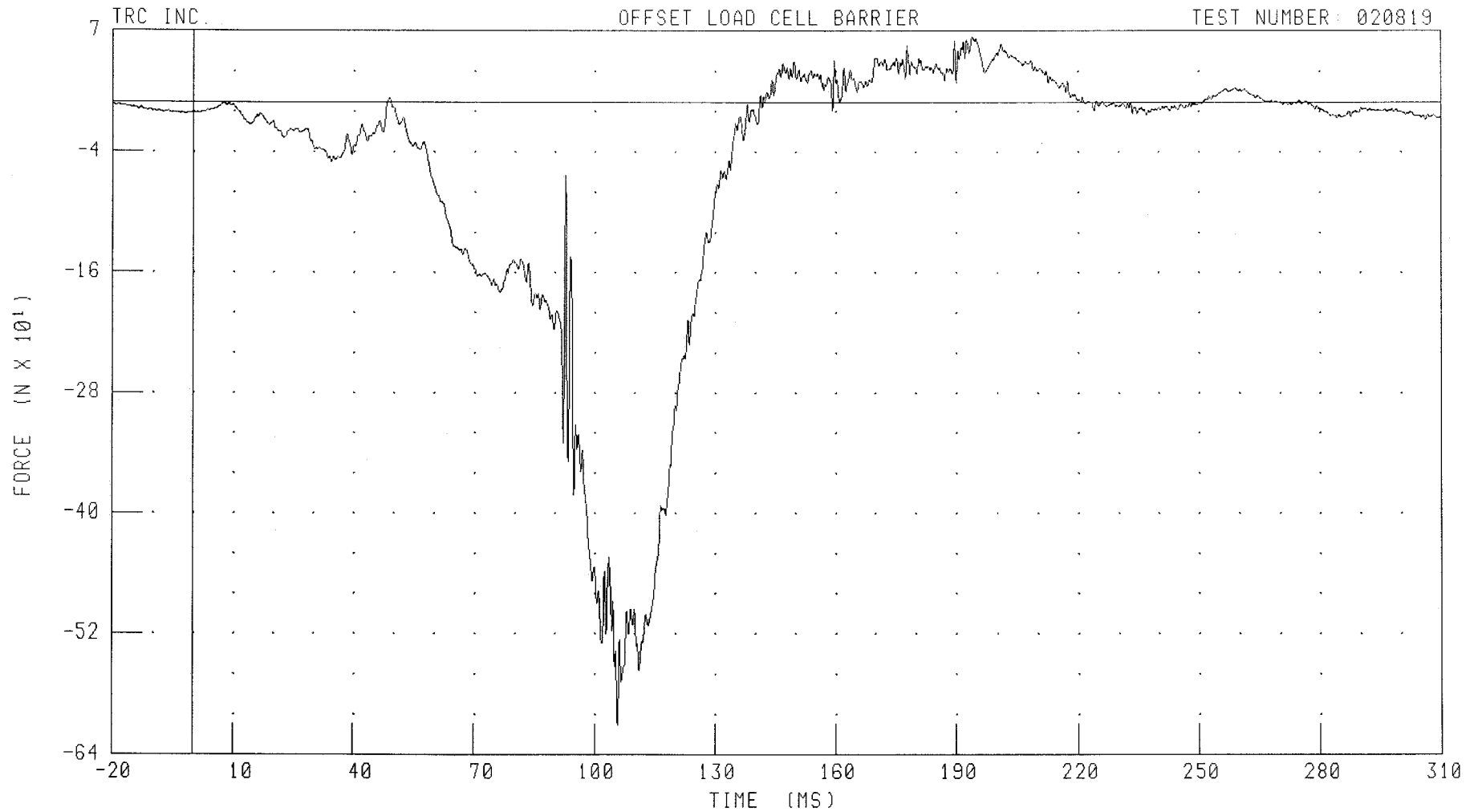
PEAK DATA: 70.79 N @ 160.08 MS; -42.02 N @ 134.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: ANRZF2 FILTER: CH. CLASS 600

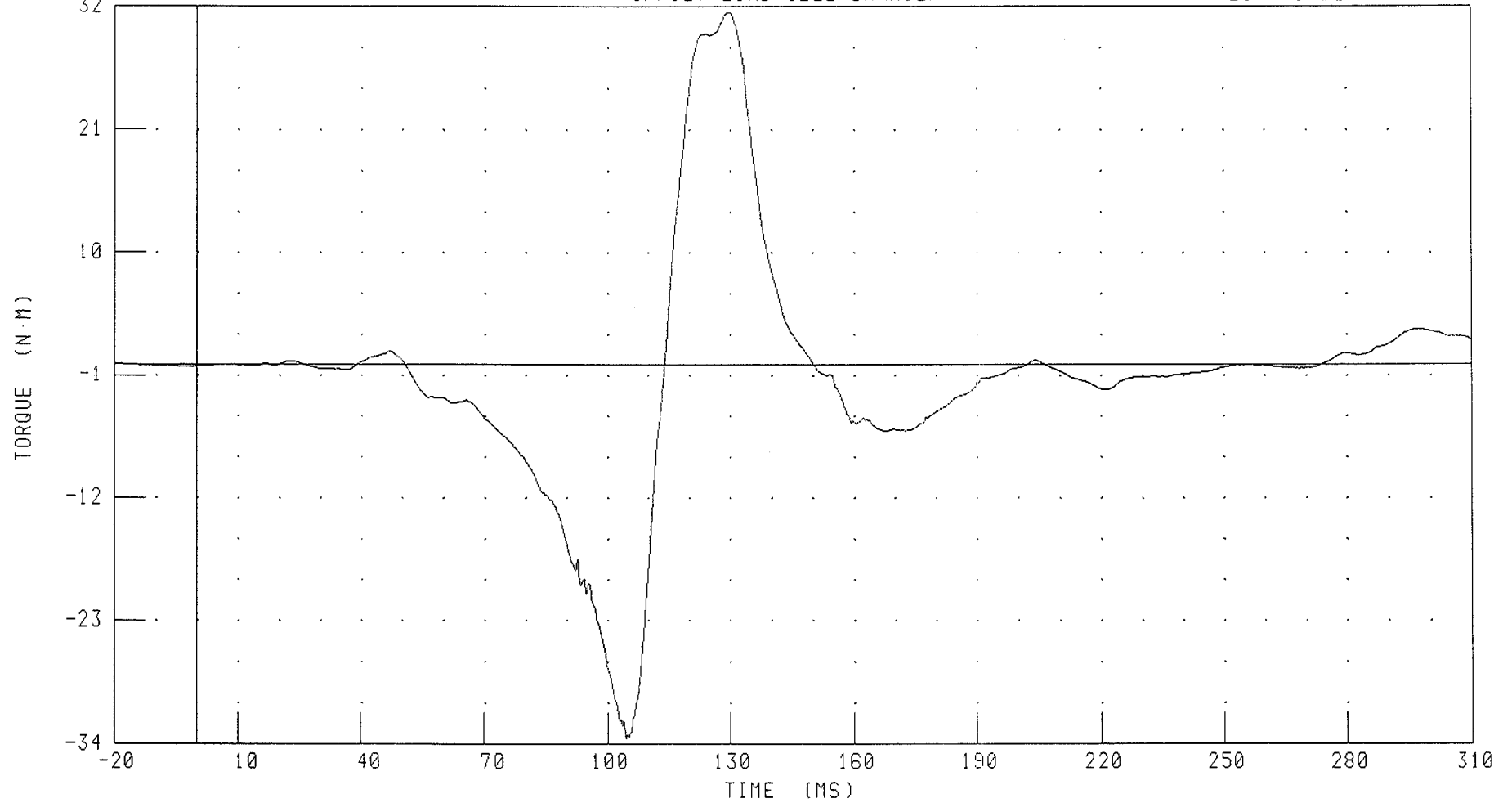
PEAK DATA: 65.00 N @ 194.16 MS; -619.45 N @ 105.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



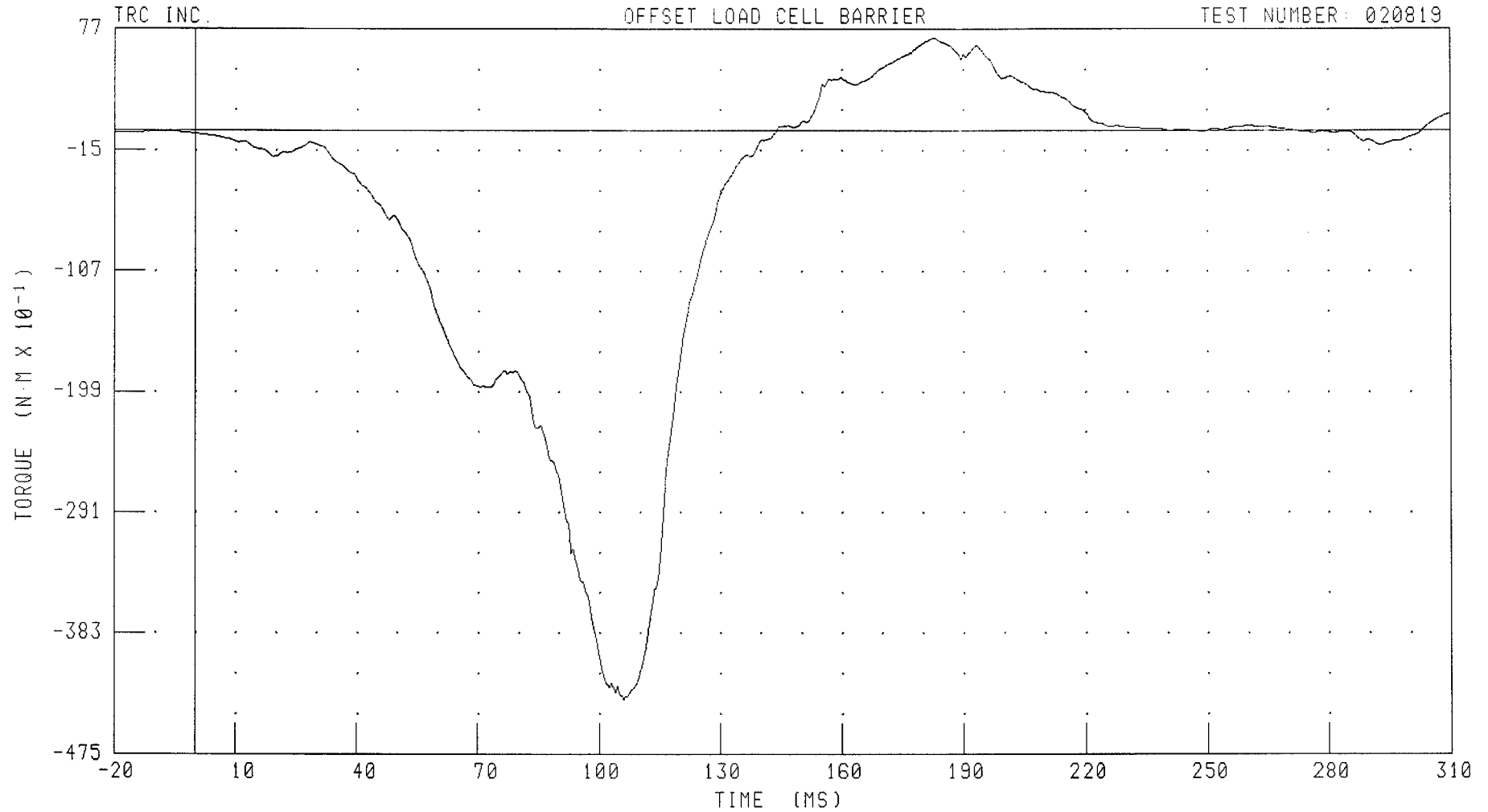
CHANNEL: ANRXM2 FILTER: CH CLASS 600

PEAK DATA 31.50 N·M @ 129.76 MS; -33.57 N·M @ 104.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



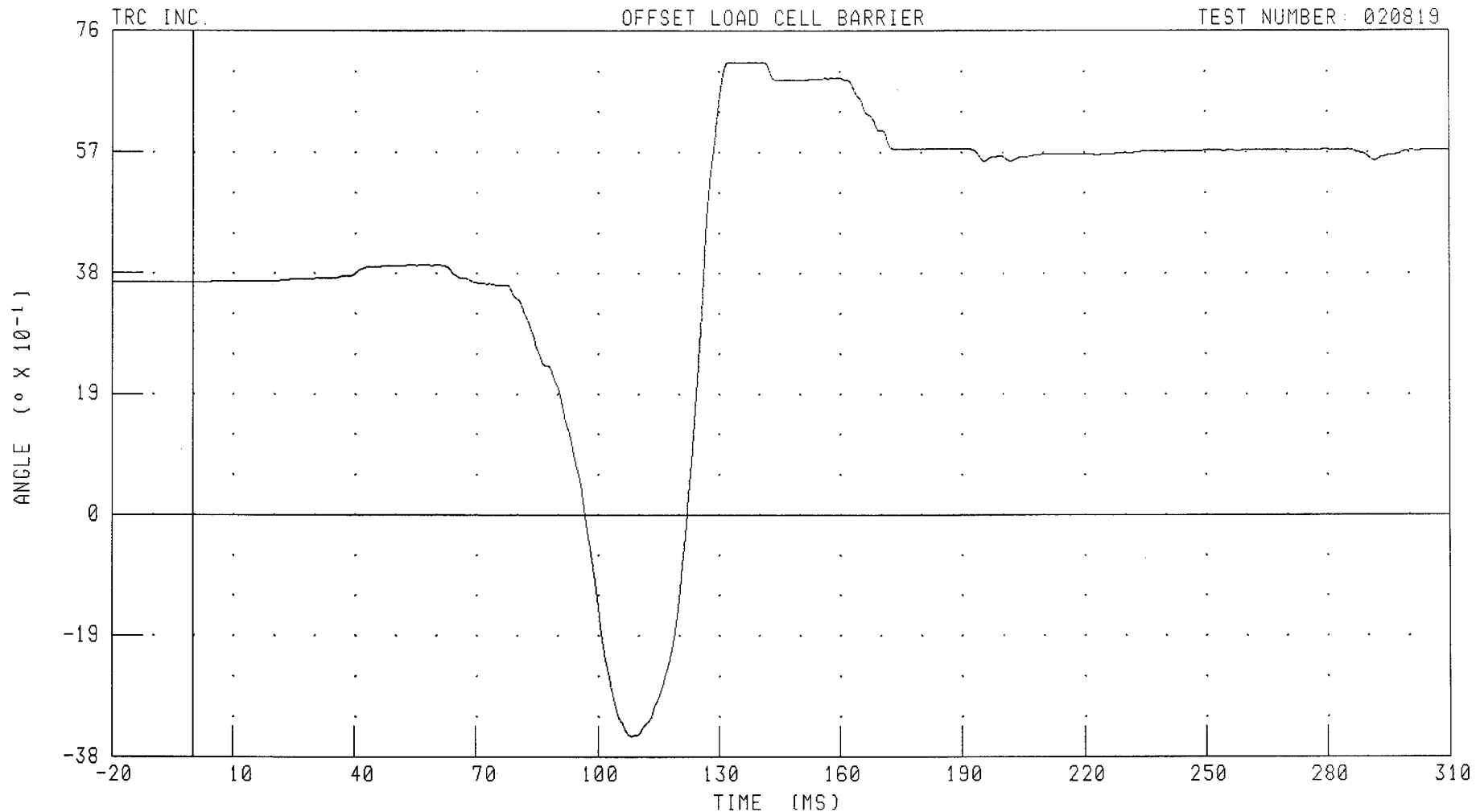
CHANNEL: ANRYM2 FILTER: CH. CLASS 600

PEAK DATA: 7.04 N·M @ 183.20 MS; -43.37 N·M @ 106.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT FOOT TO ANKLE X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTRXD2

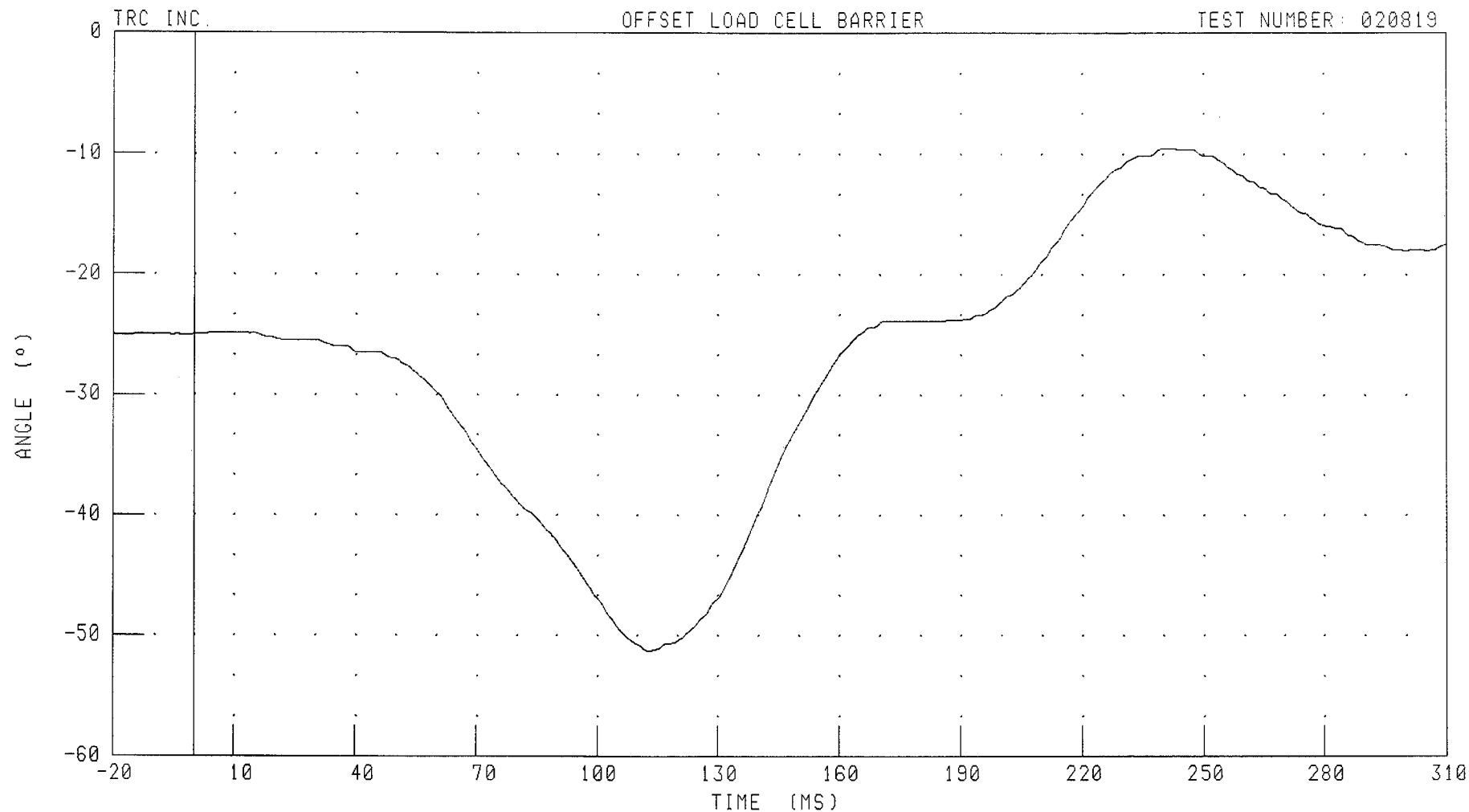
FILTER: CH. CLASS 180

PEAK DATA: 7.11 ° @ 132.56 MS; -3.47 ° @ 108.32 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT FOOT TO ANKLE Y-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



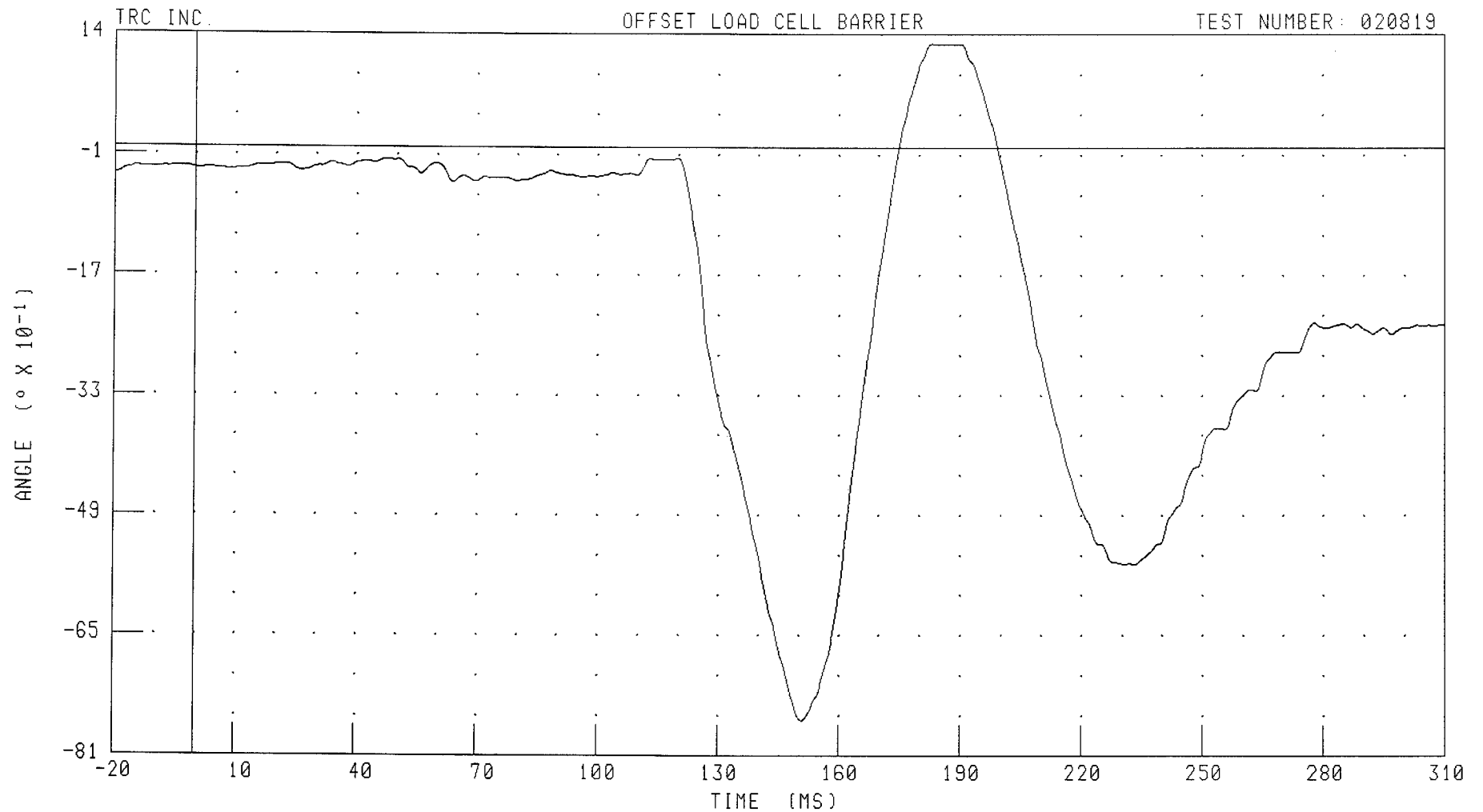
CHANNEL: FTRYD2 FILTER: CH. CLASS 180

PEAK DATA: -9.58 ° @ 242.48 MS; -51.28 ° @ 112.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT FOOT TO ANKLE Z-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTRZD2 FILTER: CH. CLASS 180

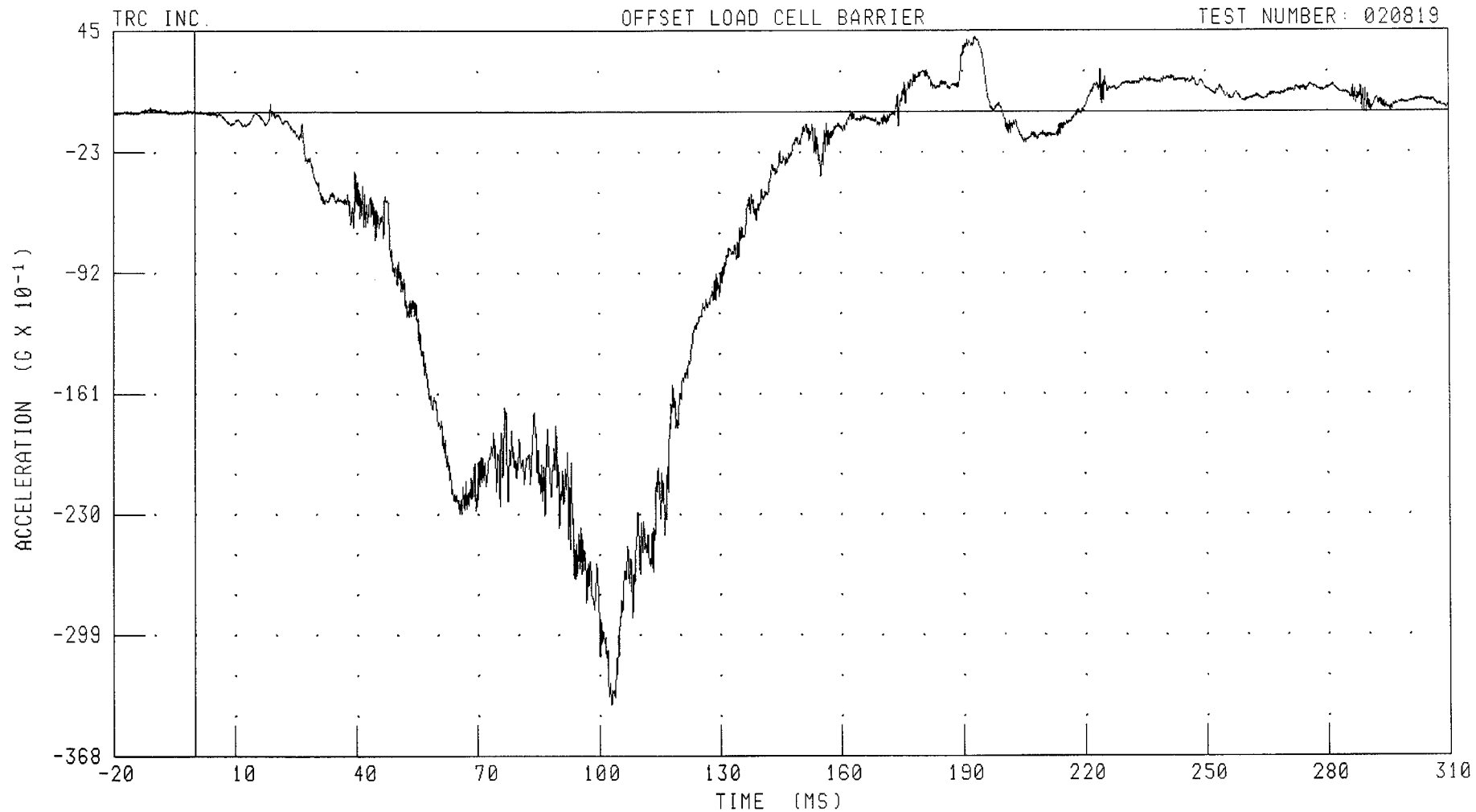
PEAK DATA: 1.37  $^{\circ}$  @ 183.44 MS; -7.64  $^{\circ}$  @ 151.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER RIGHT FOOT X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTRXC2 FILTER: CH. CLASS 1000

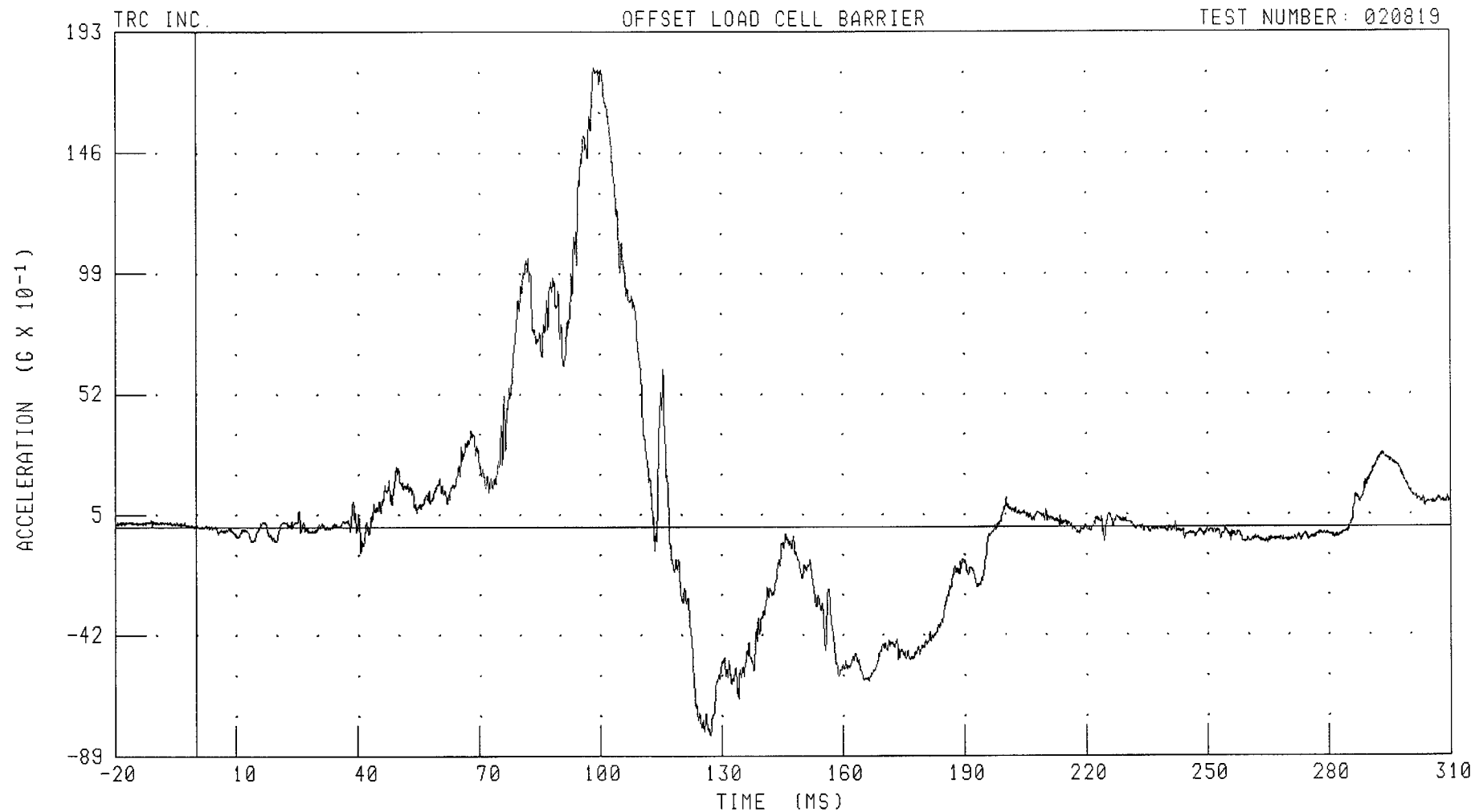
PEAK DATA: 4.26 G @ 193.20 MS; -33.87 G @ 102.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER RIGHT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTRYG2 FILTER: CH. CLASS 1000

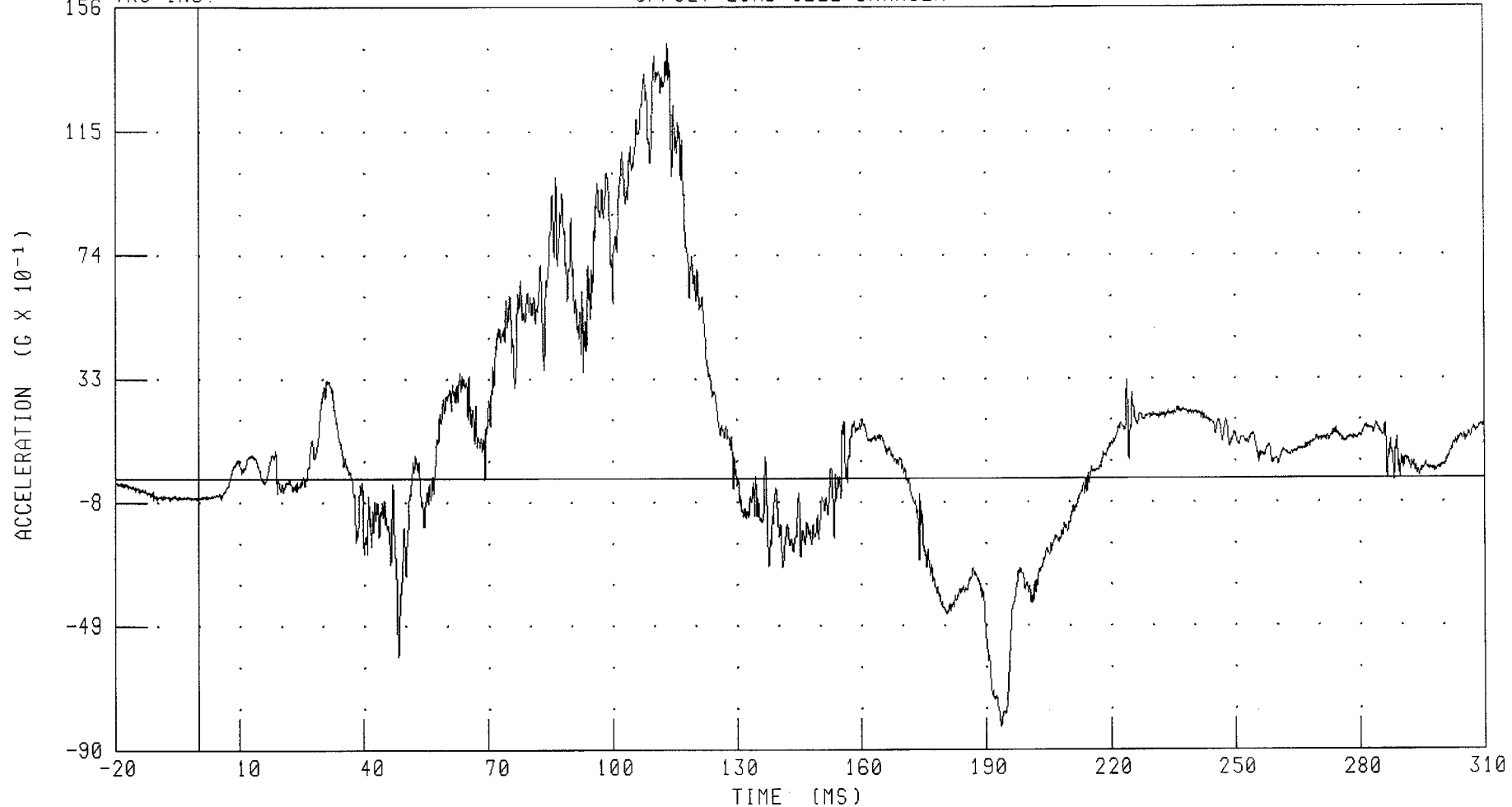
PEAK DATA: 17.92 G @ 98.80 MS; -8.12 G @ 127.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: FTRZG2

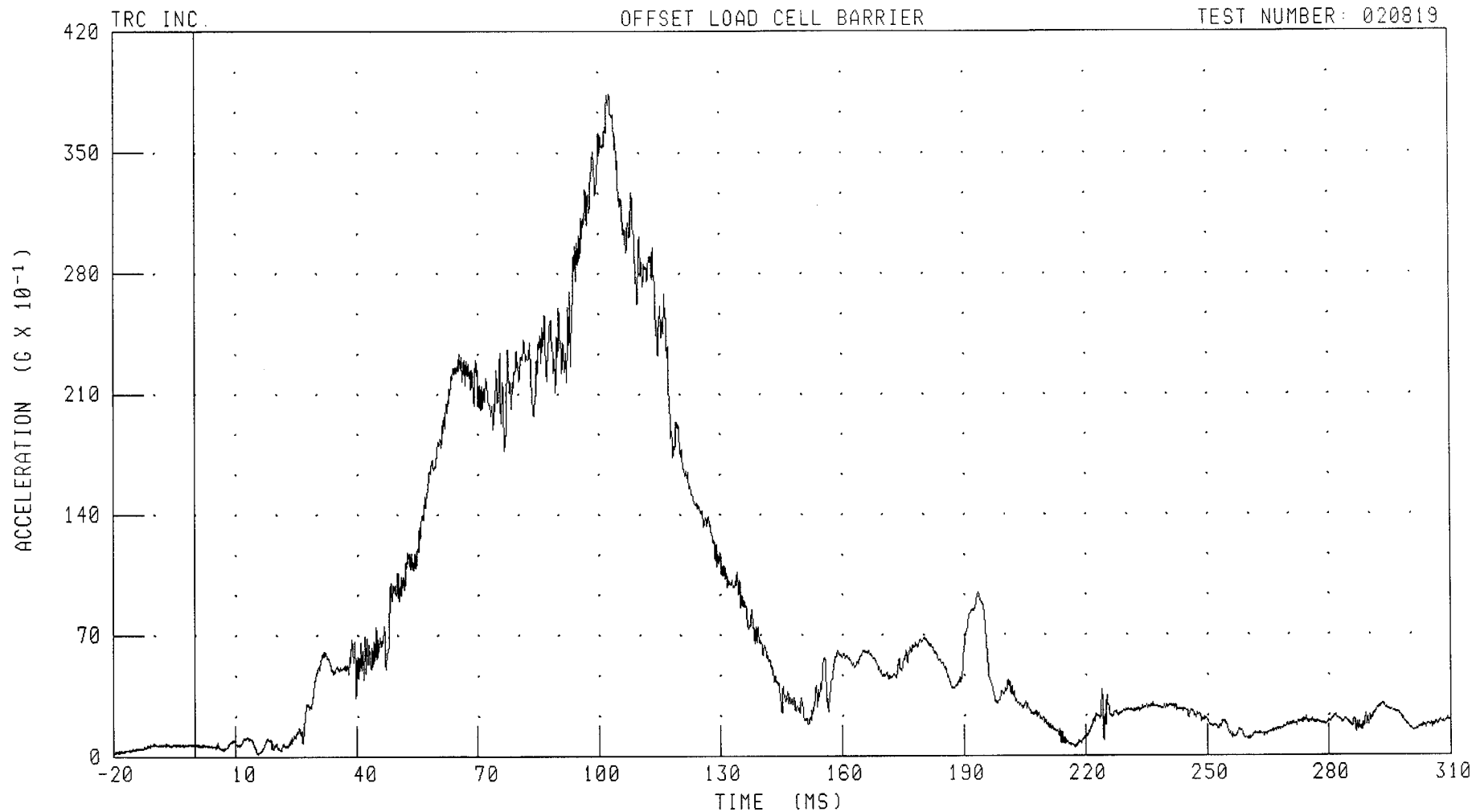
FILTER: CH. CLASS 1000

PEAK DATA: 14.44 G @ 113.68 MS; -8.23 G @ 193.60 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
PASSENGER RIGHT FOOT RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



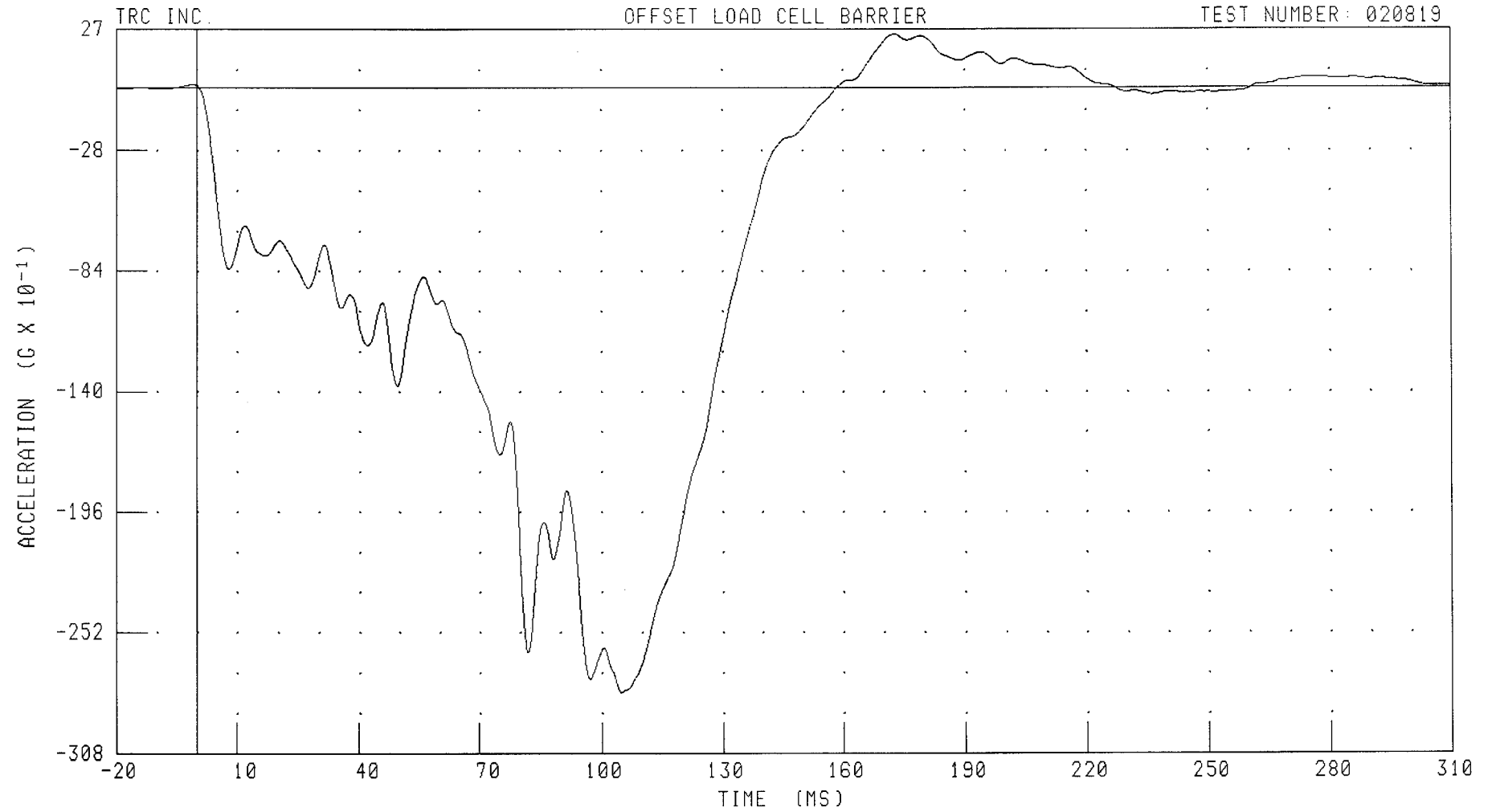
CHANNEL: FTRRG2 FILTER: CH. CLASS 1000

PEAK DATA: 38.39 G @ 102.96 MS; 0.11 G @ 15.60 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
LEFT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

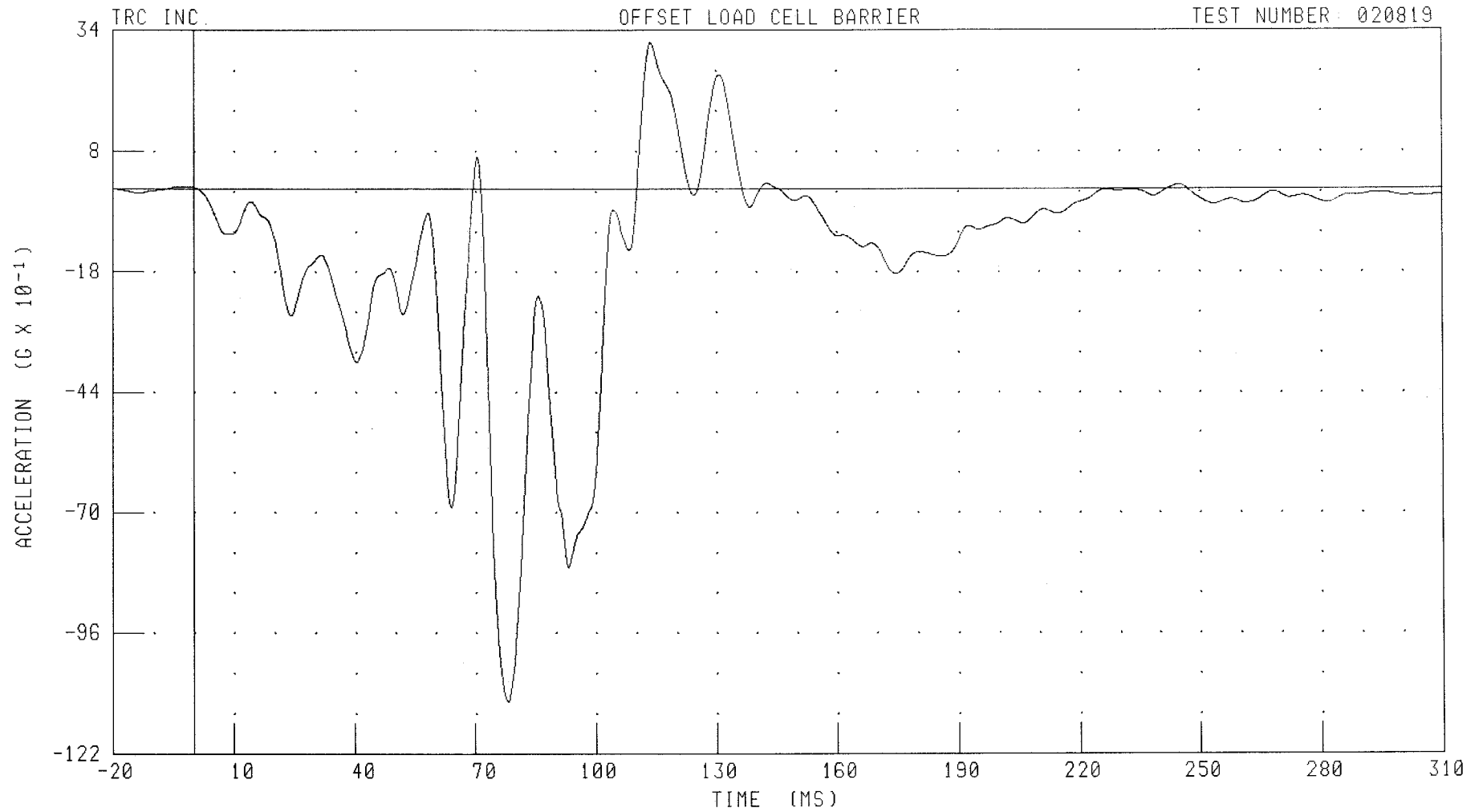


CHANNEL: LRXXG1 FILTER: CH. CLASS 60

PEAK DATA: 2.47 G @ 173.12 MS; -28.09 G @ 104.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
LEFT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

TEST NUMBER: 020819



CHANNEL: LRXYG1

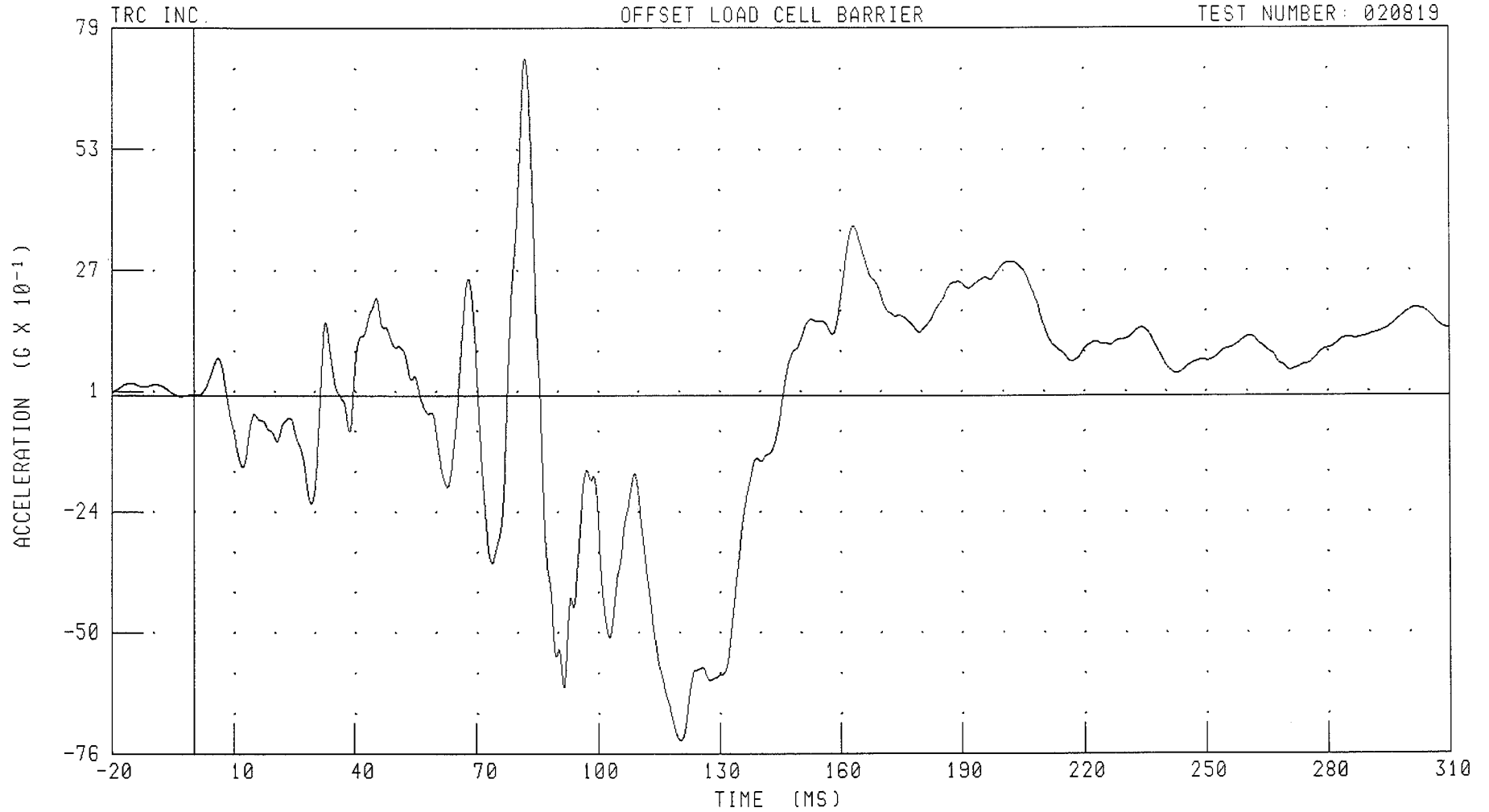
FILTER: CH. CLASS 60

PEAK DATA: 3.13 G @ 113.76 MS; -11.08 G @ 78.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
LEFT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

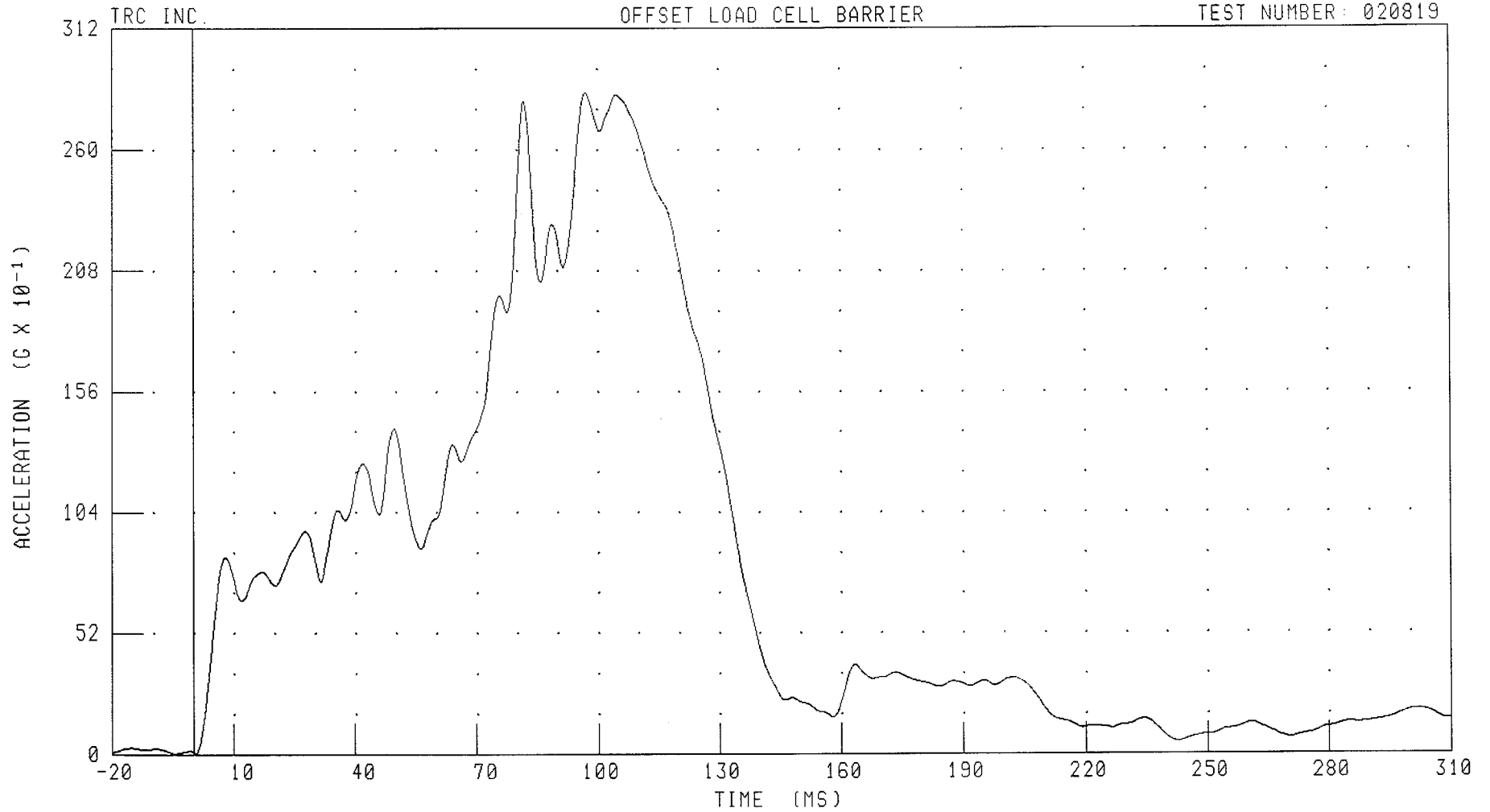


CHANNEL: LRZG1 FILTER: CH. CLASS 60

PEAK DATA: 7.24 G @ 82.16 MS; -7.41 G @ 120.40 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
LEFT REAR SEAT CROSSMEMBER RESULTANT ACCELERATION

TEST NUMBER: 020819



CHANNEL: LRXRG1

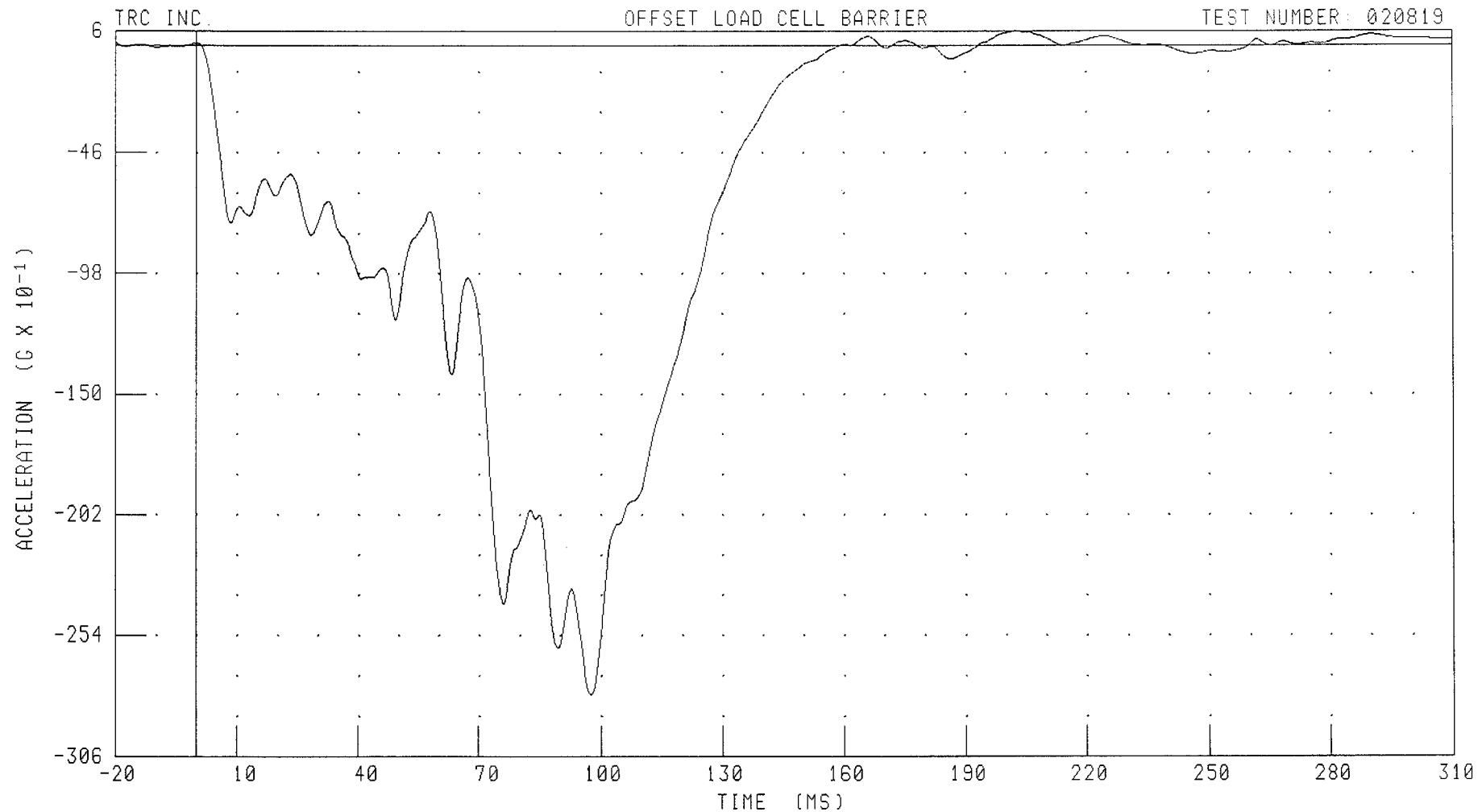
FILTER: CH. CLASS 60

PEAK DATA: 28.45 G @ 97.20 MS; 0.02 G @ 0.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: RRXXG1 FILTER: CH. CLASS 60

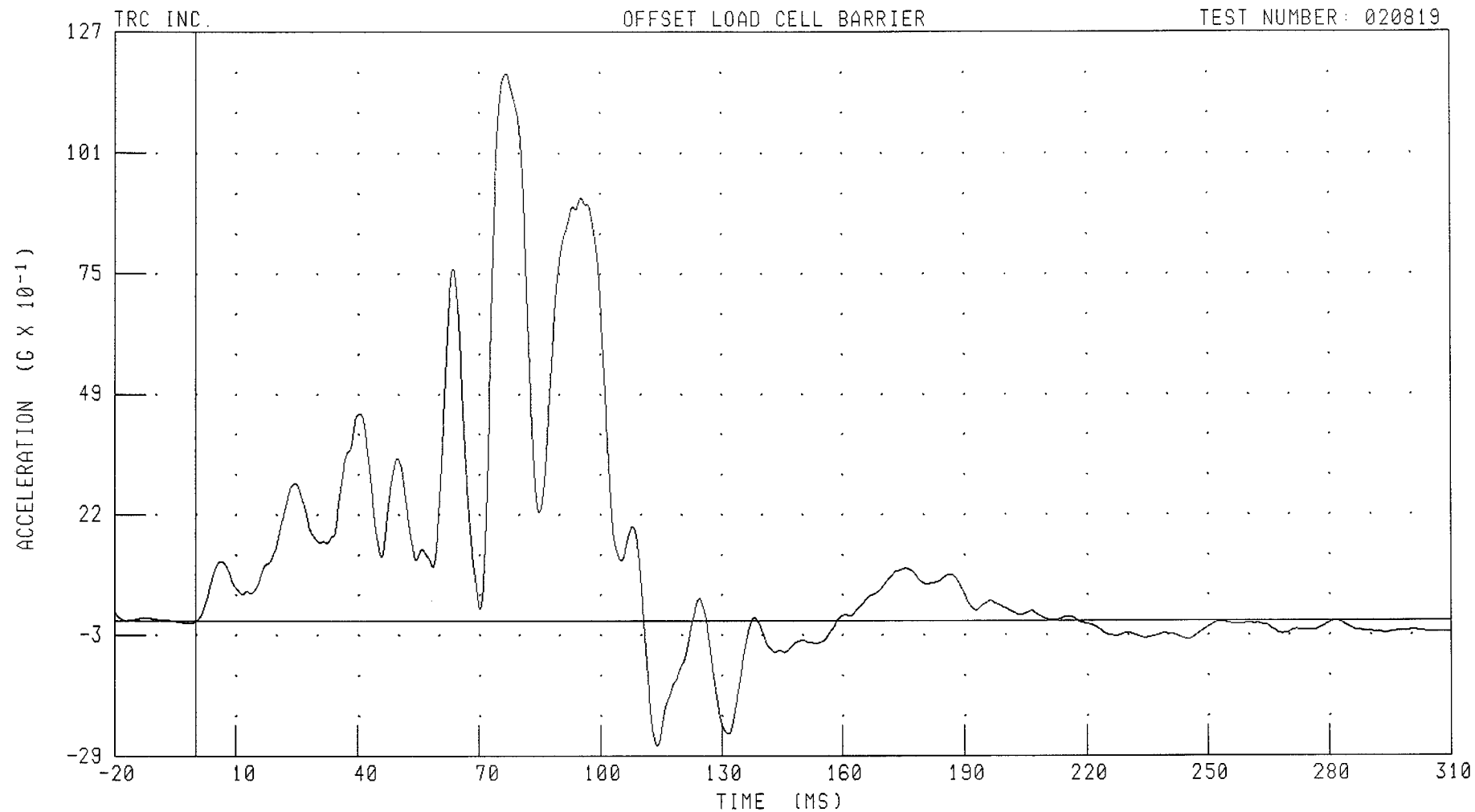
PEAK DATA: 0.63 G @ 202.56 MS; -27.94 G @ 97.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

RIGHT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



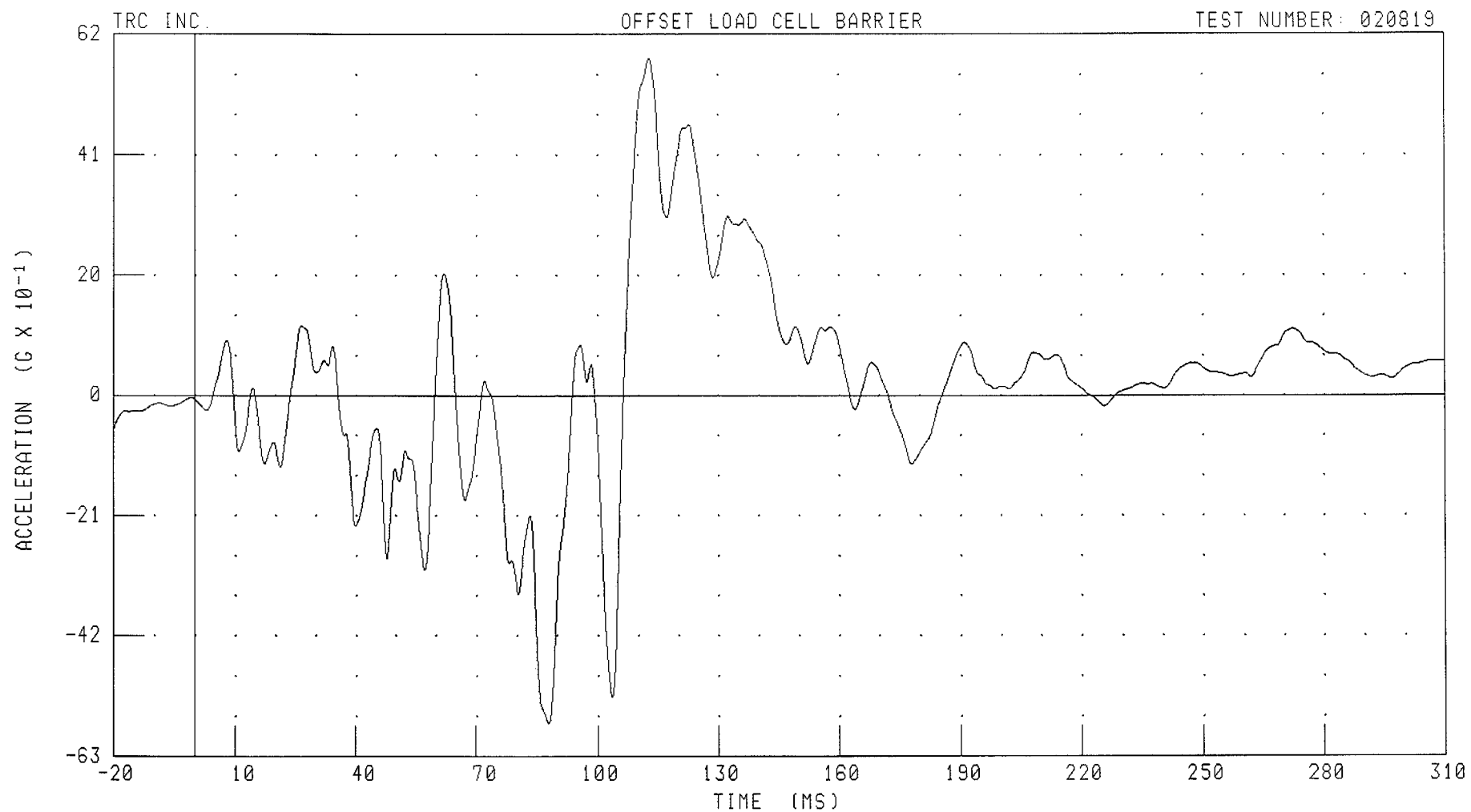
CHANNEL: RRXYG1

FILTER: CH. CLASS 60

PEAK DATA: 11.81 G @ 76.96 MS; -2.67 G @ 114.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
RIGHT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

TEST NUMBER: 020819



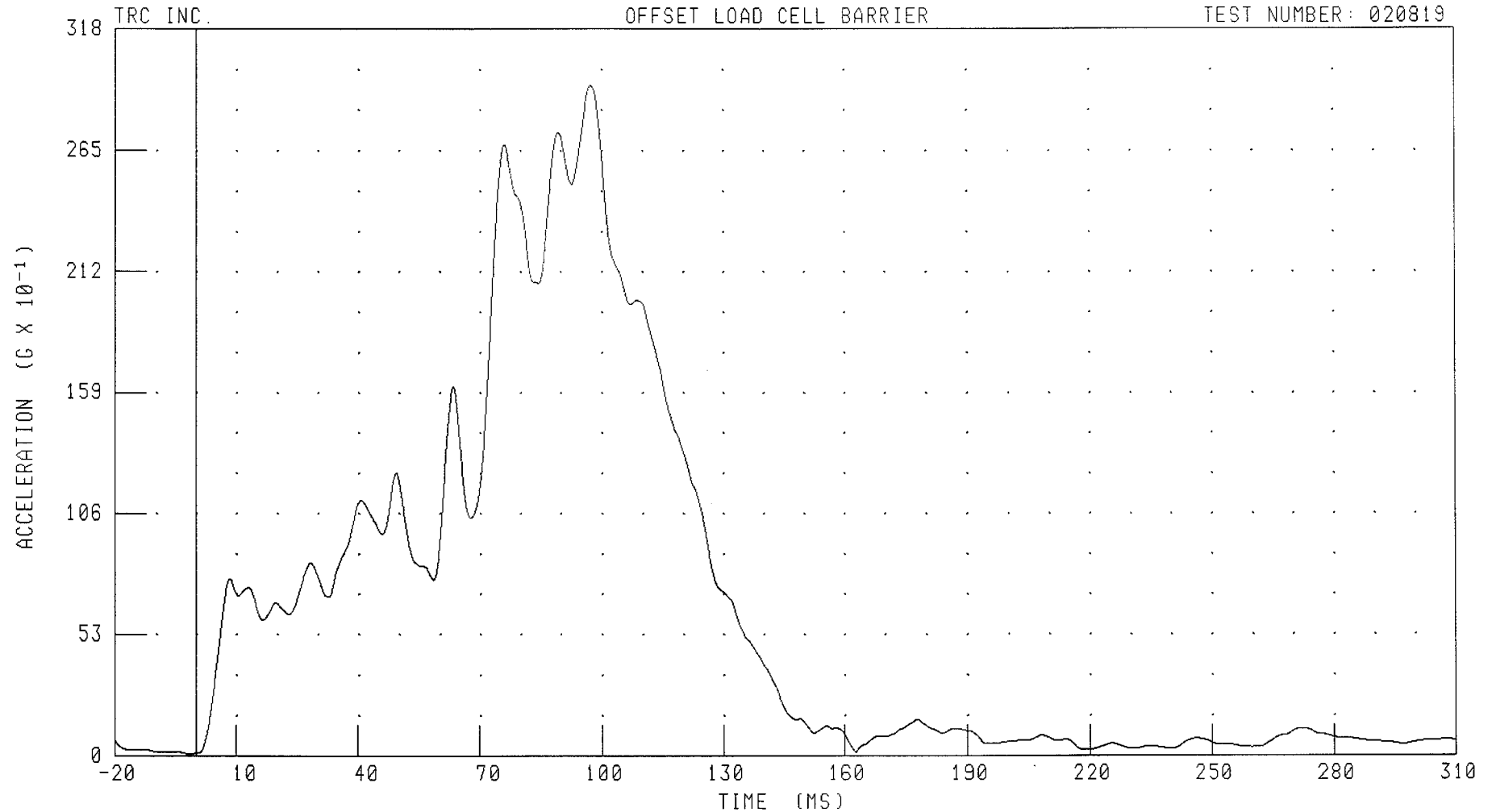
CHANNEL: RRZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.88 G @ 112.88 MS; -5.73 G @ 87.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
RIGHT REAR SEAT CROSSMEMBER RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



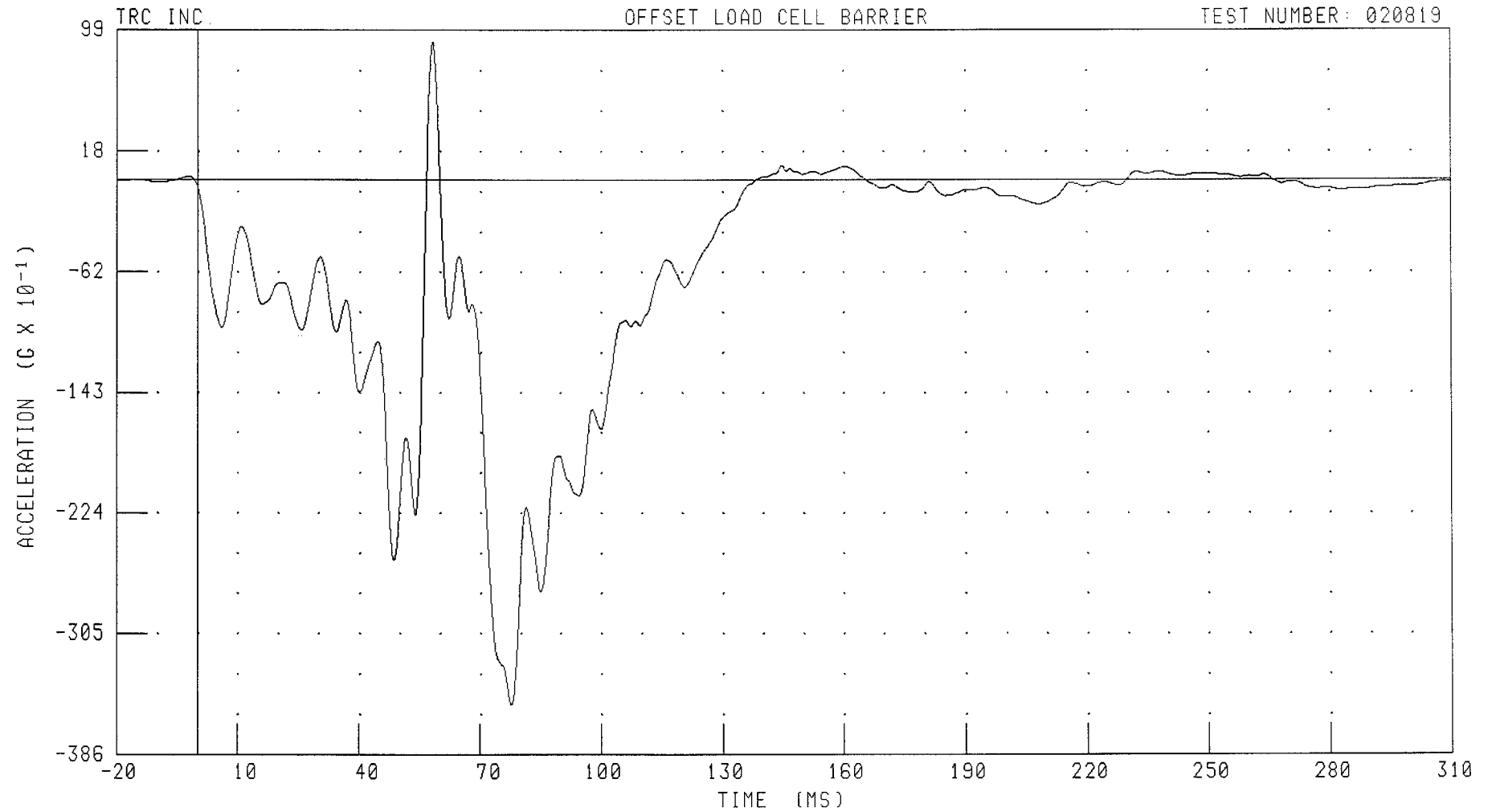
CHANNEL: RRXRC1 FILTER: CH. CLASS 60

PEAK DATA: 29.34 G @ 97.44 MS; 0.08 G @ -1.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS LEFT SIDE TOE PAN X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LTPXC1

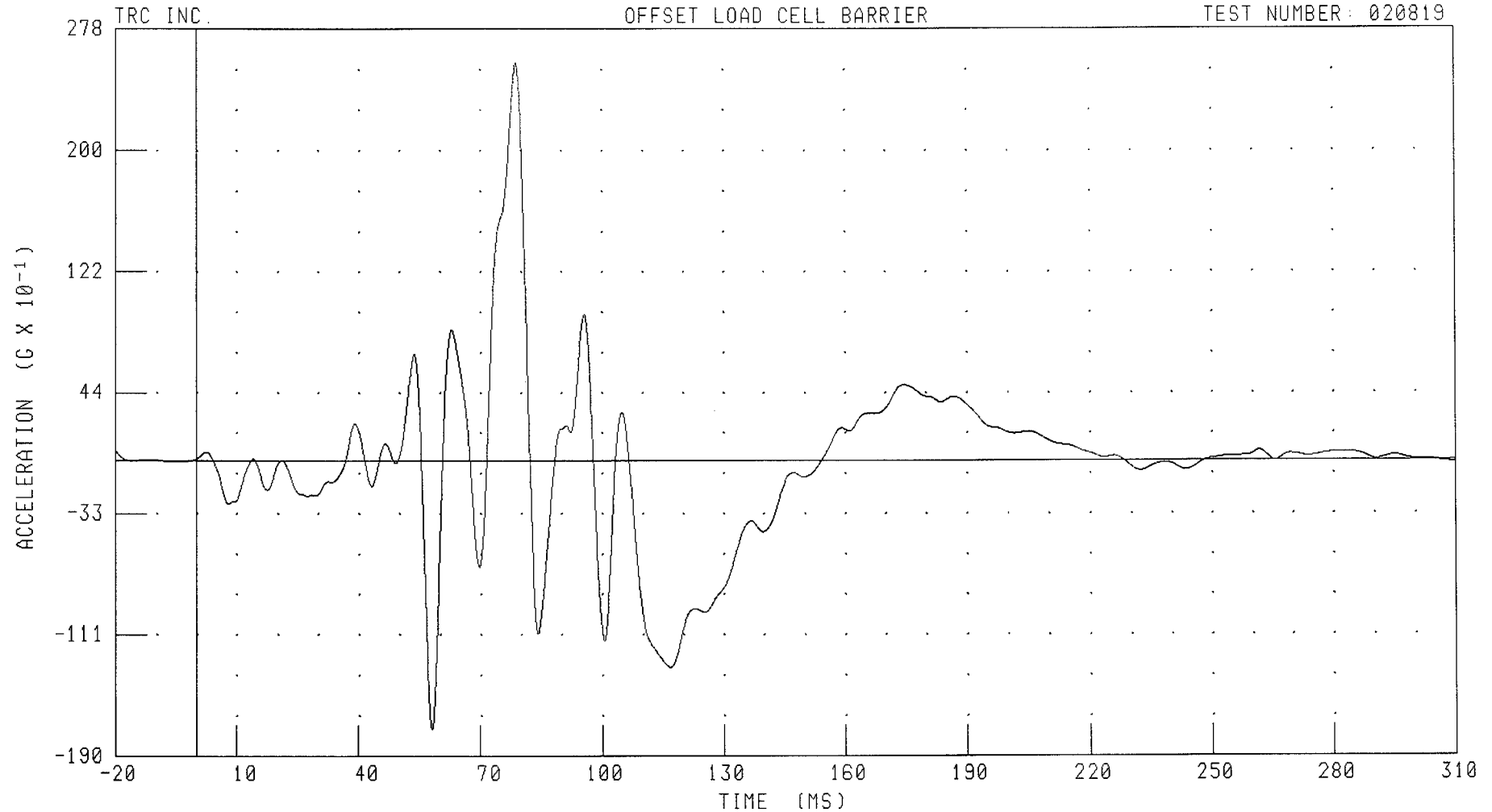
FILTER: CH. CLASS 60

PEAK DATA: 9.18 G @ 58.24 MS; -35.28 G @ 77.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS LEFT SIDE TOE PAN Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LTPYG1

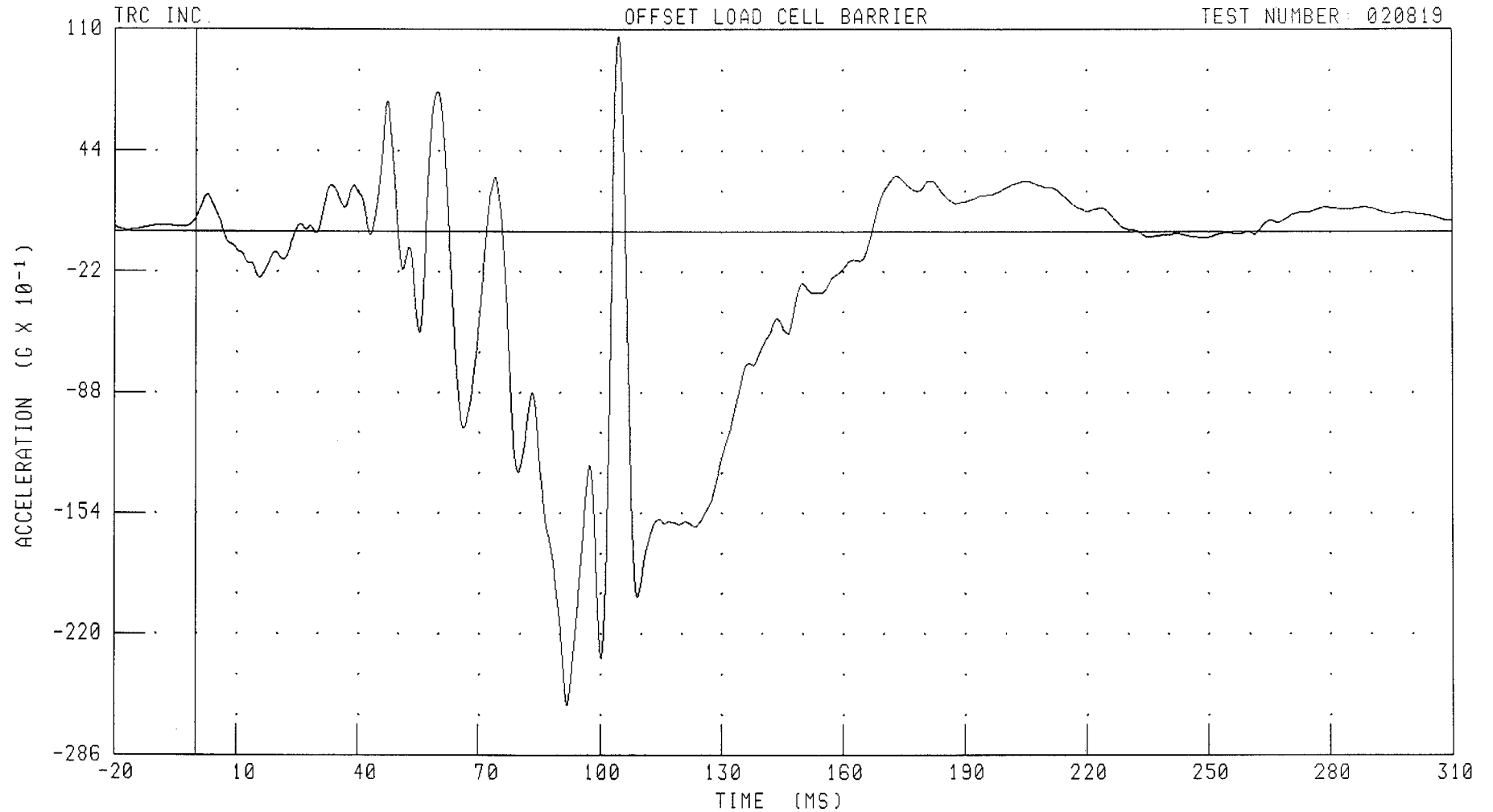
FILTER: CH. CLASS 60

PEAK DATA: 25.62 G @ 78.88 MS; -17.29 G @ 57.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS LEFT SIDE TOE PAN Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



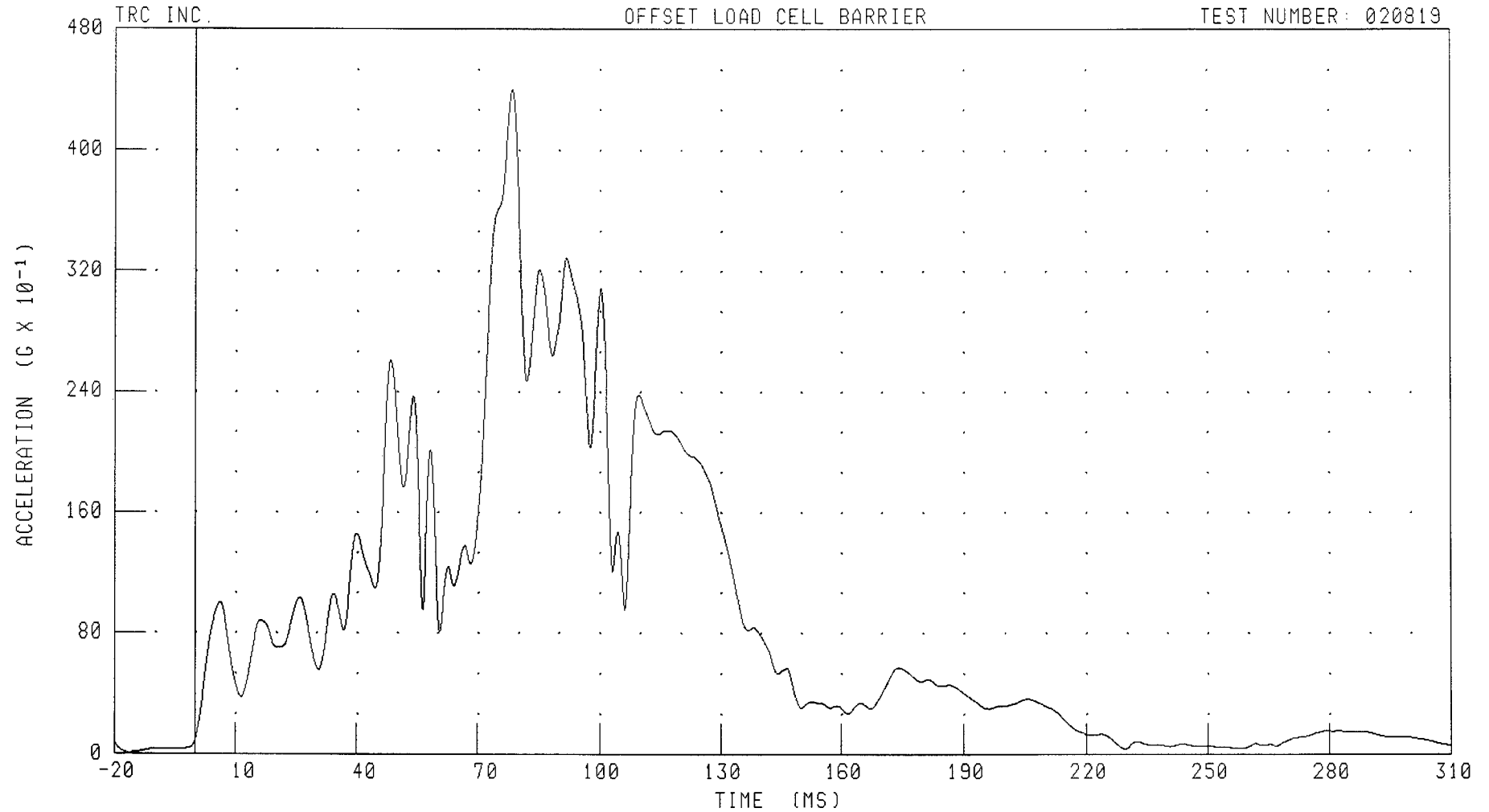
CHANNEL: LTPZG1 FILTER: CH. CLASS 60

PEAK DATA: 10.63 G @ 104.64 MS; -25.88 G @ 91.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS LEFT SIDE TOE PAN RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

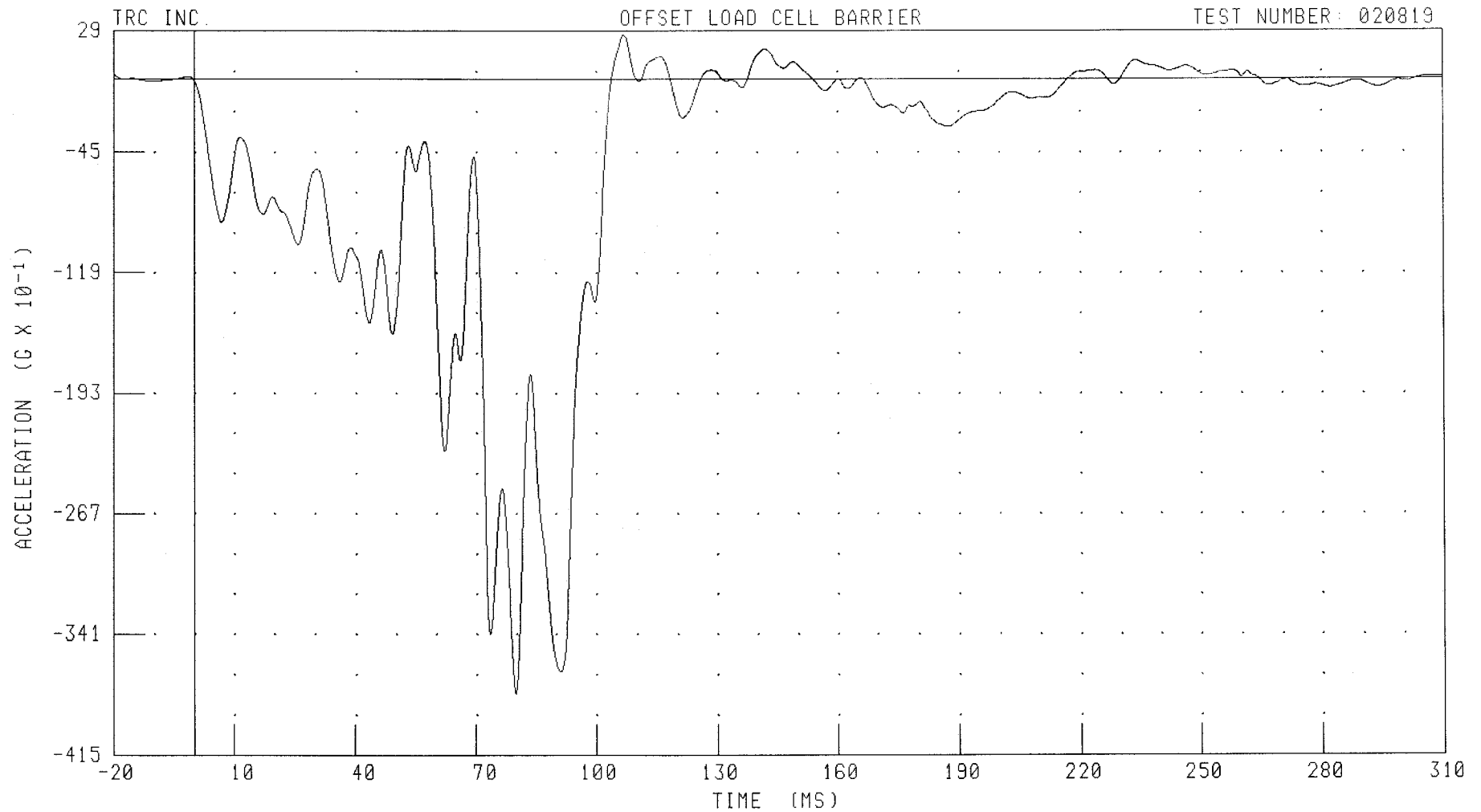


CHANNEL: LTPRG1 FILTER: CH. CLASS 60

PEAK DATA: 44.03 G @ 78.48 MS; 0.08 G @ -16.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS RIGHT SIDE TOE PAN X-AXIS ACCELERATION

TEST NUMBER: 020819



CHANNEL: RTPXC1

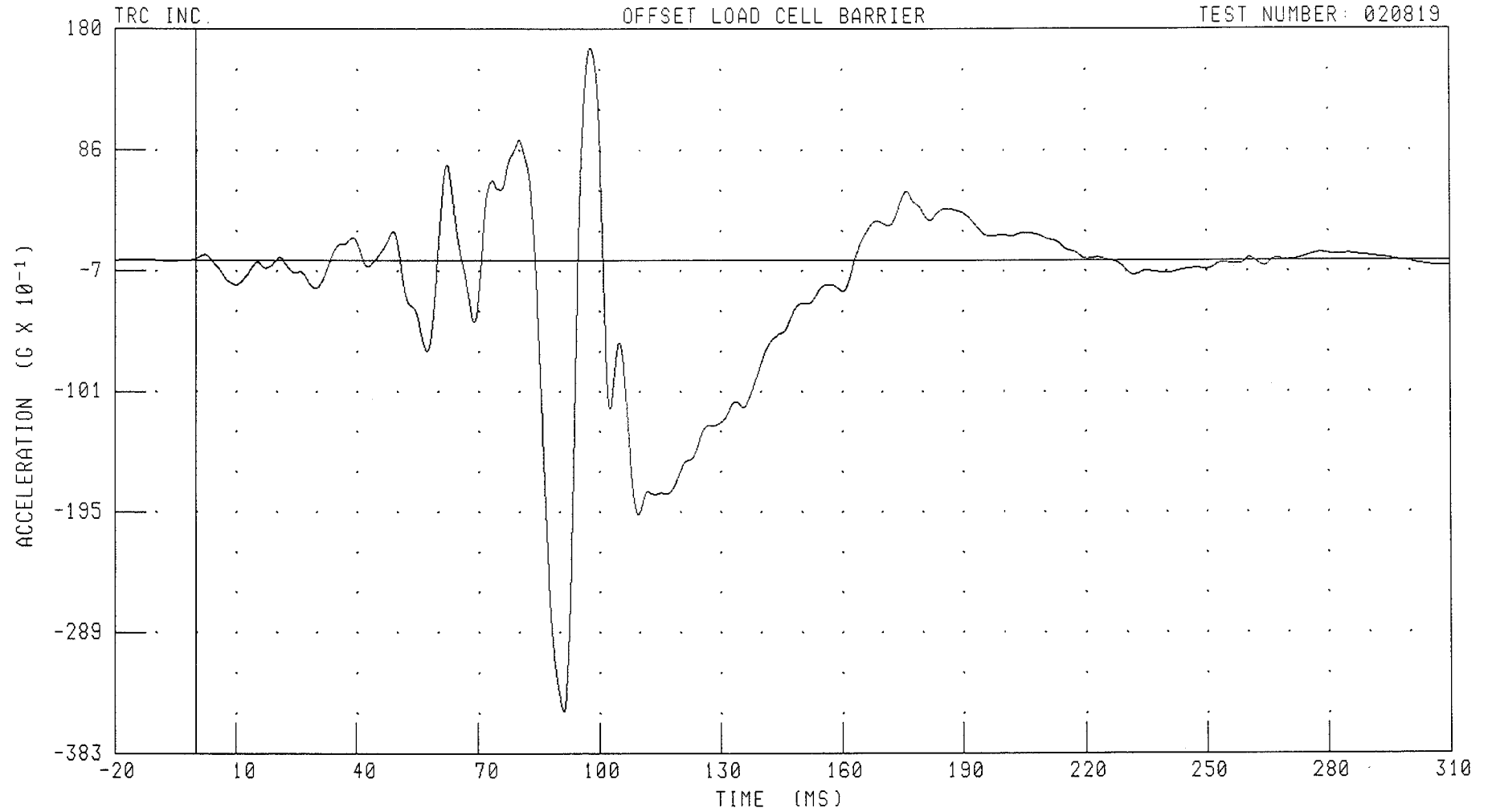
FILTER: CH. CLASS 60

PEAK DATA: 2.64 G @ 106.96 MS; -37.76 G @ 80.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS RIGHT SIDE TOE PAN Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



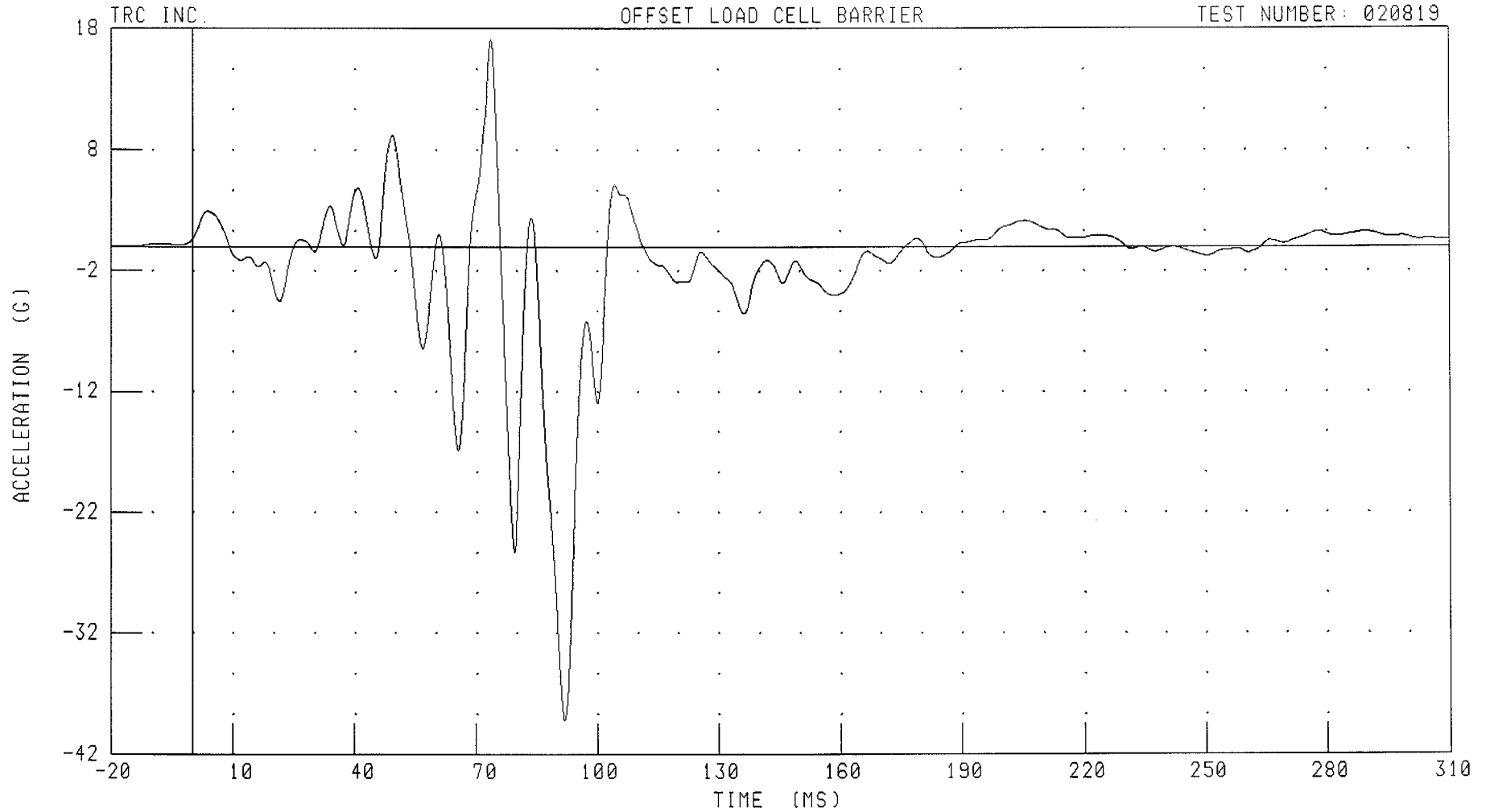
CHANNEL: RTPYG1 FILTER: CH. CLASS 60

PEAK DATA: 16.52 G @ 97.84 MS; -35.15 G @ 91.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS RIGHT SIDE TDE PAN Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: RTPZG1

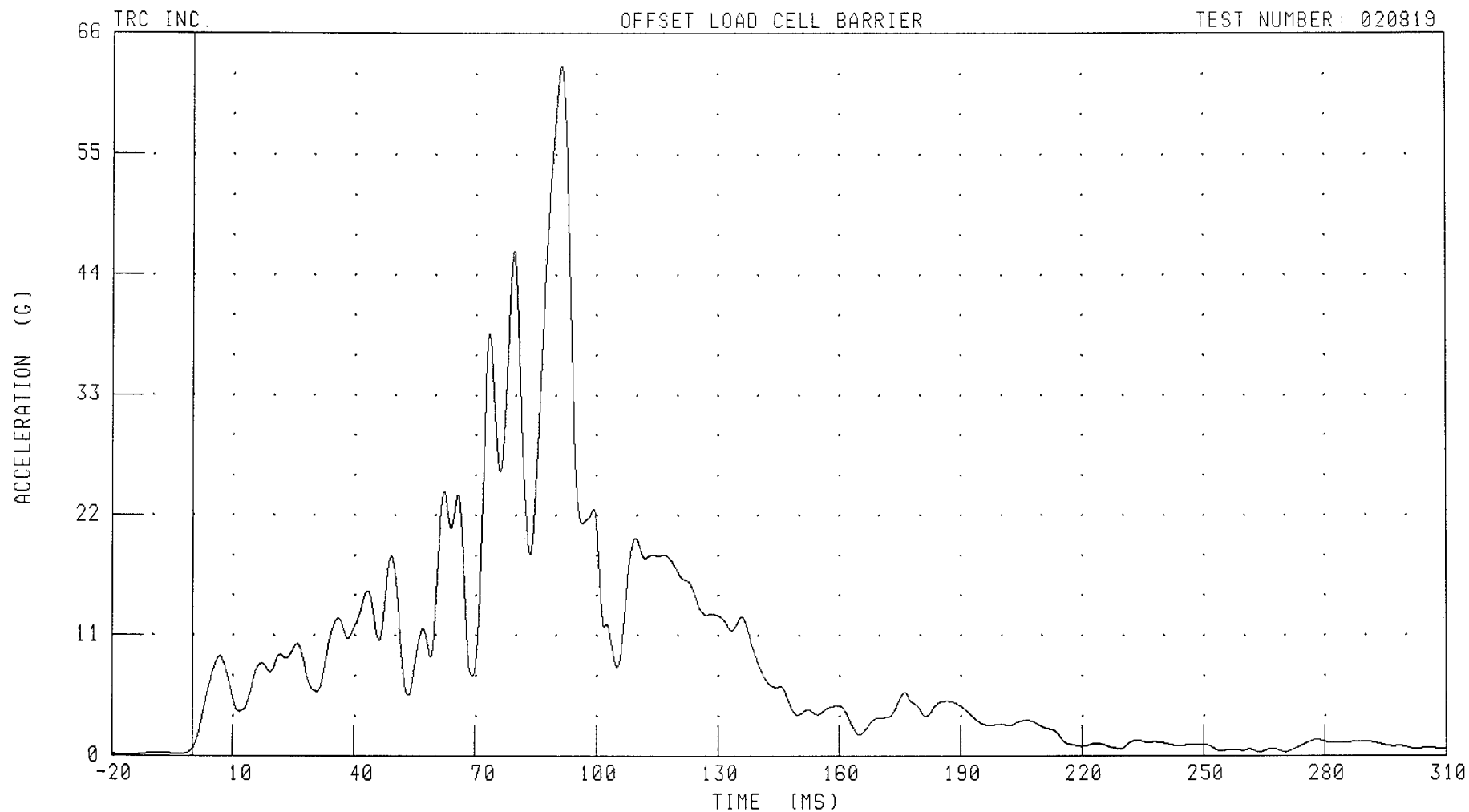
FILTER: CH. CLASS 60

PEAK DATA: 17.07 G @ 73.68 MS; -39.21 G @ 92.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVERS RIGHT SIDE TOE PAN RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: RTPRG1

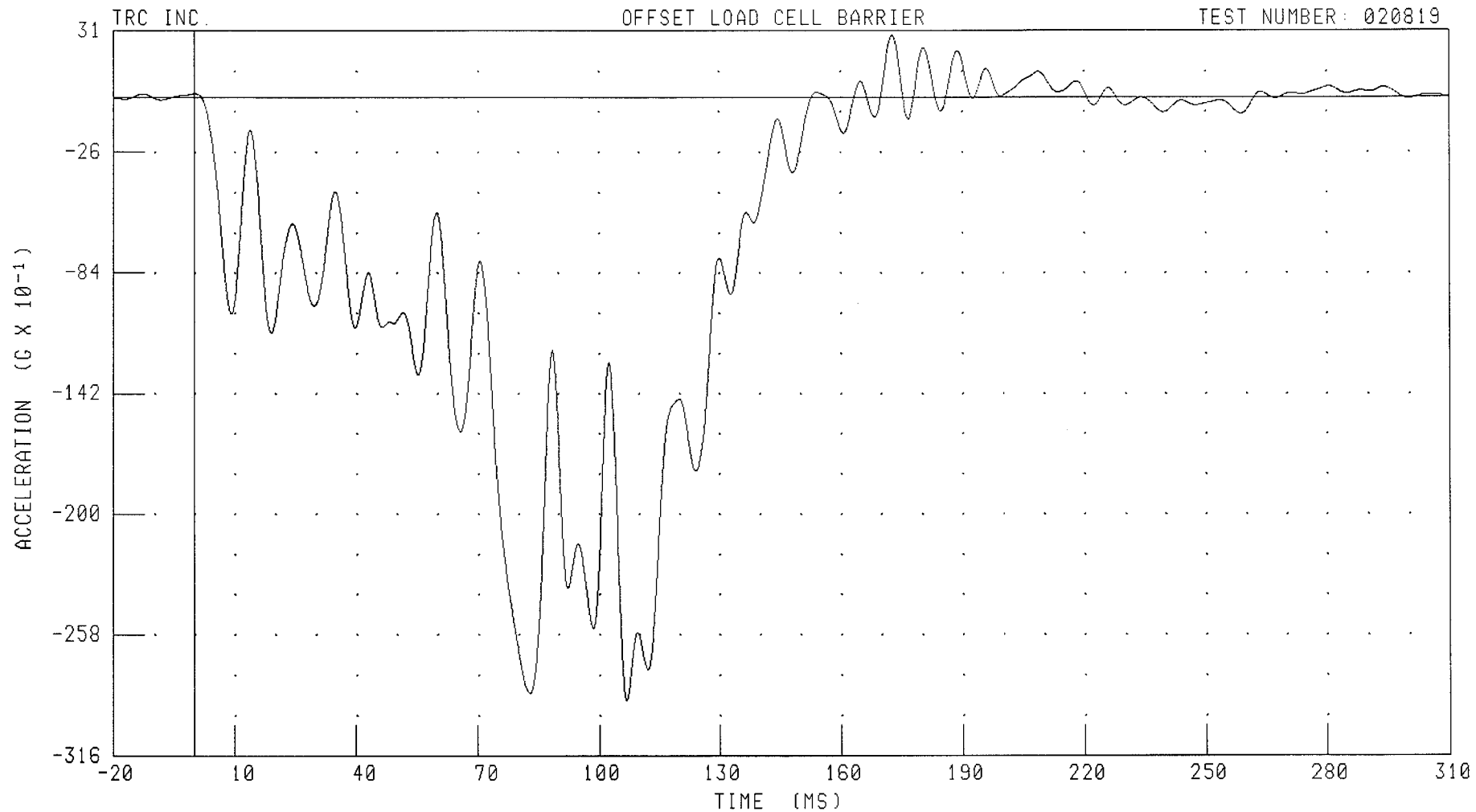
FILTER: CH. CLASS 60

PEAK DATA: 63.07 G @ 91.52 MS; 0.10 G @ -18.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

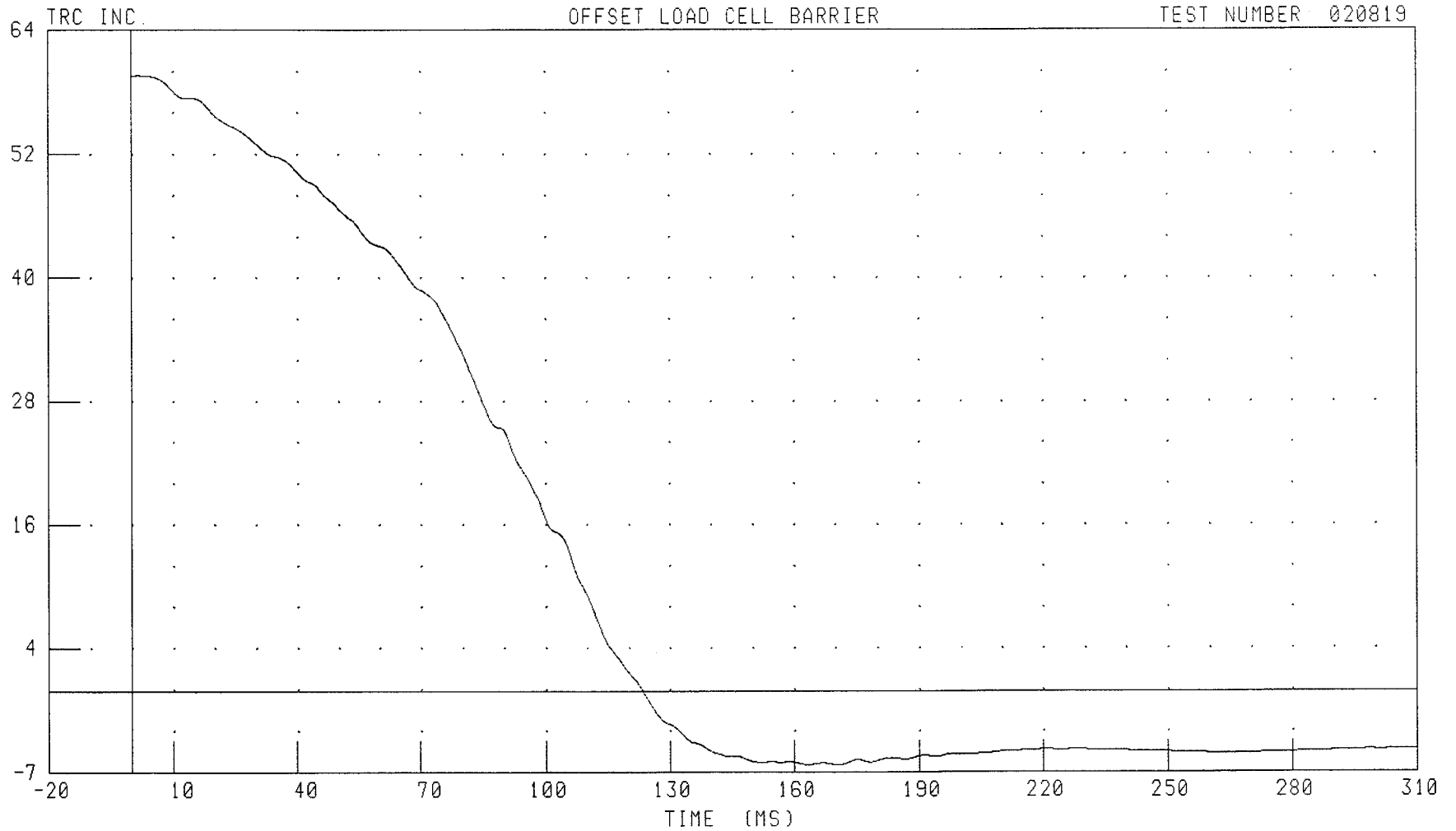


CHANNEL: VCGXG1

FILTER: CH. CLASS 60

PEAK DATA: 2.99 G @ 173.04 MS; -28.95 G @ 106.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY



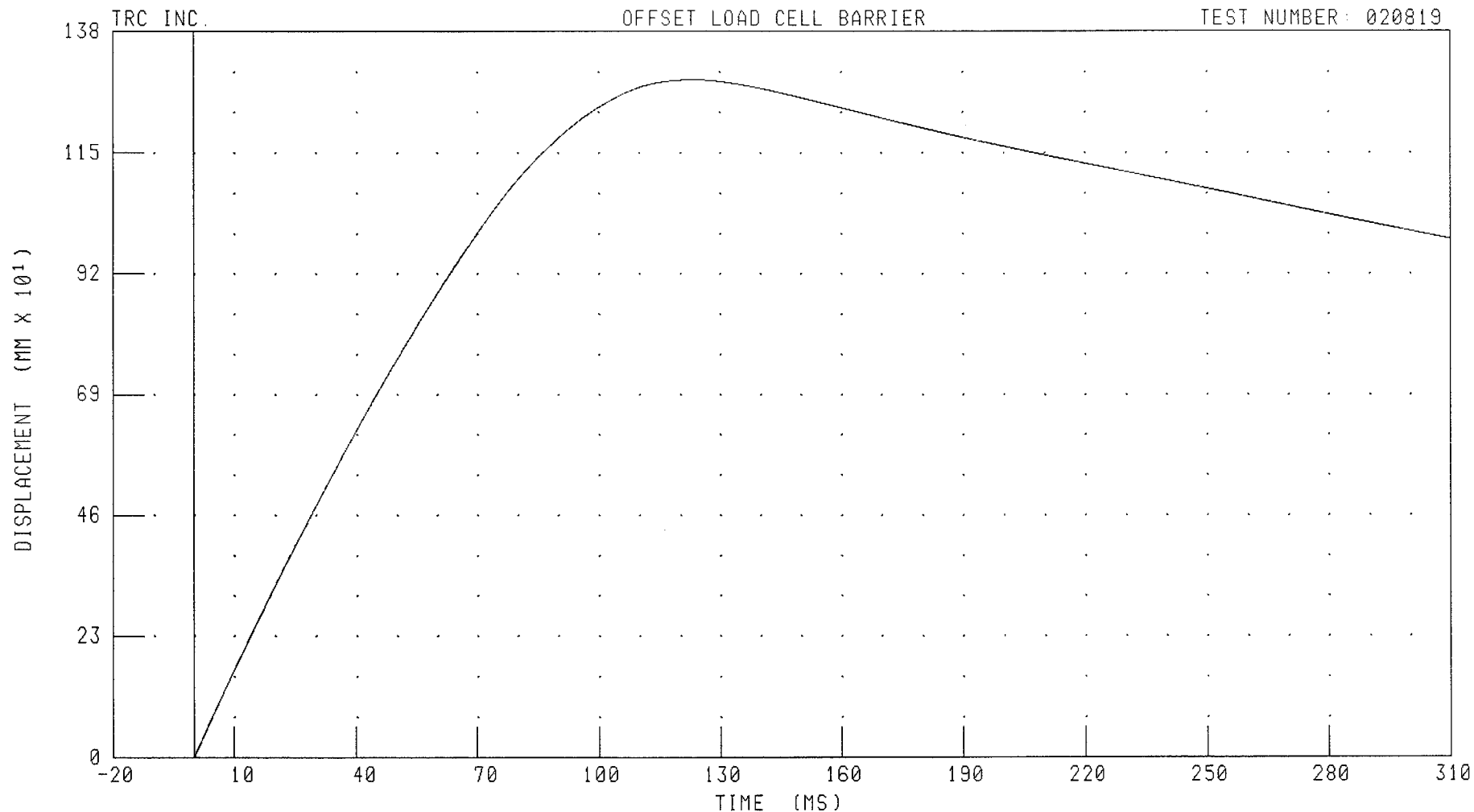
CHANNEL: VCGXV1 FILTER: CH. CLASS 180

PEAK DATA: 59.80 KM/H @ 1.76 MS; -7.12 KM/H @ 170.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



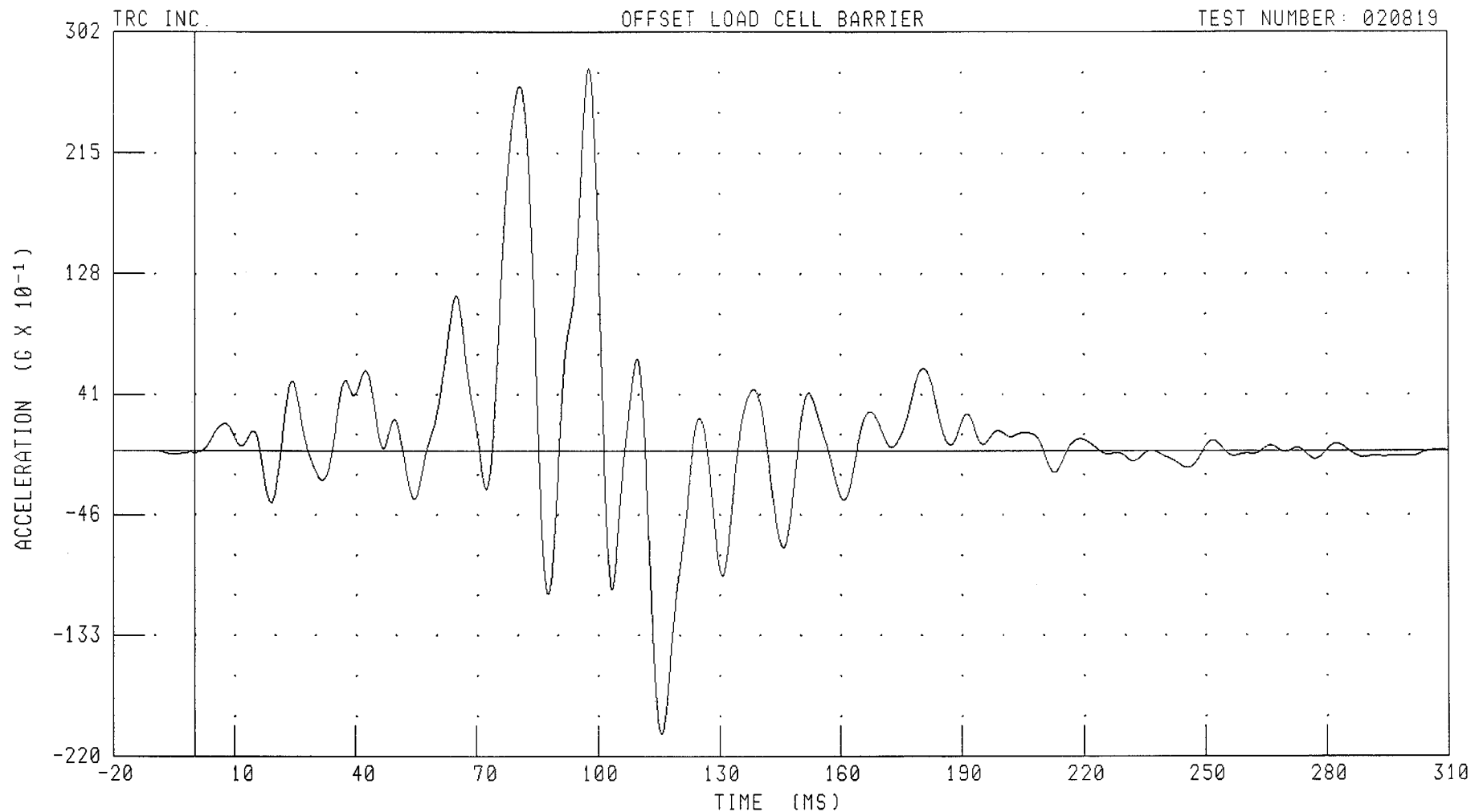
CHANNEL: VCGXD1 FILTER: CH. CLASS 180

PEAK DATA: 1288.76 MM @ 123.44 MS; 0.00 MM @ 0.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

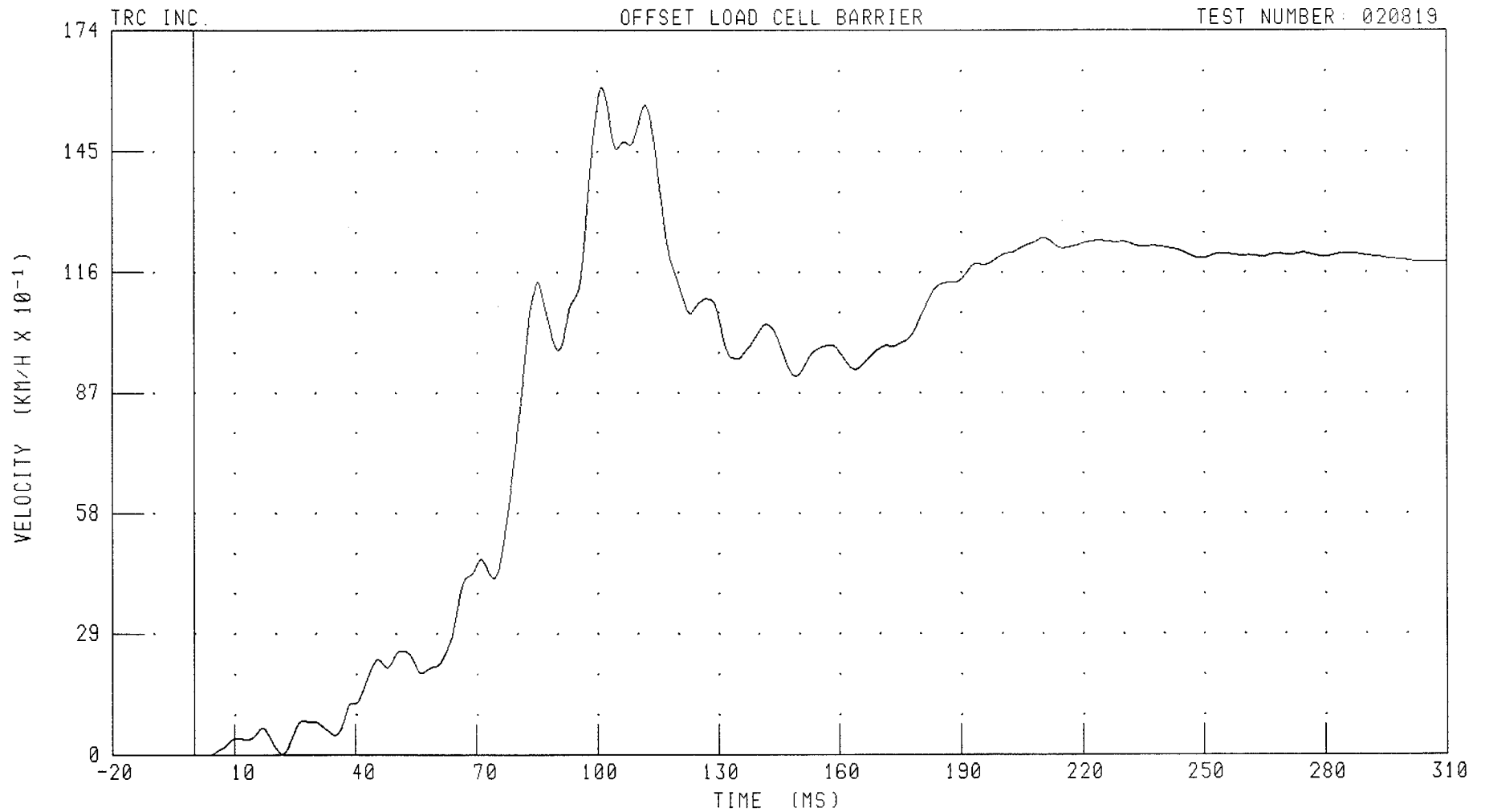


CHANNEL: VCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 27.57 G @ 97.84 MS; -20.37 G @ 115.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 020819



CHANNEL: VCGYV1 FILTER: CH. CLASS 180

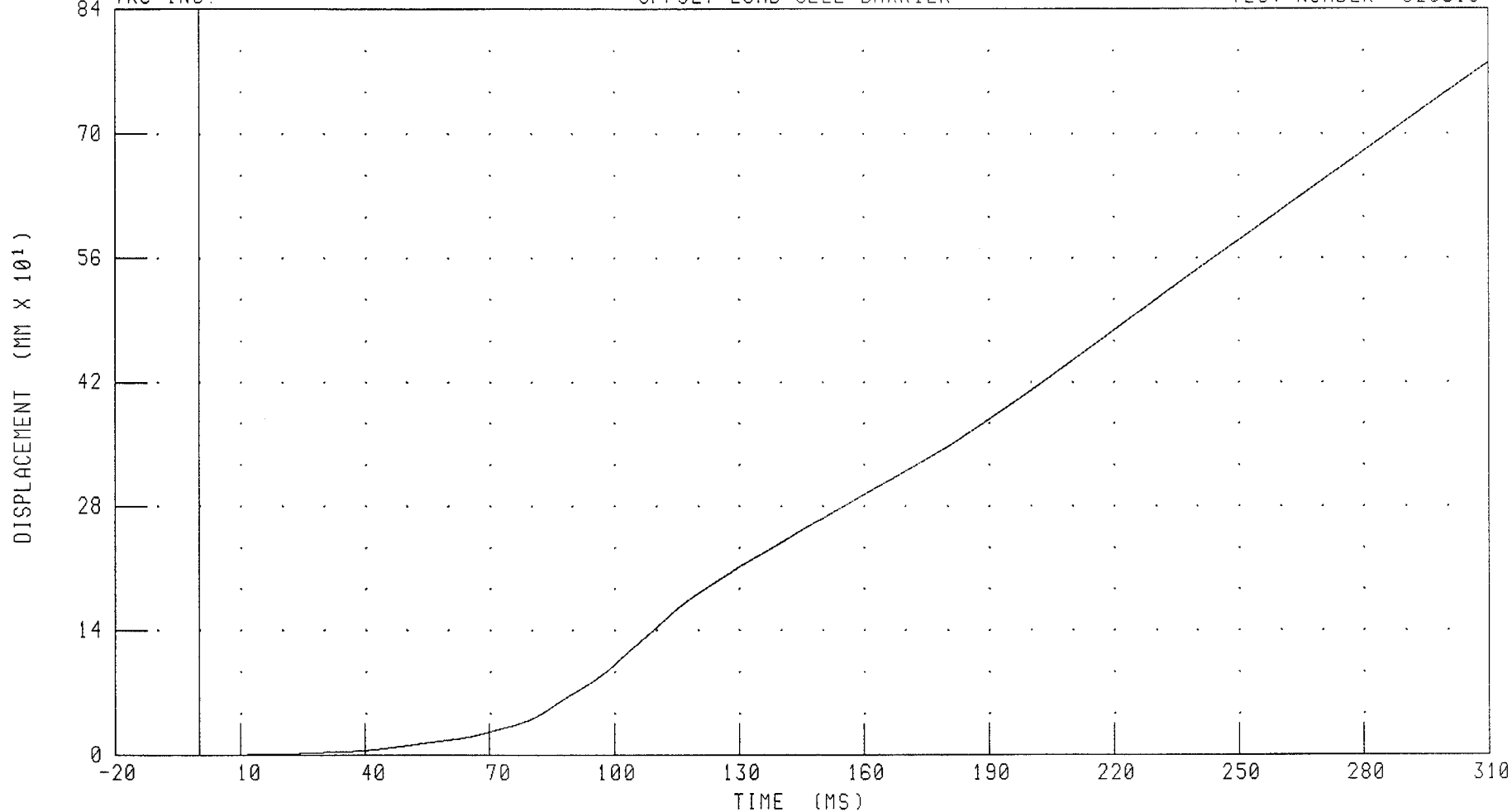
PEAK DATA: 16.04 KM/H @ 101.36 MS; -0.01 KM/H @ 3.12 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: VCGYD1

FILTER: CH. CLASS 180

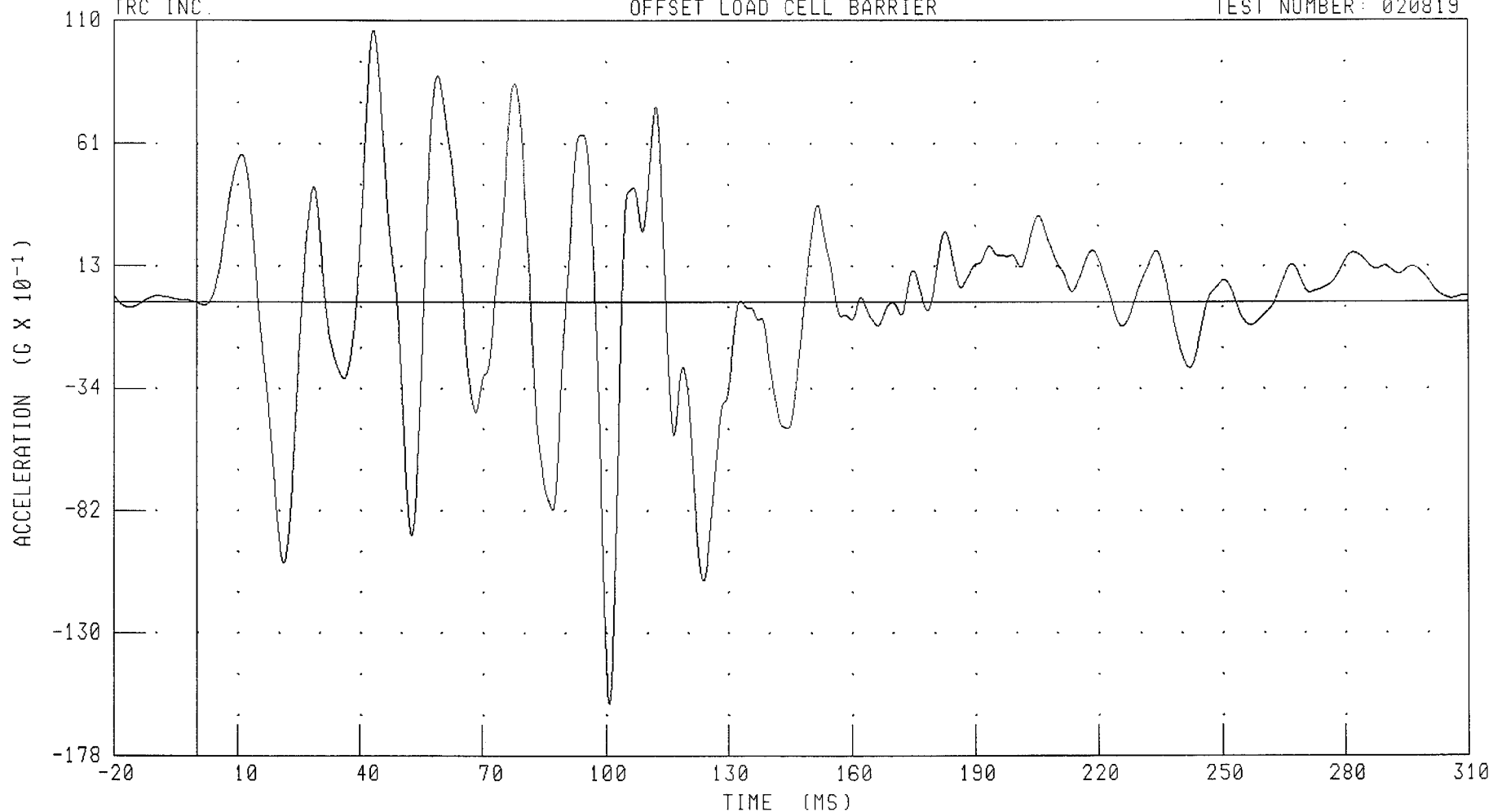
PEAK DATA: 779.90 MM @ 310.00 MS; -0.01 MM @ 4.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: VCGZG1

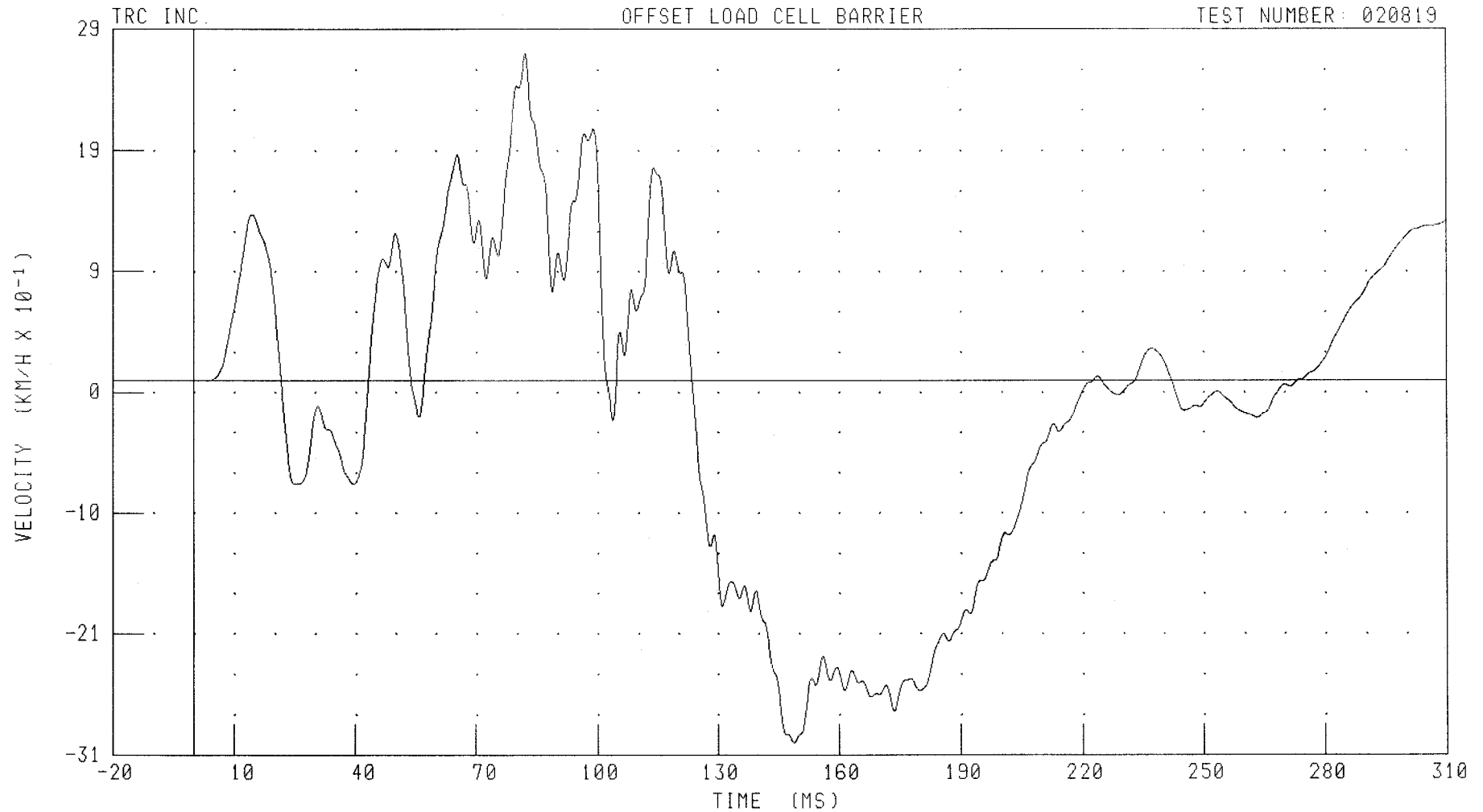
FILTER: CH. CLASS 60

PEAK DATA: 10.62 G @ 43.44 MS; -15.77 G @ 100.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: VCGZV1 FILTER: CH. CLASS 180

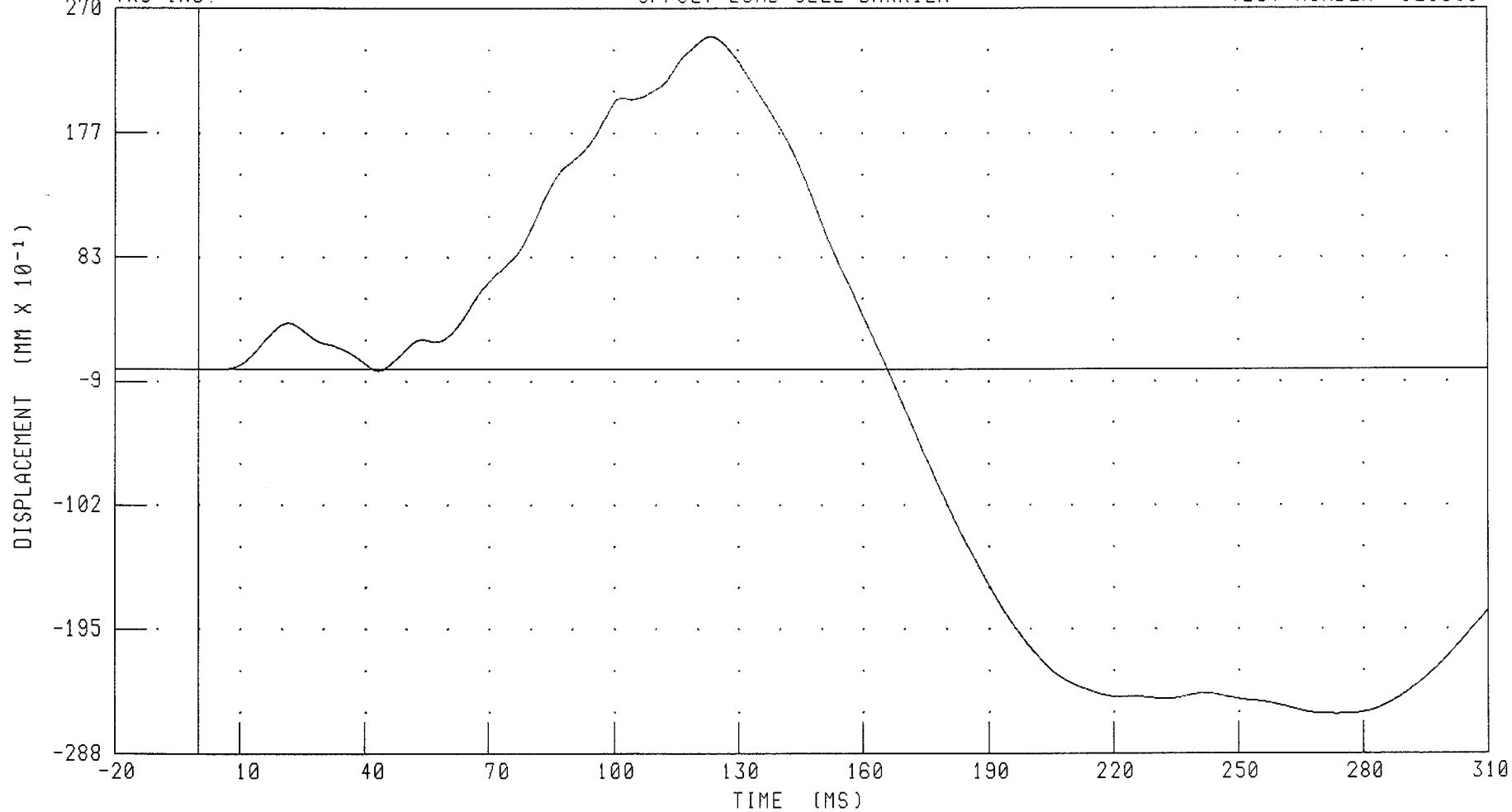
PEAK DATA: 2.70 KM/H @ 82.16 MS, -3.00 KM/H @ 148.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY Z-AXIS DISPLACEMENT

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



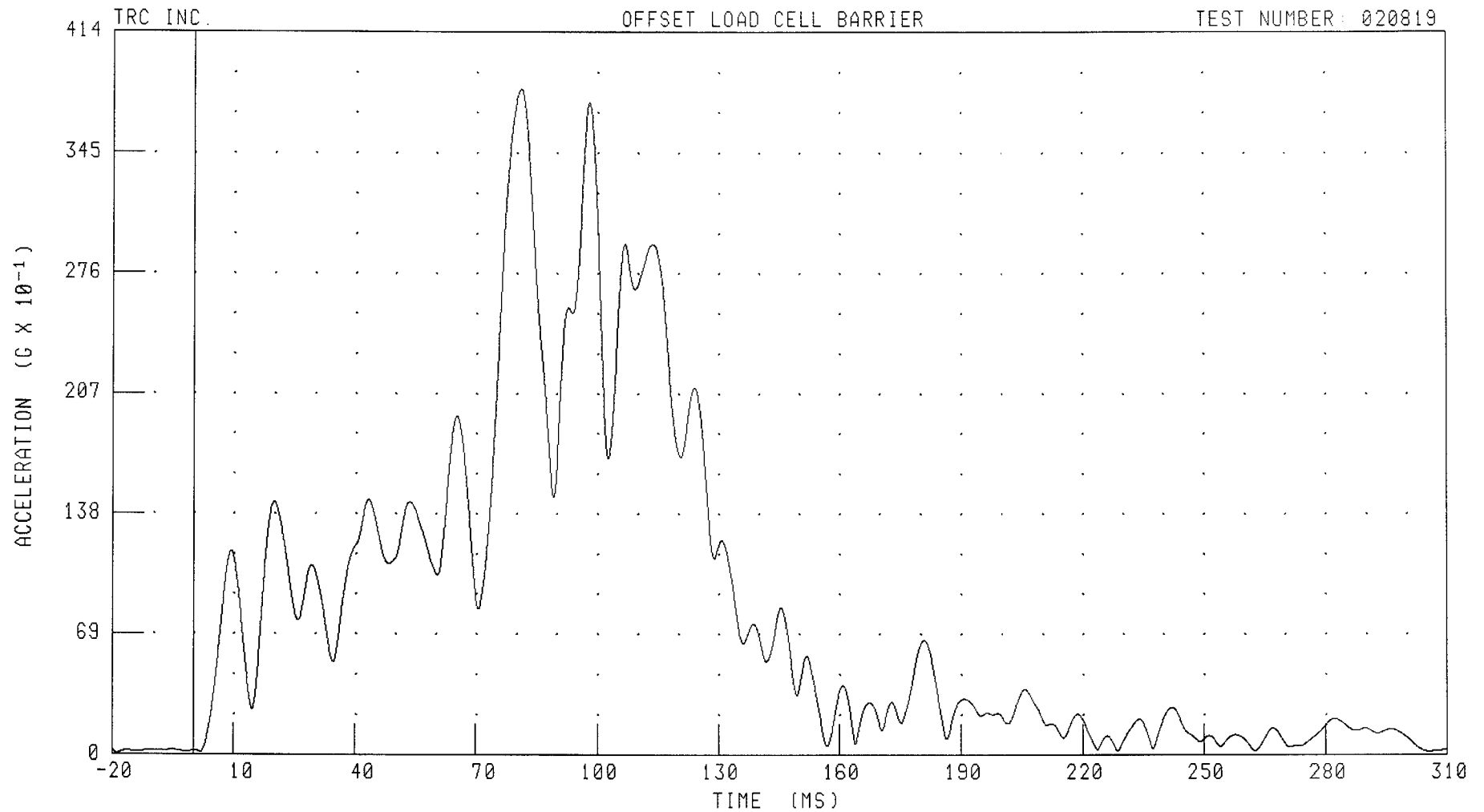
CHANNEL: VCGZD1 FILTER: CH. CLASS 180

PEAK DATA: 24.90 MM @ 123.60 MS; -25.86 MM @ 273.28 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: VCGRG1

FILTER: CH. CLASS 60

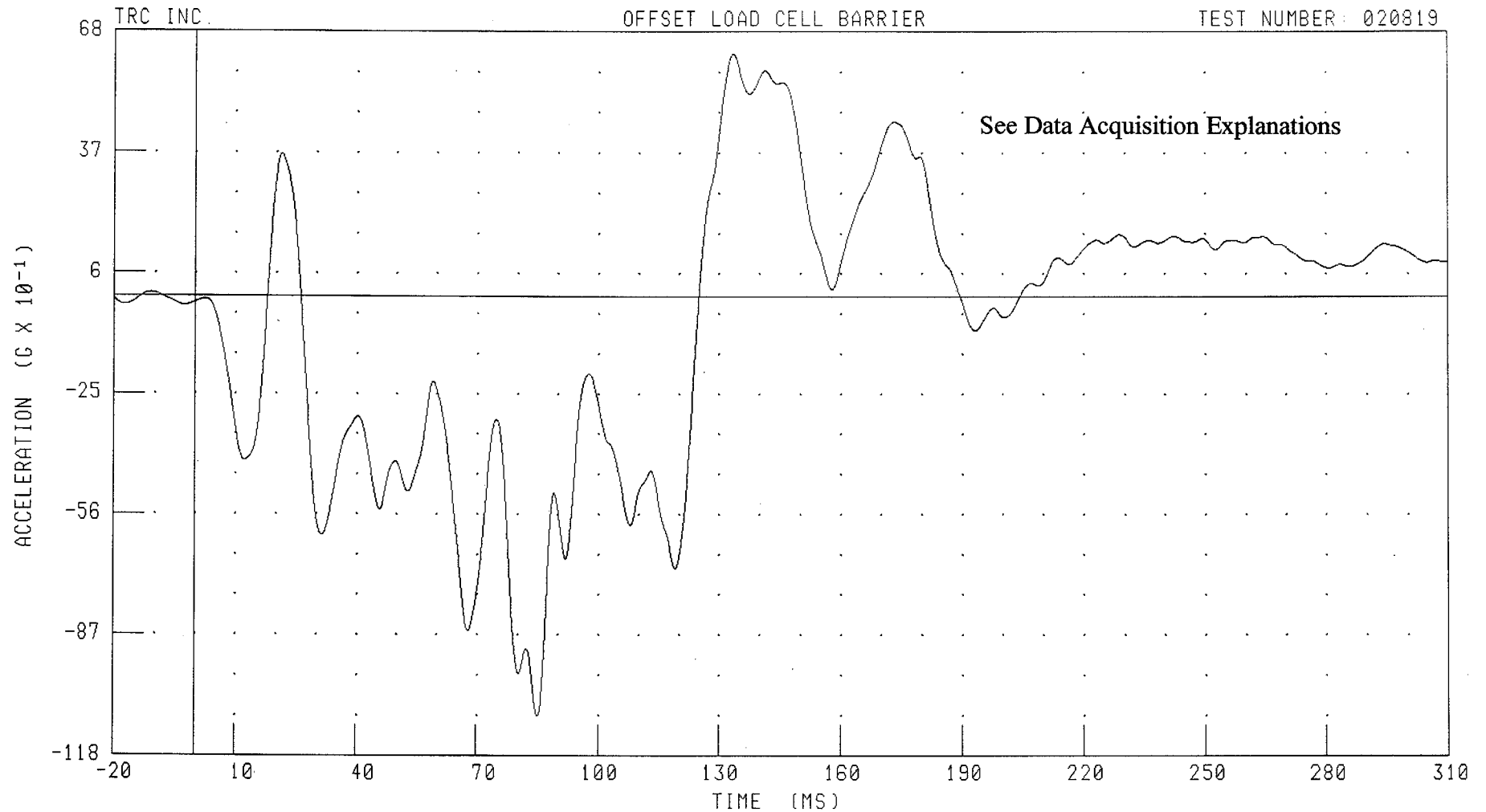
PEAK DATA: 38.16 G @ 81.12 MS; 0.04 G @ -18.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

REAR DECK Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: RDKZG1 FILTER: CH. CLASS 60

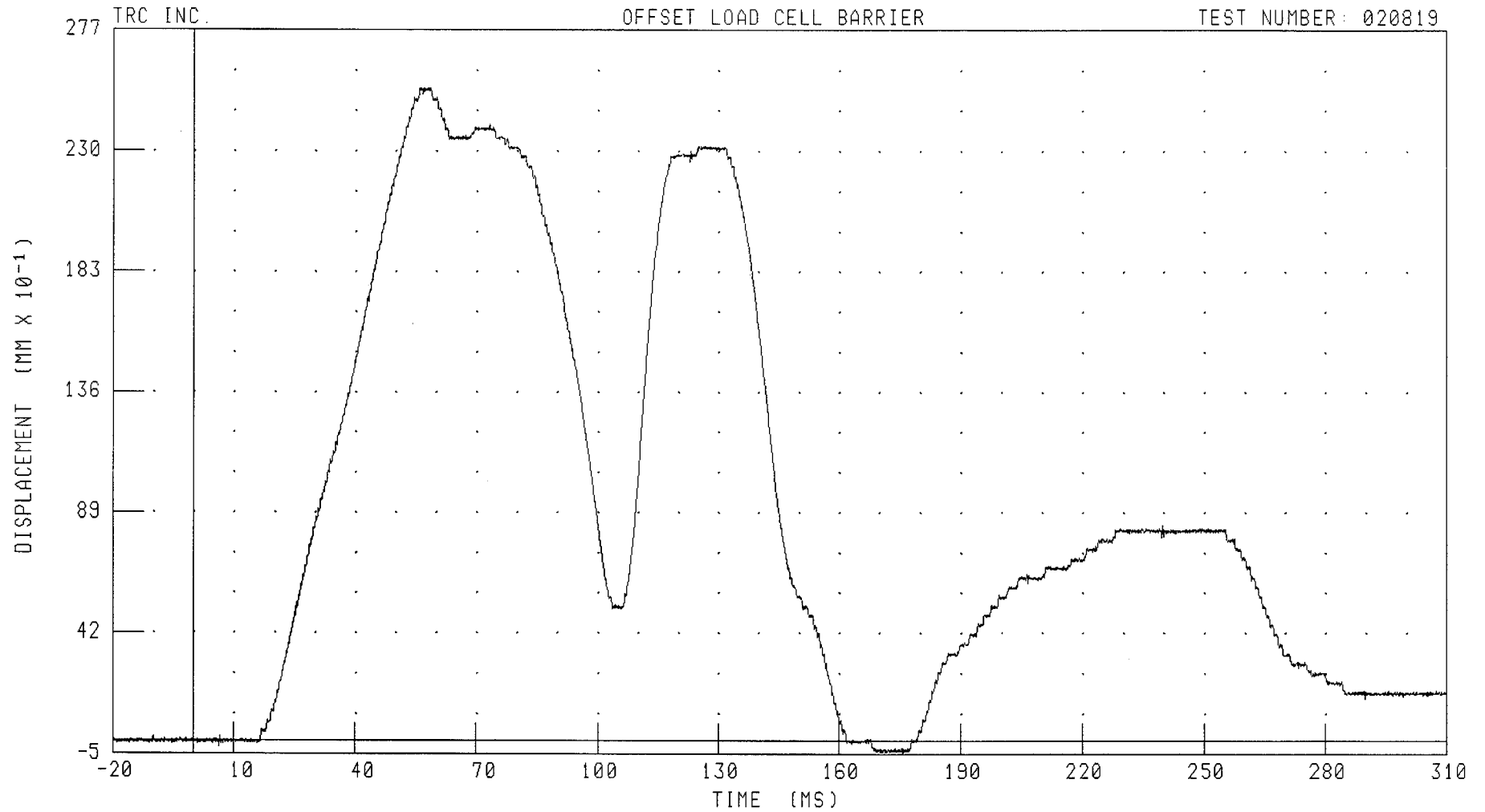
PEAK DATA: 6.24 G @ 133.68 MS; -10.78 G @ 85.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

TOE PAN X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: TPOXD1

FILTER: CH. CLASS 1000

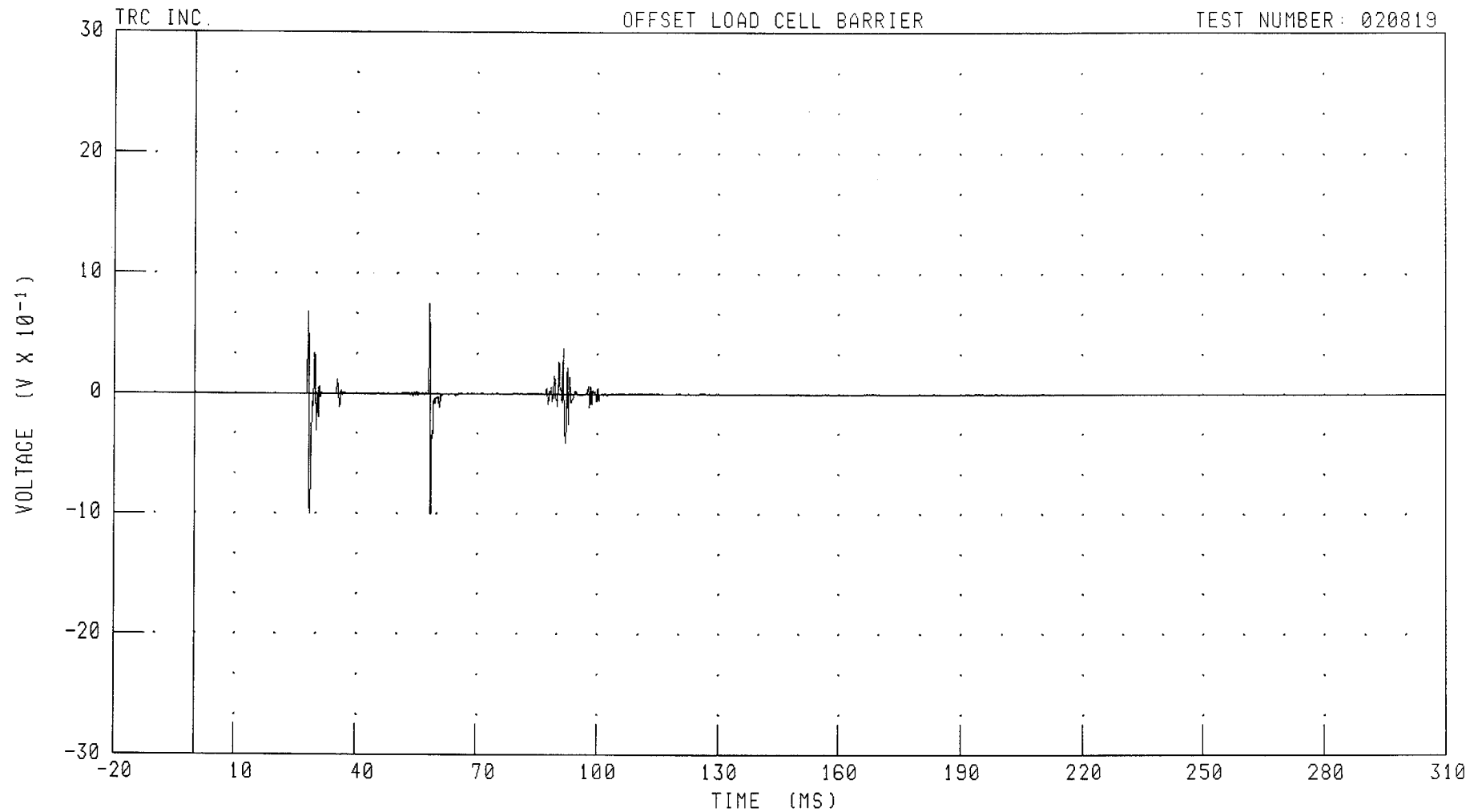
PEAK DATA: 25.46 MM @ 56.96 MS; -0.47 MM @ 175.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER AIRBAG EVENT - WIRE A

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: DABETA FILTER: CH. CLASS 1000

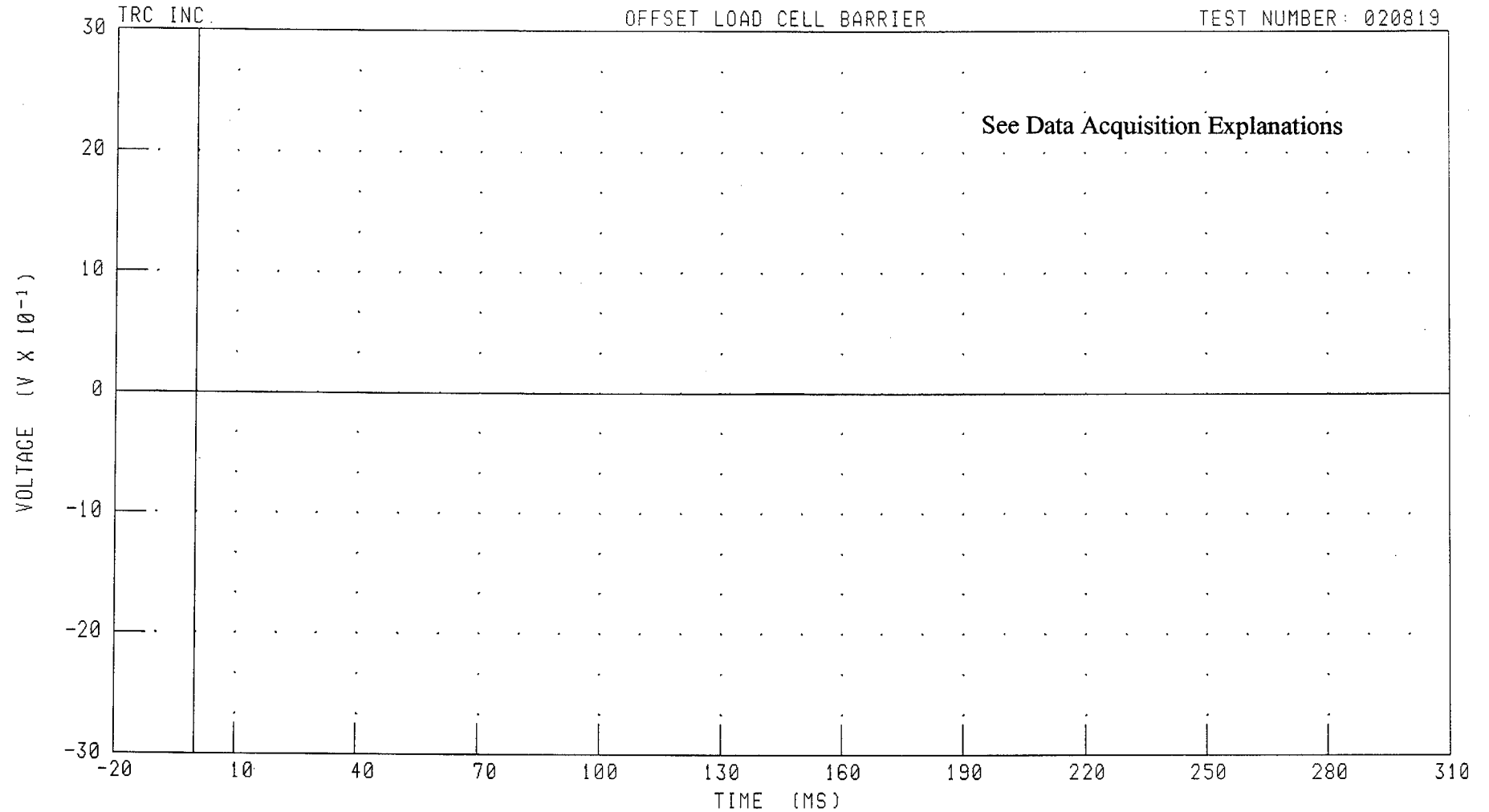
PEAK DATA: 0.75 V @ 58.24 MS; -1.00 V @ 28.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER AIRBAC EVENT - WIRE 8

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: DABETB

FILTER: CH. CLASS 1000

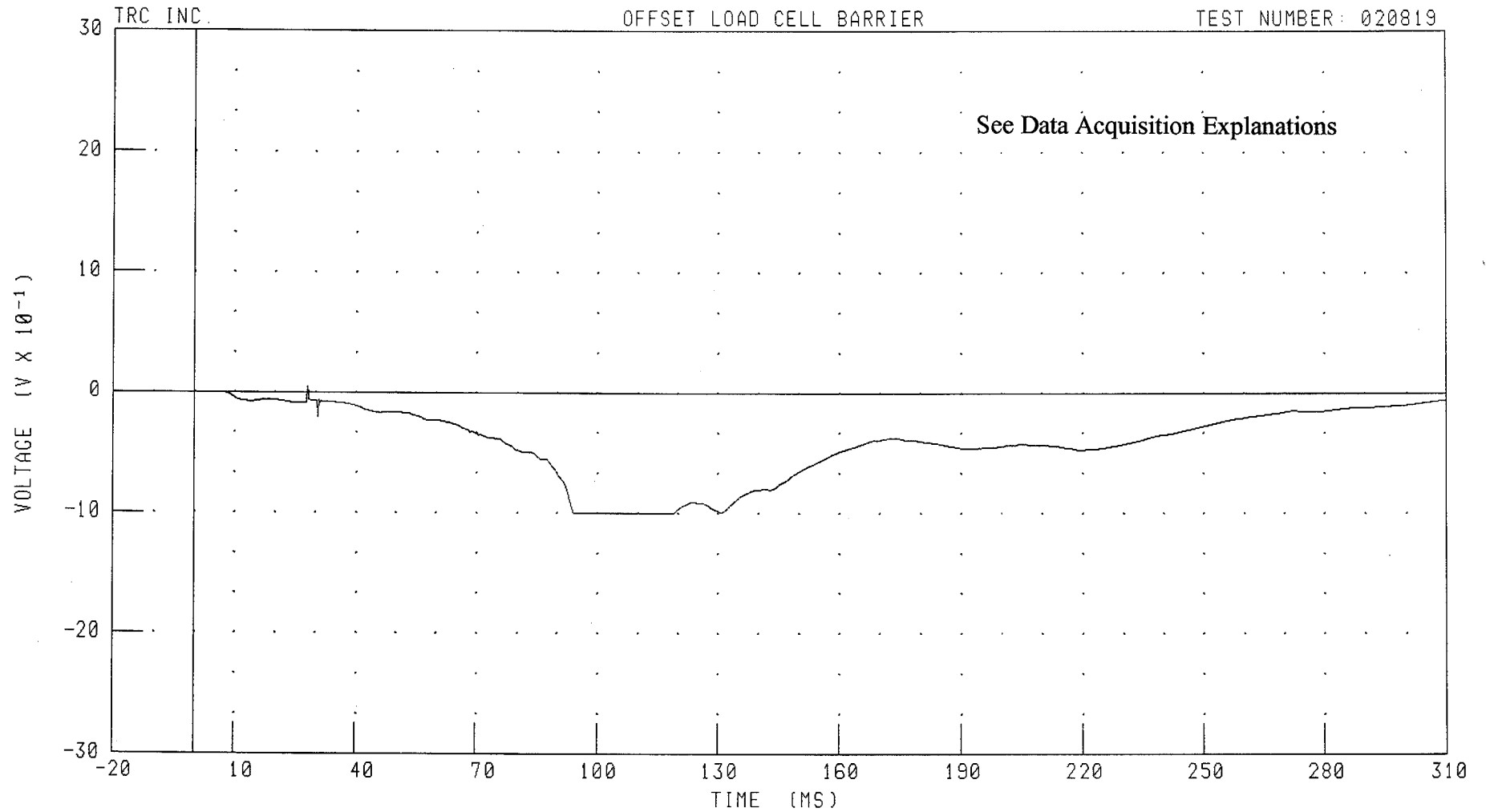
PEAK DATA: 0.00 V @ 141.60 MS; 0.00 V @ 206.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER AIRBAG EVENT - WIRE A

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PABETA FILTER: CH. CLASS 1000

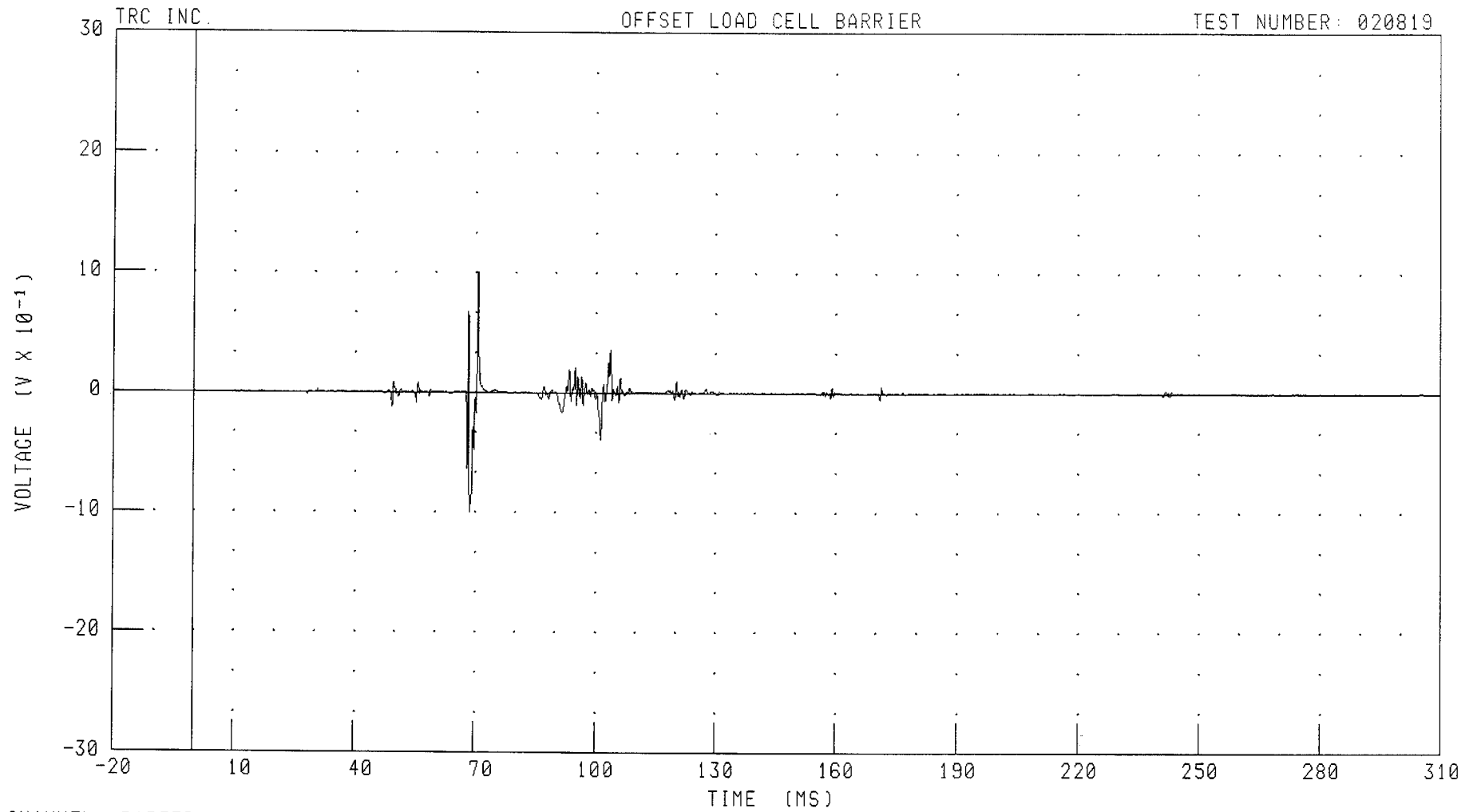
PEAK DATA: 0.05 V @ 28.24 MS; -1.01 V @ 94.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER AIRBAG EVENT - WIRE B

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: PABETB FILTER: CH. CLASS 1000

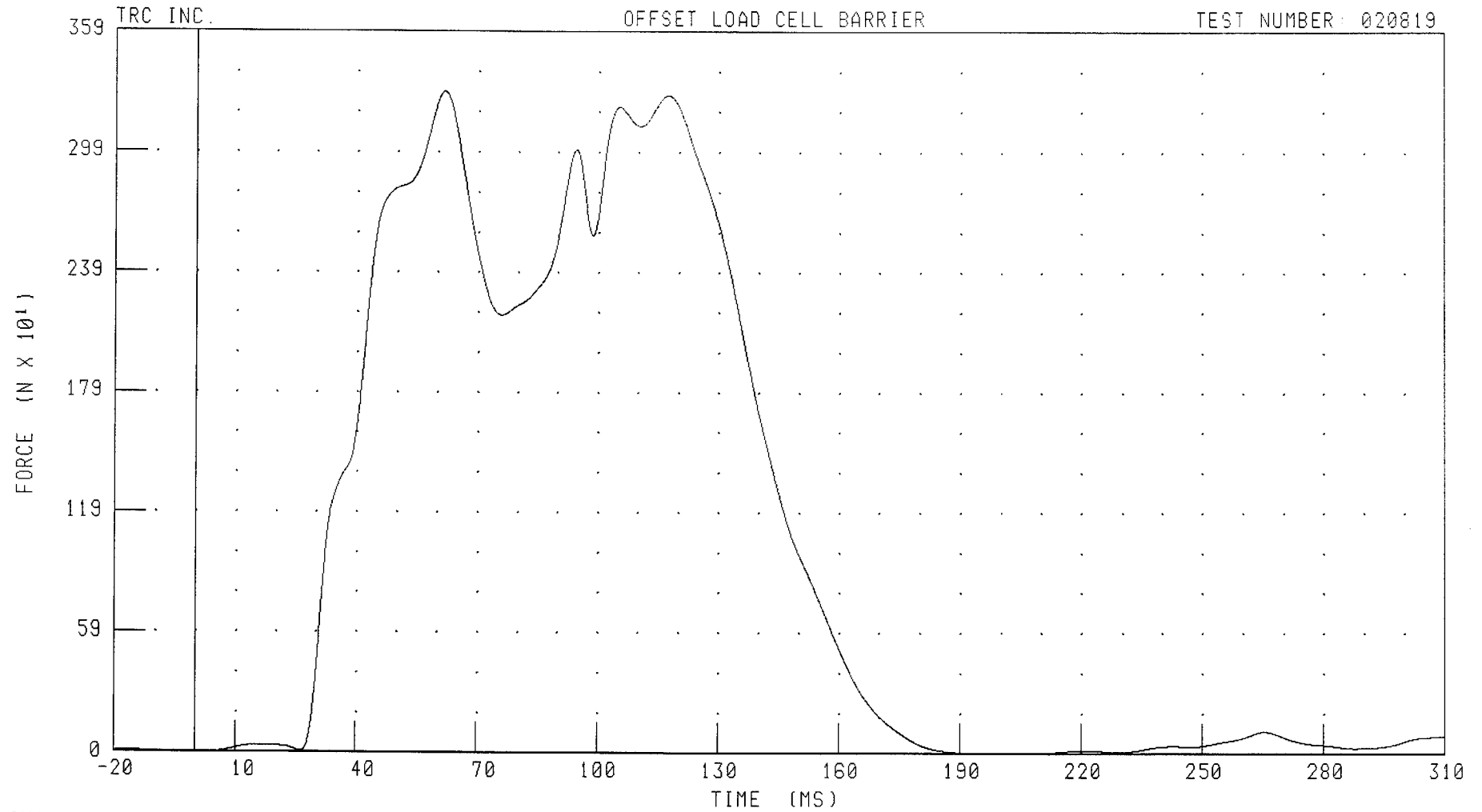
PEAK DATA: 1.00 V @ 70.72 MS; -1.00 V @ 68.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER SHOULDER BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: SHBF1

FILTER: CH. CLASS 60

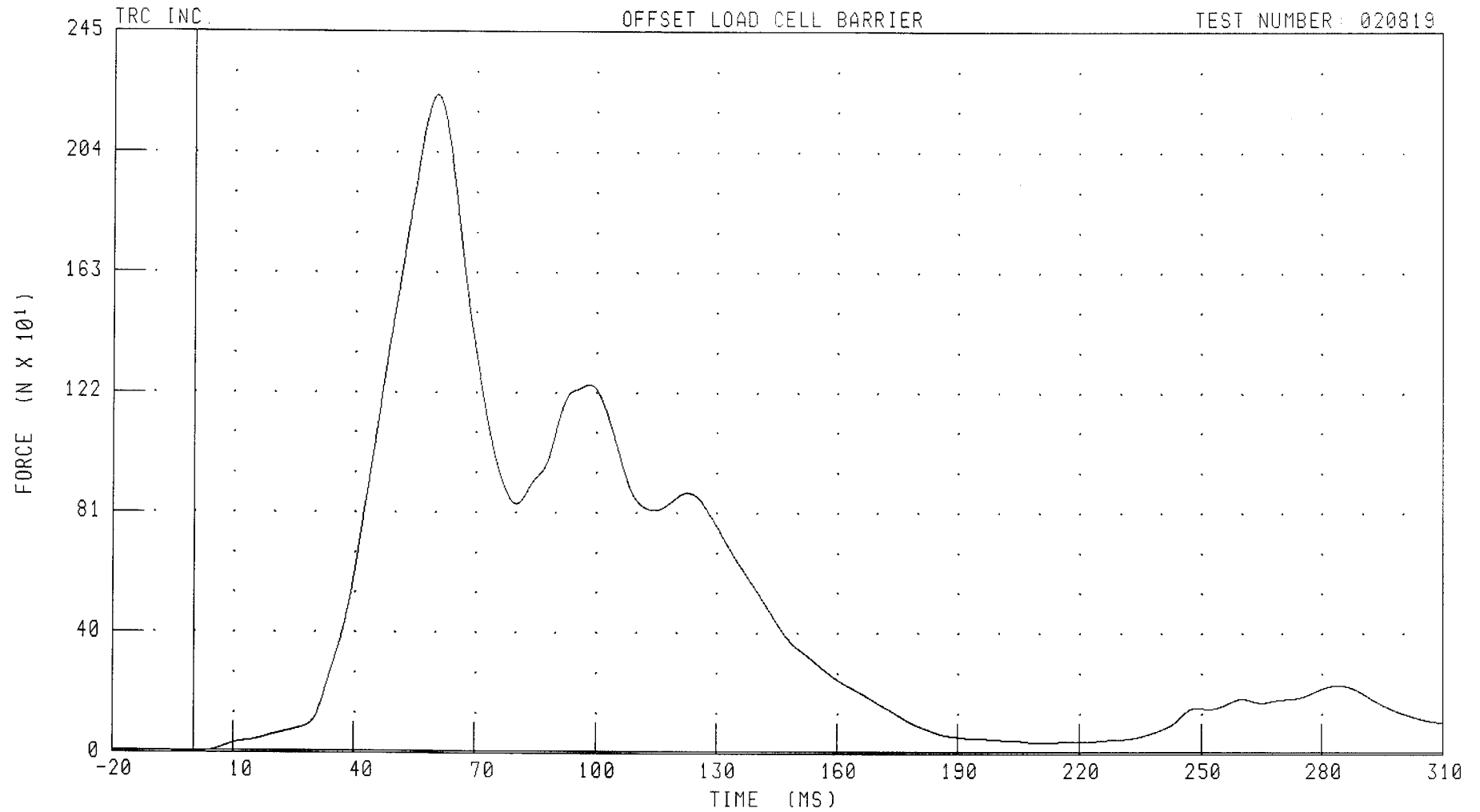
PEAK DATA: 3294.84 N @ 61.68 MS; -5.93 N @ 202.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER LAP BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LPBF1

FILTER: CH. CLASS 60

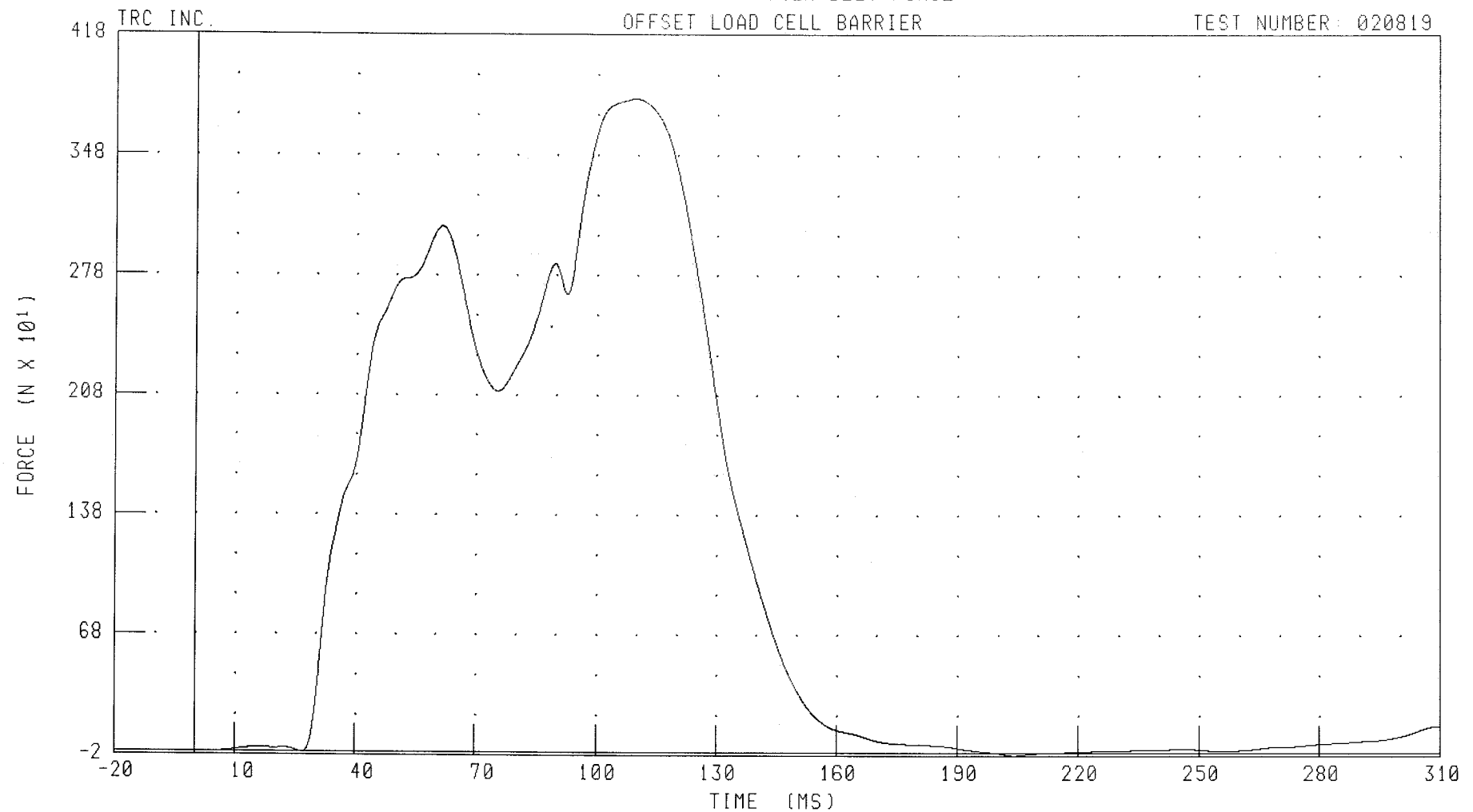
PEAK DATA: 2239.24 N @ 60.32 MS; -4.70 N @ -10.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER SHOULDER BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: SHBF2

FILTER: CH. CLASS 60

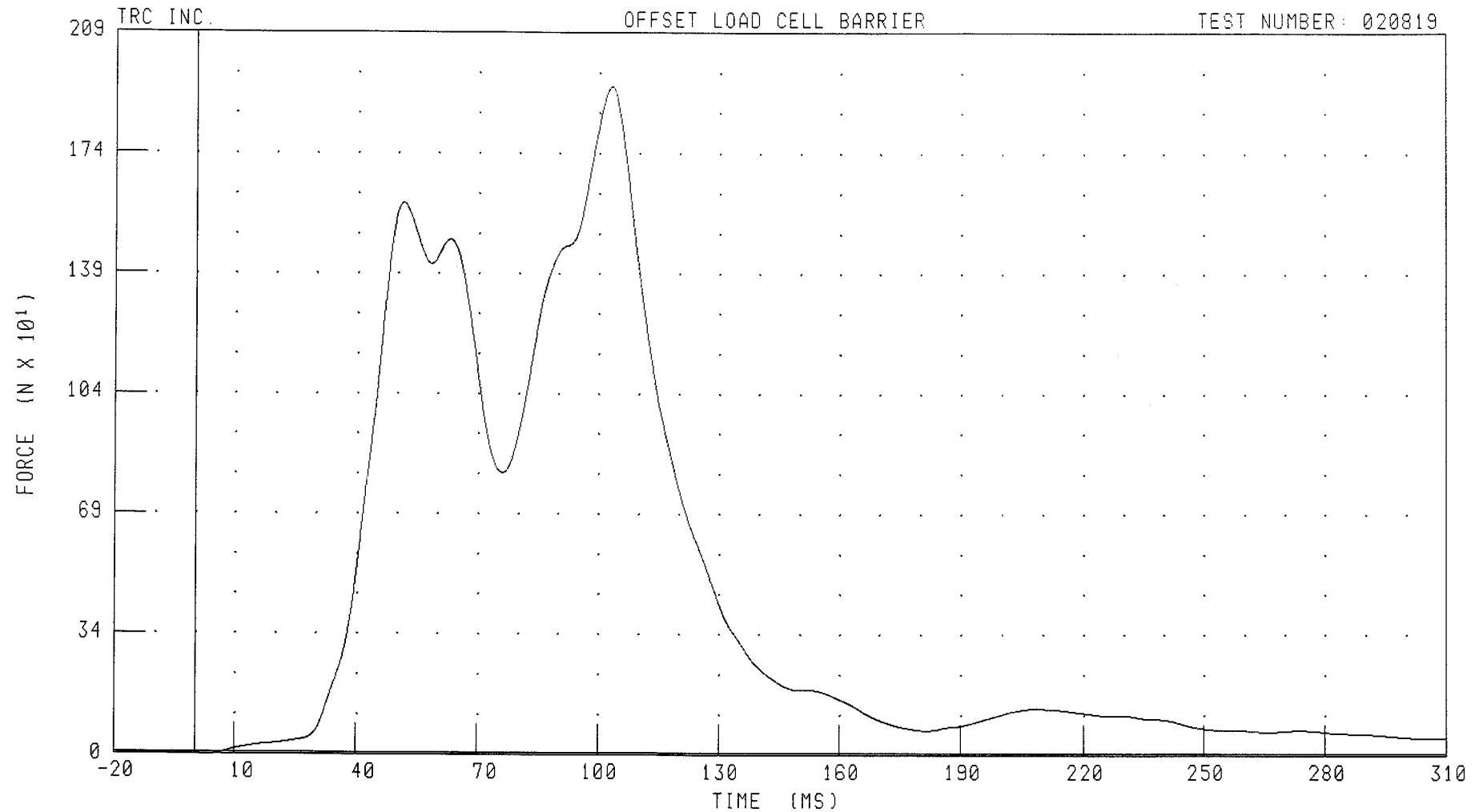
PEAK DATA: 3808.33 N @ 109.60 MS; -18.38 N @ 203.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LAP BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LPBF2

FILTER: CH. CLASS 60

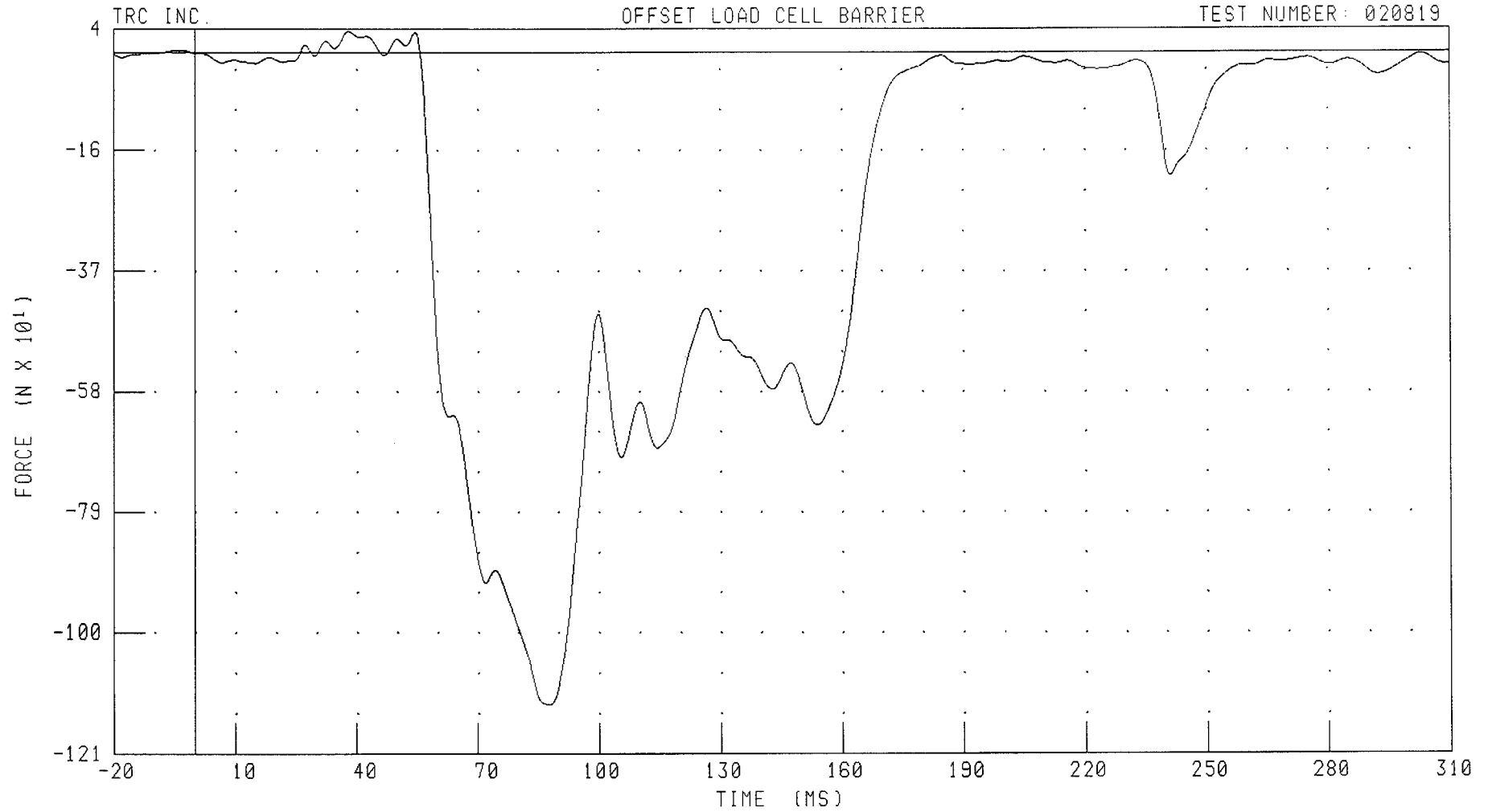
PEAK DATA: 1939.14 N @ 103.28 MS; -4.40 N @ 2.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL A1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCA1XF FILTER: CH. CLASS 60

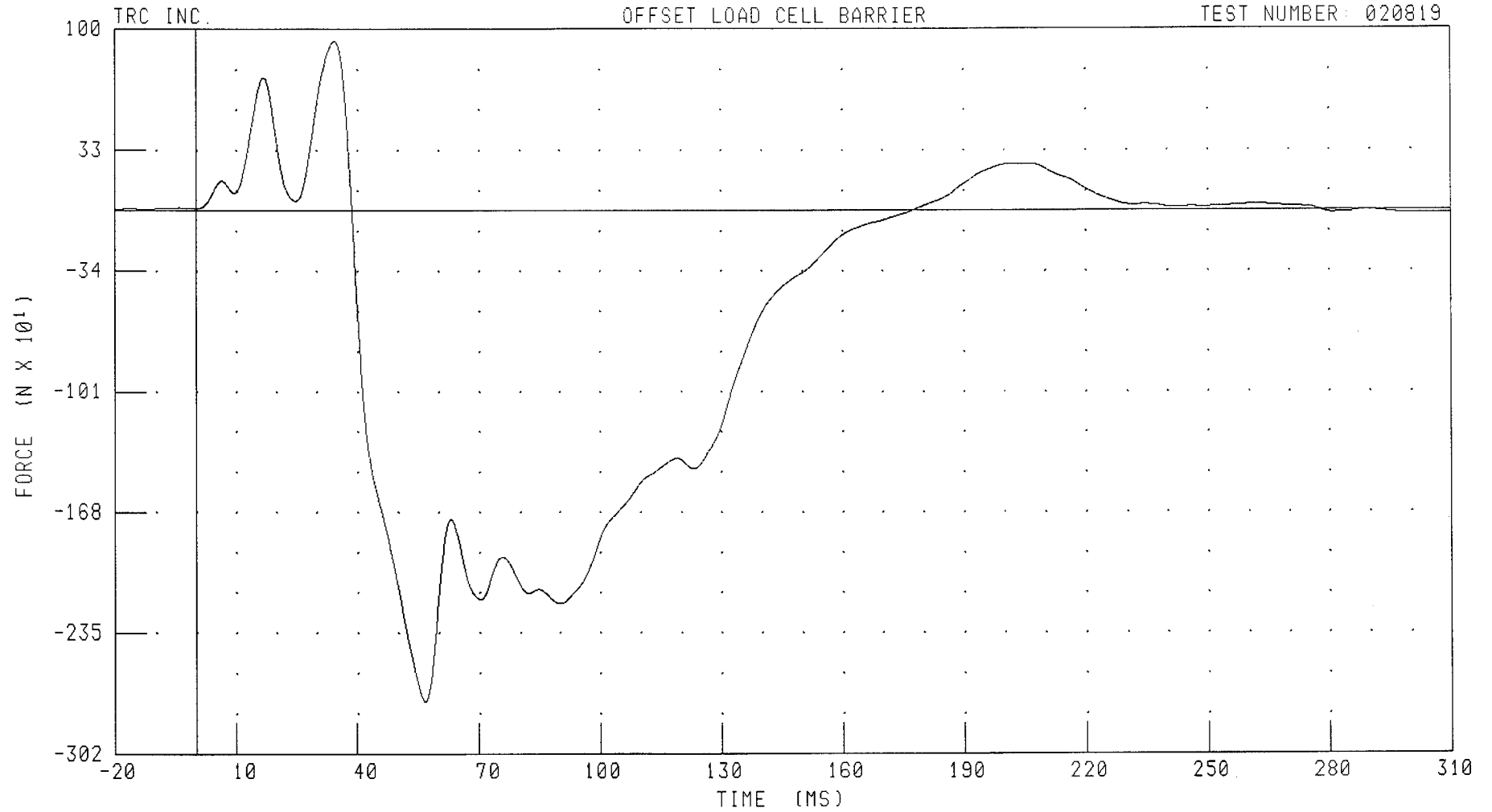
PEAK DATA: 37.33 N @ 38.16 MS; -1134.09 N @ 87.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL A2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



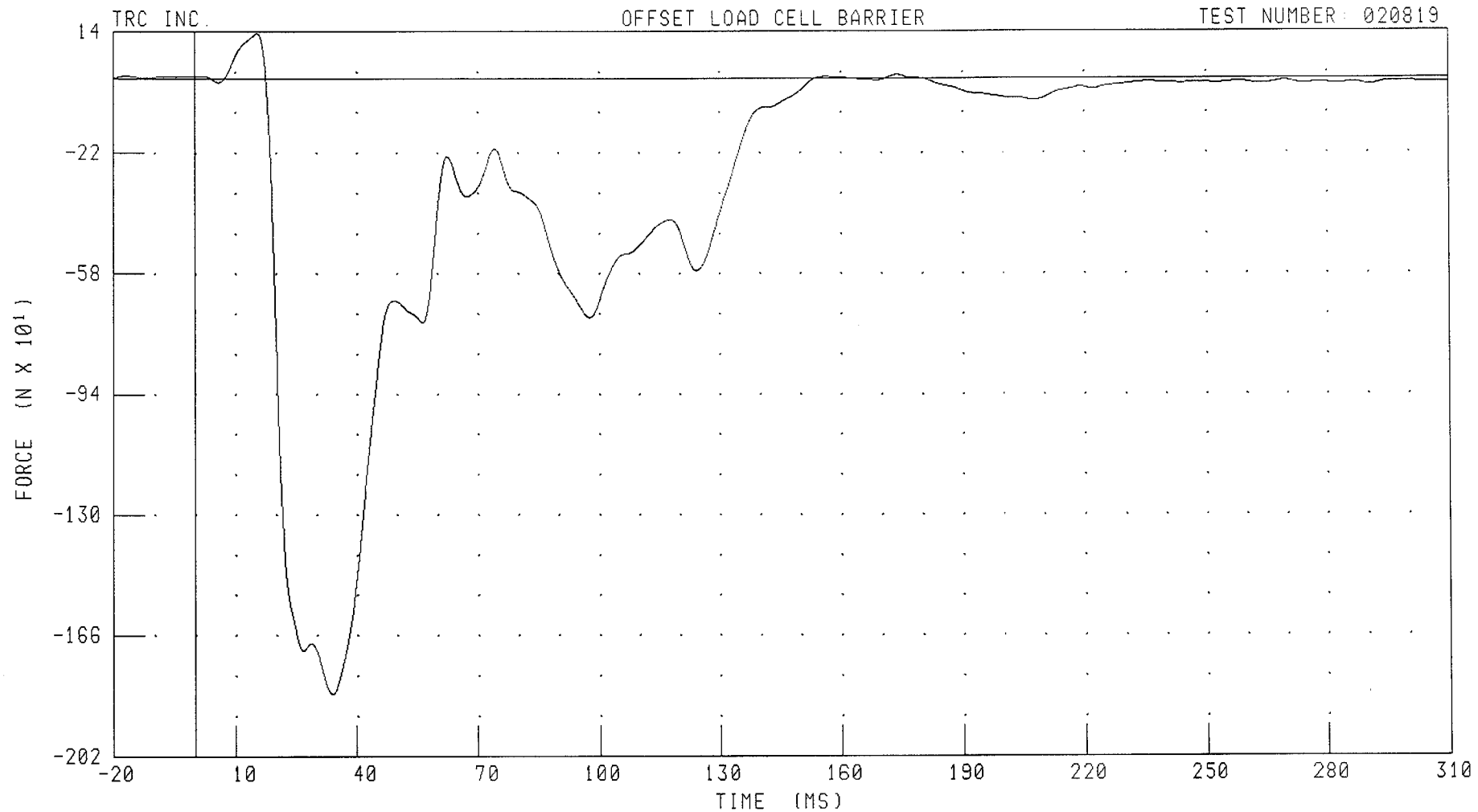
CHANNEL: LCA2XF FILTER: CH. CLASS 60

PEAK DATA: 933.16 N @ 34.64 MS; -2730.46 N @ 56.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
BARRIER LOAD CELL A3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCA3XF FILTER: CH. CLASS 60

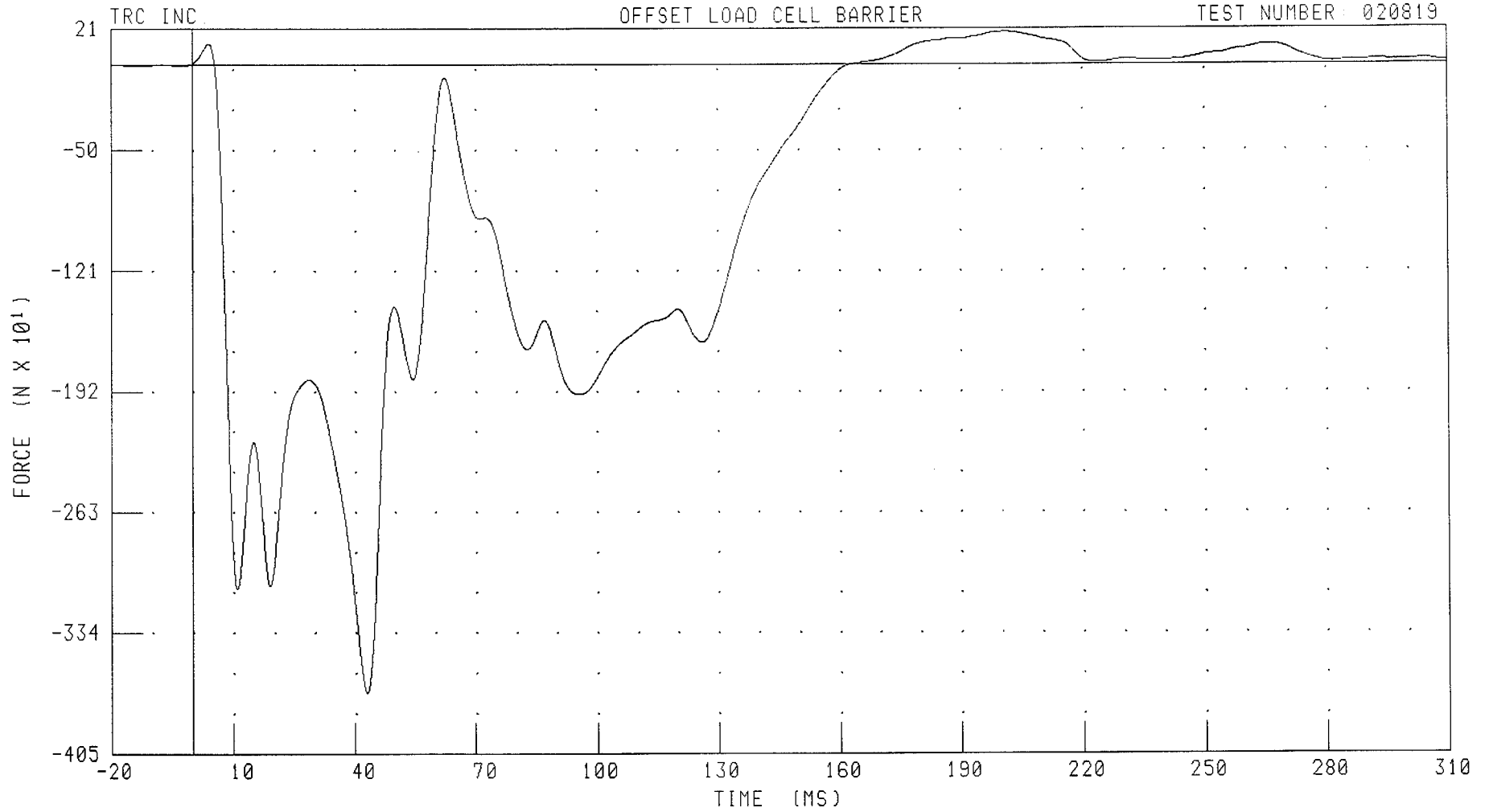
PEAK DATA: 134.58 N @ 15.44 MS; -1834.97 N @ 33.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL A4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCA4XF FILTER: CH. CLASS 60

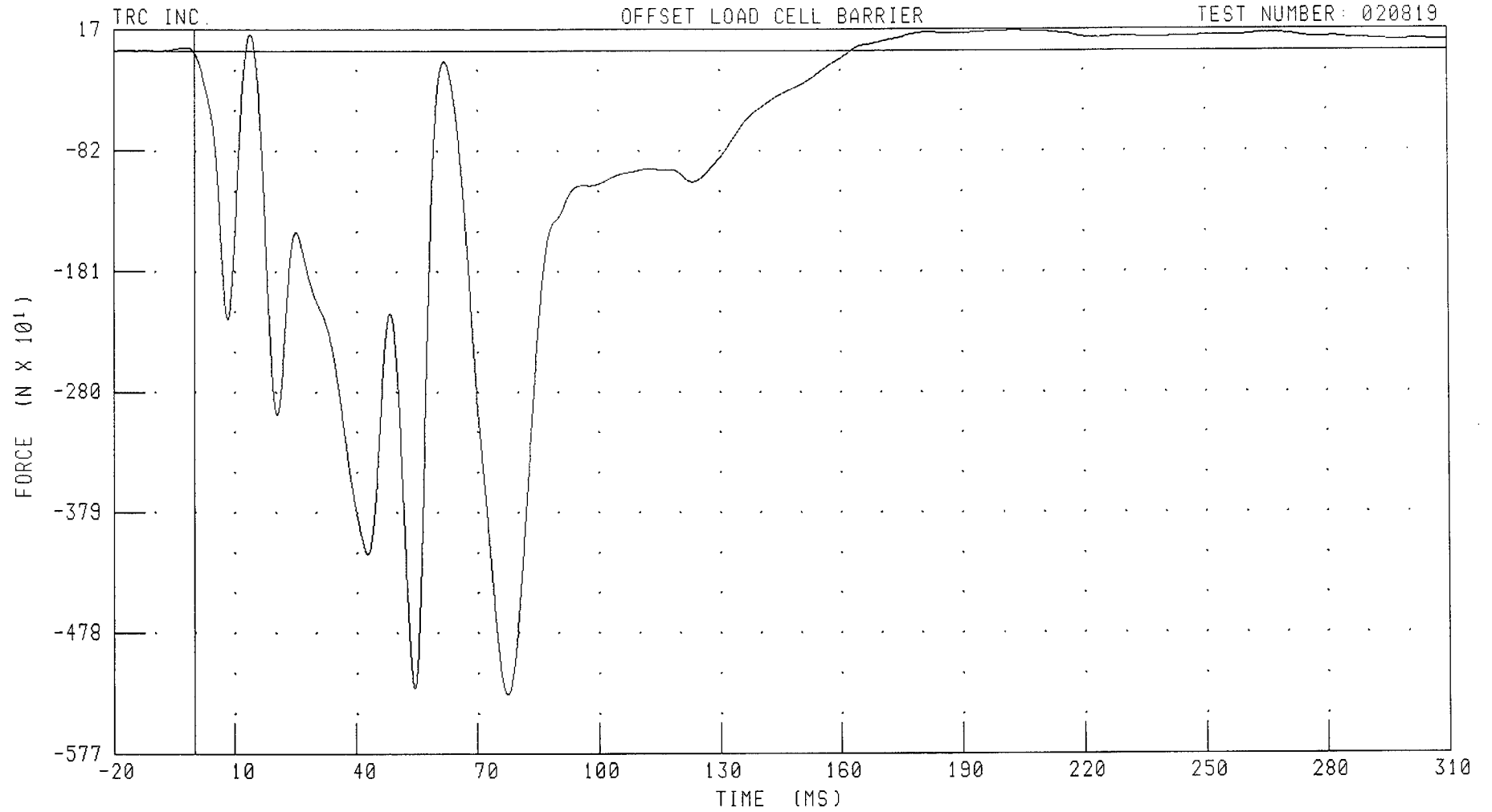
PEAK DATA: 191.32 N @ 201.36 MS; -3692.97 N @ 42.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL A5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCA5XF

FILTER: CH. CLASS 60

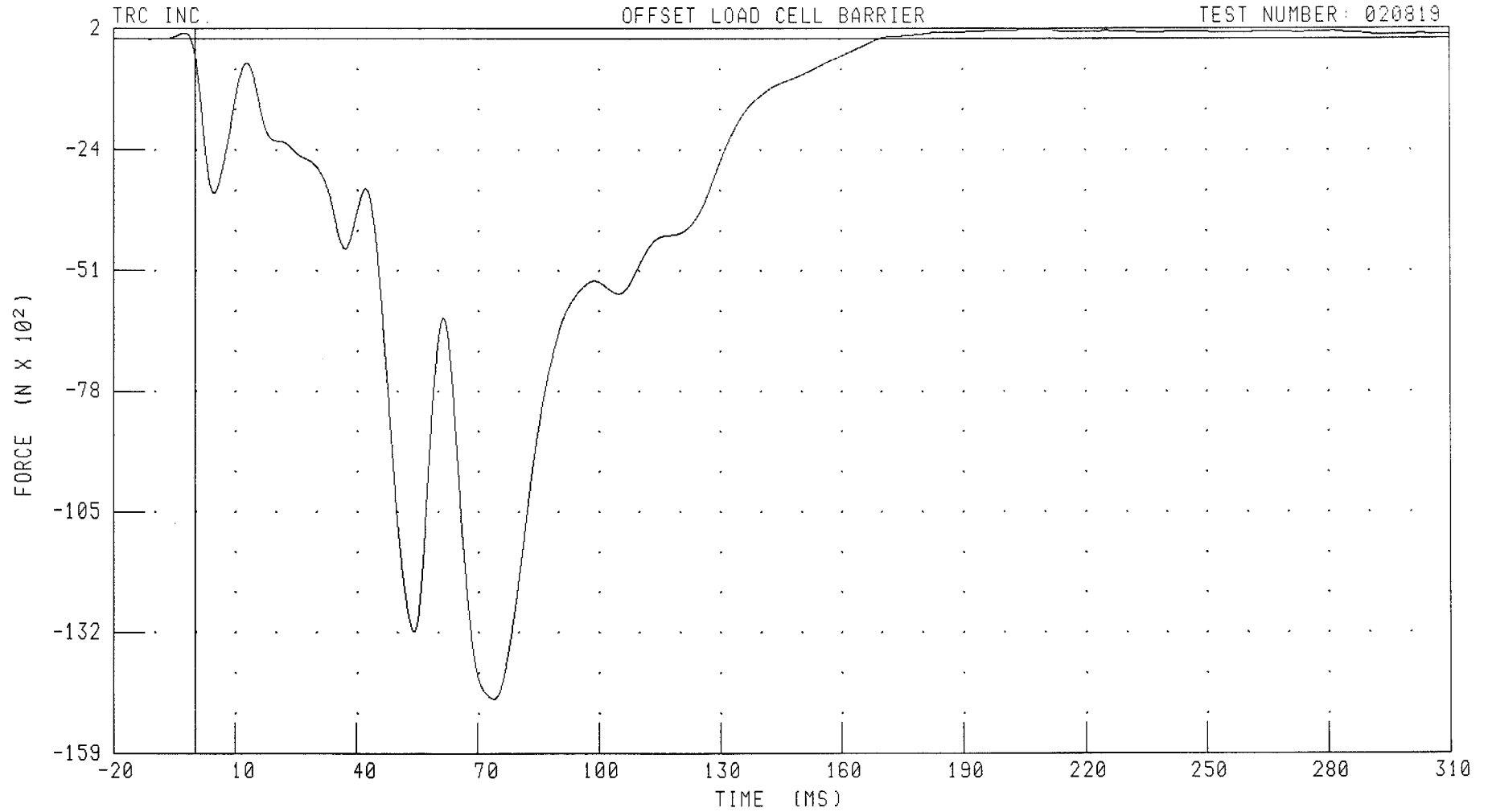
PEAK DATA: 163.26 N @ 203.28 MS; -5285.63 N @ 77.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL A6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCA6XF FILTER: CH. CLASS 60

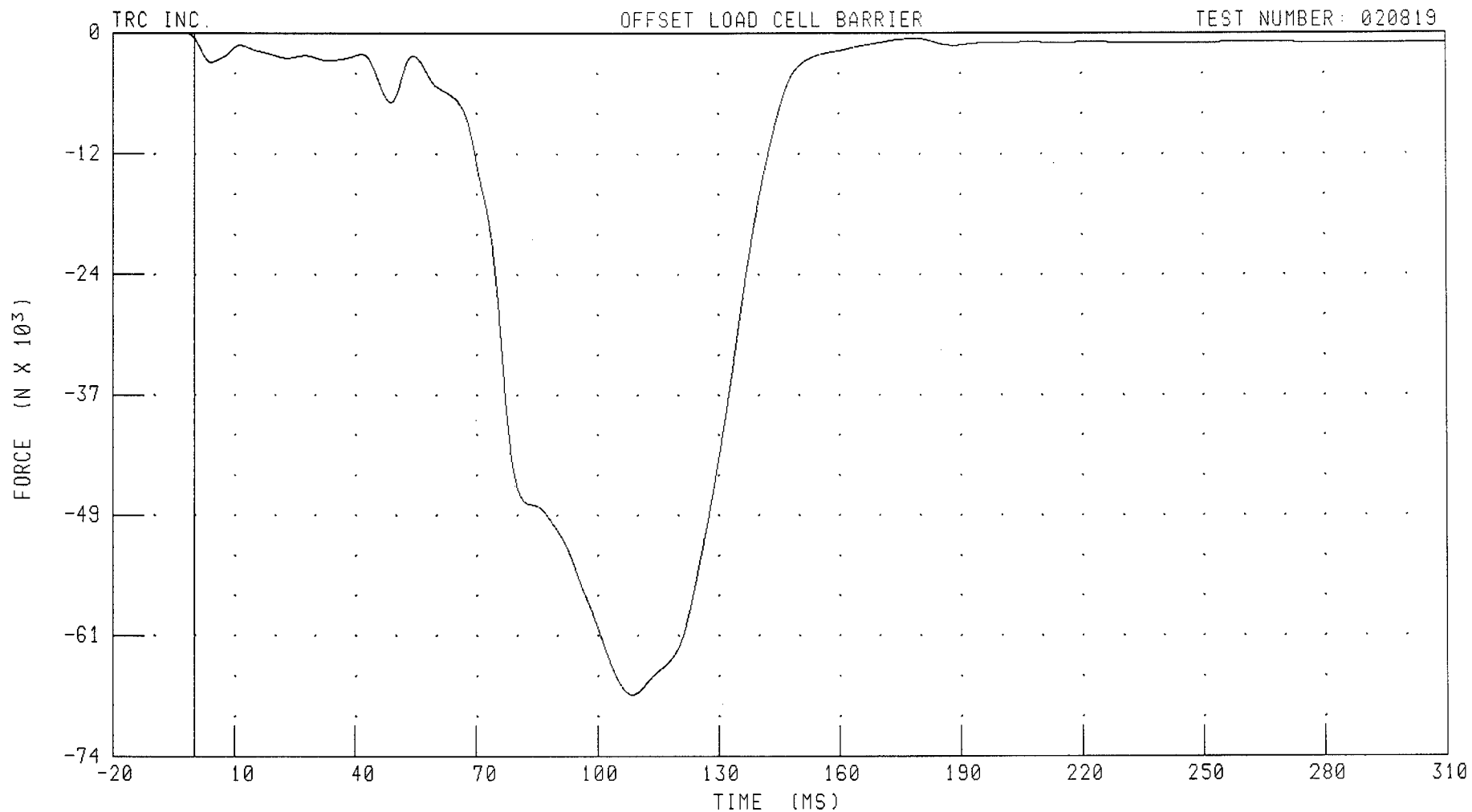
PEAK DATA: 203.19 N @ 210.16 MS; -14763.77 N @ 73.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL A7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCA7XF FILTER: CH. CLASS 60

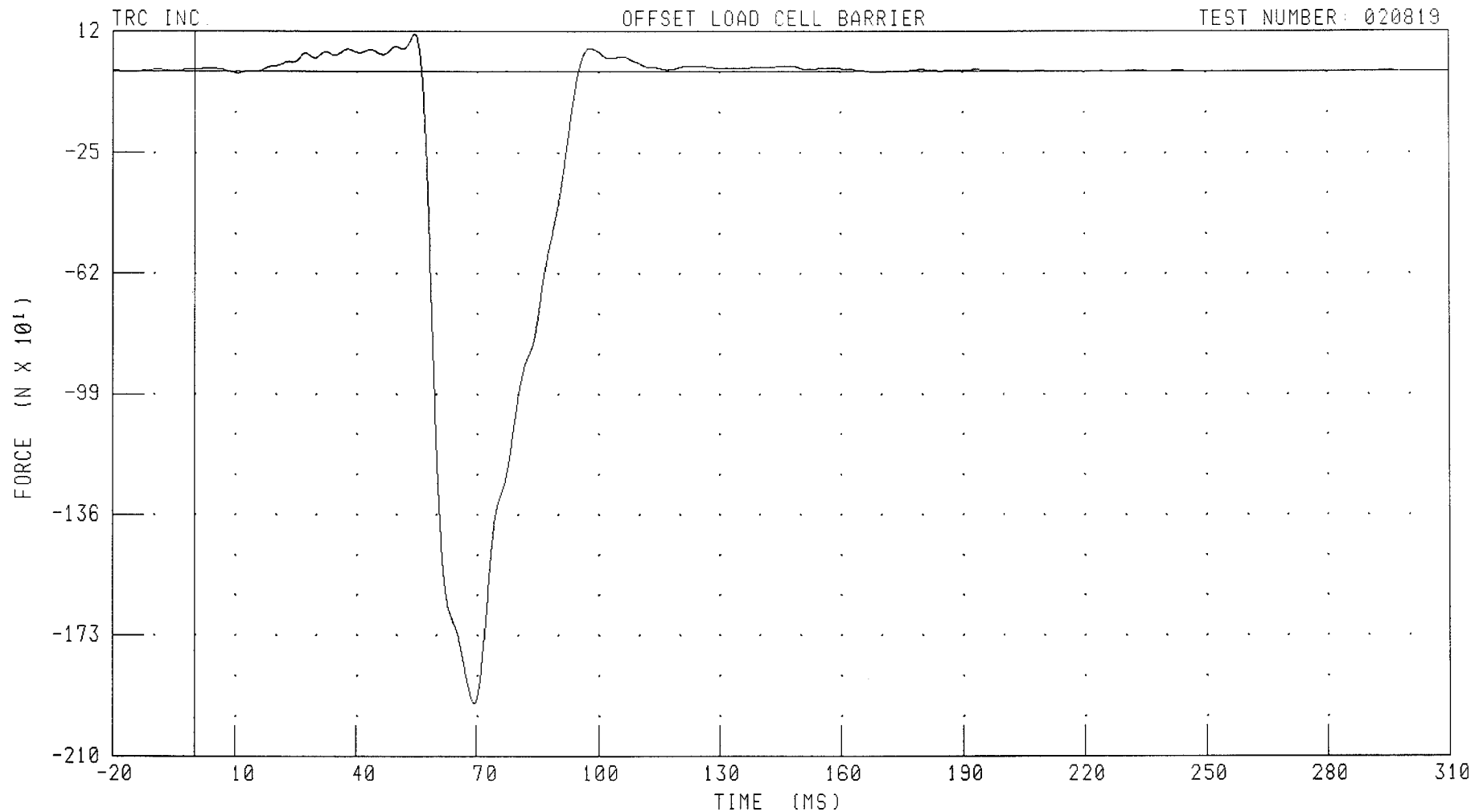
PEAK DATA: 96.61 N @ -2.72 MS; -67999.95 N @ 108.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL B1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



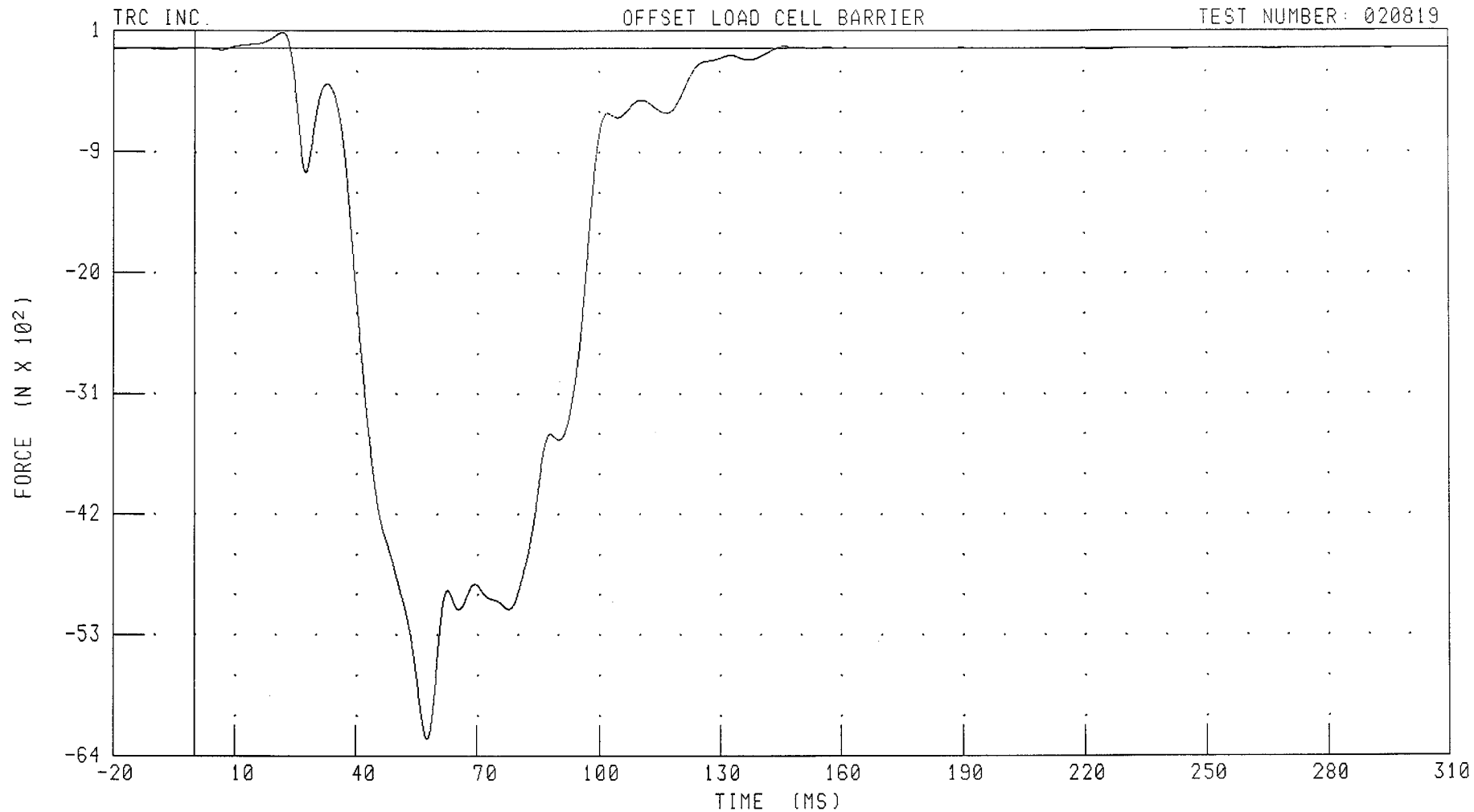
CHANNEL: LCB1XF FILTER: CH. CLASS 60

PEAK DATA: 111.26 N @ 54.72 MS; -1938.03 N @ 69.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
BARRIER LOAD CELL B2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCB2XF FILTER: CH. CLASS 60

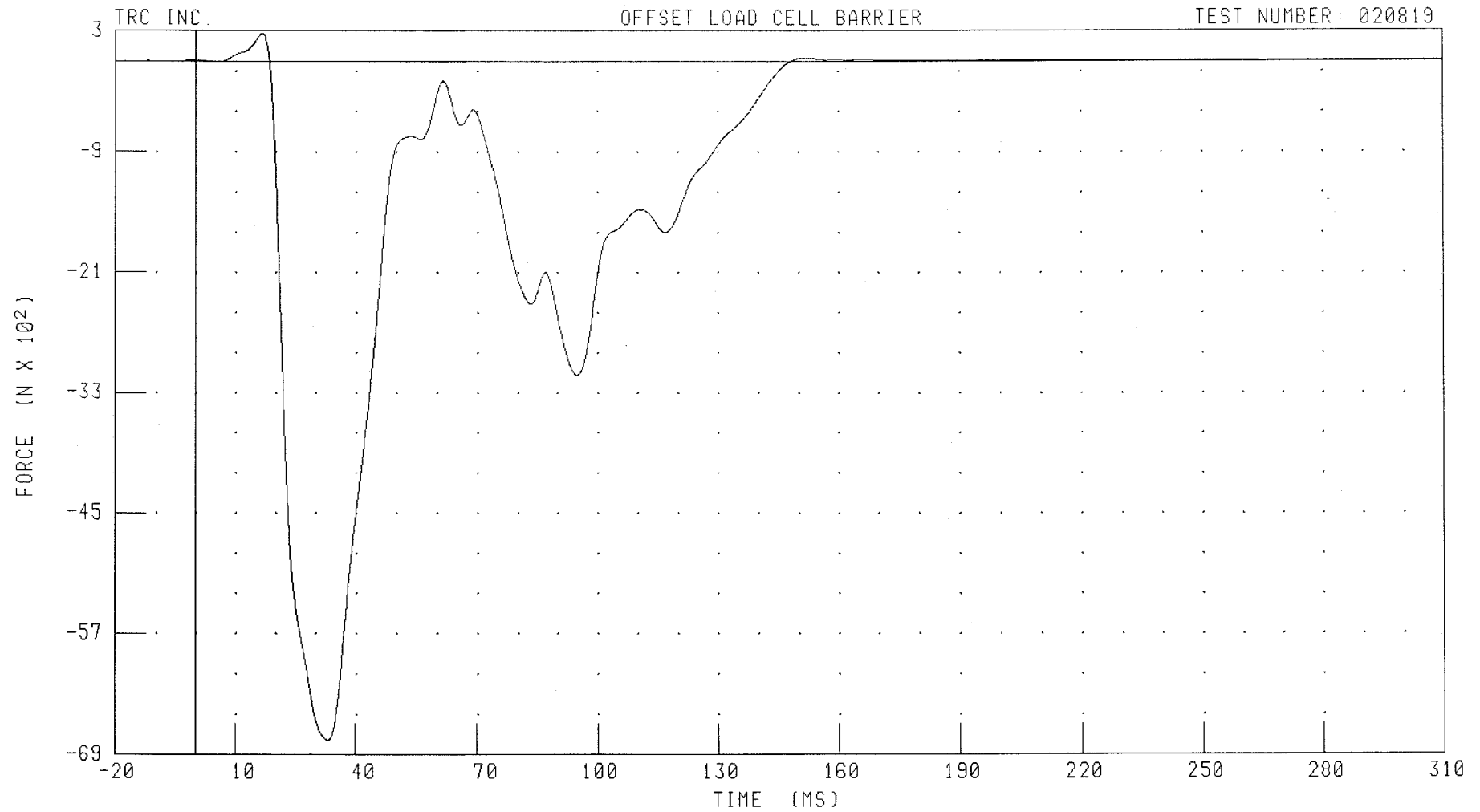
PEAK DATA: 147.04 N @ 21.76 MS; -6285.21 N @ 57.52 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL B3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



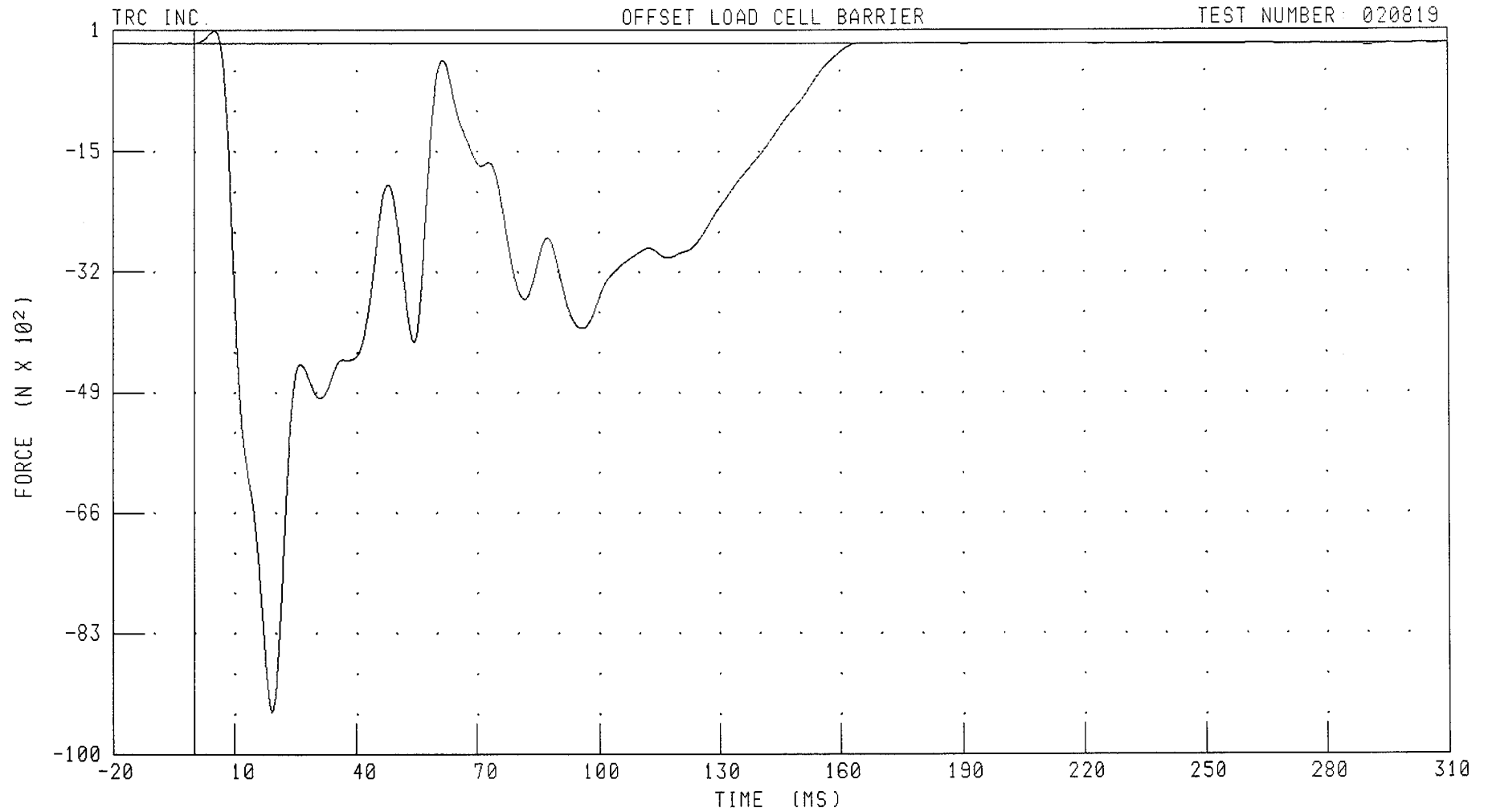
CHANNEL: LCB3XF FILTER: CH. CLASS 60

PEAK DATA: 273.69 N @ 16.72 MS; -6758.02 N @ 33.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL B4 X-AXIS FORCE

TEST NUMBER: 020819



CHANNEL: LCB4XF FILTER: CH. CLASS 60

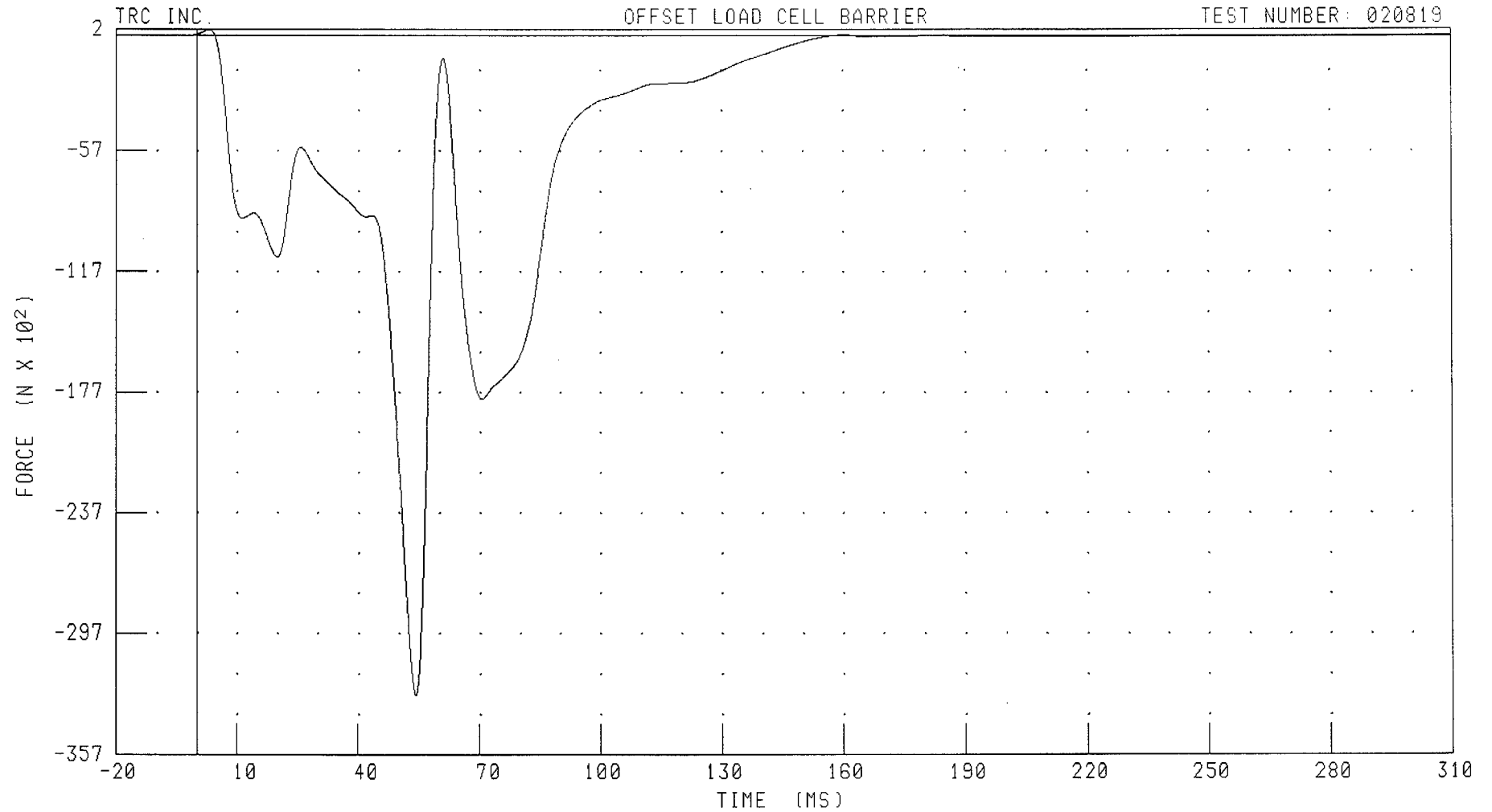
PEAK DATA: 171.31 N @ 5.04 MS; -9424.63 N @ 19.20 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL B5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCB5XF FILTER: CH. CLASS 60

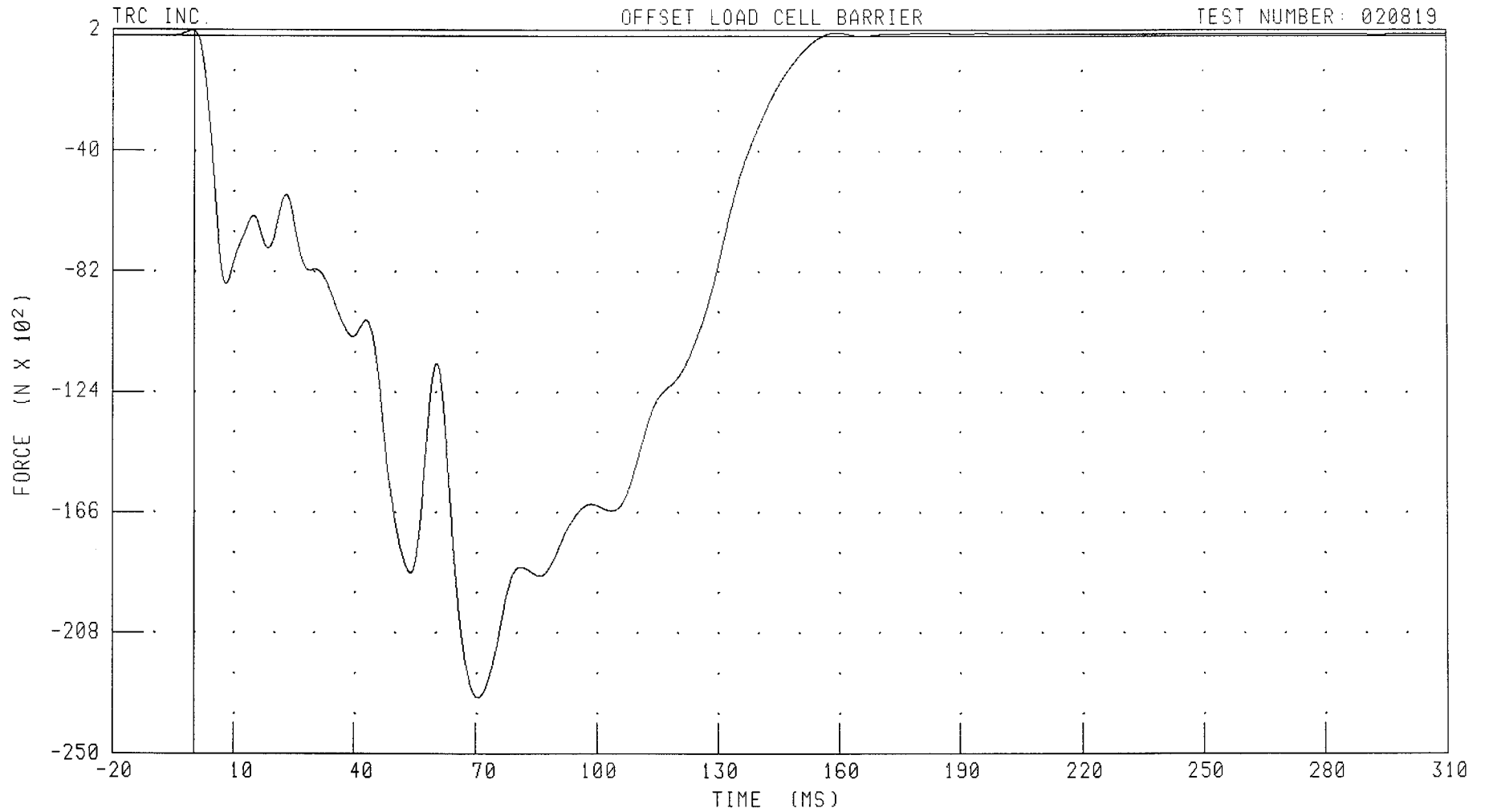
PEAK DATA: 263.41 N @ 3.04 MS; -32799.13 N @ 54.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL B6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCB6XF

FILTER: CH. CLASS 60

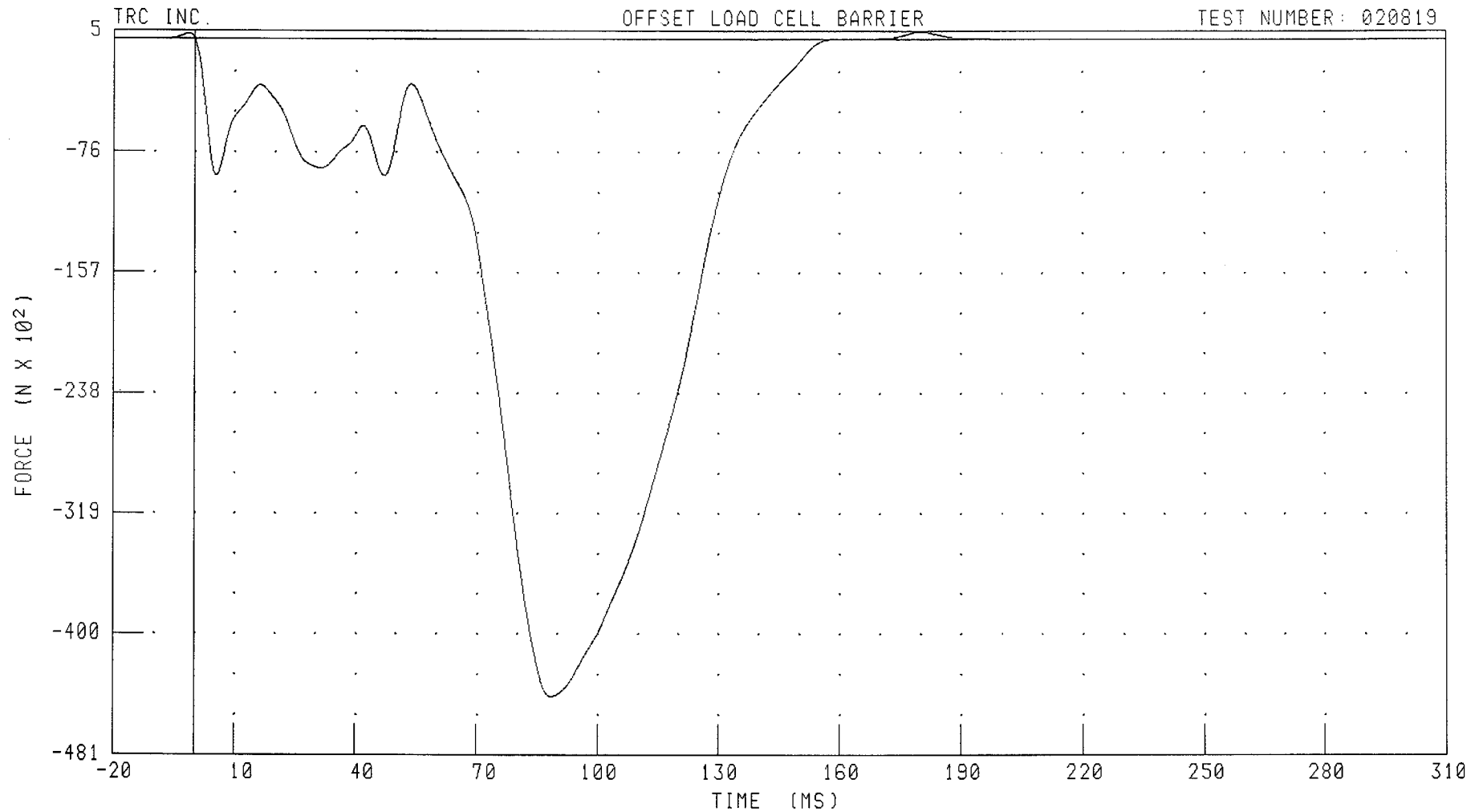
PEAK DATA: 183.73 N @ -0.48 MS; -23059.44 N @ 70.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL B7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCB7XF FILTER: CH. CLASS 60

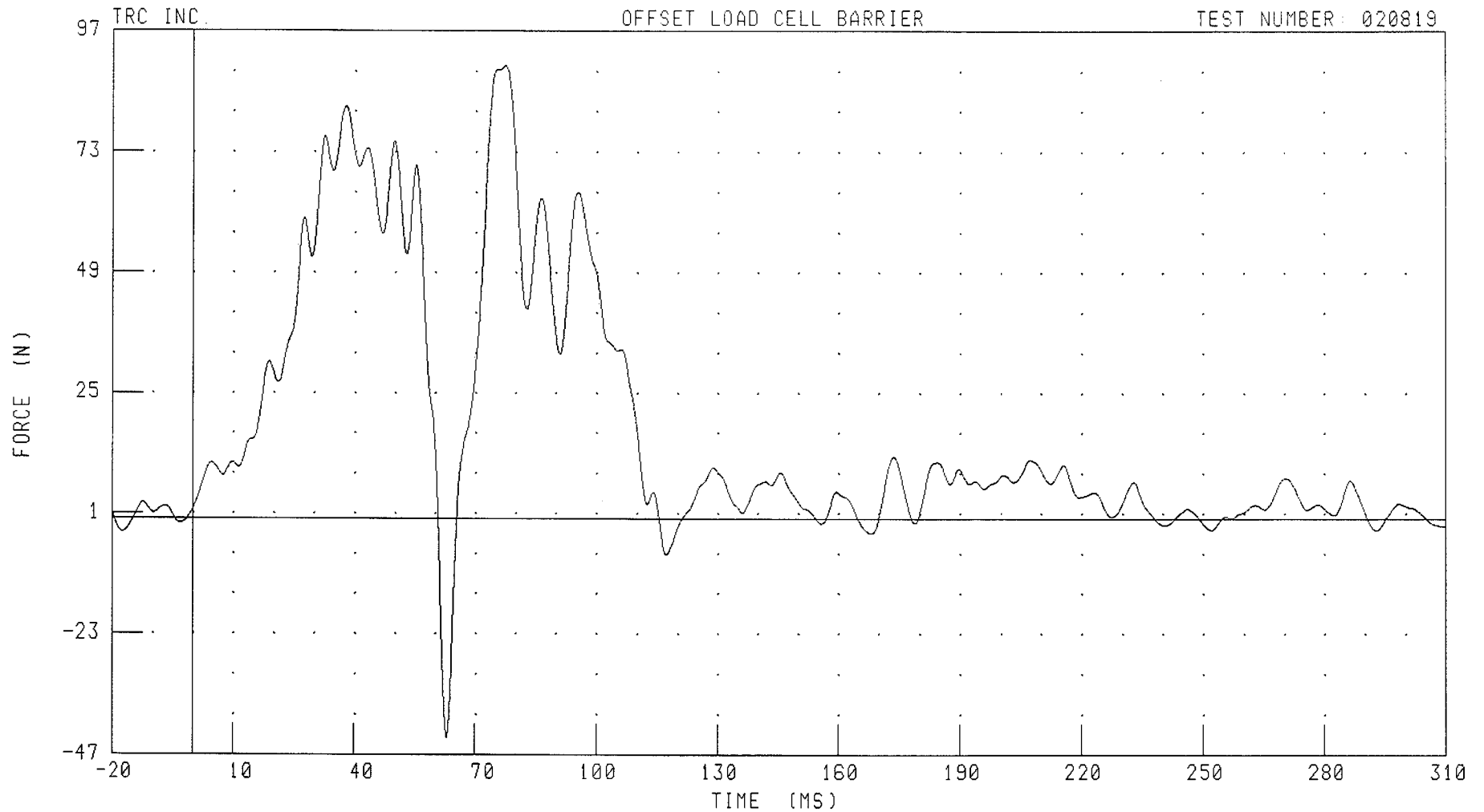
PEAK DATA: 463.01 N @ 180.16 MS; -44205.84 N @ 88.48 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL C1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCC1XF

FILTER: CH. CLASS 60

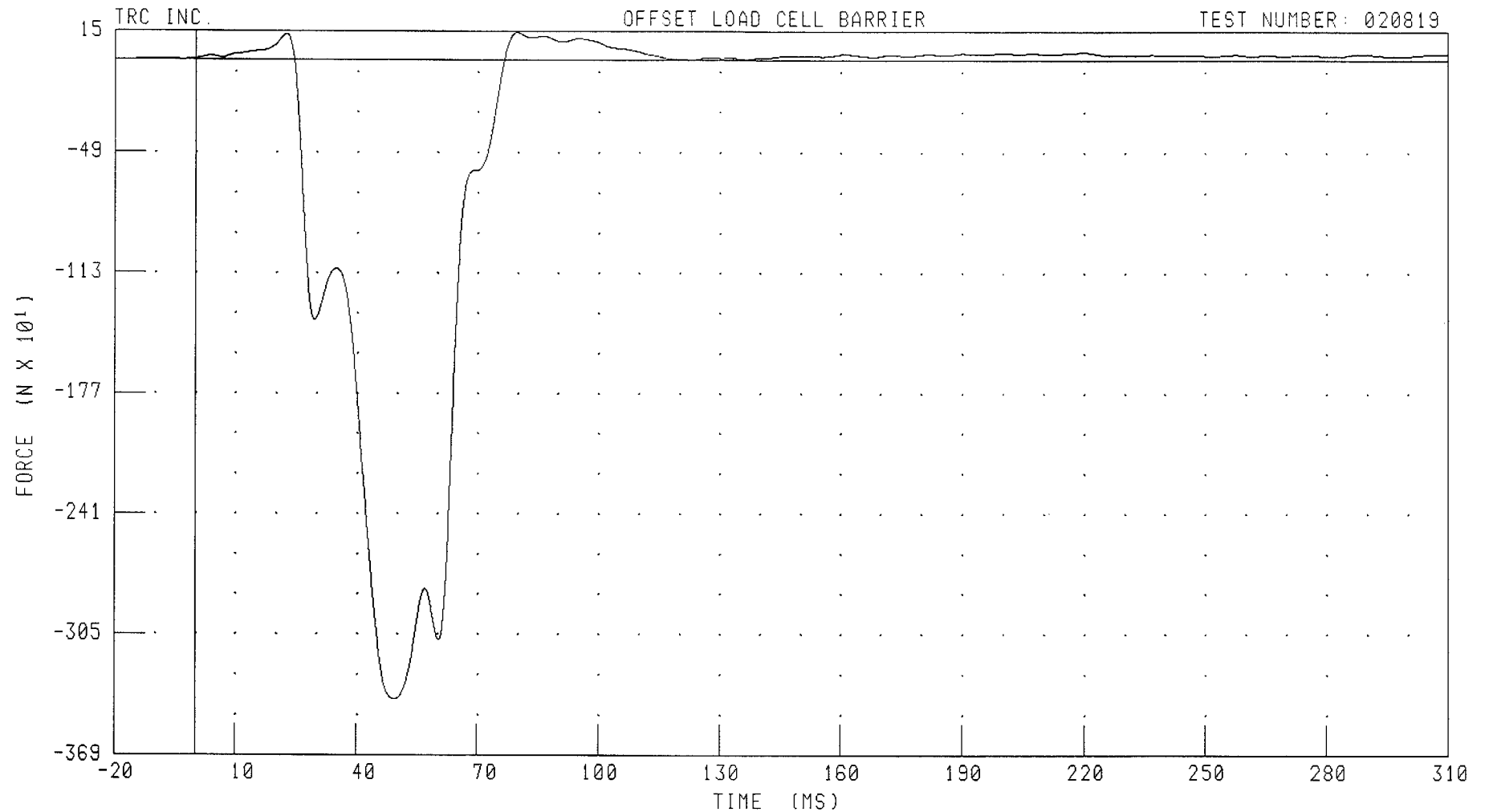
PEAK DATA: 90.09 N @ 77.52 MS; -43.53 N @ 62.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL C2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCC2XF FILTER: CH. CLASS 60

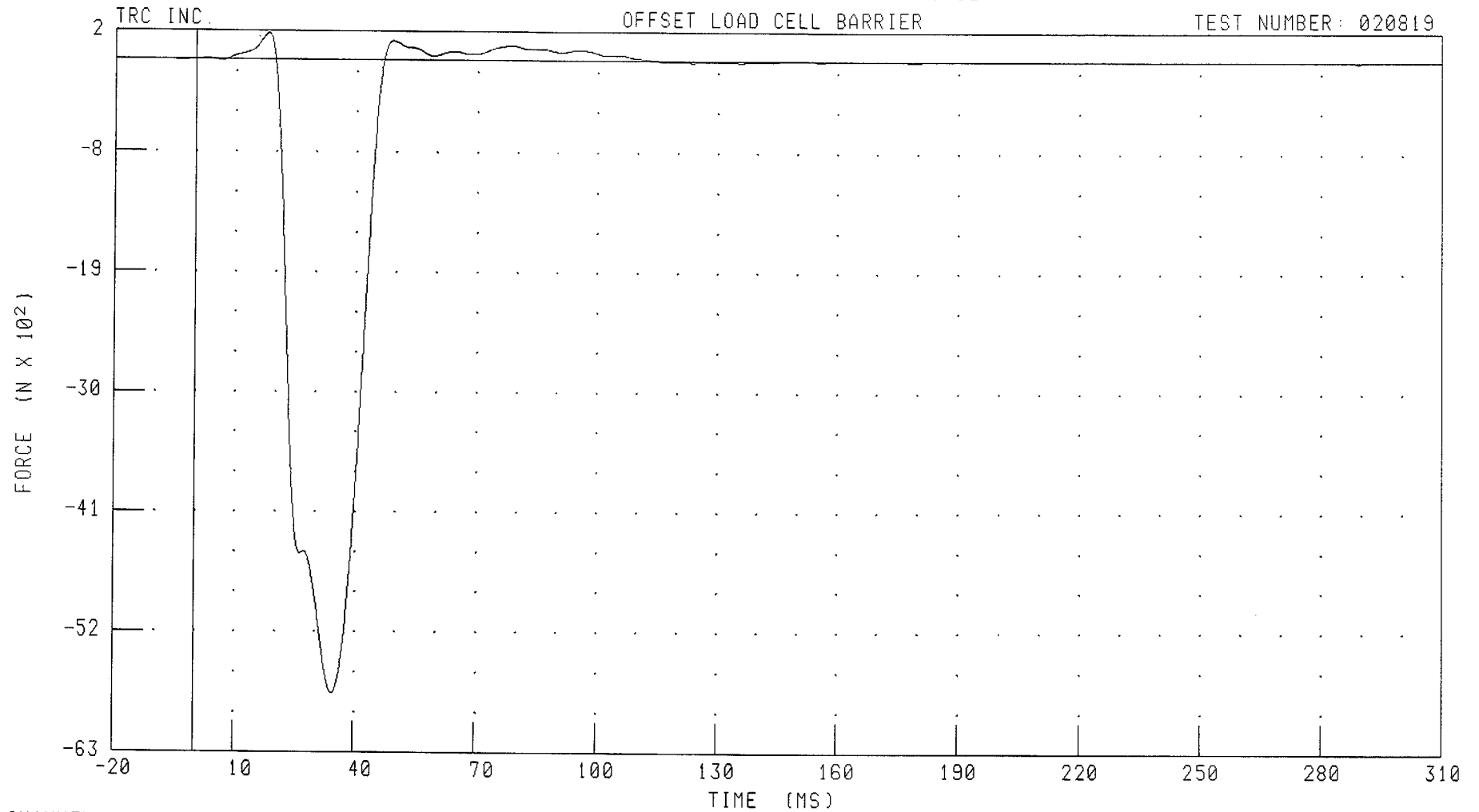
PEAK DATA: 145.45 N @ 79.84 MS; -3394.38 N @ 49.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL C3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCC3XF

FILTER: CH. CLASS 60

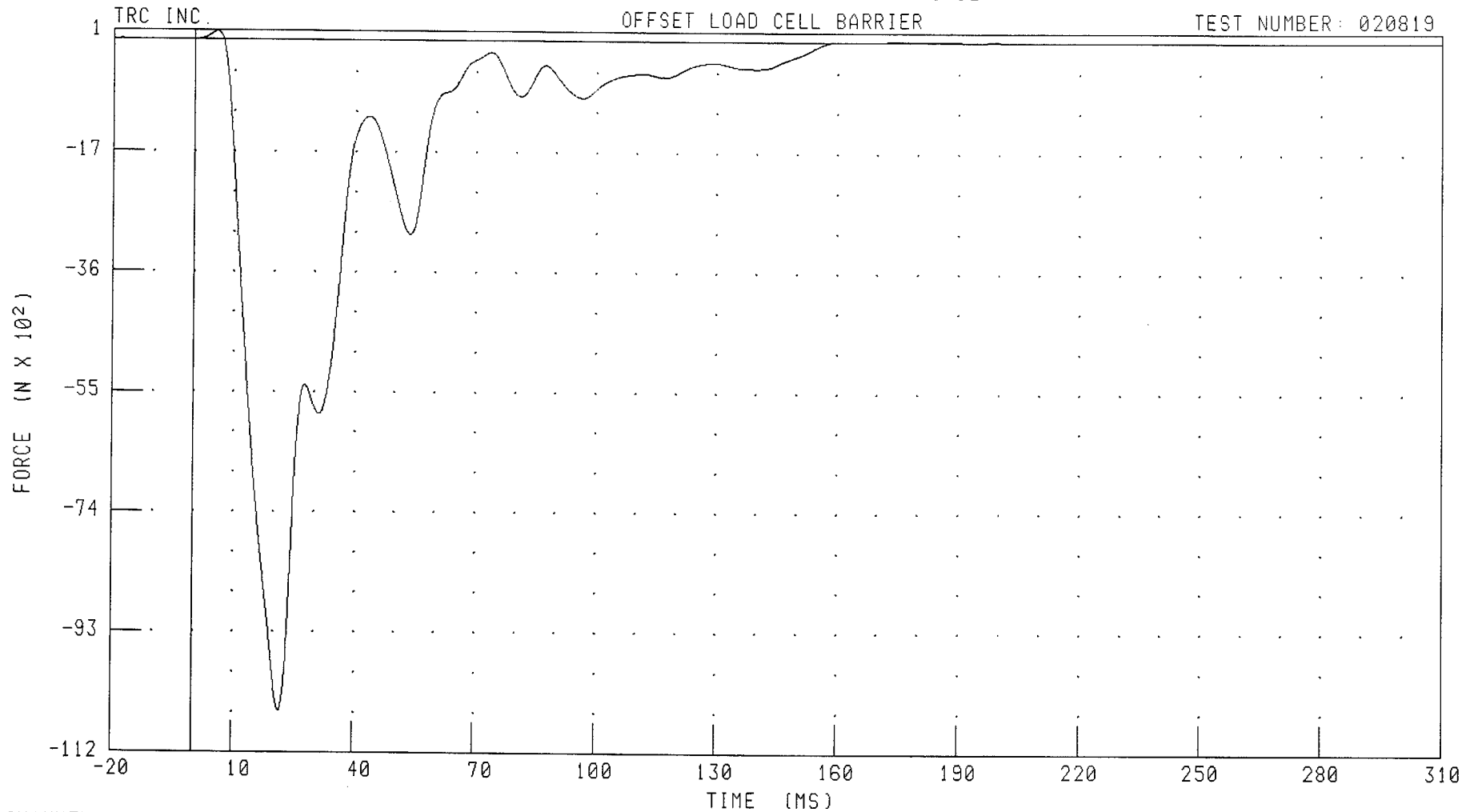
PEAK DATA: 242.15 N @ 18.08 MS; -5803.93 N @ 34.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL C4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCC4XF

FILTER: CH. CLASS 60

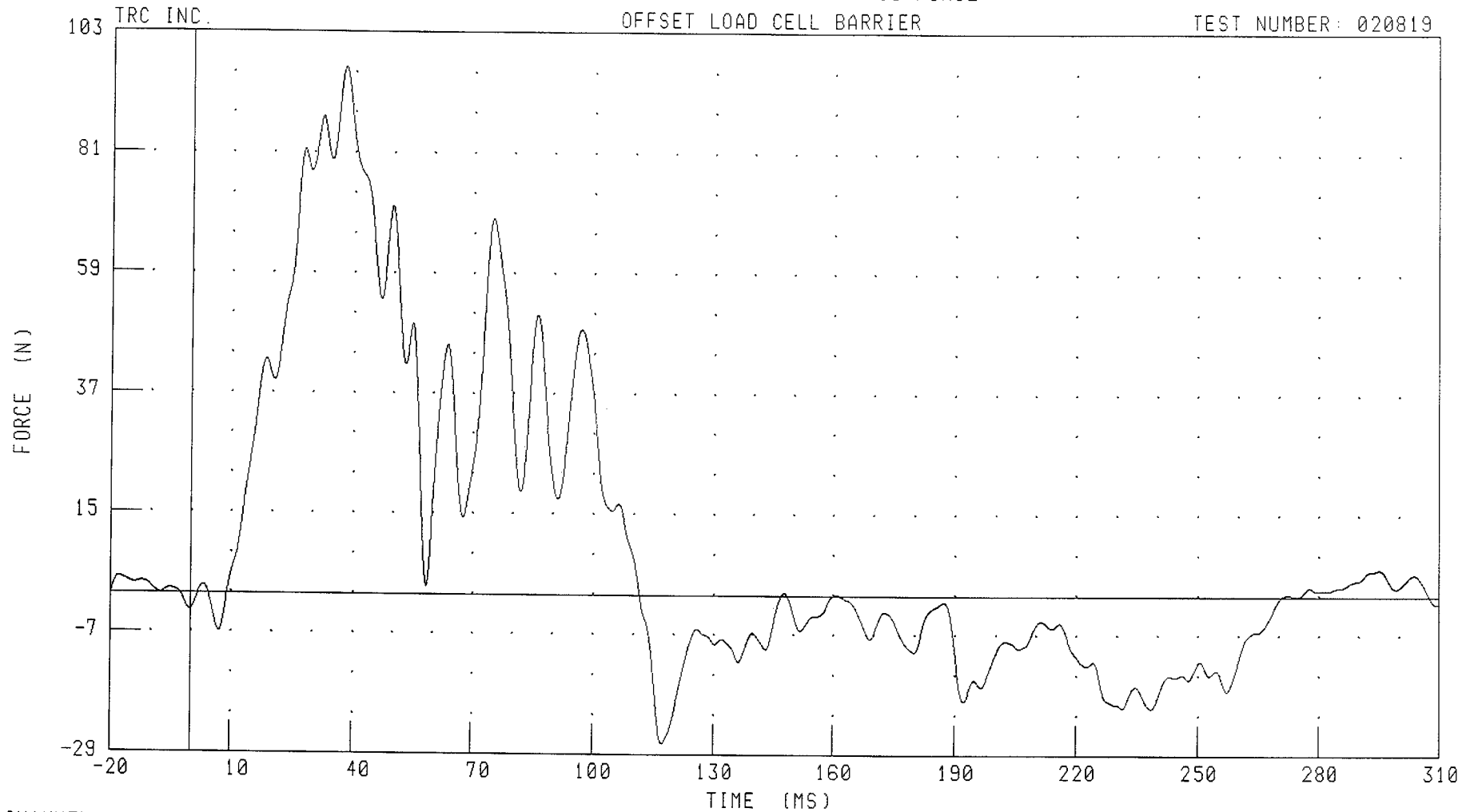
PEAK DATA: 129.11 N @ 5.68 MS; -10602.31 N @ 21.60 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL C5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCC5XF FILTER: CH. CLASS 60

PEAK DATA: 96.58 N @ 37.84 MS; -26.97 N @ 117.36 MS

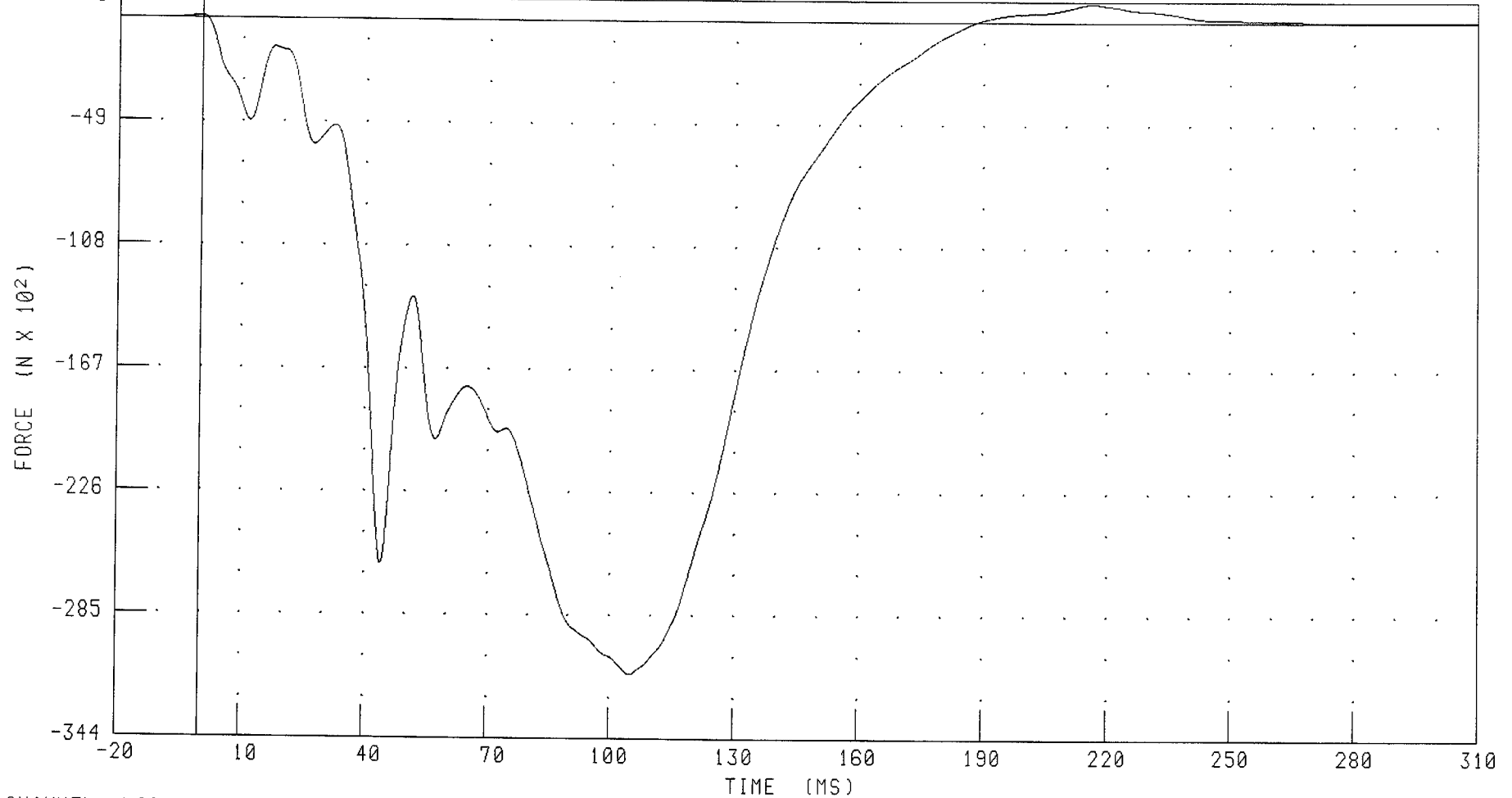
2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL C7 X-AXIS FORCE

g TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCC7XF FILTER: CH. CLASS 60

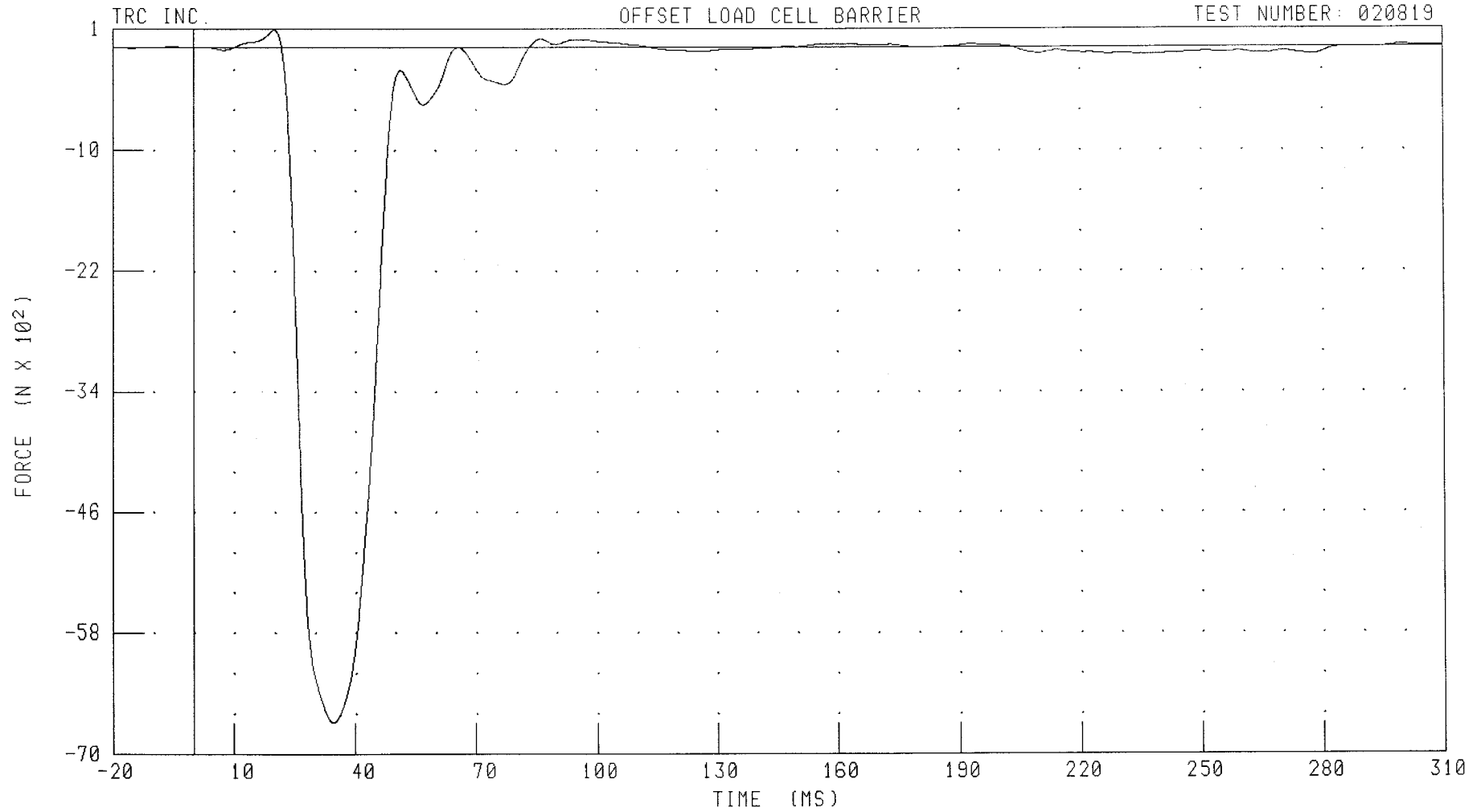
PEAK DATA: 882.32 N @ 216.56 MS; -31360.27 N @ 105.12 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL D3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCD3XF

FILTER: CH. CLASS 60

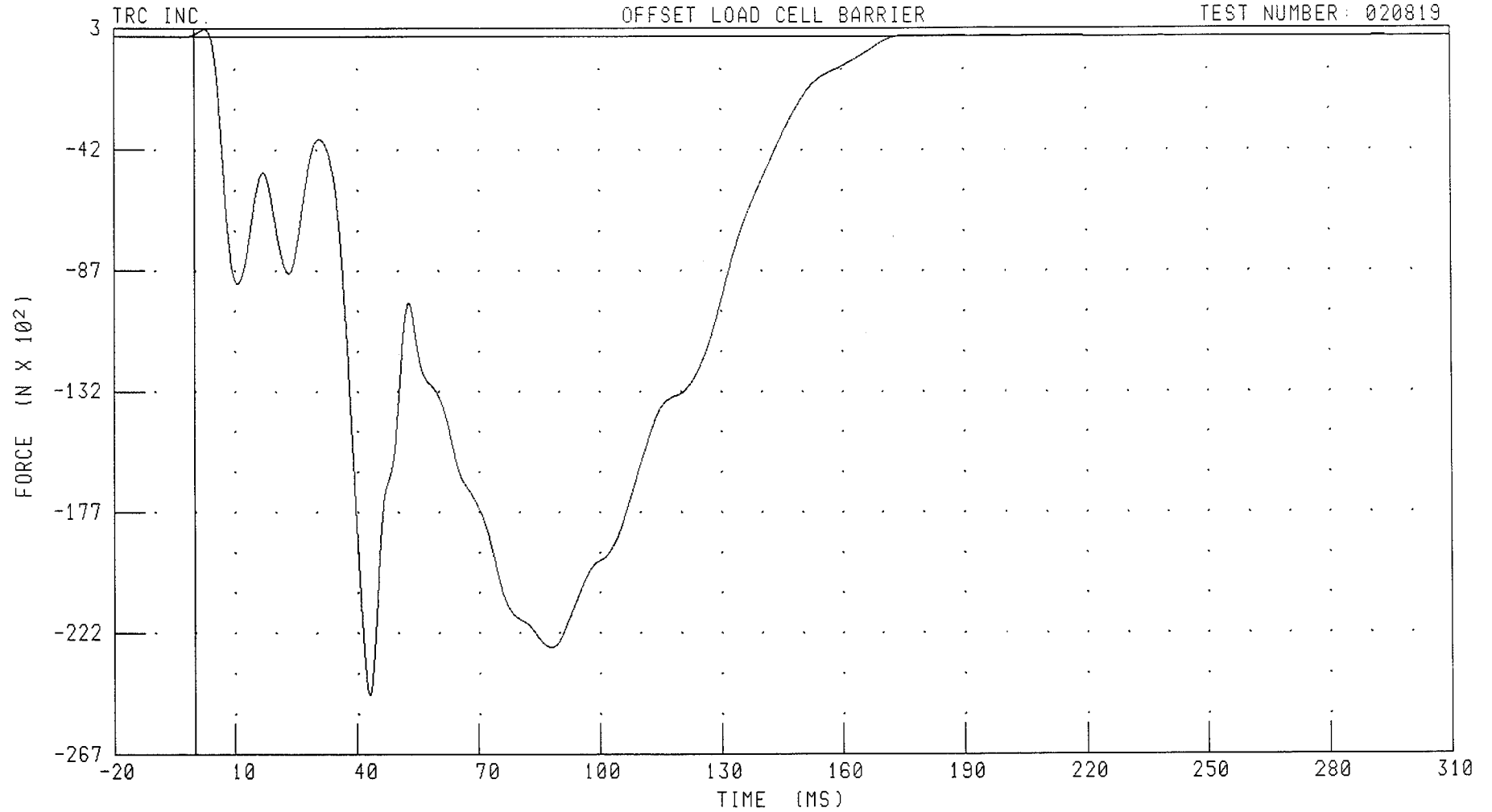
PEAK DATA: 170.55 N @ 20.08 MS; -6706.67 N @ 34.56 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL C6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCC6XF

FILTER: CH. CLASS 60

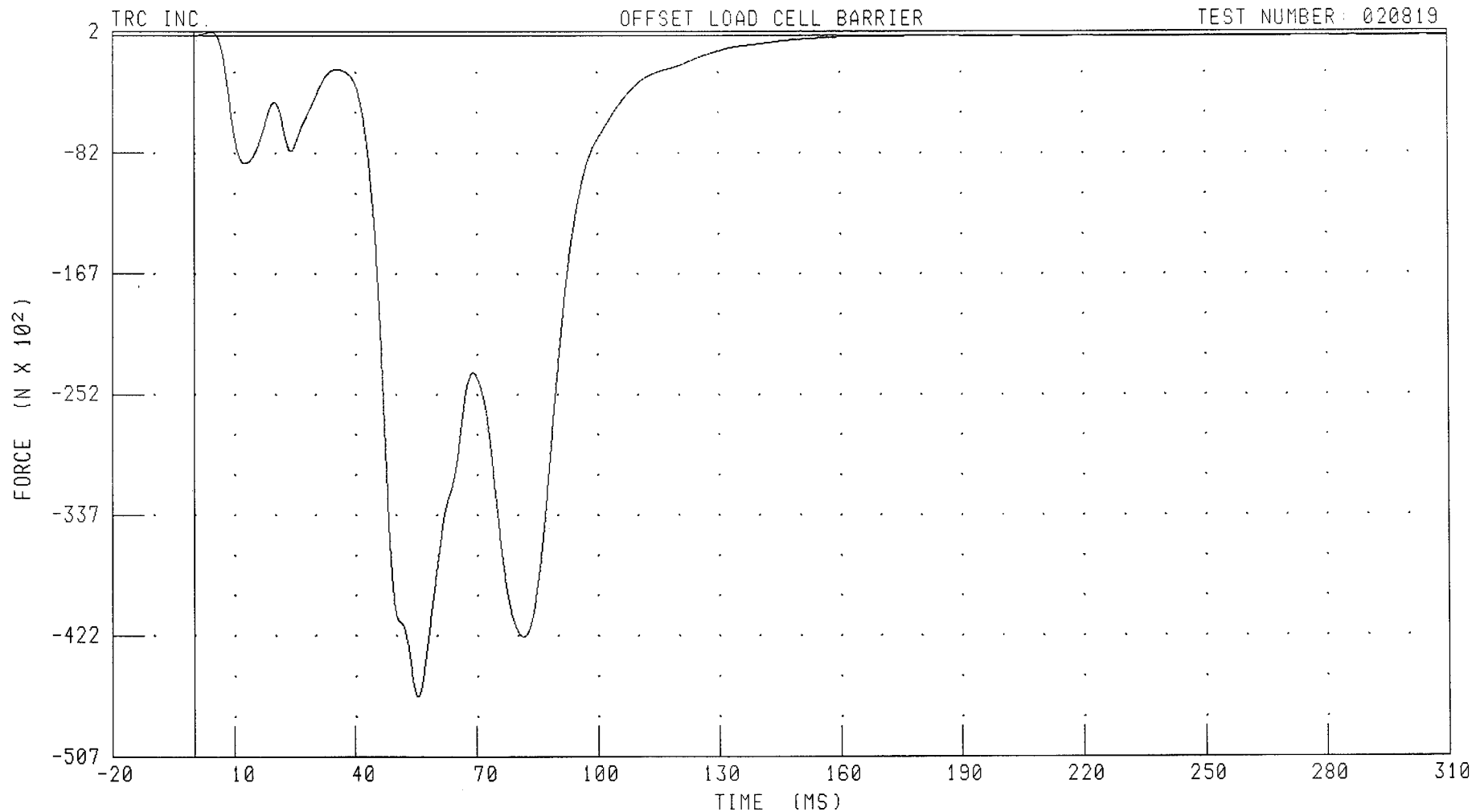
PEAK DATA: 272.77 N @ 2.56 MS; -2448.85 N @ 43.04 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL D1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCD1XF FILTER: CH. CLASS 60

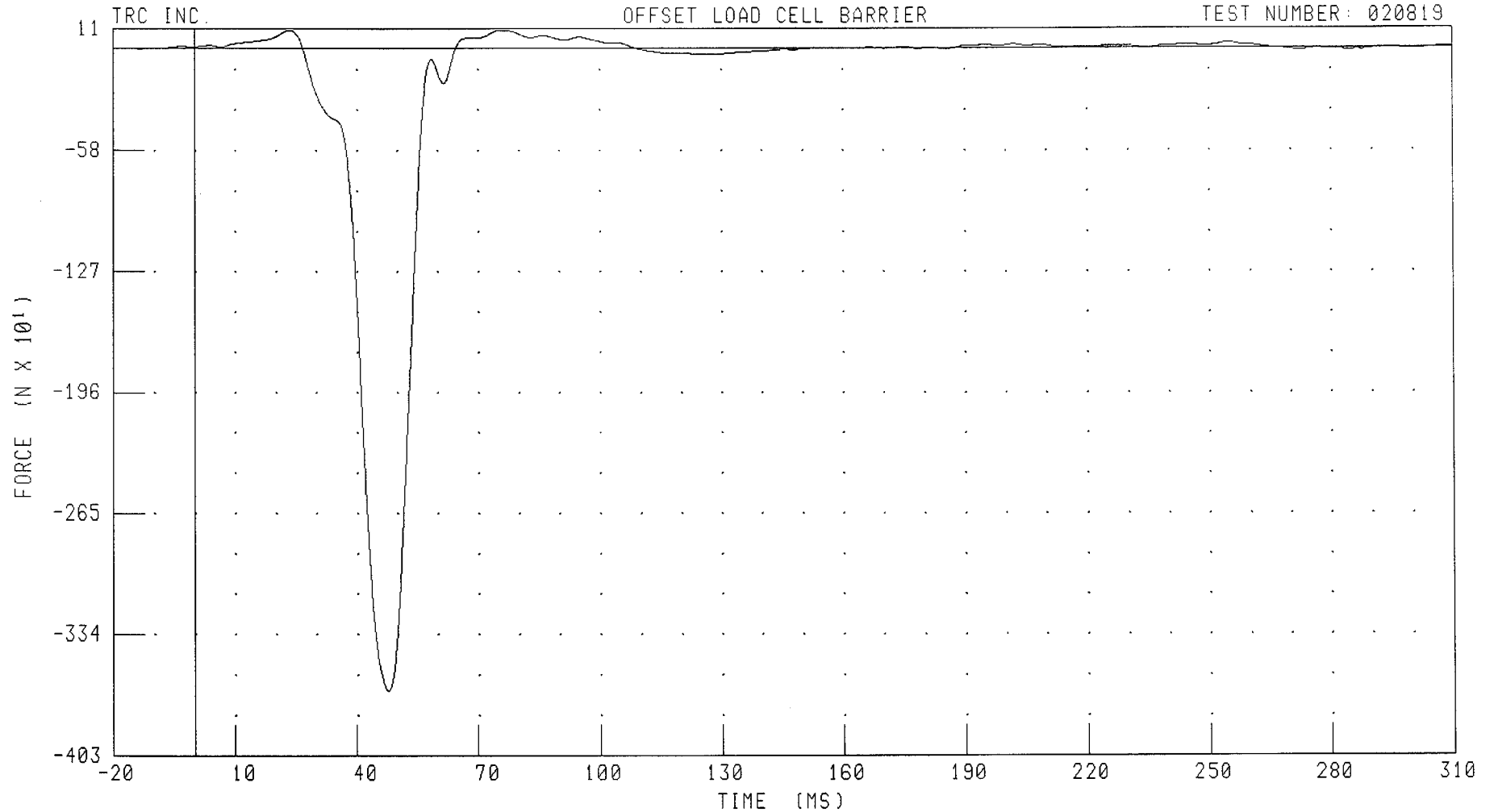
PEAK DATA: 246.76 N @ 4.16 MS; -4649.22 N @ 55.36 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL D2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

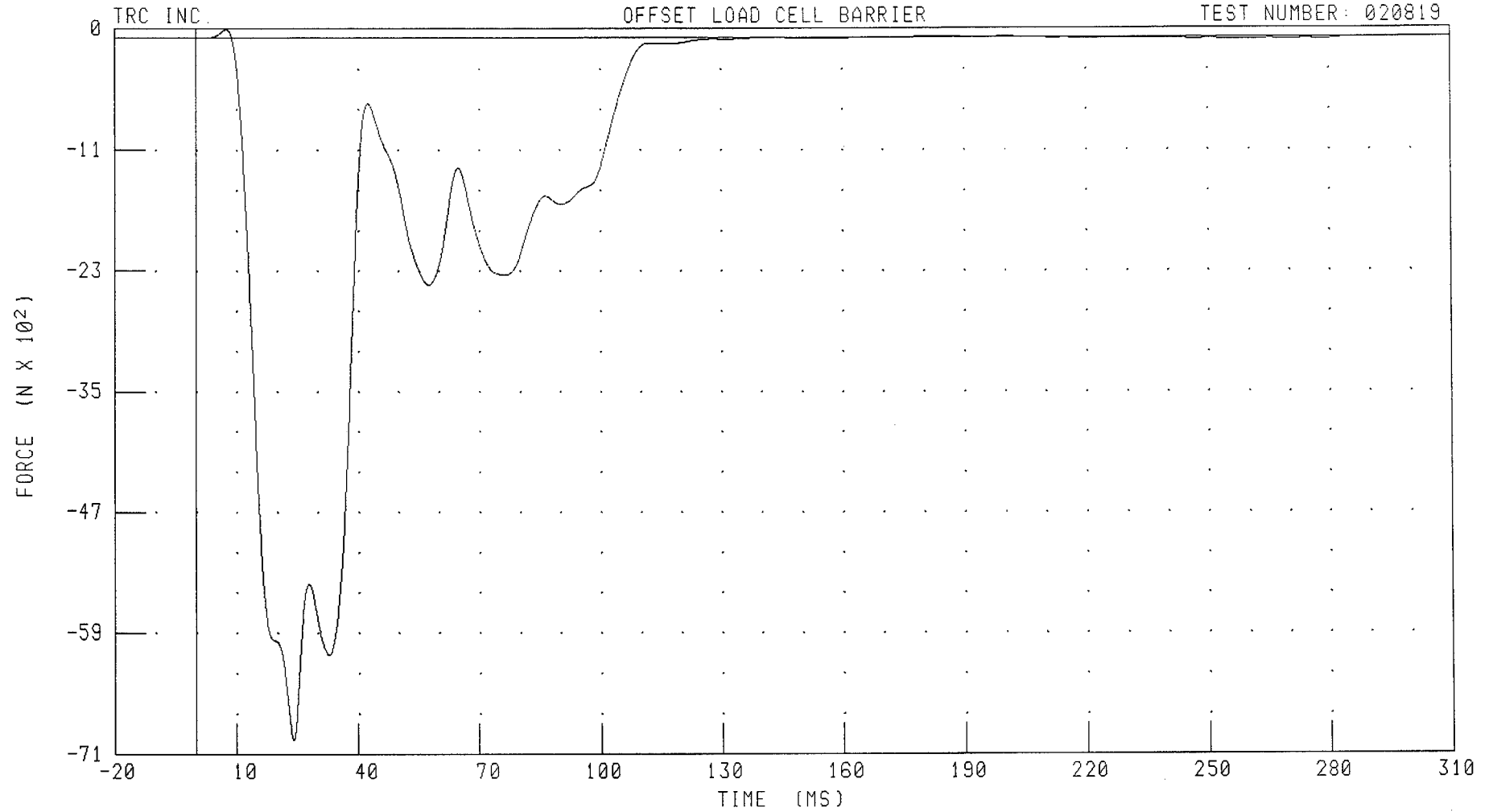


CHANNEL: LCD2XF FILTER: CH. CLASS 60

PEAK DATA: 101.15 N @ 23.52 MS; -366.28 N @ 47.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
BARRIER LOAD CELL D4 X-AXIS FORCE

TEST NUMBER: 020819



CHANNEL: LCD4XF FILTER: CH. CLASS 60

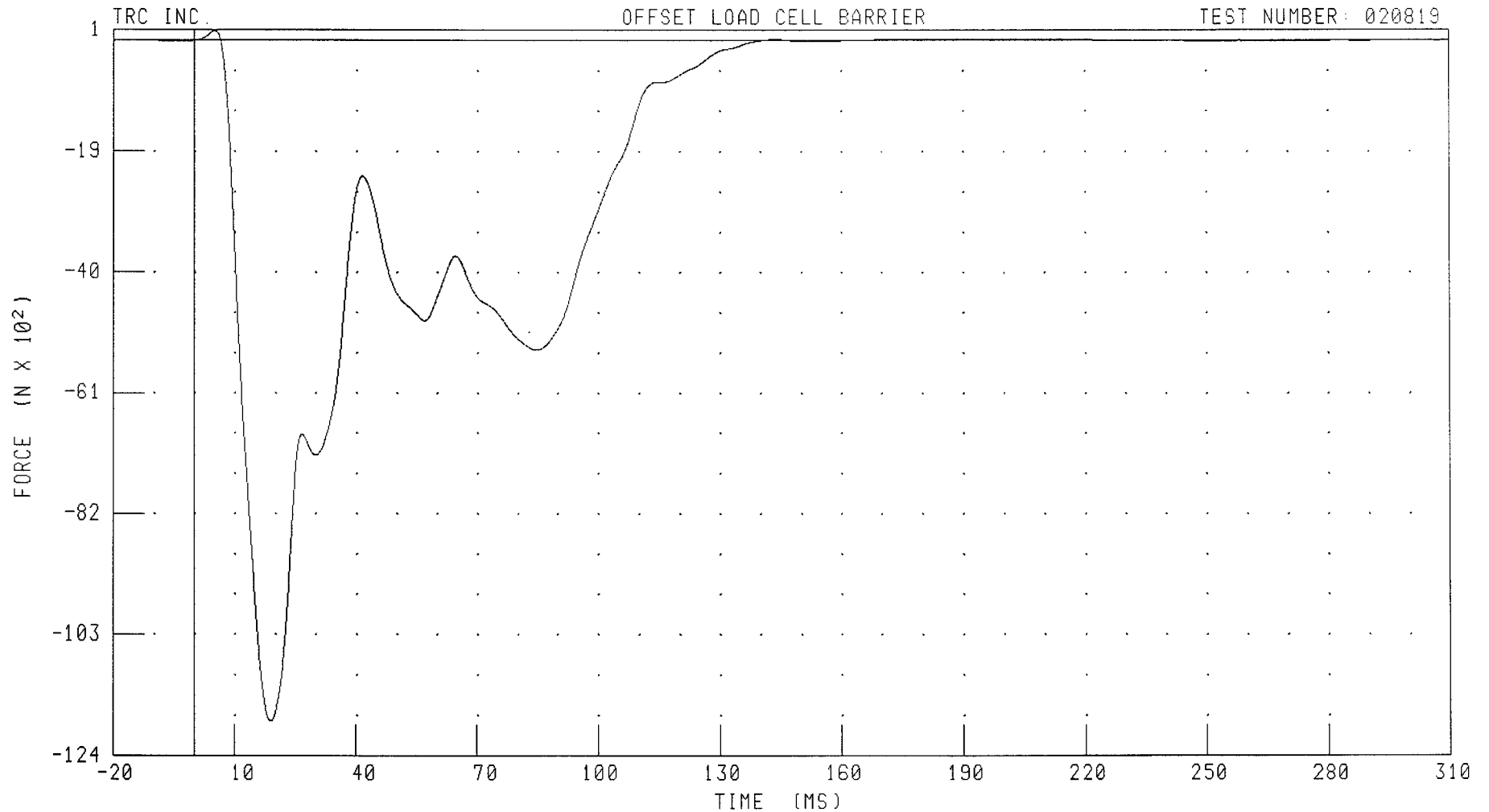
PEAK DATA: 83.19 N @ 7.52 MS; -6971.00 N @ 24.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL 05 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCD5XF

FILTER: CH. CLASS 60

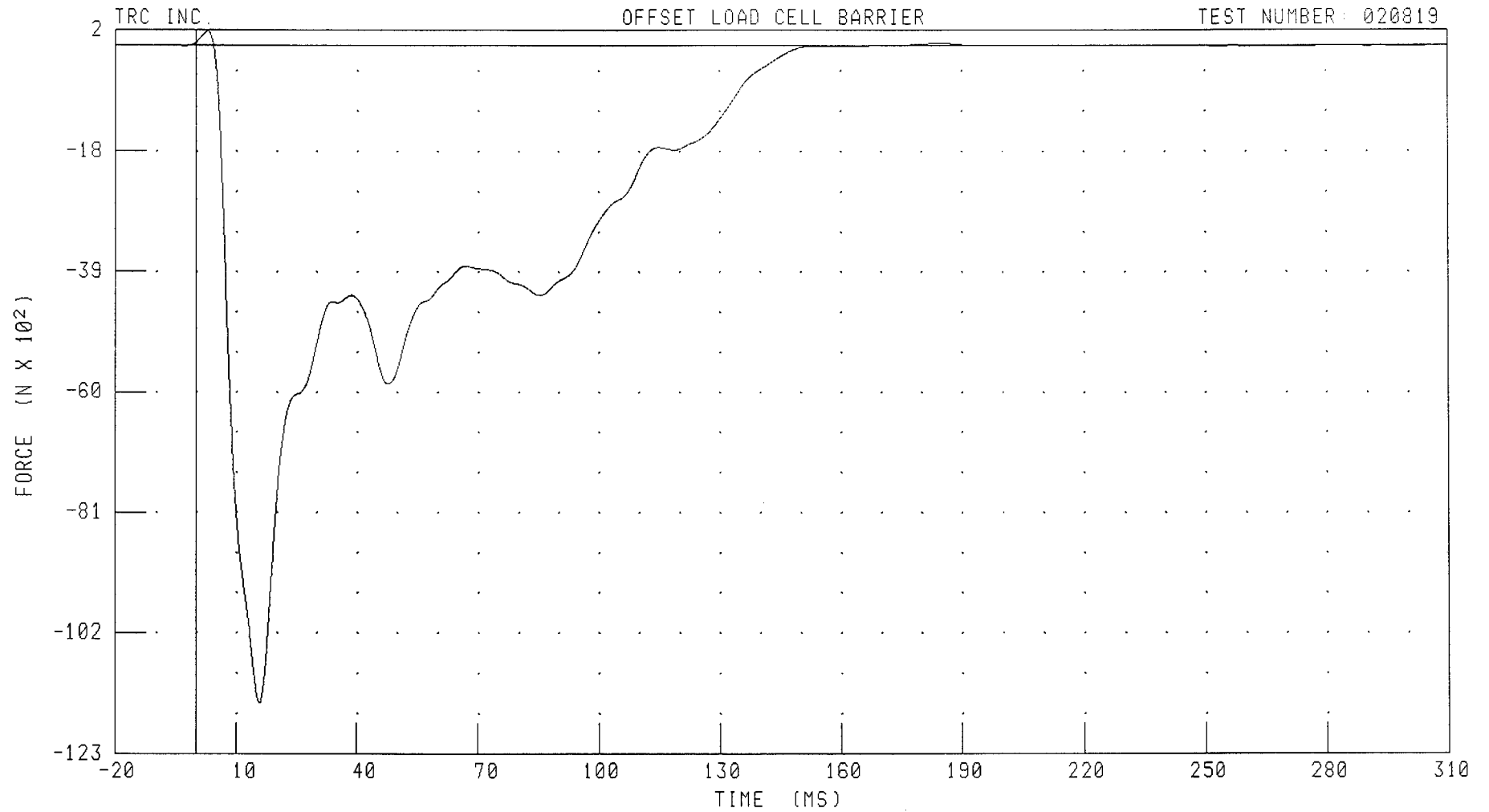
PEAK DATA: 165.03 N @ 5.04 MS; -11825.46 N @ 18.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL D6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCD6XF FILTER: CH. CLASS 60

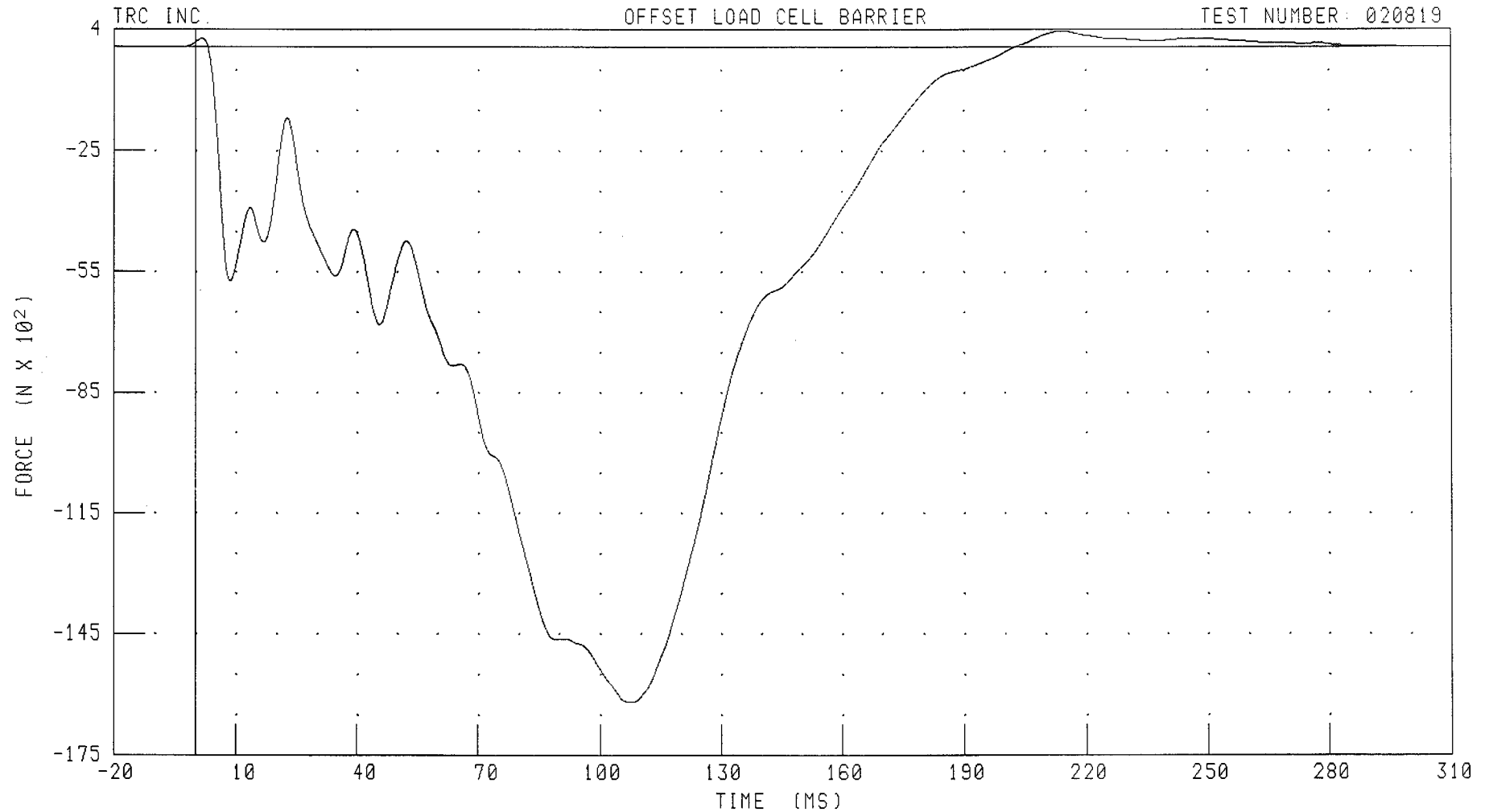
PEAK DATA: 242.27 N @ 2.88 MS; -11458.61 N @ 15.68 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL D7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCD7XF FILTER: CH. CLASS 60

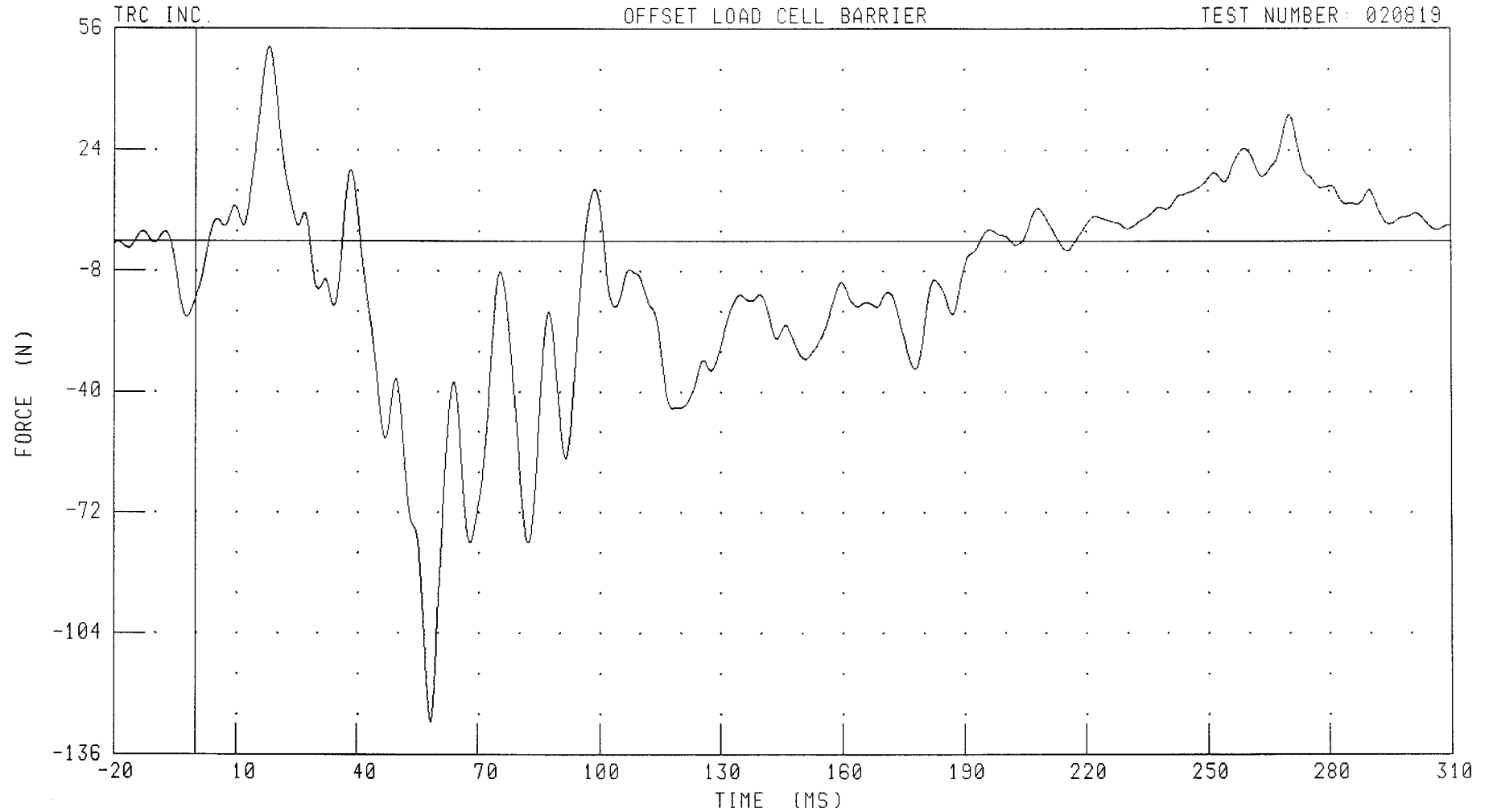
PEAK DATA: 385.73 N @ 214.32 MS; -16270.13 N @ 107.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL E1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCE1XF

FILTER: CH. CLASS 60

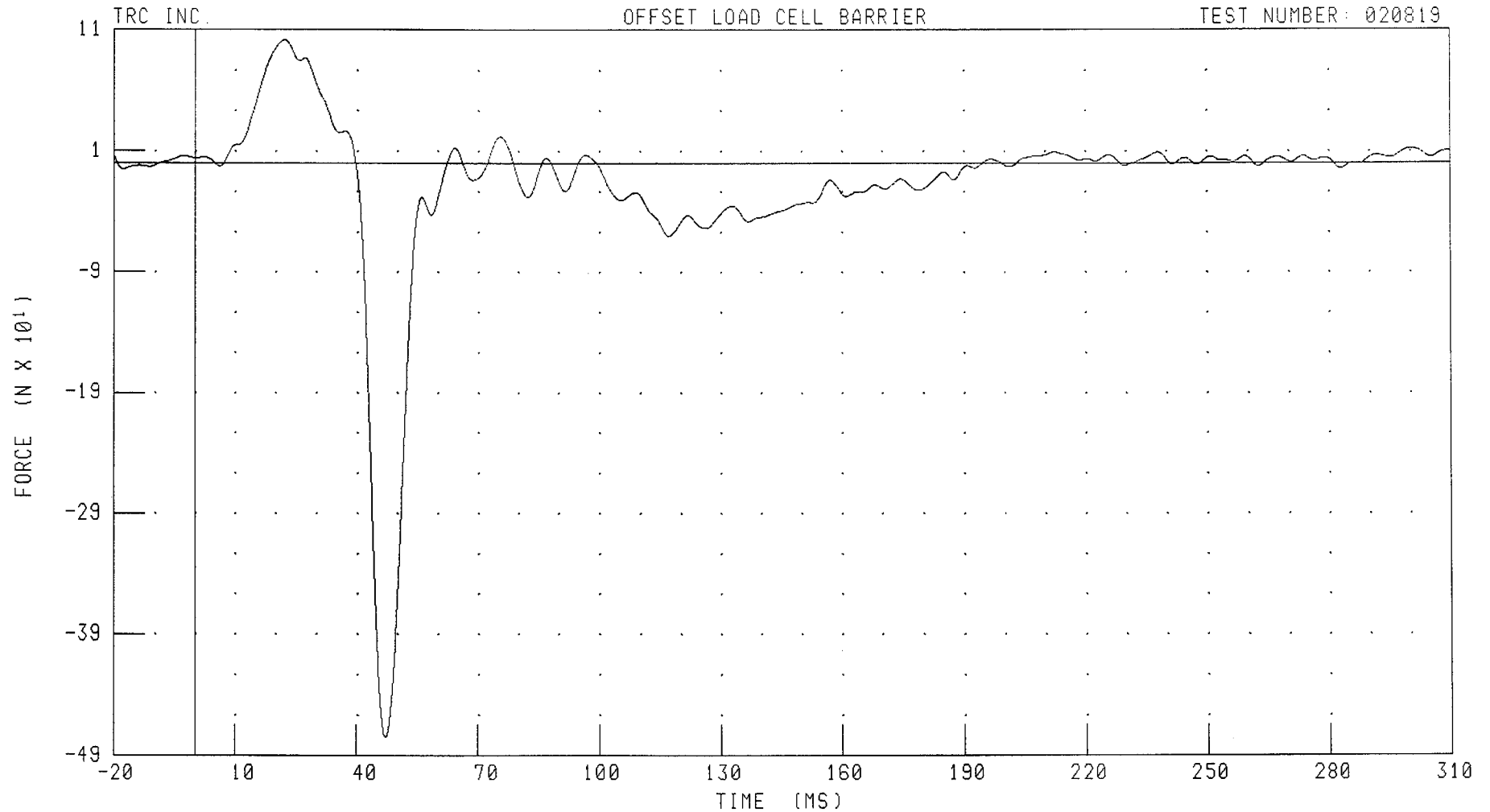
PEAK DATA: 51.18 N @ 18.16 MS; -127.41 N @ 58.32 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL E2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCE2XF FILTER: CH. CLASS 60

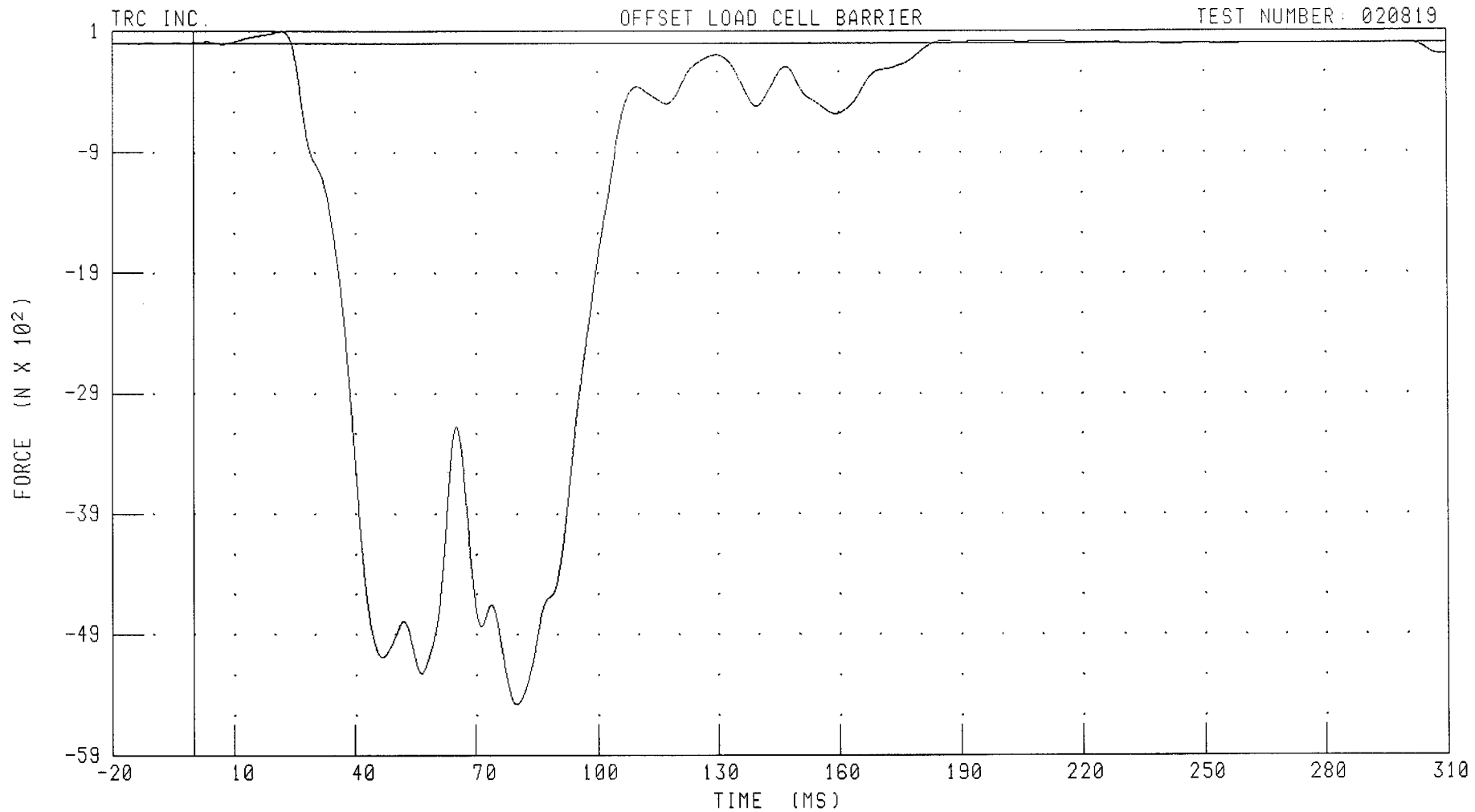
PEAK DATA: 101.62 N @ 22.16 MS; -475.19 N @ 47.12 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL E3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCE3XF

FILTER: CH. CLASS 60

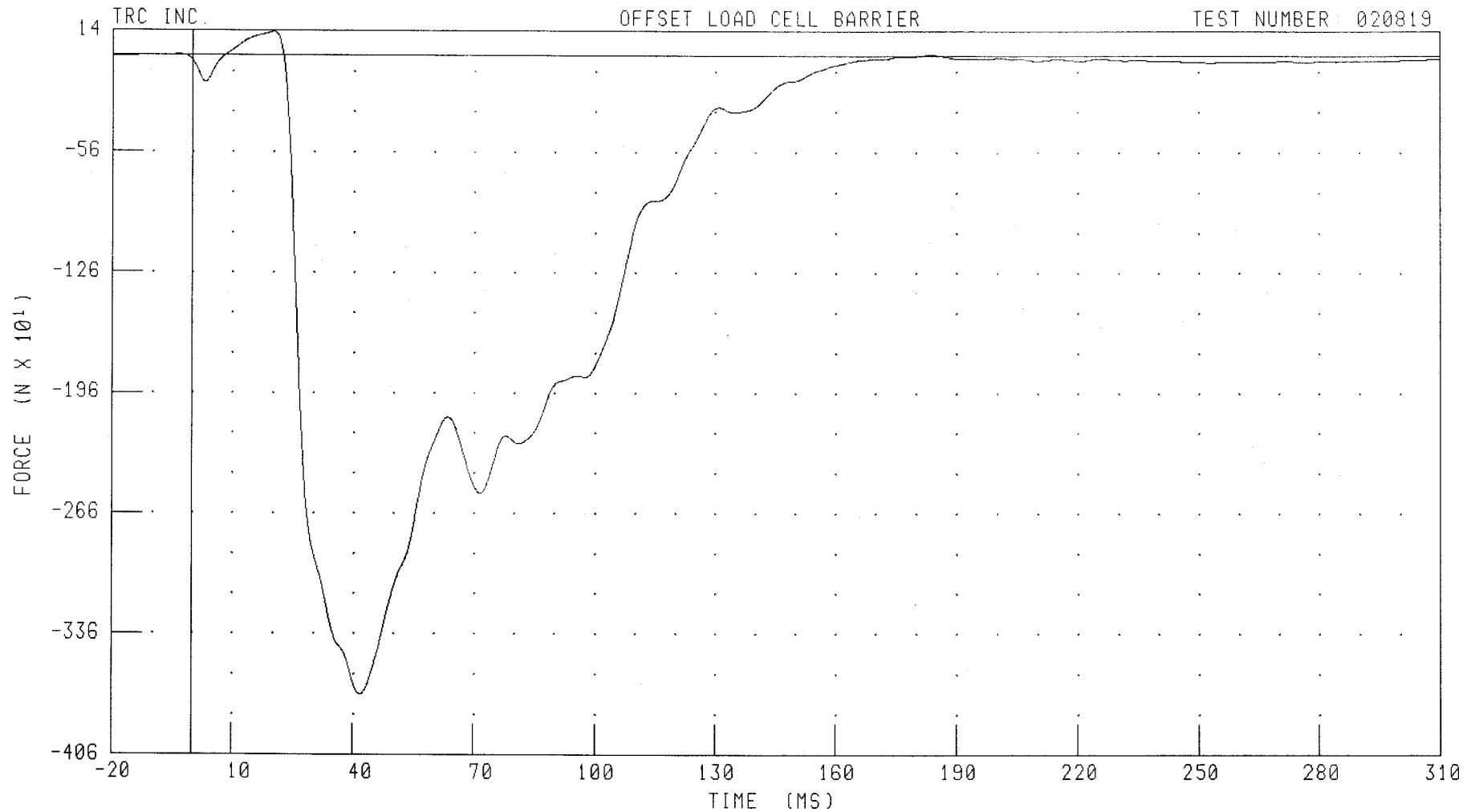
PEAK DATA: 98.52 N @ 22.00 MS; -5480.31 N @ 80.00 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL E4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCE4XF

FILTER: CH. CLASS 60

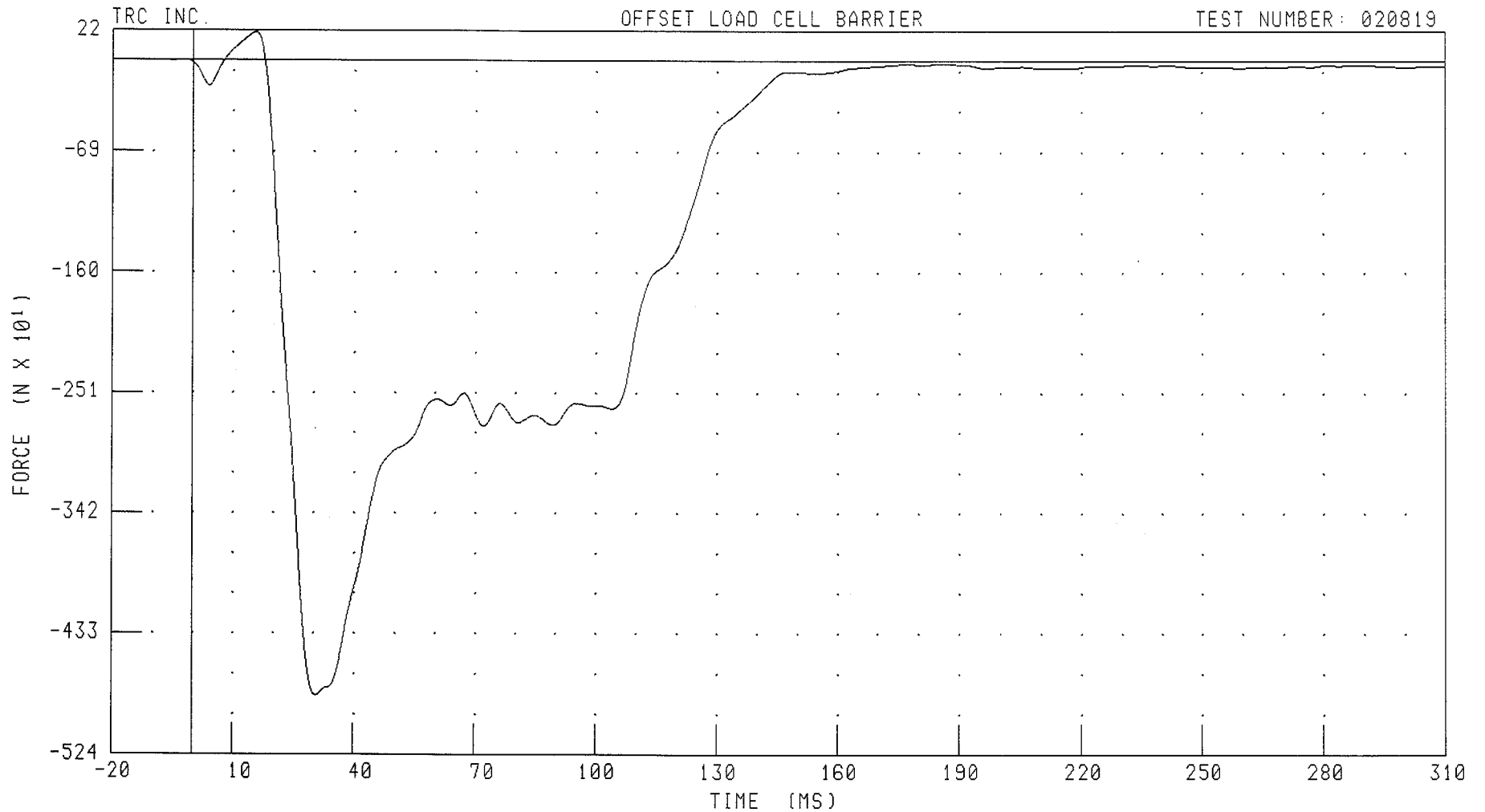
PEAK DATA: 133.89 N @ 20.16 MS; -3710.24 N @ 41.76 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL E5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCE5XF

FILTER: CH. CLASS 60

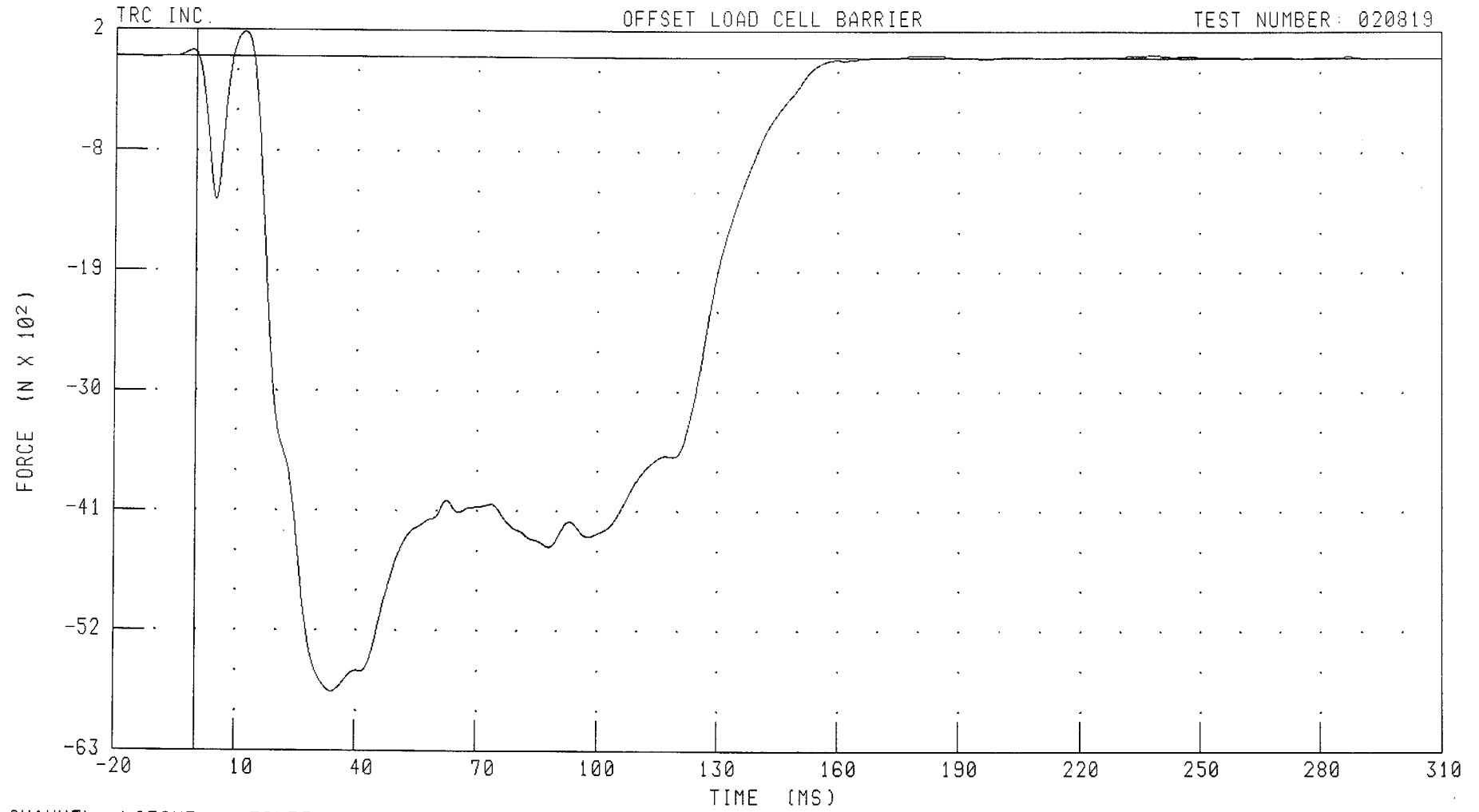
PEAK DATA: 208.83 N @ 15.68 MS; -4798.17 N @ 30.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL E6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCE6XF

FILTER: CH. CLASS 60

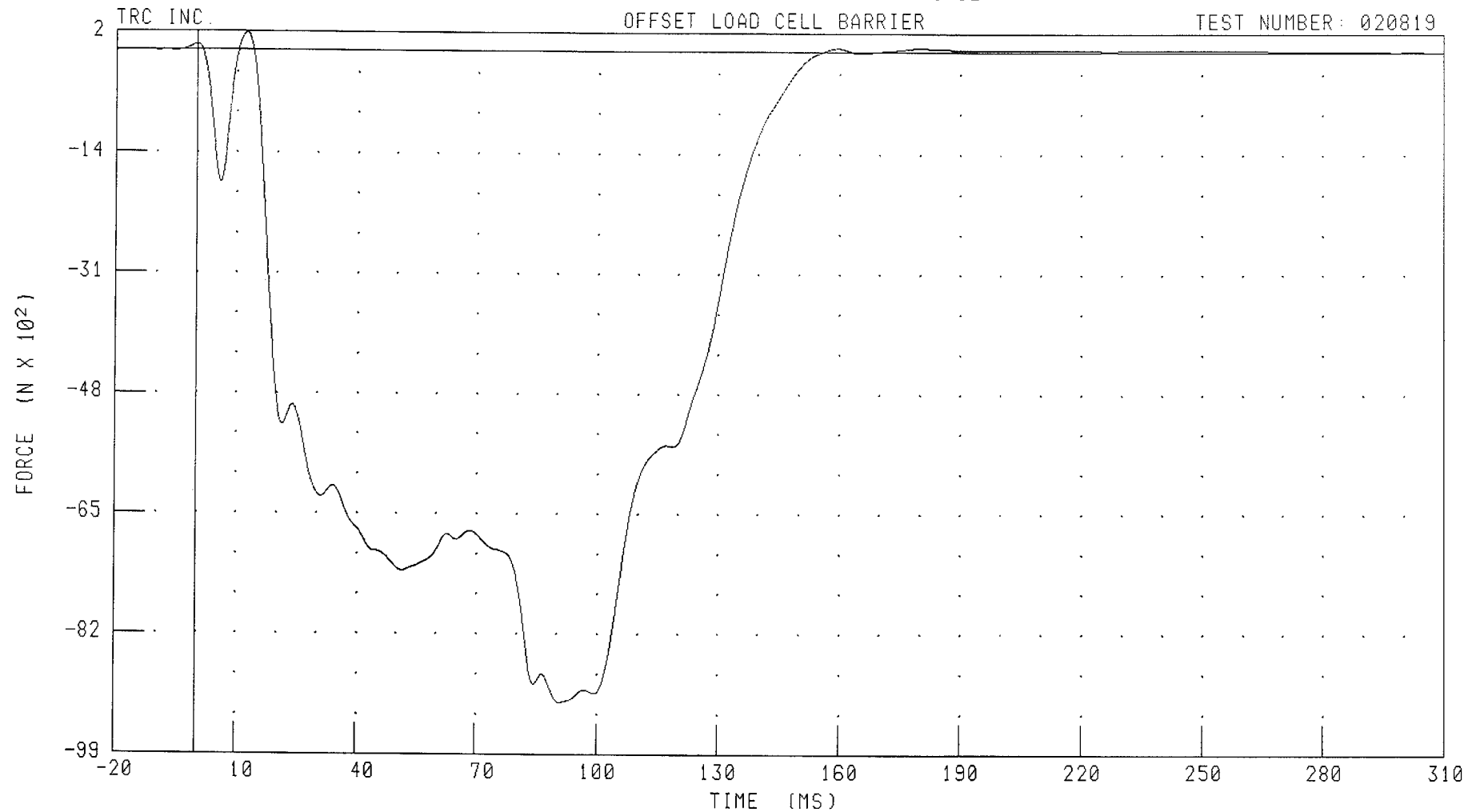
PEAK DATA: 223.73 N @ 12.16 MS; -5821.50 N @ 33.92 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL E7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCE7XF FILTER: CH. CLASS 60

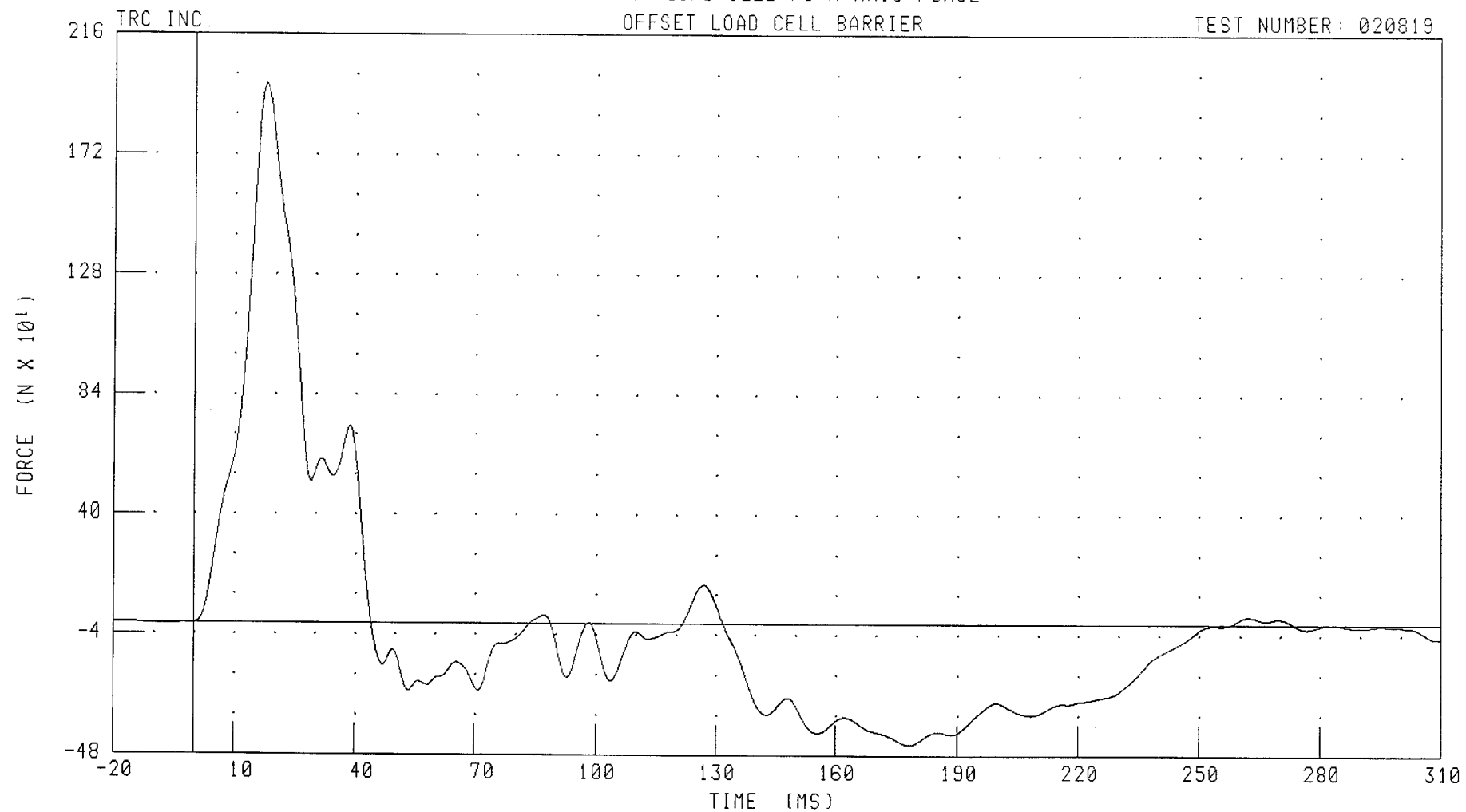
PEAK DATA: 244.54 N @ 12.48 MS; -9204.66 N @ 90.88 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL F1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCF1XF

FILTER: CH. CLASS 60

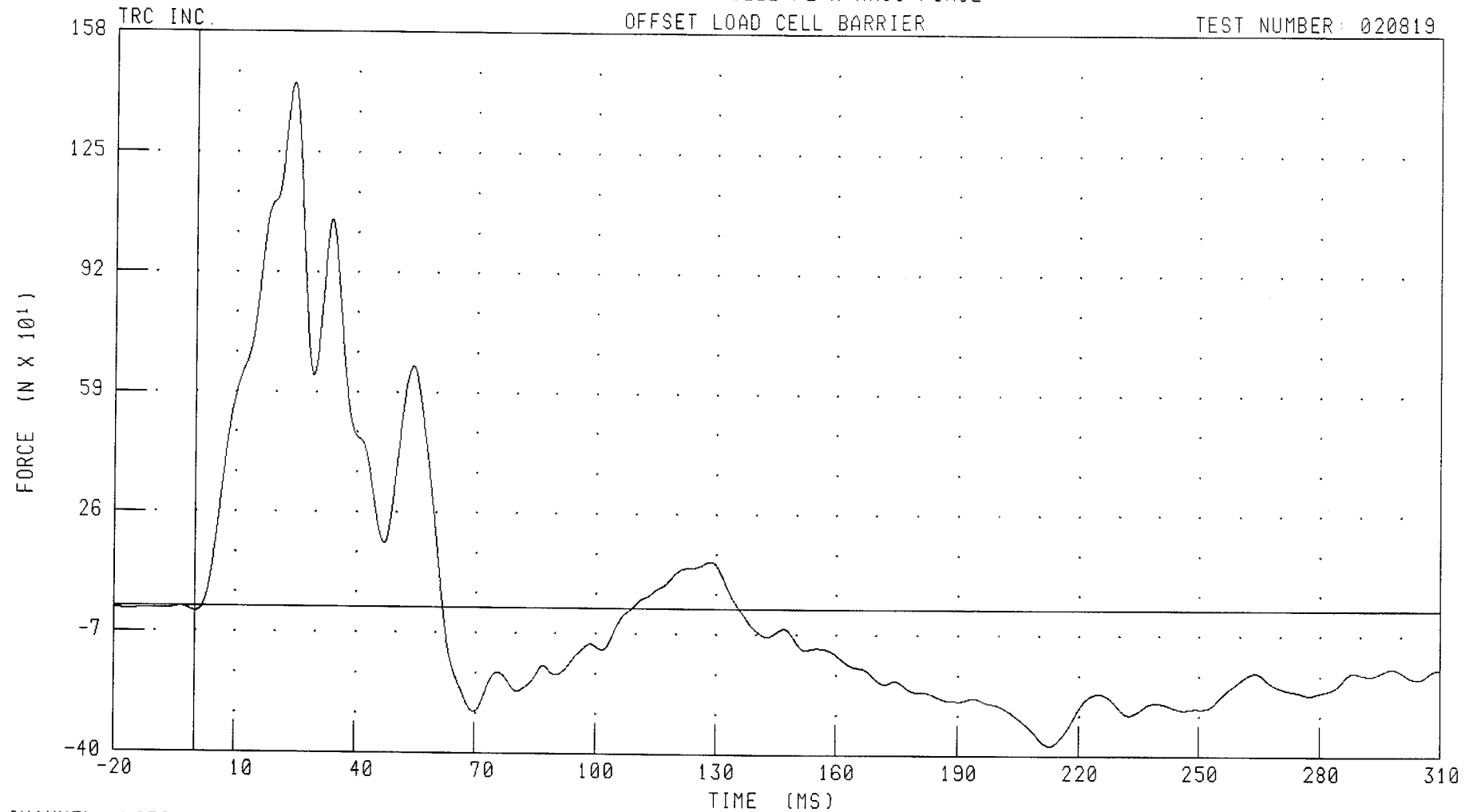
PEAK DATA: 1977.96 N @ 17.68 MS; -440.64 N @ 178.24 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL F2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCF2XF FILTER: CH. CLASS 60

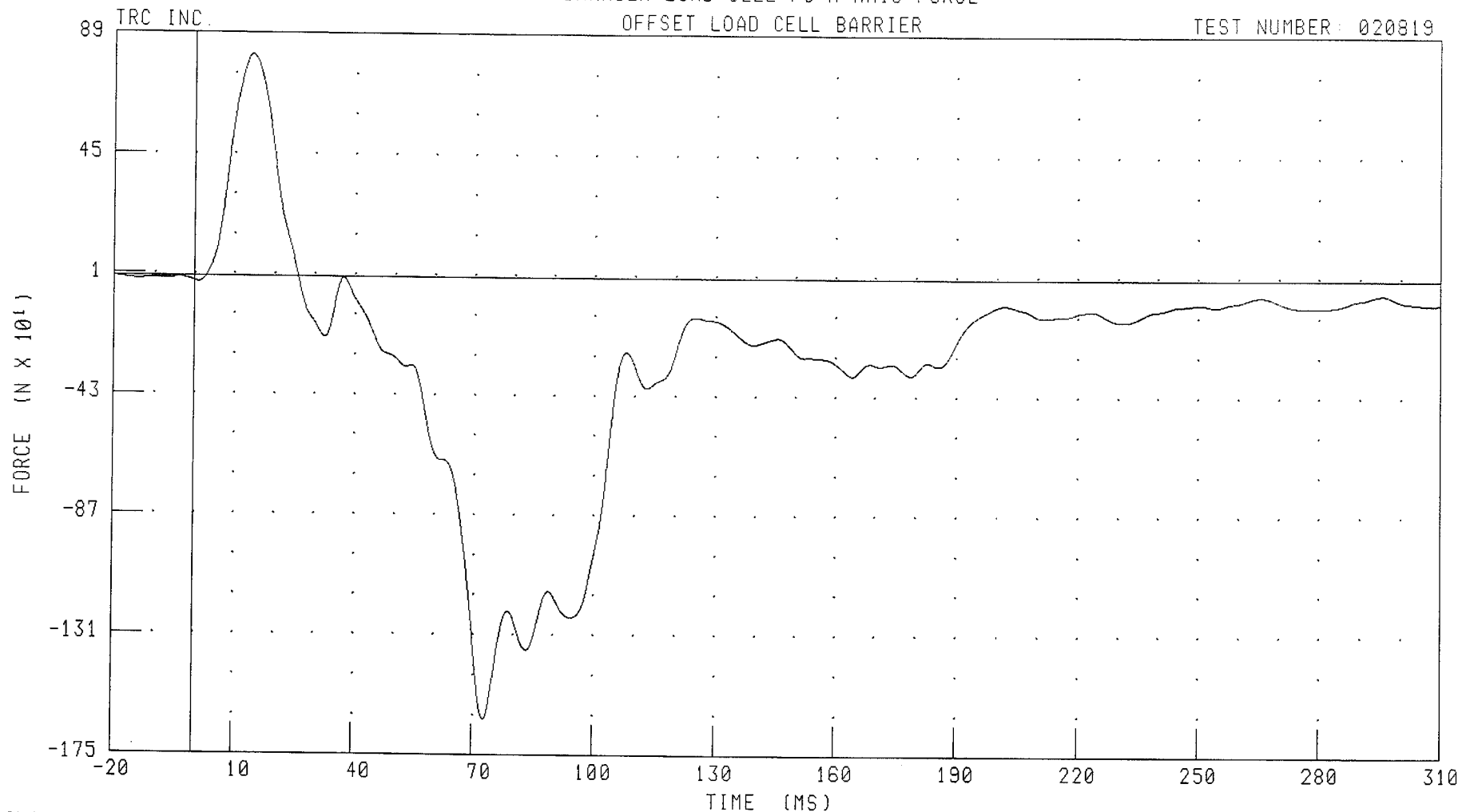
PEAK DATA: 1439.35 N @ 24.24 MS; -371.85 N @ 212.72 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL F3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCF3XF FILTER: CH. CLASS 60

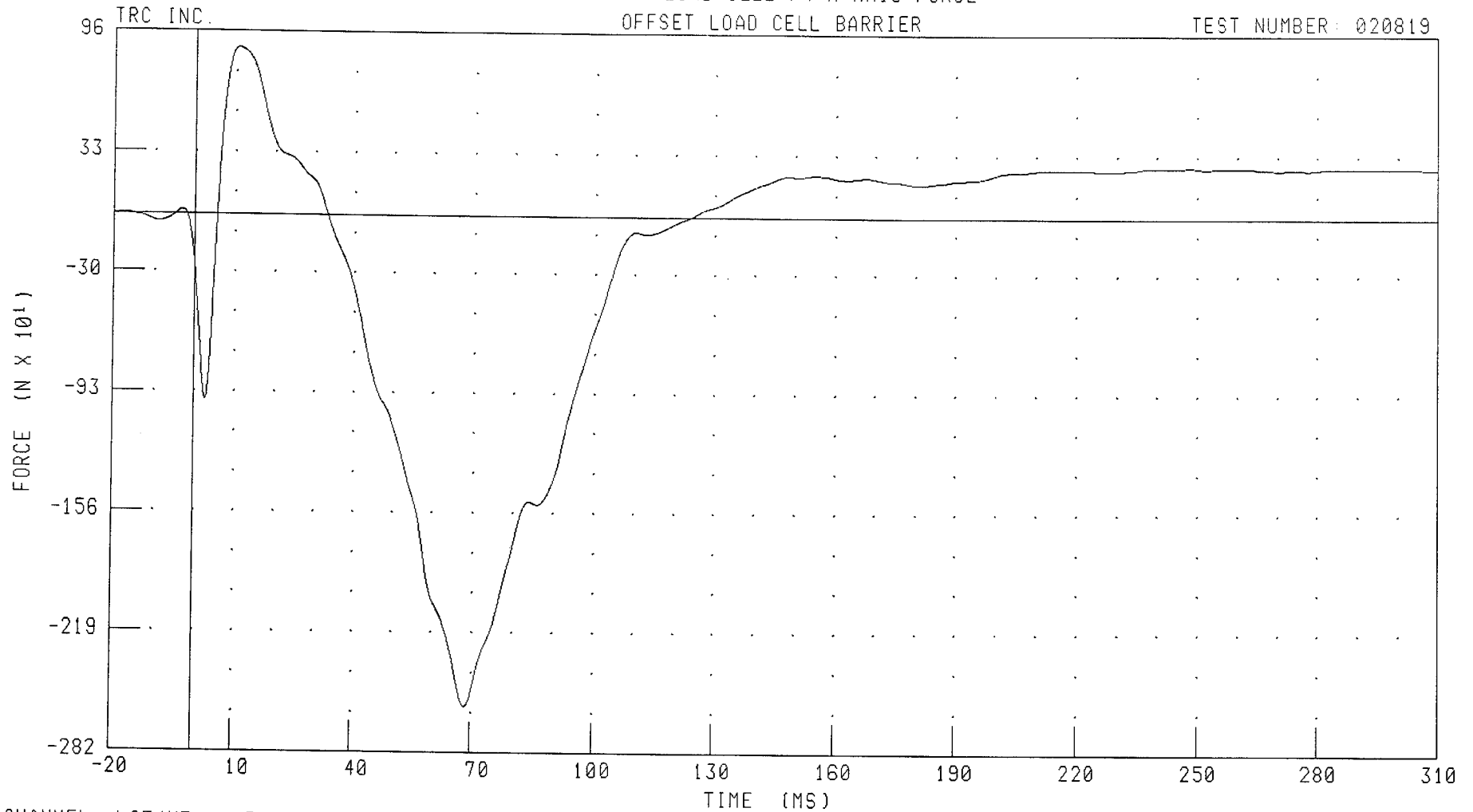
PEAK DATA: 812.25 N @ 14.24 MS; -1621.65 N @ 72.80 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL F4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCF4XF FILTER: CH. CLASS 60

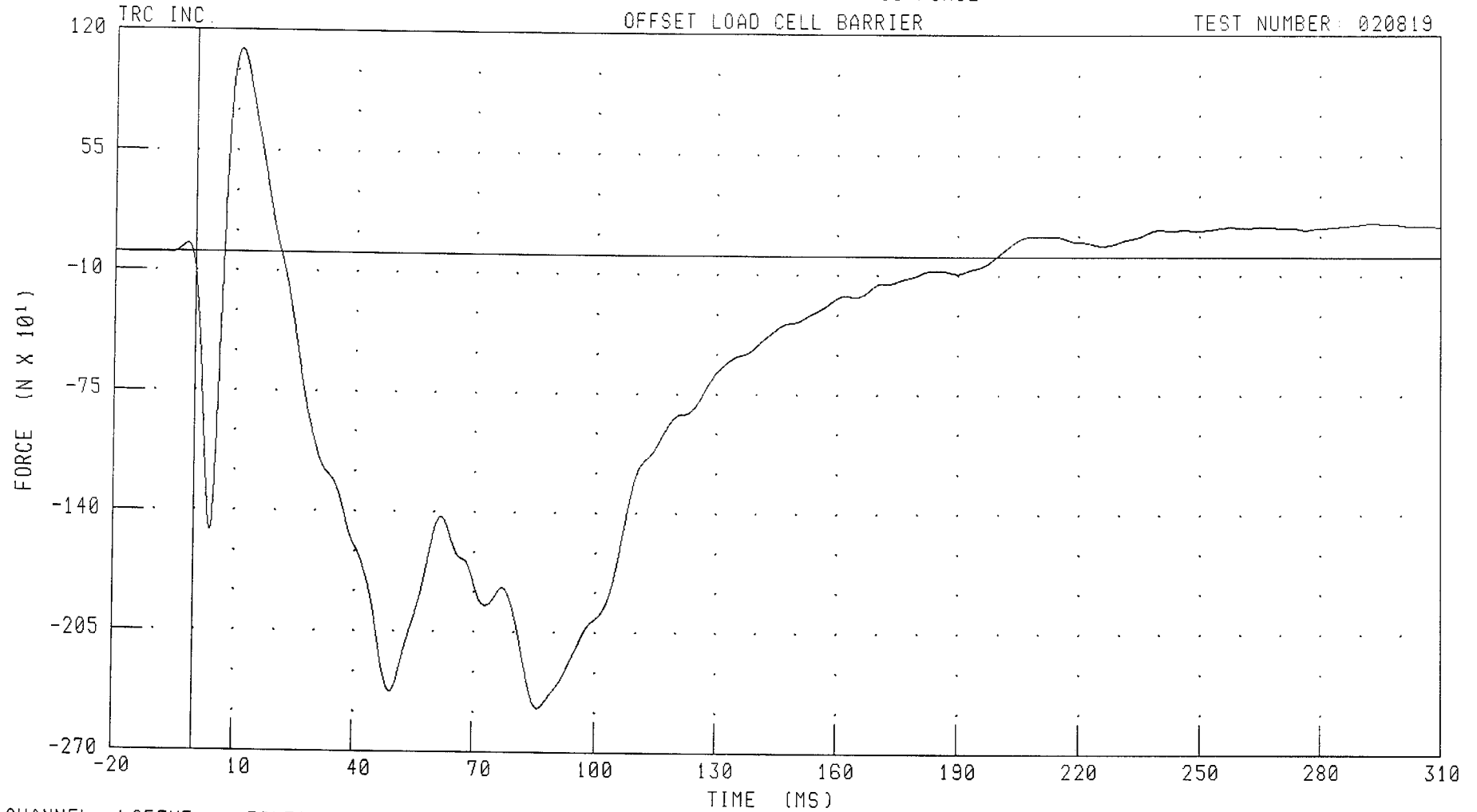
PEAK DATA: 875.19 N @ 10.72 MS; -2579.08 N @ 68.40 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL F5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCF5XF

FILTER: CH. CLASS 60

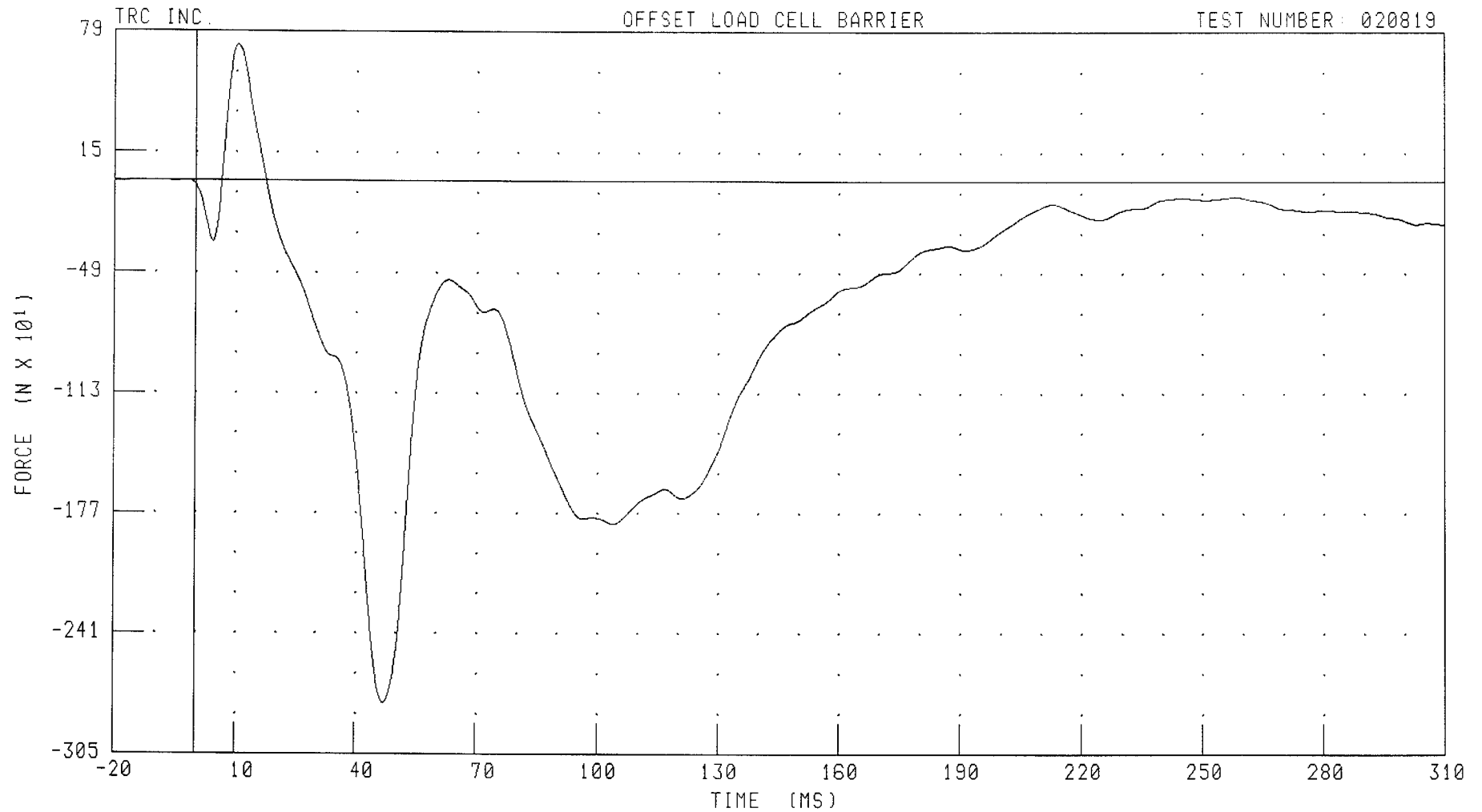
PEAK DATA: 1095.82 N @ 11.04 MS; -2461.80 N @ 86.08 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL F6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCF6XF

FILTER: CH. CLASS 60

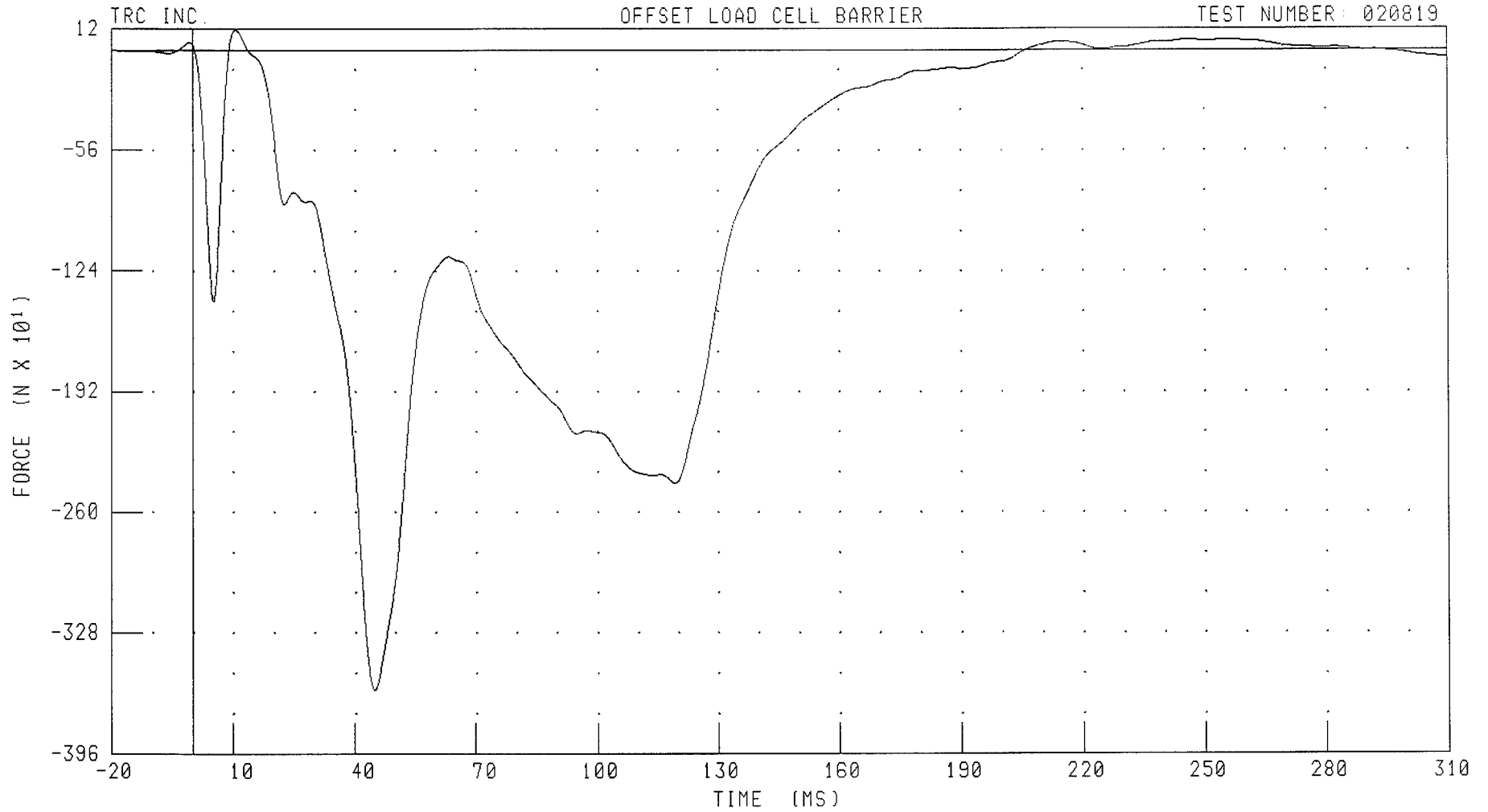
PEAK DATA: 719.04 N @ 10.48 MS; -2778.92 N @ 47.12 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL F7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819

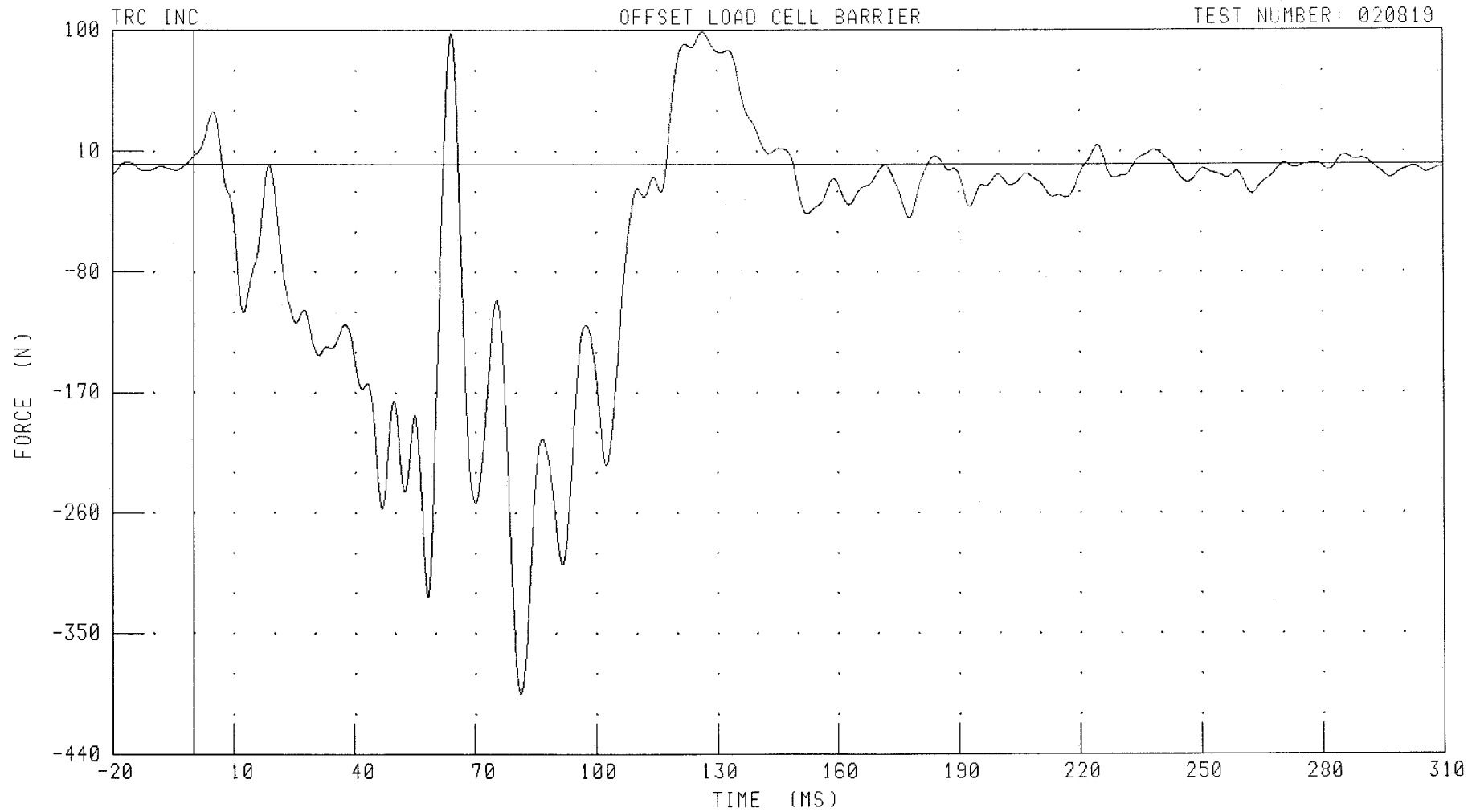


CHANNEL: LCF7XF FILTER: CH. CLASS 60

PEAK DATA: 115.20 N @ 10.64 MS; -3603.16 N @ 44.96 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
BARRIER LOAD CELL G1 X-AXIS FORCE

TEST NUMBER: 020819



CHANNEL: LCG1XF FILTER: CH. CLASS 60

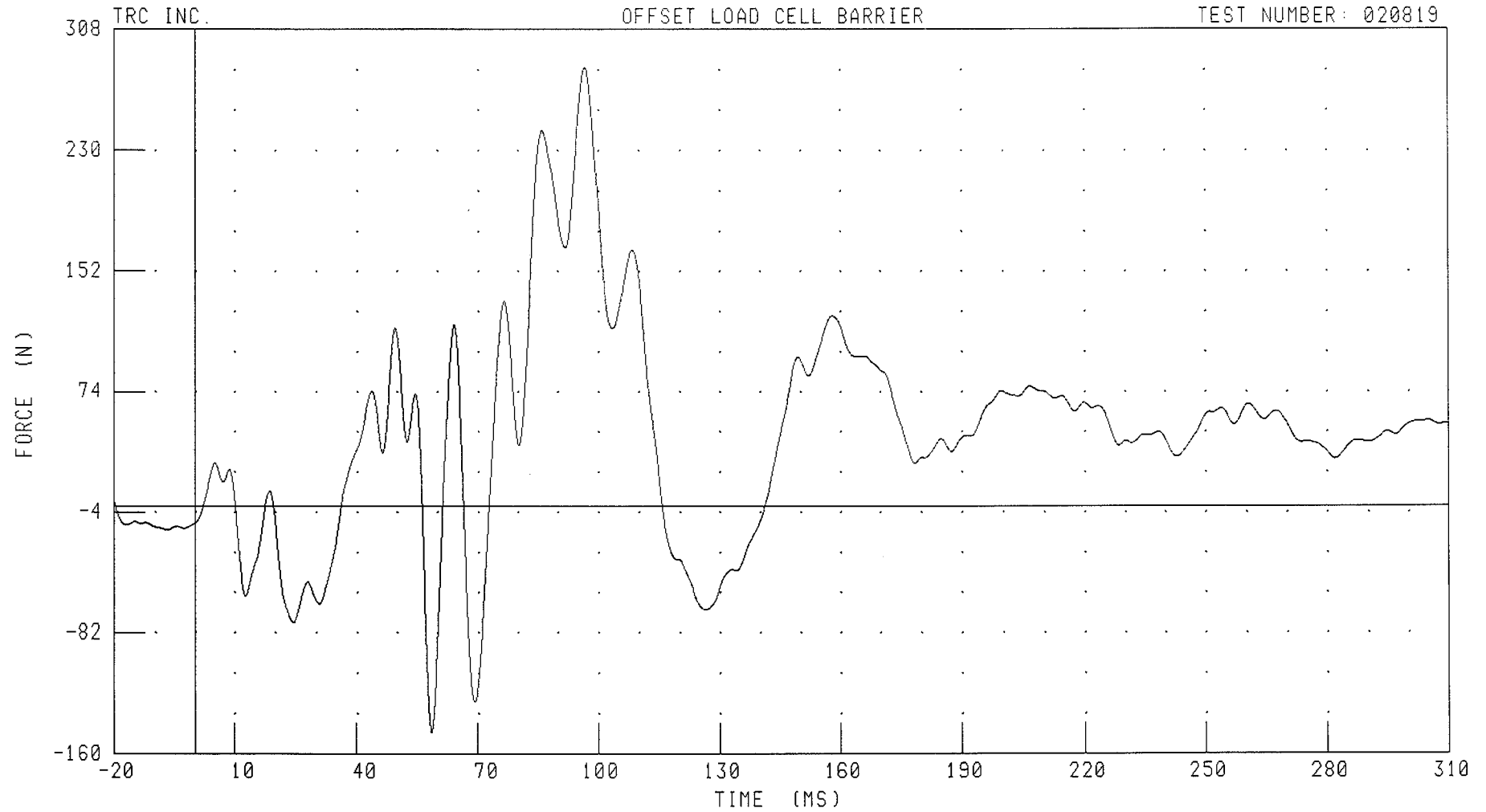
PEAK DATA: 98.99 N @ 126.48 MS; -395.22 N @ 81.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL G2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCG2XF FILTER: CH. CLASS 60

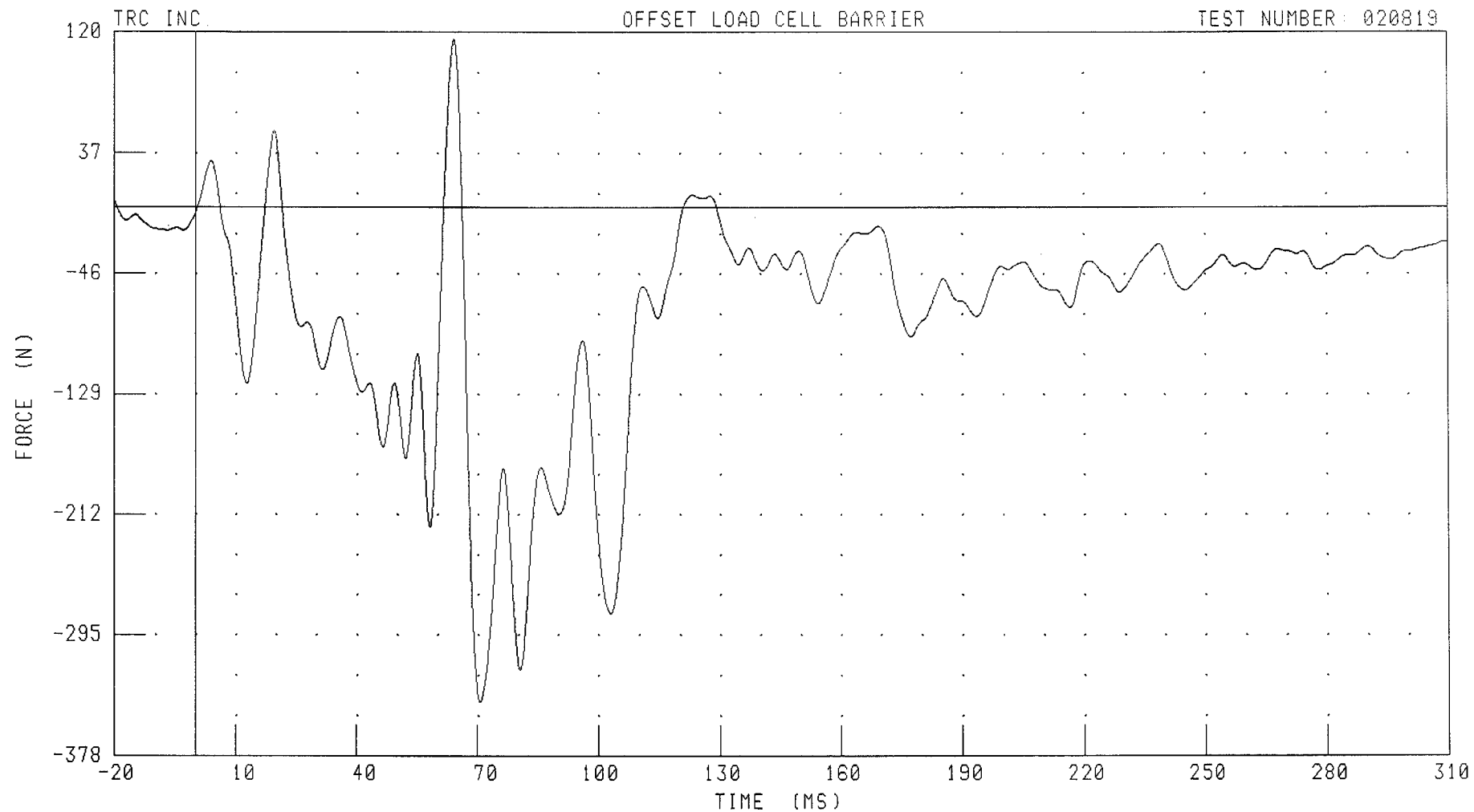
PEAK DATA: 283.47 N @ 96.80 MS; -146.05 N @ 58.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL G3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCG3XF

FILTER: CH. CLASS 60

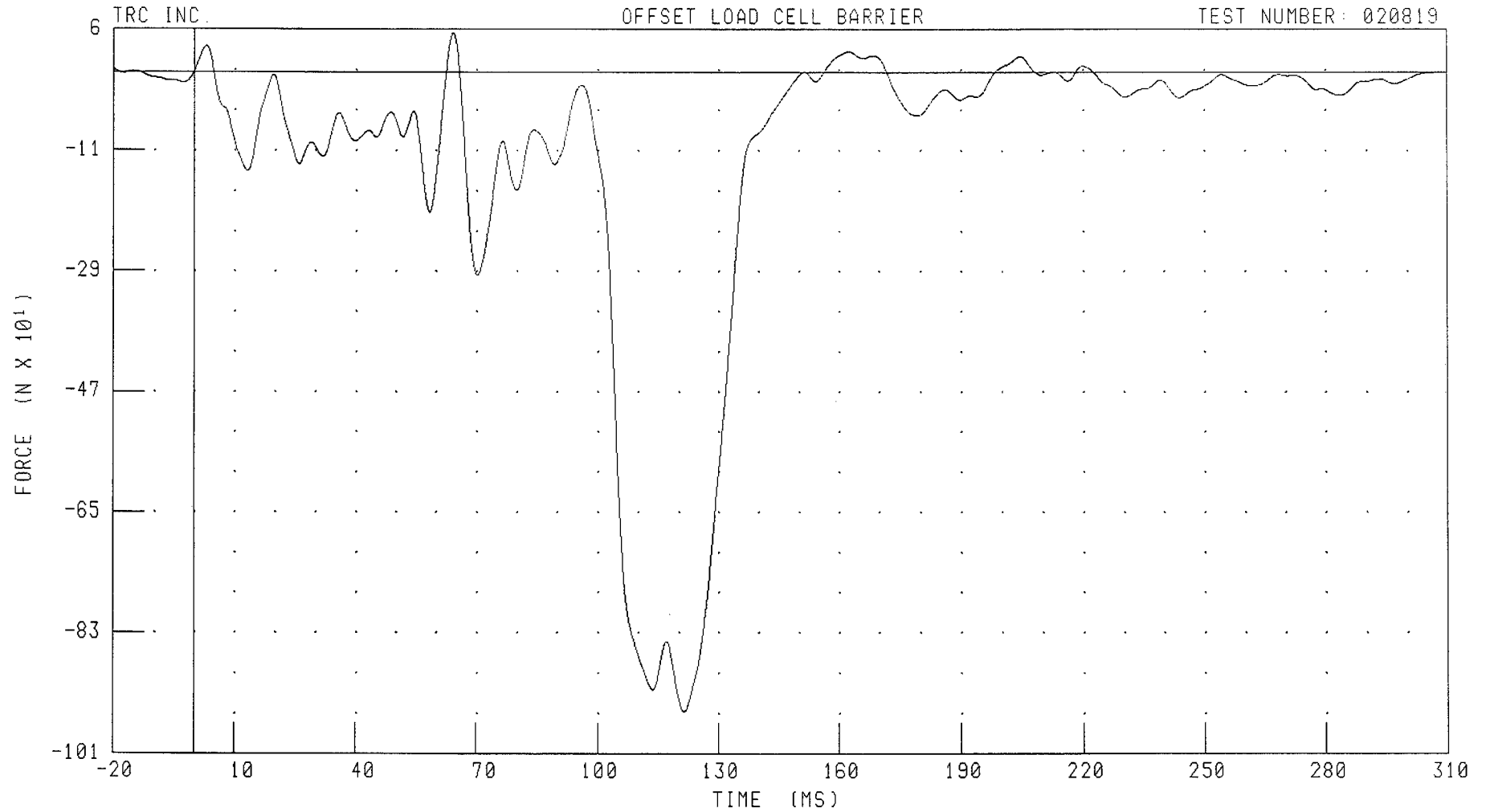
PEAK DATA: 115.43 N @ 64.08 MS; -340.89 N @ 70.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL G4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCG4XF

FILTER: CH. CLASS 60

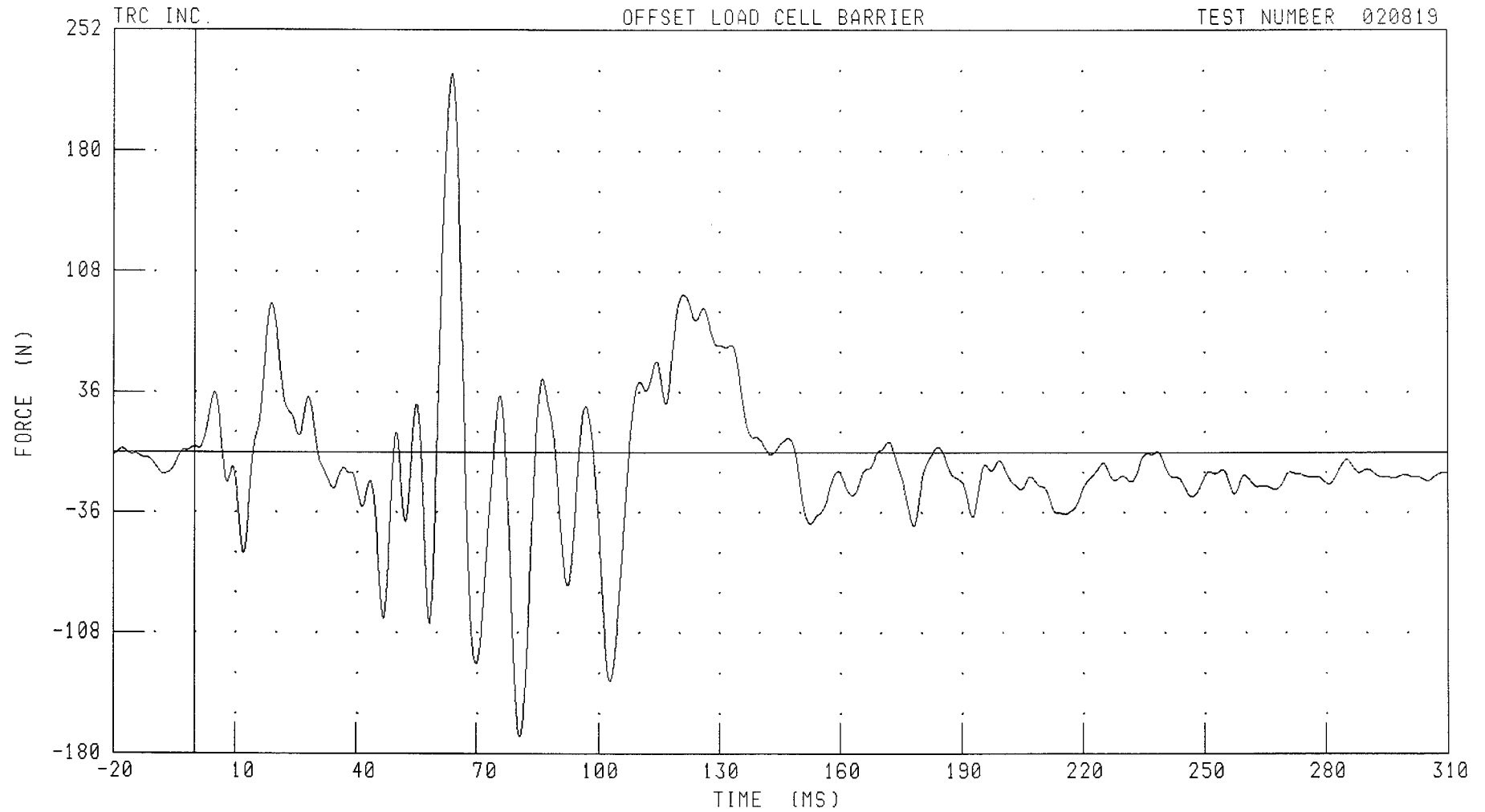
PEAK DATA: 58.97 N @ 64.40 MS; -953.28 N @ 121.44 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL H1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER 020819



CHANNEL : LCH1XF

FILTER : CH. CLASS 60

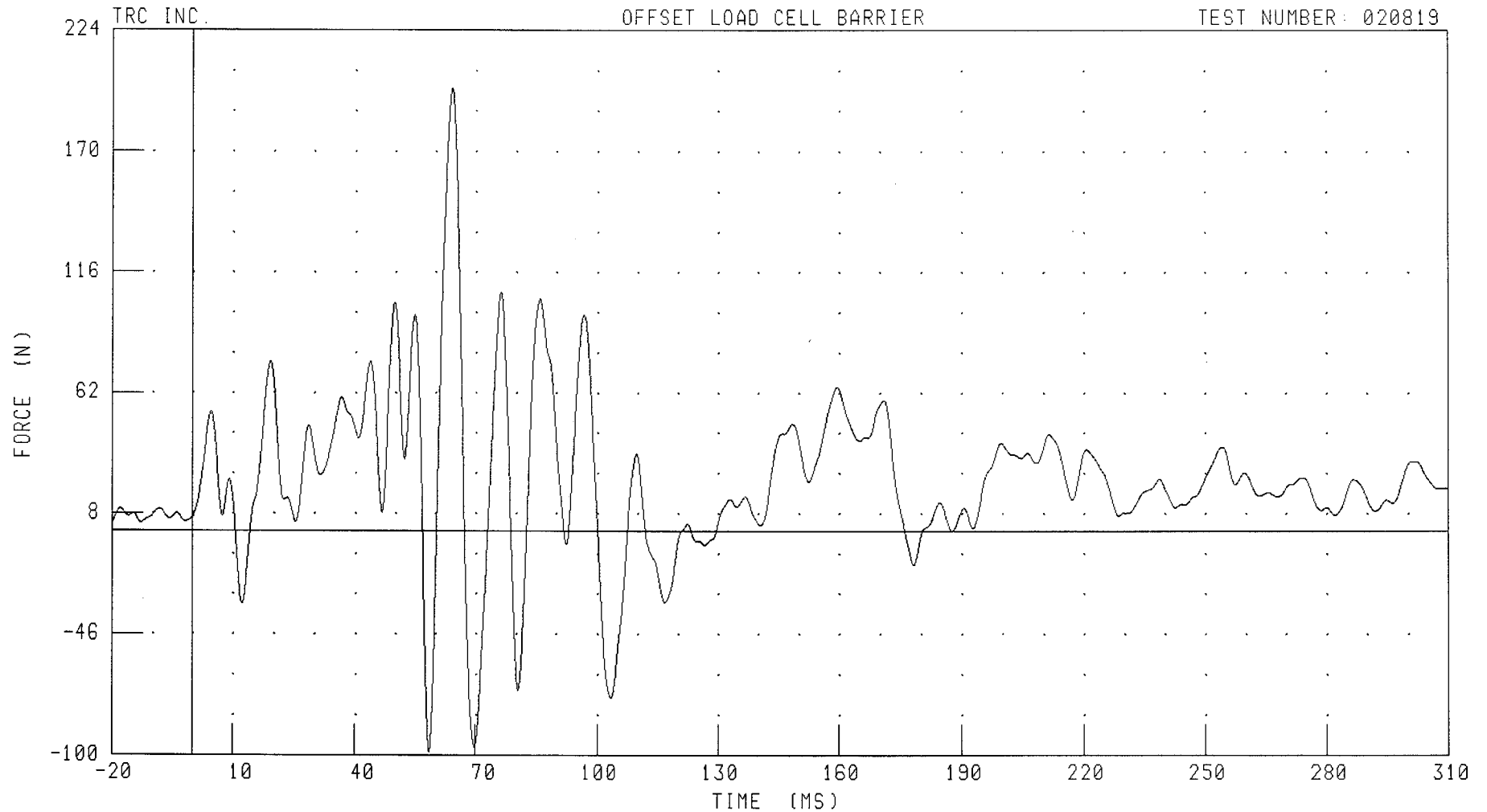
PEAK DATA: 225.87 N @ 63.92 MS; -169.97 N @ 80.64 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL H2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCH2XF

FILTER: CH. CLASS 60

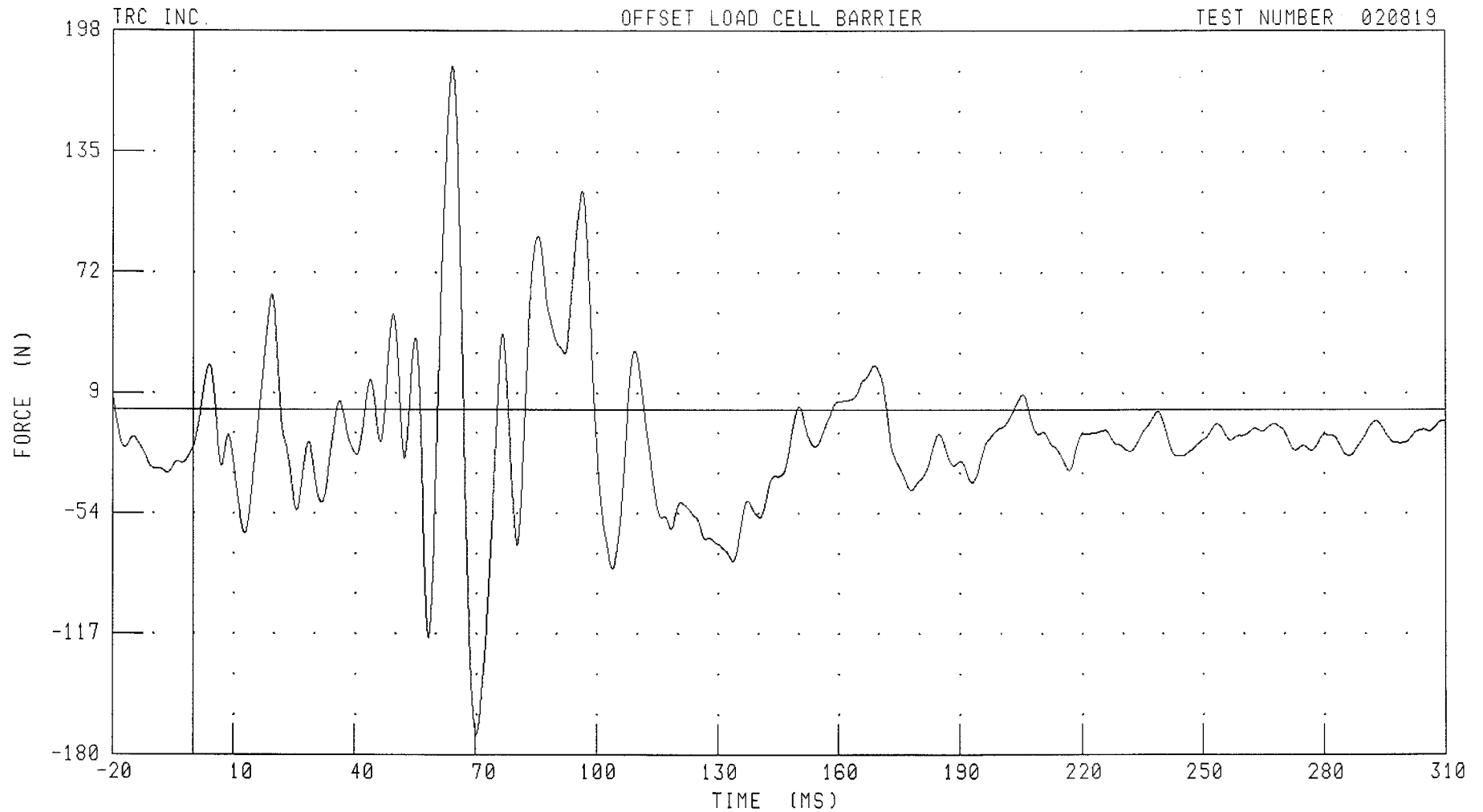
PEAK DATA: 198.23 N @ 64.16 MS; -98.74 N @ 58.40 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL H3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCH3XF

FILTER: CH. CLASS 60

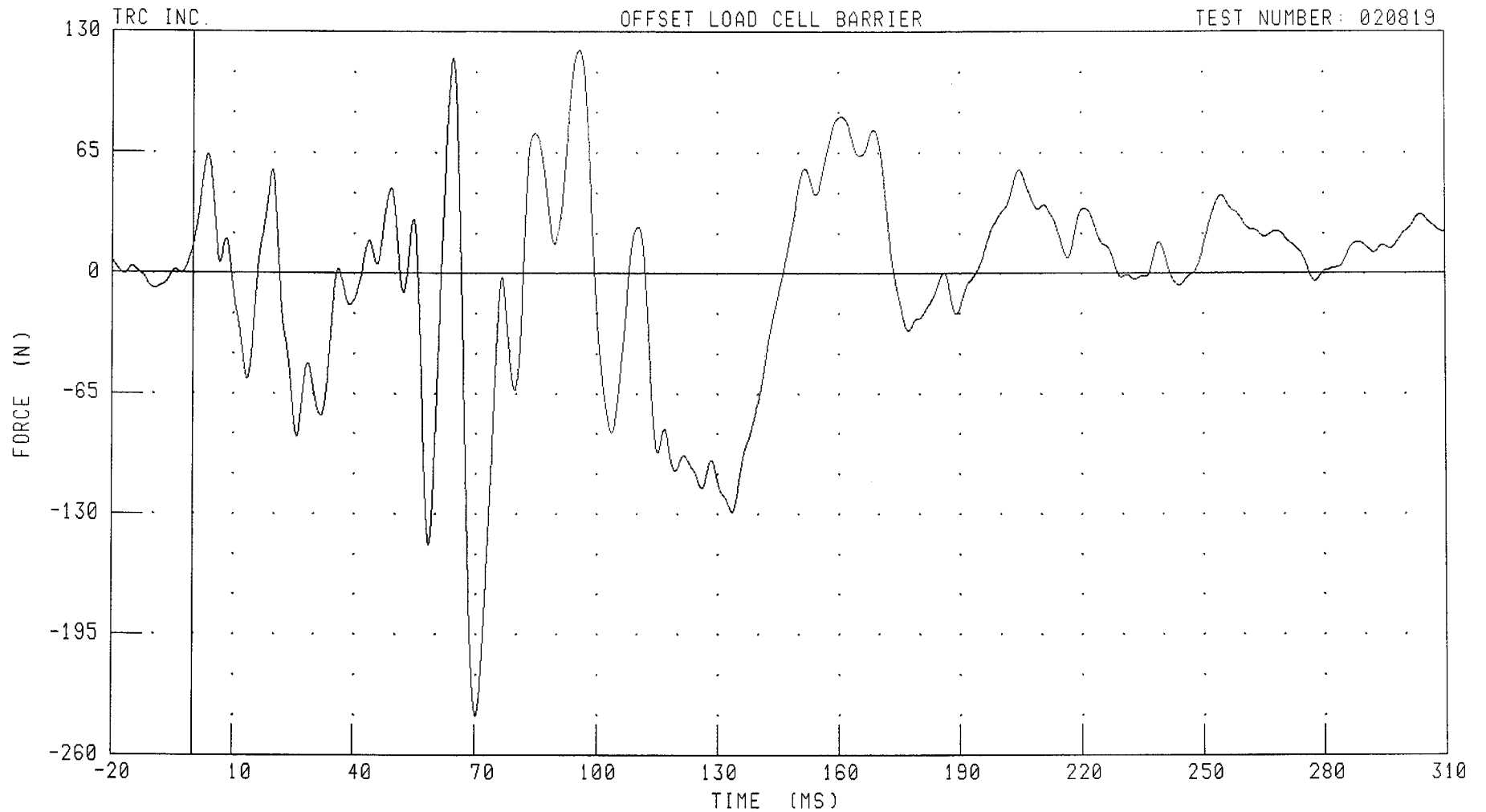
PEAK DATA: 179.66 N @ 64.24 MS; -169.35 N @ 70.16 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

BARRIER LOAD CELL H4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 020819



CHANNEL: LCH4XF

FILTER: CH. CLASS 60

PEAK DATA: 120.15 N @ 95.84 MS; -238.96 N @ 70.08 MS

Appendix C

Dummy Configuration and Performance Verification Data

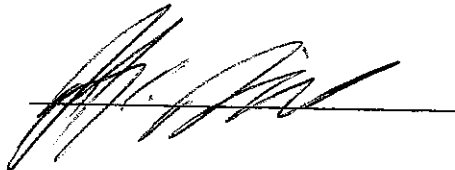
Pre-Test Dummy Configuration and Performance Verification Data

Driver Dummy S/N: 416

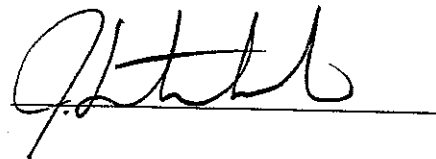
**Transportation Research Center Inc.**  
**572F HIII 5th Dummy**  
**External Dimensions**  
**Serial No. 416 Calibration No. 16**

Test Parameter	Dimension	Specification	Results	Pass
Total Sitting Height	A	774.7 - 800.1 mm	779 mm	Yes
Shoulder Pivot Height	B	431.8 - 457.2 mm	443 mm	Yes
Hip Pivot Height	C	81.3 - 86.3 mm	83 mm	Yes
Hip Pivot from Backline	D	144.8 - 149.8 mm	145 mm	Yes
Shoulder Pivot from Backline	E	68.6 - 83.8 mm	73 mm	Yes
Thigh Clearance	F	119.4 - 134.6 mm	124 mm	Yes
Back of Elbow to Wrist Pivot	G	243.9 - 259.0 mm	249 mm	Yes
Head Back to Backline	H	40.7 - 45.7 mm	42 mm	Yes
Shoulder to Elbow Length	I	276.9 - 297.1 mm	285 mm	Yes
Elbow Rest Height	J	182.9 - 203.2 mm	198 mm	Yes
Buttock Knee Length	K	520.7 - 546.1 mm	541 mm	Yes
Popliteal Height	L	355.6 - 375.9 mm	363 mm	Yes
Knee Pivot Height	M	393.7 - 419.1 mm	404 mm	Yes
Buttock Popliteal Height	N	414.1 - 439.4 mm	422 mm	Yes
Chest Depth without Jacket	O	175.3 - 190.5 mm	186 mm	Yes
Foot Length	P	218.5 - 233.6 mm	228 mm	Yes
Buttock to Knee Pivot Length	R	457.2 - 482.6 mm	463 mm	Yes
Head Breadth	S	137.2 - 147.3 mm	140 mm	Yes
Head Depth	T	177.8 - 187.9 mm	185 mm	Yes
Hip Breadth	U	299.8 - 314.9 mm	303 mm	Yes
Shoulder Breadth	V	350.6 - 365.7 mm	357 mm	Yes
Foot Breadth	W	78.8 - 93.9 mm	91 mm	Yes
Head Circumference	X	528.4 - 548.6 mm	544 mm	Yes
Chest Circumference with Jacket	Y	850.9 - 881.3 mm	870 mm	Yes
Waist Circumference	Z	759.5 - 789.9 mm	782 mm	Yes
Reference Location for Chest Circumference	AA	299.8 - 309.8 mm	305 mm	Yes
Reference Location for Waist Circumference	BB	160.1 - 170.1 mm	165 mm	Yes

Technician



Approved




# Transportation Research Center Inc.

5720 Head Drop Test

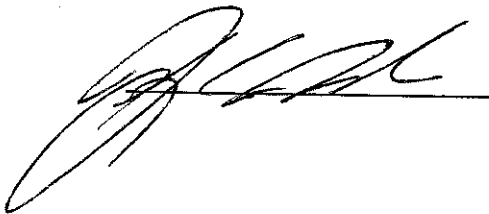
HIII 5th Female Serial No. 416 Calibration No. 16 - 2

Test Date 08/14/2002

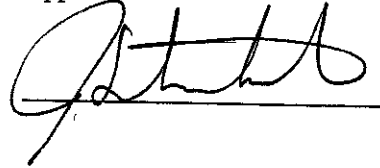
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Peak Resultant Acceleration	250 - 300 g	280.7 g	Yes
Peak Lateral Acceleration	15 g Max	-2.6 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

## Comments:

Technician



Approved

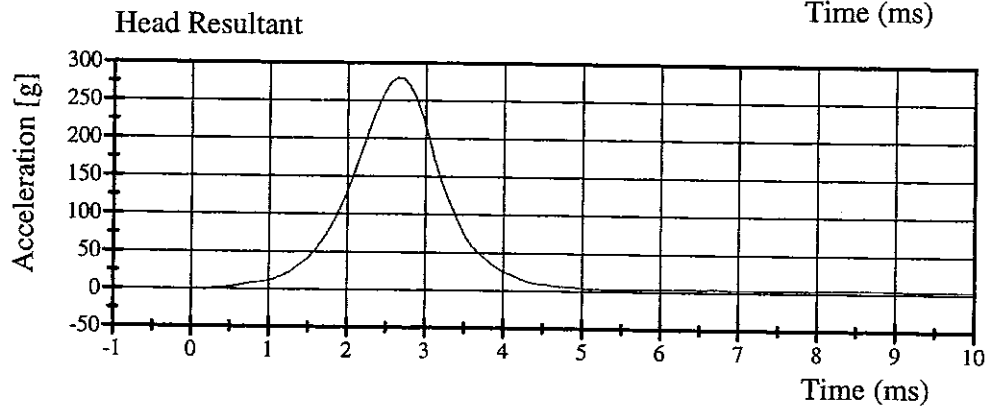
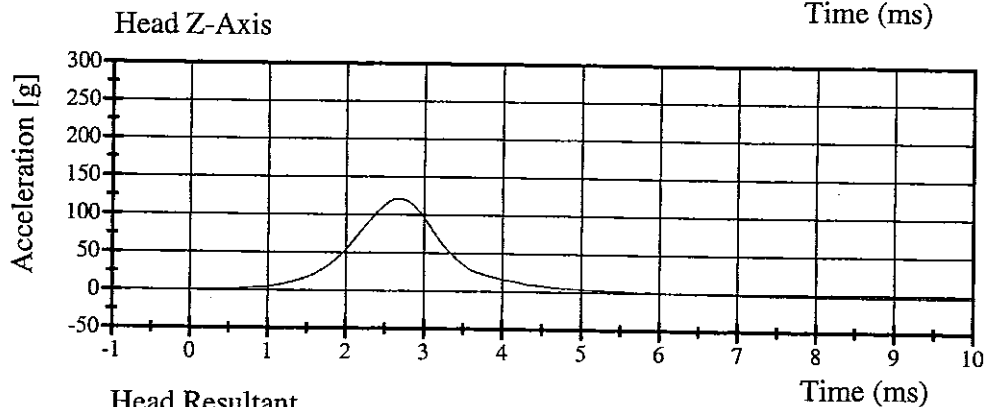
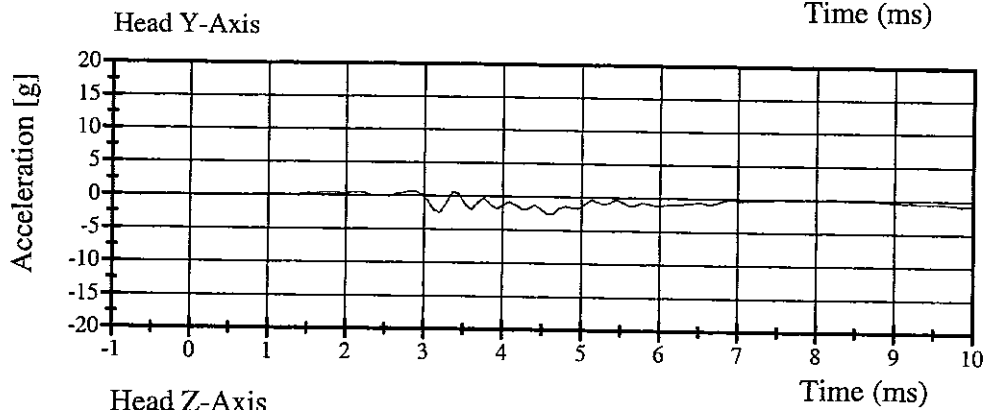
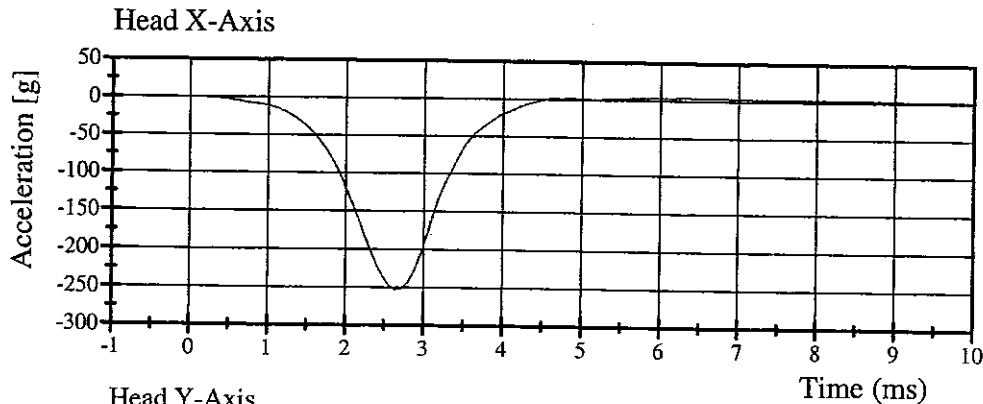


# Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 2

Test Date 08/14/2002



# Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

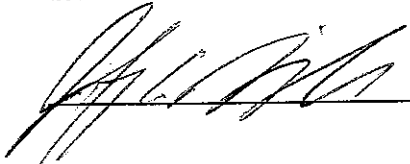
HIII 5th Female Serial No. 416 Calibration No. 16 - 2

Test Date 07/08/2002

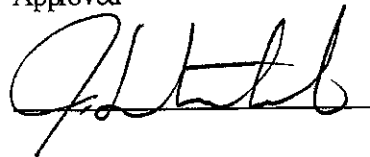
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.17 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.36 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.30 m/s	Yes
Peak D Plane Rotation	77 - 91 °	77.3 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	71.25 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	88.88 ms	Yes

## Comments:

Technician



Approved



07.08.2002 13:11:21 477



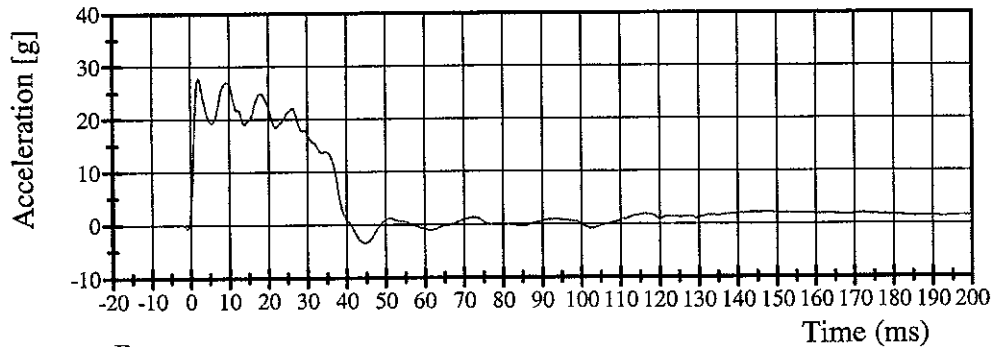
# Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 2

Test Date 07/08/2002

### Pendulum Deceleration

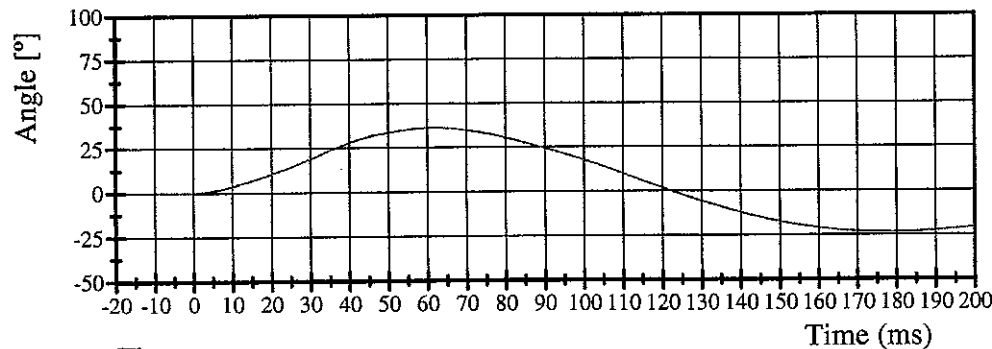


Filter Class: 180

Max: 27.7 g at 2.0 ms

Min: -3.5 g at 44.9 ms

### Beta

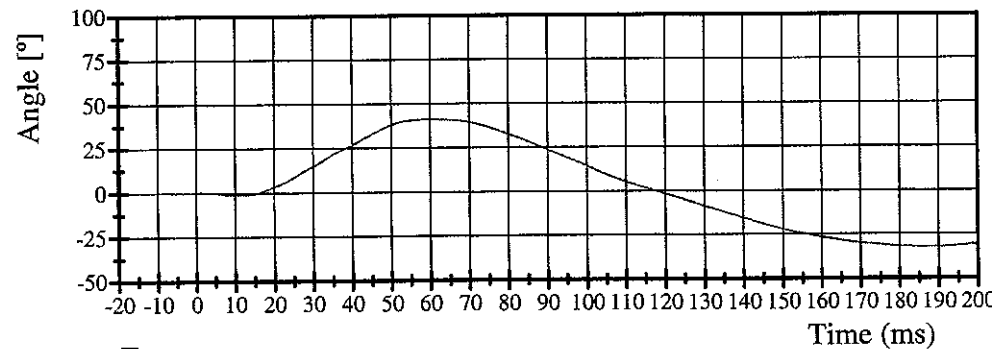


Filter Class: 60

Max: 36.2 ° at 61.5 ms

Min: -23.4 ° at 179.0 ms

### Theta

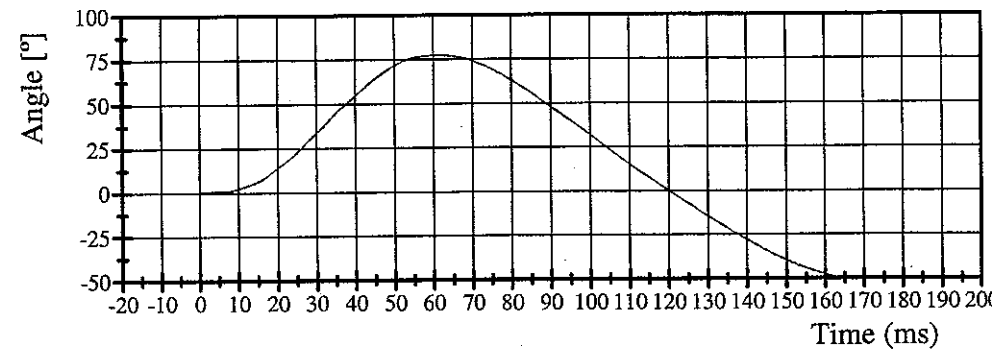


Filter Class: 60

Max: 41.1 ° at 59.8 ms

Min: -32.2 ° at 186.9 ms

### Totan



Filter Class: 60

Max: 77.3 ° at 60.6 ms

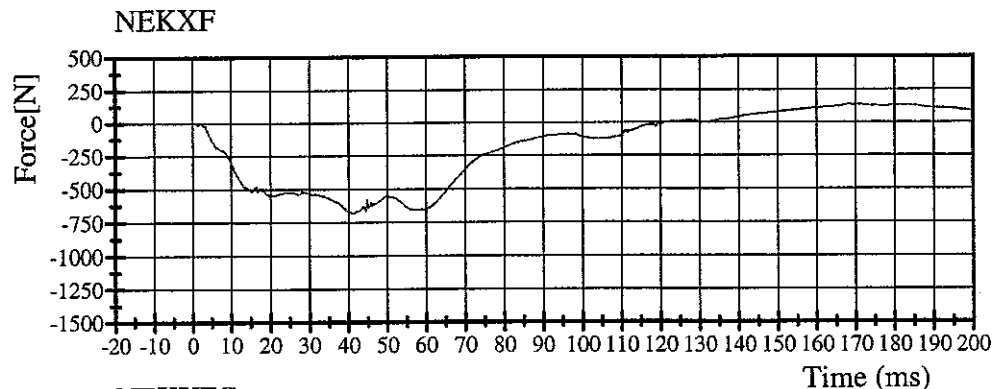
Min: -55.4 ° at 183.5 ms

# Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 2

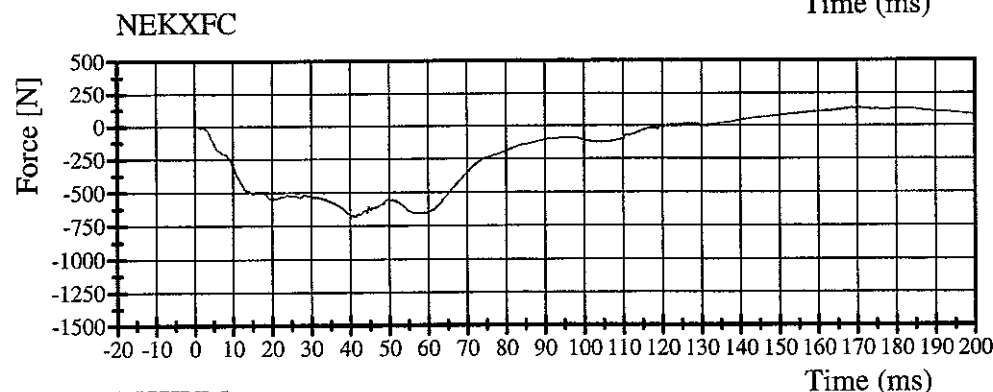
Test Date 07/08/2002



Filter Class: 1000

Max: 134.0 N at 170.6 ms

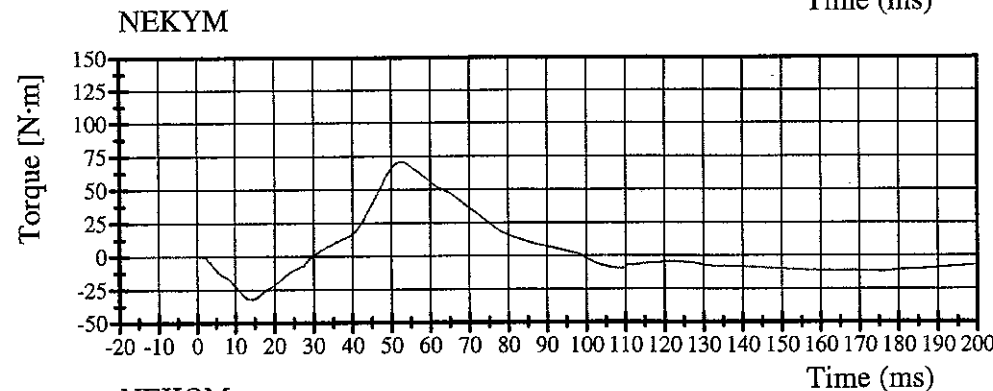
Min: -682.5 N at 41.4 ms



Filter Class: 600

Max: 133.4 N at 168.6 ms

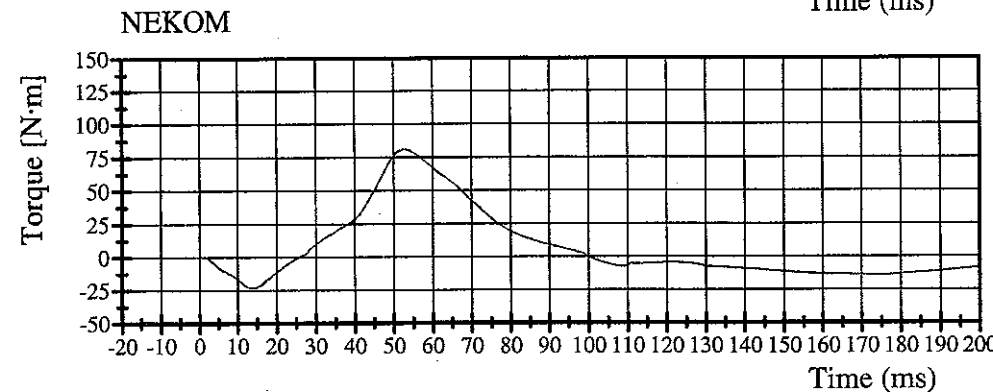
Min: -681.9 N at 41.4 ms



Filter Class: 600

Max: 70.8 N·m at 52.6 ms

Min: -32.0 N·m at 14.3 ms



Filter Class: 600

Max: 81.1 N·m at 52.8 ms

Min: -23.3 N·m at 14.0 ms

# Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

HIII 5th Female Serial No. 416 Calibration No. 16 - 3

Test Date 07/10/2002

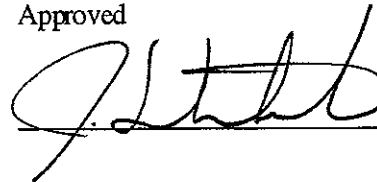
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.15 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.50 - 1.90 m/s	1.78 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.49 m/s	Yes
30 ms	4.60 - 5.60 m/s	5.06 m/s	Yes
Peak D Plane Rotation	99 - 114 °	107.5 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-63.69 N·m	Yes
Positive Moment Decay Time To -10 N·m	94 - 114 ms	101.12 ms	Yes

## Comments:

Technician



Approved



07.10.2002 11:21:31 530



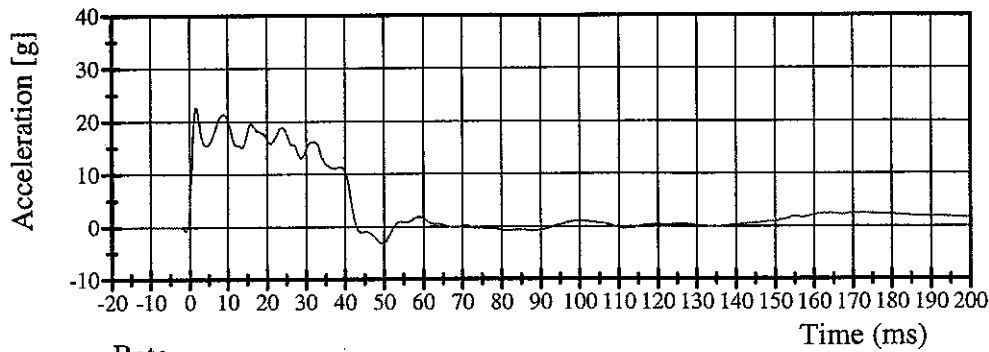
# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 3

Test Date 07/10/2002

### Pendulum Deceleration

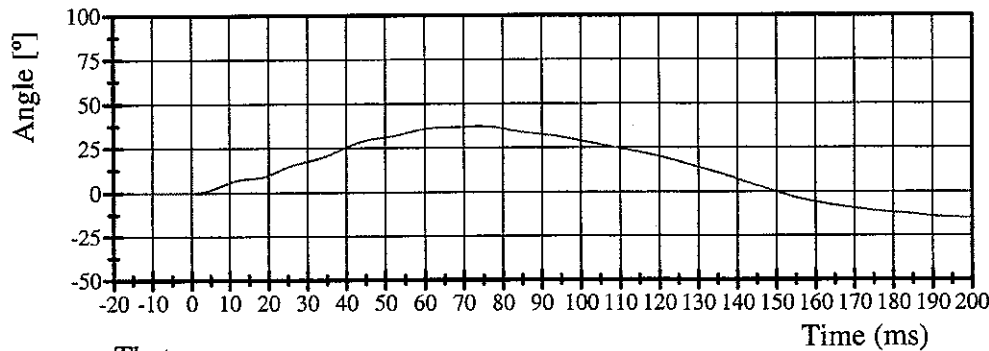


Filter Class: 180

Max: 22.6 g at 1.7 ms

Min: -3.2 g at 49.6 ms

### Beta

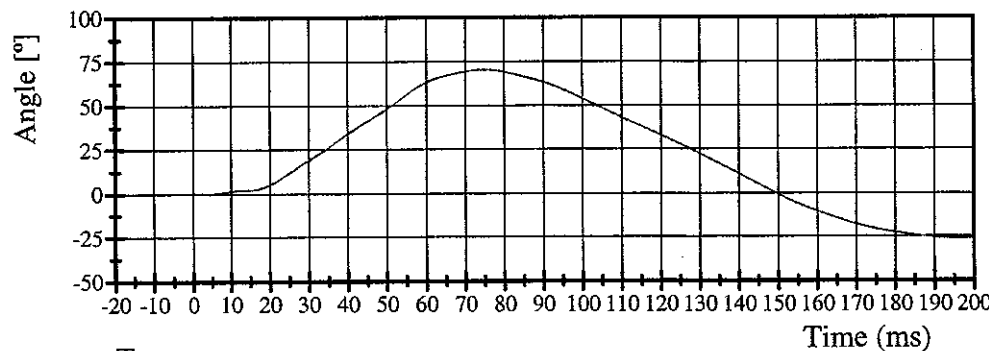


Filter Class: 60

Max: 37.2 ° at 73.8 ms

Min: -14.7 ° at 199.1 ms

### Theta

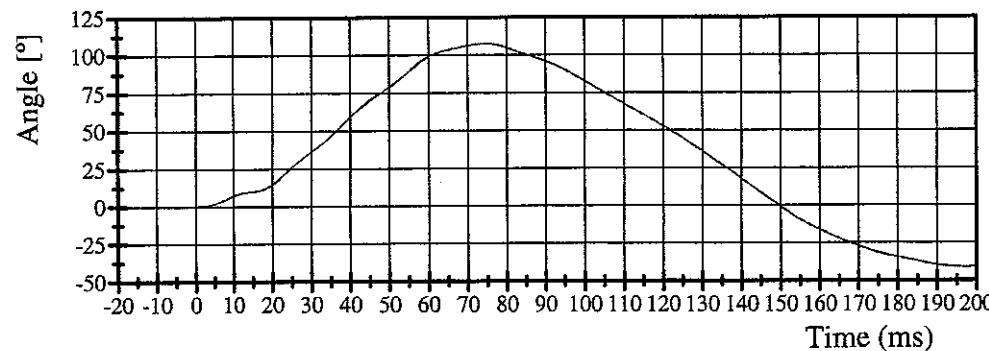


Filter Class: 60

Max: 70.3 ° at 74.8 ms

Min: -26.4 ° at 196.3 ms

### Totan



Filter Class: 60

Max: 107.5 ° at 74.5 ms

Min: -41.0 ° at 197.3 ms

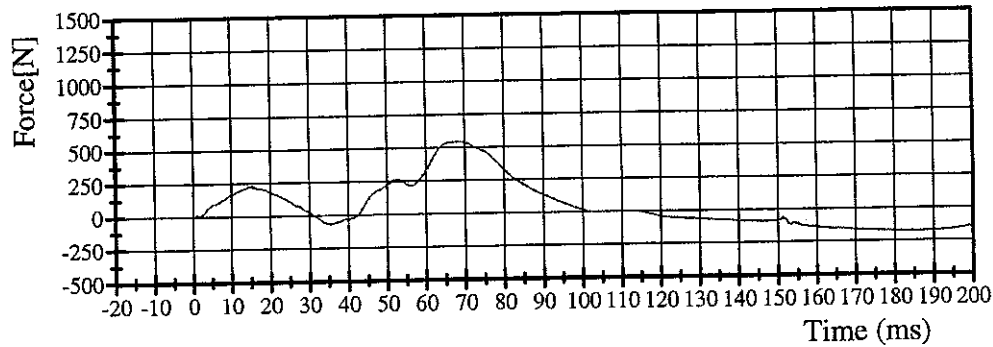
# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 3

Test Date 07/10/2002

NEKXF

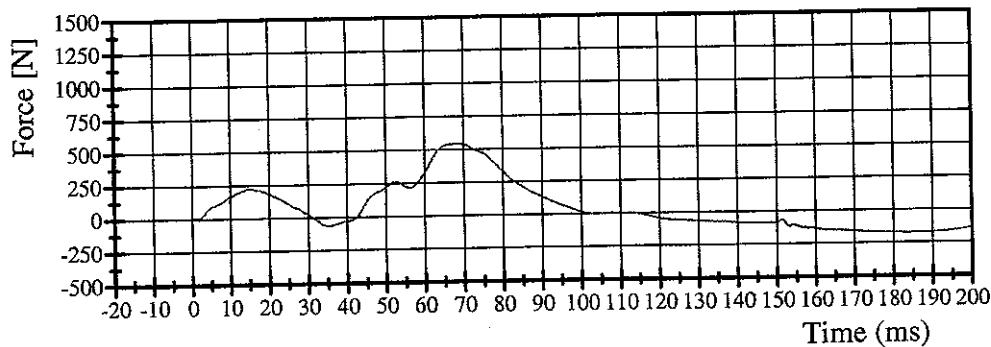


Filter Class: 1000

Max: 543.9 N at 68.0 ms

Min: -178.0 N at 183.0 ms

NEKXFC

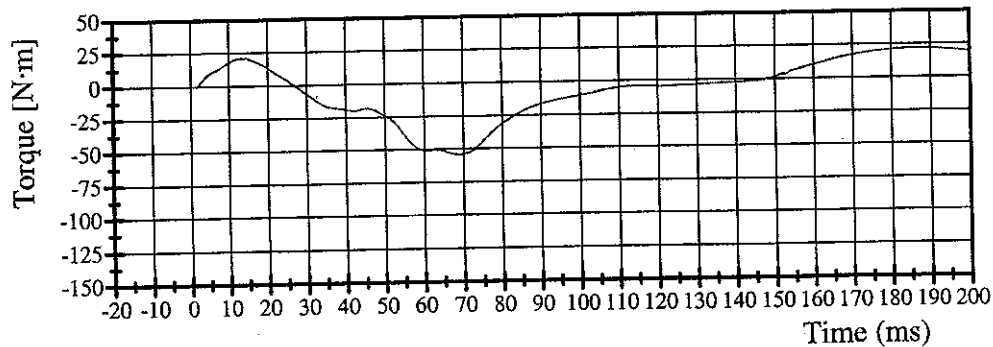


Filter Class: 600

Max: 543.2 N at 68.5 ms

Min: -177.9 N at 183.2 ms

NEKYM

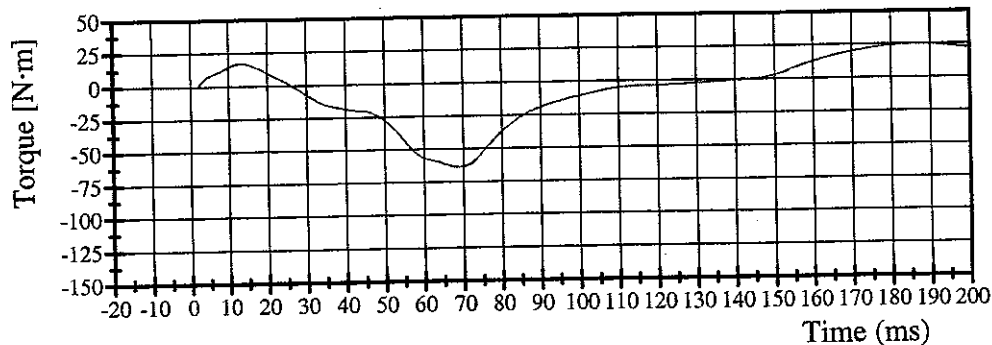


Filter Class: 600

Max: 21.8 N·m at 186.0 ms

Min: -54.0 N·m at 69.0 ms

NEKOM



Filter Class: 600

Max: 25.0 N·m at 185.8 ms

Min: -63.7 N·m at 69.0 ms

# Transportation Research Center Inc.

5720 Thorax Test


HIII 5th Female Serial No. 416 Calibration No. 16 - 3

Test Date 08/12/2002

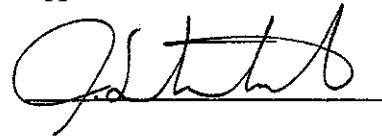
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-56.9 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4202 N	Yes
Internal Hysteresis	105 % Max.	94 %	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

**Comments:**

Technician



Approved



08.12.2002 09:53:28 1100



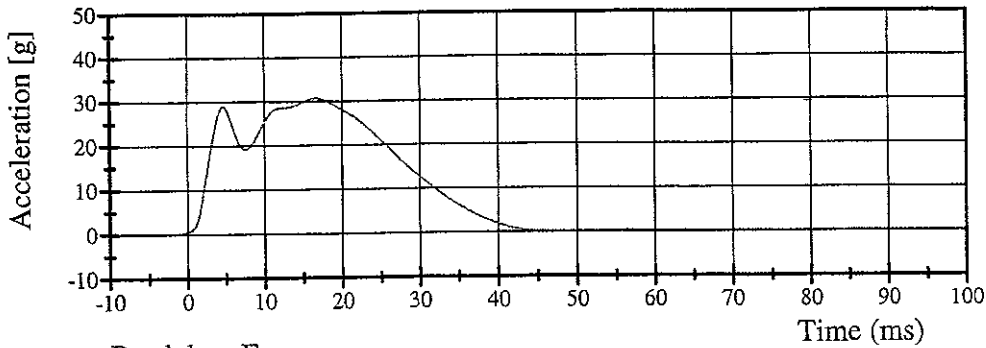
# Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 3

Test Date 08/12/2002

### Pendulum Deceleration

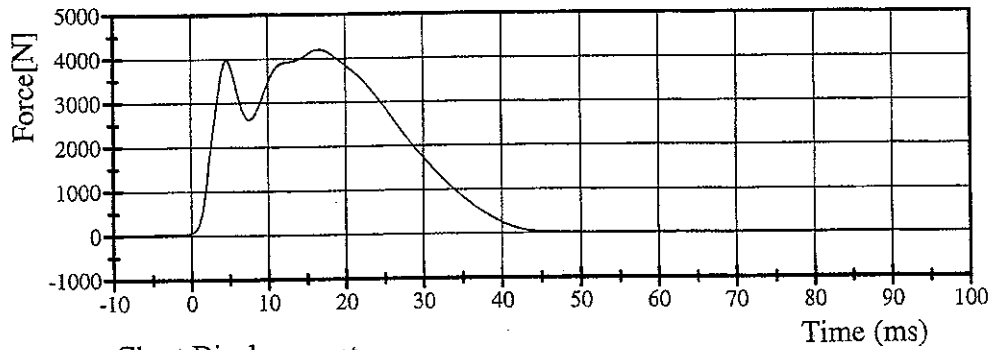


Filter Class: 180

Max: 30.7 g at 16.6 ms

Min: -0.1 g at 206.7 ms

### Pendulum Force

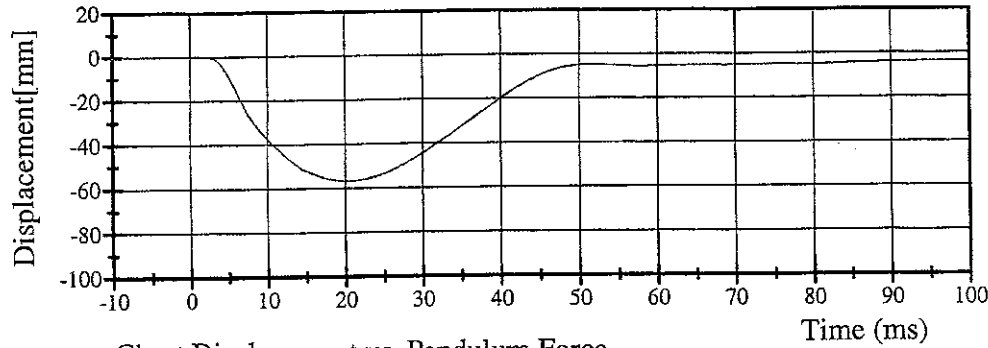


Filter Class: 180

Max: 4202.2 N at 16.6 ms

Min: -8.3 N at 206.7 ms

### Chest Displacement

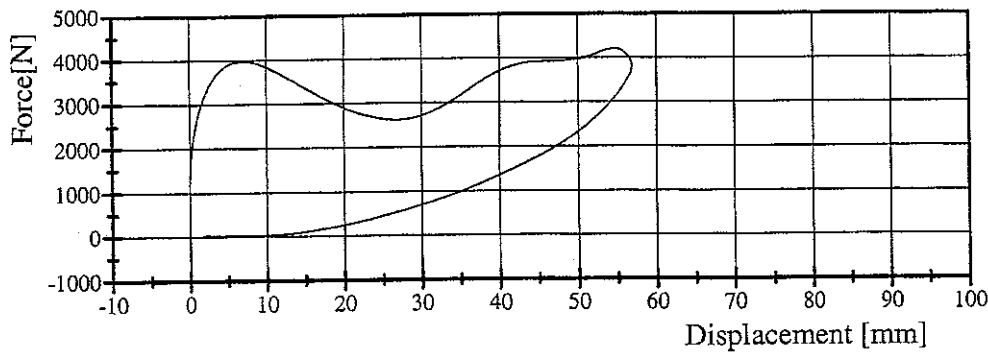


Filter Class: 180

Max: 0.0 mm at 1.6 ms

Min: -56.9 mm at 20.4 ms

### Chest Displacement vs. Pendulum Force



**TRANSPORTATION RESEARCH CENTER INC.**

**TORSO FLEXION TEST**

**HYBRID III SMALL FEMALE**

**CAL DATE: 16-Jul-02**

**TRC, INC.      TEST NO: 416C16TF4      572 O SN 416 TORSO FLEX CAL 16**

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 – 70 %	55 %
INITIAL ANGLE OF UNSUPPORTRED DUMMY	<= 20 DEG. REFERENCED TO VERTICAL	14.0 DEG.
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	379.6 N
RETURN ANGLE @ 3MINUTES	+/- 8 DEG OF INITIAL ANGLE	18.6 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN



# Transportation Research Center Inc.

5720 Left Knee Test

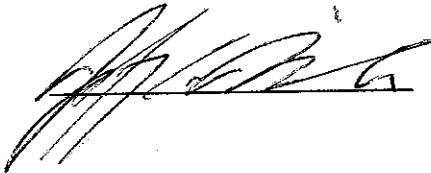
HIII 5th Female Serial No. 416 Calibration No. 16 - 1

Test Date 07/15/2002

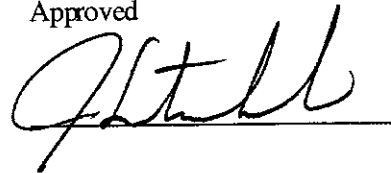
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3524 N	Yes

## Comments:

Technician



Approved

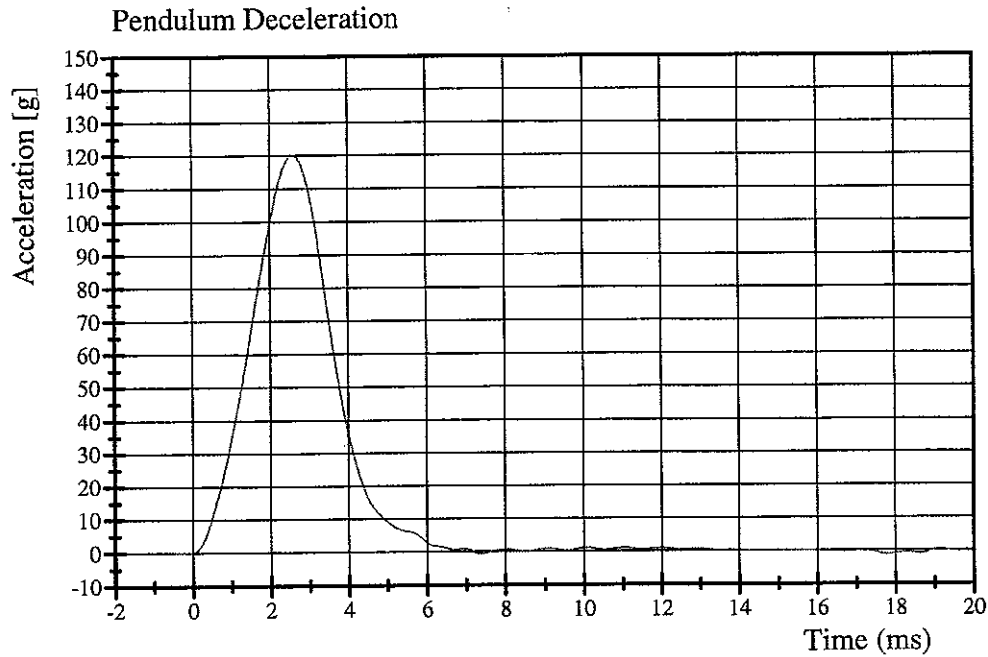


# Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 1

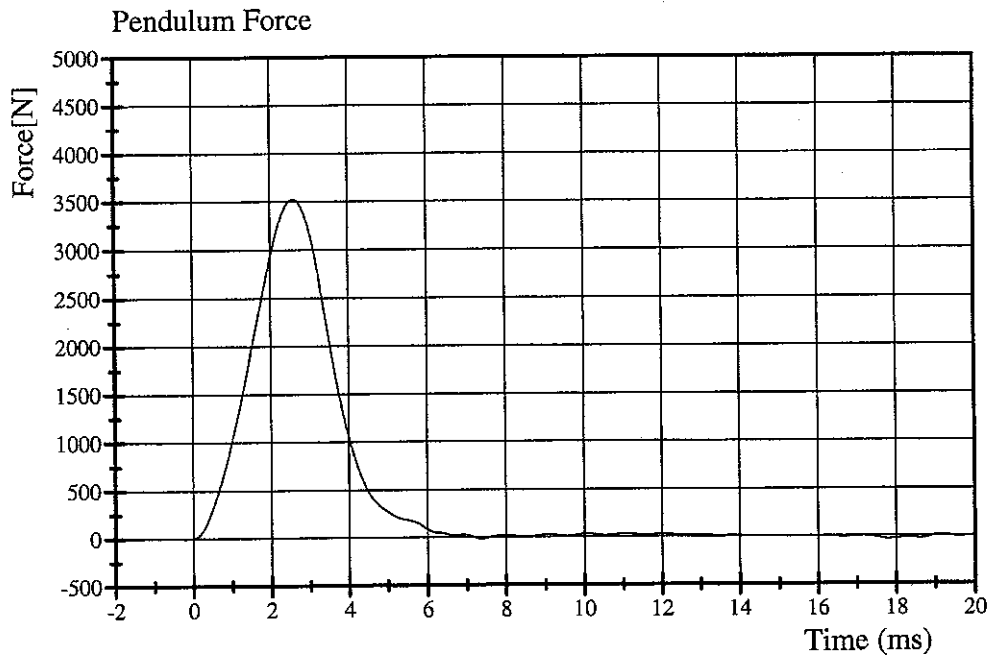
Test Date 07/15/2002



Filter Class: 600

Max: 120.2 g at 2.6 ms

Min: -1.2 g at 17.8 ms



Filter Class: 600

Max: 3524.4 N at 2.6 ms

Min: -34.7 N at 17.8 ms

# Transportation Research Center Inc.

5720 Right Knee Test

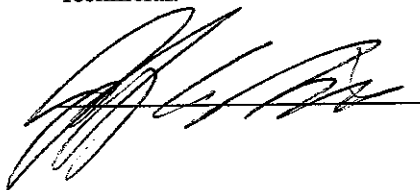
HIII 5th Female Serial No. 416 Calibration No. 16 - 1

Test Date 07/15/2002

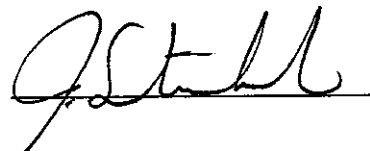
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3497 N	Yes

## Comments:

Technician



Approved



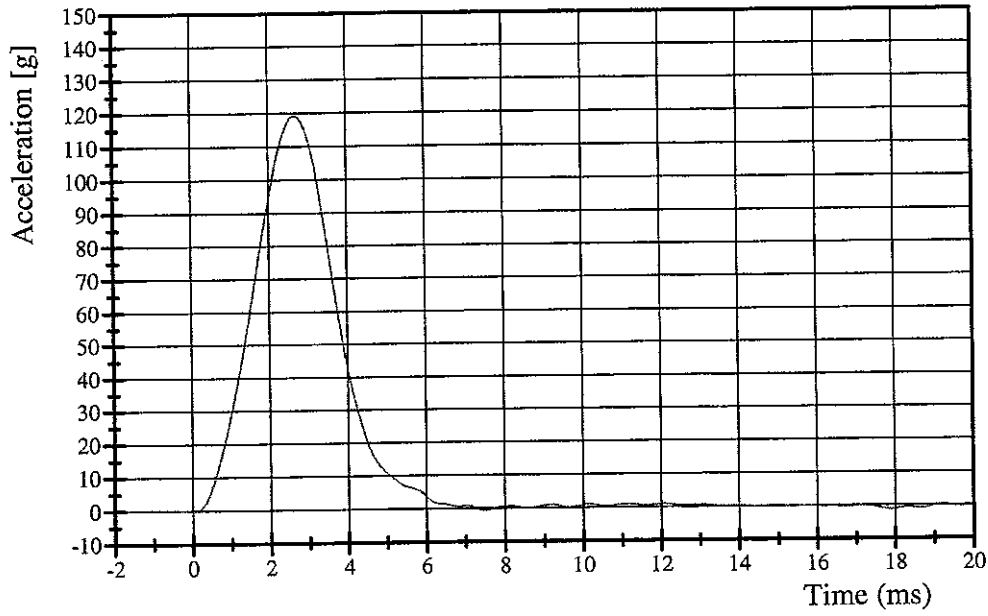
# Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 1

Test Date 07/15/2002

### Pendulum Deceleration

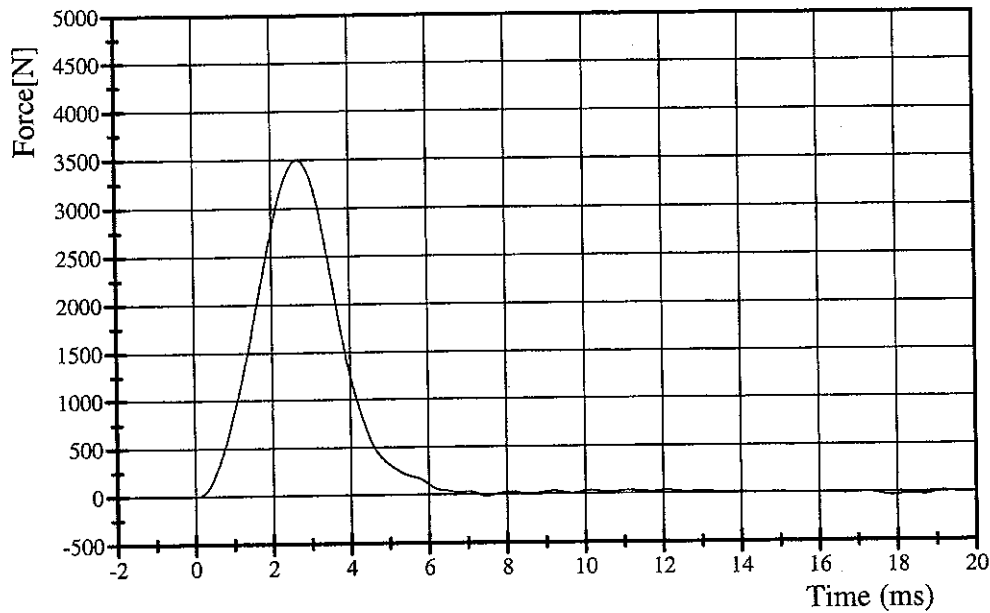


Filter Class: 600

Max: 119.3 g at 2.7 ms

Min: -1.2 g at 17.8 ms

### Pendulum Force



Filter Class: 600

Max: 3496.7 N at 2.7 ms

Min: -34.9 N at 17.8 ms

# Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 1

Test Date 07/10/2002

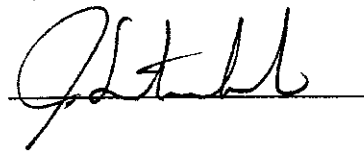
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.71 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.4 mm	Yes

Comments:

Technician



Approved

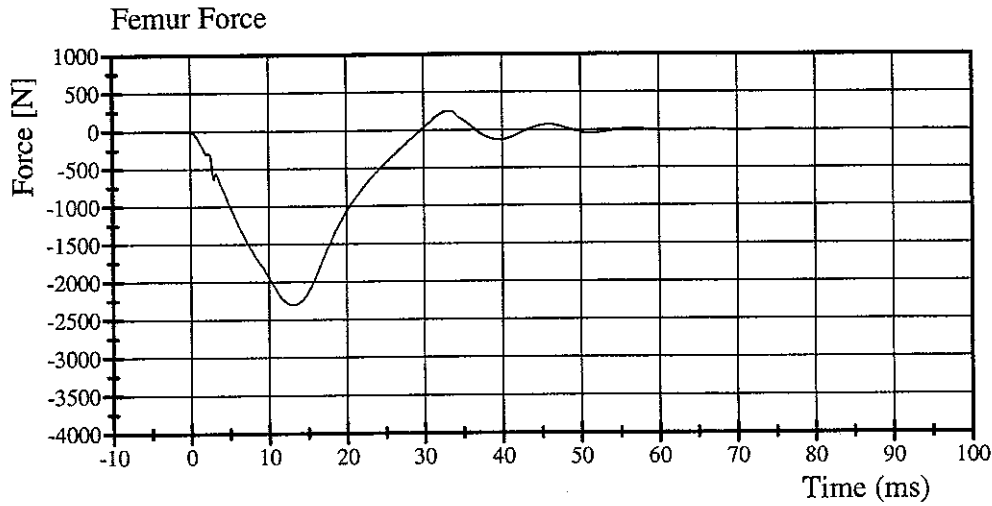


# Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 1

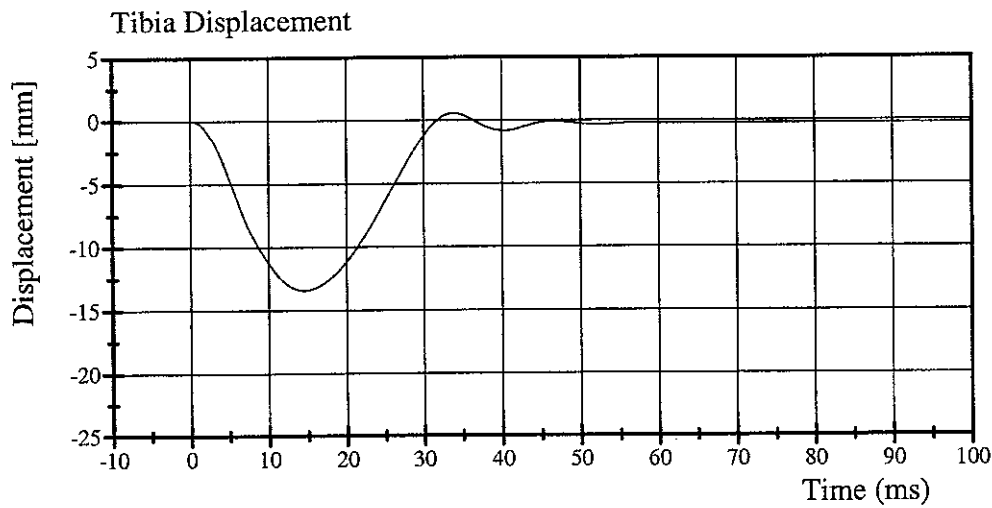
Test Date 07/10/2002



Filter Class: 600

Max: 250.6 N at 33.3 ms

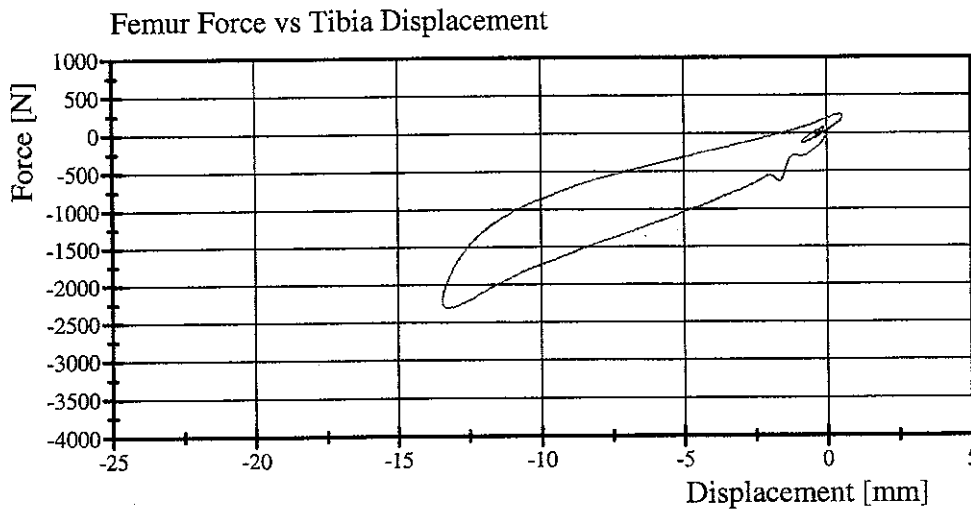
Min: -2302.6 N at 13.1 ms



Filter Class: 600

Max: 0.5 mm at 33.8 ms

Min: -13.4 mm at 14.6 ms



07.10.2002 14:08:28 1355



# Transportation Research Center Inc.

5720 Right Knee Slider Test

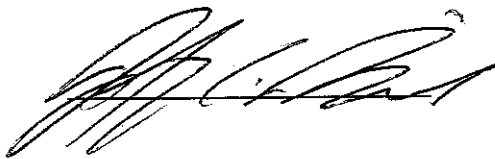
HIII 5th Female Serial No. 416 Calibration No. 16 - 1

Test Date 07/10/2002

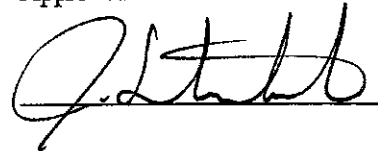
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.71 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.5 mm	Yes

## Comments:

Technician



Approved

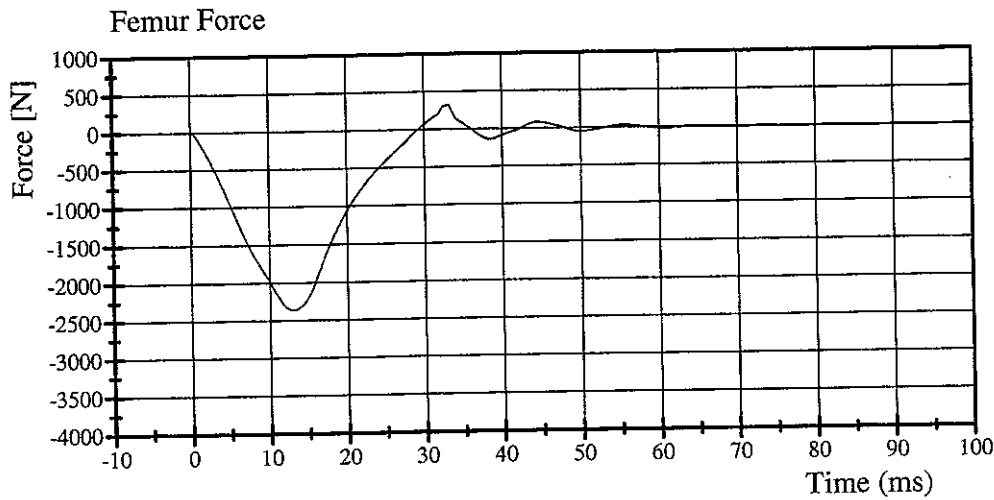


# Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 16 - 1

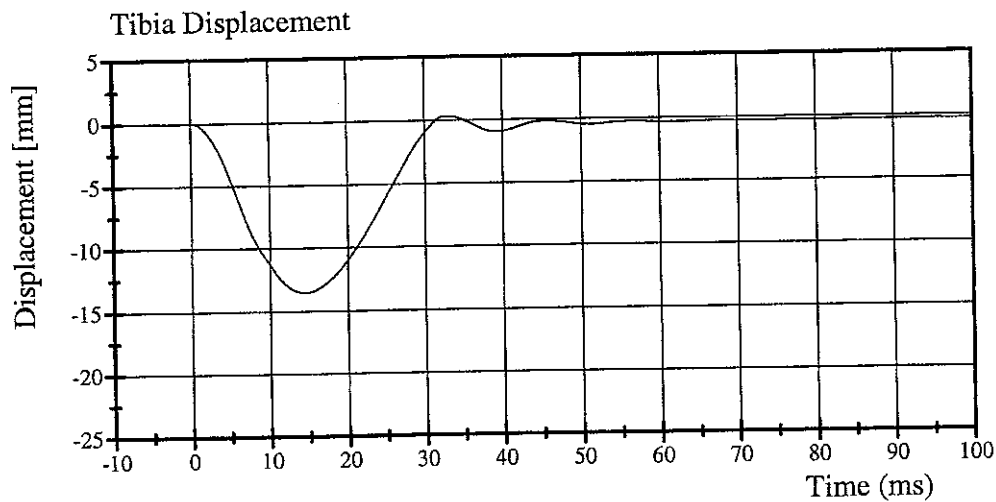
Test Date 07/10/2002



Filter Class: 600

Max: 326.8 N at 33.1 ms

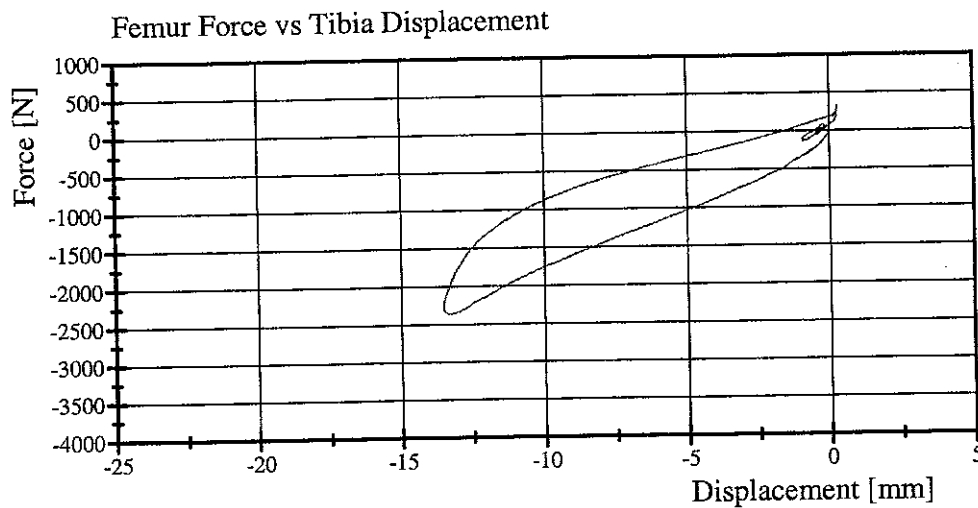
Min: -2357.7 N at 13.0 ms



Filter Class: 600

Max: 0.3 mm at 32.4 ms

Min: -13.5 mm at 14.5 ms



Pre-Test Dummy Configuration and Performance Verification Data

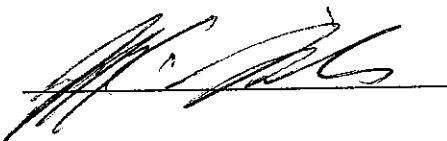
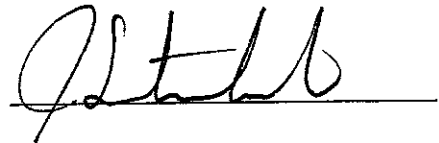
Passenger Dummy S/N: 421

**Transportation Research Center Inc.**  
**572F HIII 5th Dummy**  
**External Dimensions**  
**Serial No. 421 Calibration No. 09**

Test Parameter	Dimension	Specification	Results	Pass
Total Sitting Height	A	774.7 - 800.1 mm	795 mm	Yes
Shoulder Pivot Height	B	431.8 - 457.2 mm	455 mm	Yes
Hip Pivot Height	C	81.3 - 86.3 mm	83 mm	Yes
Hip Pivot from Backline	D	144.8 - 149.8 mm	148 mm	Yes
Shoulder Pivot from Backline	E	68.6 - 83.8 mm	81 mm	Yes
Thigh Clearance	F	119.4 - 134.6 mm	125 mm	Yes
Back of Elbow to Wrist Pivot	G	243.9 - 259.0 mm	249 mm	Yes
Head Back to Backline	H	40.7 - 45.7 mm	45 mm	Yes
Shoulder to Elbow Length	I	276.9 - 297.1 mm	285 mm	Yes
Elbow Rest Height	J	182.9 - 203.2 mm	197 mm	Yes
Buttock Knee Length	K	520.7 - 546.1 mm	530 mm	Yes
Popliteal Height	L	355.6 - 375.9 mm	370 mm	Yes
Knee Pivot Height	M	393.7 - 419.1 mm	416 mm	Yes
Buttock Popliteal Height	N	414.1 - 439.4 mm	419 mm	Yes
Chest Depth without Jacket	O	175.3 - 190.5 mm	188 mm	Yes
Foot Length	P	218.5 - 233.6 mm	228 mm	Yes
Buttock to Knee Pivot Length	R	457.2 - 482.6 mm	478 mm	Yes
Head Breadth	S	137.2 - 147.3 mm	143 mm	Yes
Head Depth	T	177.8 - 187.9 mm	181 mm	Yes
Hip Breadth	U	299.8 - 314.9 mm	308 mm	Yes
Shoulder Breadth	V	350.6 - 365.7 mm	351 mm	Yes
Foot Breadth	W	78.8 - 93.9 mm	85 mm	Yes
Head Circumference	X	528.4 - 548.6 mm	539 mm	Yes
Chest Circumference with Jacket	Y	850.9 - 881.3 mm	874 mm	Yes
Waist Circumference	Z	759.5 - 789.9 mm	773 mm	Yes
Reference Location for Chest Circumference	AA	299.8 - 309.8 mm	305 mm	Yes
Reference Location for Waist Circumference	BB	160.1 - 170.1 mm	165 mm	Yes

Technician

Approved


# Transportation Research Center Inc.

5720 Head Drop Test

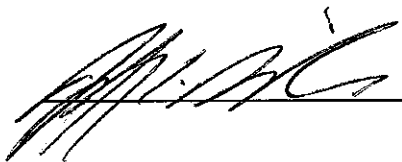
HIII 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/08/2002

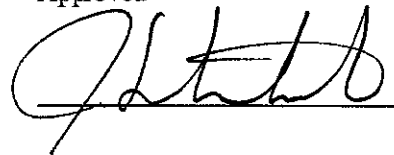
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Resultant Acceleration	250 - 300 g	269.4 g	Yes
Peak Lateral Acceleration	15 g Max	1.9 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

## Comments:

Technician



Approved

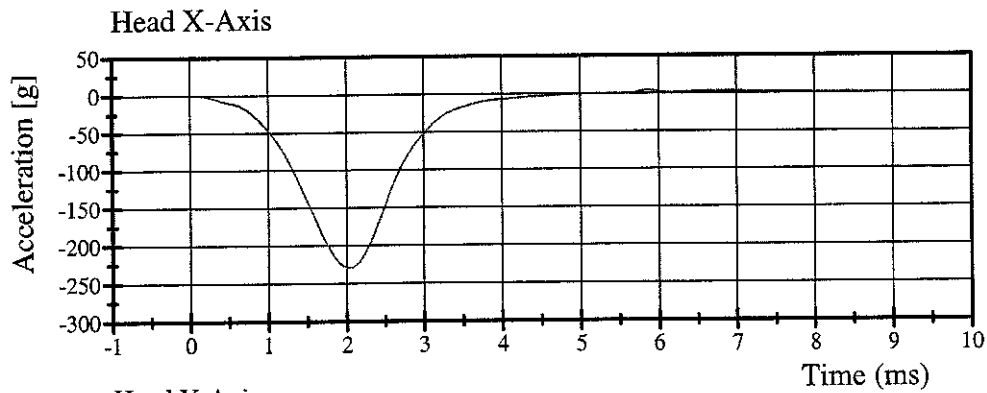


# Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 1

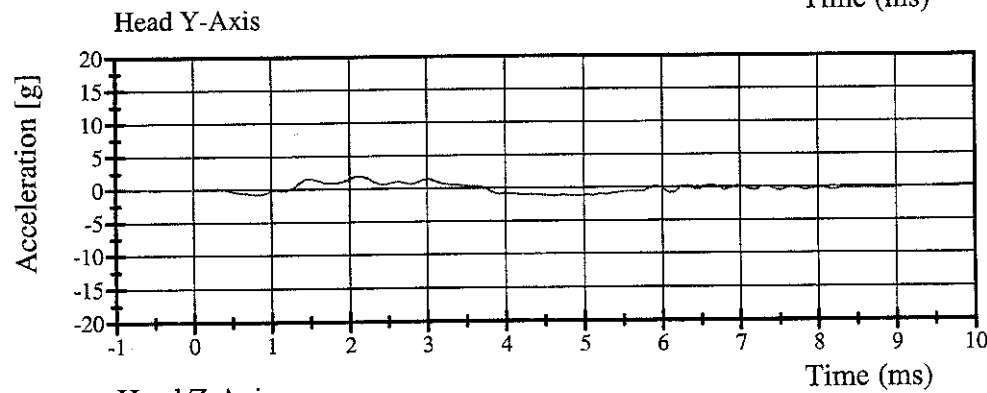
Test Date 07/08/2002



Filter Class: 1000

Max: 3.8 g at 5.8 ms

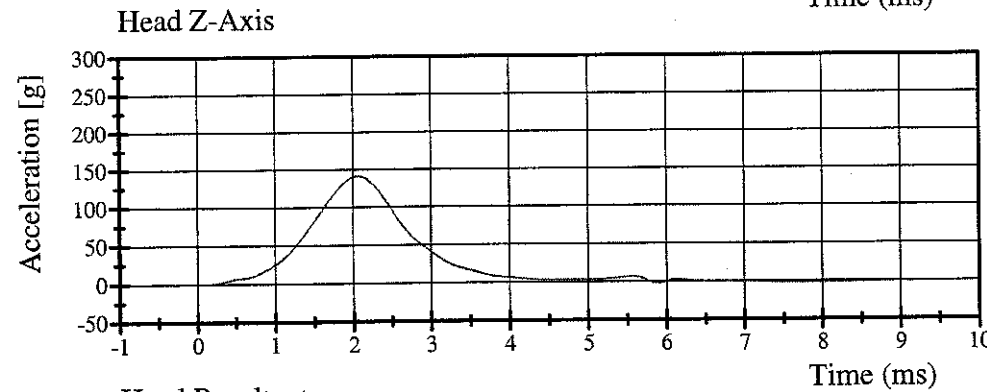
Min: -229.6 g at 2.0 ms



Filter Class: 1000

Max: 1.9 g at 2.1 ms

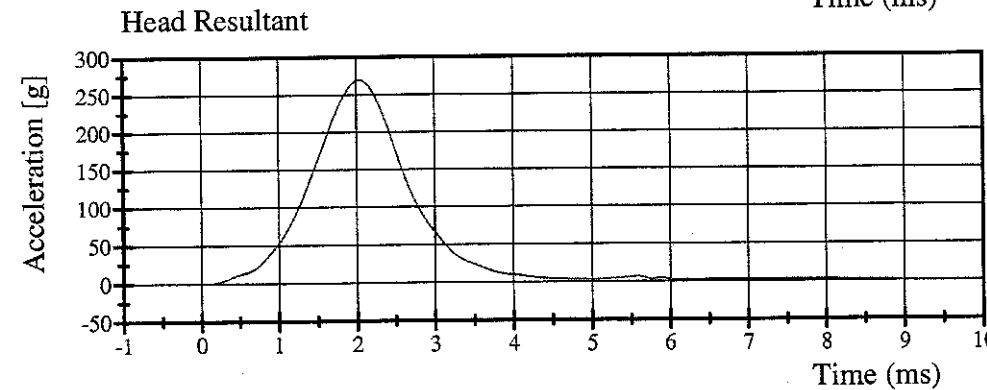
Min: -1.2 g at 4.6 ms



Filter Class: 1000

Max: 141.9 g at 2.1 ms

Min: -2.3 g at 5.9 ms



Filter Class: 1000

Max: 269.4 g at 2.0 ms

Min: 0.0 g at 0.0 ms

# Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

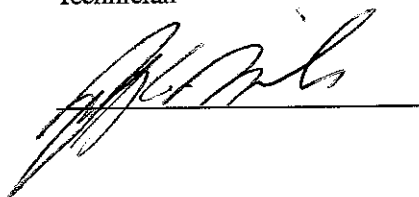
HIII 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/18/2002

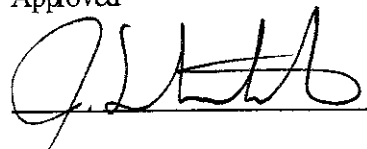
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.46 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.71 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.74 m/s	Yes
Peak D Plane Rotation	77 - 91 °	86.4 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	70.83 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	91.84 ms	Yes

## Comments:

Technician



Approved



07.18.2002 09:27:00 461



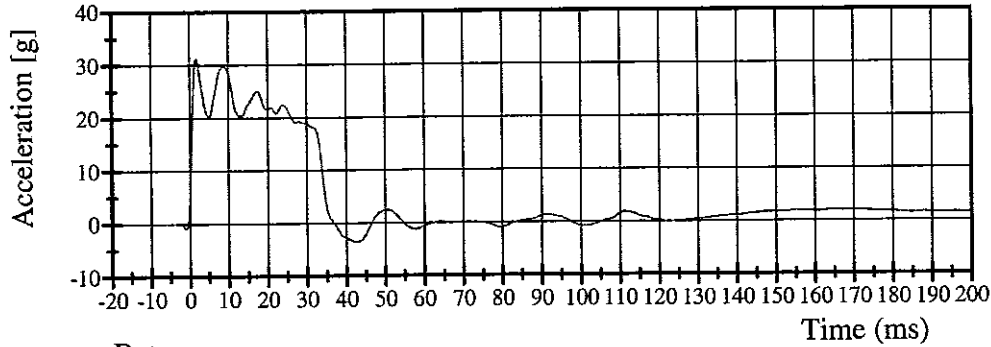
# Transportation Research Center Inc.

5720 Neck Flexion Test

HIH 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/18/2002

### Pendulum Deceleration

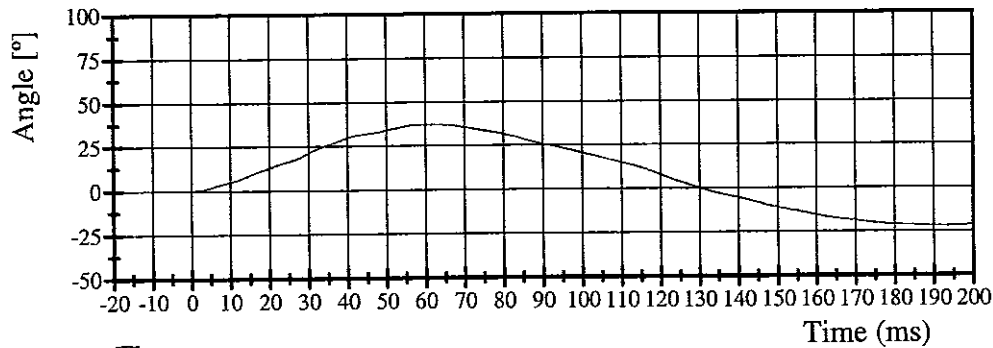


Filter Class: 180

Max: 31.2 g at 1.8 ms

Min: -3.5 g at 42.5 ms

### Beta

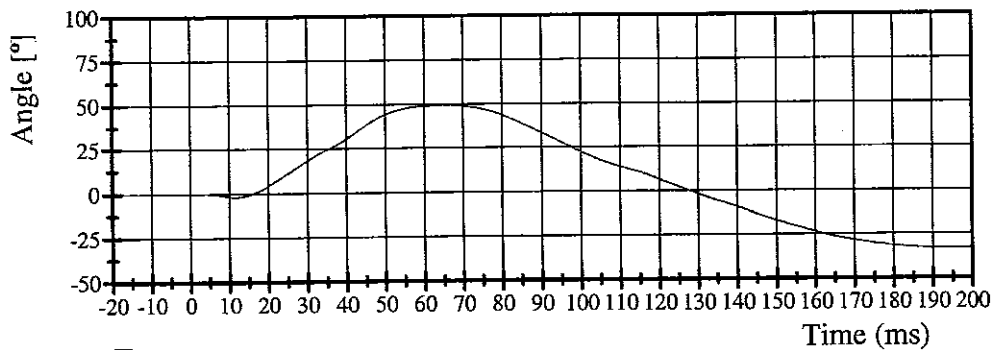


Filter Class: 60

Max: 37.2 ° at 59.8 ms

Min: -21.9 ° at 192.8 ms

### Theta

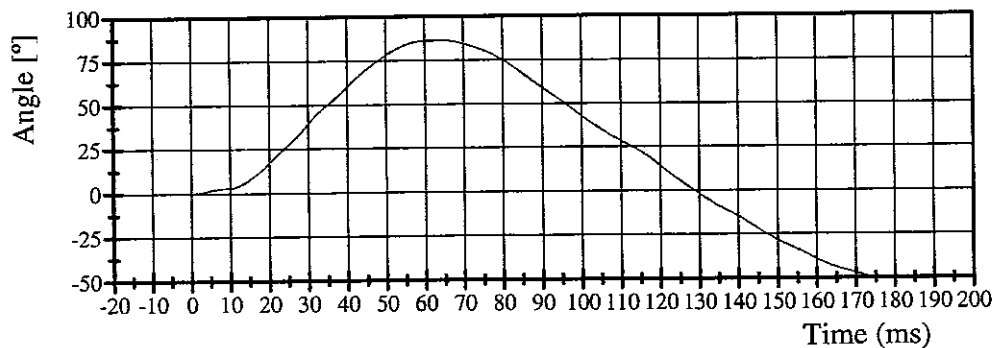


Filter Class: 60

Max: 49.4 ° at 65.4 ms

Min: -33.2 ° at 193.4 ms

### Totan



Filter Class: 60

Max: 86.4 ° at 64.2 ms

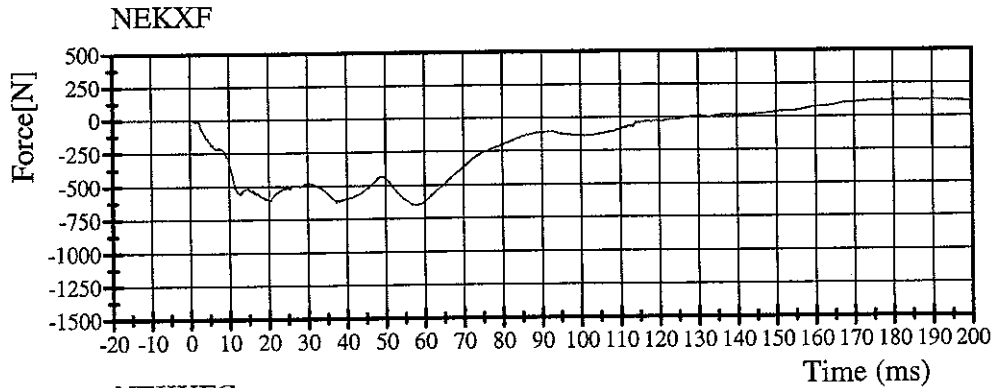
Min: -55.2 ° at 193.0 ms

# Transportation Research Center Inc.

5720 Neck Flexion Test

HHH 5th Female Serial No. 421 Calibration No. 09 - 1

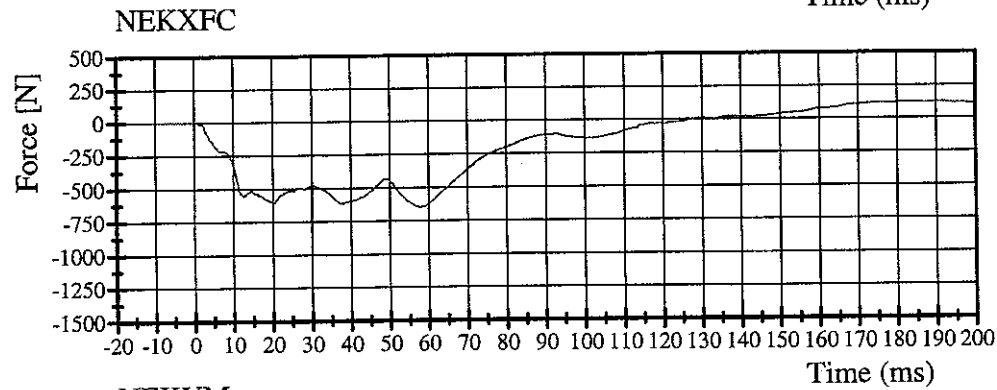
Test Date 07/18/2002



Filter Class: 1000

Max: 124.8 N at 182.6 ms

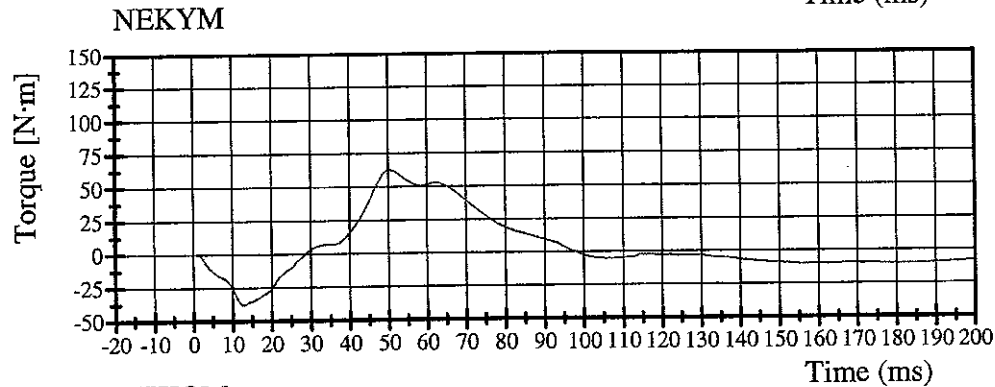
Min: -650.7 N at 58.1 ms



Filter Class: 600

Max: 124.1 N at 182.6 ms

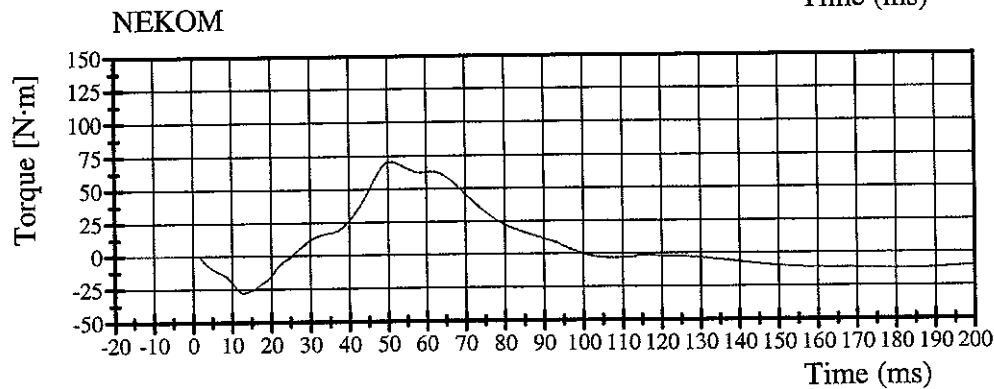
Min: -649.7 N at 58.1 ms



Filter Class: 600

Max: 62.5 N·m at 50.3 ms

Min: -37.8 N·m at 12.8 ms



Filter Class: 600

Max: 70.8 N·m at 50.9 ms

Min: -28.0 N·m at 12.9 ms

# Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

HIII 5th Female Serial No. 421 Calibration No. 09 - 3

Test Date 07/18/2002

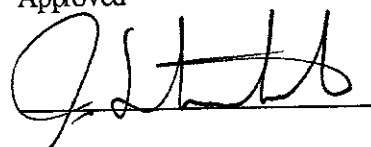
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.18 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.50 - 1.90 m/s	1.69 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.39 m/s	Yes
30 ms	4.60 - 5.60 m/s	4.93 m/s	Yes
Peak D Plane Rotation	99 - 114 °	111.2 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-58.31 N·m	Yes
Positive Moment Decay Time To -10 N·m	94 - 114 ms	104.00 ms	Yes

## Comments:

Technician



Approved



07.18.2002 12:22:00 526



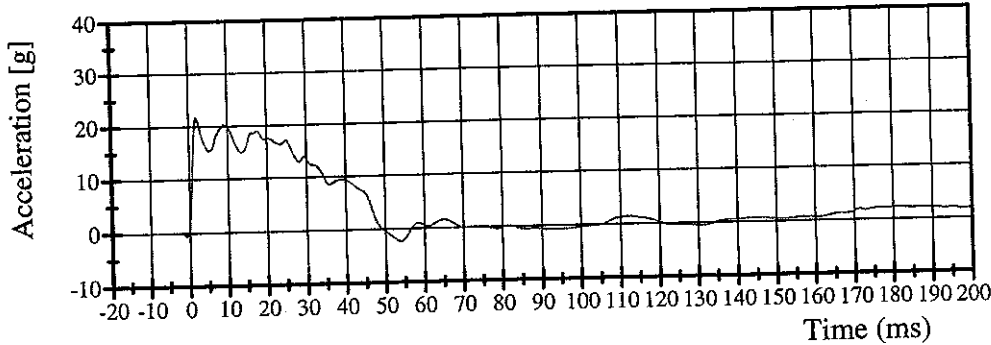
# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 3

Test Date 07/18/2002

### Pendulum Deceleration

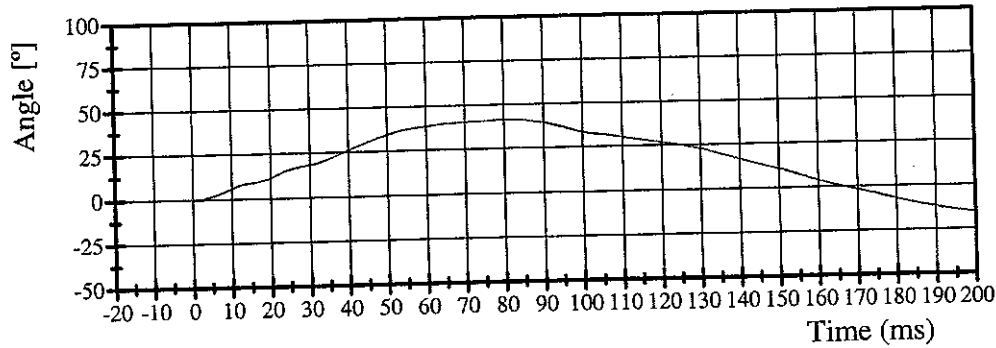


Filter Class: 180

Max: 21.7 g at 1.9 ms

Min: -2.3 g at 54.0 ms

### Beta

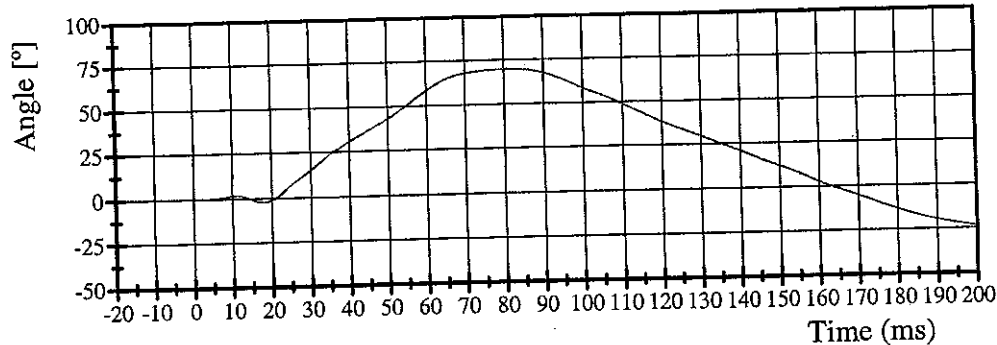


Filter Class: 60

Max: 41.5 ° at 80.5 ms

Min: -17.3 ° at 211.6 ms

### Theta

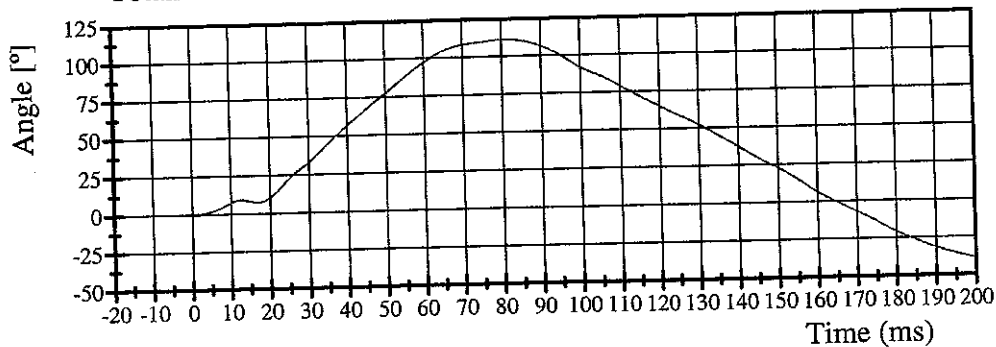


Filter Class: 60

Max: 69.8 ° at 81.0 ms

Min: -25.4 ° at 209.4 ms

### Totan



Filter Class: 60

Max: 111.2 ° at 80.6 ms

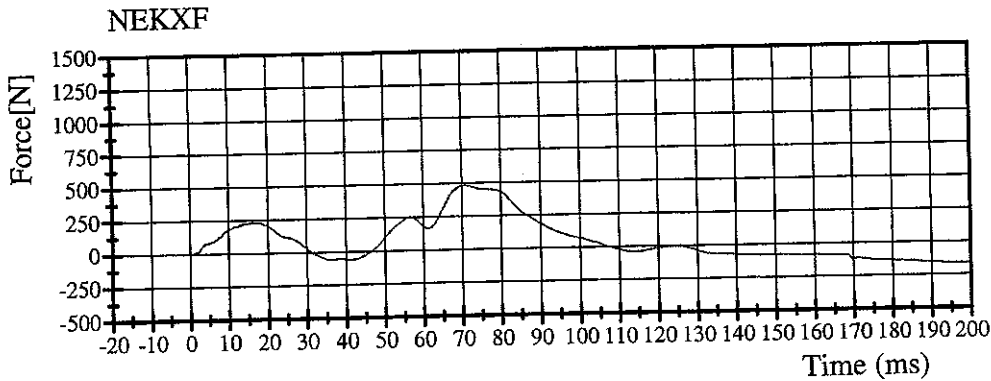
Min: -42.6 ° at 210.2 ms

# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 3

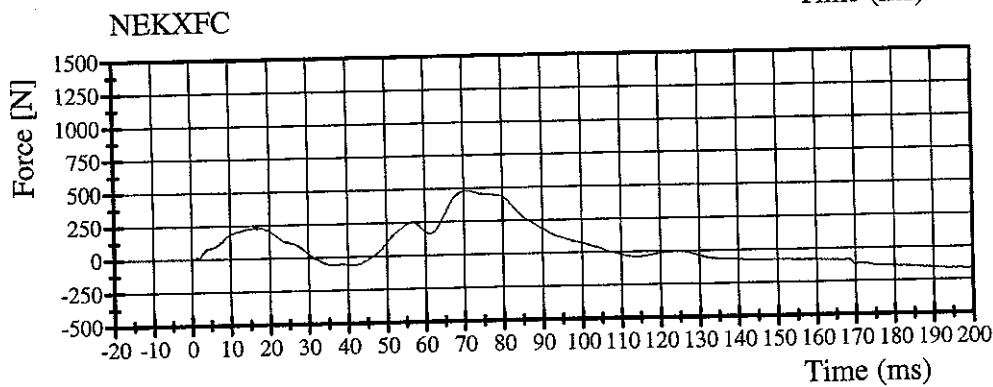
Test Date 07/18/2002



Filter Class: 1000

Max: 481.8 N at 71.0 ms

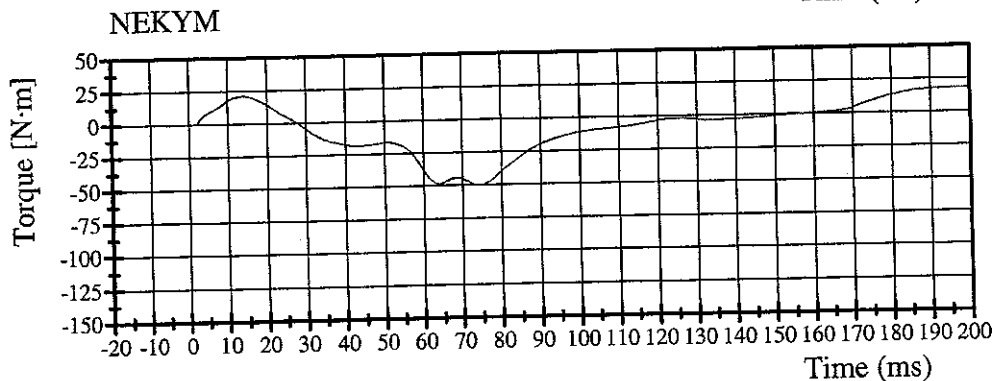
Min: -165.6 N at 198.6 ms



Filter Class: 600

Max: 481.2 N at 71.0 ms

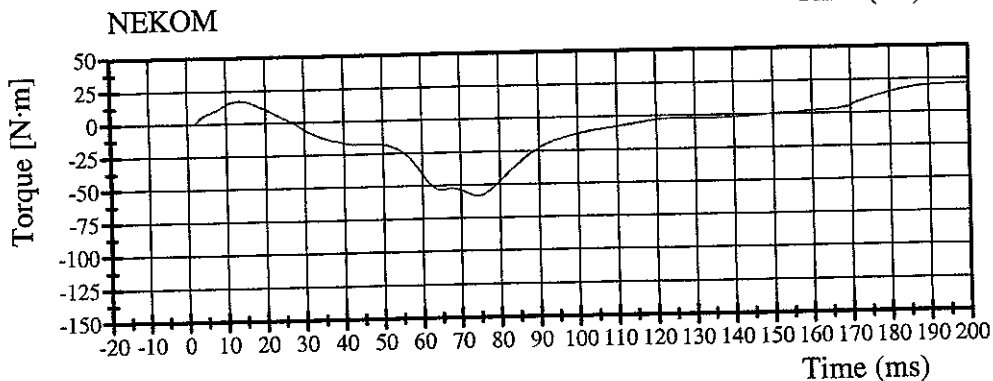
Min: -165.4 N at 198.6 ms



Filter Class: 600

Max: 21.3 N·m at 13.8 ms

Min: -50.2 N·m at 74.2 ms



Filter Class: 600

Max: 21.6 N·m at 205.0 ms

Min: -58.3 N·m at 74.2 ms

# Transportation Research Center Inc.

5720 Thorax Test

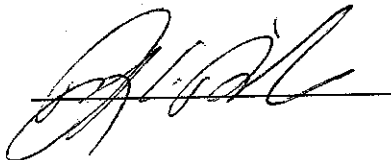
HIII 5th Female Serial No. 421 Calibration No. 09 - 2

Test Date 08/12/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-53.4 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4194 N	Yes
Internal Hysteresis	105 % Max.	98 %	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

## Comments:

Technician



Approved



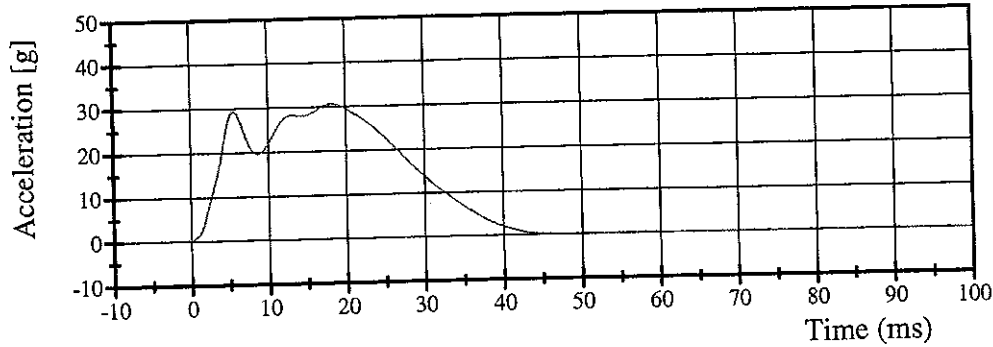
# Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 2

Test Date 08/12/2002

### Pendulum Deceleration

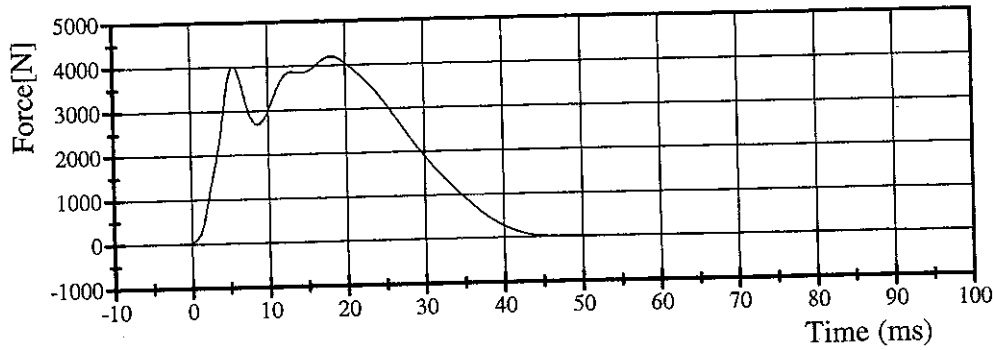


Filter Class: 180

Max: 30.6 g at 18.2 ms

Min: -0.1 g at 474.5 ms

### Pendulum Force

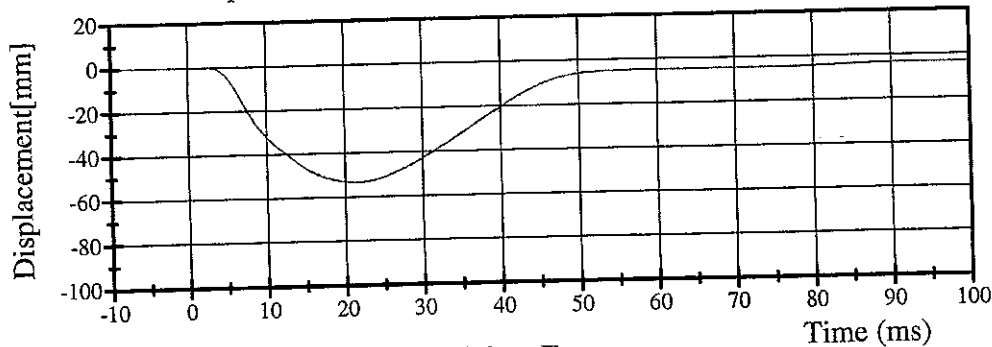


Filter Class: 180

Max: 4194.0 N at 18.2 ms

Min: -10.3 N at 474.5 ms

### Chest Displacement

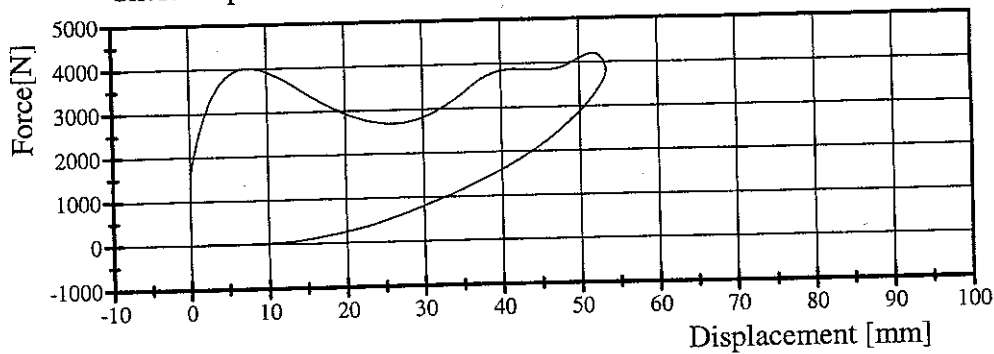


Filter Class: 180

Max: 0.0 mm at 2.2 ms

Min: -53.4 mm at 21.5 ms

### Chest Displacement vs. Pendulum Force



TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 23-Jul-02

TRC, INC. TEST NO: 421C09TF3 572 O SN421 TORSO FLEX CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	56 %
INITIAL ANGLE OF UNSUPPORTTED DUMMY	<= 20 DEG. REFERENCED TO VERTICAL	9.2 DEG.
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 - 390 N	379.9 N
RETURN ANGLE		15.3 DEG.
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 DEG. OF INTIAL ANGLE	6.1 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN 

# Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/15/2002

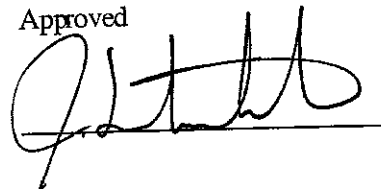
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3665 N	Yes

## Comments:

Technician



Approved



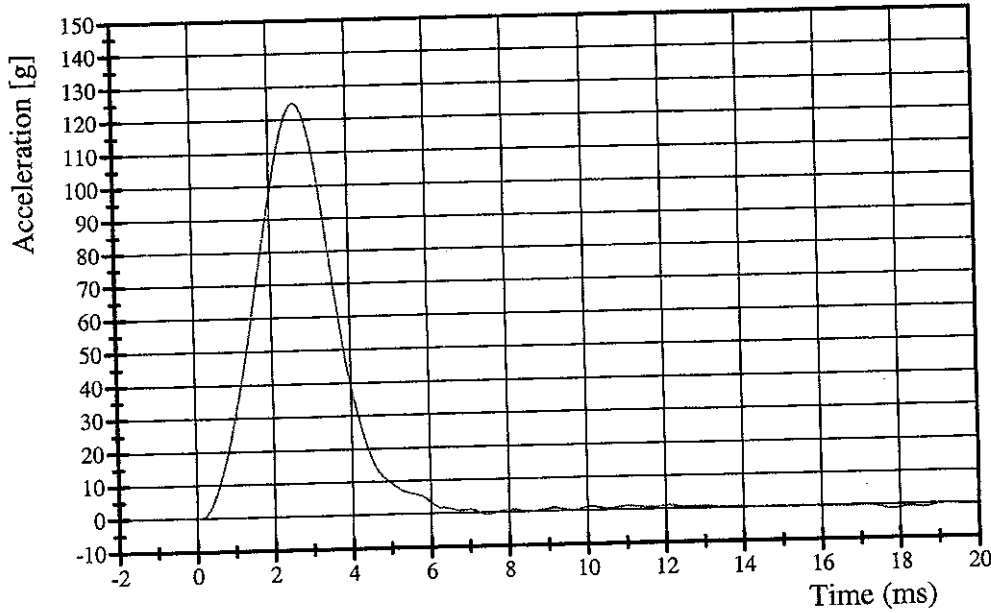
# Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/15/2002

### Pendulum Deceleration

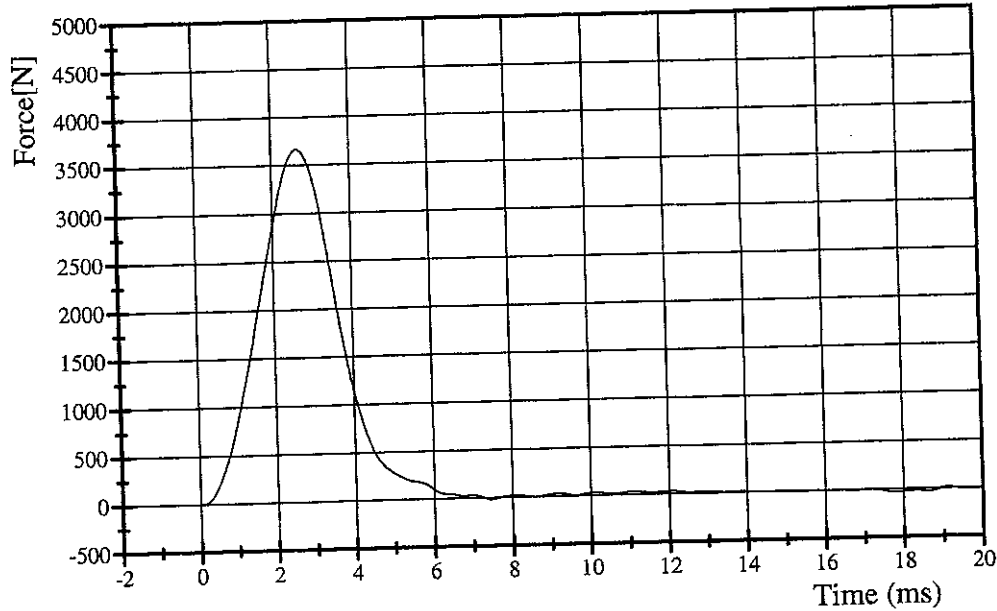


Filter Class: 600

Max: 125.0 g at 2.6 ms

Min: -1.2 g at 17.8 ms

### Pendulum Force



Filter Class: 600

Max: 3665.2 N at 2.6 ms

Min: -34.4 N at 17.8 ms

# Transportation Research Center Inc.

5720 Right Knee Test

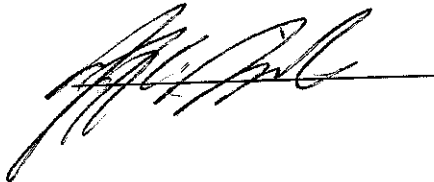
HIII 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/15/2002

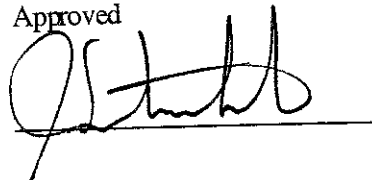
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3563 N	Yes

## Comments:

Technician



Approved

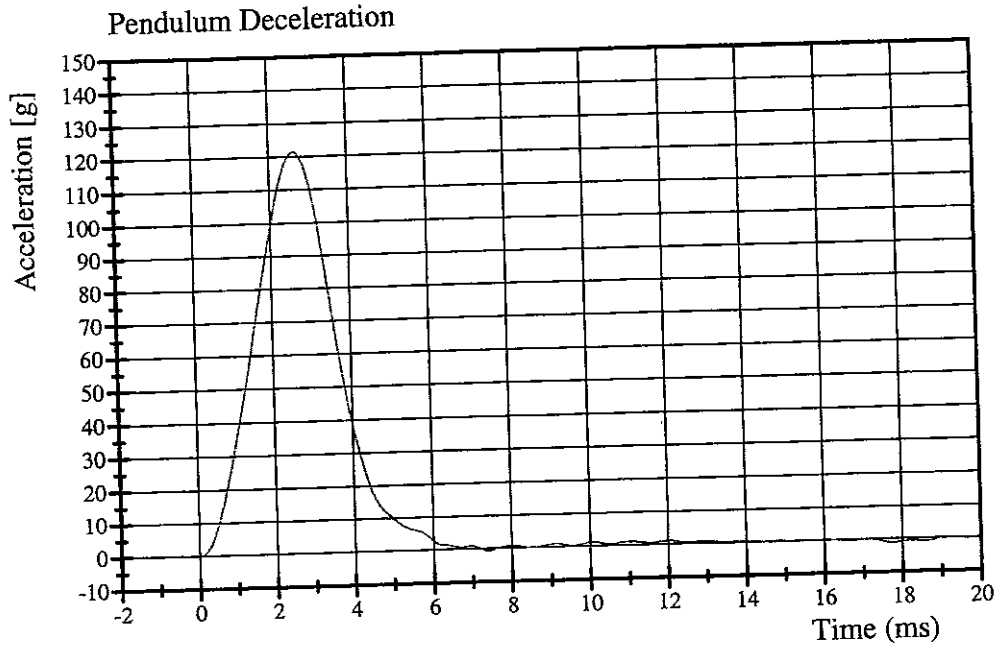


# Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 1

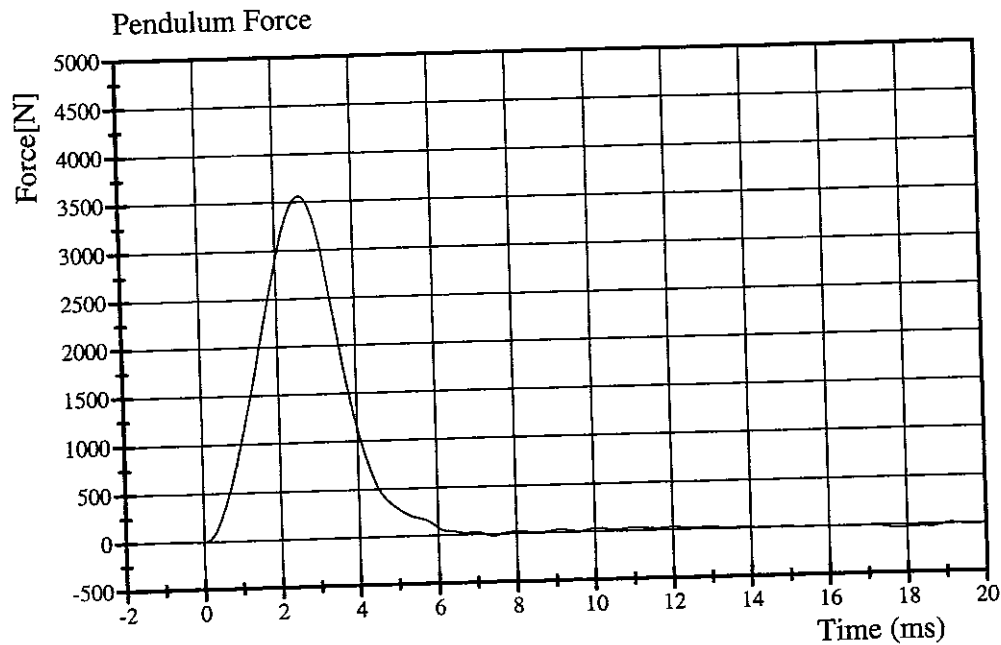
Test Date 07/15/2002



Filter Class: 600

Max: 121.5 g at 2.6 ms

Min: -1.1 g at 17.8 ms



Filter Class: 600

Max: 3563.1 N at 2.6 ms

Min: -31.9 N at 17.8 ms

# Transportation Research Center Inc.

5720 Left Knee Slider Test

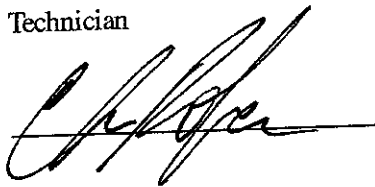
HIII 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/29/2002

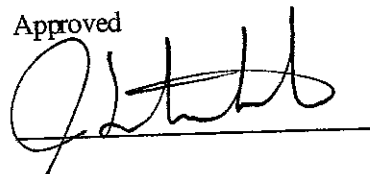
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.75 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-14.7 mm	Yes

Comments:

Technician



Approved

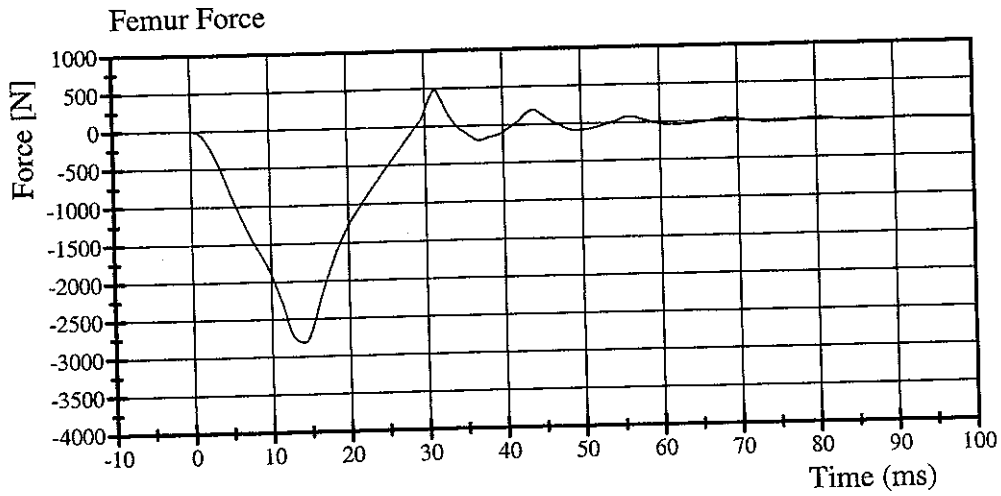


# Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 1

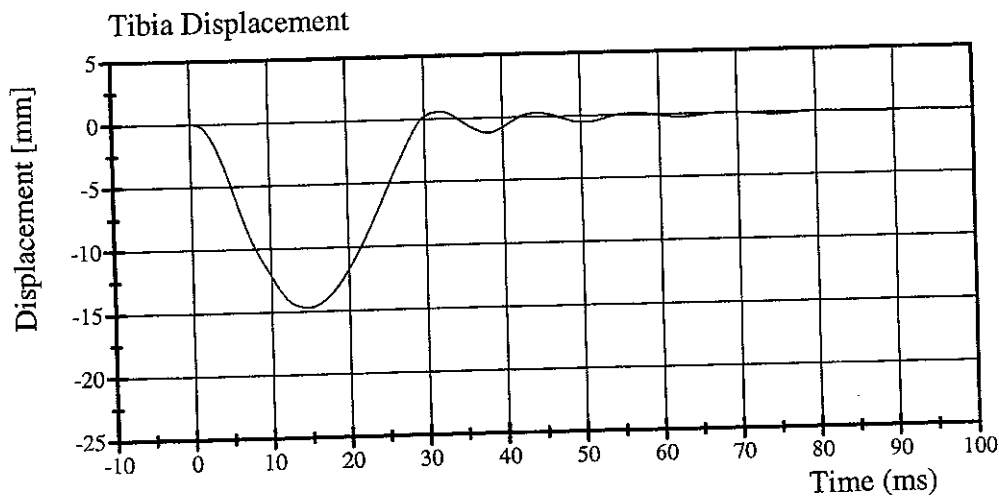
Test Date 07/29/2002



Filter Class: 600

Max: 479.9 N at 31.4 ms

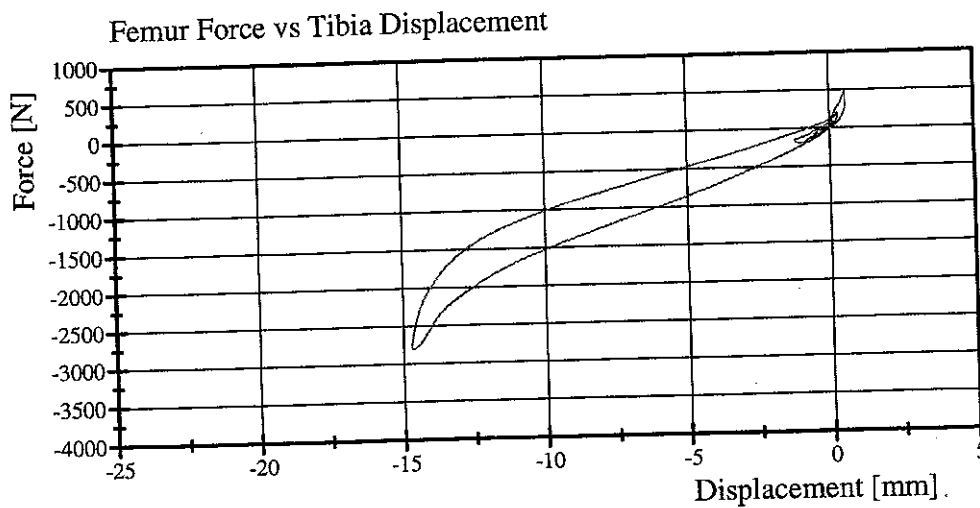
Min: -2812.4 N at 14.1 ms



Filter Class: 600

Max: 0.6 mm at 32.1 ms

Min: -14.7 mm at 14.6 ms



07.29.2002 08:08:31 999



# Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 1

Test Date 07/11/2002

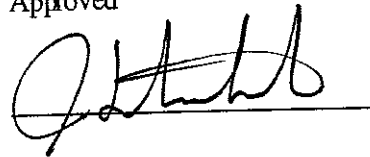
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.71 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-14.3 mm	Yes

Comments:

Technician



Approved



07.11.2002 08:10:44 1351

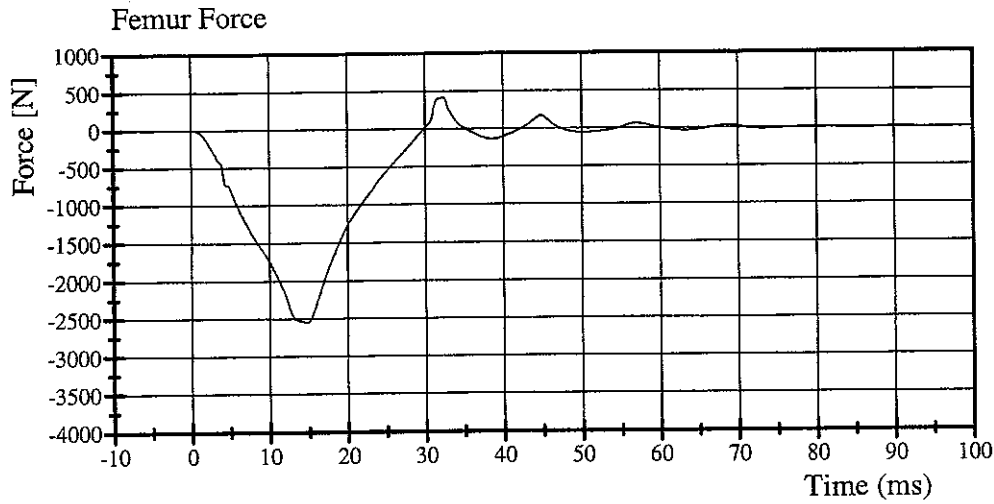


# Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 421 Calibration No. 09 - 1

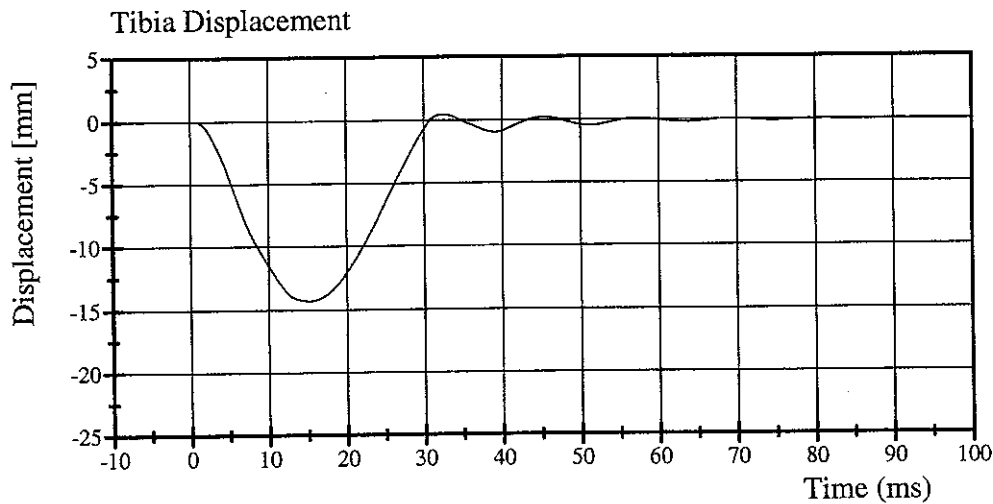
Test Date 07/11/2002



Filter Class: 600

Max: 416.0 N at 32.3 ms

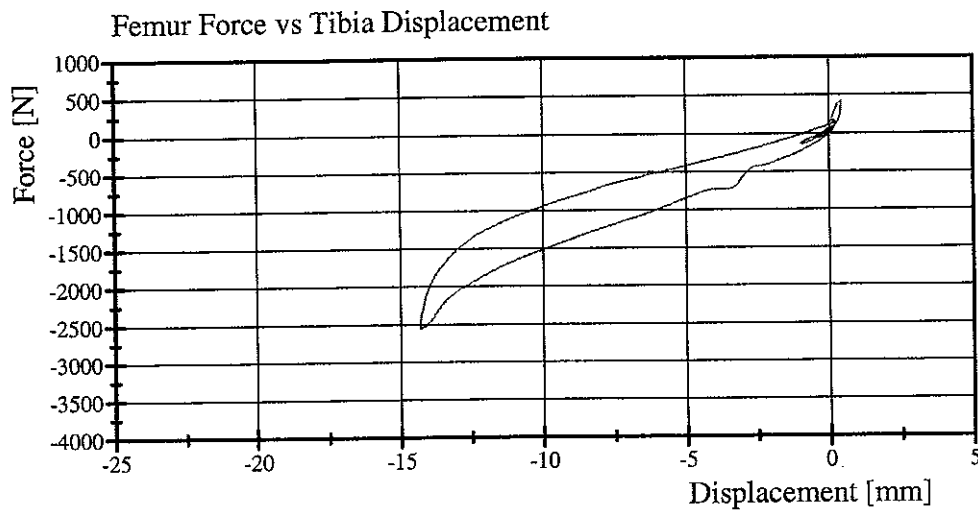
Min: -2551.0 N at 14.7 ms



Filter Class: 600

Max: 0.4 mm at 32.4 ms

Min: -14.3 mm at 15.2 ms



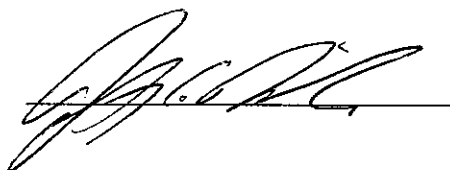
Post-Test Dummy Configuration and Performance Verification Data

Driver Dummy S/N: 416

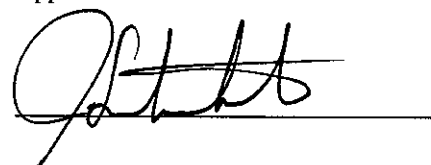
**Transportation Research Center Inc.**  
**572F HIII 5th Dummy**  
**External Dimensions**  
**Serial No. 416 Calibration No. 17**

Test Parameter	Dimension	Specification	Results	Pass
Total Sitting Height	A	774.7 - 800.1 mm	779 mm	Yes
Shoulder Pivot Height	B	431.8 - 457.2 mm	443 mm	Yes
Hip Pivot Height	C	81.3 - 86.3 mm	83 mm	Yes
Hip Pivot from Backline	D	144.8 - 149.8 mm	145 mm	Yes
Shoulder Pivot from Backline	E	68.6 - 83.8 mm	76 mm	Yes
Thigh Clearance	F	119.4 - 134.6 mm	123 mm	Yes
Back of Elbow to Wrist Pivot	G	243.9 - 259.0 mm	251 mm	Yes
Head Back to Backline	H	40.7 - 45.7 mm	45 mm	Yes
Shoulder to Elbow Length	I	276.9 - 297.1 mm	287 mm	Yes
Elbow Rest Height	J	182.9 - 203.2 mm	198 mm	Yes
Buttock Knee Length	K	520.7 - 546.1 mm	539 mm	Yes
Popliteal Height	L	355.6 - 375.9 mm	360 mm	Yes
Knee Pivot Height	M	393.7 - 419.1 mm	399 mm	Yes
Buttock Popliteal Height	N	414.1 - 439.4 mm	423 mm	Yes
Chest Depth without Jacket	O	175.3 - 190.5 mm	188 mm	Yes
Foot Length	P	218.5 - 233.6 mm	227 mm	Yes
Buttock to Knee Pivot Length	R	457.2 - 482.6 mm	466 mm	Yes
Head Breadth	S	137.2 - 147.3 mm	142 mm	Yes
Head Depth	T	177.8 - 187.9 mm	184 mm	Yes
Hip Breadth	U	299.8 - 314.9 mm	300 mm	Yes
Shoulder Breadth	V	350.6 - 365.7 mm	360 mm	Yes
Foot Breadth	W	78.8 - 93.9 mm	91 mm	Yes
Head Circumference	X	528.4 - 548.6 mm	546 mm	Yes
Chest Circumference with Jacket	Y	850.9 - 881.3 mm	872 mm	Yes
Waist Circumference	Z	759.5 - 789.9 mm	783 mm	Yes
Reference Location for Chest Circumference	AA	299.8 - 309.8 mm	305 mm	Yes
Reference Location for Waist Circumference	BB	160.1 - 170.1 mm	165 mm	Yes

Technician



Approved




# Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/26/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Peak Resultant Acceleration	250 - 300 g	288.8 g	Yes
Peak Lateral Acceleration	15 g Max	13.3 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

## Comments:

Technician



Approved

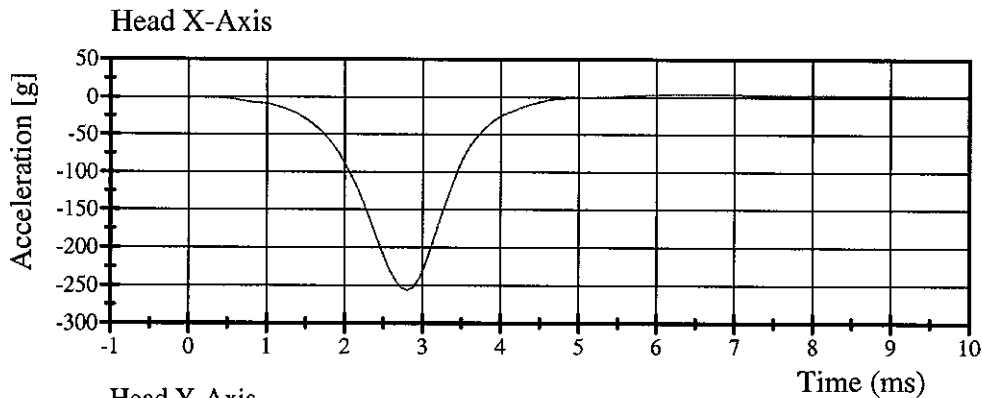


# Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

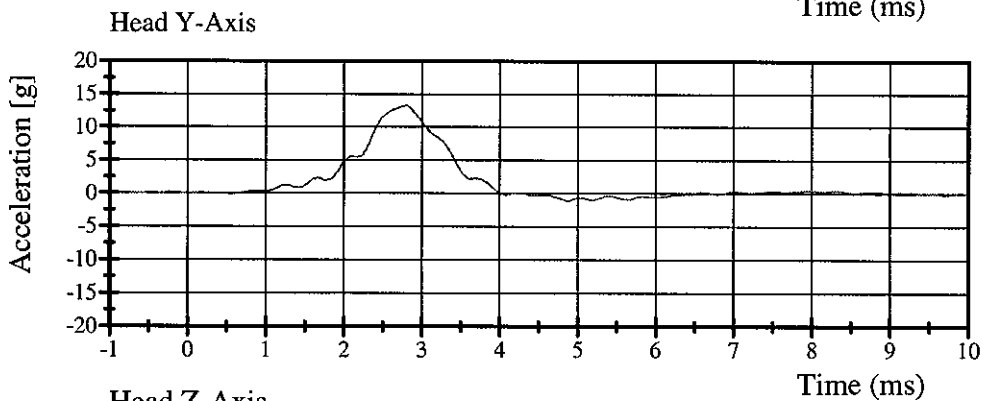
Test Date 08/26/2002



Filter Class: 1000

Max: 4.4 g at 6.5 ms

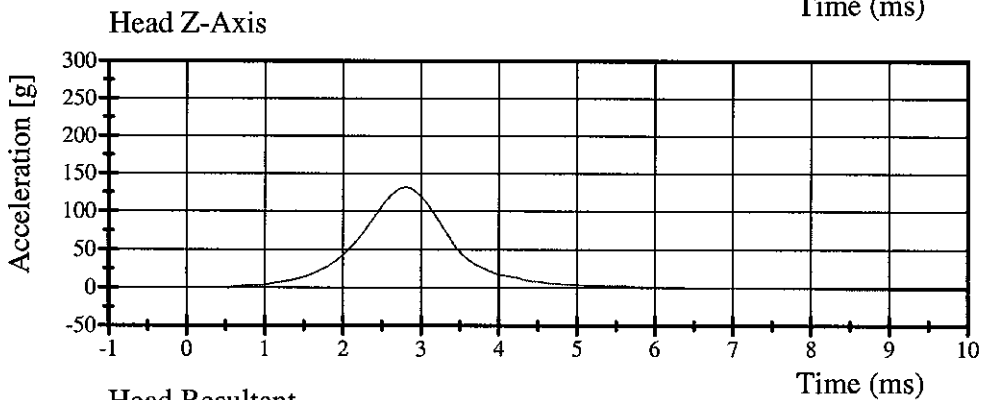
Min: -256.5 g at 2.8 ms



Filter Class: 1000

Max: 13.3 g at 2.8 ms

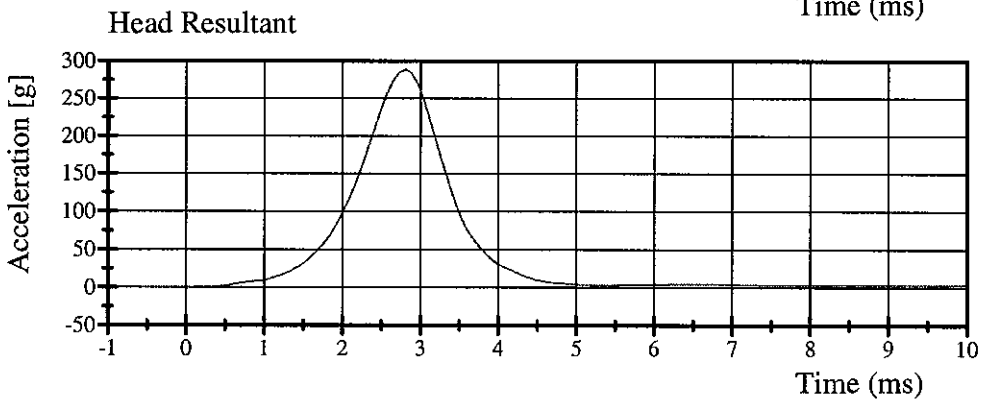
Min: -1.2 g at 4.9 ms



Filter Class: 1000

Max: 132.1 g at 2.8 ms

Min: -2.7 g at 9.9 ms



Filter Class: 1000

Max: 288.8 g at 2.8 ms

Min: 0.0 g at 2.6 ms

# Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

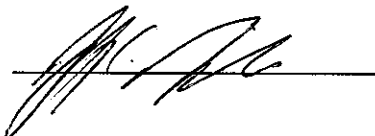
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

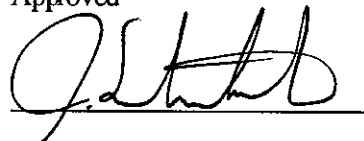
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.11 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.21 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.24 m/s	Yes
Peak D Plane Rotation	77 - 91 °	77.4 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	73.30 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	88.48 ms	Yes

## Comments:

Technician



Approved



08.28.2002 13:53:36 462



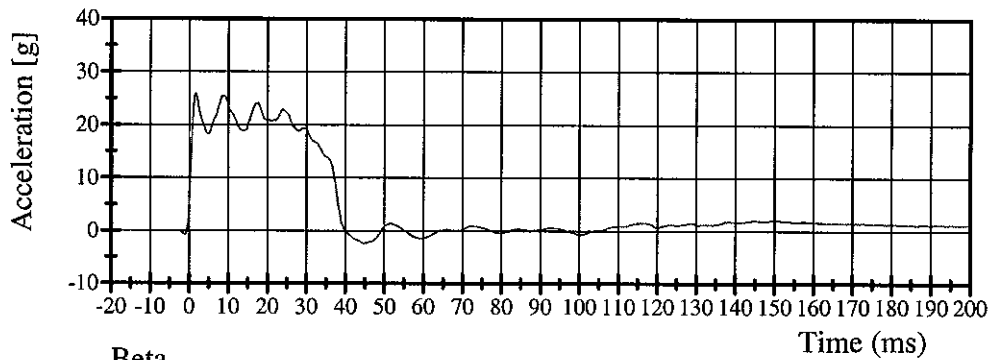
# Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

### Pendulum Deceleration

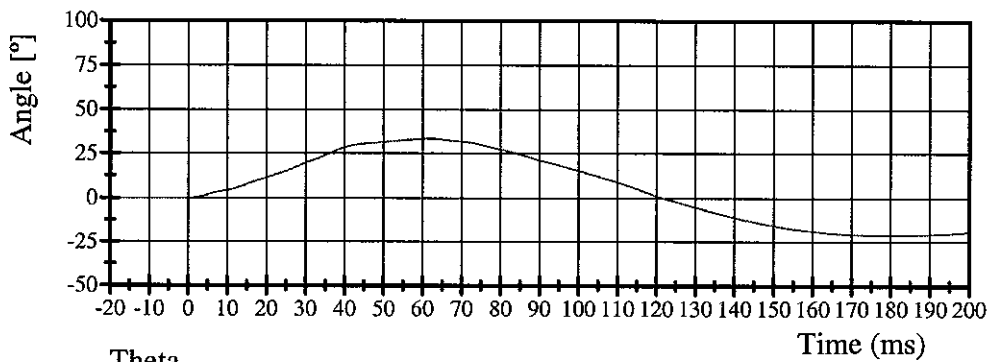


Filter Class: 180

Max: 25.9 g at 1.6 ms

Min: -2.4 g at 44.9 ms

### Beta

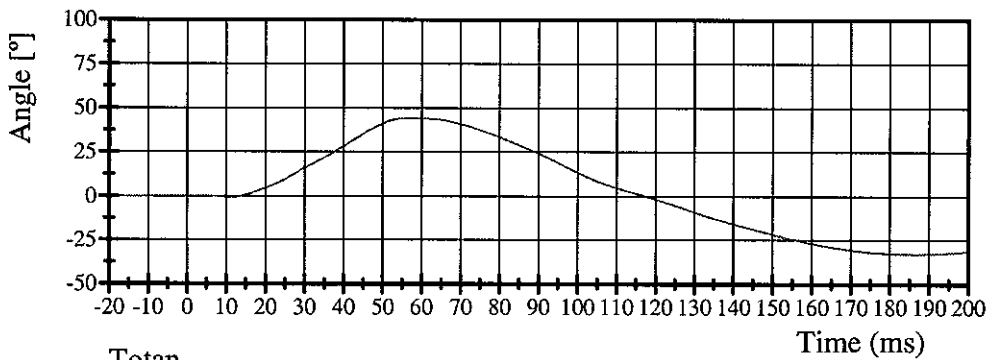


Filter Class: 60

Max: 33.5 ° at 61.9 ms

Min: -21.0 ° at 181.8 ms

### Theta

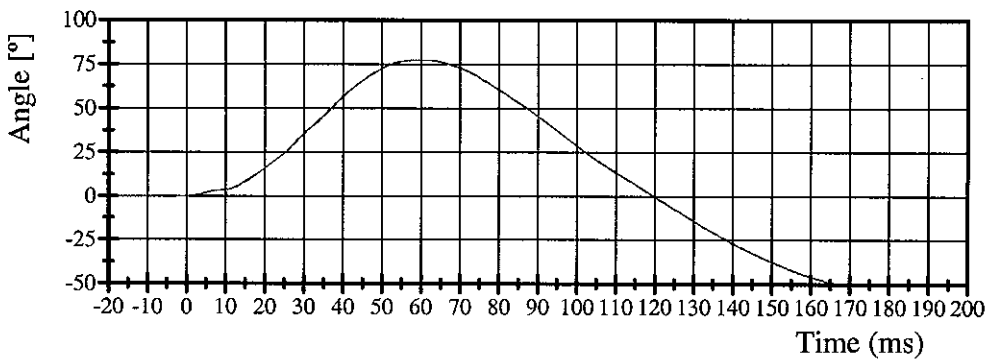


Filter Class: 60

Max: 44.2 ° at 57.0 ms

Min: -32.9 ° at 186.5 ms

### Totan



Filter Class: 60

Max: 77.4 ° at 60.7 ms

Min: -53.8 ° at 184.5 ms

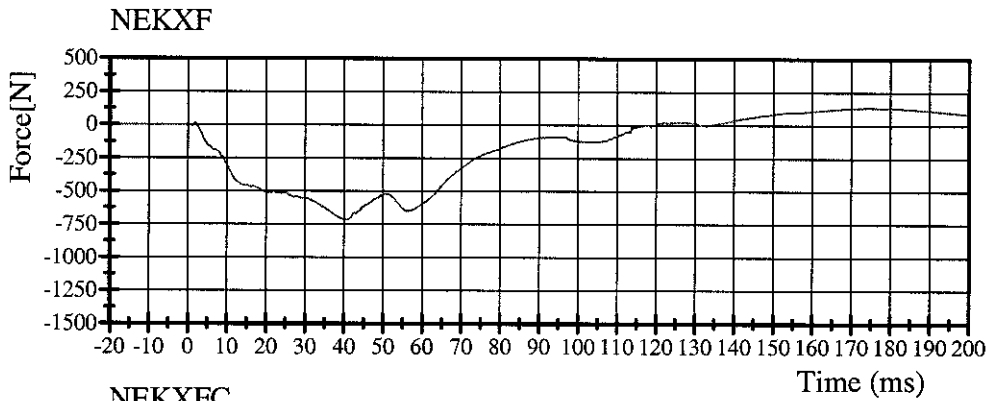


# Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

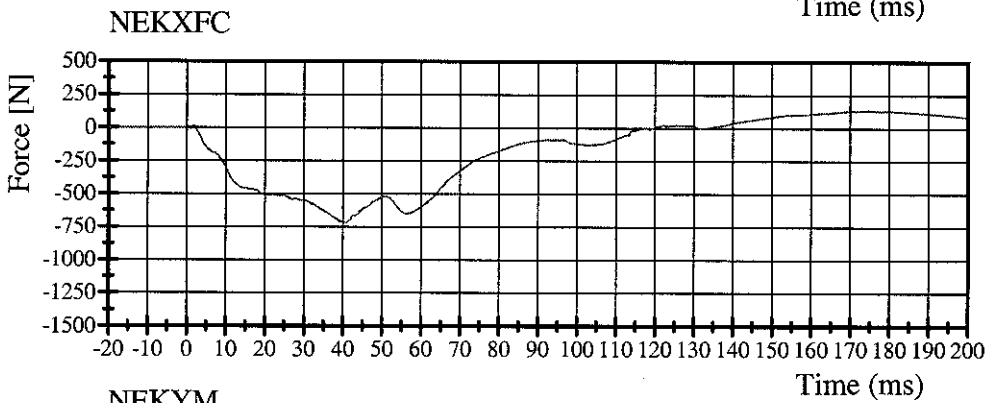
Test Date 08/28/2002



Filter Class: 1000

Max: 134.5 N at 174.7 ms

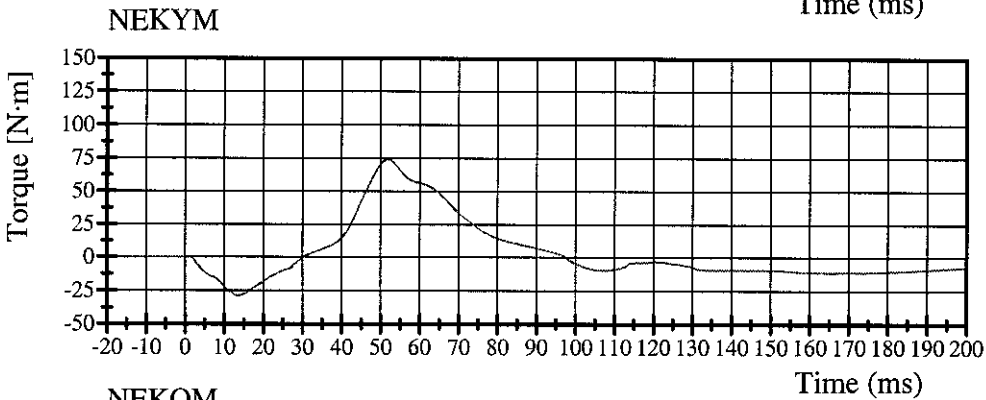
Min: -716.5 N at 40.2 ms



Filter Class: 600

Max: 133.6 N at 174.7 ms

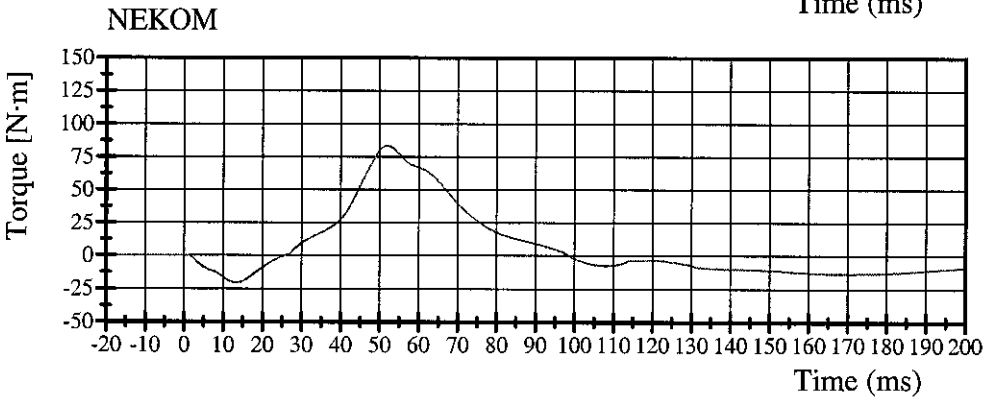
Min: -716.1 N at 40.2 ms



Filter Class: 600

Max: 74.2 N·m at 51.8 ms

Min: -28.8 N·m at 13.5 ms



Filter Class: 600

Max: 83.7 N·m at 51.9 ms

Min: -20.8 N·m at 13.4 ms



# Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

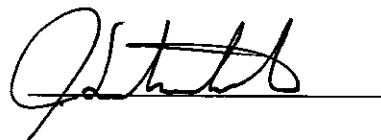
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.15 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.50 - 1.90 m/s	1.73 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.47 m/s	Yes
30 ms	4.60 - 5.60 m/s	5.09 m/s	Yes
Peak D Plane Rotation	99 - 114 °	100.7 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-60.47 N·m	Yes
Positive Moment Decay Time To -10 N·m	94 - 114 ms	102.32 ms	Yes

## Comments:

Technician



Approved



08.28.2002 14:59:02 528



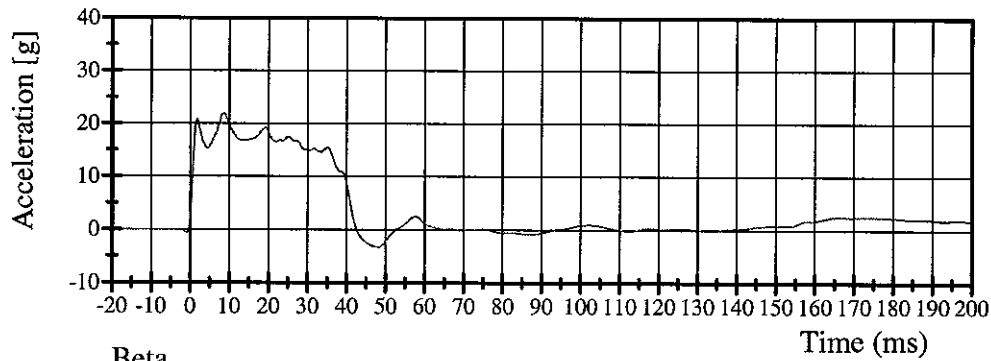
# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

### Pendulum Deceleration

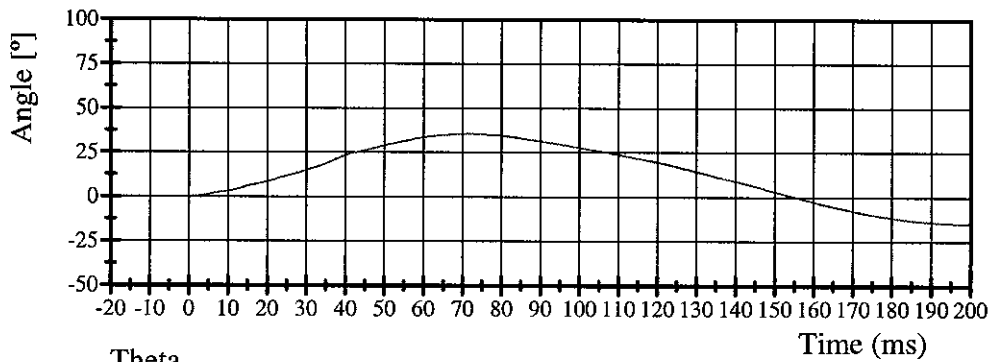


Filter Class: 180

Max: 22.0 g at 8.6 ms

Min: -3.3 g at 48.2 ms

### Beta

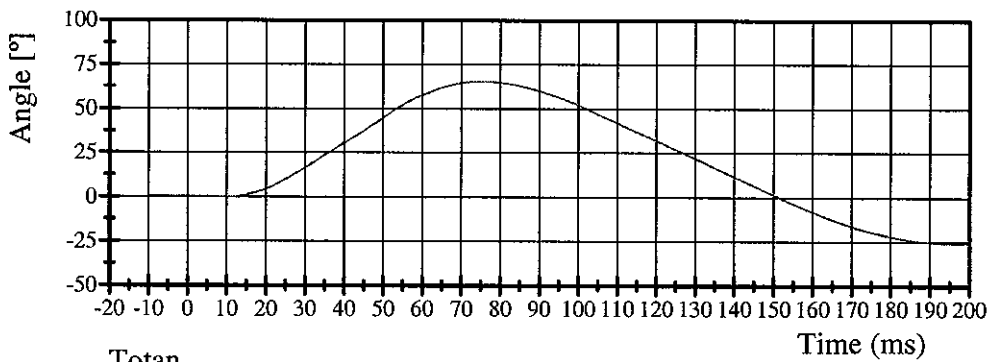


Filter Class: 60

Max: 35.4 ° at 71.9 ms

Min: -14.8 ° at 199.4 ms

### Theta

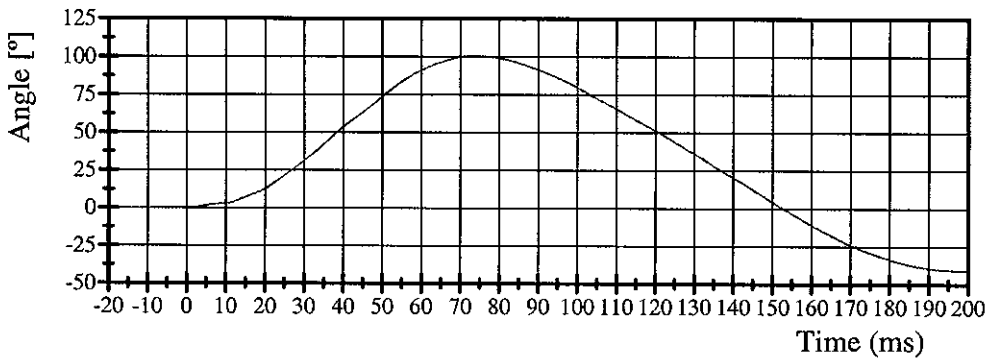


Filter Class: 60

Max: 65.4 ° at 74.6 ms

Min: -25.8 ° at 196.9 ms

### Totan



Filter Class: 60

Max: 100.7 ° at 73.5 ms

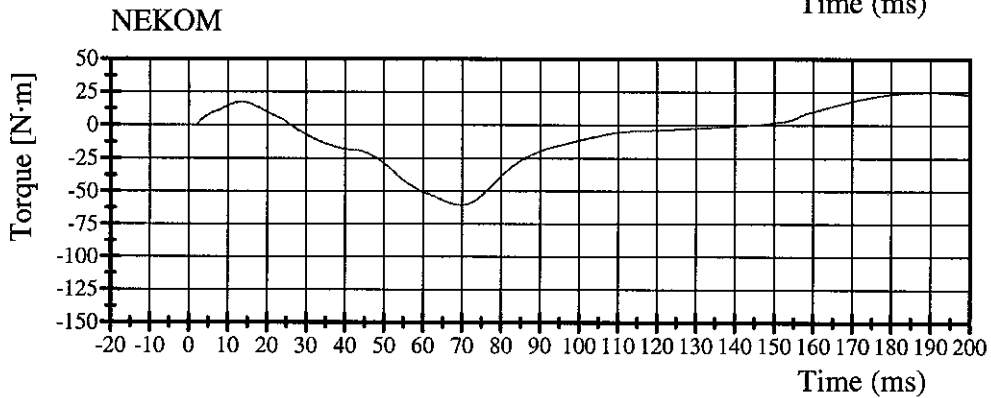
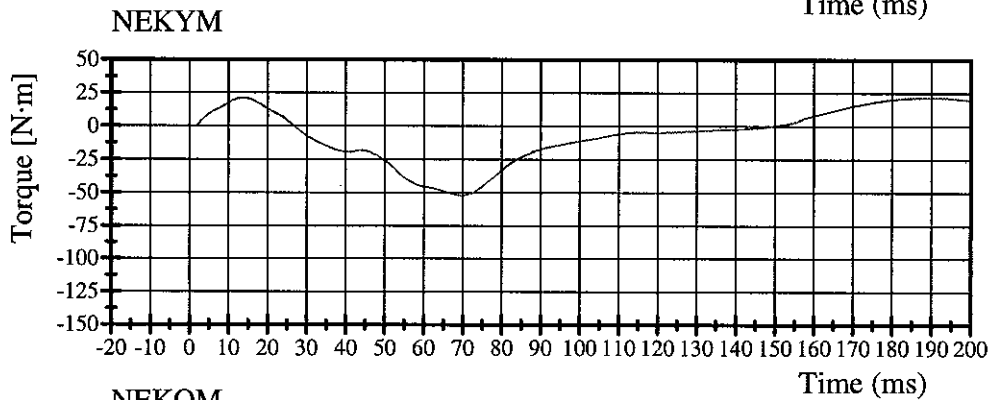
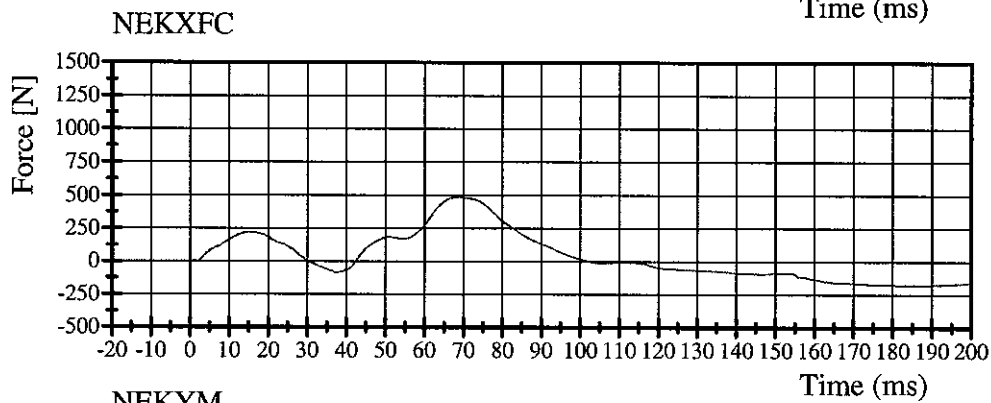
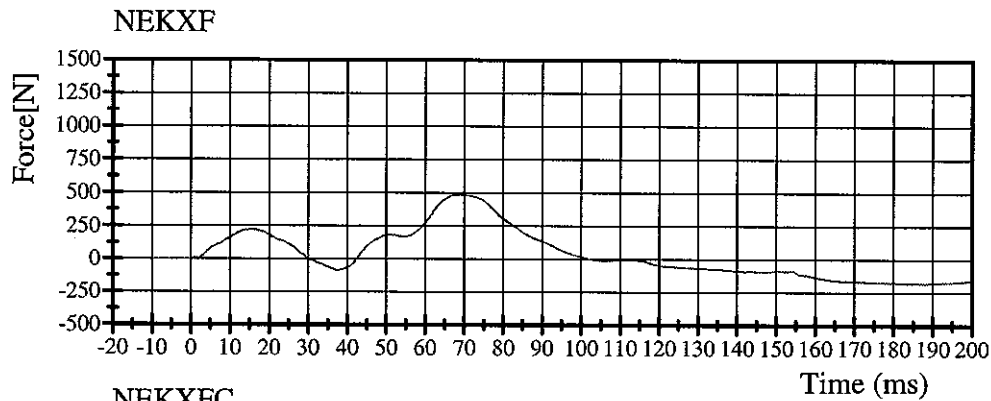
Min: -40.6 ° at 197.9 ms

# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002



# Transportation Research Center Inc.

5720 Thorax Test

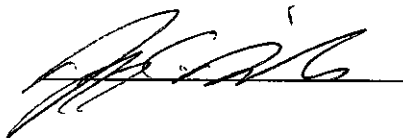
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 09/09/2002

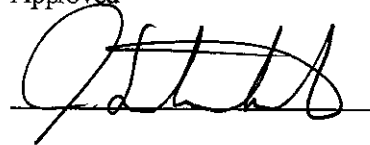
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-56.6 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4395 N	Yes
Internal Hysteresis	105 % Max.	93 %	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

**Comments:**

Technician



Approved



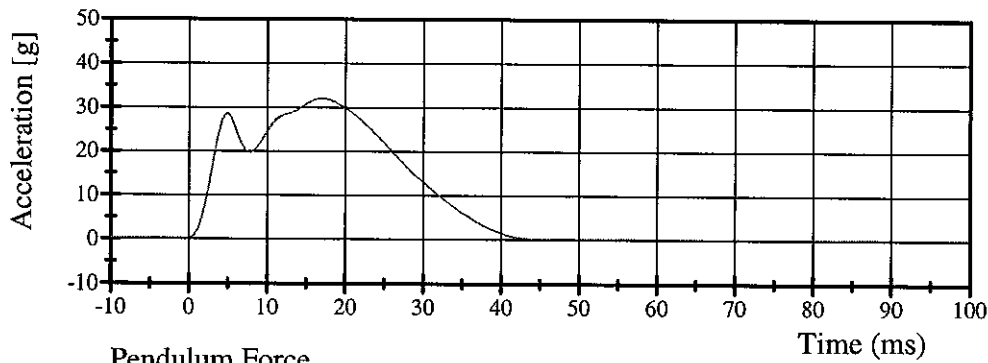
# Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 09/09/2002

### Pendulum Deceleration

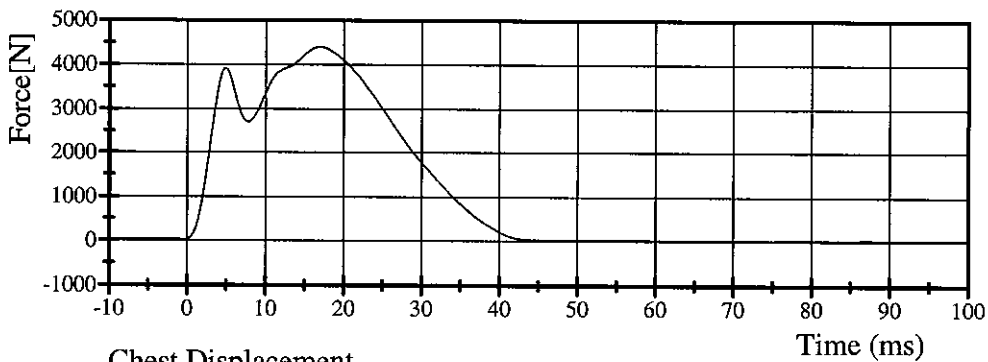


Filter Class: 180

Max: 32.1 g at 17.0 ms

Min: -0.0 g at -85.7 ms

### Pendulum Force

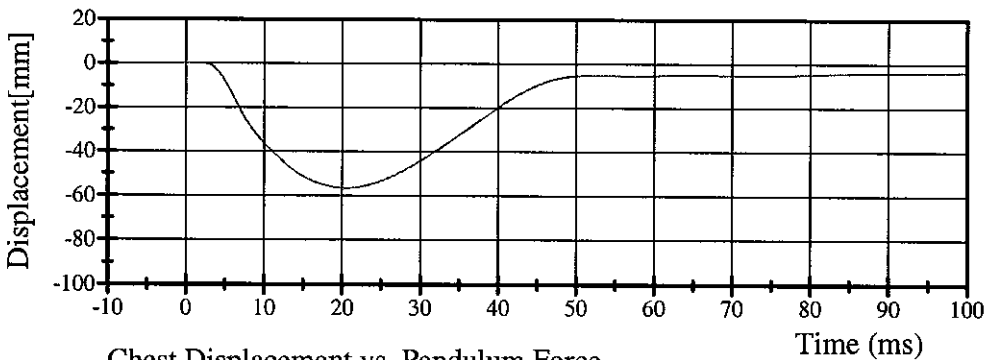


Filter Class: 180

Max: 4395.0 N at 17.0 ms

Min: -5.0 N at -85.7 ms

### Chest Displacement

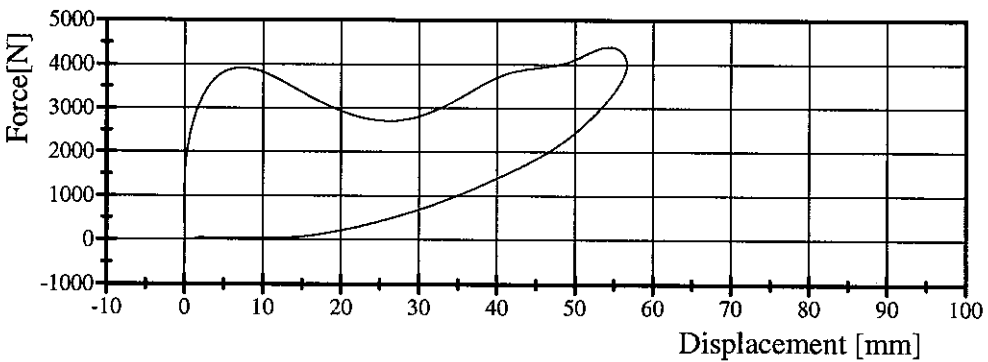


Filter Class: 180

Max: 0.1 mm at 1.8 ms

Min: -56.6 mm at 20.6 ms

### Chest Displacement vs. Pendulum Force



**TRANSPORTATION RESEARCH CENTER INC.**

**TORSO FLEXION TEST**

**HYBRID III SMALL FEMALE**

**CAL DATE: 30-Aug-02**

**TRC, INC. TEST NO: 416C17TF1 572 O SN416 TORSO FLEX CAL 17**

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 – 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 – 70 %	60 %
INITIAL ANGLE OF UNSUPPORTRED DUMMY	<= 20 DEG. REFERENCED TO VERTICAL	12.5 DEG.
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	321.5 N
RETURN ANGLE		19.3 DEG.
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 DEG. OF INTIAL ANGLE	6.8 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN 

# Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.75 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.7 mm	Yes

## Comments:

Technician



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Approved



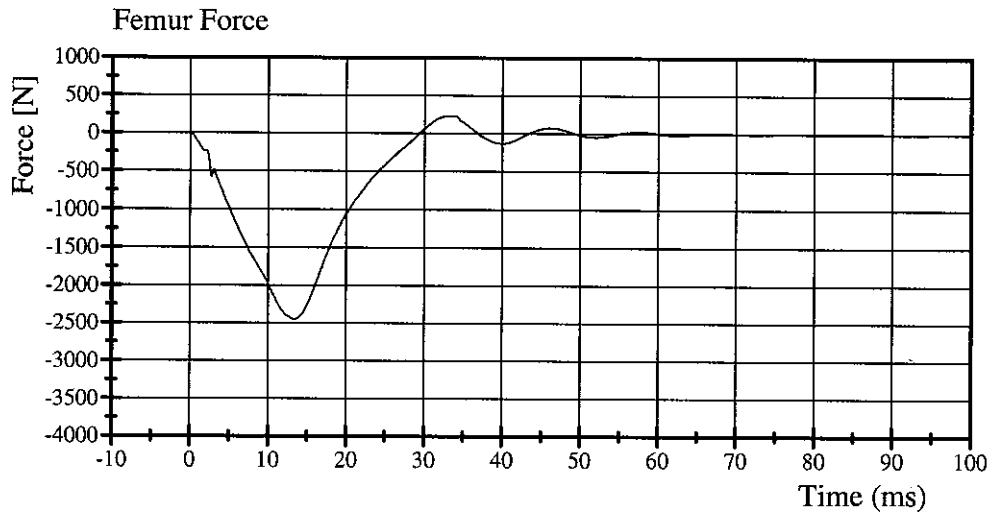
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# Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

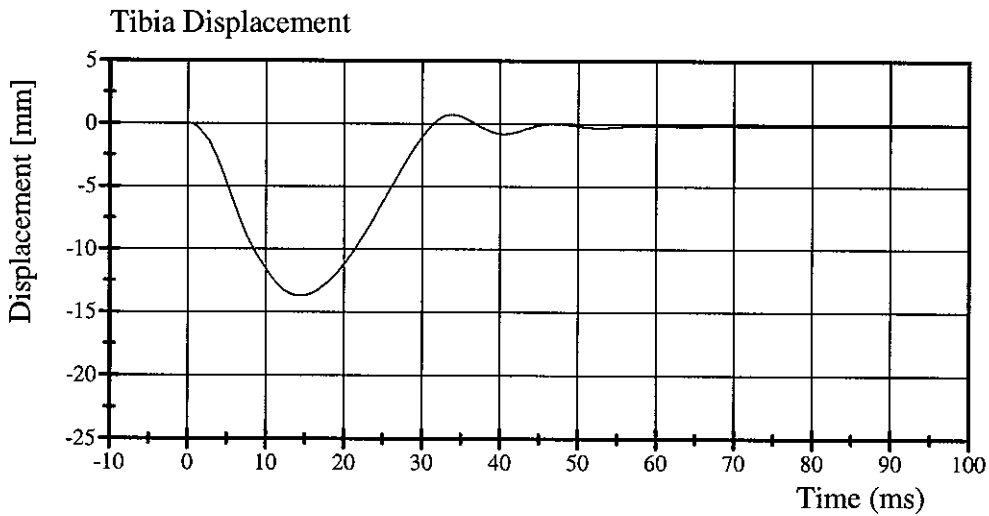
Test Date 08/28/2002



Filter Class: 600

Max: 231.2 N at 33.5 ms

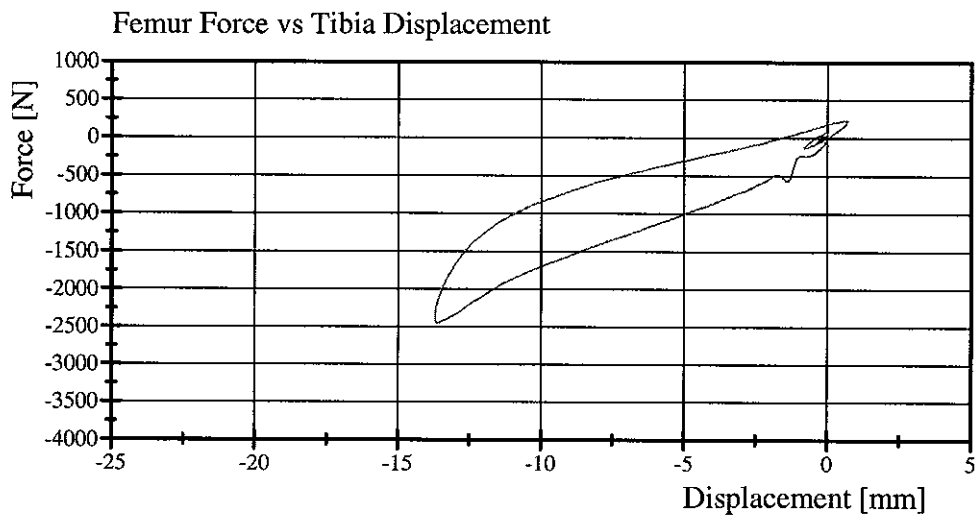
Min: -2449.0 N at 13.4 ms



Filter Class: 600

Max: 0.7 mm at 33.7 ms

Min: -13.7 mm at 14.3 ms



# Transportation Research Center Inc.

5720 Right Knee Slider Test

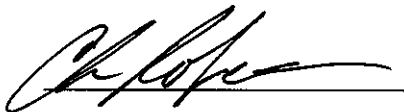
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

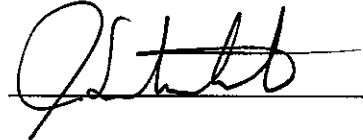
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.9 mm	Yes

Comments:

Technician



Approved

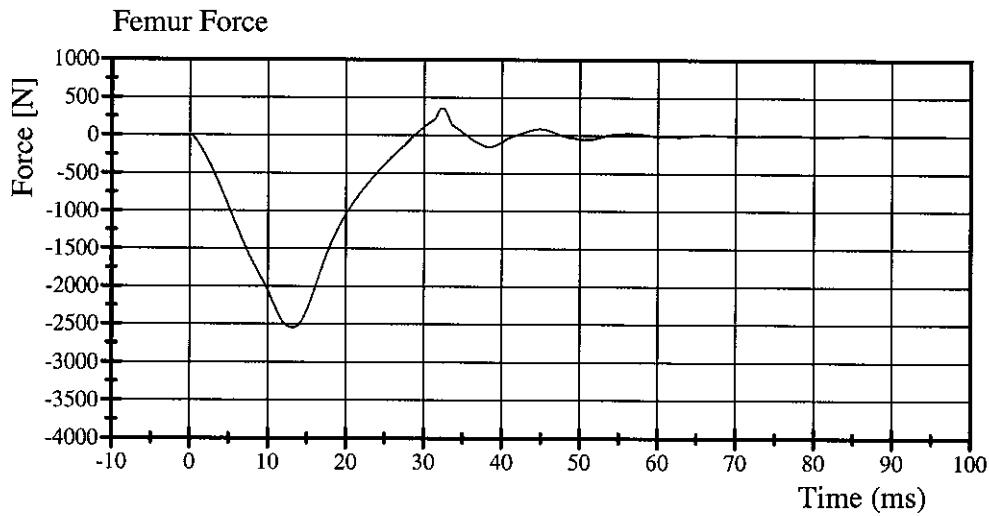


# Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

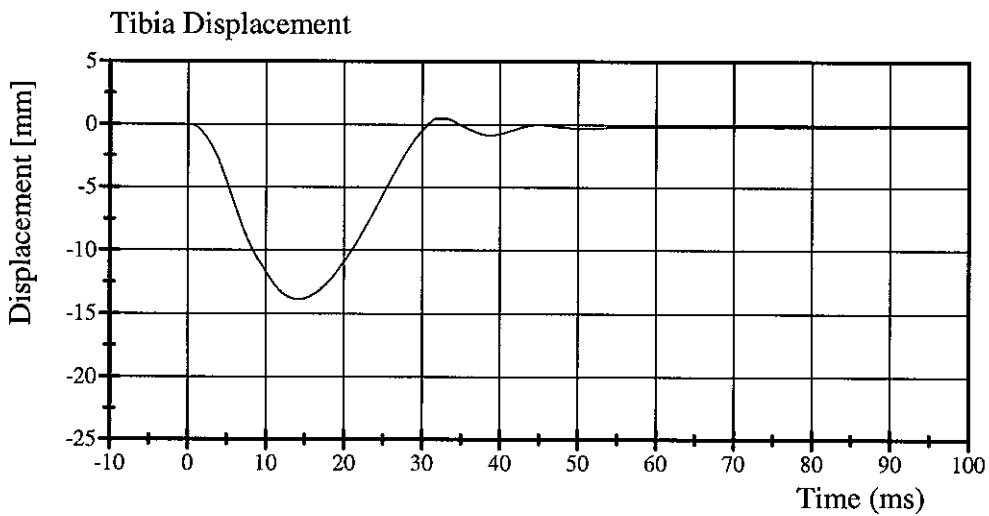
Test Date 08/28/2002



Filter Class: 600

Max: 360.5 N at 32.3 ms

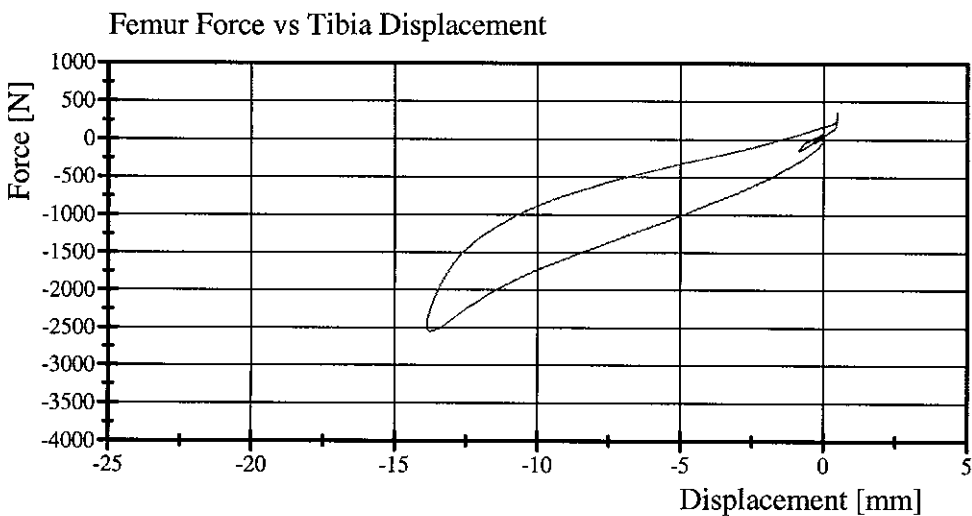
Min: -2546.2 N at 13.2 ms



Filter Class: 600

Max: 0.5 mm at 31.9 ms

Min: -13.9 mm at 14.2 ms



# Transportation Research Center Inc.

5720 Left Knee Test

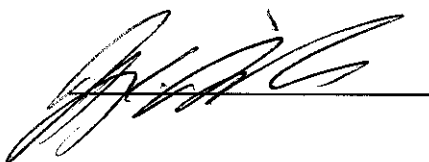
HHH 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

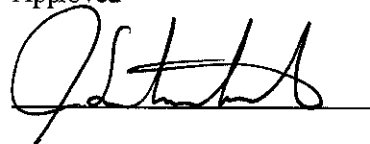
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3935 N	Yes

## Comments:

Technician



Approved



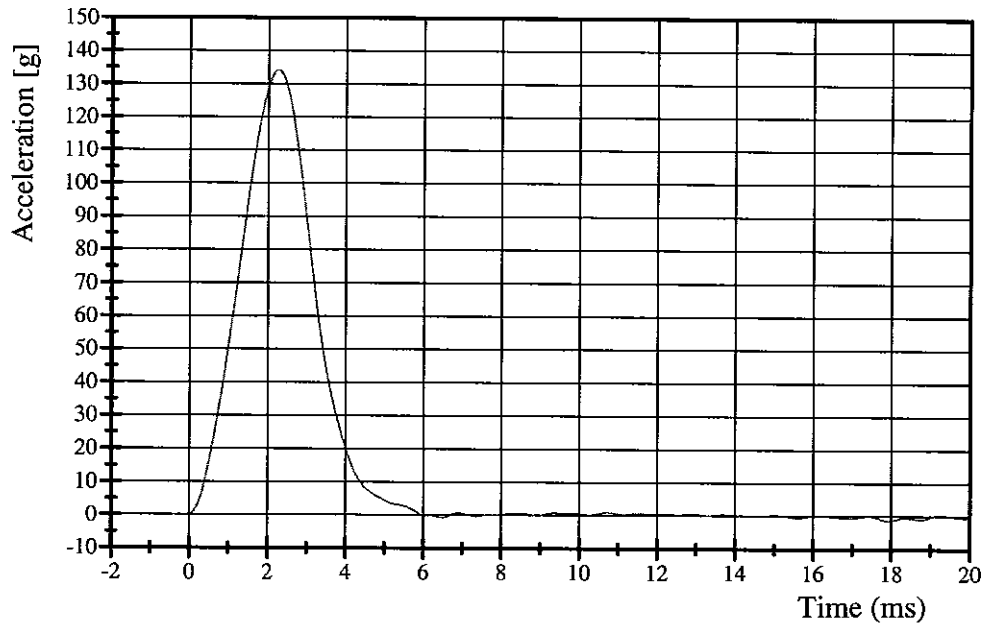
# Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

### Pendulum Deceleration

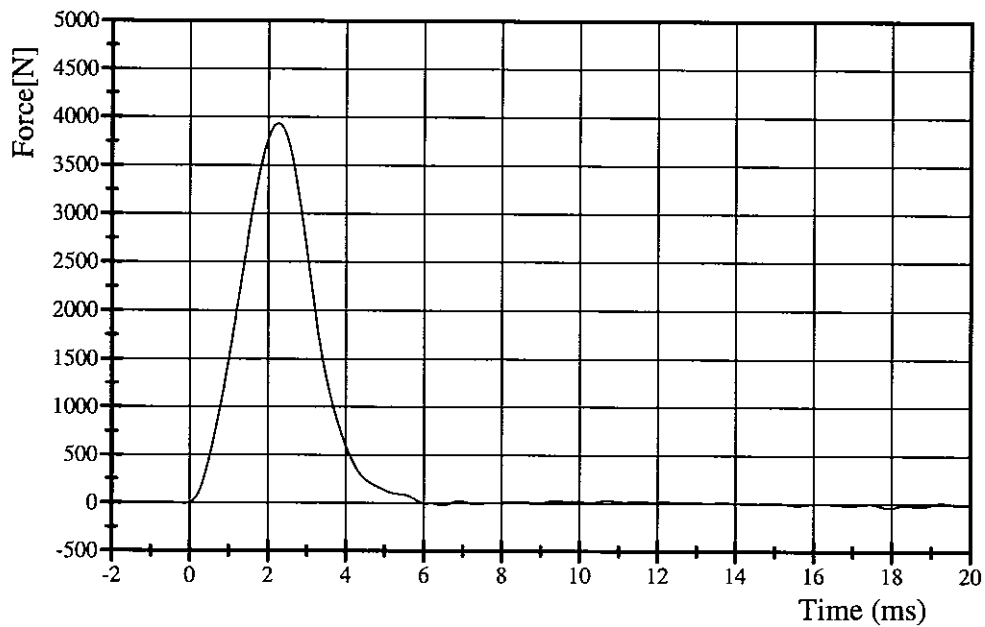


Filter Class: 600

Max: 134.2 g at 2.2 ms

Min: -1.3 g at 17.9 ms

### Pendulum Force



Filter Class: 600

Max: 3935.0 N at 2.2 ms

Min: -39.2 N at 17.9 ms

# Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

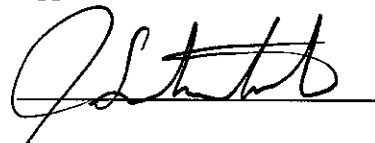
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3663 N	Yes

Comments:

Technician



Approved



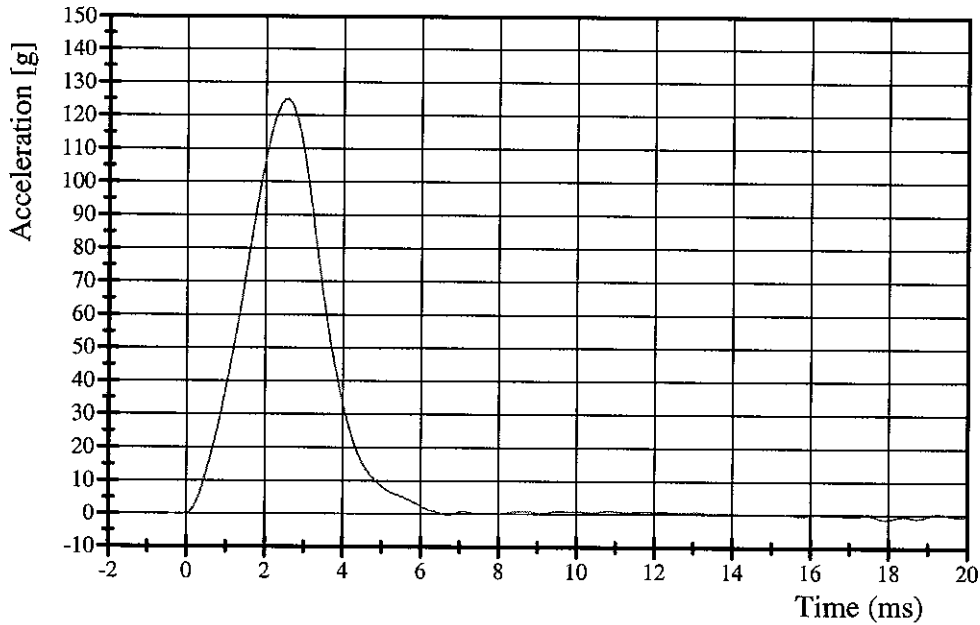
# Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

### Pendulum Deceleration

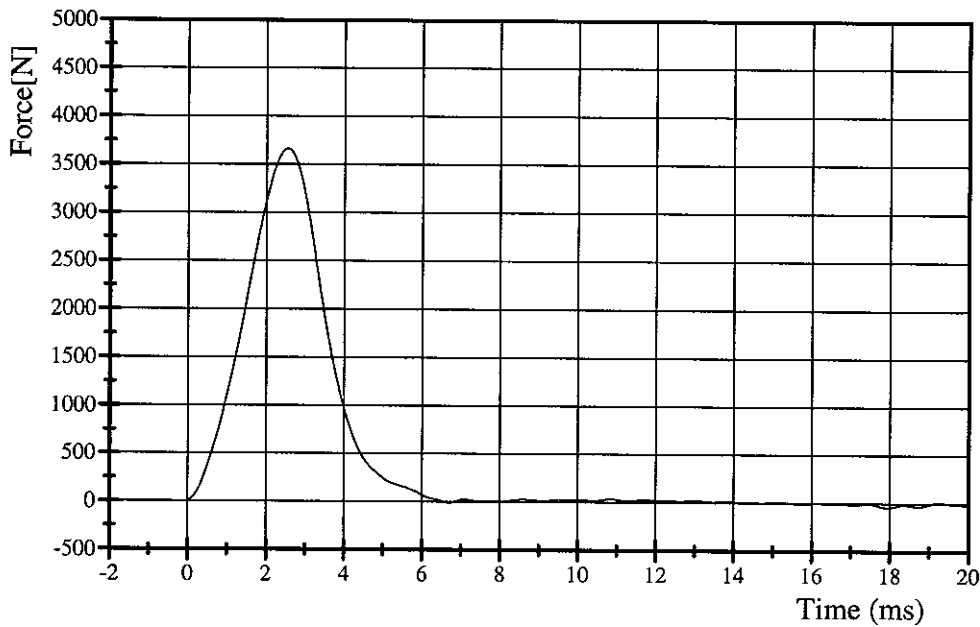


Filter Class: 600

Max: 124.9 g at 2.6 ms

Min: -1.5 g at 17.9 ms

### Pendulum Force



Filter Class: 600

Max: 3662.9 N at 2.6 ms

Min: -42.8 N at 17.9 ms

Post-Test Dummy Configuration and Performance Verification Data

Passenger Dummy S/N: 421

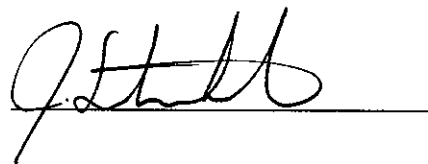
**Transportation Research Center Inc.**  
**572F HIII 5th Dummy**  
**External Dimensions**  
**Serial No. 421 Calibration No. 10**

Test Parameter	Dimension	Specification	Results	Pass
Total Sitting Height	A	774.7 - 800.1 mm	793 mm	Yes
Shoulder Pivot Height	B	431.8 - 457.2 mm	450 mm	Yes
Hip Pivot Height	C	81.3 - 86.3 mm	84 mm	Yes
Hip Pivot from Backline	D	144.8 - 149.8 mm	147 mm	Yes
Shoulder Pivot from Backline	E	68.6 - 83.8 mm	81 mm	Yes
Thigh Clearance	F	119.4 - 134.6 mm	127 mm	Yes
Back of Elbow to Wrist Pivot	G	243.9 - 259.0 mm	253 mm	Yes
Head Back to Backline	H	40.7 - 45.7 mm	45 mm	Yes
Shoulder to Elbow Length	I	276.9 - 297.1 mm	289 mm	Yes
Elbow Rest Height	J	182.9 - 203.2 mm	200 mm	Yes
Buttock Knee Length	K	520.7 - 546.1 mm	532 mm	Yes
Popliteal Height	L	355.6 - 375.9 mm	369 mm	Yes
Knee Pivot Height	M	393.7 - 419.1 mm	413 mm	Yes
Buttock Popliteal Height	N	414.1 - 439.4 mm	421 mm	Yes
Chest Depth without Jacket	O	175.3 - 190.5 mm	185 mm	Yes
Foot Length	P	218.5 - 233.6 mm	226 mm	Yes
Buttock to Knee Pivot Length	R	457.2 - 482.6 mm	481 mm	Yes
Head Breadth	S	137.2 - 147.3 mm	140 mm	Yes
Head Depth	T	177.8 - 187.9 mm	183 mm	Yes
Hip Breadth	U	299.8 - 314.9 mm	310 mm	Yes
Shoulder Breadth	V	350.6 - 365.7 mm	354 mm	Yes
Foot Breadth	W	78.8 - 93.9 mm	87 mm	Yes
Head Circumference	X	528.4 - 548.6 mm	540 mm	Yes
Chest Circumference with Jacket	Y	850.9 - 881.3 mm	879 mm	Yes
Waist Circumference	Z	759.5 - 789.9 mm	774 mm	Yes
Reference Location for Chest Circumference	AA	299.8 - 309.8 mm	305 mm	Yes
Reference Location for Waist Circumference	BB	160.1 - 170.1 mm	165 mm	Yes

Technician



Approved




# Transportation Research Center Inc.

5720 Head Drop Test

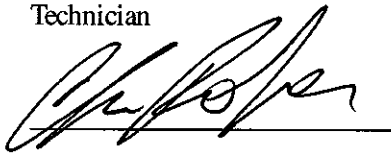
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

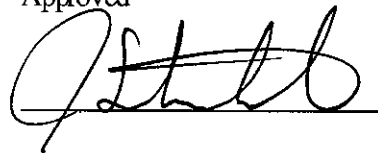
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	64 %	Yes
Peak Resultant Acceleration	250 - 300 g	264.1 g	Yes
Peak Lateral Acceleration	15 g Max	6.1 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

## Comments:

Technician



Approved

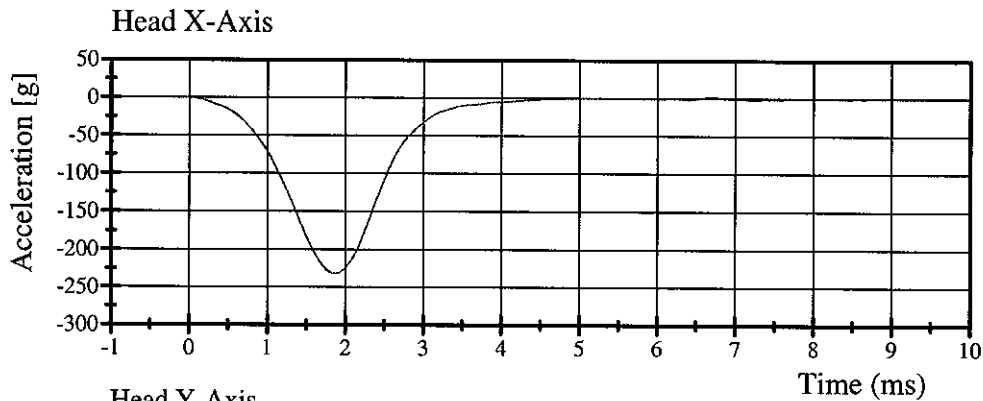


# Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

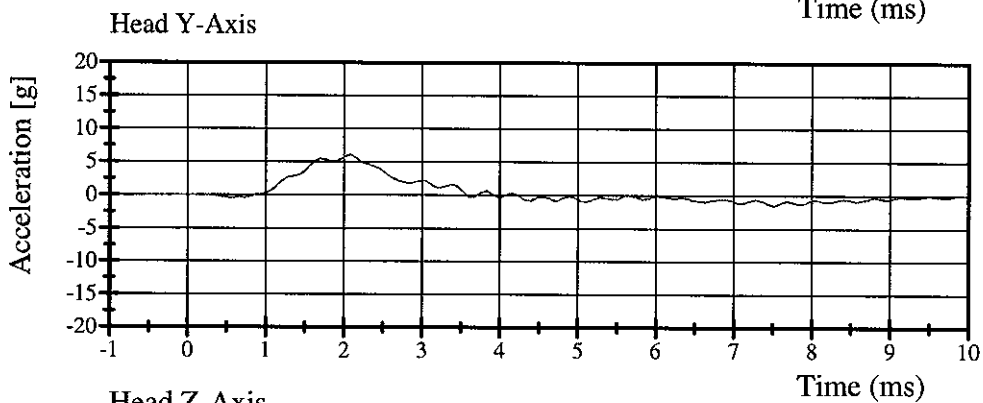
Test Date 08/26/2002



Filter Class: 1000

Max: 1.5 g at 6.7 ms

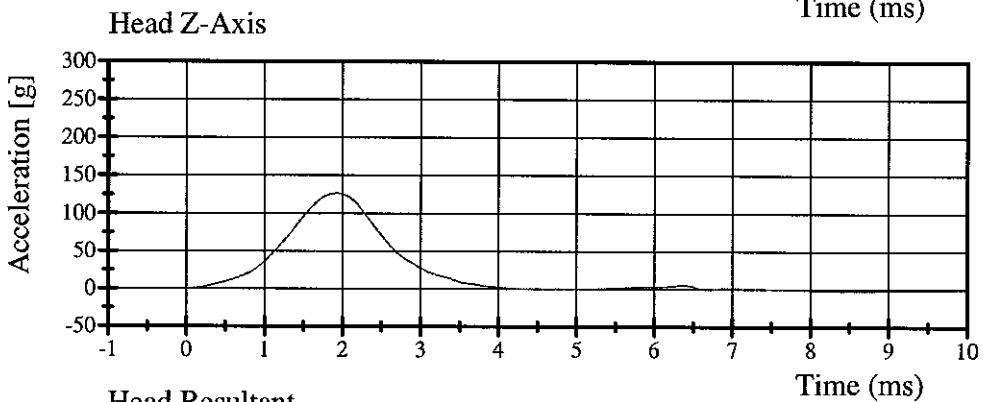
Min: -232.1 g at 1.8 ms



Filter Class: 1000

Max: 6.1 g at 2.1 ms

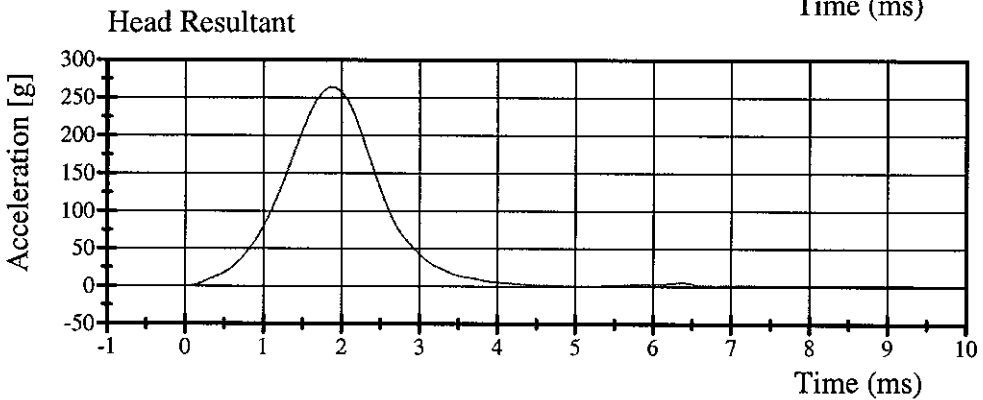
Min: -1.5 g at 7.5 ms



Filter Class: 1000

Max: 127.1 g at 1.9 ms

Min: -1.8 g at 8.6 ms



Filter Class: 1000

Max: 264.1 g at 1.8 ms

Min: 0.0 g at 1.6 ms

# Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

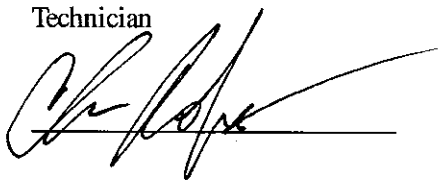
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

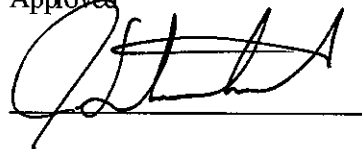
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.10 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.33 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.68 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.85 m/s	Yes
Peak D Plane Rotation	77 - 91 °	81.3 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	77.15 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	88.32 ms	Yes

## Comments:

Technician



Approved



08.28.2002 12:29:18 456



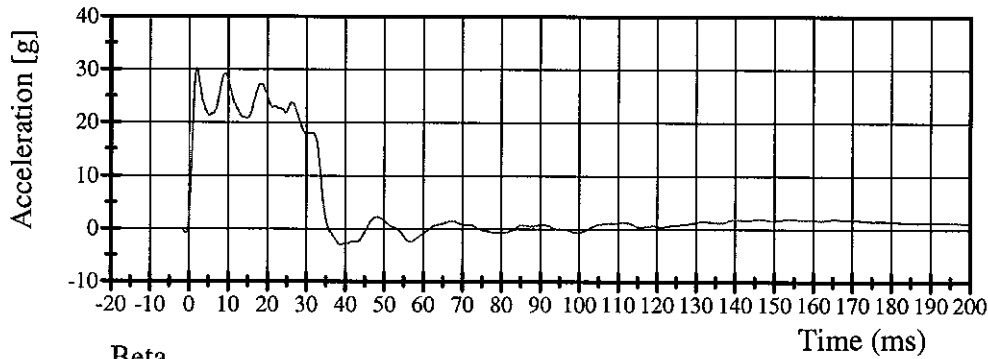
# Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

### Pendulum Deceleration

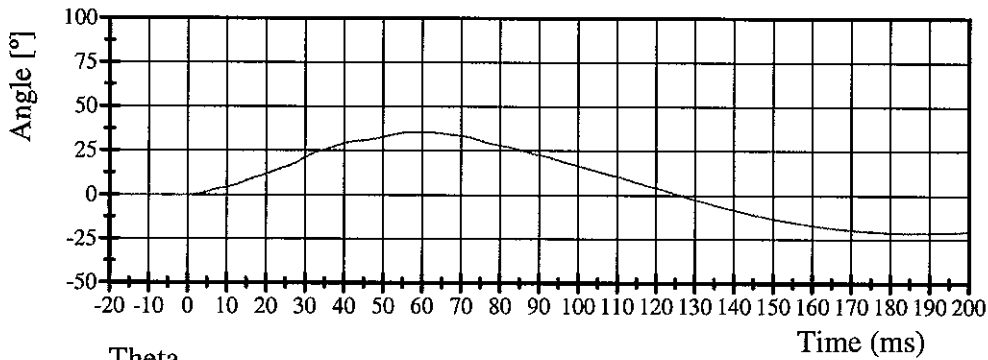


Filter Class: 180

Max: 30.2 g at 1.9 ms

Min: -3.0 g at 38.8 ms

### Beta

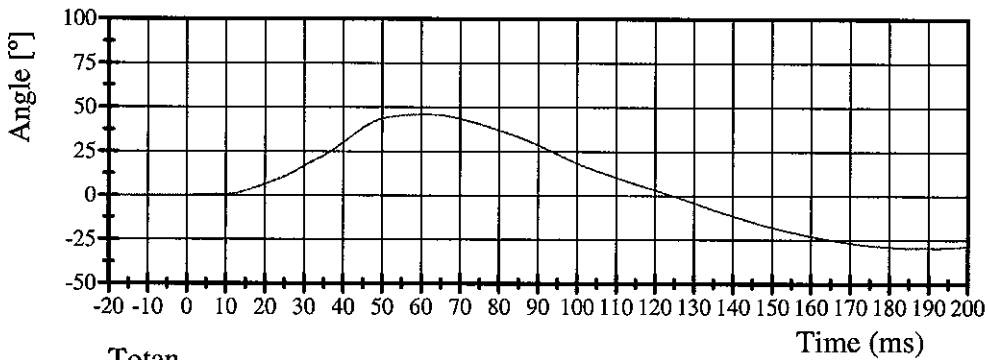


Filter Class: 60

Max: 35.4 ° at 58.7 ms

Min: -21.2 ° at 185.6 ms

### Theta

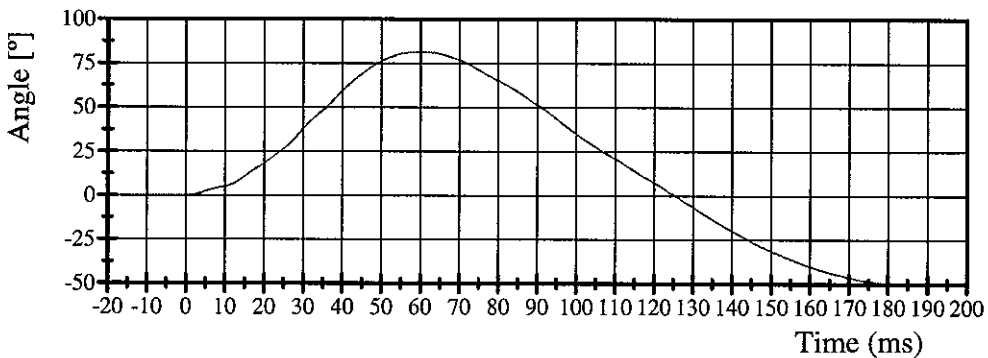


Filter Class: 60

Max: 45.9 ° at 61.0 ms

Min: -29.5 ° at 188.1 ms

### Totan



Filter Class: 60

Max: 81.3 ° at 60.4 ms

Min: -50.7 ° at 187.2 ms

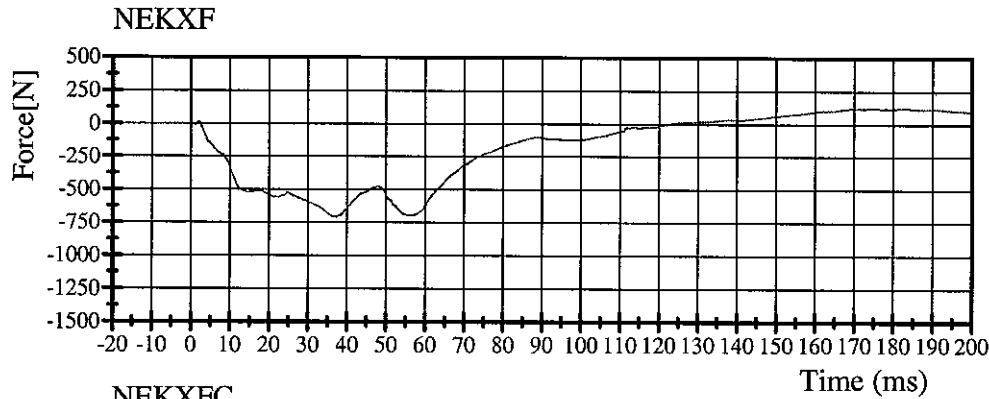


# Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

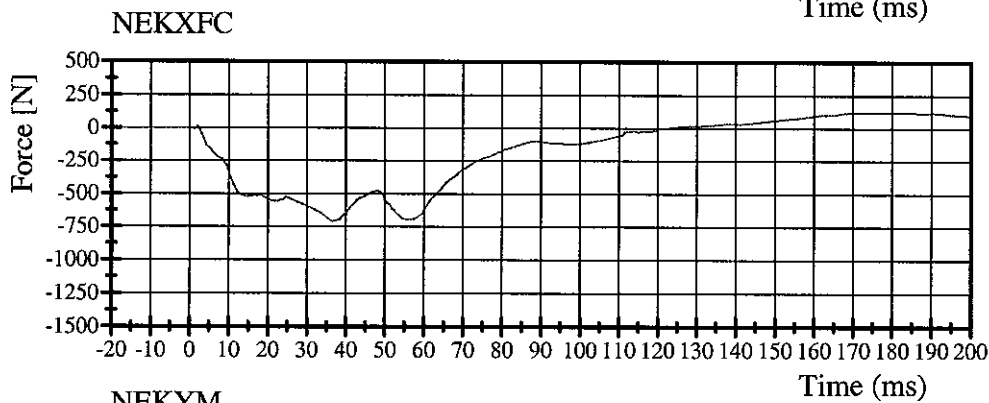
Test Date 08/28/2002



Filter Class: 1000

Max: 124.7 N at 182.8 ms

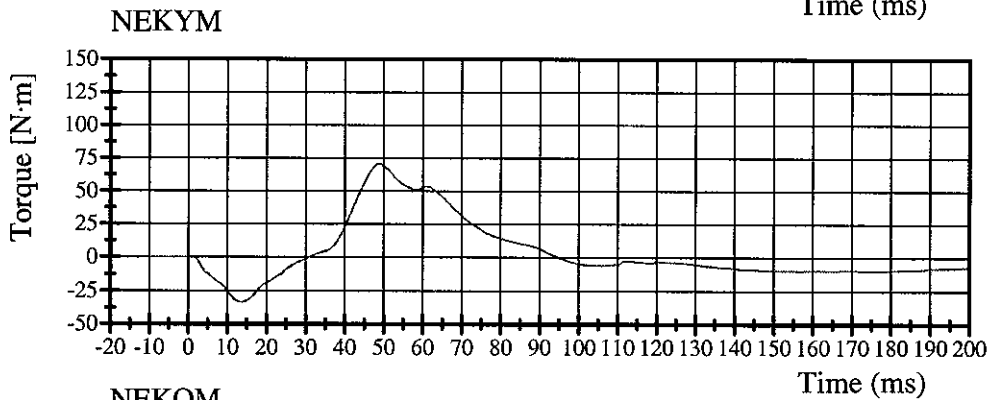
Min: -709.5 N at 36.7 ms



Filter Class: 600

Max: 124.1 N at 182.7 ms

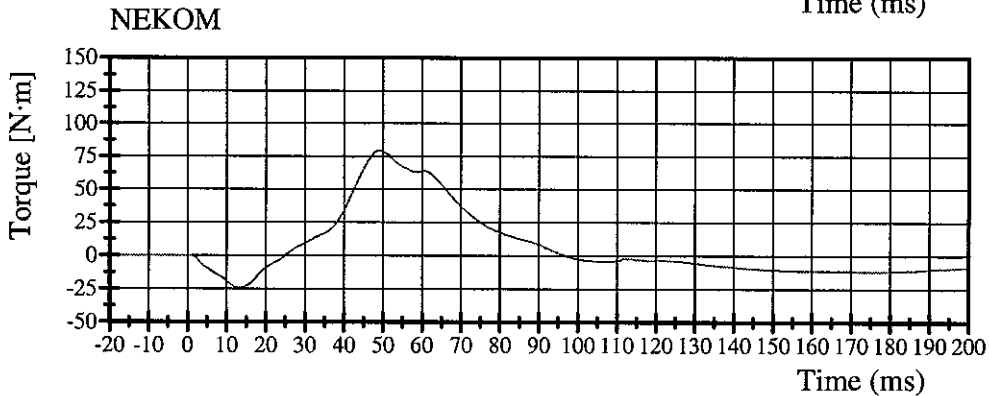
Min: -708.3 N at 36.7 ms



Filter Class: 600

Max: 70.8 N·m at 48.8 ms

Min: -33.5 N·m at 13.5 ms



Filter Class: 600

Max: 79.5 N·m at 49.0 ms

Min: -24.4 N·m at 13.4 ms

# Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

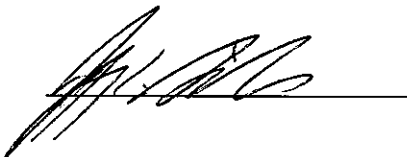
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

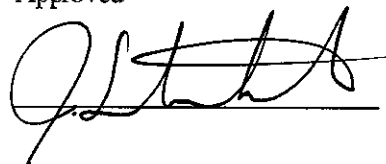
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.18 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.50 - 1.90 m/s	1.64 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.30 m/s	Yes
30 ms	4.60 - 5.60 m/s	4.95 m/s	Yes
Peak D Plane Rotation	99 - 114 °	104.9 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-54.53 N·m	Yes
Positive Moment Decay Time To -10 N·m	94 - 114 ms	106.40 ms	Yes

## Comments:

Technician



Approved



08.28.2002 12:52:06 528



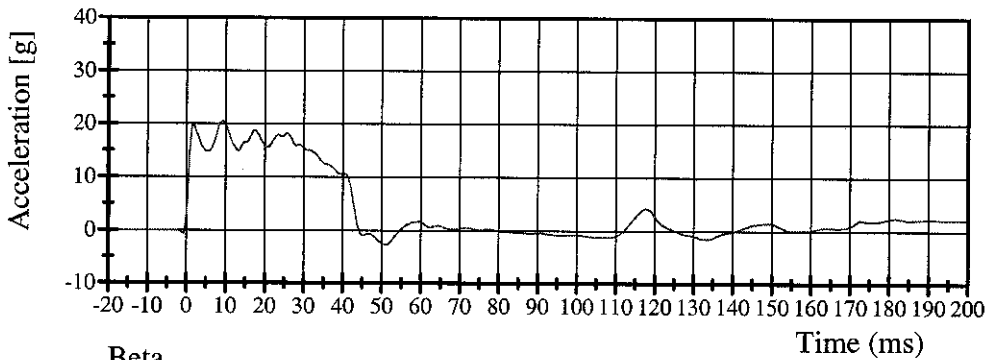
# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

### Pendulum Deceleration

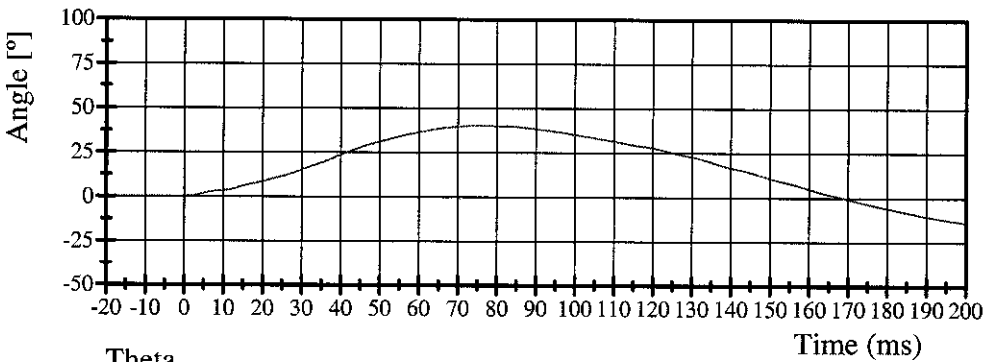


Filter Class: 180

Max: 20.5 g at 9.2 ms

Min: -2.7 g at 51.0 ms

### Beta

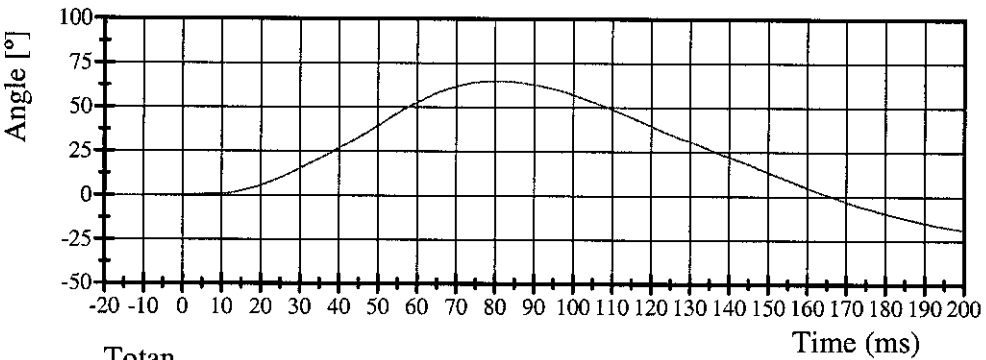


Filter Class: 60

Max: 40.3 ° at 74.8 ms

Min: -16.4 ° at 213.4 ms

### Theta

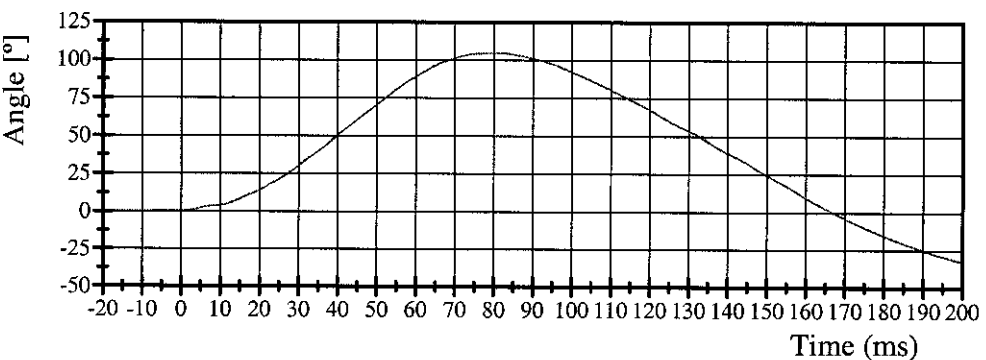


Filter Class: 60

Max: 64.8 ° at 81.4 ms

Min: -20.6 ° at 213.1 ms

### Totan



Filter Class: 60

Max: 104.9 ° at 81.2 ms

Min: -36.9 ° at 213.3 ms

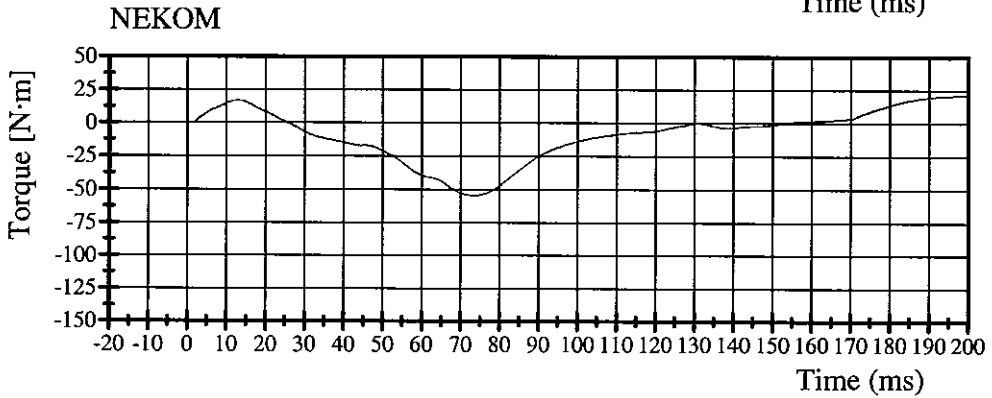
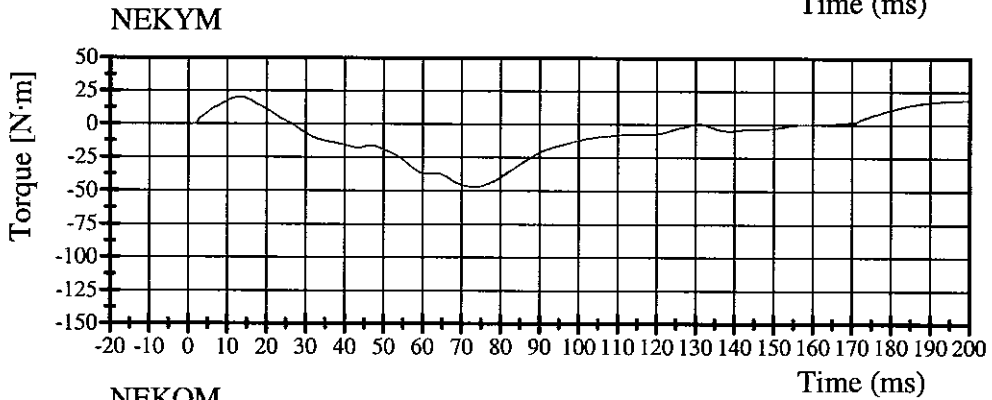
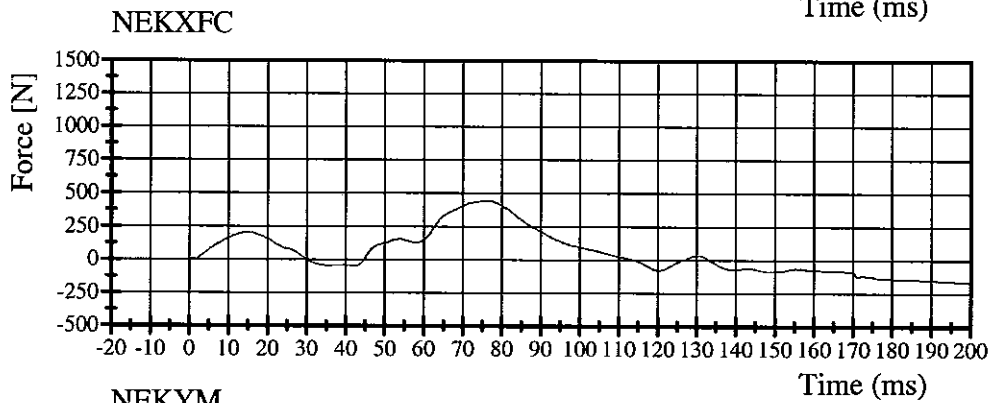
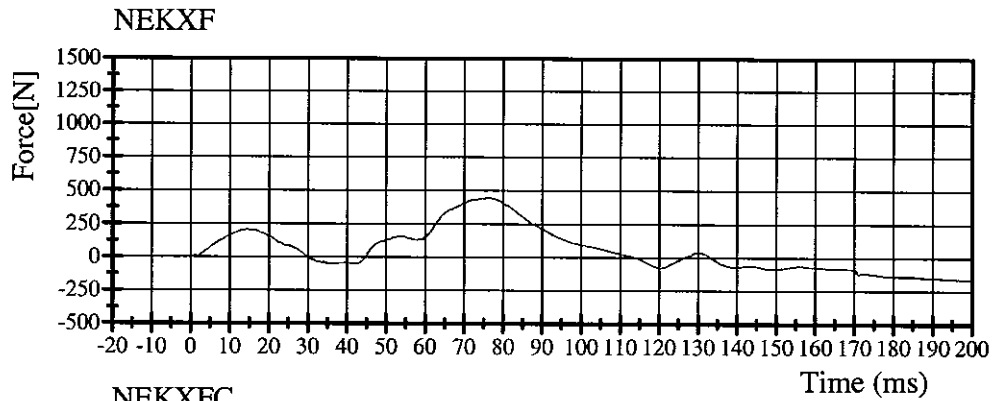


# Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002



# Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 09/10/2002

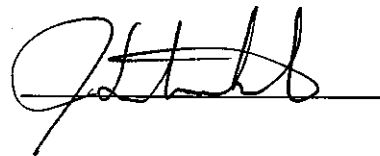
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-52.8 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4106 N	Yes
Internal Hysteresis	105 % Max.	100 %	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

**Comments:**

Technician



Approved



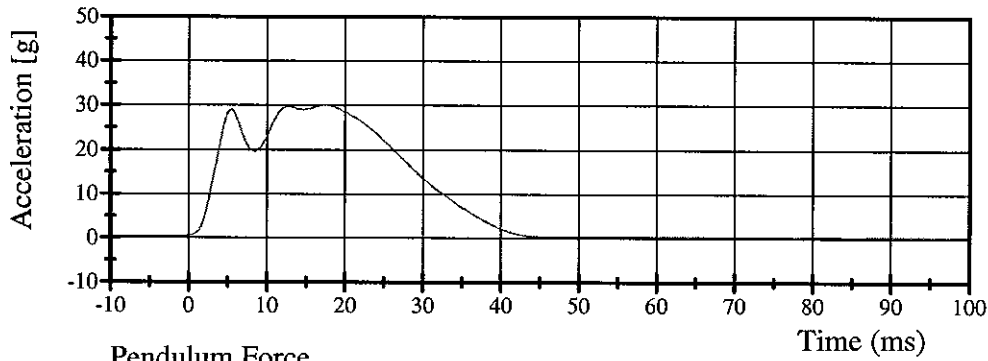
# Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 09/10/2002

### Pendulum Deceleration

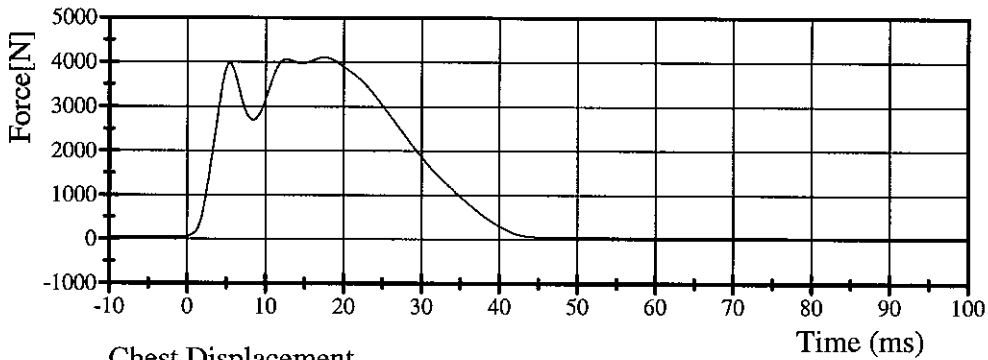


Filter Class: 180

Max: 30.0 g at 17.5 ms

Min: -0.0 g at -135.8 ms

### Pendulum Force

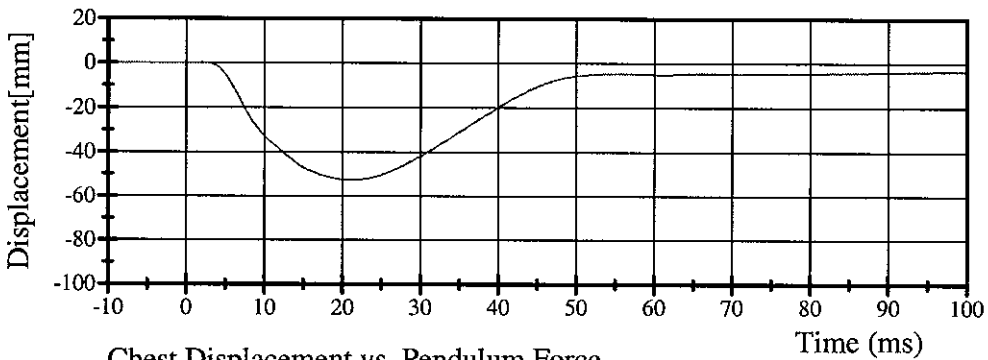


Filter Class: 180

Max: 4106.2 N at 17.5 ms

Min: -2.0 N at -135.8 ms

### Chest Displacement

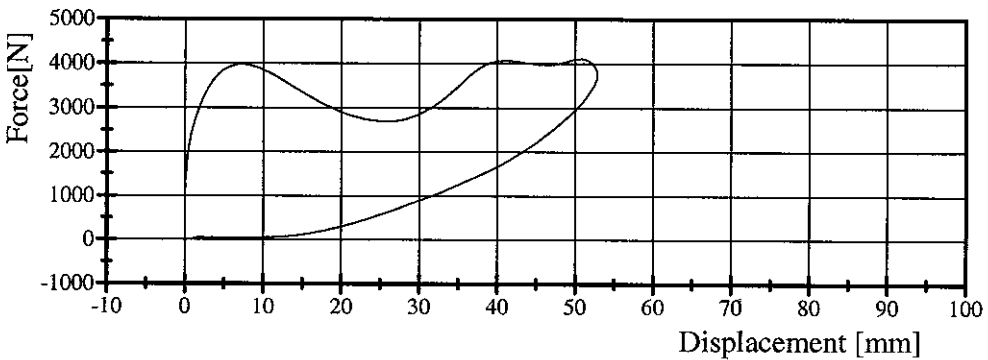


Filter Class: 180

Max: 0.0 mm at 2.0 ms

Min: -52.8 mm at 21.1 ms

### Chest Displacement vs. Pendulum Force



**TRANSPORTATION RESEARCH CENTER INC.**

**TORSO FLEXION TEST**

**HYBRID III SMALL FEMALE**

**CAL DATE: 06-Sep-02**

**TRC, INC. TEST NO: 421C10TF1 572 O SN421 TORSO FLEX CAL 10**

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 – 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 – 70 %	55 %
INITIAL ANGLE OF UNSUPPORTTED DUMMY	<= 20 DEG. REFERENCED TO VERTICAL	14.8 DEG.
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	323.70 N
RETURN ANGLE		19.8 DEG.
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 DEG. OF INTIAL ANGLE	5.0 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN



# Transportation Research Center Inc.

5720 Left Knee Slider Test

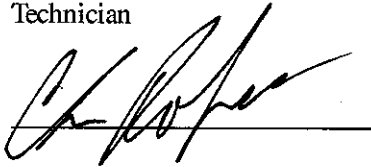
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-14.6 mm	Yes

Comments:

Technician



Approved

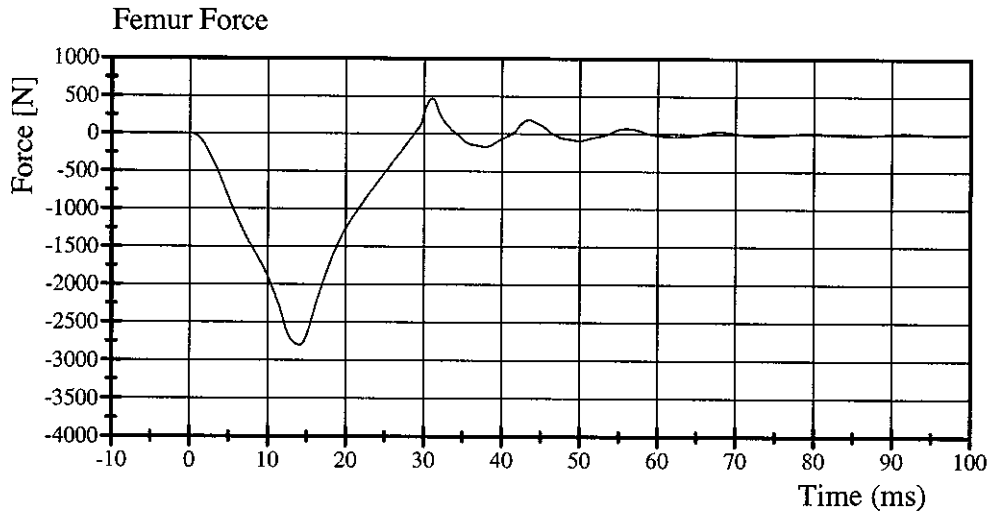


# Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

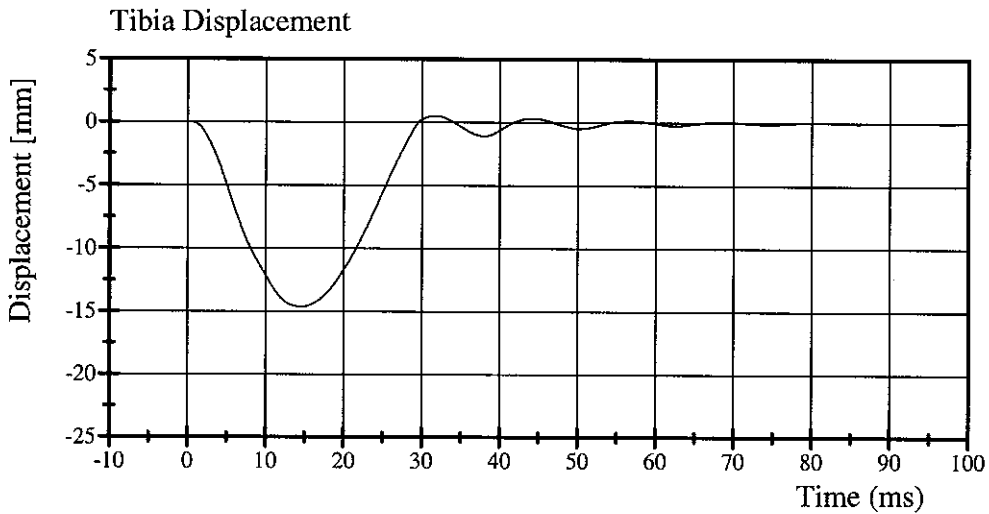
Test Date 08/26/2002



Filter Class: 600

Max: 465.7 N at 31.0 ms

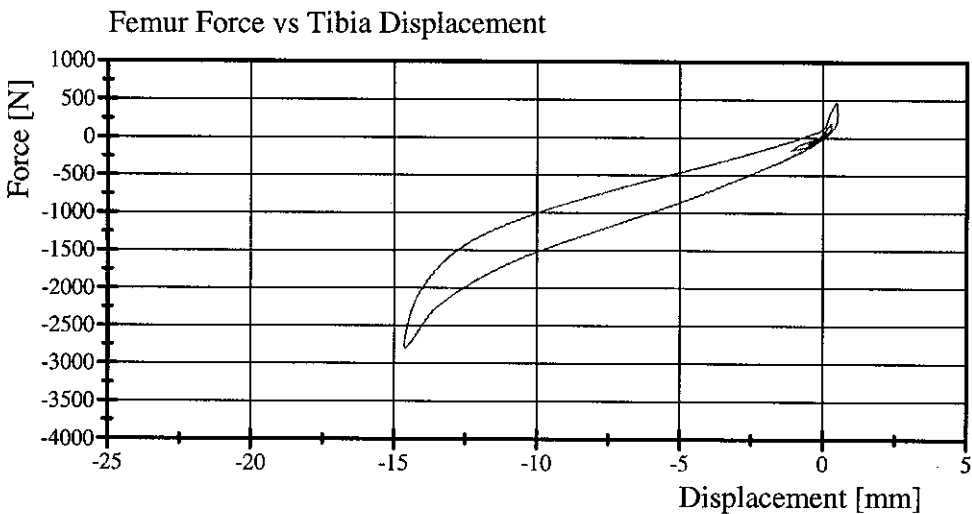
Min: -2800.3 N at 14.1 ms



Filter Class: 600

Max: 0.5 mm at 31.8 ms

Min: -14.6 mm at 14.6 ms



# Transportation Research Center Inc.

5720 Right Knee Slider Test

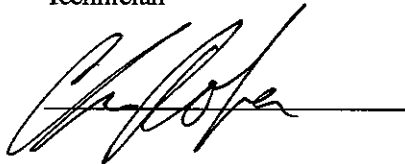
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-14.6 mm	Yes

## Comments:

Technician



Approved

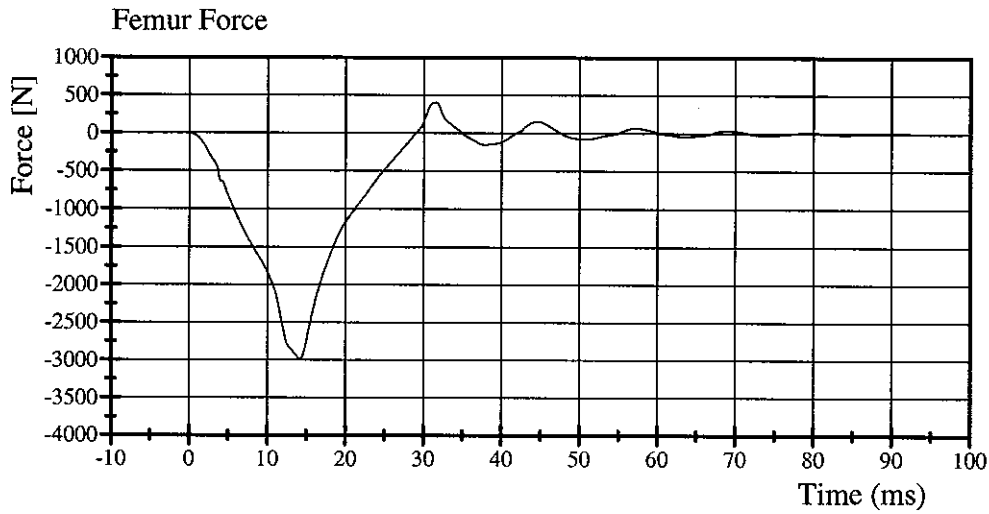


# Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

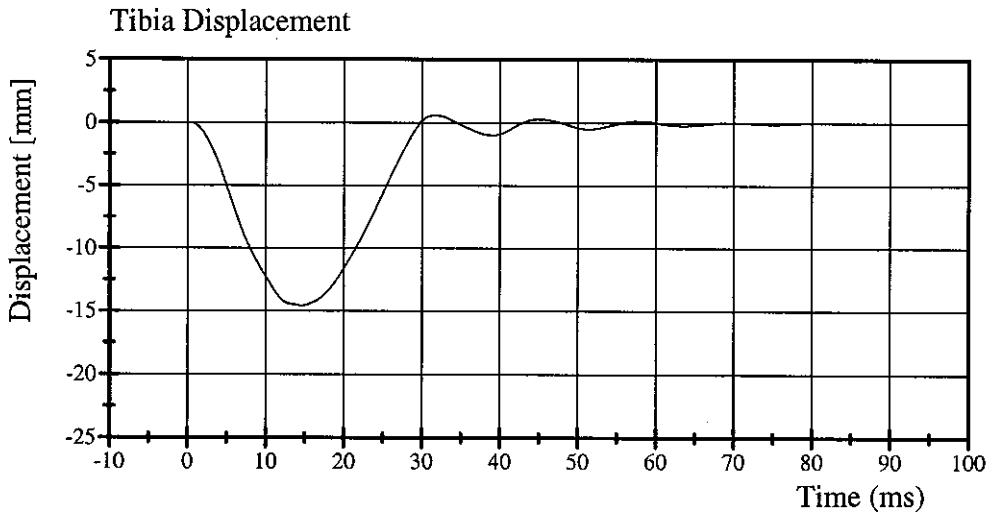
Test Date 08/26/2002



Filter Class: 600

Max: 402.3 N at 31.6 ms

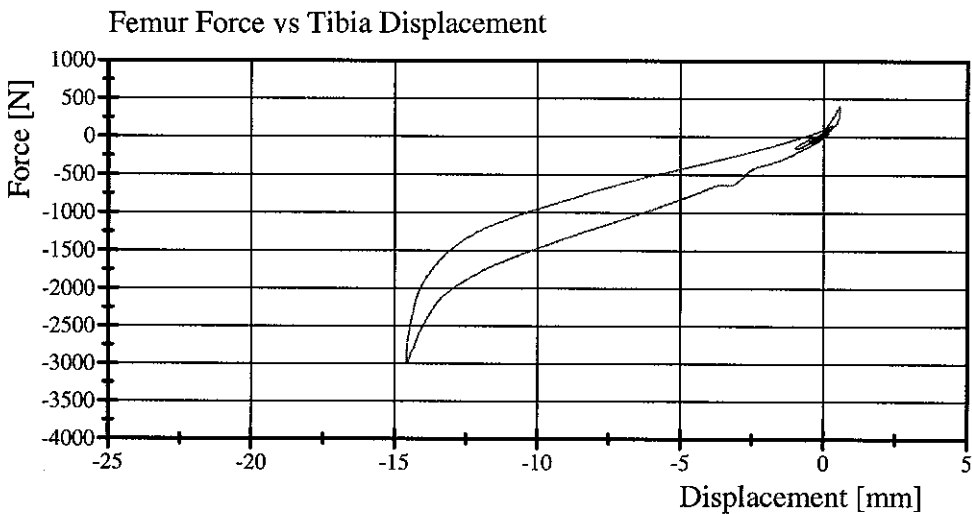
Min: -2989.0 N at 14.2 ms



Filter Class: 600

Max: 0.6 mm at 31.7 ms

Min: -14.6 mm at 14.6 ms



# Transportation Research Center Inc.

5720 Left Knee Test

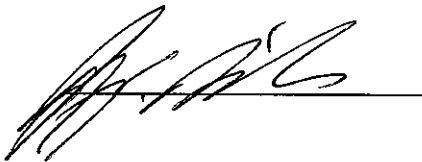
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

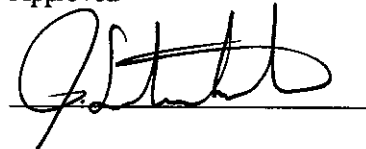
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3946 N	Yes

## Comments:

Technician



Approved



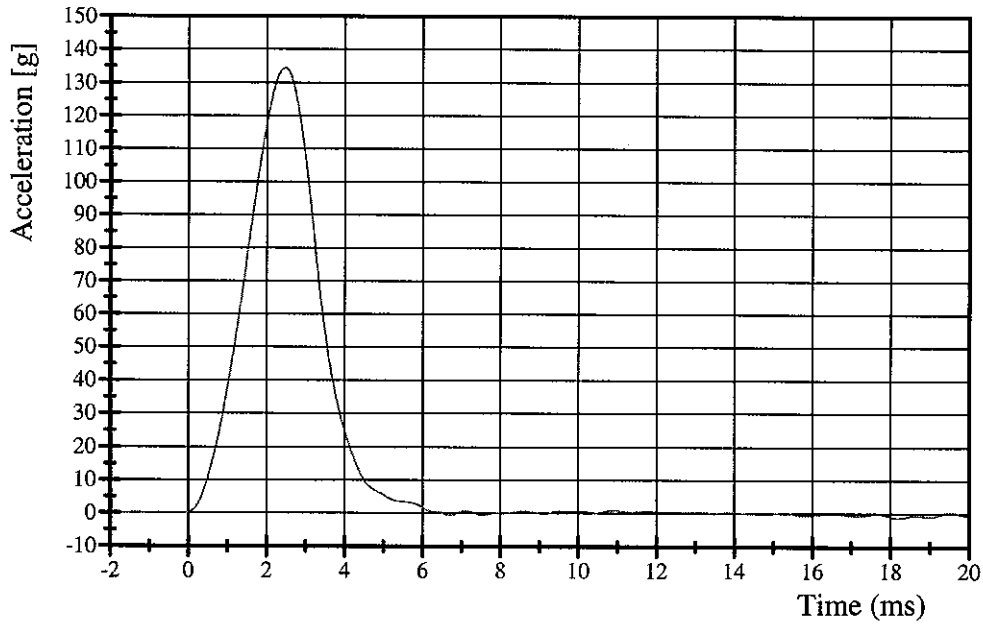
# Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

### Pendulum Deceleration

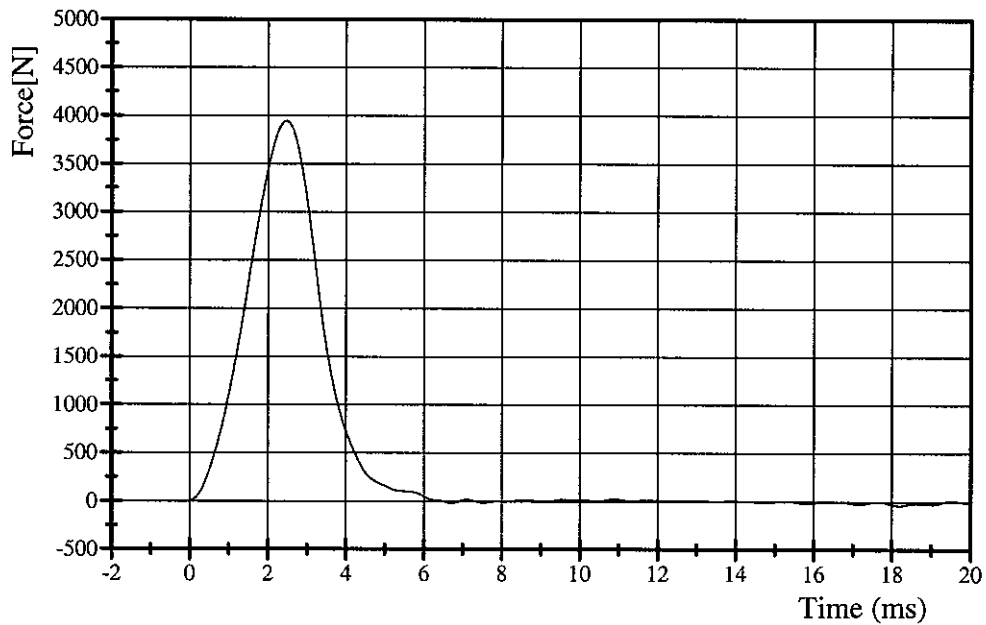


Filter Class: 600

Max: 134.6 g at 2.5 ms

Min: -1.3 g at 18.2 ms

### Pendulum Force



Filter Class: 600

Max: 3945.9 N at 2.5 ms

Min: -37.8 N at 18.2 ms

# Transportation Research Center Inc.

5720 Right Knee Test

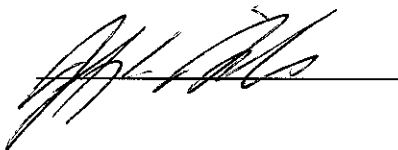
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

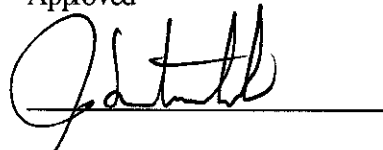
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3748 N	Yes

## Comments:

Technician



Approved



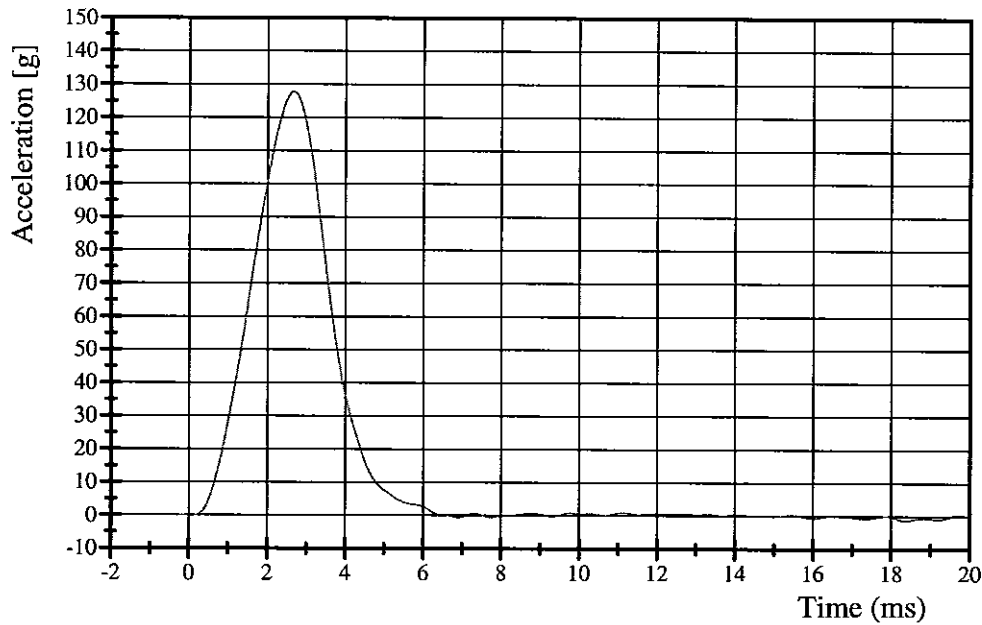
# Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

### Pendulum Deceleration

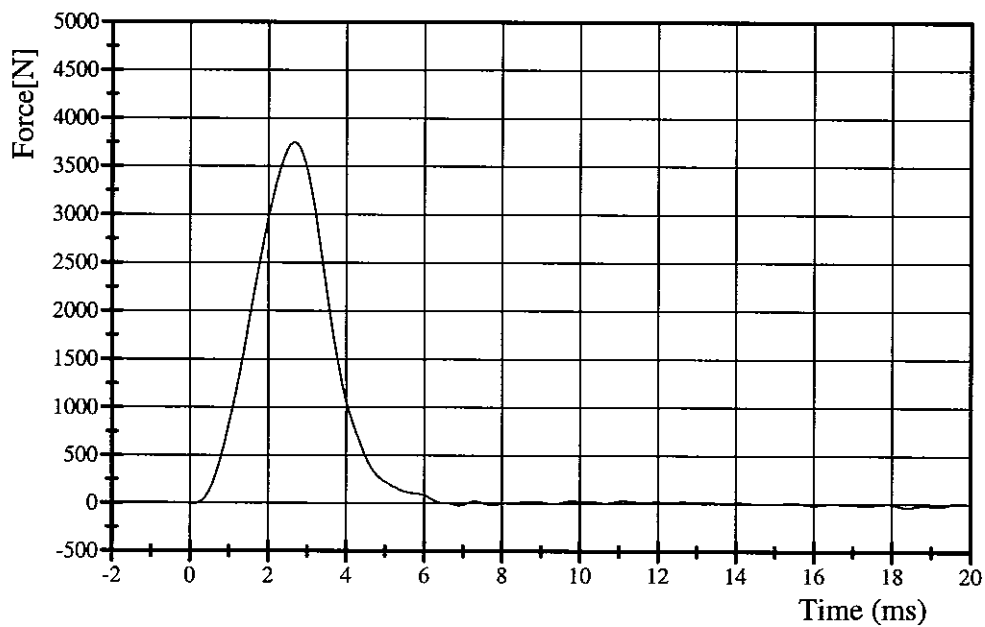


Filter Class: 600

Max: 127.8 g at 2.6 ms

Min: -1.3 g at 18.4 ms

### Pendulum Force



Filter Class: 600

Max: 3748.3 N at 2.6 ms

Min: -36.7 N at 18.4 ms

Appendix D

Test Equipment and Instrumentation Calibration Information

Sign Convention  
SAE J211 MAR95

<u>Accelerometers:</u>	+X: Forward
	+Y: Rightward
	+Z: Downward
<u>Potentiometers:</u>	+Chest longitudinal deflection: Outward
	+Chest lateral deflection: Leftward
	+Seat belt displacement: Outward
	+Seat belt extension: Elongation
	+Knee slider displacement: Distance between femur and tibia increased (in relation to a seated dummy)
<u>Rotation potentiometers:</u>	
	+About the X-axis: Left foot-eversion Right foot-inversion
	+About the Y-axis: Left/right foot-dorsiflexion
	+About the Z-axis: Left foot-internal Right foot-external
<u>Load cells:</u>	+Femur force: Tension
	+Seat belt force: Tension
	+Barrier force: Tension
<u>Neck load cells:</u>	+X force: Head pushed rearward
	+Y force: Head pushed leftward
	+Z force: Head pulled upward (tension on neck)
	+X moment: Left ear rotating toward left shoulder
	+Y moment: Chin rotating toward chest
	+Z moment: Chin rotating toward left shoulder
<u>Tibia load cells:</u>	+X force: Ankle forward, knee rearward
	+Y force: Ankle rightward, knee leftward
	+Z force: Tension
	+X moment: Bottom of tibia moving leftward
	+Y moment: Bottom of tibia moving rearward

Sign Convention, Cont'd.  
SAE J211 MAR95

Lumbar load cells:

- +X force: Chest rearward, pelvis forward
- +Y force: Chest leftward, pelvis rightward
- +Z force: Chest upward, pelvis downward
- +X moment: Left shoulder toward left hip
- +Y moment: Sternum toward front of legs
- +Z moment: Right shoulder forward, left shoulder rearward

Frequency Response Classes  
SAE J211 MAR95

<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

## Description Of Timing Marks On TRC Inc. High-Speed Film

All TRC Inc. high-speed cameras are equipped with red LEDs which put timing marks on the right edge of the film. TRC Inc. uses a single timing generator to generate the timing for all cameras. This allows the timing marks to be common to all cameras. The timing marks can be used to measure camera speed (frames per second) or to locate a point in time before or after the time-zero event.

The timing marks appear on the film as small red marks on the right edge of the film. Round marks are left by the Photosonic and Stalex cameras while horizontal bars are left by the Hycam, Locam, and Fastax II cameras.

The timing generator puts out a pulse for every millisecond plus it generates additional pulses for hundredths and tenths of seconds. To explain this further, we can use an example of a camera running at 1000 frames per second.

1. Every frame will have **one** LED appear in it. This indicates a *millisecond* pulse.
2. Every ten frames will have **two** LEDs appear in it. These indicate a *millisecond* pulse plus a *hundredth of a second* pulse.
3. Every one hundred frames will have **three** LEDs appear in it. These indicate a *millisecond* pulse, a *hundredth of a second* pulse, and a *tenth of a second* pulse.

To locate time-zero, observe the continuous LED that is visible on the left side of the frame at the beginning of each view. Locate the frame where the left side LED is fully extinguished and reverse 4 frames for the Photosonic cameras; reverse 5 frames for Hycam cameras; reverse 2 frames for Stalex cameras. This frame is time-zero.



# CERTIFICATE OF CONFORMITY

Certificate No. 10346  
Serial No. CB 076

Cellbond Composites Ltd  
5 Stukeley Business Centre  
Blackstone Road  
Huntingdon  
Cambridgeshire  
PE29 6EF  
United Kingdom

telephone  
+44 (0) 1480 435302  
facsimile  
+44 (0) 1480 450181  
email  
sales@cellbond.com  
website  
www.cellbond.com

Product Description	EEVC Frontal Impact Barrier
Cellbond Part No.	70EEVCFI

	Test Results	GR No.	Blk No.
1	16070-77	PO62737-01	N/A
2	15852-59	PO58715-01	N/A

Declaration.

The above moving deformable barriers have been manufacture in accordance with the provisions of the European Parliament and Council No 96/79/EC Directive (ECE R94)

Additional Information...

company registration  
England 1944904

registered office  
5 Stukeley Business Centre  
Blackstone Road  
Huntingdon  
Cambridgeshire  
PE29 6EF

Cellbond offices  
United Kingdom  
Germany  
United States of America

For and on behalf of Cellbond Composites Ltd

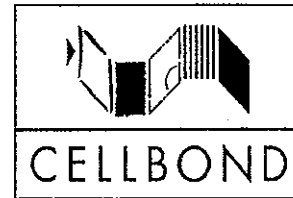
Signed  
Quality Manager

Jacobell  
DIRECTOR



ISO 9002  
OS 9000





EEVC DEFORMABLE FRONTAL BARRIER  
ALUMINIUM HONEYCOMB CERTIFICATION  
STATIC TEST RESULTS

MAIN BLOCK  
Core: 1.8 3/4 3003

Required Crush Strength  
0.308 MPa to 0.342 MPa

Test No: 16070-77

GR No: PO62737-01

Block No: N/A

	Crush Strength (MPa)			RESULT
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	
Sample* 1	0.3204	0.3390	0.3291	PASS
Sample 2	0.3288	0.3416	0.3325	PASS
Sample 3	0.3237	0.3231	0.3203	PASS
Sample 4	0.3326	0.3383	0.3411	PASS
Sample 5	0.3196	0.3176	0.3141	PASS
Sample 6	0.3205	0.3209	0.3237	PASS
Sample 7	0.3242	0.3339	0.3317	PASS
Sample 8	0.3348	0.3362	0.3350	PASS

Seven out of the eight samples must fulfil the crush strength requirement in order to pass the block certification

\*Sample size and location as per R94.

# EEVC DEFORMABLE FRONTAL BARRIER MAIN BLOCK

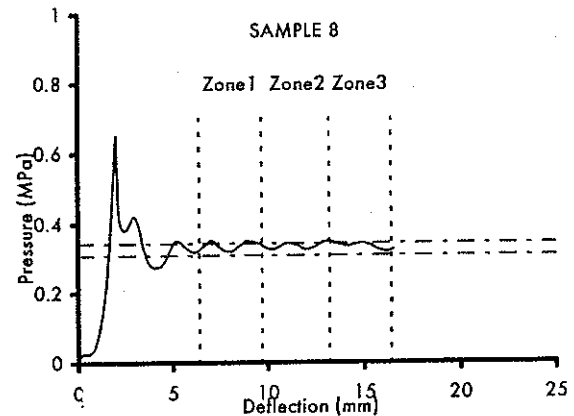
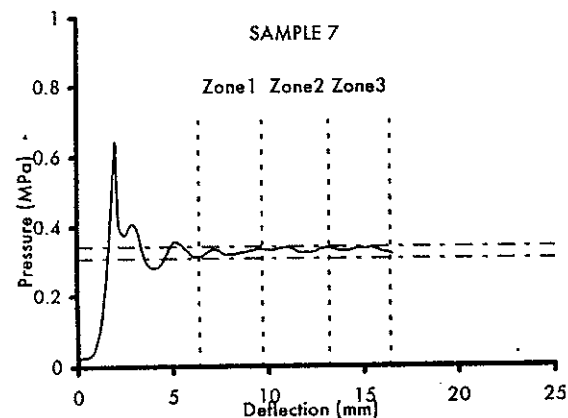
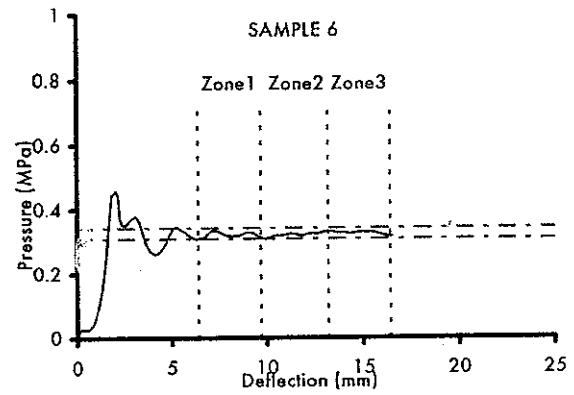
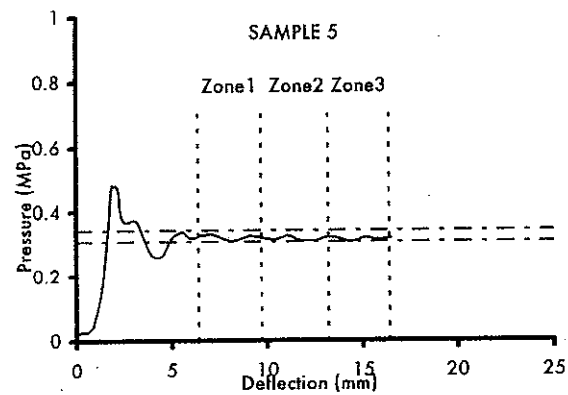
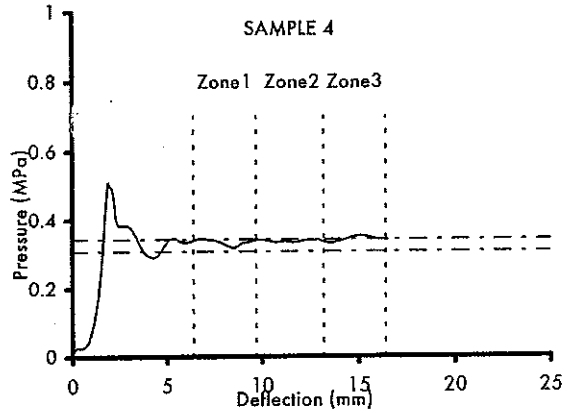
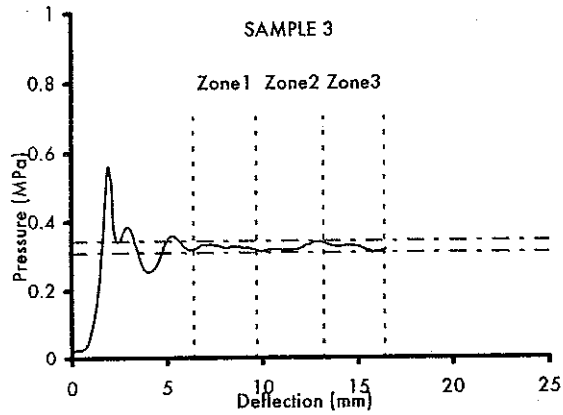
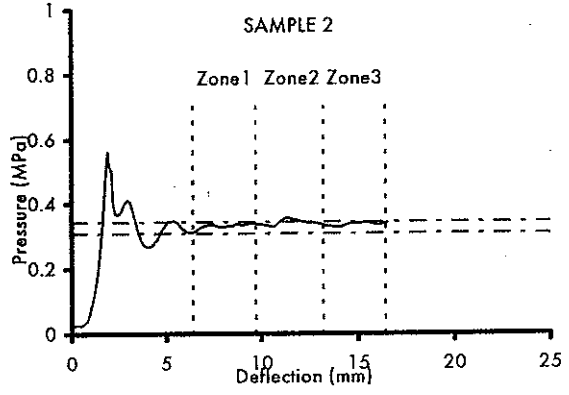
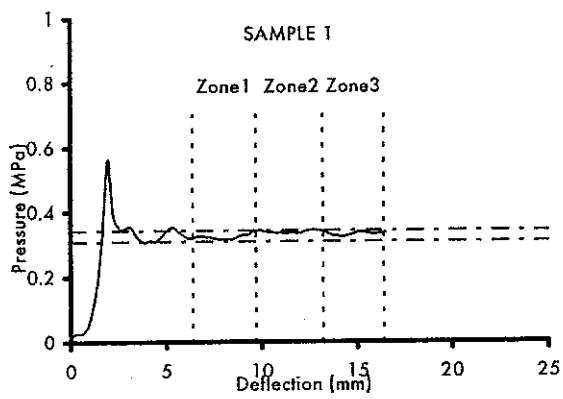
Honeycomb Type: 1.8 3/4 3003  
Higher Acceptable Crush Strength Limit: 0.342 MPa  
Lower Acceptable Crush Strength Limit: 0.308 MPa

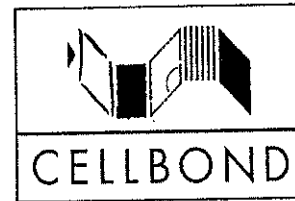
Section 1: 6.4 - 9.7mm  
Section 2: 9.7 - 13.2mm  
Section 3: 13.2 - 16.5mm  
Speed: 6.35 mm/min

Test No: 16070-77

GR No: PO62737-01

Block No: N/A





EEVC DEFORMABLE FRONTAL BARRIER  
ALUMINIUM HONEYCOMB CERTIFICATION  
STATIC TEST RESULTS

BUMPER

Core: 5.2 1/4 3003

Required Crush Strength  
1.540 MPa to 1.711 MPa

Test No: 15852-59

GR No: PO58715-01

Block No: NA

	Crush Strength (MPa)			RESULT
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	
Sample* 1	1.628	1.630	1.644	PASS
Sample 2	1.656	1.646	1.640	PASS
Sample 3	1.643	1.646	1.649	PASS
Sample 4	1.685	1.674	1.677	PASS
Sample 5	1.692	1.693	1.684	PASS
Sample 6	1.681	1.659	1.669	PASS
Sample 7	1.653	1.650	1.651	PASS
Sample 8	1.621	1.633	1.623	PASS

Seven out of the eight samples must fulfil the crush strength requirement in order to pass the block certification

\*Sample size and location as per R94.

**RESULT: PASSED**

# EVC DEFORMABLE FRONTAL BARRIER BUMPER

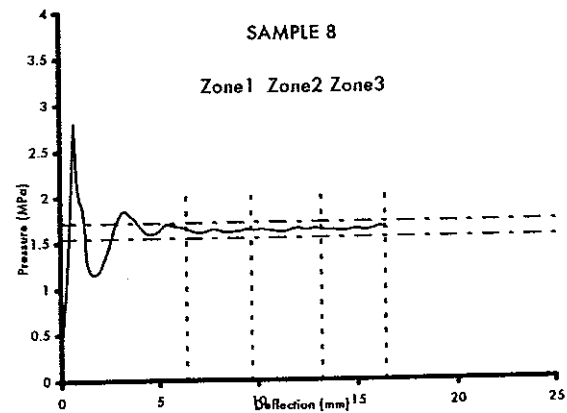
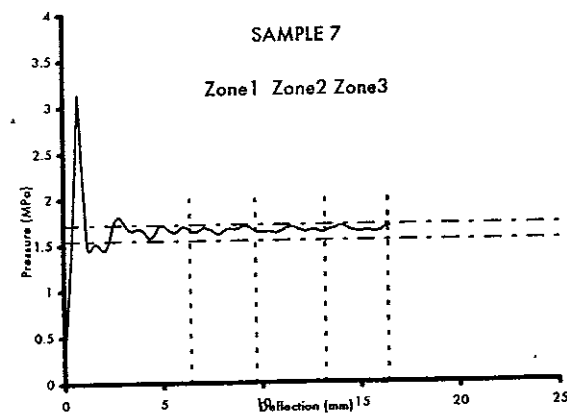
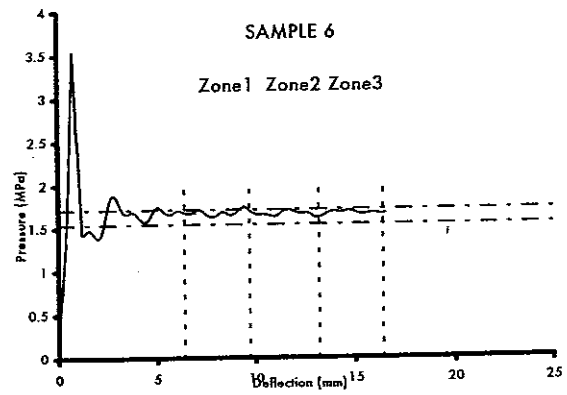
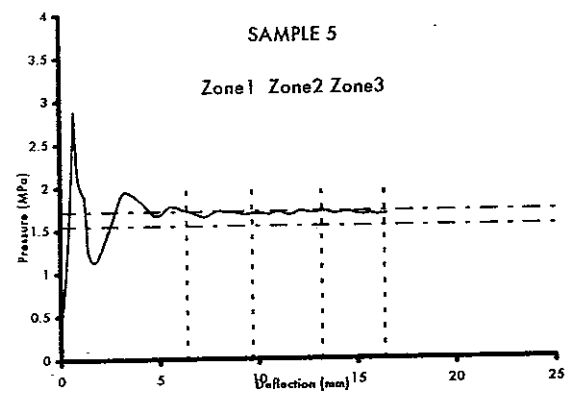
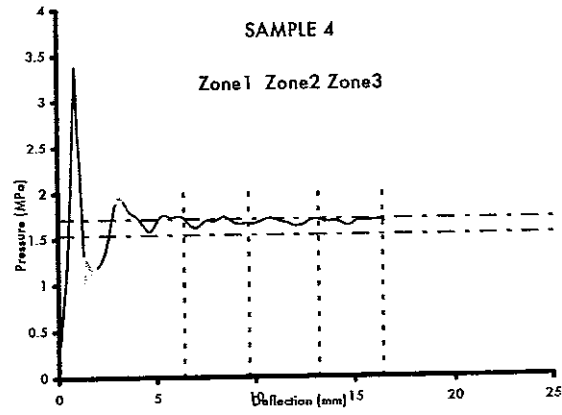
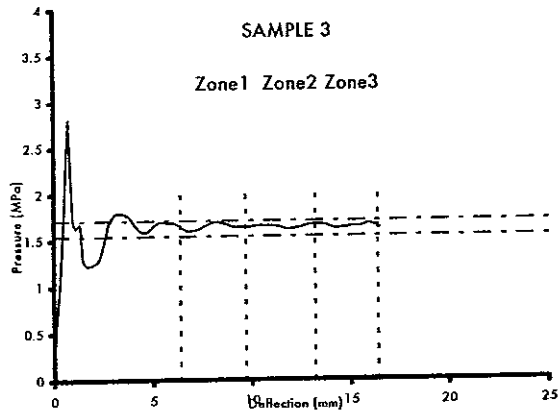
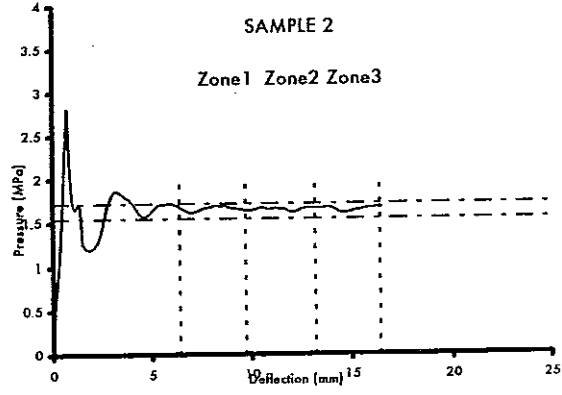
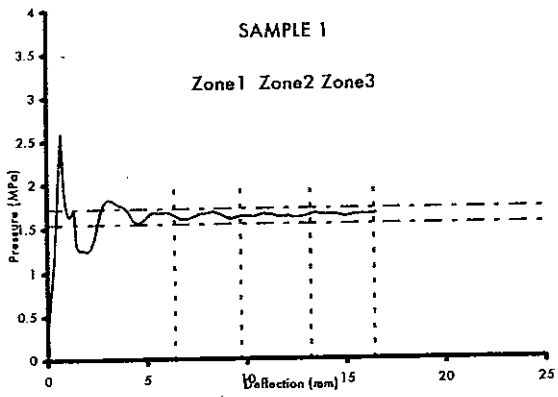
Honeycomb Type: 5.2 1/4 3003  
Higher Acceptable Crush Strength Limit: 1.711 MPa  
Lower Acceptable Crush Strength Limit: 1.540 MPa

Section 1: 6.4 - 9.7mm  
Section 2: 9.7 - 13.2mm  
Section 3: 13.2 - 16.5mm  
Speed: 6.35 mm/min

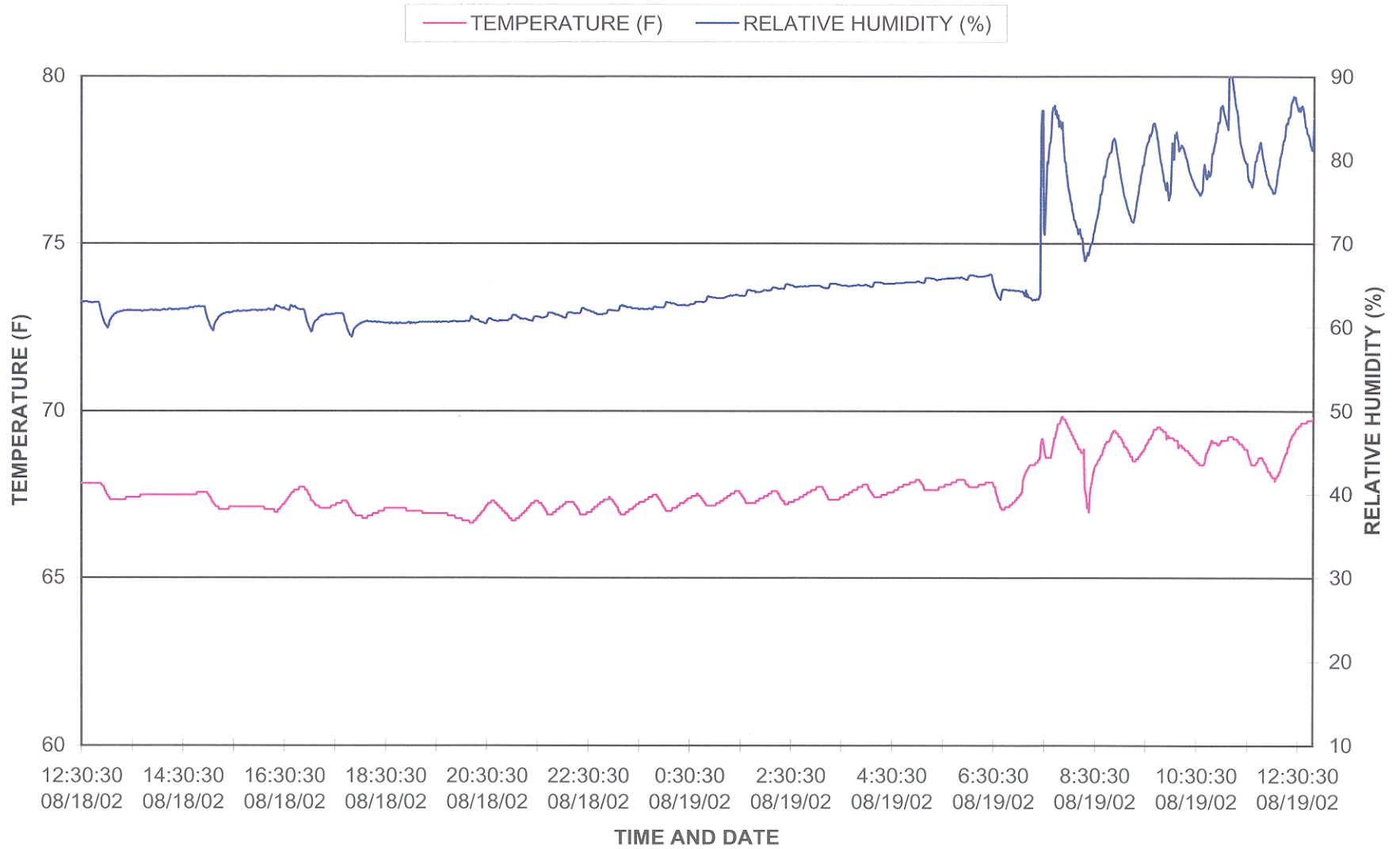
Test No: 15852-59

GR No: PO58715-01

Block No: NA



# TEMPERATURE AND RELATIVE HUMIDITY CHART 020819



The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report: occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

## Channel Report

Name of Test		System		Name of DAU							
020819		K3600		DAU1							
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model	
1000	EVENT	SYNC1	SYNC1		10.24	V	+ 4/15/2002	OK -1	TRC	Event	
1001	02A02-F02	HEDXG1	Head Accel X	Fwd	799.93750	g	+ 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1002	02A18-N10	HEDYG1	Head Accel Y	Lft	800.90728	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1003	02A09-F15	HEDZG1	Head Accel Z	Up	798.25382	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1004	01L26-F02	HEDXR1	Head Accel Red X	Rwd	803.856	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1005	02A09-F13	HEDYR1	Head Accel Red Y	Lft	804.17796	g	- 8/5/2002	OK 416v	Entran	EGE-73B6Q-200	
1006	02A16-A06	HEDZR1	Head Accel Red Z	Up	797.69417	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1007	02A16-A19	HD1XG1	Head (LT) Accel X	Fwd	798.23515	g	+ 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1008	02A16-A22	HD1ZG1	Head (LT) Accel Z	Up	800.68809	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1009	02A18-N04	HD2YG1	Head (FT) Accel Y	Lft	801.31466	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1010	02A18-N20	HD2ZG1	Head (FT) Accel Z	Up	796.01990	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1011	02A09-F01	HD3XG1	Head (TP) Accel X	Fwd	806.04534	g	+ 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1012	02A09-F17	HD3YG1	Head (TP) Accel Y	Lft	799.42541	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1013	IF-205-161-FX	NEKXF1	Neck Force X	Hd Fd	8892.5003	N	- 3/18/2002	OK 416v	FTSS	IF-205	
1014	IF-205-161-FY	NEKYF1	Neck Force Y	Hd Lt,	8899.5046	N	+ 3/18/2002	OK 416v	FTSS	IF-205	
1015	IF-205-161-FZ	NEKZF1	Neck Force Z	Hd U	13351.704	N	+ 3/18/2002	OK 416v	FTSS	IF-205	
1016	IF-205-161-MX	NEKXM1	Neck Moment X	Rt Ear	282.61167	N-m	- 3/18/2002	OK 416v	FTSS	IF-205	
1017	IF-205-161-MY	NEKYM1	Neck Moment Y	Chn t	282.67032	N-m	+ 3/18/2002	OK 416v	FTSS	IF-205	
1018	IF-205-161-MZ	NEKZM1	Neck Moment Z	Chn t	282.76257	N-m	+ 3/18/2002	OK 416v	FTSS	IF-205	
1019	3251-108-FX	NKLXF1	Neck Lwr Force X	Hd Fd	13350.195	N	- 8/21/2001	OK 416v	Denton	3251	
1020	3251-108-FY	NKLYF1	Neck Lwr Force Y	Hd Lt,	13337.913	N	+ 8/21/2001	OK 416v	Denton	3251	
1021	3251-108-FZ	NKLZF1	Neck Lwr Force Z	Hd U	13341.543	N	+ 8/21/2001	OK 416v	Denton	3251	
1022	3251-108-MX	NKLXM1	Neck Lwr Moment X	Rt Ear	339.23322	N-m	- 8/21/2001	OK 416v	Denton	3251	
1023	3251-108-MY	NKLYM1	Neck Lwr Moment Y	Chn t	338.91670	N-m	+ 8/21/2001	OK 416v	Denton	3251	
1024	3251-108-MZ	NKLZM1	Neck Lwr Moment Z	Chn t	181.17067	N-m	+ 8/21/2001	OK 416v	Denton	3251	
1025	02A16-A04	CSTXG1	Chest Accel X	Fwd	399.87816	g	+ 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1026	C02B19-F02	CSTYG1	Chest Accel Y	Lft	400.71377	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1027	C02B19-F06	CSTZG1	Chest Accel Z	Up	398.59092	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1028	B02A25-N08	CSTXR1	Chest Accel Red X	Rwd	399.84381	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	
1029	01L17-F09	CSTYR1	Chest Accel Red Y	Lft	399.25763	g	- 8/1/2002	OK 416v	Entran	EGE-73B6Q-200	

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1030	C02B19-F04	CSTZR1	Chest Accel Red Z	Up	400.62598	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
1031	B02A09-F08	STUXG1	Sternum Upr Accel X	Fwd	799.00125	g	+	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
1032	02A16-A05	STMXG1	Sternum Mid Accel X	Fwd	801.415	g	+	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
1033	02A16-A16	STLXG1	Sternum Lwr Accel X	Fwd	802.35692	g	+	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
1034	14CB1-2897-416	CSTXD1	Chest Deflection X 516	Strnm	98.566265	mm	+	6/18/2001	---	416v	Servo	14CB1-2897
1035	2152-076-FX	LMBXF1	Lumbar Force X	Cst Fd	13333.047	N	-	6/1/2001	---	416v	Denton	2152
1036	2152-076-FY	LMBYF1	Lumbar Force Y	Cst Lt	13344.730	N	+	6/1/2001	---	416v	Denton	2152
1037	2152-076-FZ	LMBZF1	Lumbar Force Z	Cst U	17791.212	N	+	6/1/2001	---	416v	Denton	2152
1038	2152-076-MX	LMBXM1	Lumbar Moment X	Rt Shl	678.13737	N-m	-	6/1/2001	---	416v	Denton	2152
1039	2152-076-MY	LMBYM1	Lumbar Moment Y	Strnm	677.99944	N-m	+	6/1/2001	---	416v	Denton	2152
1040	C02B19-F03	PEVXG1	Pelvis Accel X	Rwd	399.41336	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
1041	02A16-A27	PEVYG1	Pelvis Accel Y	Lft	398.38157	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
1042	C02B19-F01	PEVZG1	Pelvis Accel Z	Up	399.83600	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
1043	2430-736	LFMZFI	Left Femur Force Z #8	Knee	13340.662	N	+	3/18/2002	OK	416v	GSE	2430
1044	2430-742	RFMZFI	Right Femur Force Z 507	Knee	13339.705	N	+	3/18/2002	OK	416v	GSE	2430
1045	150-0121VR-5556	KNLXD1	Left Knee Displacement	Tib R	43.132134	mm	-	5/8/2002	OK	416v	SpaceAge	150-0121VR
1046	4825J-79-FX	TBLXF1	Left Upr Tibia Force X	Tib F	8903.6734	N	+	7/16/2002	OK	416v	Denton	4825J
1047	4825J-79-FZ	TBLZF1	Left Upr Tibia Force Z	Tib D	8893.6833	N	+	7/16/2002	OK	416v	Denton	4825J
1048	4825J-79-MX	TBLXM1	Left Upr Tibia Moment X	Ank L	282.30784	N-m	+	7/16/2002	OK	416v	Denton	4825J
1049	4825J-79-MY	TBLYM1	Left Upr Tibia Moment Y	Ank F	282.14514	N-m	+	7/16/2002	OK	416v	Denton	4825J
1050	99H30-Z10	TBLXG1	Left Tibia Accel X	Fwd	1186.9987	g	+	4/26/2002	OK	416v	Entran	EGE-73BQE0-20
1051	98H10-F17	TBLYG1	Left Tibia Accel Y	Rt	1205.7698	g	+	4/25/2002	OK	416v	Entran	EGE-73BQ-2000
1052	4826J-77-FX	ANLXF1	Left Lwr Tibia Force X	Ank F	8889.0388	N	+	7/16/2002	OK	416v	Denton	4826J
1053	4826J-77-FY	ANLYF1	Left Lwr Tibia Force Y	Ank R	8906.0899	N	+	7/16/2002	OK	416v	Denton	4826J
1054	4826J-77-FZ	ANLZF1	Left Lwr Tibia Force Z	Ank	8896.6450	N	+	7/16/2002	OK	416v	Denton	4826J
1055	4826J-77-MX	ANLXM1	Left Lwr Tibia Moment X	Ank L	282.58655	N-m	+	7/16/2002	OK	416v	Denton	4826J
1056	4826J-77-MY	ANLYM1	Left Lwr Tibia Moment Y	Ank F	282.28505	N-m	+	7/16/2002	OK	416v	Denton	4826J
1057	FLX103X	FTLXD1	Left Foot Disp. X	Invers	160.72961	°	-	7/22/2002	OK	416v	Contelec	PD210-4B
1058	FLX103Y	FTLYD1	Left Foot Disp. Y	Dorsif	161.06048	°	+	7/22/2002	OK	416v	Contelec	PD210-4B
1059	FLX103Z	FTLZD1	Left Foot Disp. Z	Extern	160.54570	°	-	7/22/2002	OK	416v	Contelec	PD210-4B
1060	99H30-Z11	FTLXG1	Left Foot Accel X	Fwd	1185.844	g	+	4/26/2002	OK	416v	Entran	EGE-73BQE0-20
1061	01J02-F05	FTLYG1	Left Foot Accel Y	Rt	1200.0188	g	+	4/25/2002	OK	416v	Entran	EGE-73B6Q-200
1062	01J02-F22	FTLZG1	Left Foot Accel Z	Dn	1206.9636	g	+	4/25/2002	OK	416v	Entran	EGE-73B6Q-200
1063	150-0121VL-5482	KNRXD1	Right Knee Displacement	Tib R	43.923991	mm	-	5/8/2002	OK	416v	SpaceAge	150-0121VL
1064	4825J-76-FX	TBRXF1	Right Upr Tibia Force X	Tib F	8905.2038	N	+	7/16/2002	OK	416v	Denton	4825J

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1065	4825J-76-FZ	TBRZFI	Right Upr Tibia Force Z	Tib D	8907.0972	N	+	7/16/2002	OK	416v	Denton	4825J
1066	4825J-76-MX	TBRXM1	Right Upr Tibia Moment X	Ank L	282.64605	N-m	+	7/16/2002	OK	416v	Denton	4825J
1067	4825J-76-MY	TBRYM1	Right Upr Tibia Moment Y	Ank F	282.03139	N-m	+	7/16/2002	OK	416v	Denton	4825J
1068	99H30-Z13	TBRXG1	Right Tibia Accel X	Fwd	1202.2166	g	+	4/25/2002	OK	416v	Entran	EGE-73BQE0-20
1069	99H30-Z01	TBRYG1	Right Tibia Accel Y	Rt	1190.1441	g	+	4/25/2002	OK	416v	Entran	EGE-73BQE0-20
1070	4826J-78-FX	ANRXF1	Right Lwr Tibia Force X	Ank F	8898.3772	N	+	7/16/2002	OK	416v	Denton	4826J
1071	4826J-78-FY	ANRYF1	Right Lwr Tibia Force Y	Ank R	8887.1605	N	+	7/16/2002	OK	416v	Denton	4826J
1072	4826J-78-FZ	ANRZF1	Right Lwr Tibia Force Z	Ank	8896.7481	N	+	7/16/2002	OK	416v	Denton	4826J
1073	4826J-78-MX	ANRXM1	Right Lwr Tibia Moment X	Ank L	282.37801	N-m	+	7/16/2002	OK	416v	Denton	4826J
1074	4826J-78-MY	ANRYM1	Right Lwr Tibia Moment Y	Ank F	282.59350	N-m	+	7/16/2002	OK	416v	Denton	4826J
1075	FLX104X	FTRXD1	Right Foot Disp. X	Eversi	162.00460	°	-	7/19/2002	OK	416v	Contelec	PD210-4B
1076	FLX104Y	FTRYD1	Right Foot Disp. Y	Dorsif	162.83081	°	+	7/19/2002	OK	416v	Contelec	PD210-4B
1077	FLX104Z	FTRZD1	Right Foot Disp. Z	Intern	161.77027	°	-	7/19/2002	OK	416v	Contelec	PD210-4B
1078	01J02-F10	FTRXG1	Right Foot Accel X	Fwd	1210.4019	g	+	4/25/2002	OK	416v	Entran	EGE-73B6Q-200
1079	99H30-Z15	FTRYG1	Right Foot Accel Y	Rt	1191.6399	g	+	4/26/2002	OK	416v	Entran	EGE-73B6Q-200
1080	01J02-F03	FTRZG1	Right-Foot Accel Z	Dn	1187.5768	g	+	4/26/2002	OK	416v	Entran	EGE-73B6Q-200
1081	AJ4R6	HEDXG2	Head Accel X VRTC 5	Fwd	795.04957	g	+	8/6/2002	OK	421v	Endevco	7264-2KM5T
1082	02A16-A01	HEDYG2	Head Accel Y	Lft	795.96421	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1083	01L26-F06	HEDZG2	Head Accel Z	Up	802.94833	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1084	02A16-A03	HEDXR2	Head Accel Red X	Rwd	792.96246	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1085	02A16-A08	HEDYR2	Head Accel Red Y	Lft	799.93750	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1086	02A16-A09	HEDZR2	Head Accel Red Z	Up	804.87958	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1087	02A16-A28	HD1XG2	Head (LT) Accel X	Fwd	804.25375	g	+	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1088	02A16-A20	HD1ZG2	Head (LT) Accel Z	Up	797.37738	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1089	02A09-F12	HD2YG2	Head (FT) Accel Y	Lft	798.51526	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1090	02A18-N07	HD2ZG2	Head (FT) Accel Z	Up	797.20977	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1091	02A16-A23	HD3XG2	Head (TP) Accel X	Fwd	802.26892	g	+	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1092	02A16-A25	HD3YG2	Head (TP) Accel Y	Lft	797.93659	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1093	IF-205-180-FX	NEKXF2	Neck Force X	Hd Fd	8895.5814	N	-	3/18/2002	OK	421v	FTSS	IF-205
1094	IF-205-180-FY	NEKYF2	Neck Force Y	Hd Lt	8889.5852	N	+	3/18/2002	OK	421v	FTSS	IF-205
1095	IF-205-180-FZ	NEKZF2	Neck Force Z	Hd U	13339.358	N	+	3/18/2002	OK	421v	FTSS	IF-205
1096	IF-205-180-MX	NEKXM2	Neck Moment X	Rt Ear	282.44346	N-m	-	3/18/2002	OK	421v	FTSS	IF-205
1097	IF-205-180-MY	NEKYM2	Neck Moment Y	Chin t	282.51594	N-m	+	3/18/2002	OK	421v	FTSS	IF-205
1098	IF-205-180-MZ	NEKZM2	Neck Moment Z	Chn t	282.66794	N-m	+	3/18/2002	OK	421v	FTSS	IF-205
1099	3251-107-FX	NKLPF2	Neck Lwr Force X	Hd Fd	13348.061	N	-	7/6/2001	---	421v	Denton	3251

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1100	3251-107-FY	NKLYF2	Neck Lwr Force Y	Hd Lt, 13331.263	N	+	7/6/2001	---	421v	Denton	3251
1101	3251-107-FZ	NKLZF2	Neck Lwr Force Z	Hd U 13341.504	N	+	7/6/2001	---	421v	Denton	3251
1102	3251-107-MX	NKLXM2	Neck Lwr Moment X	Rt Ear 338.99620	N-m	-	7/6/2001	---	421v	Denton	3251
1103	3251-107-MY	NKLYM2	Neck Lwr Moment Y	Chn t 338.80165	N-m	+	7/6/2001	---	421v	Denton	3251
1104	3251-107-MZ	NKLZM2	Neck Lwr Moment Z	Chn t 181.03965	N-m	+	7/6/2001	---	421v	Denton	3251
1105	J39580	VCGXG1	VEHICLE CG X-AXIS	FWD 994.00105	g	+	6/5/2002	OK	-1	Endevco	7264-2000TZ
1106	J27929	VCGYG1	VEHICLE CG Y-AXIS	LT 1024.4098	g	-	7/30/2002	OK	-1	Endevco	7264-2000TZ
1107	J39407	VCGZG1	VEHICLE CG Z-AXIS	UP 1018.1355	g	-	6/5/2002	OK	-1	Endevco	7264-2000TZ

# Channel Report

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Name of Test		System		Name of DAU		DAU6					
020819		MINIDAU		DAU6							
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model	
6001	AE9B7	CSTXR2	Chest Accel Red X	Rwd	397.02233 g	-	8/6/2002 OK	421v	Endevco	7264-2KM5T	
6002	02A04-A24	CSTYR2	Chest Accel Red Y	Lft	397.18249 g	-	8/5/2002 OK	421v	Entran	EGE-73B6Q-200	
6003	B02A18-N22	CSTZR2	Chest Accel Red Z	Up	398.54903 g	-	8/5/2002 OK	421v	Entran	EGE-73B6Q-200	
6004	02A16-A14	STUXG2	Sternum Upr Accel X	Fwd	806.24843 g	+	8/5/2002 OK	421v	Entran	EGE-73B6Q-200	
6005	02A16-A12	STMXG2	Sternum Mid Accel X	Fwd	791.71177 g	+	8/5/2002 OK	421v	Entran	EGE-73B6Q-200	
6006	02A18-N16	STLXG2	Sternum Lwr Accel X	Fwd	811.35903 g	+	8/5/2002 OK	421v	Entran	EGE-73B6Q-200	
6007	14CB1-2897-1355	CSTXD2	Chest Deflection X	Strnm	99.823165 mm	+	3/25/2002 OK	421v	Servo	14CB1-2897	
6008	2152A-086-FX	LMBXF2	Lumbar Force X	Cst Fd	13347.713 N	-	6/2/2001 ---	421v	Denton	2152A	
6009	2152A-086-FY	LMBYF2	Lumbar Force Y	Cst Lt	13345.652 N	+	6/2/2001 ---	421v	Denton	2152A	
6010	2152A-086-FZ	LMBZF2	Lumbar Force Z	Cst U	17801.847 N	+	6/2/2001 ---	421v	Denton	2152A	
6011	2152A-086-MX	LMBXM2	Lumbar Moment X	Rt Shl	678.65489 N-m	-	6/2/2001 ---	421v	Denton	2152A	
6012	2152A-086-MY	LMBYM2	Lumbar Moment Y	Strnm	677.74043 N-m	+	6/2/2001 ---	421v	Denton	2152A	
6013	AF9K3	PEVXG2	Pelvis Accel X	Rwd	402.51572 g	-	8/5/2002 OK	421v	Endevco	7264-2000LC	
6014	02A16-A26	PEVYG2	Pelvis Accel Y	Lft	398.20806 g	-	8/5/2002 OK	421v	Entran	EGE-73B6Q-200	
6015	02A18-N15	PEVZG2	Pelvis Accel Z	Up	401.14074 g	-	8/5/2002 OK	421v	Entran	EGE-73B6Q-200	
6016	2430-739	LFMZP2	Left Femur Force Z S37	Knee	13342.961 N	+	3/18/2002 OK	421v	GSE	2430	
6017	2430-760	RFMZP2	Right Femur Force Z VRTC 4	Knee	13346.030 N	+	3/18/2002 OK	421v	GSE	2430	
6018	150-0121VR-1502	KNLXD2	Left Knee Displacement POT10	Tib F	39.804553 mm	+	5/8/2002 OK	421v	SpaceAge	150-0121VR	
6019	4825J-82-FX	TBLXF2	Left Upr Tibia Force X	Tib F	8883.1205 N	+	7/16/2002 OK	421v	Denton	4825J	
6020	4825J-82-FZ	TBLZF2	Left Upr Tibia Force Z	Tib D	8899.4853 N	+	7/16/2002 OK	421v	Denton	4825J	
6021	4825J-82-MX	TBLXM2	Left Upr Tibia Moment X	Ank L	281.82343 N-m	+	7/16/2002 OK	421v	Denton	4825J	
6022	4825J-82-MY	TBLYM2	Left Upr Tibia Moment Y	Ank F	282.67104 N-m	+	7/16/2002 OK	421v	Denton	4825J	
6023	99H30-Z09	TBLXG2	Left Tibia Accel X	Fwd	1191.0301 g	+	4/25/2002 OK	421v	Entran	EGE-73BQE0-20	
6024	99H12-F09	TBLYG2	Left Tibia Accel Y	Rt	1205.2447 g	+	4/26/2002 OK	421v	Entran	EGE-73BQE0-20	
6025	4826J-82-FX	ANLXF2	Left Lwr Tibia Force X	Ank F	8903.7473 N	+	7/16/2002 OK	421v	Denton	4826J	
6026	4826J-82-FY	ANLYF2	Left Lwr Tibia Force Y	Ank R	8913.5865 N	+	7/16/2002 OK	421v	Denton	4826J	
6027	4826J-82-FZ	ANLZF2	Left Lwr Tibia Force Z	Ank	8897.3841 N	+	7/16/2002 OK	421v	Denton	4826J	
6028	4826J-82-MX	ANLXM2	Left Lwr Tibia Moment X	Ank L	281.89523 N-m	+	7/16/2002 OK	421v	Denton	4826J	
6029	4826J-82-MY	ANLYM2	Left Lwr Tibia Moment Y	Ank F	282.42322 N-m	+	7/16/2002 OK	421v	Denton	4826J	
6030	FLX108X	FTLXD2	Left Foot Disp. X	Eversi	162.16125 °	+	7/22/2002 OK	421v	Contelec	PD210-4B	

# Channel Report

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6031 FLX108Y  
6032 FLX108Z

FTLYD2 Left Foot Disp. Y  
FTLZD2 Left Foot Disp. Z

Dorsif 161.60453 °  
Intern 160.64469 °

+ 7/22/2002 OK 421v  
+ 7/22/2002 OK 421v

Contelec PD210-4B  
Contelec PD210-4B

# Channel Report

8/19/2002 10:50:32 AM

Name of Test		System		Name of DAU		DAU7					
020819		MINIDAU		DAU7							
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model	
7001	98H10-F03	FTLXG2	Left Foot Accel X	Fwd	1219.0476	g	+ 4/25/2002	OK 421v	Entran	EGE-73BQ-2000	
7002	98H10-F07	FTLYG2	Left Foot Accel Y	Rt	1200.7505	g	+ 4/25/2002	OK 421v	Entran	EGE-73BQ-2000	
7003	98H13-F16	FTLZG2	Left Foot Accel Z	Dn	1218.4384	g	+ 4/25/2002	OK 421v	Entran	EGE-73BQ-2000	
7004	150-0121VL-1494	KNRXD2	Right Knee Displacement	AXR Tib F	39.721330	mm	+ 5/8/2002	OK 421v	SpaceAge	150-0121VL	
7005	4825J-80-FX	TBRXF2	Right Upr Tibia Force X	Tib F	8897.8531	N	+ 7/16/2002	OK 421v	Denton	4825J	
7006	4825J-80-FZ	TBRZF2	Right Upr Tibia Force Z	Tib D	8891.6868	N	+ 7/16/2002	OK 421v	Denton	4825J	
7007	4825J-80-MX	TBRXM2	Right Upr Tibia Moment X	Ank L	282.67119	N-m	+ 7/16/2002	OK 421v	Denton	4825J	
7008	4825J-80-MY	TBRYM2	Right Upr Tibia Moment Y	Ank F	282.08905	N-m	+ 7/16/2002	OK 421v	Denton	4825J	
7009	99H12-F19	TBRXG2	Right Tibia Accel X	Fwd	1227.6411	g	+ 4/26/2002	OK 421v	Entran	EGE-73BQE0-20	
7010	99H30-Z12	TBRYG2	Right Tibia Accel Y	Rt	1208.1741	g	+ 4/26/2002	OK 421v	Entran	EGE-73BQE0-20	
7011	4826J-76-FX	ANRXF2	Right Lwr Tibia Force X	Ank F	8902.4909	N	+ 7/16/2002	OK 421v	Denton	4826J	
7012	4826J-76-FY	ANRYF2	Right Lwr Tibia Force Y	Ank R	8899.4438	N	+ 7/16/2002	OK 421v	Denton	4826J	
7013	4826J-76-FZ	ANRZF2	Right Lwr Tibia Force Z	Ank	8898.8267	N	+ 7/16/2002	OK 421v	Denton	4826J	
7014	4826J-76-MX	ANRXM2	Right Lwr Tibia Moment X	Ank L	282.85844	N-m	+ 7/16/2002	OK 421v	Denton	4826J	
7015	4826J-76-MY	ANRYM2	Right Lwr Tibia Moment Y	Ank F	282.07777	N-m	+ 7/16/2002	OK 421v	Denton	4826J	
7016	FLX107X	FTRXD2	Right Foot Disp. X	Eversi	163.16031	°	- 7/22/2002	OK 421v	Contelec	PD210-4B	
7017	FLX107Y	FTRYD2	Right Foot Disp. Y	Dorsif	160.73496	°	+ 7/22/2002	OK 421v	Contelec	PD210-4B	
7018	FLX107Z	FTRZD2	Right Foot Disp. Z	Extern	161.54100	°	+ 7/22/2002	OK 421v	Contelec	PD210-4B	
7019	98H14-K06	FTRXG2	Right Foot Accel X	Fwd	1213.2701	g	+ 4/26/2002	OK 421v	Entran	EGE-73BQ-2000	
7020	99H12-F03	FTRYG2	Right Foot Accel Y	Rt	1174.0965	g	+ 4/25/2002	OK 421v	Entran	EGE-73BQE0-20	
7021	98H14-K10	FTRZG2	Right Foot Accel Z	Dn	1225.8188	g	+ 4/25/2002	OK 421v	Entran	EGE-73BQ-2000	
7022	J38609	LRXXG1	REAR SEAT X-MEMBER LEF	FWD	1004.7490	g	+ 5/10/2002	OK -1	Endevco	7264-2000TZ	
7023	J38149	LRXYG1	REAR SEAT Y-MEMBER LEF	FWD	980.61748	g	+ 5/10/2002	OK -1	Endevco	7264-2000TZ	
7024	J39522	LRXZG1	REAR SEAT Z-MEMBER LEF	UP	1024	g	- 6/5/2002	OK -1	Endevco	7264-2000TZ	
7025	J37078	RRXXG1	REAR SEAT X-MEMBER RIG	FWD	1010.5795	g	+ 4/4/2002	OK -1	Endevco	7264-2000TZ	
7026	J40088	RRXYG1	REAR SEAT Y-MEMBER RIG	LT	1000.5863	g	- 4/4/2002	OK -1	Endevco	7264-2000TZ	
7027	J22013	RRXZG1	REAR SEAT Z-MEMBER RIG	UP	1007.8740	g	- 6/19/2002	OK -1	Endevco	7264-2000TZ	
7028	J37990	LTPXG1	DRIVERS LT. SIDE TOE PAN	RR	1014.1827	g	- 3/20/2002	OK -1	Endevco	7264-2000TZ	
7029	J35767	LTPYG1	DRIVERS LT. SIDE TOE PAN	LT	996.57428	g	- 5/13/2002	OK -1	Endevco	7264-2000TZ	
7030	J27503	LTPZG1	DRIVERS LT. SIDE TOE PAN	UP	1008.6285	g	- 7/30/2002	OK -1	Endevco	7264-2000TZ	

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7031	J39031	RTPXG1	DRIVERS RT. SIDE TOE PAN	RR	1017.6499	g	-	7/15/2002	OK	-1	Endevco	7264-2000TZ
7032	J36746	RTPYG1	DRIVERS RT. SIDE TOE PAN	LT	1011.8577	g	-	5/1/2002	OK	-1	Endevco	7264-2000TZ

# Channel Report

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Name of Test		System		Name of DAU						
020819		MINIDAU		DAU9						
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model
9001	J40989	RTPZG1	DRIVERS RT. SIDE TOE PAN	UP	1005.8741 g	-	6/3/2002 OK	-1	Endevco	7264-2000TZ
9005	J41494	RDKZG1	REAR DECK Z-AXIS	UP	1012.4980 g	-	6/3/2002 OK	-1	Endevco	7264-2000TZ
9006	A51808	TPDXD1	TOE PAN DISPLACEMENT	SP04	1247.9787 mm	+	7/10/2002 OK	-1	Celesco	PT-101-0050-111
9007	IP1	DABETA	DRIVER AIRBAG EVENT - WI	P	1.0039216 V	+	6/15/2000	---	VRTC O	FLUKE Y8101A
9008	IP3	DABETB	DRIVER AIRBAG EVENT- WI	8	1.0039216 V	+	6/15/2000	---	VRTC O	FLUKE Y8101A
9009	IP2	PABETA	PASSENGER AIRBAG EVENT	69	1.0039216 V	+	6/15/2000	---	VRTC O	FLUKE Y8101A
9010	IP4	PABETB	PASSENGER AIRBAG EVENT	A3	1.0039216 V	+	6/15/2000	---	VRTC O	FLUKE Y8101A
9011	610	SHBF1	DRIVER SHOULDER FORCE		13337.946 N	+	4/3/2002 OK	-1	Lebow	3419T
9012	615	LPBF1	DRIVER LAP FORCE		13364.728 N	+	4/3/2002 OK	-1	Lebow	3419T
9013	808	SHBF2	PASSENGER SHOULDER FOR		13330.079 N	+	4/3/2002 OK	-1	Lebow	3419T
9014	807	LPBF2	PASSENGER LAP FORCE		13330.167 N	+	4/3/2002 OK	-1	Lebow	3419T
9030	B02A25-N03	CSTXG2	Chest Accel X	Fwd	401.20047 g	+	8/5/2002 OK	421v	Entran	EGE-73B6Q-200
9031	02A18-N12	CSTYG2	Chest Accel Y	Lft	402.78171 g	-	8/5/2002 OK	421v	Entran	EGE-73B6Q-200
9032	B02A25-N10	CSTZG2	Chest Accel Z	Up	400.45364 g	-	8/5/2002 OK	421v	Entran	EGE-73B6Q-200

## Channel Report

Name of Test		System		Name of DAU		DAU0					
020819		K3600		DAU0							
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model	
0001	6244-02-144-FZ	LCA1XF	Barr. L.C. A1 X-Axis Force		111096.52 N	-	2/20/2002 ---	VRTC Of	Key	6244-02	
0002	6244-02-125-FZ	LCA2XF	Barr. L.C. A2 X-Axis Force		111079.34 N	-	2/19/2002 ---	VRTC Of	Key	6244-02	
0003	6244-02-131-FZ	LCA3XF	Barr. L.C. A3 X-Axis Force		111135.42 N	-	2/5/2002 ---	VRTC Of	Key	6244-02	
0004	6244-02-106-FZ	LCA4XF	Barr. L.C. A4 X-Axis Force		111096.52 N	-	2/12/2002 ---	VRTC Of	Key	6244-02	
0005	6244-02-115-FZ	LCA5XF	Barr. L.C. A5 X-Axis Force		111114.85 N	-	2/5/2002 ---	VRTC Of	Key	6244-02	
0006	6244-02-122-FZ	LCA6XF	Barr. L.C. A6 X-Axis Force		111096.52 N	-	2/21/2002 OK	VRTC Of	Key	6244-02	
0007	6244-02-143-FZ	LCA7XF	Barr. L.C. A7 X-Axis Force		111096.52 N	-	2/5/2002 ---	VRTC Of	Key	6244-02	
0008	6244-02-119-FZ	LCB1XF	Barr. L.C. B1 X-Axis Force		111196.08 N	-	2/22/2002 OK	VRTC Of	Key	6244-02	
0009	6244-02-132-FZ	LCB2XF	Barr. L.C. B2 X-Axis Force		111278.56 N	-	2/20/2002 ---	VRTC Of	Key	6244-02	
0010	6244-02-113-FZ	LCB3XF	Barr. L.C. B3 X-Axis Force		111135.42 N	-	2/22/2002 OK	VRTC Of	Key	6244-02	
0011	6244-02-129-FZ	LCB4XF	Barr. L.C. B4 X-Axis Force		111096.52 N	-	2/21/2002 OK	VRTC Of	Key	6244-02	
0012	6244-02-123-FZ	LCB5XF	Barr. L.C. B5 X-Axis Force		111083.85 N	-	2/11/2002 ---	VRTC Of	Key	6244-02	
0013	6244-02-136-FZ	LCB6XF	Barr. L.C. B6 X-Axis Force		111083.85 N	-	1/24/2002 ---	VRTC Of	Key	6244-02	
0014	6244-02-116-FZ	LCB7XF	Barr. L.C. B7 X-Axis Force		111196.08 N	-	2/22/2002 OK	VRTC Of	Key	6244-02	
0015	6244-02-147-FZ	LCC1XF	Barr. L.C. C1 X-Axis Force		111196.08 N	-	2/22/2002 OK	VRTC Of	Key	6244-02	
0016	6244-02-137-FZ	LCC2XF	Barr. L.C. C2 X-Axis Force		111079.34 N	-	2/21/2002 OK	VRTC Of	Key	6244-02	
0017	6244-02-107-FZ	LCC3XF	Barr. L.C. C3 X-Axis Force		111289.23 N	-	2/12/2002 ---	VRTC Of	Key	6244-02	
0018	6244-02-126-FZ	LCC4XF	Barr. L.C. C4 X-Axis Force		111083.85 N	-	2/12/2002 ---	VRTC Of	Key	6244-02	
0019	6244-02-148-FZ	LCC5XF	Barr. L.C. C5 X-Axis Force		111096.52 N	-	2/19/2002 ---	VRTC Of	Key	6244-02	
0020	6244-02-124-FZ	LCC6XF	Barr. L.C. C6 X-Axis Force		111096.52 N	-	2/19/2002 ---	VRTC Of	Key	6244-02	
0021	6244-02-104-FZ	LCC7XF	Barr. L.C. C7 X-Axis Force		111096.52 N	-	2/12/2002 ---	VRTC Of	Key	6244-02	
0022	6244-02-138-FZ	LCD1XF	Barr. L.C. D1 X-Axis Force		111079.34 N	-	2/21/2002 OK	VRTC Of	Key	6244-02	
0023	6244-02-128-FZ	LCD2XF	Barr. L.C. D2 X-Axis Force		111196.08 N	-	1/7/2002 ---	VRTC Of	Key	6244-02	
0024	6244-02-102-FZ	LCD3XF	Barr. L.C. D3 X-Axis Force		111135.42 N	-	2/12/2002 ---	VRTC Of	Key	6244-02	
0025	6244-02-117-FZ	LCD4XF	Barr. L.C. D4 X-Axis Force		111079.34 N	-	2/19/2002 ---	VRTC Of	Key	6244-02	
0026	6244-02-127-FZ	LCD5XF	Barr. L.C. D5 X-Axis Force		111135.42 N	-	2/22/2002 OK	VRTC Of	Key	6244-02	
0027	6244-02-109-FZ	LCD6XF	Barr. L.C. D6 X-Axis Force		111083.85 N	-	2/12/2002 ---	VRTC Of	Key	6244-02	
0028	6244-02-162-FZ	LCD7XF	Barr. L.C. D7 X-Axis Force		111162.74 N	-	1/7/2002 ---	VRTC Of	Key	6244-02	
0029	6244-02-114-FZ	LCE1XF	Barr. L.C. E1 X-Axis Force		111079.34 N	-	2/19/2002 ---	VRTC Of	Key	6244-02	
0030	6244-02-145-FZ	LCE2XF	Barr. L.C. E2 X-Axis Force		111229.51 N	-	2/20/2002 ---	VRTC Of	Key	6244-02	

## Channel Report

0031	6244-02-118-FZ	LCE3XF	Barr. L.C. E3 X-Axis Force	111135.42	N	-	2/19/2002	---	VRTC Of Key	6244-02
0032	6244-02-120-FZ	LCE4XF	Barr. L.C. E4 X-Axis Force	111079.34	N	-	1/7/2002	---	VRTC Of Key	6244-02
0033	6244-02-101-FZ	LCE5XF	Barr. L.C. E5 X-Axis Force	111083.85	N	-	2/12/2002	---	VRTC Of Key	6244-02
0034	6244-02-112-FZ	LCE6XF	Barr. L.C. E6 X-Axis Force	111278.56	N	-	2/19/2002	---	VRTC Of Key	6244-02
0035	6244-02-108-FZ	LCE7XF	Barr. L.C. E7 X-Axis Force	111096.52	N	-	2/12/2002	---	VRTC Of Key	6244-02
0036	6244-02-164-FZ	LCF1XF	Barr. L.C. F1 X-Axis Force	111174.81	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0037	6244-02-135-FZ	LCF2XF	Barr. L.C. F2 X-Axis Force	111317.11	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0038	6244-02-165-FZ	LCF3XF	Barr. L.C. F3 X-Axis Force	111058.33	N	-	3/18/2002	OK	VRTC Of Key	6244-02
0039	6244-02-141-FZ	LCF4XF	Barr. L.C. F4 X-Axis Force	111196.08	N	-	2/19/2002	---	VRTC Of Key	6244-02
0040	6244-02-130-FZ	LCF5XF	Barr. L.C. F5 X-Axis Force	111096.52	N	-	2/20/2002	---	VRTC Of Key	6244-02
0041	6244-02-168-FZ	LCF6XF	Barr. L.C. F6 X-Axis Force	111114.85	N	-	1/7/2002	---	VRTC Of Key	6244-02
0042	6244-02-149-FZ	LCF7XF	Barr. L.C. F7 X-Axis Force	111079.34	N	-	2/20/2002	---	VRTC Of Key	6244-02
0043	6244-02-159-FZ	LCG1XF	Barr. L.C. G1 X-Axis Force	111170.00	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0044	6244-02-160-FZ	LCG2XF	Barr. L.C. G2 X-Axis Force	111250.17	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0045	6244-02-161-FZ	LCG3XF	Barr. L.C. G3 X-Axis Force	111215.54	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0046	6244-02-166-FZ	LCG4XF	Barr. L.C. G4 X-Axis Force	111327.00	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0047	6244-02-157-FZ	LCH1XF	Barr. L.C. H1 X-Axis Force	111160.32	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0048	6244-02-169-FZ	LCH2XF	Barr. L.C. H2 X-Axis Force	111115.56	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0049	6244-02-163-FZ	LCH3XF	Barr. L.C. H3 X-Axis Force	111220.16	N	-	8/2/2002	OK	VRTC Of Key	6244-02
0050	6244-02-167-FZ	LCH4XF	Barr. L.C. H4 X-Axis Force	111254.28	N	-	8/2/2002	OK	VRTC Of Key	6244-02

Dummy 416v Type HYBRID III 5th Description VRTC - 416v HYBRID III 5th Female CAL'd 6-1-01 (DKS 8-12-02)J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
HEDXG	Head Accel X	EGE-73B6Q-20	02A02-F02	Entran	0.0251 g	2000	8/1/02	Fwd	0
HEDYG	Head Accel Y	EGE-73B6Q-20	02A18-N10	Entran	0.01967 g	2000	8/1/02	Lft	1
HEDZG	Head Accel Z	EGE-73B6Q-20	02A09-F15	Entran	0.02138 g	2000	8/1/02	Up	1
HEDXR	Head Accel Red X	EGE-73B6Q-20	01L26-F02	Entran	0.02022 g	2000	8/1/02	Rwd	1
HEDYR	Head Accel Red Y	EGE-73B6Q-20	02A09-F13	Entran	0.01959 g	2000	8/5/02	Lft	1
HEDZR	Head Accel Red Z	EGE-73B6Q-20	02A16-A06	Entran	0.01945 g	2000	8/1/02	Up	1
HD1XG	Head (LT) Accel X	EGE-73B6Q-20	02A16-A19	Entran	0.02103 g	2000	8/1/02	Fwd	0
HD1ZG	Head (LT) Accel Z	EGE-73B6Q-20	02A16-A22	Entran	0.02205 g	2000	8/1/02	Up	1
HD2YG	Head (FT) Accel Y	EGE-73B6Q-20	02A18-N04	Entran	0.01966 g	2000	8/1/02	Lft	1
HD2ZG	Head (FT) Accel Z	EGE-73B6Q-20	02A18-N20	Entran	0.0201 g	2000	8/1/02	Up	1
HD3XG	Head (TP) Accel X	EGE-73B6Q-20	02A09-F01	Entran	0.01985 g	2000	8/1/02	Fwd	0
HD3YG	Head (TP) Accel Y	EGE-73B6Q-20	02A09-F17	Entran	0.02066 g	2000	8/1/02	Lft	1
NEKXF	Neck Force X	IF-205	IF-205-161-FX	FTSS	0.000187241 N	8896	3/18/02	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	IF-205	IF-205-161-FY	FTSS	0.000180632 N	8896	3/18/02	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	IF-205	IF-205-161-FZ	FTSS	0.000092626 N	13344	3/18/02	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	IF-205	IF-205-161-MX	FTSS	0.005688142 N·m	282.5	3/18/02	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	IF-205	IF-205-161-MY	FTSS	0.005759292 N·m	282.5	3/18/02	Chn to Strnm	0
NEKZM	Neck Moment Z	IF-205	IF-205-161-MZ	FTSS	0.00836354 N·m	282.5	3/18/02	Chn to Lt Shld	0
NKLXF	Neck Lwr Force X	3251	3251-108-FX	Denton	0.000174325 N	13344.6	8/21/01	Hd Fd,Cst Rr	1
NKLYF	Neck Lwr Force Y	3251	3251-108-FY	Denton	0.000173696 N	13344.6	8/21/01	Hd Lt,Cst Rt	0
NKLZF	Neck Lwr Force Z	3251	3251-108-FZ	Denton	0.000096061 N	13344.6	8/21/01	Hd Up,Cst Dn	0
NKLXM	Neck Lwr Moment X	3251	3251-108-MX	Denton	0.004491923 N·m	451.9	8/21/01	Rt Ear to Rt Shld	1
NKLYM	Neck Lwr Moment Y	3251	3251-108-MY	Denton	0.004297854 N·m	451.9	8/21/01	Chn to Strnm	0
NKLZM	Neck Lwr Moment Z	3251	3251-108-MZ	Denton	0.005223779 N·m	338.95	8/21/01	Chn to Lt Shld	0
CSTXG	Chest Accel X	EGE-73B6Q-20	02A16-A04	Entran	0.02099 g	2000	8/1/02	Fwd	0
CSTYG	Chest Accel Y	EGE-73B6Q-20	C02B19-F02	Entran	0.01879 g	2000	8/1/02	Lft	1

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
CSTZG	Chest Accel Z	EGE-73B6Q-20	C02B19-F06	Entran	0.01903 g	2000	8/1/02	Up	1
CSTXR	Chest Accel Red X	EGE-73B6Q-20	B02A25-N08	Entran	0.0197 g	2000	8/1/02	Rwd	1
CSTYR	Chest Accel Red Y	EGE-73B6Q-20	01L17-F09	Entran	0.01943 g	2000	8/1/02	Lft	1
CSTZR	Chest Accel Red Z	EGE-73B6Q-20	C02B19-F04	Entran	0.01775 g	2000	8/1/02	Up	1
STUXG	Sternum Upr Accel X	EGE-73B6Q-20	B02A09-F08	Entran	0.02136 g	2000	8/1/02	Fwd	0
STMXG	Sternum Mid Accel X	EGE-73B6Q-20	02A16-A05	Entran	0.02203 g	2000	8/1/02	Fwd	0
STLXG	Sternum Lwr Accel X	EGE-73B6Q-20	02A16-A16	Entran	0.02279 g	2000	8/1/02	Fwd	0
CSTXD	Chest Deflection X 516	14CB1-2897	14CB1-2897-416	Servo	1.5983 mm	100	6/18/01	Strmm Away Frm Spn	0
LMBXF	Lumbar Force X	2152	2152-076-FX	Denton	0.000144364 N	13344.6	6/1/01	Cst Fd,Pel Rr	1
LMBYF	Lumbar Force Y	2152	2152-076-FY	Denton	0.000143967 N	13344.6	6/1/01	Cst Lt,Pel Rt	0
LMBZF	Lumbar Force Z	2152	2152-076-FZ	Denton	0.000058433 N	17793	6/1/01	Cst Up,Pel Dn	0
LMBXM	Lumbar Moment X	2152	2152-076-MX	Denton	0.002374243 N-m	677.9	6/1/01	Rt Shld to Rt Hip	1
LMBYM	Lumbar Moment Y	2152	2152-076-MY	Denton	0.002370998 N-m	677.9	6/1/01	Strmm to Frt of Legs	0
PEVXG	Pelvis Accel X	EGE-73B6Q-20	C02B19-F03	Entran	0.01756 g	2000	8/1/02	Rwd	1
PEVYG	Pelvis Accel Y	EGE-73B6Q-20	02A16-A27	Entran	0.0216 g	2000	8/1/02	Lft	1
PEVZG	Pelvis Accel Z	EGE-73B6Q-20	C02B19-F01	Entran	0.01955 g	2000	8/1/02	Up	1
LFMZF	Left Femur Force Z #8	2430	2430-736	GSE	0.000069527 N	13344	3/18/02	Knee Fd,Pel Rr	0
RFMZF	Right Femur Force Z 507	2430	2430-742	GSE	0.000066867 N	13344	3/18/02	Knee Fd,Pel Rr	0
KNLXD	Left Knee Displacement	150-0121VR	150-0121VR-5556	SpaceAge	23.741 mm	40	5/8/02	Tib Rr,Hld Fem	1
TBLXF	Left Upr Tibia Force X	4825J	4825J-79-FX	Denton	0.000264388 N	8896.4	7/16/02	Tib Fd,Knee Rr	0
TBLZF	Left Upr Tibia Force Z	4825J	4825J-79-FZ	Denton	0.000108212 N	8896.4	7/16/02	Tib Dn,Knee Up	0
TBLXM	Left Upr Tibia Moment X	4825J	4825J-79-MX	Denton	0.010160353 N-m	282.5	7/16/02	Ank Lt,Hld Knee	0
TBLYM	Left Upr Tibia Moment Y	4825J	4825J-79-MY	Denton	0.01028141 N-m	282.5	7/16/02	Ank Fd,Hld Kneec	0
TBLXG	Left Tibia Accel X	EGE-73BQE0-2	99H30-Z10	Entran	0.02054 g	2000	4/26/02	Fwd	0
TBLYG	Left Tibia Accel Y	EGE-73BQ-200	98H10-F17	Entran	0.01975 g	2000	4/25/02	Rt	0
ANLXF	Left Lwr Tibia Force X	4826J	4826J-77-FX	Denton	0.000261814 N	8896.4	7/16/02	Ank Fd,Knee Rr	0
ANLYF	Left Lwr Tibia Force Y	4826J	4826J-77-FY	Denton	0.000263106 N	8896.4	7/16/02	Ank Rt,Knee Lft	0
ANLZF	Left Lwr Tibia Force Z	4826J	4826J-77-FZ	Denton	0.000107369 N	8896.4	7/16/02	Ank Dn,Knee Up	0

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
ANLXM	Left Lwr Tibia Moment X	4826J	4826J-77-MX	Denton	0.010294513	N-m 282.4	7/16/02	Ank Lt,Hld Knee	0
ANLYM	Left Lwr Tibia Moment Y	4826J	4826J-77-MY	Denton	0.010132790	N-m 282.4	7/16/02	Ank Fd,Hld Knee	0
FTLXD	Left Foot Disp. X	PD210-4B	FLX103X	Contelec	3.185474	° 318	7/22/02	Inversion	1
FTLYD	Left Foot Disp. Y	PD210-4B	FLX103Y	Contelec	3.17893	° 318	7/22/02	Dorsiflexion	0
FTLZD	Left Foot Disp. Z	PD210-4B	FLX103Z	Contelec	3.189123	° 318	7/22/02	External Rotation	1
FTLXG	Left Foot Accel X	EGE-73BQE0-2	99H30-Z11	Entran	0.02056	g 2000	4/26/02	Fwd	0
FTLYG	Left Foot Accel Y	EGE-73B6Q-20	01J02-F05	Entran	0.02188	g 2000	4/25/02	Rt	0
FTLZG	Left Foot Accel Z	EGE-73B6Q-20	01J02-F22	Entran	0.02293	g 2000	4/25/02	Dn	0
KNRXD	Right Knee Displacement	150-0121VL	150-0121VL-5482	SpaceAge	23.313	mm 40	5/8/02	Tib Rr,Hld Fem	1
TBRXF	Right Upr Tibia Force X	4825J	4825J-76-FX	Denton	0.000260746	N 8896.4	7/16/02	Tib Fd,Knee Rr	0
TBRZF	Right Upr Tibia Force Z	4825J	4825J-76-FZ	Denton	0.000107043	N 8896.4	7/16/02	Tib Dn,Knee Up	0
TBRXM	Right Upr Tibia Moment X	4825J	4825J-76-MX	Denton	0.01003575	N-m 282.5	7/16/02	Ank Lt,Hld Knee	0
TBRYM	Right Upr Tibia Moment Y	4825J	4825J-76-MY	Denton	0.01022761	N-m 282.5	7/16/02	Ank Fd,Hld Knee	0
TBRXG	Right Tibia Accel X	EGE-73BQE0-2	99H30-Z13	Entran	0.02028	g 2000	4/25/02	Fwd	0
TBRYG	Right Tibia Accel Y	EGE-73BQE0-2	99H30-Z01	Entran	0.01912	g 2000	4/25/02	Rt	0
ANRXF	Right Lwr Tibia Force X	4826J	4826J-78-FX	Denton	0.000264545	N 8896.4	7/16/02	Ank Fd,Knee Rr	0
ANRYF	Right Lwr Tibia Force Y	4826J	4826J-78-FY	Denton	0.000265489	N 8896.4	7/16/02	Ank Rt,Knee Lft	0
ANRZF	Right Lwr Tibia Force Z	4826J	4826J-78-FZ	Denton	0.000108583	N 8896.4	7/16/02	Ank Dn,Knee Up	0
ANRXM	Right Lwr Tibia Moment X	4826J	4826J-78-MX	Denton	0.010420531	N-m 282.5	7/16/02	Ank Lt,Hld Knee	0
ANRYM	Right Lwr Tibia Moment Y	4826J	4826J-78-MY	Denton	0.0102361	N-m 282.5	7/16/02	Ank Fd,Hld Knee	0
FTRXD	Right Foot Disp. X	PD210-4B	FLX104X	Contelec	3.160404	° 318	7/19/02	Eversion	1
FTRYD	Right Foot Disp. Y	PD210-4B	FLX104Y	Contelec	3.144368	° 318	7/19/02	Dorsiflexion	0
FTRZD	Right Foot Disp. Z	PD210-4B	FLX104Z	Contelec	3.164982	° 318	7/19/02	Internal Rotation	1
FTRXG	Right Foot Accel X	EGE-73B6Q-20	01J02-F10	Entran	0.02115	g 2000	4/25/02	Fwd	0
FTRYG	Right Foot Accel Y	EGE-73BQE0-2	99H30-Z15	Entran	0.01953	g 2000	4/26/02	Rt	0
FTRZG	Right Foot Accel Z	EGE-73B6Q-20	01J02-F03	Entran	0.02053	g 2000	4/26/02	Dn	0

Dummy	421v	Type	HYBRID III 5th	Description	VRTC - 421v HYBRID III 5th Female CAL'd 6-2-01 (DKS 8-12-02)J211					
Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip	
HEDXG	Head Accel X VRTC 5	7264-2KM5T	AJ4R6	Endevco	0.02183 g	2000	8/6/02	Fwd	0	
HEDYG	Head Accel Y	EGE-73B6Q-20	02A16-A01	Entran	0.02109 g	2000	8/5/02	Lft	1	
HEDZG	Head Accel Z	EGE-73B6Q-20	01L26-F06	Entran	0.01962 g	2000	8/5/02	Up	1	
HEDXR	Head Accel Red X	EGE-73B6Q-20	02A16-A03	Entran	0.02306 g	2000	8/5/02	Rwd	1	
HEDYR	Head Accel Red Y	EGE-73B6Q-20	02A16-A08	Entran	0.0251 g	2000	8/5/02	Lft	1	
HEDZR	Head Accel Red Z	EGE-73B6Q-20	02A16-A09	Entran	0.02052 g	2000	8/5/02	Up	1	
HD1XG	Head (LT) Accel X	EGE-73B6Q-20	02A16-A28	Entran	0.02021 g	2000	8/5/02	Fwd	0	
HD1ZG	Head (LT) Accel Z	EGE-73B6Q-20	02A16-A20	Entran	0.02253 g	2000	8/5/02	Up	1	
HD2YG	Head (FT) Accel Y	EGE-73B6Q-20	02A09-F12	Entran	0.01943 g	2000	8/5/02	Lft	1	
HD2ZG	Head (FT) Accel Z	EGE-73B6Q-20	02A18-N07	Entran	0.02007 g	2000	8/5/02	Up	1	
HD3XG	Head (TP) Accel X	EGE-73B6Q-20	02A16-A23	Entran	0.02026 g	2000	8/5/02	Fwd	0	
HD3YG	Head (TP) Accel Y	EGE-73B6Q-20	02A16-A25	Entran	0.02037 g	2000	8/5/02	Lft	1	
NEKXF	Neck Force X	IF-205	IF-205-180-FX	FTSS	0.00018243 N	8896	3/18/02	Hd Fd,Cst Rr	1	
NEKYF	Neck Force Y	IF-205	IF-205-180-FY	FTSS	0.000175596 N	8896	3/18/02	Hd Lt,Cst Rt	0	
NEKZF	Neck Force Z	IF-205	IF-205-180-FZ	FTSS	0.000092266 N	13344	3/18/02	Hd Up,Cst Dn	0	
NEKXM	Neck Moment X	IF-205	IF-205-180-MX	FTSS	0.005577699 N-m	282.5	3/18/02	Rt Ear to Rt Shld	1	
NEKYM	Neck Moment Y	IF-205	IF-205-180-MY	FTSS	0.005602124 N-m	282.5	3/18/02	Chin to Strmm	0	
NEKZM	Neck Moment Z	IF-205	IF-205-180-MZ	FTSS	0.008122478 N-m	282.5	3/18/02	Chn to Lt Shld	0	
NKLXF	Neck Lwr Force X	3251	3251-107-FX	Denton	0.000175149 N	13344.6	7/6/01	Hd Fd,Cst Rr	1	
NKLYF	Neck Lwr Force Y	3251	3251-107-FY	Denton	0.000175771 N	13344.6	7/6/01	Hd Lt,Cst Rt	0	
NKLZF	Neck Lwr Force Z	3251	3251-107-FZ	Denton	0.000095109 N	13344.6	7/6/01	Hd Up,Cst Dn	0	
NKLXM	Neck Lwr Moment X	3251	3251-107-MX	Denton	0.004384155 N-m	451.9	7/6/01	Rt Ear to Rt Shld	1	
NKLYM	Neck Lwr Moment Y	3251	3251-107-MY	Denton	0.004373976 N-m	451.9	7/6/01	Chn to Strmm	0	
NKLZM	Neck Lwr Moment Z	3251	3251-107-MZ	Denton	0.005777548 N-m	338.95	7/6/01	Chn to Lt Shld	0	
CSTXG	Chest Accel X	EGE-73B6Q-20	B02A25-N03	Entran	0.02163 g	2000	8/5/02	Fwd	0	
CSTYG	Chest Accel Y	EGE-73B6Q-20	02A18-N12	Entran	0.01926 g	2000	8/5/02	Lft	1	

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
CSTZG	Chest Accel Z	EGE-73B6Q-20	B02A25-N10	Entran	0.01967 g	2000	8/5/02	Up	1
CSTXR	Chest Accel Red X	7264-2KM5T	AE9B7	Endevco	0.0248 g	2000	8/6/02	Rwd	1
CSTYR	Chest Accel Red Y	EGE-73B6Q-20	02A04-A24	Entran	0.01924 g	2000	8/5/02	Lft	1
CSTZR	Chest Accel Red Z	EGE-73B6Q-20	B02A18-N22	Entran	0.02106 g	2000	8/5/02	Up	1
STUXG	Sternum Upr Accel X	EGE-73B6Q-20	02A16-A14	Entran	0.02268 g	2000	8/5/02	Fwd	0
STMXG	Sternum Mid Accel X	EGE-73B6Q-20	02A16-A12	Entran	0.0223 g	2000	8/5/02	Fwd	0
STLXG	Sternum Lwr Accel X	EGE-73B6Q-20	02A18-N16	Entran	0.01972 g	2000	8/5/02	Fwd	0
CSTXD	Chest Deflection X	14CB1-2897	14CB1-2897-1355	Servo	1.70969 mm	100	3/25/02	Strnm Away Frm Spn	0
LMBXF	Lumbar Force X	2152A	2152A-086-FX	Denton	0.000139995 N	13344.6	6/2/01	Cst Fd,Pel Rr	1
LMBYF	Lumbar Force Y	2152A	2152A-086-FY	Denton	0.000138002 N	13344.6	6/2/01	Cst Lt,Pel Rt	0
LMBZF	Lumbar Force Z	2152A	2152A-086-FZ	Denton	0.000050458 N	17793	6/2/01	Cst Up,Pel Dn	0
LMBXM	Lumbar Moment X	2152A	2152A-086-MX	Denton	0.002293111 N-m	677.9	6/2/01	Rt Shld to Rt Hip	1
LMBYM	Lumbar Moment Y	2152A	2152A-086-MY	Denton	0.002268623 N-m	677.9	6/2/01	Strnm to Frt of Legs	0
PEVXG	Pelvis Accel X	7264-2000LC	AF9K3	Endevco	0.0212 g	2000	8/5/02	Rwd	1
PEVYG	Pelvis Accel Y	EGE-73B6Q-20	02A16-A26	Entran	0.02009 g	2000	8/5/02	Lft	1
PEVZG	Pelvis Accel Z	EGE-73B6Q-20	02A18-N15	Entran	0.01877 g	2000	8/5/02	Up	1
LFMZ	Left Femur Force Z S37	2430	2430-739	GSE	0.000067676 N	13344	3/18/02	Knee Fd,Pel Rr	0
RFMZ	Right Femur Force Z VRTC 4	2430	2430-760	GSE	0.000067069 N	13344	3/18/02	Knee Fd,Pel Rr	0
KNLXD	Left Knee Displacement POT10	150-0121VR	150-0121VR-15021	SpaceAge	23.387 mm	40	5/8/02	Tib Fd,Hld Fem	0
TBLXF	Left Upr Tibia Force X	4825J	4825J-82-FX	Denton	0.000269334 N	8896.4	7/16/02	Tib Fd,Knee Rr	0
TBLZF	Left Upr Tibia Force Z	4825J	4825J-82-FZ	Denton	0.000109584 N	8896.4	7/16/02	Tib Dn,Knee Up	0
TBLXM	Left Upr Tibia Moment X	4825J	4825J-82-MX	Denton	0.01026407 N-m	282.5	7/16/02	Ank Lt,Hld Knee	0
TBLYM	Left Upr Tibia Moment Y	4825J	4825J-82-MY	Denton	0.0104699 N-m	282.4	7/16/02	Ank Fd,Hld Knee	0
TBLXG	Left Tibia Accel X	EGE-73BQE0-2	99H30-Z09	Entran	0.01954 g	2000	4/25/02	Fwd	0
TBLYG	Left Tibia Accel Y	EGE-73BQE0-2	99H12-F09	Entran	0.01847 g	2000	4/26/02	Rt	0
ANLXF	Left Lwr Tibia Force X	4826J	4826J-82-FX	Denton	0.000264995 N	8896.4	7/16/02	Ank Fd,Knee Rr	0
ANLYF	Left Lwr Tibia Force Y	4826J	4826J-82-FY	Denton	0.000265928 N	8896.4	7/16/02	Ank Rt,Knee Lft	0
ANLZF	Left Lwr Tibia Force Z	4826J	4826J-82-FZ	Denton	0.000108167 N	8896.4	7/16/02	Ank Dn,Knee Up	0

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
ANLXM	Left Lwr Tibia Moment X	4826J	4826J-82-MX	Denton	0.010319759 N-m	282.4	7/16/02	Ank Lt,Hld Knee	0
ANLYM	Left Lwr Tibia Moment Y	4826J	4826J-82-MY	Denton	0.010127833 N-m	282.4	7/16/02	Ank Fd,Hld Knee	0
FTLXD	Left Foot Disp. X	PD210-4B	FLX108X	Contelec	3.157351 °	318	7/22/02	Eversion	0
FTLYD	Left Foot Disp. Y	PD210-4B	FLX108Y	Contelec	3.168228 °	318	7/22/02	Dorsiflexion	0
FTLZD	Left Foot Disp. Z	PD210-4B	FLX108Z	Contelec	3.187158 °	318	7/22/02	Internal Rotation	0
FTLXG	Left Foot Accel X	EGE-73BQ-200	98H10-F03	Entran	0.0168 g	2000	4/25/02	Fwd	0
FTLYG	Left Foot Accel Y	EGE-73BQ-200	98H10-F07	Entran	0.02132 g	2000	4/25/02	Rt	0
FTLZG	Left Foot Accel Z	EGE-73BQ-200	98H13-F16	Entran	0.01827 g	2000	4/25/02	Dn	0
KNRXD	Right Knee Displacement AXRRP	150-0121VL	150-0121VL-14949	SpaceAge	23.436 mm	40	5/8/02	Tib Fd,Hld Fem	0
TBRXF	Right Upr Tibia Force X	4825J	4825J-80-FX	Denton	0.000271424 N	8896.4	7/16/02	Tib Fd,Knee Rr	0
TBRZF	Right Upr Tibia Force Z	4825J	4825J-80-FZ	Denton	0.000109471 N	8896.4	7/16/02	Tib Dn,Knee Up	0
TBRXM	Right Upr Tibia Moment X	4825J	4825J-80-MX	Denton	0.010291431 N-m	282.4	7/16/02	Ank Lt,Hld Knee	0
TBRYM	Right Upr Tibia Moment Y	4825J	4825J-80-MY	Denton	0.010491501 N-m	282.4	7/16/02	Ank Fd,Hld Knee	0
TBRXG	Right Tibia Accel X	EGE-73BQE0-2	99H12-F19	Entran	0.01986 g	2000	4/26/02	Fwd	0
TBRYG	Right Tibia Accel Y	EGE-73BQE0-2	99H30-Z12	Entran	0.02018 g	2000	4/26/02	Rt	0
ANRXF	Right Lwr Tibia Force X	4826J	4826J-76-FX	Denton	0.000262612 N	8896.4	7/16/02	Ank Fd,Knee Rr	0
ANRYF	Right Lwr Tibia Force Y	4826J	4826J-76-FY	Denton	0.000262702 N	8896.4	7/16/02	Ank Rt,Knee Lft	0
ANRZF	Right Lwr Tibia Force Z	4826J	4826J-76-FZ	Denton	0.000108763 N	8896.4	7/16/02	Ank Dn,Knee Up	0
ANRXM	Right Lwr Tibia Moment X	4826J	4826J-76-MX	Denton	0.010402832 N-m	282.5	7/16/02	Ank Lt,Hld Knee	0
ANRYM	Right Lwr Tibia Moment Y	4826J	4826J-76-MY	Denton	0.01055292 N-m	282.5	7/16/02	Ank Fd,Hld Knee	0
FTRXD	Right Foot Disp. X	PD210-4B	FLX107X	Contelec	3.138018 °	318	7/22/02	Eversion	1
FTRYD	Right Foot Disp. Y	PD210-4B	FLX107Y	Contelec	3.185368 °	318	7/22/02	Dorsiflexion	0
FTRZD	Right Foot Disp. Z	PD210-4B	FLX107Z	Contelec	3.169474 °	318	7/22/02	External Rotation	0
FTRXG	Right Foot Accel X	EGE-73BQ-200	98H14-K06	Entran	0.0211 g	2000	4/26/02	Fwd	0
FTRYG	Right Foot Accel Y	EGE-73BQE0-2	99H12-F03	Entran	0.01896 g	2000	4/25/02	Rt	0
FTRZG	Right Foot Accel Z	EGE-73BQ-200	98H14-K10	Entran	0.01816 g	2000	4/25/02	Dn	0

Appendix E

INSIA Report on Structural Measurements

# **STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY**

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March, 1999

**REPORT DOCUMENTATION PAGE****Title:**

*STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY*

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**Supplementary notes:**

Under contract to:

THE EUROPEAN COMMUNITY

Project: “Improvement of Crash Compatibility between Cars”  
Contract N°: RO – 97 – SC.1064

**Abstract:**

The main aim of this working package -*Structural Survey of Cars*- is the reduction of incompatibilities, both structural and geometric, between passenger vehicles and their potential collision partners. The understanding of these incompatibilities needs a previous step for the knowledge of the existing car fleet.

Firstly, it is necessary to select the main resistant elements in the car body. These elements have to be chosen from the point of view of the sort of collision that we want to study, that is to say, frontal and side impacts.

Detailed measurements have been taken from exterior and interior elements, spread to a total number of 74 models selected from the main vehicle manufacturers at Spain. All of them are being sold this year. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars will be defined.

This report shows the methodology followed to get these measurements.

**Subject terms:**

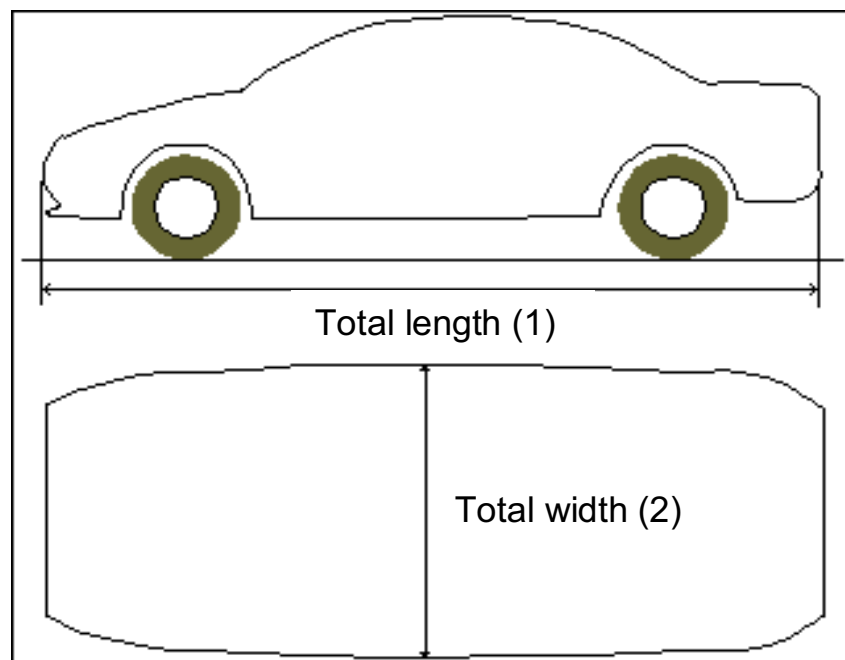
Crash compatibility, geometric compatibility, resistant elements, measure methodology

**Date:**

March, 1999

## 1.- METHODOLOGY.

Detailed measurements have been taken from exterior and interior elements. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars have been defined. These elements are presented in the following figures, and have been divided in two main groups according to the vehicle zones studied in this project.



*Figure 1.- Definition of the main resistant elements. General dimensions.*

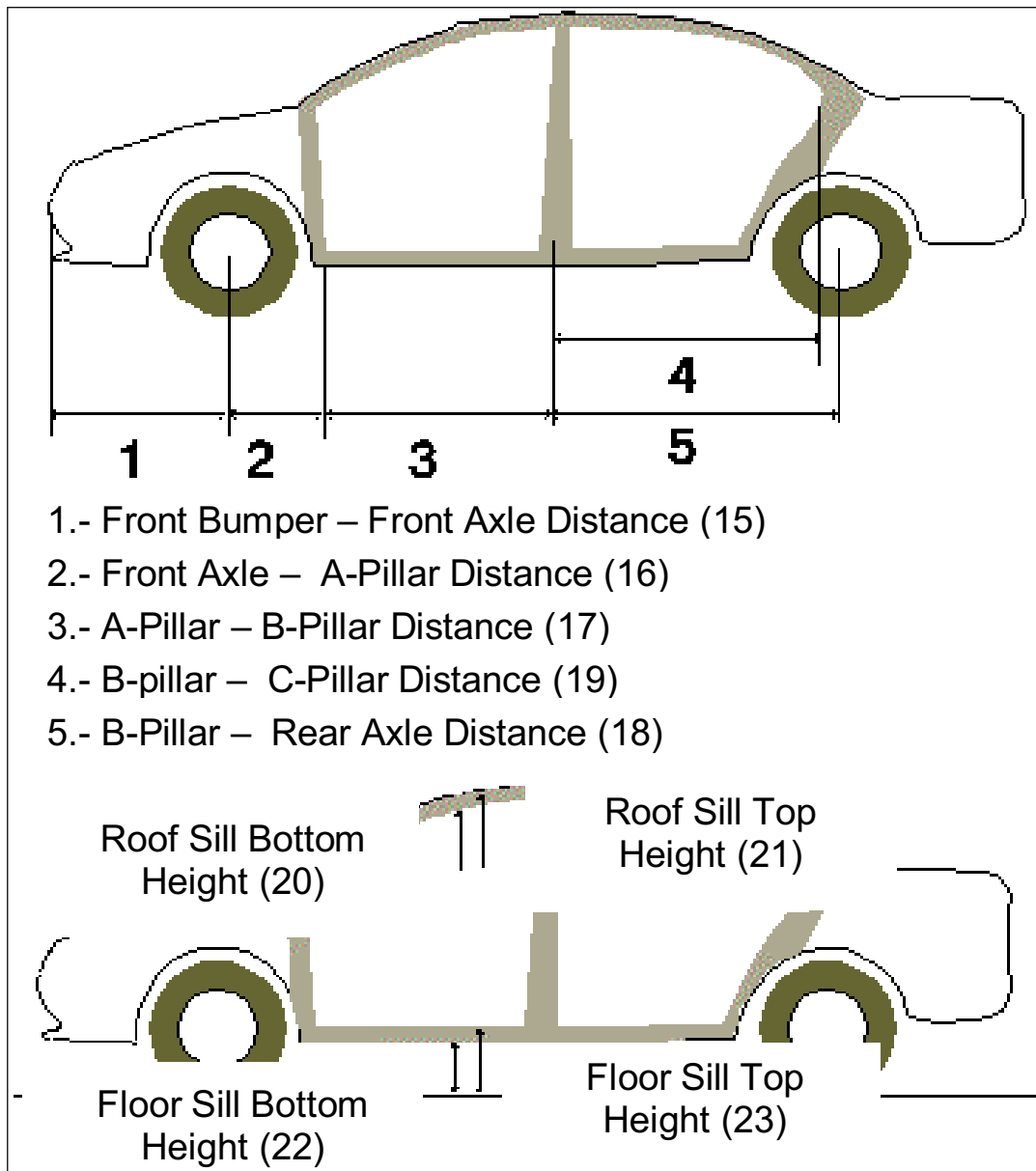


Figure 2.- Definition of the main resistant elements. Side elements.

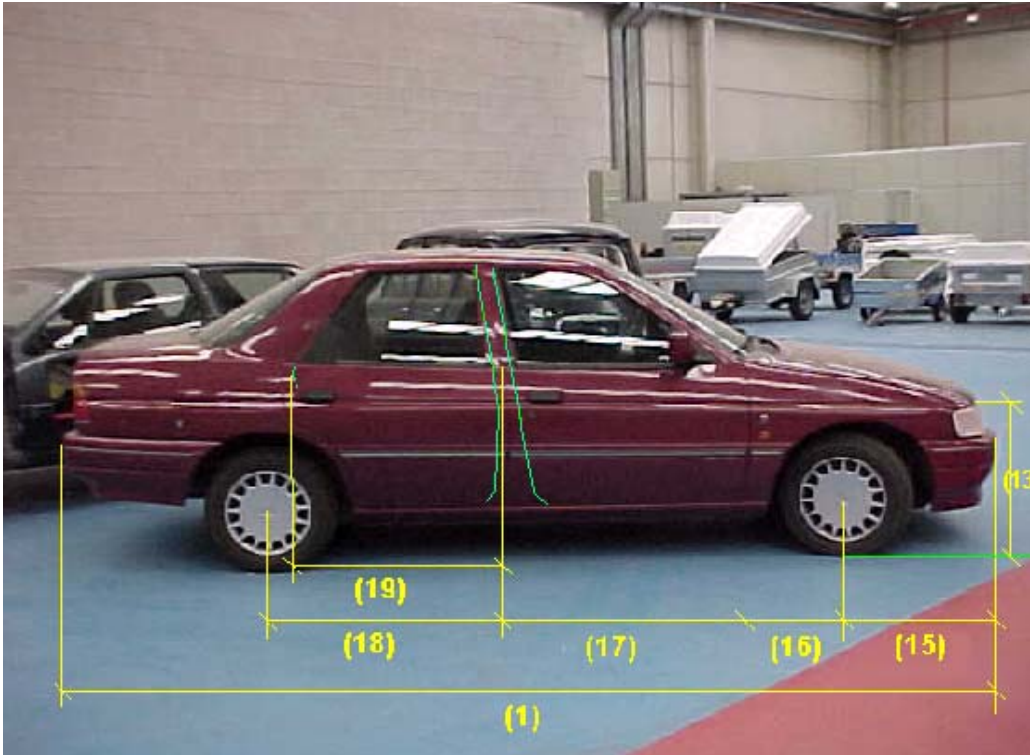
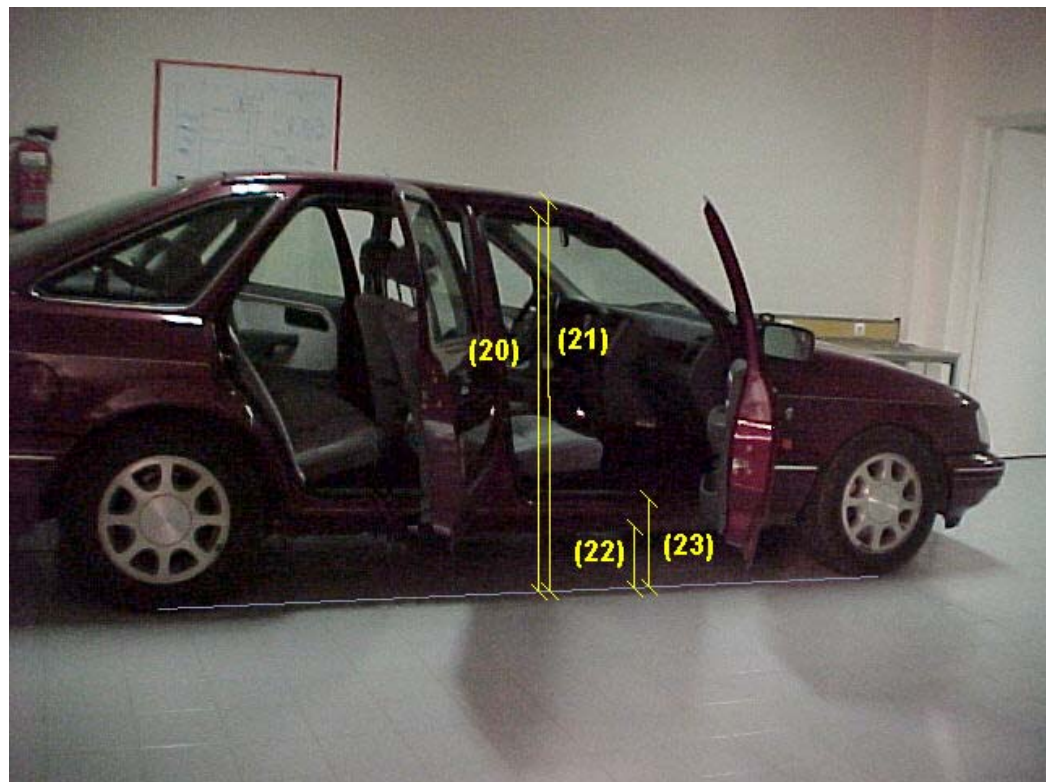


Figure 3.-  
Measurements of  
the side resistant  
elements (outer).

Figure 4.- Measurements  
of the side resistant  
elements (inner).



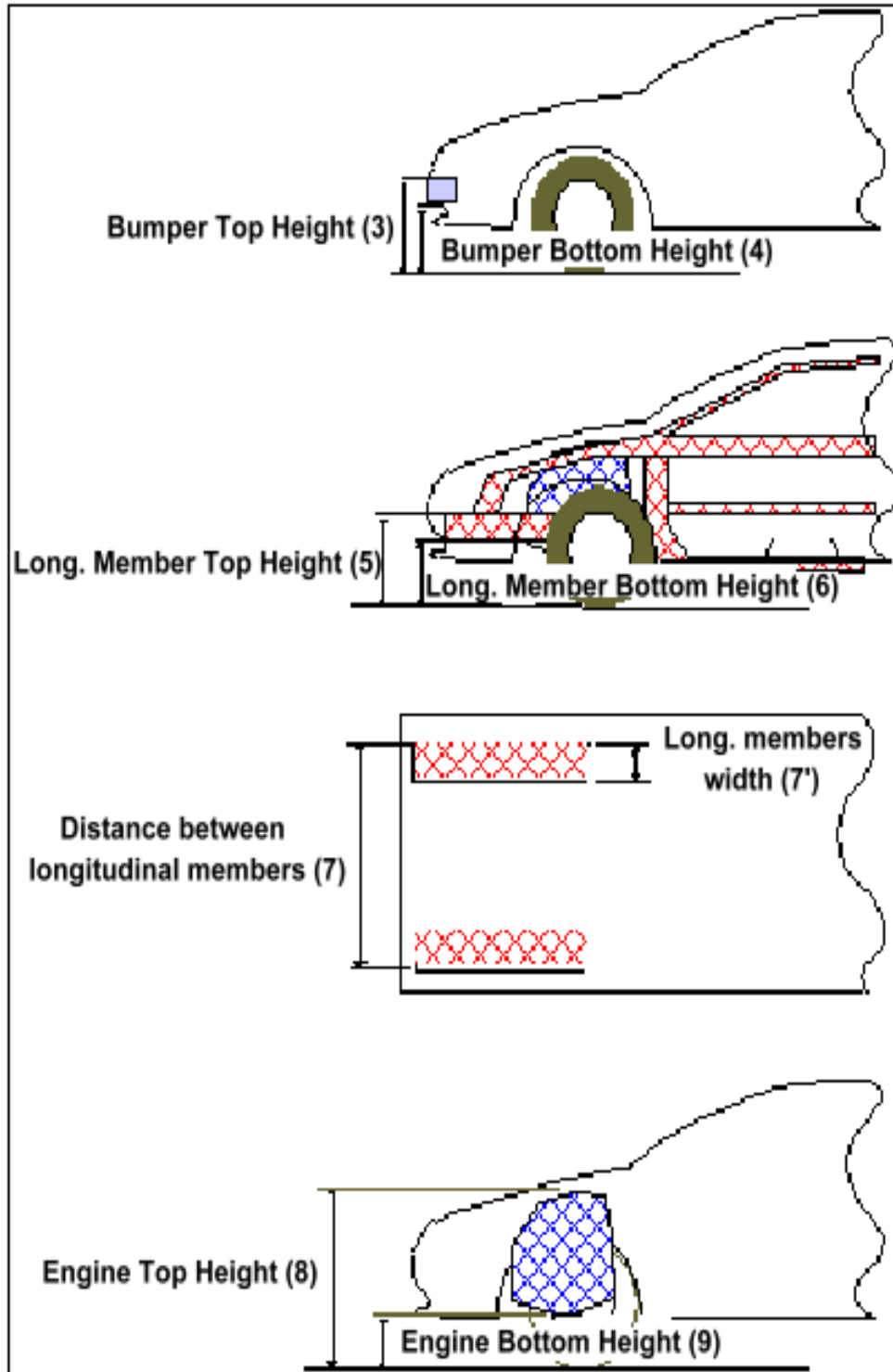


Figure 5.- Definition of the main resistant elements. Front elements.

Figure 6.-  
Measurements of the  
main resistant elements.  
Front elements 1.

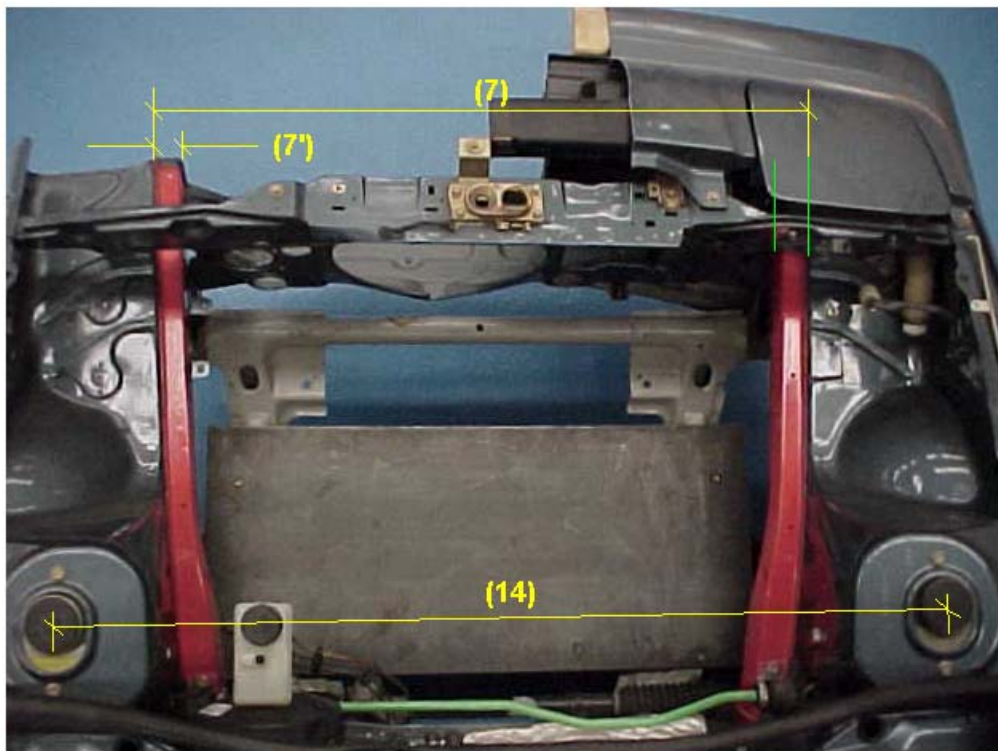
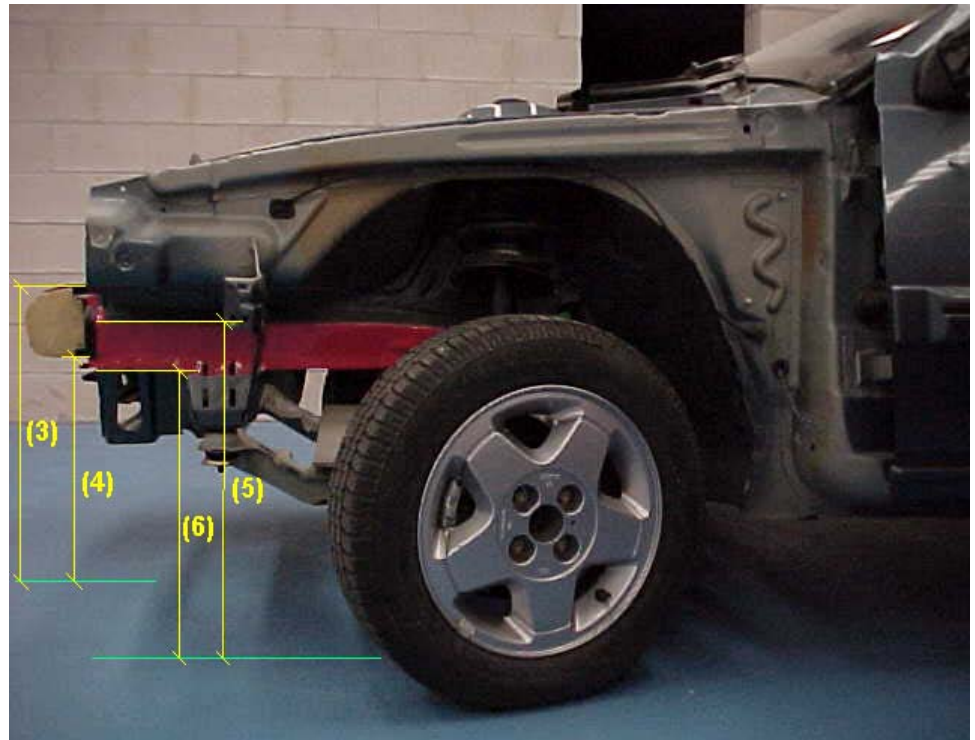


Figure 7.-  
Measurements  
of the main  
resistant  
elements. Front  
elements 2.

Figure 8.-  
Measurements of  
the main resistant  
elements. Front  
elements 3.

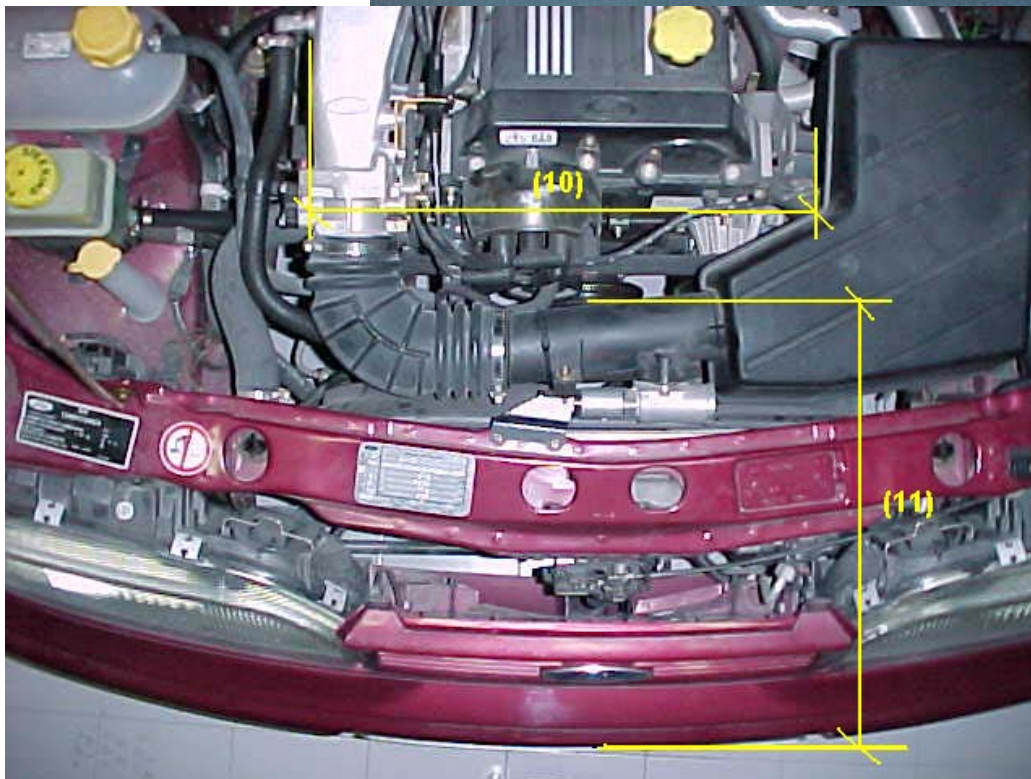
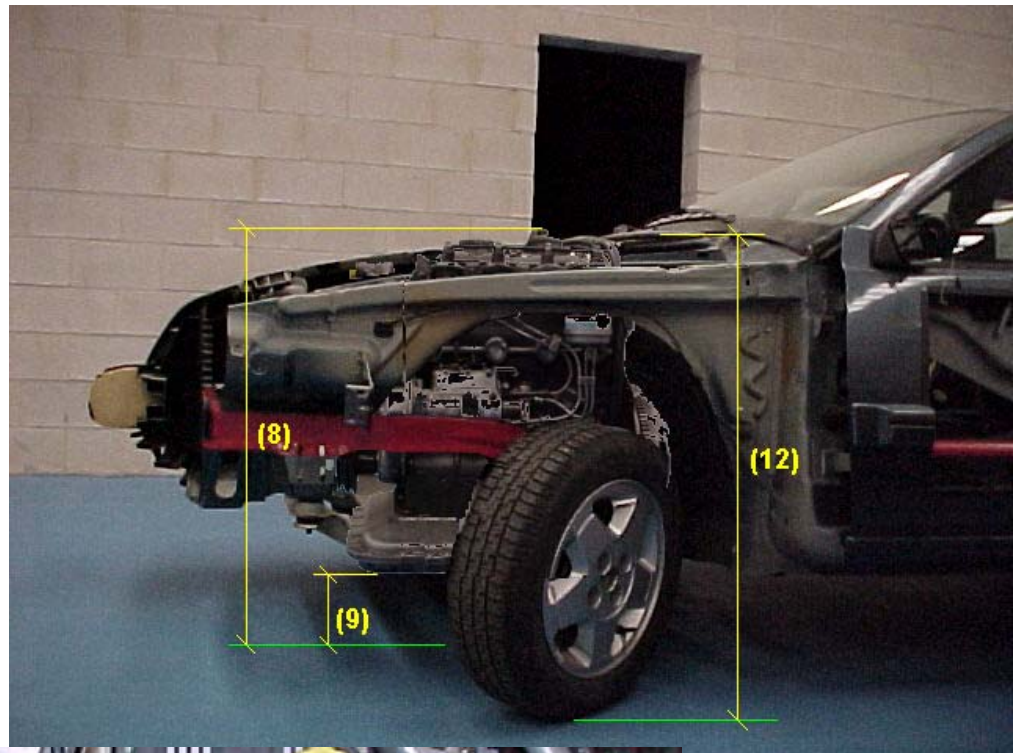


Figure 9.-  
Definition of  
the main  
resistant  
elements. Front  
elements  
(Longitudinal  
engine).

The procedure considered to measure these elements is described as follows, where it is indicated the location of these ones in the Excel Sheet (SURVEY.XLS) into brackets:

### **FRONT ELEMENTS**

- **Total Length –(1)- (Side & Front Sheets - C column):** distance between the point in the front bumper further on and the point in the rear bumper further back.
- **Weight (Side & Front Sheets - D column):** mass, including an average driver weight (70 kg), and the fuel tank mass (at half-capacity).
- **Total Width –(2)- (Side & Front Sheets - E column):** distance between the outer side points in a transverse plane of the vehicle (middle plane between the front and rear axles).
- **Bumper bottom height –(4)- (Front Sheet G column):** distance between the ground and the lowest point on the front bumper, being a resistant member (aerodynamic elements under the front bumper are not considered).
- **Bumper top height –(3)- (Front Sheet H column):** distance between the ground and the highest point on the front bumper, being a resistant member (aerodynamic elements are not considered).
- **Longitudinal member top height –(5)- (Front Sheet I column):** distance between the ground and the highest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint (when accessible).
- **Longitudinal member bottom height –(6)- (Front Sheet J column):** distance between the ground and the lowest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint.
- **Distance between longitudinal members (Front Sheet K column):** transverse distance between extreme points in longitudinal members, measured approximately in the front bumper-longitudinal member joint.

Depending on the accessibility of these members, the extreme points are the inner points (I) or the outer points (O).

- **Longitudinal member width -7'- (Front Sheet L column):** width of one of the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

- 
- **Engine top height (8) (Front Sheet N column):** distance between the ground and the highest point on the engine that can be a resistant member in case of accident (usually, the highest point on the head, or the highest point of the inlet or exhaust manifolds).
  - **Engine bottom height (9) (Front Sheet M column):** distance between the ground and the lowest point on the engine (usually, the lowest point on the crankcase).
  - **Engine and Gearbox width (10) (Front Sheet O & P columns):**
    - *Transverse configuration engine:* distance between extreme points in the gearbox-cylinder block unit or others resistant members attached to the cylinder block unit, i.e. fan belts (from a front point of view).
    - *Longitudinal configuration engine:* distance between extreme points in the cylinder block unit (from a front point of view).
  - **Front bumper - Engine distance (11) (Front Sheet Q column):** distance between the point in the front bumper further on and the point in the engine further on that is a resistant element, i.e. the further on point of the exhaust manifold placed in the front of the engine.
  - **Front shock absorber fixing width (14) (Front Sheet R column):** transverse distance between the front shock absorber - body car joints.
  - **Front shock absorber fixing height (12) (Front Sheet S column):** distance between the ground and the front shock absorber-body car joint.
  - **Bonnet leading edge height (Front Sheet T column):** distance between the ground and the bonnet edge further on.

## SIDE ELEMENTS

- **Front bumper - Front axle distance (15) (Side Sheet G column):** distance between the point in the front bumper further on and the middle point in the front tyre-road contact patch.
- **Front axle - A Pillar distance (16) (Side Sheet H column):** distance between the middle point in the front tyre-road contact patch and the point in the A-pillar further back.
- **A Pillar - B Pillar distance (17) (Side Sheet I column):** distance between the point in the A-pillar further back and the middle point in the B-pillar.
- **B Pillar - C Pillar distance (19) (Side Sheet J column):** distance between the middle point in the B-pillar and the point in the C-pillar further back (only 4/5-door vehicles).
- **B Pillar - Rear axle distance (18) (Side Sheet K column):** distance between the middle point in the B-pillar and the middle point in the rear tyre-road contact patch.
- **Roof sill bottom height (20) (Side Sheet L column):** distance between the ground and the lowest point on the roof sill, measured in the front door middle point.
- **Roof sill top height (21) (Side Sheet M column):** distance between the ground and the highest point on the roof sill (usually located in the sill-roof joint), measured in the front door middle point.
- **Floor sill bottom height (22) (Side Sheet N column):** distance between the ground and the lowest point on the floor sill, measured in the front door middle point.
- **Floor sill top height (23) (Side Sheet O column):** distance between the ground and the highest point on the floor sill, measured in the front door middle point.

## NOTE

- N/A: dimension not available.