Vehicle Research and Test Center

2002 Nissan Quest into

Fixed 40% Left Offset Deformable

Load Cell Barrier at 56 km/h

TRC Inc. Test Number: 020823

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Section 1.0

Purpose and Test Procedure

Purpose

This 56.0 km/h (34.8 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 Quest MPV.

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 50th percentile male anthropomorphic test devices (dummies).

The test vehicle, a 2002 Nissan Quest, was instrumented with five (5) triax sets of accelerometers to measure longitudinal, lateral and vertical axis accelerations, one (1) additional vertical accelerometer, one (1) displacement potentiometer, and four (4) seat belt load cells. The driver’s and passenger’s airbag signals were monitored with inductive pickups. The vehicle impacted a fixed offset deformable load cell barrier. The vehicle’s specified impact velocity range was 55.2 to 56.8 km/h.

The deformable barrier face was offset to the left so that the right edge of the face was 189 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, 2002). The driver dummy and the passenger dummy were both belted and were restrained with frontal 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. 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 208 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 is 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 INSIA Report on Structural Measurements which documents the procedure for the measurements provided in Table 8.

Section 2.0

Full Frontal Barrier Test Summary

Test Results Summary

This fixed 40% left offset load cell barrier test was conducted by TRC Inc. on August 23, 2002.

The test vehicle, a 2002 Nissan Quest MPV, was equipped with a 3.3-liter inline engine, automatic transmission, power steering, power brakes and dual stage front airbags. The vehicle's test weight was 2011.4 kg. The vehicle's impact speed was 56.0 km/h. The vehicle impacted 6 millimeters to the right of the 40% offset target line.

The driver's 36 millisecond Head Injury Criteria (HIC) was 240. The driver's 15 millisecond HIC was 149. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 27.6 g. The driver's maximum chest deflection was 26 mm. The driver's left and right femur maximum axial compressive forces were 2897 N and 398 N, respectively. The driver dummy's neck injury calculations were as follows: NTF, 0.17; NTE, 0.11; NCF, 0.10; NCE, 0.20. The driver dummy's peak neck tension force was 602 N and peak neck compression force was 133 N.

The right front passenger's 36 millisecond HIC was 153. The passenger's 15 millisecond HIC was 79. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 24.7 g. The passenger's maximum chest deflection was 29 mm. The passenger's left and right femur maximum axial compressive forces were 1521 N and 58 N, respectively. The right front passenger's neck injury calculations were as follows: NTF, 0.20; NTE, 0.17; NCF, 0.02; NCE, 0.25. The right front passenger dummy's peak neck tension force was 866 N and peak neck compression force was 352 N.

There was 96.6 % windshield periphery retention. There was no penetration through the windshield.

Data Acquisition Explanations

The passenger dummy's left leg X-axis tibia to femur displacement data channel, KNLXD2, recorded no valid data throughout event.

The driver side toepan X-axis displacement data channel, TPDXD1, recorded invalid data due to the string not retracting into the potentiometer body: the string was found slack after the test.

The passenger dummy's right foot to ankle Y-axis displacement data channel, FTRYD2, recorded questionable data throughout the event. The data does not have typical foot rotation characteristics and exceeds the mechanical limits of foot rotation. No cause was determined.

Table 1 Crash Test Summary

Test mode:	Fixed 40% left offset load cell barrier	
Test date:	08/23/02	
Test time:	1355	
Ambient temperature:	21° C	
Vehicle year/make/ model/body style:	2002/Nissan/Quest/MPV	
Vehicle test weight:	2011.4 kg	
Impact angle:[1]	0°	
Impact velocity:[2]	56.0 km/h	
Maximum static crush:[3]	603 mm	
Average rebound:	N/A	
Number of data channels:	208	
Number of cameras:	High-speed 9	Real-time 1
Dummies:	Driver #168	Passenger #169
Type:	Part 572E	Part 572E
Location:	Left front	Right front
Restraint:	Airbag - single stage, seat belt	Airbag - single stage, seat belt
Seat track position for test:		
Driver:	1 notch rearward of mid (no center notch)	
Passenger:	1 notch rearward of mid (no center notch)	
Seat back position for test:		
Driver:	18.9º (12th notch rearward of full up)	
Passenger:	18.1º (12th notch rearward of full up)	
Head restraint position for test:		
Driver:	Full up	
Passenger:	Full up	
Steering column position:	Mid (Steering Wheel Angle: 63.2º)	

[1] With respect to tow track centerline.
[2] Speed trap measurement (± .08 km/h accuracy)
[3] Measured (pre and post) with bumper fascia removed.

Table 2 General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	2002/Nissan/Quest/MPV
VIN:	4N2ZN15T81D828399
Model year:	2002
Body style:	MPV
Color:	Natural Beige
Engine data:	
Cylinders:	6
Displacement	3.3 liters
Cylinder placement:	V
Engine placement:	Transverse
Transmission data:	_4_ speed, ___ manual, _X_ automatic, _X_ overdrive
Final drive:	_X_ FWD, ___ RWD, ___ 4WD
Date vehicle received:	08/14/2002
Odometer reading:	299
Dealer's name and address:	Supplied by VRTC

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	No	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	Yes
Power door locks	Yes	Other: Front seat belts with pretensioners and load limiters	

Certification data from vehicle's label:

Vehicle manufactured by:		Ford Motor Company USA for Nissan Motor Co., LTD	
Date of manufacture:		06/01	
VIN:		4N2ZN15T81D828399	
GVWR:		5445 lbs.	(2469 kg)
GAWR:	Front:	2716 lbs.	(1231 kg)
	Rear:	2844 lbs.	(1290 kg)

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

Tires on vehicle (mfr., line, size): Continental, Touring Contact AS, P215/65R16

Tire pressure with maximum capacity vehicle load:

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

Spare tire (mfr., line, size): General Tire, Temporary, T135/90D16

Type of seats:

Front	Bucket
Mid	Bench
Rear	Bench

Maximum width: 1895 mm

Wheelbase: 2850 mm

Location of "Recommended Tire Pressure" label:

The label was located on glove box.

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

Recommended tire size: P215/70R15 (for 15-inch rims)
P215/65R16 or P225/60R16 (for 16-inch rims, as on vehicle)

Recommended cold tire pressure:

Front:	241 kPa	(35 psi)
Rear:	241 kPa	(35 psi)

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front	2
Mid	2
Rear	3
Total	7

Vehicle capacity weight: 585 kg (1290 lb)

Rated cargo/luggage weight 109 kg (by calculation; not on label)

Test vehicle attitude:

Delivered attitude:	LF	767 mm;	RF	778 mm;	LR	795 mm;	RR	785 mm
Fully loaded attitude:	LF	746 mm;	RF	760 mm;	LR	750 mm;	RR	763 mm
Pre-test attitude:	LF	748 mm;	RF	750 mm;	LR	754 mm;	RR	758 mm
Post-test attitude:[1]	LF	635 mm;	RF	747 mm;	LR	700 mm;	RR	815 mm

[1] Left front tire flattened and was resting partly in rail trough post-test.

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

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

Right front	489.5 kg	Right rear	365.5 kg
Left front	527.5 kg	Left rear	373.0 kg
Total front weight	1017.0 kg	(57.9 % of total vehicle weight)	
Total rear weight	738.5 kg	(42.1 % of total vehicle weight)	
Total delivered weight	1755.5 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1755.5 kg
Rated Cargo/Luggage Weight (RCLW)[1] =	109 kg
Weight of 2 Part 572E Dummies @ 76 kg each =	152 kg
Target test weight =	2016.5 kg

Weight of test vehicle with required dummies and 109.0 kg of cargo weight:

Right front	529.0 kg	Right rear	455.2 kg
Left front	574.4 kg	Left rear	452.8 kg
Total front weight	1103.4 kg	(54.9% of total vehicle weight)	
Total rear weight	908.0 kg	(45.1% of total vehicle weight)	
Total test weight	2011.4 kg	(0.2% under target test weight)	

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: Tailgate trim, taillights, all rear seats and rear interior trim

Location of Vehicle's CG: 1287mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity 75.7 liters

Actual test volume: 70.4 liters (93% of usable)

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

Table 3 Post-Impact Data

Test number:	020823
Test date:	08/23/02
Test time:	1355
Test type:	Flat frontal barrier
Impact angle:	0°
Ambient temperature at impact area:	21° C
Required impact velocity range:	55.2 to 56.8 km/h

Barrier impact velocity:

Primary:	56.0 km/h
Secondary:	56.0 km/h

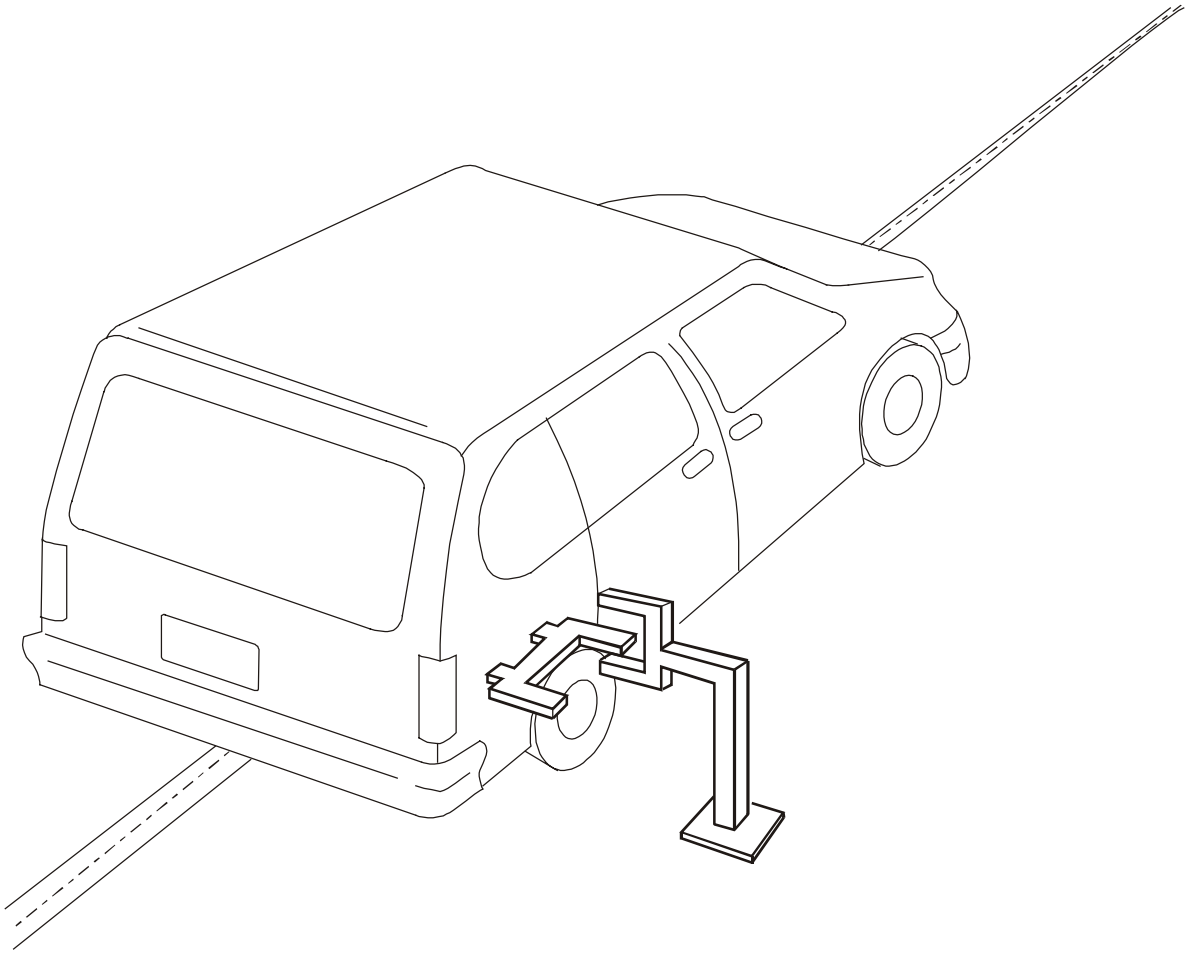
Distance from vehicle to barrier:

Entering velocity trap:	661 mm
Exiting velocity trap:	51 mm

Barrier offset (at right edge of barrier):

Target offset:	189 mm left of vehicle centerline
Impact point variance:	6 mm right
Actual offset:	183 mm left of vehicle centerline

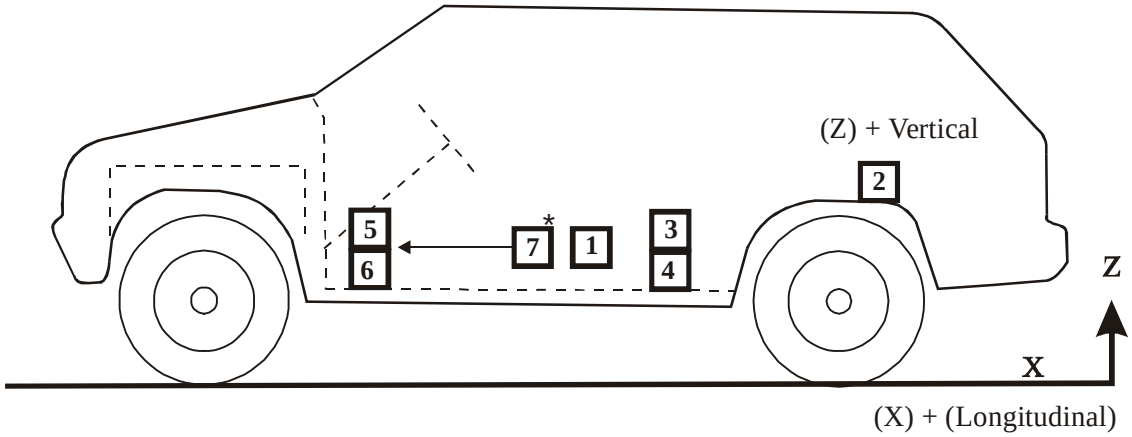
Figure 1 Impact Velocity Measurement System



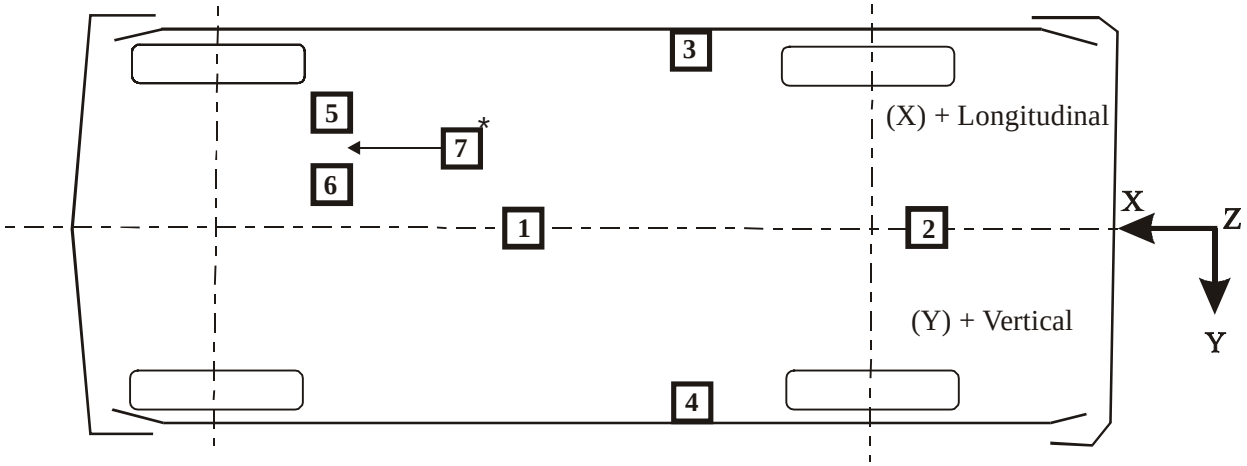
The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 610-millimeter spacing.

Figure 2 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 020823 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2698 mm	0 mm	-371 mm				
LONGITUDINAL				1.6 g	@ 190.4 ms	21.2 g	@ 79.9 ms
LATERAL				12.3 g	@ 91.4 ms	5.2 g	@ 123.6 ms
VERTICAL				13.9 g	@ 102.1 ms	9.5 g	@ 24.6 ms
RESULTANT				24.4 g	@ 89.9 ms		
2 REAR DECK	NA	NA	NA				
VERTICAL				8.4 g	@ 108.6 ms	9.6 g	@ 90.1 ms
3 LEFT REAR SEAT CROSSMEMBER	2041 mm	-737 mm	-437 mm				
LONGITUDINAL				2.7 g	@ 190.0 ms	23.0 g	@ 115.4 ms
LATERAL				9.9 g	@ 88.1 ms	2.8 g	@ 115.9 ms
VERTICAL				7.7 g	@ 115.8 ms	5.7 g	@ 87.8 ms
RESULTANT				24.4 g	@ 115.6 ms		
4 RIGHT REAR SEAT CROSSMEMBER	2041 mm	740 mm	-437 mm				
LONGITUDINAL				1.2 g	@ 185.8 ms	22.6 g	@ 86.4 ms
LATERAL				9.4 g	@ 89.0 ms	1.2 g	@ 27.0 ms
VERTICAL				5.0 g	@ 151.2 ms	5.0 g	@ 97.8 ms
RESULTANT				23.8 g	@ 86.9 ms		
5 DRIVERS LEFT SIDE TOE PAN	3670 mm	-400 mm	-450 mm				
LONGITUDINAL				9.4 g	@ 59.7 ms	60.7 g	@ 83.0 ms
LATERAL				12.1 g	@ 79.3 ms	9.5 g	@ 99.0 ms
VERTICAL				13.4 g	@ 101.9 ms	59.3 g	@ 83.1 ms
RESULTANT				85.2 g	@ 83.0 ms		

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

TEST NUMBER: 020823 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
6 DRIVERS RIGHT SIDE TOE PAN	3670 mm	-381 mm	-473 mm				
LONGITUDINAL				11.7 g	@ 59.4 ms	44.7 g	@ 83.8 ms
LATERAL				5.5 g	@ 40.1 ms	9.8 g	@ 99.8 ms
VERTICAL				11.5 g	@ 102.9 ms	51.9 g	@ 83.0 ms
RESULTANT				68.6 g	@ 83.3 ms		
7 DRIVERS TOE PAN DISPLACEMENT	NA	NA	NA				
LONGITUDINAL[1]				5.4 mm	@ 127.6 ms	10.2 mm	@ 99.5 ms
8 DRIVER SEAT BELT LOAD CELLS	NA	NA	NA				
LAP BELT				2001.2 N	@ 131.7 ms	-3.4 N	@ 0.0 ms
SHOULDER BELT				5100.1 N	@ 118.2 ms	25.3 N	@ 18.0 ms
9 PASSENGER SEAT BELT LOAD CELLS	NA	NA	NA				
LAP BELT				4811.4 N	@ 98.2 ms	8.1 N	@ 3.9 ms
SHOULDER BELT				4839.6 N	@ 109.6 ms	11.8 N	@ 283.2 ms

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

[1] See DATA ACQUISITION EXPLANATIONS

Section 3.0

Summary of FMVSS 208 Data

Table 5 Dummy Injury Criteria Data

Maximum Acceleration[1]

	Head				Chest			
	X	Y	Z	R	X	Y	Z	R
Driver	-34.6 g	9.7 g	23.2 g	41.3 g	-27.0 g	10.1 g	-11.9 g	28.4 g
Passenger	-26.1 g	4.3 g	22.6 g	31.8 g	-24.2 g	7.1 g	-6.8 g	24.9 g

Maximum Femur Compressive Force

	Left Femur	Right Femur
Driver	2894 N	384 N
Passenger	1506 N	54 N

Head Injury Criteria[2]

36 millisecond

	HIC	Time t_1	Time t_2
Driver	240	95.4 ms	131.4 ms
Passenger	153	106.9 ms	142.9 ms

15 millisecond

	HIC	Time t_1	Time t_2
Driver	149	105.0 ms	120.0 ms
Passenger	79	120.0 ms	135.0 ms

Chest Maximum Resultant Acceleration[3]

	Acceleration	Time t_1	Time t_2
Driver	27.6 g	116.5 ms	119.5 ms
Passenger	24.7 g	100.9 ms	105.1 ms

Table 5 Dummy Injury Criteria Data, Cont'd.

Maximum Chest Deflection

Driver	26 mm
Passenger	29 mm

Neck Injury Calculations (Nij)[2]

	NTF	NTE	NCF	NCE
Driver	0.17	0.11	0.10	0.20
Passenger	0.20	0.17	0.02	0.25

Neck Axial Force

	Neck Tension	Neck Compression
Driver	602 N	134 N
Passenger	866 N	352 N

Tibia Index

	Upper Tibia	Lower Tibia
Driver-left	0.47	1.11
Driver-right	0.51	0.69
Passenger-left	0.33	0.25
Passenger-right	0.31	0.28

[1] See Report Sign Convention in Appendix D.
[2] As defined in FMVSS No. 208.
[3] Defined as equal to or exceeding 0.003 sec. duration.

Table 6 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	Driver	Passenger
Head	Airbag, headrest	Airbag, headrest
Chest	Airbag	Airbag
Abdomen	None	None
Left knee	Knee bolster	Glove box
Right knee	Knee bolster	Glove box

Door opening:

	Left	Right
Front	N/A	N/A
Rear	N/A	N/A

Seat movement:

	Seat back failure	Seat shift
Left Front	N/A	N/A
Right Front	N/A	N/A
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: Windshield cracked primarily on left side; loss of retention occurred along upper left A-pillar.

Other notable impact effects: String pot to driver toeboard was slack post-test.

Figure 3 FMVSS 212 Test Data

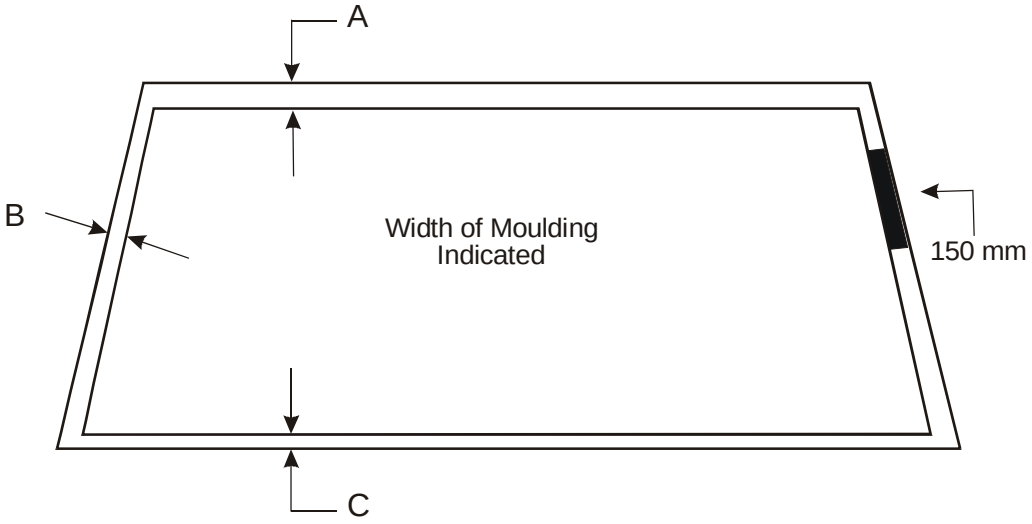
Details of windshield mounting such as retention method, trim type, etc.: Rubber trim around the perimeter.

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

Windshield periphery measurements:

	Pre-test	Post-test	Percent retention
Right side	2230 mm	2230 mm	100.0
Left side	2230 mm	2080 mm	93.3
Total	4460 mm	4310 mm	96.6

A = 15 mm
B = 30 mm
C = 15 mm



Front view of windshield[1]

Loss of windshield retention lengths: 150 mm

[1] Loss of retention, if any, indicated 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 = 1294 mm

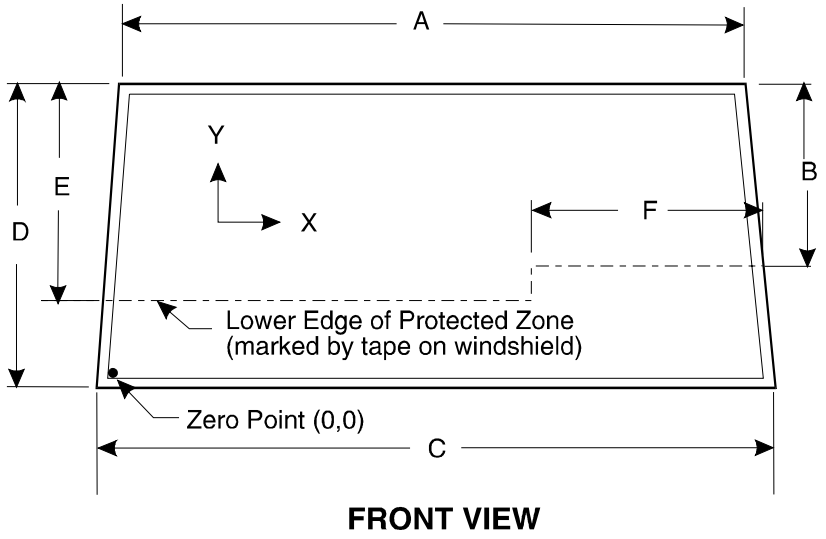
B = 444 mm

C = 1690 mm

D = 747 mm

E = 537 mm

F = 718 mm



FRONT VIEW

Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

	Coordinates X	Y
1.		
2.		
3.		

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

1.
2.
3.

Section 4.0

Occupant, Camera, and Vehicle 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 rotated forward as the head and chest impacted the airbag. The dummy's neck flexed forward and then rearward as the upper torso rebounded into the seat back. The head contacted the headrest. The driver dummy came to rest seated upright in the driver's seat with knees pushed up.

Right Front Passenger Dummy

Upon impact, the passenger dummy translated forward. The dummy's head rotated forward as the head and chest impacted the airbag. The dummy's neck flexed forward and then rearward as the upper torso rebounded into the seat back. The head contacted the headrest. The dummy came to rest seated in the passenger seat, leaning outboard.

Figure 5 Dummy Measurement Locations for Front Seat Occupants

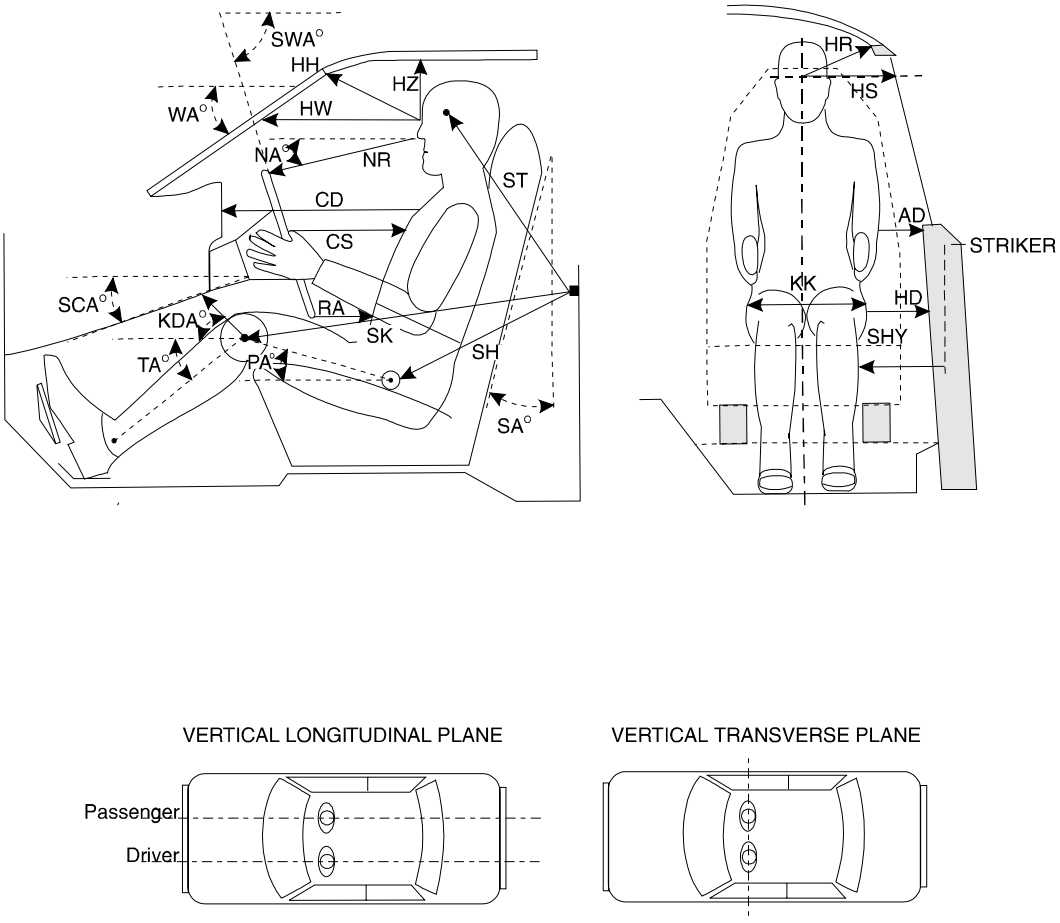


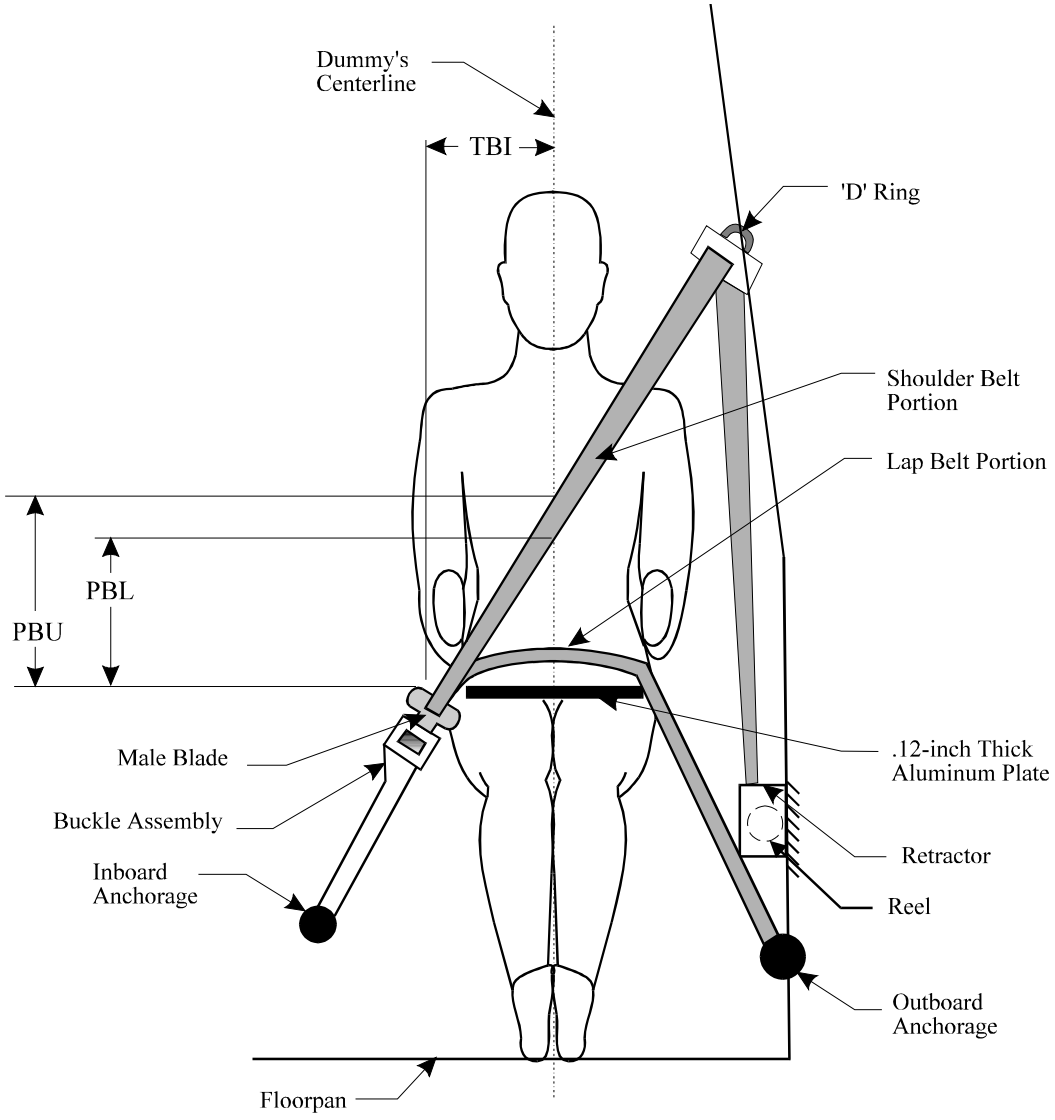
Table 7 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial # 168)	Passenger (Serial # 169)
WA	Windshield angle	31.7°	31.7°
SWA	Steering wheel angle	63.2°	N/A
SCA	Steering column angle	26.8°	N/A
SA	Seat back angle	18.9°	18.1°
HZ	Head to roof	220 mm	210 mm
HH	Head to header	385 mm	390 mm
HW	Head to windshield	618 mm	646 mm
HR	Head to side header	215 mm	196 mm
NR	Nose to rim	377 mm	N/A
NA	Nose to rim angle	12.3°	N/A
CD	Chest to dash	543 mm	499 mm
CS	Steering wheel to chest	283 mm	N/A
RA	Rim to abdomen	153 mm	N/A
KDL	Left knee to dash	102 mm	165 mm
KDR	Right knee to dash	110 mm	142 mm
KDA	Outboard knee to dash angle	62.8°	71.1°
PA	Pelvic angle	24.5°	21.0°
TA	Tibia angle	59.1°	65.1°
KK	Knee to knee	310 mm	280 mm
ST[1]	Striker to head	642 mm	638 mm
	Striker to head angle	-69.6°	-70.7°
SK[1]	Striker to knee	696 mm	701 mm
	Striker to knee angle	-4.9°	-5.2°
SH[1]	Striker to H-point	323 mm	321 mm
	Striker to H-point angle	11.0°	11.0°
SHY	Striker to H-point (Y dir.)	250 mm	230 mm
HS	Head to side window	278 mm	278 mm
HD	H-point to door	172 mm	170 mm
AD	Arm to door	133 mm	123 mm

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

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

Figure 6 Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
PBU - Top surface of aluminum plate to belt upper edge	310 mm	325 mm
PBL - Top surface of aluminum plate to belt lower edge	240 mm	245 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	320 mm	320 mm

Table 8 Vehicle Structural Measurements[1,2]

	Elements	Pre-Test
1	Total Length	4934
2	Total Width	1895
3	Bumper Top Height	-495
4	Bumper Bottom Height	-370
5	Longitudinal Member Top Height	-490
6	Longitudinal Member Bottom Height	-362
7	Distance Between Longitudinal Members	947
7´	Longitudinal Member Width	80
8	Engine Top Height	-913
9	Engine Bottom Height	-145
10	Engine and Gearbox Width	828
11	Front Bumper - Engine Distance	425
12	Front Shock Absorber Fixing Height	-881
13	Bonnet Leading Edge Height	-719
14	Front Shock Absorber Fixing Width	1185
15	Front Bumper - Front Axle Distance	1025
16	Front Axle - A Pillar Distance	532
17	A Pillar - B Pillar Distance	1113
18	B Pillar - Rear Axle Distance	1284
19	B Pillar - C Pillar Distance	1070
20	Roof Sill Bottom Height	-1471
21	Roof Sill Top Height	-1562
22	Floor Sill Bottom Height	-215
23	Floor Sill Top Height	-377

All distance measurements are in millimeters.

[1] 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.

[2] 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

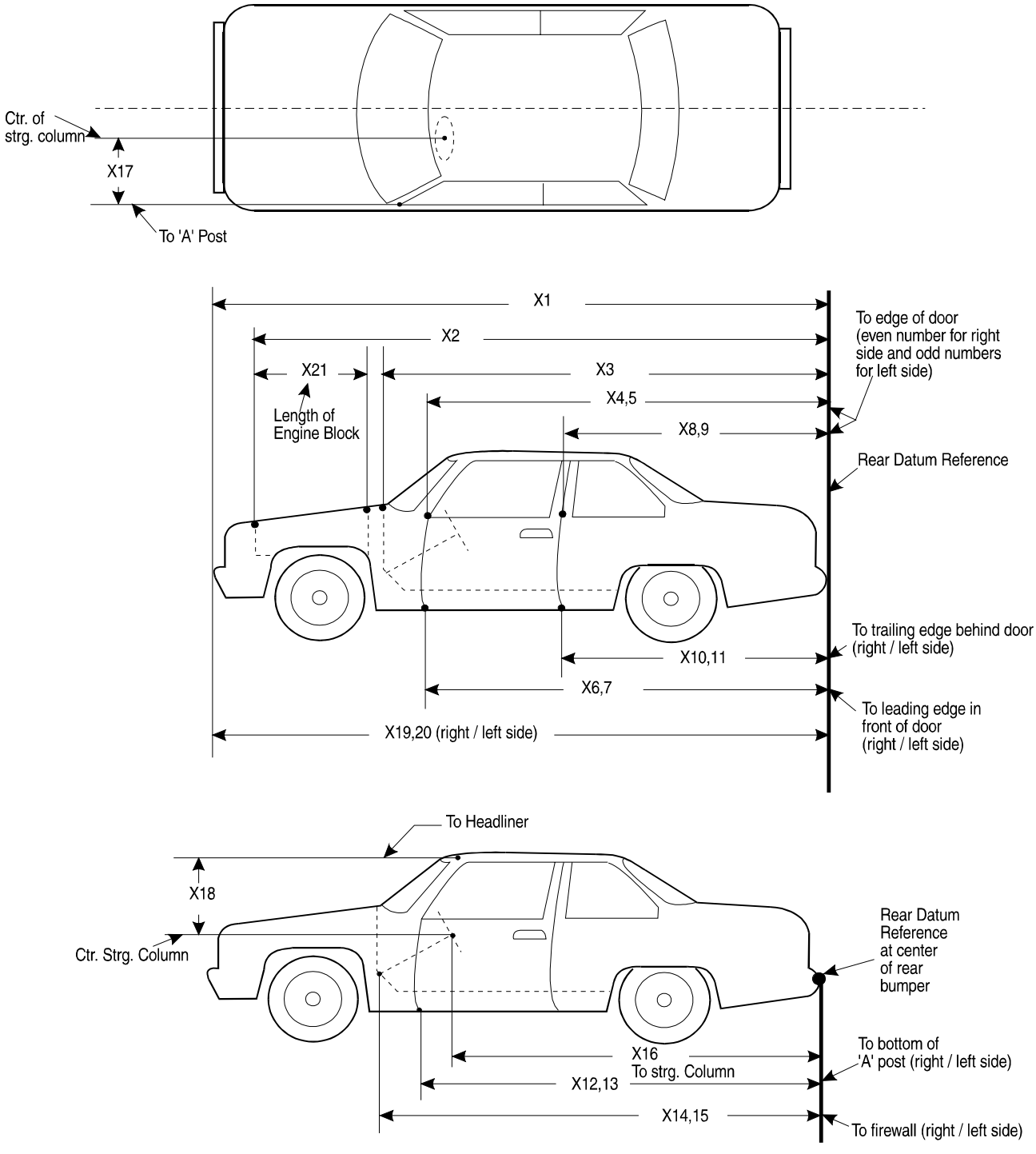


Table 9 Impacted Vehicle Measurements

Test number: 020823

Vehicle year/make/model/body style: 2002/Nissan/Quest/MPV

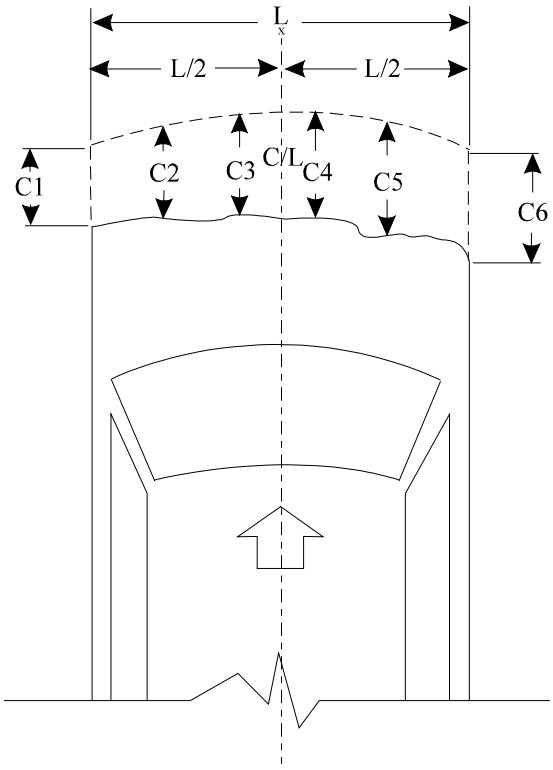
No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4934	4400[1,2]	534[1,2]
X2	Rear Surface of Vehicle to Front of Engine Block	4398	4231	167
X3	Rear Surface of Vehicle to Firewall	4009	3921	88
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3507	3483	24
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3509	3512	-3
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3407	3375	32
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3412	3401	11
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2392	2367	25
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2393	2397	-4
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2418	2388	30
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2422	2411	11
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3498	3449	49
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3503	3505	-2
X14	Rear Surface of Vehicle to Firewall--Right Side	3902	3880	22
X15	Rear Surface of Vehicle to Firewall --Left Side	3893	3790	103
X16	Rear Surface of Vehicle to Steering Wheel Center	3047	3058	-11
X17	Center of Steering Column to " A " Post	360	276	84
X18	Center of Steering Column to Headliner	464	461	3
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4772	N/A[1]	N/A[1]
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4765	N/A[1]	N/A[1]
X21	Length of Engine Block	440	440	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3248	3291	-43
CD	Rear Surface of Vehicle to Center of Dash Panel	3152	2891	261
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3253	3215	38

All distance measurements are in millimeters.

[1] The front bumper fascia separated from the vehicle during the impact.

[2] Post-test measurements included here were taken without bumper fascia attached. This affects the calculated difference.

Figure 8 Vehicle Crush



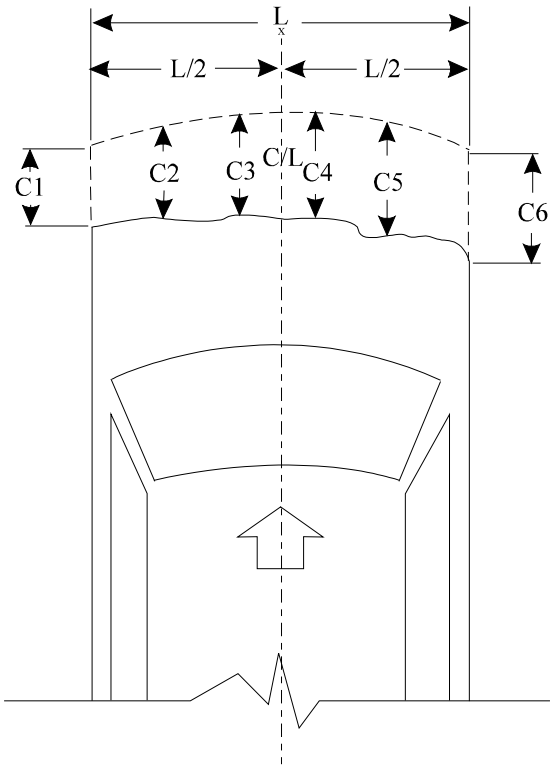
Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 2002 Nissan Quest
Measured with bumper fascia:

Location	Pre-test	Post-test	Difference
L	1525 mm		
C1	4765 mm	N/A[1] mm	N/A[1] mm
C2	4888 mm	N/A[1] mm	N/A[1] mm
C3	4932 mm	N/A[1] mm	N/A[1] mm
C4	4928 mm	N/A[1] mm	N/A[1] mm
C5	4891 mm	N/A[1] mm	N/A[1] mm
C6	4772 mm	N/A[1] mm	N/A[1] mm
CL	4934 mm	N/A[1] mm	N/A[1] mm

[1] The front bumper fascia separated from the vehicle during the impact.

Figure 8 Vehicle Crush, Cont'd.



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

Vehicle: 2002 Nissan Quest
Measured to bumper front crossmember without bumper fascia:

Location	Pre-test	Post-test	Difference
L[1]	1370 mm		
C1[1]	4743 mm	4140 mm	603 mm
C2	4796 mm	4213 mm	583 mm
C3	4835 mm	4257 mm	578 mm
C4	4835 mm	4520 mm	315 mm
C5	4804 mm	4693 mm	111 mm
C6[1]	4745 mm	4843 mm	-98 mm
CL	4835 mm	4400 mm	435 mm

[1] Measurement points C1 and C6 were moved inboard to catch the end of the bumper beam.

Table 10 Test Vehicle Frontal Profile Data

		Pre-Test Profile					
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	4687 mm	4792 mm	4845 mm	4842 mm	4800 mm	4692 mm
	Y	-715 mm	-430 mm	-140 mm	145 mm	435 mm	710 mm
	Z	-225 mm	-225 mm	-229 mm	-229 mm	-238 mm	-242 mm
Top of Front Bumper	X	4753 mm	4875 mm	4918 mm	4915 mm	4881 mm	4766 mm
	Y	-758 mm	-450 mm	-147 mm	155 mm	460 mm	757 mm
	Z	-535 mm	-515 mm	-509 mm	-507 mm	-505 mm	-530 mm
Center of Grille	X	4734 mm	4846 mm	4879 mm	4877 mm	4846 mm	4737 mm
	Y	-737 mm	-442 mm	-144 mm	152 mm	446 mm	735 mm
	Z	-595 mm	-598 mm	-600 mm	-605 mm	-605 mm	-610 mm
Front of Hood	X	4649 mm	4752 mm	4811 mm	4810 mm	4751 mm	4654 mm
	Y	-685 mm	-430 mm	-135 mm	155 mm	435 mm	683 mm
	Z	-760 mm	-735 mm	-713 mm	-715 mm	-750 mm	-775 mm

		Post-Test Profile[1]					
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Top of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Center of Grille	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Front of Hood	X	4353 mm	4368 mm	4392 mm	4560 mm	4620 mm	4633 mm
	Y	-784 mm	-557 mm	-298 mm	18 mm	265 mm	507 mm
	Z	-740 mm	-678 mm	-608 mm	-614 mm	-698 mm	-760 mm

		Difference[1]					
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Top of Front Bumper	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Center of Grille	X	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Y	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
	Z	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm	N/A mm
Front of Hood[2]	X	298 mm	384 mm	419 mm	250 mm	131 mm	21 mm
	Y	99 mm	127 mm	163 mm	137 mm	170 mm	176 mm
	Z	-20 mm	-57 mm	-105 mm	-101 mm	-52 mm	-15 mm

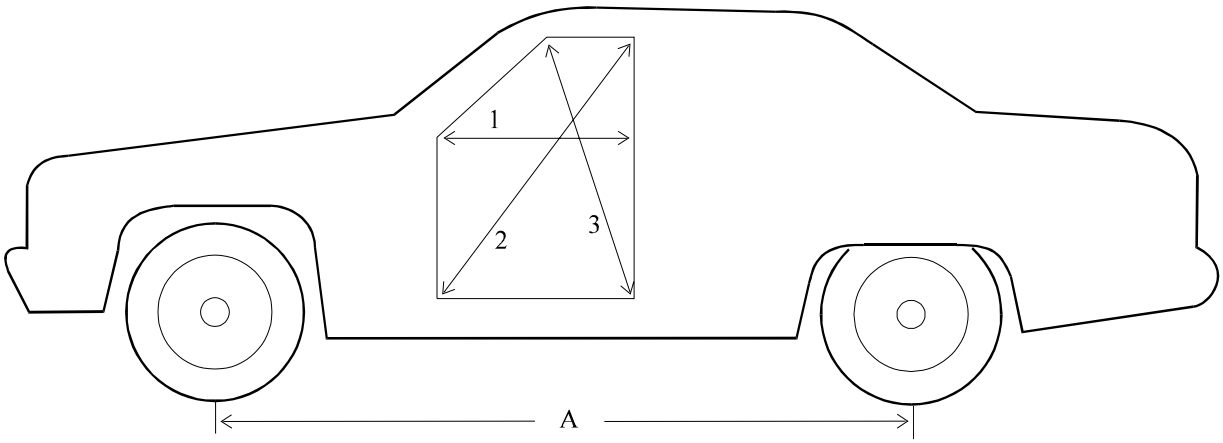
Note: Six points divide the width of the car. Pre- and post-test measurement references: +X, forward of rear bumper; +Y, rightward from vehicle centerline; +Z, downward from ground level.

[1] Bumper fascia separated during impact, hood and grille points obscured during impact.

[2] Left front tire flattened and was resting partly in rail trough post-test.

Figure 9 Vehicle Intrusion Measurements

Door Opening Width

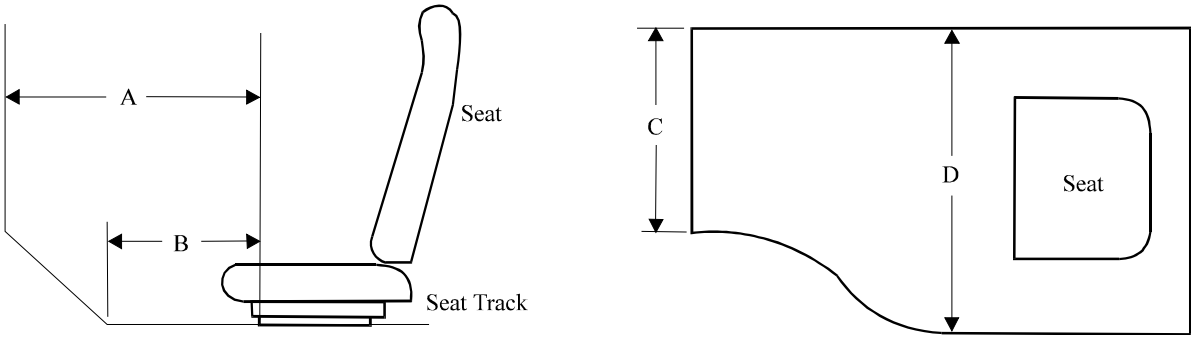


Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1073 mm	1525 mm	1188 mm	1100 mm	1575 mm	1189 mm
Post-Test	1038 mm	1523 mm	1236 mm	1114 mm	1555 mm	1191 mm
Difference	35 mm	2 mm	-48 mm	-14 mm	20 mm	-2 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2850 mm	2850 mm
Post-Test	2670 mm	2915 mm
Difference	180 mm	-65 mm

Figure 10 Vehicle Intrusion Measurements

Static Footwell Deformation



Driver's Side

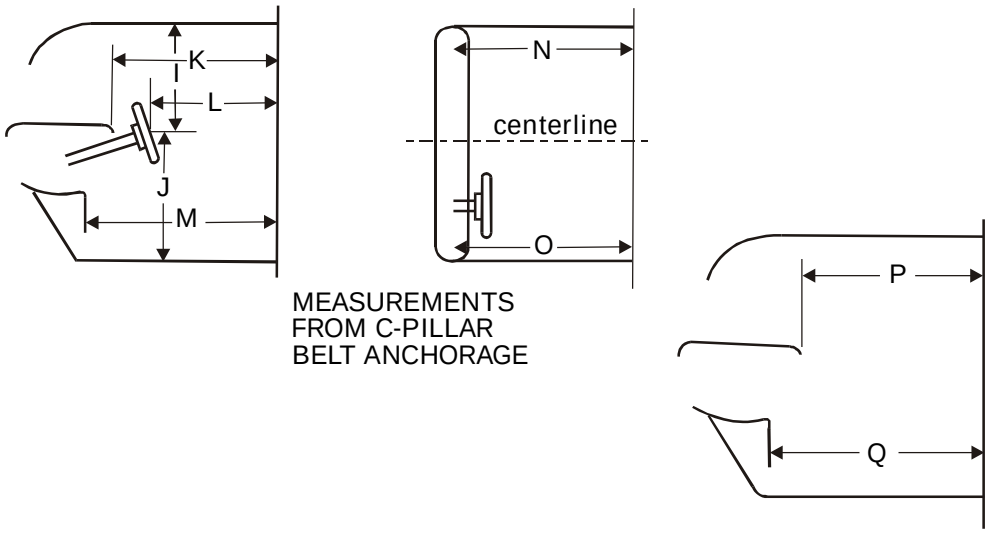
Measurement	Pre-Test	Post-Test	Difference
A	900 mm	775 mm	125 mm
B	657 mm	593 mm	64 mm
C	468 mm	474 mm	-6 mm
D	457 mm	470 mm	-13 mm

Passenger's Side

Measurement	Pre-Test	Post-Test	Difference
A	855 mm	860 mm	-5 mm
B	640 mm	643 mm	-3 mm
C	530 mm	513 mm	17 mm
D	447 mm	440 mm	7 mm

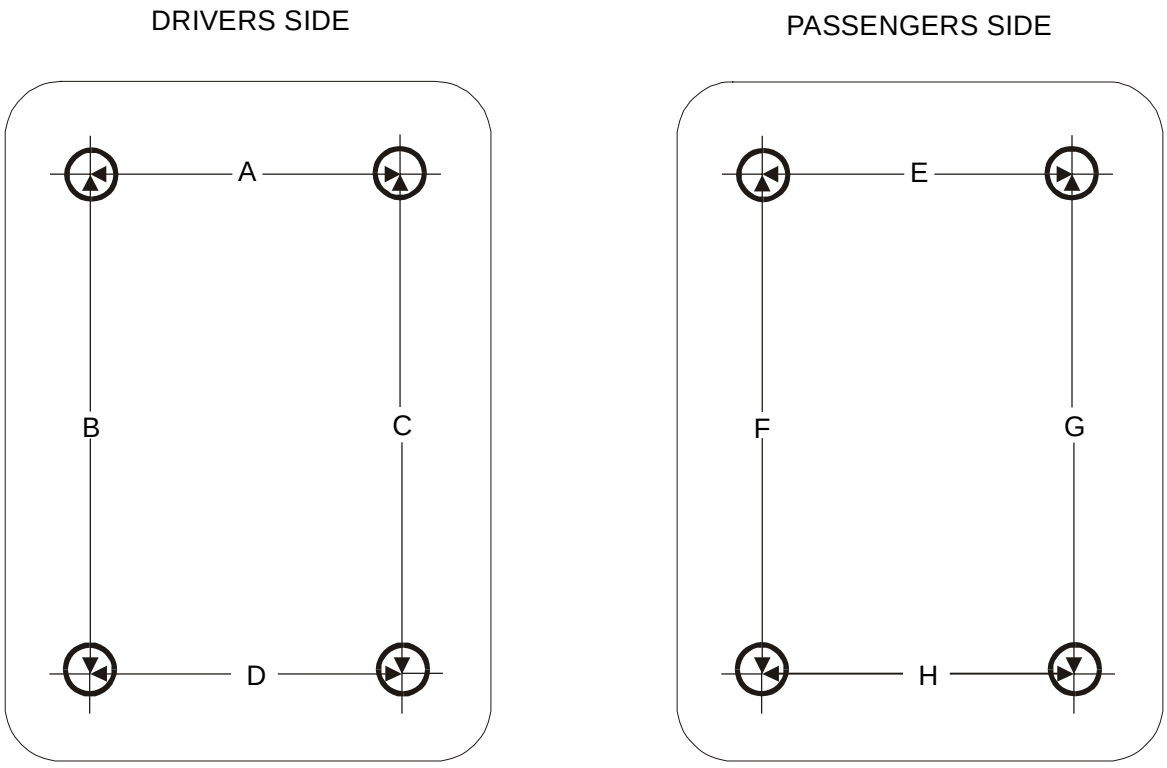
Figure 11 Vehicle Intrusion Measurements

Static Passenger Compartment Intrusion



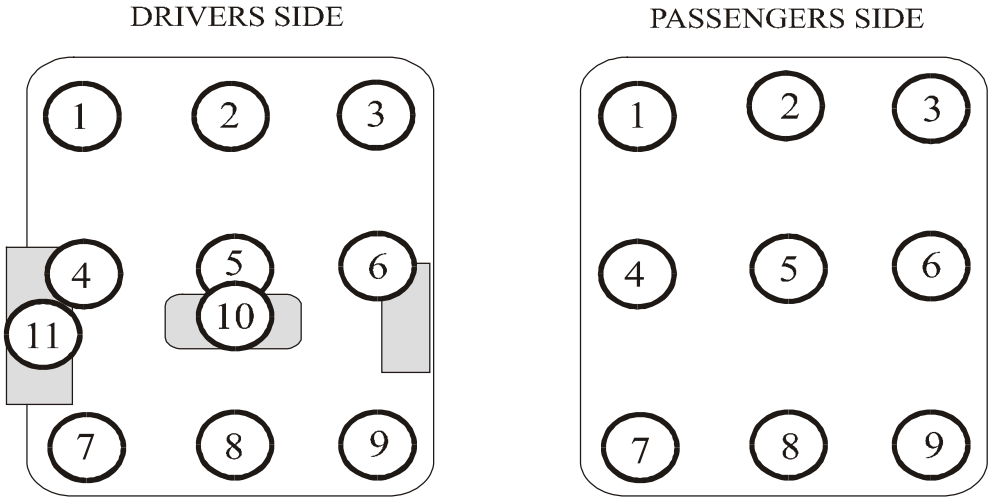
Measurement	Pre-Test	Post-Test	Difference
I	462 mm	460 mm	2 mm
J	746 mm	837 mm	-91 mm
K (driver's side)	1686 mm	1664 mm	22 mm
L	1476 mm	1459 mm	17 mm
M (driver's side)	1831 mm	1766 mm	65 mm
N	1723 mm	1729 mm	-6 mm
O	1662 mm	1609 mm	53 mm
P (passenger's side)	1716 mm	1733 mm	-17 mm
Q (passenger's side)	1863 mm	1863 mm	0 mm

Figure 12 Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	468 mm	474 mm	-6 mm
B	524 mm	488 mm	36 mm
C	525 mm	459 mm	66 mm
D	457 mm	470 mm	-13 mm
E	530 mm	513 mm	17 mm
F	490 mm	448 mm	42 mm
G	495 mm	494 mm	1 mm
H	447 mm	440 mm	7 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[1]	X	Y	Z[1]
1	3636	-565	-531	3489	-575	-510	147	10	-21
2	3670	-381	-470	3480	-320	-443	190	-61	-27
3	3636	-177	-389	3517	-130	-370	119	-47	-19
4	3582	-580	-486	3460	-584	-433	122	4	-53
5	3603	-381	-381	3441	-313	-358	162	-68	-23
6	3593	-177	-375	3468	-128	-360	125	-49	-15
7	3536	-595	-358	3459	-559	-290	77	-36	-68
8	3508	-381	-354	3420	-329	-314	88	-52	-40
9	3513	-177	-350	3403	-129	-322	110	-48	-28
10	3463	-390	-512	3325	-339	-553	138	-51	41
11	3582	-580	-486	3460	-584	-433	122	4	-53

Passenger's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z[1]	X	Y	Z[1]
1	3698	212	-505	3655	258	-491	43	-46	-14
2	3705	354	-519	3682	365	-503	23	-12	-16
3	3620	554	-512	3614	582	-553	6	-28	41
4	3667	212	-440	3621	255	-414	46	-43	-26
5	3665	354	-460	3643	334	-432	22	20	-28
6	3582	554	-485	3575	594	-478	7	-40	-7
7	3581	212	-382	3534	234	-351	47	-22	-31
8	3578	354	-388	3556	365	-343	22	-11	-45
9	3563	554	-415	3558	584	-396	5	-40	-19

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

[1] Left front tire flattened and was resting partly in rail trough post-test.

Table 11 Intrusion of Upper Instrument Panel

Pre-Test	X	Y	Z
Driver Left Knee	3218	-568	-884
Driver Right Knee	3233	-260	-843
Passenger Left Knee	3281	263	-880
Passenger Right Knee	3270	564	-865

Post-Test	X	Y	Z
Driver Left Knee	3173	-564	-858
Driver Right Knee	3208	-257	-820
Passenger Left Knee	3233	260	-870
Passenger Right Knee	3306	565	-884

Difference	X	Y	Z
Driver Left Knee	45	-4	-26
Driver Right Knee	25	-3	-23
Passenger Left Knee	48	3	-10
Passenger Right Knee	-36	-1	19

Knee intrusions are points measured pre and post, which are located just above where the four knees would be expected to contact the instrument panel.
Pre- and post-test measurement references: +X, forward of rear bumper; +Y, rightward from vehicle centerline; +Z, downward from ground level.

Table 12 Insurance Institute Measurement Locations and Floor Pan Deformation Data

IIHS Measurement Location Data (in millimeters)

Meas.	X-Axis Measurement			Y-Axis Measurement			Z-Axis Measurement		
Loc*	Pre	Post	Difference	Pre	Post	Difference	Pre	Post[1]	Difference[1]
1	3036	2998	38	-414	-460	46	-1020	-1052	32
2	3293	3232	61	-559	-560	1	-772	-760	-12
3	3278	3239	39	-255	-259	4	-793	-765	-28
4	3463	3325	138	-390	-334	-56	-512	-553	41
5	3588	3450	138	-540	-530	-10	-462	-425	-37
6	3656	3473	183	-396	-340	-56	-421	-425	4
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	3562	3498	64	-640	-634	-6	-493	-430	-63
17	3484	3448	36	-832	-856	24	-1014	-921	-93
18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Floor Pan Deformation Measurement Data (in millimeters)

Meas.	X-Axis Measurement			Y-Axis Measurement			Z-Axis Measurement		
Loc**	Pre	Post	Difference	Pre	Post	Difference	Pre	Post[1]	Difference[1]
P0	2888	2884	4	-622	-610	-12	-371	-210	-161
P1	3441	3380	61	-641	-614	-27	-327	-277	-50
P2	3433	N/A	N/A	-381	N/A	N/A	-331	N/A	N/A
P3	3438	3365	73	-230	-129	-101	-329	-297	-32
P4	3241	3192	49	-641	-555	-86	-327	-267	-60
P5	3239	3161	78	-381	-340	-41	-337	-234	-103
P6	3233	3192	41	-220	-140	-80	-342	-299	-43
P7	2990	2977	13	-631	-590	-41	-334	-187	-147
P8	2977	2938	39	-359	-314	-45	-349	-232	-117
P9	2982	2986	-4	-230	-122	-108	-336	-250	-86

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

* Measurement Location Descriptions

P0 Front Outside Seat Anchor Bolt
1 Steering Column - Geometric center of the steering wheel on airbag door.
2 Lower Instrument Panel Left - Taken 45 cm above floorpan and 15 cm to the left of the steering wheel center.
3 Lower Instrument Panel Right - Taken 45 cm above floorpan and 15 cm to the right of the steering wheel center.
4 Brake Pedal - Geometric center of the brake pedal.
5 Toepan Left - Taken 15 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
6 Toepan Center - Taken directly behind the brake pedal center on the same vertical plane on the vehicle.
7 Toepan Right - Taken 15 cm to the right of the brake pedal center on the same vertical plane on the vehicle toepan.
8 Left Footrest - Taken 25 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
17 A-Pillar - Taken on the vehicle exterior at the same vertical coordinate as the base of the left front window.
18 B-Pillar - Taken on the vehicle exterior at the same vertical coordinate as the lower A-pillar mark.

[1] Left front tire flattened and was resting partly in rail trough post-test.

** 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

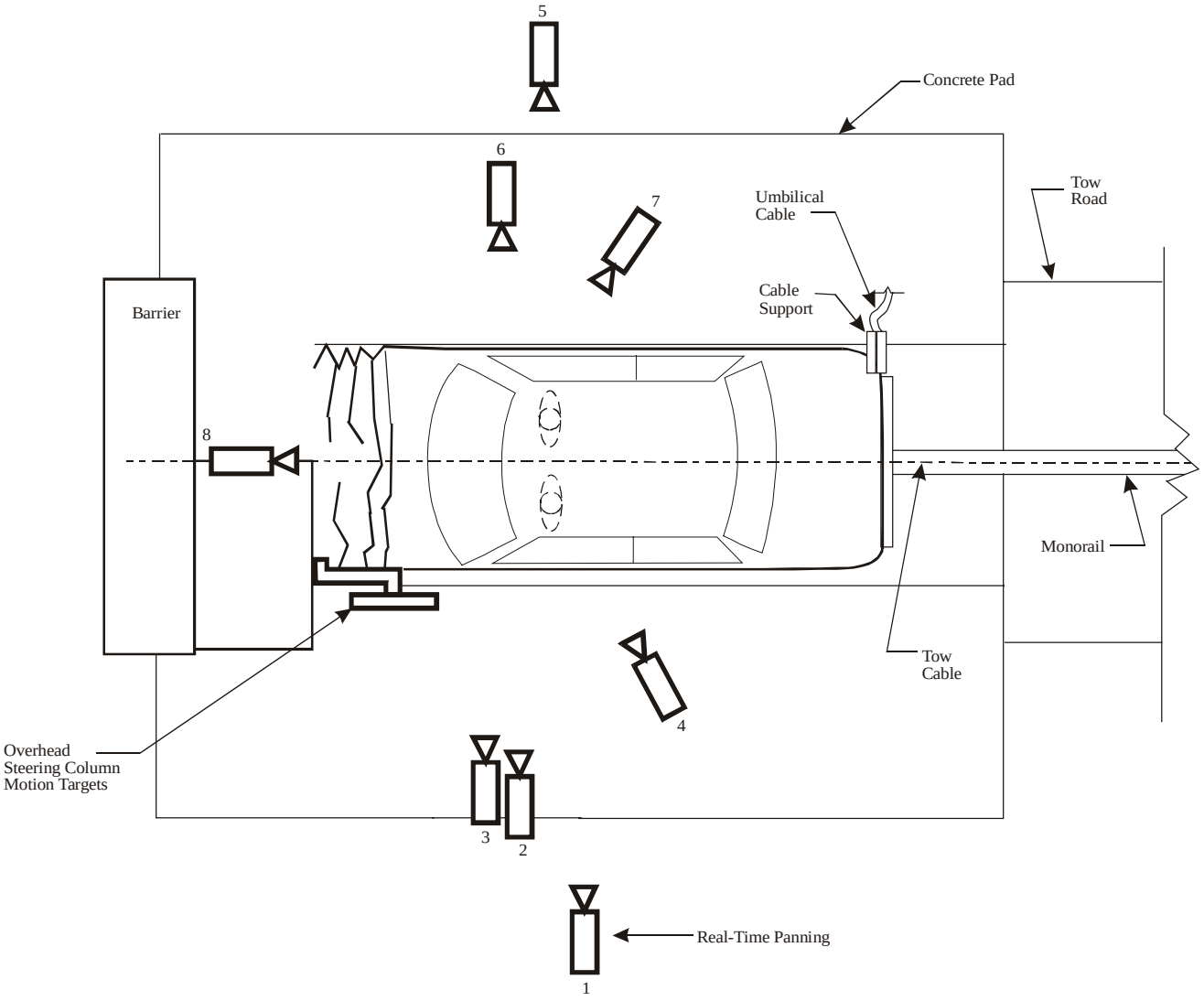


Figure 11 Camera Positions, Cont'd.

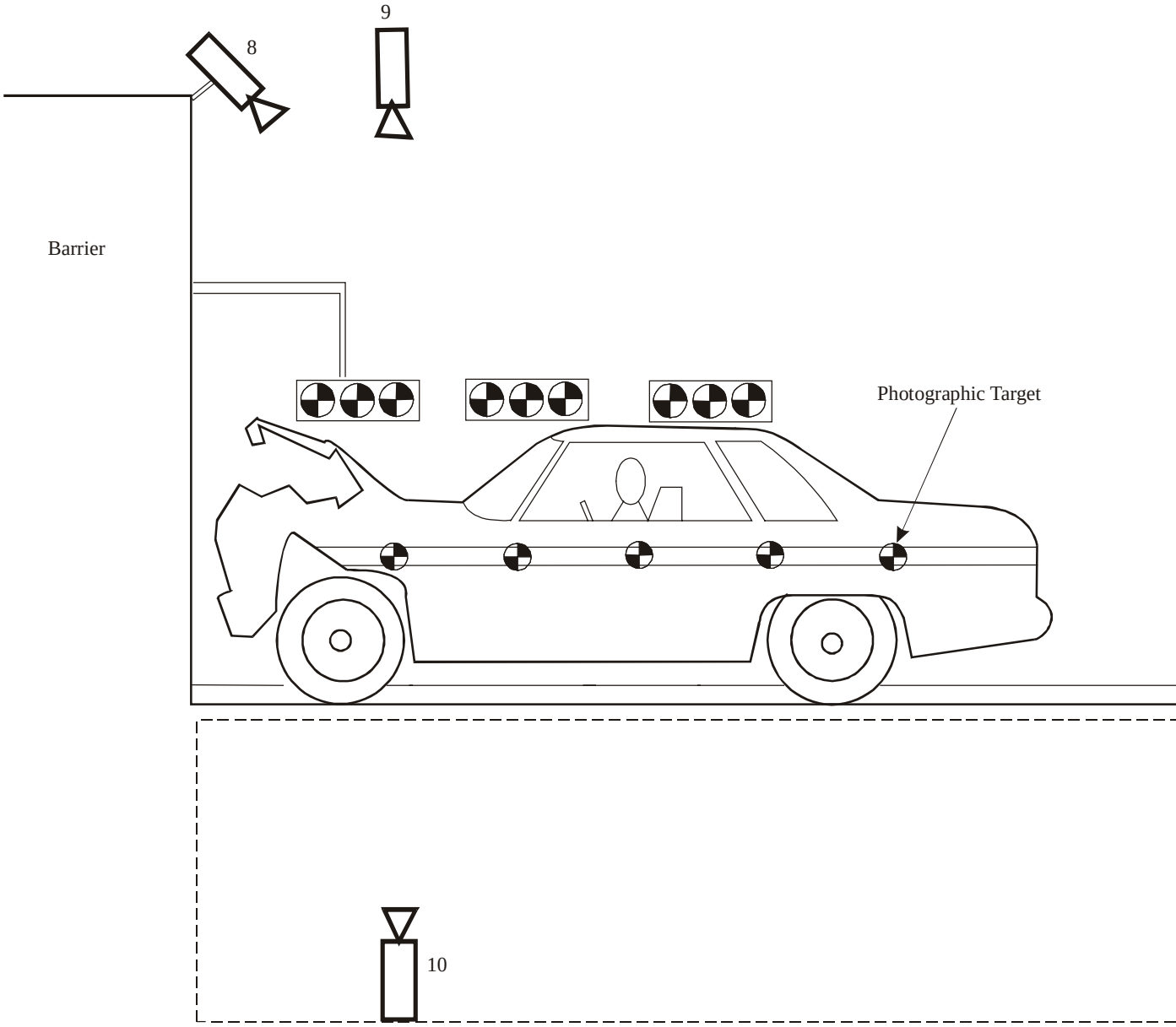
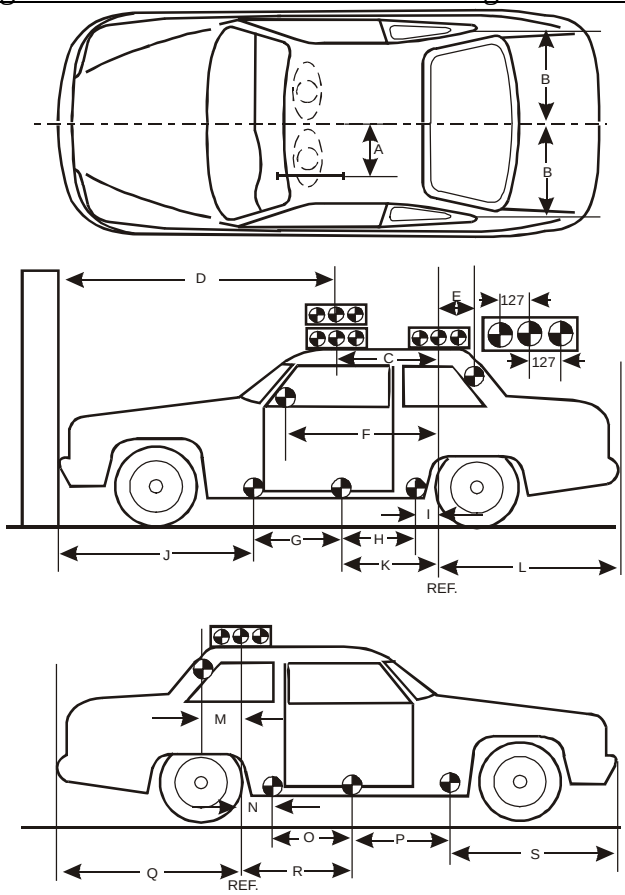


Table 13 Camera Information

Camera Number	Location	Type	Lens (mm)	Speed (fps)	Purpose of camera data
1	Panning	Bolex		24	Vehicle dynamics
2	Left perpendicular overall	Photosonic	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	Photosonic	13	995	Dummy kinematics
6	Right tight passenger side	Digital HG	25	1000	Dummy kinematics
7	Right angled on passenger	Digital HG	25	1000	Dummy and airbag
8	Driver & passenger from barrier	Digital HG	17	1000	Airbag deployment
9	Overhead	Photosonic	25	1000	Vehicle dynamics
10	Pit front	Photosonic	17	997	Vehicle crush

Figure 15 Vehicle Reference Photo Target Locations

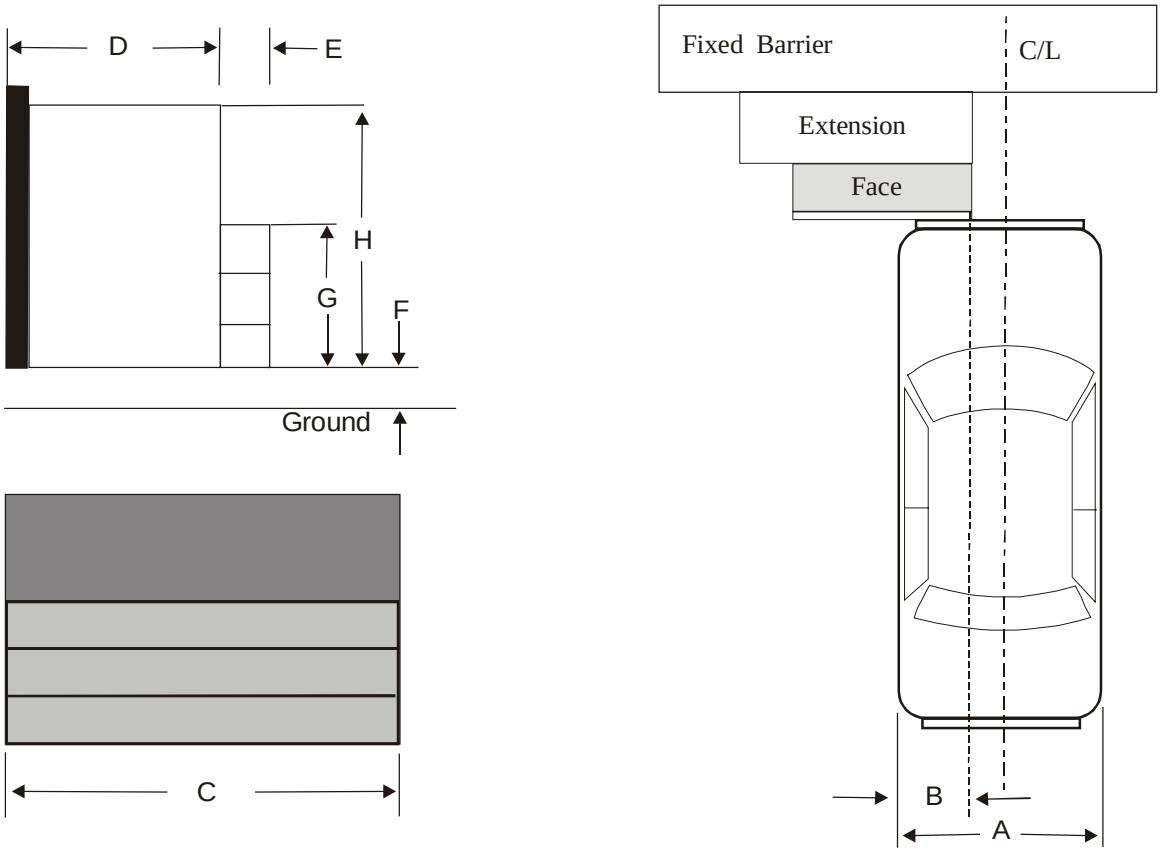


Measurement	Pre-Test
A	Left: 417 mm Right: 409 mm
B	647 mm
C	Left: 610 mm Right: 610 mm
D	1850 mm
E	723 mm
F	1208 mm
G	900 mm
H	958 mm
I	-510 mm
J	1352 mm
K	448 mm
L	2065 mm
M	677 mm
N	-457 mm
O	958 mm
P	906 mm
Q	2010 mm
R	503 mm
S	1353 mm

Figure 16 Offset Barrier and Vehicle Orientation

Vehicle: 2002 Nissan Quest

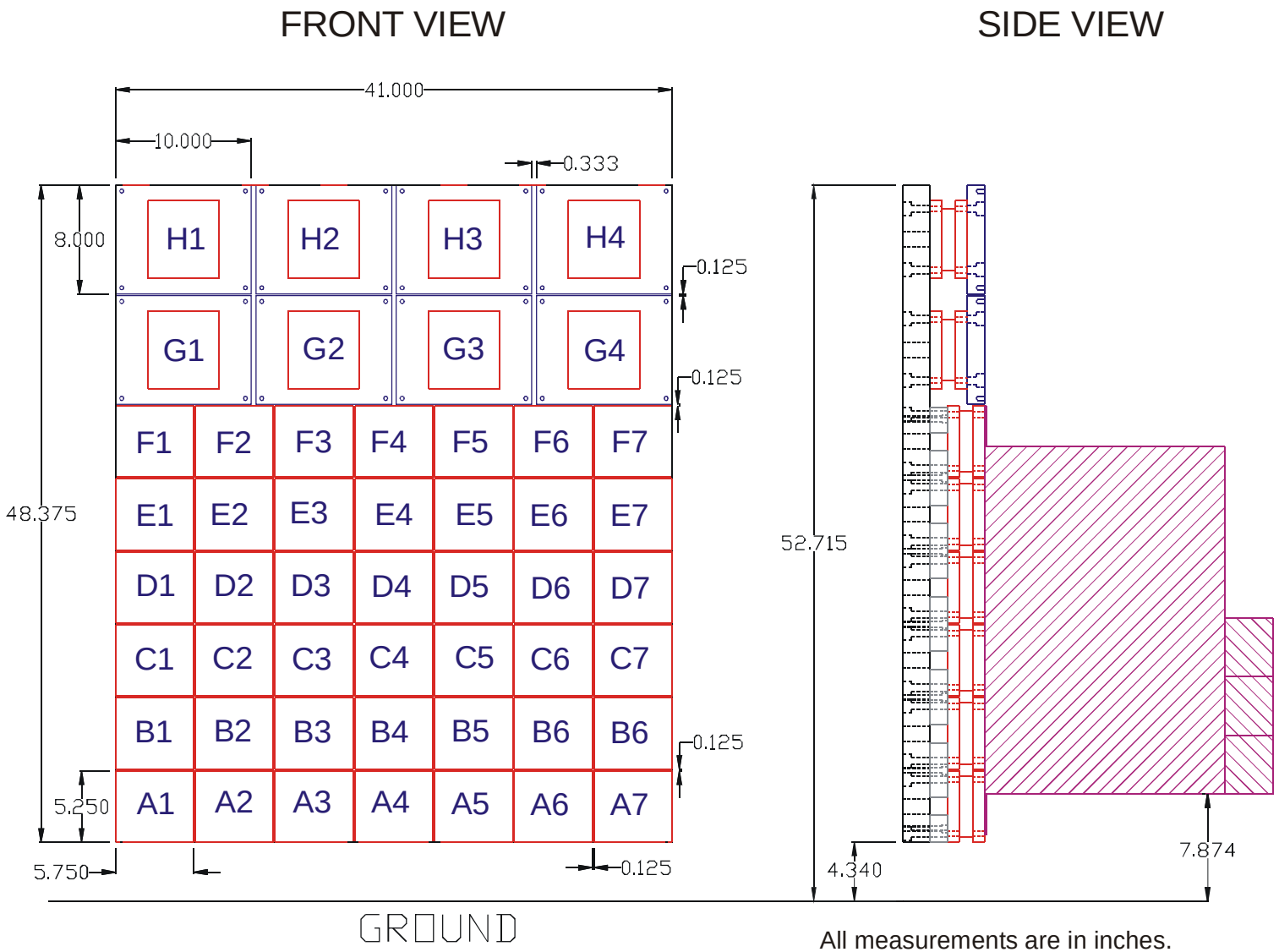
Barrier Manufacturer: Cellbond Serial Number: CB055



A	Total Vehicle Width	1895	mm
B	40% Overlap Distance	758	mm
C	Deformable Face Width	1000	mm
D	Single Stage Honeycomb Depth	450	mm
E	Bumper Element Depth	90	mm
F	Lower Edge Height From Ground	200	mm
G*	Bumper Element Height	330	mm
H	Deformable Barrier Honeycomb Height	650	mm

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

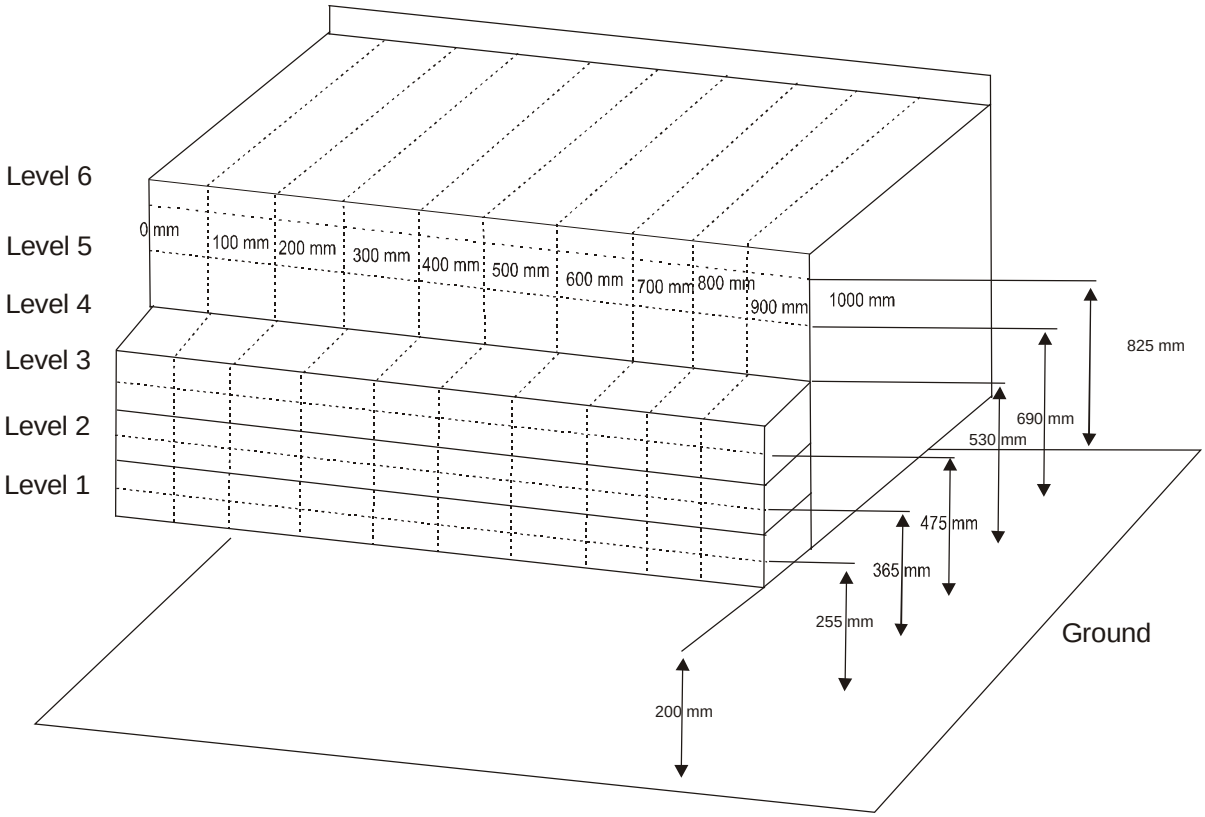
Figure 17 Load Cell Location on Fixed Offset Barrier[1]



[1]Load cell data is presented as plots in Appendix B.

Figure 18 Offset Barrier Deformation Measurement Locations

Offset Barrier 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	535 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	453.8	-2.7	626.4
2	453.8	96.7	627.1
3	453.4	197.3	627.1
4	453.6	297.5	629.0
5	452.5	396.7	627.7
6	453.1	498.5	627.9
7	452.9	595.7	627.6
8	452.7	696.8	629.1
9	451.8	796.1	629.6
10	452.2	896.8	629.8
11	452.8	996.3	629.2

Post-Test

Index	Xmm	Ymm	Zmm
1	553.7	106.8	406.0
2	509.1	195.3	396.2
3	464.8	282.1	387.8
4	402.4	358.9	386.8
5	321.1	409.1	382.9
6	257.3	493.4	378.1
7	270.2	576.4	348.2
8	234.7	658.6	362.8
9	231.8	754.7	345.4
10	222.4	850.8	329.7
11	178.8	934.4	338.1

Difference

Index	Xmm	Ymm	Zmm
1	-99.9	-109.5	220.4
2	-55.3	-98.6	230.9
3	-11.4	-84.9	239.4
4	51.3	-61.4	242.3
5	131.4	-12.4	244.8
6	195.9	5.1	249.8
7	182.8	19.3	279.5
8	218.1	38.3	266.3
9	220.0	41.5	284.2
10	229.9	46.0	300.2
11	274.0	61.9	291.1

Level 5 Mid Stack

Pre-Test

Index	Xmm	Ymm	Zmm
12	453.2	-0.8	490.6
13	453.2	97.1	491.5
14	453.6	196.7	490.9
15	453.0	295.8	490.7
16	453.1	397.1	491.6
17	453.2	497.7	491.6
18	453.7	598.1	492.1
19	453.2	696.5	491.6
20	452.8	796.8	491.9
21	452.1	896.7	491.8
22	454.2	996.6	492.0

Post-Test

Index	Xmm	Ymm	Zmm
12	532.4	80.7	276.3
13	483.8	166.3	269.4
14	423.8	243.4	267.7
15	357.0	317.6	269.6
16	300.7	400.0	264.8
17	251.4	465.7	259.7
18	190.6	539.9	284.9
19	144.9	625.0	300.0
20	144.2	715.9	282.8
21	119.1	799.7	327.5
22	107.4	896.2	334.0

Difference

Index	Xmm	Ymm	Zmm
12	-79.2	-81.5	214.3
13	-30.7	-69.2	222.1
14	29.9	-46.7	223.2
15	96.0	-21.8	221.2
16	152.4	-2.9	226.8
17	201.8	32.0	232.0
18	263.1	58.2	207.2
19	308.4	71.5	191.6
20	308.6	80.9	209.1
21	333.1	96.9	164.3
22	346.9	100.5	158.0

Table 14 Deformable Barrier Face Profile Cont'd.

Level 4 Stack Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
23	454.2	0.4	336.9
24	454.1	98.8	338.1
25	454.2	198.4	338.3
26	454.5	298.6	340.1
27	452.7	398.3	340.9
28	453.7	498.5	339.7
29	453.8	599.0	340.8
30	454.7	701.2	340.7
31	455.2	800.0	339.9
32	454.9	898.1	340.4
33	454.5	997.4	340.0

Post-Test

Index	Xmm	Ymm	Zmm
23	499.8	55.0	130.7
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A

Difference

Index	Xmm	Ymm	Zmm
23	-45.6	-54.7	206.2
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A

Level 3 Bumper Top

Pre-Test

Index	Xmm	Ymm	Zmm
34	545.8	0.5	275.2
35	544.6	100.5	276.2
36	544.6	200.6	276.7
37	545.3	299.7	276.7
38	544.7	400.8	278.1
39	544.7	501.1	276.9
40	545.4	599.1	277.1
41	545.5	700.6	276.8
42	544.5	801.0	277.5
43	545.1	898.9	276.8
44	545.0	997.4	276.2

Post-Test

Index	Xmm	Ymm	Zmm
34	567.6	139.9	103.6
35	497.3	210.5	112.8
36	425.3	275.9	120.8
37	354.0	340.8	129.5
38	292.7	422.3	138.8
39	229.0	501.5	143.6
40	161.9	562.1	146.6
41	107.3	652.7	153.3
42	106.9	731.1	172.4
43	110.6	825.6	195.8
44	84.2	910.7	216.6

Difference

Index	Xmm	Ymm	Zmm
34	-21.8	-139.4	171.6
35	47.2	-110.0	163.5
36	119.3	-75.3	156.0
37	191.3	-41.1	147.3
38	252.0	-21.5	139.3
39	315.7	-0.3	133.3
40	383.5	36.9	130.6
41	438.3	47.8	123.5
42	437.6	69.9	105.1
43	434.5	73.3	81.0
44	460.8	86.7	59.6

Table 14 Deformable Barrier Face Profile Cont'd.

Level 2 Bumper Top

Pre-Test

Index	Xmm	Ymm	Zmm
45	545.1	1.7	165.3
46	545.0	100.2	166.7
47	545.8	200.6	166.8
48	545.2	301.2	166.8
49	544.6	400.4	167.2
50	545.9	500.8	166.9
51	545.8	599.5	167.3
52	545.1	698.9	167.8
53	546.6	800.3	167.3
54	546.0	901.0	167.9
55	544.6	998.0	167.3

Post-Test

Index	Xmm	Ymm	Zmm
45	561.2	147.7	-4.3
46	497.7	221.4	3.6
47	424.5	284.6	10.0
48	373.1	368.8	23.9
49	319.5	450.2	36.6
50	258.0	534.9	47.1
51	182.7	597.2	48.3
52	125.1	676.0	50.3
53	110.1	751.8	64.2
54	88.9	850.2	89.2
55	69.3	942.9	108.2

Difference

Index	Xmm	Ymm	Zmm
45	-16.1	-146.0	169.6
46	47.4	-121.2	163.1
47	121.4	-84.0	156.8
48	172.1	-67.6	143.0
49	225.1	-49.9	130.7
50	288.0	-34.1	119.8
51	363.2	2.3	119.1
52	420.1	22.9	117.5
53	436.5	48.6	103.1
54	457.1	50.8	78.8
55	475.3	55.1	59.1

Level 1 Bumper Low

Pre-Test

Index	Xmm	Ymm	Zmm
56	546.1	1.2	54.5
57	545.6	101.8	56.0
58	545.2	201.4	55.8
59	546.4	301.4	55.7
60	545.4	401.4	56.5
61	546.5	499.8	56.9
62	545.3	600.7	57.2
63	545.4	699.4	57.7
64	546.2	800.9	56.3
65	545.6	900.5	57.4
66	546.0	998.8	56.1

Post-Test

Index	Xmm	Ymm	Zmm
56	559.4	154.8	-119.4
57	497.5	229.7	-104.3
58	434.4	306.6	-95.9
59	386.4	392.7	-80.4
60	340.8	481.2	-64.8
61	289.7	561.6	-53.2
62	223.4	636.6	-46.6
63	N/A	N/A	N/A
64	162.5	775.1	-14.3
65	128.4	865.9	14.3
66	85.3	946.0	38.6

Difference

Index	Xmm	Ymm	Zmm
56	-13.3	-153.6	173.9
57	48.1	-128.0	160.3
58	110.8	-105.2	151.6
59	160.0	-91.3	136.1
60	204.6	-79.8	121.2
61	256.9	-61.8	110.0
62	322.0	-35.8	103.8
63	N/A	N/A	N/A
64	383.8	25.8	70.5
65	417.2	34.6	43.2
66	460.7	52.8	17.5

Figure 19 Deformable Barrier Face Profile 1-11 Level 6

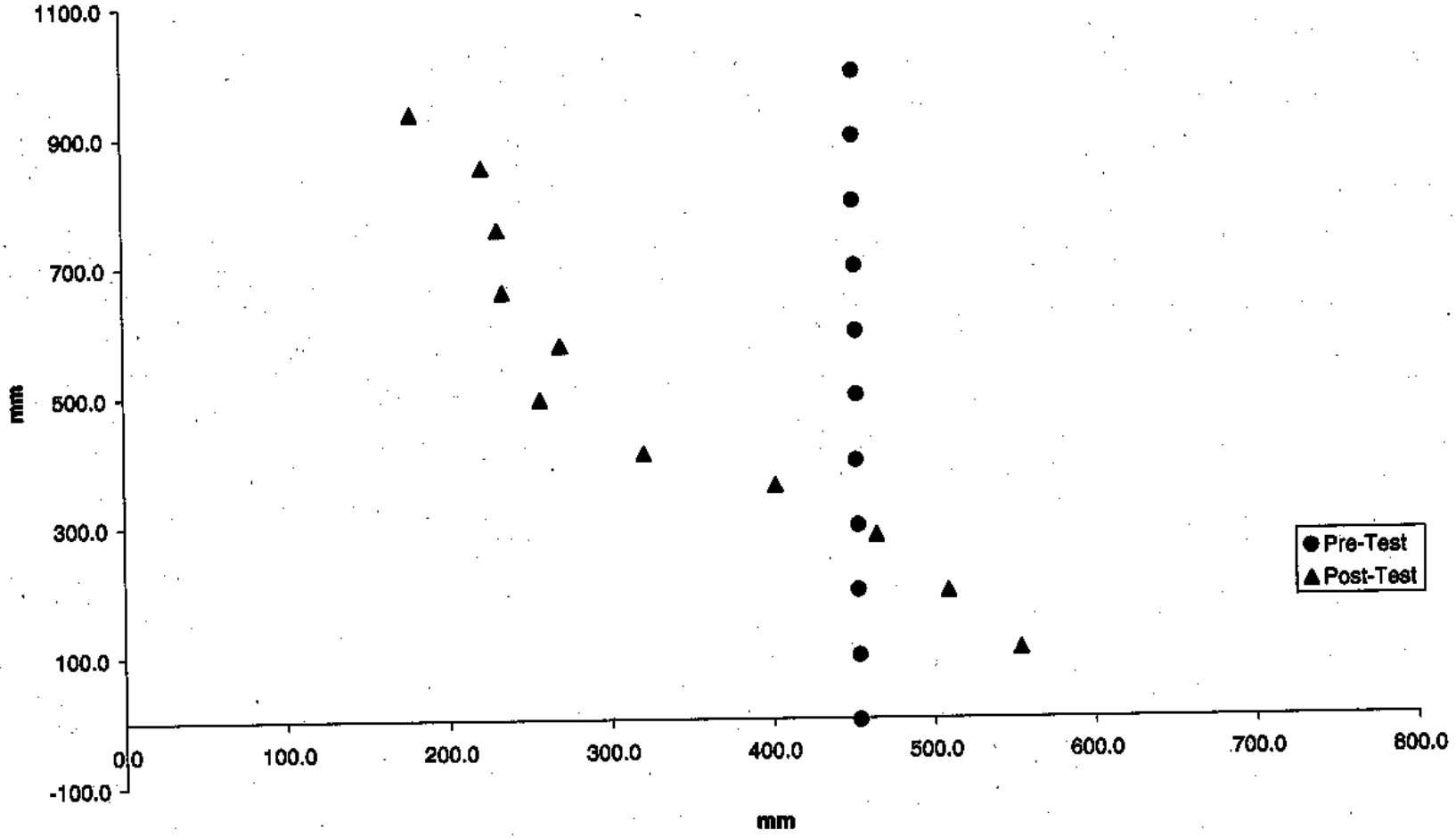


Figure 19 Deformable Barrier Face Profile 12-22 Level 5

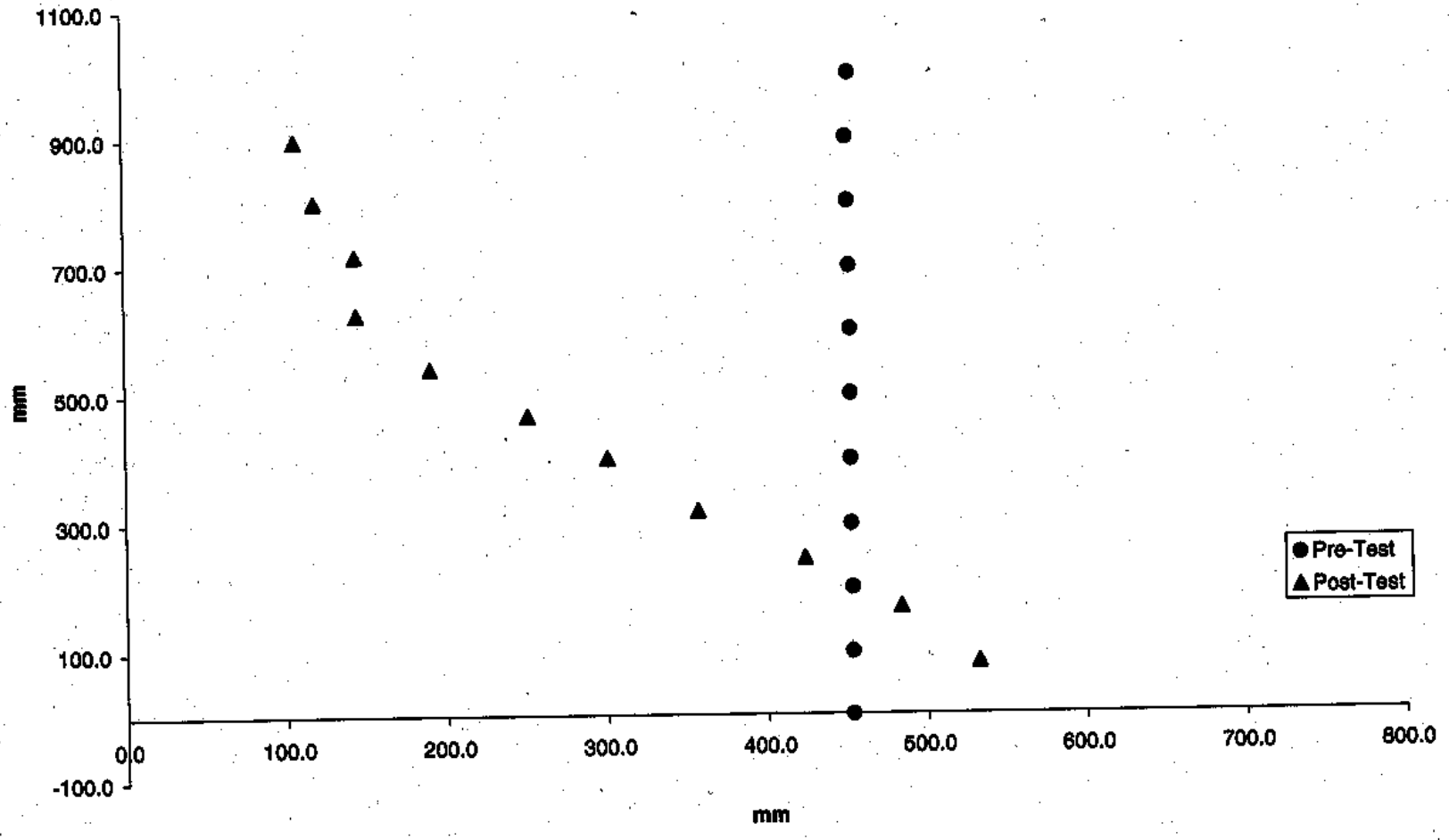


Figure 19 Deformable Barrier Face Profile 23-33 Level 4

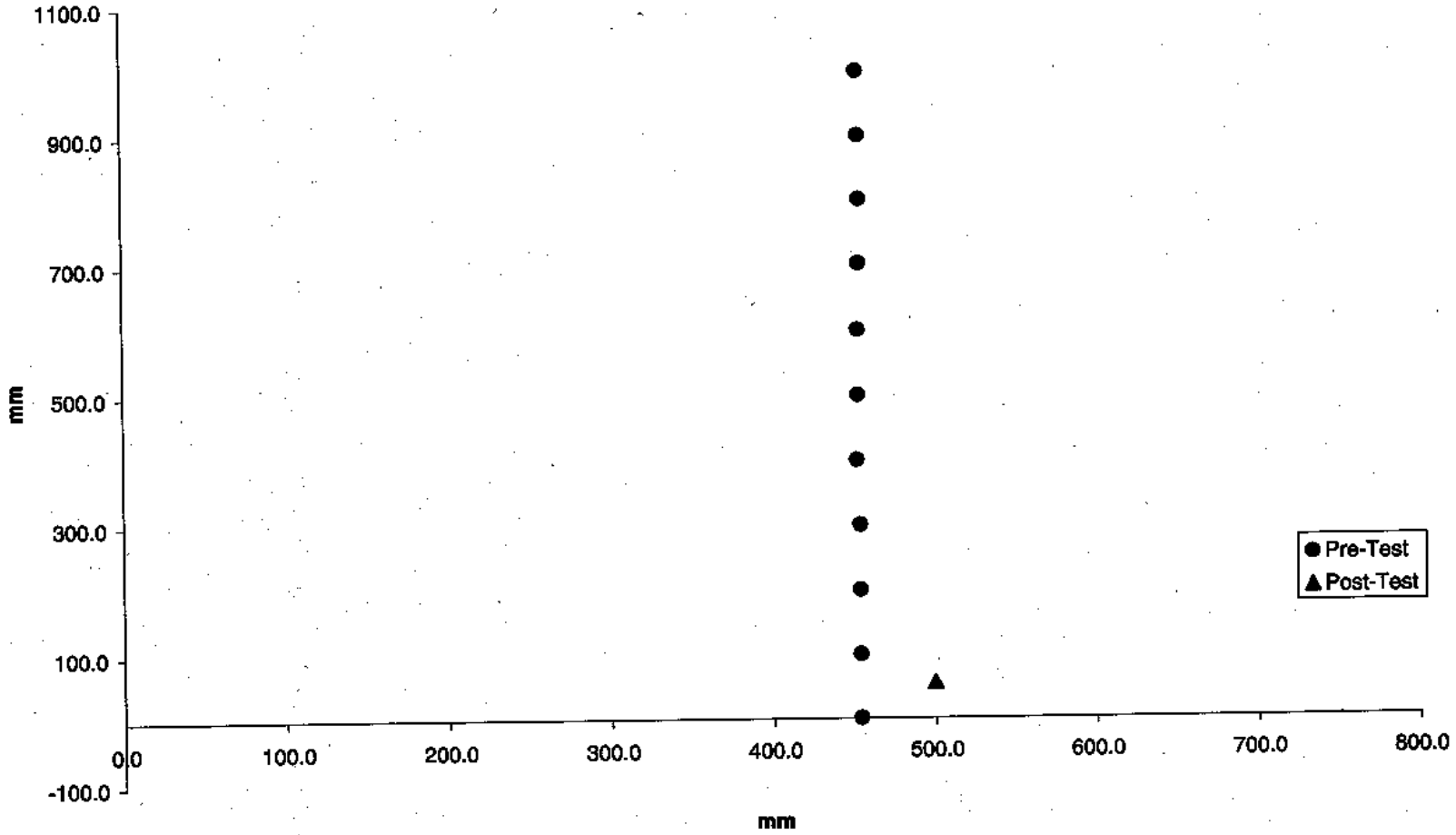


Figure 19 Deformable Barrier Face Profile 34-44 Level 3

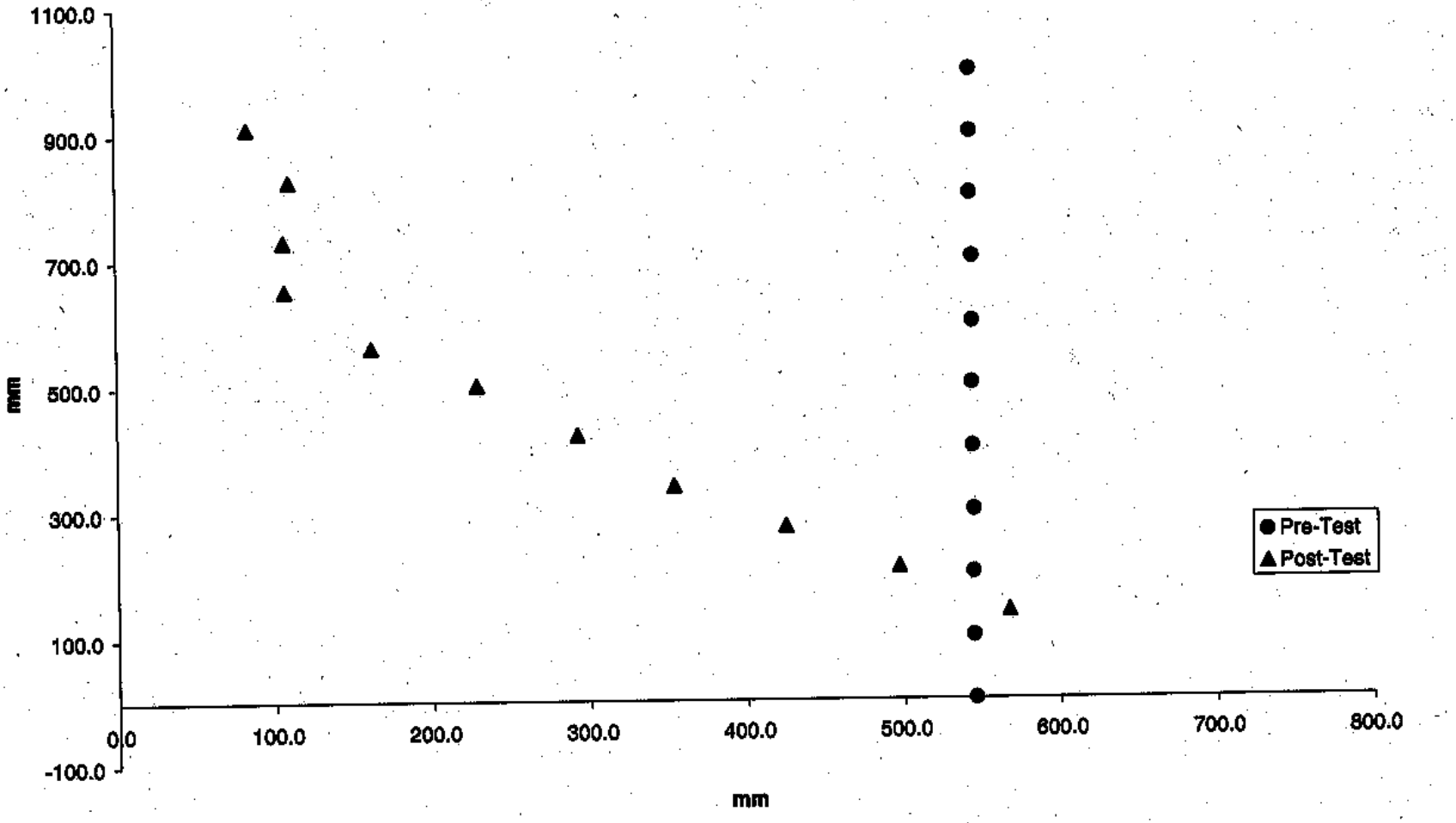


Figure 19 Deformable Barrier Face Profile 45-55 Level 2

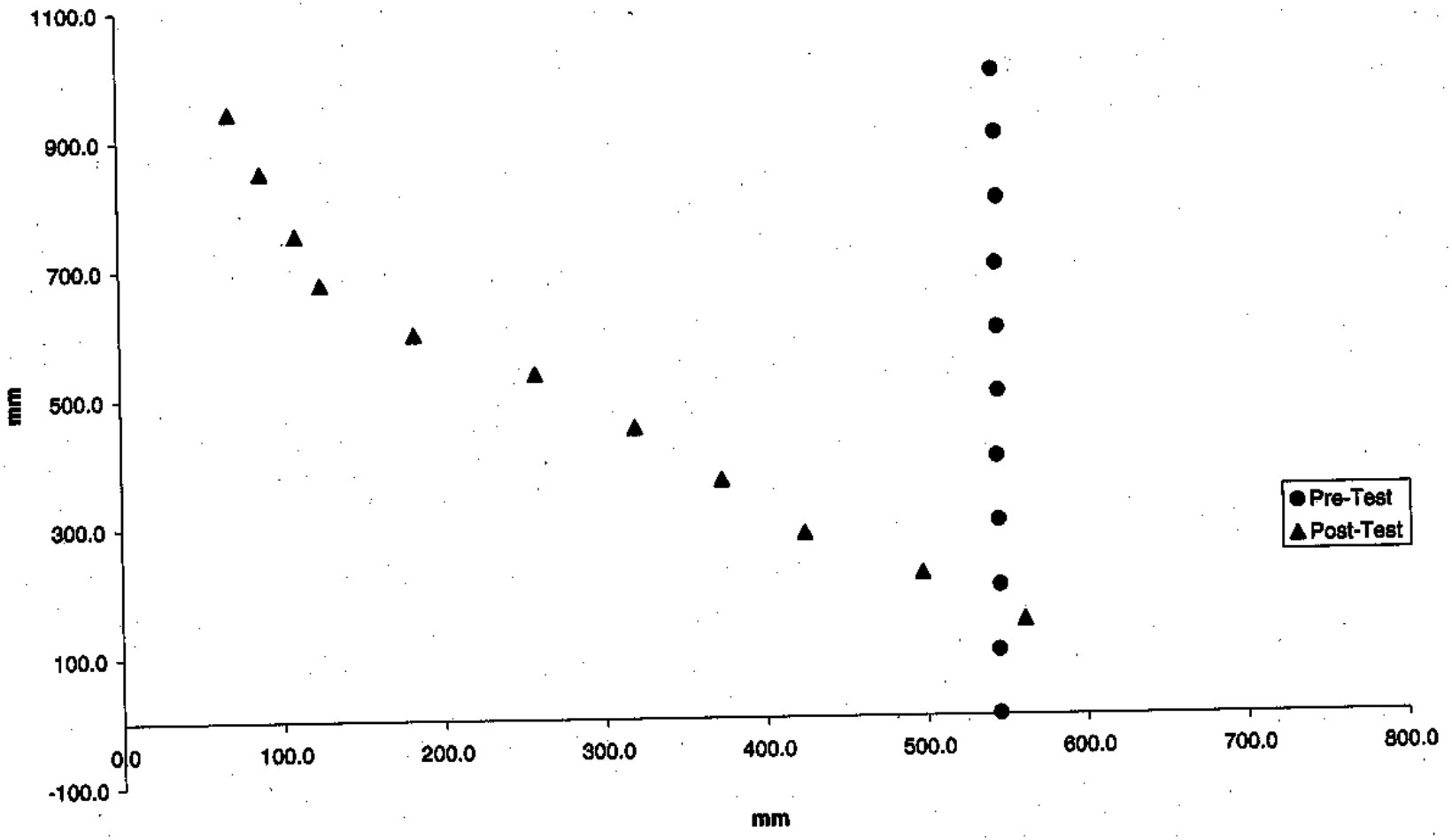
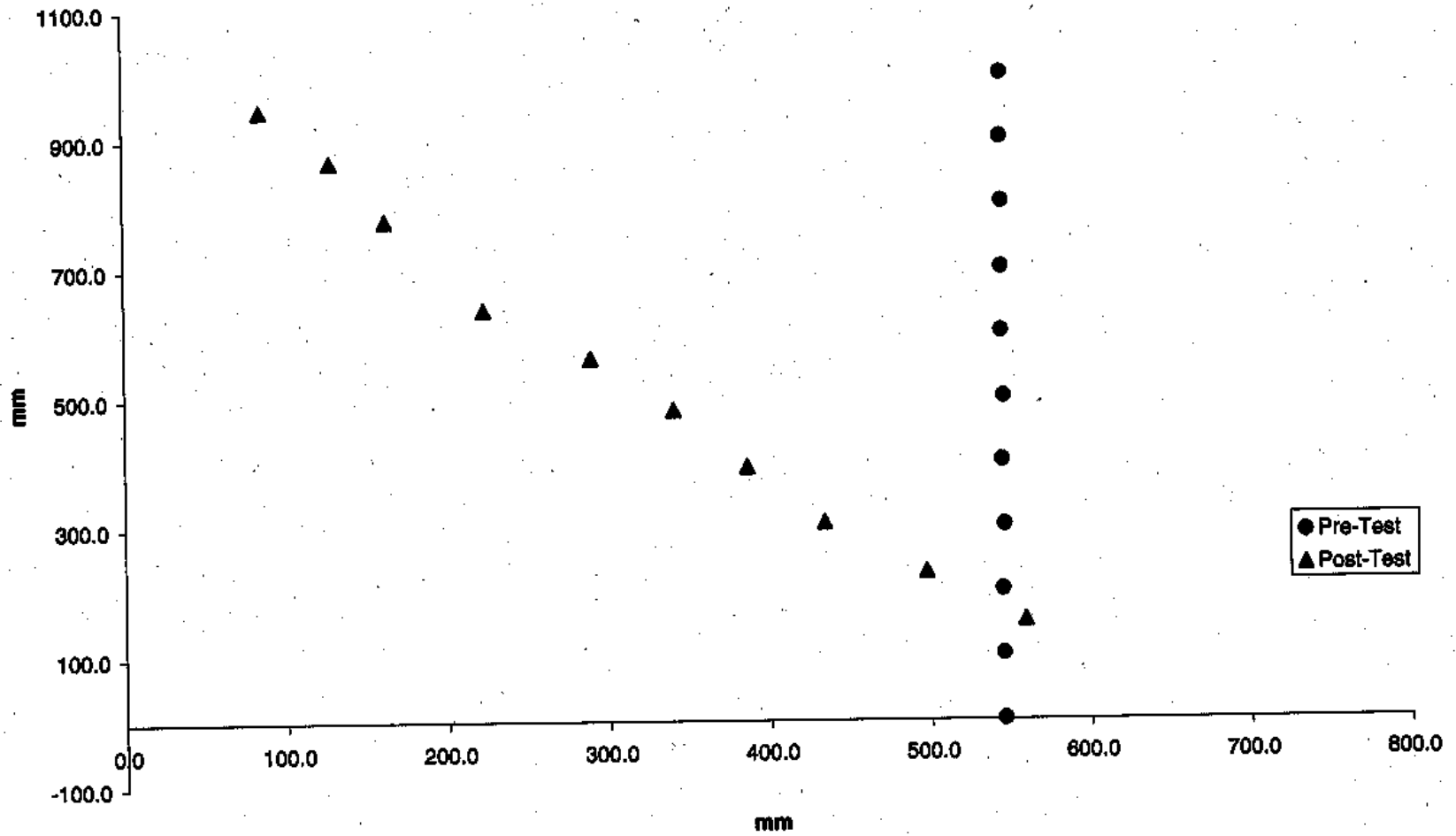


Figure 19 Deformable Barrier Face Profile 56-66 Level 1



Appendix A

Photographs

Figure A-1 Pre-Test Front View

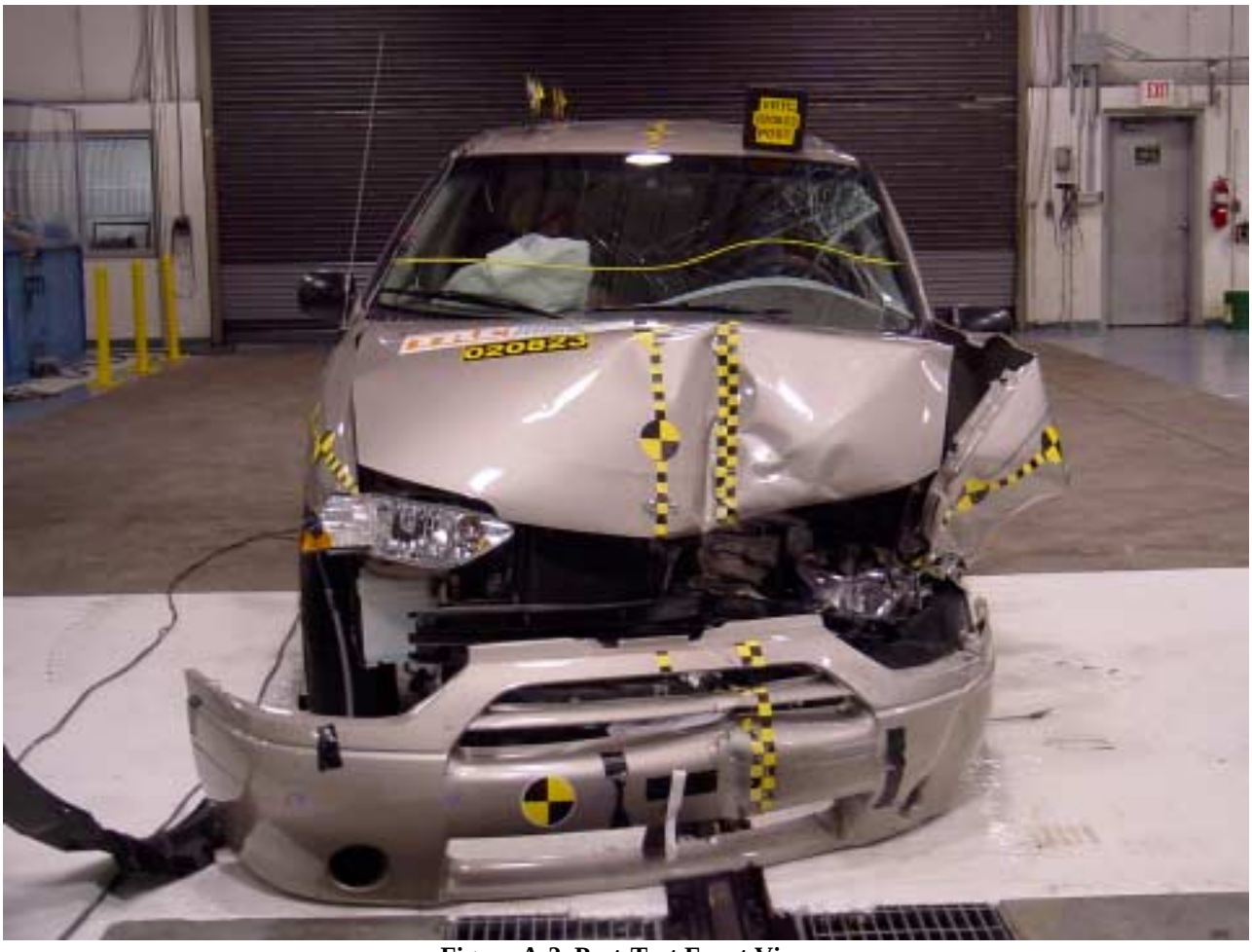


Figure A-2 Post-Test Front View

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

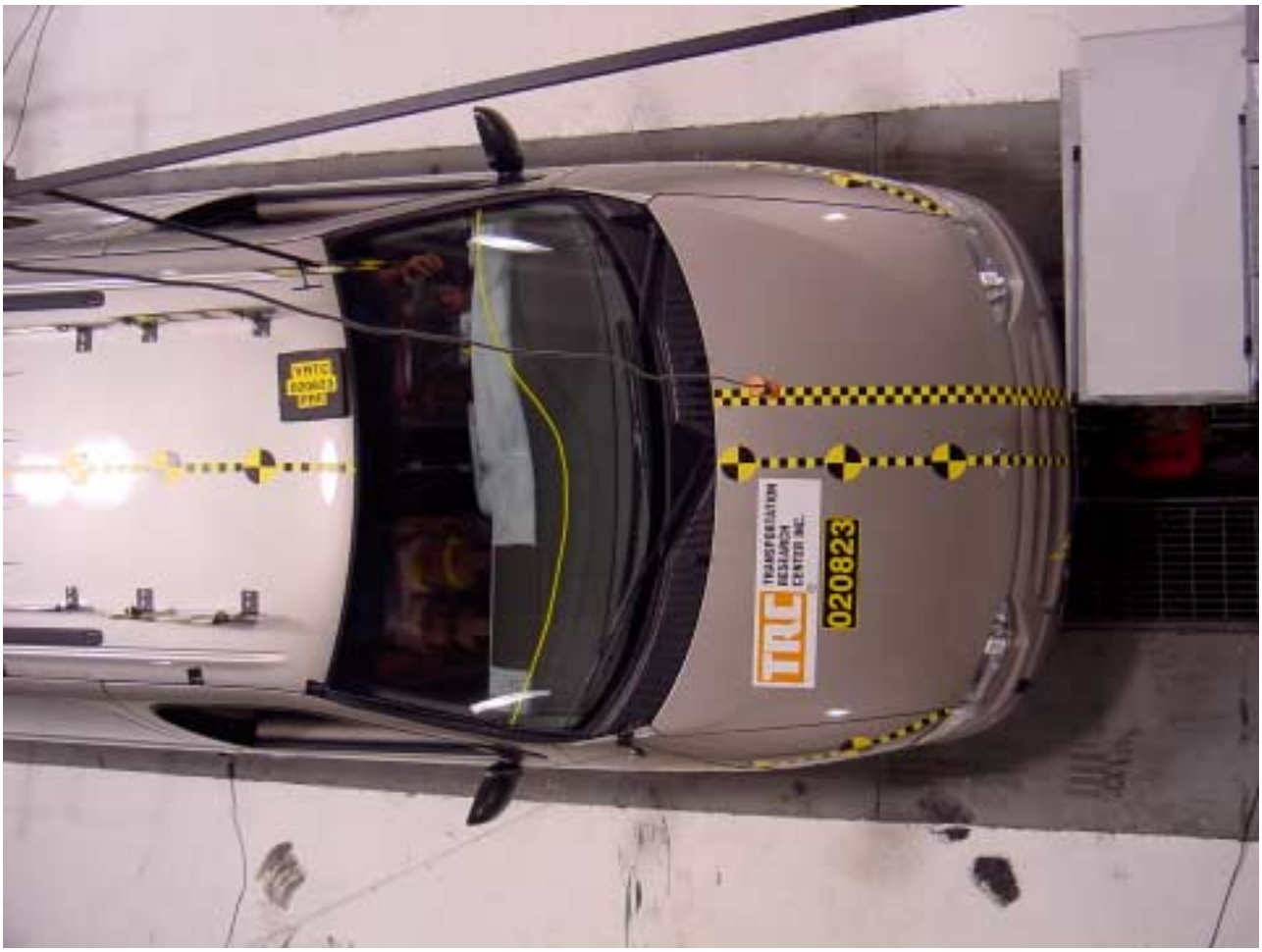


Figure A-17 Pre-Test Overhead View

Figure A-18 Post-Test Overhead View

Figure A-19 Pre-Test Front Underbody View

Figure A-20 Post-Test Front Underbody View

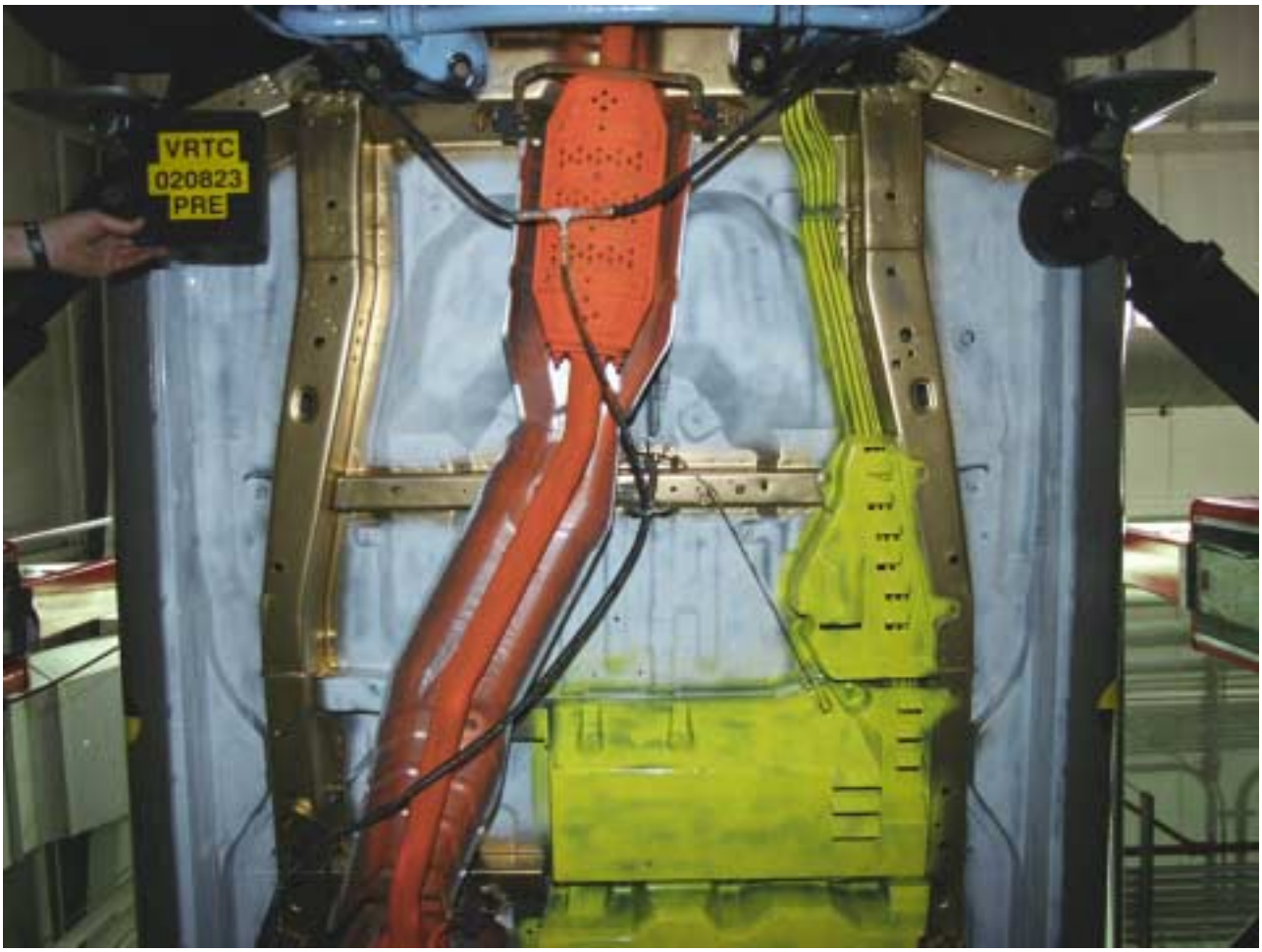


Figure A-21 Pre-Test Front Mid Underbody View

Figure A-22 Post-Test Front Mid Underbody View

Figure A-23 Pre-Test Rear Mid Underbody View

Figure A-24 Post-Test Rear Mid Underbody View

Figure A-25 Pre-Test Rear Underbody View

Figure A-26 Post-Test Rear Underbody View

Figure A-27 Pre-Test Engine Compartment View

Figure A-28 Post-Test Engine Compartment View

Figure A-29 Pre-Test Windshield View

Figure A-30 Post-Test Windshield View

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

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

Figure A-33. Post-Test Left Side Windshield Closeup View

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

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

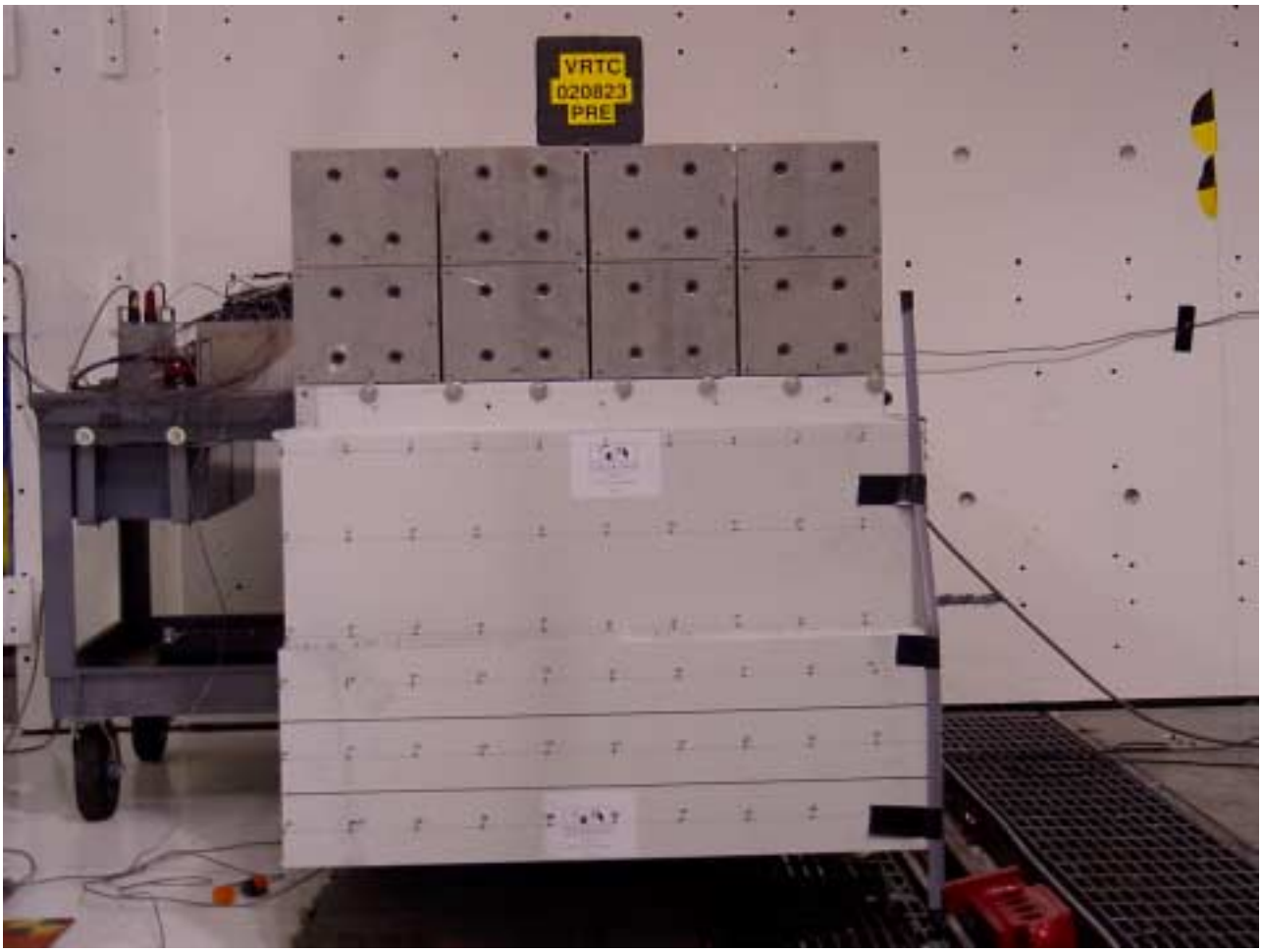

Figure A-36 Pre-Test Front Barrier Face View

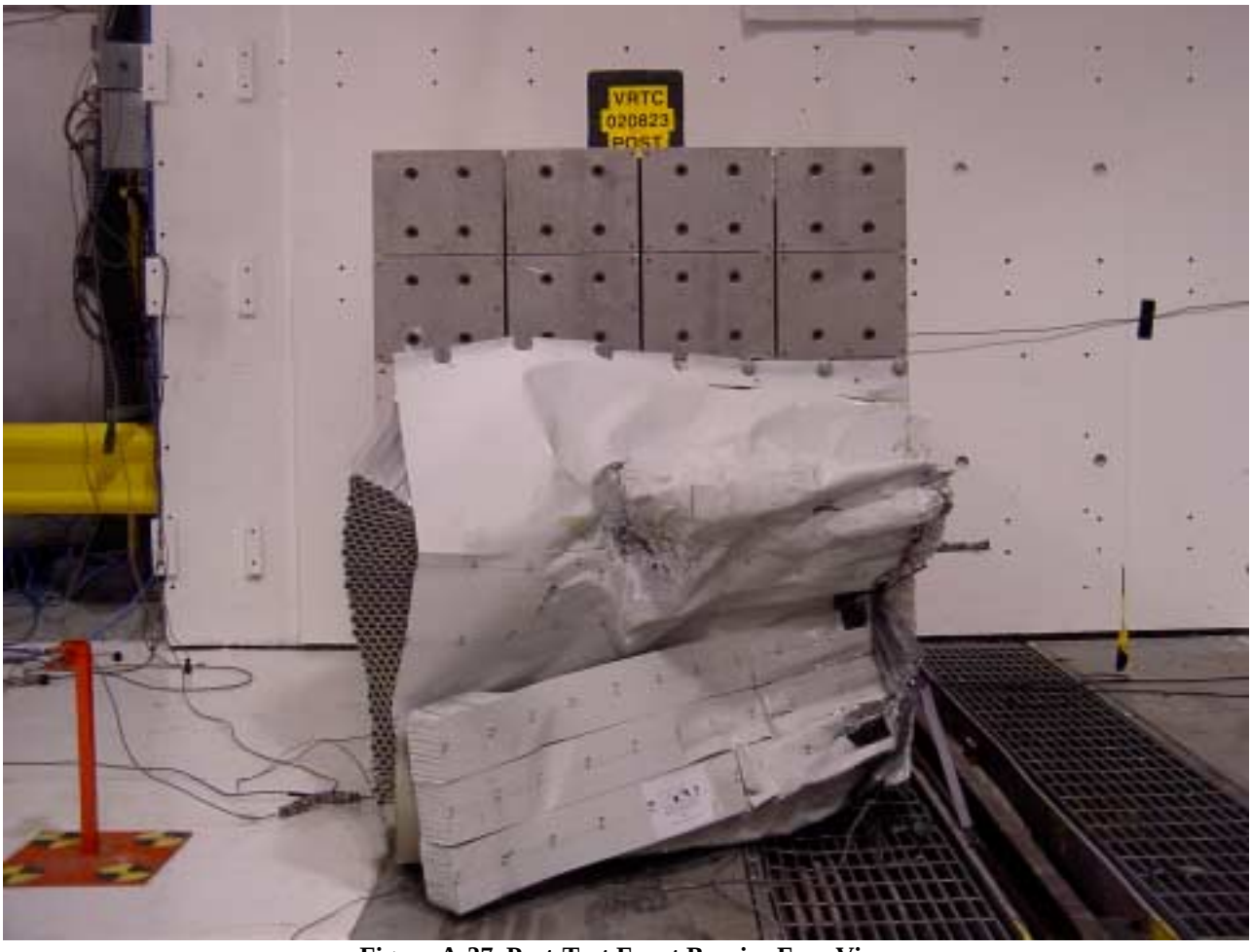

Figure A-37 Post-Test Front Barrier Face View

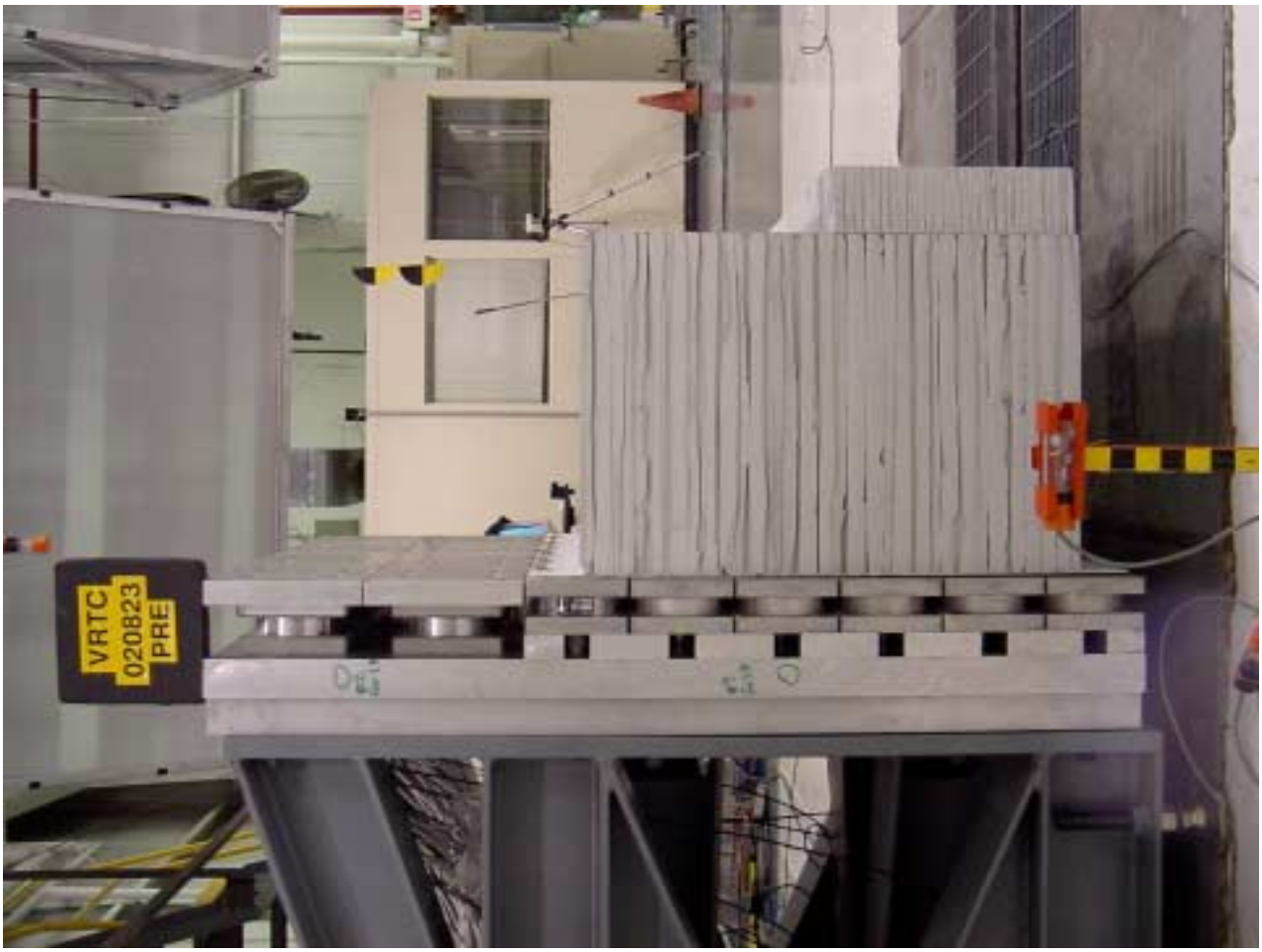

Figure A-38 Pre-Test Left Side Barrier Face View

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

Figure A-40 Pre-Test Right Side Barrier Face View

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

Figure A-42 Pre-Test Overhead Barrier Face View

Figure A-43 Post-Test Overhead Barrier Face View

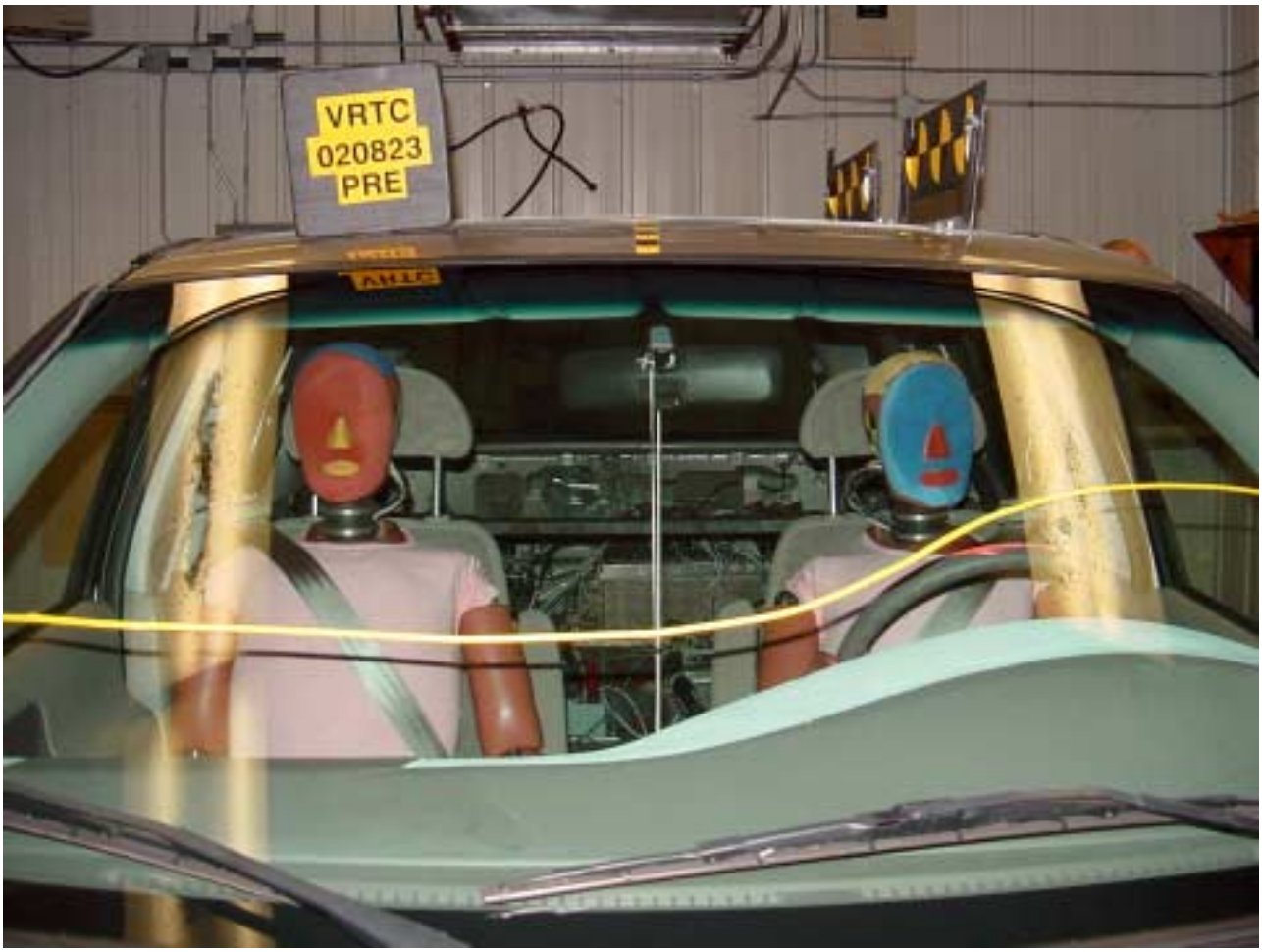

Figure A-44 Pre-Test Driver and Passenger Dummies Front View

Figure A-45 Post-Test Driver and Passenger Dummies Front View

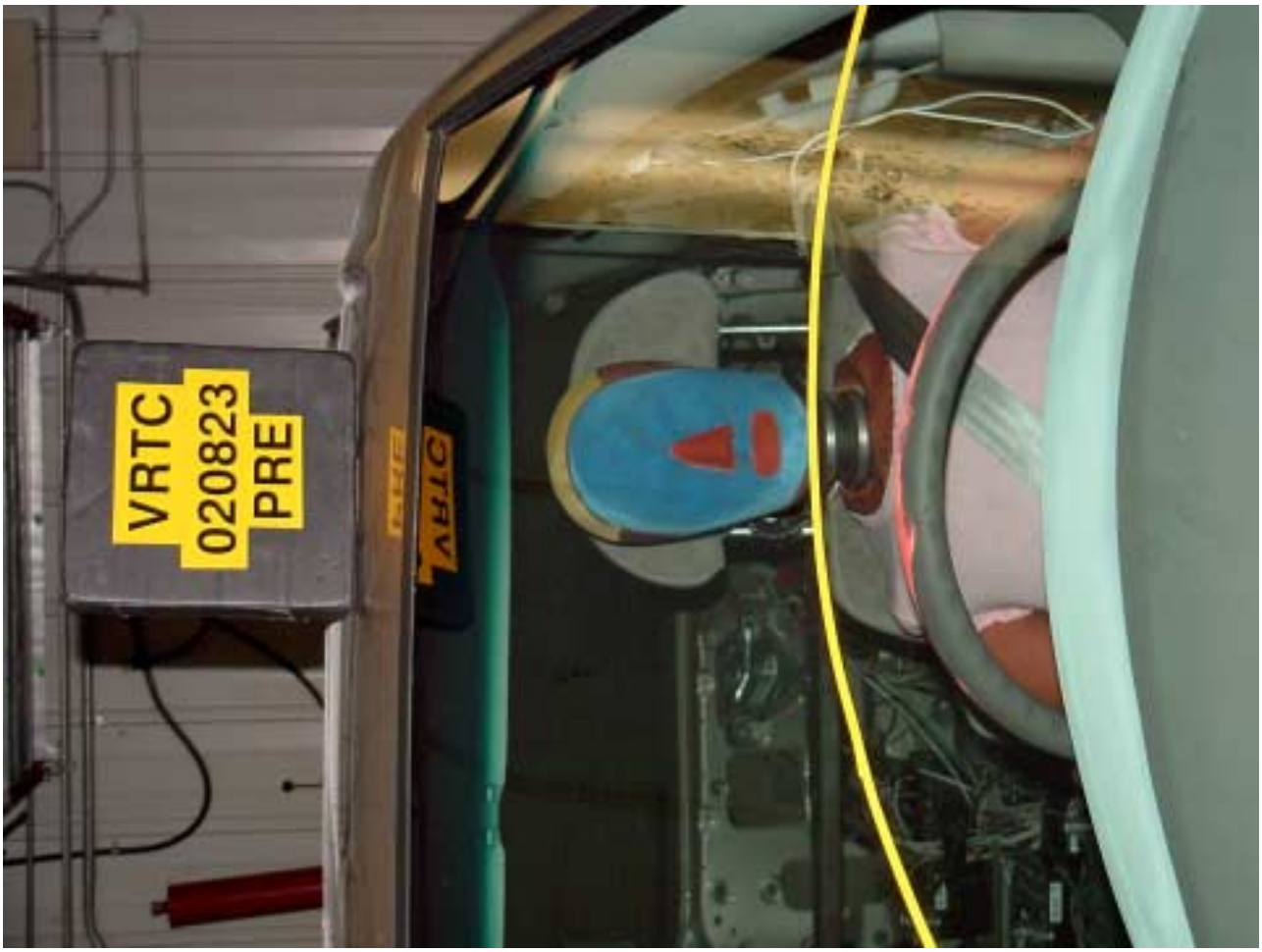

Figure A-46 Pre-Test Driver Dummy Position - View 1

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

Figure A-48 Pre-Test Driver Dummy Position - View 2

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

Figure A-50 Pre-Test Driver Dummy & Vehicle Interior - View 1

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

Figure A-52 Pre-Test Driver Dummy & Vehicle Interior - View 2

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

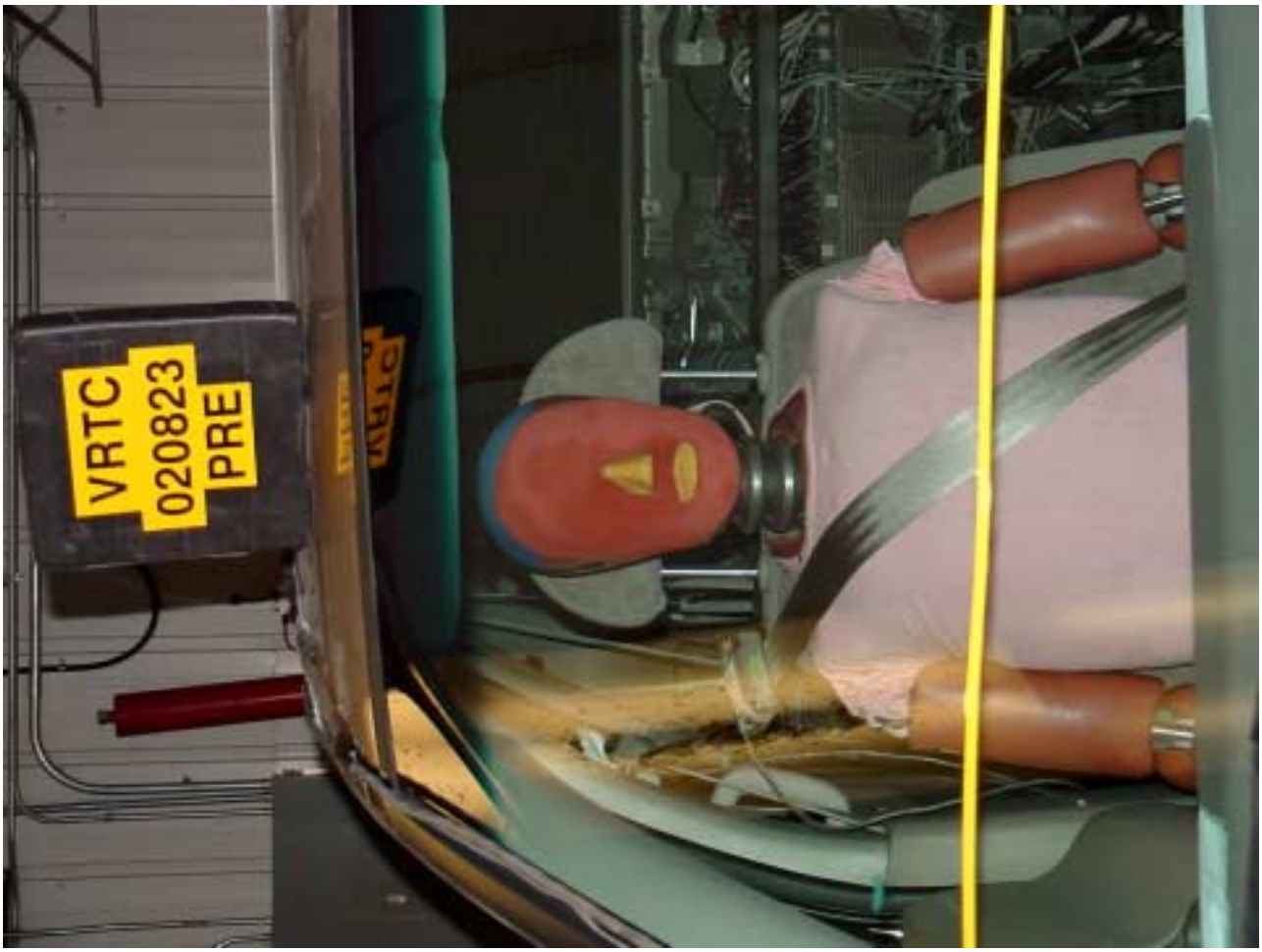

Figure A-54 Pre-Test Passenger Dummy Position - View 1

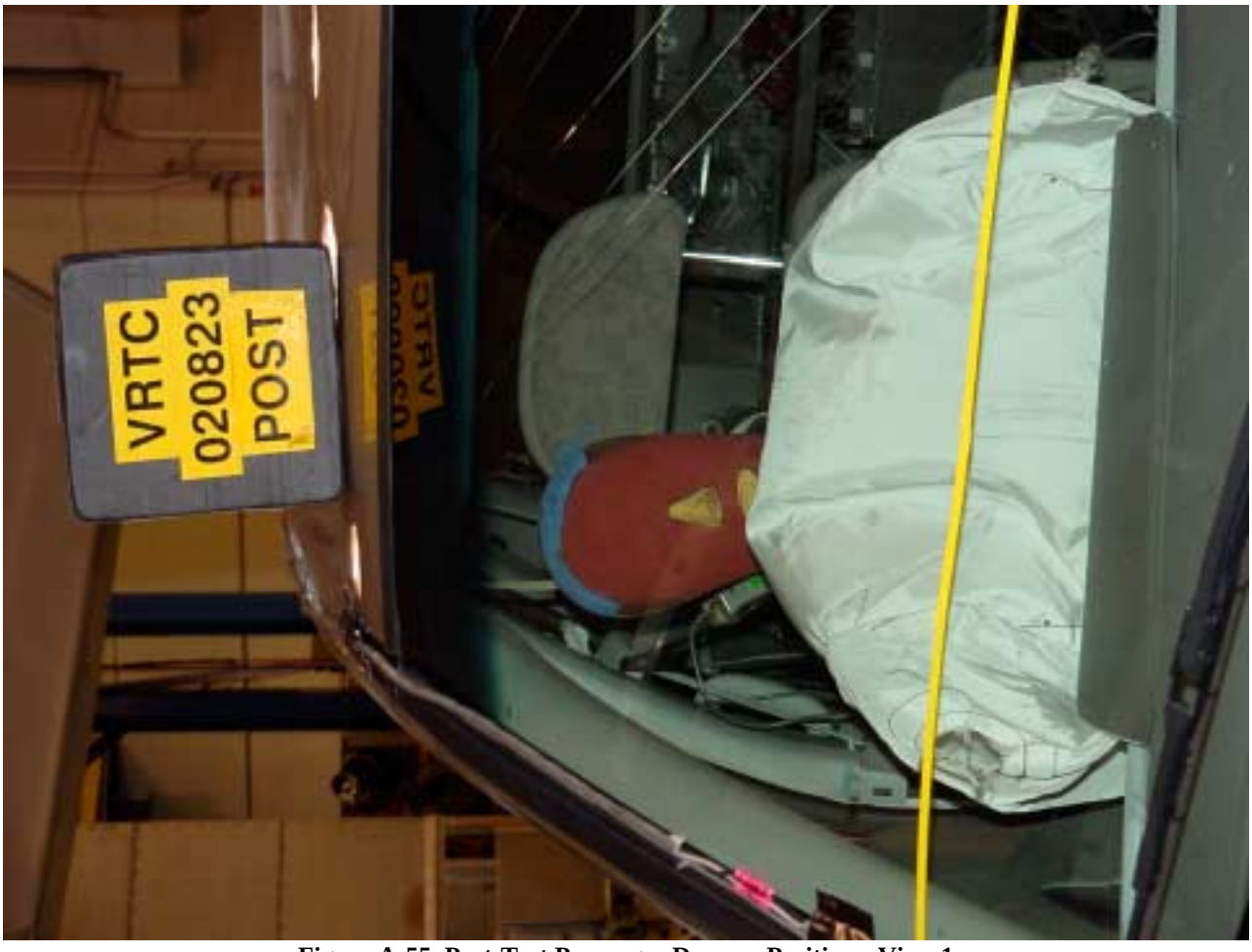

Figure A-55 Post-Test Passenger Dummy Position - View 1

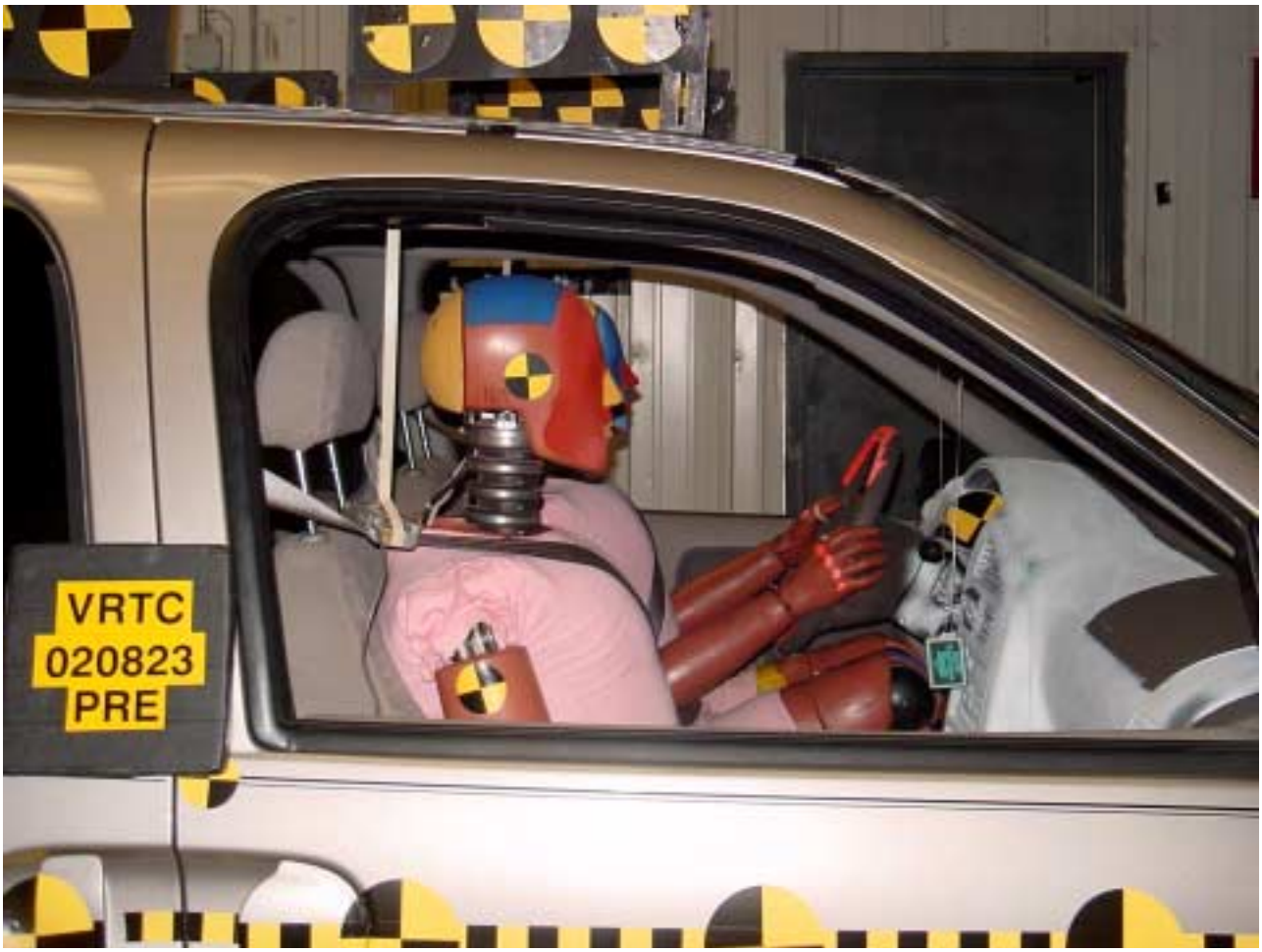

Figure A-56 Pre-Test Passenger Dummy Position - View 2

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

Figure A-58 Pre-Test Passenger Dummy & Vehicle Interior - View 1

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

Figure A-60 Pre-Test Passenger Dummy & Vehicle Interior - View 2

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

Figure A-62 Post-Test Driver Dummy Overall View

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Figure A-63 Post-Test Driver Dummy Head Contact - View 1

Figure A-64 Post-Test Driver Dummy Head Contact - View 2

Figure A-65 Post-Test Driver Dummy Head Contact - View 3

Intentionally Left Blank

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

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

Figure A-68 Pre-Test Driver Feet Position

Figure A-69 Post-Test Driver Feet Position

Figure A-70 Post-Test Driver Toeboard/Floorpan with Carpet Removed – View 1

Figure A-71 Post-Test Driver Toeboard/Floorpan with Carpet Removed – View 2

Figure A-72 Post-Test Passenger Dummy Overall View

Intentionally Left Blank

Figure A-73 Post-Test Passenger Dummy Head Contact - View 1

Figure A-74 Post-Test Passenger Dummy Head Contact - View 2

Figure A-75 Post-Test Passenger Dummy Head Contact - View 3

Intentionally Left Blank

Figure A-76 Post-Test Passenger Dummy Knee Contact - View 1

Figure A-77 Post-Test Passenger Dummy Knee Contact - View 2

Figure A-78 Pre-Test Passenger Feet Position

Figure A-79 Post-Test Passenger Feet Position

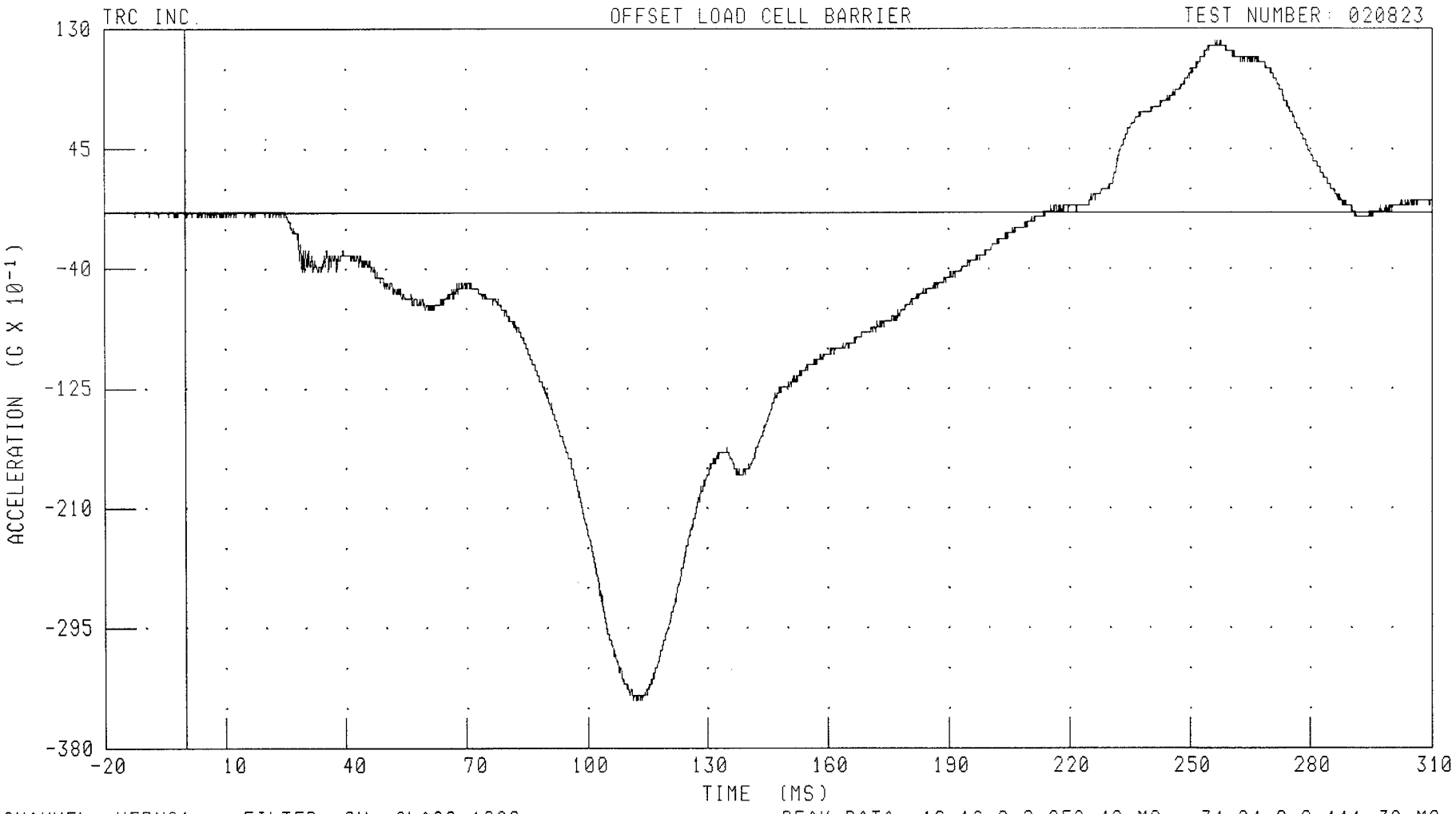
Figure A-80 Pre-Test Vehicle Certification Label View

Figure A-81 Pre-Test Tire Load Label View

Appendix B

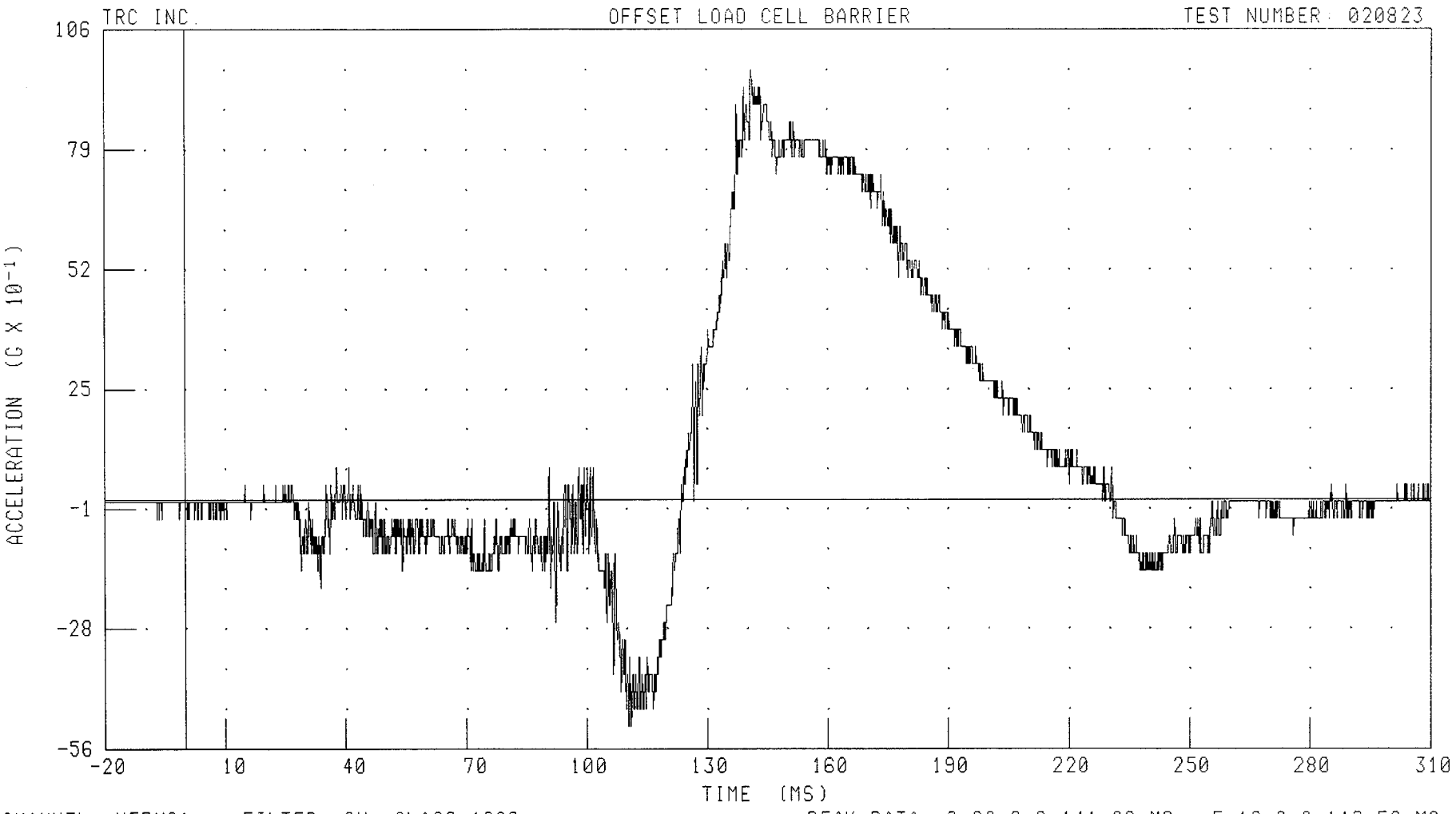
Data Plots

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER HEAD X-AXIS ACCELERATION



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000 PEAK DATA: 12.19 G @ 256.40 MS; -34.64 G @ 111.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER HEAD Y-AXIS ACCELERATION

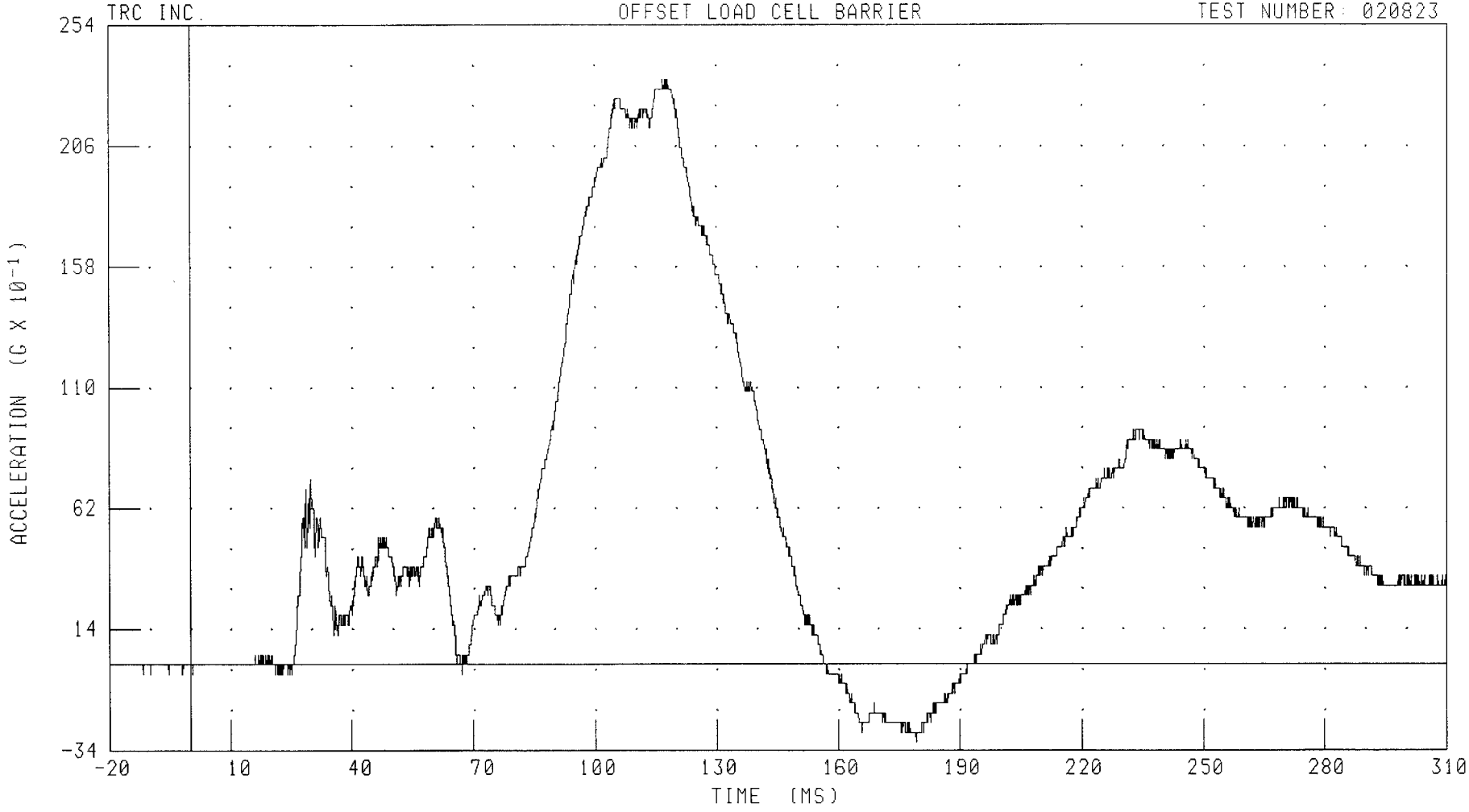


CHANNEL: HEDYG1 FILTER: CH. CLASS 1000 PEAK DATA: 9.68 G @ 141.20 MS; -5.10 G @ 110.56 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER HEAD Z-AXIS ACCELERATION

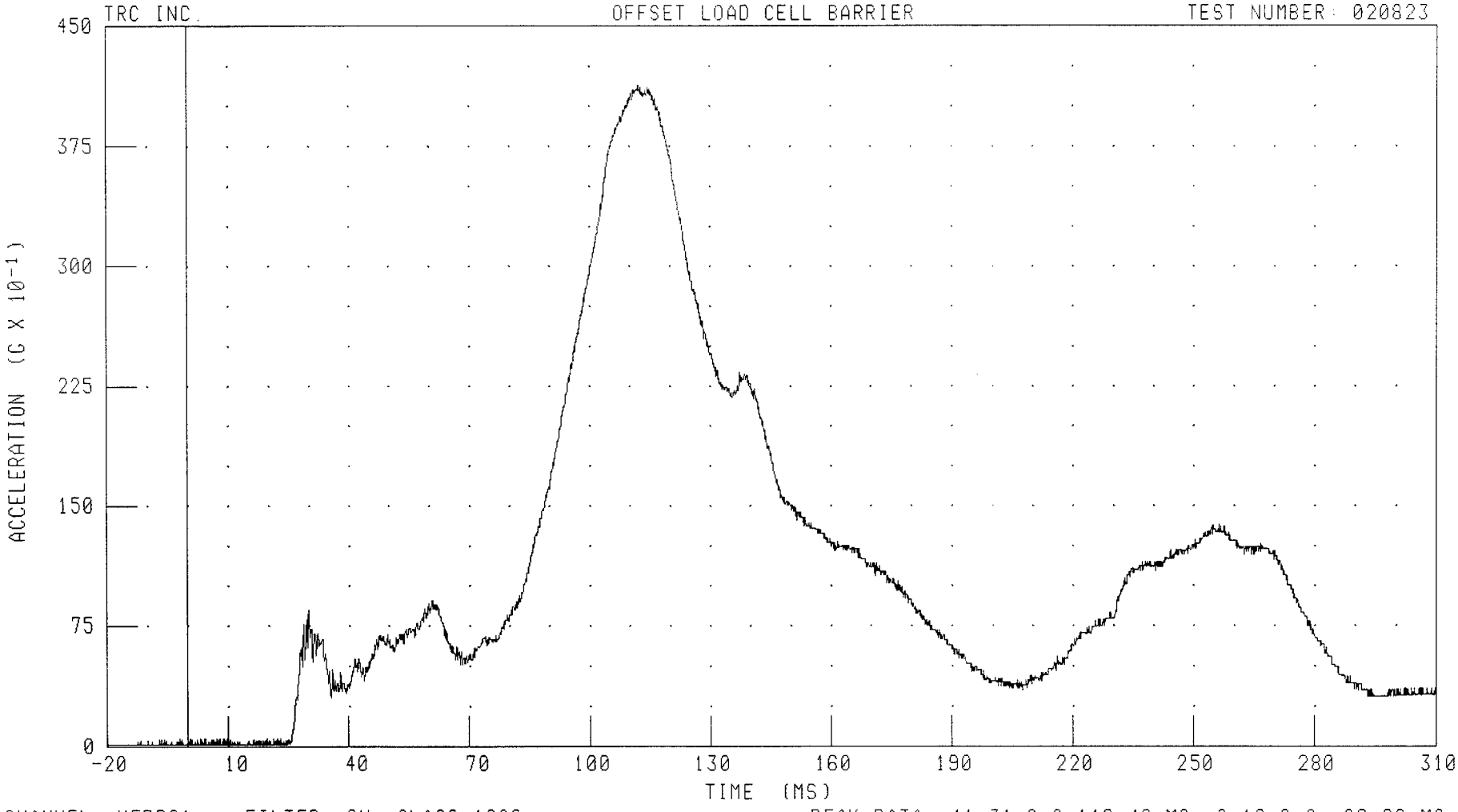
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000 PEAK DATA: 23.25 G @ 116.96 MS; -3.09 G @ 179.28 MS

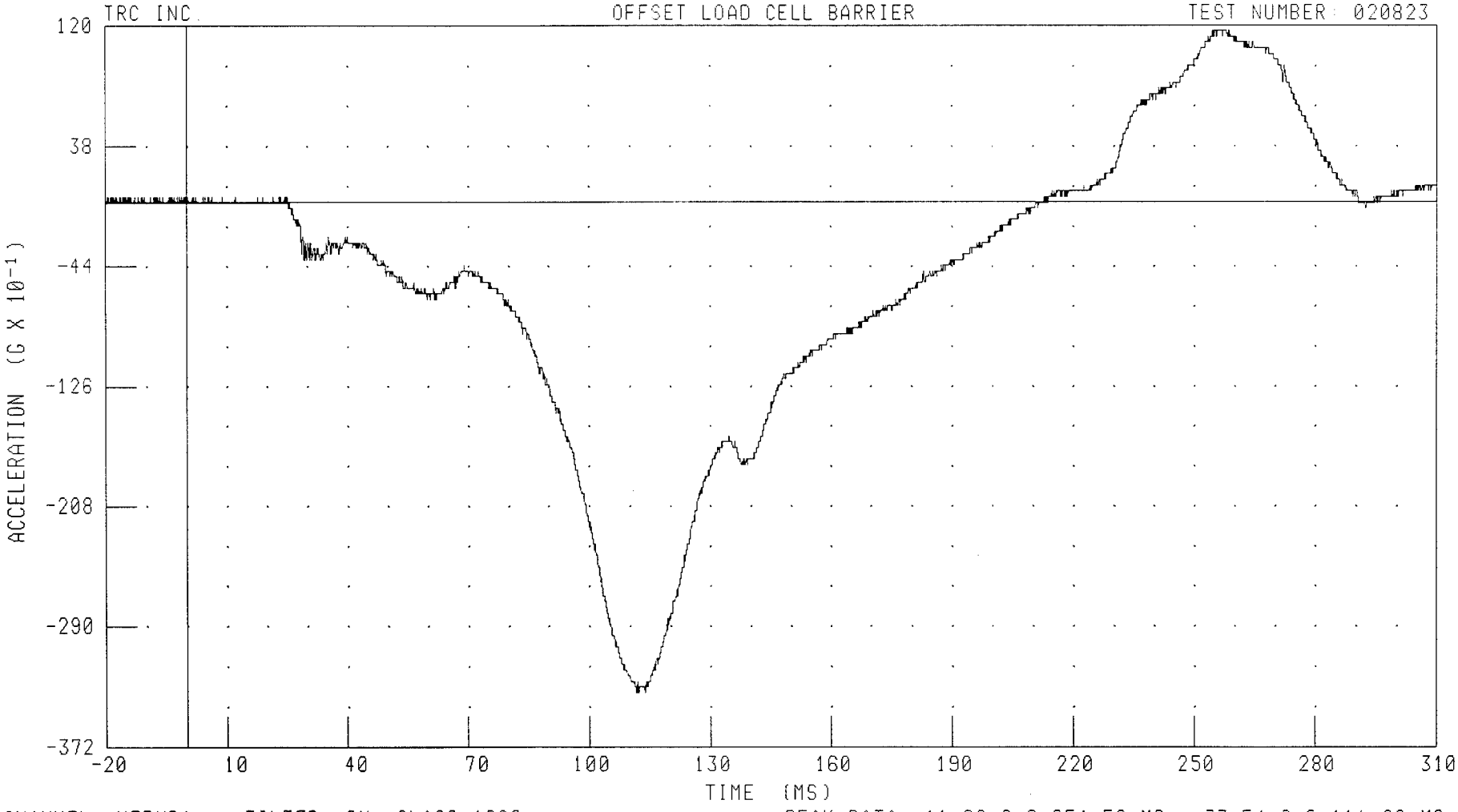
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER HEAD RESULTANT ACCELERATION



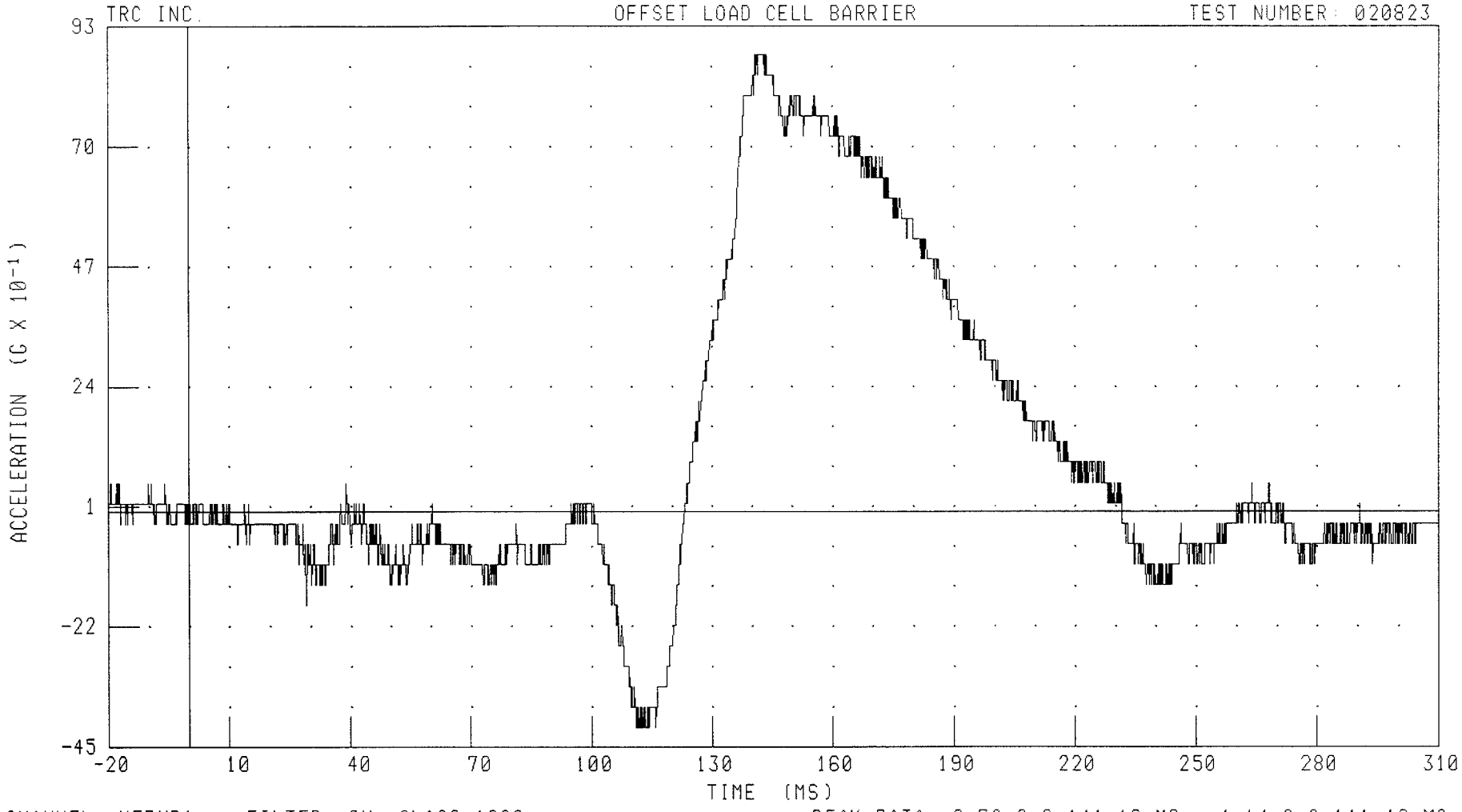
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000 PEAK DATA: 41.31 G @ 112.40 MS; 0.10 G @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER HEAD X-AXIS ACCELERATION REDUNDANT



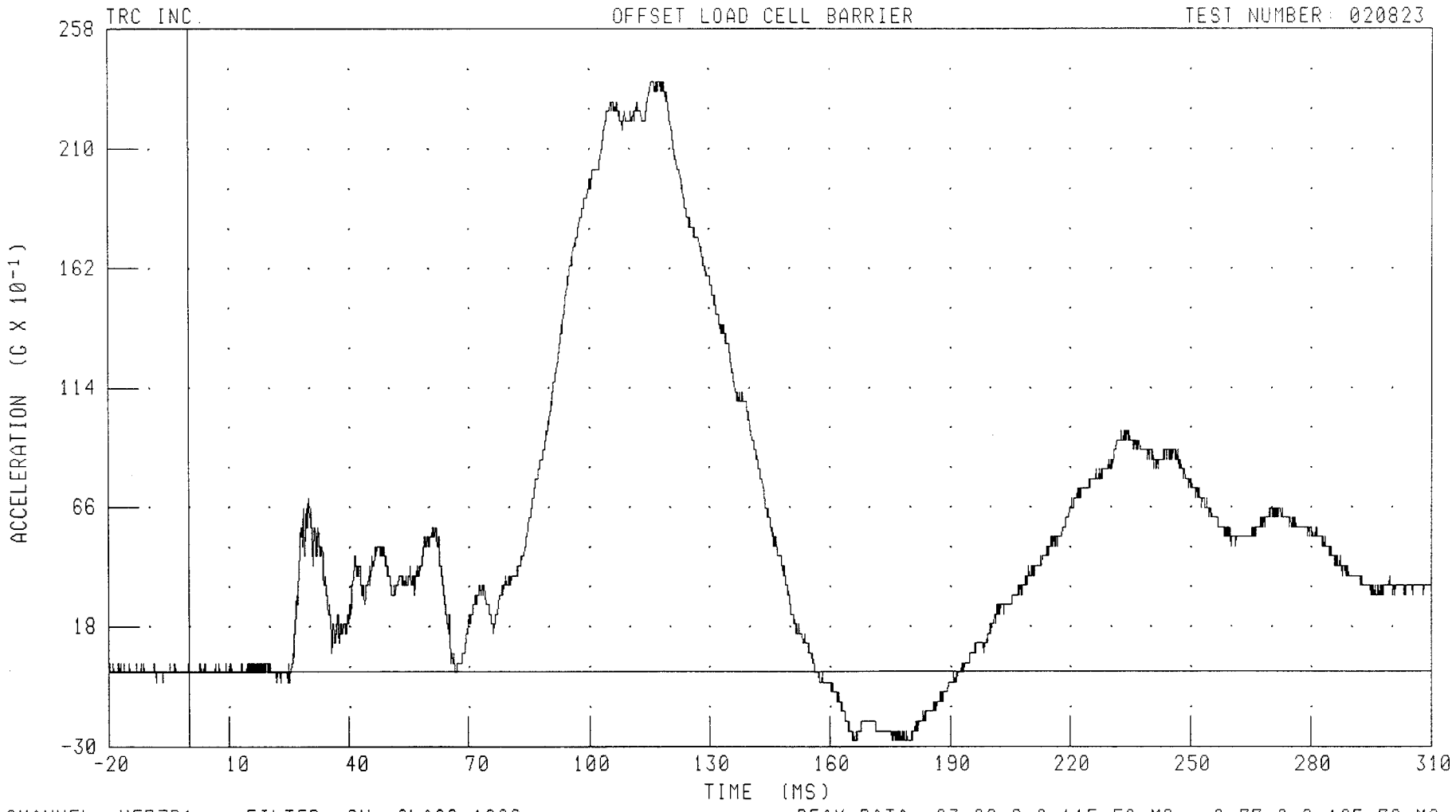
CHANNEL: HEDXR1 FILTER: CH. CLASS 1000 PEAK DATA: 11.66 G @ 254.56 MS; -33.54 G @ 111.60 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER HEAD Y-AXIS ACCELERATION REDUNDANT



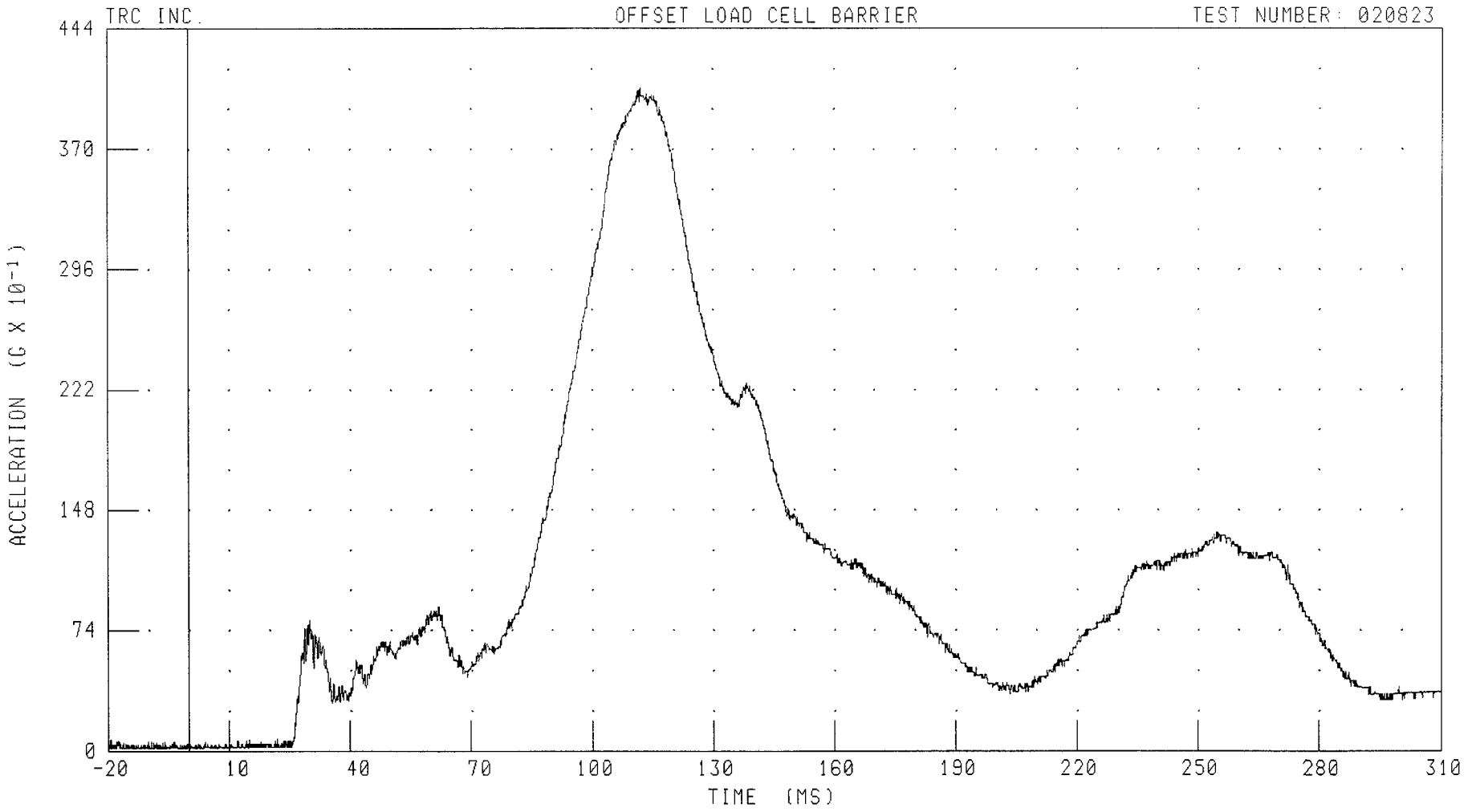
CHANNEL: HEDYR1 FILTER: CH. CLASS 1000 PEAK DATA: 8.76 G @ 141.12 MS; -4.14 G @ 111.12 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER HEAD Z-AXIS ACCELERATION REDUNDANT



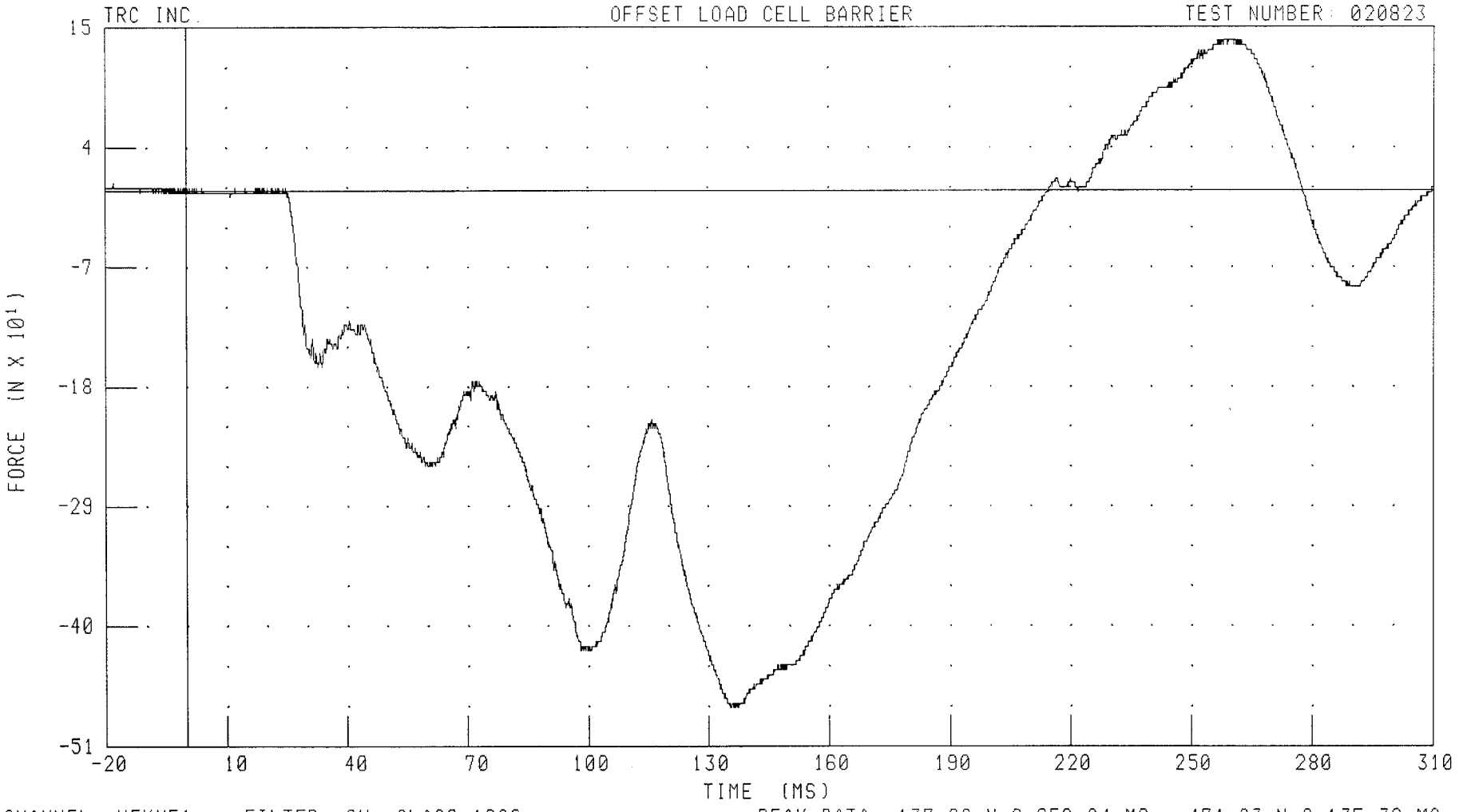
CHANNEL: HEDZR1 FILTER: CH. CLASS 1000 PEAK DATA: 23.68 G @ 115.52 MS; -2.77 G @ 165.76 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER HEAD RESULTANT ACCELERATION REDUNDANT



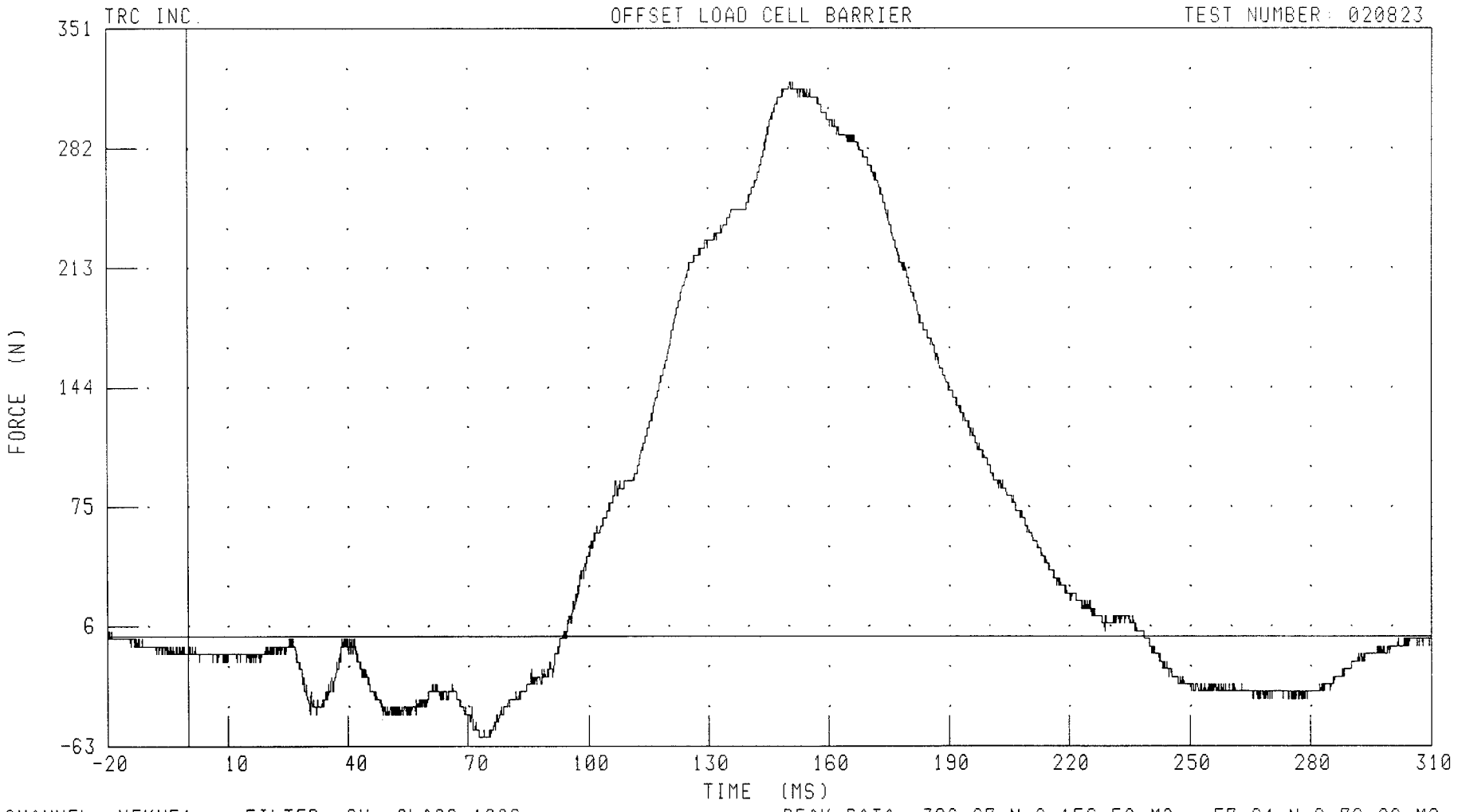
CHANNEL: HEDRR1 FILTER: CH. CLASS 1000 PEAK DATA: 40.78 G @ 112.24 MS; 0.17 G @ -19.84 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NECK X-AXIS SHEAR FORCE



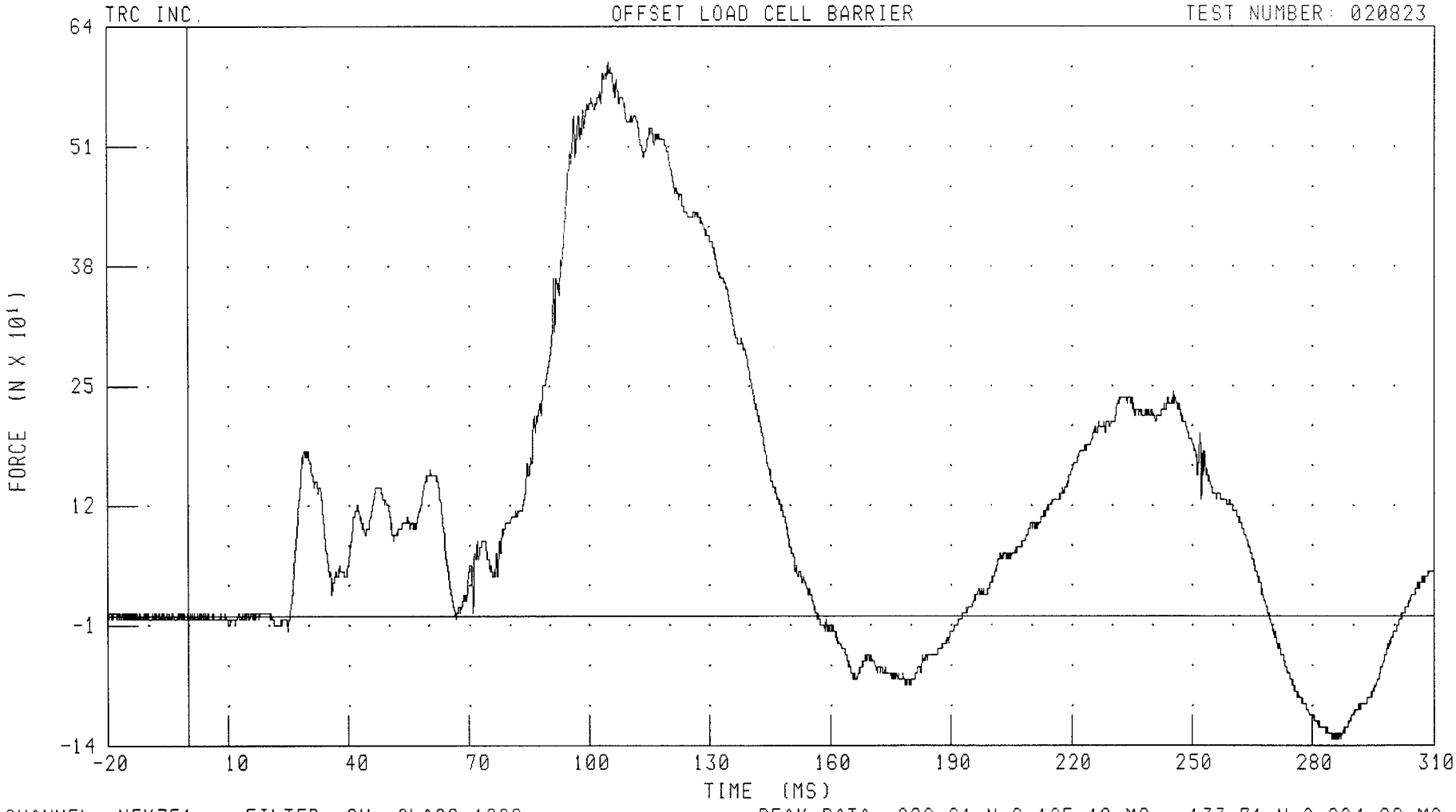
CHANNEL: NEKXF1 FILTER: CH. CLASS 1000 PEAK DATA: 137.90 N @ 256.64 MS; -474.93 N @ 135.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NECK Y-AXIS SHEAR FORCE



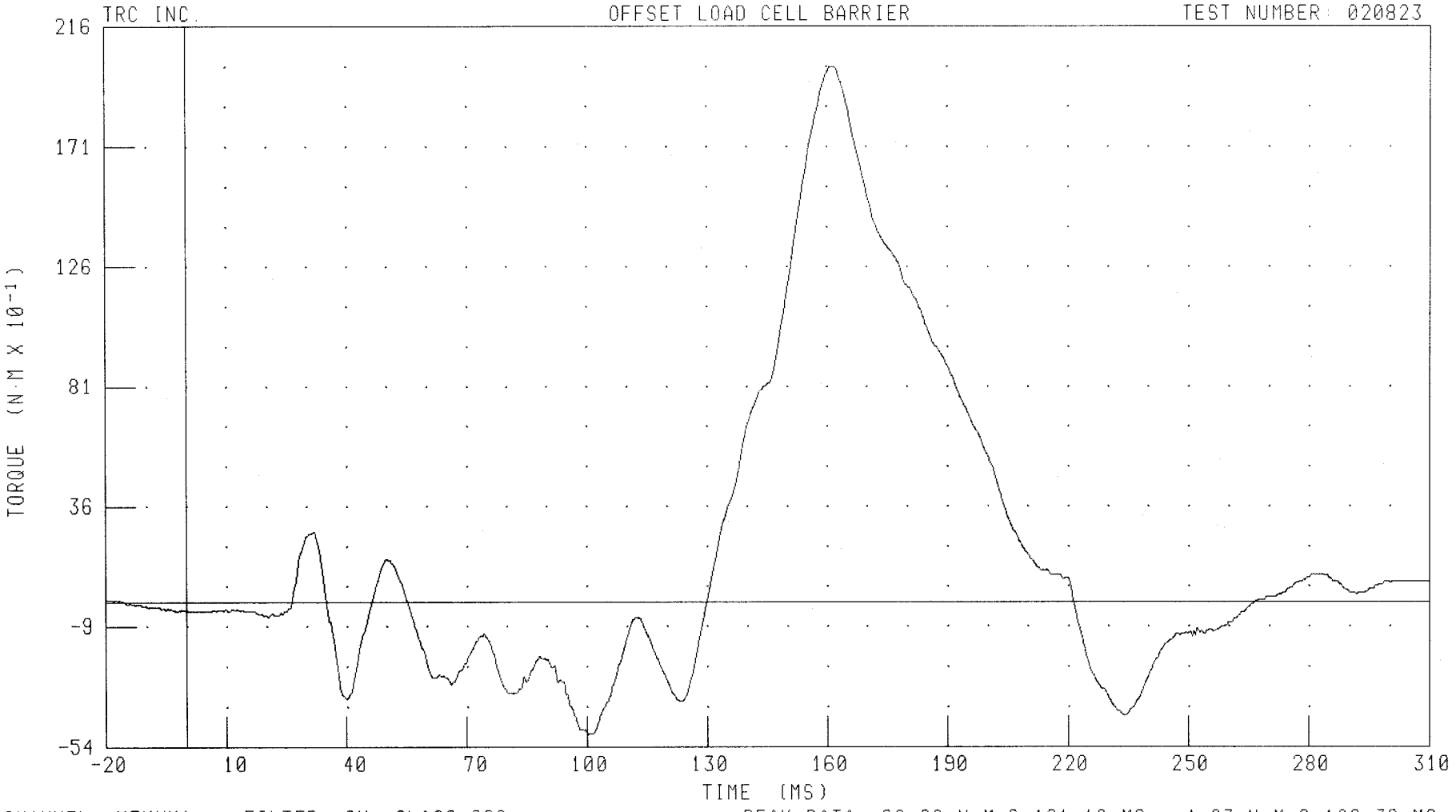
CHANNEL: NEKYF1 FILTER: CH. CLASS 1000 PEAK DATA: 320.27 N @ 150.56 MS; -57.84 N @ 72.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NECK Z-AXIS AXIAL FORCE



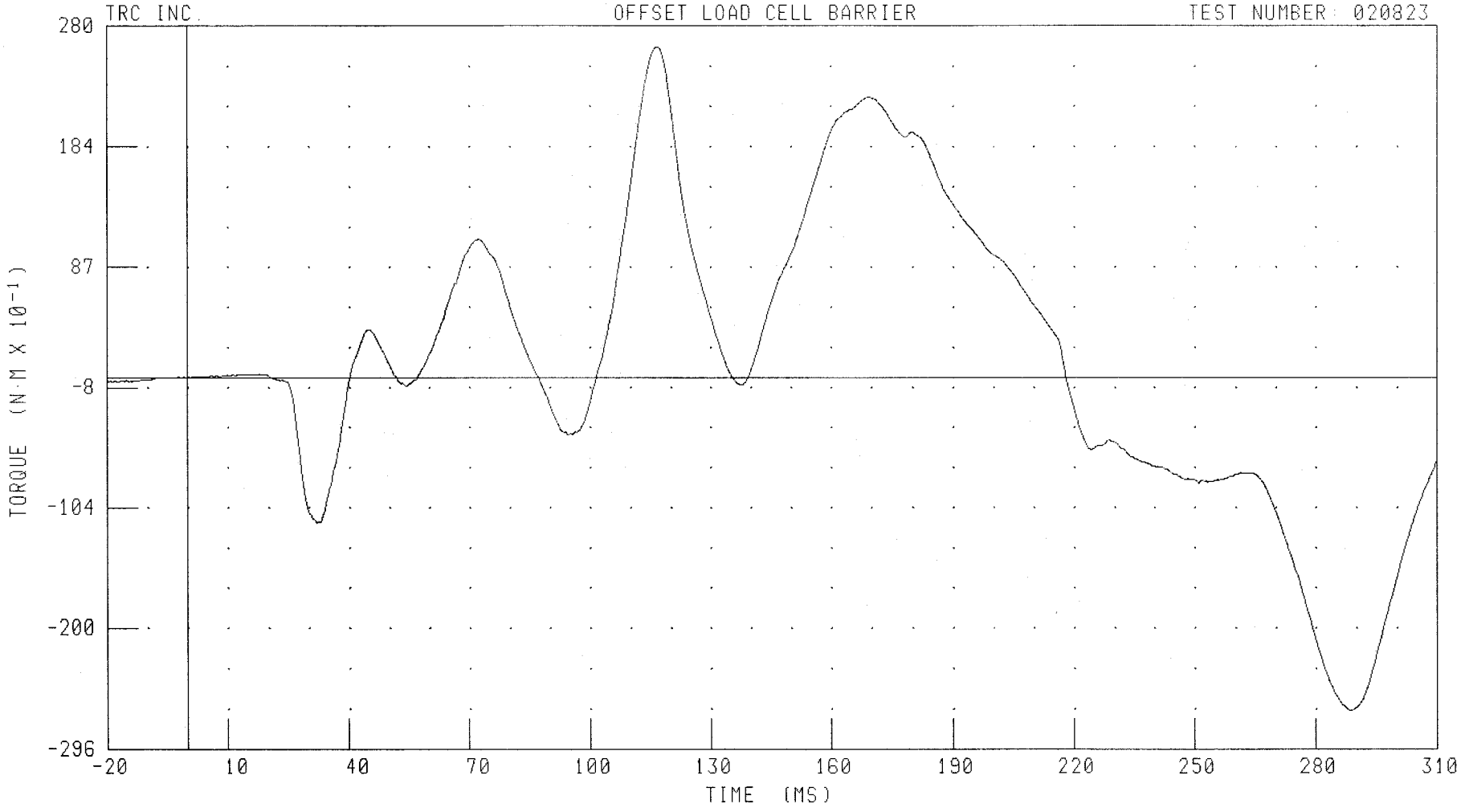
CHANNEL: NEKZF1 FILTER: CH. CLASS 1000 PEAK DATA: 602.21 N @ 105.12 MS; -133.71 N @ 284.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NECK MOMENT ABOUT X AXIS



CHANNEL: NEKXM1 FILTER: CH. CLASS 600 PEAK DATA: 20.09 N·M @ 161.12 MS; -4.93 N·M @ 100.32 MS

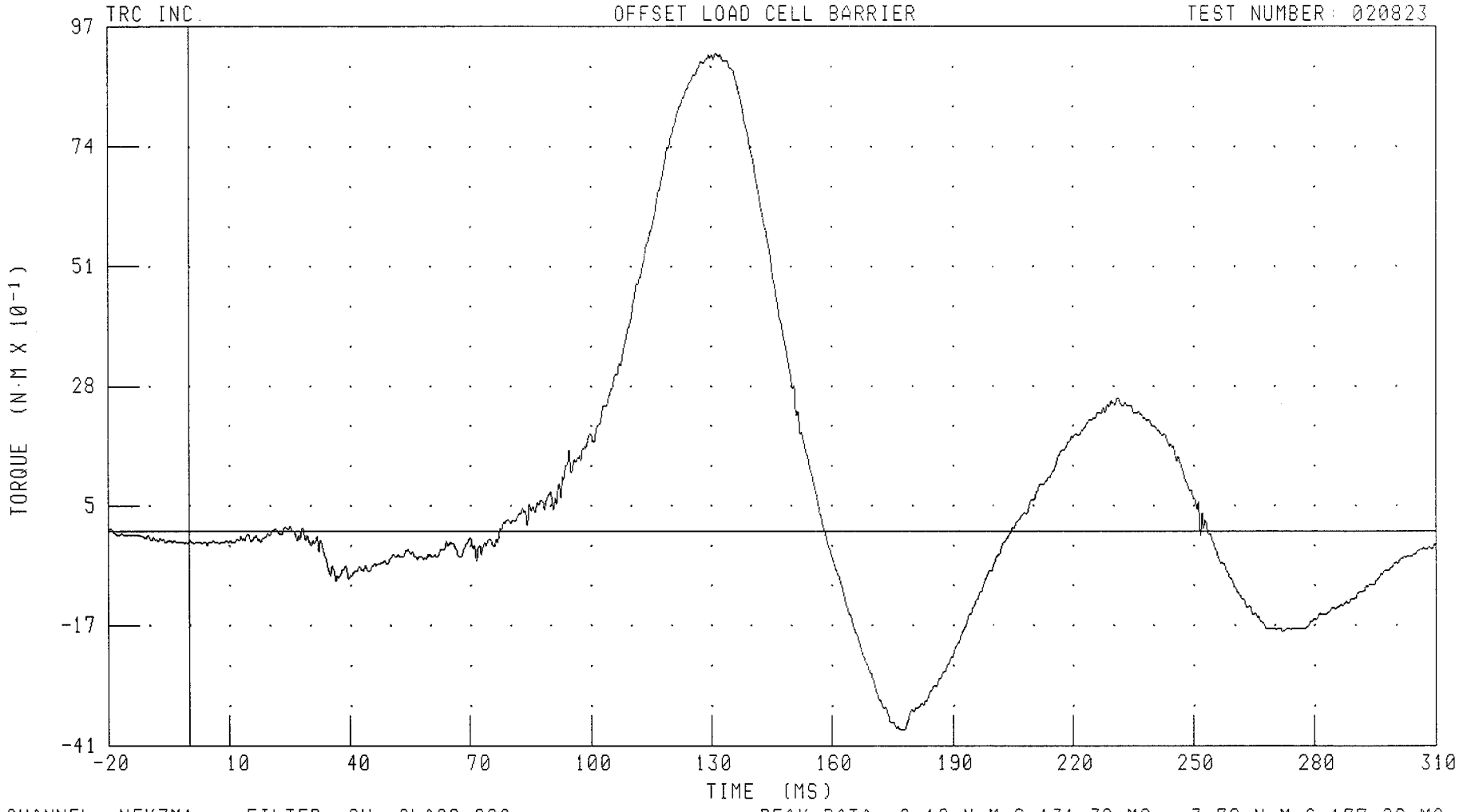
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NECK MOMENT ABOUT Y AXIS



CHANNEL: NEKYM1 FILTER: CH. CLASS 600 PEAK DATA: 26.31 N-M @ 116.96 MS, -26.52 N-M @ 288.96 MS

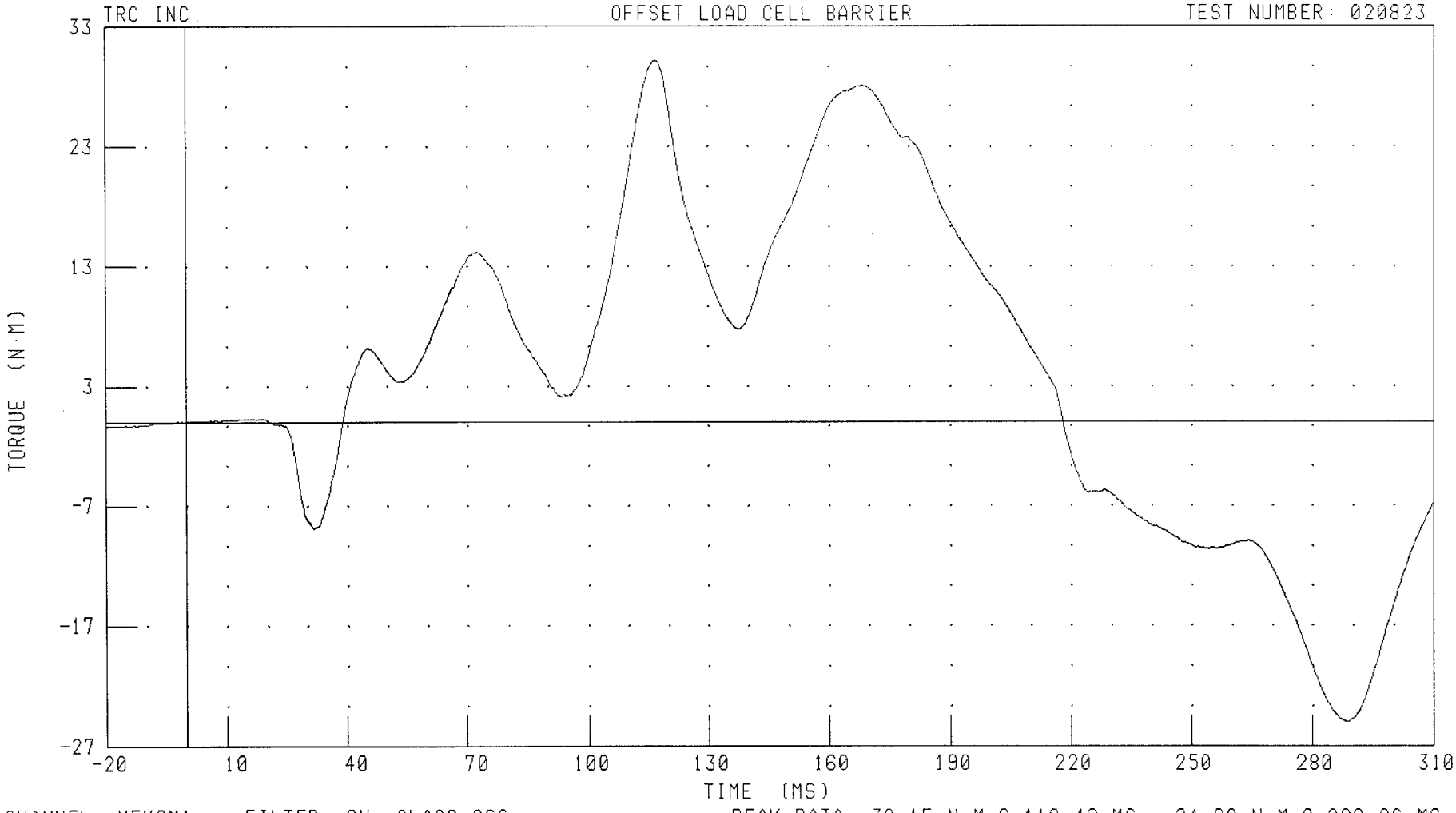
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER NECK MOMENT ABOUT Z AXIS



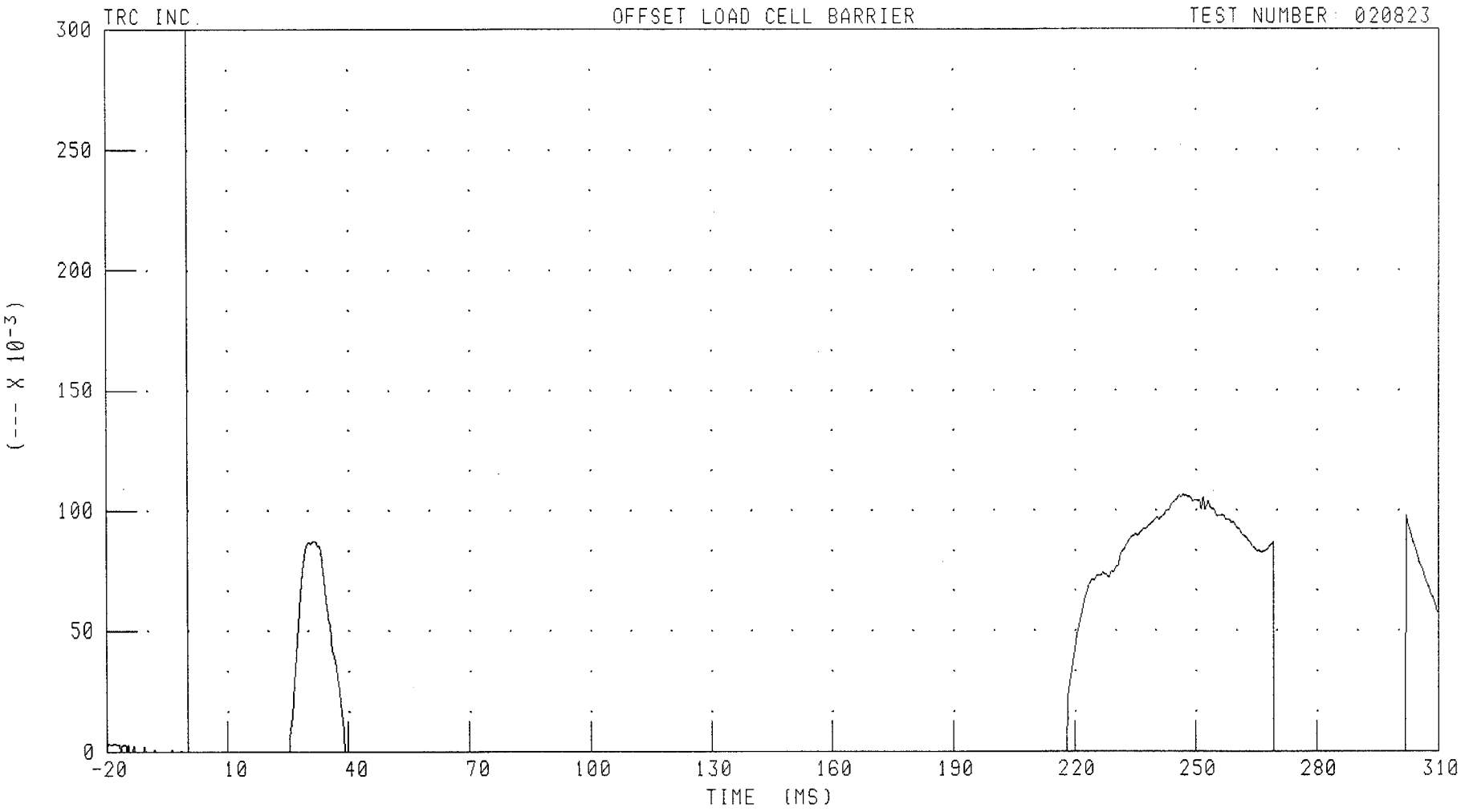
CHANNEL: NEKZM1 FILTER: CH. CLASS 600 PEAK DATA: 9.18 N-M @ 131.36 MS; -3.79 N-M @ 177.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS



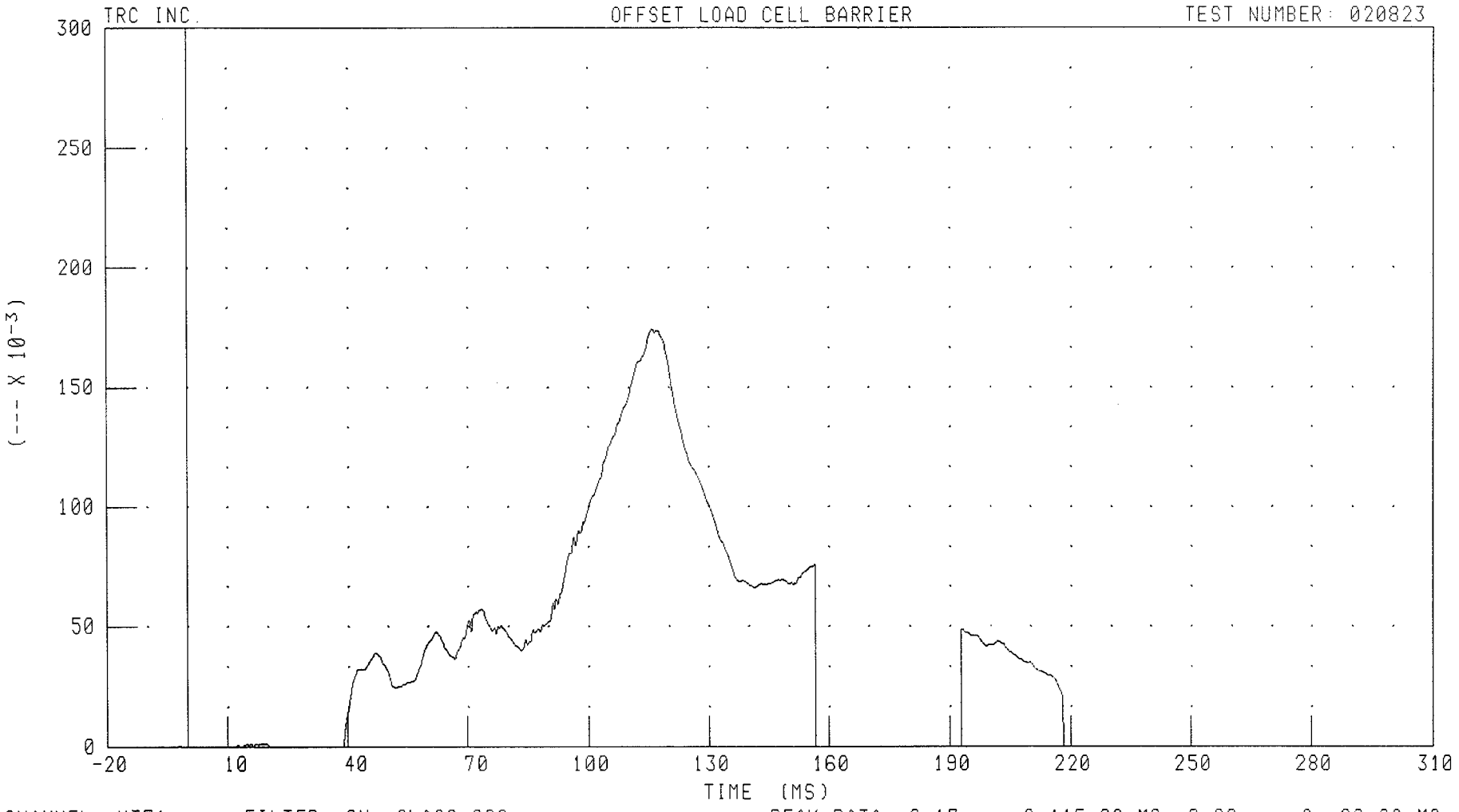
CHANNEL: NEKOM1 FILTER: CH. CLASS 600 PEAK DATA: 30.15 N-M @ 116.48 MS; -24.98 N-M @ 288.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NIJ TENSION/EXTENSION



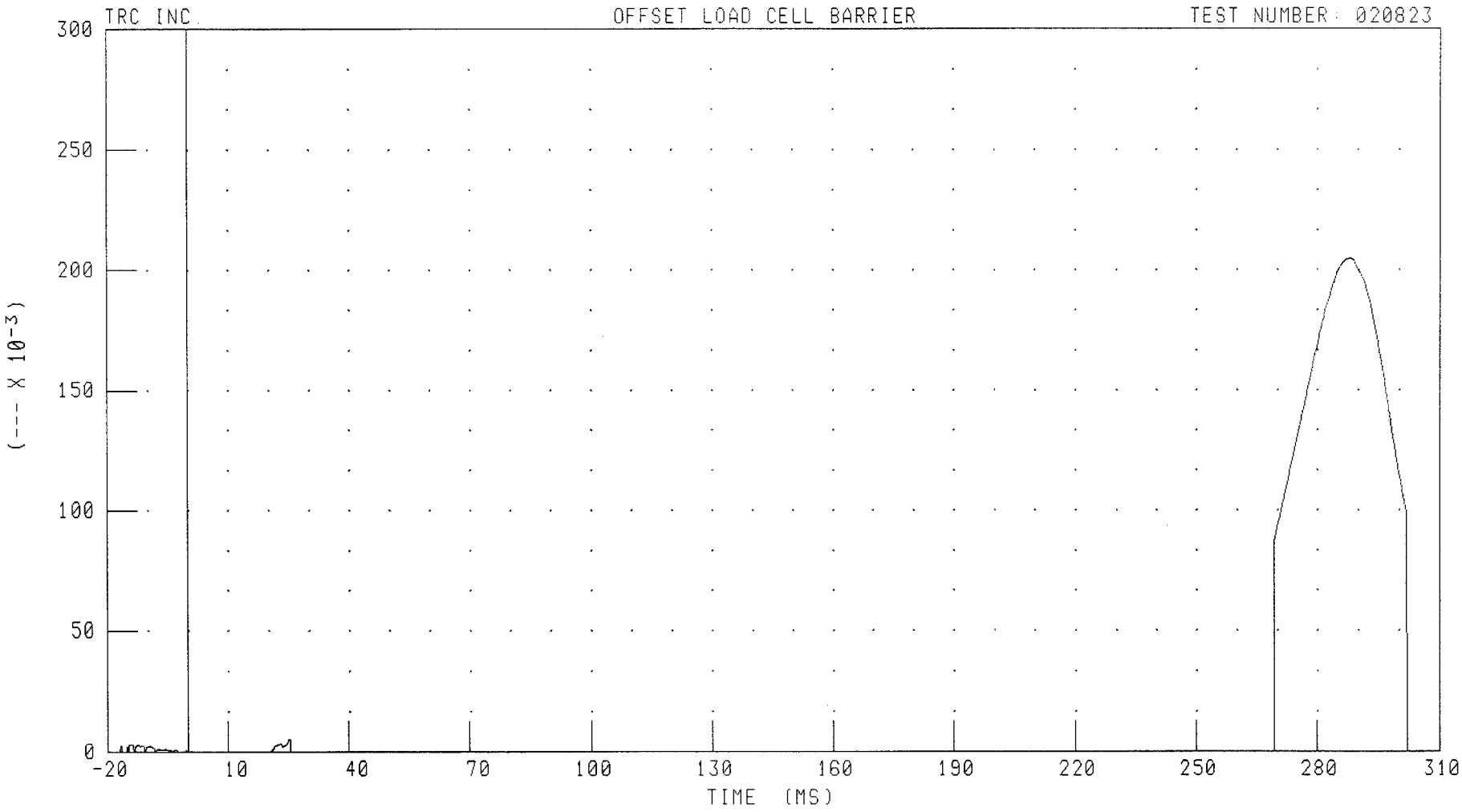
CHANNEL: NTE1 FILTER: CH. CLASS 600 PEAK DATA: 0.11 --- @ 246.80 MS; 0.00 --- @ -16.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NIJ TENSION/FLEXION



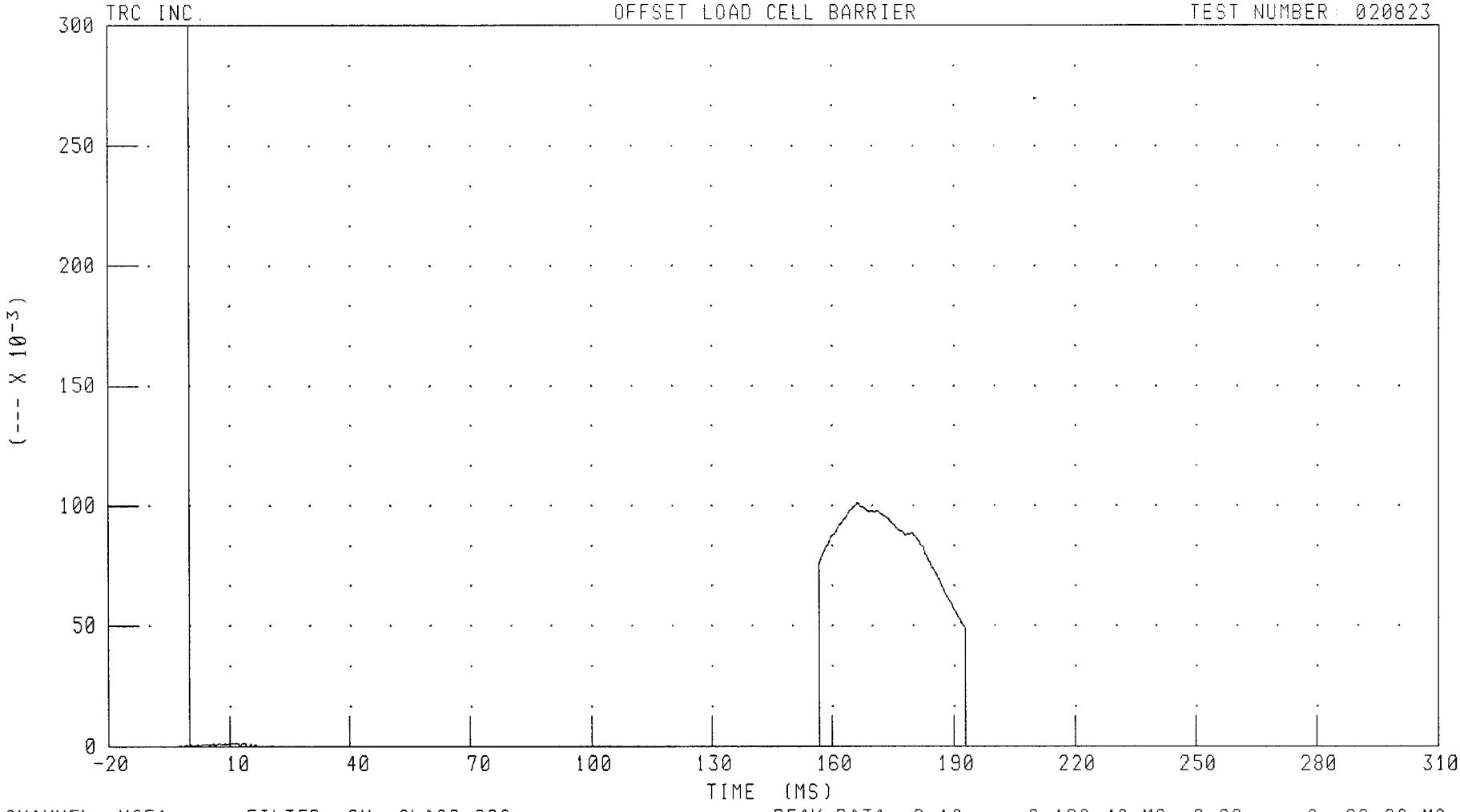
CHANNEL: NTF1 FILTER: CH. CLASS 600 PEAK DATA: 0.17 --- @ 115.92 MS; 0.00 --- @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NIJ COMPRESSION/EXTENSION



CHANNEL: NCE1 FILTER: CH. CLASS 600 PEAK DATA: 0.20 --- @ 288.00 MS; 0.00 --- @ -20.00 MS

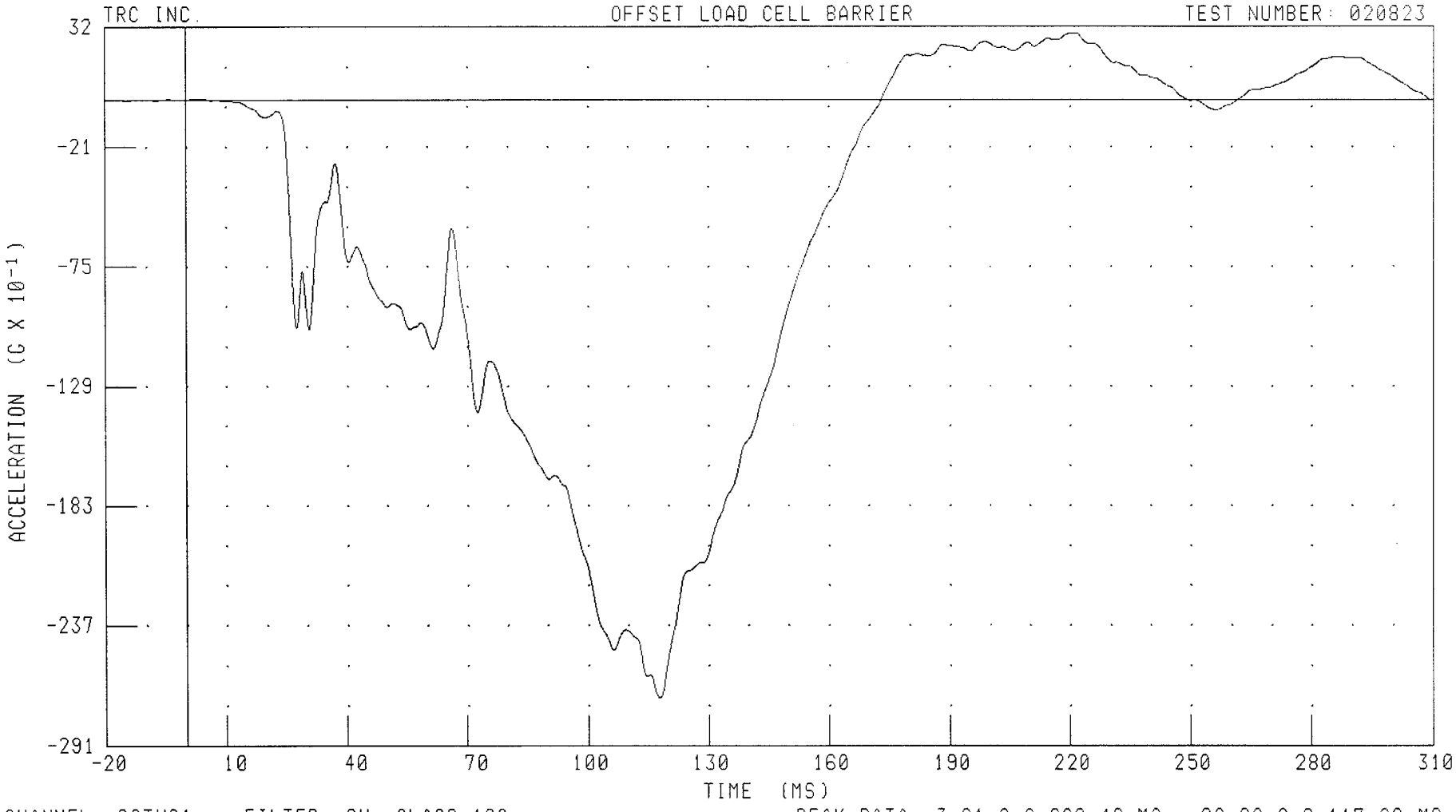
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER NIJ COMPRESSION/FLEXION



CHANNEL: NCF1 FILTER: CH. CLASS 600 PEAK DATA: 0.10 --- @ 166.48 MS; 0.00 --- @ -20.00 MS

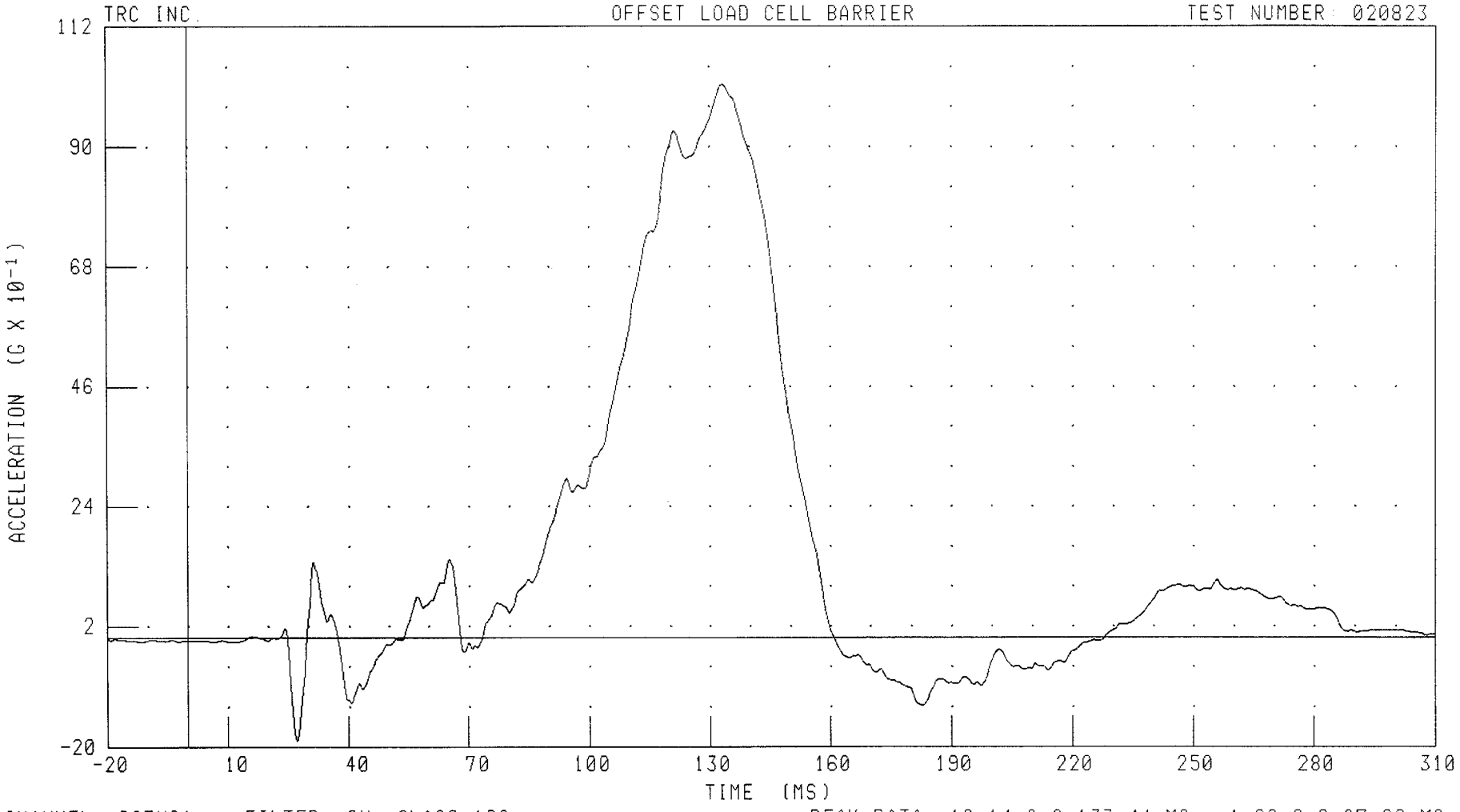
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER CHEST X-AXIS ACCELERATION



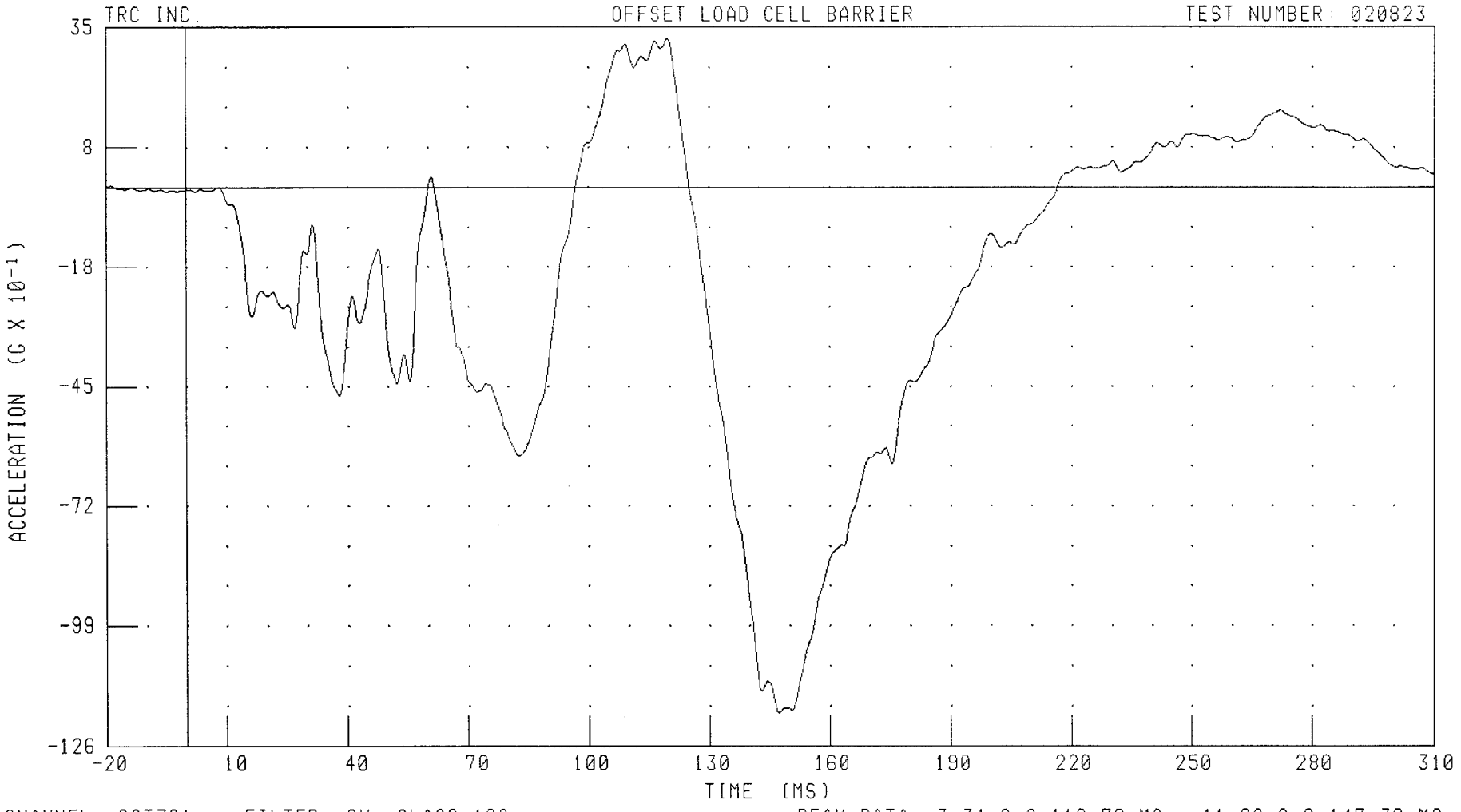
CHANNEL: CSTXG1 FILTER: CH. CLASS 180 PEAK DATA: 3.01 G @ 220.40 MS; -26.96 G @ 117.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER CHEST Y-AXIS ACCELERATION



CHANNEL: CSTYG1 FILTER: CH. CLASS 180 PEAK DATA: 10.14 G @ 133.44 MS; -1.89 G @ 27.28 MS

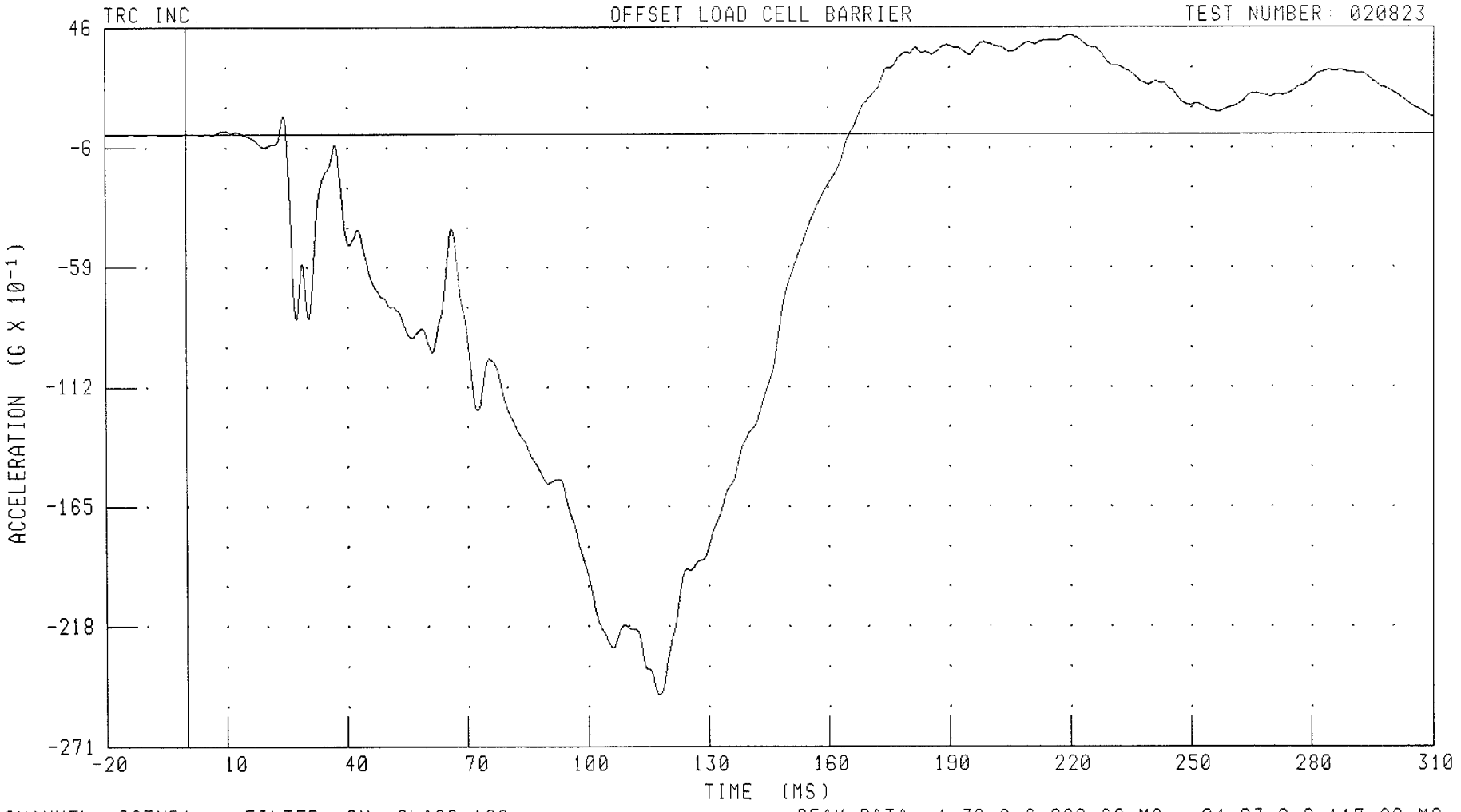
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER CHEST Z-AXIS ACCELERATION



CHANNEL: CSTZG1 FILTER: CH. CLASS 180 PEAK DATA: 3.34 G @ 119.76 MS; -11.86 G @ 147.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

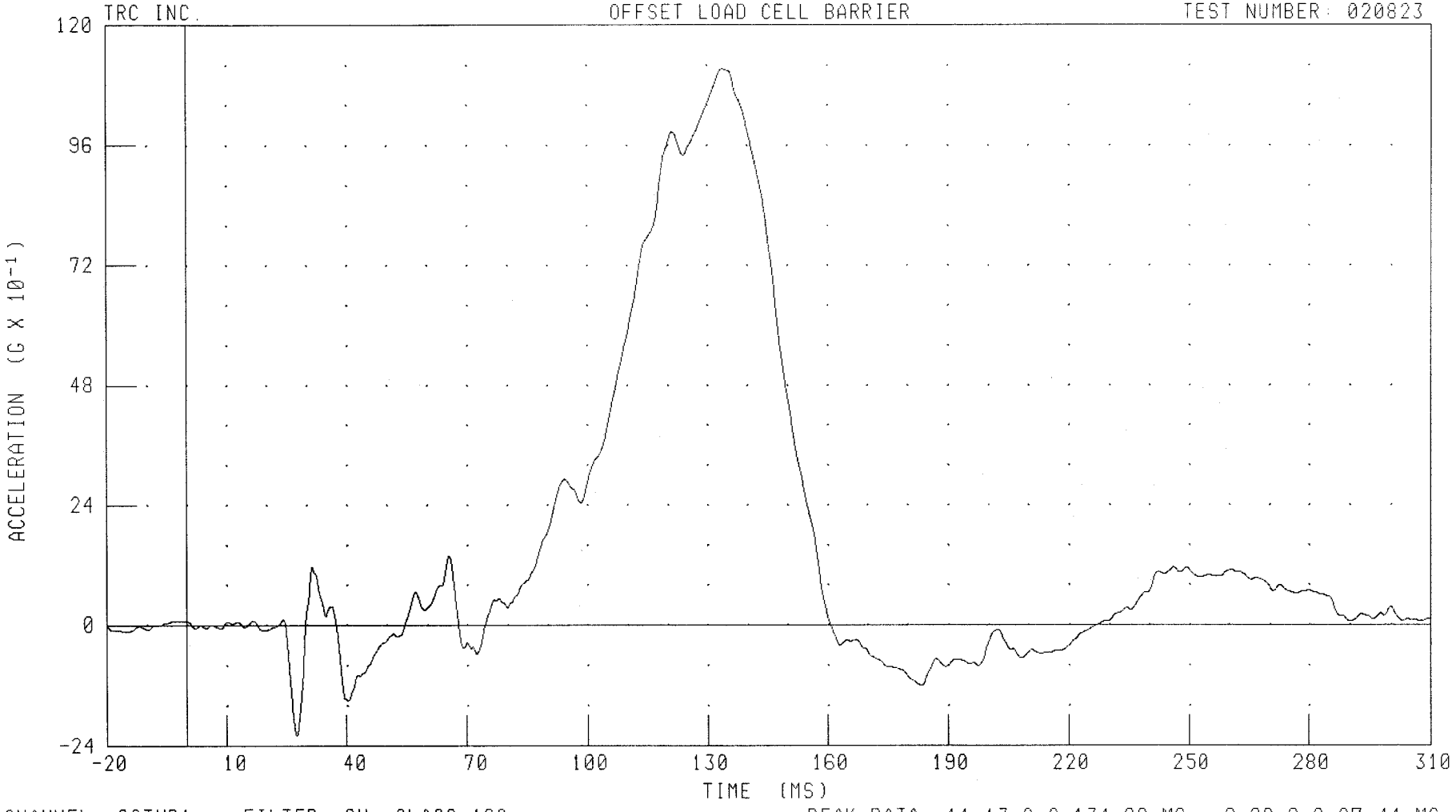
DRIVER CHEST X-AXIS REDUNDANT ACCELERATION



CHANNEL: CSTXR1 FILTER: CH. CLASS 180 PEAK DATA: 4.36 G @ 220.00 MS; -24.83 G @ 117.68 MS

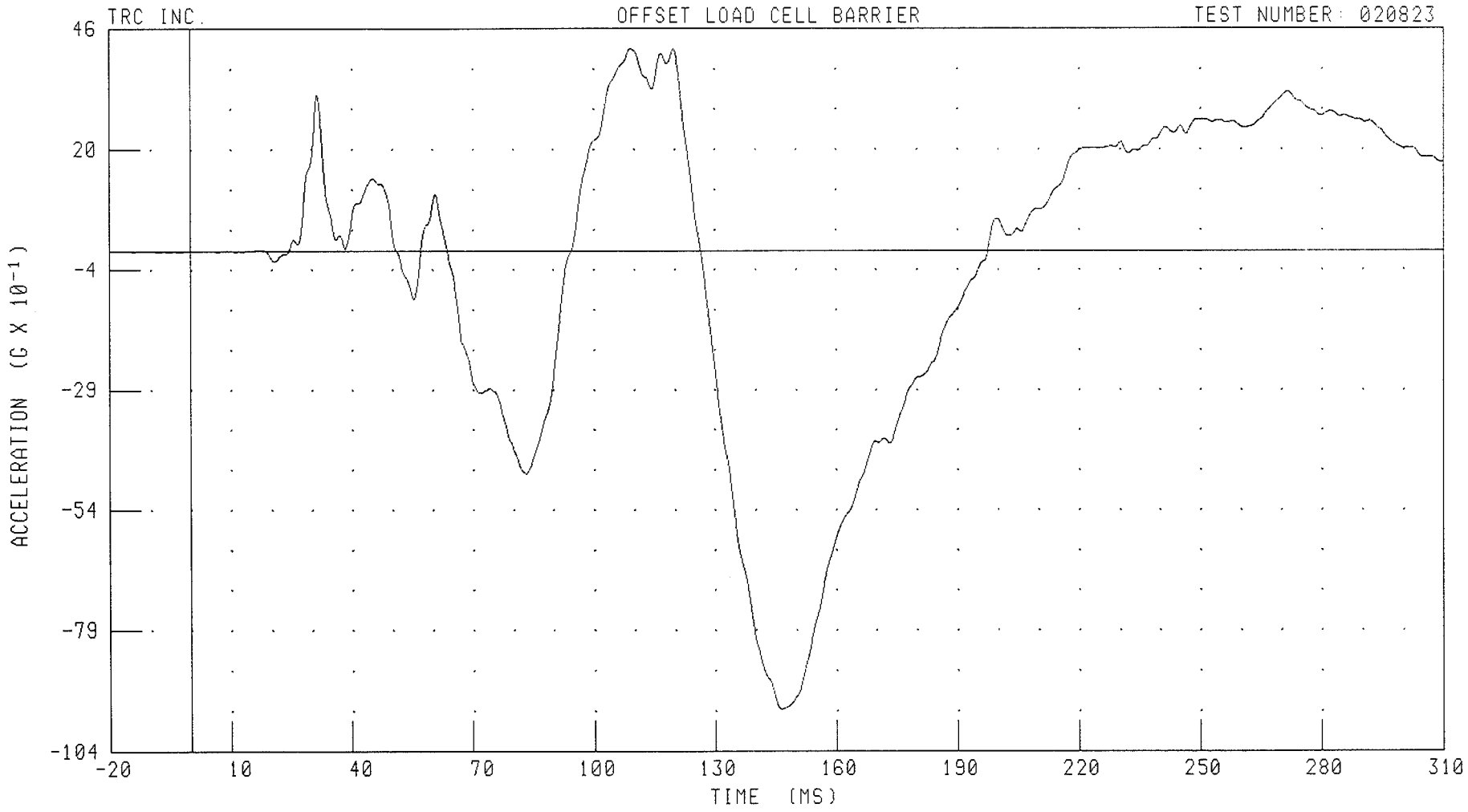
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER CHEST Y-AXIS REDUNDANT ACCELERATION



CHANNEL: CSTYR1 FILTER: CH. CLASS 180 PEAK DATA: 11.13 G @ 134.00 MS, -2.20 G @ 27.44 MS

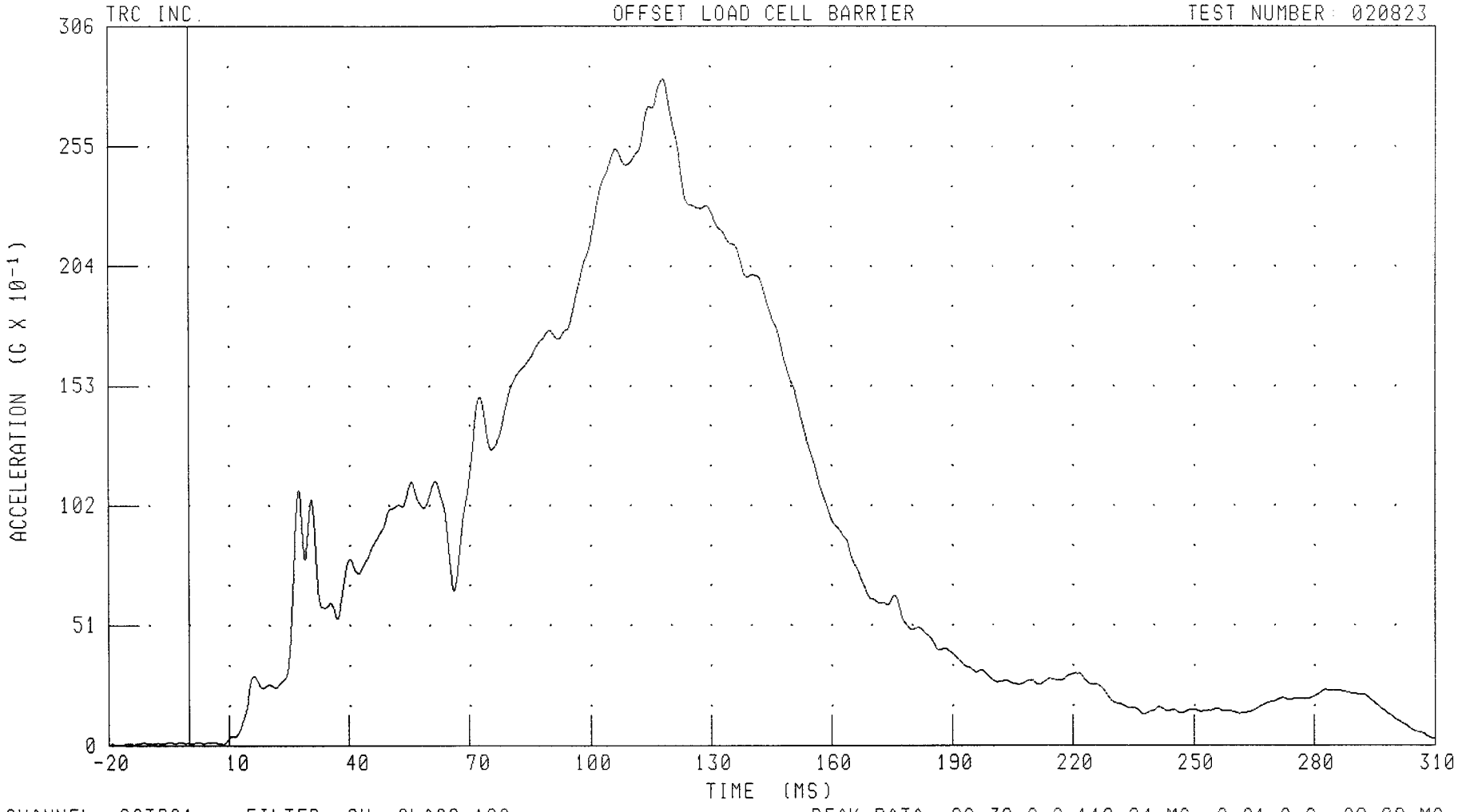
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER CHEST Z-AXIS REDUNDANT ACCELERATION



CHANNEL: CSTZR1 FILTER: CH. CLASS 180 PEAK DATA: 4.19 G @ 109.28 MS, -9.53 G @ 146.32 MS

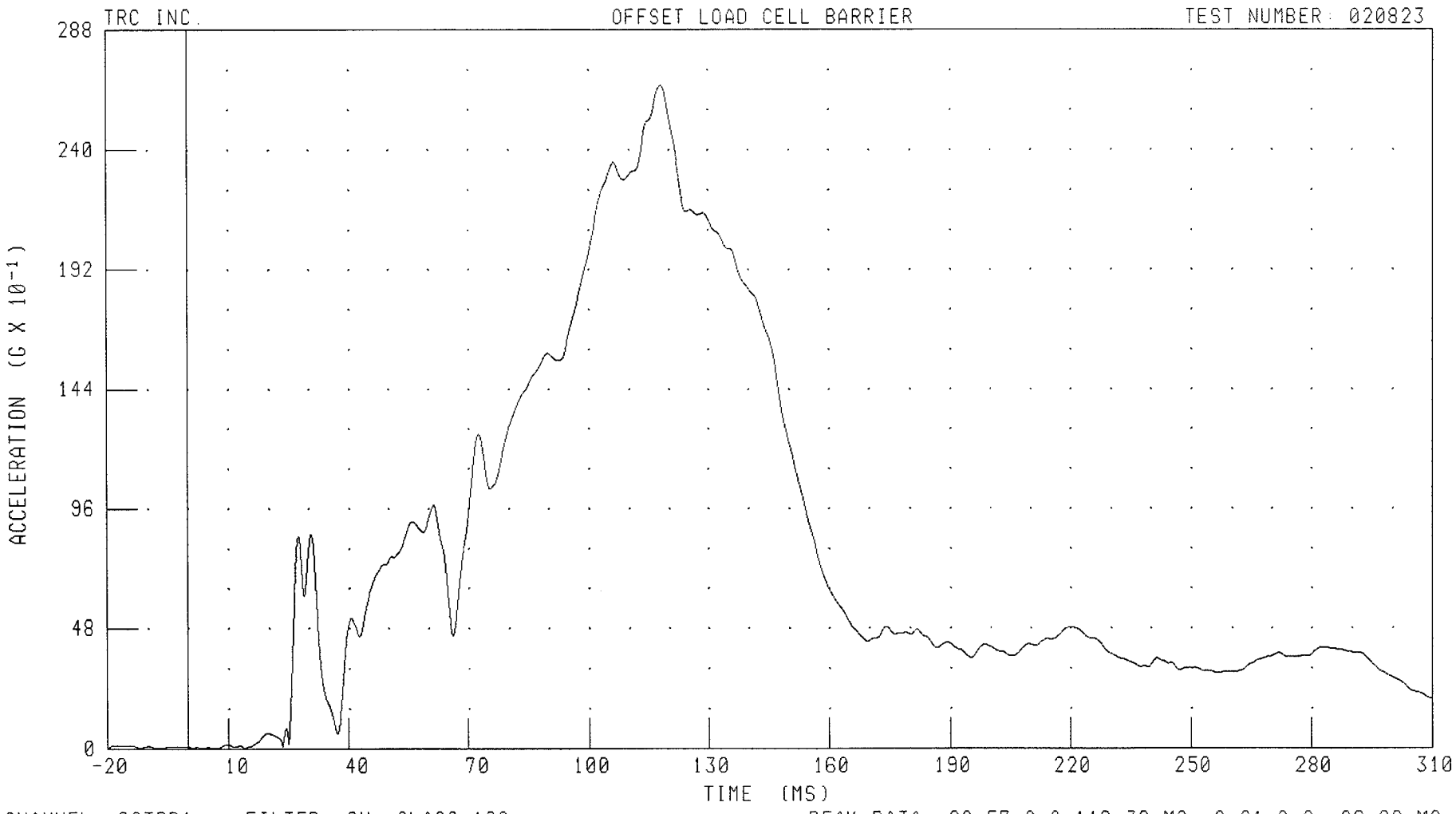
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER CHEST RESULTANT ACCELERATION



CHANNEL: CSTRG1 FILTER: CH. CLASS 180 PEAK DATA: 28.36 G @ 118.24 MS, 0.01 G @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER CHEST REDUNDANT RESULTANT ACCELERATION

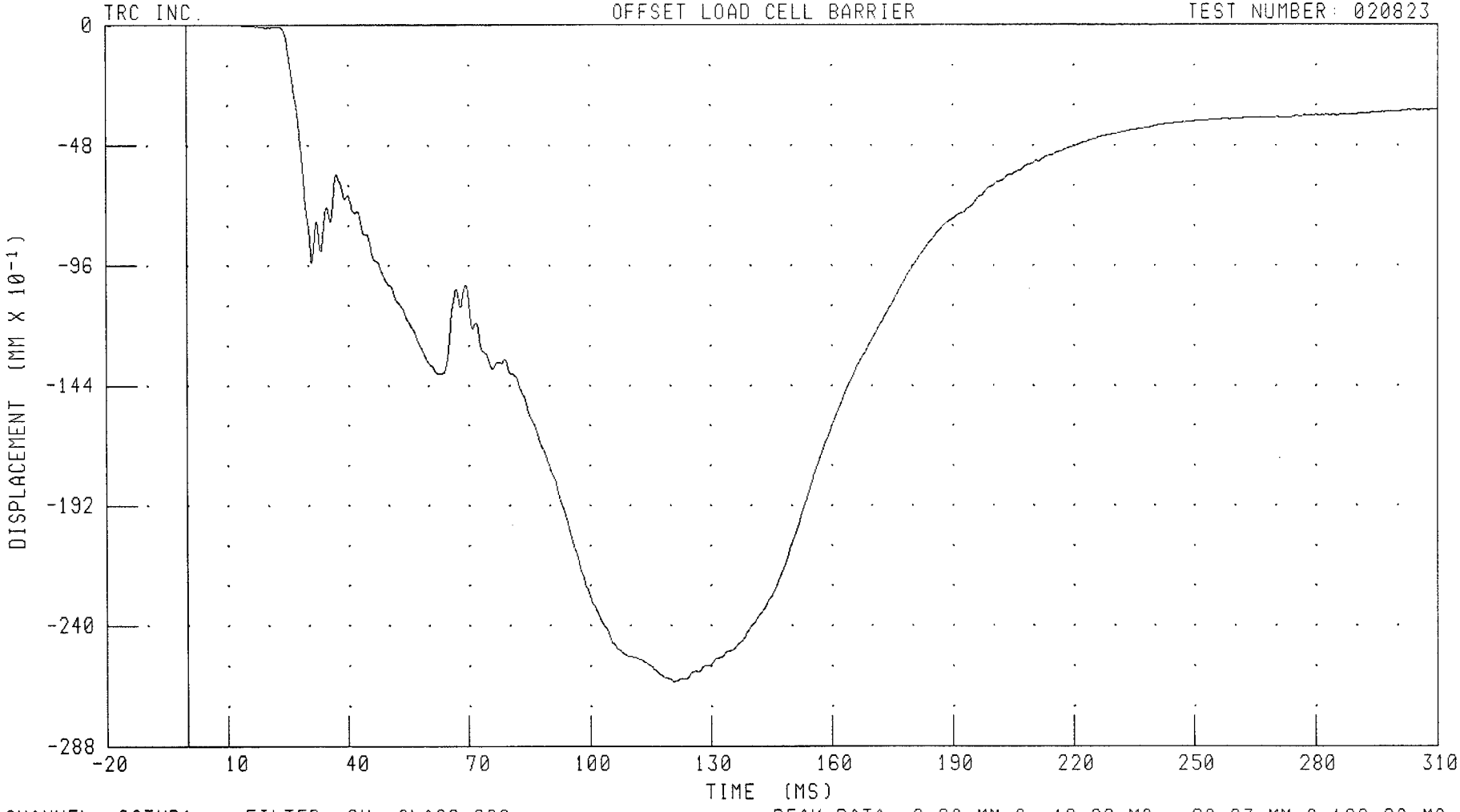


CHANNEL: CSTRR1 FILTER: CH. CLASS 180 PEAK DATA: 26.57 G @ 118.32 MS; 0.01 G @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

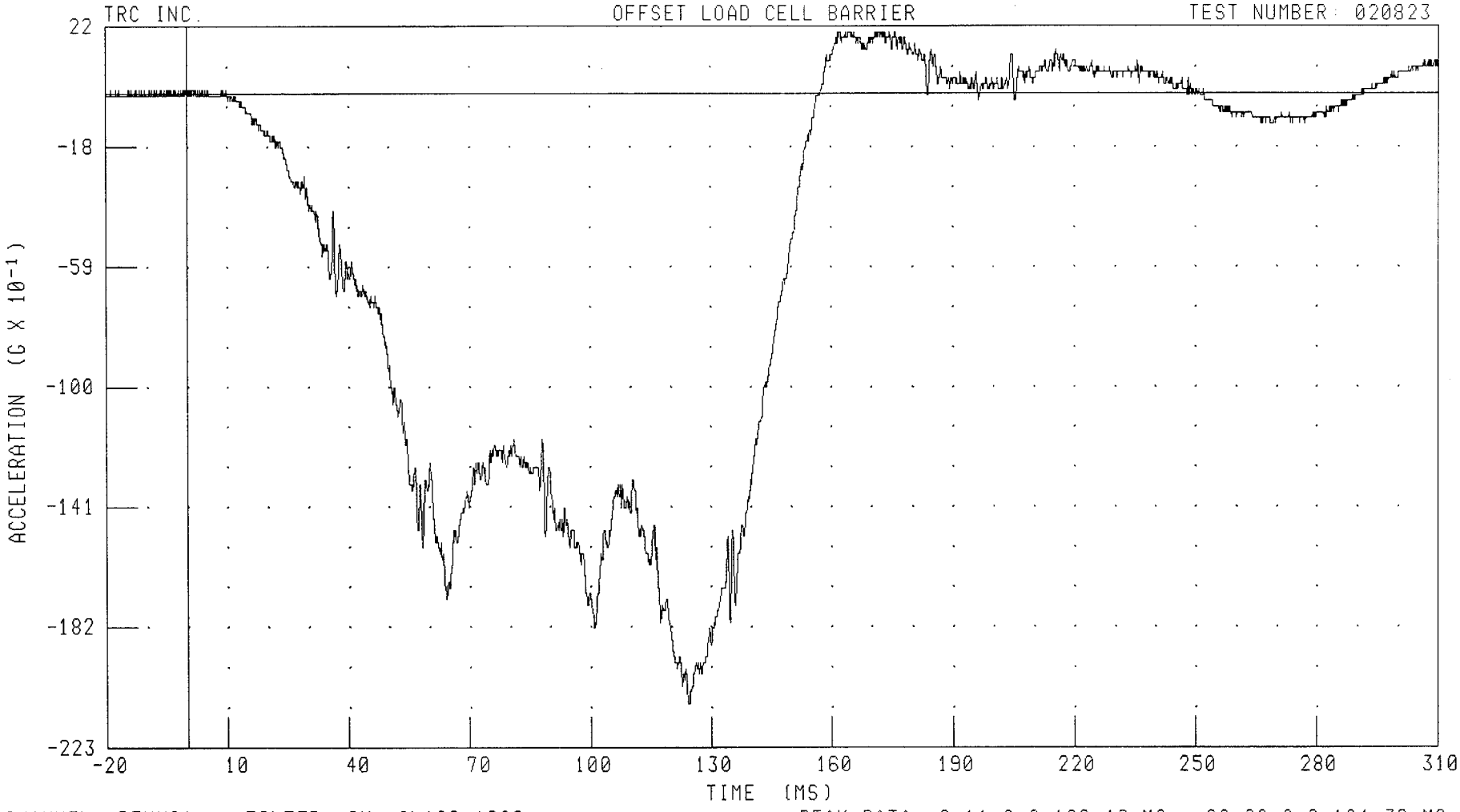
DRIVER CHEST DEFLECTION

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: CSTXD1 FILTER: CH. CLASS 600 PEAK DATA: 0.00 MM @ -19.68 MS, -26.23 MM @ 120.96 MS

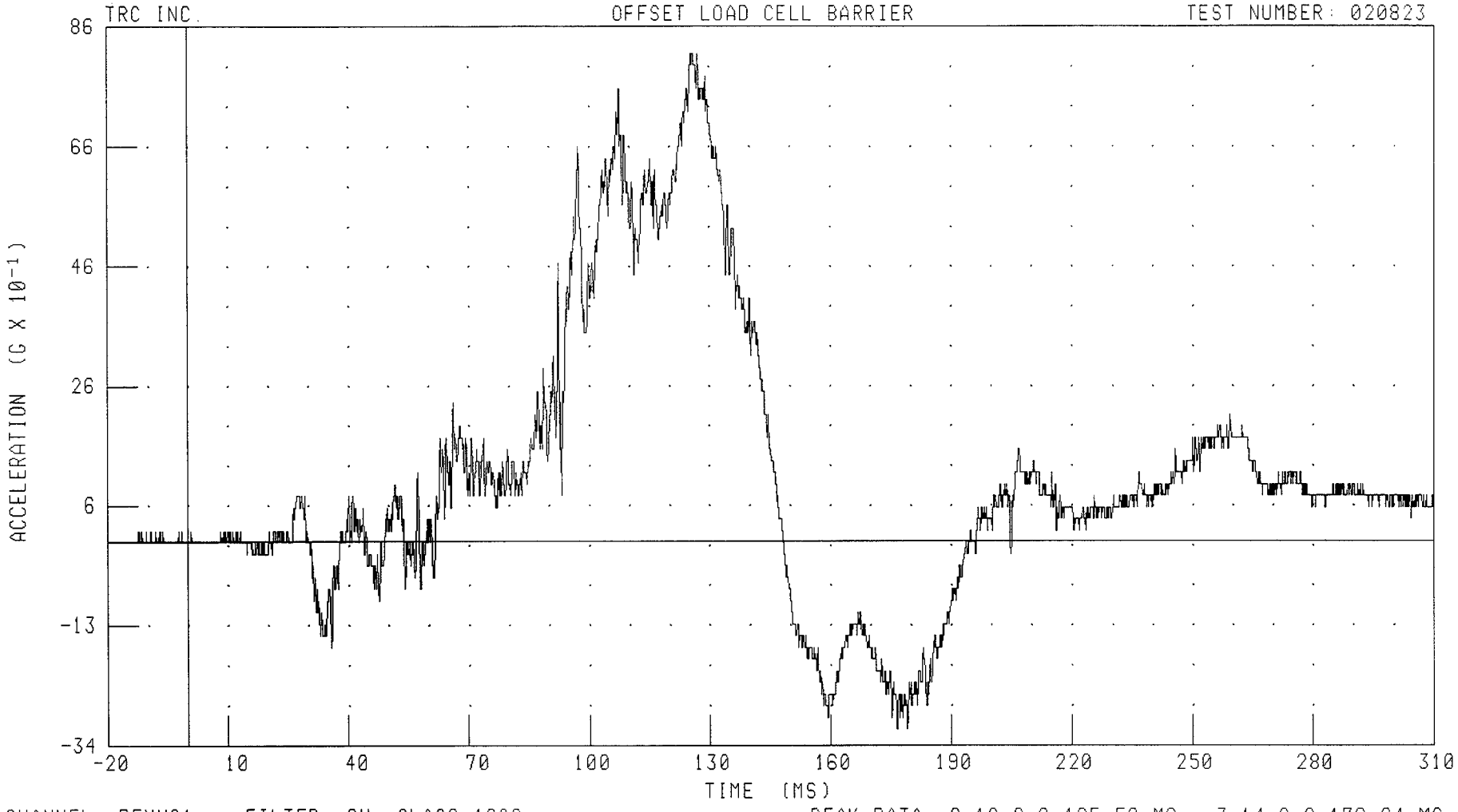
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER PELVIS X-AXIS ACCELERATION



CHANNEL: PEVXG1 FILTER: CH. CLASS 1000 PEAK DATA: 2.11 G @ 162.16 MS; -20.80 G @ 124.32 MS

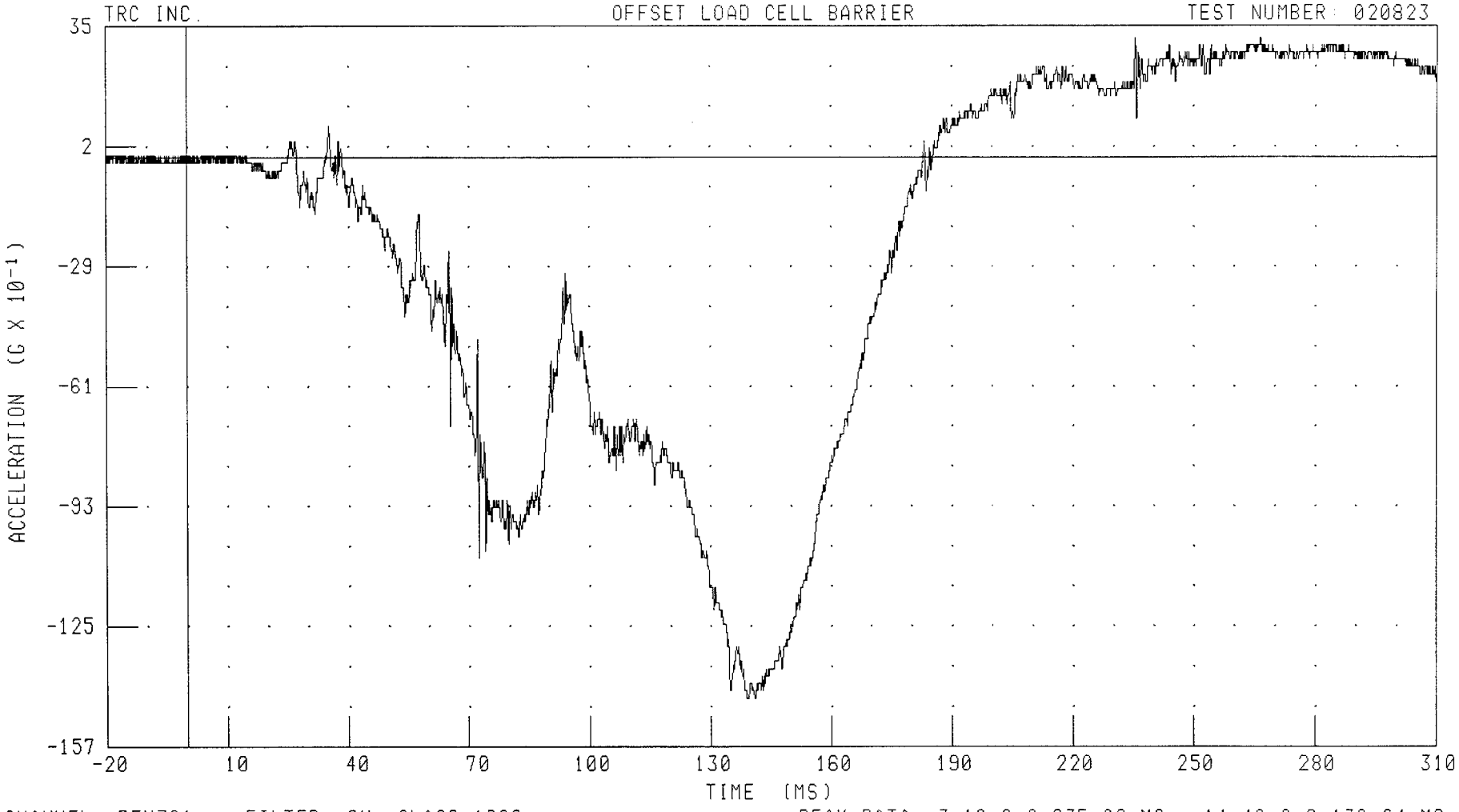
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER PELVIS Y-AXIS ACCELERATION



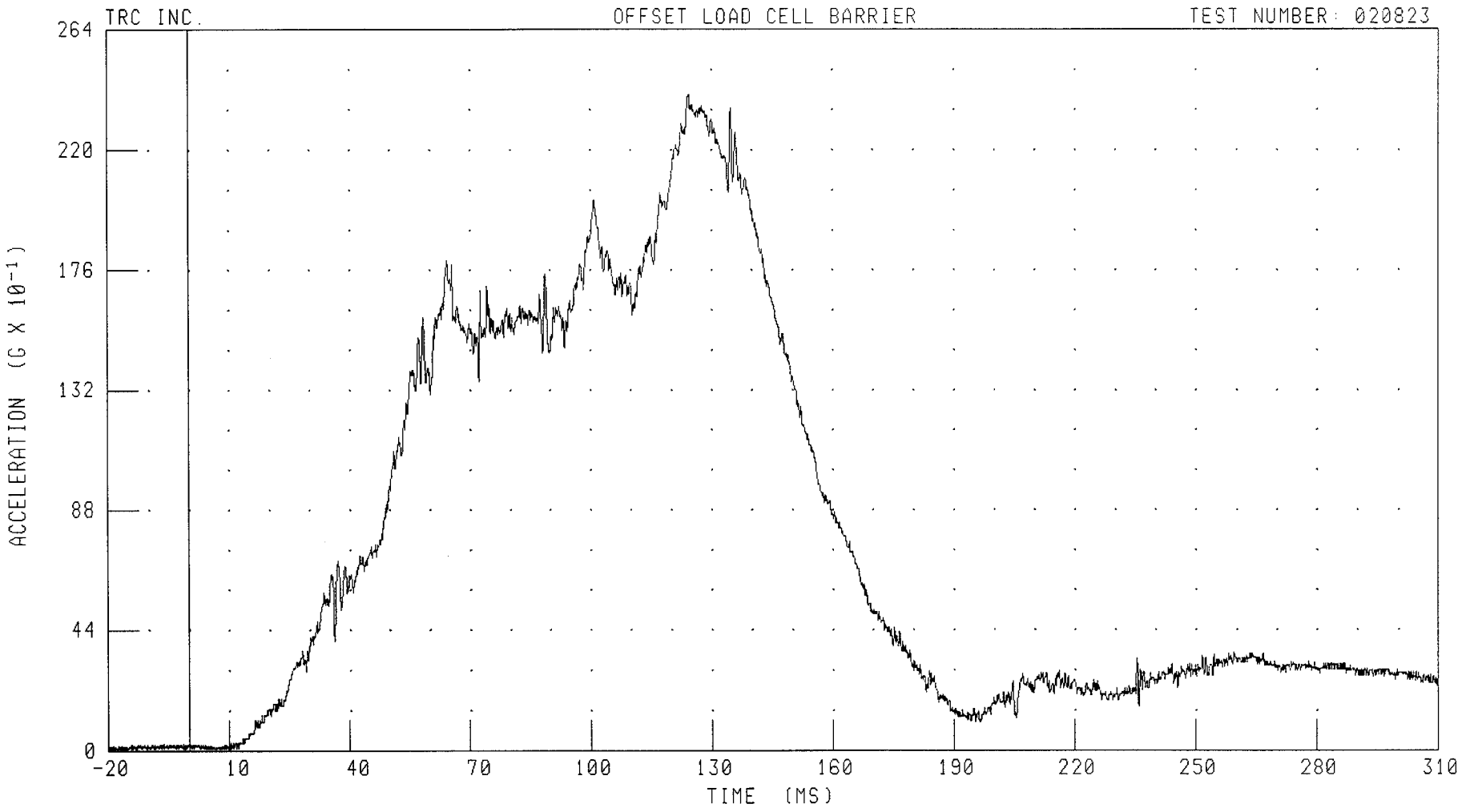
CHANNEL: PEVYG1 FILTER: CH. CLASS 1000 PEAK DATA: 8.16 G @ 125.52 MS; -3.14 G @ 176.64 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER PELVIS Z-AXIS ACCELERATION



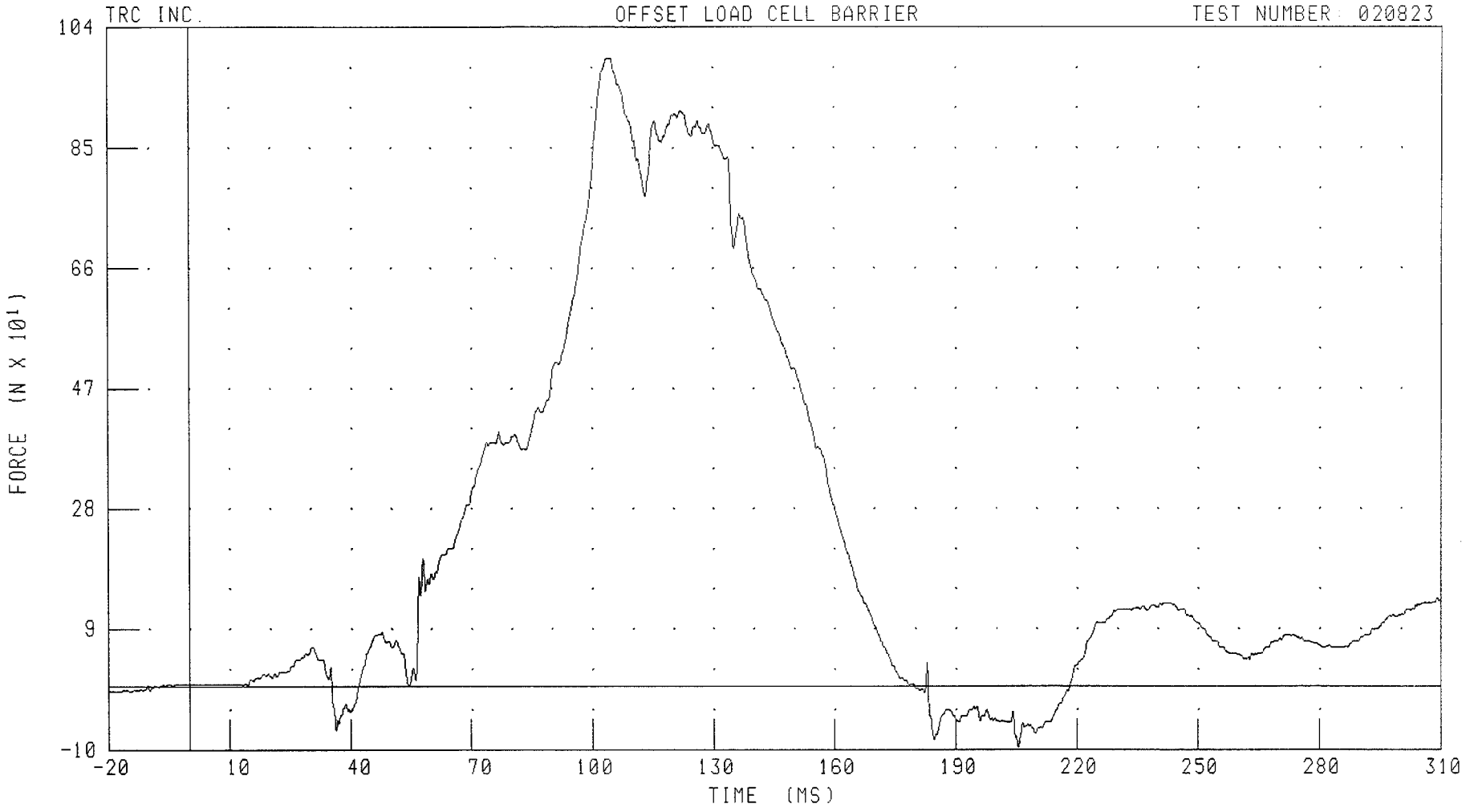
CHANNEL: PEVZG1 FILTER: CH. CLASS 1000 PEAK DATA: 3.19 G @ 235.60 MS; -14.42 G @ 139 04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER PELVIS RESULTANT ACCELERATION



CHANNEL: PEVRG1 FILTER: CH. CLASS 1000 PEAK DATA: 24.02 G @ 124.56 MS; 0.08 G @ -20.00 MS

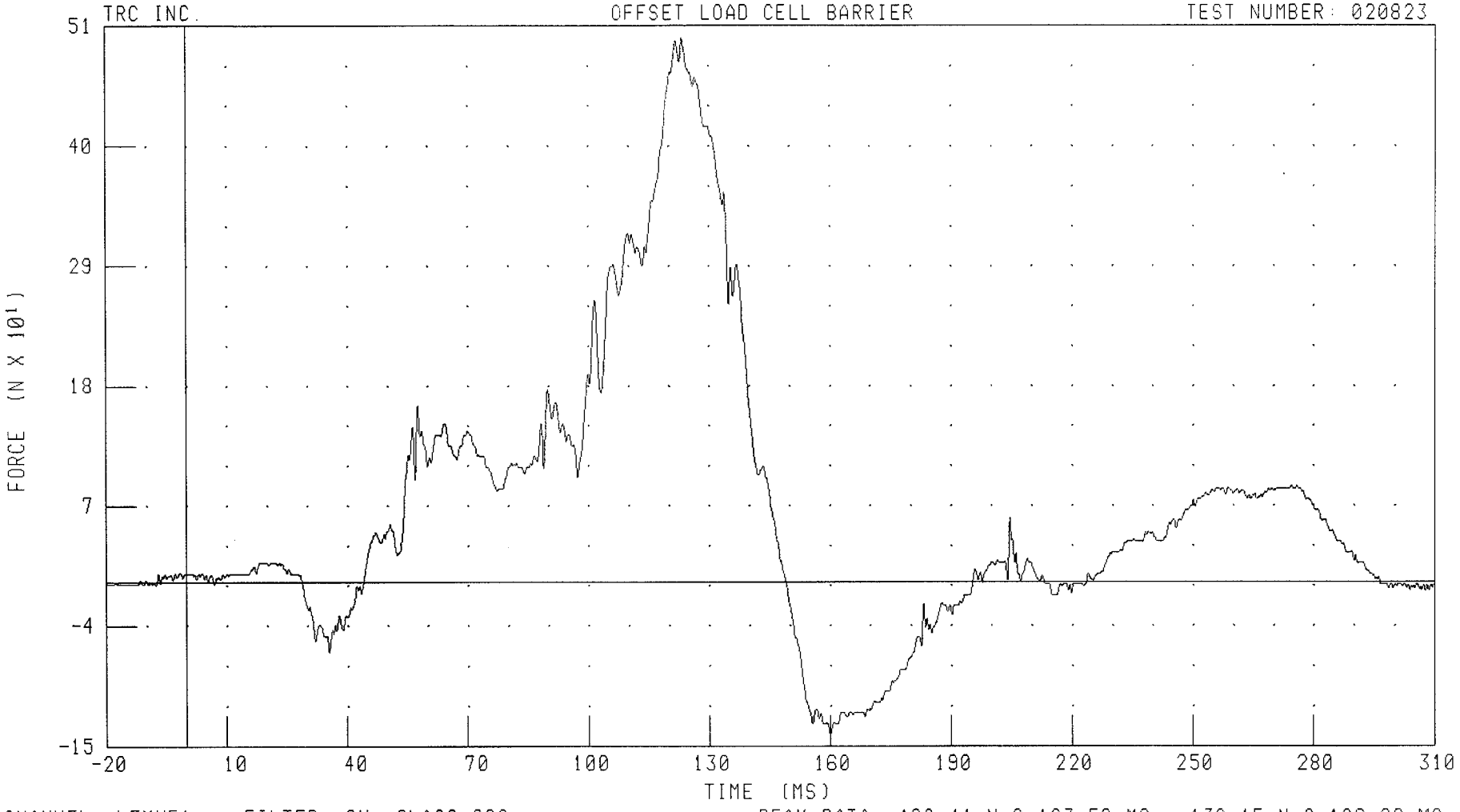
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT FEMUR X-AXIS FORCE



CHANNEL: LFMXF1 FILTER: CH. CLASS 600 PEAK DATA: 990.77 N @ 104.72 MS; -96.52 N @ 205.44 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER LEFT FEMUR Y-AXIS FORCE

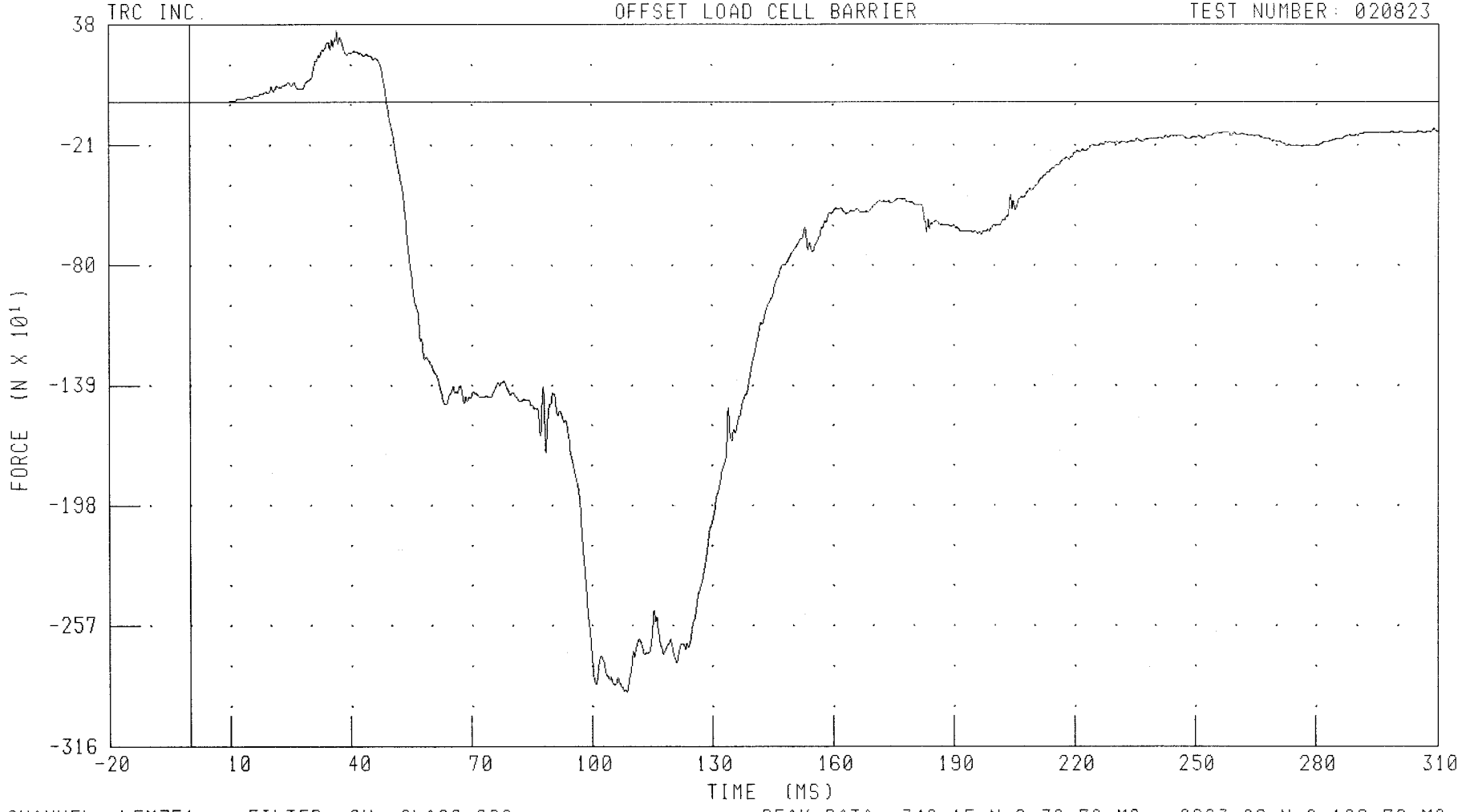


CHANNEL: LFMYF1 FILTER: CH. CLASS 600 PEAK DATA: 499.41 N @ 123.52 MS; -139.15 N @ 160.08 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

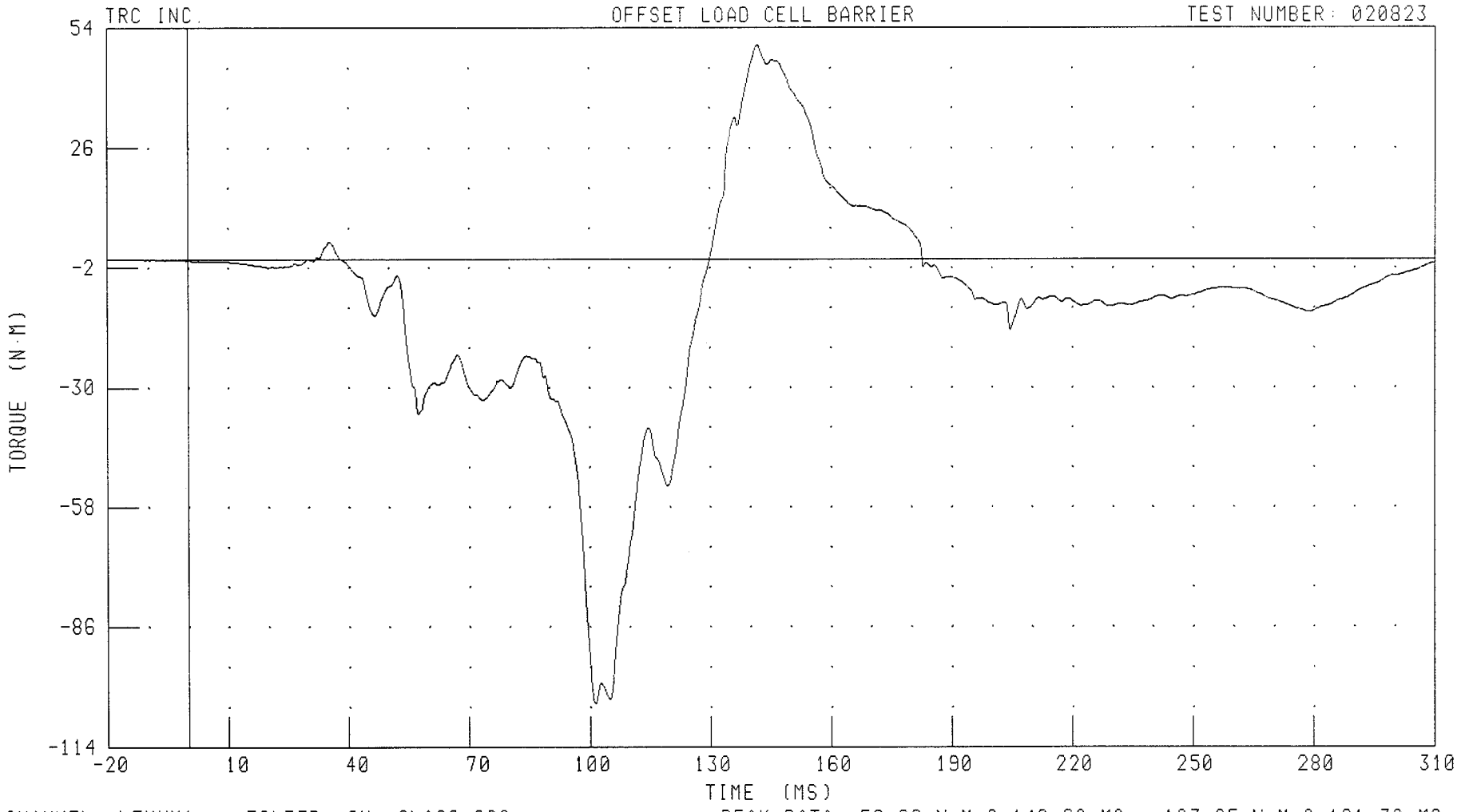
DRIVER LEFT FEMUR Z-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



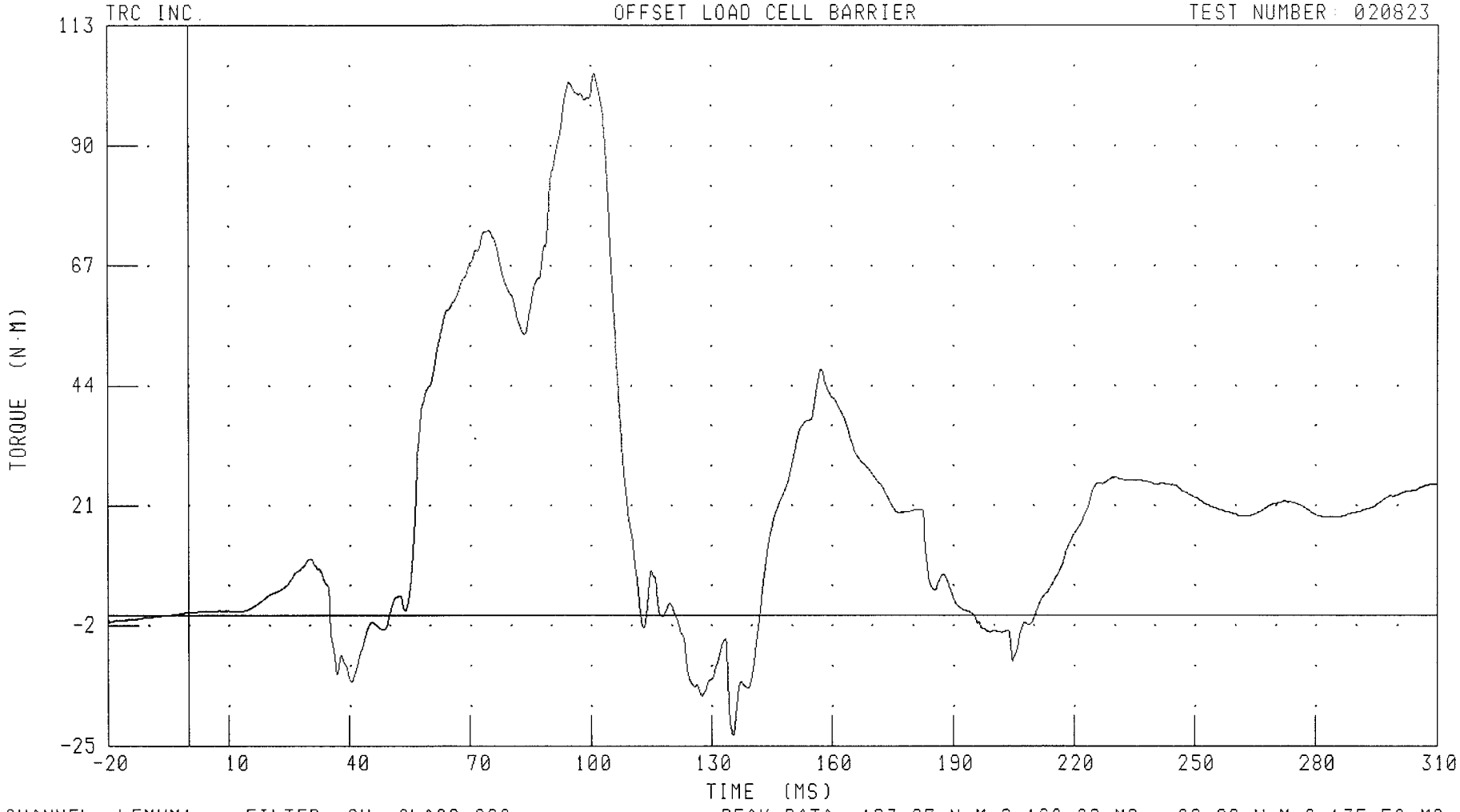
CHANNEL: LFMZF1 FILTER: CH. CLASS 600 PEAK DATA: 349.15 N @ 36.72 MS; -2893.62 N @ 108.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT FEMUR MOMENT ABOUT X AXIS



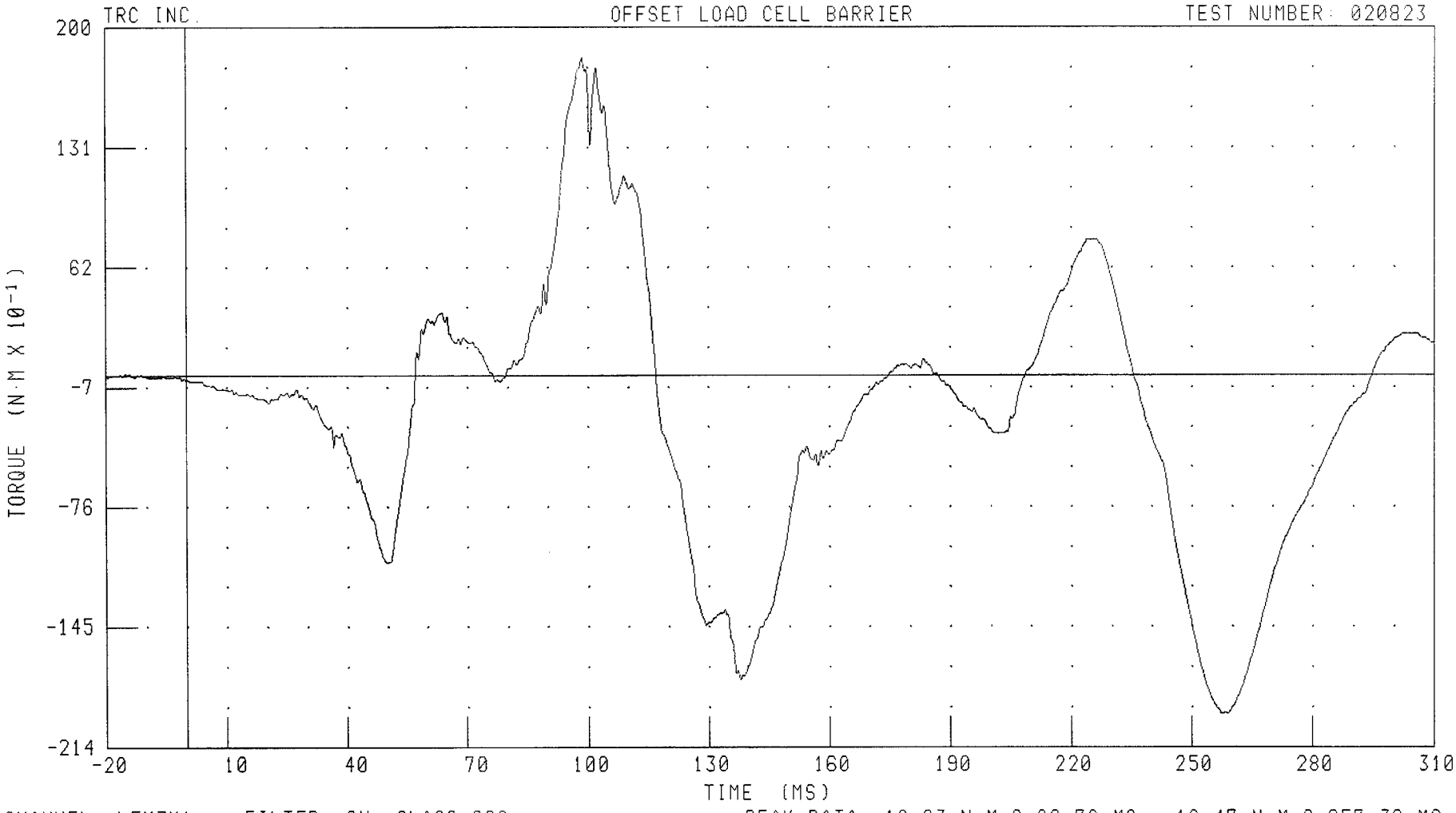
CHANNEL: LFMXM1 FILTER: CH. CLASS 600 PEAK DATA: 50.00 N-M @ 142.08 MS; -103.85 N-M @ 101.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT FEMUR MOMENT ABOUT Y AXIS



CHANNEL: LFMYM1 FILTER: CH. CLASS 600 PEAK DATA: 103.87 N-M @ 100.88 MS, -22.89 N-M @ 135.52 MS

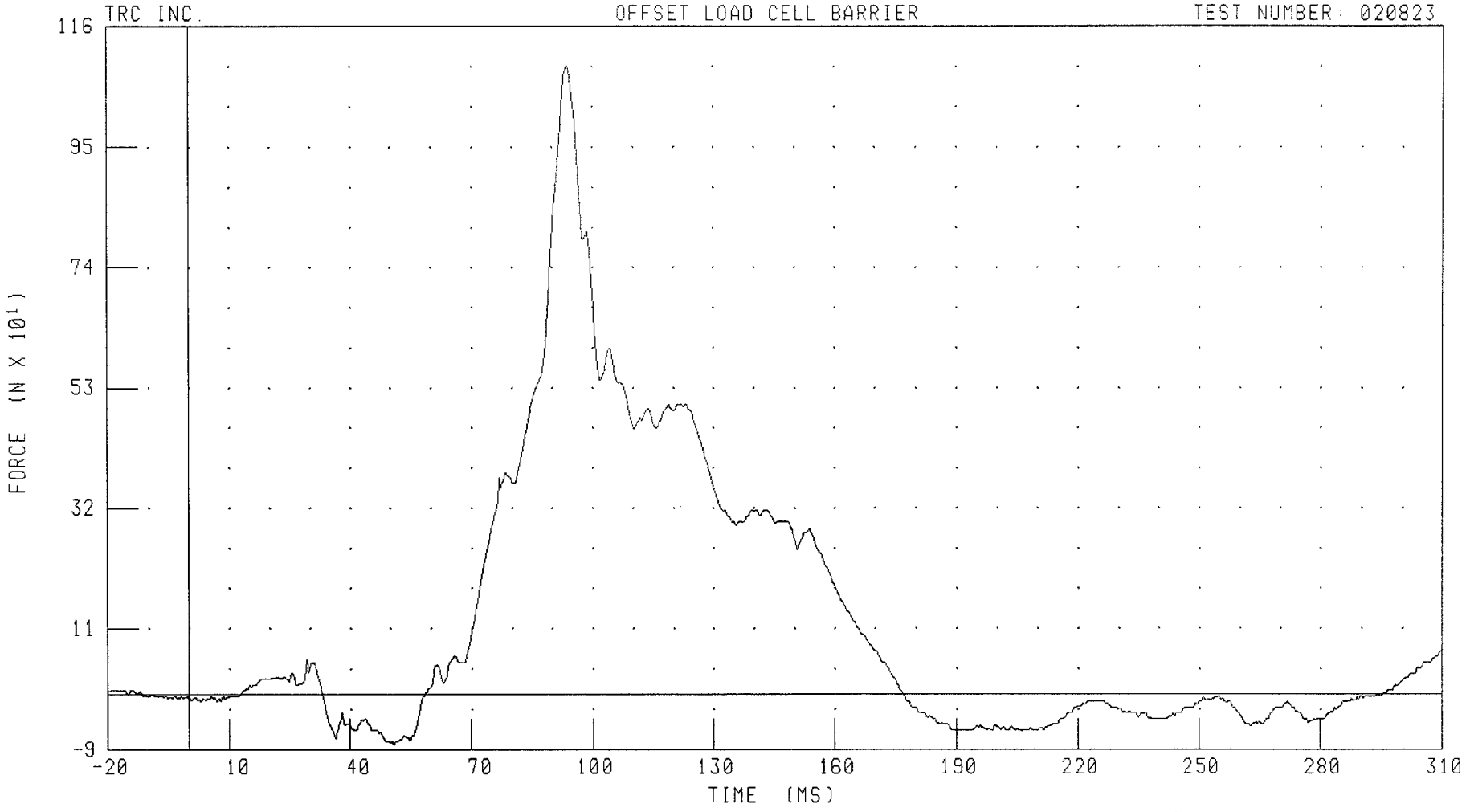
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT FEMUR MOMENT ABOUT Z AXIS



CHANNEL: LFMZM1 FILTER: CH. CLASS 600 PEAK DATA: 18.23 N-M @ 98.72 MS; -19.47 N-M @ 257.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

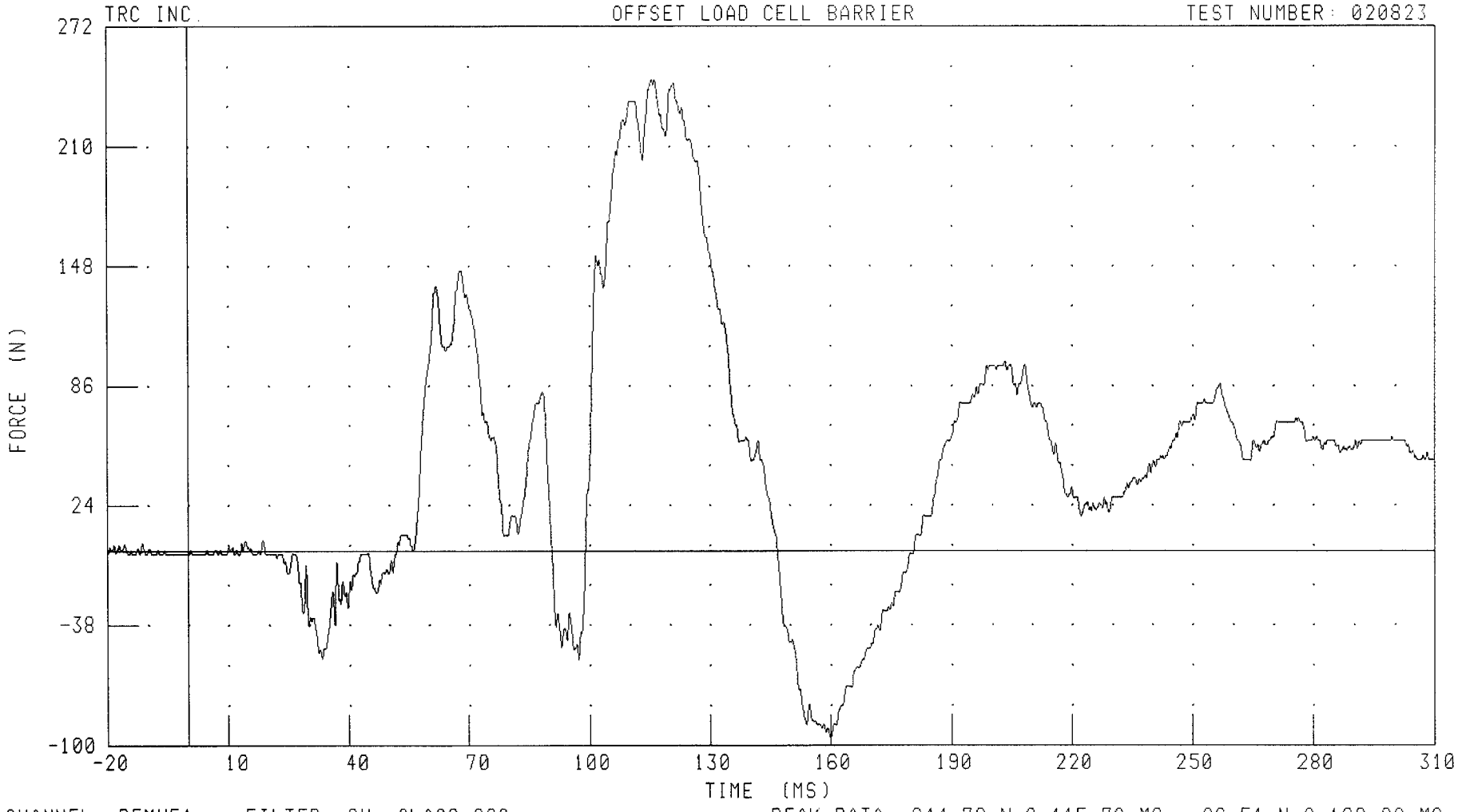
DRIVER RIGHT FEMUR X-AXIS FORCE



CHANNEL: RFMXF1 FILTER: CH. CLASS 600 PEAK DATA: 1095.26 N @ 93.92 MS; -87.49 N @ 50.80 MS

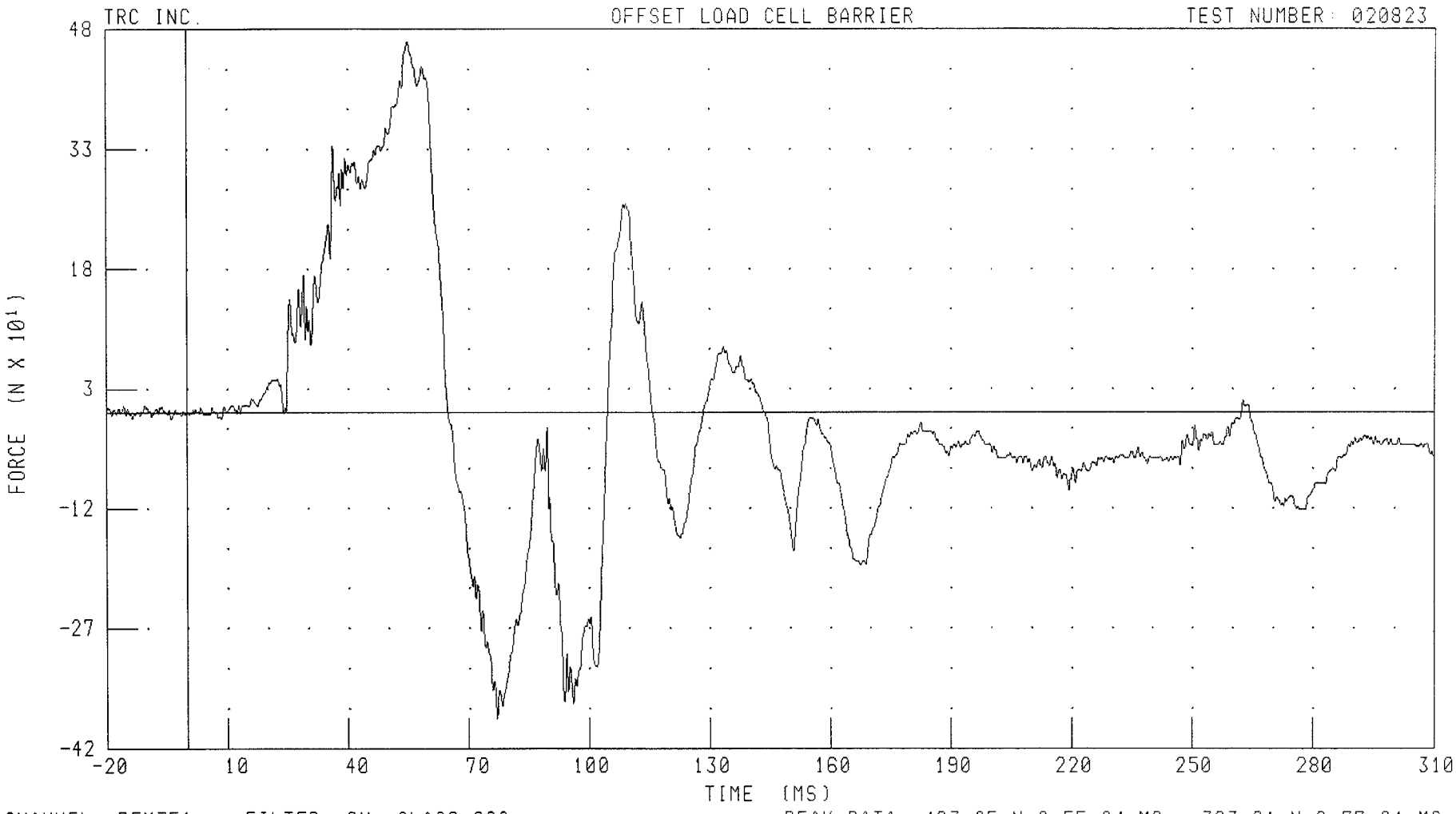
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER RIGHT FEMUR Y-AXIS FORCE



CHANNEL: RFMYF1 FILTER: CH. CLASS 600 PEAK DATA: 244.78 N @ 115.76 MS; -96.51 N @ 160.08 MS

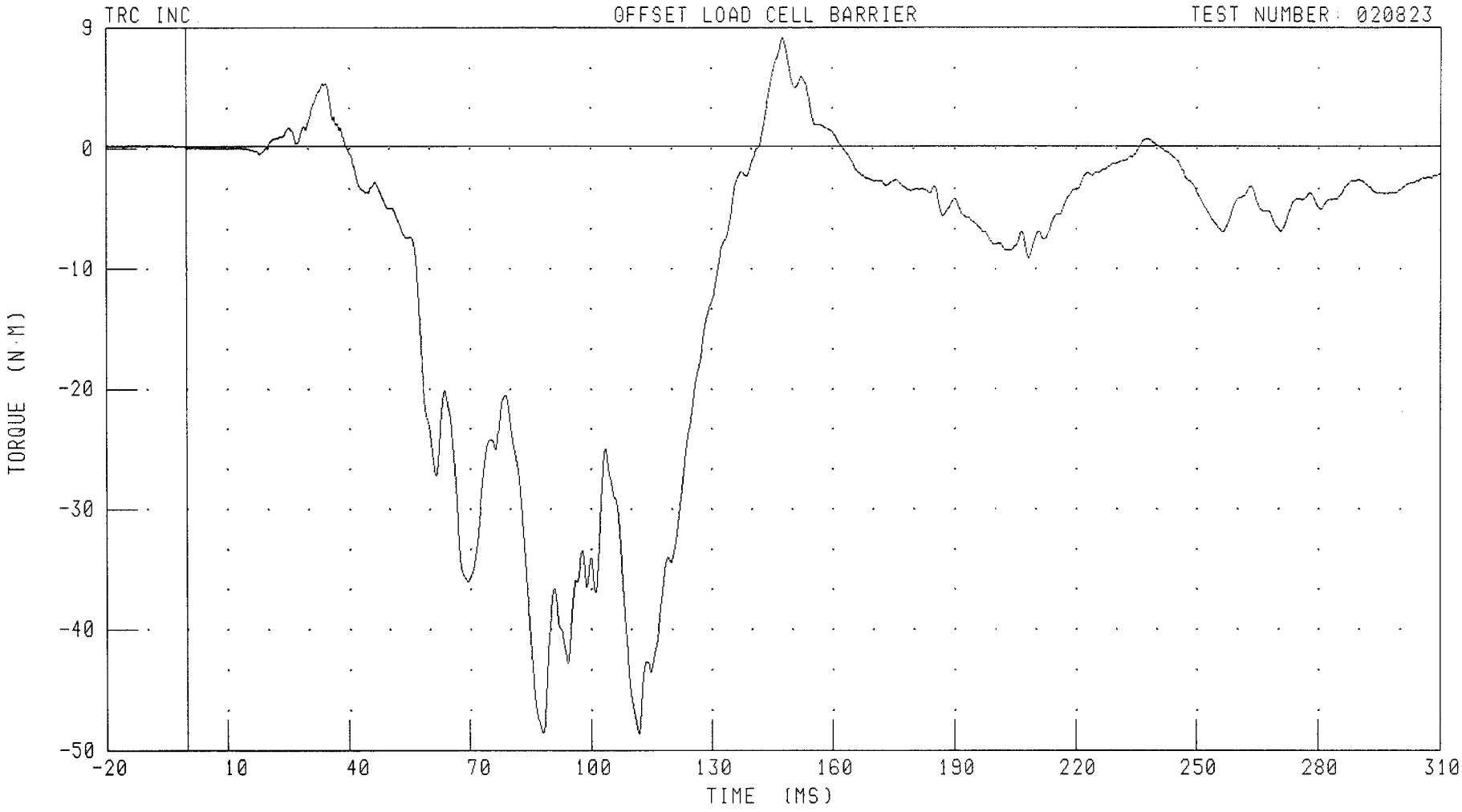
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT FEMUR Z-AXIS FORCE



CHANNEL: RFMZF1 FILTER: CH. CLASS 600 PEAK DATA: 463.95 N @ 55.04 MS; -383.61 N @ 77.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

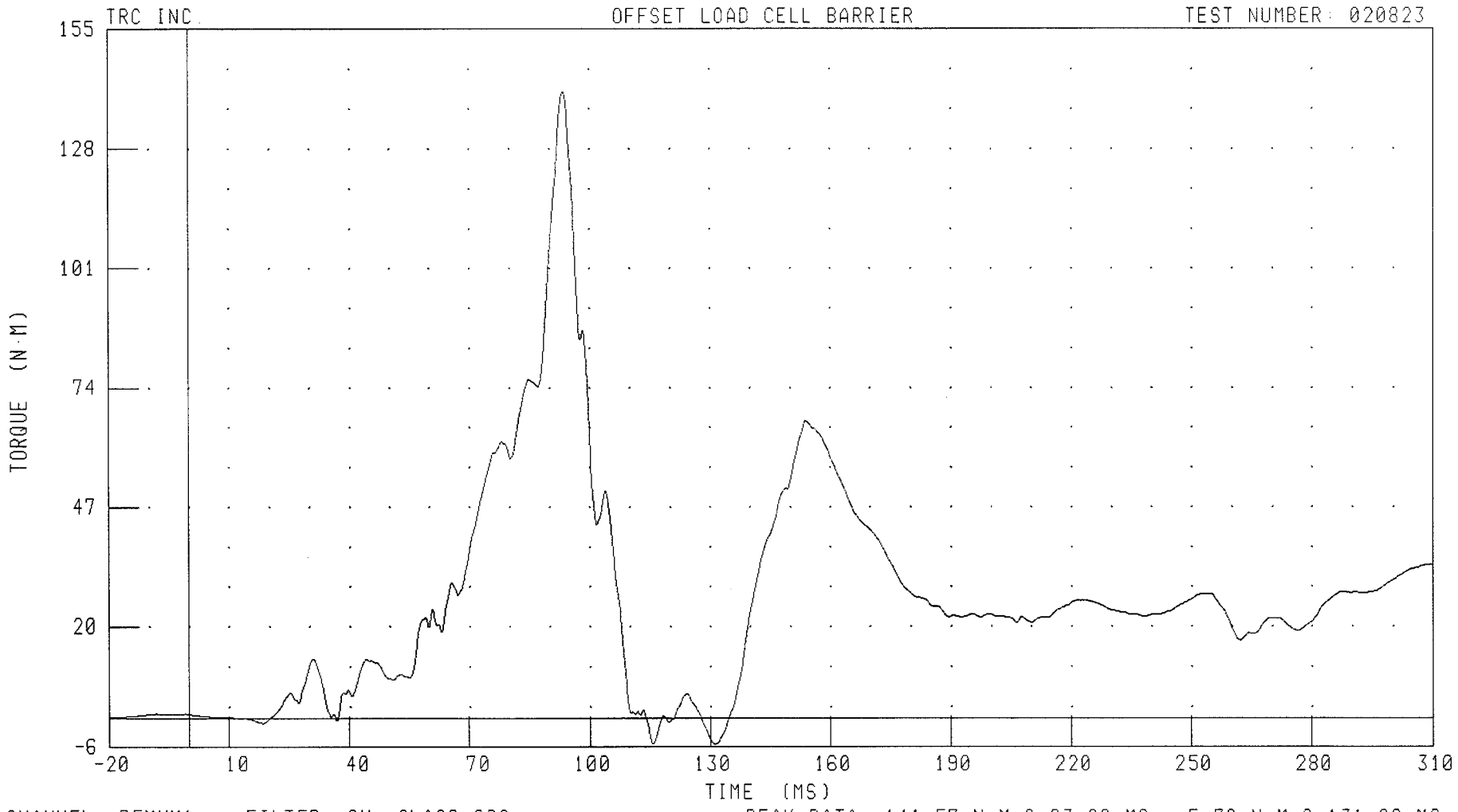
DRIVER RIGHT FEMUR MOMENT ABOUT X AXIS



CHANNEL: RFMXM1 FILTER: CH. CLASS 600 PEAK DATA: 8.98 N-M @ 147.92 MS; -48.83 N-M @ 111.92 MS

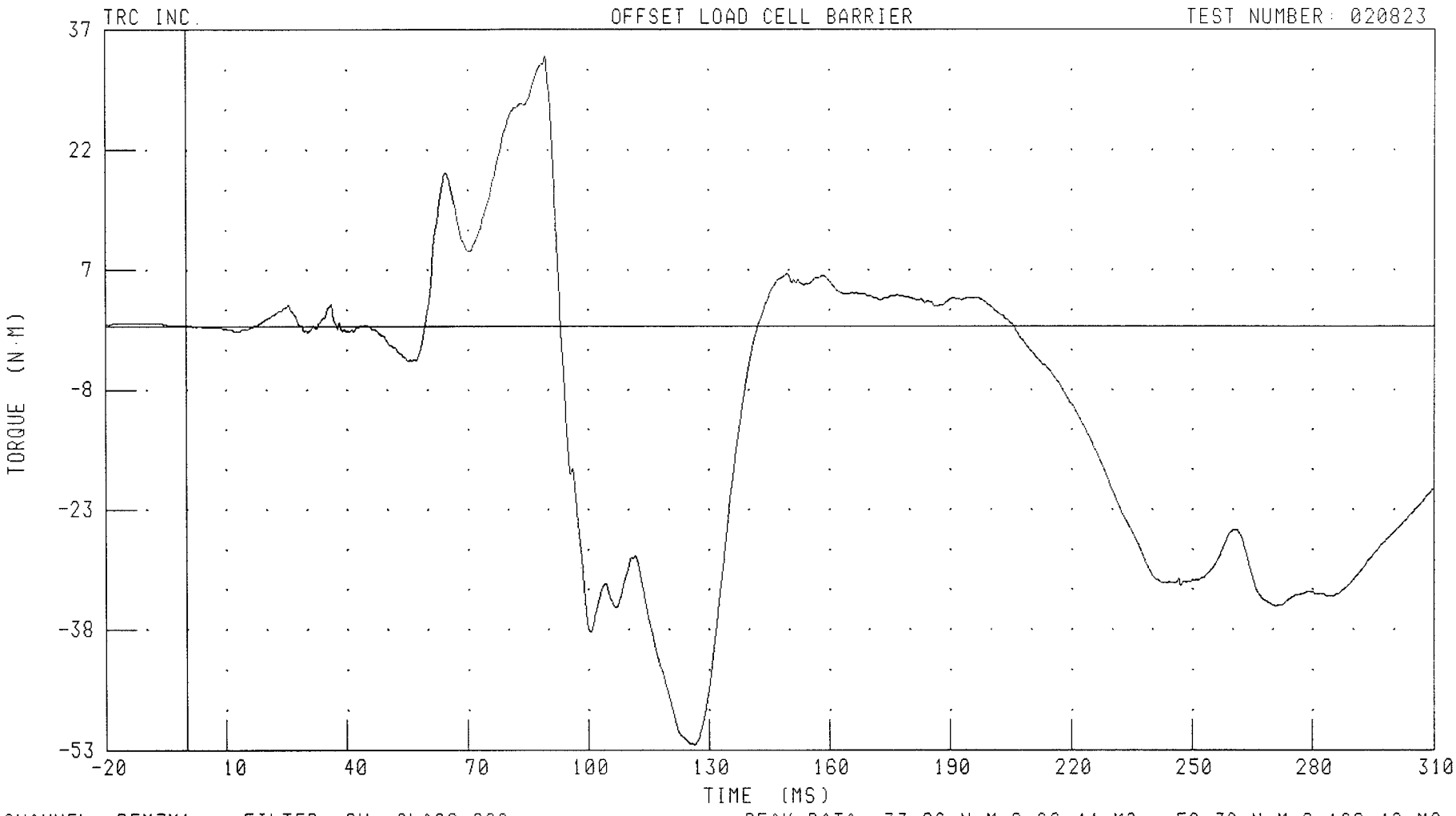
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER RIGHT FEMUR MOMENT ABOUT Y AXIS



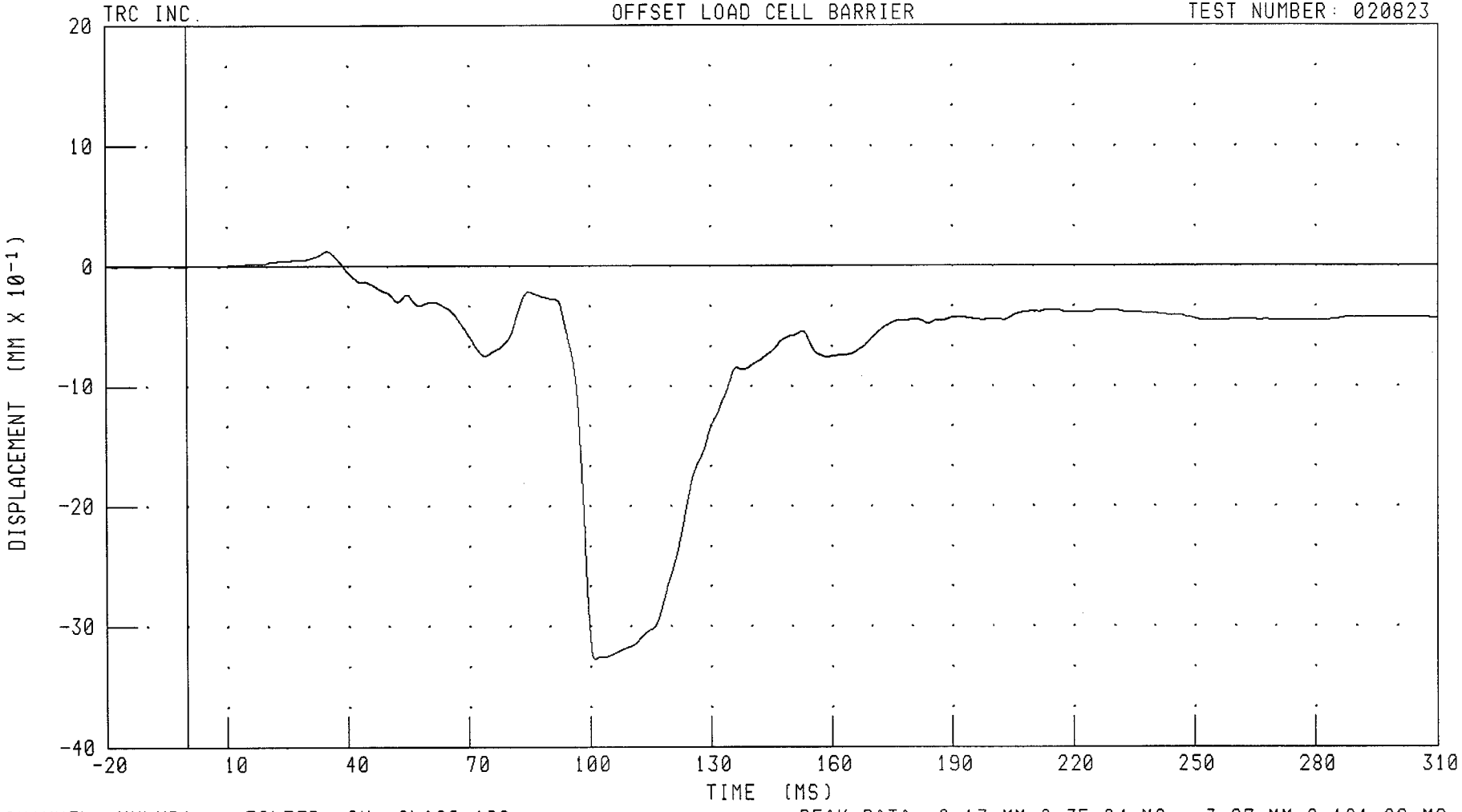
CHANNEL: RFMYM1 FILTER: CH. CLASS 600 PEAK DATA: 141.57 N·M @ 93.60 MS, -5.79 N·M @ 131.28 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT FEMUR MOMENT ABOUT Z AXIS



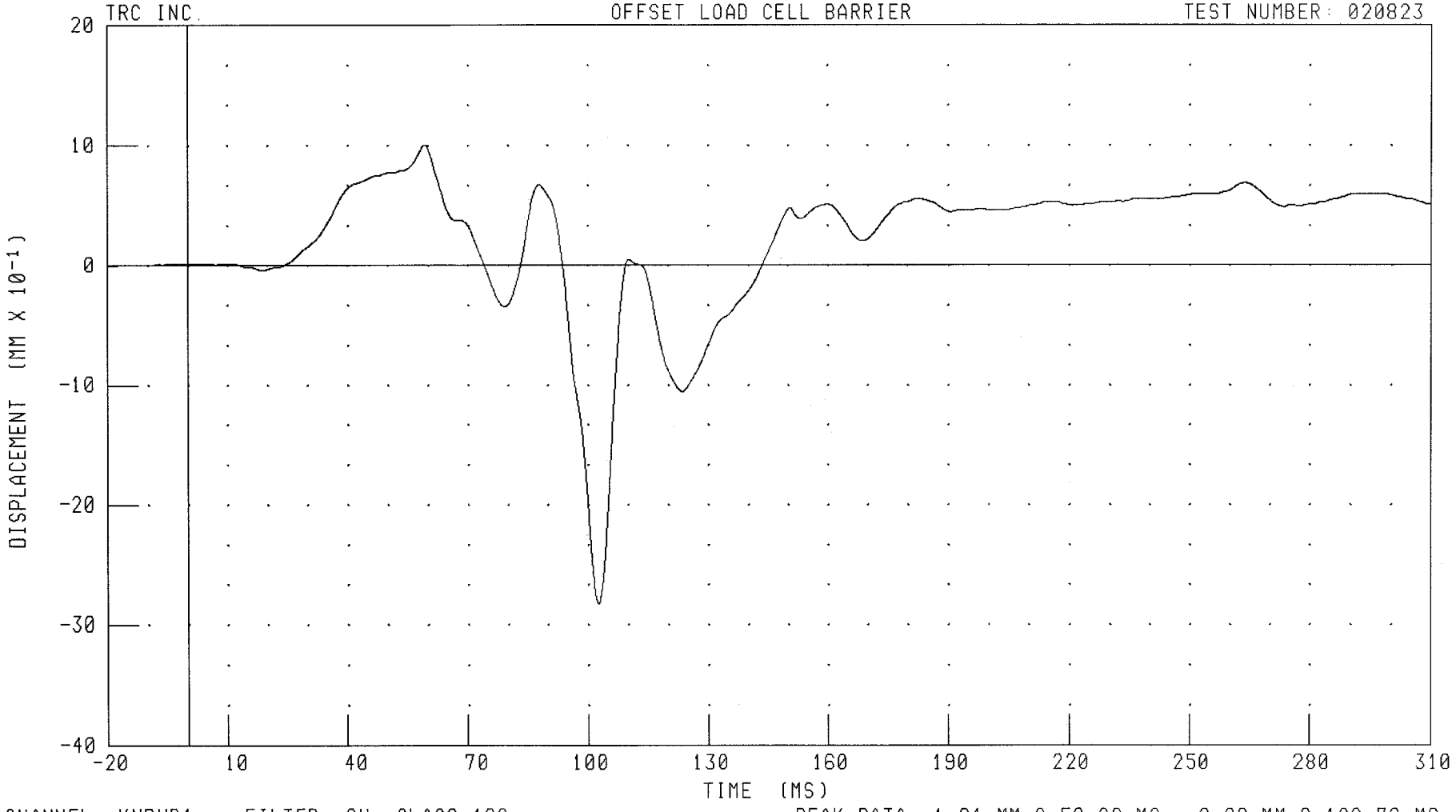
CHANNEL: RFMZM1 FILTER: CH. CLASS 600 PEAK DATA: 33.69 N-M @ 89.44 MS, -52.36 N-M @ 126.48 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT TIBIA TO FEMUR DISPLACEMENT



CHANNEL: KNLXD1 FILTER: CH. CLASS 180 PEAK DATA: 0.13 MM @ 35.04 MS; -3.27 MM @ 101.20 MS

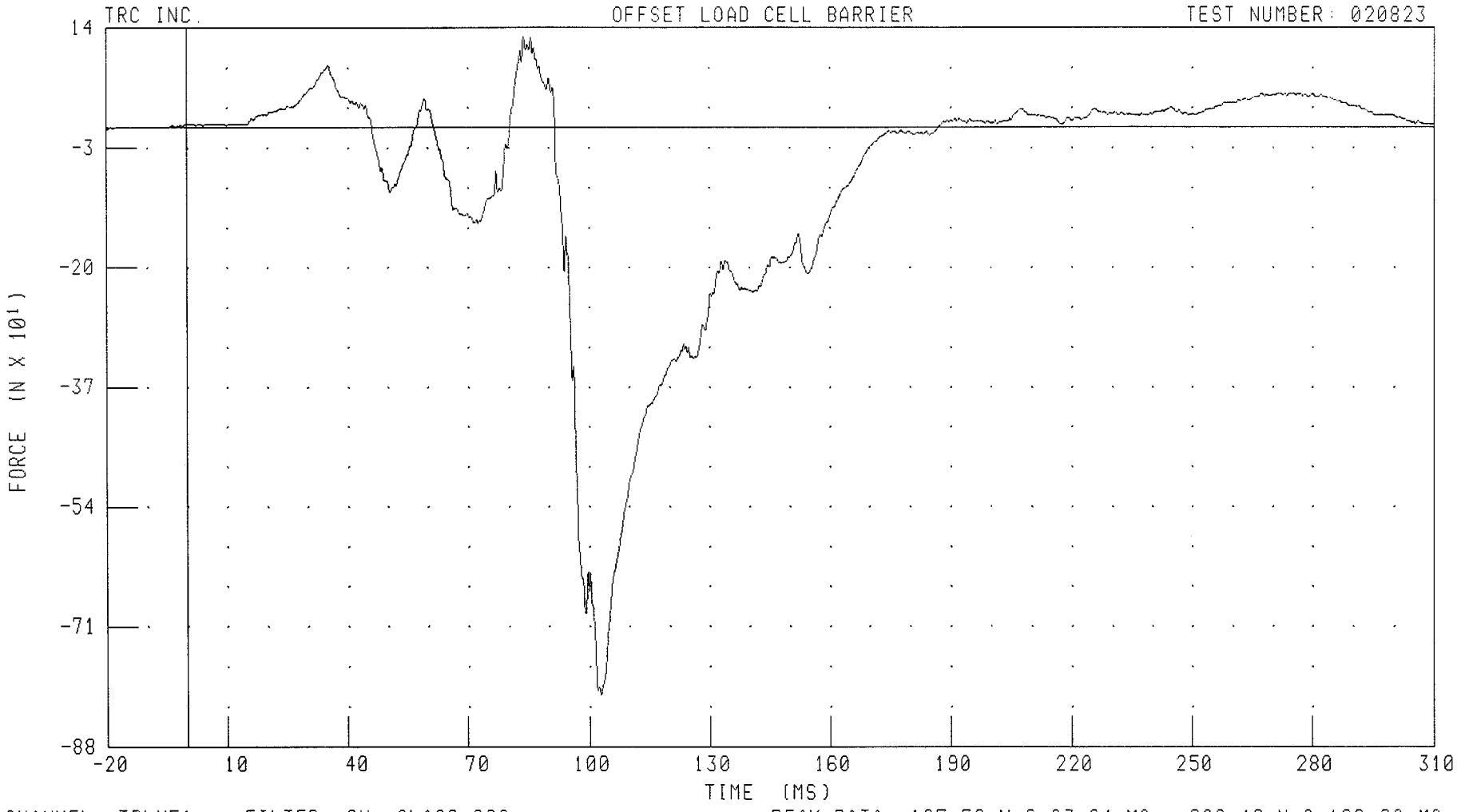
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT TIBIA TO FEMUR DISPLACEMENT



CHANNEL: KNRXD1 FILTER: CH. CLASS 180 PEAK DATA: 1.01 MM @ 59.28 MS; -2.82 MM @ 102.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER LEFT UPPER TIBIA X-AXIS FORCE

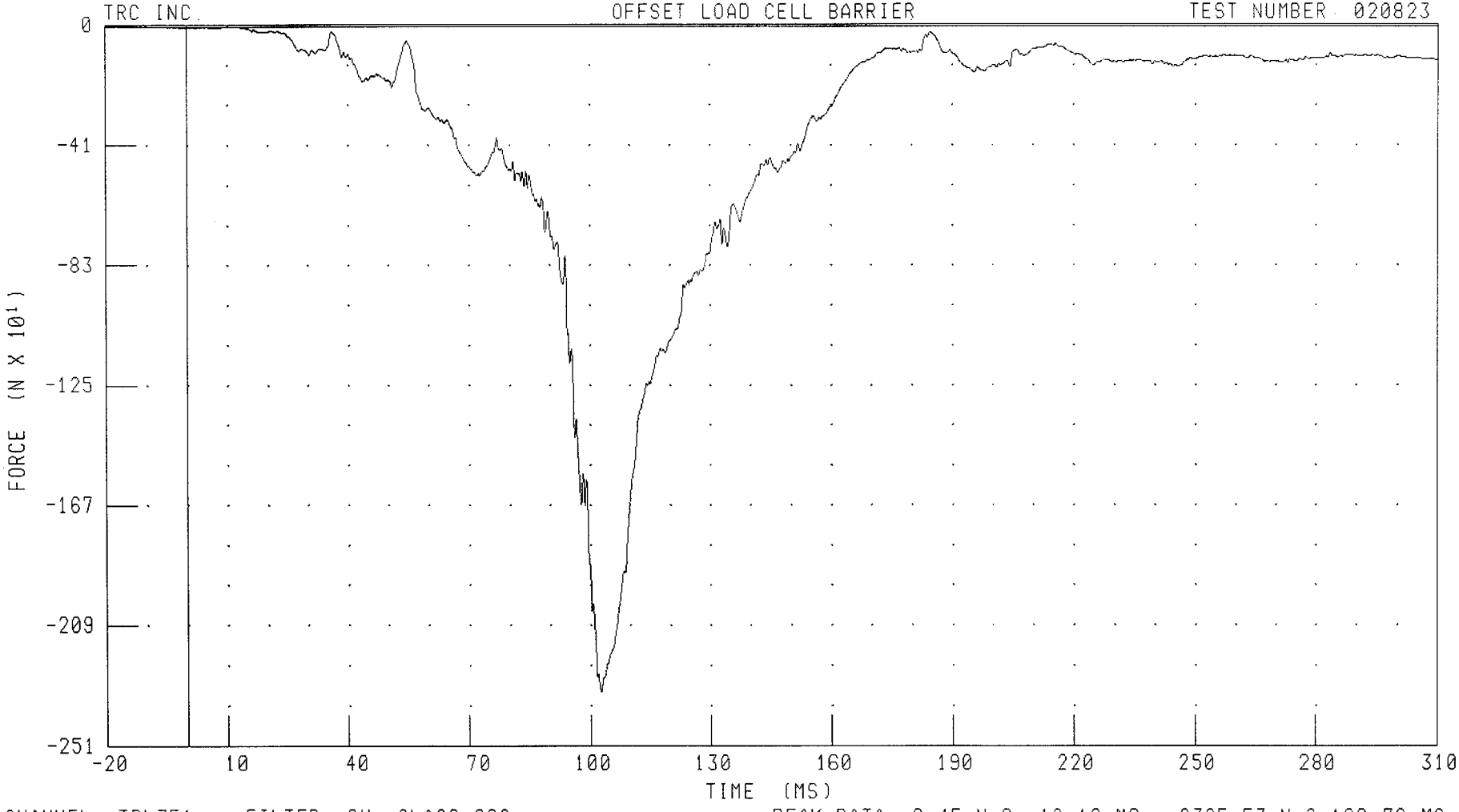


CHANNEL: TBLXF1 FILTER: CH. CLASS 600 PEAK DATA: 127.78 N @ 83.84 MS, -806.42 N @ 102.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

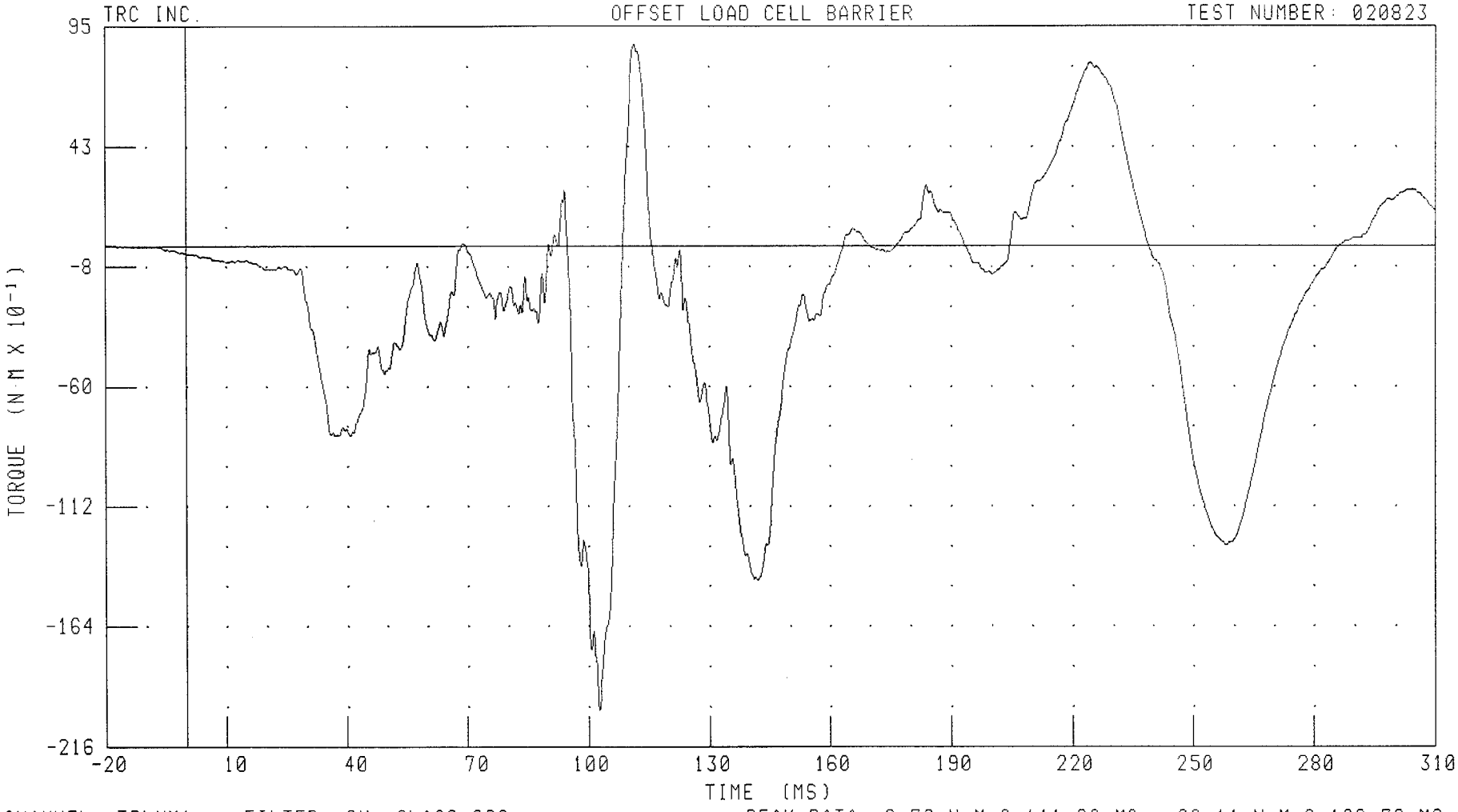
DRIVER LEFT UPPER TIBIA Z-AXIS FORCE

TRC INC OFFSET LOAD CELL BARRIER TEST NUMBER 020823



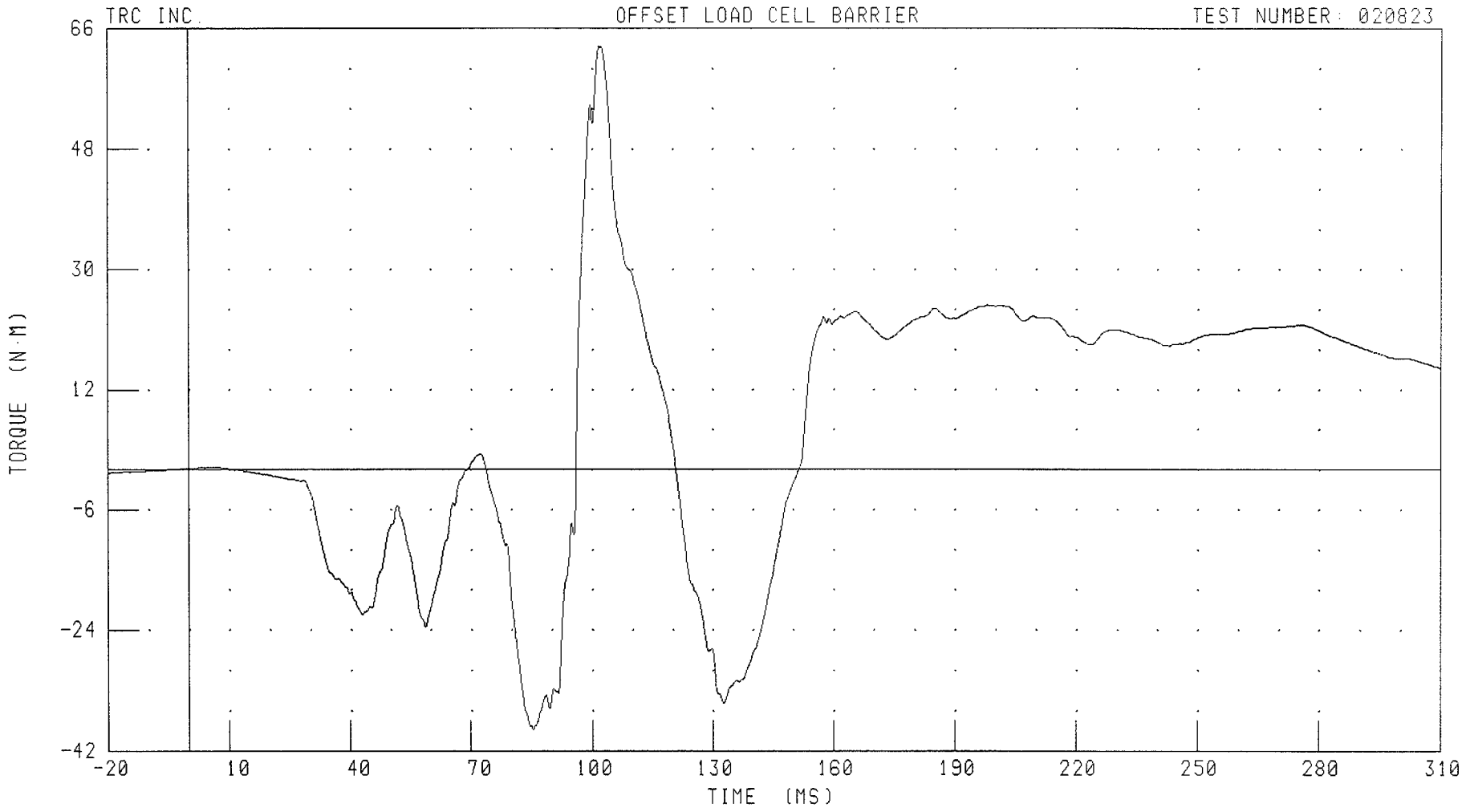
CHANNEL: TBLZF1 FILTER: CH. CLASS 600 PEAK DATA: 6.45 N @ -19.12 MS; -2325.53 N @ 102.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS



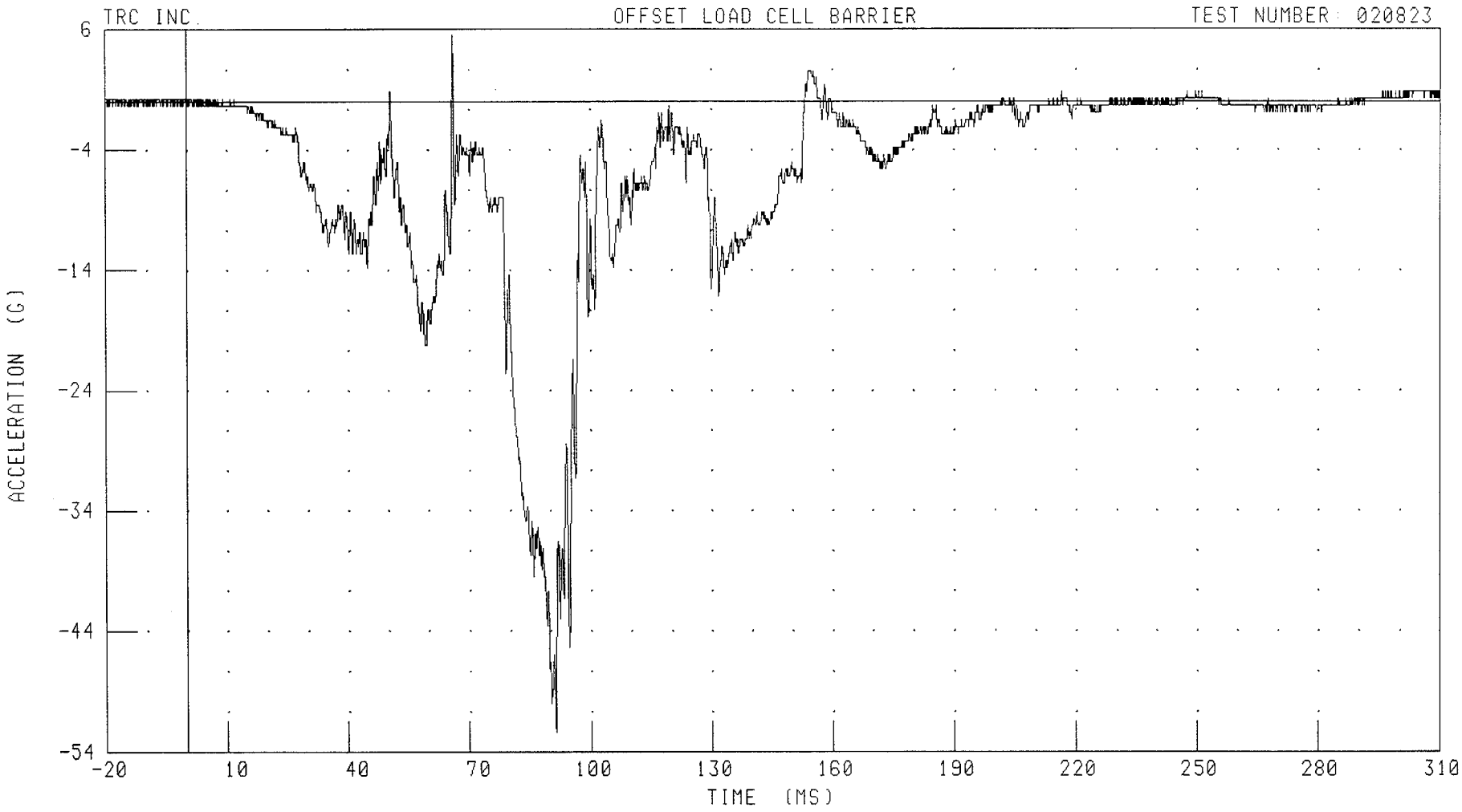
CHANNEL: TBLXM1 FILTER: CH. CLASS 600 PEAK DATA: 8.72 N-M @ 111.60 MS; -20.11 N-M @ 102.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS



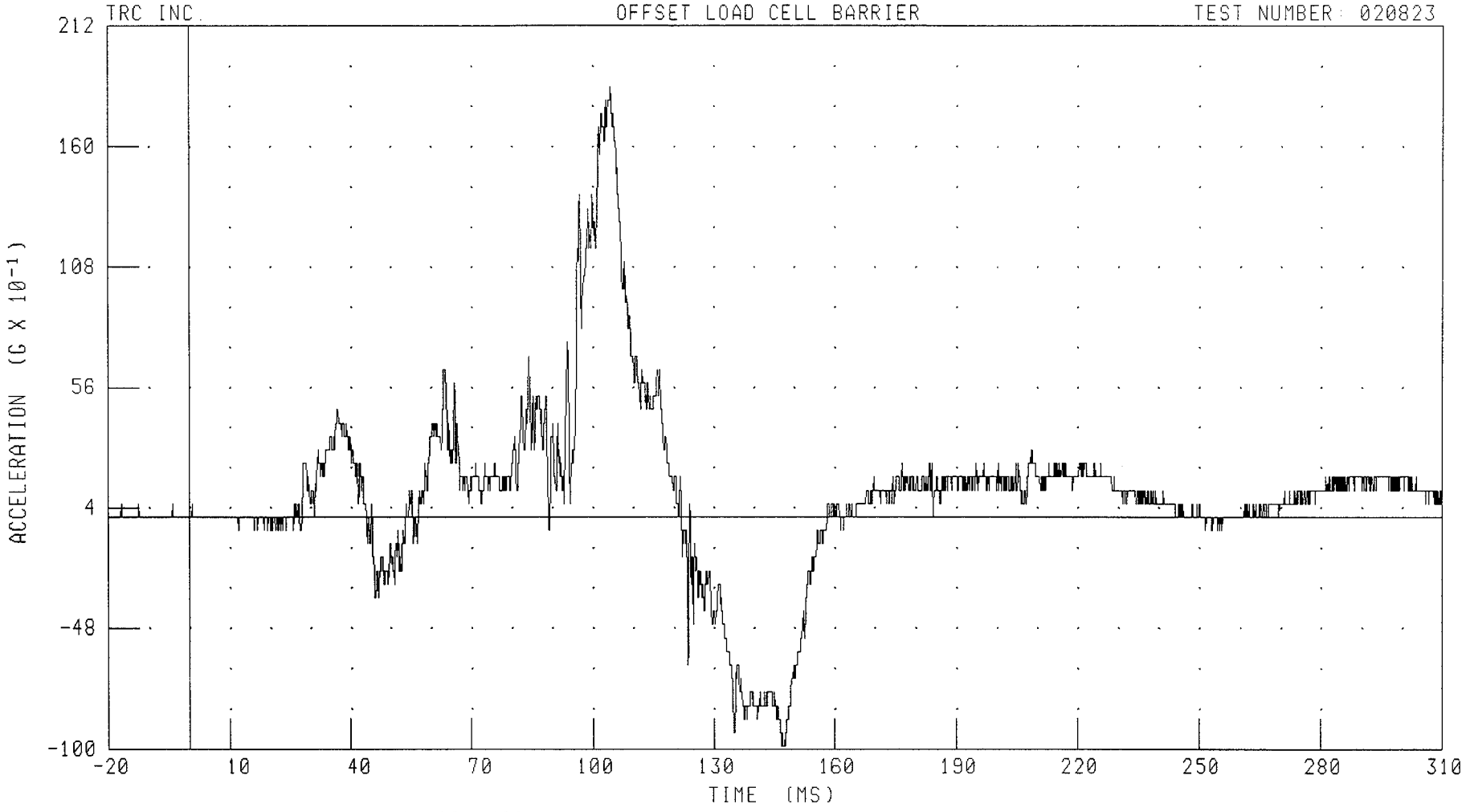
CHANNEL: TBLYM1 FILTER: CH. CLASS 600 PEAK DATA: 63.44 N-M @ 101.76 MS; -38.88 N-M @ 85.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT TIBIA X-AXIS ACCELERATION



CHANNEL: TBLXG1 FILTER: CH. CLASS 1000 PEAK DATA: 5.51 G @ 66.08 MS, -52.38 G @ 91.36 MS

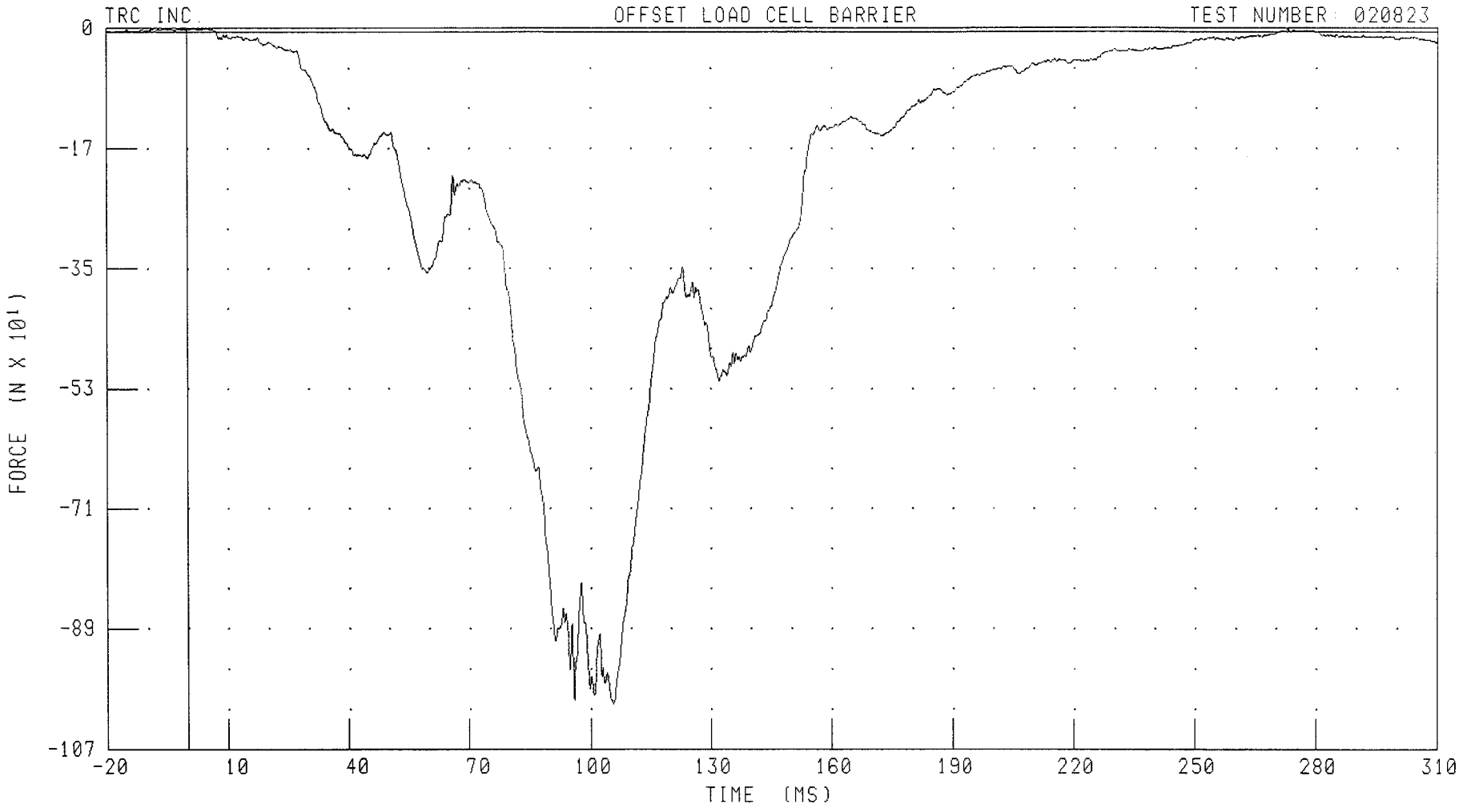
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT TIBIA Y-AXIS ACCELERATION



CHANNEL: TBLYG1 FILTER: CH. CLASS 1000 PEAK DATA: 18.58 G @ 104.48 MS; -9.88 G @ 146.80 MS

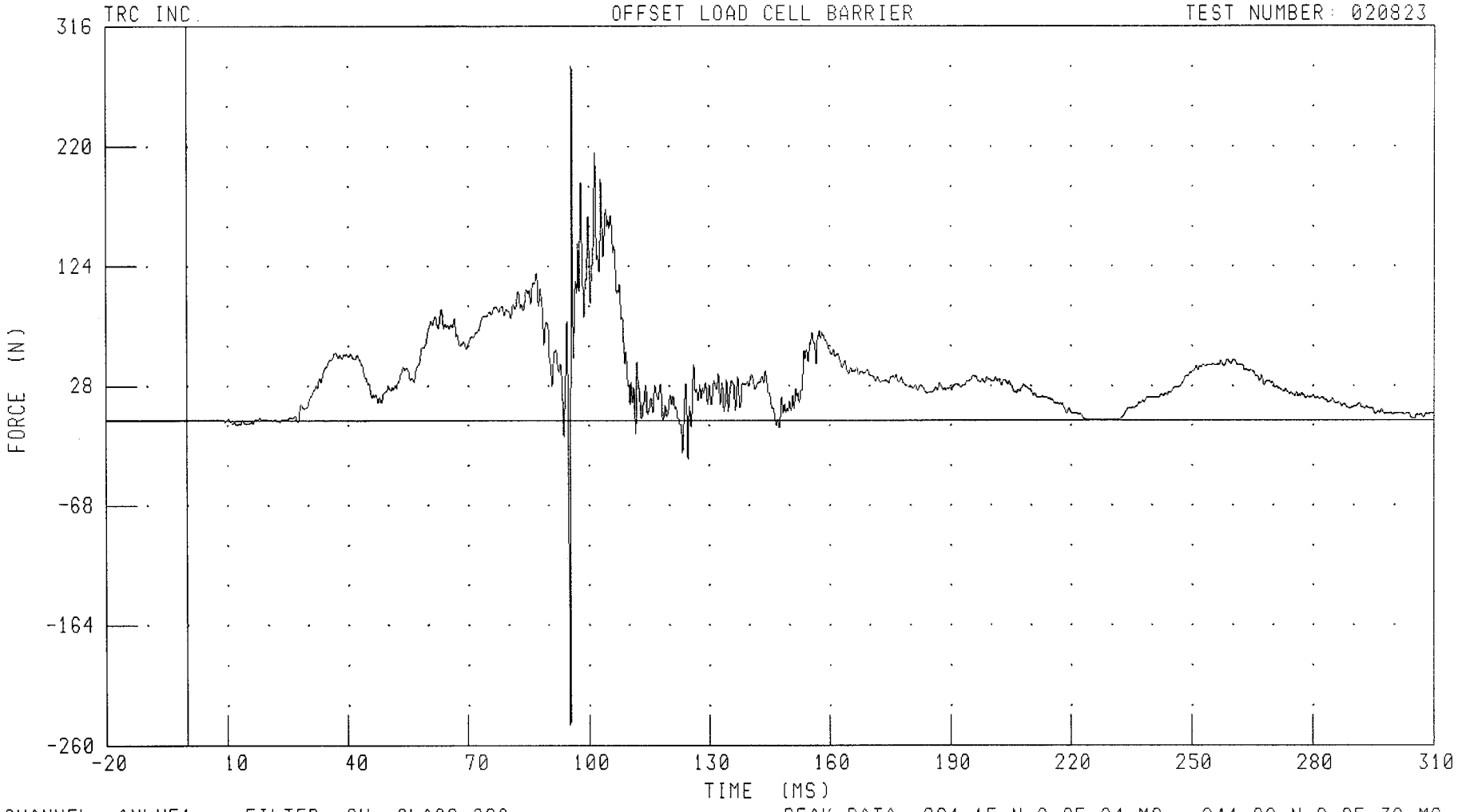
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER LEFT LOWER TIBIA X-AXIS FORCE



CHANNEL: ANLXF1 FILTER: CH. CLASS 600 PEAK DATA: 5.45 N @ 4.40 MS; -1006.46 N @ 105.68 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT LOWER TIBIA Y-AXIS FORCE

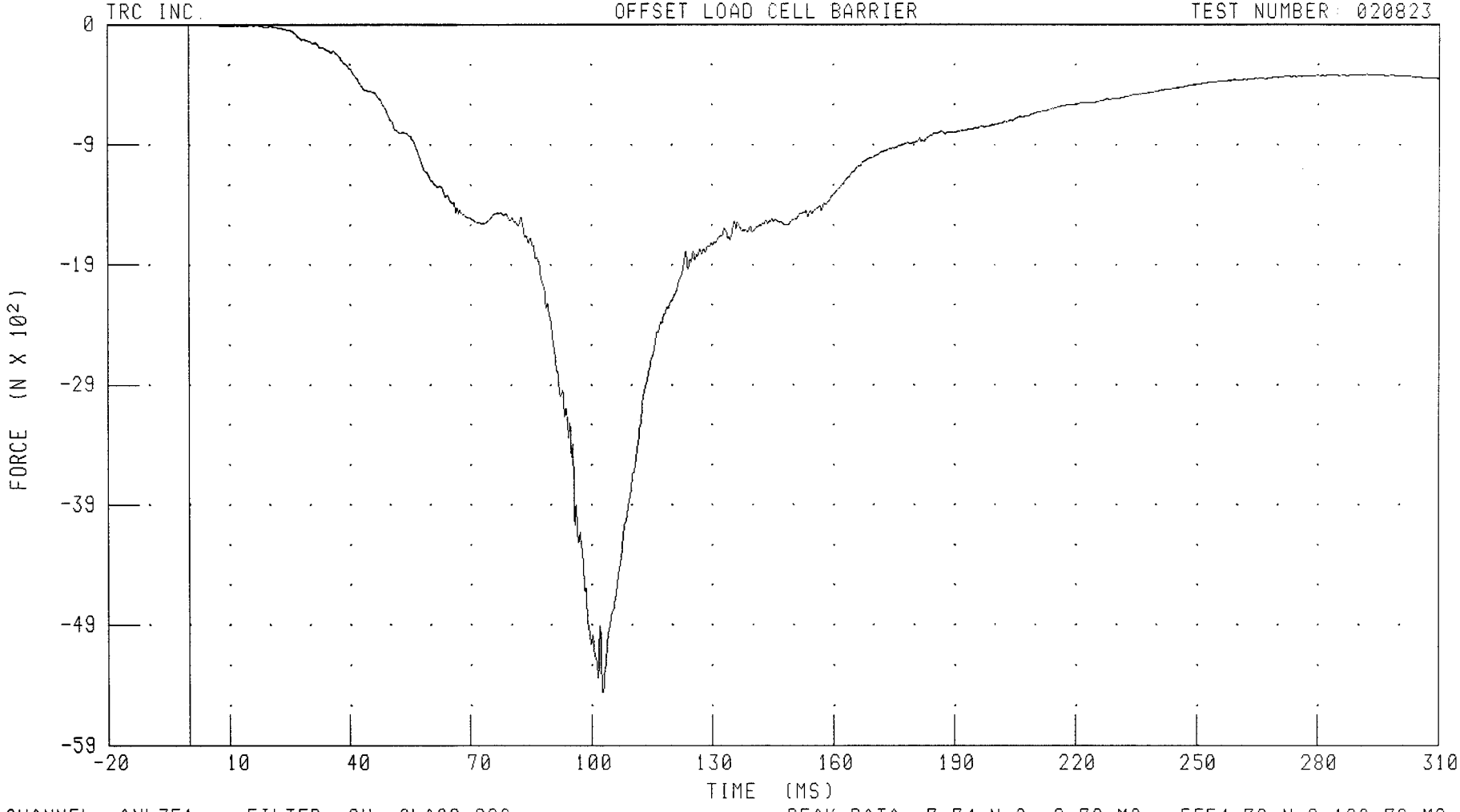


CHANNEL: ANLYF1 FILTER: CH. CLASS 600 PEAK DATA: 284.15 N @ 95.84 MS; -244.02 N @ 95.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

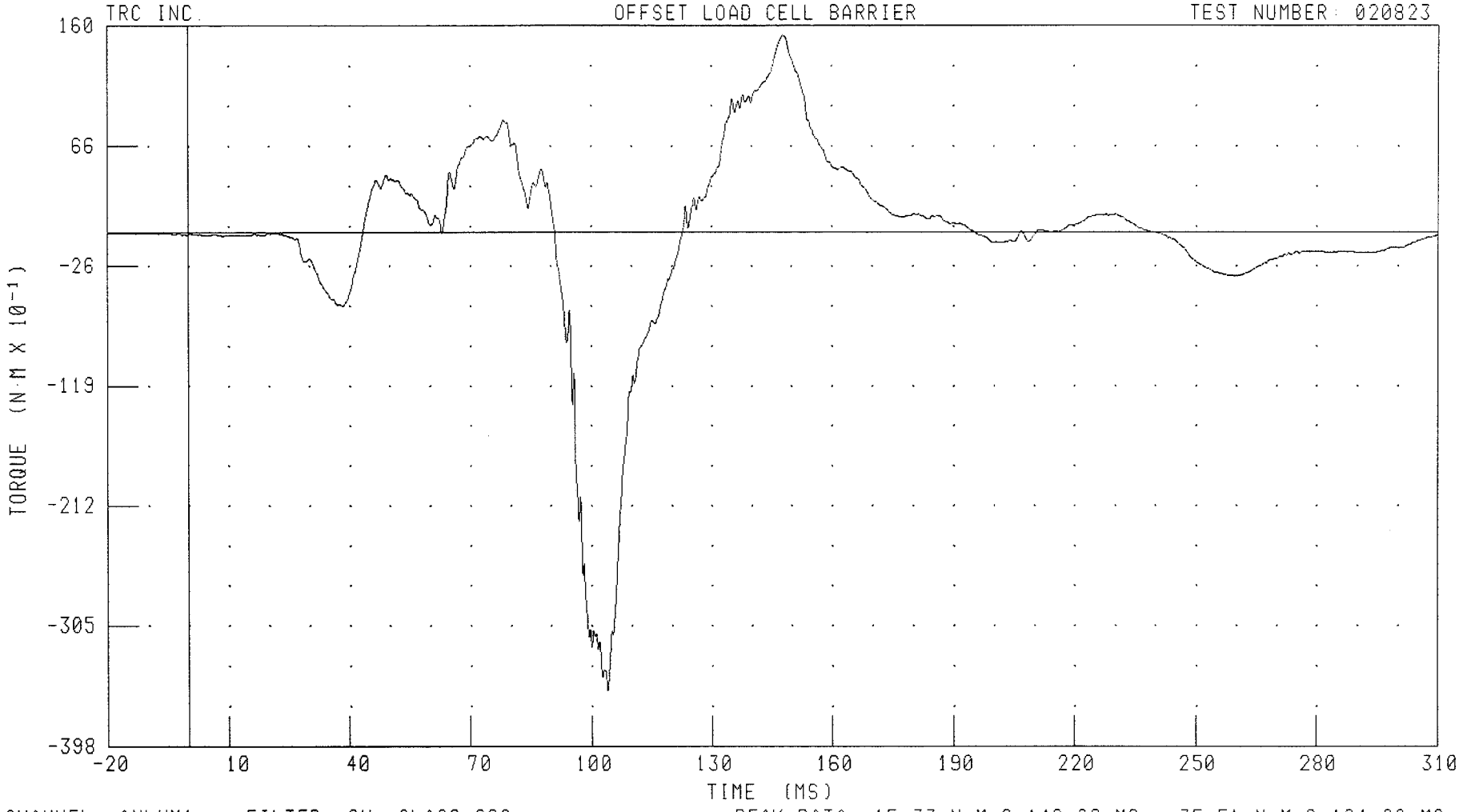
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



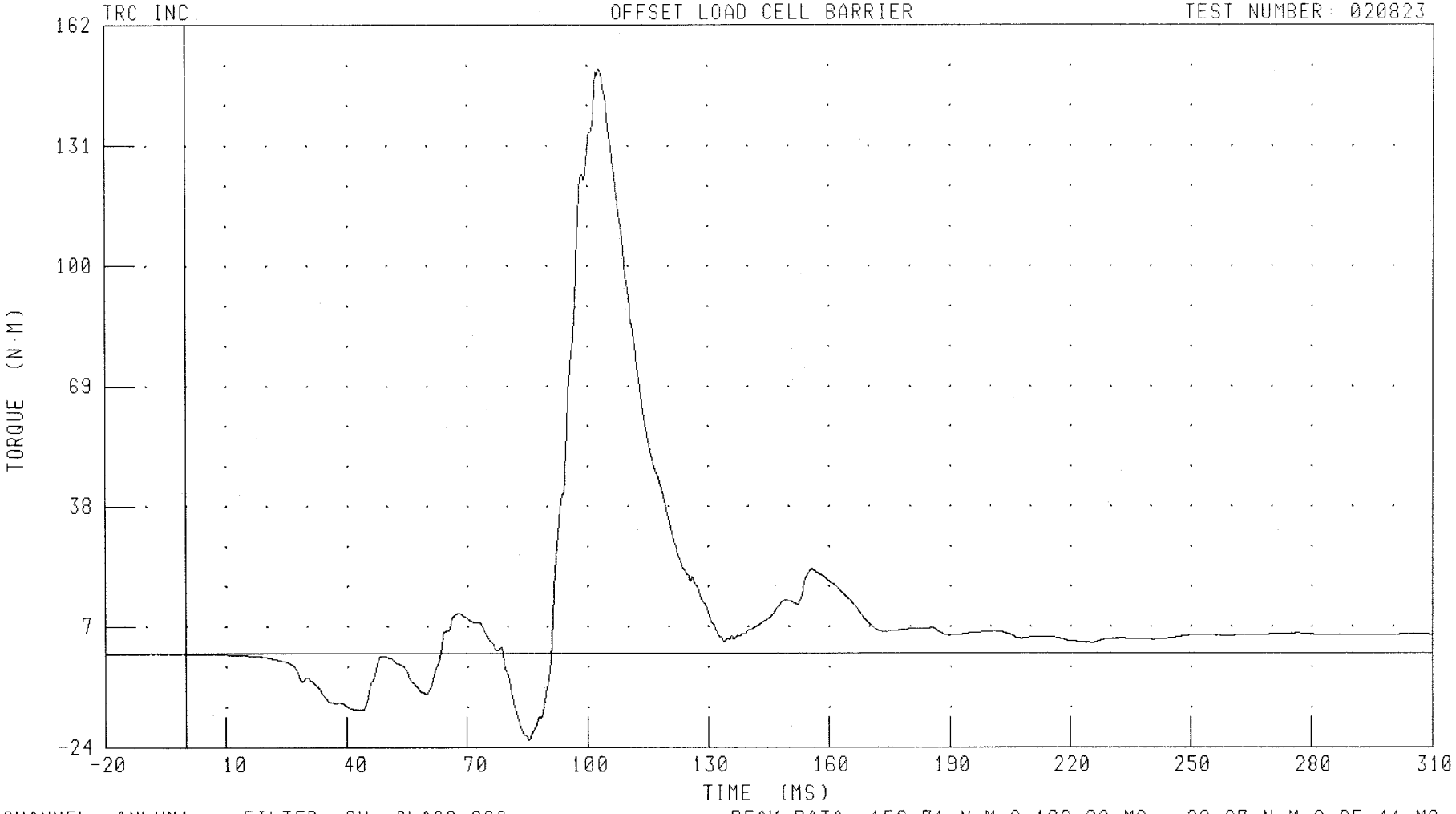
CHANNEL: ANLZF1 FILTER: CH. CLASS 600 PEAK DATA: 7.74 N @ -9.76 MS; -5554.76 N @ 102.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT LOWER TIBIA MOMENT ABOUT X AXIS



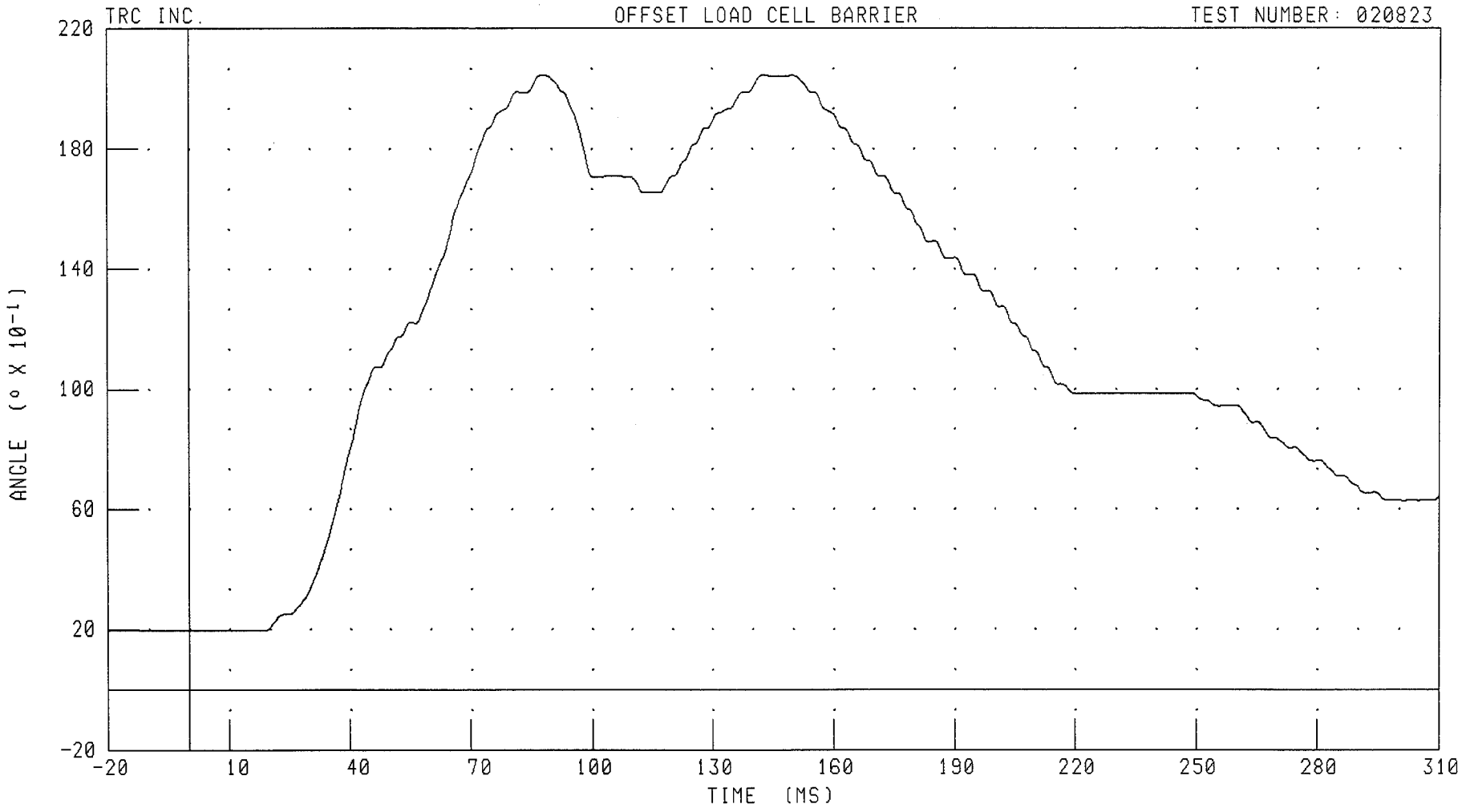
CHANNEL: ANLXM1 FILTER: CH. CLASS 600 PEAK DATA: 15.33 N-M @ 148.08 MS; -35.51 N-M @ 104.08 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS



CHANNEL: ANLYM1 FILTER: CH. CLASS 600 PEAK DATA: 150.71 N-M @ 102.88 MS; -22.07 N-M @ 85.44 MS

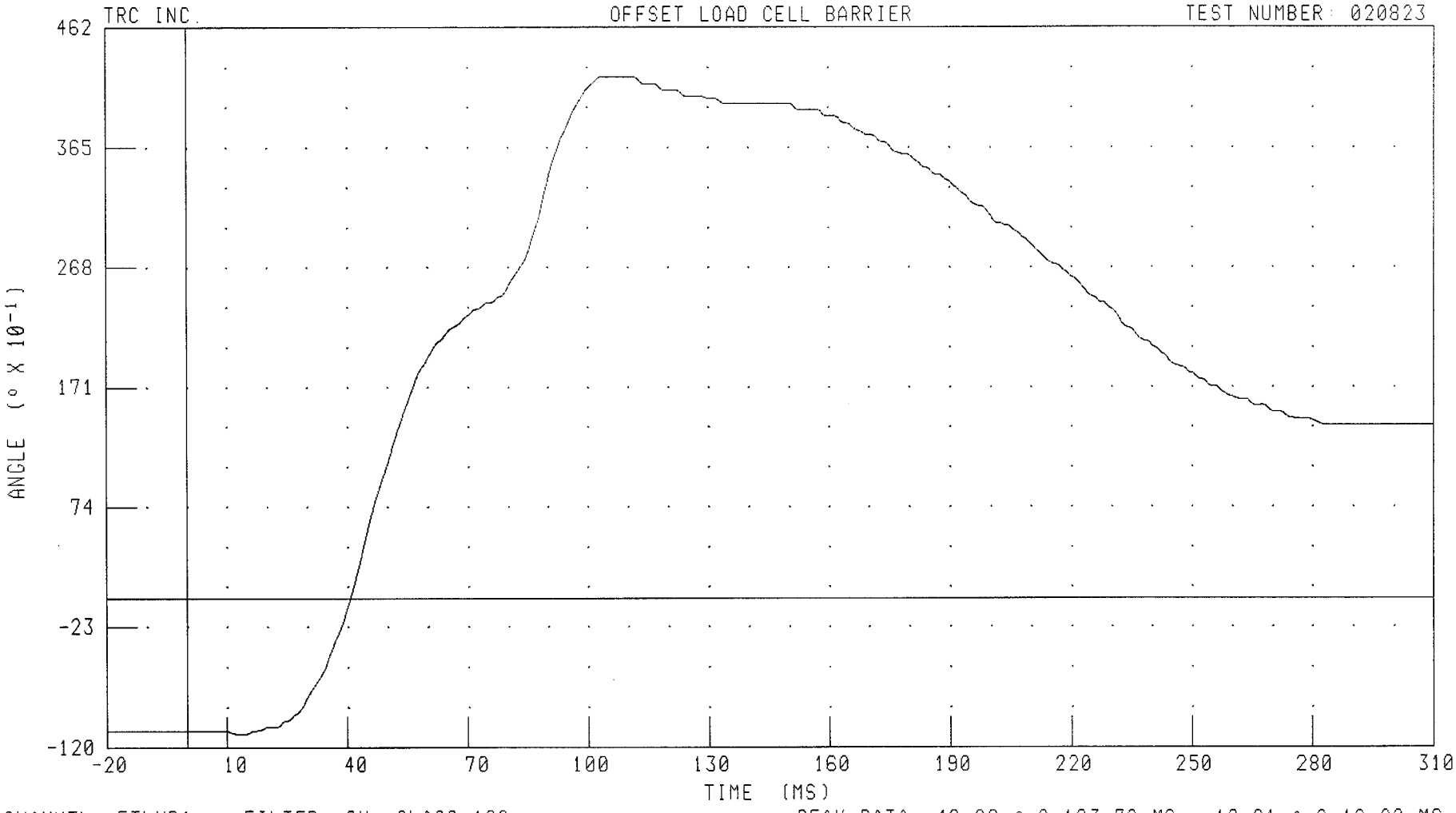
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT FOOT TO ANKLE X-AXIS DISPLACEMENT



CHANNEL: FTLXD1 FILTER: CH. CLASS 180 PEAK DATA: 20.45 ° @ 142.80 MS; 1.96 ° @ 9.76 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

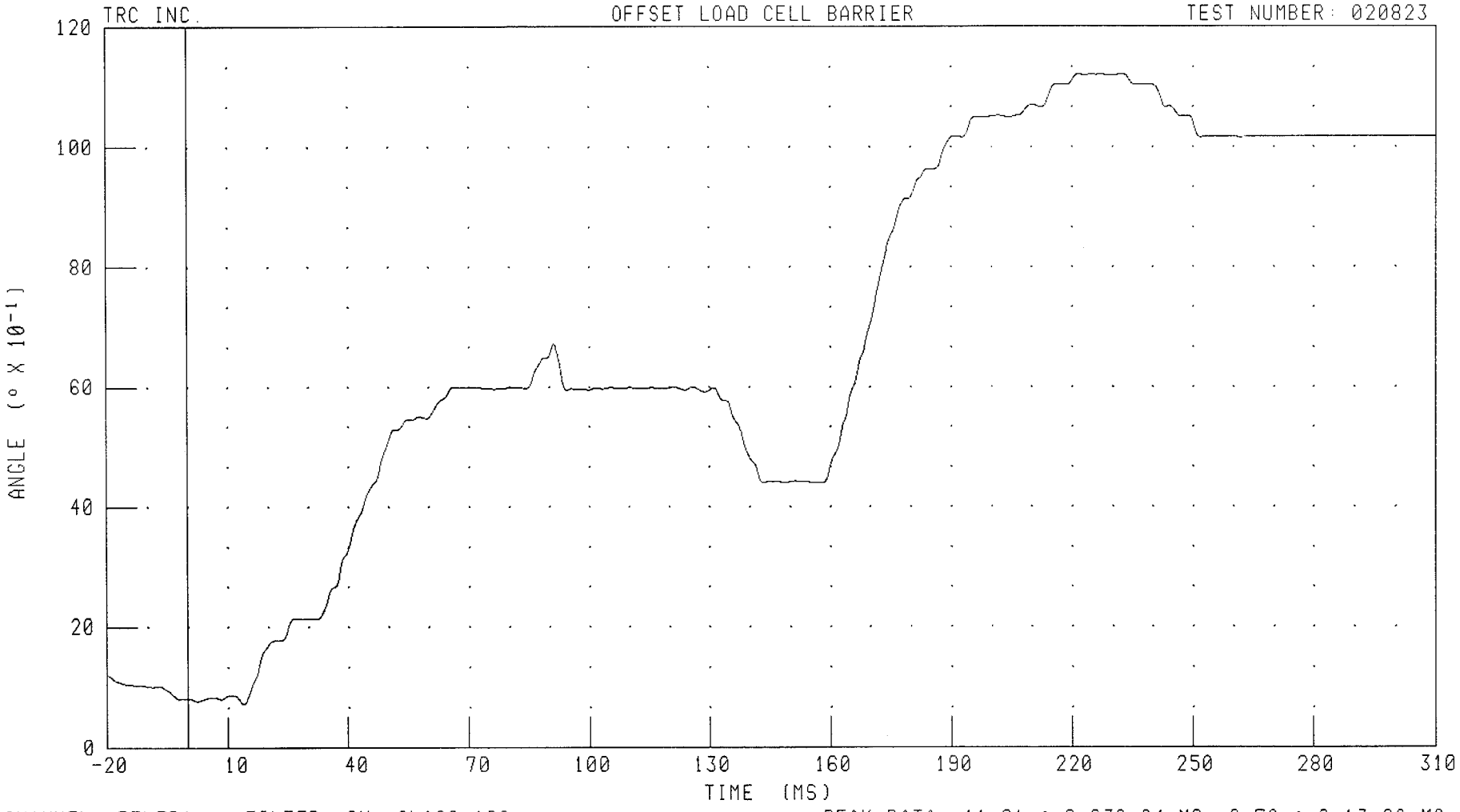
DRIVER LEFT FOOT TO ANKLE Y-AXIS DISPLACEMENT



CHANNEL: FTLYD1 FILTER: CH. CLASS 180 PEAK DATA: 42.20 ° @ 103.76 MS; -10.91 ° @ 12.80 MS

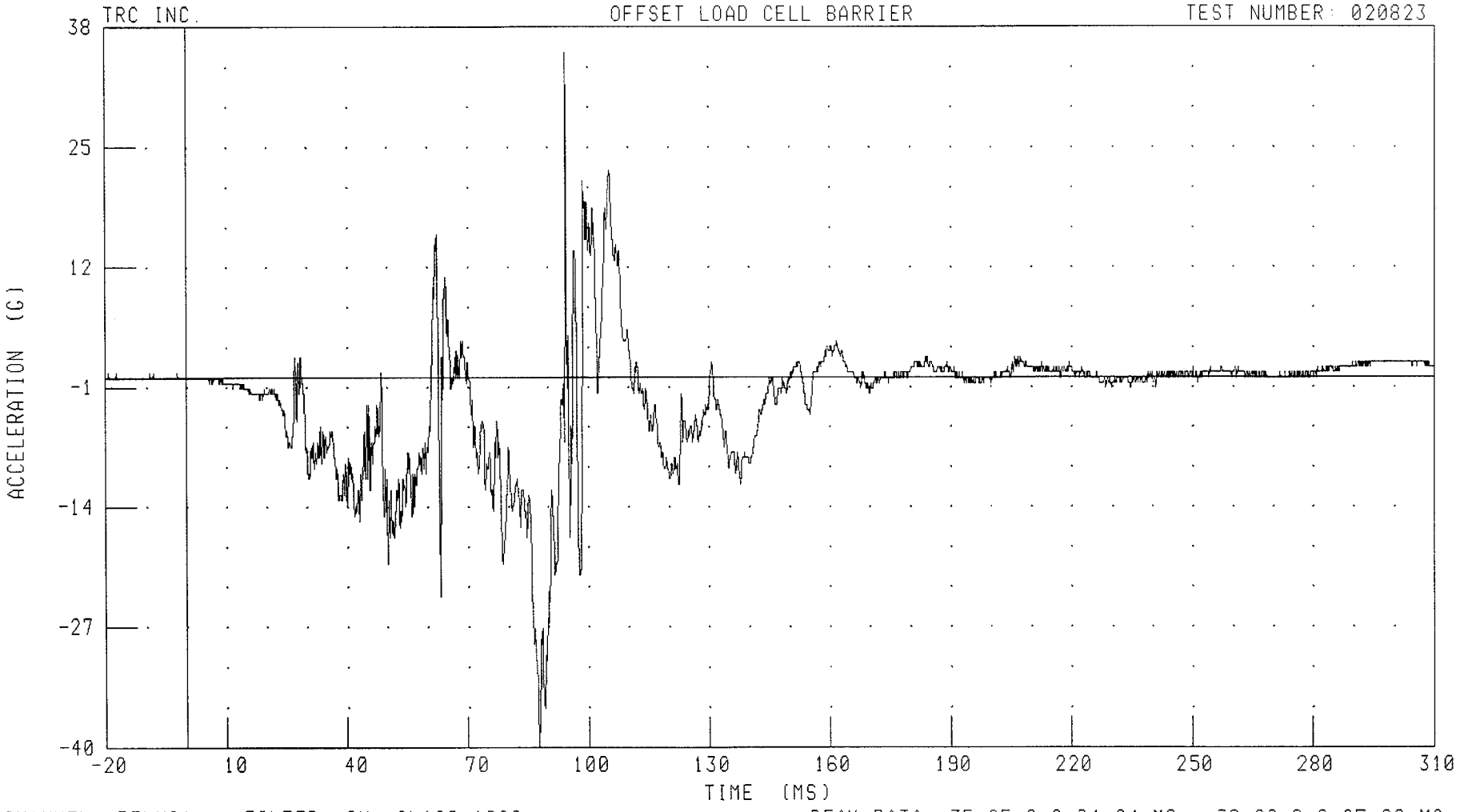
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER LEFT FOOT TO ANKLE Z-AXIS DISPLACEMENT



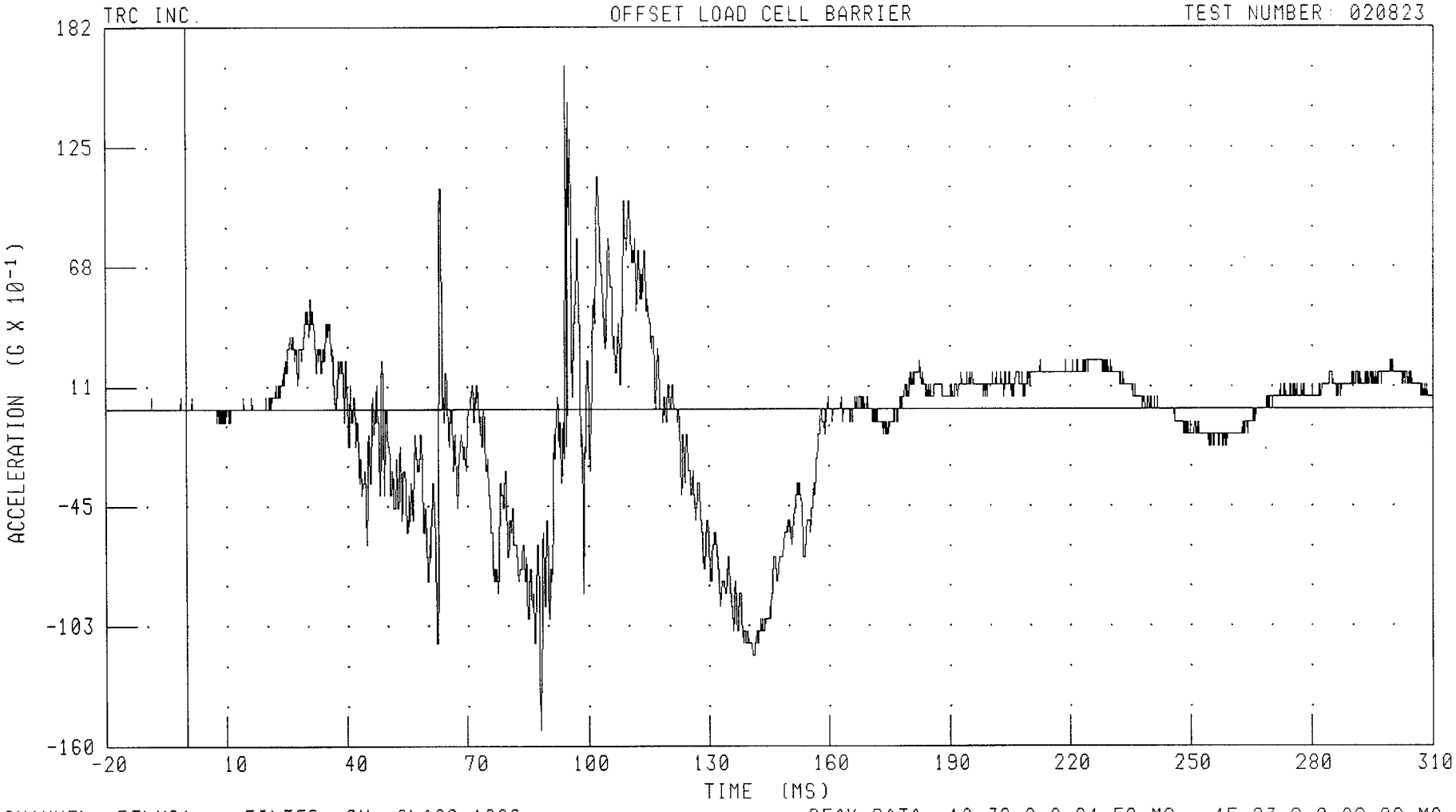
CHANNEL: FTLZD1 FILTER: CH. CLASS 180 PEAK DATA: 11.21 ° @ 232.64 MS; 0.72 ° @ 13.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT FOOT X-AXIS ACCELERATION



CHANNEL: FTLXG1 FILTER: CH. CLASS 1000 PEAK DATA: 35.25 G @ 94.64 MS; -39.90 G @ 87.68 MS

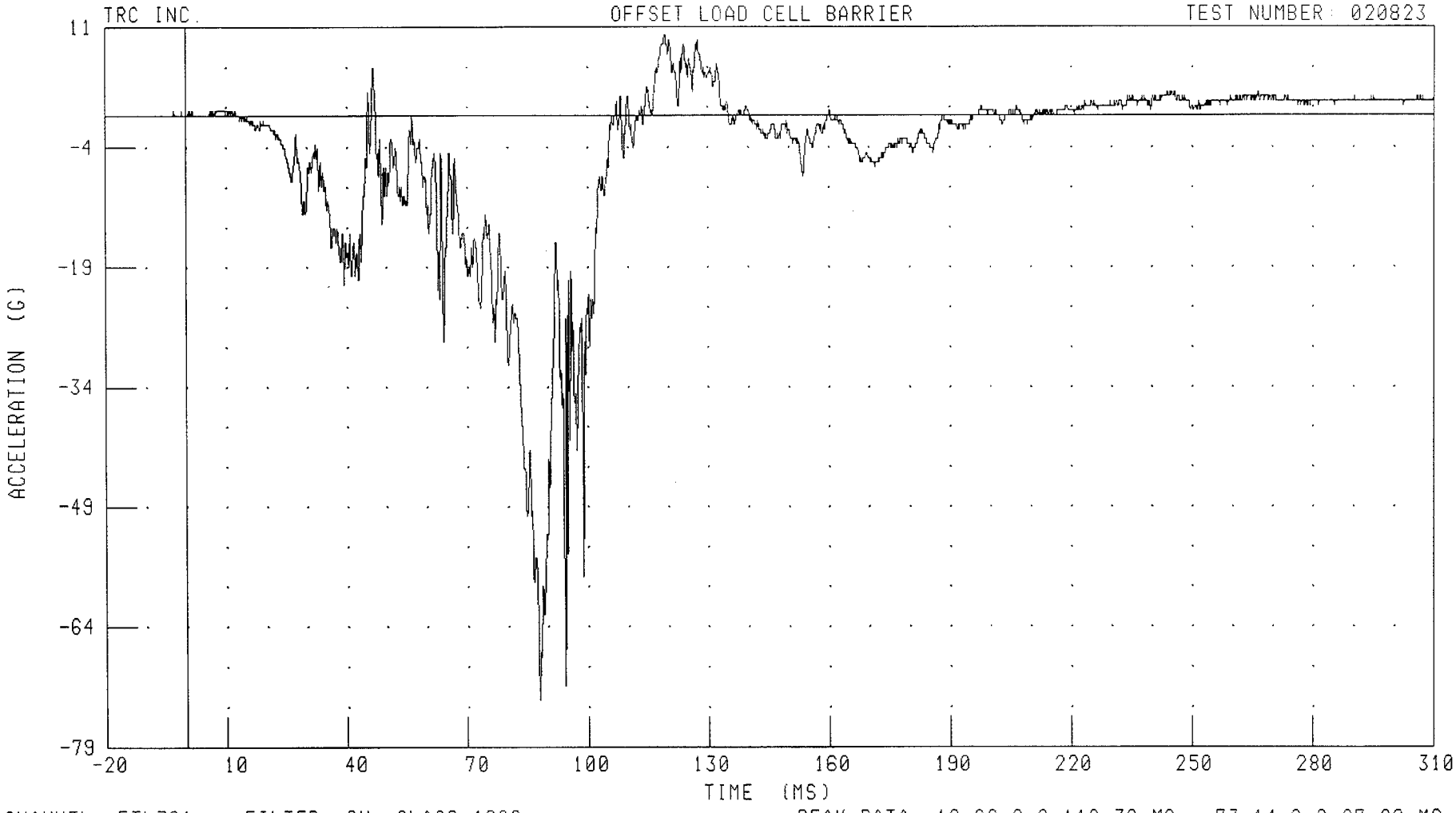
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER LEFT FOOT Y-AXIS ACCELERATION



CHANNEL: FTLYG1 FILTER: CH. CLASS 1000 PEAK DATA: 16.39 G @ 94.56 MS, -15.23 G @ 88.08 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

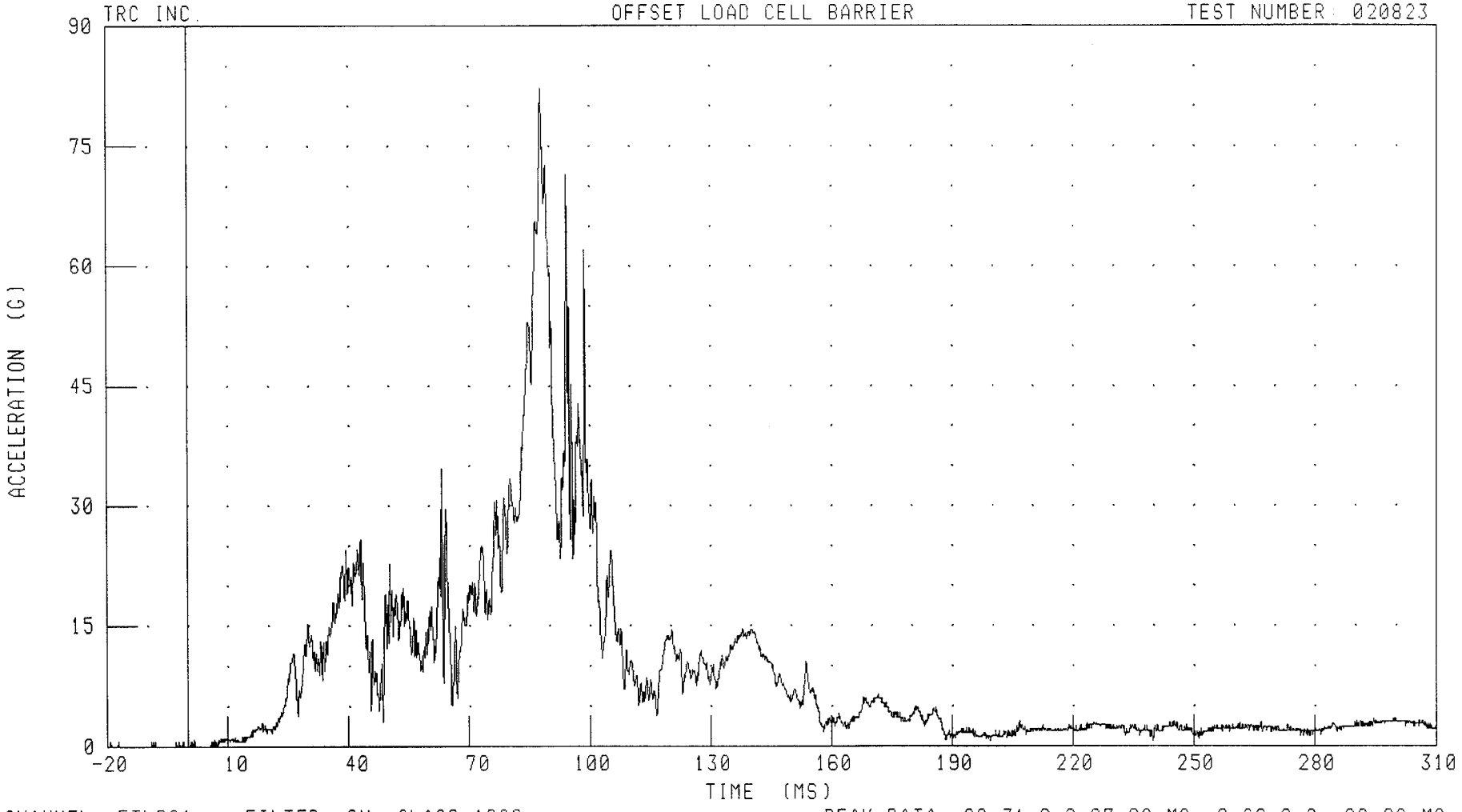
DRIVER LEFT FOOT Z-AXIS ACCELERATION



CHANNEL: FTLZG1 FILTER: CH. CLASS 1000 PEAK DATA: 10.02 G @ 119.36 MS; -73.14 G @ 87.92 MS

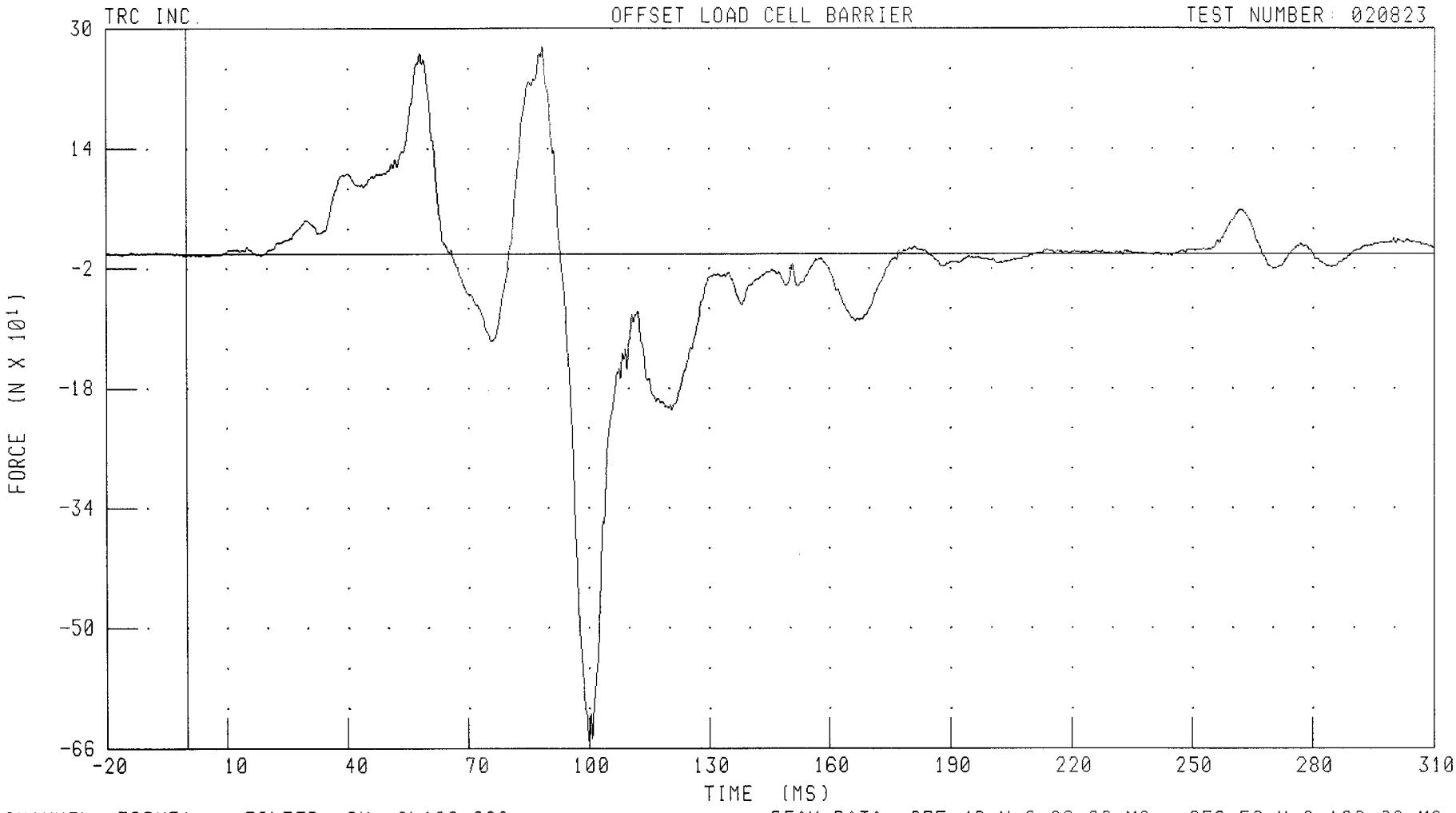
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER LEFT FOOT RESULTANT ACCELERATION



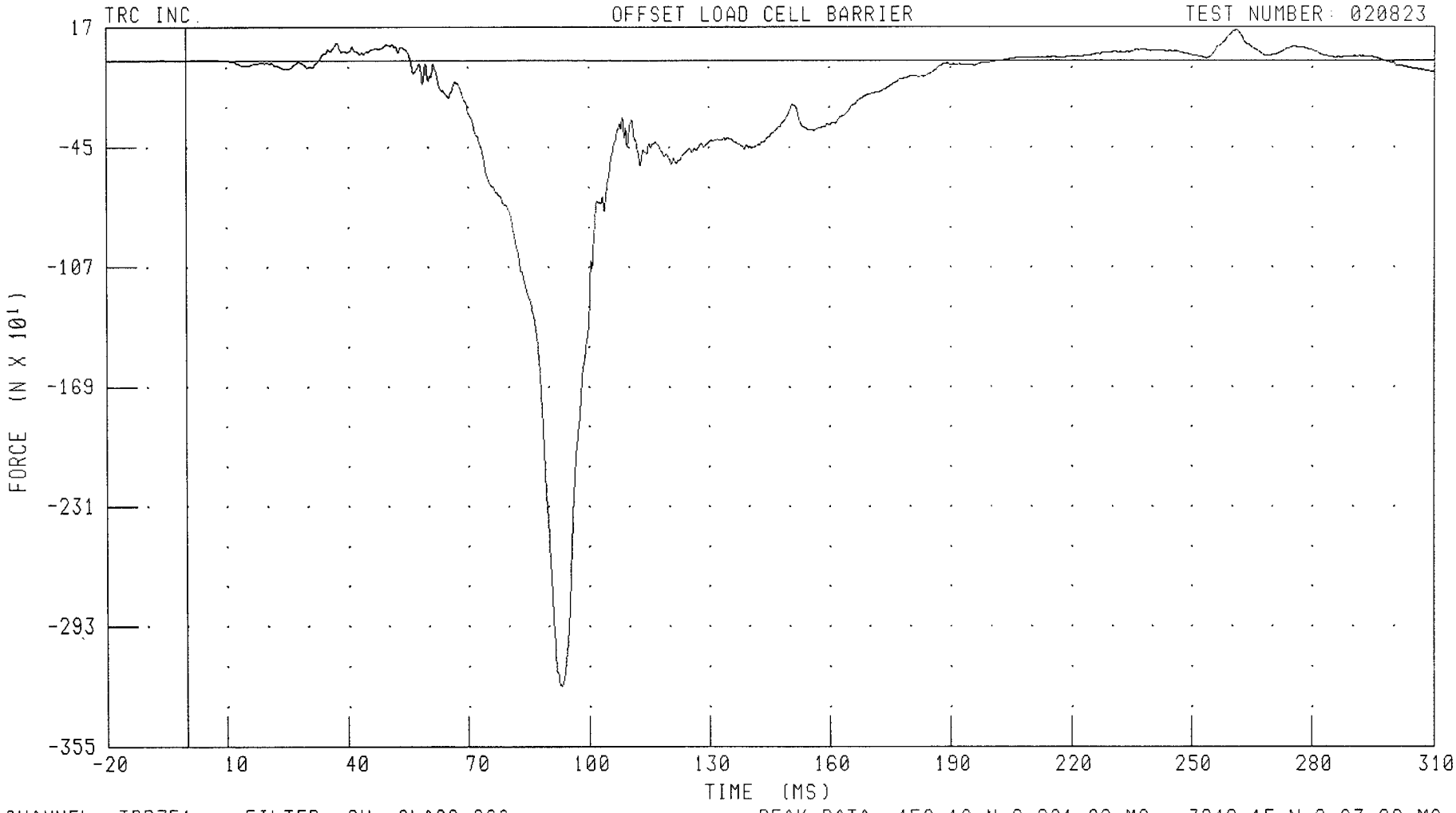
CHANNEL: FTLRG1 FILTER: CH. CLASS 1000 PEAK DATA: 82.31 G @ 87.92 MS; 0.02 G @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT UPPER TIBIA X-AXIS FORCE



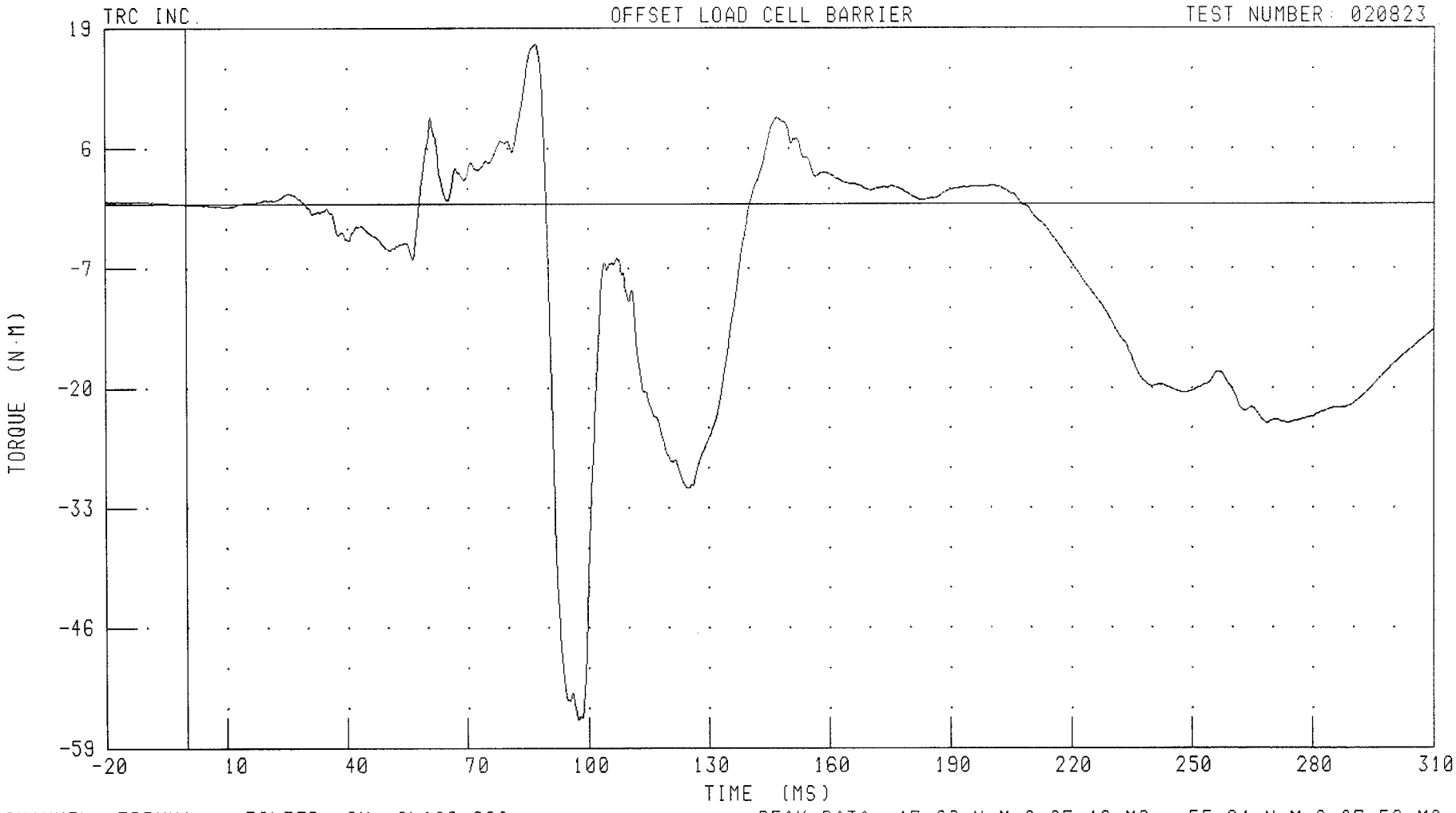
CHANNEL: TBRXF1 FILTER: CH. CLASS 600 PEAK DATA: 275.49 N @ 88.80 MS; -650.52 N @ 100.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT UPPER TIBIA Z-AXIS FORCE



CHANNEL: TBRZF1 FILTER: CH. CLASS 600 PEAK DATA: 156.12 N @ 261.28 MS; -3242.15 N @ 93.28 MS

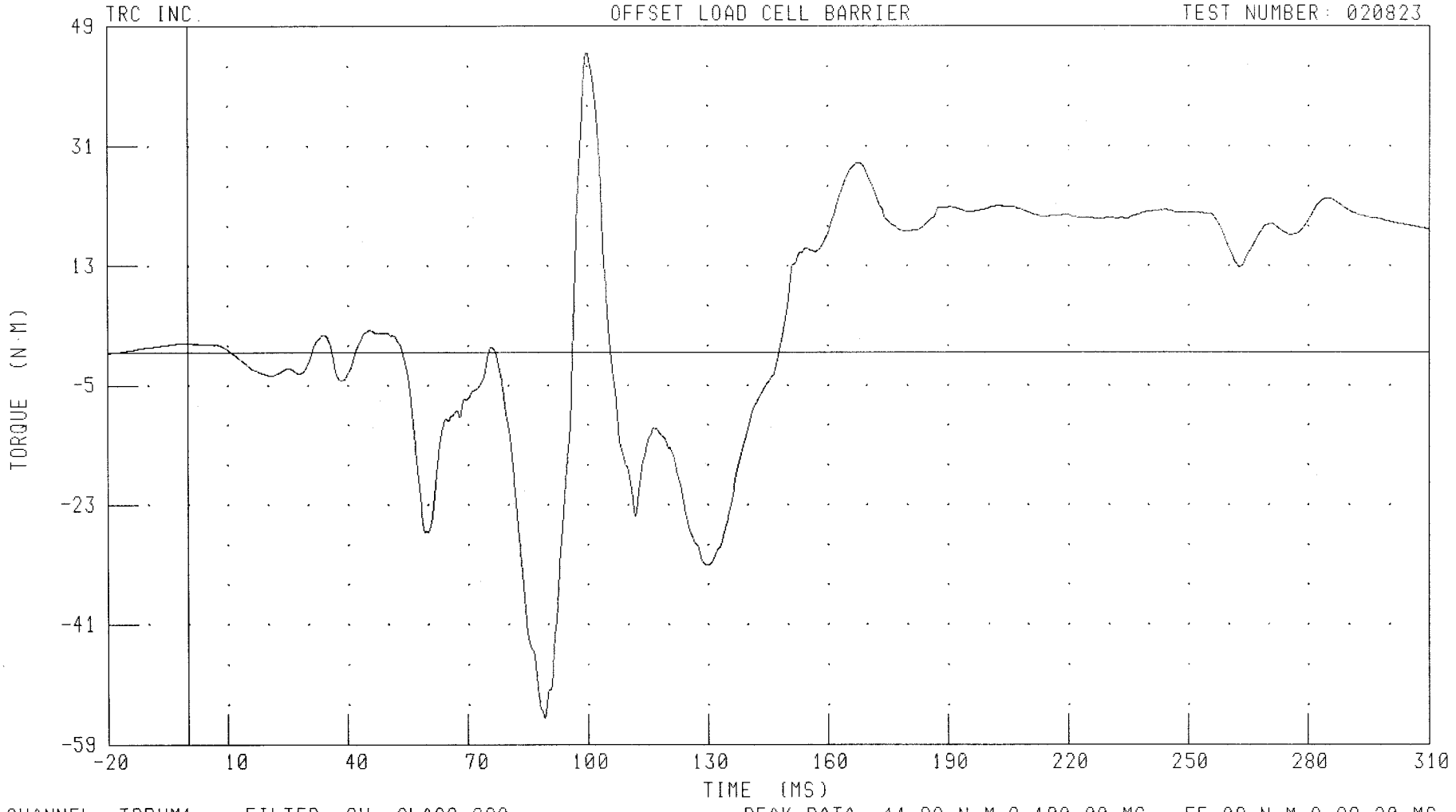
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS



CHANNEL: TBRXM1 FILTER: CH. CLASS 600 PEAK DATA: 17.28 N-M @ 87.12 MS; -55.94 N-M @ 97.52 MS

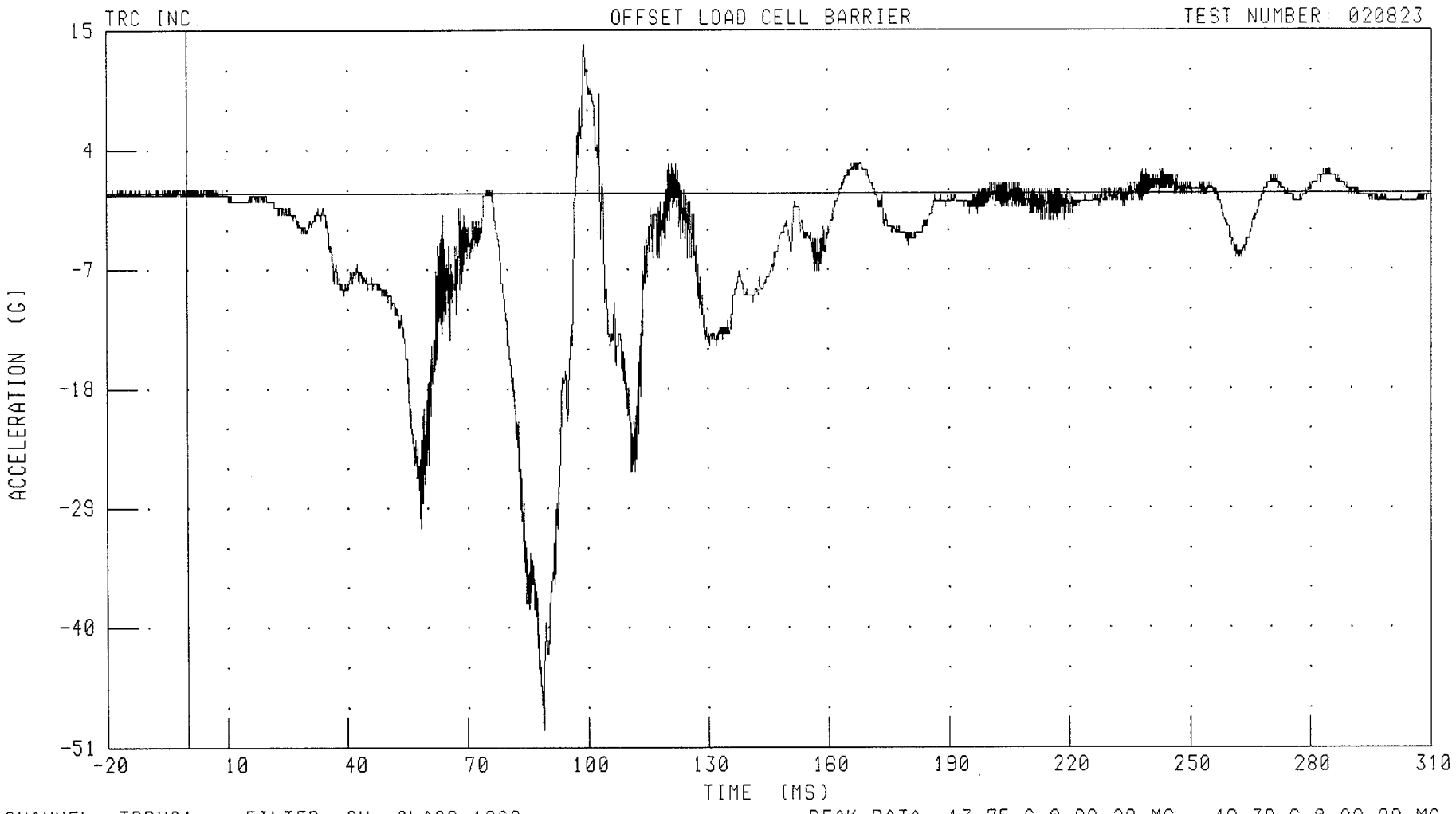
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS



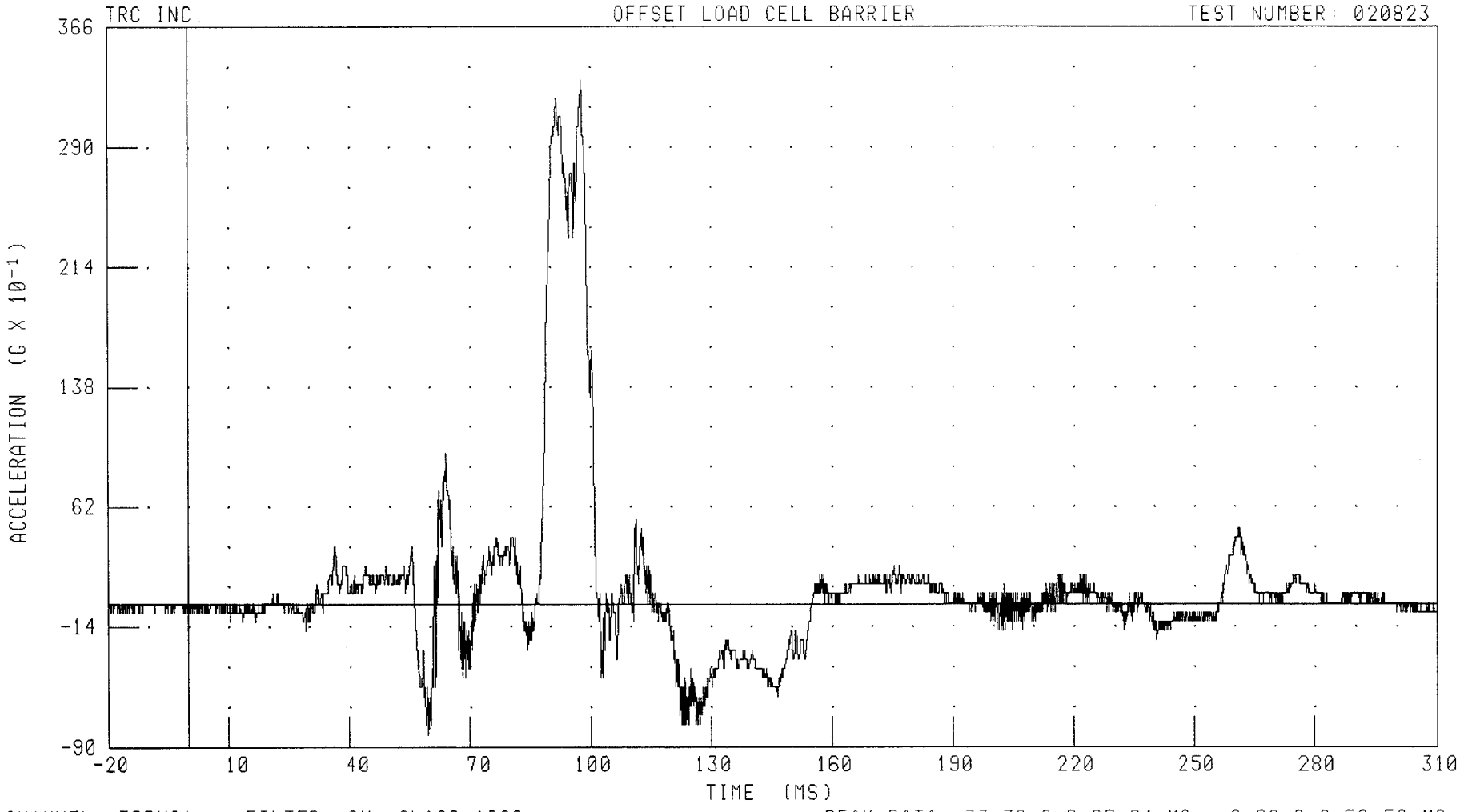
CHANNEL: TBRYM1 FILTER: CH. CLASS 600 PEAK DATA: 44.99 N-M @ 100.00 MS; -55.08 N-M @ 89.20 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT TIBIA X-AXIS ACCELERATION



CHANNEL: TBRXG1 FILTER: CH. CLASS 1000 PEAK DATA: 13.75 G @ 99.28 MS; -49.38 G @ 88.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT TIBIA Y-AXIS ACCELERATION

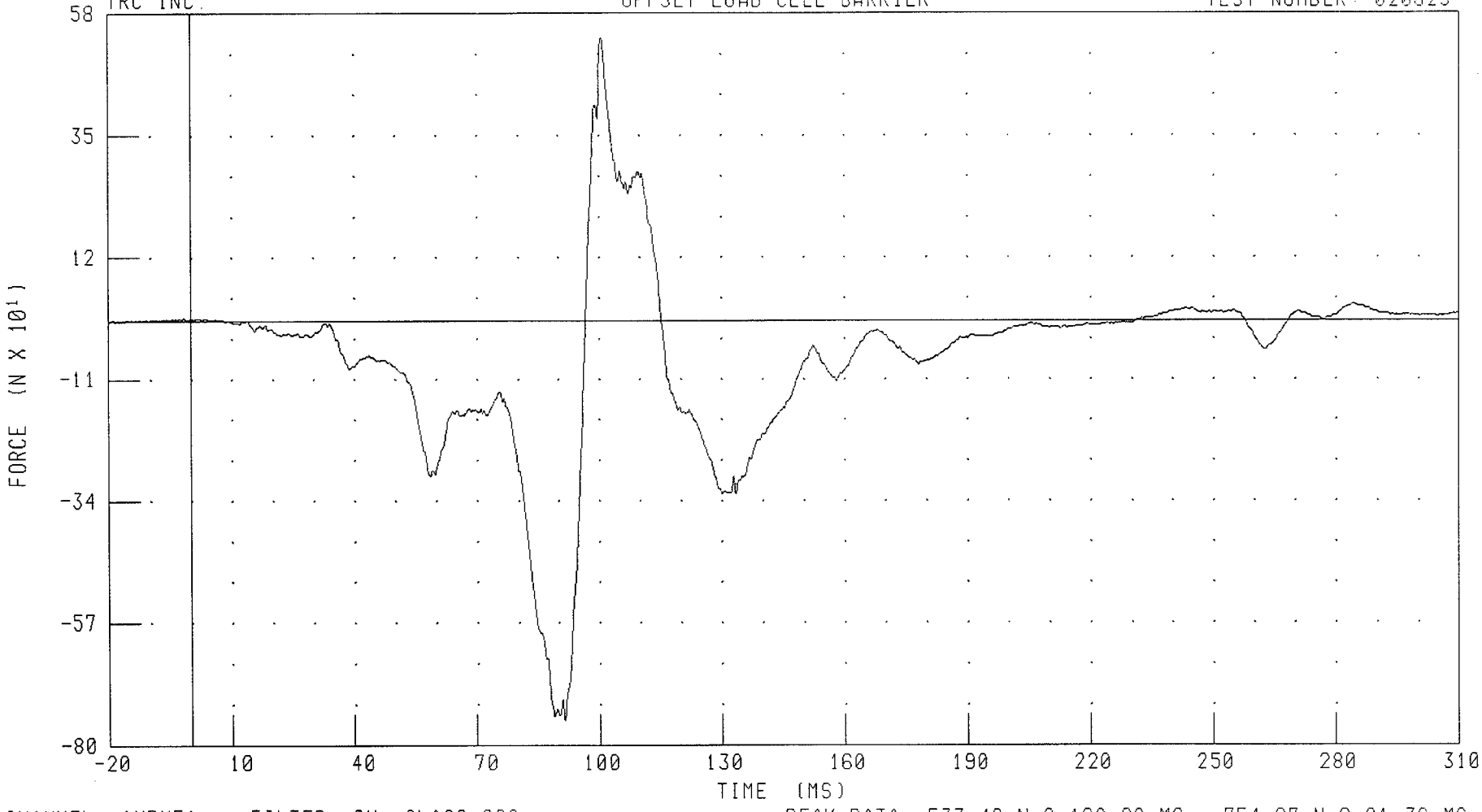


CHANNEL: TBRYG1 FILTER: CH. CLASS 1000 PEAK DATA: 33.30 G @ 97.84 MS; -8.20 G @ 59.52 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER RIGHT LOWER TIBIA X-AXIS FORCE

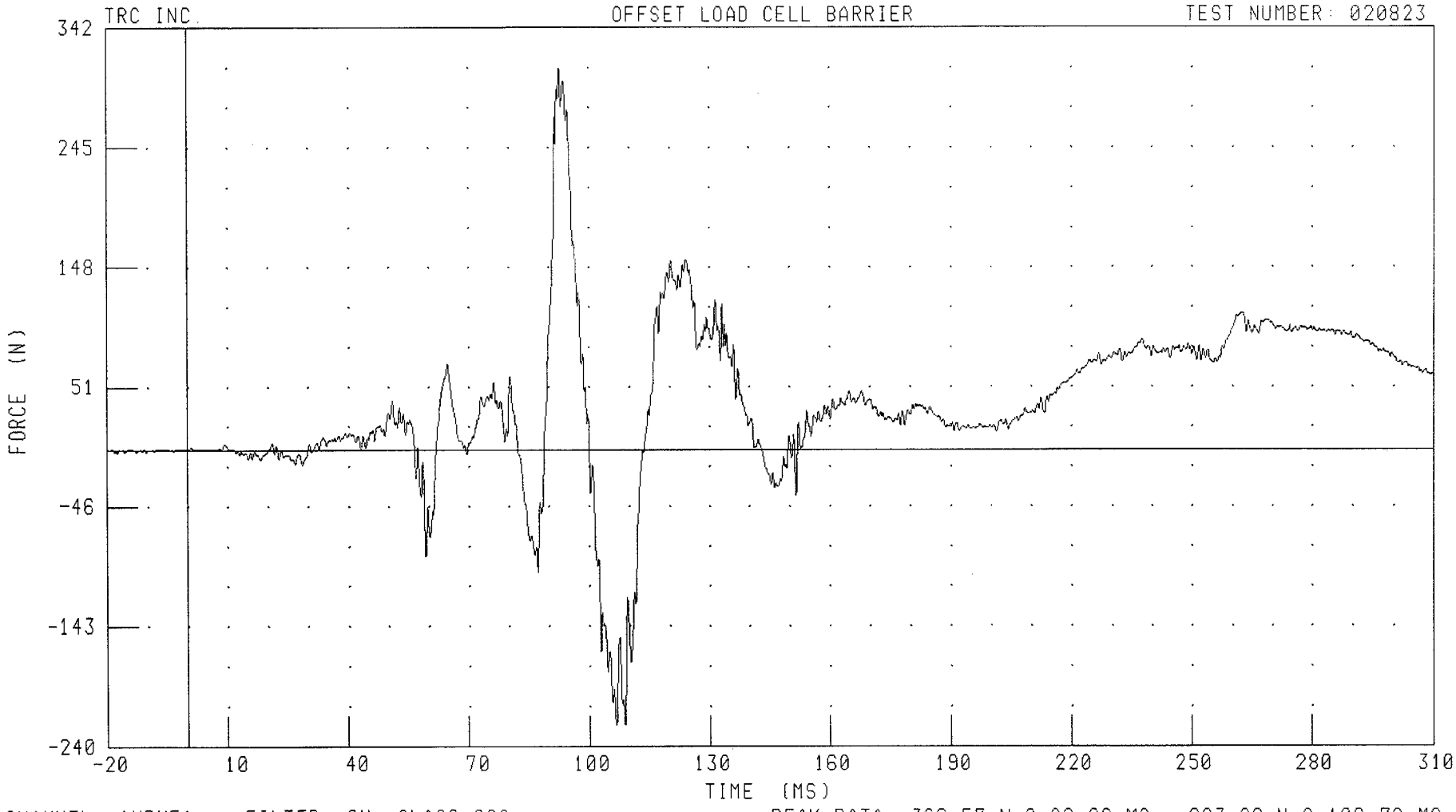
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: ANRXF1 FILTER: CH. CLASS 600

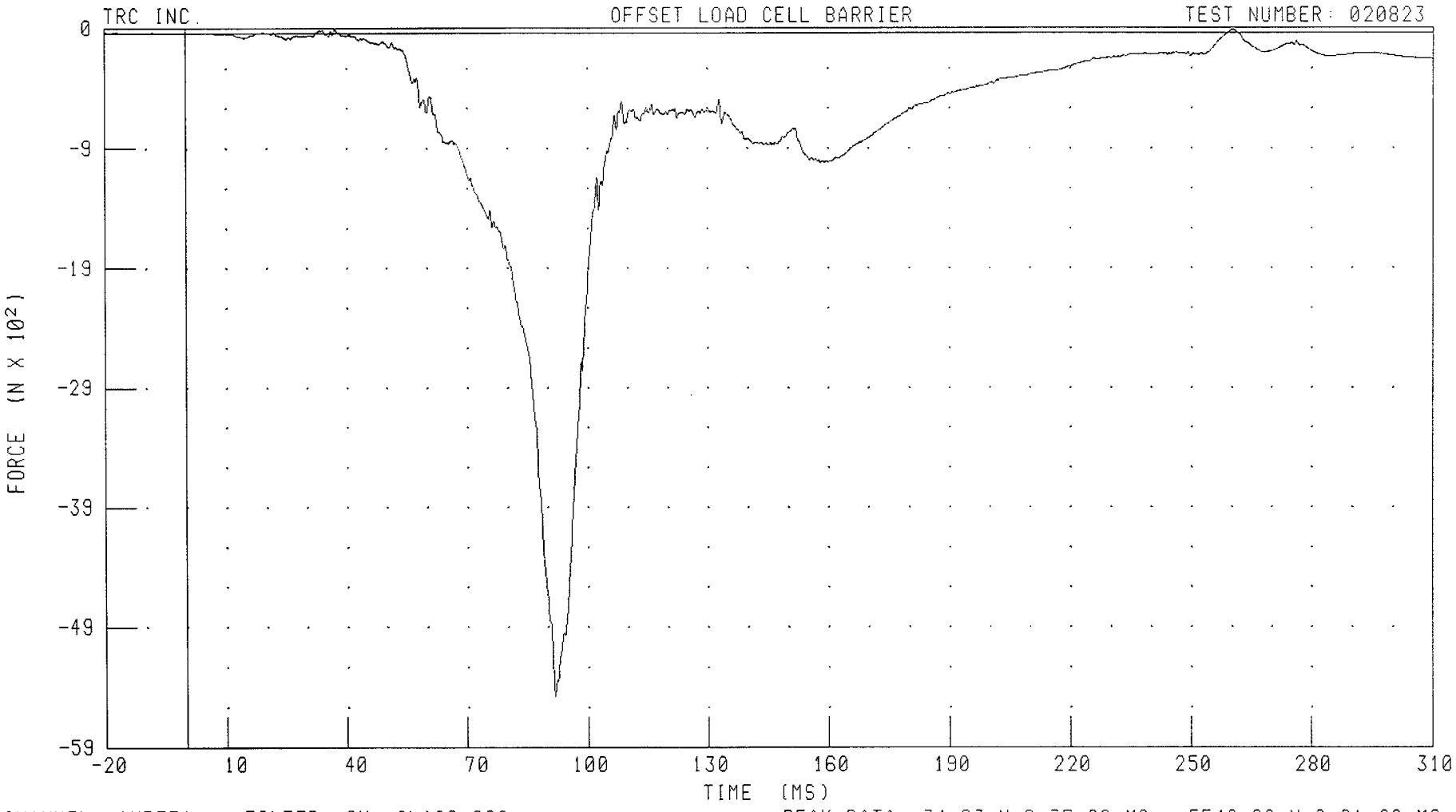
PEAK DATA: 533.40 N @ 100.88 MS; -754.07 N @ 91.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT LOWER TIBIA Y-AXIS FORCE



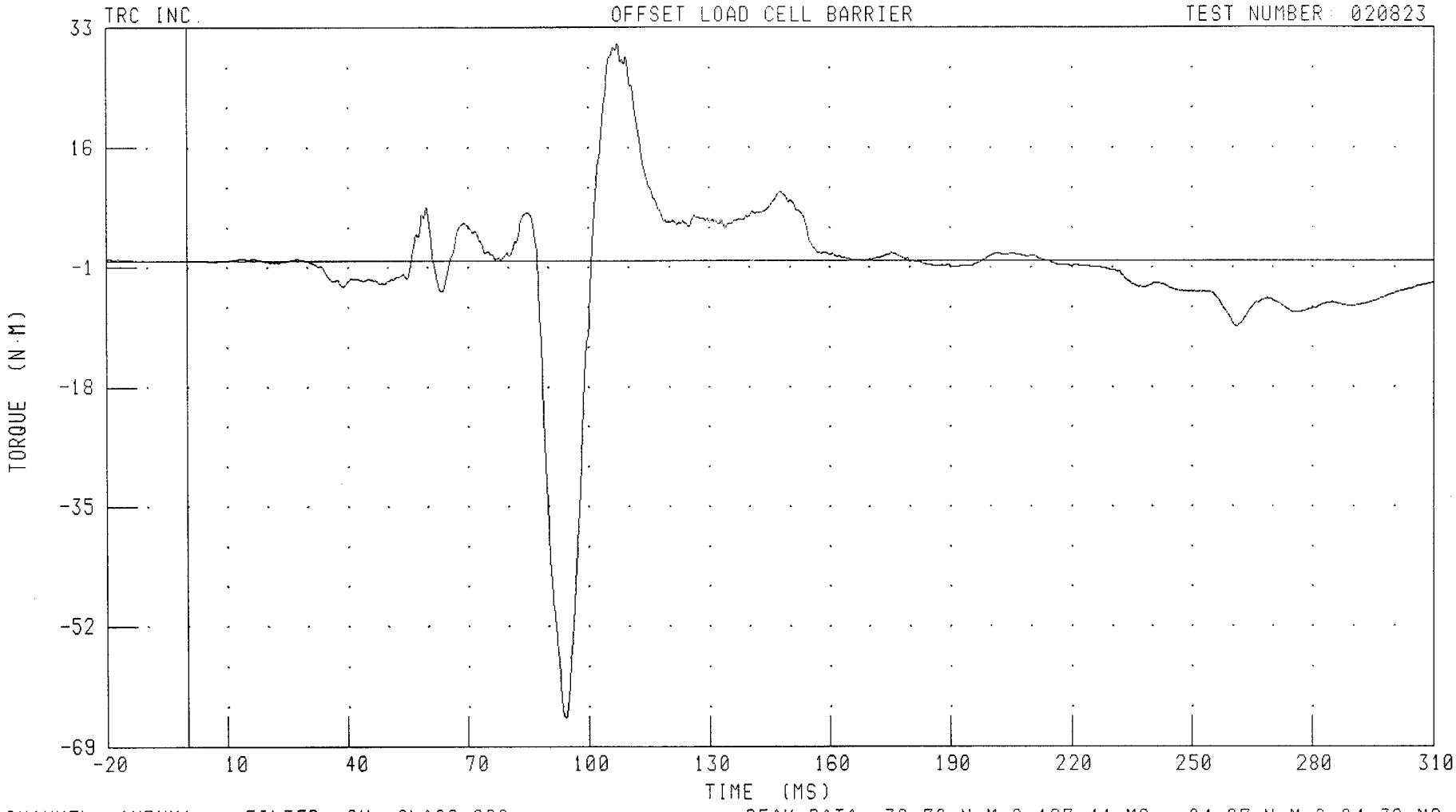
CHANNEL: ANRYF1 FILTER: CH. CLASS 600 PEAK DATA: 309.57 N @ 92.80 MS; -223.26 N @ 106.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE



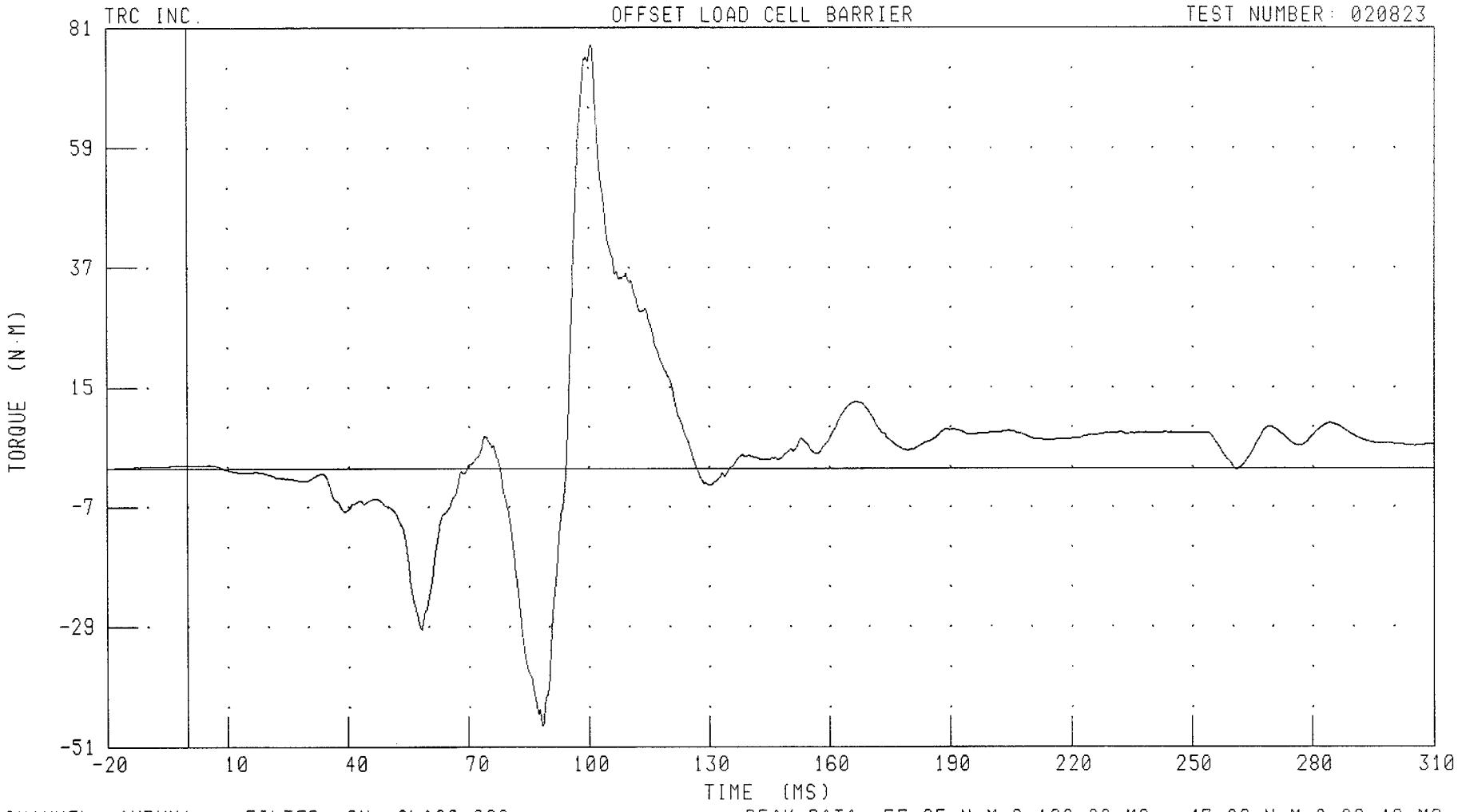
CHANNEL: ANRZF1 FILTER: CH. CLASS 600 PEAK DATA: 34.23 N @ 37.28 MS; -5540.20 N @ 91.68 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS



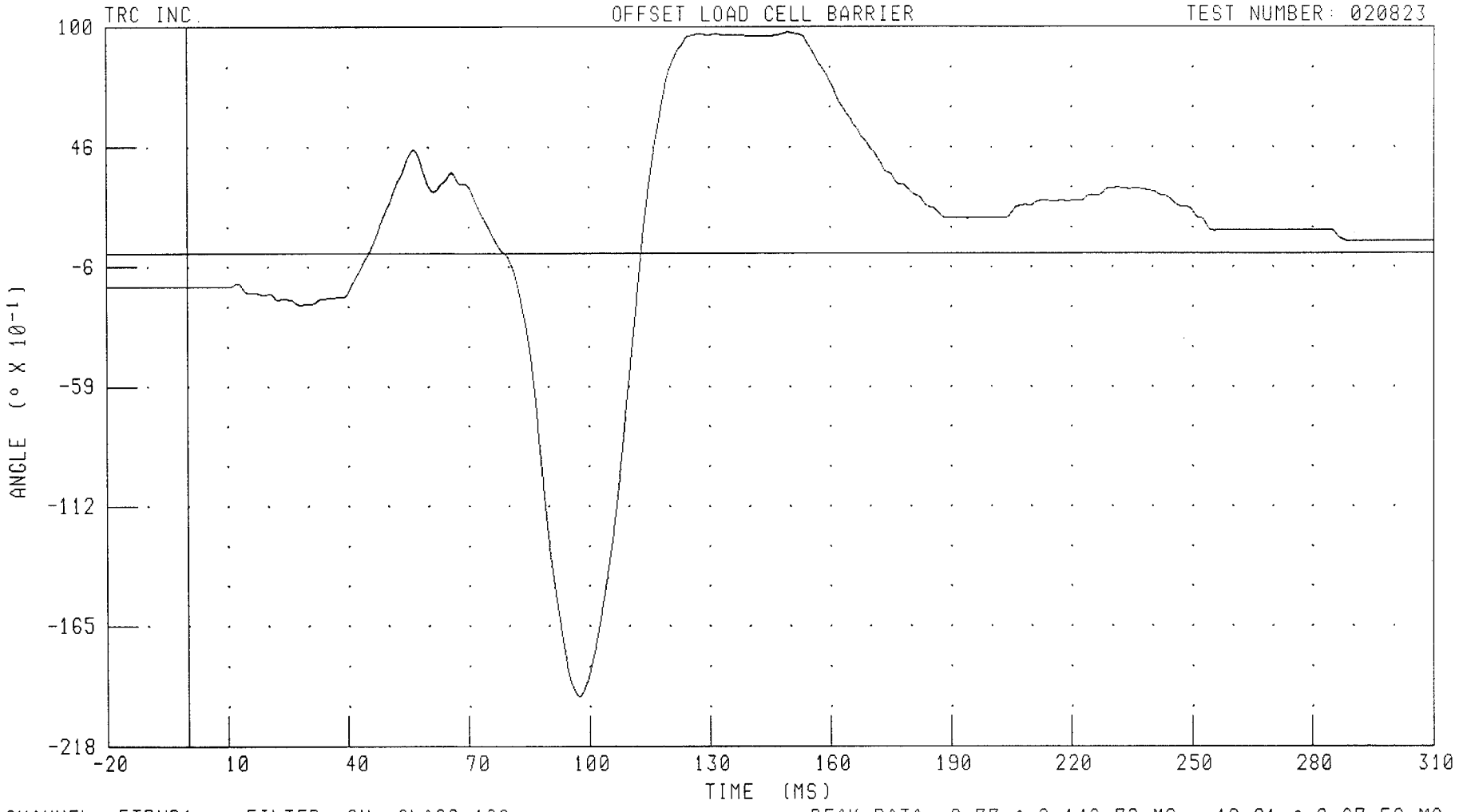
CHANNEL: ANRXM1 FILTER: CH. CLASS 600 PEAK DATA: 30.70 N·M @ 107.44 MS; -64.97 N·M @ 94.32 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS



CHANNEL: ANRYM1 FILTER: CH. CLASS 600 PEAK DATA: 77.95 N-M @ 100.88 MS; -47.20 N-M @ 88.40 MS

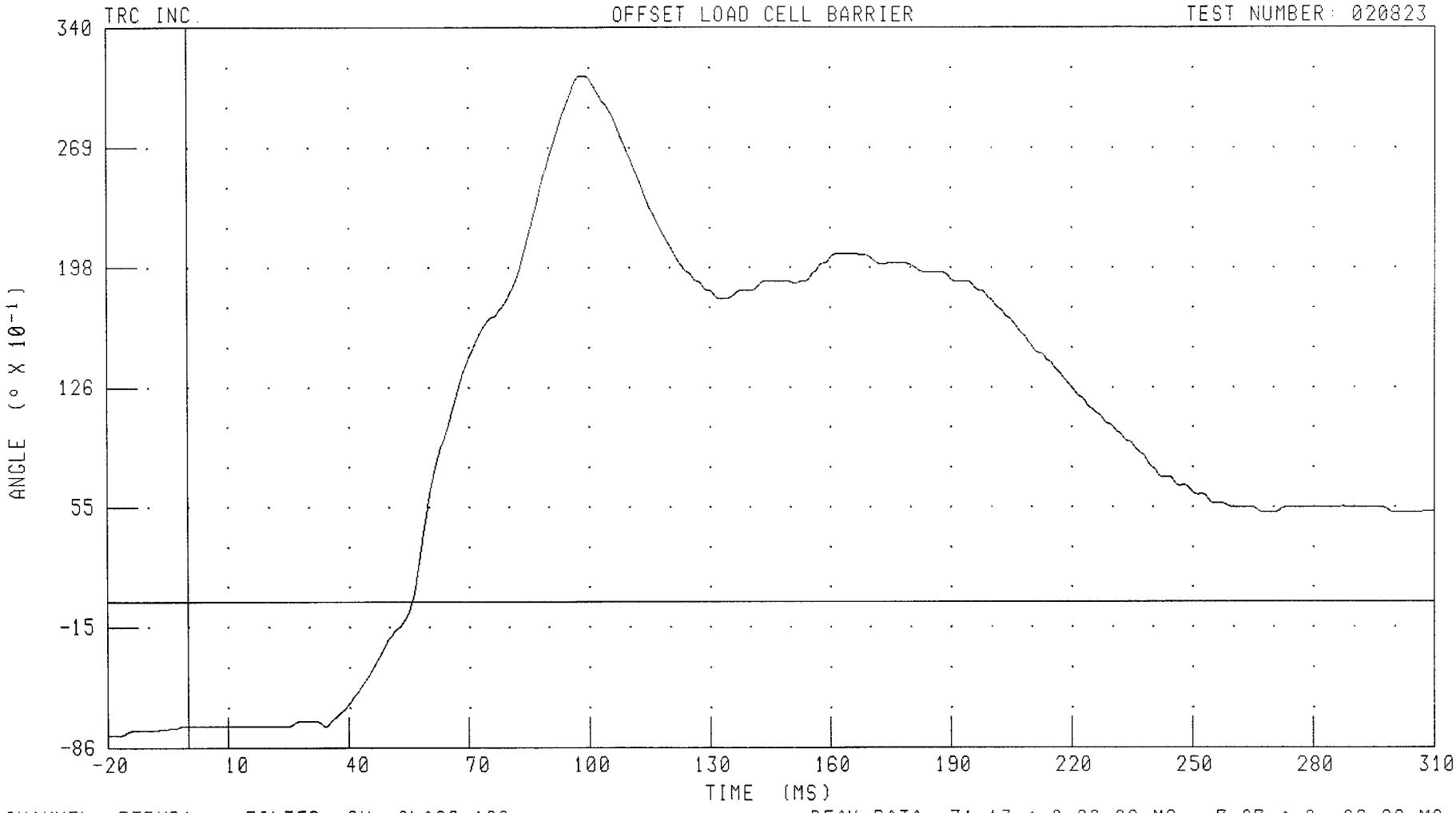
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT FOOT TO ANKLE X-AXIS DISPLACEMENT



CHANNEL: FTRXD1 FILTER: CH. CLASS 180 PEAK DATA: 9.77 ° @ 149.76 MS, -19.61 ° @ 97 52 MS

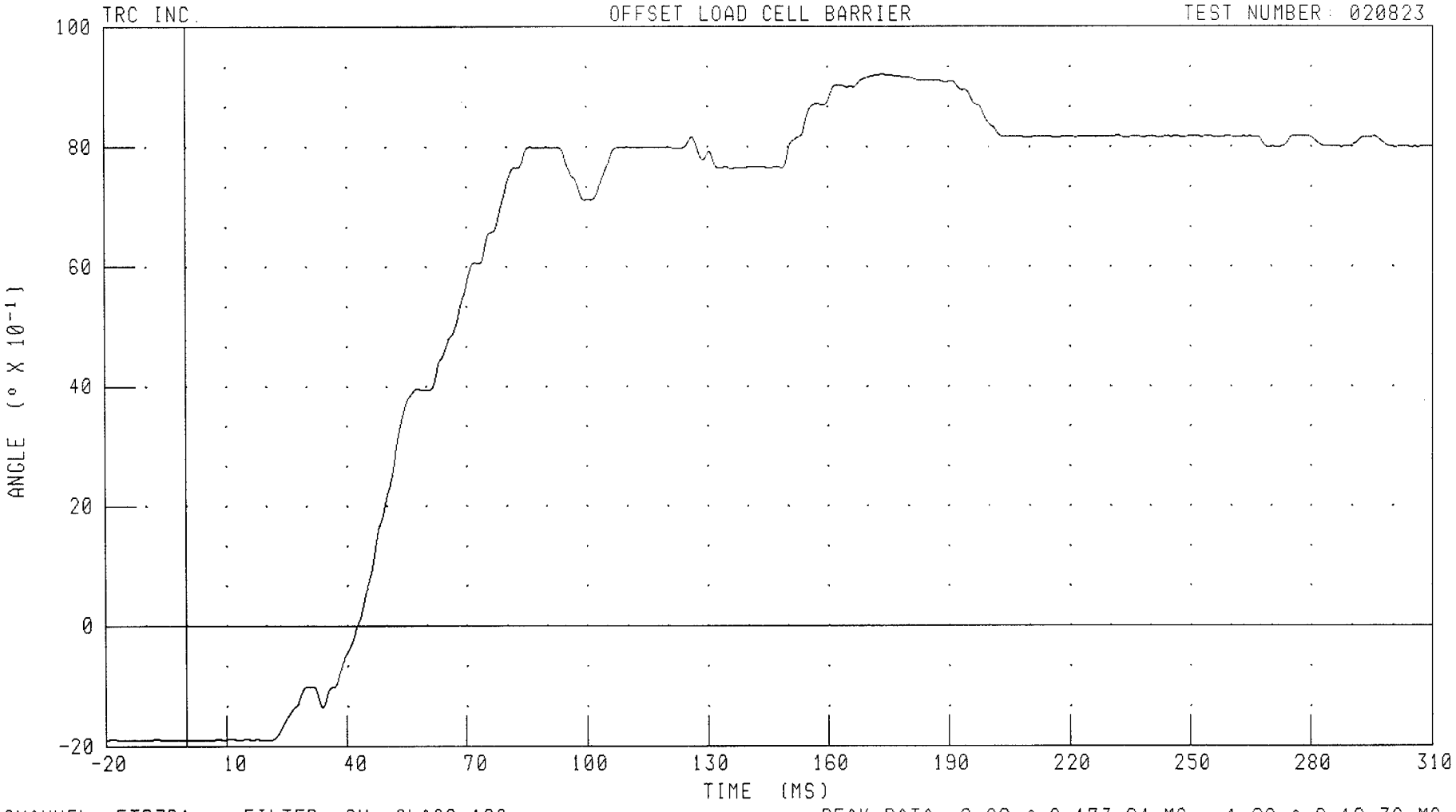
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER RIGHT FOOT TO ANKLE Y-AXIS DISPLACEMENT



CHANNEL: FTRYD1 FILTER: CH. CLASS 180 PEAK DATA: 31.13 ° @ 98.96 MS; -7.87 ° @ -20.00 MS

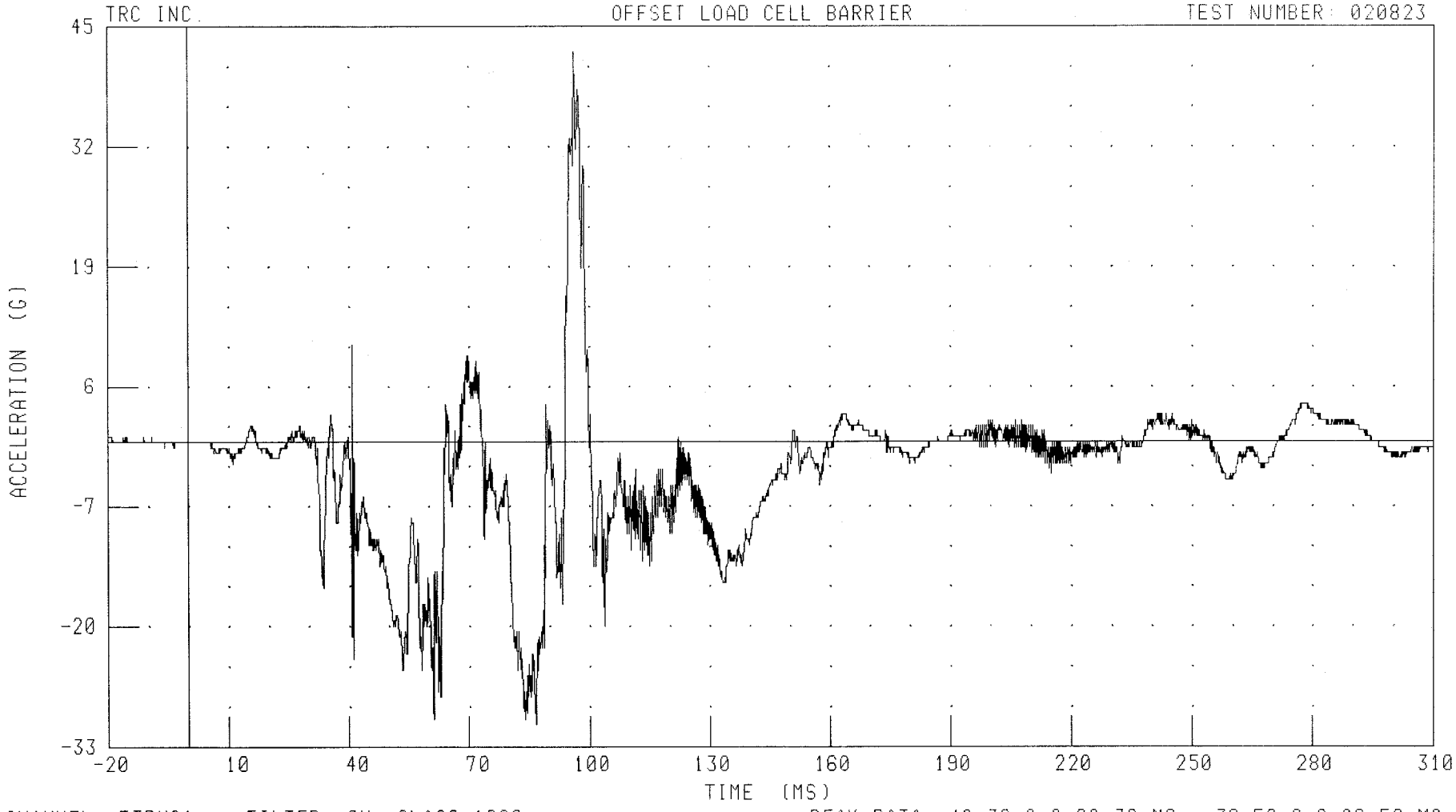
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT FOOT TO ANKLE Z-AXIS DISPLACEMENT



CHANNEL: FTRZD1 FILTER: CH. CLASS 180 PEAK DATA: 9.20 ° @ 173.84 MS; -1.90 ° @ 19.36 MS

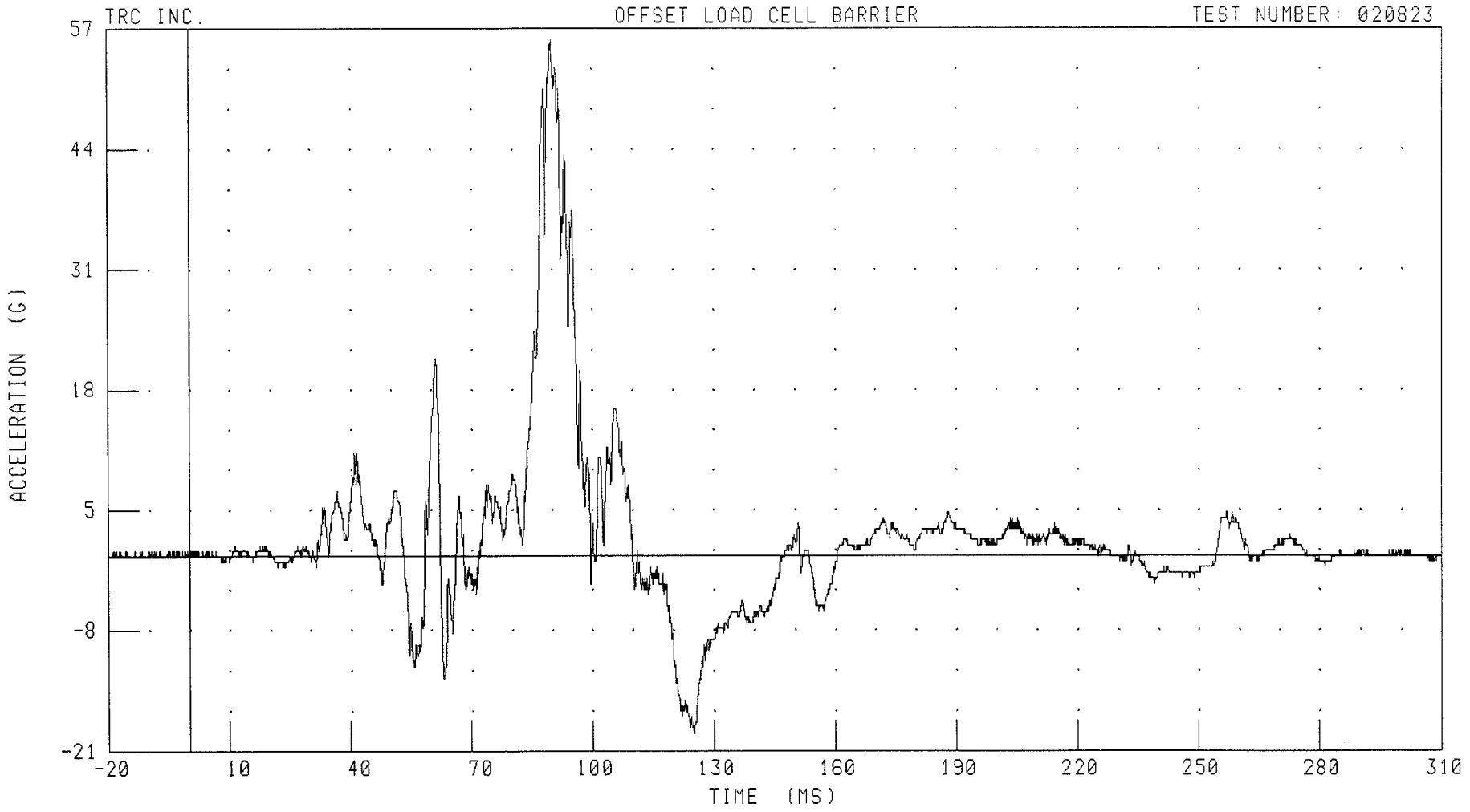
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVER RIGHT FOOT X-AXIS ACCELERATION



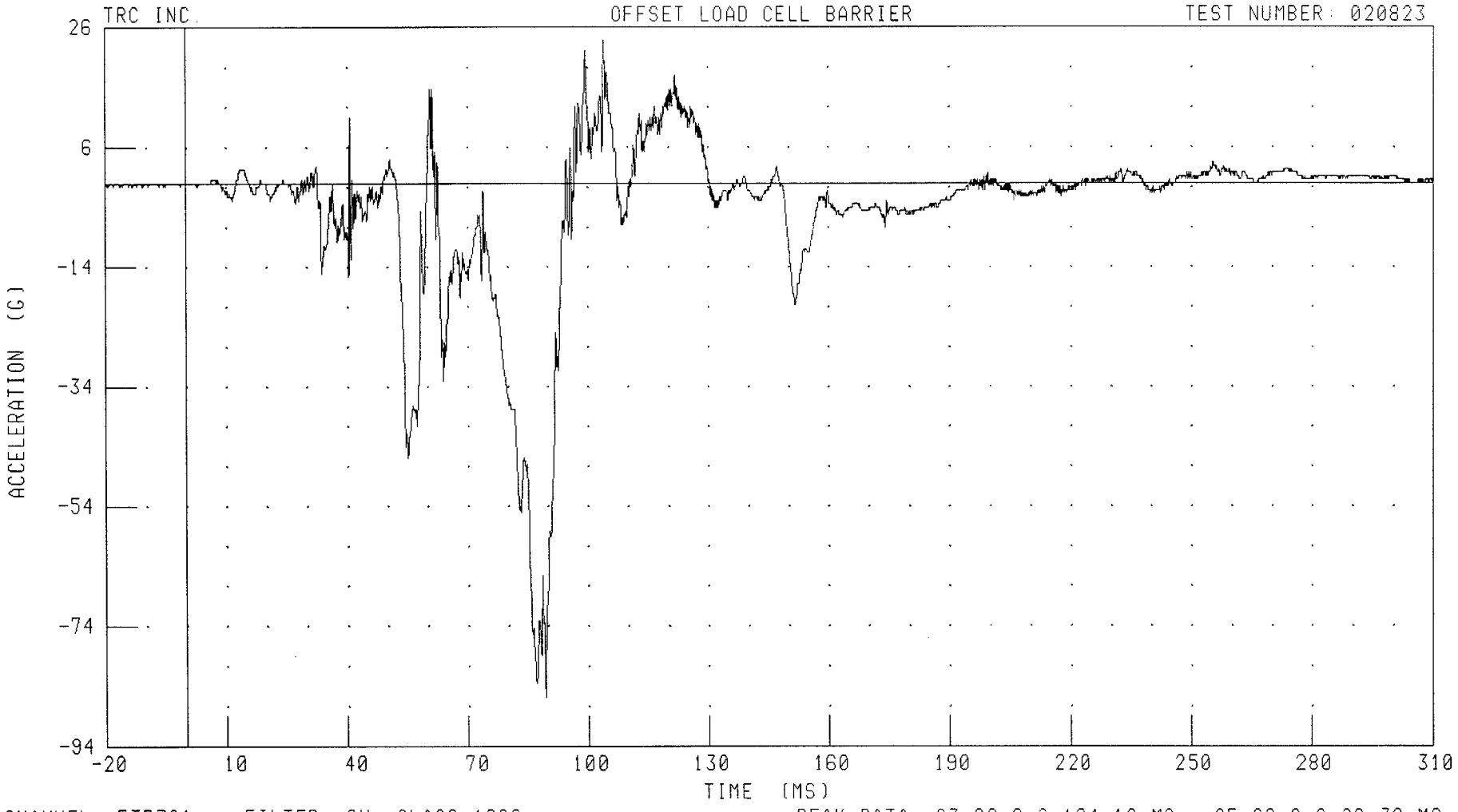
CHANNEL: FTRXG1 FILTER: CH. CLASS 1000 PEAK DATA: 42.32 G @ 96.32 MS; -30.59 G @ 86.56 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT FOOT Y-AXIS ACCELERATION



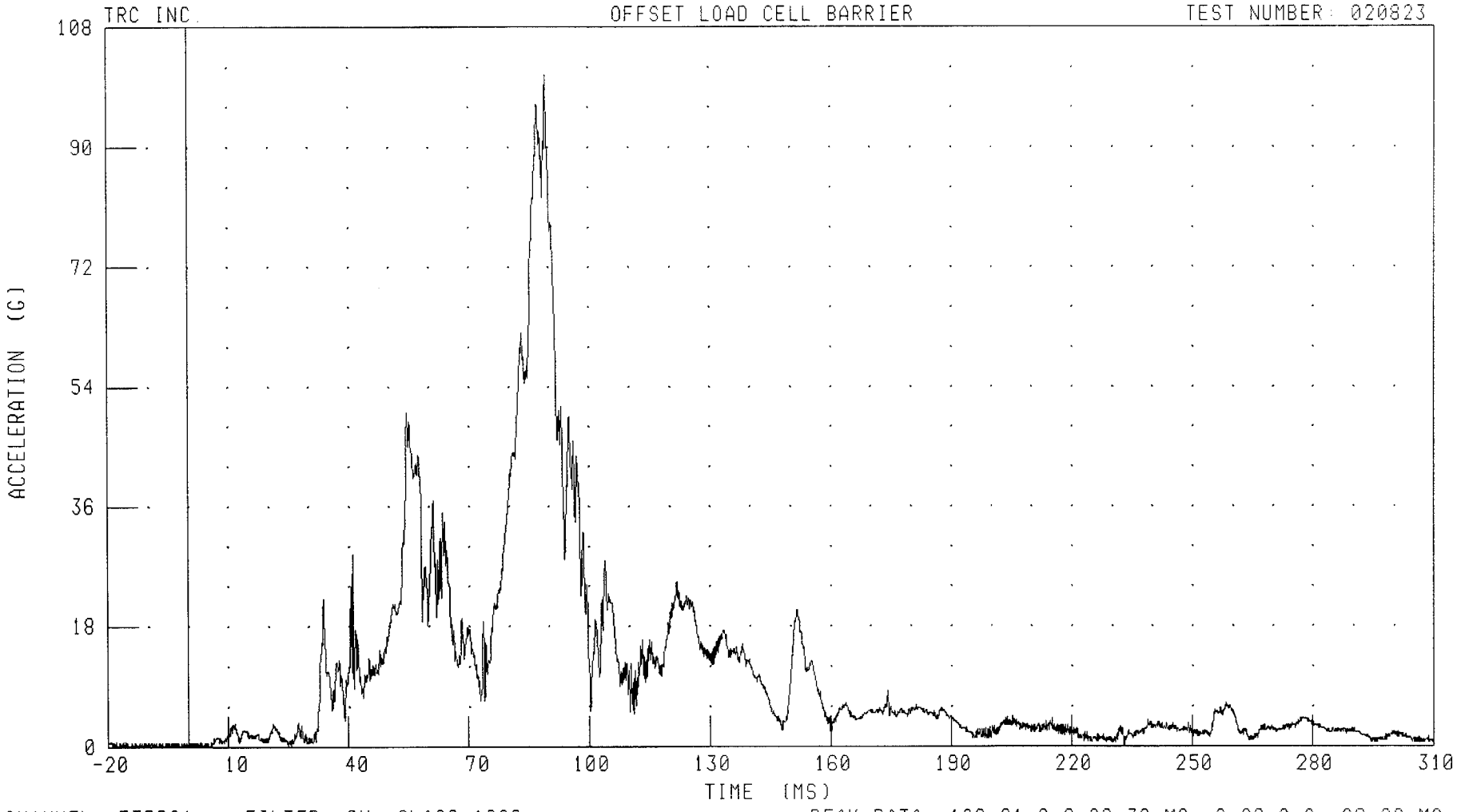
CHANNEL: FTRYG1 FILTER: CH. CLASS 1000 PEAK DATA: 55.85 G @ 89.84 MS; -19.10 G @ 125.20 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT FOOT Z-AXIS ACCELERATION



CHANNEL: FTRZG1 FILTER: CH. CLASS 1000 PEAK DATA: 23.82 G @ 104.16 MS; -85.92 G @ 89.36 MS

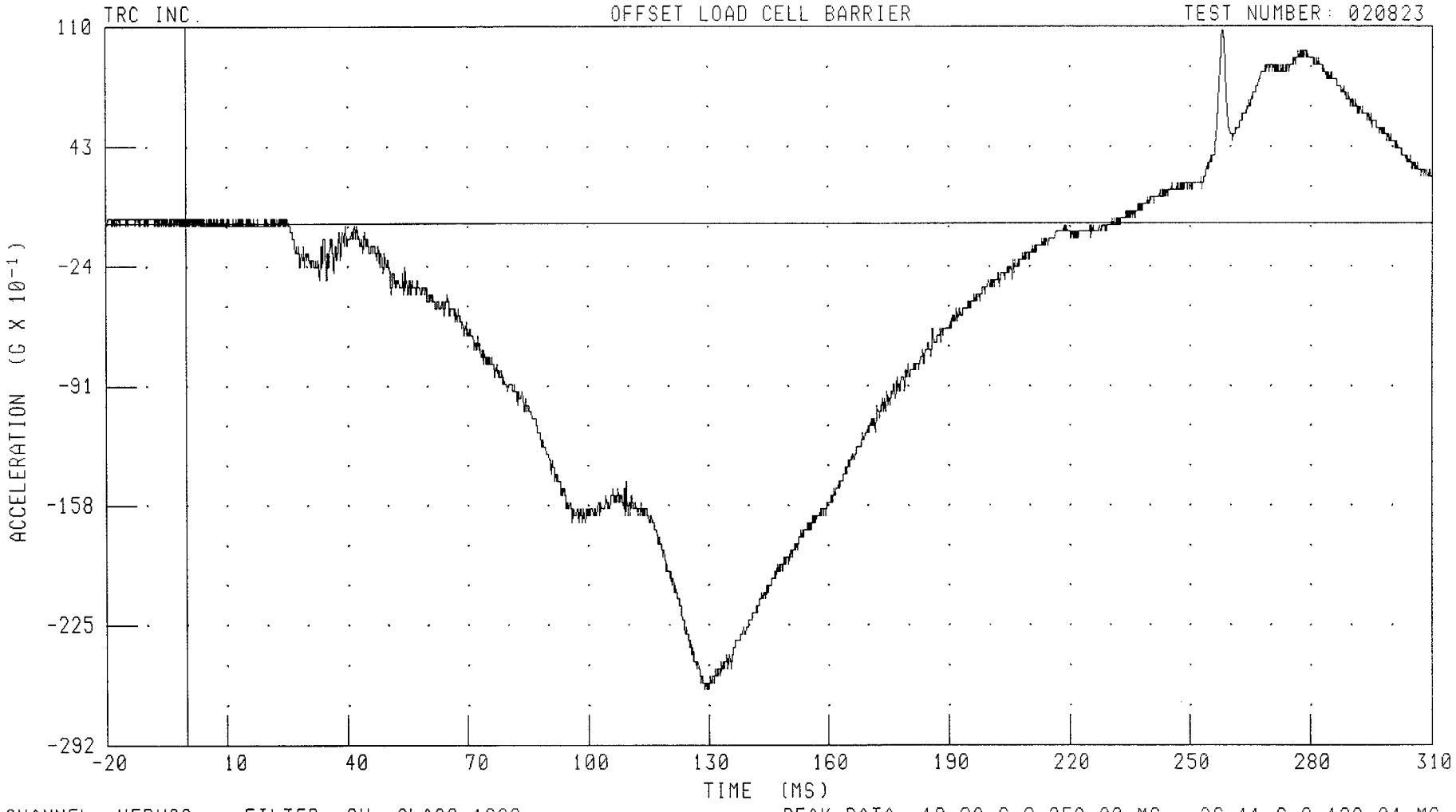
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER RIGHT FOOT RESULTANT ACCELERATION



CHANNEL: FTRRG1 FILTER: CH. CLASS 1000 PEAK DATA: 100.91 G @ 89.36 MS; 0.06 G @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER HEAD X-AXIS ACCELERATION

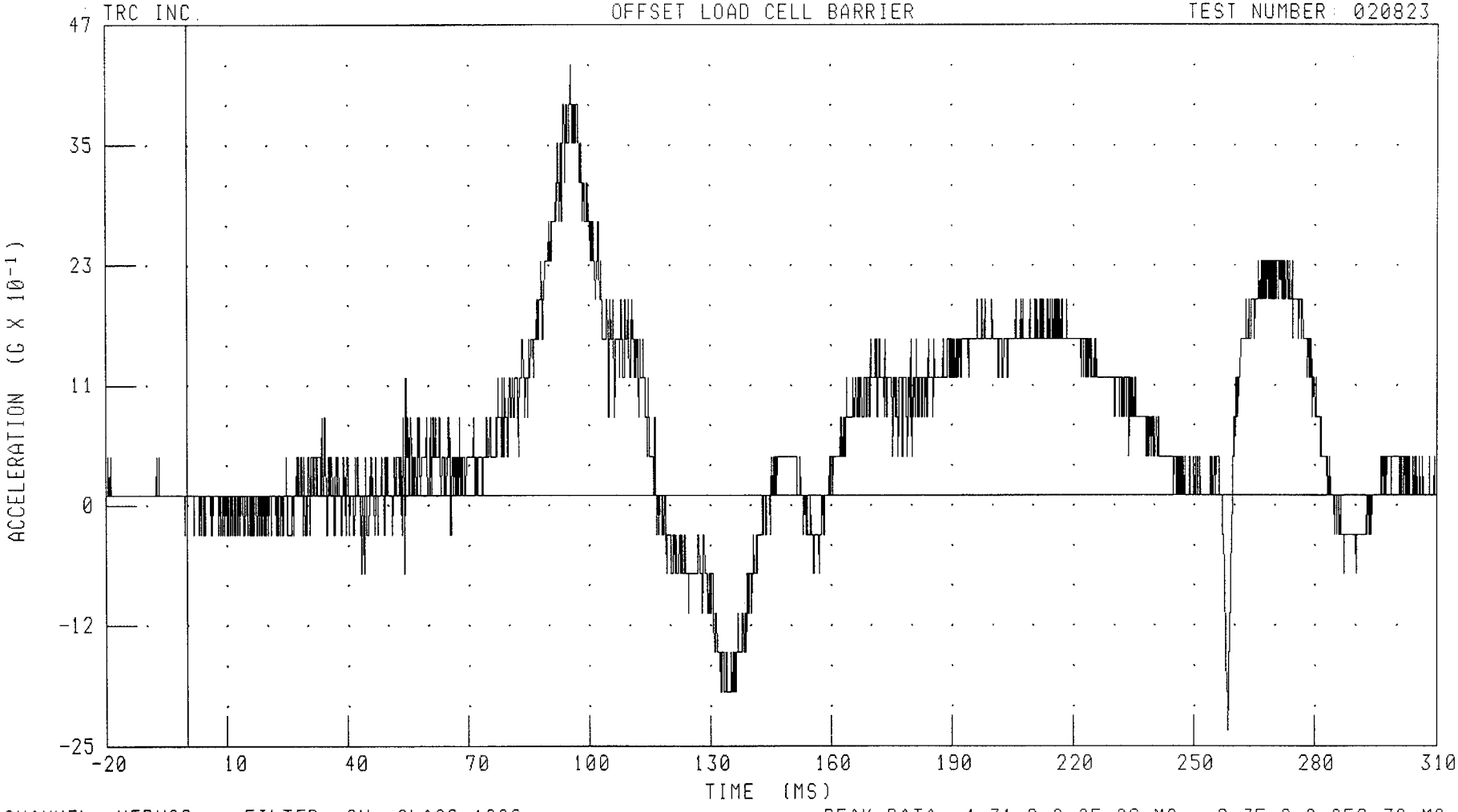


CHANNEL: HEDXG2 FILTER: CH. CLASS 1000 PEAK DATA: 10.80 G @ 258.00 MS; -26.11 G @ 129.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER HEAD Y-AXIS ACCELERATION

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

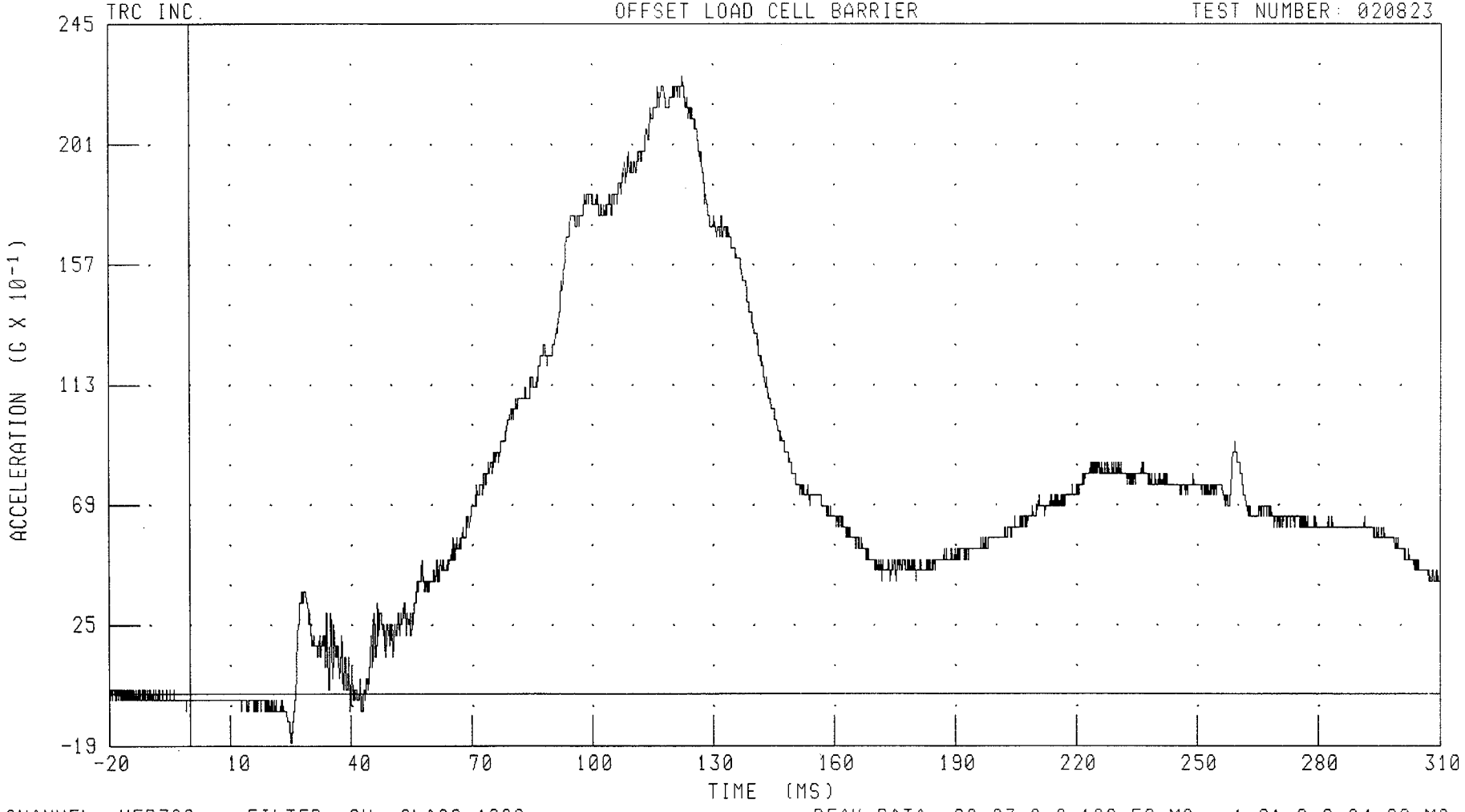


CHANNEL: HEDYG2 FILTER: CH. CLASS 1000 PEAK DATA: 4.31 G @ 95.68 MS, -2.35 G @ 258.32 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER HEAD Z-AXIS ACCELERATION

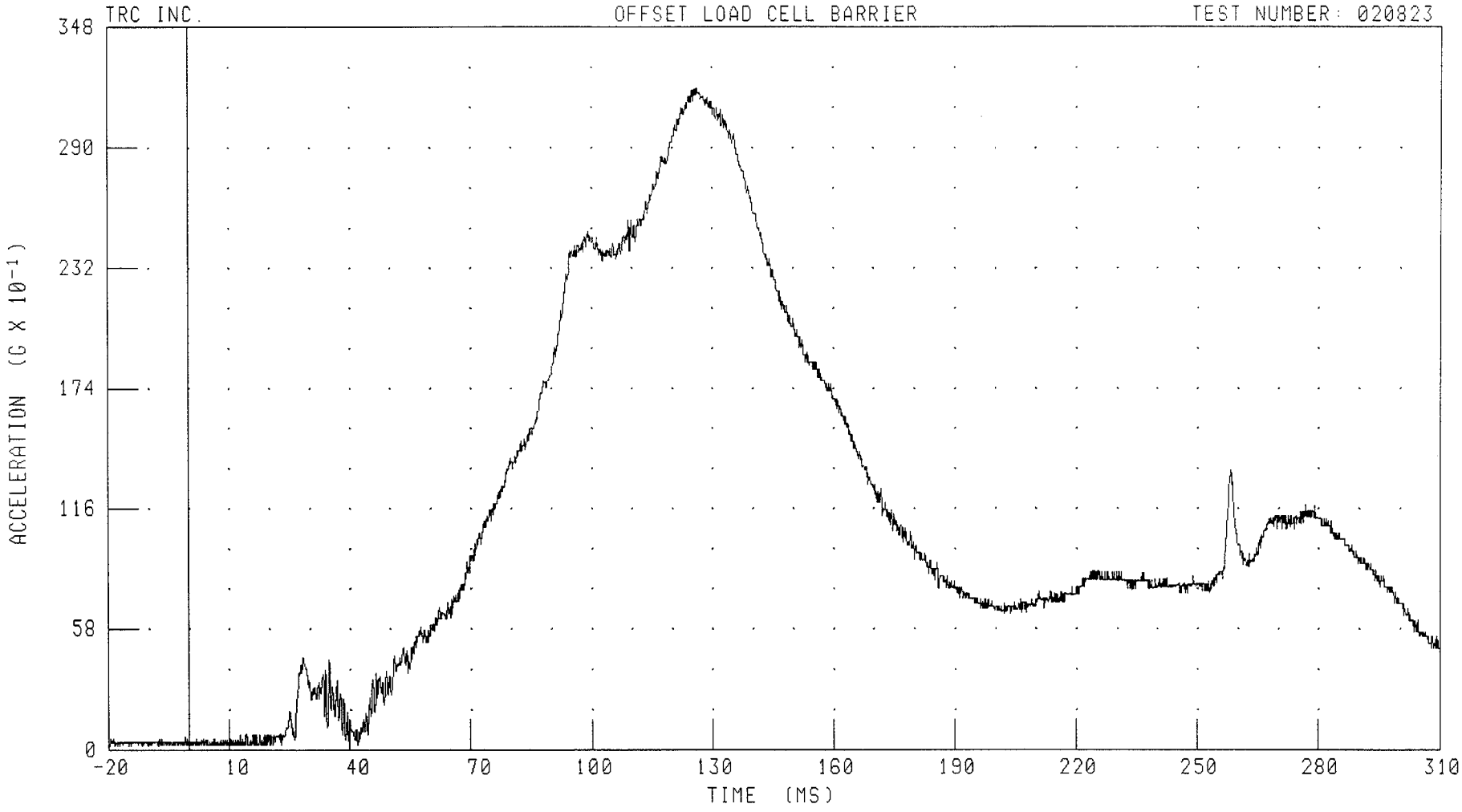
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000 PEAK DATA: 22.63 G @ 122.56 MS; -1.81 G @ 24.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER HEAD RESULTANT ACCELERATION

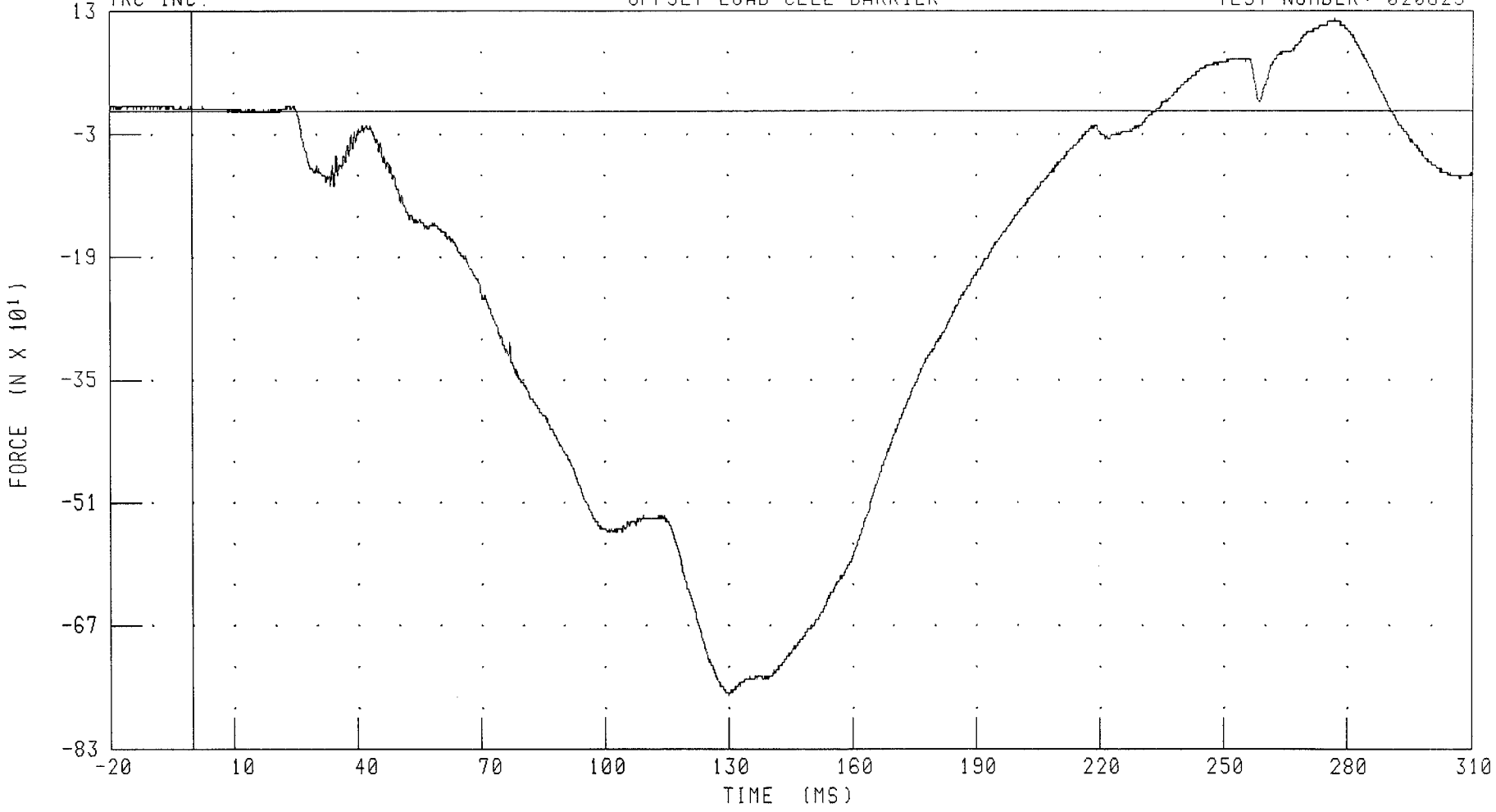


CHANNEL: HEDRG2 FILTER: CH. CLASS 1000 PEAK DATA: 31.85 G @ 126.32 MS; 0.18 G @ -19.84 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER NECK X-AXIS SHEAR FORCE

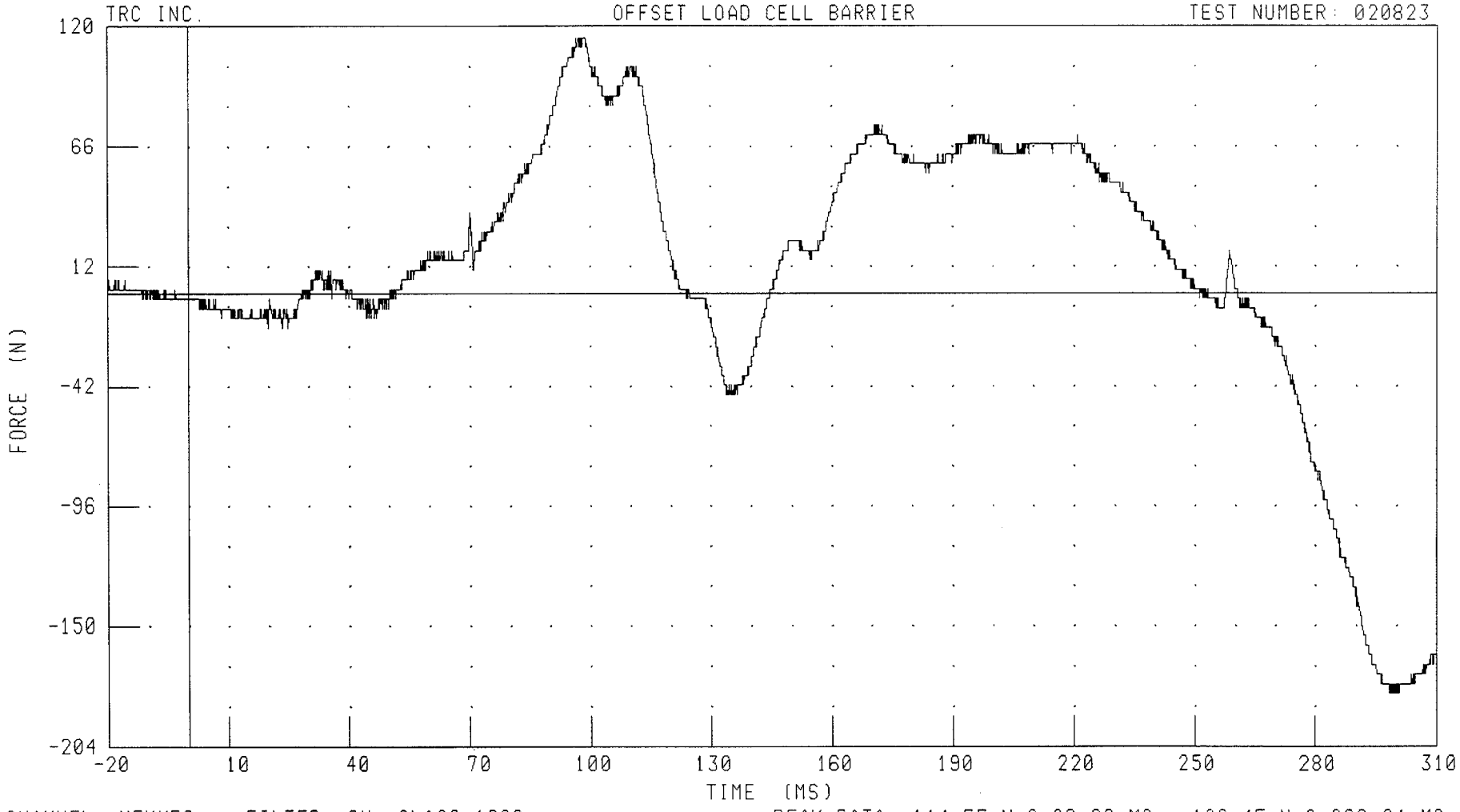
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 120.69 N @ 276.88 MS; -761.43 N @ 130.16 MS

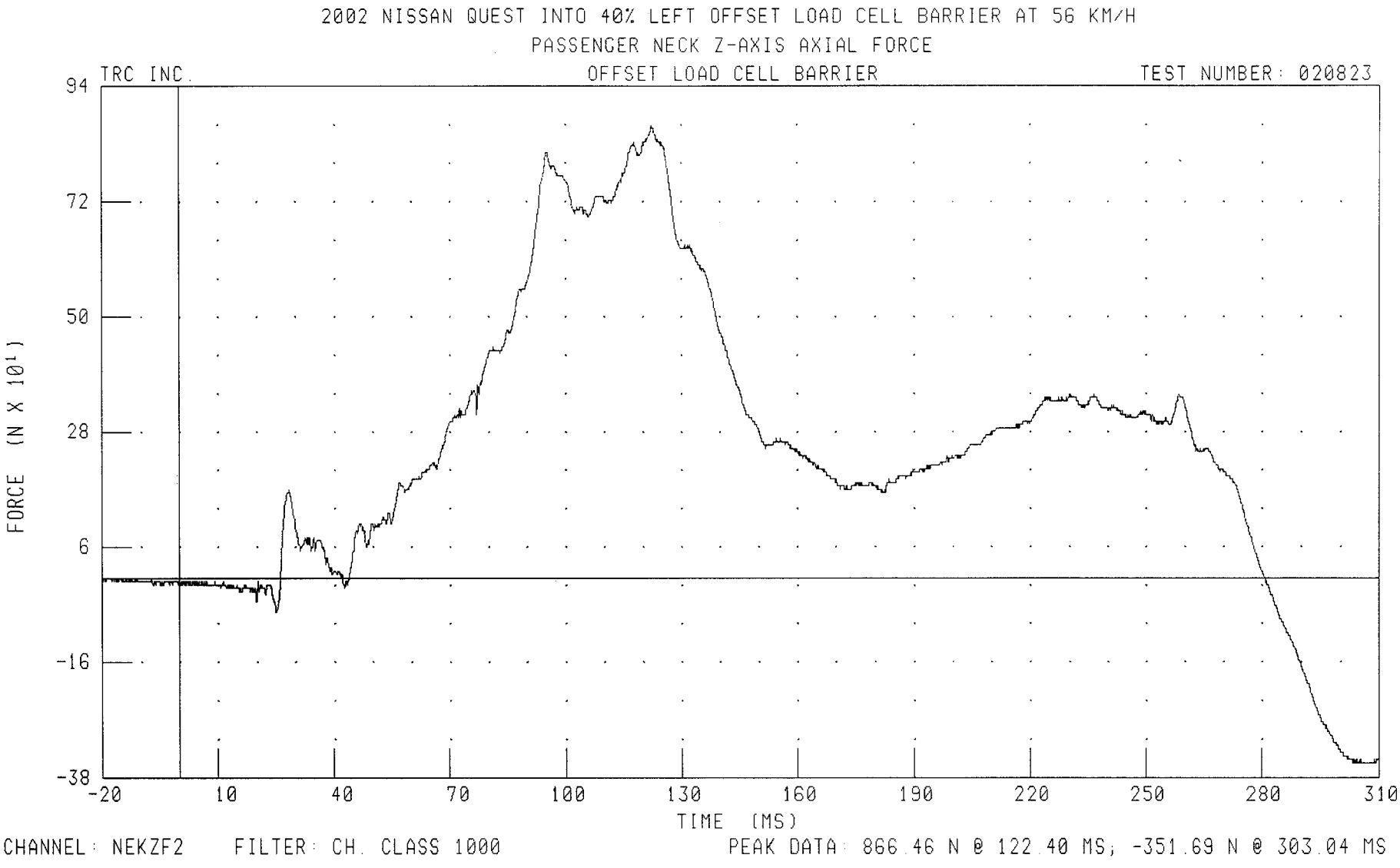
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER NECK Y-AXIS SHEAR FORCE



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

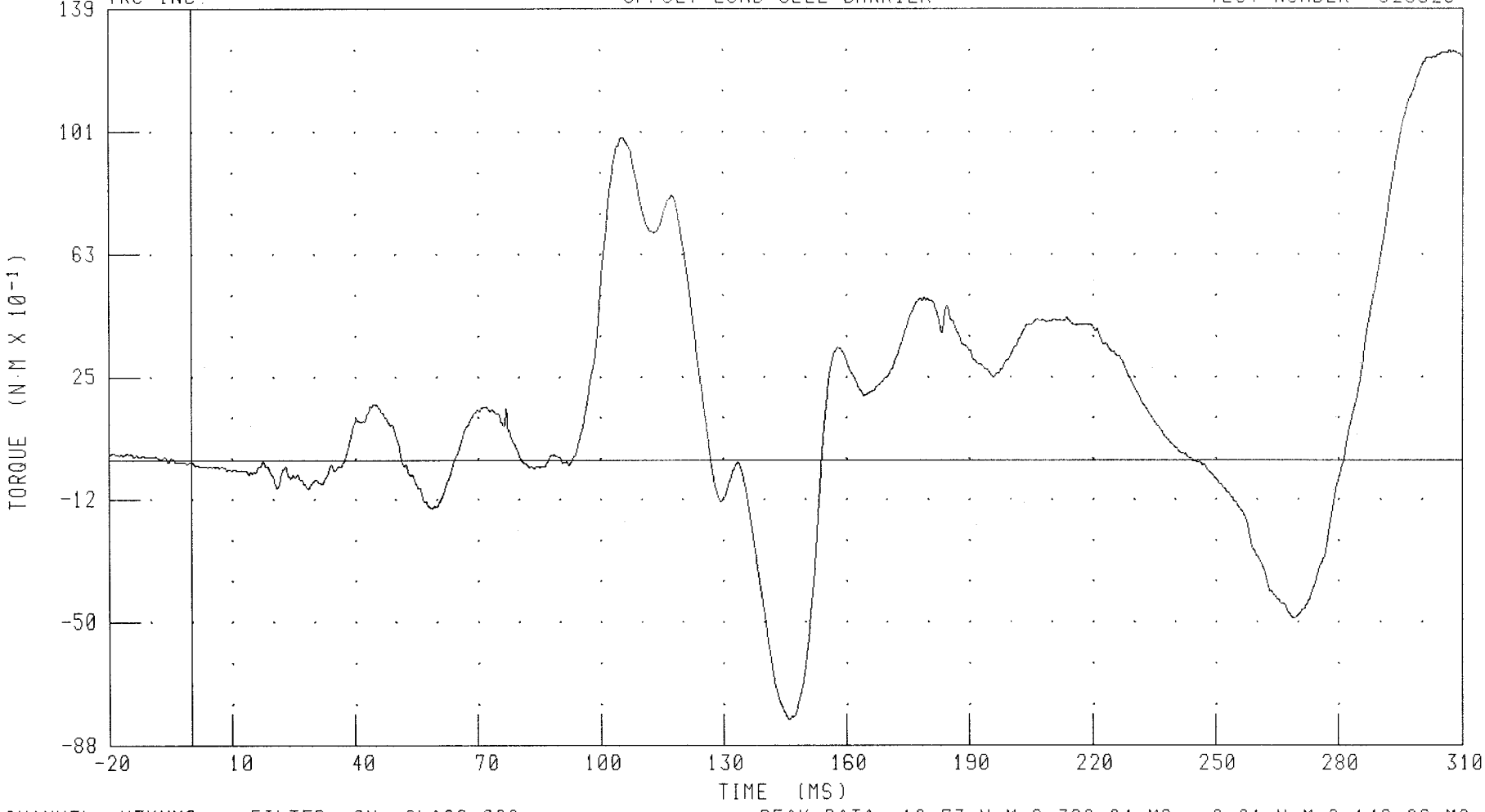
PEAK DATA: 114.77 N @ 96.88 MS; -180.45 N @ 298.24 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER NECK Z-AXIS AXIAL FORCE
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
94
72
50
28
6
-16
-38
FORCE (N X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZF2
FILTER: CH. CLASS 1000
PEAK DATA: 866.46 N @ 122.40 MS; -351.69 N @ 303.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER NECK MOMENT ABOUT X AXIS

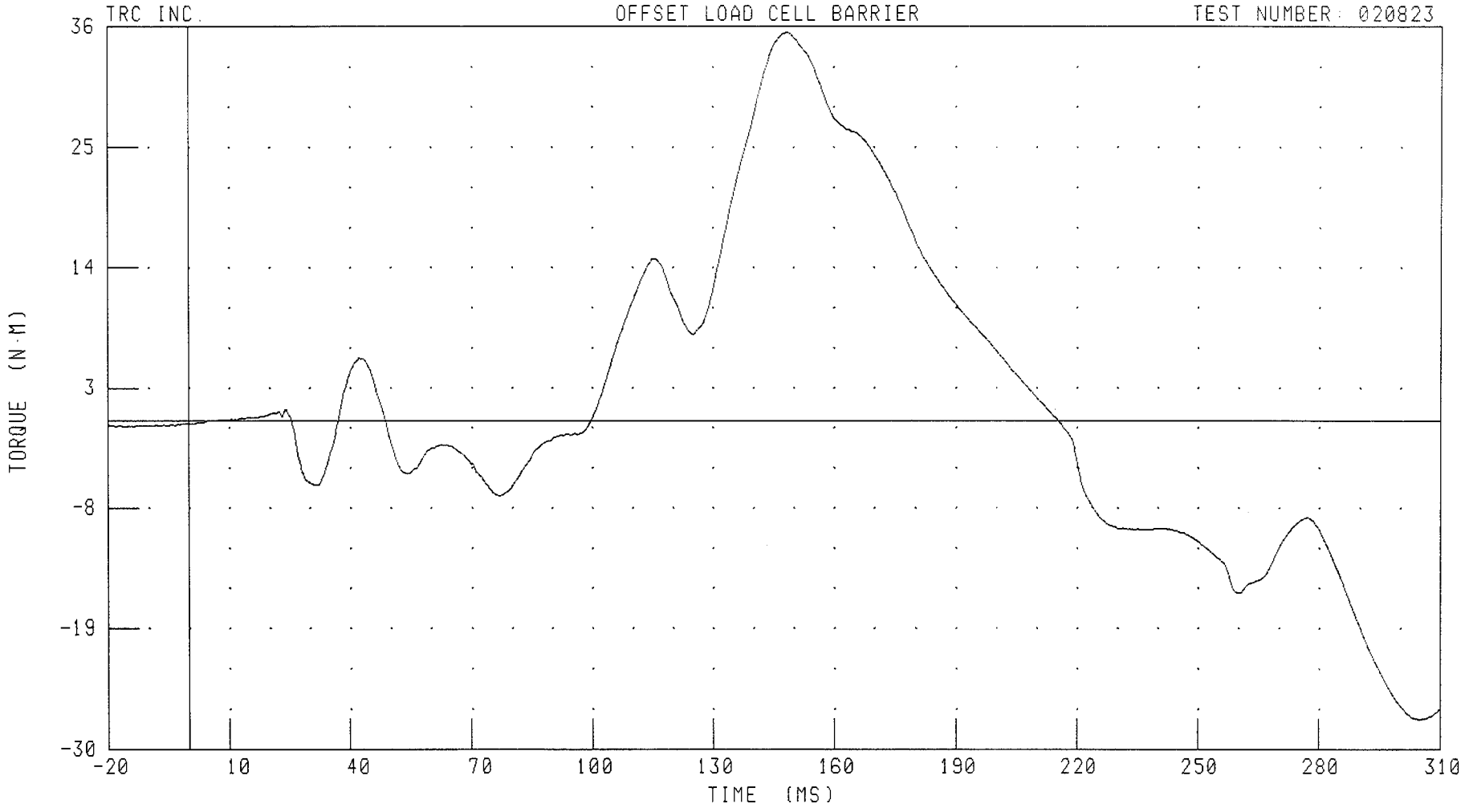
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: NEKXM2 FILTER: CH. CLASS 600 PEAK DATA: 12.73 N·M @ 306.64 MS; -8.01 N·M @ 146.08 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

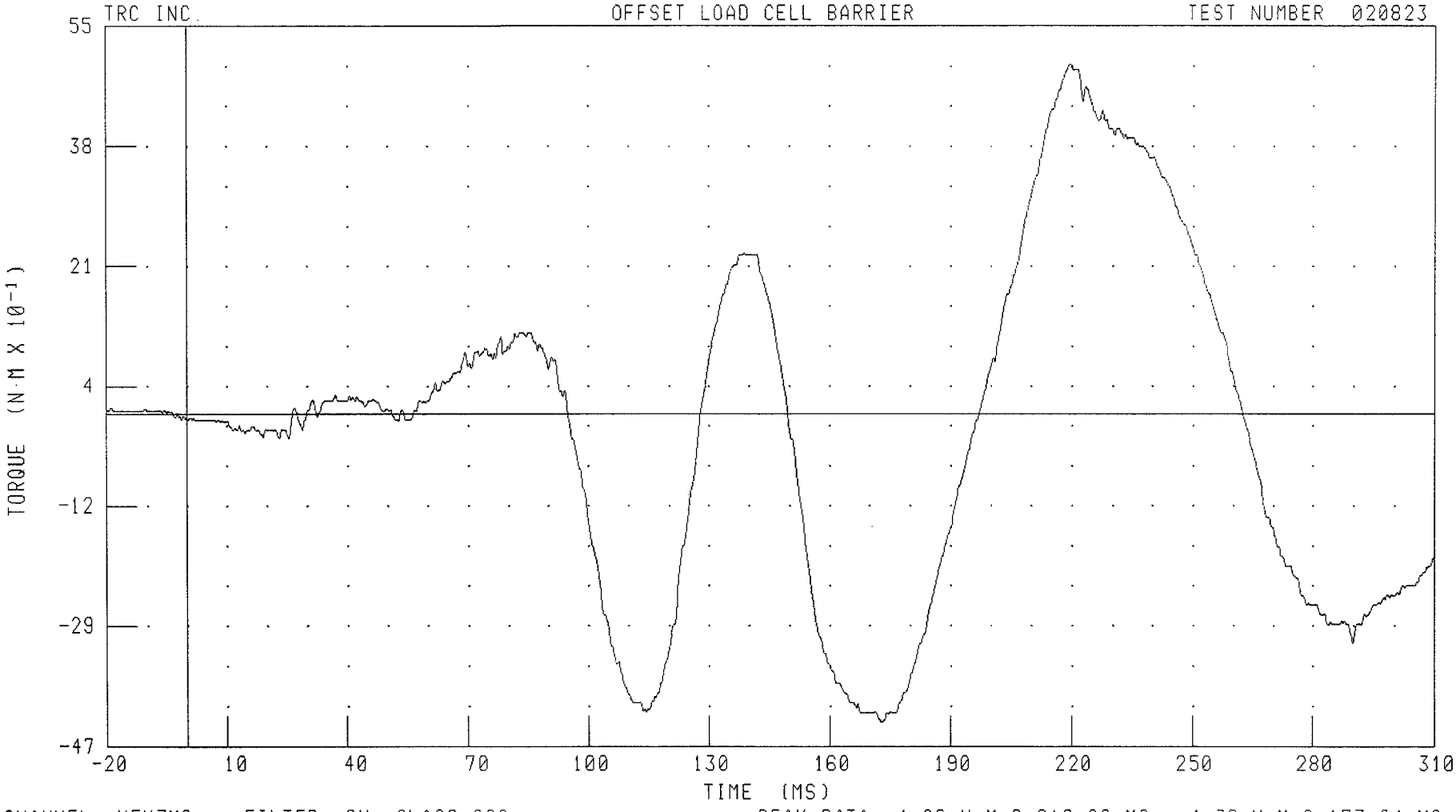
PASSENGER NECK MOMENT ABOUT Y AXIS



CHANNEL: NEKYM2 FILTER: CH. CLASS 600 PEAK DATA: 35.48 N-M @ 148.56 MS; -27.35 N-M @ 304.88 MS

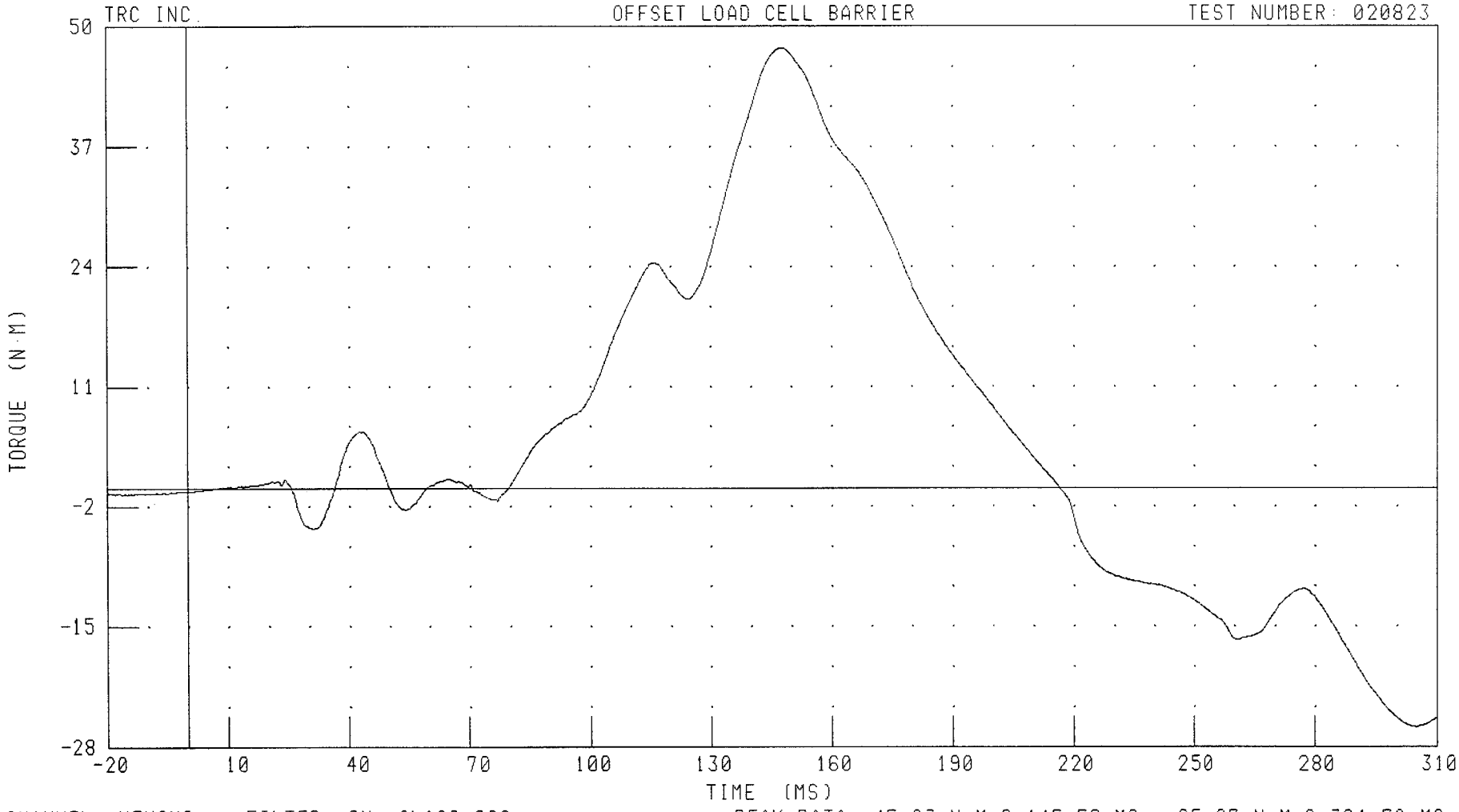
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER NECK MOMENT ABOUT Z AXIS



CHANNEL: NEKZM2 FILTER: CH. CLASS 600 PEAK DATA: 4.96 N-M @ 219.68 MS; -4.36 N-M @ 173.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

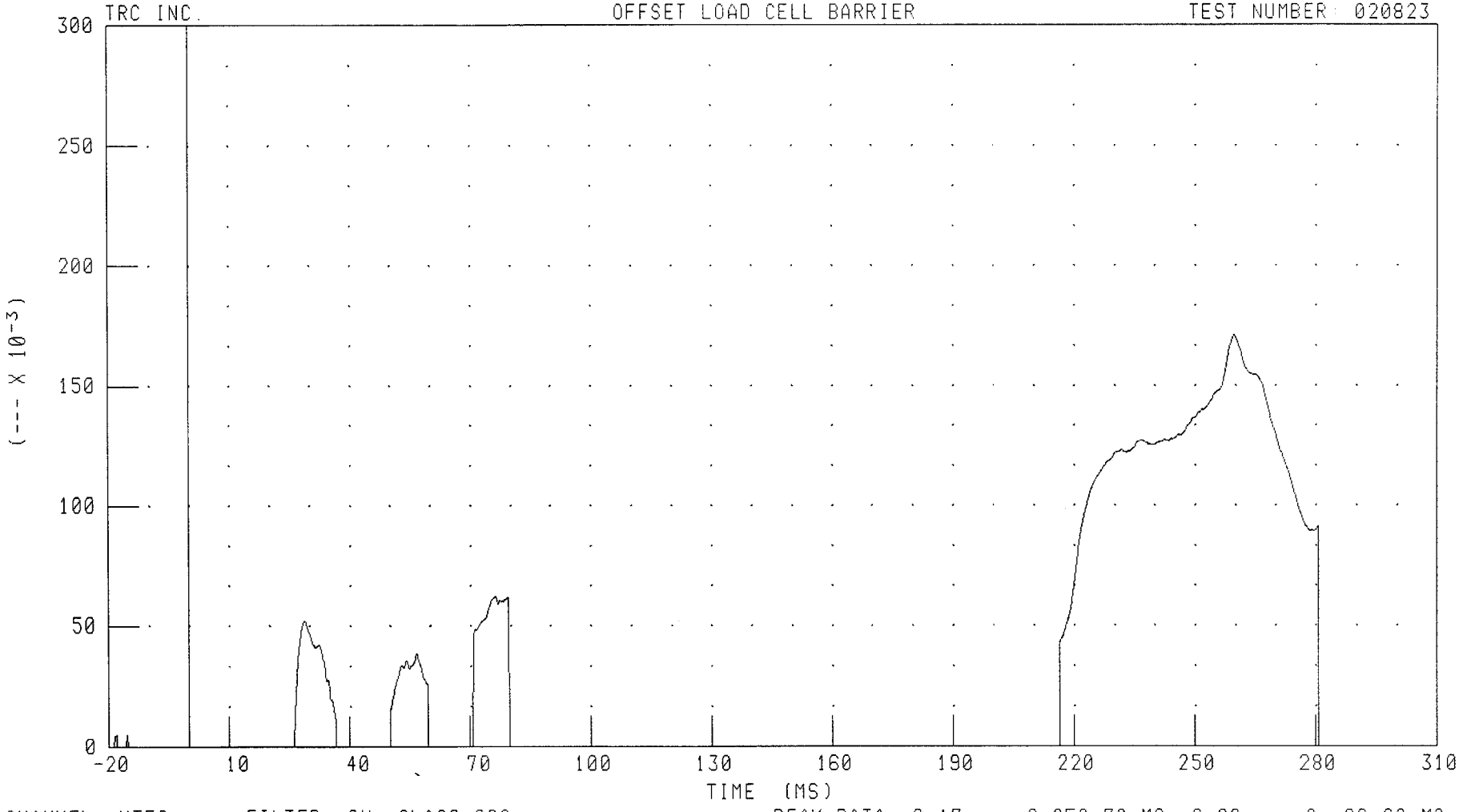


CHANNEL: NEKOM2 FILTER: CH. CLASS 600 PEAK DATA: 47.63 N-M @ 147.76 MS, -25.87 N-M @ 304.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER NIJ TENSION/EXTENSION

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

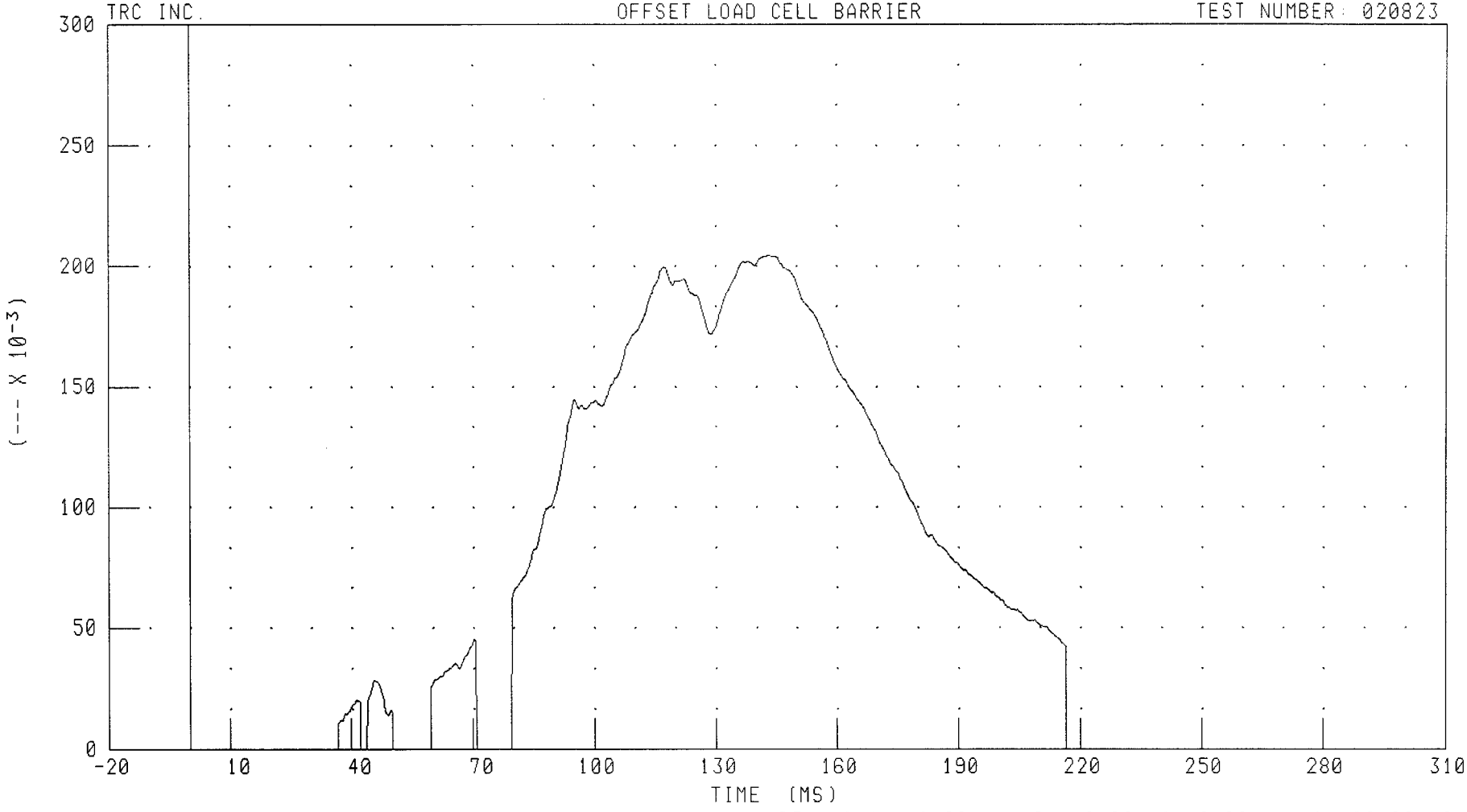


CHANNEL: NTE2 FILTER: CH. CLASS 600 PEAK DATA: 0.17 --- @ 259.76 MS; 0.00 --- @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER NIJ TENSION/FLEXION

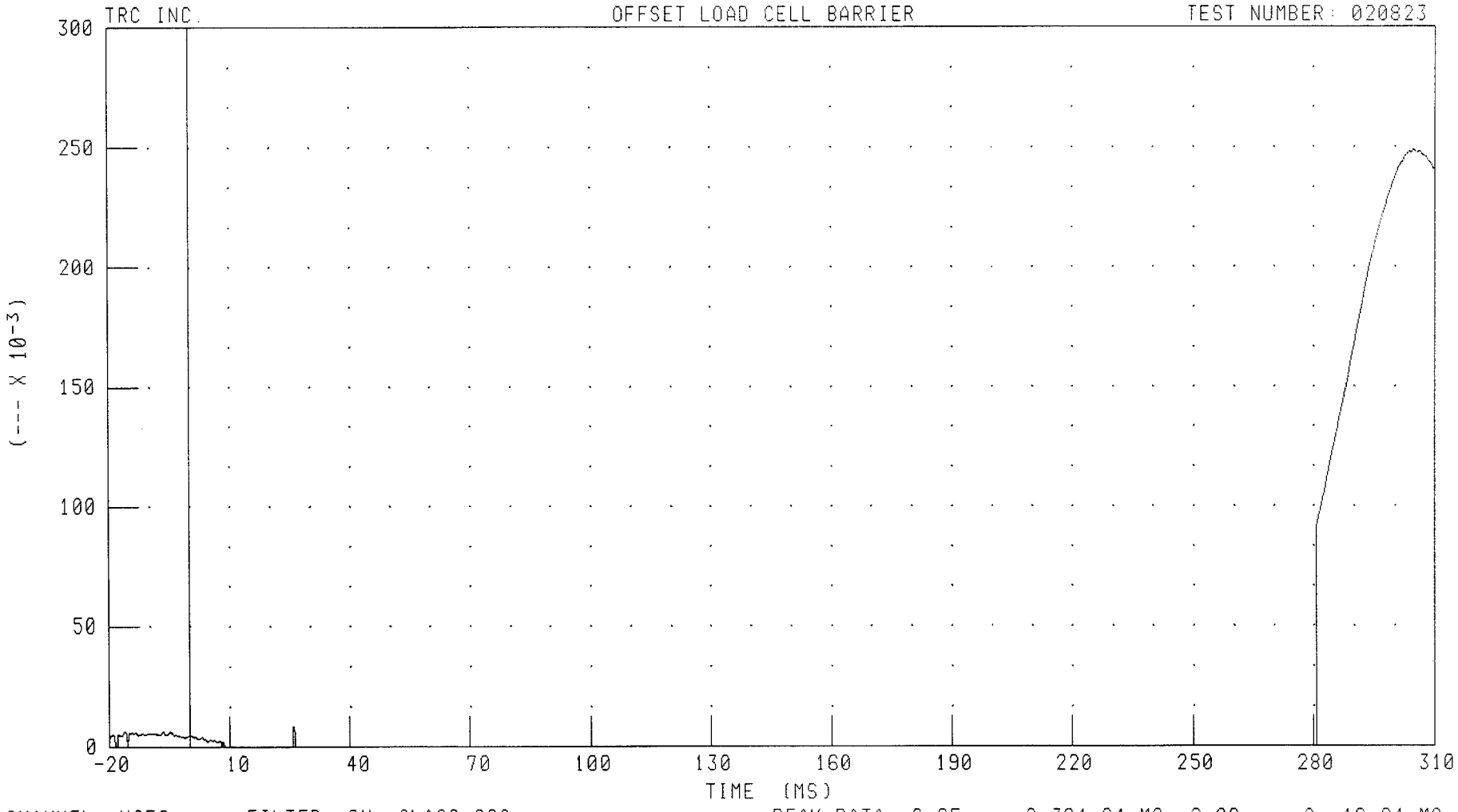
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: NTF2 FILTER: CH. CLASS 600 PEAK DATA: 0.20 --- @ 142.96 MS; 0.00 --- @ -20.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

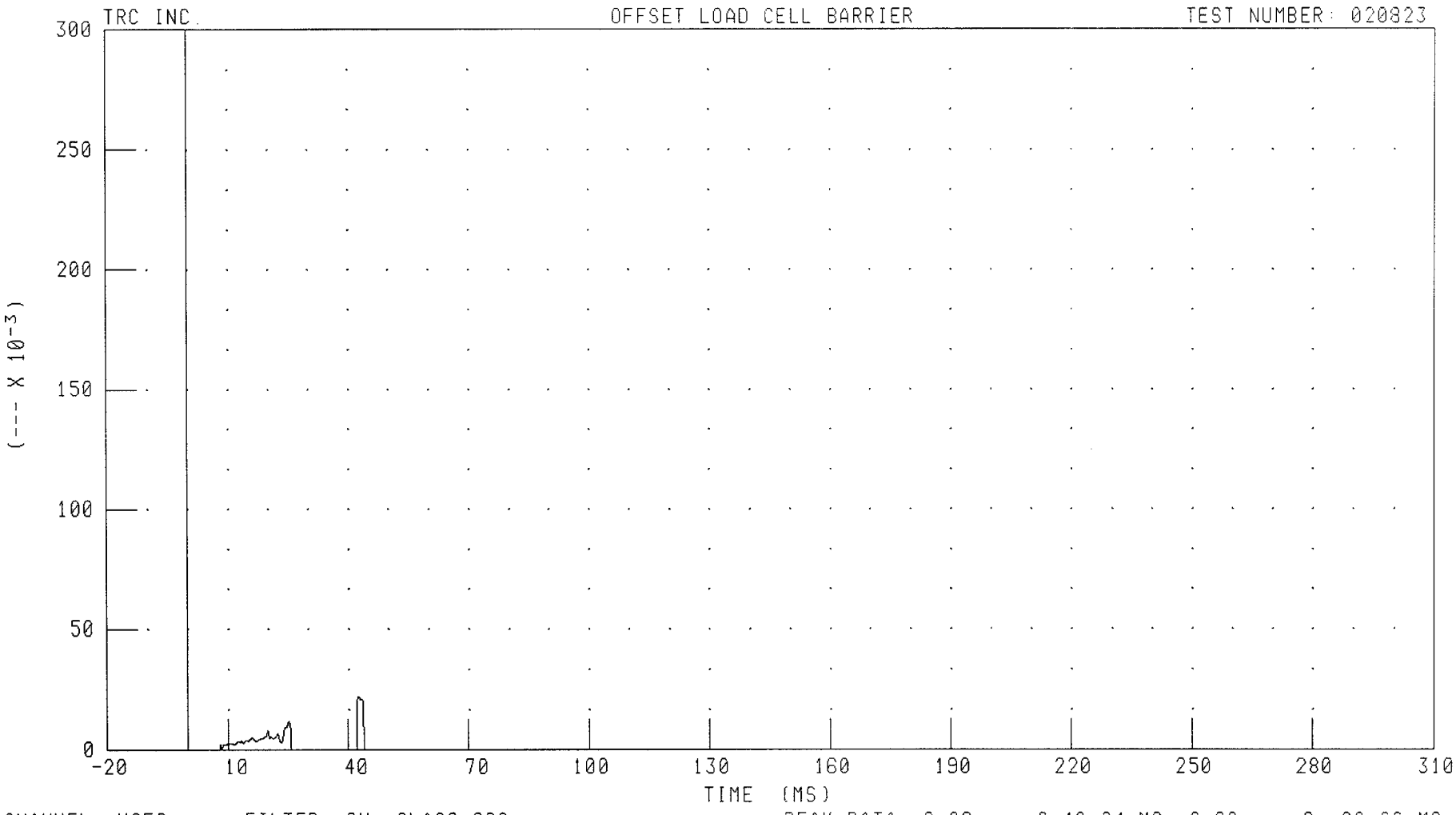
PASSENGER NIJ COMPRESSION/EXTENSION



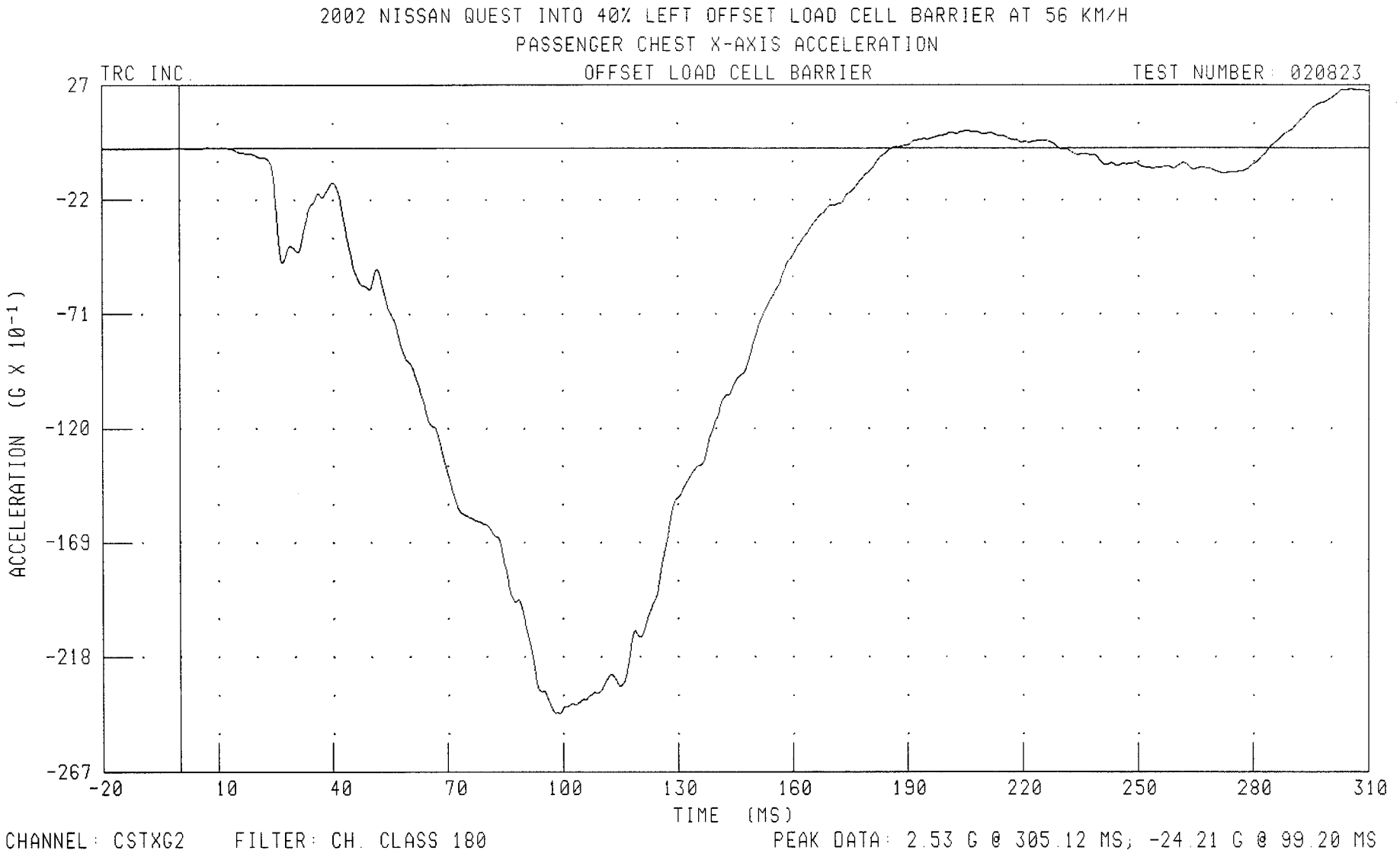
CHANNEL: NCE2 FILTER: CH. CLASS 600 PEAK DATA: 0.25 --- @ 304.64 MS; 0.00 --- @ -18.64 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER NIJ COMPRESSION/FLEXION



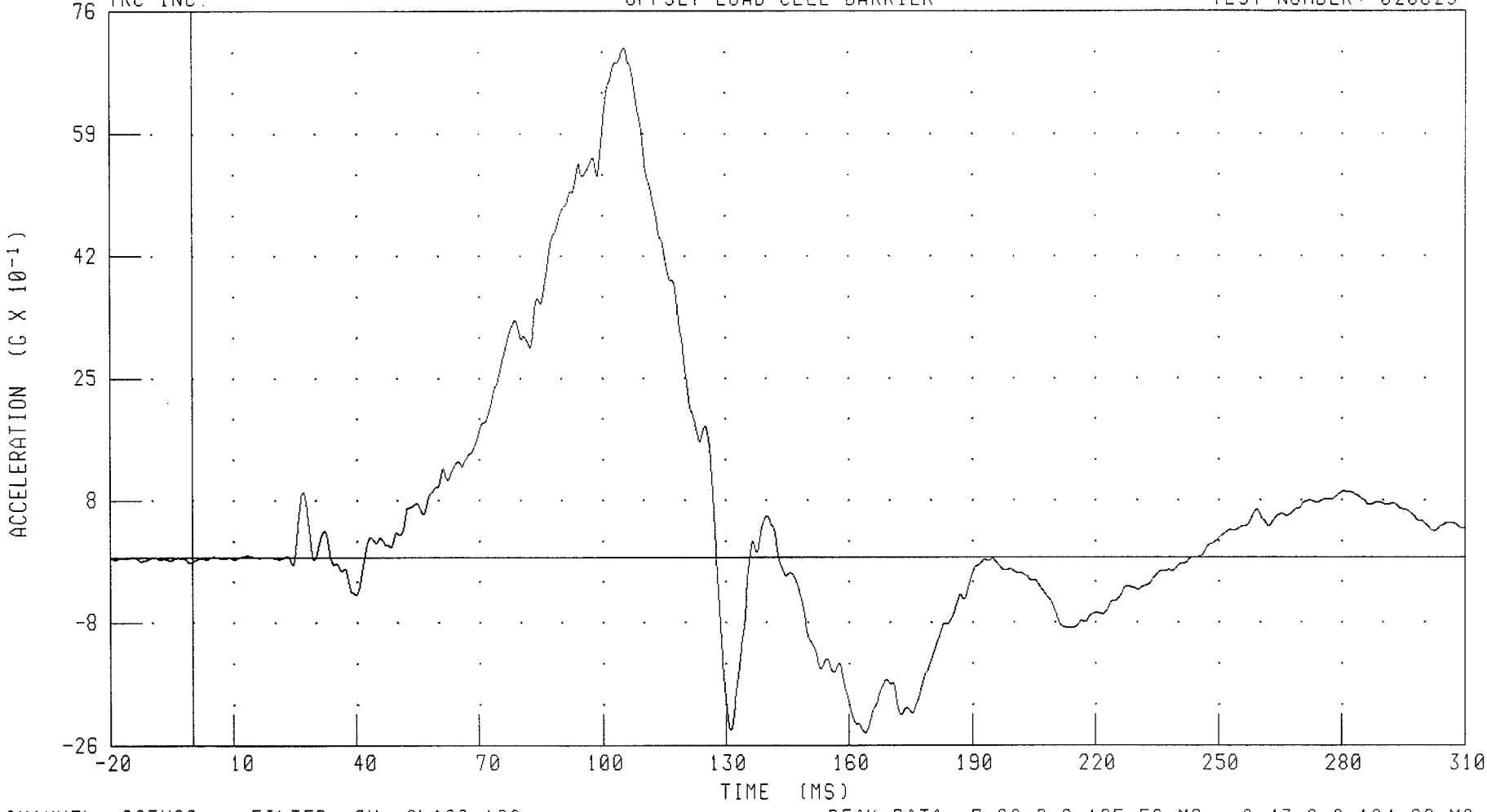
CHANNEL: NCF2 FILTER: CH. CLASS 600 PEAK DATA: 0.02 --- @ 42.64 MS; 0.00 --- @ -20.00 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER CHEST X-AXIS ACCELERATION
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
27
-22
-71
-120
-169
-218
-267
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXG2
FILTER: CH. CLASS 180
PEAK DATA: 2.53 G @ 305.12 MS; -24.21 G @ 99.20 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER CHEST Y-AXIS ACCELERATION

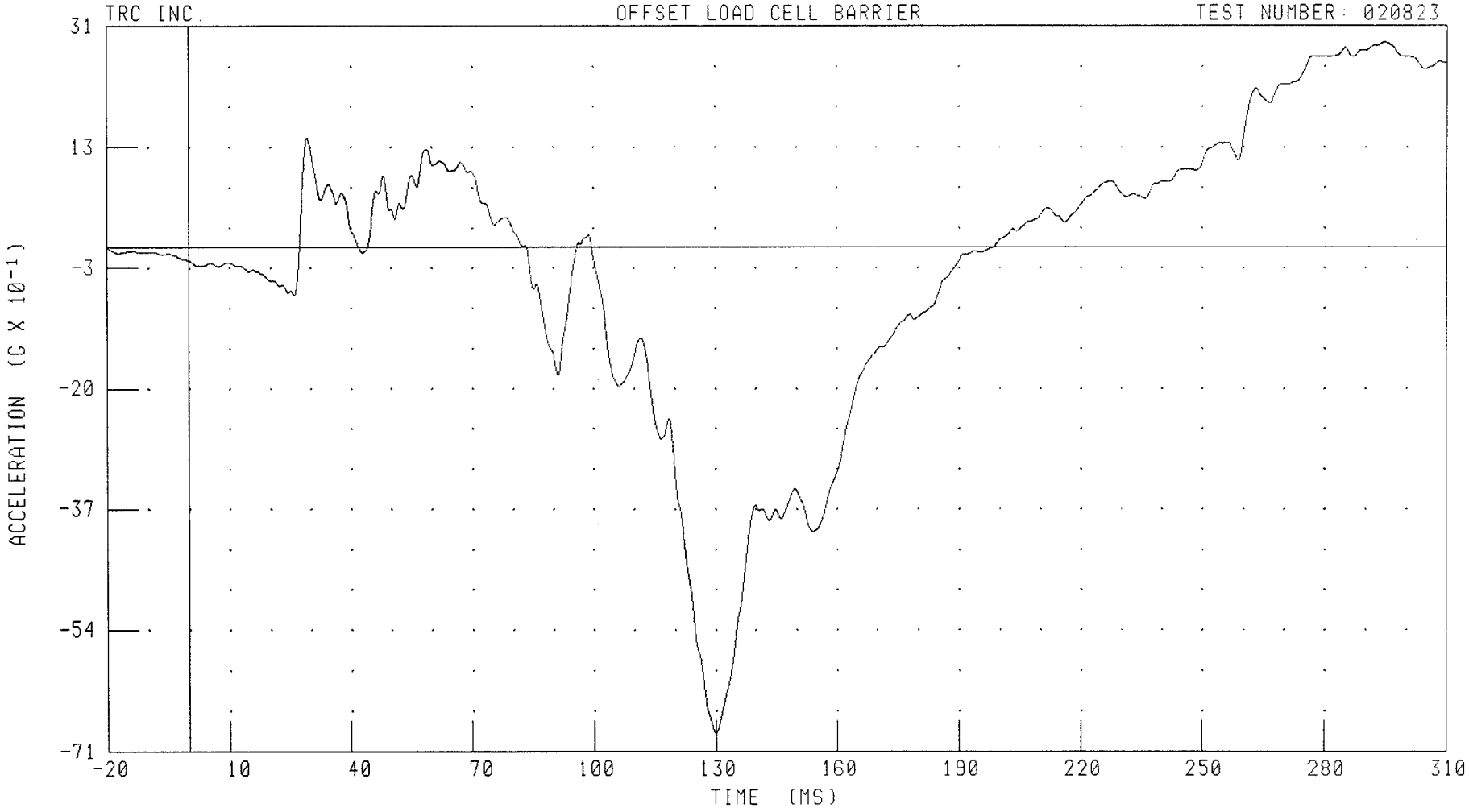
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: CSTYG2 FILTER: CH. CLASS 180 PEAK DATA: 7.09 G @ 105.52 MS; -2.43 G @ 164.08 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER CHEST Z-AXIS ACCELERATION

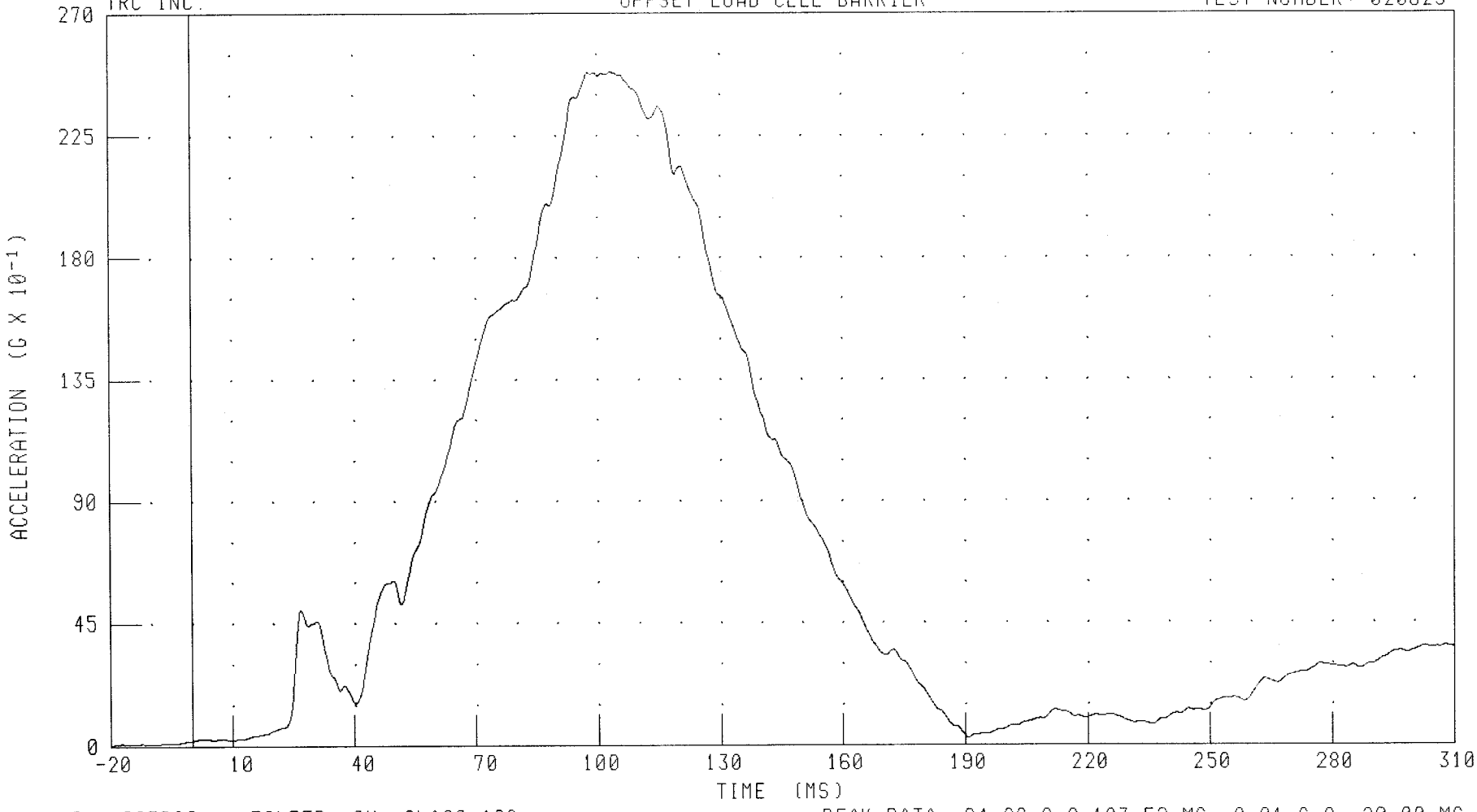


CHANNEL: CSTZG2 FILTER: CH. CLASS 180 PEAK DATA: 2.87 G @ 294.64 MS; -6.84 G @ 130.00 MS

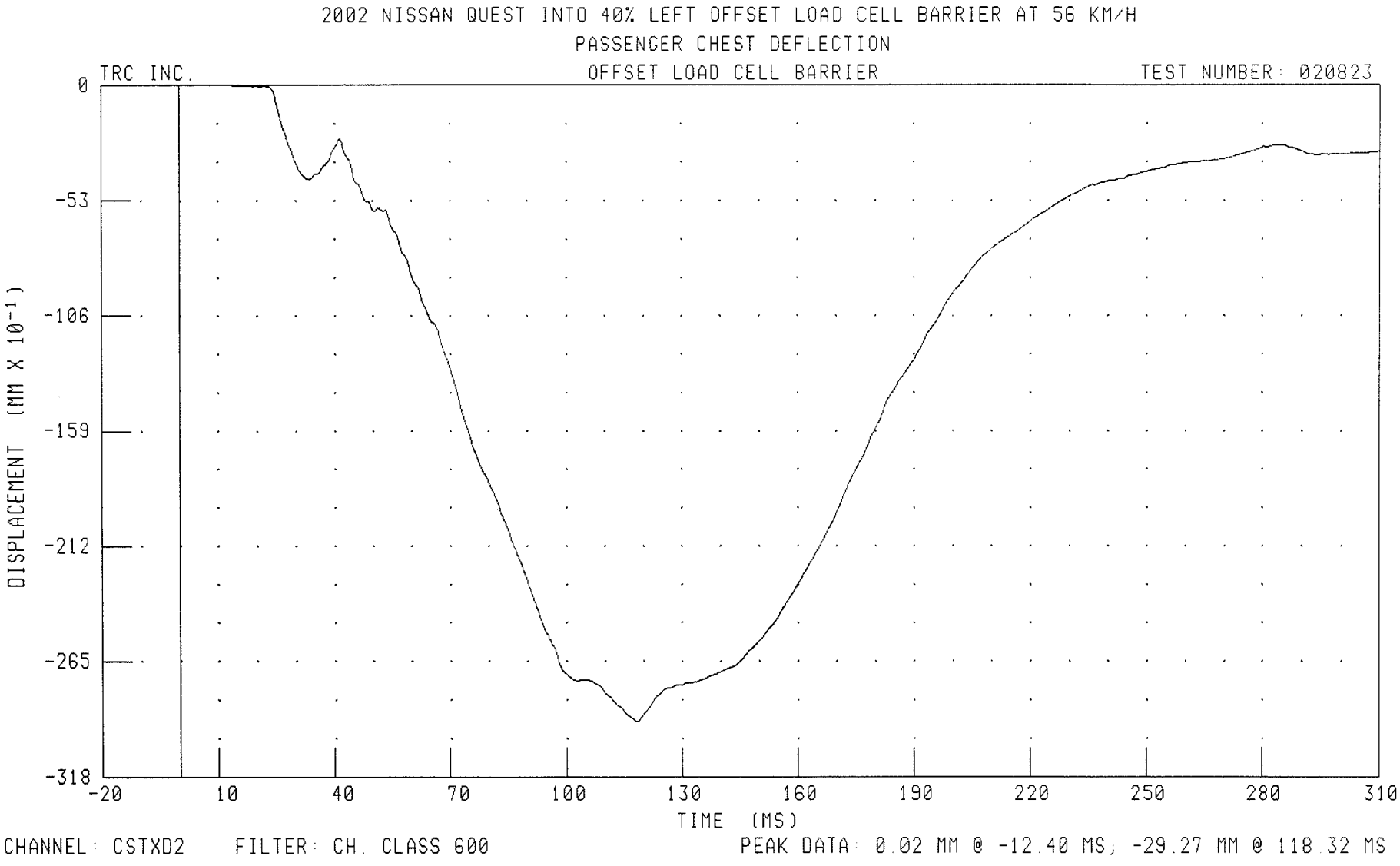
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER CHEST RESULTANT ACCELERATION

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

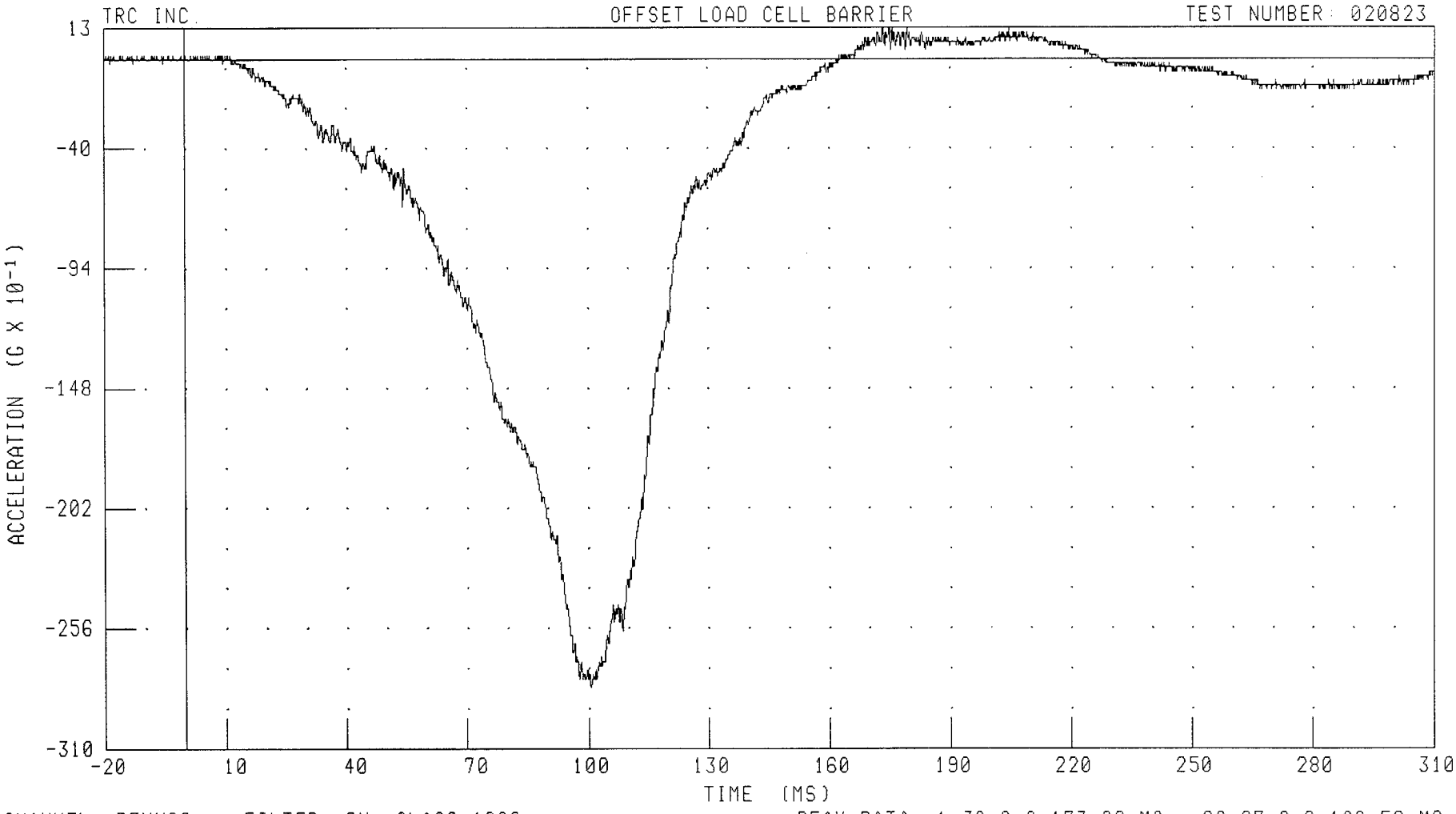


CHANNEL: CSTRG2 FILTER: CH. CLASS 180 PEAK DATA: 24.86 G @ 103.52 MS; 0.01 G @ -20.00 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER CHEST DEFLECTION
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
0
-53
-106
-159
-212
-265
-318
DISPLACEMENT (MM X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXD2
FILTER: CH. CLASS 600
PEAK DATA: 0.02 MM @ -12.40 MS; -29.27 MM @ 118.32 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

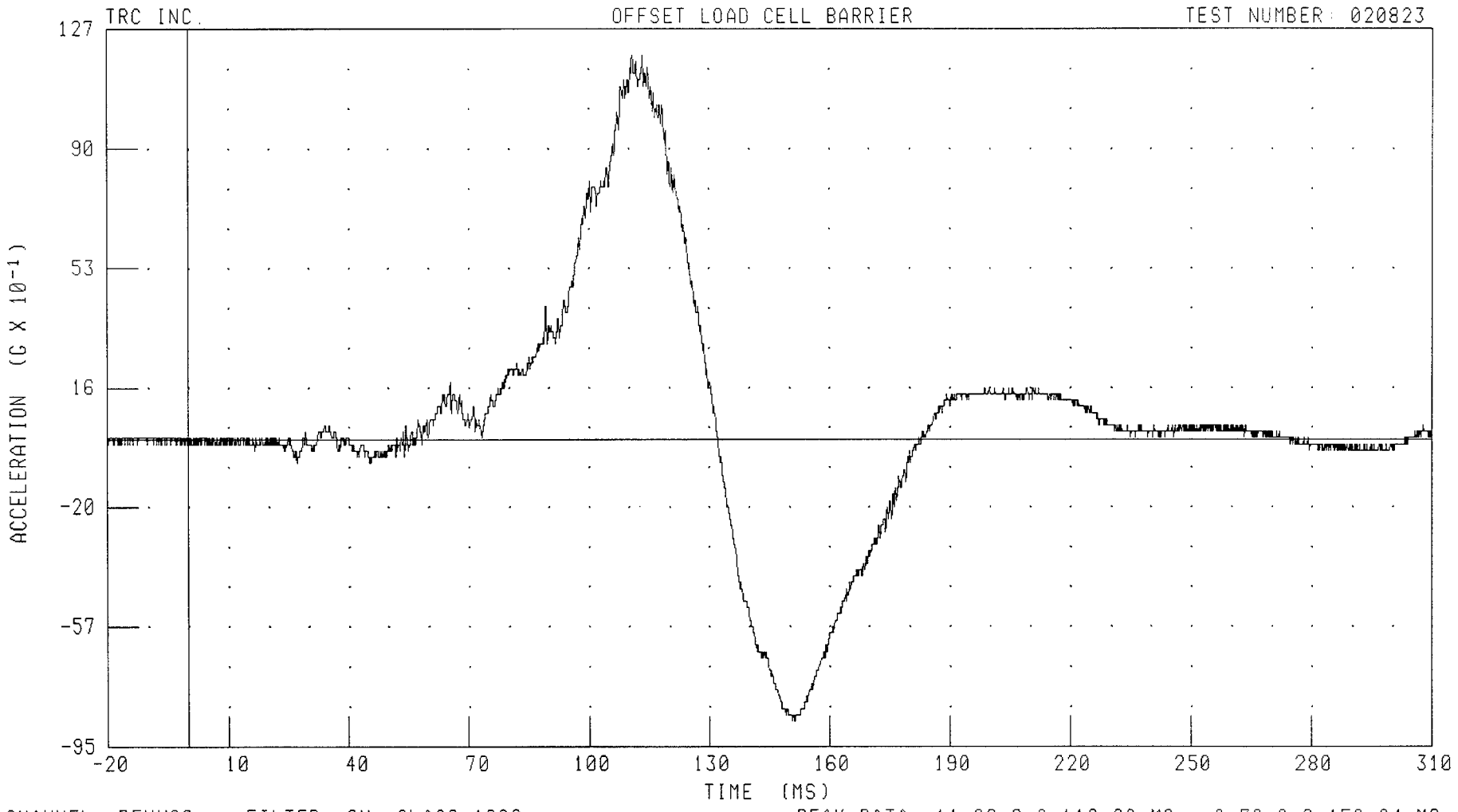
PASSENGER PELVIS X-AXIS ACCELERATION



CHANNEL: PEVXG2 FILTER: CH. CLASS 1000 PEAK DATA: 1.36 G @ 173.60 MS; -28.27 G @ 100.56 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

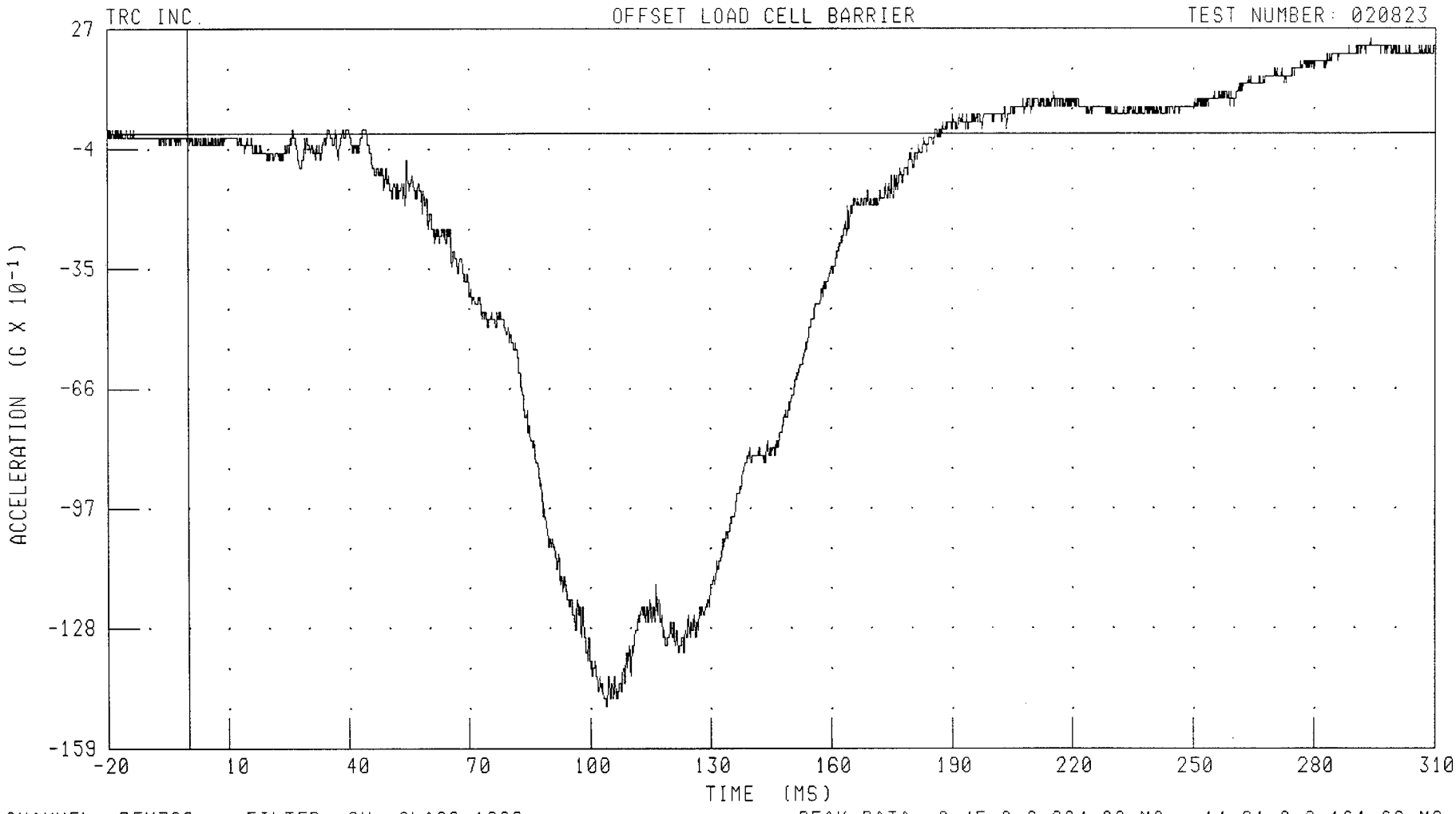
PASSENGER PELVIS Y-AXIS ACCELERATION



CHANNEL: PEVYG2 FILTER: CH. CLASS 1000 PEAK DATA: 11.90 G @ 110.96 MS; -8.72 G @ 150.64 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

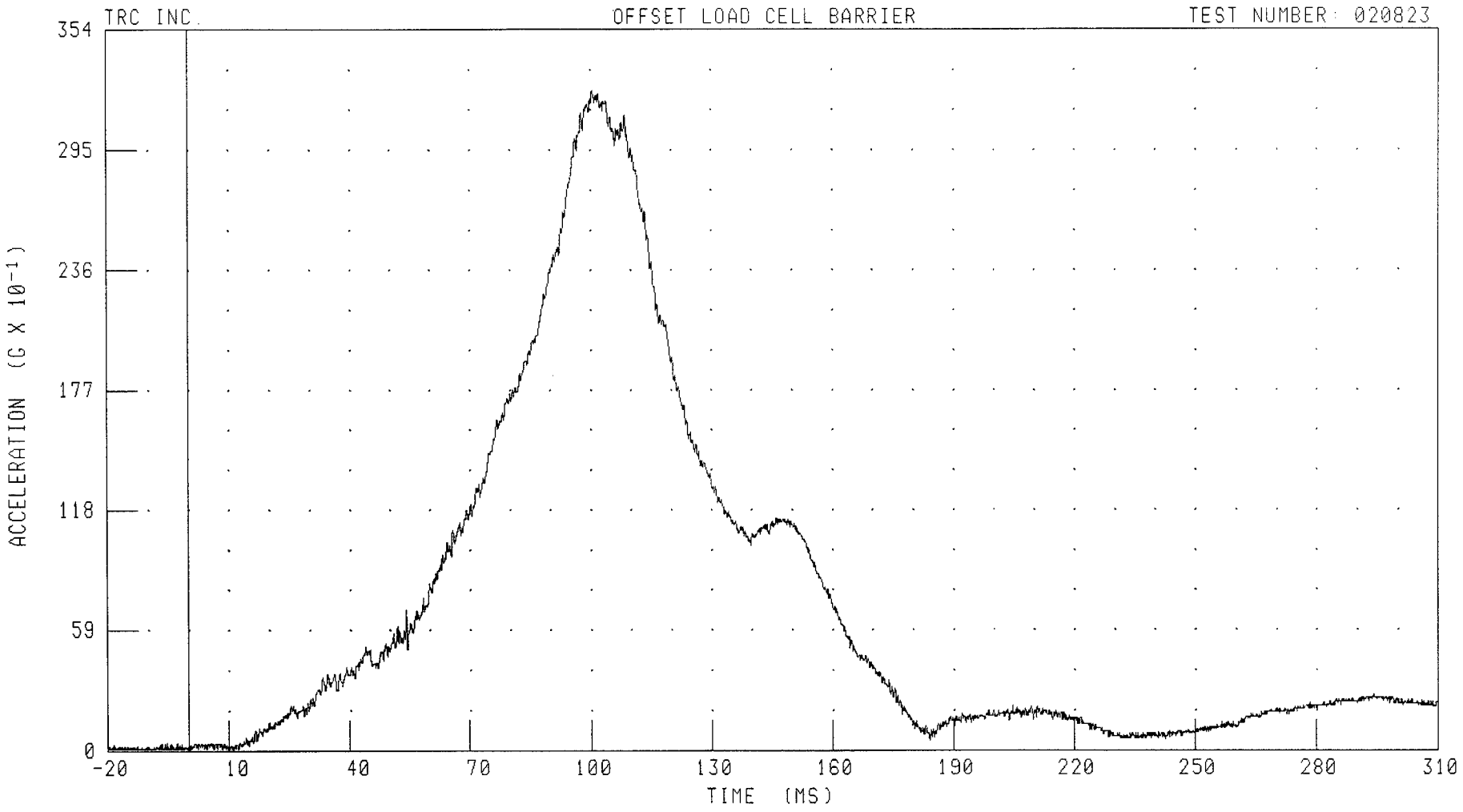
PASSENGER PELVIS Z-AXIS ACCELERATION



CHANNEL: PEVZG2 FILTER: CH. CLASS 1000 PEAK DATA: 2.45 G @ 294.08 MS, -14.81 G @ 104.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER PELVIS RESULTANT ACCELERATION

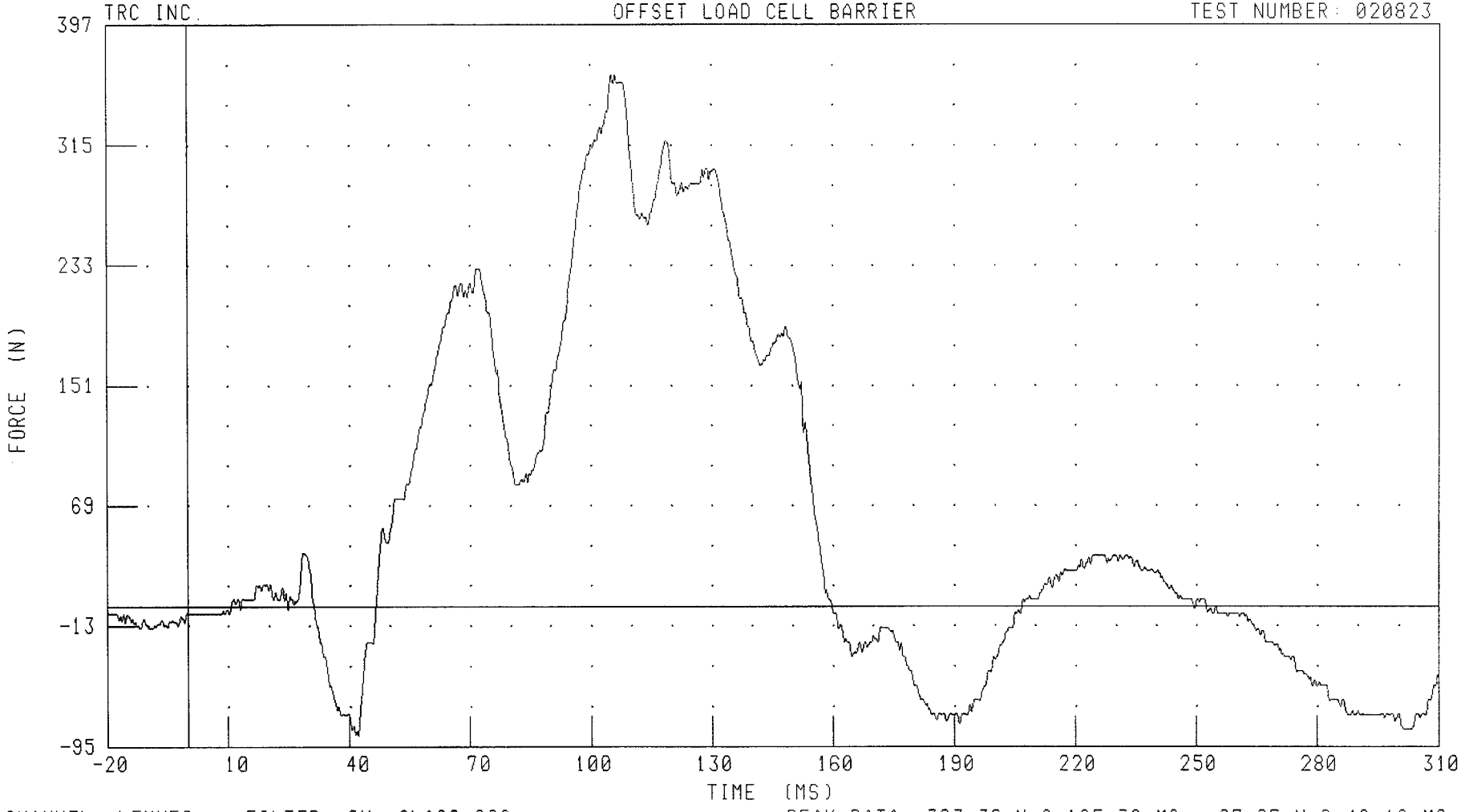


CHANNEL: PEVRG2 FILTER: CH. CLASS 1000 PEAK DATA: 32.42 G @ 100.56 MS; 0.10 G @ -19.76 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FEMUR X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

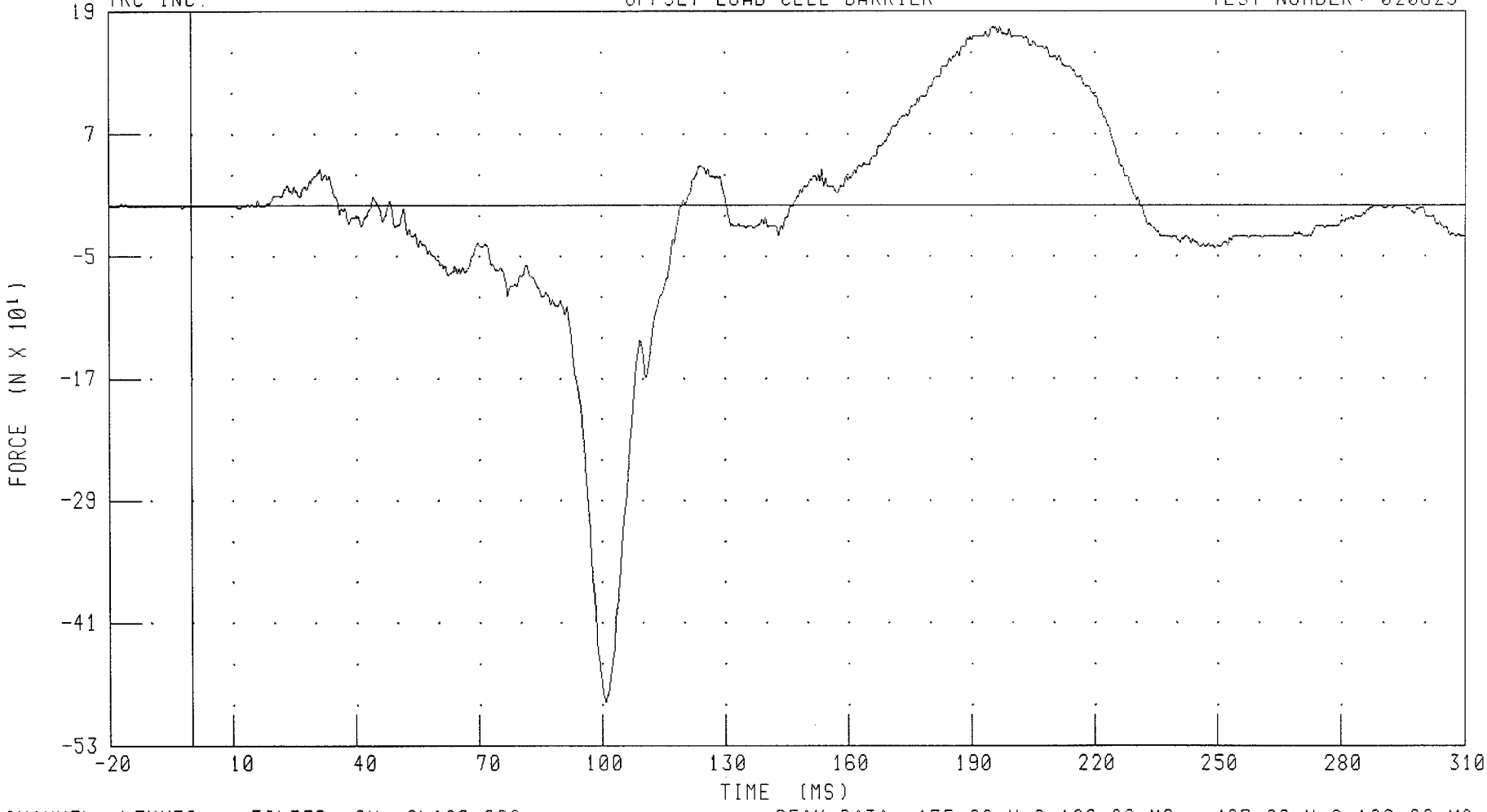


CHANNEL: LFMXF2 FILTER: CH. CLASS 600 PEAK DATA: 363.30 N @ 105.36 MS; -87.27 N @ 42.16 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FEMUR Y-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

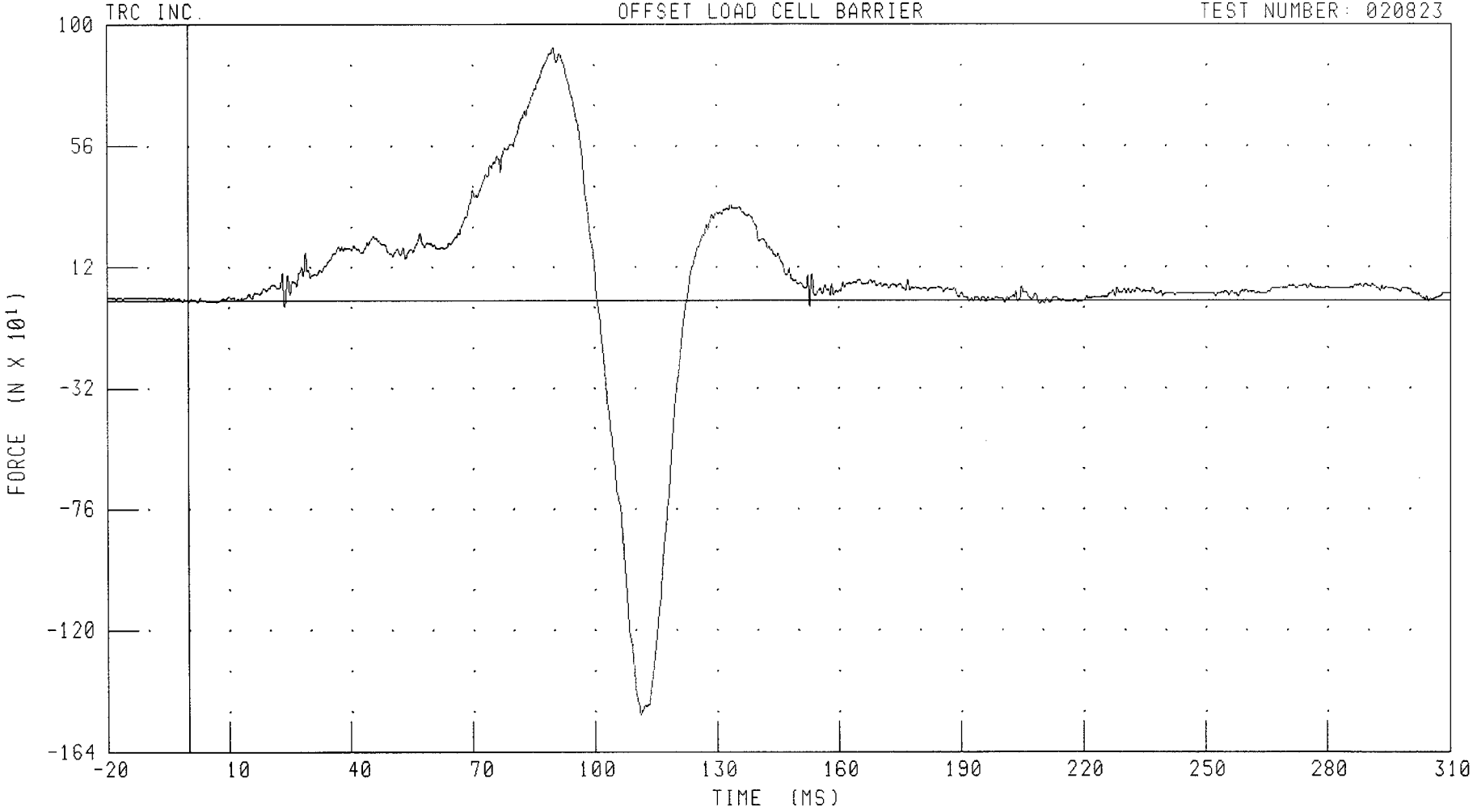


CHANNEL: LFMYF2 FILTER: CH. CLASS 600 PEAK DATA: 175.02 N @ 196.08 MS; -487.26 N @ 100.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FEMUR Z-AXIS FORCE

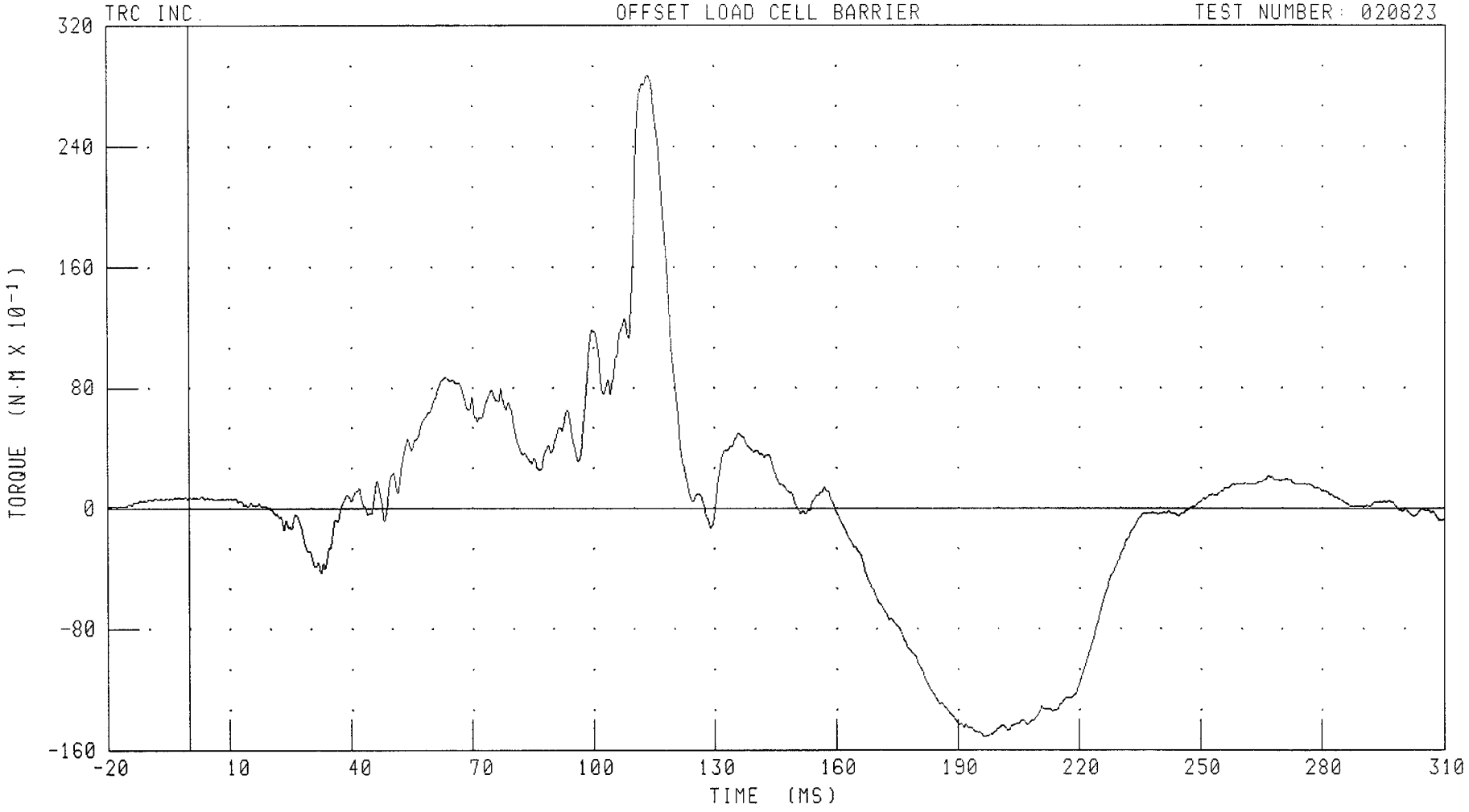
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LFMZF2 FILTER: CH. CLASS 600 PEAK DATA: 916.11 N @ 90.00 MS, -1505.89 N @ 111.28 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

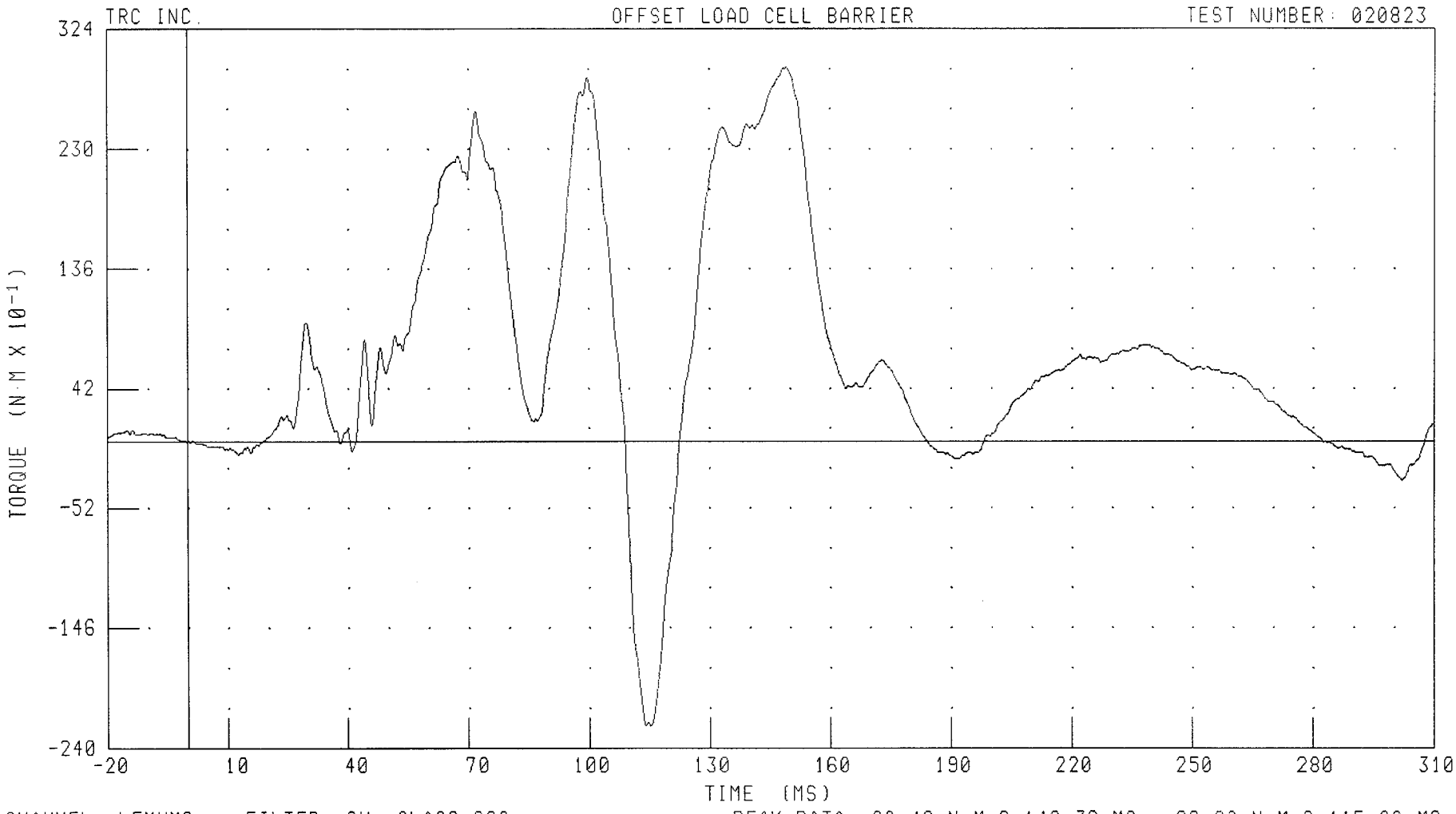
PASSENGER LEFT FEMUR MOMENT ABOUT X AXIS



CHANNEL: LFMXM2 FILTER: CH. CLASS 600 PEAK DATA: 28.71 N·M @ 113.60 MS; -15.10 N·M @ 196.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

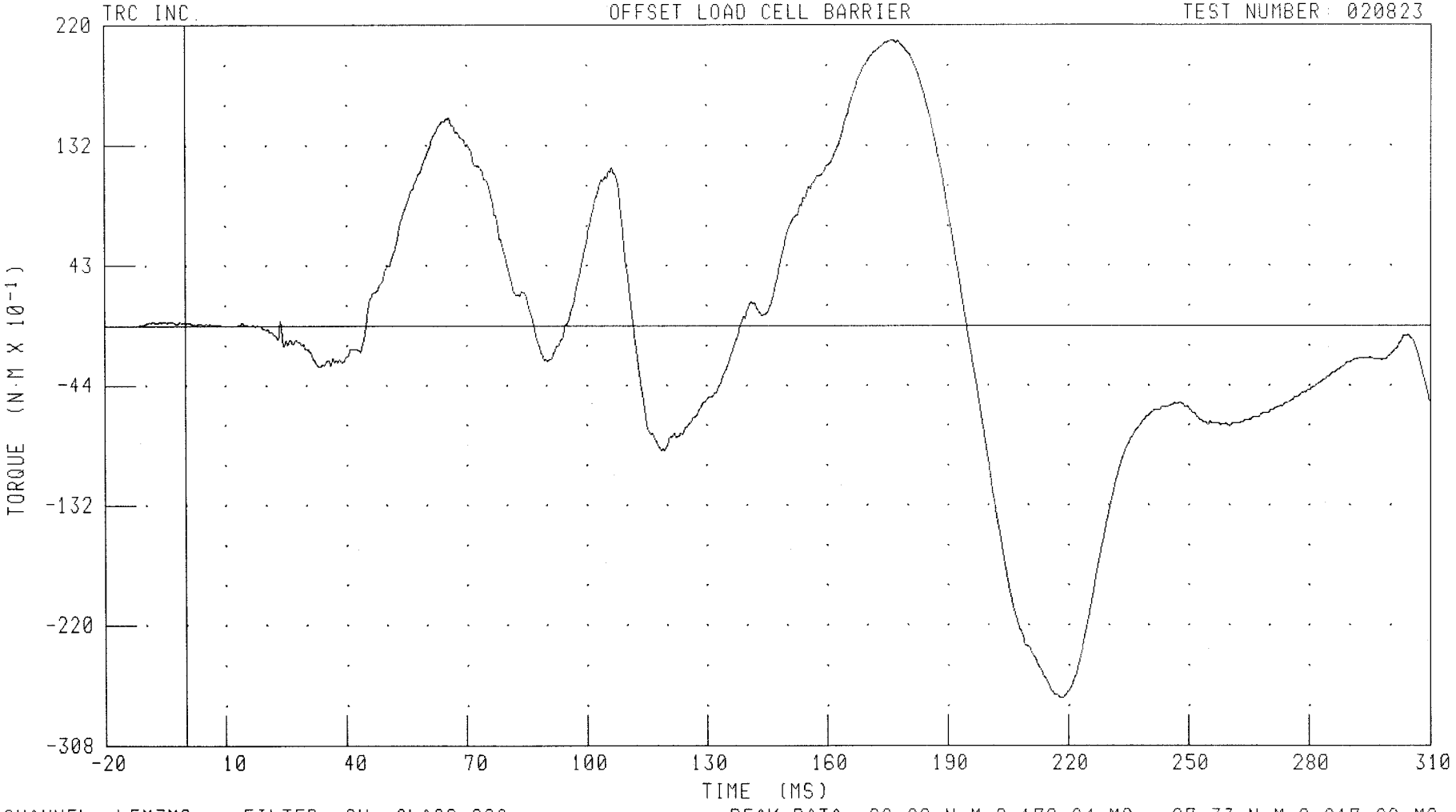
PASSENGER LEFT FEMUR MOMENT ABOUT Y AXIS



CHANNEL: LFMYM2 FILTER: CH. CLASS 600 PEAK DATA: 29.42 N-M @ 149.36 MS; -22.28 N-M @ 115.28 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FEMUR MOMENT ABOUT Z AXIS

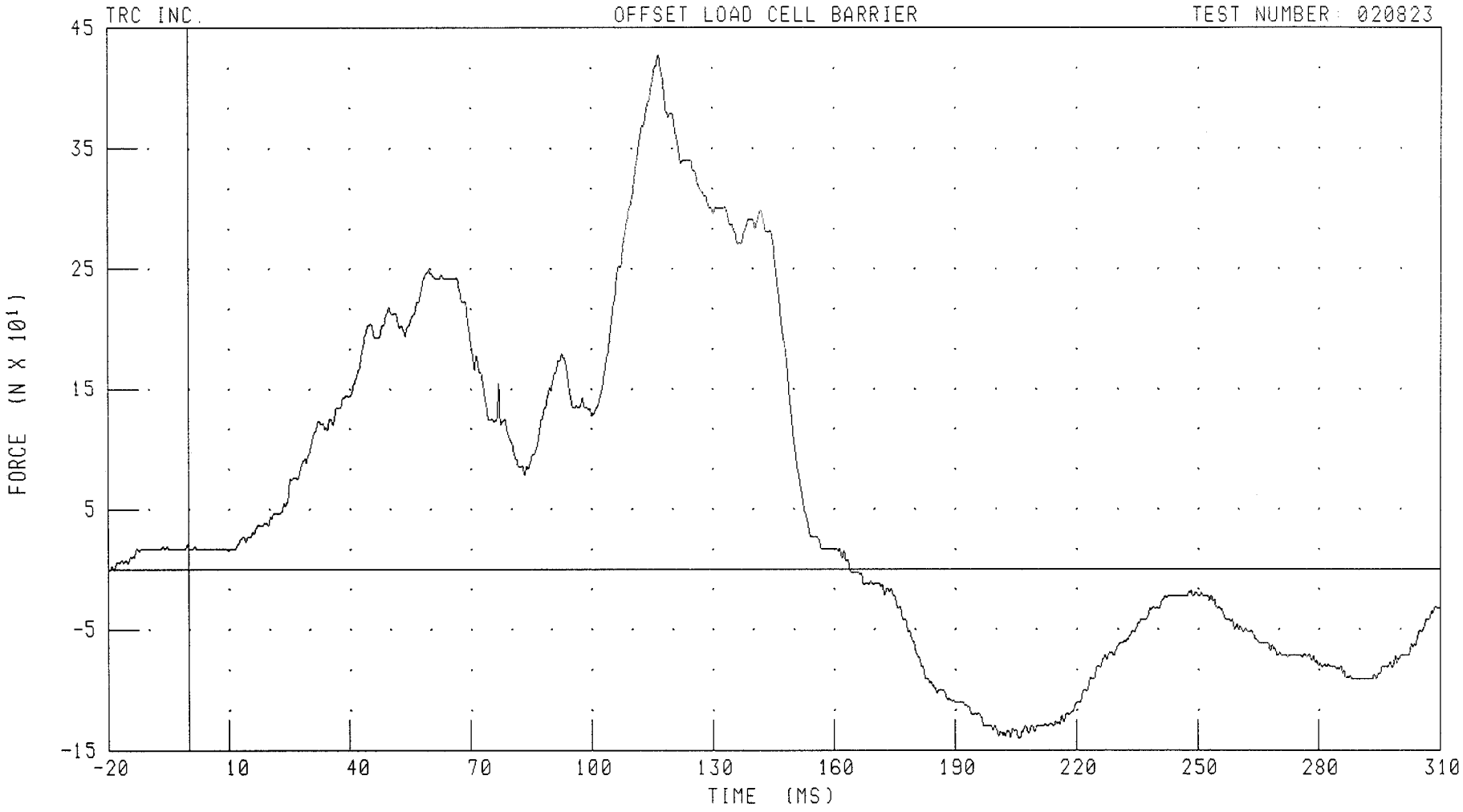


CHANNEL: LFMZM2 FILTER: CH. CLASS 600

PEAK DATA: 20.88 N·M @ 176.24 MS, -27.33 N·M @ 217.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

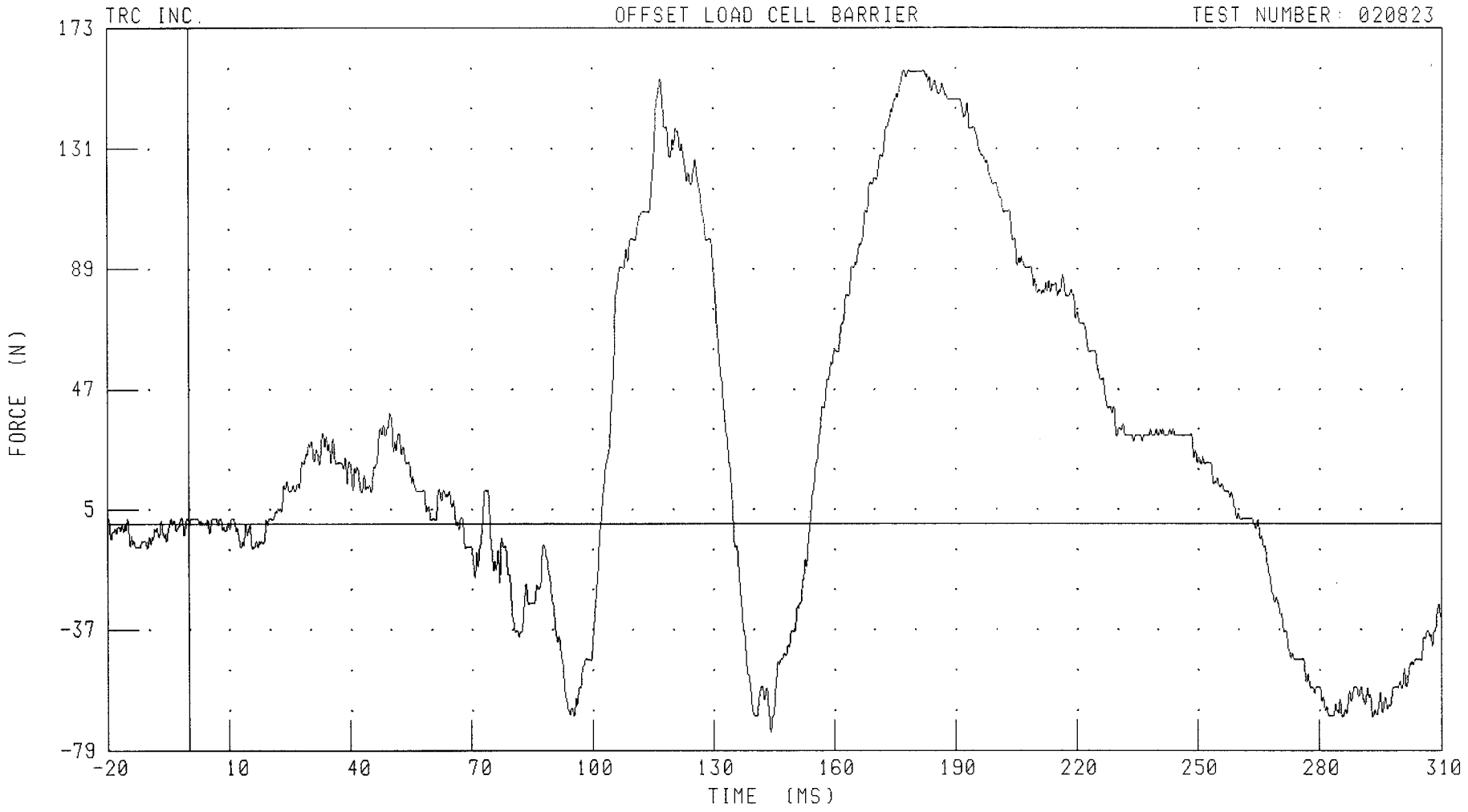
PASSENGER RIGHT FEMUR X-AXIS FORCE



CHANNEL: RFMXF2 FILTER: CH. CLASS 600 PEAK DATA: 427.46 N @ 116.80 MS; -140.05 N @ 205.84 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

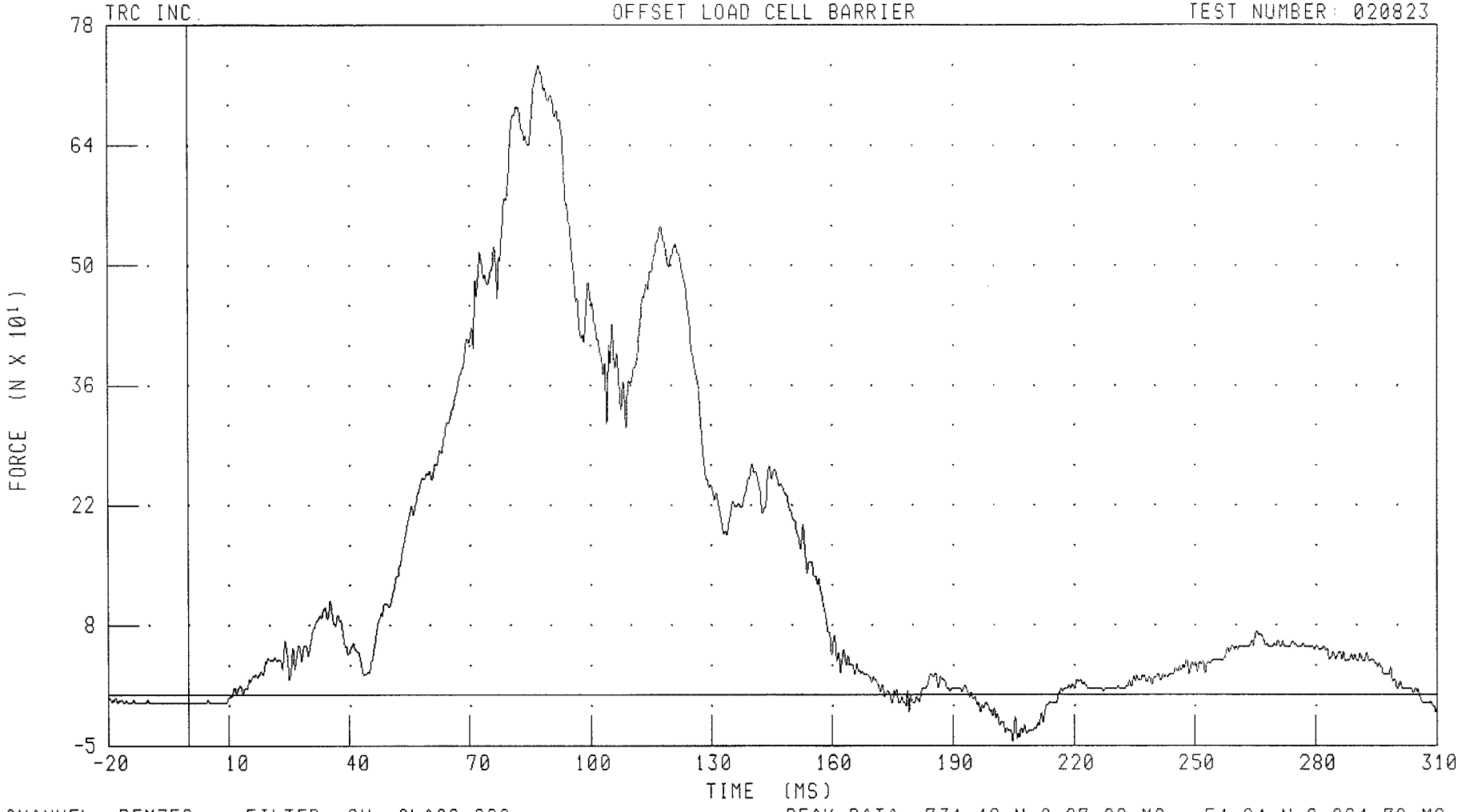
PASSENGER RIGHT FEMUR Y-AXIS FORCE



CHANNEL: RFMYF2 FILTER: CH. CLASS 600 PEAK DATA: 158.19 N @ 177.36 MS; -72.66 N @ 144.32 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

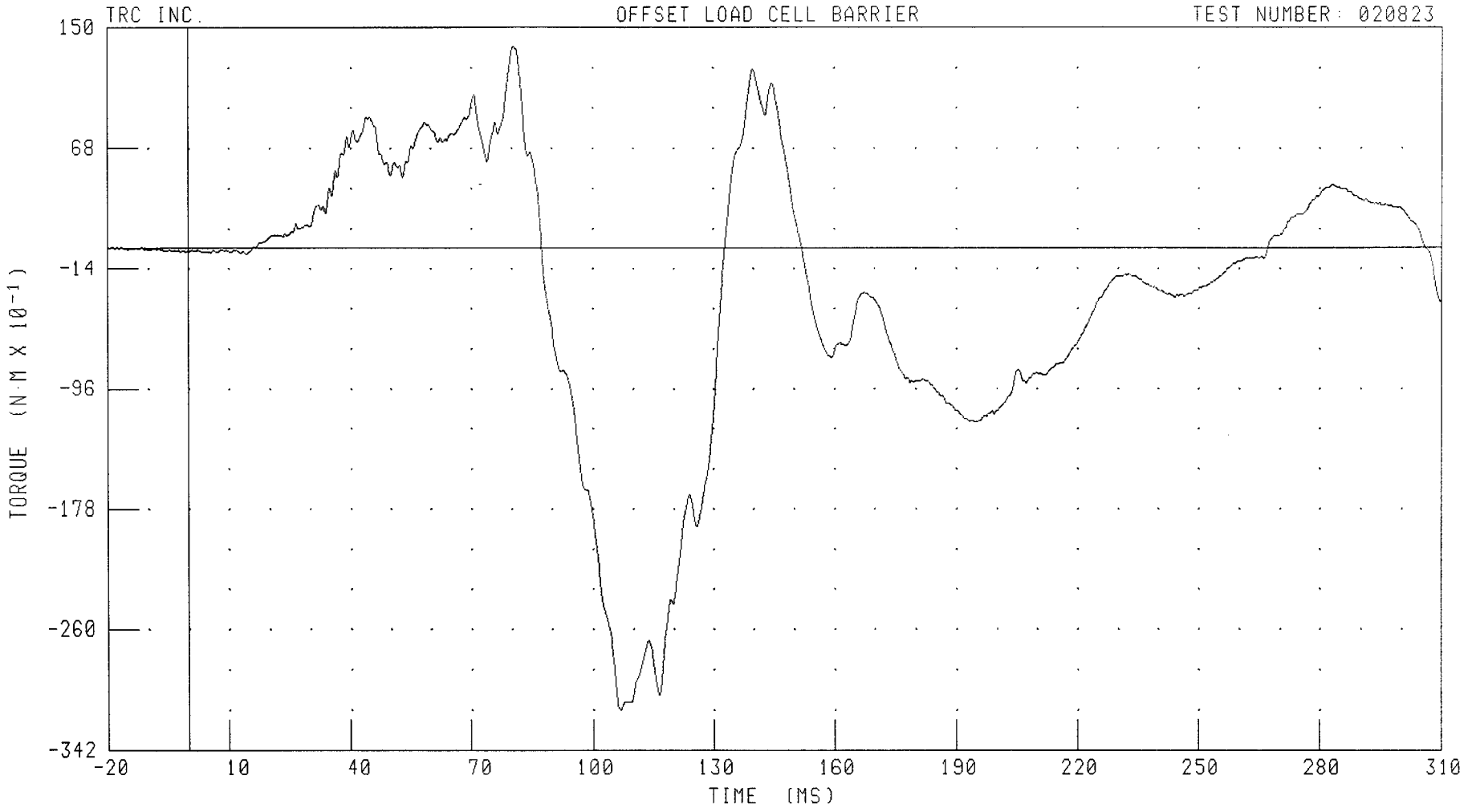
PASSENGER RIGHT FEMUR Z-AXIS FORCE



CHANNEL: RFMZF2 FILTER: CH. CLASS 600 PEAK DATA: 734.42 N @ 87.20 MS; -54.04 N @ 204.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

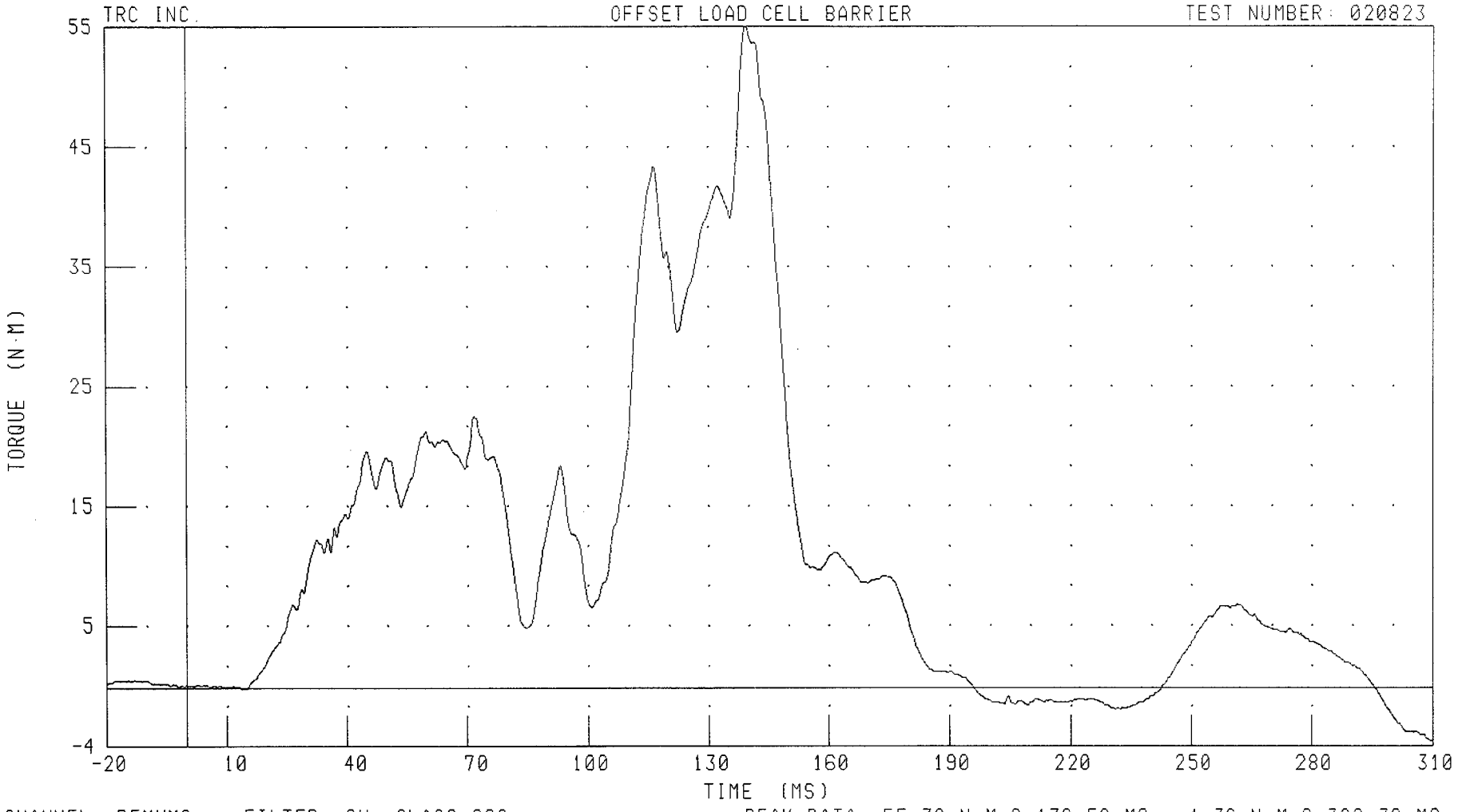
PASSENGER RIGHT FEMUR MOMENT ABOUT X AXIS



CHANNEL: RFMXM2 FILTER: CH. CLASS 600 PEAK DATA: 13.71 N-M @ 80.80 MS, -31.47 N-M @ 106.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

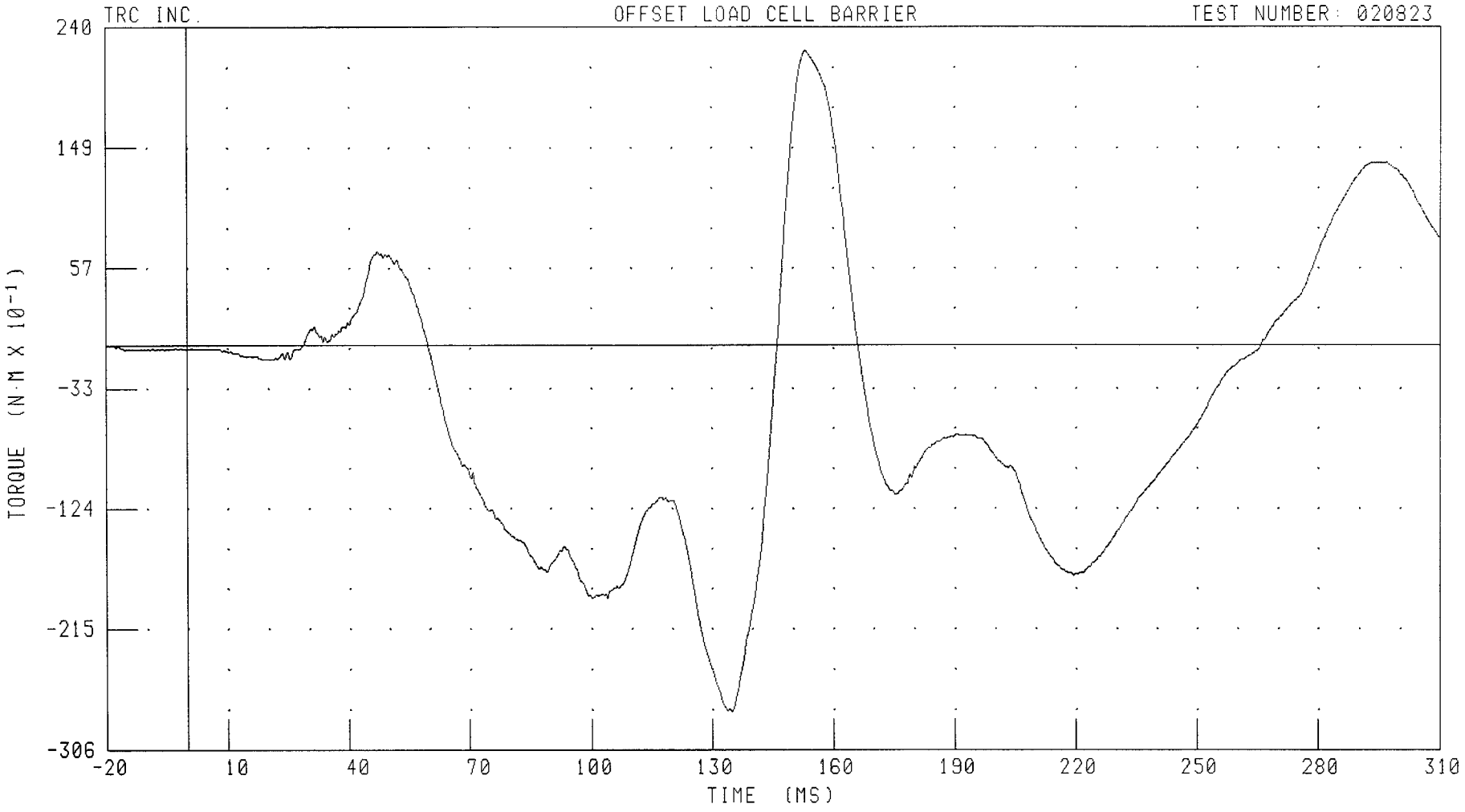
PASSENGER RIGHT FEMUR MOMENT ABOUT Y AXIS



CHANNEL: RFMYM2 FILTER: CH. CLASS 600 PEAK DATA: 55.32 N-M @ 139.52 MS; -4.38 N-M @ 309.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

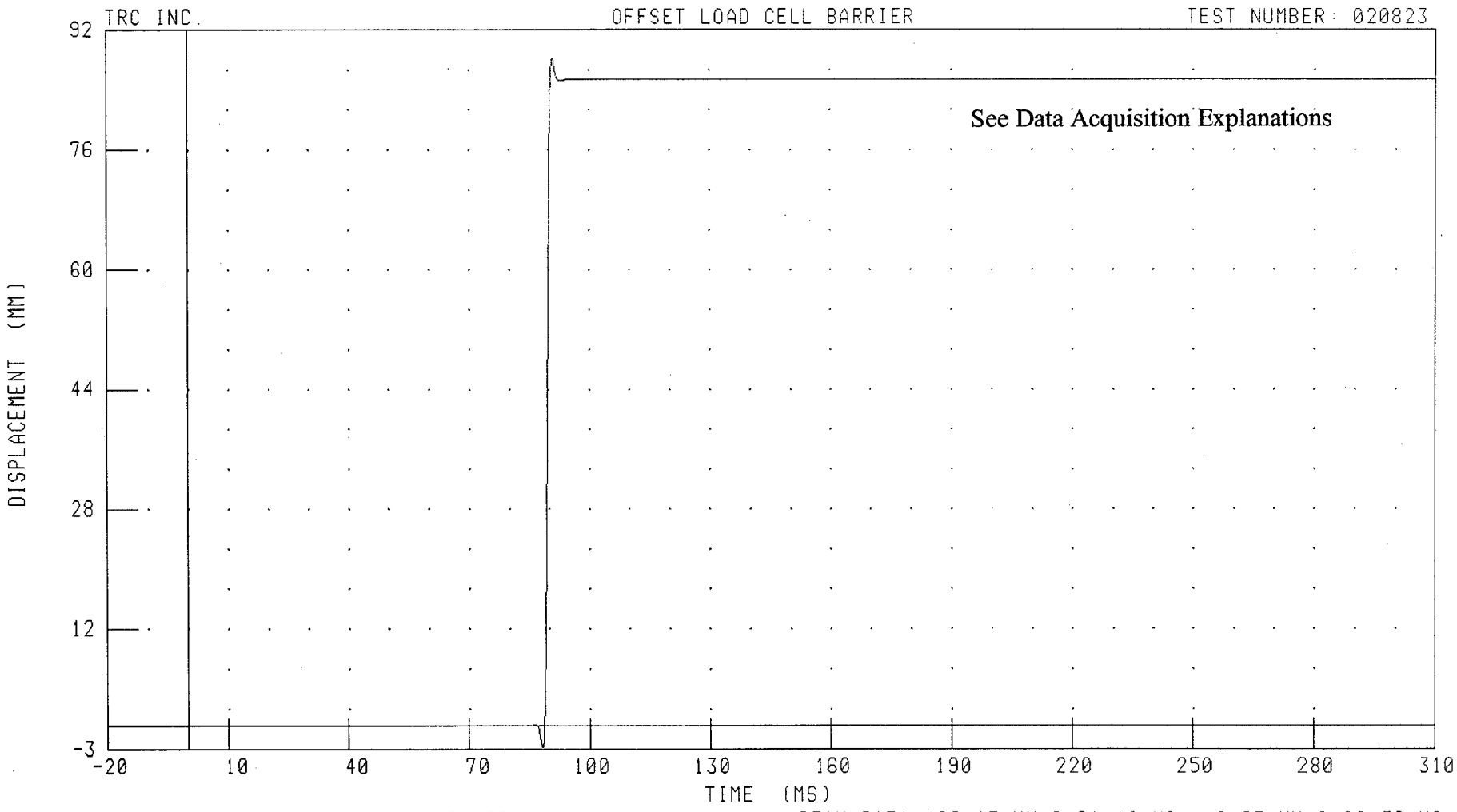
PASSENGER RIGHT FEMUR MOMENT ABOUT Z AXIS



CHANNEL: RFMZM2 FILTER: CH. CLASS 600 PEAK DATA: 22.22 N-M @ 153.36 MS; -27.72 N-M @ 134.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

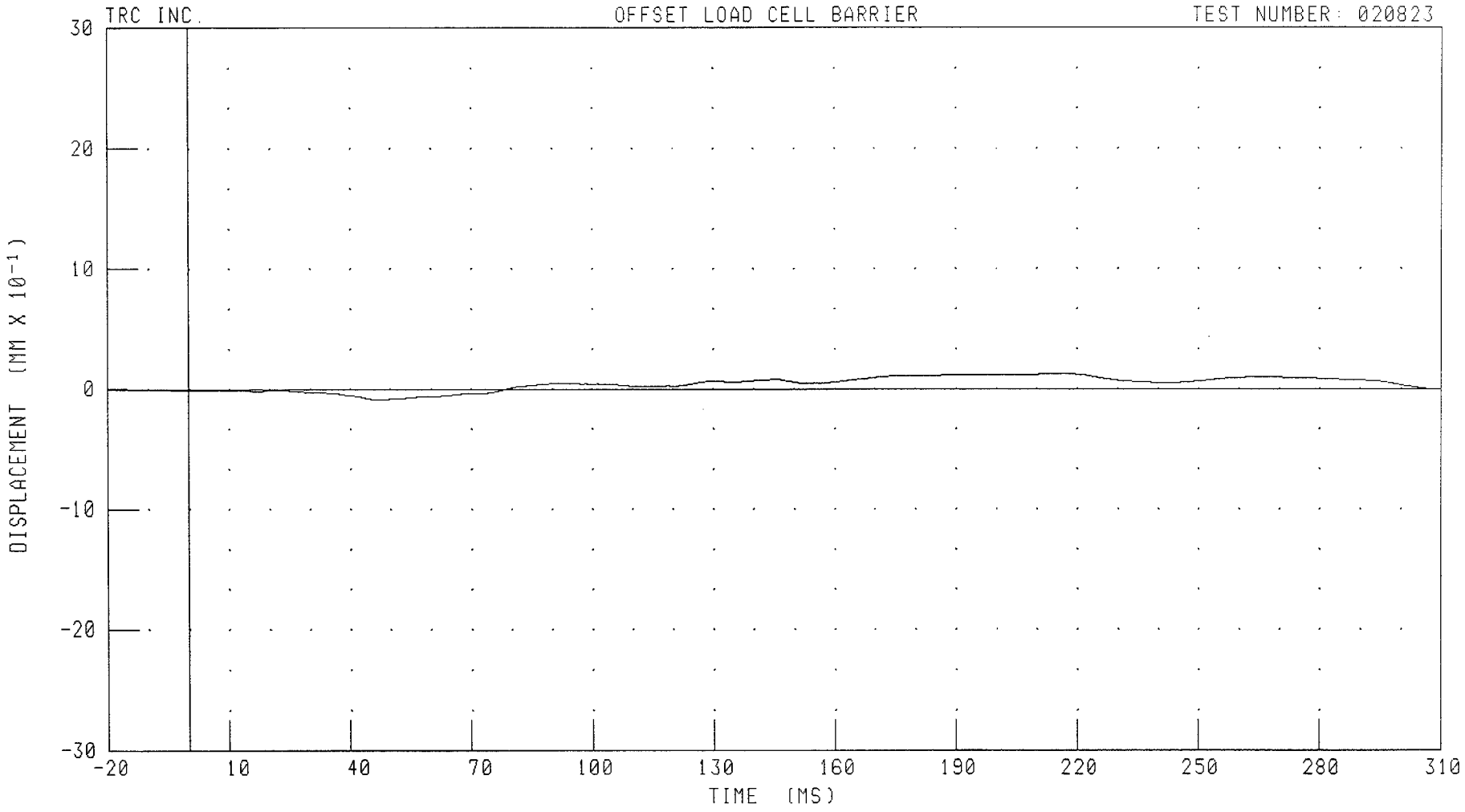
PASSENGER LEFT TIBIA TO FEMUR DISPLACEMENT



CHANNEL: KNLXD2 FILTER: CH. CLASS 180 PEAK DATA: 89.13 MM @ 91.12 MS; -2.87 MM @ 88.32 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

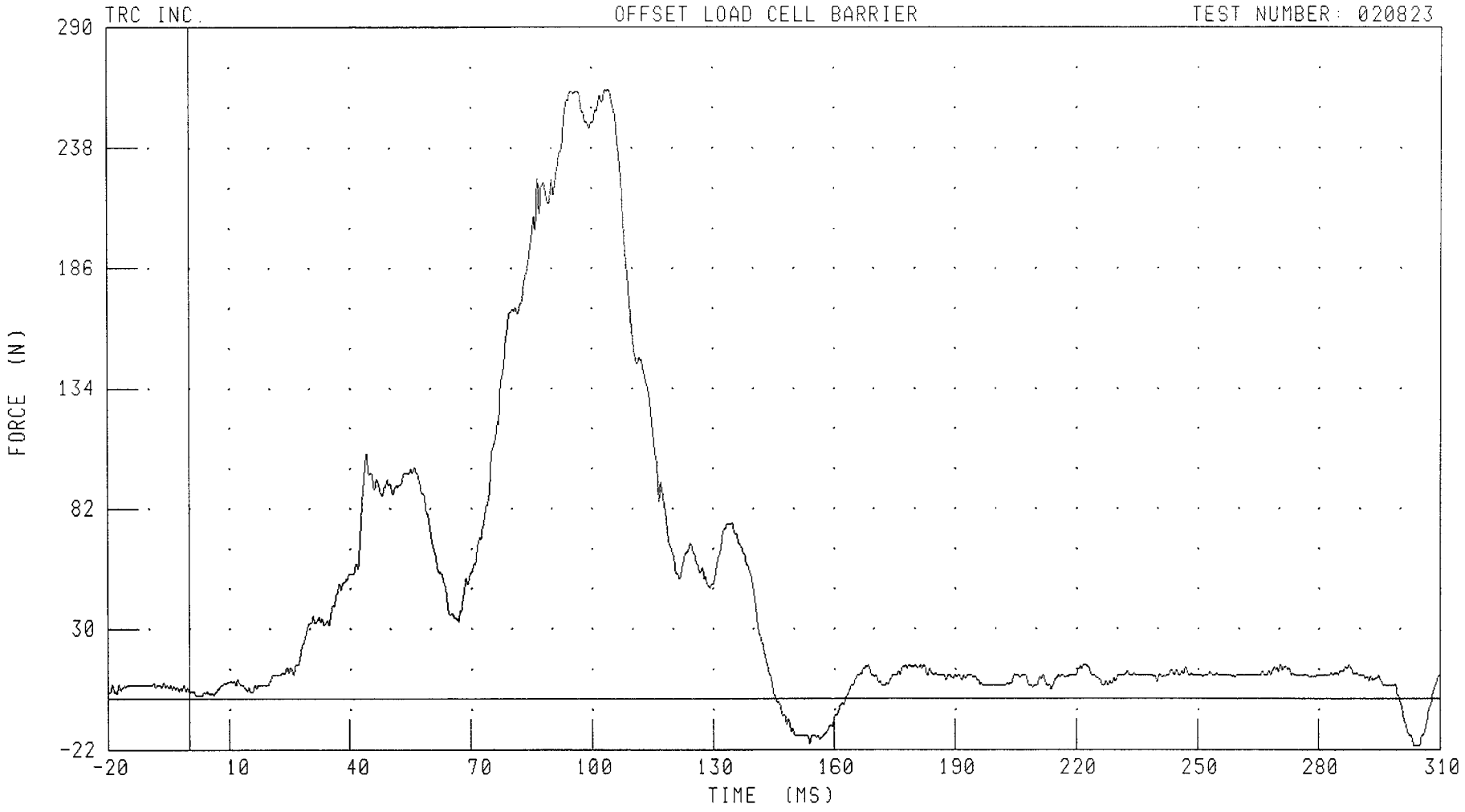
PASSENGER RIGHT TIBIA TO FEMUR DISPLACEMENT



CHANNEL: KNRXD2 FILTER: CH. CLASS 180 PEAK DATA: 0.12 MM @ 217.68 MS; -0.09 MM @ 47.60 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

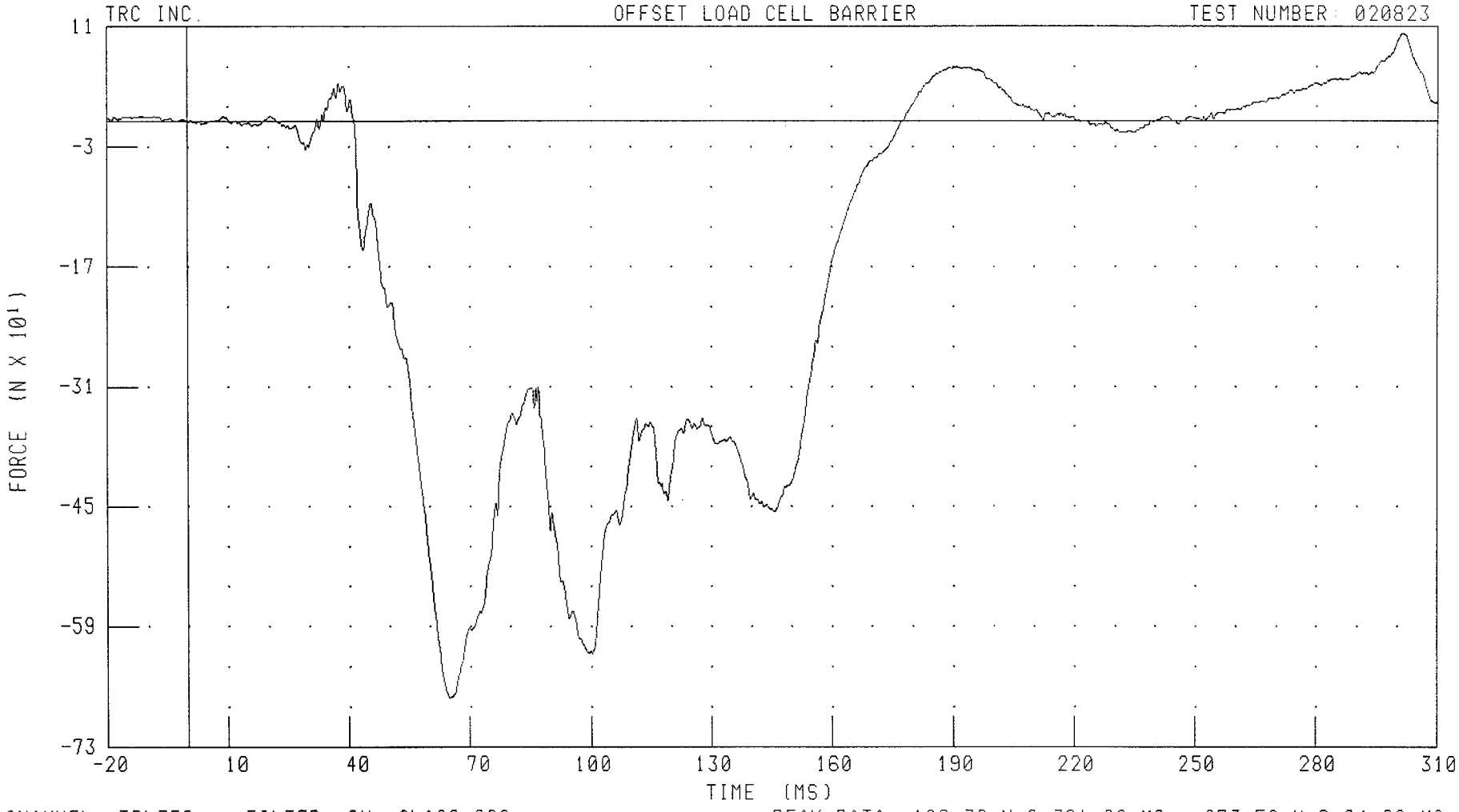
PASSENGER LEFT UPPER TIBIA X-AXIS FORCE



CHANNEL: TBLXF2 FILTER: CH. CLASS 600 PEAK DATA: 263.23 N @ 104.32 MS; -20.41 N @ 304.64 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

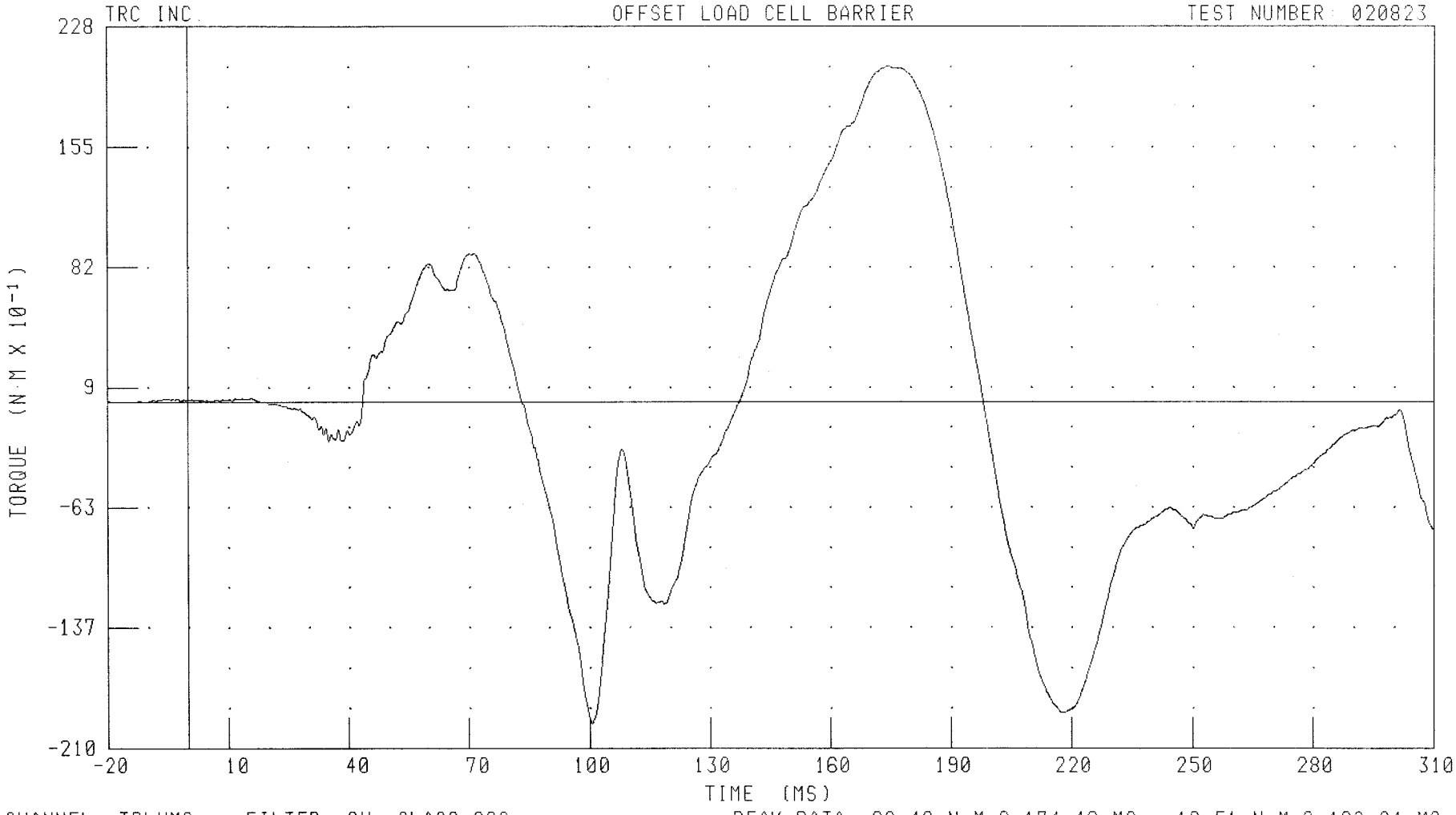
PASSENGER LEFT UPPER TIBIA Z-AXIS FORCE



CHANNEL: TBLZF2 FILTER: CH. CLASS 600 PEAK DATA: 102.30 N @ 301.28 MS; -673.50 N @ 64.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

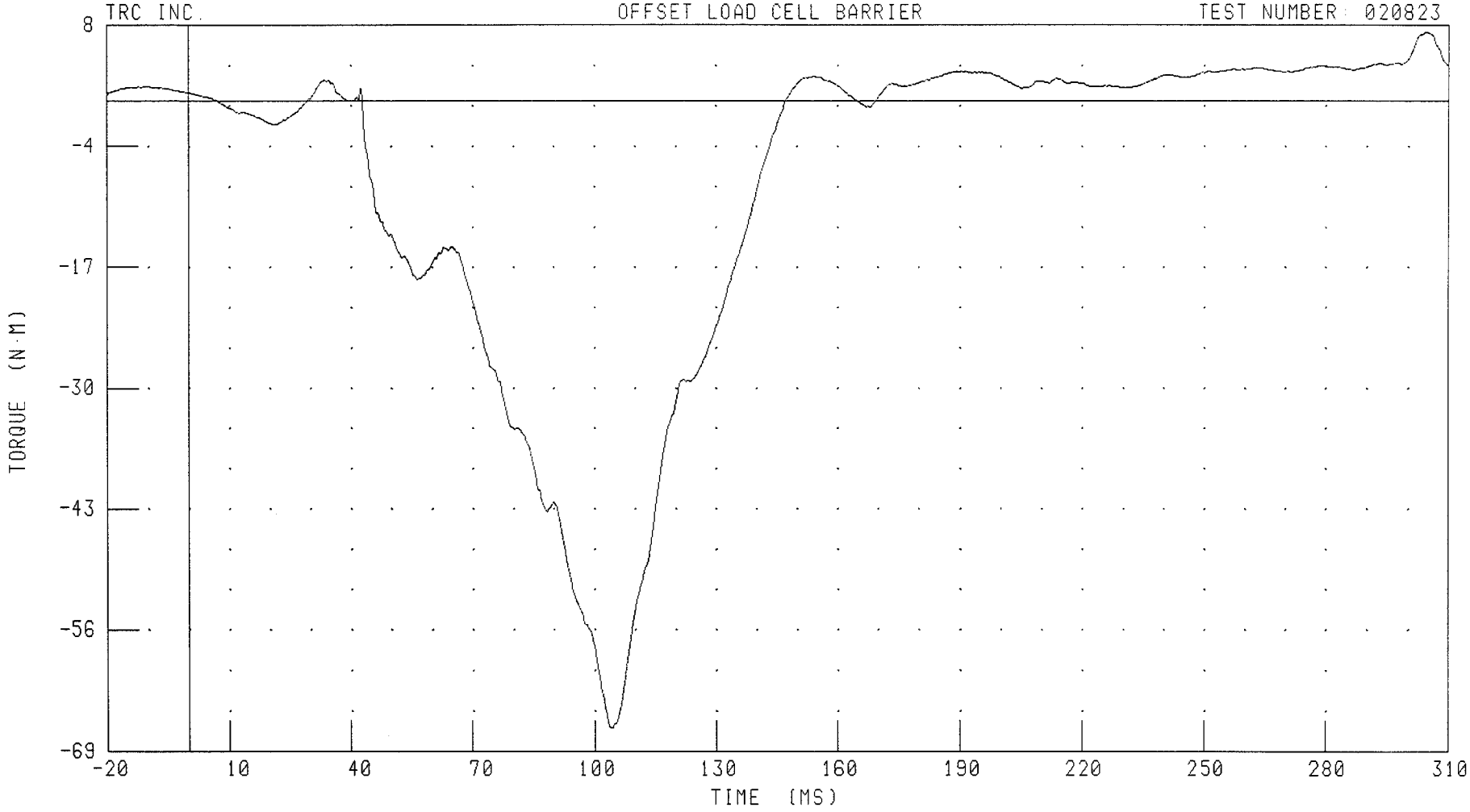
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS



CHANNEL: TBLXM2 FILTER: CH. CLASS 600 PEAK DATA: 20.42 N-M @ 174.48 MS, -19.51 N-M @ 100.64 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

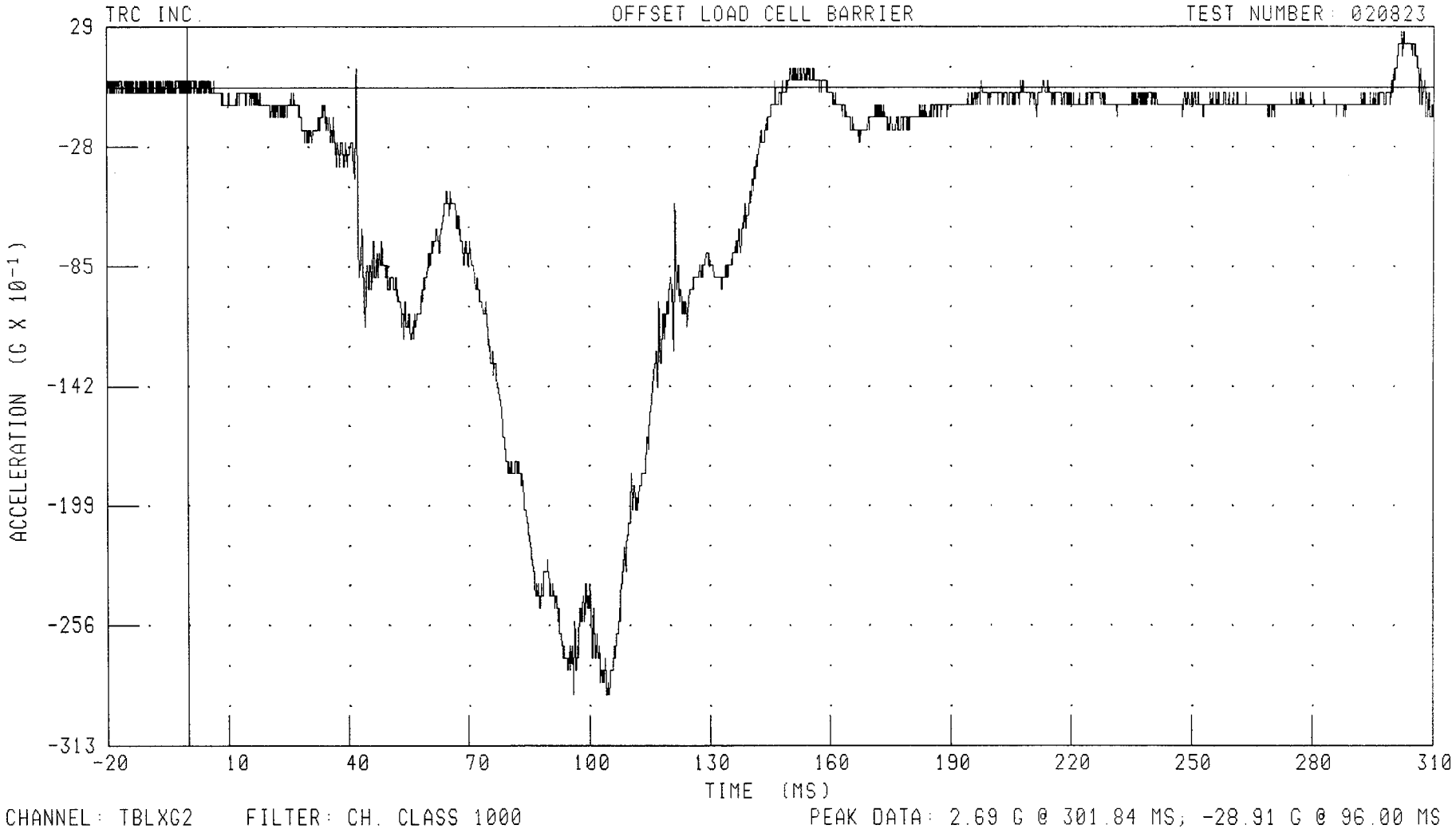
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS



CHANNEL: TBLYM2 FILTER: CH. CLASS 600 PEAK DATA: 7.38 N-M @ 304.48 MS, -67.39 N-M @ 104.24 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT TIBIA X-AXIS ACCELERATION

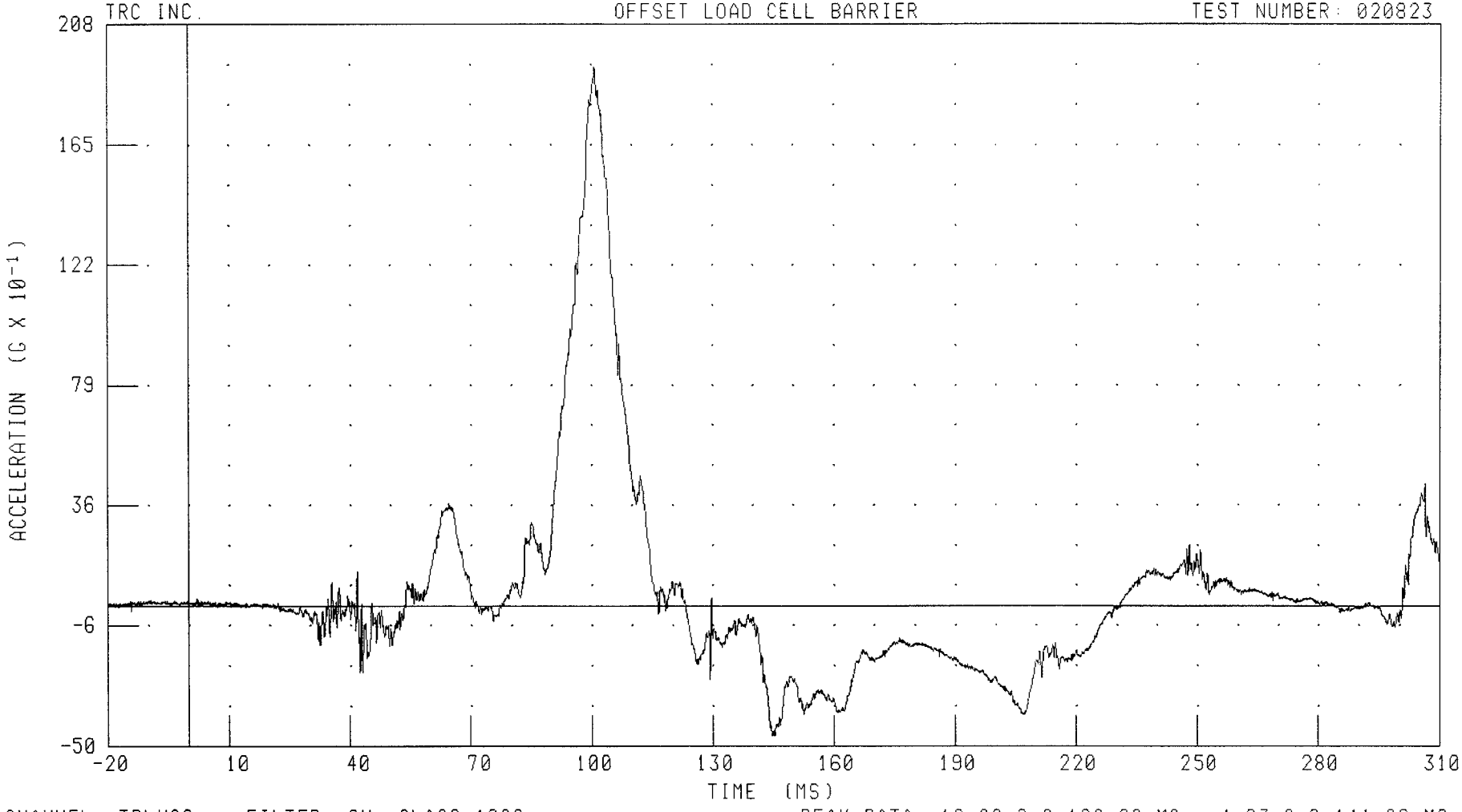


CHANNEL: TBLXG2 FILTER: CH. CLASS 1000 PEAK DATA: 2.69 G @ 301.84 MS; -28.91 G @ 96.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

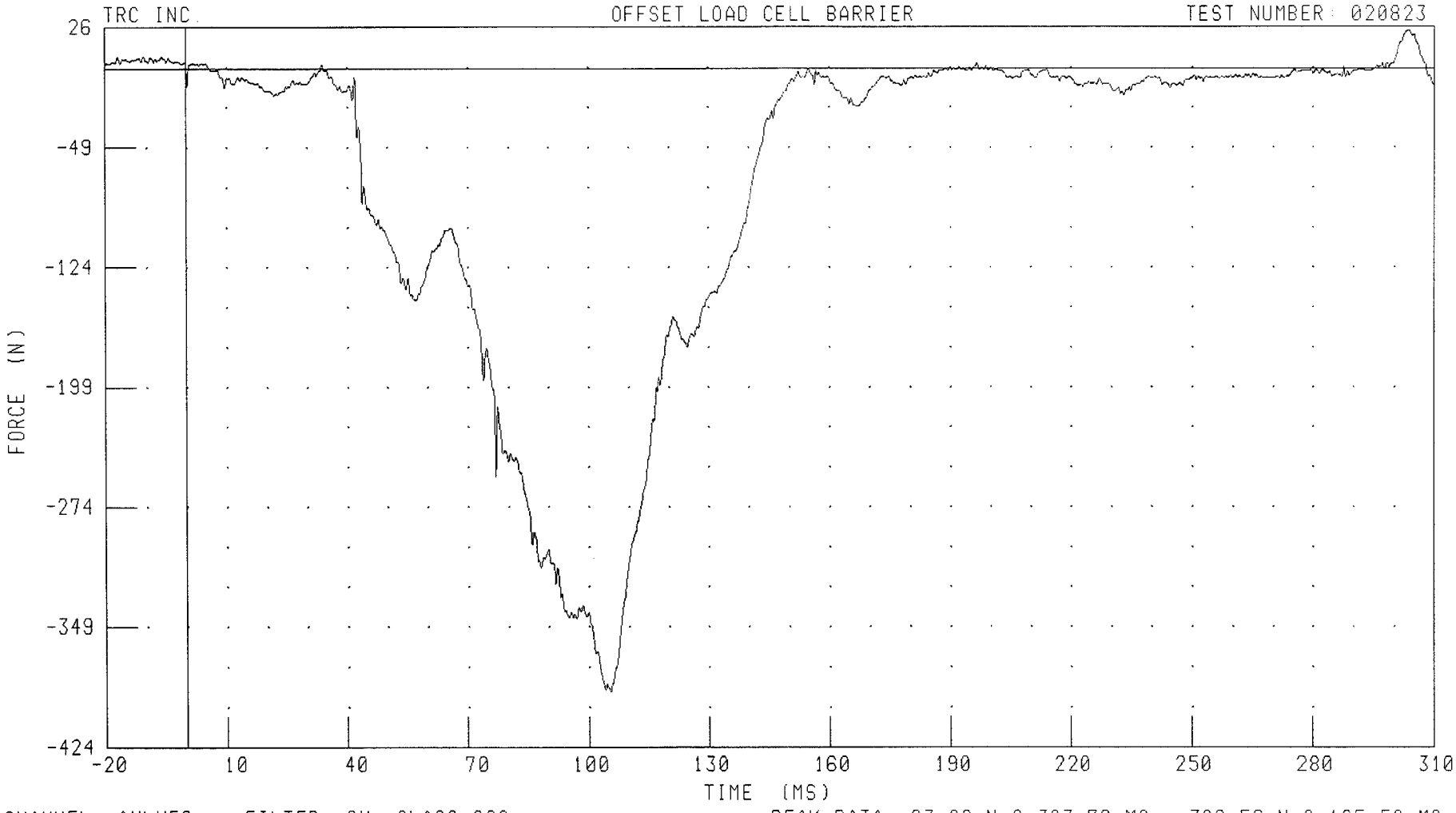
PASSENGER LEFT TIBIA Y-AXIS ACCELERATION

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: TBLYG2 FILTER: CH. CLASS 1000 PEAK DATA: 19.29 G @ 100.96 MS; -4.63 G @ 144.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER LEFT LOWER TIBIA X-AXIS FORCE

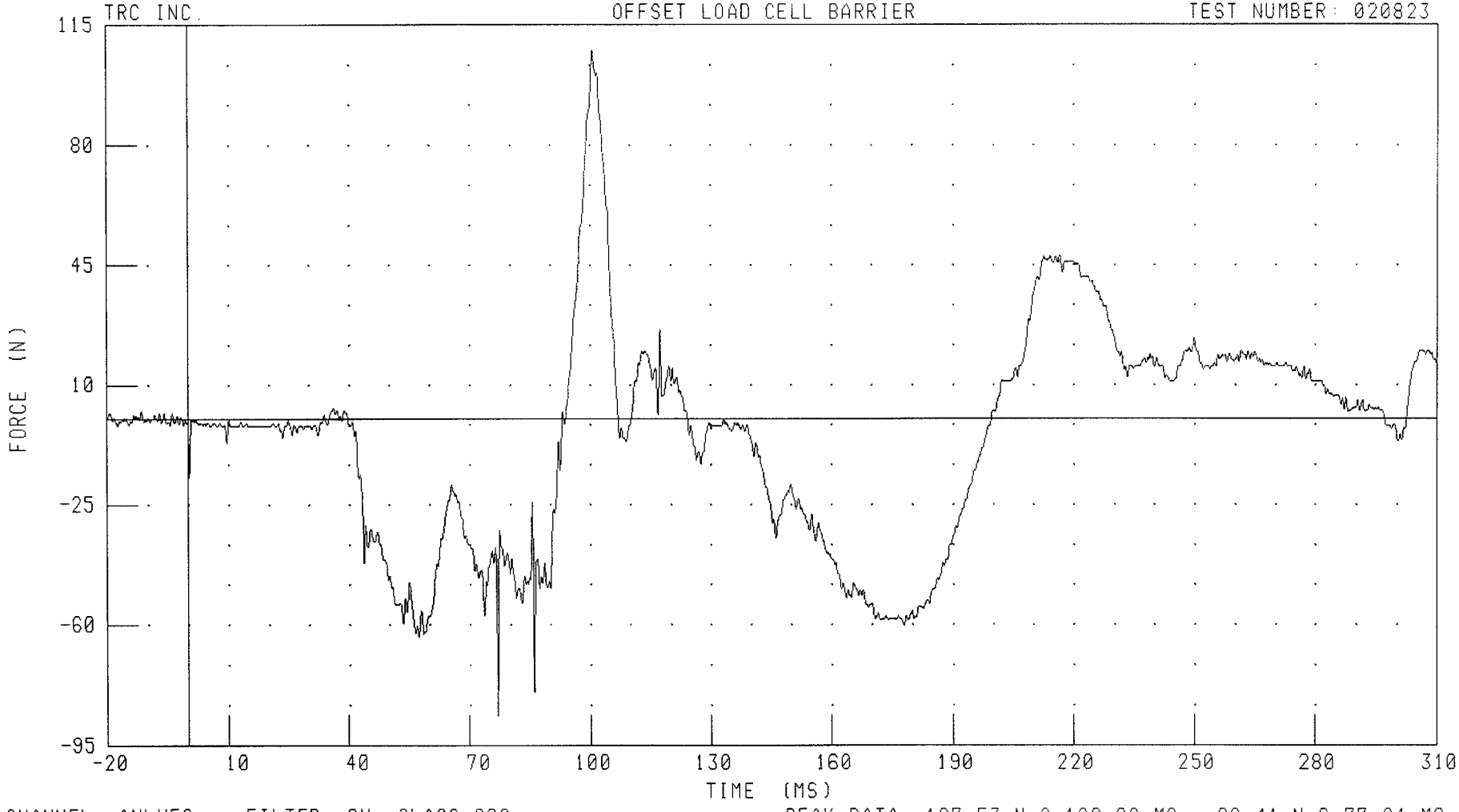


CHANNEL: ANLXF2 FILTER: CH. CLASS 600 PEAK DATA: 23.89 N @ 303.76 MS; -389.58 N @ 105 52 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT LOWER TIBIA Y-AXIS FORCE

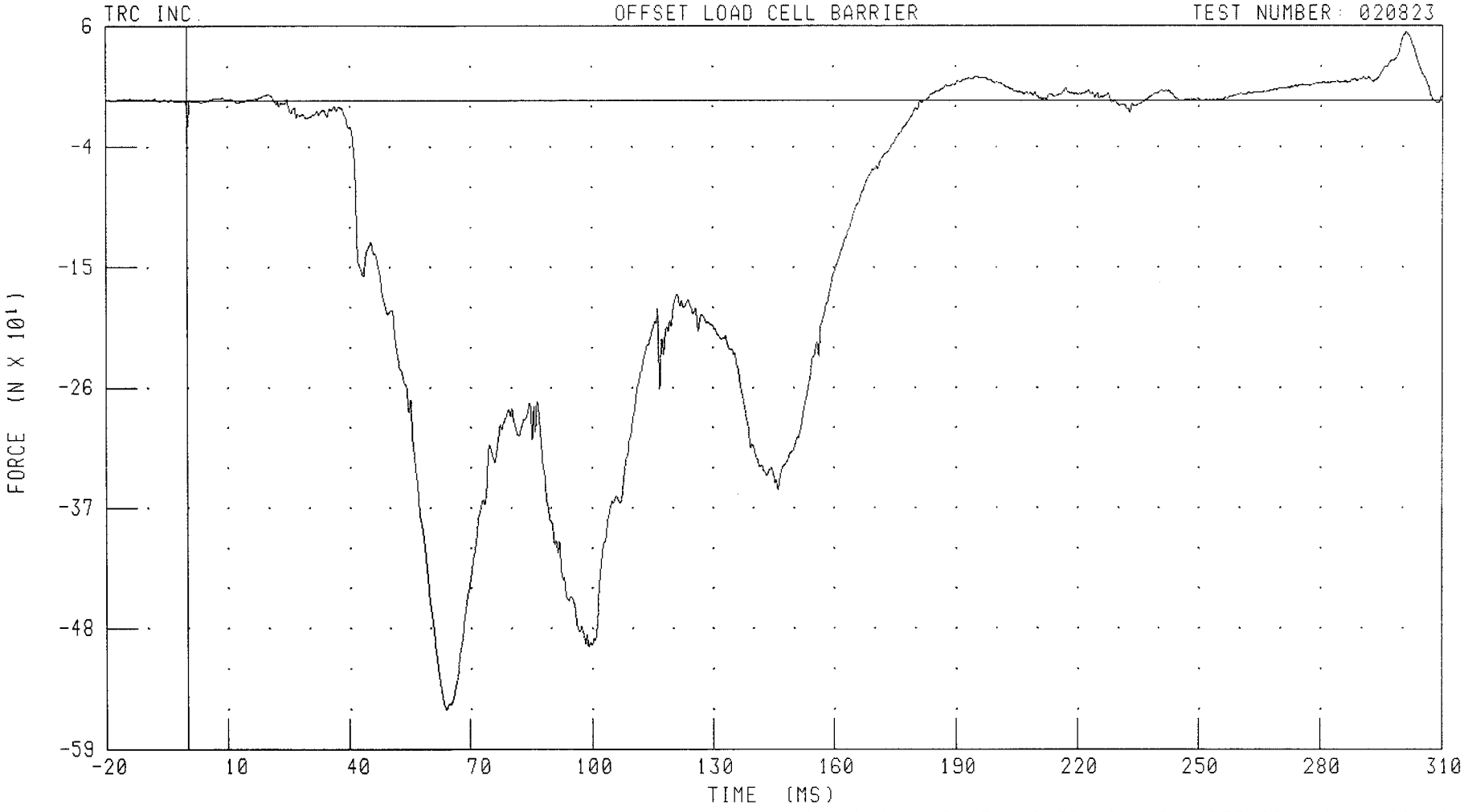
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: ANLYF2 FILTER: CH. CLASS 600 PEAK DATA: 107.53 N @ 100.80 MS; -86.41 N @ 77.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE

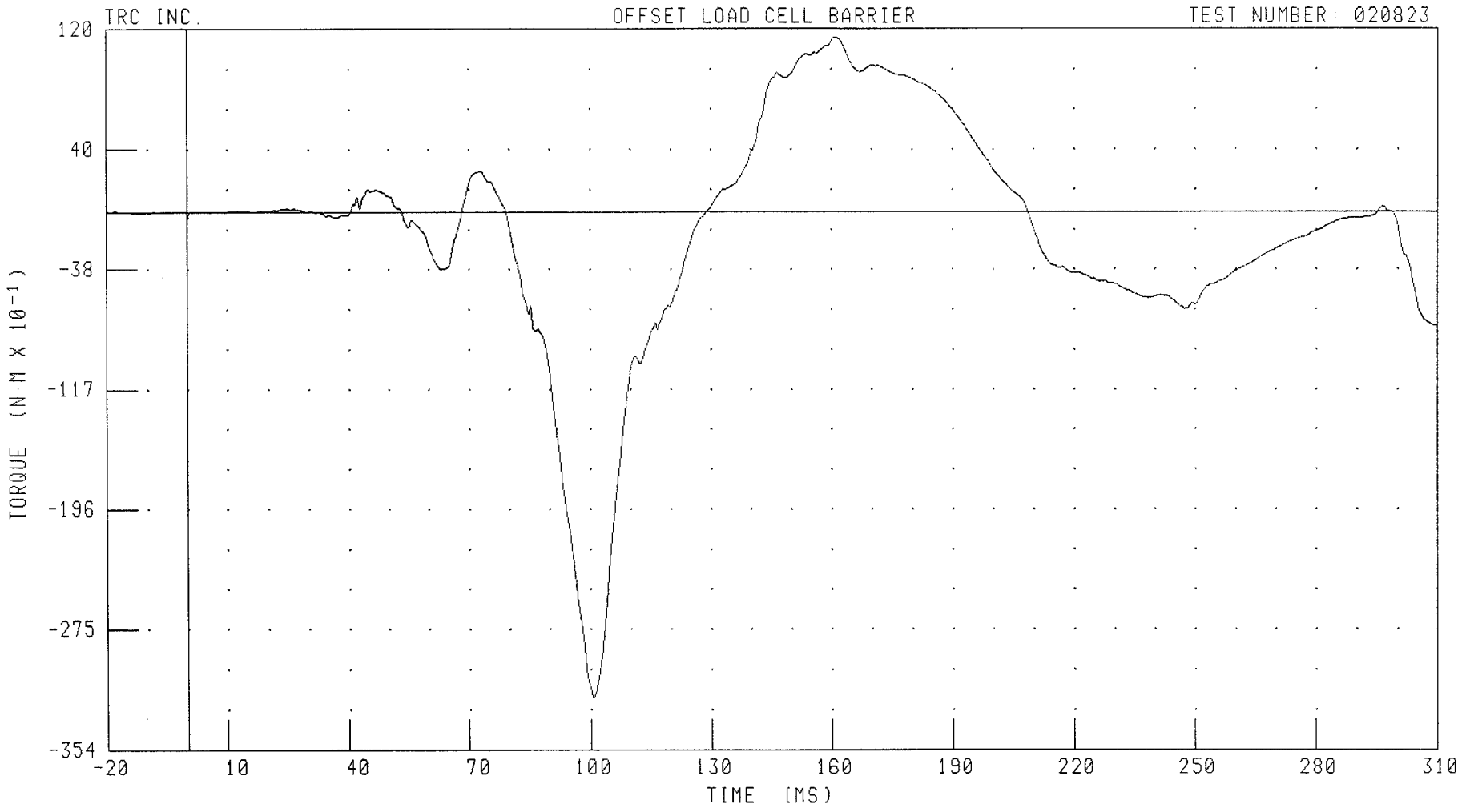


CHANNEL: ANLZF2 FILTER: CH. CLASS 600

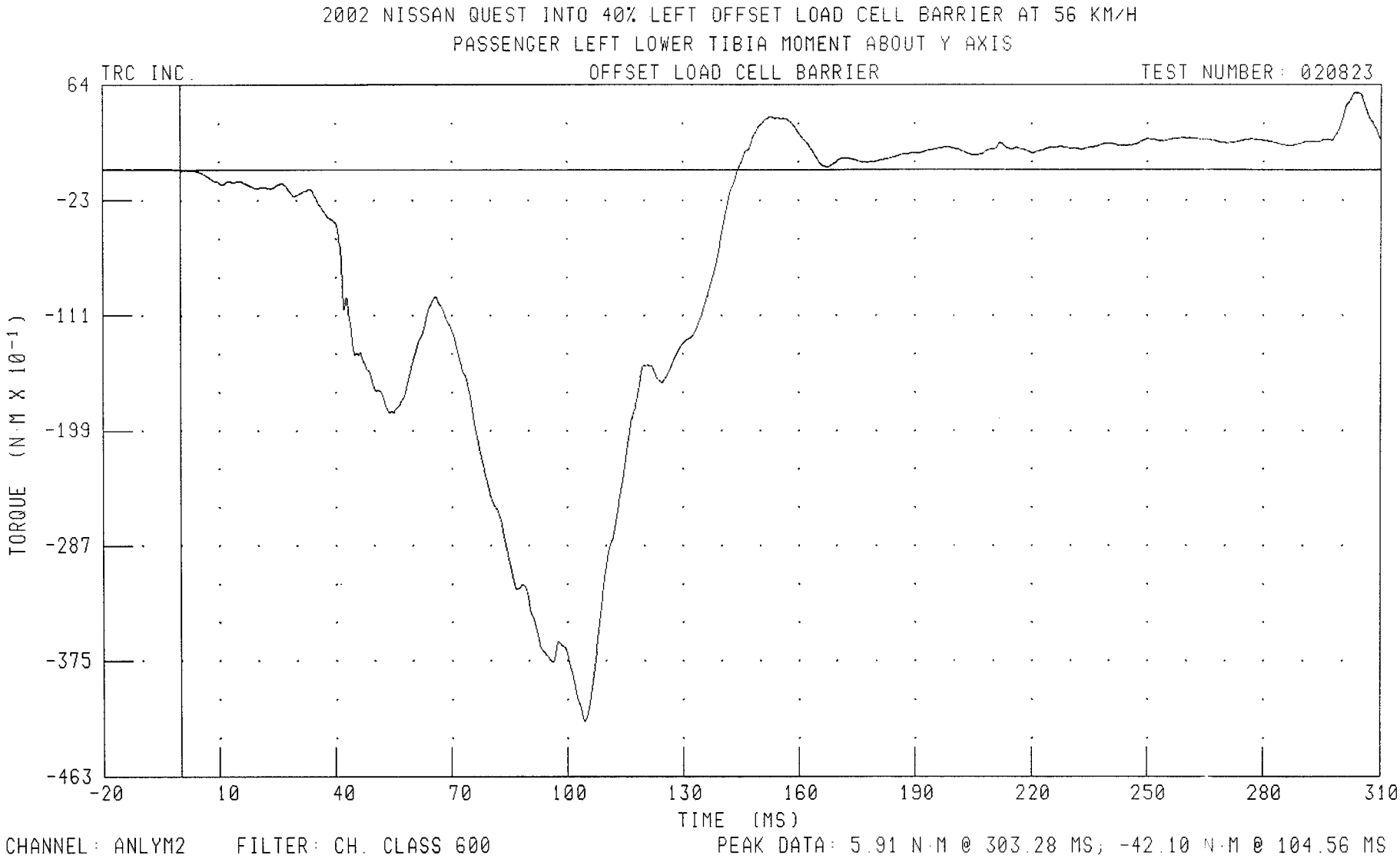
PEAK DATA: 62.57 N @ 301.04 MS; -555.93 N @ 64.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

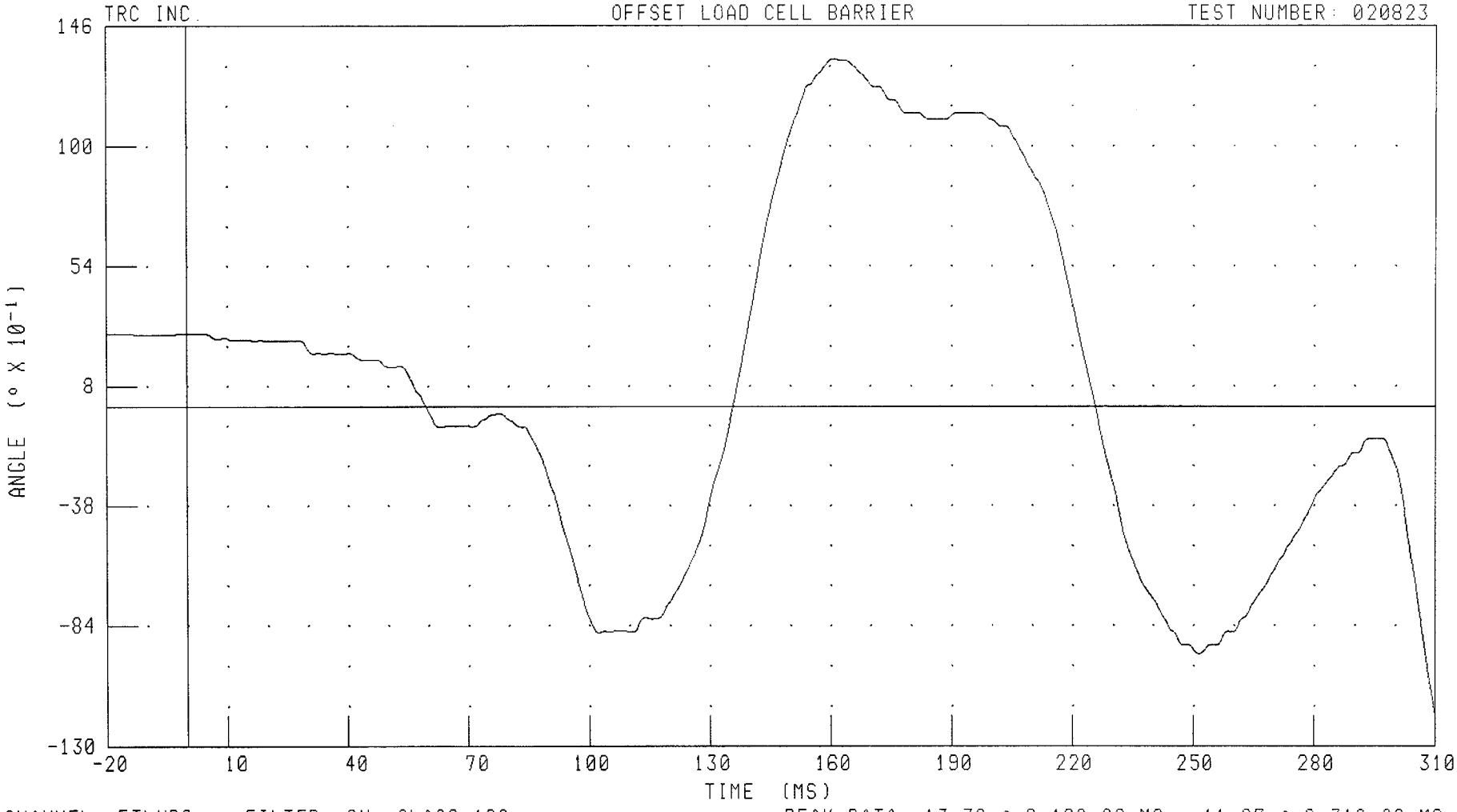


CHANNEL: ANLXM2 FILTER: CH. CLASS 600 PEAK DATA: 11.44 N-M @ 161.20 MS; -32.00 N-M @ 100.88 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
64
-23
-111
-199
-287
-375
-463
TORQUE (N·M X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLYM2
FILTER: CH. CLASS 600
PEAK DATA: 5.91 N·M @ 303.28 MS; -42.10 N·M @ 104.56 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FOOT TO ANKLE X-AXIS DISPLACEMENT

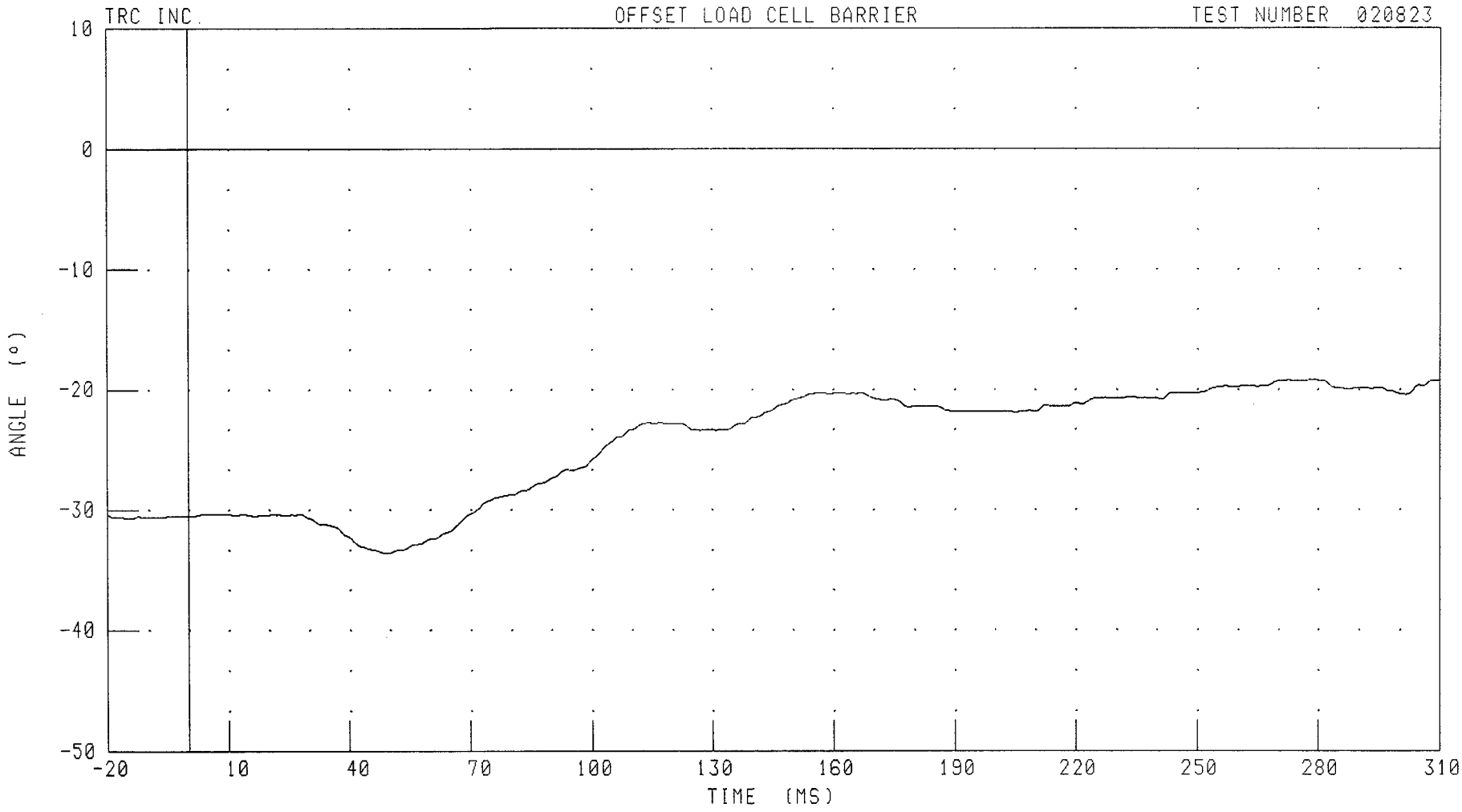


CHANNEL: FTLXD2 FILTER: CH. CLASS 180

PEAK DATA: 13.32 ° @ 160.96 MS; -11.87 ° @ 310.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FOOT TO ANKLE Y-AXIS DISPLACEMENT



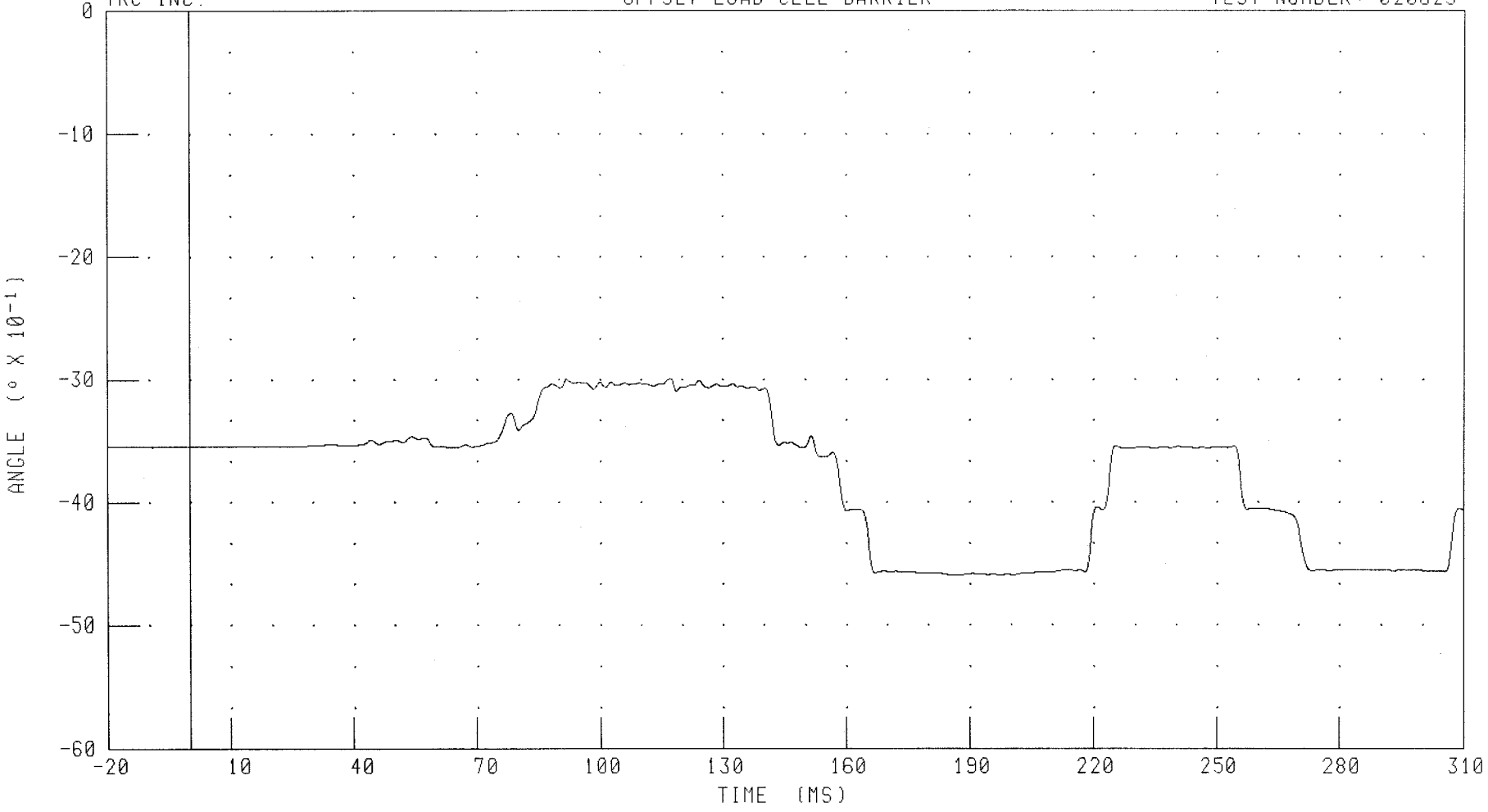
CHANNEL: FTLYD2 FILTER: CH. CLASS 180

PEAK DATA: -19.17 ° @ 279.04 MS; -33.62 ° @ 49.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FOOT TO ANKLE Z-AXIS DISPLACEMENT

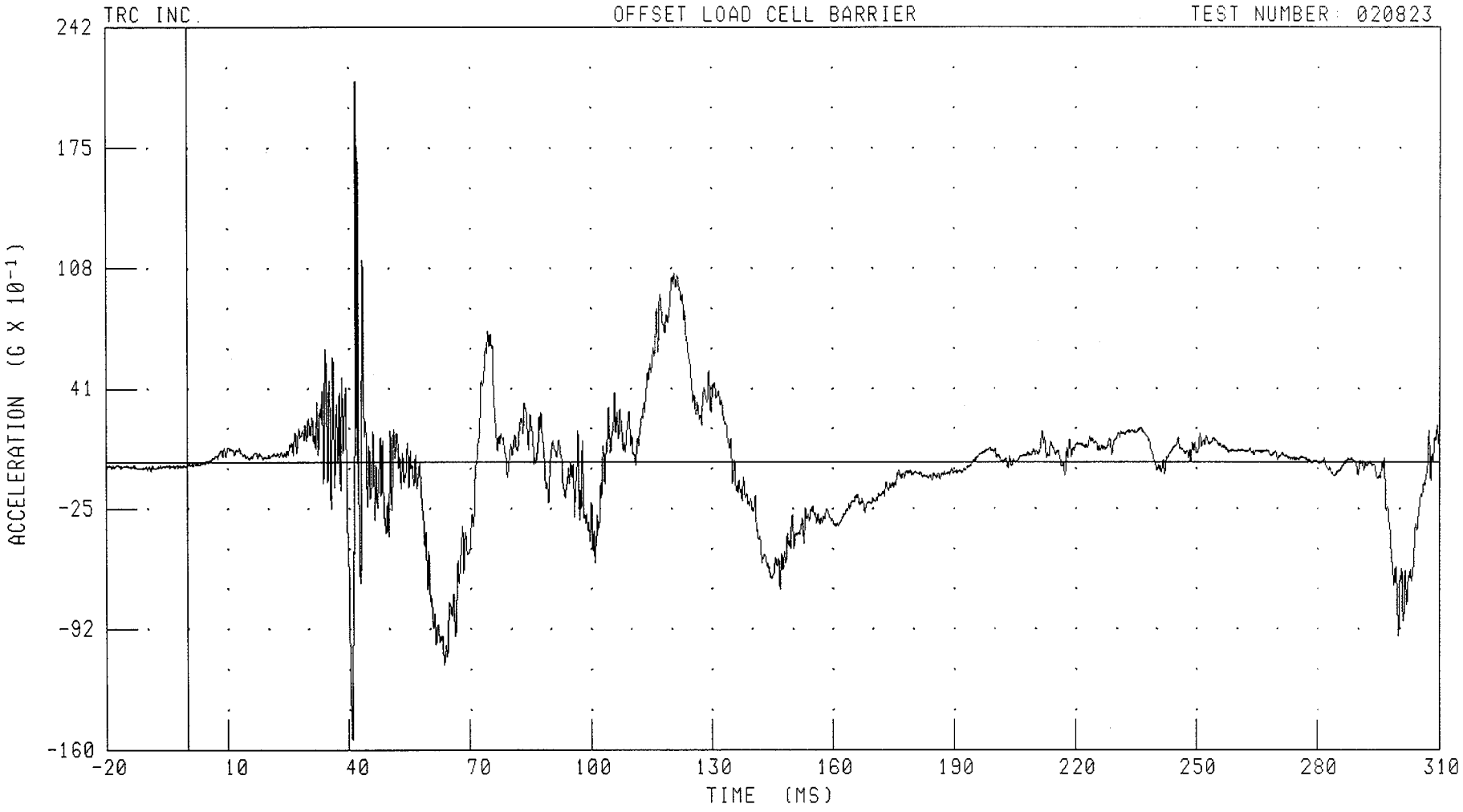
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: FTLZD2 FILTER: CH. CLASS 180 PEAK DATA: -3.00 ° @ 117.28 MS, -4.59 ° @ 185.68 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

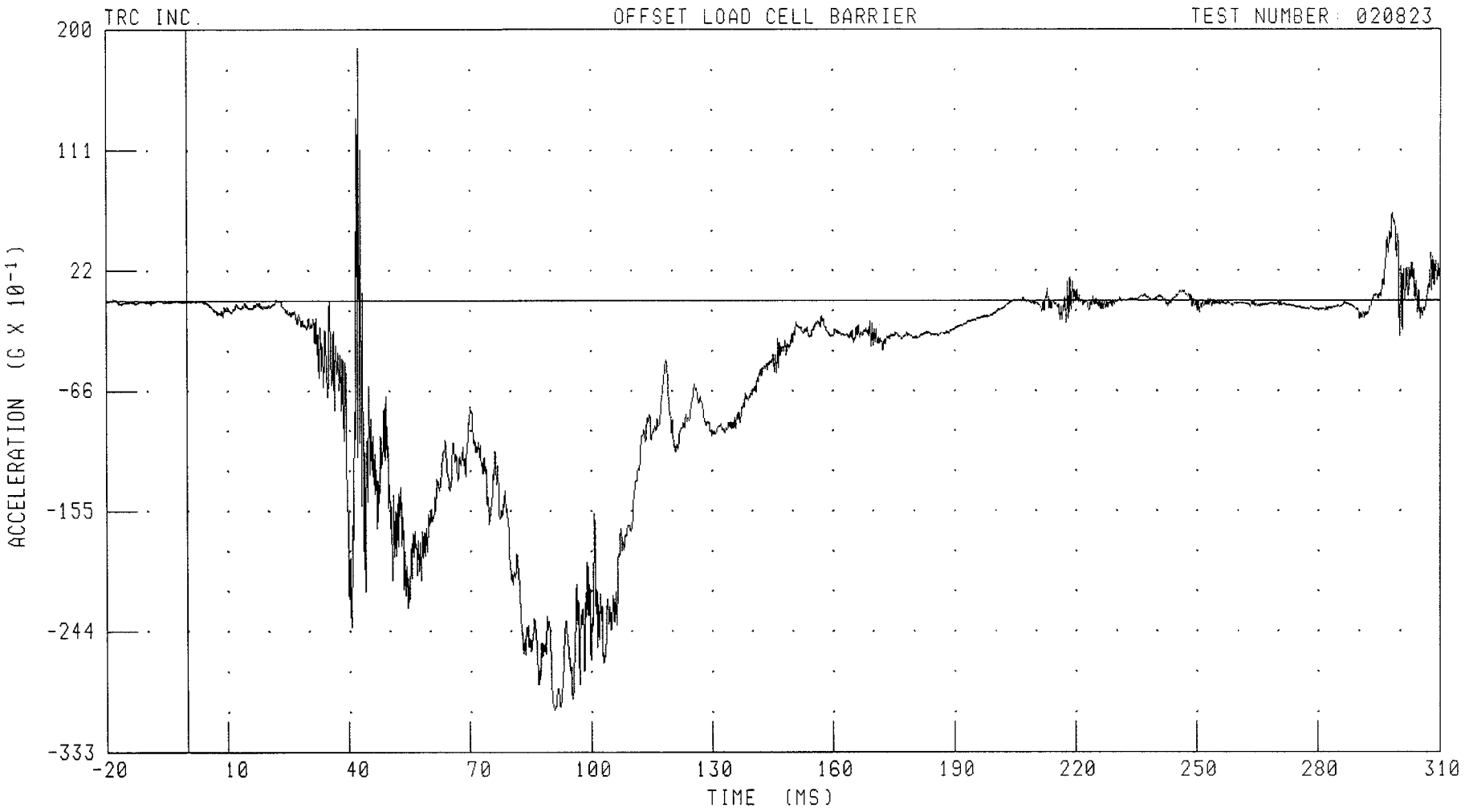
PASSENGER LEFT FOOT X-AXIS ACCELERATION



CHANNEL: FTLXG2 FILTER: CH. CLASS 1000 PEAK DATA: 21.18 G @ 41.76 MS; -15.41 G @ 40.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FOOT Y-AXIS ACCELERATION

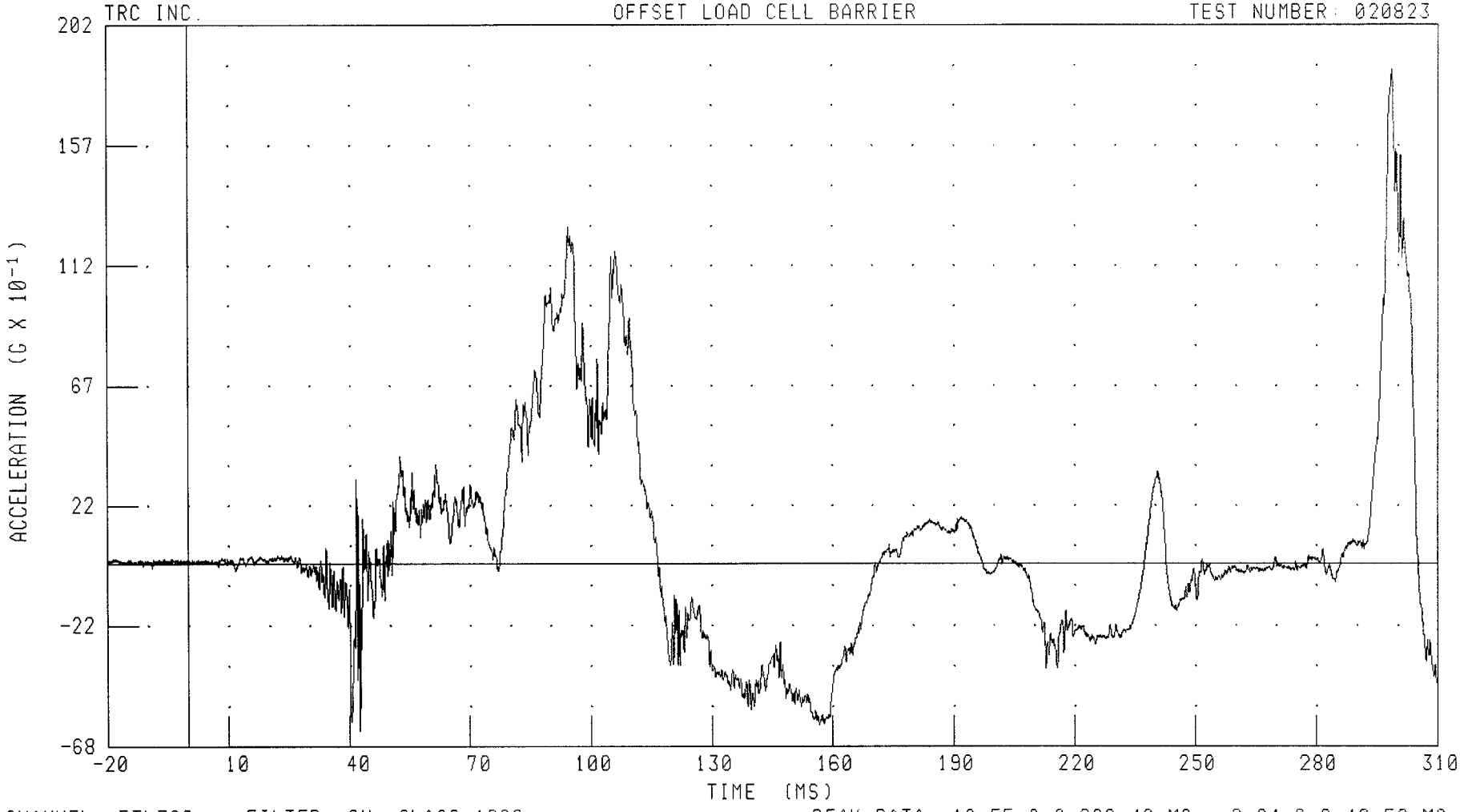


CHANNEL: FTLYG2 FILTER: CH. CLASS 1000 PEAK DATA: 18.63 G @ 42.48 MS; -30.34 G @ 90.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LEFT FOOT Z-AXIS ACCELERATION

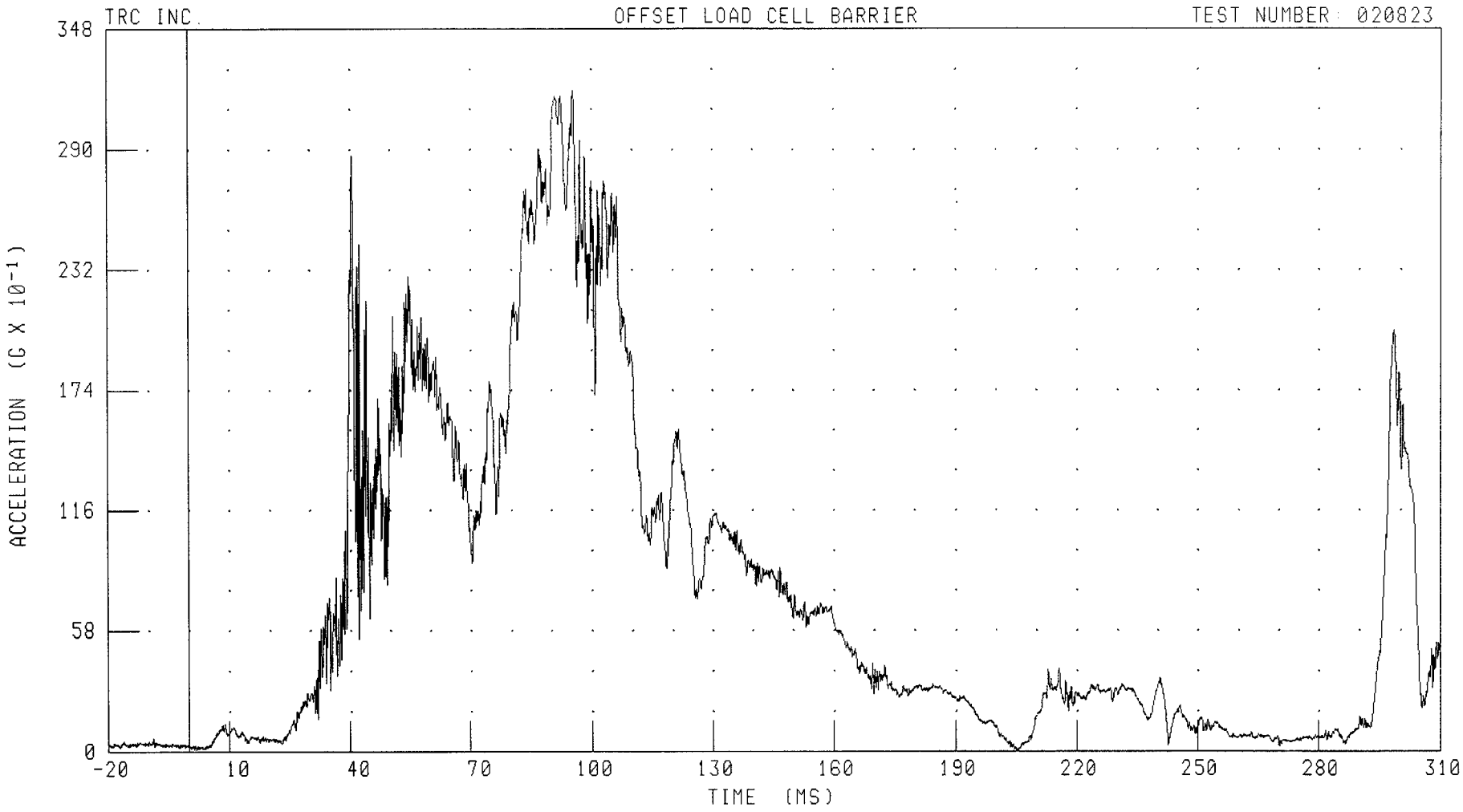
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: FTLZG2 FILTER: CH. CLASS 1000 PEAK DATA: 18.55 G @ 298.48 MS; -6.24 G @ 42.56 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

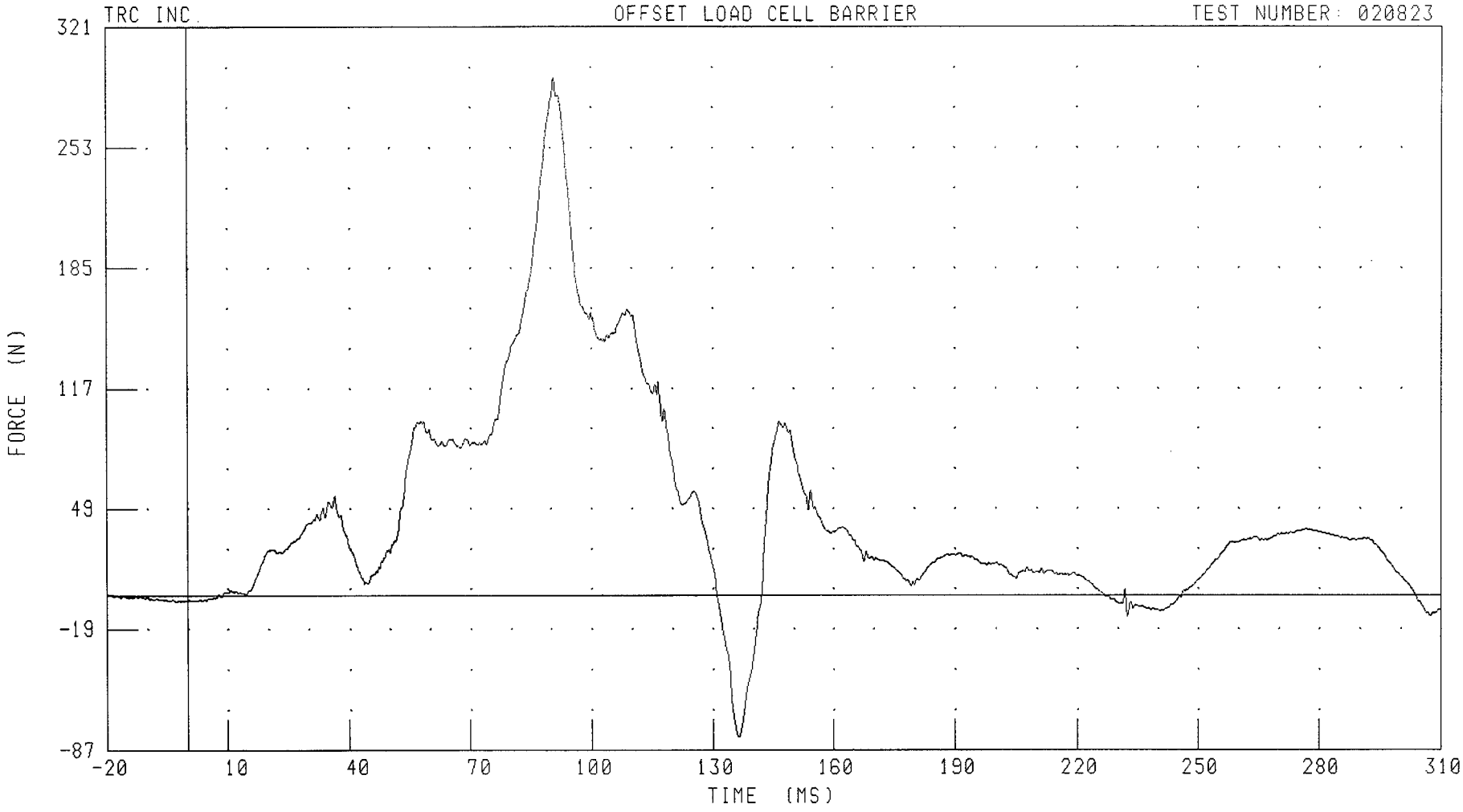
PASSENGER LEFT FOOT RESULTANT ACCELERATION



CHANNEL: FTLRG2 FILTER: CH. CLASS 1000 PEAK DATA: 31.86 G @ 95.52 MS; 0.05 G @ 205.60 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

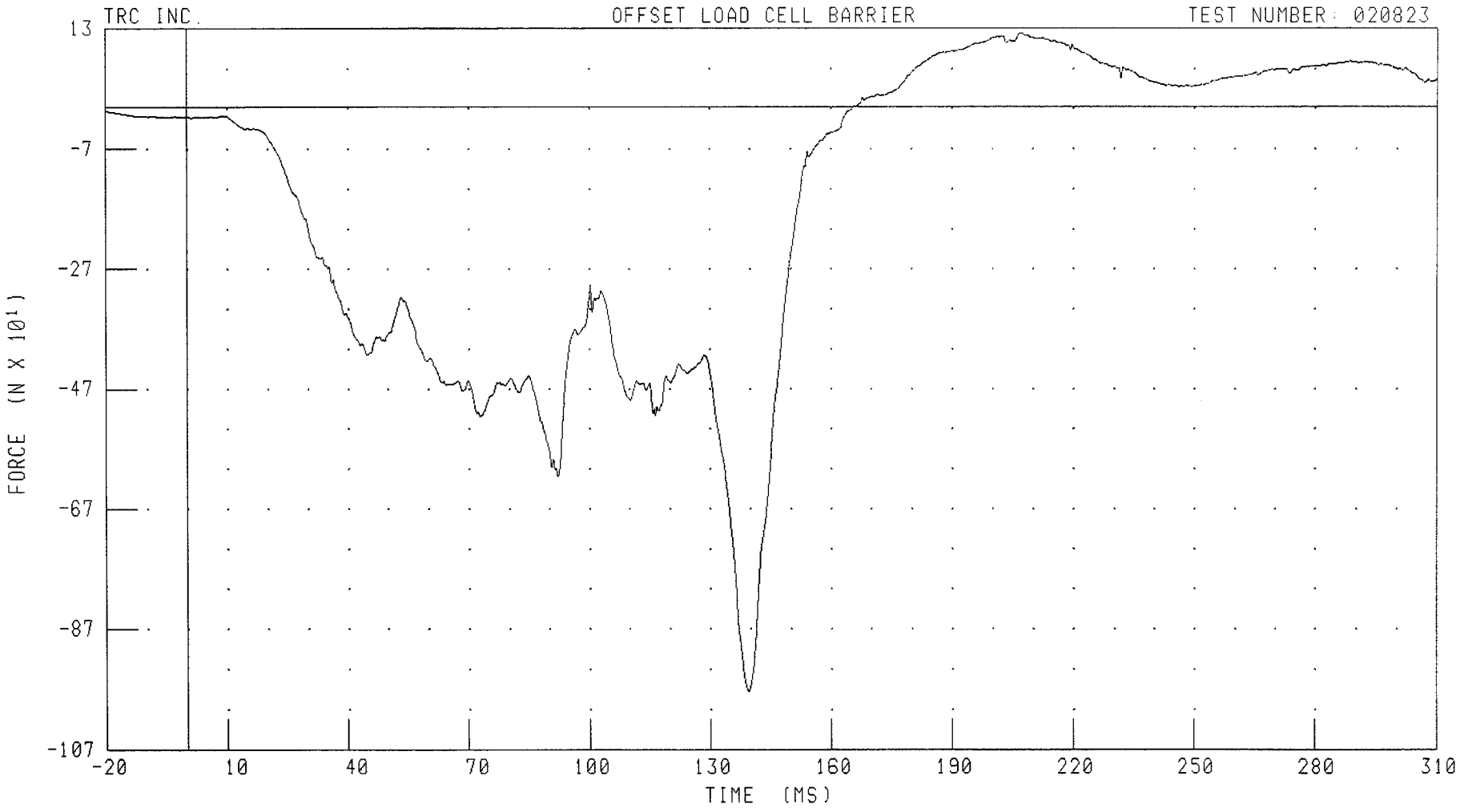
PASSENGER RIGHT UPPER TIBIA X-AXIS FORCE



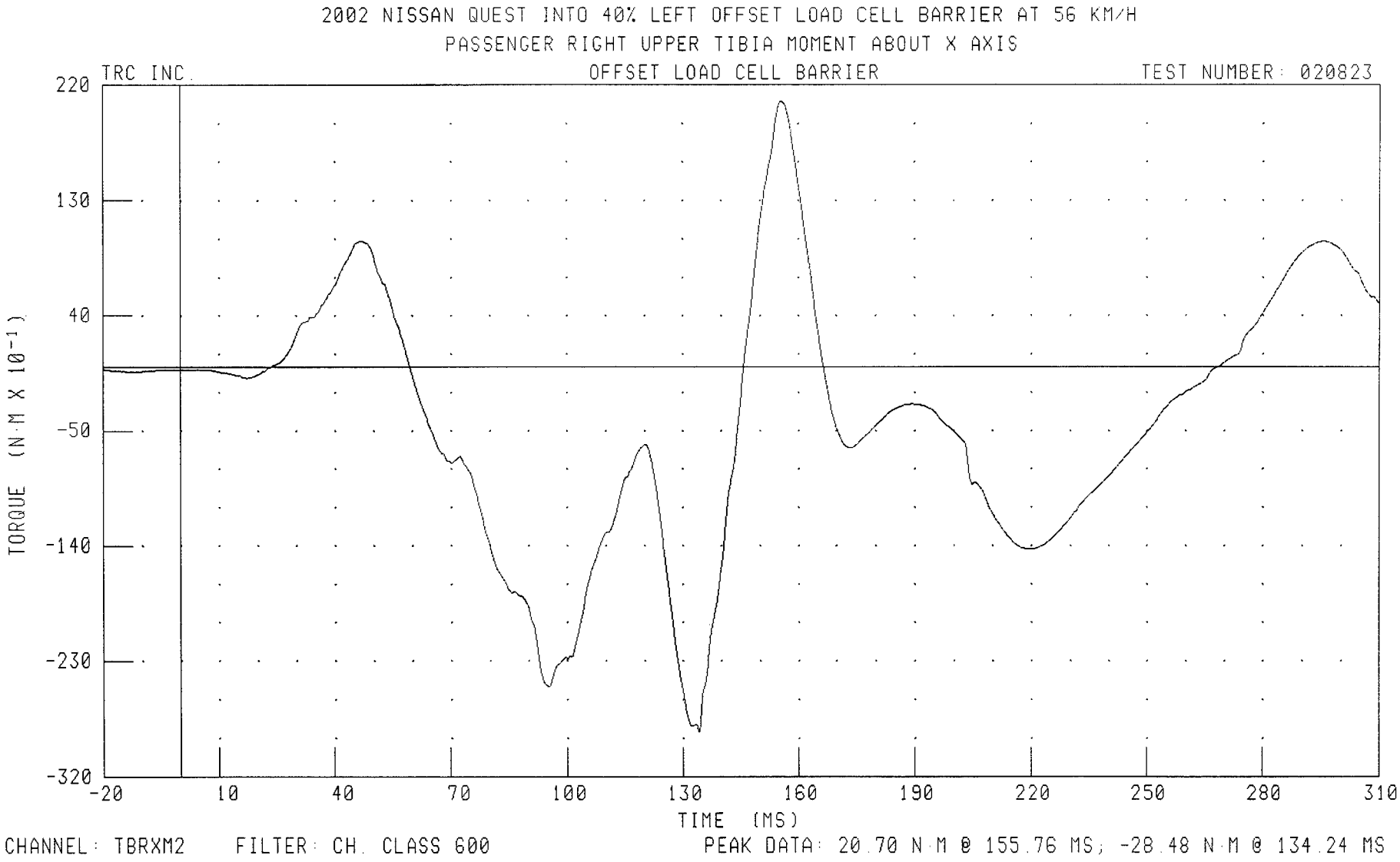
CHANNEL: TBRXF2 FILTER: CH. CLASS 600 PEAK DATA: 292.45 N @ 90.96 MS; -79.68 N @ 136.40 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER RIGHT UPPER TIBIA Z-AXIS FORCE

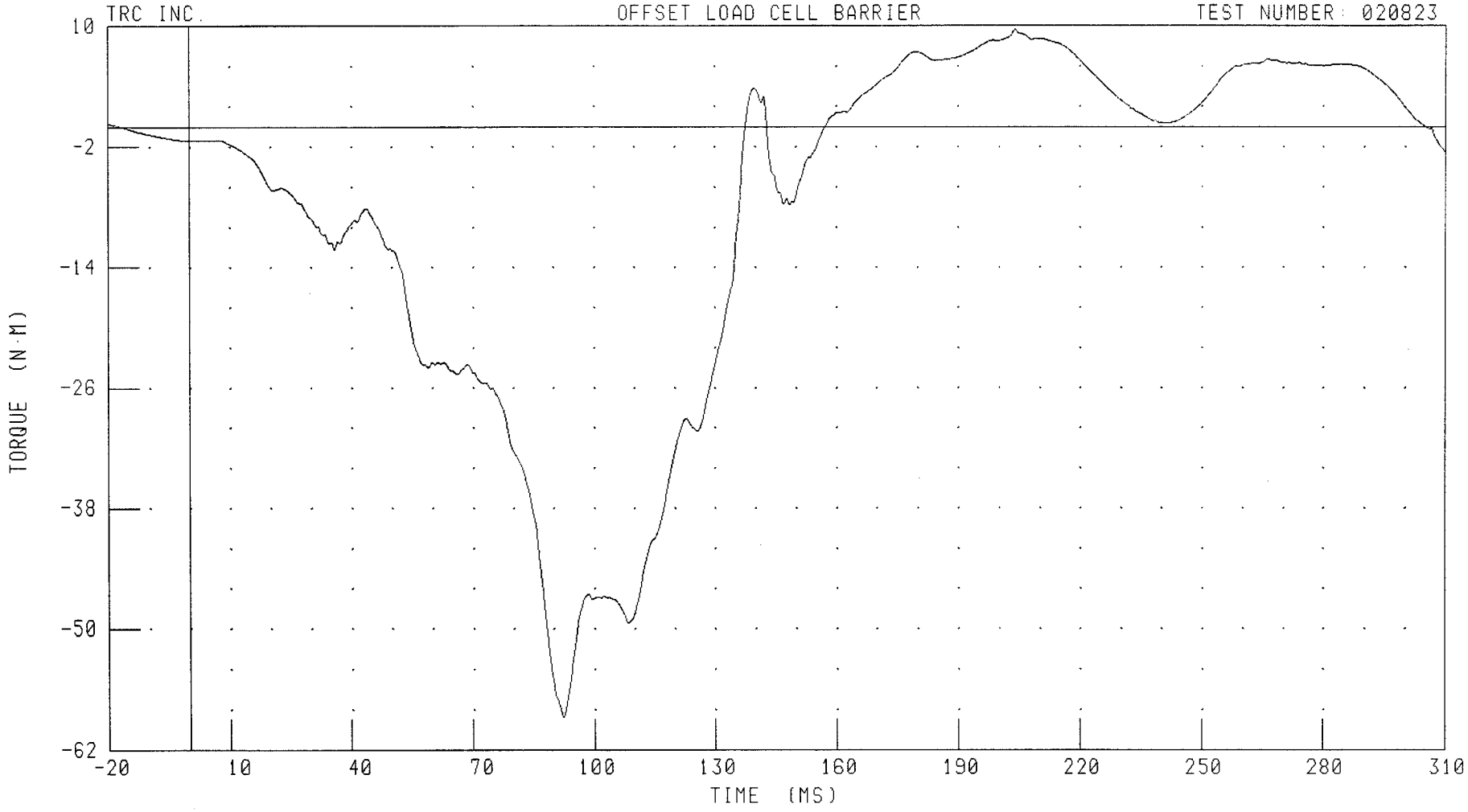


CHANNEL: TBRZF2 FILTER: CH. CLASS 600 PEAK DATA: 122.66 N @ 207.04 MS; -973.85 N @ 139.60 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
220
130
40
-50
-140
-230
-320
TORQUE (N-M X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRXM2
FILTER: CH. CLASS 600
PEAK DATA: 20.70 N-M @ 155.76 MS; -28.48 N-M @ 134.24 MS

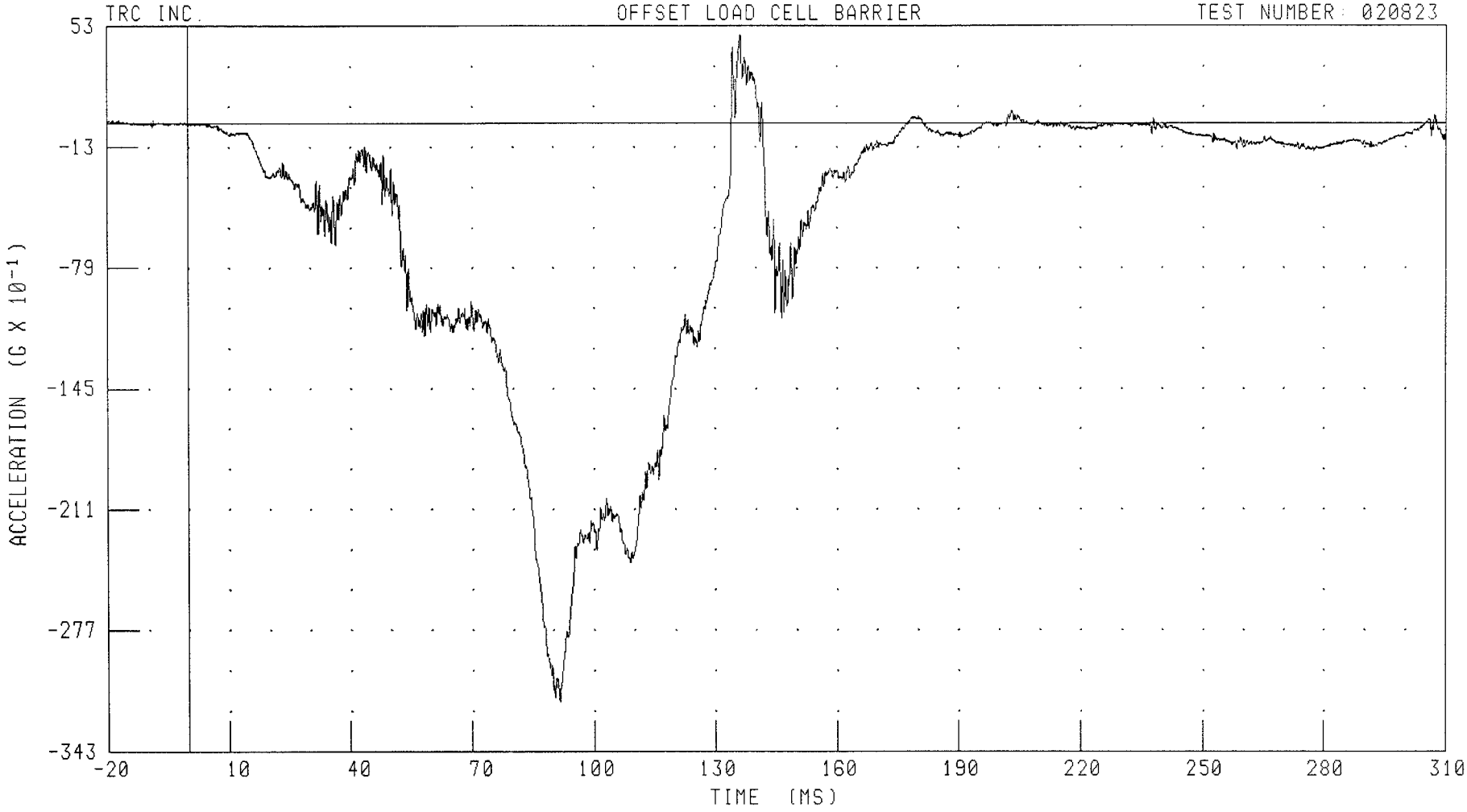
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS



CHANNEL: TBRYM2 FILTER: CH. CLASS 600 PEAK DATA: 9.60 N-M @ 204.08 MS; -58.72 N-M @ 92.40 MS

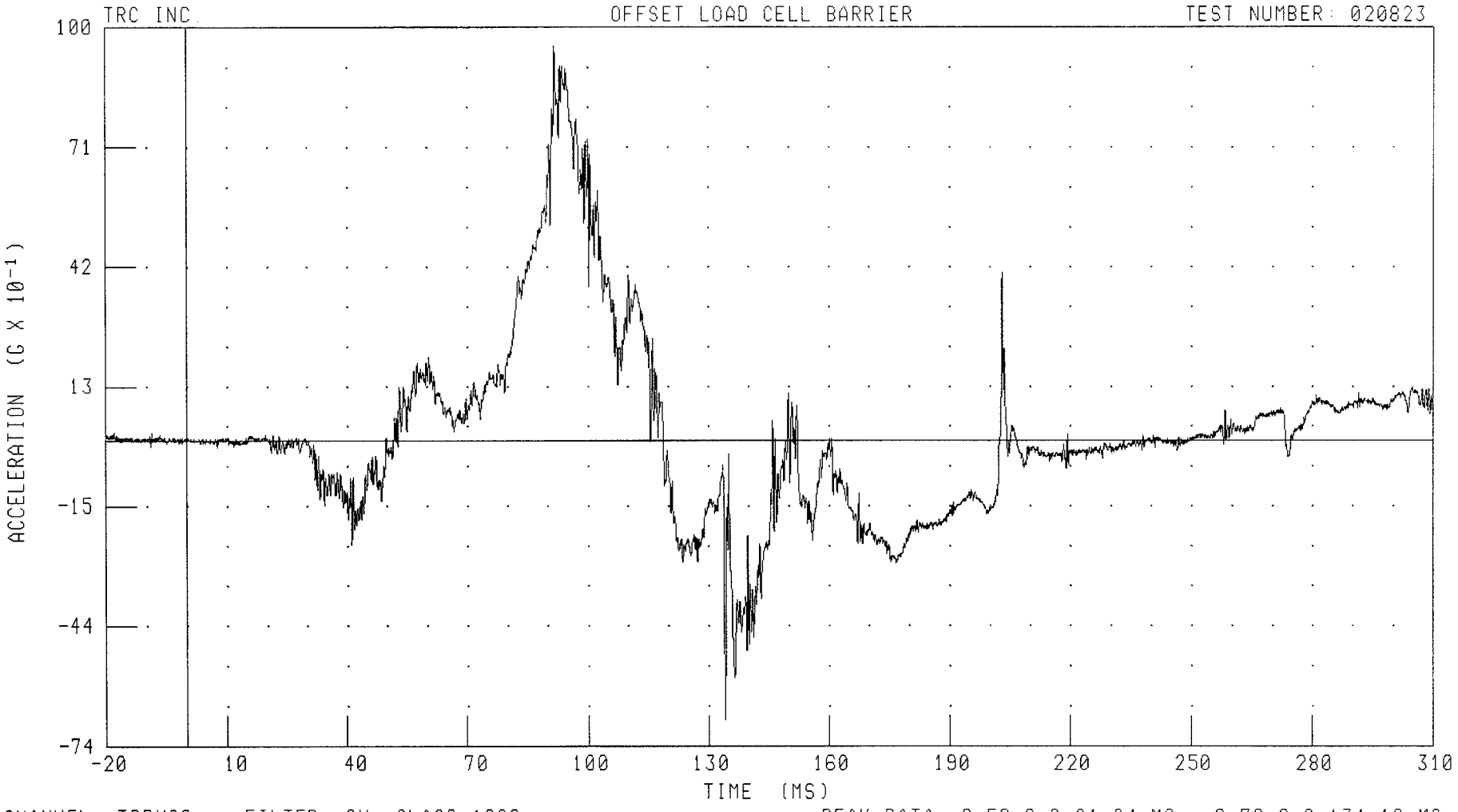
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER RIGHT TIBIA X-AXIS ACCELERATION



CHANNEL: TBRXG2 FILTER: CH. CLASS 1000 PEAK DATA: 4.82 G @ 136.48 MS; -31.62 G @ 91.60 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

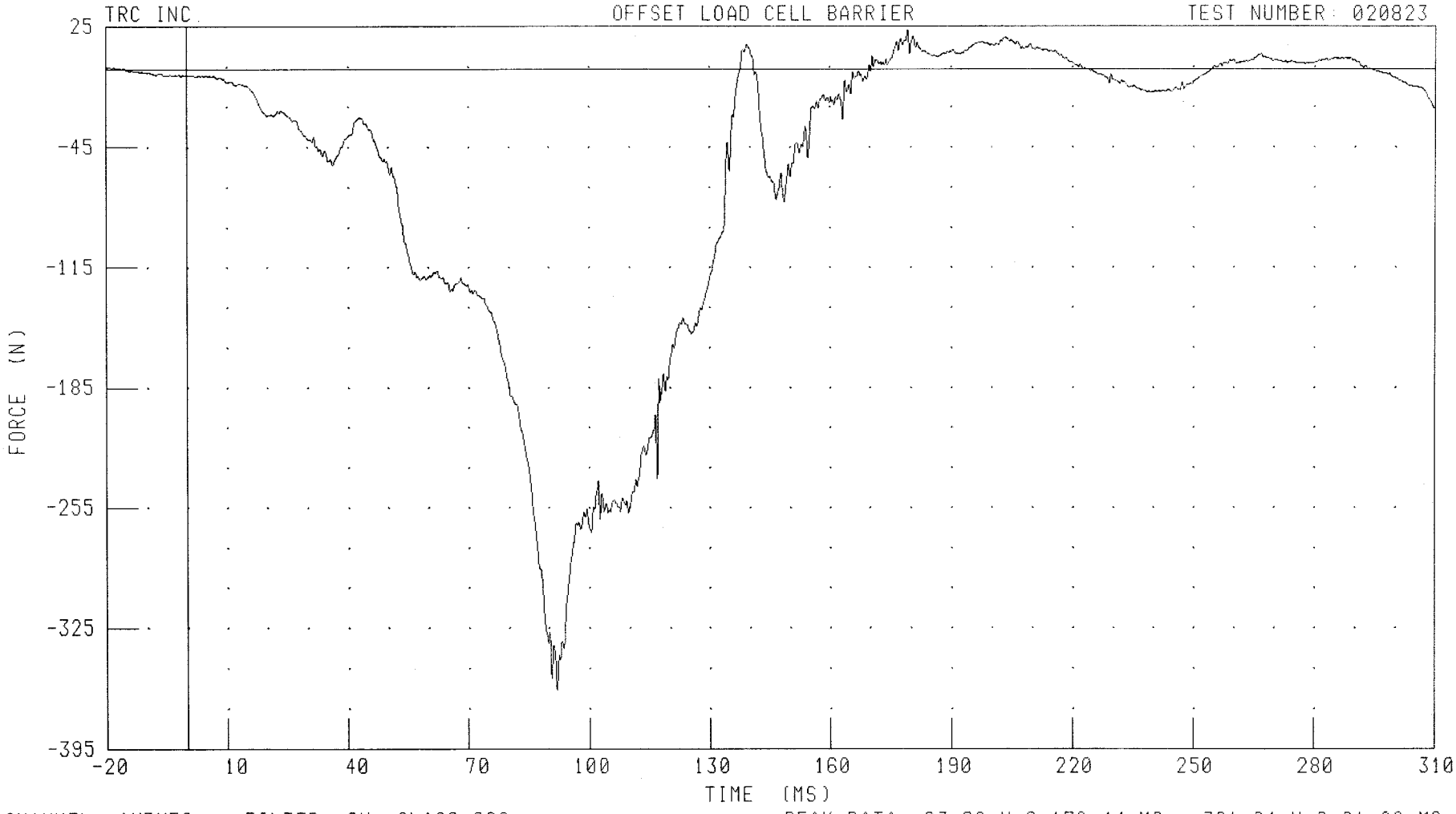
PASSENGER RIGHT TIBIA Y-AXIS ACCELERATION



CHANNEL: TBRYG2 FILTER: CH. CLASS 1000 PEAK DATA: 9.56 G @ 91.84 MS; -6.76 G @ 134.16 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

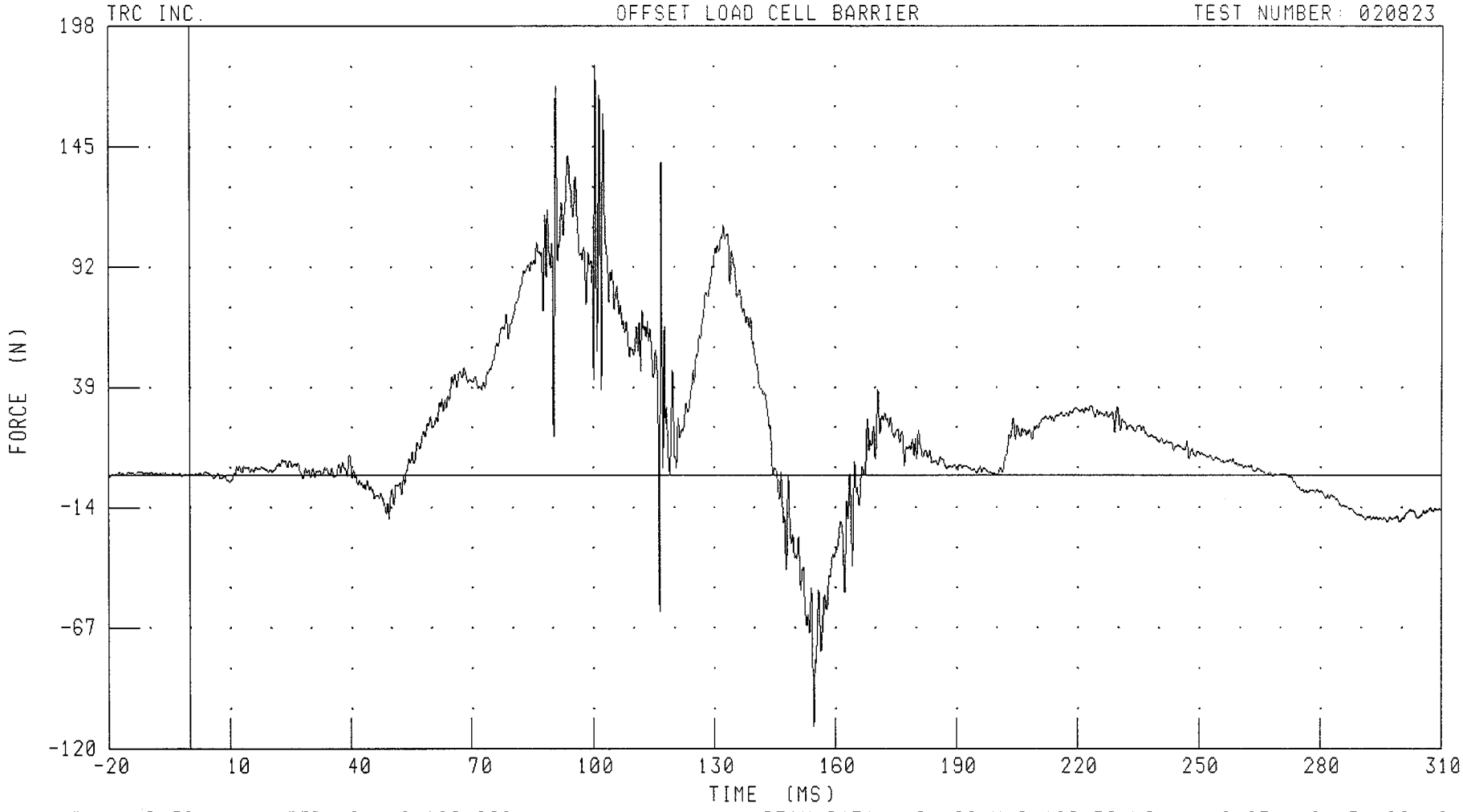
PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE



CHANNEL: ANRXF2 FILTER: CH. CLASS 600 PEAK DATA: 23.06 N @ 179.44 MS; -361.04 N @ 91.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

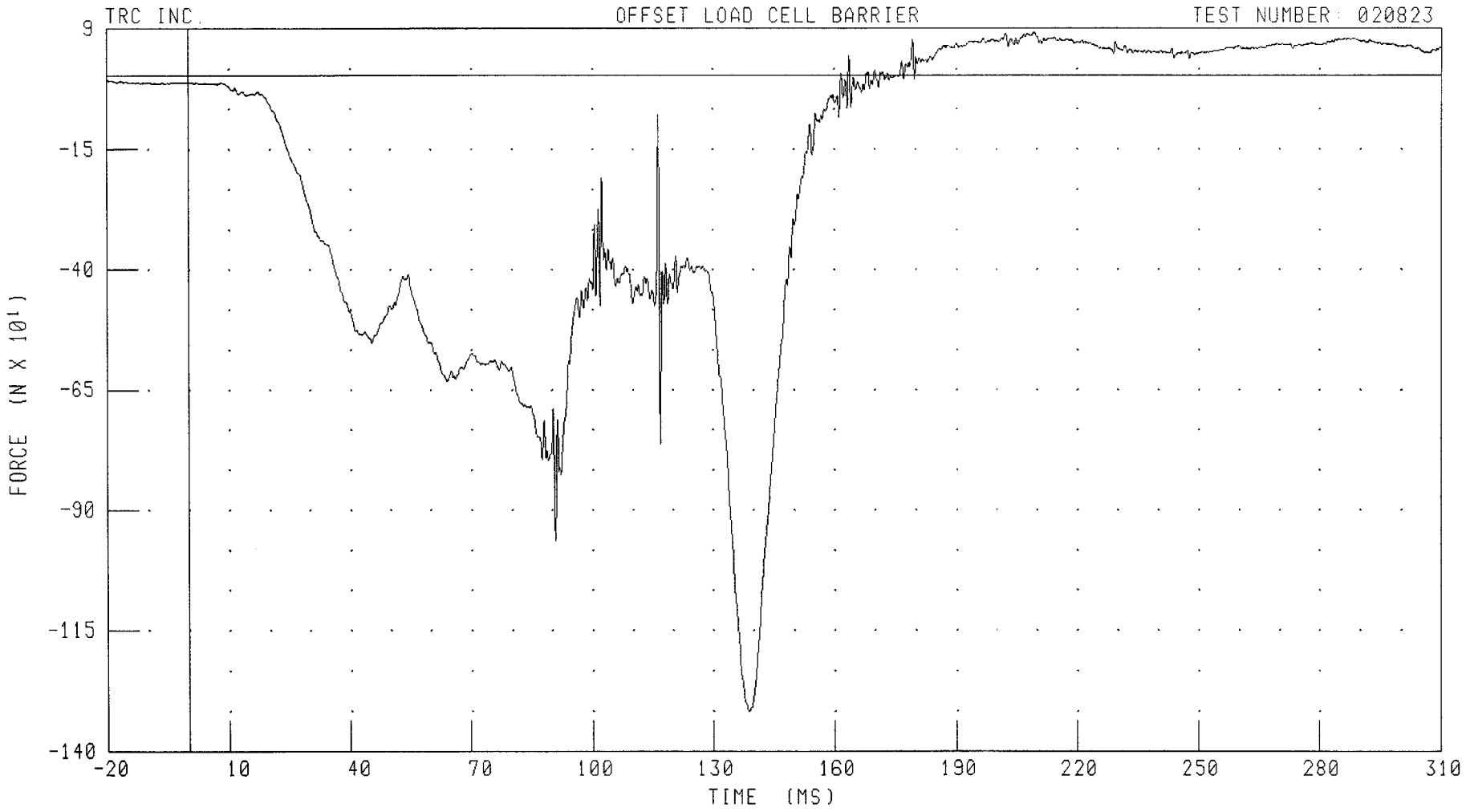
PASSENGER RIGHT LOWER TIBIA Y-AXIS FORCE



CHANNEL: ANRYF2 FILTER: CH. CLASS 600 PEAK DATA: 181.08 N @ 100.72 MS; -110.05 N @ 154.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

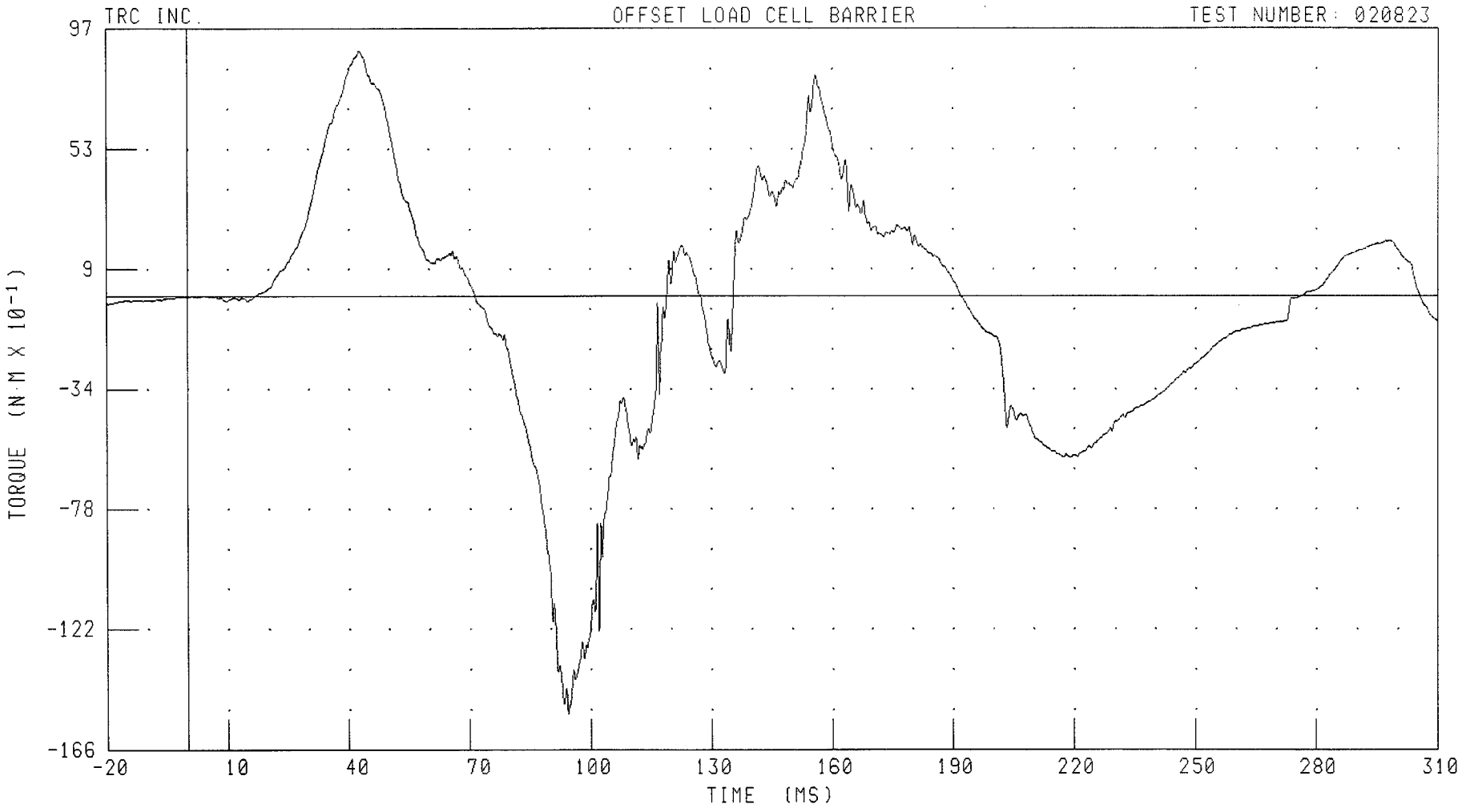
PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE



CHANNEL: ANRZF2 FILTER: CH. CLASS 600 PEAK DATA: 87.77 N @ 209.52 MS; -1322.62 N @ 138.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

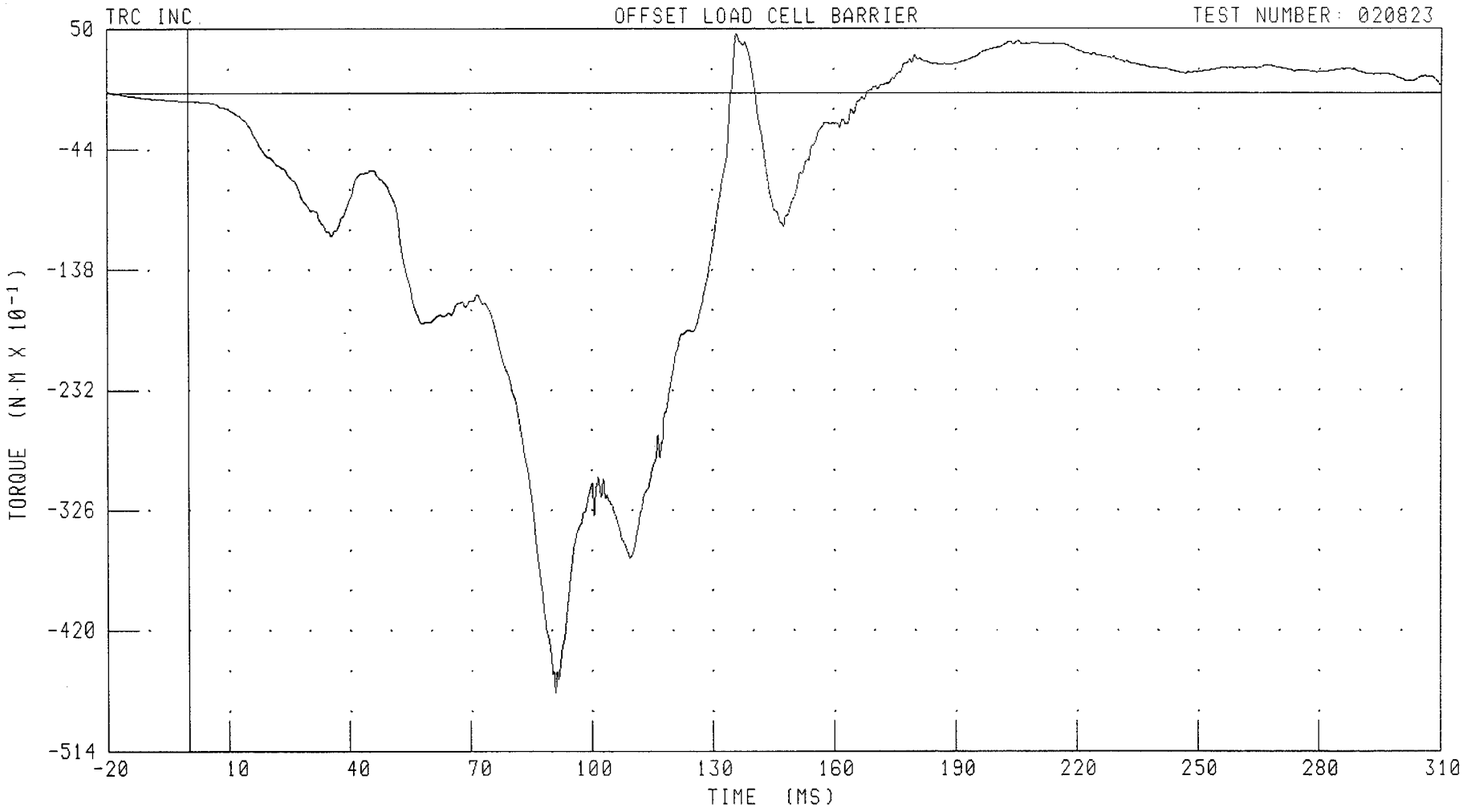
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS



CHANNEL: ANRXM2 FILTER: CH. CLASS 600 PEAK DATA: 9.00 N·M @ 42.88 MS; -15.30 N·M @ 94.48 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

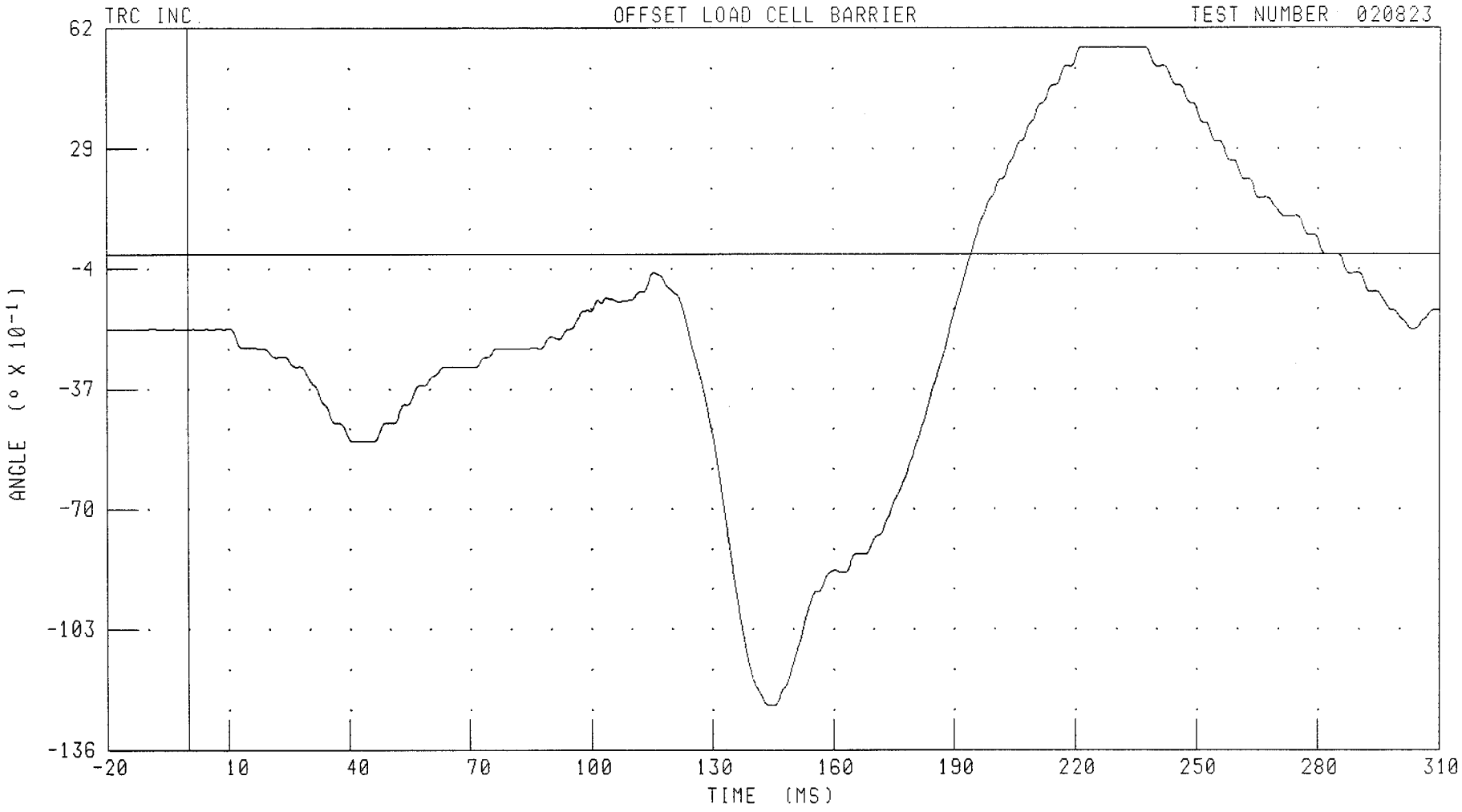
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS



CHANNEL: ANRYM2 FILTER: CH. CLASS 600 PEAK DATA: 4.58 N·M @ 136.16 MS; -46.84 N·M @ 90.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

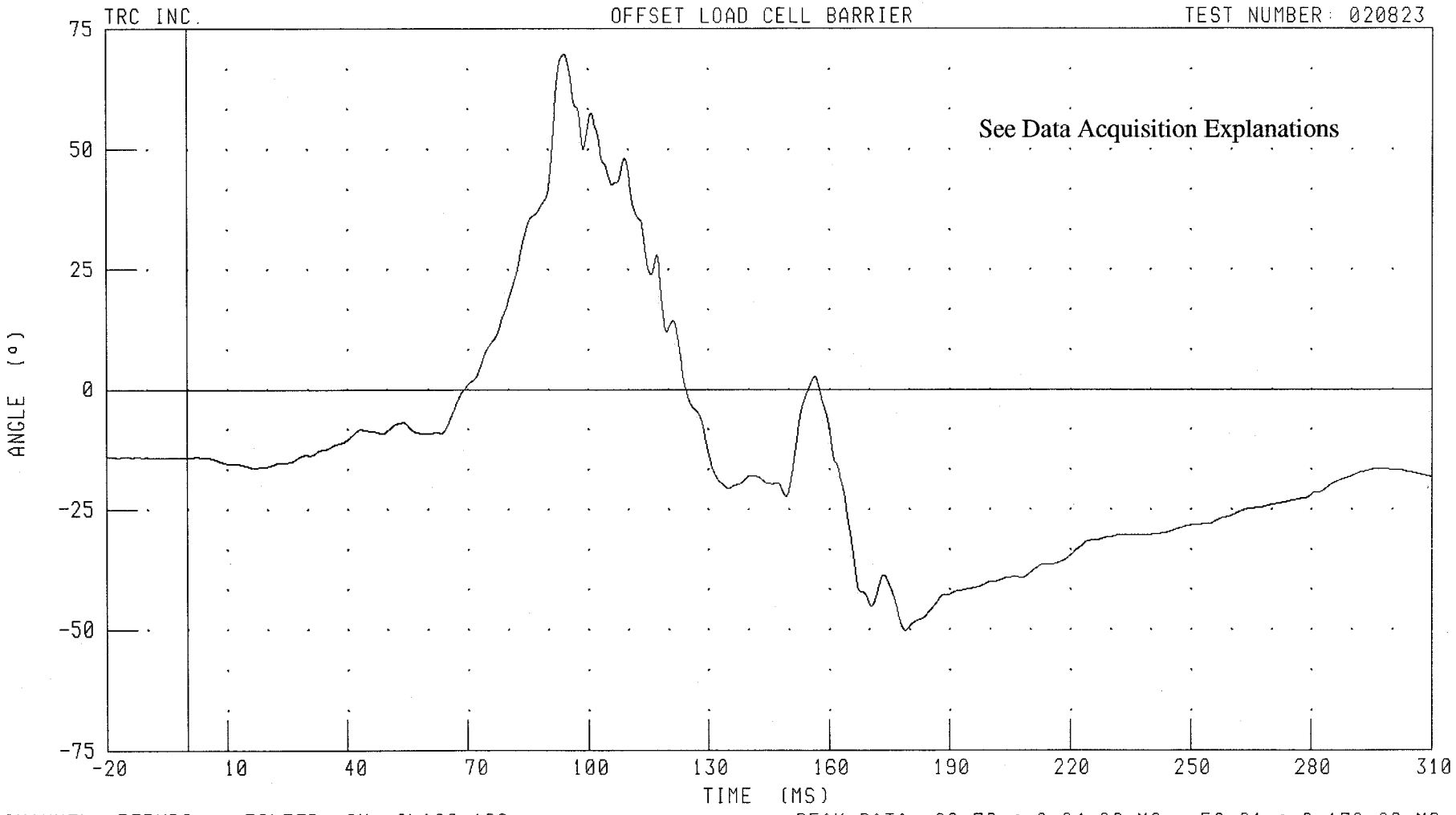
PASSENGER RIGHT FOOT TO ANKLE X-AXIS DISPLACEMENT



CHANNEL: FTRXD2 FILTER: CH. CLASS 180 PEAK DATA: 5.69 ° @ 221.84 MS; -12.38 ° @ 145.20 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

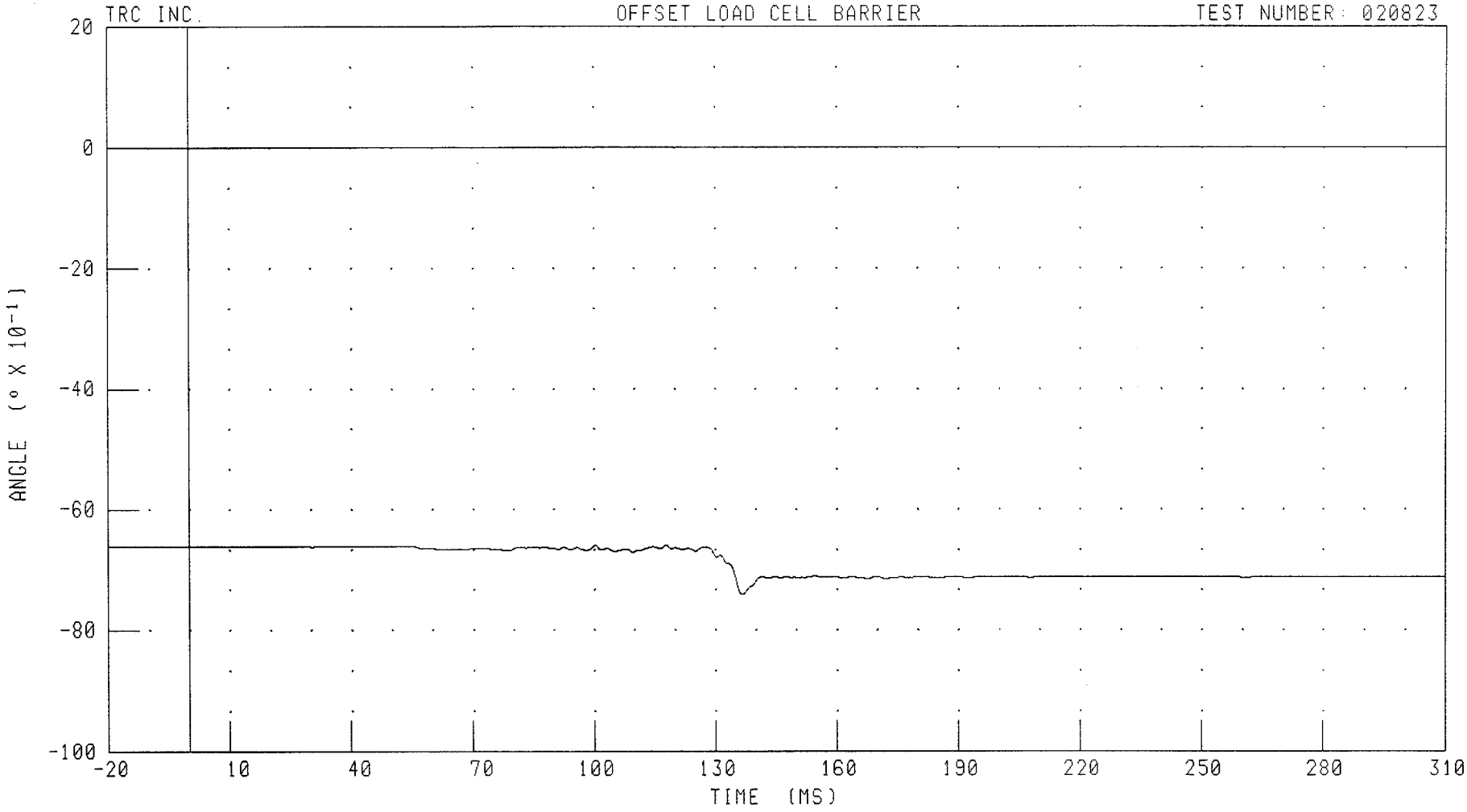
PASSENGER RIGHT FOOT TO ANKLE Y-AXIS DISPLACEMENT



CHANNEL: FTRYD2 FILTER: CH. CLASS 180 PEAK DATA: 69.72 ° @ 94.08 MS; -50.21 ° @ 178.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

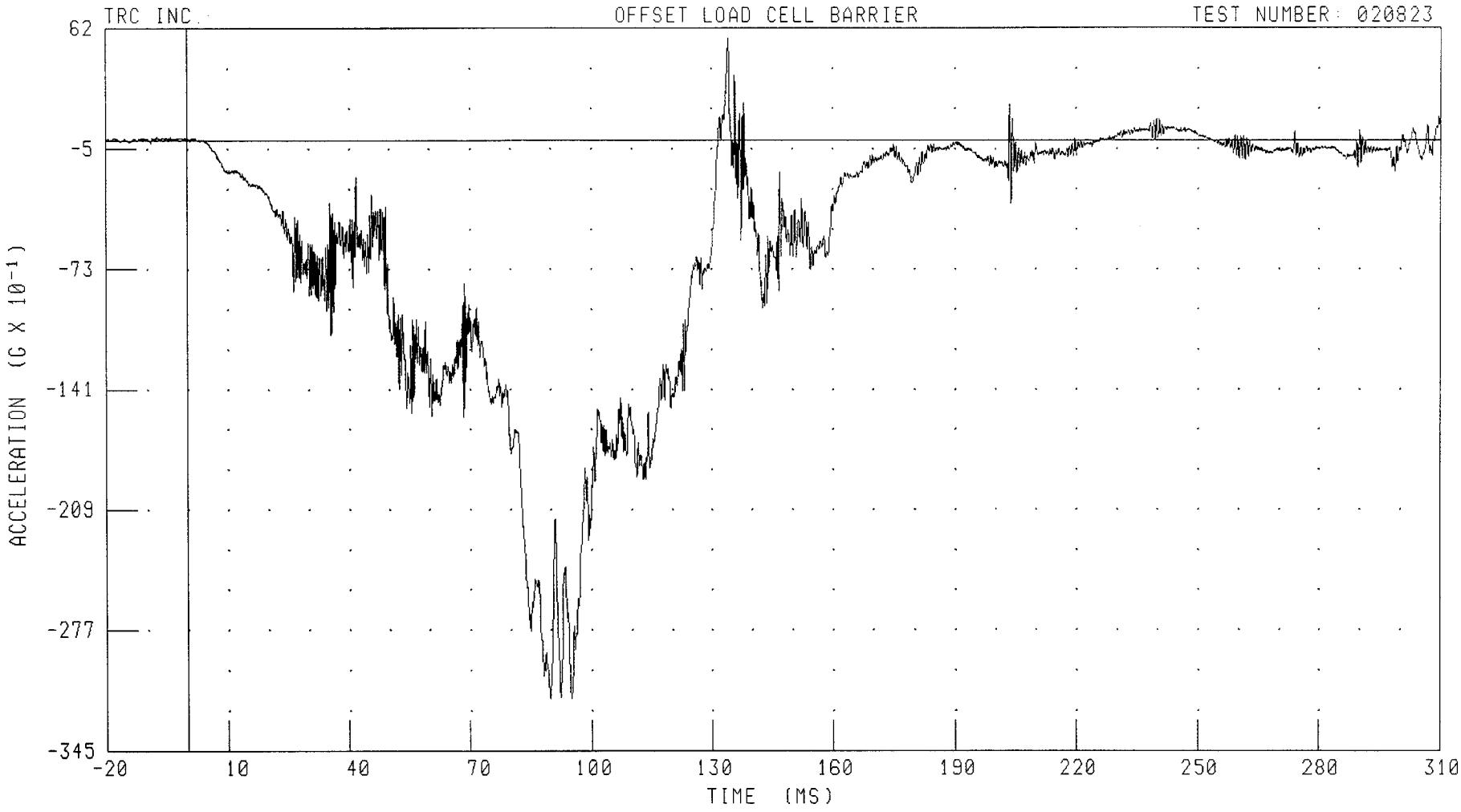
PASSENGER RIGHT FOOT TO ANKLE Z-AXIS DISPLACEMENT



CHANNEL: FTRZD2 FILTER: CH. CLASS 180 PEAK DATA: -6.59 ° @ 118.00 MS, -7.42 ° @ 136.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

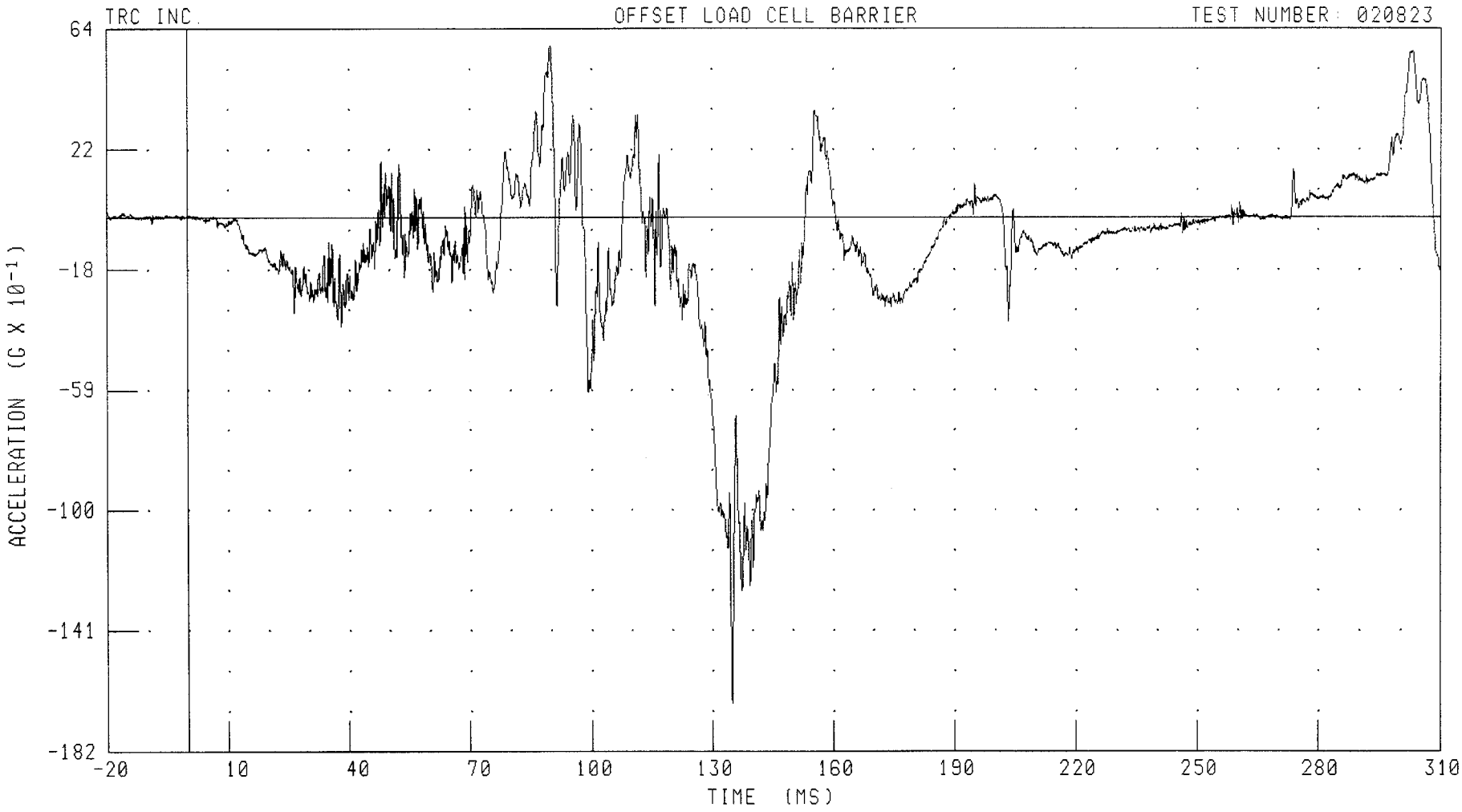
PASSENGER RIGHT FOOT X-AXIS ACCELERATION



CHANNEL: FTRXG2 FILTER: CH. CLASS 1000 PEAK DATA: 5.75 G @ 134.40 MS; -31.55 G @ 89.84 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

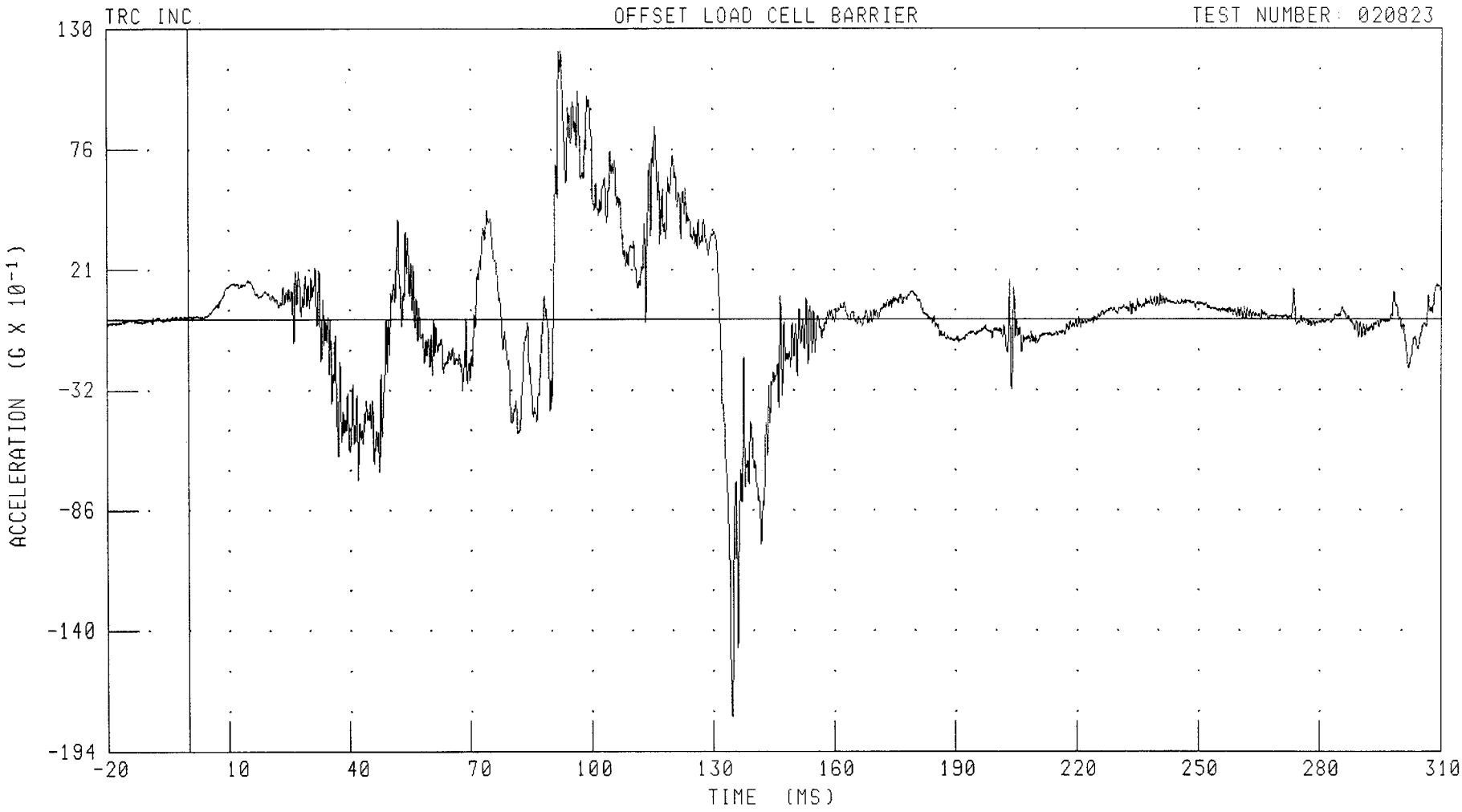
PASSENGER RIGHT FOOT Y-AXIS ACCELERATION



CHANNEL: FTRYG2 FILTER: CH. CLASS 1000 PEAK DATA: 5.83 G @ 90.00 MS; -16.58 G @ 135.04 MS

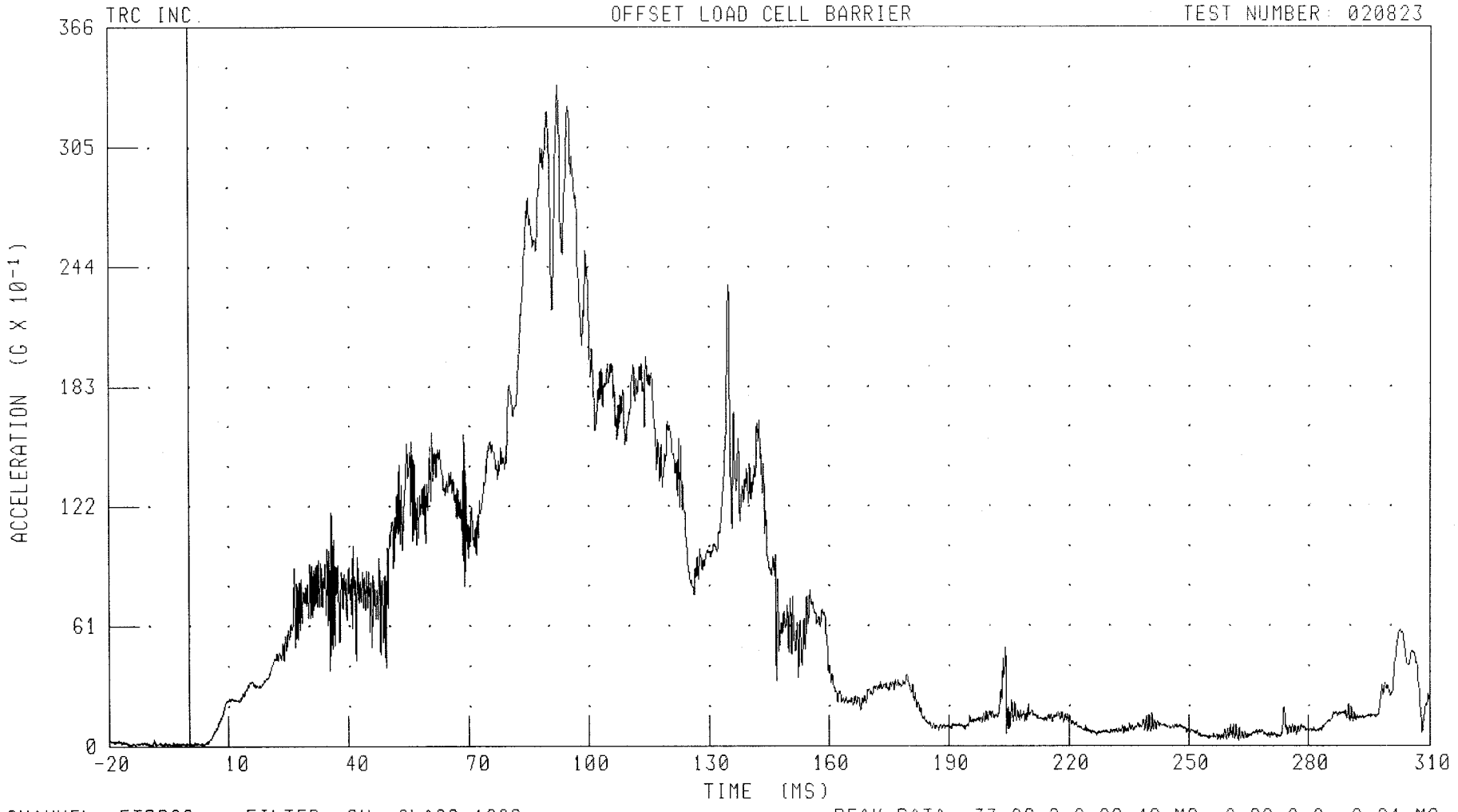
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER RIGHT FOOT Z-AXIS ACCELERATION



CHANNEL: FTRZG2 FILTER: CH. CLASS 1000 PEAK DATA: 12.03 G @ 92.00 MS; -17.84 G @ 134.80 MS

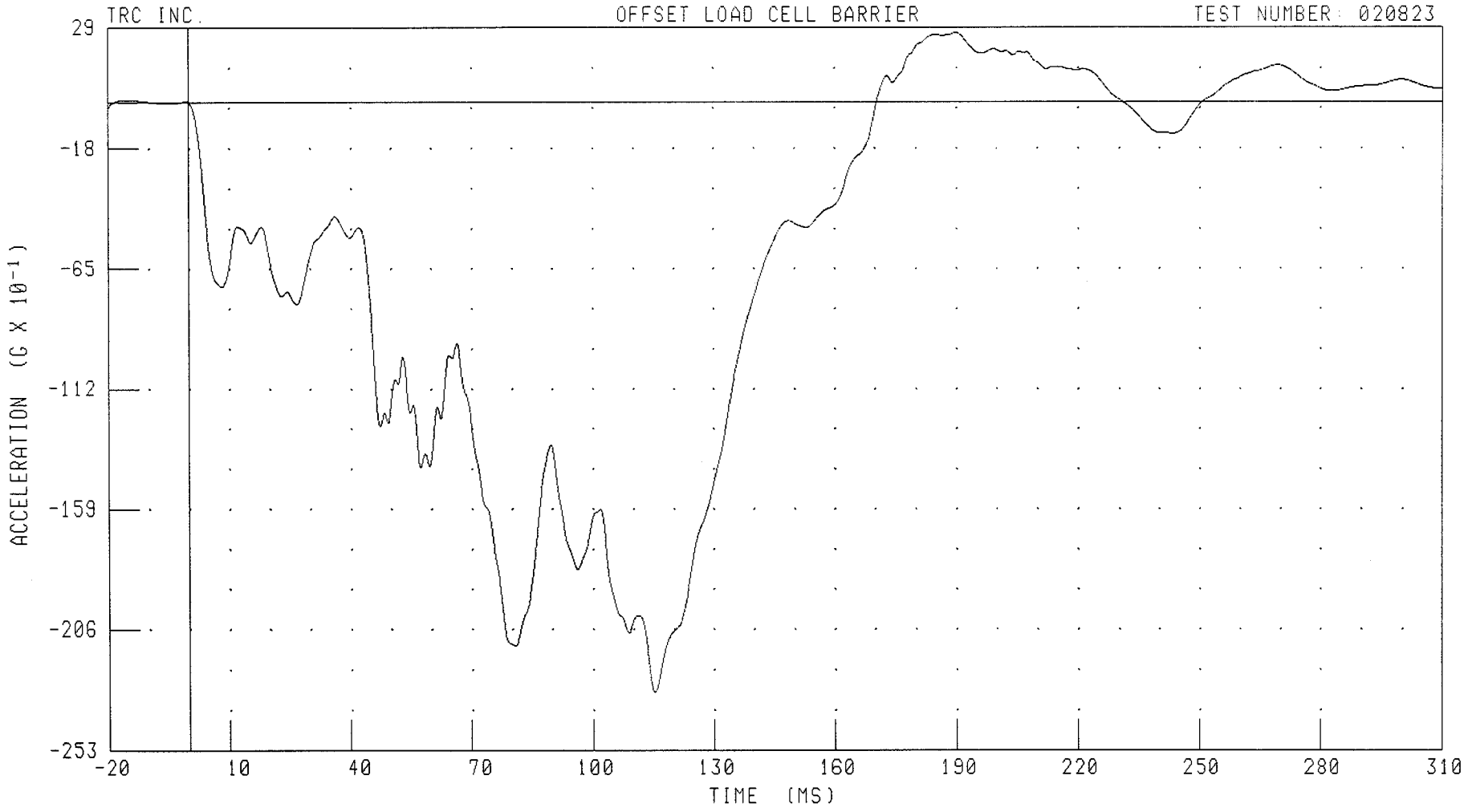
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER RIGHT FOOT RESULTANT ACCELERATION



CHANNEL: FTRRG2 FILTER: CH. CLASS 1000 PEAK DATA: 33.68 G @ 92.48 MS, 0.02 G @ -6 24 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

LEFT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

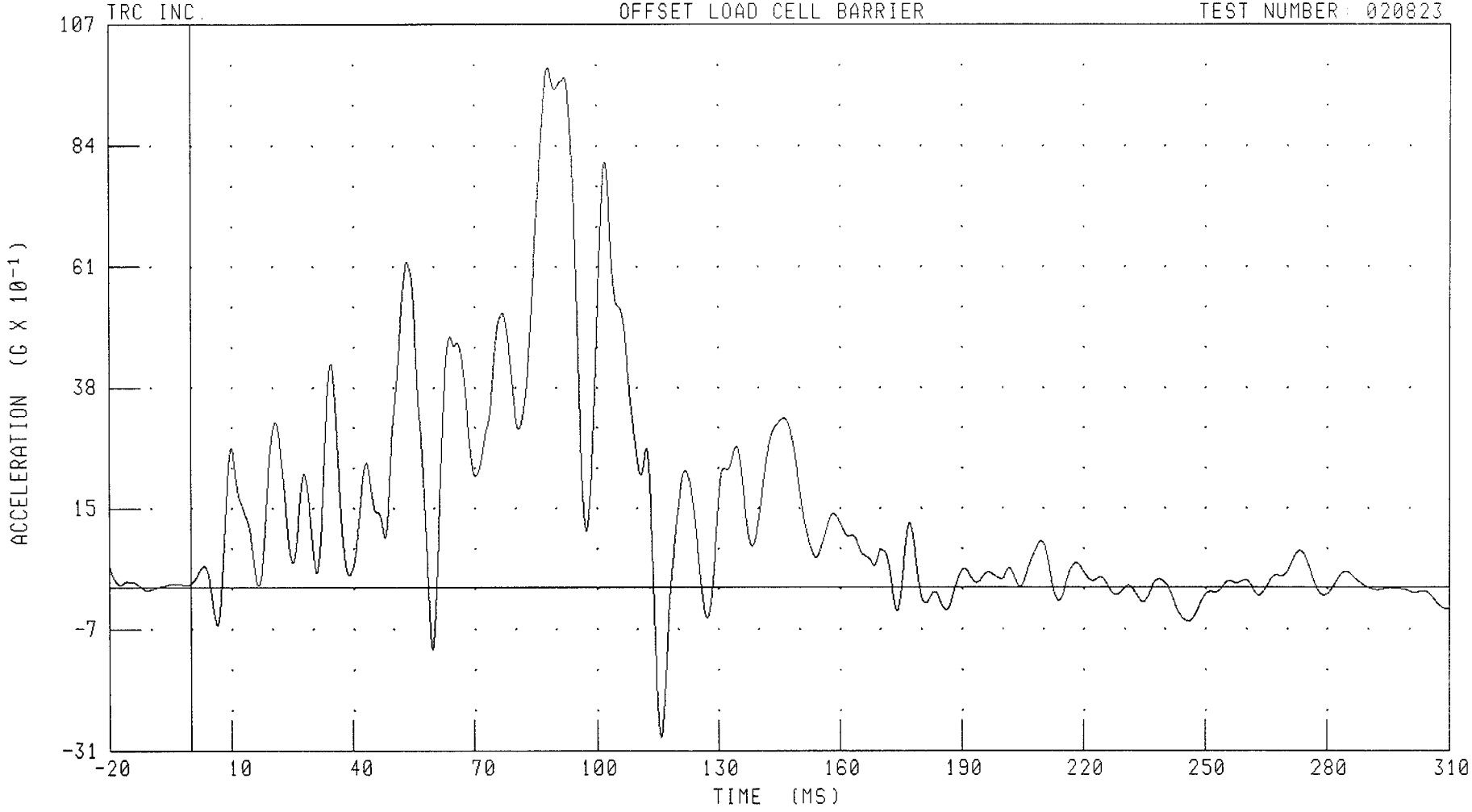


CHANNEL: LRXXG1 FILTER: CH. CLASS 60 PEAK DATA: 2.71 G @ 190.00 MS; -23.05 G @ 115.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

LEFT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

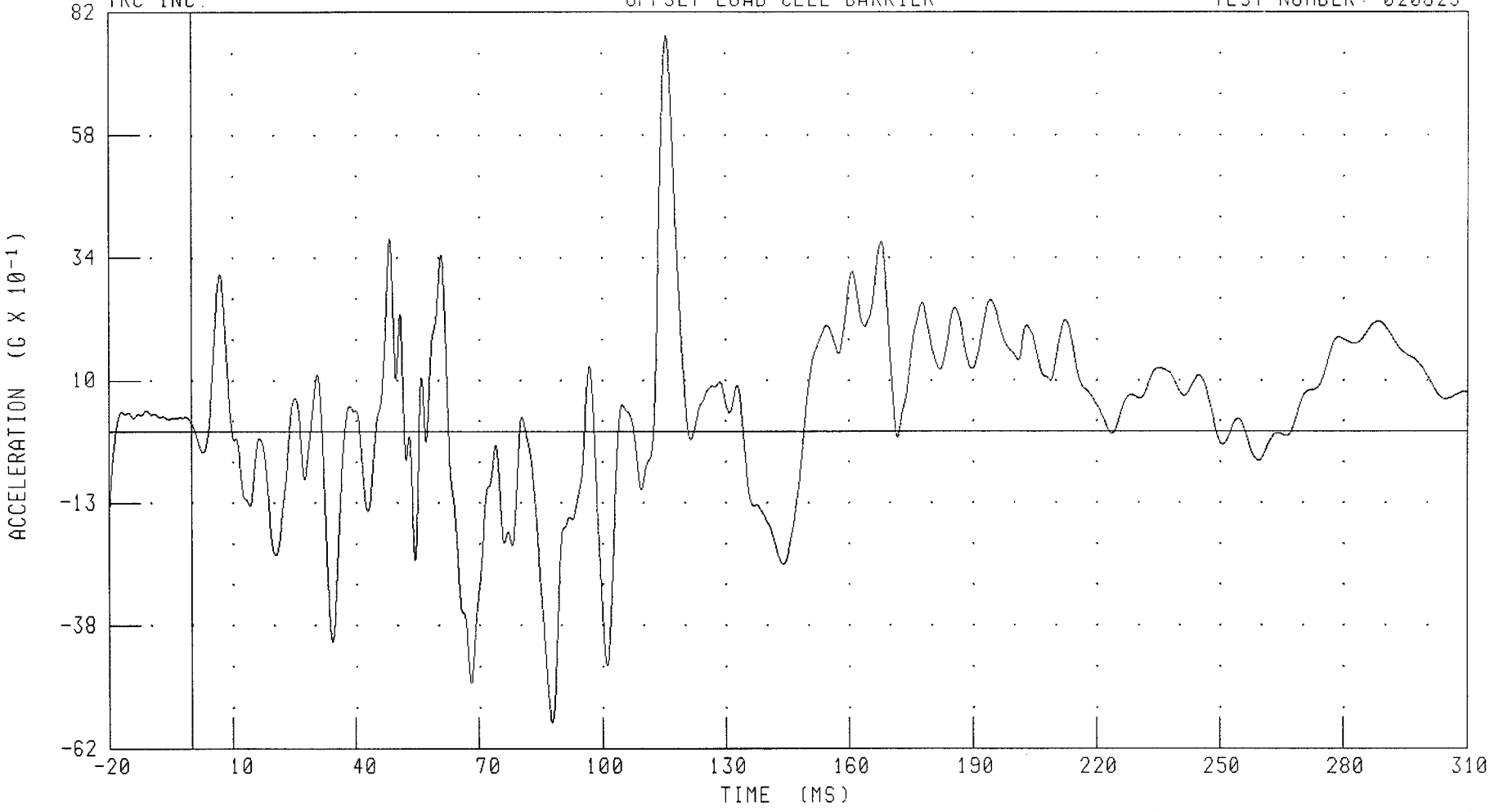


CHANNEL: LRXYG1 FILTER: CH. CLASS 60 PEAK DATA: 9.88 G @ 88.08 MS; -2.84 G @ 115.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

LEFT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

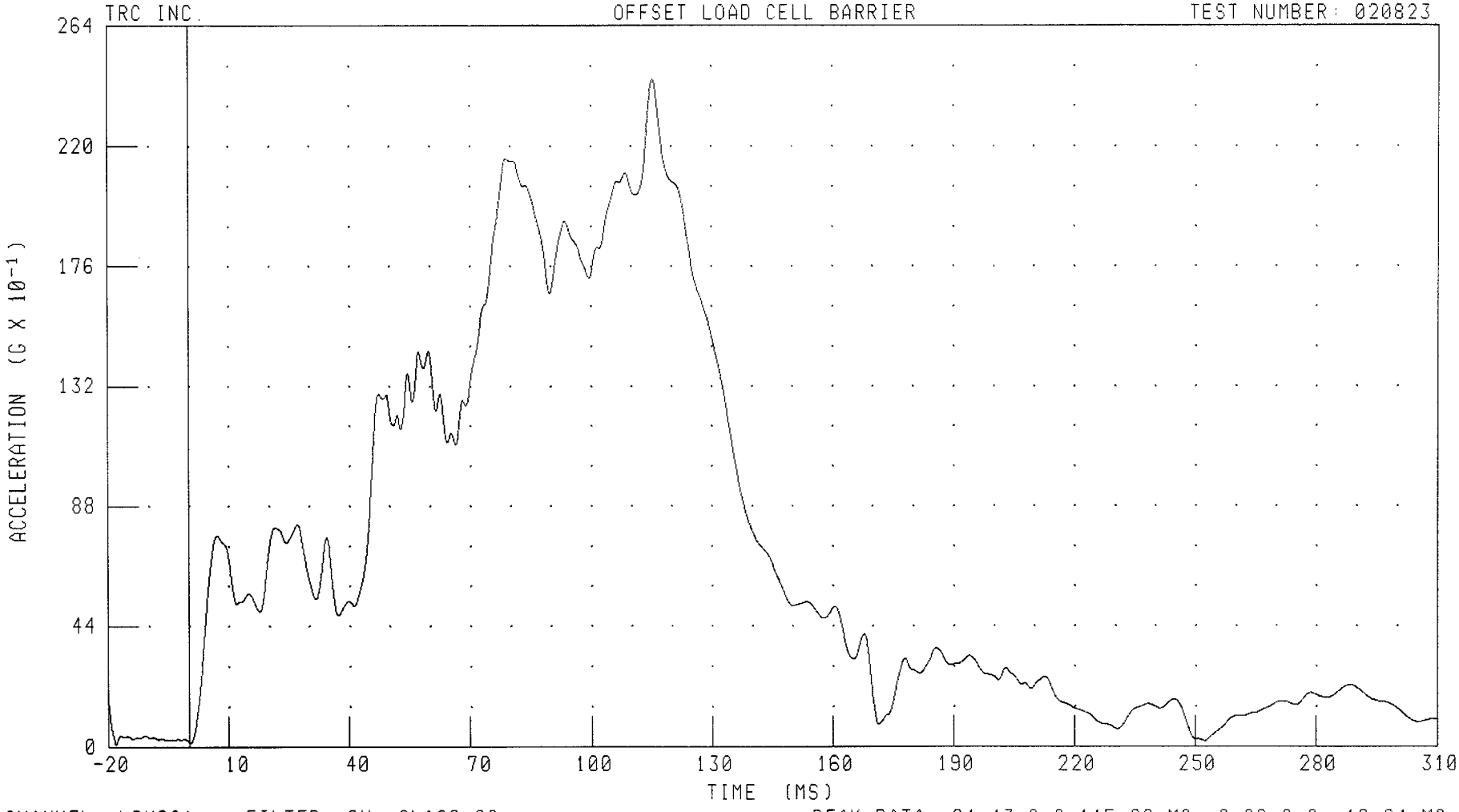
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LRXZG1 FILTER: CH. CLASS 60 PEAK DATA: 7.75 G @ 115.76 MS; -5.70 G @ 87.76 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

LEFT REAR SEAT CROSSMEMBER RESULTANT ACCELERATION

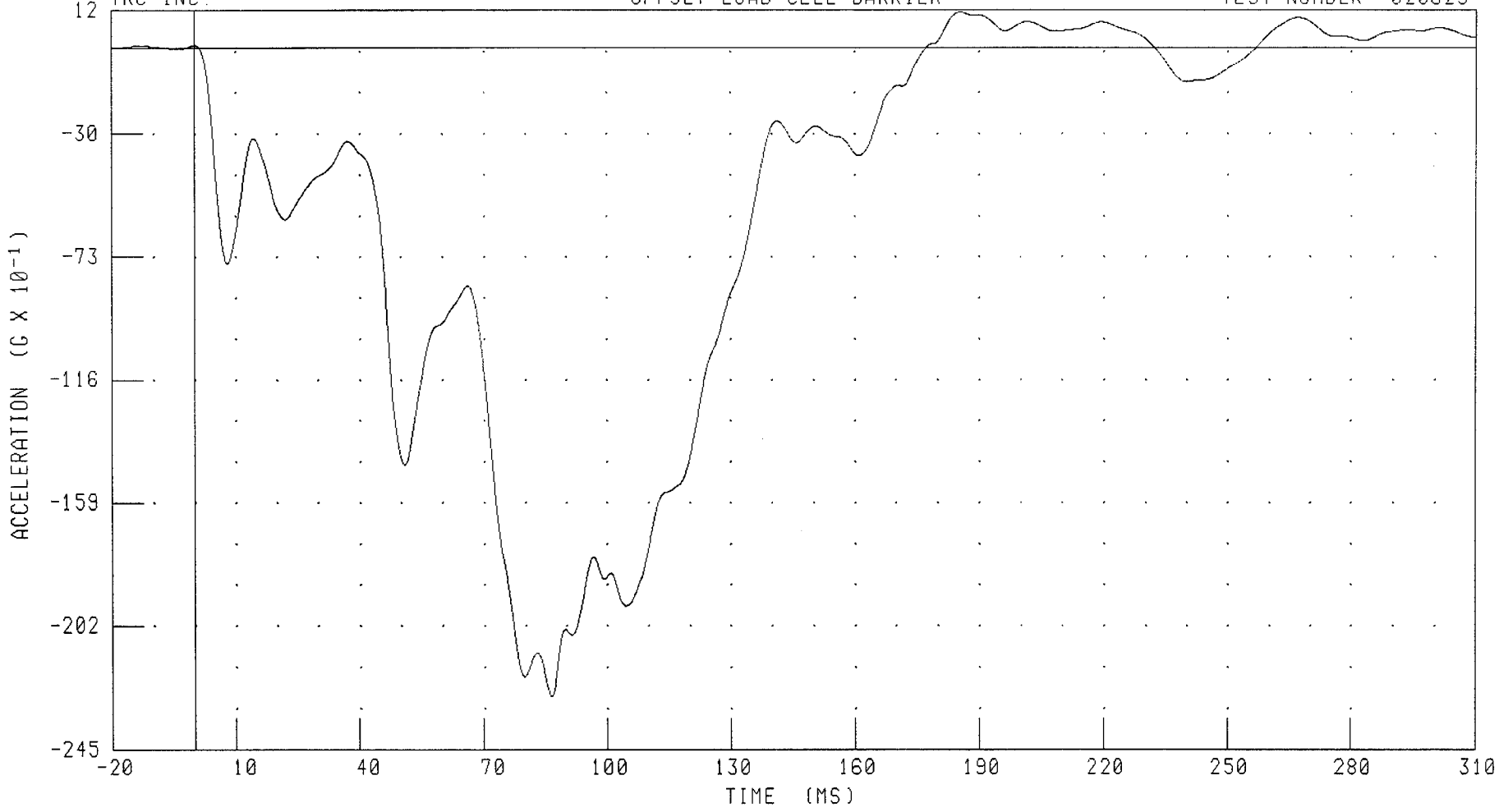


CHANNEL: LRXRG1 FILTER: CH. CLASS 60 PEAK DATA: 24.43 G @ 115.60 MS; 0.08 G @ -18.24 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

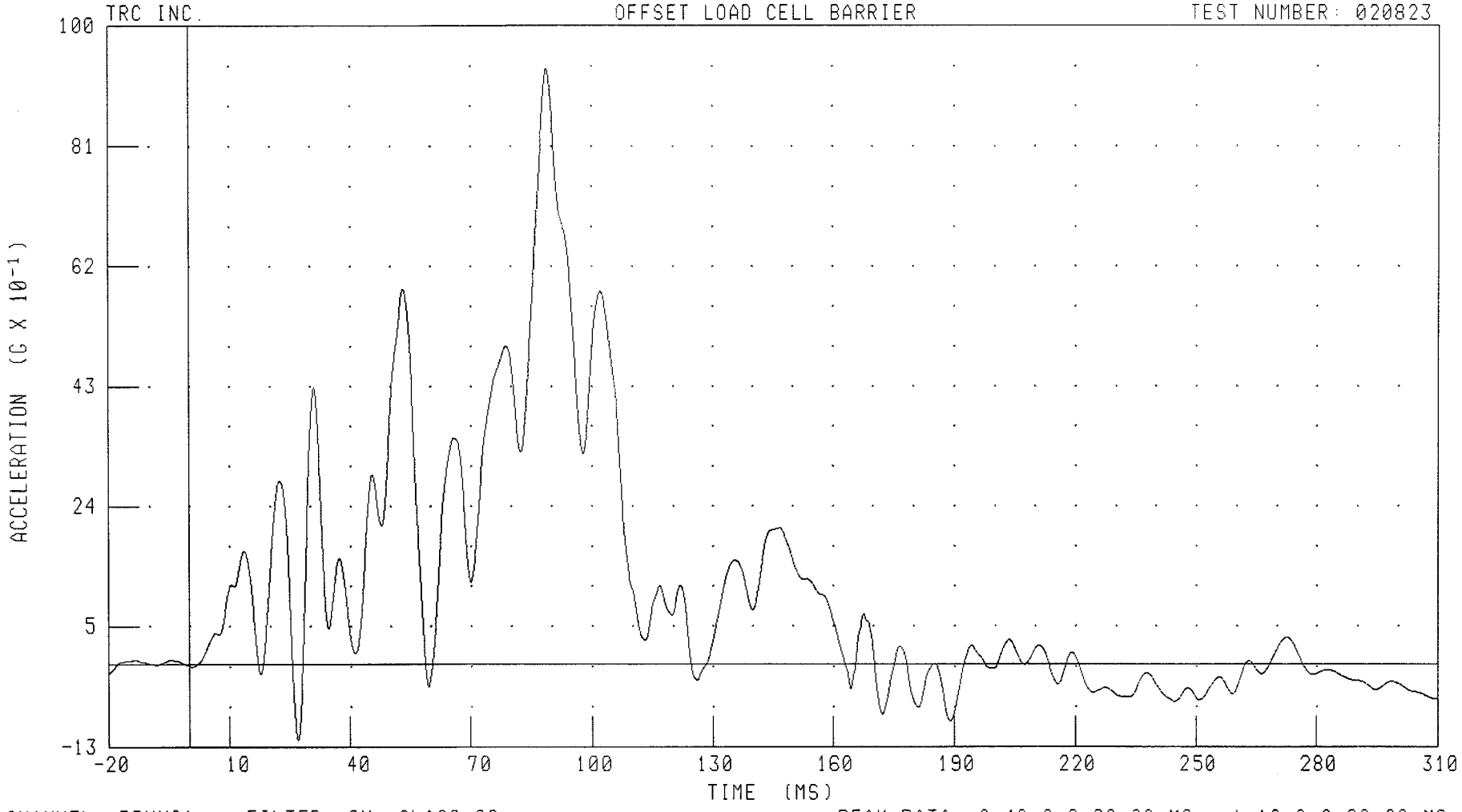
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: RRXXG1 FILTER: CH. CLASS 60 PEAK DATA: 1.23 G @ 185.76 MS; -22.64 G @ 86.40 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

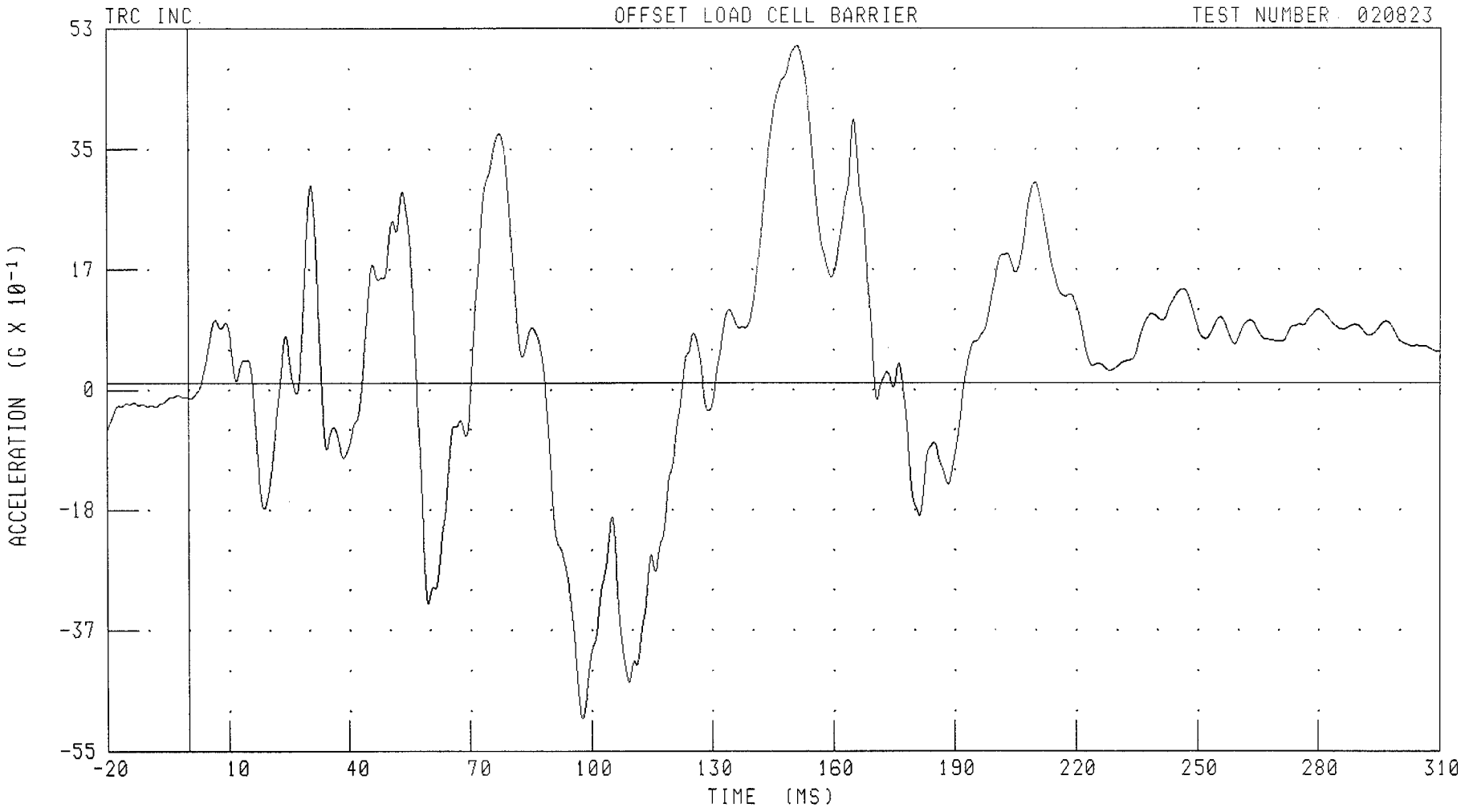
RIGHT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION



CHANNEL: RRXYG1 FILTER: CH. CLASS 60 PEAK DATA: 9.42 G @ 88.96 MS, -1.19 G @ 26.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

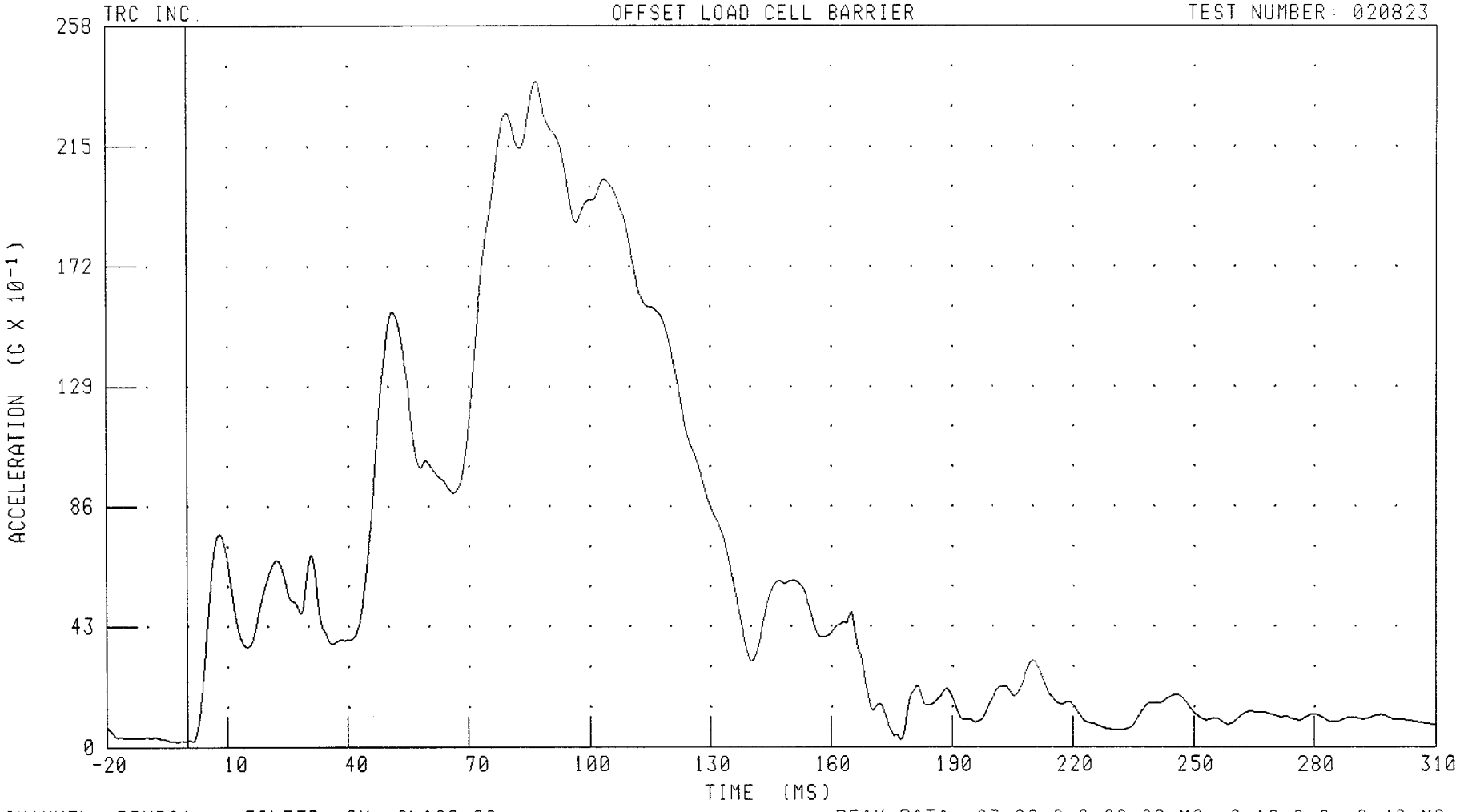
RIGHT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION



CHANNEL: RRXZG1 FILTER: CH. CLASS 60 PEAK DATA: 5.04 G @ 151.20 MS; -5.01 G @ 97.84 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

RIGHT REAR SEAT CROSSMEMBER RESULTANT ACCELERATION

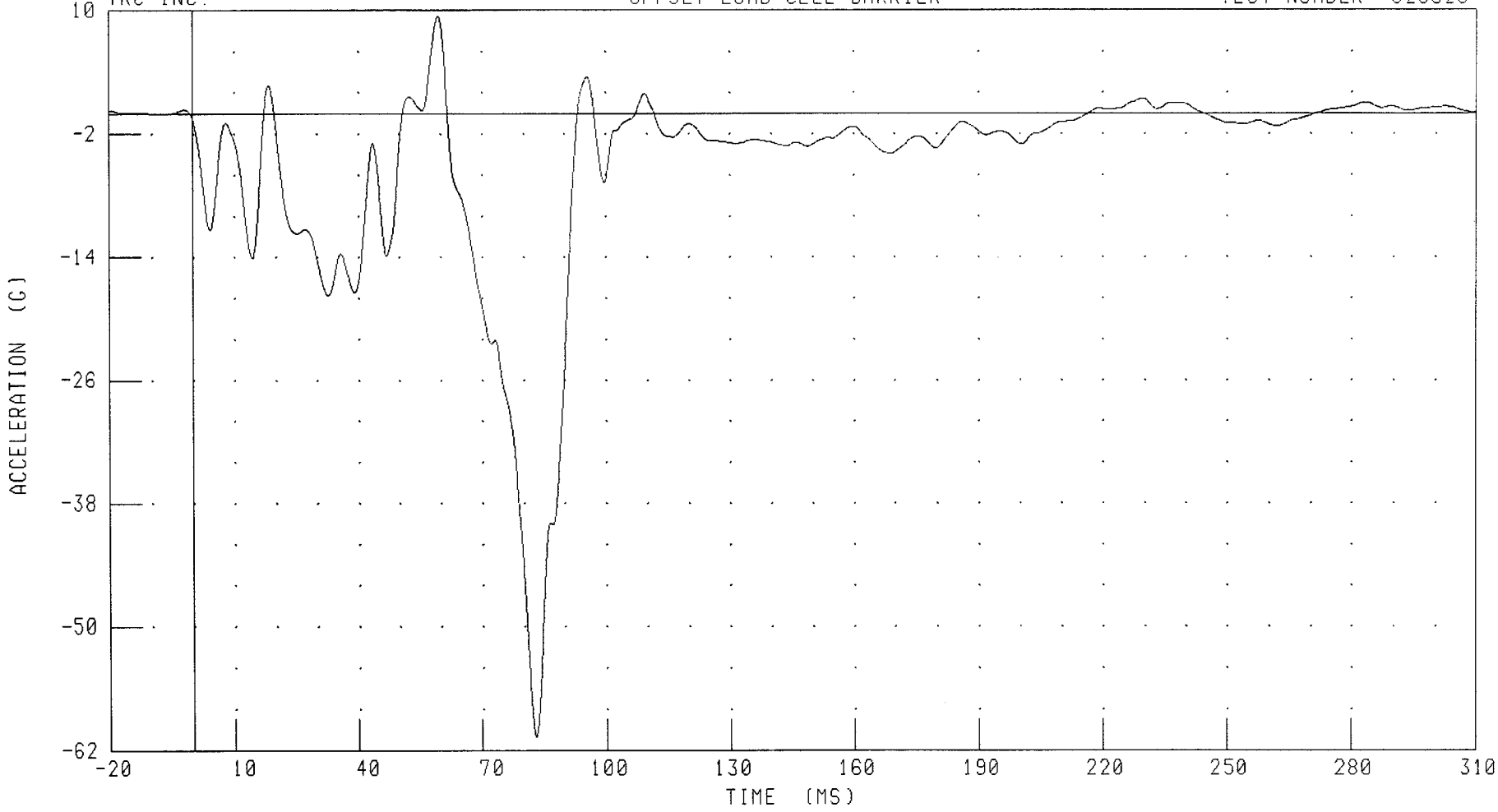


CHANNEL: RRXRG1 FILTER: CH. CLASS 60 PEAK DATA: 23.82 G @ 86.88 MS, 0.19 G @ -2.48 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVERS LEFT SIDE TOE PAN X-AXIS ACCELERATION

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

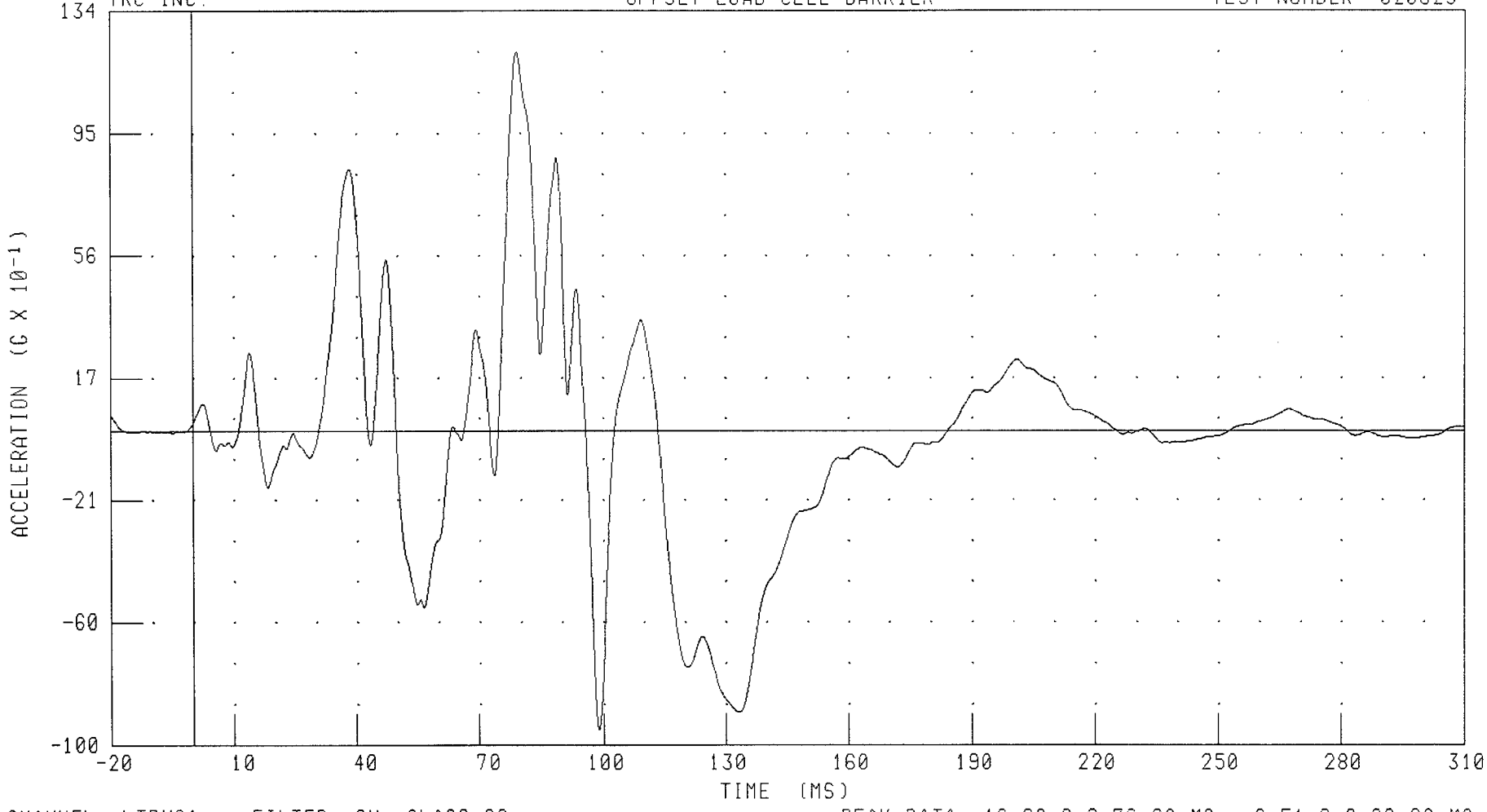


CHANNEL: LTPXG1 FILTER: CH. CLASS 60 PEAK DATA: 9.45 G @ 59.68 MS; -60.70 G @ 82.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVERS LEFT SIDE TOE PAN Y-AXIS ACCELERATION

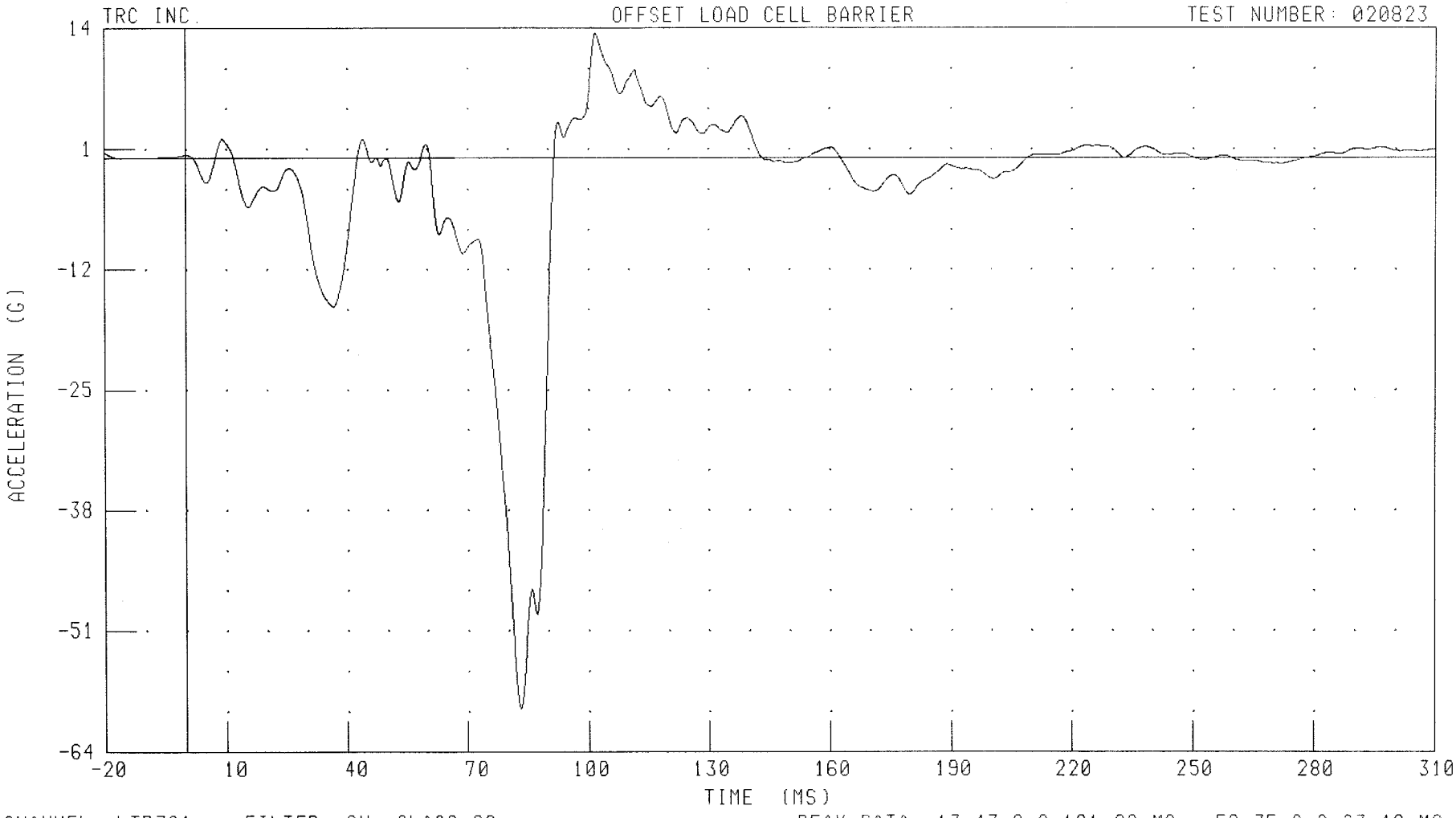
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LTPYG1 FILTER: CH. CLASS 60 PEAK DATA: 12.09 G @ 79.28 MS; -9.51 G @ 98.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

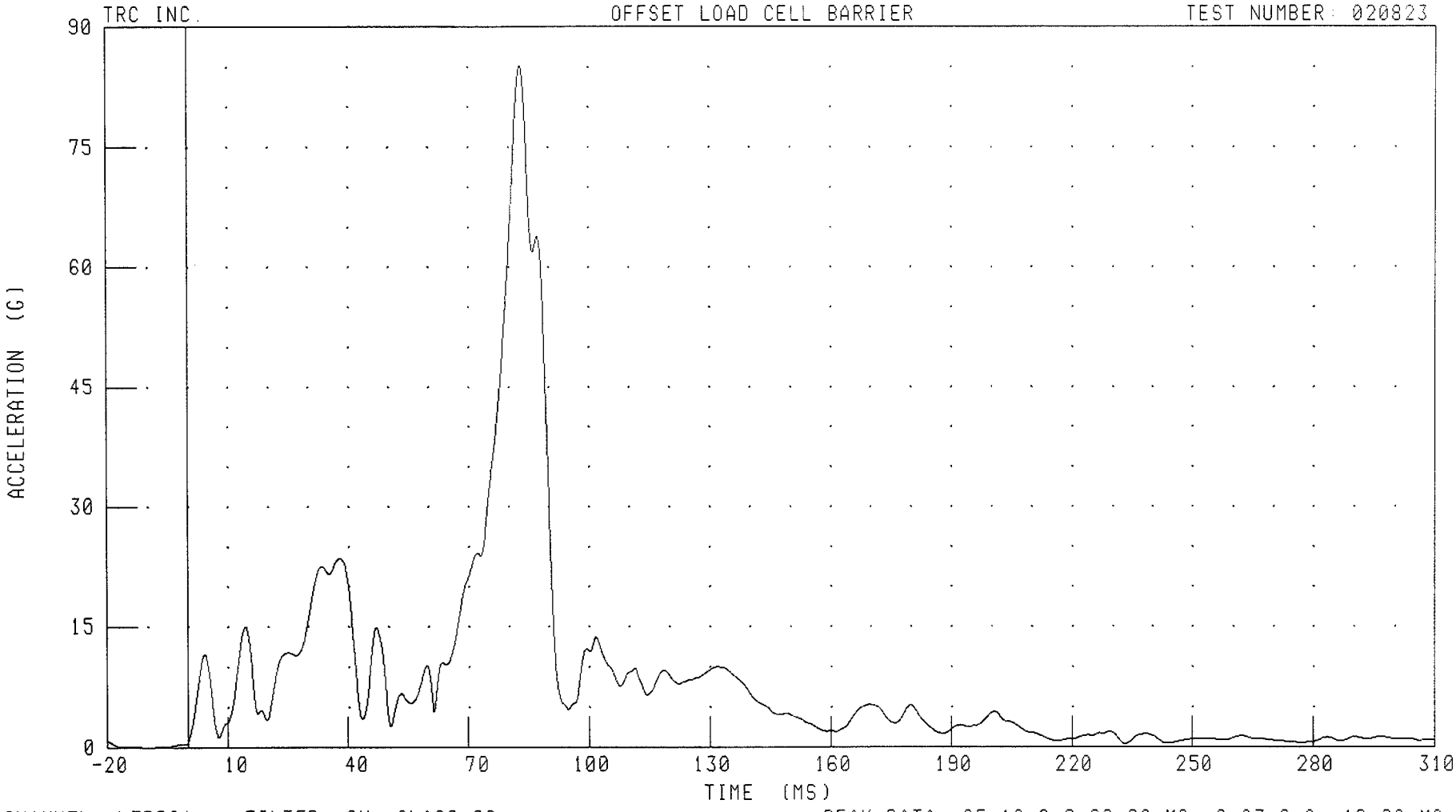
DRIVERS LEFT SIDE TOE PAN Z-AXIS ACCELERATION



CHANNEL: LTPZG1 FILTER: CH. CLASS 60 PEAK DATA: 13.43 G @ 101.92 MS, -59.35 G @ 83.12 MS

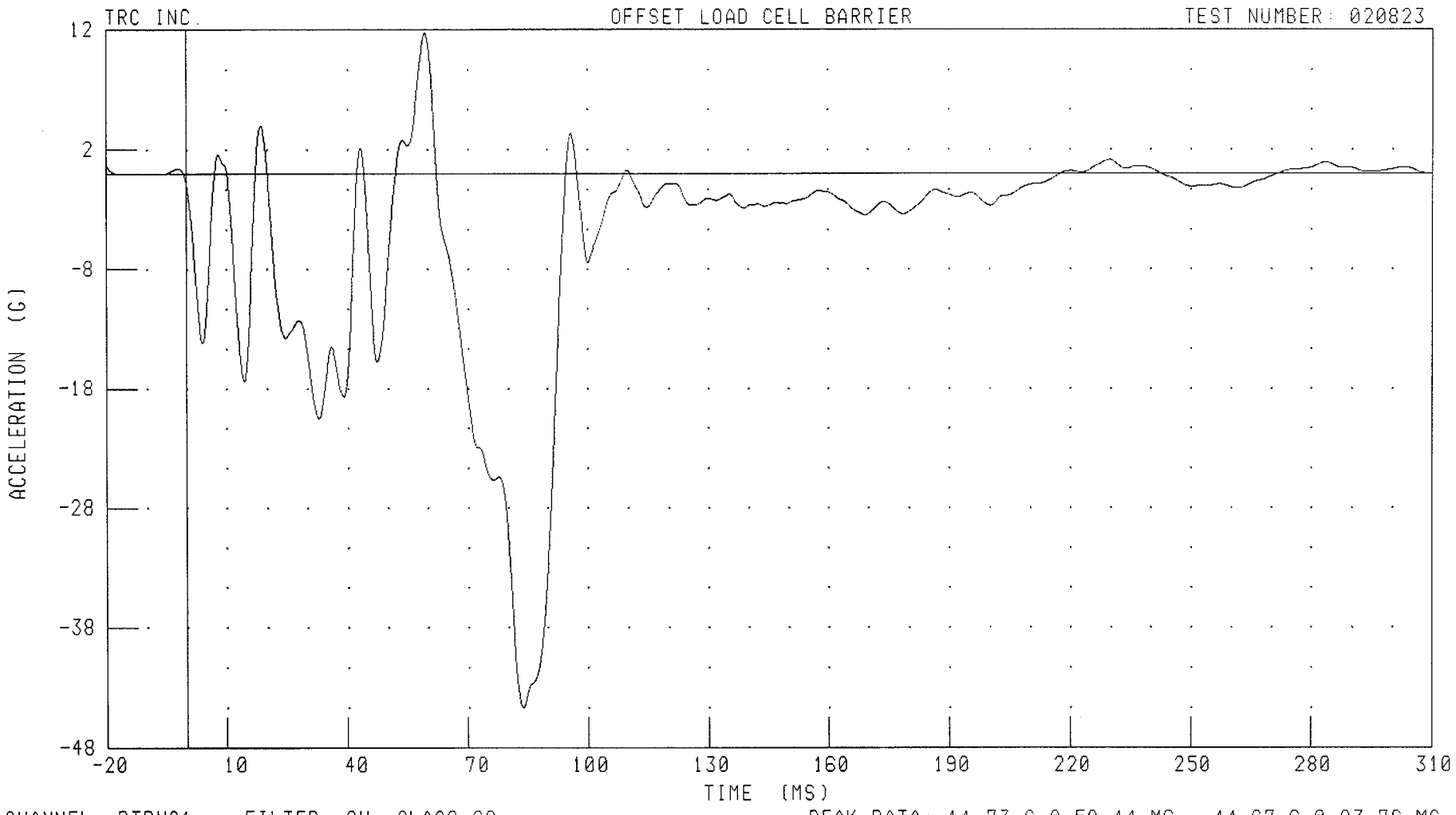
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVERS LEFT SIDE TOE PAN RESULTANT ACCELERATION



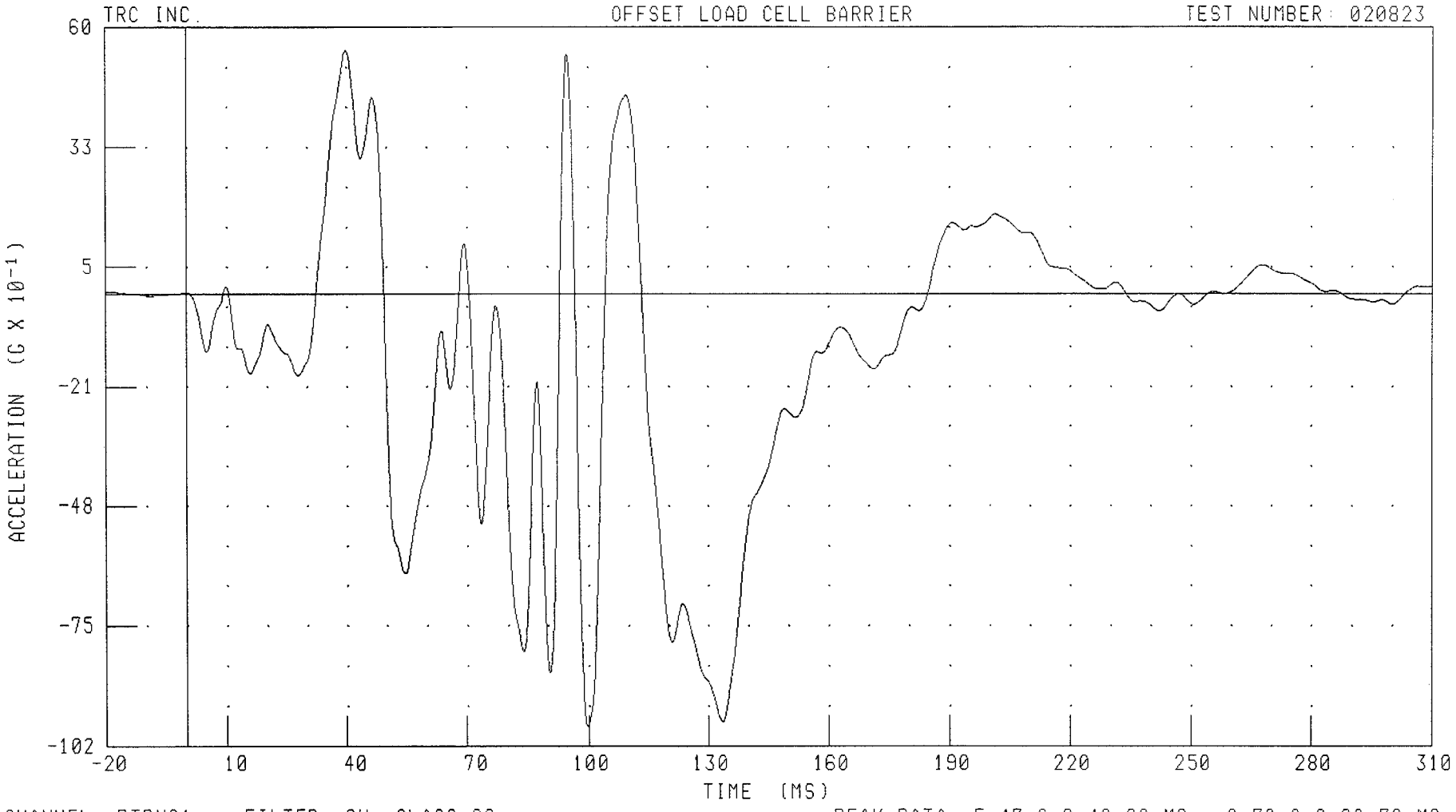
CHANNEL: LTPRG1 FILTER: CH. CLASS 60 PEAK DATA: 85.19 G @ 82.96 MS; 0.03 G @ -10.08 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVERS RIGHT SIDE TOE PAN X-AXIS ACCELERATION



CHANNEL: RTPXG1 FILTER: CH. CLASS 60 PEAK DATA: 11.73 G @ 59.44 MS; -44.67 G @ 83.76 MS

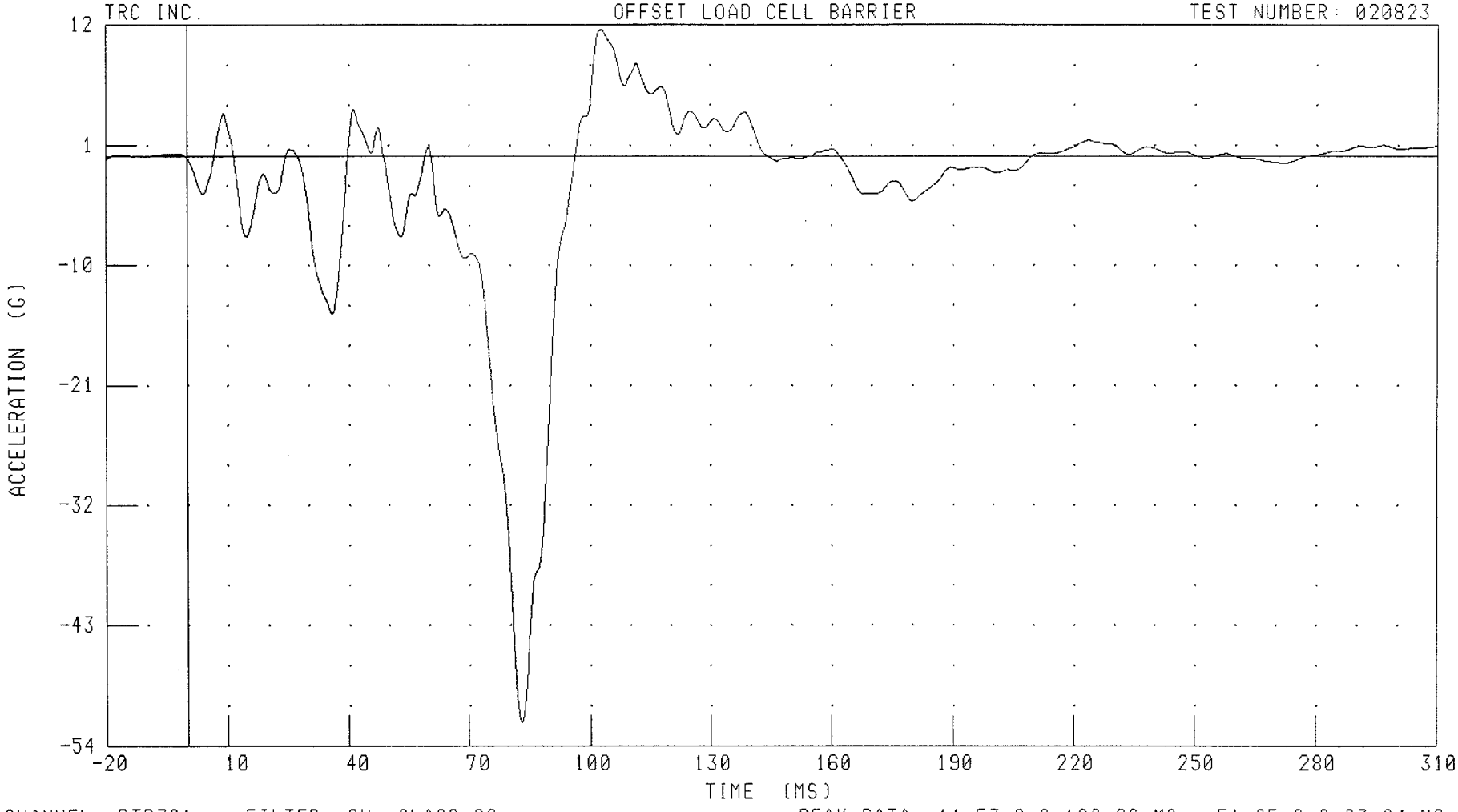
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVERS RIGHT SIDE TOE PAN Y-AXIS ACCELERATION



CHANNEL: RTPYG1 FILTER: CH. CLASS 60 PEAK DATA: 5.47 G @ 40.08 MS; -9.76 G @ 99.76 MS

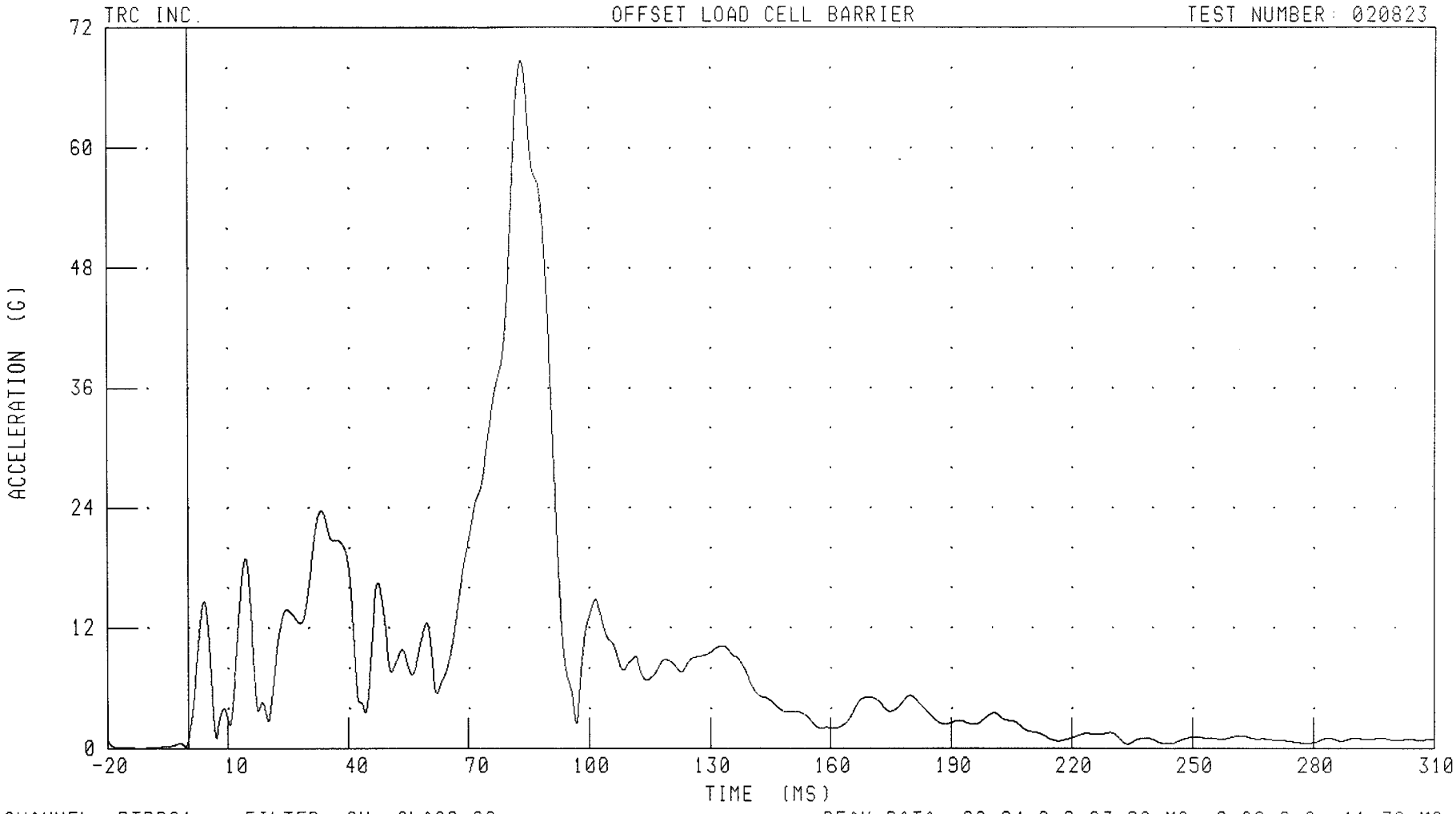
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

DRIVERS RIGHT SIDE TOE PAN Z-AXIS ACCELERATION



CHANNEL: RTPZG1 FILTER: CH. CLASS 60 PEAK DATA: 11.53 G @ 102.88 MS, -51.85 G @ 83.04 MS

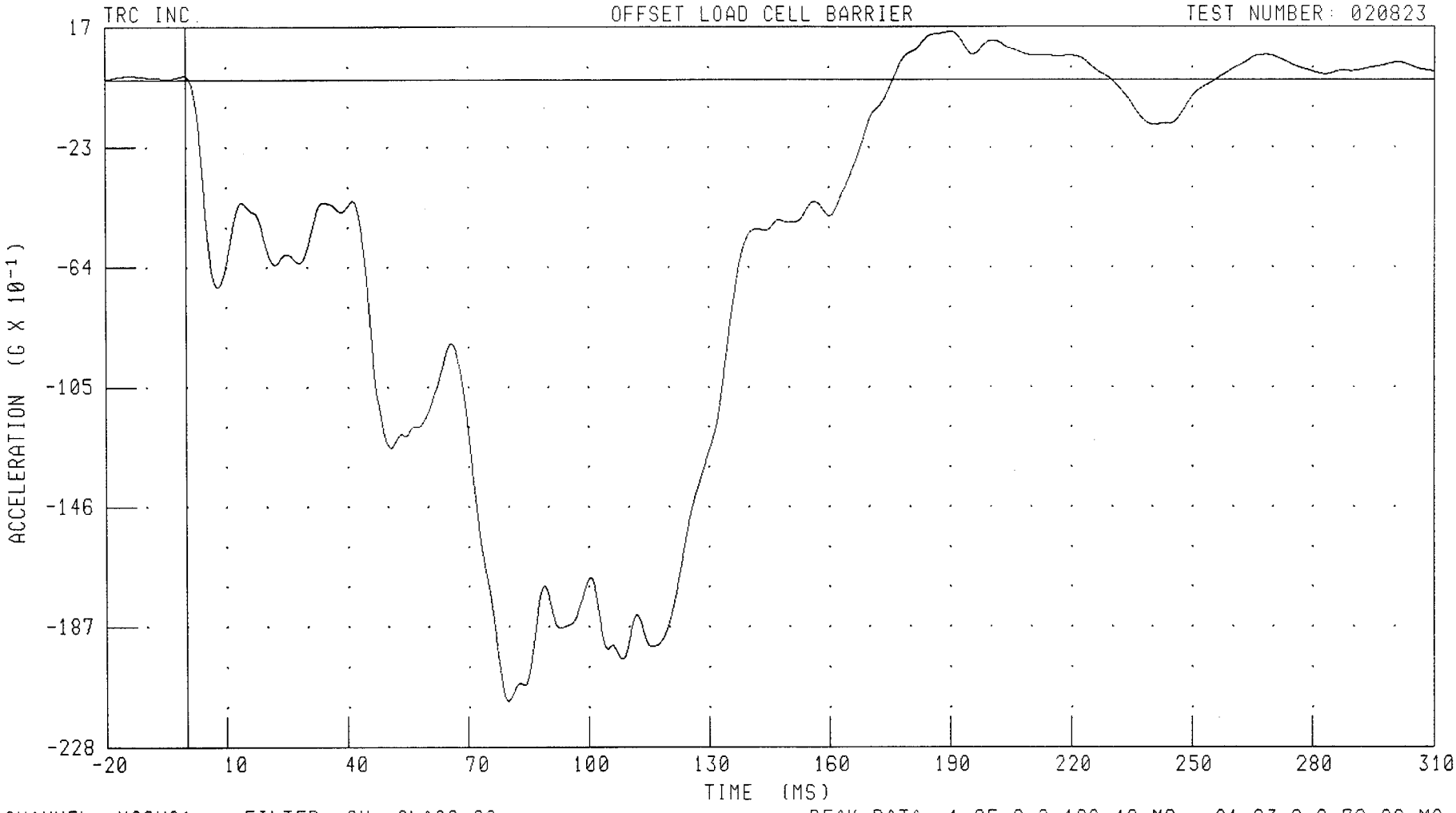
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVERS RIGHT SIDE TOE PAN RESULTANT ACCELERATION



CHANNEL: RTPRG1 FILTER: CH. CLASS 60 PEAK DATA: 68.64 G @ 83.28 MS; 0.02 G @ -11.36 MS

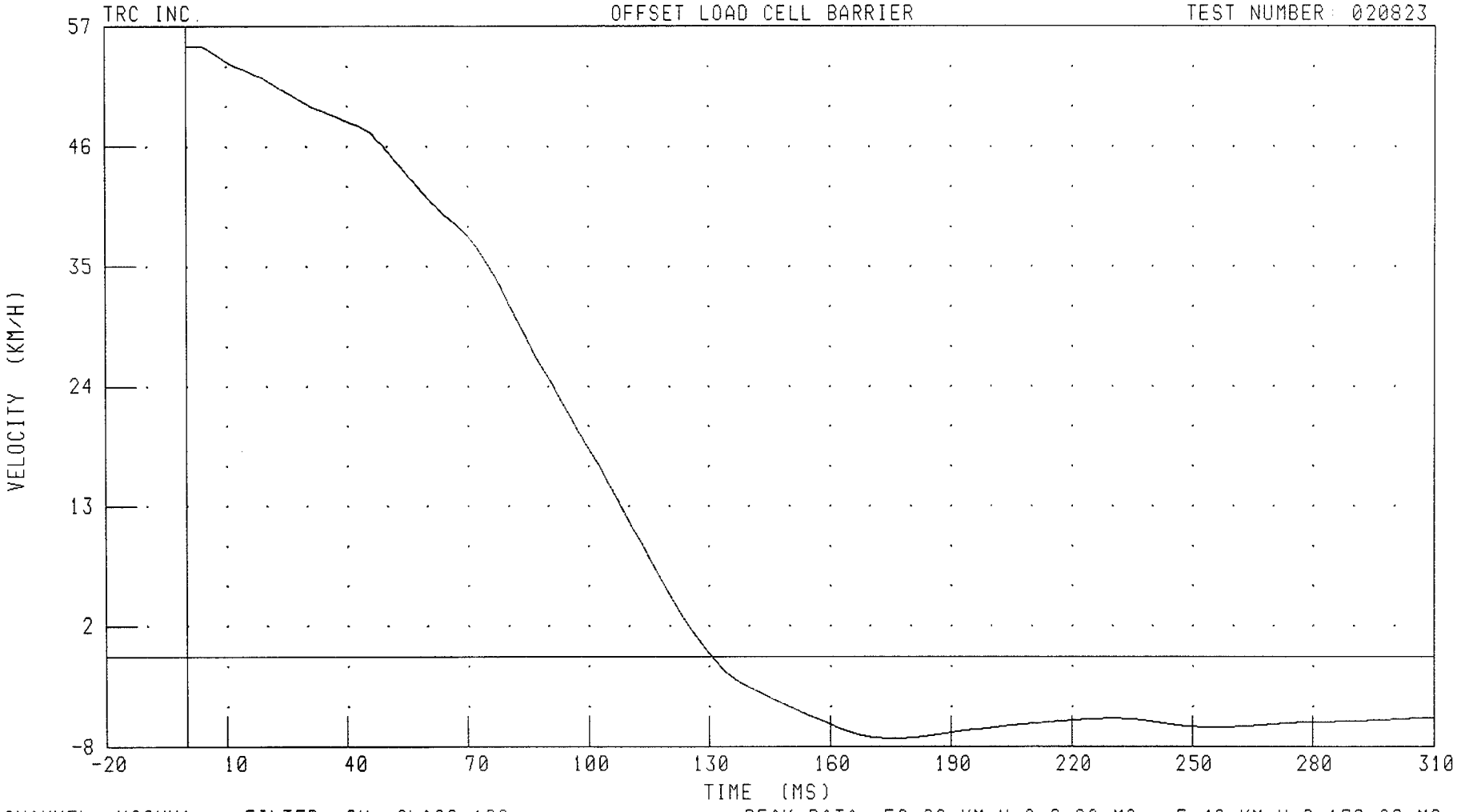
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION



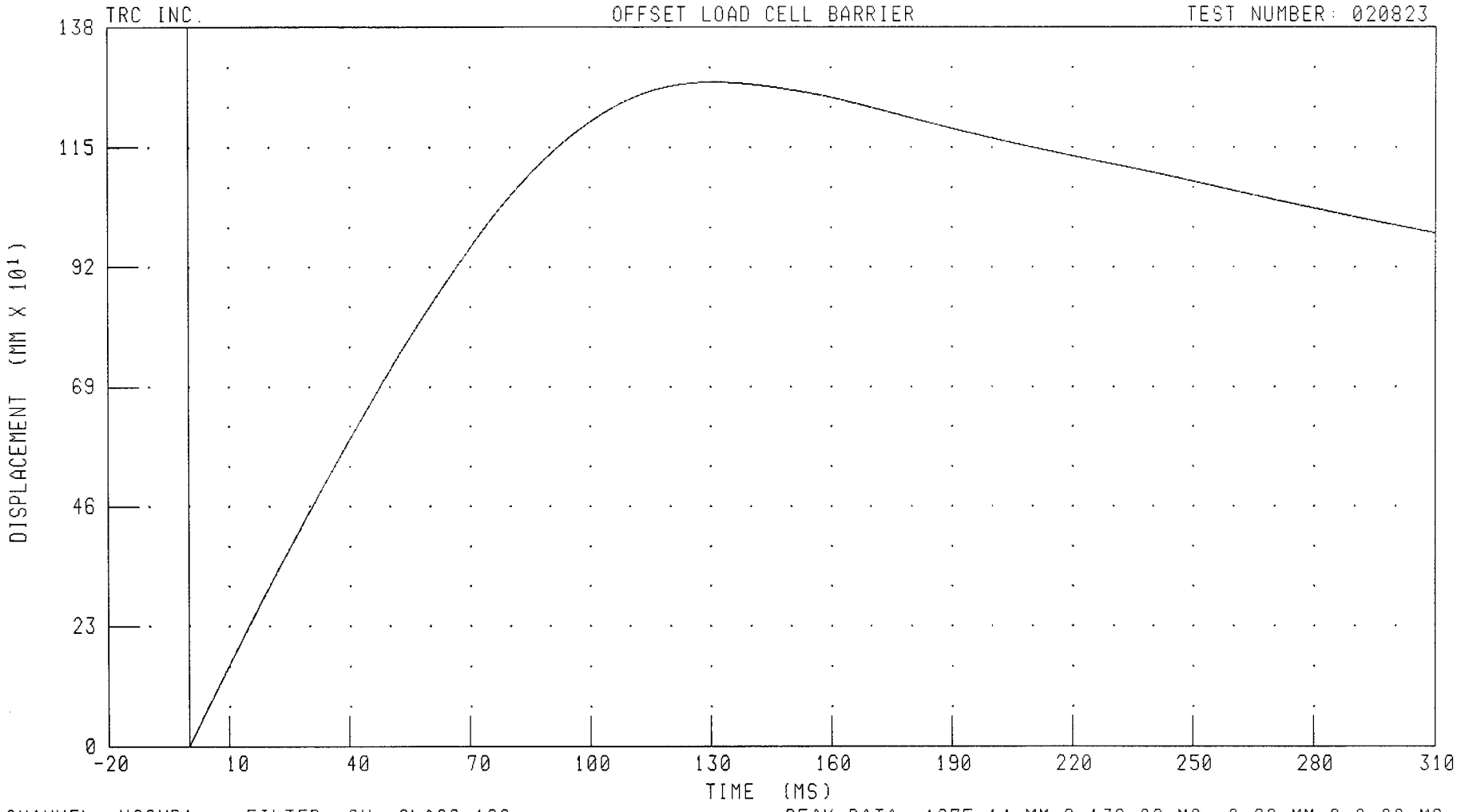
CHANNEL: VCGXG1 FILTER: CH. CLASS 60 PEAK DATA: 1.65 G @ 190.40 MS; -21.23 G @ 79.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY



CHANNEL: VCGXV1 FILTER: CH. CLASS 180 PEAK DATA: 56.00 KM/H @ 0.00 MS; -7.48 KM/H @ 176.88 MS

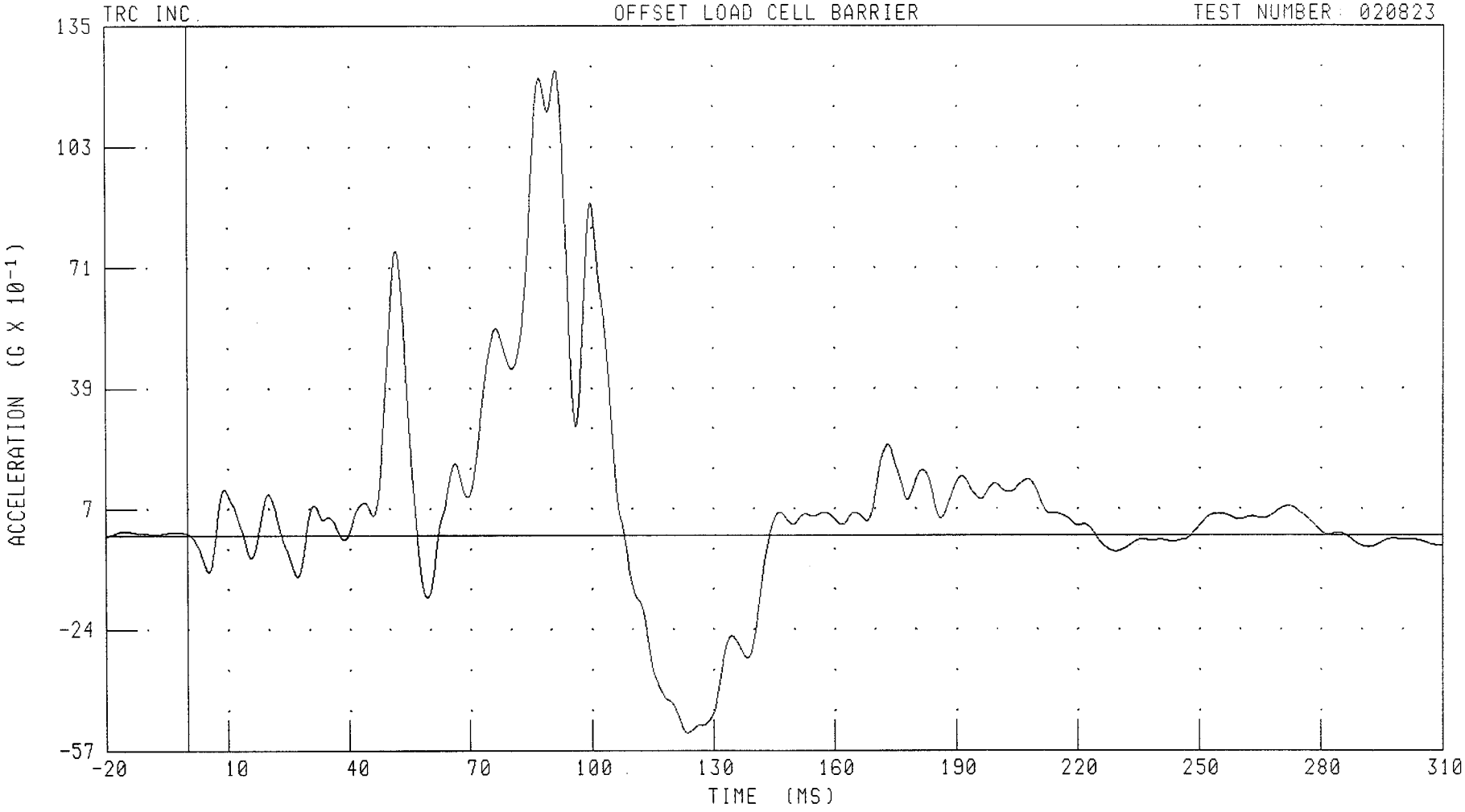
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT



CHANNEL: VCGXD1 FILTER: CH. CLASS 180 PEAK DATA: 1275.14 MM @ 130.80 MS; 0.00 MM @ 0.00 MS

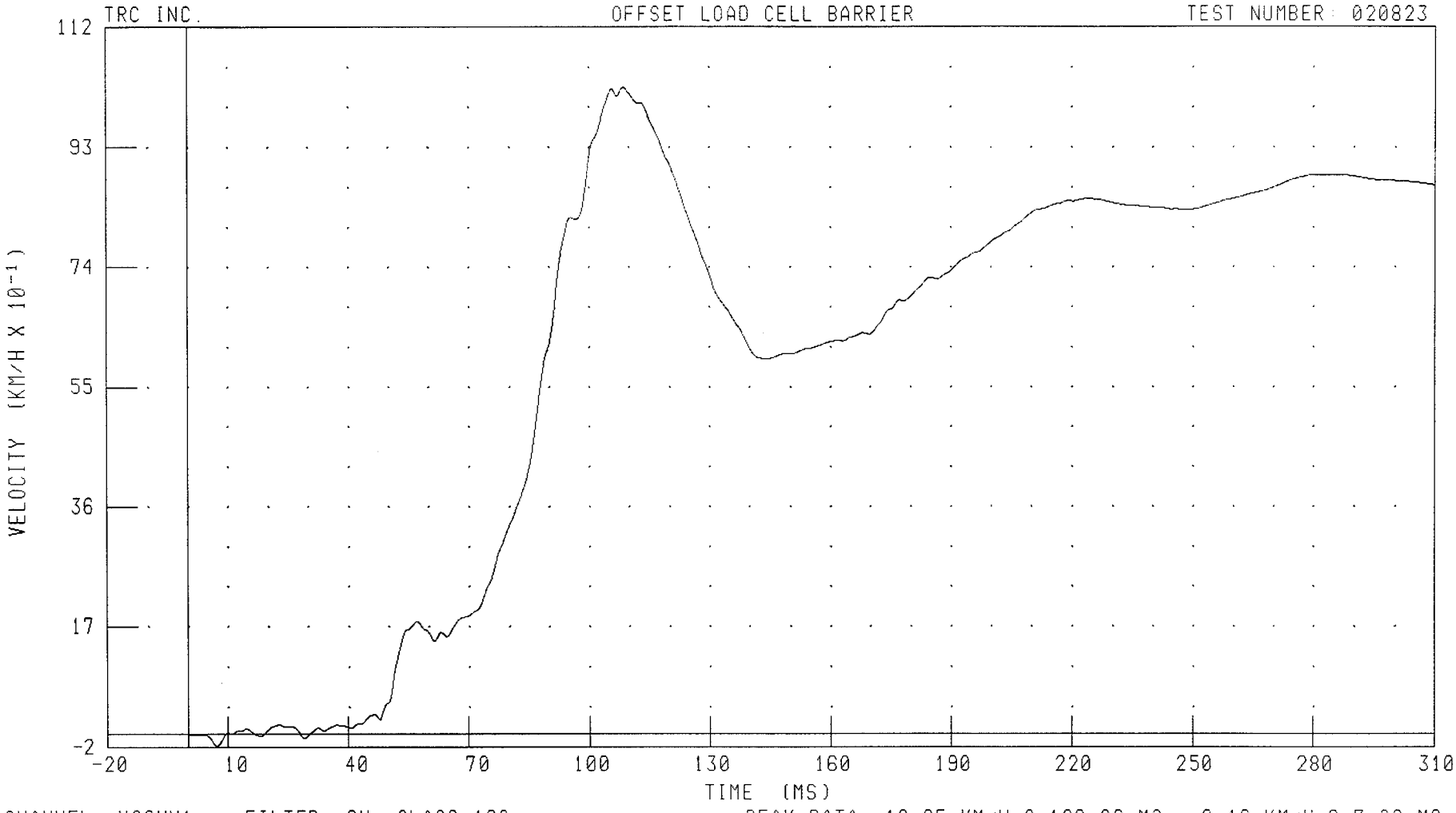
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION



CHANNEL: VCGYG1 FILTER: CH. CLASS 60 PEAK DATA: 12.32 G @ 91.36 MS, -5.24 G @ 123.60 MS

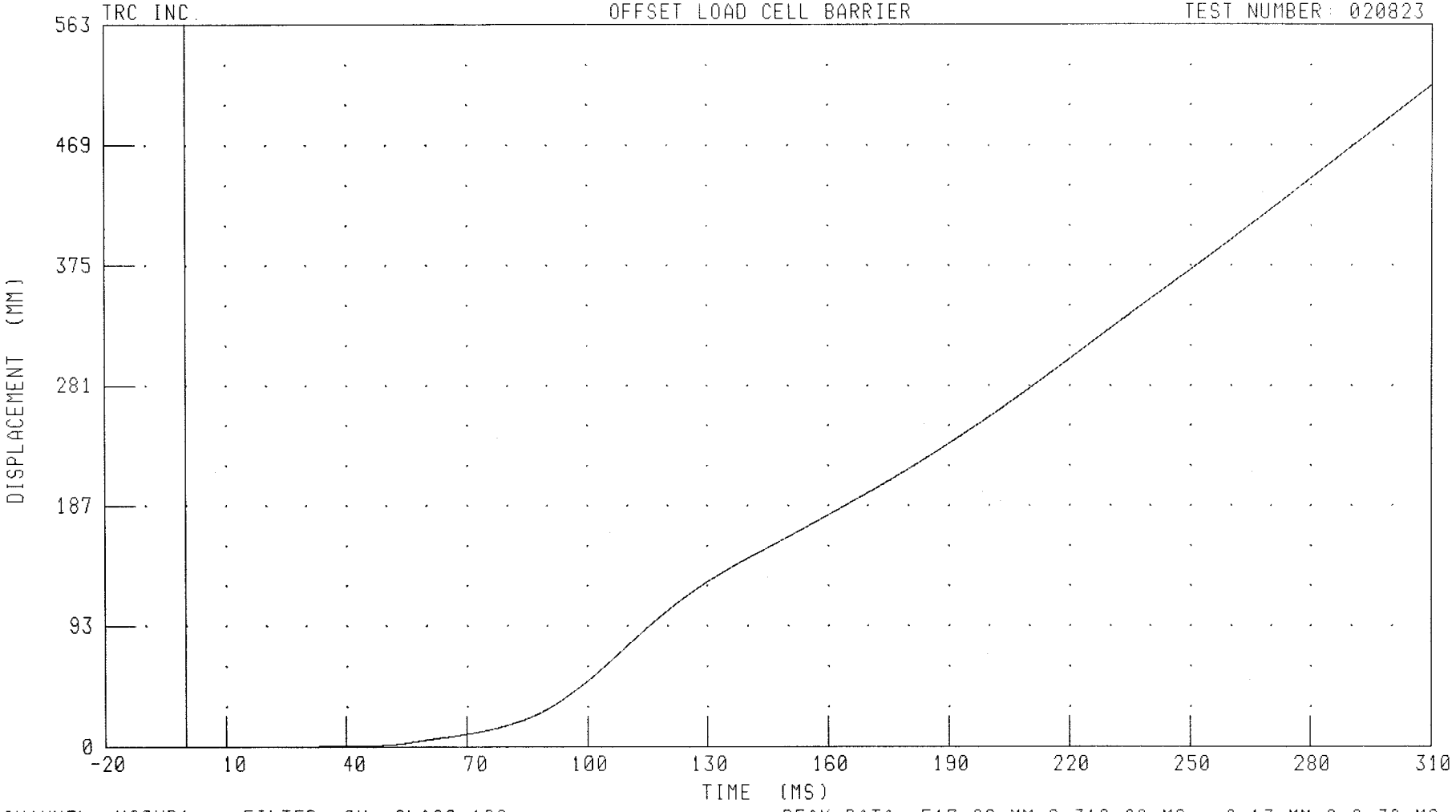
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY



CHANNEL: VCGYV1 FILTER: CH. CLASS 180 PEAK DATA: 10.25 KM/H @ 108.80 MS; -0.18 KM/H @ 7.20 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

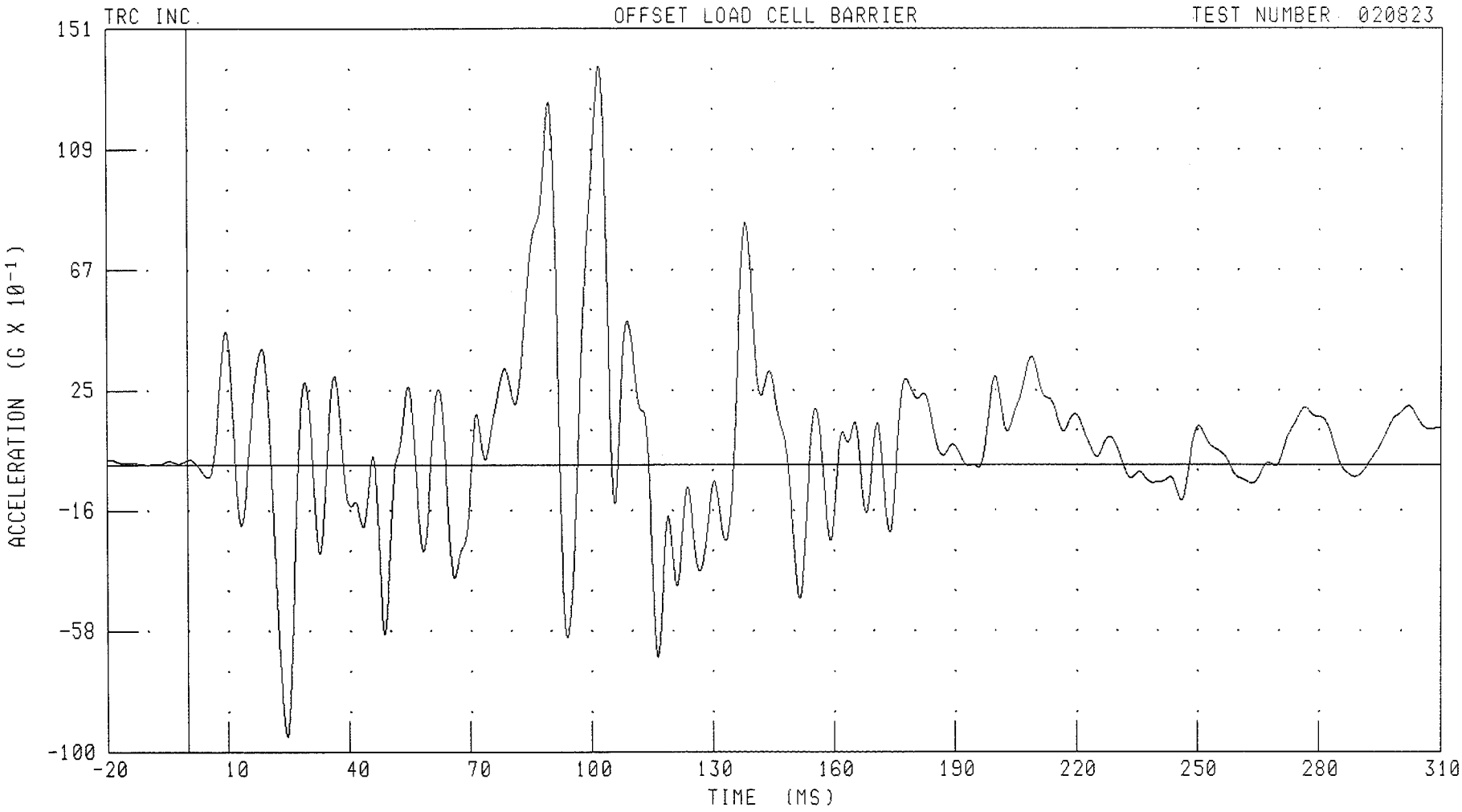


CHANNEL: VCGYD1 FILTER: CH. CLASS 180

PEAK DATA: 517.20 MM @ 310.00 MS; -0.13 MM @ 9.36 MS

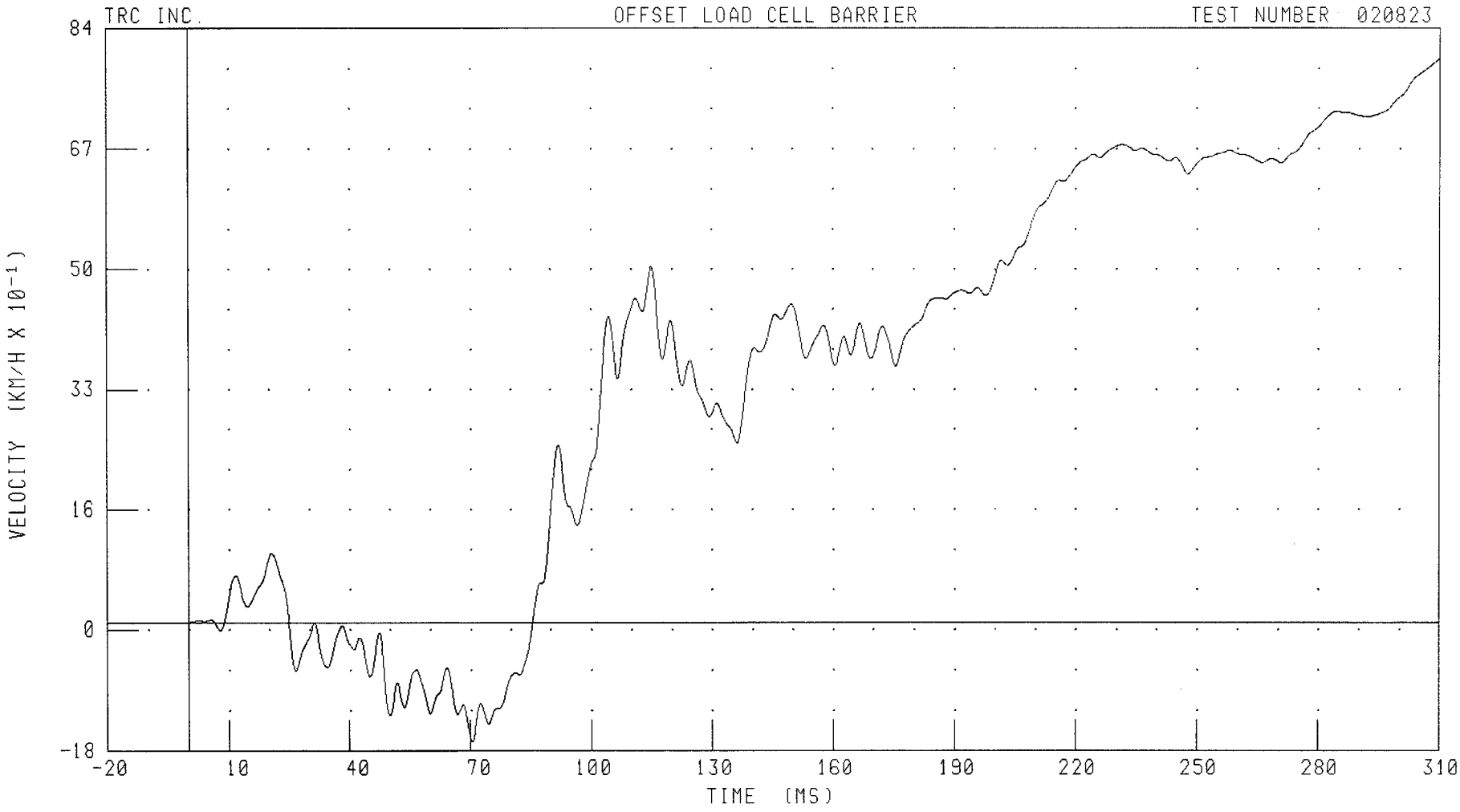
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION



CHANNEL: VCGZG1 FILTER: CH. CLASS 60 PEAK DATA: 13.90 G @ 102.08 MS; -9.45 G @ 24.56 MS

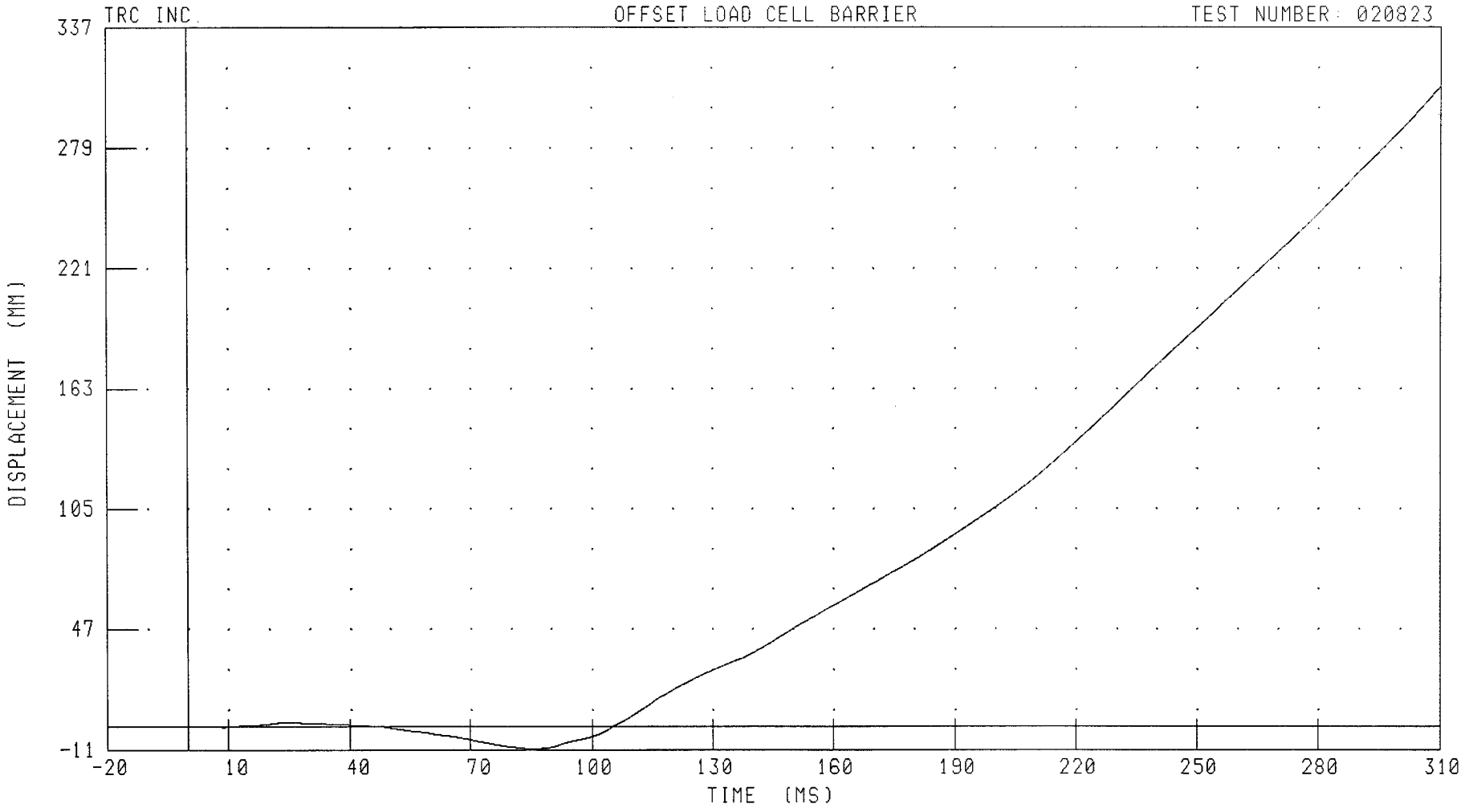
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY



CHANNEL: VCGZV1 FILTER: CH. CLASS 180 PEAK DATA: 7.98 KM/H @ 310.00 MS; -1.68 KM/H @ 70.40 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

VEHICLE CENTER OF GRAVITY Z-AXIS DISPLACEMENT

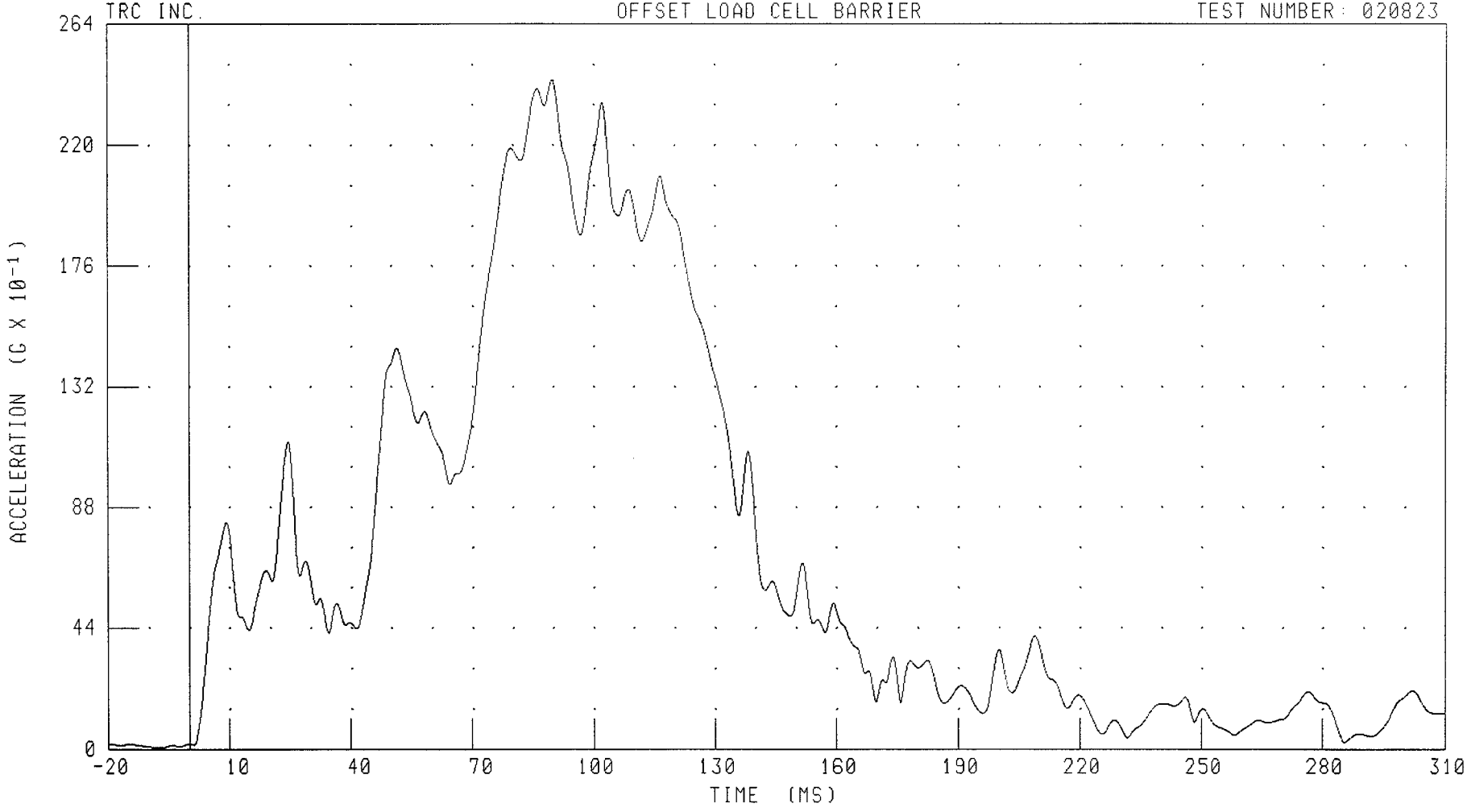


CHANNEL: VCGZD1 FILTER: CH. CLASS 180 PEAK DATA: 308.84 MM @ 310.00 MS; -10.51 MM @ 85.52 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

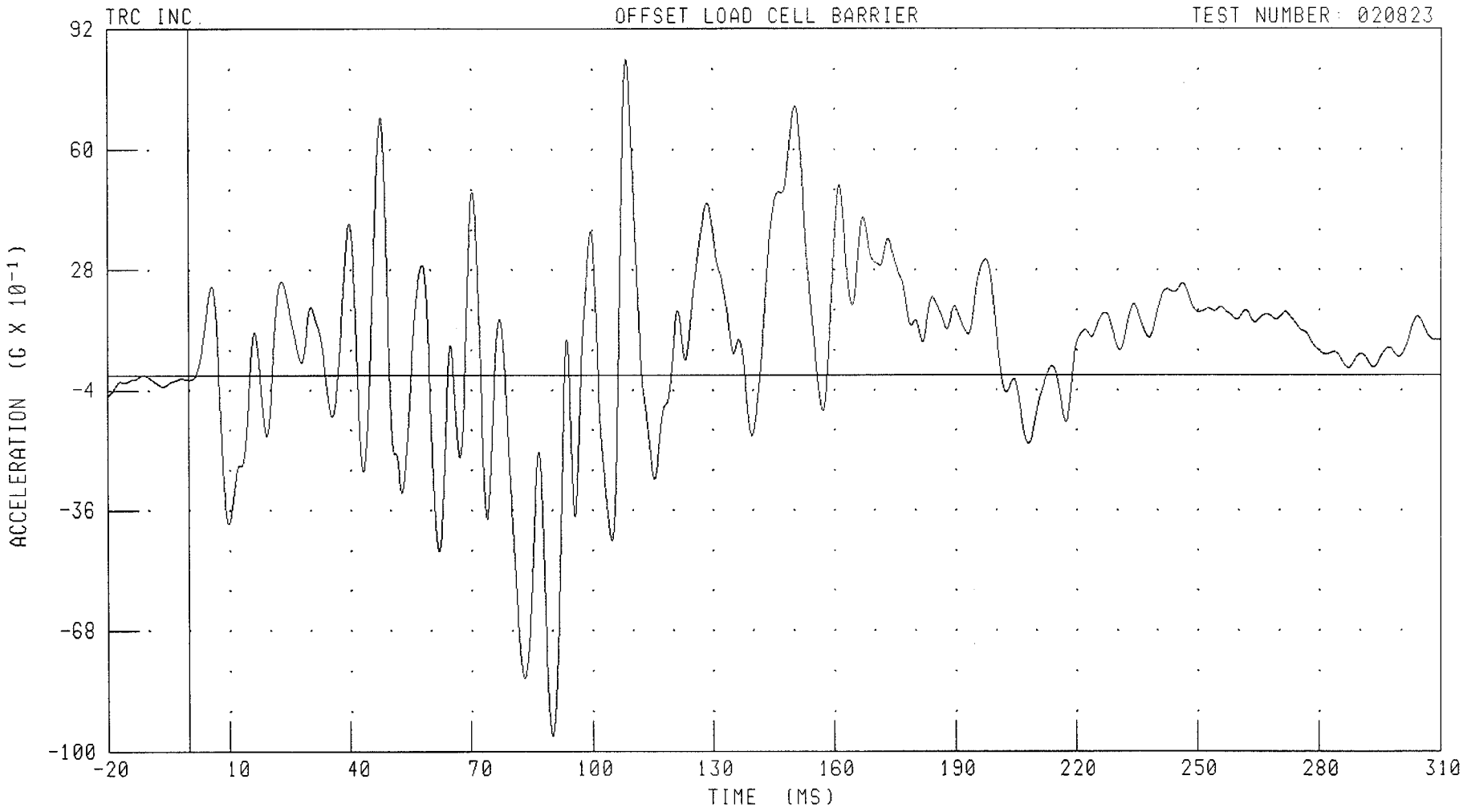
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: VCGRG1 FILTER: CH. CLASS 60 PEAK DATA: 24.37 G @ 89.92 MS; 0.07 G @ -6.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

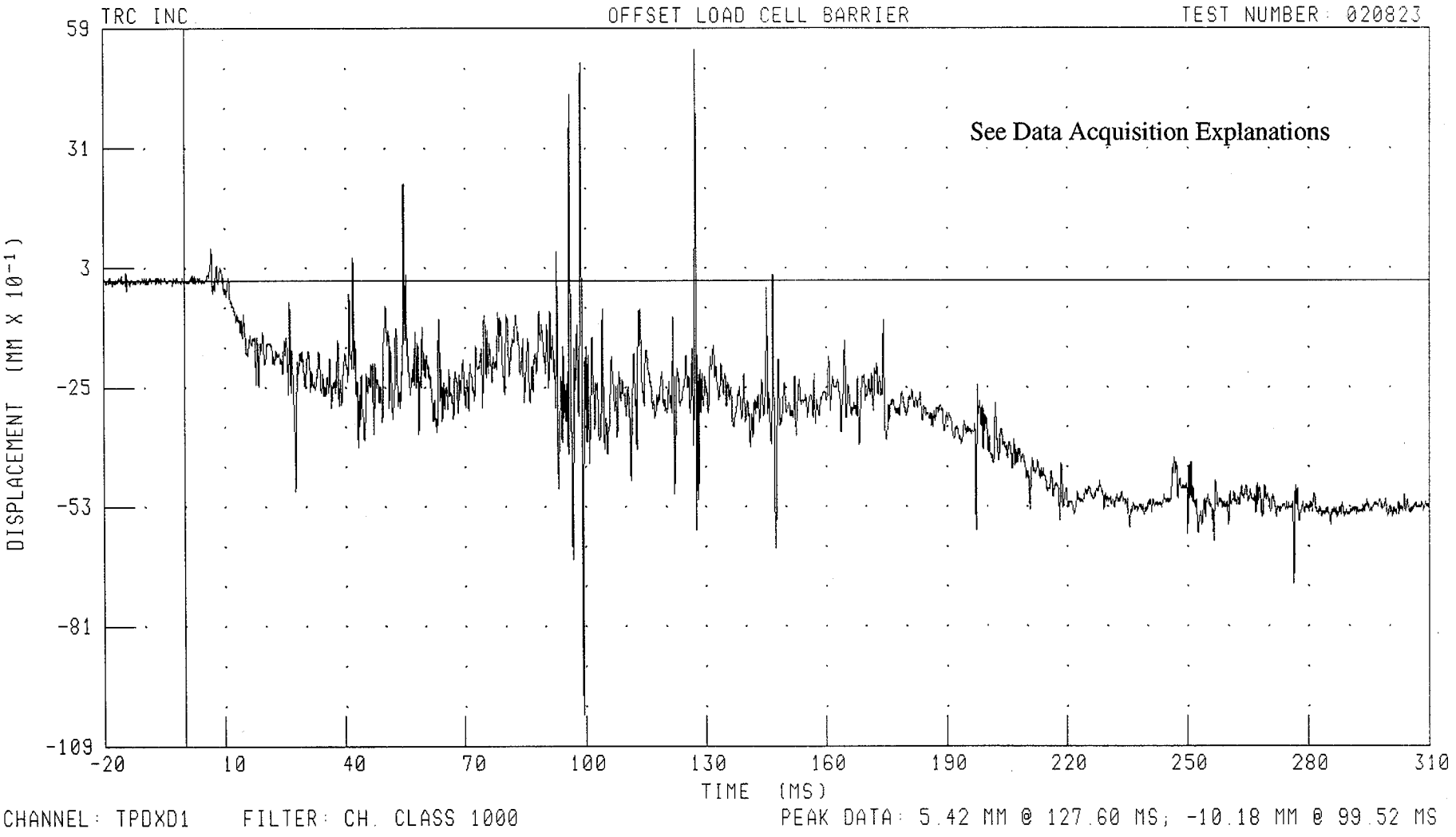
REAR DECK Z-AXIS ACCELERATION



CHANNEL: RDKZG1 FILTER: CH. CLASS 60 PEAK DATA: 8.38 G @ 108.56 MS; -9.60 G @ 90.08 MS

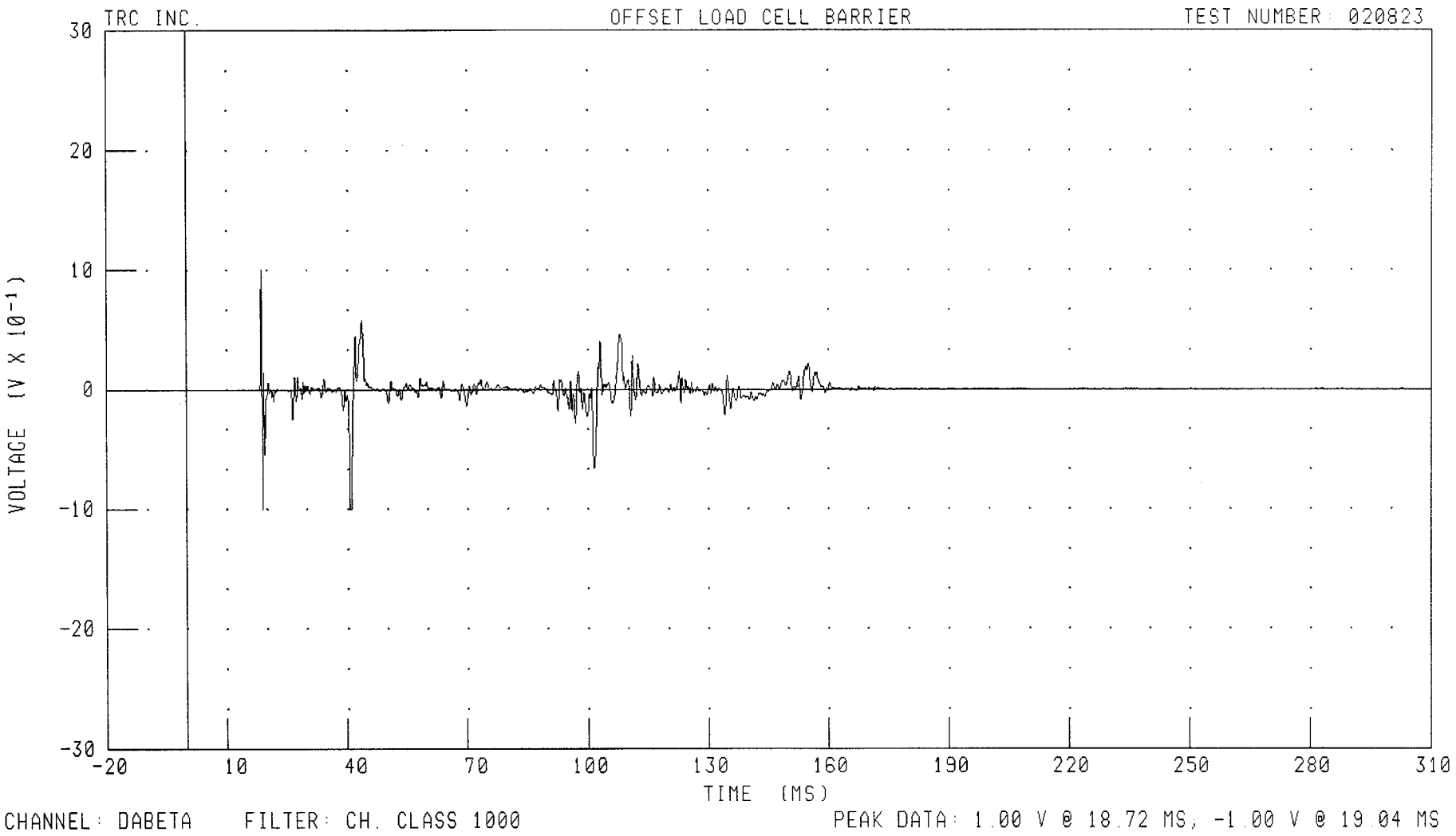
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

TOE PAN X-AXIS DISPLACEMENT



CHANNEL: TPDXD1 FILTER: CH. CLASS 1000 PEAK DATA: 5.42 MM @ 127.60 MS; -10.18 MM @ 99.52 MS

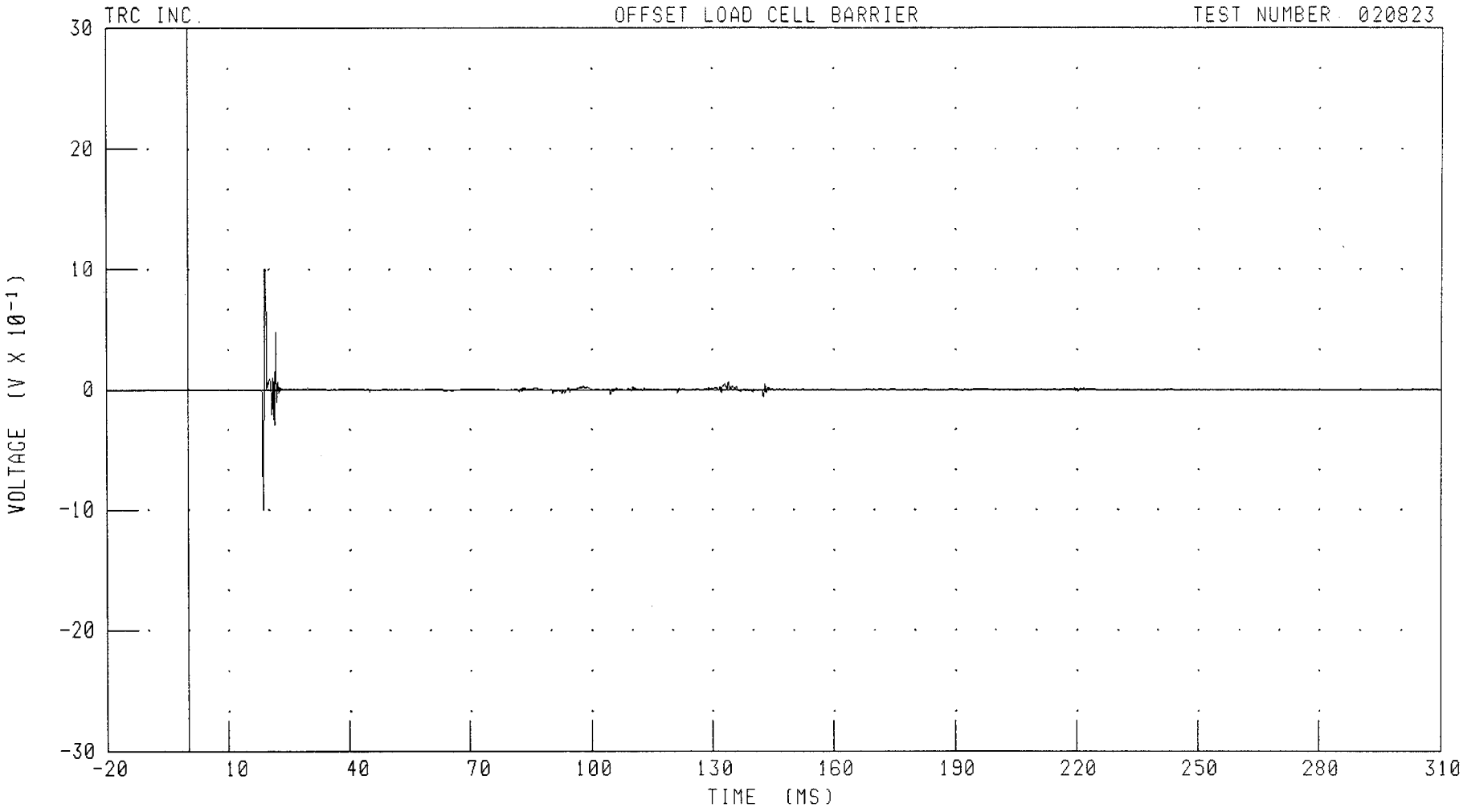
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
DRIVER AIRBAG EVENT - WIRE A



CHANNEL: DABETA FILTER: CH. CLASS 1000 PEAK DATA: 1.00 V @ 18.72 MS, -1.00 V @ 19.04 MS

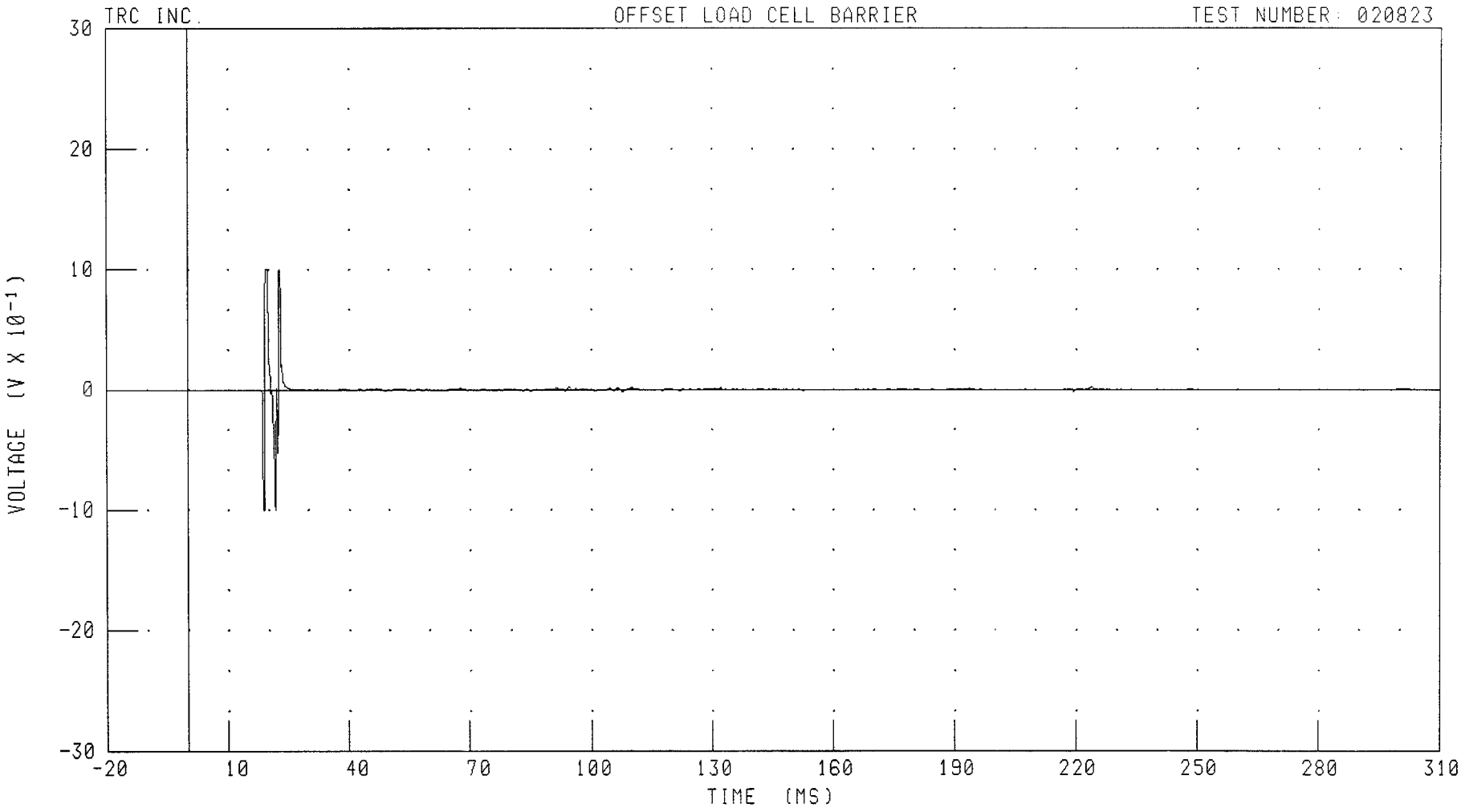
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER AIRBAG EVENT - WIRE A



CHANNEL: PABETA FILTER: CH. CLASS 1000 PEAK DATA: 1.00 V @ 19.04 MS; -1.00 V @ 18.80 MS

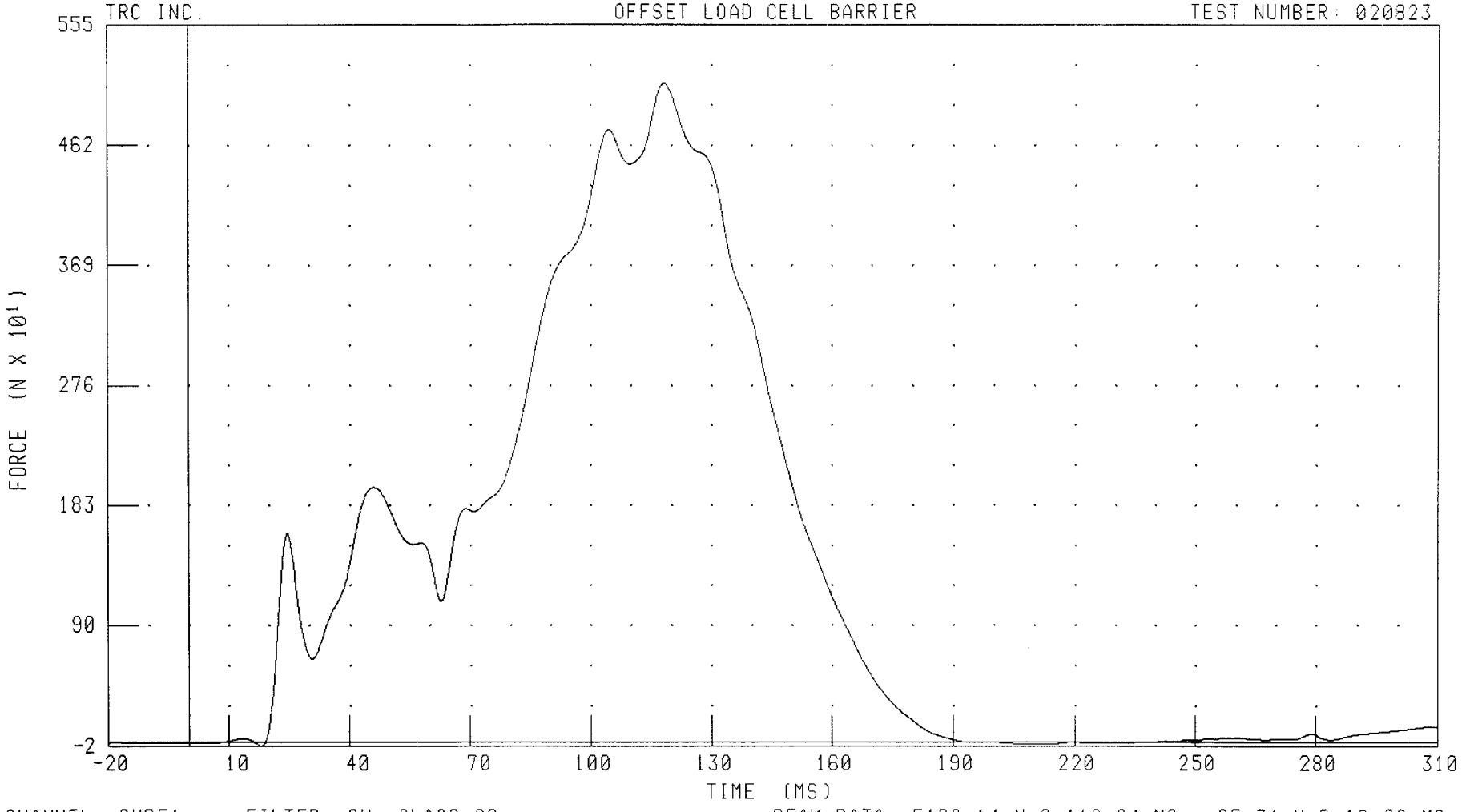
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
PASSENGER AIRBAG EVENT - WIRE B



CHANNEL: PABETB FILTER: CH. CLASS 1000 PEAK DATA: 1.00 V @ 19.28 MS; -1.00 V @ 18.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

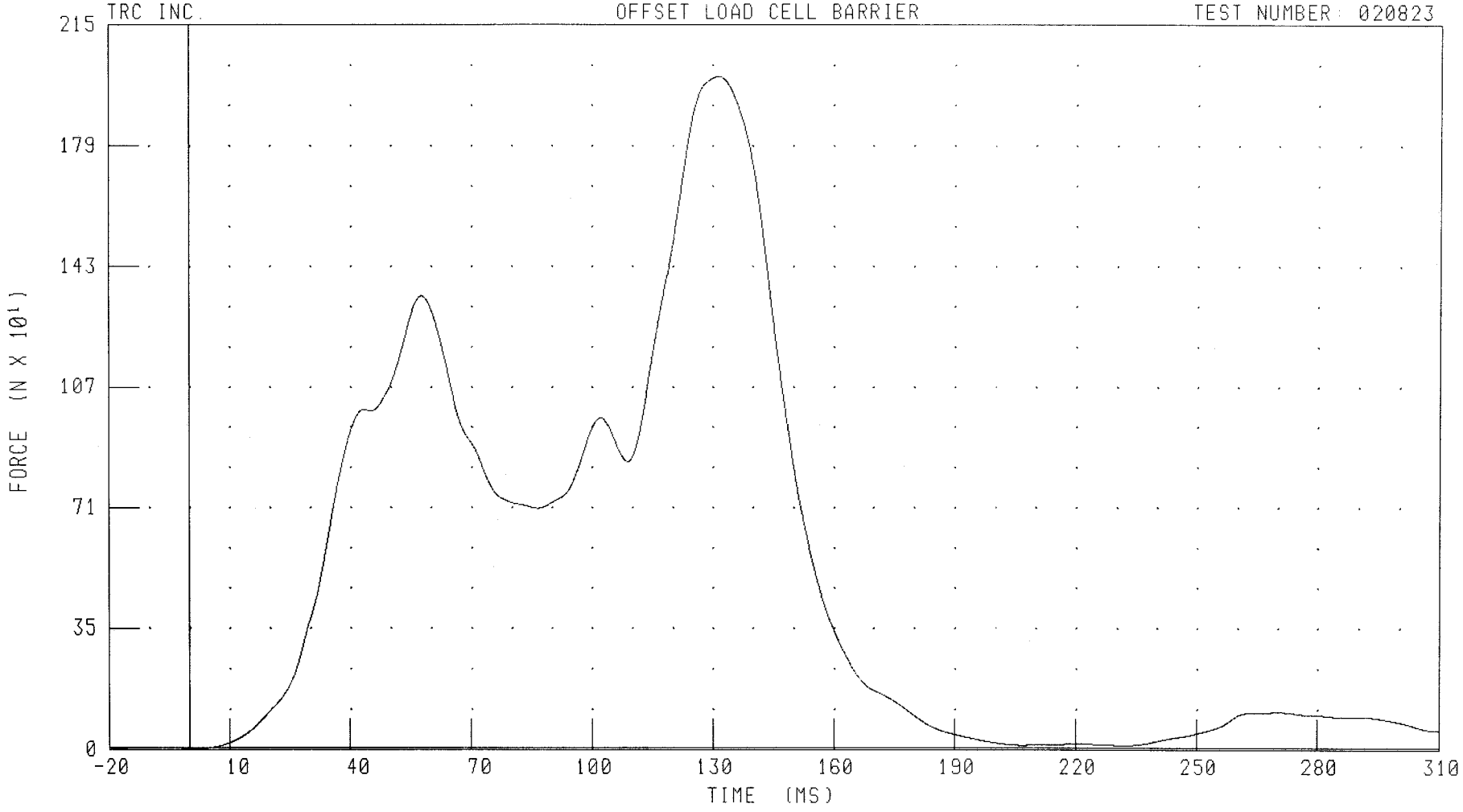
DRIVER SHOULDER BELT FORCE



CHANNEL: SHBF1 FILTER: CH. CLASS 60 PEAK DATA: 5100.14 N @ 118.24 MS; -25.34 N @ 18.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

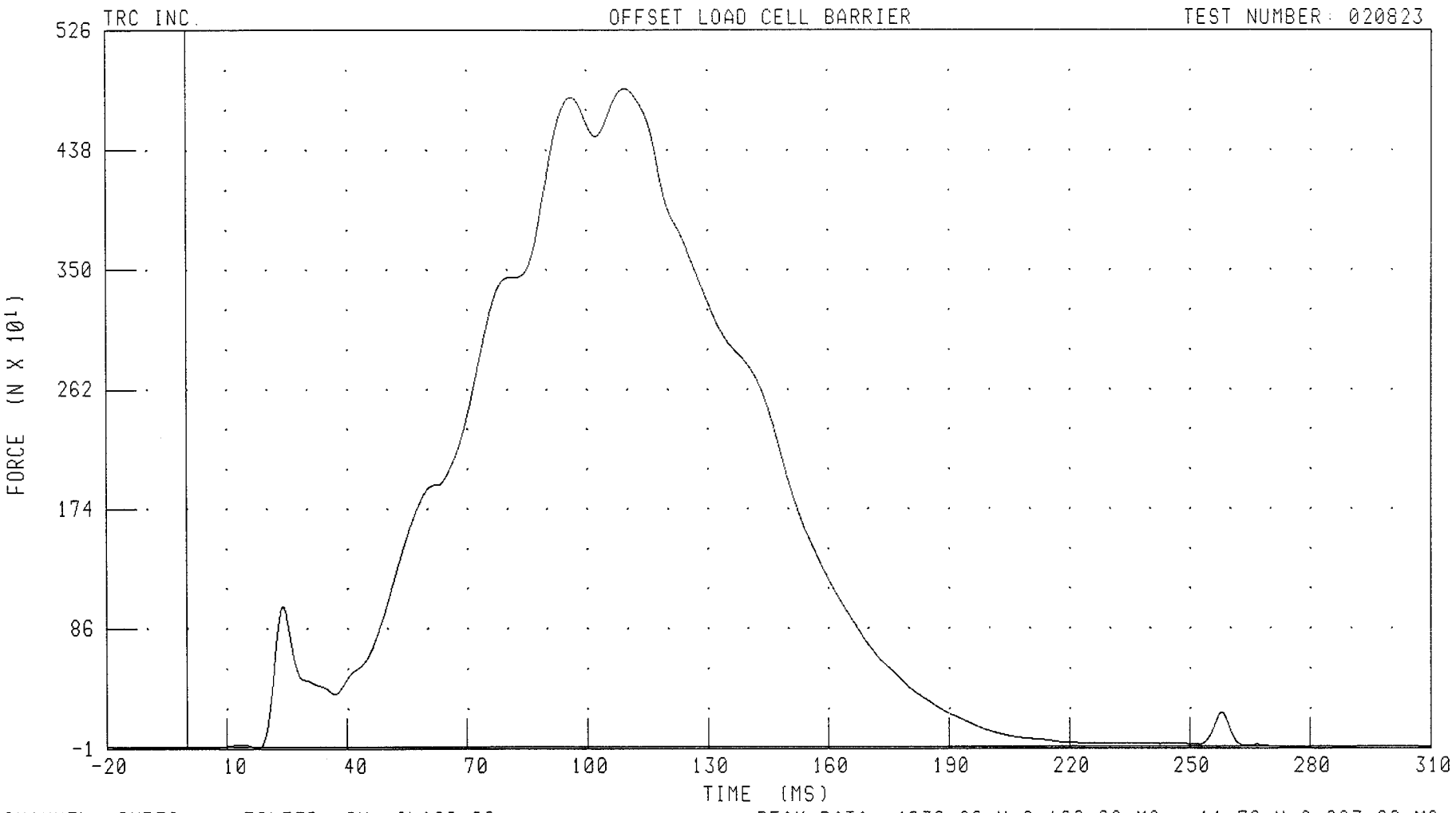
DRIVER LAP BELT FORCE



CHANNEL: LPBF1 FILTER: CH. CLASS 60 PEAK DATA: 2001.23 N @ 131.68 MS; -4.74 N @ -6.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER SHOULDER BELT FORCE

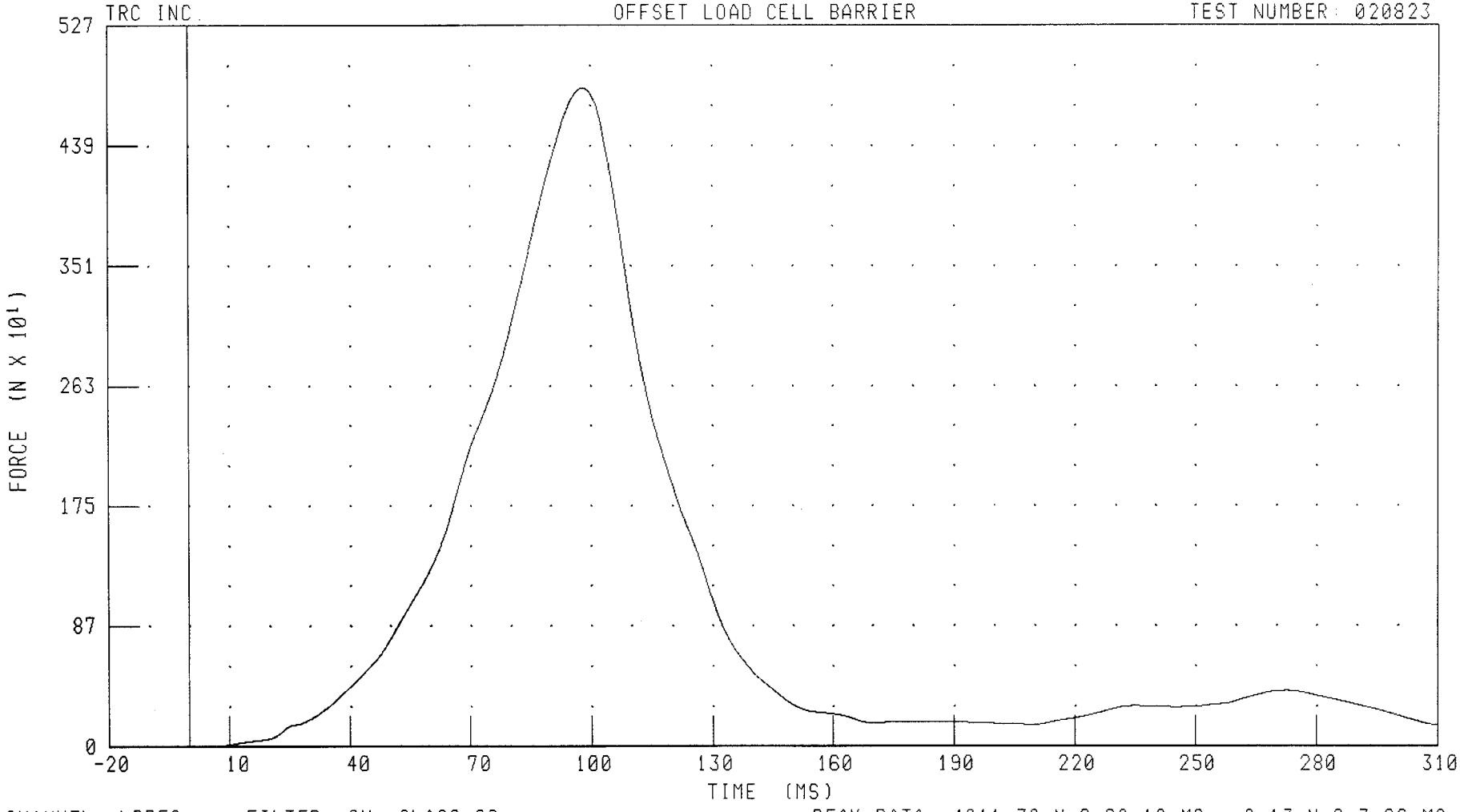


CHANNEL: SHBF2 FILTER: CH. CLASS 60 PEAK DATA: 4839.60 N @ 109.60 MS; -11.76 N @ 283.20 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

PASSENGER LAP BELT FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

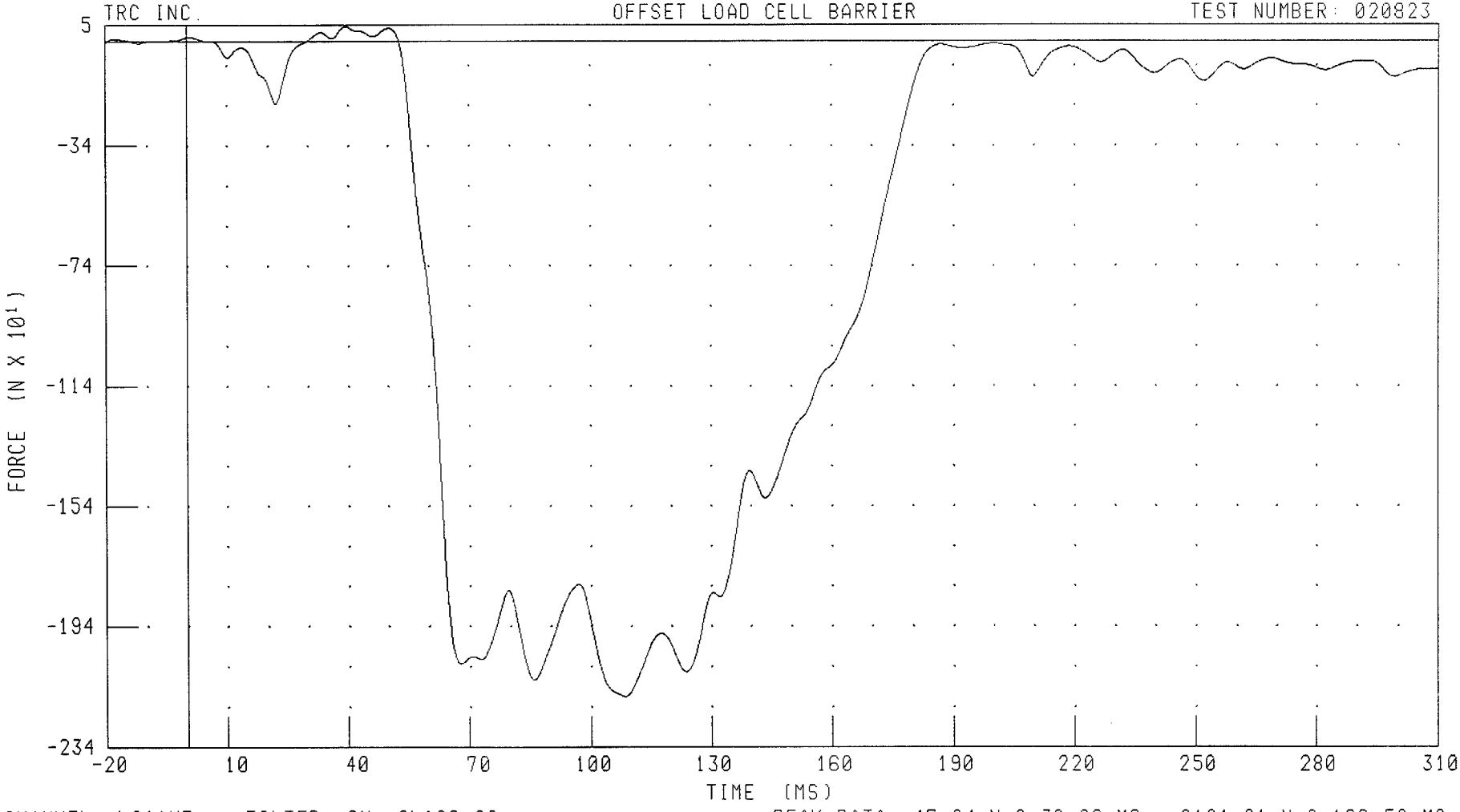


CHANNEL: LPBF2 FILTER: CH. CLASS 60 PEAK DATA: 4811.36 N @ 98.16 MS; -8.13 N @ 3.92 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL A1 X-AXIS FORCE

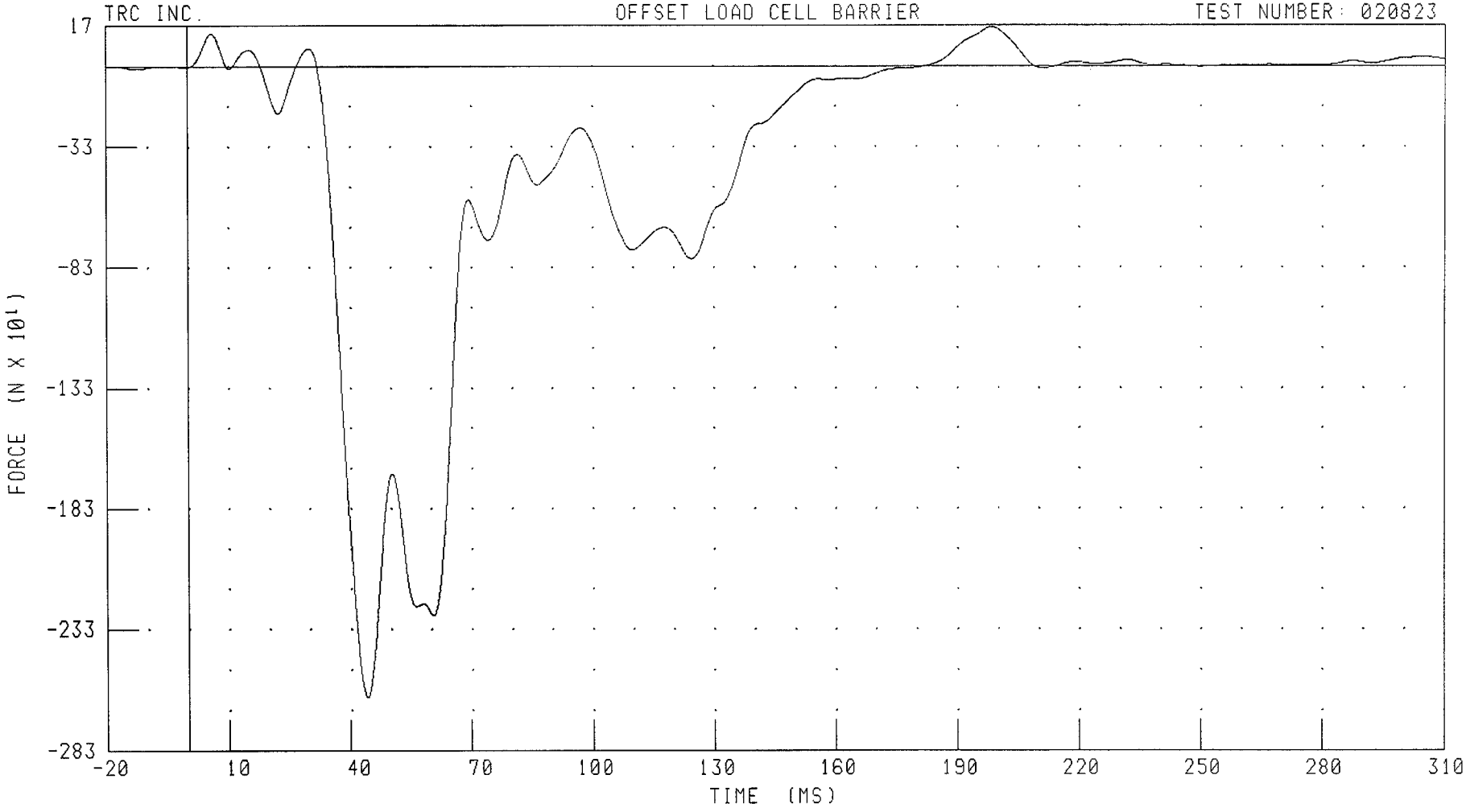
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LCA1XF FILTER: CH. CLASS 60 PEAK DATA: 47.84 N @ 39.60 MS; -2181.21 N @ 108.56 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL A2 X-AXIS FORCE

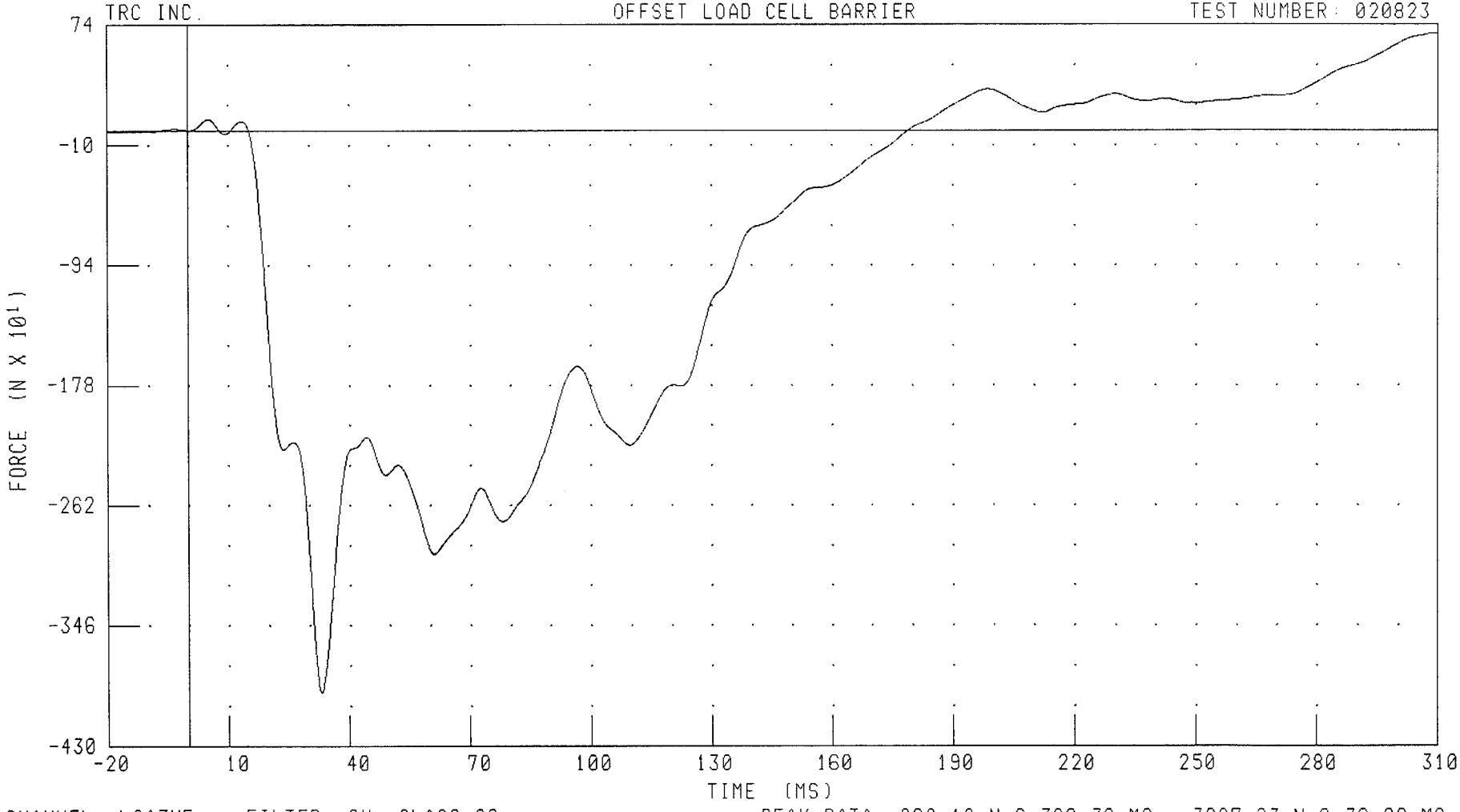


CHANNEL: LCA2XF FILTER: CH. CLASS 60 PEAK DATA: 162.91 N @ 198.64 MS; -2610.84 N @ 44 24 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL A3 X-AXIS FORCE

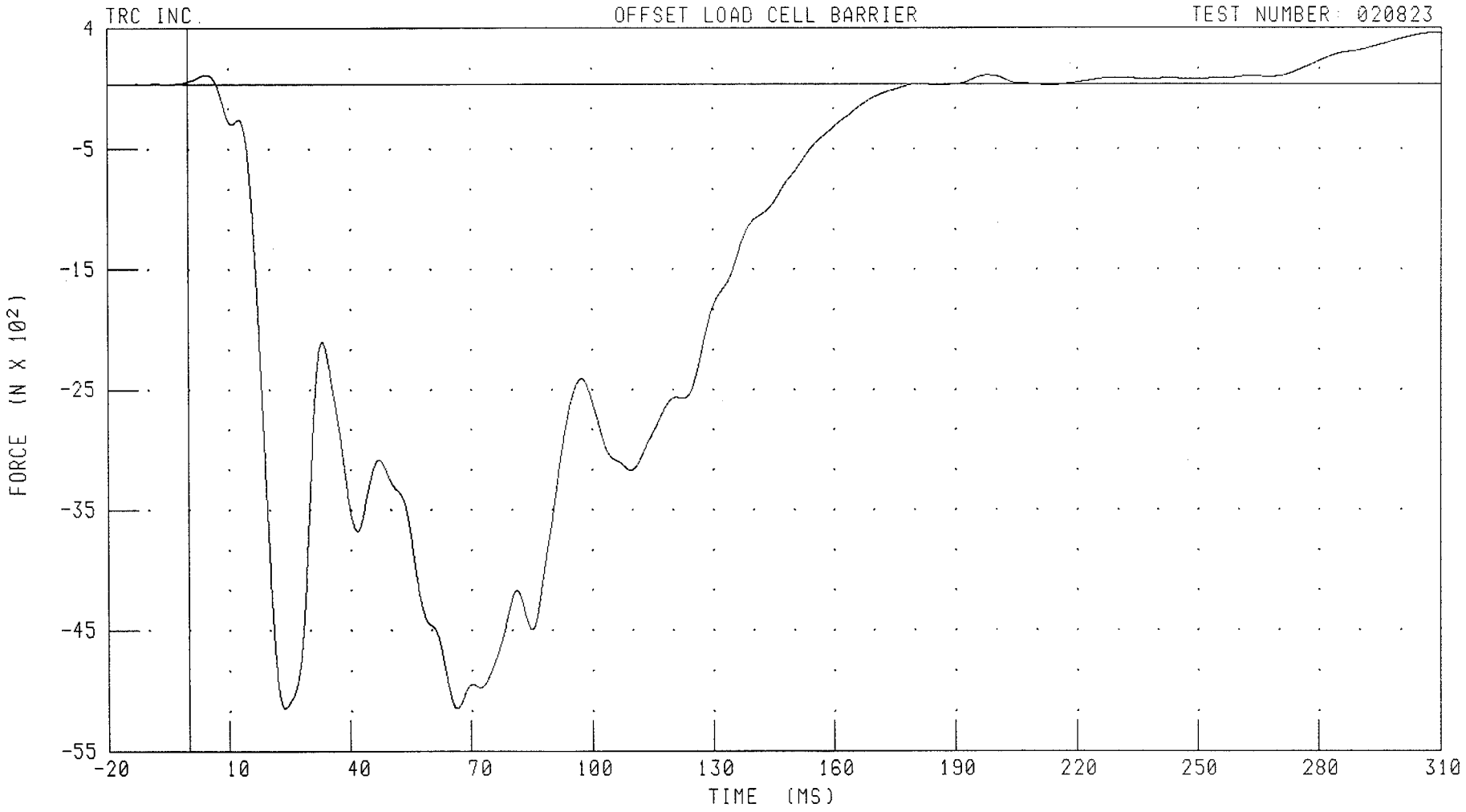
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LCA3XF FILTER: CH. CLASS 60 PEAK DATA: 680.18 N @ 309.36 MS, -3927.93 N @ 32.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

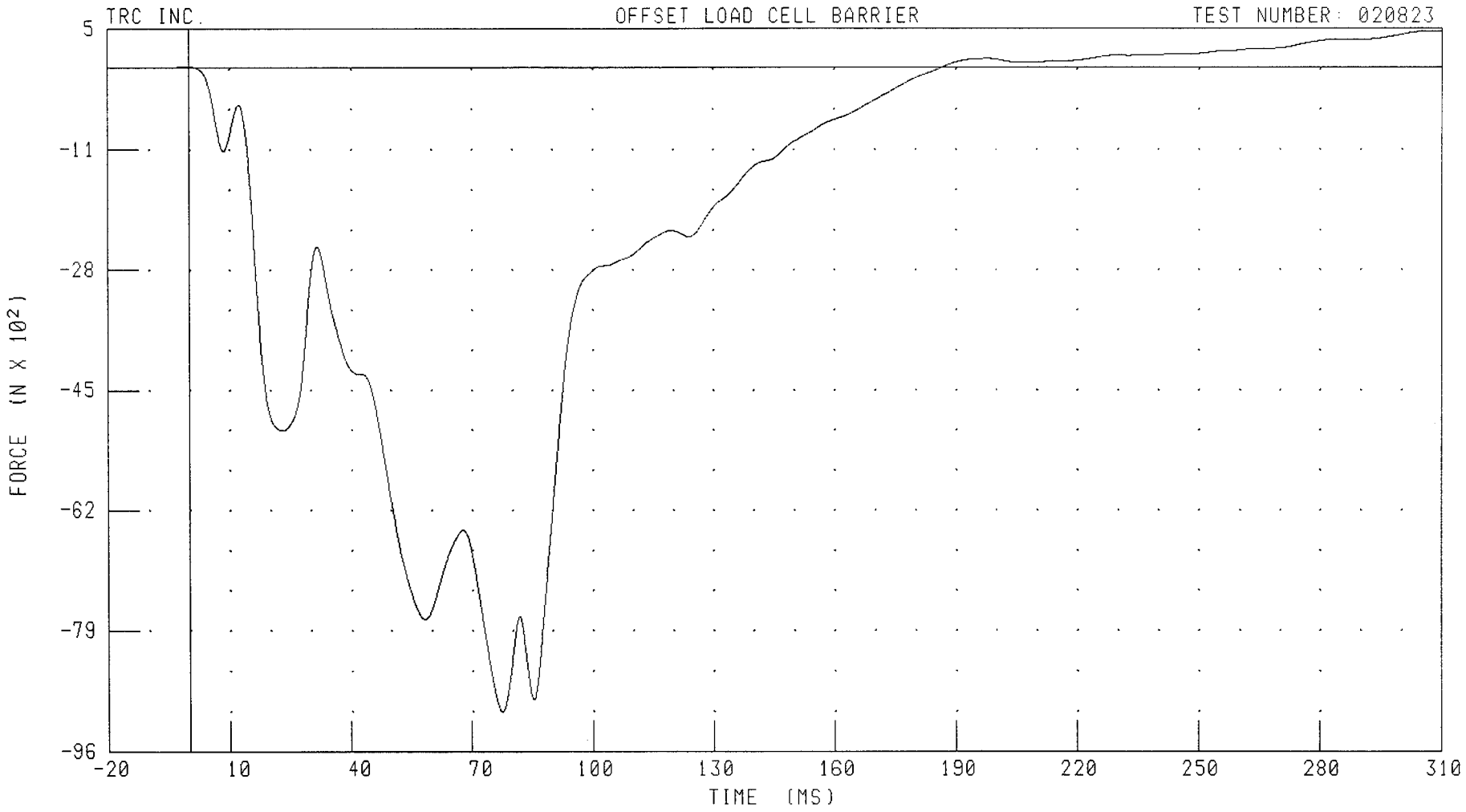
BARRIER LOAD CELL A4 X-AXIS FORCE



CHANNEL: LCA4XF FILTER: CH. CLASS 60 PEAK DATA: 421.67 N @ 309.36 MS; -5187.24 N @ 66.48 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

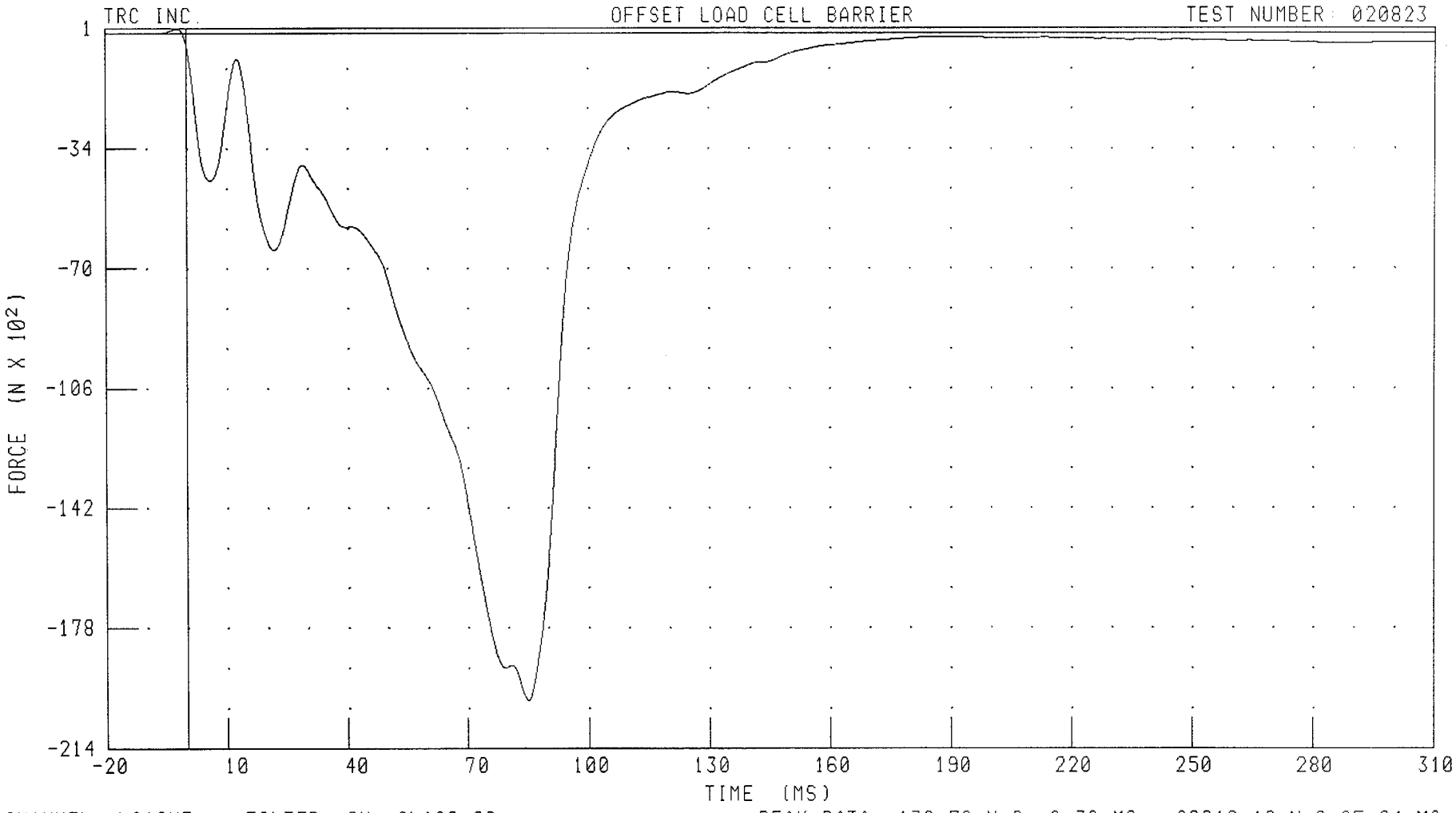
BARRIER LOAD CELL A5 X-AXIS FORCE



CHANNEL: LCA5XF FILTER: CH. CLASS 60 PEAK DATA: 496.52 N @ 308.32 MS; -9105.19 N @ 77.52 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL A6 X-AXIS FORCE

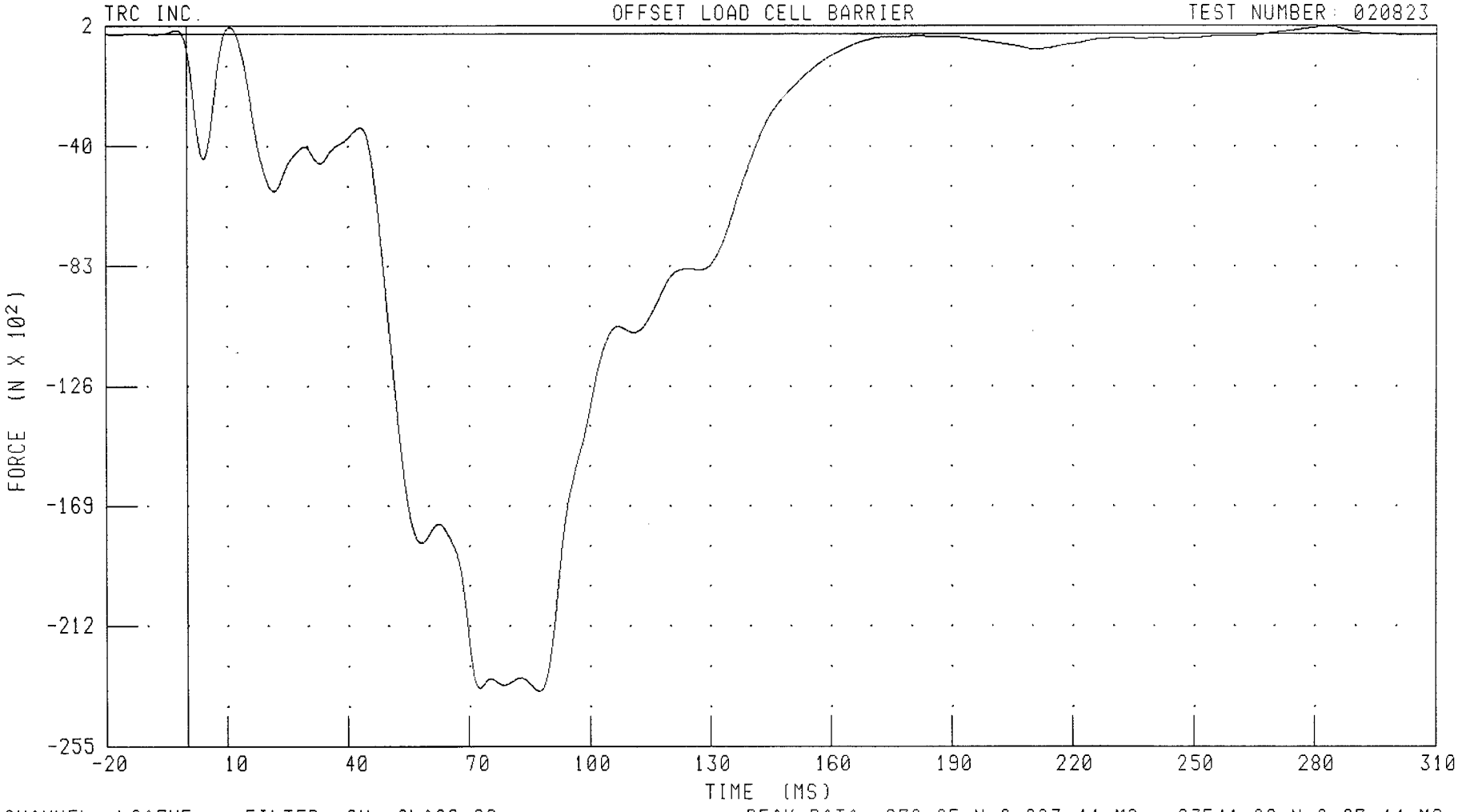


CHANNEL: LCA6XF FILTER: CH. CLASS 60

PEAK DATA: 138.70 N @ -2.32 MS; -20018.18 N @ 85.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL A7 X-AXIS FORCE

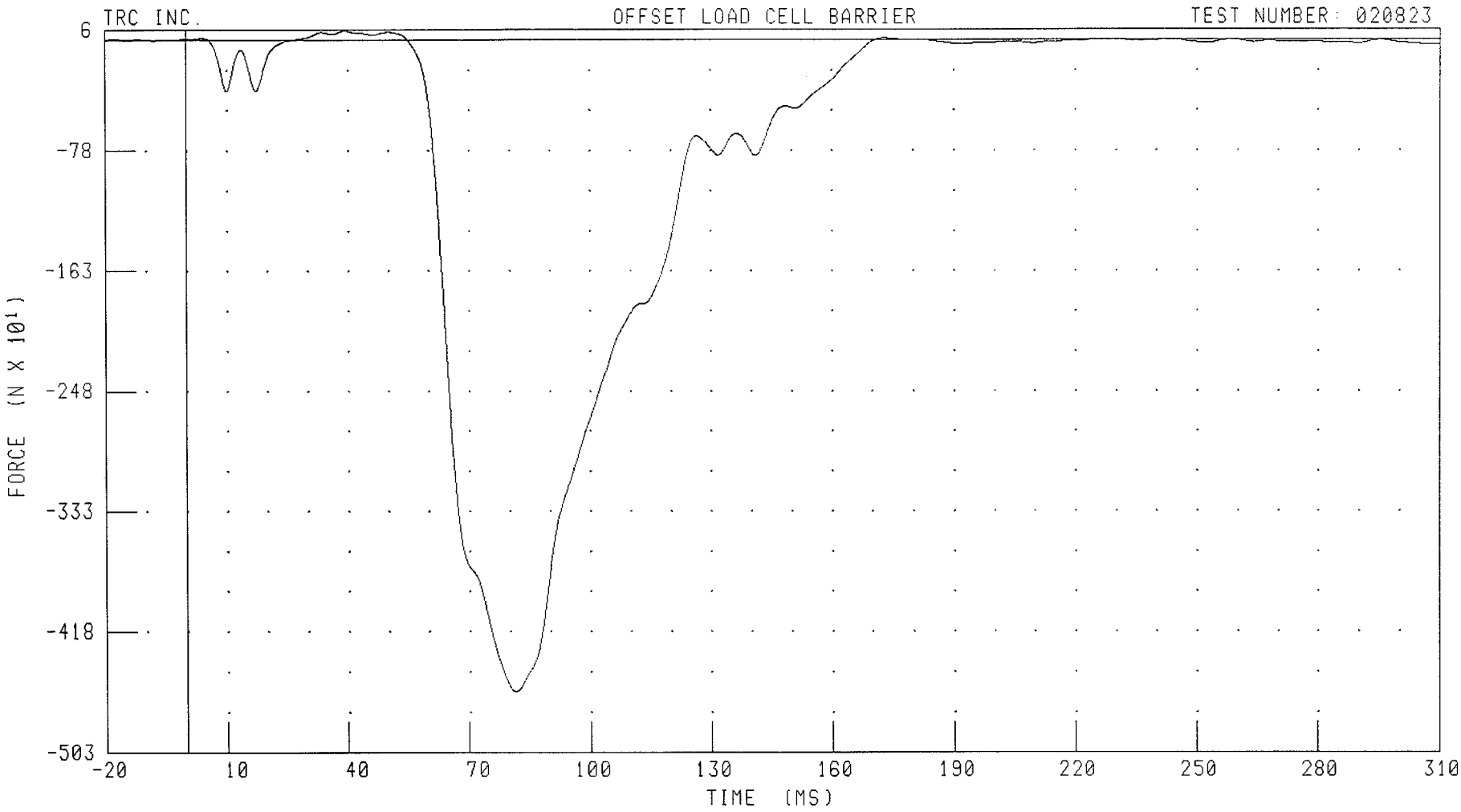


CHANNEL: LCA7XF FILTER: CH. CLASS 60

PEAK DATA: 270.05 N @ 283.44 MS; -23541.96 N @ 87.44 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL B1 X-AXIS FORCE

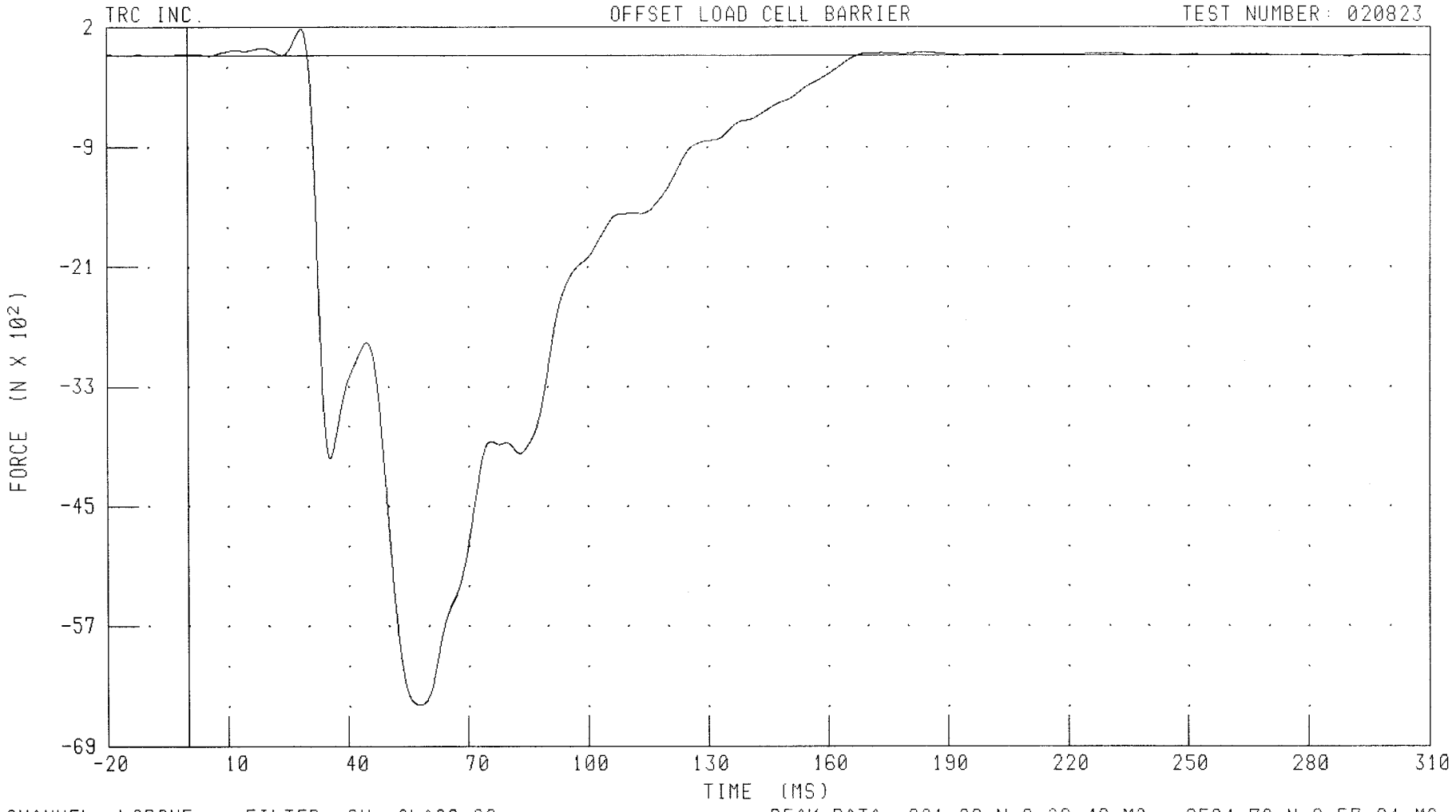


CHANNEL: LCB1XF FILTER: CH. CLASS 60

PEAK DATA: 61.27 N @ 39.36 MS; -4606.05 N @ 81.52 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL B2 X-AXIS FORCE

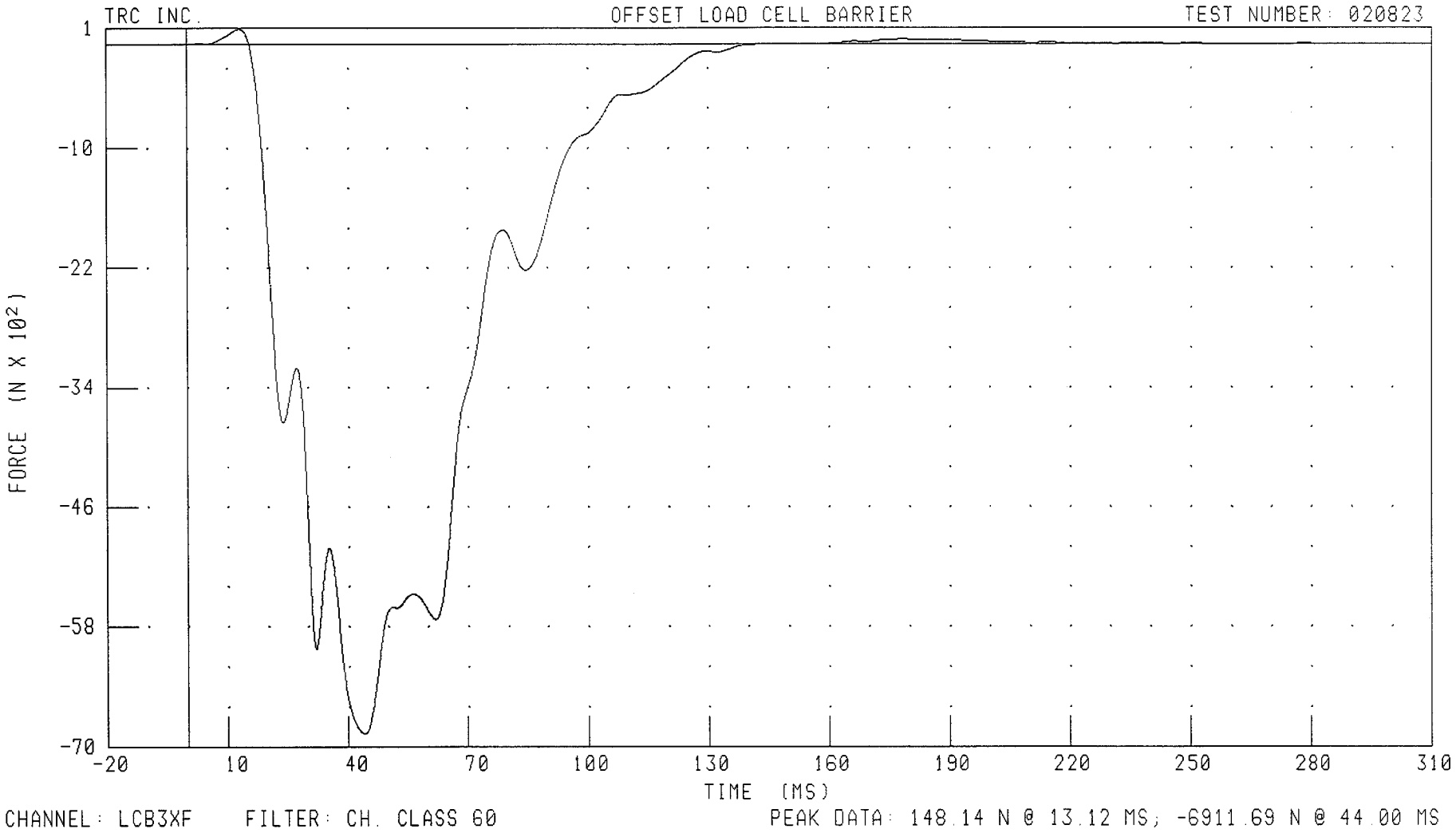


CHANNEL: LCB2XF FILTER: CH. CLASS 60

PEAK DATA: 261.89 N @ 28.40 MS, -6504.70 N @ 57.84 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

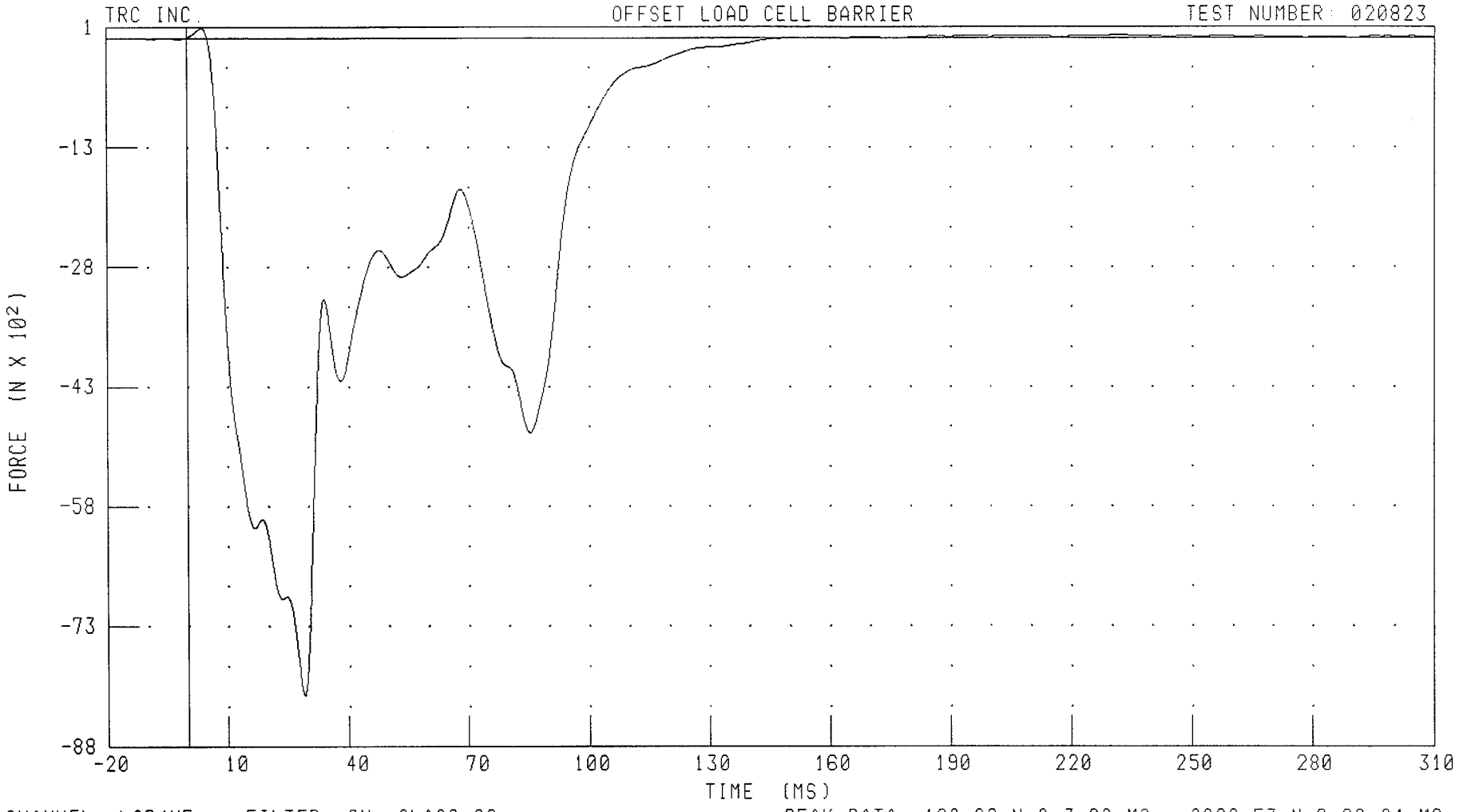
BARRIER LOAD CELL B3 X-AXIS FORCE



CHANNEL: LCB3XF FILTER: CH. CLASS 60 PEAK DATA: 148.14 N @ 13.12 MS; -6911.69 N @ 44.00 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL B4 X-AXIS FORCE

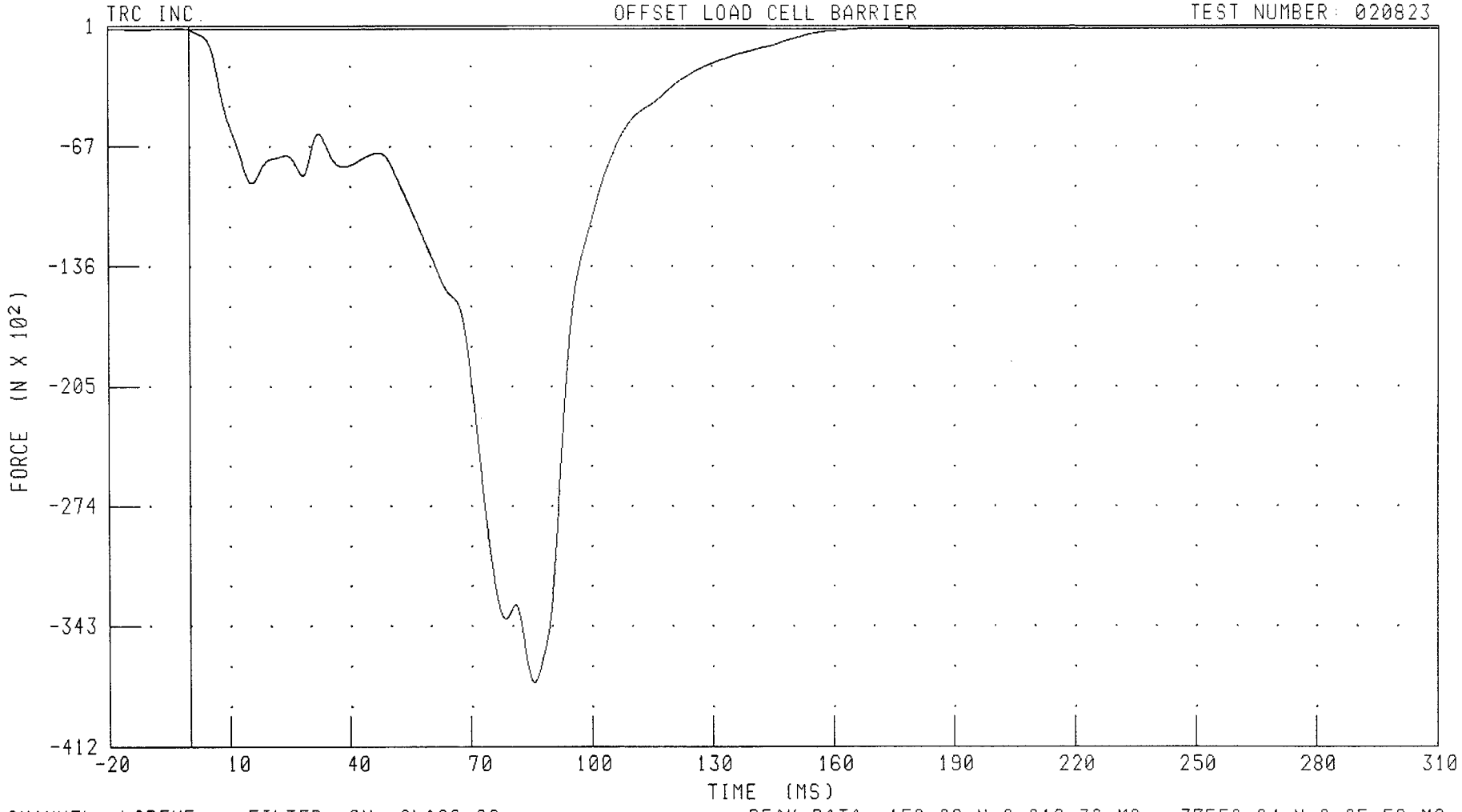


CHANNEL: LCB4XF FILTER: CH. CLASS 60

PEAK DATA: 129.98 N @ 3.68 MS, -8226.53 N @ 29.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

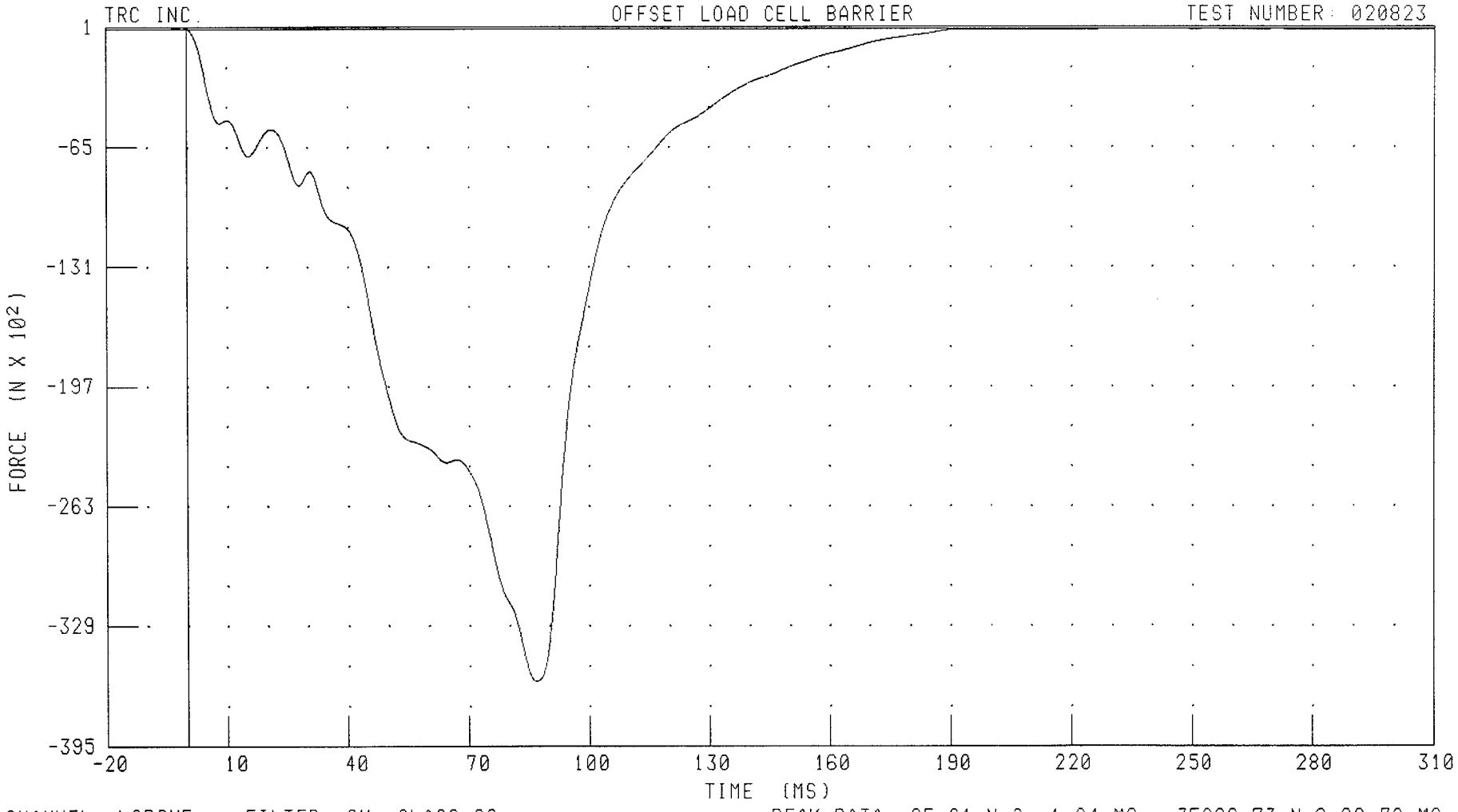
BARRIER LOAD CELL B5 X-AXIS FORCE



CHANNEL: LCB5XF FILTER: CH. CLASS 60 PEAK DATA: 156.09 N @ 219.36 MS; -37558.24 N @ 85.52 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL B6 X-AXIS FORCE

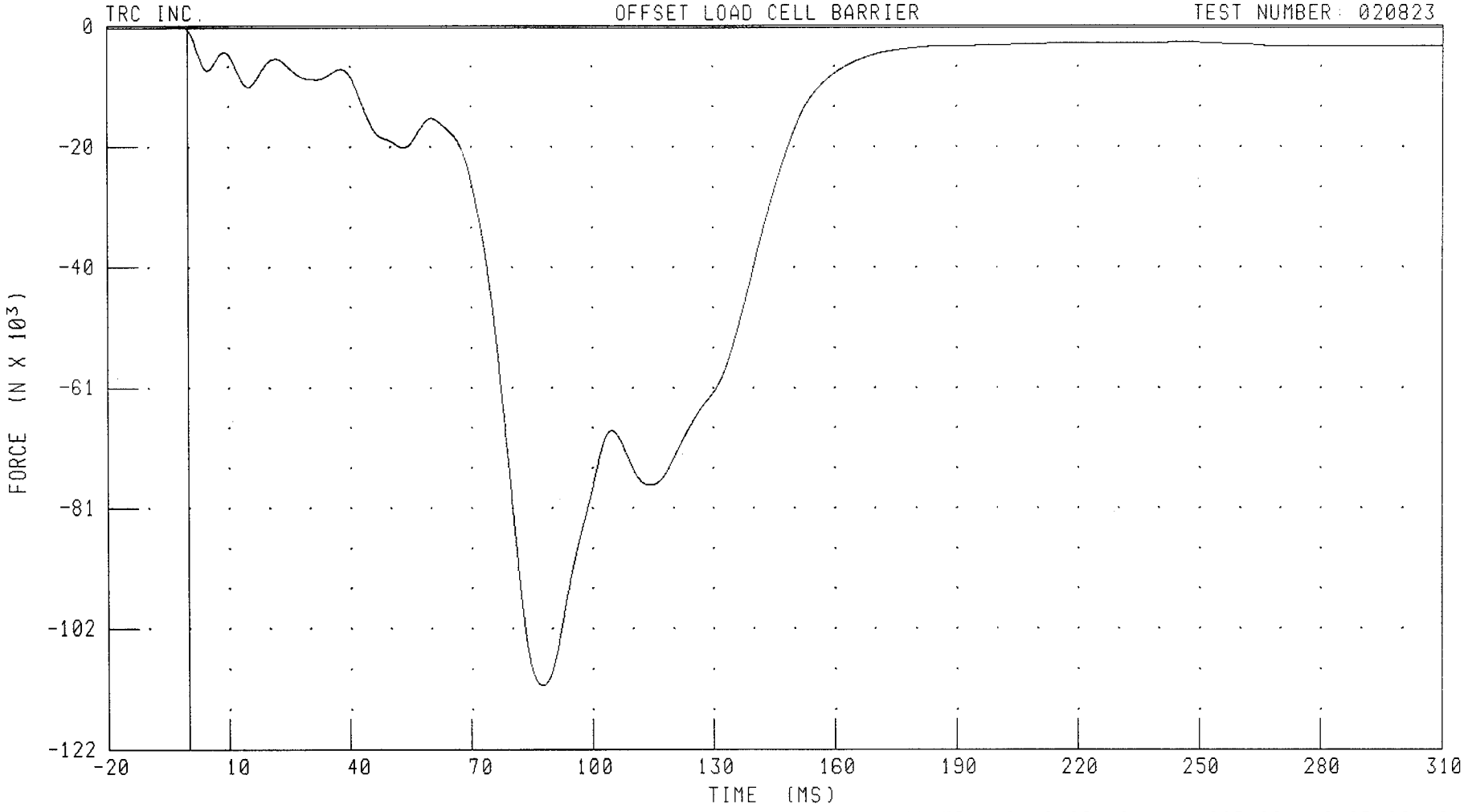


CHANNEL: LCB6XF FILTER: CH. CLASS 60

PEAK DATA: 95.21 N @ -1.04 MS; -35929.73 N @ 86.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

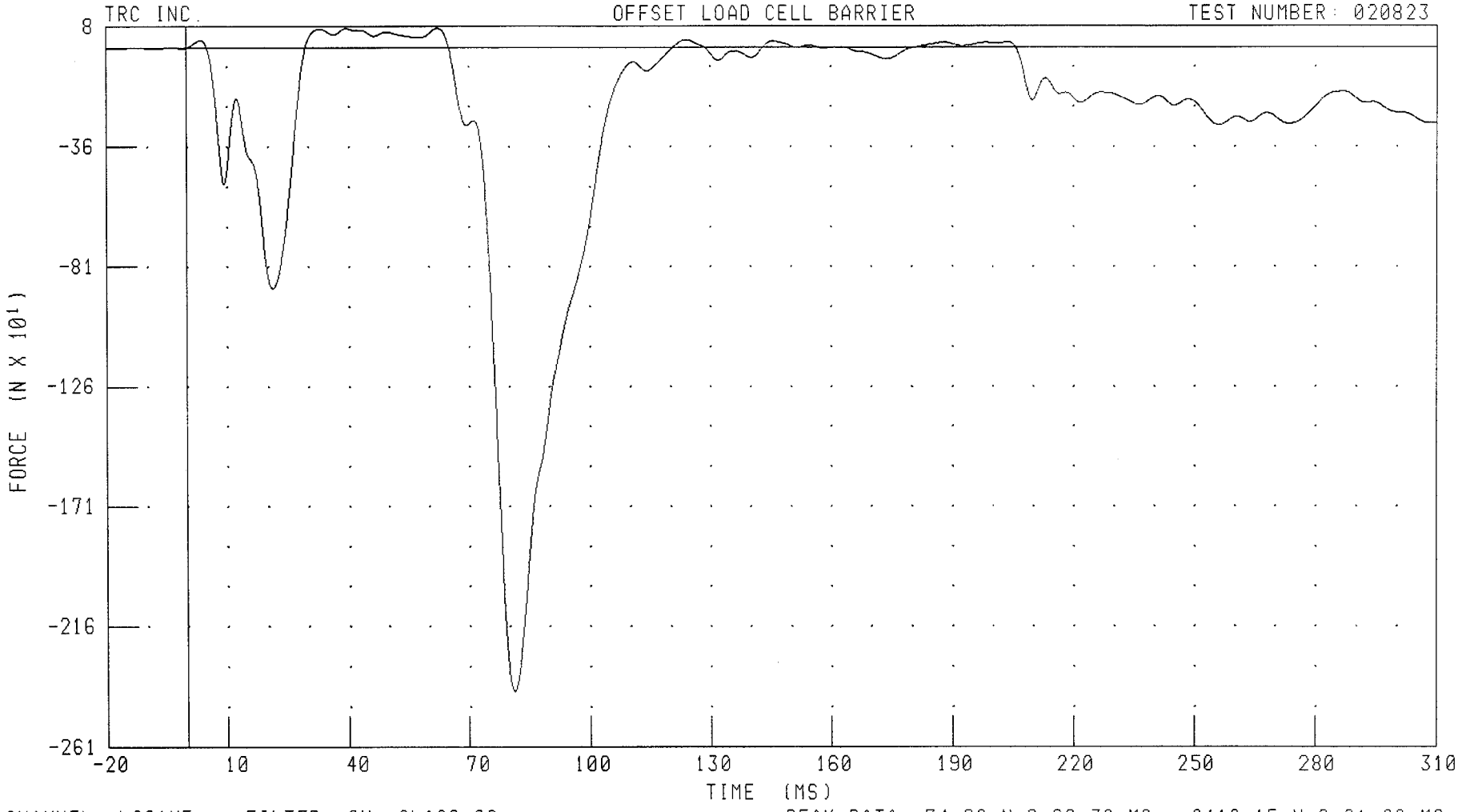
BARRIER LOAD CELL B7 X-AXIS FORCE



CHANNEL: LCB7XF FILTER: CH. CLASS 60 PEAK DATA: 257.53 N @ -2.00 MS; -111867.02 N @ 87.60 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL C1 X-AXIS FORCE

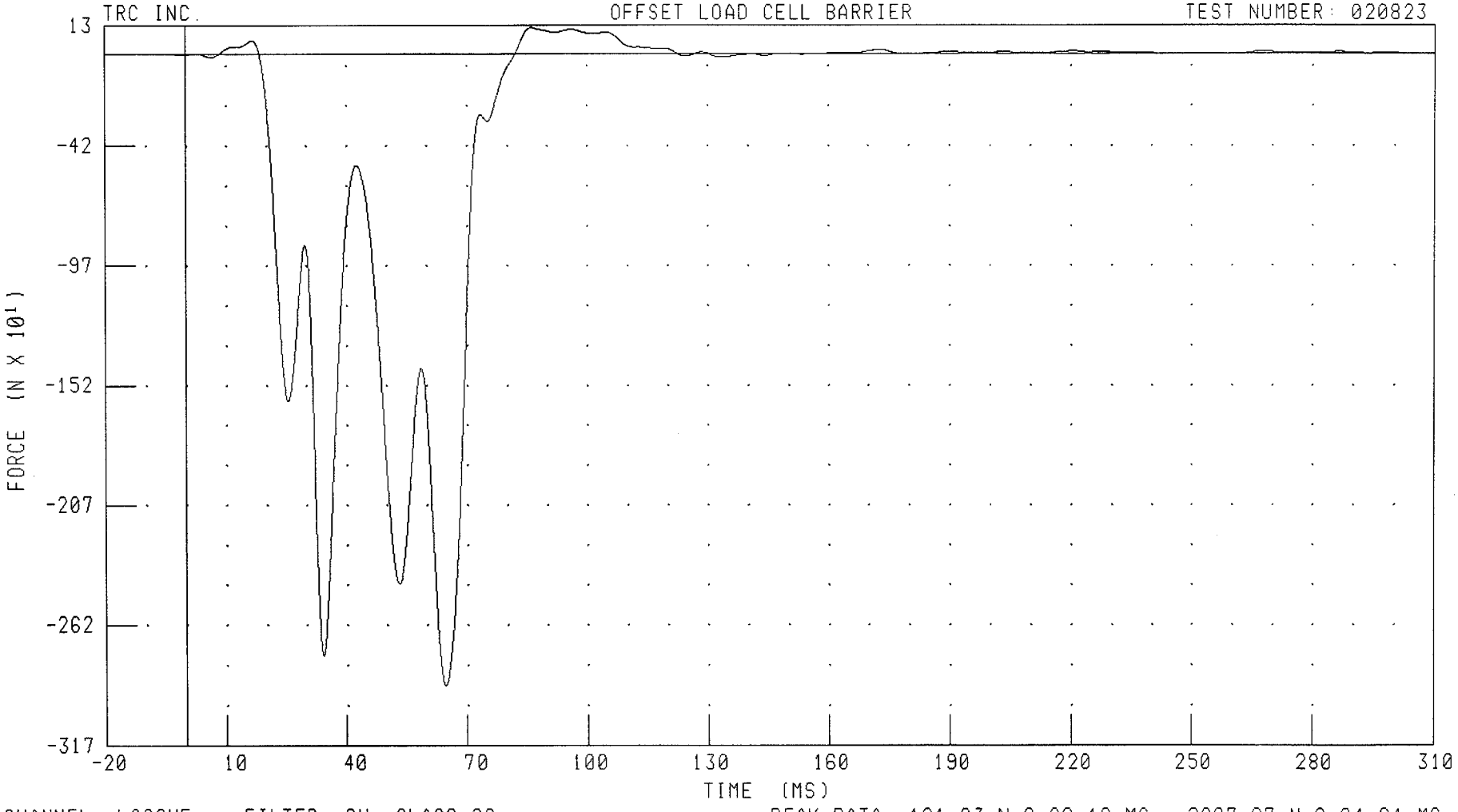


CHANNEL: LCC1XF FILTER: CH. CLASS 60

PEAK DATA: 74.02 N @ 62.32 MS; -2412.15 N @ 81.28 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL C2 X-AXIS FORCE

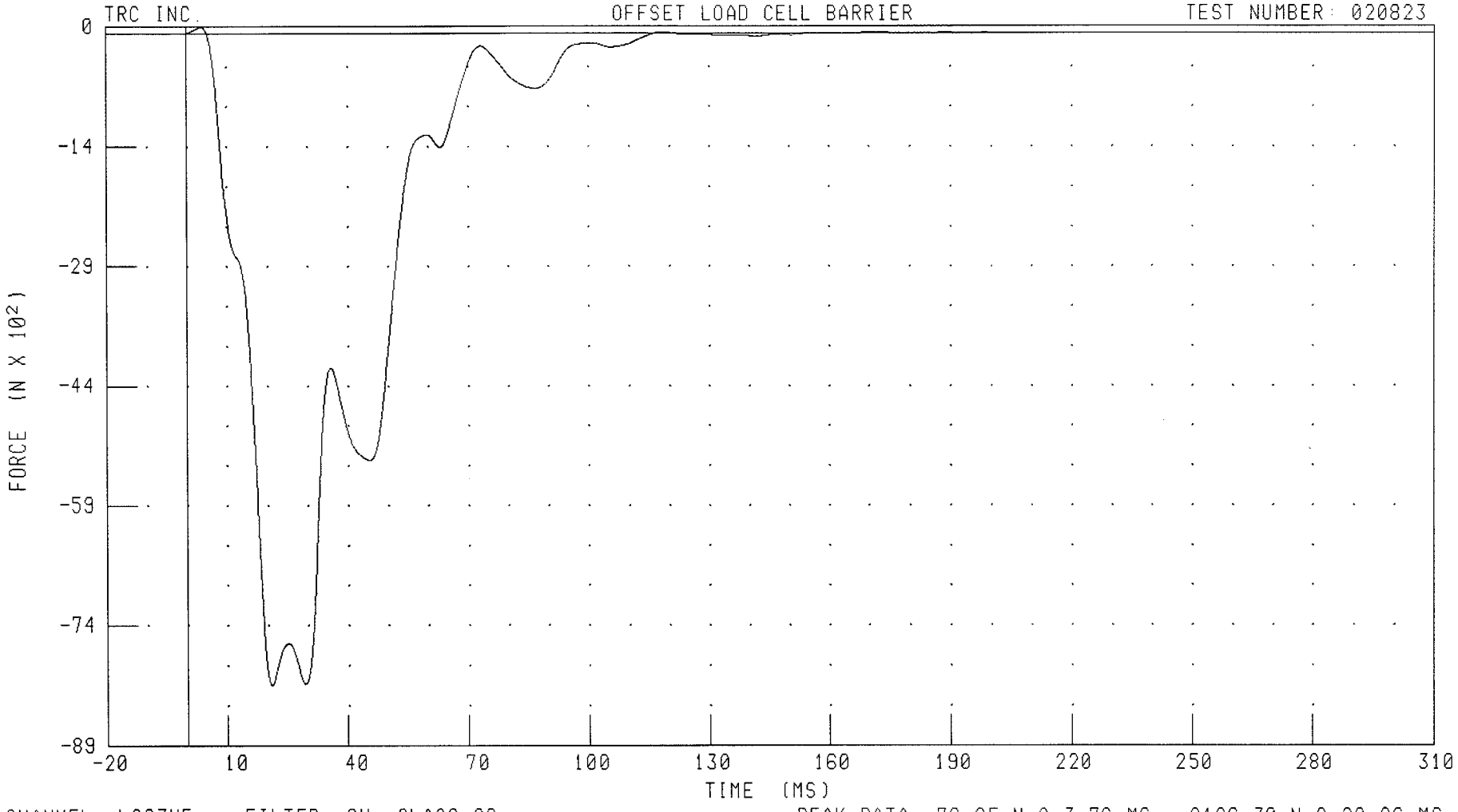


CHANNEL: LCC2XF FILTER: CH. CLASS 60

PEAK DATA: 121.03 N @ 86.16 MS; -2897.97 N @ 64.64 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

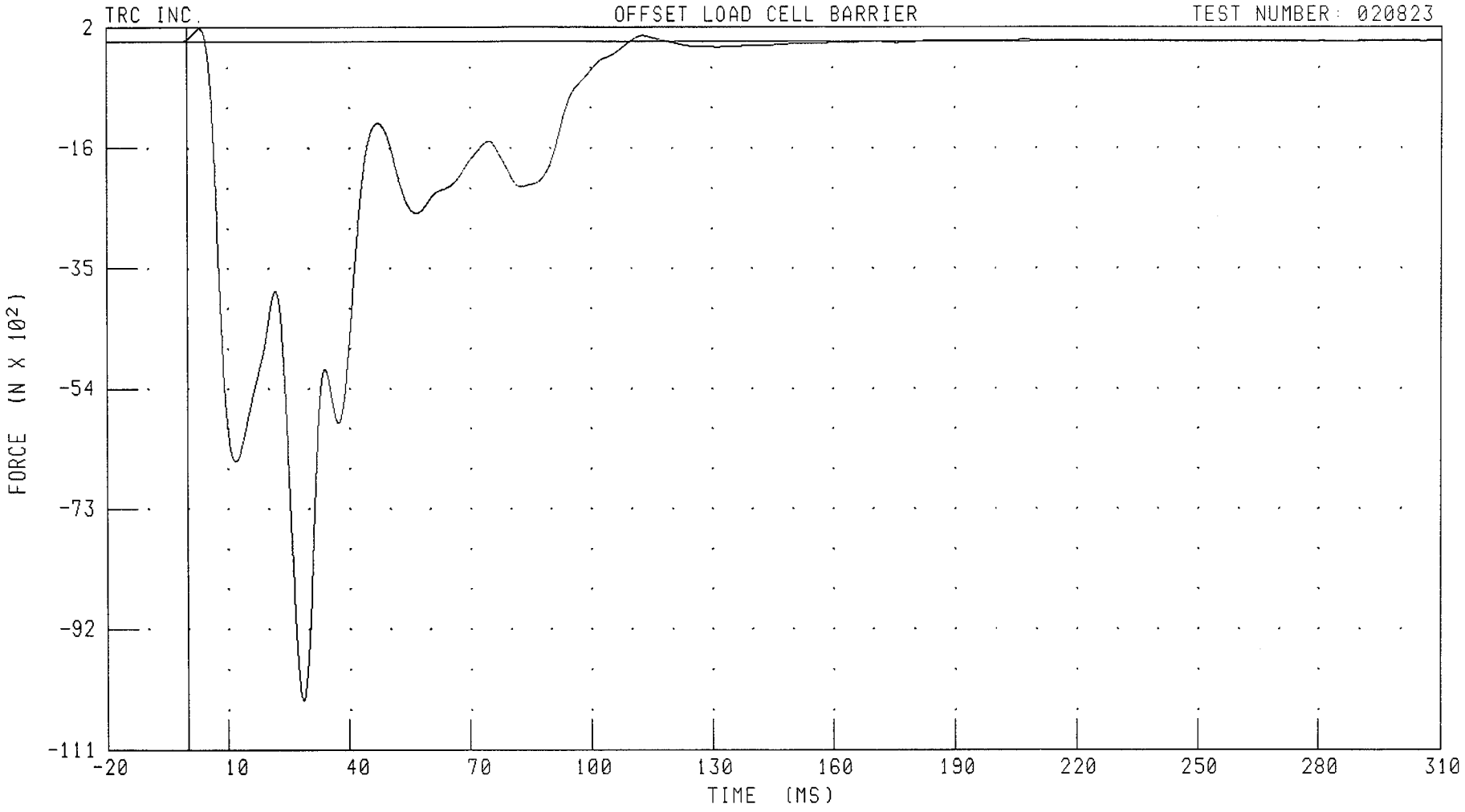
BARRIER LOAD CELL C3 X-AXIS FORCE



CHANNEL: LCC3XF FILTER: CH. CLASS 60 PEAK DATA: 76.65 N @ 3.76 MS, -8166.30 N @ 20.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL C4 X-AXIS FORCE

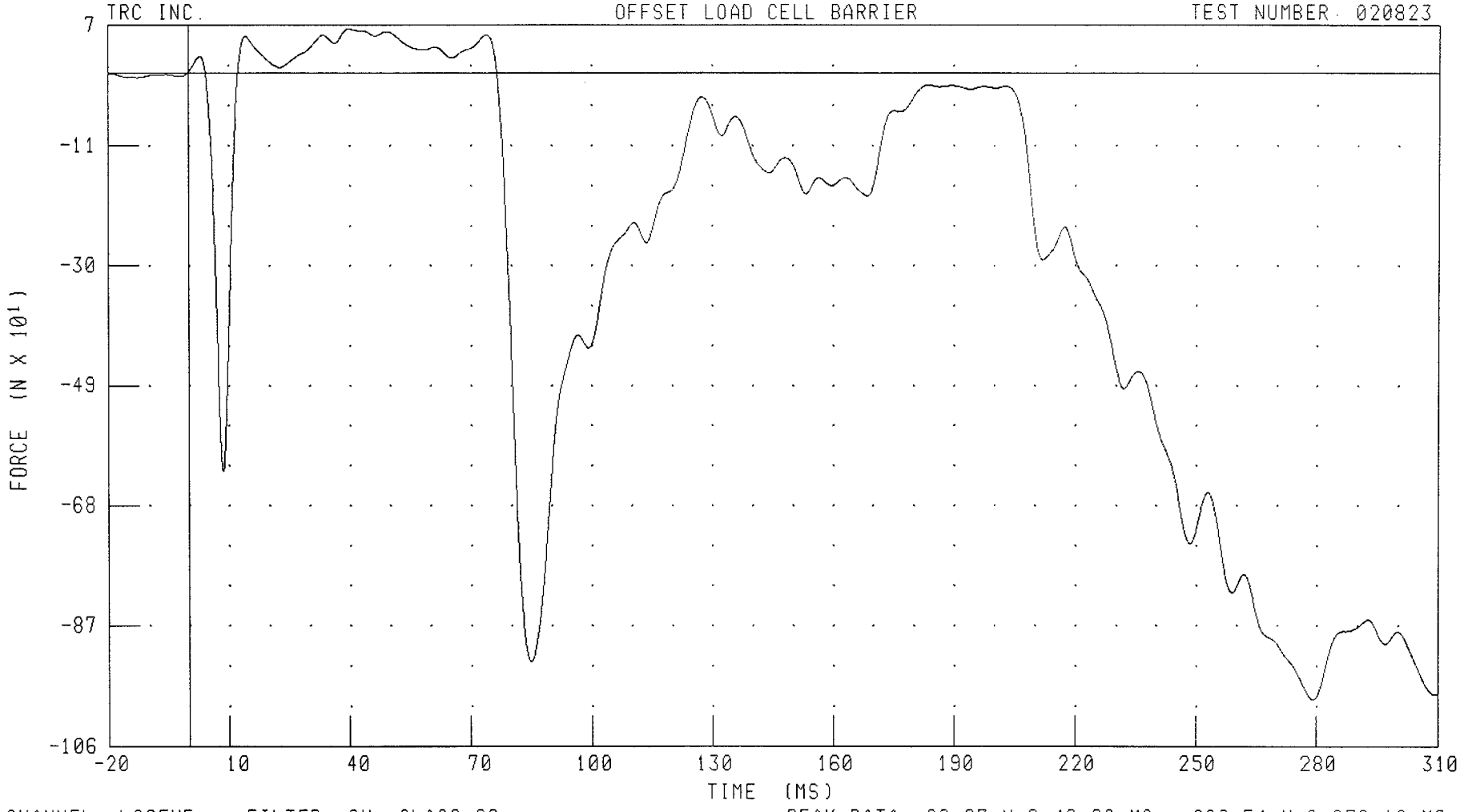


CHANNEL: LCC4XF FILTER: CH. CLASS 60

PEAK DATA: 201.74 N @ 3.12 MS; -10402.12 N @ 28.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL C5 X-AXIS FORCE



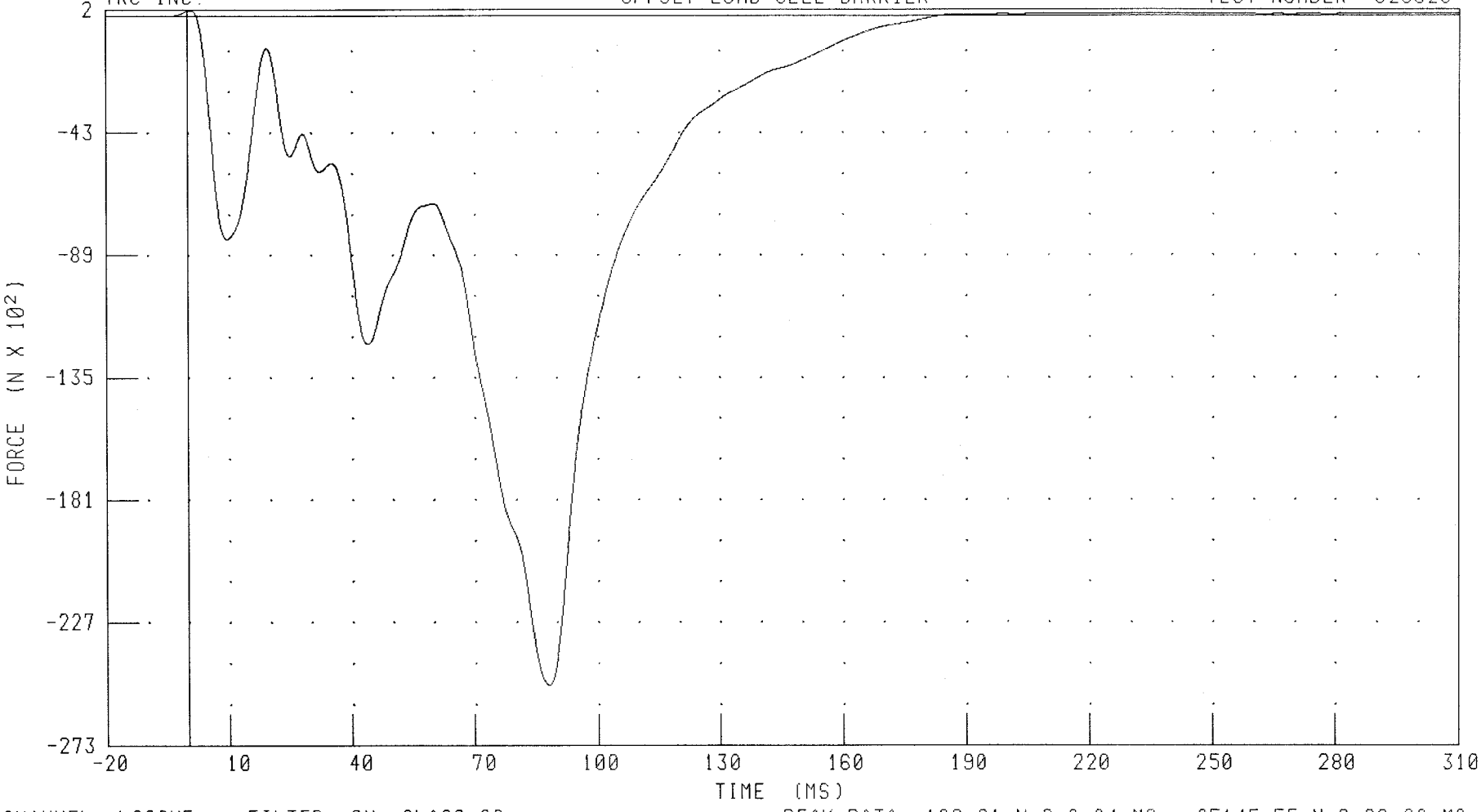
CHANNEL: LCC5XF FILTER: CH. CLASS 60

PEAK DATA: 69.67 N @ 40.00 MS, -990.54 N @ 279.12 MS

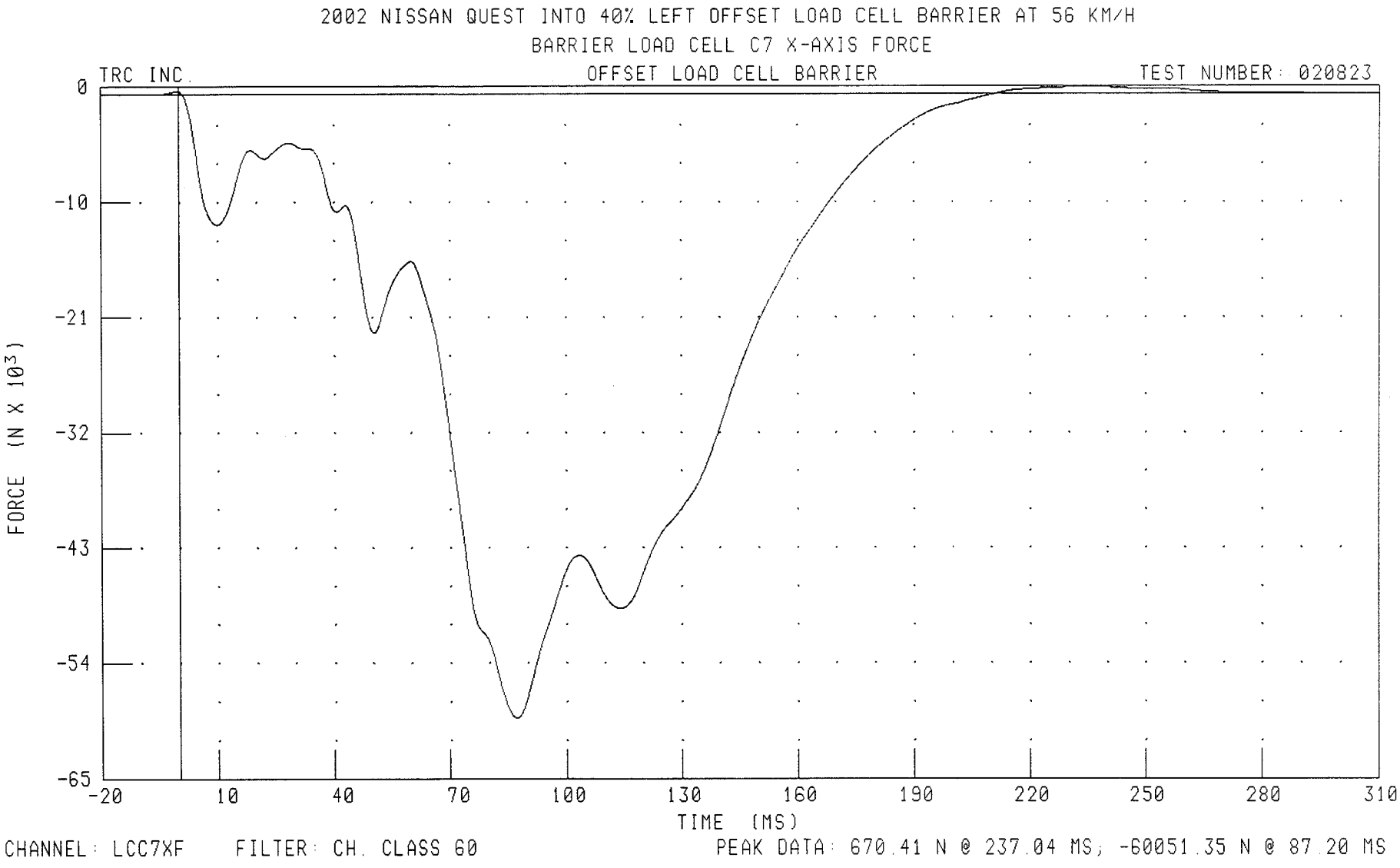
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL C6 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

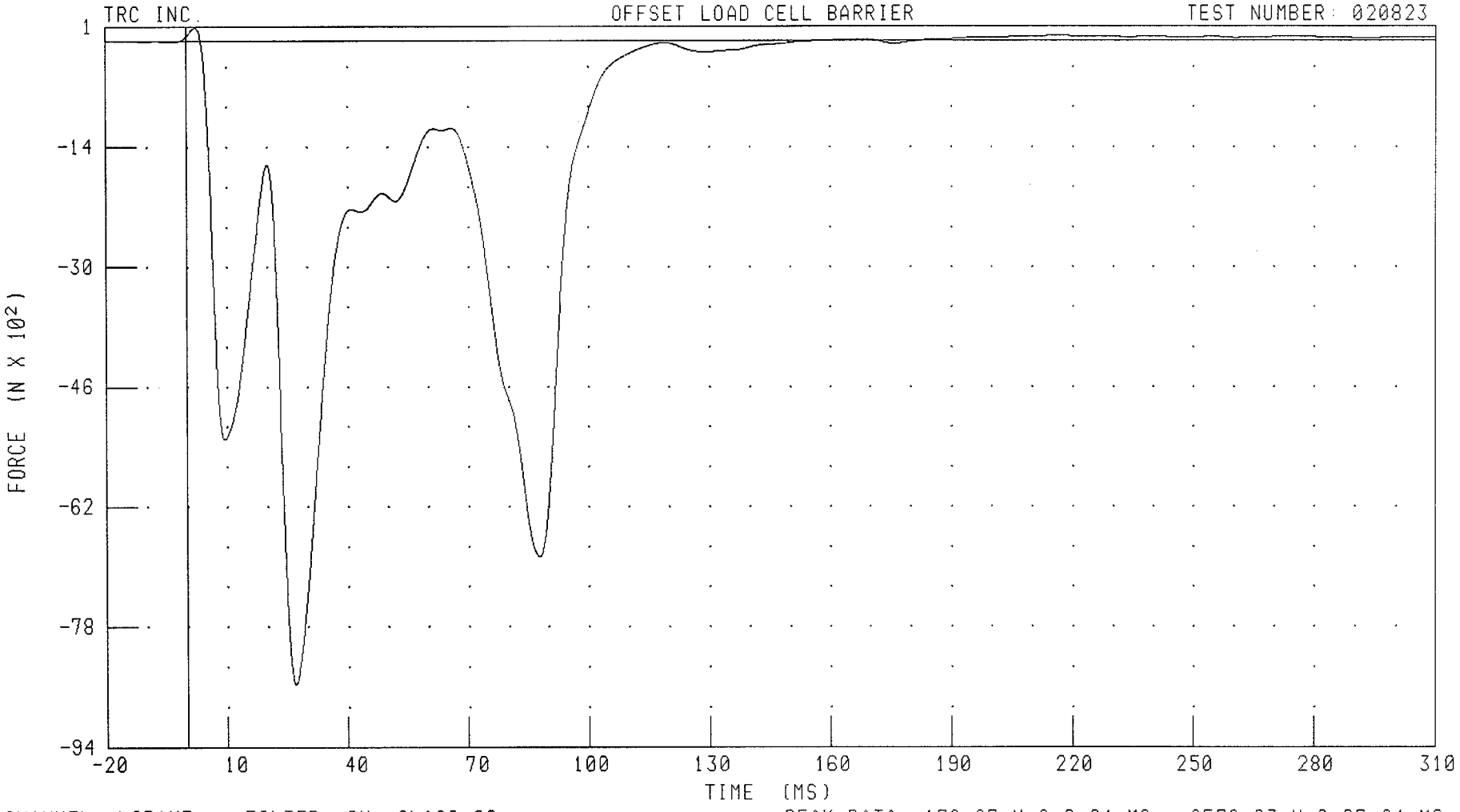


CHANNEL: LCC6XF FILTER: CH. CLASS 60 PEAK DATA: 199.81 N @ 0.64 MS, -25145.55 N @ 88.08 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
BARRIER LOAD CELL C7 X-AXIS FORCE
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
0
-10
-21
-32
-43
-54
-65
FORCE (N X 10³)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCC7XF
FILTER: CH. CLASS 60
PEAK DATA: 670.41 N @ 237.04 MS; -60051.35 N @ 87.20 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL D1 X-AXIS FORCE

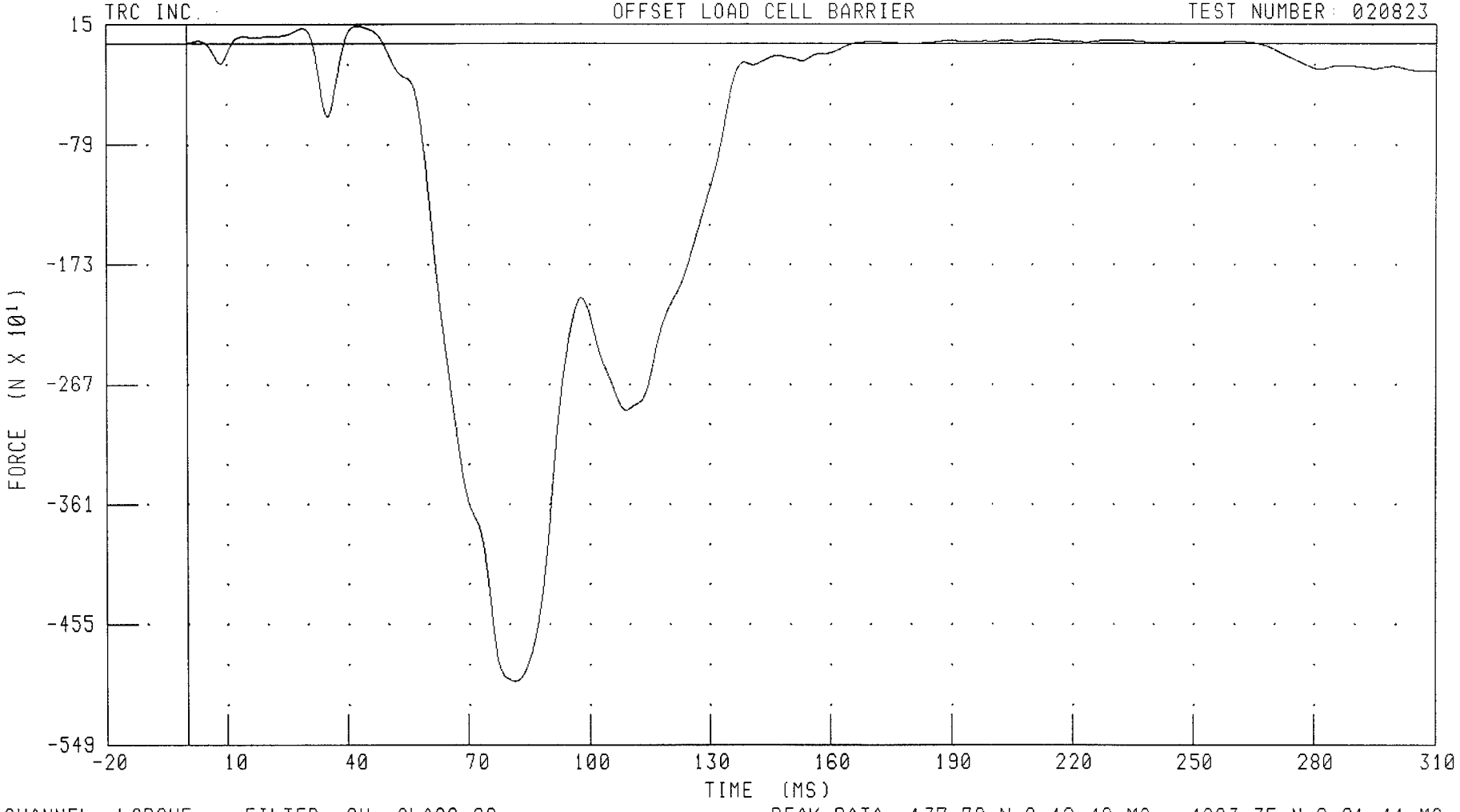


CHANNEL: LCD1XF FILTER: CH. CLASS 60

PEAK DATA: 176.97 N @ 2.24 MS; -8578.63 N @ 27.04 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL D2 X-AXIS FORCE

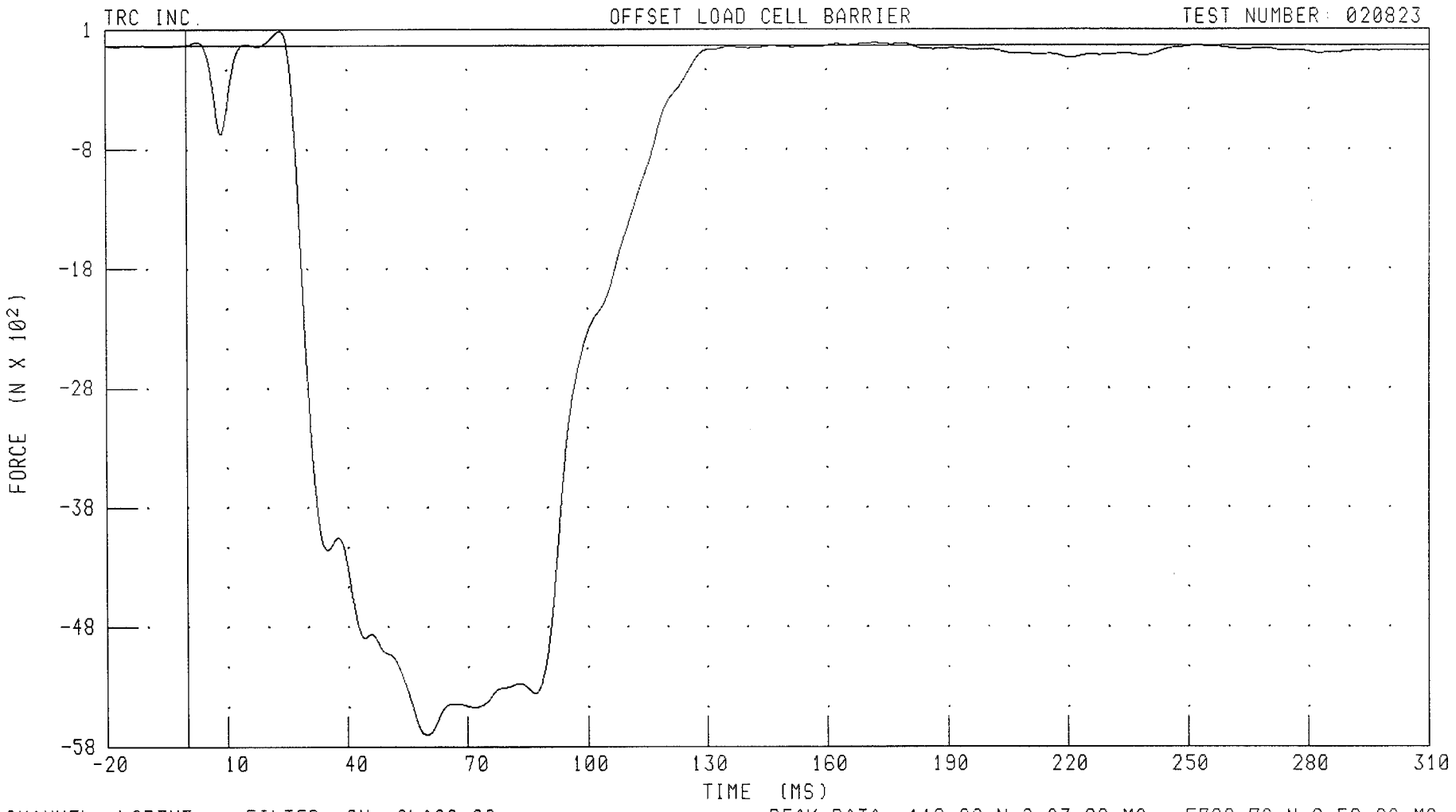


CHANNEL: LCD2XF FILTER: CH. CLASS 60

PEAK DATA: 137.70 N @ 42.40 MS, -4993.35 N @ 81 44 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

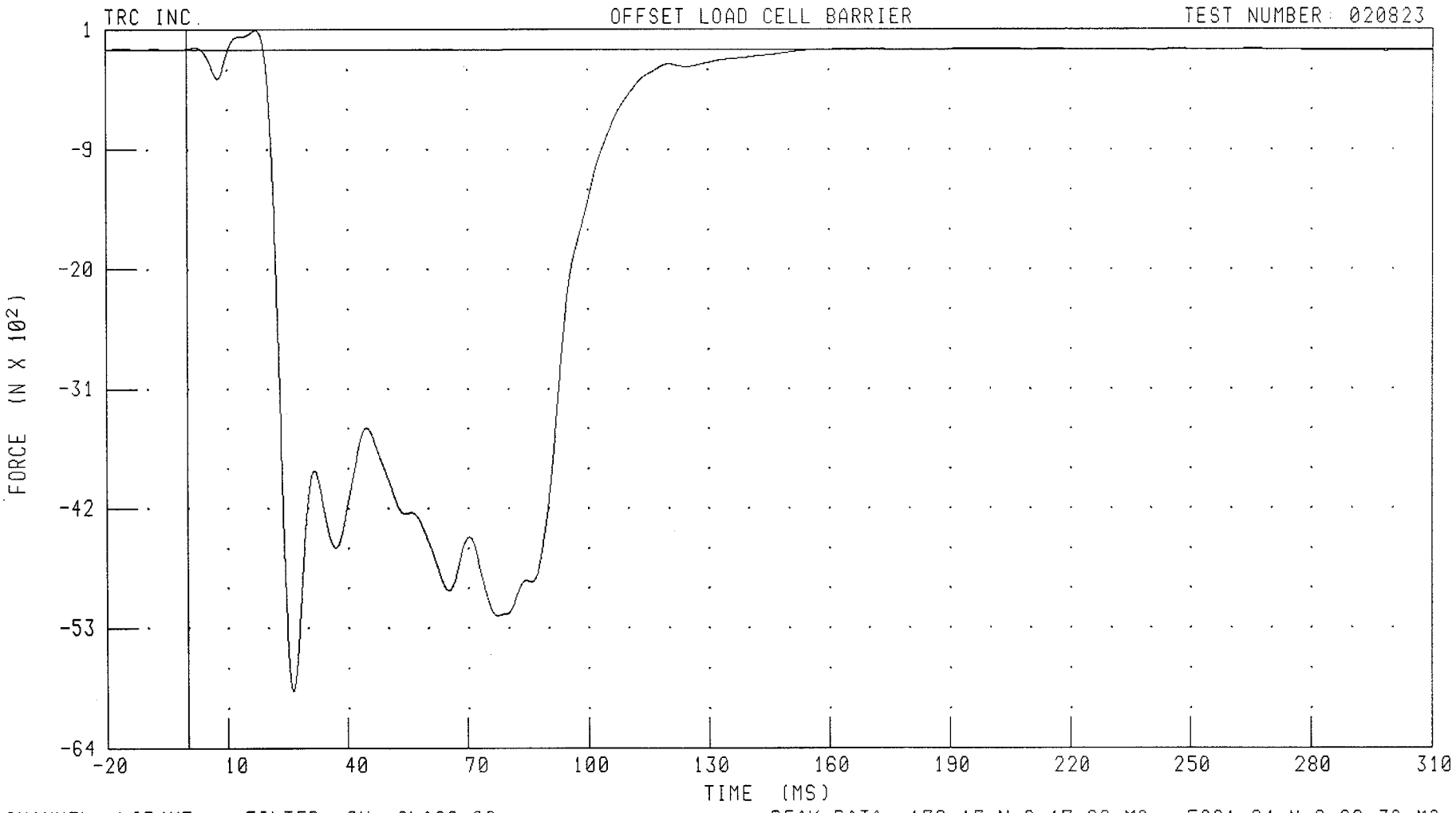
BARRIER LOAD CELL D3 X-AXIS FORCE



CHANNEL: LCD3XF FILTER: CH. CLASS 60 PEAK DATA: 118.29 N @ 23.28 MS; -5768.79 N @ 59.68 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL D4 X-AXIS FORCE

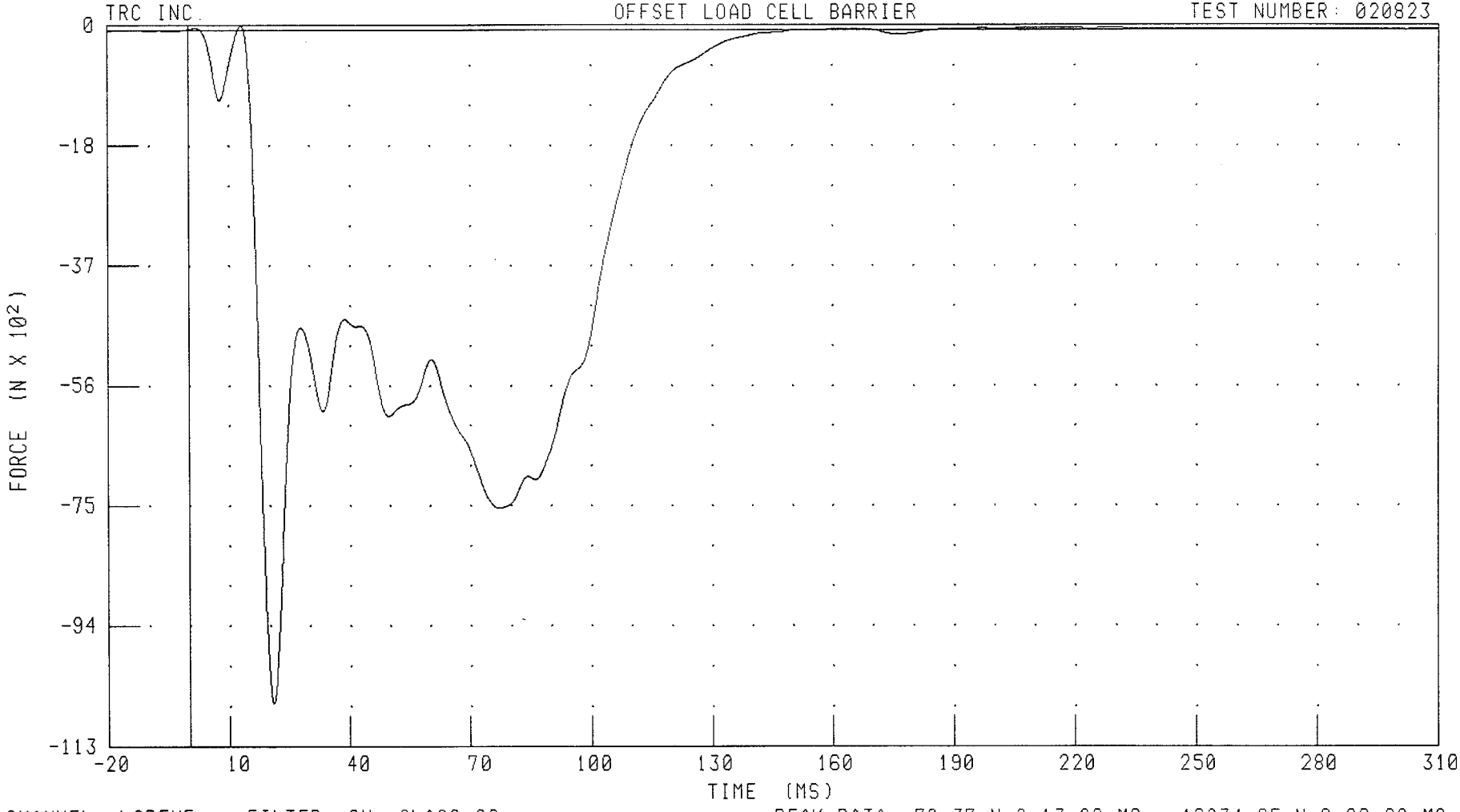


CHANNEL: LCD4XF FILTER: CH. CLASS 60 PEAK DATA: 172.17 N @ 17.28 MS; -5901.24 N @ 26.32 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL D5 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

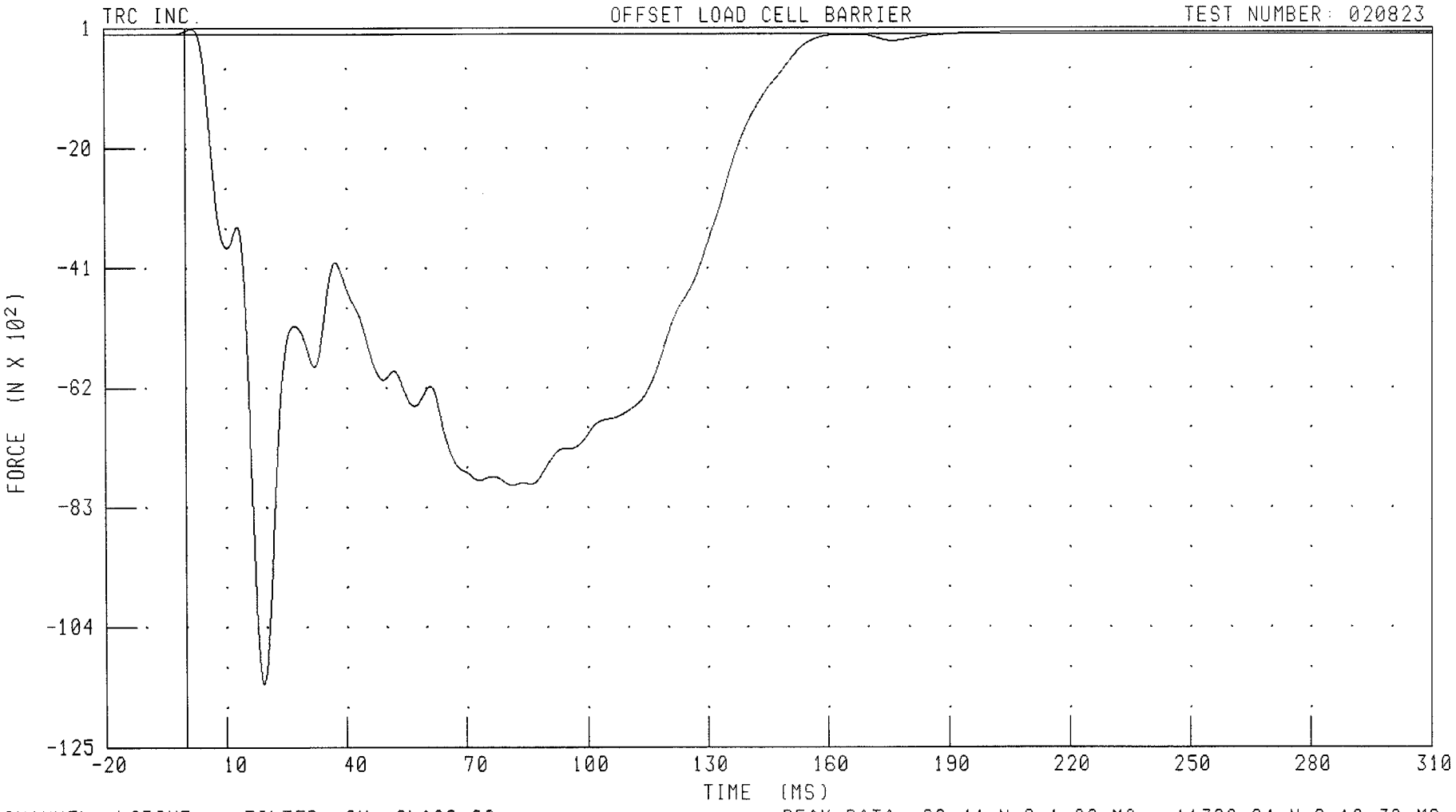


CHANNEL: LCD5XF FILTER: CH. CLASS 60

PEAK DATA: 76.37 N @ 13.20 MS; -10634.05 N @ 20.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL D6 X-AXIS FORCE

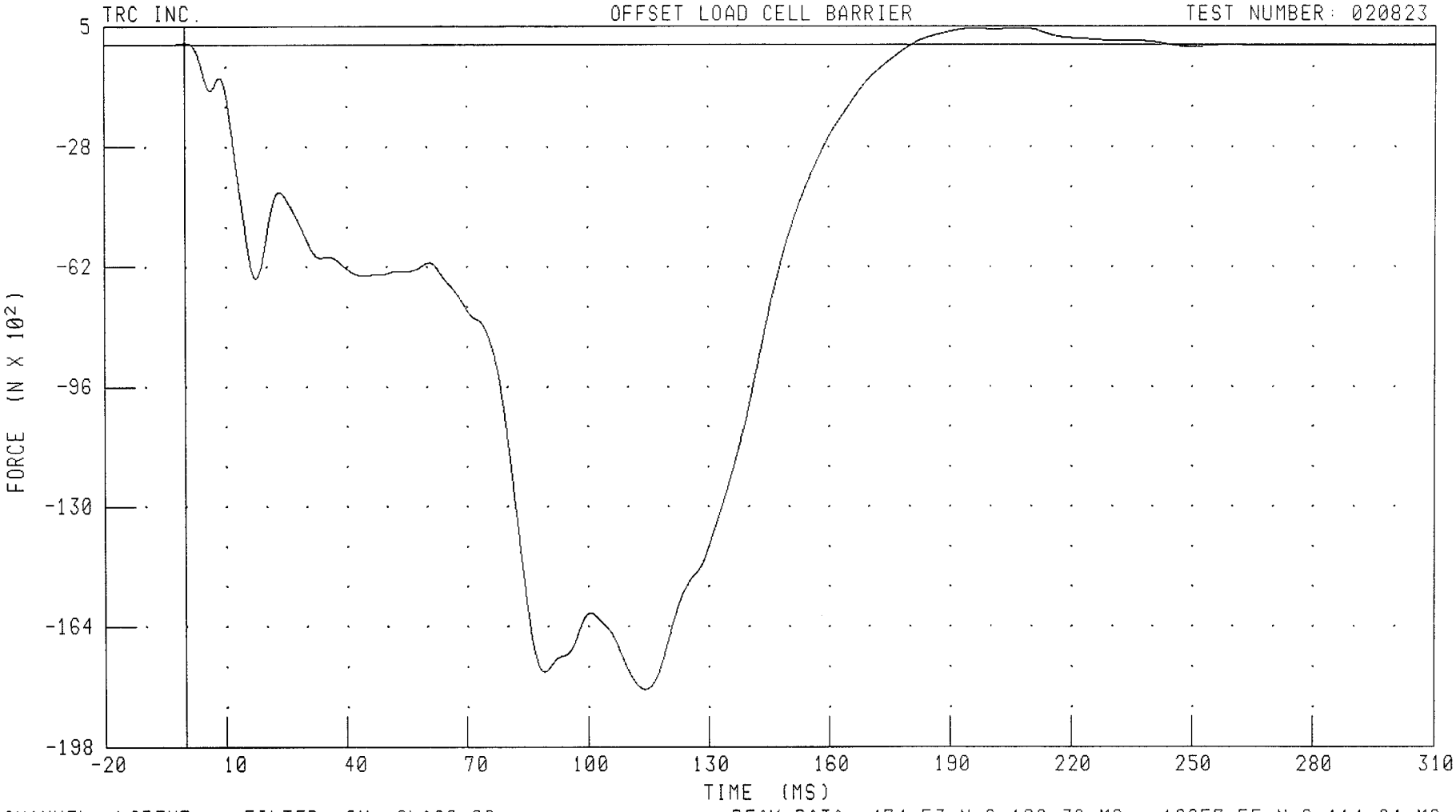


CHANNEL: LCD6XF FILTER: CH. CLASS 60

PEAK DATA: 92.44 N @ 1 60 MS, -11392.24 N @ 19.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

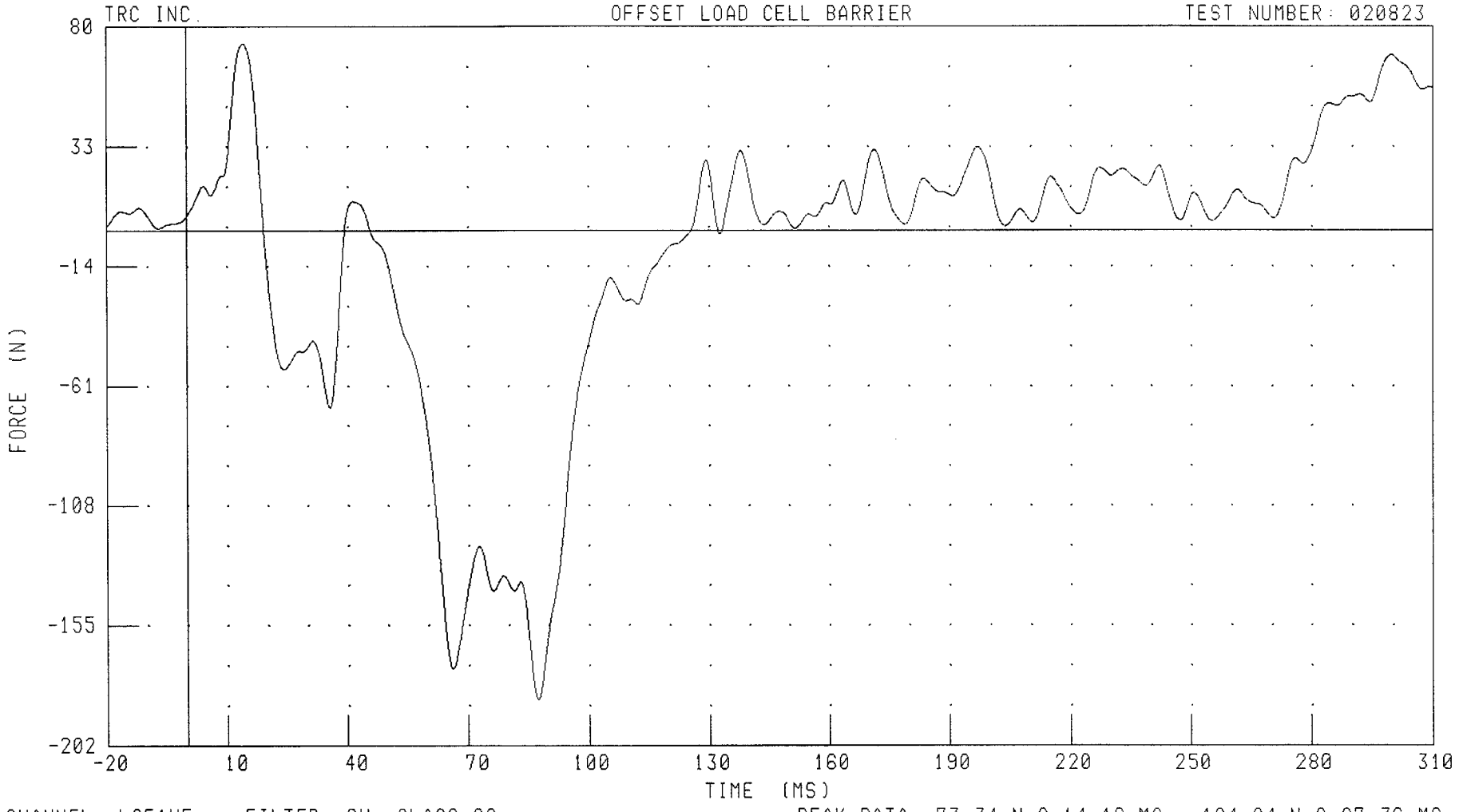
BARRIER LOAD CELL D7 X-AXIS FORCE



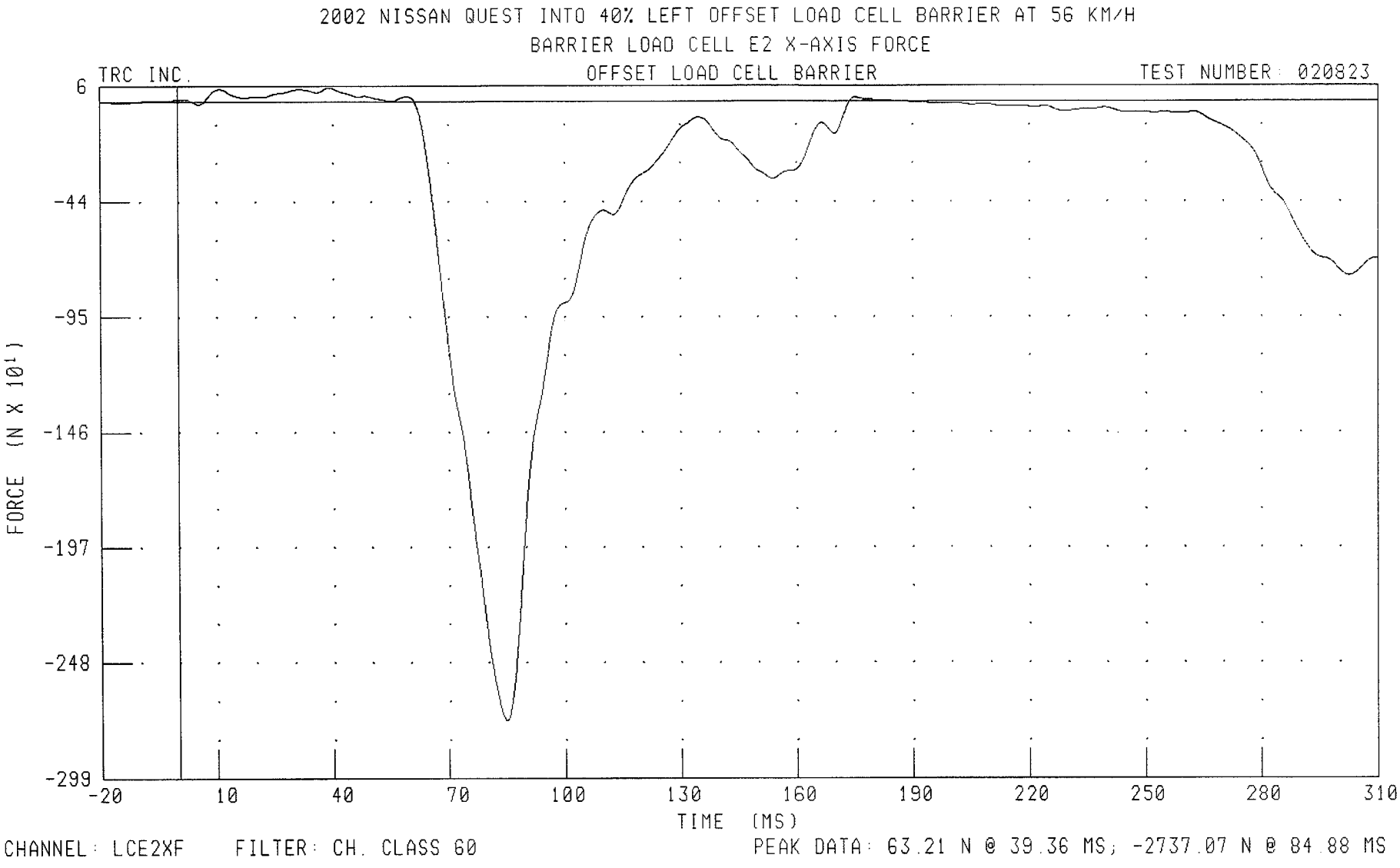
CHANNEL: LCD7XF FILTER: CH. CLASS 60 PEAK DATA: 474.53 N @ 196.32 MS; -18257.55 N @ 114.24 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL E1 X-AXIS FORCE

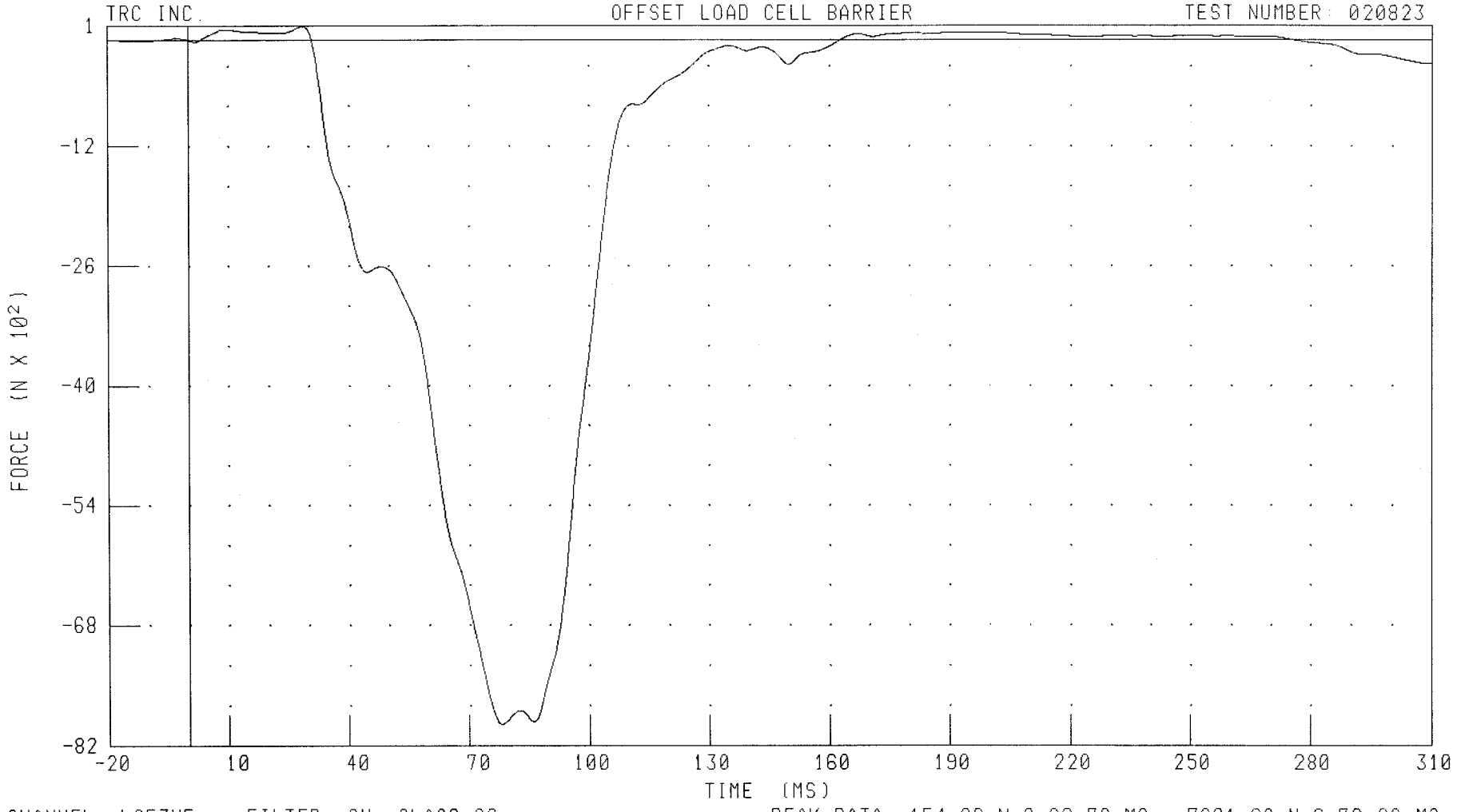


CHANNEL: LCE1XF FILTER: CH. CLASS 60 PEAK DATA: 73.34 N @ 14.16 MS; -184.04 N @ 87.36 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
BARRIER LOAD CELL E2 X-AXIS FORCE
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
6
-44
-95
-146
-197
-248
-299
FORCE (N X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCE2XF
FILTER: CH. CLASS 60
PEAK DATA: 63.21 N @ 39.36 MS; -2737.07 N @ 84.88 MS

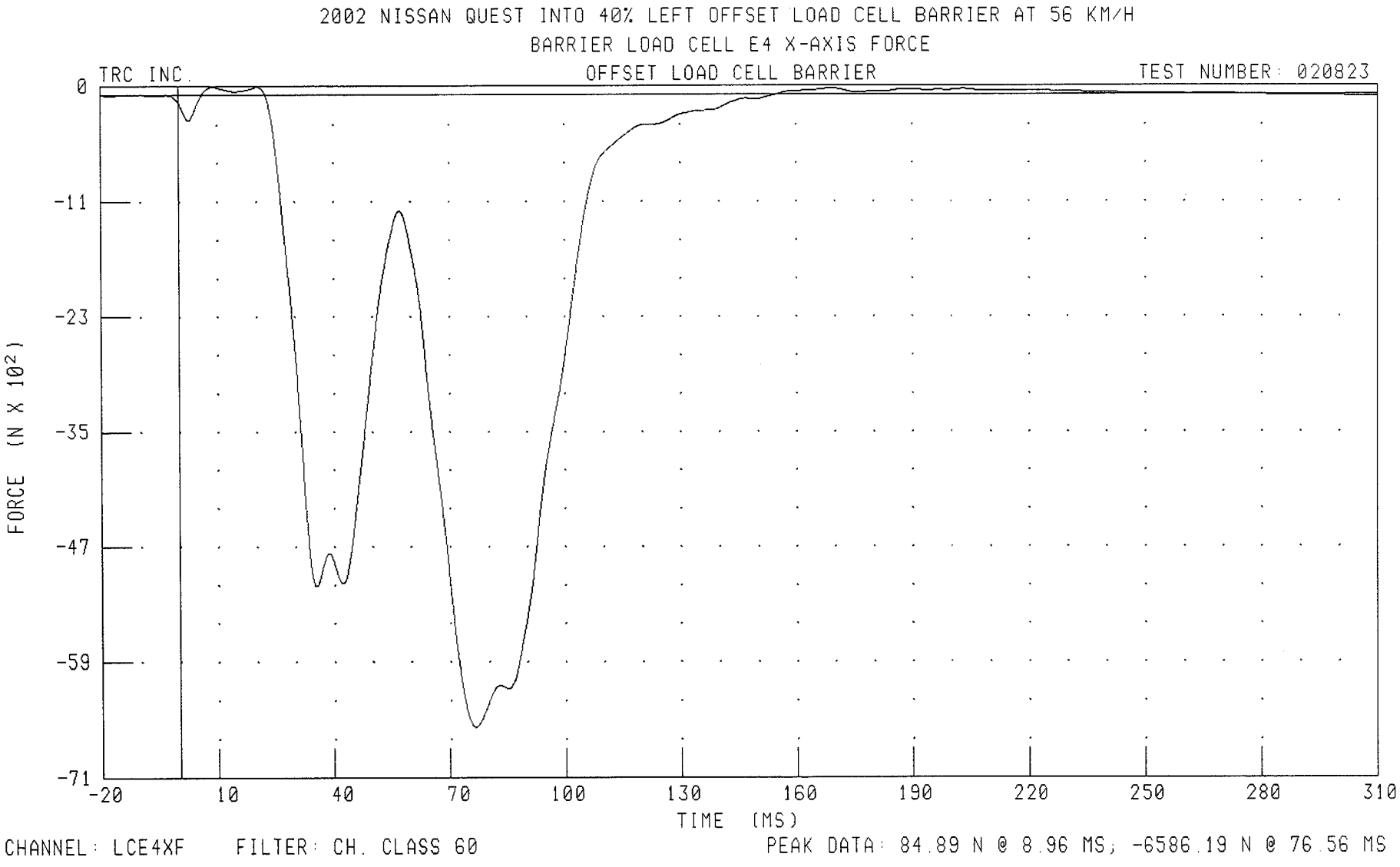
2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL E3 X-AXIS FORCE



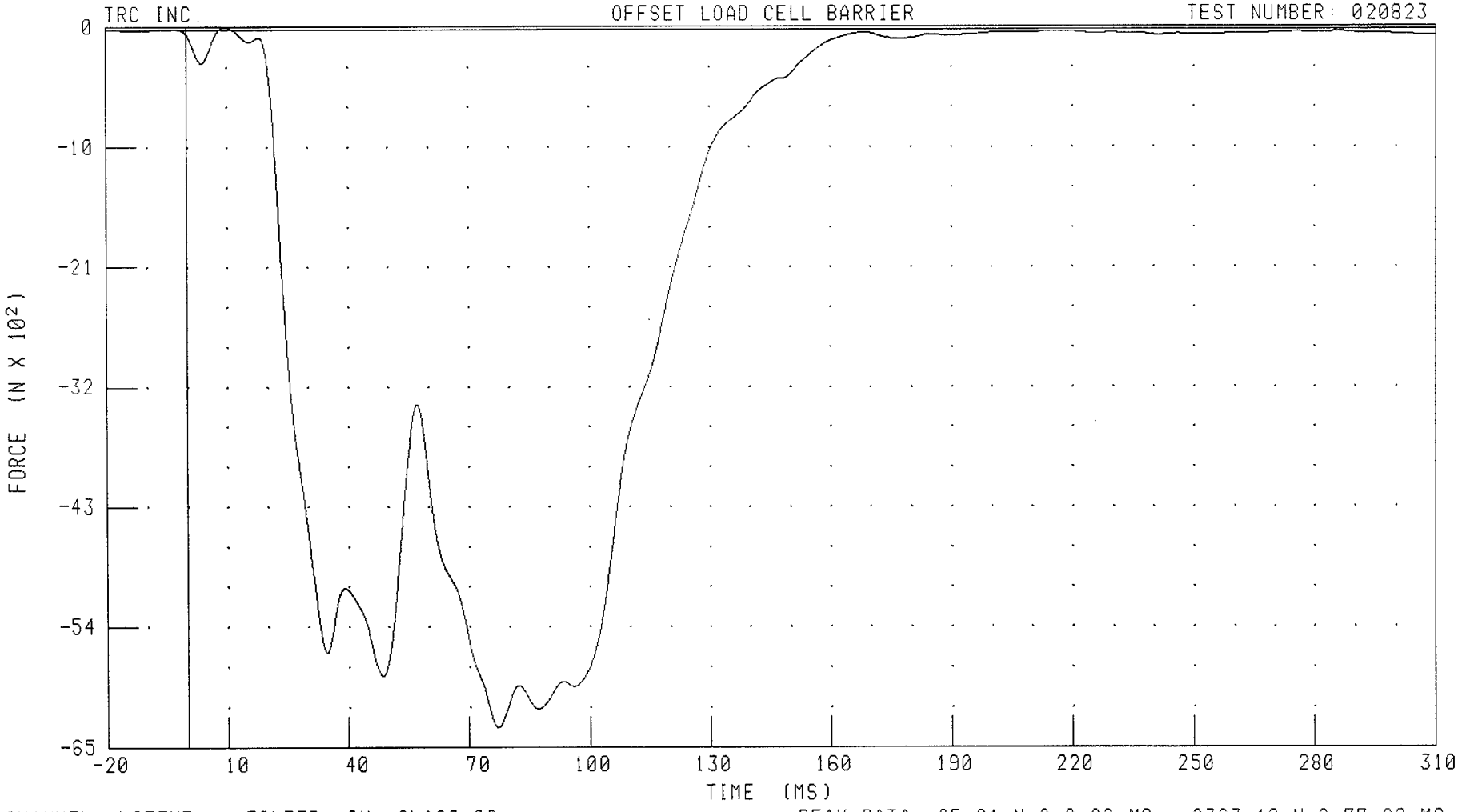
CHANNEL: LCE3XF FILTER: CH. CLASS 60

PEAK DATA: 154.08 N @ 28.72 MS; -7991.22 N @ 78.08 MS

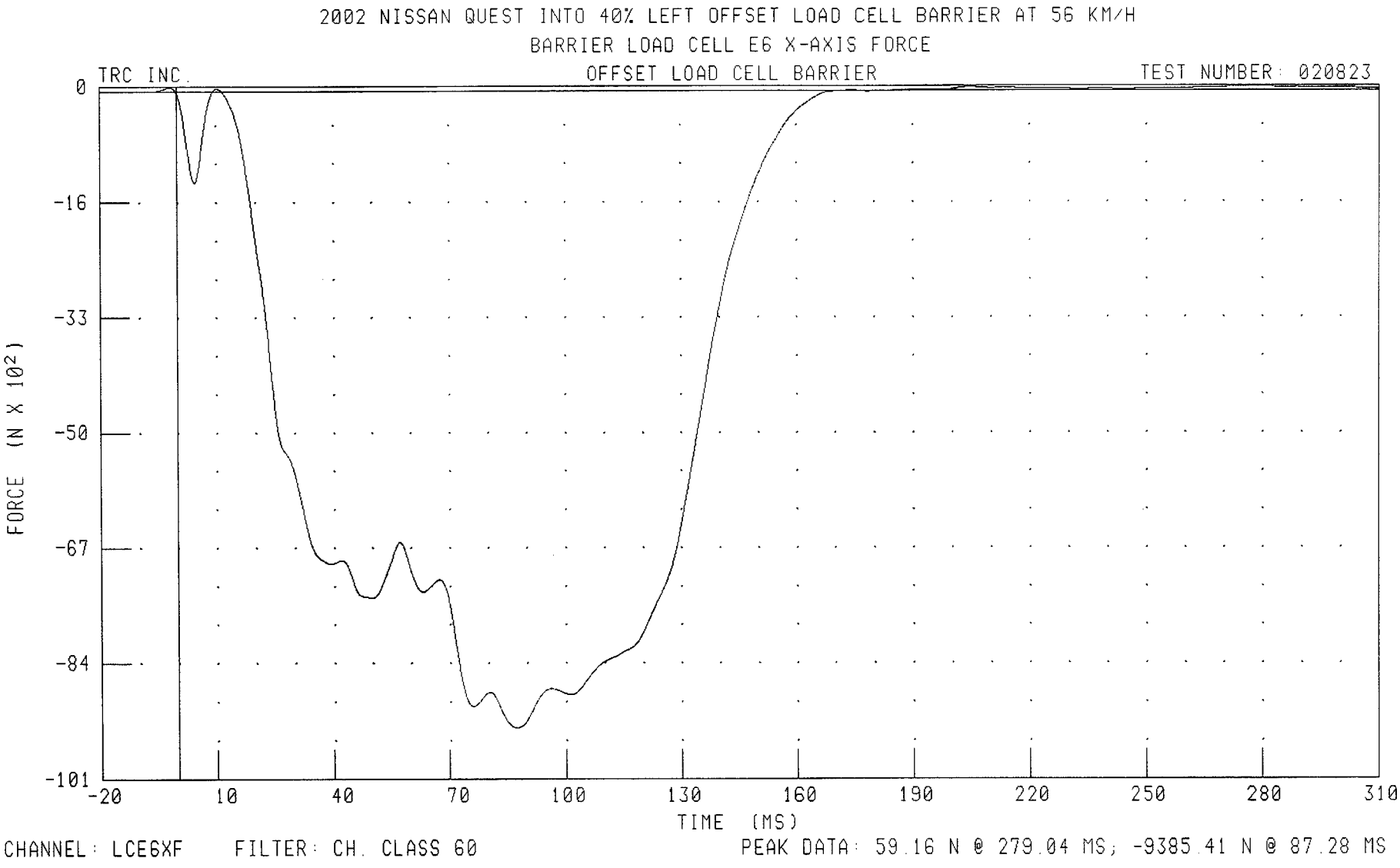

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
BARRIER LOAD CELL E4 X-AXIS FORCE
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
0
-11
-23
-35
-47
-59
-71
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCE4XF
FILTER: CH. CLASS 60
PEAK DATA: 84.89 N @ 8.96 MS; -6586.19 N @ 76.56 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL E5 X-AXIS FORCE



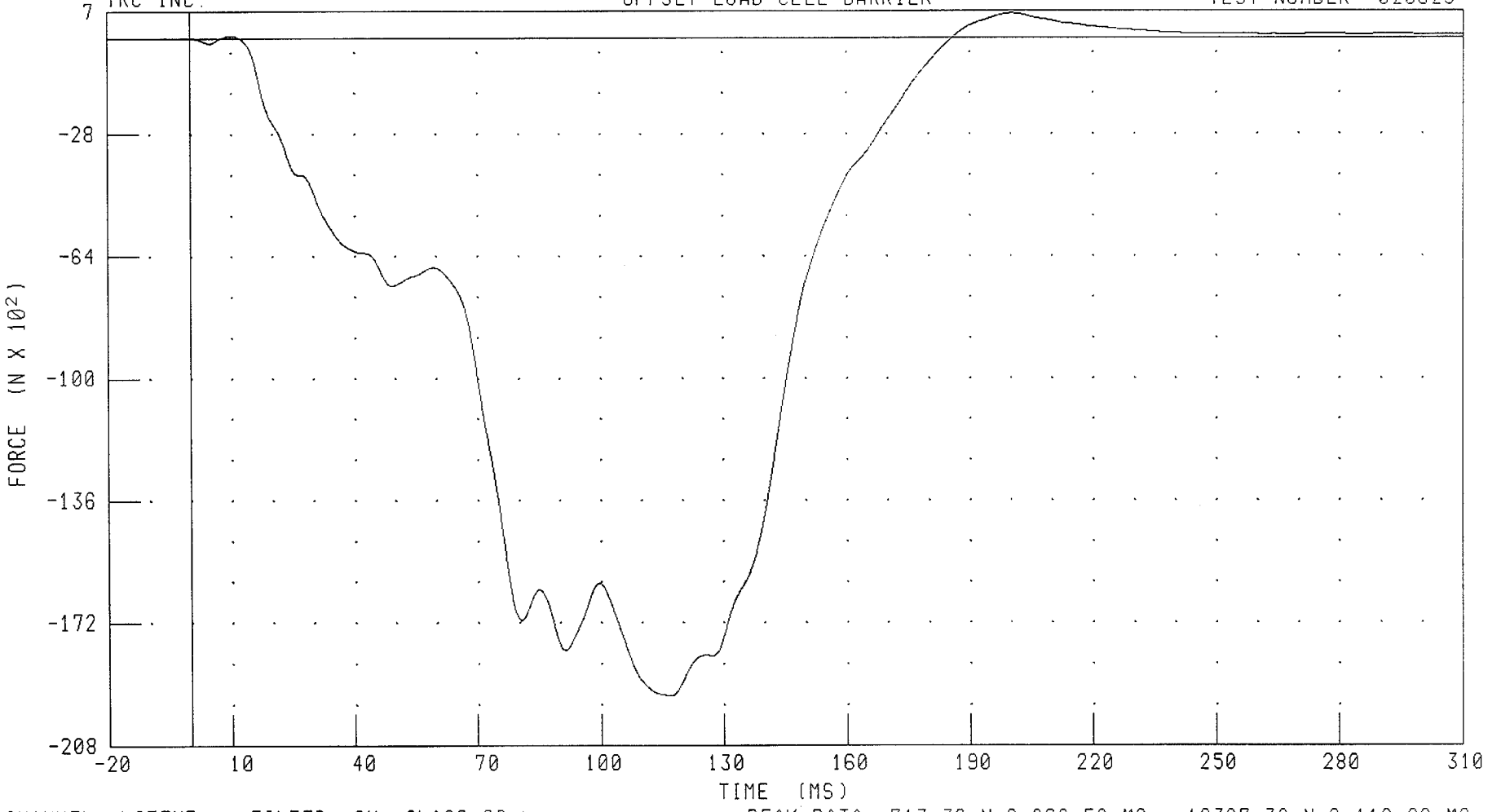
CHANNEL: LCE5XF FILTER: CH. CLASS 60 PEAK DATA: 25.61 N @ 9.60 MS; -6393.19 N @ 77.20 MS


2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H
BARRIER LOAD CELL E6 X-AXIS FORCE
TRC INC.
OFFSET LOAD CELL BARRIER
TEST NUMBER: 020823
0
-16
-33
-50
-67
-84
-101
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCE6XF
FILTER: CH. CLASS 60
PEAK DATA: 59.16 N @ 279.04 MS; -9385.41 N @ 87.28 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL E7 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

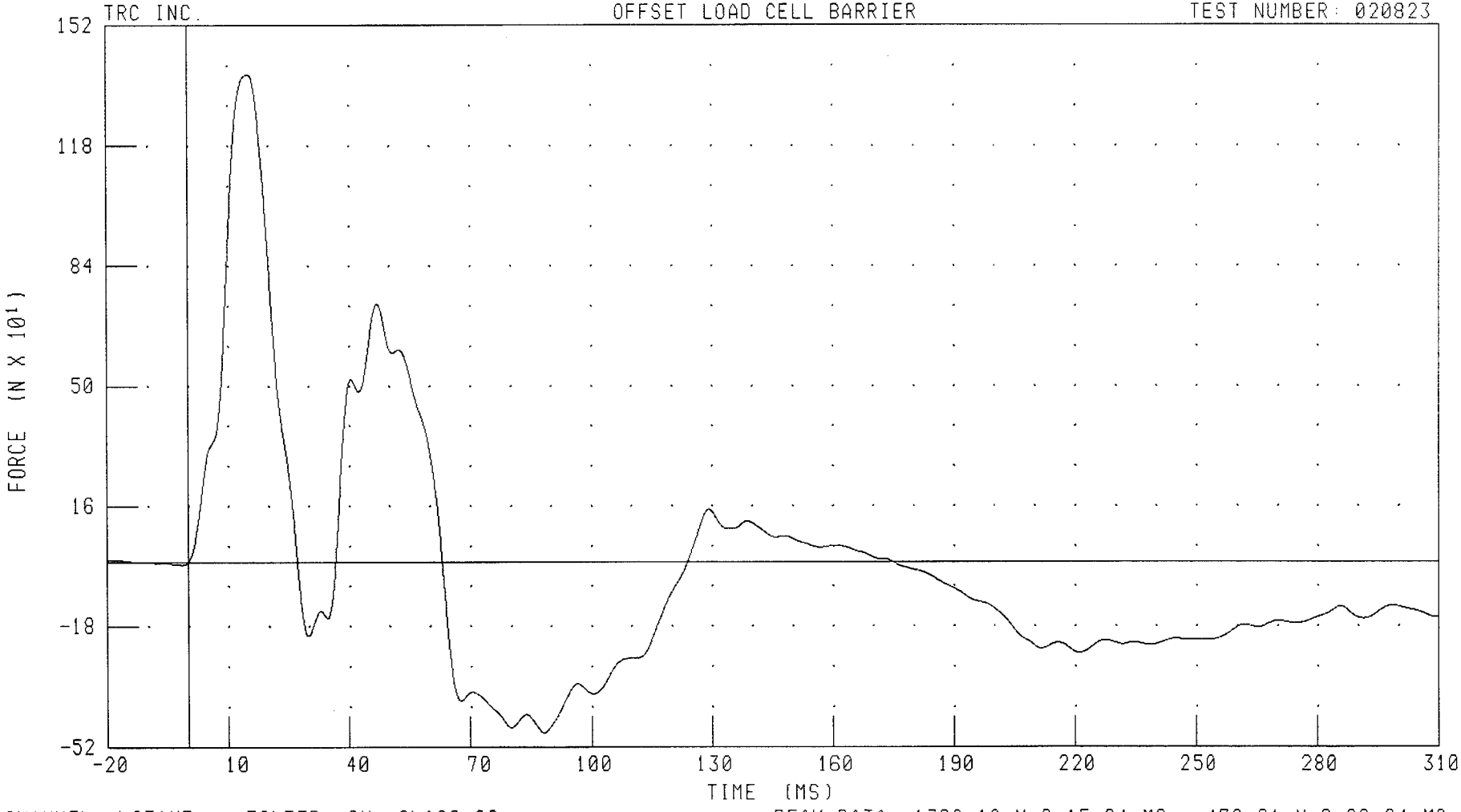


CHANNEL: LCE7XF FILTER: CH. CLASS 60 PEAK DATA: 713.39 N @ 200.56 MS; -19367.30 N @ 116.96 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL F1 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



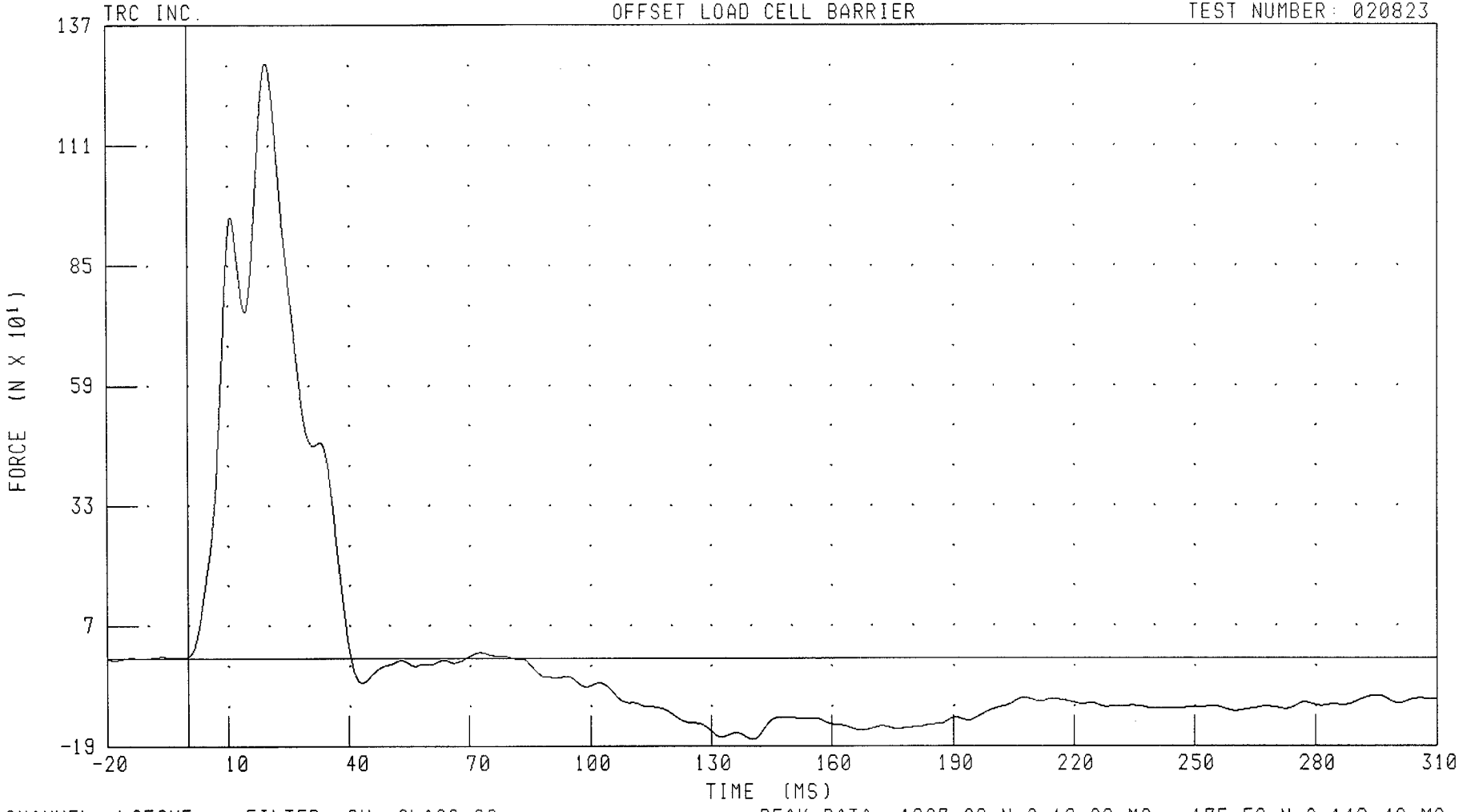
CHANNEL: LCF1XF FILTER: CH. CLASS 60

PEAK DATA: 1380.12 N @ 15.04 MS; -479.81 N @ 88.24 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL F2 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

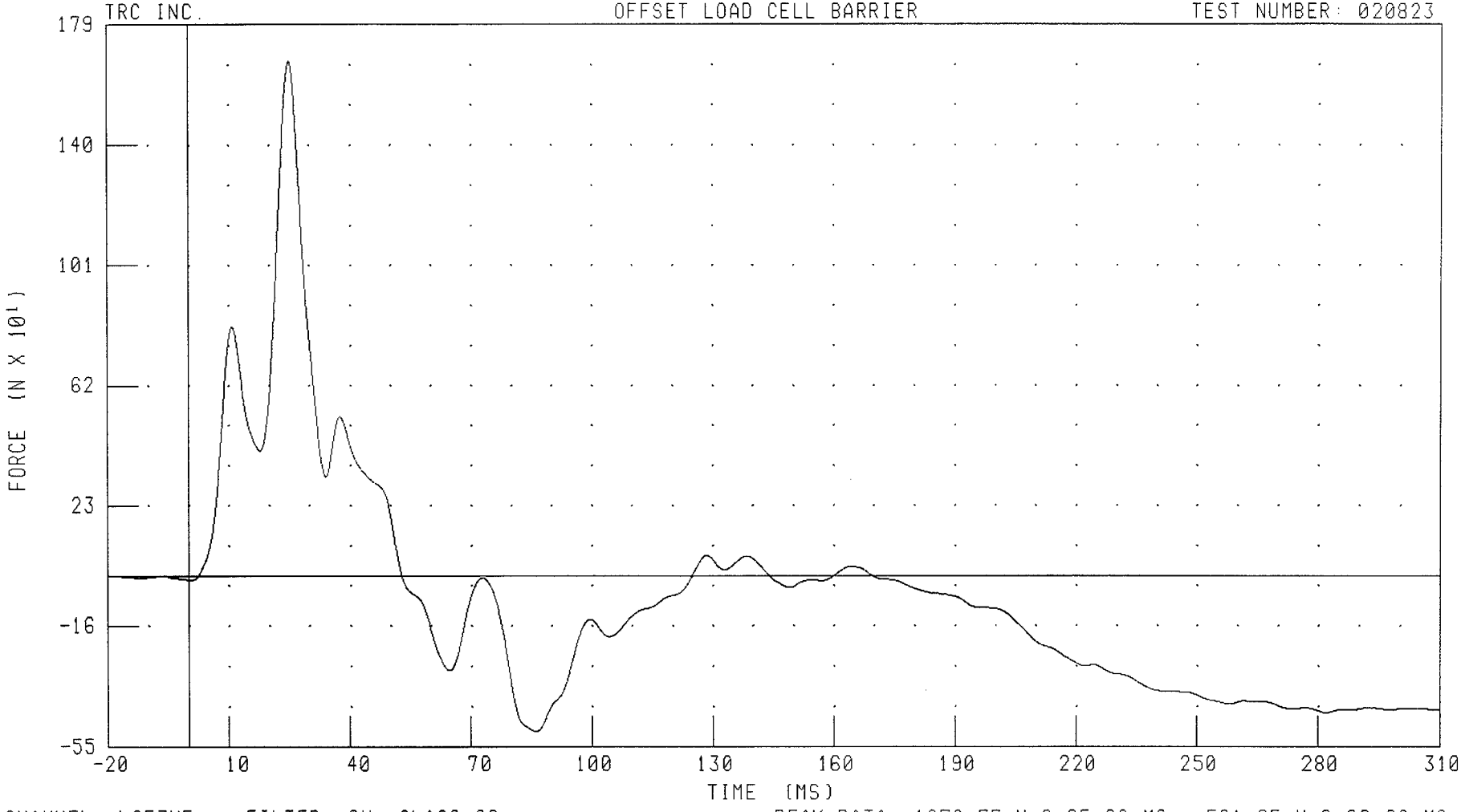


CHANNEL: LCF2XF FILTER: CH. CLASS 60 PEAK DATA: 1287.89 N @ 19.60 MS; -175.58 N @ 140.40 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL F3 X-AXIS FORCE

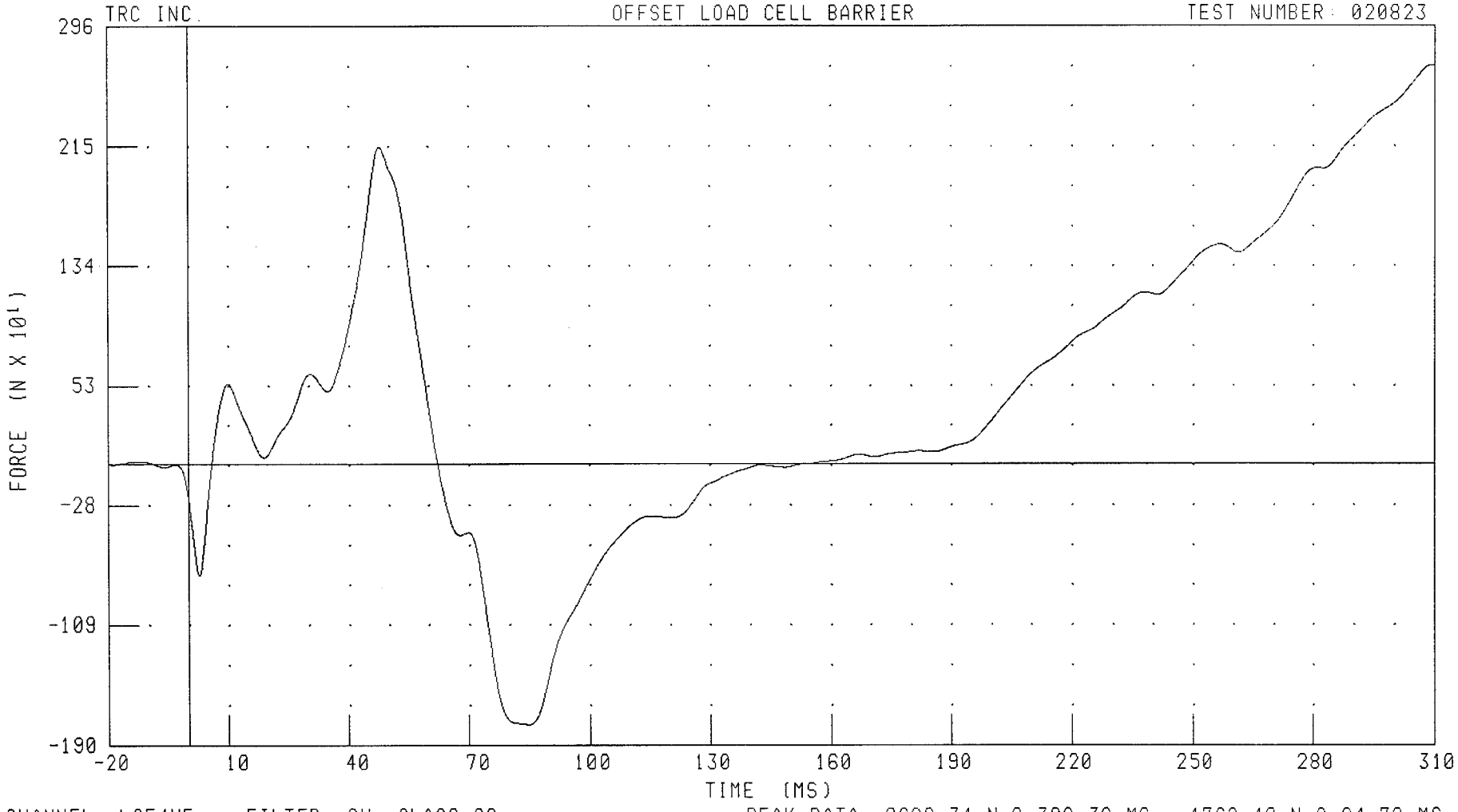
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LCF3XF FILTER: CH. CLASS 60 PEAK DATA: 1670.77 N @ 25.20 MS; -501.05 N @ 86.08 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

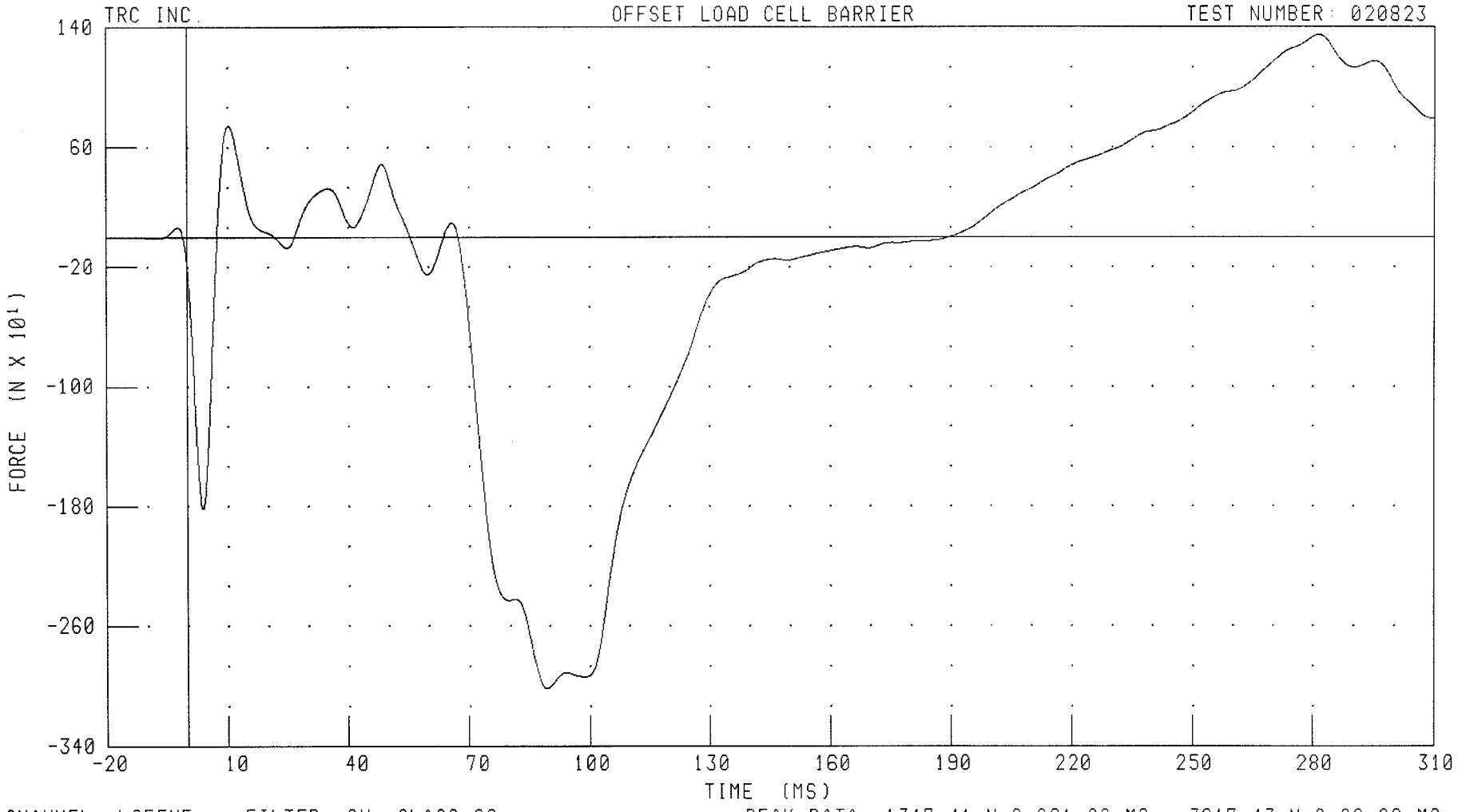
BARRIER LOAD CELL F4 X-AXIS FORCE



CHANNEL: LCF4XF FILTER: CH. CLASS 60 PEAK DATA: 2696.34 N @ 309.36 MS; -1762.48 N @ 84.72 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

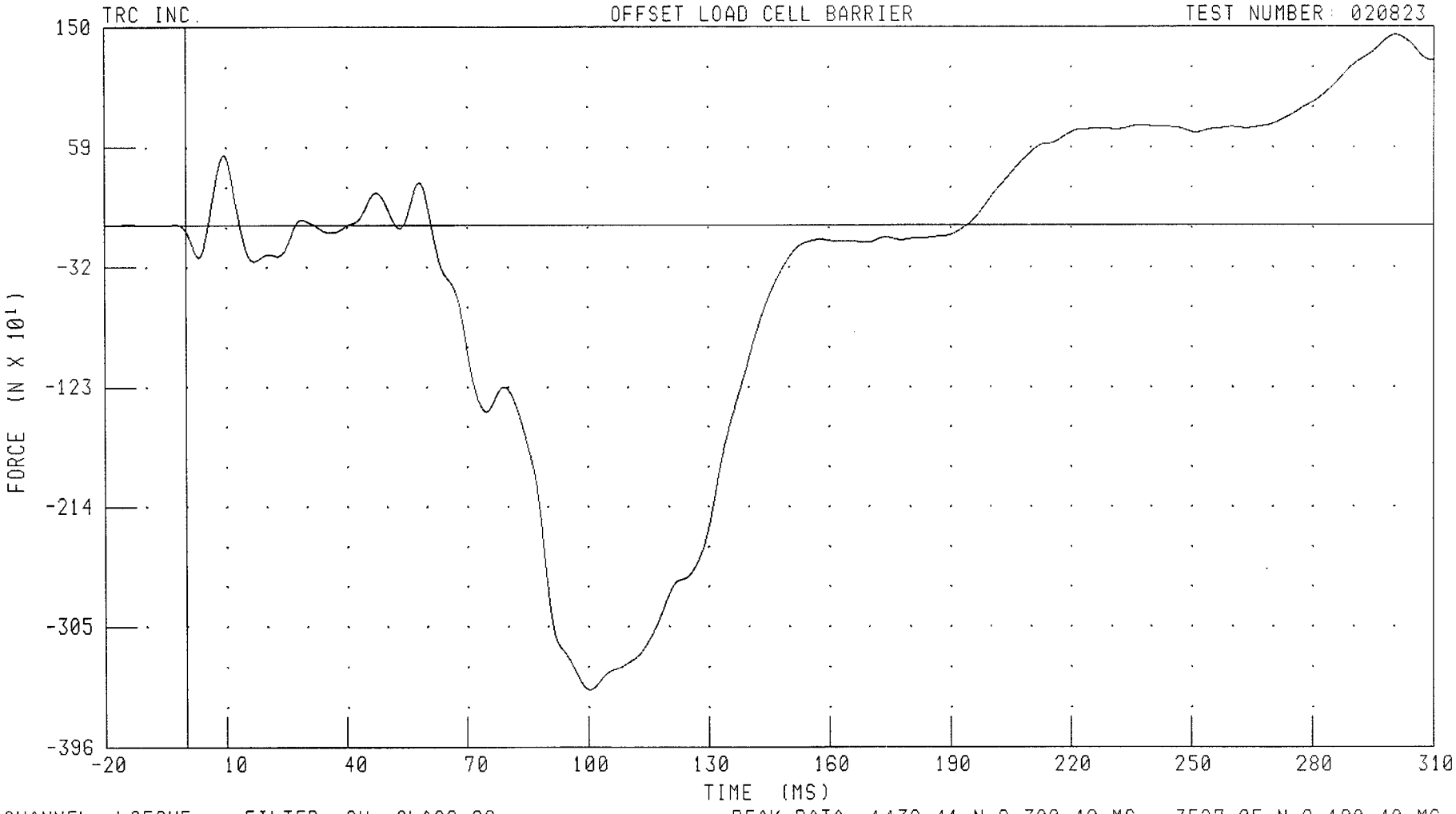
BARRIER LOAD CELL F5 X-AXIS FORCE



CHANNEL: LCF5XF FILTER: CH. CLASS 60 PEAK DATA: 1347.41 N @ 281.60 MS; -3017.43 N @ 89.28 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL F6 X-AXIS FORCE



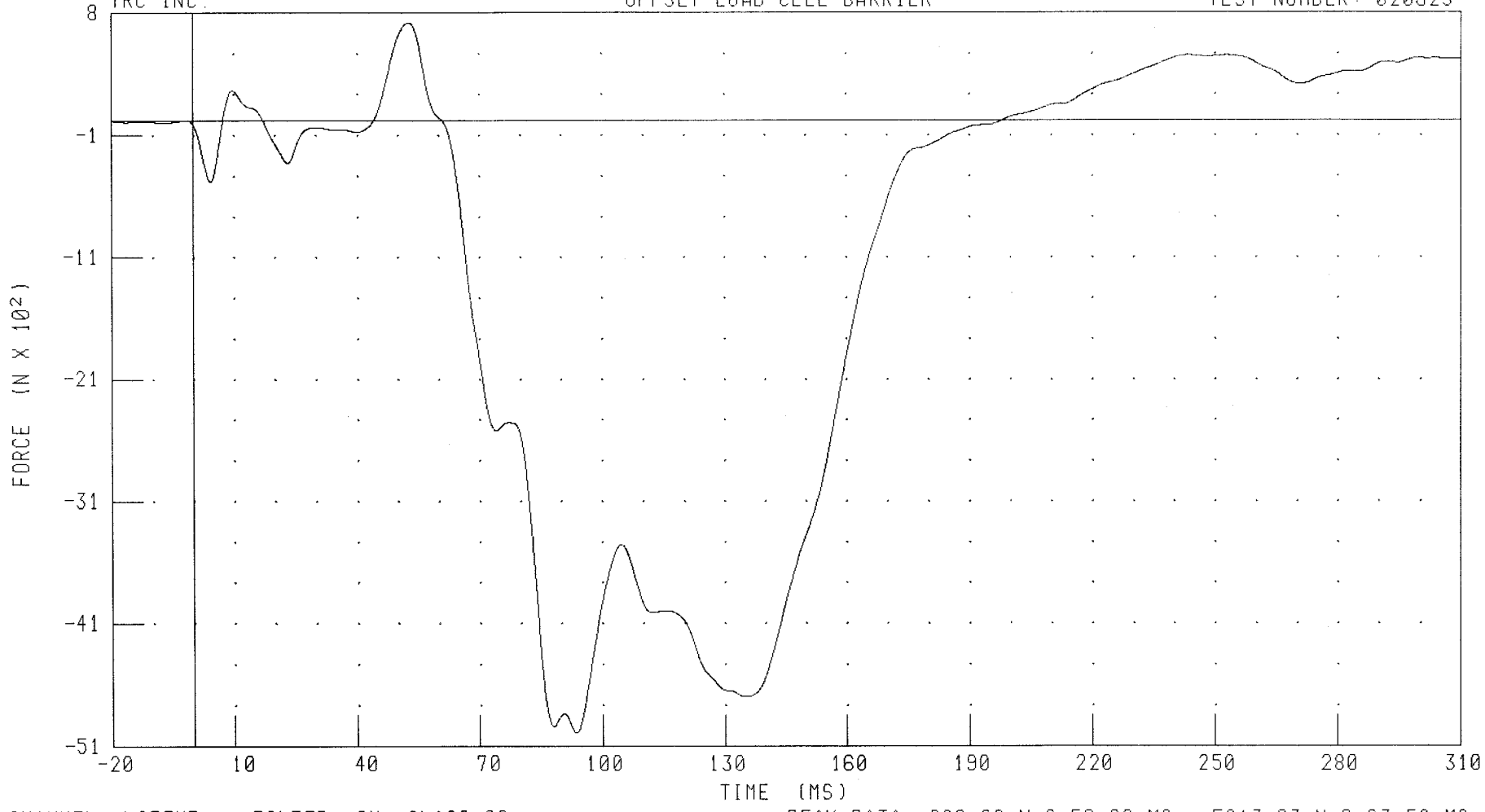
CHANNEL: LCF6XF FILTER: CH. CLASS 60

PEAK DATA: 1438.41 N @ 300.40 MS; -3527.05 N @ 100.40 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL F7 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

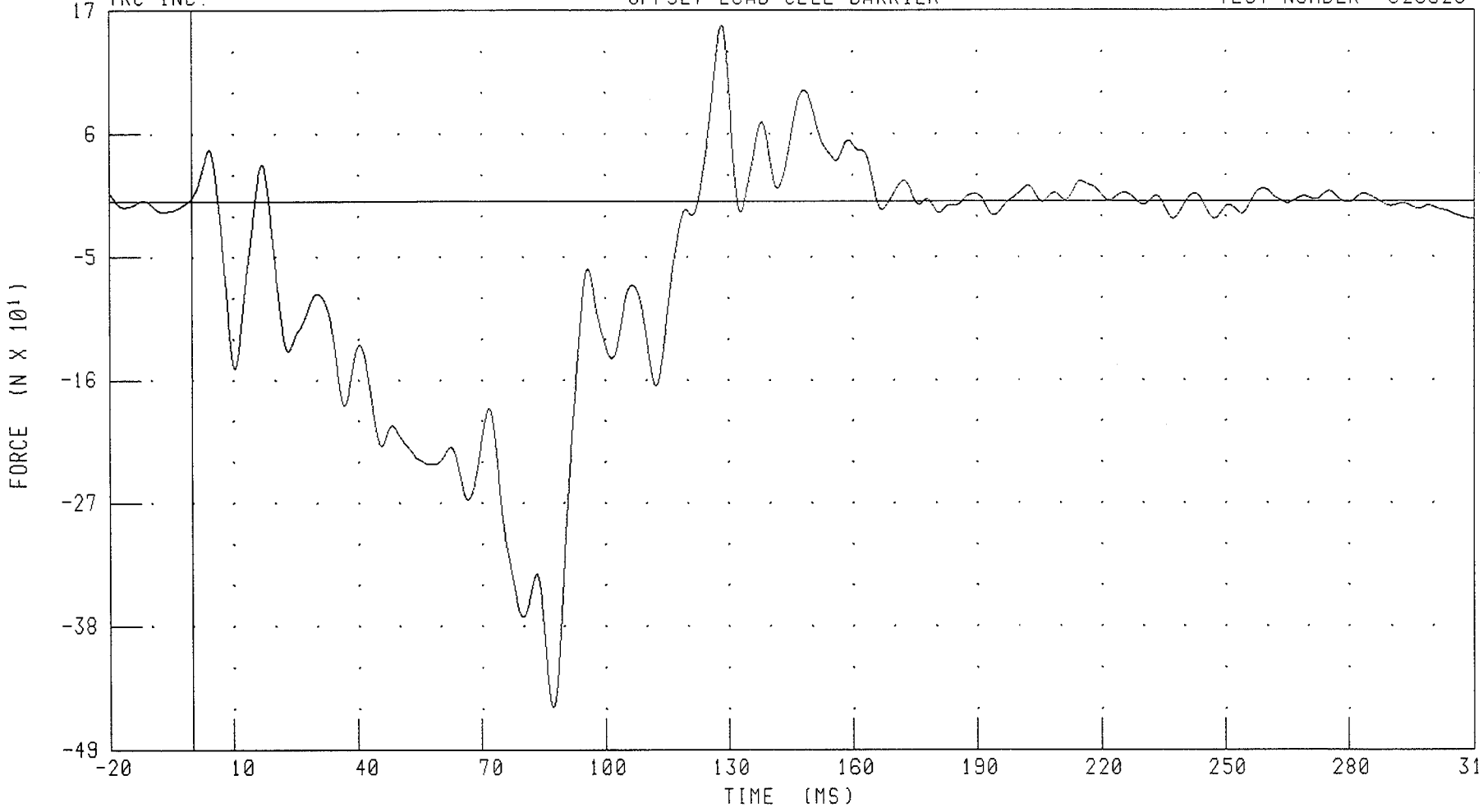


CHANNEL: LCF7XF FILTER: CH. CLASS 60 PEAK DATA: 800.29 N @ 52.80 MS; -5013.83 N @ 93.52 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL G1 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

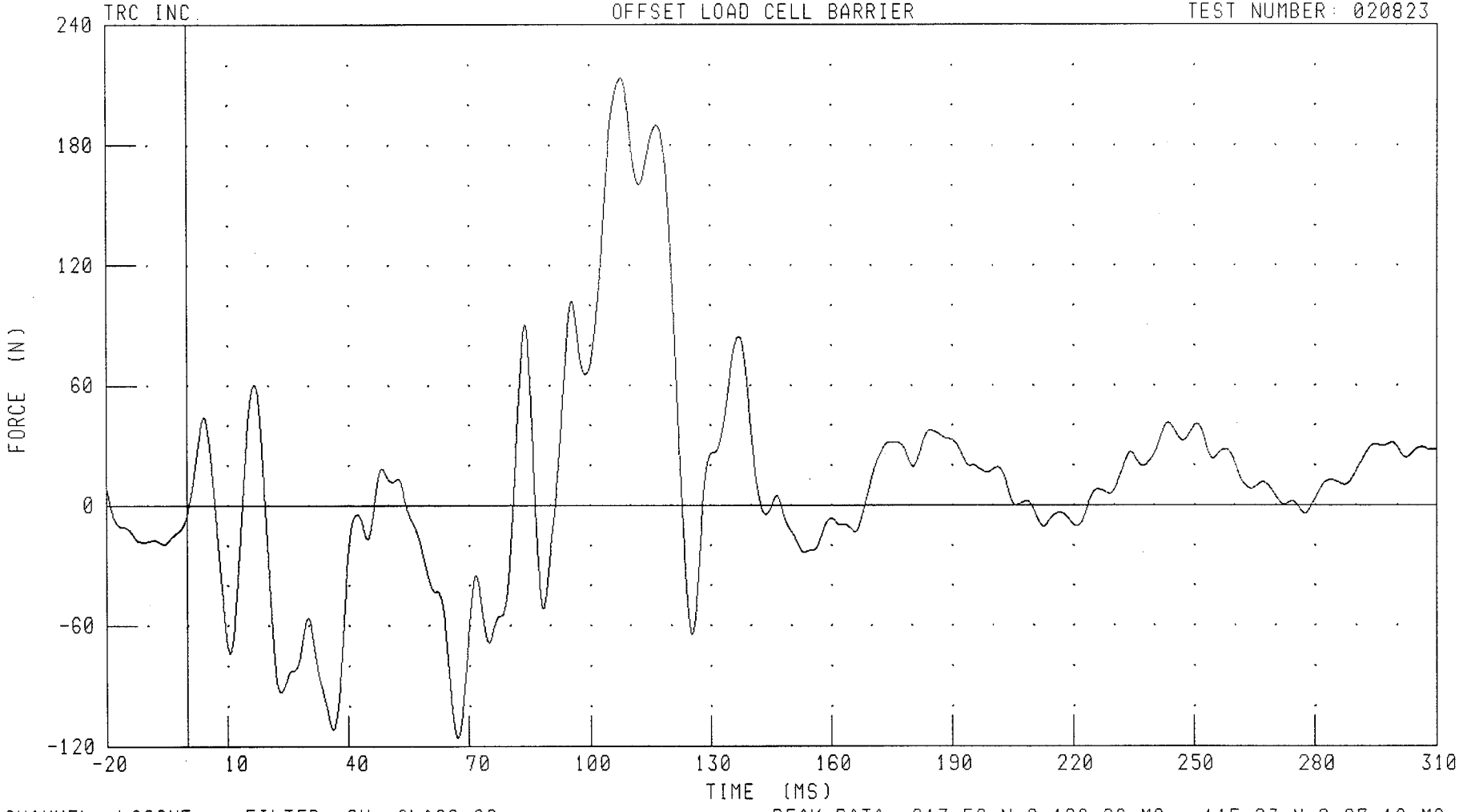


CHANNEL: LCG1XF FILTER: CH. CLASS 60 PEAK DATA: 156.51 N @ 128.64 MS; -452.23 N @ 87.36 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL G2 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

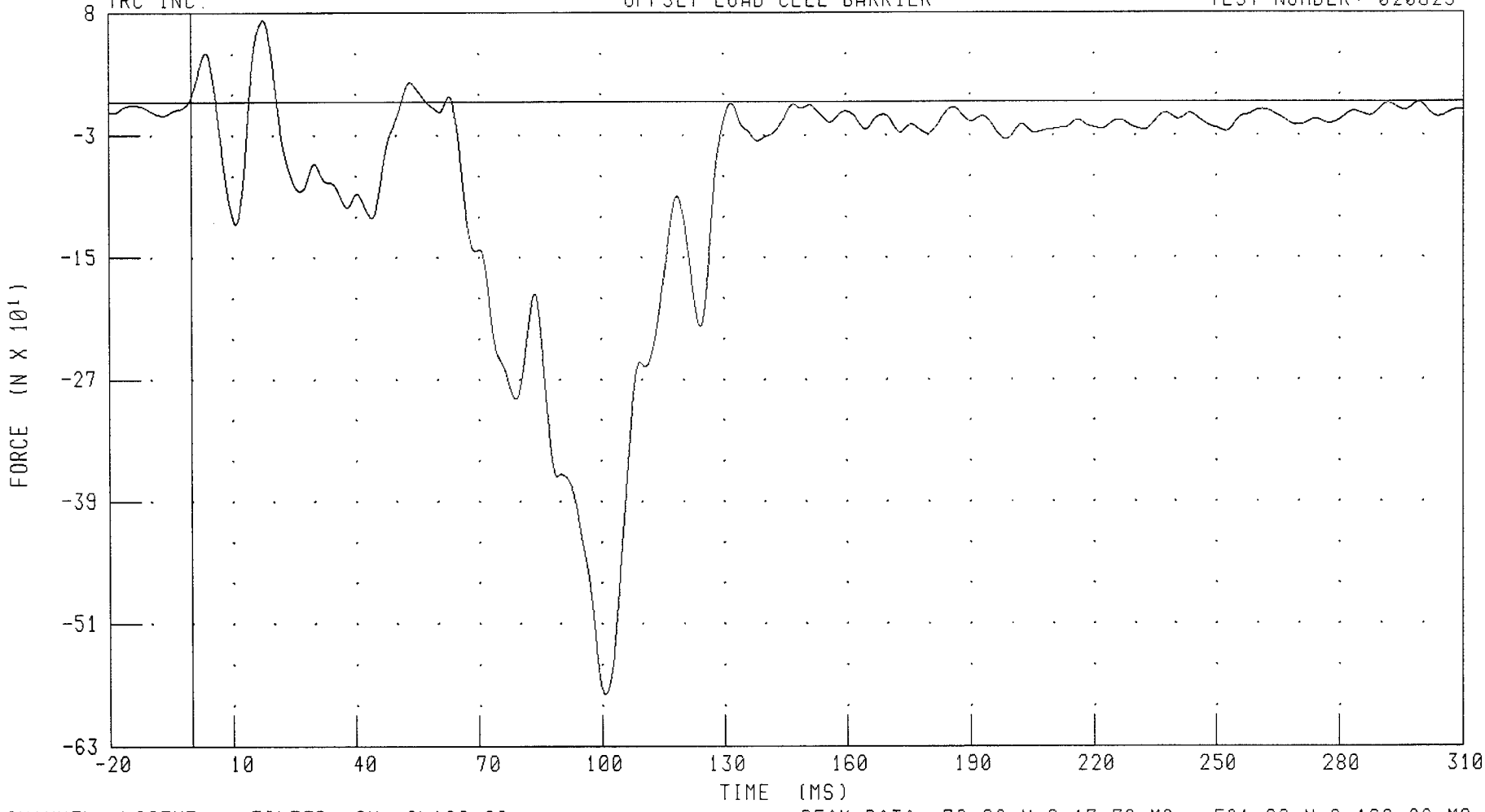


CHANNEL: LCG2XF FILTER: CH. CLASS 60 PEAK DATA: 213.52 N @ 108.00 MS; -115.83 N @ 67.12 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL G3 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823

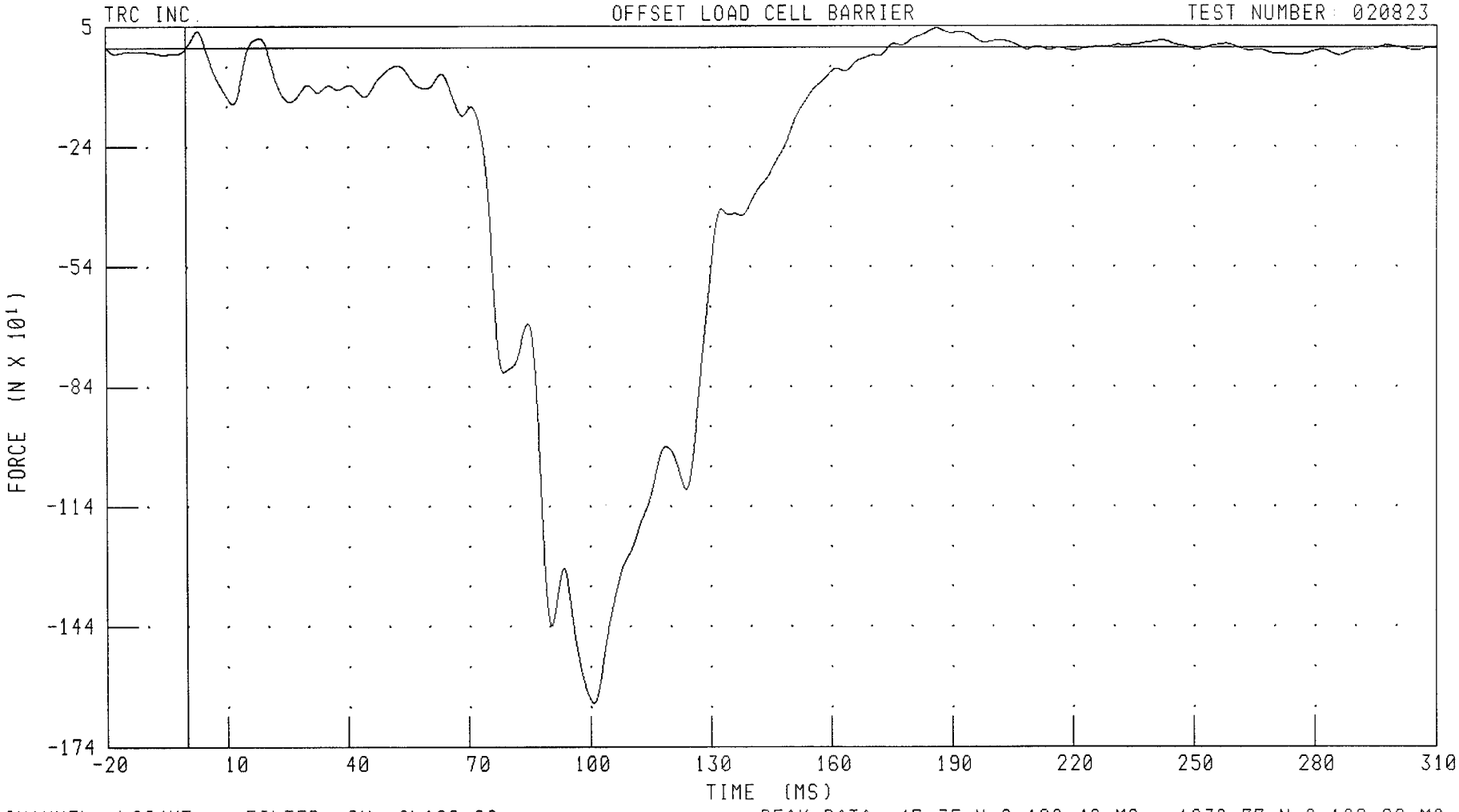


CHANNEL: LCG3XF FILTER: CH. CLASS 60

PEAK DATA: 79.88 N @ 17.76 MS, -581.90 N @ 100.80 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL G4 X-AXIS FORCE

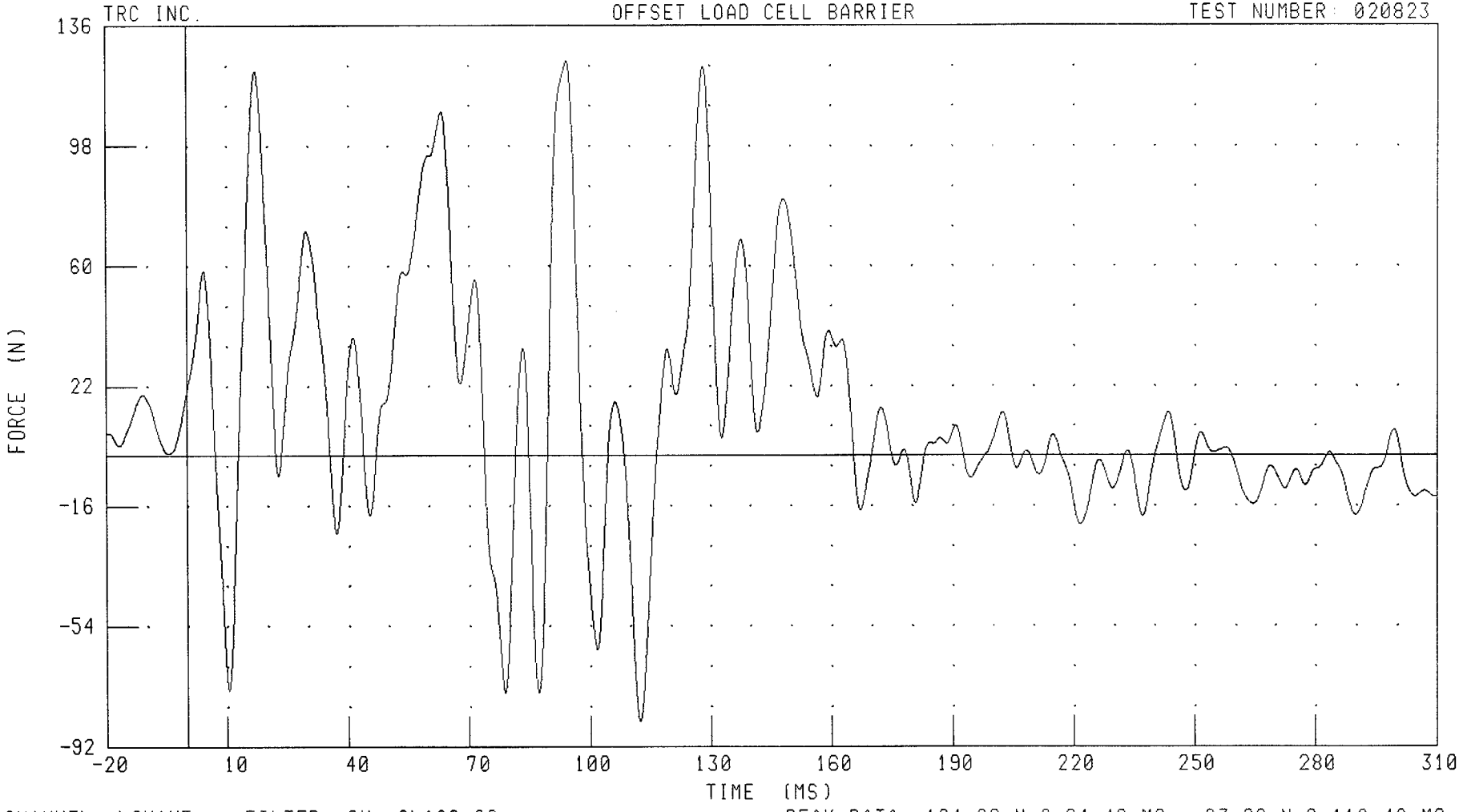


CHANNEL: LCG4XF FILTER: CH. CLASS 60 PEAK DATA: 47.35 N @ 186.40 MS; -1638.77 N @ 100.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL H1 X-AXIS FORCE

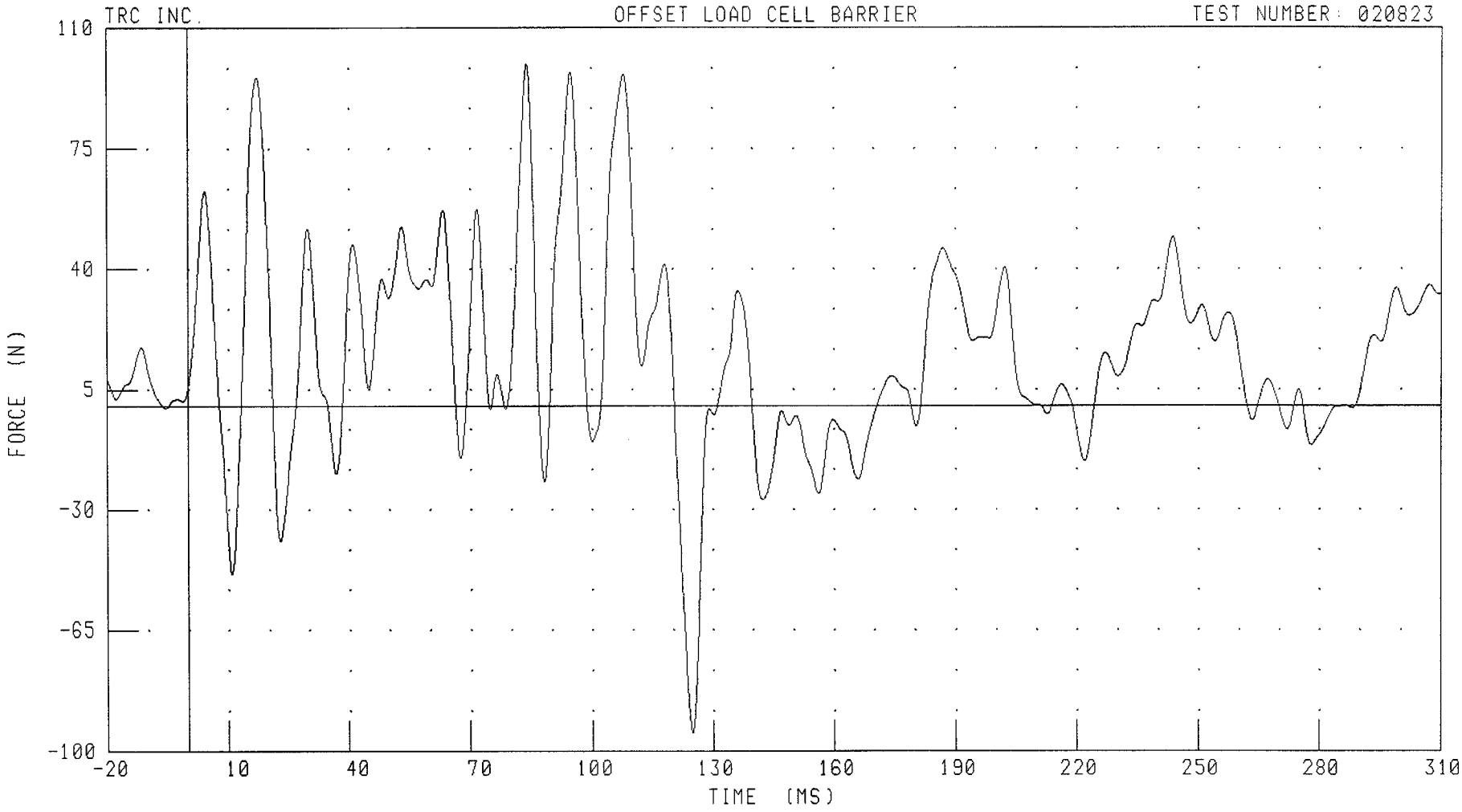
TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LCH1XF FILTER: CH. CLASS 60 PEAK DATA: 124.88 N @ 94.40 MS; -83.90 N @ 112.40 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

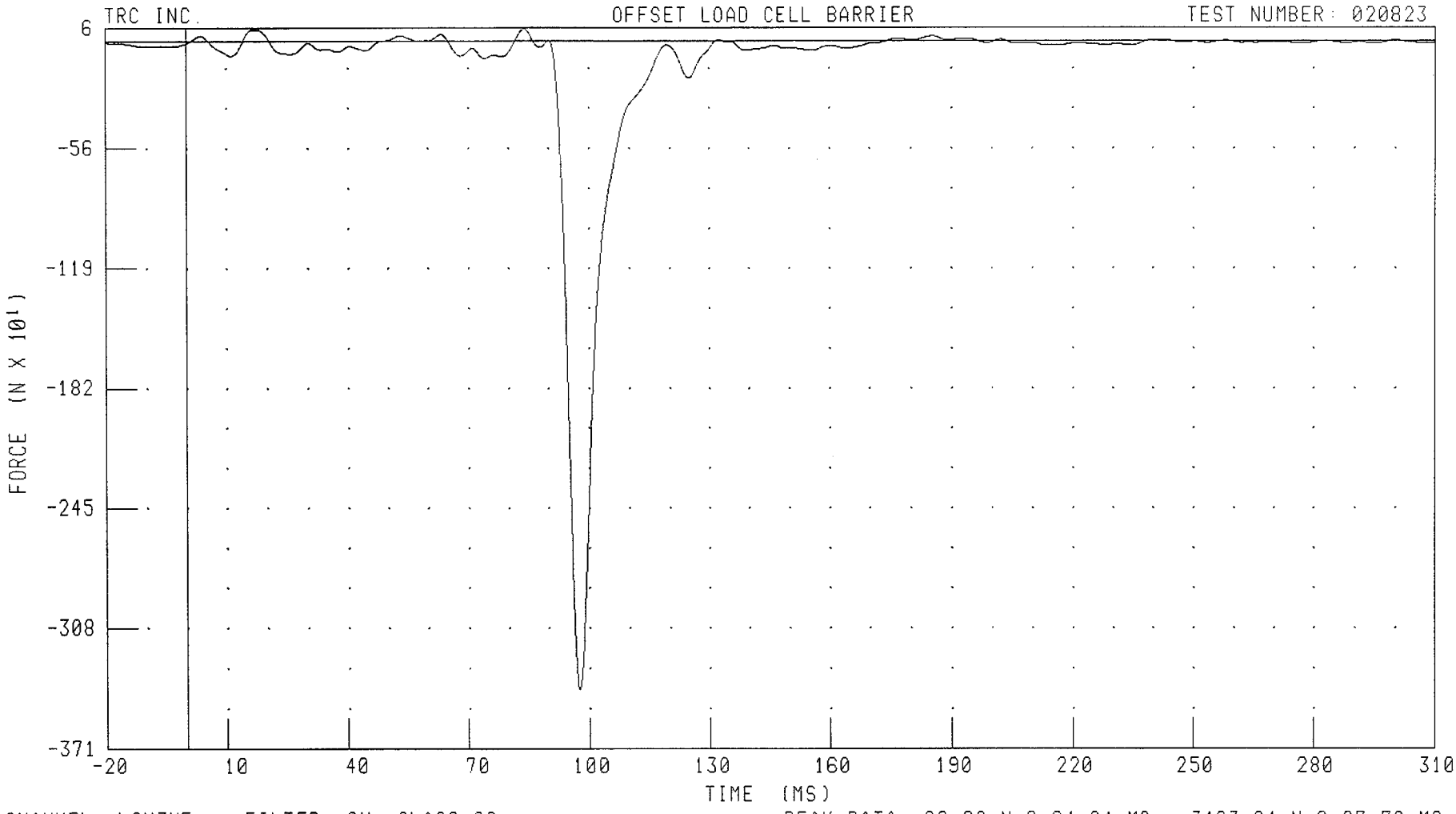
BARRIER LOAD CELL H2 X-AXIS FORCE



CHANNEL: LCH2XF FILTER: CH. CLASS 60 PEAK DATA: 99.53 N @ 84.00 MS; -94.79 N @ 124.88 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL H3 X-AXIS FORCE



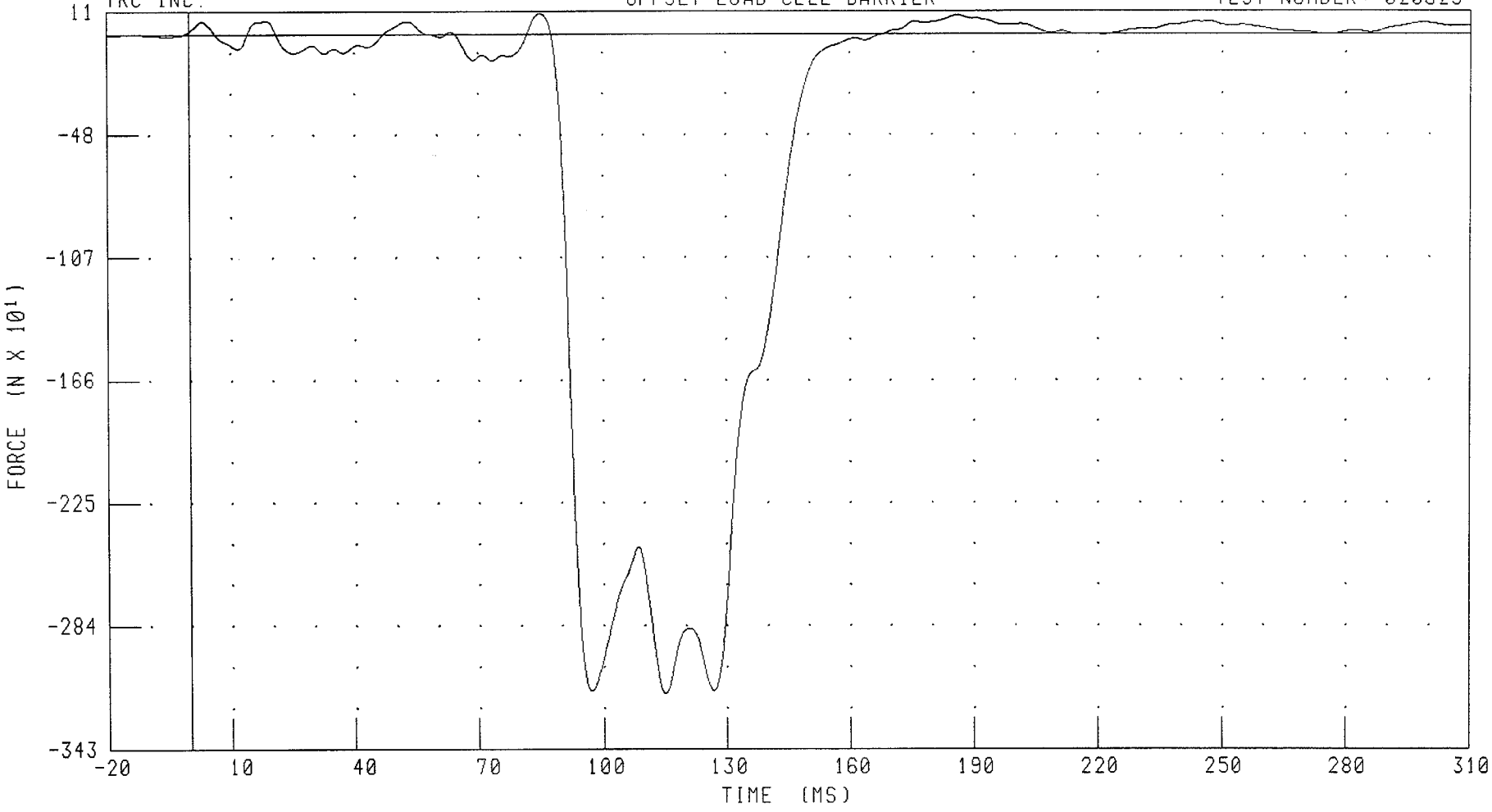
CHANNEL: LCH3XF FILTER: CH. CLASS 60

PEAK DATA: 60.99 N @ 84.24 MS; -3403.94 N @ 97.76 MS

2002 NISSAN QUEST INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 56 KM/H

BARRIER LOAD CELL H4 X-AXIS FORCE

TRC INC. OFFSET LOAD CELL BARRIER TEST NUMBER: 020823



CHANNEL: LCH4XF FILTER: CH. CLASS 60 PEAK DATA: 100.40 N @ 84.96 MS; -3167.27 N @ 115.12 MS

Appendix C

Dummy Configuration and Performance Verification Data

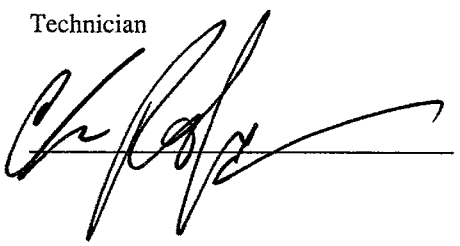
Pre-Test Dummy Configuration and Performance Verification Data

Driver Dummy S/N: 168

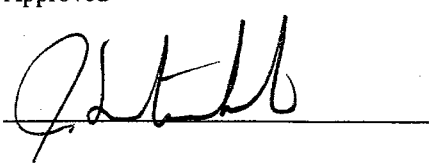
Transportation Research Center Inc.
572E HIII 50th Dummy
External Dimensions
Serial No. 168 Calibration No. 16

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	980 mm	Yes
Waist Circumference	Z	836 - 866 mm	854 mm	Yes
Chest Depth	O	213 - 229 mm	226 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	45 mm	Yes
Total Sitting Height	A	879 - 889 mm	885 mm	Yes
Thigh Clearance	F	140 - 155 mm	151 mm	Yes
Buttock Knee Length	K	579 - 605 mm	599 mm	Yes
Buttock Popliteal Length	N	452 - 478 mm	475 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	96 mm	Yes
Shoulder Pivot From Backline	E	84 - 94 mm	92 mm	Yes
Shoulder Breadth	V	422 - 437 mm	428 mm	Yes
Shoulder Pivot Height	B	506 - 521 mm	519 mm	Yes
Elbow Rest Height	J	191 - 211 mm	208 mm	Yes
Shoulder-Elbow Length	I	330 - 345 mm	338 mm	Yes
Back Of Elbow To Wrist Pivot	G	290 - 305 mm	296 mm	Yes

Technician



Approved



TRC

Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 3

Test Date 07/19/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Peak Resultant Acceleration	225 - 275 g	259.9 g	Yes
Peak Lateral Acceleration	15 g Max	-7.5 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician

Approved

07.23.2002 08:38:38 612

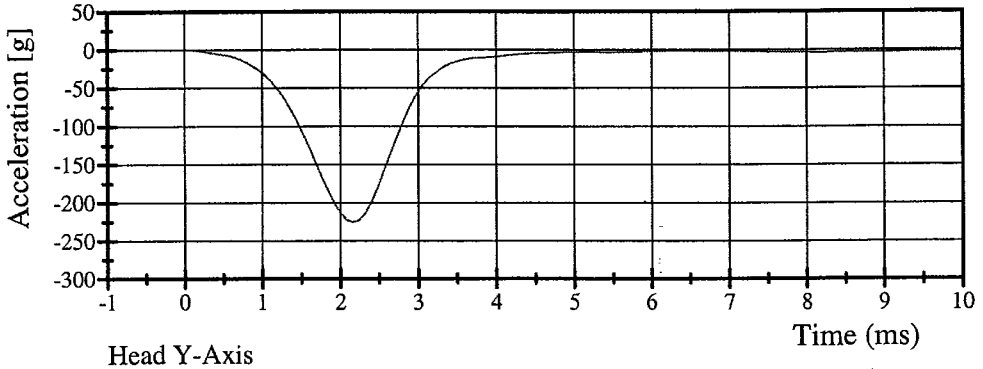
Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 3

Test Date 07/19/2002

Head X-Axis

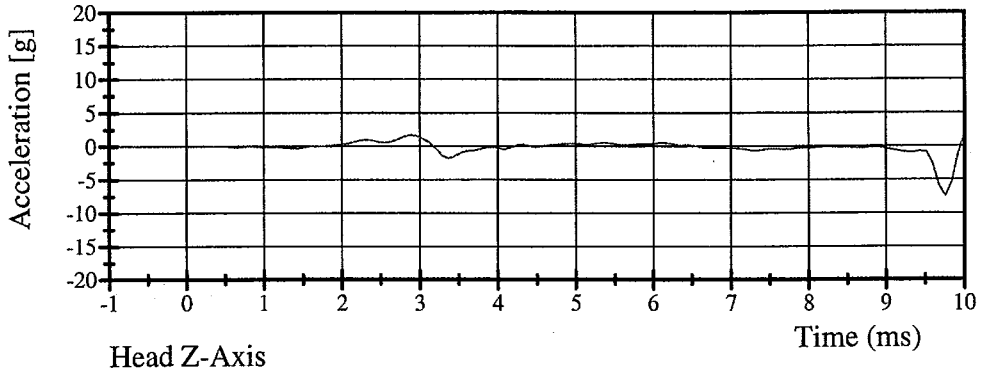


Filter Class: 1000

Max: -0.0 g at 0.0 ms

Min: -225.7 g at 2.2 ms

Head Y-Axis

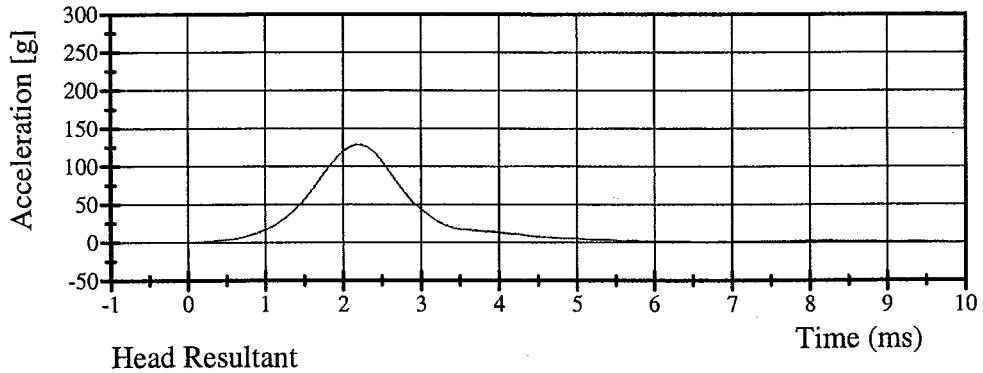


Filter Class: 1000

Max: 1.9 g at 10.0 ms

Min: -7.5 g at 9.8 ms

Head Z-Axis

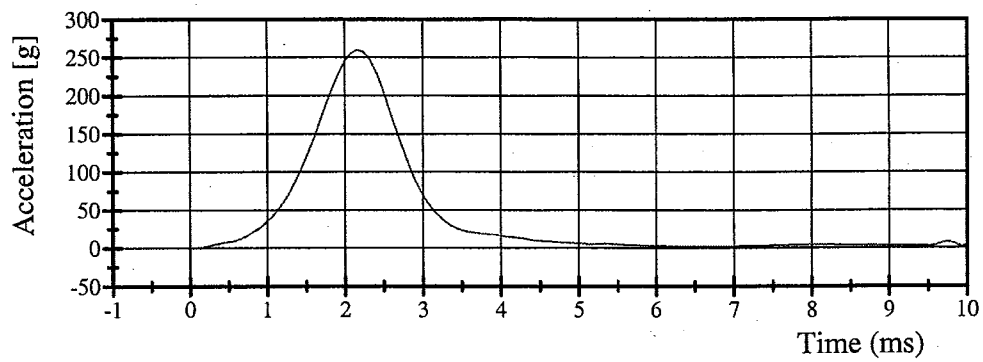


Filter Class: 1000

Max: 128.8 g at 2.2 ms

Min: -0.0 g at 0.0 ms

Head Resultant



Filter Class: 1000

Max: 259.9 g at 2.2 ms

Min: 0.0 g at 5.7 ms

07.23.2002 08:38:39 612

Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

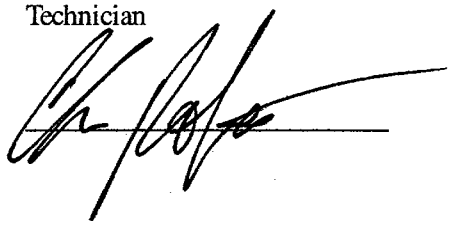
HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/18/2002

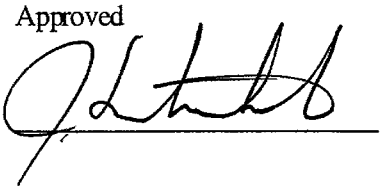
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	25.40 g	Yes
20 ms	17.60 - 22.60 g	22.05 g	Yes
30 ms	12.50 - 18.50 g	17.75 g	Yes
Max Pendulum Deceleration	29.00 g	26.01 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	17.65 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	37.04 ms	Yes
D Plane Rotation			
Max	64 - 78 °	65.75 °	Yes
Time	57 - 64 ms	58.96 ms	Yes
Moment About Occipital Condyle			
Max	88.2 - 108.4 N·m	96.59 N·m	Yes
Time	47 - 58 ms	50.40 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	116.24 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	100.48 ms	Yes

Comments:

Technician



Approved



07.18.2002 13:12:12 480

TRC

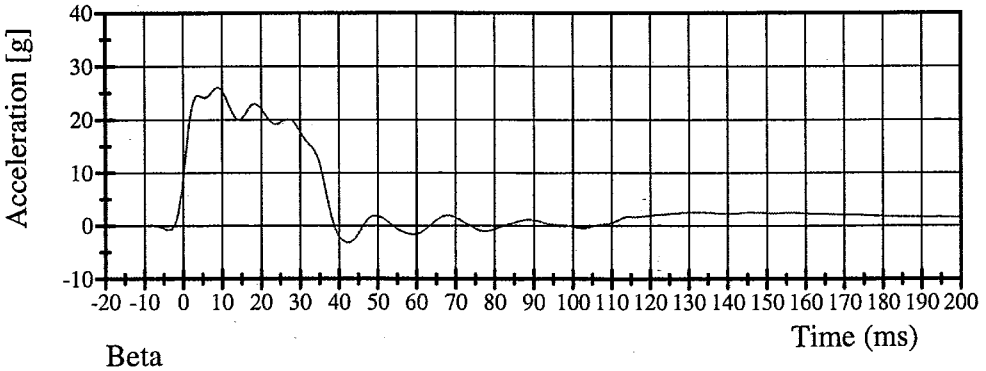
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/18/2002

Pendulum Deceleration

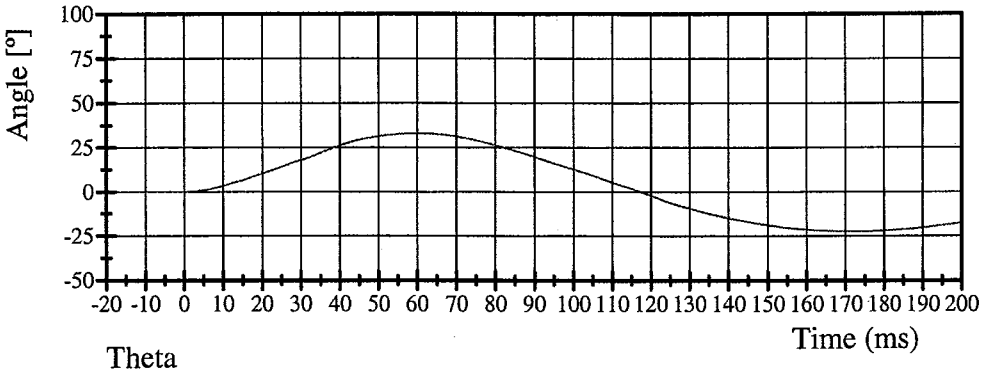


Filter Class: 60

Max: 26.0 g at 8.9 ms

Min: -3.1 g at 42.3 ms

Beta

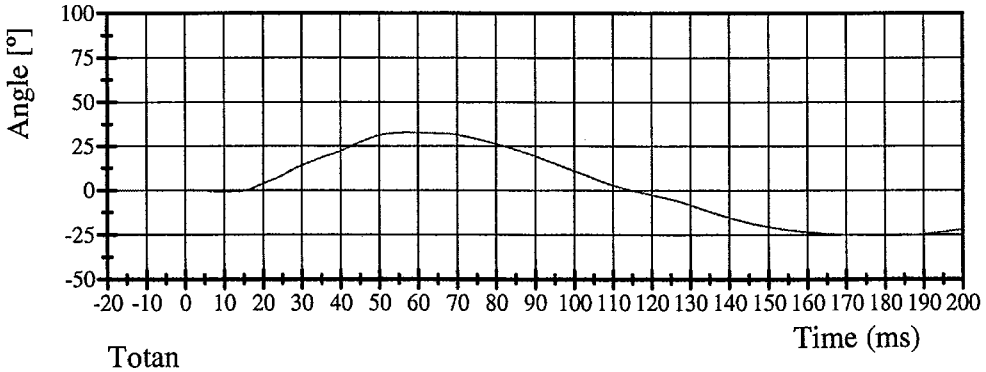


Filter Class: 60

Max: 33.0 ° at 60.3 ms

Min: -22.3 ° at 171.1 ms

Theta

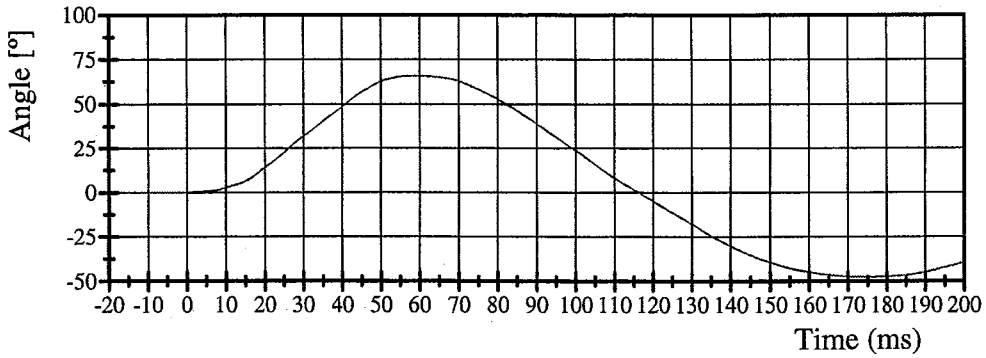


Filter Class: 60

Max: 32.8 ° at 57.0 ms

Min: -25.3 ° at 179.4 ms

Totan



Filter Class: 60

Max: 65.8 ° at 59.0 ms

Min: -47.6 ° at 175.7 ms

07.18.2002 13:12:14 480

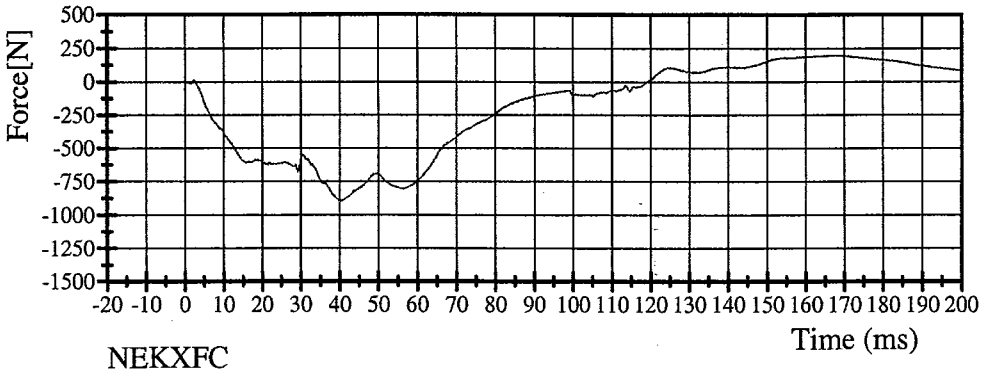
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/18/2002

NEKXF

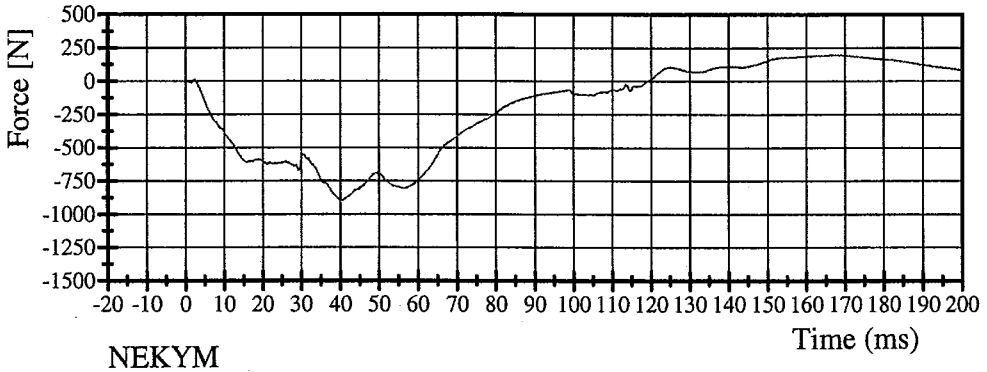


Filter Class: 1000

Max: 195.7 N at 166.6 ms

Min: -898.8 N at 40.1 ms

NEKXFC

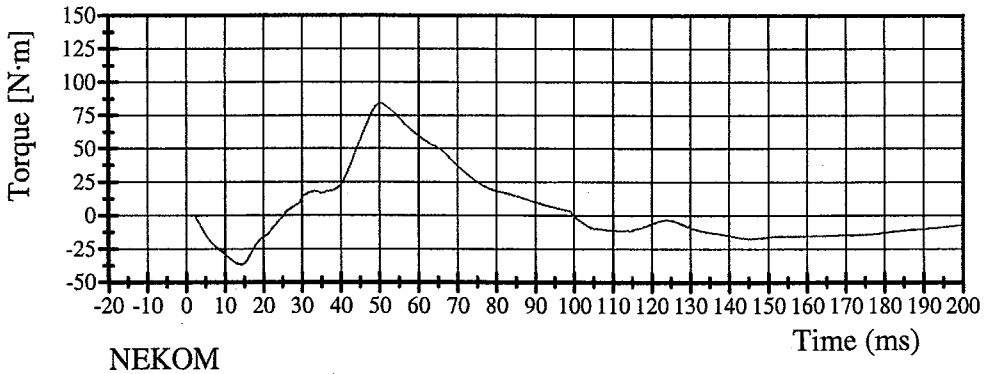


Filter Class: 600

Max: 195.4 N at 166.7 ms

Min: -898.6 N at 40.2 ms

NEKYM

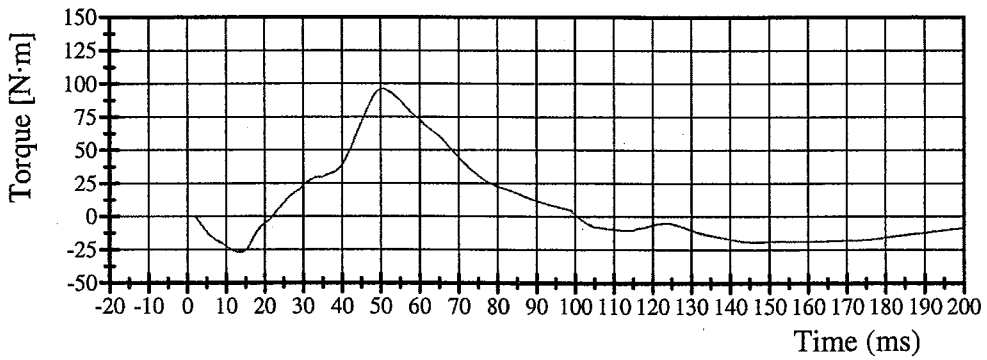


Filter Class: 600

Max: 84.2 N·m at 50.2 ms

Min: -36.7 N·m at 14.2 ms

NEKOM



Filter Class: 600

Max: 96.6 N·m at 50.4 ms

Min: -26.9 N·m at 13.4 ms

07.18.2002 13:12:15 480

Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

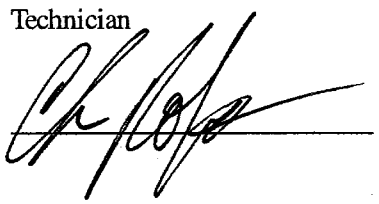
HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/18/2002

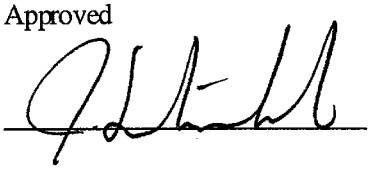
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.11 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	20.82 g	Yes
20 ms	14.00 - 19.00 g	18.90 g	Yes
30 ms	11.00 - 16.00 g	14.99 g	Yes
Max Pendulum Deceleration	22.00 g	21.01 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	14.91 g	Yes
Deceleration-Time Curve Decay Time To 5g	38 - 46 ms	39.60 ms	Yes
D Plane Rotation			
Max	81 - 106 °	94.61 °	Yes
Time	72 - 82 ms	76.40 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-65.45 N·m	Yes
Time	65 - 79 ms	71.76 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	147 - 174 ms	154.72 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	120 - 148 ms	142.08 ms	Yes

Comments:

Technician



Approved



07.18.2002 13:45:41 552

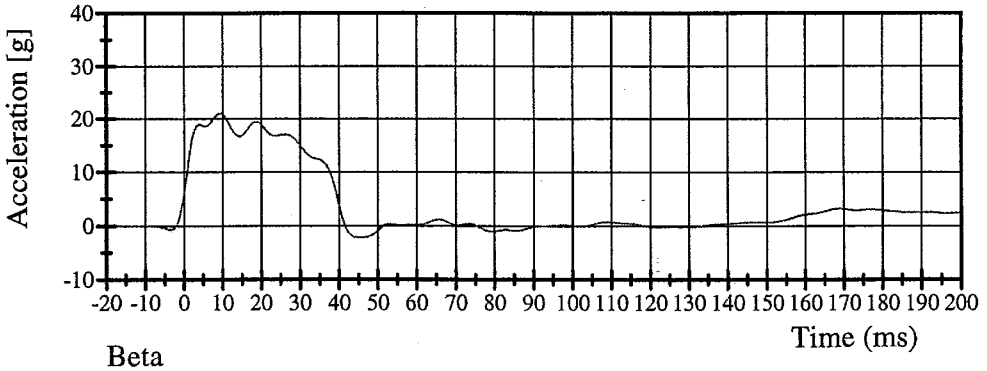
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/18/2002

Pendulum Deceleration

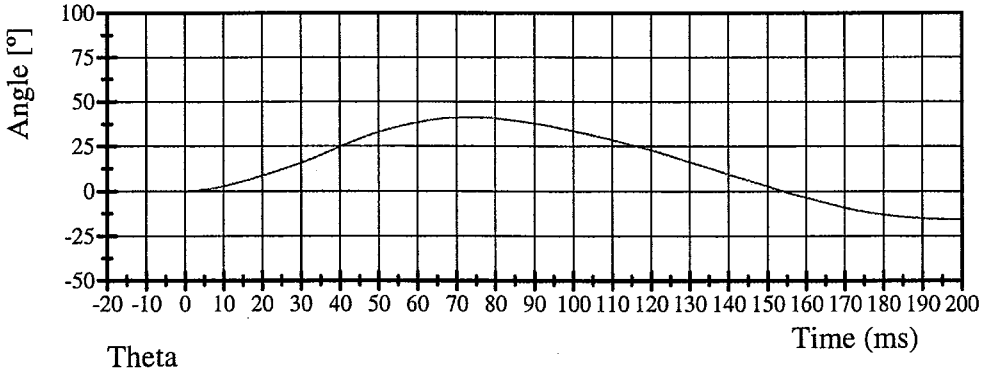


Filter Class: 60

Max: 21.0 g at 9.4 ms

Min: -2.1 g at 45.3 ms

Beta

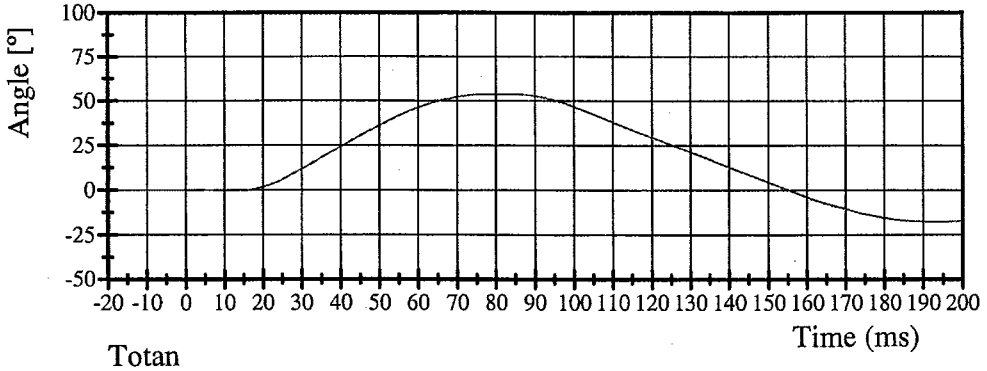


Filter Class: 60

Max: 41.1 ° at 73.7 ms

Min: -15.5 ° at 197.4 ms

Theta

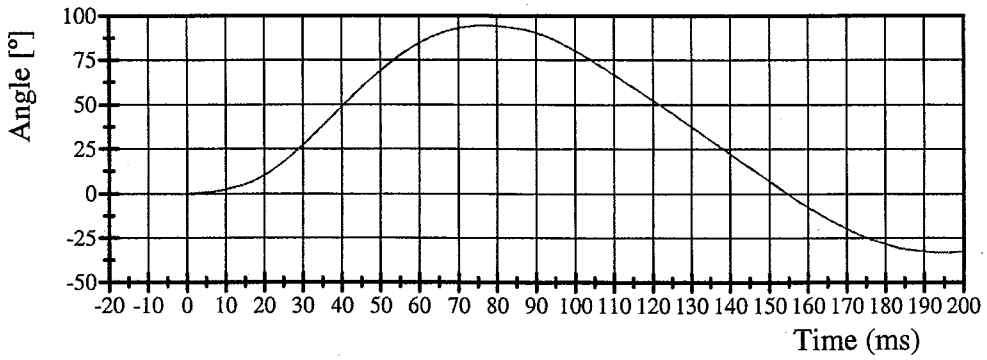


Filter Class: 60

Max: 53.7 ° at 78.6 ms

Min: -17.6 ° at 192.8 ms

Totan



Filter Class: 60

Max: 94.6 ° at 76.4 ms

Min: -33.0 ° at 194.4 ms

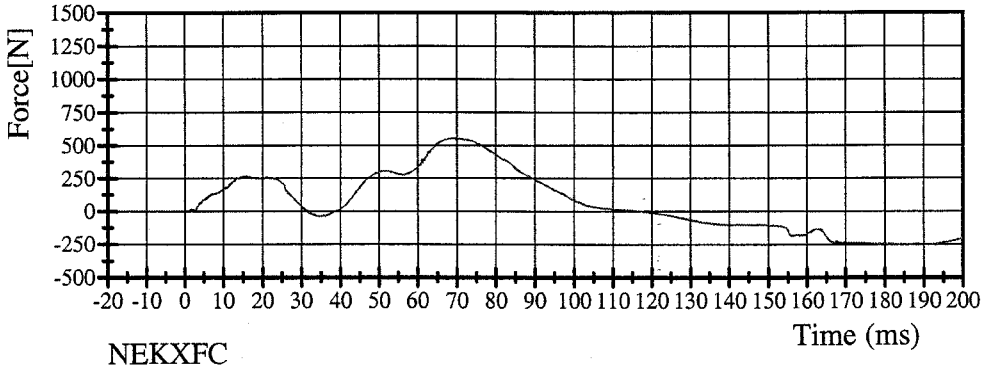
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/18/2002

NEKXF

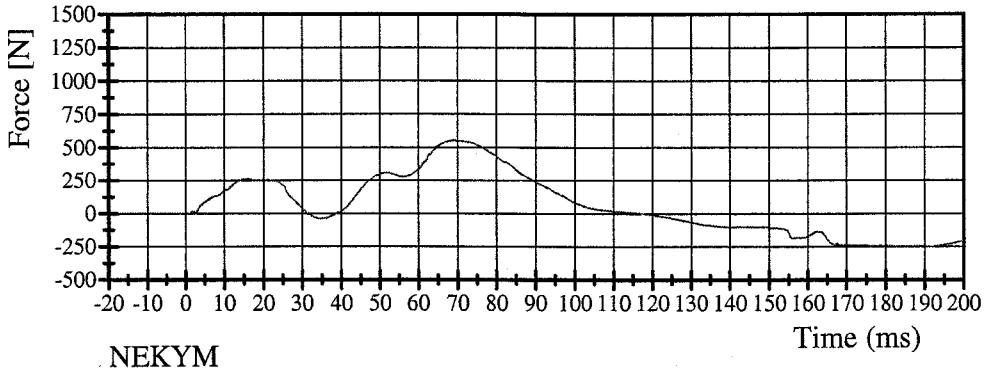


Filter Class: 1000

Max: 555.4 N at 69.3 ms

Min: -251.6 N at 190.9 ms

NEKXFC

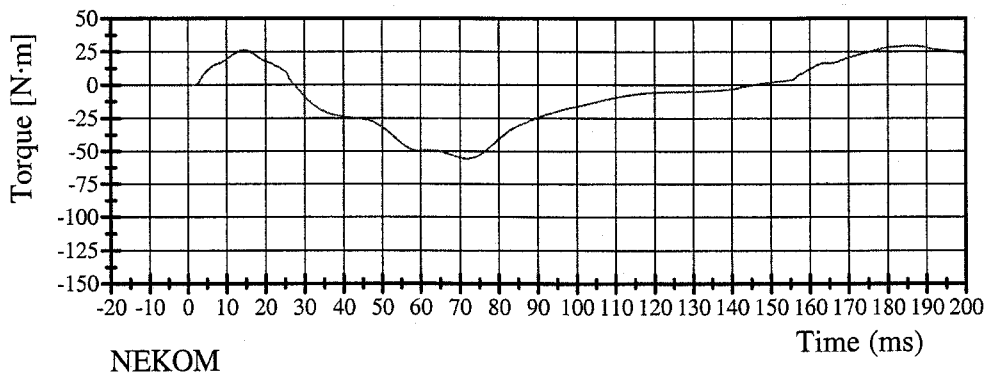


Filter Class: 600

Max: 554.6 N at 69.2 ms

Min: -251.5 N at 191.6 ms

NEKYM

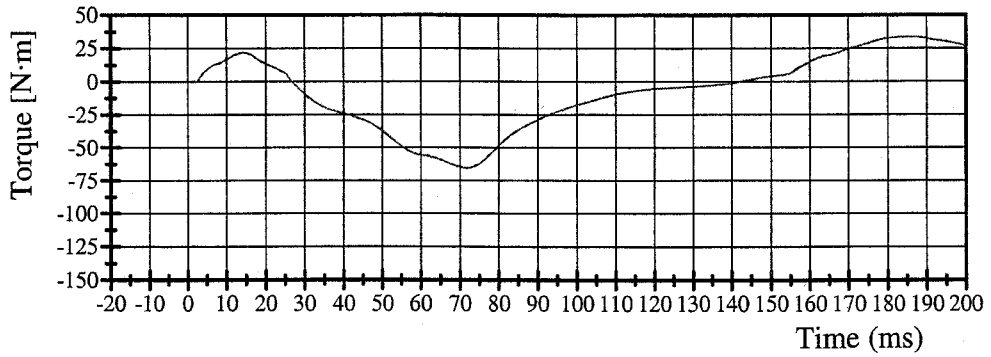


Filter Class: 600

Max: 29.2 N·m at 186.4 ms

Min: -55.8 N·m at 72.0 ms

NEKOM



Filter Class: 600

Max: 33.6 N·m at 186.4 ms

Min: -65.5 N·m at 71.8 ms

Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/22/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.66 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-65.4 mm	Yes
Maximum Resistive Force	5159 - 5894 N	5756 N	Yes
Internal Hysteresis	69 - 85 %	73 %	Yes

Comments:

Technician

Approved

07.22.2002 12:22:10 963

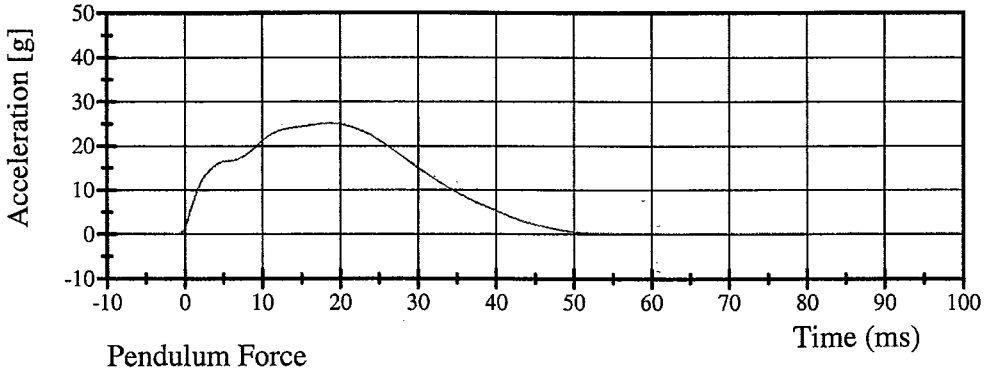
Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/22/2002

Pendulum Deceleration

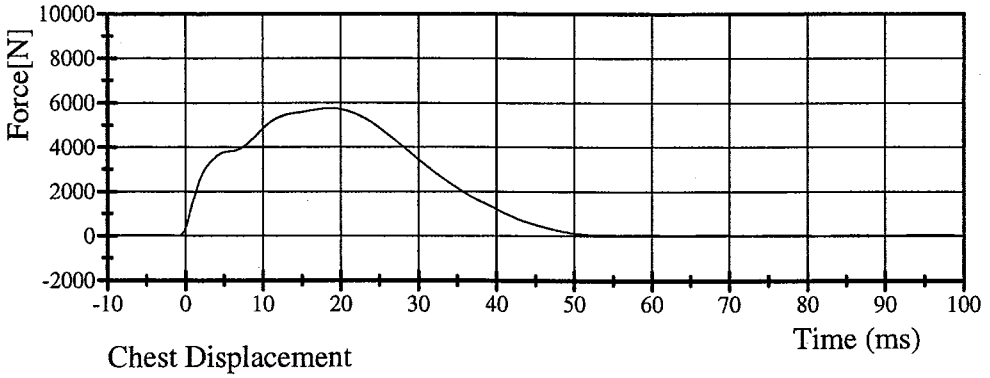


Filter Class: 180

Max: 25.1 g at 18.6 ms

Min: -0.0 g at -77.0 ms

Pendulum Force

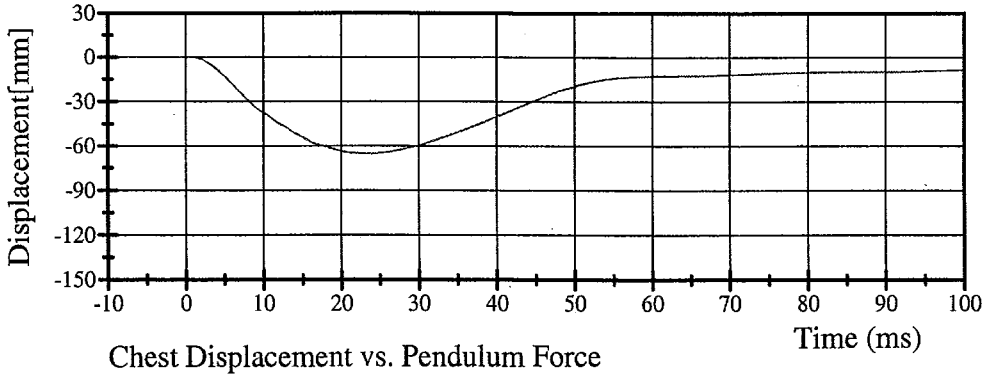


Filter Class: 180

Max: 5756.2 N at 18.6 ms

Min: -9.1 N at -77.0 ms

Chest Displacement

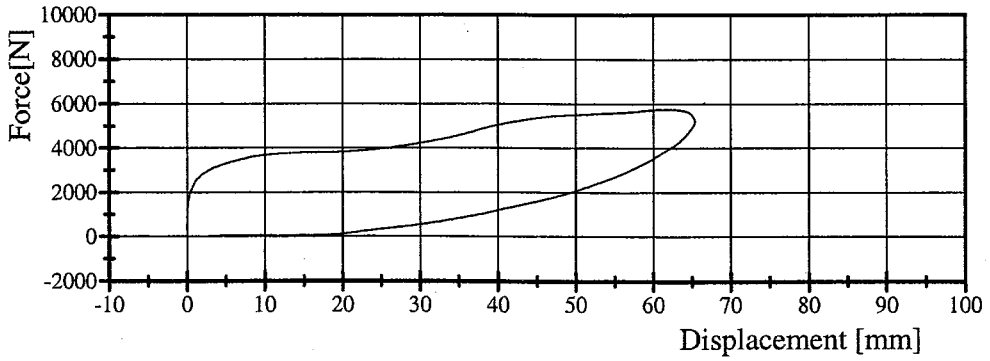


Filter Class: 180

Max: 0.0 mm at 0.2 ms

Min: -65.4 mm at 23.6 ms

Chest Displacement vs. Pendulum Force



Transportation Research Center Inc

Hybrid III Hip Range of Motion

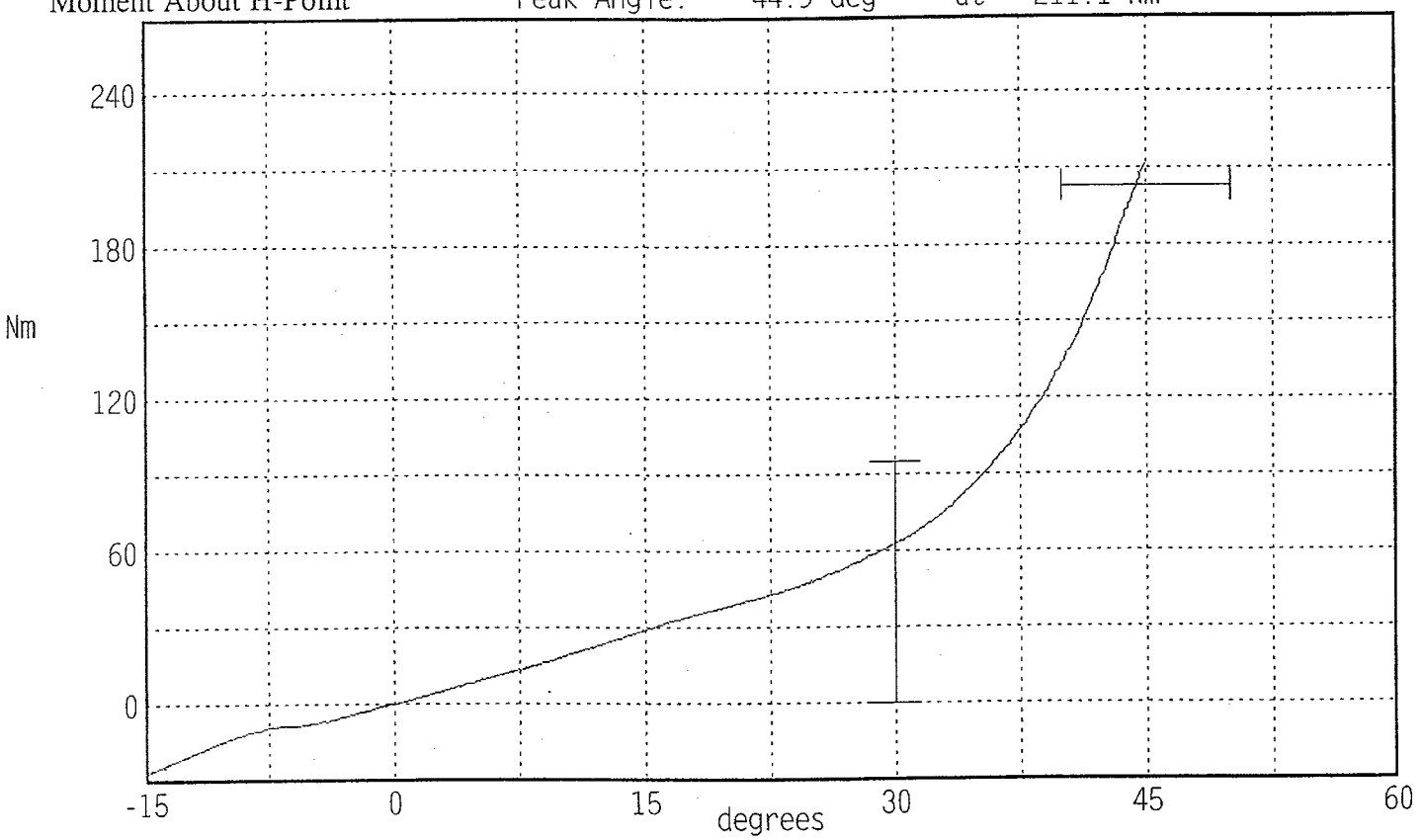
Serial Number: 168L
Test Number: 168C16
Comments:

Date: 07/18/2002
Time: 12:26

TEST PARAMETER	SPECIFICATION	TEST RESULTS		
Temperature	18.9 - 25.6	21.7	°C	Pass
Humidity	10 - 70	55	%	Pass
Moment at 30 deg	<= 94.9	62.9	Nm	Pass
Angle at 203 Nm	40.0 - 50.0	44.5	deg	Pass
Average Velocity	5.0 - 10.0	7.4	deg/sec	Pass

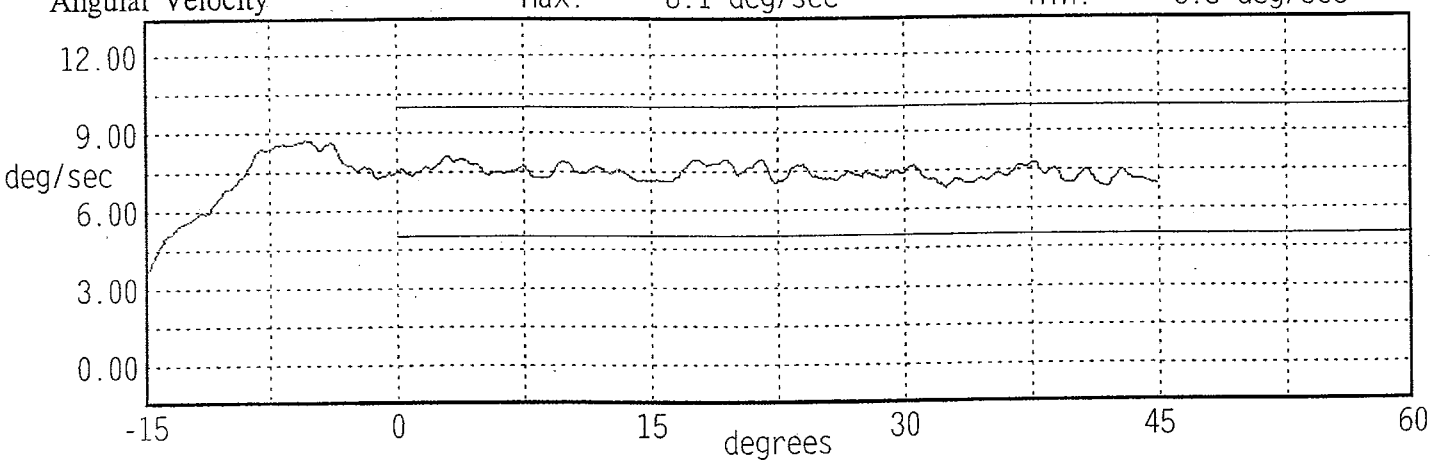
Moment About H-Point

Peak Moment: 211.1 Nm at 44.9 deg
Peak Angle: 44.9 deg at 211.1 Nm



Angular Velocity

Max: 8.1 deg/sec Min: 6.8 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

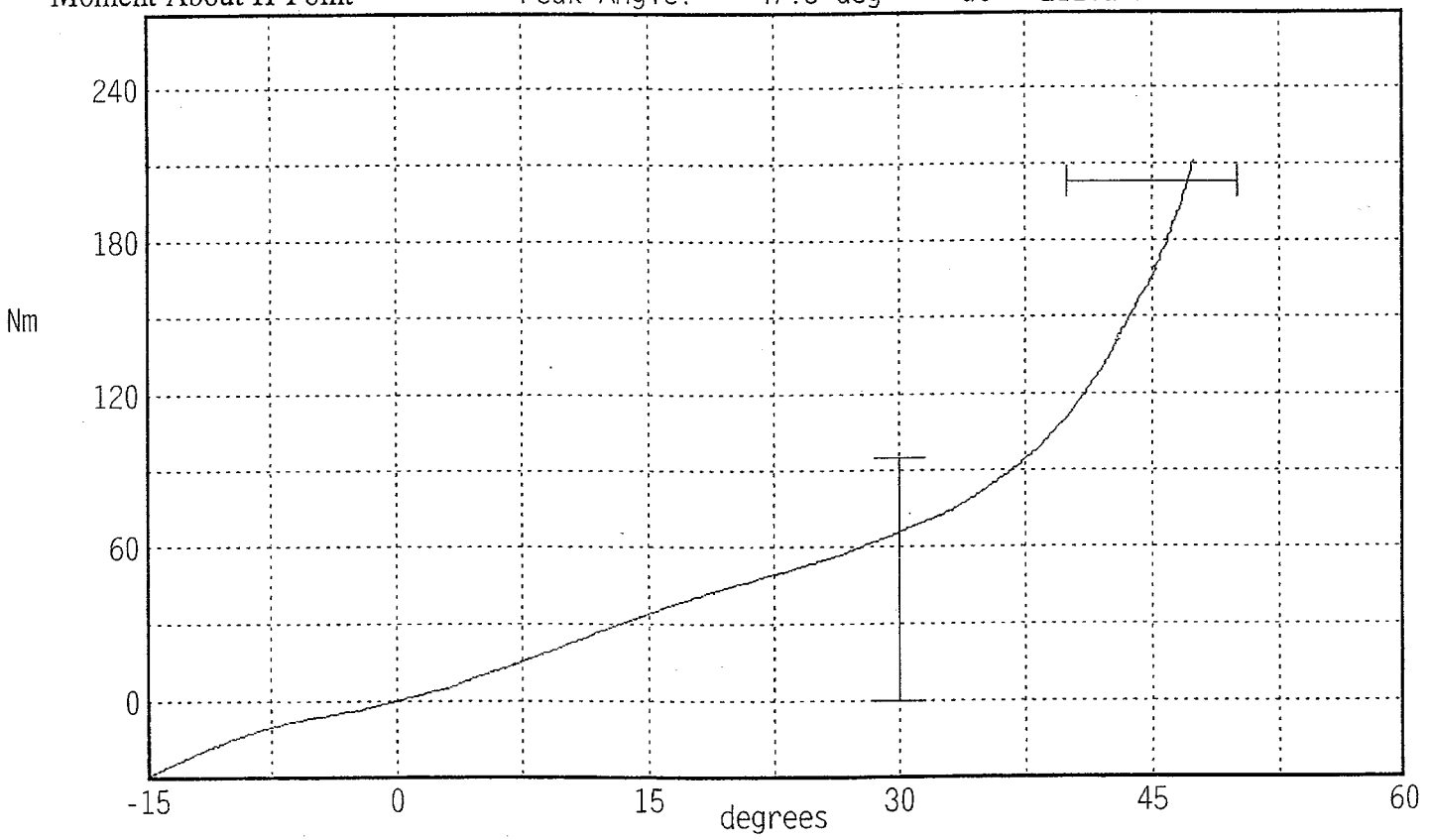
Serial Number: 168R
Test Number: 168C16
Comments:

Date: 07/18/2002
Time: 12:20

TEST PARAMETER	SPECIFICATION	TEST RESULTS		
Temperature	18.9 - 25.6	21.7	°C	Pass
Humidity	10 - 70	55	%	Pass
Moment at 30 deg	<= 94.9	65.8	Nm	Pass
Angle at 203 Nm	40.0 - 50.0	47.1	deg	Pass
Average Velocity	5.0 - 10.0	7.5	deg/sec	Pass

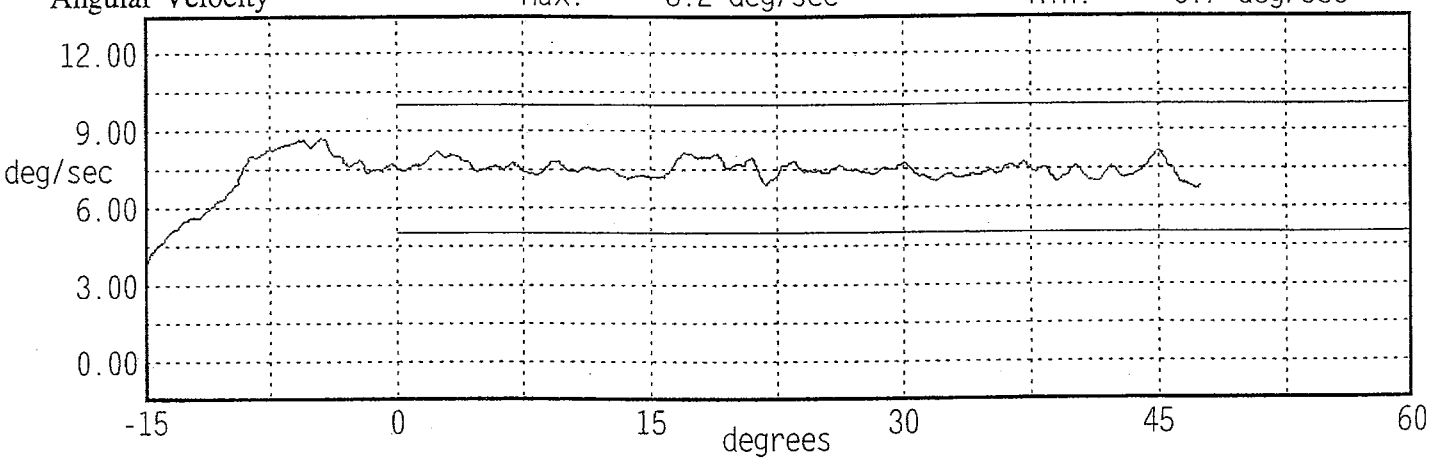
Moment About H-Point

Peak Moment: 211.1 Nm at 47.5 deg
Peak Angle: 47.5 deg at 211.1 Nm



Angular Velocity

Max: 8.2 deg/sec Min: 6.7 deg/sec



Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 8

Test Date 08/22/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.77 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1424 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2973 N	Yes

Comments:

Technician

Approved

08.26.2002 09:13:24 1154

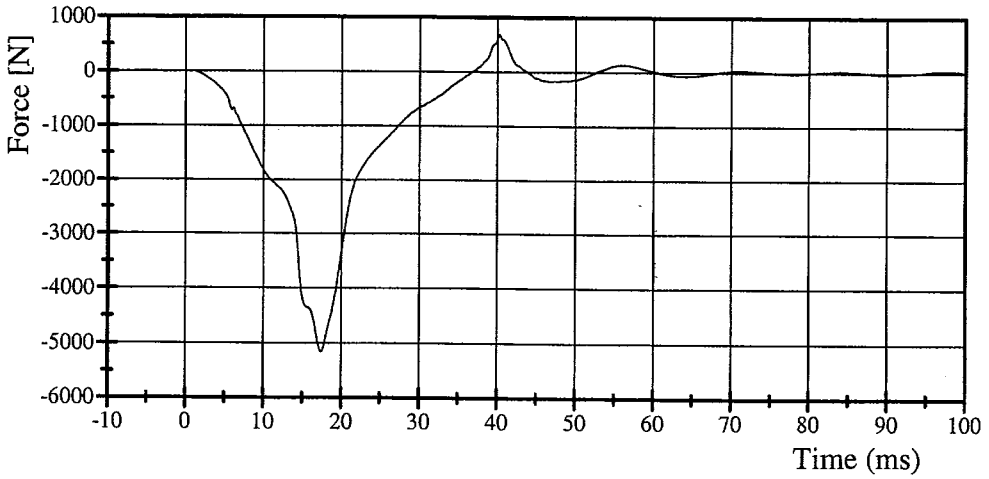
Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 8

Test Date 08/22/2002

Femur Force

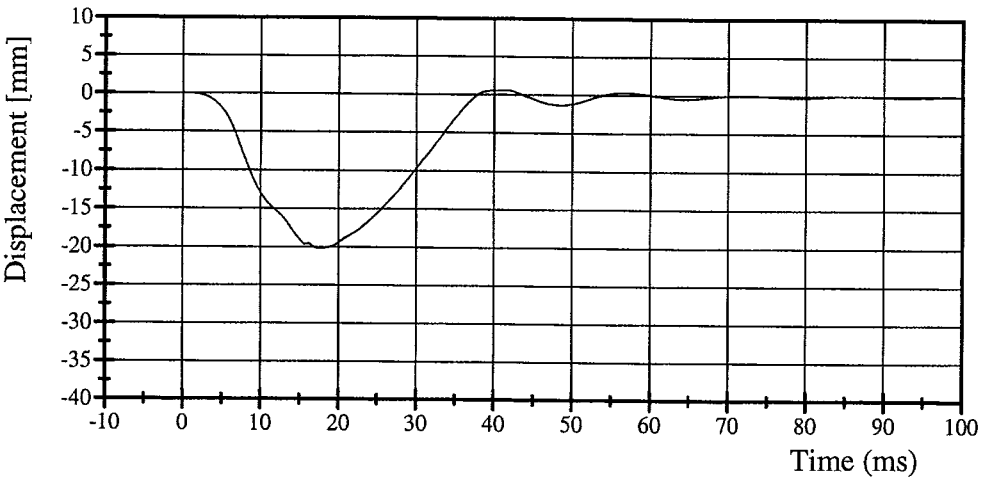


Filter Class: 600

Max: 687.9 N at 40.2 ms

Min: -5158.8 N at 17.4 ms

Tibia Displacement

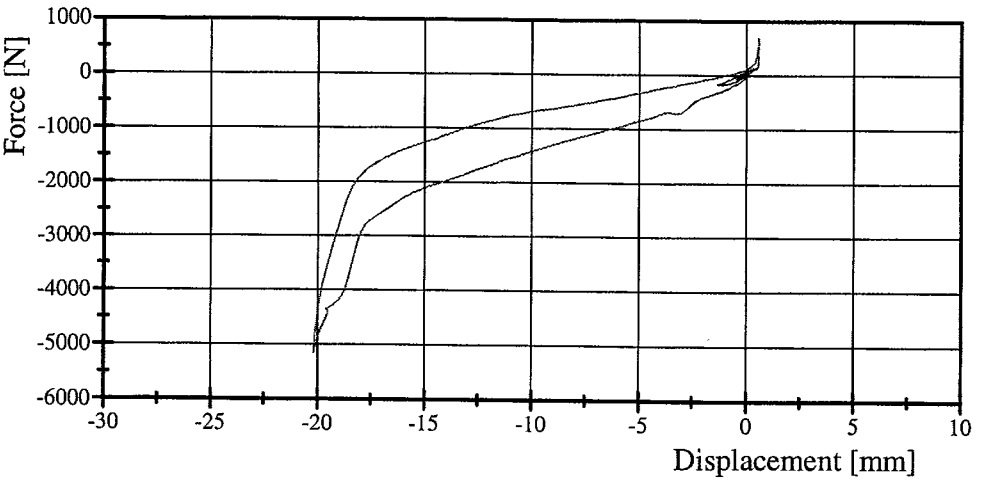


Filter Class: 600

Max: 0.6 mm at 40.7 ms

Min: -20.2 mm at 17.5 ms

Femur Force vs Tibia Displacement



08.26.2002 09:13:33 1154

Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 2

Test Date 08/22/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.71 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1372 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2531 N	Yes

Comments:

Technician

Approved

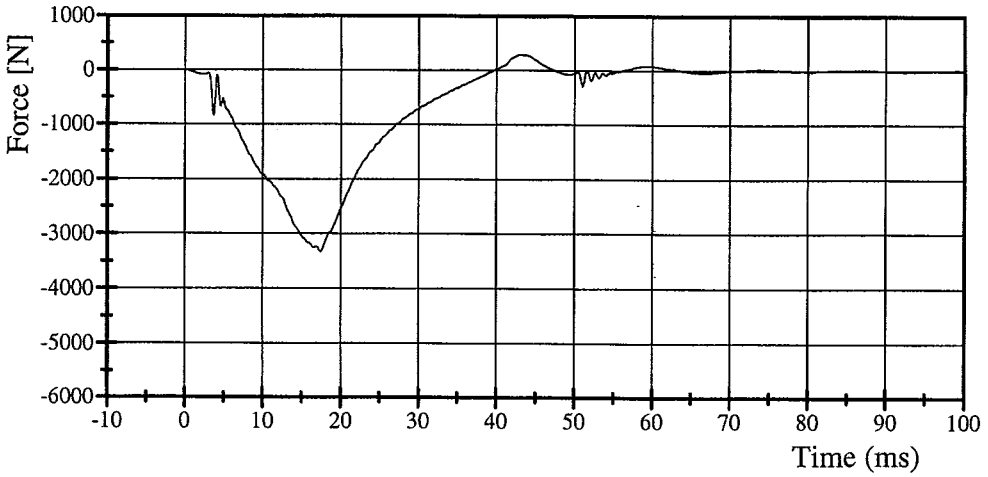
Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 2

Test Date 08/22/2002

Femur Force

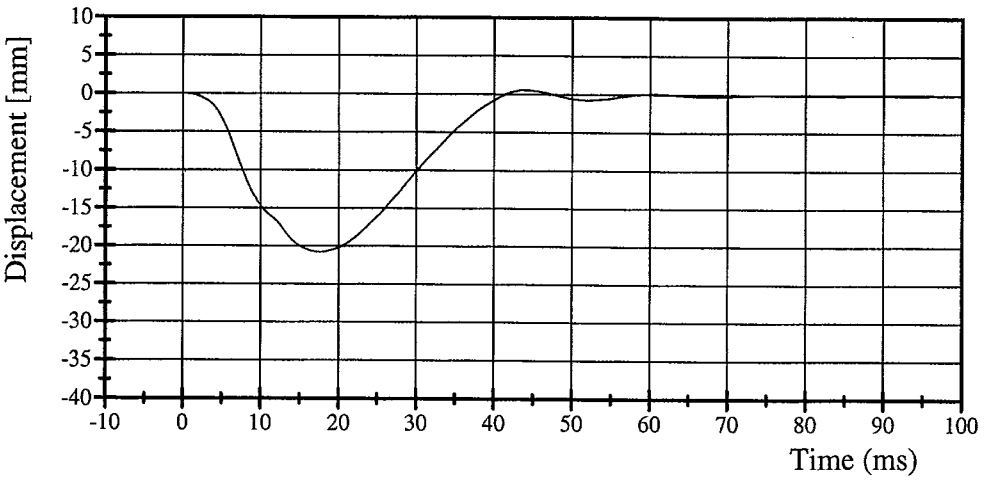


Filter Class: 600

Max: 288.2 N at 43.0 ms

Min: -3329.8 N at 17.4 ms

Tibia Displacement

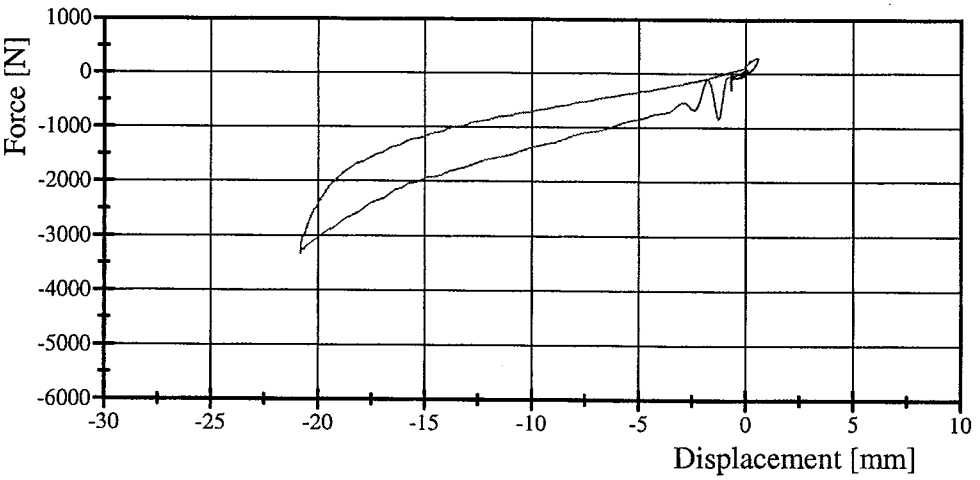


Filter Class: 600

Max: 0.6 mm at 44.1 ms

Min: -20.8 mm at 17.6 ms

Femur Force vs Tibia Displacement



08.27.2002 08:55:22 1790

Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/09/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.08 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5306 N	Yes

Comments:

Technician

Approved

07.09.2002 09:24:27 2120

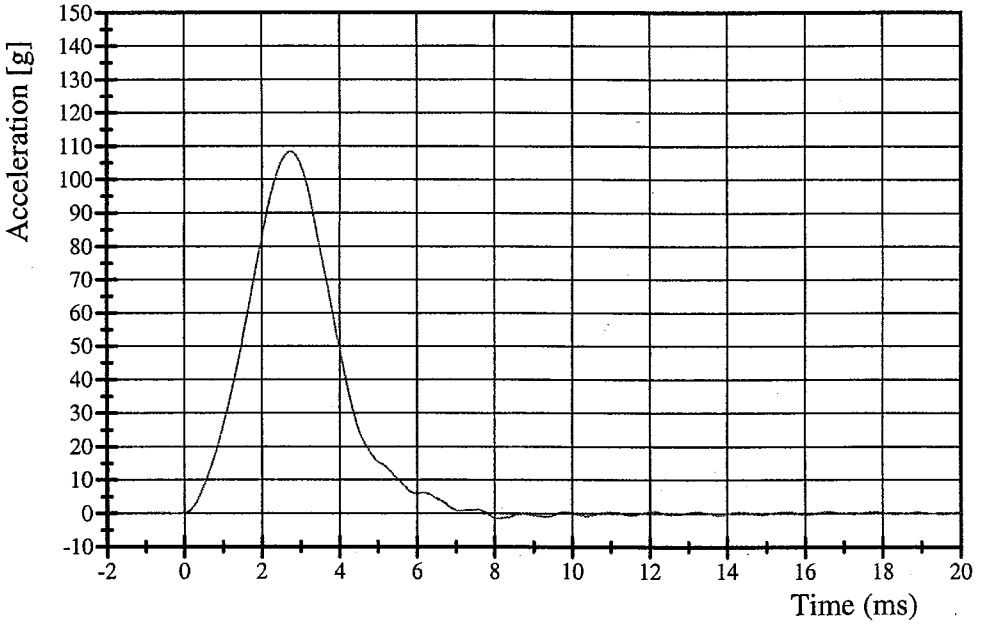
Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 1

Test Date 07/09/2002

Pendulum Deceleration

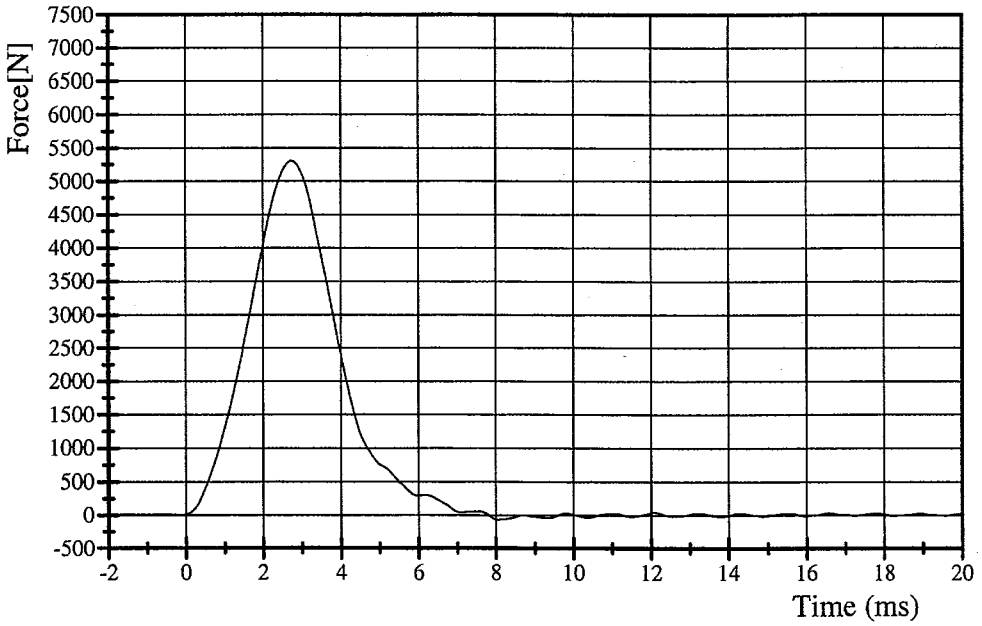


Filter Class: 600

Max: 108.4 g at 2.7 ms

Min: -1.5 g at 8.1 ms

Pendulum Force



Filter Class: 600

Max: 5305.7 N at 2.7 ms

Min: -73.0 N at 8.1 ms

Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 2

Test Date 08/22/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.09 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	4970 N	Yes

Comments:

Replaced Old Knee Skin and Knee Insert Due To Damaga Done To Knee During 020703's Crash Test.

Technician

Approved

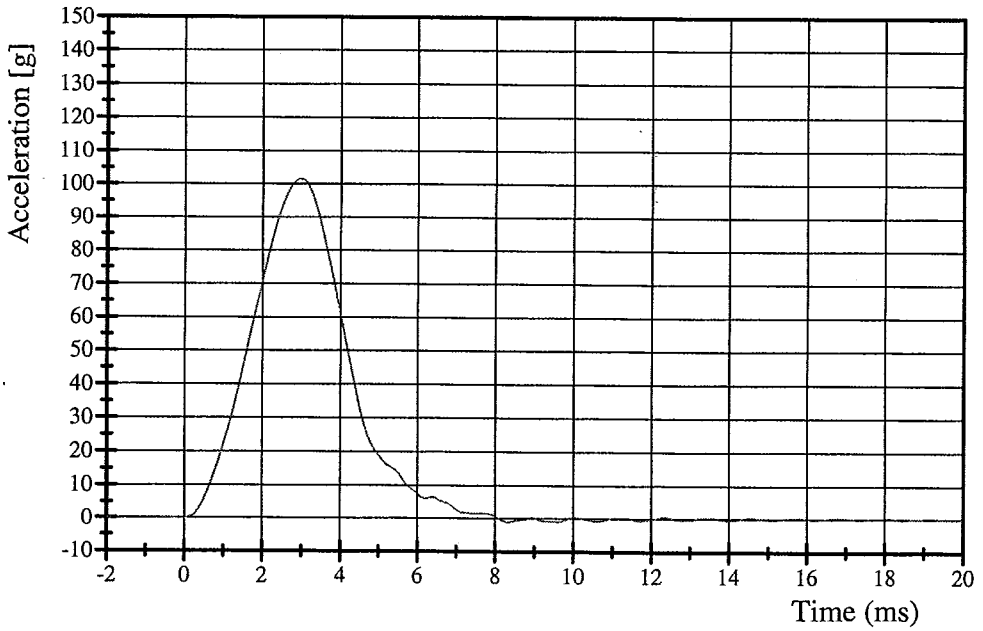
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 16 - 2

Test Date 08/22/2002

Pendulum Deceleration

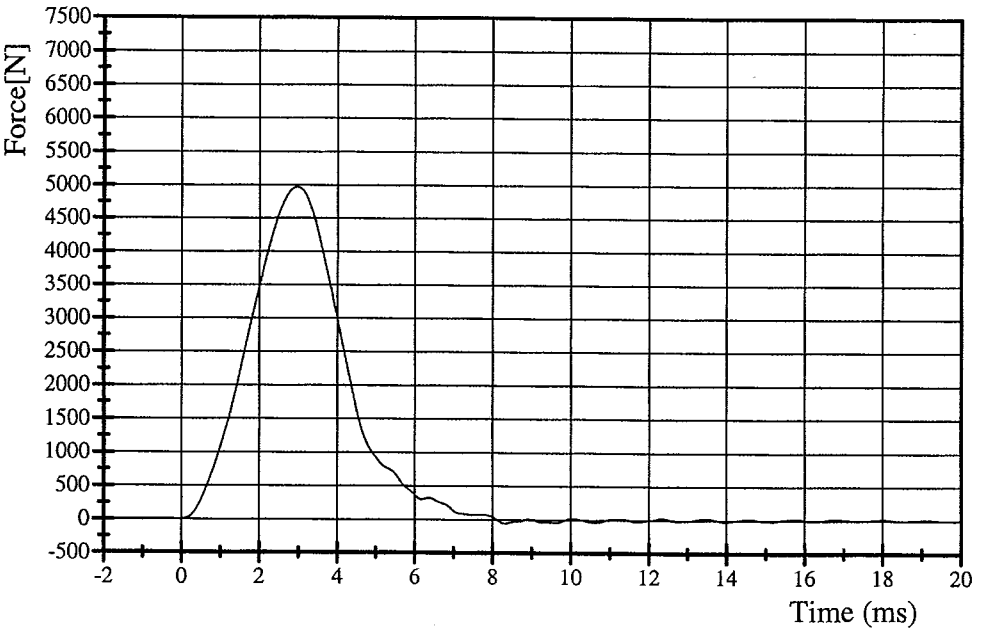


Filter Class: 600

Max: 101.6 g at 3.0 ms

Min: -1.2 g at 8.3 ms

Pendulum Force



Filter Class: 600

Max: 4969.9 N at 3.0 ms

Min: -56.8 N at 8.3 ms

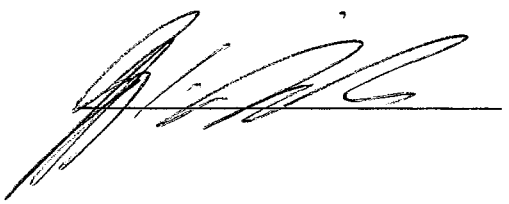
Pre-Test Dummy Configuration and Performance Verification Data

Passenger Dummy S/N: 169

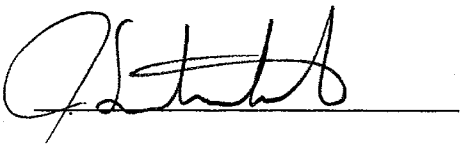
Transportation Research Center Inc.
572E HIII 50th Dummy
External Dimensions
Serial No. 169 Calibration No. 14

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	995 mm	Yes
Waist Circumference	Z	836 - 866 mm	859 mm	Yes
Chest Depth	O	213 - 229 mm	225 mm	Yes
H-Point Height	C	84 - 89 mm	85 mm	Yes
H-Point From Seatback	D	135 - 140 mm	137 mm	Yes
Skull Cap To Backline	H	41 - 46 mm	43 mm	Yes
Total Sitting Height	A	879 - 889 mm	880 mm	Yes
Thigh Clearance	F	140 - 155 mm	146 mm	Yes
Buttock Knee Length	K	579 - 605 mm	594 mm	Yes
Buttock Popliteal Length	N	452 - 478 mm	473 mm	Yes
Popliteal Height	L	429 - 455 mm	436 mm	Yes
Knee Pivot Height	M	485 - 500 mm	489 mm	Yes
Foot Length	P	252 - 267 mm	260 mm	Yes
Foot Breadth	W	91 - 107 mm	96 mm	Yes
Shoulder Pivot From Backline	E	84 - 94 mm	89 mm	Yes
Shoulder Breadth	V	422 - 437 mm	429 mm	Yes
Shoulder Pivot Height	B	506 - 521 mm	519 mm	Yes
Elbow Rest Height	J	191 - 211 mm	205 mm	Yes
Shoulder-Elbow Length	I	330 - 345 mm	343 mm	Yes
Back Of Elbow To Wrist Pivot	G	290 - 305 mm	297 mm	Yes

Technician



Approved



TRC

Transportation Research Center Inc.

572E Head Drop Test

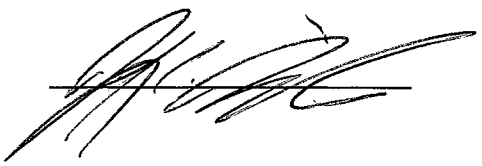
HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/19/2002

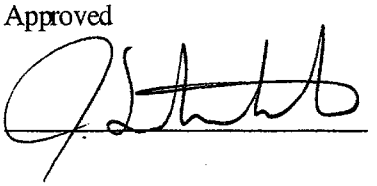
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Peak Resultant Acceleration	225 - 275 g	239.0 g	Yes
Peak Lateral Acceleration	15 g Max	-4.6 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



07.19.2002 15:08:36 614

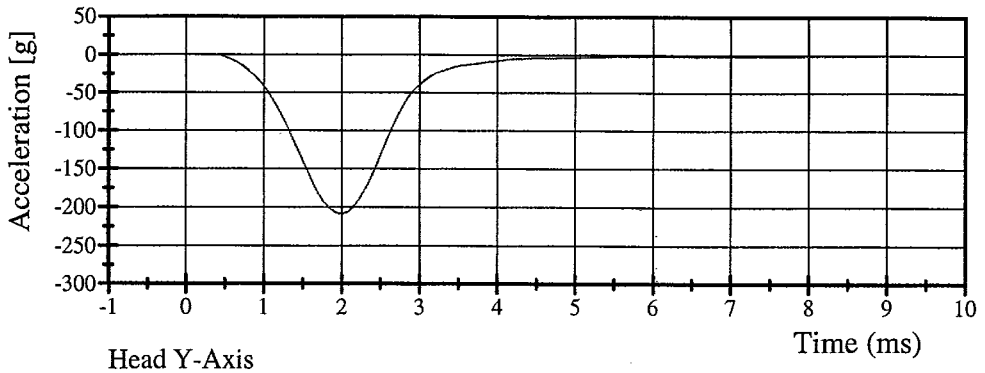
Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/19/2002

Head X-Axis

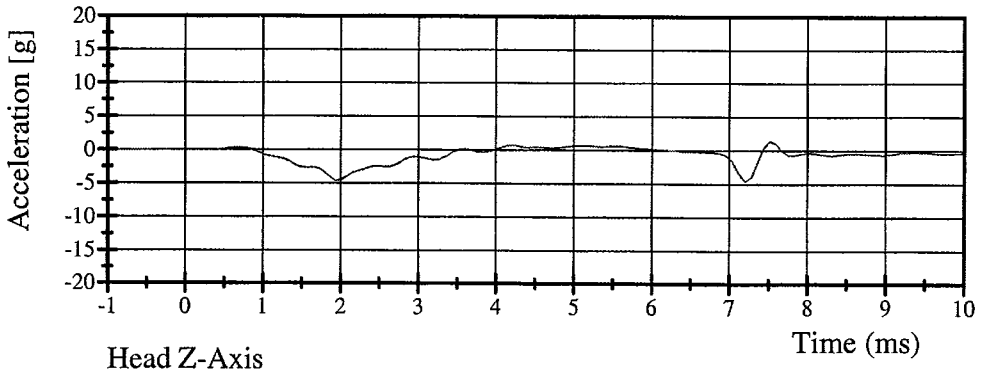


Filter Class: 1000

Max: 0.5 g at 0.3 ms

Min: -208.8 g at 2.0 ms

Head Y-Axis

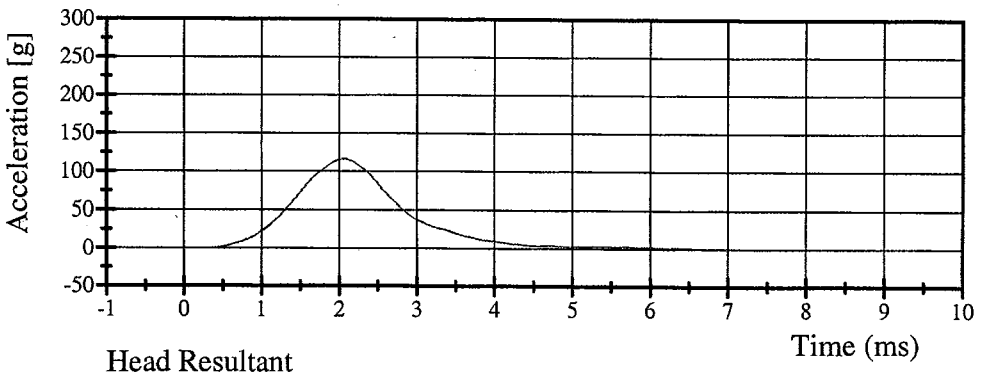


Filter Class: 1000

Max: 1.4 g at 7.5 ms

Min: -4.6 g at 1.9 ms

Head Z-Axis

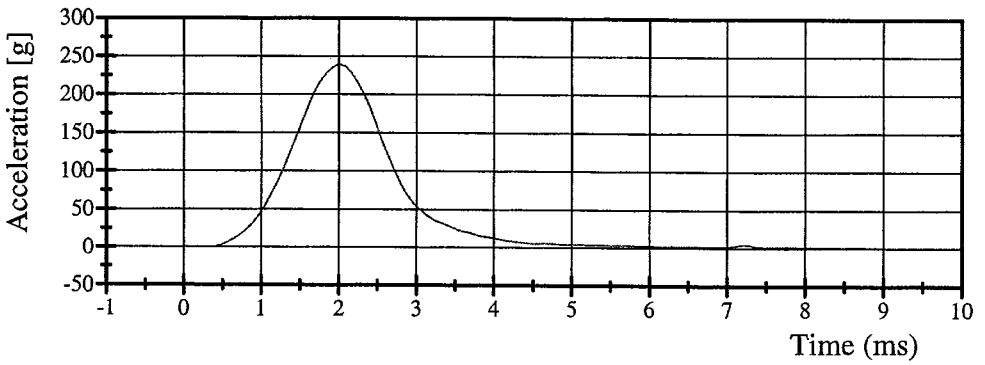


Filter Class: 1000

Max: 116.8 g at 2.1 ms

Min: -0.7 g at 8.7 ms

Head Resultant



Filter Class: 1000

Max: 239.0 g at 2.0 ms

Min: 0.0 g at 0.9 ms

07.19.2002 15:08:44 614

TRC

Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

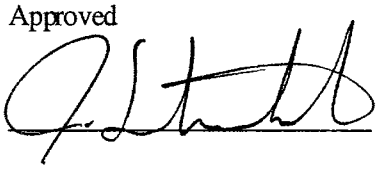
Test Date 07/22/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	25.57 g	Yes
20 ms	17.60 - 22.60 g	22.32 g	Yes
30 ms	12.50 - 18.50 g	16.24 g	Yes
Max Pendulum Deceleration	29.00 g	26.01 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	16.21 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	37.52 ms	Yes
D Plane Rotation			
Max	64 - 78 °	73.52 °	Yes
Time	57 - 64 ms	60.08 ms	Yes
Moment About Occipital Condyle			
Max	88.2 - 108.4 N·m	94.76 N·m	Yes
Time	47 - 58 ms	51.12 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	115.84 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	100.96 ms	Yes

Comments:

Technician

Approved



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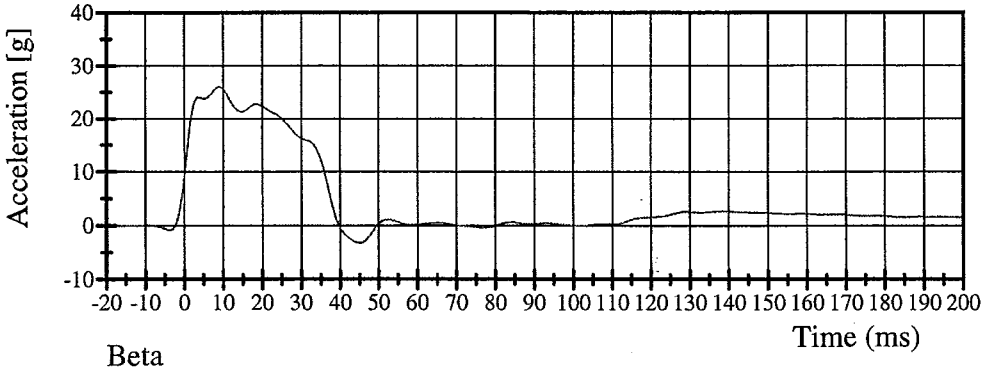
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/22/2002

Pendulum Deceleration

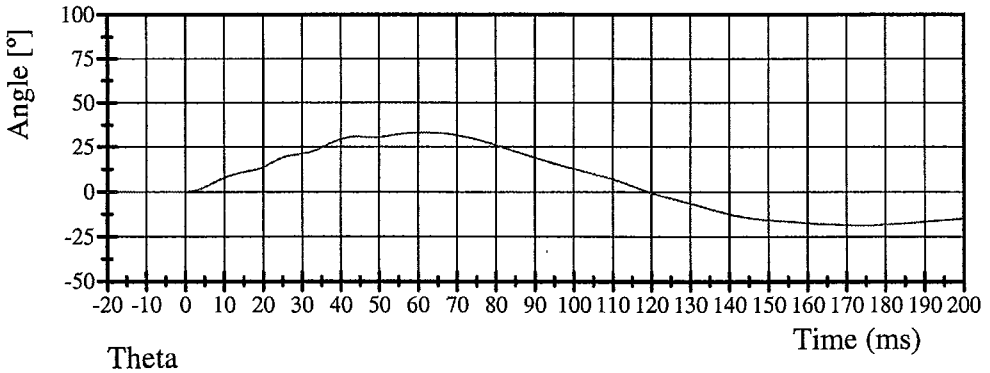


Filter Class: 60

Max: 26.0 g at 9.0 ms

Min: -3.2 g at 45.0 ms

Beta

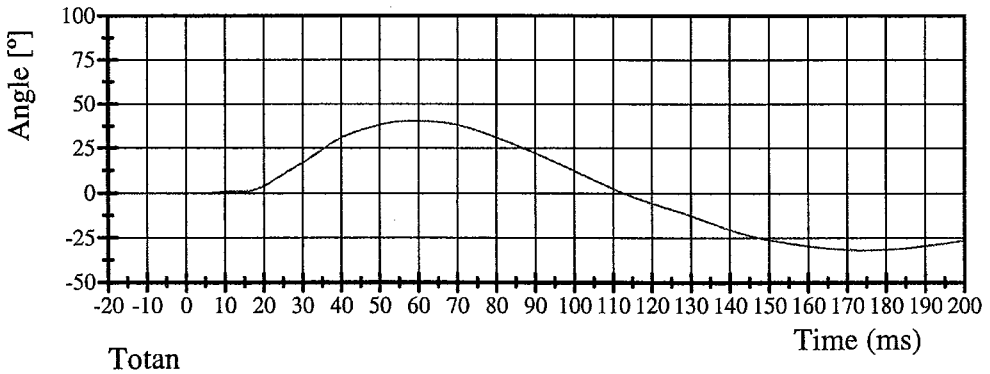


Filter Class: 60

Max: 33.1 ° at 61.4 ms

Min: -18.7 ° at 174.6 ms

Theta

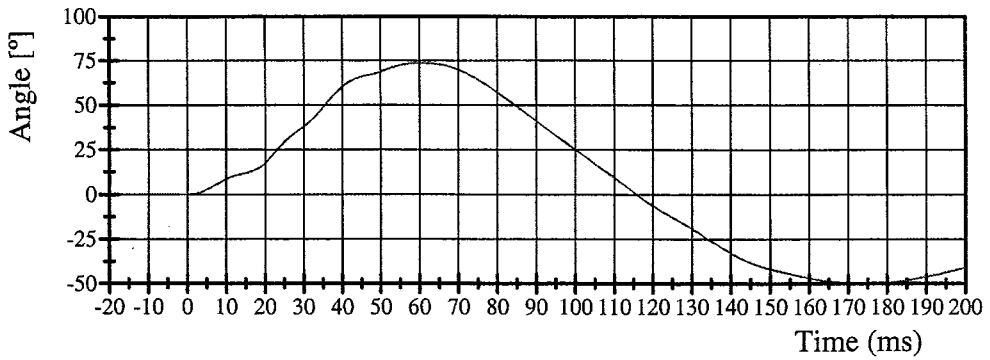


Filter Class: 60

Max: 40.5 ° at 58.9 ms

Min: -31.8 ° at 174.8 ms

Totan



Filter Class: 60

Max: 73.5 ° at 60.1 ms

Min: -50.5 ° at 174.7 ms

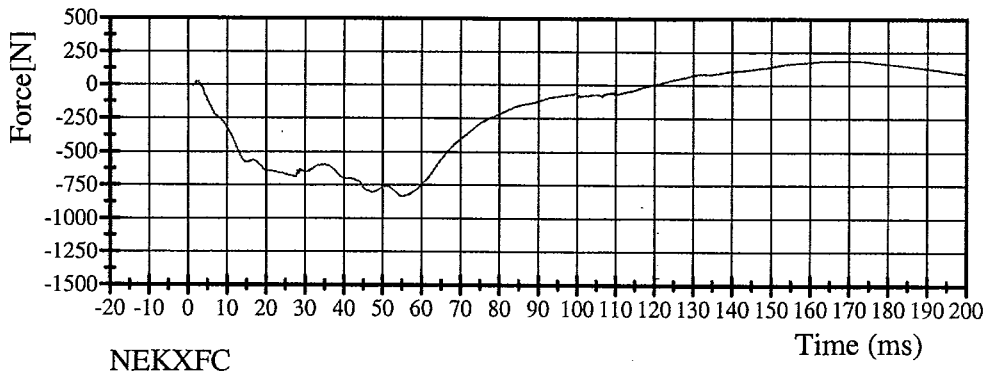
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/22/2002

NEKXF

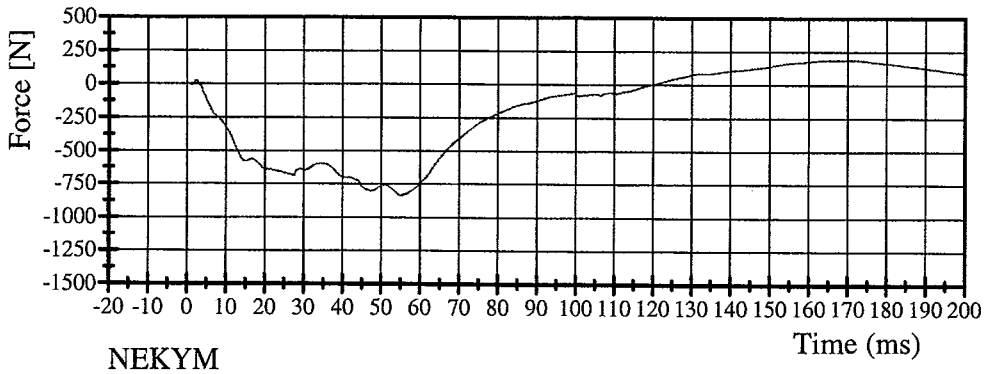


Filter Class: 1000

Max: 186.9 N at 169.6 ms

Min: -834.5 N at 54.9 ms

NEKXFC

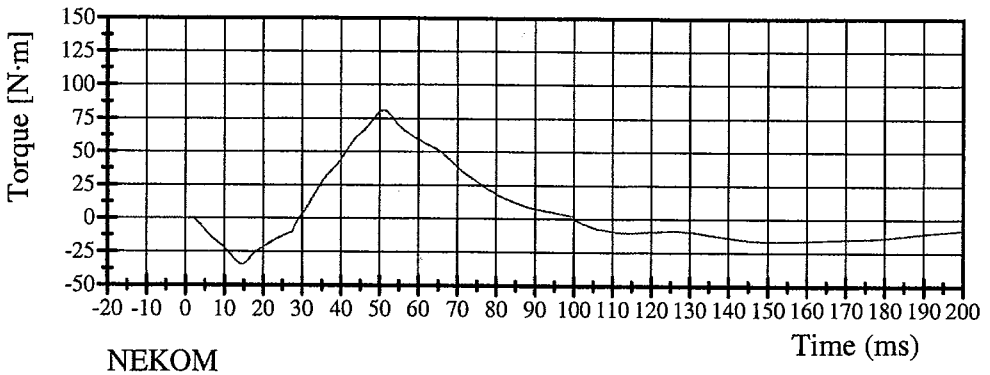


Filter Class: 600

Max: 186.7 N at 169.7 ms

Min: -834.1 N at 55.0 ms

NEKYM

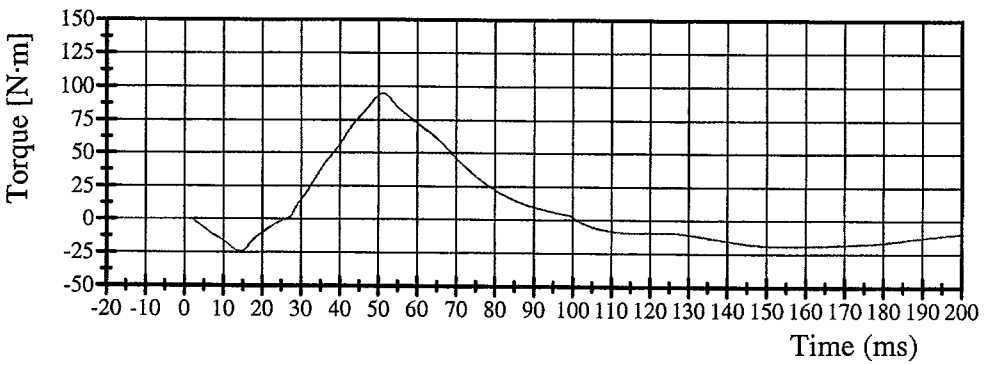


Filter Class: 600

Max: 81.4 N·m at 51.0 ms

Min: -34.4 N·m at 14.5 ms

NEKOM



Filter Class: 600

Max: 94.8 N·m at 51.1 ms

Min: -24.3 N·m at 14.3 ms

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Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

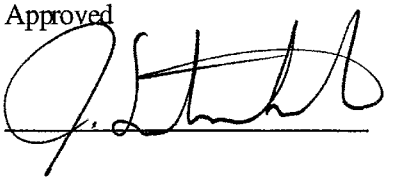
Test Date 07/22/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.11 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	19.13 g	Yes
20 ms	14.00 - 19.00 g	17.36 g	Yes
30 ms	11.00 - 16.00 g	13.68 g	Yes
Max Pendulum Deceleration	22.00 g	19.51 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	13.64 g	Yes
Deceleration-Time Curve Decay Time To 5g	38 - 46 ms	44.00 ms	Yes
D Plane Rotation			
Max	81 - 106 °	105.32 °	Yes
Time	72 - 82 ms	77.04 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-64.67 N·m	Yes
Time	65 - 79 ms	71.52 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	147 - 174 ms	157.76 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	120 - 148 ms	146.00 ms	Yes

Comments:

Technician

Approved



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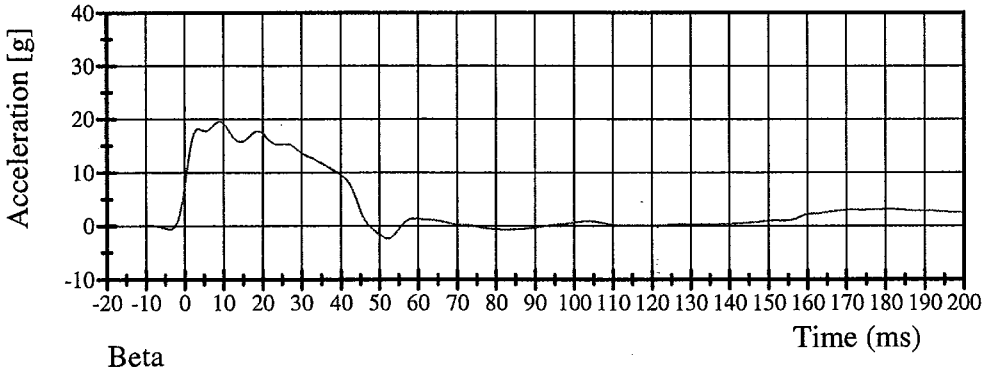
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/22/2002

Pendulum Deceleration

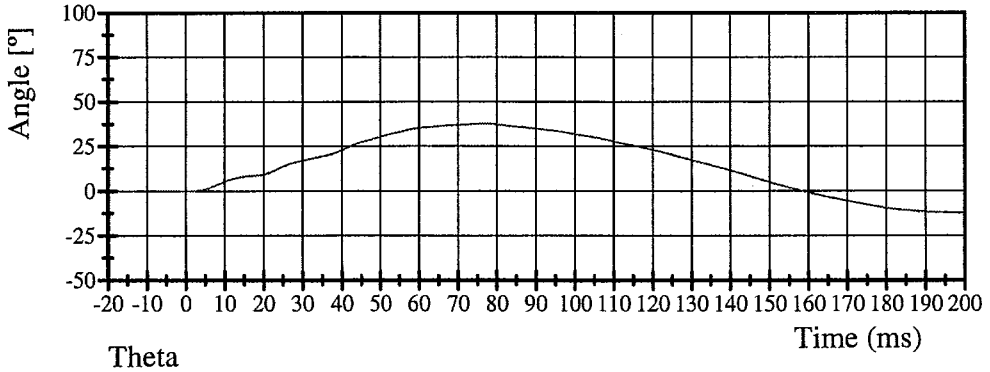


Filter Class: 60

Max: 19.5 g at 9.0 ms

Min: -2.3 g at 52.1 ms

Beta

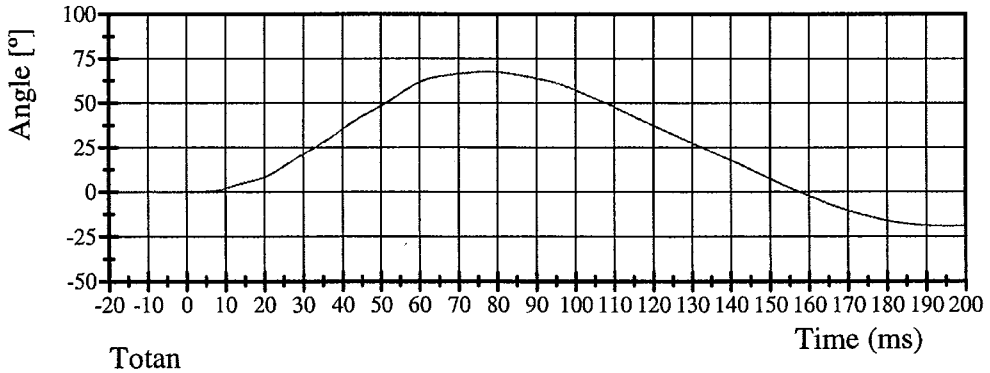


Filter Class: 60

Max: 37.7 ° at 76.6 ms

Min: -12.3 ° at 198.6 ms

Theta

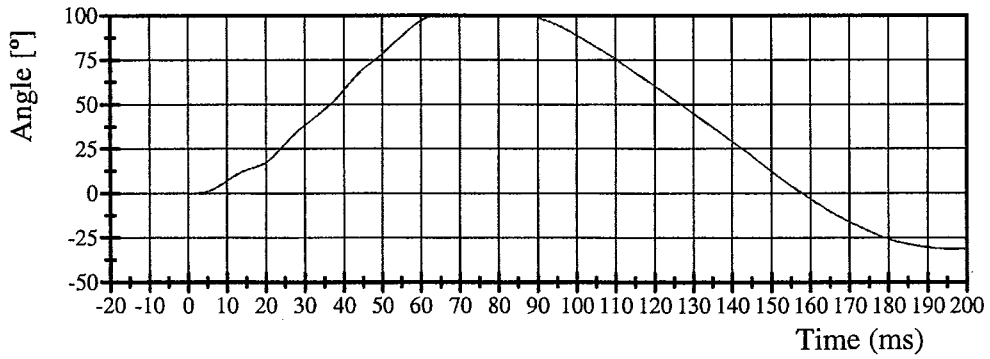


Filter Class: 60

Max: 67.6 ° at 77.6 ms

Min: -19.0 ° at 195.3 ms

Totan



Filter Class: 60

Max: 105.3 ° at 77.0 ms

Min: -31.3 ° at 196.9 ms

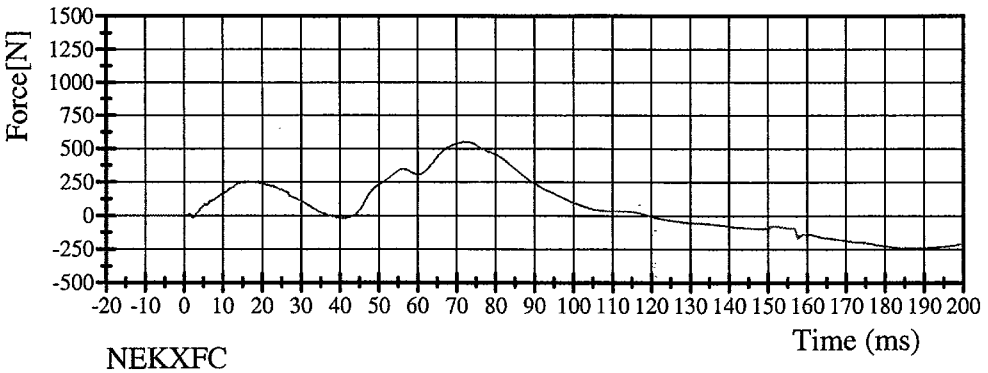
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/22/2002

NEKXF

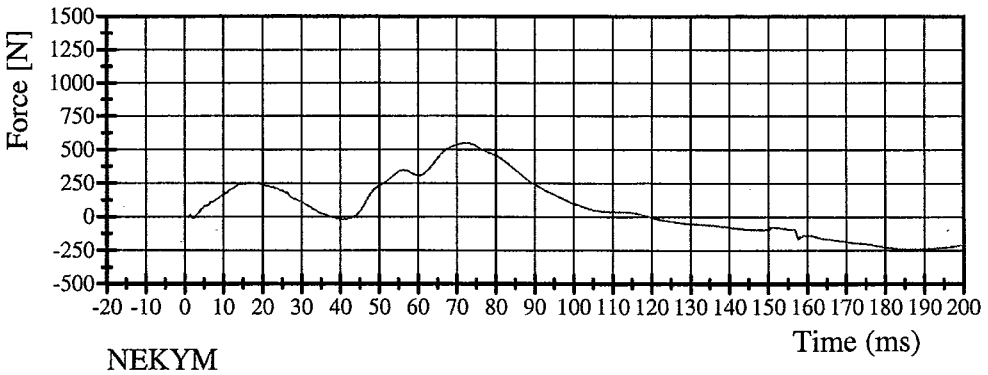


Filter Class: 1000

Max: 549.2 N at 71.9 ms

Min: -240.8 N at 186.9 ms

NEKXFC

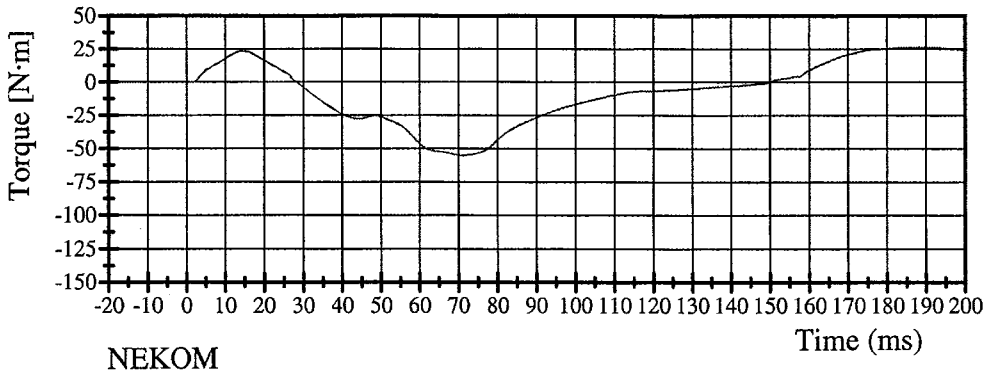


Filter Class: 600

Max: 549.0 N at 72.0 ms

Min: -240.6 N at 188.1 ms

NEKYM

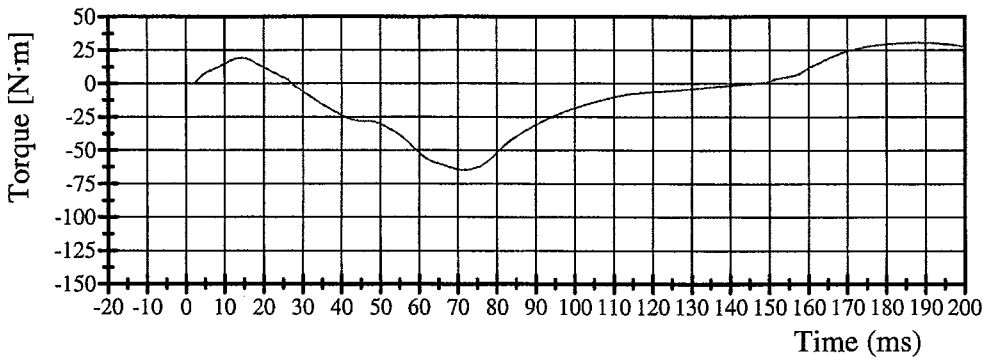


Filter Class: 600

Max: 26.4 N·m at 187.9 ms

Min: -55.0 N·m at 71.2 ms

NEKOM



Filter Class: 600

Max: 30.6 N·m at 187.9 ms

Min: -64.7 N·m at 71.5 ms

Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/22/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.68 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-72.1 mm	Yes
Maximum Resistive Force	5159 - 5894 N	5394 N	Yes
Internal Hysteresis	69 - 85 %	71 %	Yes

Comments:

Technician

Approved

07.22.2002 14:17:36 958

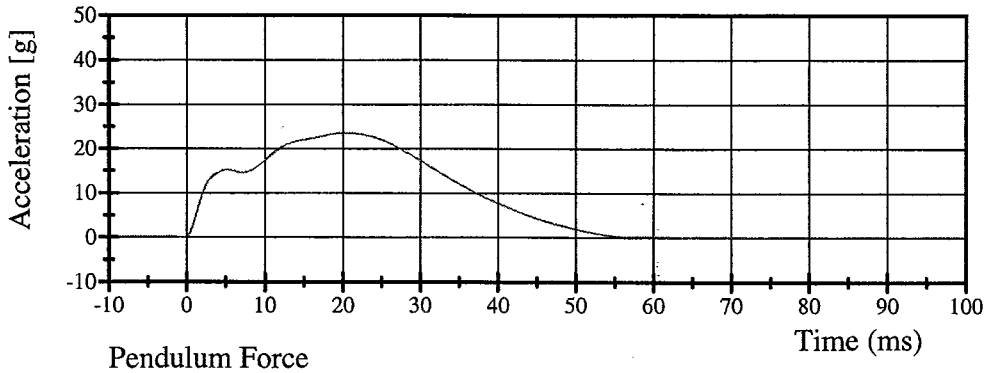
Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/22/2002

Pendulum Deceleration

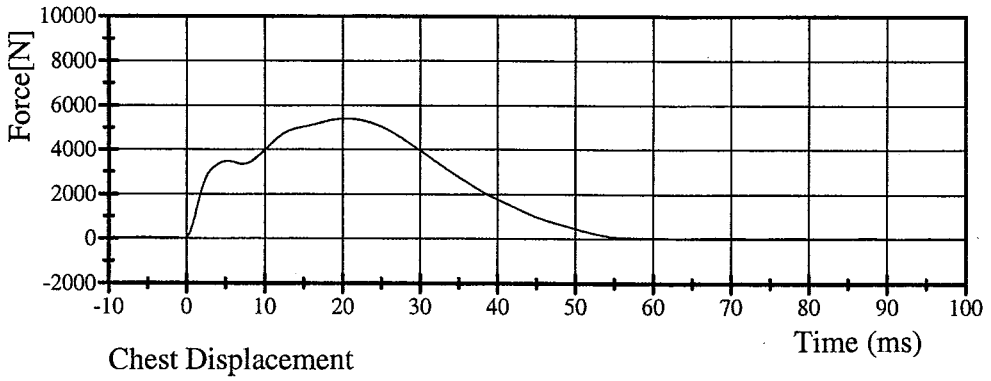


Filter Class: 180

Max: 23.5 g at 20.3 ms

Min: -0.0 g at -75.8 ms

Pendulum Force

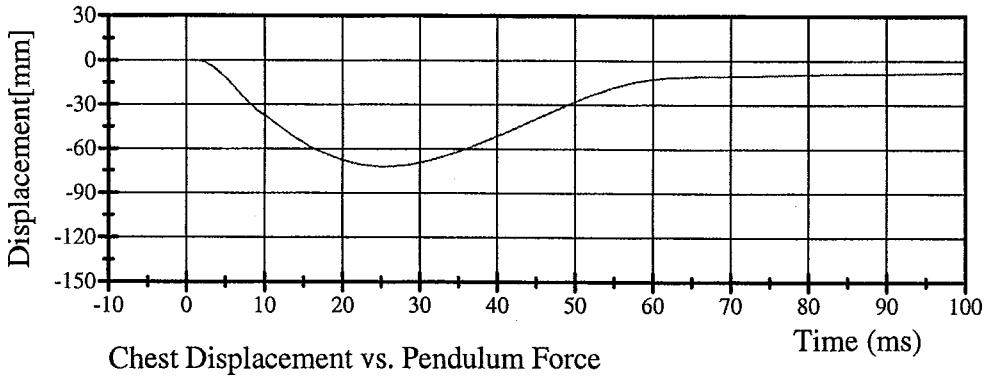


Filter Class: 180

Max: 5394.3 N at 20.3 ms

Min: -8.2 N at -75.8 ms

Chest Displacement

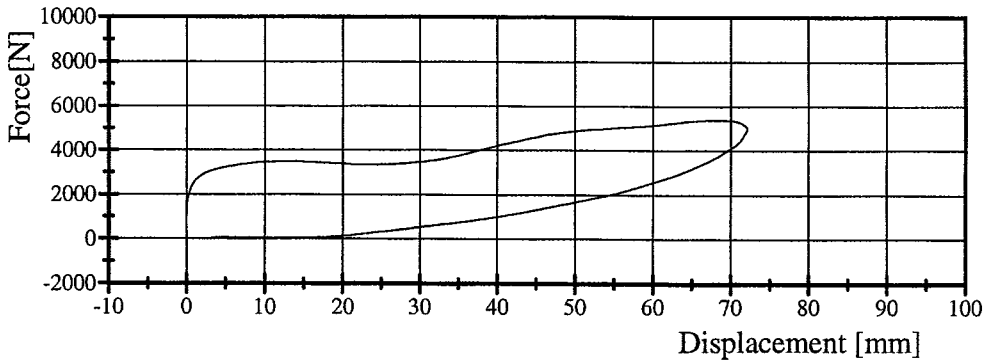


Filter Class: 180

Max: 0.1 mm at 0.9 ms

Min: -72.1 mm at 25.3 ms

Chest Displacement vs. Pendulum Force



07.22.2002 14:17:41 958

Transportation Research Center Inc

Hybrid III Hip Range of Motion

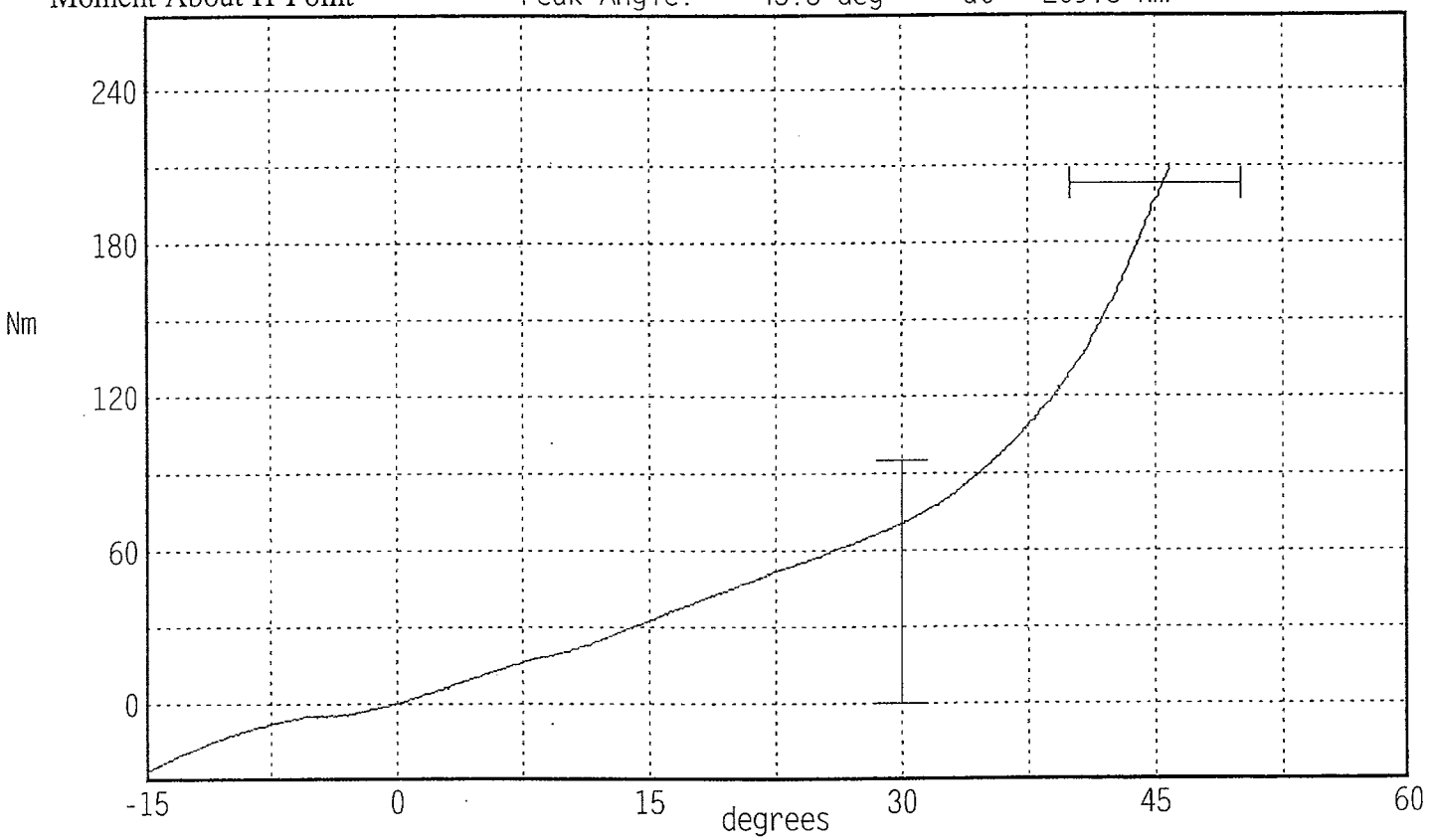
Serial Number: 169L
Test Number: 169C14
Comments:

Date: 07/22/2002
Time: 08:52

TEST PARAMETER	SPECIFICATION	TEST RESULTS		
Temperature	18.9 - 25.6	21.7	°C	Pass
Humidity	10 - 70	57	%	Pass
Moment at 30 deg	<= 94.9	70.7	Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.6	deg	Pass
Average Velocity	5.0 - 10.0	7.5	deg/sec	Pass

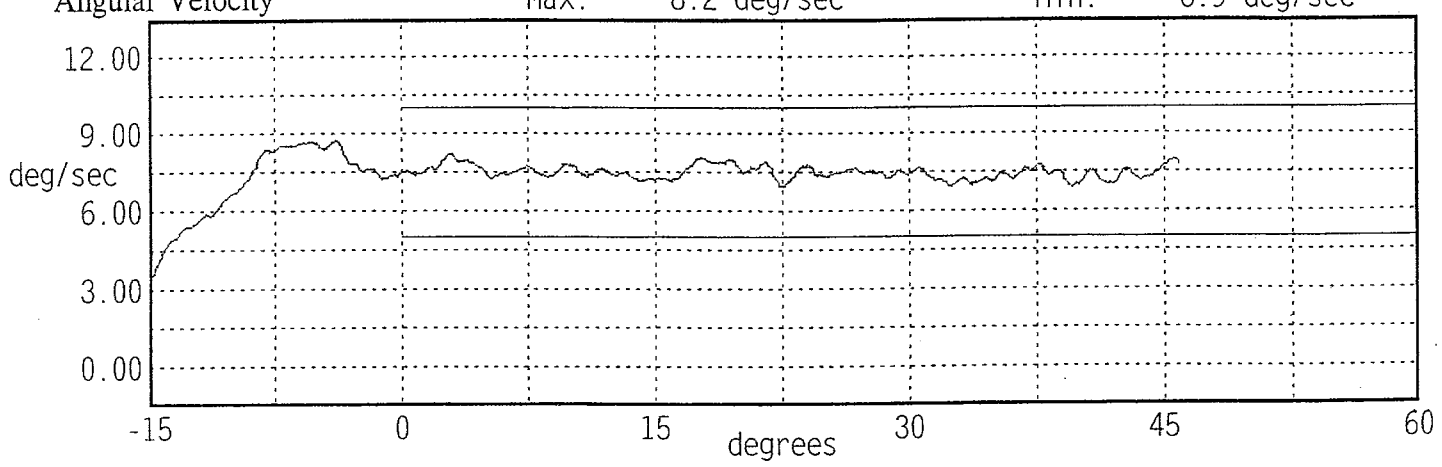
Moment About H-Point

Peak Moment: 210.3 Nm at 45.8 deg
Peak Angle: 45.8 deg at 209.5 Nm



Angular Velocity

Max: 8.2 deg/sec Min: 6.9 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

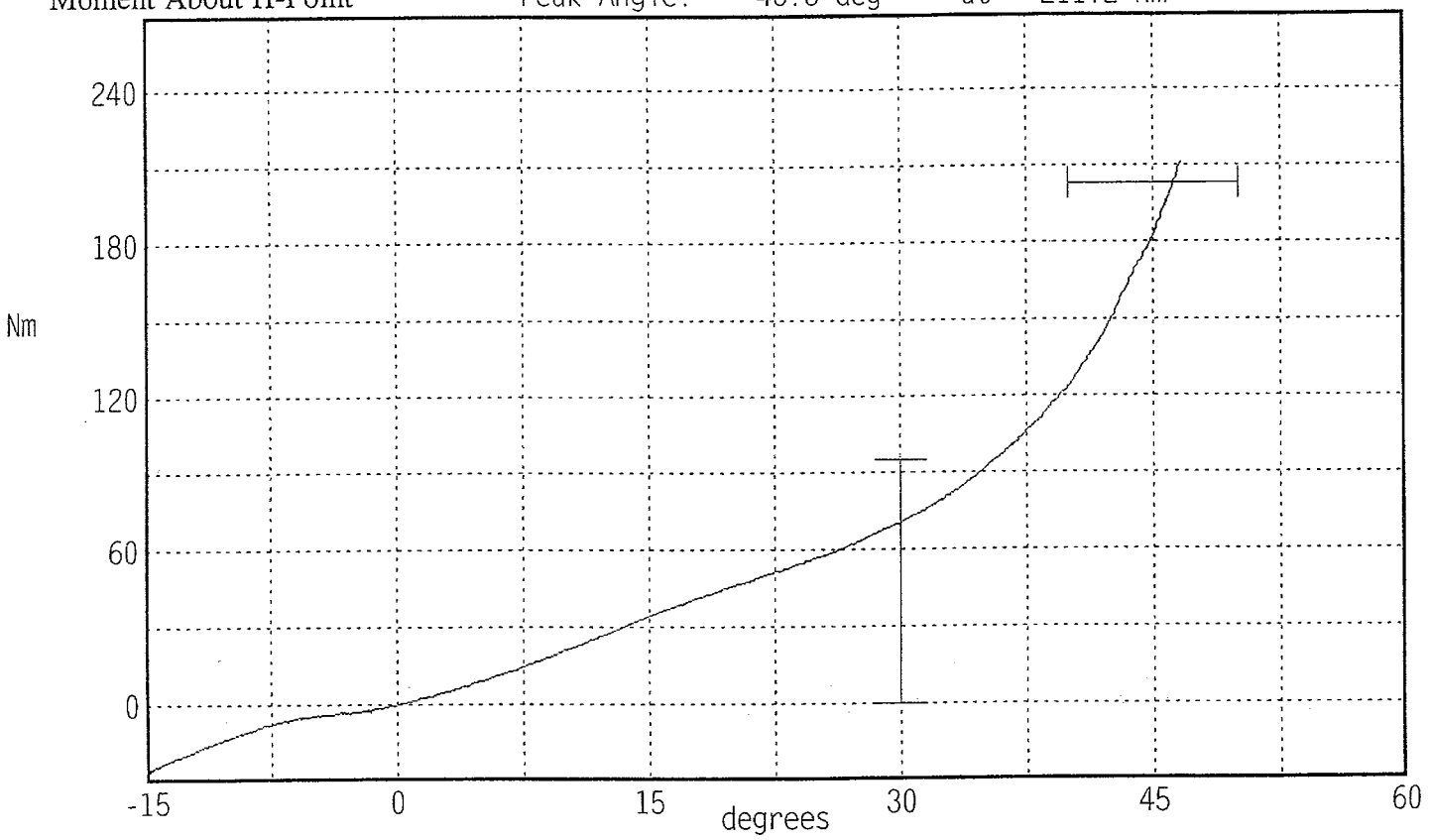
Serial Number: 169R
Test Number: 169C14
Comments:

Date: 07/22/2002
Time: 09:12

TEST PARAMETER	SPECIFICATION	TEST RESULTS		
Temperature	18.9 - 25.6	21.7	°C	Pass
Humidity	10 - 70	57	%	Pass
Moment at 30 deg	<= 94.9	70.7	Nm	Pass
Angle at 203 Nm	40.0 - 50.0	46.2	deg	Pass
Average Velocity	5.0 - 10.0	7.5	deg/sec	Pass

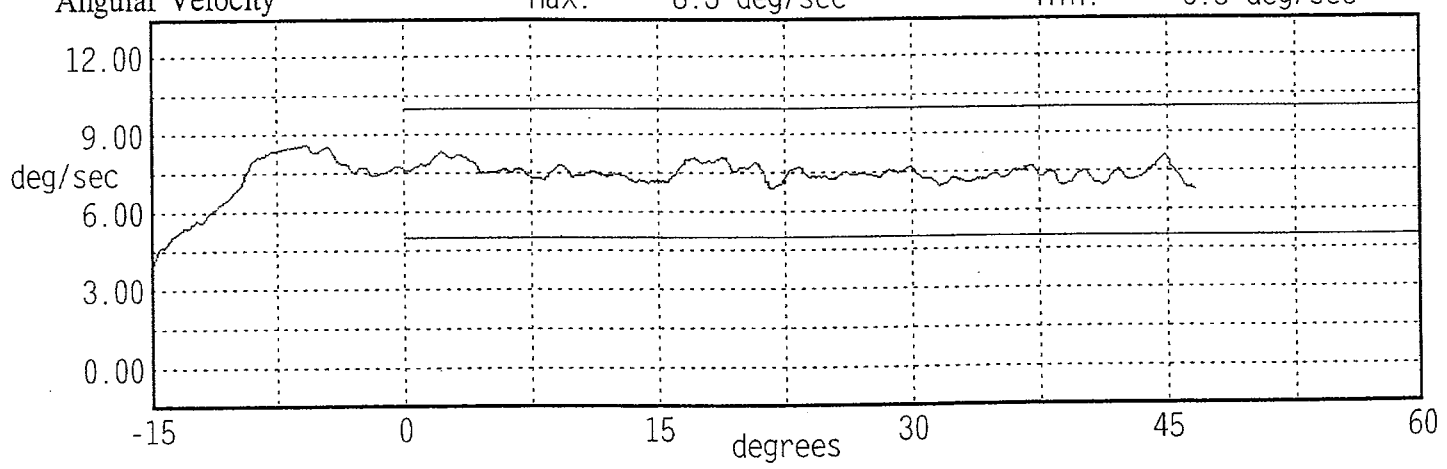
Moment About H-Point

Peak Moment: 211.2 Nm at 46.6 deg
Peak Angle: 46.6 deg at 211.2 Nm



Angular Velocity

Max: 8.3 deg/sec Min: 6.8 deg/sec



Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 2

Test Date 07/09/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.73 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1309 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3070 N	Yes

Comments:

Technician

Approved

07.23.2002 09:20:59 1158

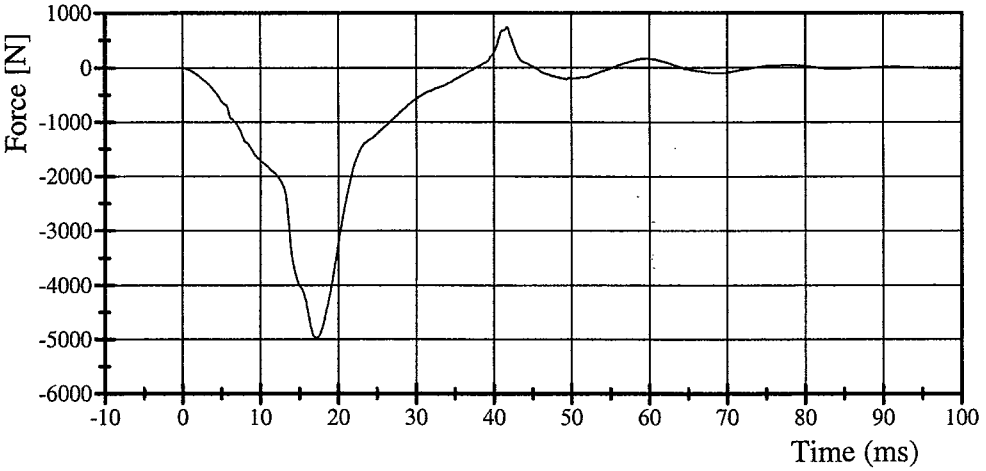
Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 2

Test Date 07/09/2002

Femur Force

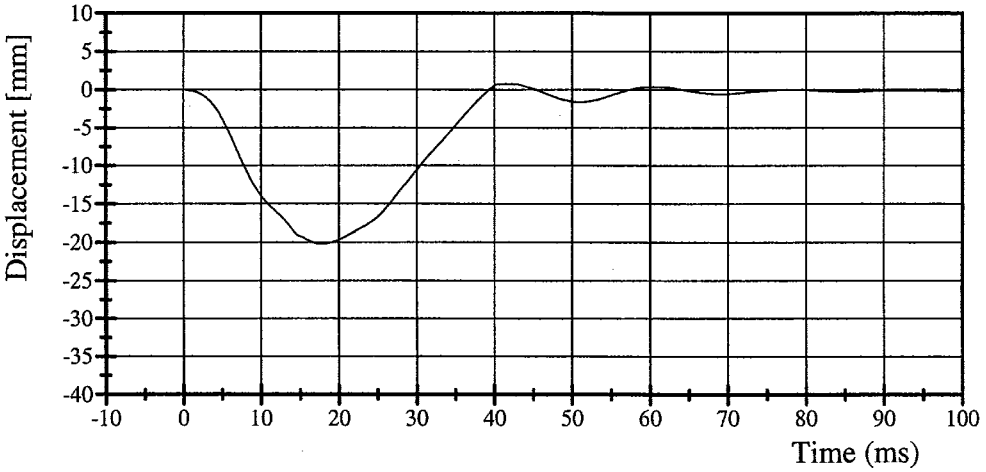


Filter Class: 600

Max: 741.8 N at 41.7 ms

Min: -4975.3 N at 17.2 ms

Tibia Displacement

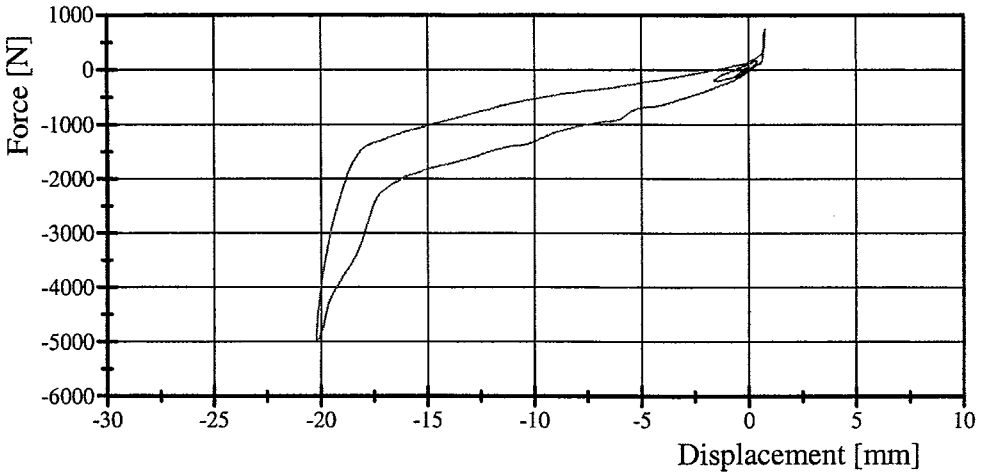


Filter Class: 600

Max: 0.8 mm at 41.7 ms

Min: -20.2 mm at 17.5 ms

Femur Force vs Tibia Displacement



07.23.2002 09:21:02 1158

Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/09/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1361 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2429 N	Yes

Comments:

Technician

Approved

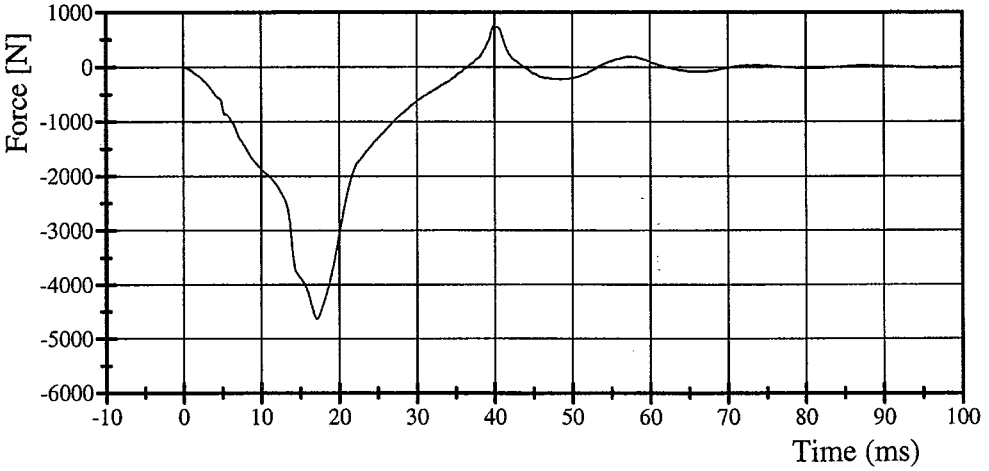
Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/09/2002

Femur Force

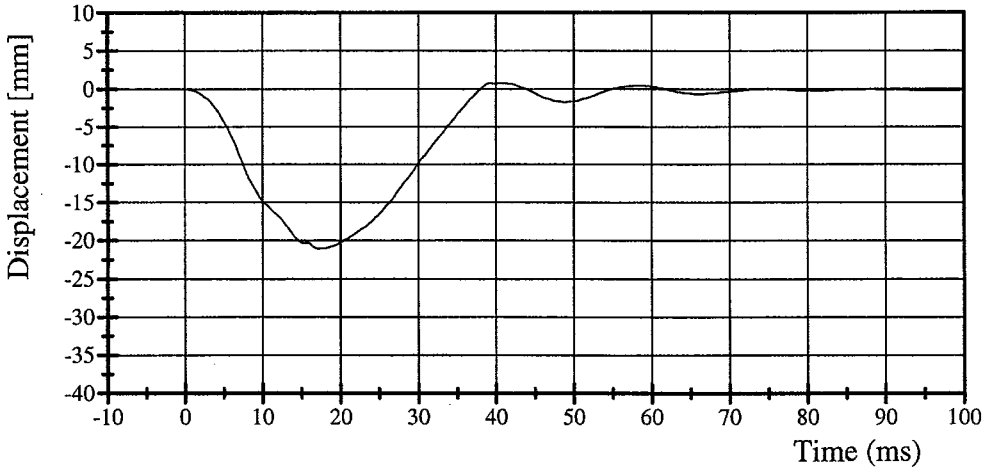


Filter Class: 600

Max: 737.9 N at 39.8 ms

Min: -4637.7 N at 17.1 ms

Tibia Displacement

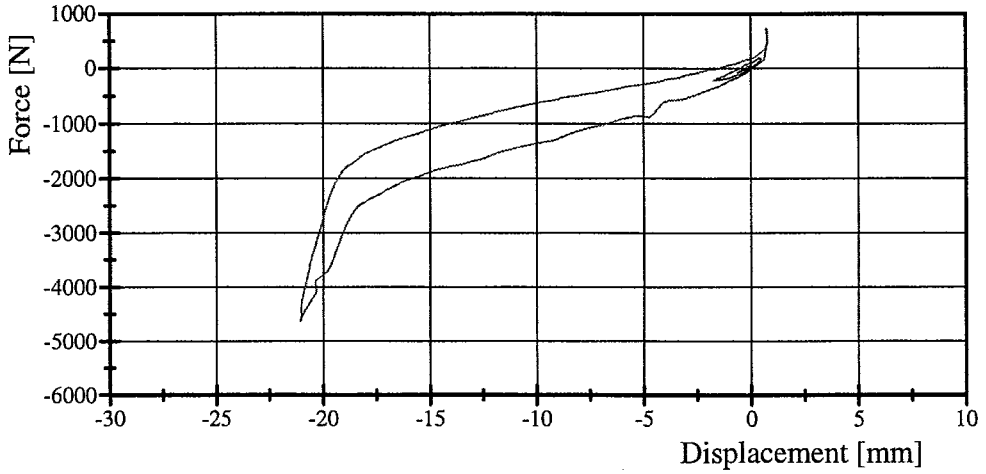


Filter Class: 600

Max: 0.8 mm at 39.3 ms

Min: -21.1 mm at 17.1 ms

Femur Force vs Tibia Displacement



07.23.2002 10:08:29 1158

Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/09/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.09 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5018 N	Yes

Comments:

Technician

Approved

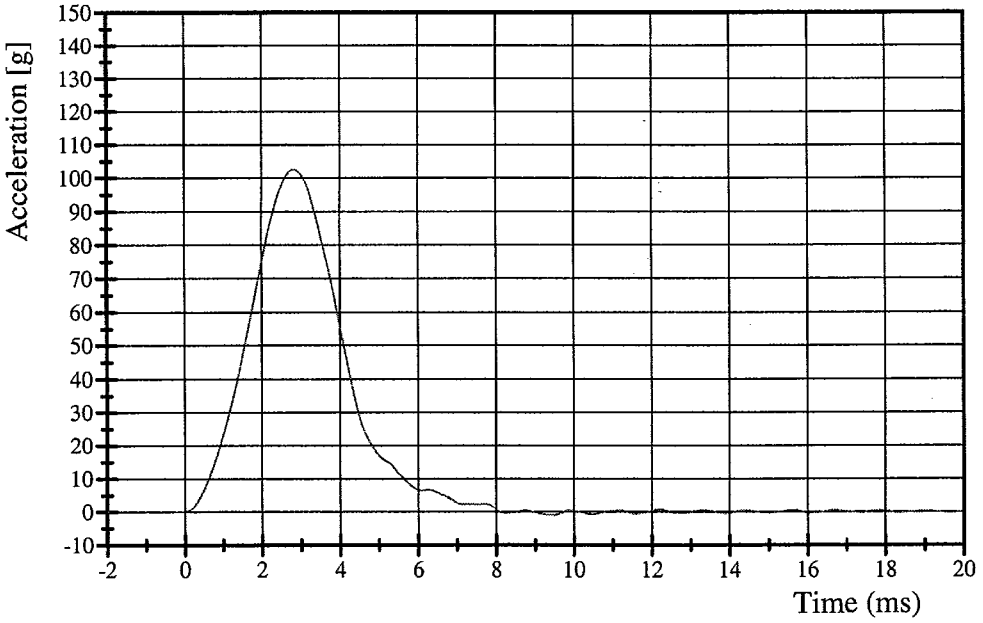
Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/09/2002

Pendulum Deceleration

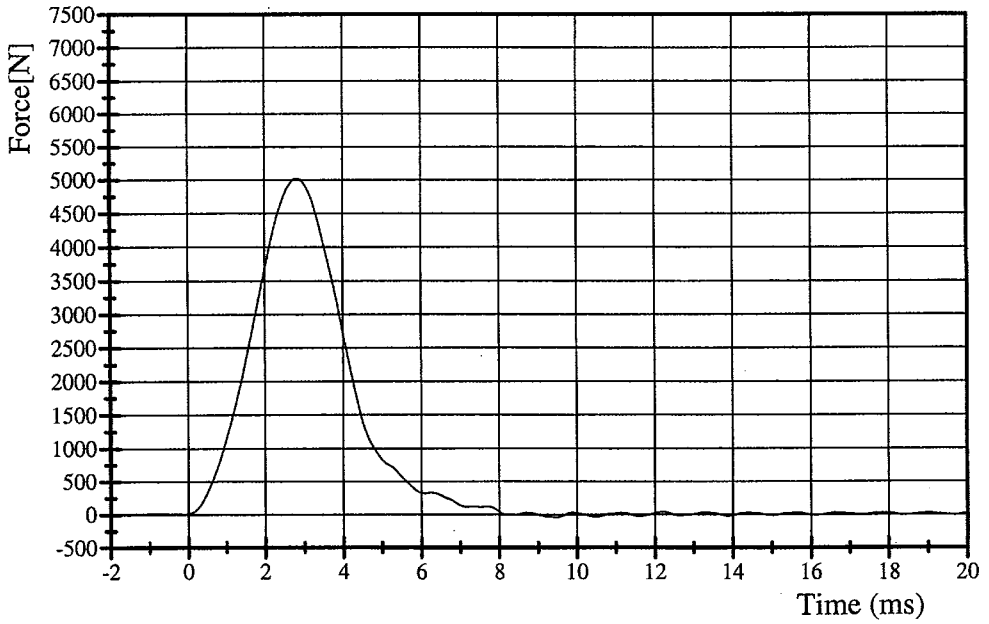


Filter Class: 600

Max: 102.5 g at 2.8 ms

Min: -1.0 g at 9.4 ms

Pendulum Force



Filter Class: 600

Max: 5017.8 N at 2.8 ms

Min: -47.2 N at 9.4 ms

Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/09/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.09 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5506 N	Yes

Comments:

Technician

Approved

07.09.2002 10:11:36 2118

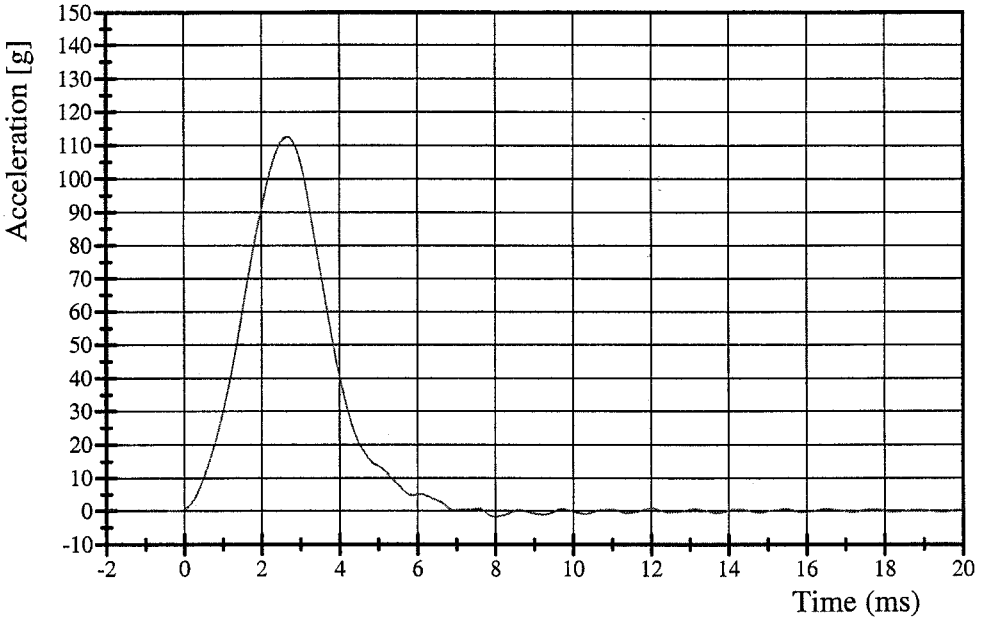
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 14 - 1

Test Date 07/09/2002

Pendulum Deceleration

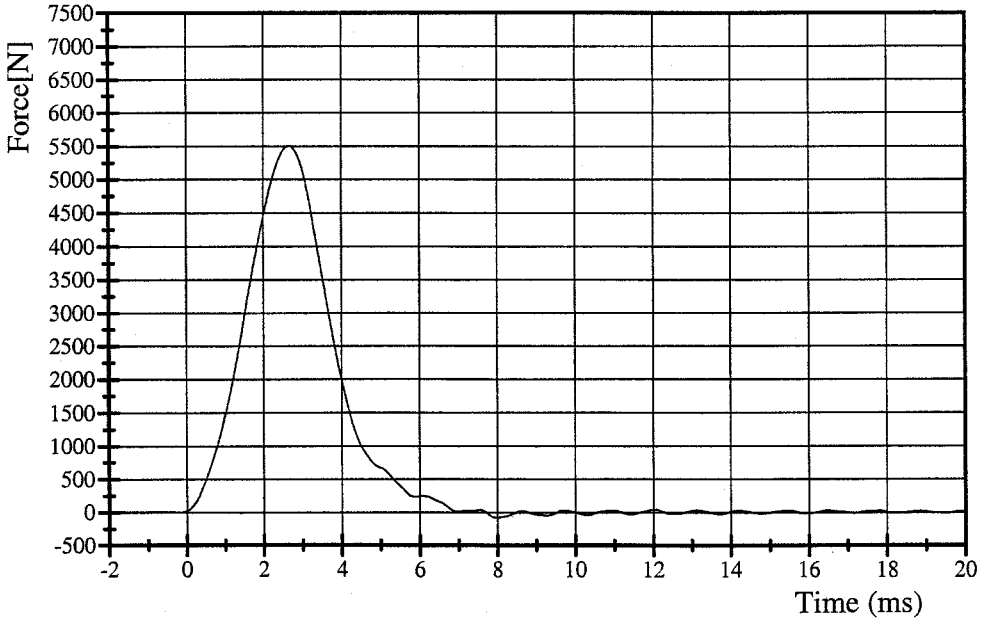


Filter Class: 600

Max: 112.5 g at 2.6 ms

Min: -1.7 g at 8.0 ms

Pendulum Force



Filter Class: 600

Max: 5506.1 N at 2.6 ms

Min: -84.1 N at 8.0 ms

Post-Test Dummy Configuration and Performance Verification Data

Driver Dummy S/N: 168

No post-test calibration

Passenger Dummy S/N: 169

No post-test calibration

Appendix D

Test Equipment and Instrumentation Calibration 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

Typical Test Measurements	Channel Class
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

Airbag Event Information

Inductive pick-ups to monitor airbag fire times were labeled “A” and “B” and are not meant to indicate primary and secondary. Because wiring information was not available, two inductive pick-ups were placed on the passenger side airbag which is presumed to be a single stage airbag.

The following set-up information was recorded for test 020823:

Driver A, DABETA, inductive pick-up 69, was placed on the gray with orange airbag plug wire.

Passenger A, PABETA, inductive pick-up FFF, was placed on the white with red airbag plug wire.

Passenger B, PABETB, inductive pick-up 8, was placed on the blue with red airbag plug wire.

Description Of Timing Marks On TRC Inc. High-Speed Film

All TRC Inc. high-speed cameras are equipped with red LEDs which put timing marks on the right edge of the film. TRC Inc. uses a single timing generator to generate the timing for all cameras. This allows the timing marks to be common to all cameras. The timing marks can be used to measure camera speed (frames per second) or to locate a point in time before or after the time-zero event.

The timing marks appear on the film as small red marks on the right edge of the film. Round marks are left by the Photosonic and Stalex cameras while horizontal bars are left by the Hycam, Locam, and Fastax II cameras.

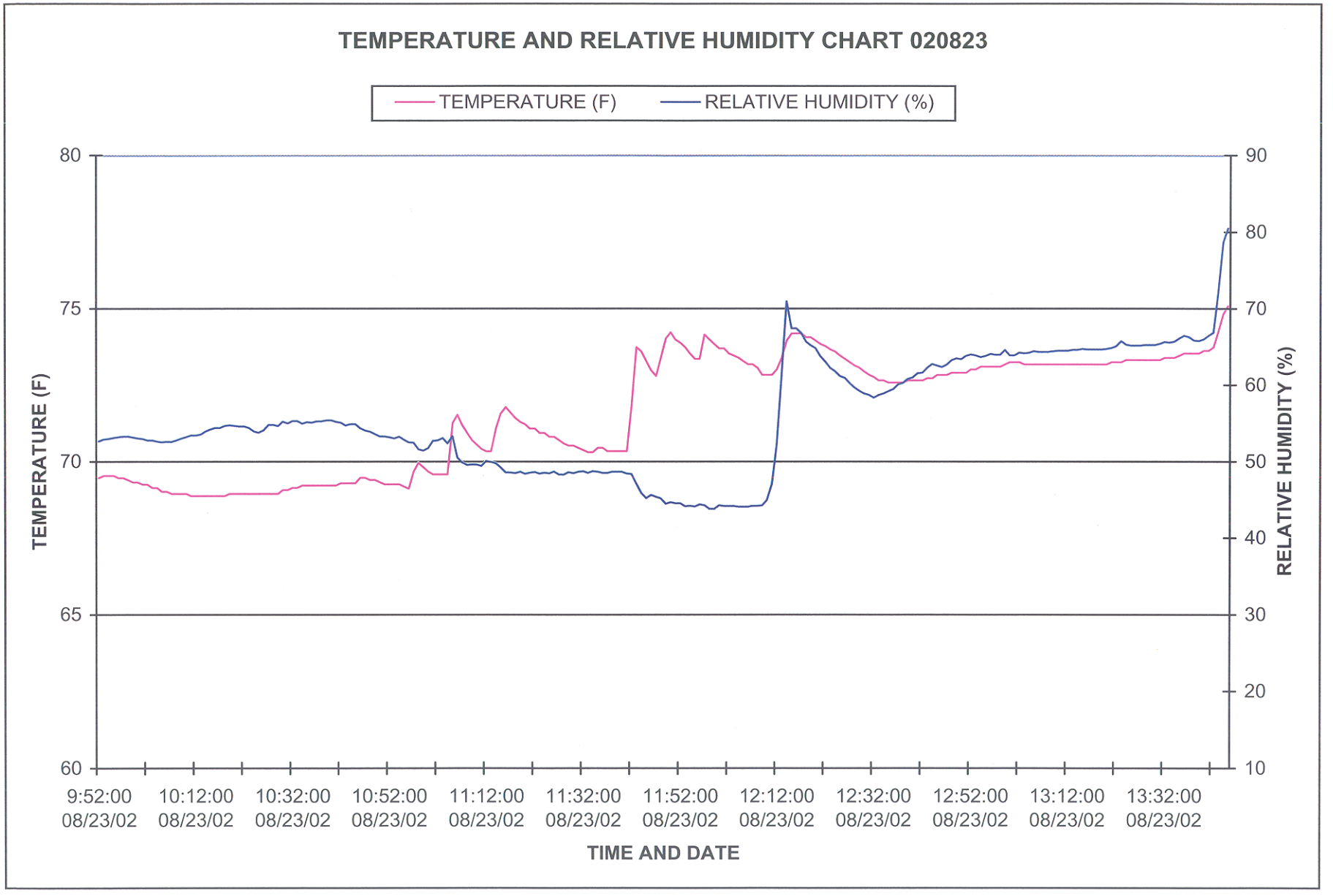
The timing generator puts out a pulse for every millisecond plus it generates additional pulses for hundredths and tenths of seconds. To explain this further, we can use an example of a camera running at 1000 frames per second.

1. Every frame will have **one** LED appear in it. This indicates a *millisecond* pulse.

2. Every ten frames will have **two** LEDs appear in it. These indicate a *millisecond* pulse plus a *hundredth of a second* pulse.

3. Every one hundred frames will have **three** LEDs appear in it. These indicate a *millisecond* pulse, a *hundredth of a second* pulse, and a *tenth of a second* pulse.

To locate time-zero, observe the continuous LED that is visible on the left side of the frame at the beginning of each view. Locate the frame where the left side LED is fully extinguished and reverse 4 frames for the Photosonic cameras; reverse 5 frames for Hycam cameras; reverse 2 frames for Stalex cameras. This frame is time-zero.


TEMPERATURE AND RELATIVE HUMIDITY CHART 020823
TEMPERATURE (F)
RELATIVE HUMIDITY (%)
80
75
70
65
60
90
80
70
60
50
40
30
20
10
TEMPERATURE (F)
RELATIVE HUMIDITY (%)
9:52:00 08/23/02
10:12:00 08/23/02
10:32:00 08/23/02
10:52:00 08/23/02
11:12:00 08/23/02
11:32:00 08/23/02
11:52:00 08/23/02
12:12:00 08/23/02
12:32:00 08/23/02
12:52:00 08/23/02
13:12:00 08/23/02
13:32:00 08/23/02
TIME AND DATE

CELLBOND

CERTIFICATE OF CONFORMITY

Certificate No. 10308
Serial No. CB 055

Product Description	EEVC Frontal Impact Barrier
Cellbond Part No.	70EEVCFI

	Test Results	GR No.	Blk No.
1	15997-04	PO60946-01	N/A
2	15968-75	PO58715-01	N/A

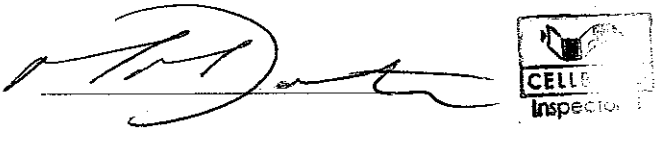
Declaration.

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...

For and on behalf of Cellbond Composites Ltd

Signed
Quality Manager



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Cellbond offices
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Germany
United States of America

ISO 9002
QS 9000

Aluminium ist wiederverwertbar
Aluminium is recyclable

CELLBOND

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: 15997-04

GR No: PO60946-01

Block No:

	Crush Strength (MPa)			
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	RESULT
Sample* 1	0.3266	0.3289	0.3367	PASS
Sample 2	0.3156	0.3302	0.3254	PASS
Sample 3	0.3142	0.3150	0.3253	PASS
Sample 4	0.3341	0.3352	0.3394	PASS
Sample 5	0.3186	0.3306	0.3286	PASS
Sample 6	0.3168	0.3230	0.3193	PASS
Sample 7	0.3167	0.3270	0.3250	PASS
Sample 8	0.3152	0.3223	0.3274	PASS

Seven out of the eight samples must fulfil the crush strength requirement in order to pass the block certification

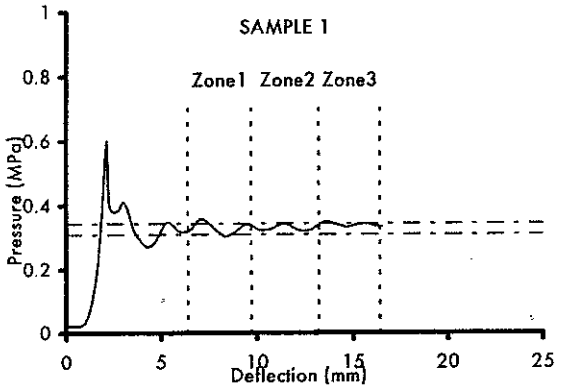
*Sample size and location as per R94.

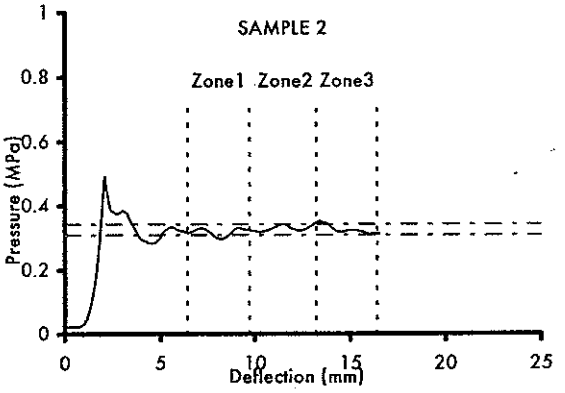
EEVC DEFORMABLE FRONTAL BARRIER
MAIN BLOCK

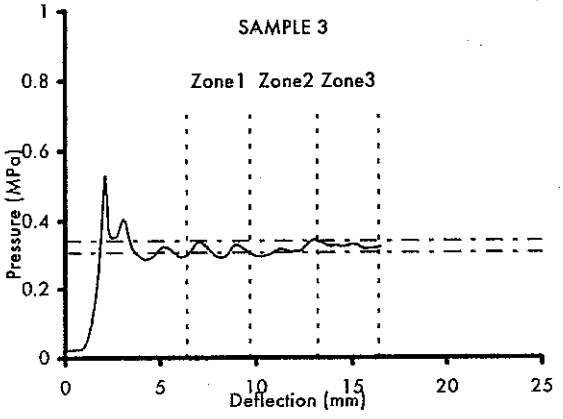
Honeycomb Type: 1.8 3/4 3003
Higher Acceptable Crush Strength Limit: 0.342 MPa
Lower Acceptable Crush Strength Limit: 0.308 MPa

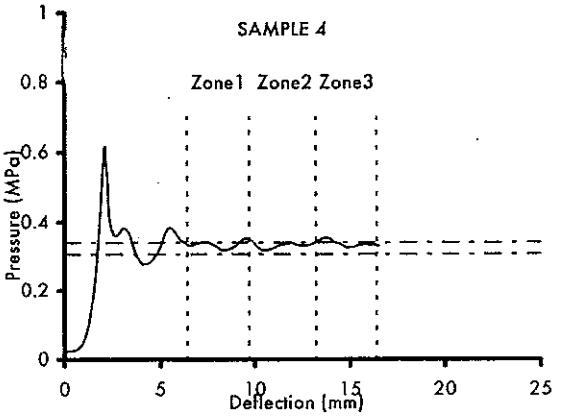
Section 1:	6.4 - 9.7mm
Section 2:	9.7 - 13.2mm
Section 3:	13.2 - 16.5mm
Speed:	6.35 mm/min

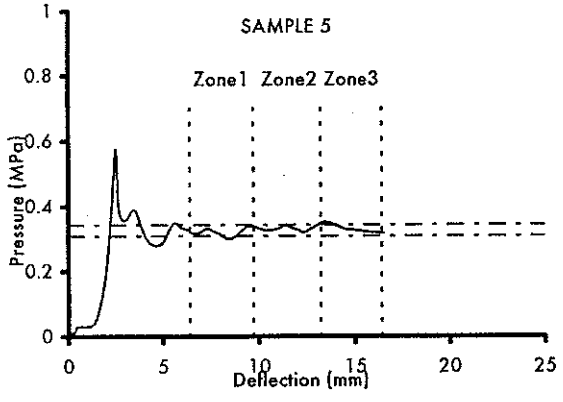
Test No: 15997-04 GR No: PO60946-01 Block No:

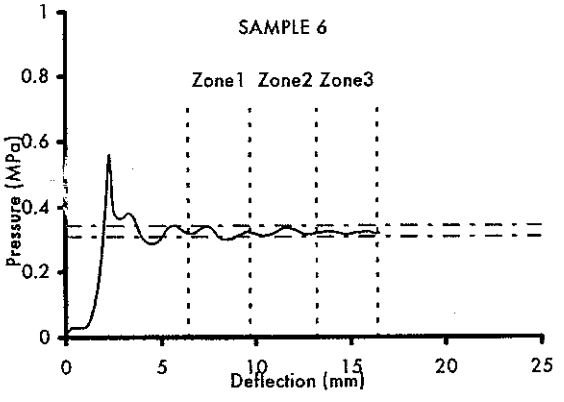


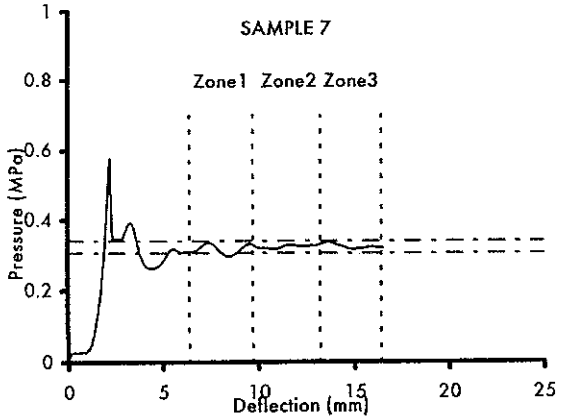


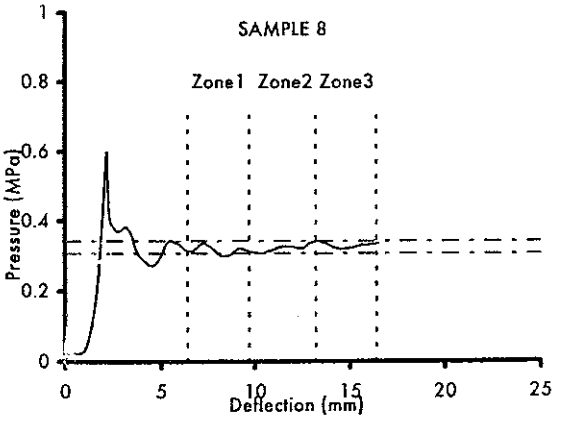












CELLBOND

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: 15968-75

GR No: PO58715-01
Block No: N/A

	Crush Strength (MPa)			
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	RESULT
Sample* 1	1.701	1.696	1.700	PASS
Sample 2	1.666	1.677	1.693	PASS
Sample 3	1.666	1.680	1.695	PASS
Sample 4	1.687	1.690	1.692	PASS
Sample 5	1.687	1.696	1.684	PASS
Sample 6	1.679	1.673	1.690	PASS
Sample 7	1.693	1.695	1.694	PASS
Sample 8	1.678	1.683	1.690	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.

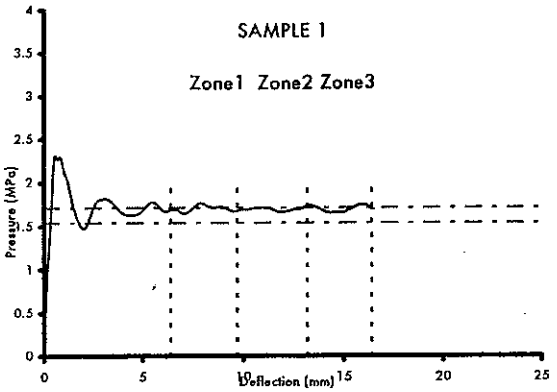
RESULT: PASSED

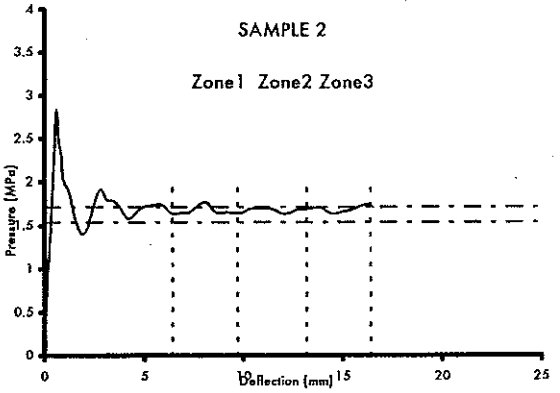
EEVC DEFORMABLE FRONTAL BARRIER
BUMPER

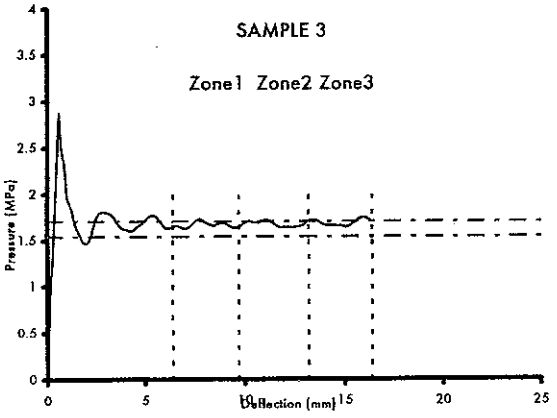
Honeycomb Type: 5.2 1/4 3003
Higher Acceptable Crush Strength Limit: 1.711 MPa
Lower Acceptable Crush Strength Limit: 1.540 MPa

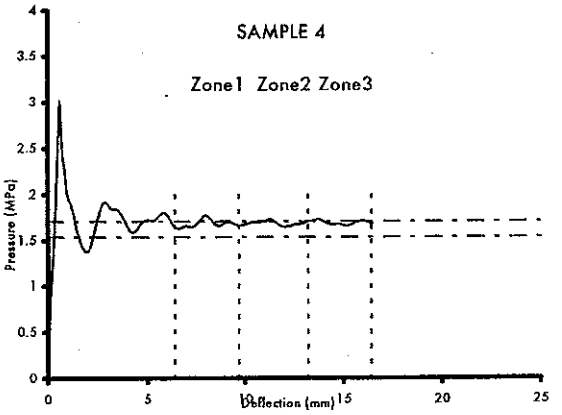
Section 1:	6.4 - 9.7mm
Section 2:	9.7 - 13.2mm
Section 3:	13.2 - 16.5mm
Speed:	6.35 mm/min

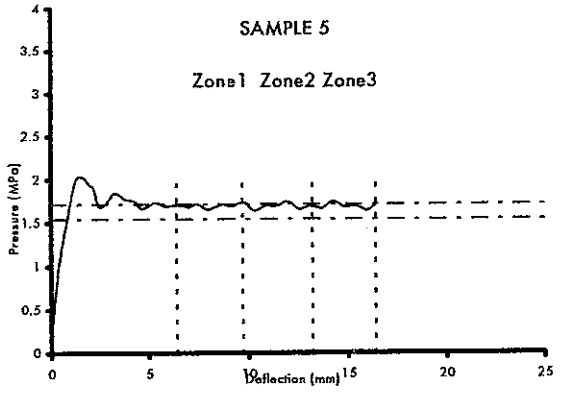
Test No: 15968-75 GR No: PO58715-01 Block No: N/A

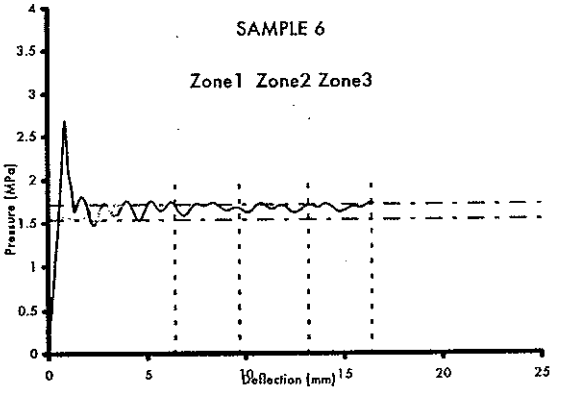


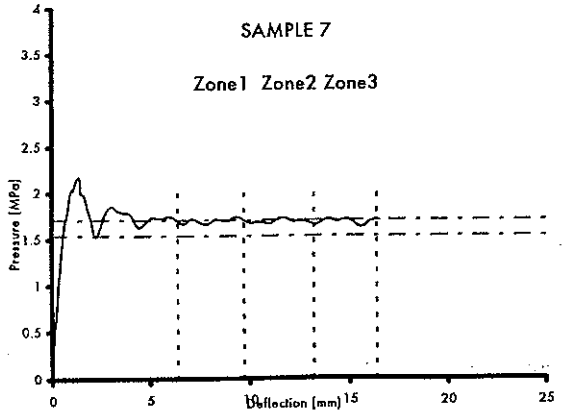


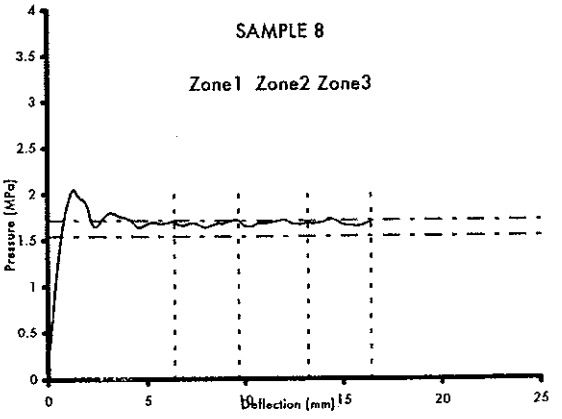












The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report: occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

Channel Report

8/23/2002 11:34:30 AM

Name of Test 020823 **System** K3600 **Name of DAU** DAU0

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status		Group	Mfg.	Model
0000	EVENT0	SYNC0	SYNC0		10.24	V	+	4/15/2002	OK	-1	TRC	Event
0001	6244-02-144-FZ	LCA1XF	Barr. L.C. A1 X-Axis Force		111096.52	N	-	2/20/2002	---	VRTC Of	Key	6244-02
0002	6244-02-125-FZ	LCA2XF	Barr. L.C. A2 X-Axis Force		111079.34	N	-	2/19/2002	---	VRTC Of	Key	6244-02
0003	6244-02-131-FZ	LCA3XF	Barr. L.C. A3 X-Axis Force		111135.42	N	-	2/5/2002	---	VRTC Of	Key	6244-02
0004	6244-02-106-FZ	LCA4XF	Barr. L.C. A4 X-Axis Force		111096.52	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0005	6244-02-115-FZ	LCA5XF	Barr. L.C. A5 X-Axis Force		111114.85	N	-	2/5/2002	---	VRTC Of	Key	6244-02
0006	6244-02-122-FZ	LCA6XF	Barr. L.C. A6 X-Axis Force		111096.52	N	-	2/21/2002	---	VRTC Of	Key	6244-02
0007	6244-02-143-FZ	LCA7XF	Barr. L.C. A7 X-Axis Force		111096.52	N	-	2/5/2002	---	VRTC Of	Key	6244-02
0008	6244-02-119-FZ	LCB1XF	Barr. L.C. B1 X-Axis Force		111196.08	N	-	2/22/2002	OK	VRTC Of	Key	6244-02
0009	6244-02-132-FZ	LCB2XF	Barr. L.C. B2 X-Axis Force		111278.56	N	-	2/20/2002	---	VRTC Of	Key	6244-02
0010	6244-02-113-FZ	LCB3XF	Barr. L.C. B3 X-Axis Force		111135.42	N	-	2/22/2002	OK	VRTC Of	Key	6244-02
0011	6244-02-129-FZ	LCB4XF	Barr. L.C. B4 X-Axis Force		111096.52	N	-	2/21/2002	---	VRTC Of	Key	6244-02
0012	6244-02-123-FZ	LCB5XF	Barr. L.C. B5 X-Axis Force		111083.85	N	-	2/11/2002	---	VRTC Of	Key	6244-02
0013	6244-02-136-FZ	LCB6XF	Barr. L.C. B6 X-Axis Force		111083.85	N	-	1/24/2002	---	VRTC Of	Key	6244-02
0014	6244-02-116-FZ	LCB7XF	Barr. L.C. B7 X-Axis Force		111196.08	N	-	2/22/2002	OK	VRTC Of	Key	6244-02
0015	6244-02-147-FZ	LCC1XF	Barr. L.C. C1 X-Axis Force		111196.08	N	-	2/22/2002	OK	VRTC Of	Key	6244-02
0016	6244-02-137-FZ	LCC2XF	Barr. L.C.C2 X-Axis Force		111079.34	N	-	2/21/2002	---	VRTC Of	Key	6244-02
0017	6244-02-107-FZ	LCC3XF	Barr. L.C. C3 X-Axis Force		111289.23	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0018	6244-02-126-FZ	LCC4XF	Barr. L.C. C4 X-Axis Force		111083.85	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0019	6244-02-148-FZ	LCC5XF	Barr. L.C. C5 X-Axis Force		111096.52	N	-	2/19/2002	---	VRTC Of	Key	6244-02
0020	6244-02-124-FZ	LCC6XF	Barr. L.C. C6 X-Axis Force		111096.52	N	-	2/19/2002	---	VRTC Of	Key	6244-02
0021	6244-02-104-FZ	LCC7XF	Barr. L.C. C7 X-Axis Force		111096.52	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0022	6244-02-138-FZ	LCD1XF	Barr. L.C. D1 X-Axis Force		111079.34	N	-	2/21/2002	---	VRTC Of	Key	6244-02
0023	6244-02-128-FZ	LCD2XF	Barr. L.C. D2 X-Axis Force		111196.08	N	-	1/7/2002	---	VRTC Of	Key	6244-02
0024	6244-02-102-FZ	LCD3XF	Barr. L.C. D3 X-Axis Force		111135.42	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0025	6244-02-117-FZ	LCD4XF	Barr. L.C. D4 X-Axis Force		111079.34	N	-	2/19/2002	---	VRTC Of	Key	6244-02
0026	6244-02-127-FZ	LCD5XF	Barr. L.C. D5 X-Axis Force		111135.42	N	-	2/22/2002	OK	VRTC Of	Key	6244-02
0027	6244-02-109-FZ	LCD6XF	Barr. L.C. D6 X-Axis Force		111083.85	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0028	6244-02-162-FZ	LCD7XF	Barr. L.C. D7 X-Axis Force		111162.74	N	-	1/7/2002	---	VRTC Of	Key	6244-02
0029	6244-02-114-FZ	LCE1XF	Barr. L.C. E1 X-Axis Force		111079.34	N	-	2/19/2002	---	VRTC Of	Key	6244-02

Channel Report

0030	6244-02-145-FZ	LCE2XF	Barr. L.C. E2 X-Axis Force	111229.51	N	-	2/20/2002	---	VRTC Of	Key	6244-02
0031	6244-02-118-FZ	LCE3XF	Barr. L.C. E3 X-Axis Force	111135.42	N	-	2/19/2002	---	VRTC Of	Key	6244-02
0032	6244-02-120-FZ	LCE4XF	Barr. L.C. E4 X-Axis Force	111079.34	N	-	1/7/2002	---	VRTC Of	Key	6244-02
0033	6244-02-101-FZ	LCE5XF	Barr. L.C. E5 X-Axis Force	111083.85	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0034	6244-02-112-FZ	LCE6XF	Barr. L.C. E6 X-Axis Force	111278.56	N	-	2/19/2002	---	VRTC Of	Key	6244-02
0035	6244-02-108-FZ	LCE7XF	Barr. L.C. E7 X-Axis Force	111096.52	N	-	2/12/2002	---	VRTC Of	Key	6244-02
0036	6244-02-164-FZ	LCF1XF	Barr. L.C. F1 X-Axis Force	111174.81	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0037	6244-02-135-FZ	LCF2XF	Barr. L.C. F2 X-Axis Force	111317.11	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0038	6244-02-165-FZ	LCF3XF	Barr. L.C. F3 X-Axis Force	111058.33	N	-	3/18/2002	OK	VRTC Of	Key	6244-02
0039	6244-02-141-FZ	LCF4XF	Barr. L.C. F4 X-Axis Force	111196.08	N	-	2/19/2002	---	VRTC Of	Key	6244-02
0040	6244-02-130-FZ	LCF5XF	Barr. L.C. F5 X-Axis Force	111096.52	N	-	2/20/2002	---	VRTC Of	Key	6244-02
0041	6244-02-168-FZ	LCF6XF	Barr. L.C. F6 X-Axis Force	111114.85	N	-	1/7/2002	---	VRTC Of	Key	6244-02
0042	6244-02-149-FZ	LCF7XF	Barr. L.C. F7 X-Axis Force	111079.34	N	-	2/20/2002	---	VRTC Of	Key	6244-02
0043	6244-02-159-FZ	LCG1XF	Barr. L.C. G1 X-Axis Force	111170.00	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0044	6244-02-160-FZ	LCG2XF	Barr. L.C. G2 X-Axis Force	111250.17	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0045	6244-02-161-FZ	LCG3XF	Barr. L.C. G3 X-Axis Force	111215.54	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0046	6244-02-166-FZ	LCG4XF	Barr. L.C. G4 X-Axis Force	111327.00	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0047	6244-02-157-FZ	LCH1XF	Barr. L.C. H1 X-Axis Force	111160.32	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0048	6244-02-169-FZ	LCH2XF	Barr. L.C. H2 X-Axis Force	111115.56	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0049	6244-02-163-FZ	LCH3XF	Barr. L.C. H3 X-Axis Force	111220.16	N	-	8/2/2002	OK	VRTC Of	Key	6244-02
0050	6244-02-167-FZ	LCH4XF	Barr. L.C. H4 X-Axis Force	111254.28	N	-	8/2/2002	OK	VRTC Of	Key	6244-02

Channel Report

Name of Test 020823 **System** K3600 **Name of DAU** DAU1

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status		Group	Mfg.	Model
					10.24	V	+	4/15/2002	OK	-1	TRC	Event
1000	EVENT1	SYNC1	SYNC1	Rwd	799.25070	g	-	5/24/2002	OK	168v	Endevco	7264-2KM5T
1001	J17649	HEDXG1	Head Accel X	Lft	796.76315	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
1002	AJ454	HEDYG1	Head Accel Y	Up	793.24502	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
1003	J14189	HEDZG1	Head Accel Z	Rwd	797.85576	g	-	1/25/2002	---	168v	Endevco	7264C-2KLC-2-2
1004	P17196	HEDXR1	Head Accel Red X S39	Lft	800.20005	g	-	2/8/2002	OK	168v	Entran	EGE-73B6Q-200
1005	B02A25-N05	HEDYR1	Head Accel Red Y	Up	796.43471	g	-	1/24/2002	OK	168v	Entran	EGE-73B6Q-200
1006	01G25-N09	HEDZR1	Head Accel Red Z	Hd Fd	8901.1429	N	-	5/29/2002	OK	168v	Denton	1716A
1007	1716A-851-FX	NEKXF1	Neck Force X	Hd Lt,	8900.8975	N	+	5/29/2002	OK	168v	Denton	1716A
1008	1716A-851-FY	NEKYF1	Neck Force Y	Hd U	13337.786	N	+	5/29/2002	OK	168v	Denton	1716A
1009	1716A-851-FZ	NEKZF1	Neck Force Z	Rt Ear	282.57713	N·m	-	5/29/2002	OK	168v	Denton	1716A
1010	1716A-851-MX	NEKXM1	Neck Moment X	Chn t	282.47809	N·m	+	5/29/2002	OK	168v	Denton	1716A
1011	1716A-851-MY	NEKYM1	Neck Moment Y	Chn t	282.53544	N·m	+	5/29/2002	OK	168v	Denton	1716A
1012	1716A-851-MZ	NEKZM1	Neck Moment Z	Fwd	401.13446	g	+	5/24/2002	OK	168v	Endevco	7264-2000TZ
1013	J35921	CSTXG1	Chest Accel X	Lft	398.05637	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
1014	AJ7F7	CSTYG1	Chest Accel Y	Up	398.06565	g	-	5/24/2002	OK	168v	Endevco	7264-2000TZ
1015	J36723	CSTZG1	Chest Accel Z	Rwd	401.60170	g	-	4/25/2002	OK	168v	Entran	EGE-73BQE0-20
1016	99H30-Z14	CSTXR1	Chest Accel Red X	Lft	399.65499	g	-	4/25/2002	OK	168v	Entran	EGE-73BQ-2000
1017	98H14-K05	CSTYR1	Chest Accel Red Y	Up	400.05782	g	-	4/25/2002	OK	168v	Entran	EGE-73BQ-2000
1018	98H13-F03	CSTZR1	Chest Accel Red Z	Strnm	101.85558	mm	+	6/5/2002	OK	168v	Servo	14CB1-2847
1019	14CB1-2847-168	CSTXD1	Chest Deflection X	Rwd	400.90831	g	-	5/24/2002	OK	168v	Endevco	7264-2000T
1020	ACCY2	PEVXG1	Pelvis Accel X	Lft	398.71663	g	-	5/24/2002	OK	168v	Endevco	7264-2KM5T
1021	J27490	PEVYG1	Pelvis Accel Y	Up	400.73573	g	-	5/24/2002	OK	168v	Endevco	7264-2KM5T
1022	J21963	PEVZG1	Pelvis Accel Z	Knee	20035.751	N	-	5/24/2002	OK	168v	Denton	1914A
1023	1914A-362-FX	LFMXF1	Left Femur Force X	Knee	20015.190	N	+	5/24/2002	OK	168v	Denton	1914A
1024	1914A-362-FY	LFMYF1	Left Femur Force Y	Knee	33334.983	N	+	5/24/2002	OK	168v	Denton	1914A
1025	1914A-362-FZ	LFMZF1	Left Femur Force Z	Knee	508.62542	N·m	-	5/24/2002	OK	168v	Denton	1914A
1026	1914A-362-MX	LFMXM1	Left Femur Moment X	Knee	509.30828	N·m	+	5/24/2002	OK	168v	Denton	1914A
1027	1914A-362-MY	LFMYM1	Left Femur Moment Y	Tib Lt	508.04912	N·m	+	5/24/2002	OK	168v	Denton	1914A
1028	1914A-362-MZ	LFMZM1	Left Femur Moment Z	Knee	20005.301	N	-	5/24/2002	OK	168v	Denton	1914A
1029	1914A-376-FX	RFMXF1	Right Femur Force X									

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1030	1914A-376-FY	RFMYF1	Right Femur Force Y	Knee	20010.349	N	+	5/24/2002	OK	168v	Denton	1914A
1031	1914A-376-FZ	RFMZF1	Right Femur Force Z	Knee	33337.253	N	+	5/24/2002	OK	168v	Denton	1914A
1032	1914A-376-MX	RFMXM1	Right Femur Moment X	Knee	508.76684	N·m	-	5/24/2002	OK	168v	Denton	1914A
1033	1914A-376-MY	RFMYM1	Right Femur Moment Y	Knee	508.69127	N·m	+	5/24/2002	OK	168v	Denton	1914A
1034	1914A-376-MZ	RFMZM1	Right Femur Moment Z	Tib Lt	509.68328	N·m	+	5/24/2002	OK	168v	Denton	1914A
1035	150-0121VR-1802	KNLXD1	Left Knee Displacement	Tib R	43.559639	mm	-	6/13/2002	OK	168v	SpaceAge	150-0121VR
1036	4353J-79-FX	TBLXF1	Left Upper Tibia Force X	Tib R	8898.2596	N	-	7/16/2002	OK	168v	Denton	4353J
1037	4353J-79-FZ	TBLZF1	Left Upper Tibia Force Z	Tib D	8898.3465	N	+	7/16/2002	OK	168v	Denton	4353J
1038	4353J-79-MX	TBLXM1	Left Upper Tibia Moment X	Tib Rt	281.76543	N·m	-	7/16/2002	OK	168v	Denton	4353J
1039	4353J-79-MY	TBLYM1	Left Upper Tibia Moment Y	Tib R	281.73853	N·m	-	7/16/2002	OK	168v	Denton	4353J
1040	AMR49	TBLXG1	Left Tibia Accel X	Fwd	1197.4927	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1041	AAJ29	TBLYG1	Left Tibia Accel Y	Rt	1189.1490	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1042	4929J-77-FX	ANLXF1	Left Lower Tibia Force X	Ank F	8900.2981	N	+	7/16/2002	OK	168v	Denton	4929J
1043	4929J-77-FY	ANLYF1	Left Lower Tibia Force Y	Ank R	8899.2802	N	+	7/16/2002	OK	168v	Denton	4929J
1044	4929J-77-FZ	ANLZF1	Left Lower Tibia Force Z	Ank	8892.7873	N	+	7/16/2002	OK	168v	Denton	4929J
1045	4929J-77-MX	ANLXM1	Left Lower Tibia Moment X	Ank L	282.19834	N·m	+	7/16/2002	OK	168v	Denton	4929J
1046	4929J-77-MY	ANLYM1	Left Lower Tibia Moment Y	Ank F	281.82270	N·m	+	7/16/2002	OK	168v	Denton	4929J
1047	LX104X	FTLXD1	Left Foot Disp. X	Eversi	161.56516	°	+	7/17/2002	OK	168v	Contelec	PD210-4B
1048	LX104Y	FTLYD1	Left Foot Disp. Y	Dorsif	160.90509	°	+	7/17/2002	OK	168v	Contelec	PD210-4B
1049	LX104Z	FTLZD1	Left Foot Disp. Z	Extern	161.50910	°	-	7/17/2002	OK	168v	Contelec	PD210-4B
1050	AAKB1	FTLXG1	Left Foot Accel X	Fwd	1183.8698	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1051	AAKD0	FTLYG1	Left Foot Accel Y	Rt	1199.4284	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1052	J23759	FTLZG1	Left Foot Accel Z	Dn	1207.7608	g	+	8/6/2002	OK	168v	Endevco	7264-2KM5T
1053	150-0121VL-1812	KNRXD1	Right Knee Displacement	Tib R	44.603188	mm	-	6/13/2002	OK	168v	SpaceAge	150-0121VL
1054	4353J-75-FX	TBRXF1	Right Upper Tibia Force X	Tib F	8902.5567	N	+	8/2/2002	OK	168v	Denton	4353J
1055	4353J-75-FZ	TBRZF1	Right Upper Tibia Force Z	Tib D	8900.2563	N	+	8/2/2002	OK	168v	Denton	4353J
1056	4353J-75-MX	TBRXM1	Right Upper Tibia Moment X	Tib Lt	282.08211	N·m	+	8/2/2002	OK	168v	Denton	4353J
1057	4353J-75-MY	TBRYM1	Right Upper Tibia Moment Y	Tib F	282.18701	N·m	+	8/2/2002	OK	168v	Denton	4353J
1058	J36726	TBRXG1	Right Tibia Accel X	Fwd	1186.1737	g	+	8/7/2002	OK	168v	Endevco	7264-2000TZ
1059	AGWB1	TBRYG1	Right Tibia Accel Y	Rt	1214.1909	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1060	4929J-76-FX	ANRXF1	Right Lower Tibia Force X	Ank F	8893.1394	N	+	7/16/2002	OK	168v	Denton	4929J
1061	4929J-76-FY	ANRYF1	Right Lower Tibia Force Y	Ank R	8901.0800	N	+	7/16/2002	OK	168v	Denton	4929J
1062	4929J-76-FZ	ANRZF1	Right Lower Tibia Force Z	Ank	8893.2457	N	+	7/16/2002	OK	168v	Denton	4929J
1063	4929J-76-MX	ANRXM1	Right Lower Tibia Moment X	Ank L	281.92254	N·m	+	7/16/2002	OK	168v	Denton	4929J
1064	4929J-76-MY	ANRYM1	Right Lower Tibia Moment Y	Ank F	282.26397	N·m	+	7/16/2002	OK	168v	Denton	4929J

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1065	PD210-4B-AK-03	FTRXD1	Right Foot Disp. X	Eversi	160.05002	°	-	7/18/2002	OK	168v	Contelec	PD210-4B
1066	PD210-4B-0225	FTRYD1	Right Foot Disp. Y	Dorsif	162.23581	°	+	7/18/2002	OK	168v	Contelec	PD210-4B
1067	PD210-4B-AK-03	FTRZD1	Right Foot Disp. Z	Intern	162.09713	°	-	7/18/2002	OK	168v	Contelec	PD210-4B
1068	AALD5	FTRXG1	Right Foot Accel X	Fwd	1204.1251	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1069	AAK48	FTRYG1	Right Foot Accel Y	Rt	1218.1775	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1070	ACB45	FTRZG1	Right Foot Accel Z	Dn	1189.1490	g	+	8/6/2002	OK	168v	Endevco	7264-2000LC
1071	J20083	HEDXG2	Head Accel X	Rwd	795.77864	g	-	5/24/2002	OK	169v	Endevco	7264-2000T
1072	J19843	HEDYG2	Head Accel Y	Lft	802.00501	g	-	5/24/2002	OK	169v	Endevco	7264-2000T
1073	J20027	HEDZG2	Head Accel Z	Up	807.18266	g	-	5/24/2002	OK	169v	Endevco	7264-2KM5T
1074	1716A-782-FX	NEKXF2	Neck Force X	Hd Fd	8899.3629	N	-	5/30/2002	OK	169v	Denton	1716A
1075	1716A-782-FY	NEKYF2	Neck Force Y	Hd Lt,	8891.4986	N	+	5/30/2002	OK	169v	Denton	1716A
1076	1716A-782-FZ	NEKZF2	Neck Force Z	Hd U	13341.036	N	+	5/30/2002	OK	169v	Denton	1716A
1077	1716A-782-MX	NEKXM2	Neck Moment X	Rt Ear	282.33238	N·m	-	5/30/2002	OK	169v	Denton	1716A
1078	1716A-782-MY	NEKYM2	Neck Moment Y	Chn t	282.59624	N·m	+	5/30/2002	OK	169v	Denton	1716A
1079	1716A-782-MZ	NEKZM2	Neck Moment Z	Chn t	282.34137	N·m	+	5/30/2002	OK	169v	Denton	1716A
1080	J23757	CSTXG2	Chest Accel X	Fwd	401.74035	g	+	5/24/2002	OK	169v	Endevco	7264-2000T
1081	J21989	CSTYG2	Chest Accel Y	Lft	399.01804	g	-	5/24/2002	OK	169v	Endevco	7264-2KM5T
1082	J35747	CSTZG2	Chest Accel Z	Up	401.75769	g	-	5/24/2002	OK	169v	Endevco	7264-2000TZ
1083	14CB1-2847-169	CSTXD2	Chest Deflection X	Strnm	102.03095	mm	+	6/6/2002	OK	169v	Servo	14CB1-2847
1084	J36741	PEVXG2	Pelvis Accel X	Rwd	399.18759	g	-	5/24/2002	OK	169v	Endevco	7264-2000TZ
1085	J36605	PEVYG2	Pelvis Accel Y	Lft	398.45598	g	-	5/24/2002	OK	169v	Endevco	7264-2000TZ
1086	AAMD7	PEVZG2	Pelvis Accel Z	Up	401.89960	g	-	5/24/2002	OK	169v	Endevco	7264-2000LC
1087	1914-0261-FX	LFMXF2	Left Femur Force X	Knee	20043.875	N	-	5/24/2002	OK	169v	Denton	1914
1088	1914-0261-FY	LFMYF2	Left Femur Force Y	Knee	20037.545	N	+	5/24/2002	OK	169v	Denton	1914
1089	1914-0261-FZ	LFMZF2	Left Femur Force Z	Knee	33361.065	N	+	5/24/2002	OK	169v	Denton	1914
1090	1914-0261-MX	LFMXM2	Left Femur Moment X	Knee	508.75256	N·m	-	5/24/2002	OK	169v	Denton	1914
1091	1914-0261-MY	LFMYM2	Left Femur Moment Y	Knee	508.52406	N·m	+	5/24/2002	OK	169v	Denton	1914
1092	1914-0261-MZ	LFMZM2	Left Femur Moment Z	Tib Lt	509.01555	N·m	+	5/24/2002	OK	169v	Denton	1914
1093	150-0121VR-1716	KNLXD2	Left Knee Displacement	Tib R	43.137585	mm	-	6/13/2002	OK	169v	SpaceAge	150-0121VR
1094	1914A-383-FX	RFMXF2	Right Femur Force X	Knee	20039.527	N	-	5/24/2002	OK	169v	Denton	1914A
1095	1914A-383-FY	RFMYF2	Right Femur Force Y	Knee	20017.163	N	+	5/24/2002	OK	169v	Denton	1914A
1096	1914A-383-FZ	RFMZF2	Right Femur Force Z	Knee	33365.2	N	+	5/24/2002	OK	169v	Denton	1914A
1097	1914A-383-MX	RFMXM2	Right Femur Moment X	Knee	508.55789	N·m	-	5/24/2002	OK	169v	Denton	1914A
1098	1914A-383-MY	RFMYM2	Right Femur Moment Y	Knee	509.40946	N·m	+	5/24/2002	OK	169v	Denton	1914A
1099	1914A-383-MZ	RFMZM2	Right Femur Moment Z	Tib Lt	509.04462	N·m	+	5/24/2002	OK	169v	Denton	1914A

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1100	4353J-78-FX	TBLXF2	Left Upper Tibia Force X	Tib R	8902.4648	N	-	7/17/2002	OK	169v	Denton	4353J
1101	4353J-78-FZ	TBLZF2	Left Upper Tibia Force Z	Tib D	8892.4095	N	+	7/17/2002	OK	169v	Denton	4353J
1102	4353J-78-MX	TBLXM2	Left Upper Tibia Moment X	Tib Rt	282.04464	N·m	-	7/17/2002	OK	169v	Denton	4353J
1103	4353J-78-MY	TBLYM2	Left Upper Tibia Moment Y	Tib R	282.22691	N·m	-	7/17/2002	OK	169v	Denton	4353J
1104	J27464	TBLXG2	Left Tibia Accel X	Fwd	1198.5019	g	+	8/6/2002	OK	169v	Endevco	7264-2KM5T
1105	J37957	VCGXG1	VEHICLE CG X-AXIS	FWD	991.24913	g	+	6/6/2002	OK	-1	Endevco	7264-2000TZ
1106	4929J-78-FX	ANLXF2	Left Lower Tibia Force X	Ank F	8893.1394	N	+	7/16/2002	OK	169v	Denton	4929J
1107	4929J-78-FY	ANLYF2	Left Lower Tibia Force Y	Ank R	8901.0689	N	+	7/16/2002	OK	169v	Denton	4929J

Channel Report

Name of Test 020823 **System** MINIDAU **Name of DAU** DAU6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status	Group	Mfg.	Model
6001	4929J-78-FZ	ANLZF2	Left Lower Tibia Force Z	Ank	8889.0721	N	+	7/16/2002 OK	169v	Denton	4929J
6002	4929J-78-MX	ANLXM2	Left Lower Tibia Moment X	Ank L	282.55101	N·m	+	7/16/2002 OK	169v	Denton	4929J
6003	4929J-78-MY	ANLYM2	Left Lower Tibia Moment Y	Ank F	281.77504	N·m	+	7/16/2002 OK	169v	Denton	4929J
6004	LX0019X	FTLXD2	Left Foot Disp. X	Invers	161.65285	°	-	7/23/2002 OK	169v	Contelec	PD210-4B
6005	LX0019Y	FTLYD2	Left Foot Disp. Y	Dorsif	161.76485	°	+	7/23/2002 OK	169v	Contelec	PD210-4B
6006	LX0019Z	FTLZD2	Left Foot Disp. Z	Intern	160.40718	°	+	7/23/2002 OK	169v	Contelec	PD210-4B
6007	J35987	FTLXG2	Left Foot Accel X	Fwd	1165.4375	g	+	8/7/2002 OK	169v	Endevco	7264-2000TZ
6008	J19865	FTLYG2	Left Foot Accel Y	Rt	1186.8336	g	+	8/7/2002 OK	169v	Endevco	7264-2KM5T
6009	J19338	FTLZG2	Left Foot Accel Z	Dn	1217.6560	g	+	8/6/2002 OK	169v	Endevco	7264-2KM5T
6010	150-0121VL-2103	KNRXD2	Right Knee Displacement	Tib R	40.937075	mm	-	6/13/2002 OK	169v	SpaceAge	150-0121VL
6011	4353J-77-FX	TBRXF2	Right Upper Tibia Force X	Tib R	8907.8549	N	-	7/17/2002 OK	169v	Denton	4353J
6012	4353J-77-FZ	TBRZF2	Right Upper Tibia Force Z	Tib D	8896.6113	N	+	7/17/2002 OK	169v	Denton	4353J
6013	4353J-77-MX	TBRXM2	Right Upper Tibia Moment X	Tib Rt	281.81211	N·m	-	7/17/2002 OK	169v	Denton	4353J
6014	4353J-77-MY	TBRYM2	Right Upper Tibia Moment Y	Tib R	282.37839	N·m	-	7/17/2002 OK	169v	Denton	4353J
6015	J36611	TBRXG2	Right Tibia Accel X	Fwd	1206.1817	g	+	8/7/2002 OK	169v	Endevco	7264-2000TZ
6016	J19227	TBRYG2	Right Tibia Accel Y	Rt	1209.3726	g	+	8/7/2002 OK	169v	Endevco	7264-2000T
6017	4929J-75-FX	ANRXF2	Right Lower Tibia Force X	Ank F	8889.6425	N	+	7/17/2002 OK	169v	Denton	4929J
6018	4929J-75-FY	ANRYF2	Right Lower Tibia Force Y	Ank R	8888.6114	N	+	7/17/2002 OK	169v	Denton	4929J
6019	4929J-75-FZ	ANRZF2	Right Lower Tibia Force Z	Ank	8893.3040	N	+	7/17/2002 OK	169v	Denton	4929J
6020	4929J-75-MX	ANRXM2	Right Lower Tibia Moment X	Ank L	282.34979	N·m	+	7/17/2002 OK	169v	Denton	4929J
6021	4929J-75-MY	ANRYM2	Right Lower Tibia Moment Y	Ank F	281.56381	N·m	+	7/17/2002 OK	169v	Denton	4929J
6022	LX0018X	FTRXD2	Right Foot Disp. X	Invers	163.4061	°	-	7/23/2002 OK	169v	Contelec	PD210-4B
6023	LX0018Y	FTRYD2	Right Foot Disp. Y	Dorsif	162.23699	°	+	7/23/2002 OK	169v	Contelec	PD210-4B
6024	LX0018Z	FTRZD2	Right Foot Disp. Z	Extern	161.72990	°	+	7/23/2002 OK	169v	Contelec	PD210-4B
6025	AAKB4	FTRXG2	Right Foot Accel X	Fwd	1239.7094	g	+	8/6/2002 OK	169v	Endevco	7264-2000LC
6026	AHRW5	FTRYG2	Right Foot Accel Y	Rt	1222.1029	g	+	8/6/2002 OK	169v	Endevco	7264-2000LC
6027	ACCT1	FTRZG2	Right Foot Accel Z	Dn	1194.6985	g	+	8/6/2002 OK	169v	Endevco	7264-2000LC
6028	J27503	LRXXG1	REAR SEAT X-MEMBER LEF	FWD	1008.6285	g	+	7/30/2002 OK	-1	Endevco	7264-2000TZ
6029	J35767	LRXYG1	REAR SEAT Y-MEMBER LEF	LT	996.57428	g	-	5/13/2002 OK	-1	Endevco	7264-2000TZ
6030	J37990	LRXZG1	REAR SEAT Z-MEMBER LEF	UP	1014.1827	g	-	3/20/2002 OK	-1	Endevco	7264-2000TZ

Channel Report

6031	J37078	RRXXG1	REAR SEAT X-MEMBER RIG	FWD	1010.5795	g	+	4/4/2002	OK	-1	Endevco	7264-2000TZ
6032	J40088	RRXYG1	REAR SEAT Y-MEMBER RIG	LT	1000.5863	g	-	4/4/2002	OK	-1	Endevco	7264-2000TZ

Channel Report

Name of Test 020823 **System** MINIDAU **Name of DAU** DAU7

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status		Group	Mfg.	Model
7001	J22013	RRXZG1	REAR SEAT Z-MEMBER RIG	UP	1007.8740	g	-	6/19/2002	OK	VRTC O	Endevco	7264-2000TZ
7002	J39522	LTPXG1	DRIVERS LT. SIDE TOE PAN	RR	1024	g	-	6/5/2002	OK	-1	Endevco	7264-2000TZ
7003	J38149	LTPYG1	DRIVERS LT. SIDE TOE PAN	LT	980.61748	g	-	5/10/2002	OK	-1	Endevco	7264-2000TZ
7004	J38609	LTPZG1	DRIVERS LT. SIDE TOE PAN	UP	1004.7490	g	-	5/10/2002	OK	-1	Endevco	7264-2000TZ
7005	J39031	RTPXG1	DRIVERS RT. SIDE TOE PAN	RR	1017.6499	g	-	7/15/2002	OK	-1	Endevco	7264-2000TZ
7006	J36746	RTPYG1	DRIVERS RT. SIDE TOE PAN	LT	1011.8577	g	-	5/1/2002	OK	-1	Endevco	7264-2000TZ
7007	J40989	RTPZG1	DRIVERS RT. SIDE TOE PAN	UP	1005.8741	g	-	6/3/2002	OK	-1	Endevco	7264-2000TZ
7008	J36743	TBLYG2	Left Tibia Accel Y	Rt	1153.0752	g	+	8/7/2002	OK	169v	Endevco	7264-2000TZ
7009	J39361	VCGYG1	VEHICLE CG Y-AXIS	RT	1008.8869	g	+	5/13/2002	OK	-1	Endevco	7264-2000TZ
7010	J14144	VCGZG1	VEHICLE CG Z-AXIS	UP	1032.3621	g	-	5/23/2002	OK	-1	Endevco	7264-2000TZ
7011	J37992	RDKZG1	REAR DECK Z-AXIS	UP	1002.7419	g	-	7/17/2002	OK	-1	Endevco	7264-2000TZ
7012	1186992	TPDXD1	TOE PAN DISPLACEMENT	3S	1267.7411	mm	+	7/10/2002	OK	-1	Celesco	PT-101-0050-111
7013	IP1	DABETA	DRIVER AIRBAG EVENT - WI	69	1.0039216	V	+	6/15/2000	---	VRTC O	FLUKE	Y8101A
7014	IP3	PABETA	PASSENGER AIRBAG EVENT	FFF	1.0039216	V	+	6/15/2000	---	VRTC O	FLUKE	Y8101A
7015	IP4	PABETB	PASSENGER AIRBAG EVENT	8	1.0039216	V	+	6/15/2000	---	VRTC O	FLUKE	Y8101A
7016	615	SHBF1	DRIVER SHOULDER FORCE		13364.728	N	+	4/3/2002	OK	-1	Lebow	3419T
7017	610	LPBF1	DRIVER LAP FORCE	1	13337.946	N	+	4/3/2002	OK	-1	Lebow	3419T
7018	807	SHBF2	PASSENGER SHOULDER FOR	2008	13330.167	N	+	4/3/2002	OK	-1	Lebow	3419T
7019	808	LPBF2	PASSENGER LAP FORCE	P12	13330.079	N	+	4/3/2002	OK	-1	Lebow	3419T

Dummy 168v **Type** HIII 50TH **Description** VRTC - 168v HIII 50TH CAL'd 1-24-02 (DKS 8-22-02) J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U		Fullscale	Caldate	Pos Output	Flip
HEDXG	Head Accel X	7264-2KM5T	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 CAL'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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March, 1999

REPORT DOCUMENTATION PAGE
Title: *STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY*
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Suplementary notes: Under contract to: THE EUROPEAN COMMUNITY Project: "Improvement of Crash Compatibility between Cars" Contract Nº: 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.

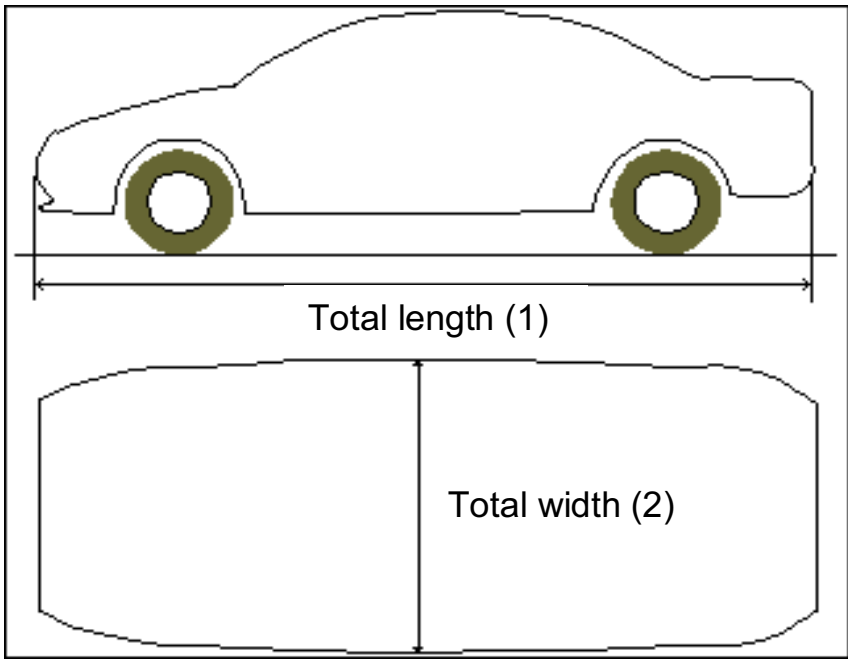

Figure 1.- Definition of the main resistant elements. General dimensions.

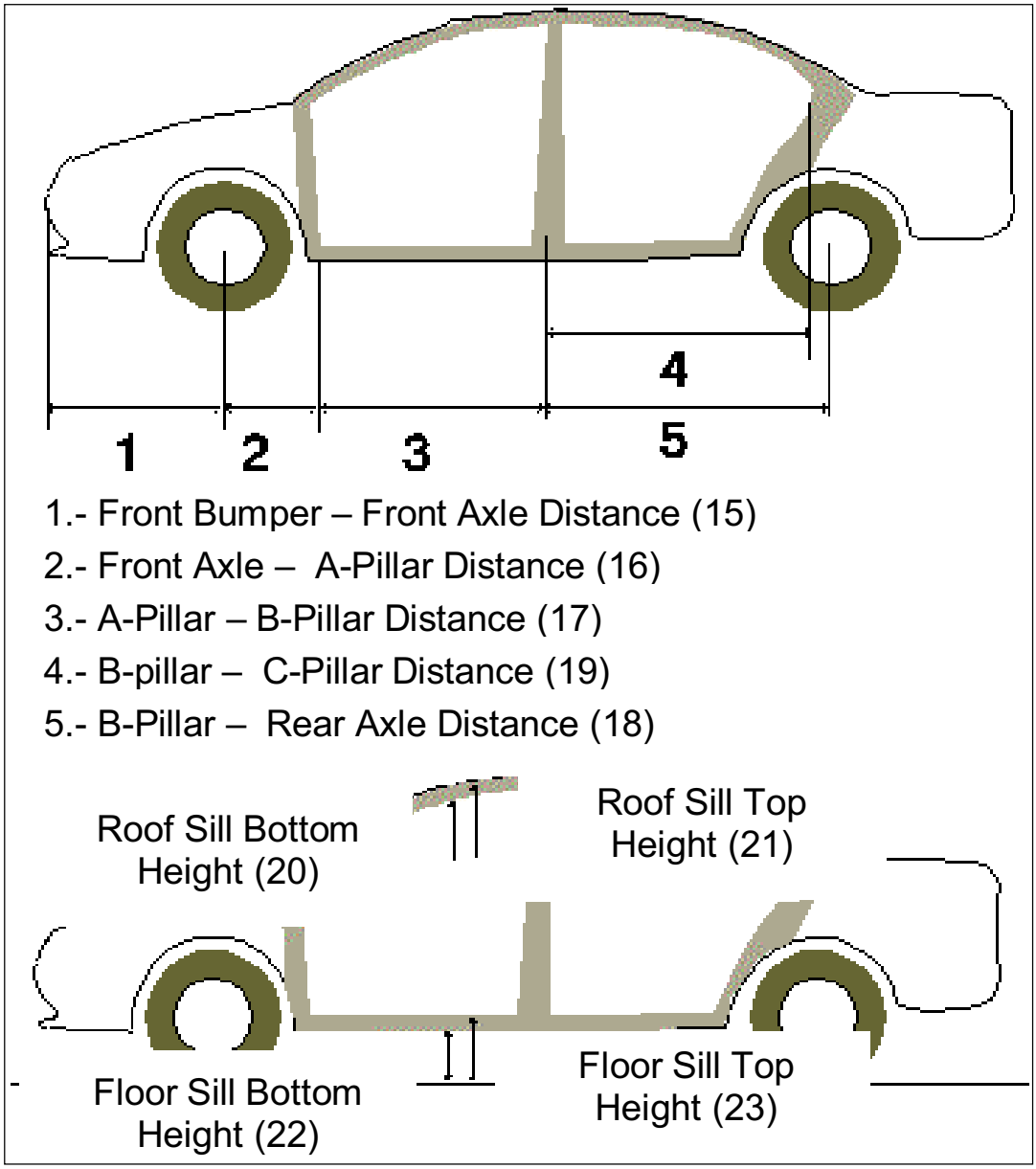

Figure 2.- Definition of the main resistant elements. Side elements.

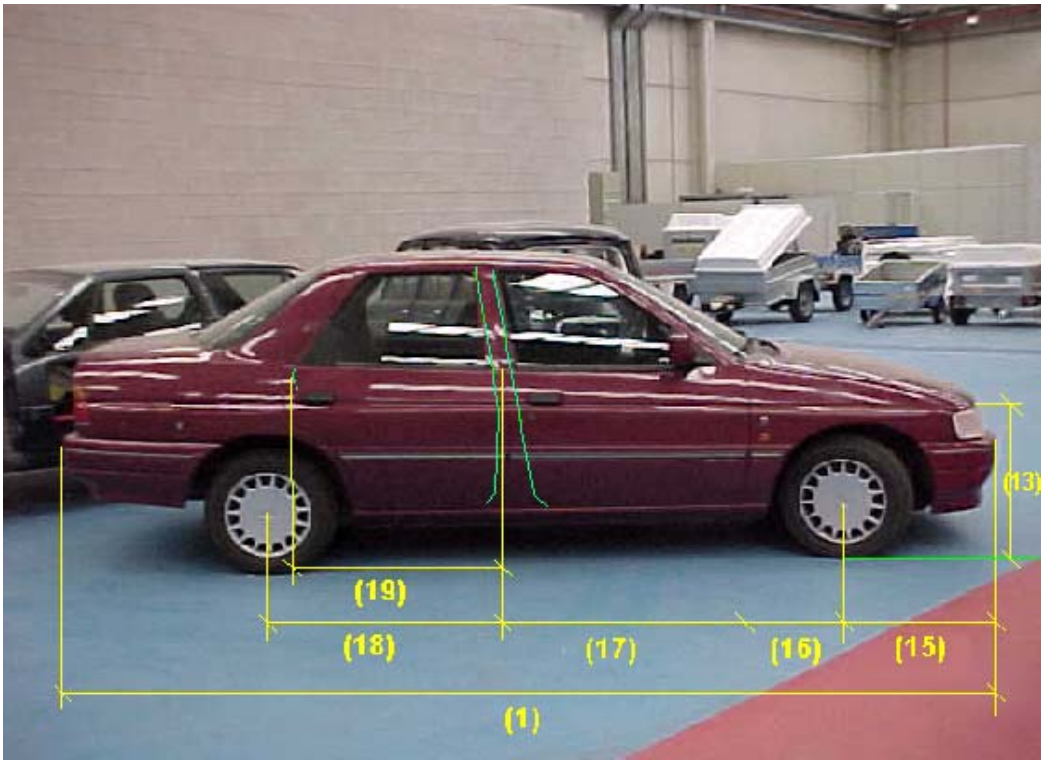

Figure 3.- Measurements of the side resistant elements (outer).

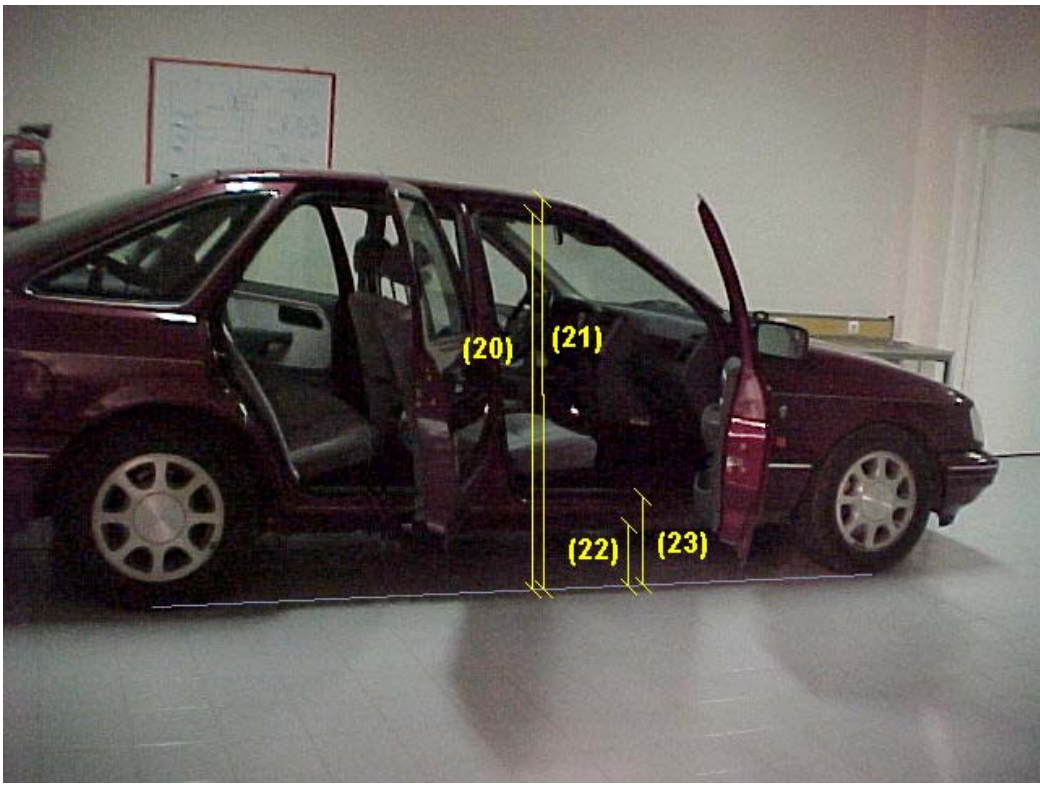

Figure 4.- Measurements of the side resistant elements (inner).

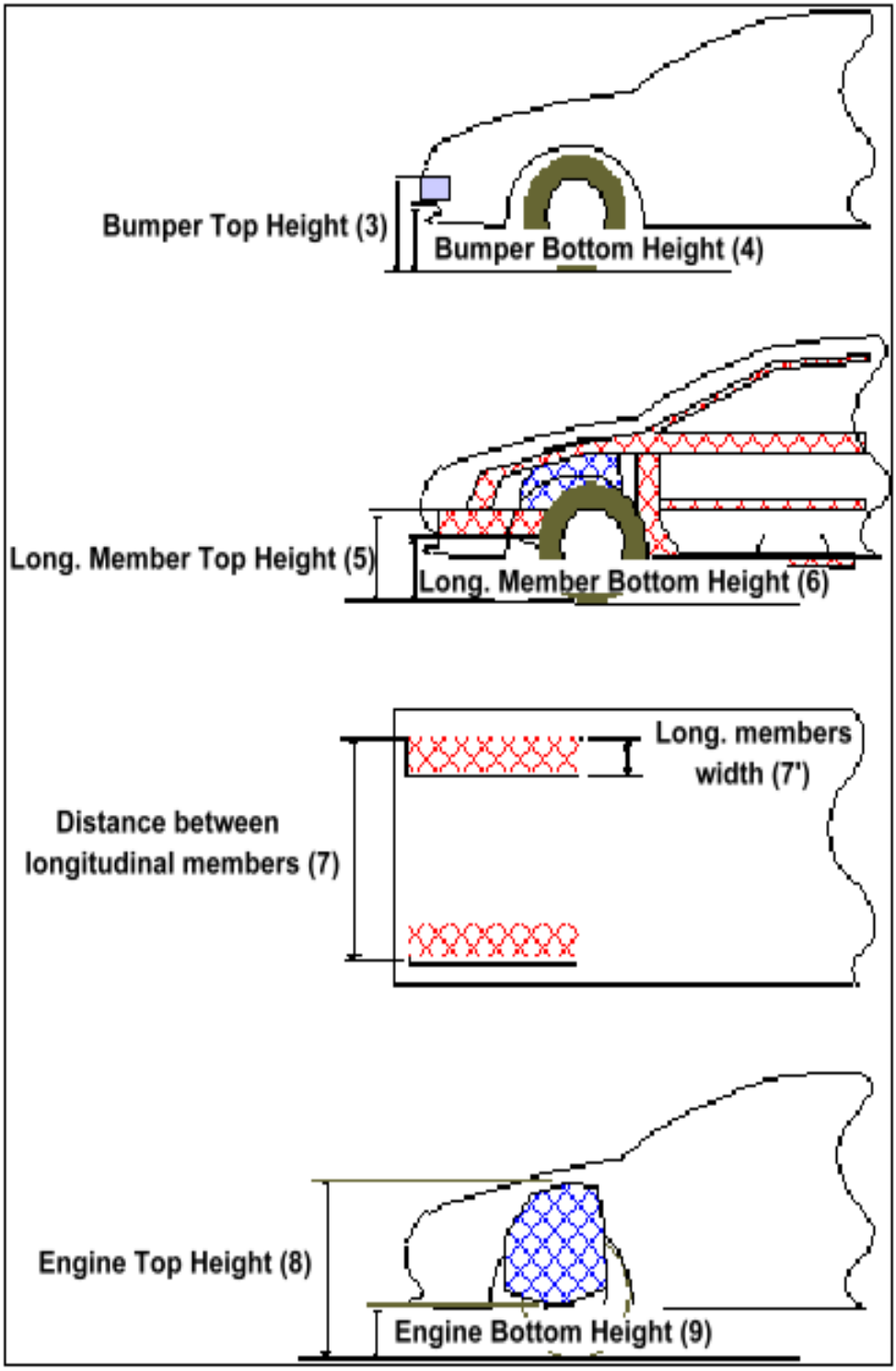

Figure 5.- Definition of the main resistant elements. Front elements.

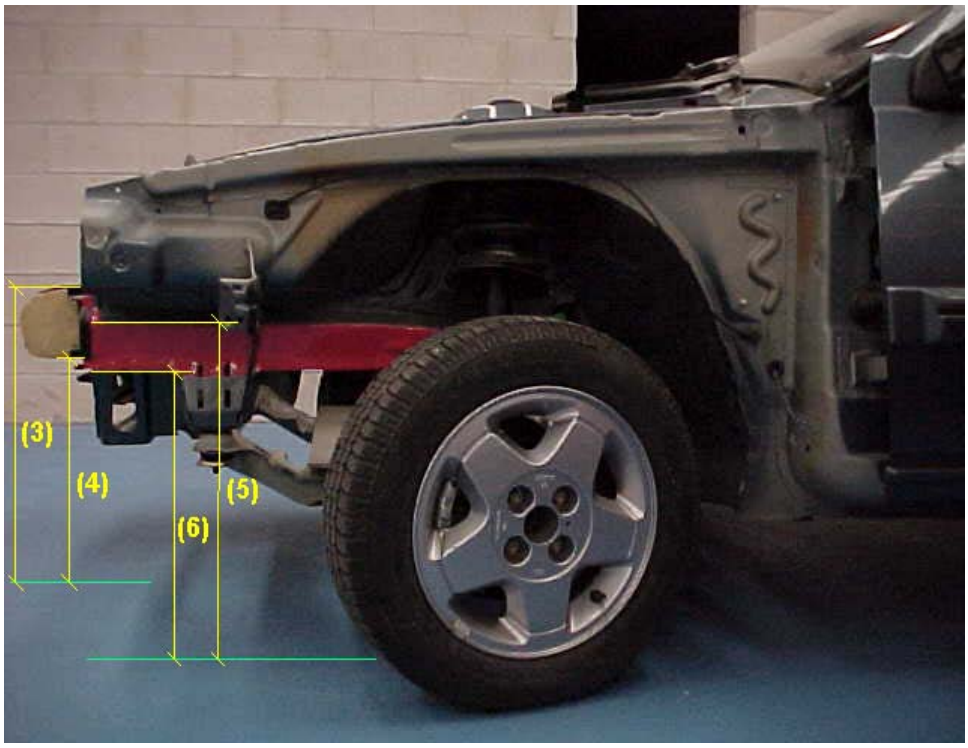

Figure 6.- Measurements of the main resistant elements. Front elements 1.

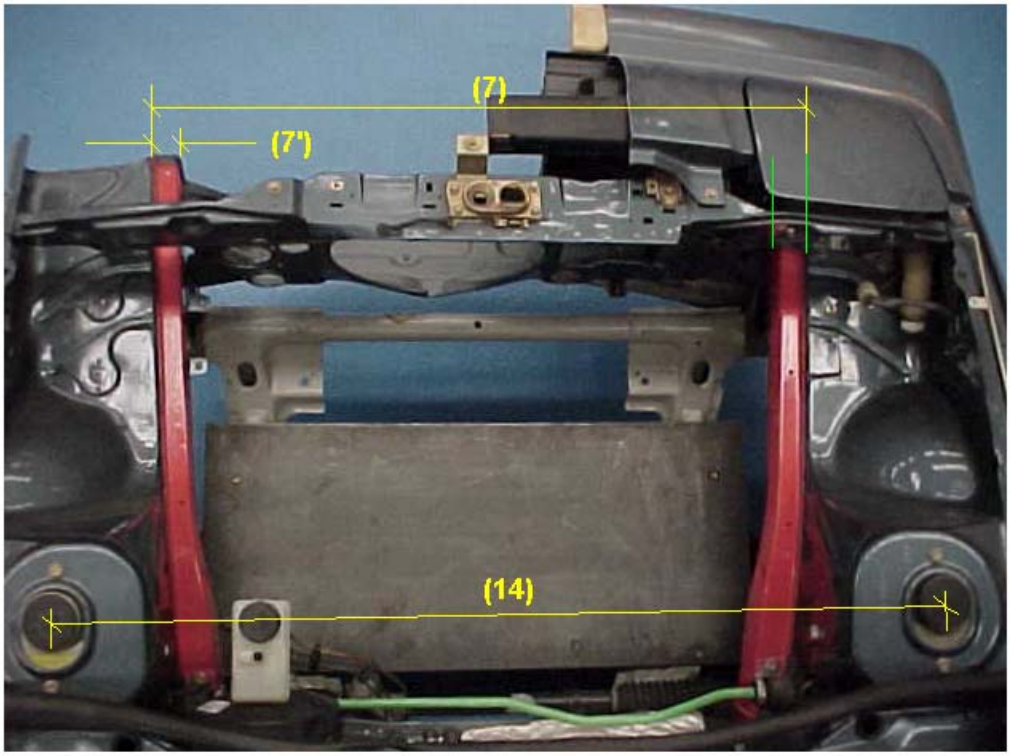

Figure 7.- Measurements of the main resistant elements. Front elements 2.

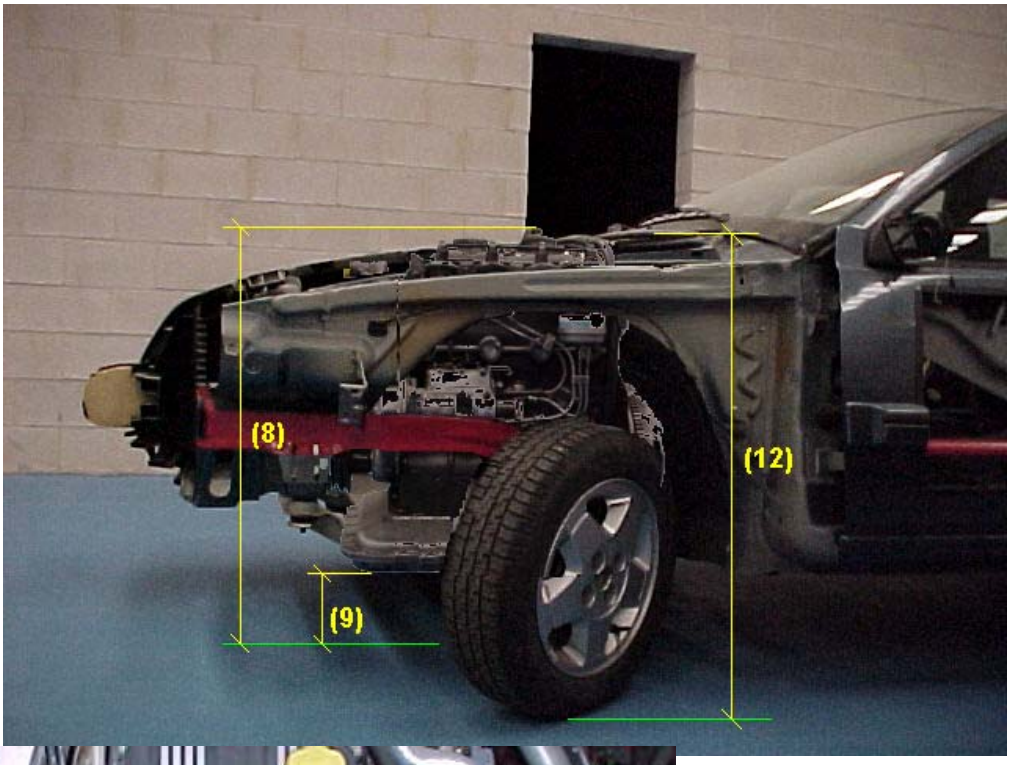

Figure 8.- Measurements of the main resistant elements. Front elements 3.

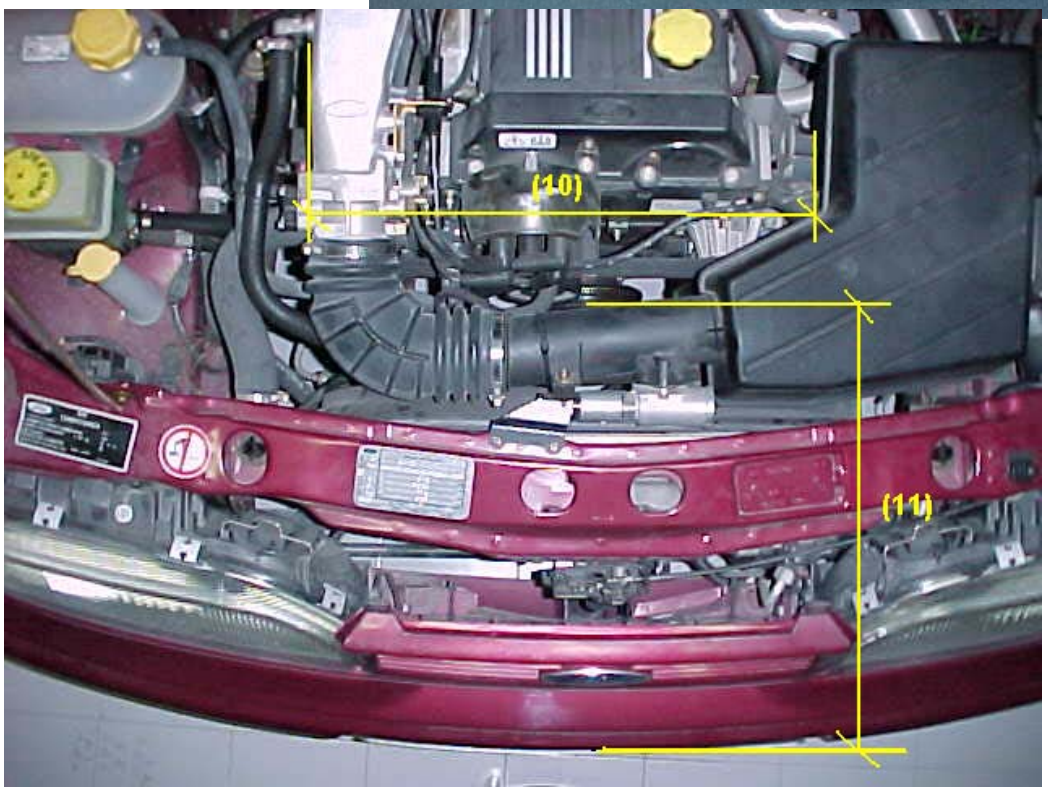

Figure 9.- Definition of the main resistant elements. Front elements (Longitudinal engine).

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.