

**Vehicle Research and Test Center  
2002 Nissan Altima into  
Fixed 40% Left Offset Deformable  
Load Cell Barrier at 60.0 km/h  
TRC Inc. Test Number: 021018-2**

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Section 1.0

Purpose and Test Procedure

## Purpose

This 60.2 km/h (37.4 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 50<sup>th</sup> percentile male 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) displacement potentiometer, and four (4) seat belt load cells. The driver's and passenger's airbag signals were monitored with inductive pickups. An event data recorder was installed in the trunk of the vehicle, however no output from the recorder is included in this report. 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 572E adult male 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 belted and were restrained with front dual stage airbags.

Both dummies were instrumented with three (3) accelerometers in the head, three (3) in the chest, and three (3) in the pelvis to measure longitudinal, lateral, and vertical accelerations, and three (3) sternum accelerometers to measure longitudinal acceleration. In addition, the driver dummy had redundant head and chest accelerometers. Both dummies were instrumented with upper neck moment and force load cells, left and right femur moment and force load cells, and chest deflection potentiometers. Both dummies were also equipped with THOR-LX 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 209 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 data are presented in Section 3.0. The occupant, camera, and vehicle measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy verification data. Appendix D contains miscellaneous test information. Appendix E contains a copy of the INSIA Report on Structural Measurements. Appendix F contains vehicle manufacturer's information.

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 October 18, 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 1610.2 kg. The vehicle's impact speed was 60.2 km/h. The vehicle impacted 4 mm to the right of the 40% offset target line.

The driver's 36 millisecond Head Injury Criteria (HIC) was 241. The driver's 15 millisecond HIC was 133. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 36.2 g. The driver's maximum chest deflection was 25 mm. The driver's left and right femur maximum axial compressive forces were 160 N and 2810 N, respectively. The driver dummy's upper neck injury calculations were: neck tension-flexion (NTF), 0.18; neck tension-extension (NTE), 0.24; neck compression-flexion (NCF), 0.01 and neck compression-extension (NCE), 0.23. The driver dummy's peak upper neck tension force was 705 N and peak neck compression force was 402 N.

The right front passenger's 36 millisecond HIC was 370. The passenger's 15 millisecond HIC was 229. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 34.2 g. The passenger's maximum chest deflection was 30 mm. The passenger's left and right femur maximum axial compressive forces were 1776 N and 78 N, respectively. The right front passenger's upper neck injury calculations were: NTF, 0.13; NTE, 0.10; NCF, 0.02 and NCE, 0.14. The right front passenger dummy's peak upper neck tension force was 723 N and peak neck compression force was 215 N.

There was 81.1% windshield periphery retention. There was no penetration through the windshield.

## Data Acquisition Explanations

There were no anomalies to report for this test.

Table 1 Crash Test Summary

Test mode:	Fixed 40% left offset load cell barrier		
Test date:	10/18/2002		
Test time:	1533		
Ambient temperature:	21° C		
Vehicle year/make/ model/body style:	2002/Nissan/Altima/4-door		
Vehicle test weight:	1610.2 kg		
Impact angle <sup>1</sup> :	0°		
Impact velocity <sup>2</sup> :	60.2 km/h		
Maximum static crush <sup>3</sup> :	535 mm		
Average rebound:	N/A mm		
Number of data channels:	209		
Number of cameras:	High-speed	9	Real-time 1
<u>Dummies:</u>	<u>Driver #168</u>		<u>Passenger #169</u>
Type:	HIII Part 572E		HIII Part 572E
Location:	Left Front		Right Front
Restraint:	Airbag, seat belt		Airbag, seat belt
<u>Seat track position for test:</u>			
Driver:	Mid: 11 <sup>th</sup> of 21 notches		
Passenger:	Mid: 11 <sup>th</sup> of 21 notches		
<u>Seat back position for test:</u>			
Driver:	11.4° at head restraint		
Passenger:	11.2° at head restraint		
<u>Head restraint position for test:</u>			
Driver:	Full up		
Passenger:	Full up		
Steering column tilt position:	Mid: 25.5°		
Steering column telescoping position:	Mid of 50 mm travel		

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

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

Table 2 General Test and Vehicle Parameter Data

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

VIN: 1N4AL11D32C711136

Model year: 2002

Body style: 4-door

Color: KY1 Shear Silver

Engine data:  
Cylinders: 4  
Displacement 2.5-liters  
Cylinder placement: Straight  
Engine placement: Transverse

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

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

Date vehicle received: 09/23/02

Odometer reading: 53

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	Yes
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	No
Clock	Yes	Rear window defroster	Yes
Other	None	Power door locks	Yes

Certification data from vehicle's label:

Vehicle manufactured by: Nissan Motor Company, LTD

Date of manufacture: 07/02

VIN: 1N4AL11D32C711136

GVWR: 1905.9 kg (4202 lbs.)

GAWR: Front: 1020.1 kg (2249 lbs.)  
Rear: 893.1 kg (1969 lbs.)

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

Tires on vehicle (mfr., line, size): Bridgestone, Turanza EL42, P205/65R16

Tire pressure with maximum capacity vehicle load:

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

Spare tire (mfr., line, size): Firestone, Temporary, T135/70R16

Type of seats:

Front Bucket  
Rear Split bench

Maximum width: 1778 mm

Wheelbase: 2807 mm

Location of "Recommended Tire Pressure" label:

The label was located inside the console.

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

Recommended tire size: P205/65R16

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  
Rear 3  
Total 5

Vehicle capacity weight: 390.9 kg (860 lbs.)

Rated cargo/luggage weight 49.9 kg (110 lbs.)

Test vehicle attitude:

Delivered attitude: LF 738 mm; RF 744 mm; LR 707 mm; RR 714 mm  
Fully loaded attitude: LF 721 mm; RF 727 mm; LR 684 mm; RR 690 mm  
Pre-test attitude: LF 711 mm; RF 715 mm; LR 672 mm; RR 671 mm  
Post-test attitude: LF 802 mm; RF 694 mm; LR 642 mm; RR 698 mm

Table 2 General Test and Vehicle Parameter Data Cont'd

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

Right front	431.5 kg	Right rear	269.0 kg
Left front	425.0 kg	Left rear	283.0 kg
Total front weight	856.5 kg	(60.8 % of total vehicle weight)	
Total rear weight	552.0 kg	(39.2 % of total vehicle weight)	
Total delivered weight	1408.5 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1408.5 kg
Rated Cargo/Luggage Weight (RCLW) <sup>1</sup> =	49.9 kg
Weight of 2 Part 572E Dummies @ 76 kg each =	152.0 kg
Target test weight =	1610.4 kg

Weight of test vehicle with required dummies and 49.7 kg of cargo weight:

Right front	447.6 kg	Right rear	343.2 kg
Left front	469.2 kg	Left rear	350.2 kg
Total front weight	916.8 kg	(56.9% of total vehicle weight)	
Total rear weight	693.4 kg	(43.1% of total vehicle weight)	
Total test weight	1610.2 kg	(0.01% under target test weight)	

Weight of ballast secured in vehicle: 0 kg

Components removed to meet target test weight: Rear bumper, trunk and seal, tail lights, exhaust, rear door glass, rear door panels, and passenger door glass.

Location of Vehicle's CG: 1209 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity	74.9 liters (from owner's manual)
Actual test volume:	71.2 liters (95% 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: 021018-2  
Test date: 10/18/2002  
Test time: 1533  
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

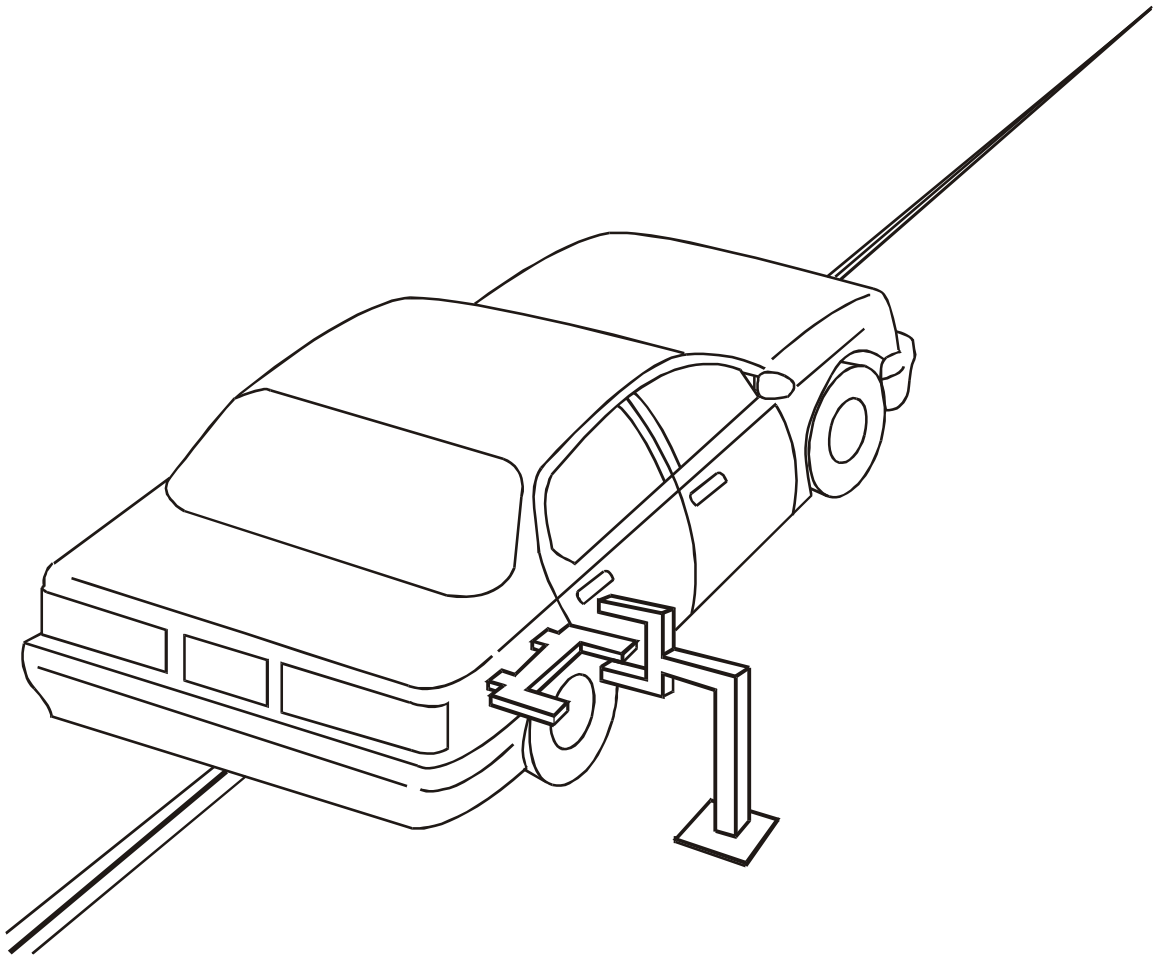
Barrier impact velocity:

Primary: 60.2 km/h  
Secondary: 60.3 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: 4 mm right  
Actual offset: 174 mm left of vehicle centerline

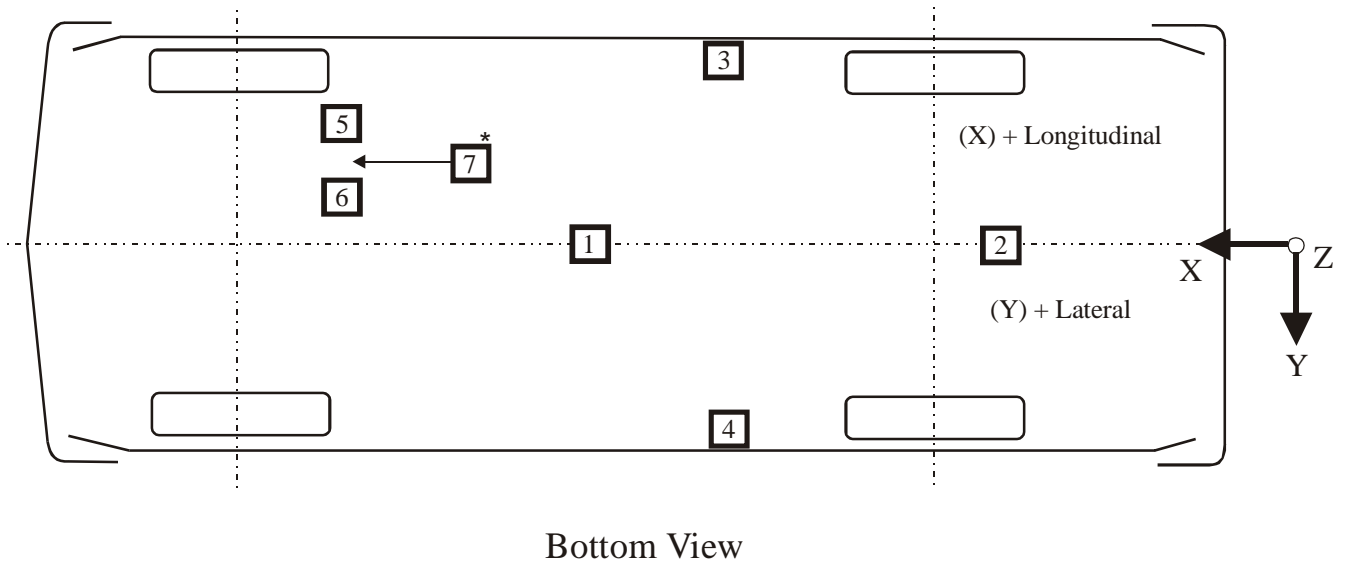
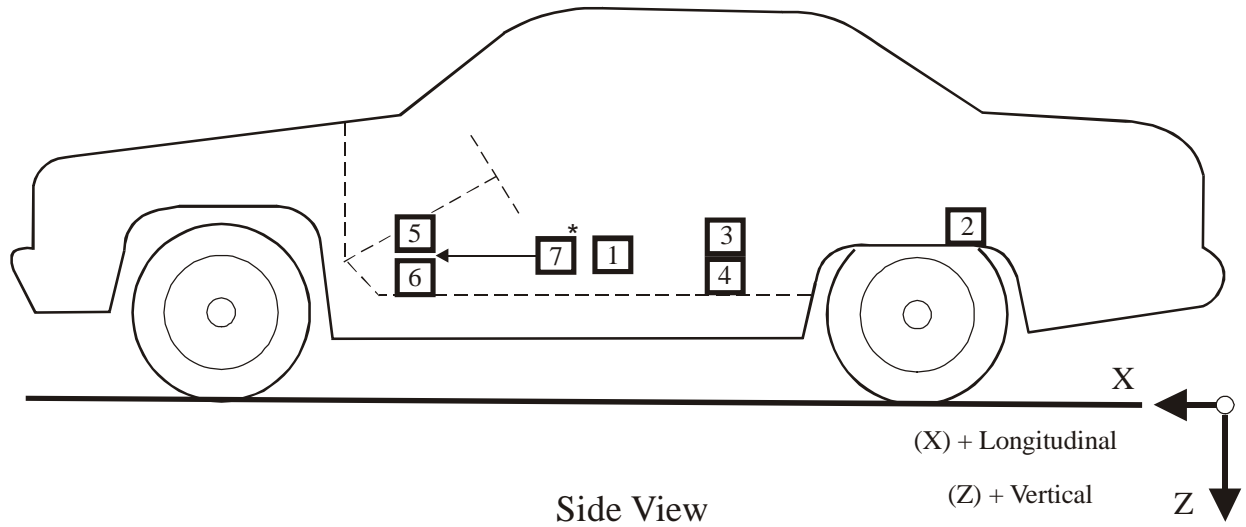
Figure 1 Impact Velocity Measurement System



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



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

Table 4 Vehicle Accelerometer Locations and Instrumentation Data Summary

TEST NUMBER: 021018-2 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2692 mm	0 mm	-390 mm				
LONGITUDINAL				4.4 g	@ 175.7 ms	36.4 g	@ 91.5 ms
LATERAL				24.3 g	@ 87.8 ms	27.6 g	@ 115.8 ms
VERTICAL				17.4 g	@ 38.8 ms	20.5 g	@ 86.2 ms
RESULTANT				37.9 g	@ 100.6 ms		
2 REAR DECK VERTICAL	224 mm	20 mm	NA	7.1 g	@ 129.9 ms	7.7 g	@ 50.2 ms
3 LEFT REAR SEAT CROSSMEMBER	1910 mm	-600 mm	NA				
LONGITUDINAL				2.6 g	@ 167.7 ms	30.9 g	@ 94.2 ms
LATERAL				7.2 g	@ 78.9 ms	3.1 g	@ 125.4 ms
VERTICAL				4.6 g	@ 160.7 ms	13.6 g	@ 96.6 ms
RESULTANT				32.1 g	@ 95.0 ms		
4 RIGHT REAR SEAT CROSSMEMBER	1919 mm	600 mm	NA				
LONGITUDINAL				1.3 g	@ 173.7 ms	29.1 g	@ 93.8 ms
LATERAL				11.5 g	@ 78.7 ms	1.7 g	@ 125.9 ms
VERTICAL				5.4 g	@ 128.8 ms	7.0 g	@ 85.5 ms
RESULTANT				29.8 g	@ 93.7 ms		
5 DRIVERS LEFT SIDE TOE PAN	3588 mm	-432 mm	NA				
LONGITUDINAL				25.7 g	@ 66.6 ms	43.3 g	@ 54.6 ms
LATERAL				20.2 g	@ 79.6 ms	15.7 g	@ 113.5 ms
VERTICAL				34.0 g	@ 89.8 ms	28.0 g	@ 66.3 ms
RESULTANT				44.1 g	@ 55.2 ms		

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

TEST NUMBER: 021018-2 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
6 DRIVERS RIGHT SIDE TOE PAN	3589 mm	240 mm	NA				
LONGITUDINAL				18.7 g	@ 61.0 ms	53.8 g	@ 71.6 ms
LATERAL				19.7 g	@ 79.3 ms	17.8 g	@ 113.9 ms
VERTICAL				21.2 g	@ 61.4 ms	50.6 g	@ 71.3 ms
RESULTANT				73.7 g	@ 71.4 ms		
7 DRIVERS TOE PAN DISPLACEMENT	NA	NA	NA				
LONGITUDINAL				83.8 mm	@ 136.4 ms	71.5 mm	@ 169.8 ms
8 DRIVER SEAT BELT LOAD CELLS	NA	NA	NA				
LAP BELT				3342.9 N	@ 114.2 ms	92.3 N	@ 172.5 ms
SHOULDER BELT				6397.6 N	@ 117.3 ms	16.6 N	@ 21.4 ms
9 PASSENGER SEAT BELT LOAD CELLS	NA	NA	NA				
LAP BELT				5492.3 N	@ 108.6 ms	-3.5 N	@ 0.0 ms
SHOULDER BELT				5498.8 N	@ 98.1 ms	23.2 N	@ 21.5 ms

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

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	47.1 g	11.4 g	25.0 g	52.6 g	-32.9 g	18.4 g	-9.5 g	37.1 g
Passenger	-44.3 g	6.8 g	25.5 g	50.4 g	-34.3 g	7.2 g	-5.9 g	35.0 g

	<u>Maximum Femur Compressive Force</u>	
	Left Femur	Right Femur
Driver	160 N	2810 N
Passenger	1776 N	78 N

	<u>Head Injury Criteria<sup>2</sup></u>		
	36 millisecond		
	HIC	Start Time t <sub>1</sub>	End Time t <sub>2</sub>
Driver	241	96.6 ms	132.6 ms
Passenger	370	97.7 ms	133.7 ms

	15 millisecond		
	HIC	Start Time t <sub>1</sub>	End Time t <sub>2</sub>
	Driver	133	106.1 ms
Passenger	229	112.2 ms	127.2 ms

	<u>Chest Maximum Resultant Acceleration<sup>3</sup></u>		
	Acceleration	Start Time t <sub>1</sub>	End Time t <sub>2</sub>
	Driver	36.2 g	115.5 ms
Passenger	34.2 g	110.8 ms	115.7 ms

Table 5 Dummy Injury Criteria Data, Cont'd.

Maximum Chest Deflection

Driver	25 mm
Passenger	30 mm

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

	NTF	NTE	NCF	NCE
Driver	0.18	0.24	0.01	0.23
Passenger	0.12	0.10	0.02	0.14

Upper Neck Axial Force

	Tension	Compression
Driver	705 N	402 N
Passenger	723 N	215 N

Tibia Index

	Upper Tibia	Lower Tibia
Driver-left	0.40	0.62
Driver-right	0.35	0.59
Passenger-left	0.37	0.35
Passenger-right	0.39	0.34

<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, B-pillar	Airbag, head restraint
Chest	Airbag	Airbag
Abdomen	None	None
Left knee	Knee bolster	Glove box
Right knee	Knee bolster	Glove box

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	Entire seat tilted outboard	Entire seat tilted outboard
Right Front	None	None
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: Windshield cracked along bottom.

Other notable impact effects: None

Figure 3 FMVSS 212 Test Data

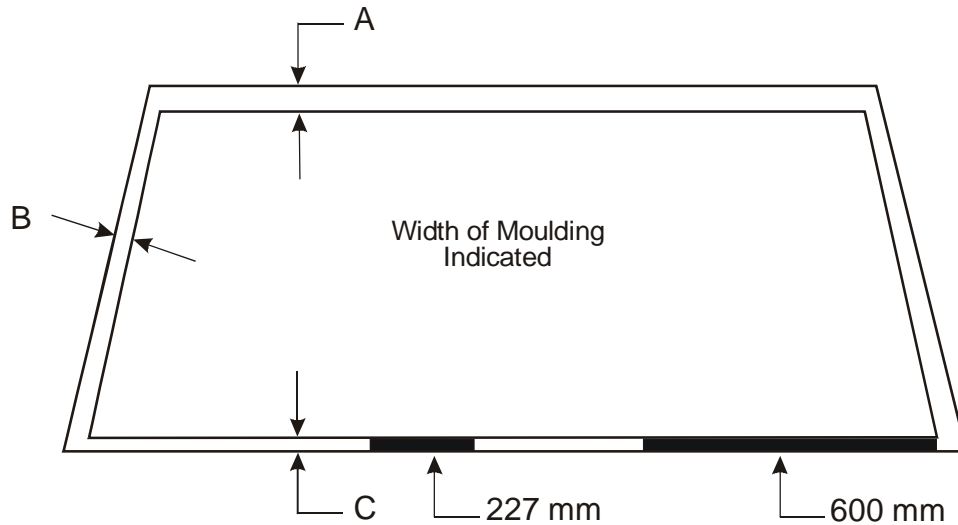
Details of windshield mounting such as retention method, trim type, etc.: adhesive around inner perimeter, plastic and rubber trim around outer perimeter.

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	2187 mm	1960 mm	89.6
Left side	2187 mm	1587 mm	72.6
Total	4374 mm	3547 mm	81.1

A = 16 mm  
 B = 18 mm  
 C = 10 mm



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

Loss of windshield retention lengths: 600 mm lower left, 227 mm lower right

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

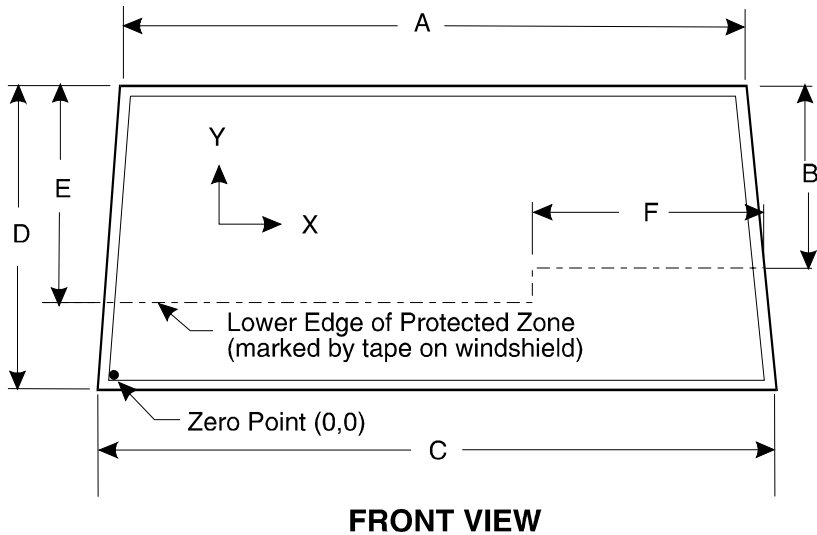
Figure 4 FMVSS 219 (partial) Test Data

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 = 1177 mm
- B = 589 mm
- C = 1533 mm
- D = 833 mm
- E = 583 mm
- F = 560 mm



Method of adhering protected zone template to windshield: N/A

Areas of windshield template penetration greater than 6 mm: N/A

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 instrument panel. The dummy's head and neck flexed forward and then leftward as the dummy's head and chest contacted the airbag. The neck extended on rebound and the head contacted the B-pillar and left side of the head restraint. The dummy came to rest seated in the driver's seat leaning outboard.

### Right Front Passenger Dummy

Upon impact, the passenger dummy translated forward on the seat impacting both knees into the dashboard. The neck flexed forward as the head and chest impacted the airbag. The dummy rebounded into the seat; the neck extended and the head contacted the head restraint. The dummy came to rest seated upright in the passenger seat.

Figure 5 Dummy Measurement Locations for Front Seat Occupants

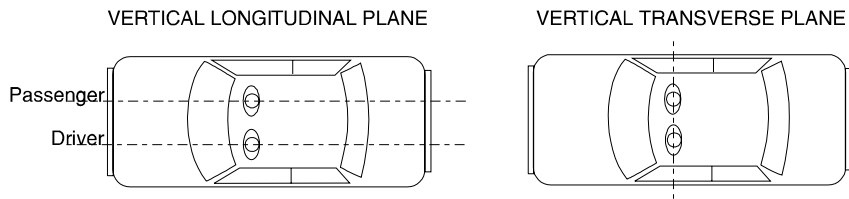
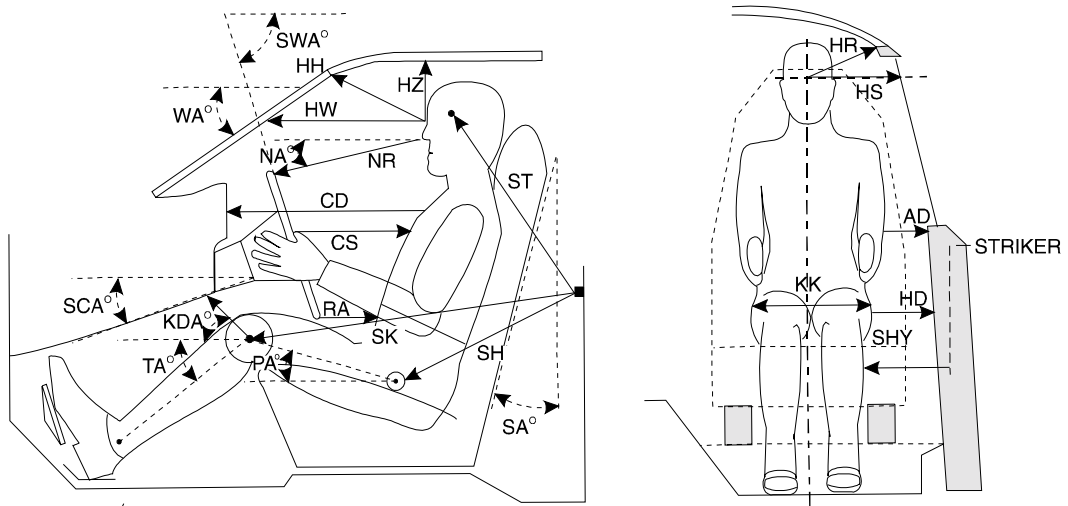


Table 7 Dummy Measurement Data For Front Seat Occupants

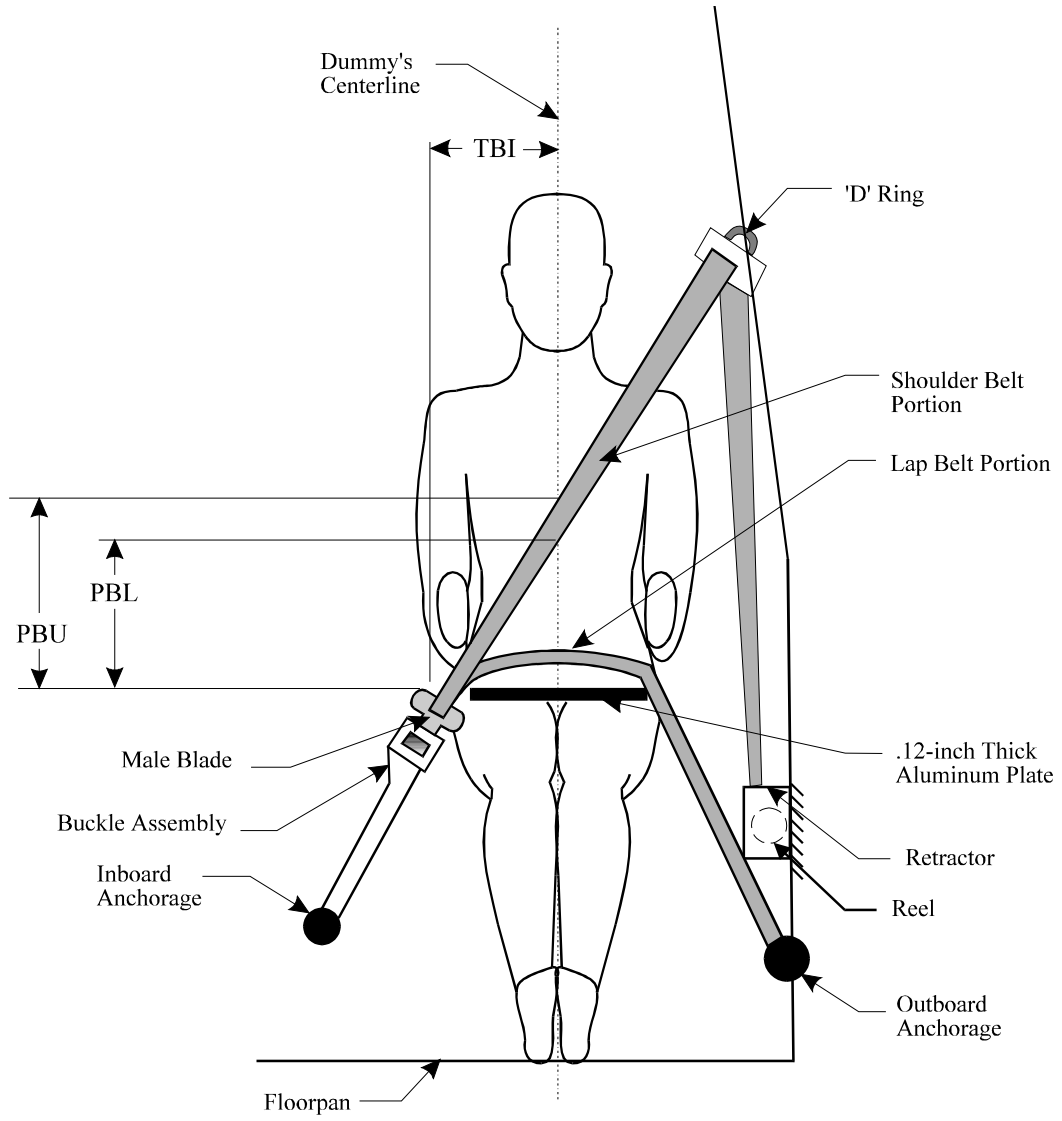
Designation	Type of Measurement	Driver (Serial # 168)	Passenger (Serial # 169)
WA	Windshield angle	25.9°	N/A
SWA	Steering wheel angle	25.5°	N/A
SCA	Steering column angle	64.5°	N/A
SA	Seat back angle <sup>2</sup>	11.4°	11.2°
HZ	Head to roof	166 mm	158 mm
HH	Head to header	336 mm	306 mm
HW	Head to windshield	560 mm	568 mm
HR	Head to side header	210 mm	197 mm
NR	Nose to rim	387 mm	N/A
NA	Nose to rim angle	12.1°	N/A
CD	Chest to dash	557 mm	640 mm
CS	Steering wheel to chest	304 mm	N/A
RA	Rim to abdomen	173 mm	N/A
KDL	Left knee to dash	192 mm	165 mm
KDR	Right knee to dash	170 mm	182 mm
KDA	Outboard knee to dash angle	24.1°	25.8°
PA	Pelvic angle	24.3°	23.9°
TA	Tibia angle	45.8°	44.0°
KK	Knee to knee	300 mm	275 mm
ST <sup>1</sup>	Striker to head	530 mm	532 mm
	Striker to head angle	-82.1°	-83.6°
SK <sup>1</sup>	Striker to knee	613 mm	630 mm
	Striker to knee angle	-2.0°	-2.5°
SH <sup>1</sup>	Striker to H-point	271 mm	272 mm
	Striker to H-point angle	23.6°	20.0°
SHY	Striker to H-point (Y dir.)	247 mm	211 mm
HS	Head to side window	314 mm	297 mm
HD	H-point to door	146 mm	142 mm
AD	Arm to door	135 mm	115 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.

<sup>2</sup> Measured on headrest post.

Figure 6 Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
PBU - Top surface of aluminum plate to belt upper edge	382 mm	365 mm
PBL - Top surface of aluminum plate to belt lower edge	311 mm	282 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	270 mm	270 mm

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

	Elements	Pre-Test
1	Total Length	4865
2	Total Width	1778
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	886
9	Engine Bottom Height	160
10	Engine and Gearbox Width	943
11	Front Bumper - Engine Distance	490
12	Front Shock Absorber Fixing Height	875
13	Bonnet Leading Edge Height	713
14	Front Shock Absorber Fixing Width	1089
15	Front Bumper - Front Axle Distance	947
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	1141
21	Roof Sill Top Height	1296
22	Floor Sill Bottom Height	187
23	Floor Sill Top Height	338

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, except total length, total width, and front bumper to front axle, 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

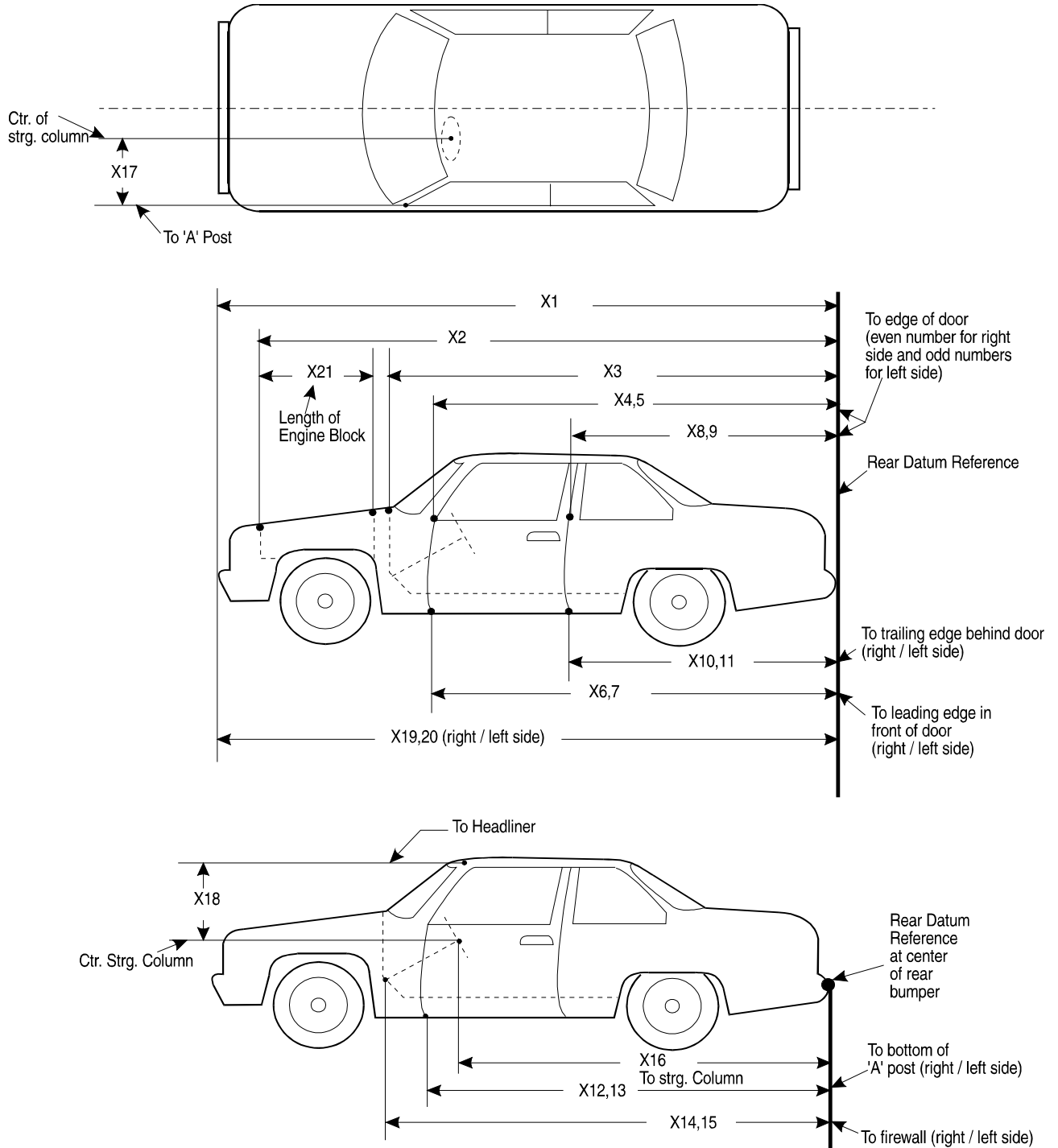


Table 9 Impacted Vehicle Measurements

Test number: 021018-2

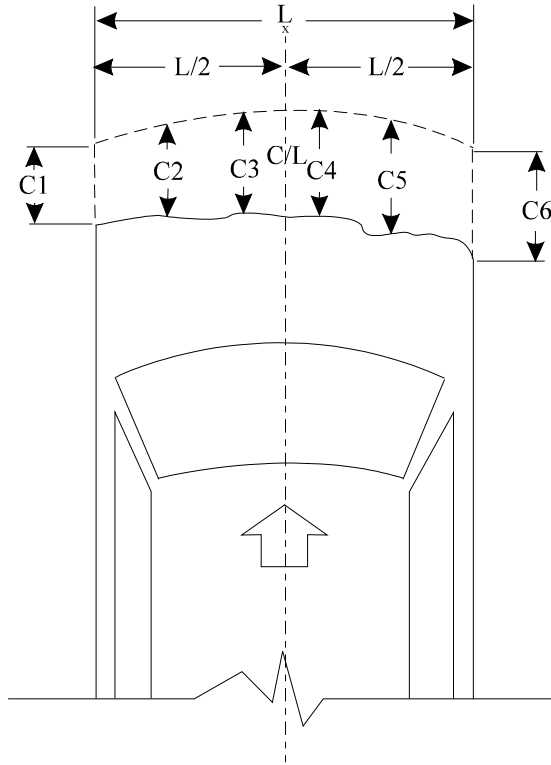
Vehicle year/make/model/body style: 2002/Nissan/Altima/4-door

<b>No.</b>	<b>Type of measurement</b>	<b>Pre-Test</b>	<b>Post-Test</b>	<b>Difference</b>
X1	Total Length of Vehicle at Centerline	4865	4440	425
X2	Rear Surface of Vehicle to Front of Engine Block	4193	4024	169
X3	Rear Surface of Vehicle to Firewall	3775	3647	128
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3362	3342	20
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3361	3354	7
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3354	3327	27
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3356	3335	21
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2280	2269	11
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2286	2273	13
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2285	2268	17
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2291	2267	24
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3370	3341	29
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3377	3372	5
X14	Rear Surface of Vehicle to Firewall - Right Side	3726	3715	11
X15	Rear Surface of Vehicle to Firewall - Left Side	3761	3605	156
X16	Rear Surface of Vehicle to Steering Wheel Center	2895	2864	31
X17	Center of Steering Column to " A " Post	322	301	21
X18	Center of Steering Column to Headliner	420	479	-59
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4714	4955	-241
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4711	----- <sup>1</sup>	----- <sup>1</sup>
X21	Length of Engine Block	550	550	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3219	3219	0
CD	Rear Surface of Vehicle to Center of Dash Panel	3194	3158	36
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3218	3183	35

All distance measurements are in millimeters.

<sup>1</sup> Measurement point destroyed during impact.

Figure 8 Vehicle Crush



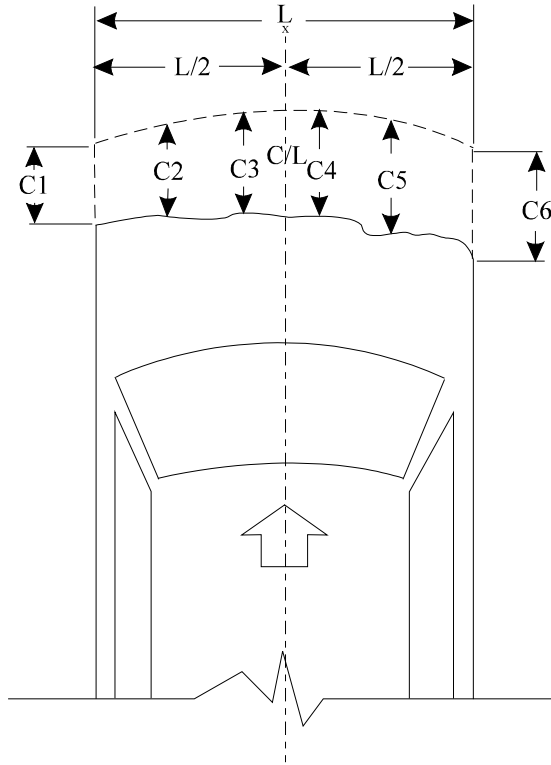
Notes: L is pre-test length of contact surface.  
 C1 through C6 are spaced equally apart.  
 CL is vehicle centerline.

Vehicle: 2002 Nissan Altima  
 Measured with bumper fascia:

Location	Pre-test	Post-test	Difference
L	1525 mm		
C1	4711 mm	---- <sup>1</sup>	---- <sup>1</sup>
C2	4814 mm	4282 mm	532 mm
C3	4854 mm	4319 mm	535 mm
C4	4857 mm	4533 mm	324 mm
C5	4820 mm	4817 mm	3 mm
C6	4714 mm	4955 mm	-241 mm
CL	4865 mm	4440 mm	425 mm

<sup>1</sup> Measurement point destroyed during 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>	1170 mm		
C1 <sup>1</sup>	4749 mm	4257 mm	492 mm
C2	4756 mm	4256 mm	500 mm
C3	4798 mm	4290 mm	508 mm
C4	4800 mm	4448 mm	352 mm
C5	4746 mm	4599 mm	147 mm
C6 <sup>1</sup>	4759 mm	4747 mm	12 mm
CL	4804 mm	4363 mm	441 mm

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

Table 10 Test Vehicle Frontal Profile Data

		Pre-Test Profile					
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	4681 mm	4784 mm	4826 mm	4830 mm	4790 mm	4687 mm
	Y	-750 mm	-450 mm	-151 mm	152 mm	458 mm	757 mm
	Z	-296 mm	-288 mm	-280 mm	-285 mm	-290 mm	-300 mm
Top of Front Bumper	X	4676 mm	4784 mm	4831 mm	4838 mm	4799 mm	4698 mm
	Y	-761 mm	-460 mm	-152 mm	151 mm	462 mm	764 mm
	Z	-525 mm	-520 mm	-505 mm	-500 mm	-510 mm	-510 mm
Center of Grille	X	4606 mm	4744 mm	4791 mm	4797 mm	4759 mm	4624 mm
	Y	-755 mm	-457 mm	-153 mm	153 mm	456 mm	760 mm
	Z	-626 mm	-604 mm	-594 mm	-596 mm	-599 mm	-626 mm
Front of Hood	X	4406 mm	4684 mm	4733 mm	4737 mm	4690 mm	4414 mm
	Y	-720 mm	-460 mm	-150 mm	150 mm	455 mm	725 mm
	Z	-782 mm	-688 mm	-718 mm	-714 mm	-693 mm	-778 mm

		Post-Test Profile					
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	----- <sup>1</sup>	4281 mm	4303 mm	4535 mm	4766 mm	4894 mm
	Y	----- <sup>1</sup>	-505 mm	-207 mm	43 mm	159 mm	416 mm
	Z	----- <sup>1</sup>	-316 mm	-311 mm	-265 mm	-218 mm	-173 mm
Top of Front Bumper	X	----- <sup>1</sup>	4301 mm	4330 mm	4569 mm	4806 mm	4970 mm
	Y	----- <sup>1</sup>	-497 mm	-198 mm	9 mm	206 mm	435 mm
	Z	----- <sup>1</sup>	-512 mm	-471 mm	-459 mm	-431 mm	-380 mm
Center of Grille	X	----- <sup>1</sup>	4253 mm	4316 mm	4511 mm	4801 mm	4619 mm
	Y	----- <sup>1</sup>	-497 mm	-249 mm	54 mm	244 mm	662 mm
	Z	----- <sup>1</sup>	-634 mm	-569 mm	-577 mm	-515 mm	-628 mm
Front of Hood	X	4148 mm	4163 mm	4308 mm	4479 mm	4604 mm	4391 mm
	Y	-709 mm	-448 mm	-186 mm	72 mm	340 mm	667 mm
	Z	-886 mm	-653 mm	-642 mm	-700 mm	-770 mm	-902 mm

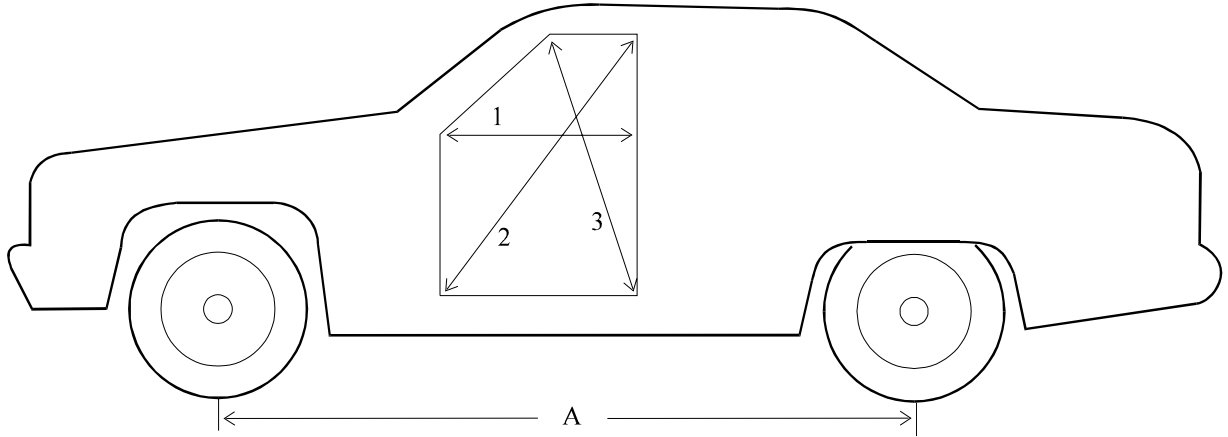
		Difference					
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	----- <sup>1</sup>	503 mm	523 mm	295 mm	24 mm	-207 mm
	Y	----- <sup>1</sup>	55 mm	56 mm	109 mm	299 mm	341 mm
	Z	----- <sup>1</sup>	28 mm	31 mm	-20 mm	-72 mm	-127 mm
Top of Front Bumper	X	----- <sup>1</sup>	483 mm	501 mm	269 mm	-7 mm	-272 mm
	Y	----- <sup>1</sup>	37 mm	46 mm	142 mm	256 mm	329 mm
	Z	----- <sup>1</sup>	-8 mm	-34 mm	-41 mm	-79 mm	-130 mm
Center of Grille	X	----- <sup>1</sup>	521 mm	425 mm	258 mm	86 mm	23 mm
	Y	----- <sup>1</sup>	40 mm	96 mm	99 mm	212 mm	98 mm
	Z	----- <sup>1</sup>	30 mm	-25 mm	-19 mm	-84 mm	2 mm
Front of Hood	X	258 mm	521 mm	425 mm	258 mm	86 mm	23 mm
	Y	-11 mm	-12 mm	36 mm	78 mm	115 mm	58 mm
	Z	104 mm	-35 mm	-76 mm	-14 mm	77 mm	124 mm

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

<sup>1</sup> Measurement point destroyed during impact.

Figure 9 Vehicle Intrusion Measurements

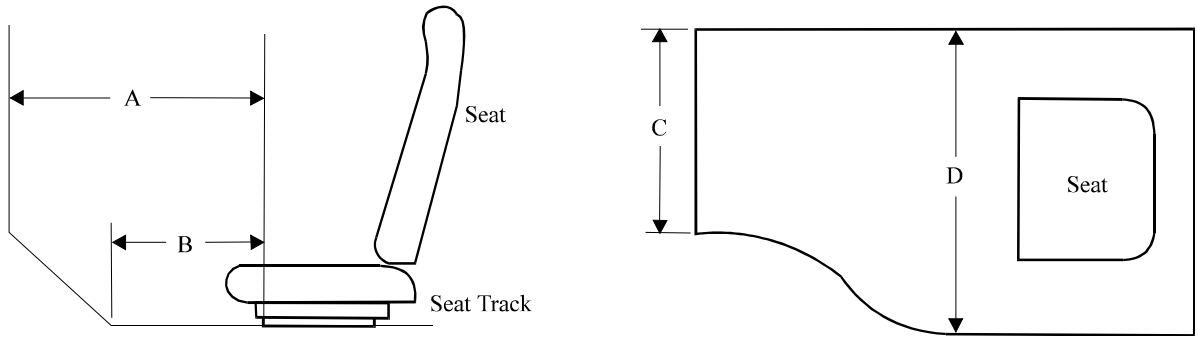
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1050 mm	1499 mm	983 mm	1050 mm	1484 mm	969 mm
Post-Test	1029 mm	1491 mm	1018 mm	1051 mm	1484 mm	974 mm
Difference	21 mm	8 mm	-35 mm	-1 mm	0 mm	-5 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2807 mm	2807 mm
Post-Test	2670 mm	2810 mm
Difference	137 mm	-3 mm

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



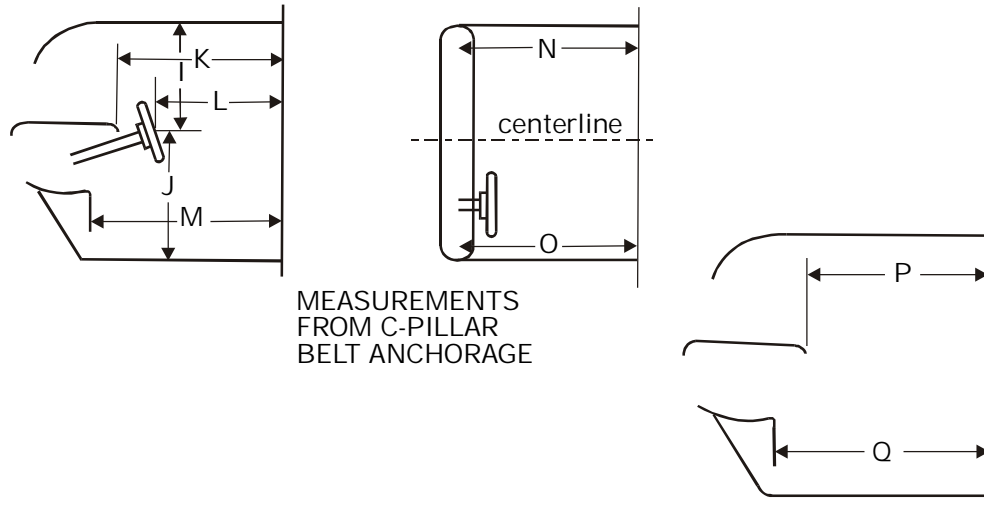
**Driver's Side**

Measurement	Pre-Test	Post-Test	Difference
A	832 mm	700 mm	132 mm
B	595 mm	580 mm	15 mm
C	500 mm	470 mm	30 mm
D	562 mm	458 mm	104 mm

**Passenger's Side**

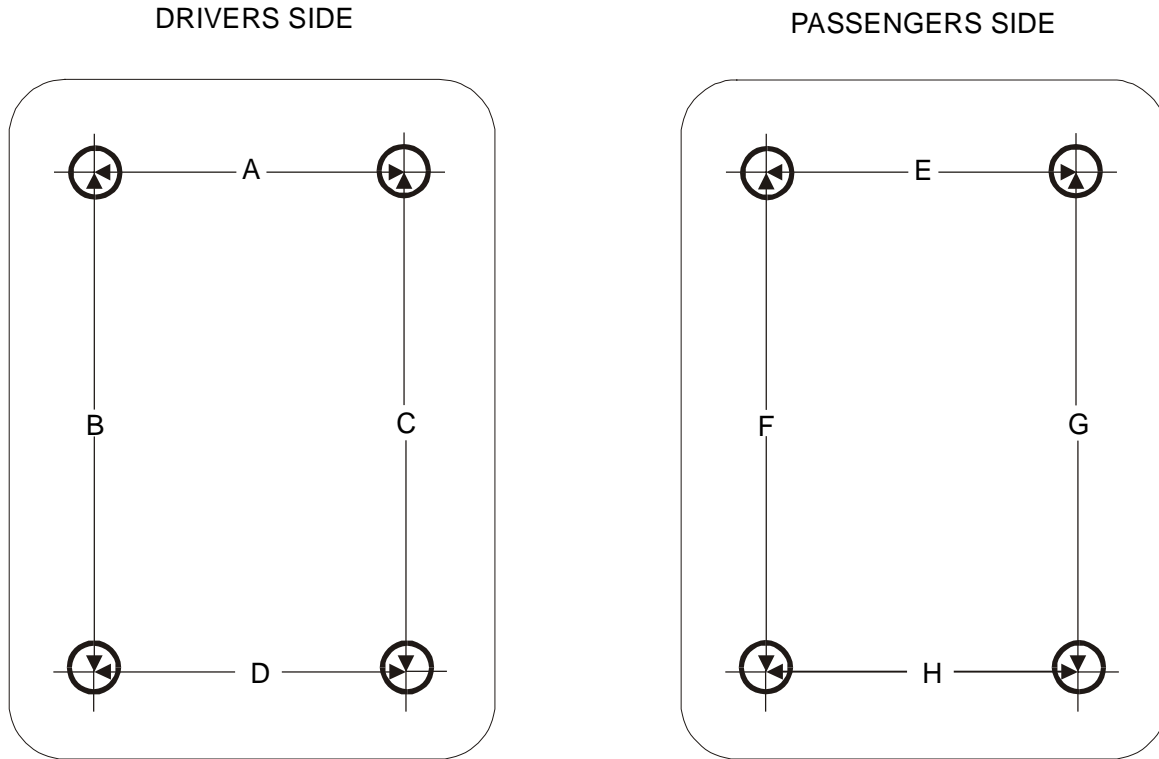
Measurement	Pre-Test	Post-Test	Difference
A	806 mm	795 mm	11 mm
B	613 mm	607 mm	6 mm
C	504 mm	498 mm	6 mm
D	500 mm	496 mm	4 mm

Figure 11 Vehicle Intrusion Measurements  
Static Passenger Compartment Intrusion



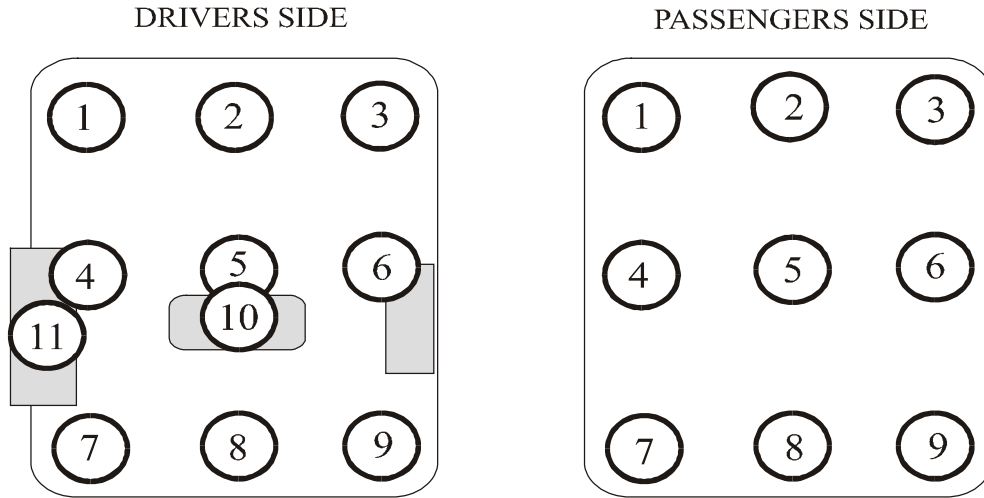
Measurement	Pre-Test	Post-Test	Difference
I	445 mm	420 mm	25 mm
J	665 mm	720 mm	-55 mm
K (driver's side)	1717 mm	1700 mm	17 mm
L	1399 mm	1390 mm	9 mm
M (driver's side)	1770 mm	1757 mm	13 mm
N (passenger's side)	1650 mm	1650 mm	0 mm
O (driver's side)	1644 mm	1625 mm	19 mm
P (passenger's side)	1708 mm	1722 mm	-14 mm
Q (passenger's side)	1764 mm	1788 mm	-24 mm

Figure 12 Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	500 mm	470 mm	30 mm
B	507 mm	506 mm	1 mm
C	487 mm	485 mm	2 mm
D	462 mm	458 mm	4 mm
E	504 mm	498 mm	6 mm
F	510 mm	509 mm	1 mm
G	516 mm	518 mm	-2 mm
H	500 mm	496 mm	4 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	3541	-546	-390	3455	-500	-372	86	-46	-18
2	3576	-366	-350	3473	-327	-345	103	-39	-5
3	3554	-165	-380	3454	-133	-351	100	-32	-29
4	3510	-546	-308	3437	-506	-281	73	-40	-27
5	3487	-366	-290	3405	-333	-278	82	-33	-12
6	3490	-165	-290	3423	-144	-249	67	-21	-41
7	3422	-546	-215	3403	-522	-181	19	-24	-34
8	3409	-366	-226	3358	-347	-190	51	-19	-36
9	3428	-165	-212	3408	-161	-161	20	-4	-51
10	3368	-364	-410	3335	-522	-400	33	158	-10
11	3460	-628	-375	3396	-599	-328	64	-29	-47

Passenger's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3574	229	-400	3561	249	-370	13	-20	-30
2	3575	371	-380	3567	383	-381	8	-12	1
3	3546	511	-405	3544	522	-402	2	-11	-3
4	3525	229	-307	3512	249	-351	13	-20	44
5	3522	371	-325	3515	397	-314	7	-26	-11
6	3527	511	-325	3526	536	-325	1	-25	0
7	3423	229	-237	3456	249	-238	-33	-20	1
8	3432	371	-241	3428	389	-229	4	-18	-12
9	3440	511	-252	3437	524	-310	3	-13	58

Pre-test and post-test measurement references: +X, forward of 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	3132	-540	-680
Driver Right Knee	3106	-200	-680
Passenger Left Knee	3132	226	-650
Passenger Right Knee	3149	548	-655

Post-Test	X	Y	Z
Driver Left Knee	3105	-538	-642
Driver Right Knee	3072	-205	-647
Passenger Left Knee	3111	233	-647
Passenger Right Knee	3142	543	-658

Difference	X	Y	Z
Driver Left Knee	27	-2	-38
Driver Right Knee	34	5	-33
Passenger Left Knee	21	-7	-3
Passenger Right Knee	7	5	3

All measurements are in millimeters.

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

Pre-test 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	2873	2860	13	-370	-384	14	-915	-880	-35
2	3158	3131	27	-562	-560	-2	-650	-619	-31
3	3045	3106	-61	-234	-237	3	-660	-618	-42
4	3368	3335	33	-364	-522	158	-410	-400	-10
5	3510	3437	73	-546	-506	-40	-308	-281	-27
6	3487	3405	82	-366	-333	-33	-290	-278	-12
7	3490	3423	67	-165	-144	-21	-290	-249	-41
8	3460	3396	64	-628	-599	-29	-375	-328	-47
17	3279	3262	17	-735	-726	-9	-915	-880	-35
18	2288	2288	0	-760	-767	7	-915	-872	-43

**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	2817	2817	0	-587	-586	-1	-321	-252	-69
P1	3365	3362	3	-633	-616	-17	-197	-140	-57
P2	3337	3323	14	-366	-348	-18	-221	-145	-76
P3	3319	3305	14	-165	-176	11	-210	-179	-31
P4	3118	3110	8	-633	-619	-14	-200	-144	-56
P5	3096	3082	14	-366	-354	-12	-217	-158	-59
P6	3098	3087	11	-165	-170	5	-201	-178	-23
P7	2862	2855	7	-633	-617	-16	-197	-143	-54
P8	2849	2841	8	-366	-352	-14	-213	-165	-48
P9	2855	2844	11	-165	-159	-6	-202	-176	-26

Pre-test 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

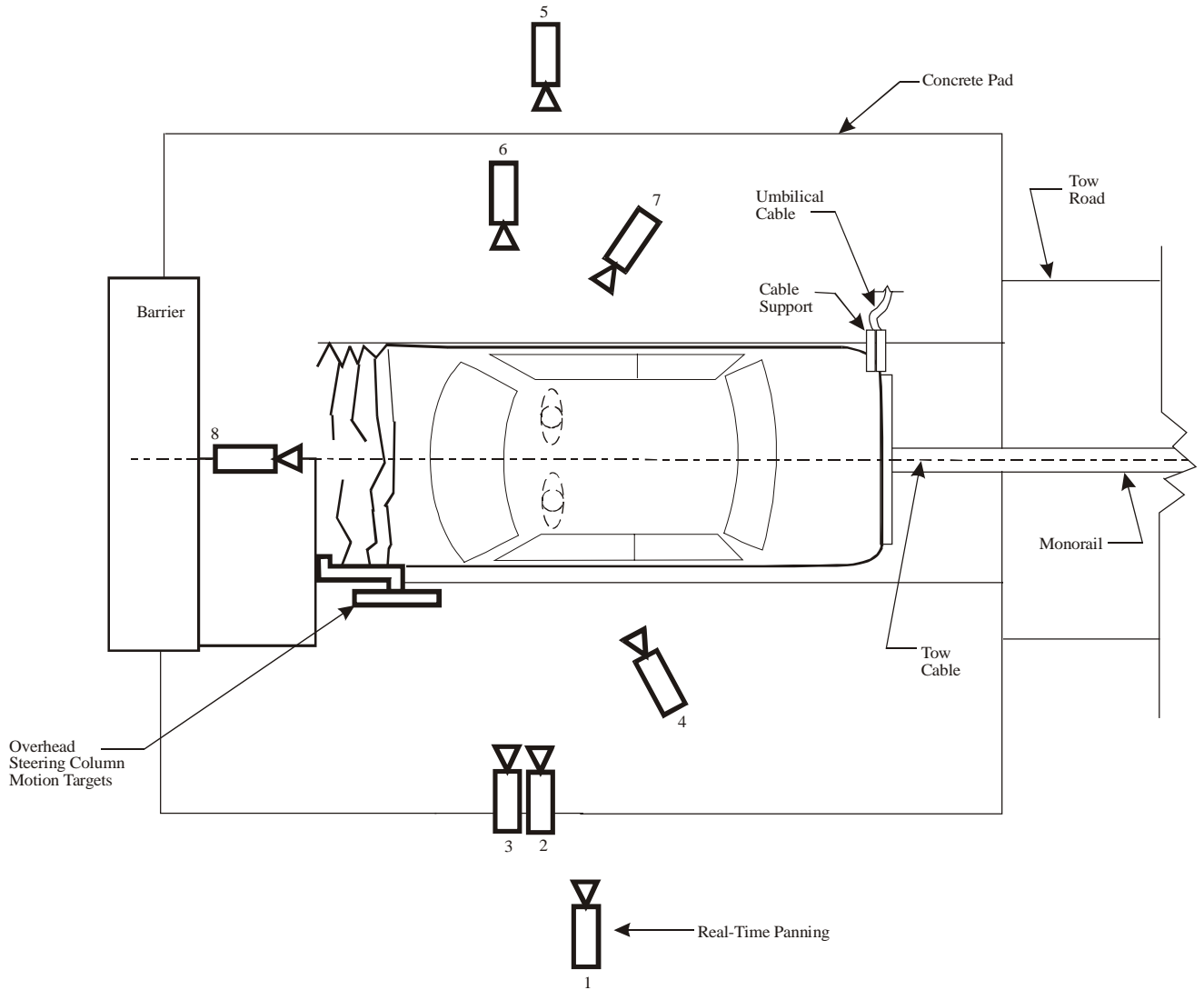


Figure 14 Camera Positions, Cont'd.

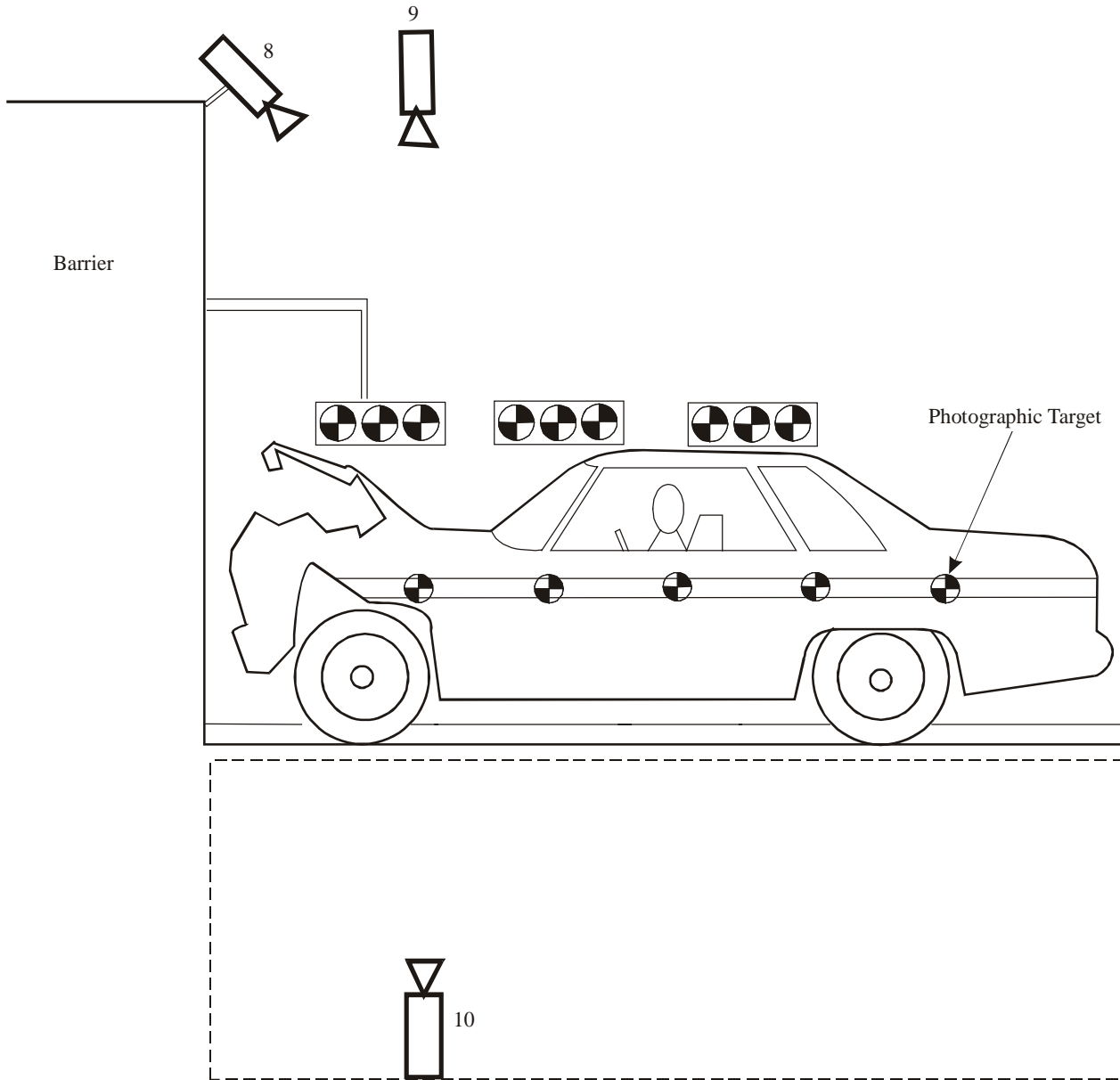
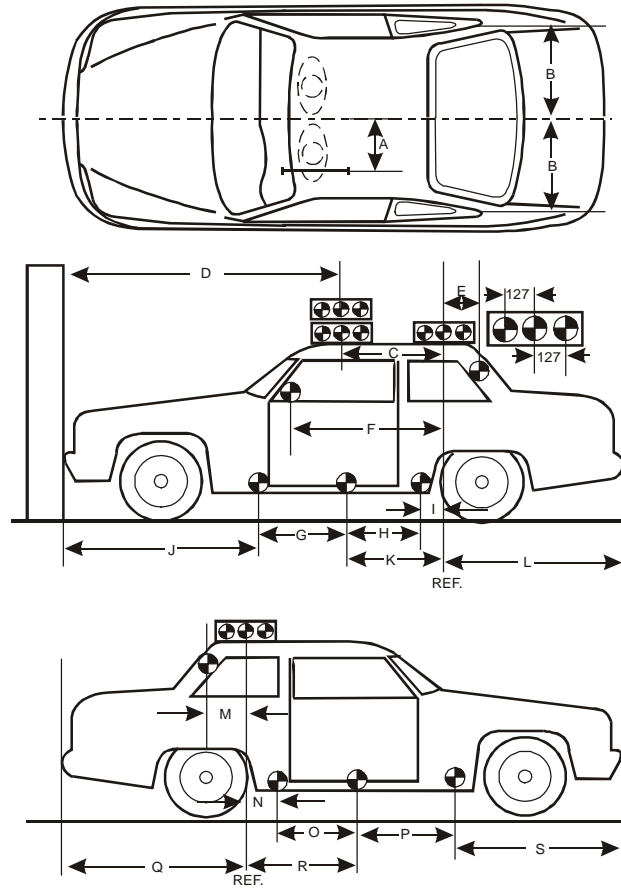


Table 13 Camera Information

Camera Number	Location	Type	Lens (mm)	Speed (fps)	Purpose of camera data
1	Panning	Bolex	Zoom	24	Vehicle dynamics
2	Left perpendicular overall	Digital HG	13	1000	Vehicle crush
3	Left tight driver side	Digital HG	Zoom	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 and 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



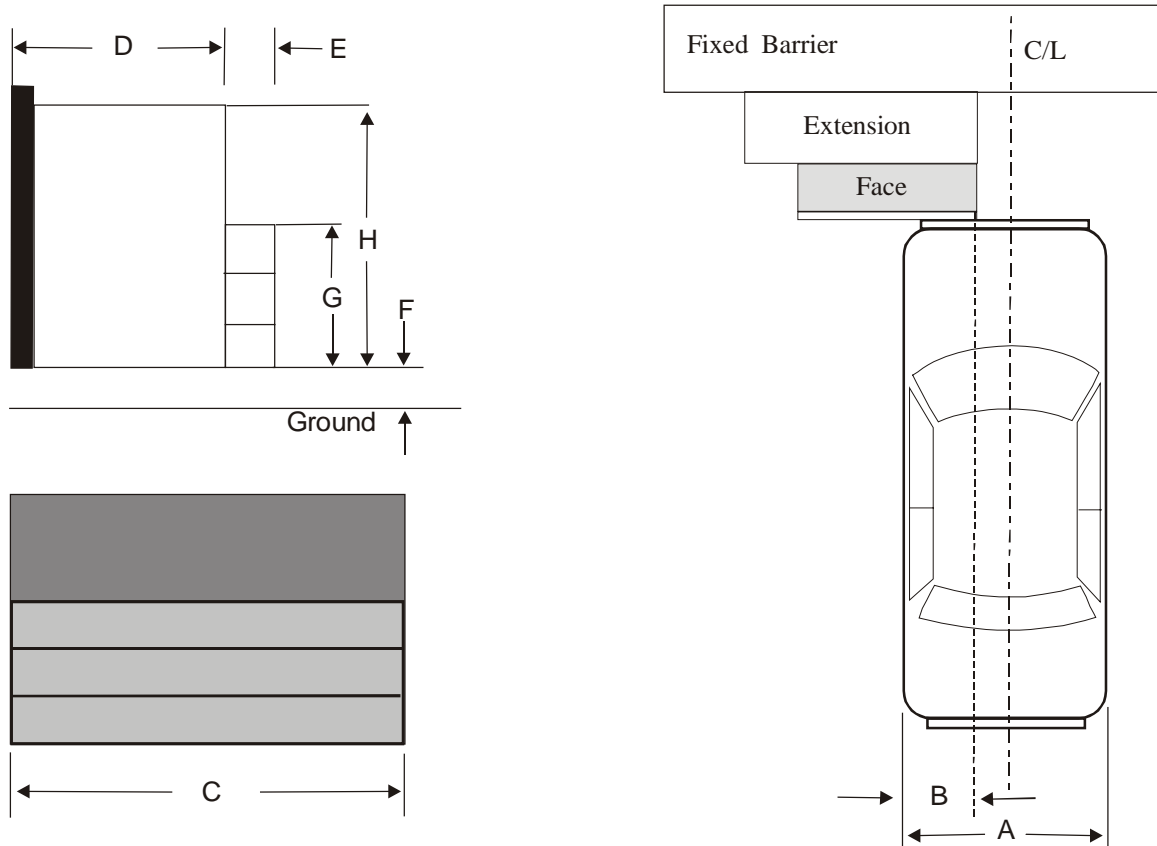
Measurement	Pre-Test
A	Left 358 mm Right 358 mm
B	Left 593 mm Right 593 mm
C	Left 610 mm Right 610 mm
D	1495 mm
E	581 mm
F	1173 mm
G	947 mm
H	965 mm
I	-355 mm
J	1401 mm
K	608 mm
L	1909 mm
M	554 mm
N	-328 mm
O	960 mm
P	950 mm
Q	1878 mm
R	634 mm
S	1403 mm

Figure 16 Offset Barrier and Vehicle Orientation

Vehicle: 2002 Nissan Altima

Barrier Manufacturer: Cellbond

Serial Number: CB 052



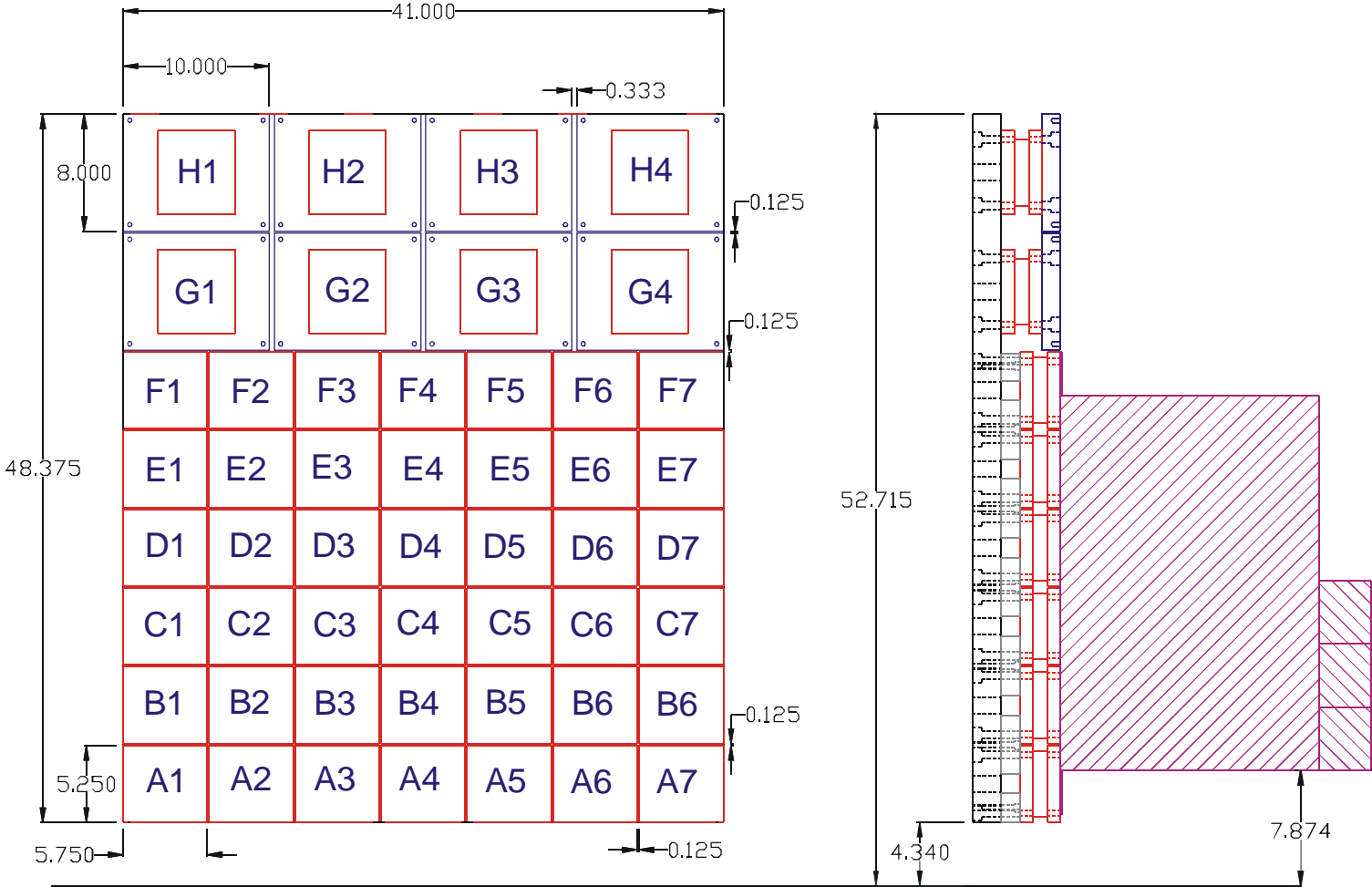
A	Total Vehicle Width	<u>1778</u>	mm
B	40% Overlap Distance	<u>711</u>	mm
C	Deformable Face Width	<u>1001</u>	mm
D	Single Stage Honeycomb Depth	<u>451</u>	mm
E	Bumper Element Depth	<u>90</u>	mm
F	Lower Edge Height From Ground	<u>200</u>	mm
G*	Bumper Element Height	<u>330</u>	mm
H	Deformable Barrier Honeycomb Height	<u>650</u>	mm

\* The bumper element consists of three 110 mm height blocks of 1.723 MPa honeycomb.

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

FRONT VIEW

SIDE VIEW

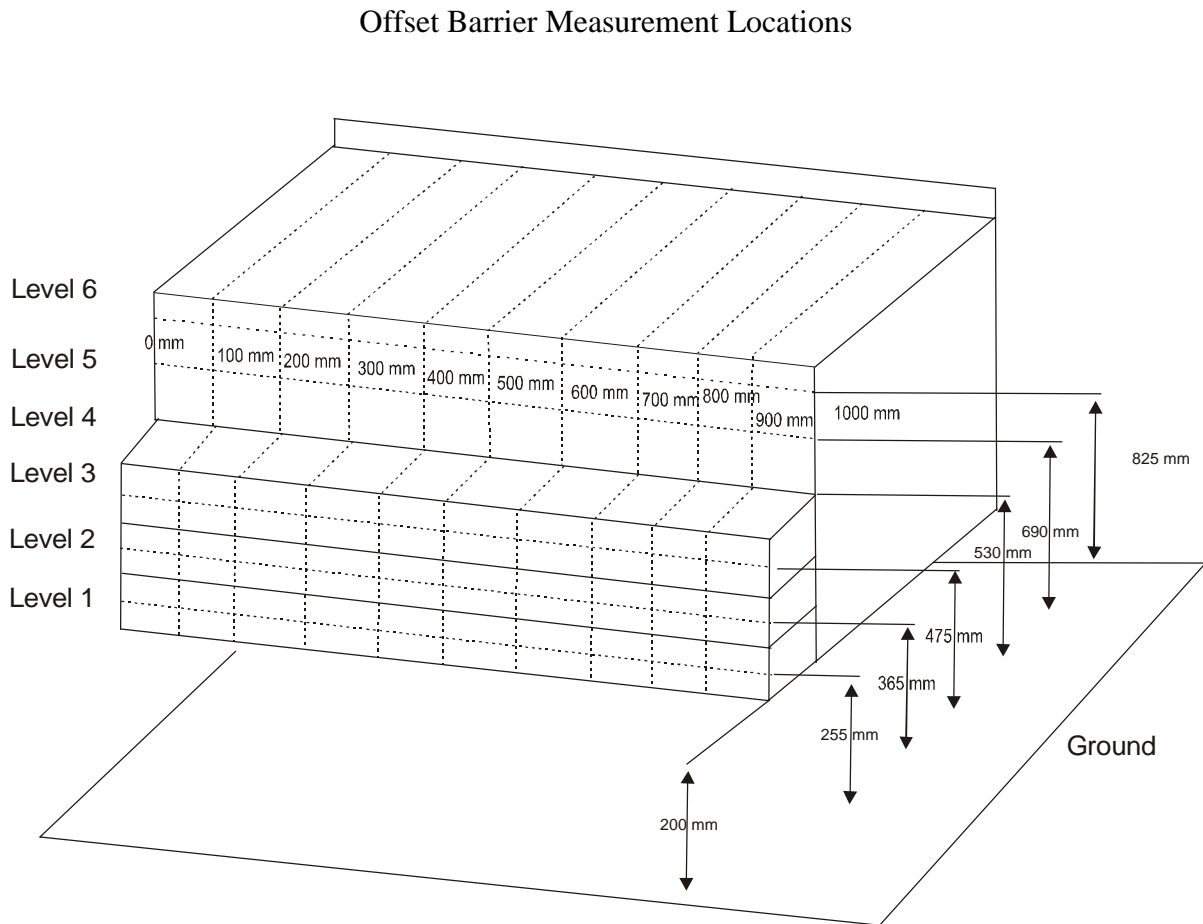


GROUND

All measurements are in inches.

<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	454.6	-4.9	623.9
2	455.1	95.0	624.1
3	455.0	194.7	624.3
4	455.8	293.6	624.3
5	454.9	393.8	624.2
6	455.3	494.5	623.6
7	455.3	594.1	623.6
8	455.3	693.6	623.8
9	454.8	793.6	623.8
10	455.3	893.0	623.6
11	454.6	992.3	623.7

Post-Test			
Index	Xmm	Ymm	Zmm
1	488.1	67.8	494.4
2	471.3	166.8	493.6
3	456.4	265.6	491.4
4	436.3	362.3	487.1
5	413.4	459.3	483.7
6	375.6	549.7	483.2
7	328.9	626.9	501.3
8	279.6	711.2	508.0
9	231.6	796.4	505.4
10	172.3	875.9	508.6
11	111.7	953.5	505.7

Difference			
Index	Xmm	Ymm	Zmm
1	-33.5	-72.7	129.5
2	-16.2	-71.8	130.6
3	-1.4	-70.9	132.9
4	19.5	-68.7	137.2
5	41.5	-65.5	140.5
6	79.7	-55.2	140.4
7	126.3	-32.8	122.4
8	175.7	-17.6	115.8
9	223.2	-2.9	118.4
10	283.0	17.1	115.0
11	342.9	38.9	118.1

Level 5 Mid Stack

Pre-Test			
Index	Xmm	Ymm	Zmm
12	455.8	-5.3	489.7
13	455.8	94.2	488.9
14	456.4	192.9	489.0
15	455.6	293.0	489.2
16	456.3	394.3	488.7
17	456.0	493.1	489.5
18	455.6	594.2	488.9
19	456.5	694.5	489.0
20	456.0	793.9	488.8
21	456.3	893.5	488.9
22	455.9	991.8	489.2

Post-Test			
Index	Xmm	Ymm	Zmm
12	493.5	66.8	362.0
13	475.8	164.6	360.5
14	451.9	259.9	360.1
15	400.8	343.7	370.7
16	347.1	426.7	379.6
17	304.1	512.1	383.5
18	240.8	585.7	409.3
19	190.6	668.2	425.4
20	176.7	761.0	395.5
21	143.4	853.0	381.2
22	104.7	942.6	372.3

Difference			
Index	Xmm	Ymm	Zmm
12	-37.7	-72.1	127.7
13	-20.0	-70.4	128.4
14	4.4	-67.0	128.8
15	54.7	-50.7	118.4
16	109.2	-32.5	109.1
17	151.9	-18.9	106.0
18	214.9	8.5	79.7
19	265.9	26.3	63.6
20	279.3	32.9	93.4
21	312.9	40.5	107.7
22	351.2	49.2	116.9

Table 14 Deformable Barrier Face Profile Cont'd.

Level 4 Stack Top of Bumper

Pre-Test			
Index	Xmm	Ymm	Zmm
23	457.0	-5.9	343.2
24	457.4	93.7	342.1
25	457.0	192.8	342.7
26	457.1	293.0	342.5
27	456.7	393.1	342.9
28	456.7	494.3	343.4
29	455.6	593.7	342.2
30	456.3	695.2	341.5
31	456.0	794.1	341.5
32	456.3	894.5	341.8
33	455.9	990.1	342.7

Post-Test			
Index	Xmm	Ymm	Zmm
23	486.5	63.8	215.9
24	434.5	145.2	229.4
25	378.3	225.2	244.1
26	319.9	303.2	256.8
27	266.6	386.9	267.2
28	206.7	466.4	285.4
29	159.6	551.1	296.0
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	45.5	803.2	300.1
33	43.3	895.1	296.9

Difference			
Index	Xmm	Ymm	Zmm
23	-29.4	-69.7	127.3
24	22.9	-51.5	112.7
25	78.7	-32.4	98.7
26	137.2	-10.2	85.7
27	190.1	6.2	75.6
28	249.9	27.9	57.9
29	296.0	42.6	46.1
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	410.8	91.3	41.7
33	412.6	95.0	45.8

Level 3 Bumper Top

Pre-Test			
Index	Xmm	Ymm	Zmm
34	547.5	-6.7	276.5
35	548.0	93.0	276.2
36	547.9	191.6	276.2
37	547.9	291.5	276.1
38	547.9	391.7	276.2
39	547.9	492.0	275.8
40	546.9	591.8	275.8
41	546.3	691.4	275.3
42	547.3	792.7	275.2
43	547.5	892.1	274.8
44	546.9	990.8	275.1

Post-Test			
Index	Xmm	Ymm	Zmm
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	49.7	536.6	252.1
41	42.7	634.3	249.0
42	45.3	735.7	247.3
43	49.2	835.0	245.3
44	N/A	N/A	N/A

Difference			
Index	Xmm	Ymm	Zmm
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	497.2	55.3	23.7
41	503.6	57.1	26.2
42	501.9	57.0	27.9
43	498.3	57.1	29.5
44	N/A	N/A	N/A

Table 14 Deformable Barrier Face Profile Cont'd.

Level 2 Bumper Top

Pre-Test			
Index	Xmm	Ymm	Zmm
45	547.7	-5.7	166.8
46	549.1	90.9	166.1
47	548.9	191.3	166.1
48	548.7	291.4	165.6
49	548.4	391.7	165.2
50	548.3	492.1	165.3
51	548.4	591.1	165.3
52	547.7	691.4	165.1
53	547.1	792.7	164.3
54	547.7	892.5	164.2
55	547.5	990.0	163.9

Post-Test			
Index	Xmm	Ymm	Zmm
45	N/A	N/A	N/A
46	N/A	N/A	N/A
47	N/A	N/A	N/A
48	N/A	N/A	N/A
49	N/A	N/A	N/A
50	N/A	N/A	N/A
51	N/A	N/A	N/A
52	N/A	N/A	N/A
53	N/A	N/A	N/A
54	N/A	N/A	N/A
55	N/A	N/A	N/A

Difference			
Index	Xmm	Ymm	Zmm
45	N/A	N/A	N/A
46	N/A	N/A	N/A
47	N/A	N/A	N/A
48	N/A	N/A	N/A
49	N/A	N/A	N/A
50	N/A	N/A	N/A
51	N/A	N/A	N/A
52	N/A	N/A	N/A
53	N/A	N/A	N/A
54	N/A	N/A	N/A
55	N/A	N/A	N/A

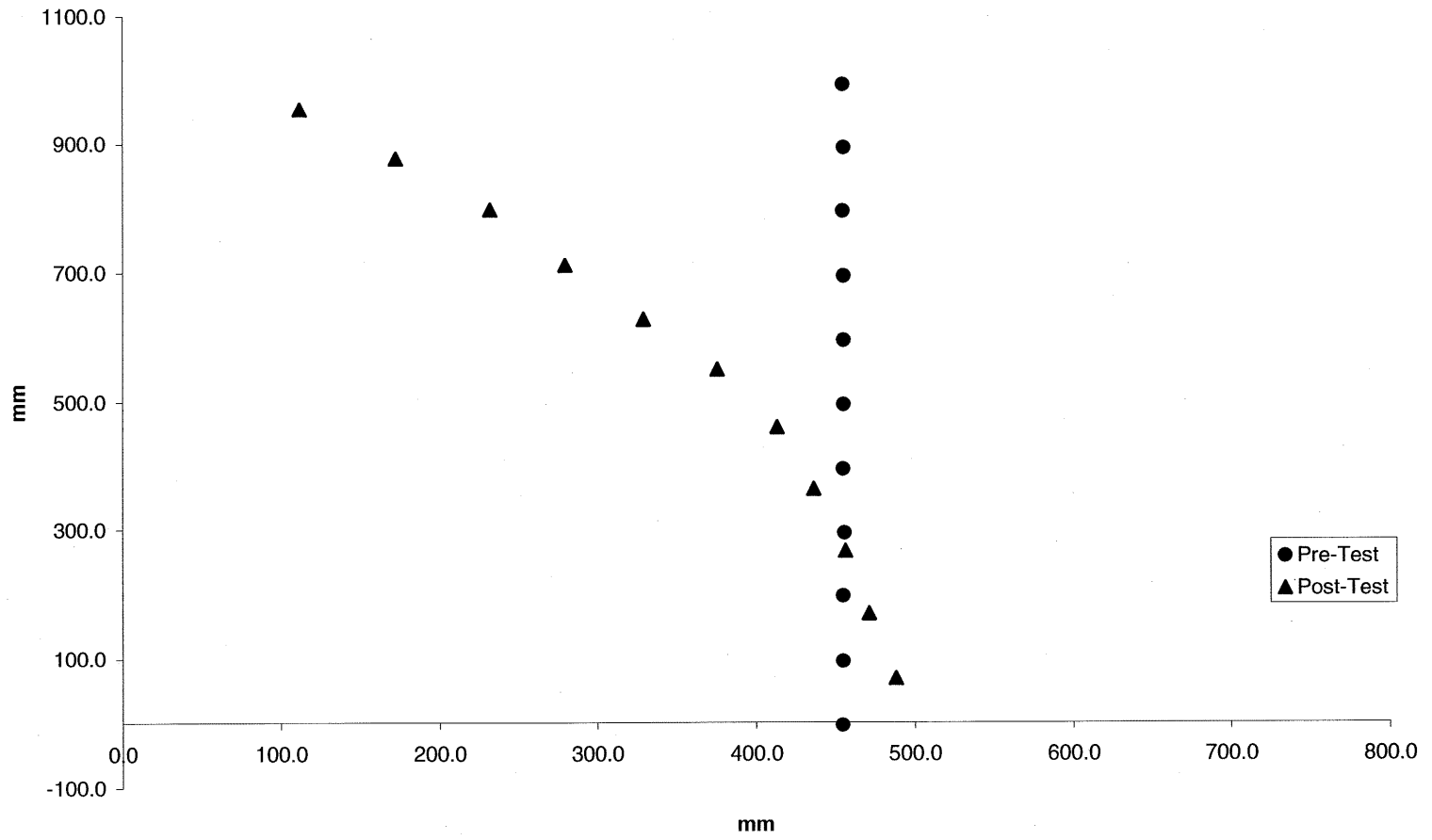
Level 1 Bumper Low

Pre-Test			
Index	Xmm	Ymm	Zmm
56	548.2	-6.1	56.1
57	549.3	91.4	56.0
58	549.1	190.8	55.8
59	549.1	290.2	55.7
60	548.8	390.9	55.5
61	548.9	491.3	55.1
62	548.7	590.9	54.9
63	548.4	691.6	54.1
64	548.2	792.1	54.3
65	548.8	892.2	54.1
66	548.7	990.2	54.0

Post-Test			
Index	Xmm	Ymm	Zmm
56	N/A	N/A	N/A
57	N/A	N/A	N/A
58	N/A	N/A	N/A
59	N/A	N/A	N/A
60	N/A	N/A	N/A
61	N/A	N/A	N/A
62	N/A	N/A	N/A
63	N/A	N/A	N/A
64	N/A	N/A	N/A
65	N/A	N/A	N/A
66	N/A	N/A	N/A

Difference			
Index	Xmm	Ymm	Zmm
56	N/A	N/A	N/A
57	N/A	N/A	N/A
58	N/A	N/A	N/A
59	N/A	N/A	N/A
60	N/A	N/A	N/A
61	N/A	N/A	N/A
62	N/A	N/A	N/A
63	N/A	N/A	N/A
64	N/A	N/A	N/A
65	N/A	N/A	N/A
66	N/A	N/A	N/A

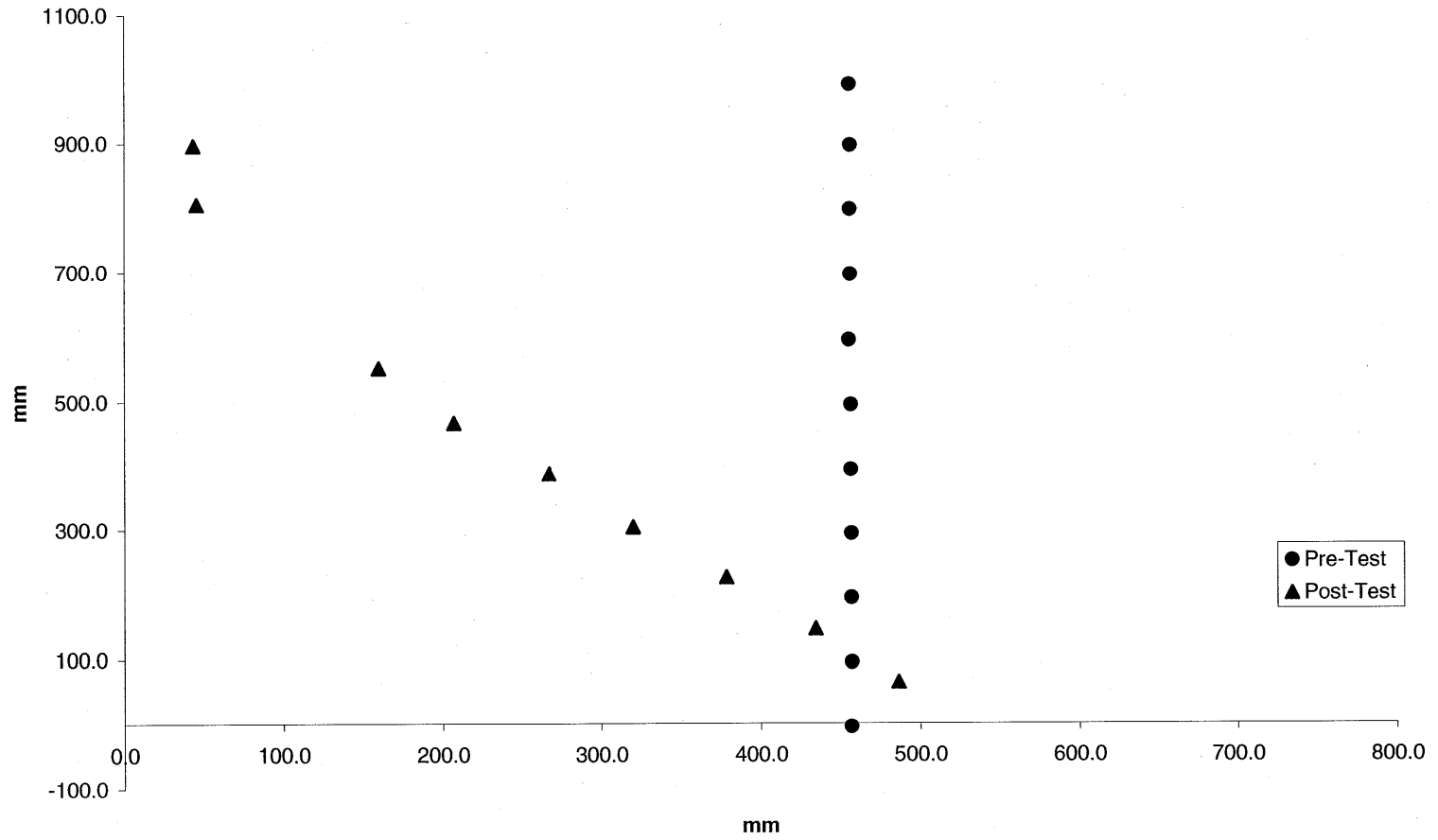
Figure 19 Deformable Barrier Face Profile 1-11 Level 6



4-29

021018-2

Figure 19 Deformable Barrier Face Profile 23-33 Level 4



4-30

021018-2

Figure 19 Deformable Barrier Face Profile 34-44 Level 3

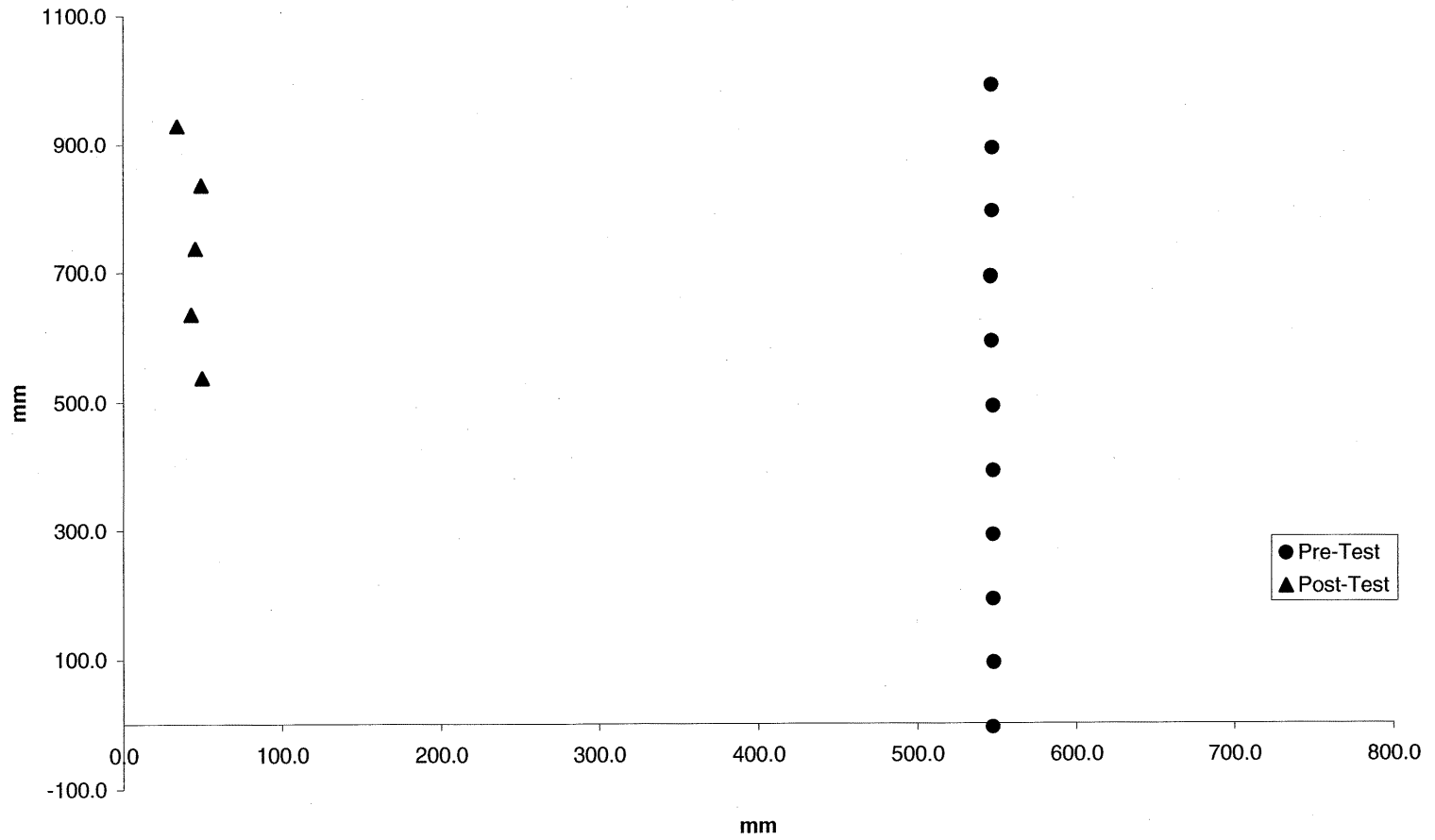


Figure 19 Deformable Barrier Face Profile 45-55 Level 2

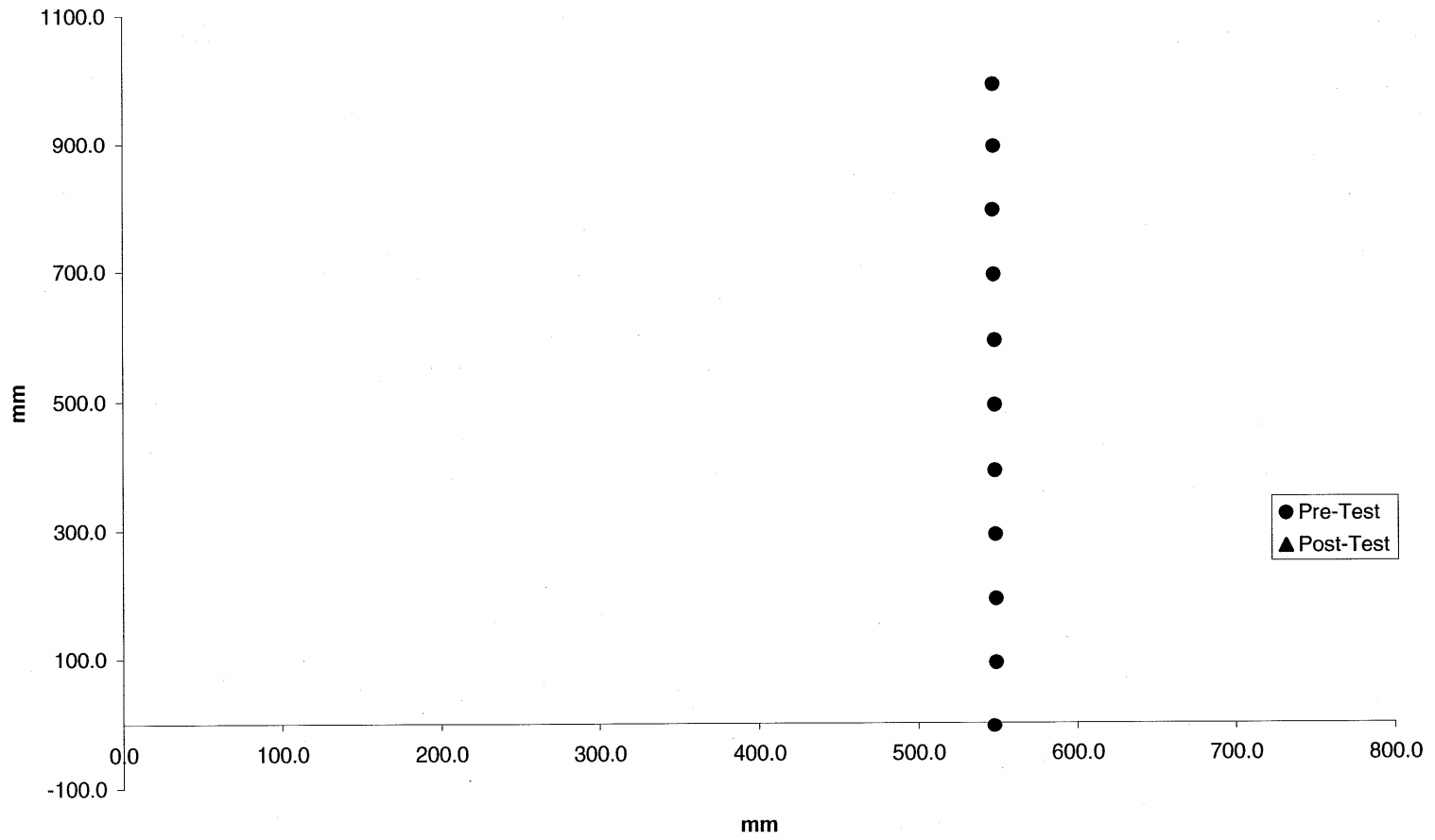
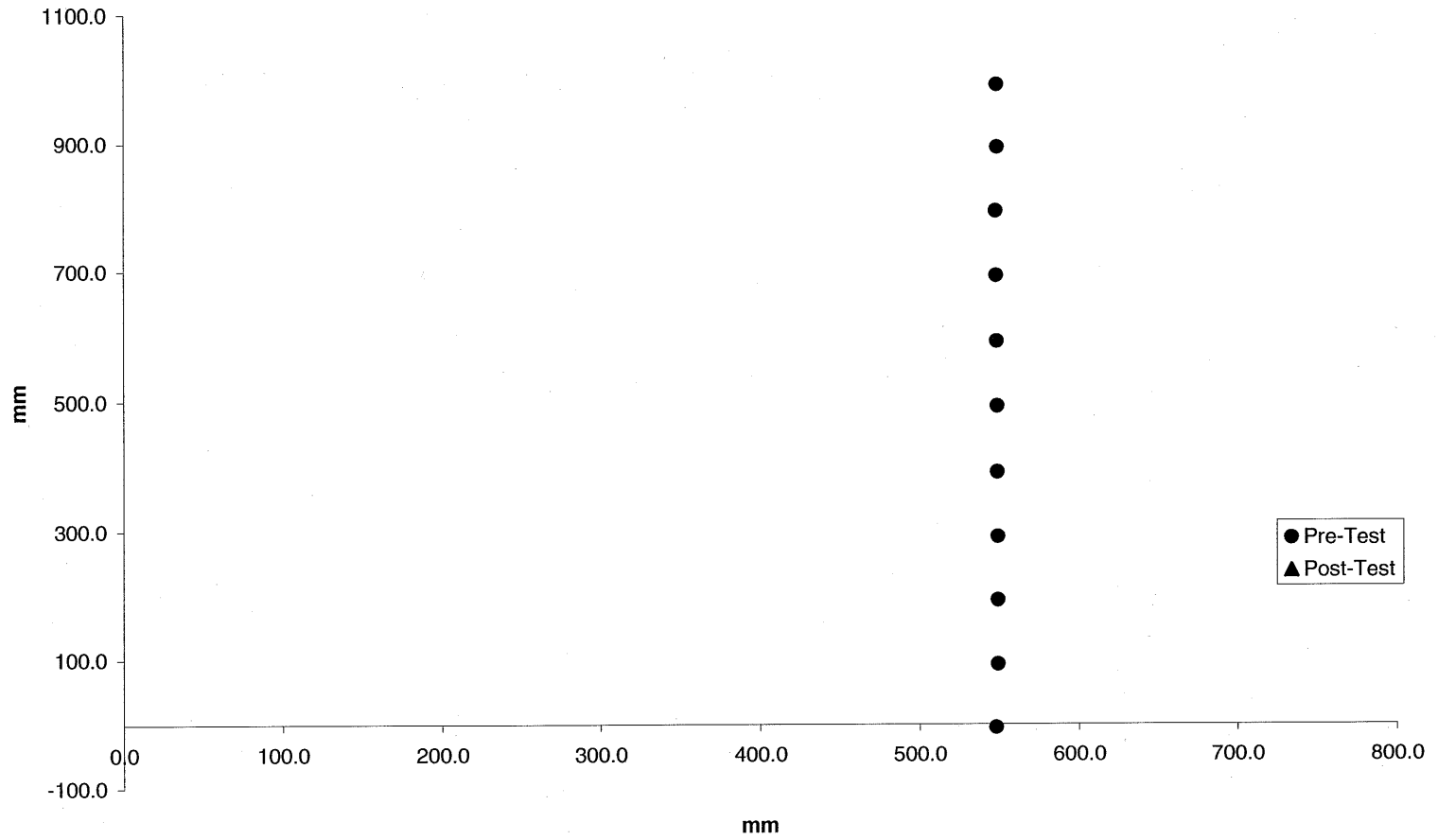
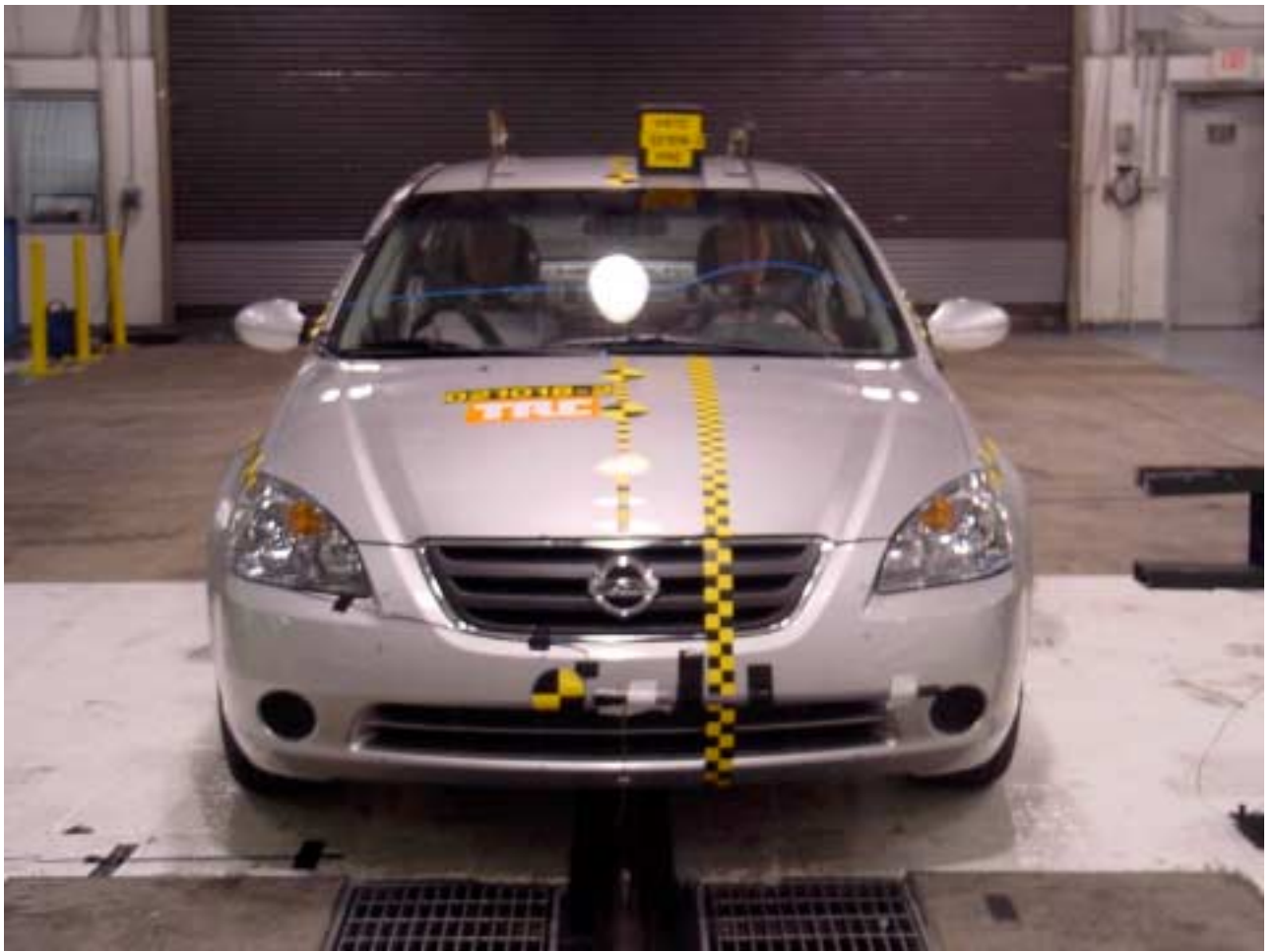


Figure 19 Deformable Barrier Face Profile 56-66 Level 1



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

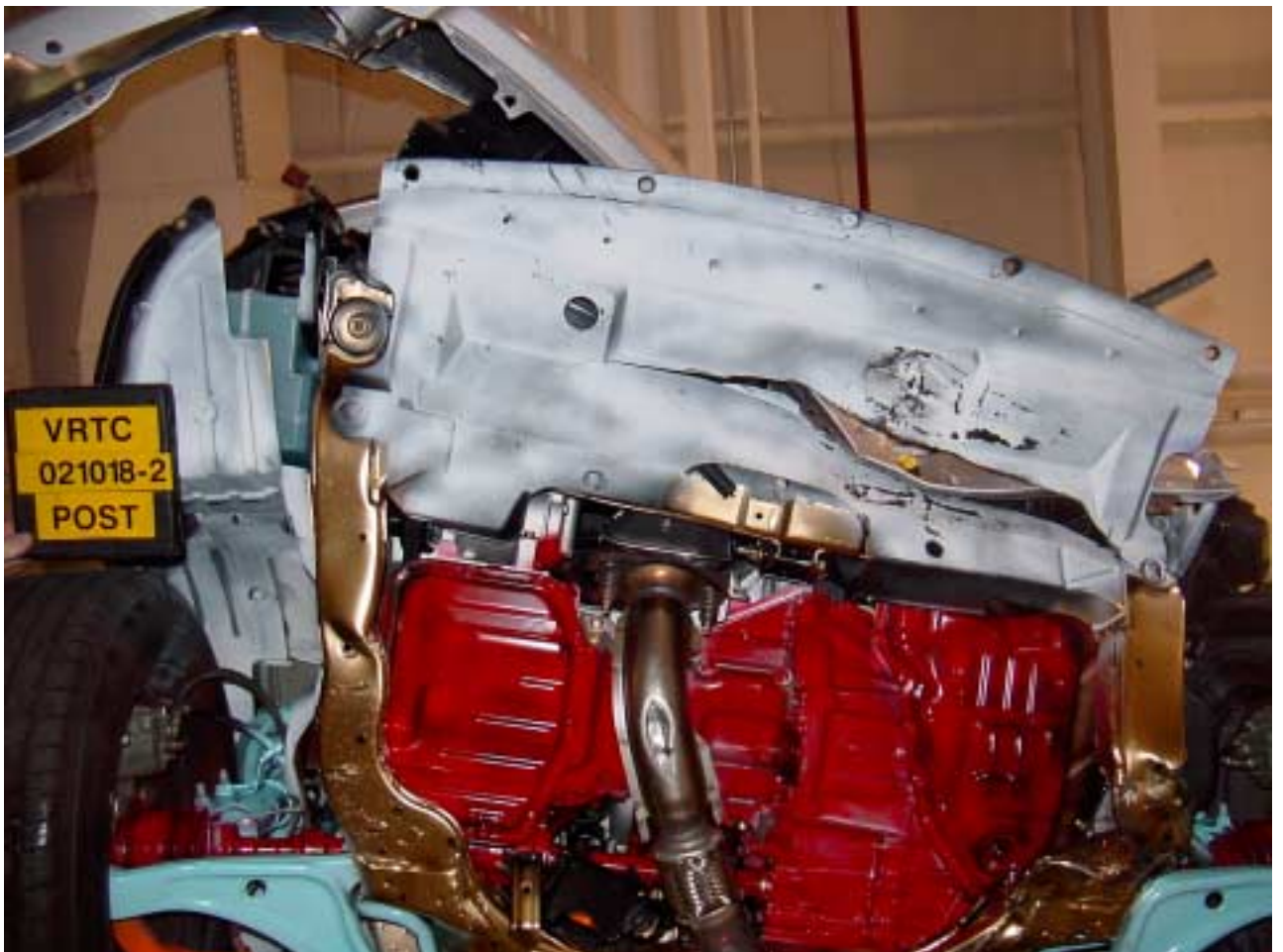


Figure A-20 Post-Test Front Underbody View

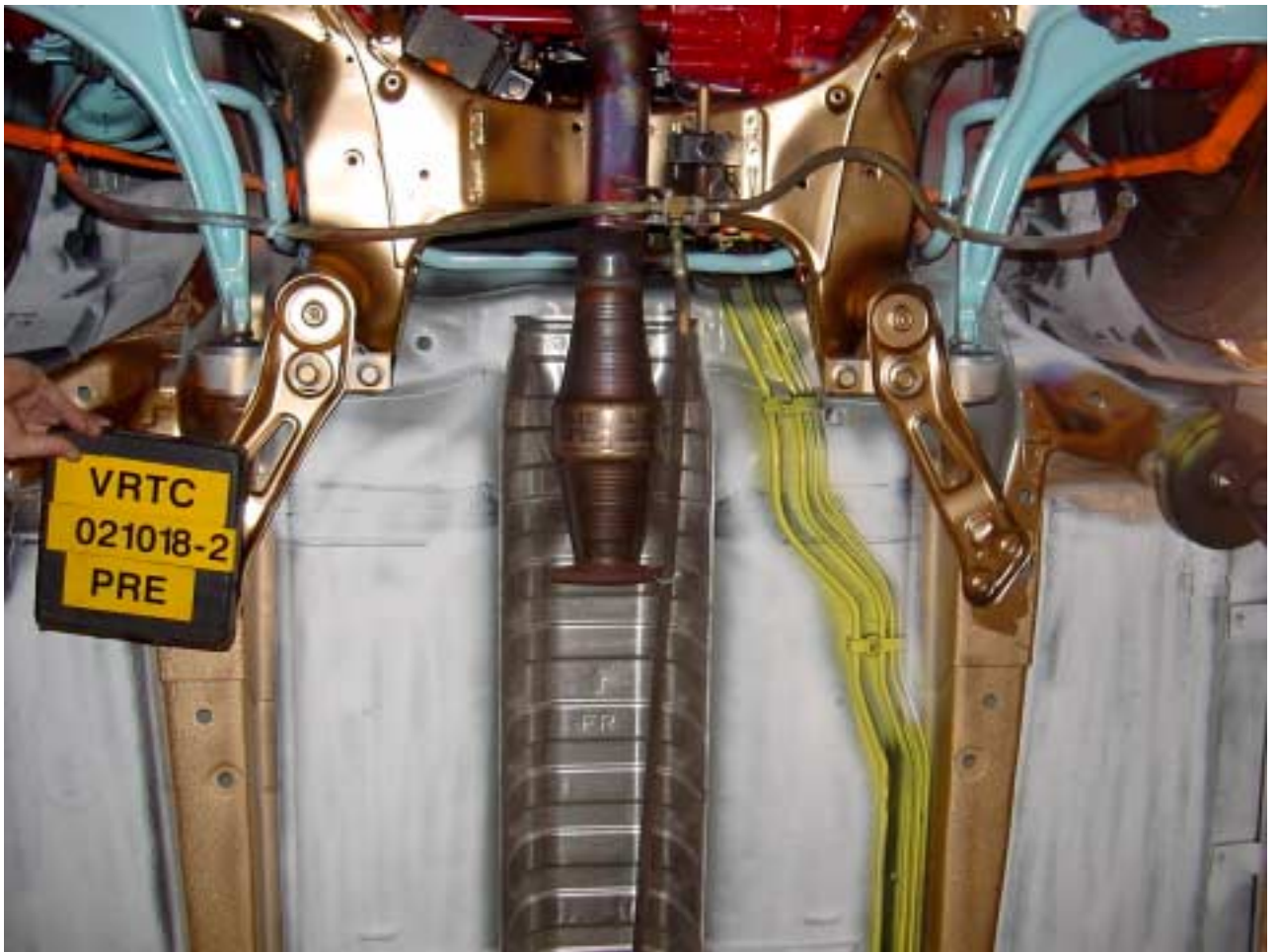


Figure A-21 Pre-Test Front Mid Underbody View

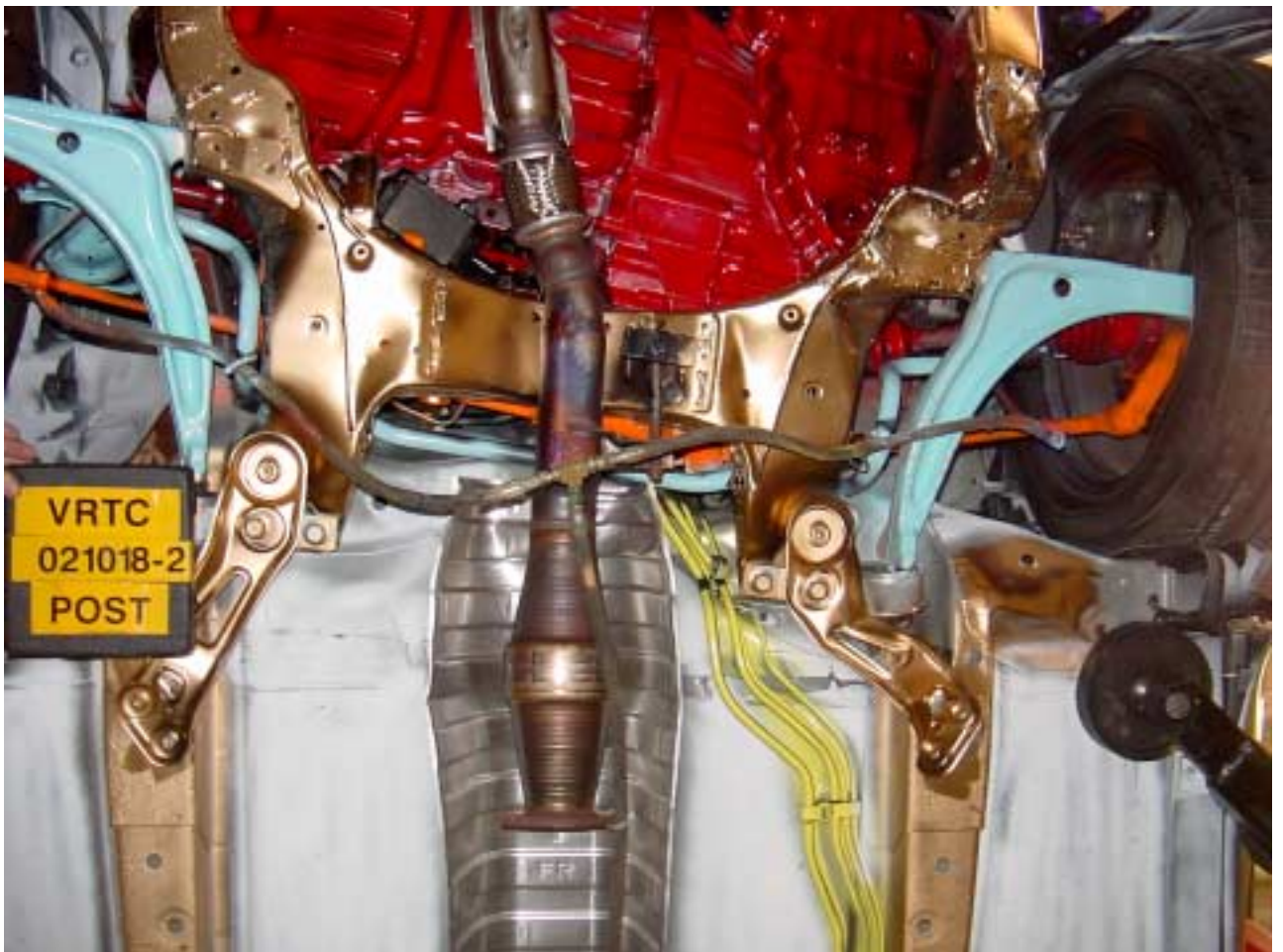


Figure A-22 Post-Test Front Mid Underbody View

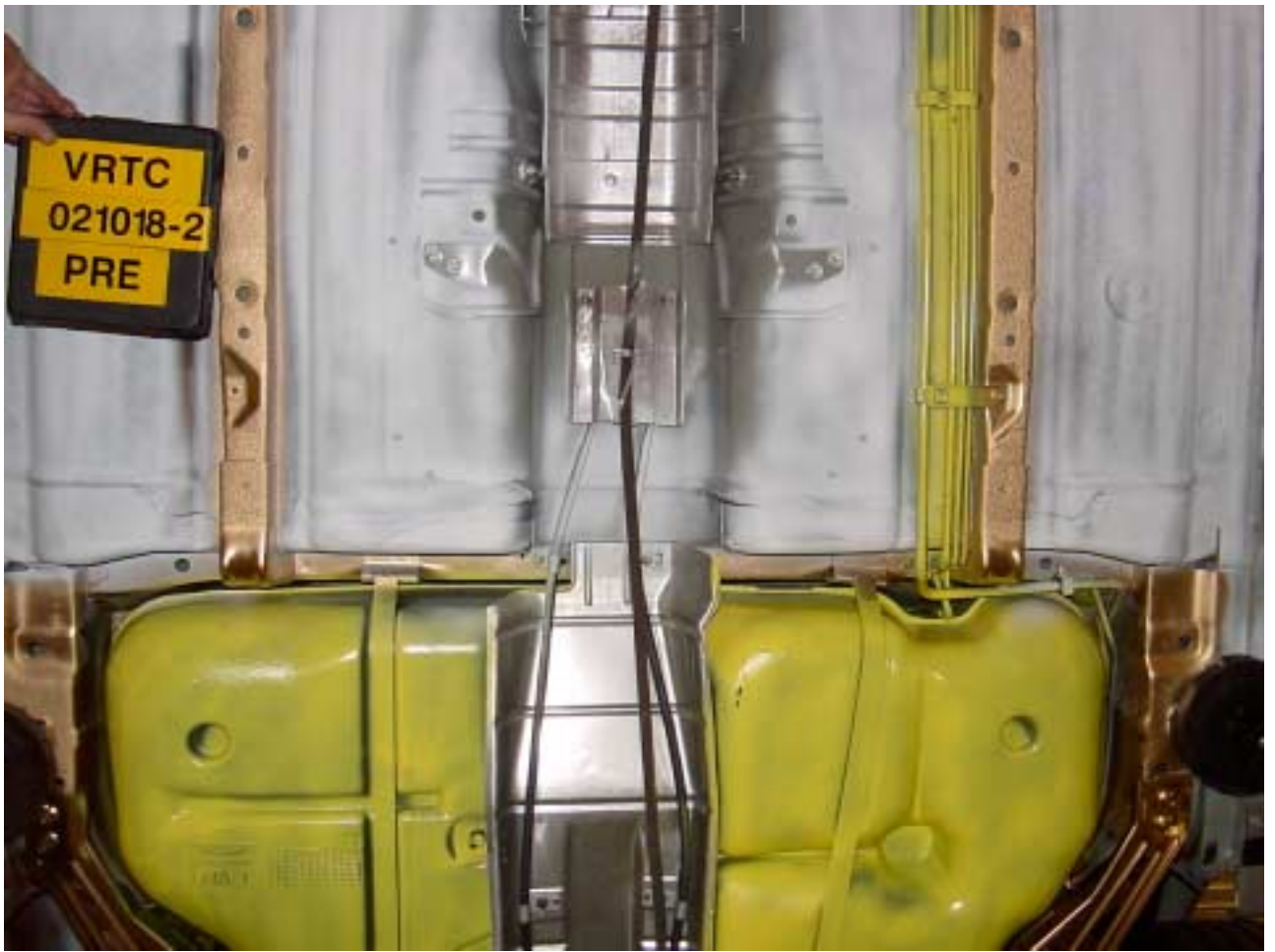


Figure A-23 Pre-Test Mid Underbody View



Figure A-24 Post-Test Mid Underbody View

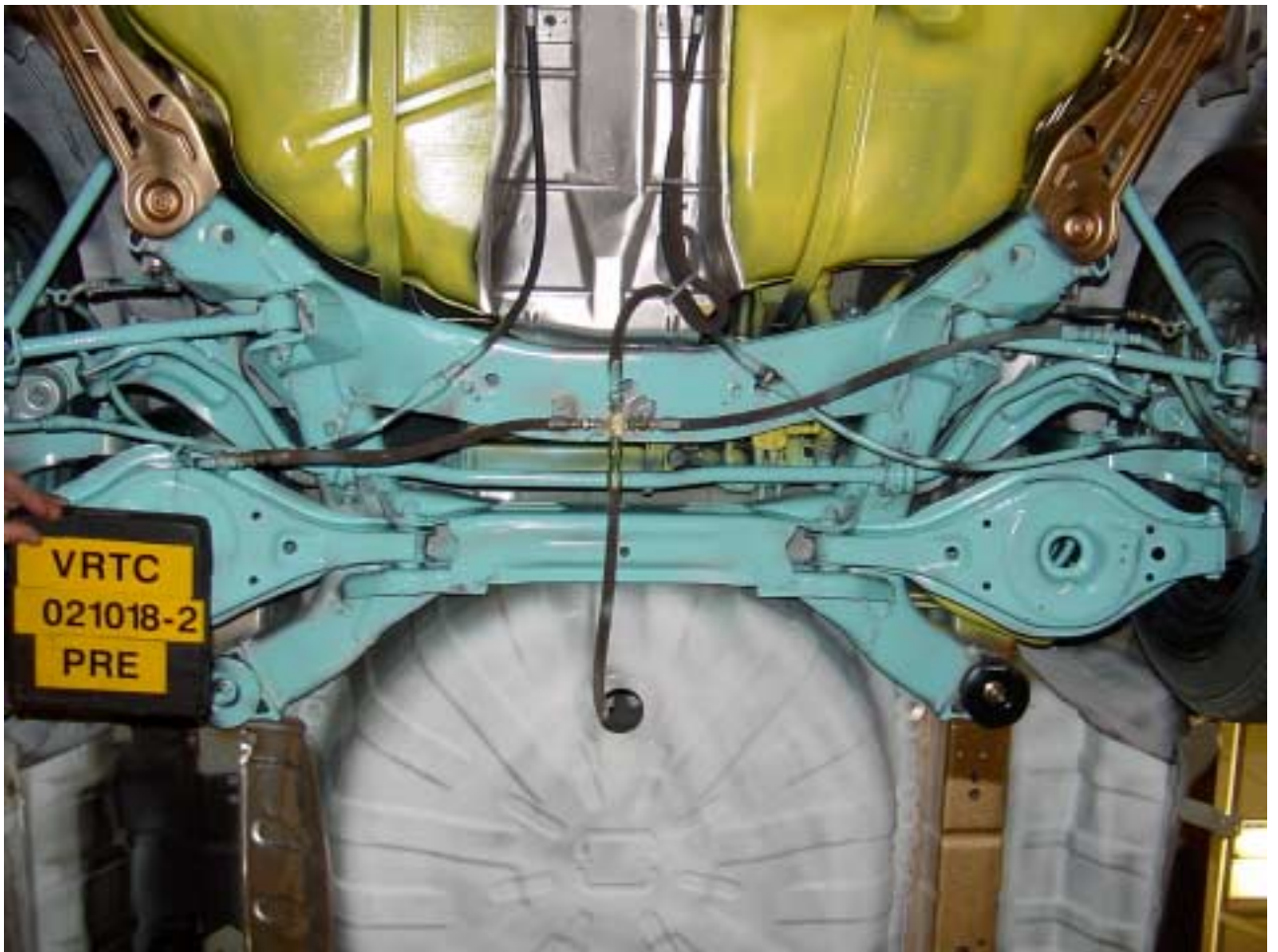


Figure A-25 Pre-Test Rear Mid Underbody View

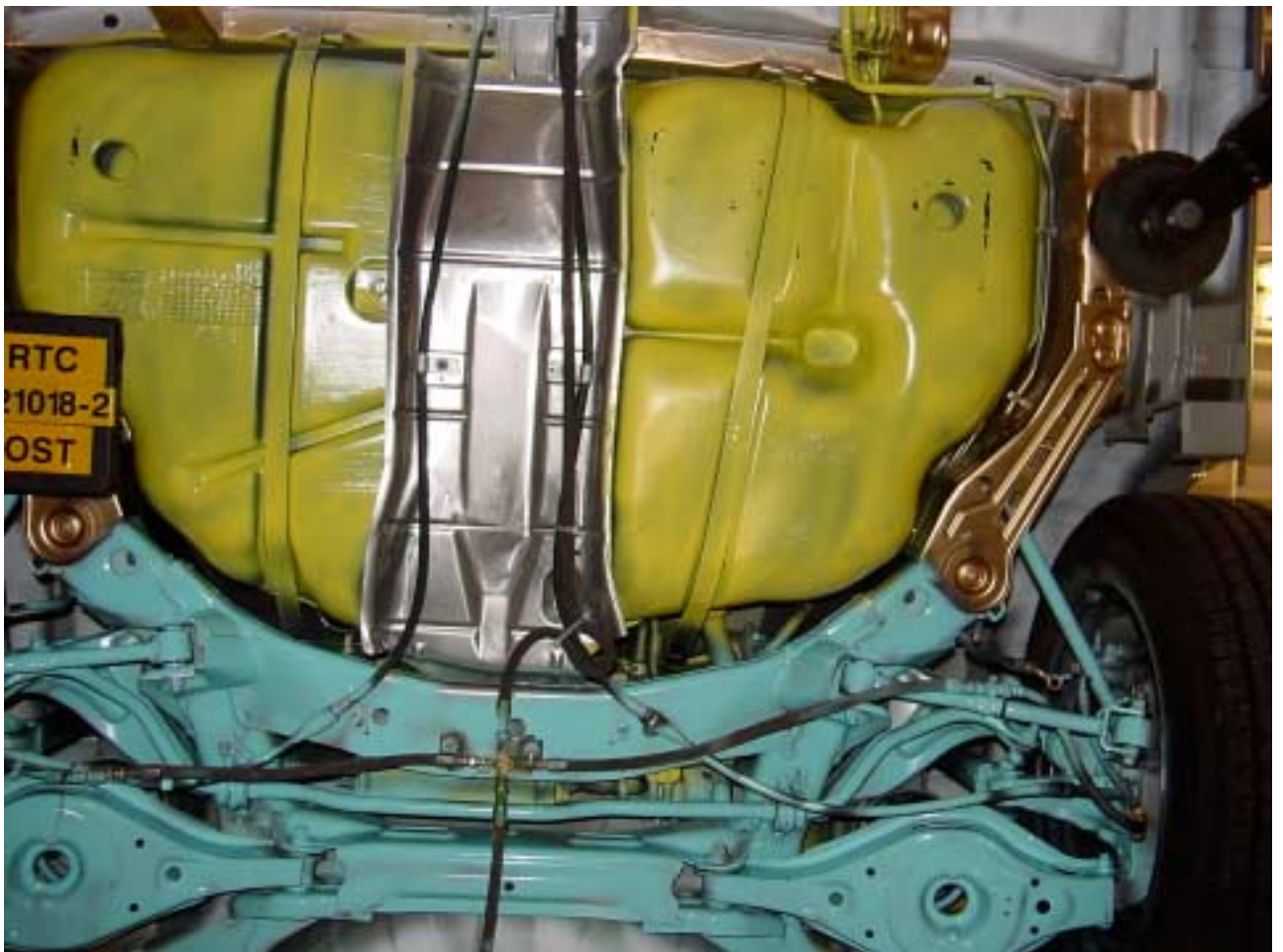


Figure A-26 Post-Test Rear Mid Underbody View

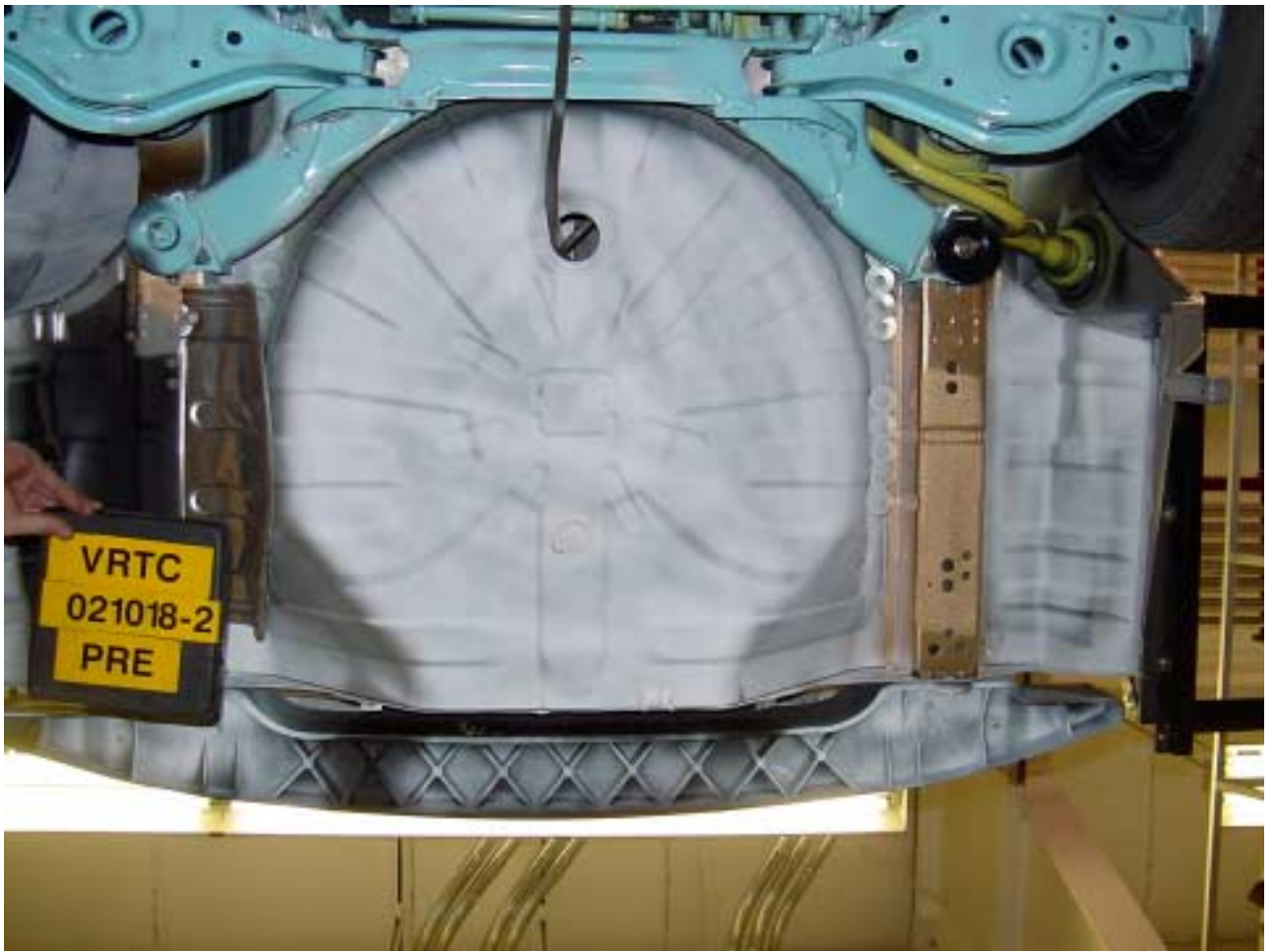


Figure A-27 Pre-Test Rear Underbody View

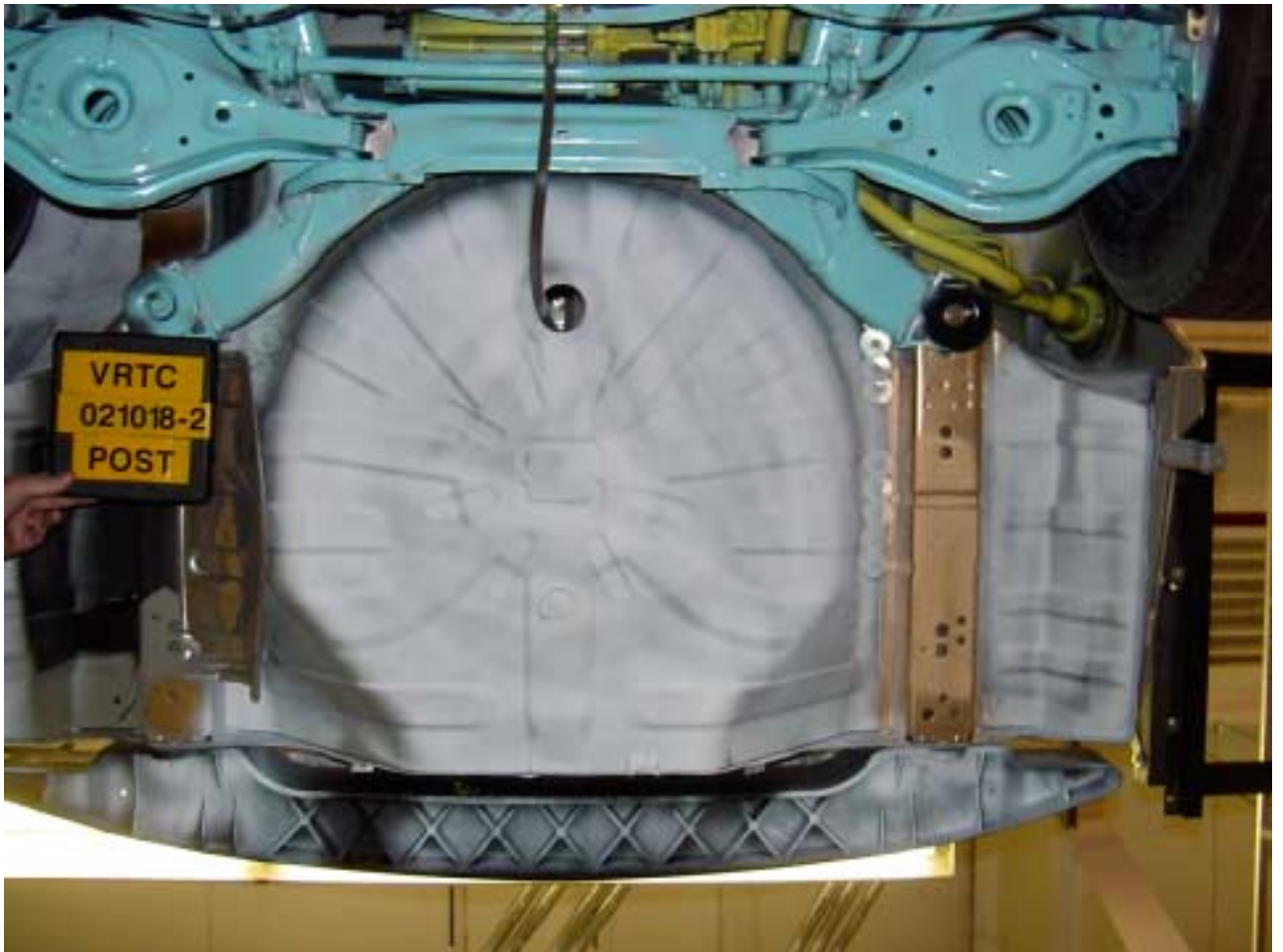


Figure A-28 Post-Test Rear Underbody View



**Figure A-29 Pre-Test Engine Compartment View**

**Intentionally Left Blank**



Figure A-30 Pre-Test Windshield View



Figure A-31 Post-Test Windshield View



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



**Figure A-33 Post-Test Left Side Angled Windshield View**



**Figure A-34 Pre-Test Right Side Angled Windshield View**



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



Figure A-36 Post-Test Windshield Loss of Retention - View 1

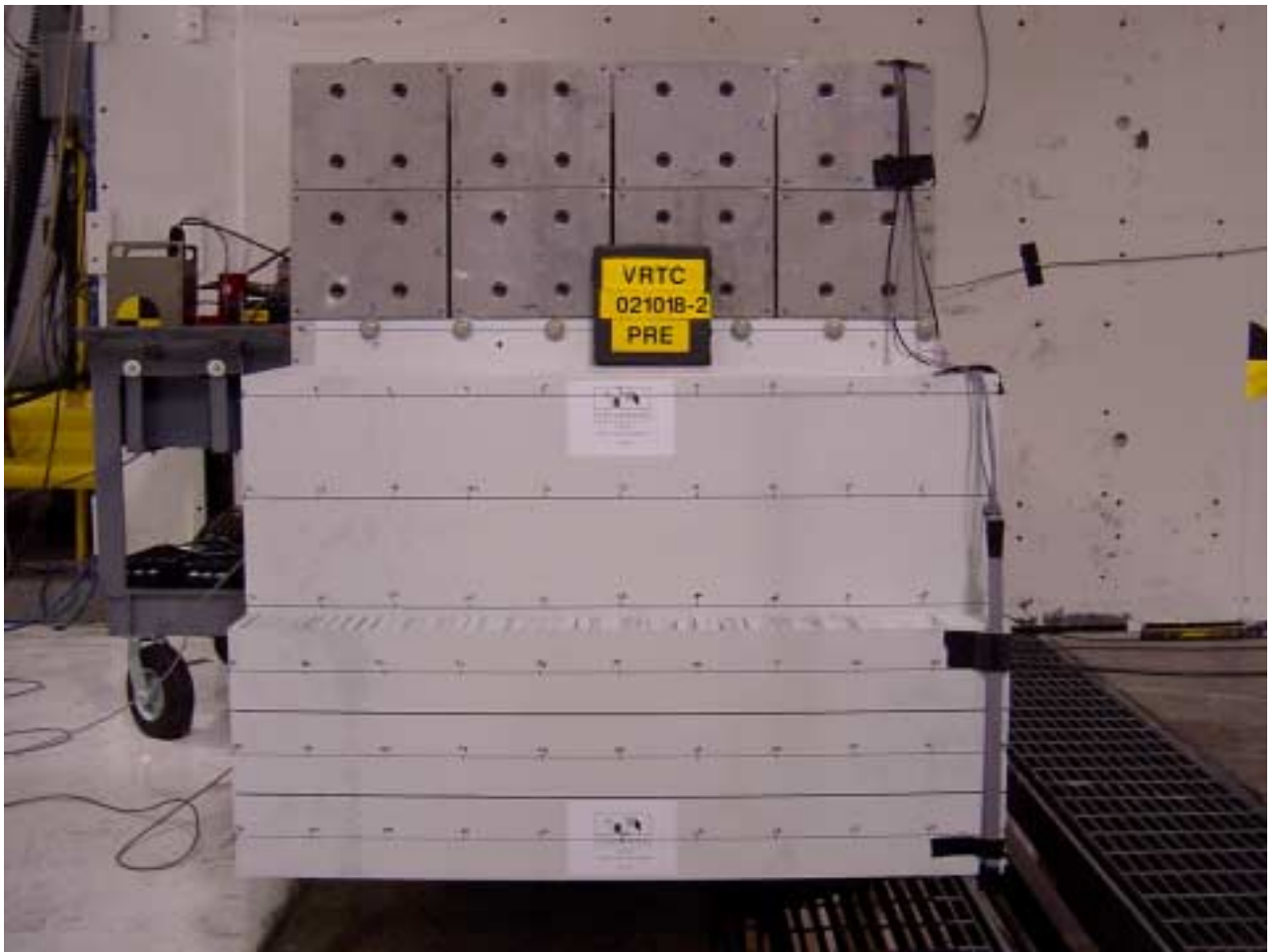


Figure A-37 Post-Test Windshield Loss of Retention - View 2



**Figure A-38 Post-Test Windshield Loss of Retention - View 3**

**Intentionally Left Blank**



**Figure A-39 Pre-Test Front Barrier Face View**



**Figure A-40 Post-Test Front Barrier Face View**



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

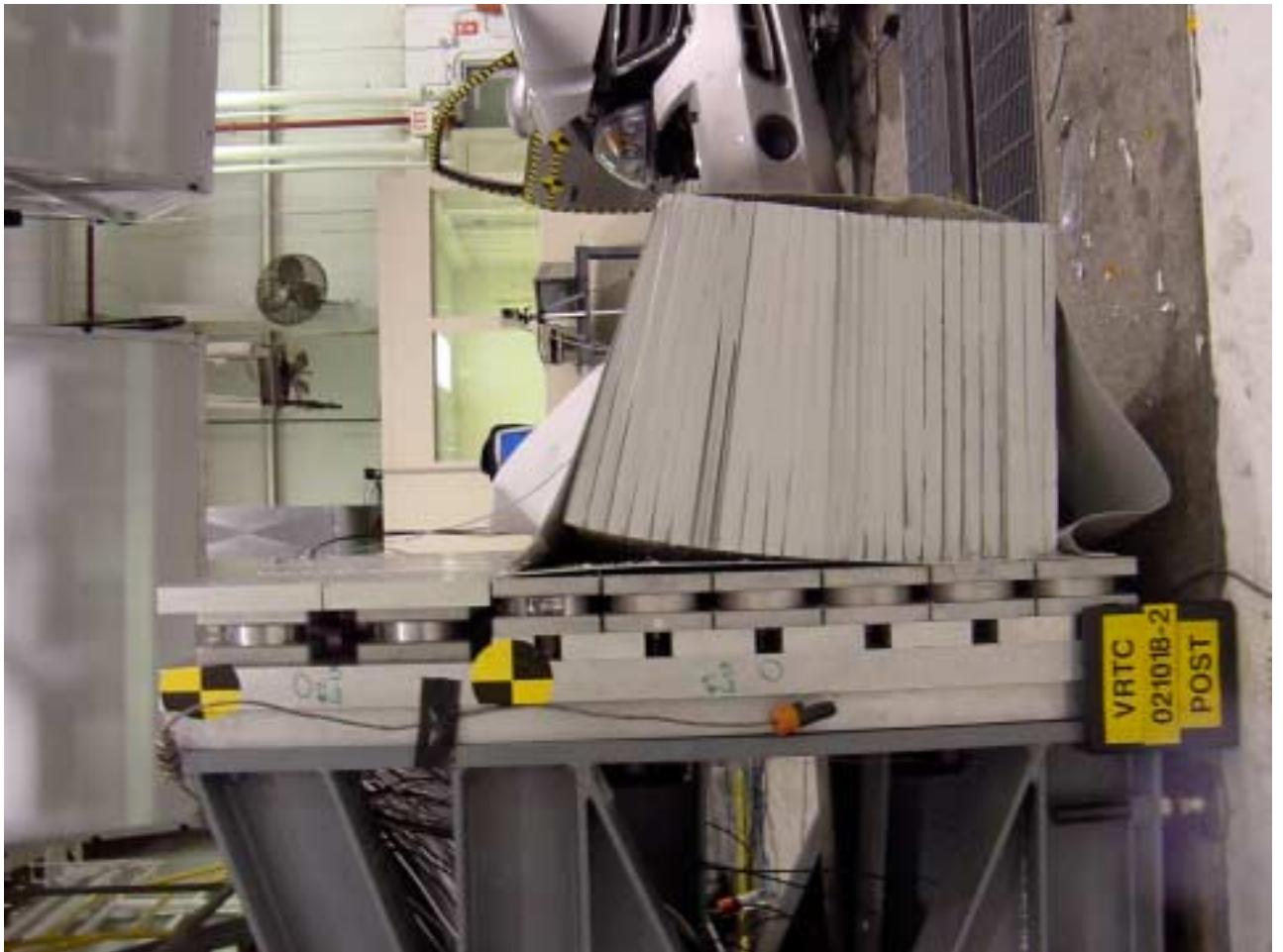


Figure A-42 Post-Test Left Side Barrier Face View



Figure A-43 Pre-Test Right Side Barrier Face View

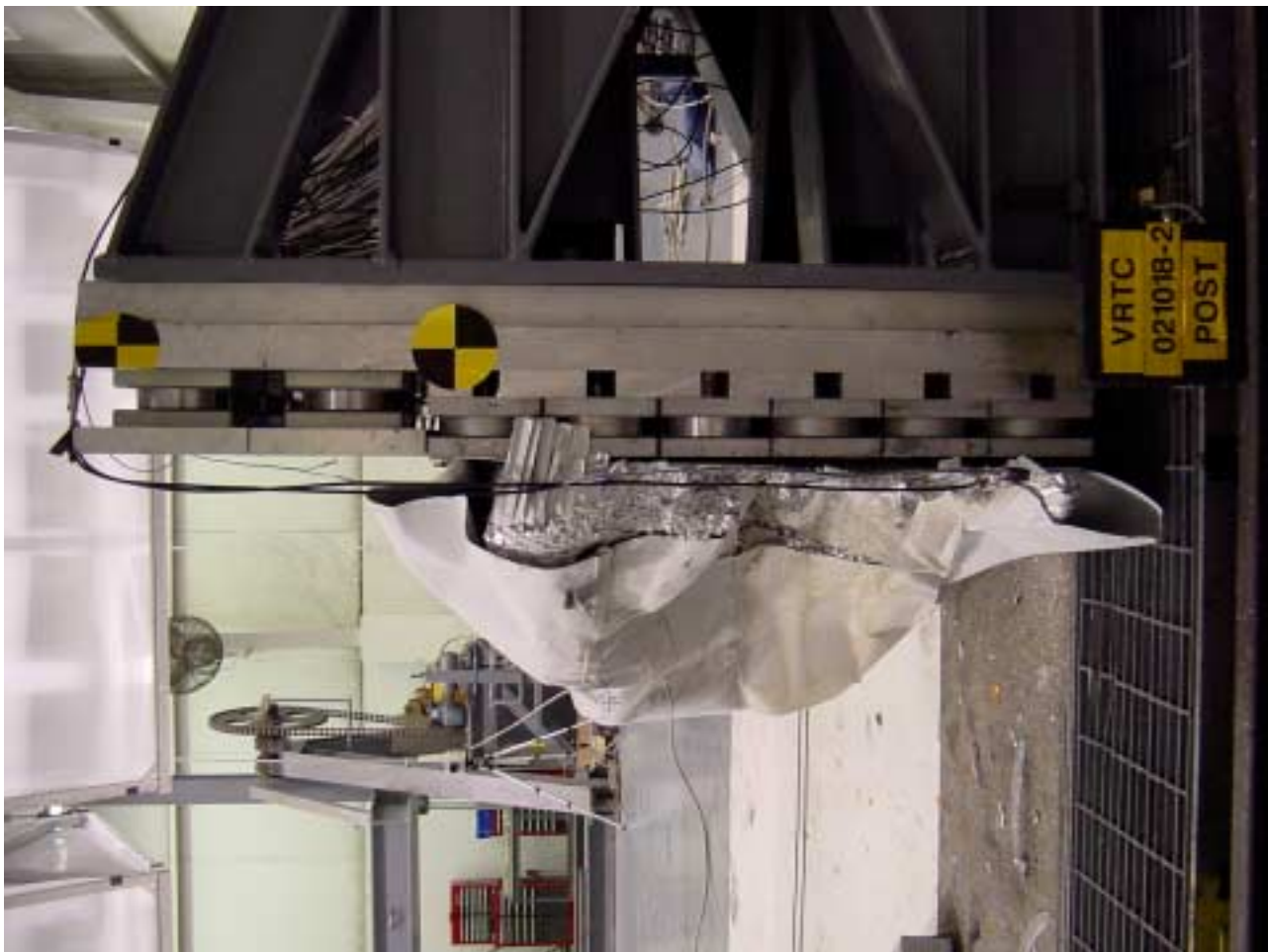


Figure A-44 Post-Test Right Side Barrier Face View



**Figure A-45 Pre-Test Overhead Barrier Face View**



**Figure A-46 Post-Test Overhead Barrier Face View**



Figure A-47 Pre-Test Driver and Passenger Dummies Front View



Figure A-48 Post-Test Driver and Passenger Dummies Front View



Figure A-49 Pre-Test Driver Dummy Position - View 1



Figure A-50 Post-Test Driver Dummy Position - View 1



Figure A-51 Pre-Test Driver Dummy Position - View 2



Figure A-52 Post-Test Driver Dummy Position - View 2



Figure A-53 Pre-Test Driver Dummy & Vehicle Interior - View 1



Figure A-54 Post-Test Driver Dummy & Vehicle Interior - View 1



Figure A-55 Pre-Test Driver Dummy & Vehicle Interior - View 2



Figure A-56 Post-Test Driver Dummy & Vehicle Interior - View 2



Figure A-57 Pre-Test Passenger Dummy Position - View 1



Figure A-58 Post-Test Passenger Dummy Position - View 1



Figure A-59 Pre-Test Passenger Dummy Position - View 2



Figure A-60 Post-Test Passenger Dummy Position - View 2



**Figure A-61 Pre-Test Passenger Dummy & Vehicle Interior - View 1**



**Figure A-62 Post-Test Passenger Dummy & Vehicle Interior - View 1**



Figure A-63 Pre-Test Passenger Dummy & Vehicle Interior - View 2



Figure A-64 Post-Test Passenger Dummy & Vehicle Interior - View 2



Figure A-65 Post-Test Driver Dummy Overall View



Figure A-66 Post-Test Driver Dummy Head Contact - View 1



Figure A-67 Post-Test Driver Dummy Head Contact - View 2



Figure A-68 Post-Test Driver Dummy Head Contact - View 3



Figure A-69 Post-Test Driver Dummy Knee Contact - View 1



Figure A-70 Post-Test Driver Dummy Knee Contact - View 2



**Figure A-71 Post-Test Driver Dummy Foot Position View**



**Figure A-72 Post-Test Driver Toeboard 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



Figure A-79 Post-Test Passenger Dummy Foot Position View



Figure A-80 Post-Test Passenger Floorpan View



**Figure A-81 Post-Test Driver Seat Damage - View 1**



**Figure A-82 Post-Test Driver Seat Damage - View 2**



Figure A-83 Pre-Test Vehicle Certification Label View

## Appendix B

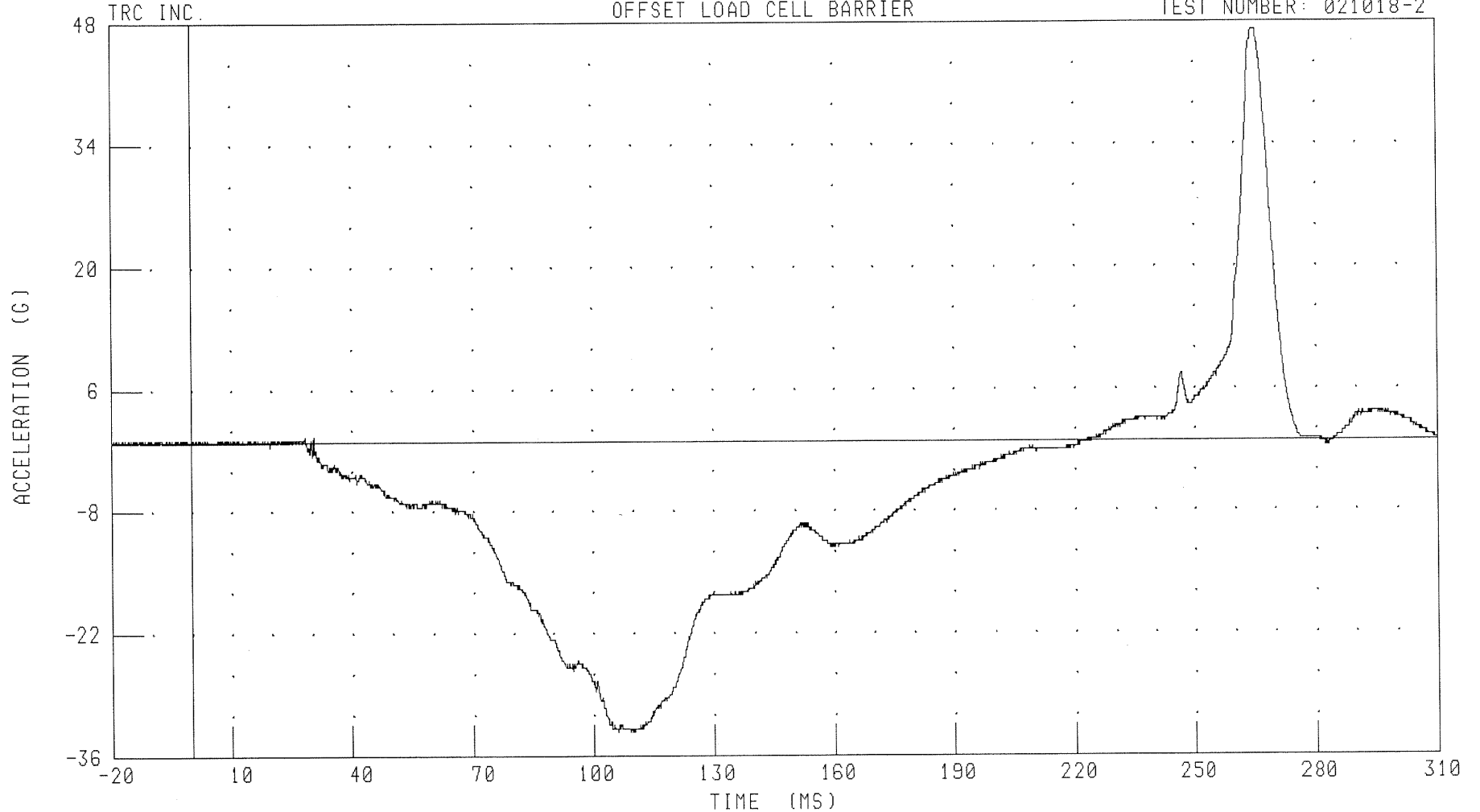
### Data Plots

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: 021018-2



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

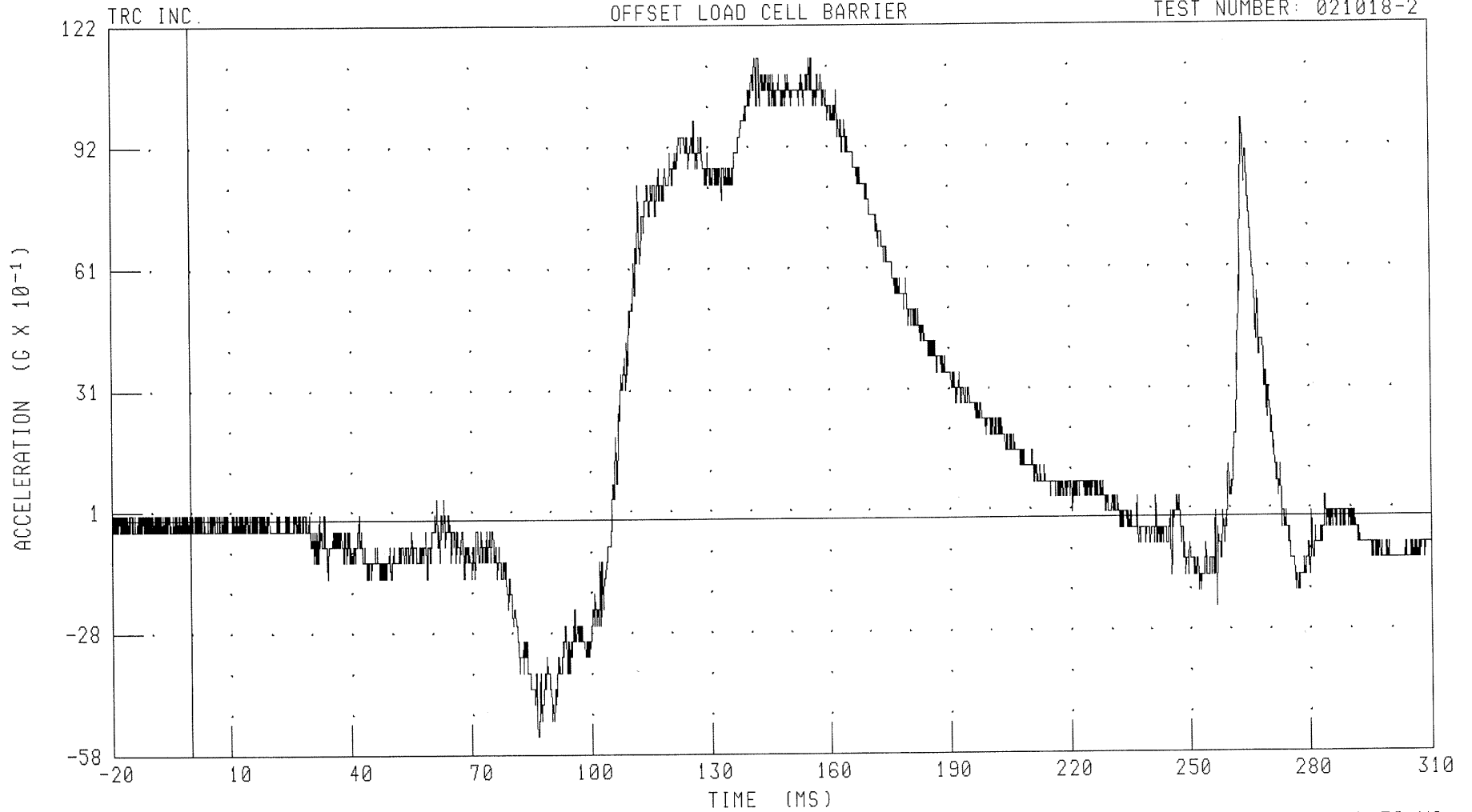
PEAK DATA: 47.10 G @ 264.64 MS; -33.30 G @ 106.16 MS

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: 021018-2



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 11.39 G @ 141.92 MS; -5.34 G @ 86.56 MS

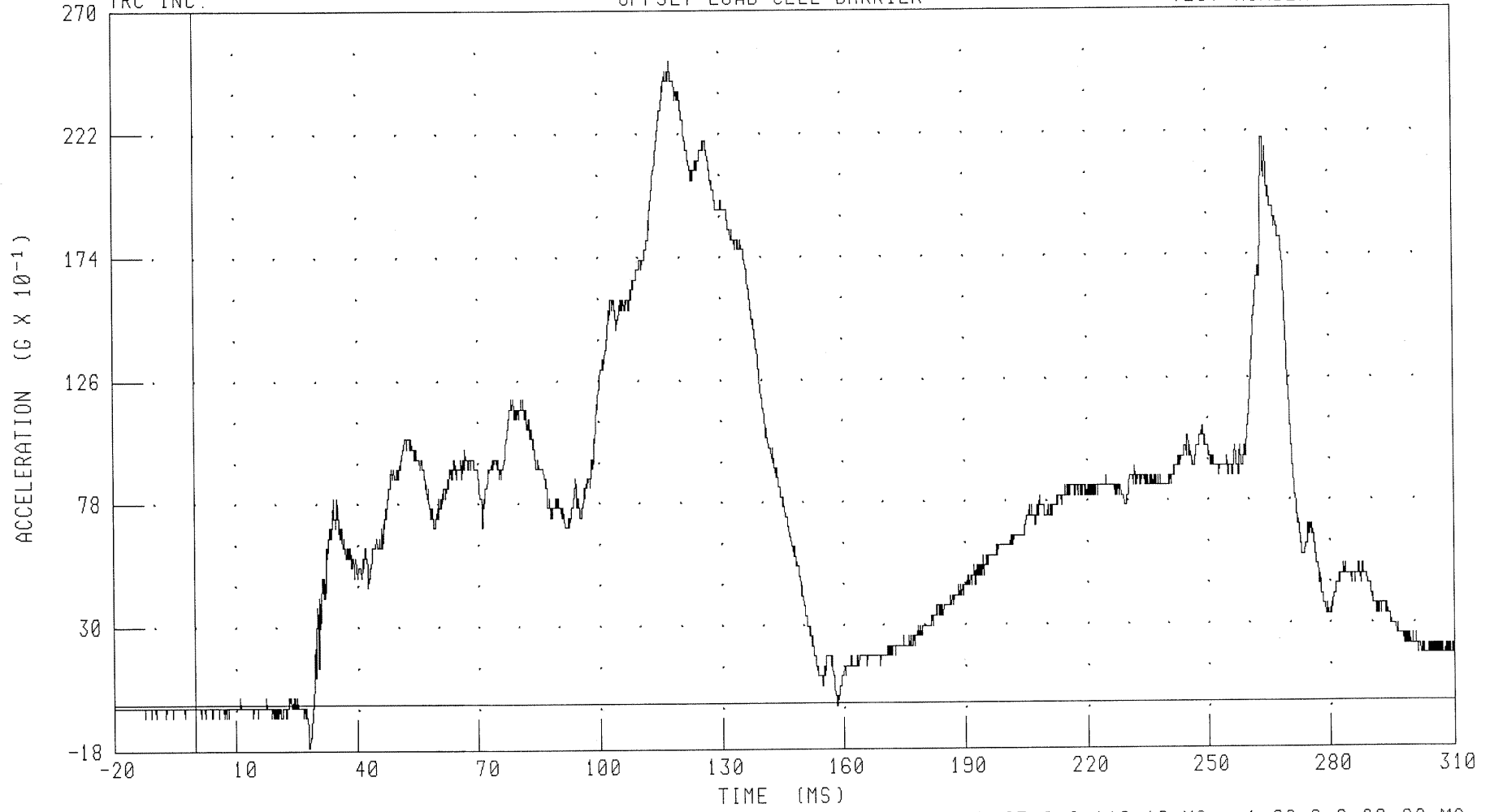
2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2

TRC INC.



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

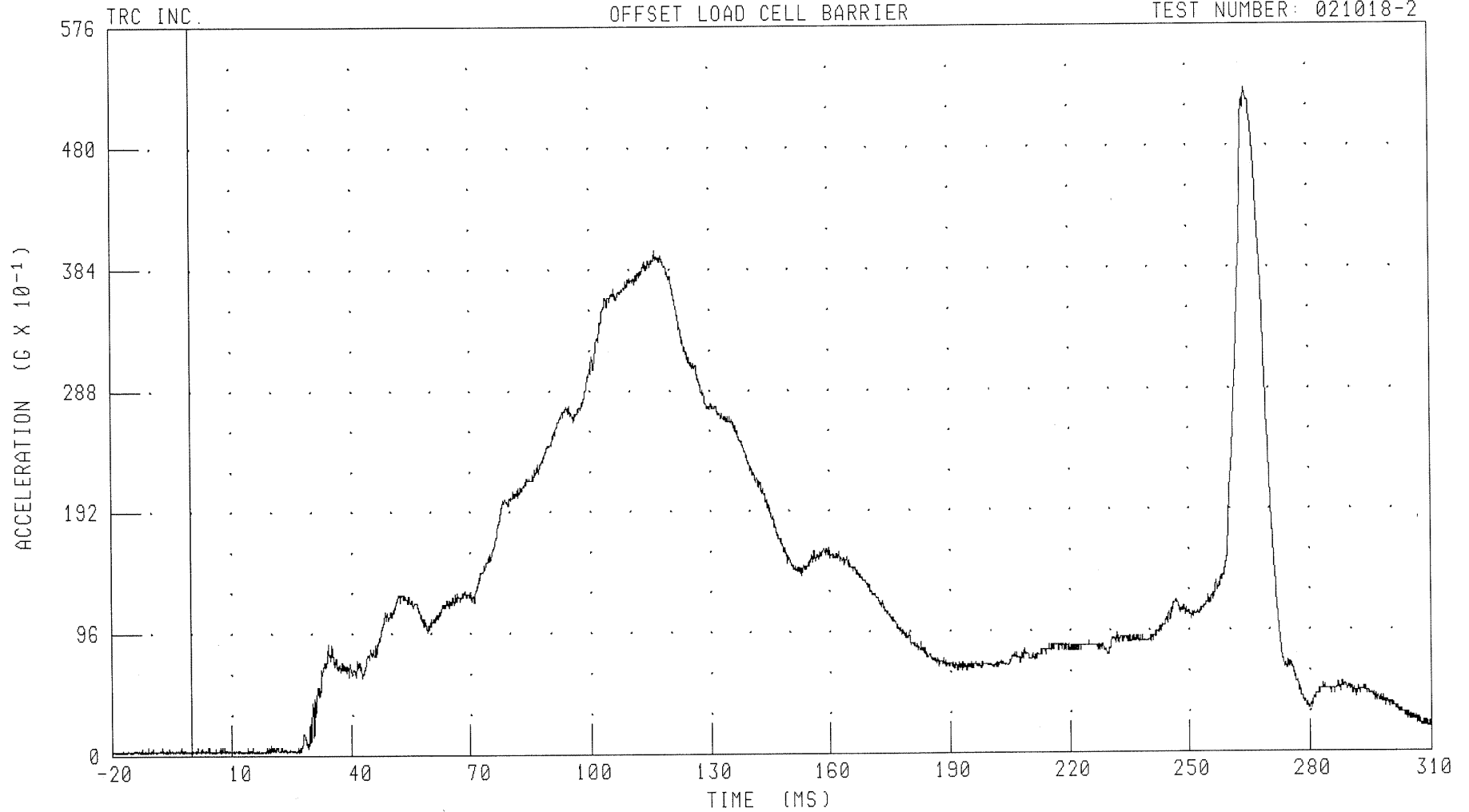
PEAK DATA: 25.05 G @ 118.16 MS; -1.68 G @ 28.08 MS

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

DRIVER HEAD RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



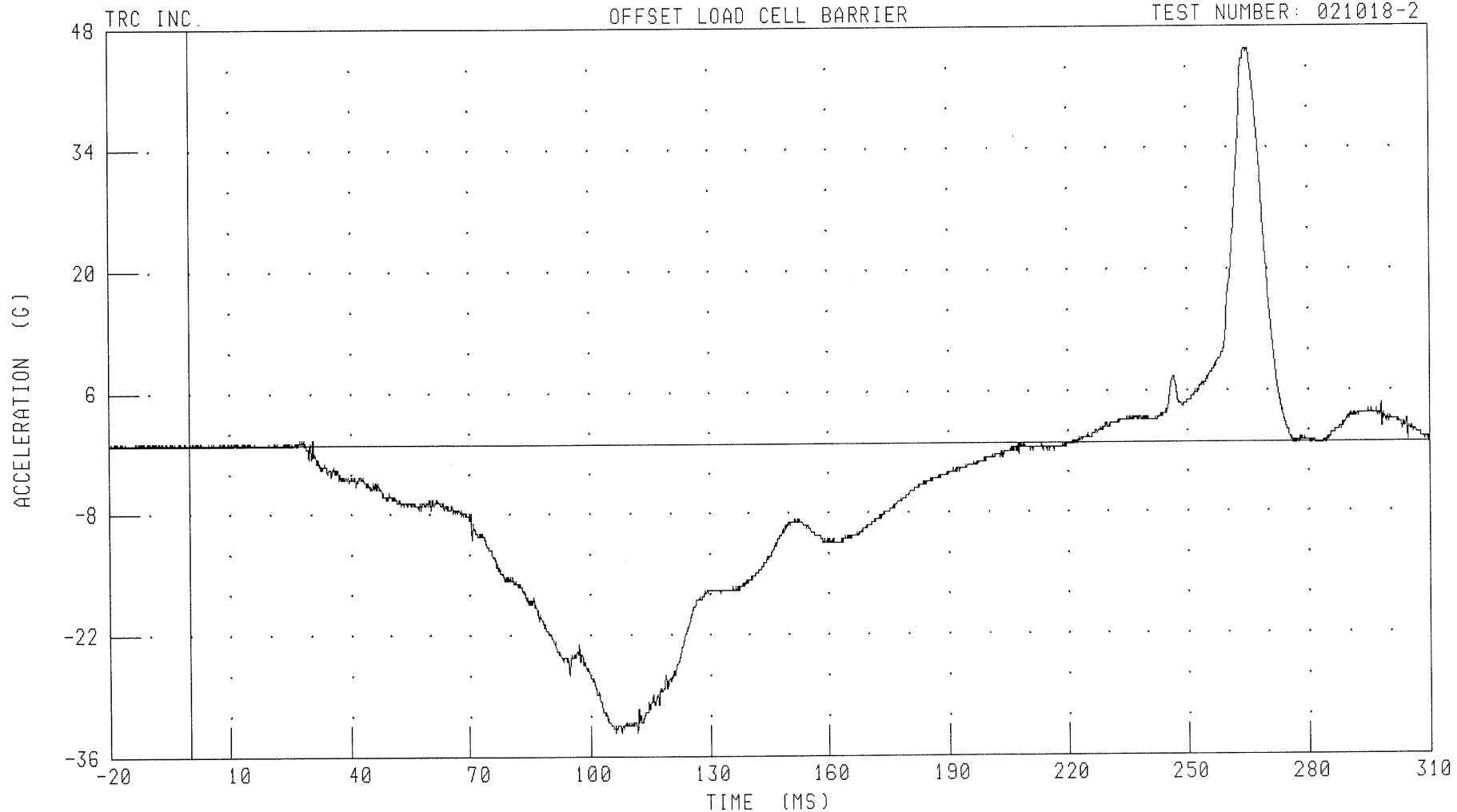
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 52.58 G @ 264.72 MS; 0.21 G @ -19.84 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: 021018-2



CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

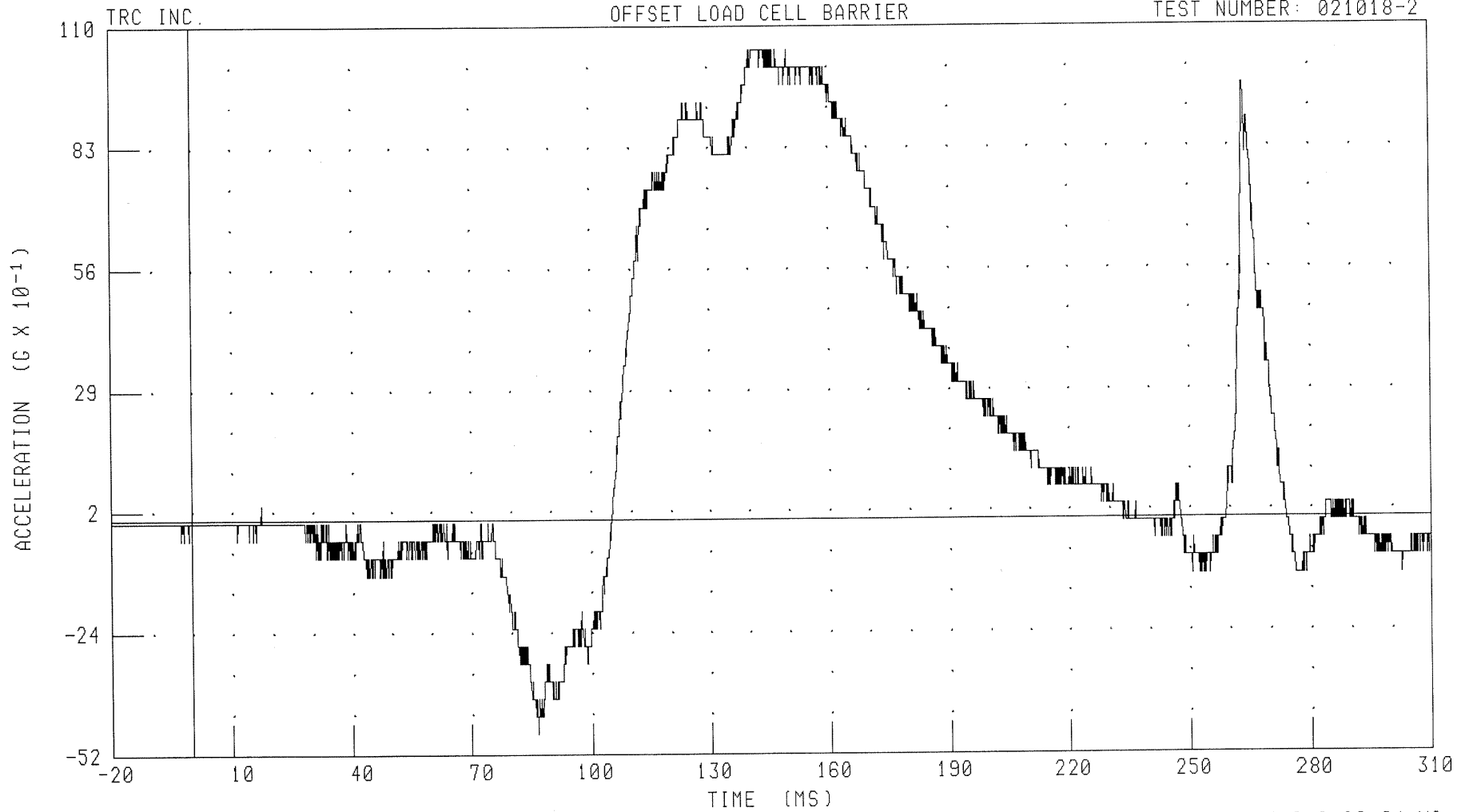
PEAK DATA: 45.46 G @ 264.64 MS; -33.24 G @ 106.32 MS

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: 021018-2



CHANNEL: HEDYR1

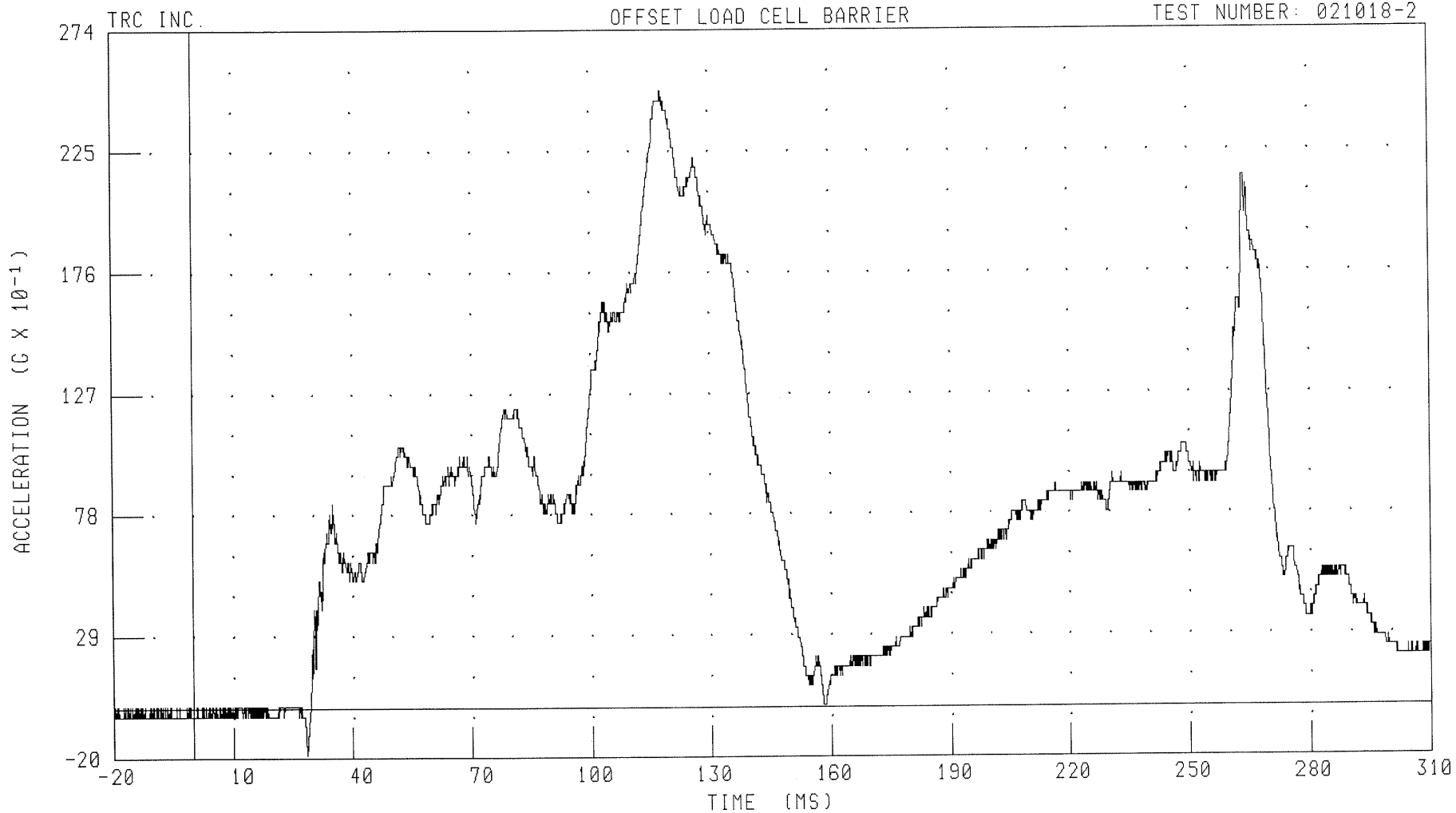
FILTER: CH. CLASS 1000

PEAK DATA: 10.48 G @ 140.64 MS; -4.75 G @ 86.64 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: 021018-2



CHANNEL: HEDZR1

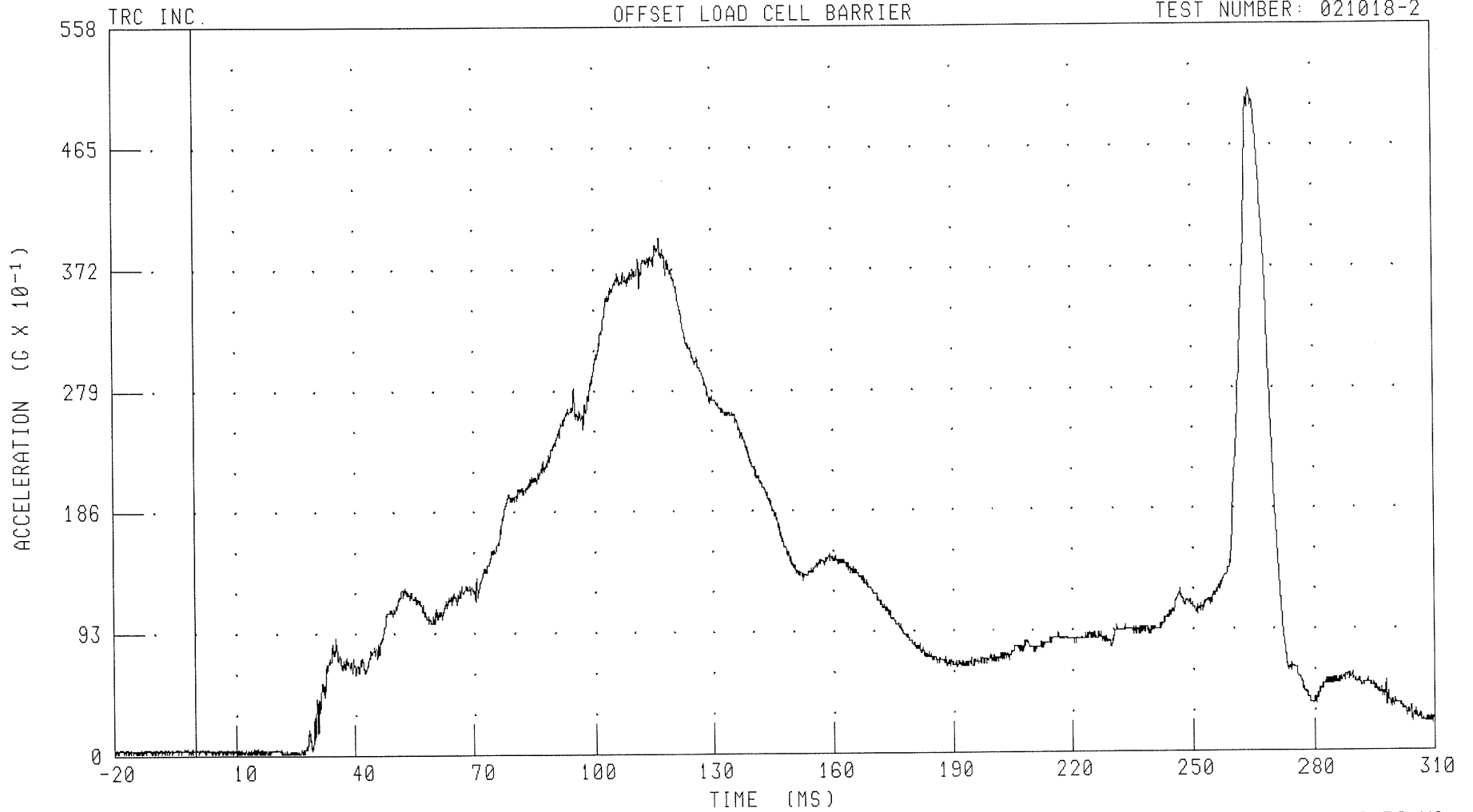
FILTER: CH. CLASS 1000

PEAK DATA: 24.95 G @ 118.00 MS; -1.88 G @ 28.32 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: 021018-2



CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

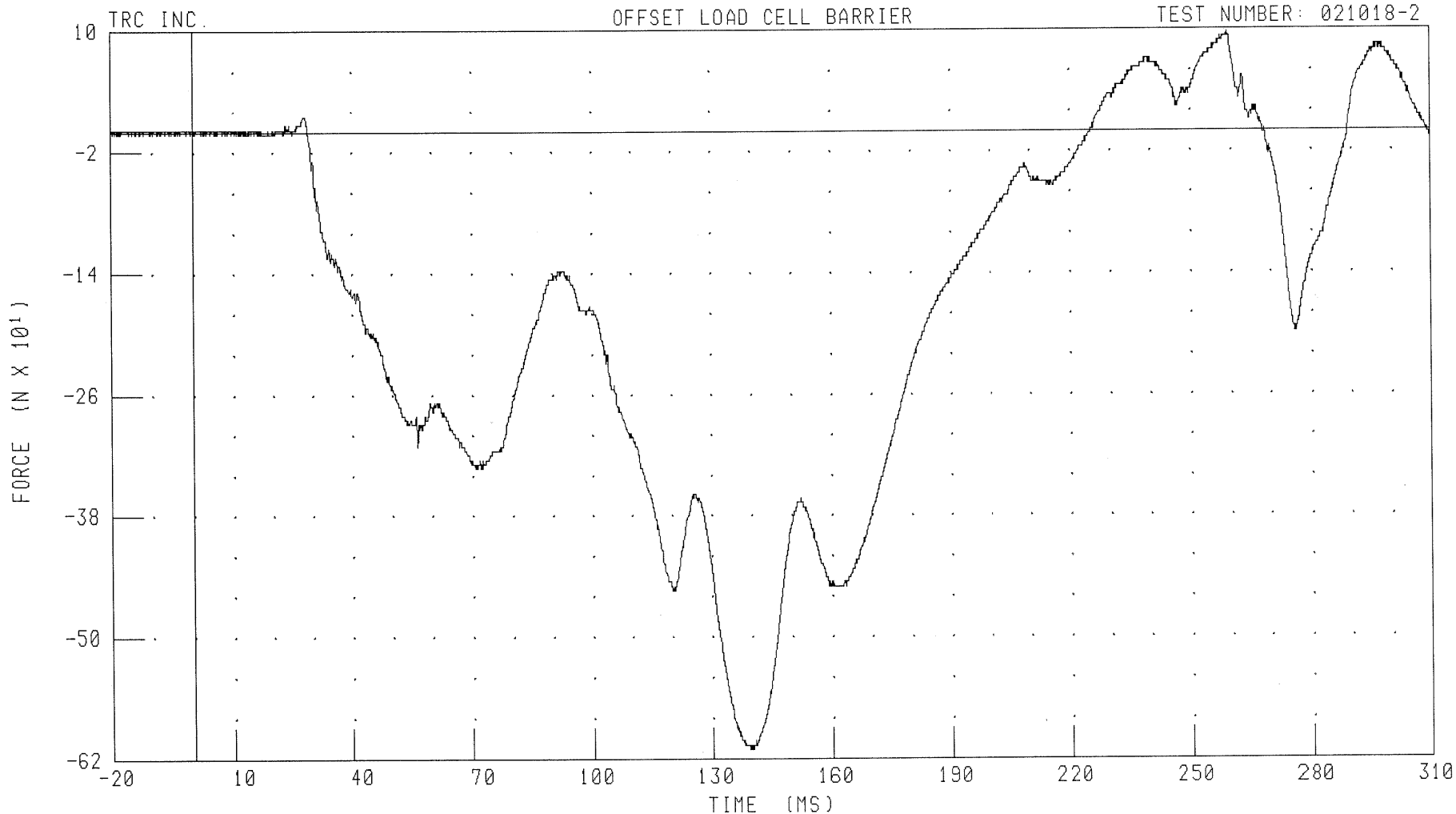
PEAK DATA: 50.89 G @ 264.72 MS; 0.15 G @ -19.76 MS

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: 021018-2



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

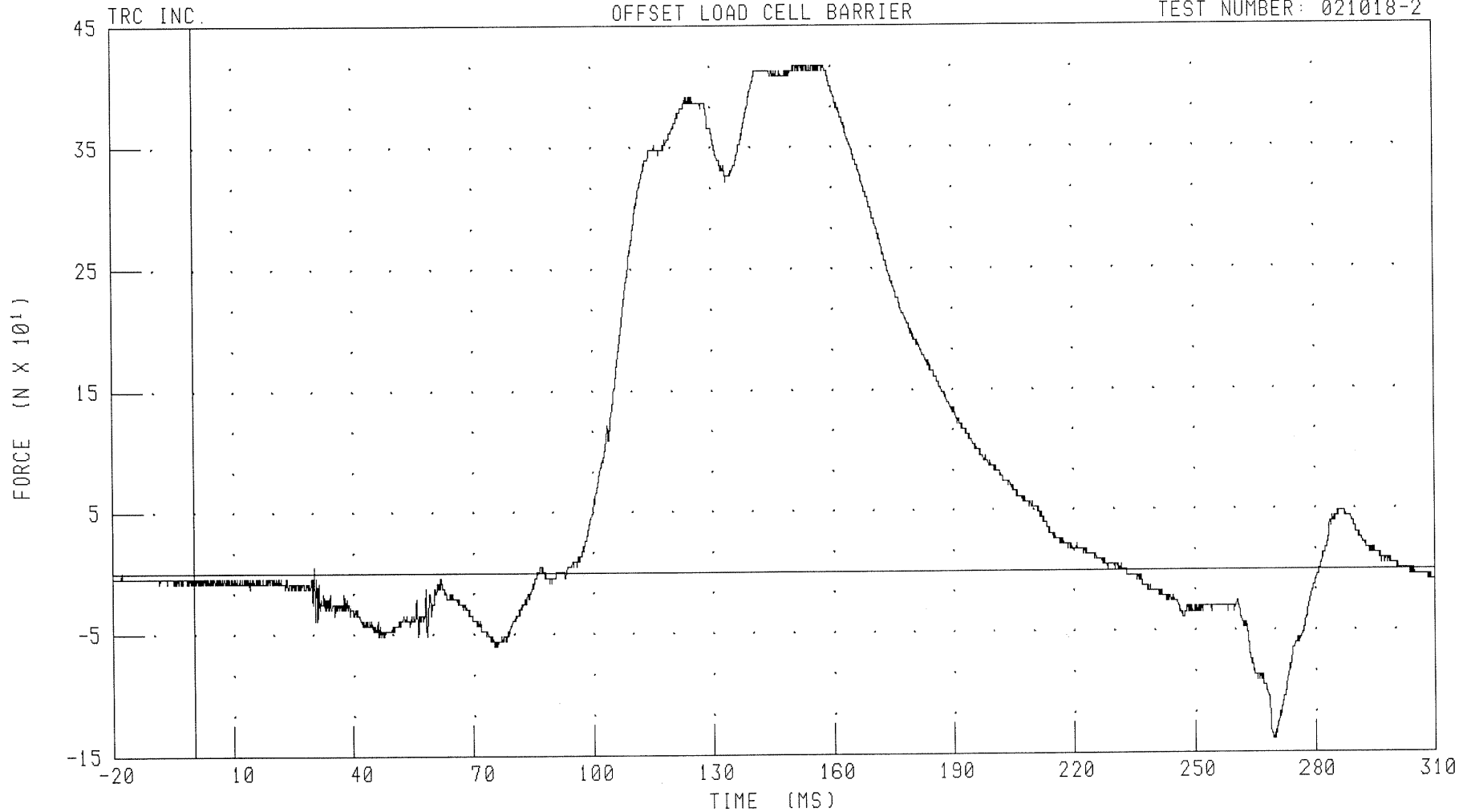
PEAK DATA: 97.53 N @ 259.28 MS; -610.91 N @ 139.28 MS

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: 021018-2



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

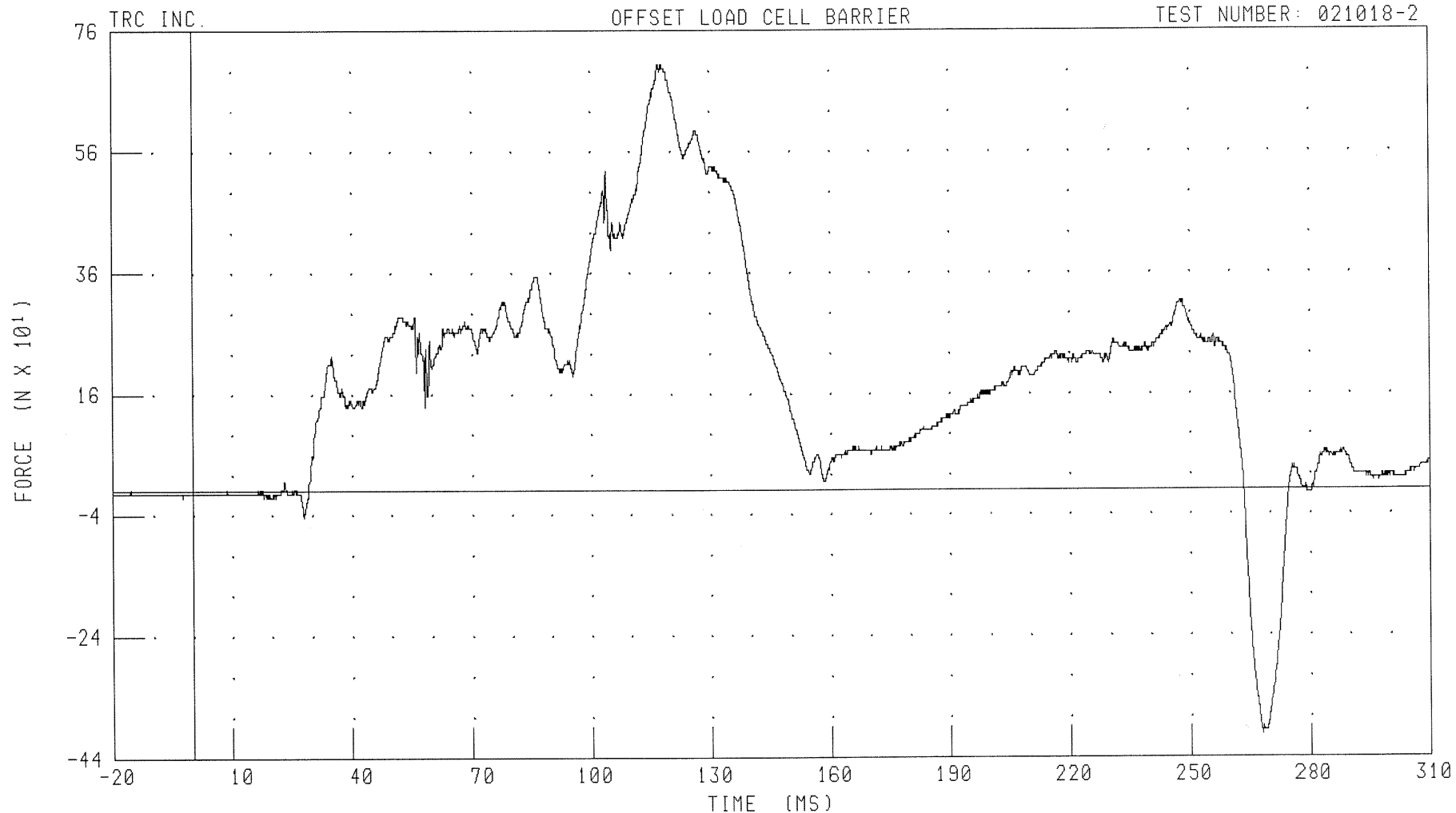
PEAK DATA: 417.45 N @ 150.96 MS; -138.86 N @ 269.60 MS

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: 021018-2



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

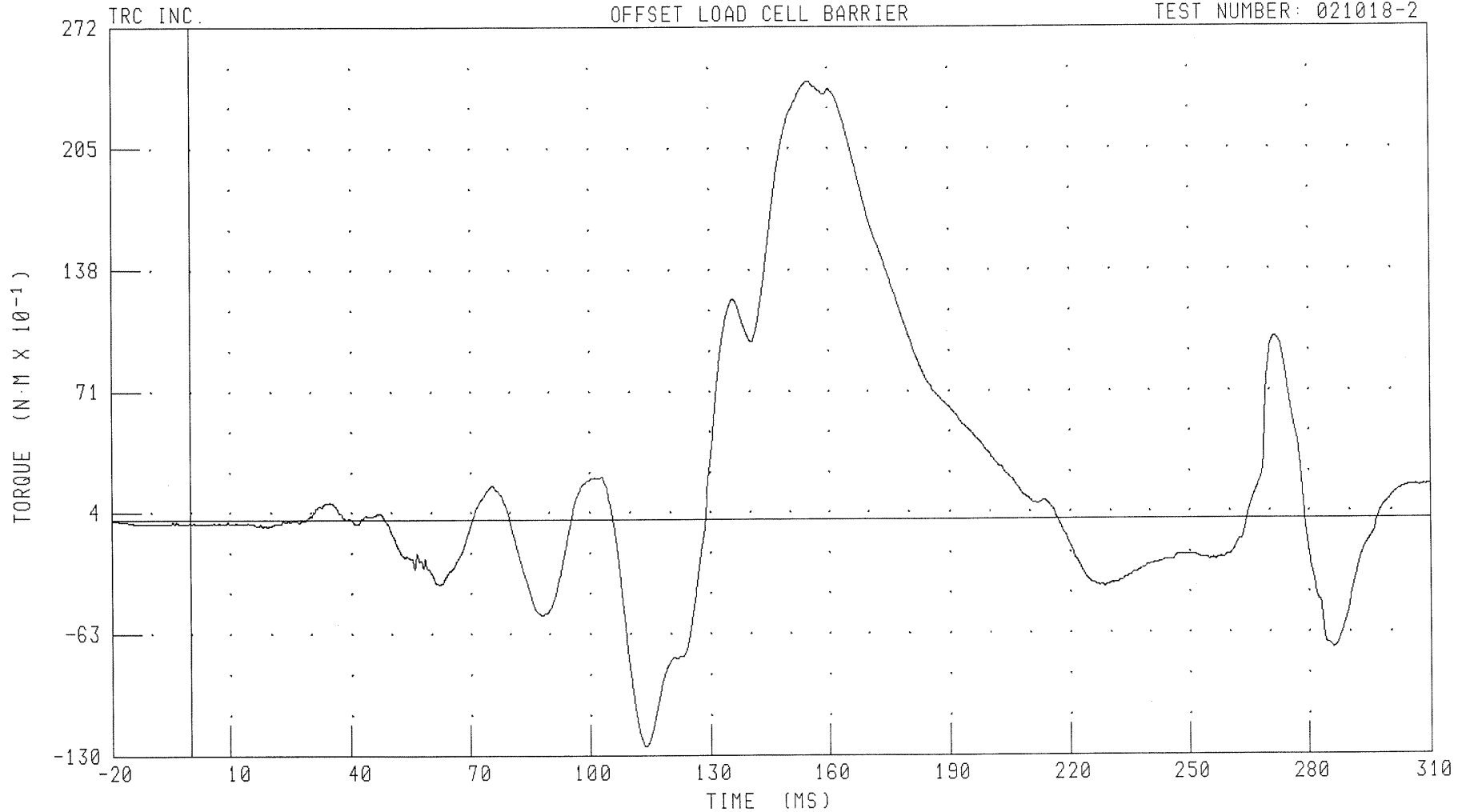
PEAK DATA: 704.94 N @ 117.12 MS; -402.21 N @ 268.00 MS

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: 021018-2



CHANNEL: NEKXM1

FILTER: CH. CLASS 600

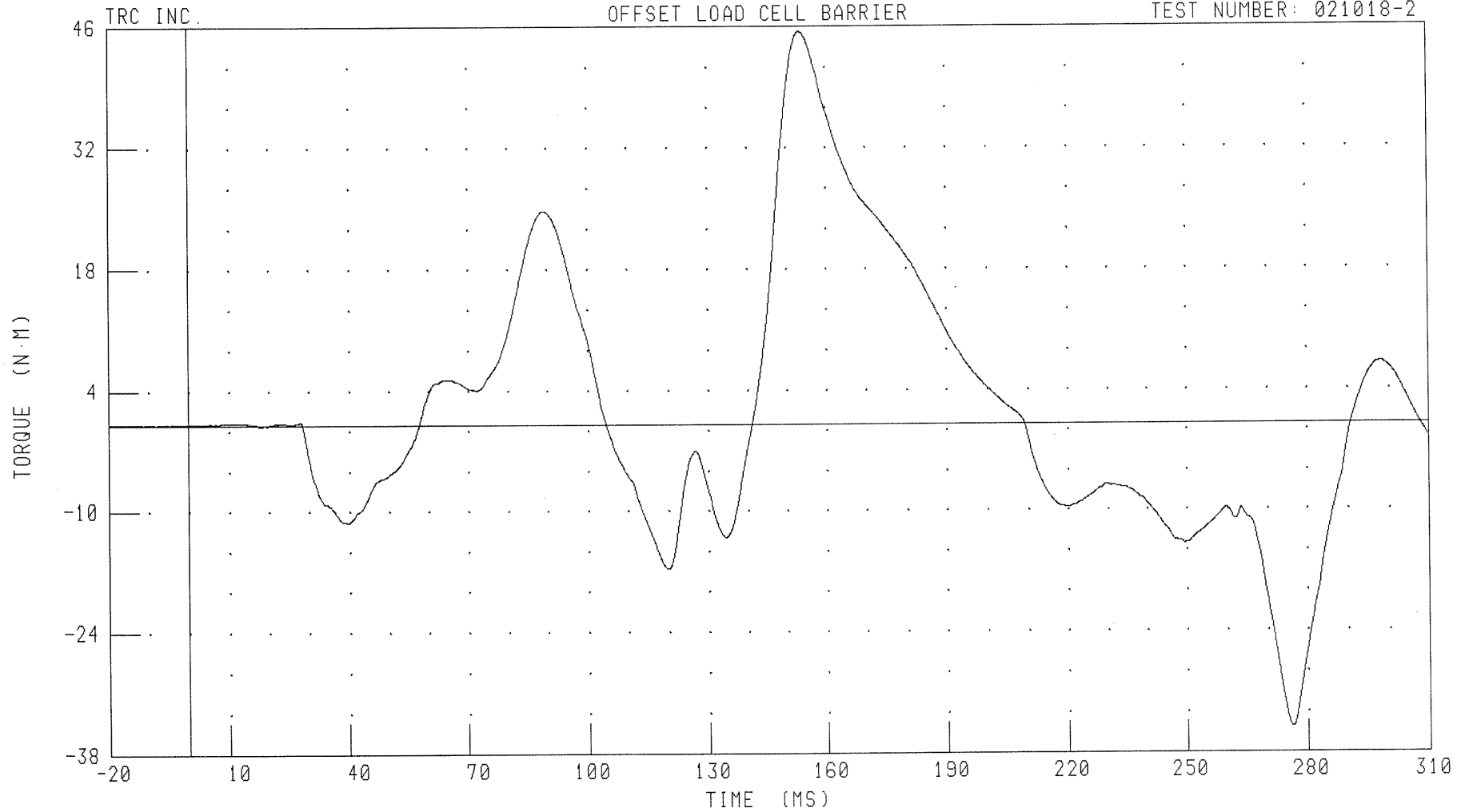
PEAK DATA: 24.22 N·M @ 155.60 MS; -12.52 N·M @ 113.92 MS

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: 021018-2



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

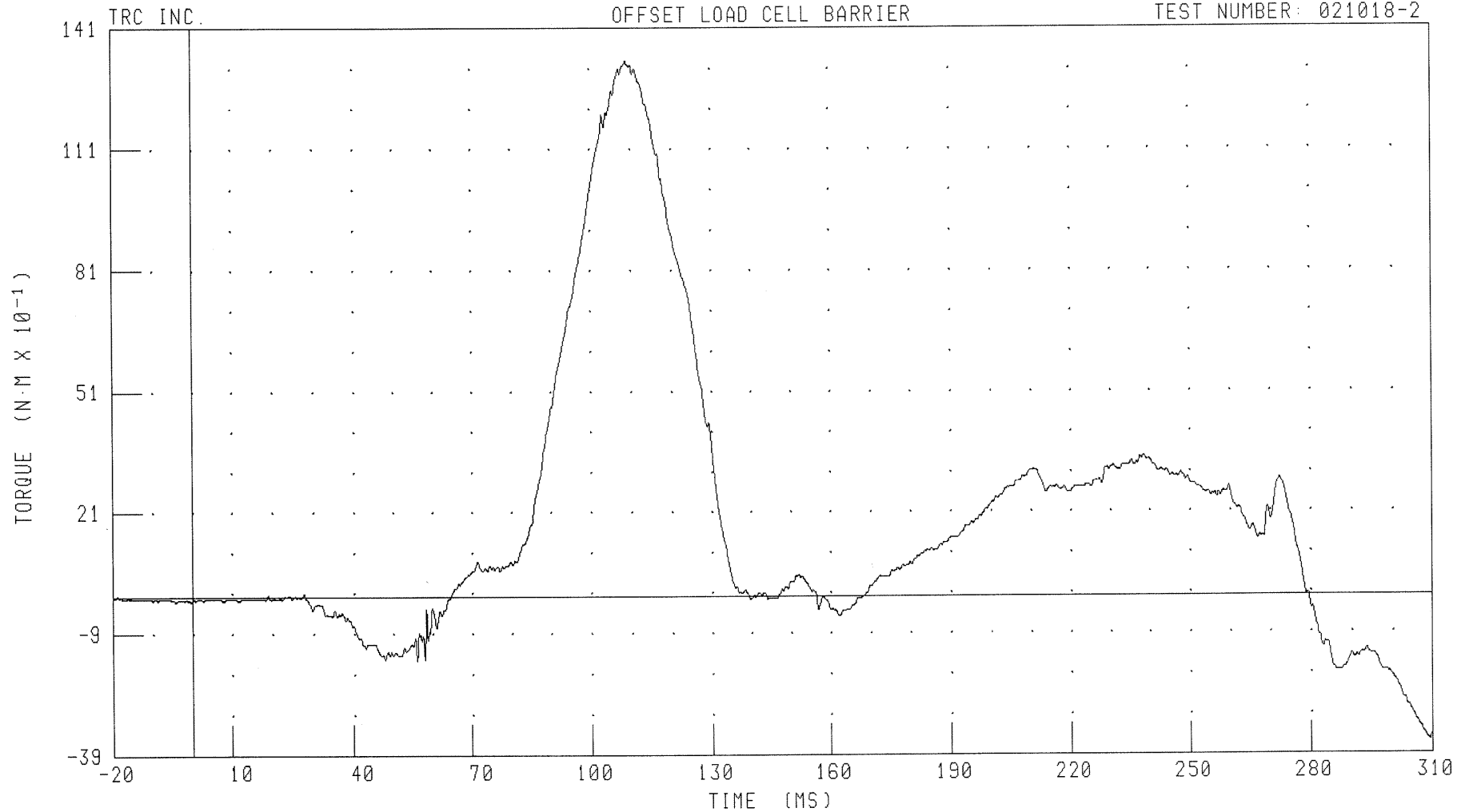
PEAK DATA: 45.40 N·M @ 153.68 MS; -35.10 N·M @ 276.24 MS

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: 021018-2



CHANNEL: NEKZM1 FILTER: CH. CLASS 600

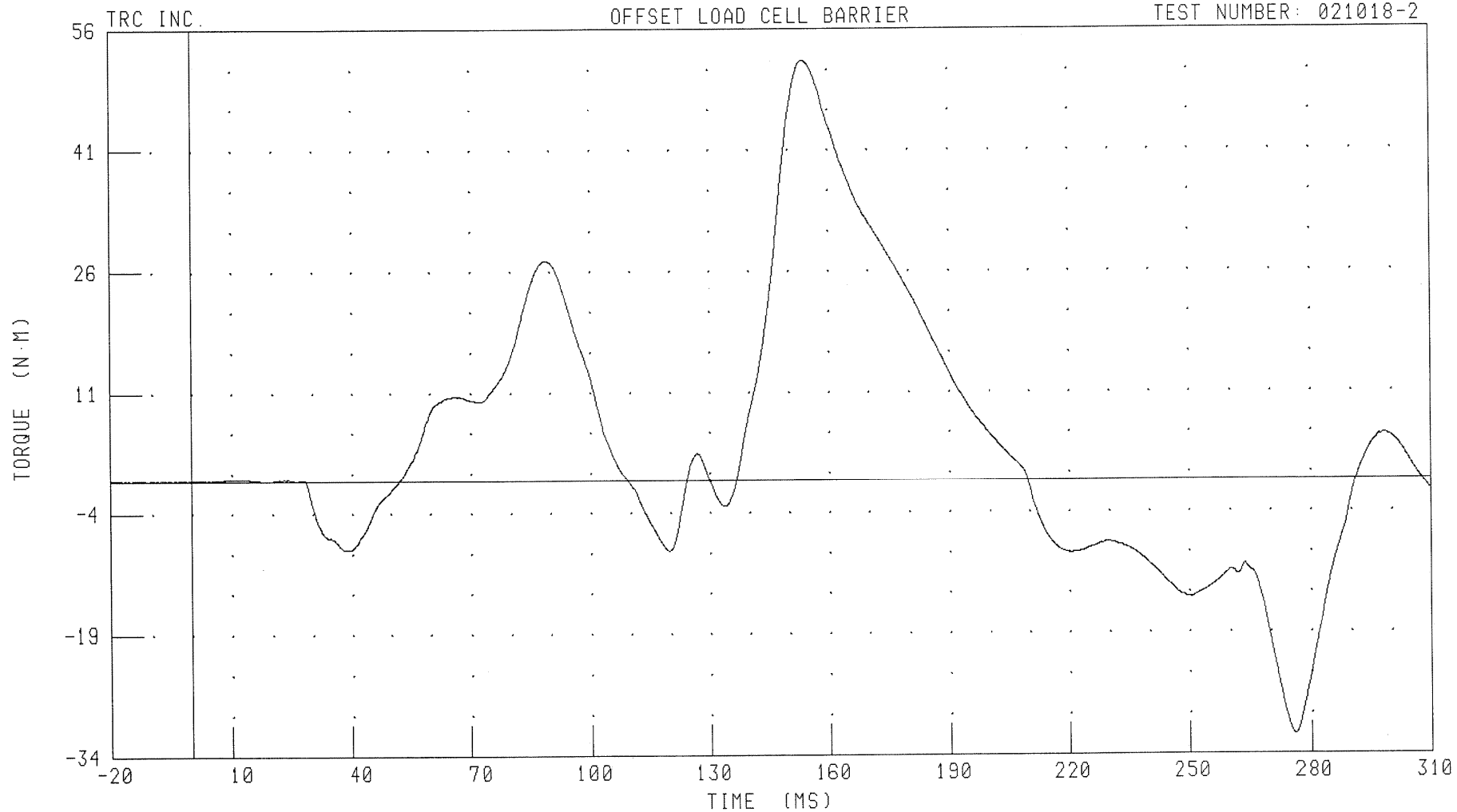
PEAK DATA: 13.29 N·M @ 109.04 MS; -3.58 N·M @ 309.28 MS

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: 021018-2



CHANNEL: NEKOM1 FILTER: CH. CLASS 600

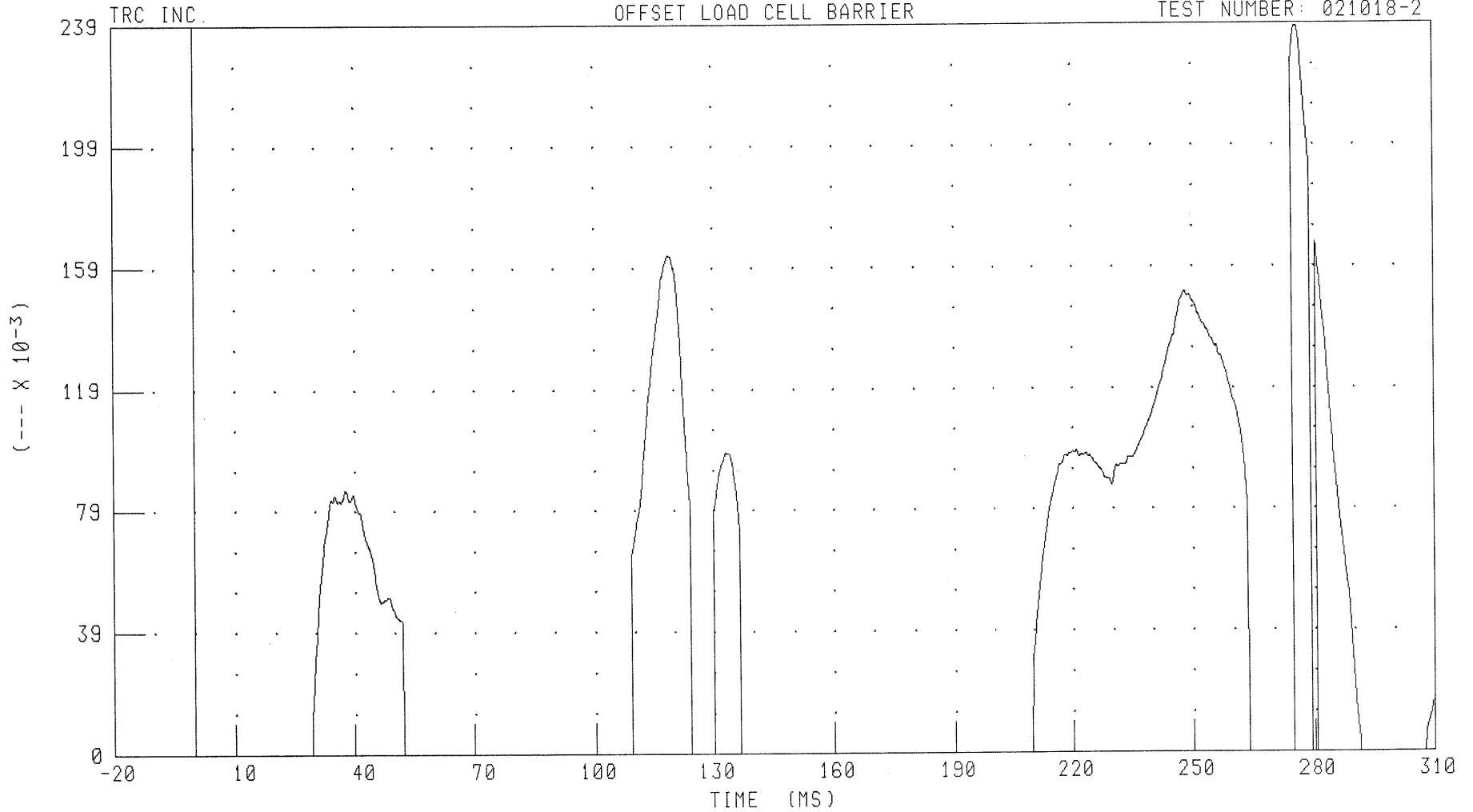
PEAK DATA: 52.11 N·M @ 154.24 MS; -31.59 N·M @ 276.16 MS

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

DRIVER NIJ TENSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NTE1

FILTER: CH. CLASS 600

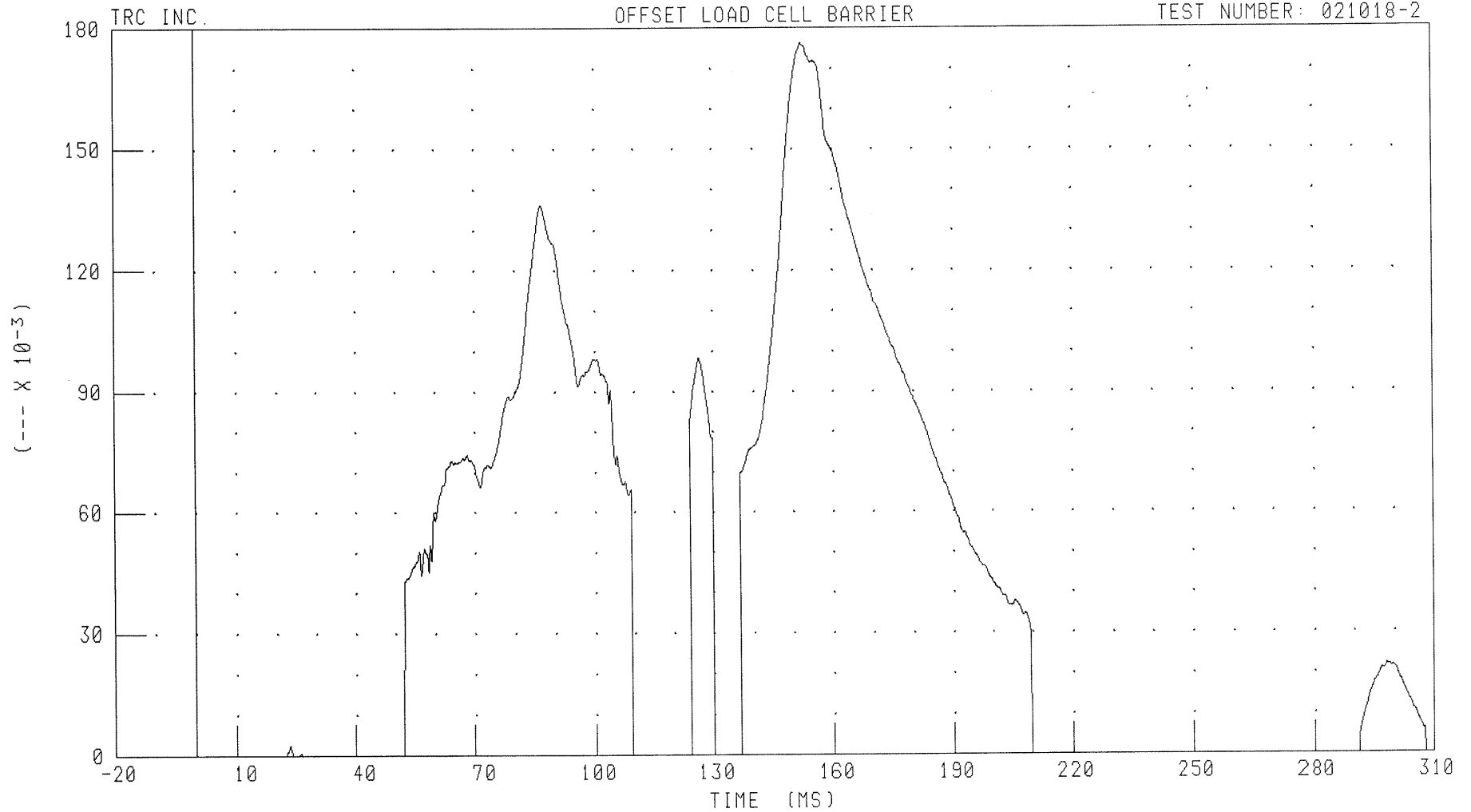
PEAK DATA: 0.24 --- @ 276.08 MS; 0.00 --- @ -20.00 MS

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

DRIVER NIJ TENSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NTF1

FILTER: CH. CLASS 600

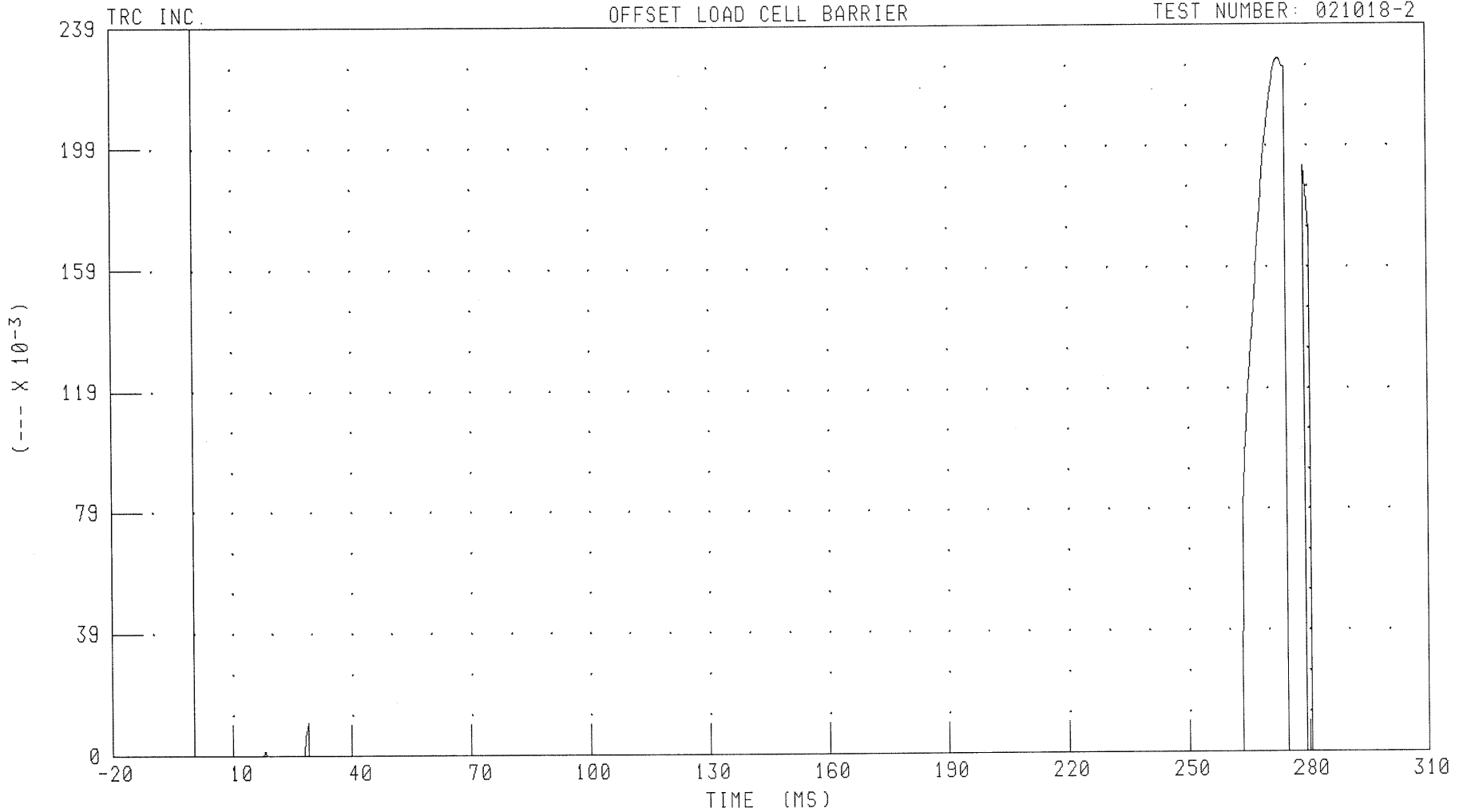
PEAK DATA: 0.18 --- @ 152.56 MS; 0.00 --- @ -20.00 MS

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

DRIVER NIJ COMPRESSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NCE1

FILTER: CH. CLASS 600

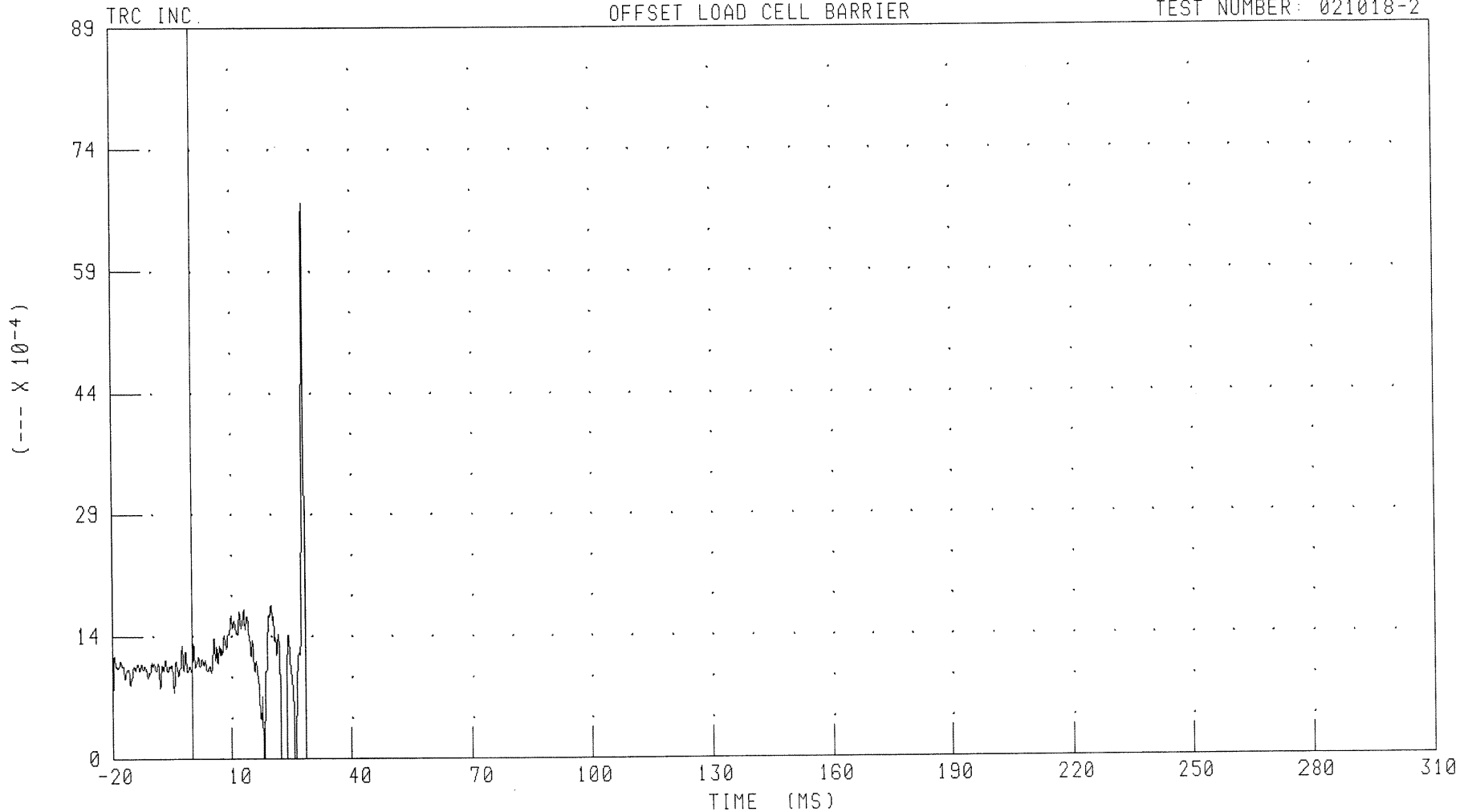
PEAK DATA: 0.23 --- @ 273.20 MS; 0.00 --- @ -20.00 MS

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

DRIVER NIJ COMPRESSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NCF1

FILTER: CH. CLASS 600

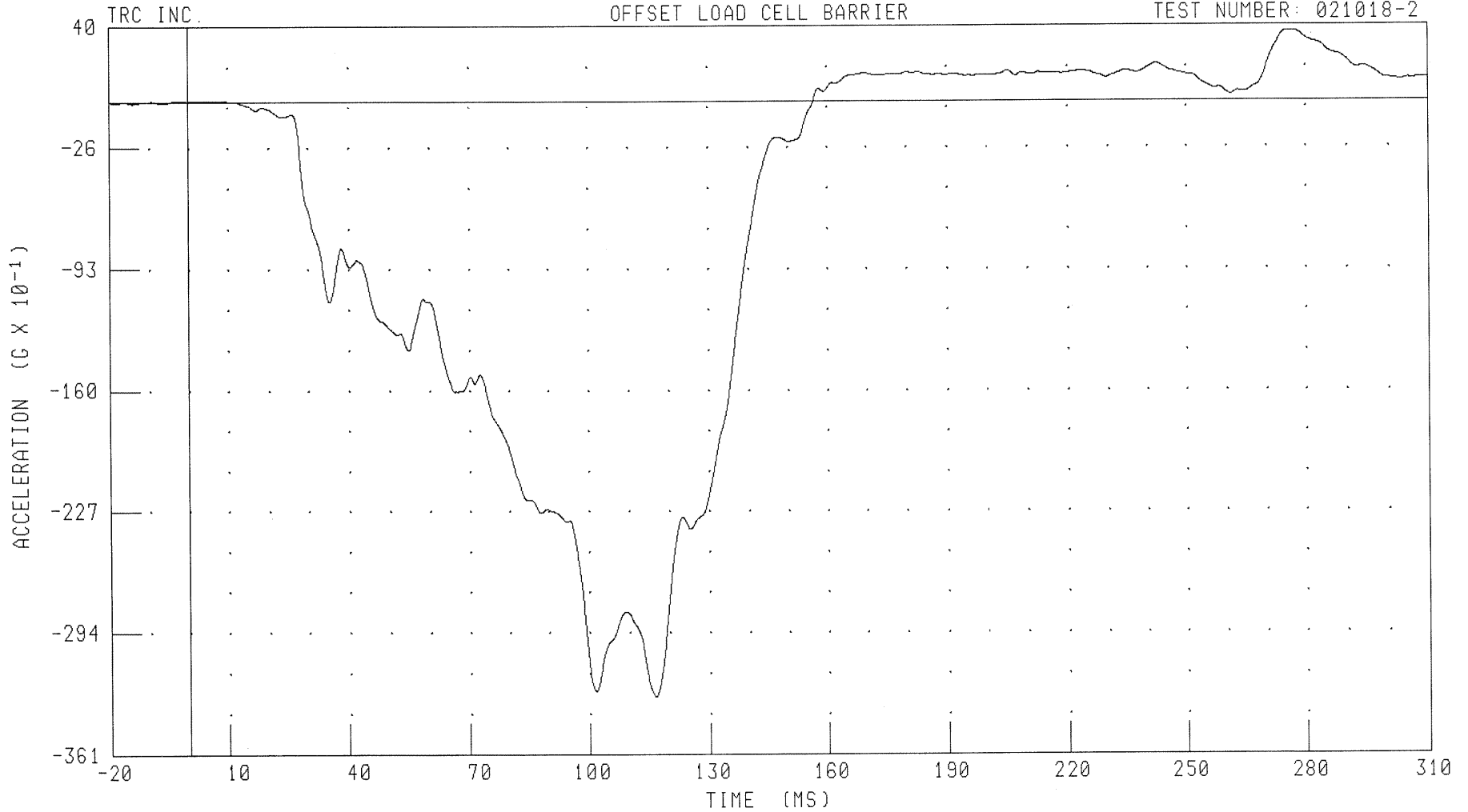
PEAK DATA: 0.01 --- @ 28.16 MS; 0.00 --- @ 18.00 MS

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: 021018-2



CHANNEL: CSTXC1 FILTER: CH. CLASS 100

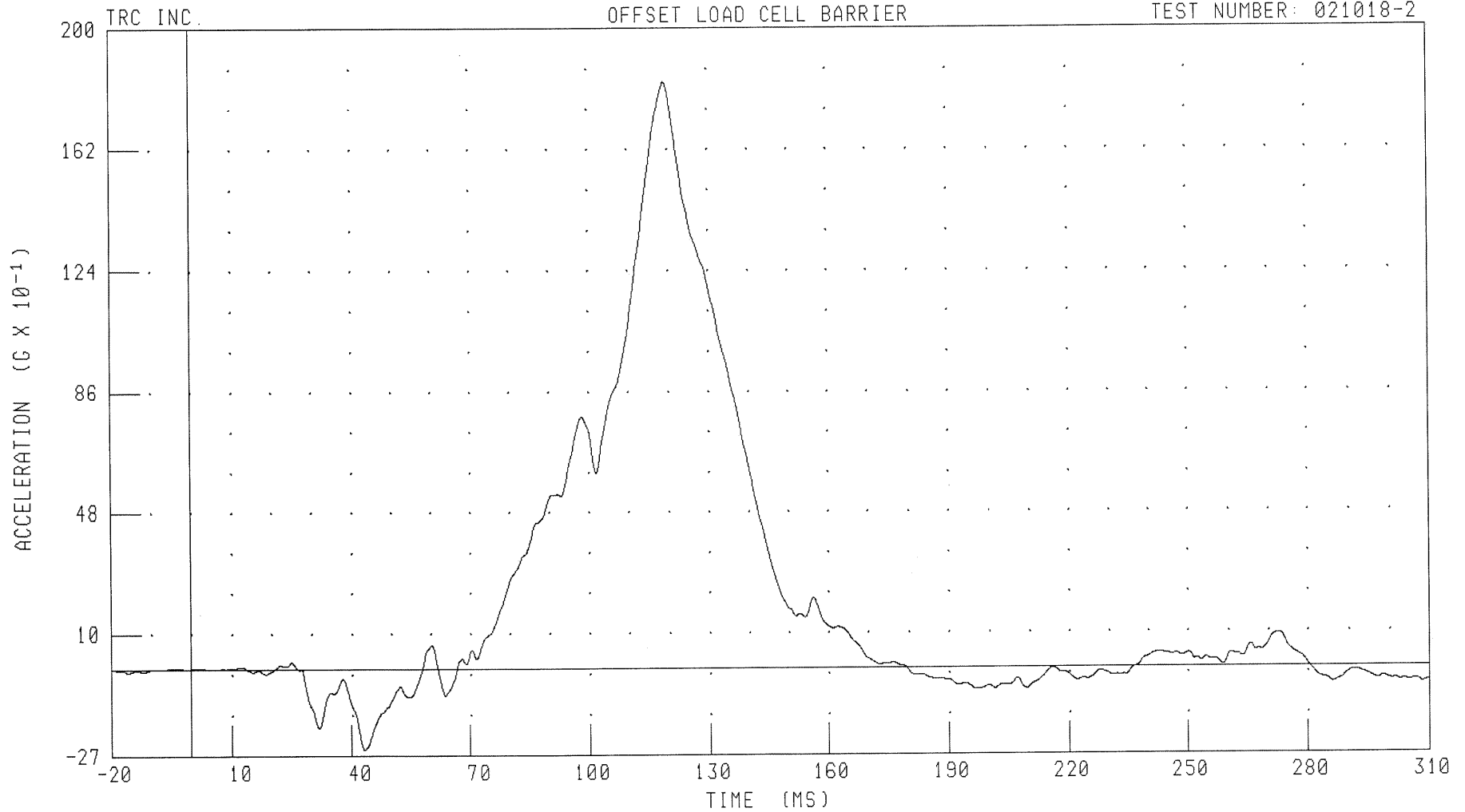
PEAK DATA: 3.79 G @ 275.04 MS; -32.93 G @ 116.64 MS

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: 021018-2



CHANNEL: CSTYG1 FILTER: CH. CLASS 100

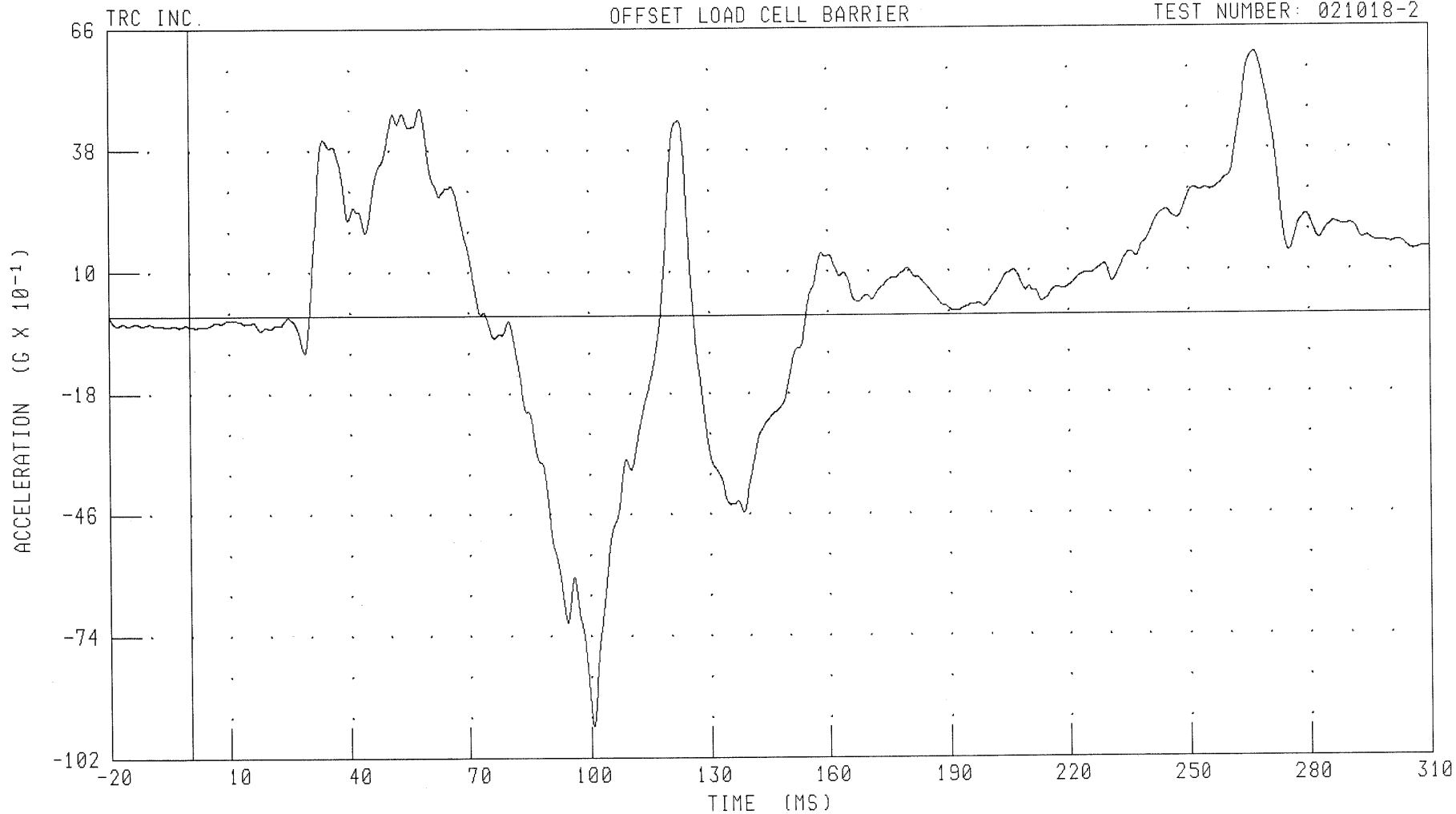
PEAK DATA: 18.42 G @ 119.52 MS; -2.52 G @ 43.28 MS

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: 021018-2

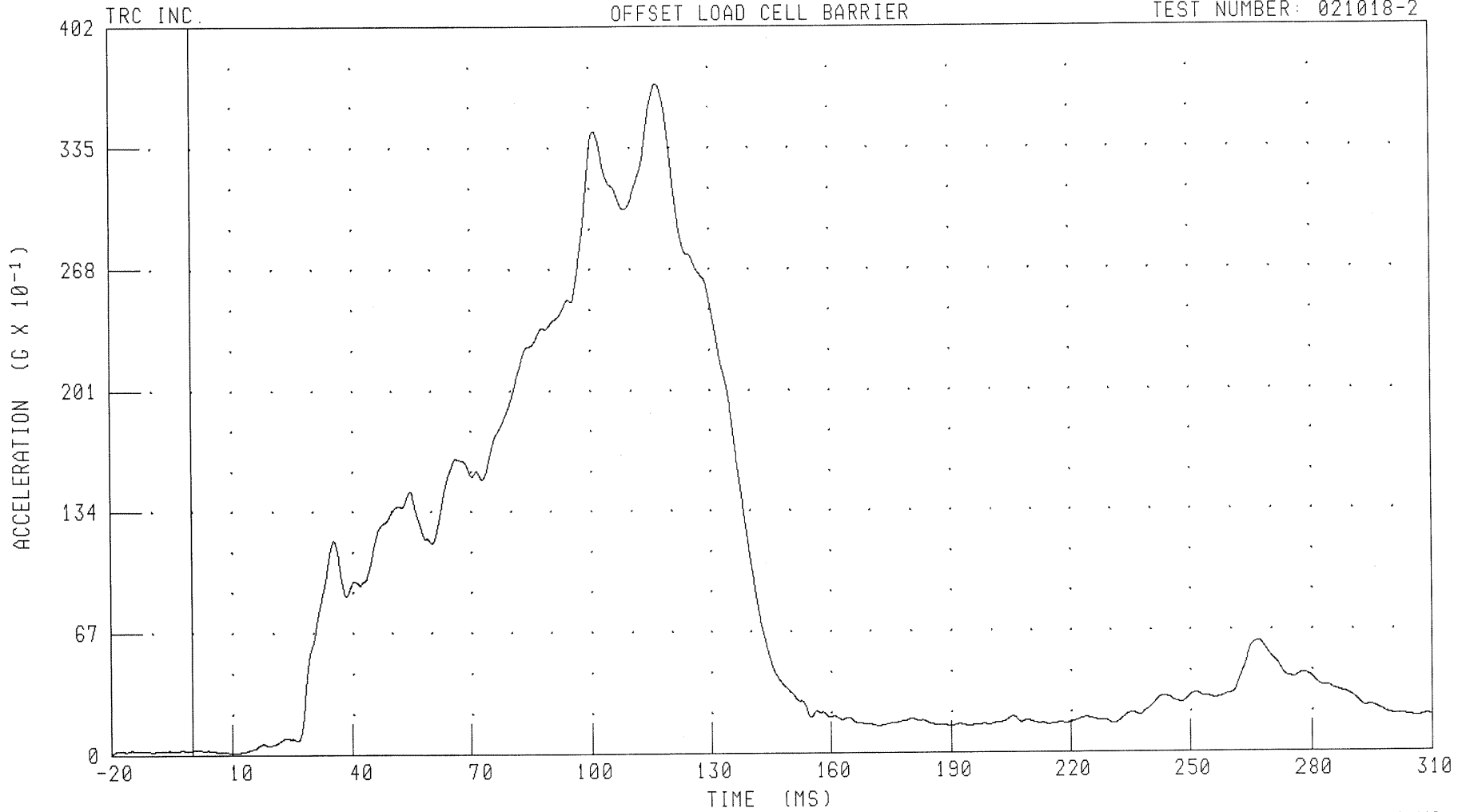


CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 6.02 G @ 266.96 MS; -9.47 G @ 100.72 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: 021018-2



CHANNEL: CSTRG1

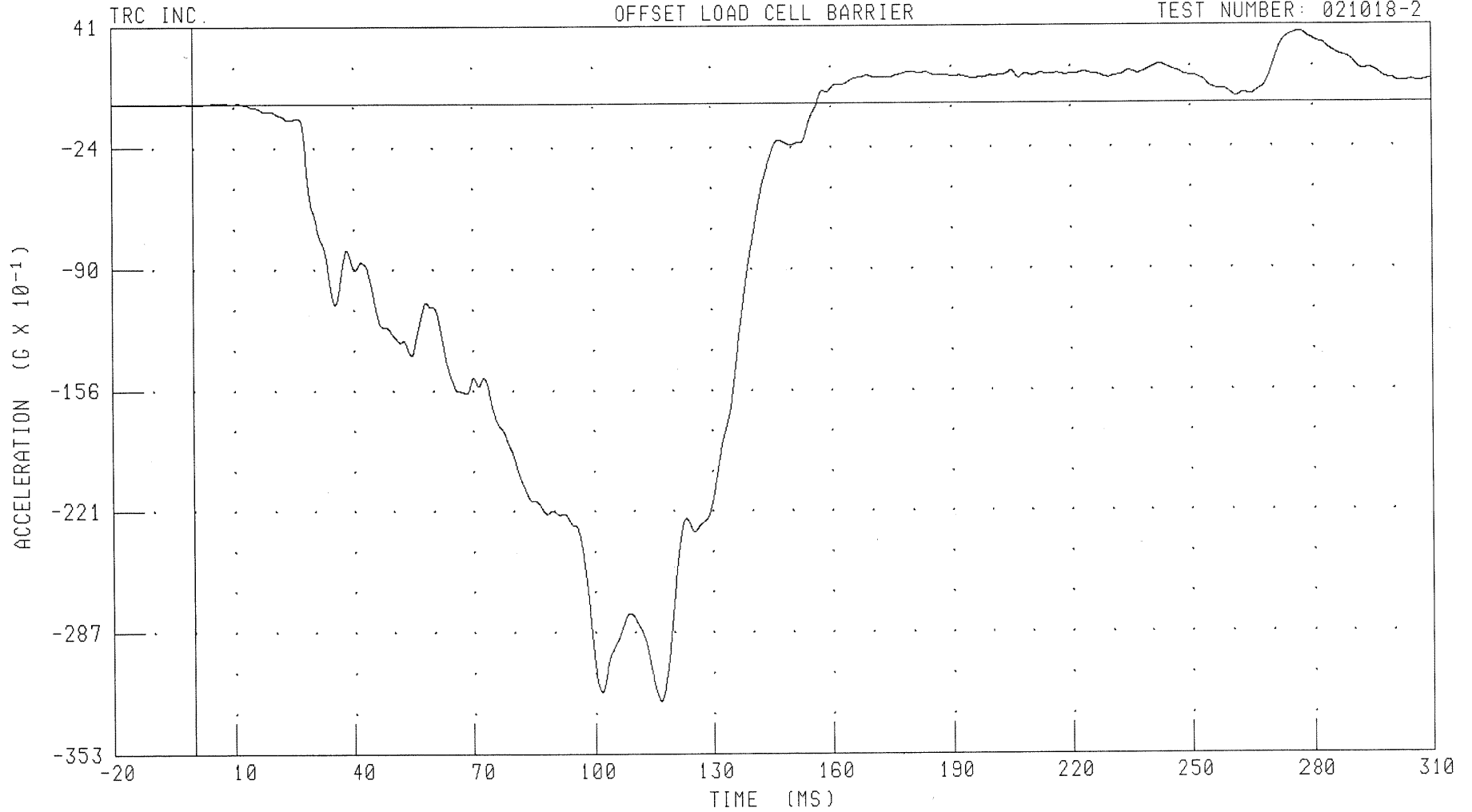
FILTER: CH. CLASS 180

PEAK DATA: 37.06 G @ 116.88 MS; 0.01 G @ -20.00 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: CSTXR1

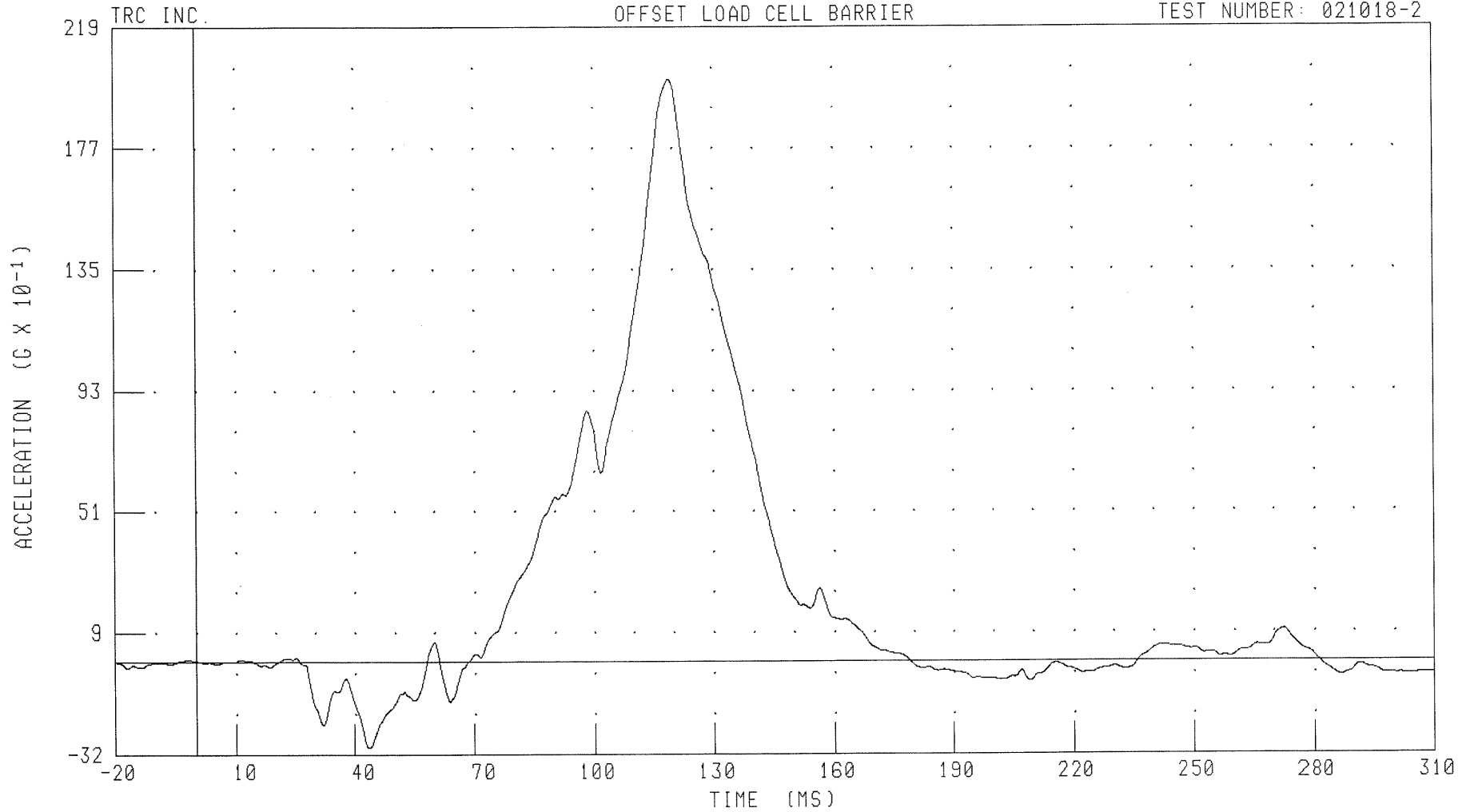
FILTER: CH. CLASS 180

PEAK DATA: 3.85 G @ 277.44 MS; -32.54 G @ 116.72 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: 021018-2

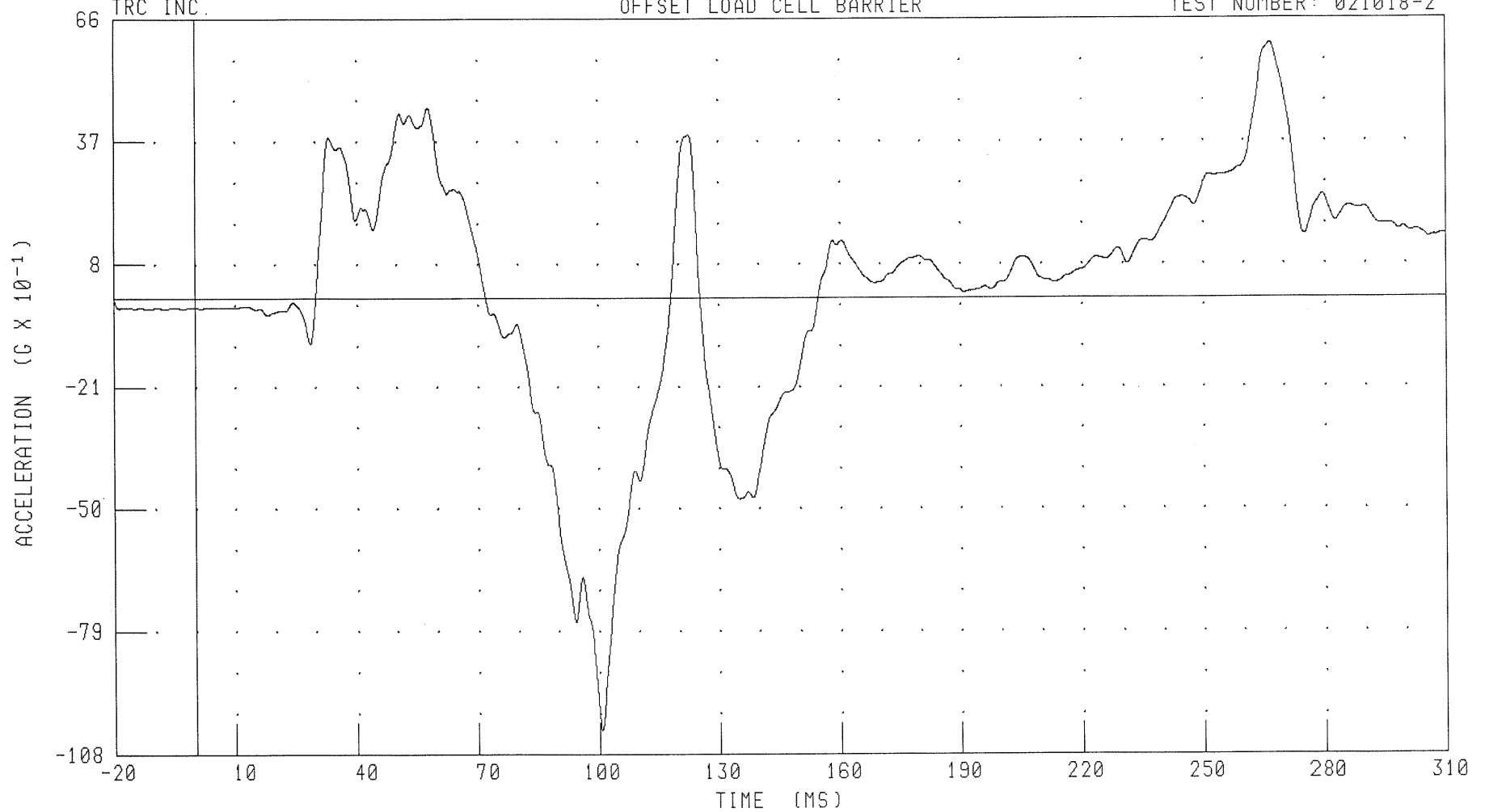


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
DRIVER CHEST Z-AXIS REDUNDANT ACCELERATION

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



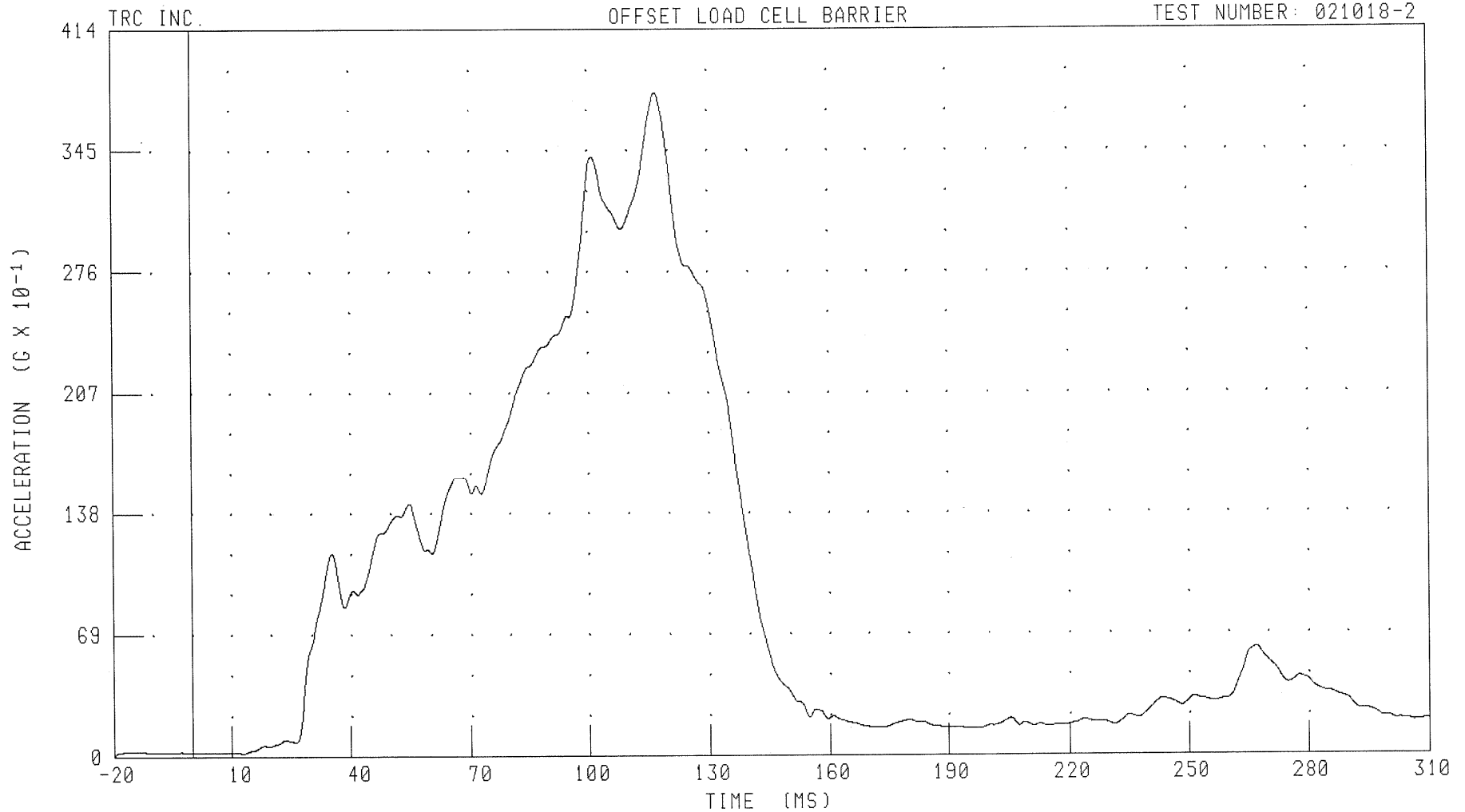
CHANNEL: CSTZR1 FILTER: CH. CLASS 100

PEAK DATA: 6.02 G @ 267.04 MS; -10.23 G @ 100.72 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: CSTRR1 FILTER: CH. CLASS 100

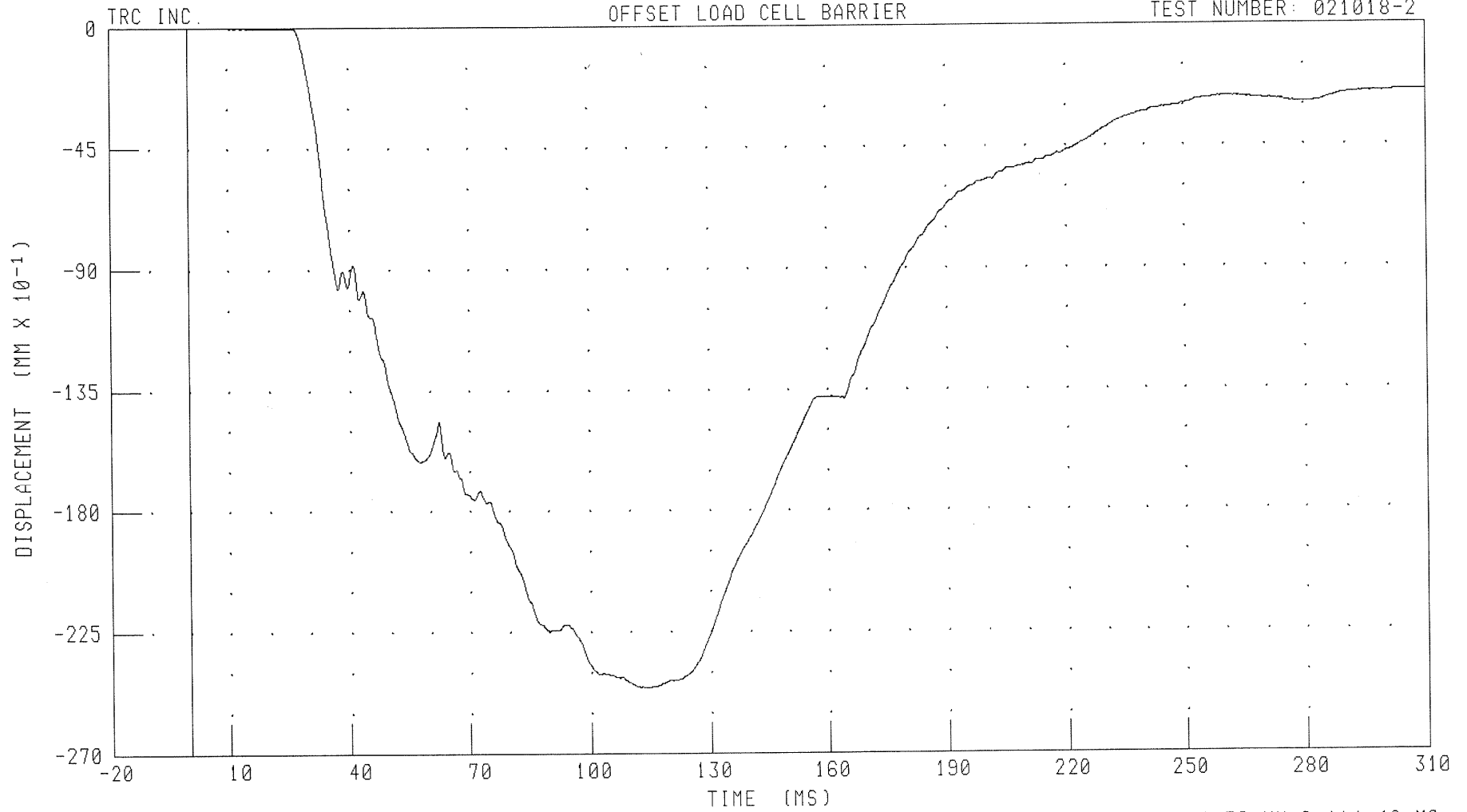
PEAK DATA: 37.79 G @ 117.12 MS; 0.02 G @ -20.00 MS

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

DRIVER CHEST DEFLECTION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: CSTXD1

FILTER: CH. CLASS 600

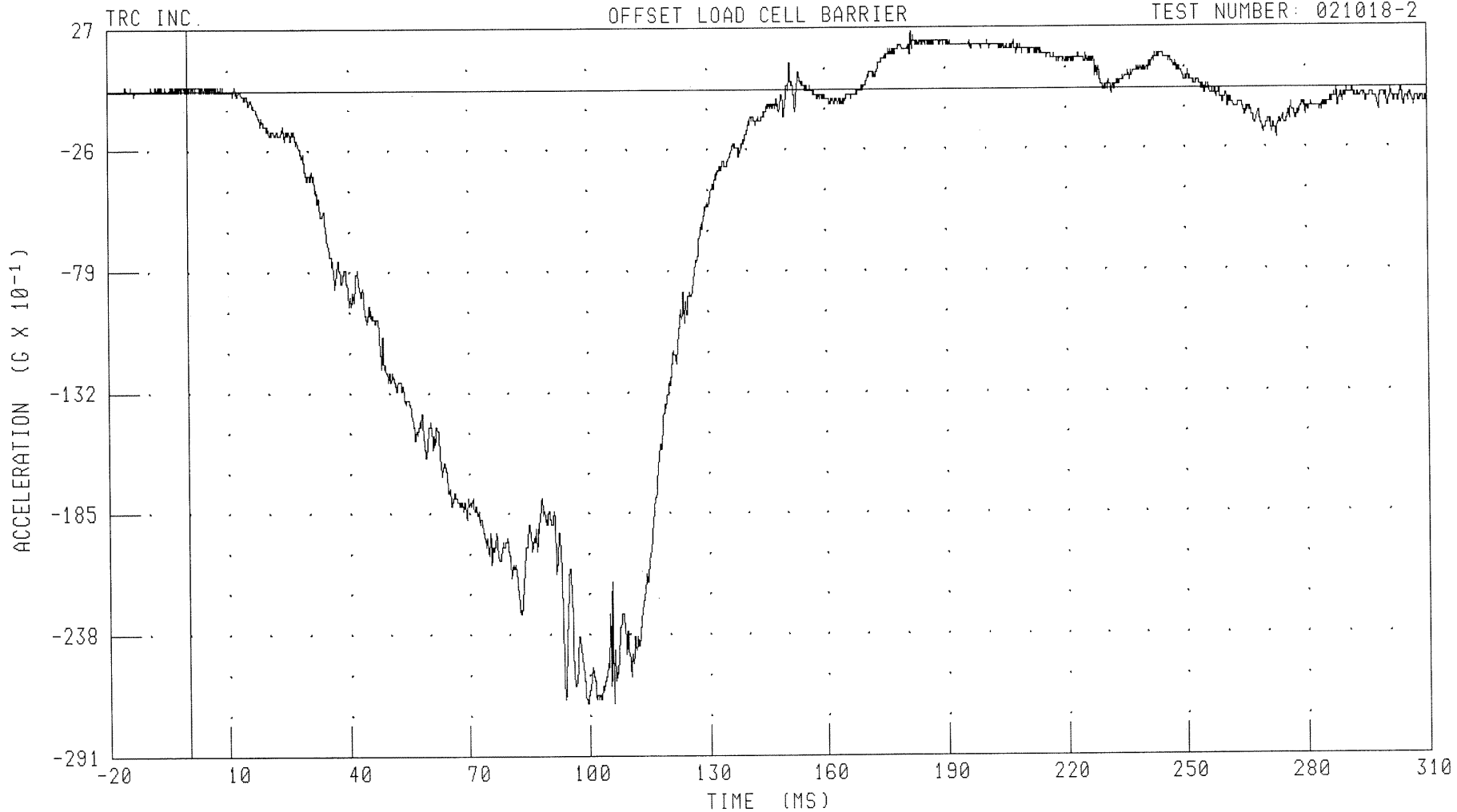
PEAK DATA: 0.00 MM @ 12.72 MS; -24.58 MM @ 114.40 MS

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: 021018-2



CHANNEL: PEVXC1 FILTER: CH. CLASS 1000

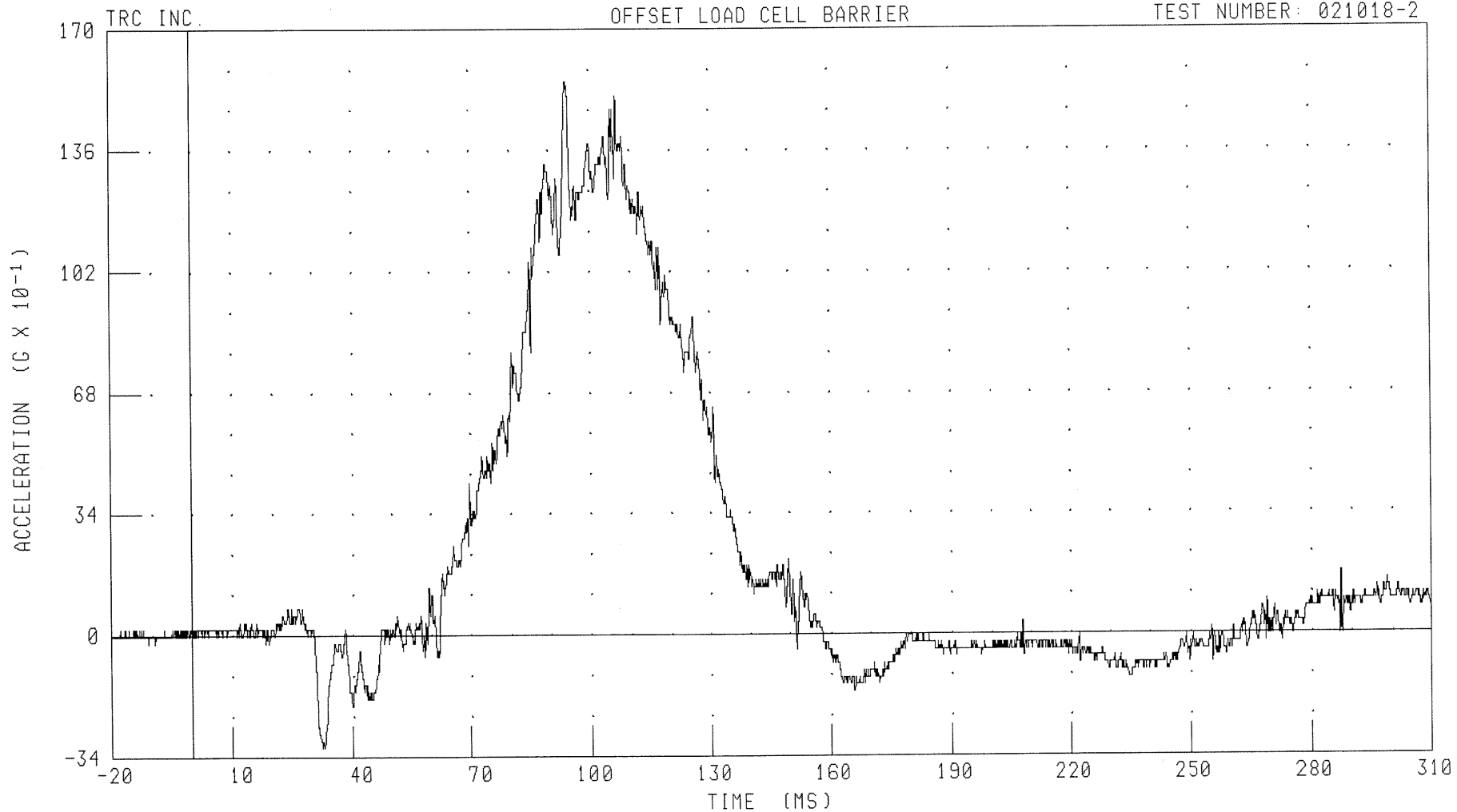
PEAK DATA: 2.54 G @ 181.84 MS; -26.83 G @ 99.60 MS

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: 021018-2



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

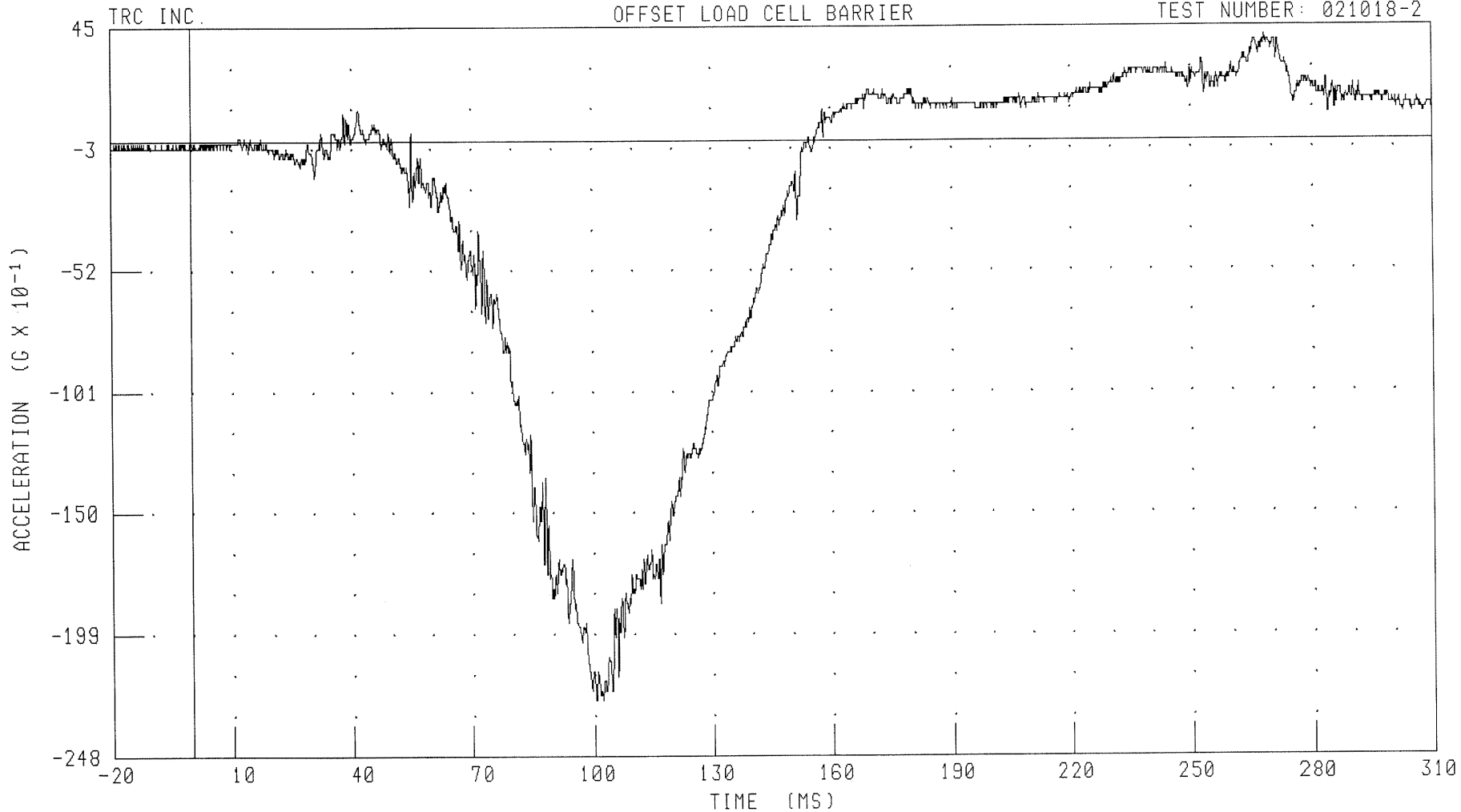
PEAK DATA: 15.54 G @ 94.24 MS; -3.15 G @ 32.24 MS

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: 021018-2



CHANNEL: PEVZG1

FILTER: CH. CLASS 1000

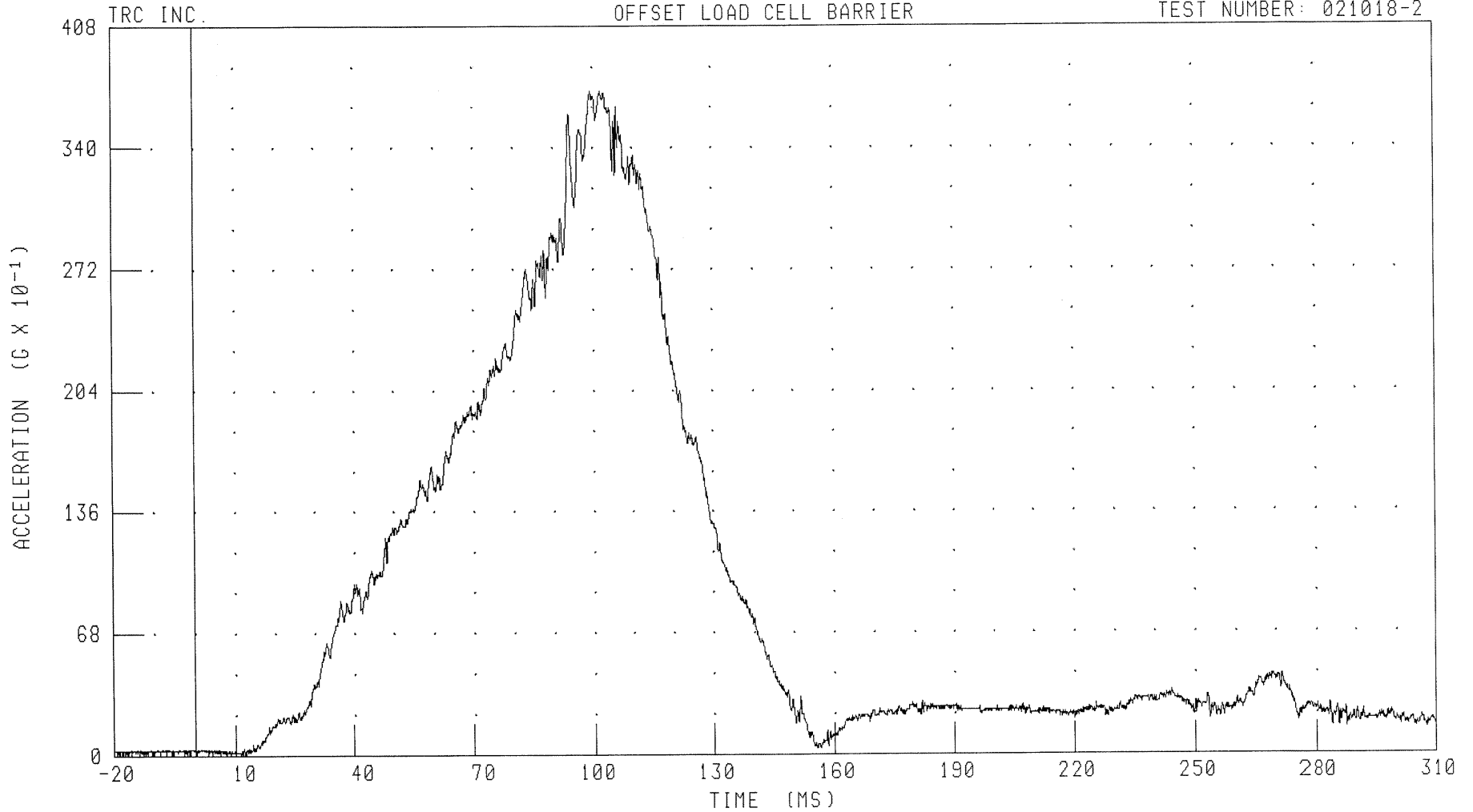
PEAK DATA: 4.24 G @ 268.56 MS; -22.57 G @ 100.48 MS

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

DRIVER PELVIS RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: PEVRG1

FILTER: CH. CLASS 1000

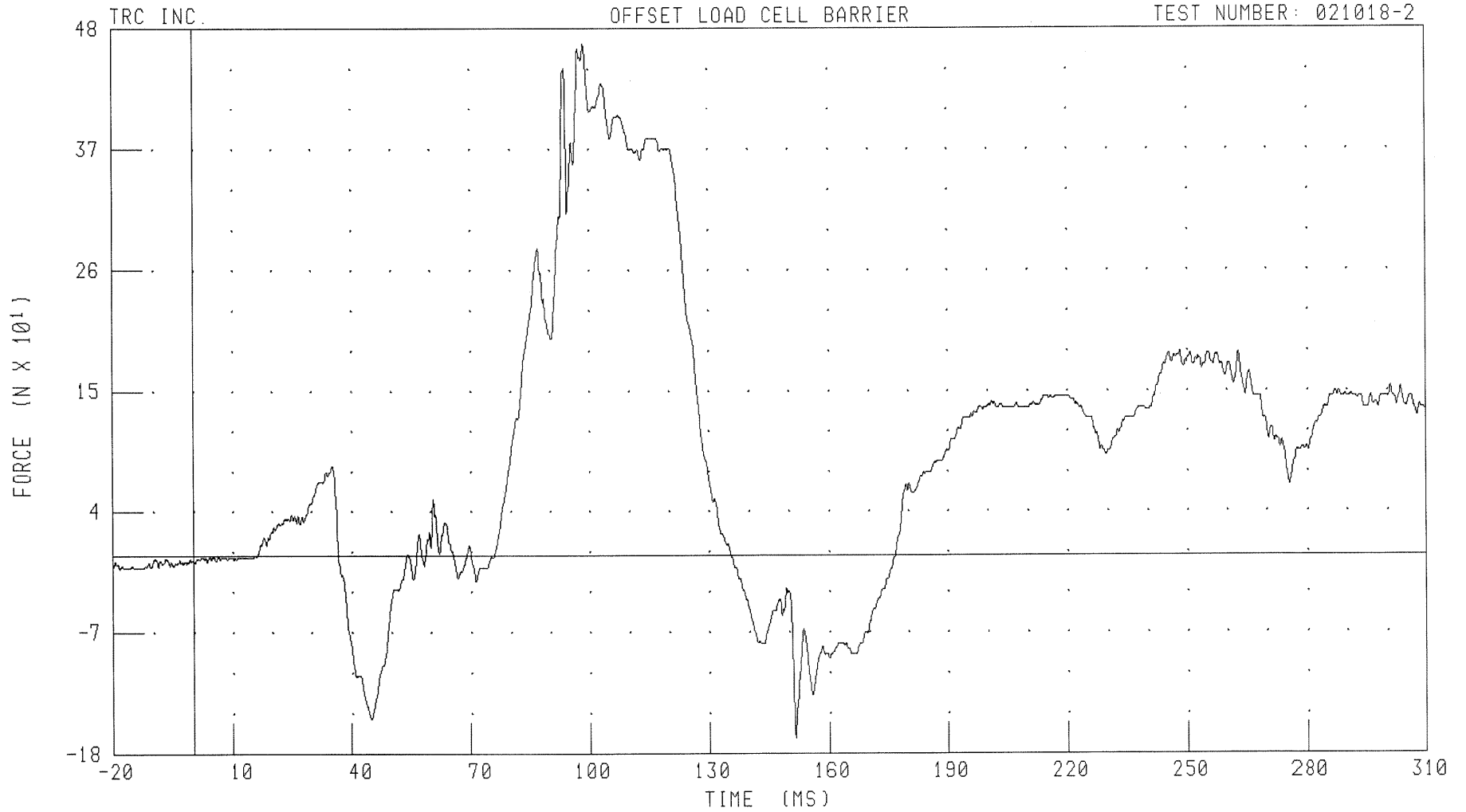
PEAK DATA: 37.18 G @ 102.16 MS; 0.08 G @ -19.28 MS

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

DRIVER LEFT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMXF1

FILTER: CH. CLASS 600

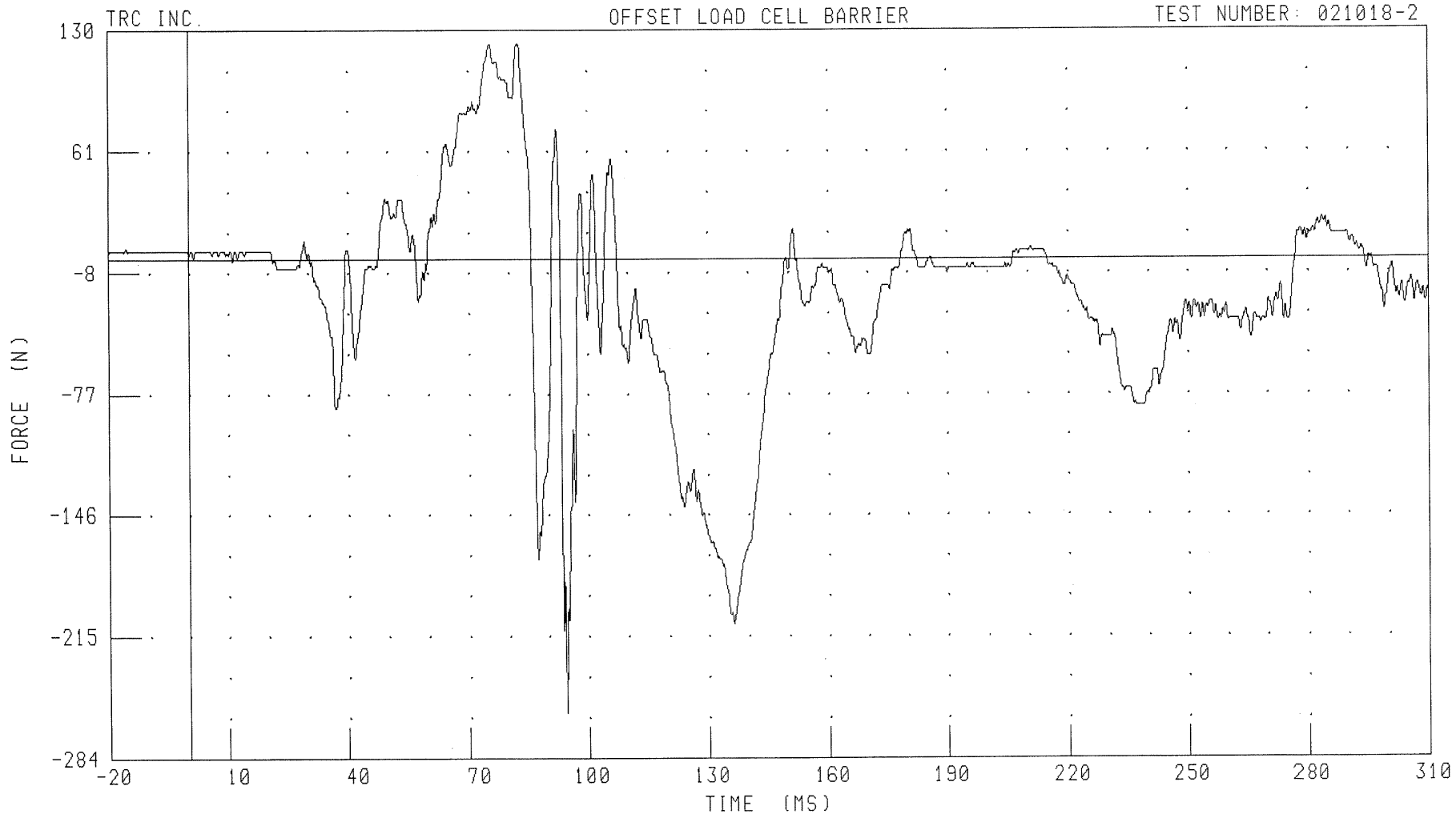
PEAK DATA: 466.10 N @ 98.88 MS; -165.86 N @ 151.60 MS

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

DRIVER LEFT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMYP1 FILTER: CH. CLASS 600

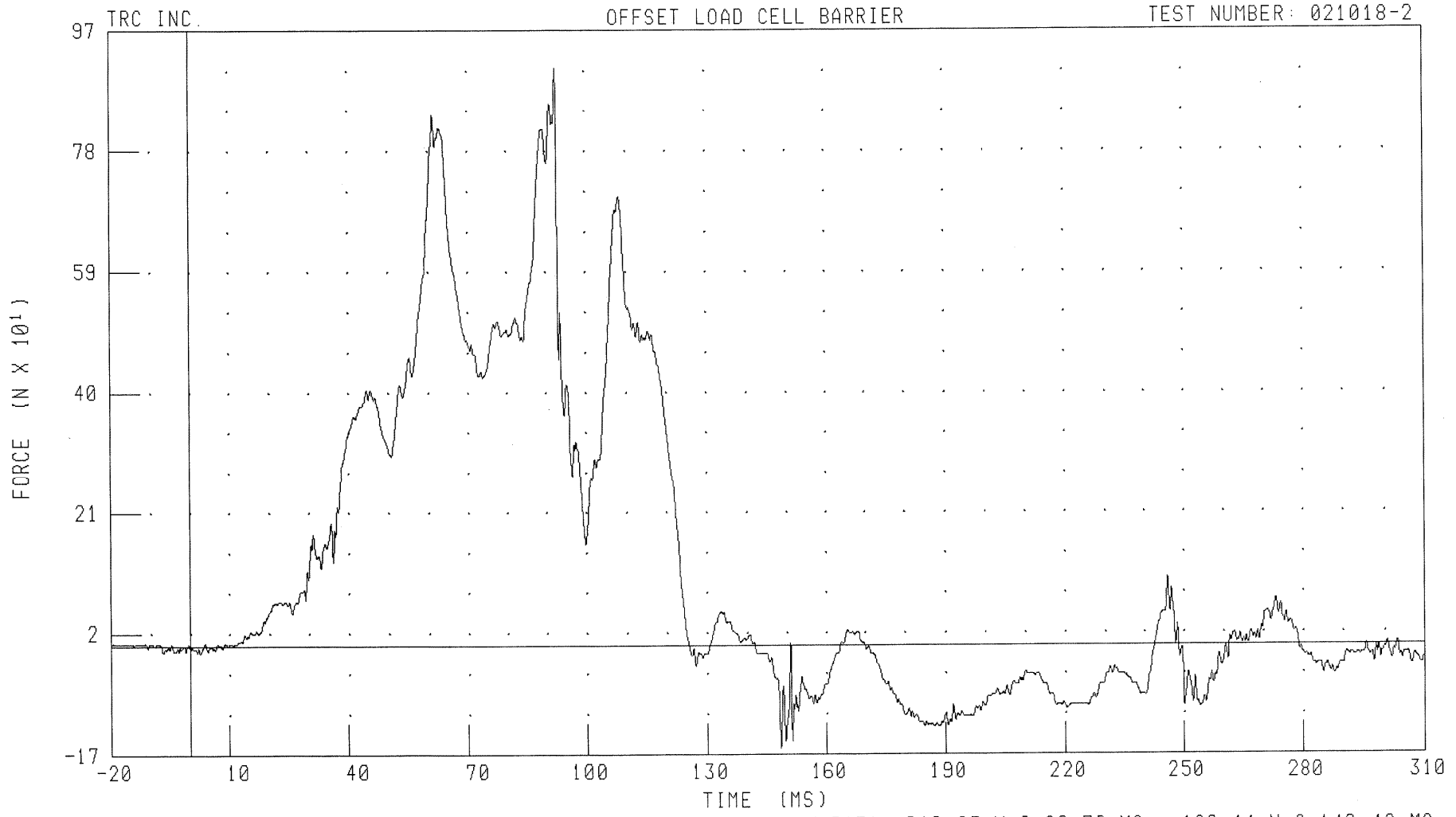
PEAK DATA: 122.25 N @ 82.64 MS; -258.50 N @ 94.56 MS

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

DRIVER LEFT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMZF1 FILTER: CH. CLASS 600

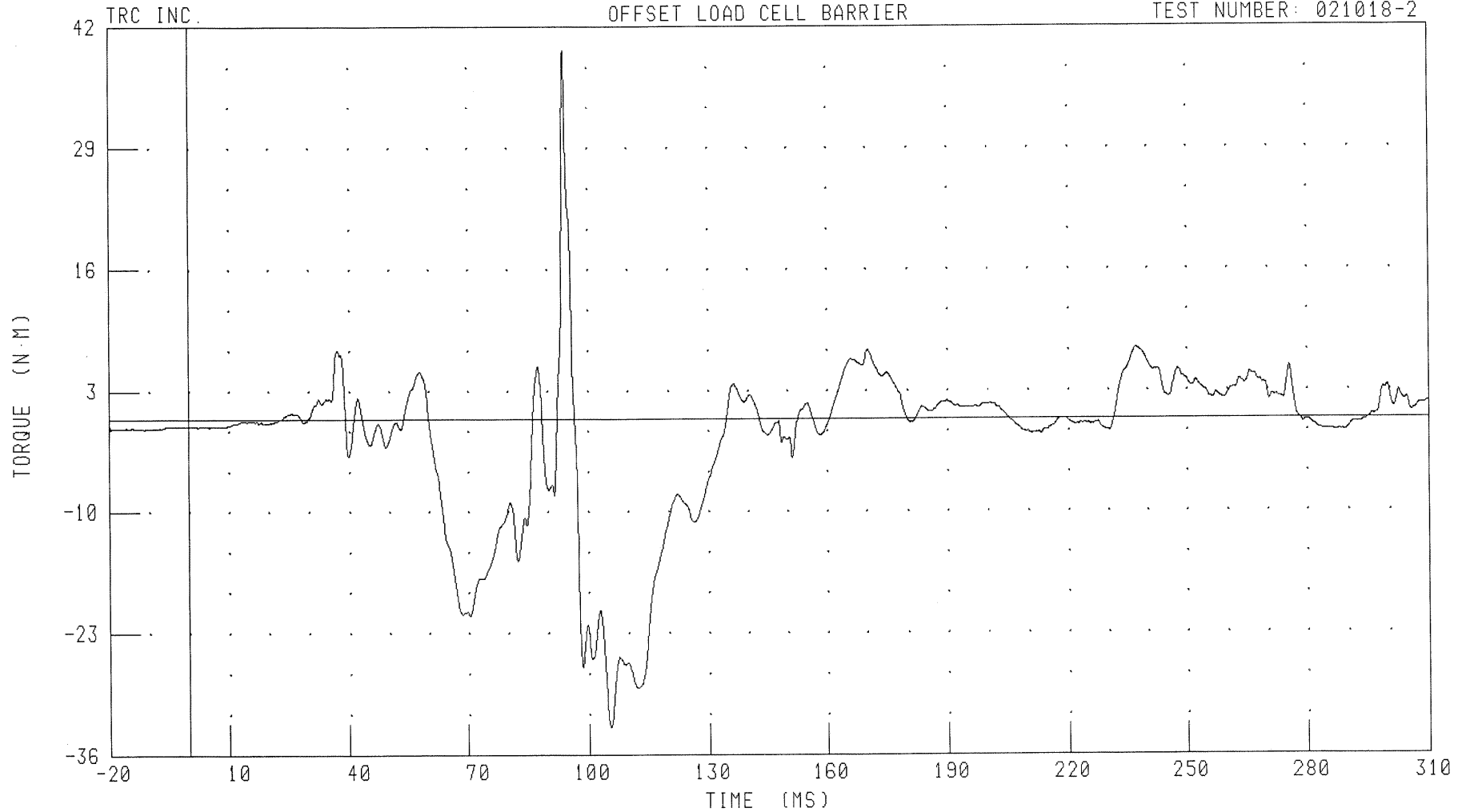
PEAK DATA: 910.23 N @ 92.72 MS; -160.44 N @ 148.48 MS

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

DRIVER LEFT FEMUR MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMXM1 FILTER: CH. CLASS 600

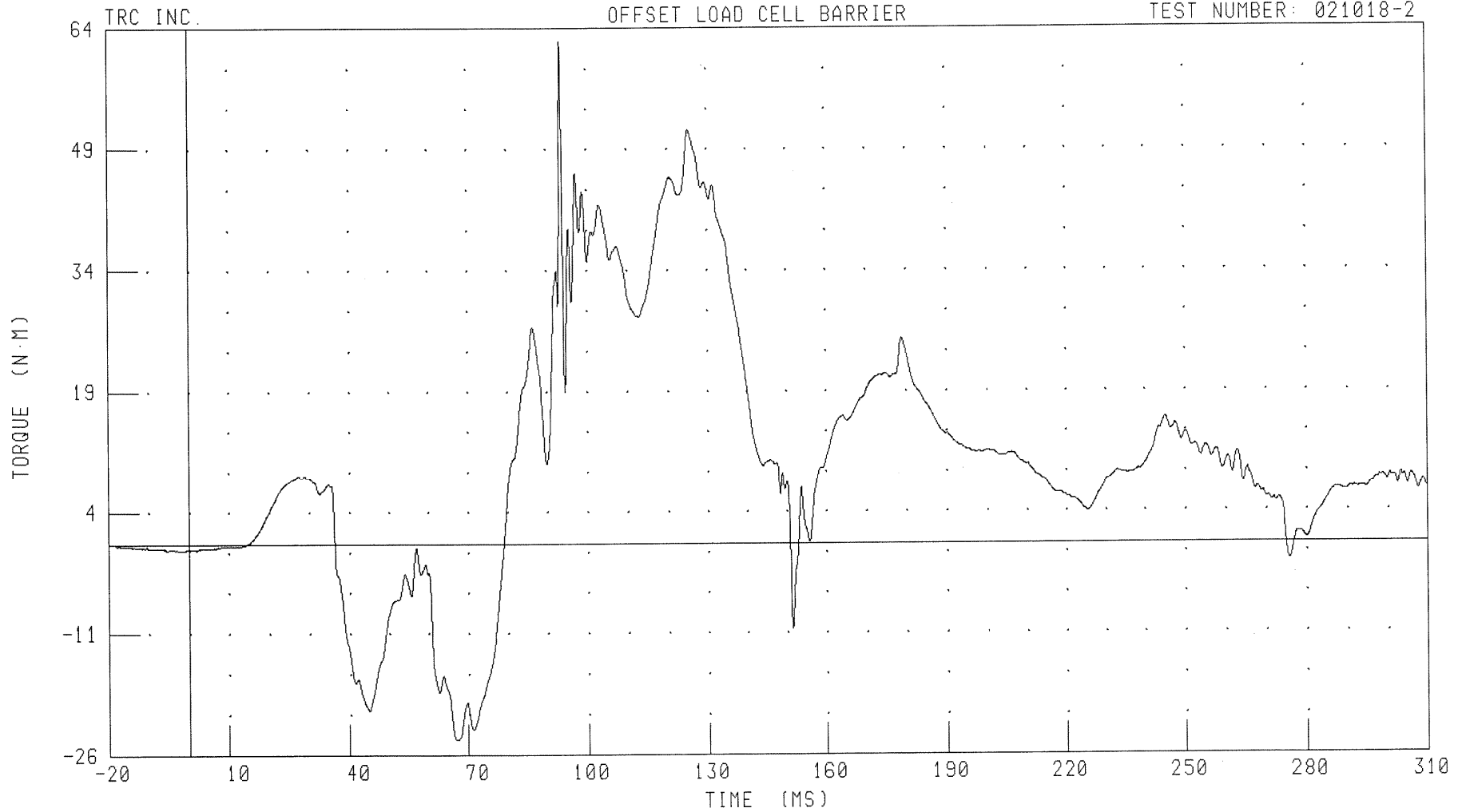
PEAK DATA: 39.44 N·M @ 94.16 MS; -33.05 N·M @ 105.52 MS

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

DRIVER LEFT FEMUR MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMYM1 FILTER: CH. CLASS 600

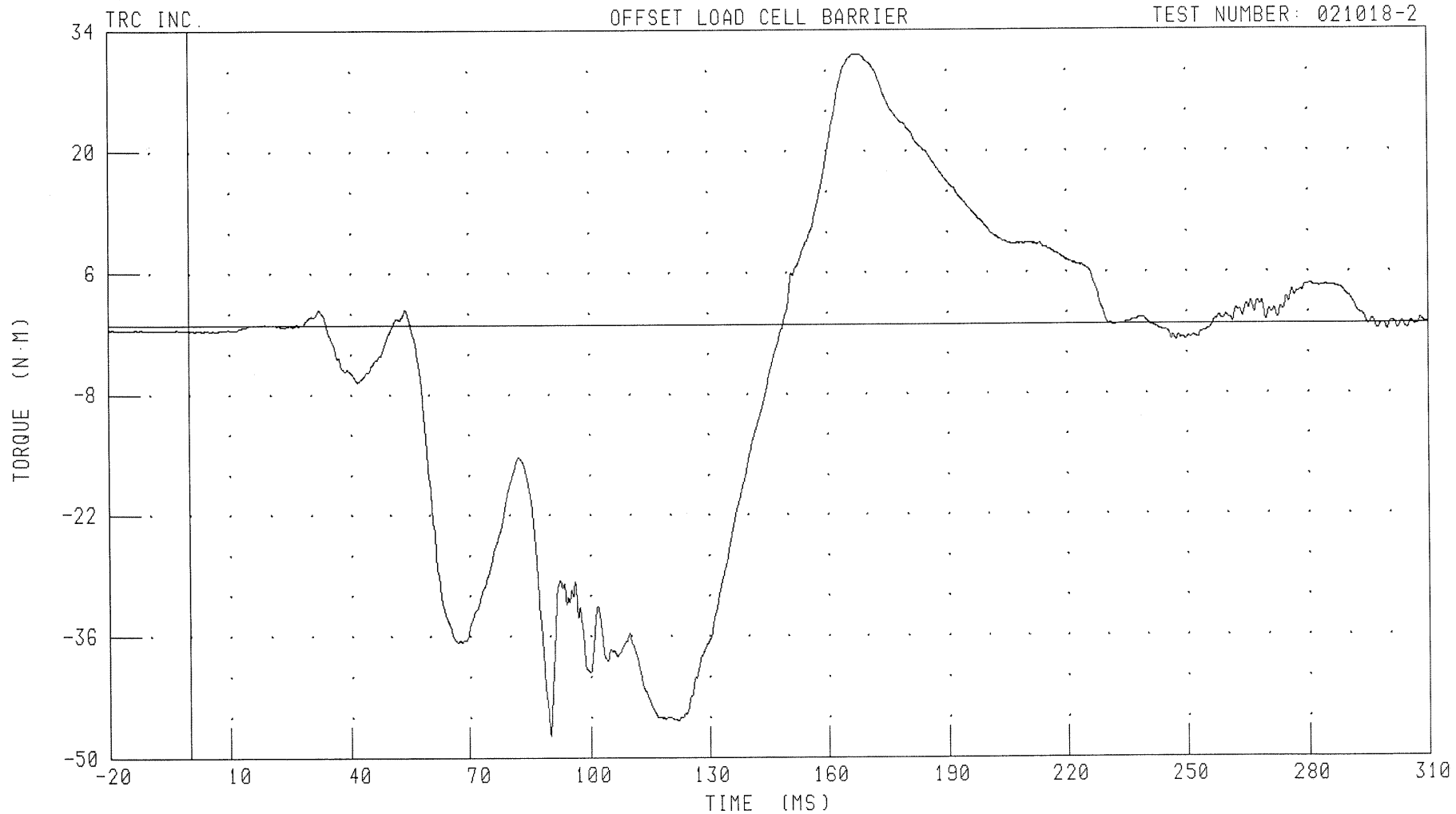
PEAK DATA: 62.33 N·M @ 93.84 MS; -24.12 N·M @ 66.88 MS

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

DRIVER LEFT FEMUR MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMZM1 FILTER: CH. CLASS 600

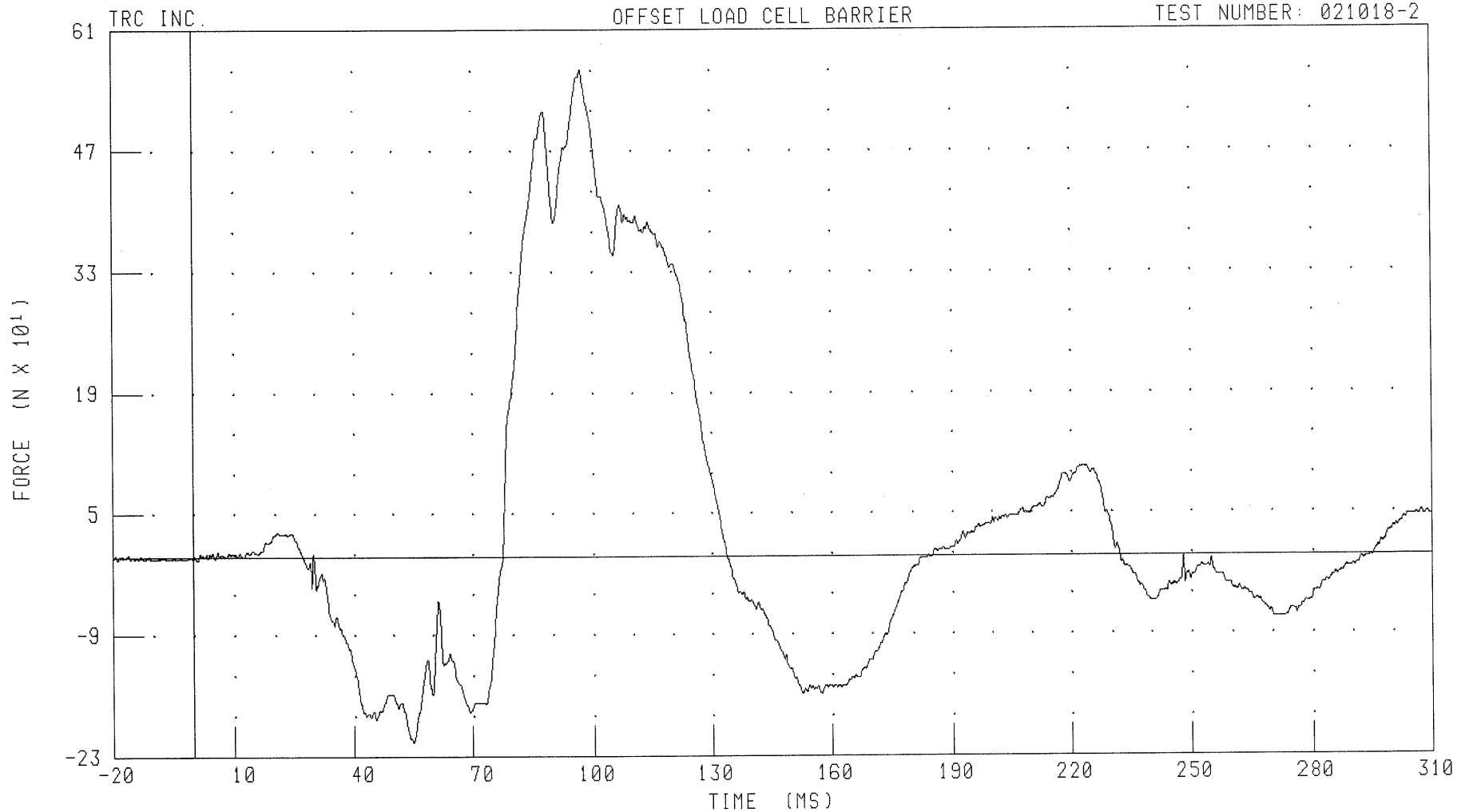
PEAK DATA: 31.24 N·M @ 168.64 MS; -47.47 N·M @ 90.16 MS

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

DRIVER RIGHT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMXF1 FILTER: CH. CLASS 600

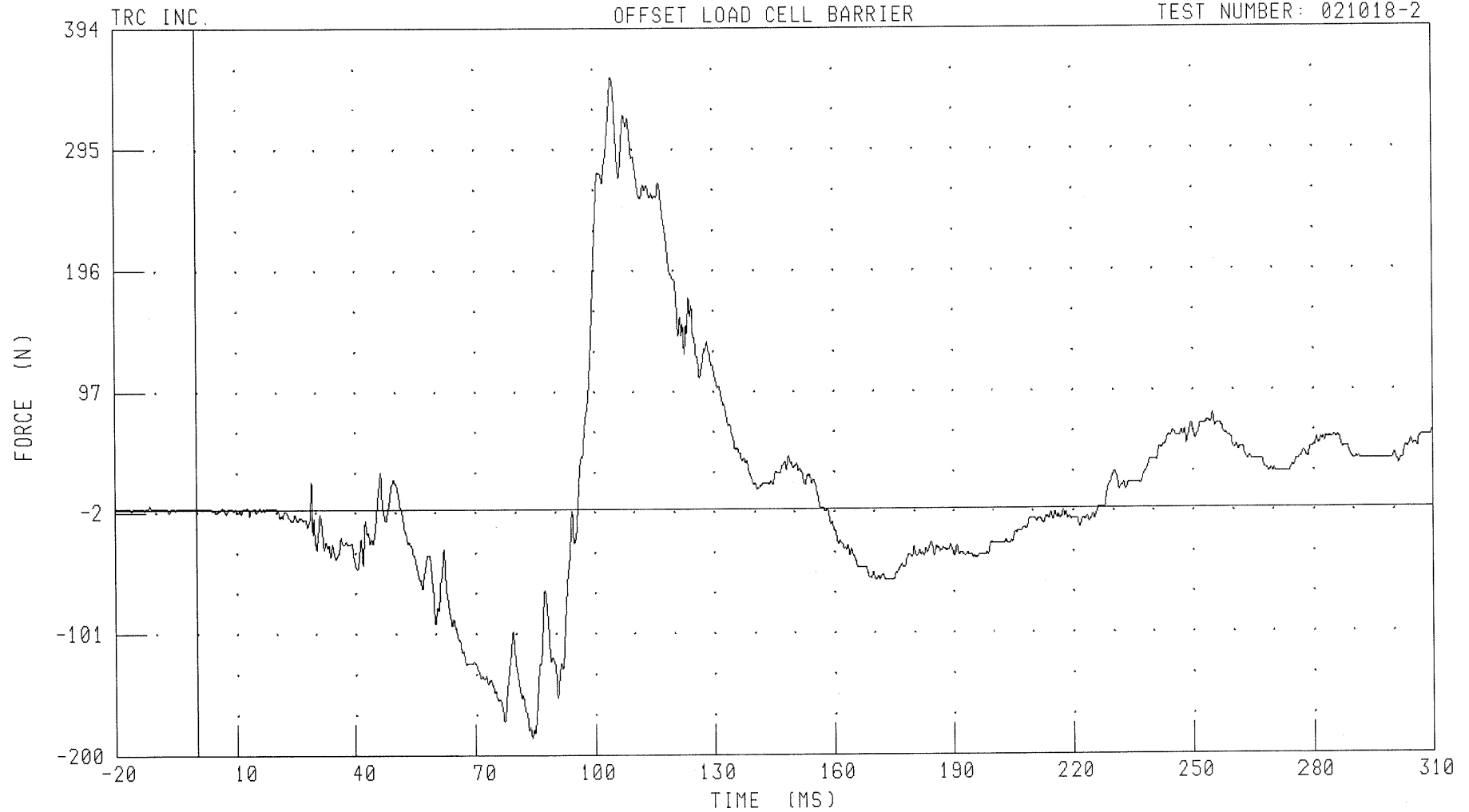
PEAK DATA: 564.25 N @ 97.44 MS; -213.76 N @ 55.04 MS

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

DRIVER RIGHT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMYF1 FILTER: CH. CLASS 600

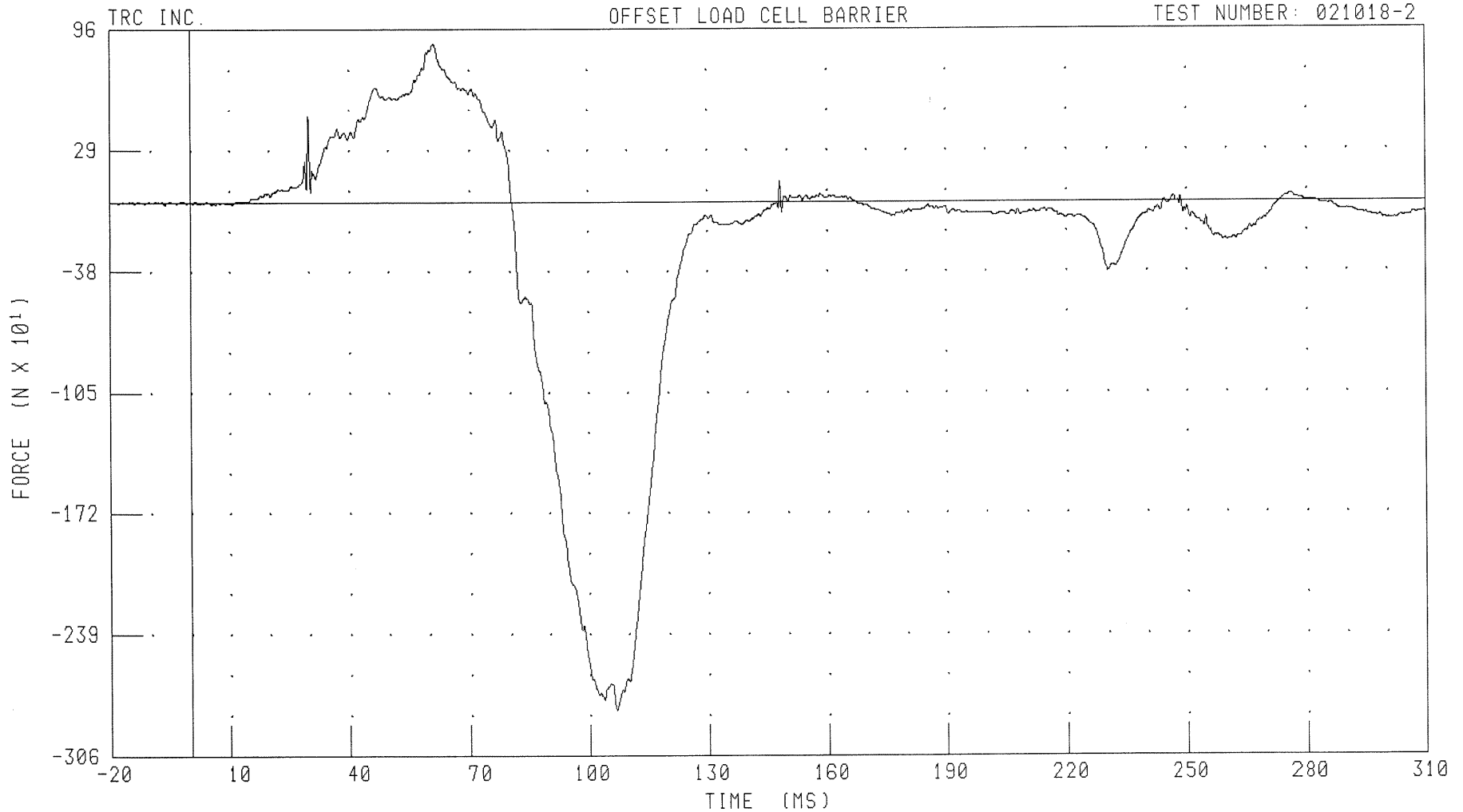
PEAK DATA: 354.25 N @ 104.88 MS; -186.03 N @ 84.08 MS

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

DRIVER RIGHT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMZ F1 FILTER: CH. CLASS 600

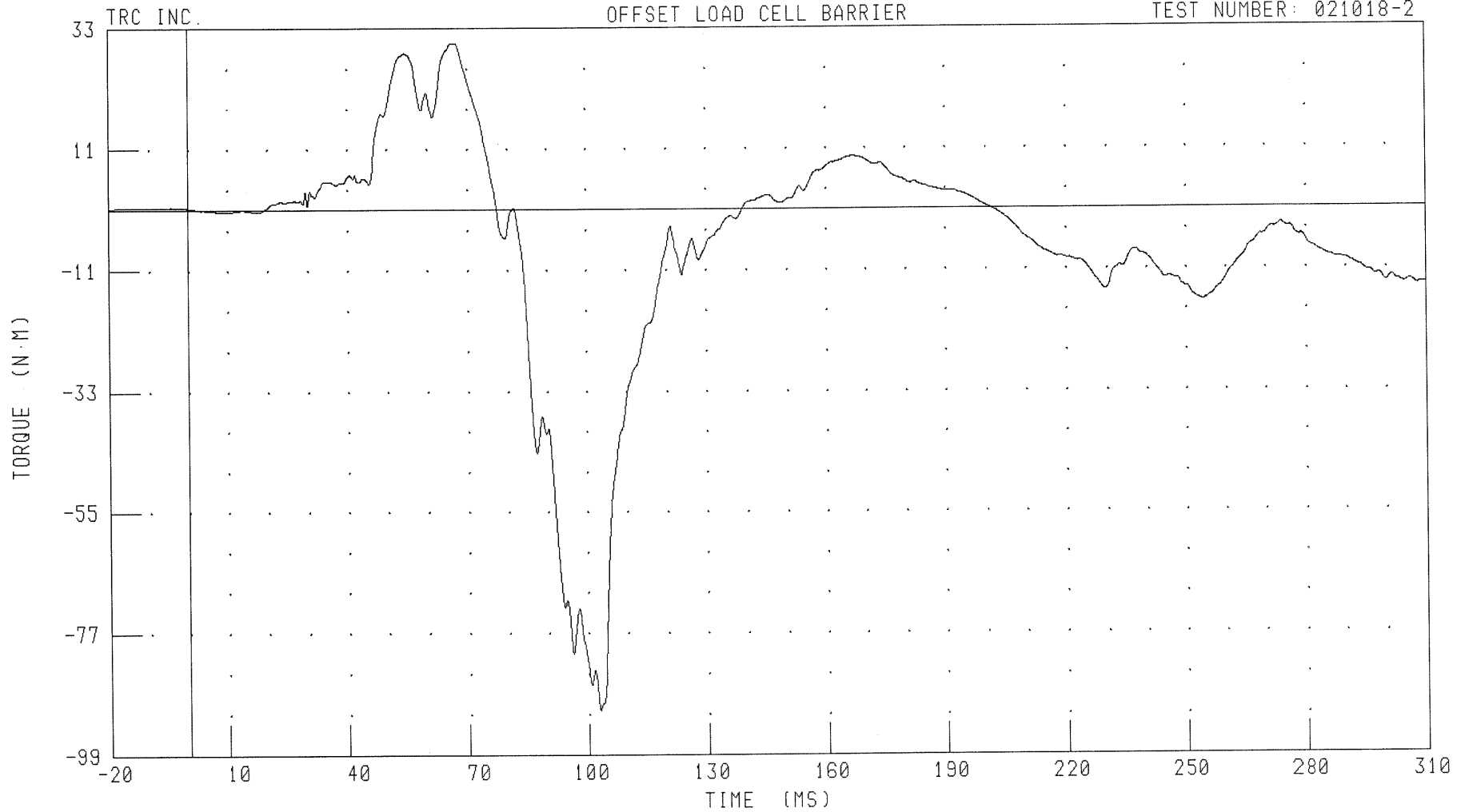
PEAK DATA: 881.22 N @ 61.60 MS; -2810.15 N @ 107.04 MS

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

DRIVER RIGHT FEMUR MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMXM1 FILTER: CH. CLASS 600

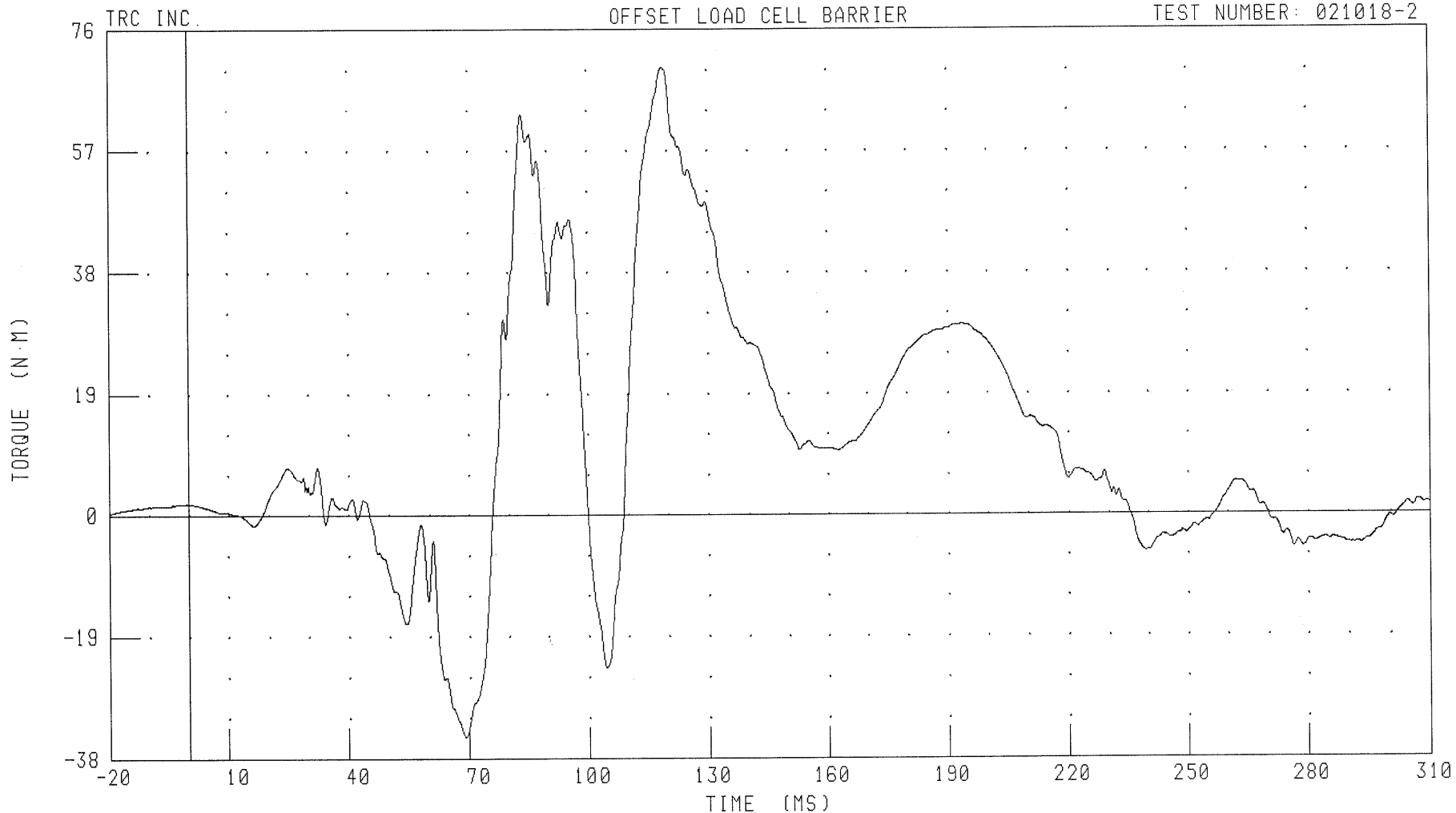
PEAK DATA: 30.33 N·M @ 66.32 MS; -90.94 N·M @ 103.12 MS

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

DRIVER RIGHT FEMUR MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMYM1 FILTER: CH. CLASS 600

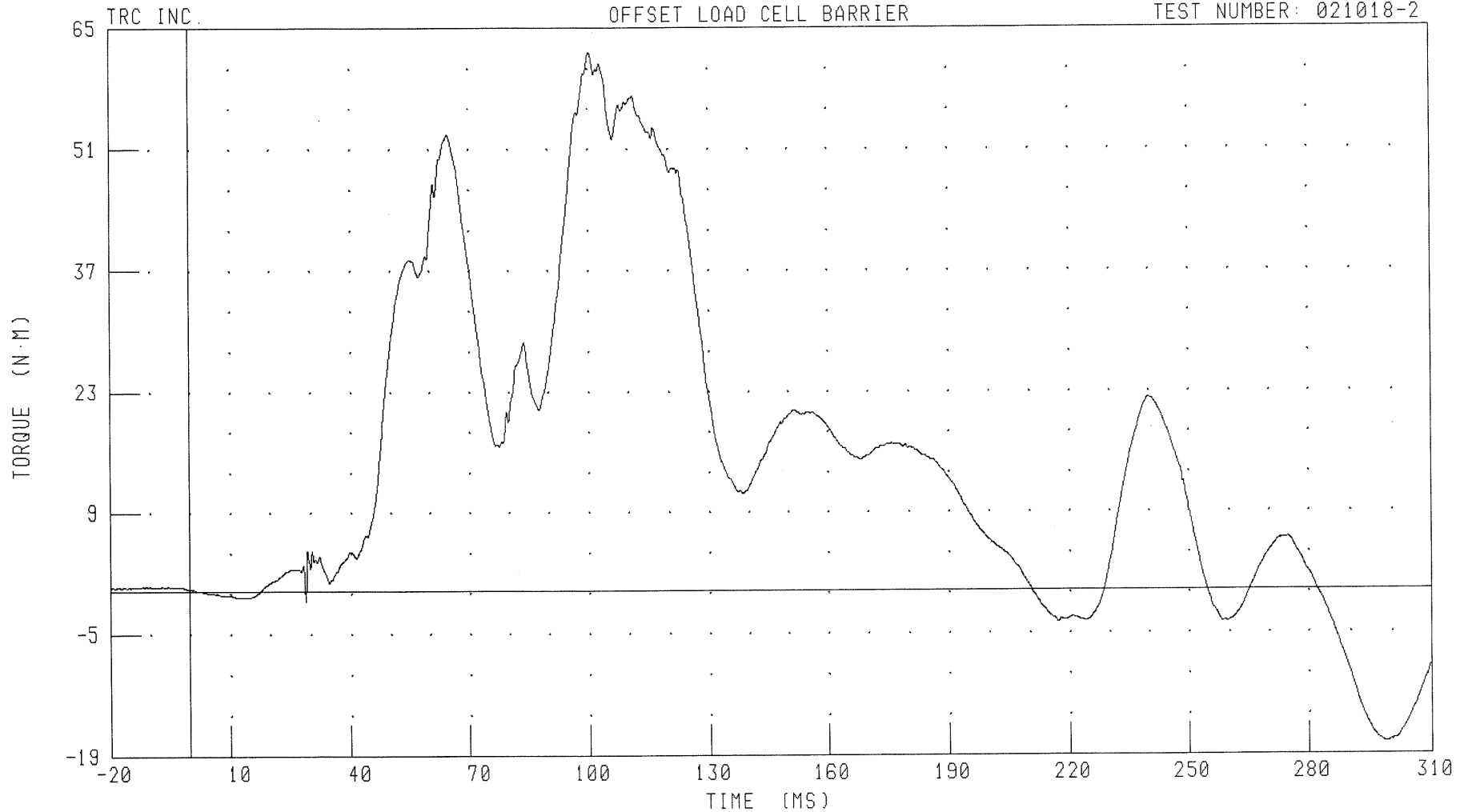
PEAK DATA: 70.12 N·M @ 119.12 MS; -34.63 N·M @ 69.12 MS

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

DRIVER RIGHT FEMUR MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMZM1

FILTER: CH. CLASS 600

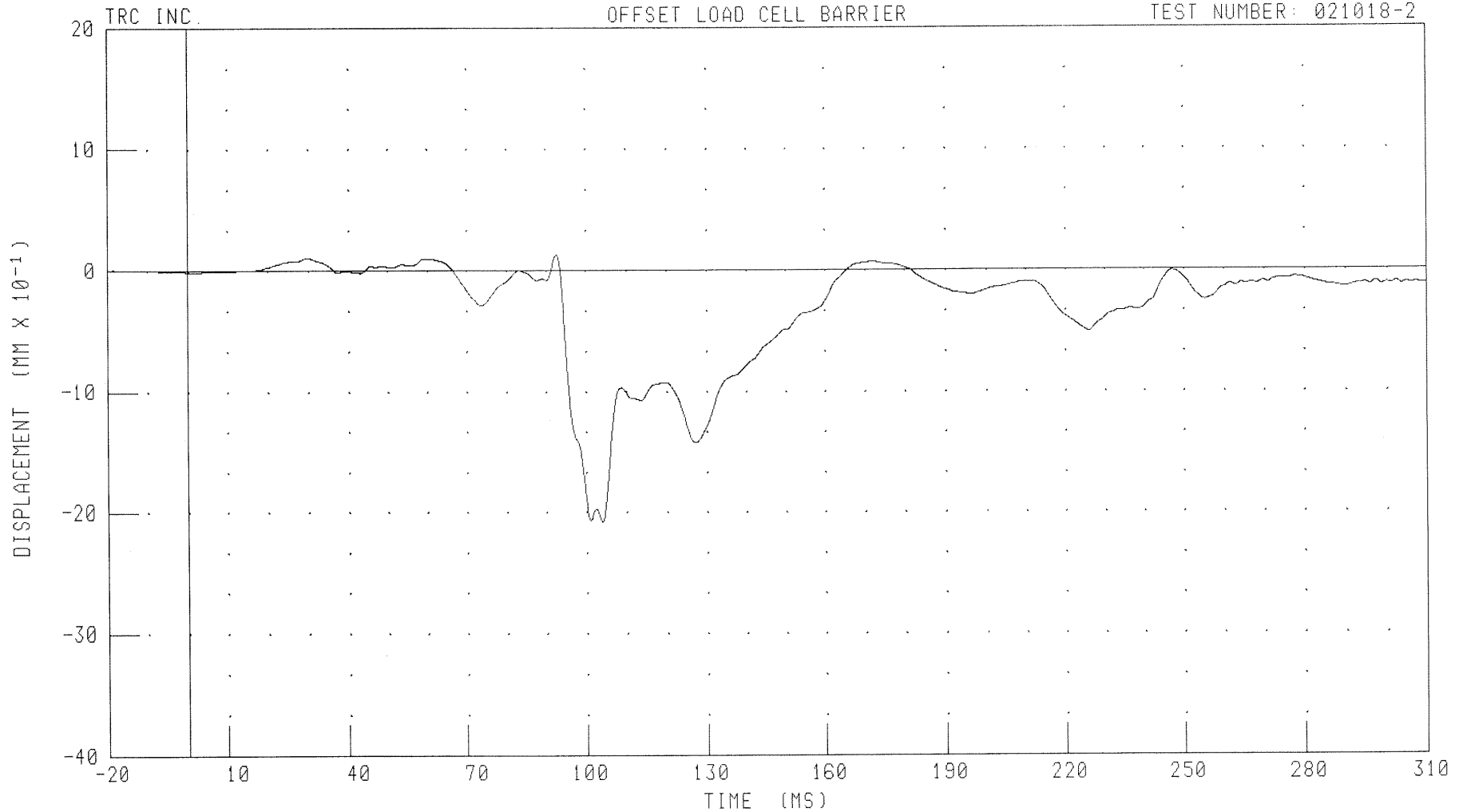
PEAK DATA: 62.21 N·M @ 100.48 MS; -17.64 N·M @ 298.32 MS

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: 021018-2



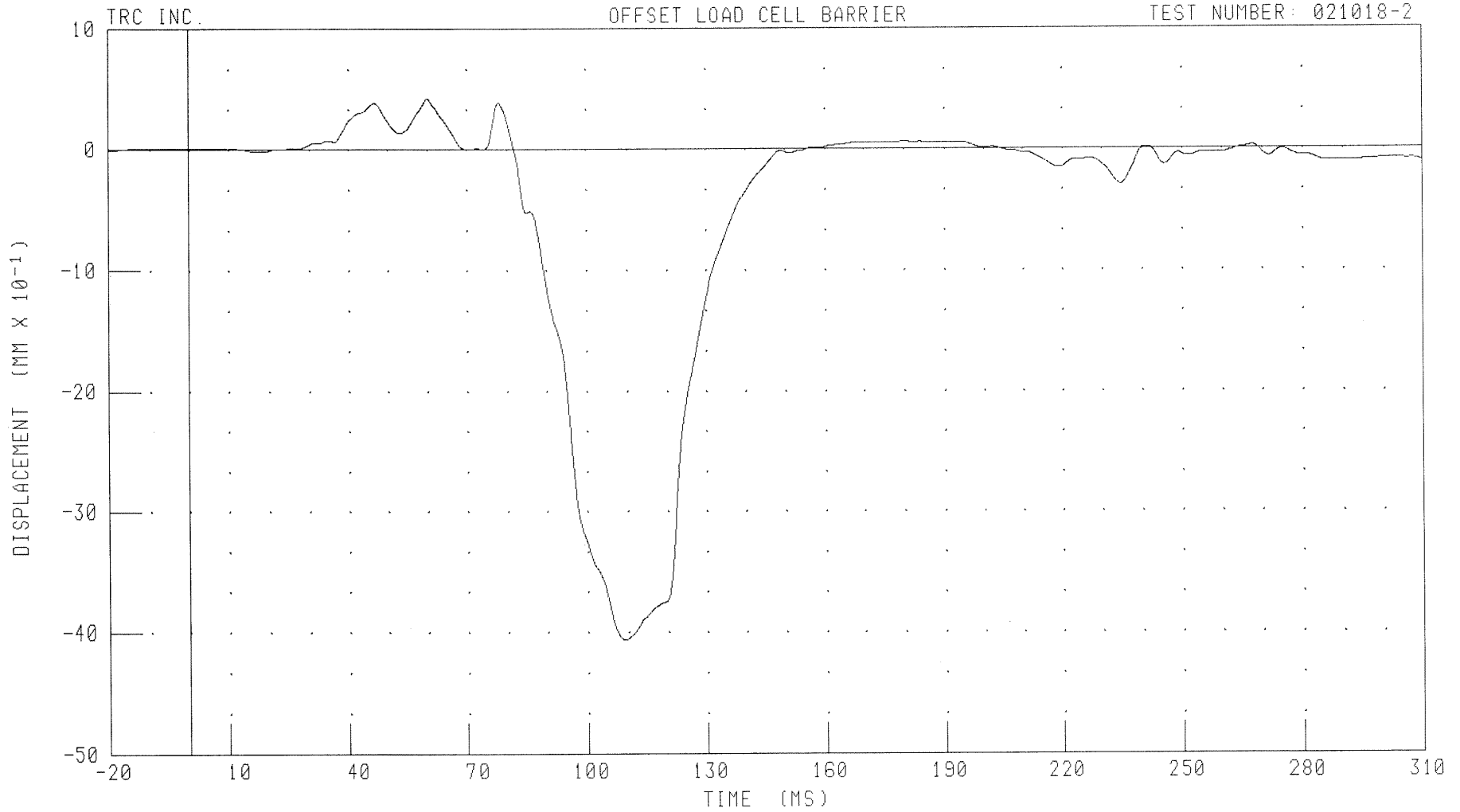
CHANNEL: KNLXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.13 MM @ 92.80 MS; -2.08 MM @ 104.08 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: 021018-2



CHANNEL: KNRXD1

FILTER: CH. CLASS 100

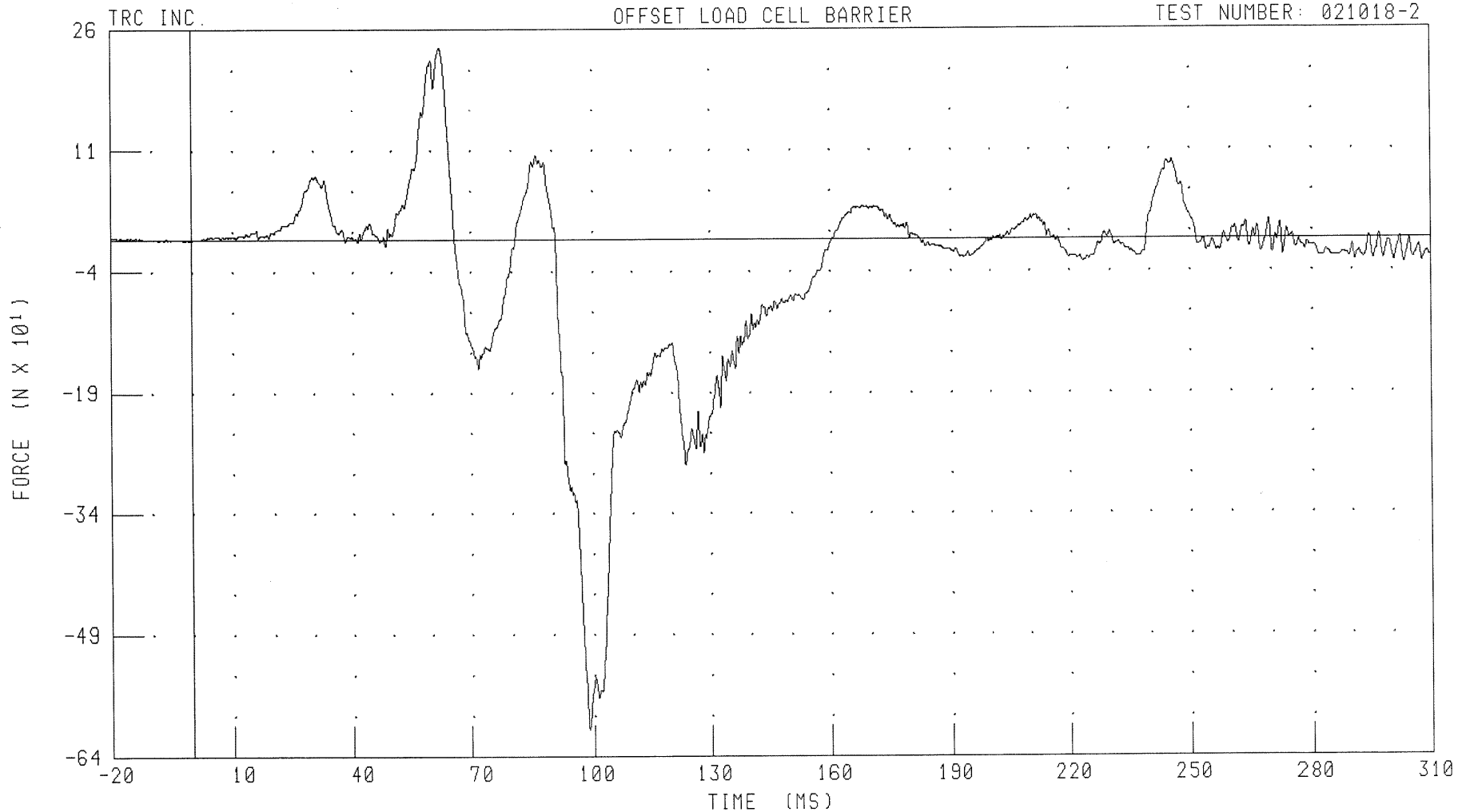
PEAK DATA: 0.43 MM @ 60.16 MS; -4.06 MM @ 109.28 MS

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: 021018-2



CHANNEL: TBLXF1

FILTER: CH. CLASS 600

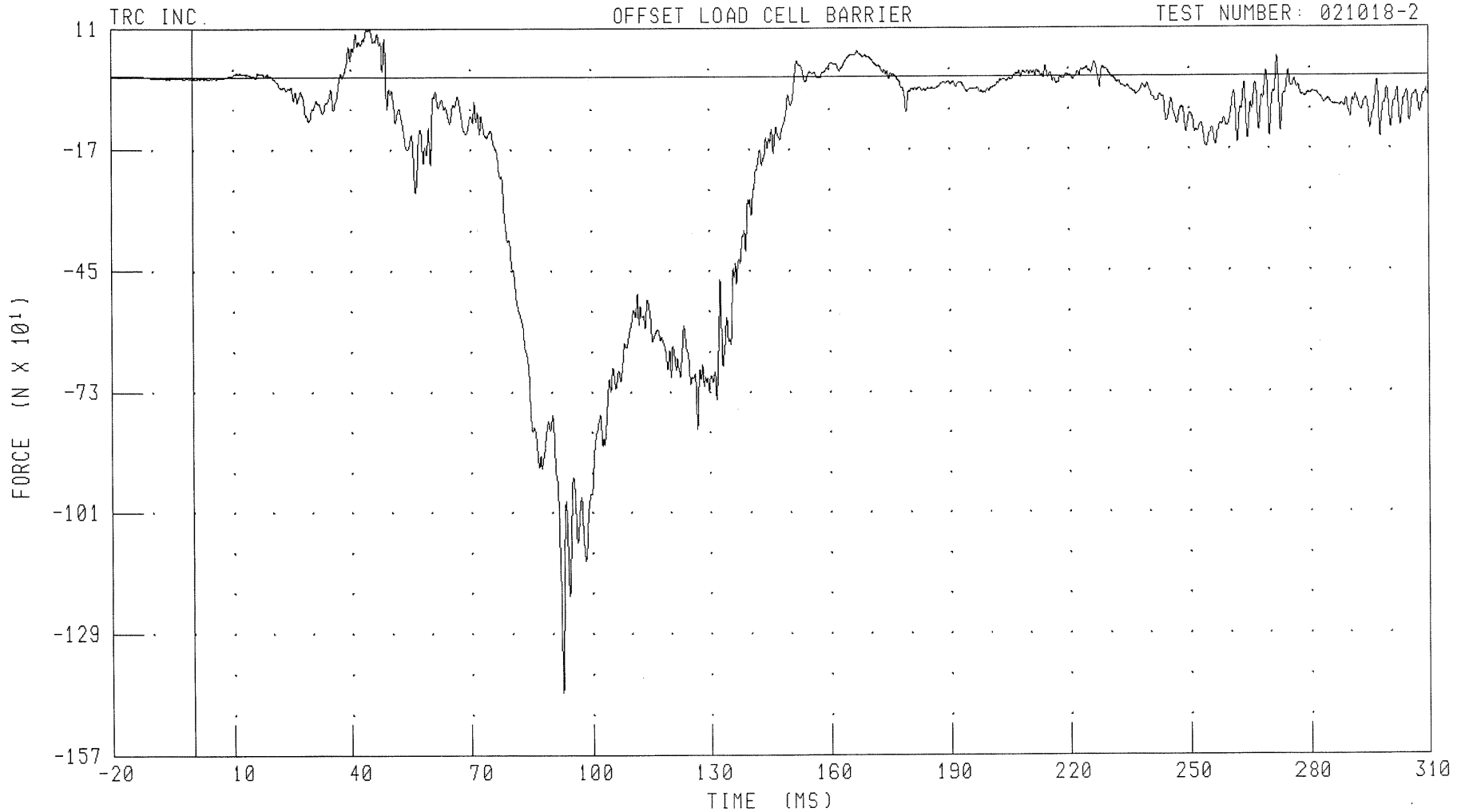
PEAK DATA: 237.30 N @ 62.32 MS; -607.04 N @ 98.80 MS

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

DRIVER LEFT UPPER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



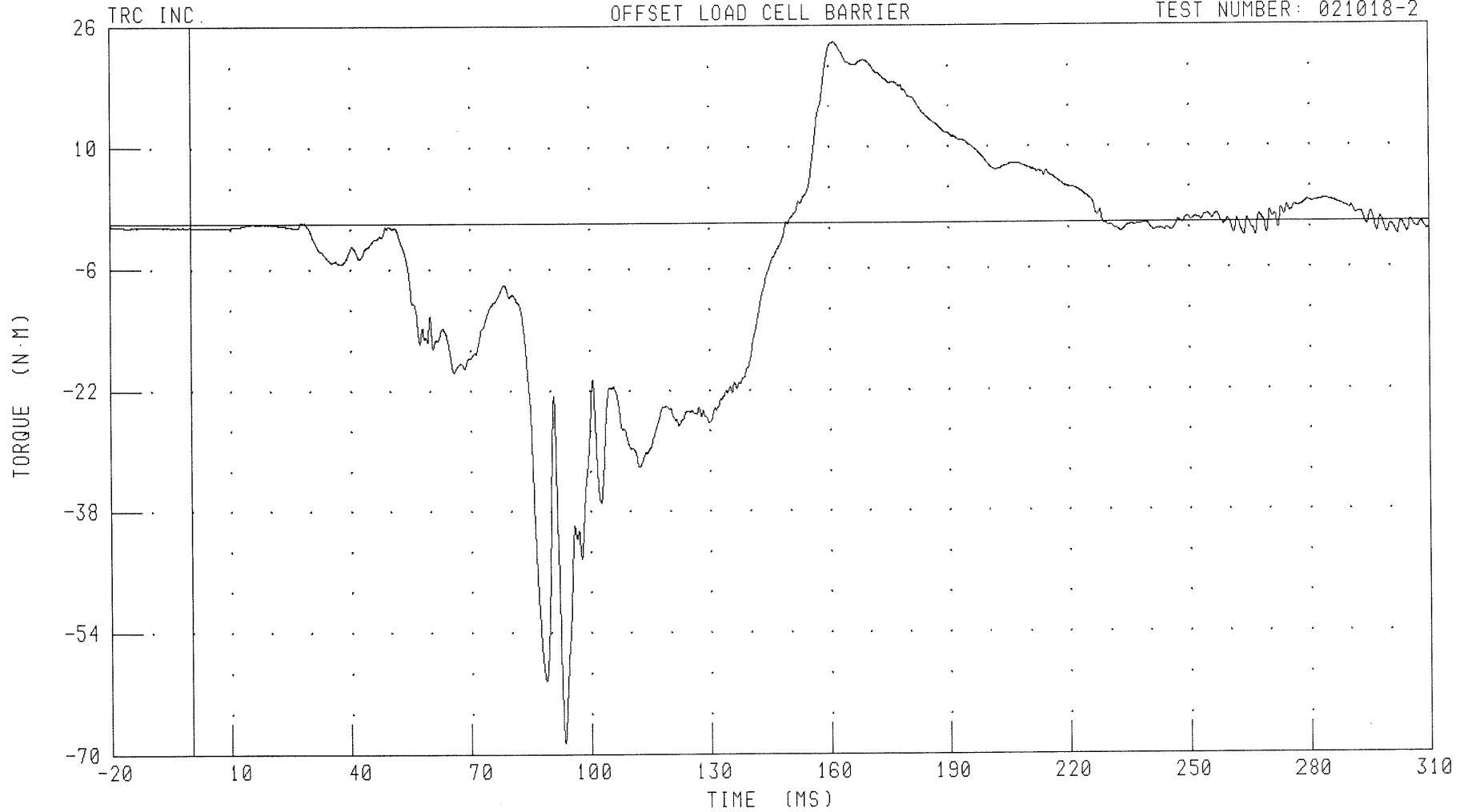
CHANNEL: TBLZF1 FILTER: CH. CLASS 600

PEAK DATA: 108.85 N @ 44.96 MS; -1426.50 N @ 92.56 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: 021018-2



CHANNEL: TBLXM1 FILTER: CH. CLASS 600

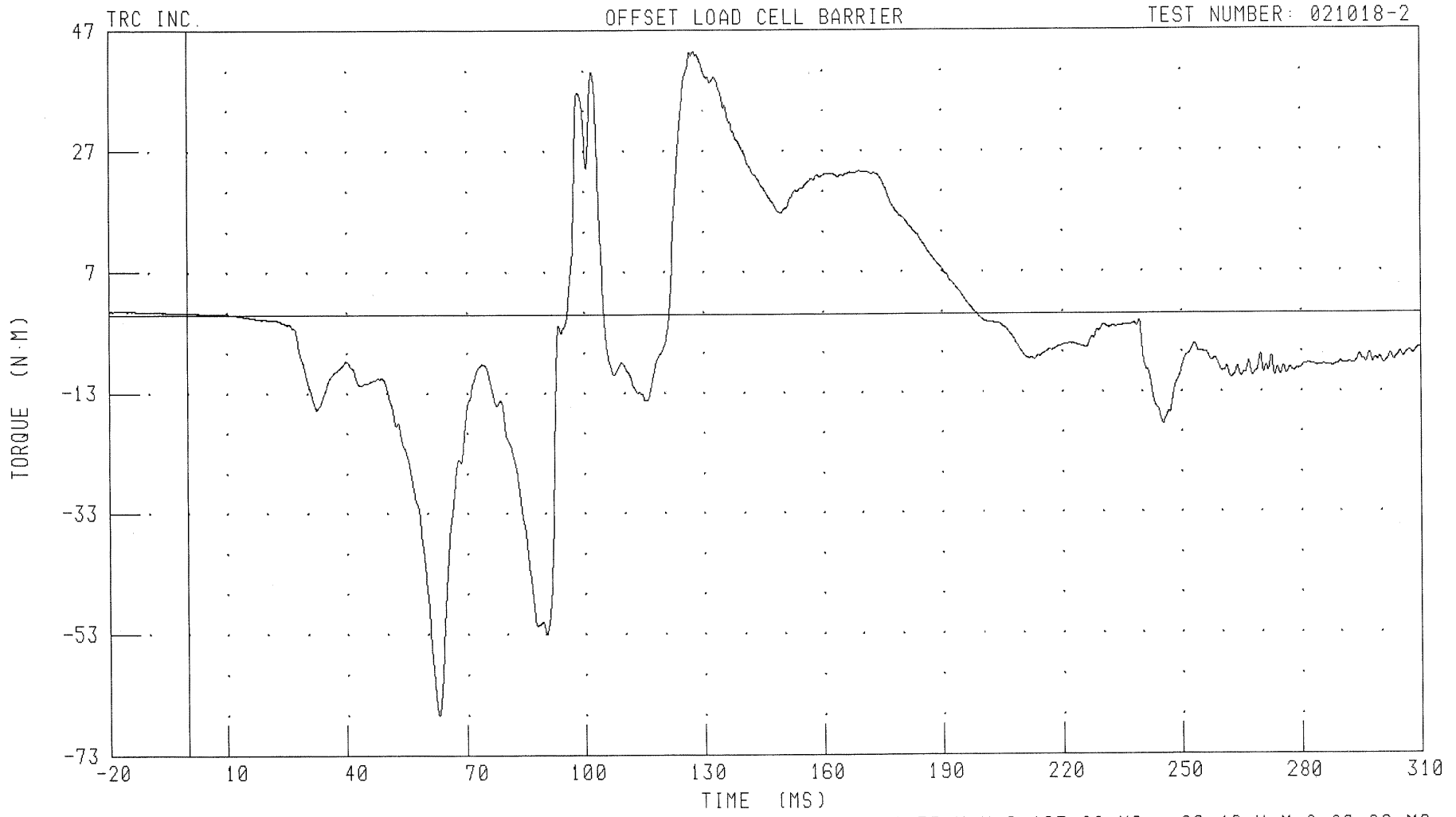
PEAK DATA: 23.84 N·M @ 161.52 MS; -68.58 N·M @ 93.52 MS

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: 021018-2



CHANNEL: TBLYM1 FILTER: CH. CLASS 600

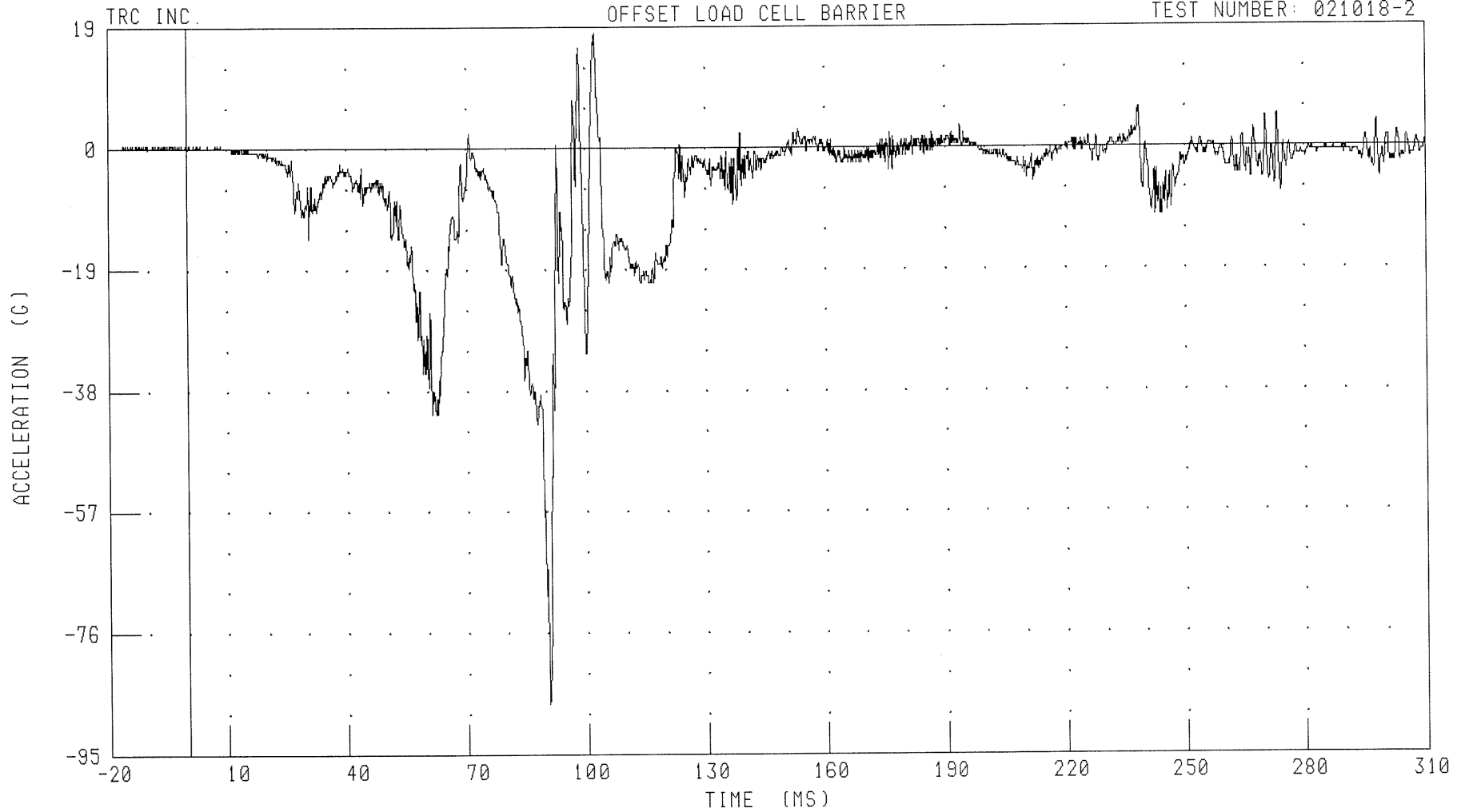
PEAK DATA: 43.53 N·M @ 127.92 MS; -66.46 N·M @ 62.80 MS

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: 021018-2



CHANNEL: TBLXG1 FILTER: CH. CLASS 1000

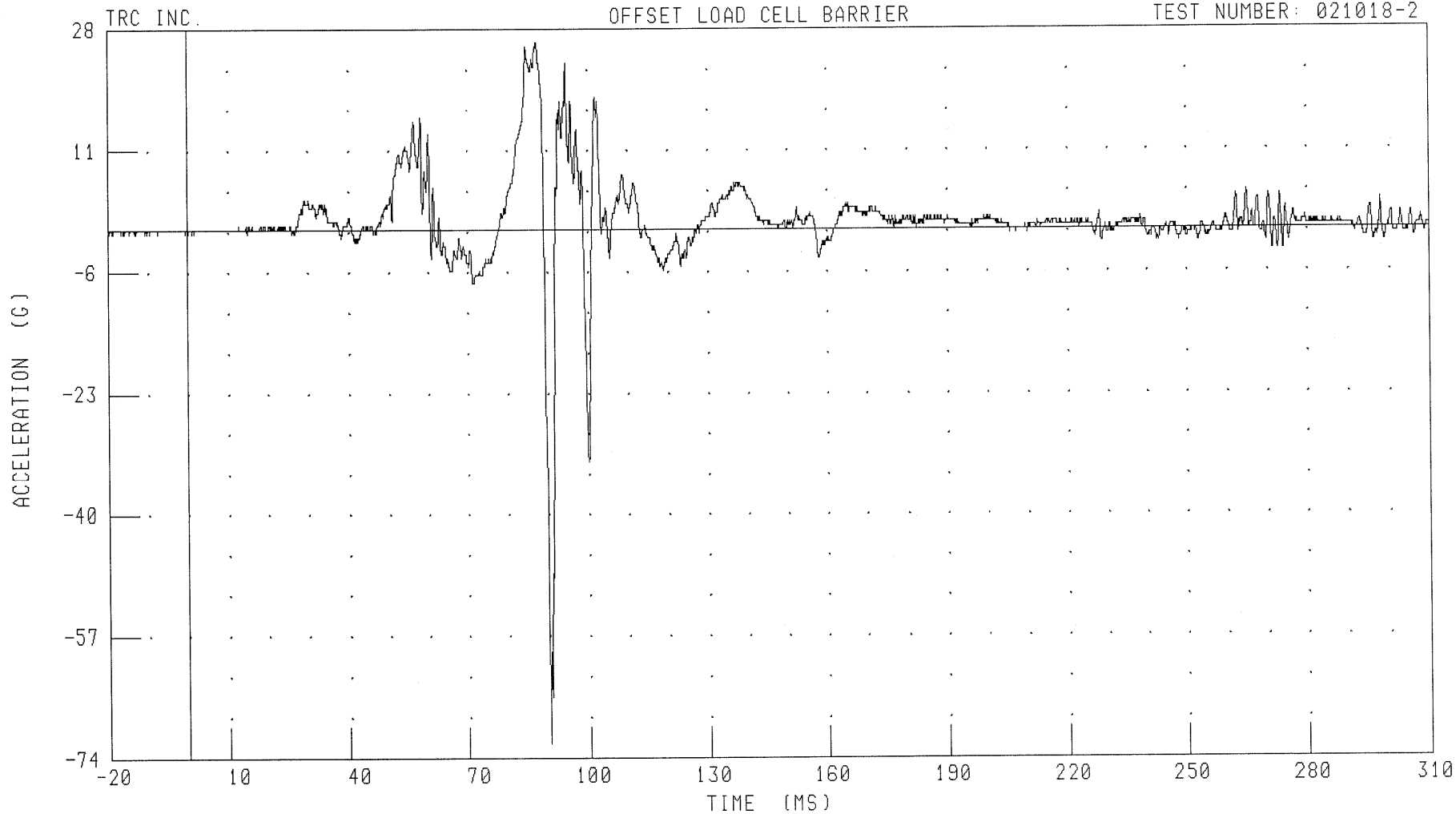
PEAK DATA: 18.10 G @ 102.56 MS; -87.15 G @ 90.56 MS

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: 021018-2



CHANNEL: TBLYG1 FILTER: CH. CLASS 1000

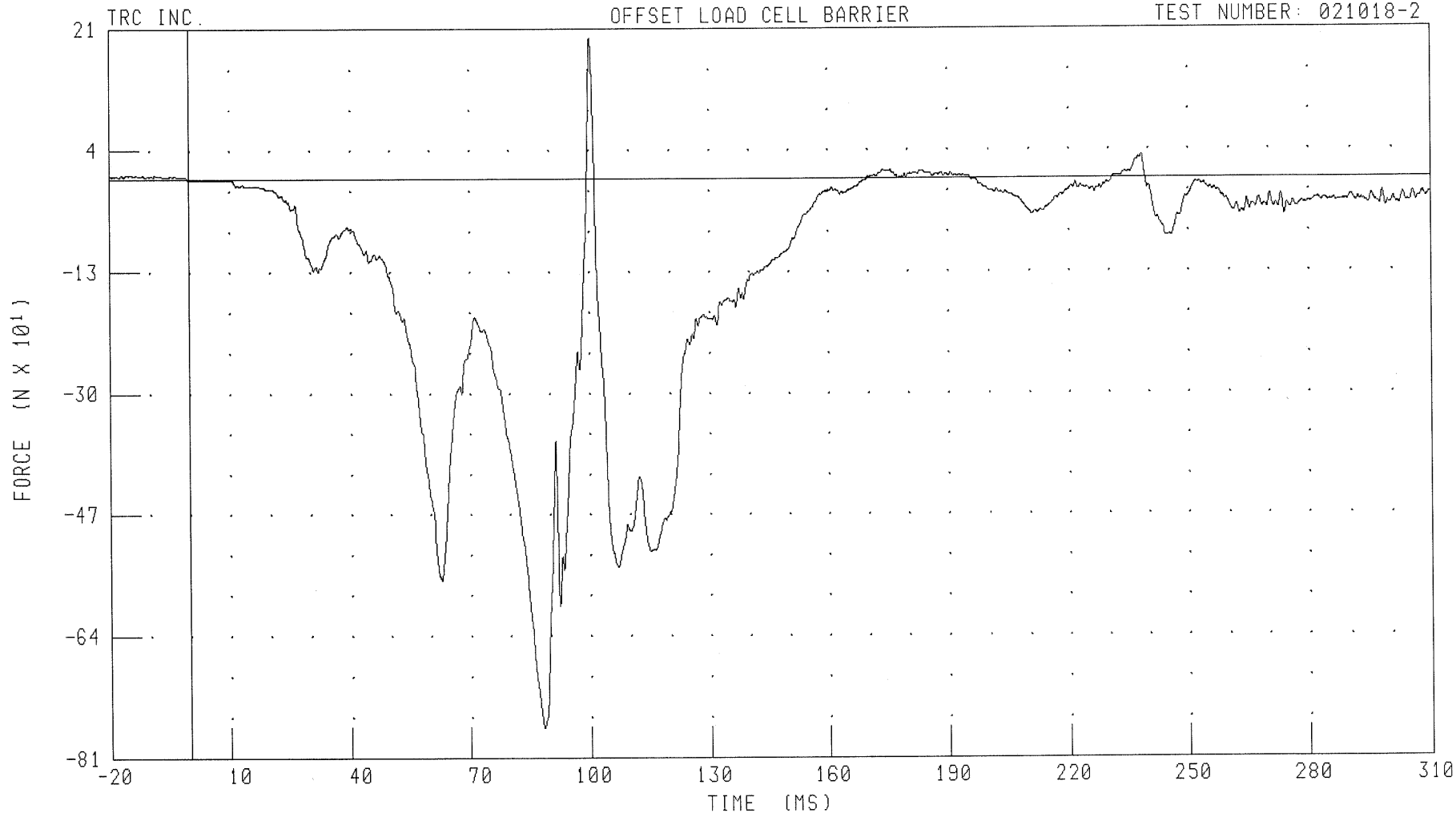
PEAK DATA: 26.14 G @ 87.52 MS; -71.98 G @ 90.16 MS

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: 021018-2



CHANNEL: ANLXF1 FILTER: CH. CLASS 600

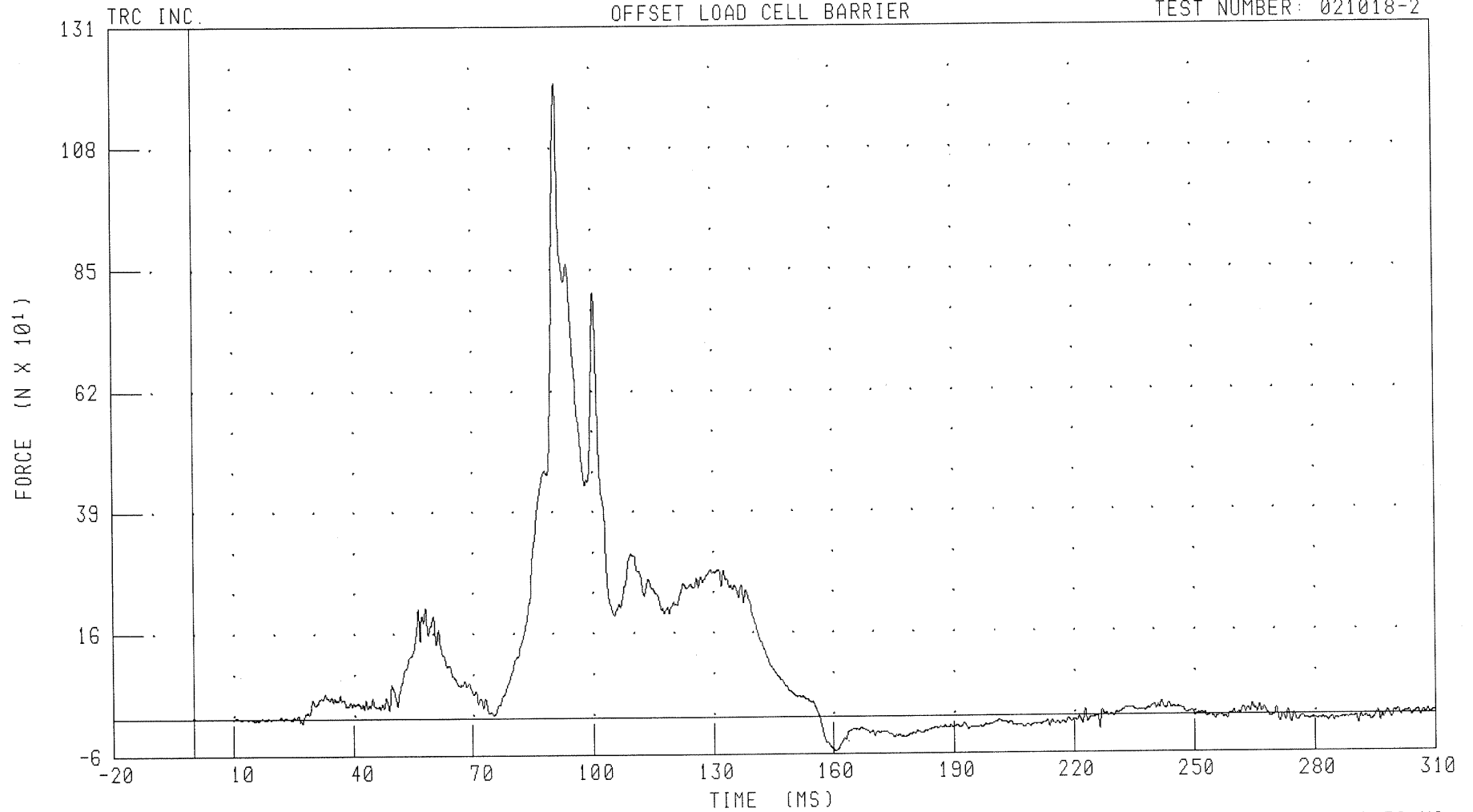
PEAK DATA: 197.74 N @ 100.56 MS; -769.09 N @ 88.32 MS

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: 021018-2



CHANNEL: ANLYF1 FILTER: CH. CLASS 600

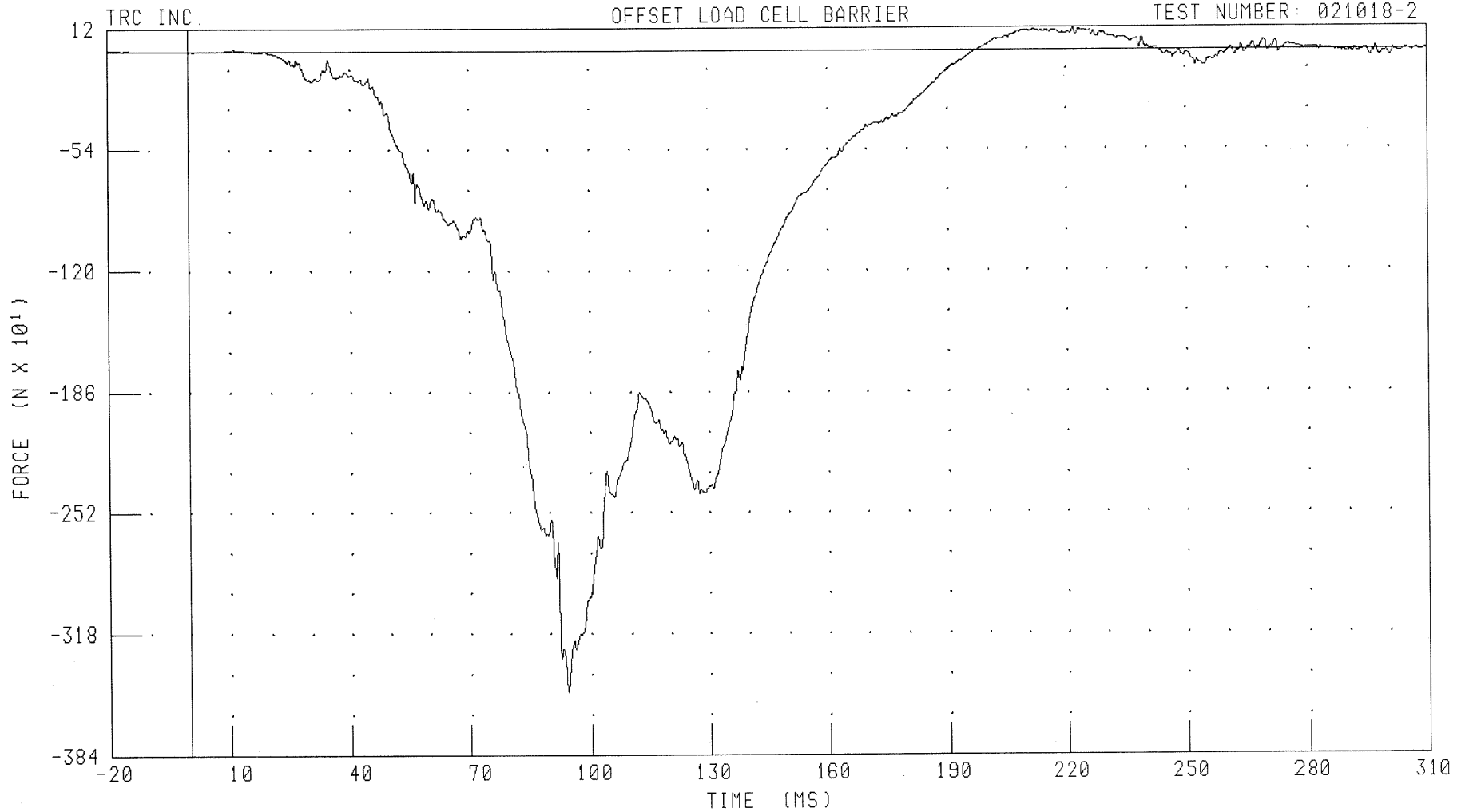
PEAK DATA: 1203.47 N @ 91.36 MS; -63.30 N @ 160.56 MS

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

DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: ANLZF1

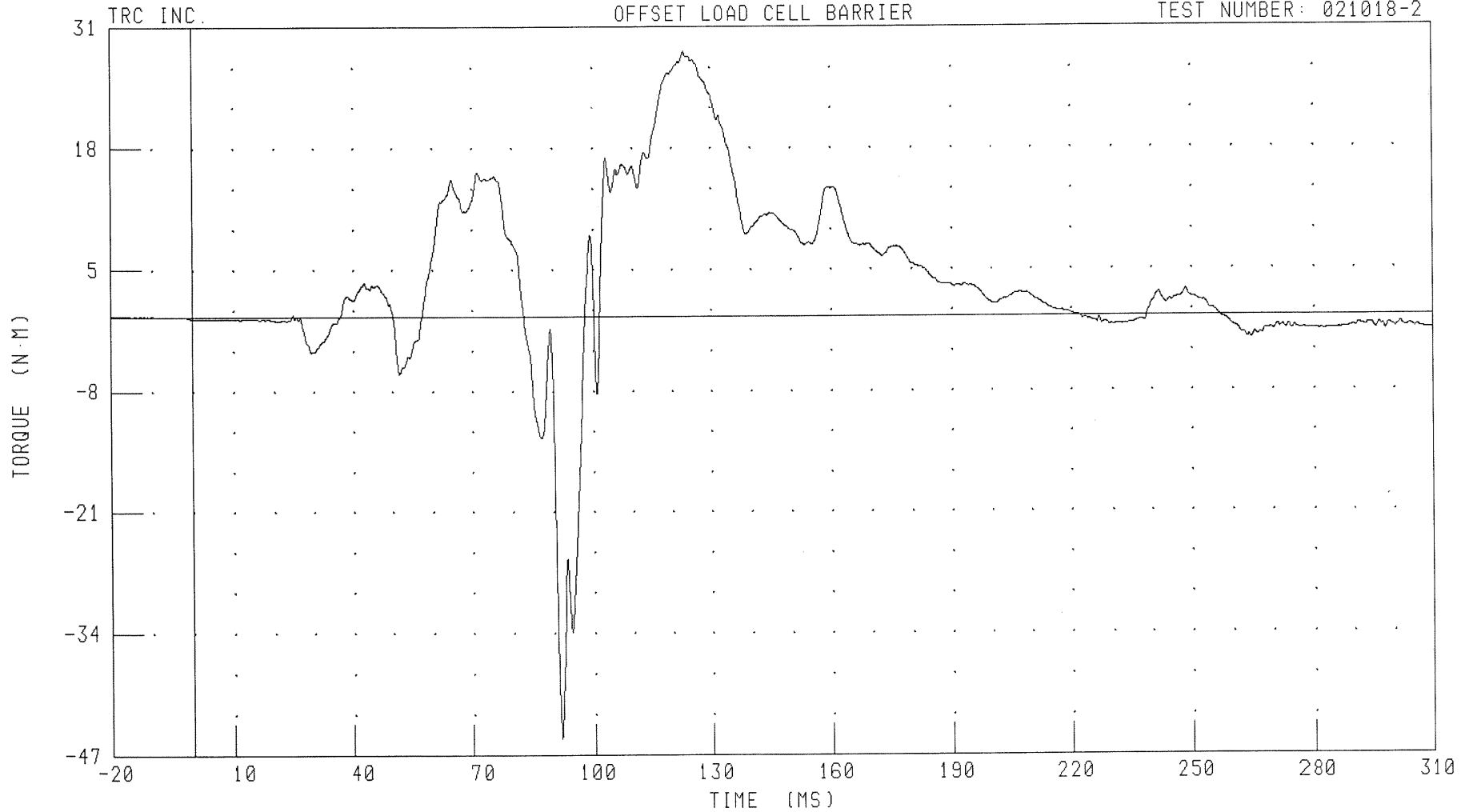
FILTER: CH. CLASS 600

PEAK DATA: 114.30 N @ 222.08 MS; -3497.36 N @ 94.40 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: 021018-2



CHANNEL: ANLXM1

FILTER: CH. CLASS 600

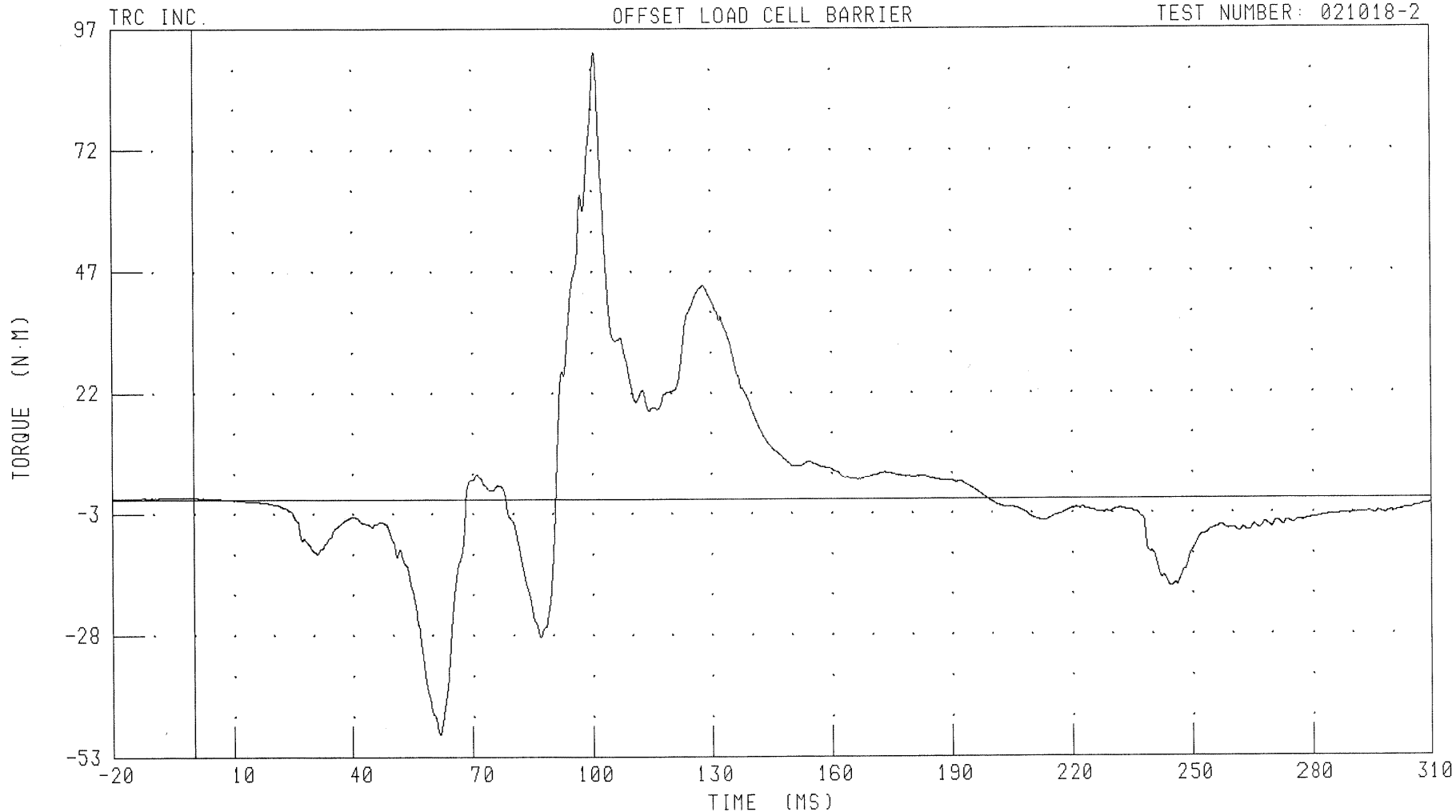
PEAK DATA: 28.43 N·M @ 123.44 MS; -45.24 N·M @ 91.84 MS

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: 021018-2



CHANNEL: ANLYM1

FILTER: CH. CLASS 600

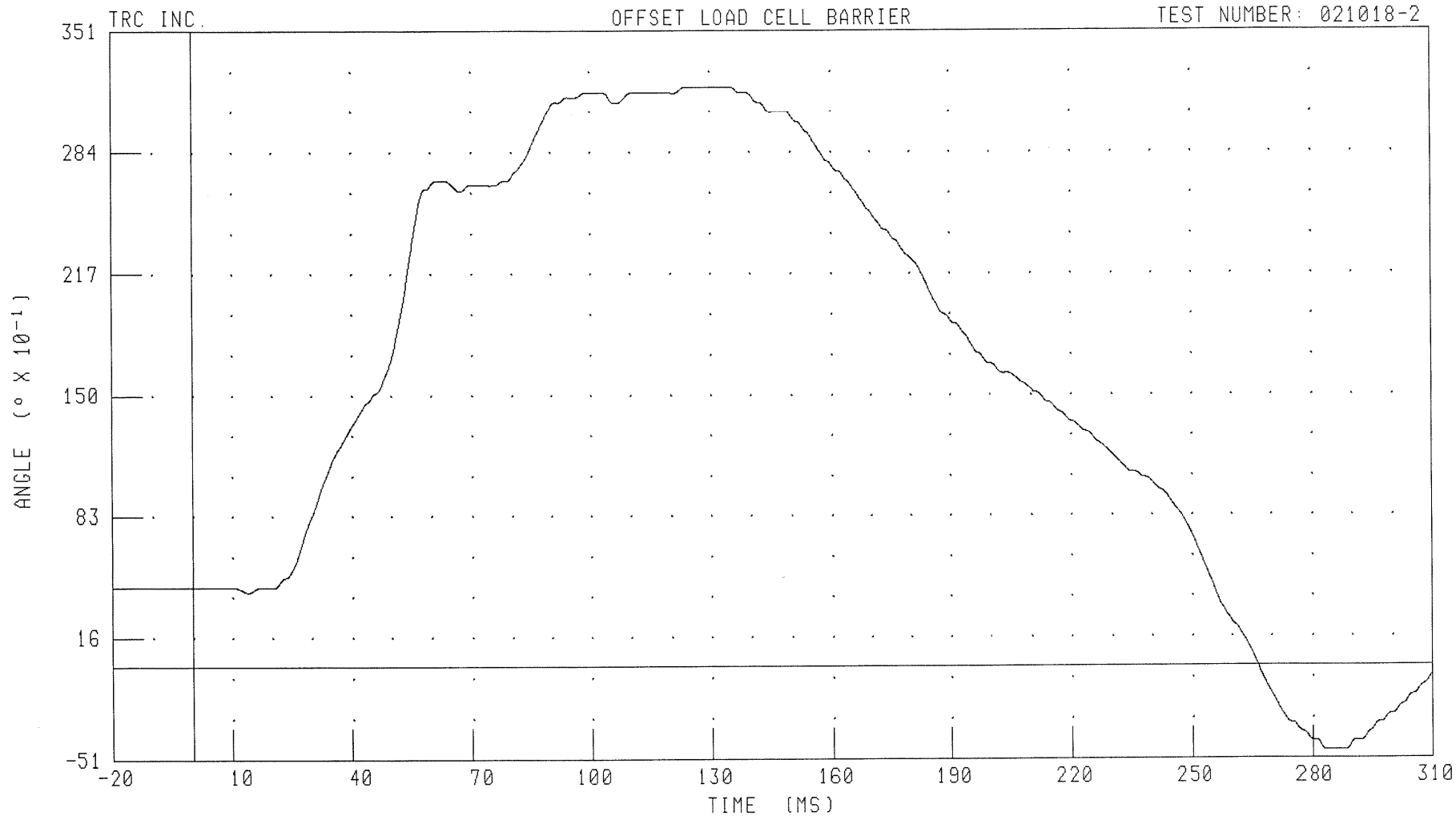
PEAK DATA: 92.11 N·M @ 100.96 MS; -48.33 N·M @ 61.84 MS

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: 021018-2

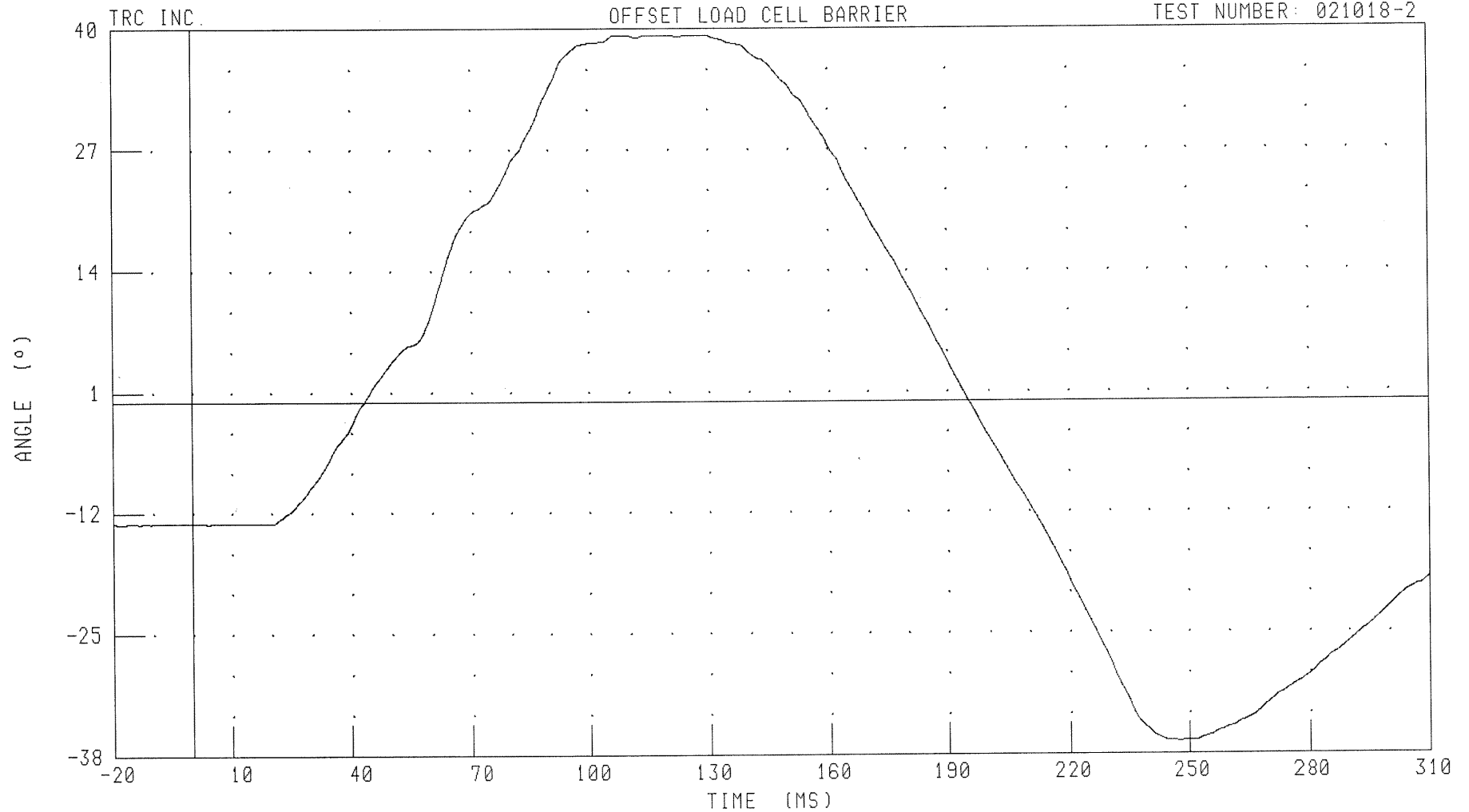


CHANNEL: FTLXD1 FILTER: CH. CLASS 180

PEAK DATA: 32.02  $^{\circ}$  @ 128.16 MS; -4.68  $^{\circ}$  @ 284.88 MS

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

TEST NUMBER: 021018-2



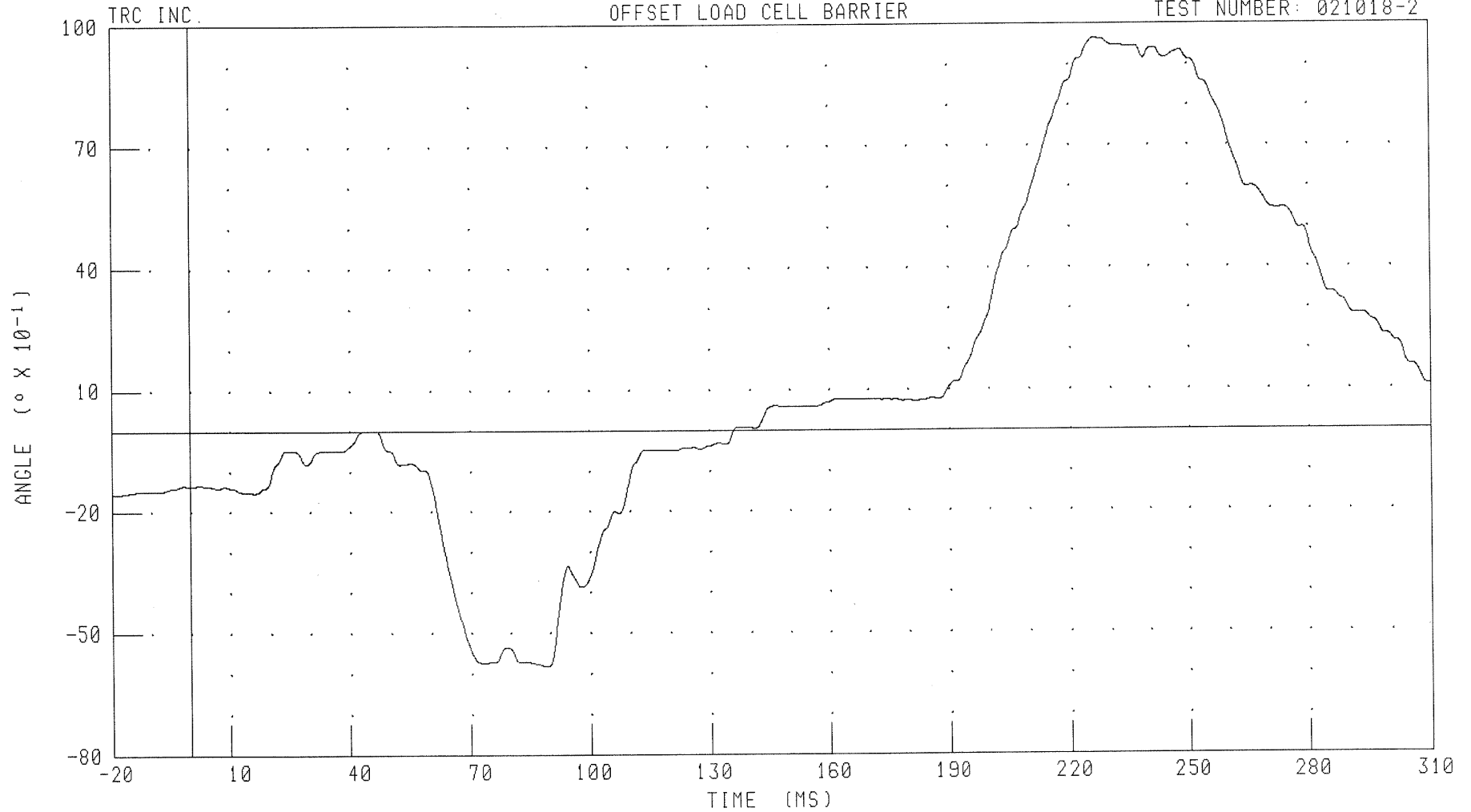
CHANNEL: FTLYD1 FILTER: CH. CLASS 180

PEAK DATA: 39.31 ° @ 109.28 MS; -36.68 ° @ 247.52 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: 021018-2



CHANNEL: FTLZD1 FILTER: CH. CLASS 180

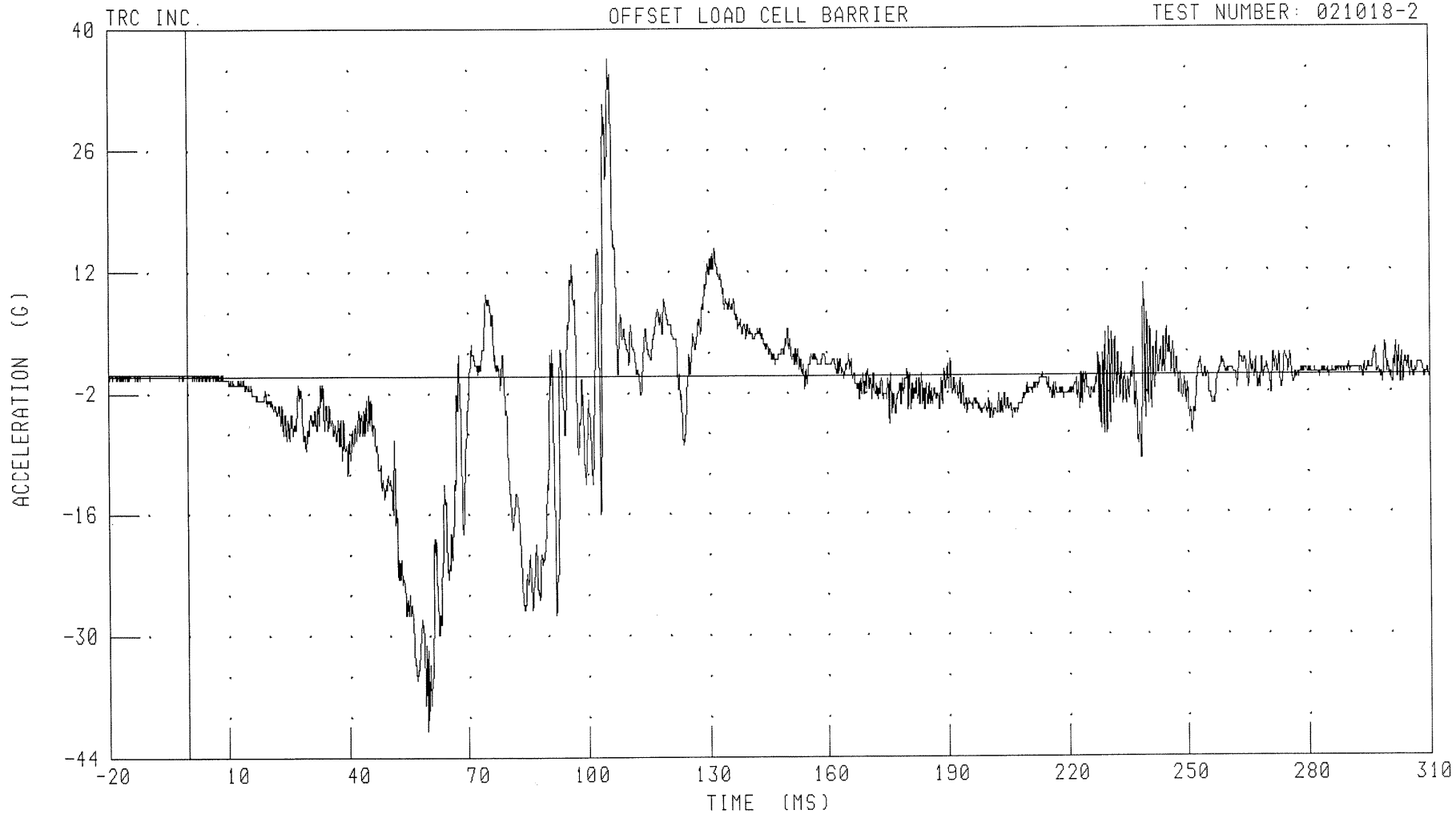
PEAK DATA: 9.65 ° @ 226.56 MS; -5.82 ° @ 88.80 MS

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

DRIVER LEFT FOOT X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: FTLXG1 FILTER: CH. CLASS 1000

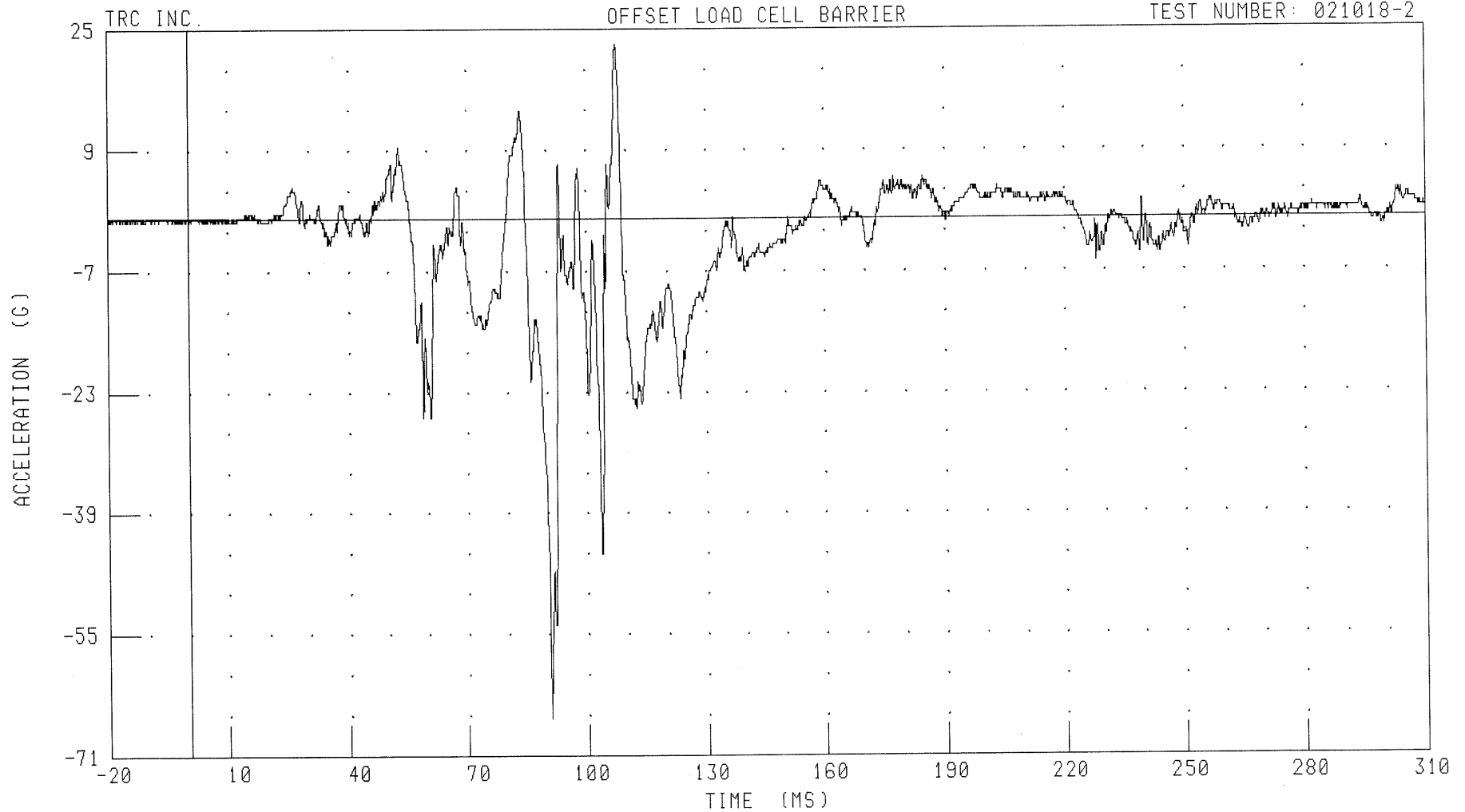
PEAK DATA: 36.57 G @ 105.44 MS; -40.89 G @ 59.52 MS

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: 021018-2



CHANNEL: FTLYG1 FILTER: CH. CLASS 1000

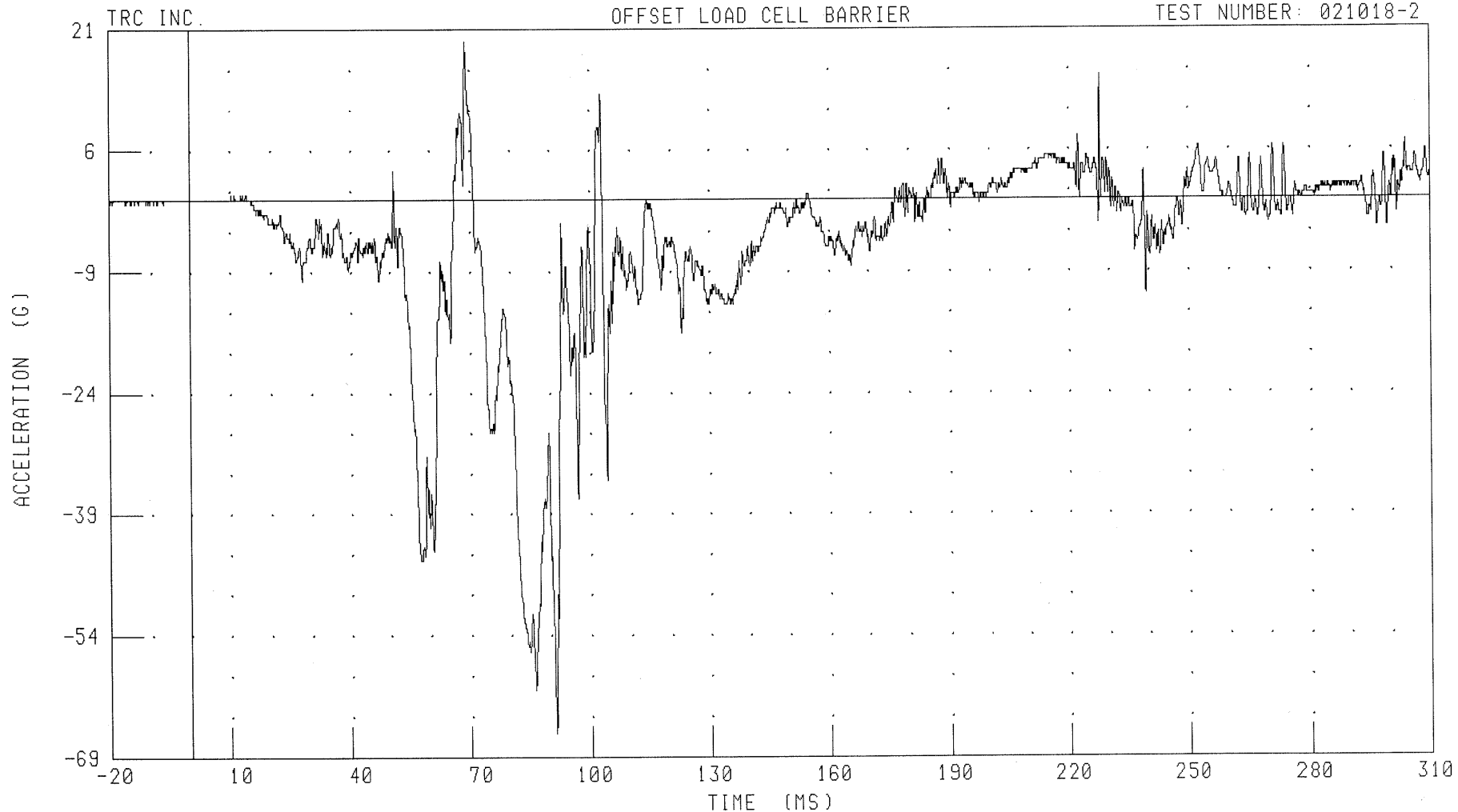
PEAK DATA: 22.95 G @ 107.68 MS; -66.07 G @ 90.72 MS

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: 021018-2



CHANNEL: FTLZG1 FILTER: CH. CLASS 1000

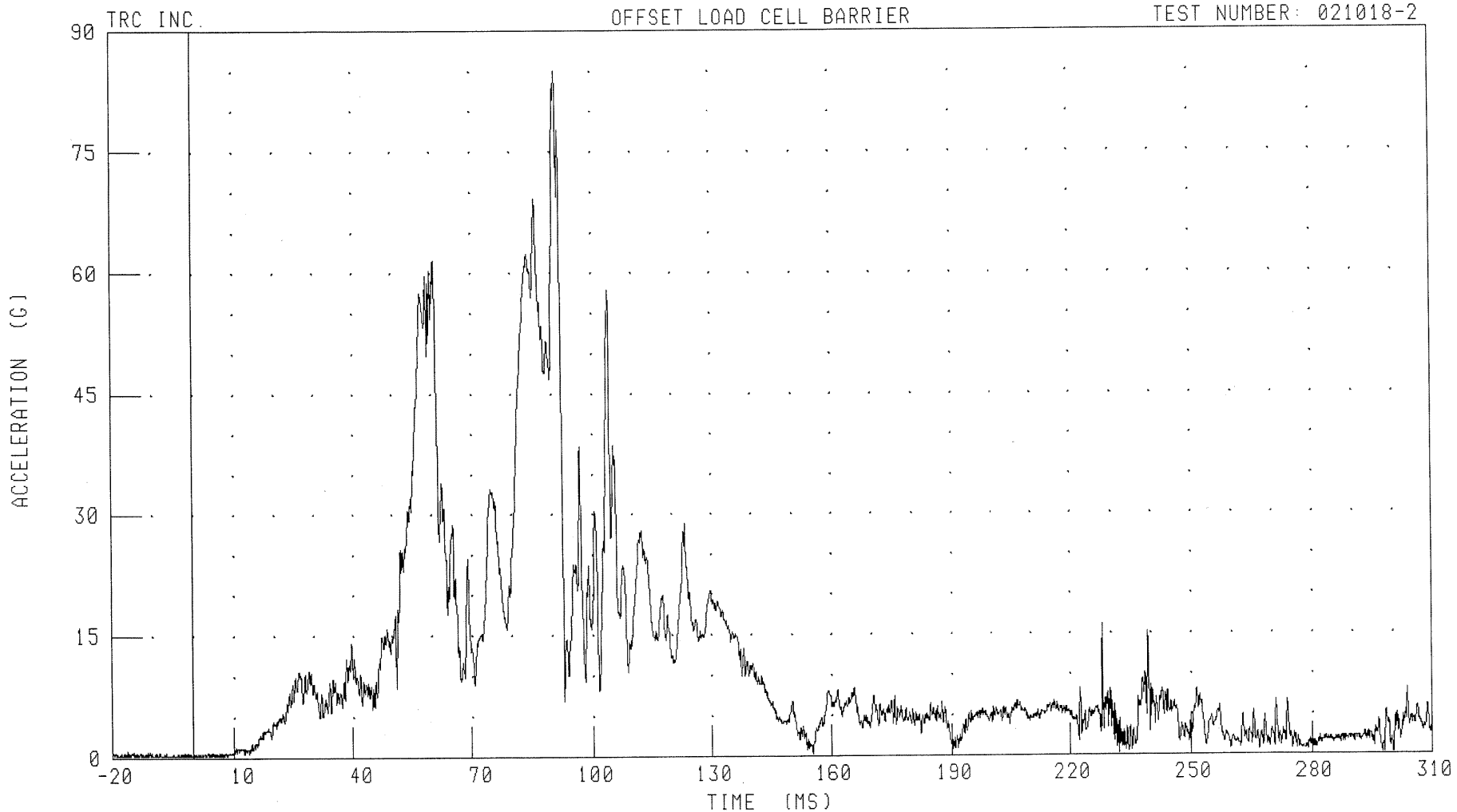
PEAK DATA: 19.46 G @ 69.12 MS; -66.05 G @ 91.28 MS

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

DRIVER LEFT FOOT RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: FTLRG1

FILTER: CH. CLASS 1000

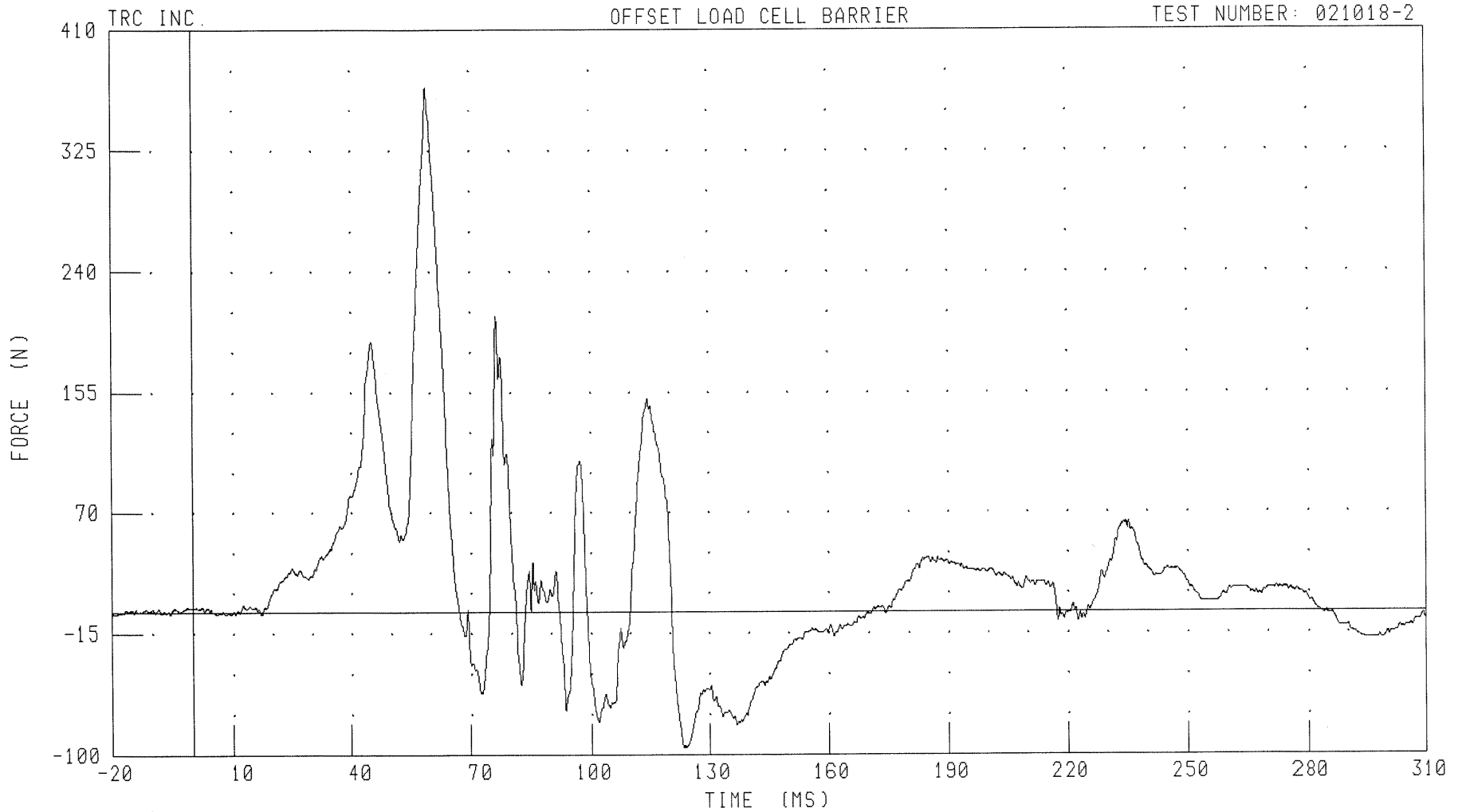
PEAK DATA: 85.05 G @ 91.20 MS; 0.19 G @ -19.92 MS

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: 021018-2



CHANNEL: TBRXF1

FILTER: CH. CLASS 600

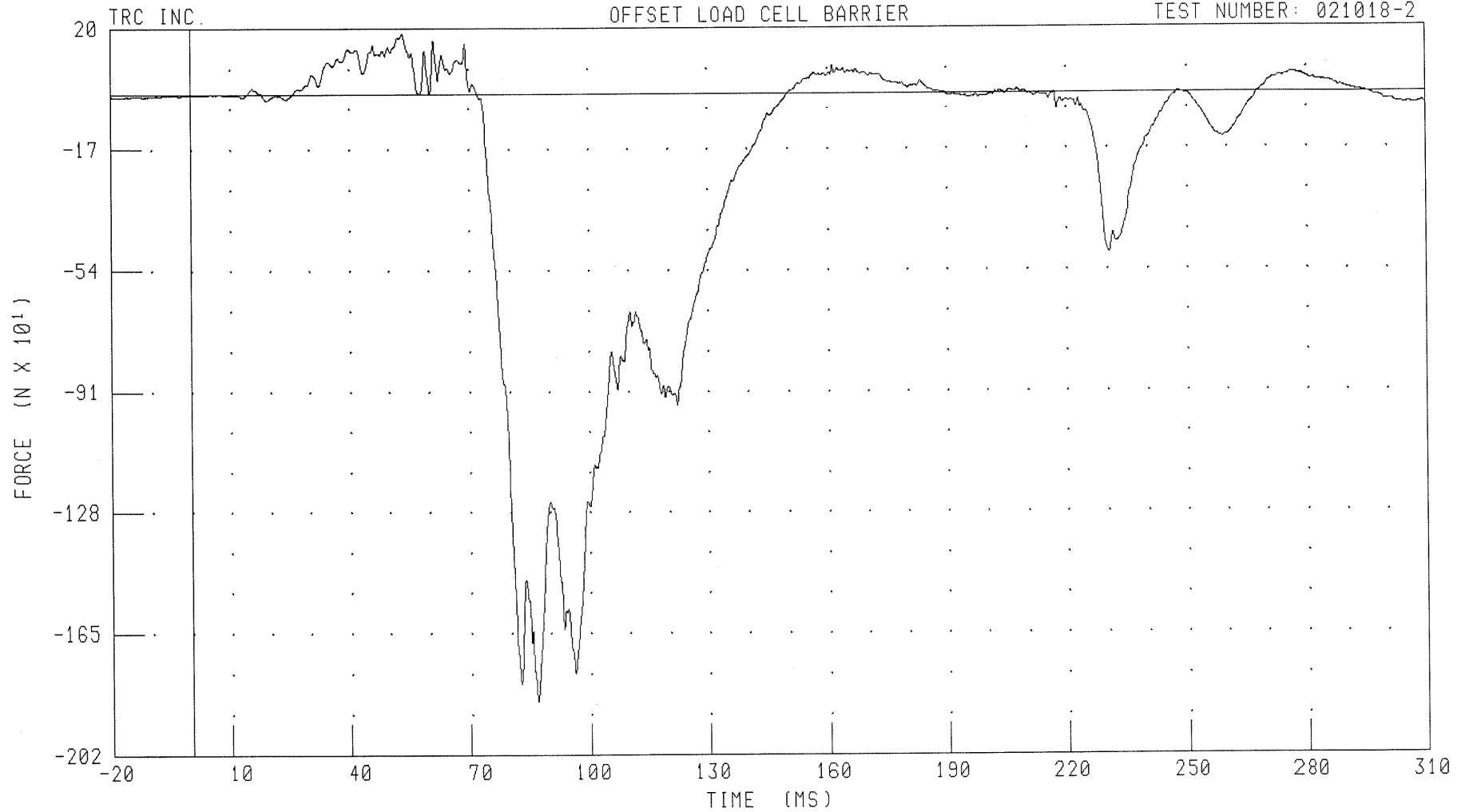
PEAK DATA: 370.03 N @ 59.36 MS; -95.21 N @ 123.60 MS

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: 021018-2



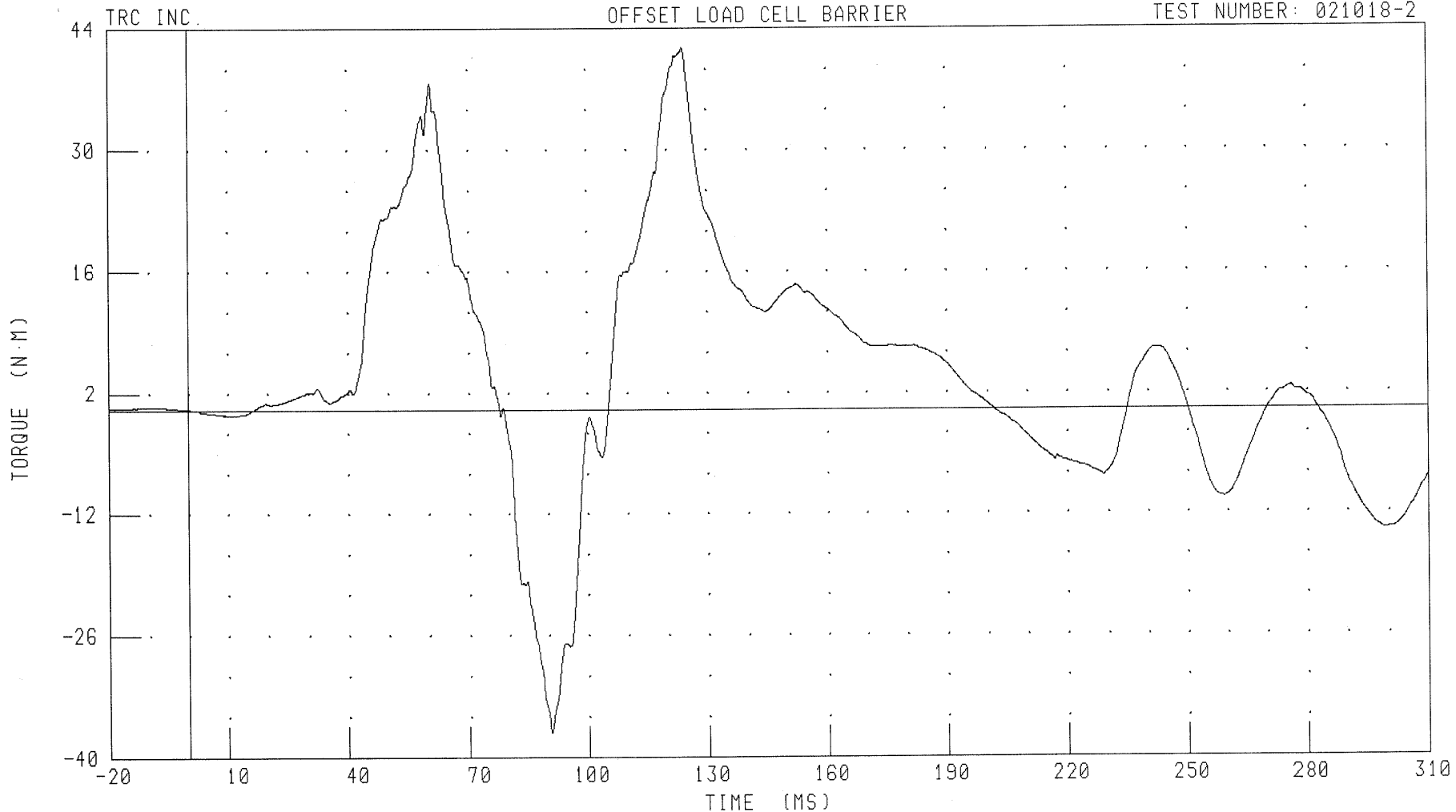
CHANNEL: TBRZF1 FILTER: CH. CLASS 600

PEAK DATA: 184.01 N @ 53.84 MS; -1857.24 N @ 86.80 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: 021018-2



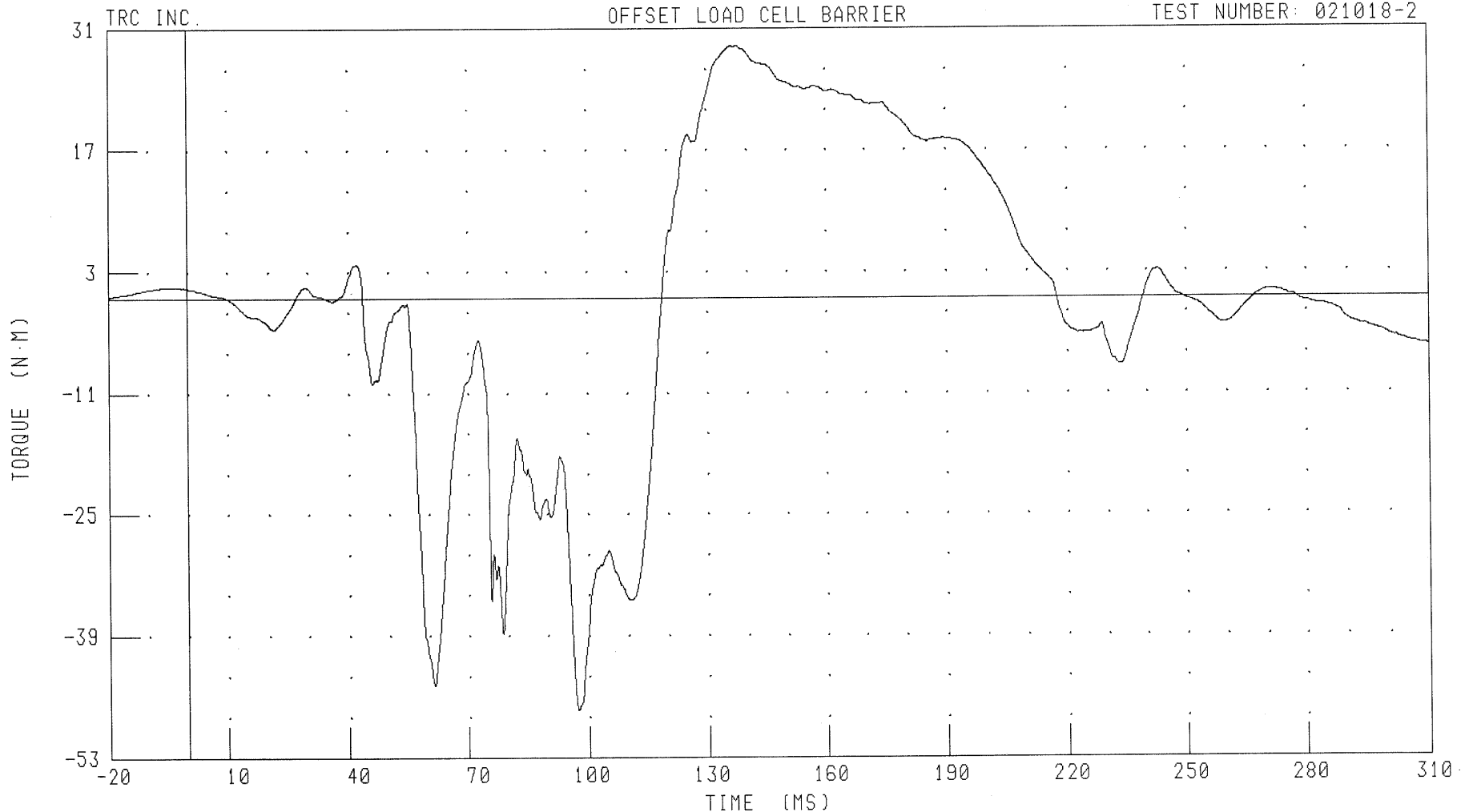
CHANNEL: TBRXM1 FILTER: CH. CLASS 600

PEAK DATA: 41.77 N·M @ 124.24 MS; -37.13 N·M @ 90.64 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: 021018-2



CHANNEL: TBRYM1 FILTER: CH. CLASS 600

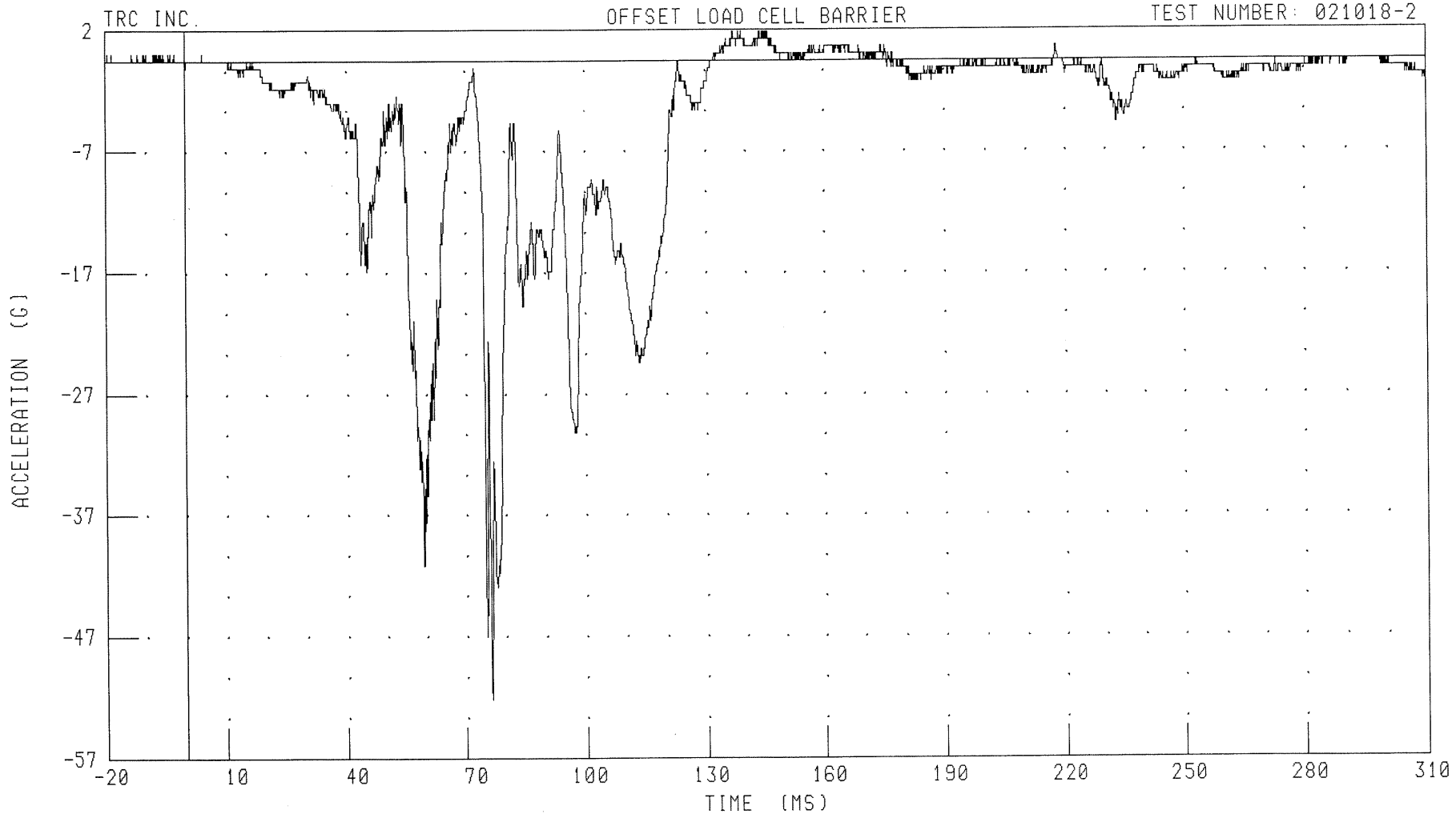
PEAK DATA: 29.02 N·M @ 137.84 MS; -47.61 N·M @ 97.52 MS

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: 021018-2



CHANNEL: TBRXG1

FILTER: CH. CLASS 1000

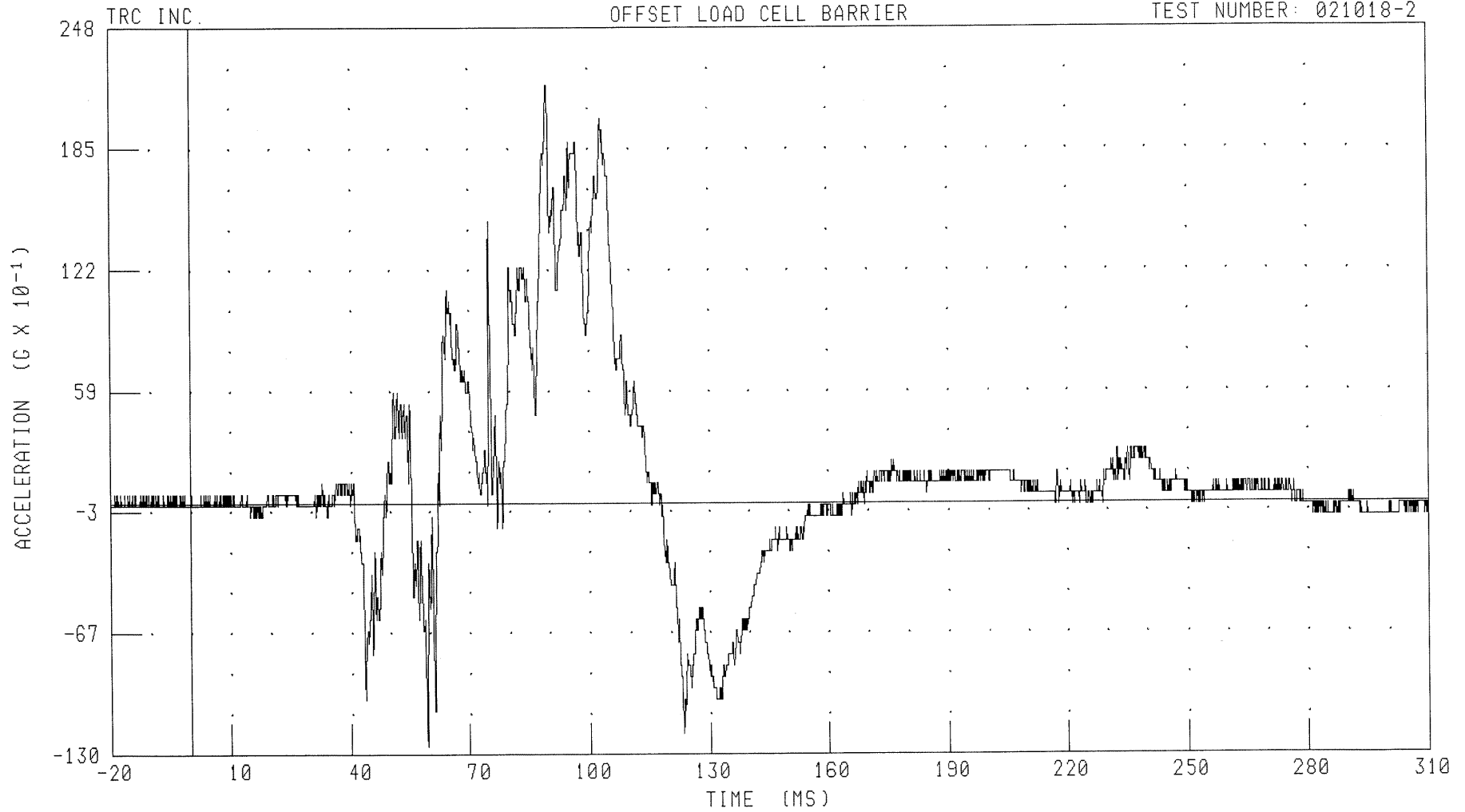
PEAK DATA: 2.31 G @ 136.96 MS; -52.71 G @ 76.40 MS

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: 021018-2



CHANNEL: TBRYG1 FILTER: CH. CLASS 1000

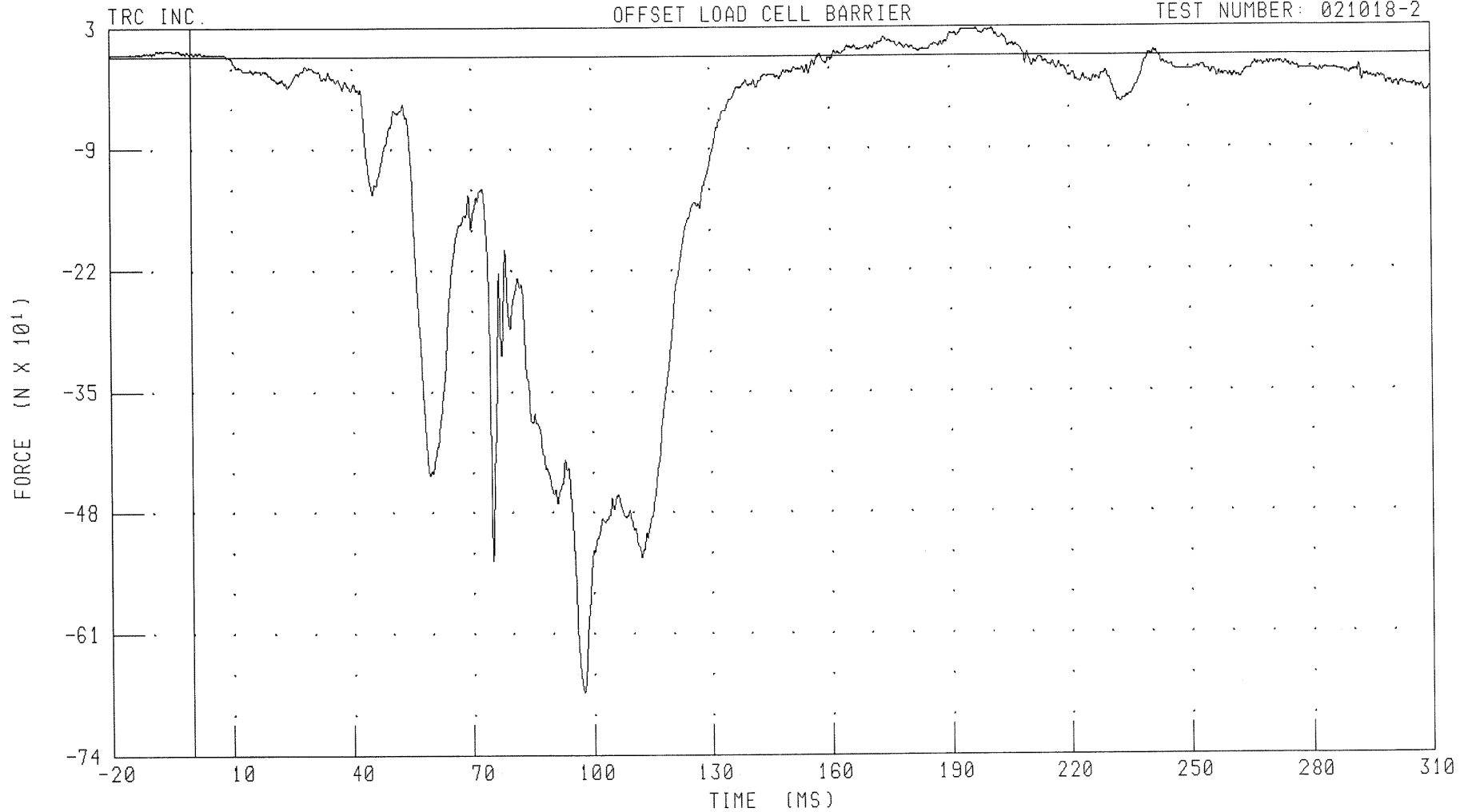
PEAK DATA: 21.83 G @ 89.68 MS; -12.56 G @ 59.36 MS

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: 021018-2



CHANNEL: ANRXF1 FILTER: CH. CLASS 600

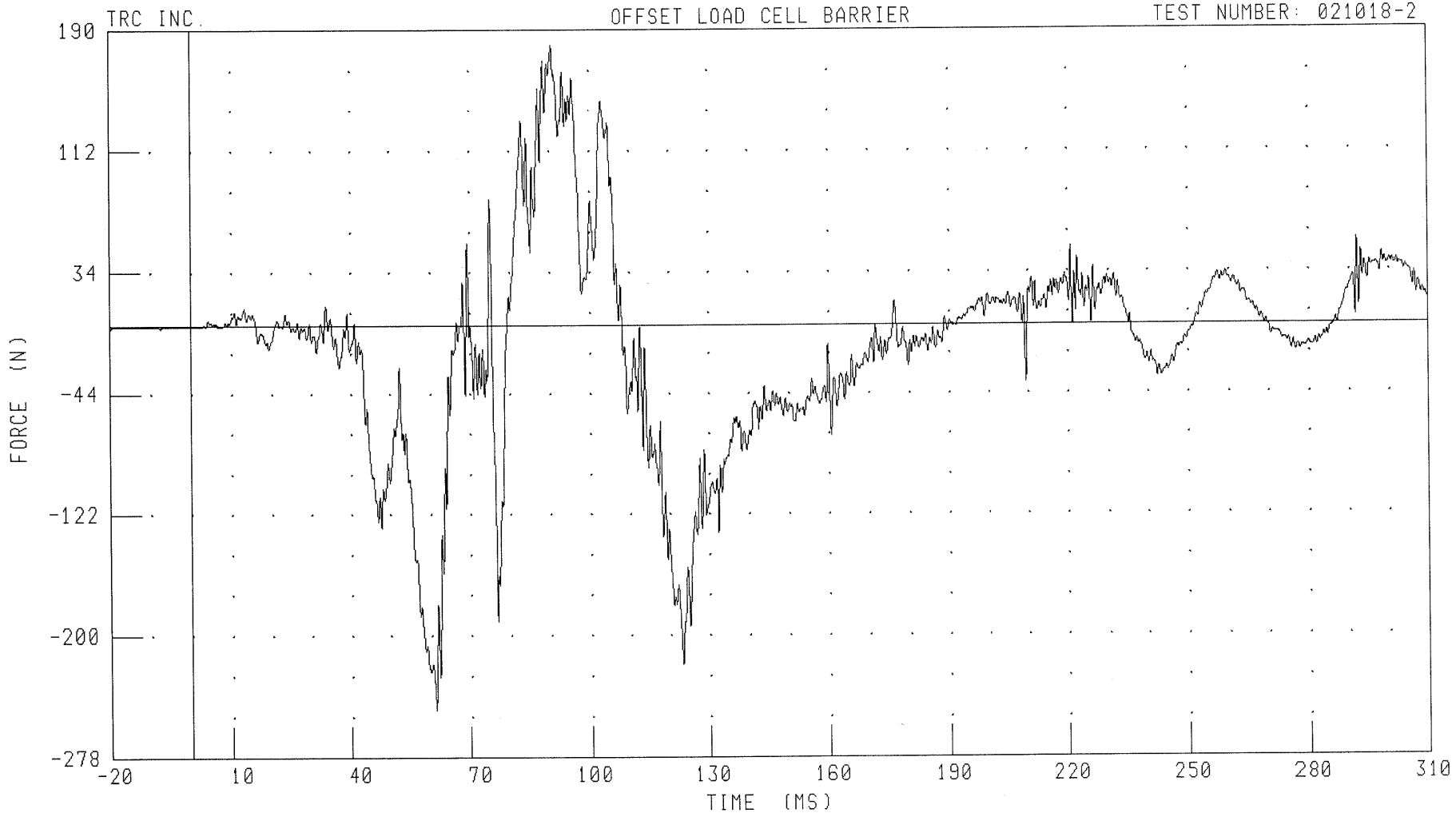
PEAK DATA: 28.60 N @ 196.80 MS; -681.97 N @ 97.60 MS

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: 021018-2



CHANNEL: ANRYF1

FILTER: CH. CLASS 600

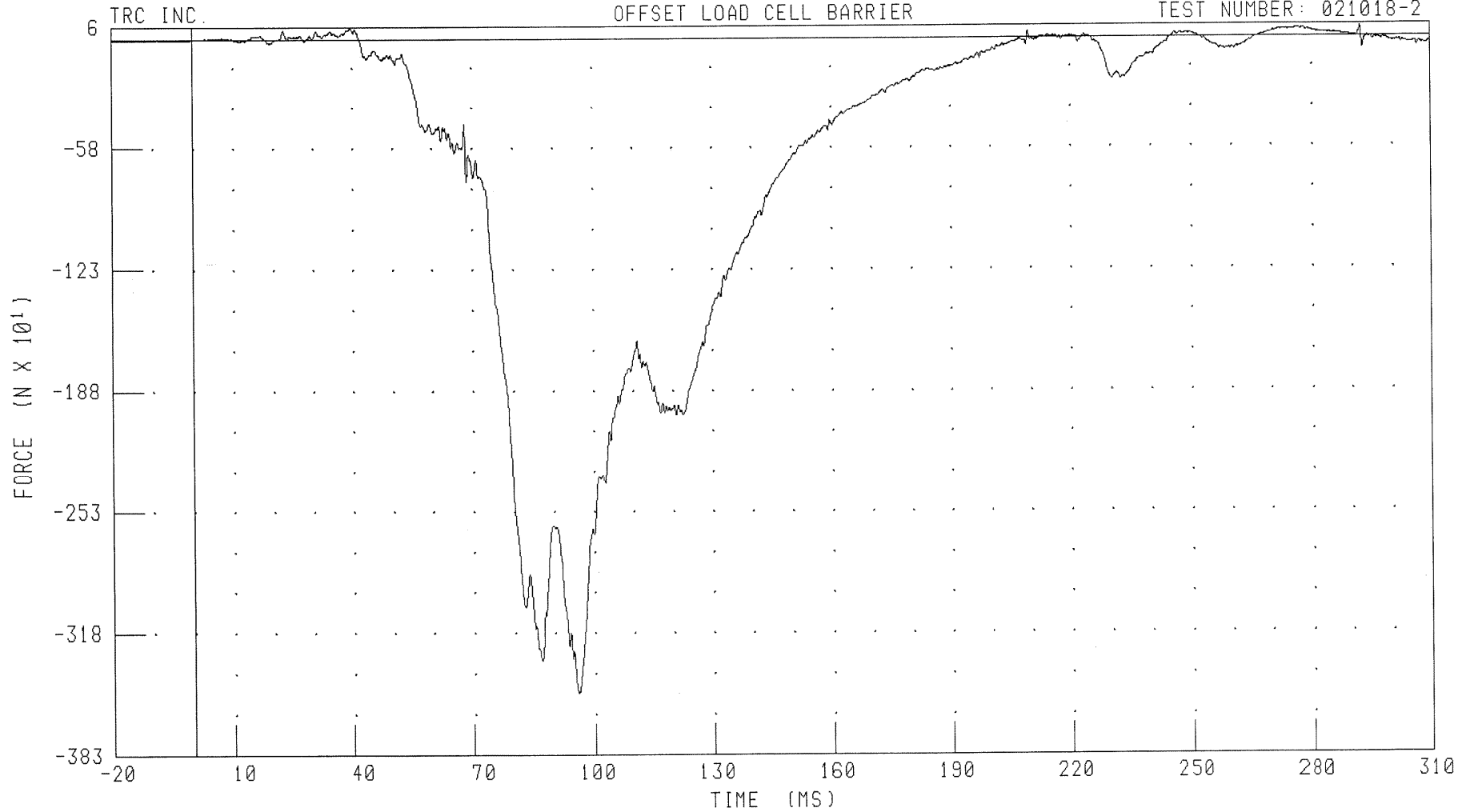
PEAK DATA: 180.28 N @ 90.80 MS; -247.81 N @ 61.28 MS

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: 021018-2



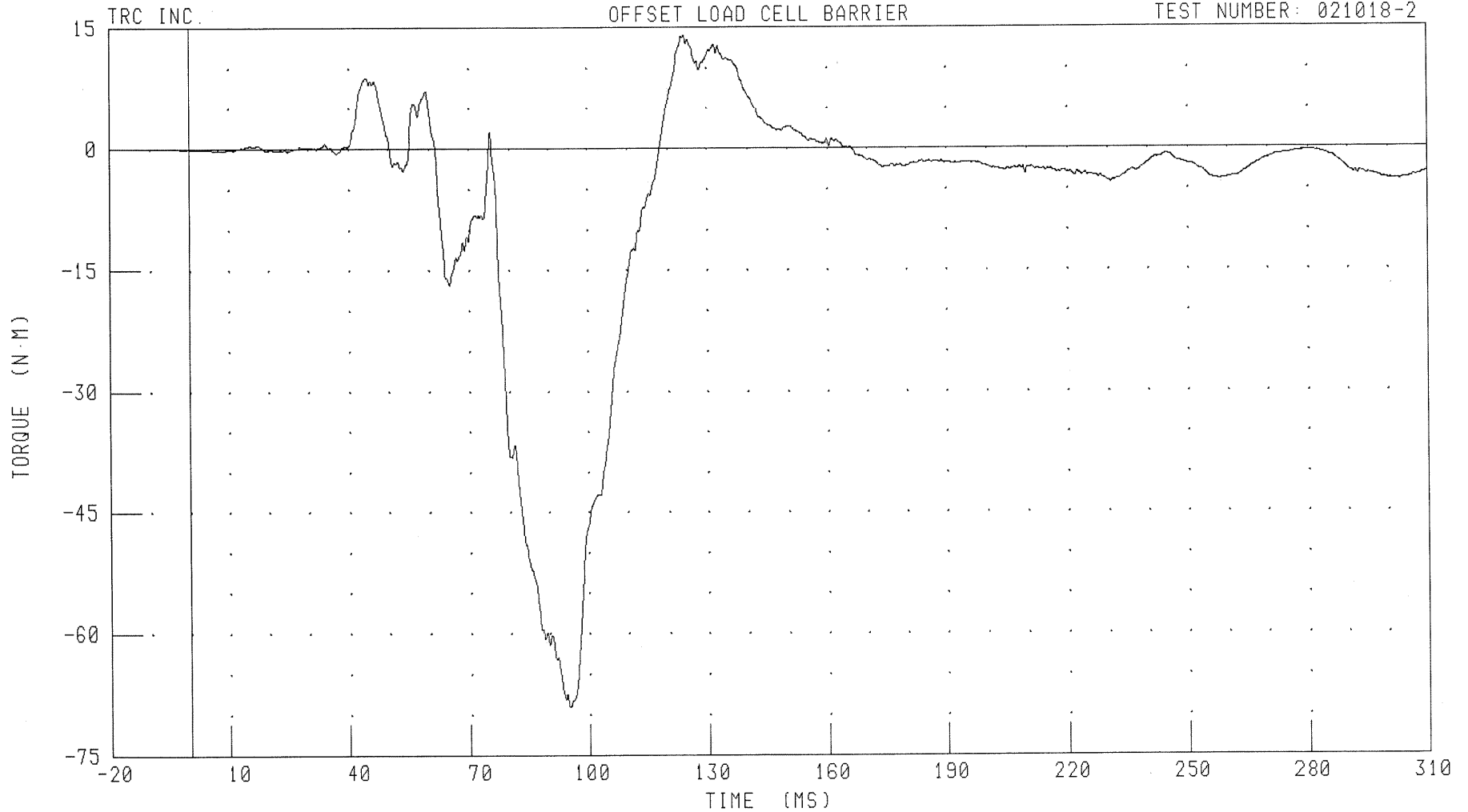
CHANNEL: ANRZF1 FILTER: CH. CLASS 600

PEAK DATA: 57.64 N @ 39.92 MS; -3505.65 N @ 95.84 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: 021018-2



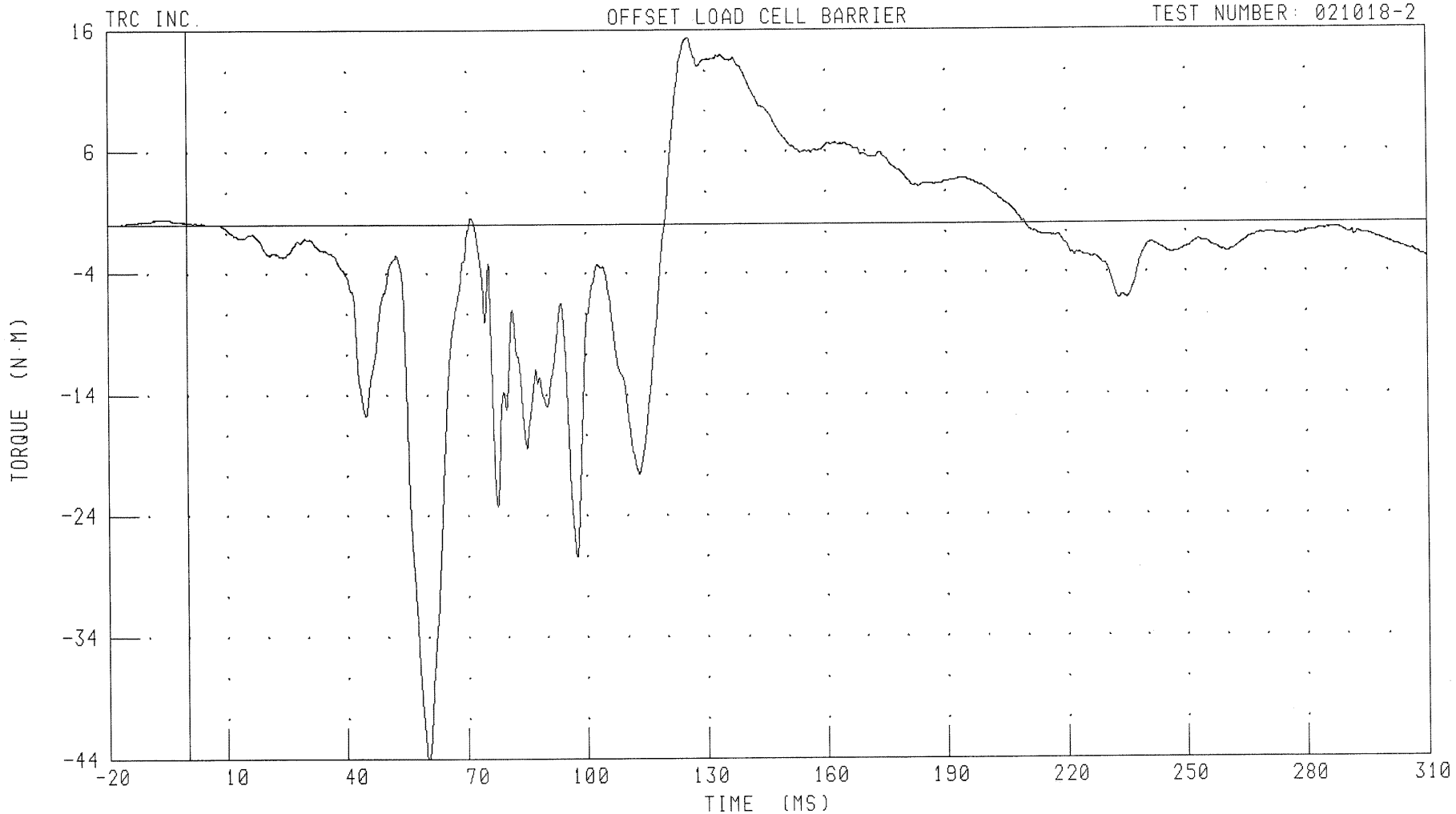
CHANNEL: ANRXM1 FILTER: CH. CLASS 600

PEAK DATA: 13.98 N·M @ 124.40 MS; -69.07 N·M @ 95.12 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



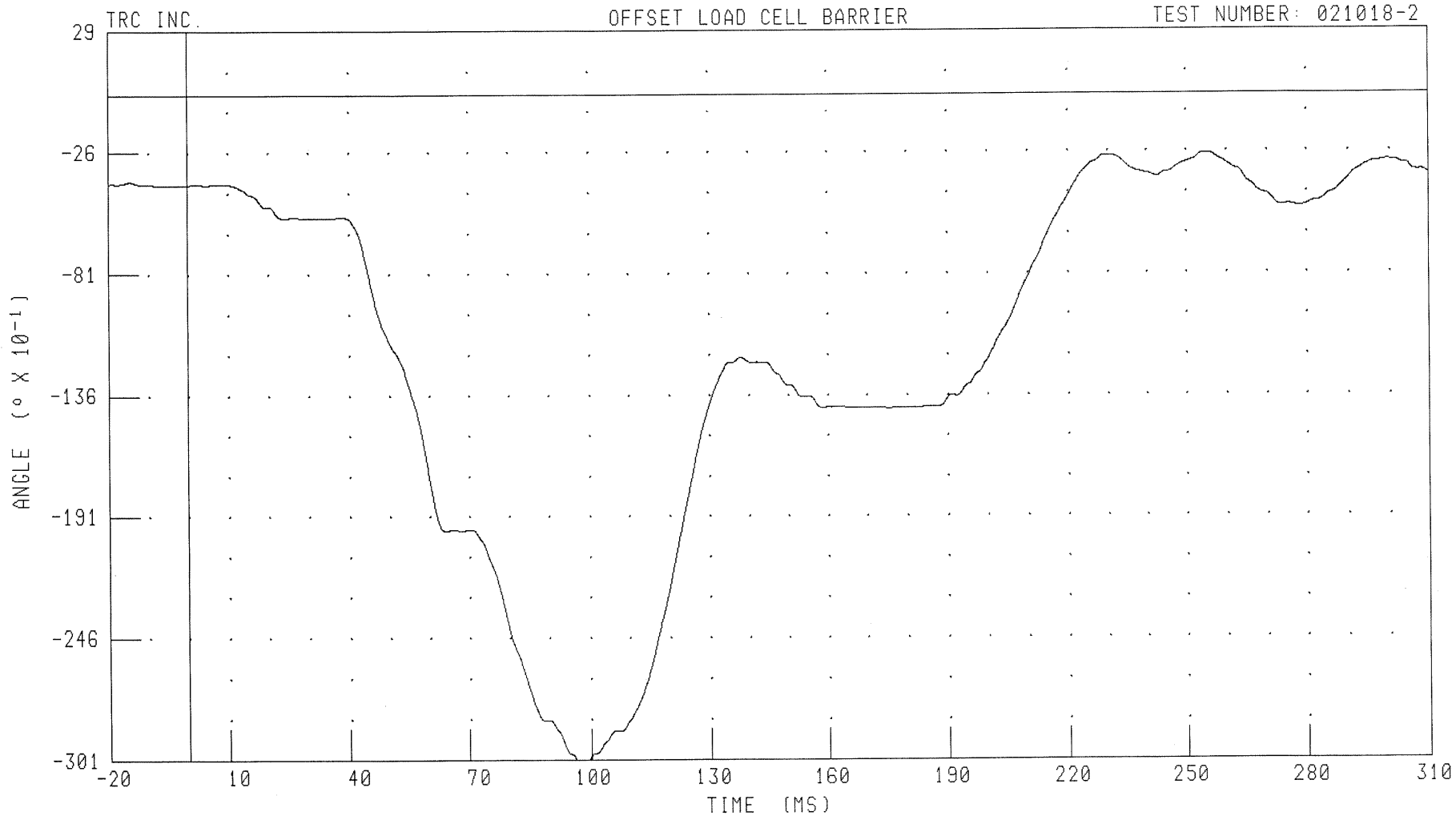
CHANNEL: ANRYM1 FILTER: CH. CLASS 600

PEAK DATA: 15.38 N·M @ 125.92 MS; -44.28 N·M @ 59.84 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: 021018-2



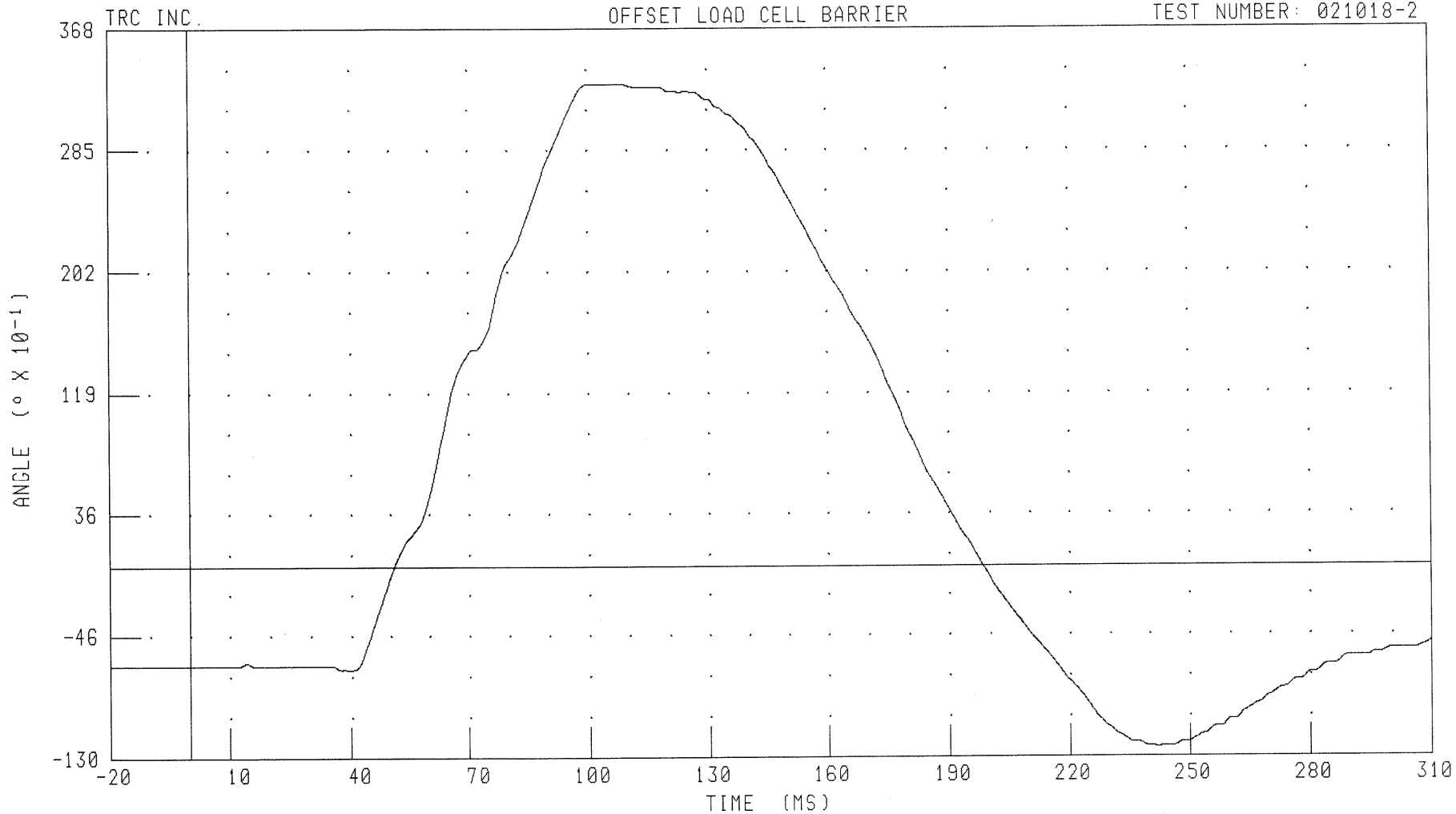
CHANNEL: FTRXD1 FILTER: CH. CLASS 100

PEAK DATA: -2.71 ° @ 255.20 MS; -30.38 ° @ 98.08 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



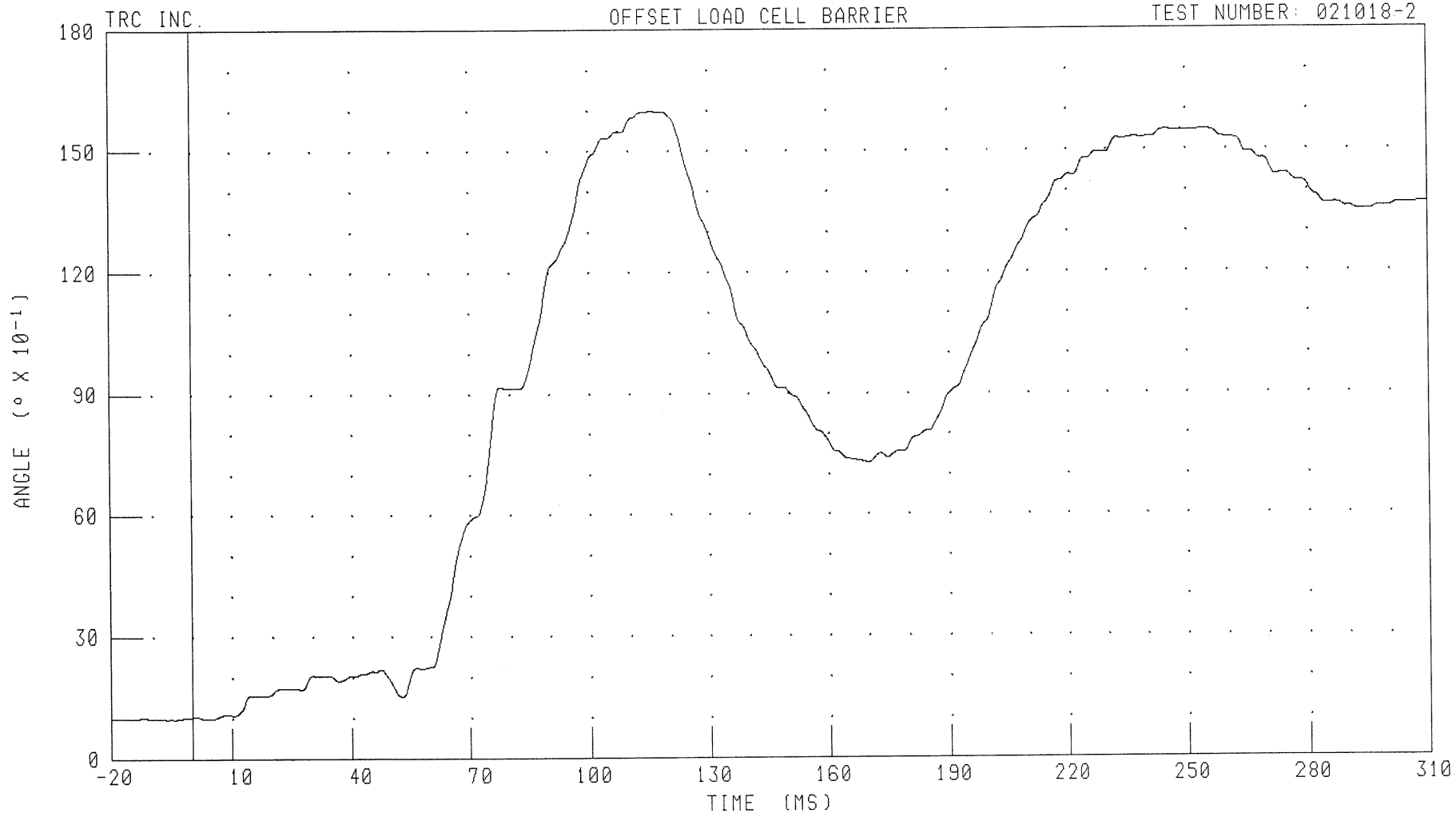
CHANNEL: FTRYD1 FILTER: CH. CLASS 100

PEAK DATA: 33.03  $^{\circ}$  @ 107.92 MS; -12.36  $^{\circ}$  @ 242.00 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: 021018-2



CHANNEL: FTRZD1 FILTER: CH. CLASS 180

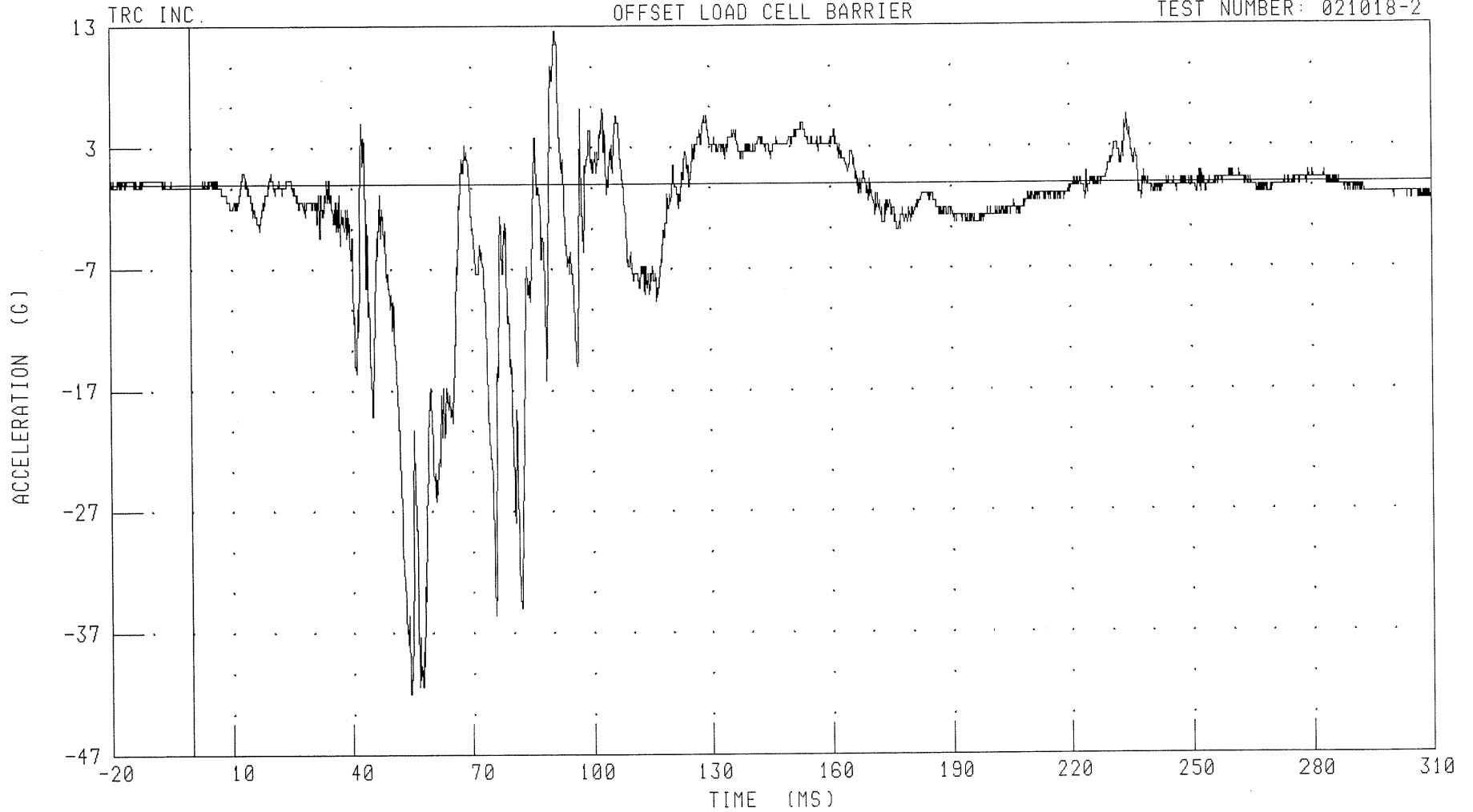
PEAK DATA: 16.01  $^{\circ}$  @ 115.84 MS; 0.97  $^{\circ}$  @ -4.48 MS

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: 021018-2



CHANNEL: FTRXG1

FILTER: CH. CLASS 1000

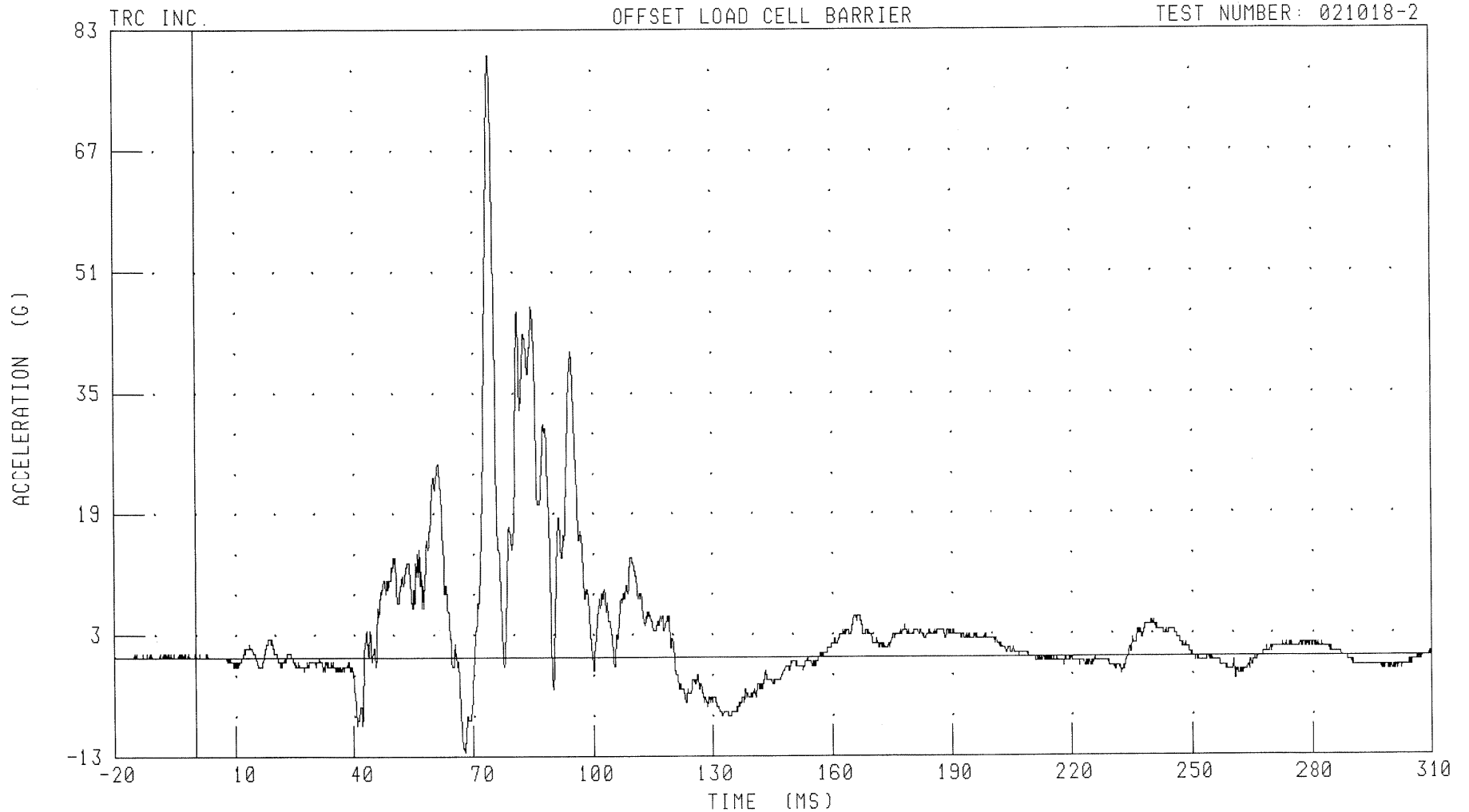
PEAK DATA: 12.64 G @ 91.04 MS; -42.04 G @ 54.40 MS

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: 021018-2



CHANNEL: FTRYG1

FILTER: CH. CLASS 1000

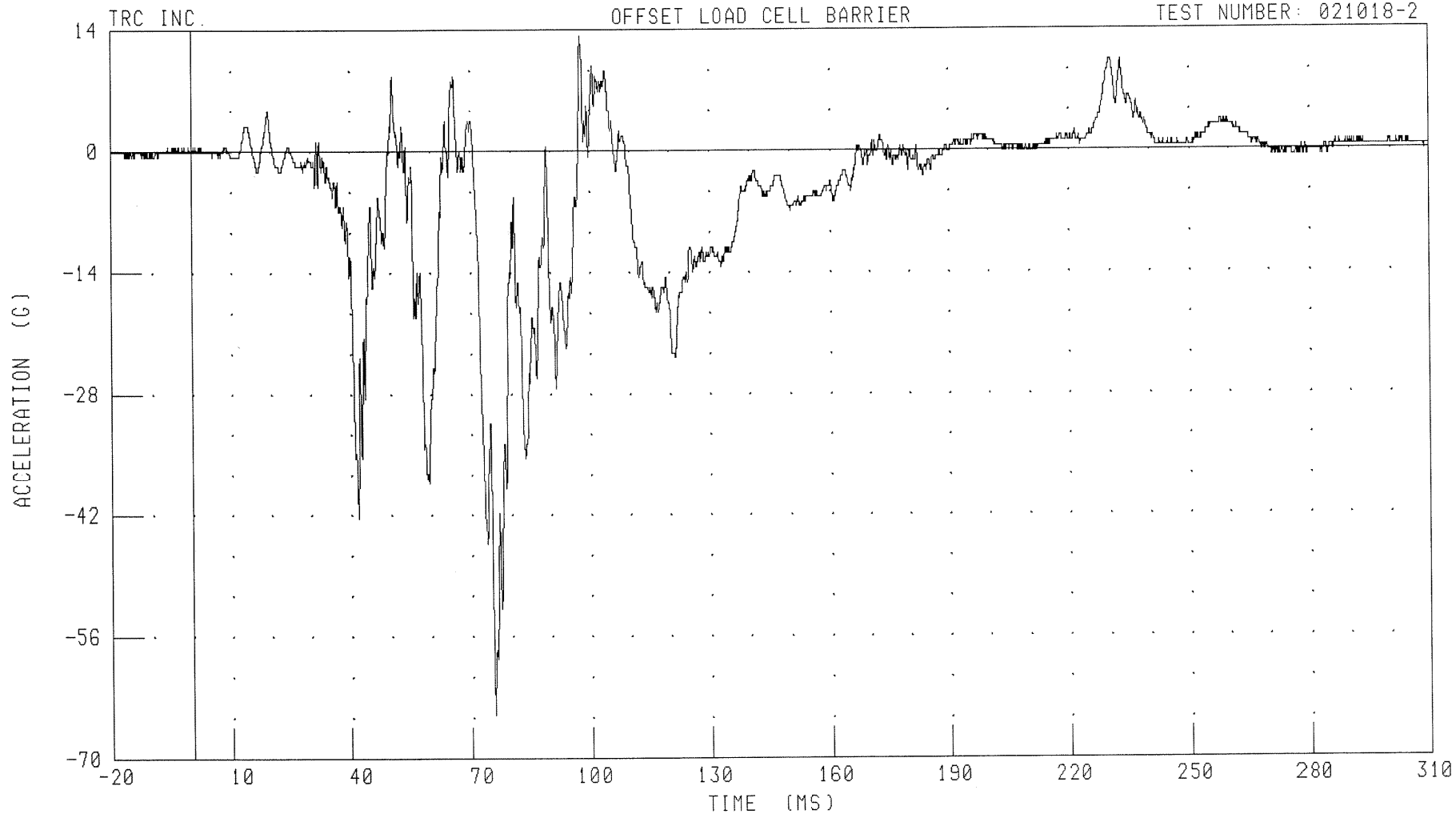
PEAK DATA: 79.71 G @ 74.32 MS; -12.49 G @ 67.76 MS

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: 021018-2



CHANNEL: FTRZG1 FILTER: CH. CLASS 1000

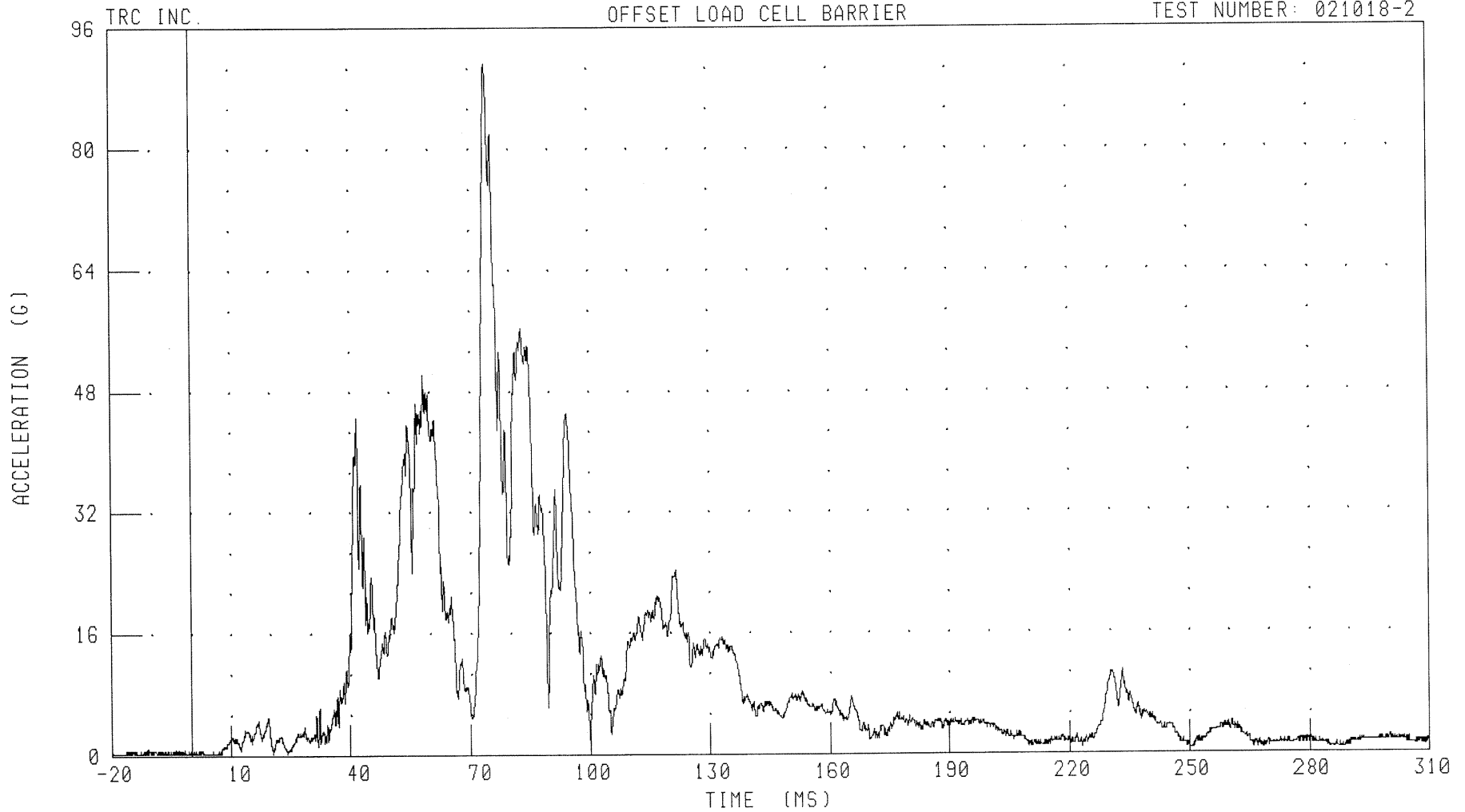
PEAK DATA: 13.32 G @ 97.84 MS; -65.06 G @ 75.68 MS

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: 021018-2



CHANNEL: FTTRG1 FILTER: CH. CLASS 1000

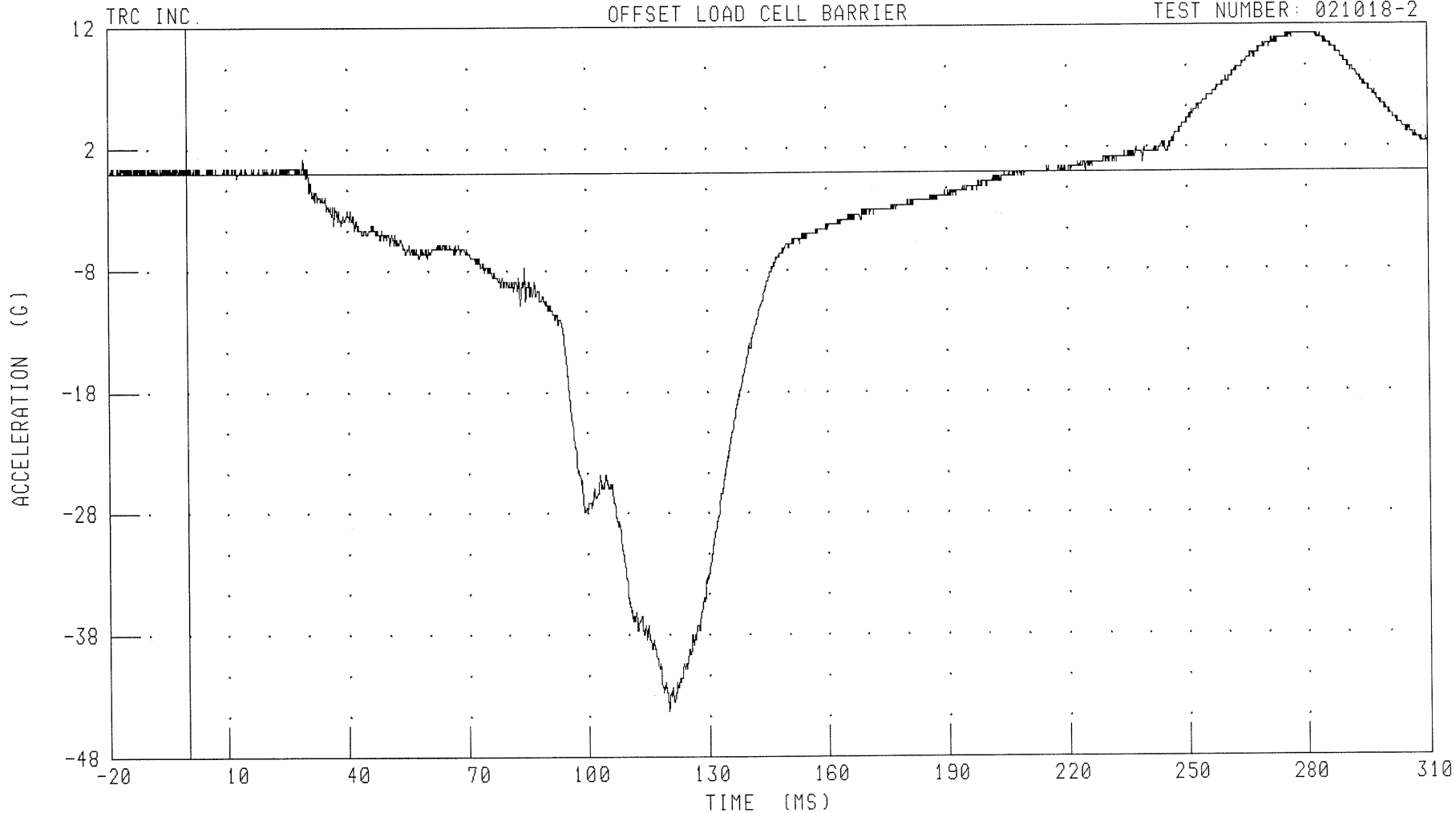
PEAK DATA: 91.23 G @ 74.08 MS; 0.29 G @ -19.68 MS

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: 021018-2



CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

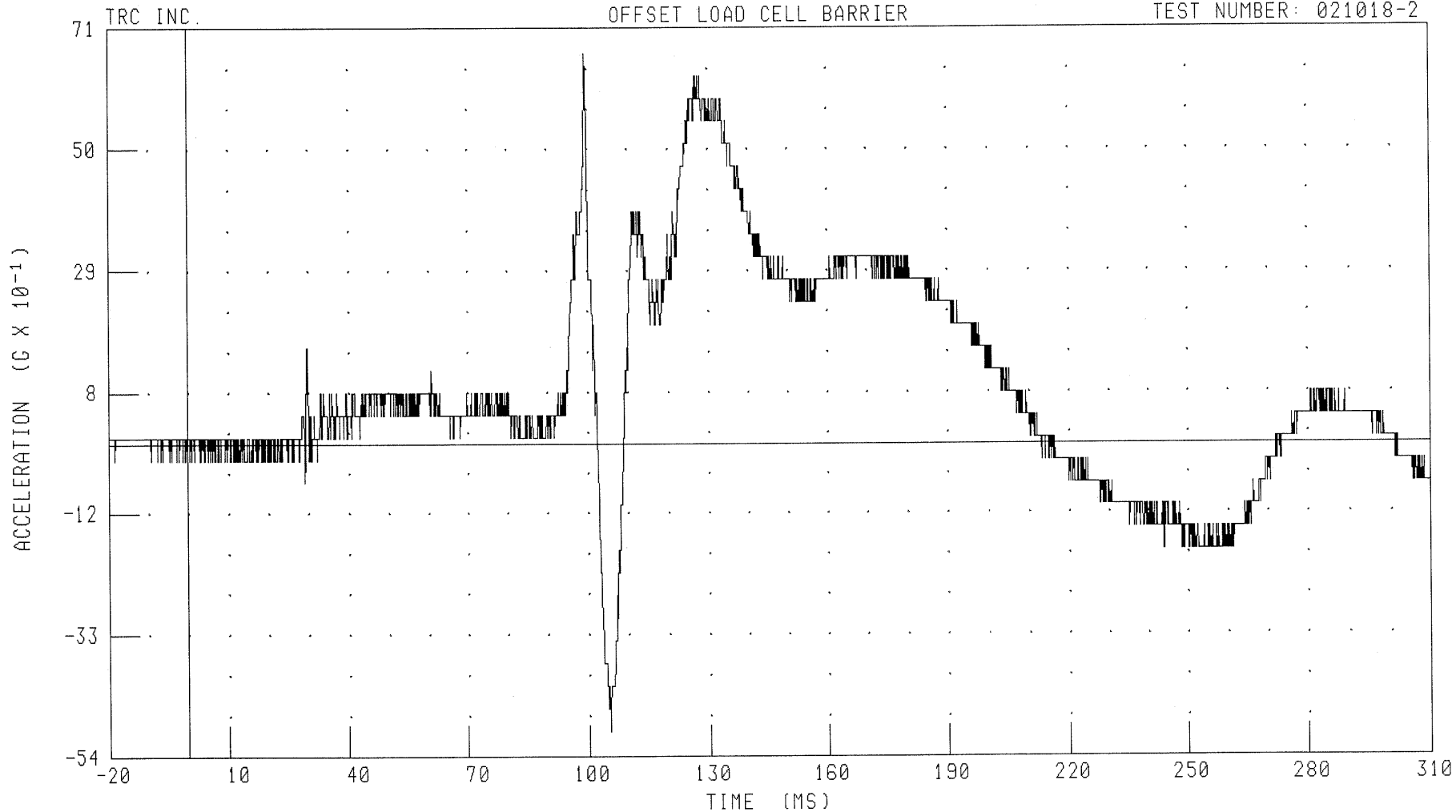
PEAK DATA: 11.29 G @ 275.12 MS; -44.28 G @ 120.00 MS

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: 021018-2



CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

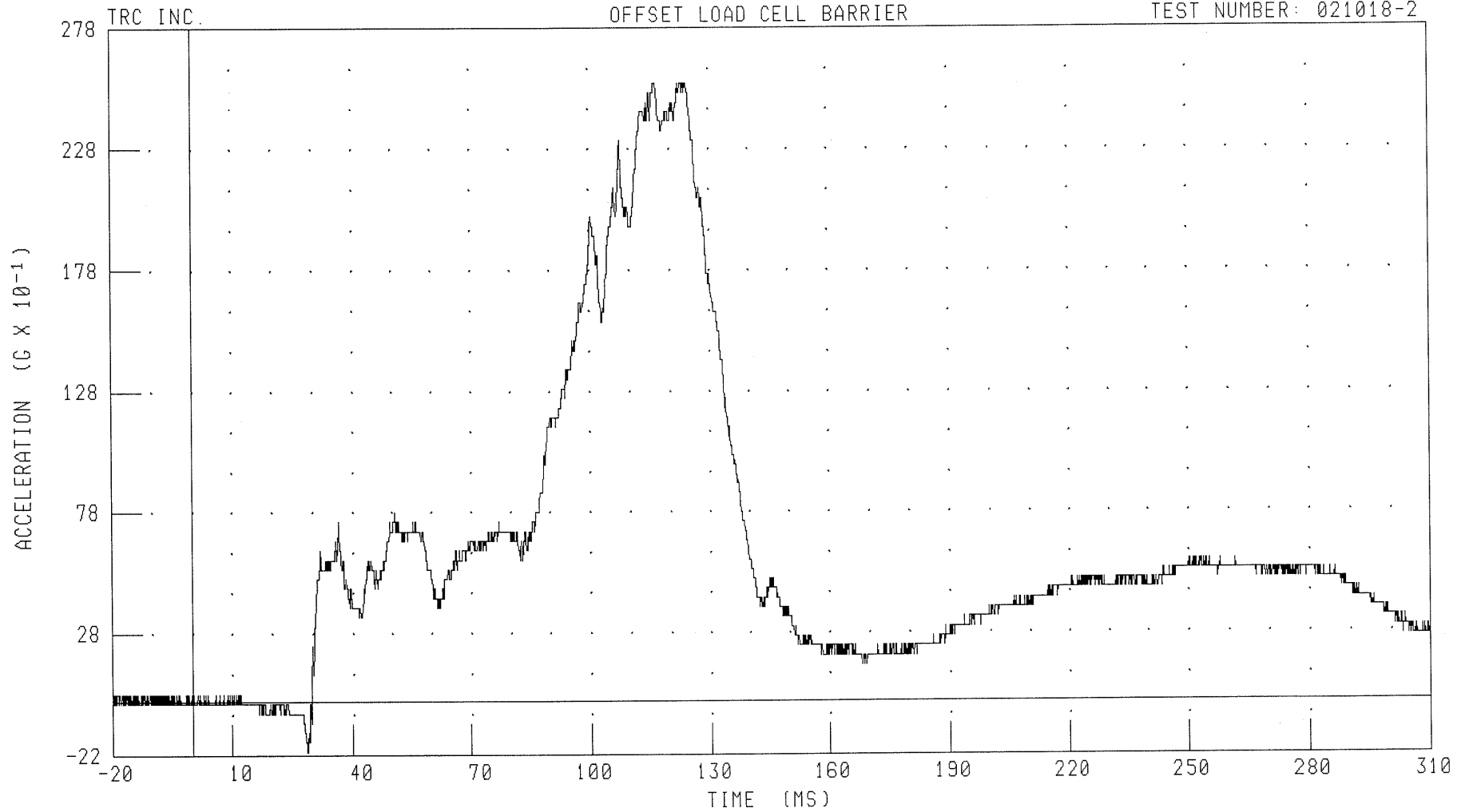
PEAK DATA: 6.77 G @ 99.68 MS; -4.98 G @ 105.44 MS

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: 021018-2



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

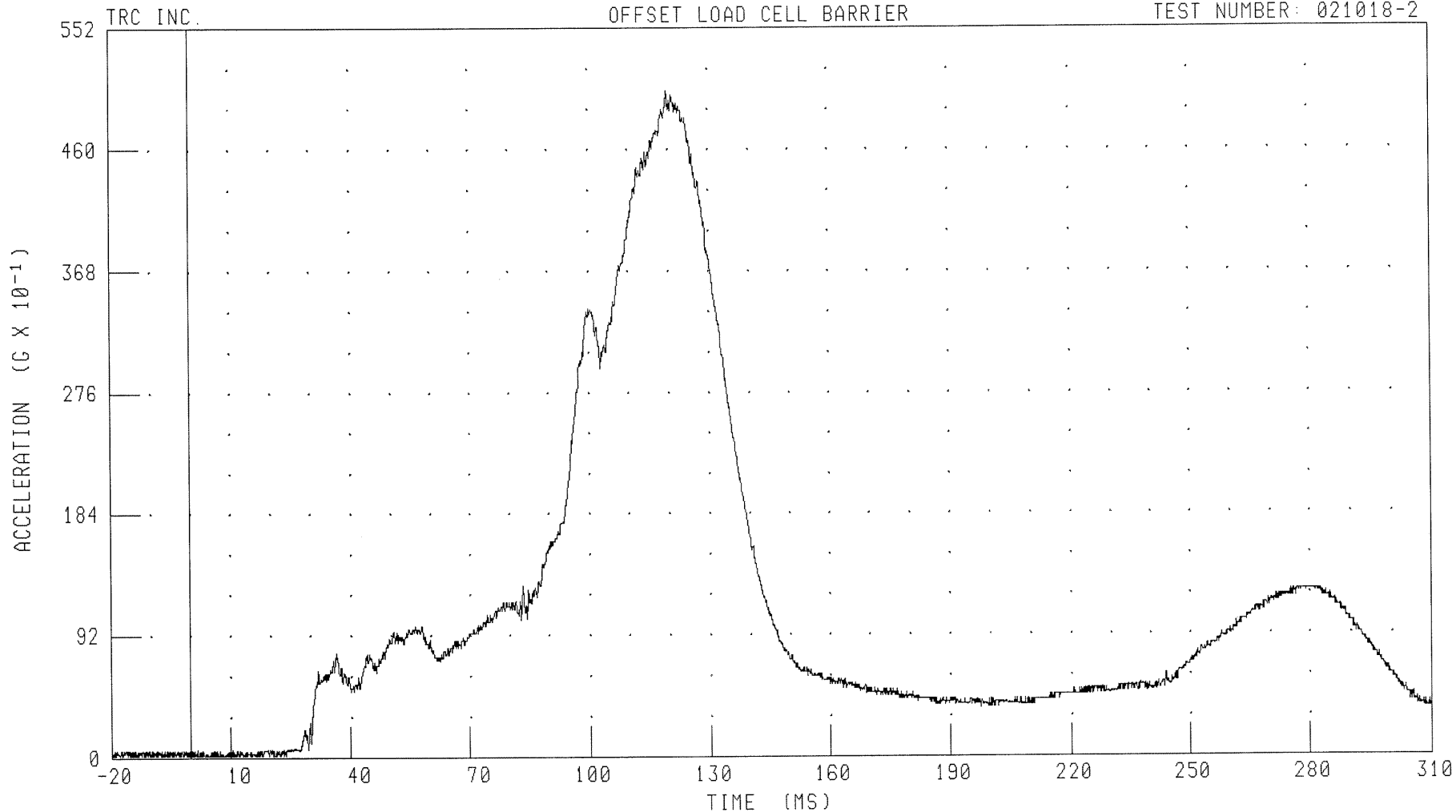
PEAK DATA: 25.52 G @ 116.48 MS; -2.07 G @ 28.56 MS

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

PASSENGER HEAD RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

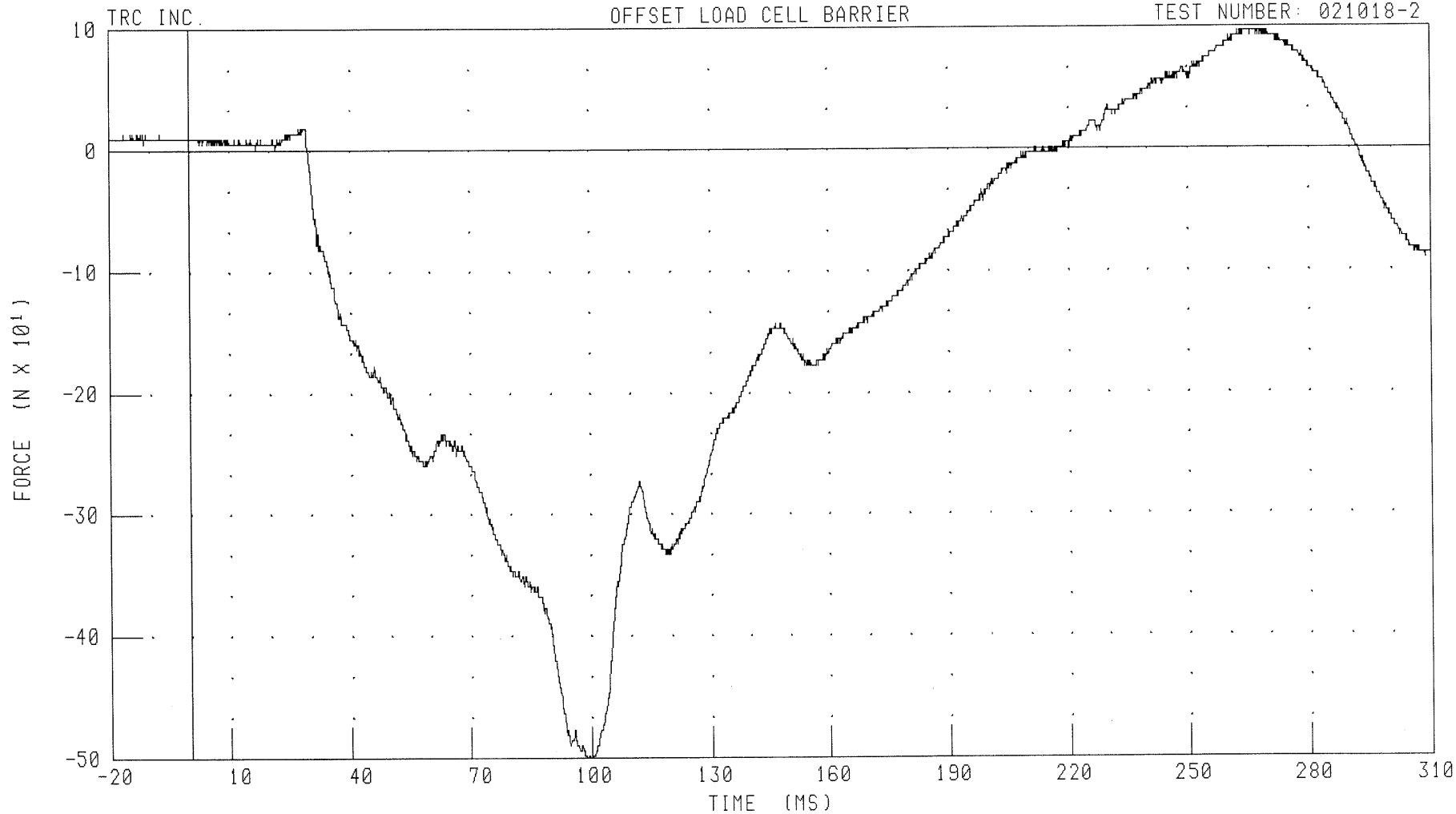
PEAK DATA: 50.44 G @ 120.00 MS; 0.15 G @ -20.00 MS

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

PASSENGER NECK X-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

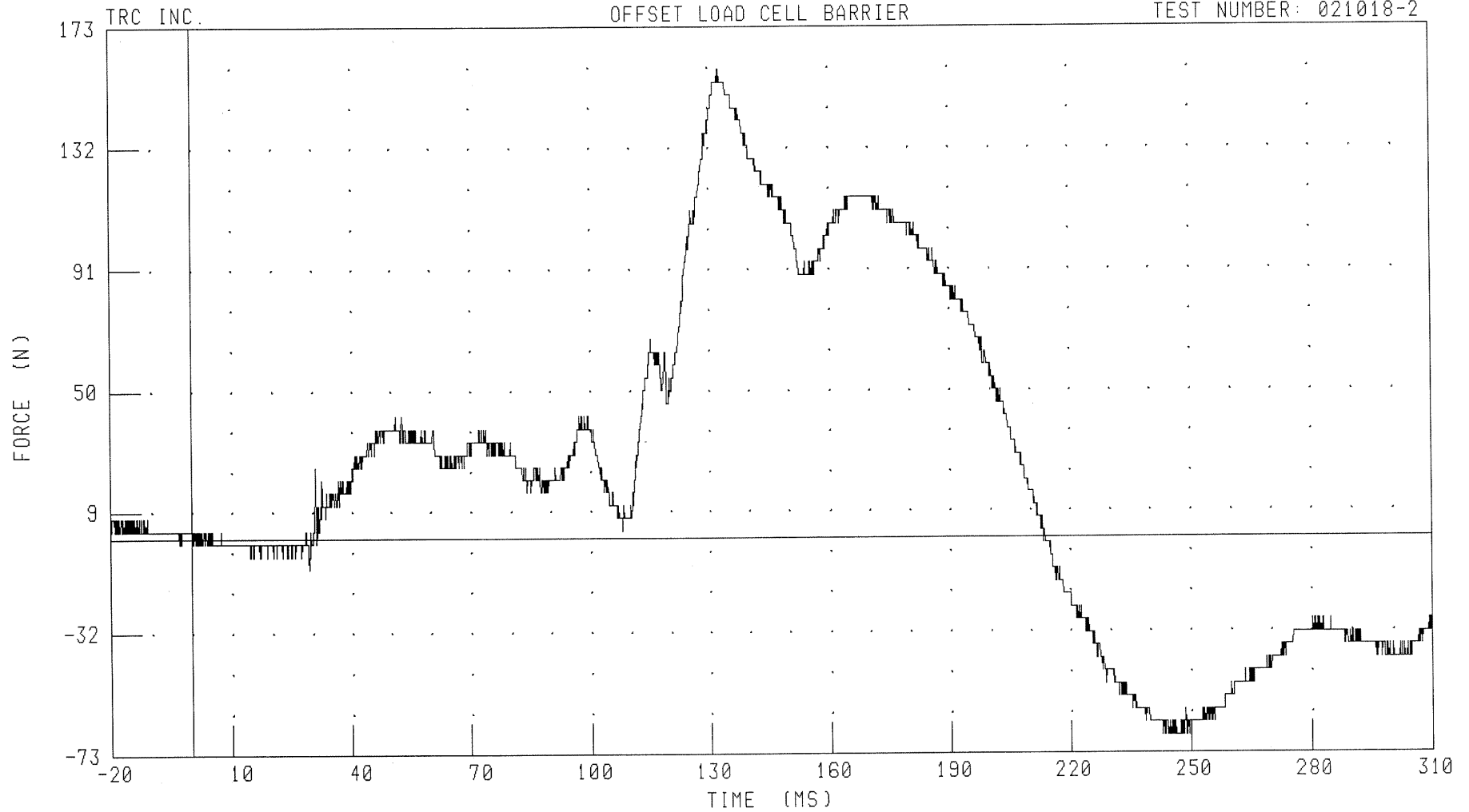
PEAK DATA: 96.52 N @ 262.64 MS; -503.15 N @ 98.88 MS

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

PASSENGER NECK Y-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

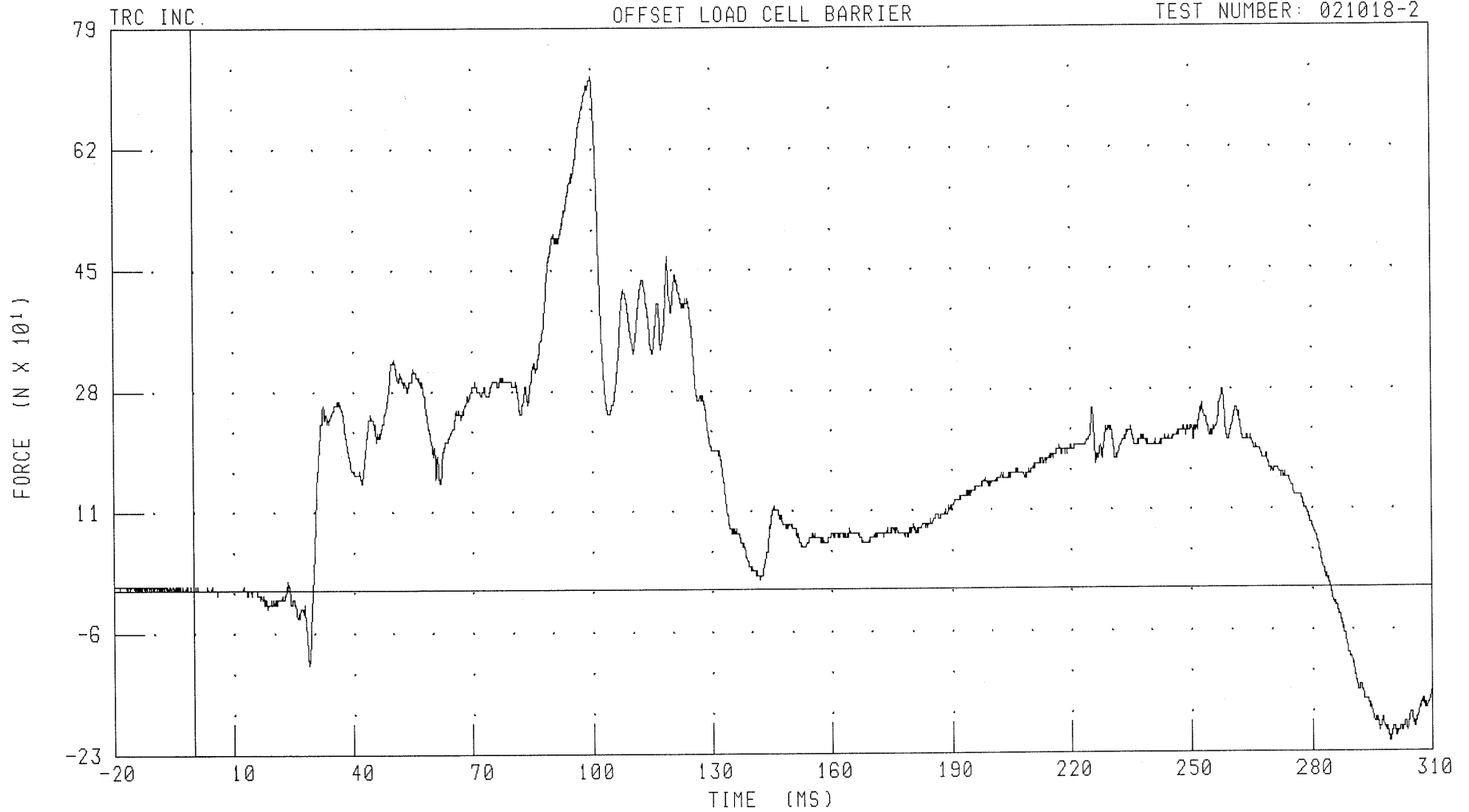
PEAK DATA: 158.71 N @ 132.56 MS; -67.06 N @ 242.88 MS

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

PASSENGER NECK Z-AXIS AXIAL FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

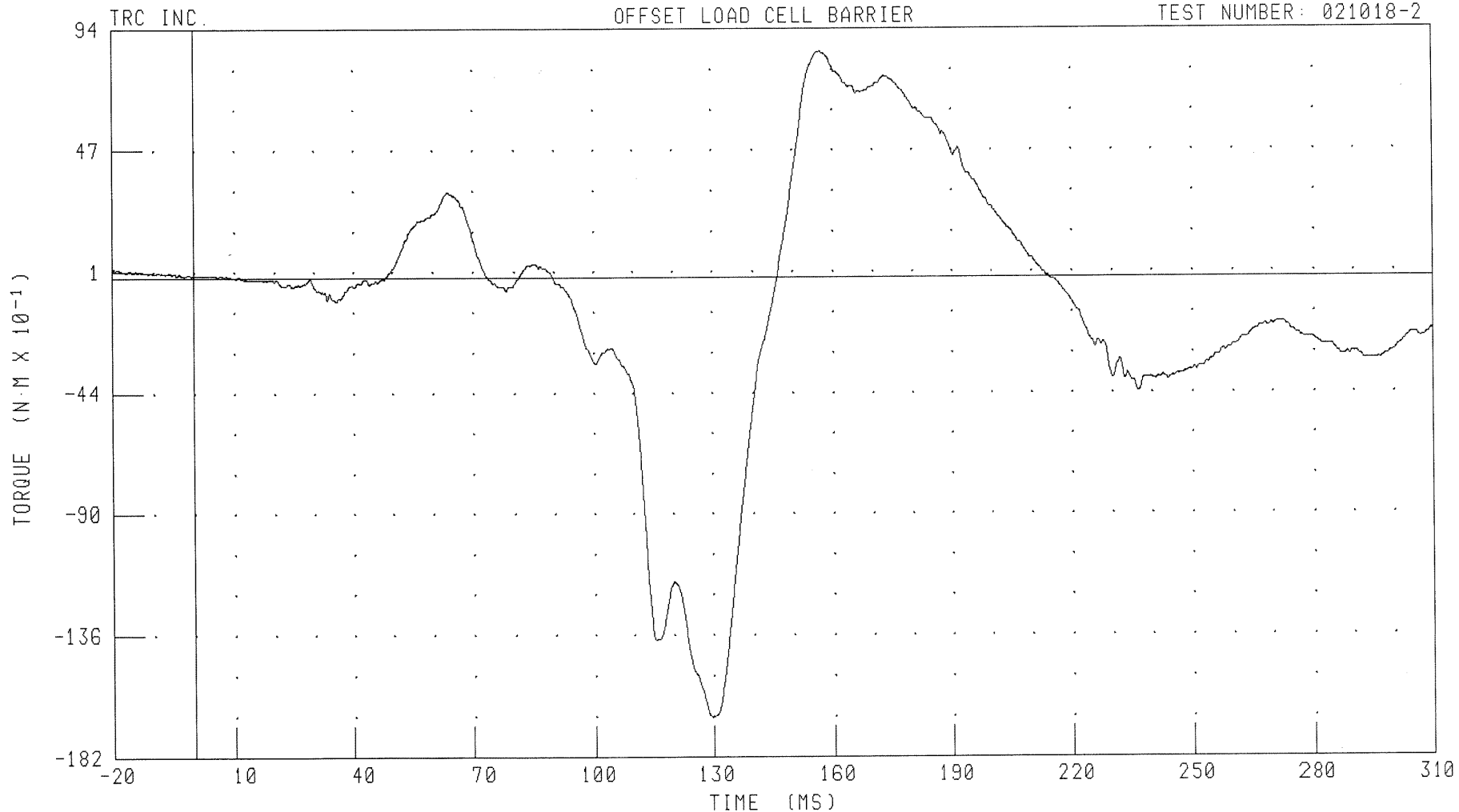
PEAK DATA: 722.97 N @ 100.08 MS; -215.07 N @ 299.28 MS

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: 021018-2



CHANNEL: NEKXM2 FILTER: CH. CLASS 600

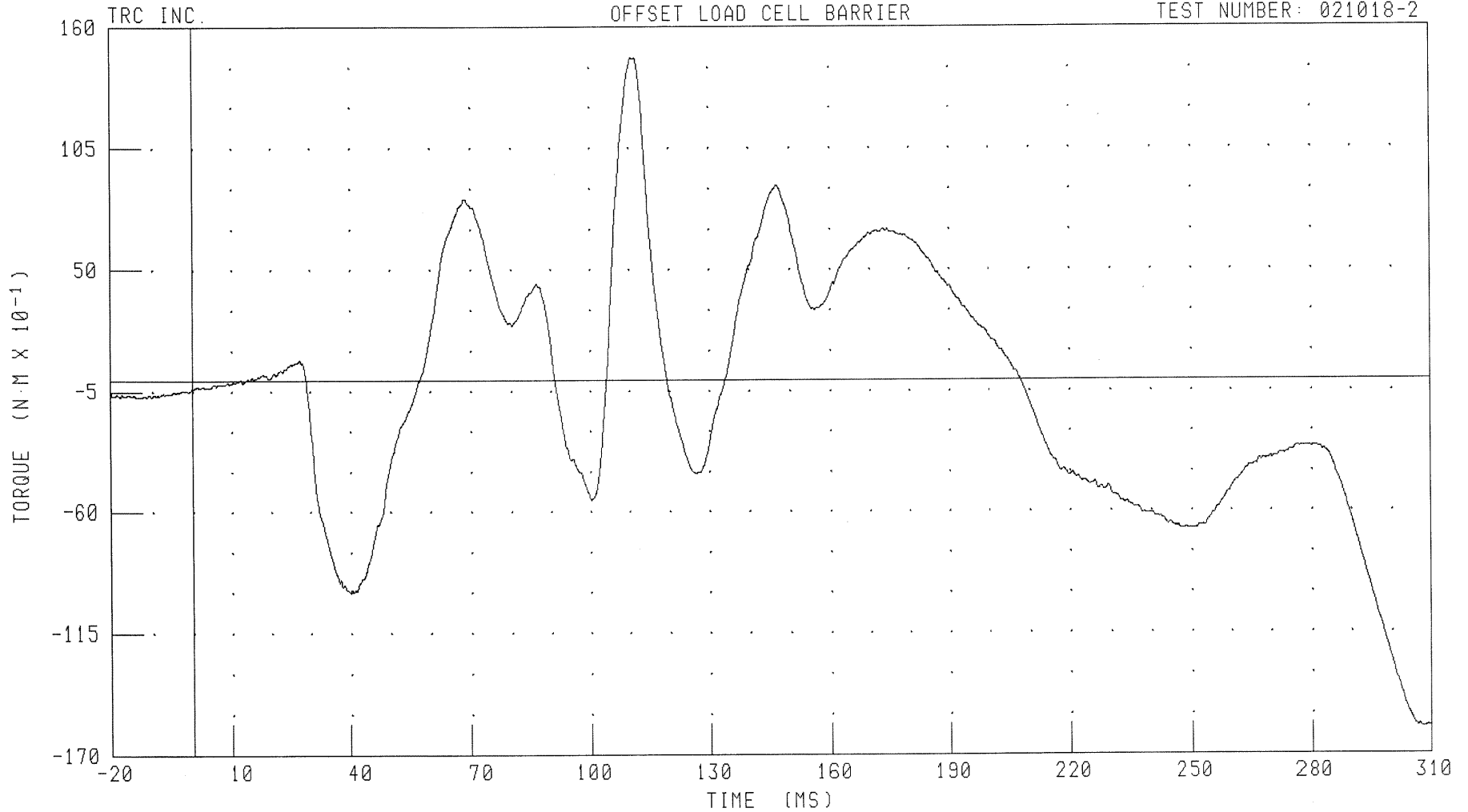
PEAK DATA: 8.55 N·M @ 157.28 MS; -16.71 N·M @ 129.76 MS

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: 021018-2



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

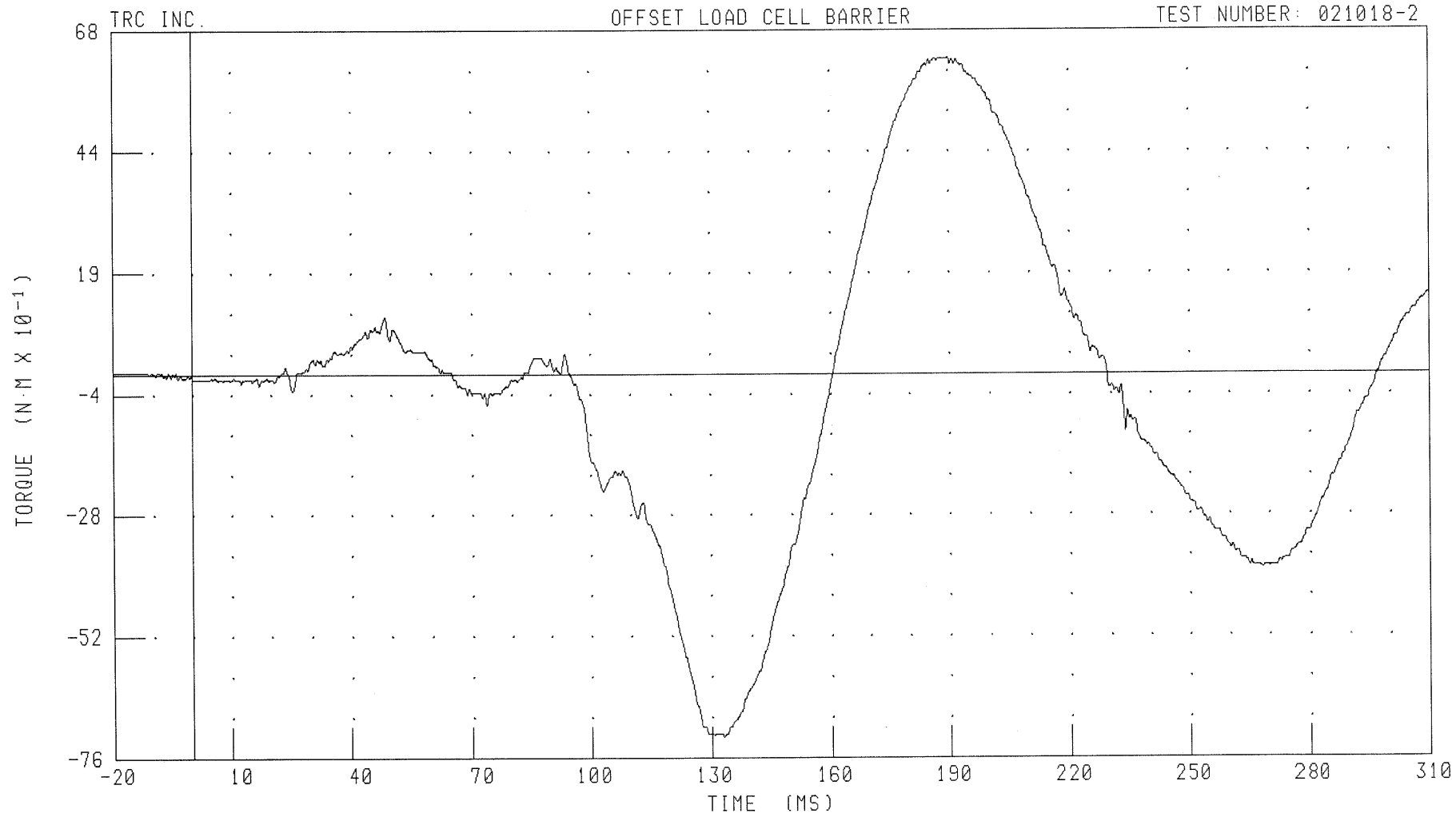
PEAK DATA: 14.59 N·M @ 110.96 MS; -15.80 N·M @ 307.68 MS

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: 021018-2



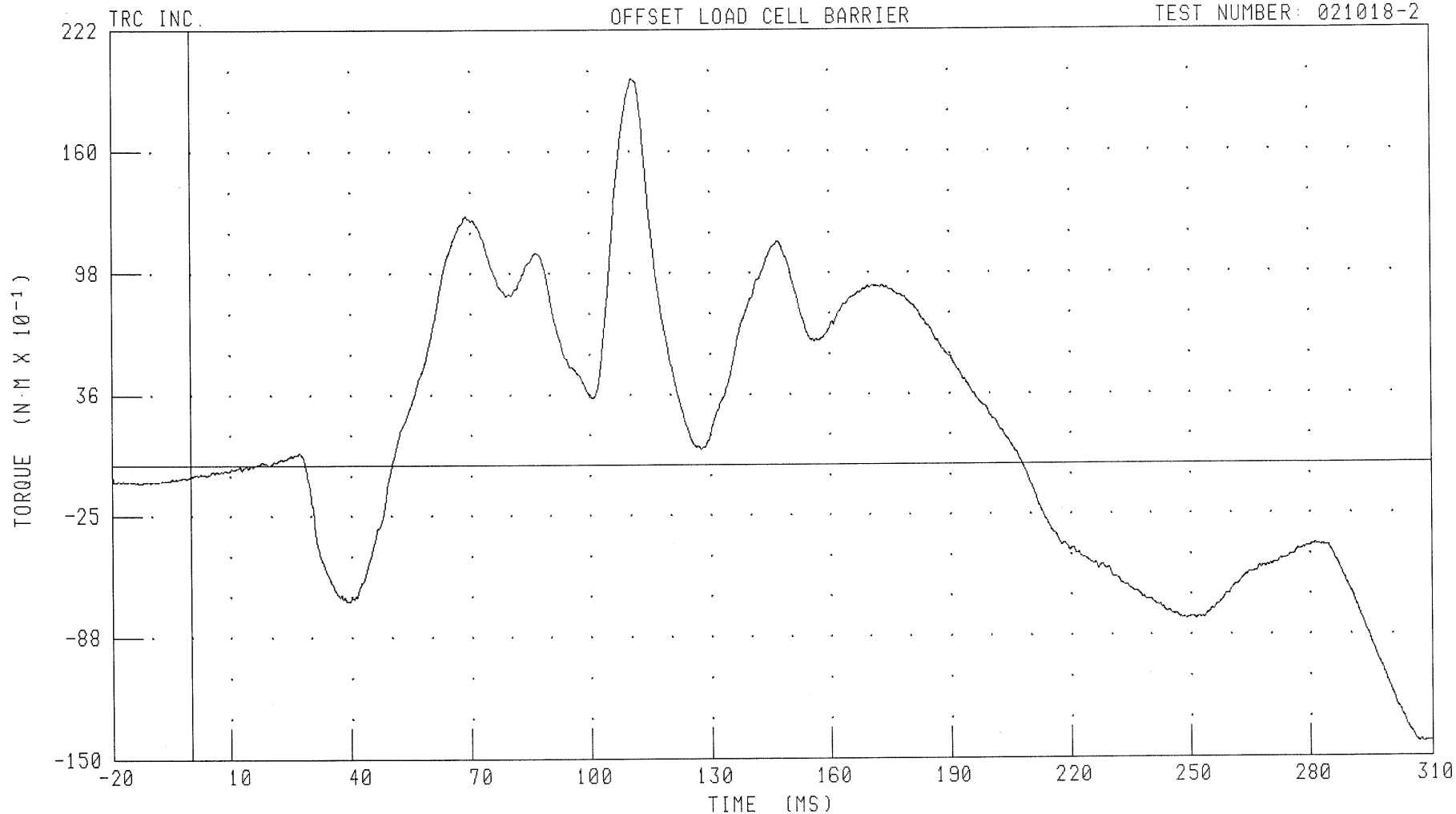
CHANNEL: NEKZM2 FILTER: CH. CLASS 600

PEAK DATA: 6.25 N·M @ 190.08 MS; -7.20 N·M @ 133.12 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: 021018-2



CHANNEL: NEKOM2 FILTER: CH. CLASS 600

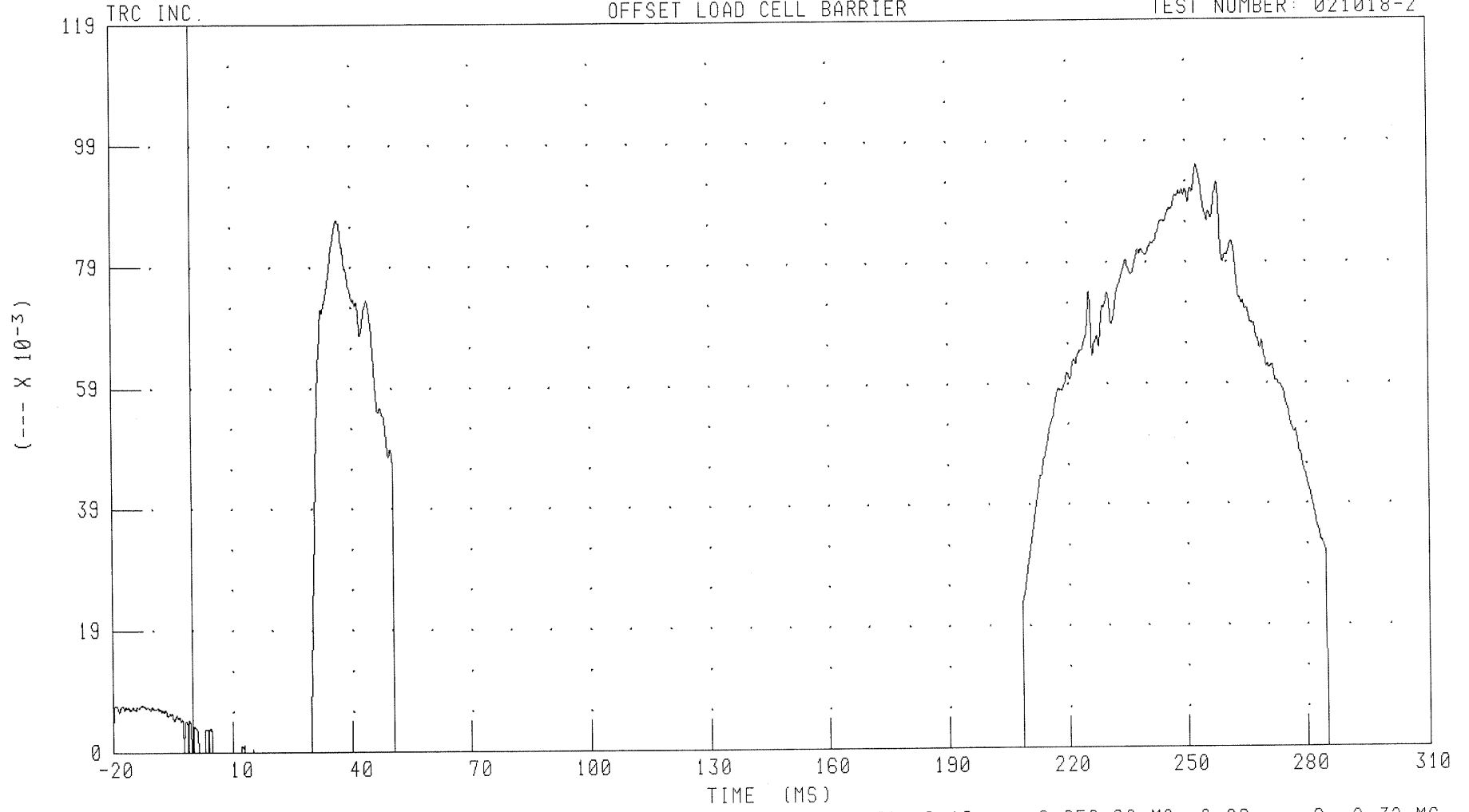
PEAK DATA: 19.73 N·M @ 110.80 MS; -14.27 N·M @ 307.68 MS

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

PASSENGER NIJ TENSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NTE2

FILTER: CH. CLASS 600

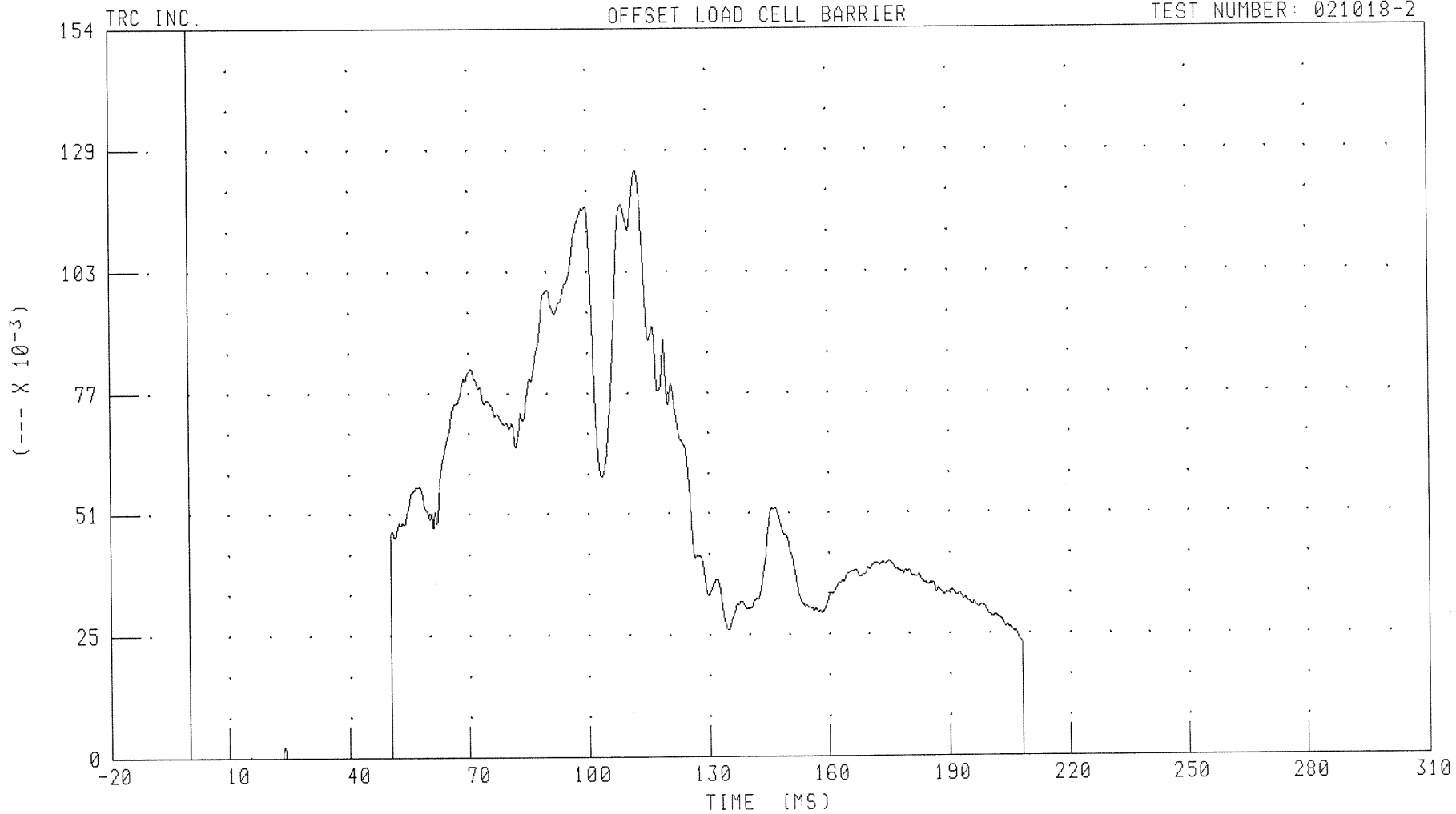
PEAK DATA: 0.10 --- @ 252.88 MS; 0.00 --- @ -2.32 MS

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

PASSENGER NIJ TENSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NTF2

FILTER: CH. CLASS 600

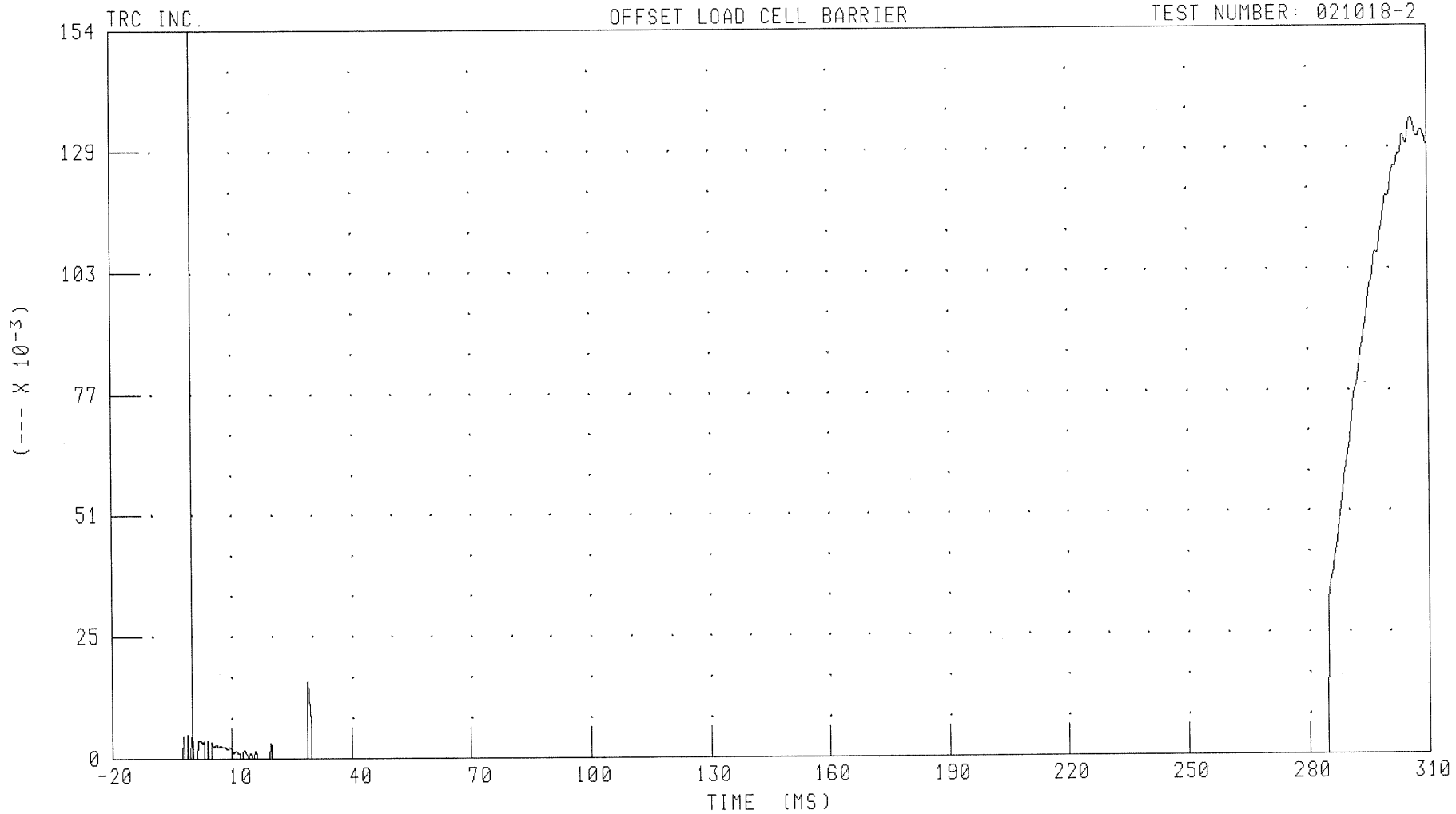
PEAK DATA: 0.12 --- @ 112.32 MS; 0.00 --- @ -20.00 MS

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

PASSENGER NIJ COMPRESSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NCE2

FILTER: CH. CLASS 600

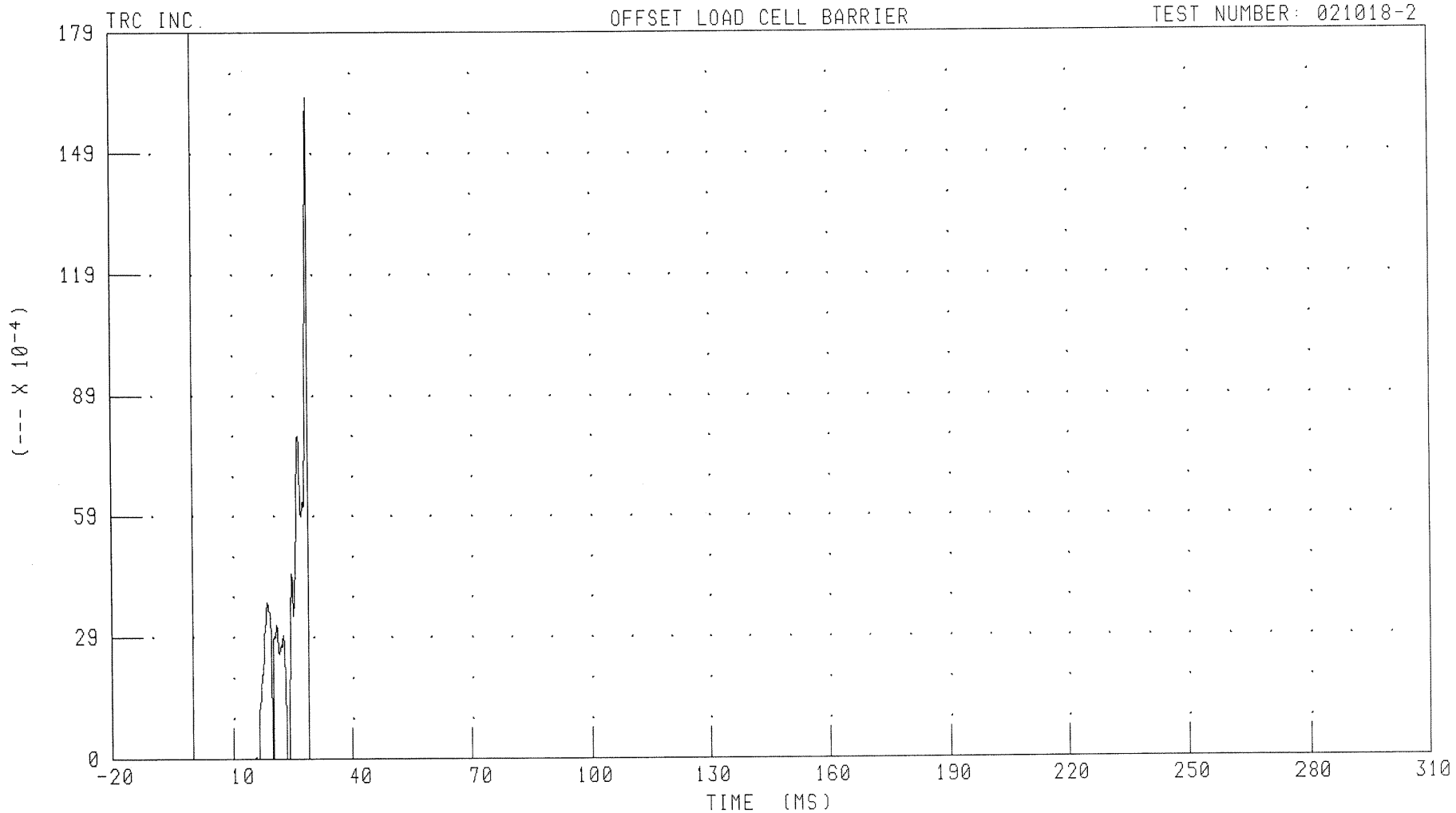
PEAK DATA: 0.14 --- @ 305.92 MS; 0.00 --- @ -20.00 MS

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

PASSENGER NIJ COMPRESSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: NCF2

FILTER: CH. CLASS 600

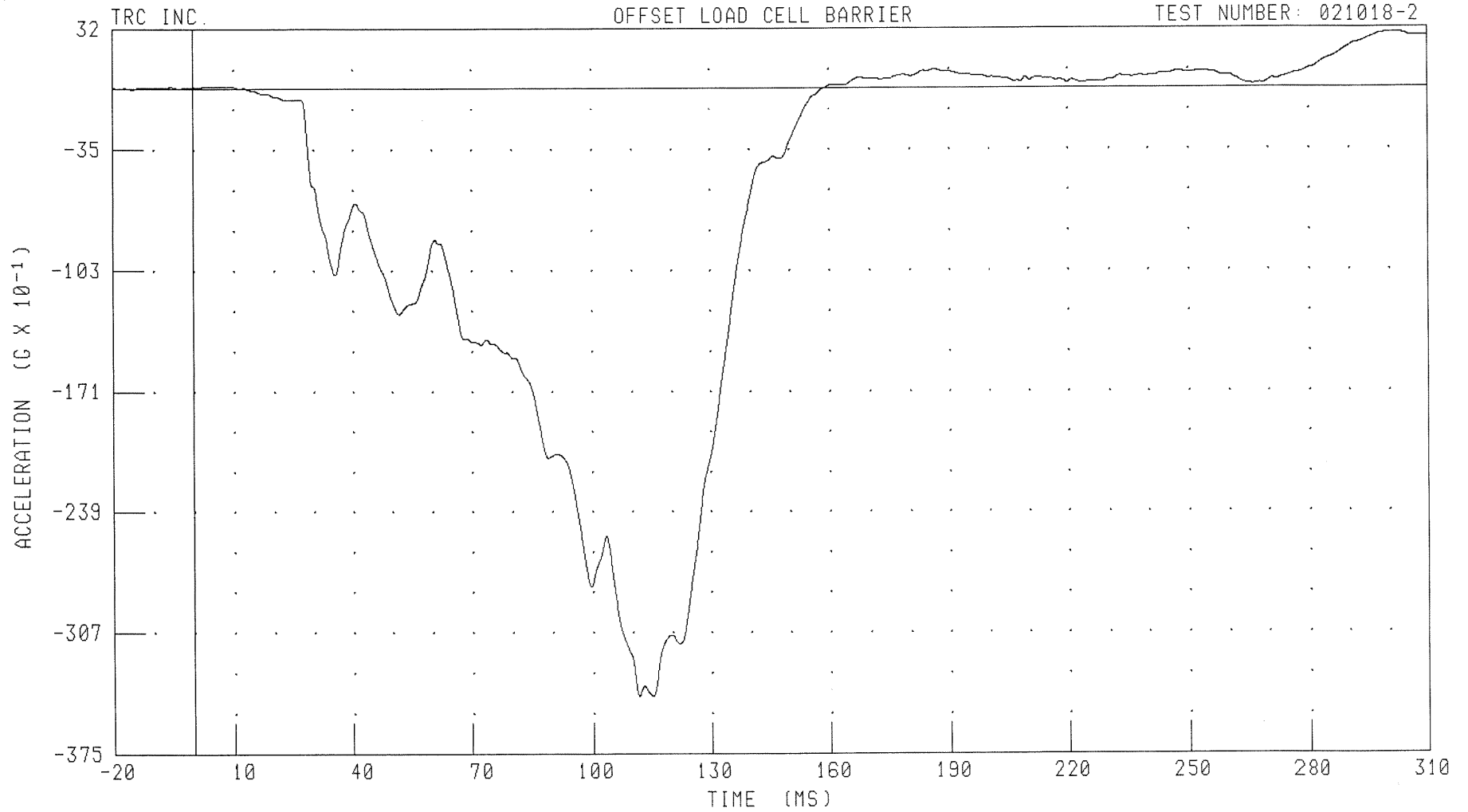
PEAK DATA: 0.02 --- @ 28.72 MS; 0.00 --- @ -20.00 MS

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

PASSENGER CHEST X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: CSTXG2

FILTER: CH. CLASS 180

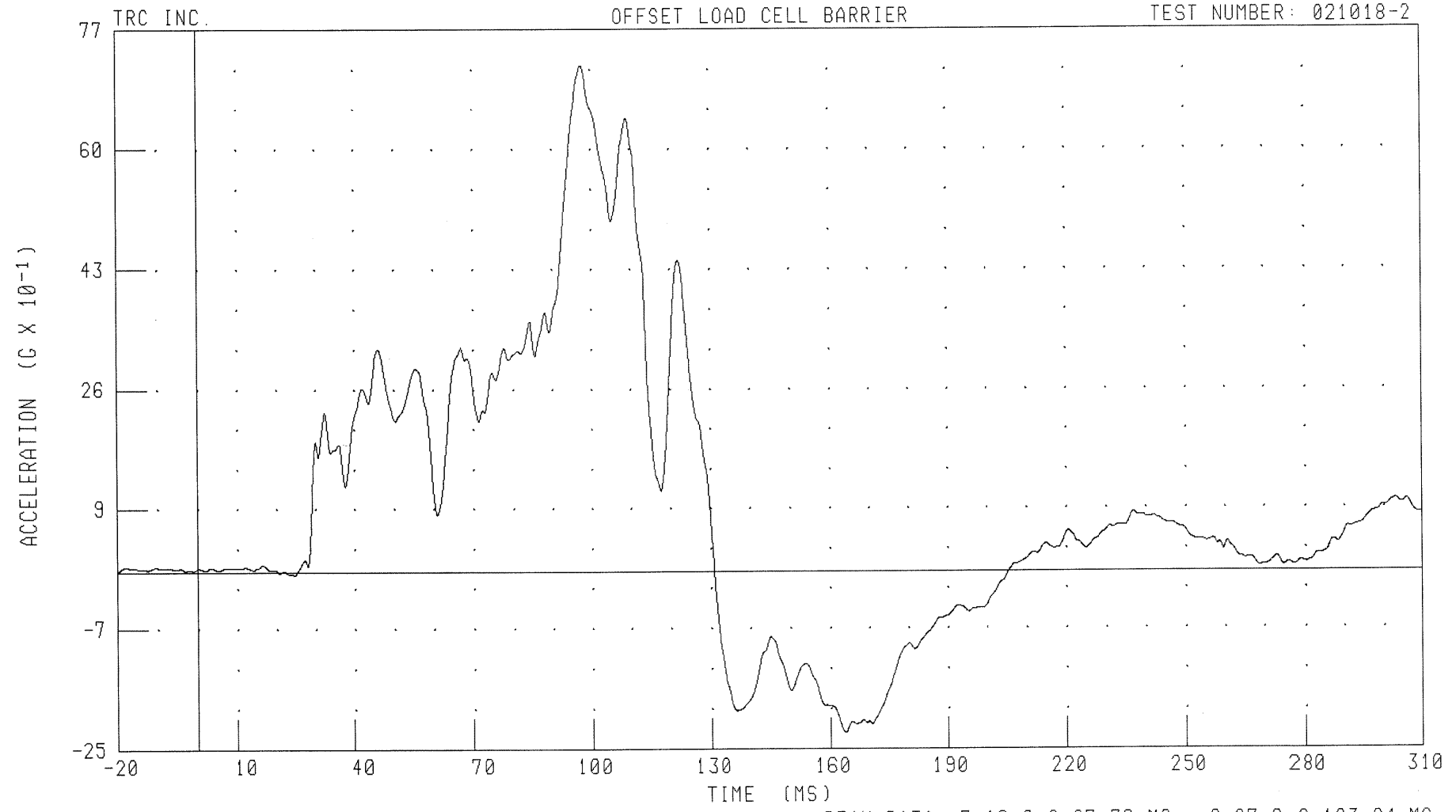
PEAK DATA: 3.02 G @ 301.52 MS; -34.29 G @ 111.68 MS

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: 021018-2



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

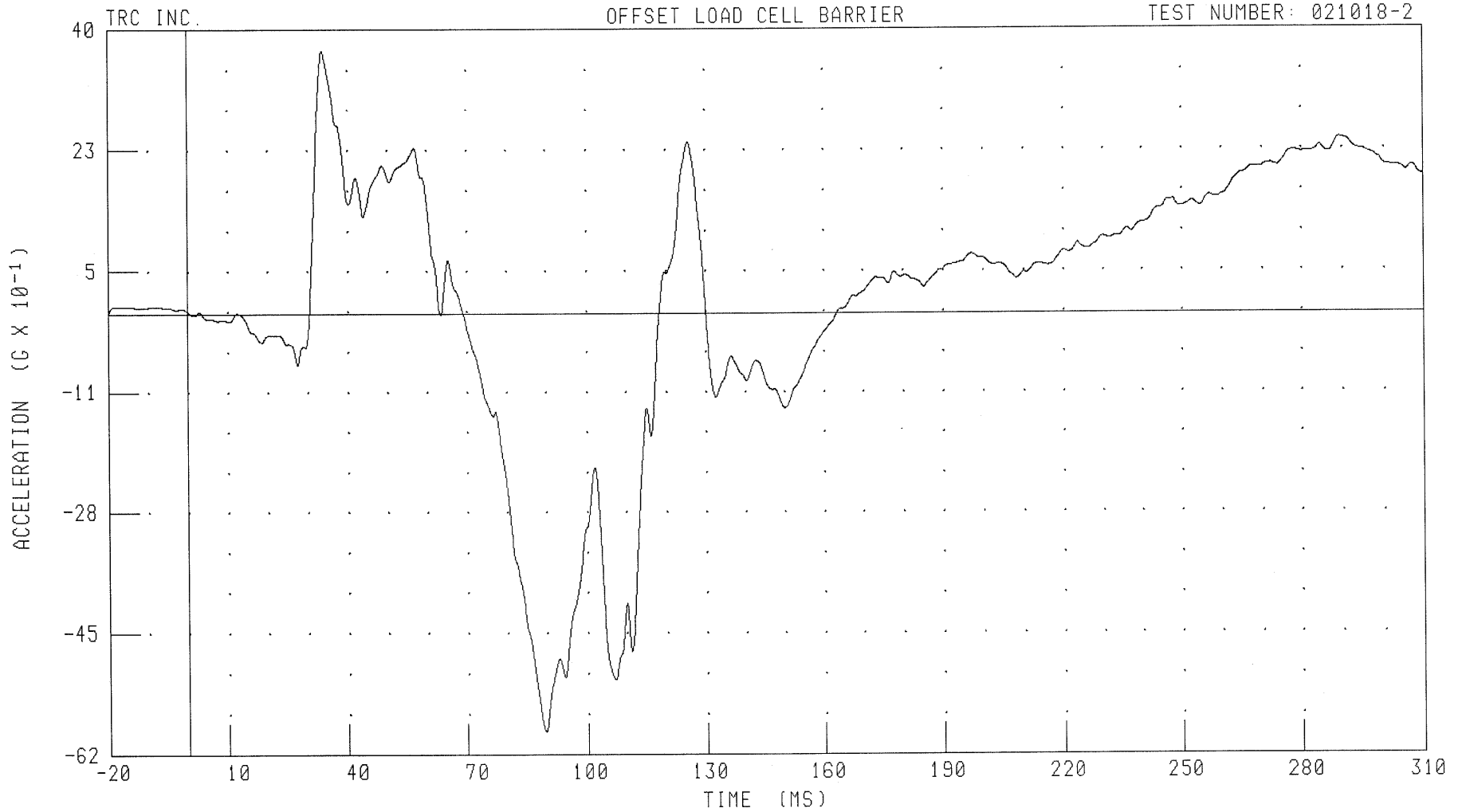
PEAK DATA: 7.19 G @ 97.76 MS; -2.27 G @ 163.84 MS

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: 021018-2



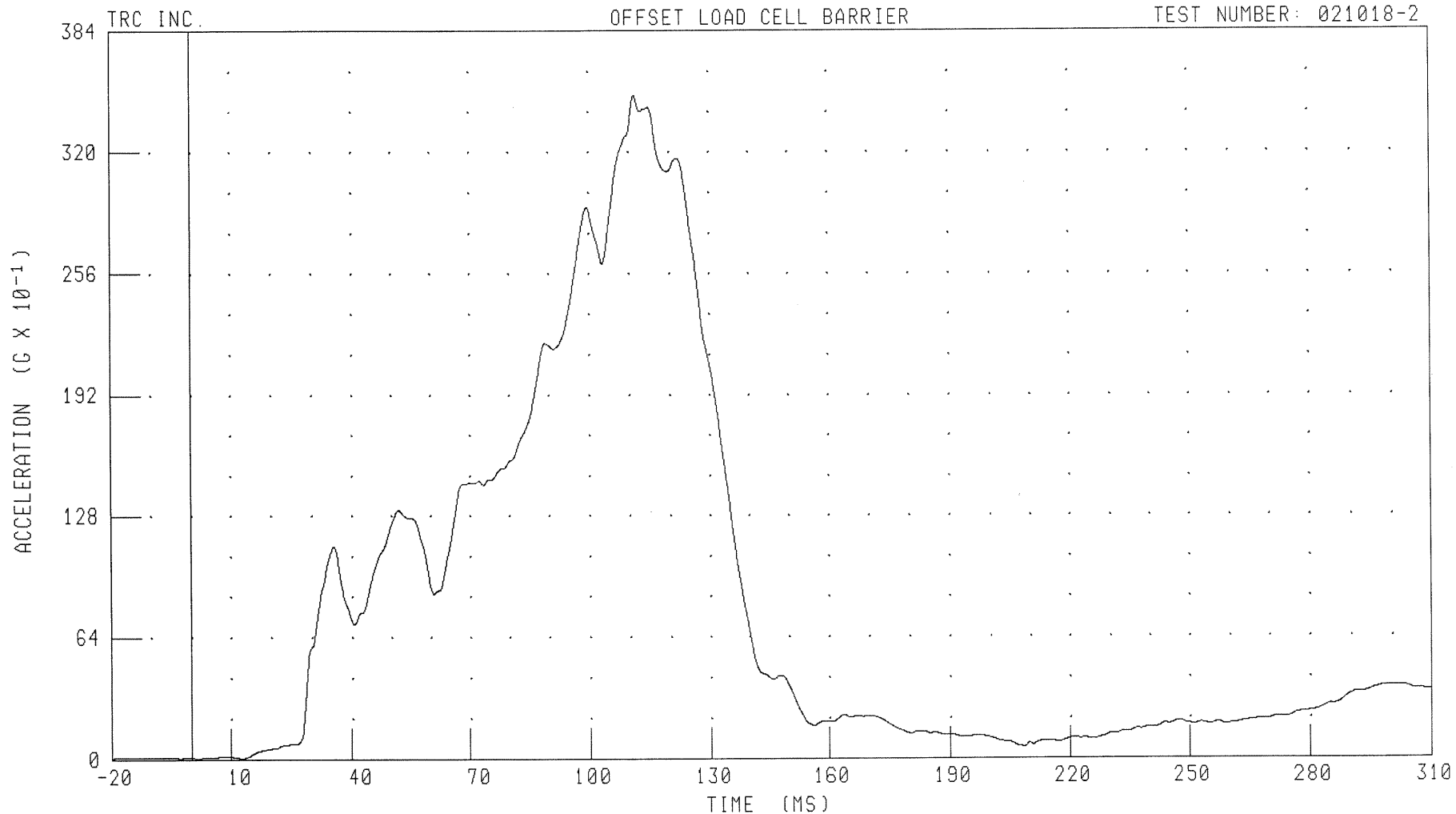
CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 3.71 G @ 33.92 MS; -5.88 G @ 89.60 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: 021018-2



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

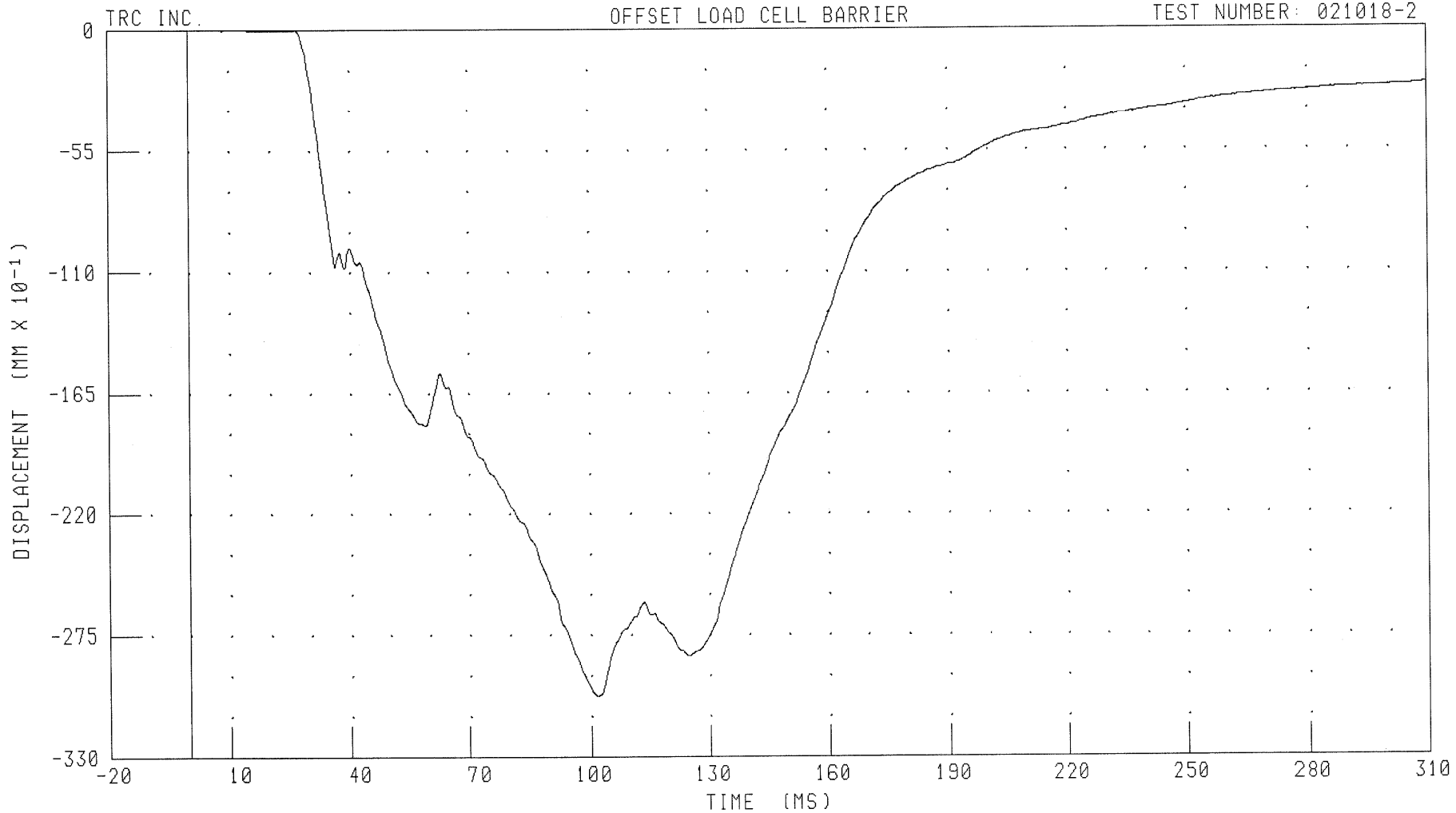
PEAK DATA: 35.00 G @ 111.60 MS; 0.01 G @ -20.00 MS

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

PASSENGER CHEST DEFLECTION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: CSTXD2 FILTER: CH. CLASS 600

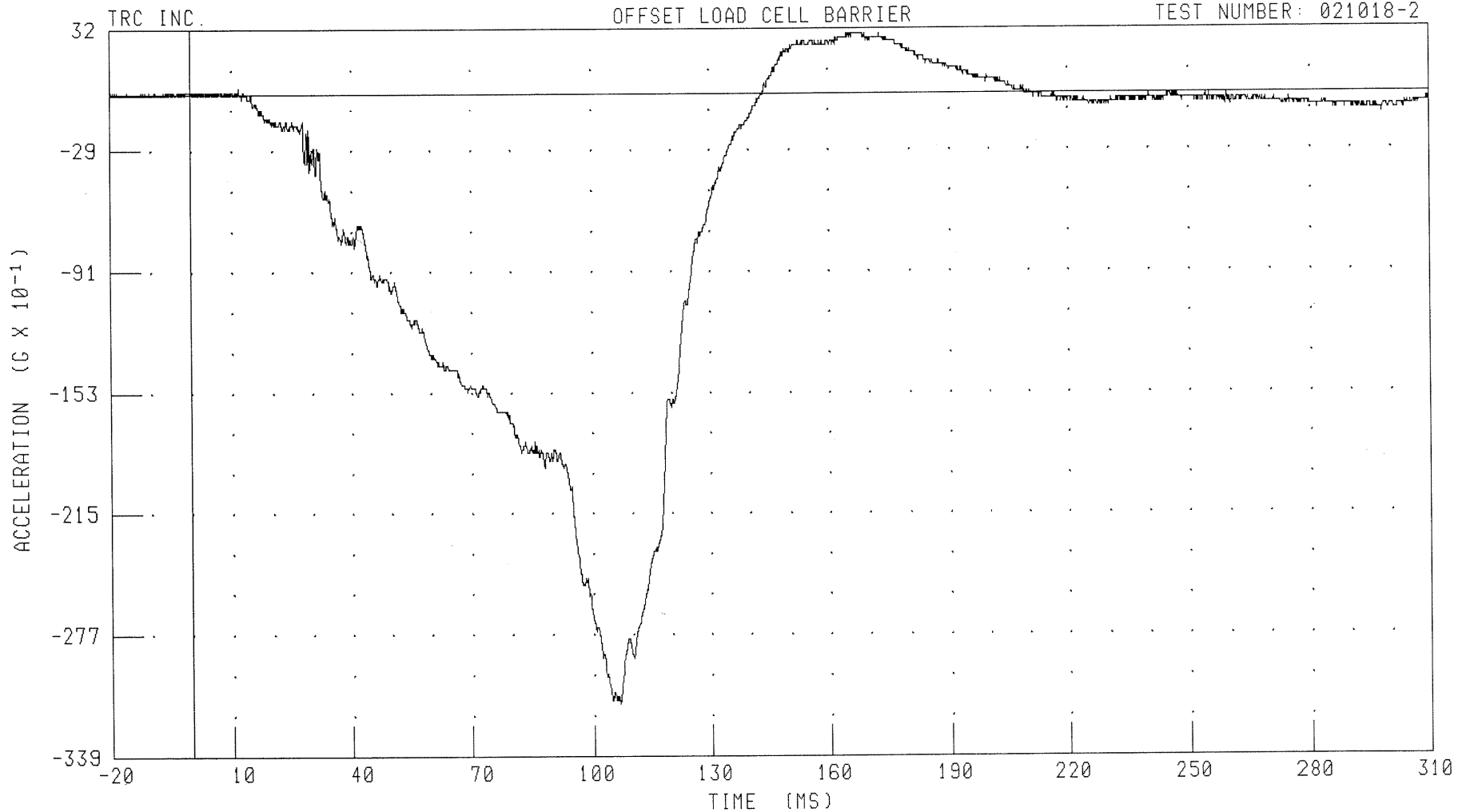
PEAK DATA: 0.00 MM @ 14.40 MS; -30.26 MM @ 101.60 MS

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: 021018-2



CHANNEL: PEVXG2

FILTER: CH. CLASS 1000

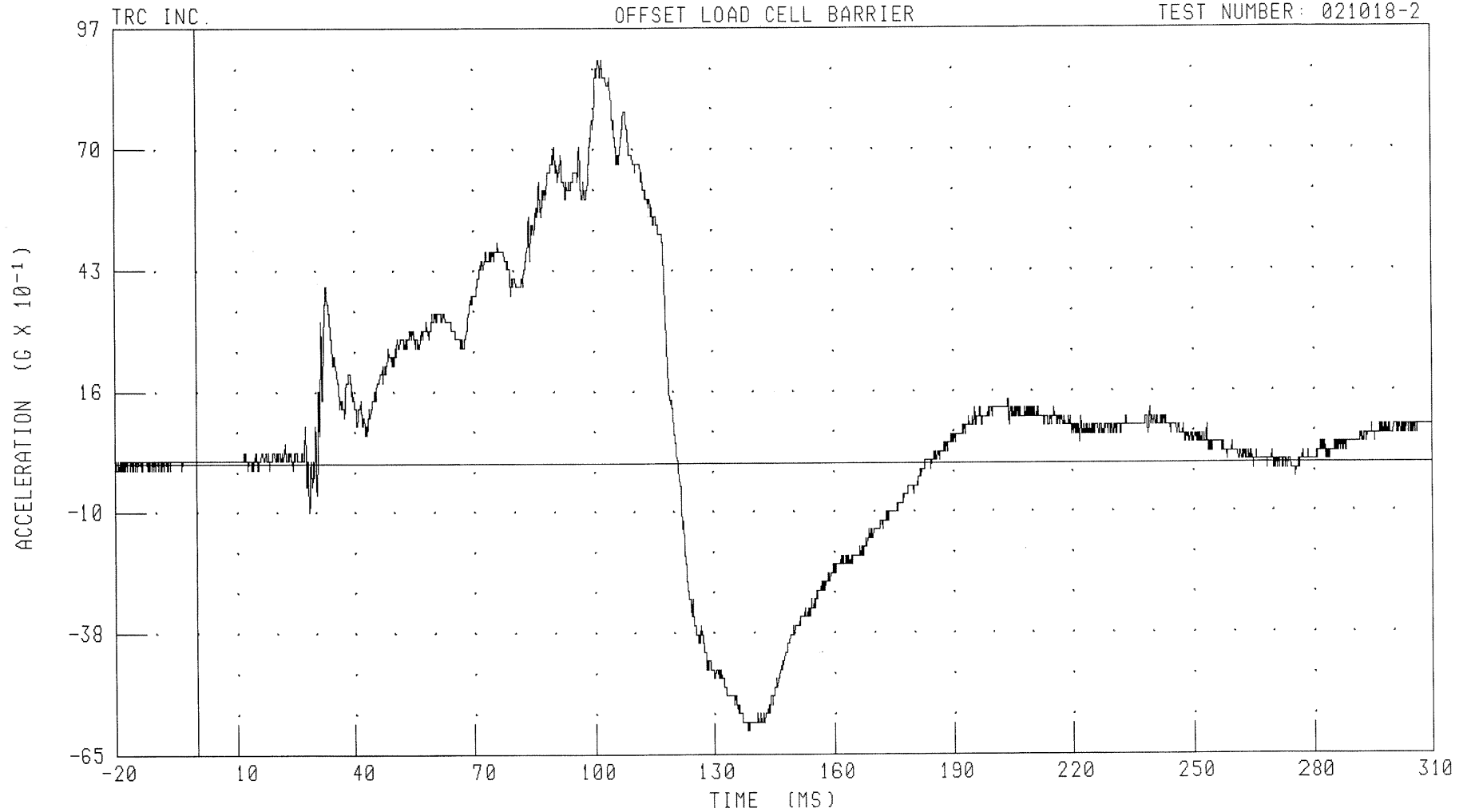
PEAK DATA: 3.06 G @ 164.88 MS; -31.25 G @ 106.80 MS

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

PASSENGER PELVIS Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: PEVYG2

FILTER: CH. CLASS 1000

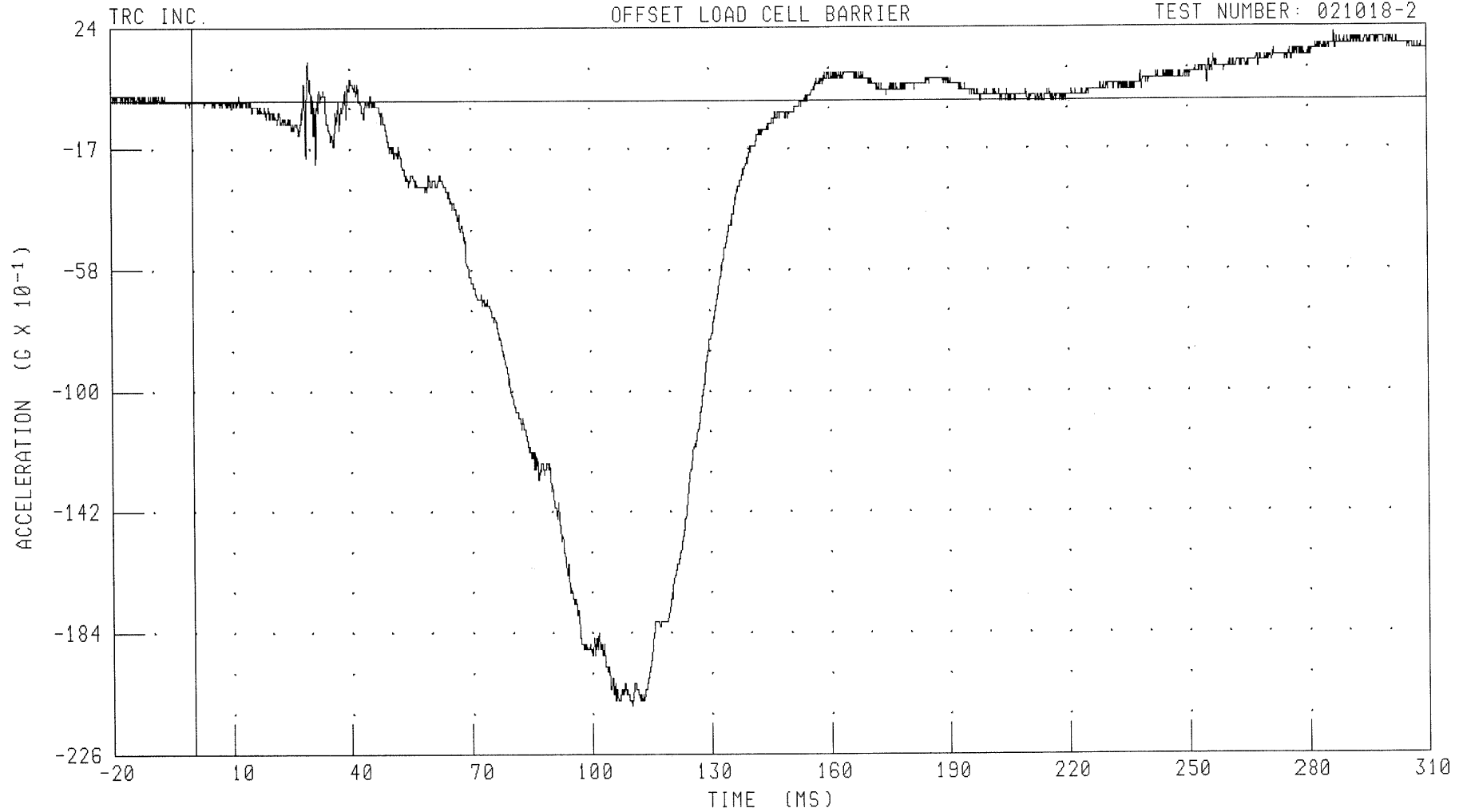
PEAK DATA: 9.00 G @ 101.36 MS; -5.98 G @ 138.16 MS

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: 021018-2



CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

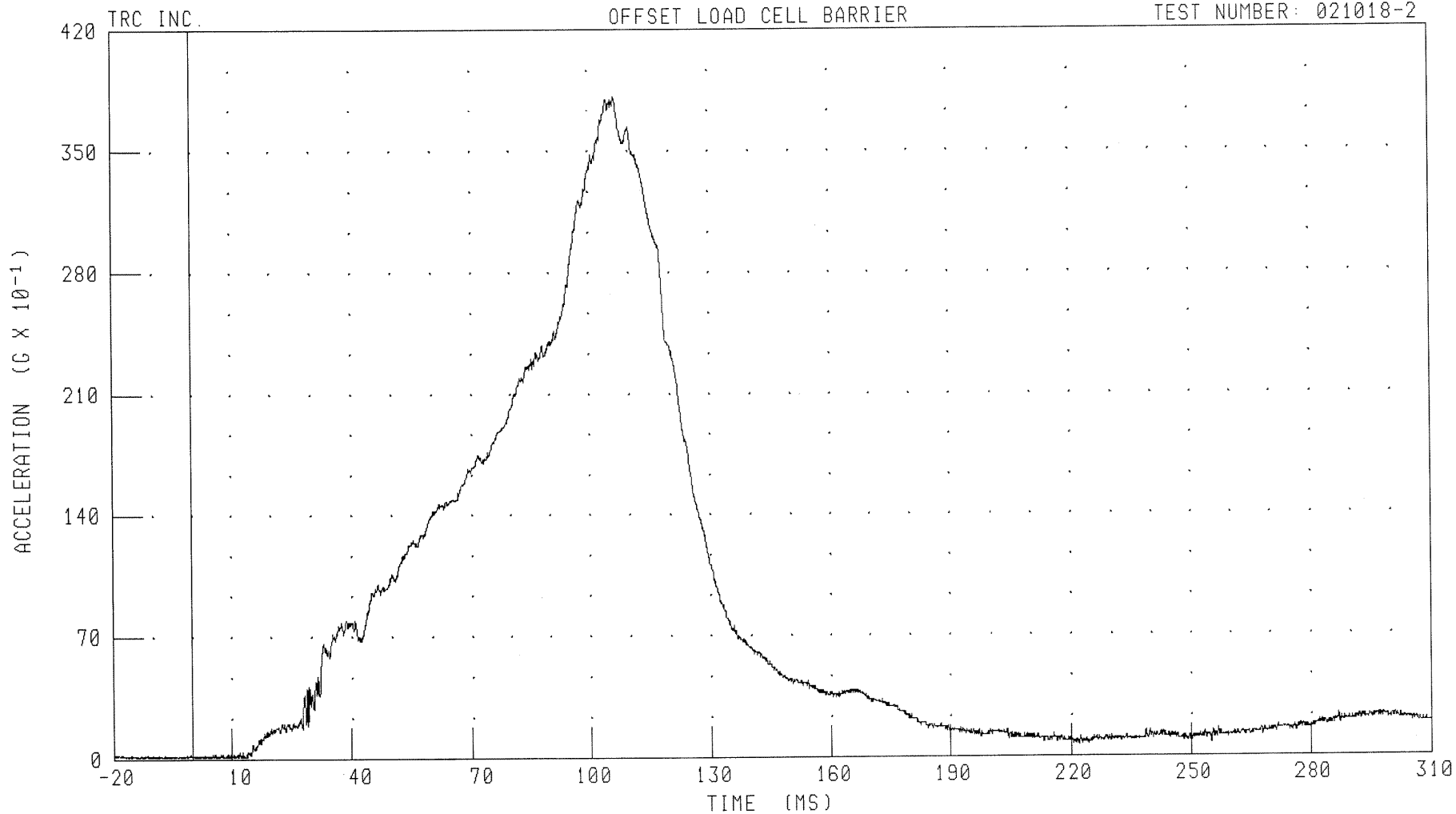
PEAK DATA: 2.31 G @ 286.88 MS; -21.05 G @ 110.16 MS

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

PASSENGER PELVIS RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: PEVRG2 FILTER: CH. CLASS 1000

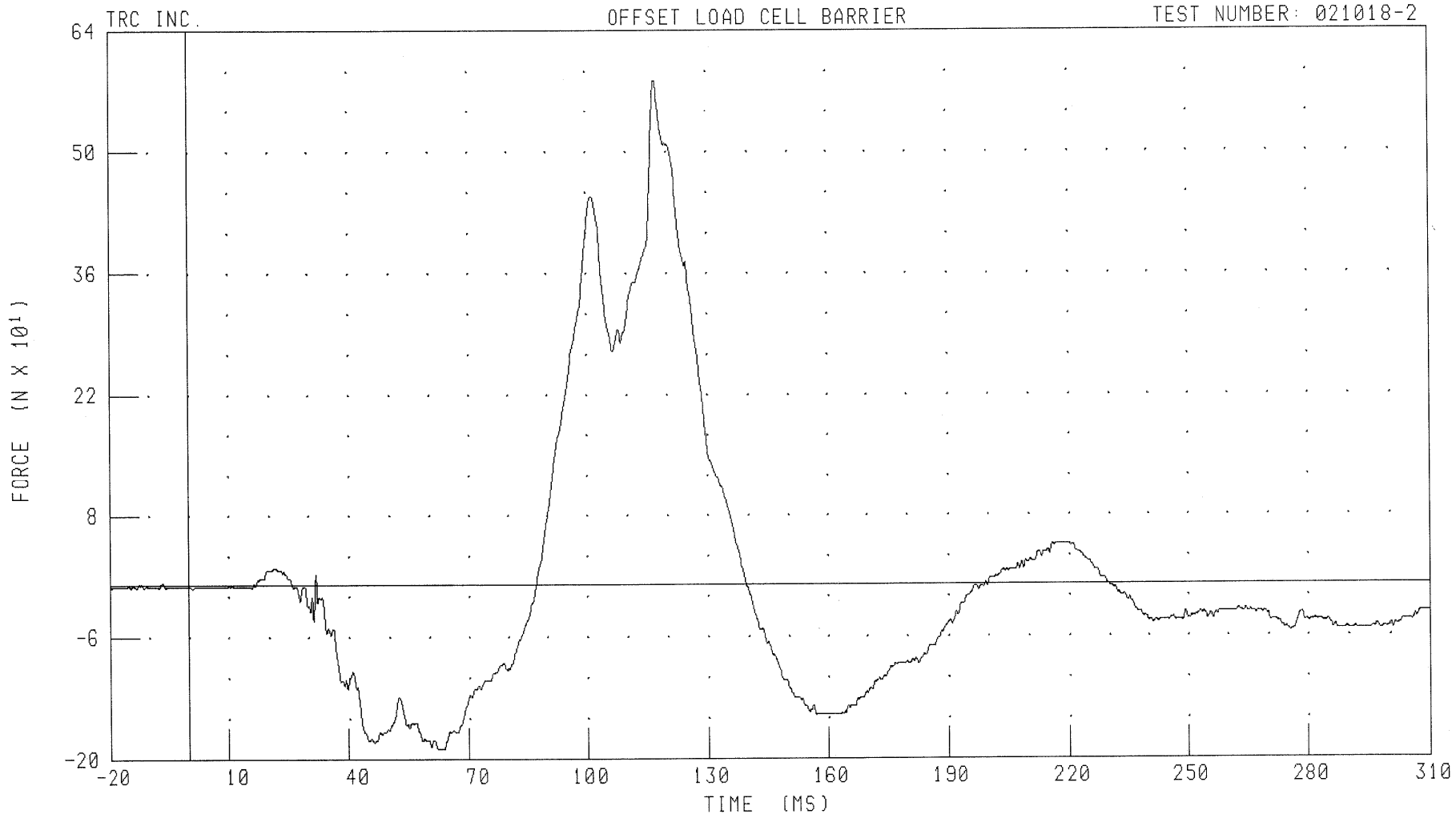
PEAK DATA: 38.19 G @ 106.80 MS; 0.10 G @ -16.96 MS

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

PASSENGER LEFT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMXF2

FILTER: CH. CLASS 600

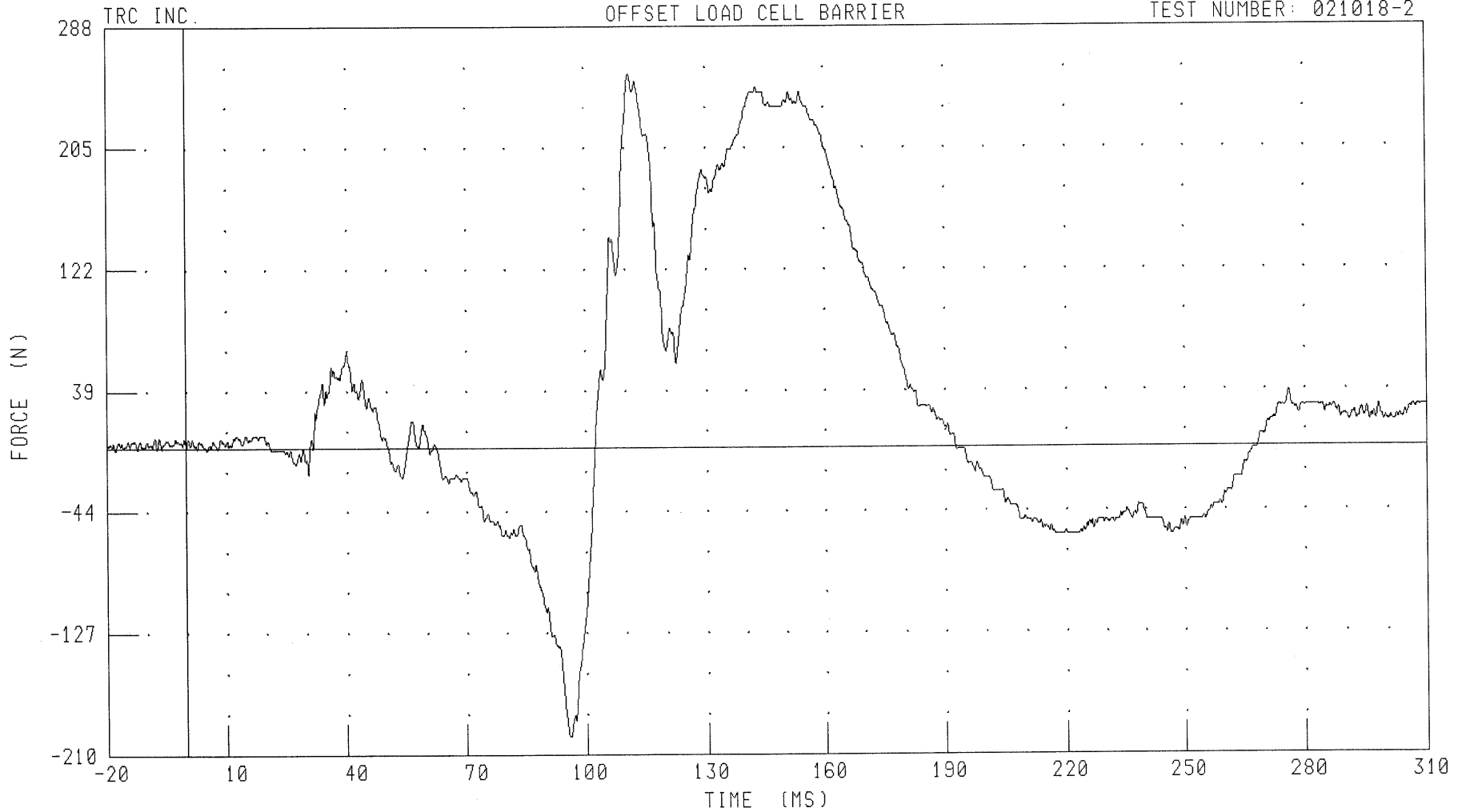
PEAK DATA: 582.63 N @ 117.28 MS; -188.83 N @ 62.16 MS

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

PASSENGER LEFT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMF2 FILTER: CH. CLASS 600

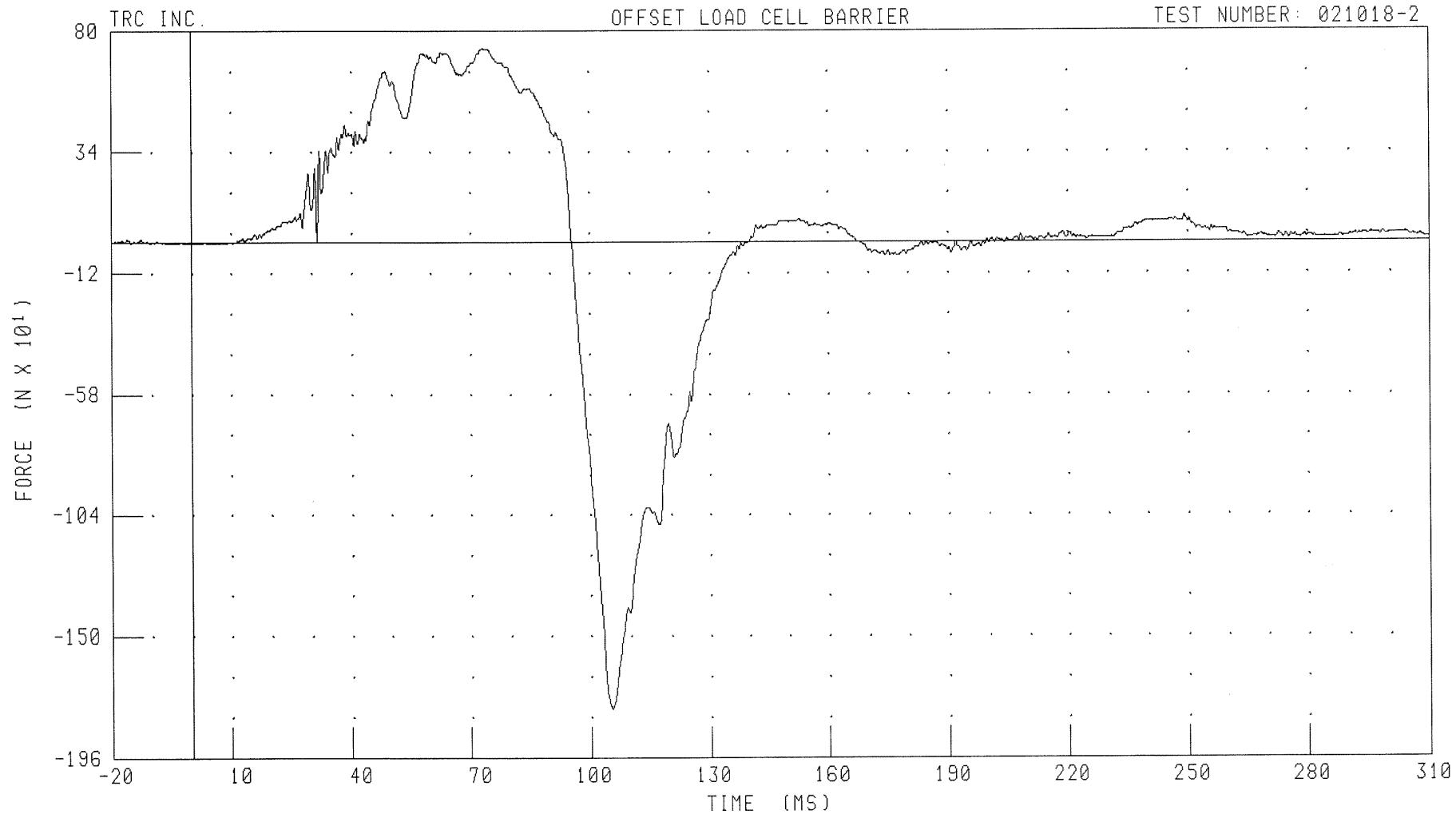
PEAK DATA: 255.55 N @ 111.28 MS; -197.73 N @ 95.76 MS

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

PASSENGER LEFT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMZF2 FILTER: CH. CLASS 600

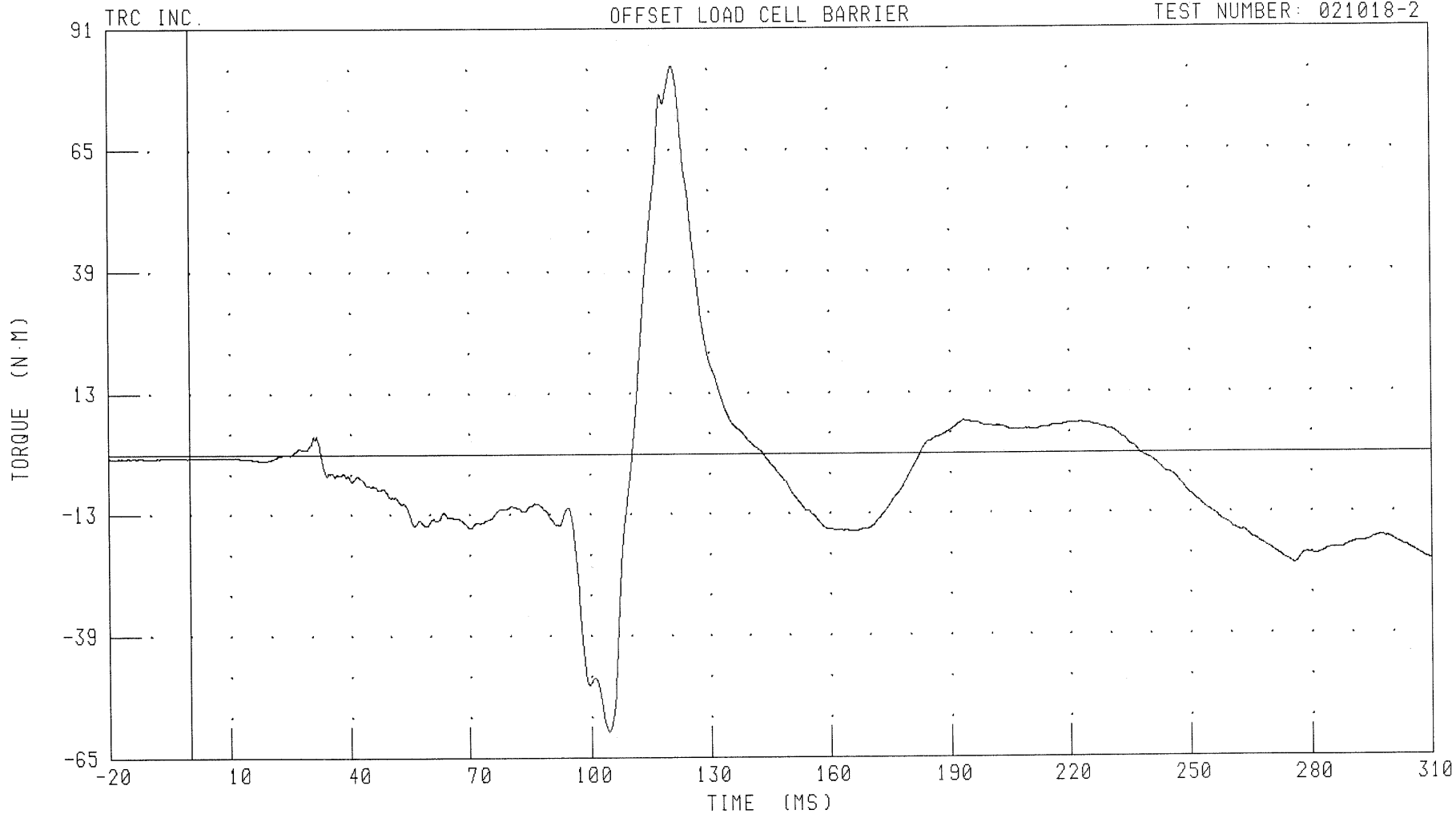
PEAK DATA: 736.00 N @ 73.52 MS; -1775.60 N @ 105.36 MS

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

PASSENGER LEFT FEMUR MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMXM2 FILTER: CH. CLASS 600

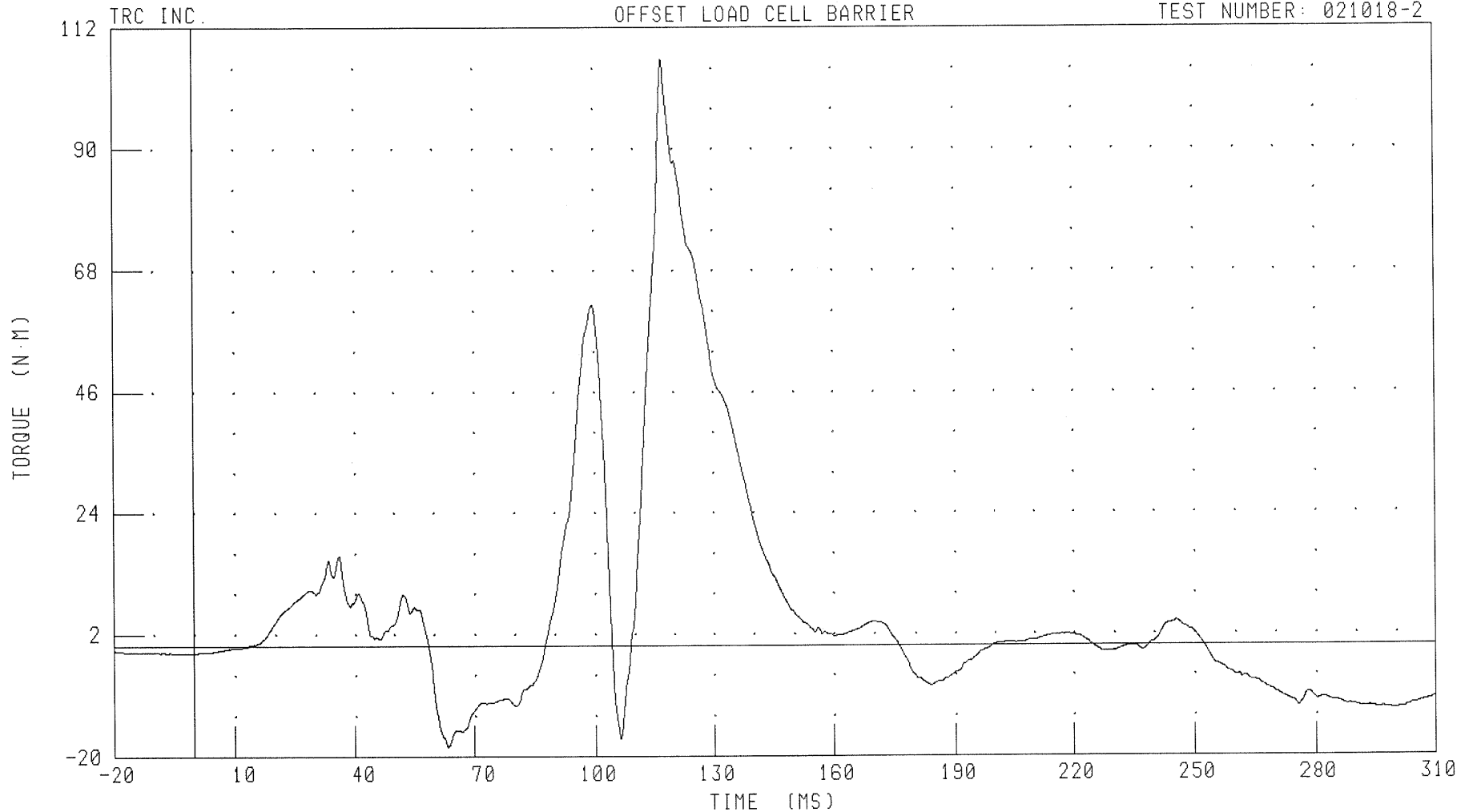
PEAK DATA: 82.96 N·M @ 120.96 MS; -59.48 N·M @ 104.40 MS

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

PASSENGER LEFT FEMUR MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMYM2

FILTER: CH. CLASS 600

TIME (MS)

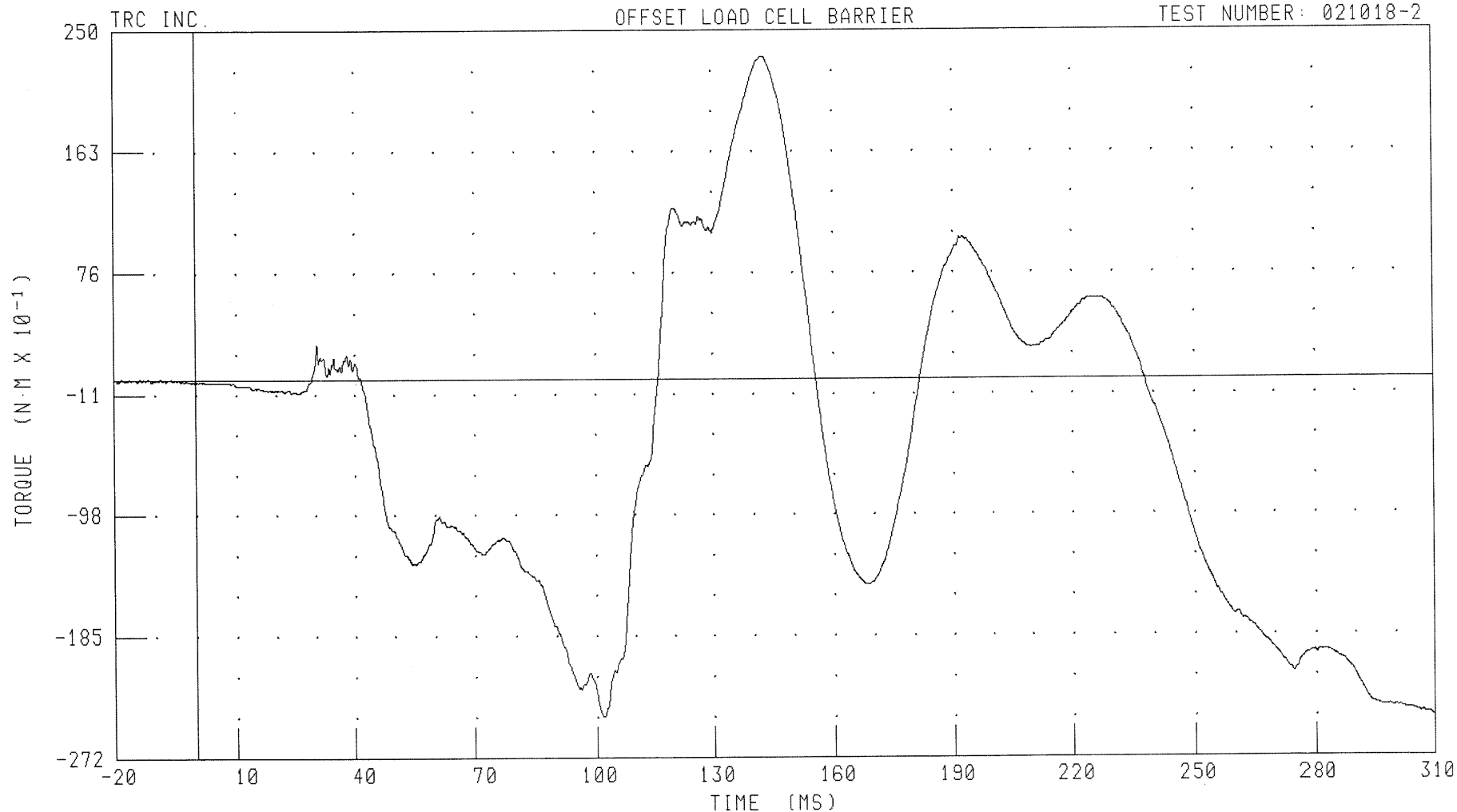
PEAK DATA: 106.19 N·M @ 117.44 MS; -18.25 N·M @ 63.28 MS

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

PASSENGER LEFT FEMUR MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LFMZM2

FILTER: CH. CLASS 600

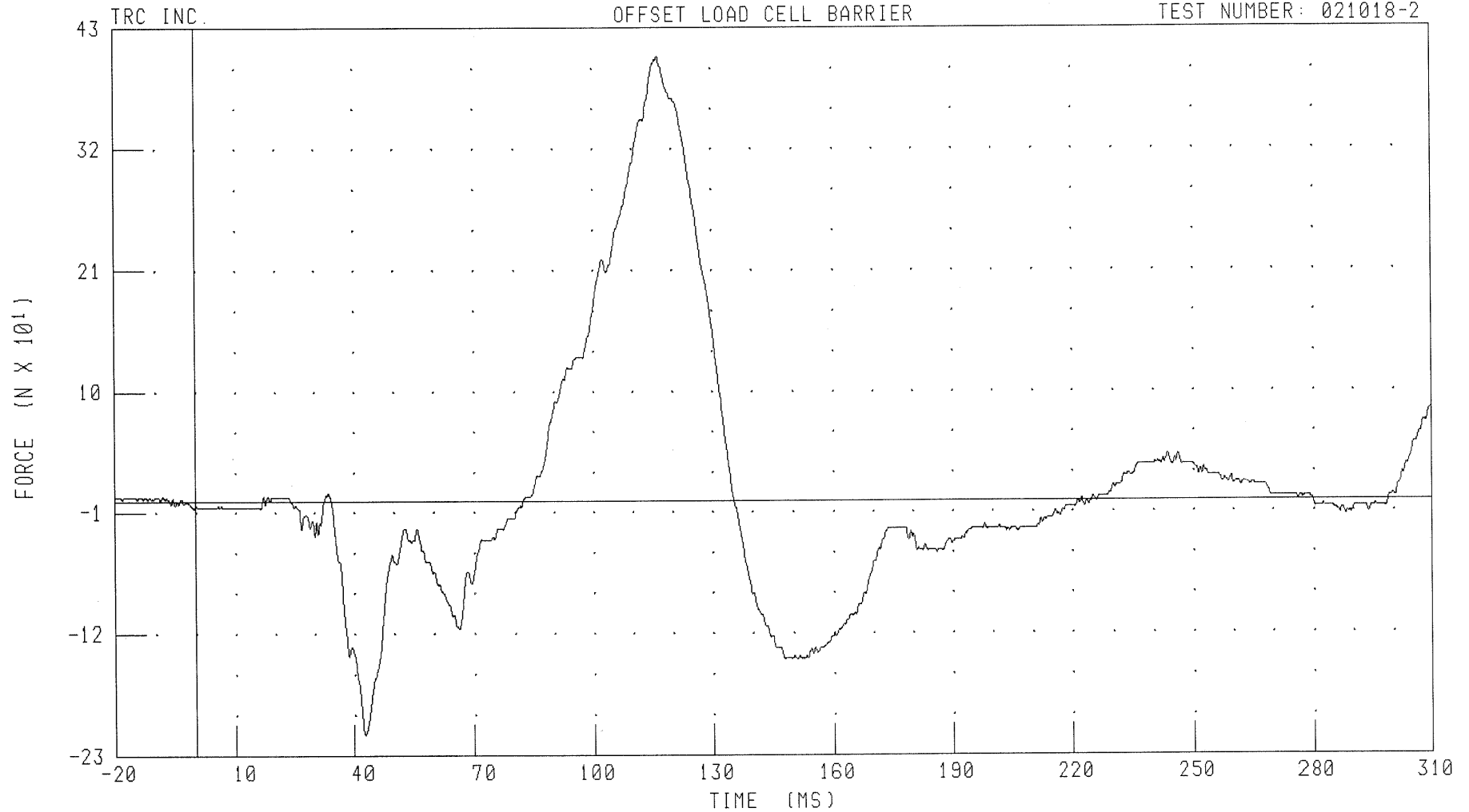
PEAK DATA: 23.14 N·M @ 142.40 MS; -24.33 N·M @ 309.68 MS

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

PASSENGER RIGHT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMXF2 FILTER: CH. CLASS 600

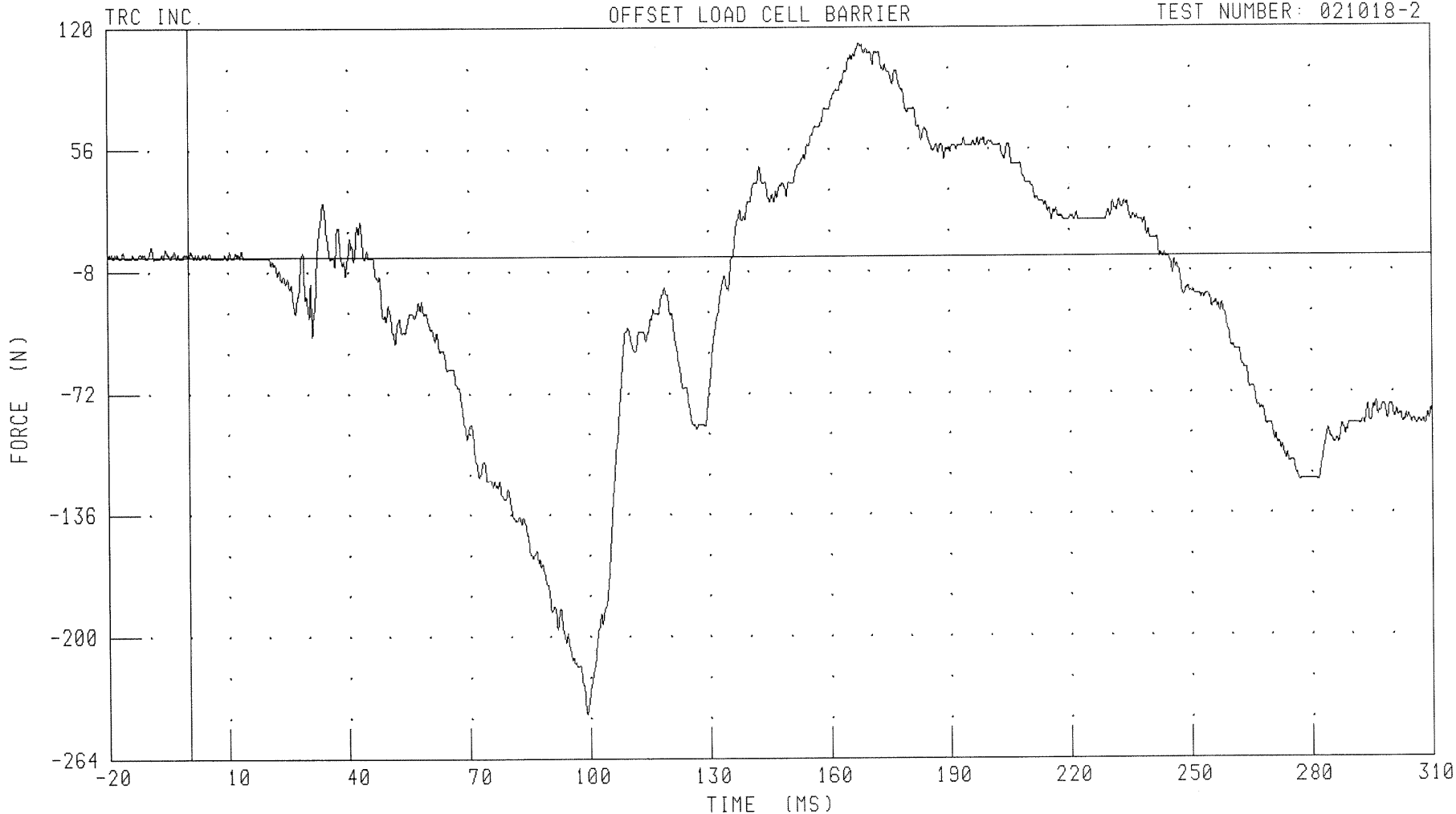
PEAK DATA: 404.40 N @ 116.88 MS; -211.17 N @ 42.72 MS

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

PASSENGER RIGHT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMYF2 FILTER: CH. CLASS 600

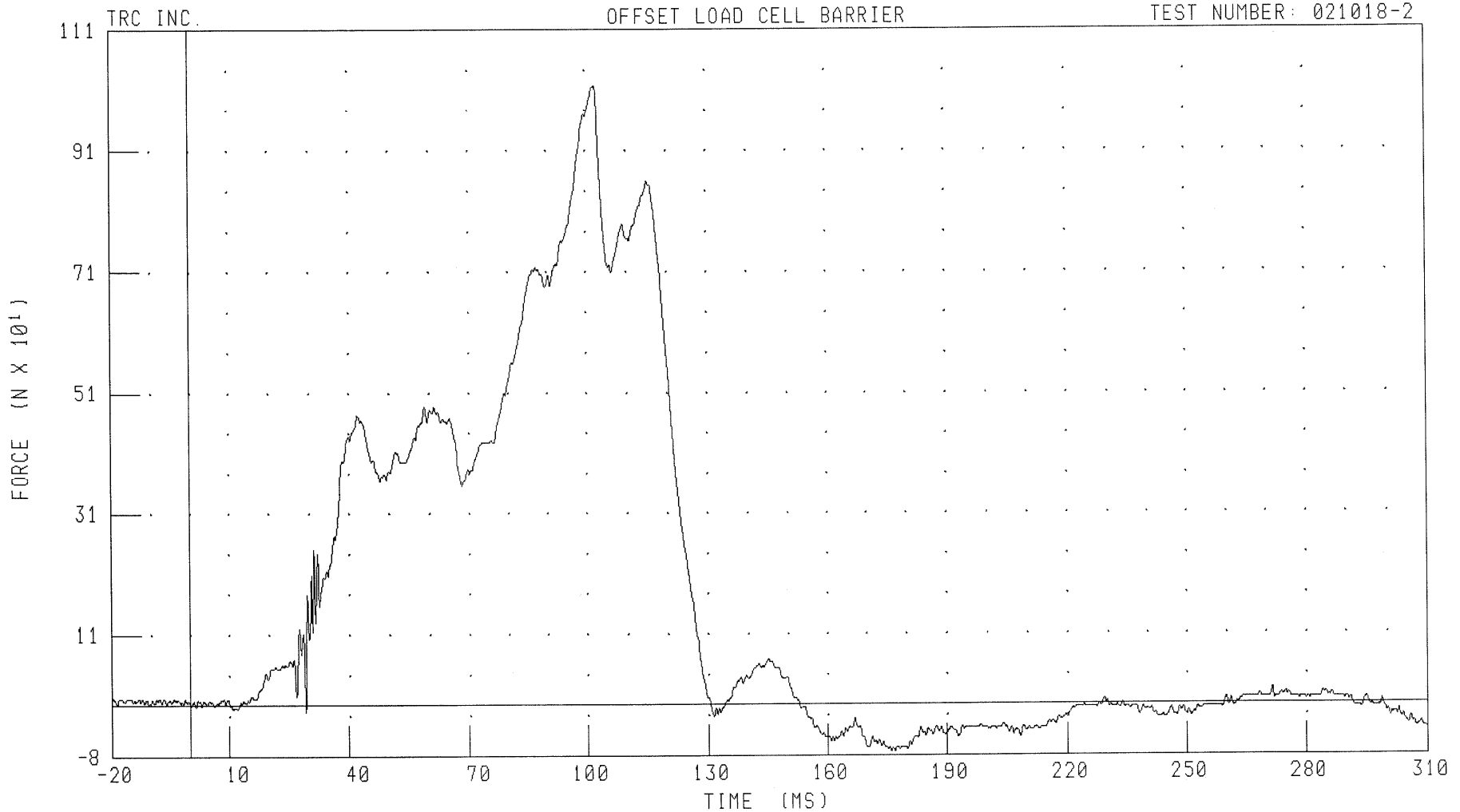
PEAK DATA: 111.69 N @ 167.84 MS; -240.80 N @ 99.36 MS

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

PASSENGER RIGHT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMZ F2 FILTER: CH. CLASS 600

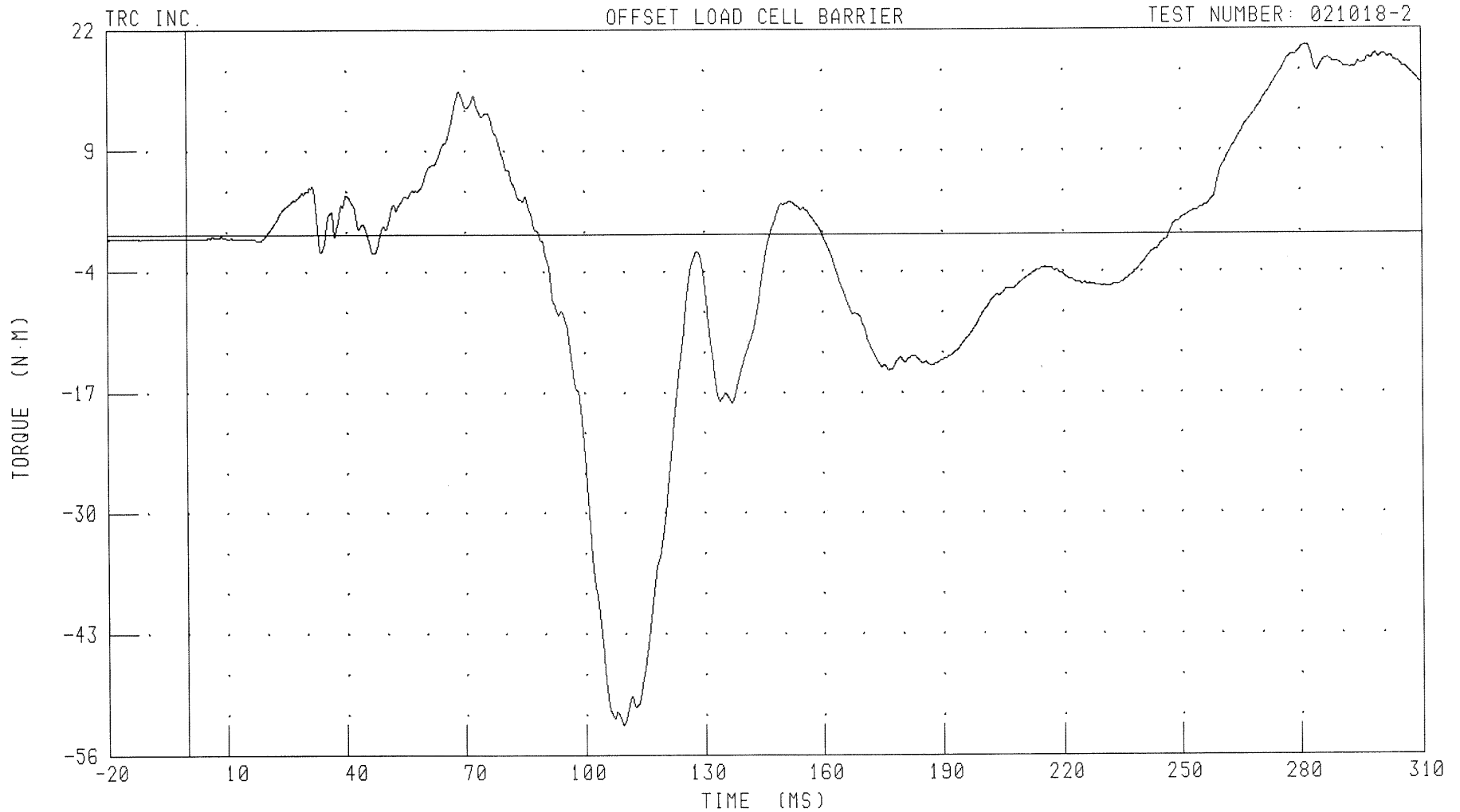
PEAK DATA: 1021.74 N @ 102.56 MS; -78.04 N @ 177.12 MS

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

PASSENGER RIGHT FEMUR MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMXM2 FILTER: CH. CLASS 600

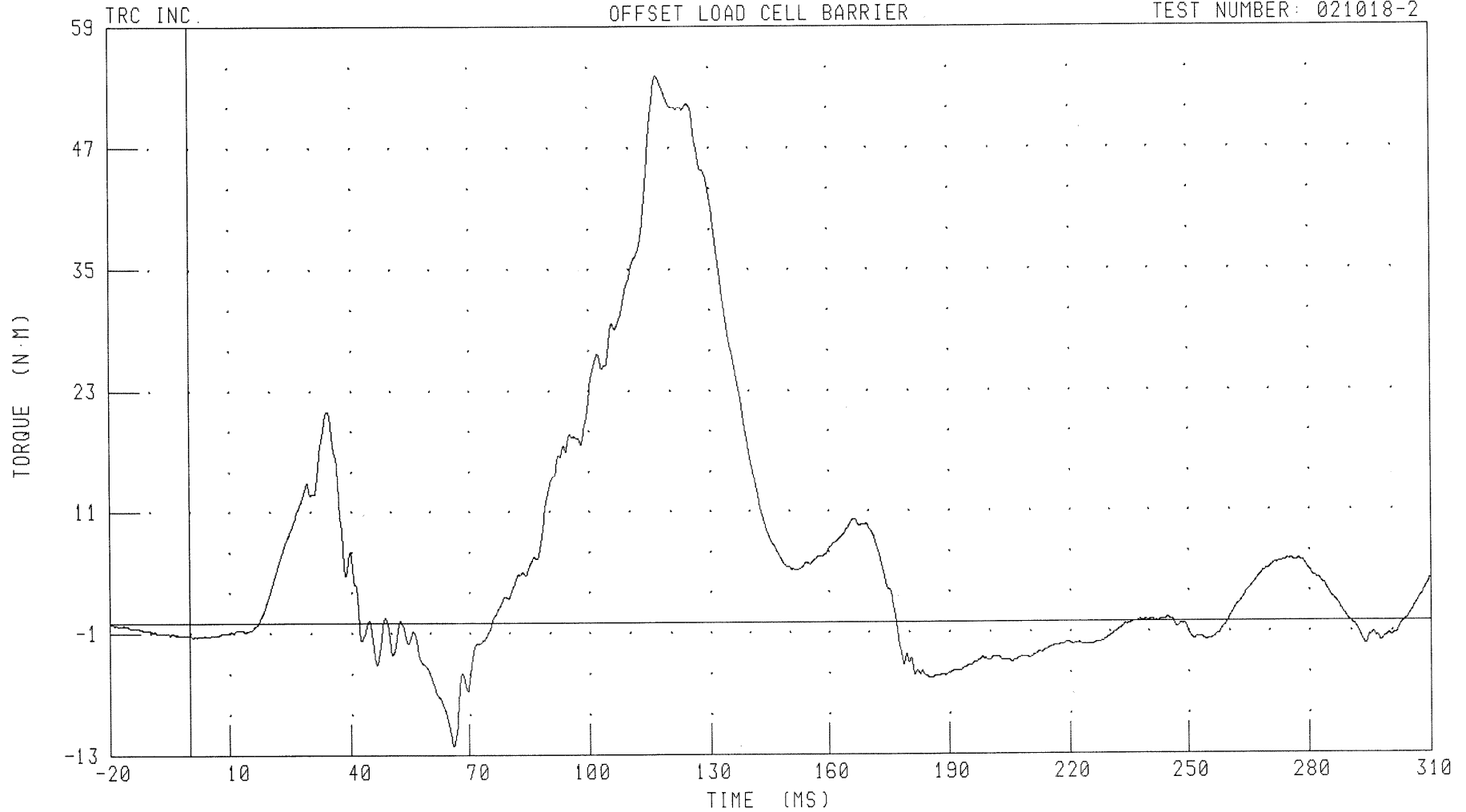
PEAK DATA: 20.28 N·M @ 281.92 MS; -52.79 N·M @ 109.52 MS

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

PASSENGER RIGHT FEMUR MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RFMYM2 FILTER: CH. CLASS 600

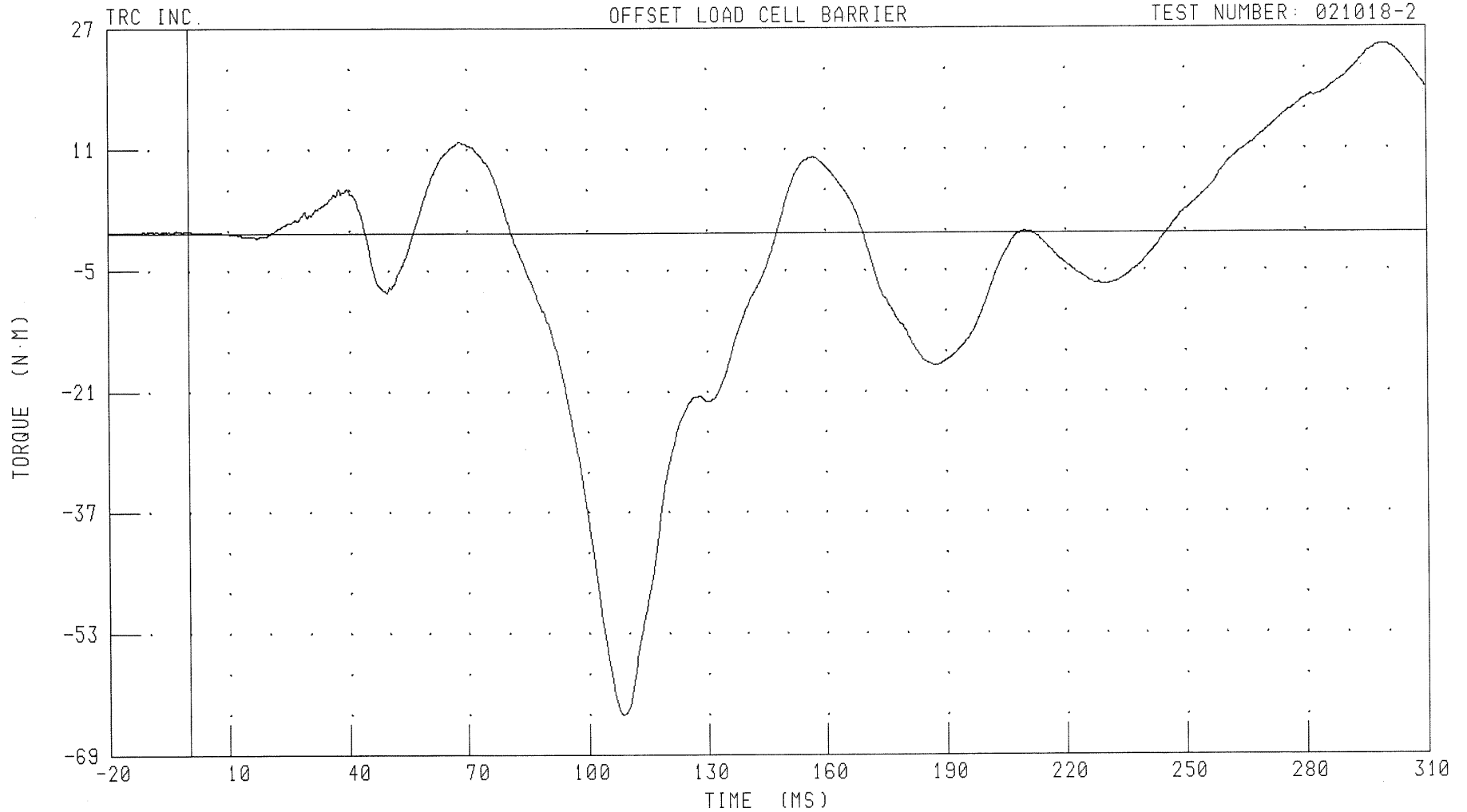
PEAK DATA: 54.14 N·M @ 117.12 MS; -12.13 N·M @ 66.08 MS

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

PASSENGER RIGHT FEMUR MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



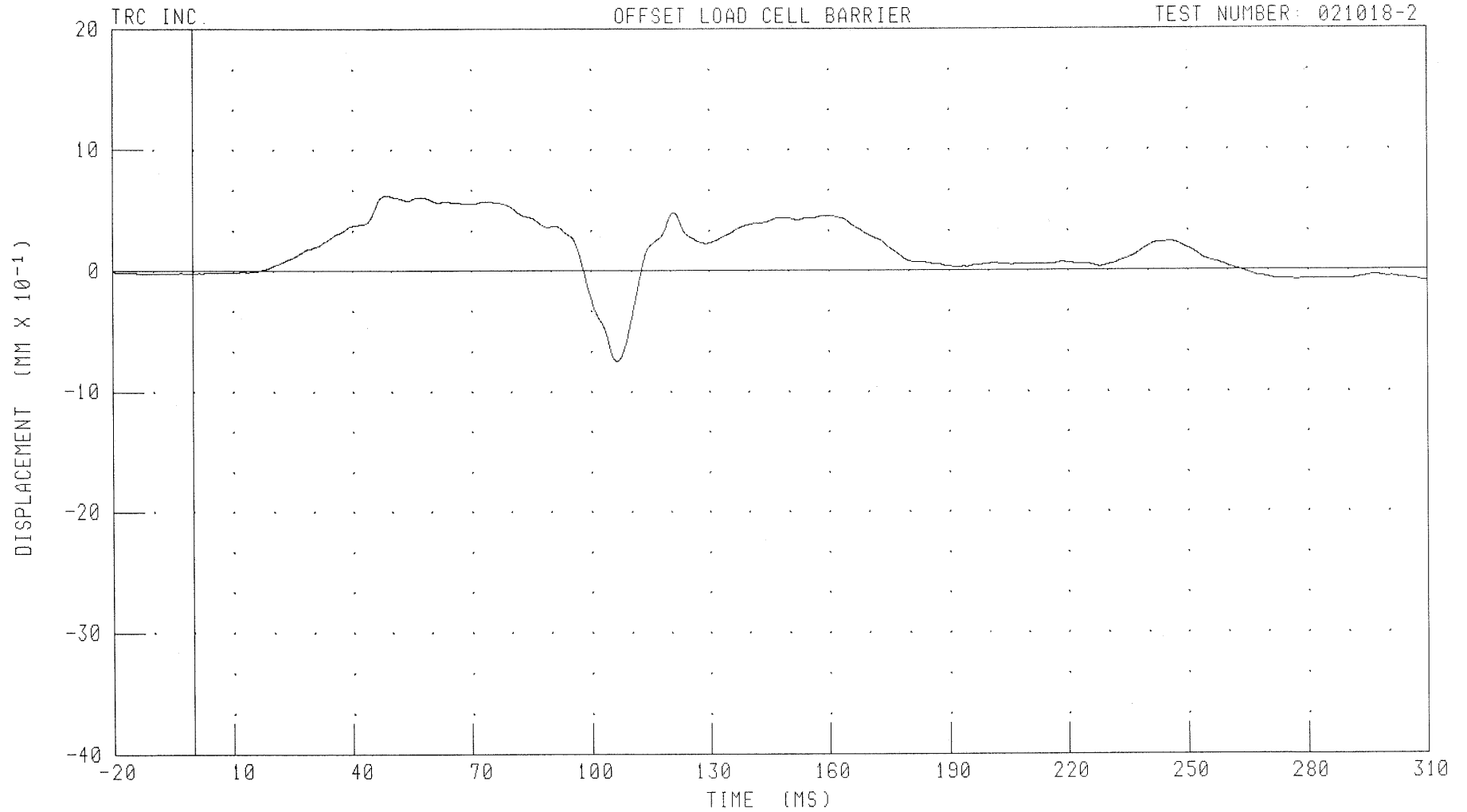
CHANNEL: RFMZM2 FILTER: CH. CLASS 600

PEAK DATA: 24.78 N·M @ 299.44 MS; -63.76 N·M @ 108.64 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: 021018-2



CHANNEL: KNLXD2 FILTER: CH. CLASS 180

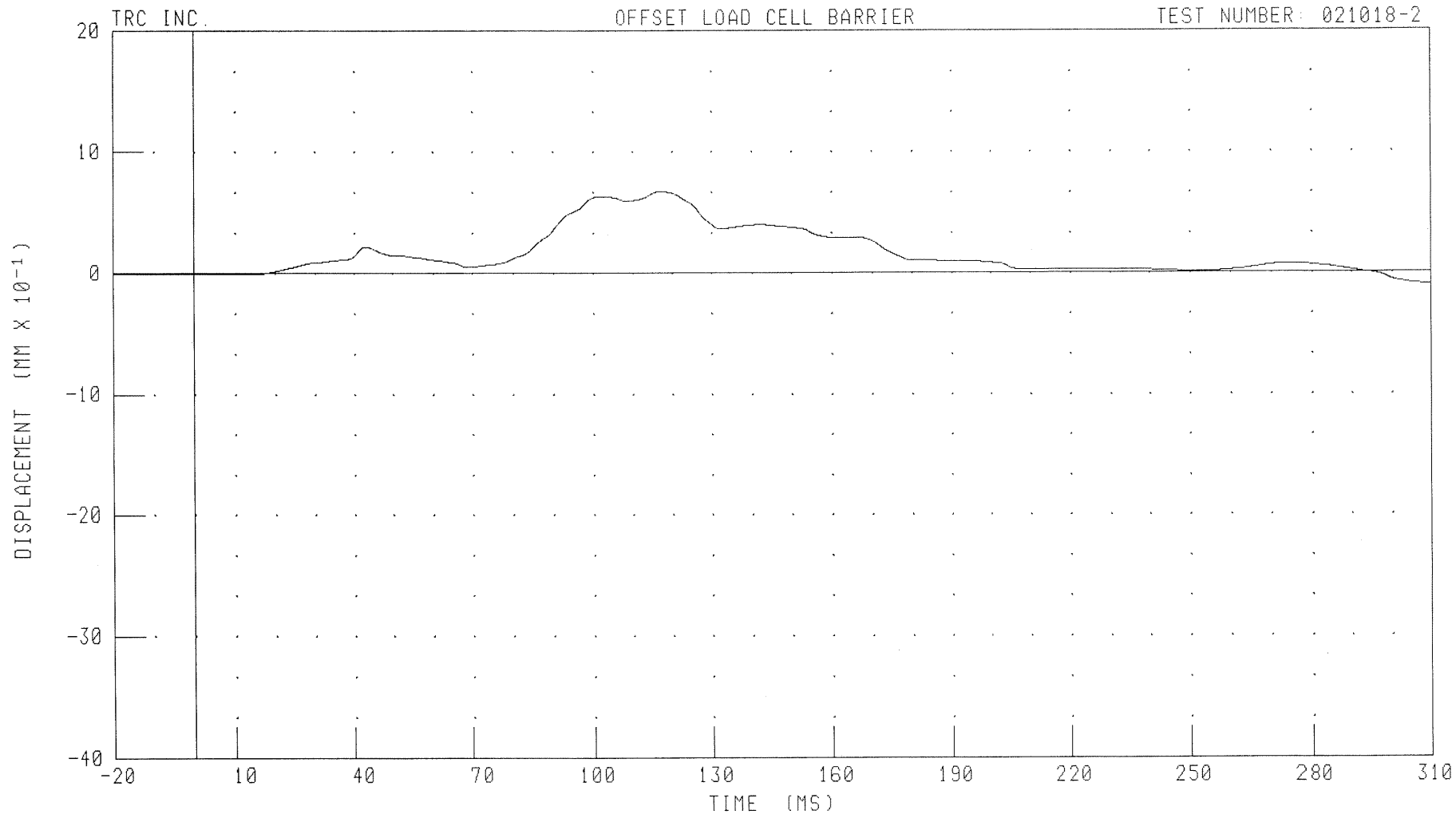
PEAK DATA: 0.62 MM @ 48.96 MS; -0.75 MM @ 106.40 MS

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: 021018-2



CHANNEL: KNRXD2 FILTER: CH. CLASS 180

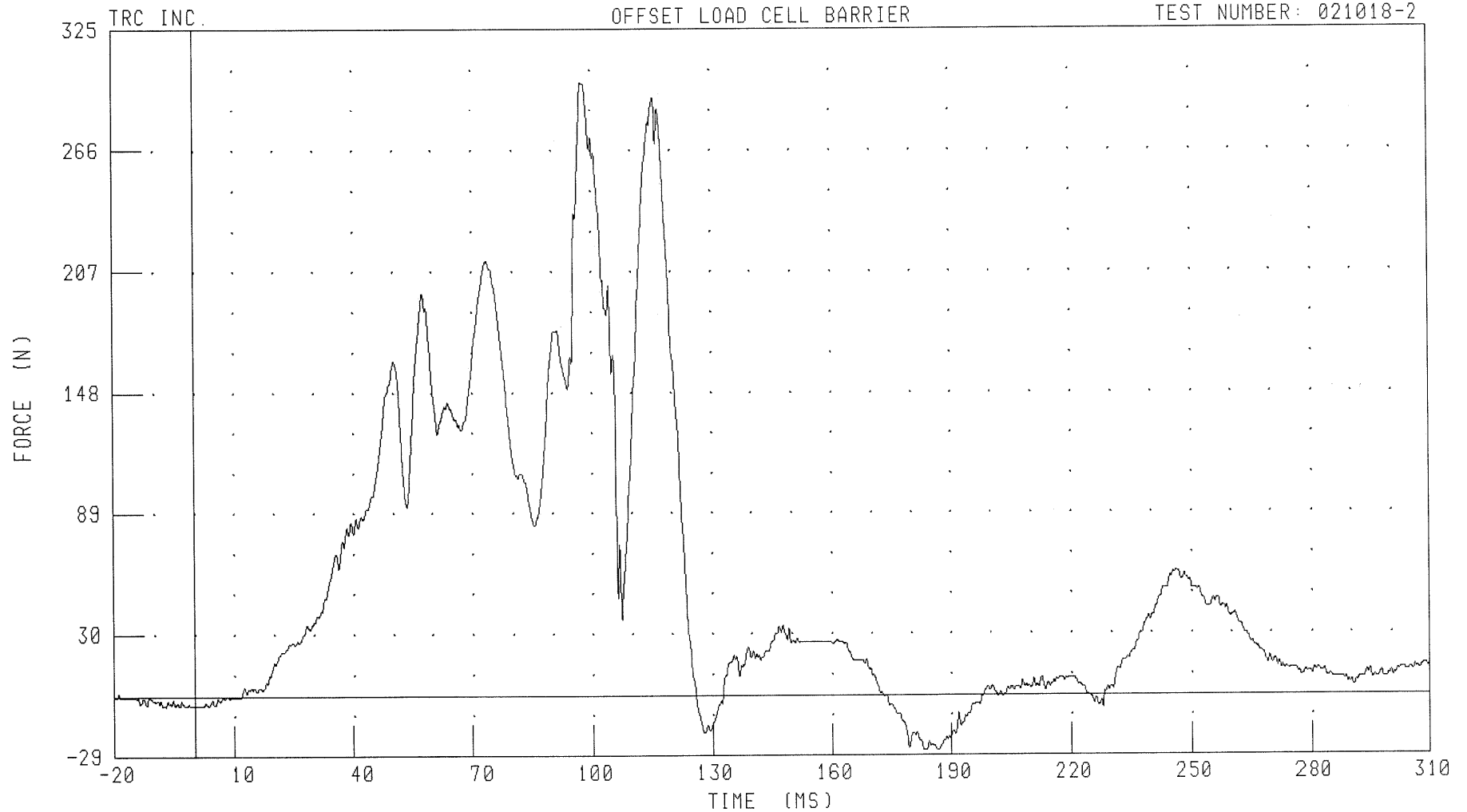
PEAK DATA: 0.67 MM @ 117.12 MS, -0.10 MM @ 309.52 MS

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: 021018-2



CHANNEL: TBLXF2 FILTER: CH. CLASS 600

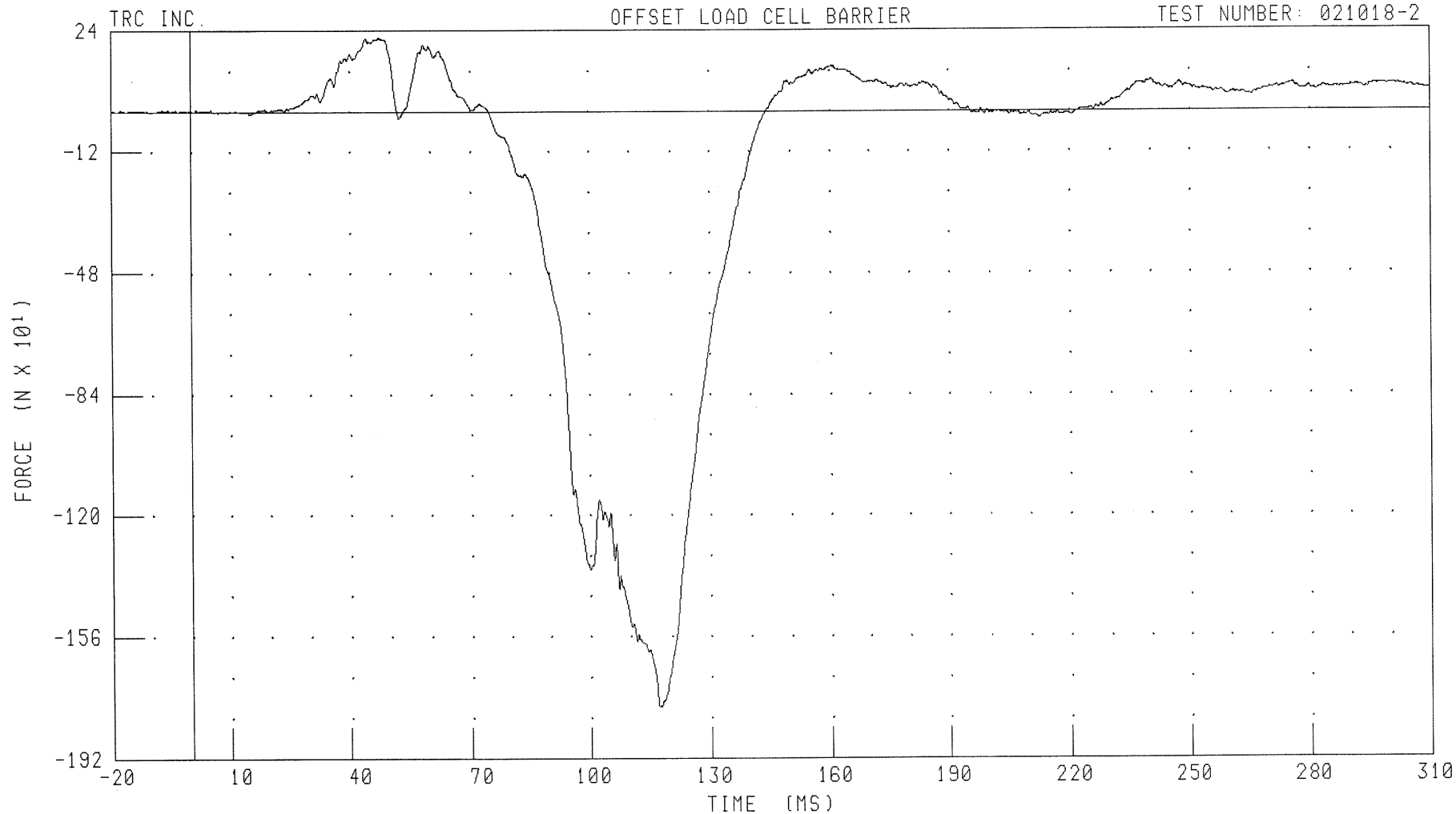
PEAK DATA: 299.23 N @ 97.76 MS; -26.60 N @ 183.76 MS

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: 021018-2



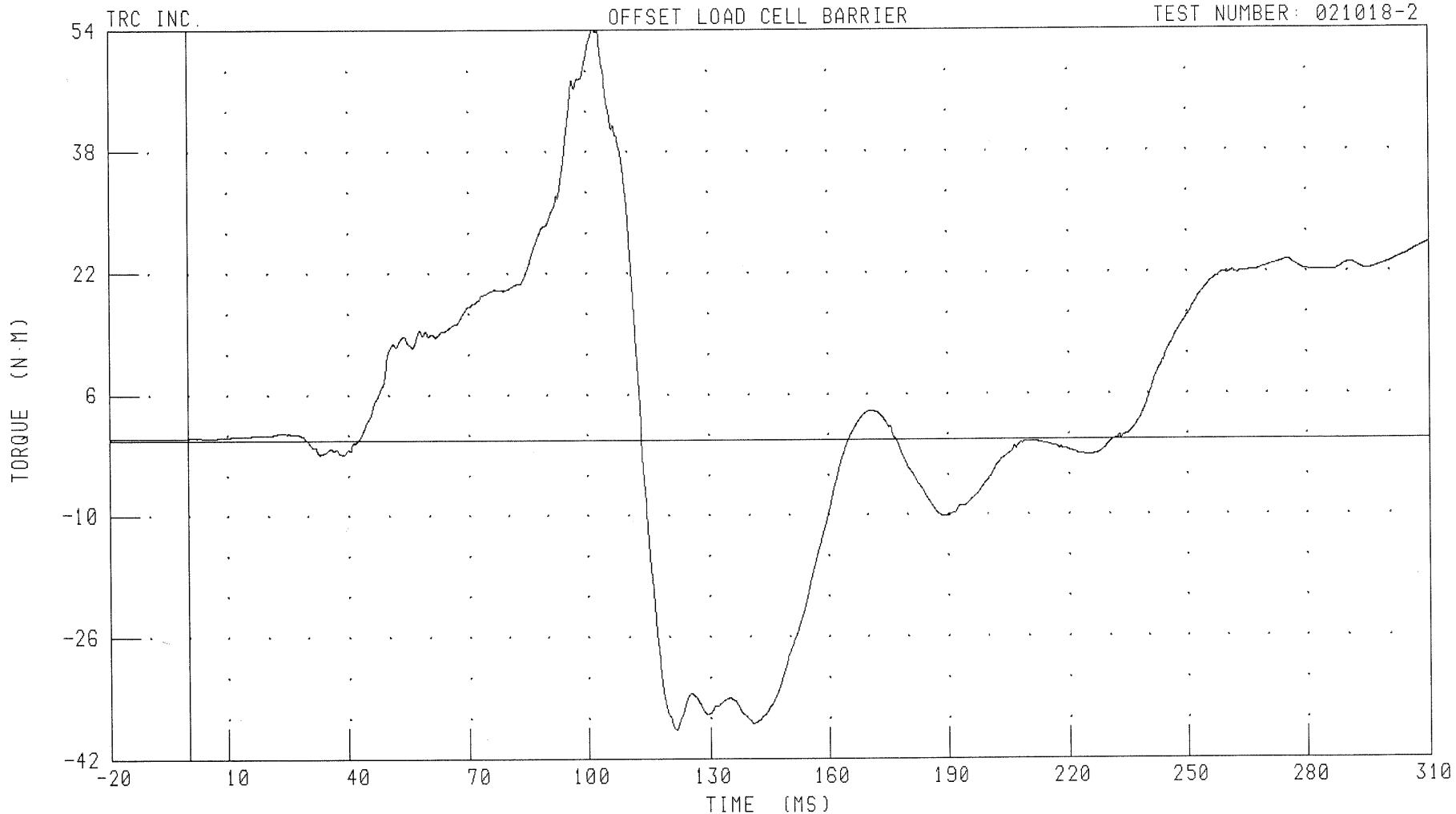
CHANNEL: TBLZF2 FILTER: CH. CLASS 600

PEAK DATA: 218.78 N @ 47.68 MS; -1767.76 N @ 117.12 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: 021018-2



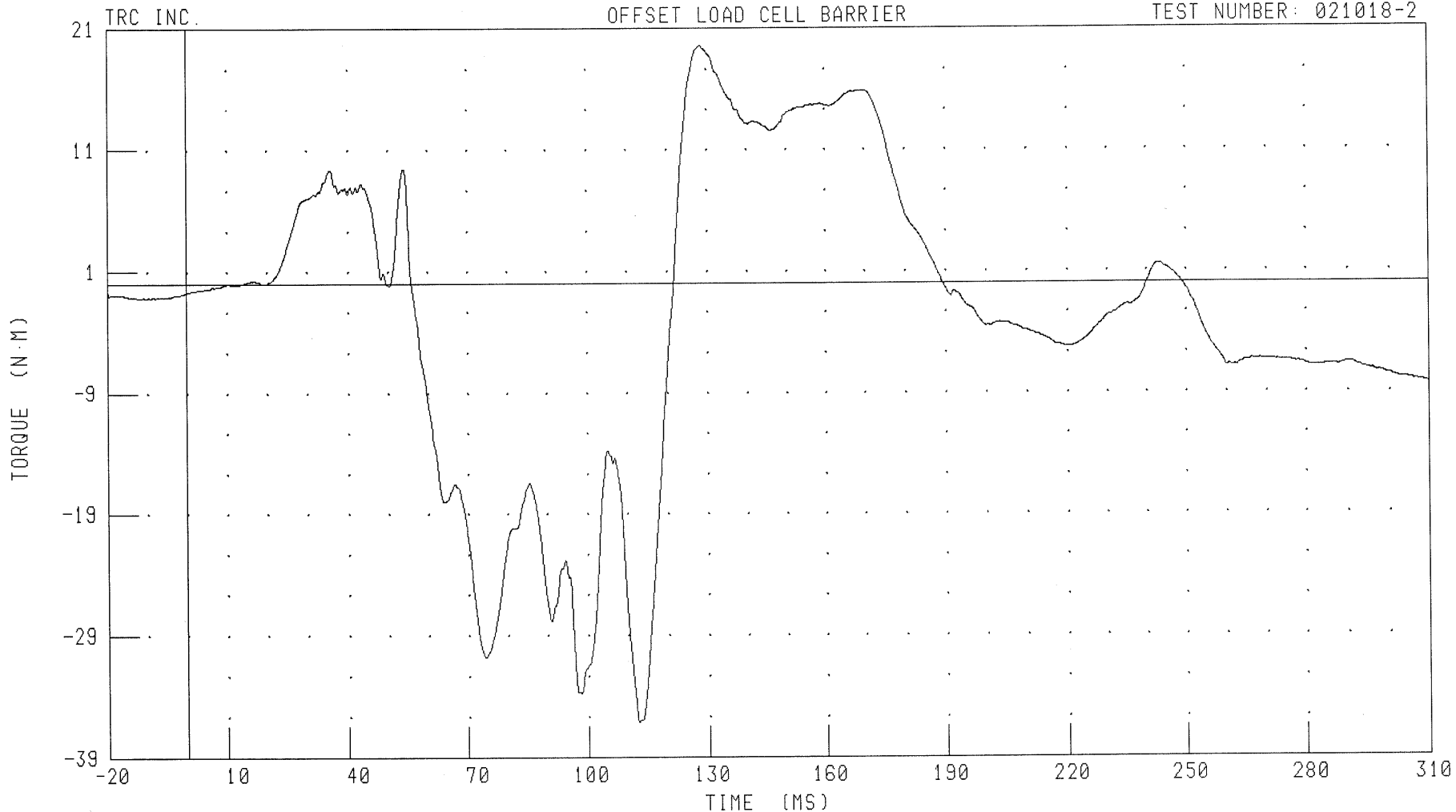
CHANNEL: TBLXM2 FILTER: CH. CLASS 600

PEAK DATA: 54.45 N·M @ 102.08 MS; -38.19 N·M @ 121.68 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: 021018-2



CHANNEL: TBLYM2 FILTER: CH. CLASS 600

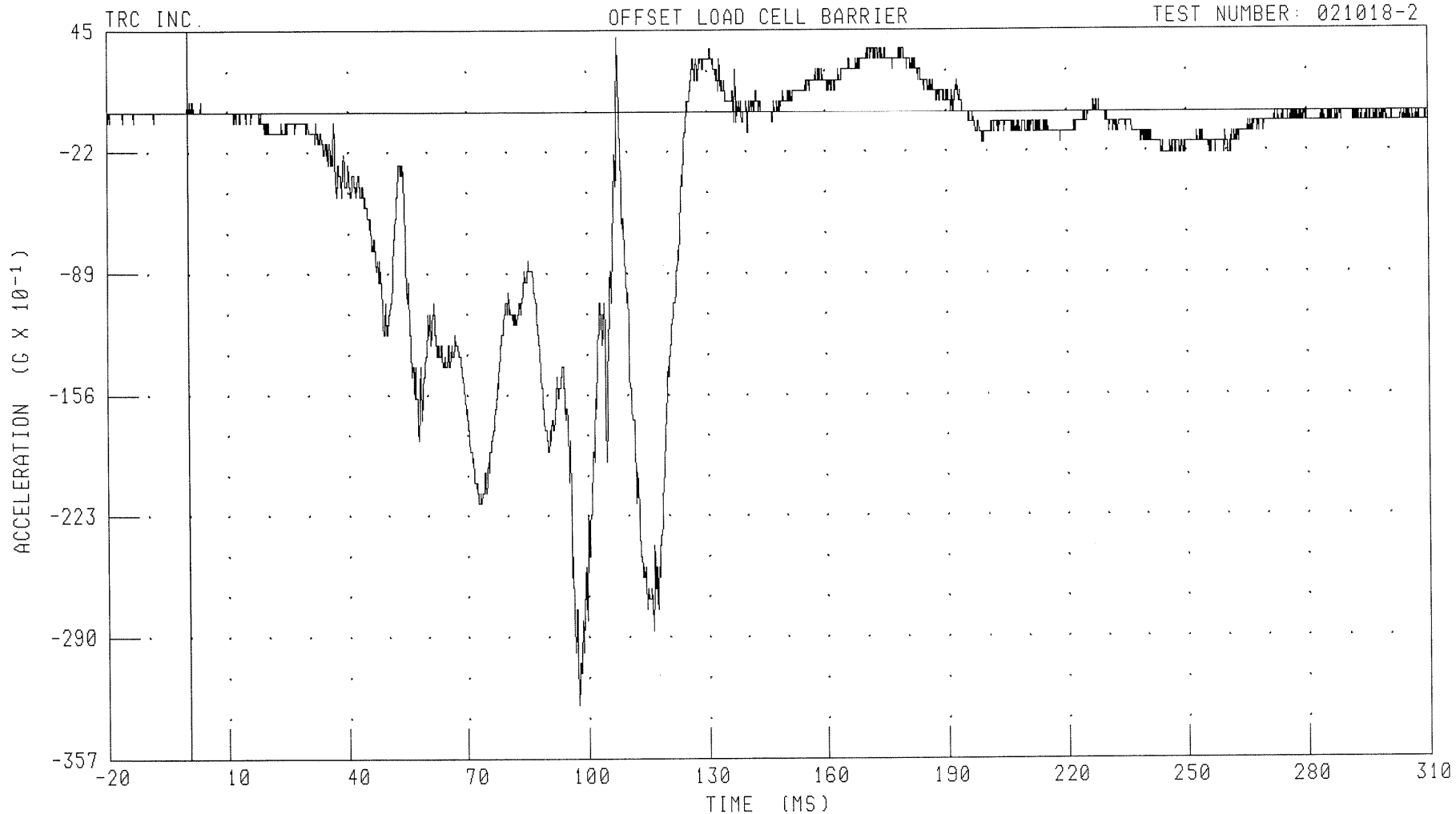
PEAK DATA: 19.61 N·M @ 128.64 MS; -36.15 N·M @ 112.64 MS

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: 021018-2



CHANNEL: TBLXG2

FILTER: CH. CLASS 1000

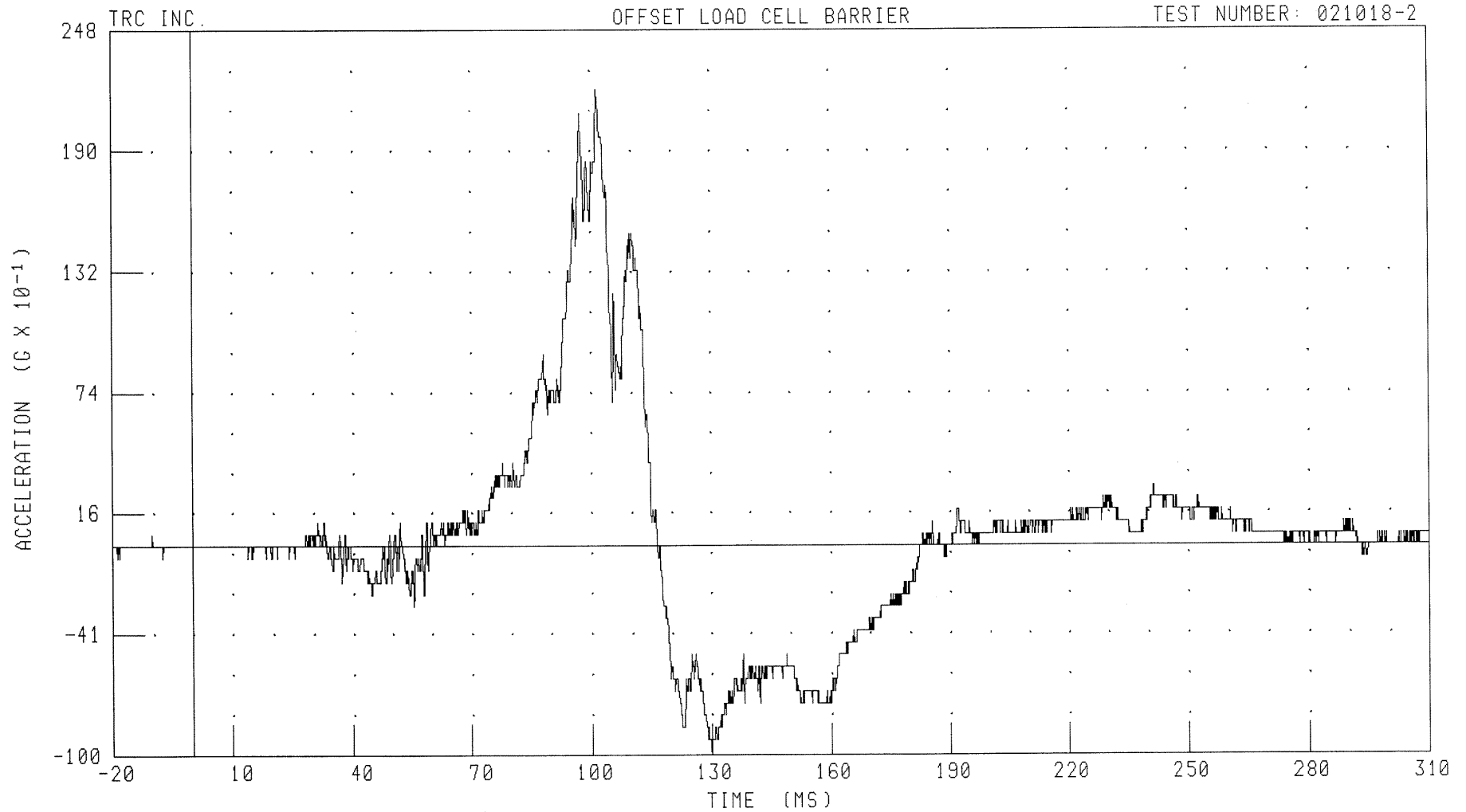
PEAK DATA: 4.10 G @ 107.68 MS; -32.77 G @ 97.60 MS

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: 021018-2



CHANNEL: TBLYG2 FILTER: CH. CLASS 1000

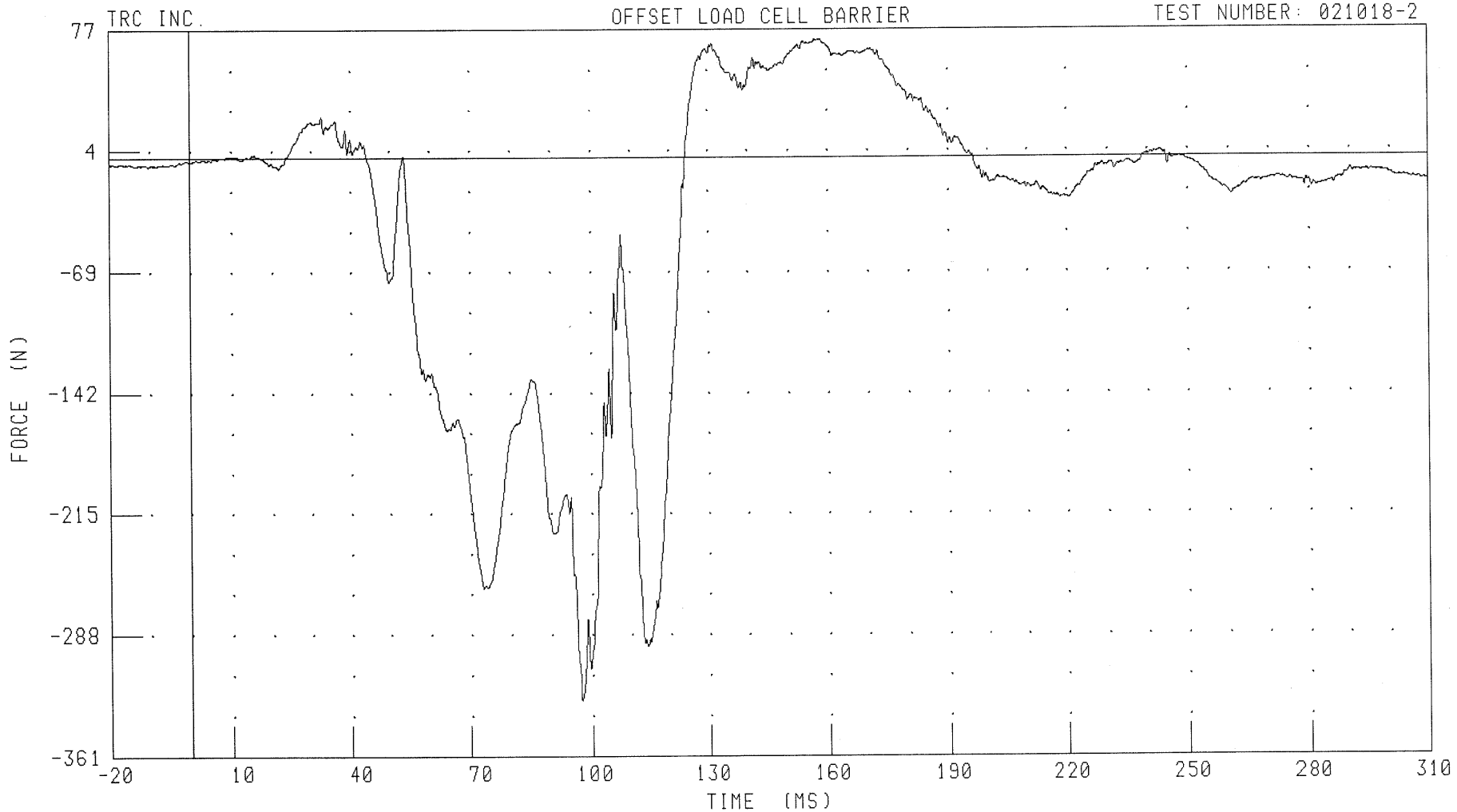
PEAK DATA: 21.97 G @ 101.60 MS; -9.84 G @ 129.84 MS

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: 021018-2



CHANNEL: ANLXF2

FILTER: CH. CLASS 600

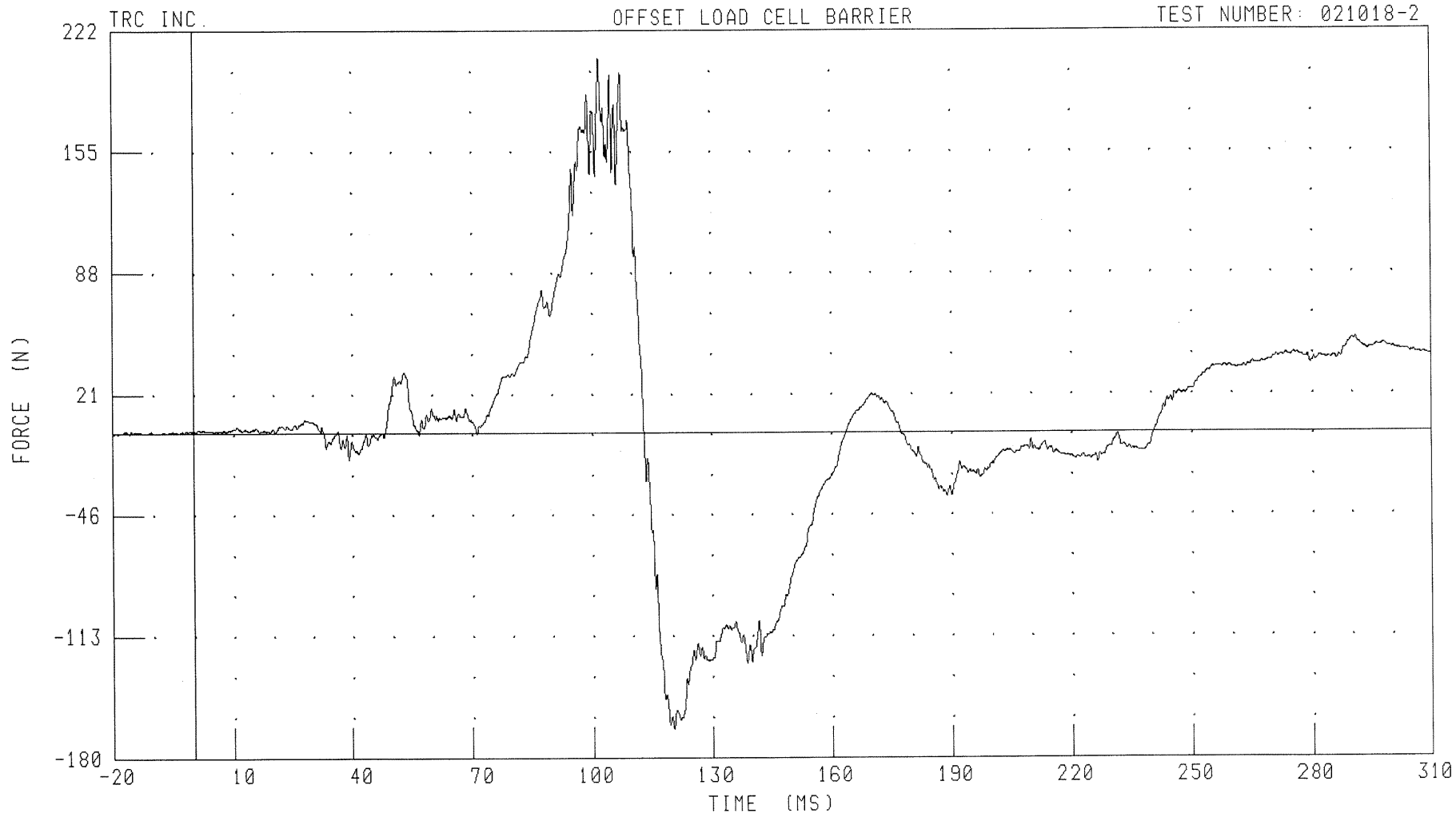
PEAK DATA: 70.81 N @ 158.64 MS; -327.63 N @ 97.52 MS

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

PASSENGER LEFT LOWER TIBIA Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: ANLYF2 FILTER: CH. CLASS 600

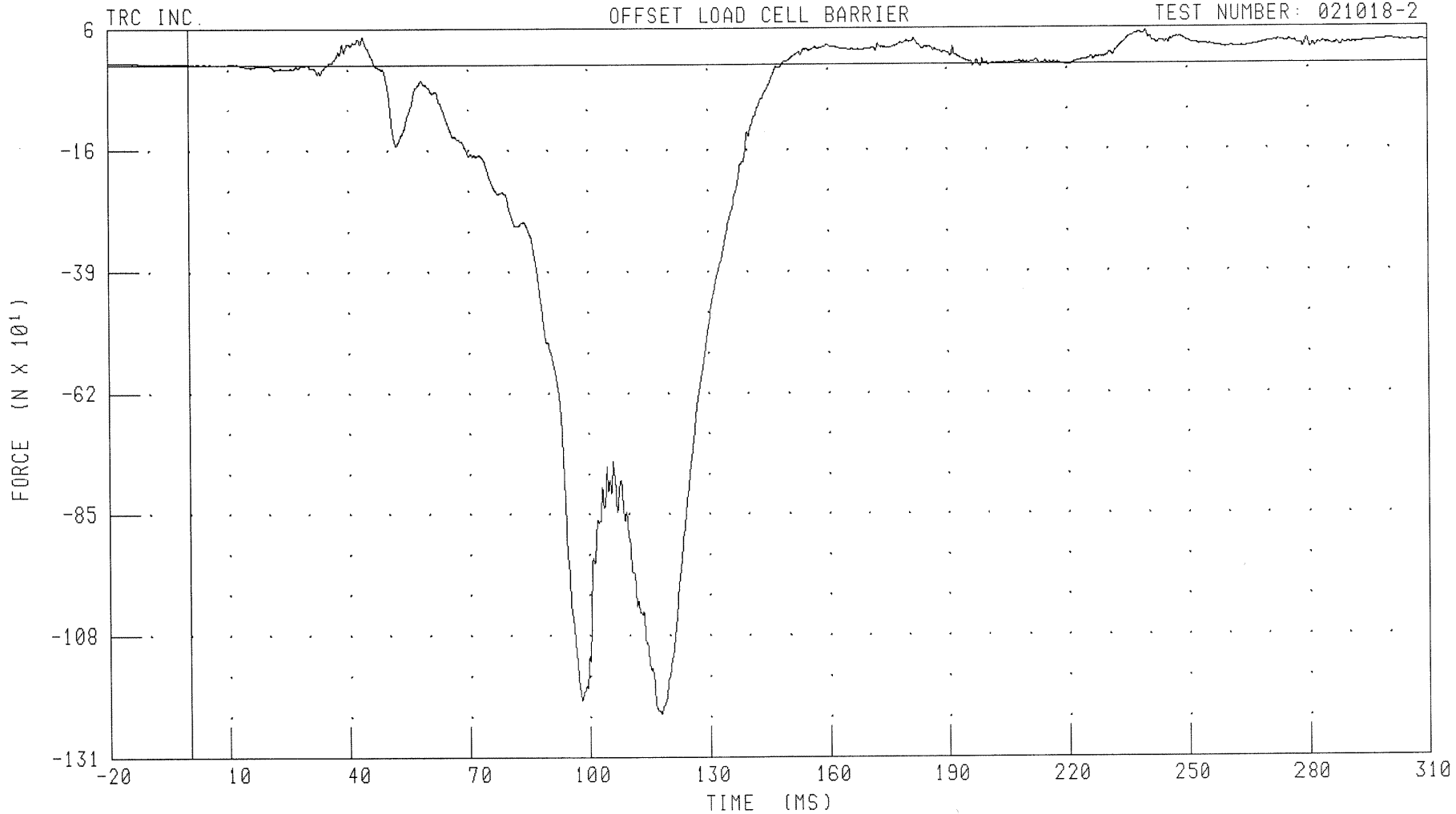
PEAK DATA: 206.57 N @ 102.00 MS; -164.11 N @ 120.32 MS

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

PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: ANLZF2 FILTER: CH. CLASS 600

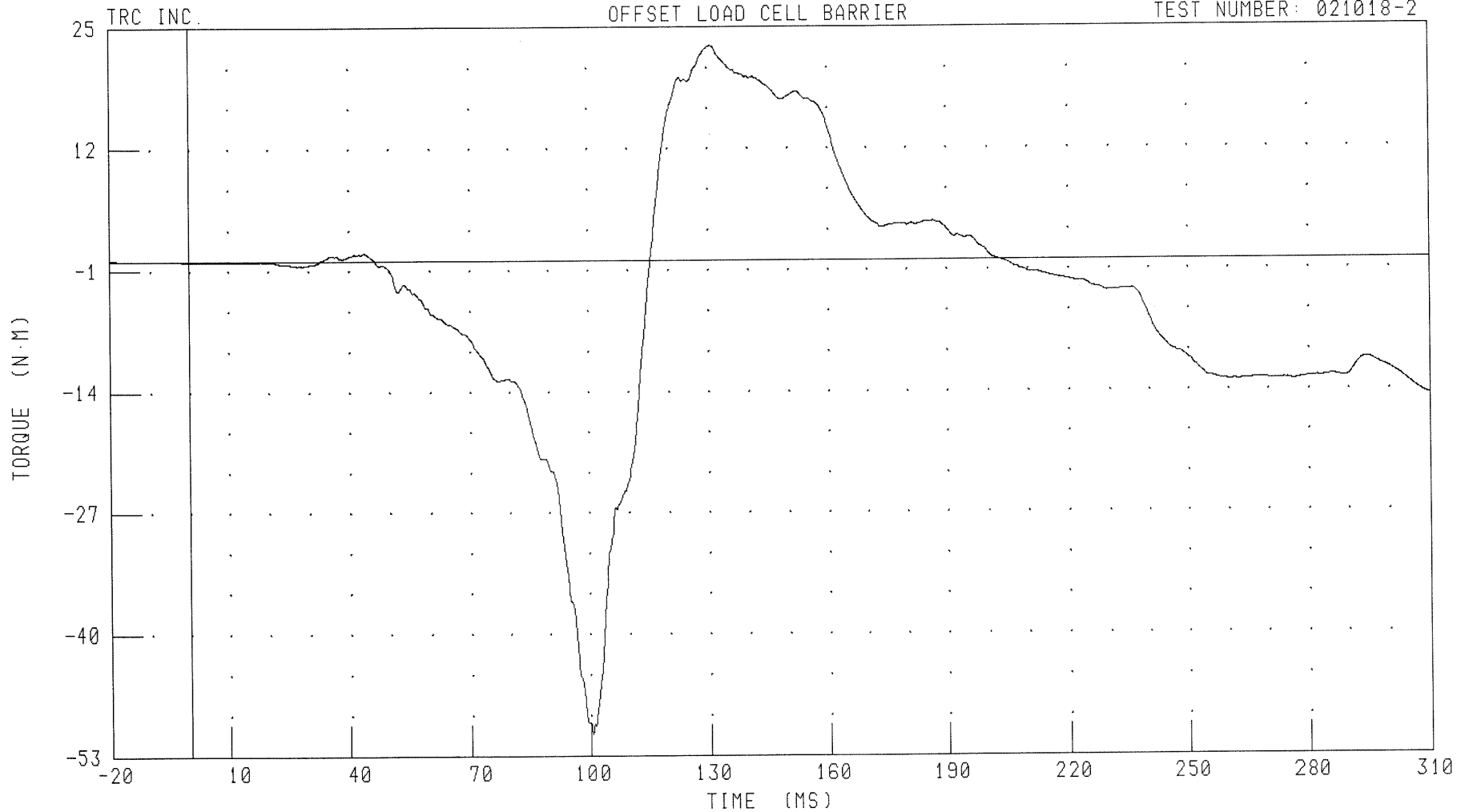
PEAK DATA: 61.04 N @ 239.84 MS; -1231.52 N @ 118.08 MS

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

PASSENGER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: ANLXM2 FILTER: CH. CLASS 600

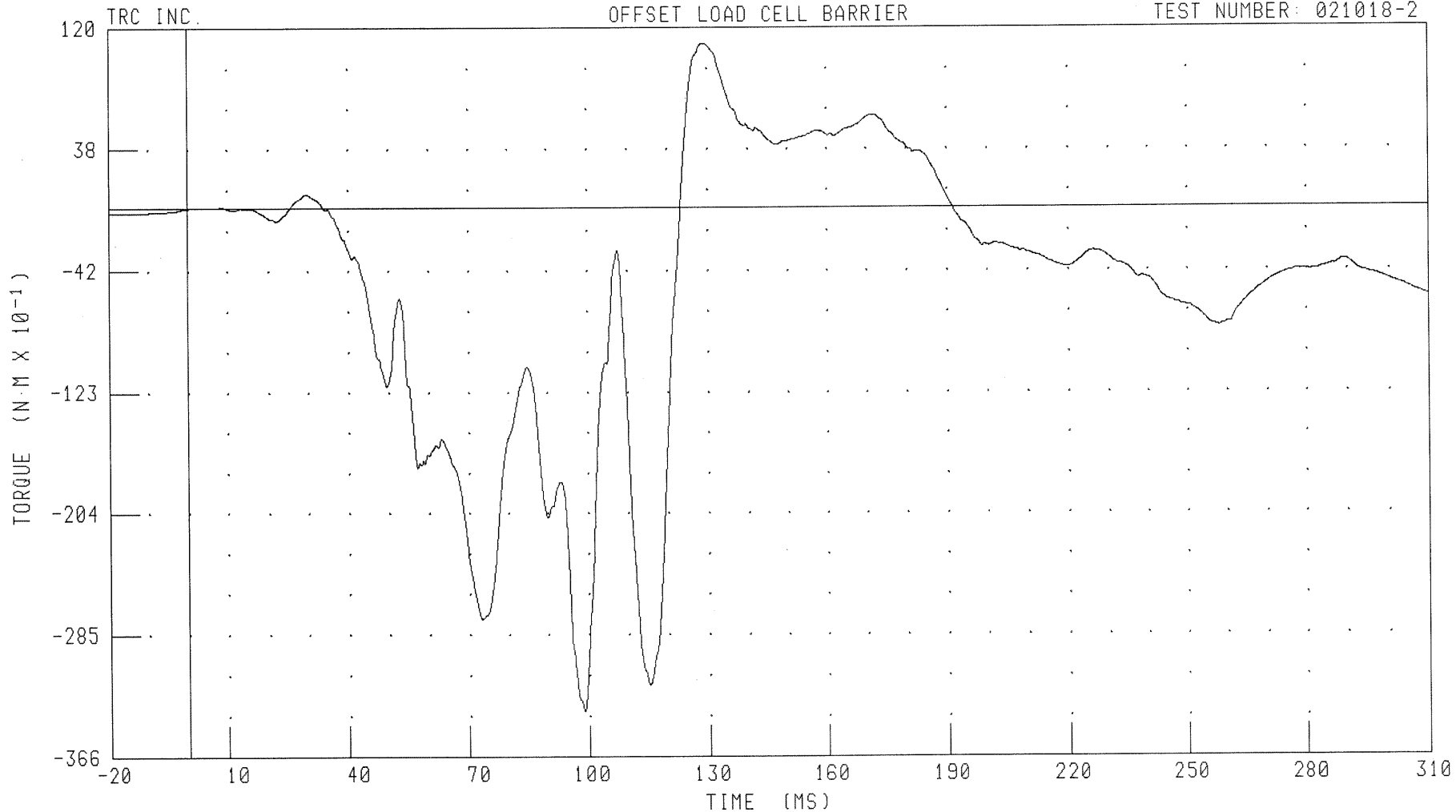
PEAK DATA: 23.02 N·M @ 131.04 MS; -50.65 N·M @ 100.72 MS

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: 021018-2



CHANNEL: ANLYM2

FILTER: CH. CLASS 600

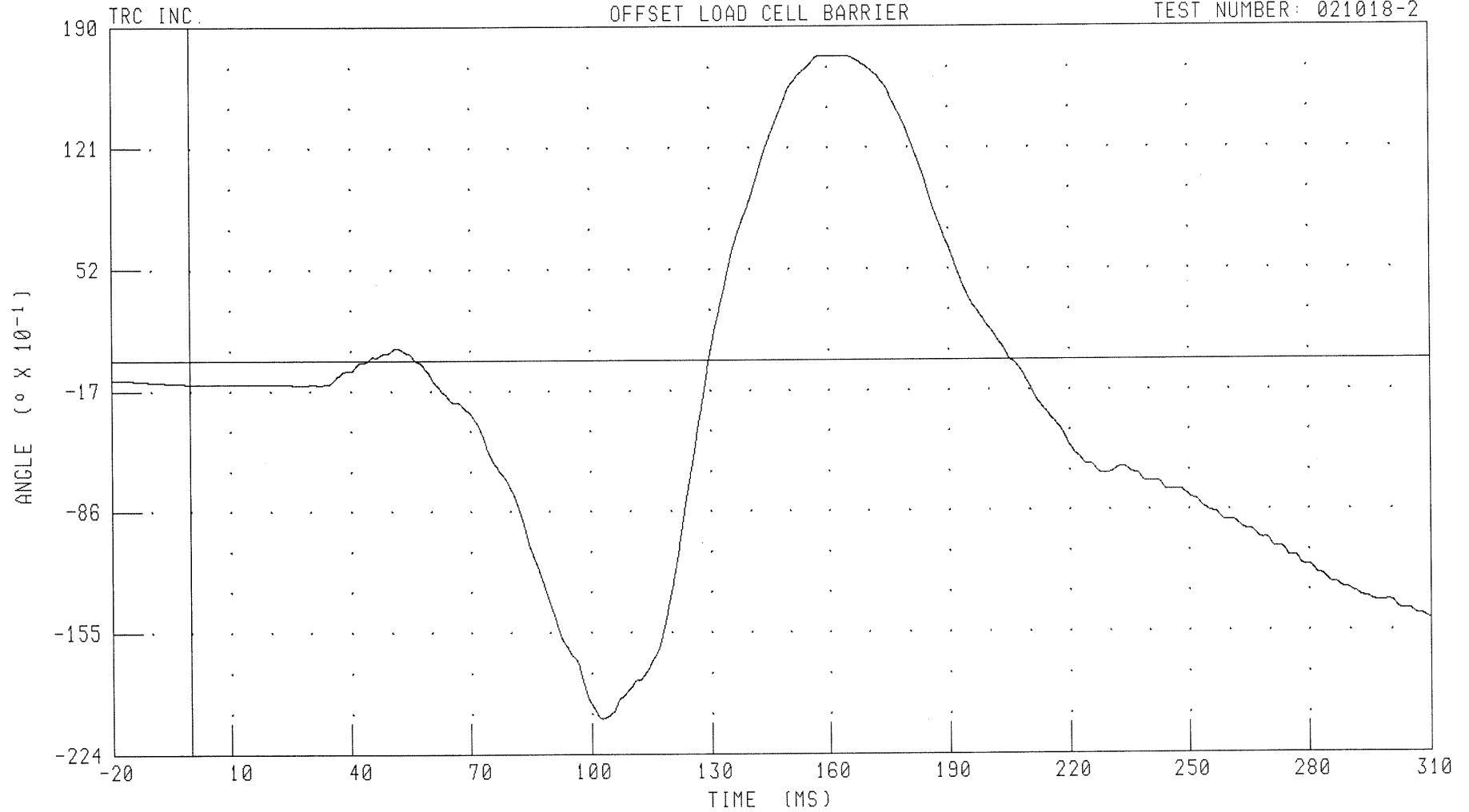
PEAK DATA: 10.92 N·M @ 129.36 MS; -33.57 N·M @ 98.96 MS

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: 021018-2



CHANNEL: FTLXD2 FILTER: CH. CLASS 180

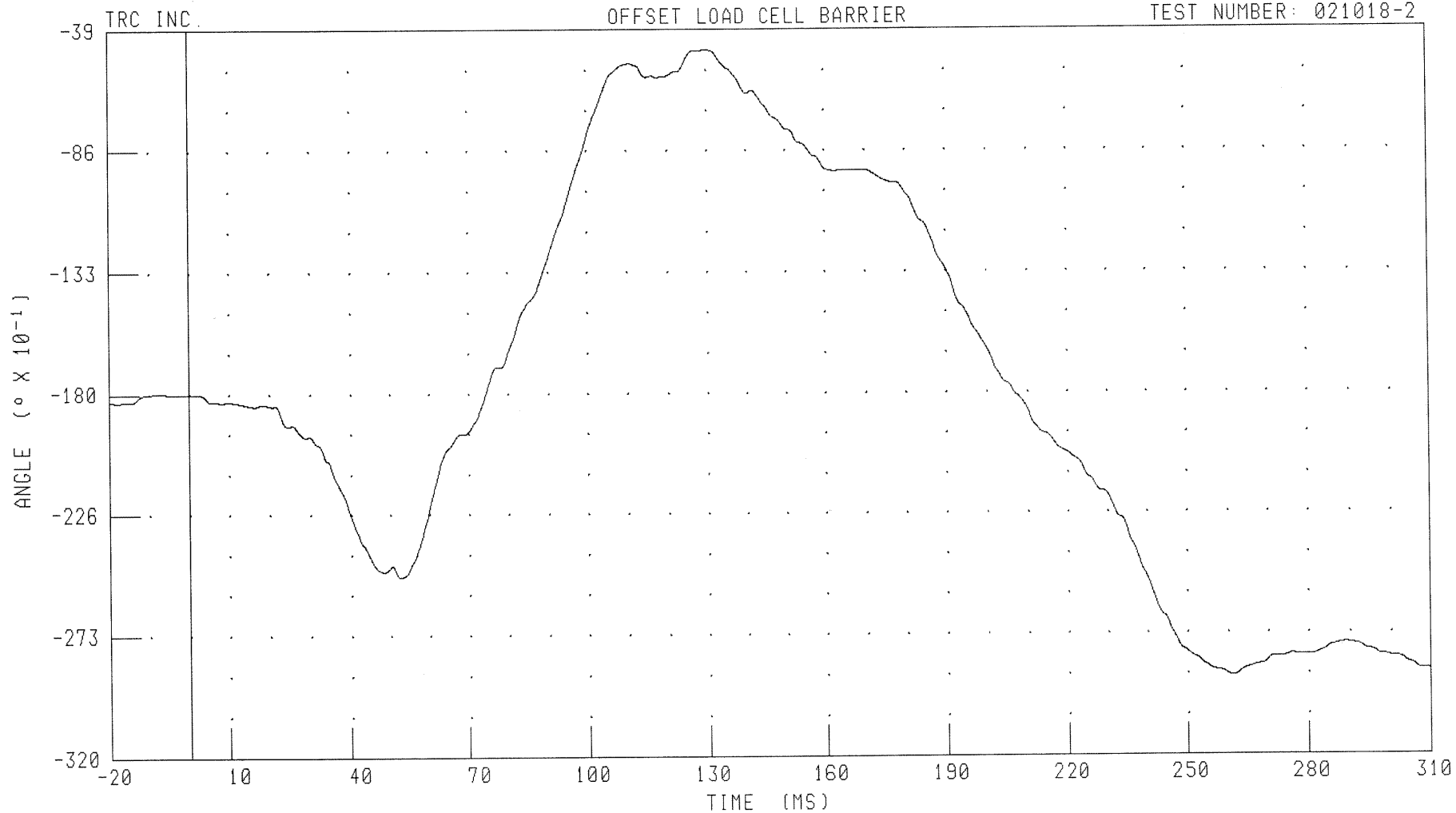
PEAK DATA: 17.34  $^{\circ}$  @ 162.80 MS, -20.39  $^{\circ}$  @ 102.88 MS

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: 021018-2



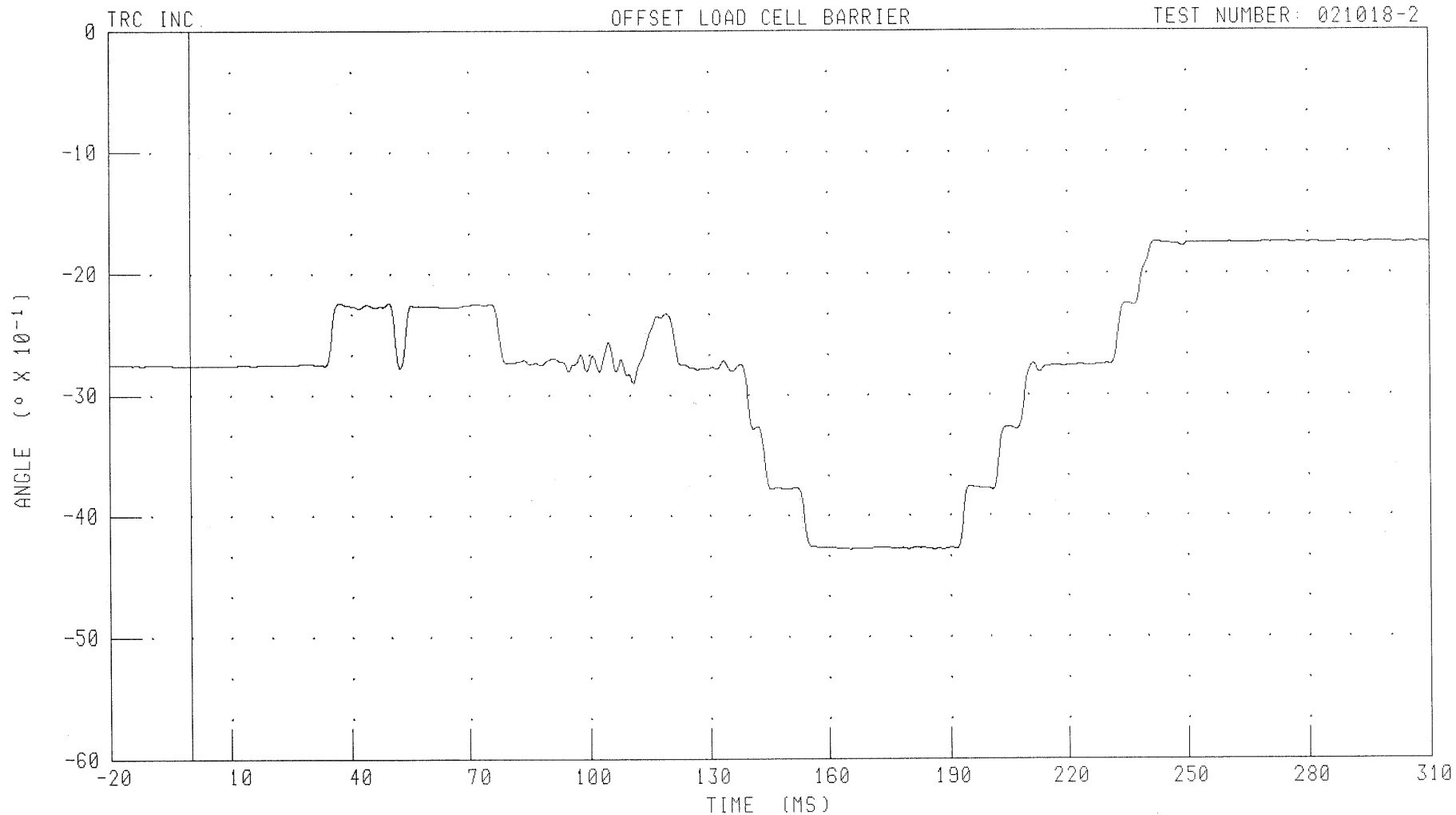
CHANNEL: FTLYD2 FILTER: CH. CLASS 180

PEAK DATA: -4.78 ° @ 129.84 MS; -28.96 ° @ 261.28 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: 021018-2



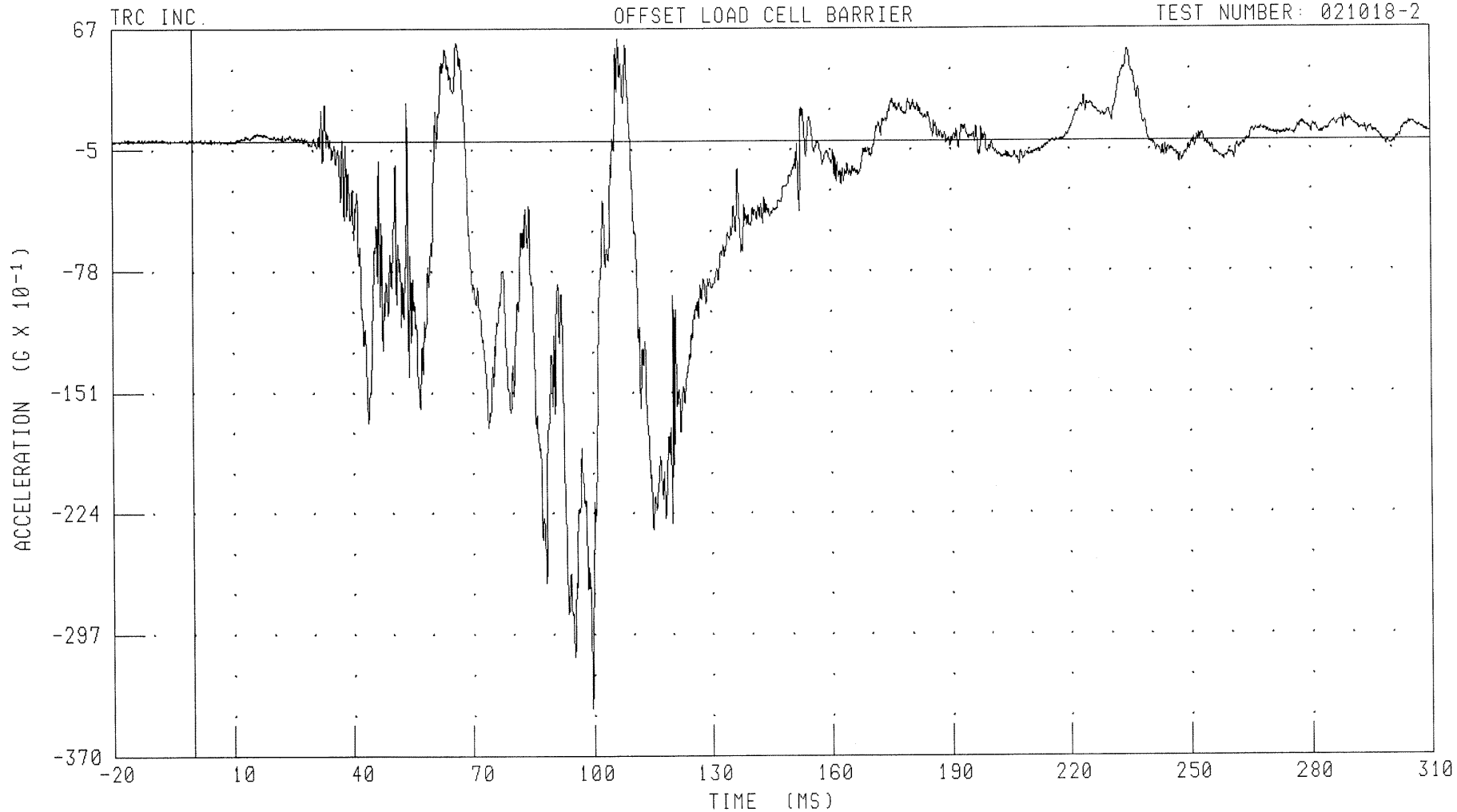
CHANNEL: FTLZD2 FILTER: CH. CLASS 180

PEAK DATA: -1.74 ° @ 242.32 MS, -4.28 ° @ 186.32 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: FTLXG2 FILTER: CH. CLASS 1000

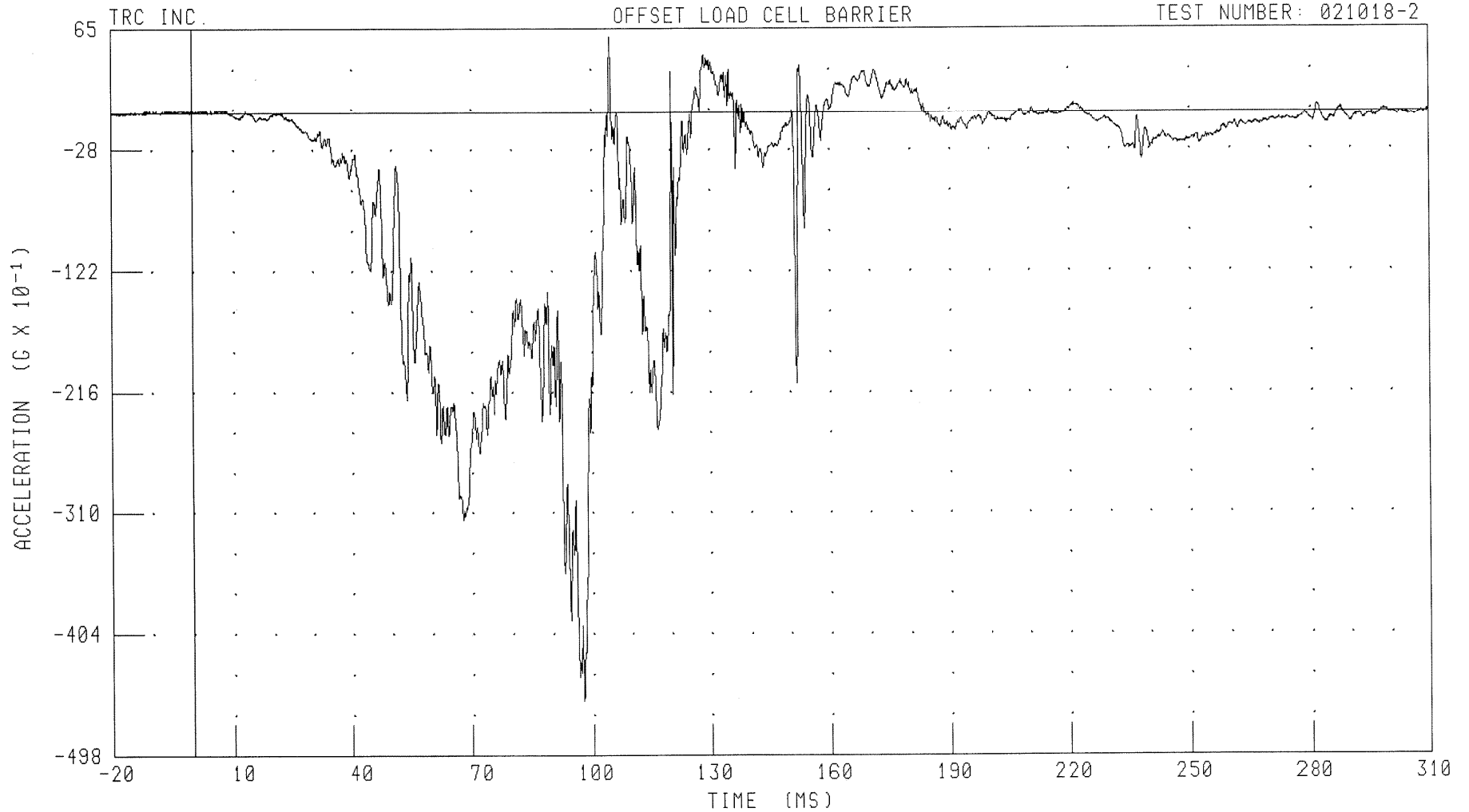
PEAK DATA: 6.19 G @ 106.72 MS; -34.14 G @ 99.68 MS

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: 021018-2



CHANNEL: FTLYG2 FILTER: CH. CLASS 1000

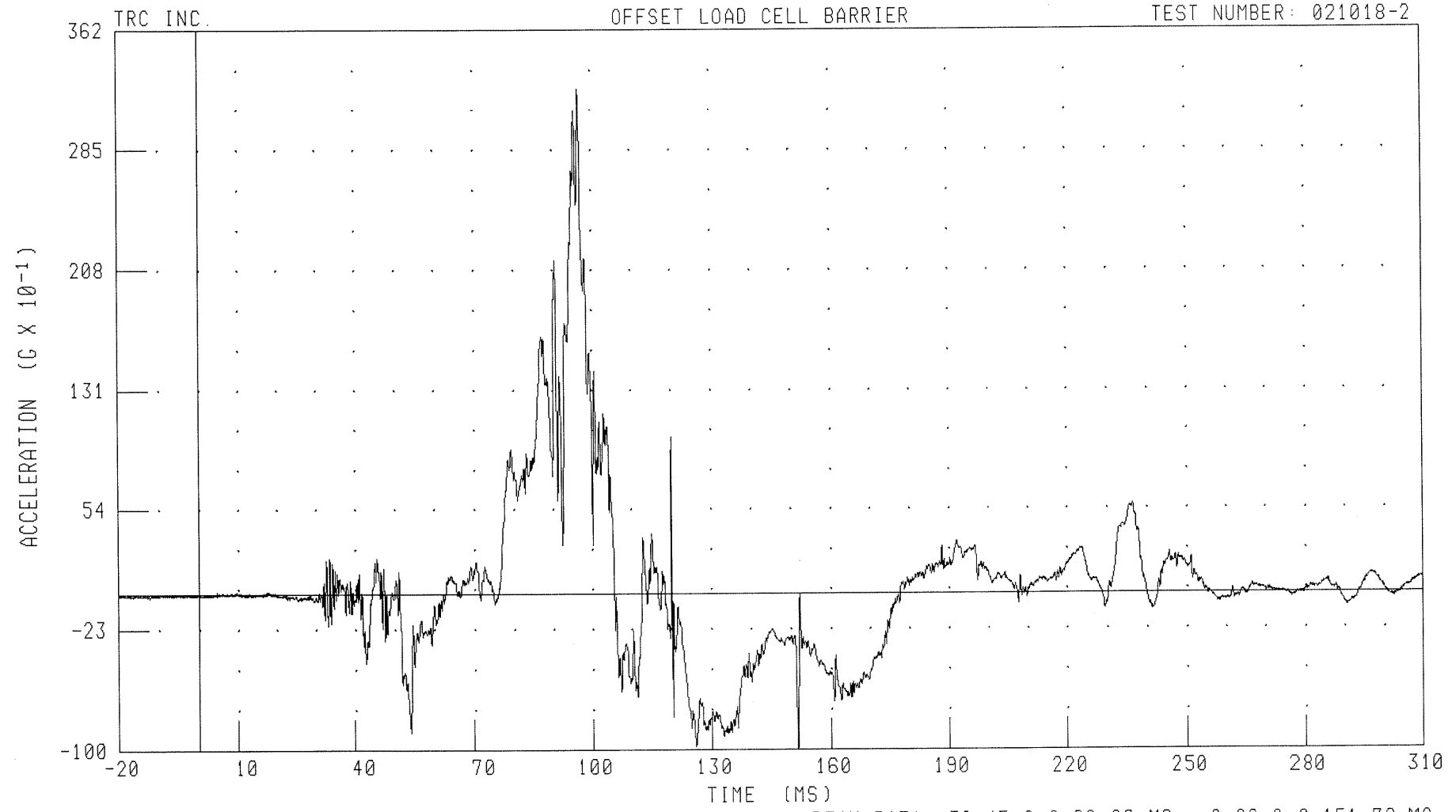
PEAK DATA: 5.91 G @ 104.96 MS; -45.67 G @ 97.68 MS

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

PASSENGER LEFT FOOT Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



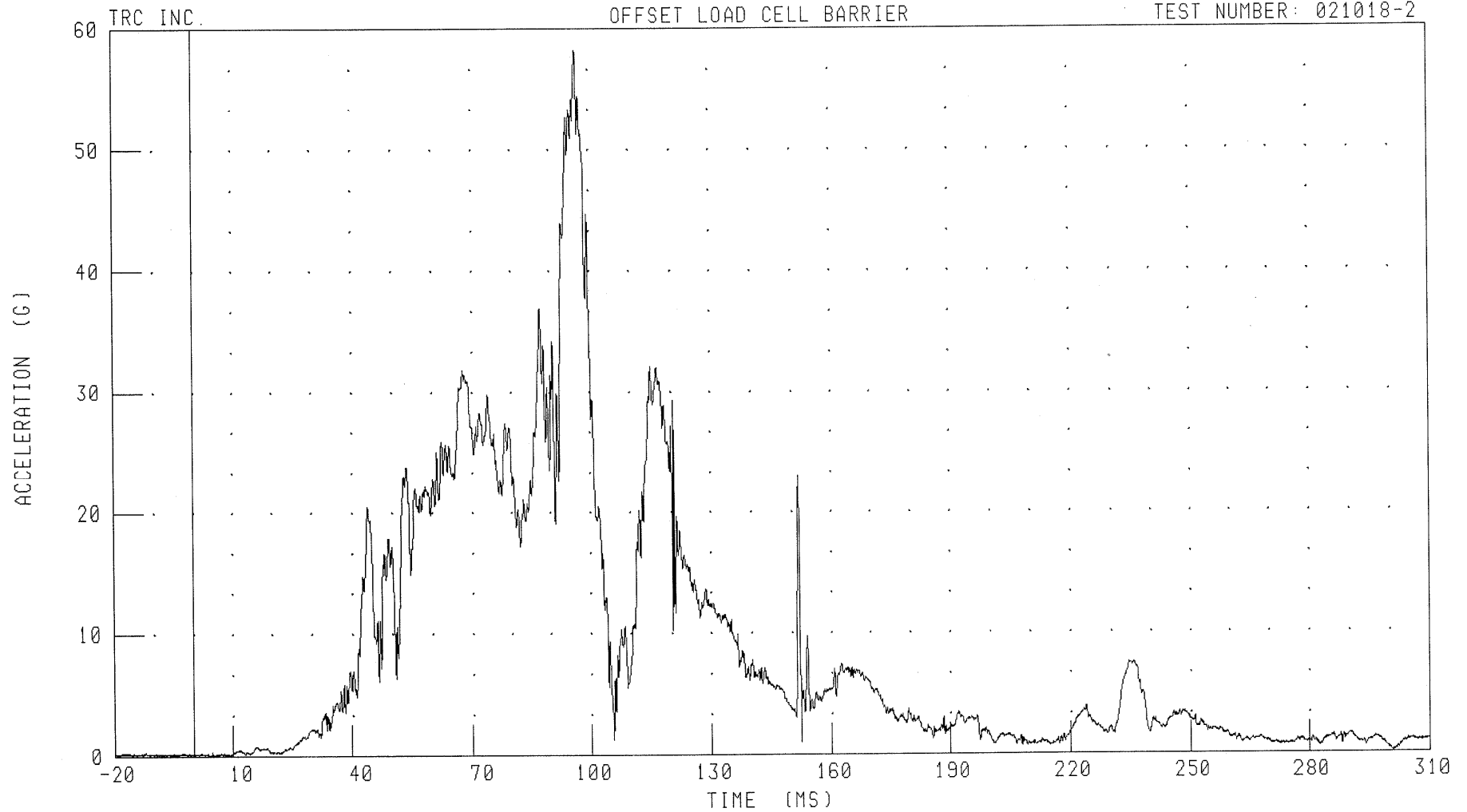
CHANNEL: FTLZG2 FILTER: CH. CLASS 1000

PEAK DATA: 32.45 G @ 96.88 MS; -9.99 G @ 151.76 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: 021018-2



CHANNEL: FTLRG2 FILTER: CH. CLASS 1000

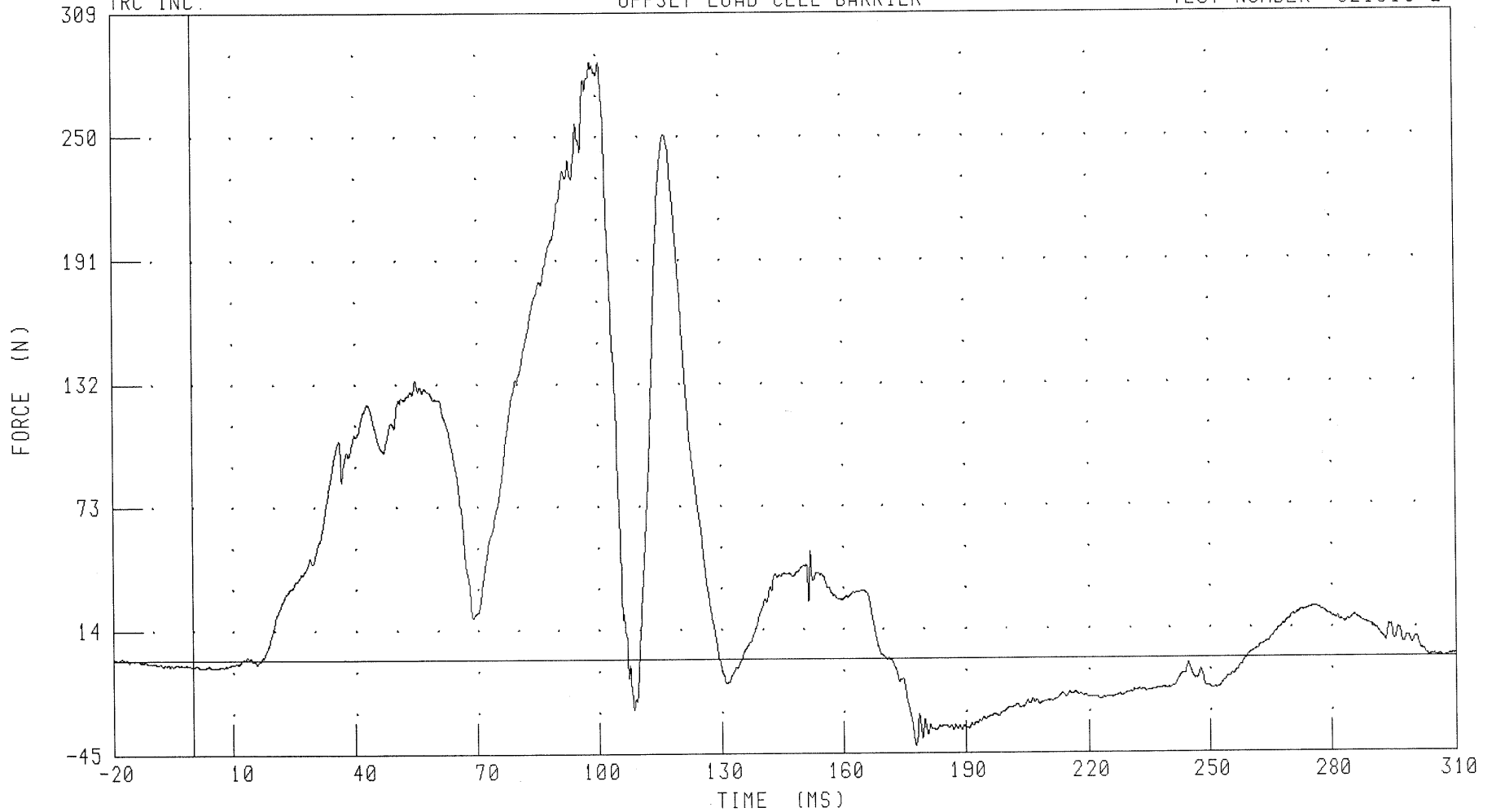
PEAK DATA: 58.26 G @ 96.88 MS; 0.03 G @ -4.88 MS

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: 021018-2



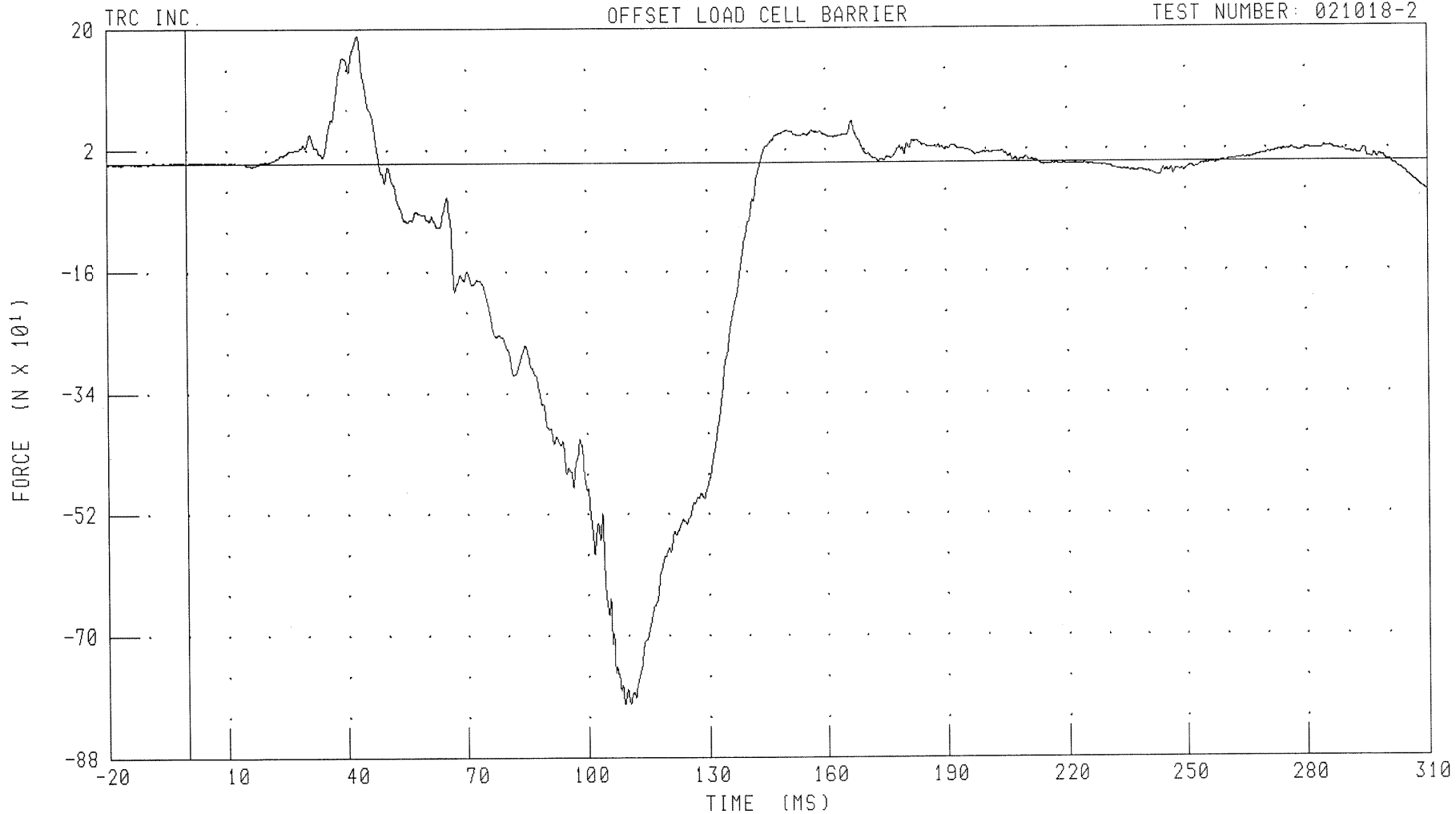
CHANNEL: TBRXF2 FILTER: CH. CLASS 600

PEAK DATA: 285.68 N @ 98.64 MS; -41.37 N @ 178.00 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: TBRZF2 FILTER: CH. CLASS 600

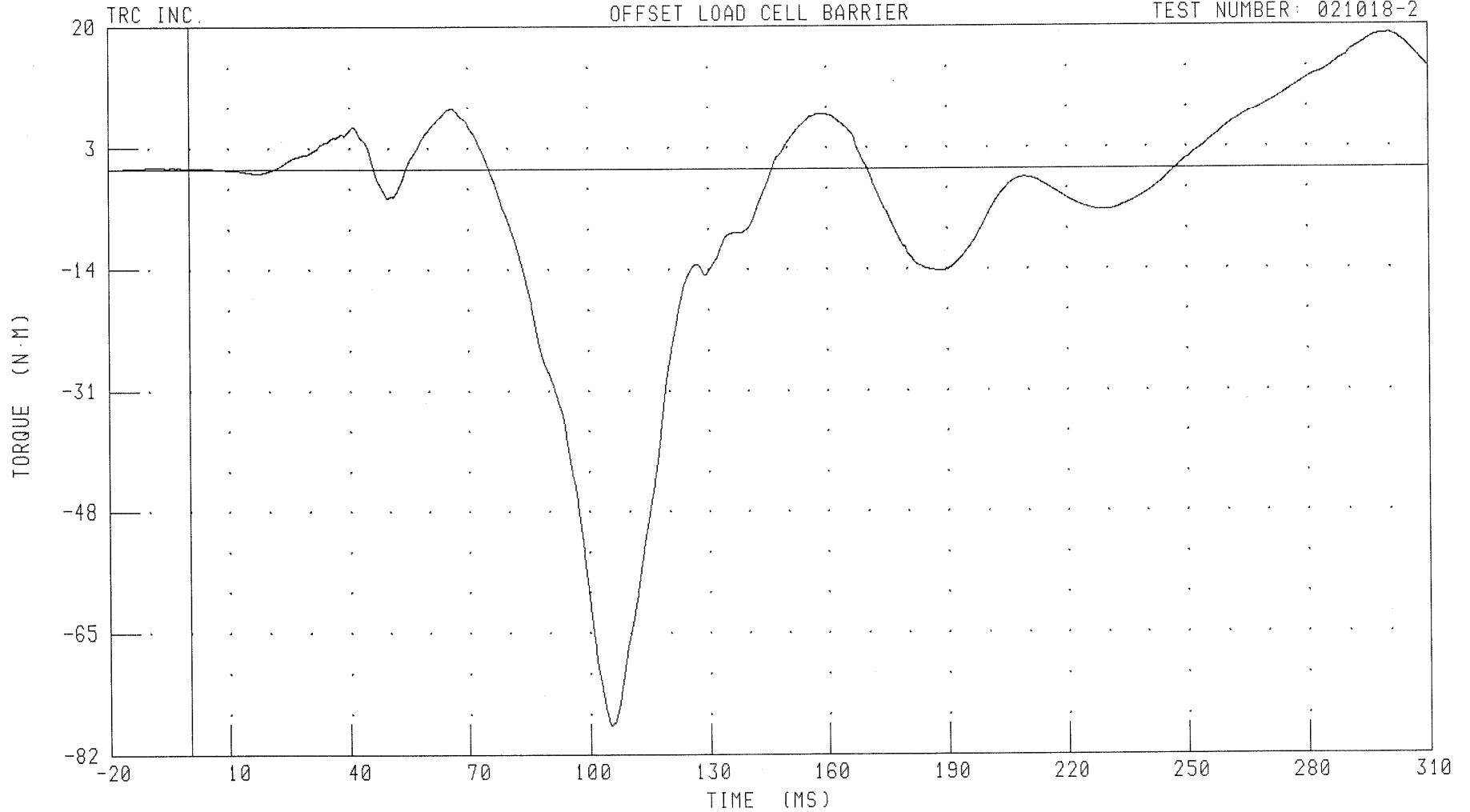
PEAK DATA: 190.46 N @ 42.80 MS; -801.29 N @ 109.04 MS

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: 021018-2



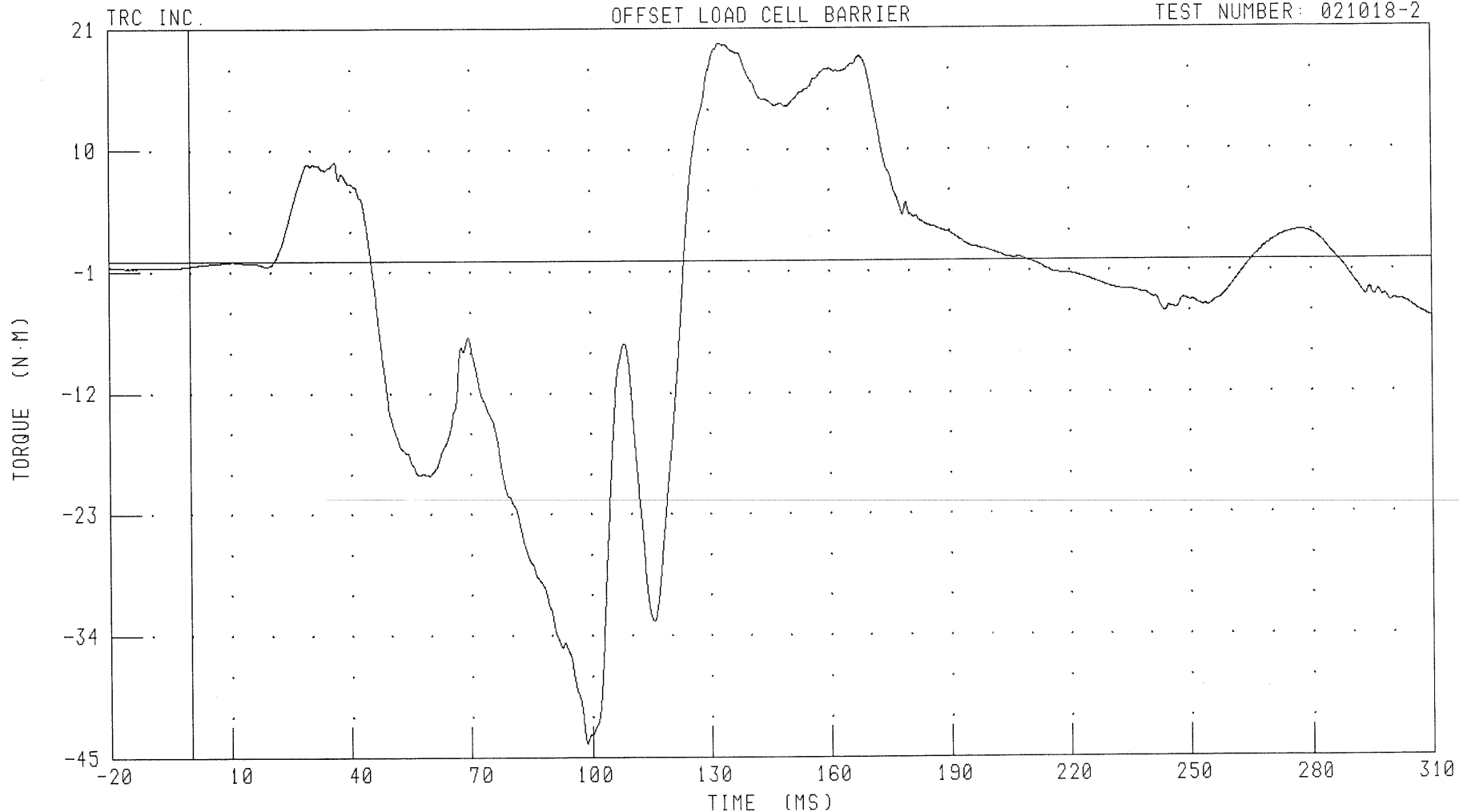
CHANNEL: TBRXM2 FILTER: CH. CLASS 600

PEAK DATA: 18.82 N·M @ 300.00 MS; -77.99 N·M @ 105.44 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: 021018-2



CHANNEL: TBRYM2 FILTER: CH. CLASS 600

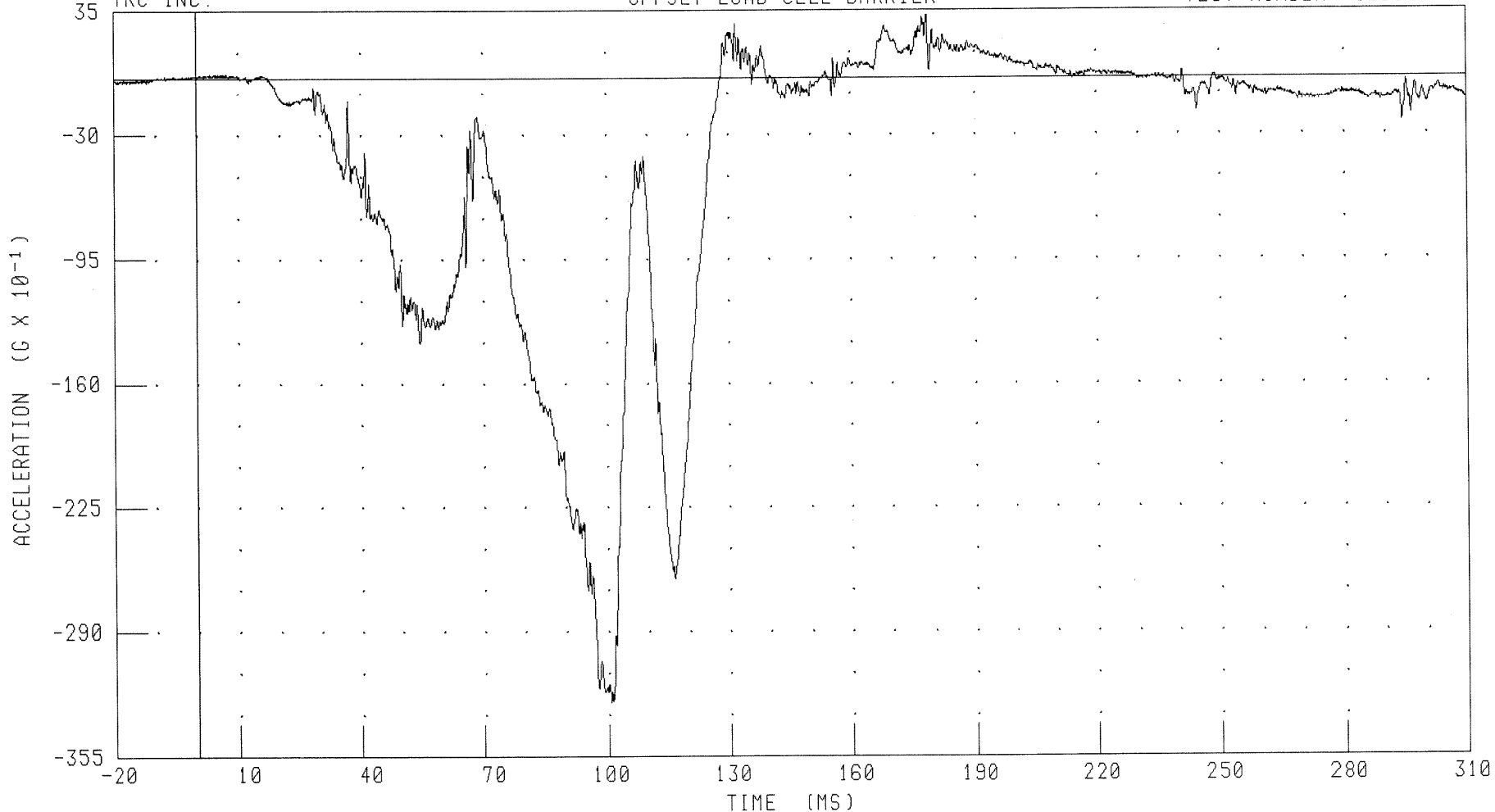
PEAK DATA: 19.65 N·M @ 132.72 MS; -43.75 N·M @ 98.72 MS

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: 021018-2



CHANNEL: TBRXG2 FILTER: CH. CLASS 1000

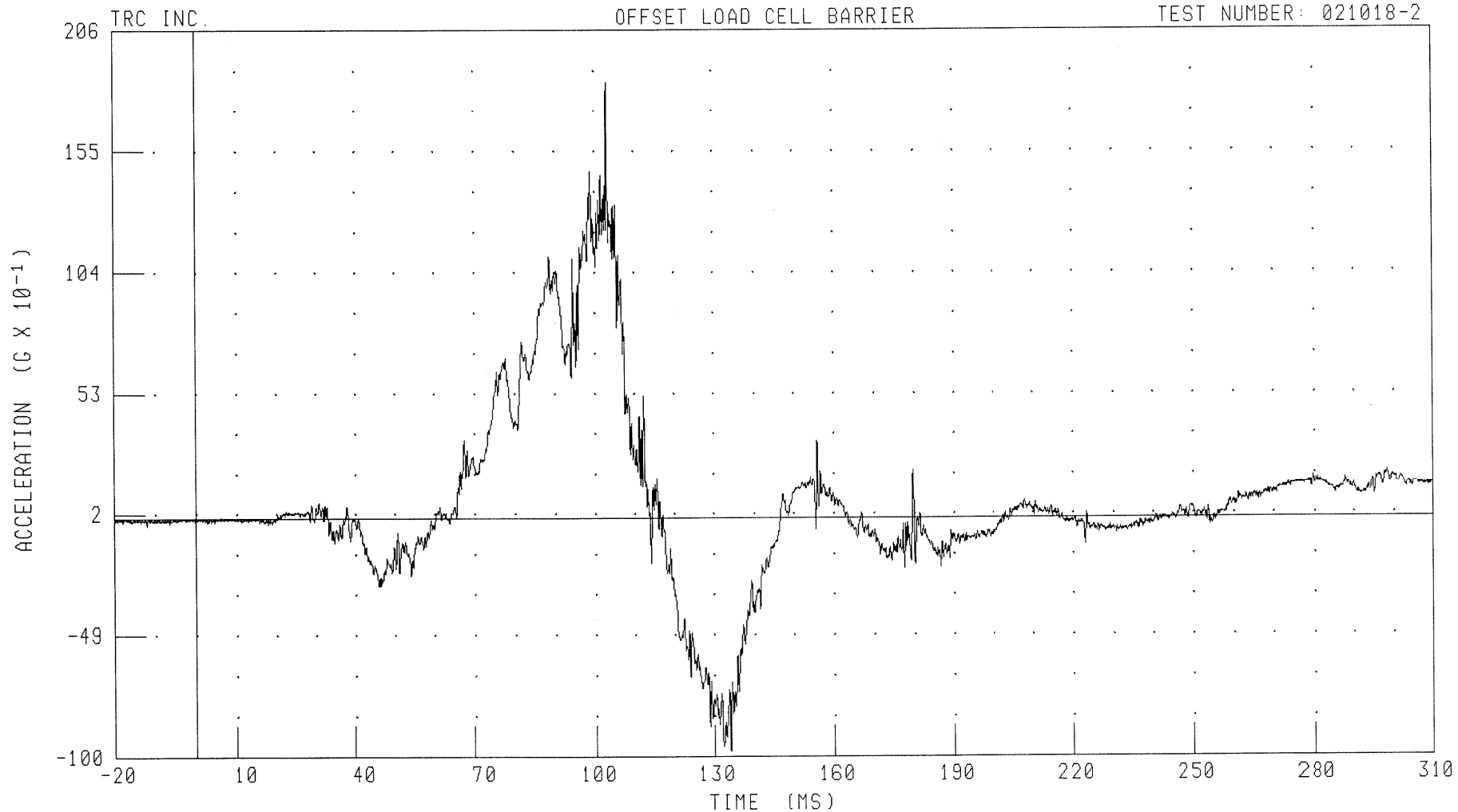
PEAK DATA: 3.25 G @ 178.72 MS; -32.71 G @ 100.72 MS

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: 021018-2



CHANNEL: TBRYG2 FILTER: CH. CLASS 1000

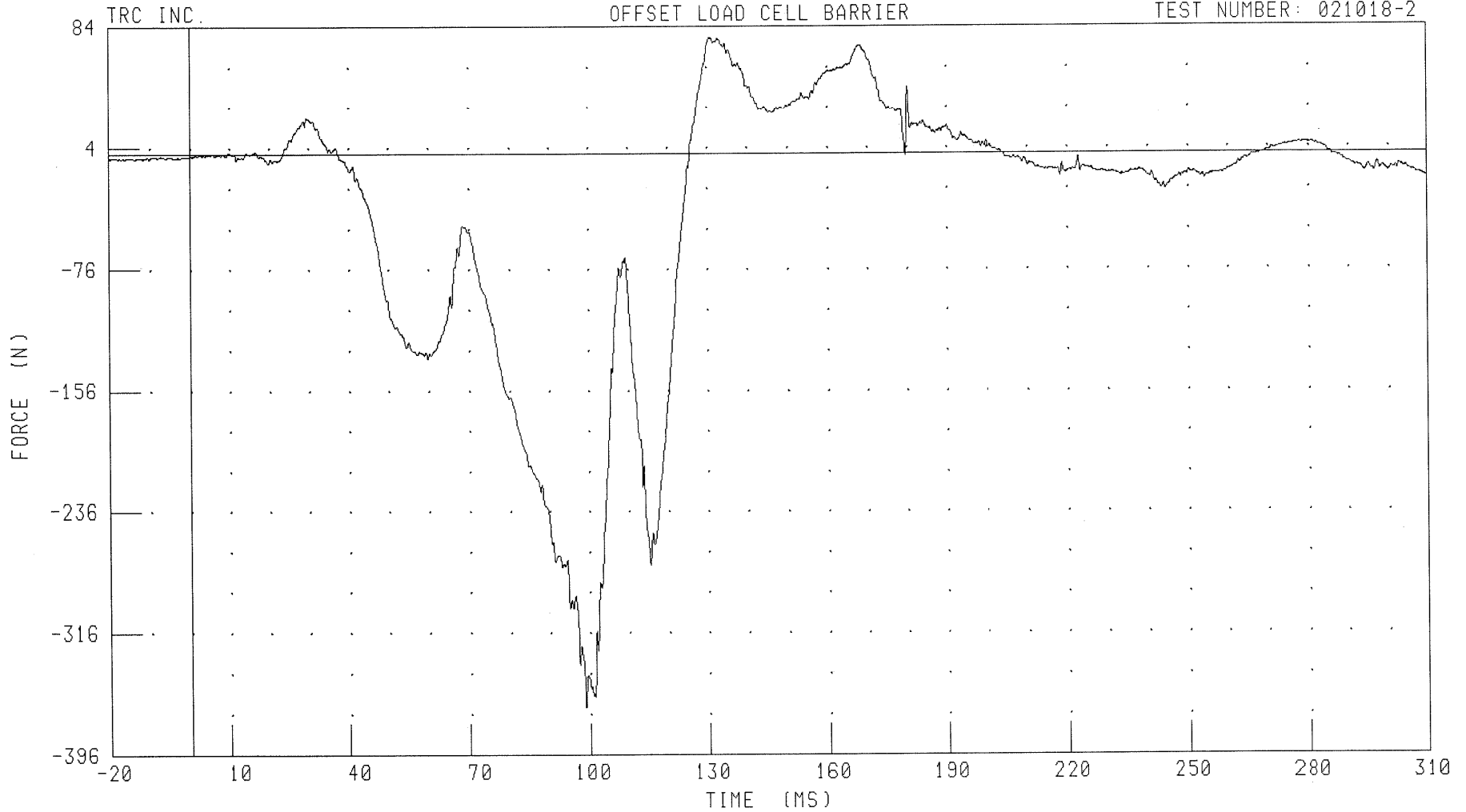
PEAK DATA: 18.41 G @ 103.36 MS; -9.79 G @ 134.08 MS

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: 021018-2



CHANNEL: ANRXF2

FILTER: CH. CLASS 600

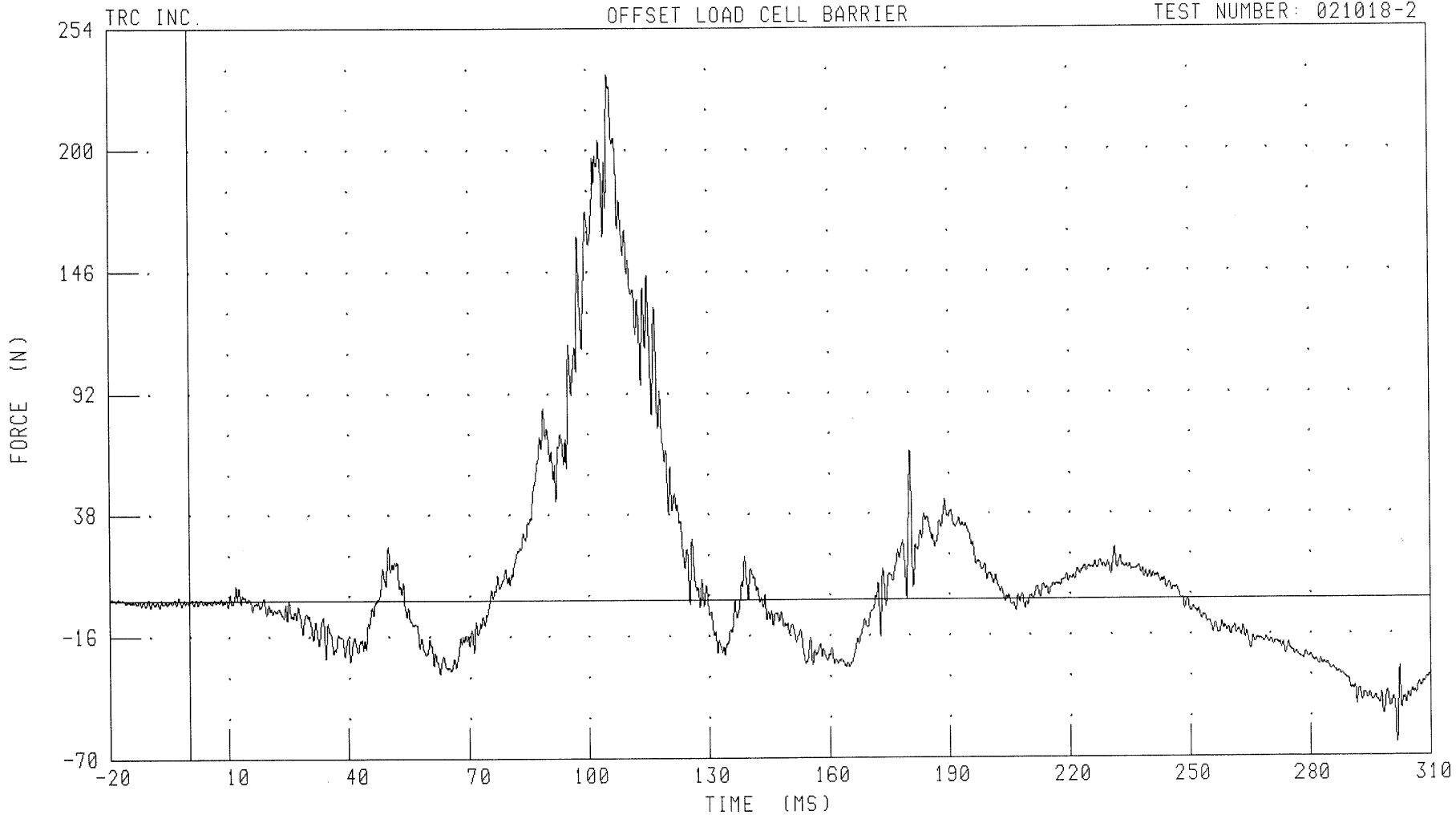
PEAK DATA: 76.61 N @ 130.96 MS; -364.97 N @ 99.04 MS

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: 021018-2



CHANNEL: ANRYF2 FILTER: CH. CLASS 600

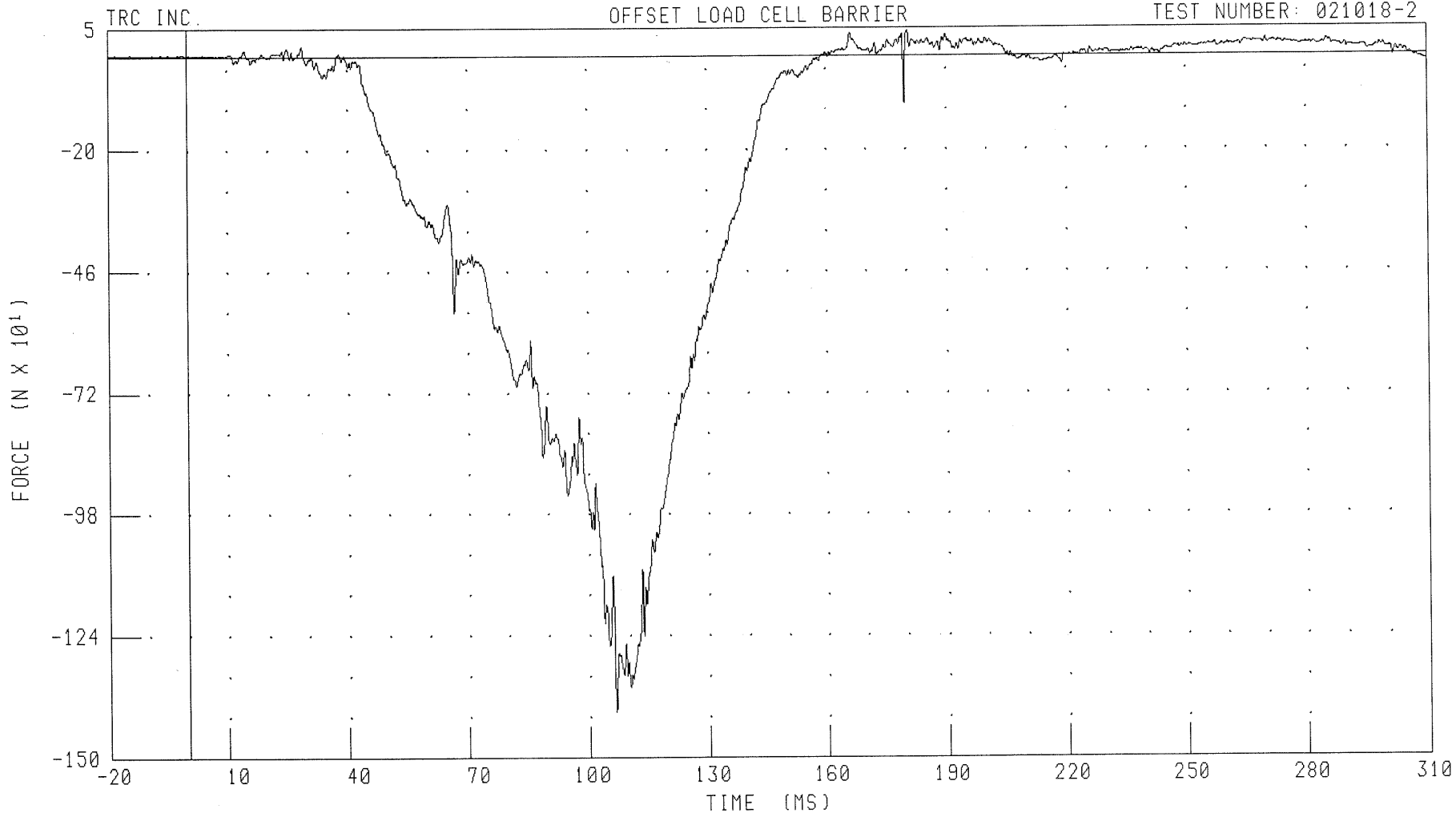
PEAK DATA: 233.74 N @ 105.52 MS; -63.99 N @ 301.52 MS

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: 021018-2



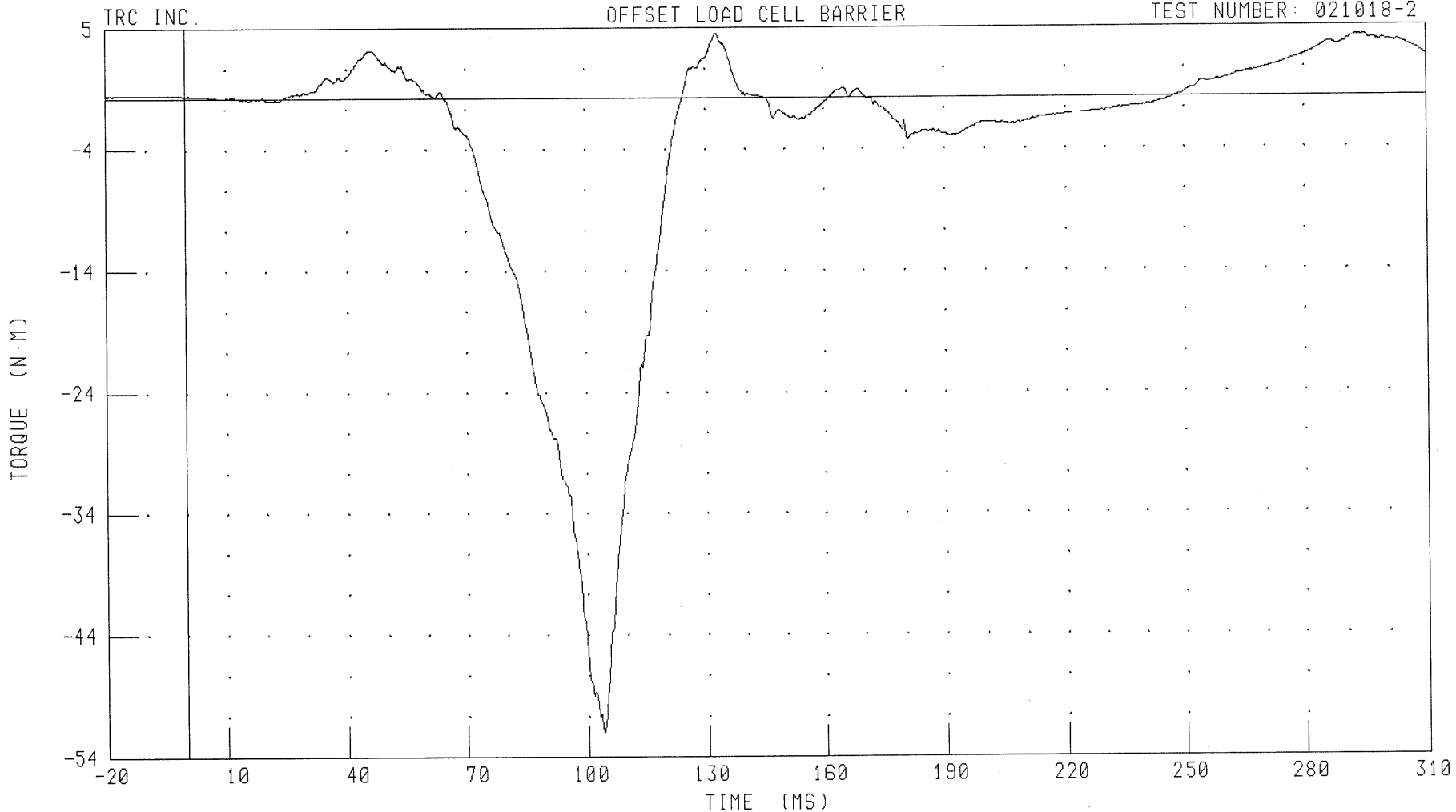
CHANNEL: ANRZF2 FILTER: CH. CLASS 600

PEAK DATA: 52.78 N @ 180.88 MS; -1404.48 N @ 106.56 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



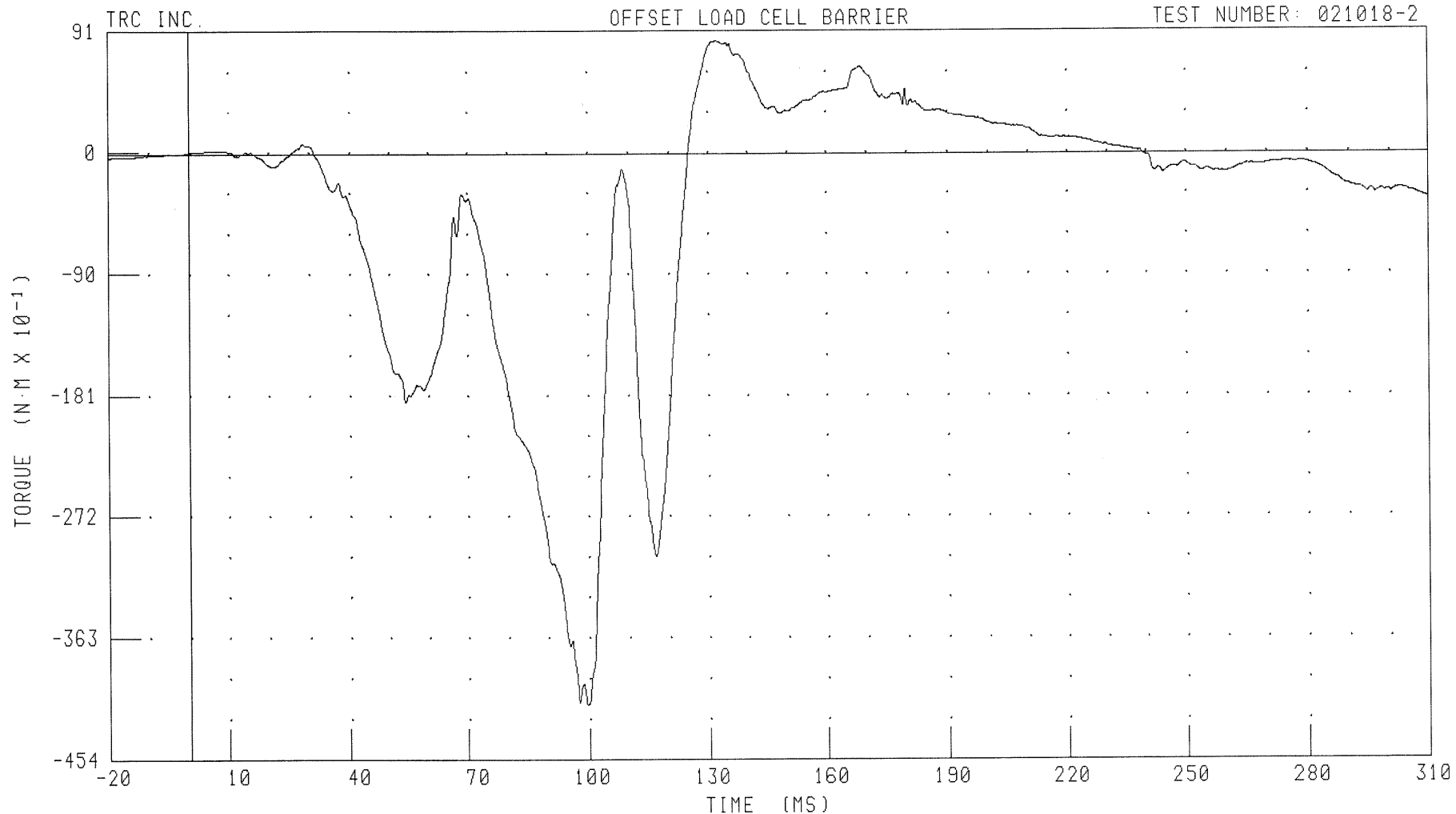
CHANNEL: ANRXM2 FILTER: CH. CLASS 600

PEAK DATA: 5.22 N·M @ 132.88 MS; -52.29 N·M @ 104.08 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: 021018-2



CHANNEL: ANRYM2 FILTER: CH. CLASS 600

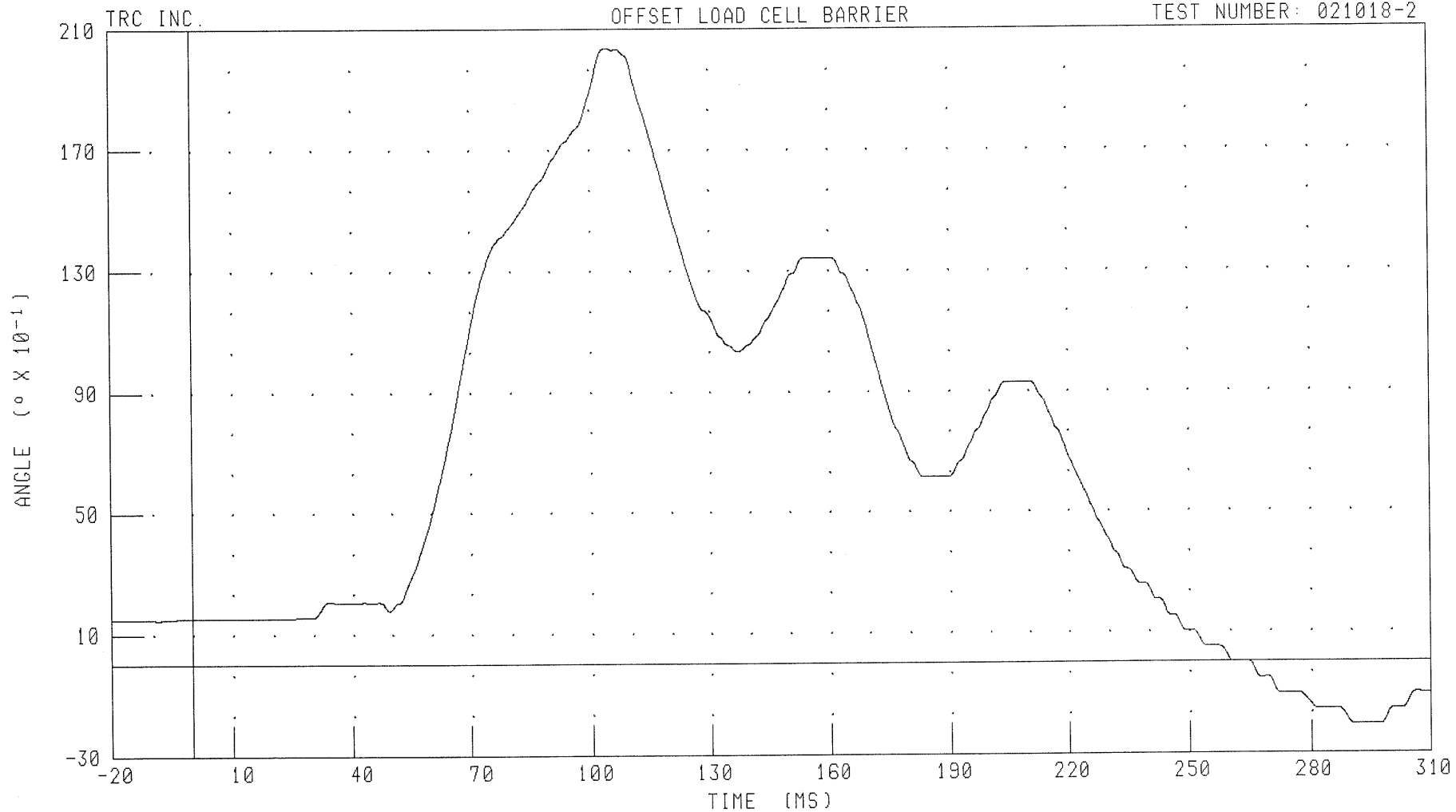
PEAK DATA: 8.44 N·M @ 132.40 MS; -41.34 N·M @ 99.60 MS

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: 021018-2



CHANNEL: FTRXD2

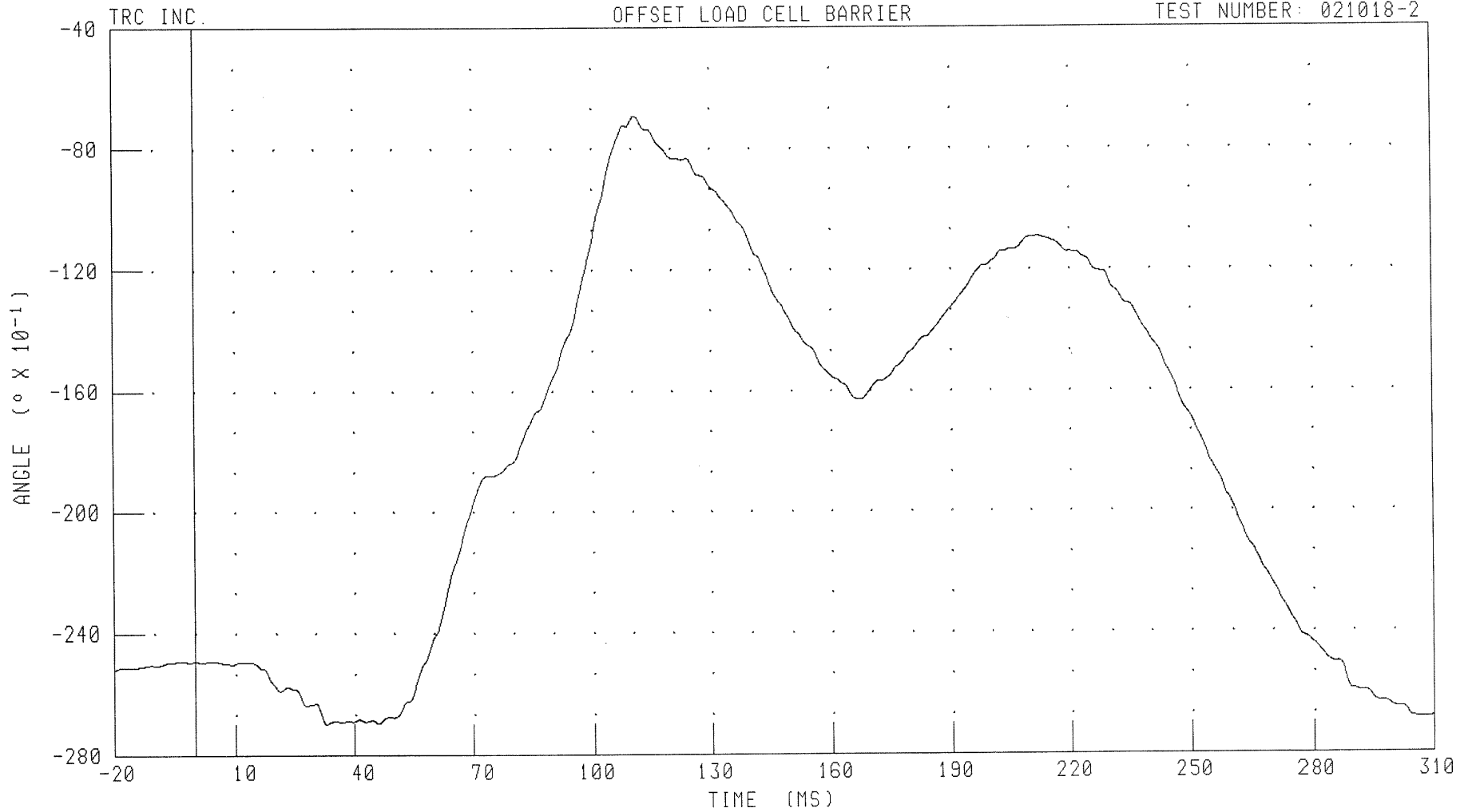
FILTER: CH. CLASS 180

PEAK DATA: 20.38 ° @ 104.48 MS; -2.07 ° @ 297.12 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: 021018-2



CHANNEL: FTRYD2

FILTER: CH. CLASS 180

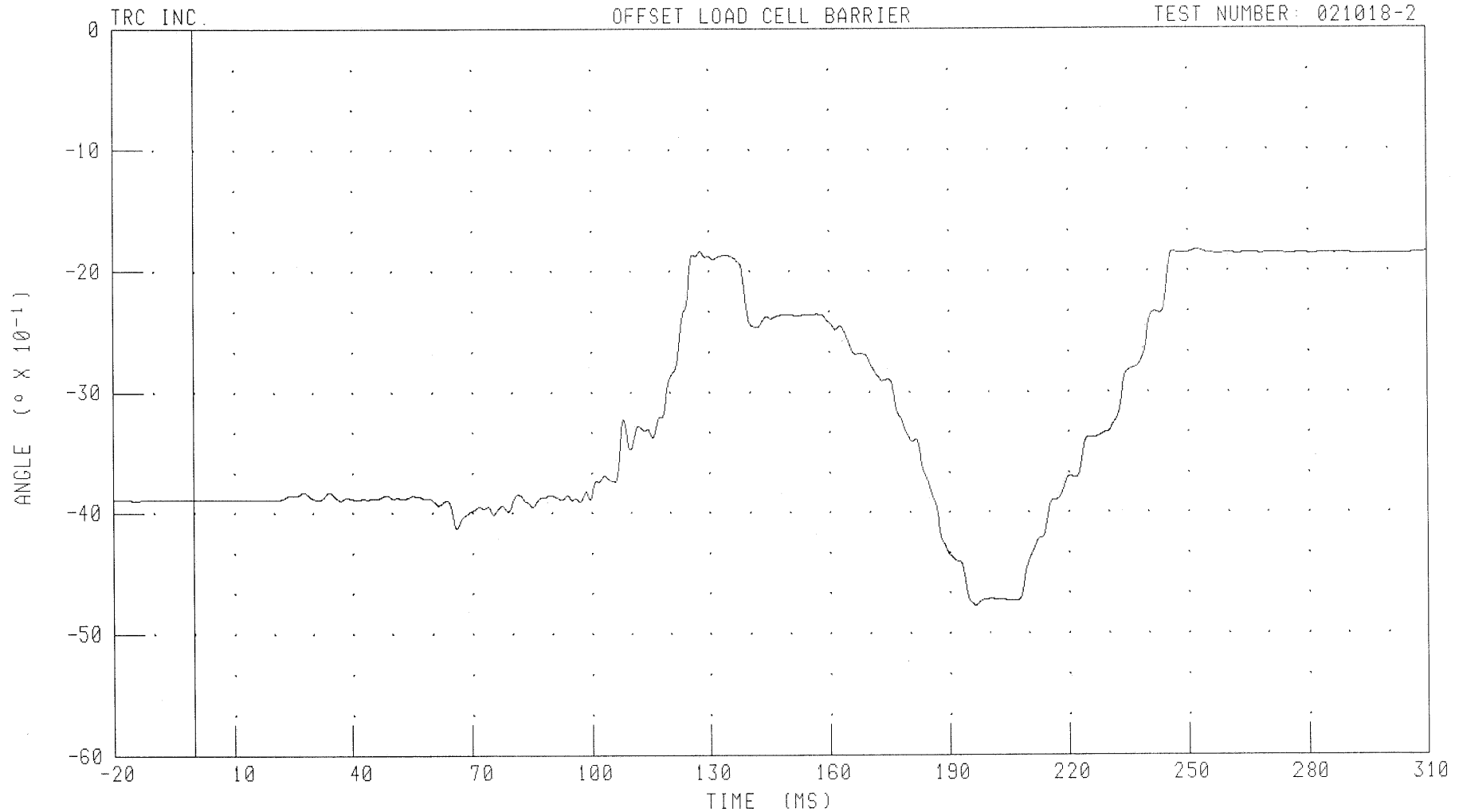
PEAK DATA: -6.93 ° @ 110.96 MS; -26.98 ° @ 32.80 MS

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: 021018-2



CHANNEL: FTRZD2 FILTER: CH. CLASS 180

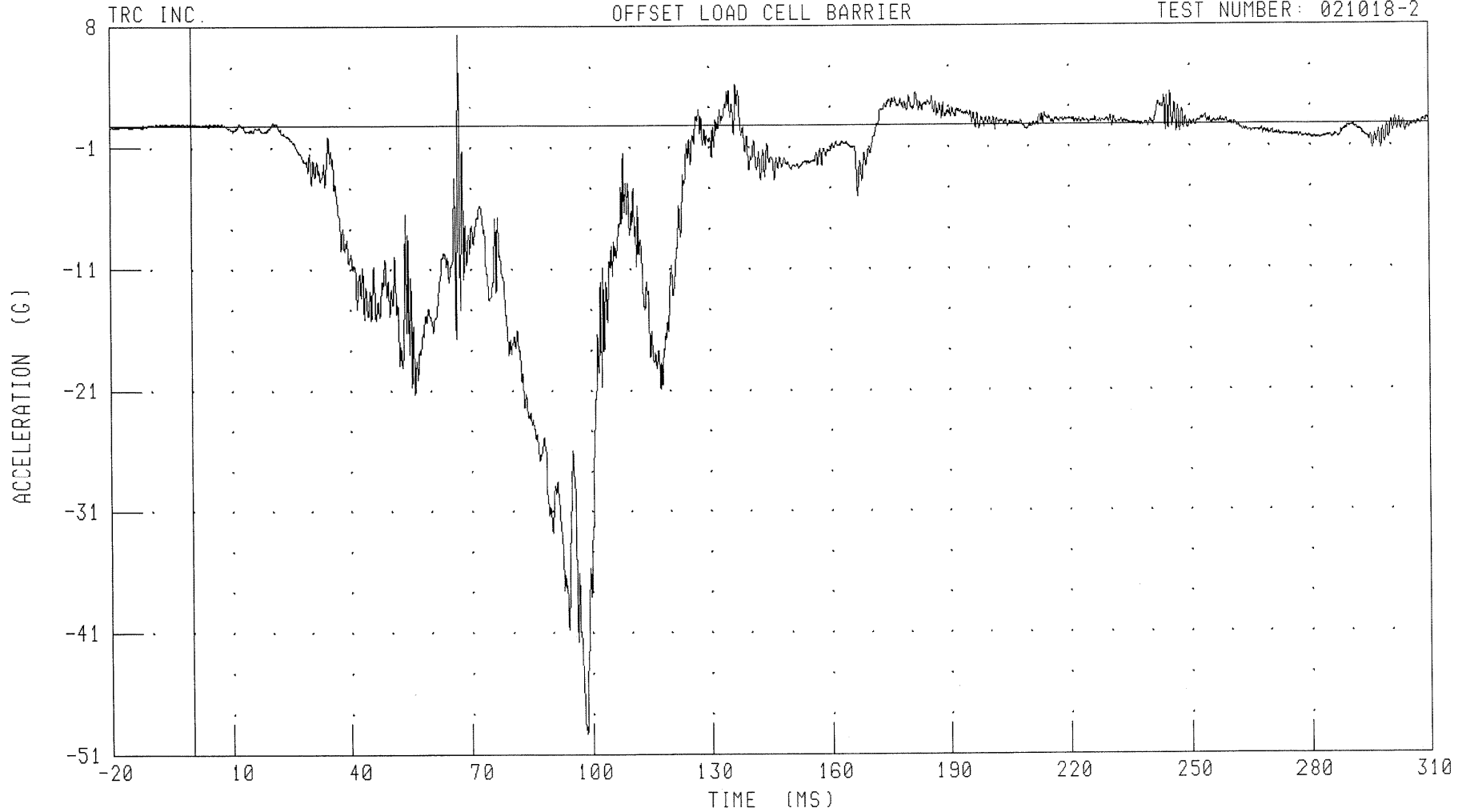
PEAK DATA: -1.83 ° @ 252.48 MS; -4.77 ° @ 196.64 MS

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: 021018-2



CHANNEL: FTRXC2 FILTER: CH. CLASS 1000

PEAK DATA: 7.52 G @ 67.12 MS; -50.14 G @ 98.64 MS

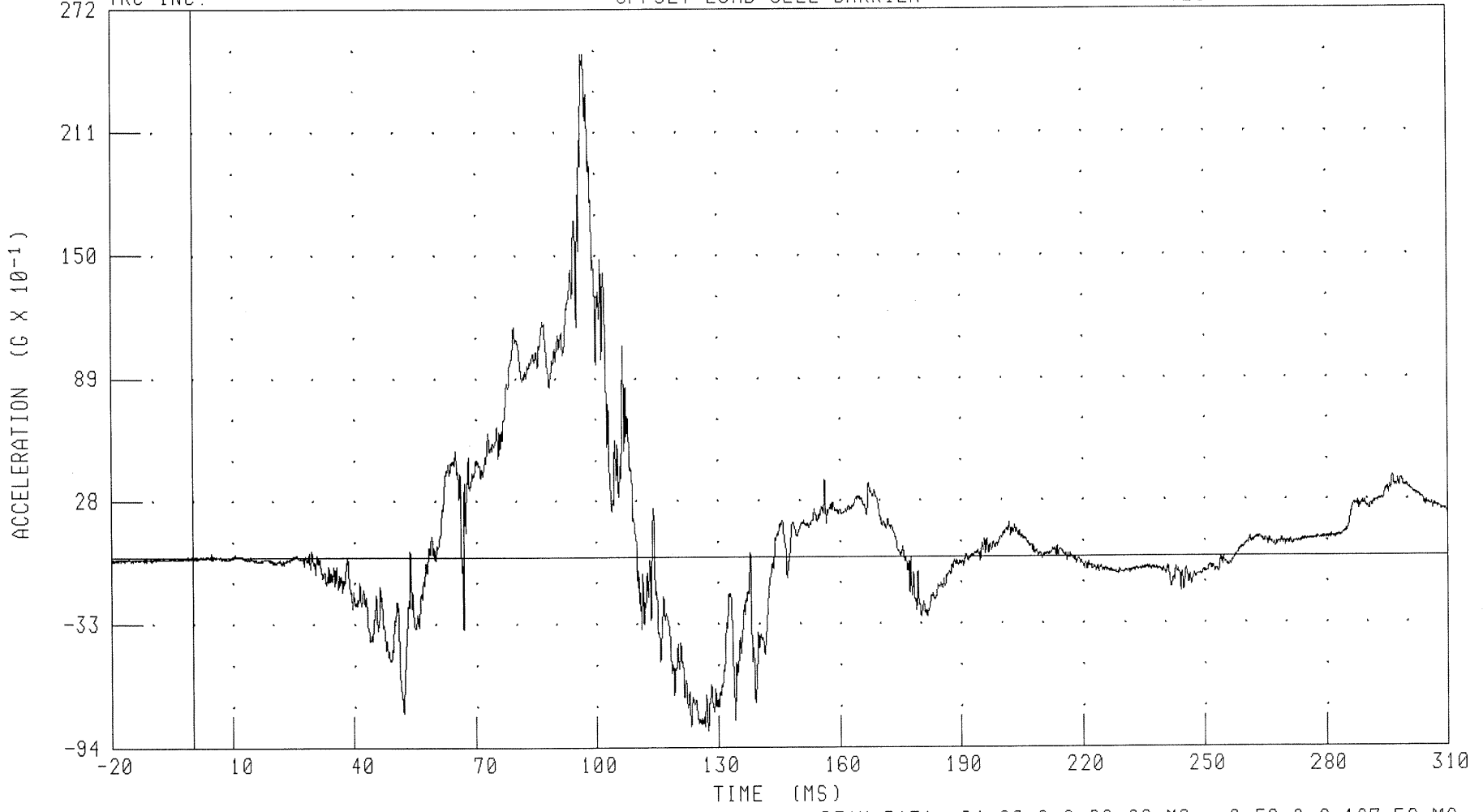
2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER RIGHT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2

TRC INC.  
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CHANNEL: FTRYG2 FILTER: CH. CLASS 1000

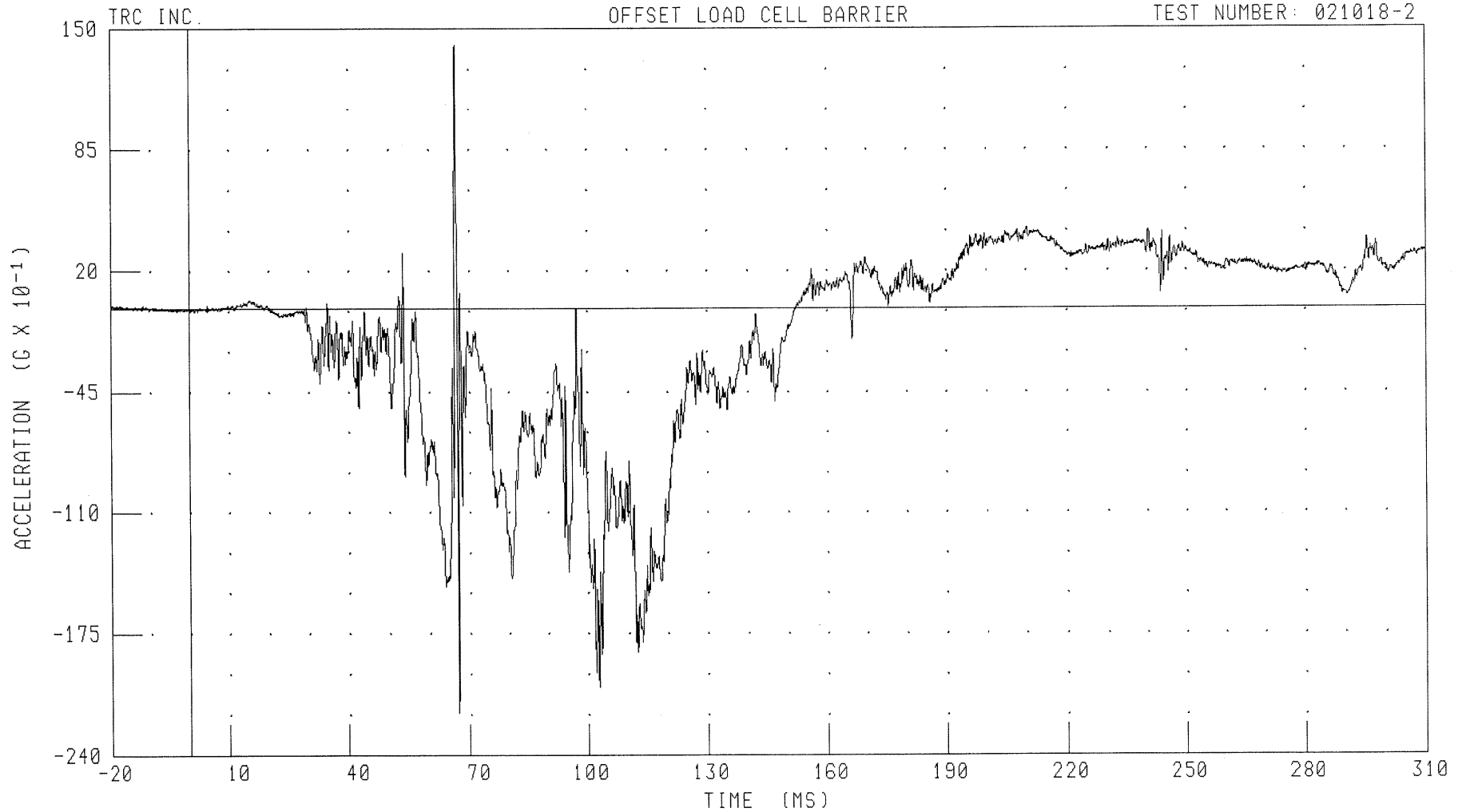
PEAK DATA: 24.98 G @ 96.88 MS; -8.59 G @ 127.52 MS

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

PASSENGER RIGHT FOOT Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: FTRZG2 FILTER: CH. CLASS 1000

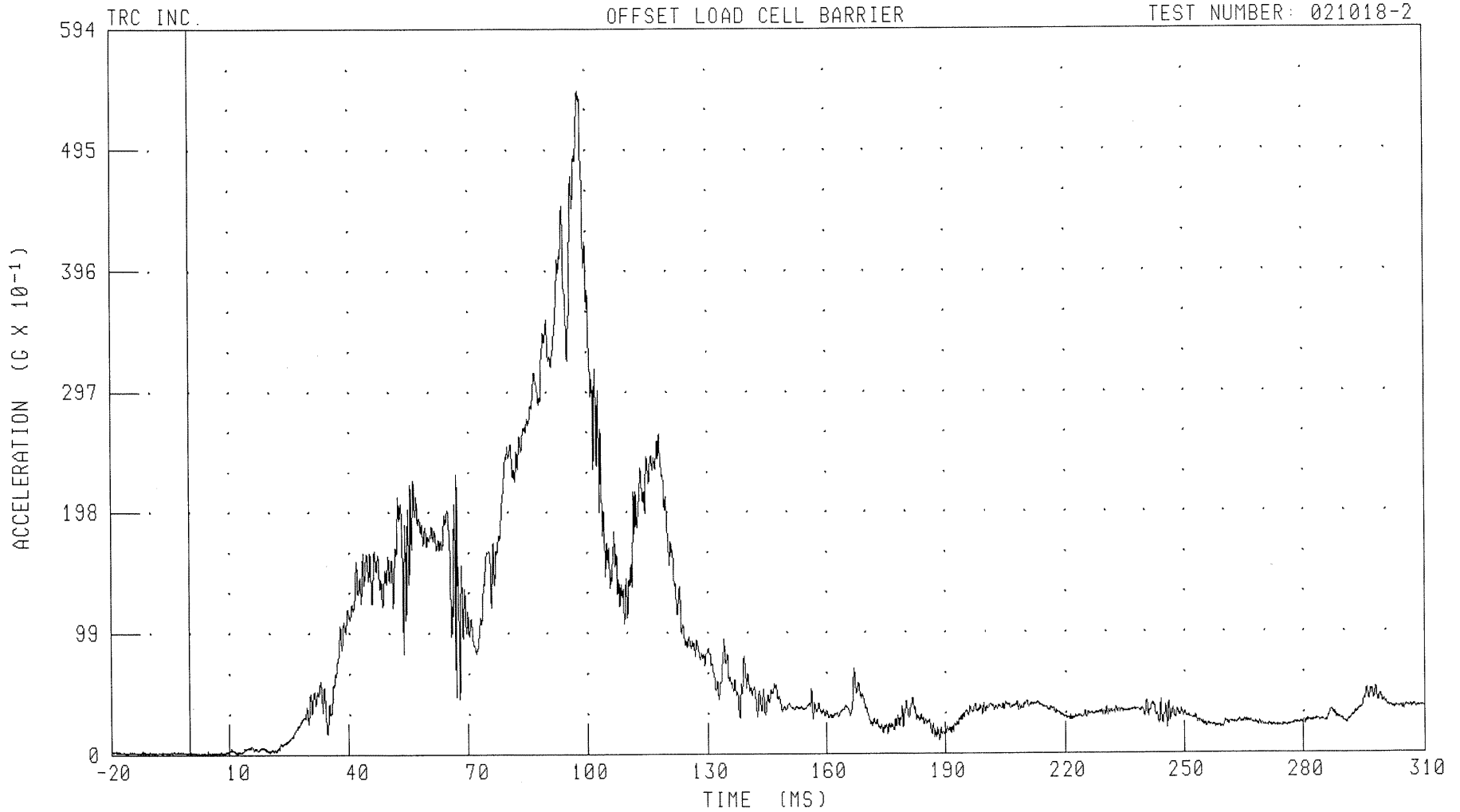
PEAK DATA: 14.11 G @ 66.72 MS; -21.73 G @ 67.20 MS

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: 021018-2



CHANNEL: FTRRG2 FILTER: CH. CLASS 1000

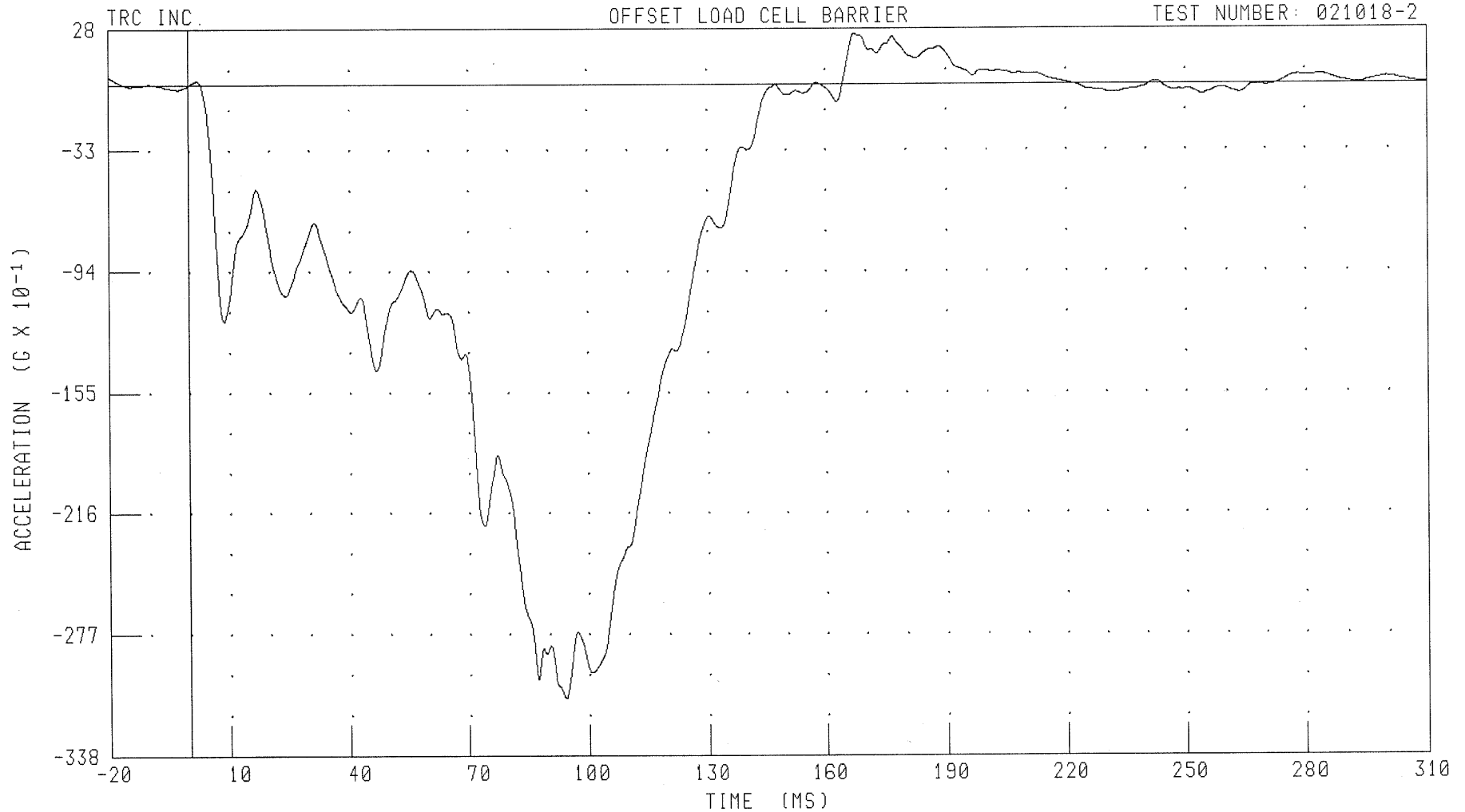
PEAK DATA: 54.36 G @ 98.24 MS; 0.03 G @ 2.40 MS

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: 021018-2



CHANNEL: LRXXG1

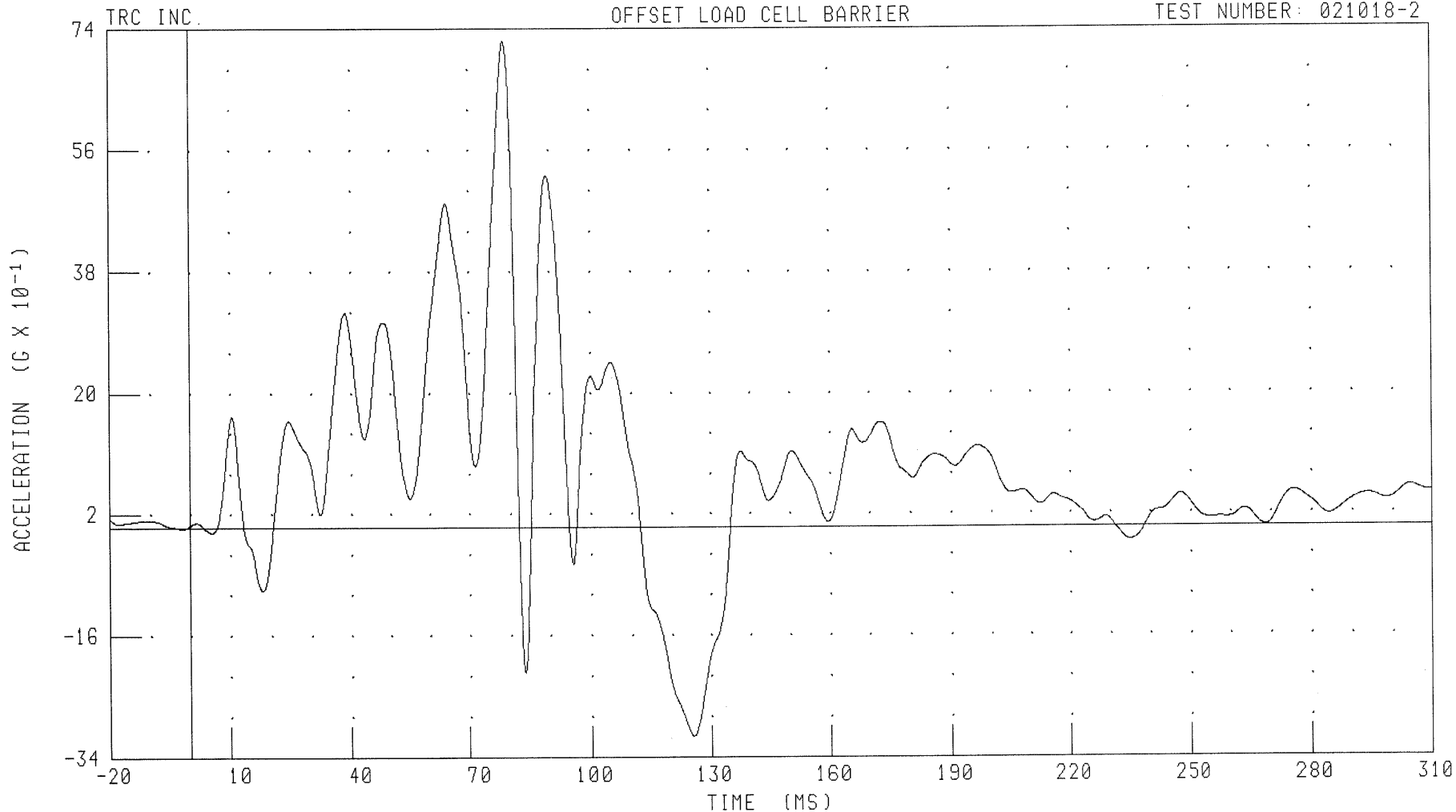
FILTER: CH. CLASS 60

PEAK DATA: 2.56 G @ 167.68 MS; -30.93 G @ 94.16 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LRXYG1

FILTER: CH. CLASS 60

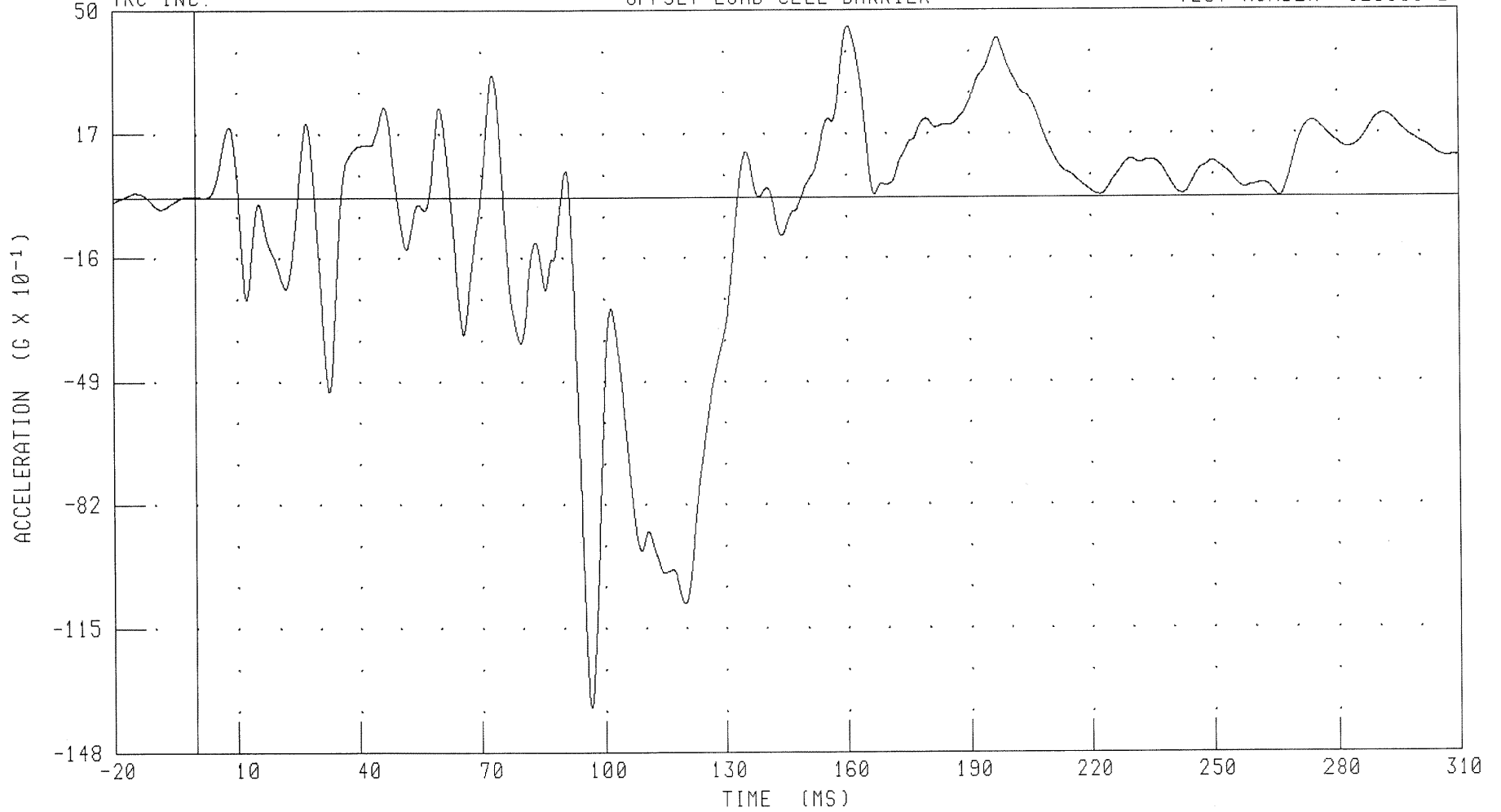
PEAK DATA: 7.22 G @ 78.88 MS; -3.09 G @ 125.44 MS

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

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LRXZG1

FILTER: CH. CLASS 60

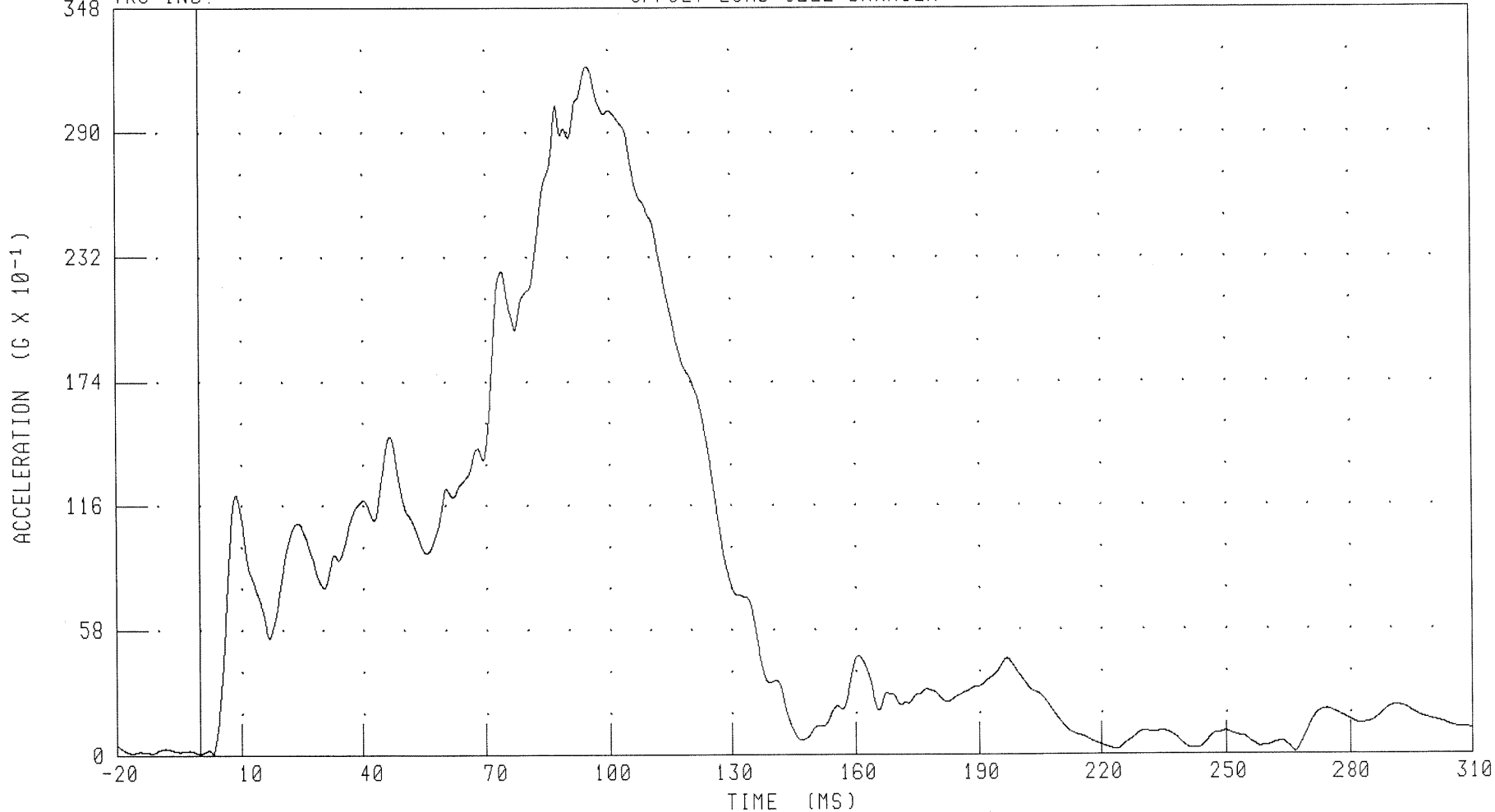
PEAK DATA: 4.56 G @ 160.72 MS; -13.61 G @ 96.64 MS

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

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LRXRG1

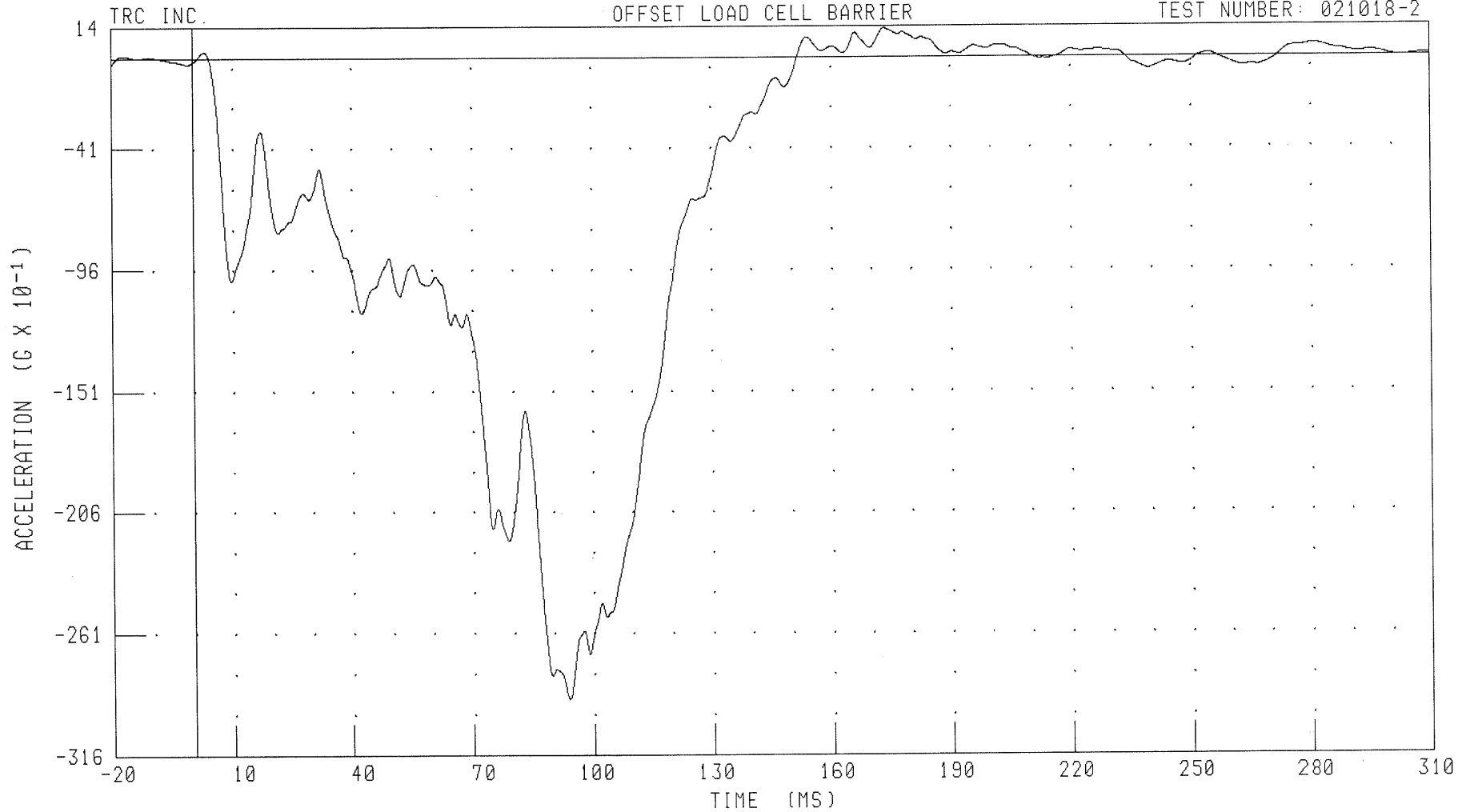
FILTER: CH. CLASS 60

PEAK DATA: 32.08 G @ 94.96 MS; 0.03 G @ 3.12 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: 021018-2



CHANNEL: RRXXG1 FILTER: CH. CLASS 60

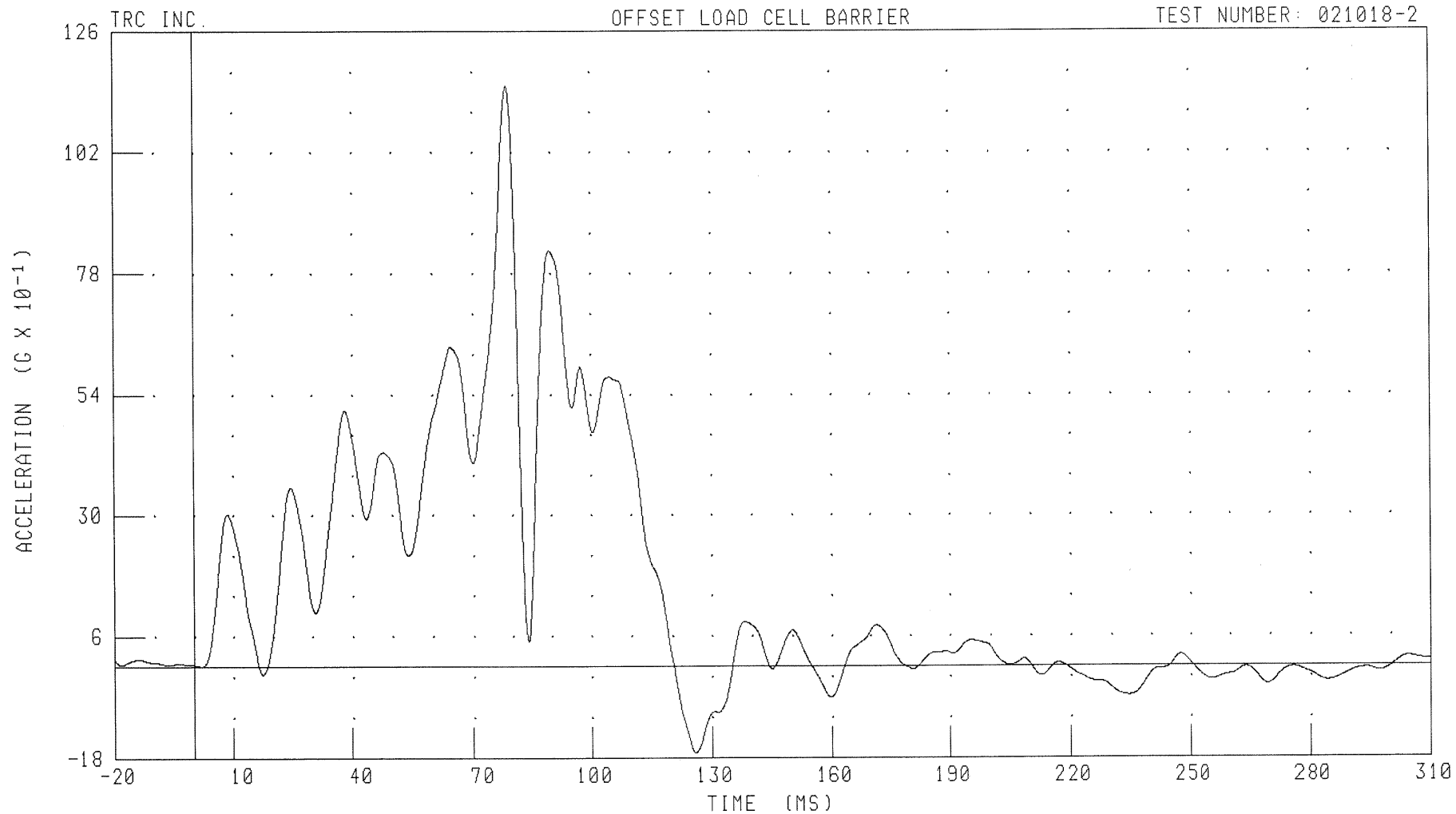
PEAK DATA: 1.31 G @ 173.68 MS; -29.07 G @ 93.84 MS

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: 021018-2



CHANNEL: RRYG1 FILTER: CH. CLASS 60

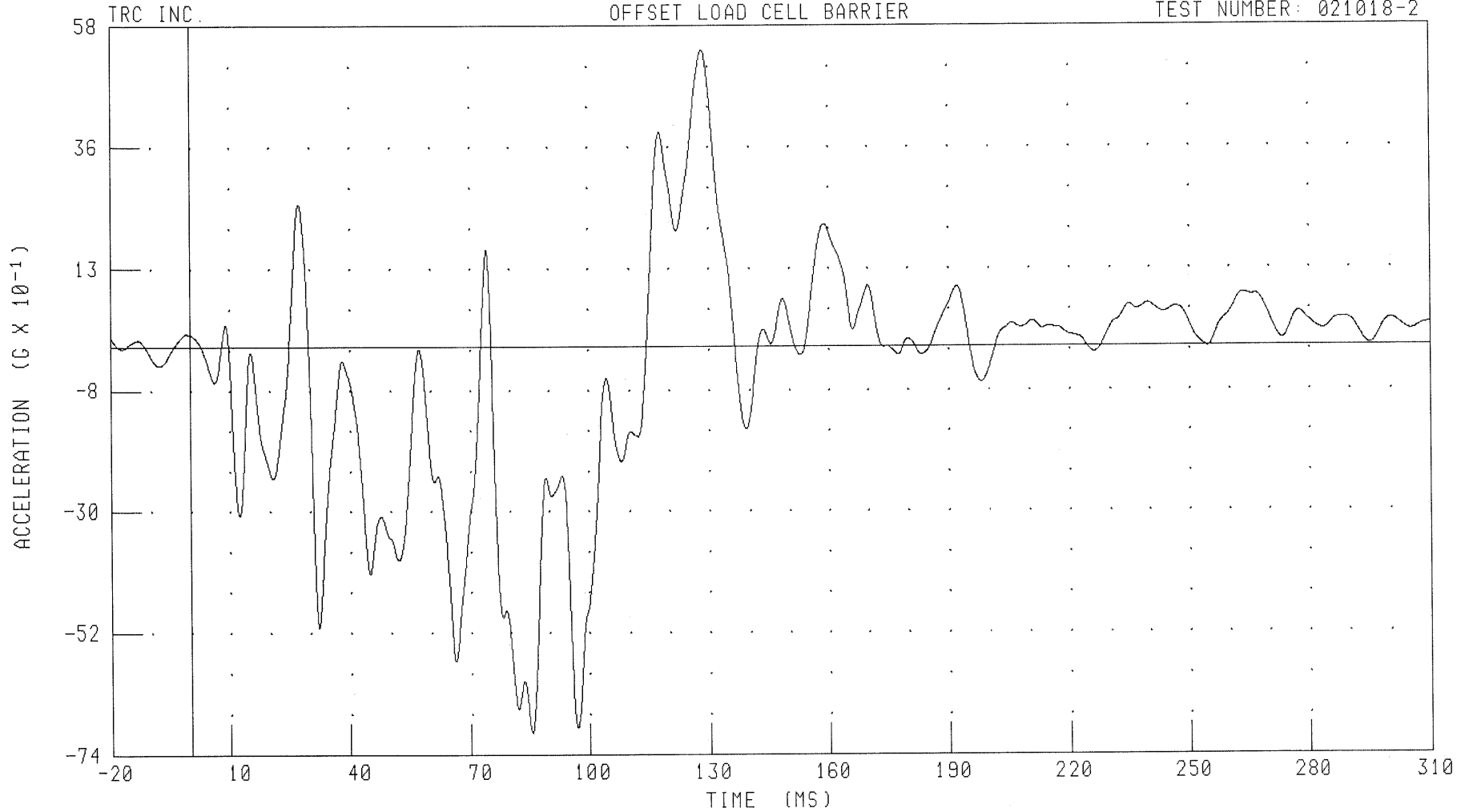
PEAK DATA: 11.52 G @ 78.72 MS; -1.71 G @ 125.92 MS

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

RIGHT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



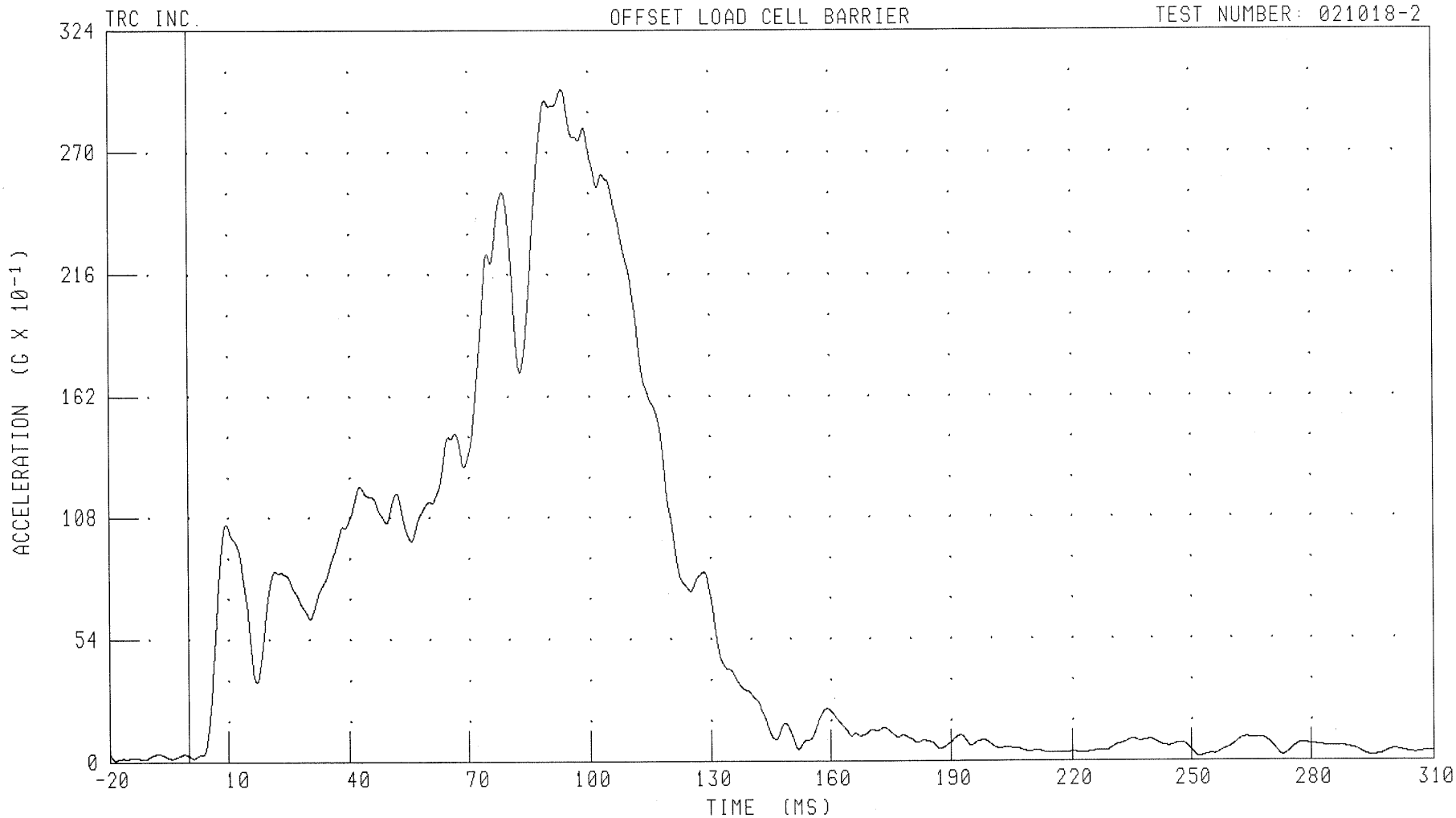
CHANNEL: RRXZG1 FILTER: CH. CLASS 60

PEAK DATA: 5.36 G @ 128.80 MS; -7.00 G @ 85.52 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: 021018-2



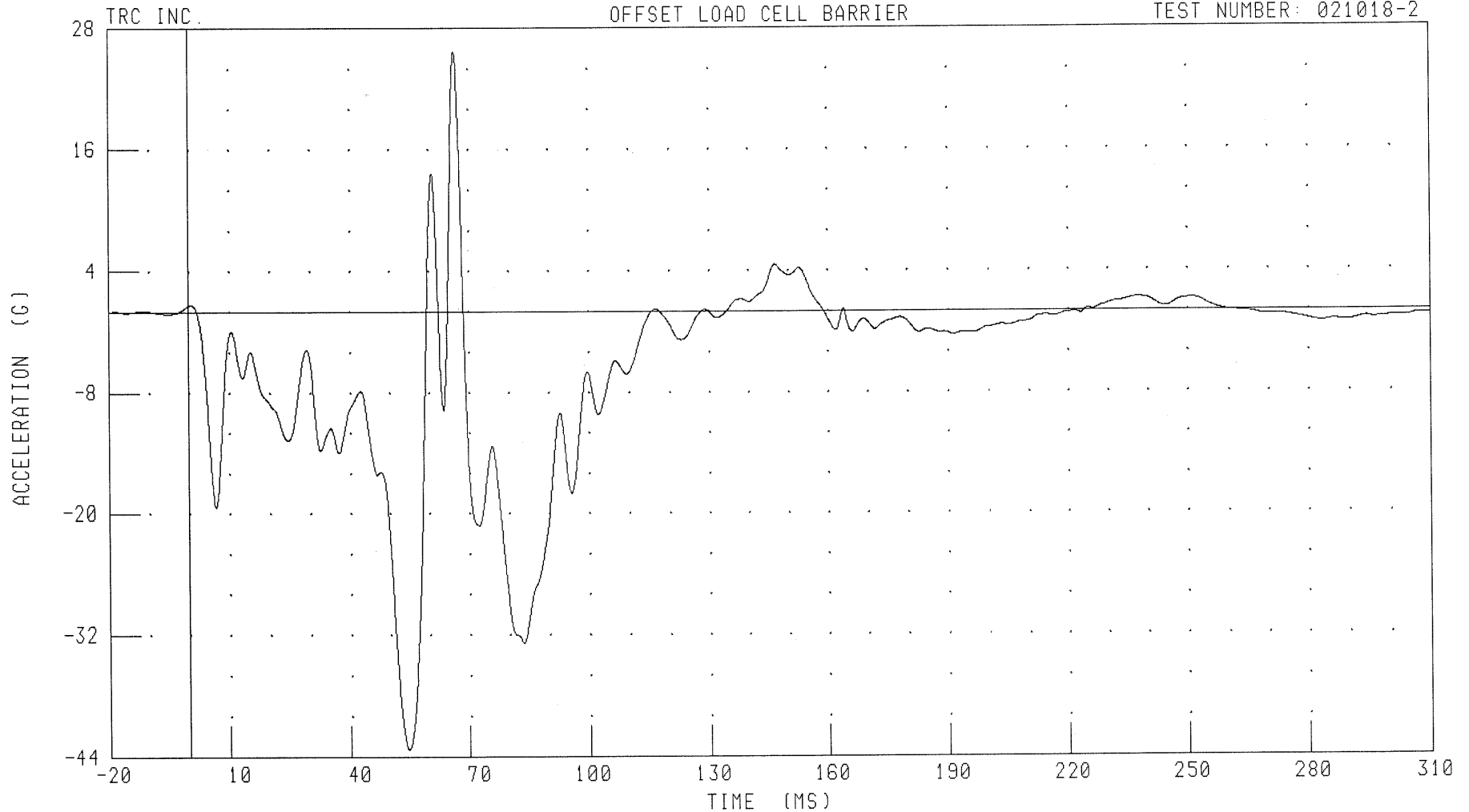
CHANNEL: RRXR01 FILTER: CH. CLASS 60

PEAK DATA: 29.79 G @ 93.68 MS; 0.05 G @ -18.64 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: 021018-2



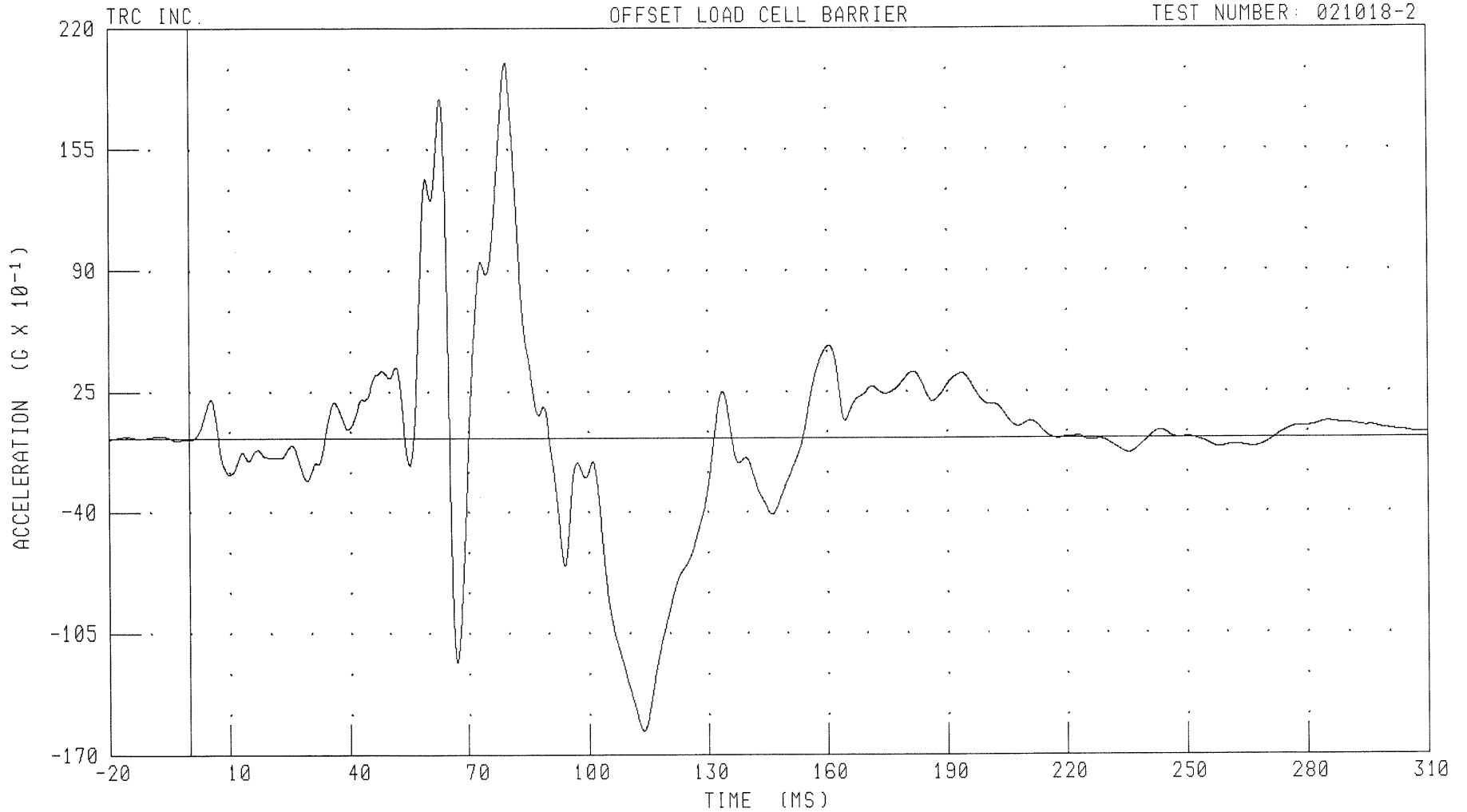
CHANNEL: LTPXC1 FILTER: CH. CLASS 60

PEAK DATA: 25.73 G @ 66.56 MS; -43.28 G @ 54.56 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: 021018-2



CHANNEL: LTPYG1

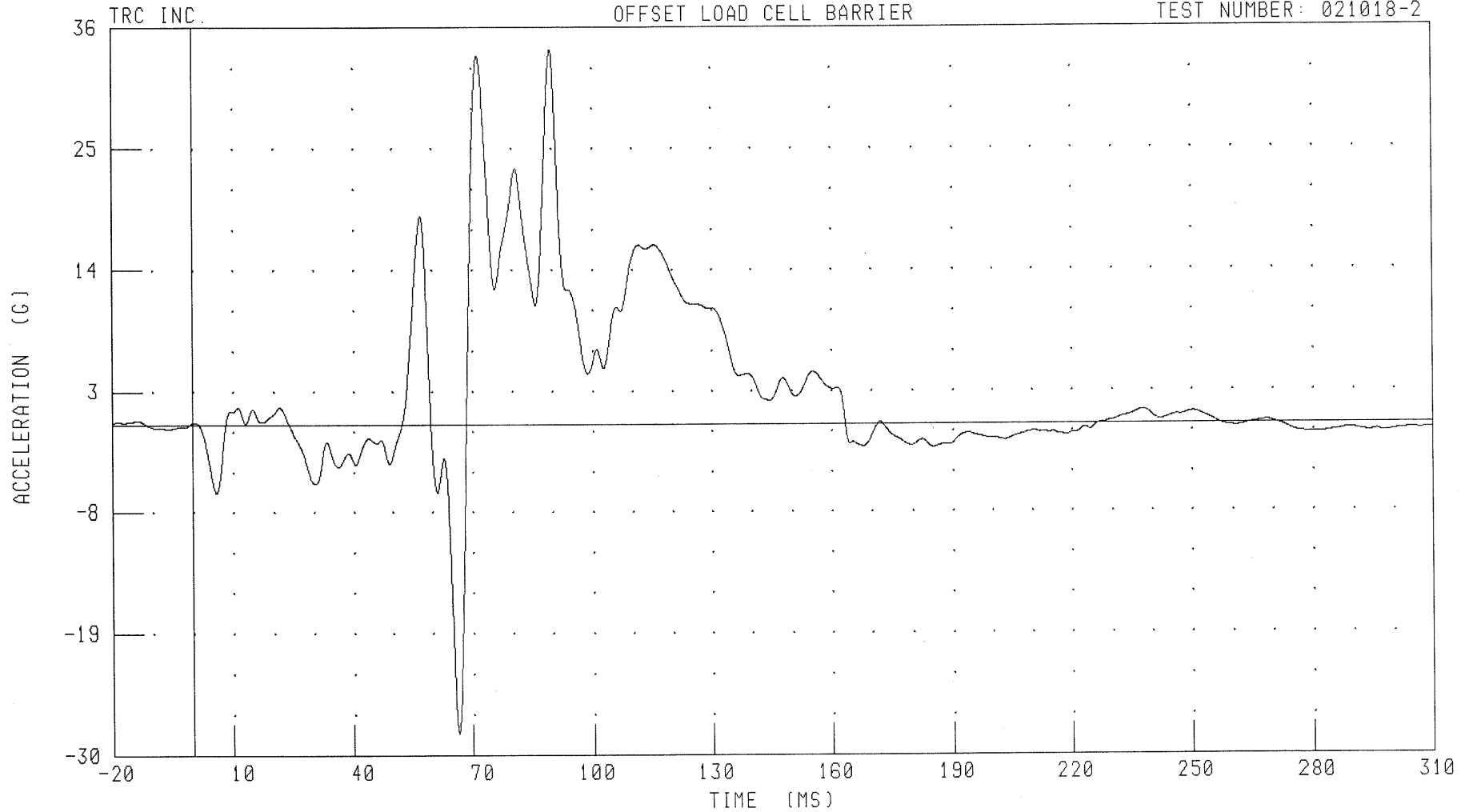
FILTER: CH. CLASS 60

PEAK DATA: 20.16 G @ 79.60 MS; -15.74 G @ 113.52 MS

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

DRIVERS LEFT SIDE TOE PAN Z-AXIS ACCELERATION

TEST NUMBER: 021018-2



CHANNEL: LTPZG1 FILTER: CH. CLASS 60

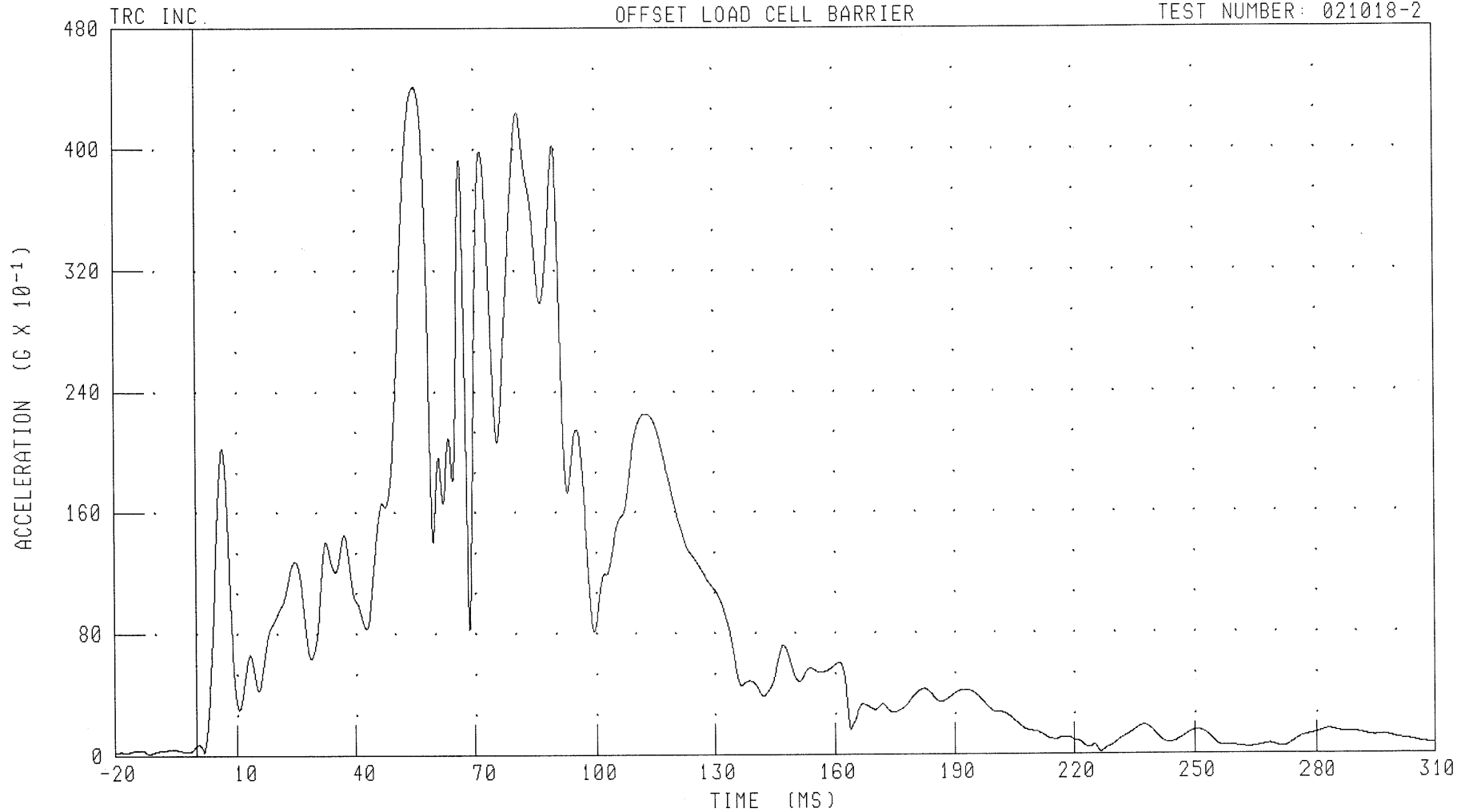
PEAK DATA: 33.98 G @ 89.84 MS; -28.02 G @ 66.32 MS

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: 021018-2



CHANNEL: LTPRG1

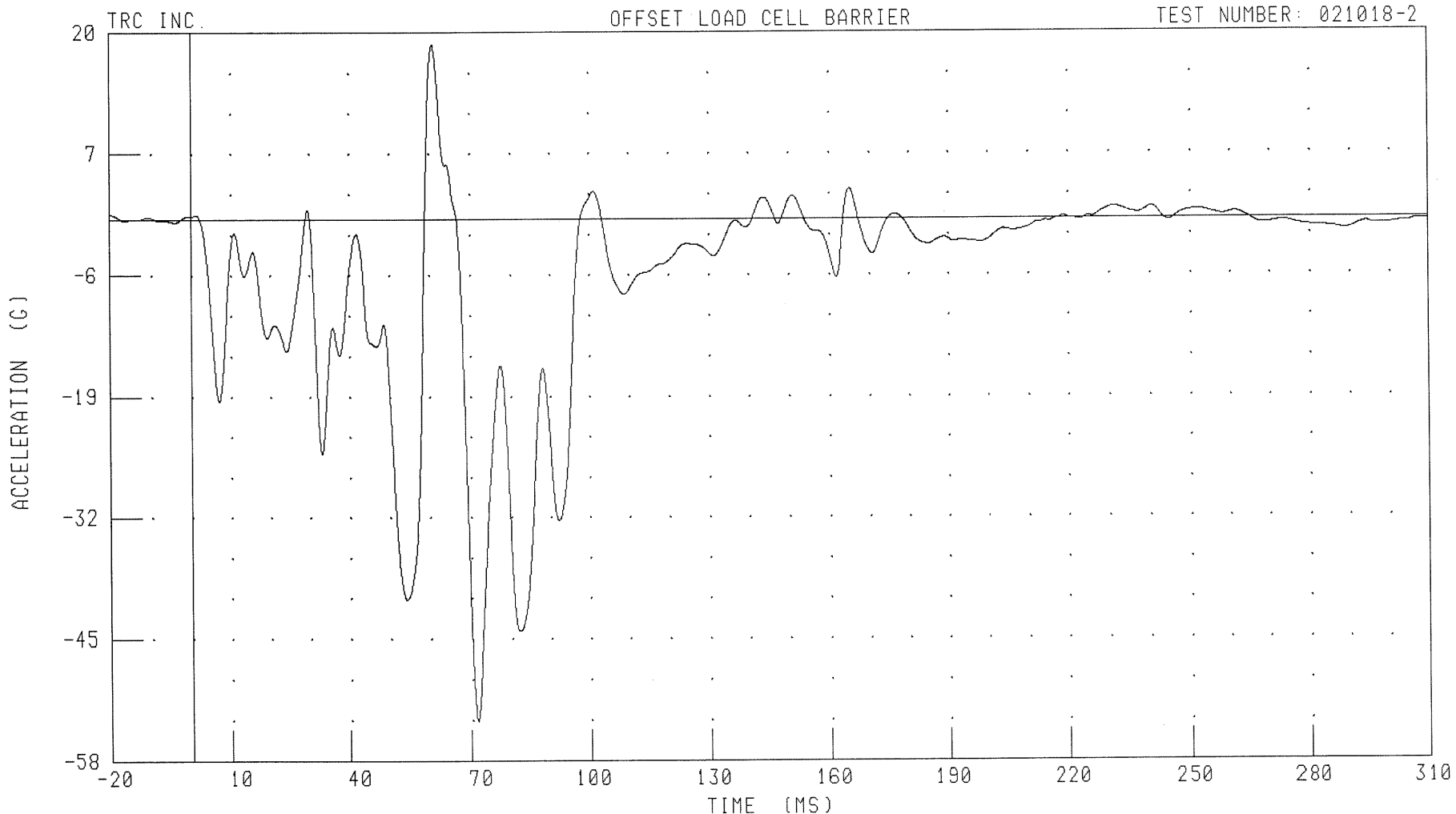
FILTER: CH. CLASS 60

PEAK DATA: 44.14 G @ 55.20 MS; 0.10 G @ -11.60 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



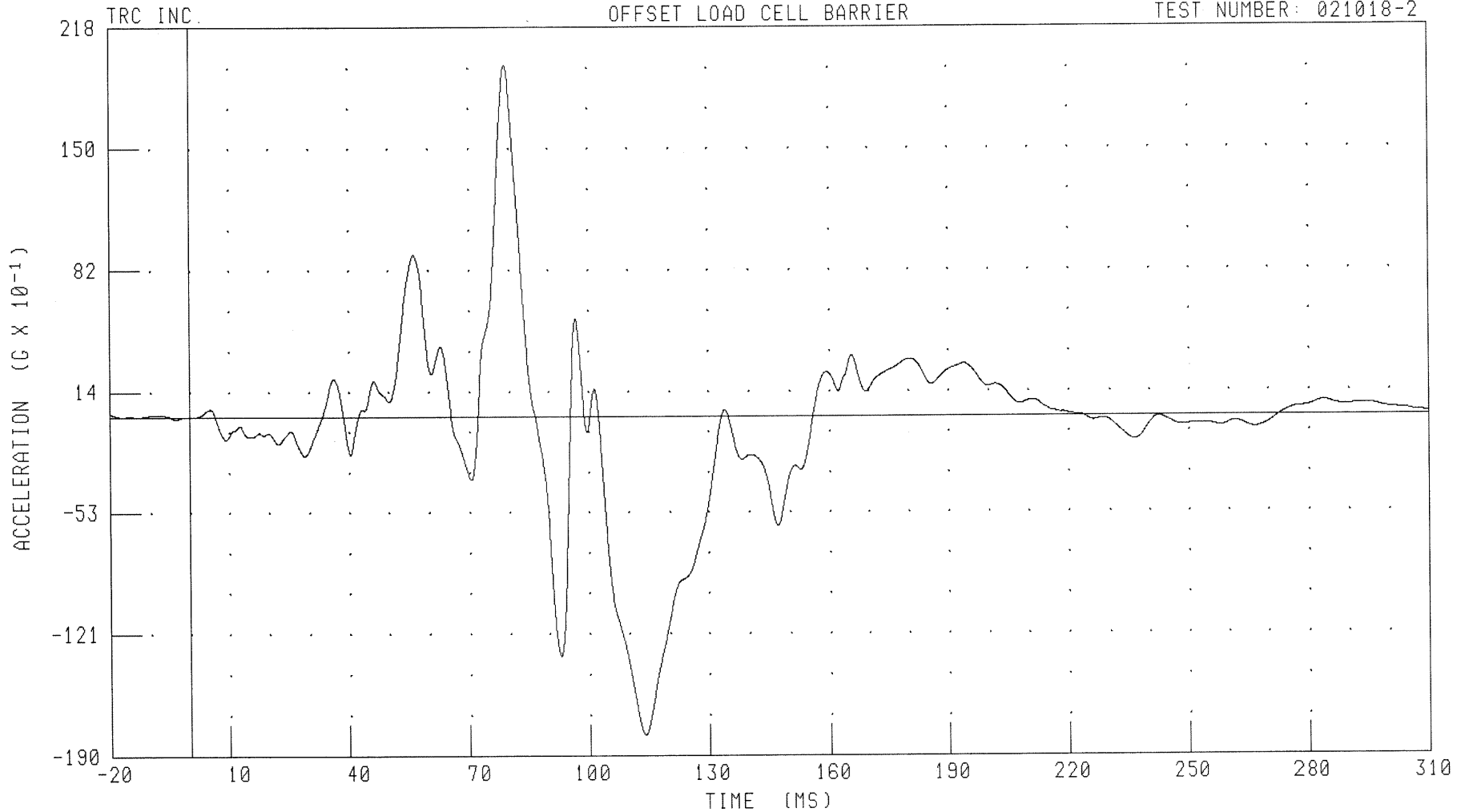
CHANNEL: RTPXC1 FILTER: CH. CLASS 60

PEAK DATA: 18.71 G @ 61.04 MS; -53.78 G @ 71.60 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: 021018-2



CHANNEL: RTPYG1

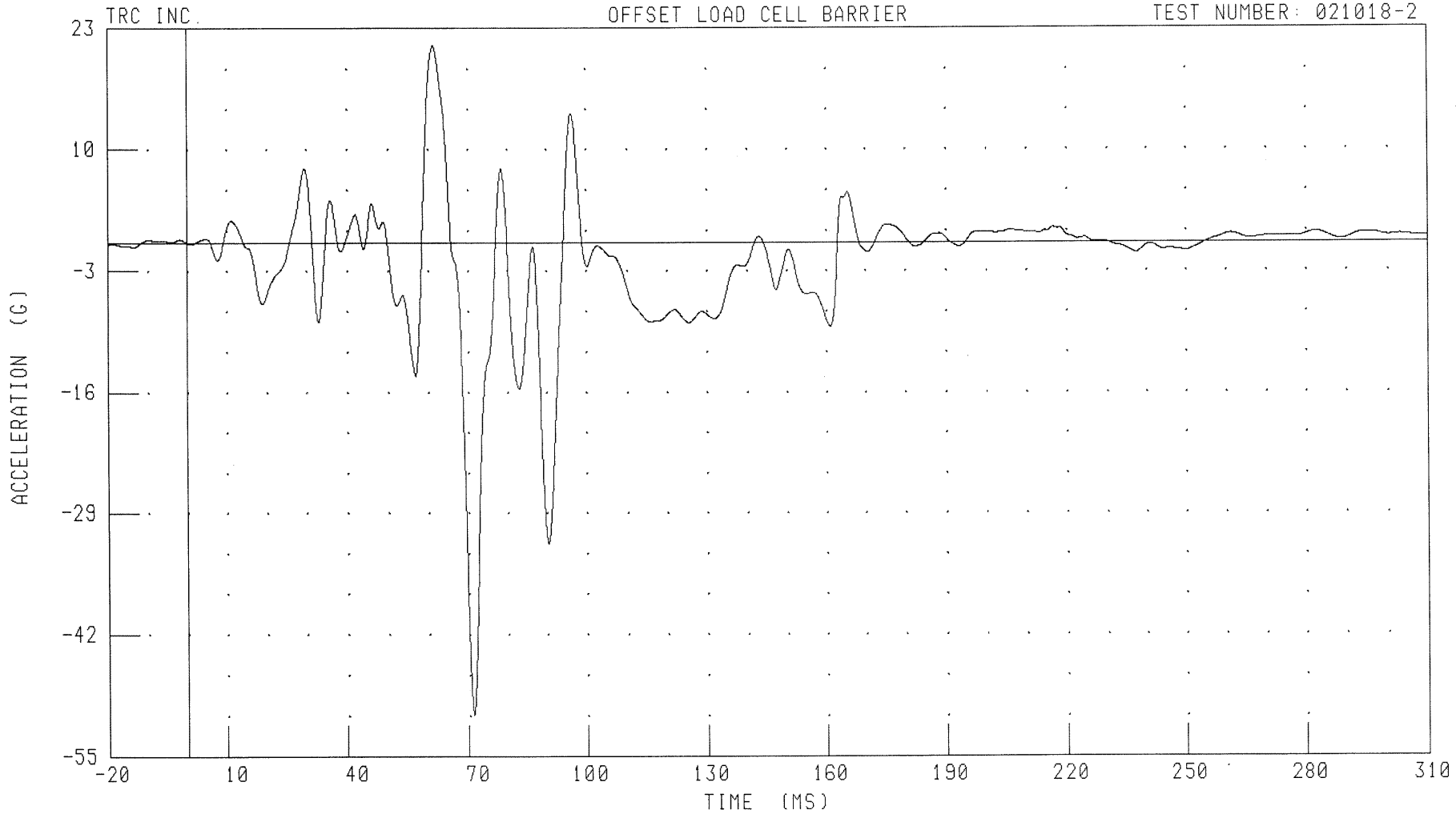
FILTER: CH. CLASS 60

PEAK DATA: 19.69 G @ 79.28 MS; -17.85 G @ 113.92 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: RTPZG1 FILTER: CH. CLASS 60

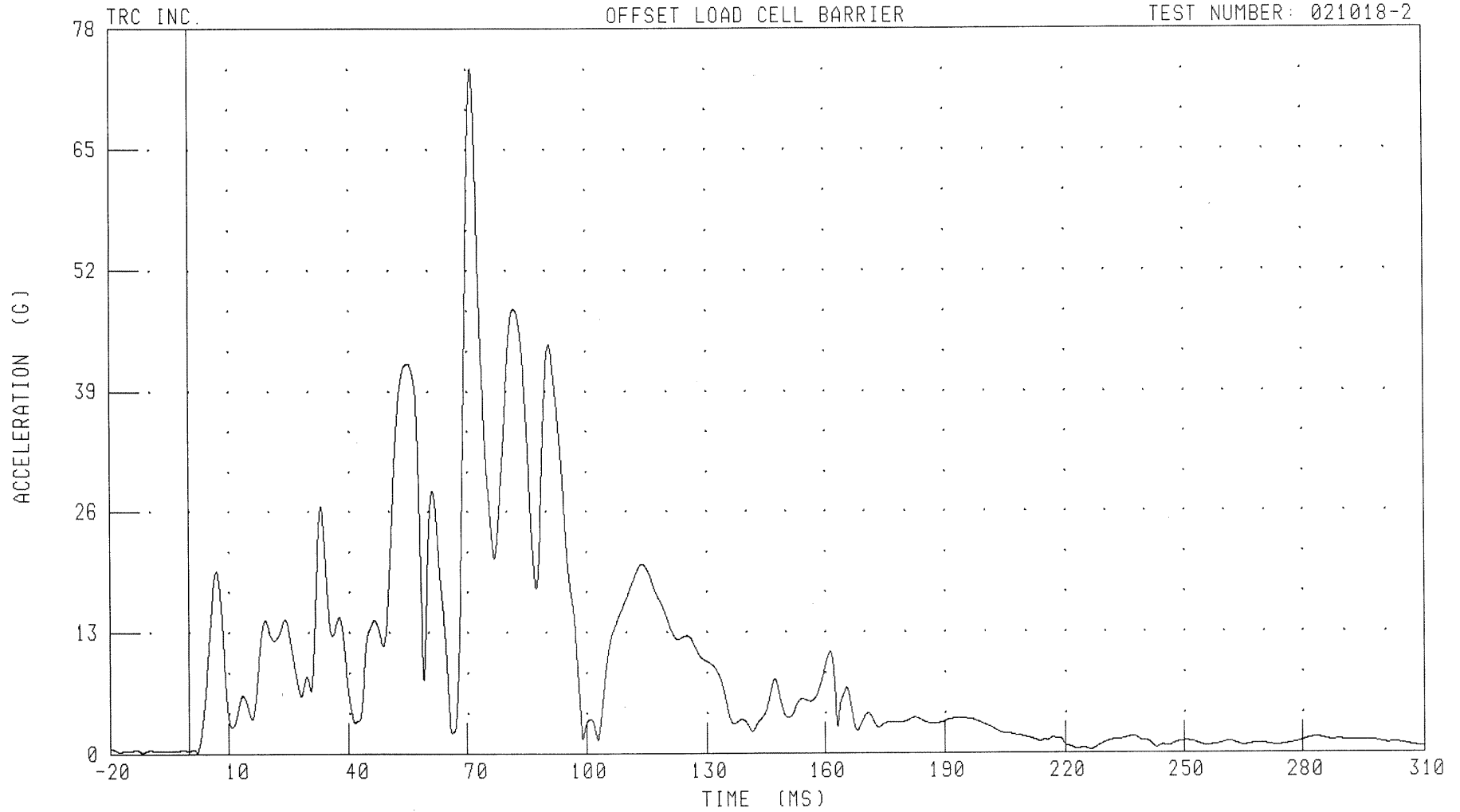
PEAK DATA: 21.17 G @ 61.36 MS; -50.65 G @ 71.28 MS

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: 021018-2



CHANNEL: RTPRG1

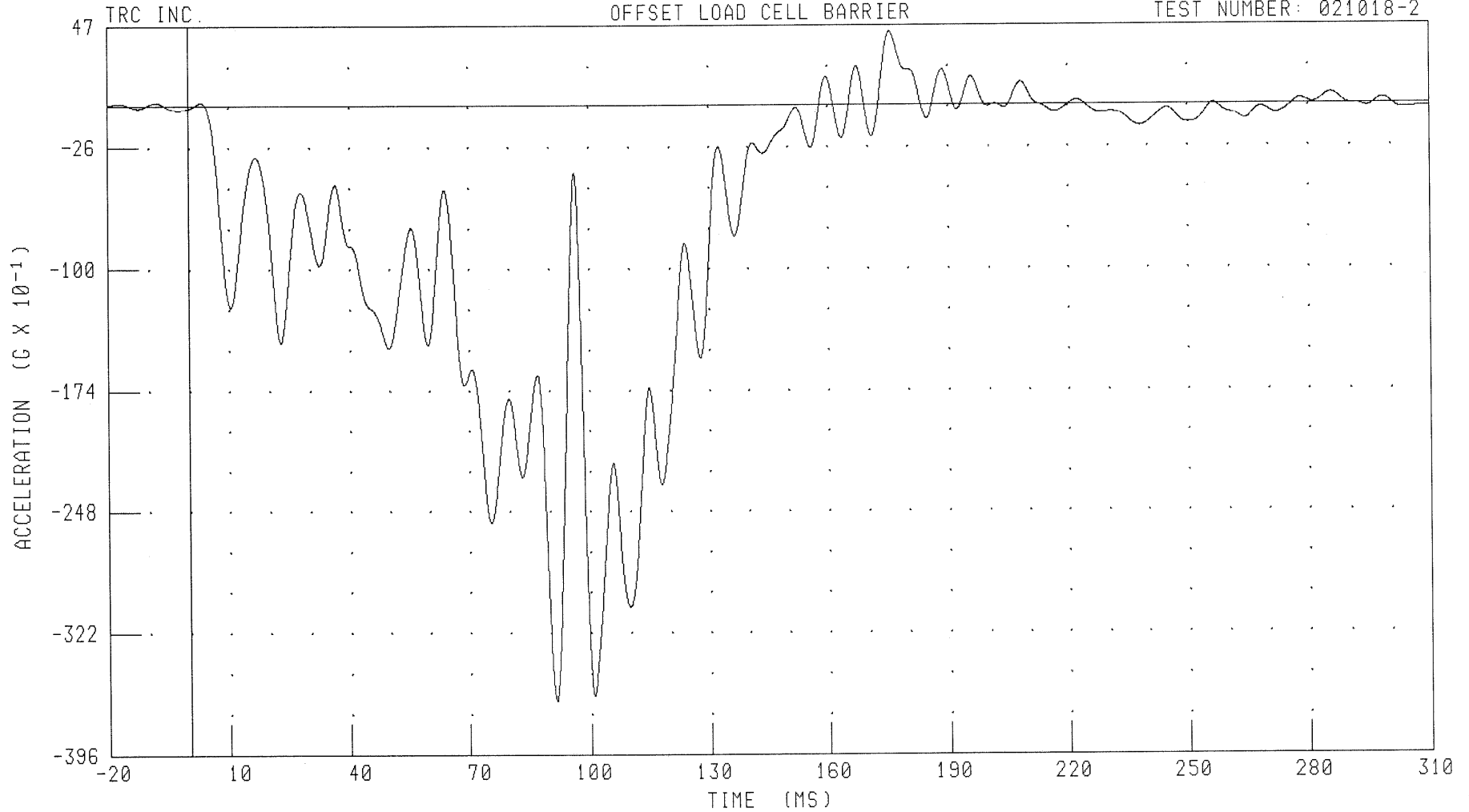
FILTER: CH. CLASS 60

PEAK DATA: 73.69 G @ 71.36 MS; 0.08 G @ 2.24 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: 021018-2



CHANNEL: VCCXG1 FILTER: CH. CLASS 60

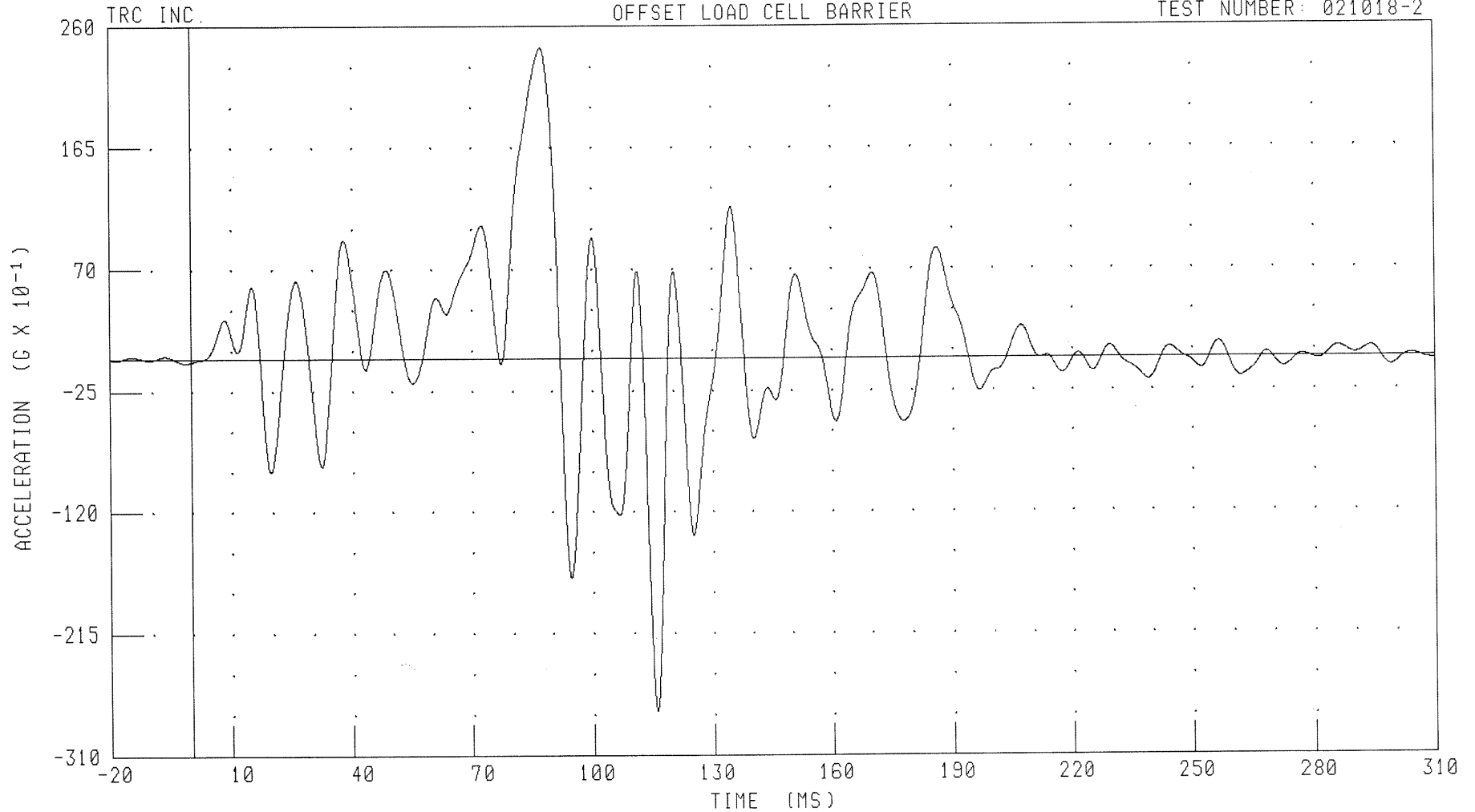
PEAK DATA: 4.44 G @ 175.68 MS; -36.36 G @ 91.52 MS

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: 021018-2



CHANNEL: VCGYG1

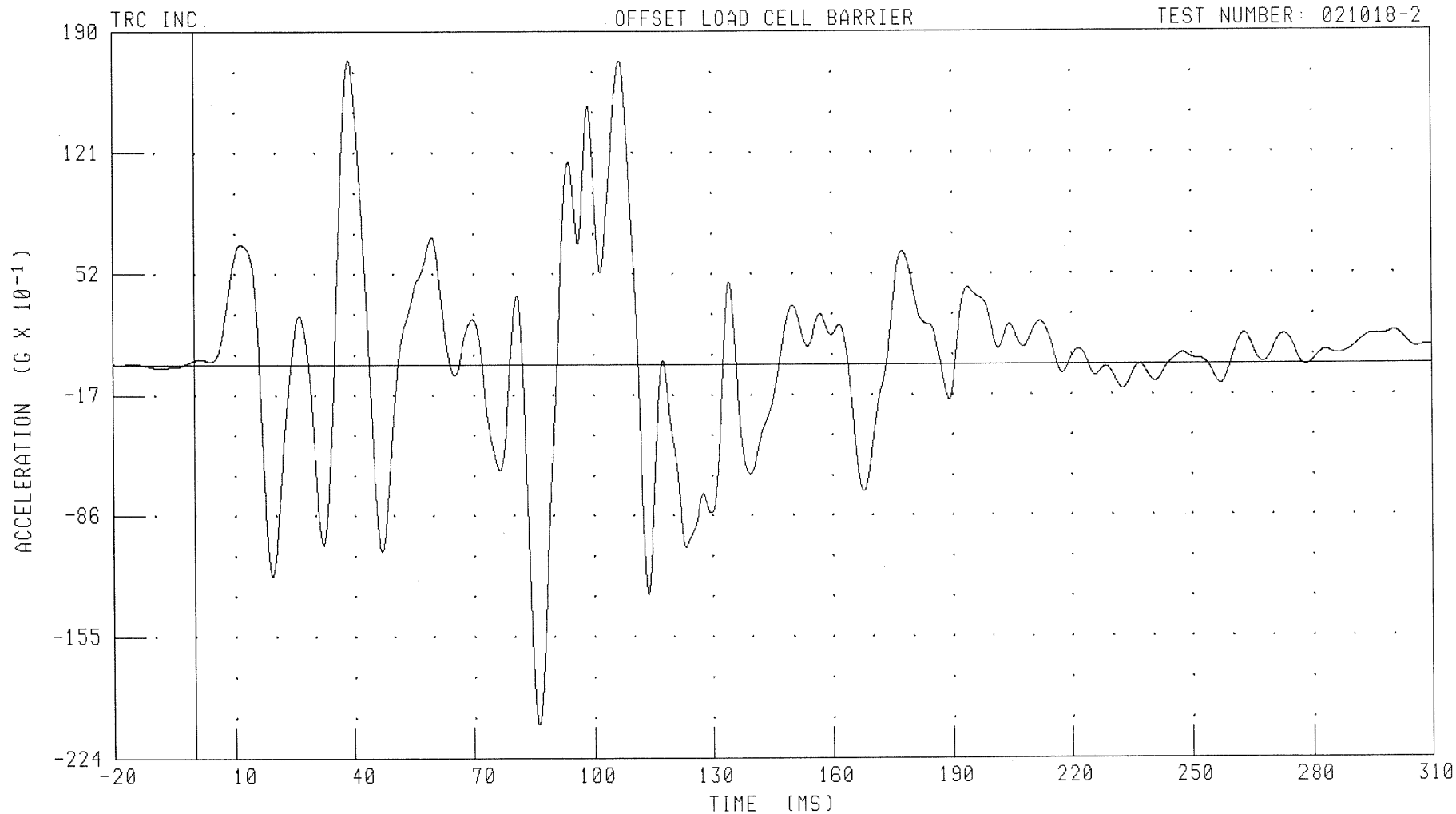
FILTER: CH. CLASS 60

PEAK DATA: 24.33 G @ 87.76 MS; -27.56 G @ 115.76 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: VCGZG1 FILTER: CH. CLASS 60

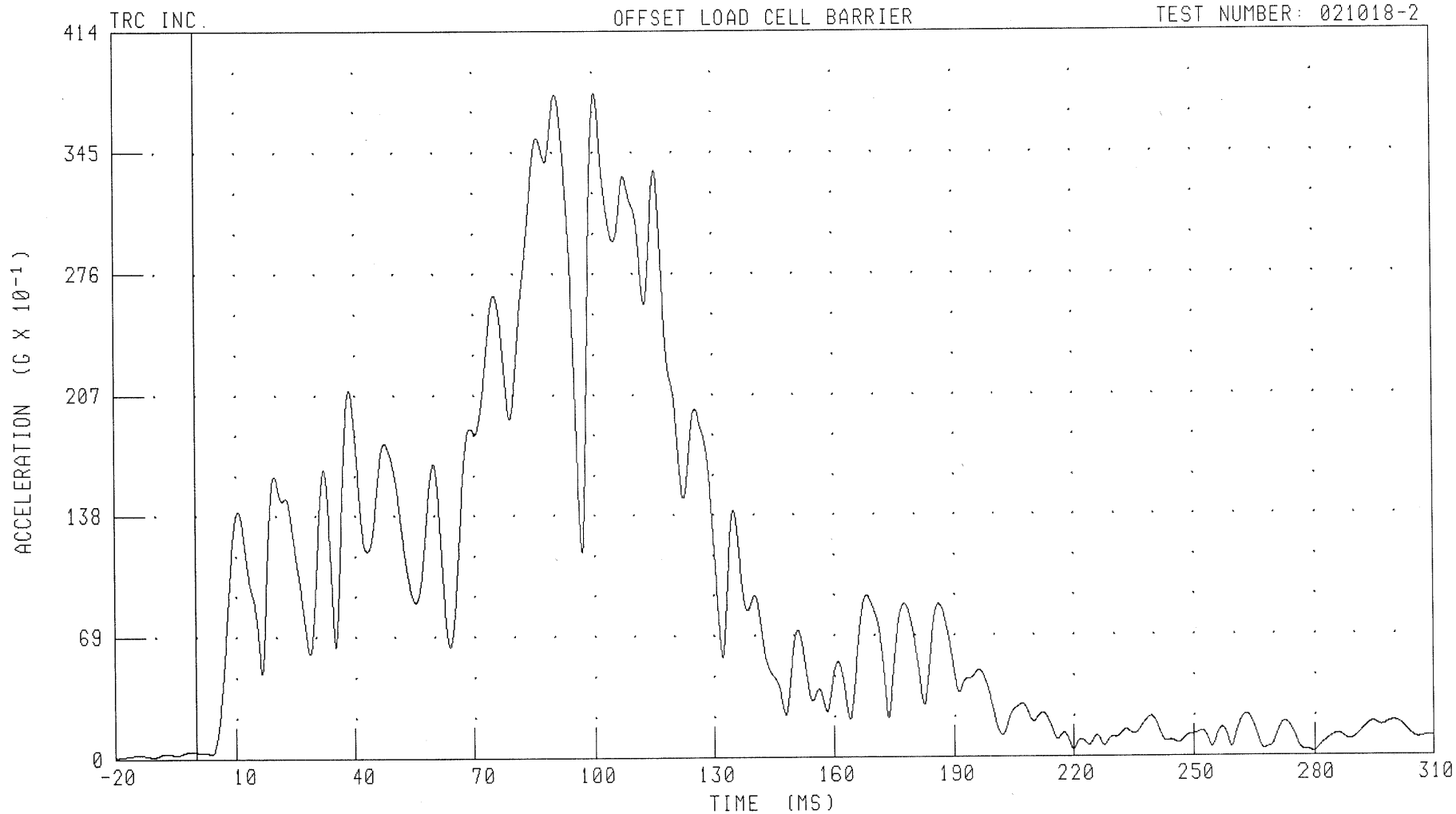
PEAK DATA: 17.38 G @ 38.80 MS; -20.50 G @ 86.24 MS

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: 021018-2



CHANNEL: VCGRG1

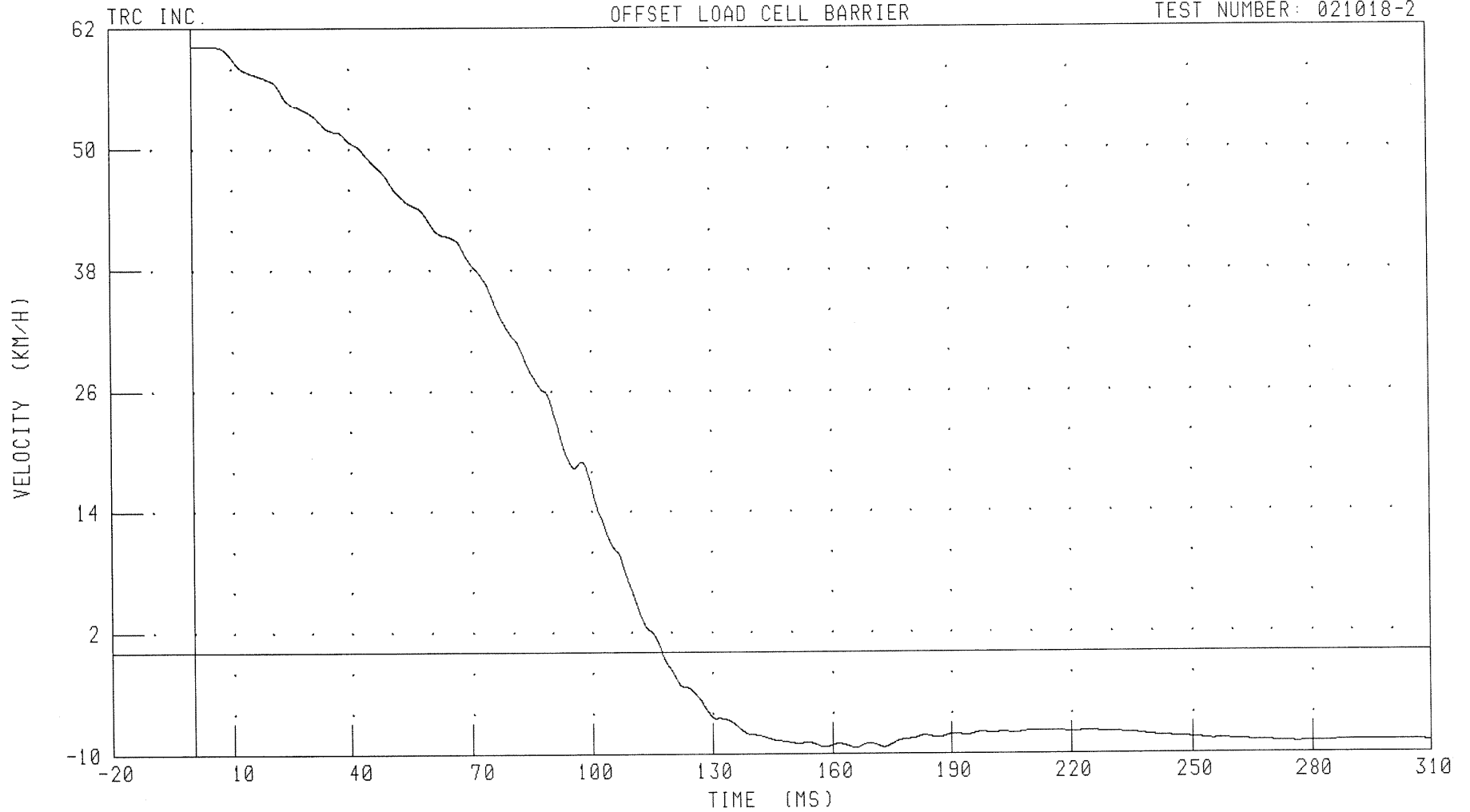
FILTER: CH. CLASS 60

PEAK DATA: 37.88 G @ 100.64 MS; 0.07 G @ -19.60 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: VCCXV1 FILTER: CH. CLASS 180

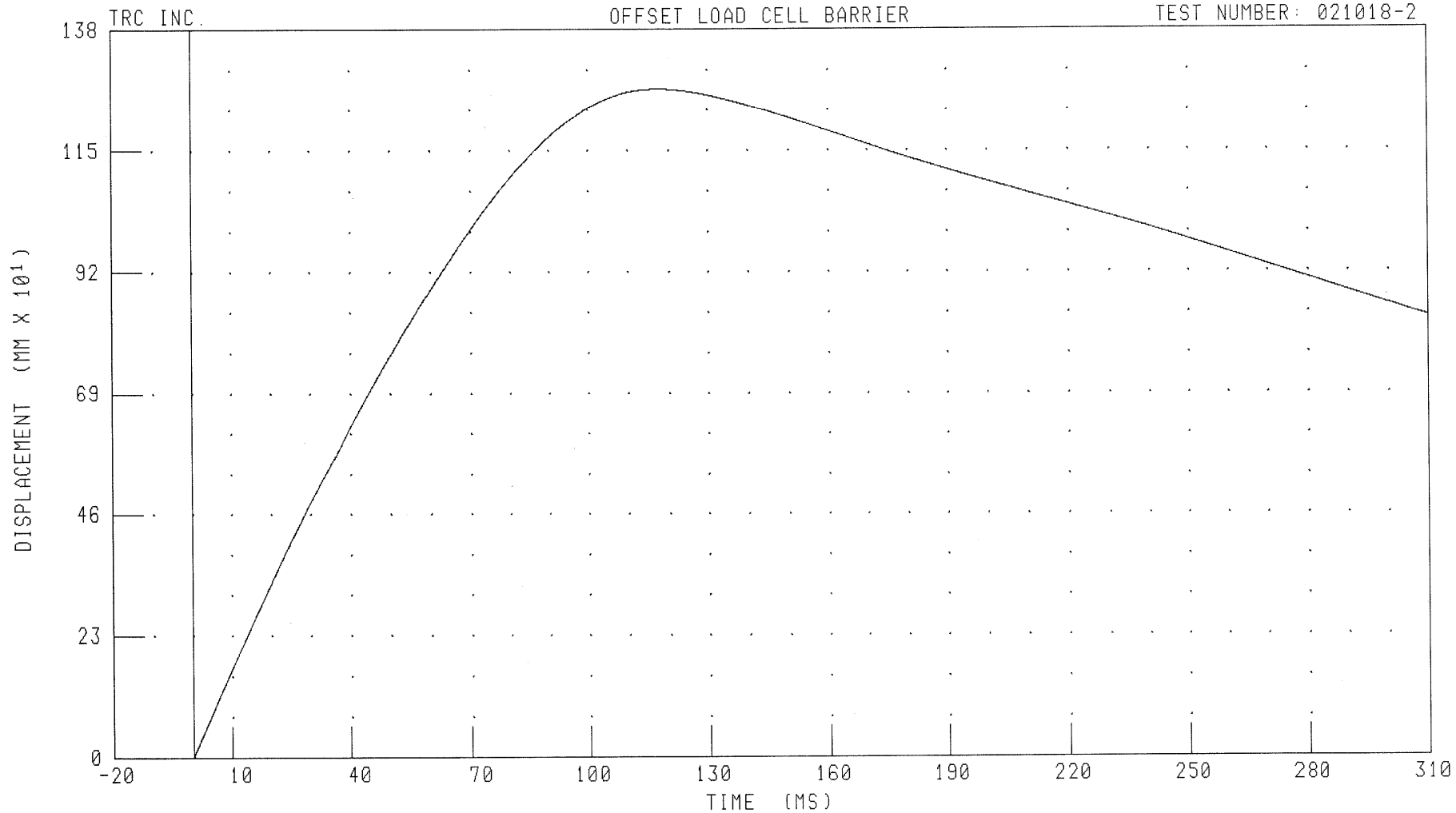
PEAK DATA: 60.20 KM/H @ 0.00 MS; -9.42 KM/H @ 165.68 MS

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: 021018-2



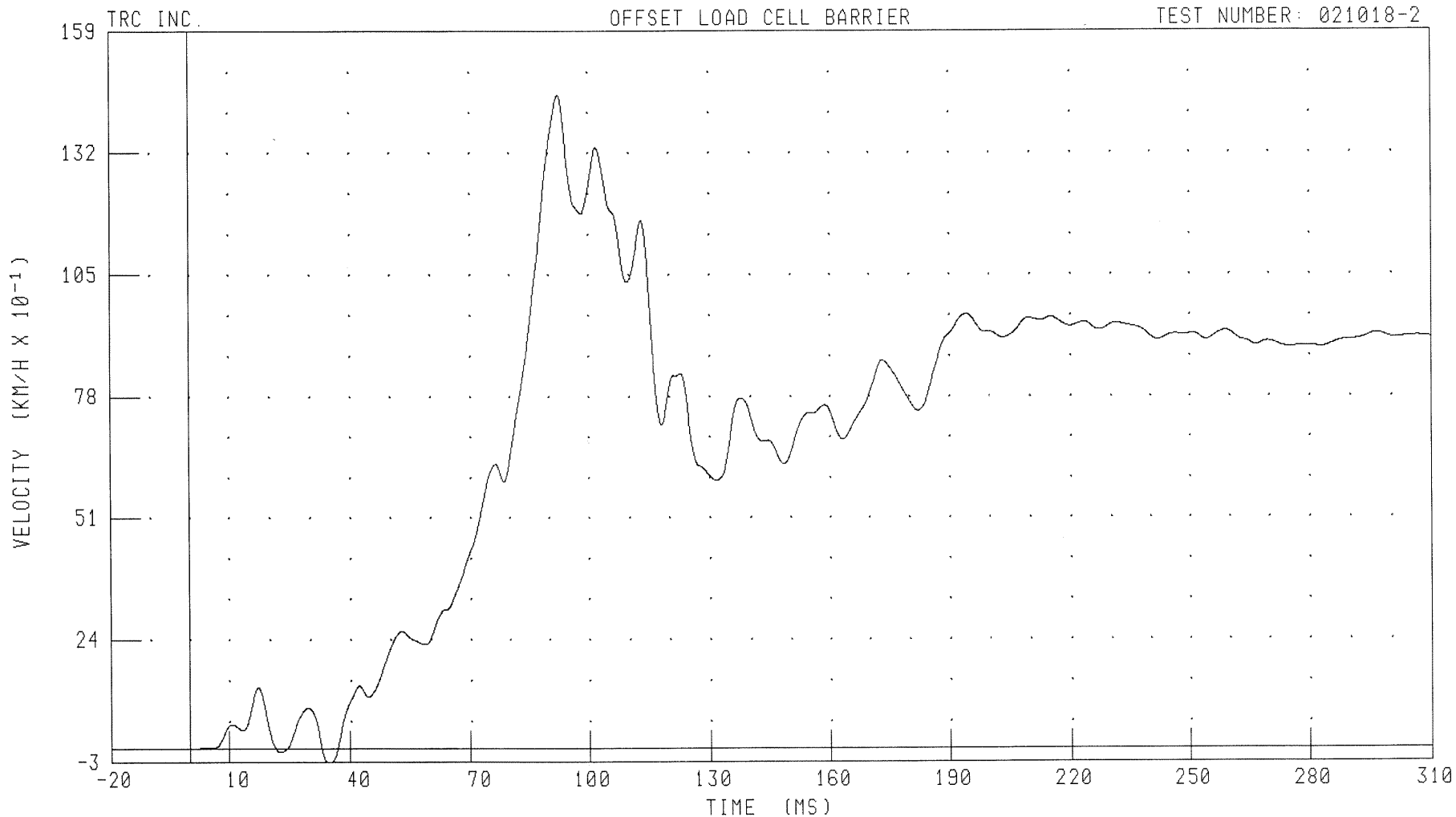
CHANNEL: VCGXD1 FILTER: CH. CLASS 100

PEAK DATA: 1267.09 MM @ 117.92 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 VELOCITY

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



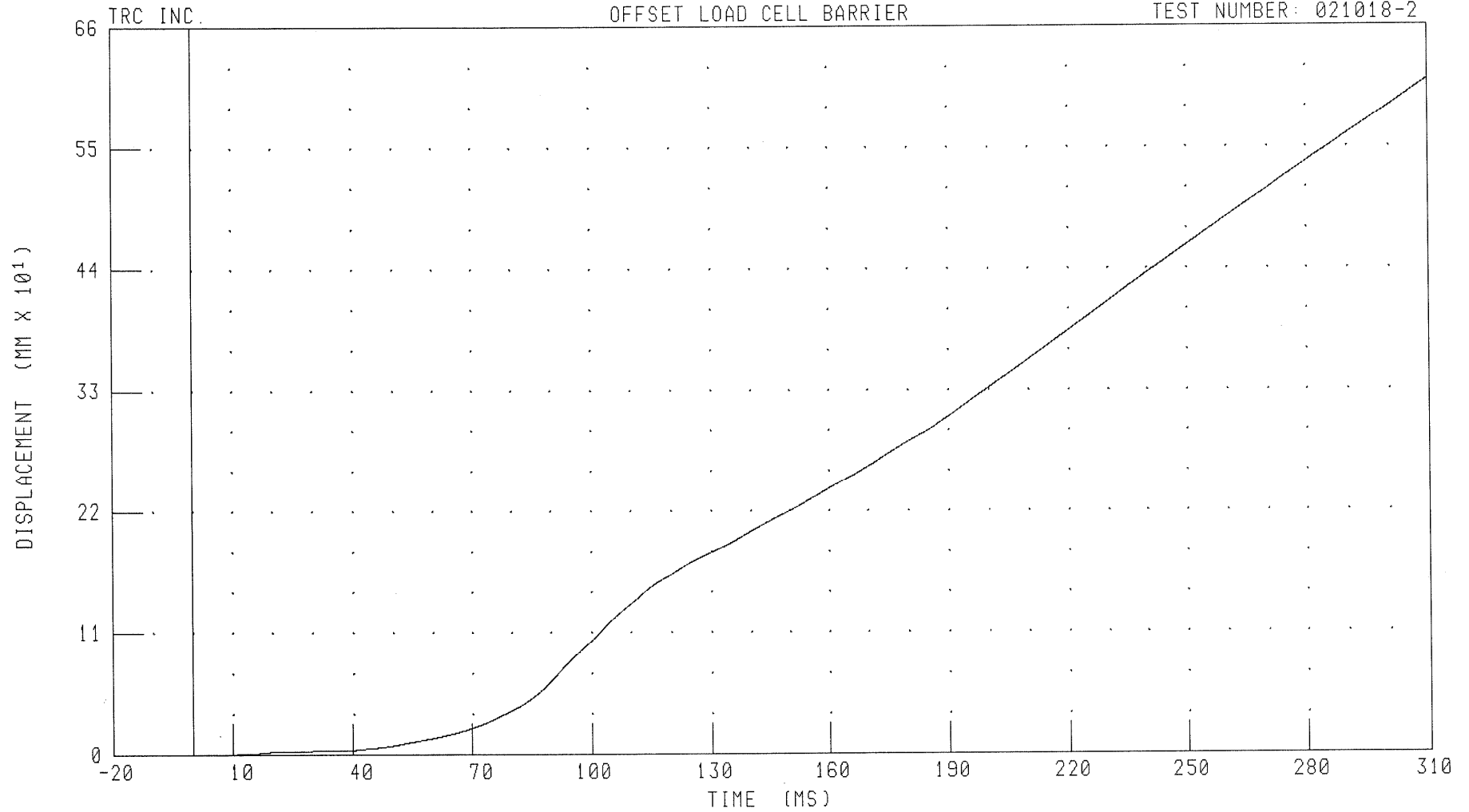
CHANNEL: VCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 14.48 KM/H @ 92.64 MS; -0.32 KM/H @ 34.72 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: VCGYD1 FILTER: CH. CLASS 180

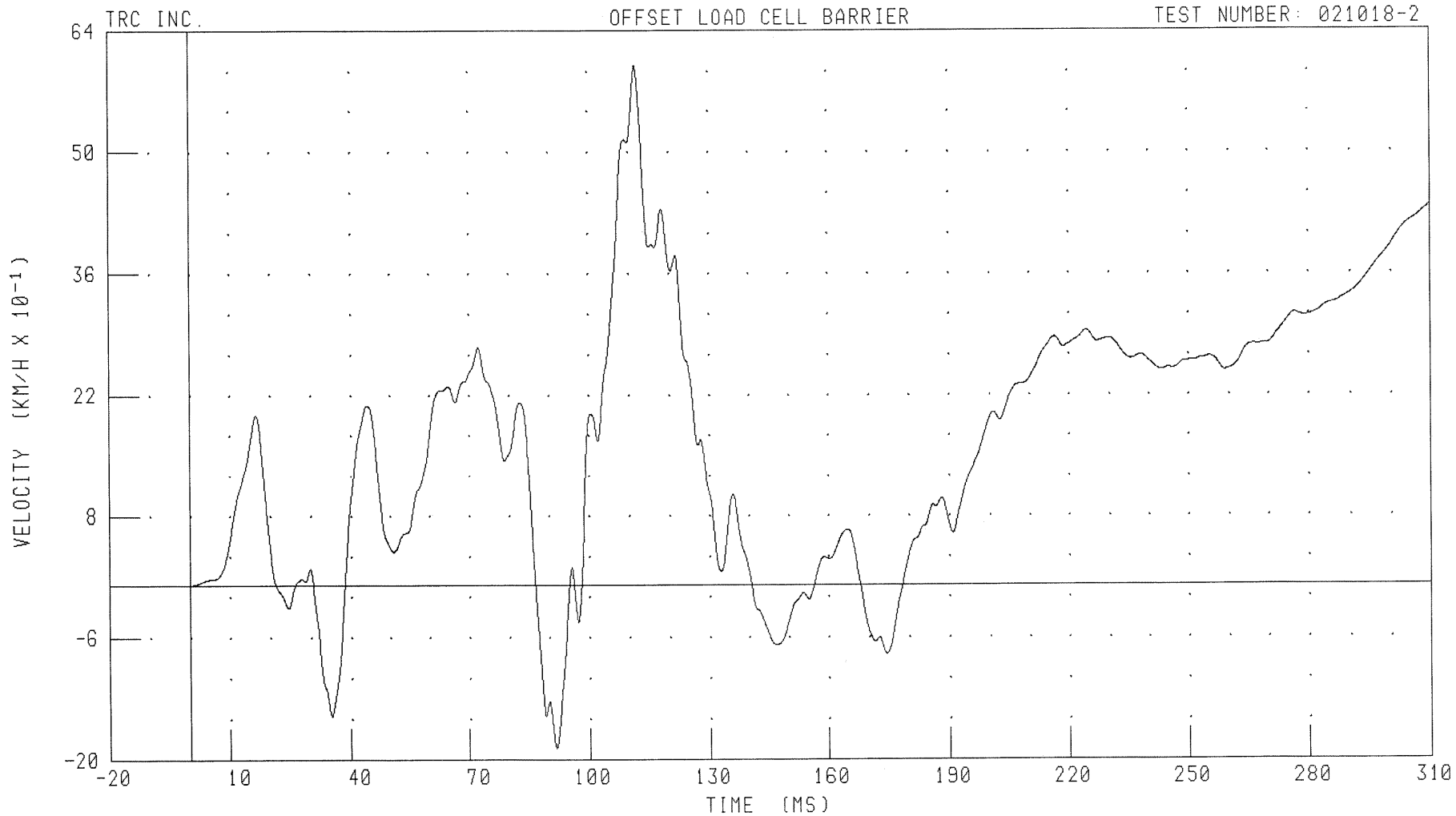
PEAK DATA: 611.64 MM @ 310.00 MS; 0.00 MM @ 1.92 MS

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: 021018-2



CHANNEL: VCGZV1

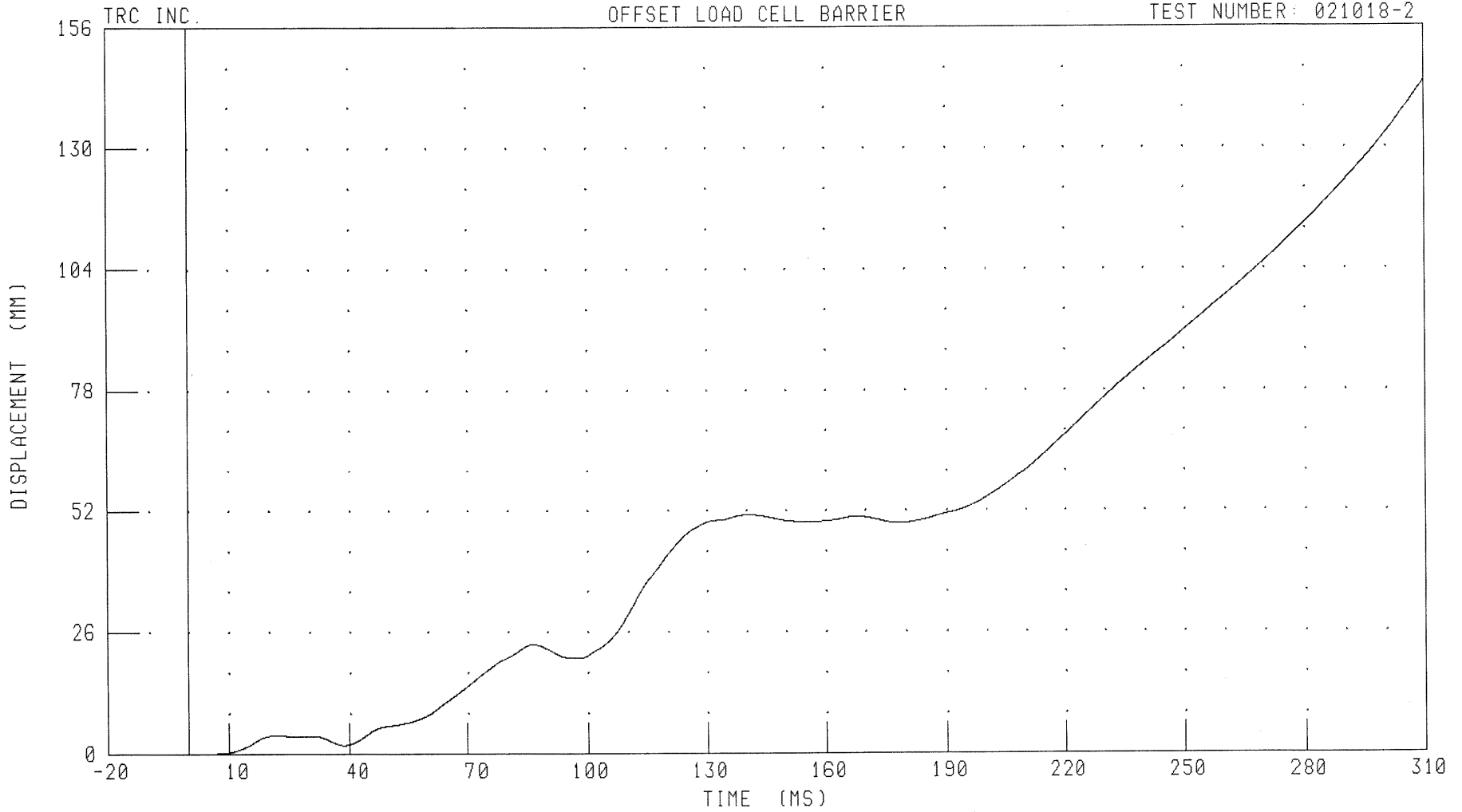
FILTER: CH. CLASS 180

PEAK DATA: 6.00 KM/H @ 112.00 MS; -1.87 KM/H @ 91.76 MS

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: VCGZD1

FILTER: CH. CLASS 100

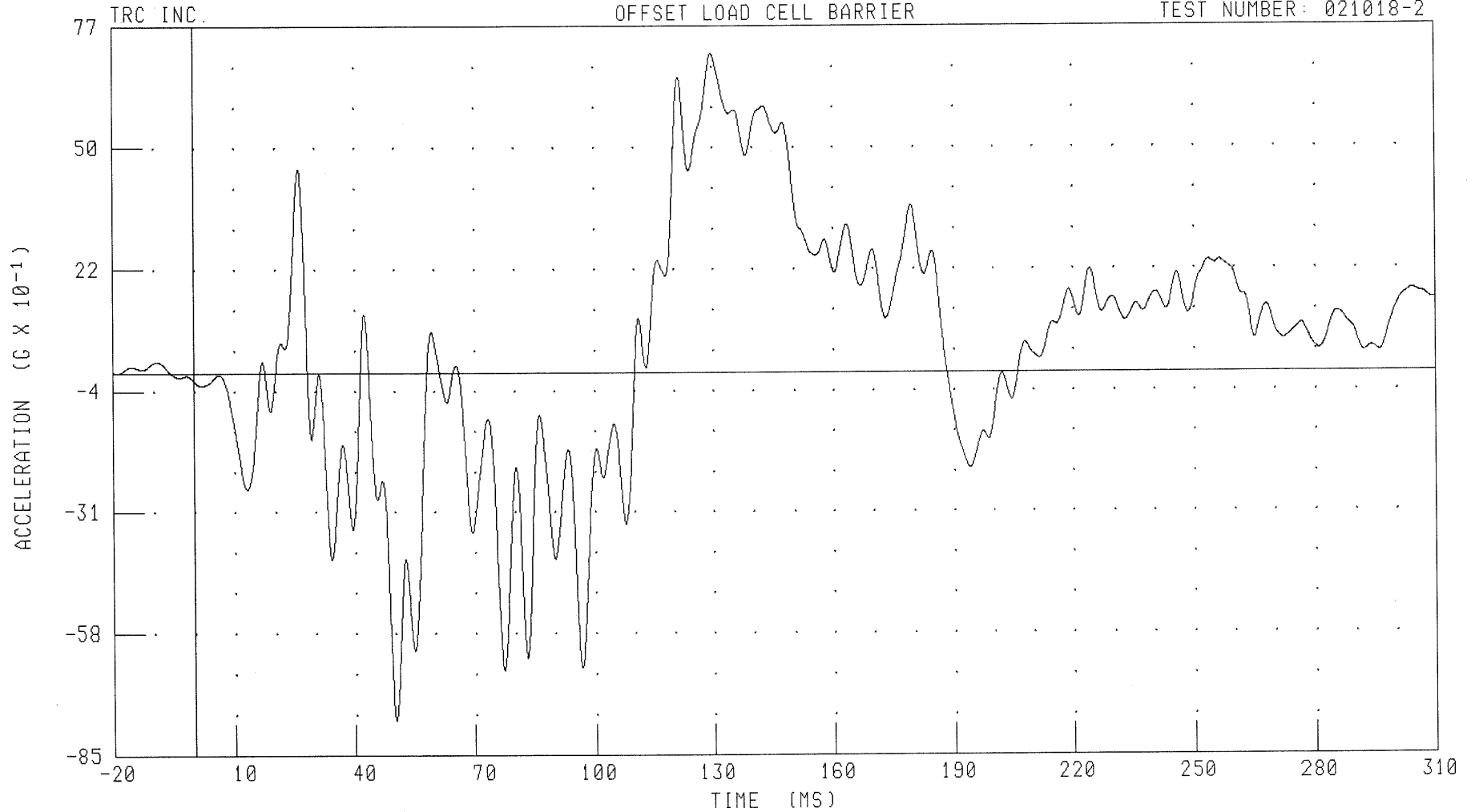
PEAK DATA: 144.36 MM @ 310.00 MS; 0.00 MM @ 0.00 MS

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: 021018-2



CHANNEL: RDKZG1

FILTER: CH. CLASS 60

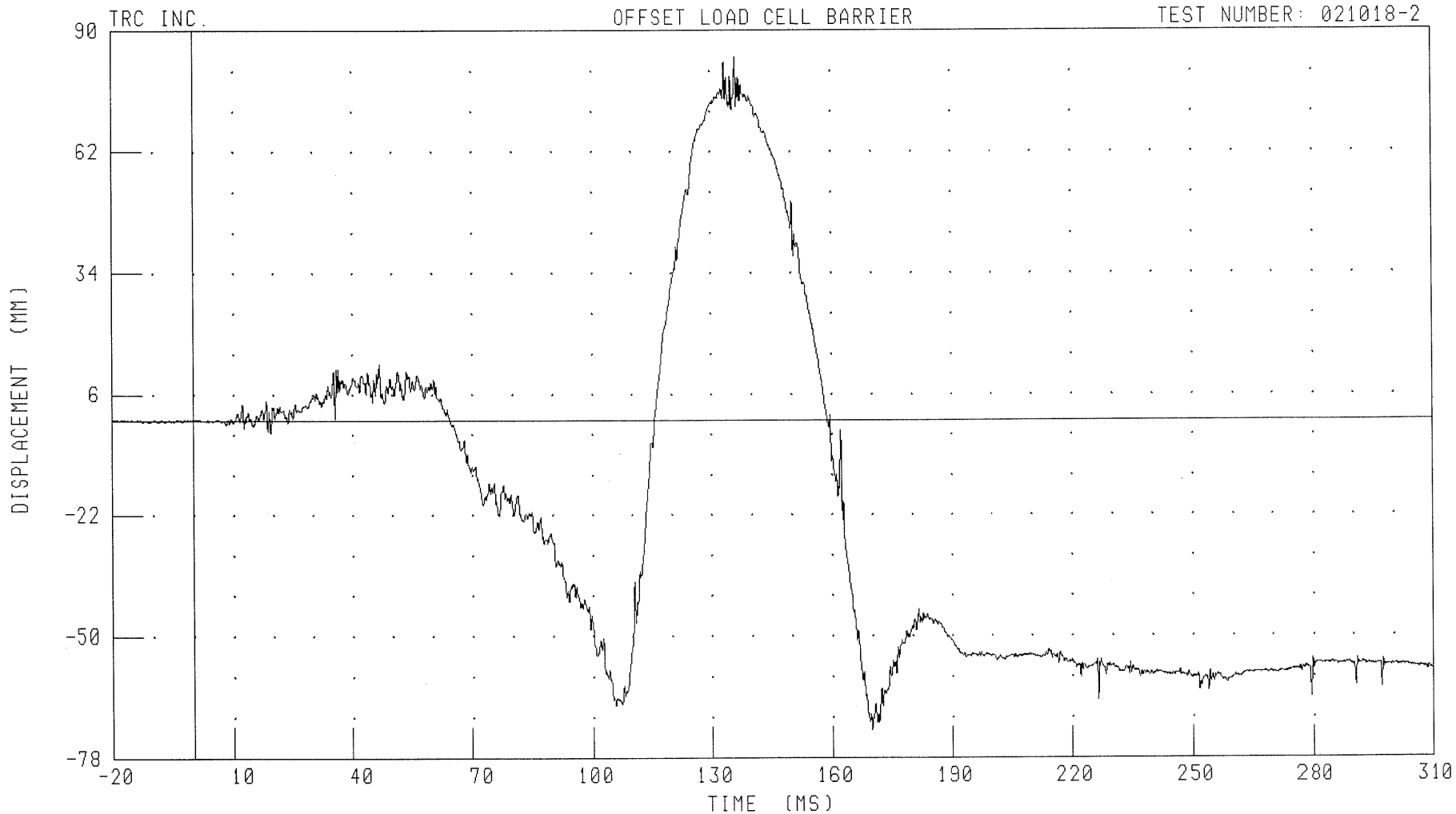
PEAK DATA: 7.09 G @ 129.92 MS; -7.72 G @ 50.16 MS

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: 021018-2



CHANNEL: TPOXD1 FILTER: CH. CLASS 1000

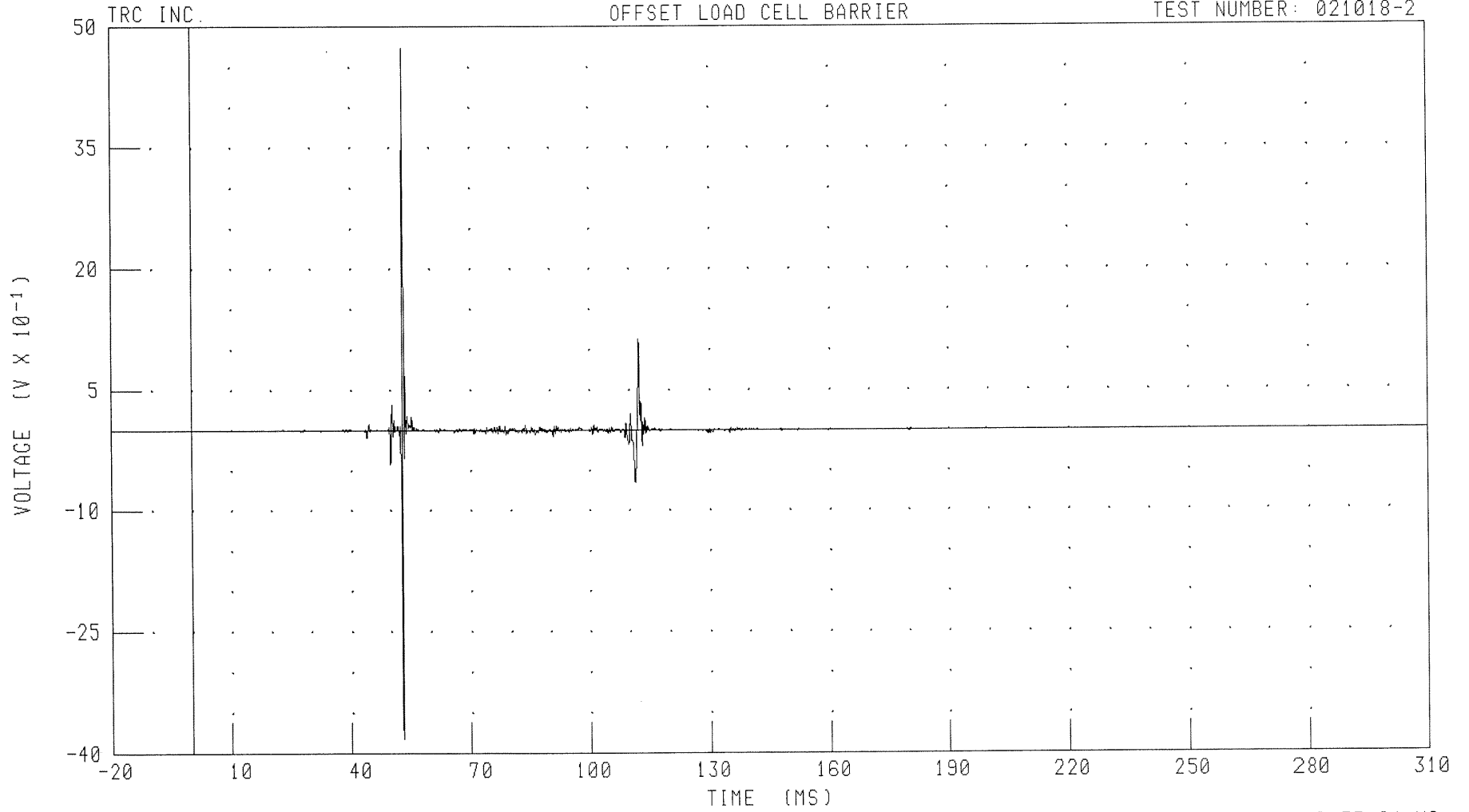
PEAK DATA: 83.78 MM @ 136.40 MS; -71.53 MM @ 169.76 MS

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: 021018-2



CHANNEL: DABETA FILTER: CH. CLASS 1000

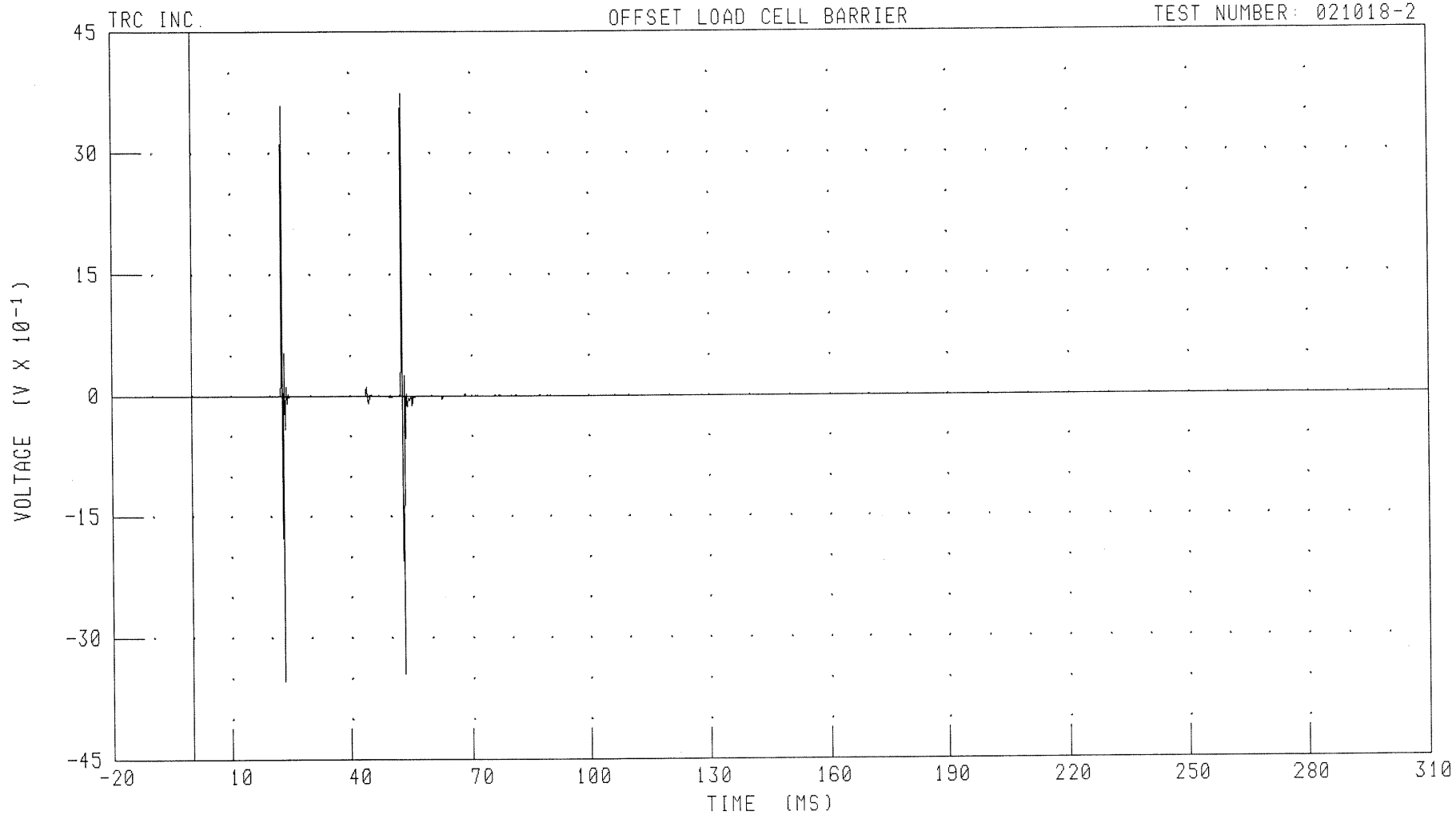
PEAK DATA: 4.74 V @ 53.36 MS; -3.82 V @ 53.04 MS

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

DRIVER AIRBAG EVENT - WIRE B

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: DABETB FILTER: CH. CLASS 1000

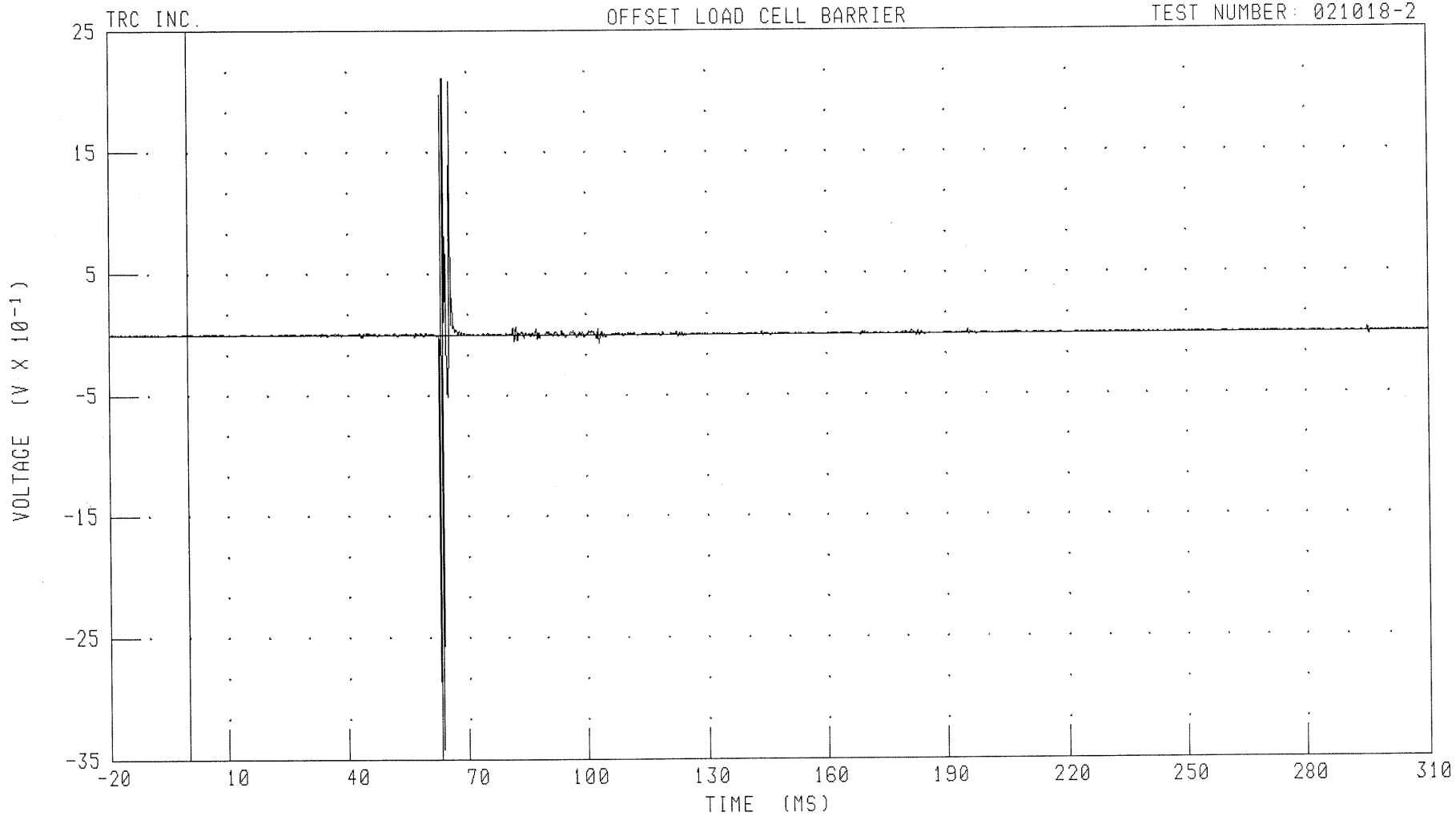
PEAK DATA: 3.74 V @ 53.04 MS; -3.54 V @ 23.36 MS

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: 021018-2



CHANNEL: PABETA FILTER: CH. CLASS 1000

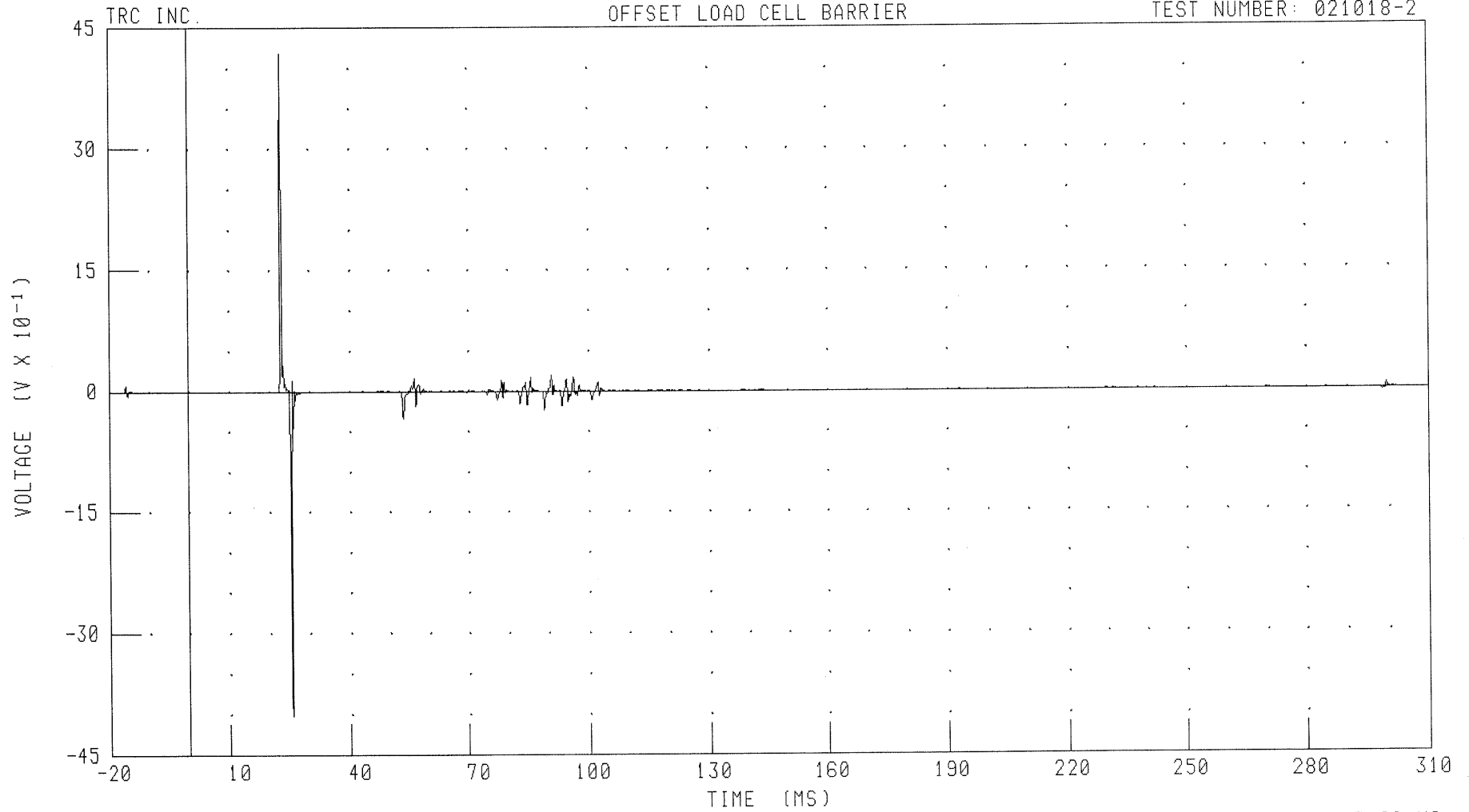
PEAK DATA: 2.11 V @ 63.92 MS; -3.50 V @ 62.96 MS

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: 021018-2



CHANNEL: PABETB FILTER: CH. CLASS 1000

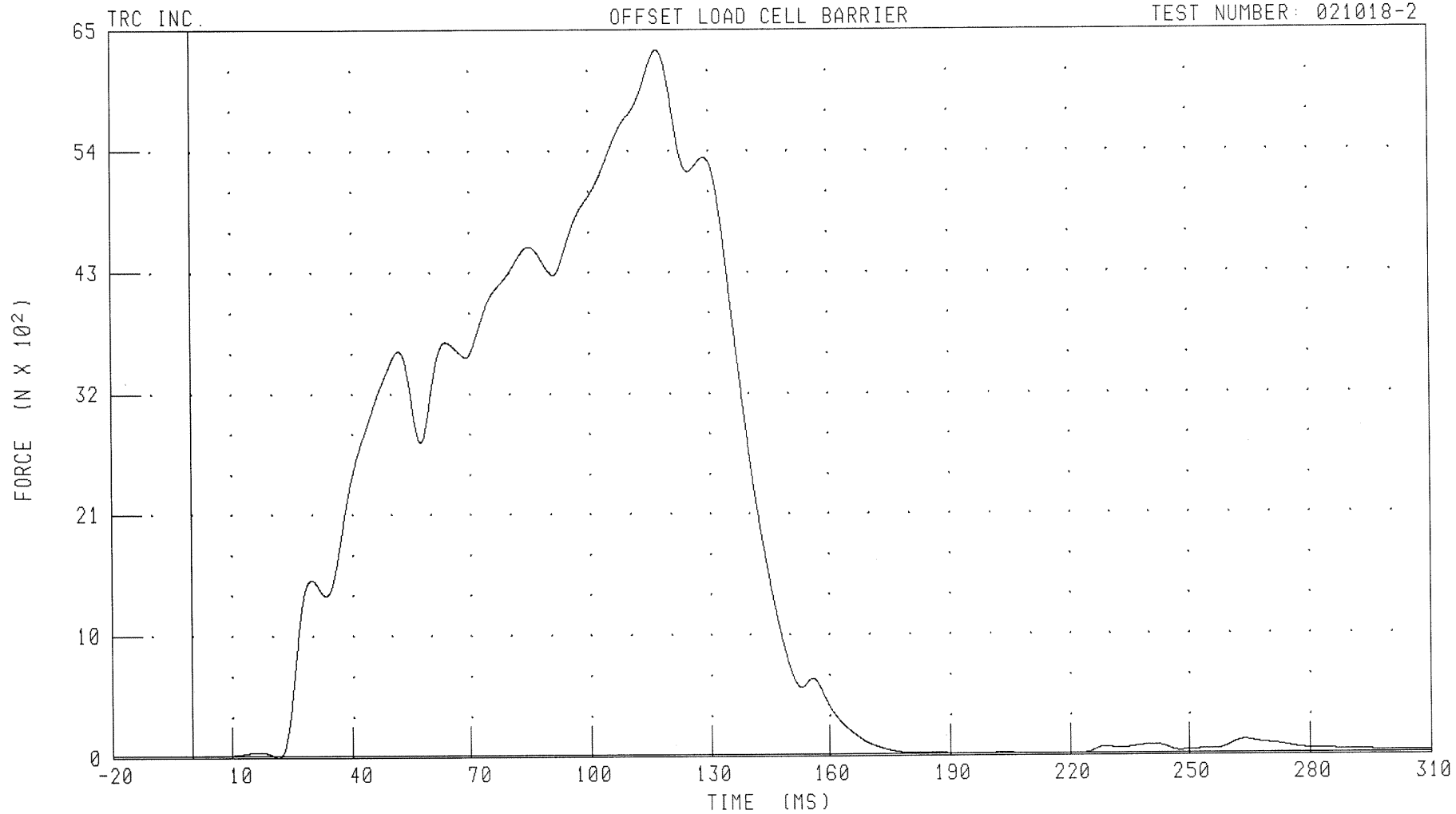
PEAK DATA: 4.19 V @ 23.12 MS; -4.02 V @ 25.60 MS

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

DRIVER SHOULDER BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: SHBF1

FILTER: CH. CLASS 60

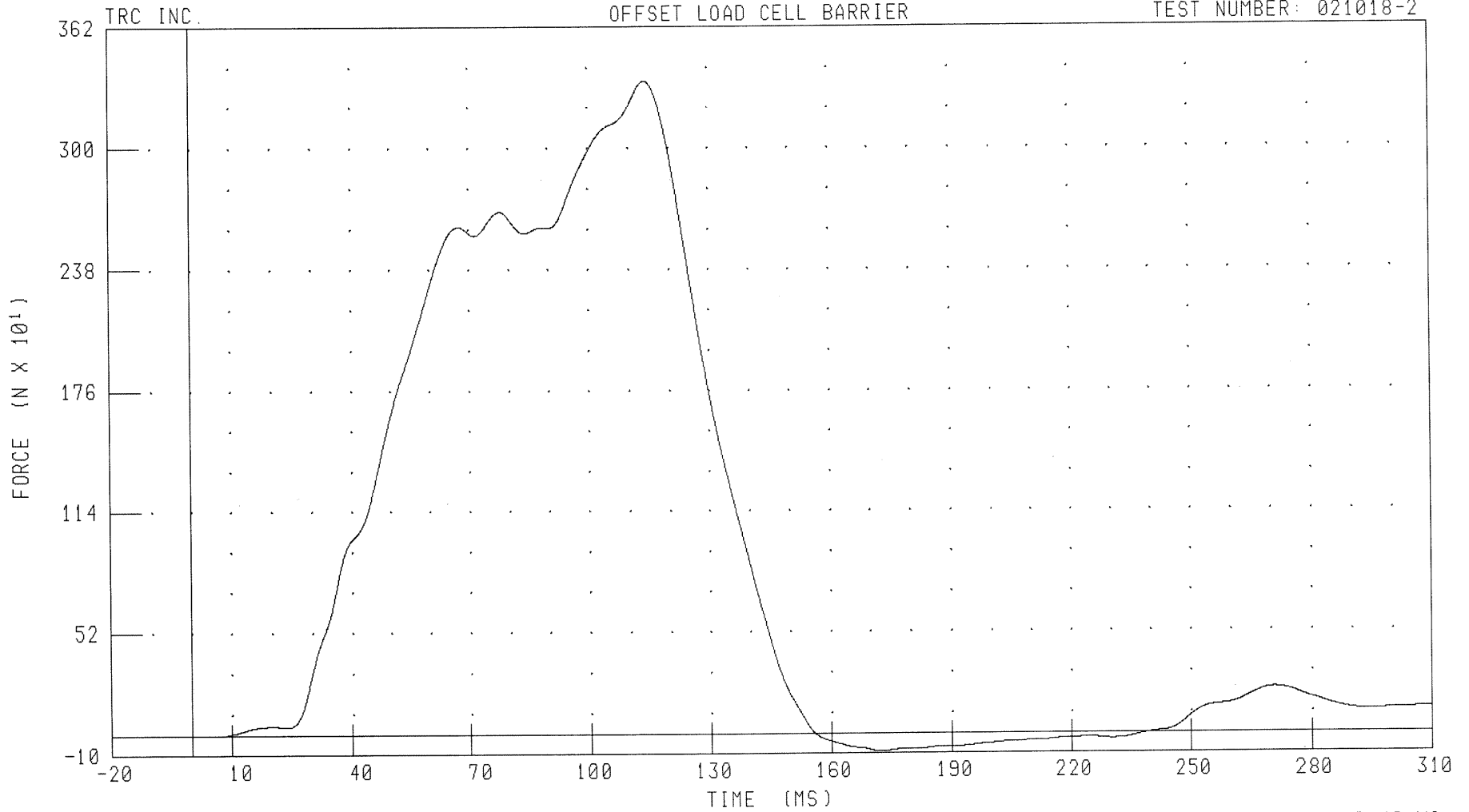
PEAK DATA: 6397.58 N @ 117.28 MS; -16.56 N @ 21.44 MS

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

DRIVER LAP BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LPBF1

FILTER: CH. CLASS 60

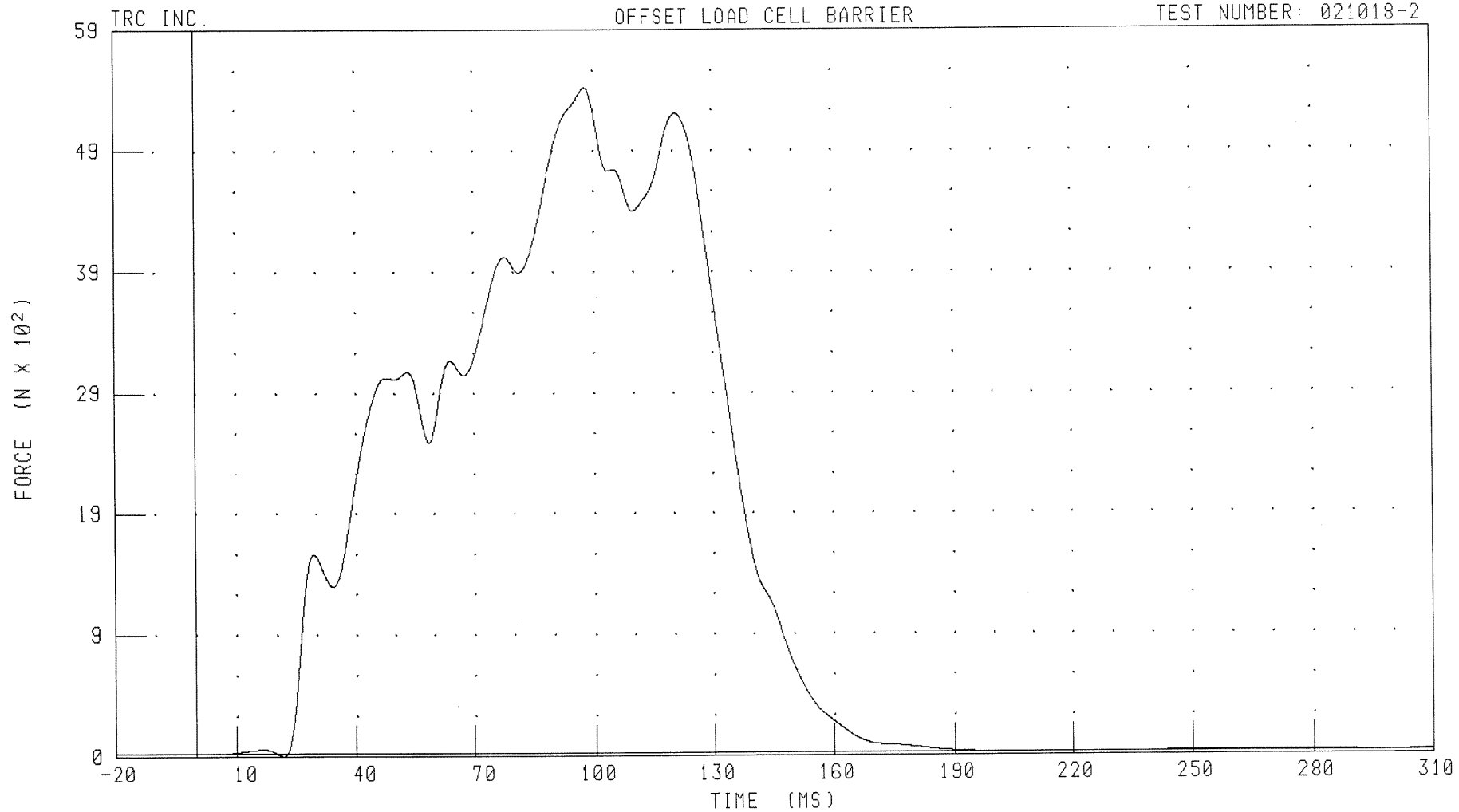
PEAK DATA: 3342.88 N @ 114.24 MS; -92.33 N @ 172.48 MS

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

PASSENGER SHOULDER BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: SHBF2

FILTER: CH. CLASS 60

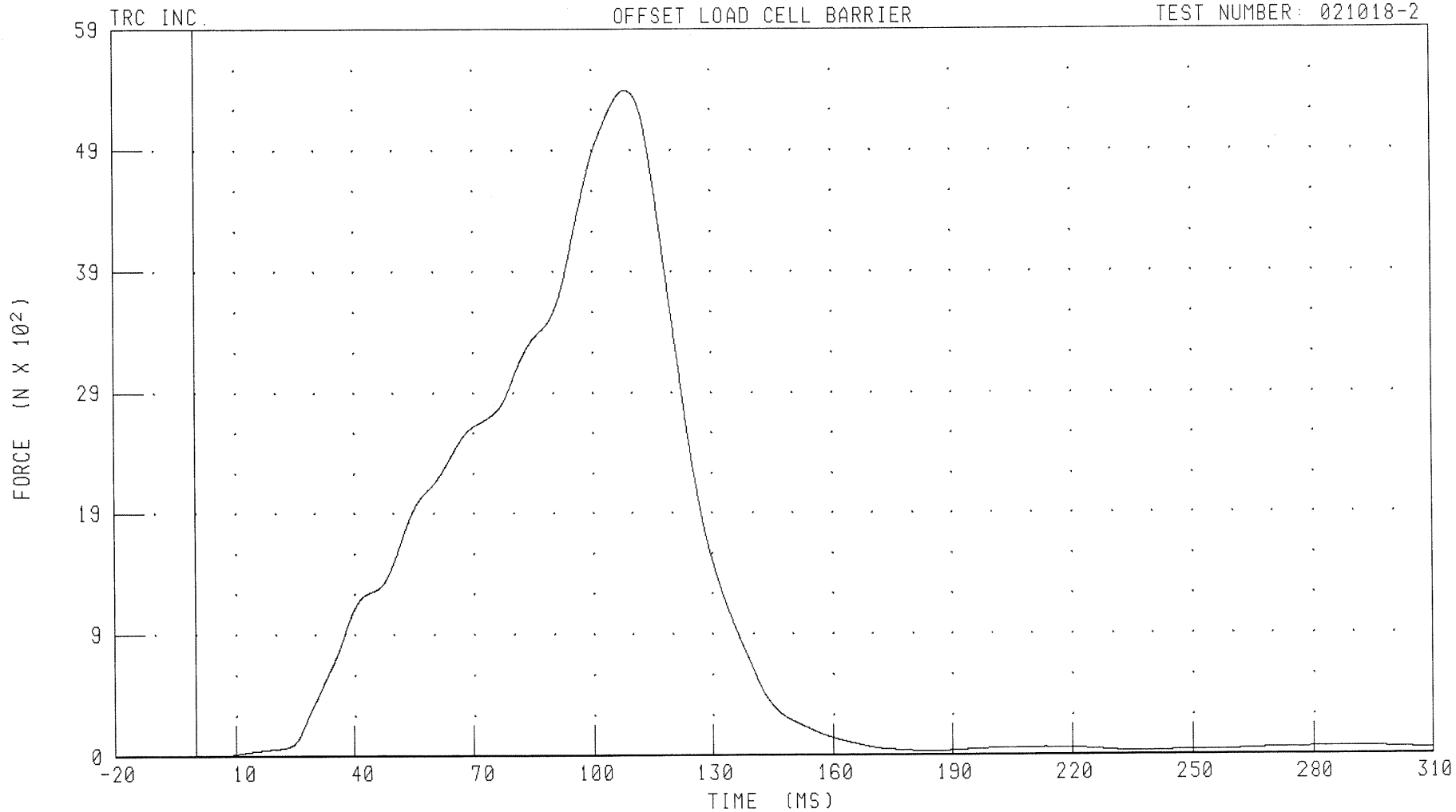
PEAK DATA: 5498.79 N @ 98.08 MS; -23.19 N @ 21.52 MS

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

PASSENGER LAP BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LPBF2

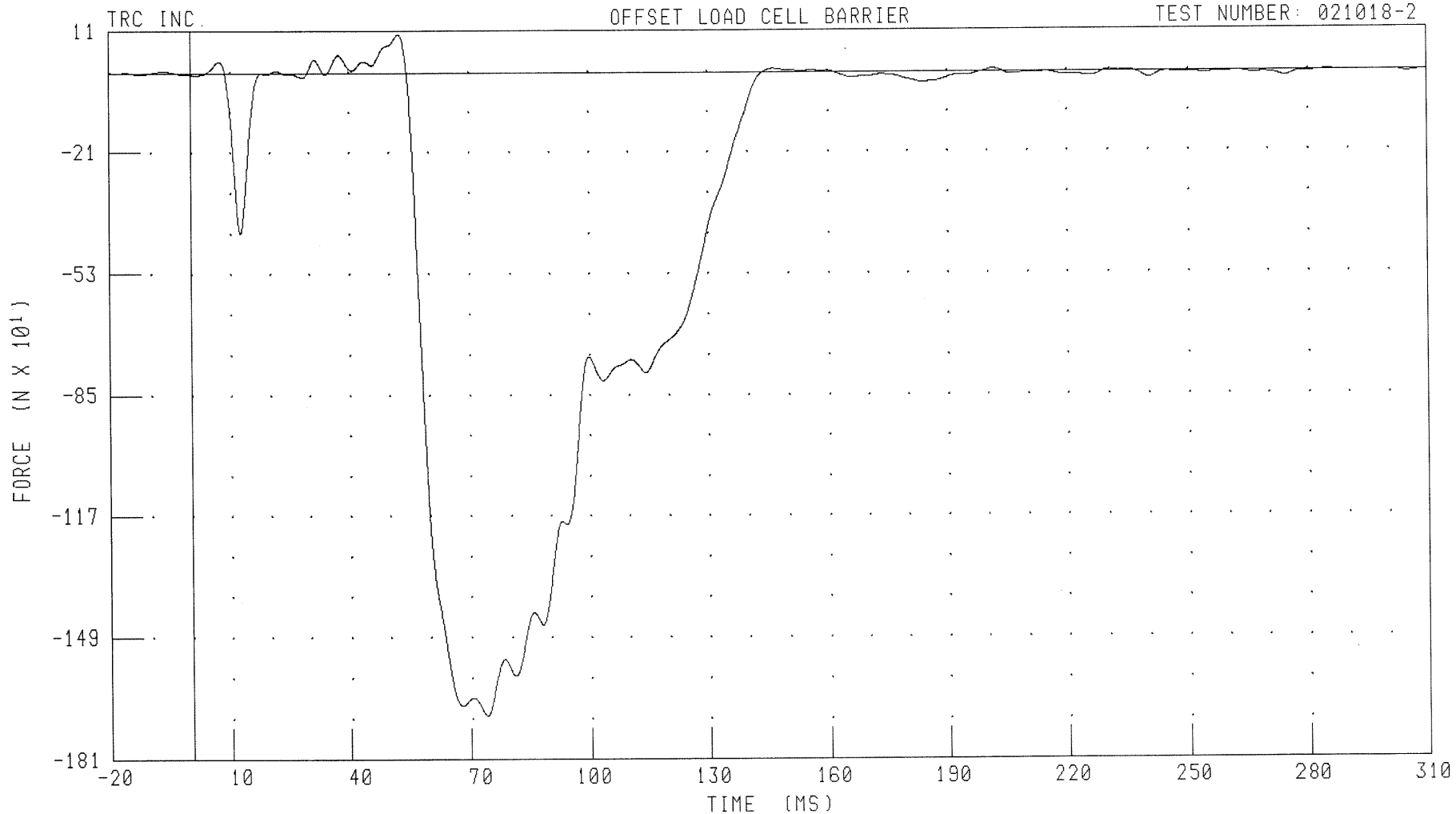
FILTER: CH. CLASS 60

PEAK DATA: 5492.32 N @ 108.64 MS; -3.81 N @ -3.68 MS

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

BARRIER LOAD CELL A1 X-AXIS FORCE

TEST NUMBER: 021018-2



CHANNEL: LCA1XF FILTER: CH. CLASS 60

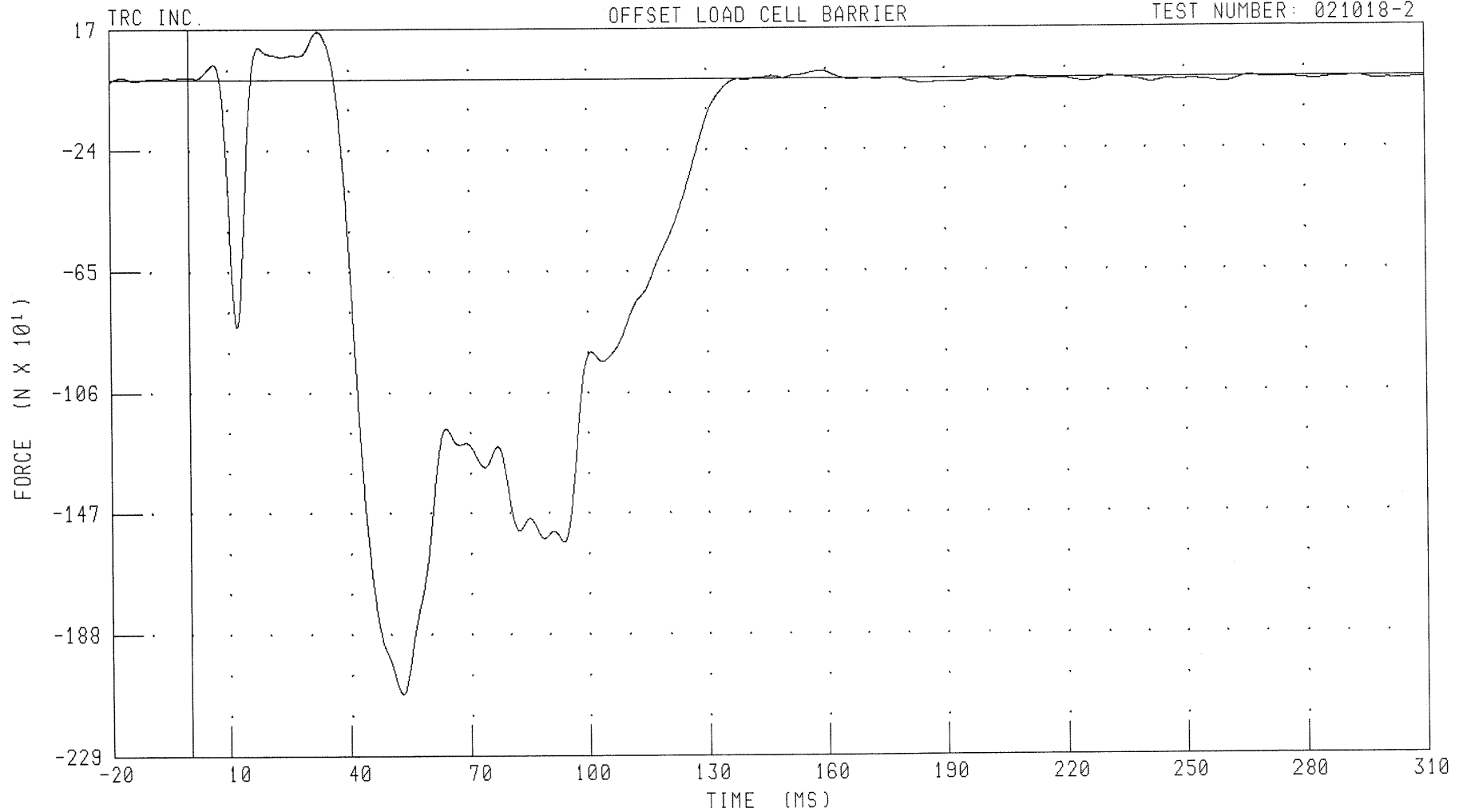
PEAK DATA: 100.18 N @ 52.80 MS; -1696.87 N @ 73.92 MS

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: 021018-2



CHANNEL: LCA2XF FILTER: CH. CLASS 60

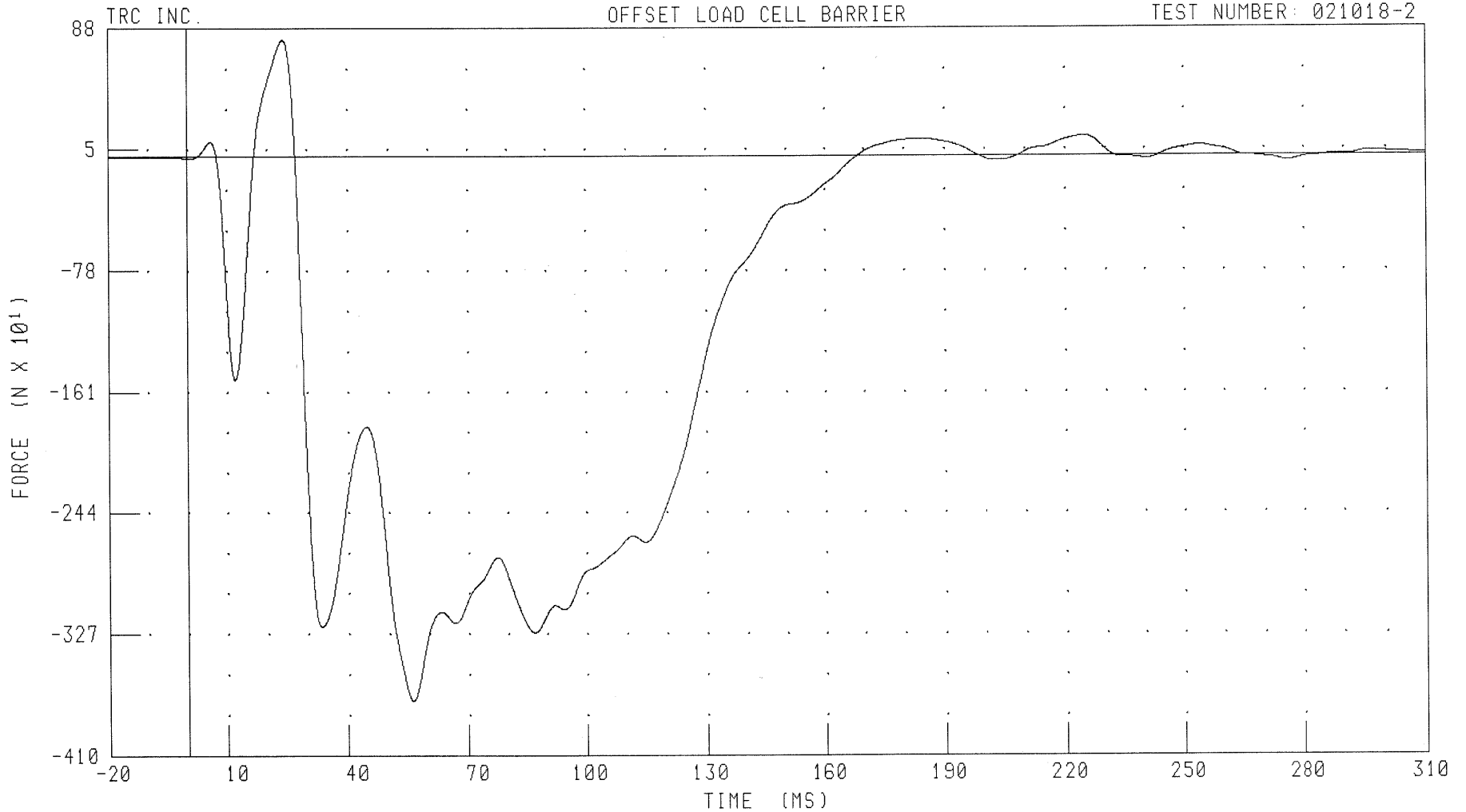
PEAK DATA: 162.38 N @ 32.48 MS; -2081.73 N @ 53.04 MS

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: 021018-2



CHANNEL: LCA3XF FILTER: CH. CLASS 60

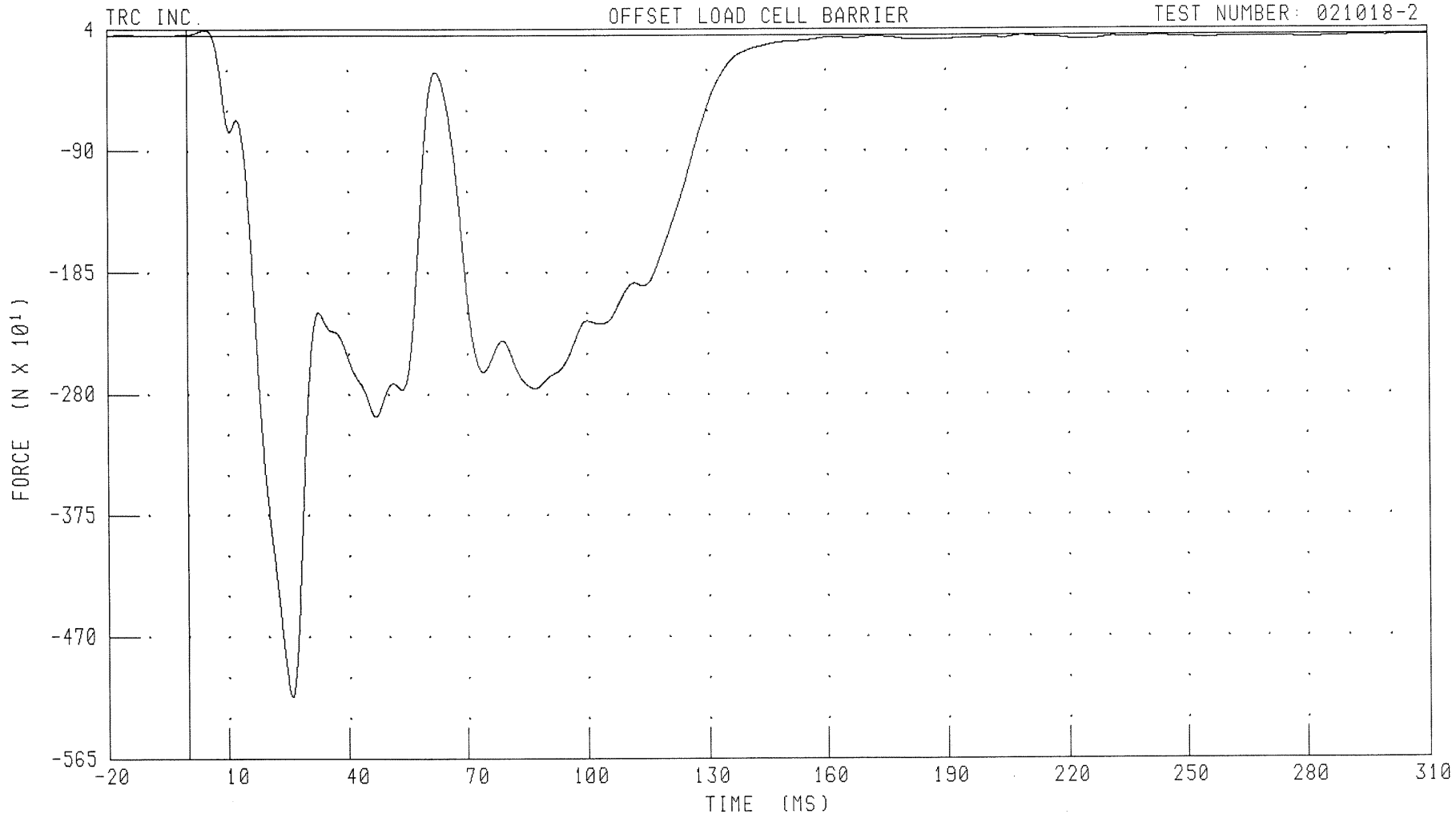
PEAK DATA: 802.44 N @ 24.08 MS; -3728.37 N @ 55.92 MS

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: 021018-2



CHANNEL: LCA4XF FILTER: CH. CLASS 60

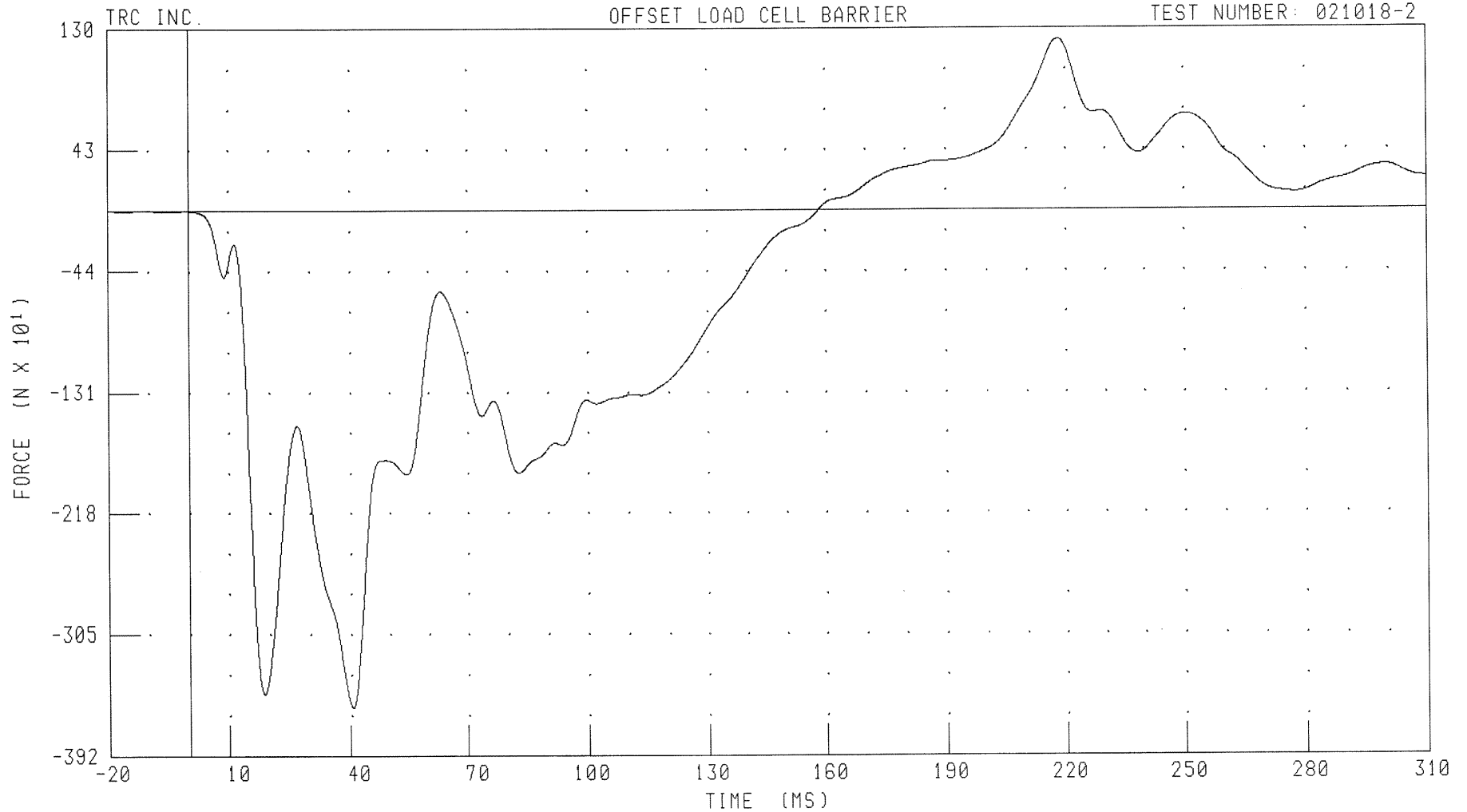
PEAK DATA: 39.95 N @ 4.56 MS; -5174.90 N @ 25.92 MS

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: 021018-2



CHANNEL: LCA5XF FILTER: CH. CLASS 60

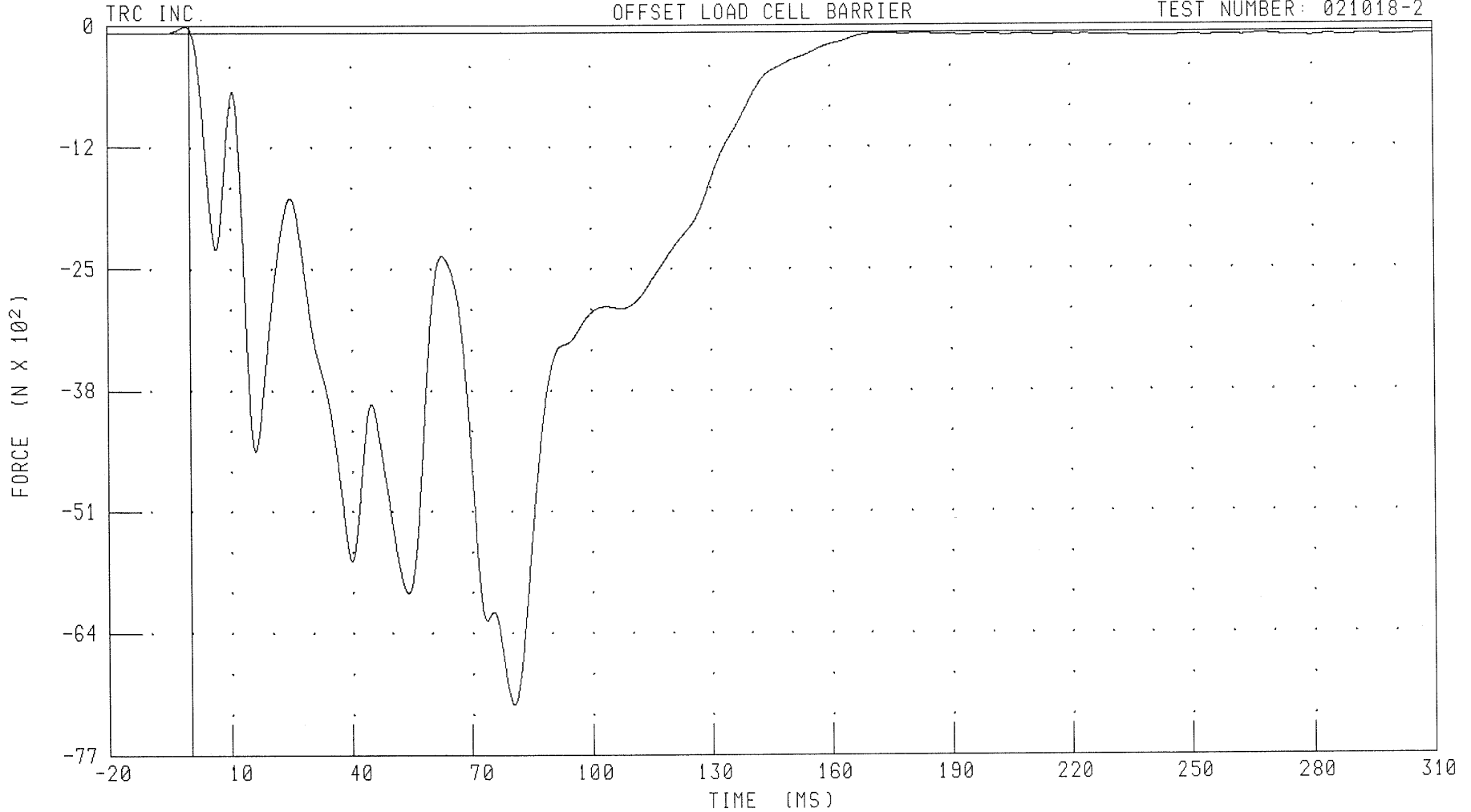
PEAK DATA: 1220.61 N @ 218.32 MS; -3574.38 N @ 40.56 MS

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: 021018-2



CHANNEL: LCA6XF

FILTER: CH. CLASS 60

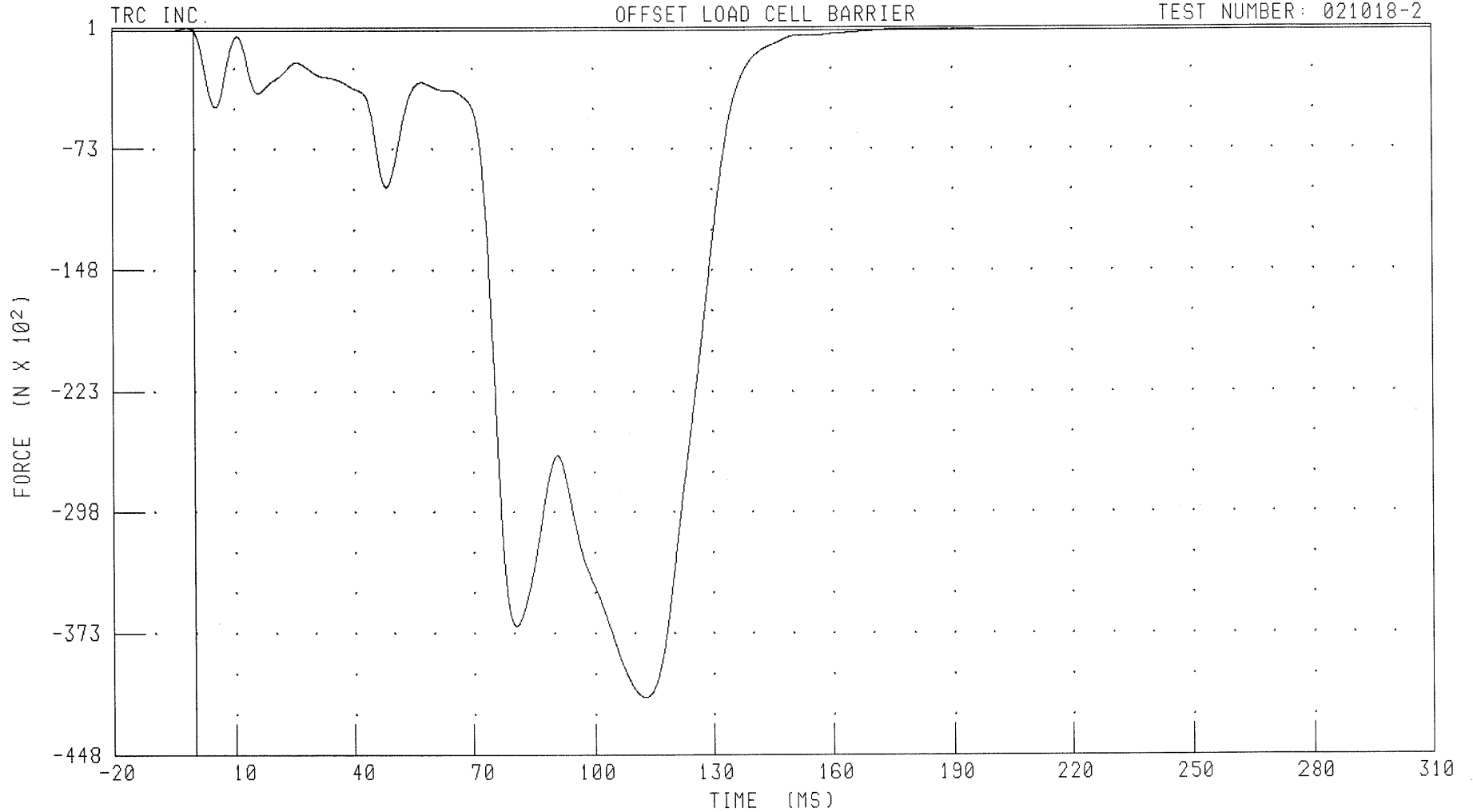
PEAK DATA: 67.29 N @ -0.96 MS; -7187.65 N @ 80.56 MS

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: 021018-2



CHANNEL: LCA7XF

FILTER: CH. CLASS 60

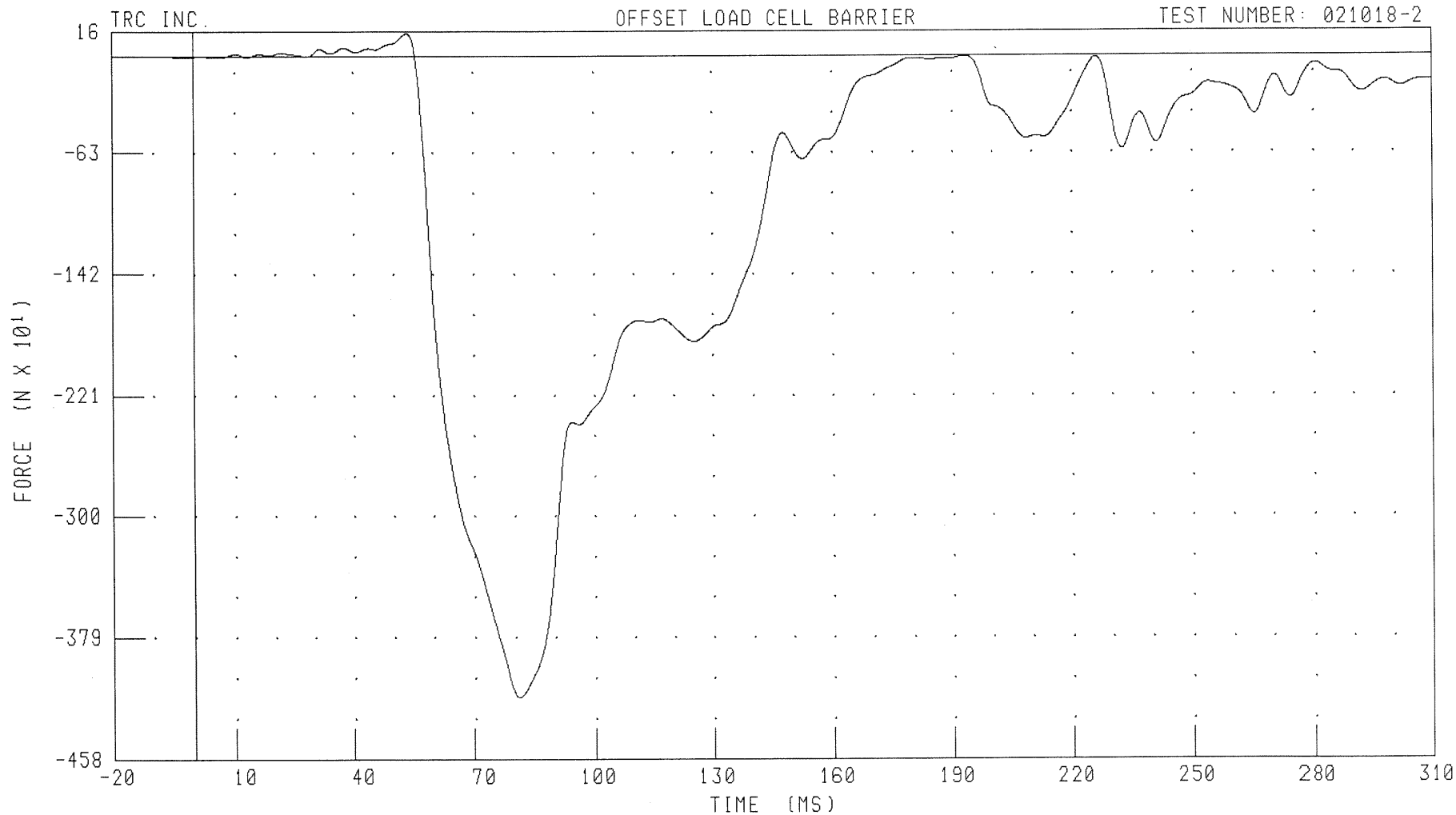
PEAK DATA: 160.46 N @ -1.52 MS; -41283.43 N @ 112.72 MS

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: 021018-2



CHANNEL: LCB1XF FILTER: CH. CLASS 60

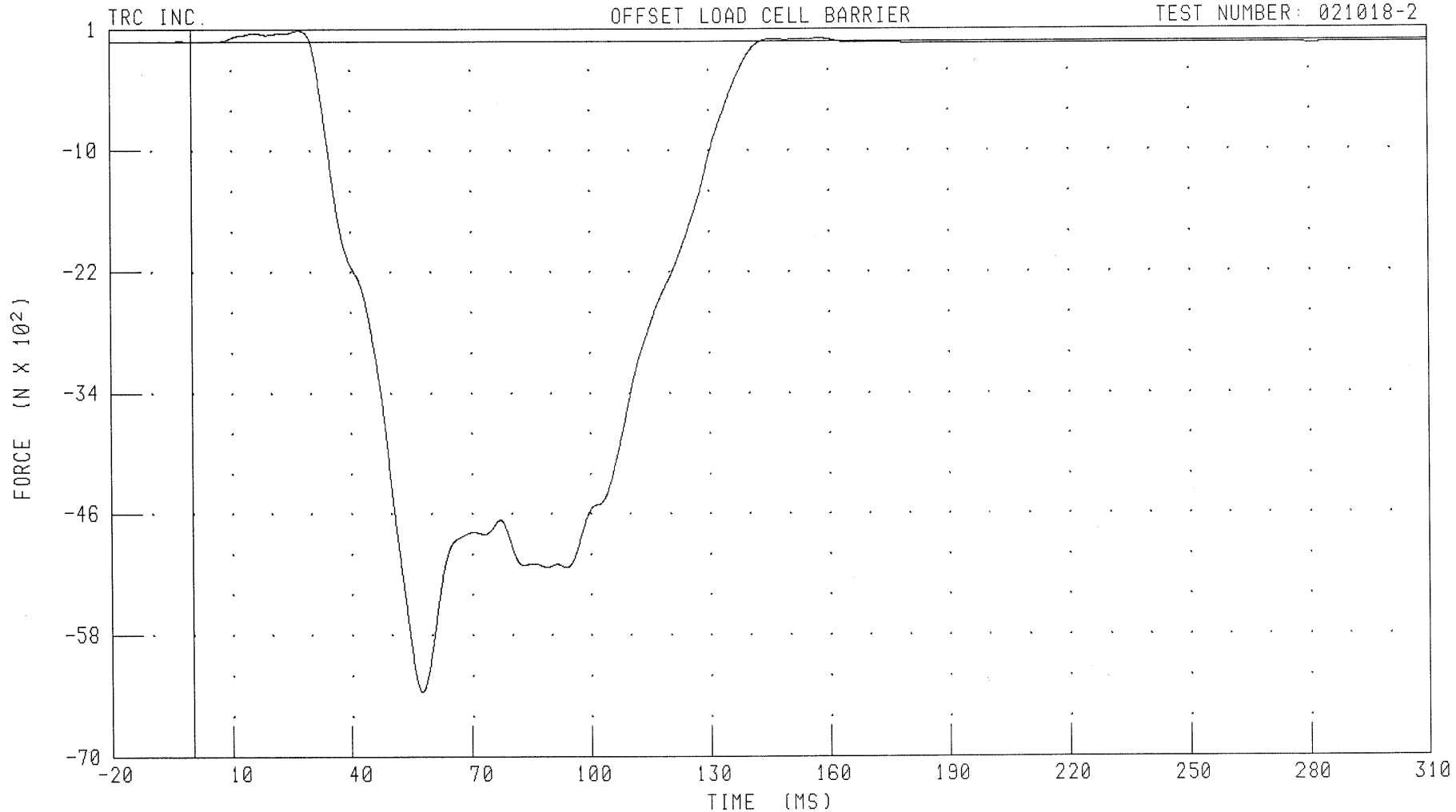
PEAK DATA: 148.74 N @ 53.52 MS; -4179.07 N @ 81.04 MS

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: 021018-2



CHANNEL: LCB2XF

FILTER: CH. CLASS 60

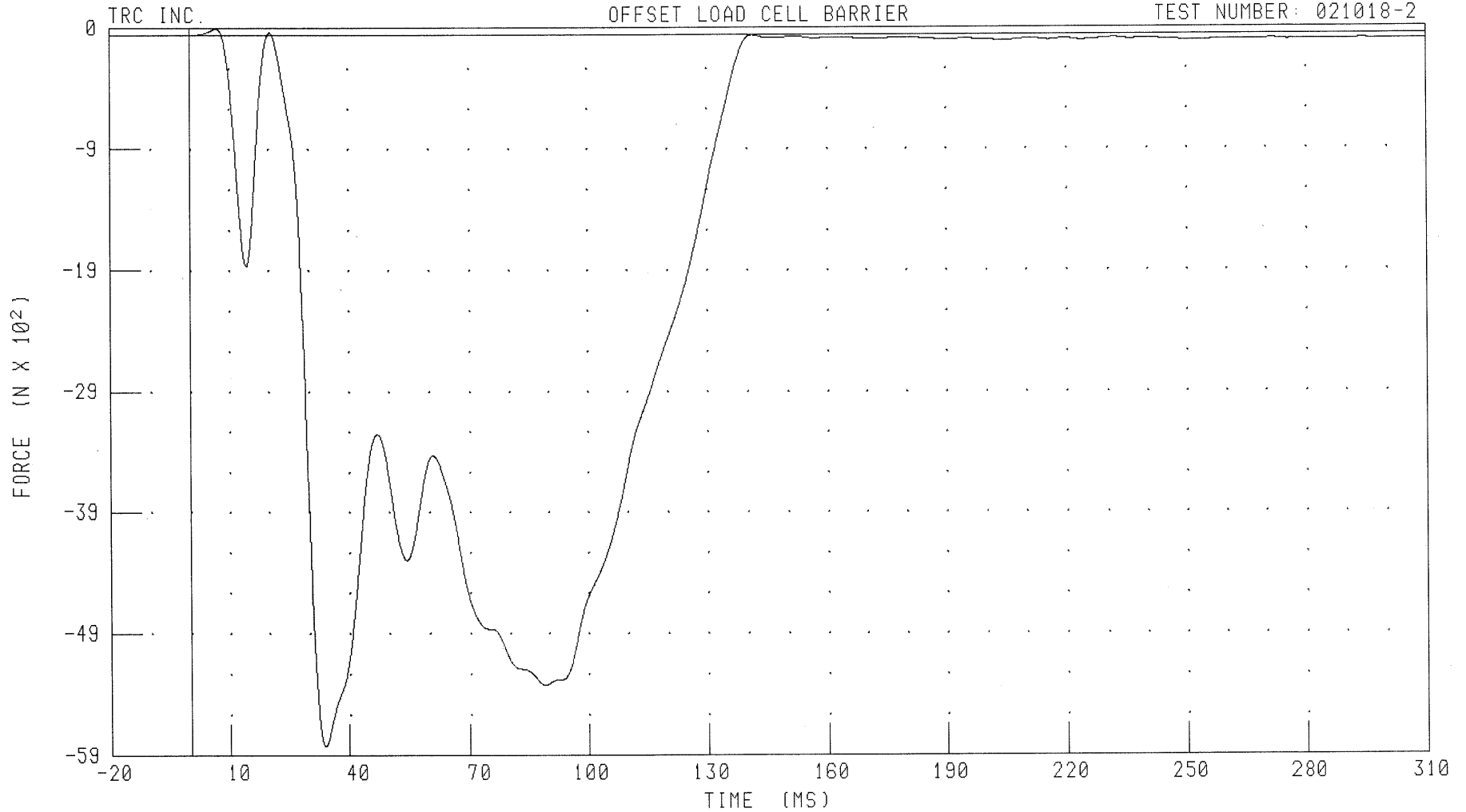
PEAK DATA: 109.20 N @ 27.44 MS; -6441.35 N @ 57.52 MS

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: 021018-2



CHANNEL: LCB3XF FILTER: CH. CLASS 60

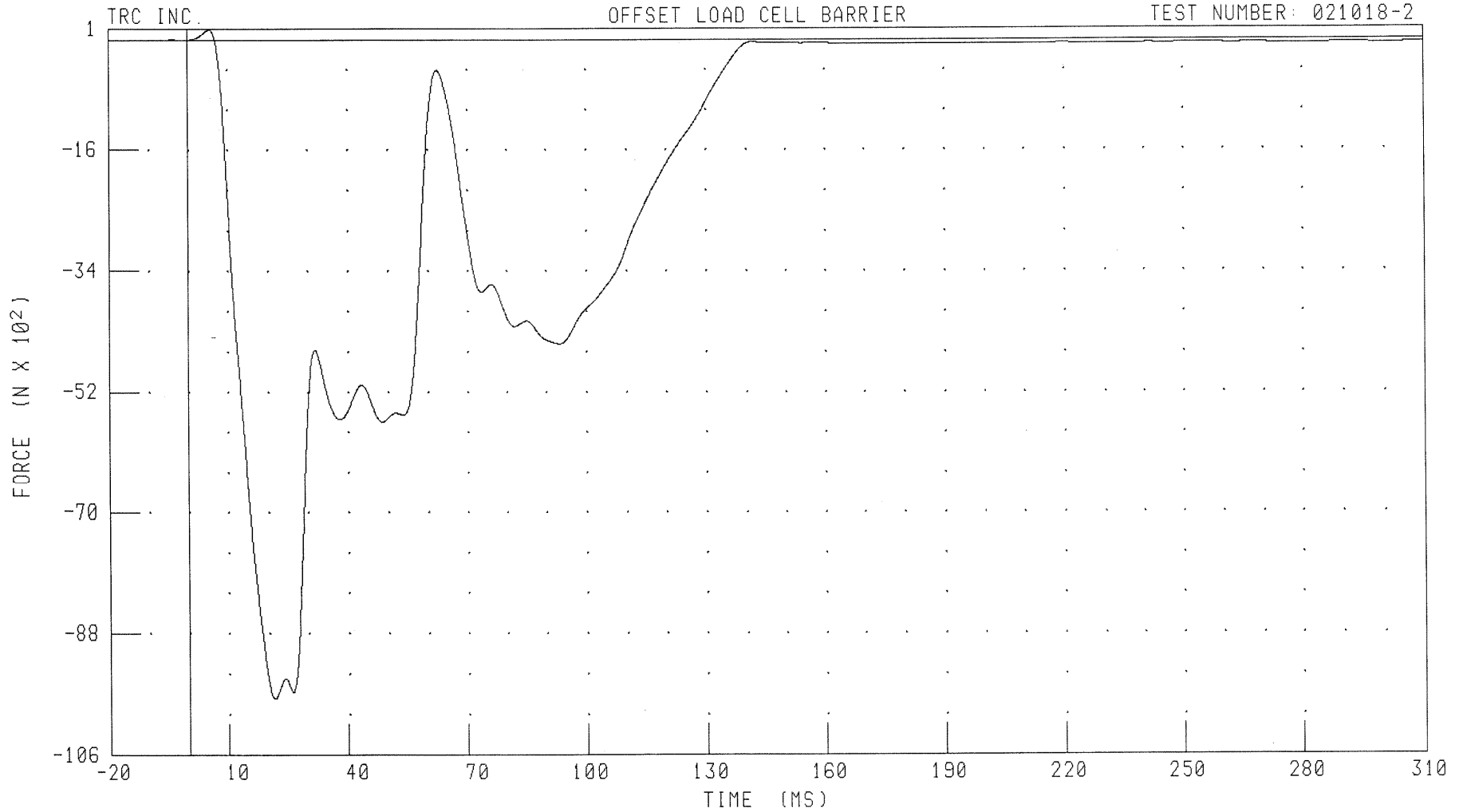
PEAK DATA: 53.22 N @ 6.88 MS; -5870.56 N @ 33.84 MS

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

BARRIER LOAD CELL B4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LCB4XF FILTER: CH. CLASS 60

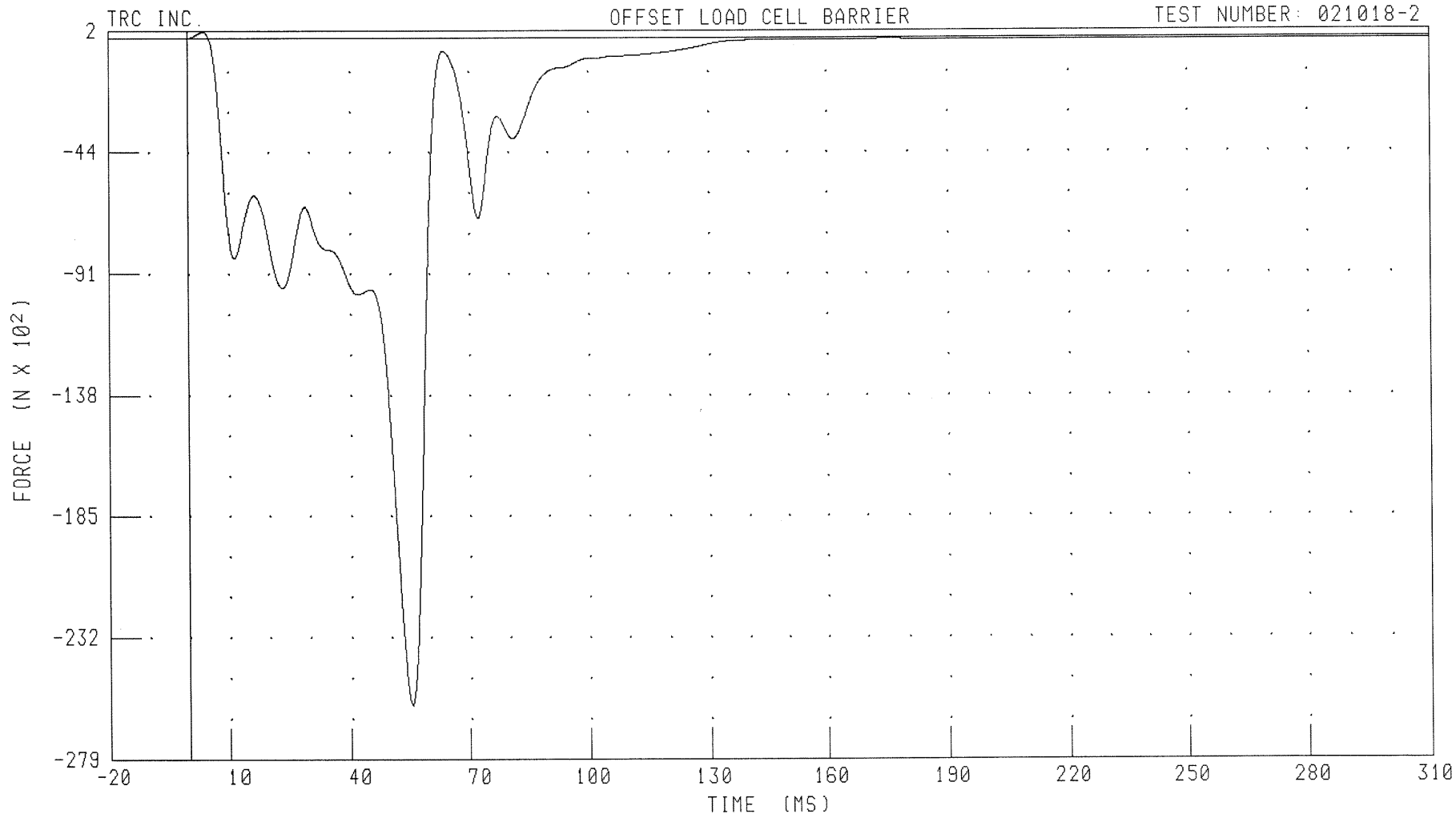
PEAK DATA: 147.15 N @ 5.52 MS; -9810.19 N @ 21.44 MS

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: 021018-2



CHANNEL: LCB5XF

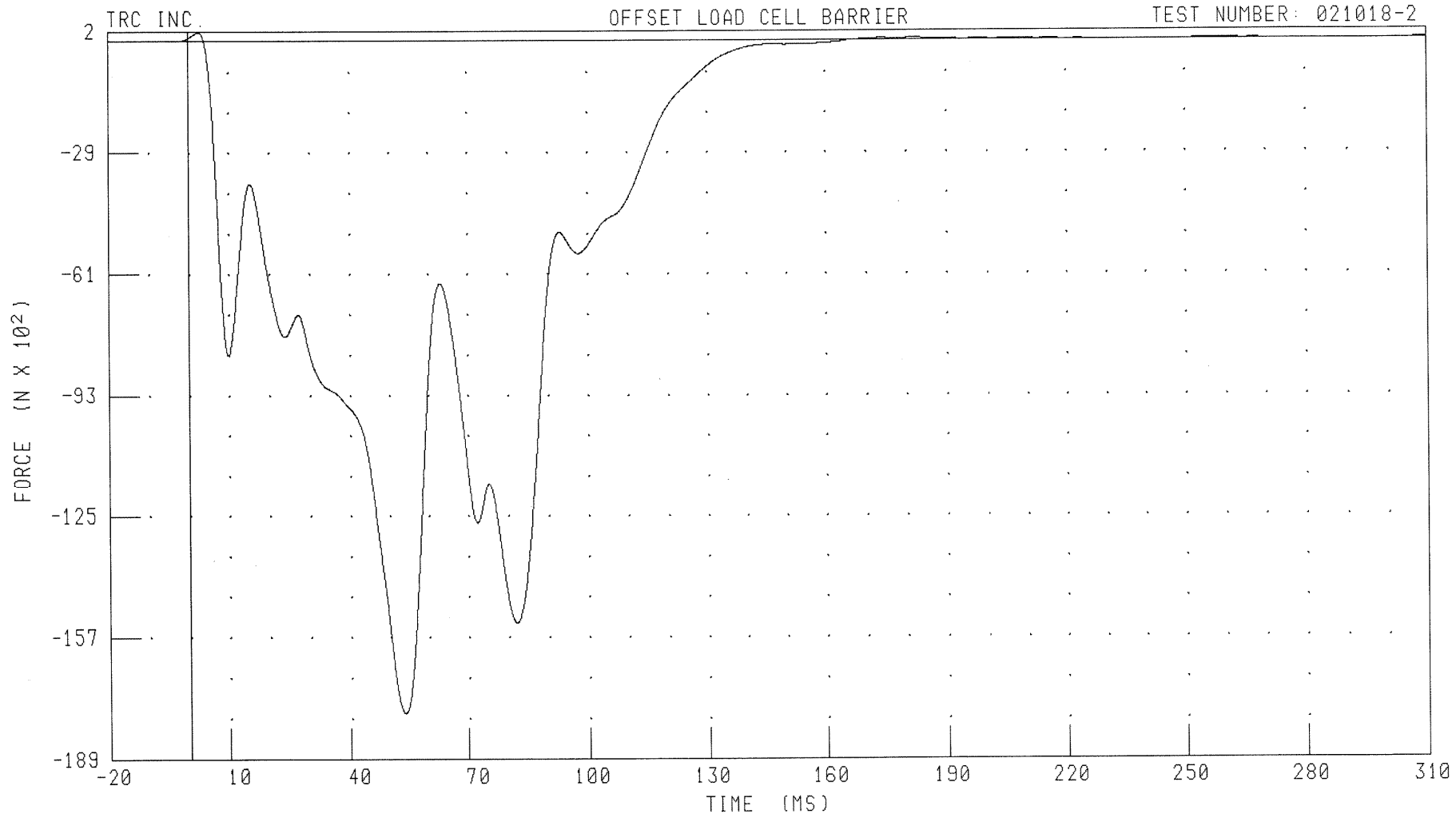
FILTER: CH. CLASS 60

PEAK DATA: 258.00 N @ 3.92 MS; -25840.93 N @ 55.28 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: 021018-2



CHANNEL: LCB6XF

FILTER: CH. CLASS 60

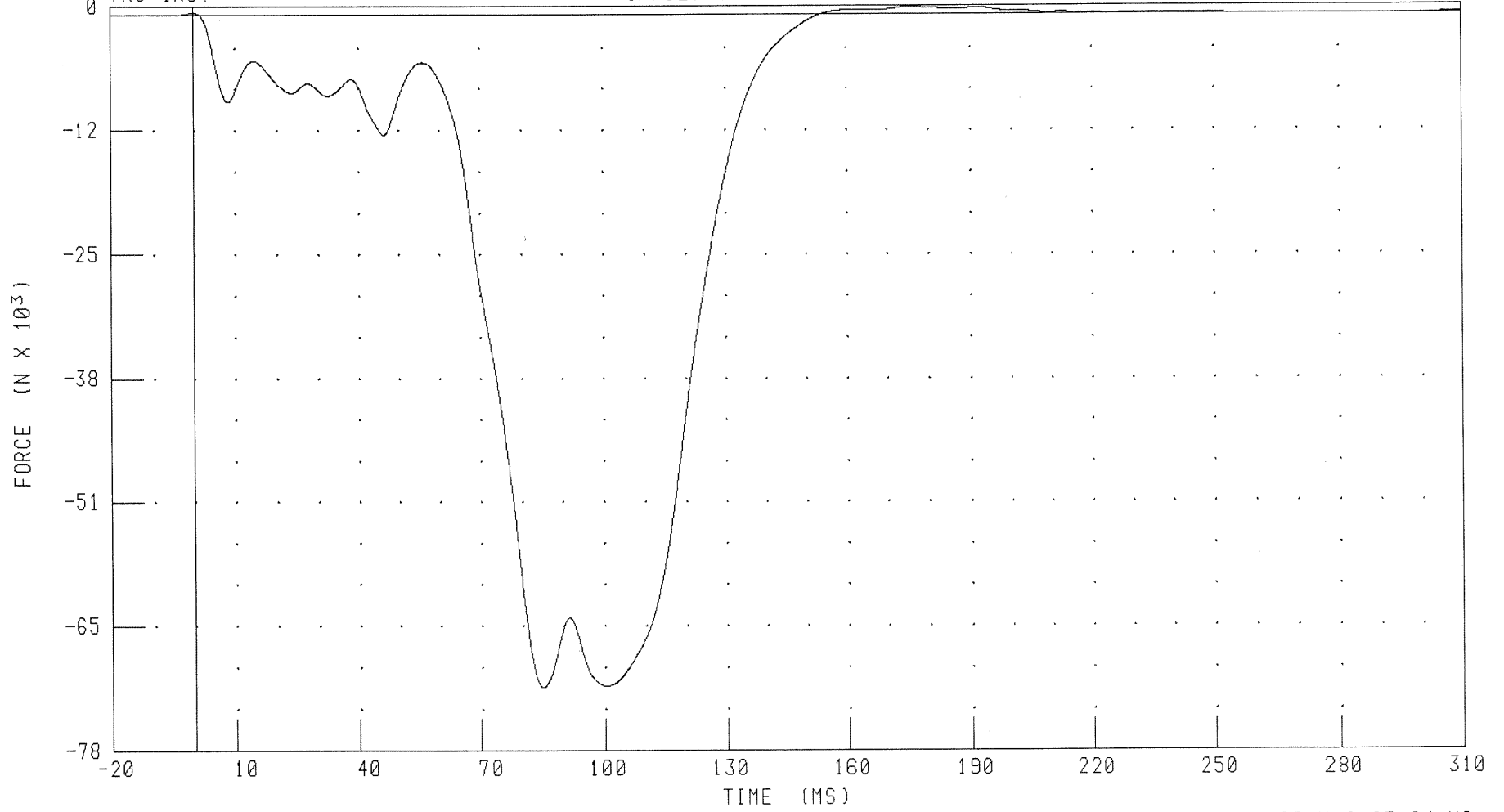
PEAK DATA: 221.87 N @ 2.48 MS; -17760.96 N @ 53.84 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
BARRIER LOAD CELL B7 X-AXIS FORCE

TRC INC.

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LCB7XF FILTER: CH. CLASS 60

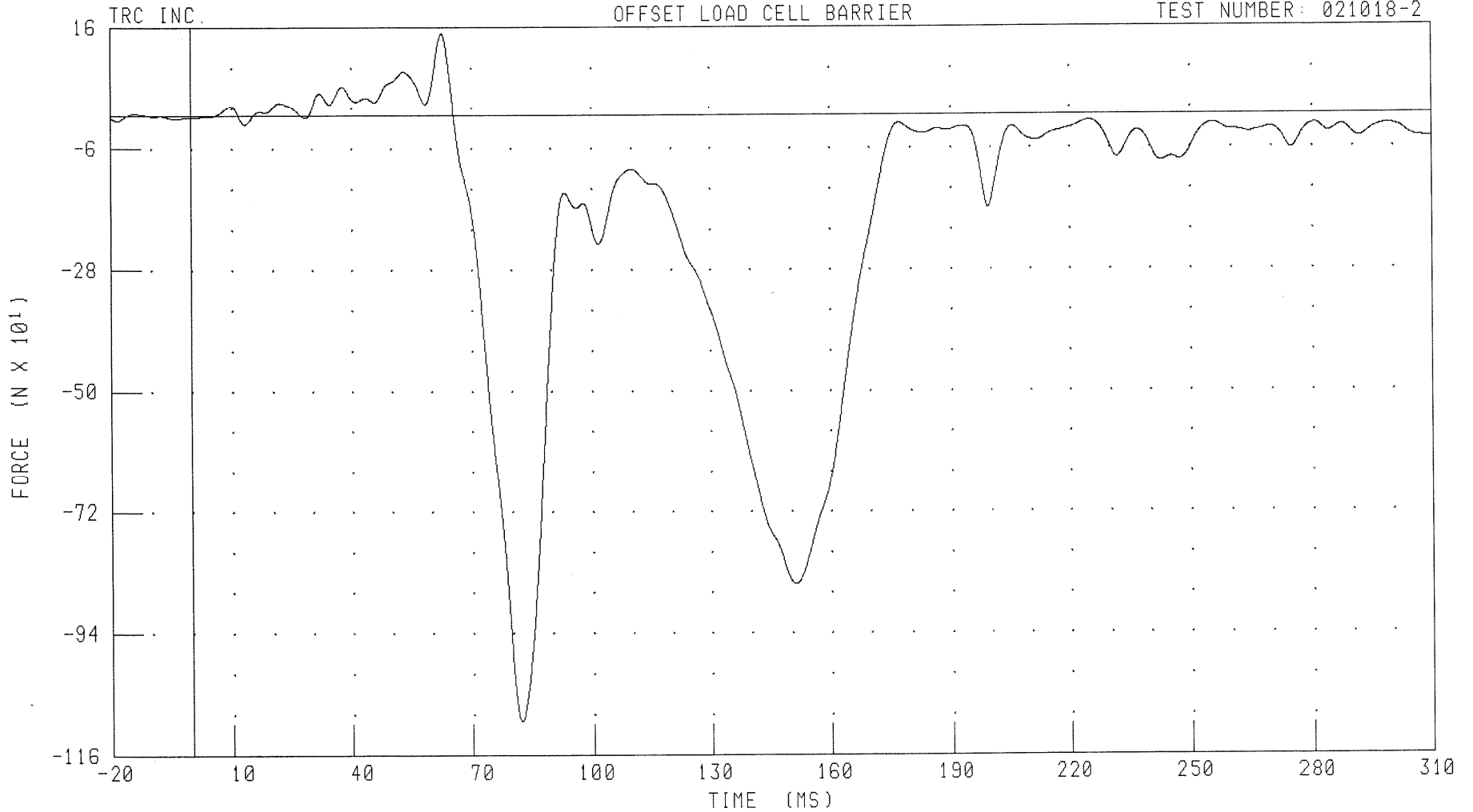
PEAK DATA: 785.06 N @ 175.84 MS; -71684.68 N @ 85.04 MS

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: 021018-2



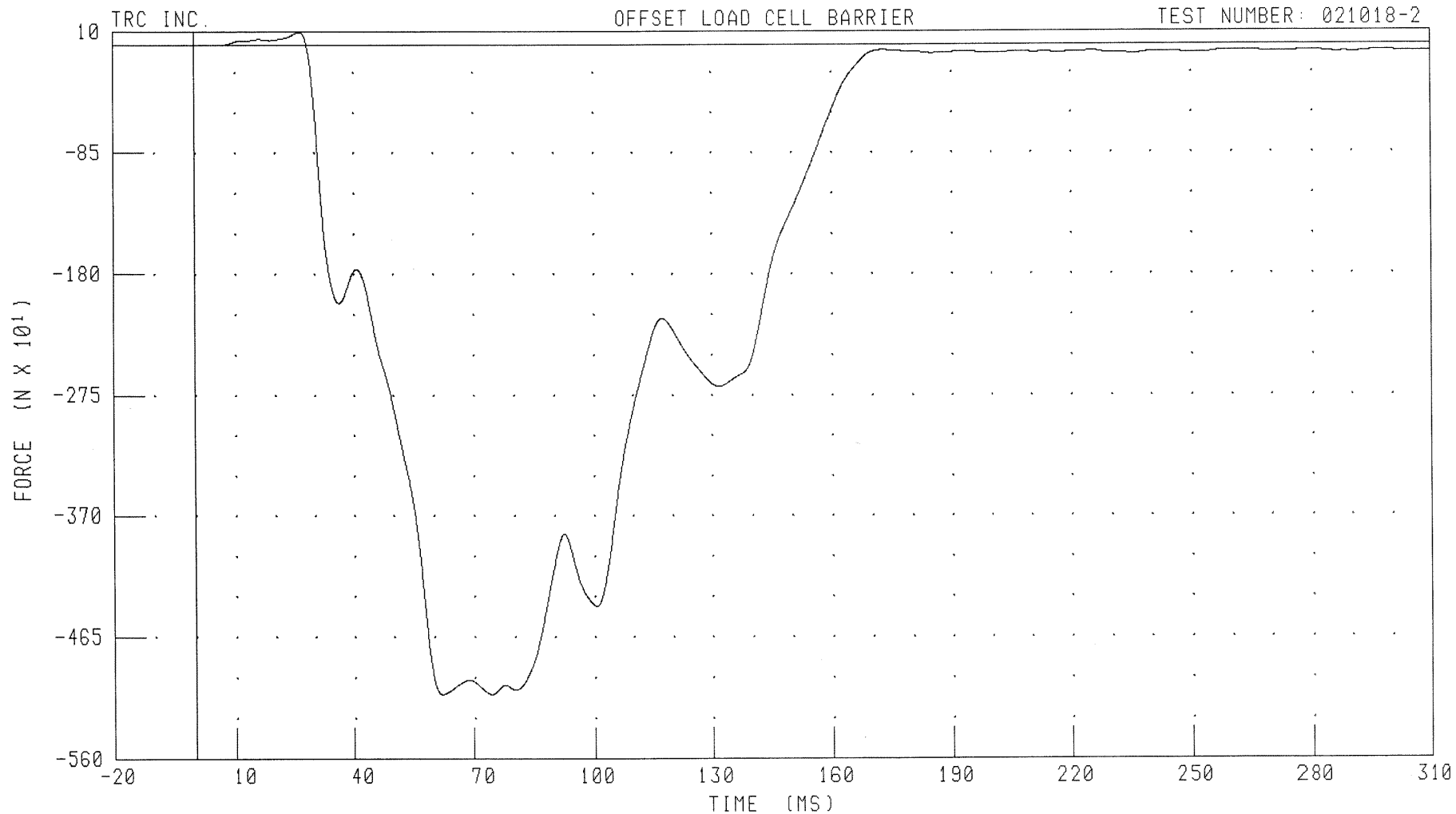
CHANNEL: LCC1XF FILTER: CH. CLASS 60

PEAK DATA: 148.49 N @ 62.88 MS; -1099.02 N @ 82.32 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: 021018-2



CHANNEL: LCC2XF

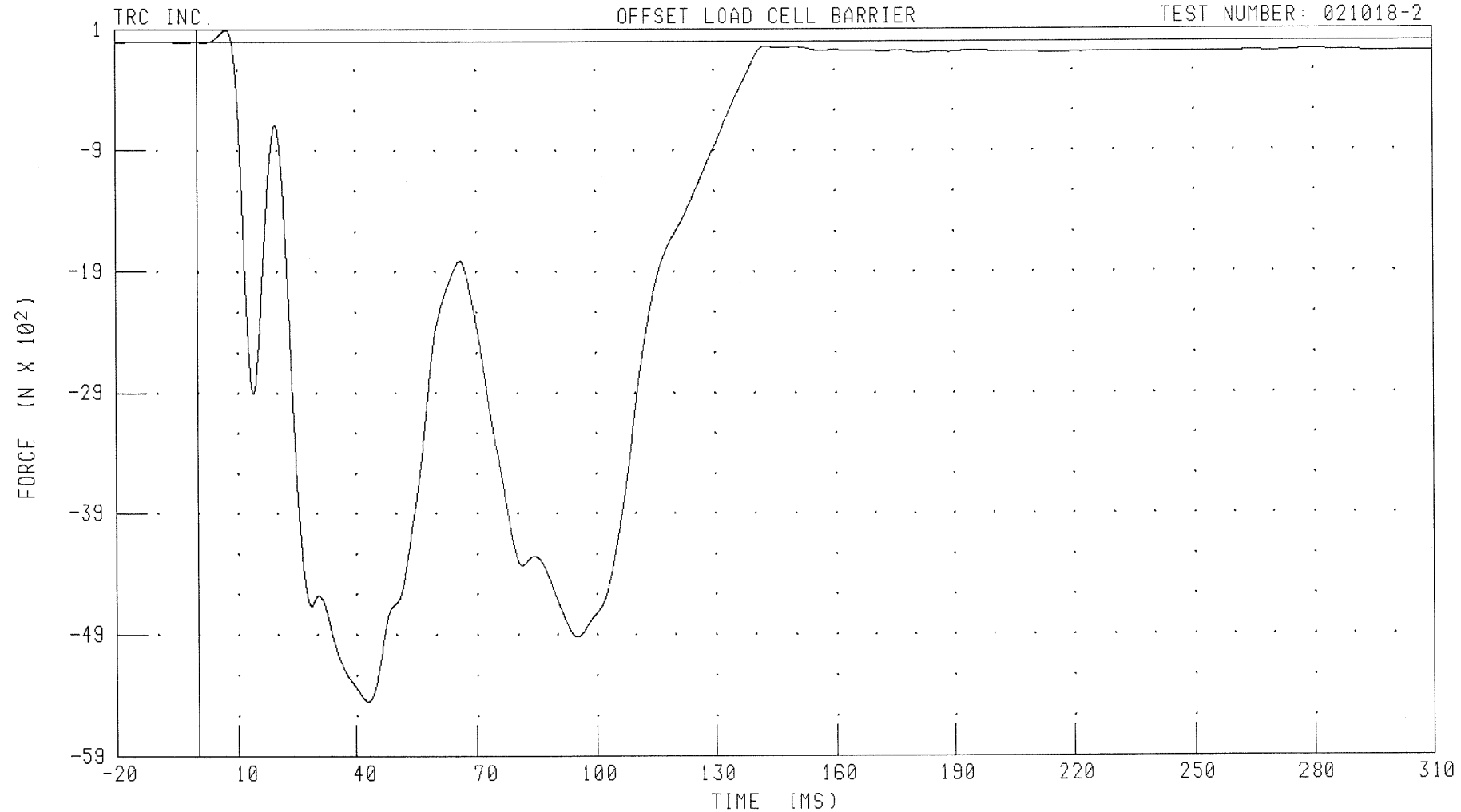
FILTER: CH. CLASS 60

PEAK DATA: 98.06 N @ 26.40 MS; -5100.04 N @ 74.32 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: 021018-2



CHANNEL: LCC3XF

FILTER: CH. CLASS 60

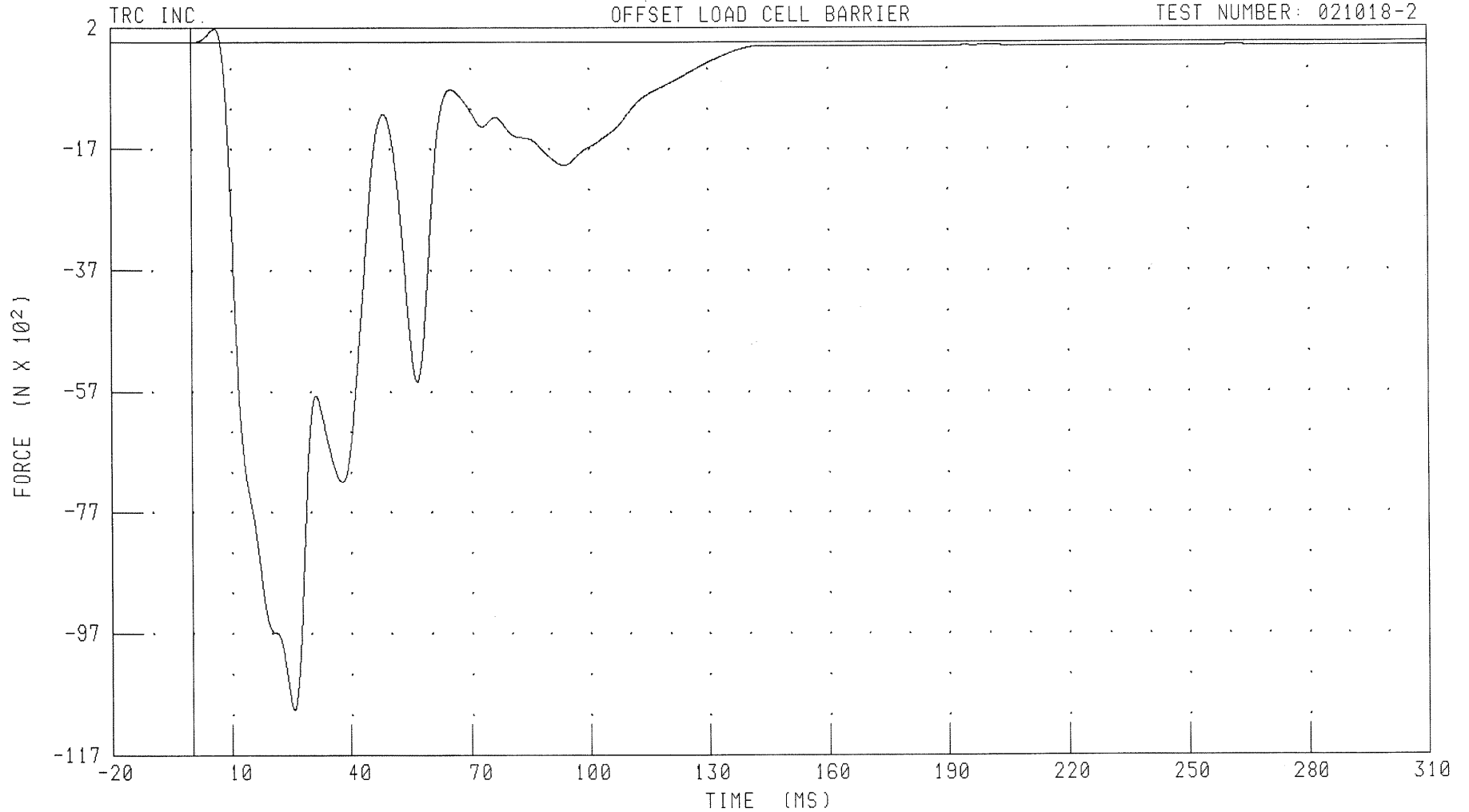
PEAK DATA: 98.92 N @ 7.28 MS; -5451.94 N @ 42.88 MS

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: 021018-2



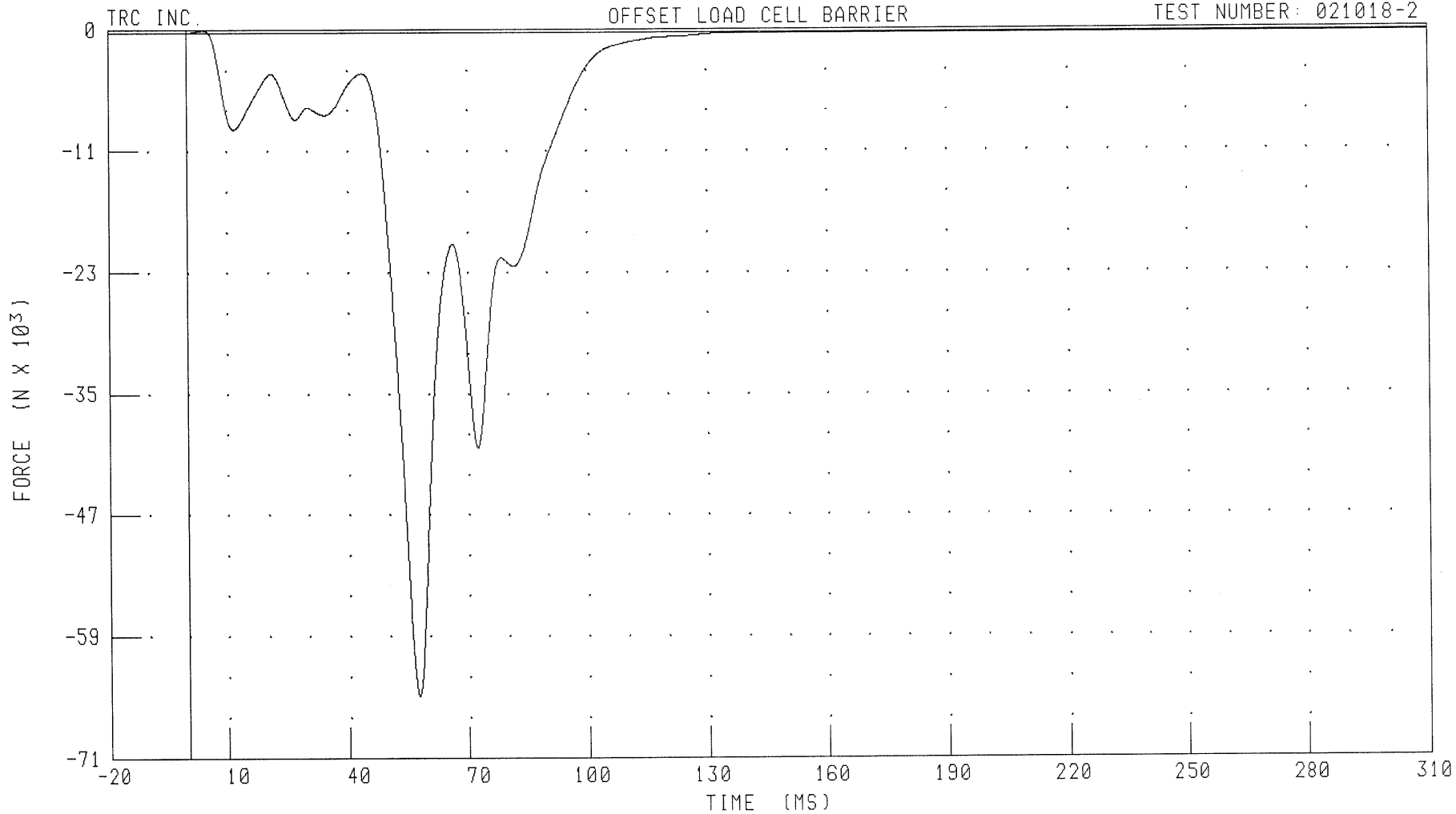
CHANNEL: LCC4XF FILTER: CH. CLASS 60

PEAK DATA: 216.58 N @ 5.92 MS; -11025.37 N @ 25.76 MS

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

BARRIER LOAD CELL C5 X-AXIS FORCE

TEST NUMBER: 021018-2



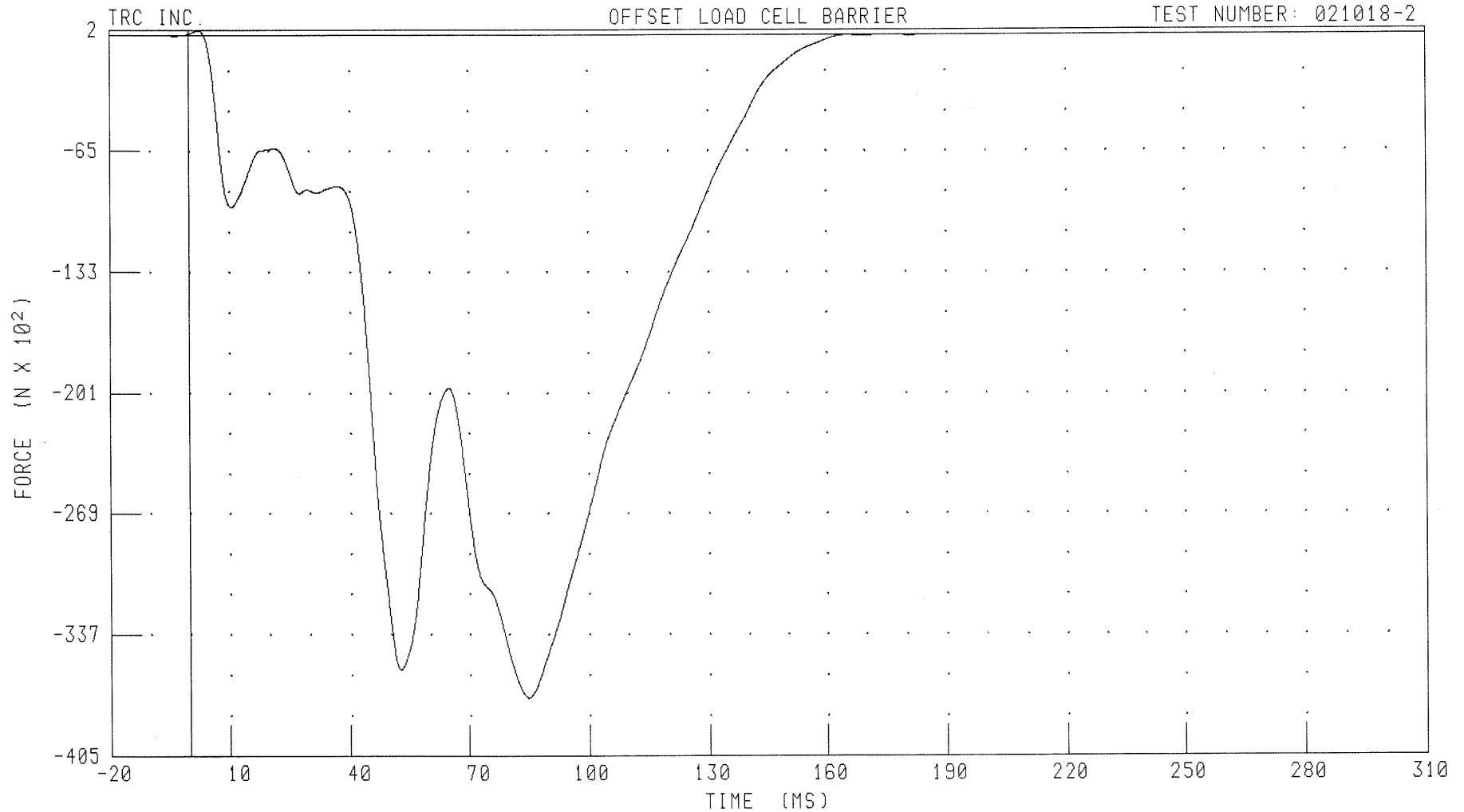
CHANNEL: LCC5XF FILTER: CH. CLASS 60

PEAK DATA: 272.18 N @ 4.08 MS; -65045.03 N @ 57.28 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: 021018-2



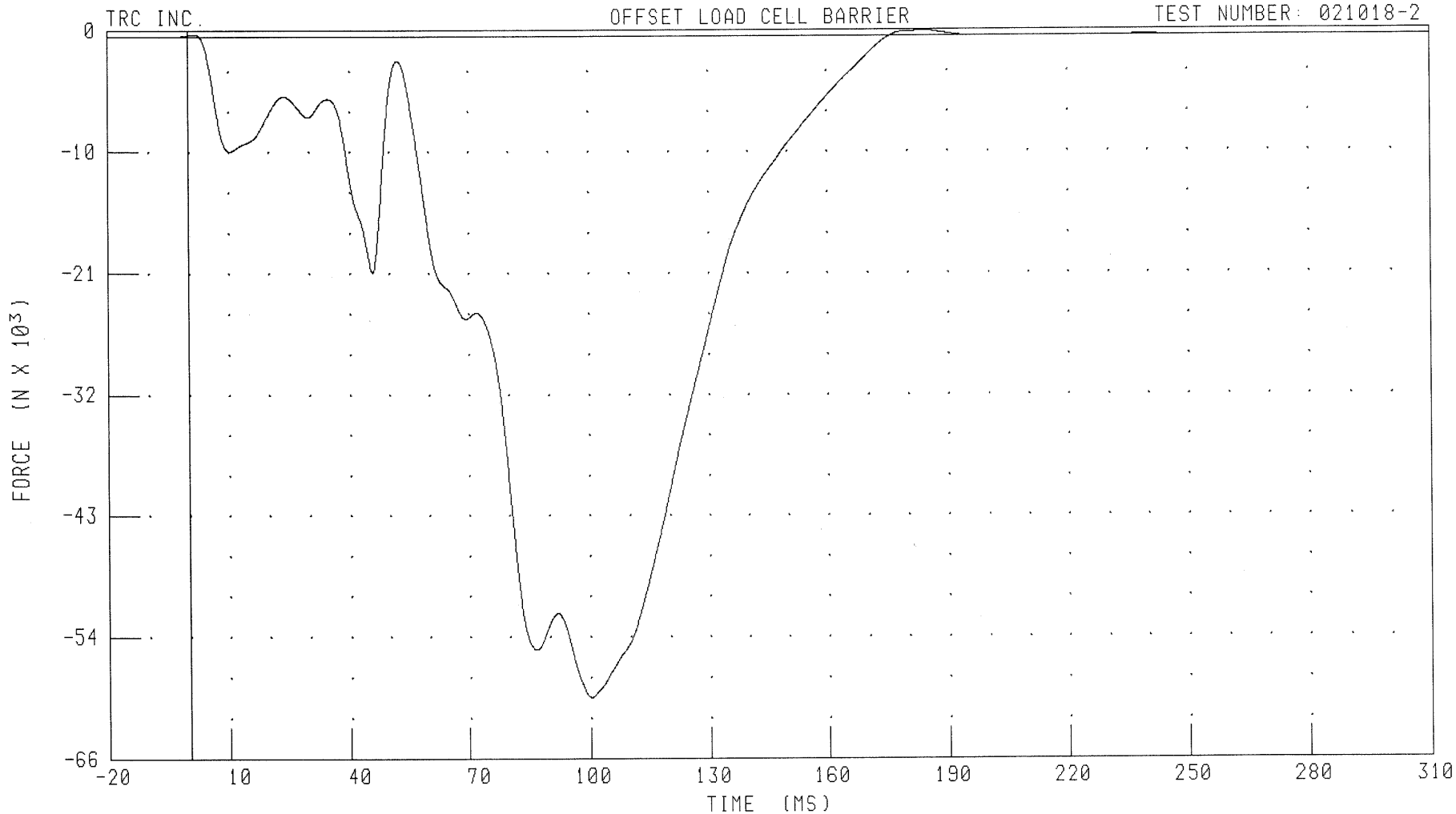
CHANNEL: LCC6XF

FILTER: CH. CLASS 60

PEAK DATA: 264.78 N @ 2.48 MS; -37265.07 N @ 85.12 MS

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H  
BARRIER LOAD CELL C7 X-AXIS FORCE

TEST NUMBER: 021018-2



CHANNEL: LCC7XF FILTER: CH. CLASS 60

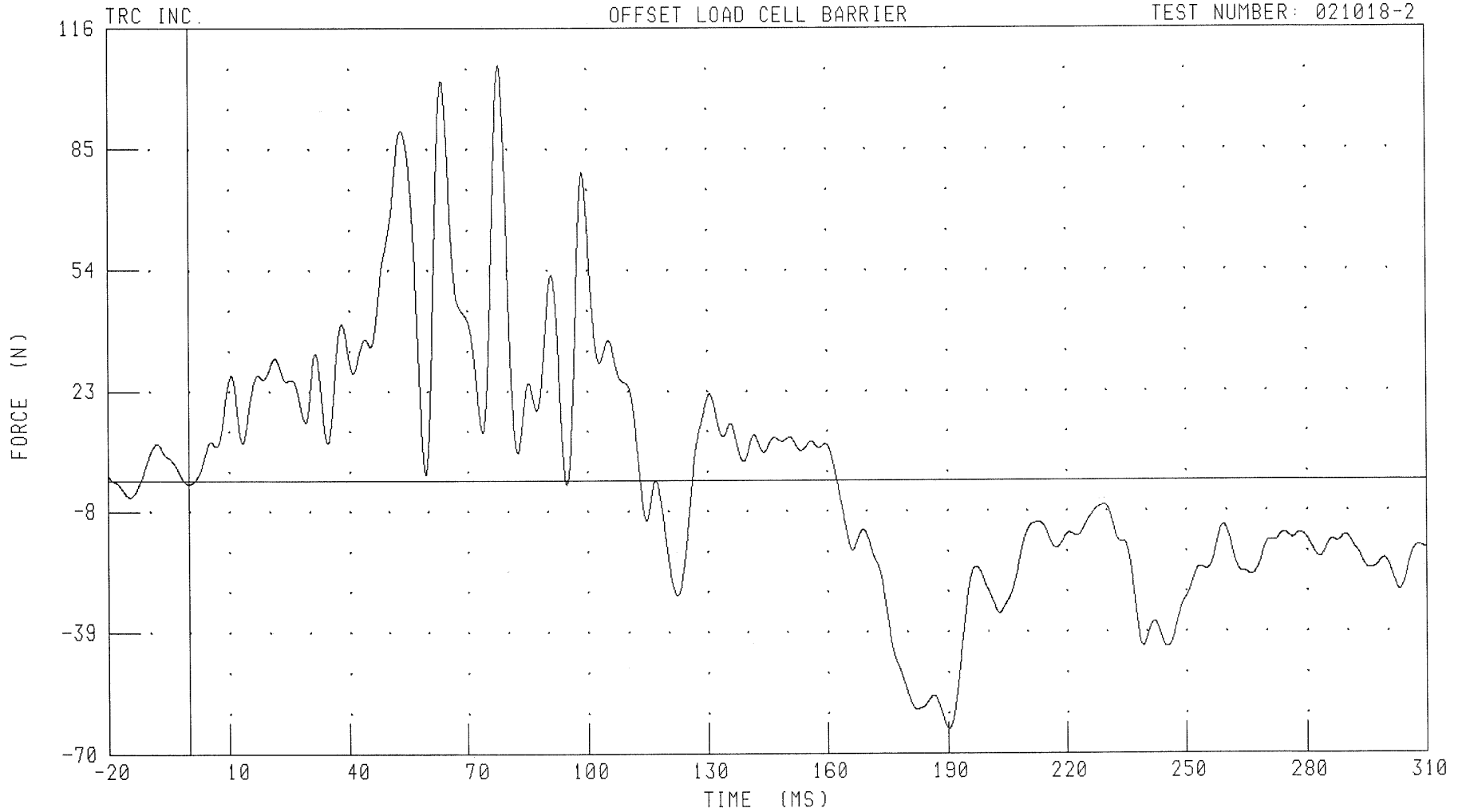
PEAK DATA: 503.00 N @ 184.40 MS; -60489.76 N @ 100.32 MS

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: 021018-2



CHANNEL: LCD1XF FILTER: CH. CLASS 60

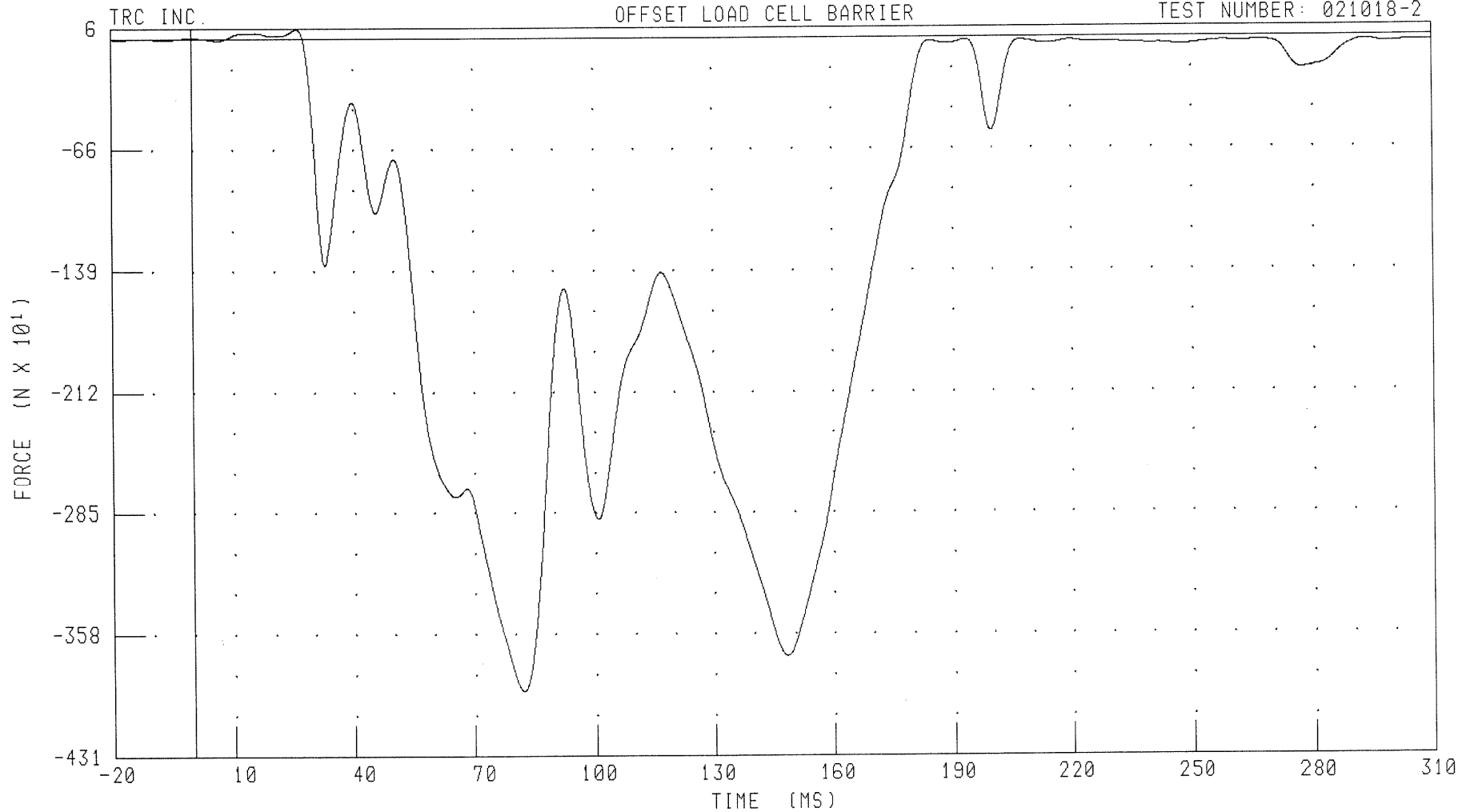
PEAK DATA: 106.52 N @ 77.92 MS; -63.71 N @ 190.24 MS

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: 021018-2



CHANNEL: LCD2XF FILTER: CH. CLASS 60

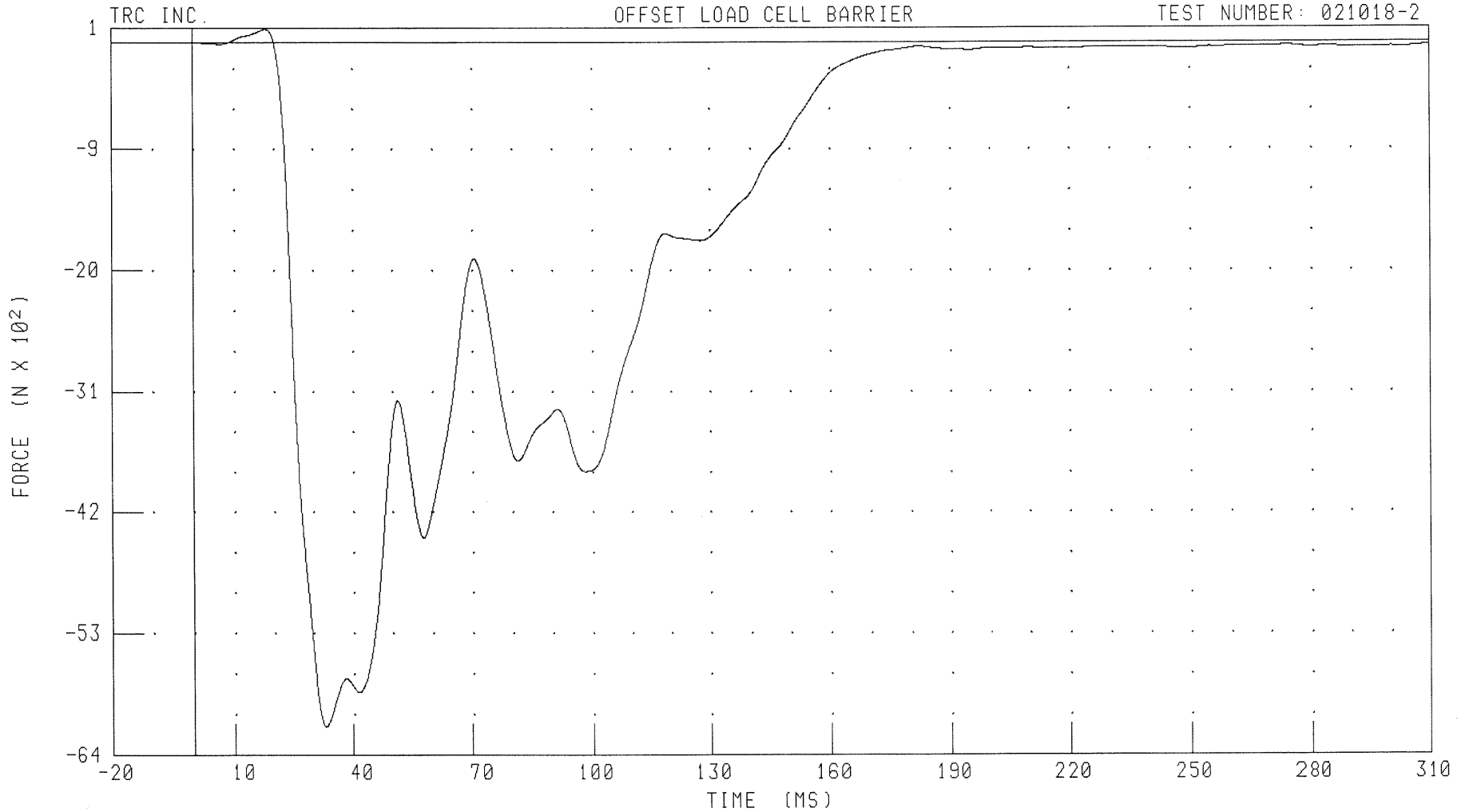
PEAK DATA: 56.07 N @ 26.00 MS; -3931.18 N @ 82.24 MS

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: 021018-2



CHANNEL: LCD3XF FILTER: CH. CLASS 60

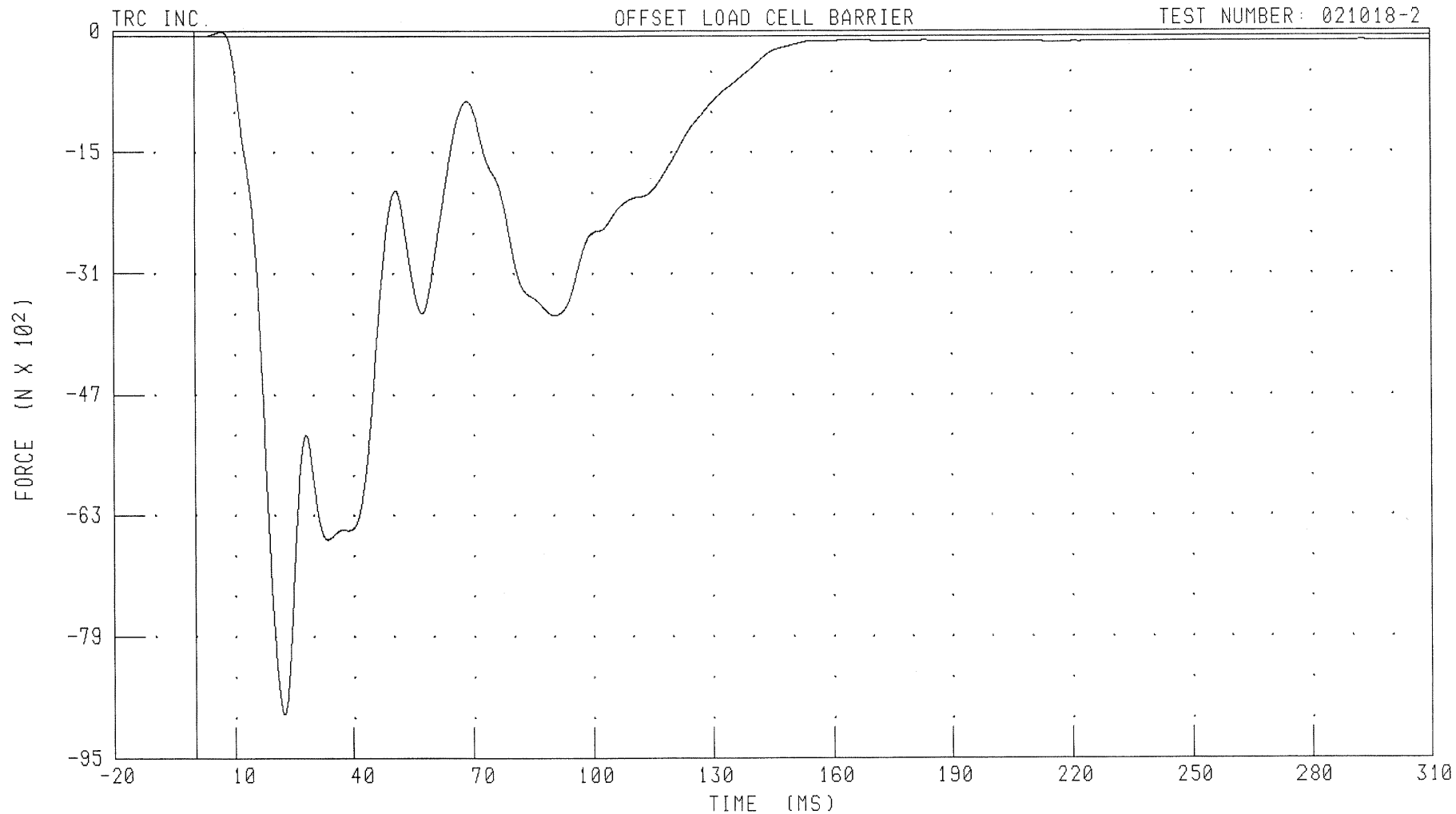
PEAK DATA: 119.55 N @ 18.08 MS; -6214.79 N @ 33.04 MS

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

BARRIER LOAD CELL D4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LCD4XF

FILTER: CH. CLASS 60

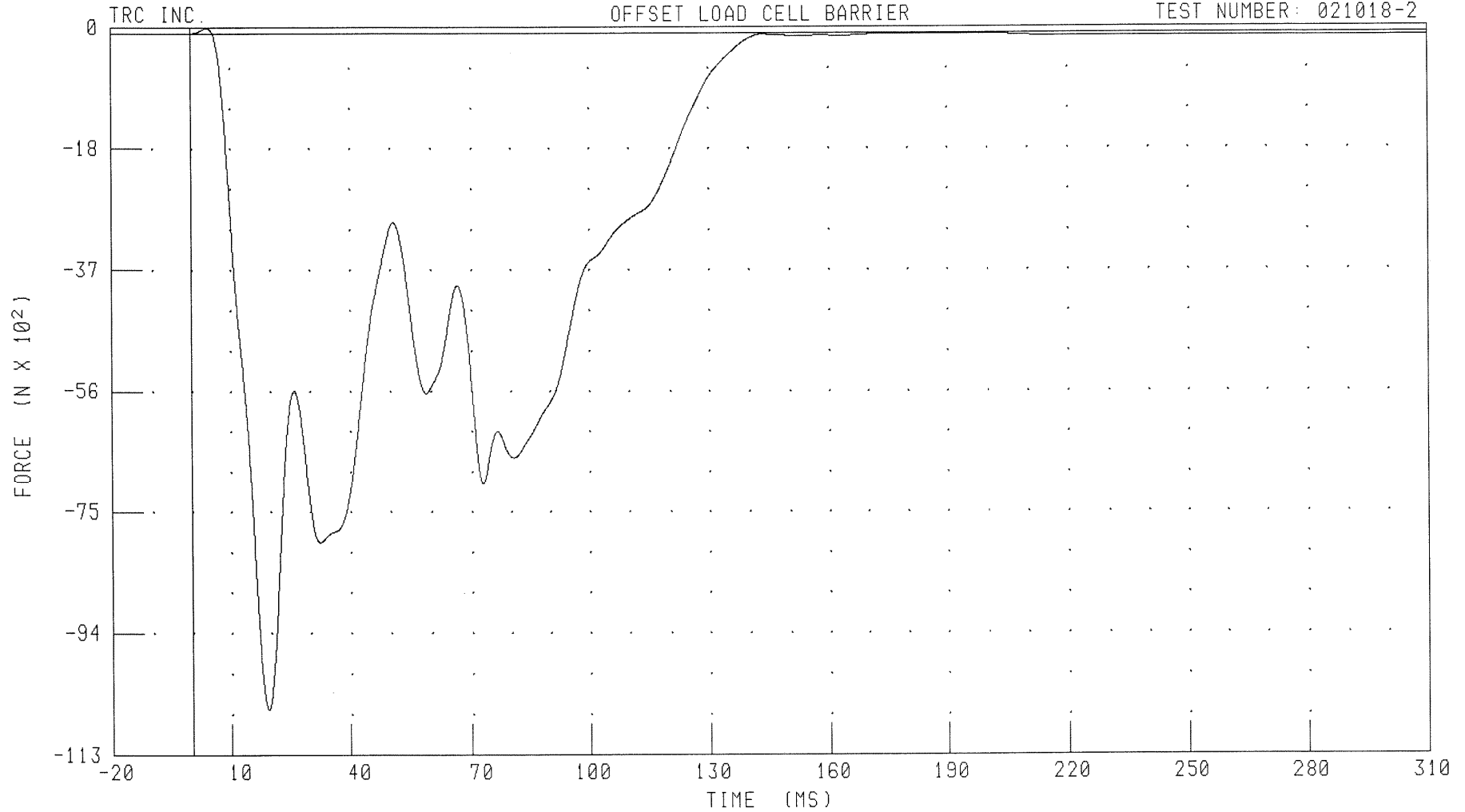
PEAK DATA: 64.18 N @ 6.72 MS; -8952.52 N @ 22.48 MS

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

BARRIER LOAD CELL D5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LCD5XF FILTER: CH. CLASS 60

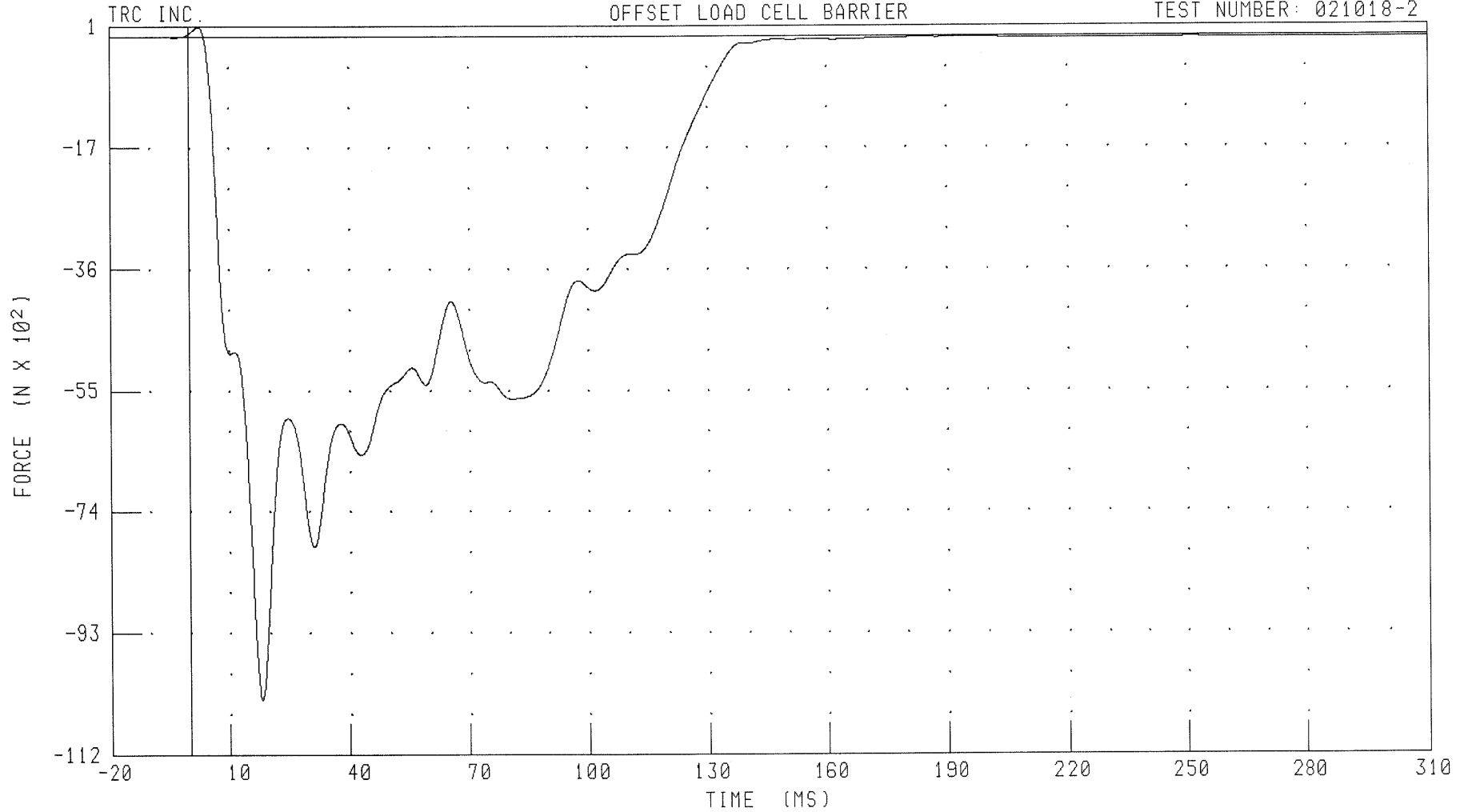
PEAK DATA: 86.89 N @ 4.32 MS; -10596.12 N @ 19.44 MS

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: 021018-2



CHANNEL: LCD6XF FILTER: CH. CLASS 60

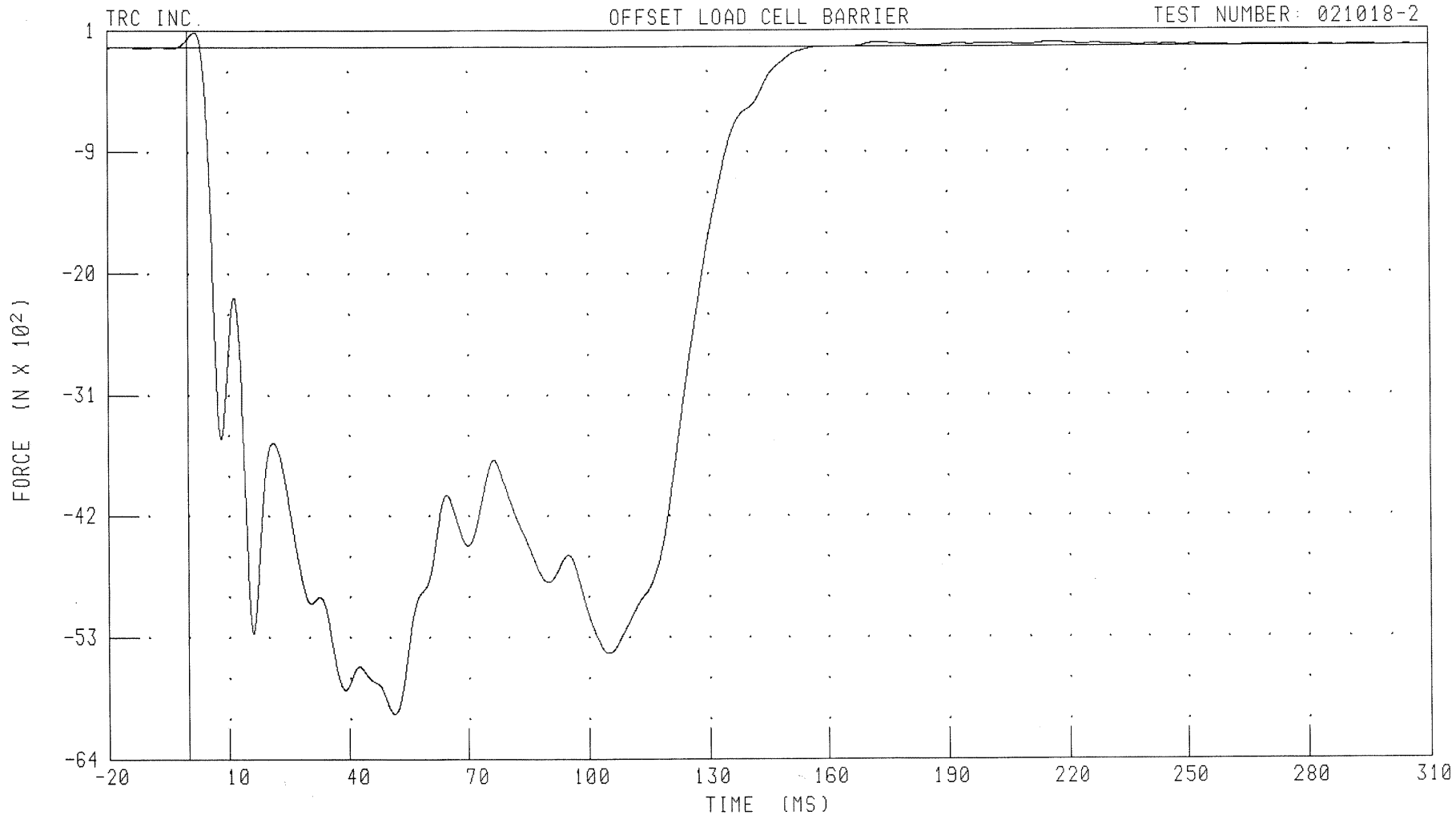
PEAK DATA: 152.84 N @ 2.48 MS; -10391.77 N @ 18.08 MS

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: 021018-2



CHANNEL: LCD7XF

FILTER: CH. CLASS 60

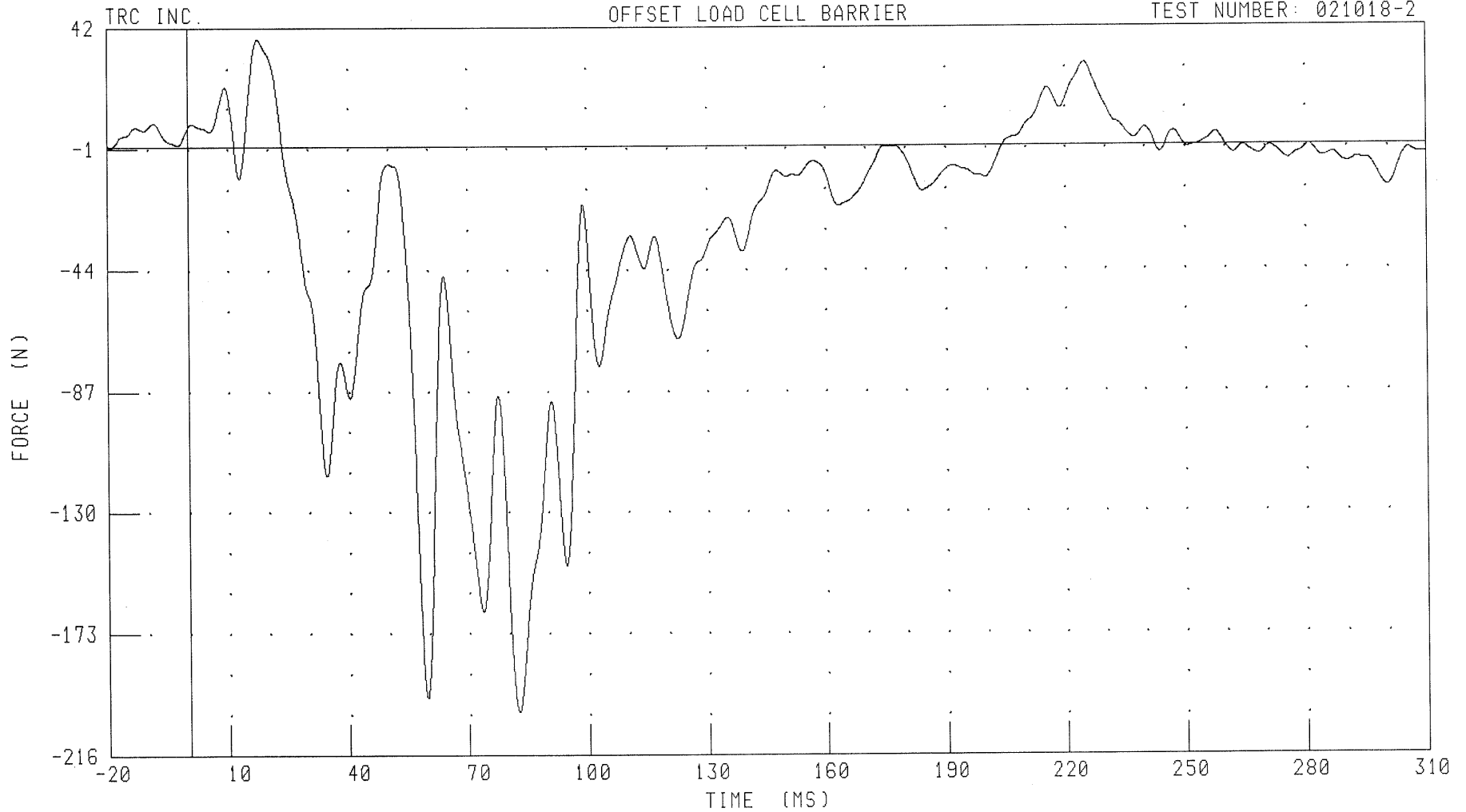
PEAK DATA: 136.43 N @ 1.84 MS; -6040.72 N @ 51.20 MS

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: 021018-2



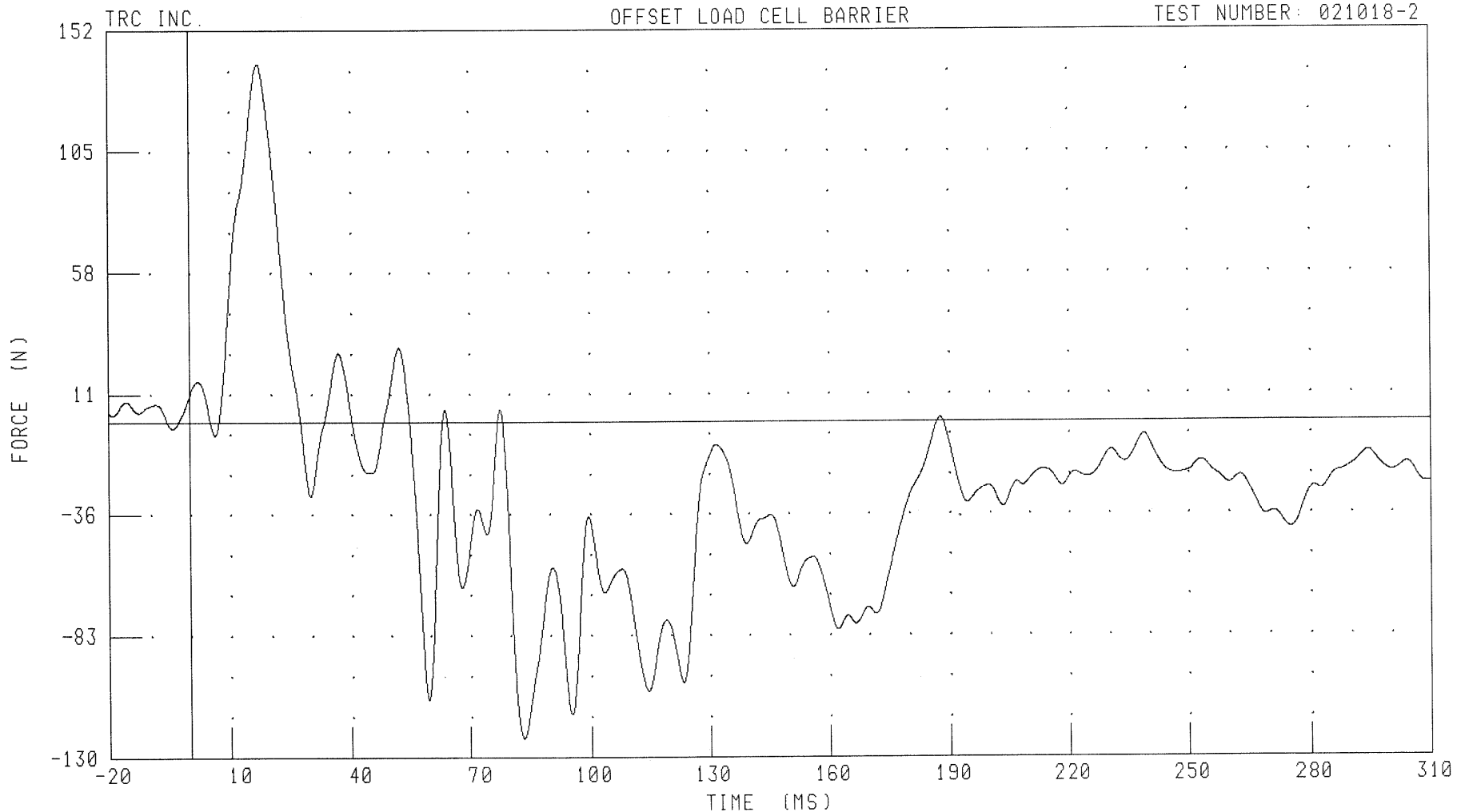
CHANNEL: LCE1XF FILTER: CH. CLASS 60

PEAK DATA: 38.24 N @ 17.52 MS; -200.66 N @ 82.40 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: 021018-2



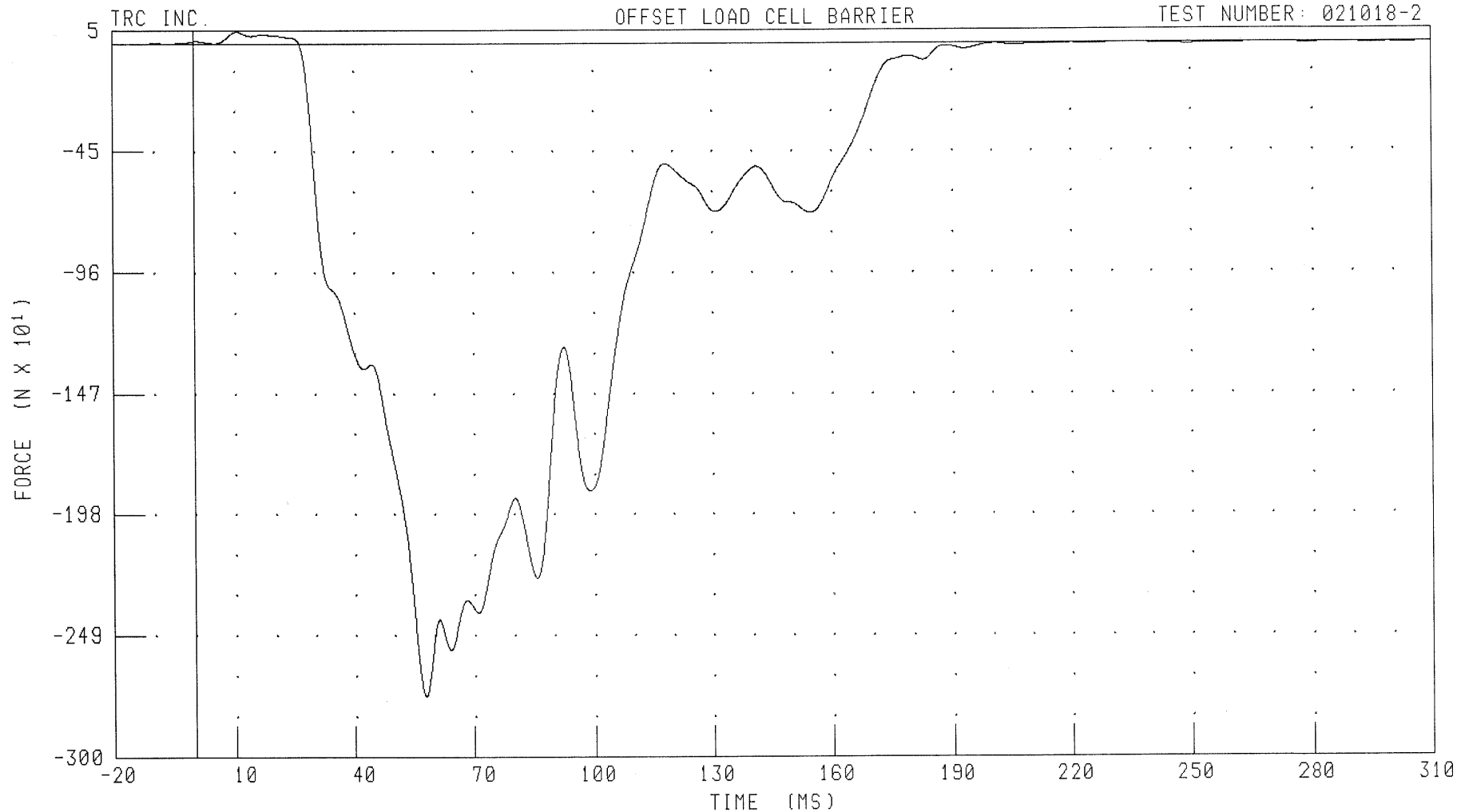
CHANNEL: LCE2XF FILTER: CH. CLASS 60

PEAK DATA: 139.06 N @ 17.04 MS; -122.68 N @ 83.36 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: 021018-2



CHANNEL: LCE3XF

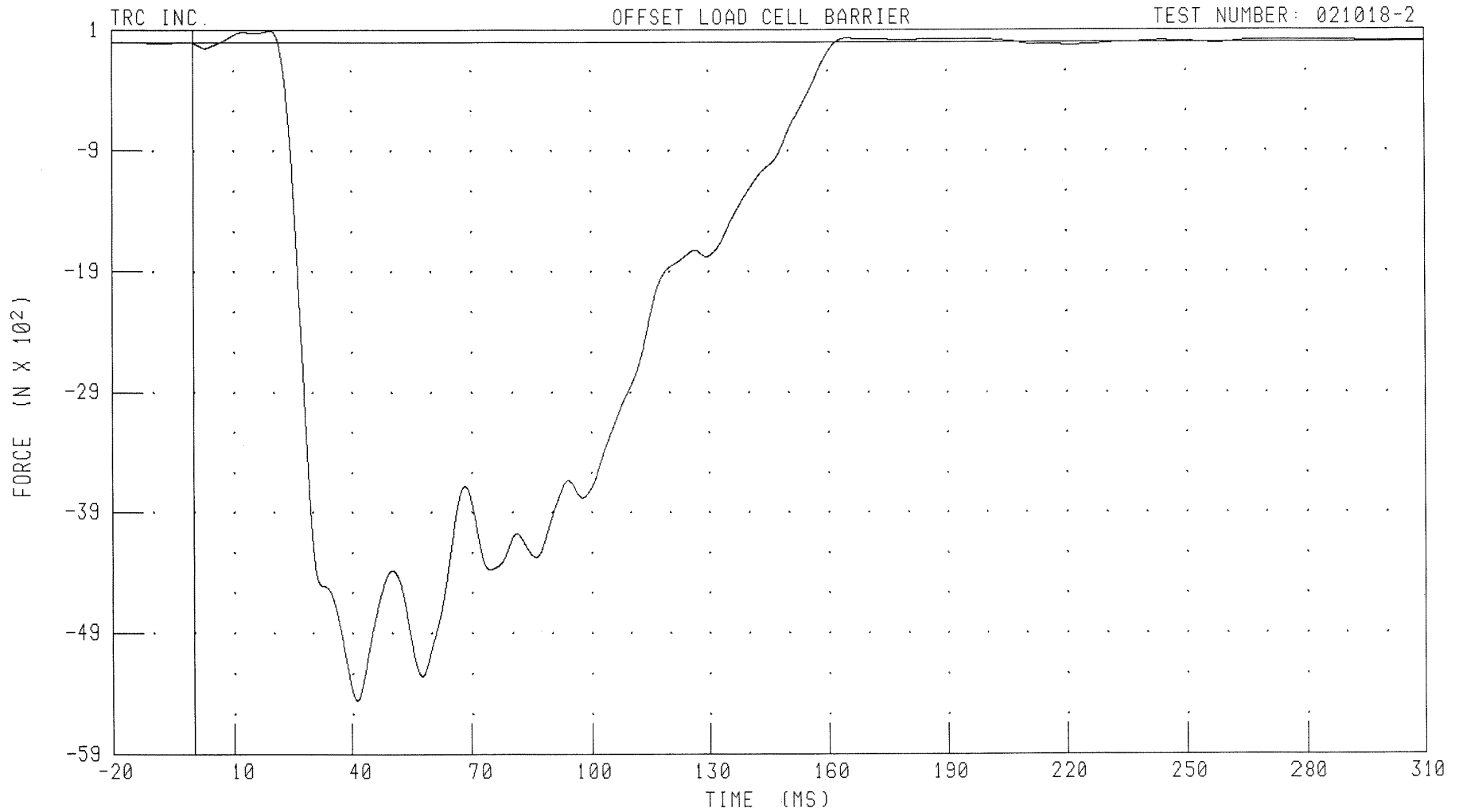
FILTER: CH. CLASS 60

PEAK DATA: 49.54 N @ 10.72 MS; -2751.52 N @ 57.76 MS

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

BARRIER LOAD CELL E4 X-AXIS FORCE

TEST NUMBER: 021018-2



CHANNEL: LCE4XF FILTER: CH. CLASS 60

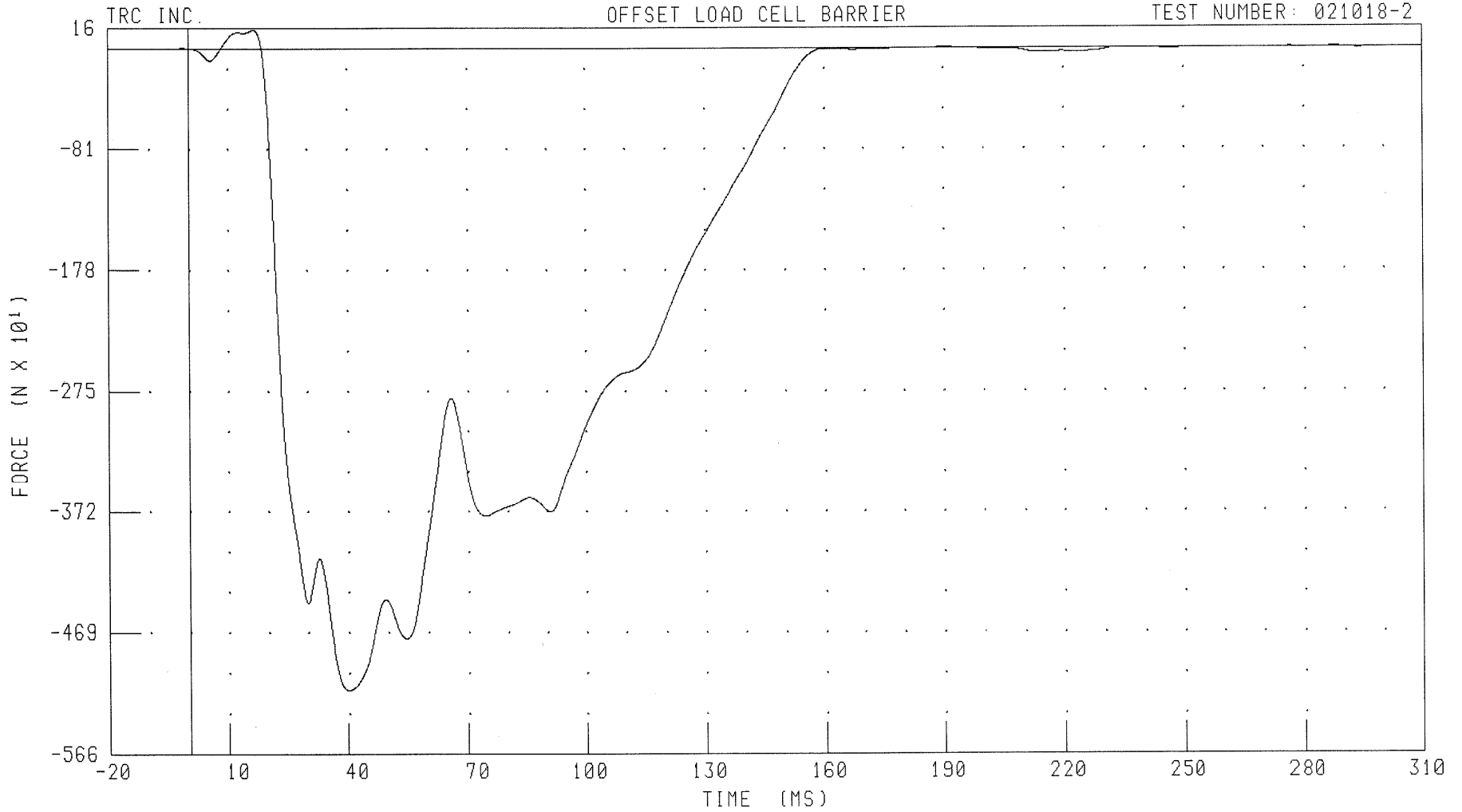
PEAK DATA: 94.17 N @ 19.20 MS; -5458.60 N @ 41.28 MS

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: 021018-2



CHANNEL: LCE5XF FILTER: CH. CLASS 60

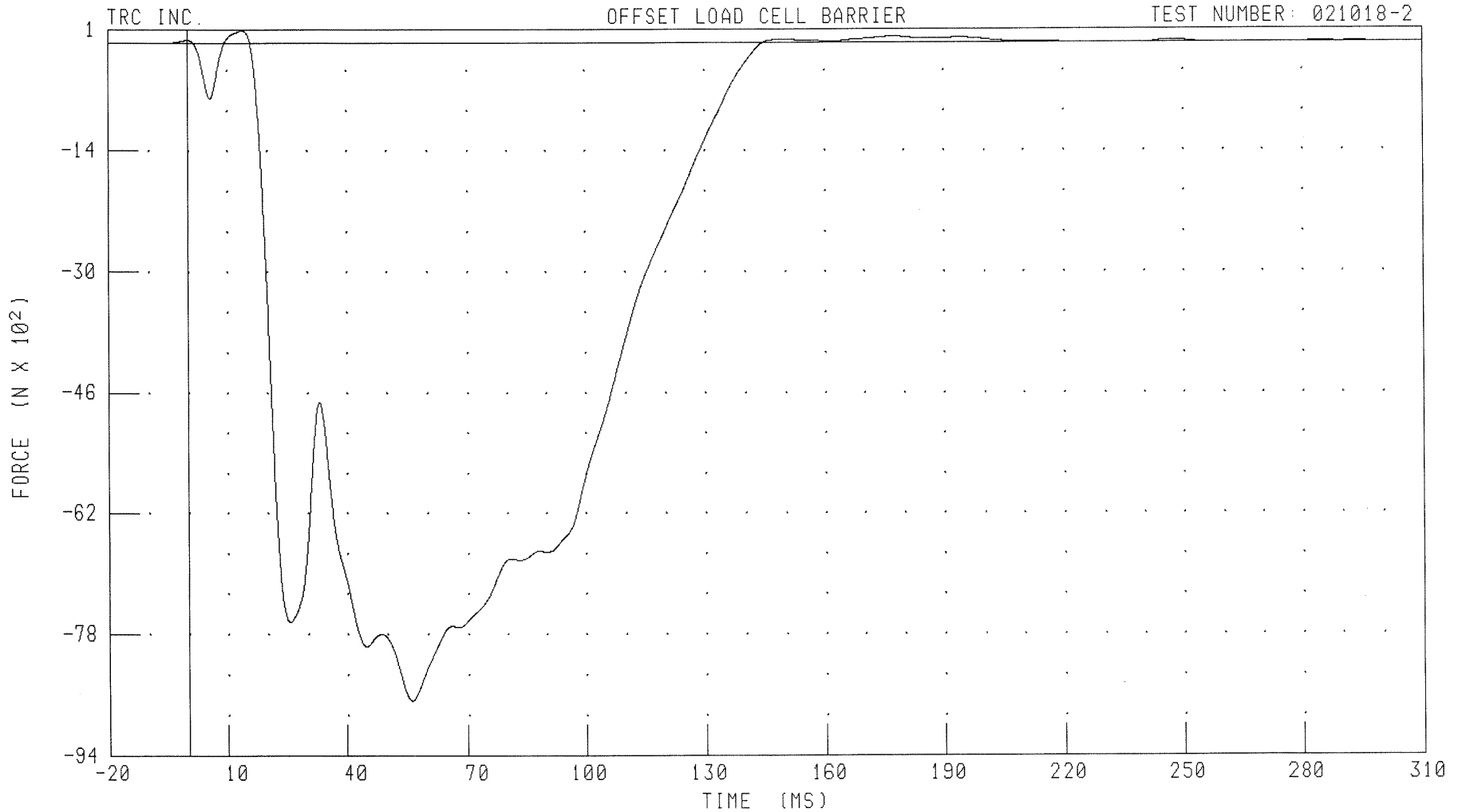
PEAK DATA: 145.55 N @ 16.64 MS; -5151.13 N @ 40.16 MS

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: 021018-2



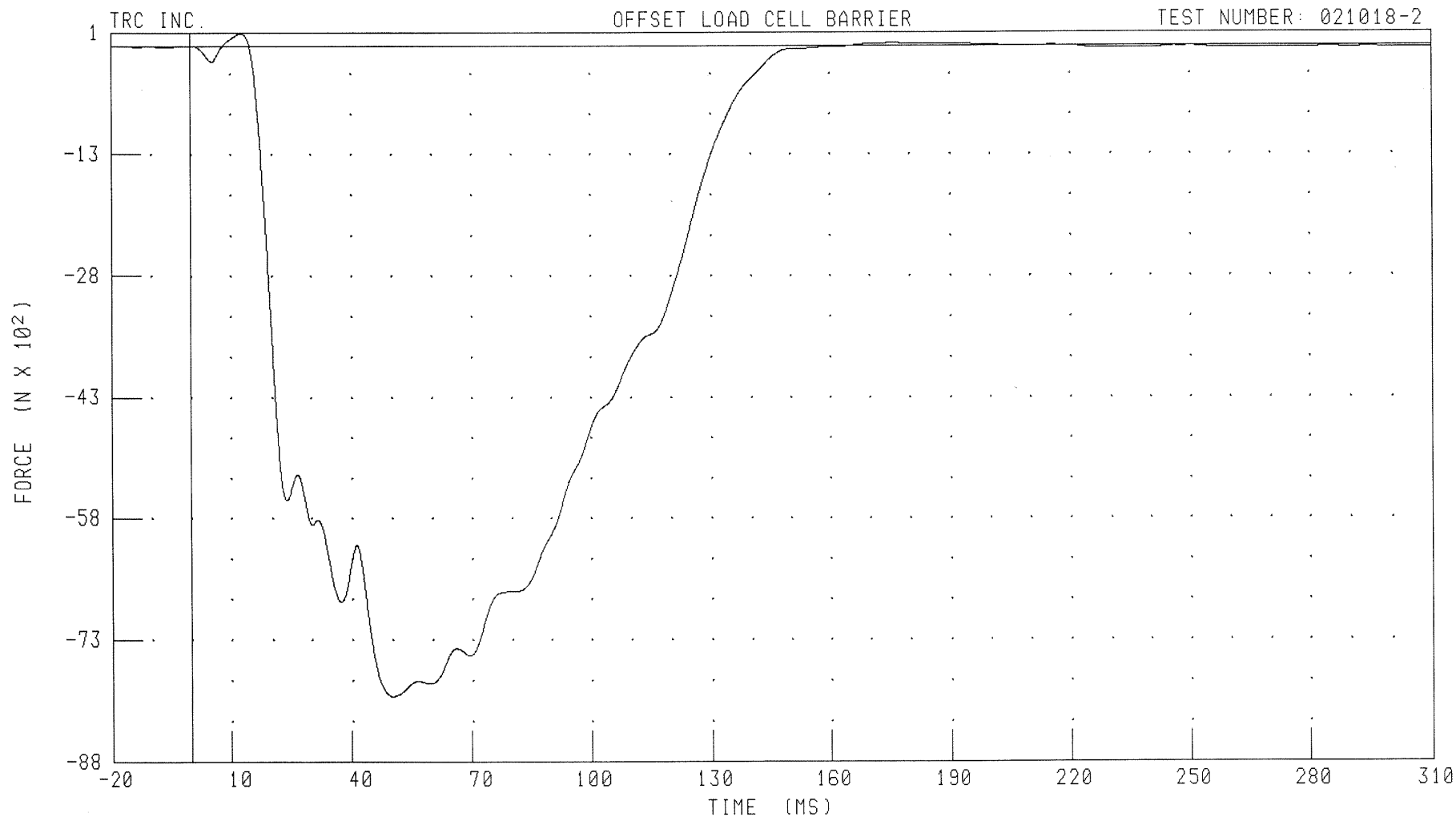
CHANNEL: LCE6XF FILTER: CH. CLASS 60

PEAK DATA: 158.16 N @ 14.08 MS; -8708.24 N @ 56.08 MS

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

BARRIER LOAD CELL E7 X-AXIS FORCE

TEST NUMBER: 021018-2



CHANNEL: LCE7XF

FILTER: CH. CLASS 60

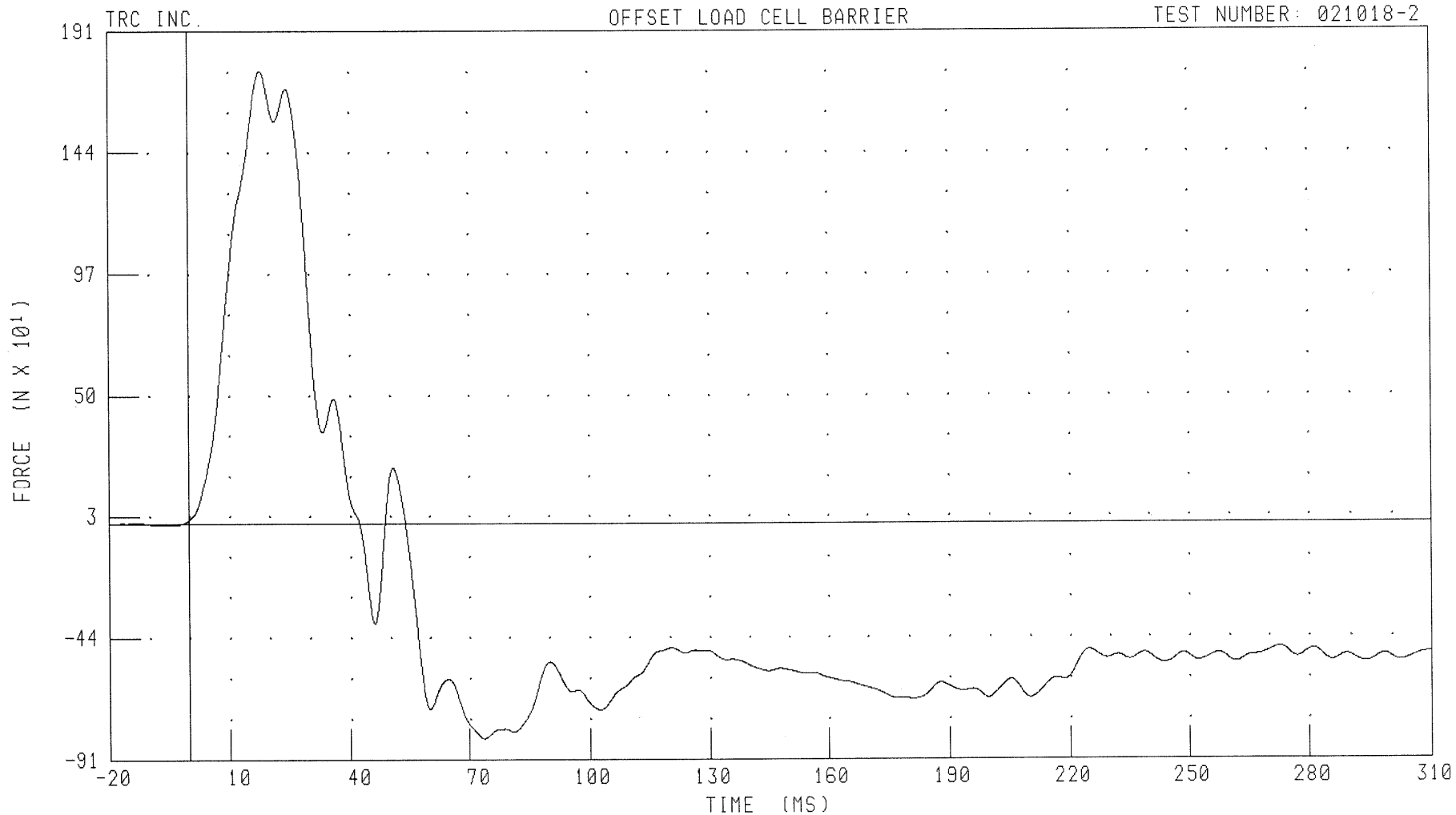
PEAK DATA: 154.34 N @ 12.80 MS; -8039.14 N @ 50.08 MS

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: 021018-2



CHANNEL: LCF1XF FILTER: CH. CLASS 60

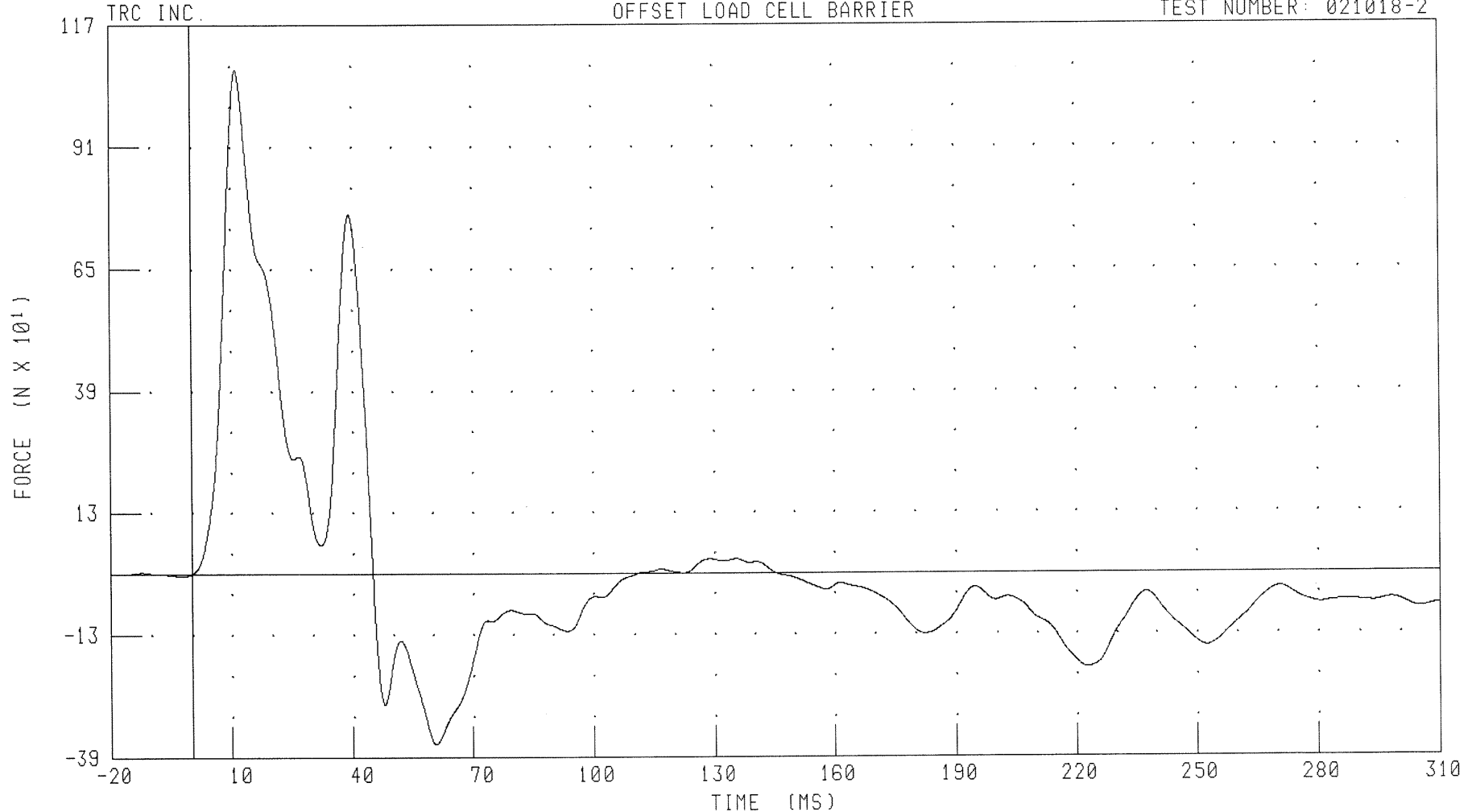
PEAK DATA: 1757.01 N @ 18.16 MS; -829.25 N @ 73.76 MS

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: 021018-2



CHANNEL: LCF2XF

FILTER: CH. CLASS 60

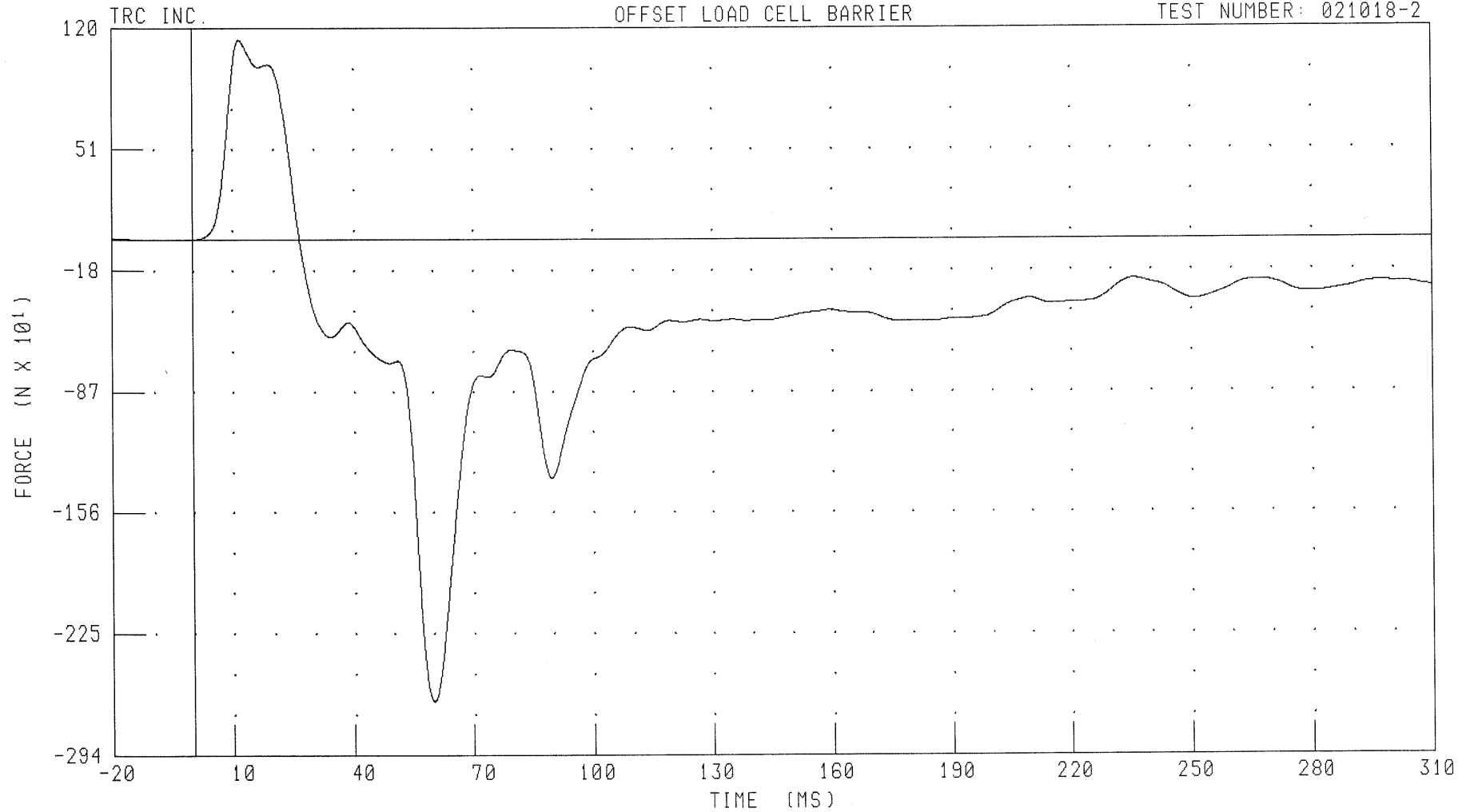
PEAK DATA: 1075.41 N @ 11.44 MS; -362.51 N @ 60.64 MS

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: 021018-2



CHANNEL: LCF3XF FILTER: CH. CLASS 60

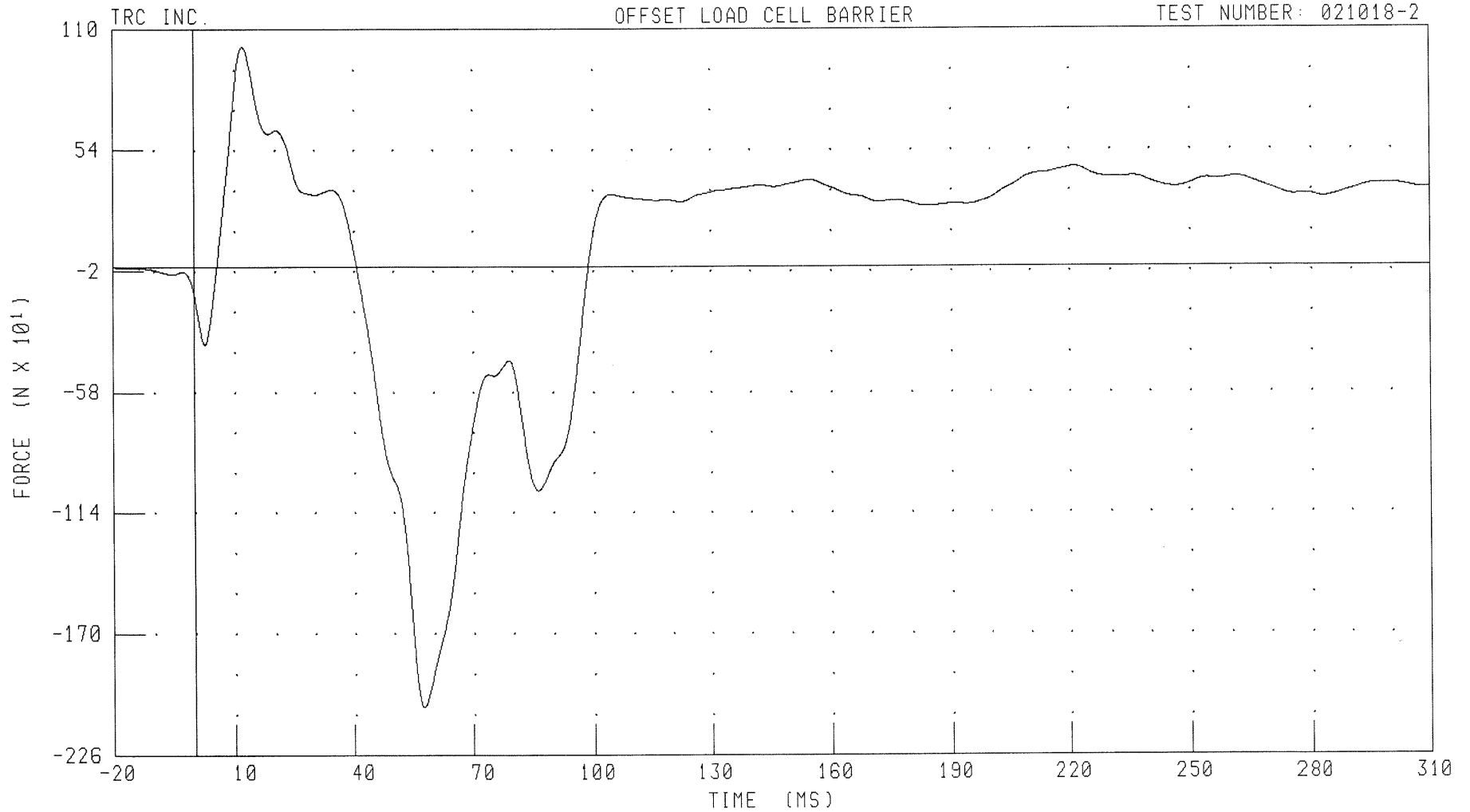
PEAK DATA: 1134.33 N @ 11.76 MS; -2635.70 N @ 60.08 MS

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: 021018-2



CHANNEL: LCF4XF

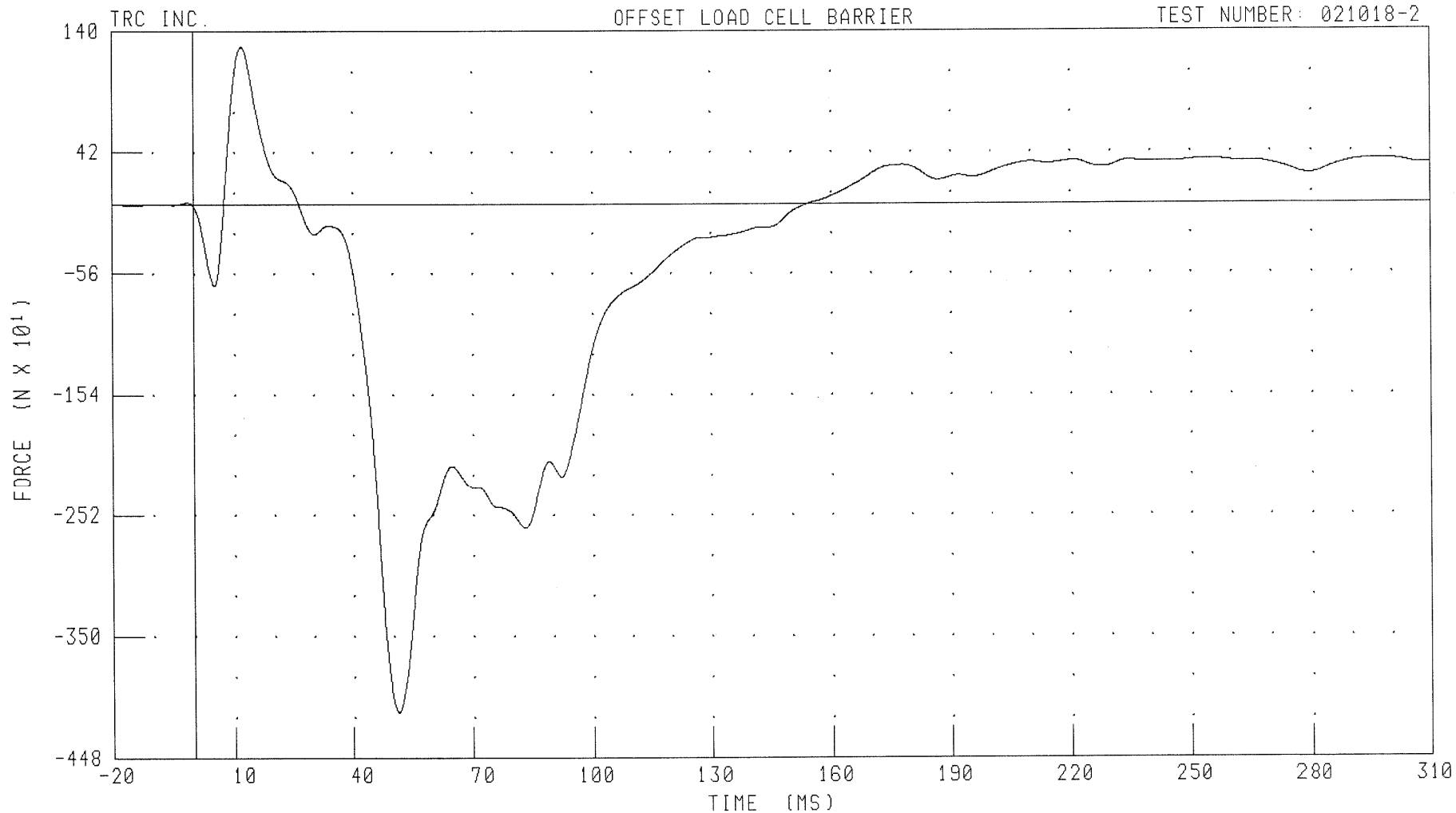
FILTER: CH. CLASS 60

PEAK DATA: 1020.22 N @ 12.08 MS; -2038.65 N @ 57.52 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: 021018-2



CHANNEL: LCF5XF FILTER: CH. CLASS 60

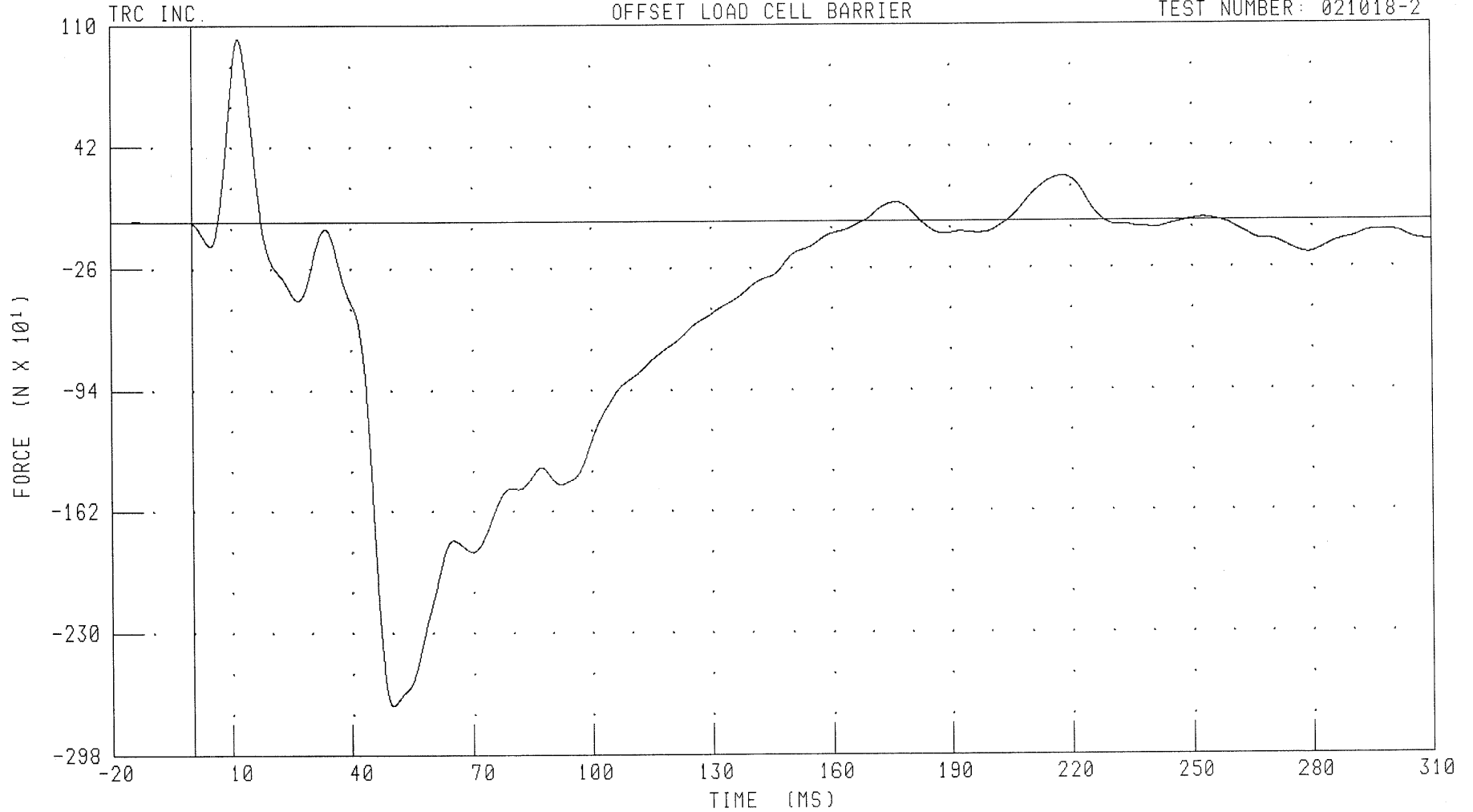
PEAK DATA: 1274.60 N @ 11.84 MS; -4113.02 N @ 51.20 MS

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: 021018-2



CHANNEL: LCF6XF FILTER: CH. CLASS 60

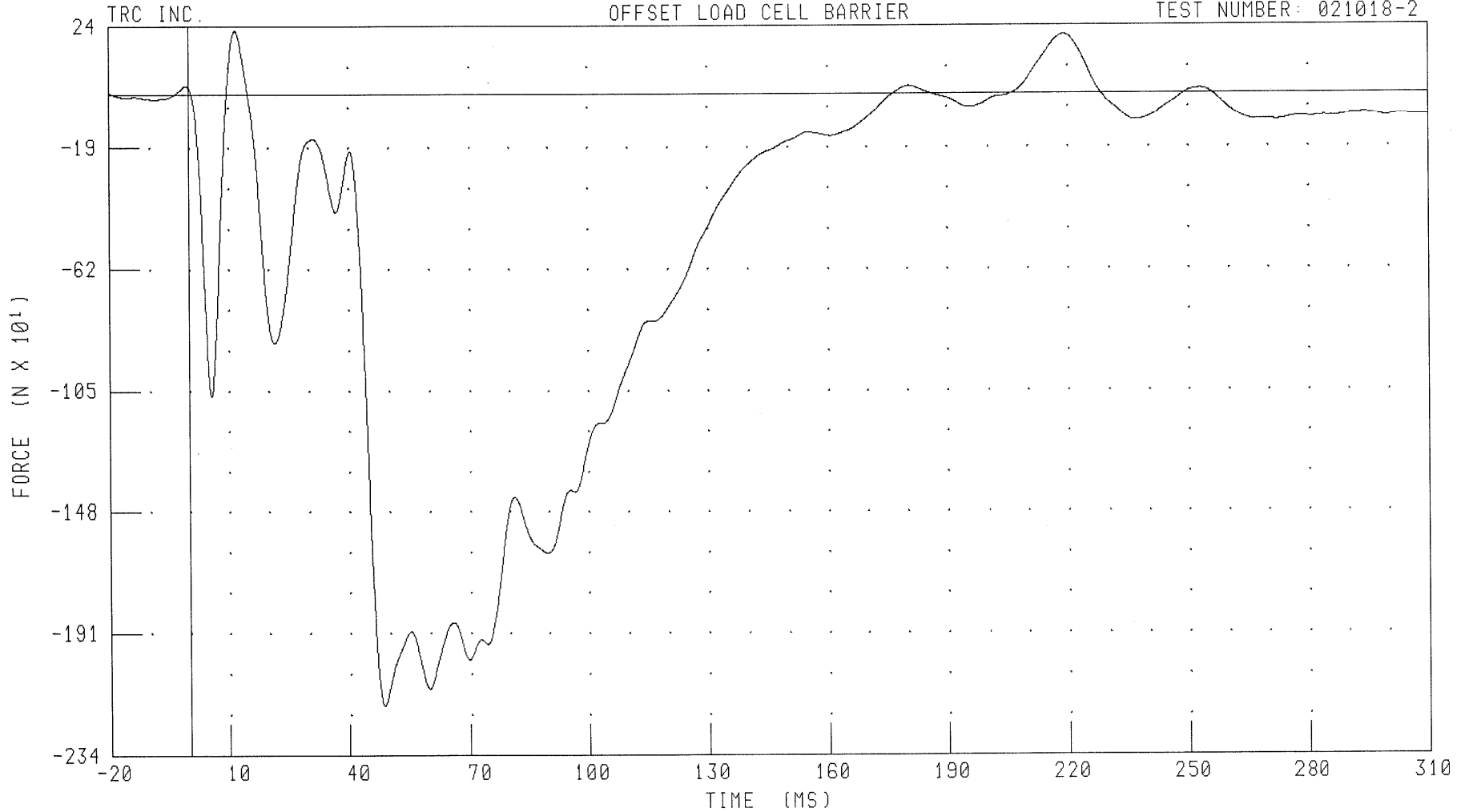
PEAK DATA: 1026.12 N @ 12.00 MS; -2705.77 N @ 50.16 MS

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: 021018-2



CHANNEL: LCF7XF FILTER: CH. CLASS 60

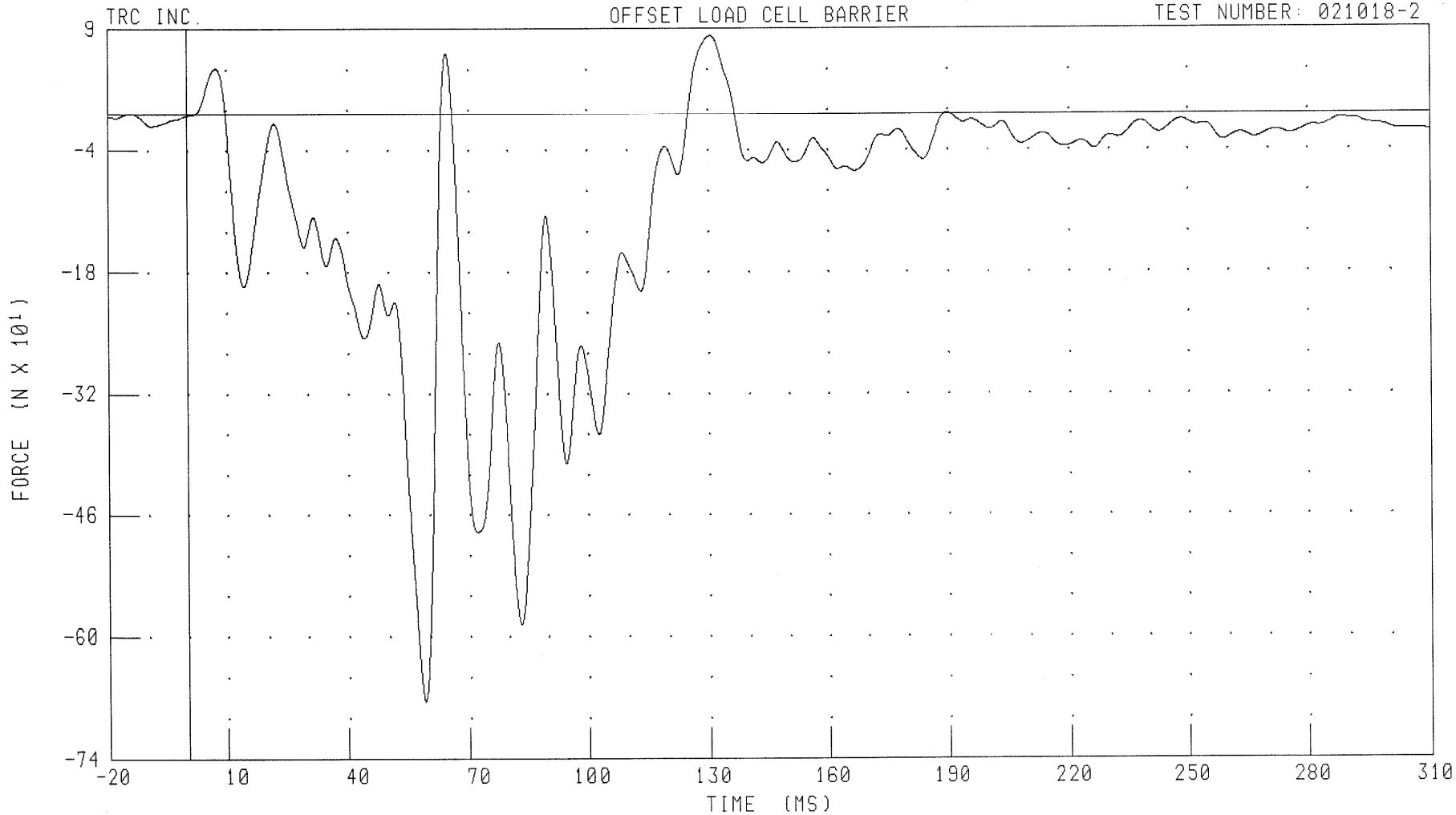
PEAK DATA: 225.26 N @ 11.84 MS; -2164.95 N @ 48.64 MS

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

BARRIER LOAD CELL G1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 021018-2



CHANNEL: LCG1XF FILTER: CH. CLASS 60

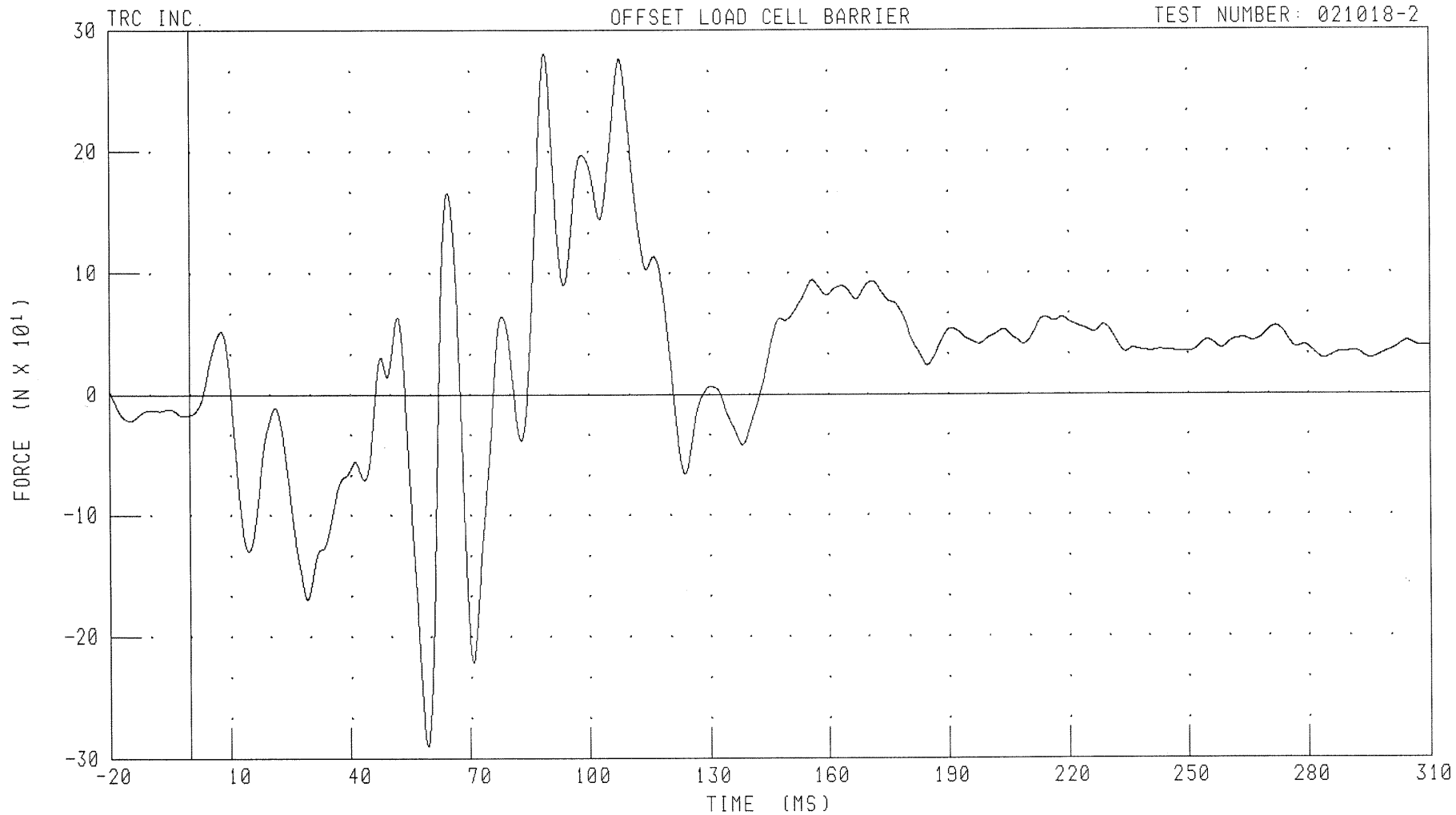
PEAK DATA: 89.81 N @ 130.88 MS; -676.36 N @ 58.80 MS

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: 021018-2



CHANNEL: LCG2XF FILTER: CH. CLASS 60

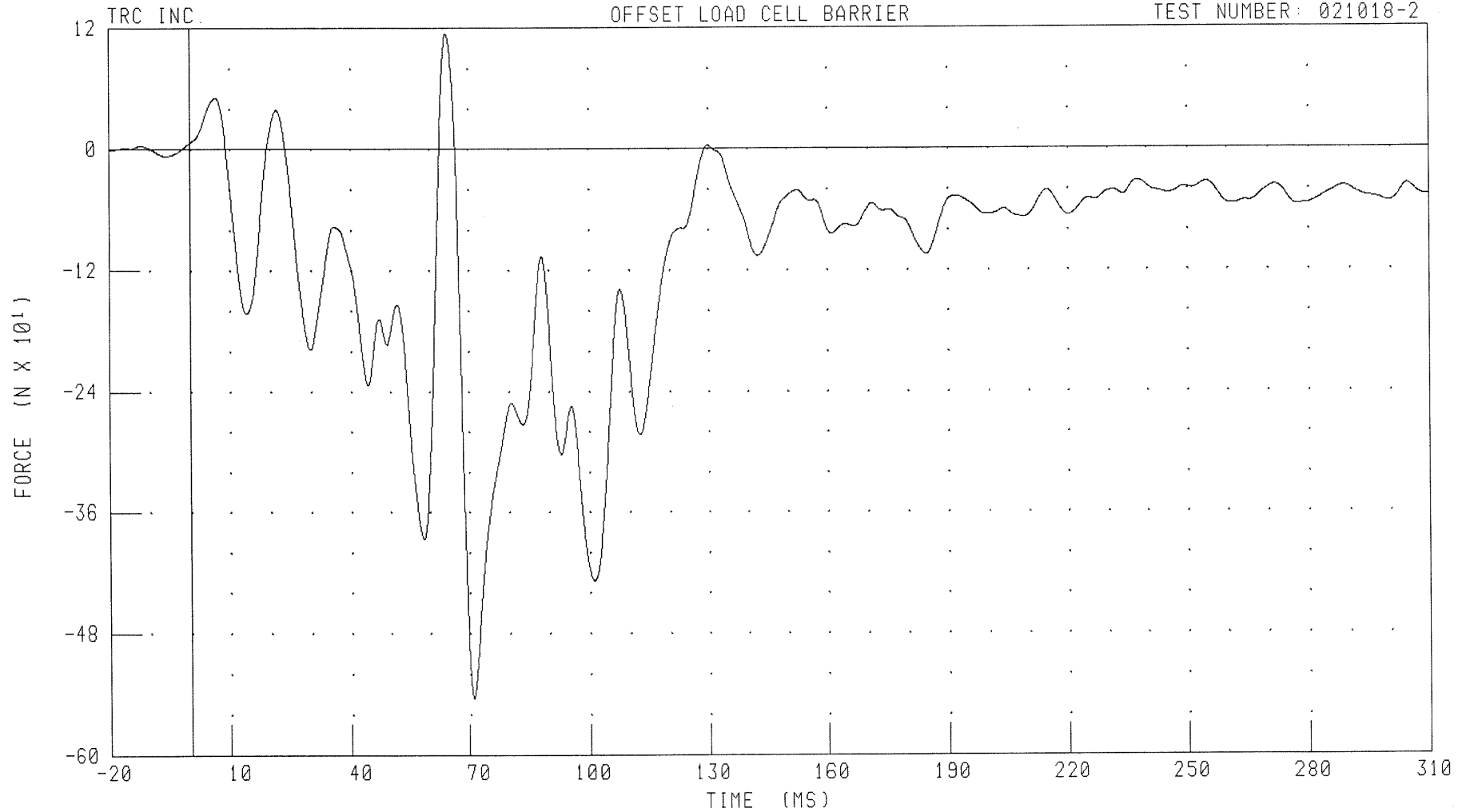
PEAK DATA: 281.07 N @ 89.12 MS; -290.33 N @ 59.28 MS

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: 021018-2



CHANNEL: LCG3XF FILTER: CH. CLASS 60

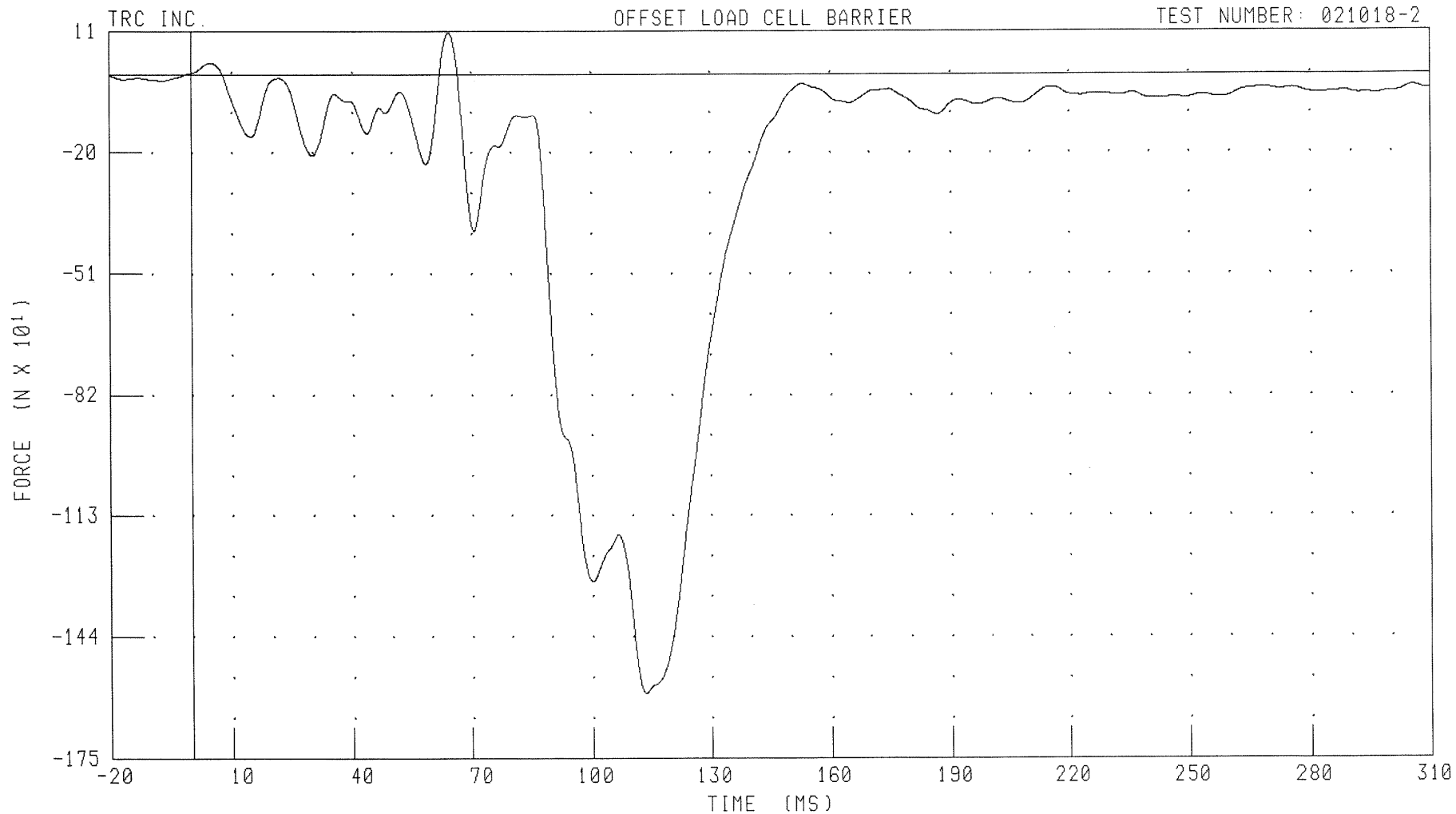
PEAK DATA: 114.14 N @ 64.56 MS; -544.33 N @ 71.12 MS

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: 021018-2



CHANNEL: LCG4XF FILTER: CH. CLASS 60

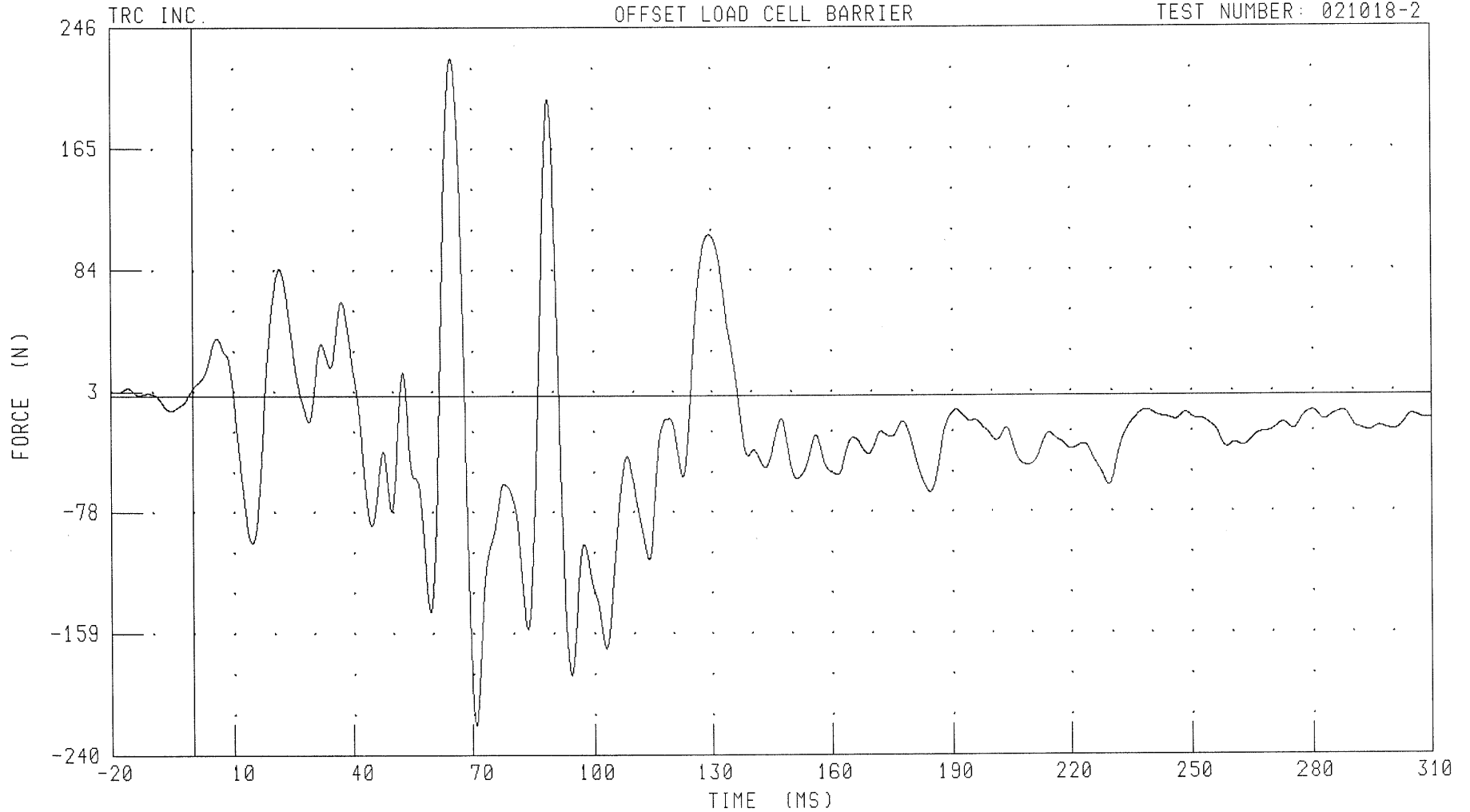
PEAK DATA: 106.34 N @ 64.64 MS; -1584.79 N @ 113.20 MS

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: 021018-2



CHANNEL: LCH1XF

FILTER: CH. CLASS 60

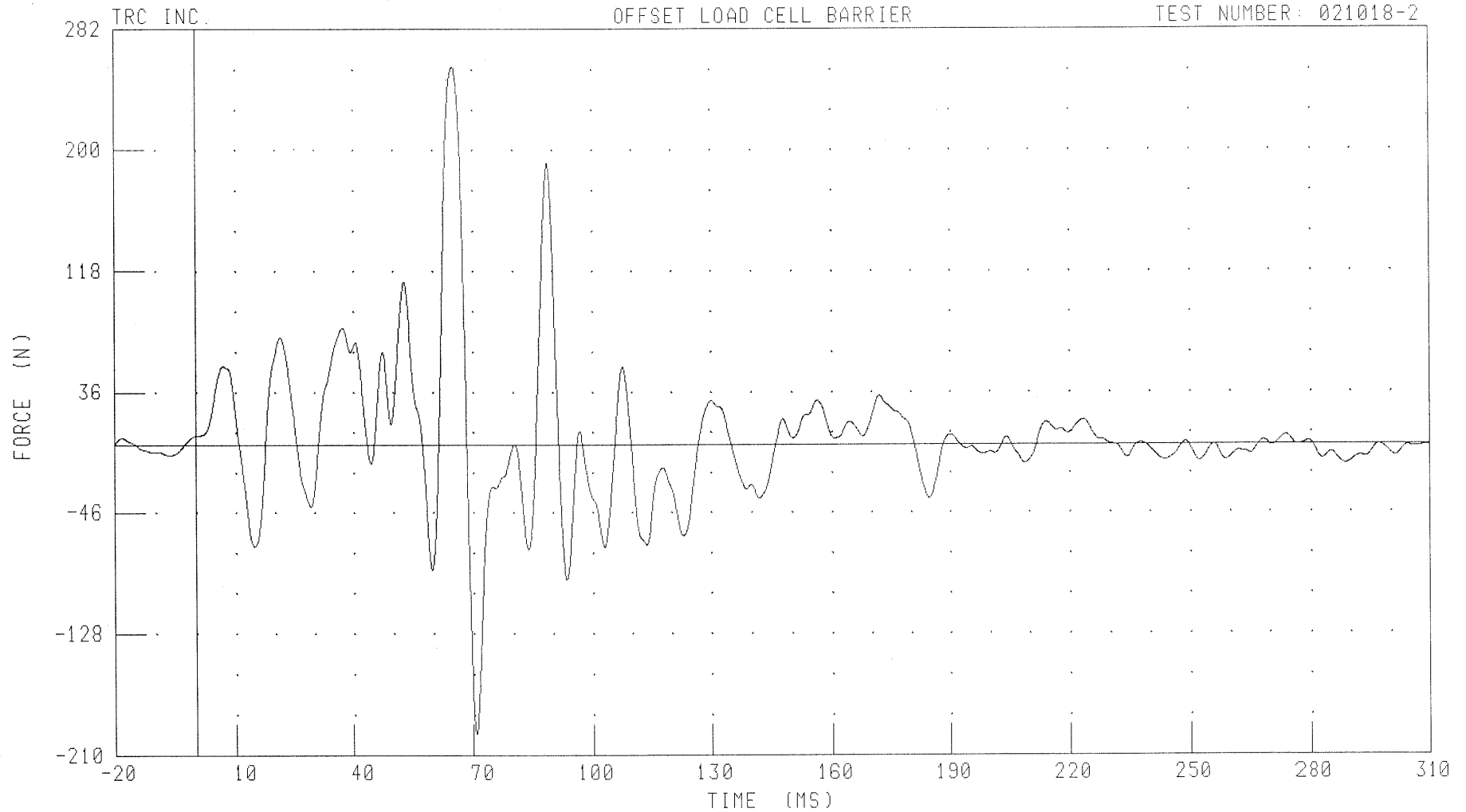
PEAK DATA: 225.25 N @ 64.80 MS; -220.23 N @ 70.80 MS

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: 021018-2



CHANNEL: LCH2XF FILTER: CH. CLASS 60

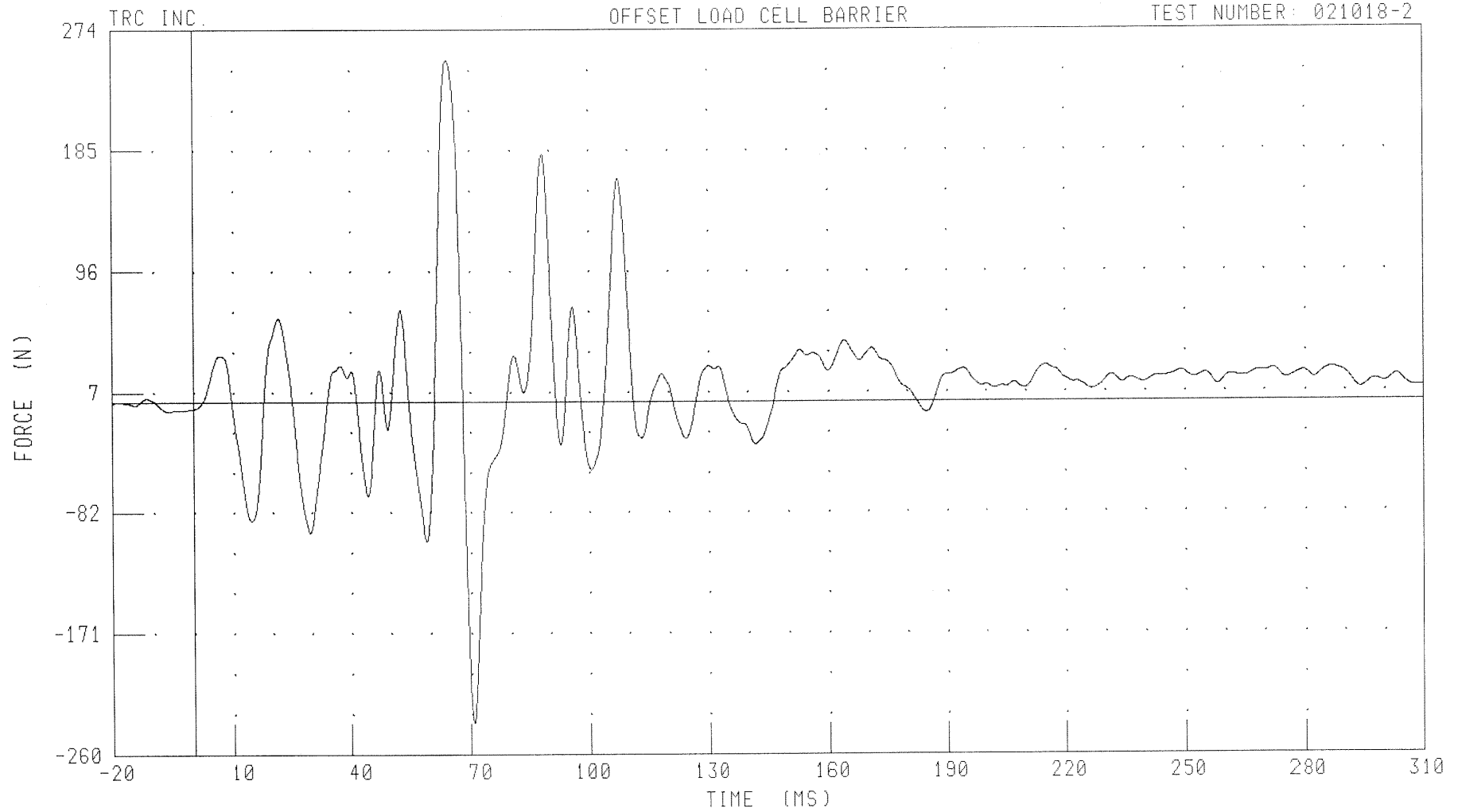
PEAK DATA: 256.77 N @ 65.20 MS; -195.82 N @ 70.72 MS

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: 021018-2



CHANNEL: LCH3XF FILTER: CH. CLASS 60

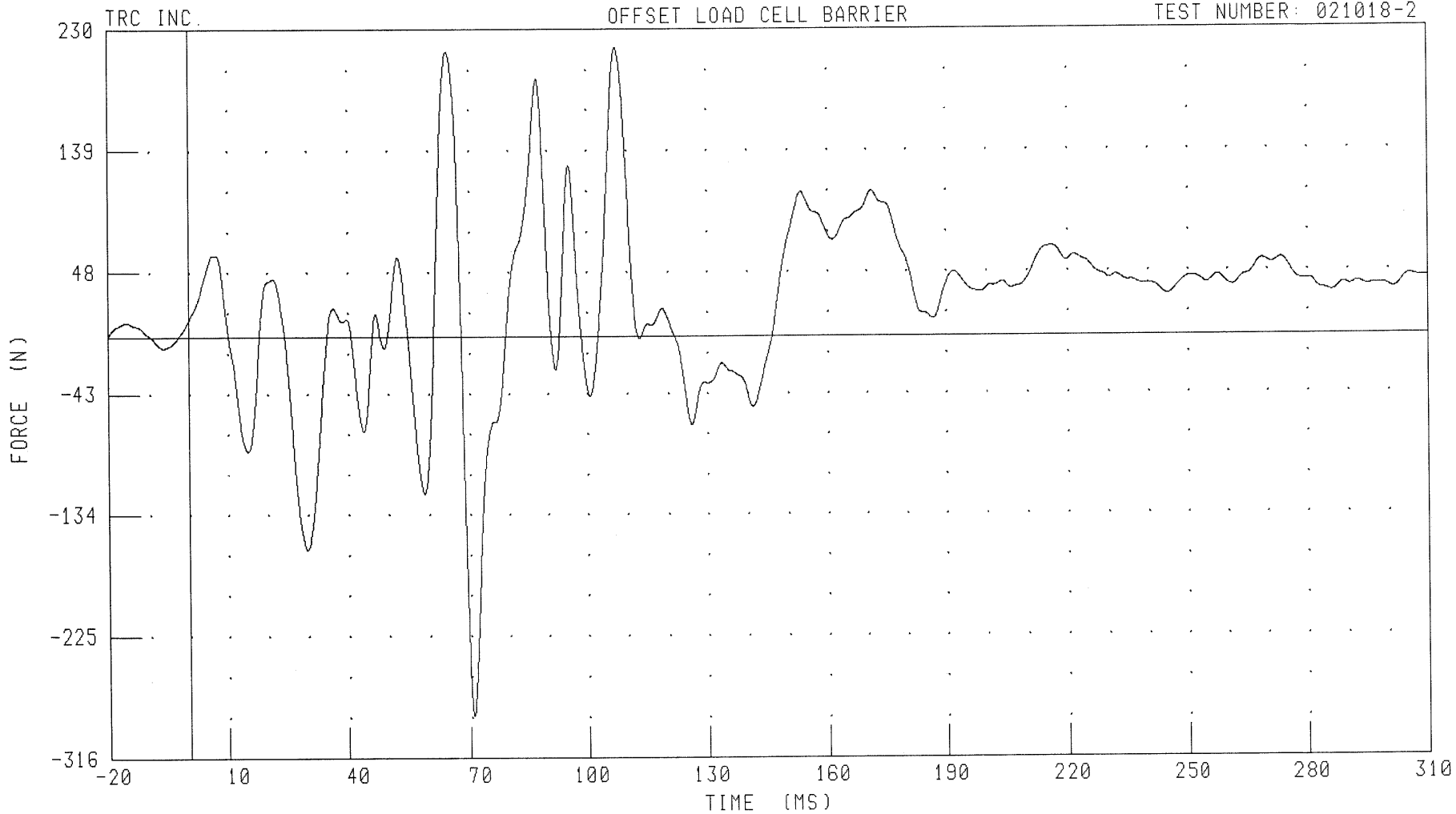
PEAK DATA: 251.65 N @ 64.56 MS; -236.77 N @ 70.72 MS

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: 021018-2



CHANNEL: LCH4XF FILTER: CH. CLASS 60

PEAK DATA: 216.26 N @ 107.52 MS; -284.56 N @ 70.80 MS

## Appendix C

### Dummy Configuration and Performance Verification Data

Pre-Test Dummy Configuration and Performance Verification Data

Driver Dummy S/N: 168

**Transportation Research Center  
Inc.**

**ATD Calibration Report**

for

**VRTC**

**HIII 50<sup>th</sup> Serial No. 168  
Calibration No. 18**

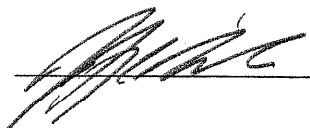


Transportation Research Center Inc.  
P.O. Box B-67  
10820 St. Rt. 347  
East Liberty, OH 43319-0367

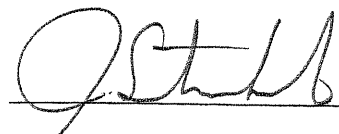
**Transportation Research Center Inc.**  
**572E HIII 50th Dummy**  
**External Dimensions**  
**Serial No. 168 Calibration No. 18**

Test Parameter	Dimension	Specification	Results	Pass
Location For Chest Circumference	AA	429 - 434 mm	432 mm	Yes
Location For Waist Circumference	BB	226 - 231 mm	229 mm	Yes
Chest Circumference	Y	970 - 1001 mm	981 mm	Yes
Waist Circumference	Z	836 - 866 mm	853 mm	Yes
Chest Depth	O	213 - 229 mm	227 mm	Yes
H-Point Height	C	84 - 89 mm	86 mm	Yes
H-Point From Seatback	D	135 - 140 mm	138 mm	Yes
Skull Cap To Backline	H	41 - 46 mm	46 mm	Yes
Total Sitting Height	A	879 - 889 mm	882 mm	Yes
Thigh Clearance	F	140 - 155 mm	151 mm	Yes
Buttock Knee Length	K	579 - 605 mm	597 mm	Yes
Buttock Popliteal Length	N	452 - 478 mm	473 mm	Yes
Popliteal Height	L	429 - 455 mm	446 mm	Yes
Knee Pivot Height	M	485 - 500 mm	491 mm	Yes
Foot Length	P	252 - 267 mm	260 mm	Yes
Foot Breadth	W	91 - 107 mm	103 mm	Yes
Shoulder Pivot From Backline	E	84 - 94 mm	91 mm	Yes
Shoulder Breadth	V	422 - 437 mm	430 mm	Yes
Shoulder Pivot Height	B	506 - 521 mm	514 mm	Yes
Elbow Rest Height	J	191 - 211 mm	208 mm	Yes
Shoulder-Elbow Length	I	330 - 345 mm	340 mm	Yes
Back Of Elbow To Wrist Pivot	G	290 - 305 mm	299 mm	Yes

Technician



Approved




# Transportation Research Center Inc.

572E Head Drop Test

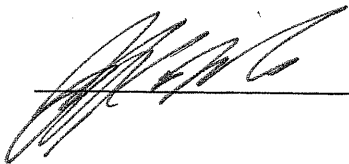
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Peak Resultant Acceleration	225 - 275 g	266.8 g	Yes
Peak Lateral Acceleration	15 g Max	-5.2 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

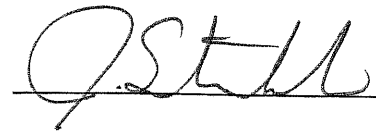
Comments:

Technician



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Approved



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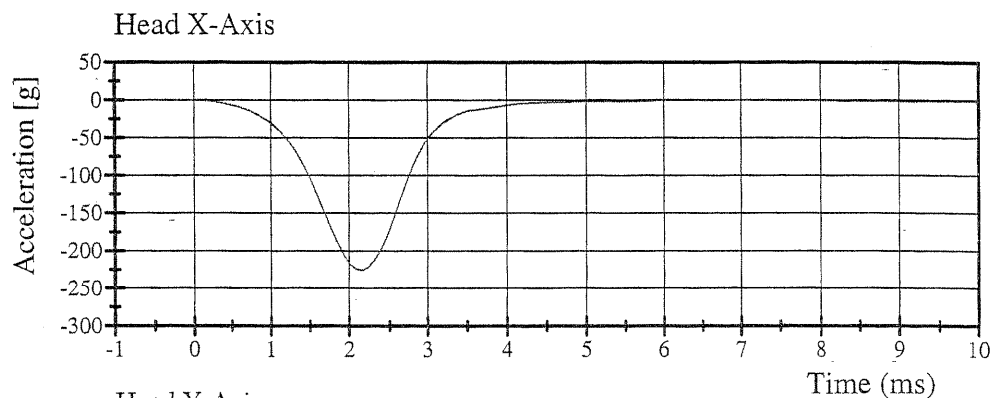


# Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

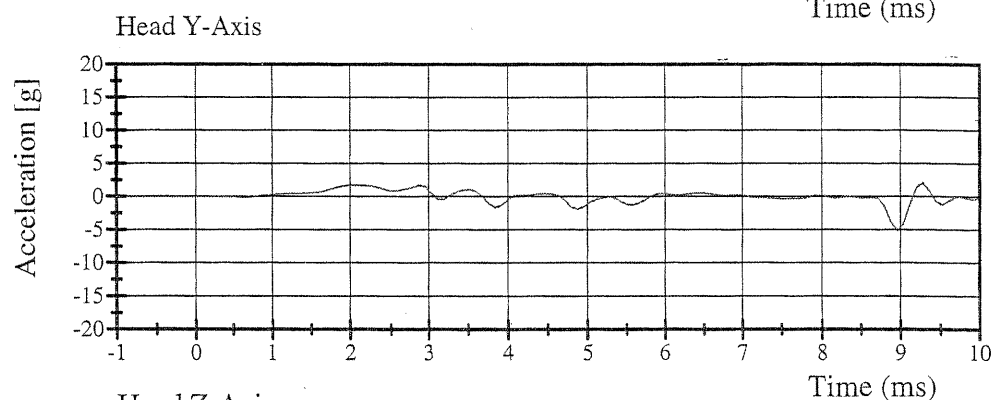
Test Date 10/07/2002



Filter Class: 1000

Max: 0.6 g at 6.4 ms

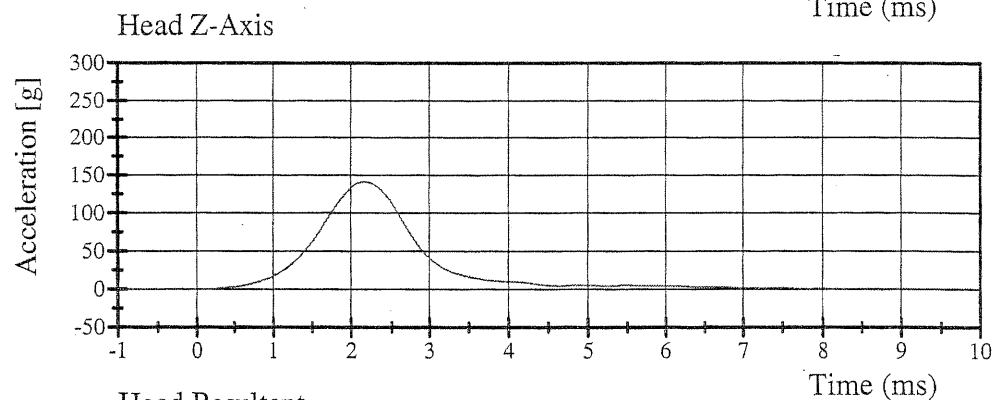
Min: -225.9 g at 2.2 ms



Filter Class: 1000

Max: 2.1 g at 9.3 ms

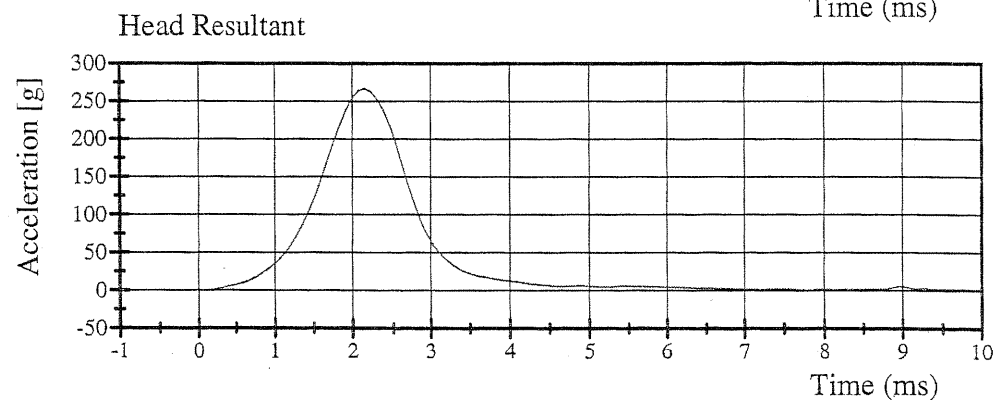
Min: -5.2 g at 9.0 ms



Filter Class: 1000

Max: 142.0 g at 2.2 ms

Min: 0.0 g at 0.0 ms



Filter Class: 1000

Max: 266.8 g at 2.2 ms

Min: 0.0 g at 0.5 ms



# Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

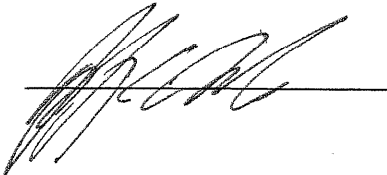
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	24.04 g	Yes
20 ms	17.60 - 22.60 g	22.29 g	Yes
30 ms	12.50 - 18.50 g	17.34 g	Yes
Max Pendulum Deceleration	29.00 g	24.25 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	17.26 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	34 - 42 ms	39.20 ms	Yes
D Plane Rotation			
Max	64 - 78 °	71.25 °	Yes
Time	57 - 64 ms	57.04 ms	Yes
Moment About Occipital Condyle			
Max	88.2 - 108.4 N·m	102.33 N·m	Yes
Time	47 - 58 ms	52.00 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	113 - 128 ms	114.24 ms	Yes
Positive Moment-Time Curve			
Decay Time To Zero	97 - 107 ms	99.36 ms	Yes

## Comments:

Technician



Approved



10.07.2002 16:18:55 460



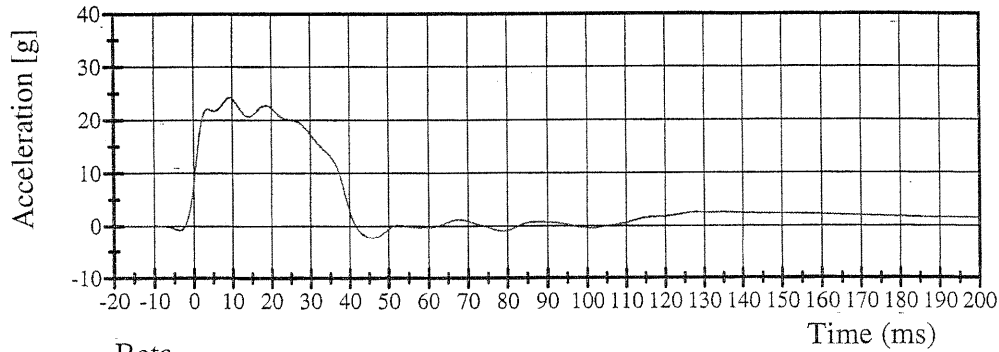
# Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

Pendulum Deceleration

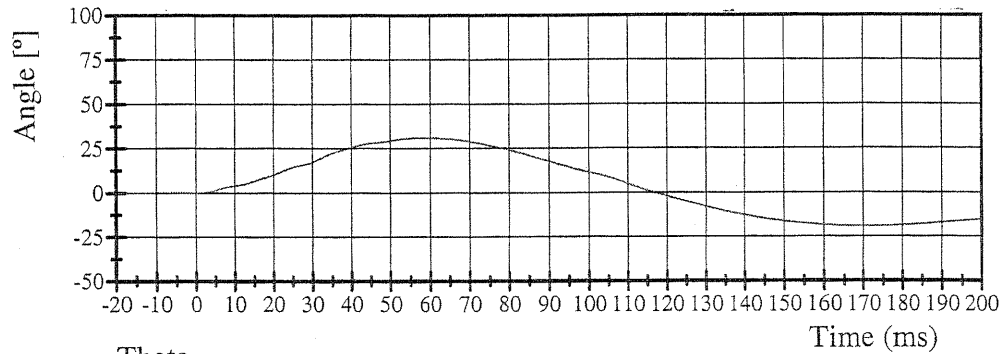


Filter Class: 60

Max: 24.2 g at 9.3 ms

Min: -2.3 g at 45.8 ms

Beta

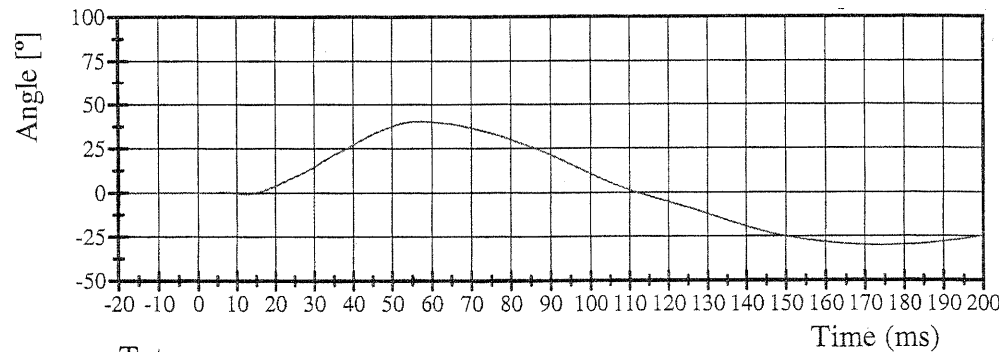


Filter Class: 60

Max: 30.9° at 58.4 ms

Min: -19.2° at 170.2 ms

Theta

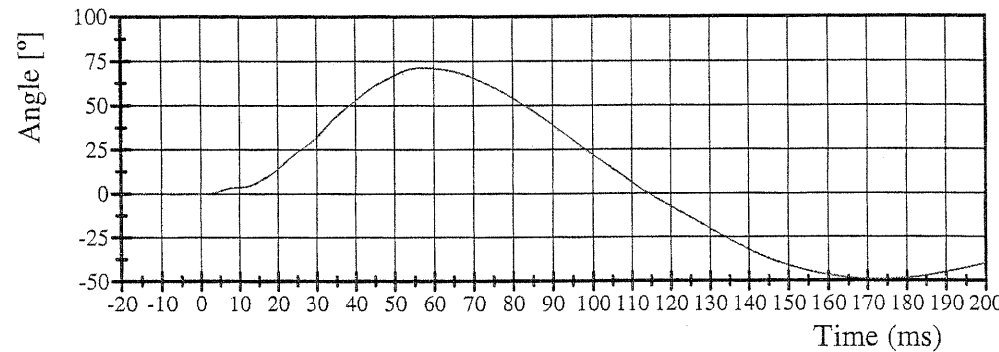


Filter Class: 60

Max: 40.4° at 56.6 ms

Min: -30.1° at 173.1 ms

Totan



Filter Class: 60

Max: 71.2° at 57.0 ms

Min: -49.3° at 172.0 ms



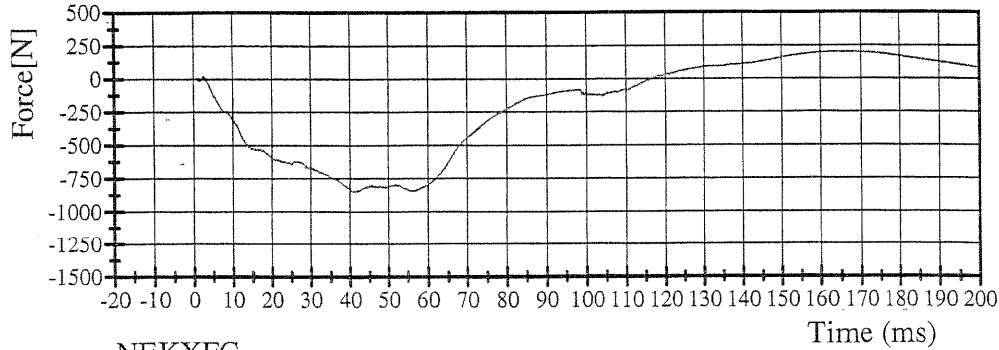
# Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

NEKXF

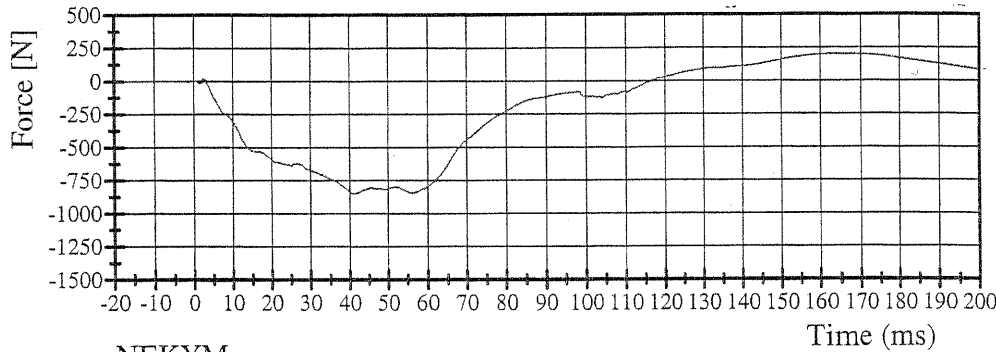


Filter Class: 1000

Max: 200.6 N at 166.4 ms

Min: -850.0 N at 41.0 ms

NEKXFC

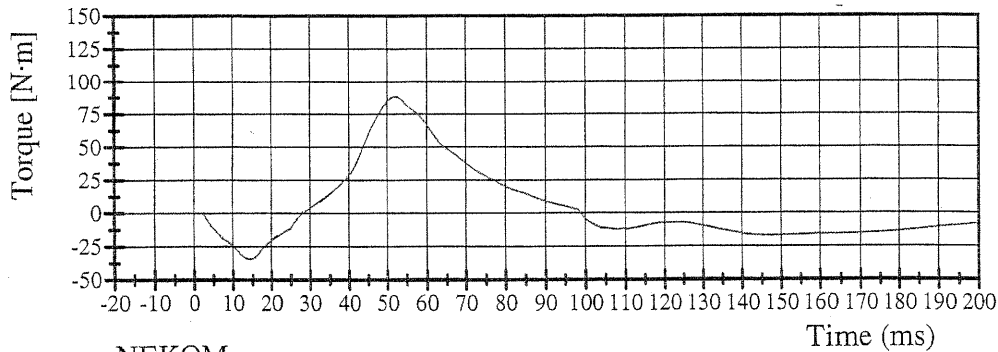


Filter Class: 600

Max: 200.0 N at 166.3 ms

Min: -849.4 N at 41.1 ms

NEKYM

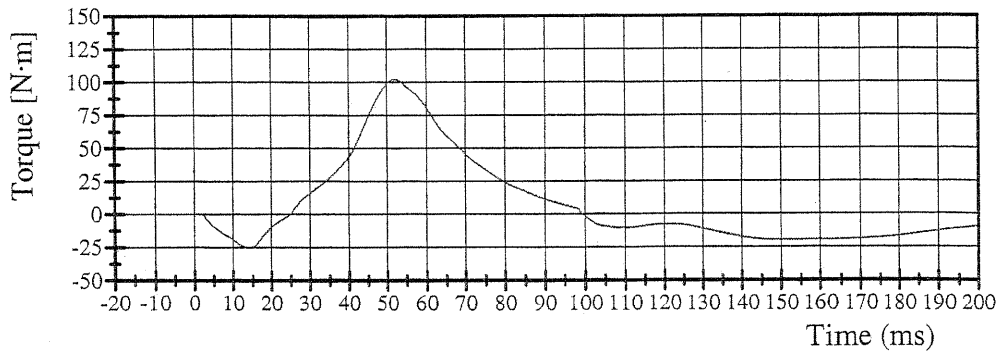


Filter Class: 600

Max: 88.2 N·m at 52.0 ms

Min: -34.5 N·m at 14.2 ms

NEKOM



Filter Class: 600

Max: 102.3 N·m at 52.0 ms

Min: -25.4 N·m at 14.0 ms



# Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

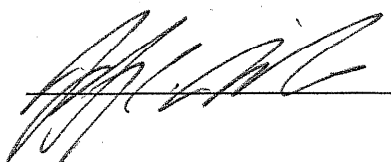
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

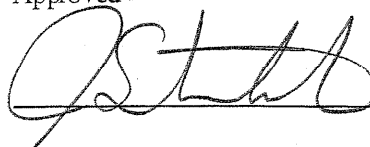
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.11 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	19.09 g	Yes
20 ms	14.00 - 19.00 g	18.72 g	Yes
30 ms	11.00 - 16.00 g	15.10 g	Yes
Max Pendulum Deceleration	22.00 g	19.32 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	15.06 g	Yes
Deceleration-Time Curve Decay Time To 5g	38 - 46 ms	41.04 ms	Yes
D Plane Rotation			
Max	81 - 106 °	95.79 °	Yes
Time	72 - 82 ms	74.64 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-70.39 N·m	Yes
Time	65 - 79 ms	70.64 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	147 - 174 ms	151.44 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	120 - 148 ms	141.12 ms	Yes

## Comments:

Technician



Approved



10.07.2002 16:45:06 532



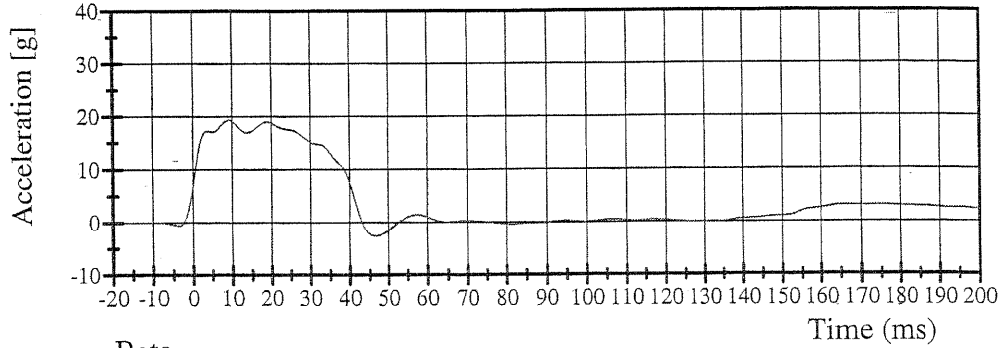
# Transportation Research Center Inc.

572E Neck Extension Test

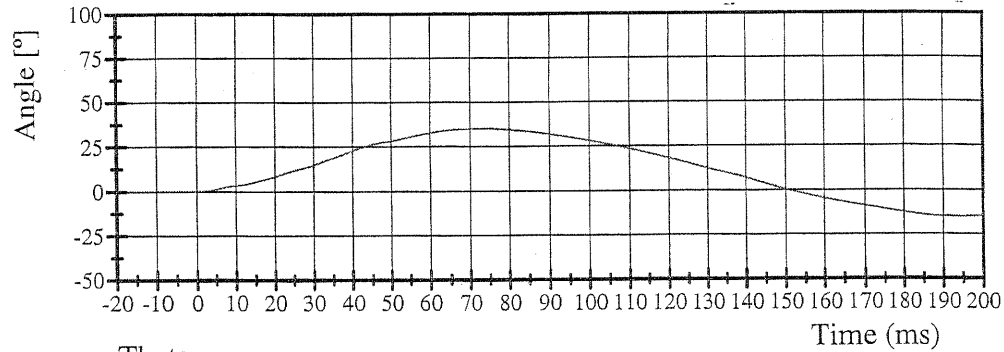
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

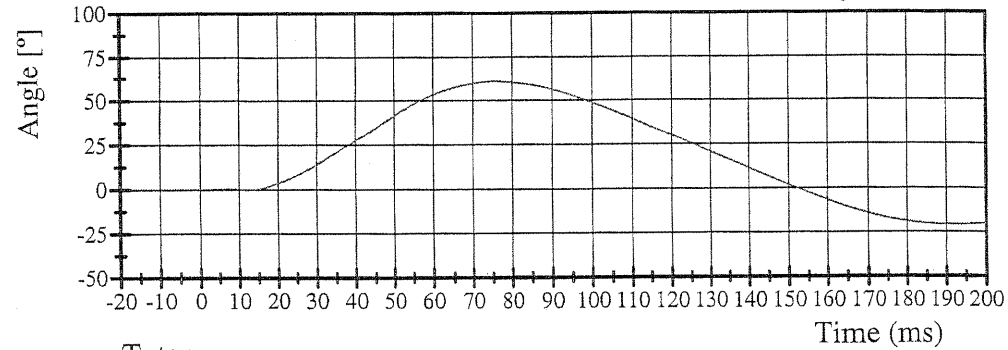
### Pendulum Deceleration



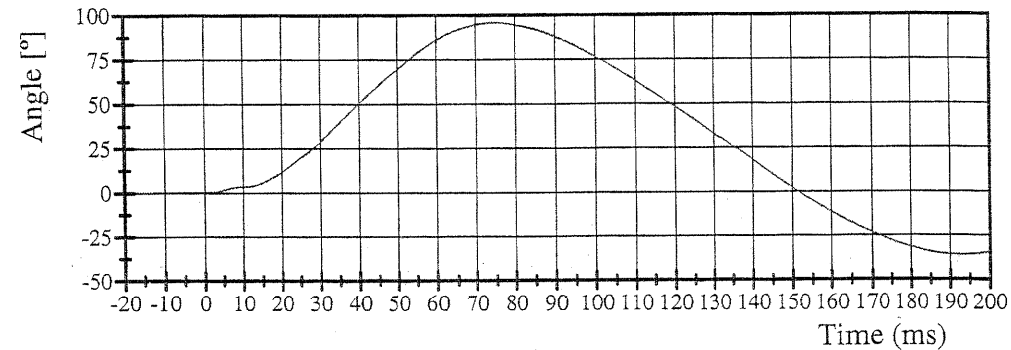
### Beta



### Theta



### Totan



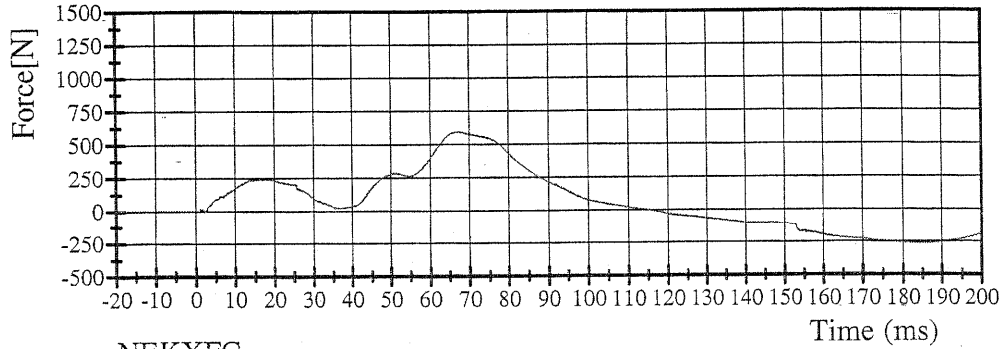
# Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

NEKXF

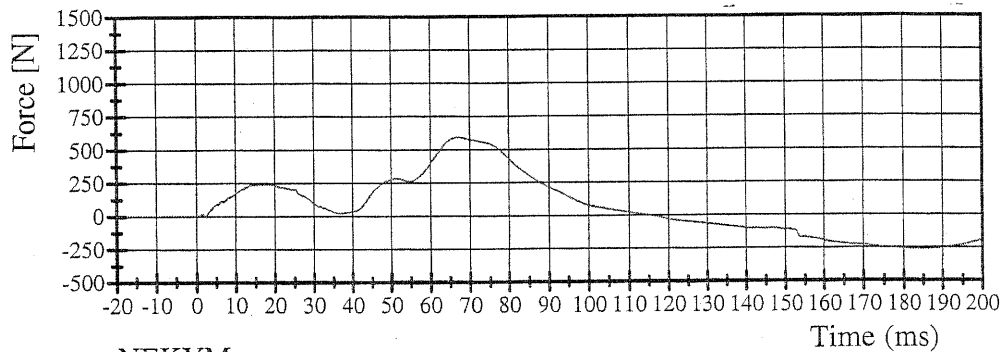


Filter Class: 1000

Max: 594.6 N at 67.1 ms

Min: -263.5 N at 183.6 ms

NEKXFC

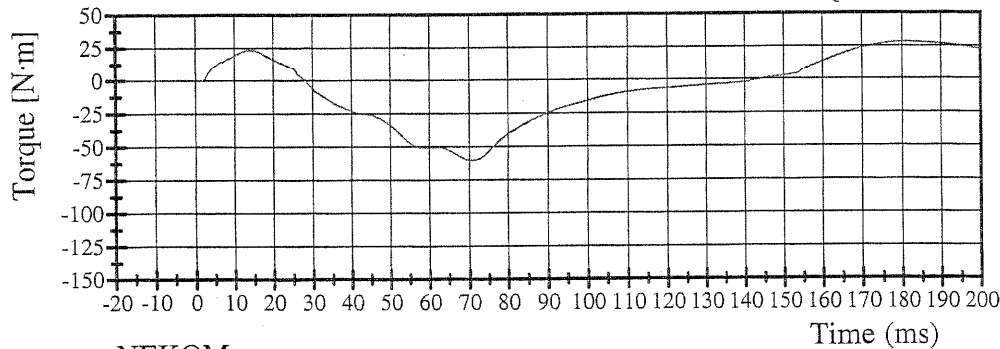


Filter Class: 600

Max: 593.8 N at 67.1 ms

Min: -263.1 N at 184.4 ms

NEKYM

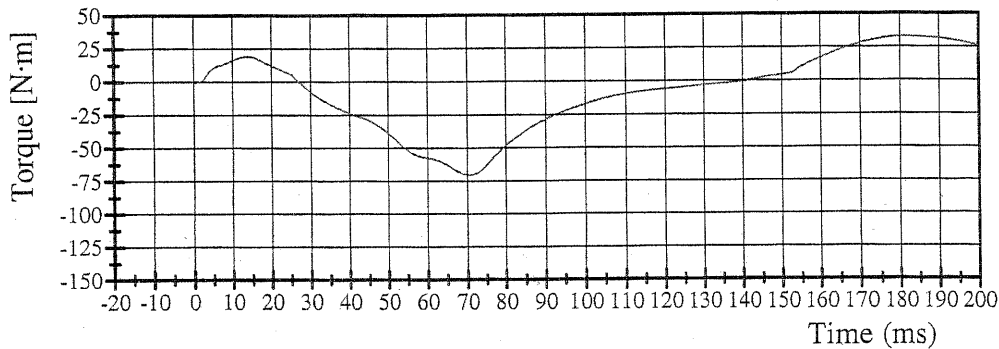


Filter Class: 600

Max: 28.3 N·m at 180.7 ms

Min: -60.3 N·m at 70.7 ms

NEKOM



Filter Class: 600

Max: 32.8 N·m at 180.7 ms

Min: -70.4 N·m at 70.6 ms



# Transportation Research Center Inc.

572E Thorax Test

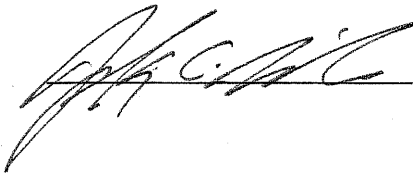
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.60 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-66.9 mm	Yes
Maximum Resistive Force	5159 - 5894 N	5782 N	Yes
Internal Hysteresis	69 - 85 %	71 %	Yes

## Comments:

Technician



Approved



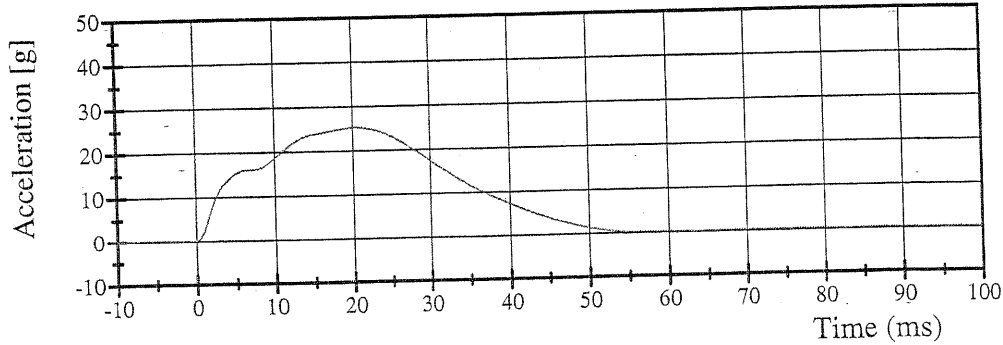
# Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

### Pendulum Deceleration

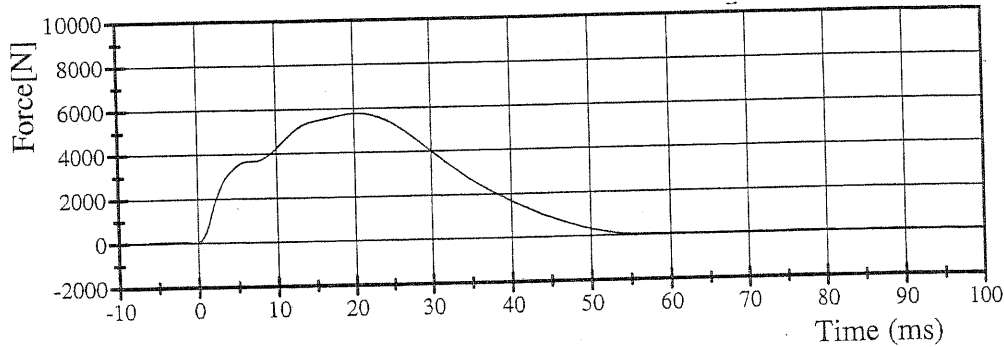


Filter Class: 180

Max: 25.2 g at 20.3 ms

Min: -0.2 g at 356.6 ms

### Pendulum Force

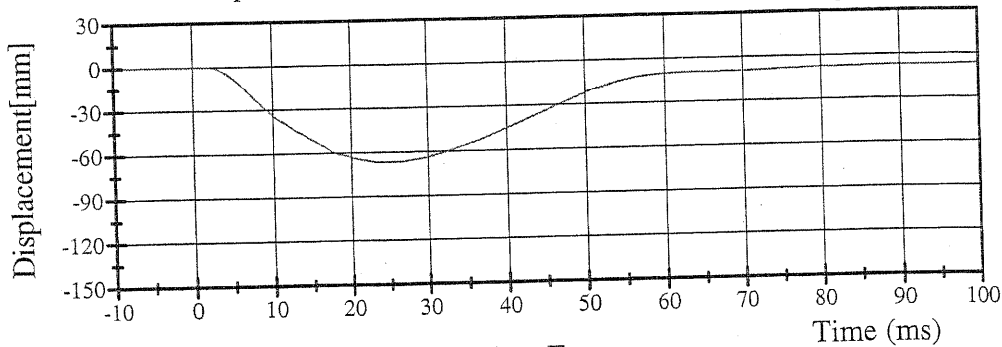


Filter Class: 180

Max: 5781.8 N at 20.3 ms

Min: -35.0 N at 356.6 ms

### Chest Displacement

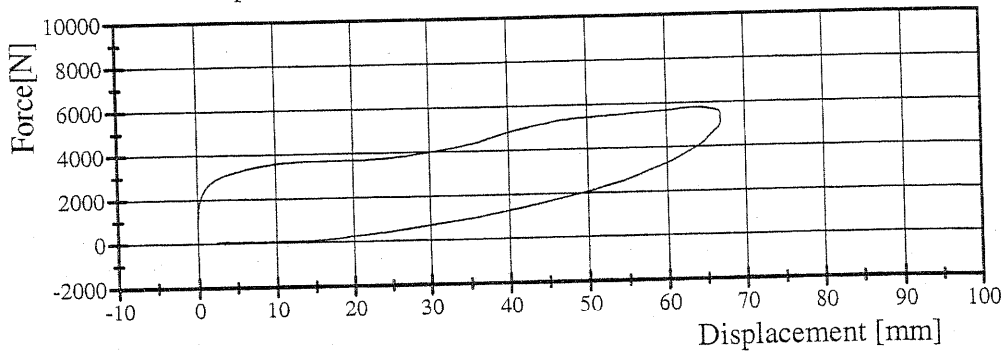


Filter Class: 180

Max: 0.0 mm at 1.0 ms

Min: -66.9 mm at 25.8 ms

### Chest Displacement vs. Pendulum Force



# Transportation Research Center Inc

Hybrid III Hip Range of Motion

Serial Number: 168C18  
 Test Number: 168L

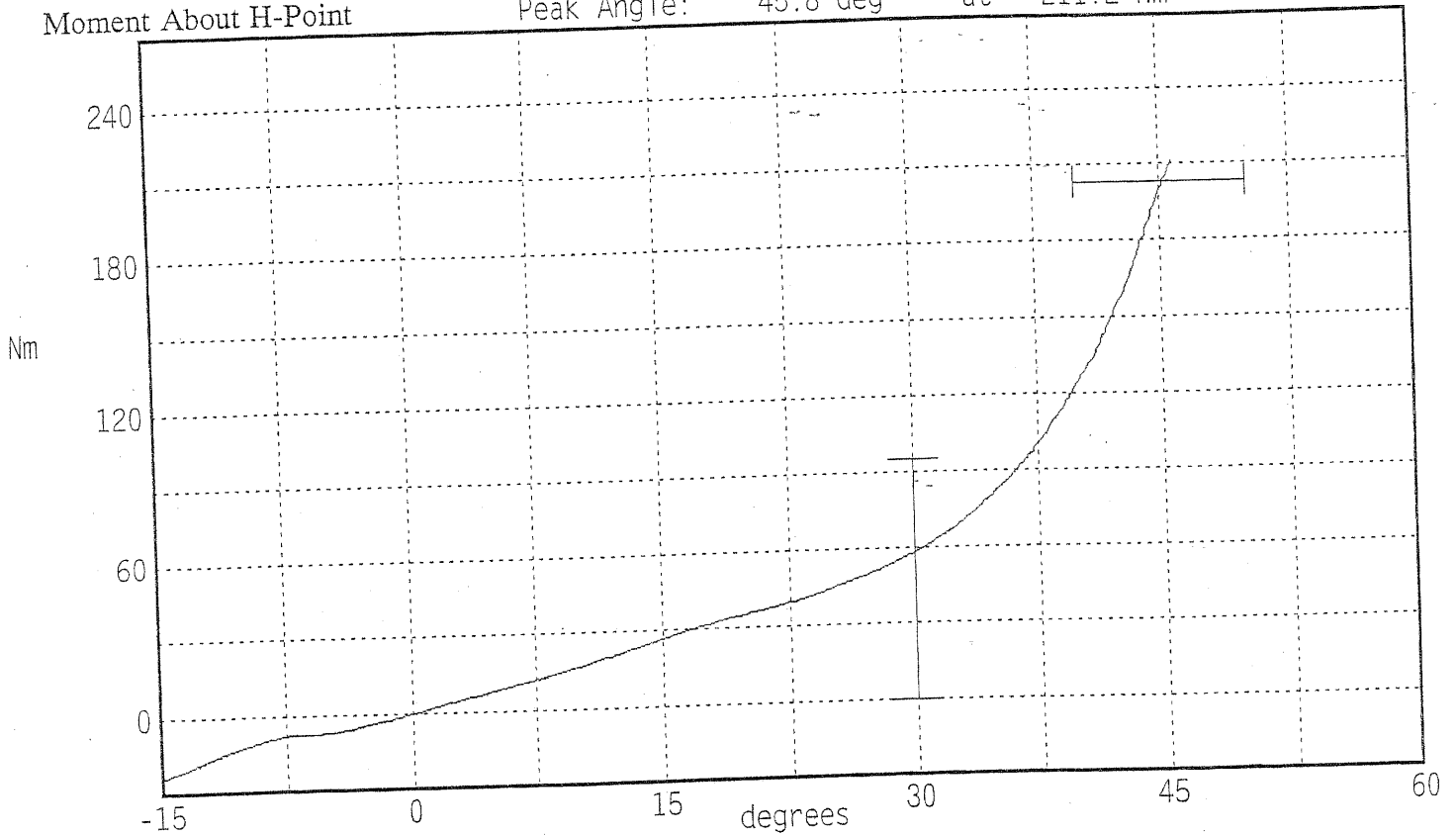
Date: 10/07/2002  
 Time: 16:00

Comments:

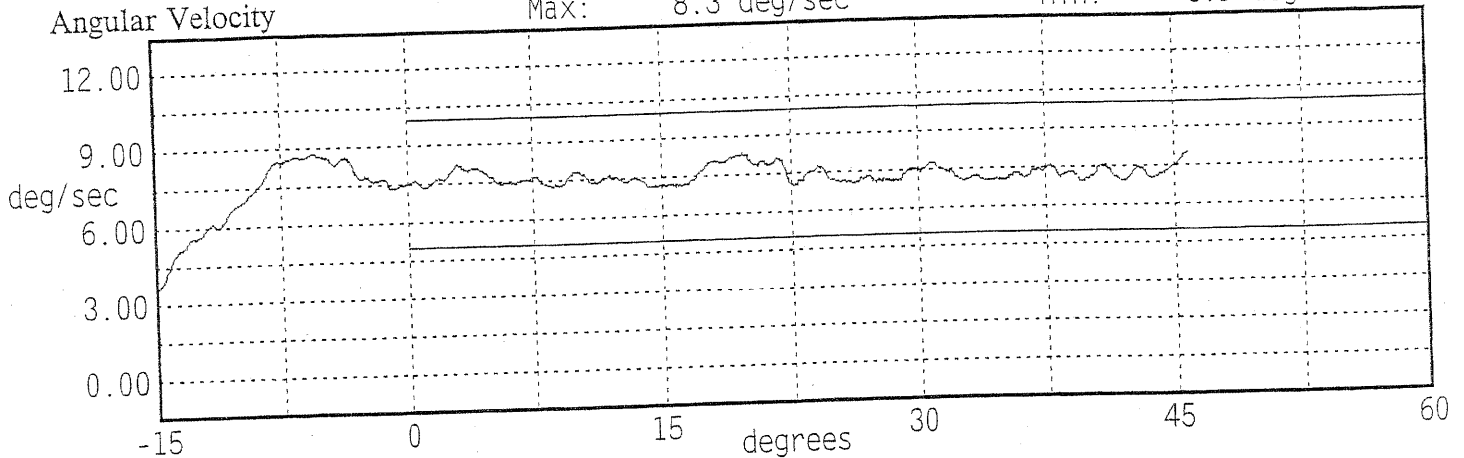
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	37 %	Pass
Moment at 30 deg	<= 94.9	58.8 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.3 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Peak Moment: 211.2 Nm at 45.8 deg  
 Peak Angle: 45.8 deg at 211.2 Nm

Moment About H-Point



Angular Velocity Max: 8.3 deg/sec Min: 6.9 deg/sec



# Transportation Research Center Inc

Hybrid III Hip Range of Motion

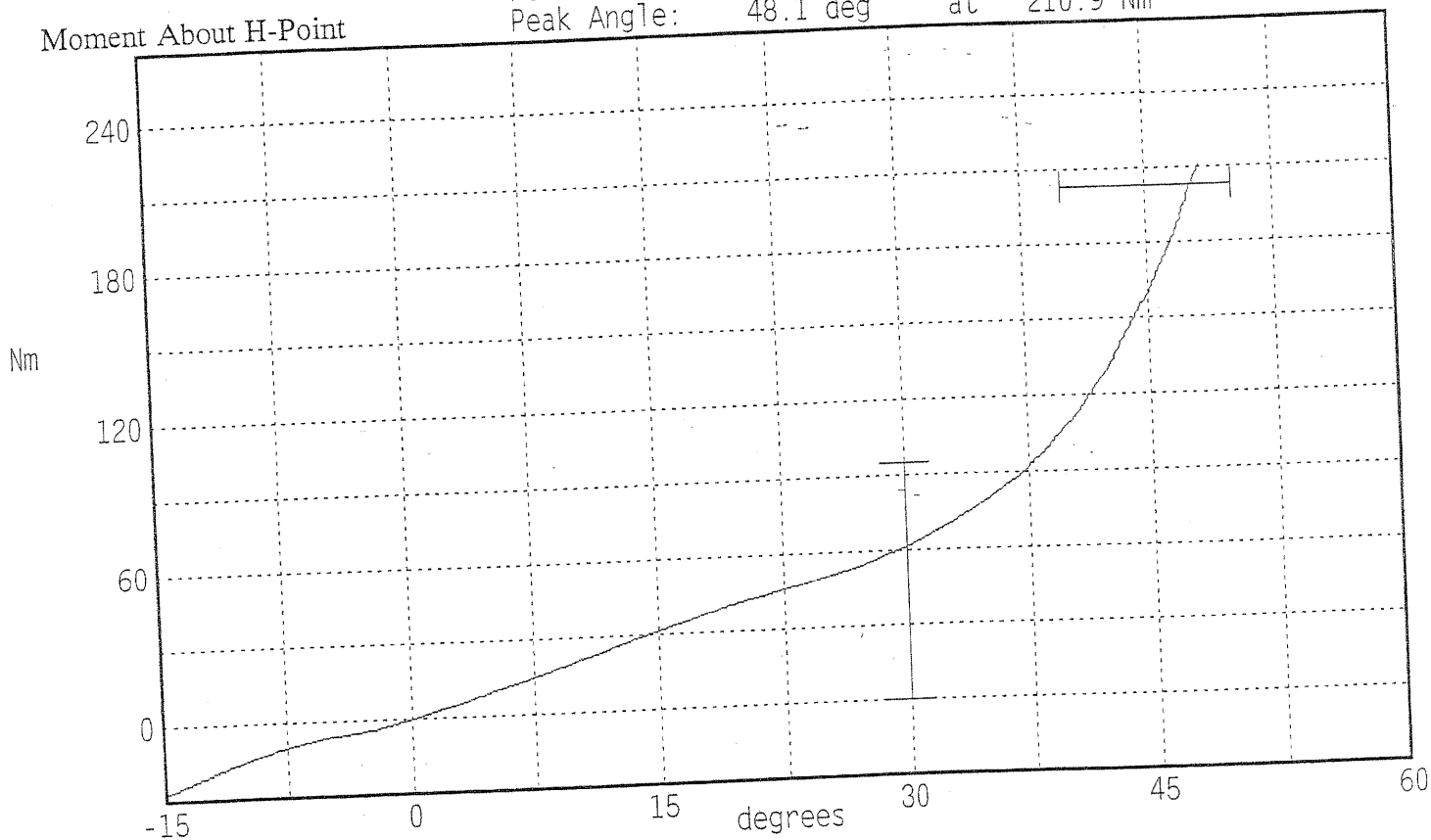
Serial Number: 168C18  
 Test Number: 168R  
 Comments:

Date: 10/07/2002  
 Time: 16:07

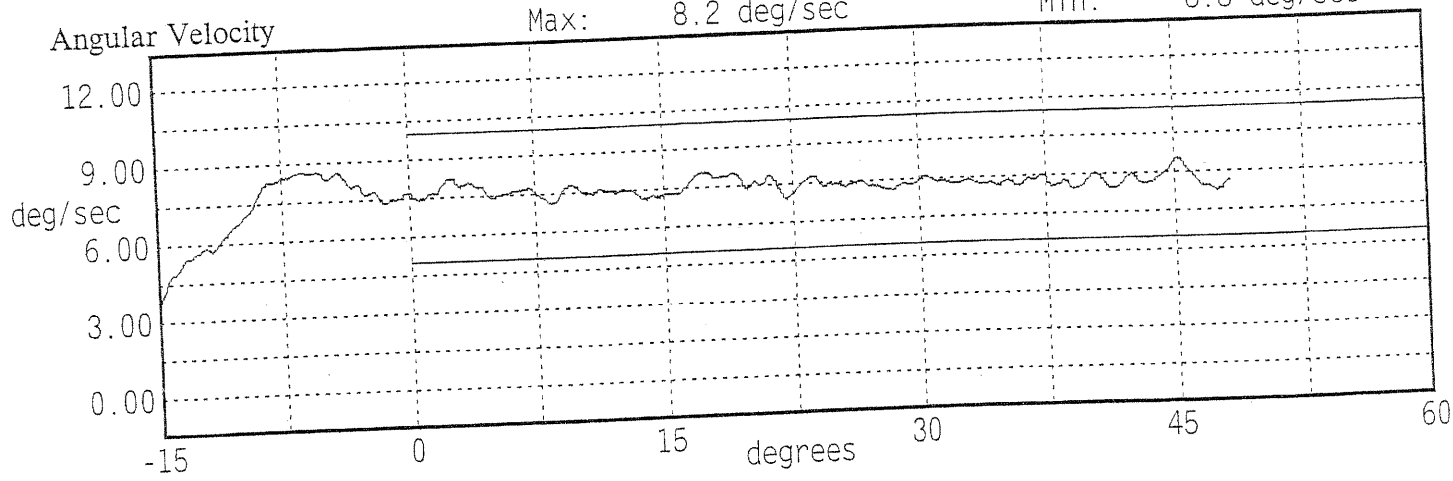
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	37 %	Pass
Moment at 30 deg	<= 94.9	61.8 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	47.8 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Peak Moment: 210.9 Nm at 48.1 deg  
 Peak Angle: 48.1 deg at 210.9 Nm

Moment About H-Point



Angular Velocity Max: 8.2 deg/sec Min: 6.8 deg/sec



# Transportation Research Center Inc.

572E Left Knee Slider Test

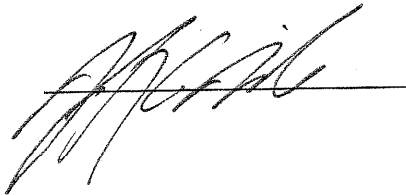
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.72 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1664 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3036 N	Yes

Comments:

Technician



Approved

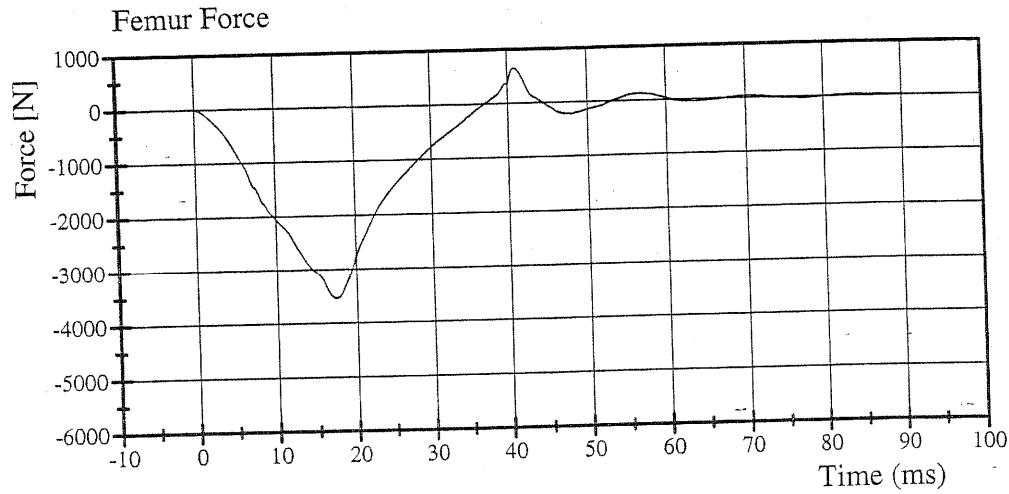


# Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

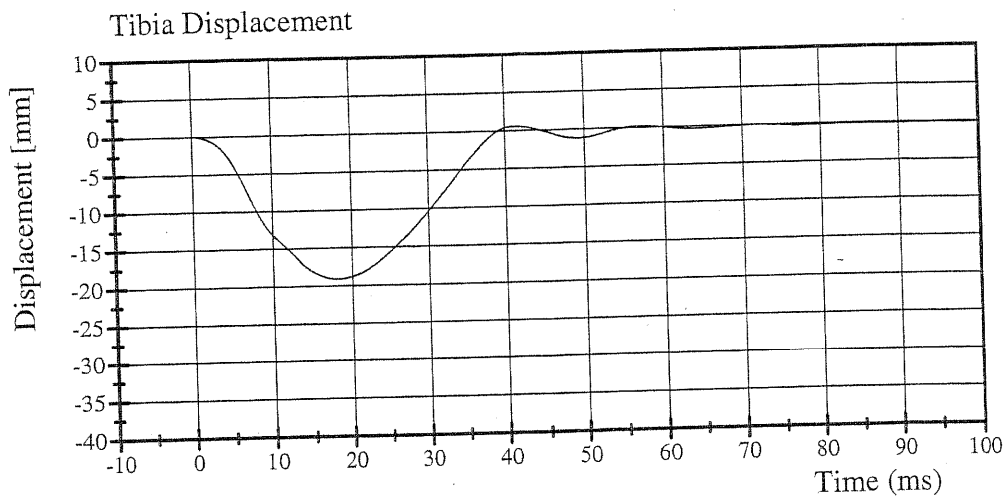
Test Date 10/07/2002



Filter Class: 600

Max: 643.0 N at 40.9 ms

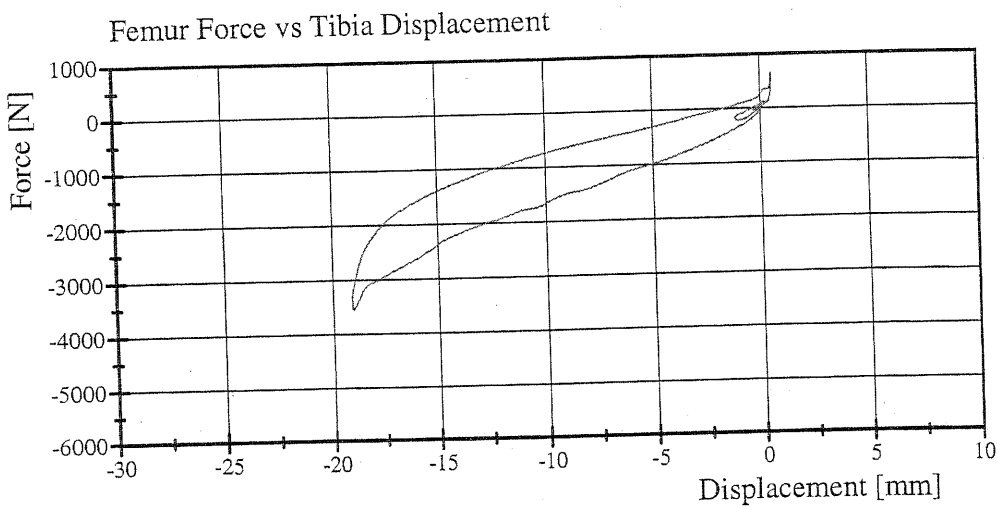
Min: -3539.4 N at 17.4 ms



Filter Class: 600

Max: 0.5 mm at 41.4 ms

Min: -19.1 mm at 18.2 ms



# Transportation Research Center Inc.

572E Right Knee Slider Test

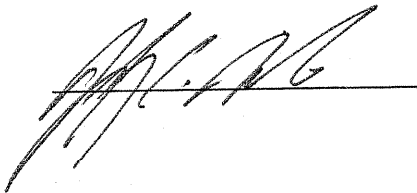
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.71 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1336 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2305 N	Yes

Comments:

Technician



Approved

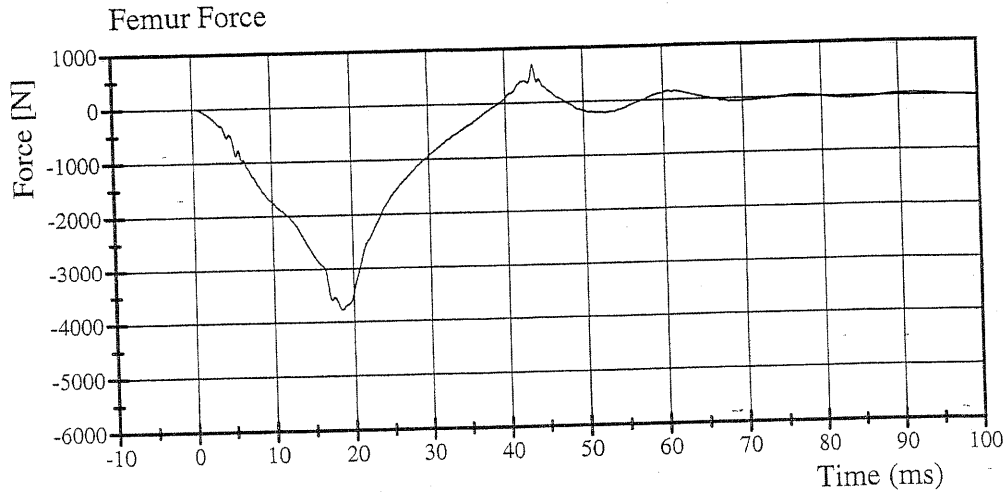


# Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

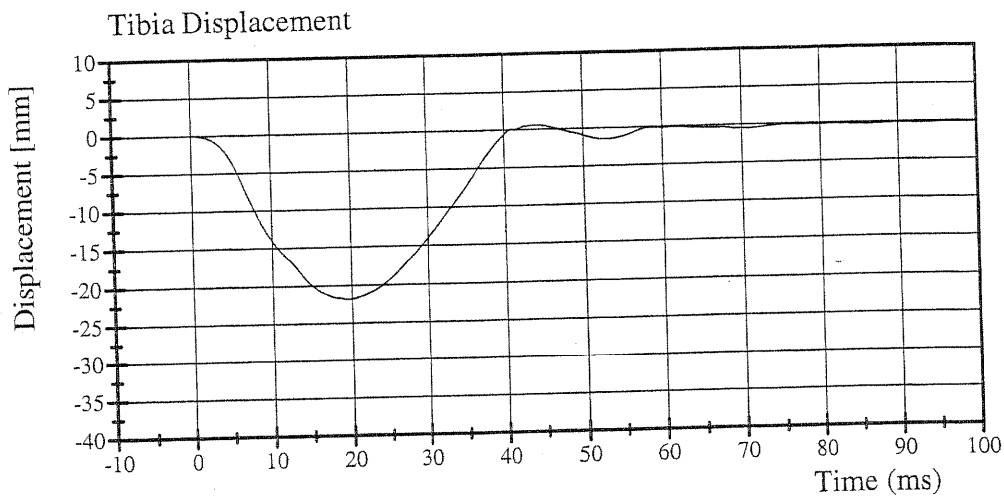
Test Date 10/07/2002



Filter Class: 600

Max: 694.6 N at 43.6 ms

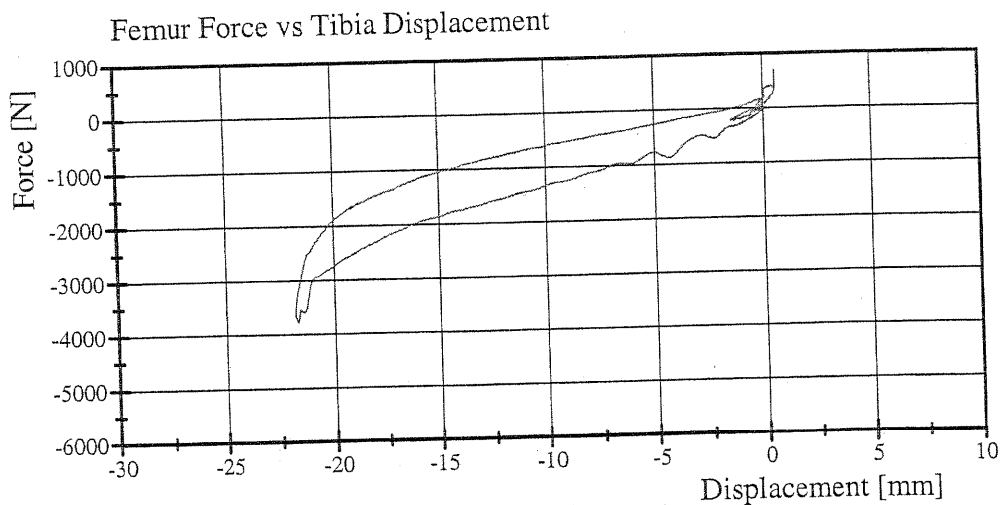
Min: -3772.7 N at 18.6 ms



Filter Class: 600

Max: 0.6 mm at 44.2 ms

Min: -21.8 mm at 19.4 ms



# Transportation Research Center Inc.

572E Left Knee Test

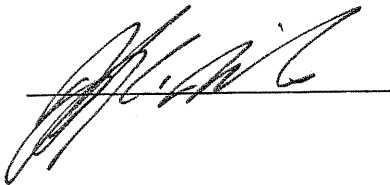
HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

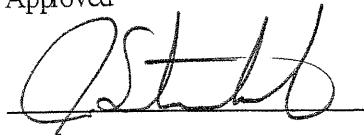
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5181 N	Yes

Comments:

Technician



Approved



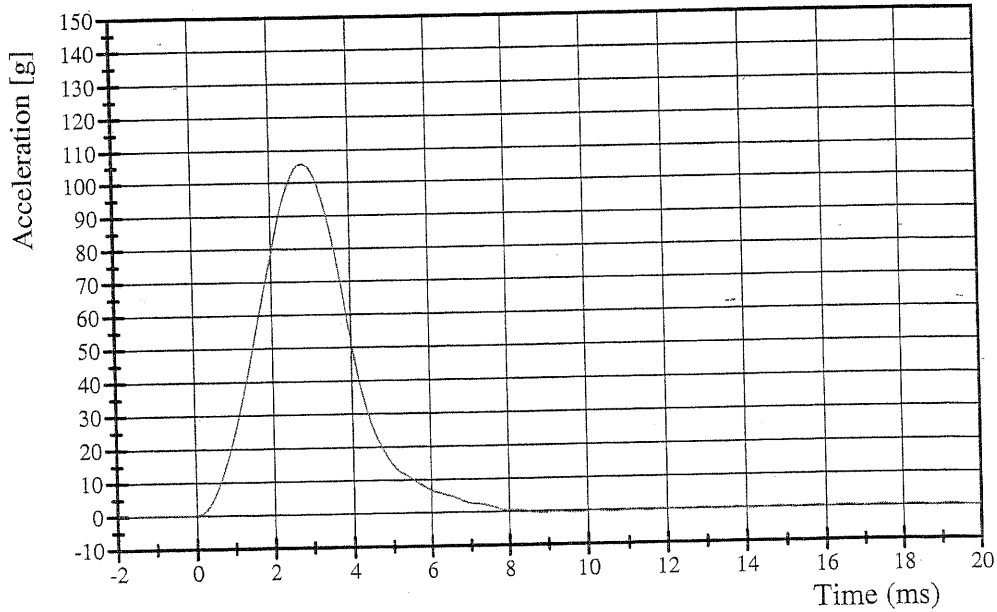
# Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

### Pendulum Deceleration

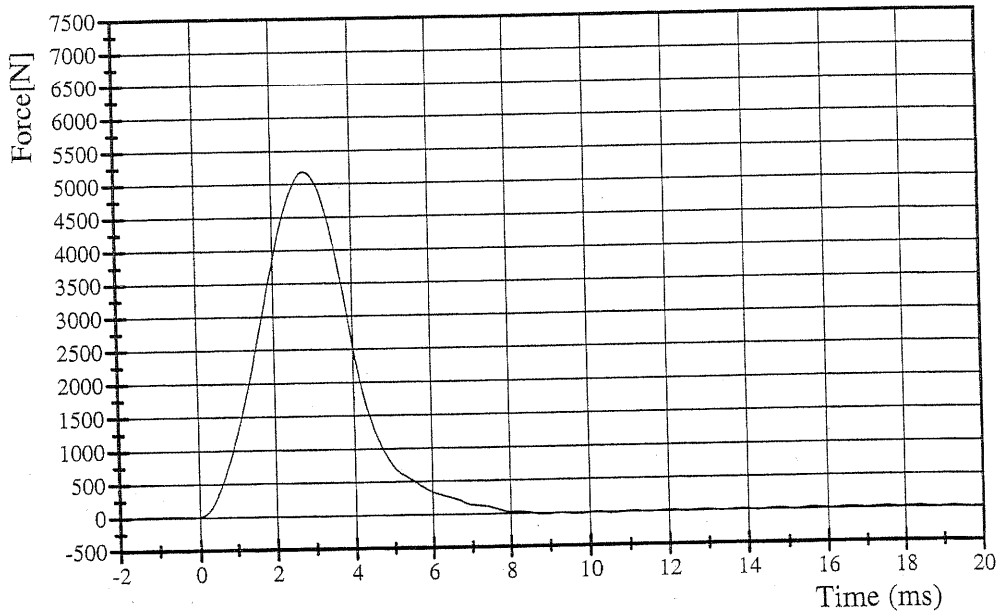


Filter Class: 600

Max: 105.9 g at 2.8 ms

Min: -0.5 g at 8.9 ms

### Pendulum Force



Filter Class: 600

Max: 5180.8 N at 2.8 ms

Min: -23.8 N at 8.9 ms



# Transportation Research Center Inc.

572E Right Knee Test

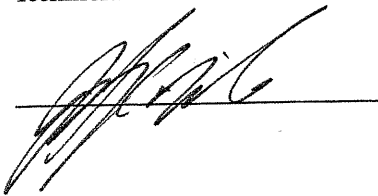
HIH 50th Male Serial No. 168 Calibration No. 18 - 1

Test Date 10/07/2002

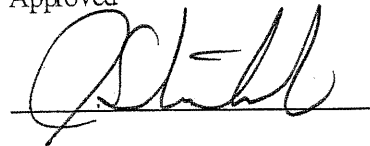
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.13 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5181 N	Yes

## Comments:

Technician



Approved

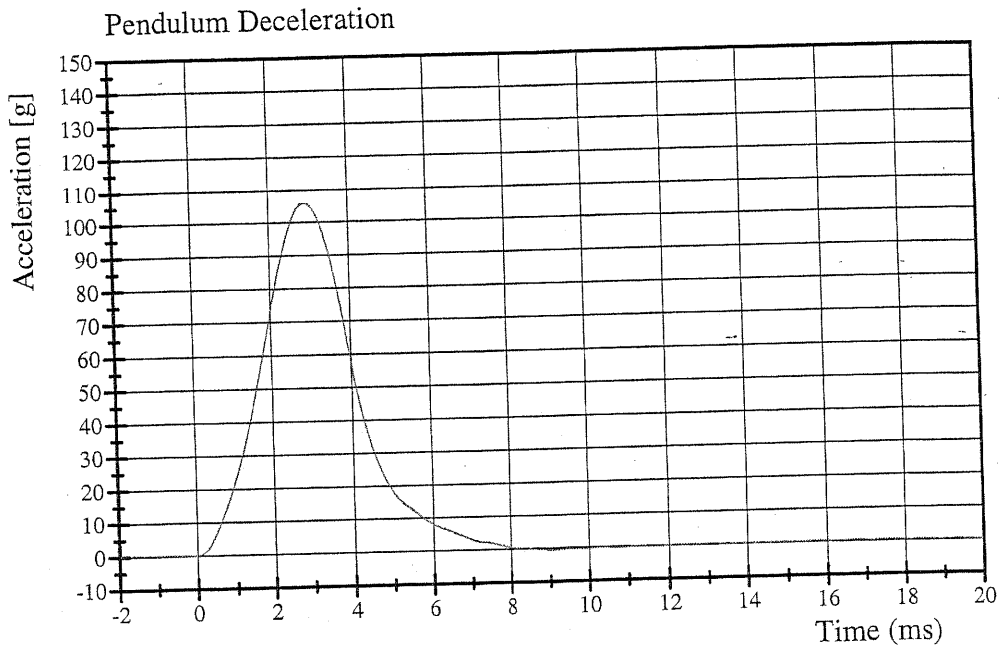


# Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 18 - 1

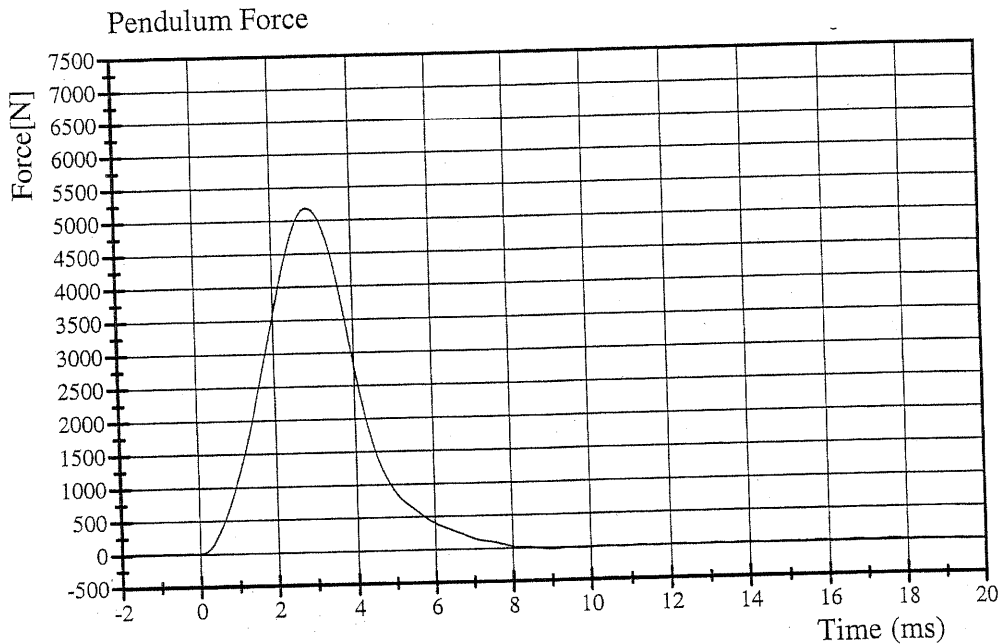
Test Date 10/07/2002



Filter Class: 600

Max: 105.9 g at 2.9 ms

Min: -0.6 g at 9.0 ms



Filter Class: 600

Max: 5181.1 N at 2.9 ms

Min: -27.6 N at 9.0 ms

Pre-Test Dummy Configuration and Performance Verification Data

Passenger Dummy S/N: 169

**Transportation Research Center  
Inc.**

**ATD Calibration Report**

for

**VRTC**

**HIII 50<sup>th</sup> Serial No. 169  
Calibration No. 16**



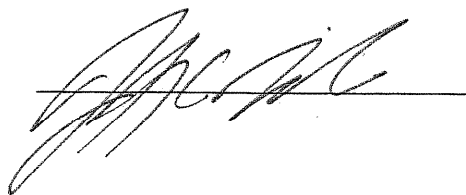
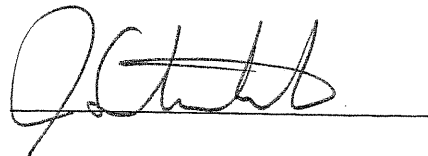
Transportation Research Center Inc.  
P.O. Box B-67  
10820 St. Rt. 347  
East Liberty, OH 43319-0367

**Transportation Research Center Inc.**  
**572E HIII 50th Dummy**  
**External Dimensions**  
**Serial No. 169 Calibration No. 16**

Test Parameter	Dimension	Specification	Results	Pass
Location For Chest Circumference	AA	429 - 434 mm	432 mm	Yes
Location For Waist Circumference	BB	226 - 231 mm	229 mm	Yes
Chest Circumference	Y	970 - 1001 mm	993 mm	Yes
Waist Circumference	Z	836 - 866 mm	860 mm	Yes
Chest Depth	O	213 - 229 mm	221 mm	Yes
H-Point Height	C	84 - 89 mm	87 mm	Yes
H-Point From Seatback	D	135 - 140 mm	136 mm	Yes
Skull Cap To Backline	H	41 - 46 mm	44 mm	Yes
Total Sitting Height	A	879 - 889 mm	883 mm	Yes
Thigh Clearance	F	140 - 155 mm	149 mm	Yes
Buttock Knee Length	K	579 - 605 mm	591 mm	Yes
Buttock Popliteal Length	N	452 - 478 mm	474 mm	Yes
Popliteal Height	L	429 - 455 mm	440 mm	Yes
Knee Pivot Height	M	485 - 500 mm	489 mm	Yes
Foot Length	P	252 - 267 mm	253 mm	Yes
Foot Breadth	W	91 - 107 mm	102 mm	Yes
Shoulder Pivot From Backline	E	84 - 94 mm	91 mm	Yes
Shoulder Breadth	V	422 - 437 mm	427 mm	Yes
Shoulder Pivot Height	B	506 - 521 mm	518 mm	Yes
Elbow Rest Height	J	191 - 211 mm	205 mm	Yes
Shoulder-Elbow Length	I	330 - 345 mm	344 mm	Yes
Back Of Elbow To Wrist Pivot	G	290 - 305 mm	295 mm	Yes

Technician

Approved


# Transportation Research Center Inc.

572E Head Drop Test

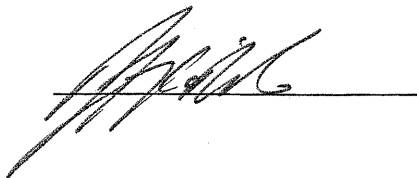
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

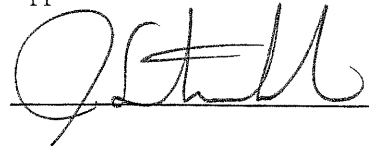
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Peak Resultant Acceleration	225 - 275 g	262.9 g	Yes
Peak Lateral Acceleration	15 g Max	-8.0 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved

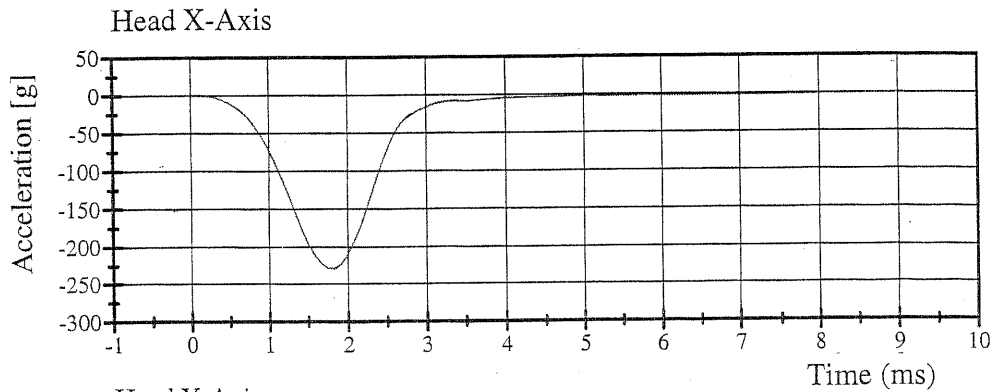


# Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

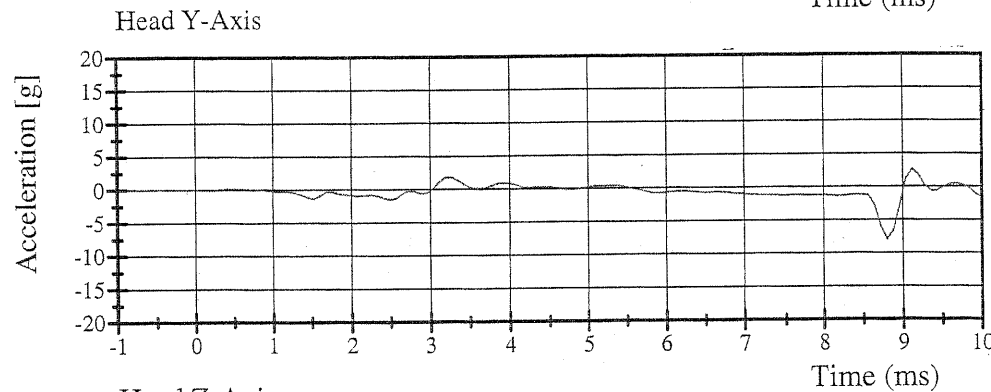
Test Date 10/07/2002



Filter Class: 1000

Max: 0.2 g at 10.0 ms

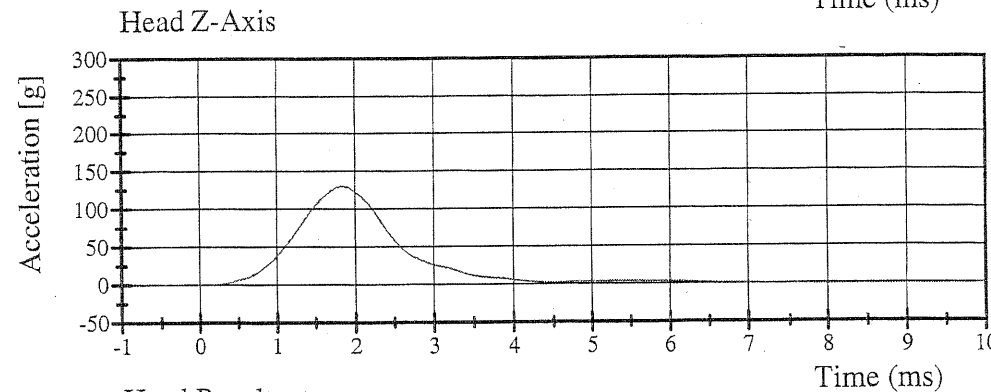
Min: -228.4 g at 1.8 ms



Filter Class: 1000

Max: 2.6 g at 9.1 ms

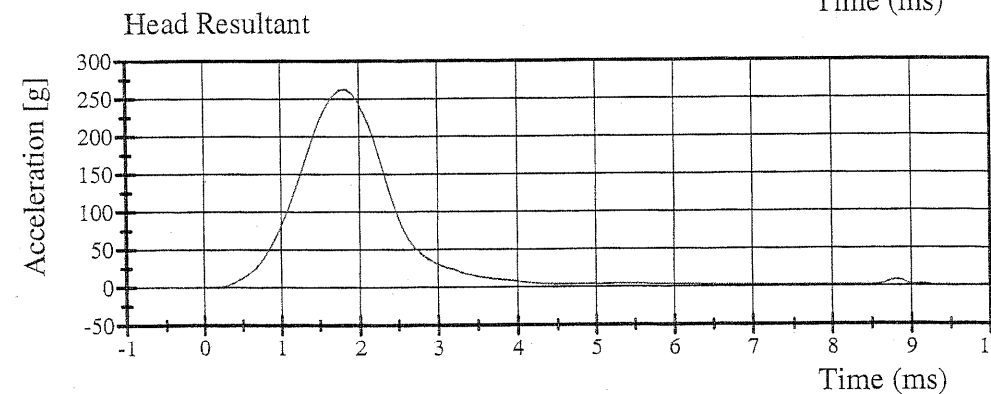
Min: -8.0 g at 8.8 ms



Filter Class: 1000

Max: 130.3 g at 1.8 ms

Min: -0.9 g at 8.8 ms



Filter Class: 1000

Max: 262.9 g at 1.8 ms

Min: 0.0 g at 8.2 ms



# Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

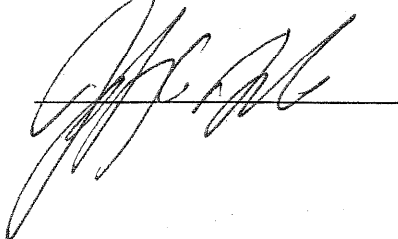
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

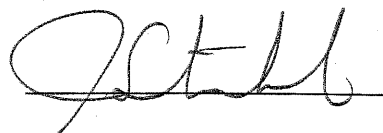
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	23.62 g	Yes
20 ms	17.60 - 22.60 g	21.90 g	Yes
30 ms	12.50 - 18.50 g	16.52 g	Yes
Max Pendulum Deceleration	29.00 g	23.97 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	16.45 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	40.72 ms	Yes
D Plane Rotation			
Max	64 - 78 °	71.74 °	Yes
Time	57 - 64 ms	58.88 ms	Yes
Moment About Occipital Condyle			
Max	88.2 - 108.4 N·m	93.48 N·m	Yes
Time	47 - 58 ms	53.36 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	116.80 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	102.72 ms	Yes

## Comments:

Technician



Approved



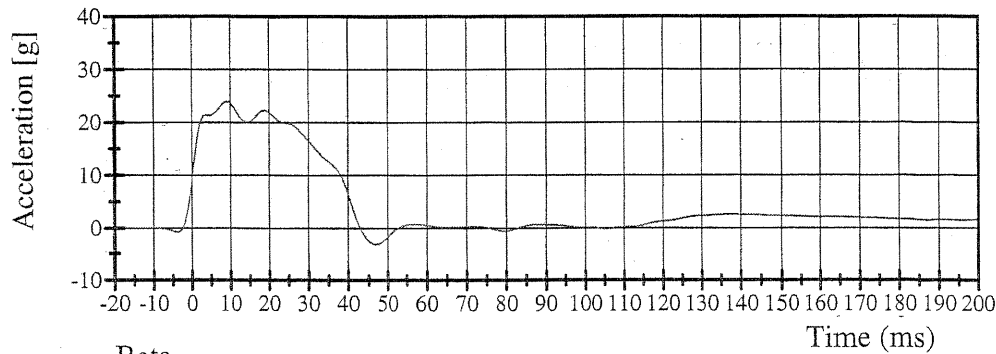
# Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

### Pendulum Deceleration

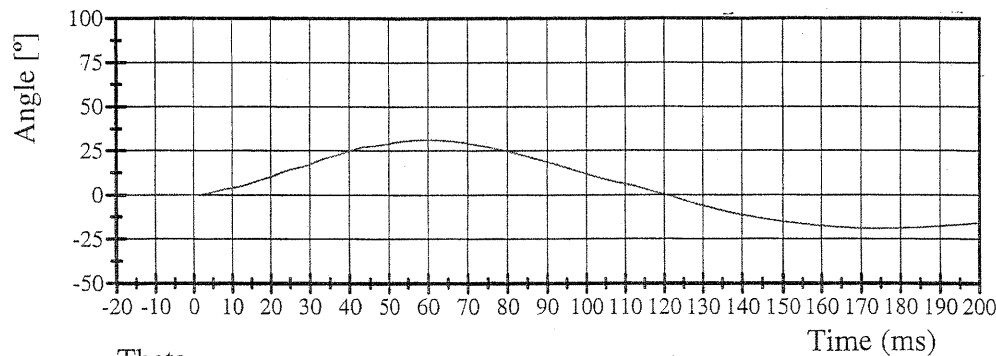


Filter Class: 60

Max: 24.0 g at 9.0 ms

Min: -3.0 g at 46.8 ms

### Beta

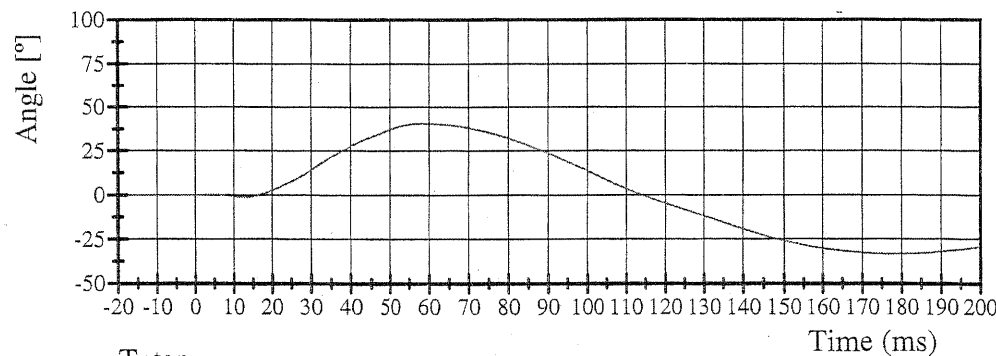


Filter Class: 60

Max: 31.1 ° at 59.8 ms

Min: -19.1 ° at 173.4 ms

### Theta

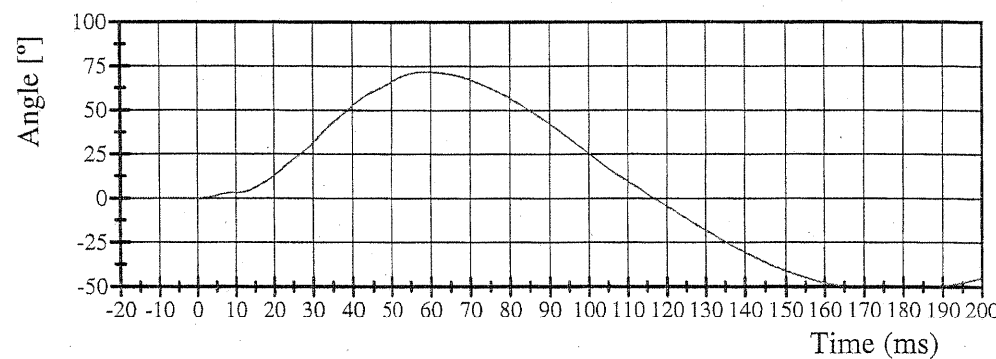


Filter Class: 60

Max: 40.6 ° at 58.3 ms

Min: -33.3 ° at 178.3 ms

### Totan



Filter Class: 60

Max: 71.7 ° at 58.9 ms

Min: -52.2 ° at 176.8 ms

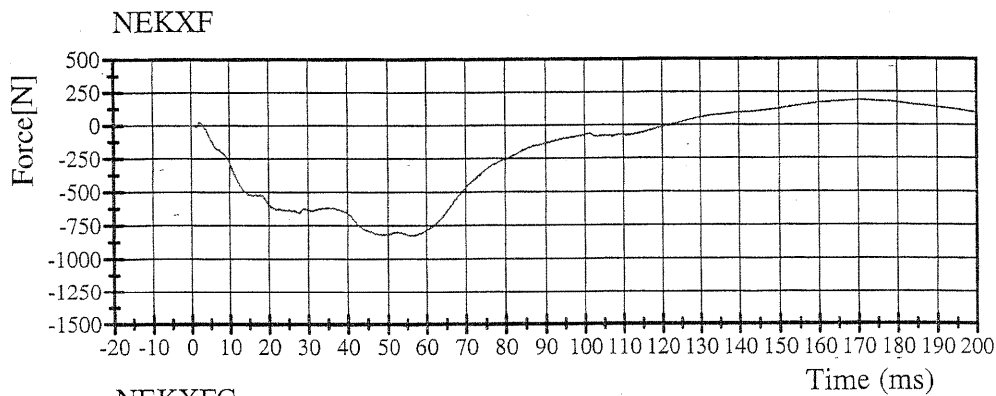


# Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

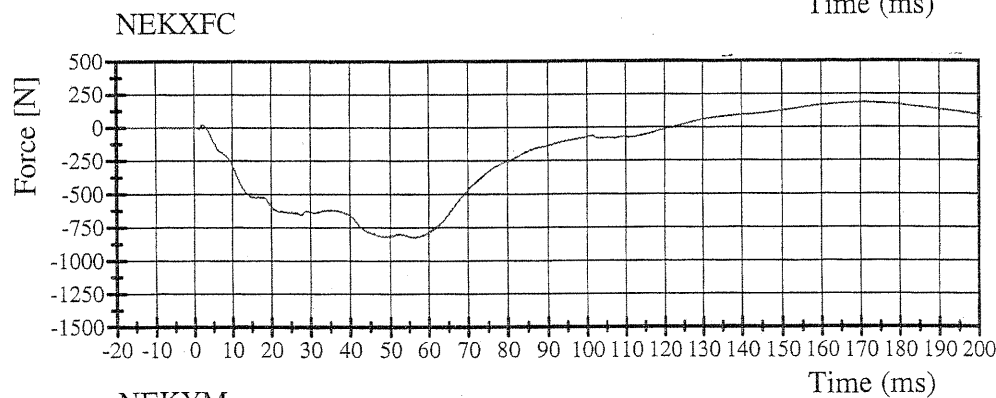
Test Date 10/07/2002



Filter Class: 1000

Max: 185.5 N at 170.4 ms

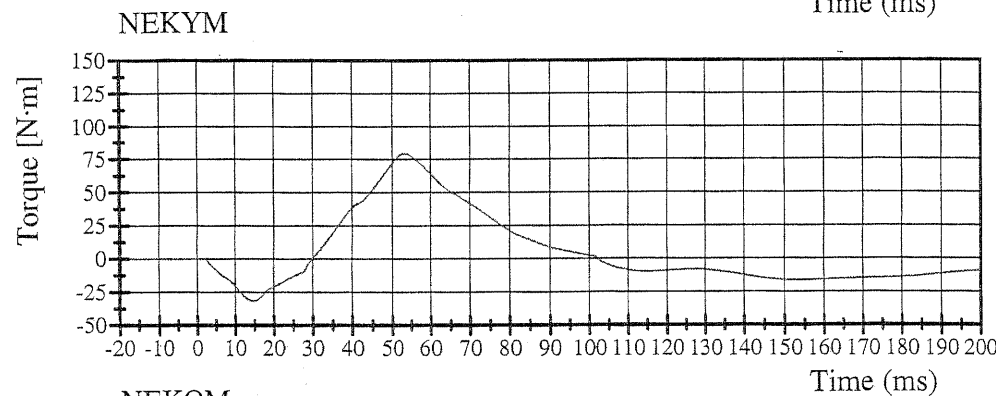
Min: -826.2 N at 56.3 ms



Filter Class: 600

Max: 185.1 N at 171.1 ms

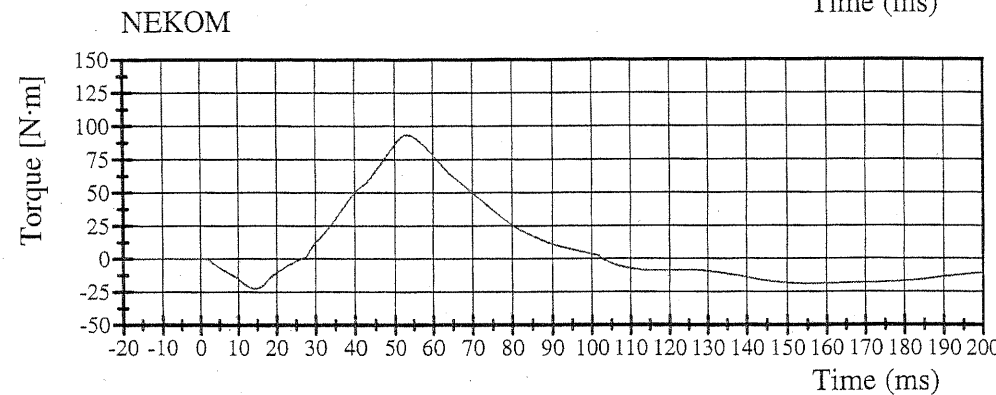
Min: -826.0 N at 56.3 ms



Filter Class: 600

Max: 79.3 N·m at 53.3 ms

Min: -31.6 N·m at 14.6 ms



Filter Class: 600

Max: 93.5 N·m at 53.4 ms

Min: -22.4 N·m at 14.4 ms



# Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

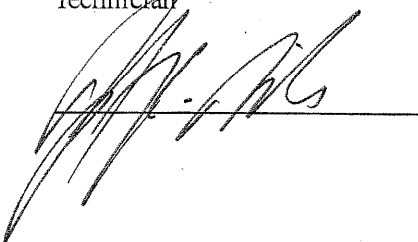
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

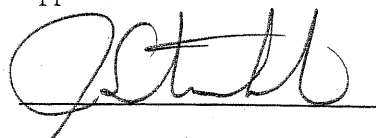
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.11 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	17.47 g	Yes
20 ms	14.00 - 19.00 g	17.24 g	Yes
30 ms	11.00 - 16.00 g	14.57 g	Yes
Max Pendulum Deceleration	22.00 g	17.75 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	14.56 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	38 - 46 ms	44.08 ms	Yes
D Plane Rotation			
Max	81 - 106 °	99.77 °	Yes
Time	72 - 82 ms	78.32 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-63.40 N·m	Yes
Time	65 - 79 ms	74.56 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	147 - 174 ms	157.52 ms	Yes
Positive Moment-Time Curve			
Decay Time To Zero	120 - 148 ms	147.20 ms	Yes

## Comments:

Technician



Approved



10.07.2002 12:10:23 535



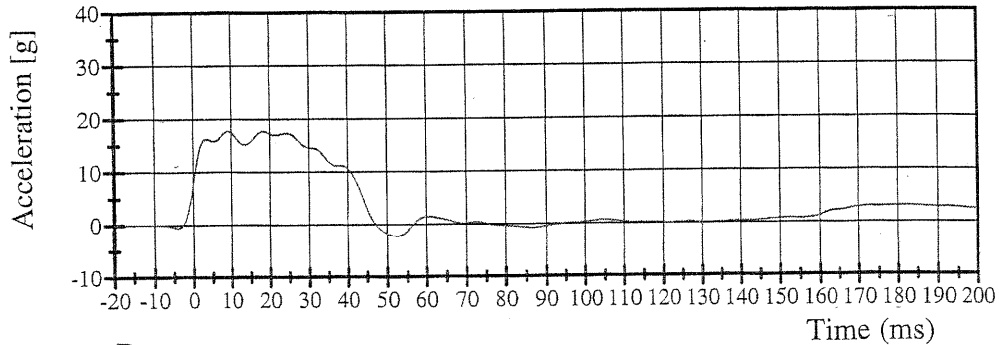
# Transportation Research Center Inc.

572E Neck Extension Test

HIH 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

### Pendulum Deceleration

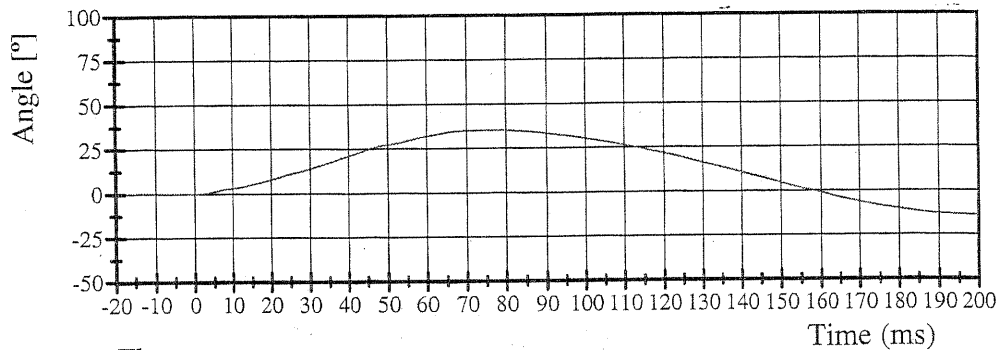


Filter Class: 60

Max: 17.7 g at 9.0 ms

Min: -2.3 g at 52.2 ms

### Beta

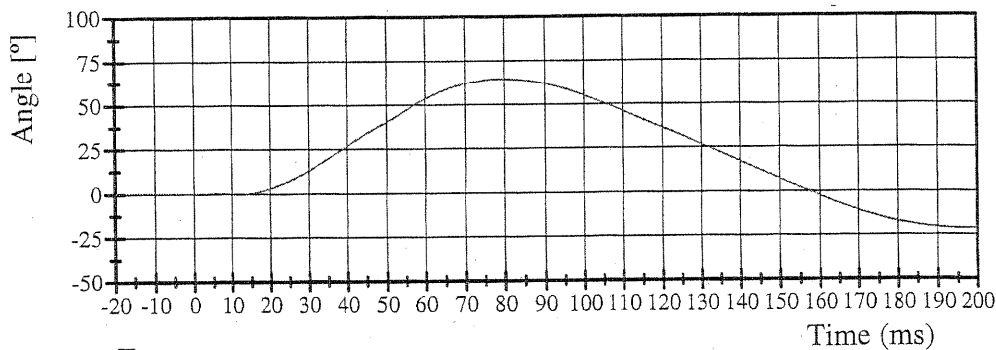


Filter Class: 60

Max: 35.3 ° at 77.0 ms

Min: -13.9 ° at 199.4 ms

### Theta

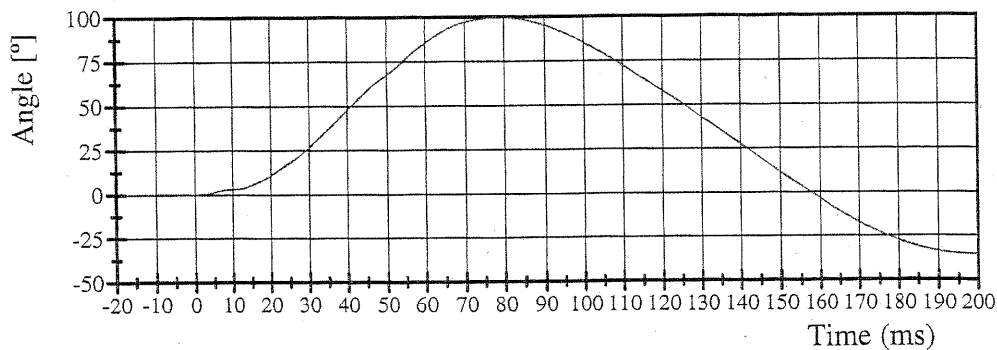


Filter Class: 60

Max: 64.5 ° at 78.8 ms

Min: -21.6 ° at 198.8 ms

### Totan



Filter Class: 60

Max: 99.8 ° at 78.3 ms

Min: -35.4 ° at 199.1 ms

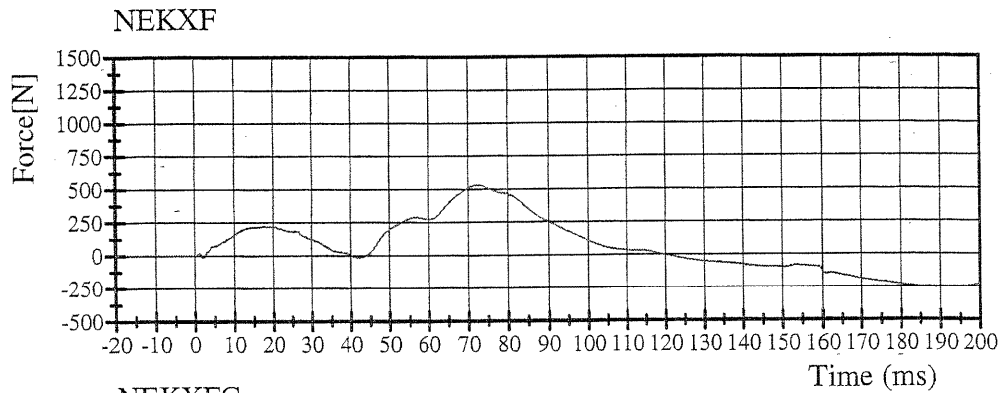


# Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

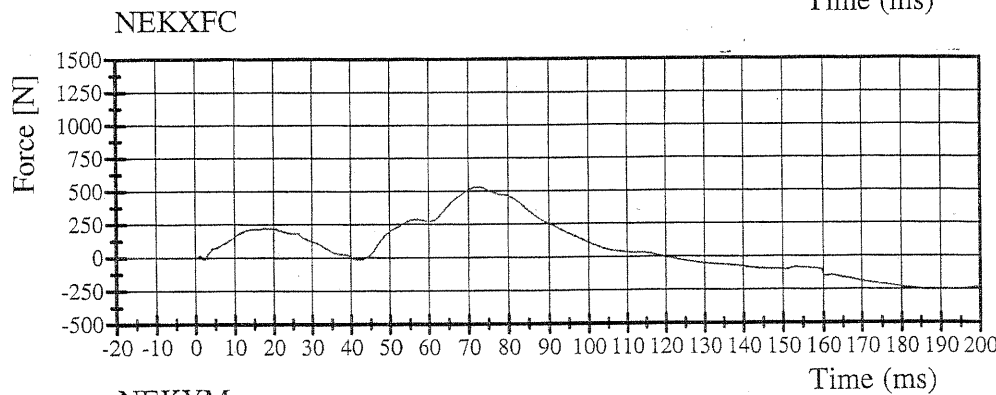
Test Date 10/07/2002



Filter Class: 1000

Max: 531.1 N at 72.2 ms

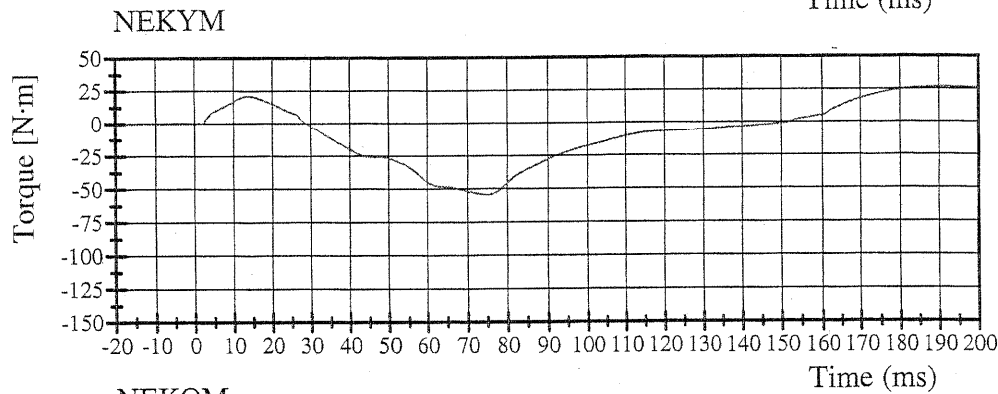
Min: -256.5 N at 189.9 ms



Filter Class: 600

Max: 530.5 N at 72.3 ms

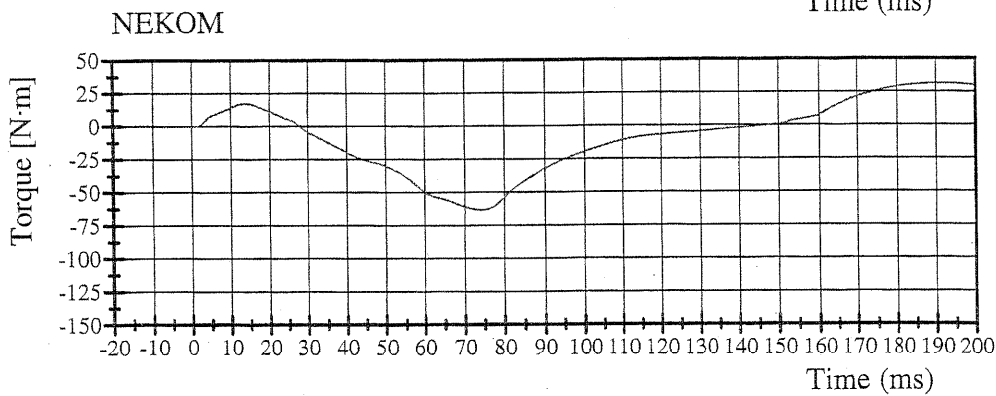
Min: -255.8 N at 190.0 ms



Filter Class: 600

Max: 26.8 N·m at 191.9 ms

Min: -54.4 N·m at 75.0 ms



Filter Class: 600

Max: 31.3 N·m at 191.2 ms

Min: -63.4 N·m at 74.6 ms



# Transportation Research Center Inc.

572E Thorax Test

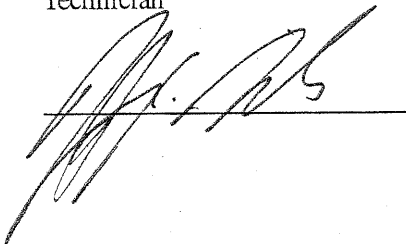
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

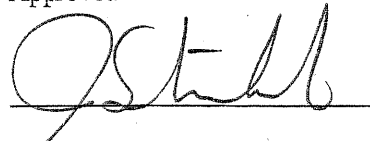
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.66 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-70.5 mm	Yes
Maximum Resistive Force	5159 - 5894 N	5646 N	Yes
Internal Hysteresis	69 - 85 %	71 %	Yes

Comments:

Technician



Approved



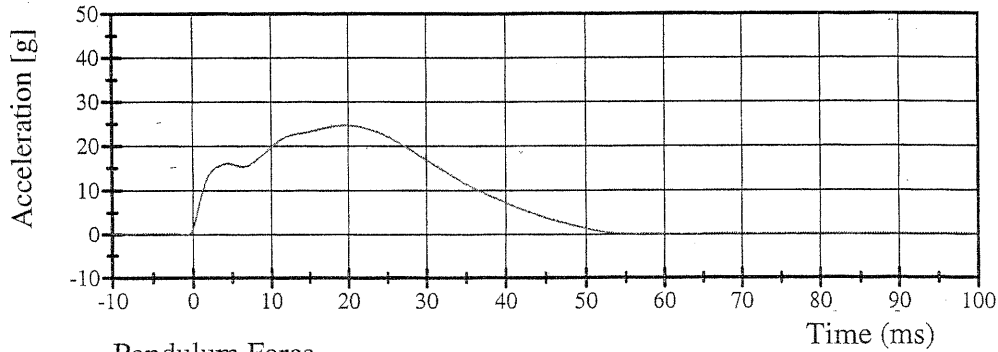
# Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

Pendulum Deceleration

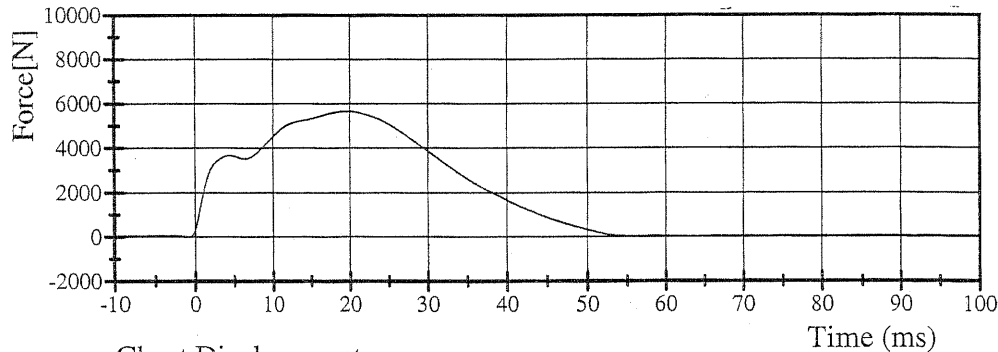


Filter Class: 180

Max: 24.6 g at 19.6 ms

Min: -0.1 g at -0.9 ms

Pendulum Force

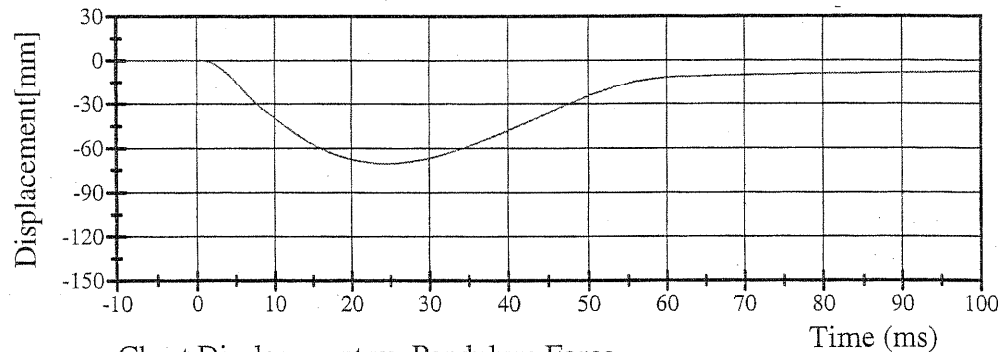


Filter Class: 180

Max: 5646.0 N at 19.6 ms

Min: -14.5 N at -0.9 ms

Chest Displacement

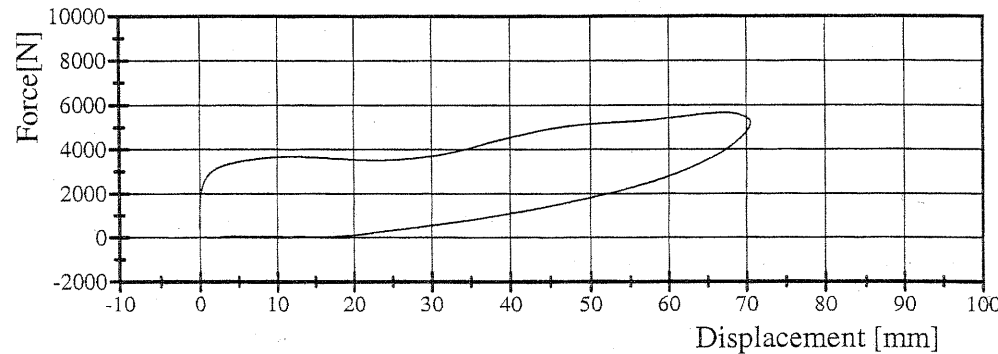


Filter Class: 180

Max: 0.1 mm at 0.3 ms

Min: -70.5 mm at 24.2 ms

Chest Displacement vs. Pendulum Force



# Transportation Research Center Inc

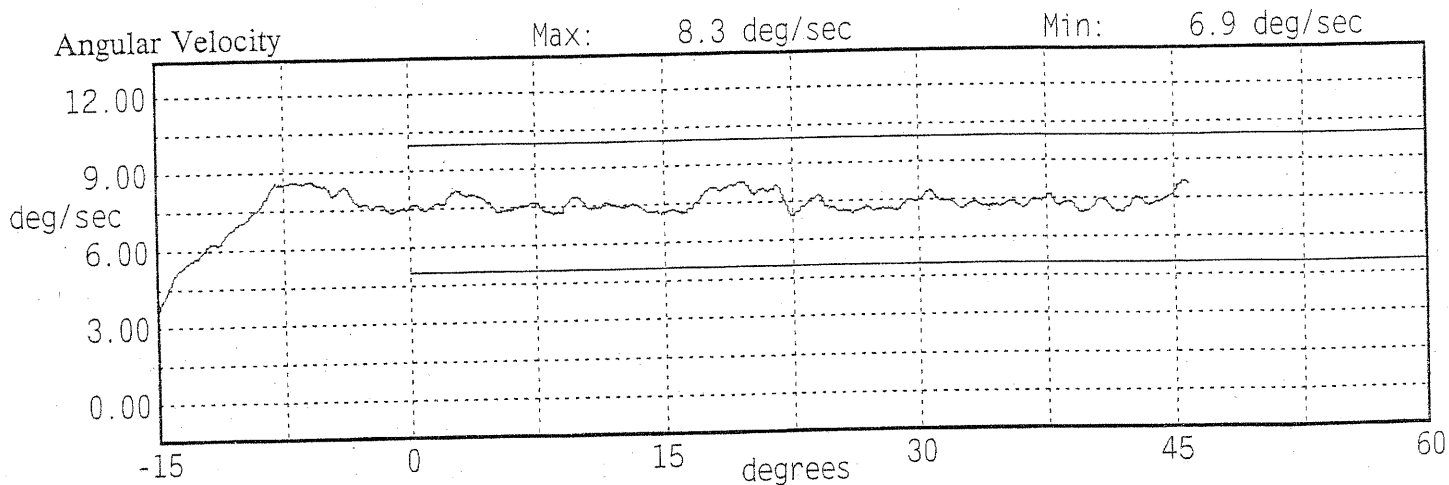
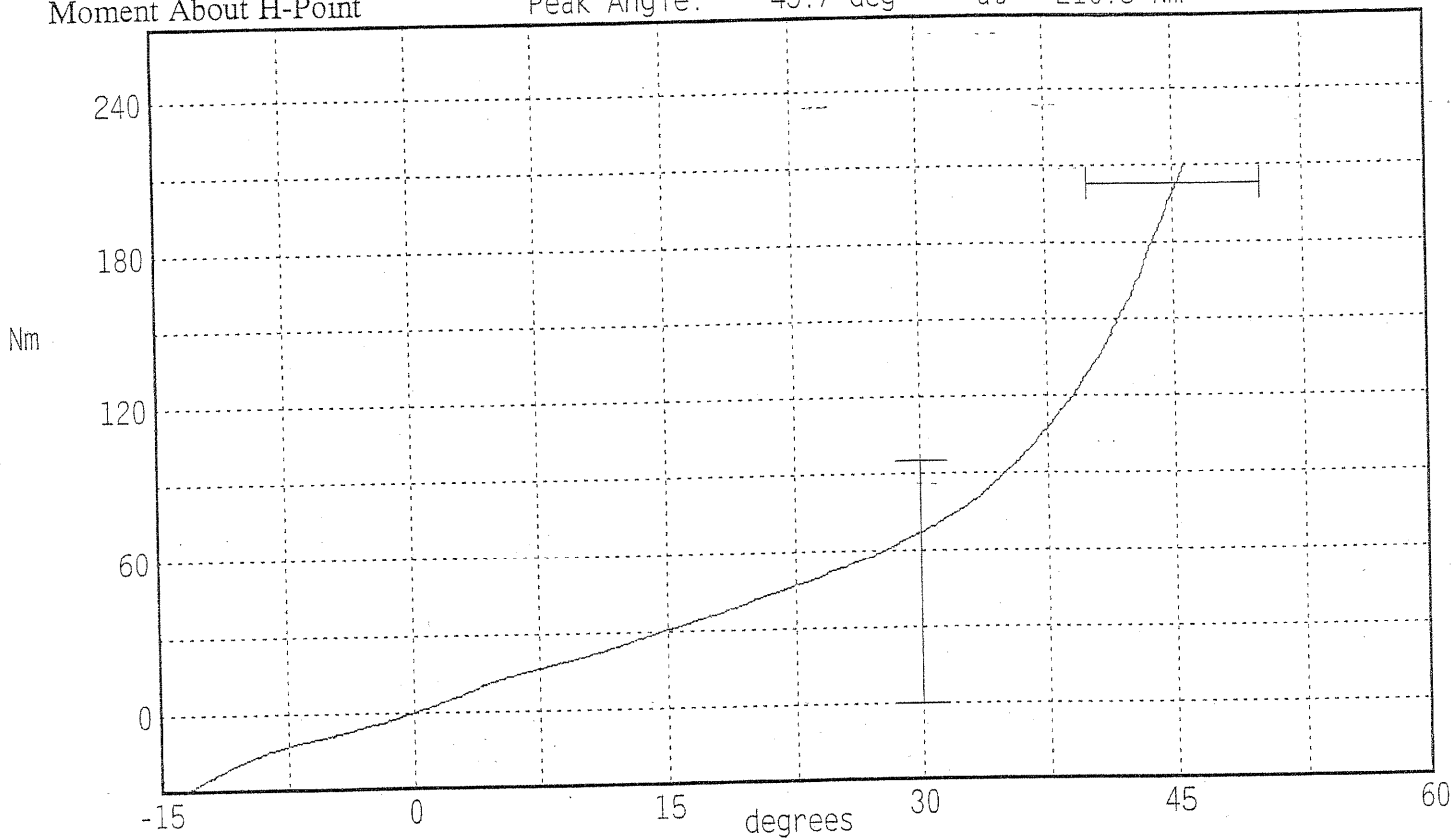
Hybrid III Hip Range of Motion

Serial Number: 169C16  
 Test Number: 169L  
 Comments:

Date: 10/07/2002  
 Time: 09:55

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	37 %	Pass
Moment at 30 deg	<= 94.9	67.3 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.3 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Moment About H-Point  
 Peak Moment: 210.5 Nm at 45.7 deg  
 Peak Angle: 45.7 deg at 210.5 Nm



# Transportation Research Center Inc

Hybrid III Hip Range of Motion

Serial Number: 169C16

Date: 10/07/2002

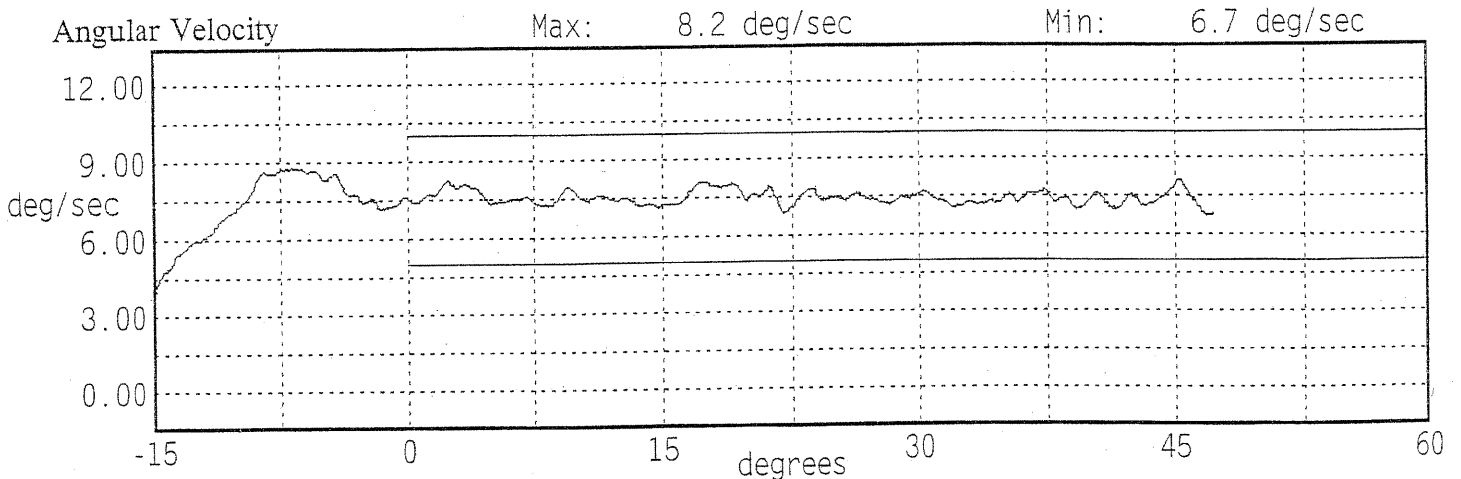
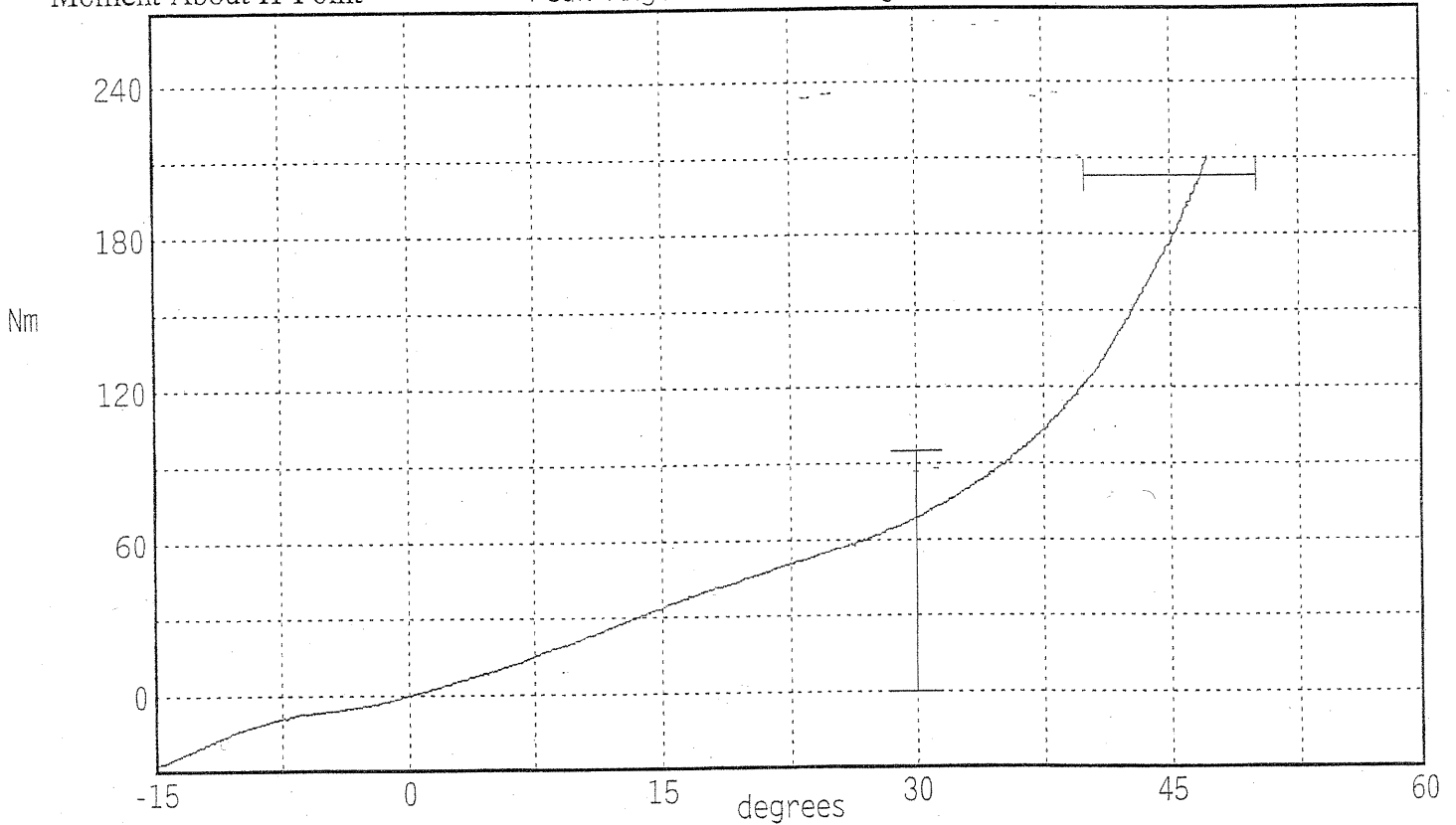
Test Number: 169R

Time: 09:41

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	37 %	Pass
Moment at 30 deg	<= 94.9	68.9 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	46.7 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Moment About H-Point  
 Peak Moment: 210.5 Nm at 47.1 deg  
 Peak Angle: 47.1 deg at 210.5 Nm



# Transportation Research Center Inc.

572E Left Knee Slider Test

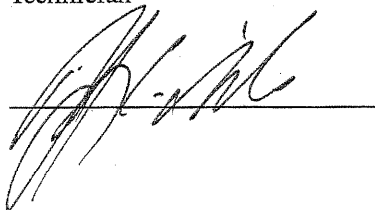
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

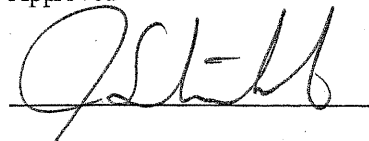
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.73 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1314 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3088 N	Yes

Comments:

Technician



Approved

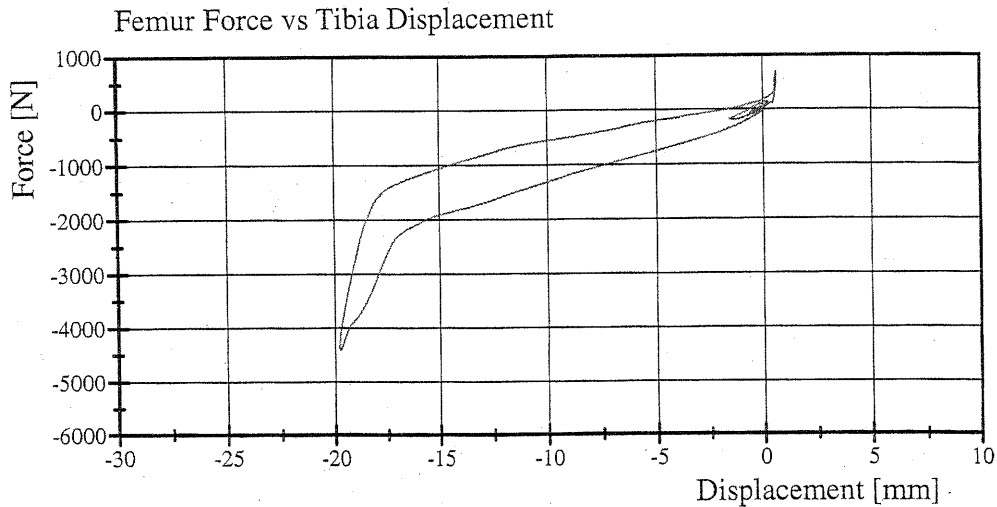
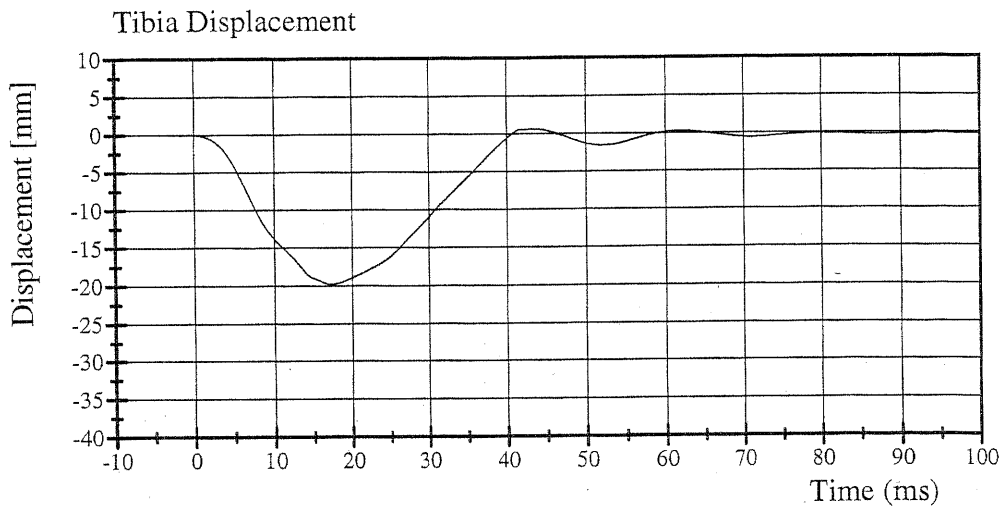
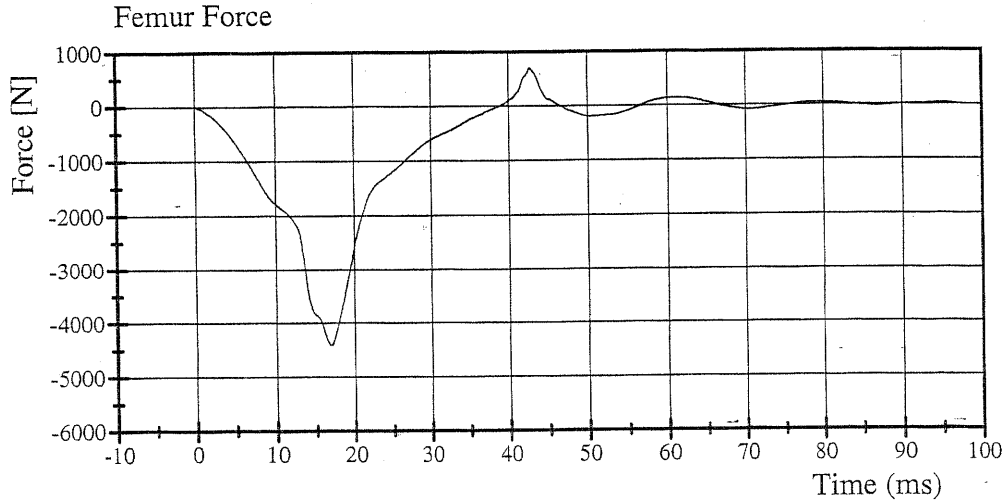


# Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002



# Transportation Research Center Inc.

572E Right Knee Slider Test

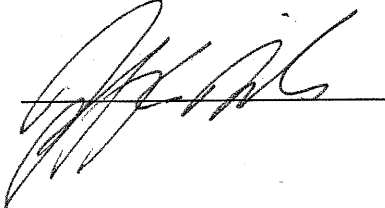
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

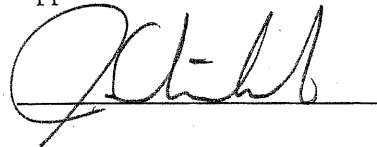
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.73 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1364 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2445 N	Yes

Comments:

Technician



Approved

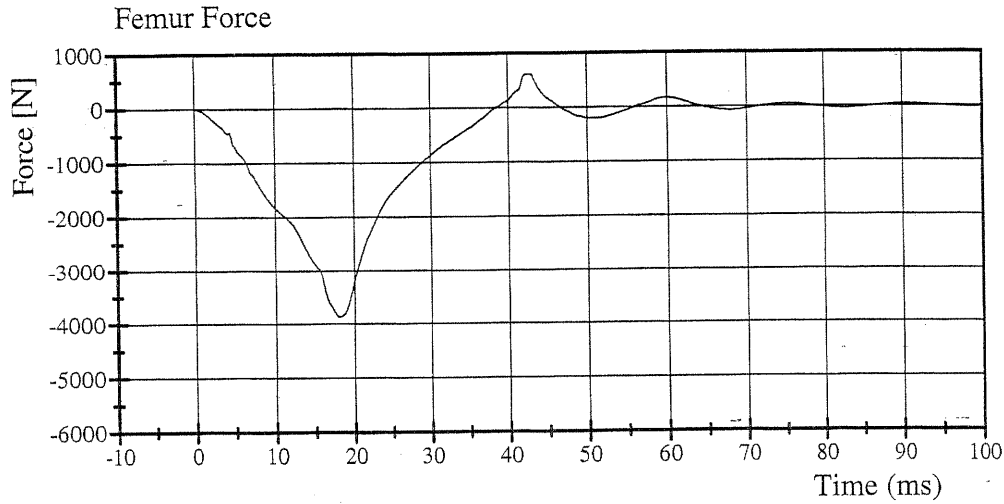


# Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

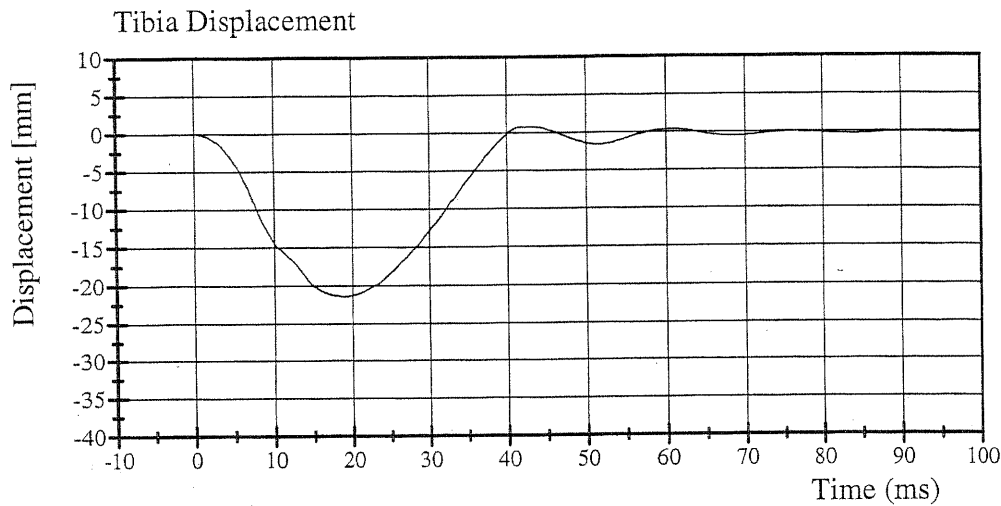
Test Date 10/07/2002



Filter Class: 600

Max: 617.4 N at 42.3 ms

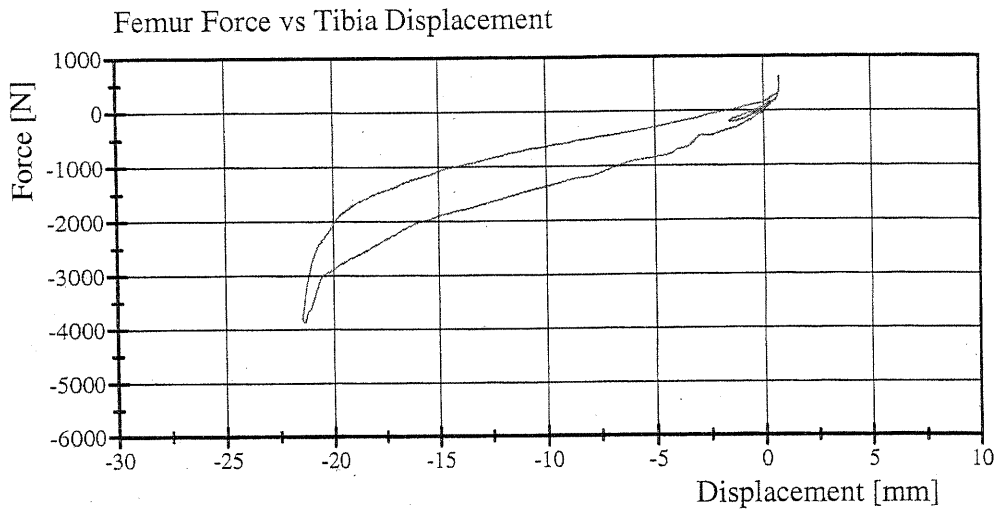
Min: -3870.3 N at 18.0 ms



Filter Class: 600

Max: 0.8 mm at 42.7 ms

Min: -21.5 mm at 18.7 ms



# Transportation Research Center Inc.

572E Left Knee Test

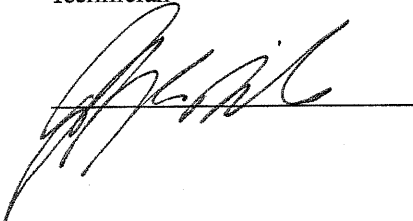
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

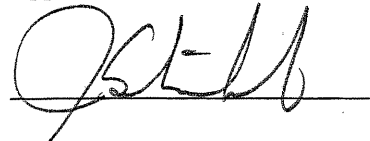
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.08 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5386 N	Yes

Comments:

Technician



Approved



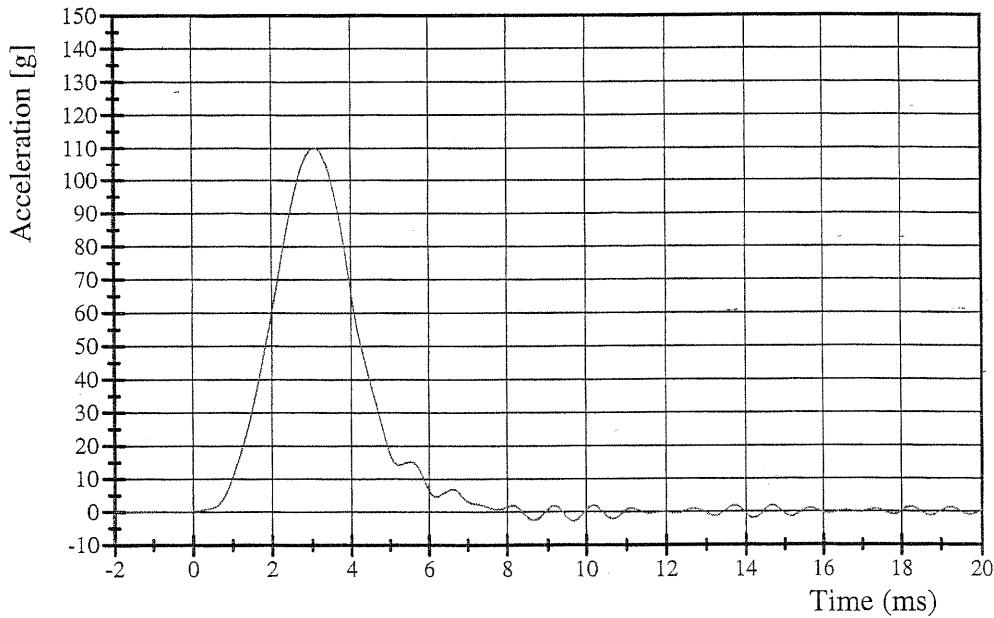
# Transportation Research Center Inc.

572E Left Knee Test

HIH 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

### Pendulum Deceleration

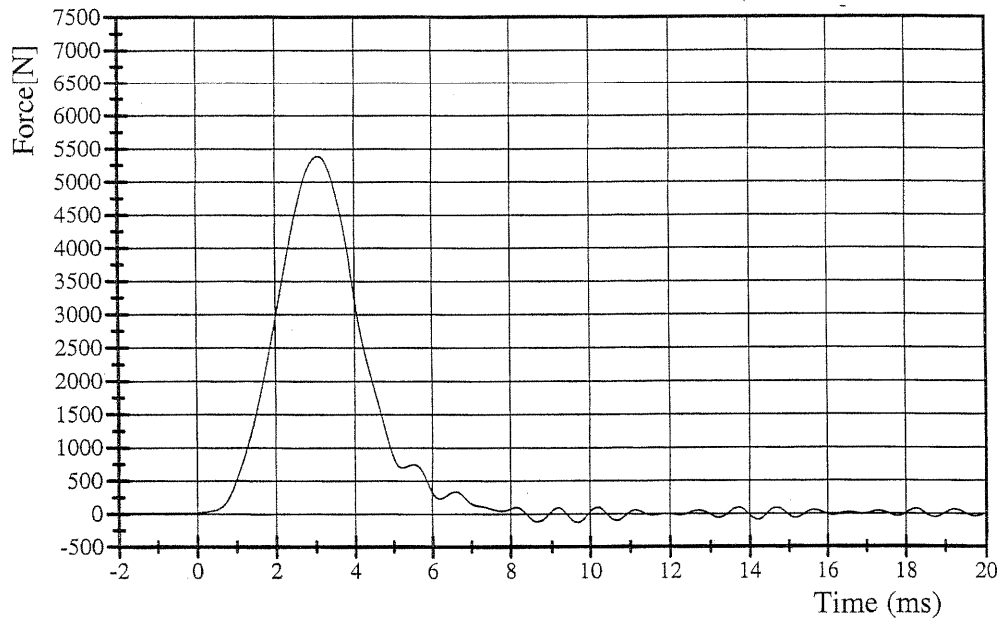


Filter Class: 600

Max: 110.1 g at 3.0 ms

Min: -2.7 g at 9.7 ms

### Pendulum Force



Filter Class: 600

Max: 5386.4 N at 3.0 ms

Min: -133.9 N at 9.7 ms



# Transportation Research Center Inc.

572E Right Knee Test

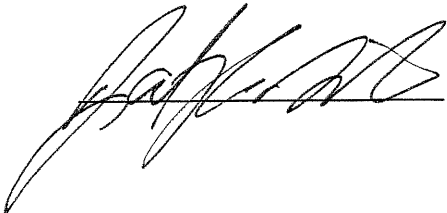
HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

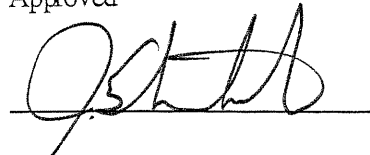
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.09 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5527 N	Yes

## Comments:

Technician



Approved



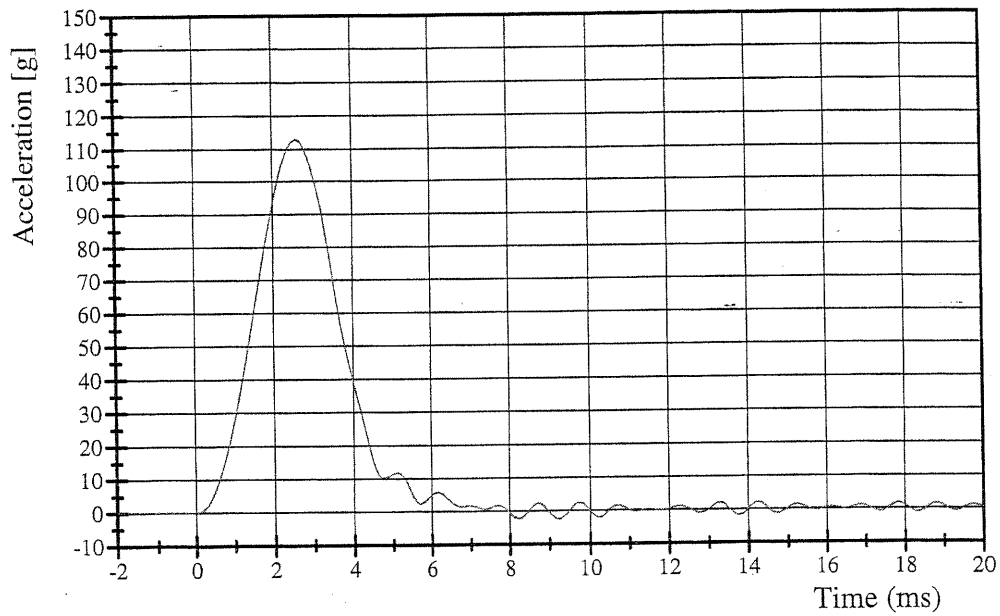
# Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 16 - 1

Test Date 10/07/2002

### Pendulum Deceleration

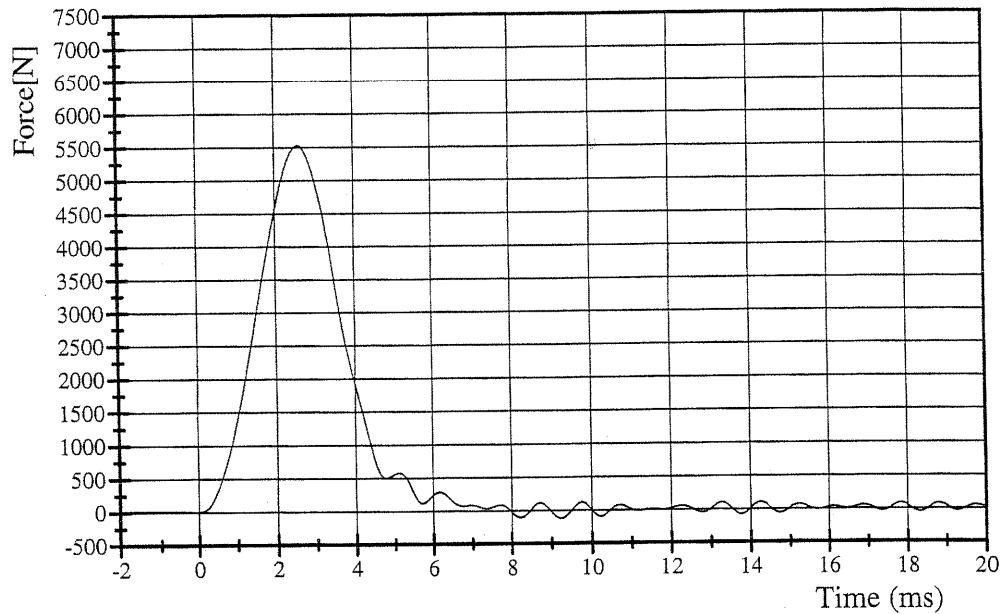


Filter Class: 600

Max: 113.0 g at 2.6 ms

Min: -2.4 g at 9.2 ms

### Pendulum Force



Filter Class: 600

Max: 5527.3 N at 2.6 ms

Min: -119.8 N at 9.2 ms



Appendix D

Miscellaneous Test Information

Sign Convention  
SAE J211 MAR95

Accelerometers:

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

Potentiometers:

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

Rotation potentiometers:

+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

Load cells:

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

Neck load cells:

+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

Tibia load cells:

+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 High-Speed Film

All TRC high-speed cameras are equipped with red LEDs which put timing marks on the right edge of the film. TRC 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 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.

### Dual Stage Airbag Event Information

Inductive pick-ups to monitor airbag fire times were labeled “A” and “B” rather than primary and secondary, because wiring information to distinguish primary and secondary was not available.

The following set-up information was recorded for test 021018-2:

Driver A, DABETA, inductive pick-up F, was placed on the yellow and purple airbag plug wire.

Driver B, DABETB, inductive pick-up J, was placed on the yellow and black airbag plug wire.

Passenger A, PABETA, inductive pick-up 8, was placed on the yellow and purple airbag plug wire.

Passenger B, PABETB, inductive pick-up D, was placed on the yellow and green airbag plug wire.



# CERTIFICATE OF CONFORMITY

Certificate No. 10303  
Serial No. CB 052

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	15982-89	PO62765-01	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

For and on behalf of Cellbond Composites Ltd

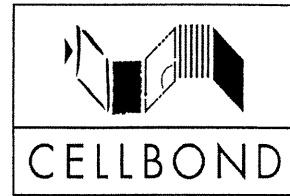
Cellbond offices  
United Kingdom  
Germany  
United States of America

Signed  
Quality Manager



ISO 9002  
QS 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: 15982-89

GR No: PO62765-01

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	0.3224	0.3254	0.3208	PASS
Sample 2	0.3232	0.3203	0.3276	PASS
Sample 3	0.3159	0.3104	0.3219	PASS
Sample 4	0.3362	0.3323	0.3332	PASS
Sample 5	0.3269	0.3340	0.3313	PASS
Sample 6	0.3243	0.3340	0.3295	PASS
Sample 7	0.3364	0.3369	0.3323	PASS
Sample 8	0.3183	0.3281	0.3128	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.

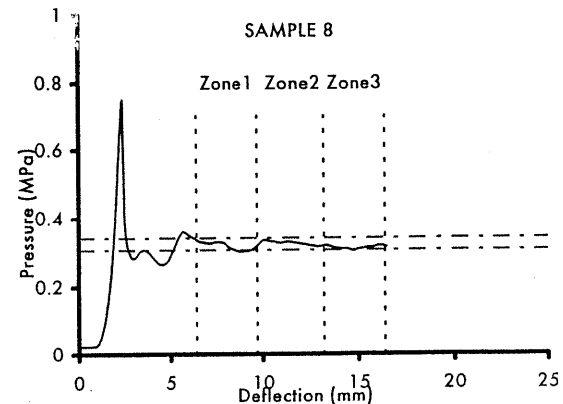
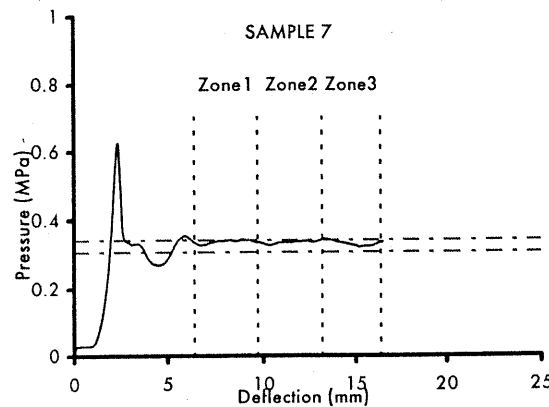
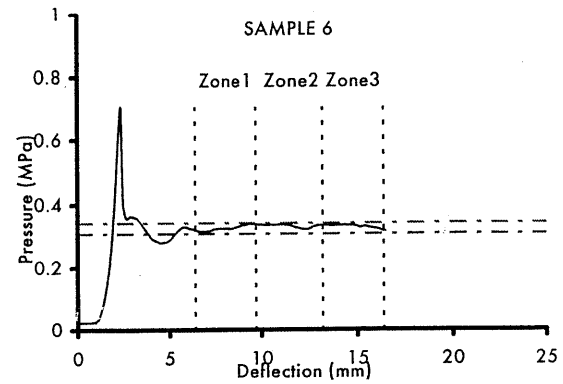
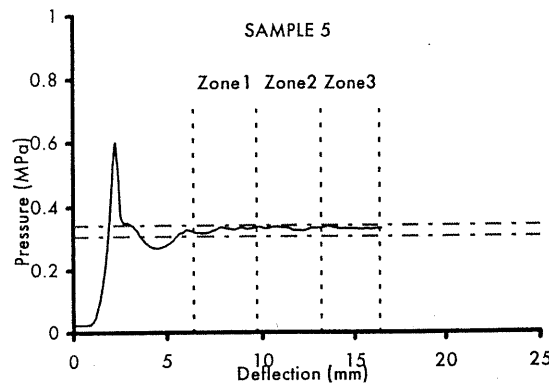
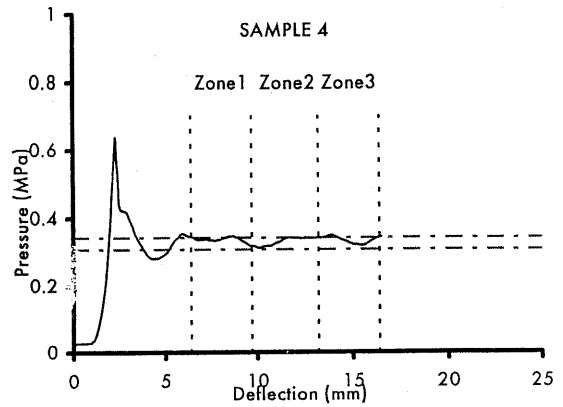
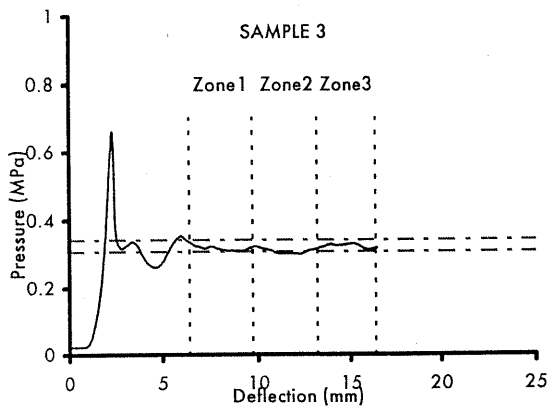
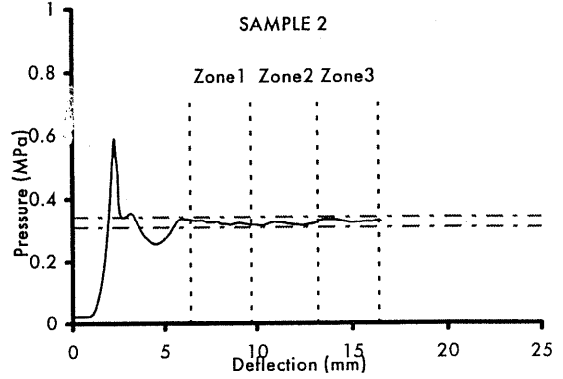
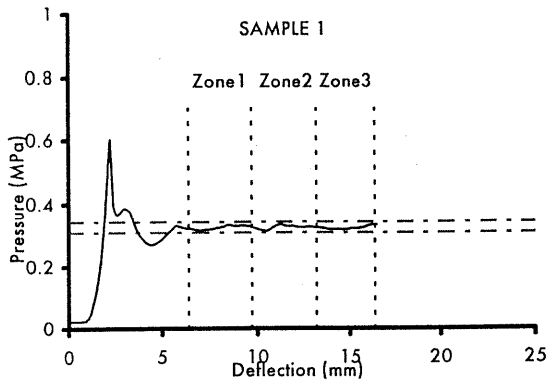
EEVC DEFORMABLE FRONTAL BARRIER  
MAIN BLOCK

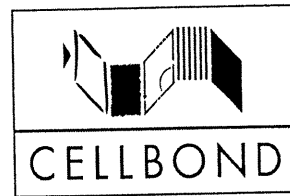
Honeycomb Type: 1.8 3/4 3003  
Higher Acceptable Crush Strength Limit: 0.342 MPa  
Lower Acceptable Crush Strength Limit: 0.308 MPa

Section 1: 6.4 - 9.7mm  
Section 2: 9.7 - 13.2mm  
Section 3: 13.2 - 16.5mm  
Speed: 6.35 mm/min  
Block No: N/A

Test No: 15982-89

GR No: PO62765-01





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

# EEVC DEFORMABLE FRONTAL BARRIER BUMPER

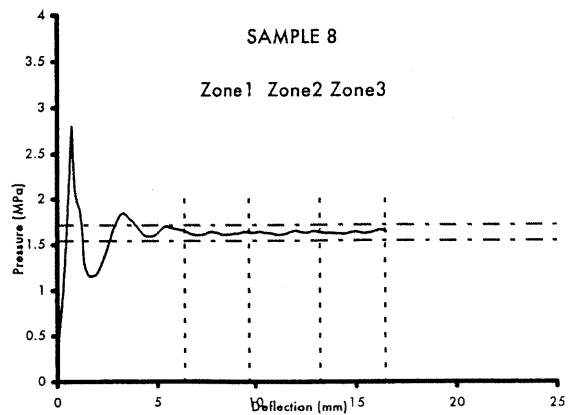
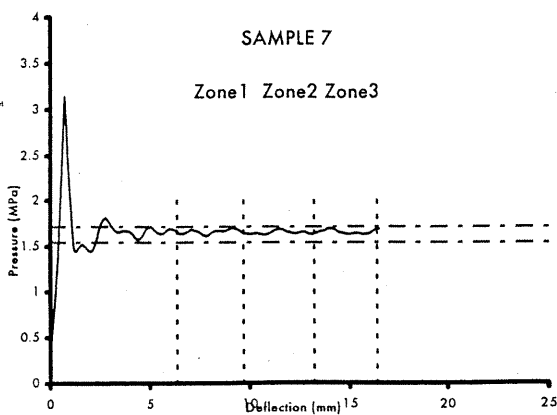
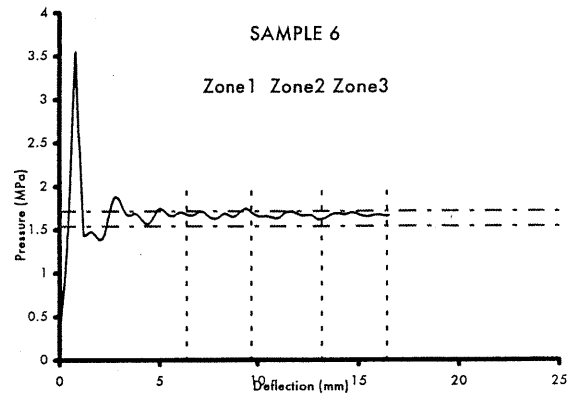
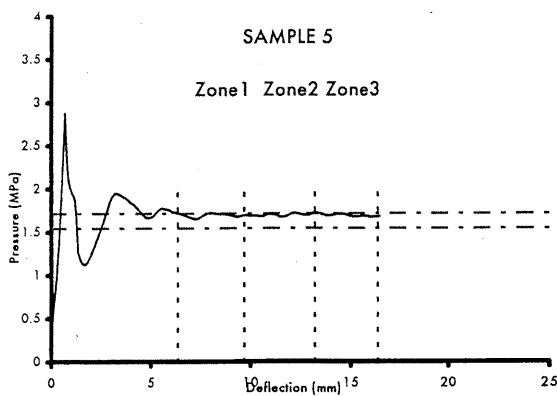
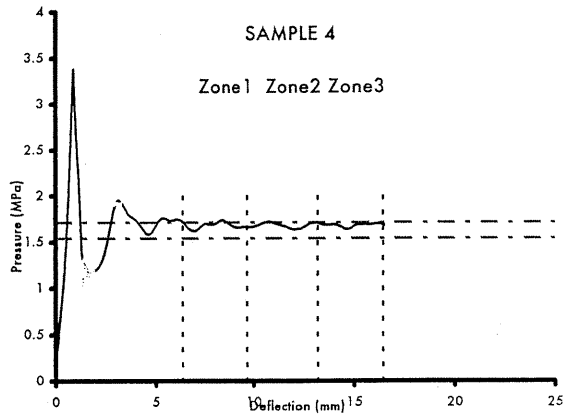
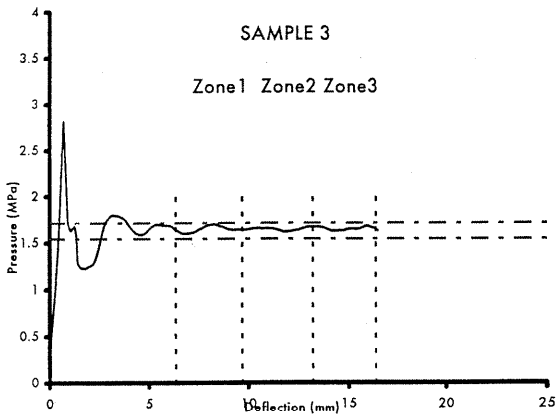
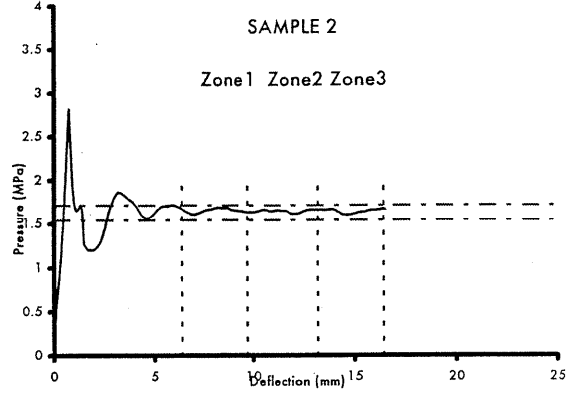
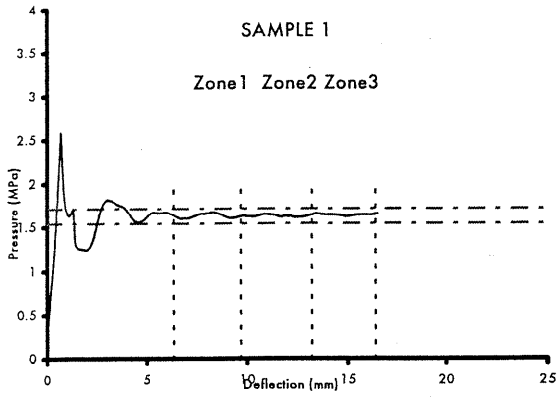
Honeycomb Type: 5.2 1/4 3003  
Higher Acceptable Crush Strength Limit: 1.711 MPa  
Lower Acceptable Crush Strength Limit: 1.540 MPa

Section 1: 6.4 - 9.7mm  
Section 2: 9.7 - 13.2mm  
Section 3: 13.2 - 16.5mm  
Speed: 6.35 mm/min

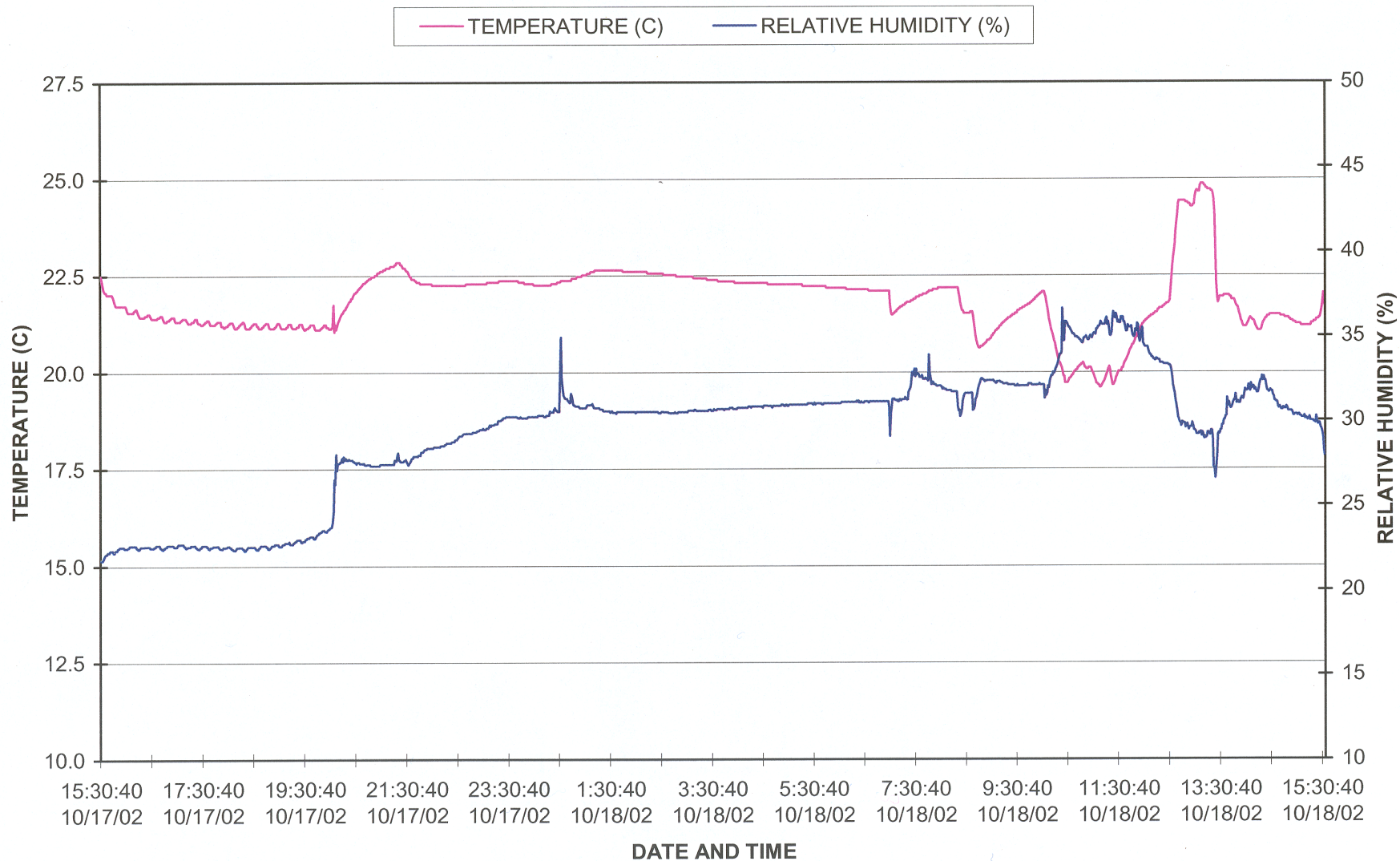
Test No: 15852-59

GR No: PO58715-01

Block No: NA



# TEMPERATURE AND RELATIVE HUMIDITY CHART 021018-2



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

10/18/2002 2:58:00 PM

Name of Test 021018-2

System K3600

Name of DAU DAU0

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.	Group	Mfg.	Model	
0000	EVENT	SYNCO	SYNCO		10.24	V	+	4/15/2002	--	-1	TRC	Event
0001	J17649	HEDXG1	Head Accel X	Rwd	799.25070	g	-	5/24/2002	OK	168v	Endevco	7264-2KM5T
0002	AJ454	HEDYG1	Head Accel Y	Lft	796.76314	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
0003	J14189	HEDZG1	Head Accel Z	Up	793.24502	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
0004	P17196	HEDXR1	Head Accel Red X S39	Rwd	797.85576	g	-	1/25/2002	--	168v	Endevco	7264C-2KLC-2-
0005	B02A25-N05	HEDYR1	Head Accel Red Y	Lft	800.20005	g	-	2/8/2002	OK	168v	Entran	EGE-73B6Q-200
0006	01G25-N09	HEDZR1	Head Accel Red Z	Up	796.43471	g	-	1/24/2002	OK	168v	Entran	EGE-73B6Q-200
0007	1716A-851-FX	NEKXF1	Neck Force X	Hd	8901.1428	N	-	5/29/2002	OK	168v	Denton	1716A
0008	1716A-851-FY	NEKYF1	Neck Force Y	Hd	8900.8974	N	+	5/29/2002	OK	168v	Denton	1716A
0009	1716A-851-FZ	NEKZF1	Neck Force Z	Hd	13337.786	N	+	5/29/2002	OK	168v	Denton	1716A
0010	1716A-851-MX	NEKXM1	Neck Moment X	Rt Ear	282.57712	N-m	-	5/29/2002	OK	168v	Denton	1716A
0011	1716A-851-MY	NEKYM1	Neck Moment Y	Chn	282.47809	N-m	+	5/29/2002	OK	168v	Denton	1716A
0012	1716A-851-MZ	NEKZM1	Neck Moment Z	Chn	282.53544	N-m	+	5/29/2002	OK	168v	Denton	1716A
0013	J35921	CSTXG1	Chest Accel X	Fwd	401.13445	g	+	5/24/2002	OK	168v	Endevco	7264-2000TZ
0014	AJ7F7	CSTYG1	Chest Accel Y	Lft	398.05636	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
0015	J36723	CSTZG1	Chest Accel Z	Up	398.06564	g	-	5/24/2002	OK	168v	Endevco	7264-2000TZ
0016	99H30-Z14	CSTXR1	Chest Accel Red X	Rwd	401.60170	g	-	4/25/2002	OK	168v	Entran	EGE-73BQE0-20
0017	98H14-K05	CSTYR1	Chest Accel Red Y	Lft	399.65498	g	-	4/25/2002	OK	168v	Entran	EGE-73BQ-2000
0018	98H13-F03	CSTZR1	Chest Accel Red Z	Up	400.05782	g	-	4/25/2002	OK	168v	Entran	EGE-73BQ-2000
0019	14CB1-2847-168	CSTXD1	Chest Deflection X	Strmm	101.85558	mm	+	6/5/2002	OK	168v	Servo	14CB1-2847
0020	ACCY2	PEVXG1	Pelvis Accel X	Rwd	400.90830	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
0021	J27490	PEVYG1	Pelvis Accel Y	Lft	398.71663	g	-	5/24/2002	OK	168v	Endevco	7264-2KM5T
0022	J21963	PEVZG1	Pelvis Accel Z	Up	400.73572	g	-	5/24/2002	OK	168v	Endevco	7264-2KM5T
0023	1914A-362-FX	LFMXF1	Left Femur Force X	Knee	20035.751	N	-	5/24/2002	OK	168v	Denton	1914A
0024	1914A-362-FY	LFMYF1	Left Femur Force Y	Knee	20015.190	N	+	5/24/2002	OK	168v	Denton	1914A
0025	1914A-362-FZ	LFMZF1	Left Femur Force Z	Knee	33334.982	N	+	5/24/2002	OK	168v	Denton	1914A
0026	1914A-362-MX	LFMXM1	Left Femur Moment X	Knee	508.62541	N-m	-	5/24/2002	OK	168v	Denton	1914A
0027	1914A-362-MY	LFMYM1	Left Femur Moment Y	Knee	509.30827	N-m	+	5/24/2002	OK	168v	Denton	1914A
0028	1914A-362-MZ	LFMZM1	Left Femur Moment Z	Tib	508.04911	N-m	+	5/24/2002	OK	168v	Denton	1914A
0029	1914A-376-FX	RFMXF1	Right Femur Force X	Knee	20005.300	N	-	5/24/2002	OK	168v	Denton	1914A

# Channel Report

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0030	1914A-376-FY	RFMYF1	Right Femur Force Y	Knee	20010.348	N	+	5/24/2002	OK	168v	Denton	1914A
0031	1914A-376-FZ	RFMZFI	Right Femur Force Z	Knee	33337.253	N	+	5/24/2002	OK	168v	Denton	1914A
0032	1914A-376-MX	RFMXM1	Right Femur Moment X	Knee	508.76683	N-m	-	5/24/2002	OK	168v	Denton	1914A
0033	1914A-376-MY	RFMYM1	Right Femur Moment Y	Knee	508.69127	N-m	+	5/24/2002	OK	168v	Denton	1914A
0034	1914A-376-MZ	RFMZM1	Right Femur Moment Z	Tib	509.68327	N-m	+	5/24/2002	OK	168v	Denton	1914A
0035	150-0121VR-180	KNLXD1	Left Knee Displacement	Tib	43.559639	mm	-	6/13/2002	OK	168v	SpaceAge	150-0121VR
0036	4353J-79-FX	TBLXF1	Left Upper Tibia Force X	Tib	8898.2595	N	-	7/16/2002	OK	168v	Denton	4353J
0037	4353J-79-FZ	TBLZF1	Left Upper Tibia Force Z	Tib	8898.3465	N	+	7/16/2002	OK	168v	Denton	4353J
0038	4353J-79-MX	TBLXM1	Left Upper Tibia Moment X	Tib	281.76543	N-m	-	7/16/2002	OK	168v	Denton	4353J
0039	4353J-79-MY	TBLYM1	Left Upper Tibia Moment Y	Tib	281.73853	N-m	-	7/16/2002	OK	168v	Denton	4353J
0040	AMR49	TBLXG1	Left Tibia Accel X	Fwd	1197.4927	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0041	AAJ29	TBLYG1	Left Tibia Accel Y	Rt	1189.1490	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0042	4929J-77-FX	ANLXF1	Left Lower Tibia Force X	Ank	8900.2980	N	+	7/16/2002	OK	168v	Denton	4929J
0043	4929J-77-FY	ANLYF1	Left Lower Tibia Force Y	Ank	8899.2801	N	+	7/16/2002	OK	168v	Denton	4929J
0044	4929J-77-FZ	ANLZF1	Left Lower Tibia Force Z	Ank	8892.7873	N	+	7/16/2002	OK	168v	Denton	4929J
0045	4929J-77-MX	ANLXM1	Left Lower Tibia Moment X	Ank	282.19834	N-m	+	7/16/2002	OK	168v	Denton	4929J
0046	4929J-77-MY	ANLYM1	Left Lower Tibia Moment Y	Ank	281.82270	N-m	+	7/16/2002	OK	168v	Denton	4929J
0047	LX104X	FTLXD1	Left Foot Disp. X	Eversi	161.56516	°	+	7/17/2002	OK	168v	Contelec	PD210-4B
0048	LX104Y	FTLYD1	Left Foot Disp. Y	Dorsif	160.90509	°	+	7/17/2002	OK	168v	Contelec	PD210-4B
0049	LX104Z	FTLZD1	Left Foot Disp. Z	Exter	161.50910	°	-	7/17/2002	OK	168v	Contelec	PD210-4B
0050	AAKB1	FTLXG1	Left Foot Accel X	Fwd	1183.8697	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0051	AAKD0	FTLYG1	Left Foot Accel Y	Rt	1199.4283	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0052	J23759	FTLZG1	Left Foot Accel Z	Dn	1207.7608	g	+	8/6/2002	OK	168v	Endevco	7264-2KM5T
0053	150-0121VL-181	KNRDX1	Right Knee Displacement	Tib	44.603188	mm	-	6/13/2002	OK	168v	SpaceAge	150-0121VL
0054	4353J-75-FX	TBRXF1	Right Upper Tibia Force X	Tib	8902.5566	N	+	8/2/2002	OK	168v	Denton	4353J
0055	4353J-75-FZ	TBRZF1	Right Upper Tibia Force Z	Tib	8900.2563	N	+	8/2/2002	OK	168v	Denton	4353J
0056	4353J-75-MX	TBRXM1	Right Upper Tibia Moment X	Tib	282.08210	N-m	+	8/2/2002	OK	168v	Denton	4353J
0057	4353J-75-MY	TBRYM1	Right Upper Tibia Moment Y	Tib	282.18701	N-m	+	8/2/2002	OK	168v	Denton	4353J
0058	J36726	TBRXG1	Right Tibia Accel X	Fwd	1186.1736	g	+	8/7/2002	OK	168v	Endevco	7264-2000TZ
0059	AGWB1	TBRYG1	Right Tibia Accel Y	Rt	1214.1908	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0060	4929J-76-FX	ANRXF1	Right Lower Tibia Force X	Ank	8893.1394	N	+	7/16/2002	OK	168v	Denton	4929J
0061	4929J-76-FY	ANRYF1	Right Lower Tibia Force Y	Ank	8901.0800	N	+	7/16/2002	OK	168v	Denton	4929J
0062	4929J-76-FZ	ANRZF1	Right Lower Tibia Force Z	Ank	8893.2456	N	+	7/16/2002	OK	168v	Denton	4929J
0063	4929J-76-MX	ANRXM1	Right Lower Tibia Moment X	Ank	281.92254	N-m	+	7/16/2002	OK	168v	Denton	4929J
0064	4929J-76-MY	ANRYM1	Right Lower Tibia Moment Y	Ank	282.26397	N-m	+	7/16/2002	OK	168v	Denton	4929J

# Channel Report

10/18/2002 2:58:01 PM

0065	PD210-4B-AK-03	FTRXD1	Right Foot Disp. X	Eversi	160.05001	°	-	7/18/2002	OK	168v	Contelec	PD210-4B
0066	PD210-4B-0225	FTRYD1	Right Foot Disp. Y	Dorsif	162.23581	°	+	7/18/2002	OK	168v	Contelec	PD210-4B
0067	PD210-4B-AK-03	FTRZD1	Right Foot Disp. Z	Intern	162.09713	°	-	7/18/2002	OK	168v	Contelec	PD210-4B
0068	AALD5	FTRXG1	Right Foot Accel X	Fwd	1204.1250	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0069	AAK48	FTRYG1	Right Foot Accel Y	Rt	1218.1774	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0070	ACB45	FTRZG1	Right Foot Accel Z	Dn	1189.1490	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
0071	J20083	HEDXG2	Head Accel X	Rwd	795.77864	g	-	5/24/2002	OK	169v	Endevco	7264-2000T
0072	J19843	HEDYG2	Head Accel Y	Lft	802.00501	g	-	5/24/2002	OK	169v	Endevco	7264-2000T
0073	J20027	HEDZG2	Head Accel Z	Up	807.18266	g	-	5/24/2002	OK	169v	Endevco	7264-2KM5T
0074	1716A-782-FX	NEKXF2	Neck Force X	Hd	8899.3629	N	-	5/30/2002	OK	169v	Denton	1716A
0075	1716A-782-FY	NEKYF2	Neck Force Y	Hd	8891.4986	N	+	5/30/2002	OK	169v	Denton	1716A
0076	1716A-782-FZ	NEKZF2	Neck Force Z	Hd	13341.035	N	+	5/30/2002	OK	169v	Denton	1716A
0077	1716A-782-MX	NEKXM2	Neck Moment X	Rt Ear	282.33238	N-m	-	5/30/2002	OK	169v	Denton	1716A
0078	1716A-782-MY	NEKYM2	Neck Moment Y	Chn	282.59624	N-m	+	5/30/2002	OK	169v	Denton	1716A
0079	1716A-782-MZ	NEKZM2	Neck Moment Z	Chn	282.34136	N-m	+	5/30/2002	OK	169v	Denton	1716A
0080	J23757	CSTXG2	Chest Accel X	Fwd	401.74035	g	+	5/24/2002	OK	169v	Endevco	7264-2000T
0081	J21989	CSTYG2	Chest Accel Y	Lft	399.01804	g	-	5/24/2002	OK	169v	Endevco	7264-2KM5T
0082	J35747	CSTZG2	Chest Accel Z	Up	401.75768	g	-	5/24/2002	OK	169v	Endevco	7264-2000TZ
0083	14CB1-2847-169	CSTXD2	Chest Deflection X	Strnm	102.03095	mm	+	6/6/2002	OK	169v	Servo	14CB1-2847
0084	J36741	PEVXG2	Pelvis Accel X	Rwd	399.18759	g	-	5/24/2002	OK	169v	Endevco	7264-2000TZ
0085	J36605	PEVYG2	Pelvis Accel Y	Lft	398.45598	g	-	5/24/2002	OK	169v	Endevco	7264-2000TZ
0086	AAMD7	PEVZG2	Pelvis Accel Z	Up	401.89960	g	-	5/24/2002	OK	169v	Endevco	7264-2000LC
0087	1914-0261-FX	LFMXF2	Left Femur Force X	Knee	20043.875	N	-	5/24/2002	OK	169v	Denton	1914
0088	1914-0261-FY	LFMYF2	Left Femur Force Y	Knee	20037.545	N	+	5/24/2002	OK	169v	Denton	1914
0089	1914-0261-FZ	LFMZF2	Left Femur Force Z	Knee	33361.064	N	+	5/24/2002	OK	169v	Denton	1914
0090	1914-0261-MX	LFMXM2	Left Femur Moment X	Knee	508.75255	N-m	-	5/24/2002	OK	169v	Denton	1914
0091	1914-0261-MY	LFMYM2	Left Femur Moment Y	Knee	508.52406	N-m	+	5/24/2002	OK	169v	Denton	1914
0092	1914-0261-MZ	LFMZM2	Left Femur Moment Z	Tib	509.01555	N-m	+	5/24/2002	OK	169v	Denton	1914
0093	1914A-383-FX	RFMXF2	Right Femur Force X	Knee	20039.527	N	-	5/24/2002	OK	169v	Denton	1914A
0094	1914A-383-FY	RFMYF2	Right Femur Force Y	Knee	20017.163	N	+	5/24/2002	OK	169v	Denton	1914A
0095	1914A-383-FZ	RFMZF2	Right Femur Force Z	Knee	33365.199	N	+	5/24/2002	OK	169v	Denton	1914A
0096	1914A-383-MX	RFMXM2	Right Femur Moment X	Knee	508.55788	N-m	-	5/24/2002	OK	169v	Denton	1914A
0097	1914A-383-MY	RFMYM2	Right Femur Moment Y	Knee	509.40946	N-m	+	5/24/2002	OK	169v	Denton	1914A
0098	1914A-383-MZ	RFMZM2	Right Femur Moment Z	Tib	509.04461	N-m	+	5/24/2002	OK	169v	Denton	1914A
0099	150-0121VR-171	KNLXD2	Left Knee Displacement	Tib	43.137585	mm	-	6/13/2002	OK	169v	SpaceAge	150-0121VR

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0100	4353J-78-FX	TBLXF2	Left Upper Tibia Force X	Tib	8902.4648	N	-	7/17/2002	OK	169v	Denton	4353J
0101	4353J-78-FZ	TBLZF2	Left Upper Tibia Force Z	Tib	8892.4095	N	+	7/17/2002	OK	169v	Denton	4353J
0103	4353J-78-MY	TBLYM2	Left Upper Tibia Moment Y	Tib	282.22690	N-m	-	7/17/2002	OK	169v	Denton	4353J
0104	J27464	TBLXG2	Left Tibia Accel X	Fwd	1198.5018	g	+	8/6/2002	OK	169v	Endevco	7264-2KM5T
0105	J36743	TBLYG2	Left Tibia Accel Y	Rt	1184.2394	g	+	8/7/2002	OK	169v	Endevco	7264-2000TZ
0106	J40456	VCGXG1	VEHICLE CG X-AXIS	FWD	995.14091	g	+	9/18/2002	OK	-1	Endevco	7264-2000TZ
0107	J38787	RDKZG1	REAR DECK Z-AXIS	UP	995.41177	g	-	6/18/2002	OK	VRTC	Endevco	7264-2000TZ

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Name of Test 021018-2

System MINIDAU

Name of DAU DAU6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
6001	4929J-78-FX	ANLXF2	Left Lower Tibia Force X	Ank	8906.4127	N	+ 7/16/2002	OK 169v	Denton	4929J
6002	4929J-78-FY	ANLYF2	Left Lower Tibia Force Y	Ank	8887.8232	N	+ 7/16/2002	OK 169v	Denton	4929J
6003	4929J-78-FZ	ANLZF2	Left Lower Tibia Force Z	Ank	8889.0720	N	+ 7/16/2002	OK 169v	Denton	4929J
6004	4929J-78-MX	ANLXM2	Left Lower Tibia Moment X	Ank	282.55100	N-m	+ 7/16/2002	OK 169v	Denton	4929J
6005	4929J-78-MY	ANLYM2	Left Lower Tibia Moment Y	Ank	281.77504	N-m	+ 7/16/2002	OK 169v	Denton	4929J
6006	LX0019X	FTLXD2	Left Foot Disp. X	Invers	161.65284	°	- 7/23/2002	OK 169v	Contelec	PD210-4B
6007	LX0019Y	FTLYD2	Left Foot Disp. Y	Dorsif	161.76485	°	+ 7/23/2002	OK 169v	Contelec	PD210-4B
6008	LX0019Z	FTLZD2	Left Foot Disp. Z	Intern	160.40718	°	+ 7/23/2002	OK 169v	Contelec	PD210-4B
6009	J35987	FTLXG2	Left Foot Accel X	Fwd	1165.4374	g	+ 8/7/2002	OK 169v	Endevco	7264-2000TZ
6010	J19865	FTLYG2	Left Foot Accel Y	Rt	1186.8335	g	+ 8/7/2002	OK 169v	Endevco	7264-2KM5T
6011	J19338	FTLZG2	Left Foot Accel Z	Dn	1217.6560	g	+ 8/6/2002	OK 169v	Endevco	7264-2KM5T
6012	150-0121VL-210	KNRXD2	Right Knee Displacement	Tib	40.937075	mm	- 6/13/2002	OK 169v	SpaceAge	150-0121VL
6013	4353J-77-FX	TBRXF2	Right Upper Tibia Force X	Tib	8907.8549	N	- 7/17/2002	OK 169v	Denton	4353J
6014	4353J-77-FZ	TBRZF2	Right Upper Tibia Force Z	Tib	8896.6112	N	+ 7/17/2002	OK 169v	Denton	4353J
6015	4353J-77-MX	TBRXM2	Right Upper Tibia Moment X	Tib	281.81210	N-m	- 7/17/2002	OK 169v	Denton	4353J
6016	4353J-77-MY	TBRYM2	Right Upper Tibia Moment Y	Tib	282.37838	N-m	- 7/17/2002	OK 169v	Denton	4353J
6017	J36611	TBRXG2	Right Tibia Accel X	Fwd	1206.1816	g	+ 8/7/2002	OK 169v	Endevco	7264-2000TZ
6018	J19227	TBRYG2	Right Tibia Accel Y	Rt	1209.3726	g	+ 8/7/2002	OK 169v	Endevco	7264-2000T
6019	4929J-75-FX	ANRXF2	Right Lower Tibia Force X	Ank	8889.6424	N	+ 7/17/2002	OK 169v	Denton	4929J
6020	4929J-75-FY	ANRYF2	Right Lower Tibia Force Y	Ank	8888.6113	N	+ 7/17/2002	OK 169v	Denton	4929J
6021	4929J-75-FZ	ANRZF2	Right Lower Tibia Force Z	Ank	8893.3040	N	+ 7/17/2002	OK 169v	Denton	4929J
6022	4929J-75-MX	ANRXM2	Right Lower Tibia Moment X	Ank	282.34979	N-m	+ 7/17/2002	OK 169v	Denton	4929J
6023	4929J-75-MY	ANRYM2	Right Lower Tibia Moment Y	Ank	281.56380	N-m	+ 7/17/2002	OK 169v	Denton	4929J
6026	LX0018X	FTRXD2	Right Foot Disp. X	Invers	163.40609	°	- 7/23/2002	OK 169v	Contelec	PD210-4B
6027	LX0018Y	FTRYD2	Right Foot Disp. Y	Dorsif	162.23699	°	+ 7/23/2002	OK 169v	Contelec	PD210-4B
6028	LX0018Z	FTRZD2	Right Foot Disp. Z	Exter	161.72990	°	+ 7/23/2002	OK 169v	Contelec	PD210-4B
6029	AAKB4	FTRXG2	Right Foot Accel X	Fwd	1239.7094	g	+ 8/6/2002	OK 169v	Endevco	7264-2000LC
6030	AHRW5	FTRYG2	Right Foot Accel Y	Rt	1222.1028	g	+ 8/6/2002	OK 169v	Endevco	7264-2000LC
6031	ACCT1	FTRZG2	Right Foot Accel Z	Dn	1194.6985	g	+ 8/6/2002	OK 169v	Endevco	7264-2000LC
6032	4353J-78-MX	TBLXM2	Left Upper Tibia Moment X	Tib	281.46429	N-m	+ 7/17/2002	OK -1	Denton	4353J

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Name of Test 021018-2

System MINIDAU

Name of DAU DAU7

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.	Group	Mfg.	Model
7001	P23789	LRXXG1	REAR SEAT X-MEMBER	FWD	1005.6963	g	+	8/27/2002	OK VRTC	Endevco	7264C-2K-2-180
7002	P23828	LRXYG1	REAR SEAT Y-MEMBER	LT	996.90414	g	-	8/28/2002	OK VRTC	Endevco	7264C-2K-2-180
7003	P24128	LRXZG1	REAR SEAT Z-MEMBER	DN	992.05580	g	+	8/9/2002	OK -1	Endevco	7264C-2K-2-180
7004	P23942	RRXXG1	REAR SEAT X-MEMBER	FWD	995.02487	g	+	9/4/2002	OK VRTC	Endevco	7264C-2K-2-180
7005	J36709	RRXYG1	REAR SEAT Y-MEMBER	LT	1015.3089	g	-	5/2/2002	OK -1	Endevco	7264-2000TZ
7006	P23865	RRXZG1	REAR SEAT Z-MEMBER	DN	1002.2707	g	+	9/4/2002	OK VRTC	Endevco	7264C-2K-2-180
7007	J41087	LTPXG1	DRIVERS LT. SIDE TOE PAN	RR	1023.2918	g	-	6/6/2002	OK VRTC	Endevco	7264-2000TZ
7008	P23929	LTPYG1	DRIVERS LT. SIDE TOE PAN	LT	990.75041	g	-	9/4/2002	OK VRTC	Endevco	7264C-2K-2-180
7009	J40744	LTPZG1	DRIVERS LT. SIDE TOE PAN	UP	979.94181	g	-	6/3/2002	OK VRTC	Endevco	7264-2000TZ
7010	P23927	RTPXG1	DRIVERS RT. SIDE TOE PAN	RR	1022.2621	g	-	9/4/2002	OK VRTC	Endevco	7264C-2K-2-180
7011	J22013	RTPYG1	DRIVERS RT. SIDE TOE PAN	LT	1007.8740	g	-	6/19/2002	OK -1	Endevco	7264-2000TZ
7012	P24065	RTPZG1	DRIVERS RT. SIDE TOE PAN	UP	1020.3268	g	-	8/9/2002	OK VRTC	Endevco	7264C-2K-2-180
7014	J40726	VCGYG1	VEHICLE CG Y-AXIS	RT	996.65187	g	+	9/18/2002	OK -1	Endevco	7264-2000TZ
7015	J36971	VCGZG1	VEHICLE CG Z-AXIS	UP	1009.6428	g	-	7/17/2002	OK -1	Endevco	7264-2000TZ
7017	A37492	TPDXD1	TOE PAN DISPLACEMENT	SP04	1270.4235	mm	+	8/15/2002	OK VRTC	Celesco	PT-101-0050-11
7018	ABFire	DABETA	DRIVER AIRBAG EVENT -	F	5.12	V	+	8/20/2002	OK -1	FLUKE	Y8101A
7019	ABFire	DABETB	DRIVER AIRBAG EVENT-	J	5.12	V	+	8/20/2002	OK -1	FLUKE	Y8101A
7020	ABFire	PABETA	PASSENGER AIRBAG EVENT	8	5.12	V	+	8/20/2002	OK -1	FLUKE	Y8101A
7021	ABFire	PABETB	PASSENGER AIRBAG EVENT	D	5.12	V	+	8/20/2002	OK -1	FLUKE	Y8101A
7022	810	SHBF1	DRIVER SHOULDER FORCE	L6	13352.255	N	+	9/24/2002	OK VRTC	Lebow	3419T
7023	808	LPBF1	DRIVER LAP FORCE	1511	13320.067	N	+	10/8/2002	OK VRTC	Lebow	3419T
7024	807	SHBF2	PASSENGER SHOULDER	LB	13355.478	N	+	10/8/2002	OK VRTC	Lebow	3419T
7025	811	LPBF2	PASSENGER LAP FORCE	R6	13331.239	N	+	9/24/2002	OK VRTC	Lebow	3419T

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Name of Test 021018-2

System K3600

Name of DAU DAU1

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
1000	EVENT	SYNC1	SYNC1		10.24	V	+ 4/15/2002	OK -1	TRC	Event
1001	6244-02-144-FZ	LCA1XF	Barr. L.C. A1 X-Axis Force		111096.52	N	- 2/20/2002	--- VRTC	Key	6244-02
1002	6244-02-125-FZ	LCA2XF	Barr. L.C. A2 X-Axis Force		111079.33	N	- 2/19/2002	--- VRTC	Key	6244-02
1003	6244-02-131-FZ	LCA3XF	Barr. L.C. A3 X-Axis Force		111135.42	N	- 2/5/2002	--- VRTC	Key	6244-02
1004	6244-02-106-FZ	LCA4XF	Barr. L.C. A4 X-Axis Force		111096.52	N	- 2/12/2002	--- VRTC	Key	6244-02
1005	6244-02-115-FZ	LCA5XF	Barr. L.C. A5 X-Axis Force		111114.84	N	- 2/5/2002	--- VRTC	Key	6244-02
1006	6244-02-122-FZ	LCA6XF	Barr. L.C. A6 X-Axis Force		111096.52	N	- 2/21/2002	--- VRTC	Key	6244-02
1007	6244-02-143-FZ	LCA7XF	Barr. L.C. A7 X-Axis Force		111096.52	N	- 2/5/2002	--- VRTC	Key	6244-02
1008	6244-02-119-FZ	LCB1XF	Barr. L.C. B1 X-Axis Force		111196.07	N	- 2/22/2002	--- VRTC	Key	6244-02
1009	6244-02-132-FZ	LCB2XF	Barr. L.C. B2 X-Axis Force		111278.56	N	- 2/20/2002	--- VRTC	Key	6244-02
1010	6244-02-113-FZ	LCB3XF	Barr. L.C. B3 X-Axis Force		111135.42	N	- 2/22/2002	--- VRTC	Key	6244-02
1011	6244-02-129-FZ	LCB4XF	Barr. L.C. B4 X-Axis Force		111096.52	N	- 2/21/2002	--- VRTC	Key	6244-02
1012	6244-02-123-FZ	LCB5XF	Barr. L.C. B5 X-Axis Force		111083.84	N	- 2/11/2002	--- VRTC	Key	6244-02
1013	6244-02-136-FZ	LCB6XF	Barr. L.C. B6 X-Axis Force		111083.84	N	- 1/24/2002	--- VRTC	Key	6244-02
1014	6244-02-116-FZ	LCB7XF	Barr. L.C. B7 X-Axis Force		111196.07	N	- 2/22/2002	--- VRTC	Key	6244-02
1015	6244-02-147-FZ	LCC1XF	Barr. L.C. C1 X-Axis Force		111196.07	N	- 2/22/2002	--- VRTC	Key	6244-02
1016	6244-02-137-FZ	LCC2XF	Barr. L.C. C2 X-Axis Force		111079.33	N	- 2/21/2002	--- VRTC	Key	6244-02
1017	6244-02-107-FZ	LCC3XF	Barr. L.C. C3 X-Axis Force		111289.22	N	- 2/12/2002	--- VRTC	Key	6244-02
1018	6244-02-126-FZ	LCC4XF	Barr. L.C. C4 X-Axis Force		111083.84	N	- 2/12/2002	--- VRTC	Key	6244-02
1019	6244-02-148-FZ	LCC5XF	Barr. L.C. C5 X-Axis Force		111096.52	N	- 2/19/2002	--- VRTC	Key	6244-02
1020	6244-02-124-FZ	LCC6XF	Barr. L.C. C6 X-Axis Force		111096.52	N	- 2/19/2002	--- VRTC	Key	6244-02
1021	6244-02-104-FZ	LCC7XF	Barr. L.C. C7 X-Axis Force		111096.52	N	- 2/12/2002	--- VRTC	Key	6244-02
1022	6244-02-138-FZ	LCD1XF	Barr. L.C. D1 X-Axis Force		111079.33	N	- 2/21/2002	--- VRTC	Key	6244-02
1023	6244-02-128-FZ	LCD2XF	Barr. L.C. D2 X-Axis Force		111196.07	N	- 1/7/2002	--- VRTC	Key	6244-02
1024	6244-02-102-FZ	LCD3XF	Barr. L.C. D3 X-Axis Force		111135.42	N	- 2/12/2002	--- VRTC	Key	6244-02
1025	6244-02-117-FZ	LCD4XF	Barr. L.C. D4 X-Axis Force		111079.33	N	- 2/19/2002	--- VRTC	Key	6244-02
1026	6244-02-127-FZ	LCD5XF	Barr. L.C. D5 X-Axis Force		111135.42	N	- 2/22/2002	--- VRTC	Key	6244-02
1027	6244-02-109-FZ	LCD6XF	Barr. L.C. D6 X-Axis Force		111083.84	N	- 2/12/2002	--- VRTC	Key	6244-02
1028	6244-02-162-FZ	LCD7XF	Barr. L.C. D7 X-Axis Force		111162.73	N	- 1/7/2002	--- VRTC	Key	6244-02
1029	6244-02-114-FZ	LCE1XF	Barr. L.C. E1 X-Axis Force		111079.33	N	- 2/19/2002	--- VRTC	Key	6244-02

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1030	6244-02-145-FZ	LCE2XF	Barr. L.C. E2 X-Axis Force	111229.50	N	-	2/20/2002	--	VRTC	Key	6244-02
1031	6244-02-118-FZ	LCE3XF	Barr. L.C. E3 X-Axis Force	111135.42	N	-	2/19/2002	--	VRTC	Key	6244-02
1032	6244-02-120-FZ	LCE4XF	Barr. L.C. E4 X-Axis Force	111079.33	N	-	1/7/2002	--	VRTC	Key	6244-02
1033	6244-02-101-FZ	LCE5XF	Barr. L.C. E5 X-Axis Force	111083.84	N	-	2/12/2002	--	VRTC	Key	6244-02
1034	6244-02-112-FZ	LCE6XF	Barr. L.C. E6 X-Axis Force	111278.56	N	-	2/19/2002	--	VRTC	Key	6244-02
1035	6244-02-108-FZ	LCE7XF	Barr. L.C. E7 X-Axis Force	111096.52	N	-	2/12/2002	--	VRTC	Key	6244-02
1036	6244-02-164-FZ	LCF1XF	Barr. L.C. F1 X-Axis Force	111174.80	N	-	8/2/2002	OK	VRTC	Key	6244-02
1037	6244-02-135-FZ	LCF2XF	Barr. L.C. F2 X-Axis Force	111317.11	N	-	8/2/2002	OK	VRTC	Key	6244-02
1038	6244-02-165-FZ	LCF3XF	Barr. L.C. F3 X-Axis Force	111058.32	N	-	3/18/2002	--	VRTC	Key	6244-02
1039	6244-02-141-FZ	LCF4XF	Barr. L.C. F4 X-Axis Force	111196.07	N	-	2/19/2002	--	VRTC	Key	6244-02
1040	6244-02-130-FZ	LCF5XF	Barr. L.C. F5 X-Axis Force	111096.52	N	-	2/20/2002	--	VRTC	Key	6244-02
1041	6244-02-168-FZ	LCF6XF	Barr. L.C. F6 X-Axis Force	111114.84	N	-	1/7/2002	--	VRTC	Key	6244-02
1042	6244-02-149-FZ	LCF7XF	Barr. L.C. F7 X-Axis Force	111079.33	N	-	2/20/2002	--	VRTC	Key	6244-02
1043	6244-02-159-FZ	LCG1XF	Barr. L.C. G1 X-Axis Force	111170.00	N	-	8/2/2002	OK	VRTC	Key	6244-02
1044	6244-02-160-FZ	LCG2XF	Barr. L.C. G2 X-Axis Force	111250.17	N	-	8/2/2002	OK	VRTC	Key	6244-02
1045	6244-02-161-FZ	LCG3XF	Barr. L.C. G3 X-Axis Force	111215.54	N	-	8/2/2002	OK	VRTC	Key	6244-02
1046	6244-02-166-FZ	LCG4XF	Barr. L.C. G4 X-Axis Force	111327.00	N	-	8/2/2002	OK	VRTC	Key	6244-02
1047	6244-02-157-FZ	LCH1XF	Barr. L.C. H1 X-Axis Force	111160.32	N	-	8/2/2002	OK	VRTC	Key	6244-02
1049	6244-02-163-FZ	LCH3XF	Barr. L.C. H3 X-Axis Force	111220.15	N	-	8/2/2002	OK	VRTC	Key	6244-02
1050	6244-02-169-FZ	LCH2XF	Barr. L.C. H2 X-Axis Force	111115.56	N	-	8/2/2002	OK	VRTC	Key	6244-02
1051	6244-02-167-FZ	LCH4XF	Barr. L.C. H4 X-Axis Force	111254.28	N	-	8/2/2002	OK	VRTC	Key	6244-02

Dummy 168v Type HIII 50TH Description VRTC - 168v HIII 50TH ICAL'd 1-24-02 (DKS 9-25-02)J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
HEDXG	Head Accel X	7264-2KM5T	J17649	Endevco	0.03203 g	2000	5/24/02	Rwd	1
HEDYG	Head Accel Y	7264-2000T	AJ454	Endevco	0.02856 g	2000	5/24/02	Lft	1
HEDZG	Head Accel Z	7264-2000T	J14189	Endevco	0.0331 g	2000	5/24/02	Up	1
HEDXR	Head Accel Red X S39	7264C-2KLC-2-	P17196	Endevco	0.02104 g	2000	1/25/02	Rwd	1
HEDYR	Head Accel Red Y	EGE-73B6Q-20	B02A25-N05	Entran	0.02064 g	2000	2/8/02	Lft	1
HEDZR	Head Accel Red Z	EGE-73B6Q-20	01G25-N09	Entran	0.01919 g	2000	1/24/02	Up	1
NEKXF	Neck Force X	1716A	1716A-851-FX	Denton	0.000193999 N	8896.4	5/29/02	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-851-FY	Denton	0.000188289 N	8896.4	5/29/02	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716A	1716A-851-FZ	Denton	0.000147643 N	13344.6	5/29/02	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-851-MX	Denton	0.005989735 N-m	282.5	5/29/02	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-851-MY	Denton	0.005981947 N-m	282.5	5/29/02	Chn to Strnm	0
NEKZM	Neck Moment Z	1716A	1716A-851-MZ	Denton	0.008568142 N-m	282.5	5/29/02	Chn to Lt Shld	0
CSTXG	Chest Accel X	7264-2000TZ	J35921	Endevco	0.03039 g	2000	5/24/02	Fwd	0
CSTYG	Chest Accel Y	7264-2000T	AJ7F7	Endevco	0.0343 g	2000	5/24/02	Lft	1
CSTZG	Chest Accel Z	7264-2000TZ	J36723	Endevco	0.02522 g	2000	5/24/02	Up	1
CSTXR	Chest Accel Red X	EGE-73BQE0-2	99H30-Z14	Entran	0.02073 g	2000	4/25/02	Rwd	1
CSTYR	Chest Accel Red Y	EGE-73BQ-200	98H14-K05	Entran	0.01743 g	2000	4/25/02	Lft	1
CSTZR	Chest Accel Red Z	EGE-73BQ-200	98H13-F03	Entran	0.02081 g	2000	4/25/02	Up	1
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-168	Servo	1.11705 mm	100	6/5/02	Strnm Away Frm Spn	0
PEVXG	Pelvis Accel X	7264-2000T	ACCY2	Endevco	0.02365 g	2000	5/24/02	Rwd	1
PEVYG	Pelvis Accel Y	7264-2KM5T	J27490	Endevco	0.02214 g	2000	5/24/02	Lft	1
PEVZG	Pelvis Accel Z	7264-2KM5T	J21963	Endevco	0.0253 g	2000	5/24/02	Up	1
LFMXF	Left Femur Force X	1914A	1914A-362-FX	Denton	0.000143968 N	13344	5/24/02	Knee Dn,Fem Up	1
LFMYF	Left Femur Force Y	1914A	1914A-362-FY	Denton	0.000144523 N	13344	5/24/02	Knee Rt,Fem Lt	0
LFMZF	Left Femur Force Z	1914A	1914A-362-FZ	Denton	0.000059074 N	22240	5/24/02	Knee Fd,Pel Rr	0
LFMXM	Left Femur Moment X	1914A	1914A-362-MX	Denton	0.004464012 N-m	339	5/24/02	Knee Rt,Hld Fem	1

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
LFMYM	Left Femur Moment Y	1914A	1914A-362-MY	Denton	0.004409145 N·m	339	5/24/02	Knee Up,Hld Fem	0
LFMZM	Left Femur Moment Z	1914A	1914A-362-MZ	Denton	0.00790413 N·m	339	5/24/02	Tib Lt,Hld Pel	0
RFMXF	Right Femur Force X	1914A	1914A-376-FX	Denton	0.000146666 N	13344	5/24/02	Knee Dn,Fem Up	1
RFMYF	Right Femur Force Y	1914A	1914A-376-FY	Denton	0.000146629 N	13344	5/24/02	Knee Rt,Fem Lt	0
RFMZF	Right Femur Force Z	1914A	1914A-376-FZ	Denton	0.000059876 N	22240	5/24/02	Knee Fd,Pel Rr	0
RFMXM	Right Femur Moment X	1914A	1914A-376-MX	Denton	0.004443068 N·m	339	5/24/02	Knee Rt,Hld Fem	1
RFMYM	Right Femur Moment Y	1914A	1914A-376-MY	Denton	0.003790977 N·m	339	5/24/02	Knee Up,Hld Fem	0
RFMZM	Right Femur Moment Z	1914A	1914A-376-MZ	Denton	0.006787469 N·m	339	5/24/02	Tib Lt,Hld Pel	0
KNLXD	Left Knee Displacement	150-0121VR	150-0121VR-18026	SpaceAge	23.508 mm	40	6/13/02	Tib Rr,Hld Fem	1
TBLXF	Left Upper Tibia Force X	4353J	4353J-79-FX	Denton	0.000170487 N	11120.5	7/16/02	Tib Rr,Knee Fd	1
TBLZF	Left Upper Tibia Force Z	4353J	4353J-79-FZ	Denton	9.62187E-05 N	11120.5	7/16/02	Tib Dn,Knee Up	0
TBLXM	Left Upper Tibia Moment X	4353J	4353J-79-MX	Denton	0.007416793 N·m	395.4	7/16/02	Tib Rt,Hld Knee	1
TBLYM	Left Upper Tibia Moment Y	4353J	4353J-79-MY	Denton	0.007447901 N·m	395.4	7/16/02	Tib Rr,Hld Knee	1
TBLXG	Left Tibia Accel X	7264-2000LC	AMR49	Endevco	0.02036 g	2000	8/6/02	Fwd	0
TBLYG	Left Tibia Accel Y	7264-2000LC	AAJ29	Endevco	0.02691 g	2000	8/6/02	Rt	0
ANLXF	Left Lower Tibia Force X	4929J	4929J-77-FX	Denton	0.000172492 N	11120.5	7/16/02	Ank Fd,Knee Rr	0
ANLYF	Left Lower Tibia Force Y	4929J	4929J-77-FY	Denton	0.000172771 N	11120.5	7/16/02	Ank Rt,Knee Lt	0
ANLZF	Left Lower Tibia Force Z	4929J	4929J-77-FZ	Denton	9.59579E-05 N	11120.5	7/16/02	Ank Dn,Knee Up	0
ANLXM	Left Lower Tibia Moment X	4929J	4929J-77-MX	Denton	0.007497218 N·m	395.4	7/16/02	Ank Lt,Hld Knee	0
ANLYM	Left Lower Tibia Moment Y	4929J	4929J-77-MY	Denton	0.007430450 N·m	395.4	7/16/02	Ank Fd,Hld Knee	0
FTLXD	Left Foot Disp. X	PD210-4B	LX104X	Contelec	3.169 °	318	7/17/02	Eversion	0
FTLYD	Left Foot Disp. Y	PD210-4B	LX104Y	Contelec	3.182 °	318	7/17/02	Dorsiflexion	0
FTLZD	Left Foot Disp. Z	PD210-4B	LX104Z	Contelec	3.1701 °	318	7/17/02	External Rotation	1
FTLXG	Left Foot Accel X	7264-2000LC	AAKB1	Endevco	0.02703 g	2000	8/6/02	Fwd	0
FTLYG	Left Foot Accel Y	7264-2000LC	AAKD0	Endevco	0.02511 g	2000	8/6/02	Rt	0
FTLZG	Left Foot Accel Z	7264-2KM5T	J23759	Endevco	0.02735 g	2000	8/6/02	Dn	0
KNRXD	Right Knee Displacement	150-0121VL	150-0121VL-18123	SpaceAge	22.958 mm	40	6/13/02	Tib Rr,Hld Fem	1
TBRXF	Right Upper Tibia Force X	4353J	4353J-75-FX	Denton	0.000169651 N	11120.5	8/2/02	Tib Fd,Knee Rr	0

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
TBRZF	Right Upper Tibia Force Z	4353J	4353J-75-FZ	Denton	9.54004E-05 N	11120.5	8/2/02	Tib Dn,Knee Up	0
TBRXM	Right Upper Tibia Moment X	4353J	4353J-75-MX	Denton	0.007378351 N·m	395.4	8/2/02	Tib Lt,Hld Knee	0
TBRYM	Right Upper Tibia Moment Y	4353J	4353J-75-MY	Denton	0.007360647 N·m	395.4	8/2/02	Tib Fd,Hld Knee	0
TBRXG	Right Tibia Accel X	7264-2000TZ	J36726	Endevco	0.02398 g	2000	8/7/02	Fwd	0
TBRYG	Right Tibia Accel Y	7264-2000LC	AGWB1	Endevco	0.02008 g	2000	8/6/02	Rt	0
ANRXF	Right Lower Tibia Force X	4929J	4929J-76-FX	Denton	0.000171602 N	11120.5	7/16/02	Ank Fd,Knee Rr	0
ANRYF	Right Lower Tibia Force Y	4929J	4929J-76-FY	Denton	0.000172996 N	11120.5	7/16/02	Ank Rt,Knee Lt	0
ANRZF	Right Lower Tibia Force Z	4929J	4929J-76-FZ	Denton	9.56342E-05 N	11120.5	7/16/02	Ank Dn,Knee Up	0
ANRXM	Right Lower Tibia Moment X	4929J	4929J-76-MX	Denton	0.007504552 N·m	395.4	7/16/02	Ank Lt,Hld Knee	0
ANRYM	Right Lower Tibia Moment Y	4929J	4929J-76-MY	Denton	0.007480020 N·m	395.4	7/16/02	Ank Fd,Hld Knee	0
FTRXD	Right Foot Disp. X	PD210-4B	PD210-4B-AK-037	Contelec	3.199 °	318	7/18/02	Eversion	1
FTRYD	Right Foot Disp. Y	PD210-4B	PD210-4B-0225	Contelec	3.1559 °	318	7/18/02	Dorsiflexion	0
FTRZD	Right Foot Disp. Z	PD210-4B	PD210-4B-AK-039	Contelec	3.1586 °	318	7/18/02	Internal Rotation	1
FTRXG	Right Foot Accel X	7264-2000LC	AALD5	Endevco	0.02577 g	2000	8/6/02	Fwd	0
FTRYG	Right Foot Accel Y	7264-2000LC	AAK48	Endevco	0.02802 g	2000	8/6/02	Rt	0
FTRZG	Right Foot Accel Z	7264-2000LC	ACB45	Endevco	0.02691 g	2000	8/6/02	Dn	0

Dummy 169v Type HIII 50TH Description VRTC - 169v HIII 50TH ICAL'd 5-24-02 (DKS 8-22-02)J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
HEDXG	Head Accel X	7264-2000T	J20083	Endevco	0.02181 g	2000	5/24/02	Rwd	1
HEDYG	Head Accel Y	7264-2000T	J19843	Endevco	0.0224 g	2000	5/24/02	Lft	1
HEDZG	Head Accel Z	7264-2KM5T	J20027	Endevco	0.02589 g	2000	5/24/02	Up	1
NEKXF	Neck Force X	1716A	1716A-782-FX	Denton	0.000190504 N	8896	5/30/02	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-782-FY	Denton	0.000186052 N	8896	5/30/02	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716A	1716A-782-FZ	Denton	0.000096548 N	13344	5/30/02	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-782-MX	Denton	0.005812389 N-m	282.5	5/30/02	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-782-MY	Denton	0.005816283 N-m	282.5	5/30/02	Chn to Strnm	0
NEKZM	Neck Moment Z	1716A	1716A-782-MZ	Denton	0.008224071 N-m	282.5	5/30/02	Chn to Lt Shld	0
CSTXG	Chest Accel X	7264-2000T	J23757	Endevco	0.02801 g	2000	5/24/02	Fwd	0
CSTYG	Chest Accel Y	7264-2KM5T	J21989	Endevco	0.02333 g	2000	5/24/02	Lft	1
CSTZG	Chest Accel Z	7264-2000TZ	J35747	Endevco	0.02832 g	2000	5/24/02	Up	1
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-169	Servo	1.11513 mm	100	6/6/02	Strnm Away Frm Spn	0
PEVXG	Pelvis Accel X	7264-2000TZ	J36741	Endevco	0.02311 g	2000	5/24/02	Rwd	1
PEVYG	Pelvis Accel Y	7264-2000TZ	J36605	Endevco	0.02677 g	2000	5/24/02	Lft	1
PEVZG	Pelvis Accel Z	7264-2000LC	AAMD7	Endevco	0.02682 g	2000	5/24/02	Up	1
LFMXF	Left Femur Force X	1914	1914-0261-FX	Denton	0.000144725 N	13344	5/24/02	Knee Dn,Fem Up	1
LFMYF	Left Femur Force Y	1914	1914-0261-FY	Denton	0.000145182 N	13344	5/24/02	Knee Rt,Fem Lt	0
LFMZf	Left Femur Force Z	1914	1914-0261-FZ	Denton	0.000053289 N	22240	5/24/02	Knee Fd,Pel Rr	0
LFMXM	Left Femur Moment X	1914	1914-0261-MX	Denton	0.004356637 N-m	339	5/24/02	Knee Rt,Hld Fem	1
LFMYM	Left Femur Moment Y	1914	1914-0261-MY	Denton	0.004435398 N-m	339	5/24/02	Knee Up,Hld Fem	0
LFMZM	Left Femur Moment Z	1914	1914-0261-MZ	Denton	0.007827729 N-m	339	5/24/02	Tib Lt,Hld Pel	0
RFMXF	Right Femur Force X	1914A	1914A-383-FX	Denton	0.000147685 N	13344	5/24/02	Knee Dn,Fem Up	1
RFMYF	Right Femur Force Y	1914A	1914A-383-FY	Denton	0.00014785 N	13344	5/24/02	Knee Rt,Fem Lt	0
RFMZf	Right Femur Force Z	1914A	1914A-383-FZ	Denton	0.00006006 N	22240	5/24/02	Knee Fd,Pel Rr	0
RFMXM	Right Femur Moment X	1914A	1914A-383-MX	Denton	0.004435103 N-m	339	5/24/02	Knee Rt,Hld Fem	1

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
RFMYM	Right Femur Moment Y	1914A	1914A-383-MY	Denton	0.004437463 N·m	339	5/24/02	Knee Up,Hld Fem	0
RFMZM	Right Femur Moment Z	1914A	1914A-383-MZ	Denton	0.008078761 N·m	339	5/24/02	Tib Lt,Hld Pel	0
KNLXD	Left Knee Displacement	150-0121VR	150-0121VR-17169	SpaceAge	23.738 mm	40	6/13/02	Tib Rr,Hld Fem	1
TBLXF	Left Upper Tibia Force X	4353J	4353J-78-FX	Denton	0.000171935 N	11120.5	7/17/02	Tib Rr,Knee Fd	1
TBLZF	Left Upper Tibia Force Z	4353J	4353J-78-FZ	Denton	9.56432E-05 N	11120.5	7/17/02	Tib Dn,Knee Up	0
TBLXM	Left Upper Tibia Moment X	4353J	4353J-78-MX	Denton	0.007485837 N·m	395.4	7/17/02	Tib Rt,Hld Knee	1
TBLYM	Left Upper Tibia Moment Y	4353J	4353J-78-MY	Denton	0.007496459 N·m	395.4	7/17/02	Tib Rr,Hld Knee	1
TBLXG	Left Tibia Accel X	7264-2KM5T	J27464	Endevco	0.02848 g	2000	8/6/02	Fwd	0
TBLYG	Left Tibia Accel Y	7264-2000TZ	J36743	Endevco	0.02337 g	2000	8/7/02	Rt	0
ANLXF	Left Lower Tibia Force X	4929J	4929J-78-FX	Denton	0.000171602 N	11120.5	7/16/02	Ank Fd,Knee Rr	0
ANLYF	Left Lower Tibia Force Y	4929J	4929J-78-FY	Denton	0.000171449 N	11120.5	7/16/02	Ank Rt,Knee Lt	0
ANLZF	Left Lower Tibia Force Z	4929J	4929J-78-FZ	Denton	0.000173490 N	11120.5	7/16/02	Ank Dn,Knee Up	0
ANLXM	Left Lower Tibia Moment X	4929J	4929J-78-MX	Denton	0.007487860 N·m	395.4	7/16/02	Ank Lt,Hld Knee	0
ANLYM	Left Lower Tibia Moment Y	4929J	4929J-78-MY	Denton	0.007416540 N·m	395.4	7/16/02	Ank Fd,Hld Knee	0
FTLXD	Left Foot Disp. X	PD210-4B	LX0019X	Contelec	3.167281 °	318	7/23/02	Inversion	1
FTLYD	Left Foot Disp. Y	PD210-4B	LX0019Y	Contelec	3.165088 °	318	7/23/02	Dorsiflexion	0
FTLZD	Left Foot Disp. Z	PD210-4B	LX0019Z	Contelec	3.191877 °	318	7/23/02	Internal Rotation	0
FTLYG	Left Foot Accel Y	7264-2KM5T	J19865	Endevco	0.02157 g	2000	8/7/02	Rt	0
FTLZG	Left Foot Accel Z	7264-2KM5T	J19338	Endevco	0.02336 g	2000	8/6/02	Dn	0
FTLXG	Left Foot Accel X	7264-2000TZ	J35987	Endevco	0.03661 g	2000	8/7/02	Fwd	0
KNRXD	Right Knee Displacement	150-0121VL	150-0121VL-21033	SpaceAge	22.74 mm	40	6/13/02	Tib Rr,Hld Fem	1
TBRXF	Right Upper Tibia Force X	4353J	4353J-77-FX	Denton	0.000174174 N	11120.5	7/17/02	Tib Rr,Knee Fd	1
TBRZF	Right Upper Tibia Force Z	4353J	4353J-77-FZ	Denton	9.65604E-05 N	11120.5	7/17/02	Tib Dn,Knee Up	0
TBRXM	Right Upper Tibia Moment X	4353J	4353J-77-MX	Denton	0.007570056 N·m	395.4	7/17/02	Tib Rt,Hld Knee	1
TBRYM	Right Upper Tibia Moment Y	4353J	4353J-77-MY	Denton	0.007618361 N·m	395.4	7/17/02	Tib Rr,Hld Knee	1
TBRXG	Right Tibia Accel X	7264-2000TZ	J36611	Endevco	0.02653 g	2000	8/7/02	Fwd	0
TBRYG	Right Tibia Accel Y	7264-2000T	J19227	Endevco	0.02352 g	2000	8/7/02	Rt	0
ANRXF	Right Lower Tibia Force X	4929J	4929J-75-FX	Denton	0.000171926 N	11120.5	7/17/02	Ank Fd,Knee Rr	0

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
ANRYF	Right Lower Tibia Force Y	4929J	4929J-75-FY	Denton	0.000173499 N	11120.5	7/17/02	Ank Rt,Knee Lt	0
ANRZF	Right Lower Tibia Force Z	4929J	4929J-75-FZ	Denton	9.64345E-05 N	11120.5	7/17/02	Ank Dn,Knee Up	0
ANRXM	Right Lower Tibia Moment X	4929J	4929J-75-MX	Denton	0.00755564 N·m	395.4	7/17/02	Ank Lt,Hld Knee	0
ANRYM	Right Lower Tibia Moment Y	4929J	4929J-75-MY	Denton	0.007422104 N·m	395.4	7/17/02	Ank Fd,Hld Knee	0
FTRXD	Right Foot Disp. X	PD210-4B	LX0018X	Contelec	3.133298 °	318	7/23/02	Inversion	1
FTRYD	Right Foot Disp. Y	PD210-4B	LX0018Y	Contelec	3.155877 °	318	7/23/02	Dorsiflexion	0
FTRZD	Right Foot Disp. Z	PD210-4B	LX0018Z	Contelec	3.165772 °	318	7/23/02	External Rotation	0
FTRXG	Right Foot Accel X	7264-2000LC	AAKB4	Endevco	0.0295 g	2000	8/6/02	Fwd	0
FTRYG	Right Foot Accel Y	7264-2000LC	AHRW5	Endevco	0.01995 g	2000	8/6/02	Rt	0
FTRZG	Right Foot Accel Z	7264-2000LC	ACCT1	Endevco	0.01948 g	2000	8/6/02	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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**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:**

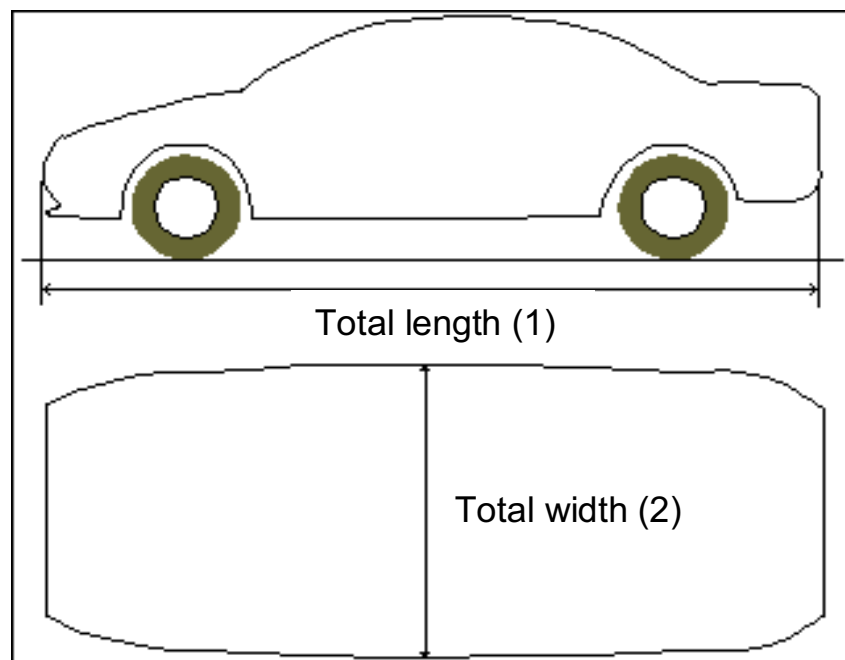
Crash compatibility, geometric compatibility, resistant elements, measure methodology

**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.*

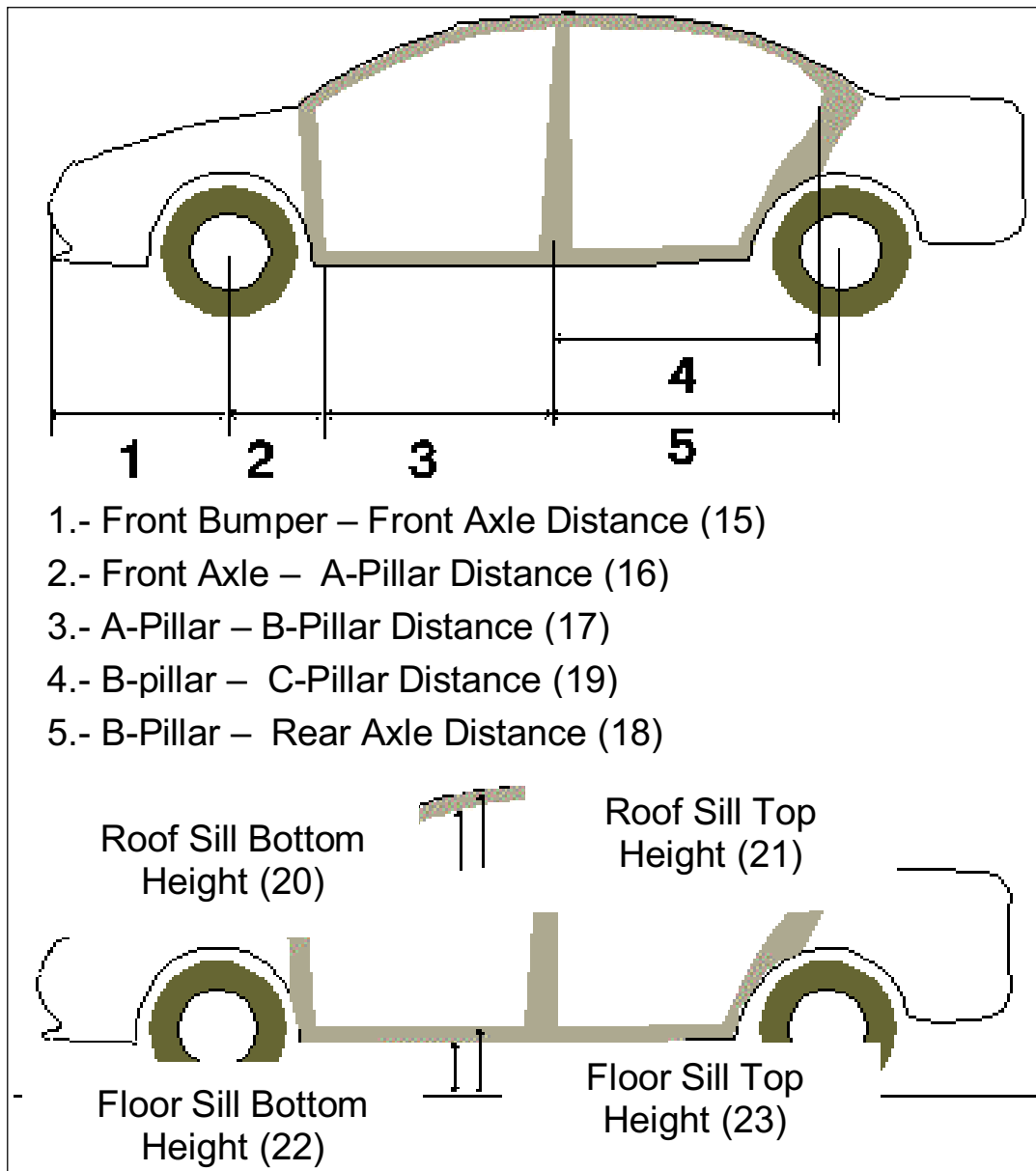


Figure 2.- Definition of the main resistant elements. Side elements.

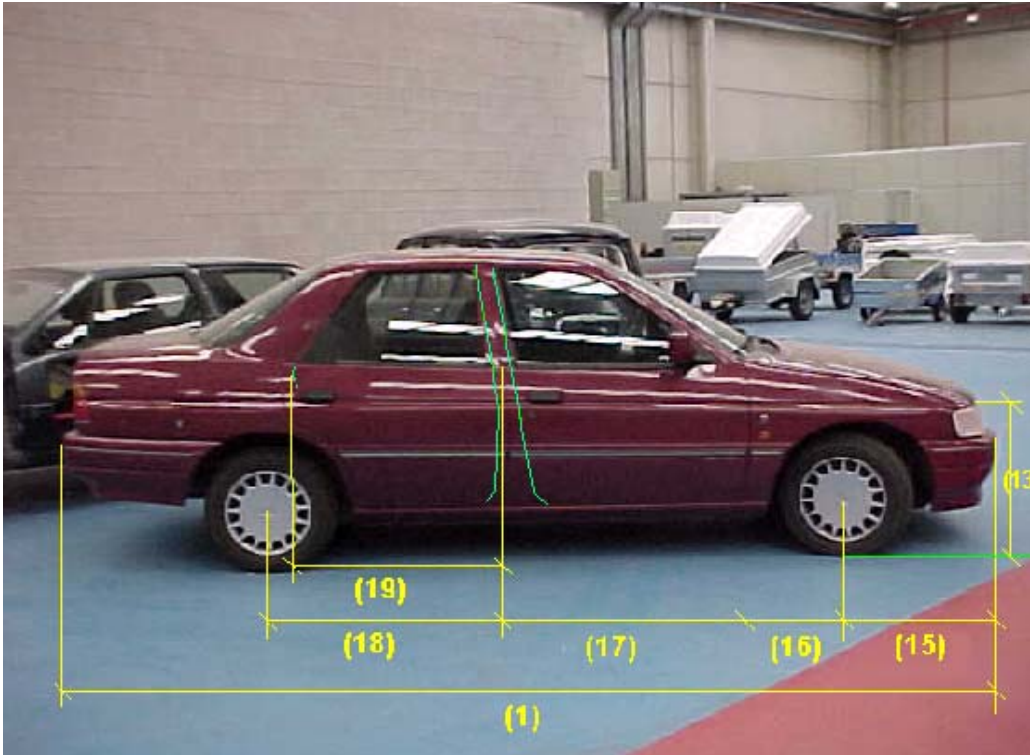
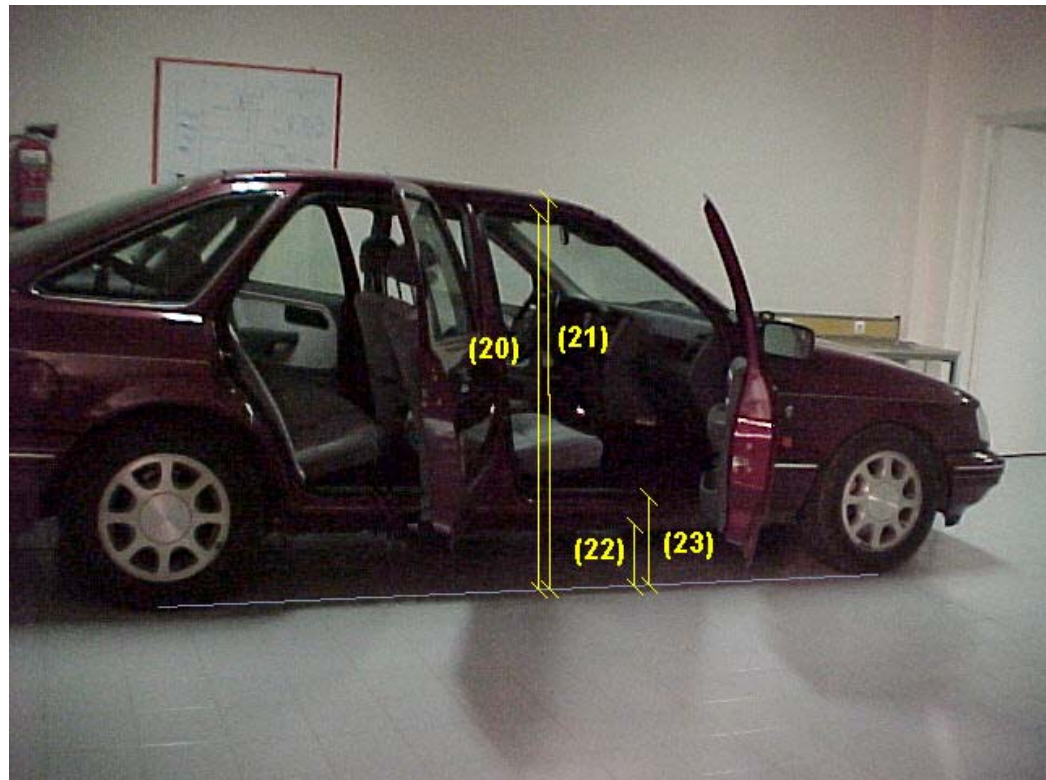


Figure 3.-  
Measurements of  
the side resistant  
elements (outer).

Figure 4.- Measurements  
of the side resistant  
elements (inner).



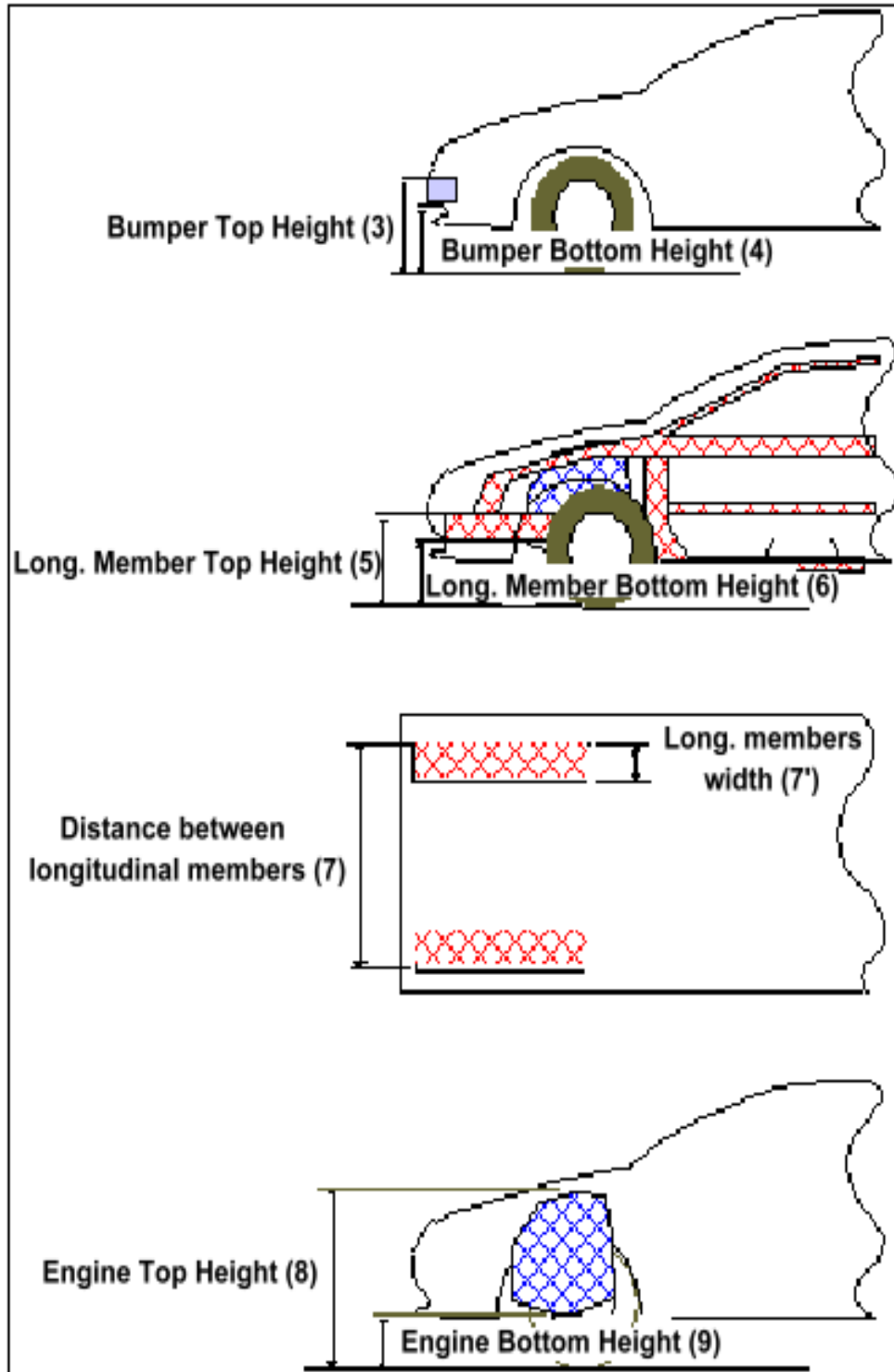


Figure 5.- Definition of the main resistant elements. Front elements.

Figure 6.-  
Measurements of the  
main resistant elements.  
Front elements 1.

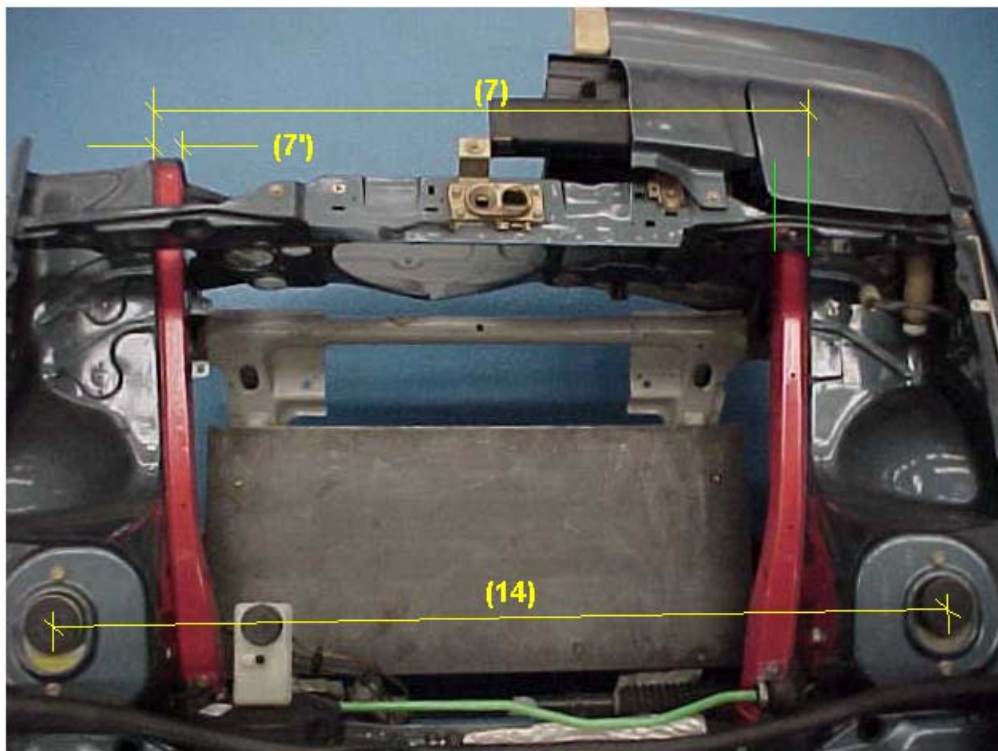
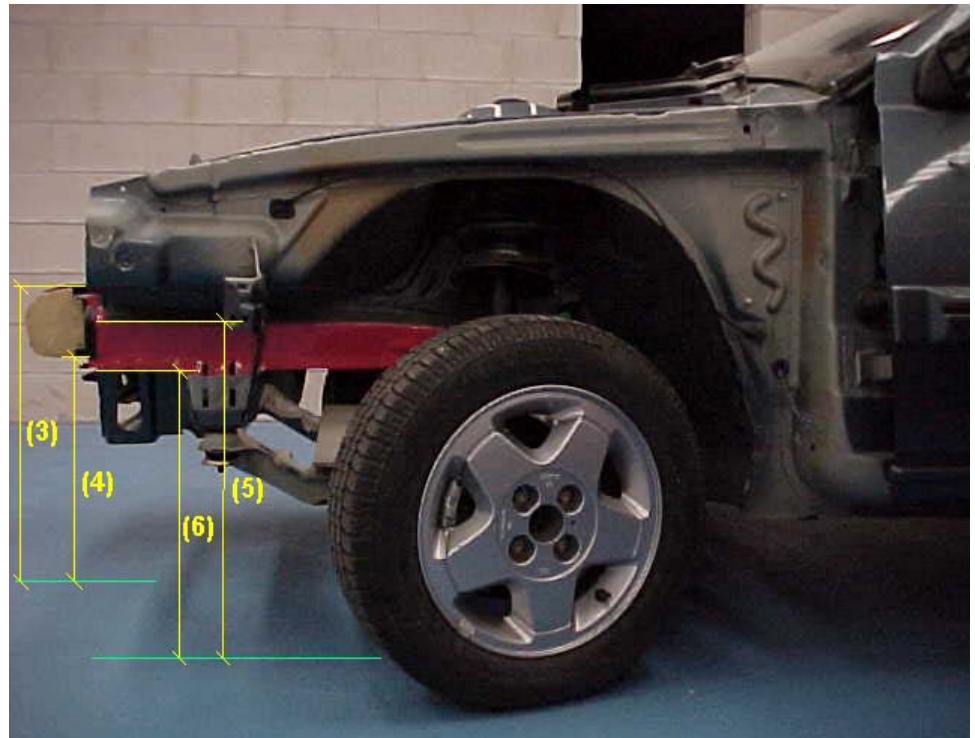


Figure 7.-  
Measurements  
of the main  
resistant  
elements. Front  
elements 2.

Figure 8.-  
Measurements of  
the main resistant  
elements. Front  
elements 3.

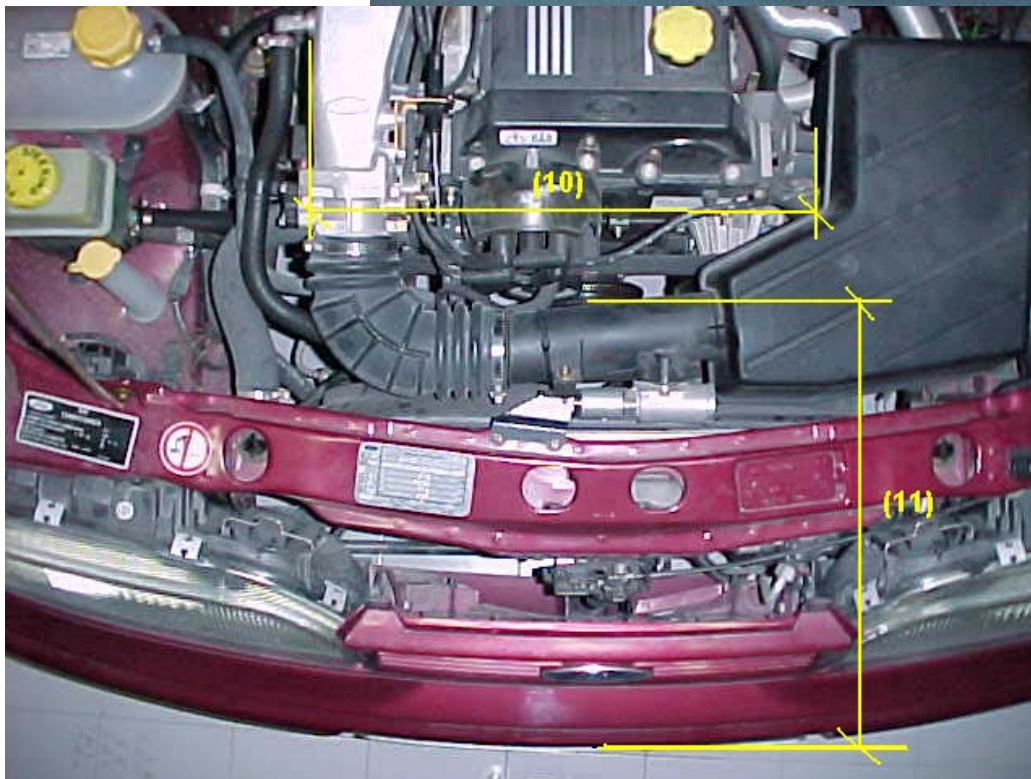
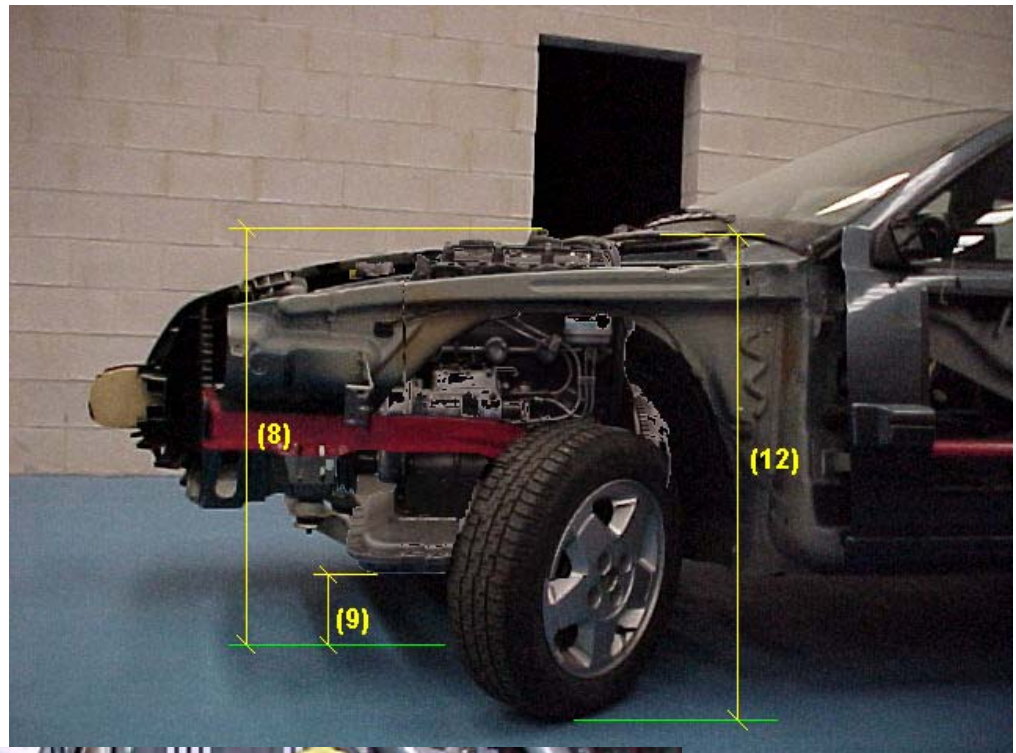


Figure 9.-  
Definition of  
the main  
resistant  
elements. Front  
elements  
(Longitudinal  
engine).

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.

Appendix F

Vehicle Manufacturer's Information

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 2002 NISSAN  
Vehicle Model & Body Style: ALTIMA 4 DOOR SEDAN

1. NOMINAL DESIGN RIDING POSITION \*\*

For adjustable driver and passenger seat backs.  
Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable. Indicate, if applicable how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.

Seat back angle for driver's seat = 21° \*1 \*1 = Nominal Design Angle  
10.5° \*2 \*2 = Measured Angle on seat head rest post

Measurement Instructions:

A) MANUAL SEAT

Measurements are without dummy in the seat.

- 1) Adjust the seat back until it is locked in the full upright position (first detent = "0")
- 2) Release the lock by actuating the reclining lever and push the seat back to the 5th rearward notch.

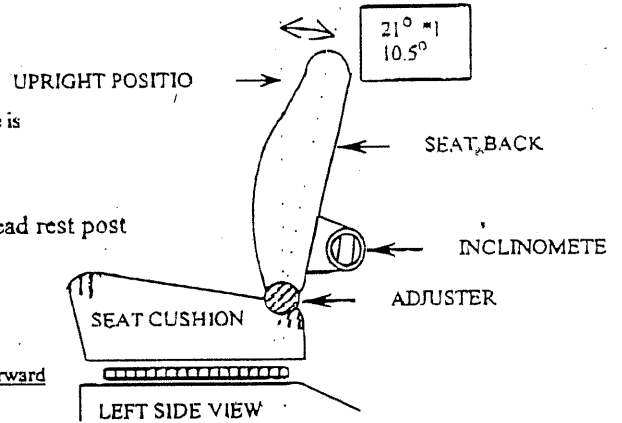
B) POWER SEAT

- 1) Adjust the seat back by the recliner switch to the upright initial position
- 2) Recline the seat back rearward until the inclinometer read 10.5° at seat head rest post

Seat back angle for passenger's seat = 21° \*1  
10.5° \*2

Measurement Instructions:

Same procedure as Driver side.



FRONT SEAT ASSEMBLY

2. SEAT FOR & AFT POSTIONS \*\*

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, indicate how the detents are numbered (Is the first detent "0" or "1"?). Provide information to locate the detent in which the seat track is to be locked.

Positioning of driver's seat:

A: MANUAL SEAT

- 1) Actuate seat track slide mechanism by lifting the lock lever and pull the seat until it is locked in the full forward most position.
- 2) With the initial position designated as "0", release the lock mechanism and adjust the seat to the 10th notch (neutral position, 10 open notch to the rear).

B: POWER SEAT

- Adjust seat track slide to full forward and mark position. Adjust seat track slide to full rearward and mark position (230mm).
- Adjust seat track to mid-position(115mm). Refer door check link to seat recliner cover screw is 1005mm)

Positioning of the passenger's seat (if applicable):

Same procedure as drive side.

3. FUEL TANK DATA \*\*

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 19.8 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.
- C. Capacity used when certification testing to requirements of FMVSS 301 = 18.8 gallons.

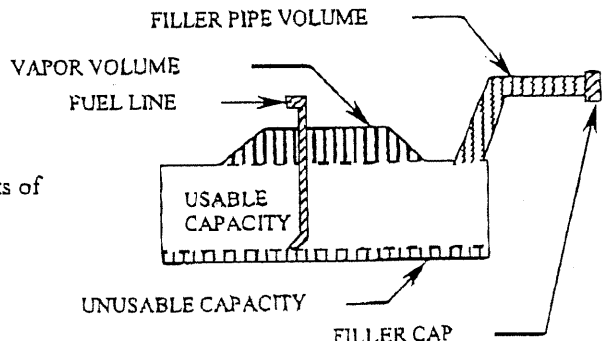
Operational Instructions:

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



VEHICLE FUEL TANK ASSEMBLY

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 18.8 gallons.

3.3 Is vehicle equipped with electric fuel pump?  YES  NO

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

The fuel pump will pump fuel: 1) for 5 seconds after the ignition is switched to "ON".

2) while the engine is running.

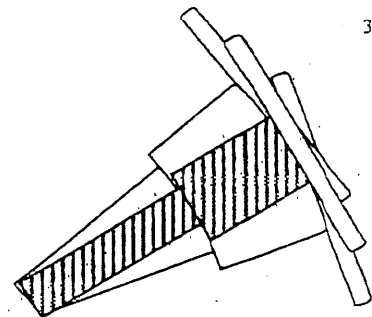
3) for 1.5 seconds after the engine stops running.

#### 4. STEERING COLUMN ADJUSTMENTS \*\*

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:  $\alpha = 25.5^\circ$

- 1) Adjust the steering column and lock it in the full up position. Top Notch is 0.
- 2) Actuate steering column tilt lever and adjust steering column to 3<sup>rd</sup> notch. The steering column angle should be  $25.5^\circ$
- 3) Adjust the steering telescopic column and lock it in the full forward position. Measure the dimension from the dash to the top center of the steering wheel rim(145mm).
- 4) Adjust the steering telescopic column and lock it in the full rear position. Measure the dimension from the dash to the top center of the steering wheel rim(50mm total travel).
- 5) Set steering column at mid-position(170mm).



#### 5. ADJUSTABLE SEAT BELT D-RING ANCHORAGE

The front seat safety belt system in the 2002 Nissan ALTIMA is equipped with a load limiting device, seatbelt pretensioners, and adjustable upper seat belt anchorages. The adjustable upper seat belt anchorage is positioned at the topmost position for a 50<sup>th</sup> percentile adult male occupant.