

**Vehicle Research and Test Center
2002 Nissan Altima into
Fixed 40% Left Offset Deformable Barrier
Load Cell Barrier at 60.0 km/h
TRC Inc. Test Number: 030618-1**

**Prepared By:
Transportation Research Center Inc.
10820 State Route 347
East Liberty, OH 43319**

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**Prepared For:
Vehicle Research and Test Center
P. O. Box 37
East Liberty, OH 43319**

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Section 1.0

Purpose and Test Procedure

Purpose

This 60.2 km/h (37.4 mph) fixed 40% left offset deformable load cell barrier impact test was conducted for the National Highway Traffic Safety Administration (NHTSA) and Vehicle Research and Test Center (VRTC) by Transportation Research Center Inc. (TRC Inc.).

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

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 5th percentile female anthropomorphic test devices (dummies).

The test vehicle, a 2002 Nissan Altima, was instrumented with six (6) accelerometers to measure longitudinal, lateral and vertical axis accelerations, one (1) displacement potentiometer, and four (4) seat belt load cells. The driver's and passenger's airbag signals were monitored with inductive pickups. The vehicle impacted a fixed offset deformable load cell barrier. The vehicle's specified impact velocity range was 59.2 to 60.8 km/h.

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

The test vehicle contained two (2) Hybrid III 50th percentile adult male dummies. The dummies were positioned in the front outboard designated seating positions according to FMVSS 208 (December 18, 2001). The driver dummy and the passenger dummy were both belted and were restrained with front dual stage airbags.

Both dummies were instrumented with an array of six (6) accelerometers in the head, plus six (6) chest, and three (3) pelvis, accelerometers to measure longitudinal, lateral, and vertical accelerations. The dummies were also instrumented with upper neck moment and force load cells, left and right femur load cells to measure axial forces, and chest deflection potentiometers. Both dummies were also equipped with THOR-LX legs, which included upper and lower tibia load cells to measure forces and moments, tibia accelerometers in two axes, foot accelerometers in three axes, a tibia to femur displacement potentiometer at each knee, and three (3) rotary potentiometers at each ankle to measure foot rotations about three axes.

The 209 data channels were digitally sampled and recorded at 12,500 samples per second and processed per SAE J211 March 1995.

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

The barrier test summary data are presented in Section 2.0. The summary of FMVSS 208, 212, and 219 data are presented in Section 3.0. The occupant, camera, vehicle, and barrier 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 test equipment and instrumentation calibration information. Appendix E contains a copy of the INSIA Report on Structural Measurements. Appendix F contains miscellaneous manufacturer's information.

Section 2.0

Fixed 40% Left Offset Deformable Load Cell Barrier Test Summary

Test Results Summary

This fixed 40% left offset load cell barrier test was conducted by TRC Inc. on June 18, 2003.

The test vehicle, a 2002 Nissan Altima 4-door, was equipped with a 2.5-liter transverse engine, automatic transmission, power steering, power brakes and dual stage front airbags. The vehicle's test weight was 1580.3 kg. The vehicle's impact speed was 60.2 km/h. The vehicle impacted 11 mm to the left of the 40% offset target line.

The driver's 36 millisecond Head Injury Criteria (HIC) was 211. The driver's 15 millisecond HIC was 115. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 39.2 g. The driver's maximum chest deflection was 21 mm. The driver's left and right femur maximum axial compressive forces were 871 N and 1476 N, respectively. The driver dummy's upper neck injury calculations were: neck tension-flexion (NTF), 0.13; neck tension-extension (NTE), 0.12; neck compression-flexion (NCF), 0.00 and neck compression-extension (NCE), 0.19. The driver dummy's peak upper neck tension force was 501 N and peak neck compression force was 157 N.

The right front passenger's 36 millisecond HIC was 214. The passenger's 15 millisecond HIC was 104. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 32.7 g. The passenger's maximum chest deflection was 30 mm. The passenger's left and right femur maximum axial compressive forces were 1622 N and 86 N, respectively. The right front passenger's upper neck injury calculations were: NTF, 0.14; NTE, 0.15; NCF, 0.01 and NCE, 0.14. The right front passenger dummy's peak upper neck tension force was 974 N and peak neck compression force was 152 N.

There was 100% windshield periphery retention. There was no penetration through the windshield.

Data Acquisition Explanations

The passenger's left upper tibia X-axis and Z-axis force and X-axis and Y-axis moment data channels recorded intermittent spikes between 15 and 130 milliseconds.

The passenger's right lower tibia X-axis, Y-axis and Z-axis force data channels recorded intermittent spikes between 54 and 92 milliseconds.

The passenger's right lower tibia Y-axis moment data channel lost data between 54 and 92 milliseconds.

The load cell barrier H1 X-axis force data channel recorded questionable data throughout the impact event.

Inductive pickups to monitor airbag fire times were labeled "A" and "B", rather than primary and secondary, because wiring information to distinguish between the two airbag stages was not available.

Table 1 Crash Test Summary

Test mode:	Fixed 40% left offset load cell barrier			
Test date:	06/18/03			
Test time:	11:27			
Ambient temperature:	21° C			
Vehicle year/make/ model/body style:	2002/Nissan/Altima/4-door			
Vehicle test weight:	1580.3 kg			
Impact angle ¹ :	0°			
Impact velocity ² :	60.2 km/h			
Maximum static crush ³ :	495 mm			
Number of data channels:	233			
Number of cameras:	High-speed	9	Real-time	1
<u>Dummies:</u>	<u>Driver #168</u>		<u>Passenger #169</u>	
Type:	HIII-50 th Male (Part 572E)		HIII-50 th Male (Part 572E)	
Location:	Left Front		Right Front	
Restraint:	Dual stage airbag, 3-point seat belt		Dual stage airbag, 3-point seat belt	
<u>Seat track position for test:</u>				
Driver:	Mid			
Passenger:	Mid			
<u>Seat back position for test:</u>				
Driver:	10.5°			
Passenger:	10.8°			
<u>Head restraint position for test:</u>				
Driver:	Full up			
Passenger:	Full up			
<u>Steering column position:</u>	Mid			

¹ With respect to tow track centerline.

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

³ Maximum static crush was measured pre and post without bumper fascia.

Table 2 General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	2002/Nissan/Altima/4-door
VIN:	1N4AL11D12L119251
Model year:	2002
Body style:	4-door
Color:	Blue
Engine data:	
Cylinders:	4
Displacement	2.5 liters
Cylinder placement:	Straight
Engine placement:	Transverse
Transmission data:	<u>3</u> speed, ___ manual, <u>X</u> automatic, ___ overdrive
Final drive:	<u>X</u> FWD, ___ RWD, ___ 4WD
Date vehicle received:	6/10/03
Odometer reading:	64
Dealer's name and address:	N/A

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by:	Nissan Motor Ltd.
Date of manufacture:	09/01
VIN:	1N4AL11D12L119251
GVWR:	1907 kg (4202 lbs.)
GAWR: Front:	1020 kg (2249 lbs.)
Rear:	893 kg (1969 lbs.)

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

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

Tire pressure with maximum capacity vehicle load:

Front:	40 psi	(275 kPa)
Rear:	40 psi	(275 kPa)

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

Type of seats:

Front	Bucket
Rear	Split bench

Maximum width: 1777 mm

Wheelbase: 2795 mm

Location of "Recommended Tire Pressure" label:

The label was located on console.

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

Recommended tire size: P205/65R16

Recommended cold tire pressure:

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

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front	2
Rear	3
Total	5

Vehicle capacity weight: 390 kg (860 lbs.)

Rated cargo/luggage weight 50 kg (110 lbs.)

Test vehicle attitude:

Delivered attitude:	LF	730 mm;	RF	740 mm;	LR	710 mm;	RR	71 mm
Fully loaded attitude:	LF	702 mm;	RF	710 mm;	LR	684 mm;	RR	684 mm
Pre-test attitude:	LF	705 mm;	RF	712 mm;	LR	672 mm;	RR	671 mm
Post-test attitude:	LF	845 mm;	RF	699 mm;	LR	648 mm;	RR	694 mm

Table 2 General Test and Vehicle Parameter Data Cont'd

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

Right front	419.5 kg	Right rear	265.0 kg
Left front	424.0 kg	Left rear	278.0 kg
Total front weight	843.5 kg	(60.8 % of total vehicle weight)	
Total rear weight	543.0 kg	(39.2 % of total vehicle weight)	
Total delivered weight	1386.5 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1386.5 kg
Rated Cargo/Luggage Weight (RCLW) ¹ =	50 kg
Weight of 2 Part 572E Dummies @ 76 kg each =	152.0 kg
Target test weight =	1588.5 kg

Weight of test vehicle with required dummies and 41.8 kg of cargo weight:

Right front	453.4 kg	Right rear	331.0 kg
Left front	453.4 kg	Left rear	342.5 kg
Total front weight	906.8 kg	(57.4% of total vehicle weight)	
Total rear weight	673.5 kg	(42.6% of total vehicle weight)	
Total test weight	1580.3 kg	(0.5% under target test weight)	

Weight of ballast secured in vehicle: 0 kg

Components removed to meet target test weight: Tail light, rear window, rear dash fascia, speakers, rear door panels, and rear deck seal.

Location of Vehicle's CG: 1191 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity	74.9 liters (from owner's manual)
Actual test volume:	69.7 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: 030618-1
Test date: 06/18/03
Test time: 11:27
Test type: Fixed 40% left offset deformable load cell barrier
Impact angle: 0°
Ambient temperature
at impact area: 21° C
Required impact velocity range: 59.2 to 60.8 km/h

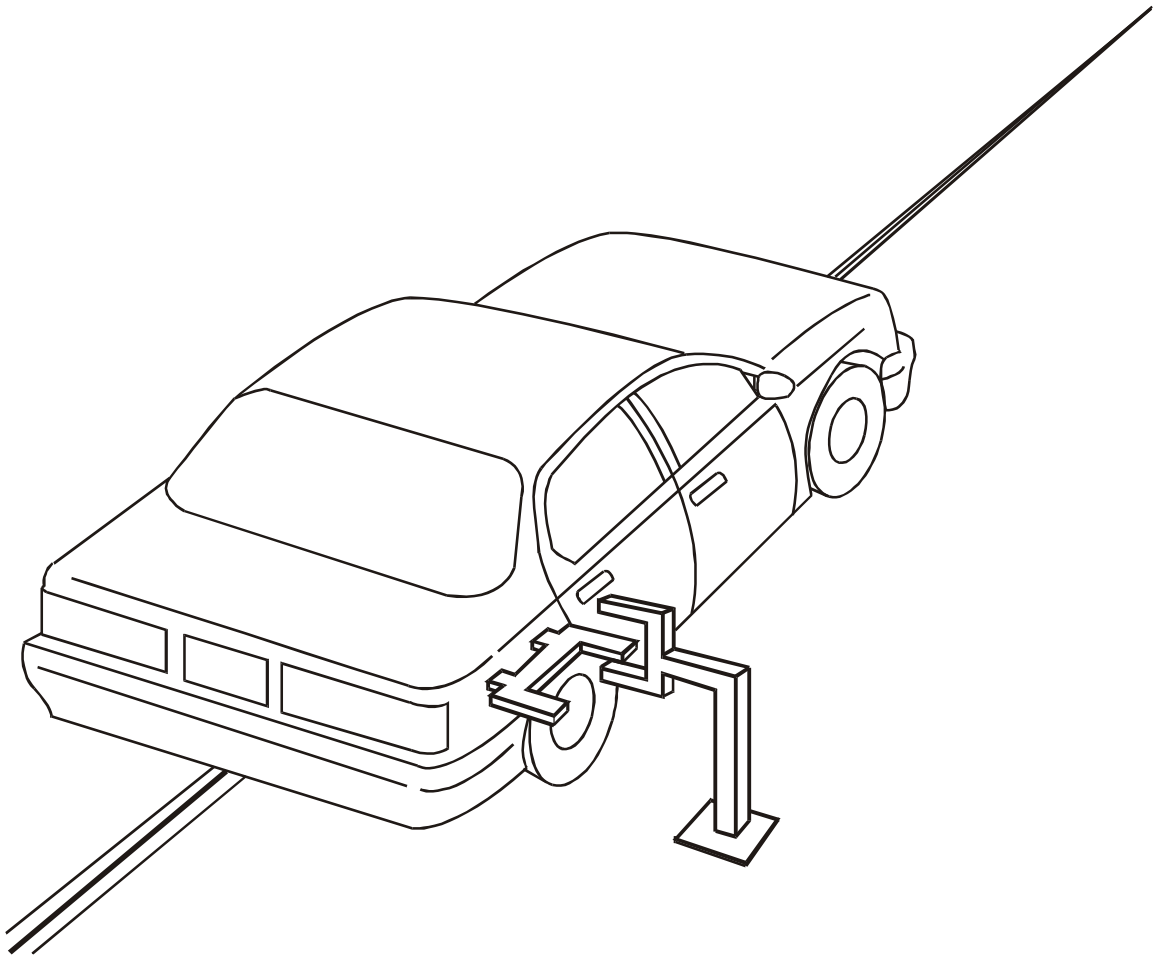
Barrier impact velocity:

Primary: 60.2 km/h
Secondary: 60.2 km/h
Distance from vehicle to barrier:
Entering velocity trap: 661 mm
Exiting velocity trap: 51 mm

Barrier offset (at right edge of barrier):

Target offset: 178 mm left of vehicle centerline
Impact point variance: 11 mm left
Actual offset: 167 mm left of vehicle centerline

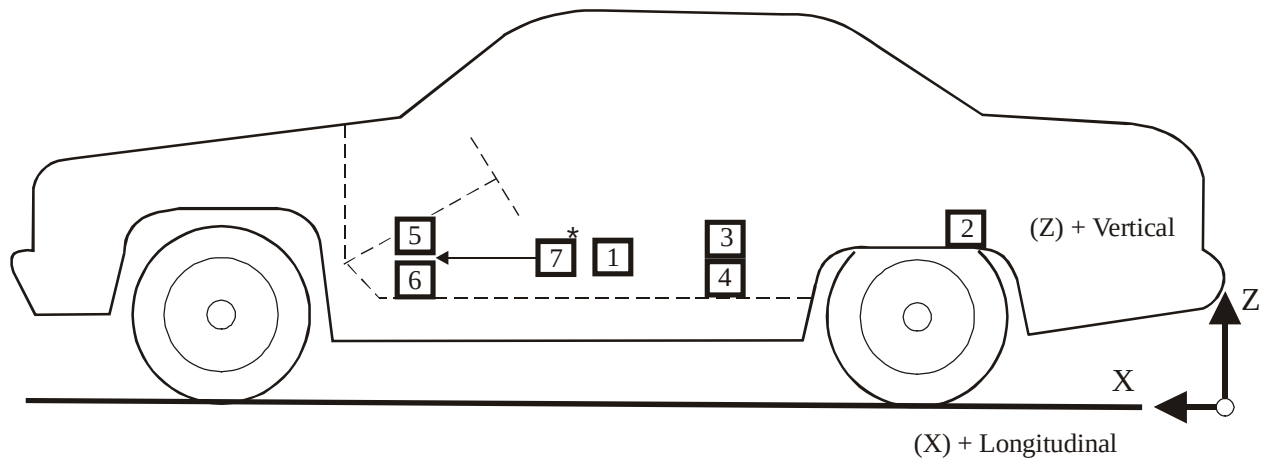
Figure 1 Impact Velocity Measurement System



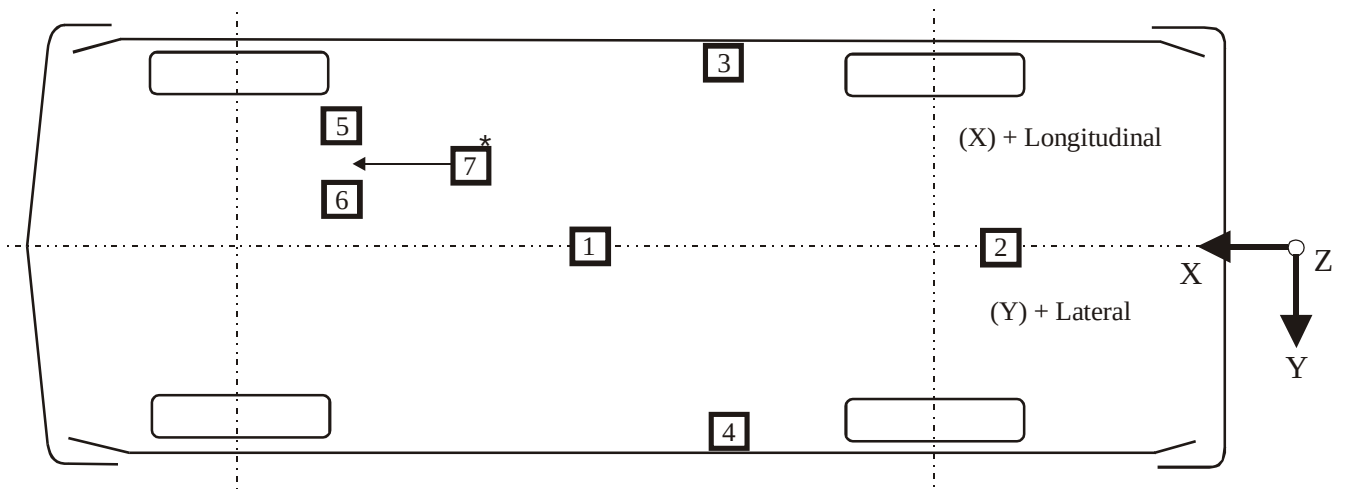
The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 610-millimeter spacing.

Figure 2 Vehicle Accelerometer and String Potentiometer Placement



Side View



Bottom View

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

Table 4 Vehicle Accelerometer Locations and Instrumentation Data Summary

TEST NUMBER: 030618-1 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2723 mm	0 mm	-528 mm				
LONGITUDINAL			10.3 g	@ 223.5 ms	40.2 g	@ 105.1 ms	
LATERAL			30.1 g	@ 86.1 ms	34.3 g	@ 184.1 ms	
VERTICAL			66.4 g	@ 105.8 ms	55.9 g	@ 114.4 ms	
RESULTANT			79.1 g	@ 105.8 ms			
2 REAR DECK VERTICAL	234 mm	0 mm	-555 mm	9.9 g	@ 145.8 ms	8.2 g	@ 30.6 ms
3 LEFT REAR SEAT CROSSMEMBER	1896 mm	-635 mm	-357 mm				
LONGITUDINAL			2.8 g	@ 172.7 ms	36.5 g	@ 91.6 ms	
LATERAL			9.1 g	@ 101.4 ms	2.3 g	@ 81.8 ms	
VERTICAL			7.2 g	@ 83.4 ms	7.3 g	@ 93.8 ms	
RESULTANT			36.9 g	@ 83.4 ms			
4 RIGHT REAR SEAT CROSSMEMBER	1896 mm	635 mm	-362 mm				
LONGITUDINAL			1.2 g	@ 176.6 ms	30.8 g	@ 97.0 ms	
LATERAL			9.3 g	@ 77.0 ms	2.9 g	@ 81.8 ms	
VERTICAL			5.7 g	@ 113.0 ms	6.9 g	@ 67.5 ms	
RESULTANT			31.5 g	@ 97.3 ms			
5 DRIVERS LEFT SIDE TOE PAN	3489 mm	-640 mm	-262 mm				
LONGITUDINAL			9.2 g	@ 110.0 ms	15.4 g	@ 76.6 ms	
LATERAL			38.3 g	@ 81.2 ms	15.5 g	@ 113.0 ms	
VERTICAL			38.6 g	@ 82.1 ms	2.1 g	@ 172.7 ms	
RESULTANT			54.1 g	@ 81.4 ms			

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

TEST NUMBER: 030618-1 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
6 DRIVERS RIGHT SIDE TOE PAN	3489 mm	-235 mm	-284 mm				
LONGITUDINAL				44.2 g	@ 80.5 ms	10.9 g	@ 74.2 ms
LATERAL				31.2 g	@ 80.8 ms	13.0 g	@ 111.8 ms
VERTICAL				44.4 g	@ 75.4 ms	4.1 g	@ 63.2 ms
RESULTANT				68.2 g	@ 80.5 ms		
7 DRIVERS TOE PAN DISPLACEMENT	NA	NA	NA				
LONGITUDINAL				0.1 mm	@ 5.5 ms	51.8 mm	@ 96.2 ms
8 DRIVER SEAT BELT LOAD CELLS	NA	NA	NA				
LAP BELT				5038.4 N	@ 103.3 ms	43.8 N	@ 228.2 ms
SHOULDER BELT				7968.5 N	@ 107.7 ms	50.1 N	@ 23.1 ms
9 PASSENGER SEAT BELT LOAD CELLS	NA	NA	NA				
LAP BELT				5121.4 N	@ 110.5 ms	2.1 N	@ 1.8 ms
SHOULDER BELT				5853.4 N	@ 99.1 ms	25.8 N	@ 272.8 ms

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

Section 3.0

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

Table 5 Dummy Injury Criteria Data

<u>Maximum Acceleration¹</u>								
	Head				Chest			
	X	Y	Z	R	X	Y	Z	R
Driver	-35.6 g	22.0 g	16.2 g	43.8 g	-35.6 g	17.1 g	-10.1 g	39.8 g
Passenger	-30.2 g	-5.1 g	23.9 g	35.3 g	-32.2 g	8.4 g	-5.9 g	33.2 g

<u>Maximum Femur Compressive Force</u>		
	Left Femur	Right Femur
Driver	871 N	1476 N
Passenger	1622 N	86 N

<u>Head Injury Criteria²</u>			
36 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	211	105.68 ms	141.68 ms
Passenger	214	95.12 ms	131.12 ms

15 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	115	127.76 ms	142.80 ms
Passenger	104	107.12 ms	122.16 ms

<u>Chest Maximum Resultant Acceleration³</u>			
	Acceleration	Start Time t ₁	End Time t ₂
Driver	39.2 g	105.18 ms	108.178 ms
Passenger	32.7 g	111.086 ms	114.046 ms

Table 5 Dummy Injury Criteria Data, Cont'd.

Maximum Chest Deflection

Driver	21 mm
Passenger	30 mm

Neck Injury Calculations (Nij)²

	NTF	NTE	NCF	NCE
Driver	0.13	0.12	0.00	0.19
Passenger	0.14	0.15	0.01	0.14

Upper Neck Axial Force

	Tension	Compression
Driver	501 N	157 N
Passenger	974 N	152 N

Tibia Index

	Upper Tibia	Lower Tibia
Driver-left	0.26	0.54
Driver-right	0.35	0.44
Passenger-left	0.41	0.28
Passenger-right	0.35	0.35

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:

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

Door opening:

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

Seat movement:

	<u>Seat back failure</u>	<u>Seat shift</u>
Left Front	None	None
Right Front	None	None
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: Cracked along bottom

Other notable impact effects: Driver's seat rocked outboard

Figure 3 FMVSS 212 Test Data

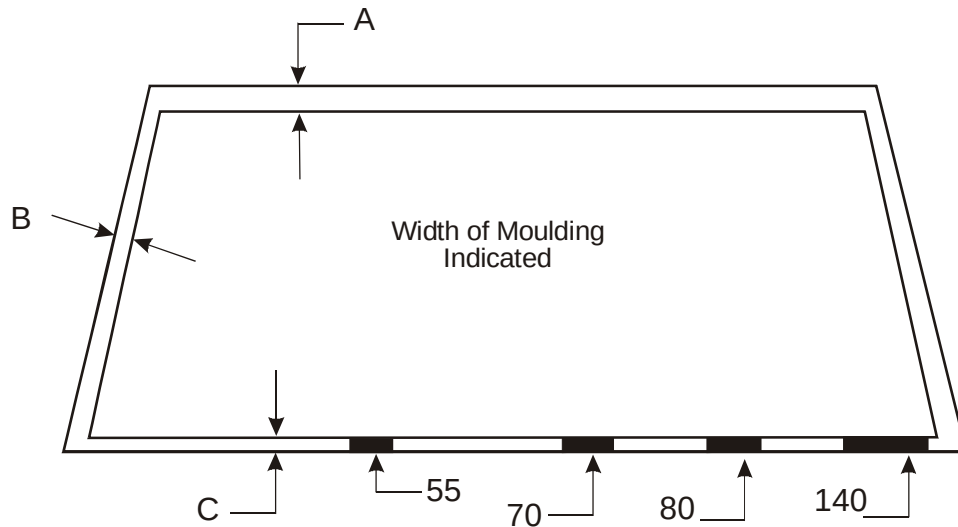
Details of windshield mounting such as retention method, trim type, etc.: adhesive, plastic trim

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

Windshield periphery measurements:

	<u>Pre-test</u>	<u>Post-test</u>	<u>Percent retention</u>
Right side	2192 mm	2192 mm	100%
Left side	2190 mm	2190 mm	100%
Total	4382 mm	4382 mm	100%

A = 15 mm
B = 15 mm
C = 10 mm



Front view of windshield¹

Loss of windshield retention lengths: 55 mm, 70 mm, 80 mm, 140 mm

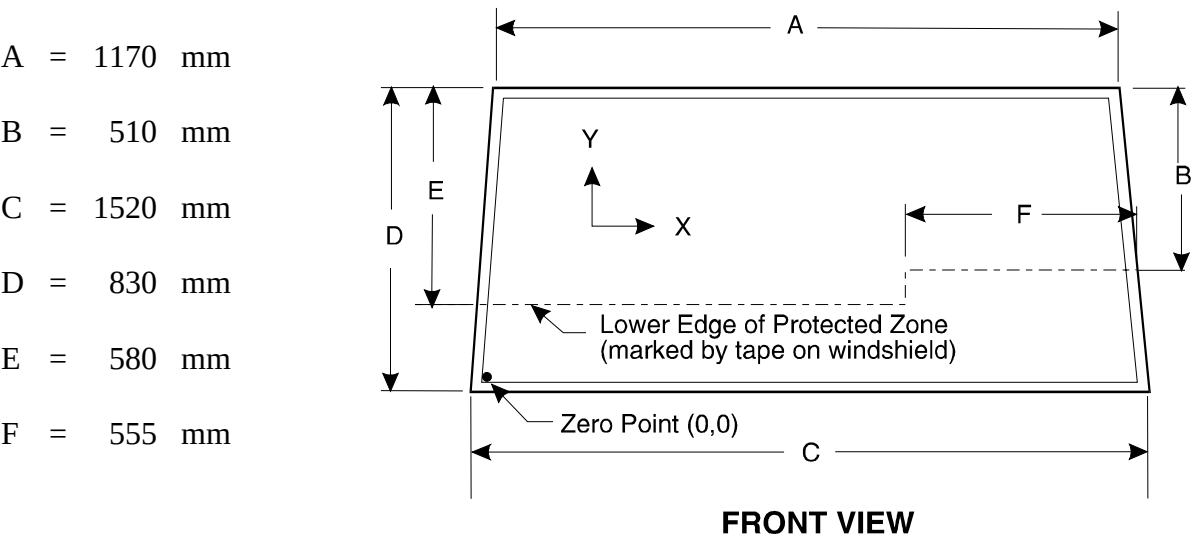
¹ Indicate areas of loss of retention, if any, on windshield diagram.

Figure 4 FMVSS 219 (partial) Test Data

Protected zone lower edge requirement:

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

Windshield measurements:



Method of adhering protected zone template to windshield:

Areas of windshield template penetration greater than 6 mm: None

Coordinates	
X	Y
1.	NoneNone
2.	
3.	

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

1.	NoneNone
2.	
3.	

Section 4.0

Occupant, Vehicle, Camera, and Barrier Information

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and neck contacted the airbag, flexing forward slightly on rebound the head extended back and contacted the head restraint. The dummy came to rest seated upright in the driver's seat.

Right Front Passenger Dummy

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

Figure 5 Dummy Measurement Locations for Front Seat Occupants

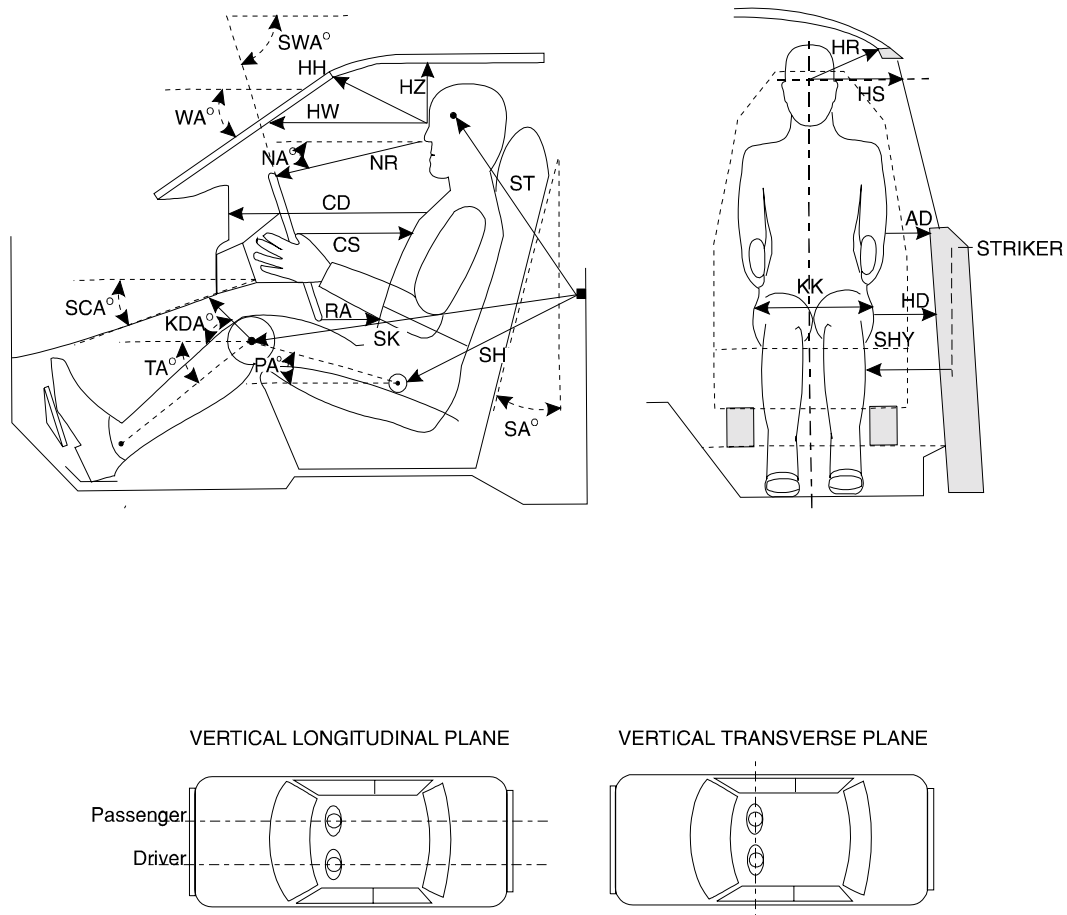


Table 7 Dummy Measurement Data For Front Seat Occupants

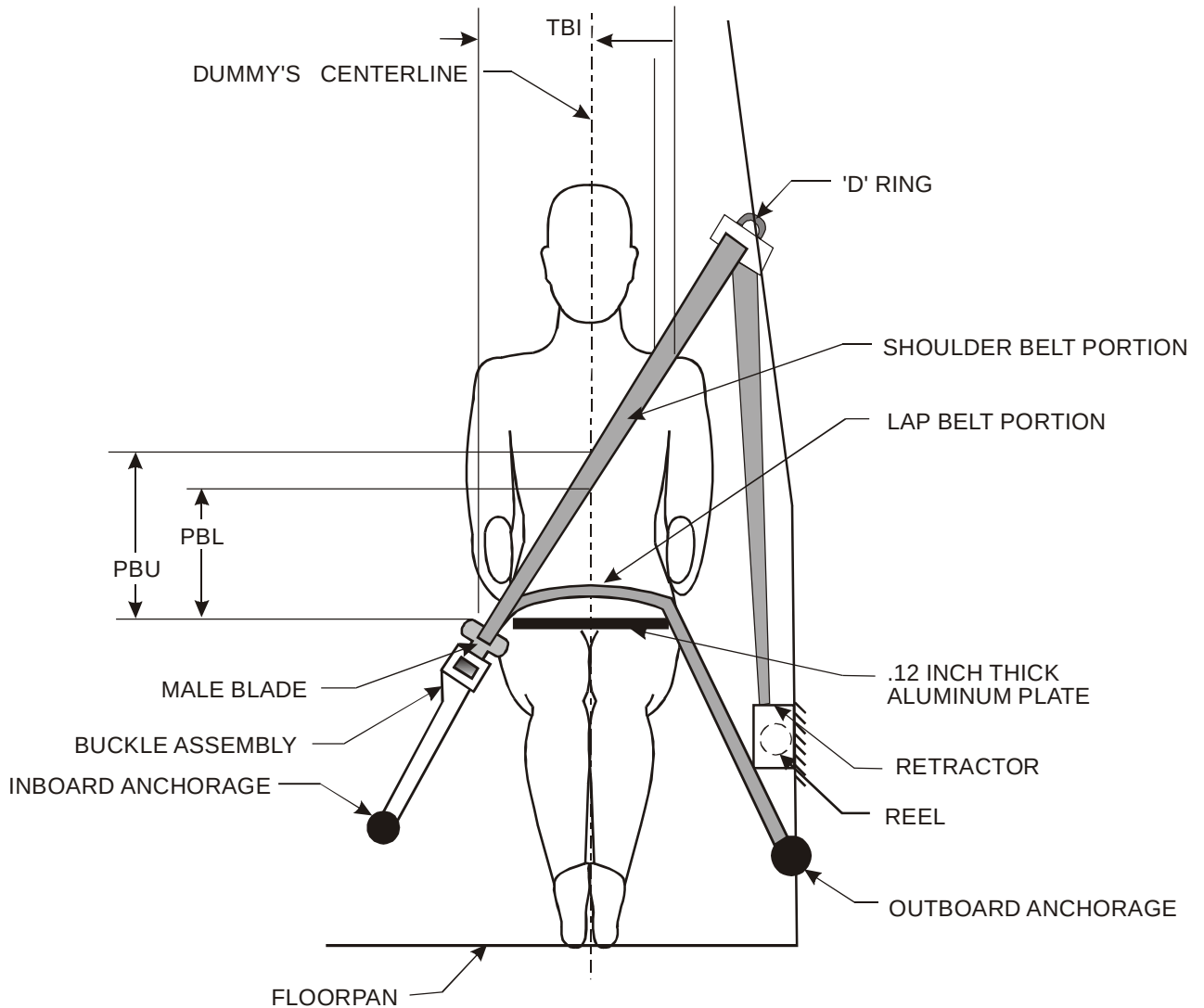
<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial # 168)</u>	<u>Passenger (Serial # 169)</u>
WA	Windshield angle	26.1°	N/A
SWA	Steering wheel angle	25.4°	N/A
SCA	Steering column angle	64.6°	N/A
SA ¹	Seat back angle	10.5°	10.8°
HZ	Head to roof	157 mm	173 mm
HH	Head to header	302 mm	325 mm
HW	Head to windshield	592 mm	606 mm
HR	Head to side header	228 mm	234 mm
NR	Nose to rim	380 mm	N/A
NA	Nose to rim angle	11.4°	N/A
CD	Chest to dash	550 mm	601 mm
CS	Steering wheel to chest	299 mm	N/A
RA	Rim to abdomen	161 mm	N/A
KDL	Left knee to dash	175 mm	174 mm
KDR	Right knee to dash	142 mm	209 mm
KDA	Outboard knee to dash angle	23.2°	24.0°
PA	Pelvic angle	24.3°	24.1°
TA	Tibia angle	49.9°	43.9°
KK	Knee to knee	365 mm	300 mm
ST ²	Striker to head	538 mm	534 mm
	Striker to head angle	-74.8°	-75.9°
SK ²	Striker to knee	629 mm	615 mm
	Striker to knee angle	-0.3°	-2.9°
SH ²	Striker to H-point	266 mm	253 mm
	Striker to H-point angle	30.6°	29.7°
SHY	Striker to H-point (Y dir.)	250 mm	249 mm
HS	Head to side window	310 mm	329 mm
HD	H-point to door	130 mm	144 mm
AD	Arm to door	118 mm	115 mm

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

¹ Measured at head restraint.

² A negative angle indicates the measurement point was above the striker.

Figure 6 Vehicle Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
PBU - Top surface of aluminum plate to belt upper edge	370 mm	385 mm
PBL - Top surface of aluminum plate to belt lower edge	296 mm	300 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	285 mm	255 mm

Table 8 Vehicle Structural Measurements^{1,2}

	Elements	Pre-Test
1	Total Length	4846
2	Total Width	1800
3	Bumper Top Height	56
4	Bumper Bottom Height	21
5	Longitudinal Member Top Height	268
6	Longitudinal Member Bottom Height	194
7	Distance Between Longitudinal Members	1143
7'	Longitudinal Member Width	933
8	Engine Top Height	862
9	Engine Bottom Height	148
10	Engine and Gearbox Width	911
11	Front Bumper - Engine Distance	455
12	Front Shock Absorber Fixing Height	854
13	Bonnet Leading Edge Height	684
14	Front Shock Absorber Fixing Width	1090
15	Front Bumper - Front Axle Distance	932
16	Front Axle - A Pillar Distance	522
17	A Pillar - B Pillar Distance	1114
18	B Pillar - Rear Axle Distance	1180
19	B Pillar - C Pillar Distance	1098
20	Roof Sill Bottom Height	1253
21	Roof Sill Top Height	1348
22	Floor Sill Bottom Height	176
23	Floor Sill Top Height	320

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

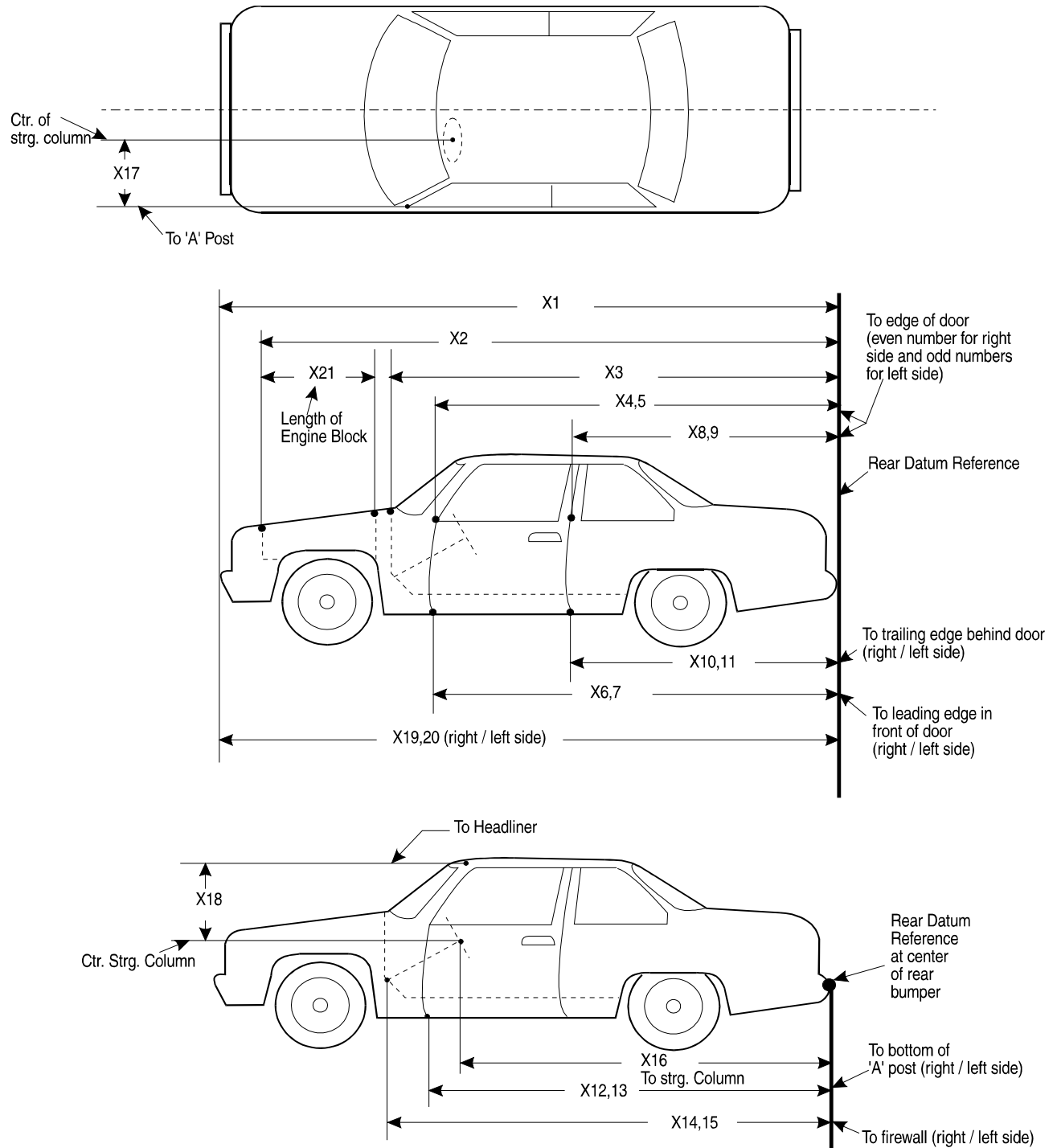


Table 9 Impacted Vehicle Measurements

Test number: 030618-1

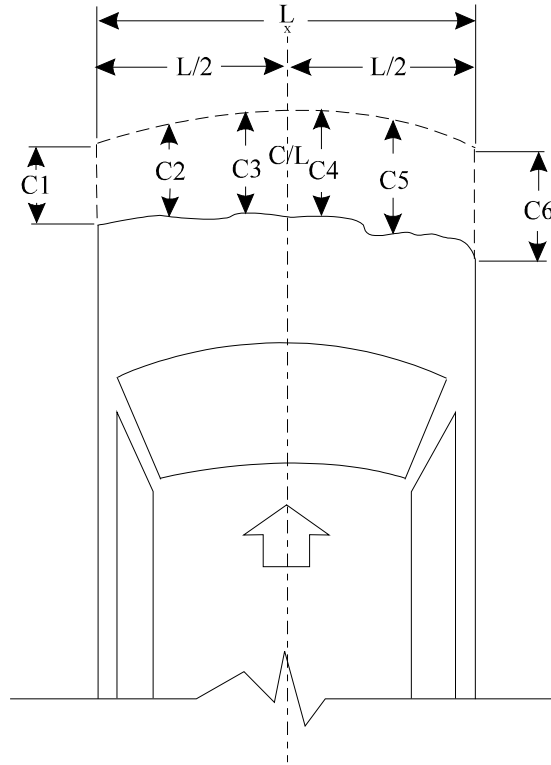
Vehicle year/make/model/body style: 2002/Nissan/Altima/4-door

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4846	4402 ¹	444 ¹
X2	Rear Surface of Vehicle to Front of Engine Block	4181	4084	97
X3	Rear Surface of Vehicle to Firewall	3726	3699	27
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3360	3356	4
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3354	3344	10
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3352	3352	0
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3354	3354	0
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2287	2284	3
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2284	2274	10
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2286	2288	-2
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2291	2292	-1
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3376	3369	7
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3369	3077	292
X14	Rear Surface of Vehicle to Firewall - Right Side	3768	3789	-21
X15	Rear Surface of Vehicle to Firewall - Left Side	3786	3334	452
X16	Rear Surface of Vehicle to Steering Wheel Center	2884	2534	350
X17	Center of Steering Column to " A " Post	326	323	3
X18	Center of Steering Column to Headliner	440	440	0
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4703	4726 ¹	-23 ¹
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4686	4272 ¹	414 ¹
X21	Length of Engine Block	460	460	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3216	3216	0
CD	Rear Surface of Vehicle to Center of Dash Panel	3207	3177	30
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3219	2884	335

All distance measurements are in millimeters.

¹ Post-test measurement made without bumper fascia. The difference is affected.

Figure 8 Vehicle Crush



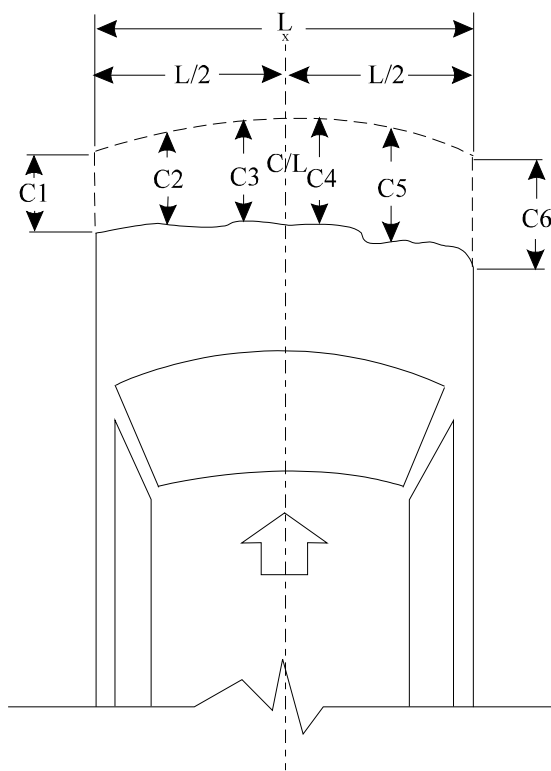
Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 2002 Nissan Altima
Measured with bumper fascia:

Location	Pre-test	Post-test ¹	Difference ¹
L	1525 mm		
C1	4686 mm	N/A	N/A
C2	4804 mm	N/A	N/A
C3	4834 mm	N/A	N/A
C4	4839 mm	N/A	N/A
C5	4808 mm	N/A	N/A
C6	4703 mm	N/A	N/A
CL	4846 mm	N/A	N/A

¹ Bumper fascia separated during impact.

Figure 8 Vehicle Crush, Cont'd.



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

Vehicle: 2002 Nissan Altima

Measured to bumper beam without bumper fascia:

Location	Pre-test	Post-test	Difference ¹
L	1175 mm		
C1	4744 mm	4272 mm	472 mm
C2	4777 mm	4282 mm	495 mm
C3	4794 mm	4316 mm	478 mm
C4	4796 mm	4486 mm	310 mm
C5	4786 mm	4586 mm	200 mm
C6	4746 mm	4726 mm	20 mm
CL	4794 mm	4402 mm	392 mm

¹ The difference for points C1-C3 & C5, measured without the bumper fascia, are included in the NHTSA database as Damage Profile Distance 1-3, 5.

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	4708 mm	4822 mm	4859 mm	4858 mm	4819 mm	4703 mm
	Y	770 mm	457 mm	151 mm	-153 mm	-460 mm	-762 mm
	Z	-429 mm	-421 mm	-421 mm	-418 mm	-430 mm	-437 mm
Top of Front Bumper	X	4689 mm	4800 mm	4839 mm	4834 mm	4795 mm	4678 mm
	Y	760 mm	457 mm	150 mm	-153 mm	-451 mm	-760 mm
	Z	-527 mm	-506 mm	-502 mm	-506 mm	-521 mm	-540 mm
Center of Grille	X	4604 mm	4761 mm	4798 mm	4797 mm	4755 mm	4582 mm
	Y	745 mm	444 mm	147 mm	-147 mm	-462 mm	-757 mm
	Z	-645 mm	-589 mm	-600 mm	-602 mm	-598 mm	-656 mm
Front of Hood	X	4402 mm	4680 mm	4734 mm	4836 mm	4684 mm	4387 mm
	Y	725 mm	454 mm	150 mm	-152 mm	-465 mm	-729 mm
	Z	-790 mm	-701 mm	-716 mm	-718 mm	-700 mm	-790 mm

Post-Test Profile							
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper ¹	X	N/A	N/A	N/A	N/A	N/A	N/A
	Y	N/A	N/A	N/A	N/A	N/A	N/A
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Top of Front Bumper ¹	X	N/A	N/A	N/A	N/A	N/A	N/A
	Y	N/A	N/A	N/A	N/A	N/A	N/A
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Center of Grille	X	N/A	N/A	N/A	N/A	N/A	4629 mm
	Y	N/A	N/A	N/A	N/A	N/A	-745 mm
	Z	N/A	N/A	N/A	N/A	N/A	-670 mm
Front of Hood	X	4241 mm	4189 mm	4347 mm	4521 mm	4632 mm	4390 mm
	Y	675 mm	415 mm	135 mm	-145 mm	-435 mm	-710 mm
	Z	-910 mm	-700 mm	-652 mm	-715 mm	-790 mm	-900 mm

Difference							
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper ¹	X	N/A	N/A	N/A	N/A	N/A	N/A
	Y	N/A	N/A	N/A	N/A	N/A	N/A
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Top of Front Bumper ¹	X	N/A	N/A	N/A	N/A	N/A	N/A
	Y	N/A	N/A	N/A	N/A	N/A	N/A
	Z	N/A	N/A	N/A	N/A	N/A	N/A
Center of Grille ^{2,3}	X	N/A	N/A	N/A	N/A	N/A	47 mm
	Y	N/A	N/A	N/A	N/A	N/A	-12 mm
	Z	N/A	N/A	N/A	N/A	N/A	14 mm
Front of Hood ⁴	X	161 mm	491 mm	387 mm	315 mm	52 mm	-3 mm
	Y	50 mm	39 mm	15 mm	-7 mm	-30 mm	-19 mm
	Z	120 mm	-1 mm	-64 mm	-3 mm	-90 mm	110 mm

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

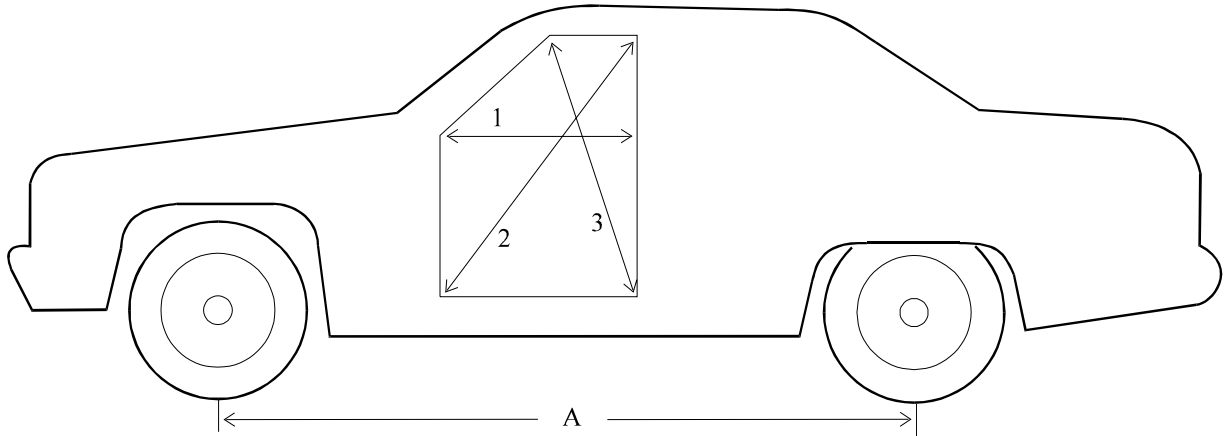
¹ Bumper fascia separated during impact.

² Grille points 1 through 5 lost during impact.

³ The difference for point 6, measured at the center of the grille, is included in the NHTSA database submission as Damage Profile Dist. 6.

⁴ The difference for point 4, measured at the front of hood, is included in the NHTSA database submission as Damage Profile Dist. 4.

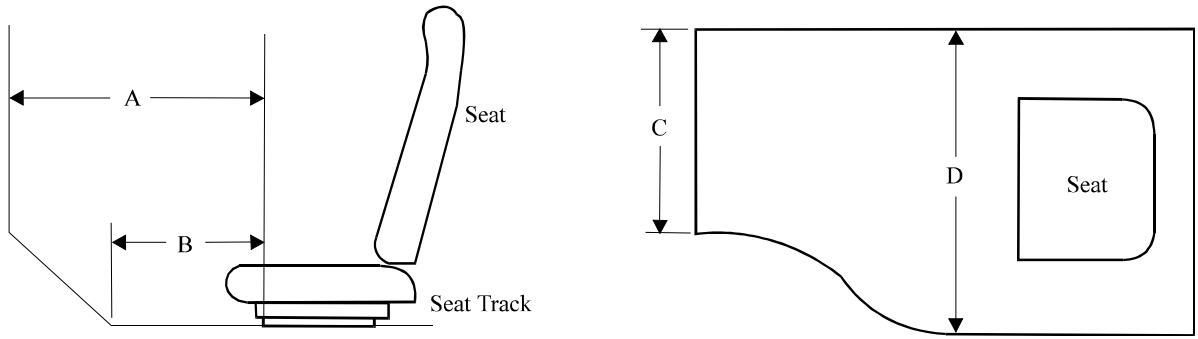
Figure 9 Vehicle Intrusion Measurements
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	972 mm	1495 mm	975 mm	970 mm	1498 mm	990 mm
Post-Test	955 mm	1490 mm	1000 mm	970 mm	1500 mm	985 mm
Difference	17 mm	5 mm	-25 mm	0 mm	-2 mm	5 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2795 mm	2795 mm
Post-Test	2615 mm	2815 mm
Difference	180 mm	-20 mm

Figure 10 Vehicle Intrusion Measurements
Static Footwell Deformation



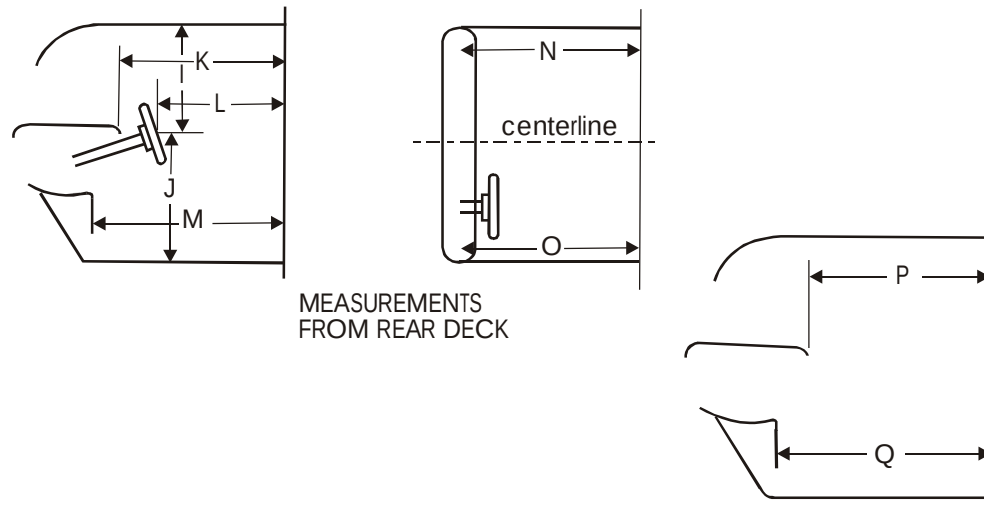
Driver's Side

Measurement	Pre-Test	Post-Test	Difference
A	710 mm	635 mm	75 mm
B	615 mm	605 mm	10 mm
C	360 mm	340 mm	20 mm
D	470 mm	460 mm	10 mm

Passenger's Side

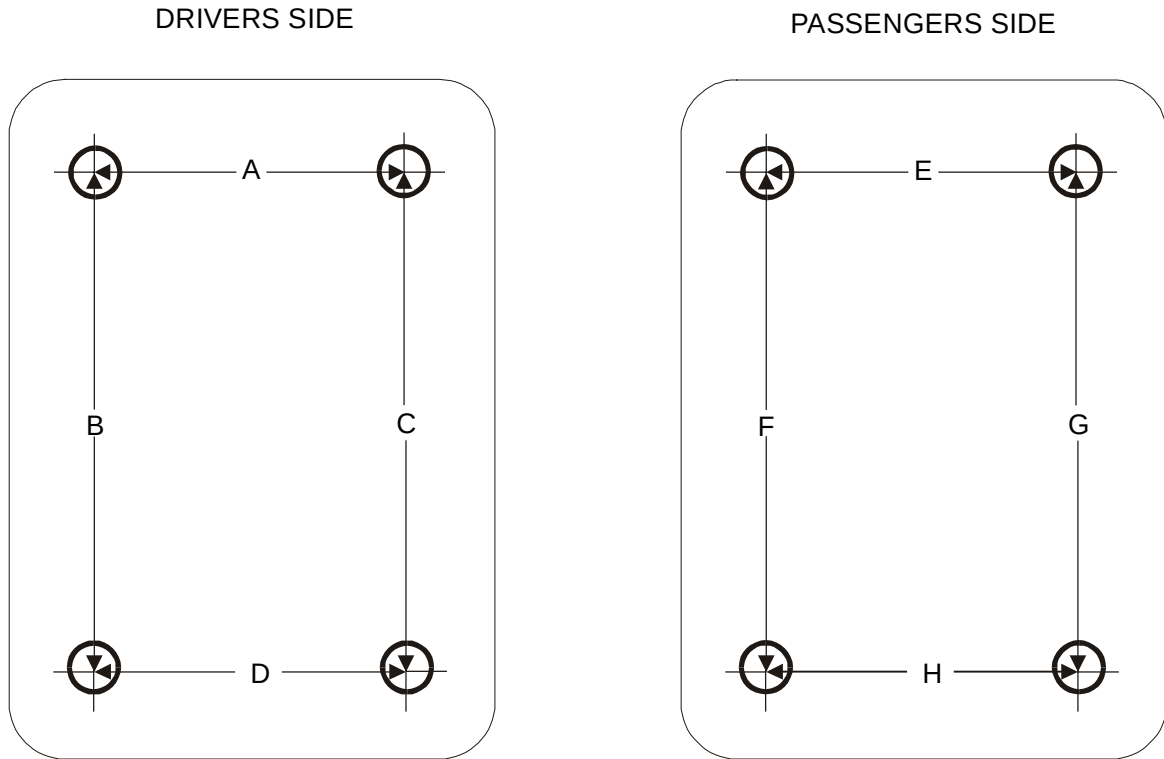
Measurement	Pre-Test	Post-Test	Difference
A	670 mm	670 mm	0 mm
B	630 mm	630 mm	0 mm
C	450 mm	450 mm	0 mm
D	520 mm	520 mm	0 mm

Figure 11 Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



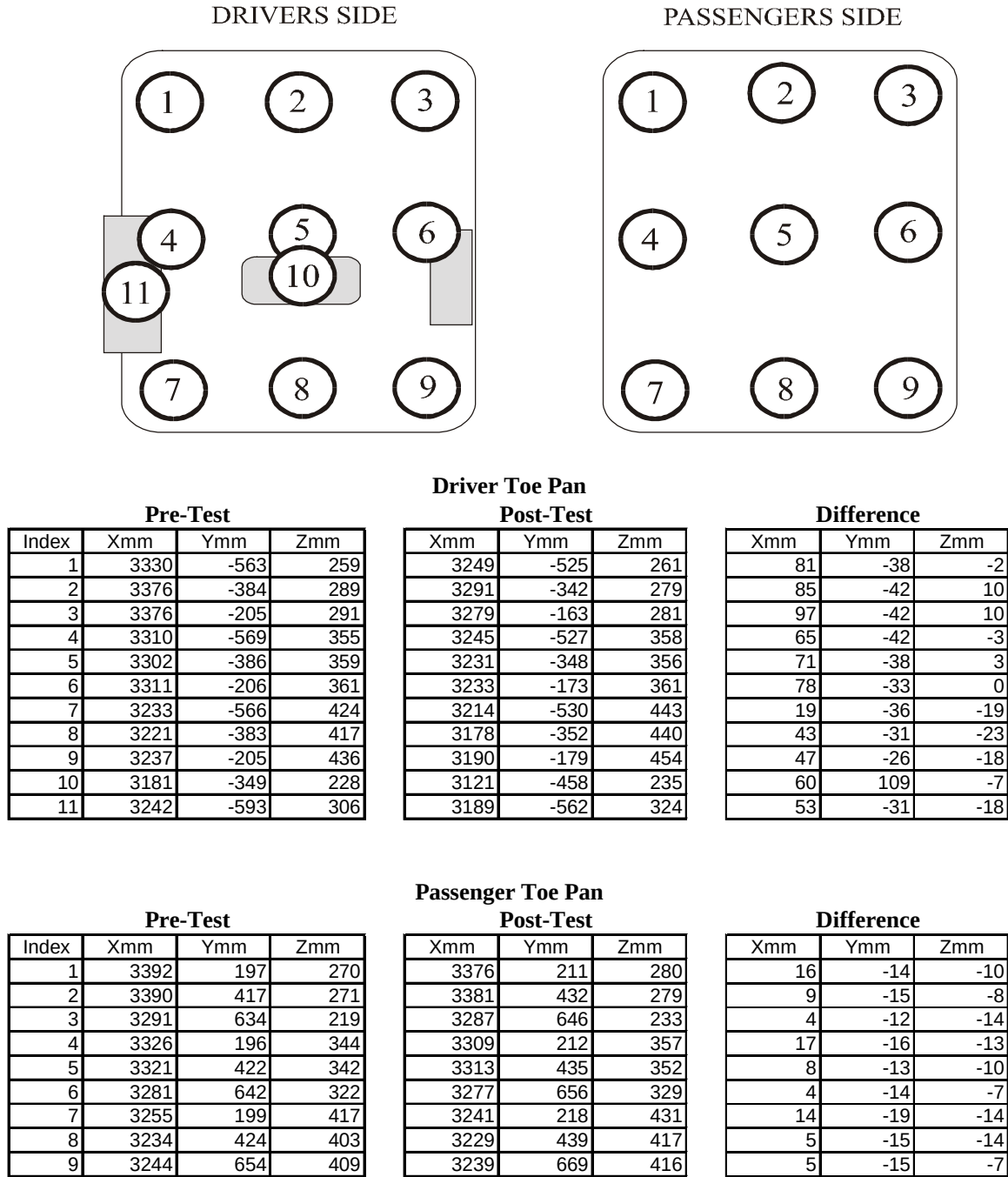
Measurement	Pre-Test	Post-Test	Difference
I	440 mm	440 mm	0 mm
J	650 mm	700 mm	-50 mm
K (driver's side)	2085 mm	2048 mm	37 mm
L	1780 mm	1740 mm	40 mm
M (driver's side)	2190 mm	2153 mm	37 mm
N (passenger's side)	2020 mm	2015 mm	5 mm
O (driver's side)	2020 mm	1985 mm	35 mm
P (passenger's side)	2090 mm	2079 mm	11 mm
Q (passenger's side)	2205 mm	2220 mm	-15 mm

Figure 12 Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	360 mm	495 mm	-135 mm
B	570 mm	448 mm	122 mm
C	570 mm	454 mm	116 mm
D	470 mm	465 mm	5 mm
E	450 mm	450 mm	0 mm
F	580 mm	580 mm	0 mm
G	580 mm	580 mm	0 mm
H	520 mm	520 mm	0 mm

Figure 13 Toeboard Measurements



Reference: +X forward from rear bumper; +Y rightward from vehicle centerline; +Z downward from vehicle reference point

Table 11 Intrusion of Upper Instrument Panel

Driver Instrument Panel - Lower

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	2939	-514	-16	2914	-502	-3	25	-12	-13
Right	2917	-214	-16	2897	-203	-3	20	-11	-13

Driver Knees

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	2909	-538	-62	2881	-527	-51	28	-11	-11
Right	2883	-212	-62	2860	-202	-47	23	-10	-15

Passenger Knees

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	2905	255	-44	2897	267	-30	8	-12	-14
Right	2928	501	-49	2923	511	-40	5	-10	-9

Steering Column

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	2668	-368	-214	2649	-360	-224	19	-8	10

Driver Front Outboard Seat Attachment Bolt

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	2621	-589	324	2620	-575	343	1	-14	-19

Passenger Front Outboard Seat Attachment Bolt

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	2622	593	315	2621	602	322	1	-9	-7

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.

+X: Forward from rear bumper

+Y: Rightward from centerline

+Z: Downward from vehicle reference point

Table 12 Insurance Institute Measurement Locations and Floor Pan Deformation Data

IIHS Measurement Location Data (in millimeters)

Meas. Loc.*	X-Axis Measurement			Y-Axis Measurement			Z-Axis Measurement		
	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference
1	454	507	-53	-4	60	-64	630	574	56
2	454	483	-29	94	154	-60	630	569	61
3	456	464	-8	194	252	-58	630	558	72
4	456	435	21	294	346	-52	629	543	86
5	456	405	51	394	437	-43	629	520	109
6	456	384	72	494	535	-41	629	521	108
7	456	358	98	594	630	-36	628	521	107
8	457	322	135	694	722	-28	628	516	112
17	456	390	66	494	523	-29	494	398	96
18	458	339	119	594	609	-15	493	398	95

Floor Pan Deformation Measurement Data (in millimeters)

Meas. Loc.**	X-Axis Measurement			Y-Axis Measurement			Z-Axis Measurement		
	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference
P0	2621	2620	1	-589	-575	-14	324	343	-19
P1	3117	3103	14	-666	-638	-28	438	455	-17
P2	3116	3099	17	-416	-394	-22	430	468	-38
P3	3122	3098	24	-162	-145	-17	443	444	-1
P4	2864	2850	14	-659	-635	-24	441	460	-19
P5	2874	2857	17	-421	-400	-21	436	465	-29
P6	2886	2867	19	-174	-156	-18	446	469	-23
P7	2664	2649	15	-643	-623	-20	449	464	-15
P8	2659	2643	16	-394	-374	-20	436	459	-23
P9	2663	2645	18	-178	-161	-17	445	461	-16

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

* Measurement Location Descriptions

P0 Front Outside Seat Anchor Bolt

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

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

Figure 14 Camera Positions

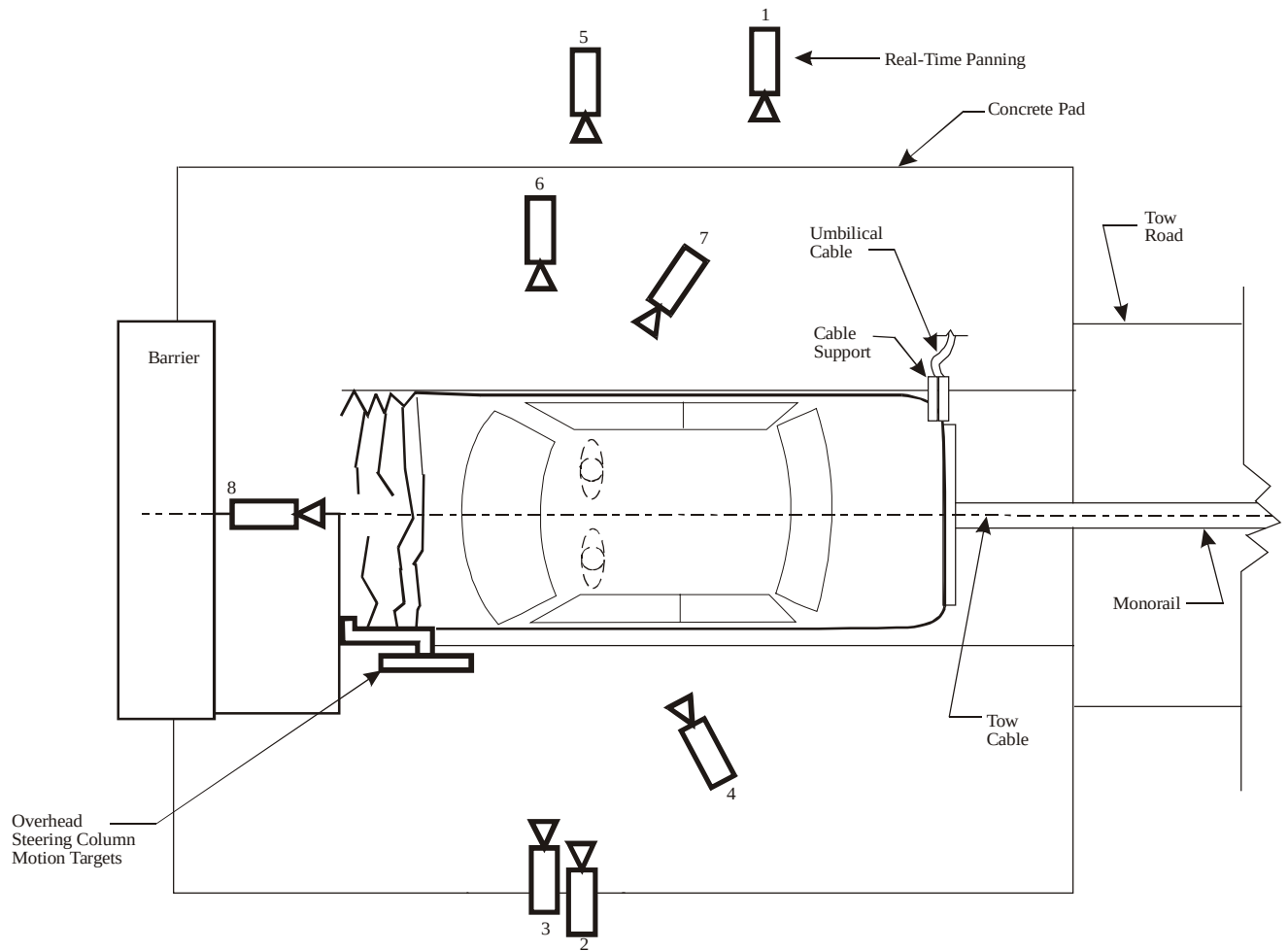


Figure 14 Camera Positions, Cont'd.

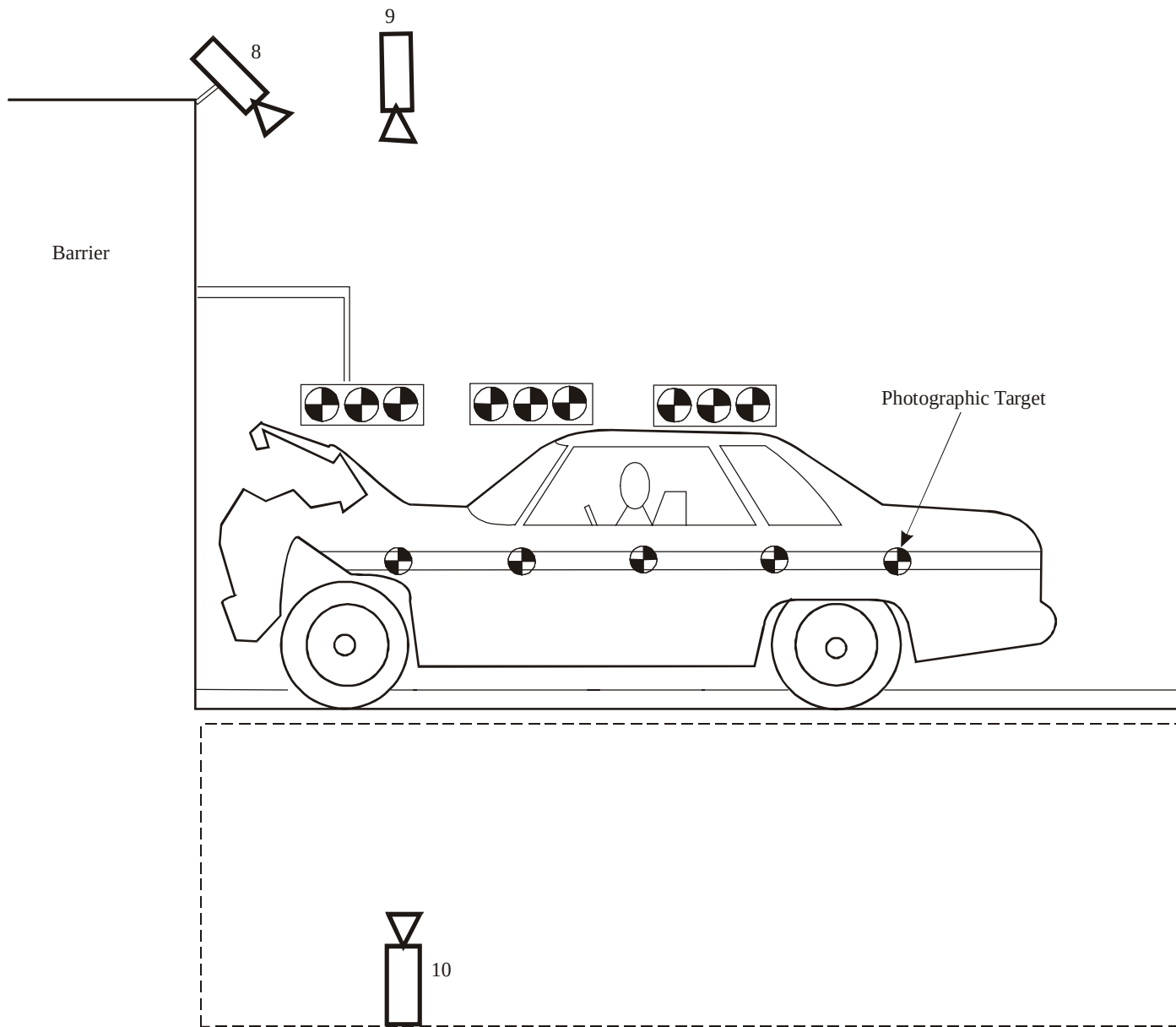
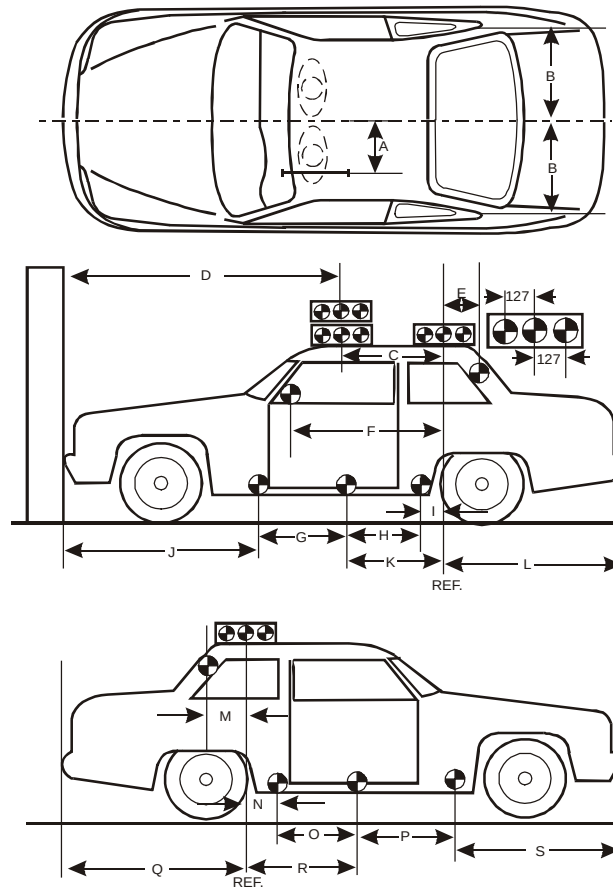


Table 13 Camera Information

Camera Number	Location	Type	Lens (mm)	Speed (fps)	Purpose of camera data
1	Panning	Bolex	Zoom	24	Vehicle dynamics
2	Left side wide	Redlake	13	1000	Vehicle crush
3	Left side tight	Redlake	25	1000	Dummy kinematics
4	Driver over shoulder	Redlake	Zoom	1000	Dummy and airbag
5	Right side wide	Redlake	13	1000	Dummy kinematics
6	Right side tight	Visario	50	1000	Dummy kinematics
7	Passenger over shoulder	Redlake	Zoom	1000	Dummy and airbag
8	Front through windshield	Redlake	13	1000	Airbag deployment
9	Overhead tight	Redlake	17	1000	Vehicle dynamics
10	Pit tight	Redlake	13	1000	Vehicle crush

Figure 15 Vehicle Reference Photo Target Locations



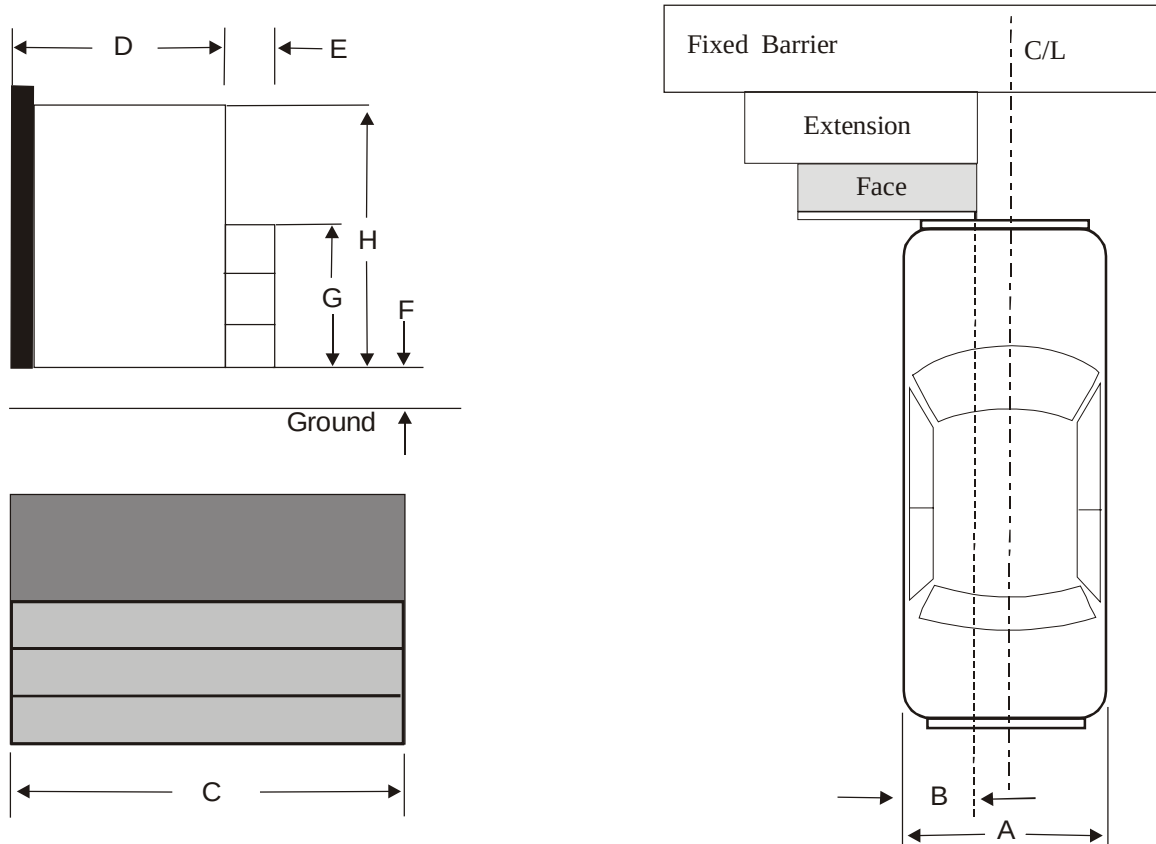
Measurement	Pre-Test
A	Left 310 mm Right 310 mm
B	Left 710 mm Right 710 mm
C	Left 610 mm Right 610 mm
D	690 mm
E	855 mm
F	1245 mm
G	905 mm
H	960 mm
I	-1305 mm
J	1262 mm
K	660 mm
L	1859 mm
M	900 mm
N	-355 mm
O	960 mm
P	905 mm
Q	1904 mm
R	605 mm
S	1289 mm

Figure 16 Offset Barrier and Vehicle Orientation

Vehicle: 2002 Nissan Altima

Barrier Manufacturer: Plascore

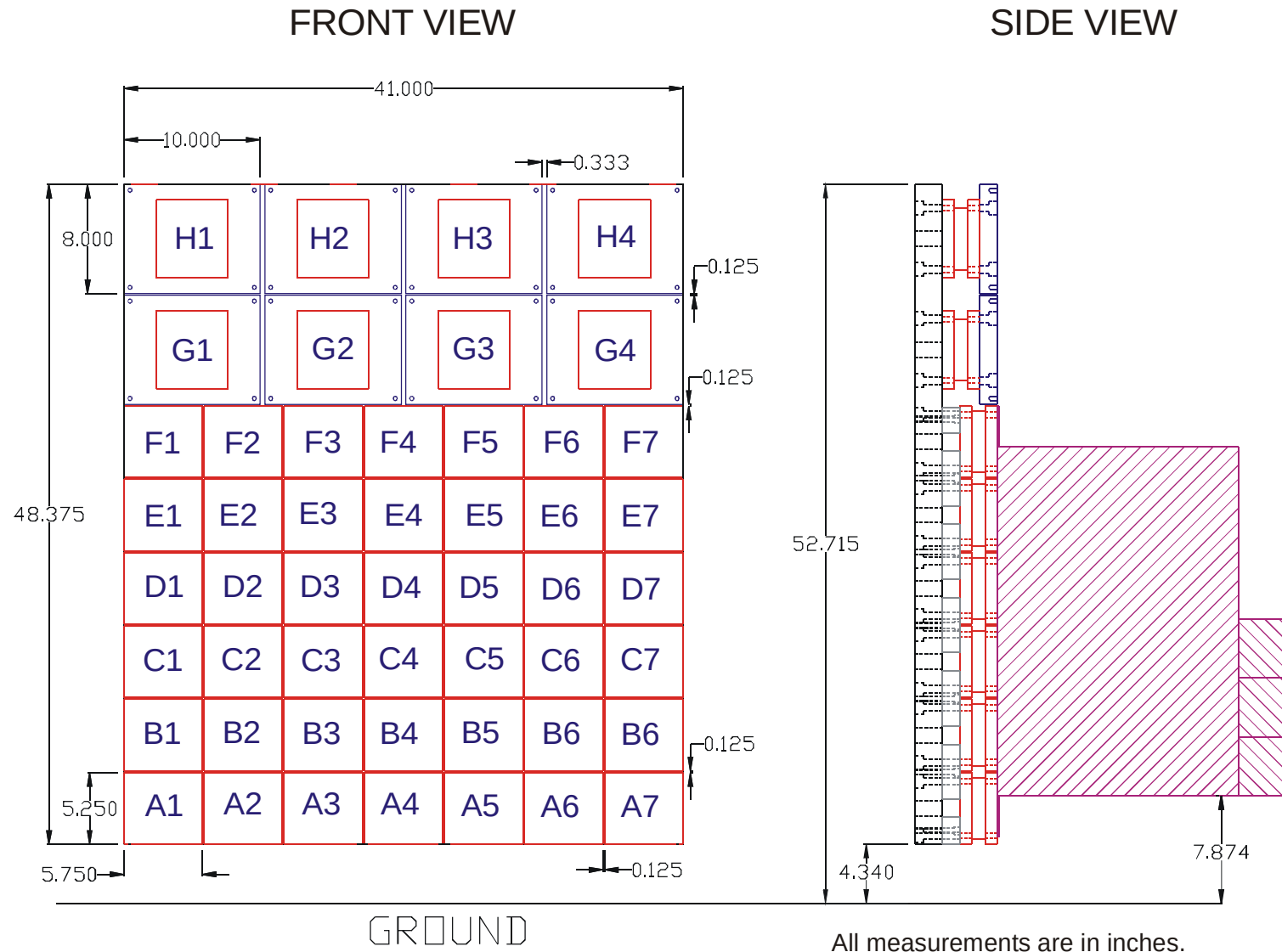
Serial Number: 044B0103-085A0103



A	Total Vehicle Width	<u>1777</u>	mm
B	40% Overlap Distance	<u>711</u>	mm
C	Deformable Face Width	<u>1000</u>	mm
D	Single Stage Honeycomb Depth	<u>450</u>	mm
E	Bumper Element Depth	<u>90</u>	mm
F	Lower Edge Height From Ground	<u>200</u>	mm
G*	Bumper Element Height	<u>330</u>	mm
H	Deformable Barrier Honeycomb Height	<u>652</u>	mm

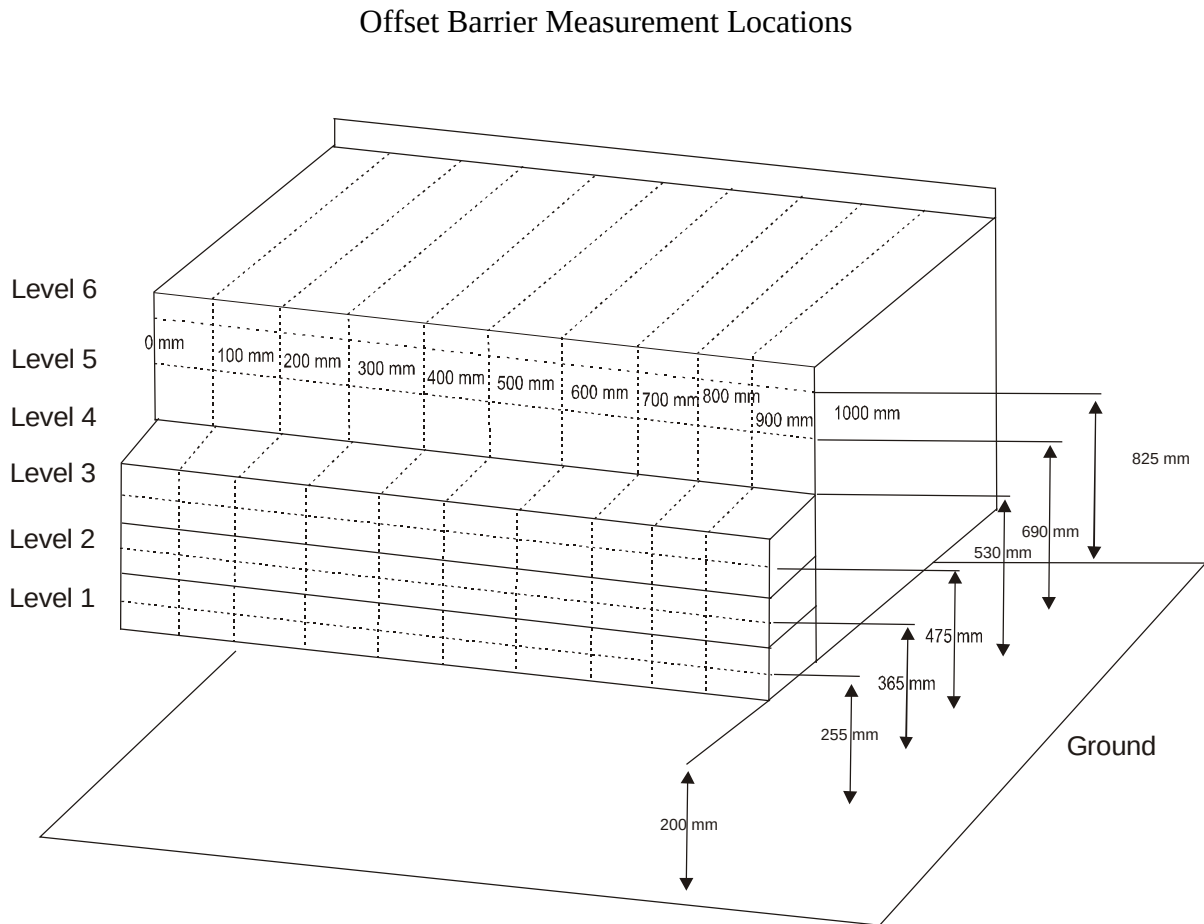
* The bumper element consists of three 110 mm height blocks of 1.723 MPa honeycomb.

Figure 17 Load Cell Location on Fixed Offset Barrier¹



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

Figure 18 Offset Barrier Deformation Measurement Locations



Height of levels at centerline:

Level 6 - Top stack	825 mm
Level 5 - Mid stack	690 mm
Level 4 - Stack at top of bumper	550 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

Pre-Test			
Index	Xmm	Ymm	Zmm
1	454.3	-3.5	630.4
2	454.4	94.0	630.2
3	455.9	194.0	629.8
4	456.0	294.0	629.4
5	455.9	394.1	629.3
6	456.3	494.4	628.9
7	456.0	594.3	628.4
8	457.1	694.2	628.1
9	456.8	794.0	628.1
10	457.1	893.7	627.8
11	457.2	991.4	626.9
12	455.0	-4.1	495.5
13	455.2	93.5	495.2
14	454.7	193.6	494.7
15	456.6	294.0	494.4
16	456.2	394.0	494.3
17	455.8	493.8	493.9
18	457.8	594.1	493.1
19	457.3	693.7	493.3
20	457.7	793.9	492.4
21	457.9	893.4	492.2
22	457.7	990.7	492.6

Post-Test			
Index	Xmm	Ymm	Zmm
1	507.3	59.8	573.6
2	482.6	154.1	568.7
3	463.6	251.6	557.5
4	434.6	345.7	542.7
5	405.0	437.4	520.3
6	384.2	535.1	520.9
7	357.5	629.5	520.9
8	321.5	722.1	515.6
9	281.2	813.2	509.4
10	226.7	896.5	504.6
11	157.8	965.3	503.3
12	484.0	43.8	443.7
13	475.9	140.9	434.4
14	468.2	239.4	424.3
15	456.9	338.2	415.9
16	424.3	430.7	407.2
17	389.7	523.3	398.0
18	338.9	609.4	398.4
19	290.6	697.4	395.7
20	234.0	779.2	391.1
21	184.7	833.6	377.8
22	135.0	913.4	375.0

Difference			
Index	Xmm	Ymm	Zmm
1	-53.0	-63.3	56.9
2	-28.2	-60.2	61.4
3	-7.7	-57.6	72.3
4	21.4	-51.7	86.7
5	50.9	-43.3	109.0
6	72.1	-40.7	108.0
7	98.5	-35.3	107.6
8	135.5	-27.9	112.5
9	175.6	-19.2	118.7
10	230.4	-2.8	123.2
11	299.4	26.1	123.6
12	-29.0	-47.9	51.8
13	-20.7	-47.4	60.8
14	-13.5	-45.8	70.4
15	-0.2	-44.2	78.5
16	31.9	-36.7	87.0
17	66.2	-29.5	95.9
18	118.9	-15.3	94.7
19	166.6	-3.7	97.7
20	223.6	14.8	101.3
21	273.2	59.8	114.4
22	322.7	77.3	117.5

Table 14 Deformable Barrier Face Profile Cont'd.

Pre-Test			
Index	Xmm	Ymm	Zmm
23	454.8	-4.3	355.8
24	456.8	93.6	355.6
25	456.7	193.3	354.8
26	456.2	293.0	354.6
27	456.9	393.3	354.3
28	457.1	493.2	353.5
29	457.5	593.8	352.4
30	457.1	693.6	352.4
31	457.6	793.7	353.0
32	457.6	893.4	352.2
33	458.1	990.8	352.6
34	546.4	-7.3	282.4
35	546.9	90.8	281.5
36	546.9	190.9	281.3
37	547.2	291.1	280.6
38	547.4	391.0	280.2
39	548.1	491.2	279.8
40	547.5	590.9	279.2
41	548.0	690.9	278.4
42	547.7	790.6	278.1
43	548.8	890.6	277.5
44	549.1	988.0	276.8

Post-Test			
Index	Xmm	Ymm	Zmm
23	472.1	30.6	305.0
24	477.0	128.1	295.1
25	467.3	226.1	286.3
26	413.2	309.3	289.5
27	361.7	391.4	293.6
28	306.7	473.1	298.6
29	242.6	547.5	313.9
30	65.5	635.8	311.6
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	52.1	929.1	341.1
34	656.6	183.8	161.0
35	573.9	235.9	171.0
36	492.3	294.0	179.2
37	426.7	353.1	187.9
38	396.3	450.5	185.6
39	354.2	541.6	192.5
40	51.0	553.8	246.9
41	44.9	654.2	254.9
42	50.9	753.8	263.6
43	61.3	852.9	271.3
44	49.8	943.8	281.0

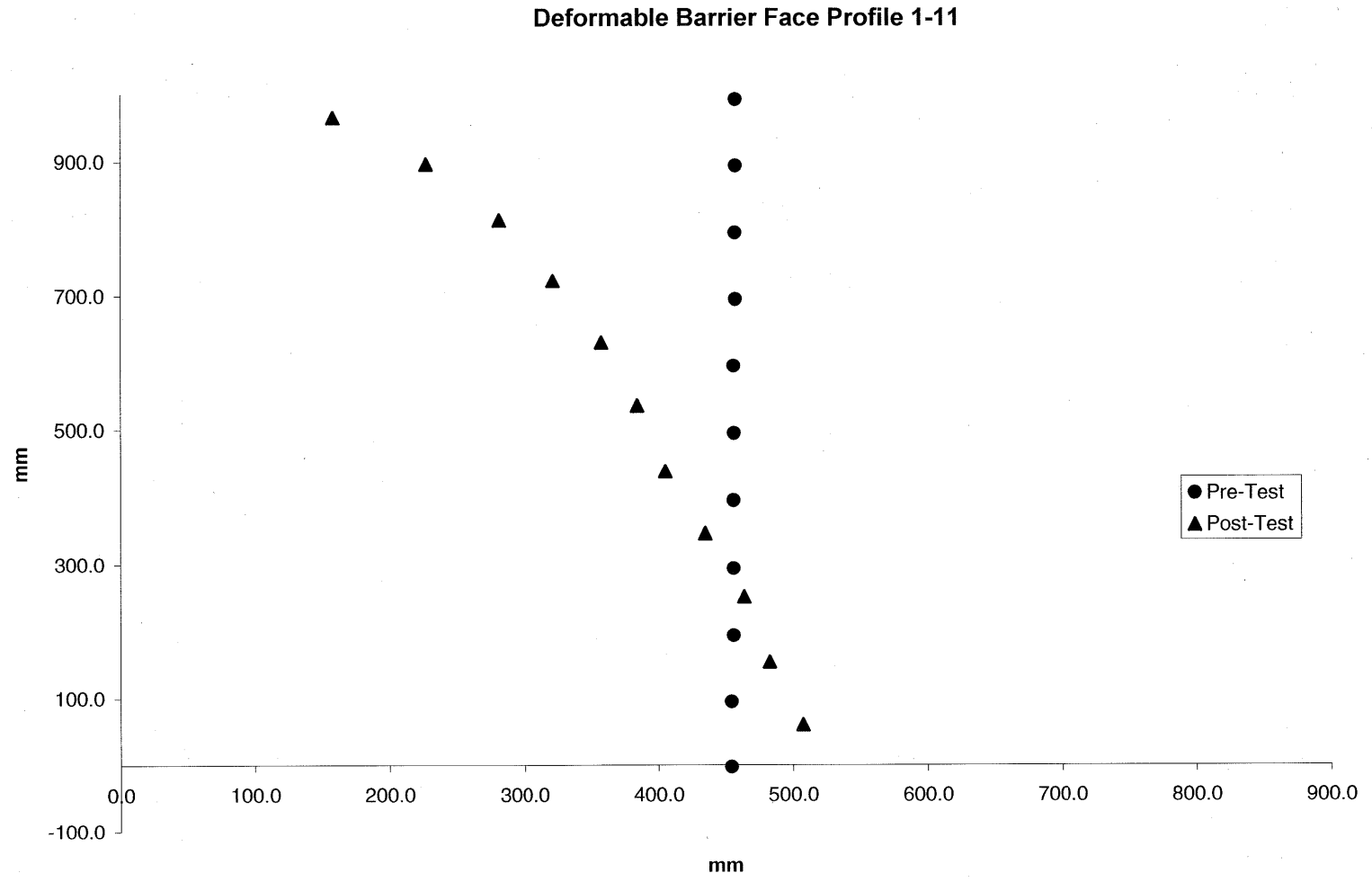
Difference			
Index	Xmm	Ymm	Zmm
23	-17.3	-34.9	50.9
24	-20.2	-34.5	60.4
25	-10.6	-32.8	68.5
26	43.0	-16.3	65.0
27	95.2	1.8	60.7
28	150.4	20.1	54.9
29	214.9	46.3	38.4
30	391.6	57.8	40.8
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	406.1	61.7	11.5
34	-110.2	-191.1	121.4
35	-27.0	-145.1	110.5
36	54.6	-103.1	102.0
37	120.6	-62.0	92.7
38	151.1	-59.5	94.7
39	193.9	-50.4	87.3
40	496.5	37.2	32.3
41	503.1	36.7	23.5
42	496.8	36.8	14.5
43	487.5	37.7	6.2
44	499.4	44.1	-4.2

Table 14 Deformable Barrier Face Profile Cont'd.

Pre-Test			
Index	Xmm	Ymm	Zmm
45	546.8	-8.0	171.6
46	547.2	89.9	171.5
47	547.7	190.3	170.8
48	547.7	290.3	170.6
49	547.7	390.0	169.9
50	548.0	489.7	169.3
51	548.1	589.9	169.1
52	548.4	690.1	168.0
53	548.9	790.2	167.5
54	549.7	890.1	167.0
55	549.9	988.1	166.9
56	546.6	-8.4	61.8
57	548.0	89.6	60.7
58	548.0	189.8	60.8
59	547.7	290.0	60.2
60	549.0	389.2	59.6
61	548.8	489.5	59.0
62	549.2	589.8	58.3
63	549.2	689.8	57.8
64	549.5	789.7	57.5
65	549.8	889.3	56.7
66	550.1	987.0	56.4

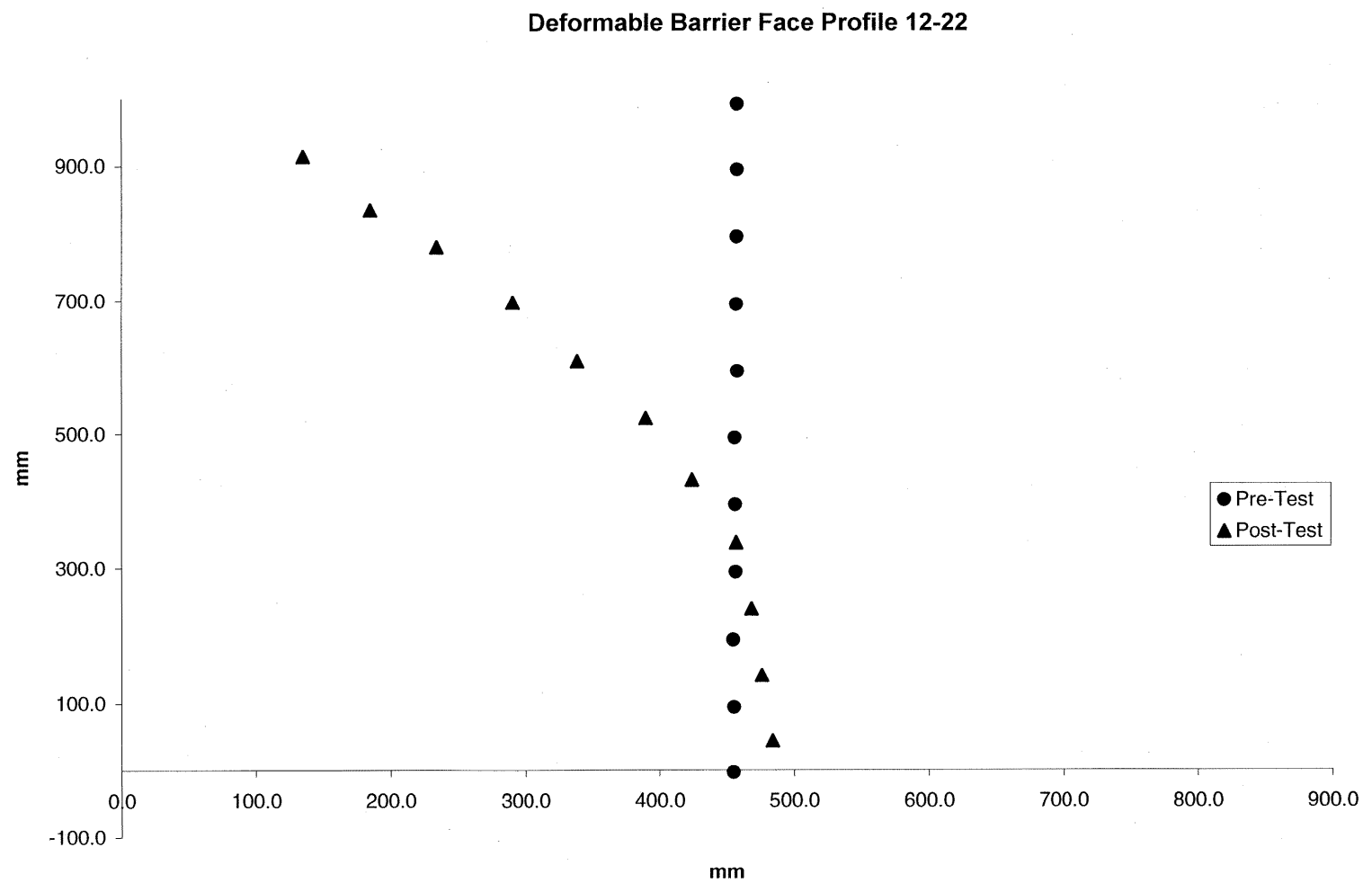
Post-Test			
Index	Xmm	Ymm	Zmm
45	614.3	145.5	55.1
46	538.9	207.2	65.2
47	465.1	275.5	73.0
48	414.3	354.8	85.1
49	368.0	444.9	100.5
50	332.1	539.6	113.7
51	N/A	N/A	N/A
52	88.8	656.5	159.9
53	96.7	755.5	171.8
54	100.2	855.8	179.2
55	86.8	952.2	170.6
56	557.7	106.7	-47.0
57	505.3	188.8	-38.0
58	451.0	272.7	-27.8
59	398.7	358.5	-18.5
60	352.1	447.2	-8.4
61	304.0	533.4	3.9
62	125.8	572.4	57.5
63	120.7	658.5	57.6
64	98.4	751.7	66.0
65	88.9	849.0	78.6
66	54.5	932.3	86.0

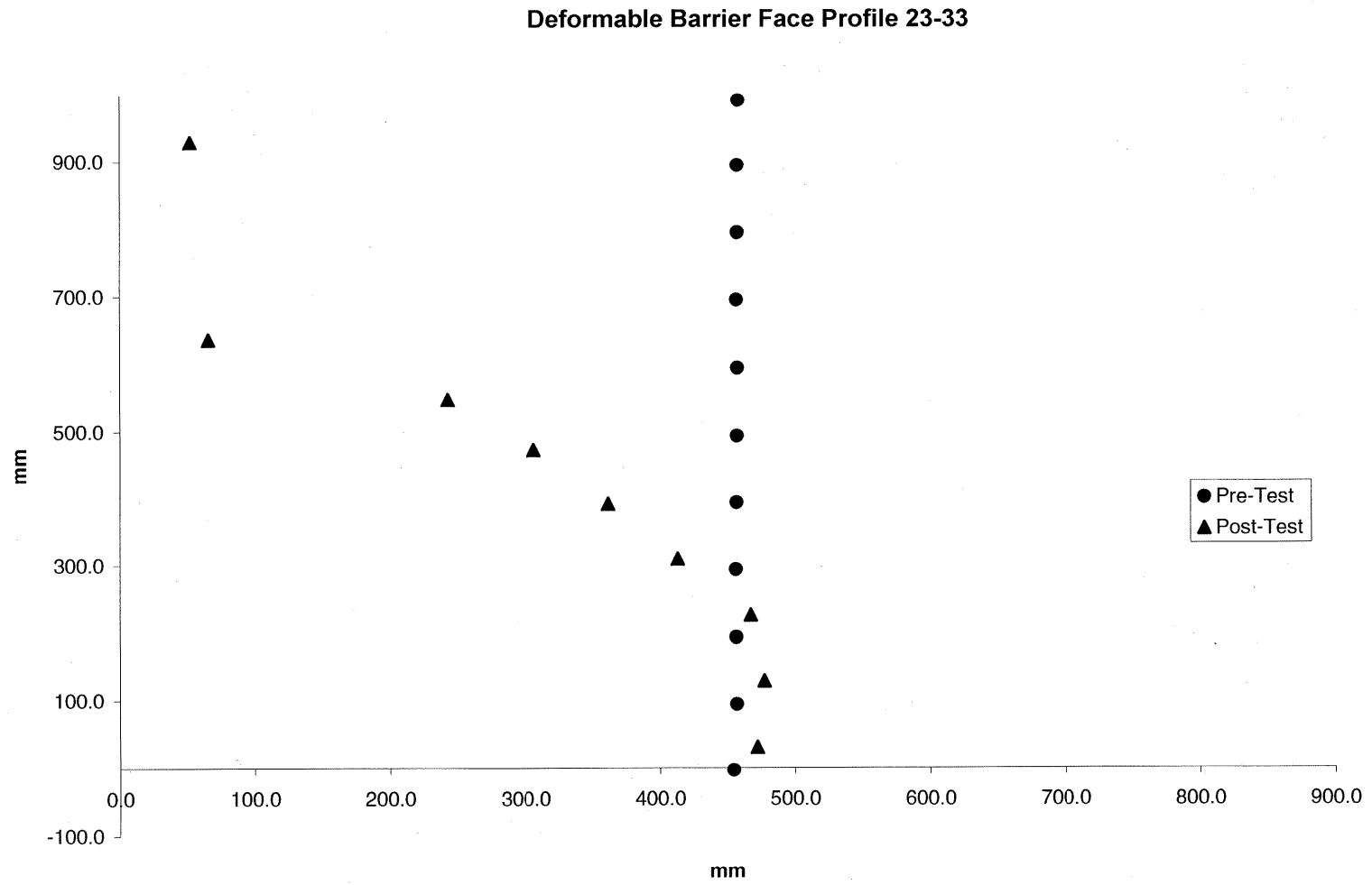
Difference			
Index	Xmm	Ymm	Zmm
45	-67.5	-153.4	116.6
46	8.3	-117.3	106.3
47	82.6	-85.2	97.7
48	133.5	-64.6	85.5
49	179.7	-54.9	69.4
50	215.9	-49.9	55.6
51	N/A	N/A	N/A
52	459.5	33.6	8.1
53	452.2	34.6	-4.3
54	449.6	34.3	-12.2
55	463.1	35.9	-3.7
56	-11.1	-115.1	108.8
57	42.7	-99.2	98.7
58	96.9	-83.0	88.6
59	149.0	-68.5	78.7
60	196.8	-58.0	68.0
61	244.8	-43.9	55.1
62	423.4	17.4	0.8
63	428.4	31.4	0.1
64	451.1	38.0	-8.5
65	460.9	40.3	-21.9
66	495.5	54.8	-29.5

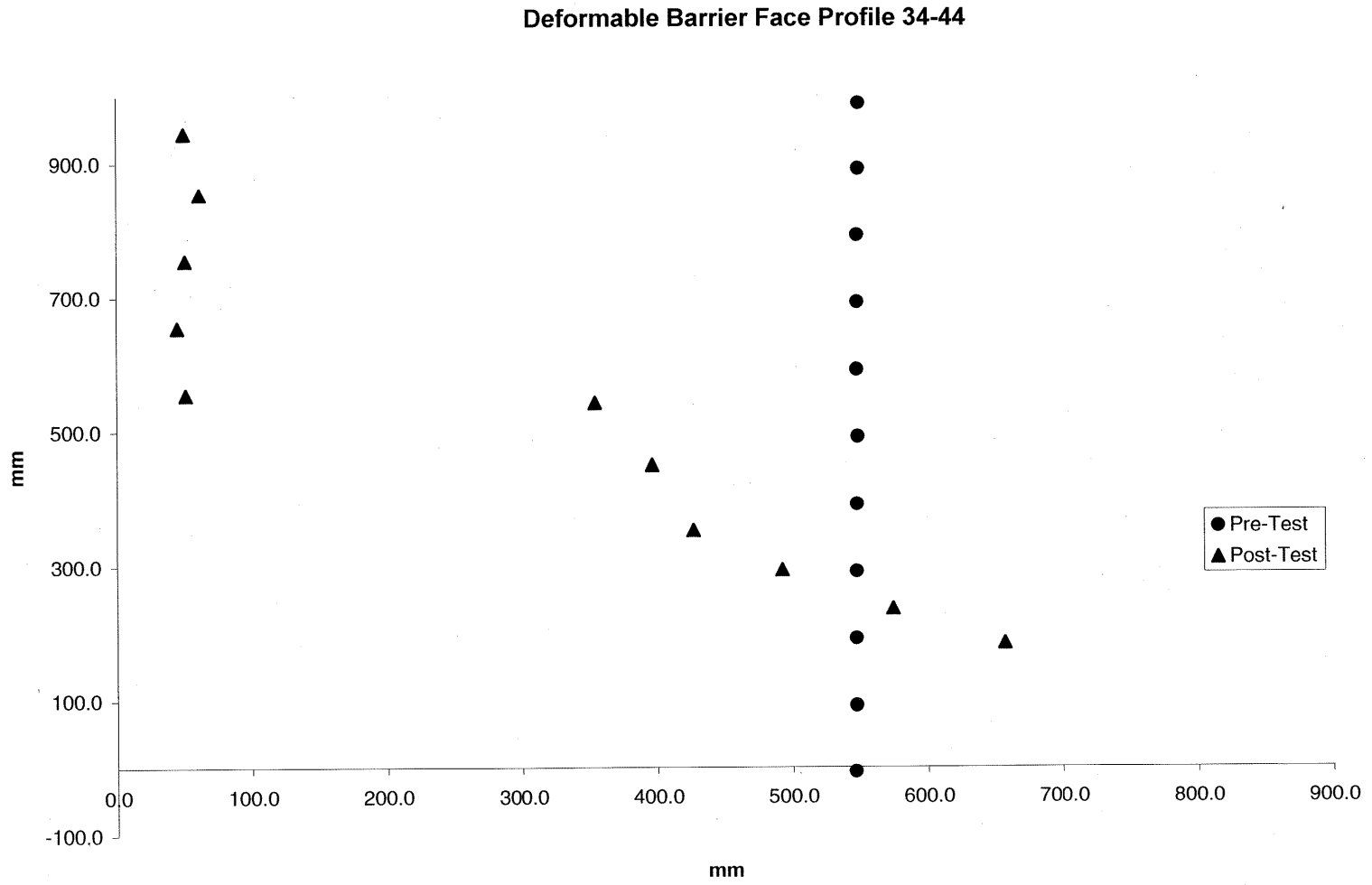


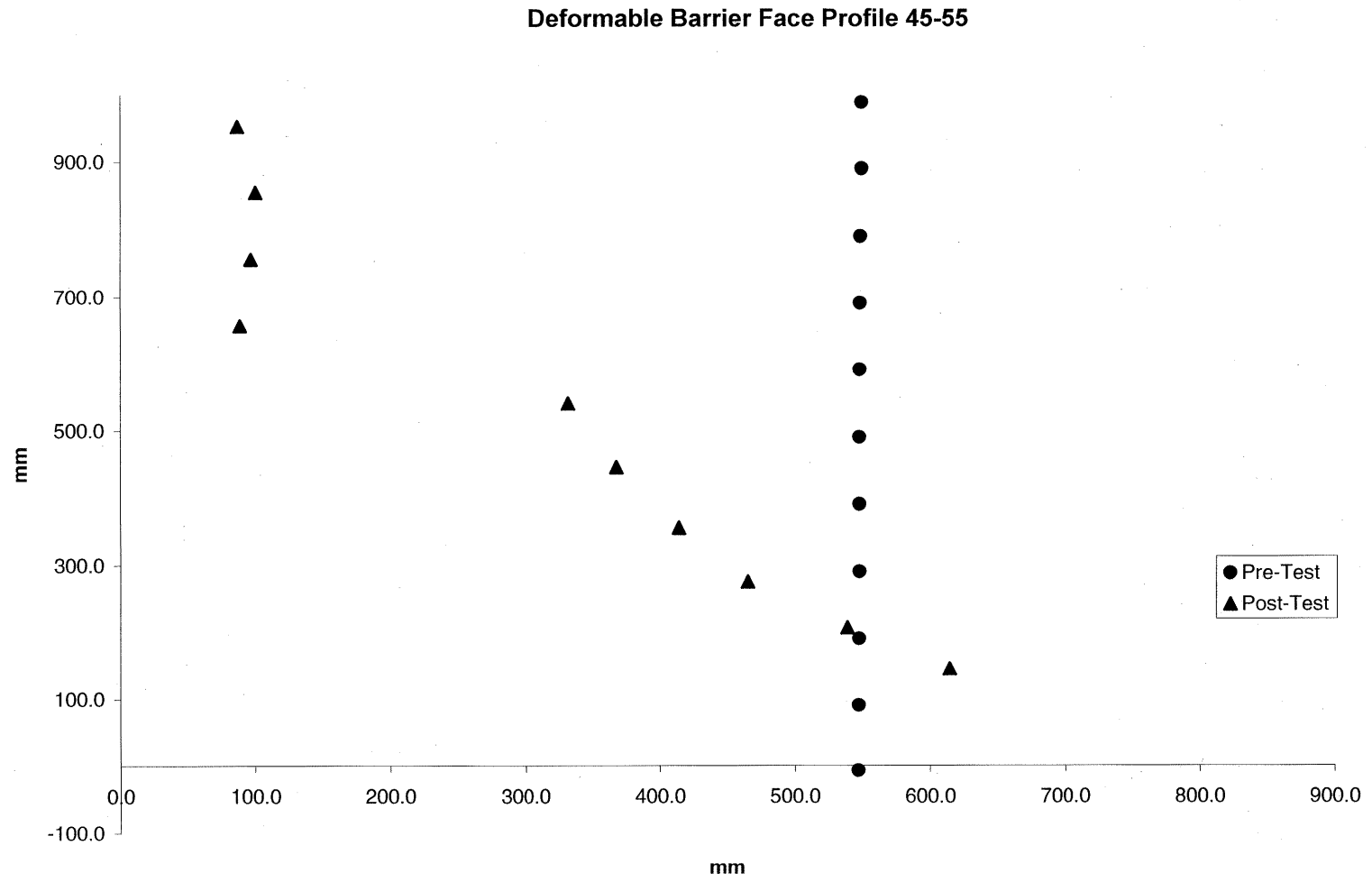
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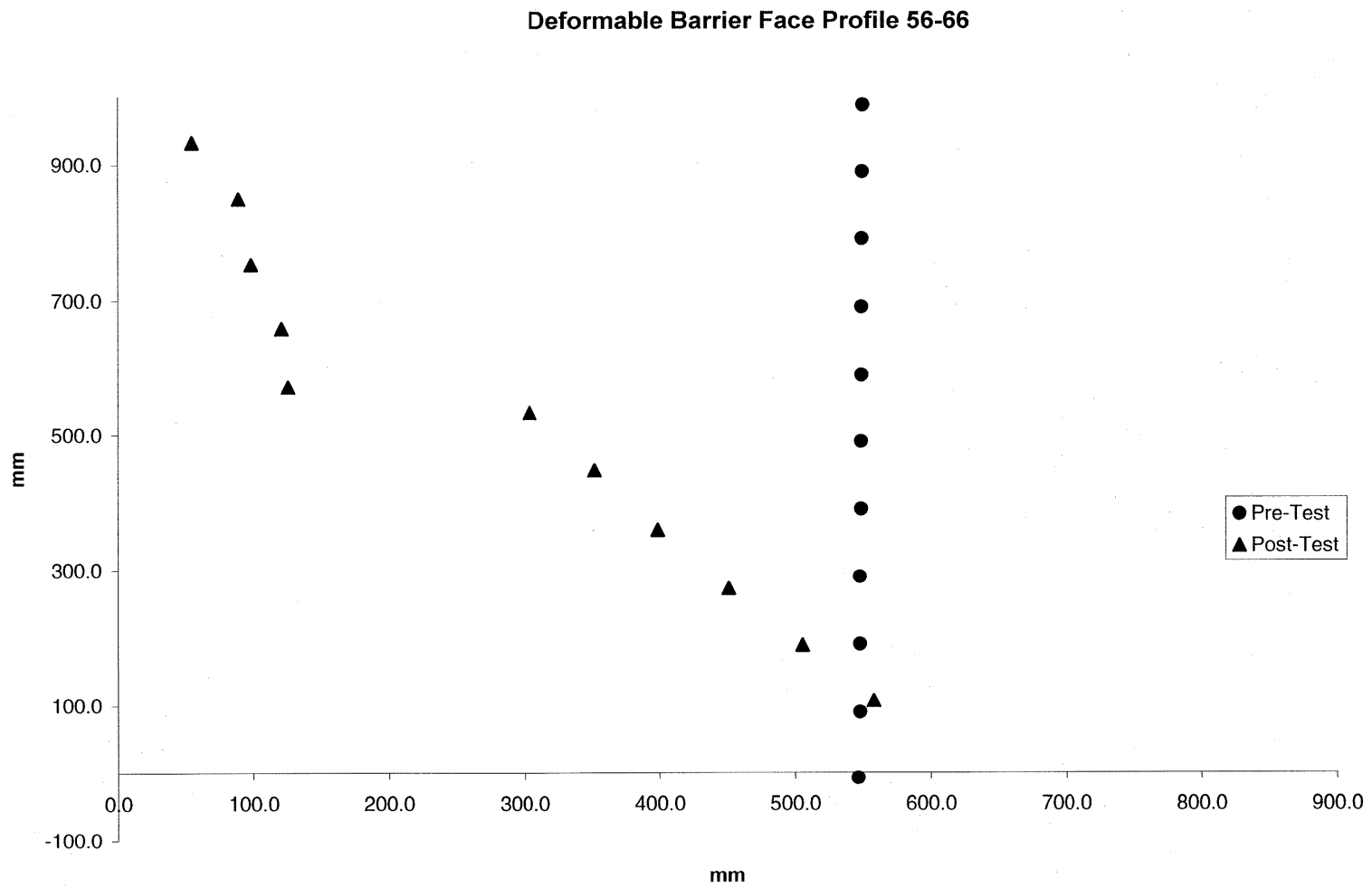
030618-1











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
A-3



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 Post-Test Overhead Close-up View

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Figure A-20 Pre-Test Front Underbody View



Figure A-21 Post-Test Front Underbody View

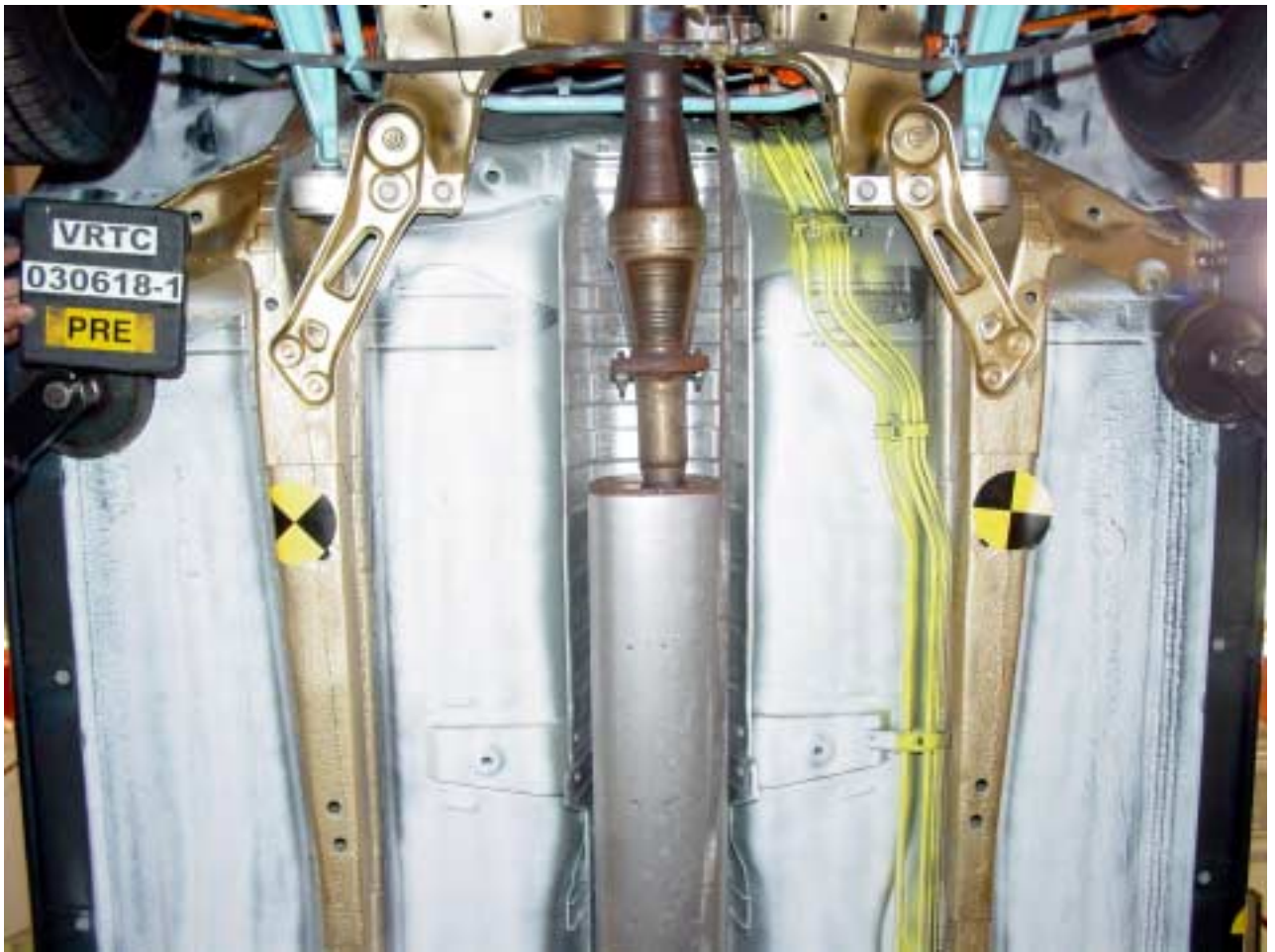


Figure A-22 Pre-Test Front Mid Underbody View

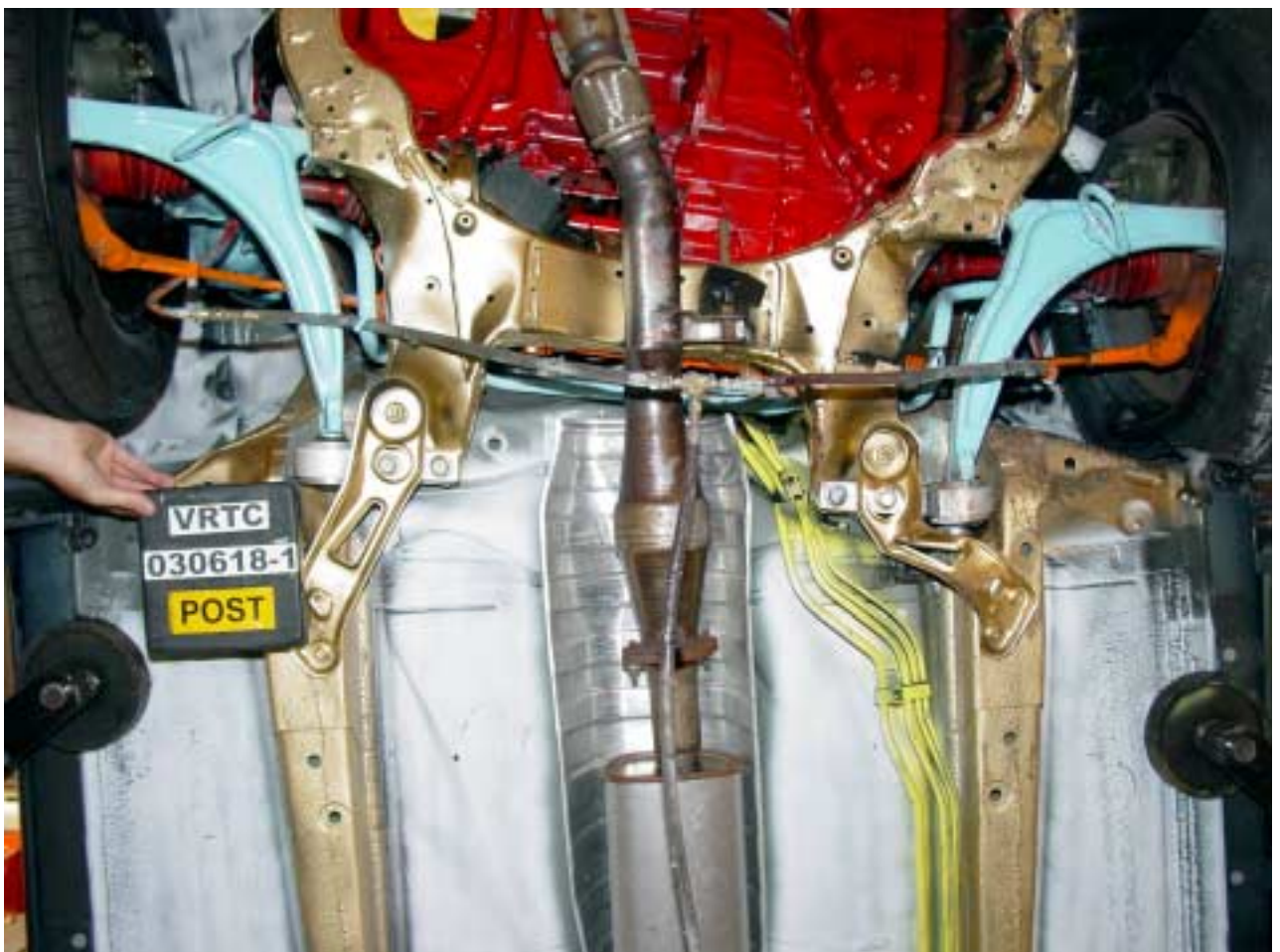


Figure A-23 Post-Test Front Mid Underbody View



Figure A-24 Pre-Test Mid Underbody View



Figure A-25 Post-Test Mid Underbody View

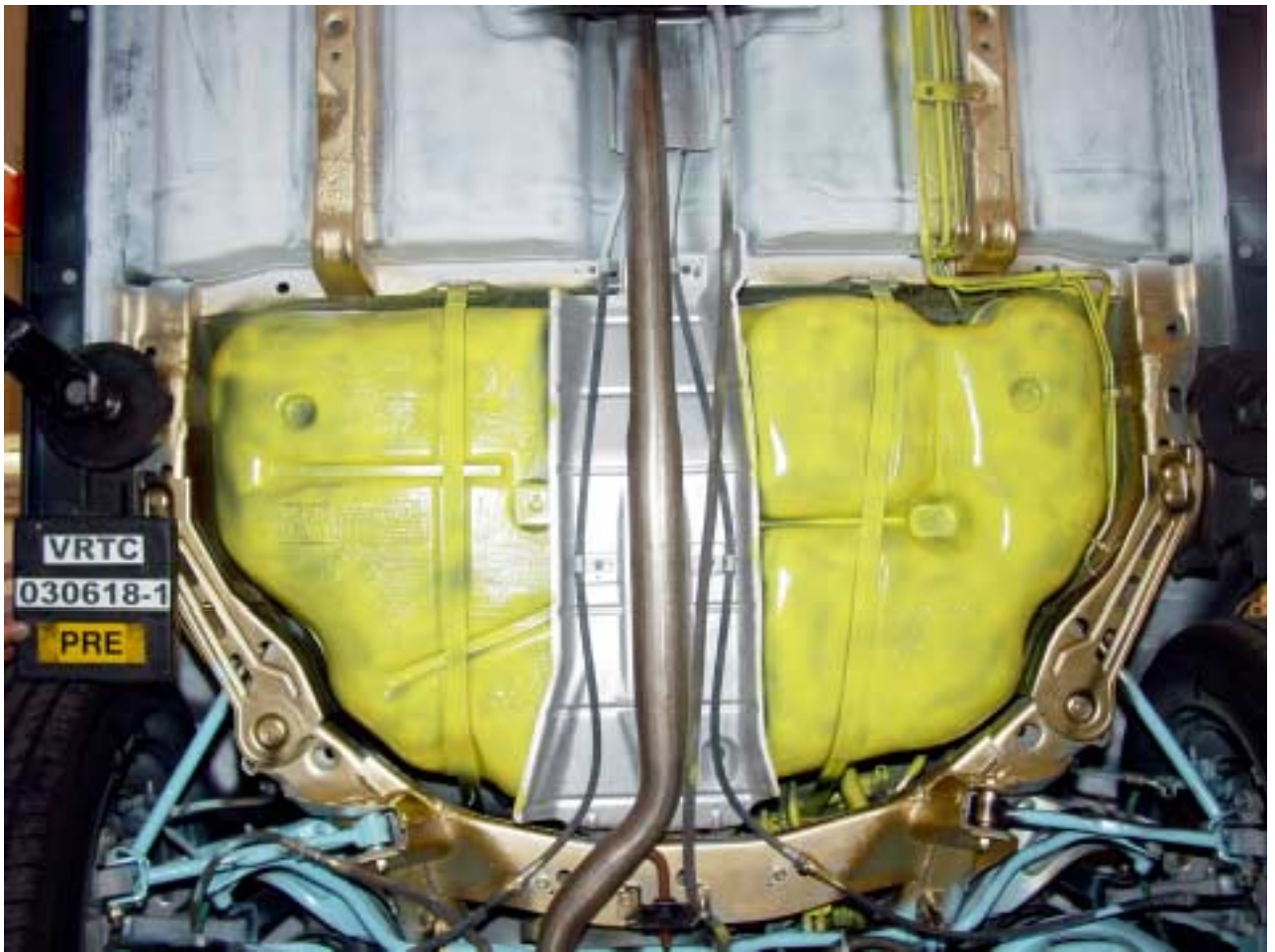


Figure A-26 Pre-Test Rear Mid Underbody View

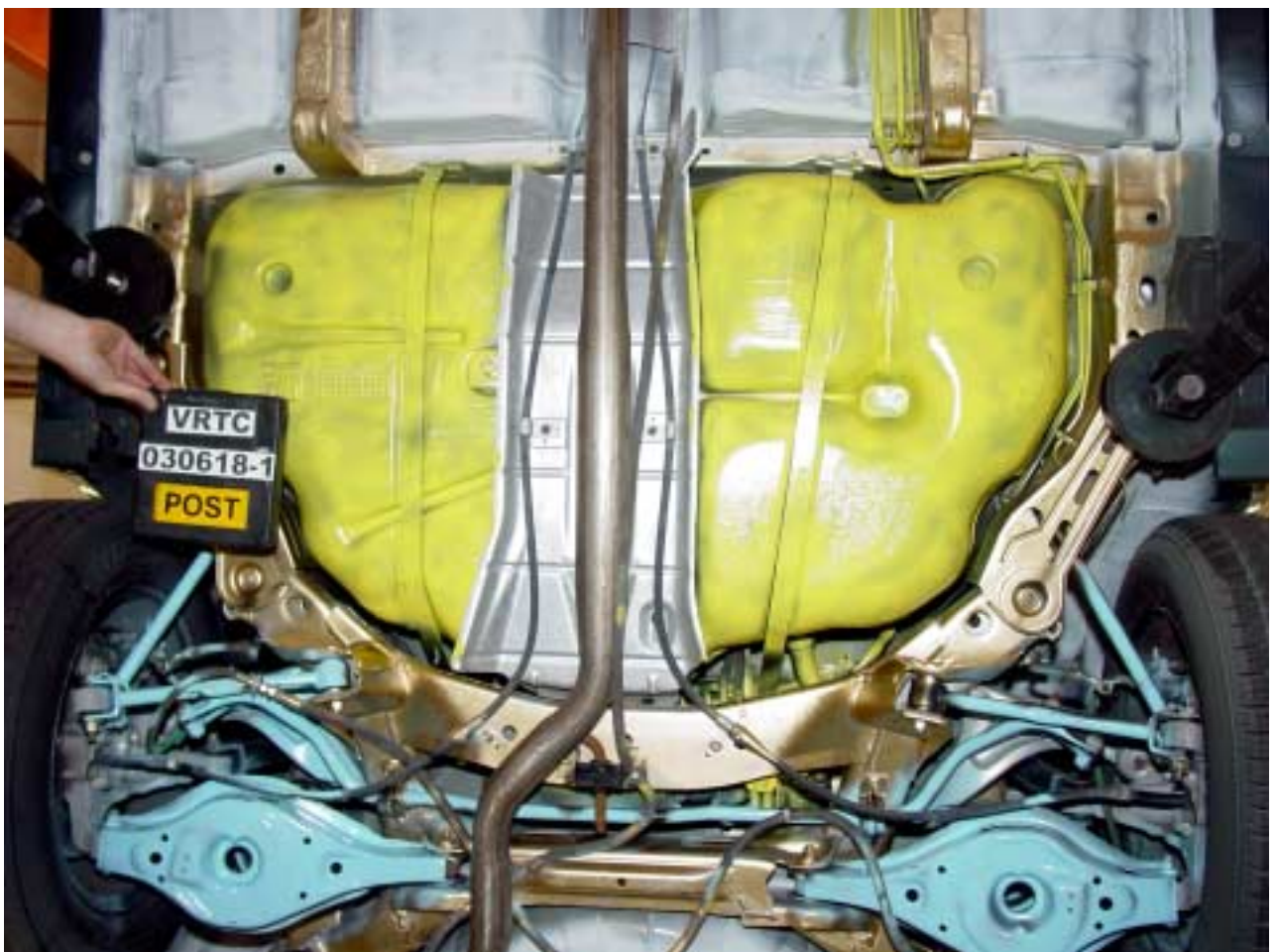


Figure A-27 Post-Test Rear Mid Underbody View

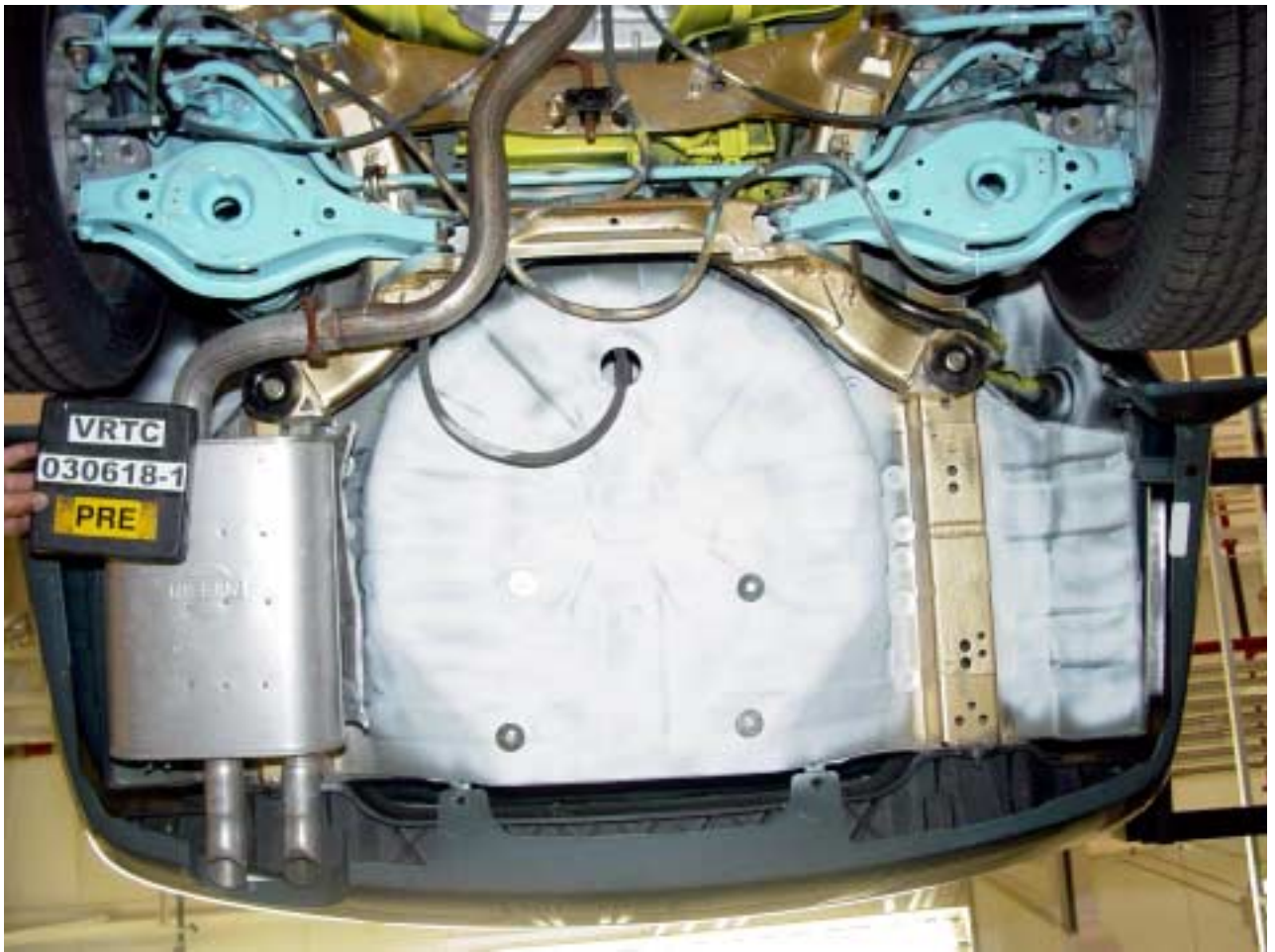


Figure A-28 Pre-Test Rear Underbody View

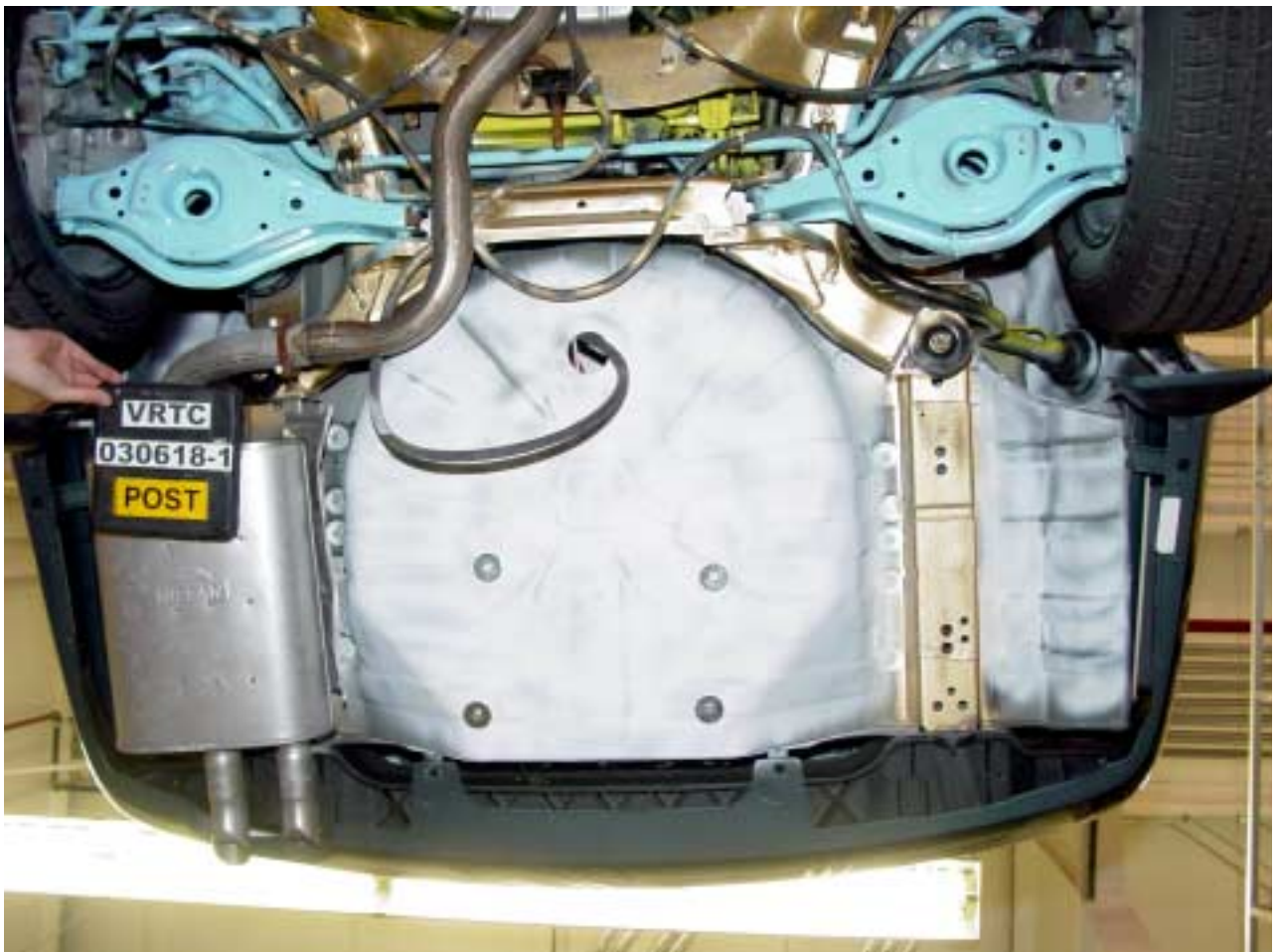


Figure A-29 Post-Test Rear Underbody View



Figure A-30 Pre-Test Engine Compartment View



Figure A-31 Post-Test Engine Compartment View



Figure A-32 Pre-Test Windshield View



Figure A-33 Post-Test Windshield View



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



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



Figure A-36 Pre-Test Right Side Angled Windshield View



Figure A-37 Post-Test Right Side Angled Windshield View



Figure A-38 Pre-Test Front Barrier Face View



Figure A-39 Post-Test Front Barrier Face View



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



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



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



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



Figure A-44 Pre-Test Overhead Barrier Face View

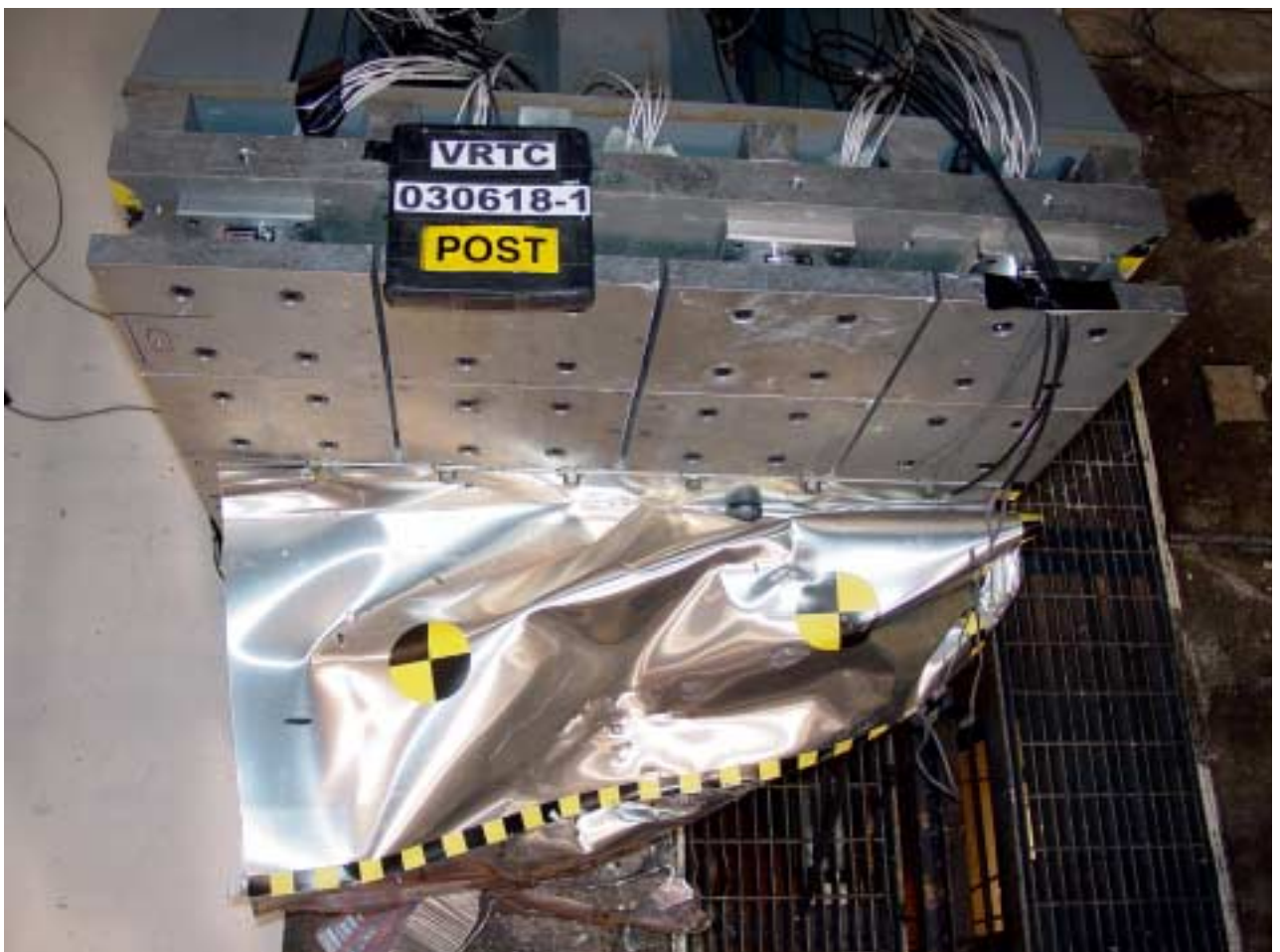


Figure A-45 Post-Test Overhead Barrier Face View



Figure A-46 Pre-Test Driver and Passenger Dummies Front View



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



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

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



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

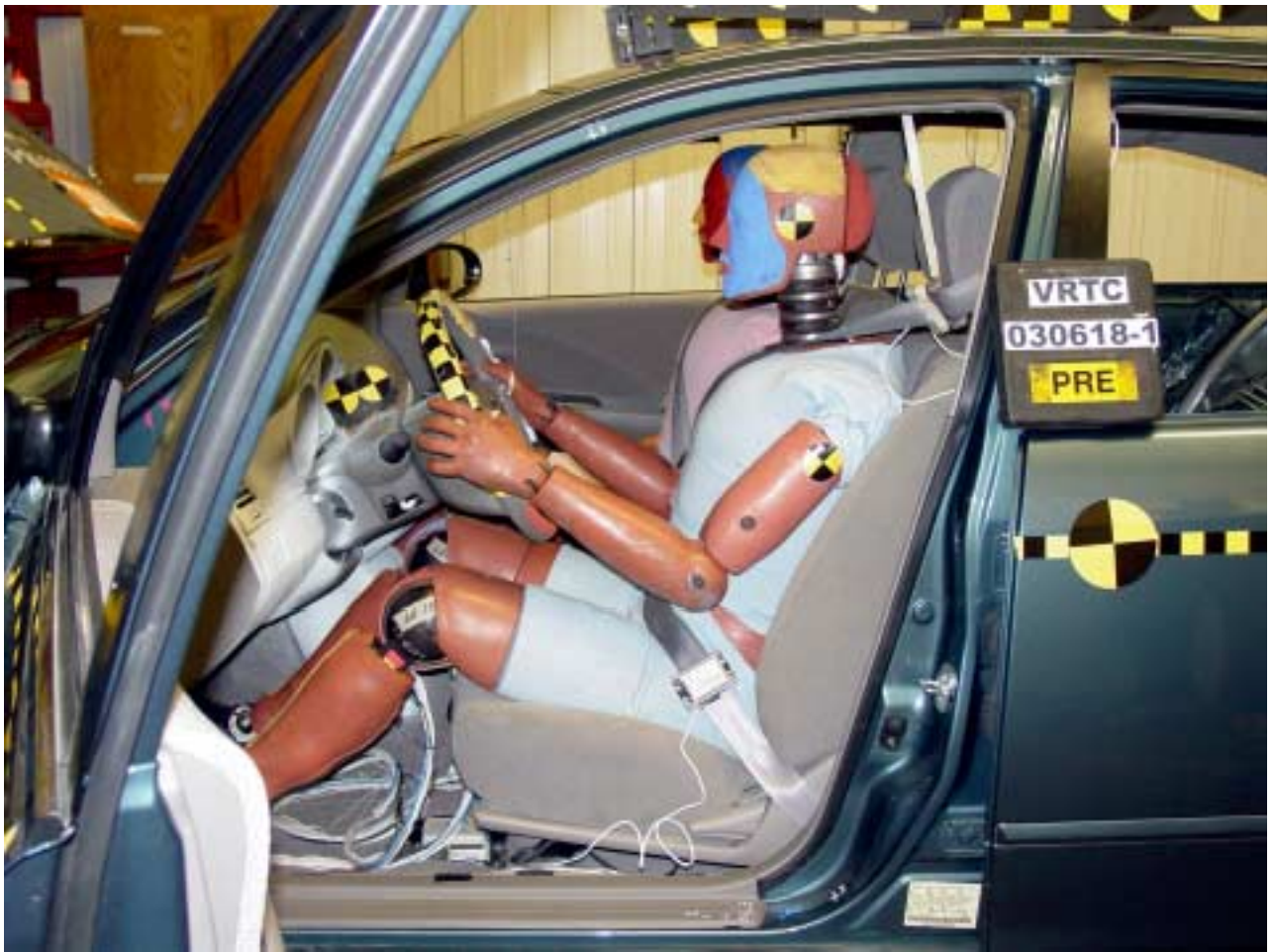


Figure A-51 Pre-Test Driver Dummy & Vehicle Interior - View 1



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



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



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



Figure A-55 Post-Test Driver Dummy & Vehicle Interior - View 3

Intentionally Left Blank



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

Intentionally Left Blank



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

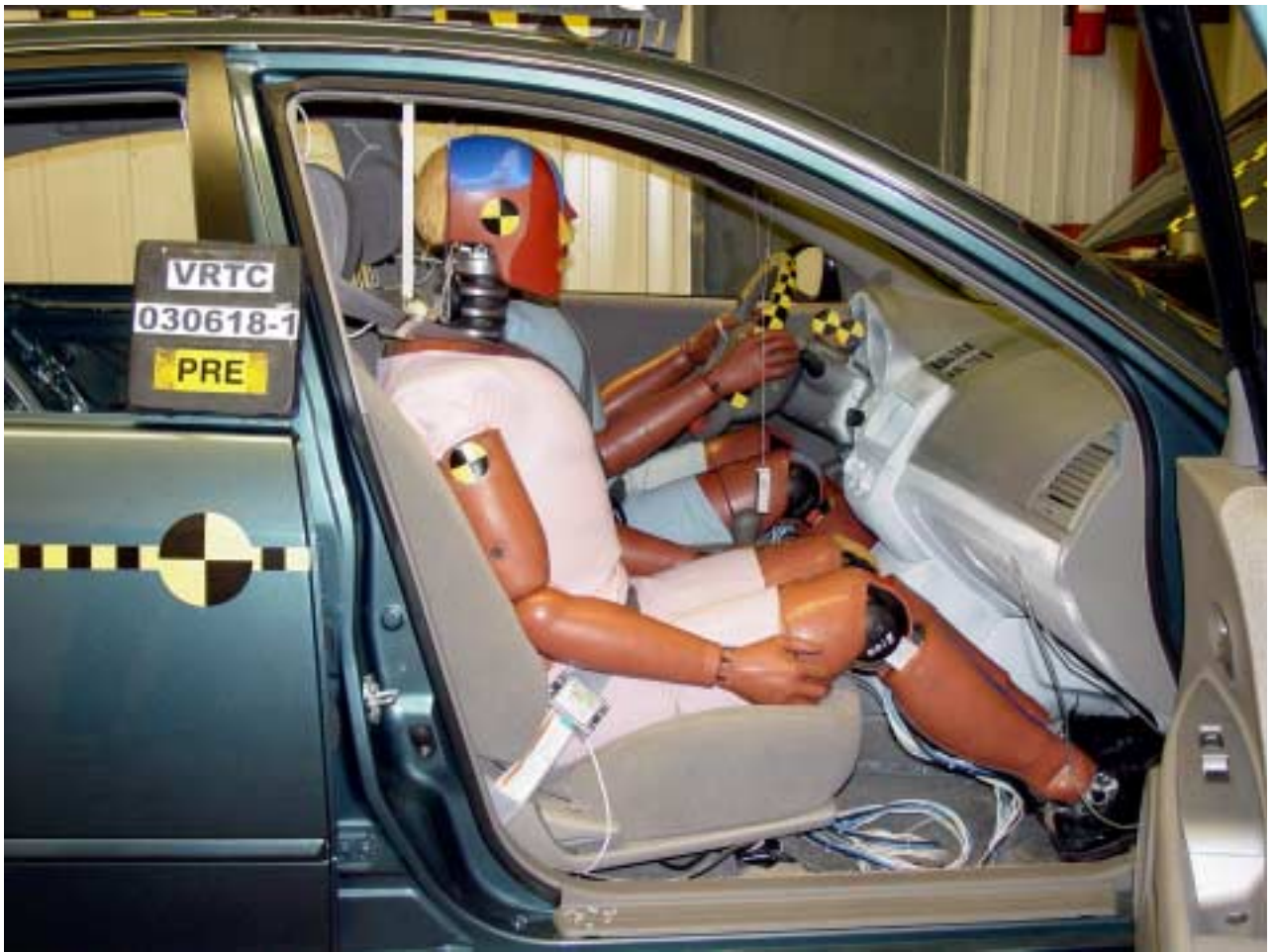


Figure A-59 Pre-Test Passenger Dummy & Vehicle Interior - View 1



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



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



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



Figure A-63 Post-Test Passenger Dummy & Vehicle Interior - View 3

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Figure A-64 Post-Test Driver Dummy Overall View



Figure A-65 Post-Test Driver Dummy Head Contact - View 1



Figure A-66 Post-Test Driver Dummy Head Contact - View 2



Figure A-67 Post-Test Driver Dummy Head Contact - View 3



Figure A-68 Post-Test Driver Knee Contact - View 1



Figure A-69 Post-Test Driver Knee Contact - View 2



Figure A-70 Post-Test Passenger Dummy Overall View

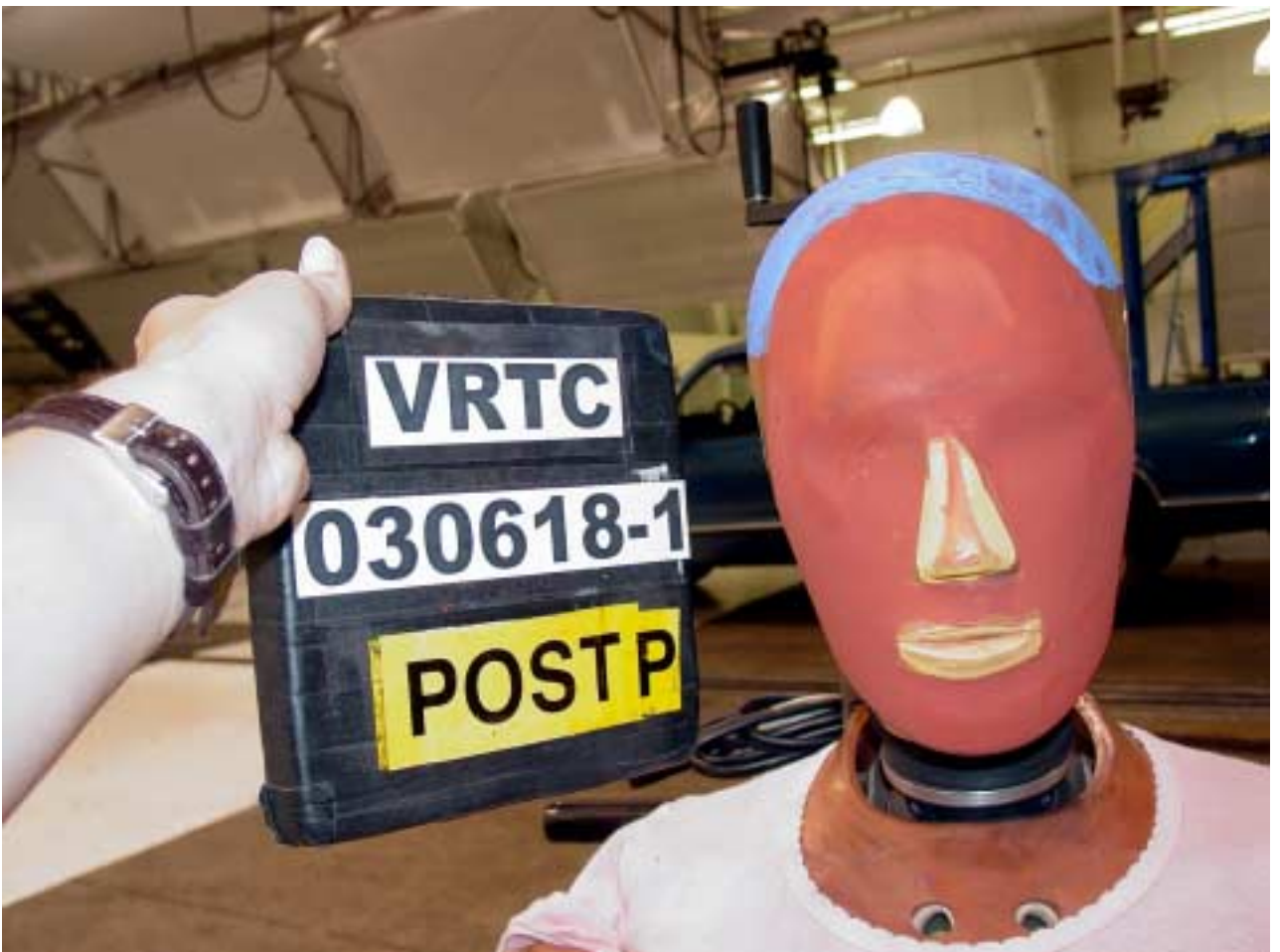


Figure A-71 Post-Test Passenger Dummy Head Contact - View 1



Figure A-72 Post-Test Passenger Dummy Head Contact - View 2



Figure A-73 Post-Test Passenger Dummy Head Contact - View 3



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



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



Figure A-76 Post-Test Bumper to Rail Attachment View



Figure A-77 Post-Test Wheel/Tire Deformation View



Figure A-78 Post-Test Wheel Well View



Figure A-79 Post-Test Wheel to Rocker Contact View



Figure A-80 Post-Test Vehicle Sub-Frame Damage - View 1



Figure A-81 Post-Test Vehicle Sub-Frame Damage - View 2



Figure A-82 Post-Test Vehicle Sub-Frame Damage - View 3



Figure A-83 Post-Test Vehicle Roof Deformation - View 1



Figure A-84 Post-Test Vehicle Roof Deformation - View 2



Figure A-85 Post-Test Bumper Damage View



Figure A-86 Post-Test Impact Point View



Figure A-87 Vehicle Certification Label View

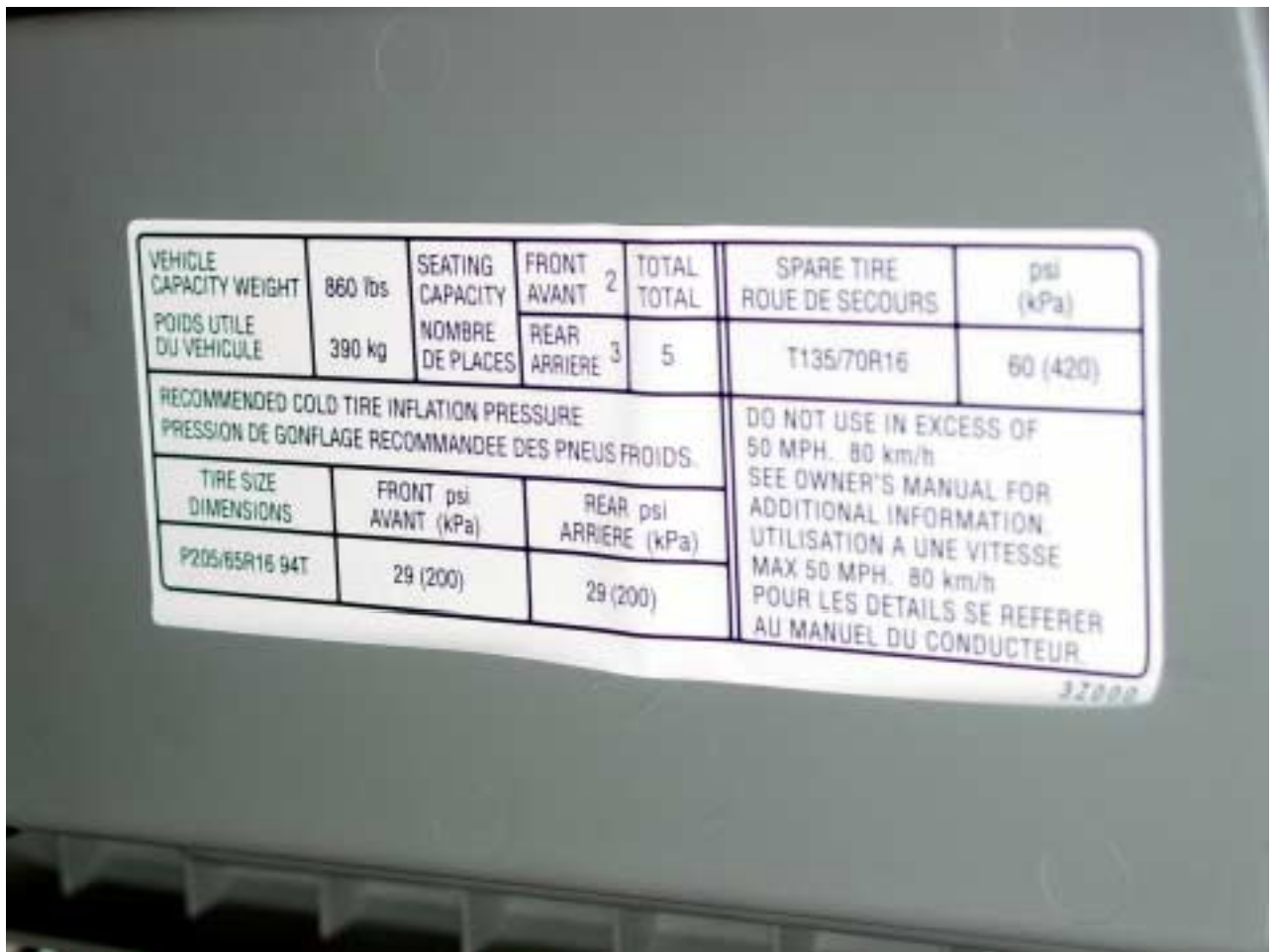


Figure A-88 Tire Load Label View

Appendix B

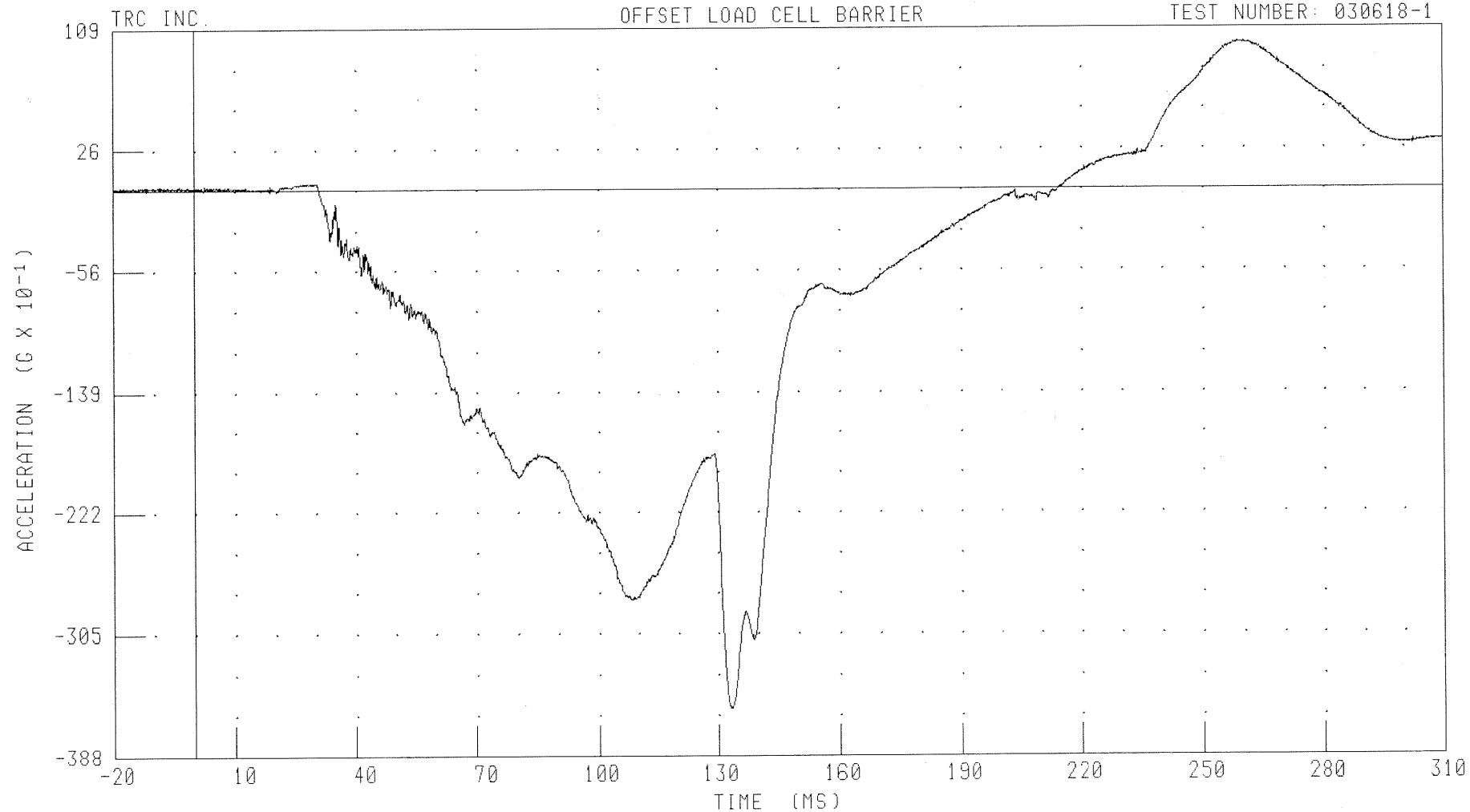
Data Plots

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

DRIVER HEAD X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDXC1 FILTER: CH. CLASS 1000

PEAK DATA: 10.02 G @ 258.64 MS; -35.60 G @ 133.12 MS

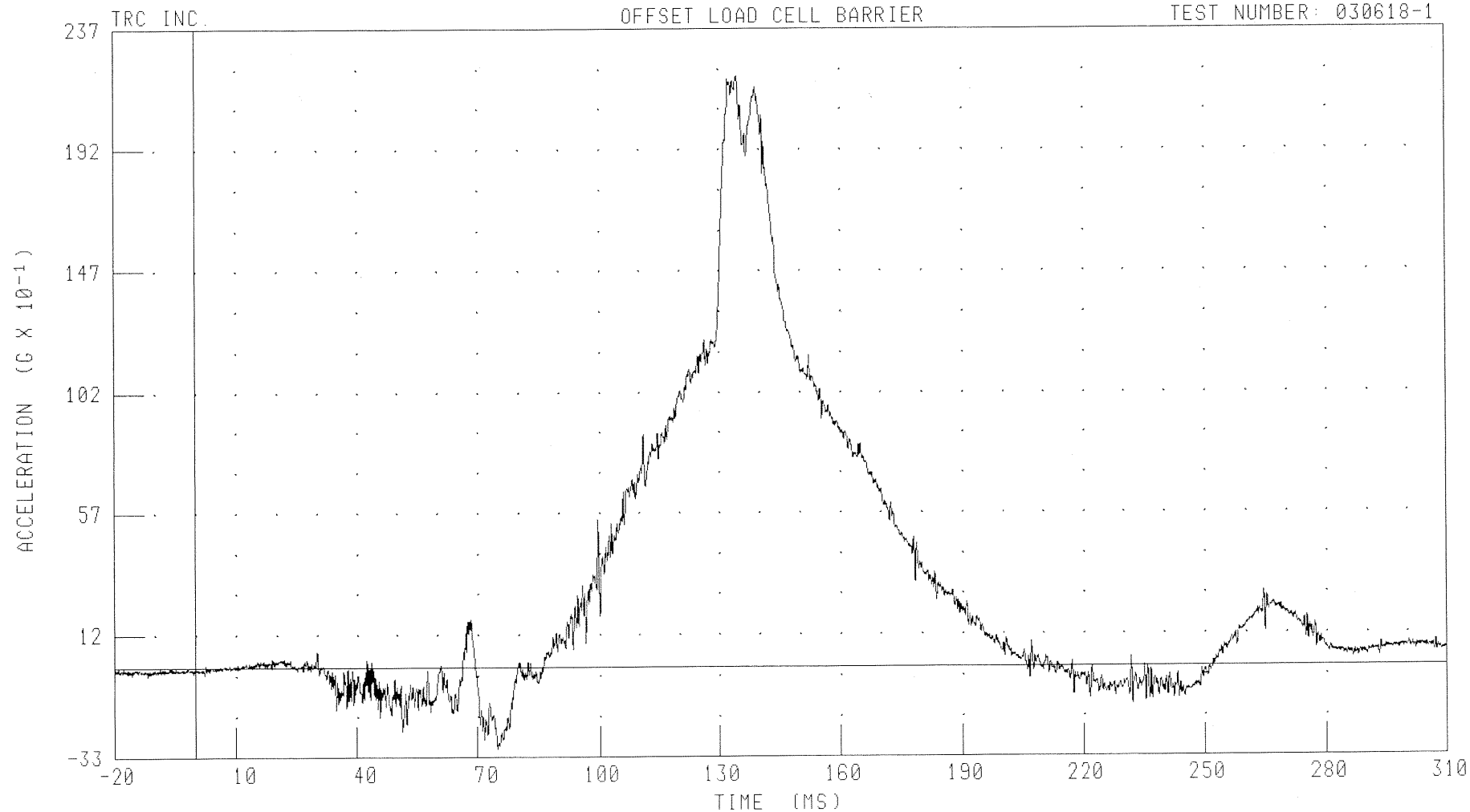
B-2

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

B-3

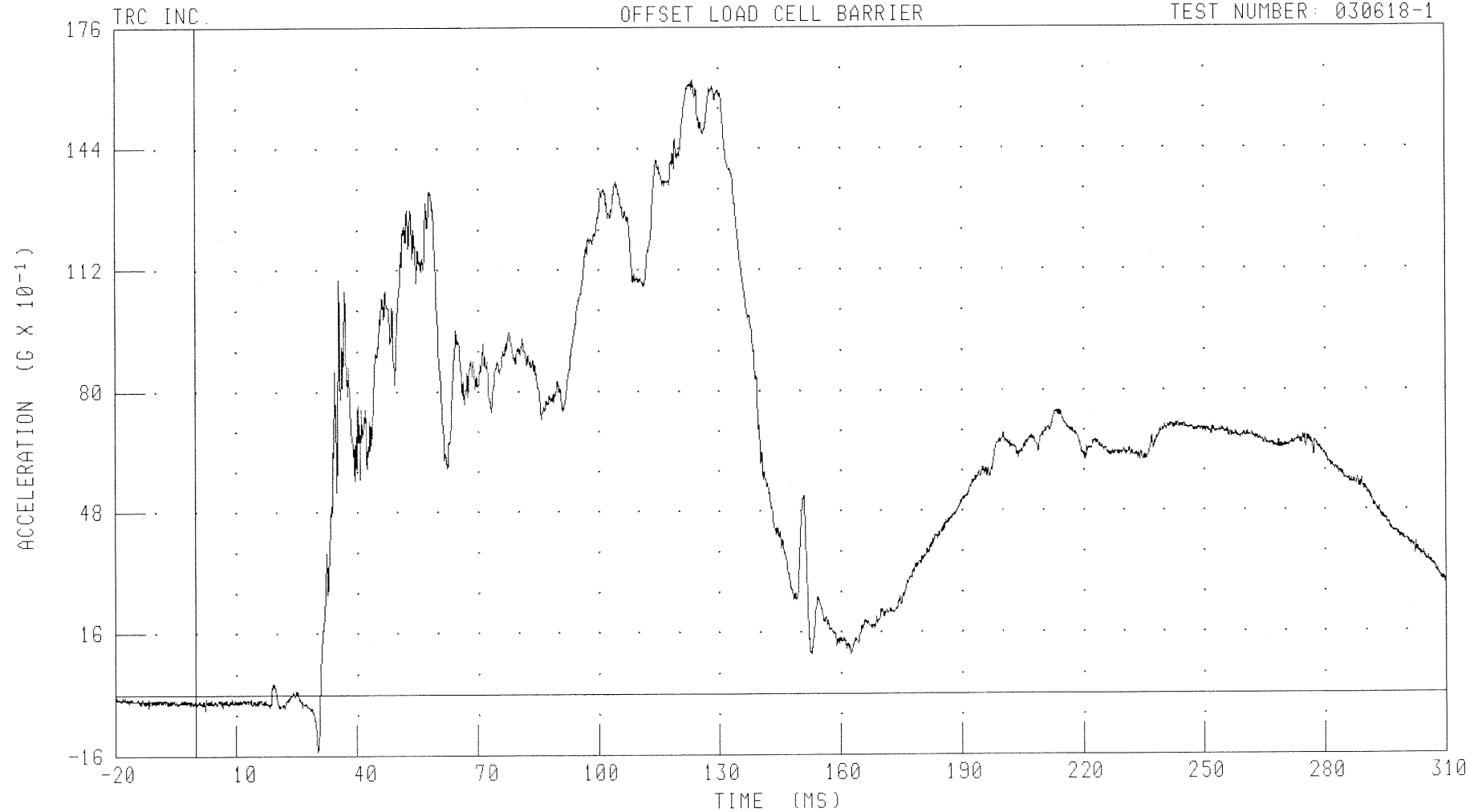
030618-1

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

DRIVER HEAD Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

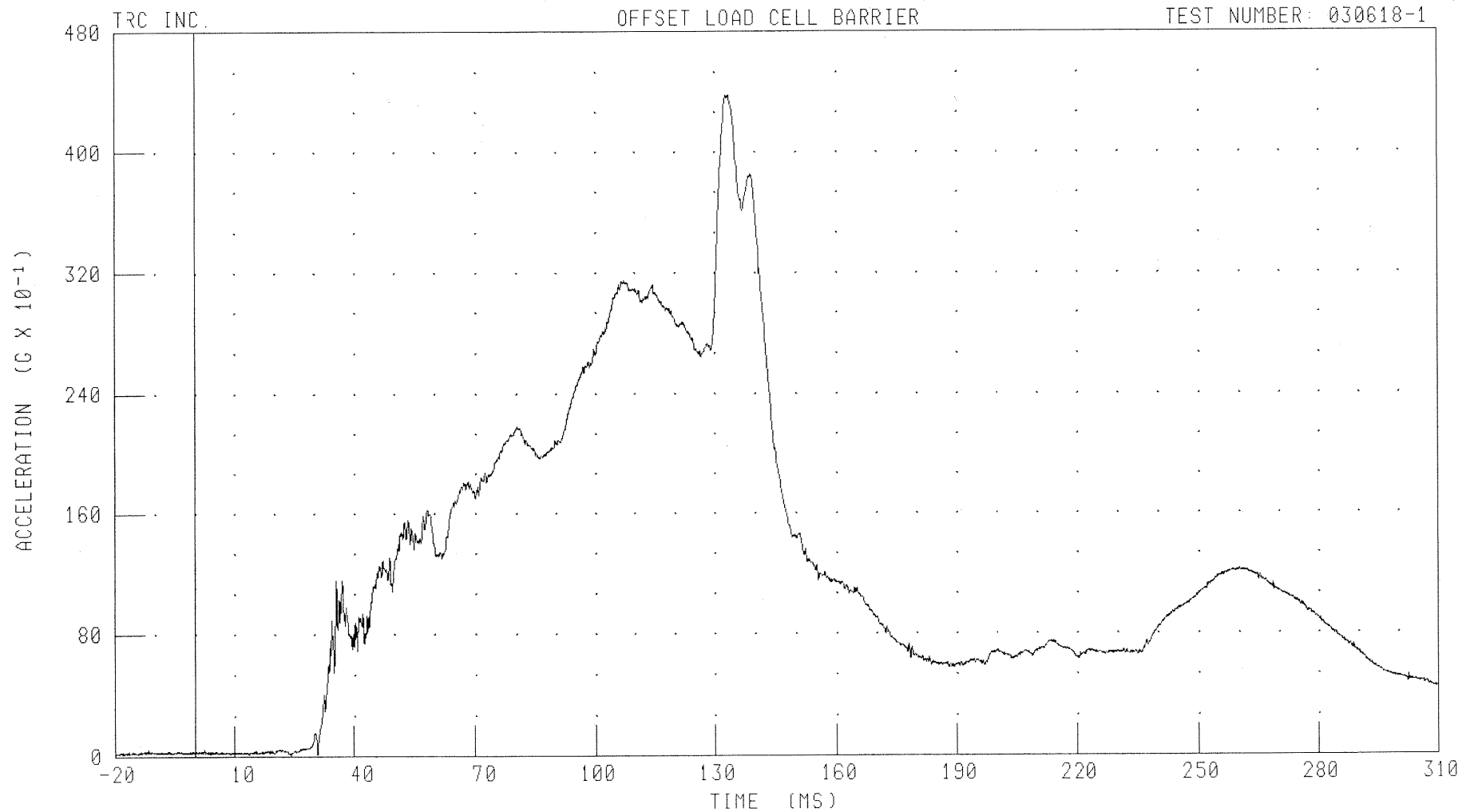
PEAK DATA: 16.24 G @ 123.84 MS; -1.49 G @ 30.32 MS

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

DRIVER HEAD RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 43.85 G @ 133.52 MS; 0.09 G @ 24.08 MS

B-5

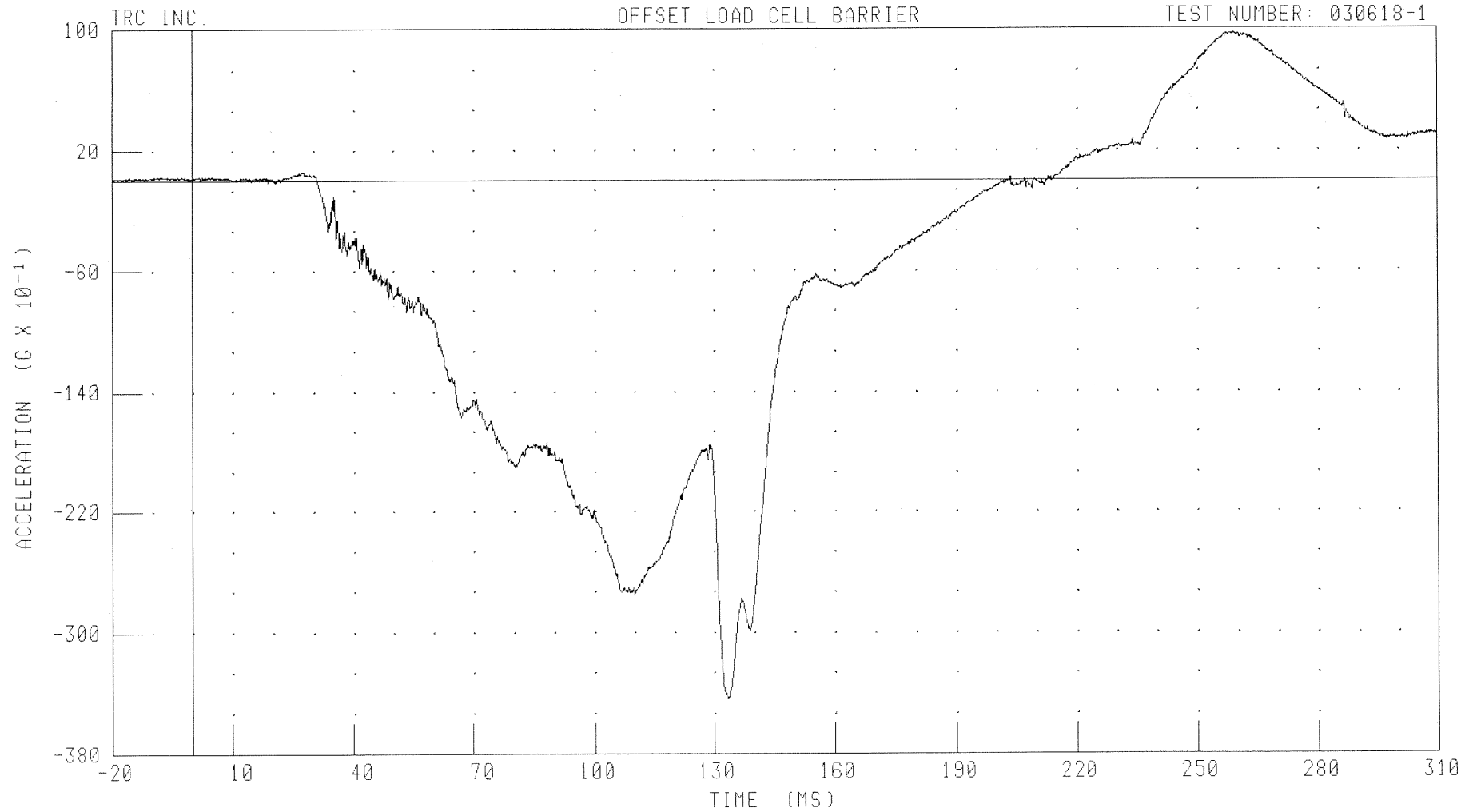
030618-1

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

DRIVER HEAD X-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

PEAK DATA: 9.77 G @ 259.04 MS; -34.33 G @ 133.36 MS

B-6

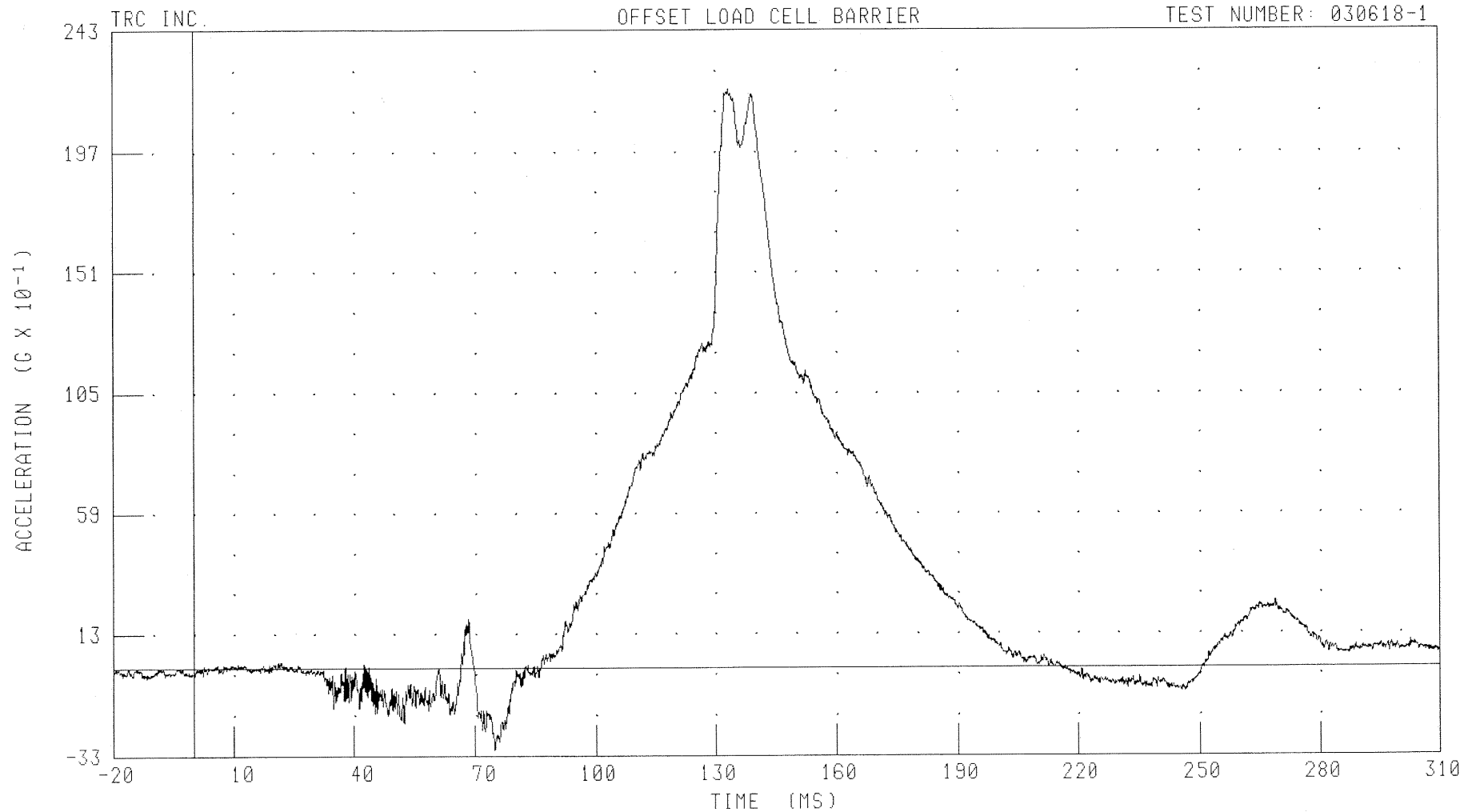
030618-1

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

DRIVER HEAD Y-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

B-7

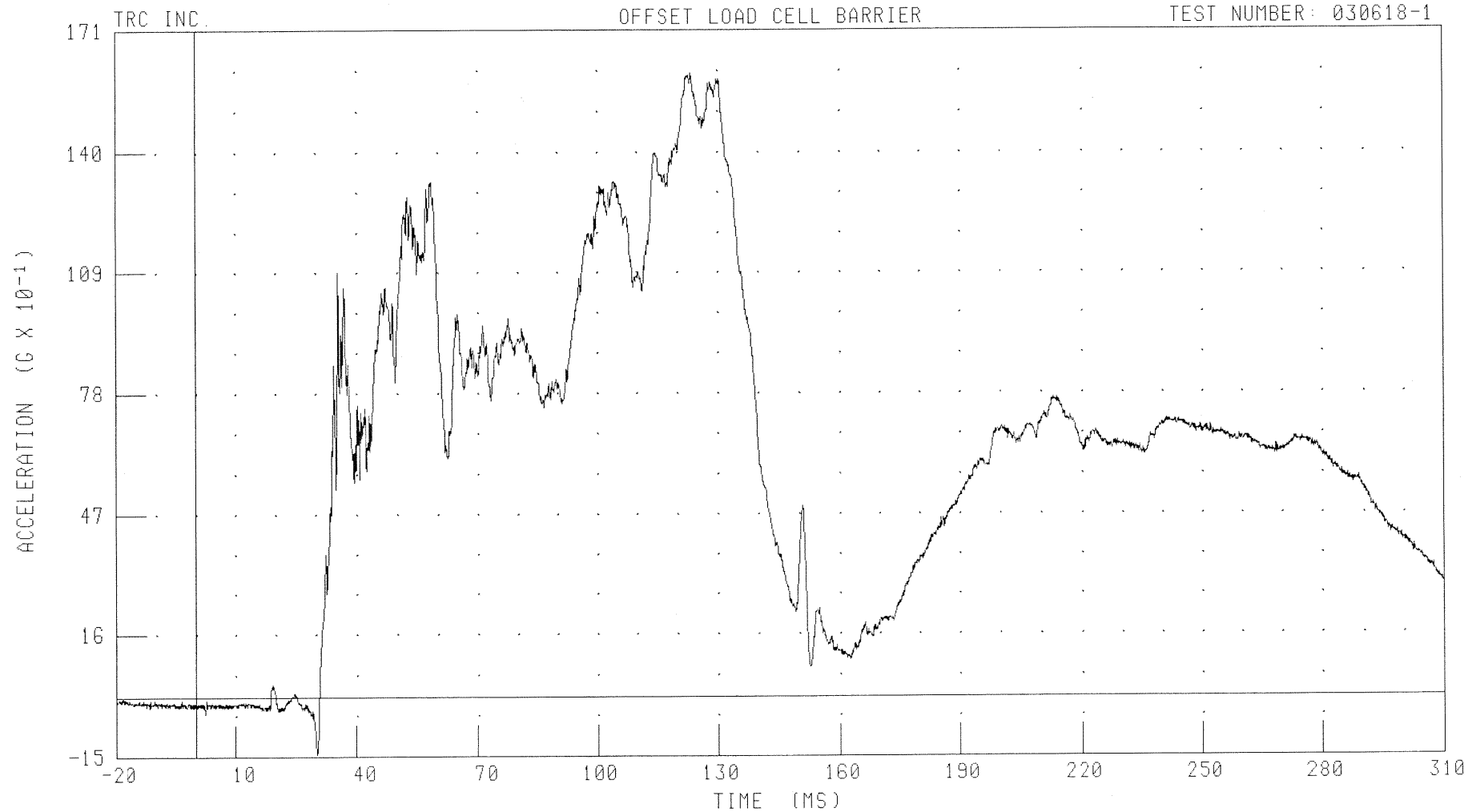
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2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

DRIVER HEAD Z-AXIS ACCELERATION REDUNDANT

OFFSET LOAD CELL BARRIER

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PEAK DATA: 16.00 G @ 123.52 MS; -1.44 G @ 30.32 MS

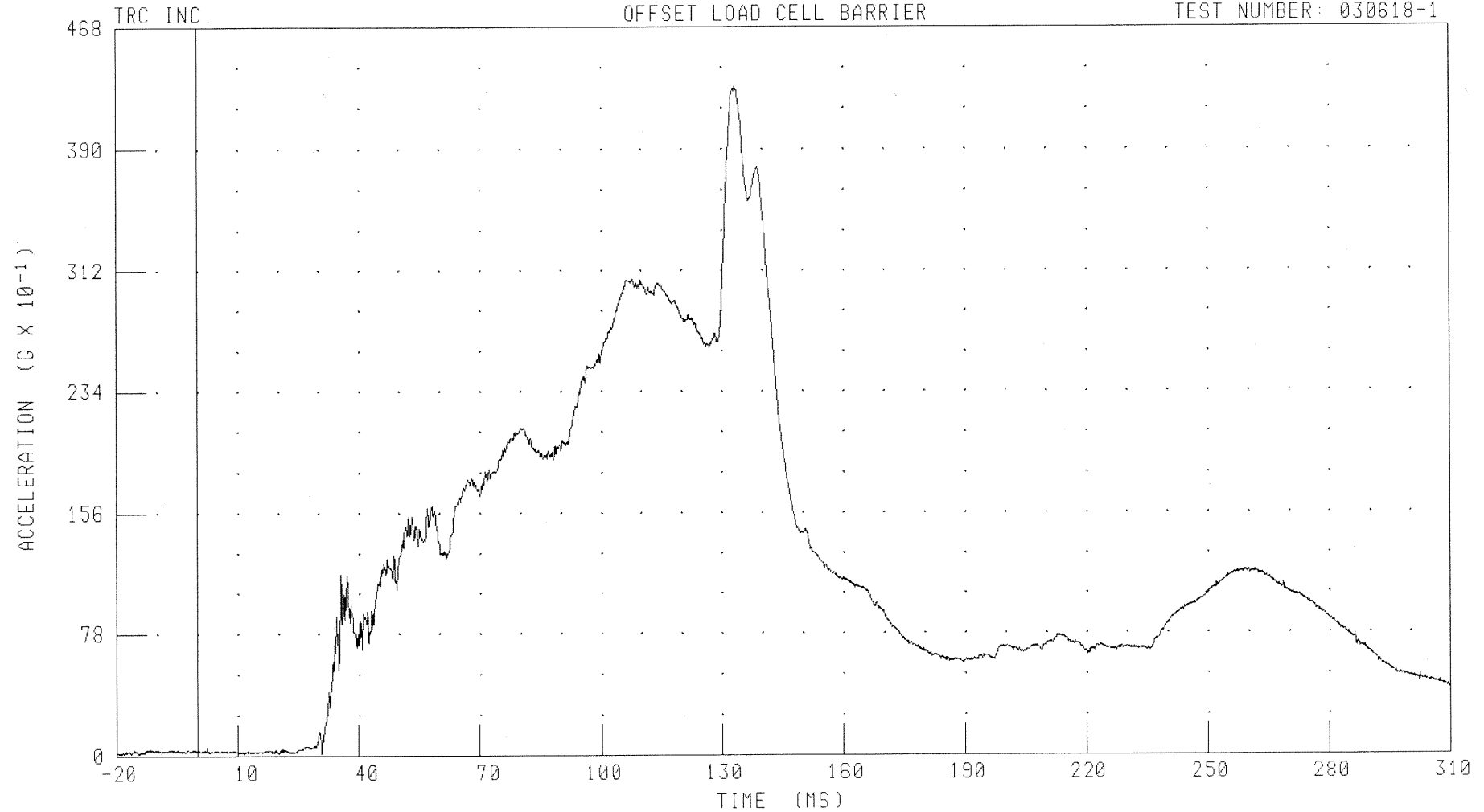
B-8

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

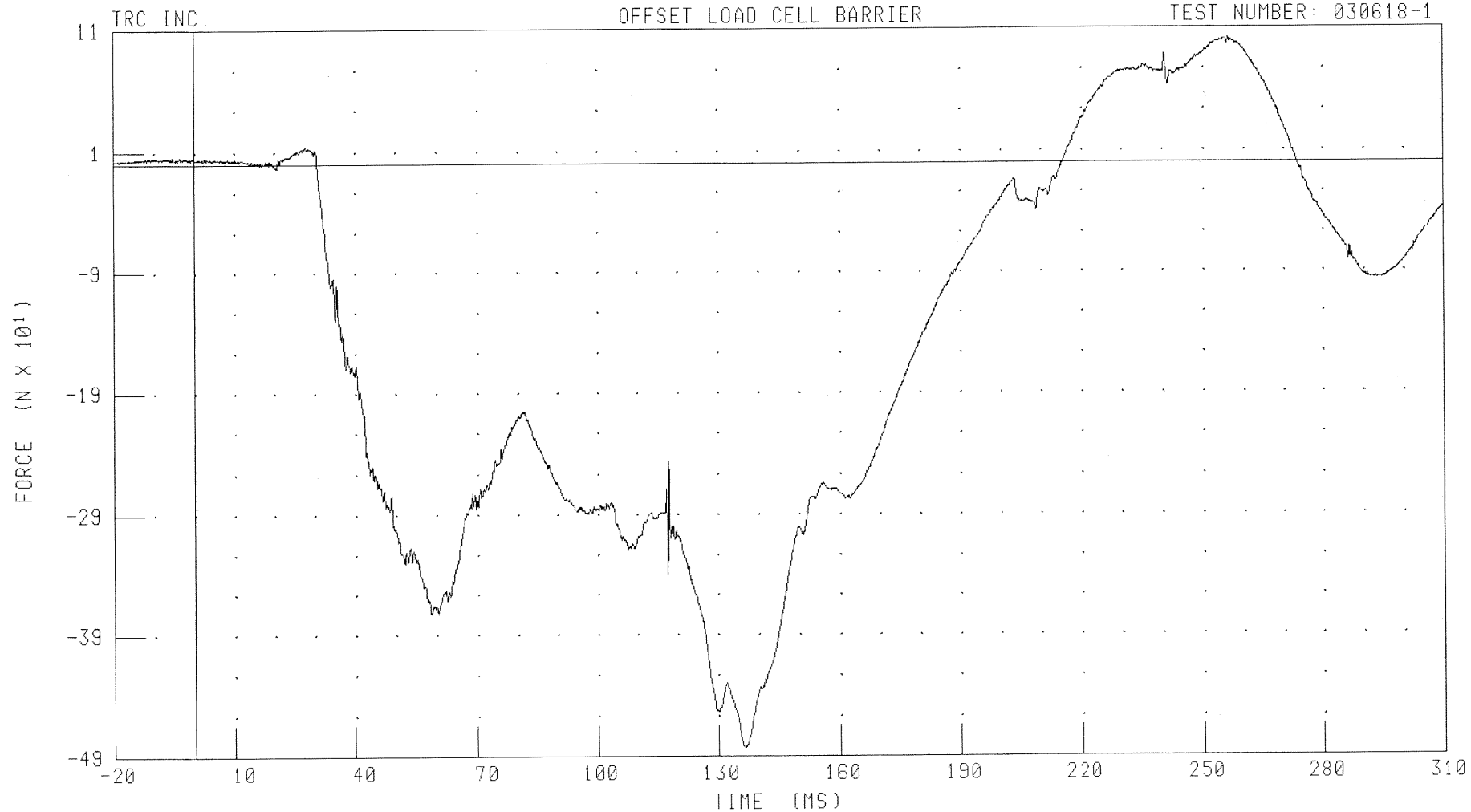
PEAK DATA: 42.96 G @ 133.36 MS; 0.10 G @ -19.92 MS

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

DRIVER NECK X-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 101.91 N @ 256.40 MS; -483.44 N @ 136.32 MS

B-10

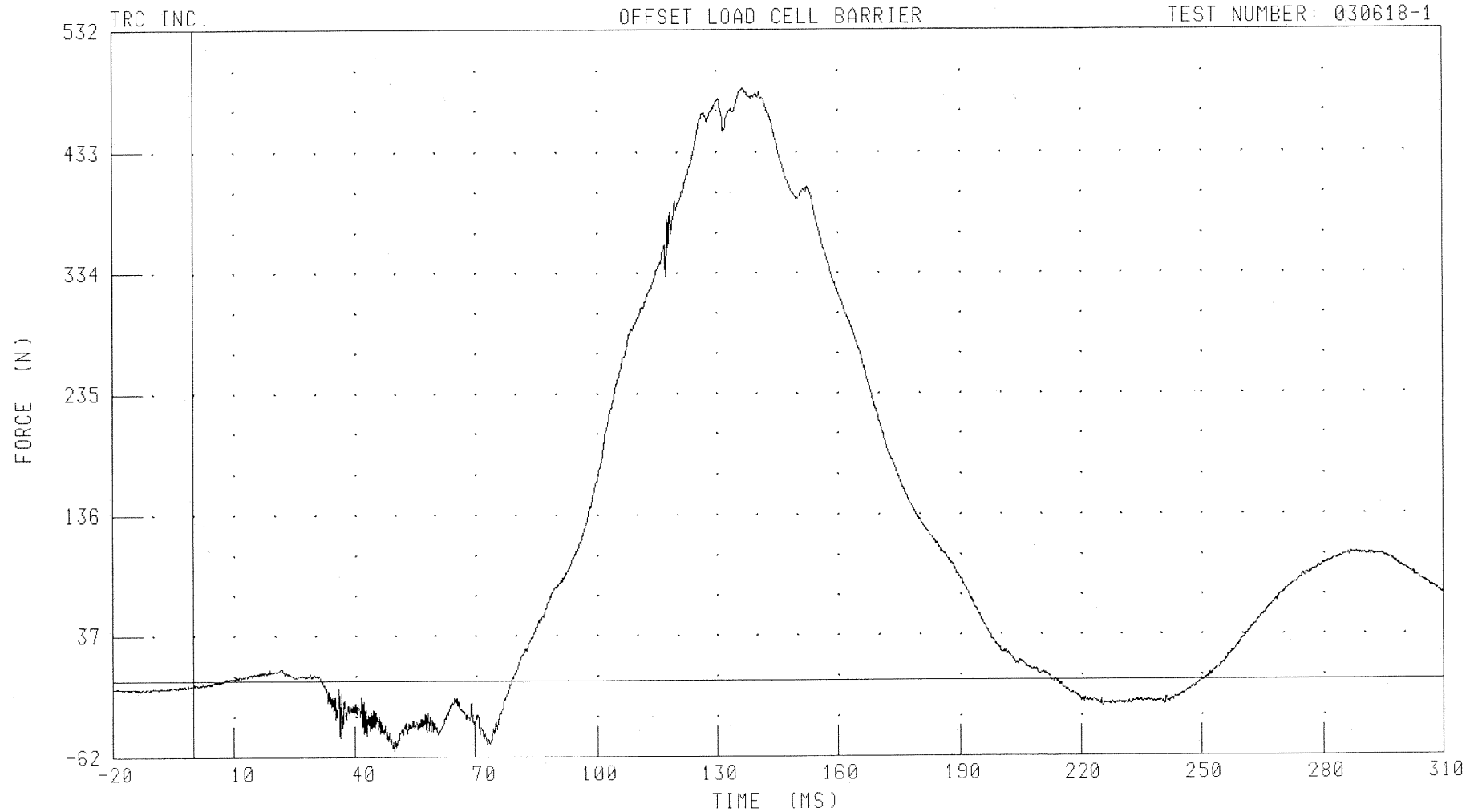
030618-1

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

DRIVER NECK Y-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 484.64 N @ 136.64 MS; -57.20 N @ 49.84 MS

B-11

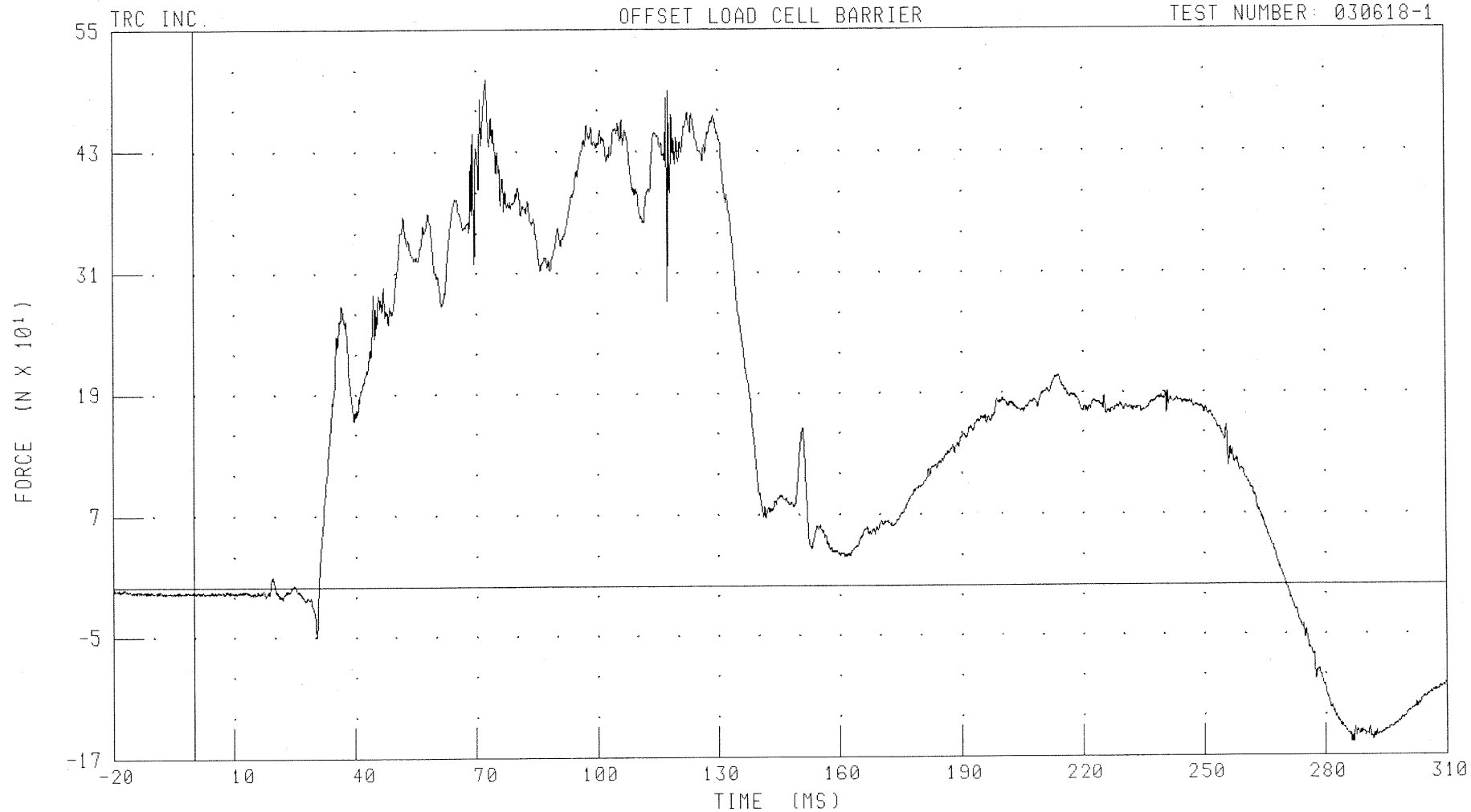
030618-1

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

DRIVER NECK Z-AXIS AXIAL FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 501.08 N @ 72.64 MS; -157.14 N @ 286.48 MS

B-12

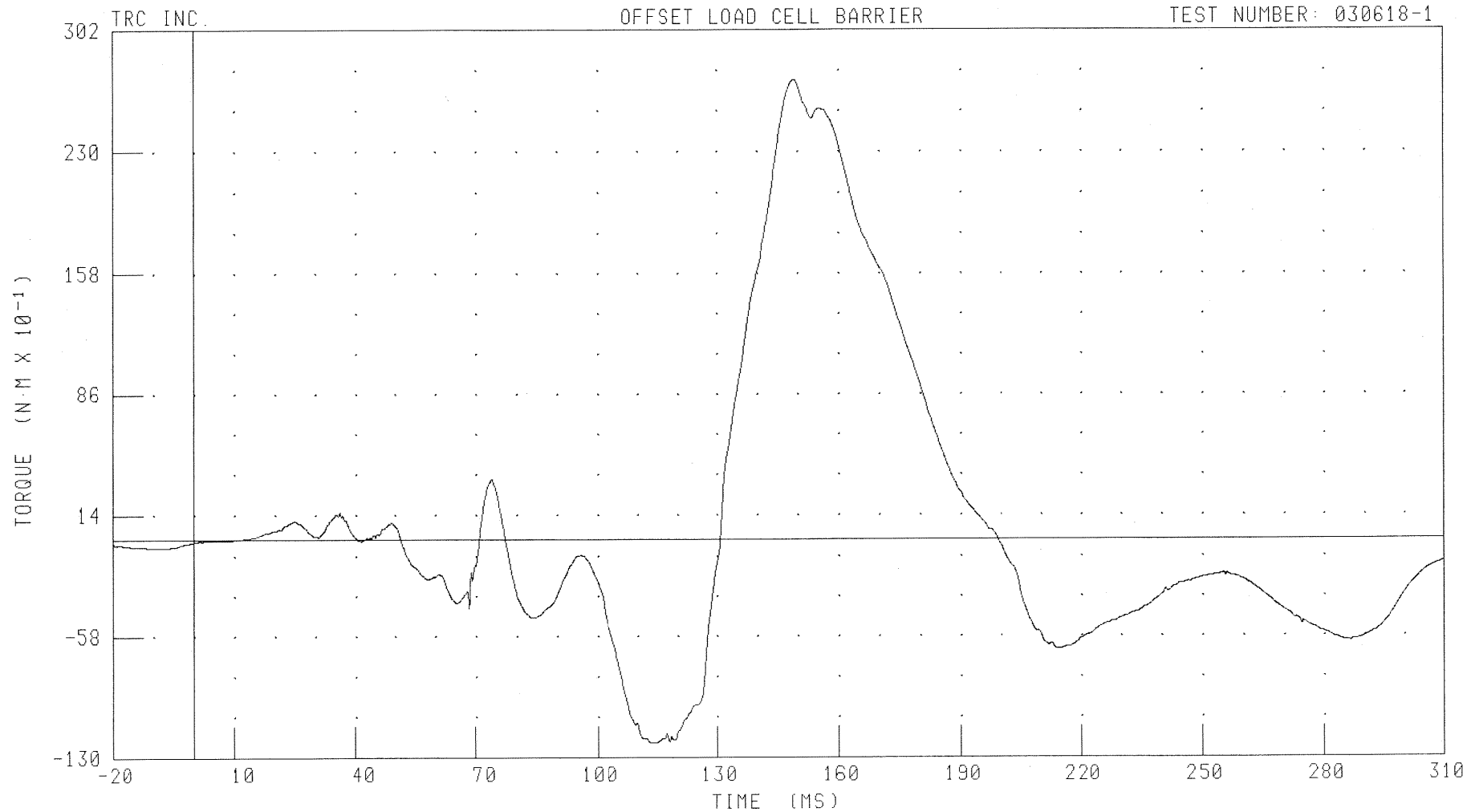
030618-1

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

DRIVER NECK MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKXM1

FILTER: CH. CLASS 600

B-13

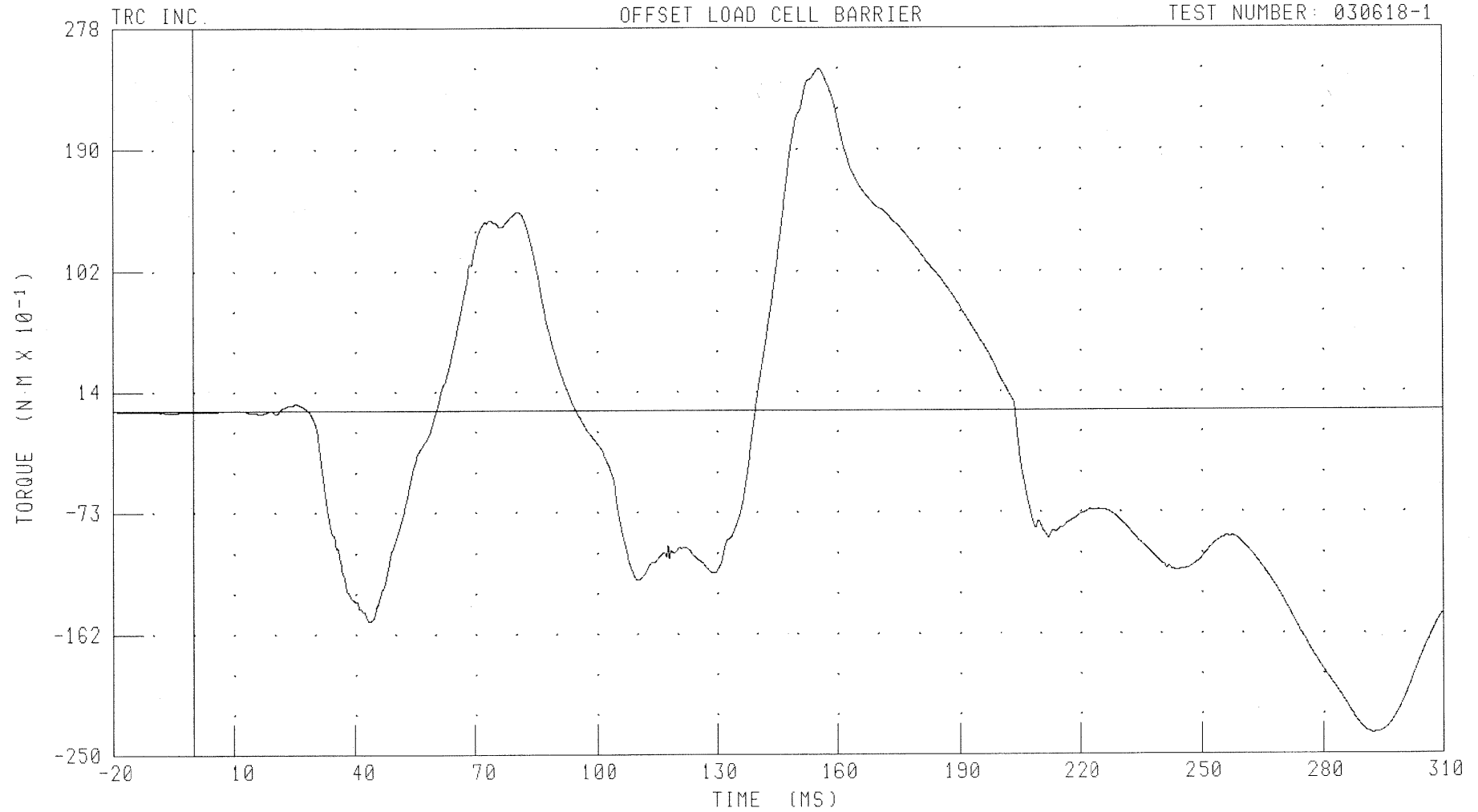
030618-1

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

DRIVER NECK MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKYM1

FILTER: CH. CLASS 600

PEAK DATA: 24.81 N·m @ 155.52 ms; -23.51 N·m @ 292.40 ms

B-14

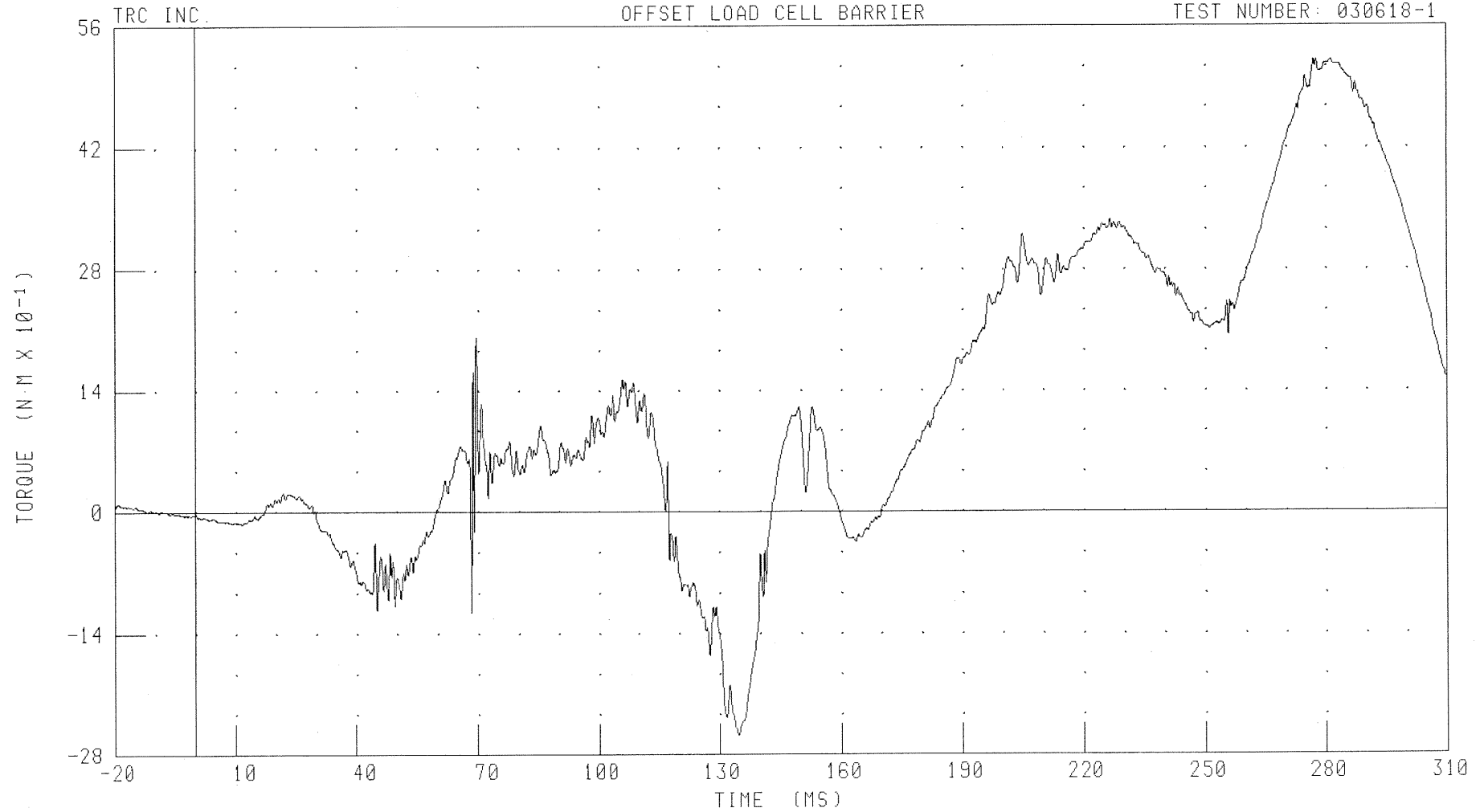
030618-1

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

DRIVER NECK MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 5.20 N·M @ 276.96 MS; -2.58 N·M @ 134.72 MS

B-15

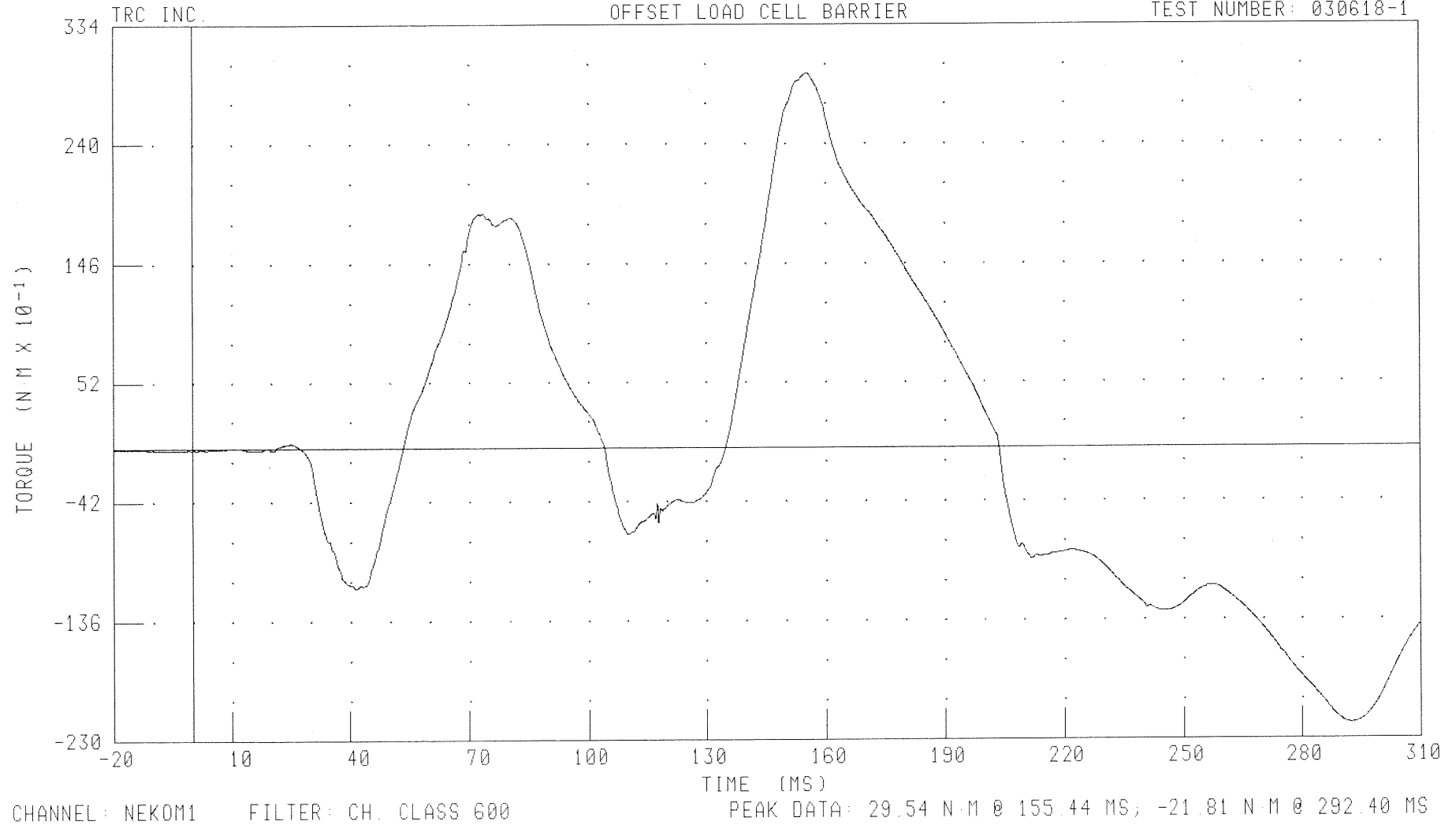
030618-1

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

DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-16

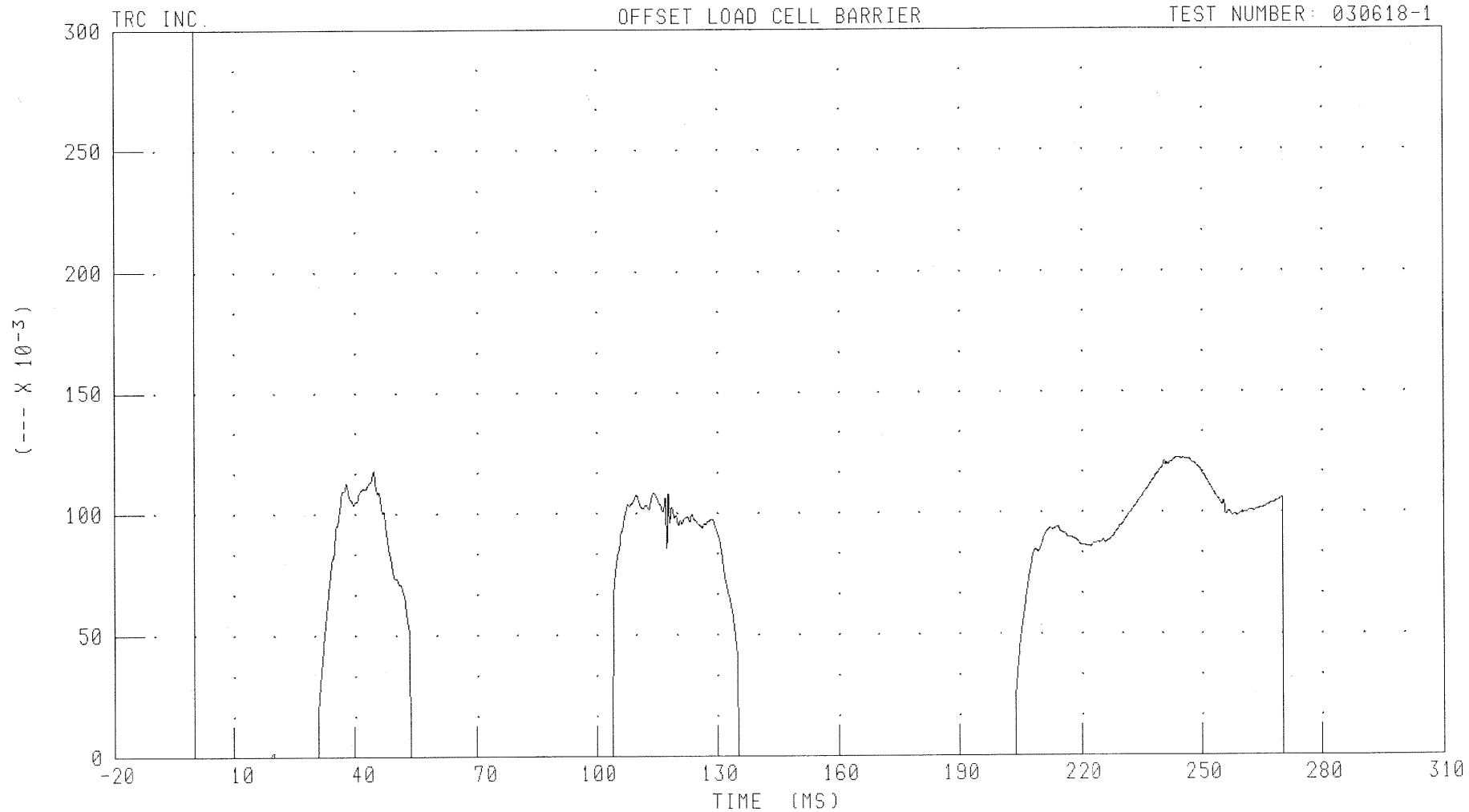
030618-1

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

DRIVER NIJ TENSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NTE1

FILTER: CH. CLASS 600

PEAK DATA: 0.12 --- @ 243.76 MS; 0.00 --- @ -20.00 MS

B-17

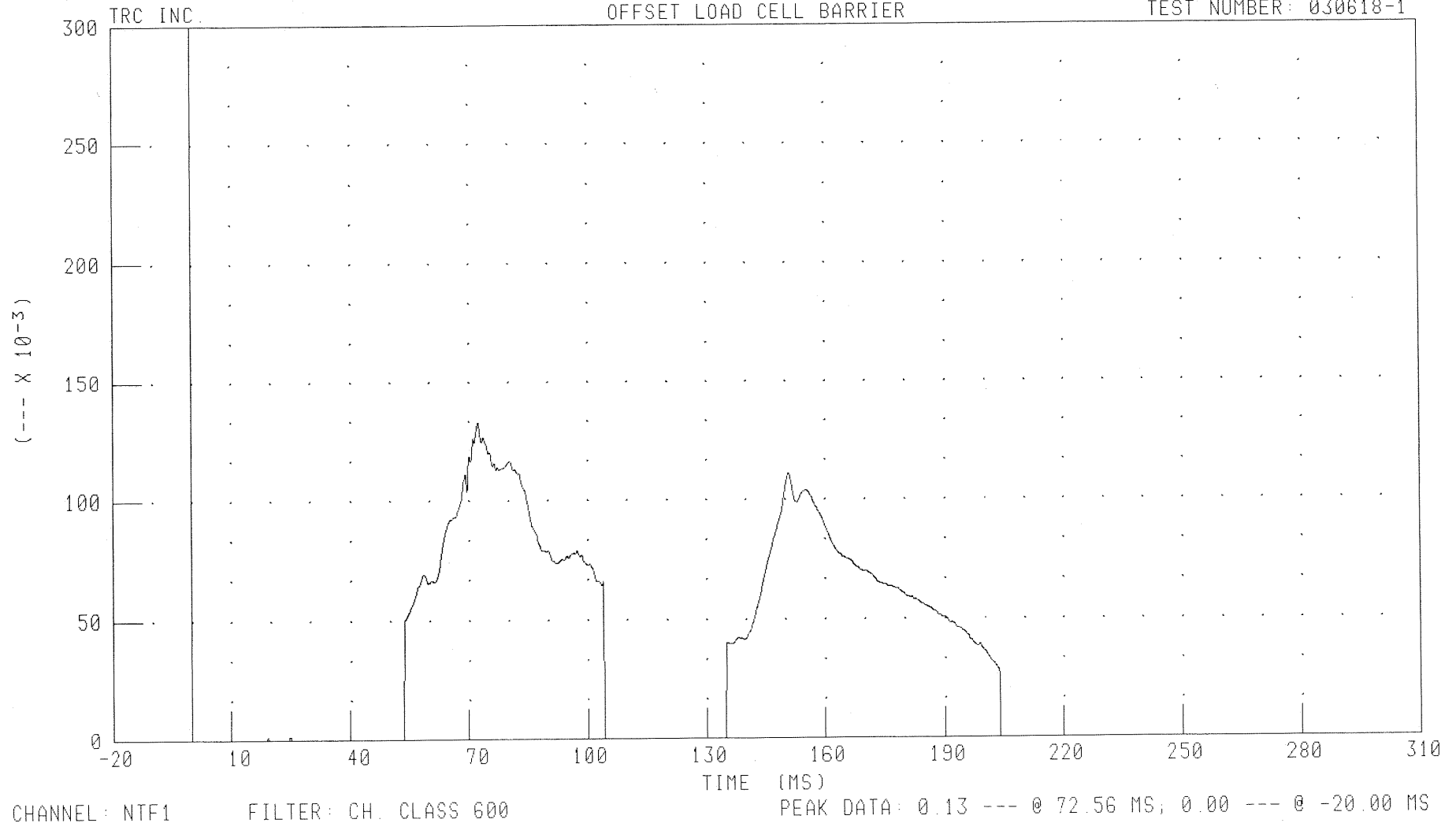
030618-1

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

DRIVER NIJ TENSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-18

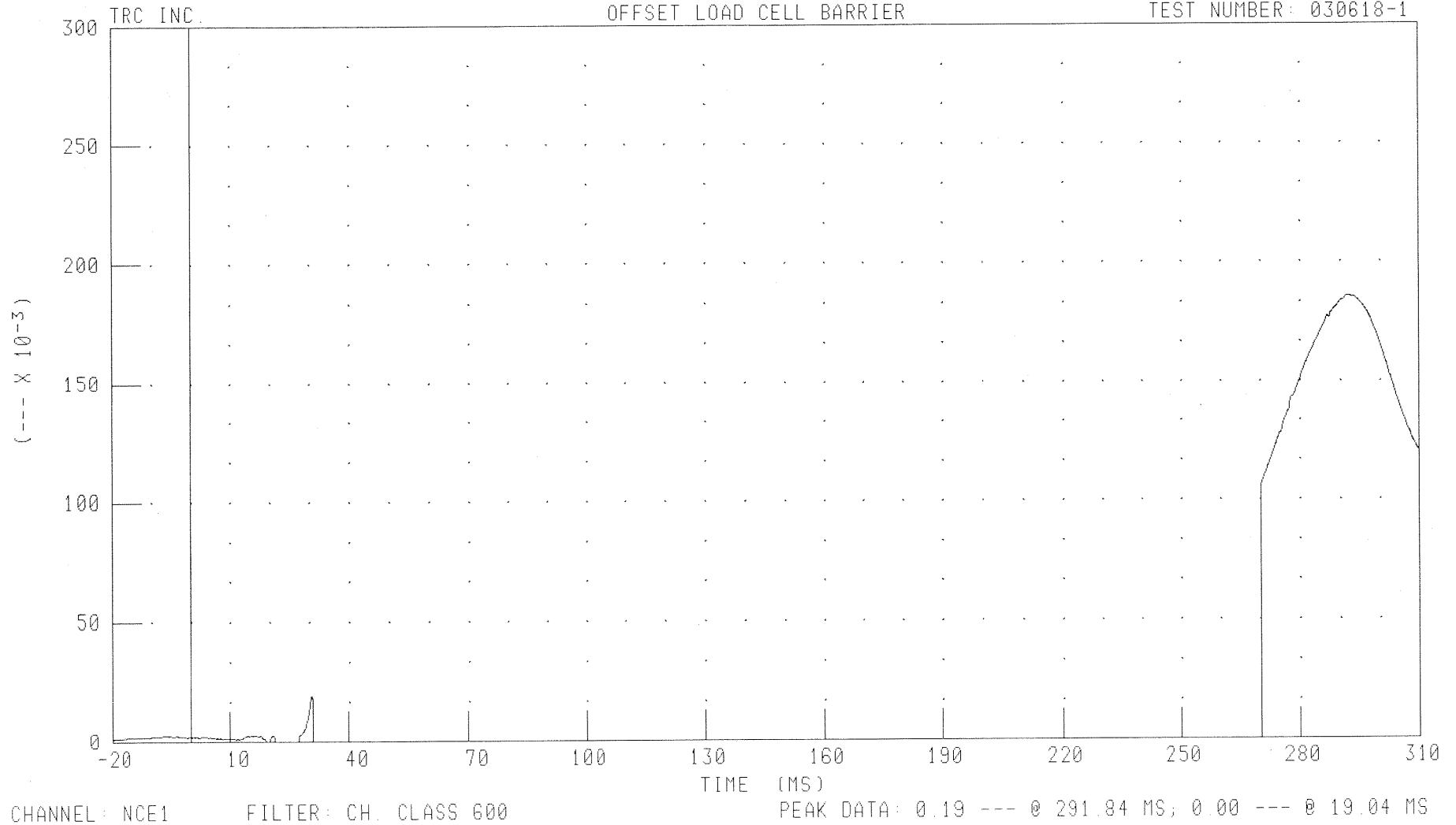
030618-1

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

DRIVER NIJ COMPRESSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-19

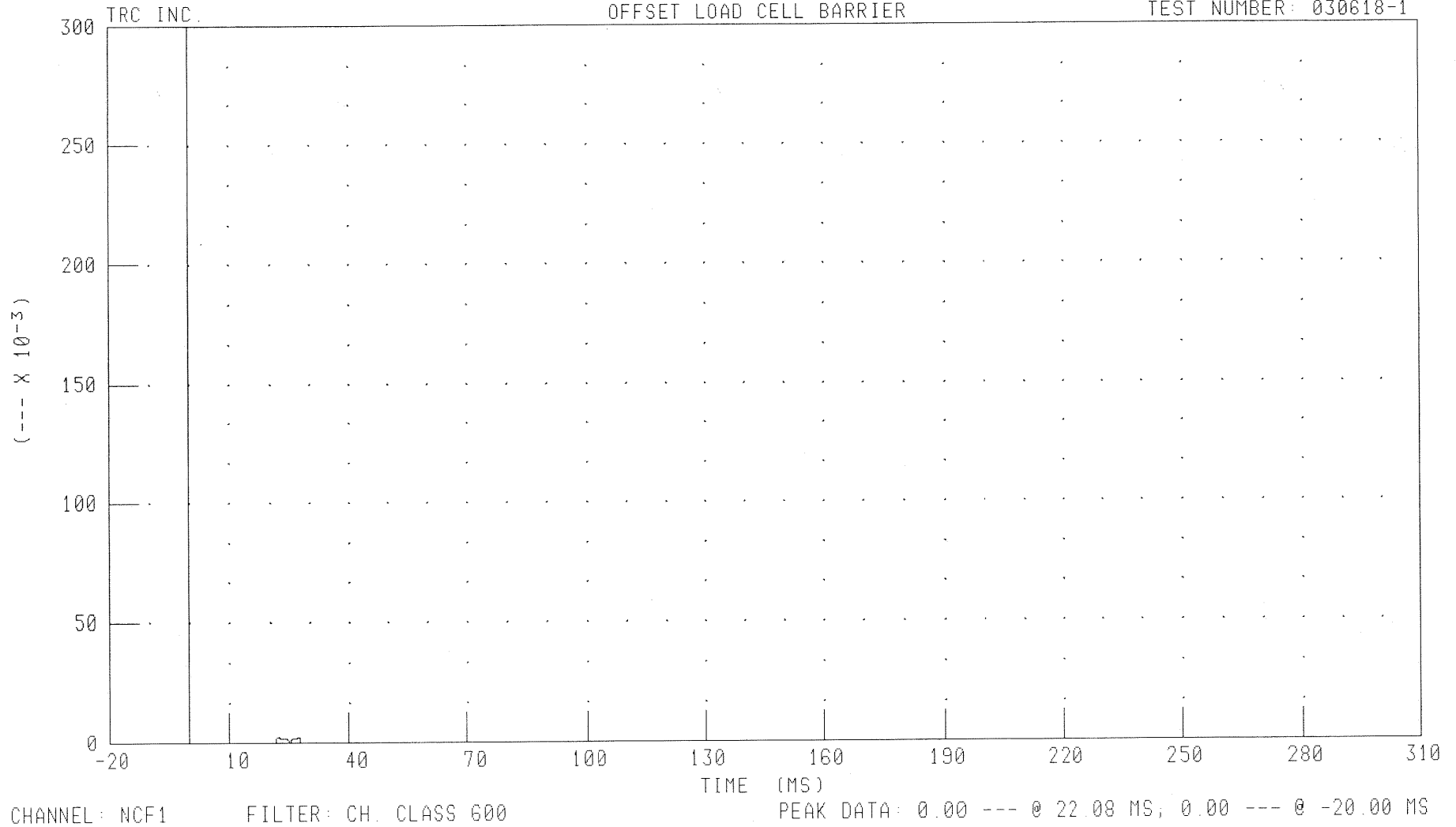
030618-1

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

DRIVER NIJ COMPRESSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-20

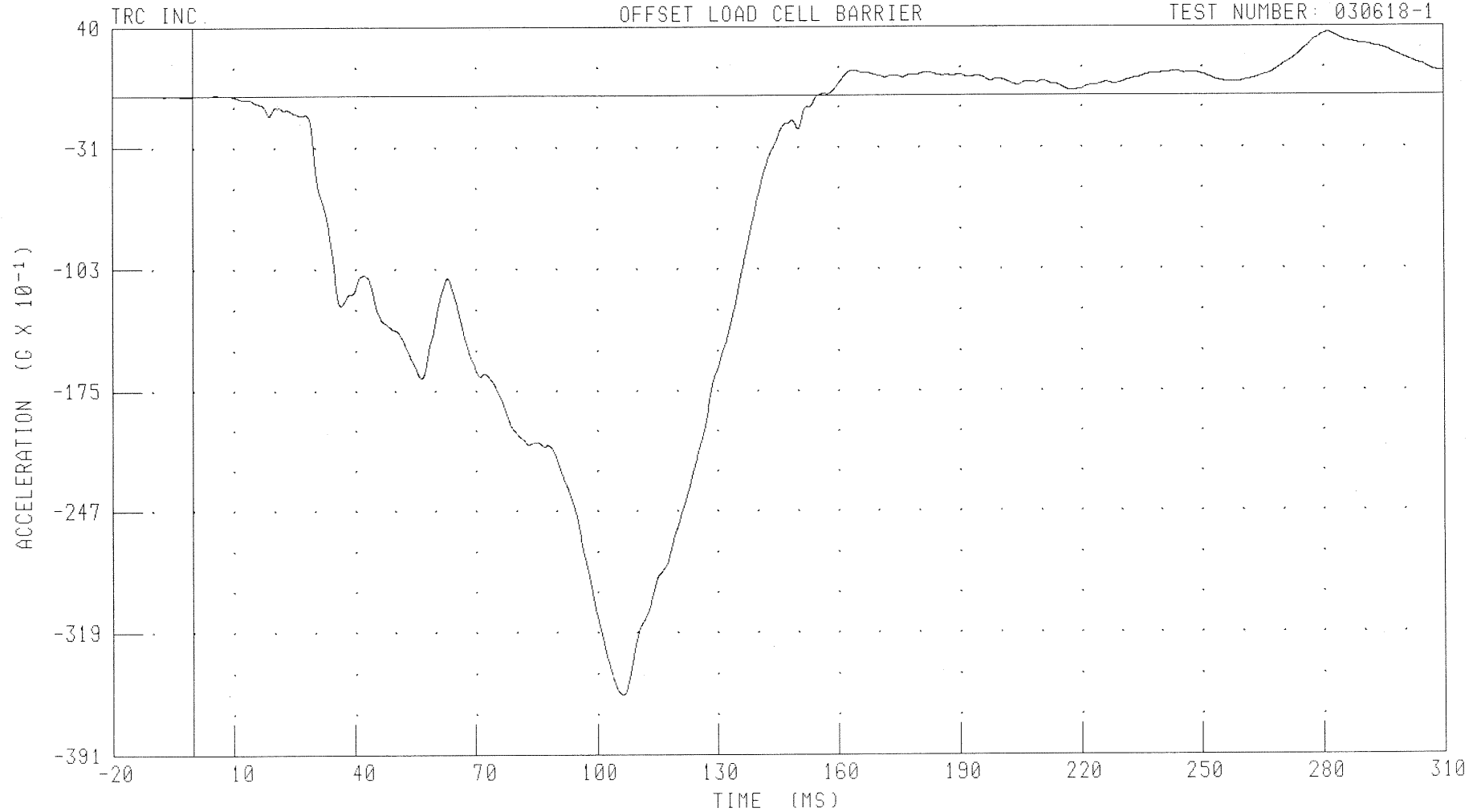
030618-1

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

DRIVER CHEST X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTXG1

FILTER: CH. CLASS 180

PEAK DATA: 3.74 G @ 281.20 MS; -35.60 G @ 106.64 MS

B-21

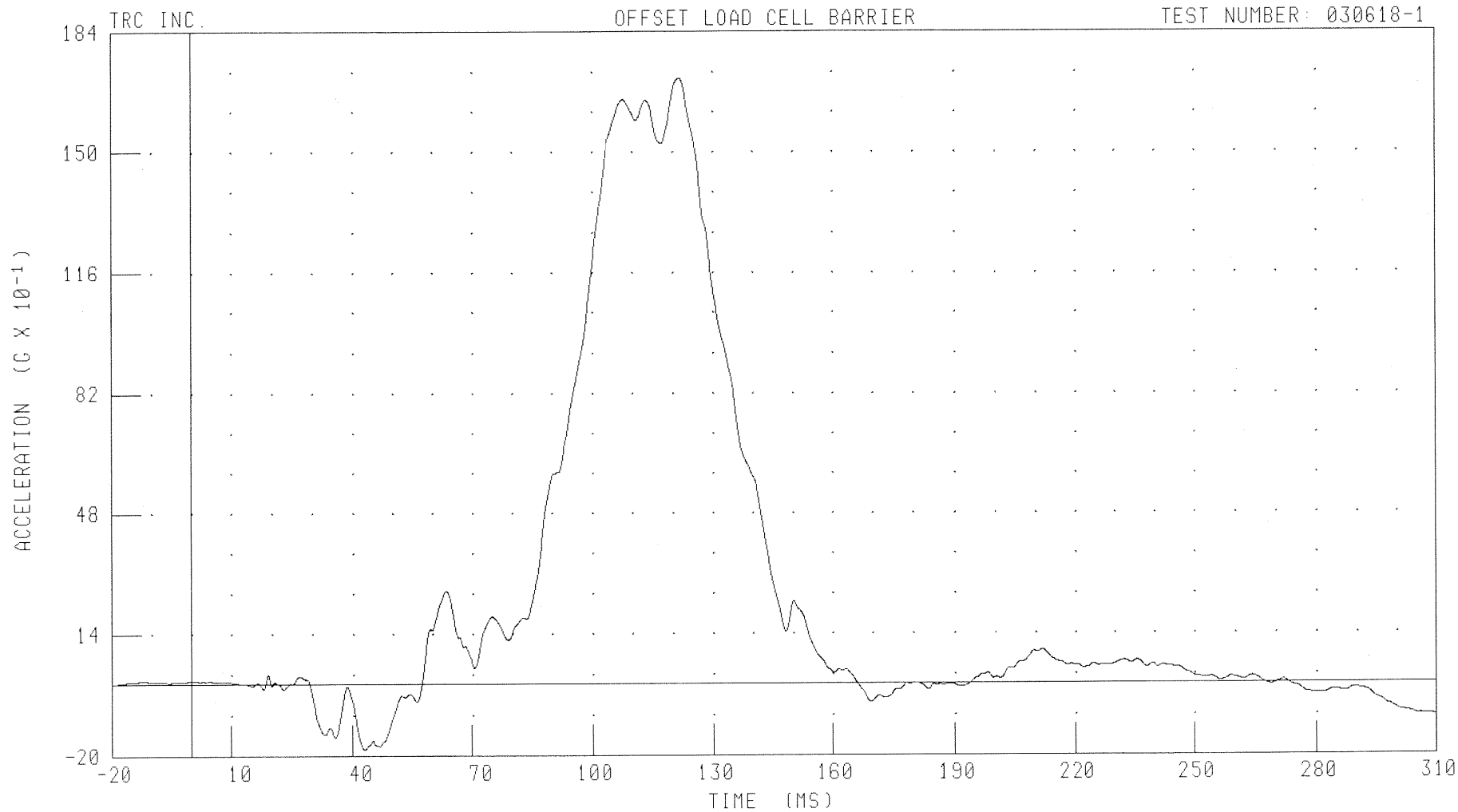
030618-1

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

DRIVER CHEST Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 17.09 G @ 121.76 MS; -1.83 G @ 43.04 MS

B-22

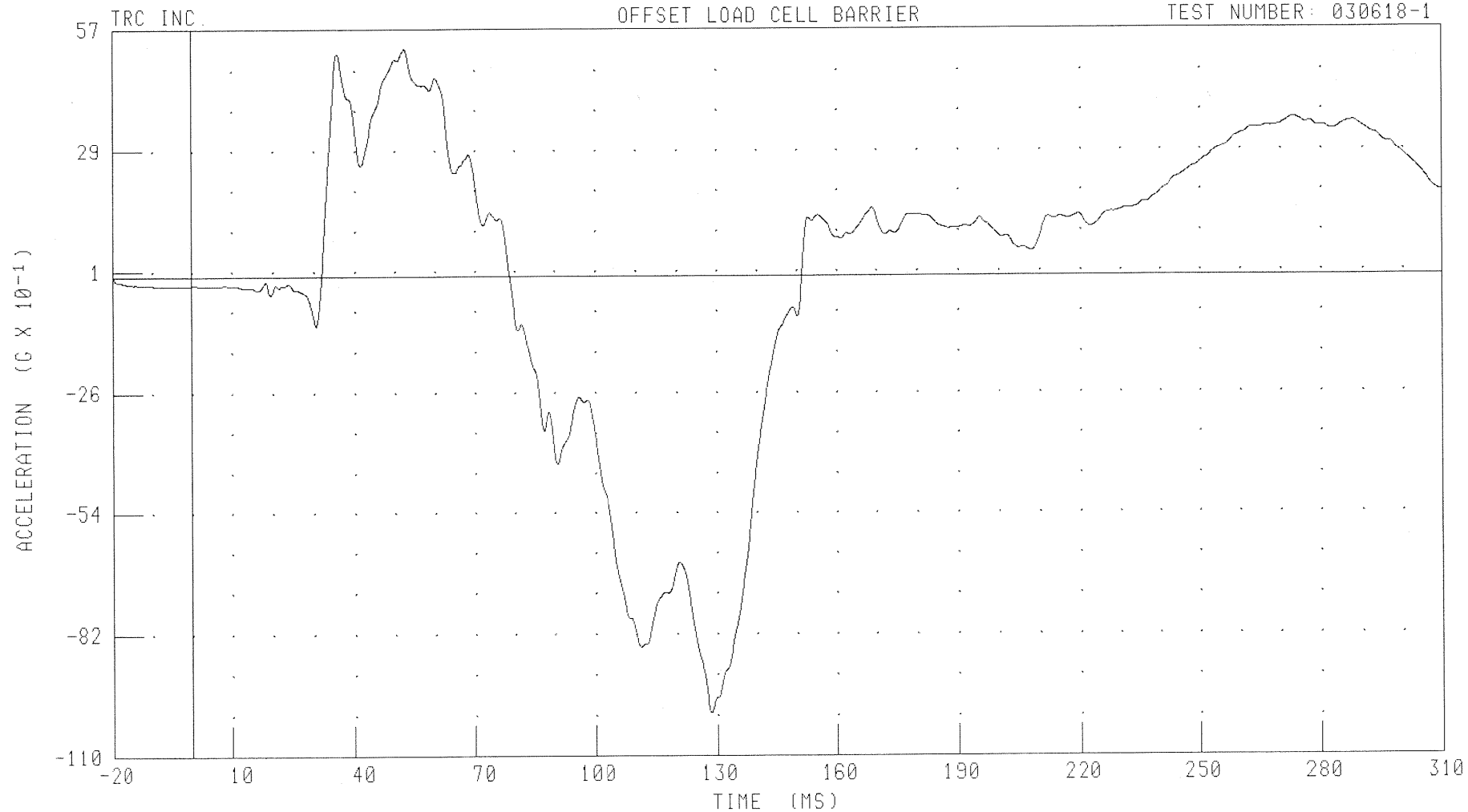
030618-1

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

DRIVER CHEST Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTZG1 FILTER: CH. CLASS 180

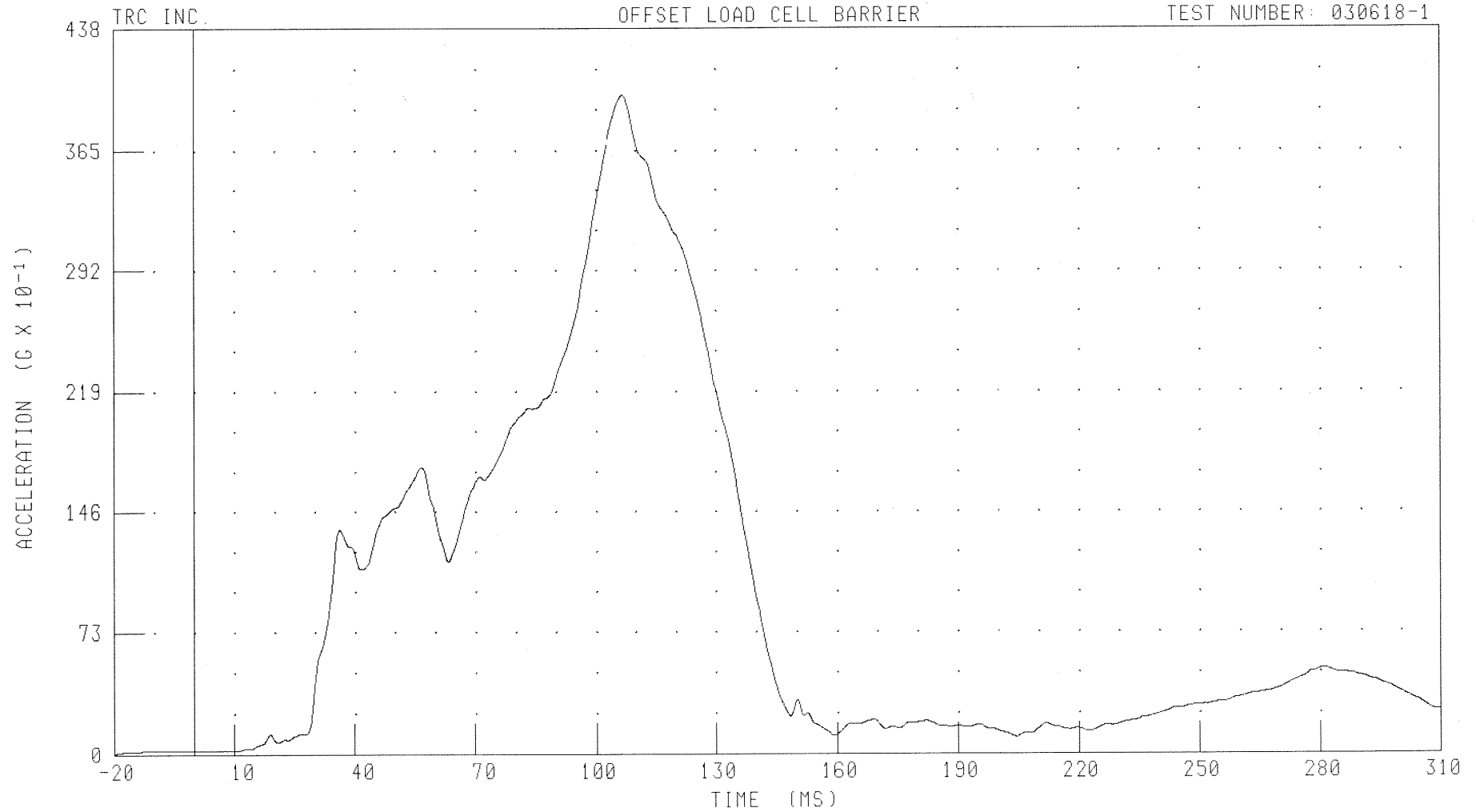
PEAK DATA: 5.25 G @ 52.56 MS; -10.12 G @ 128.56 MS

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

DRIVER CHEST RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 39.85 G @ 106.88 MS; 0.01 G @ -20.00 MS

B-24

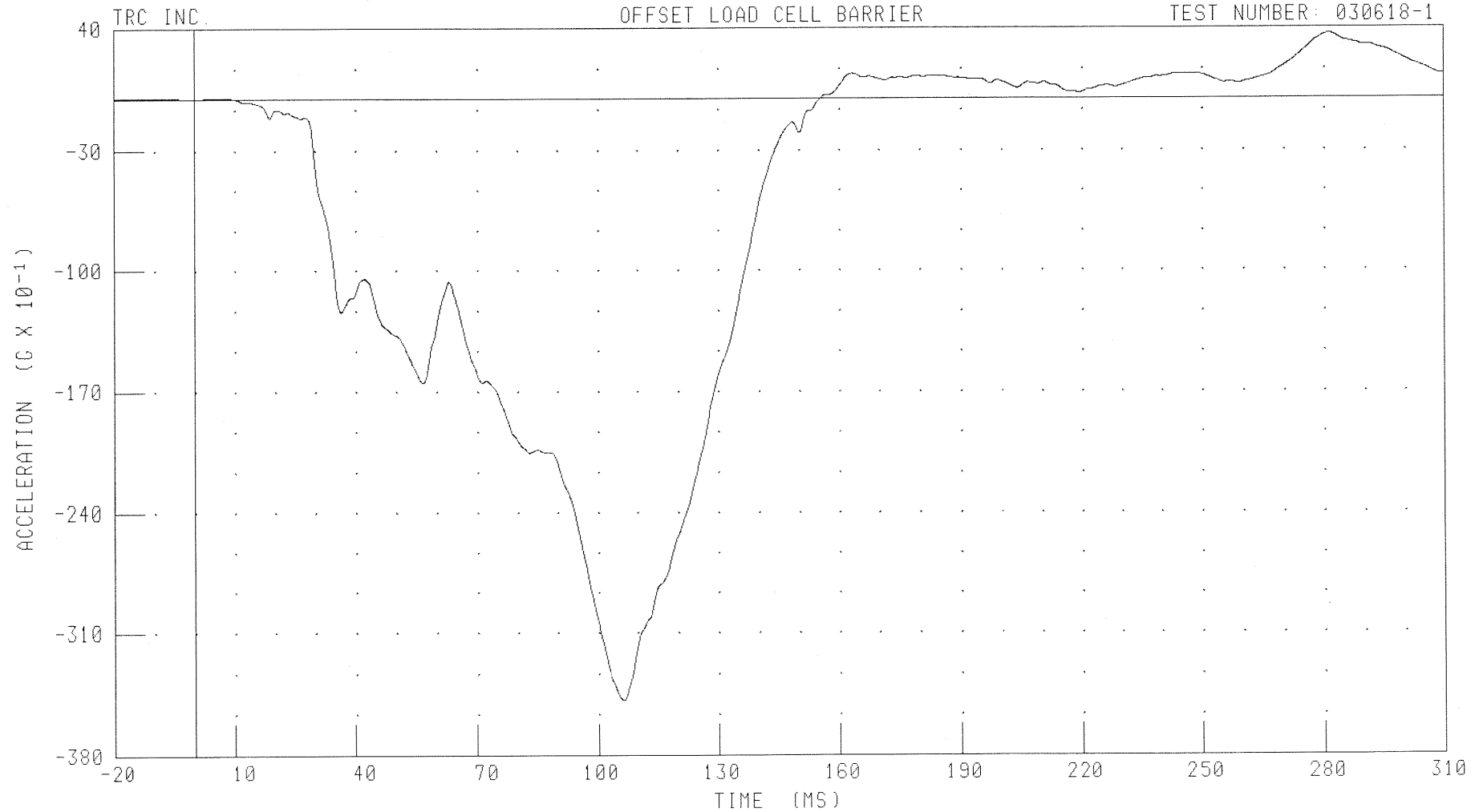
030618-1

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

DRIVER CHEST X-AXIS REDUNDANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTXR1 FILTER: CH. CLASS 180

PEAK DATA: 3.67 G @ 281.36 MS; -34.89 G @ 106.64 MS

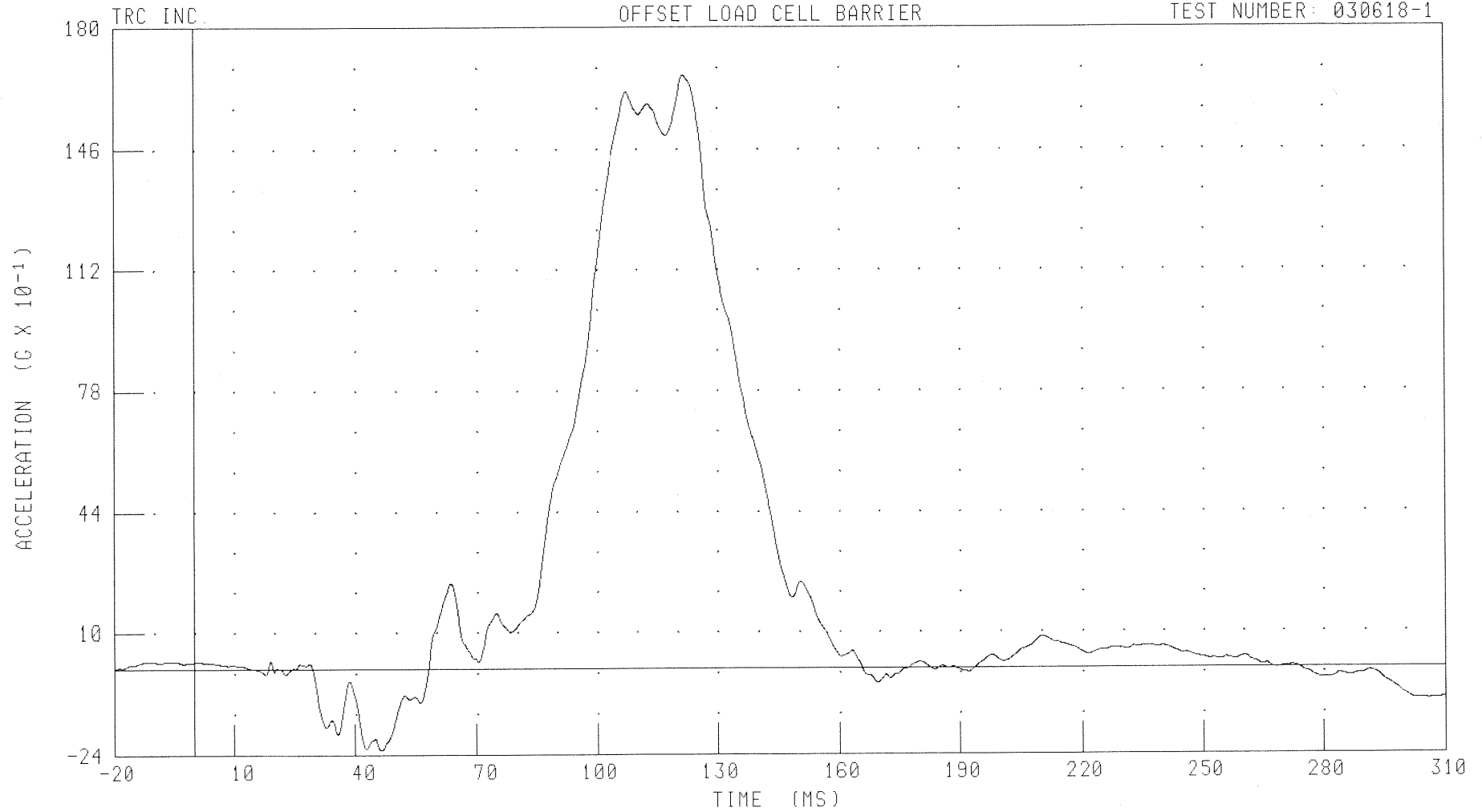
B-25

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTYR1 FILTER: CH. CLASS 180

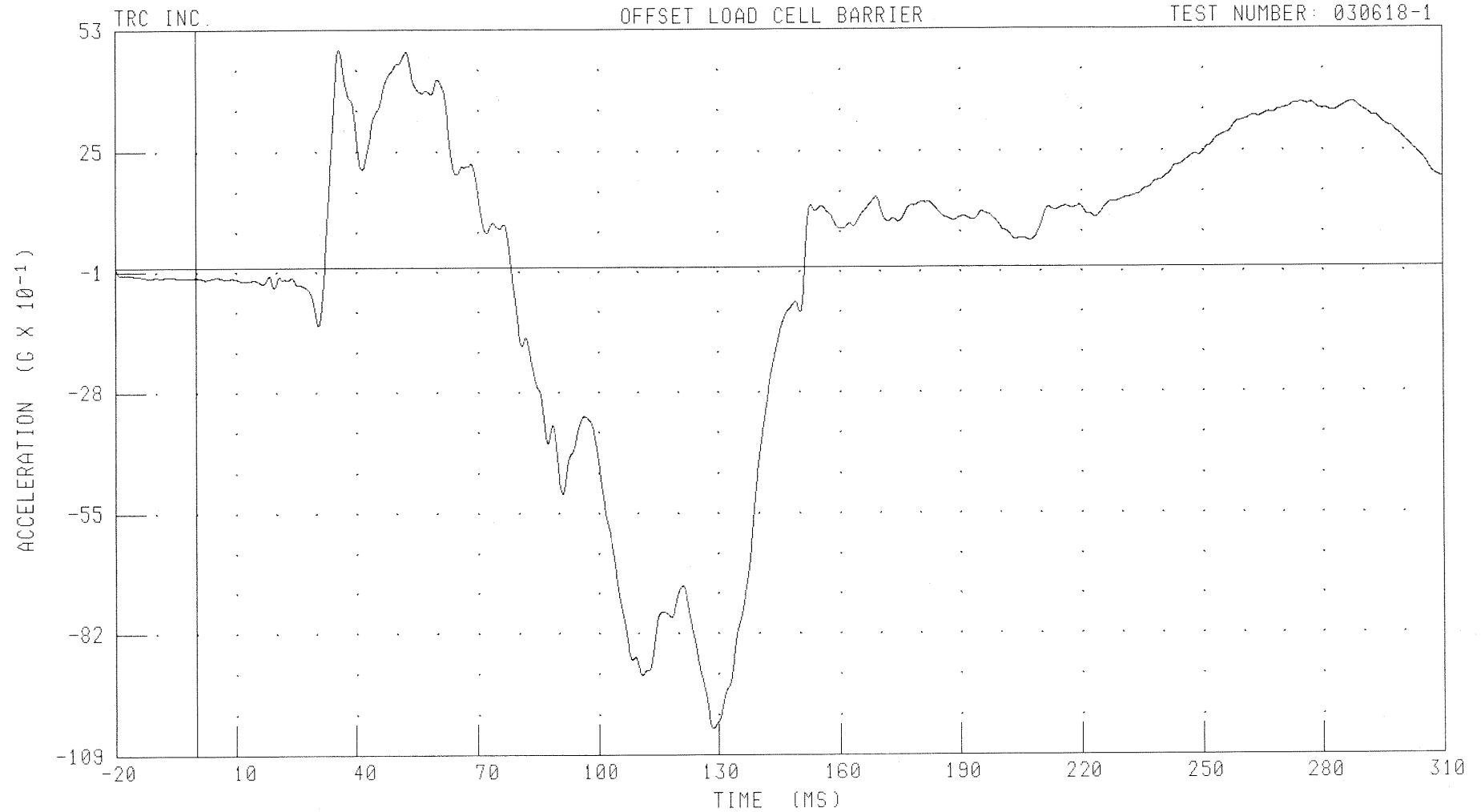
PEAK DATA: 16.66 G @ 121.68 MS; -2.26 G @ 46.48 MS

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

DRIVER CHEST Z-AXIS REDUNDANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTZR1 FILTER: CH. CLASS 180

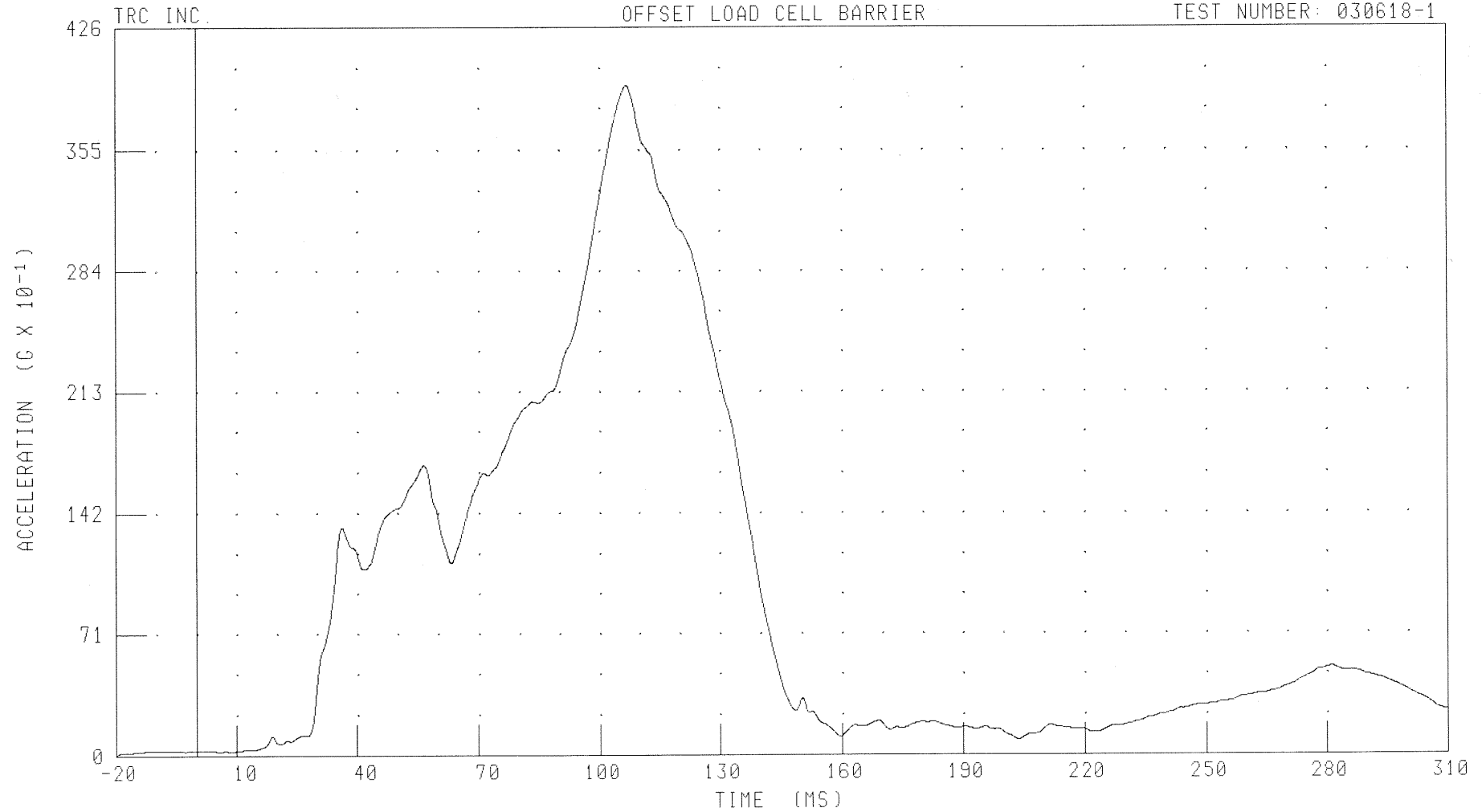
PEAK DATA: 4.85 G @ 35.84 MS; -10.32 G @ 128.72 MS

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

DRIVER CHEST REDUNDANT RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTR1 FILTER: CH. CLASS 180

PEAK DATA: 39.21 G @ 106.96 MS; 0.01 G @ -20.00 MS

B-28

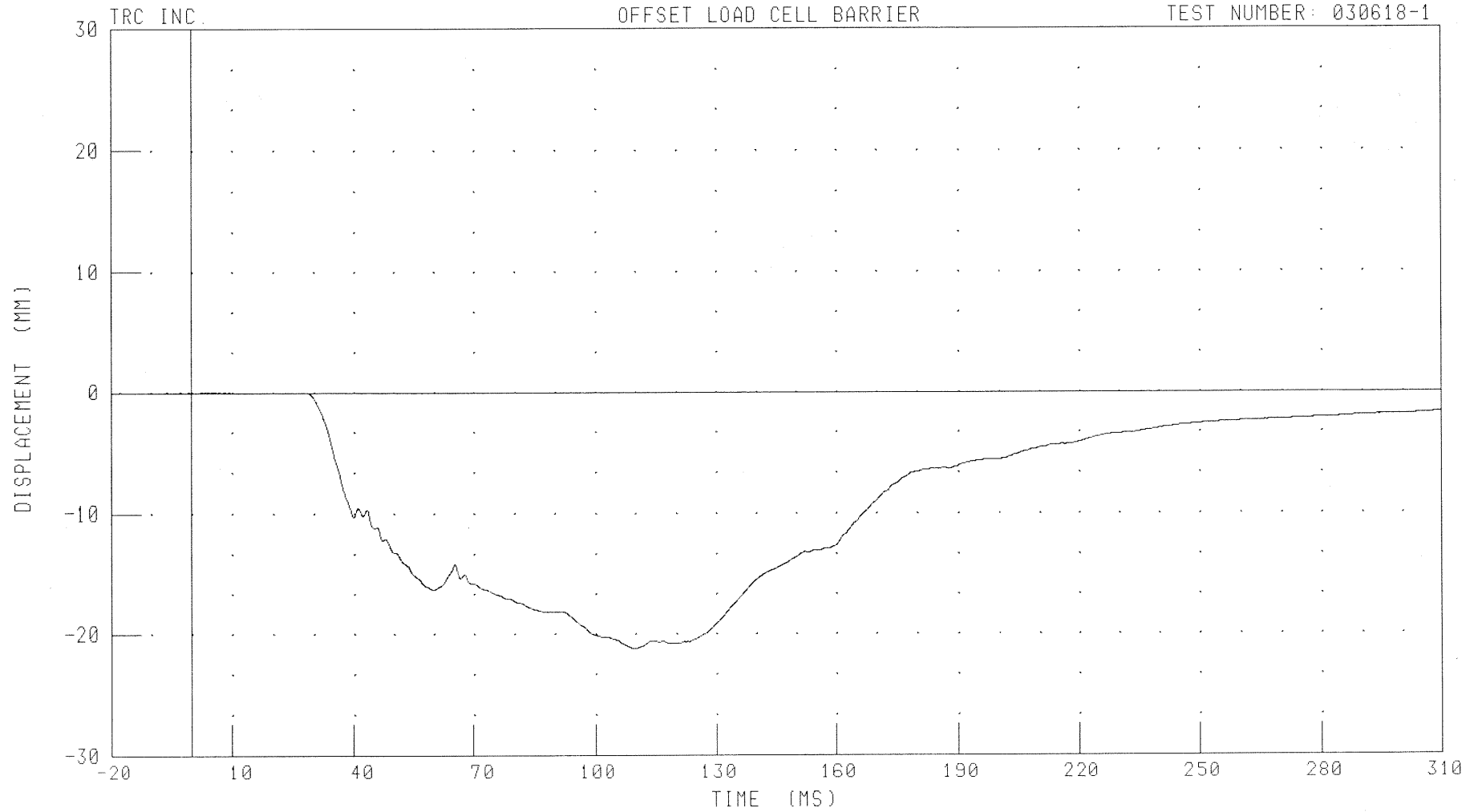
030618-1

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

DRIVER CHEST DEFLECTION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTXD1 FILTER: CH. CLASS 600

PEAK DATA: 0.01 MM @ 2.48 MS, -21.22 MM @ 109.44 MS

B-29

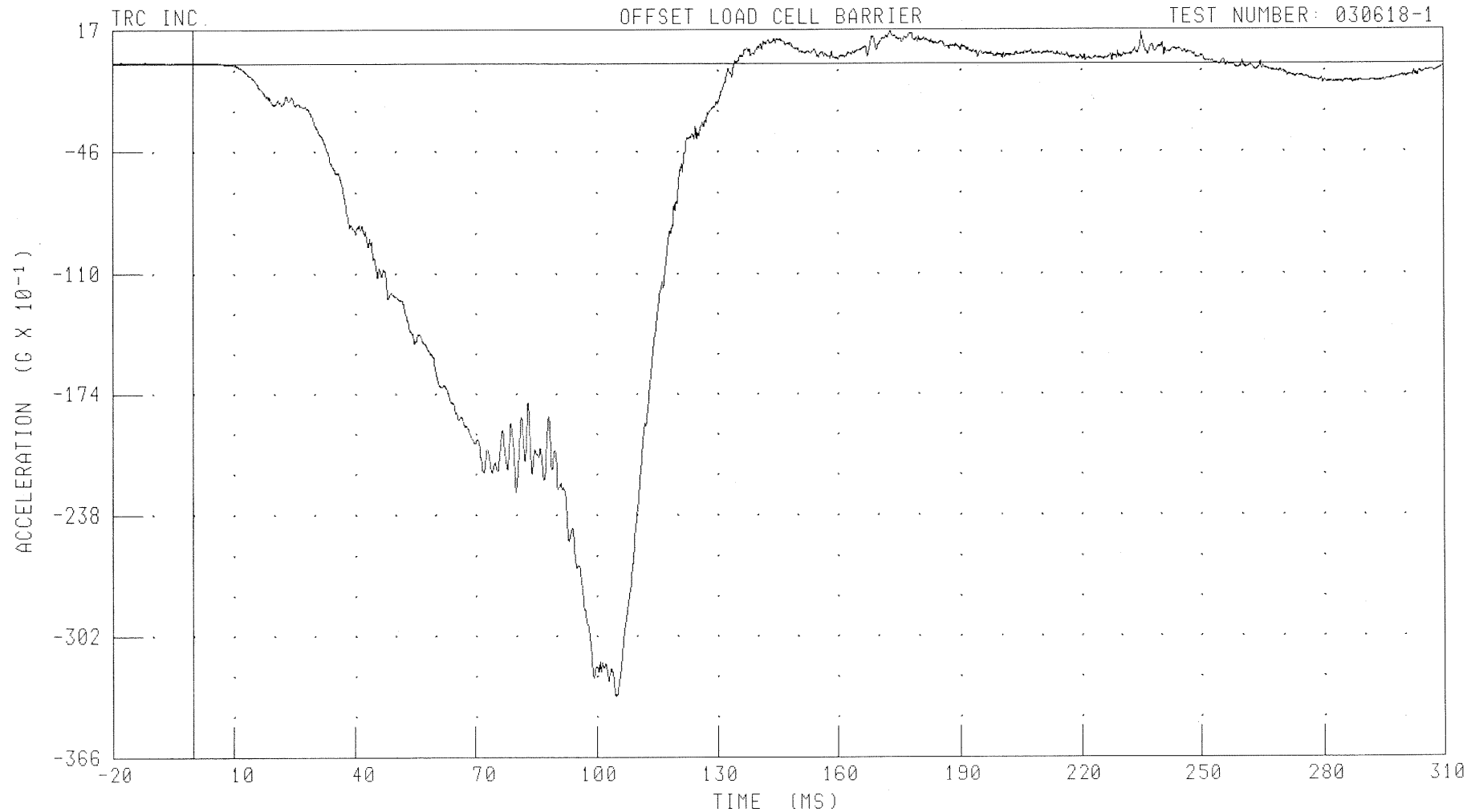
030618-1

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

DRIVER PELVIS X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PEVXG1 FILTER: CH. CLASS 1000

PEAK DATA: 1.71 G @ 173.04 MS; -33.38 G @ 104.88 MS

B-30

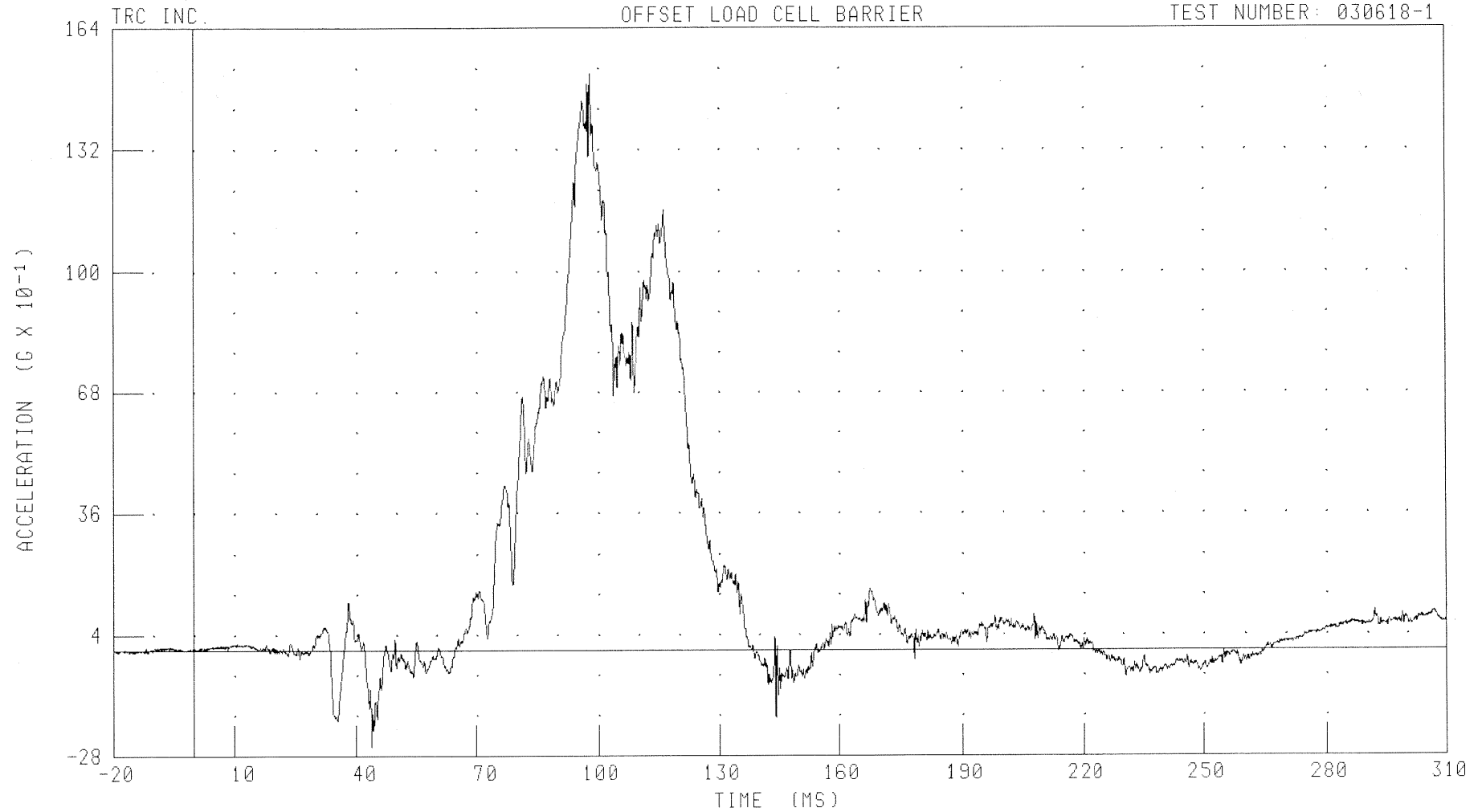
030618-1

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

DRIVER PELVIS Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

PEAK DATA: 15.18 G @ 98.00 MS, -2.55 G @ 43.76 MS

B-31

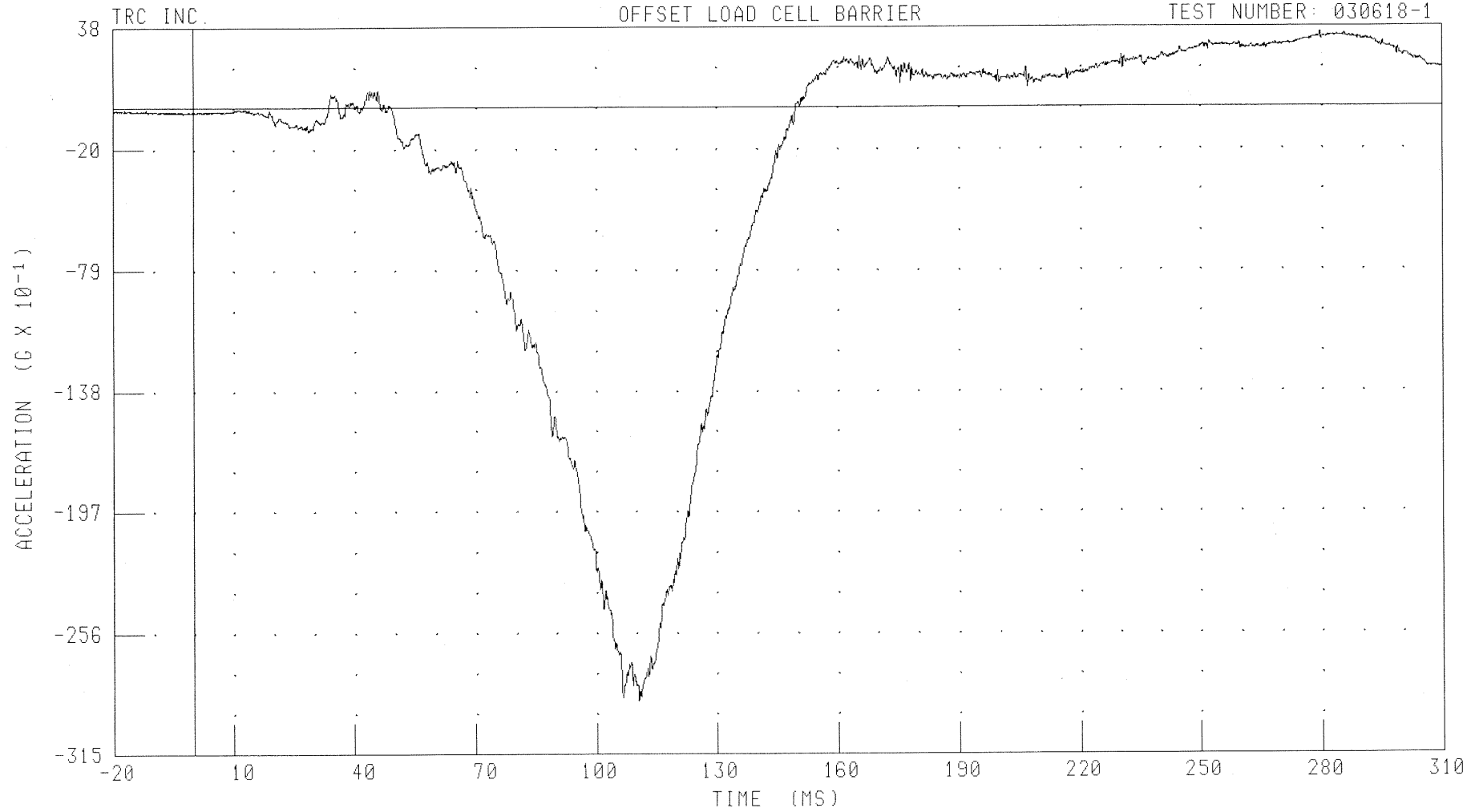
030618-1

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

DRIVER PELVIS Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

PEAK DATA: 3.61 G @ 279.52 MS, -28.89 G @ 110.64 MS

B-32

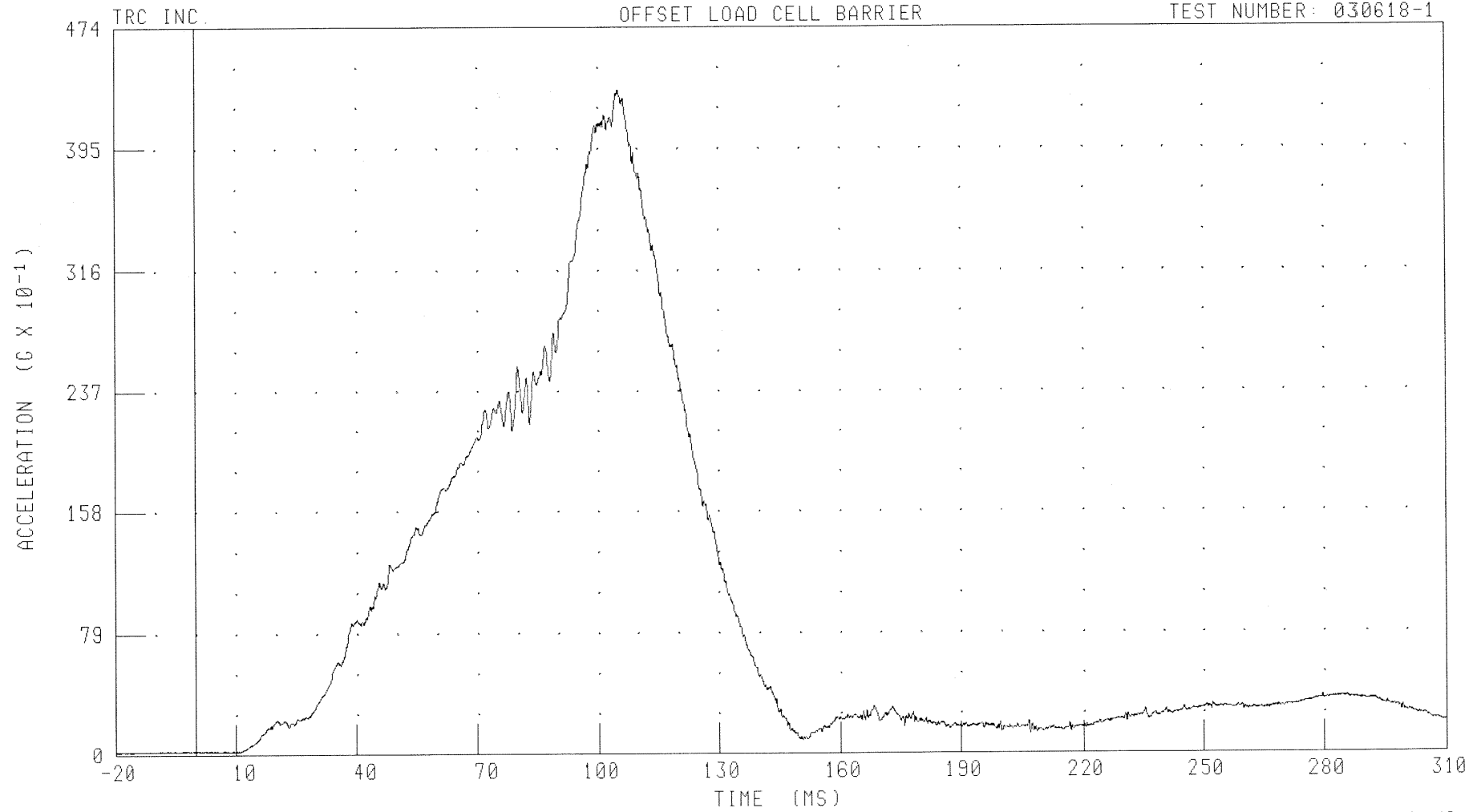
030618-1

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

DRIVER PELVIS RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PEVRG1 FILTER: CH. CLASS 1000

PEAK DATA: 43.27 G @ 105.36 MS; 0.11 G @ -19.20 MS

B-33

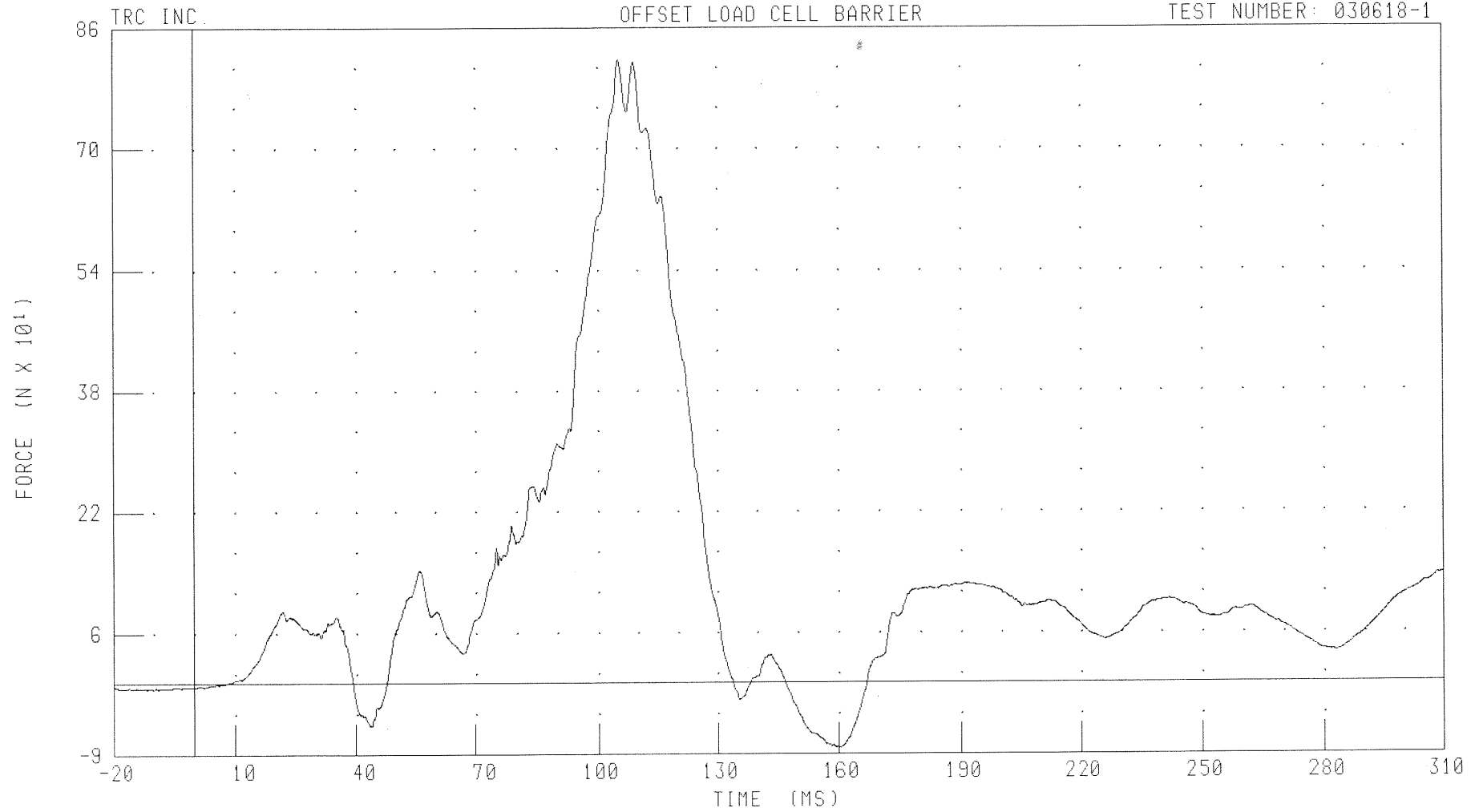
030618-1

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

DRIVER LEFT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMXF1 FILTER: CH. CLASS 600

B-34

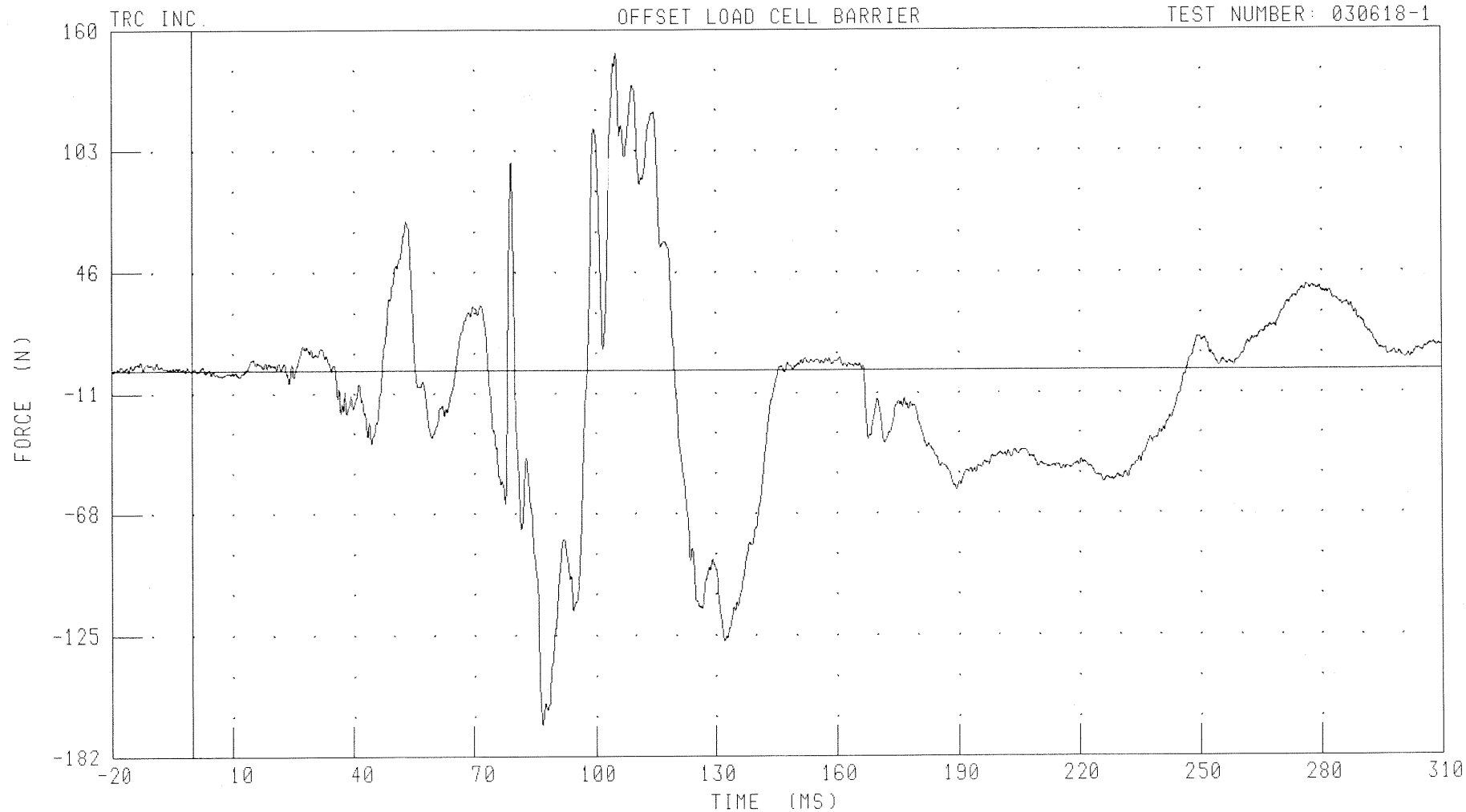
030618-1

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

DRIVER LEFT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-35

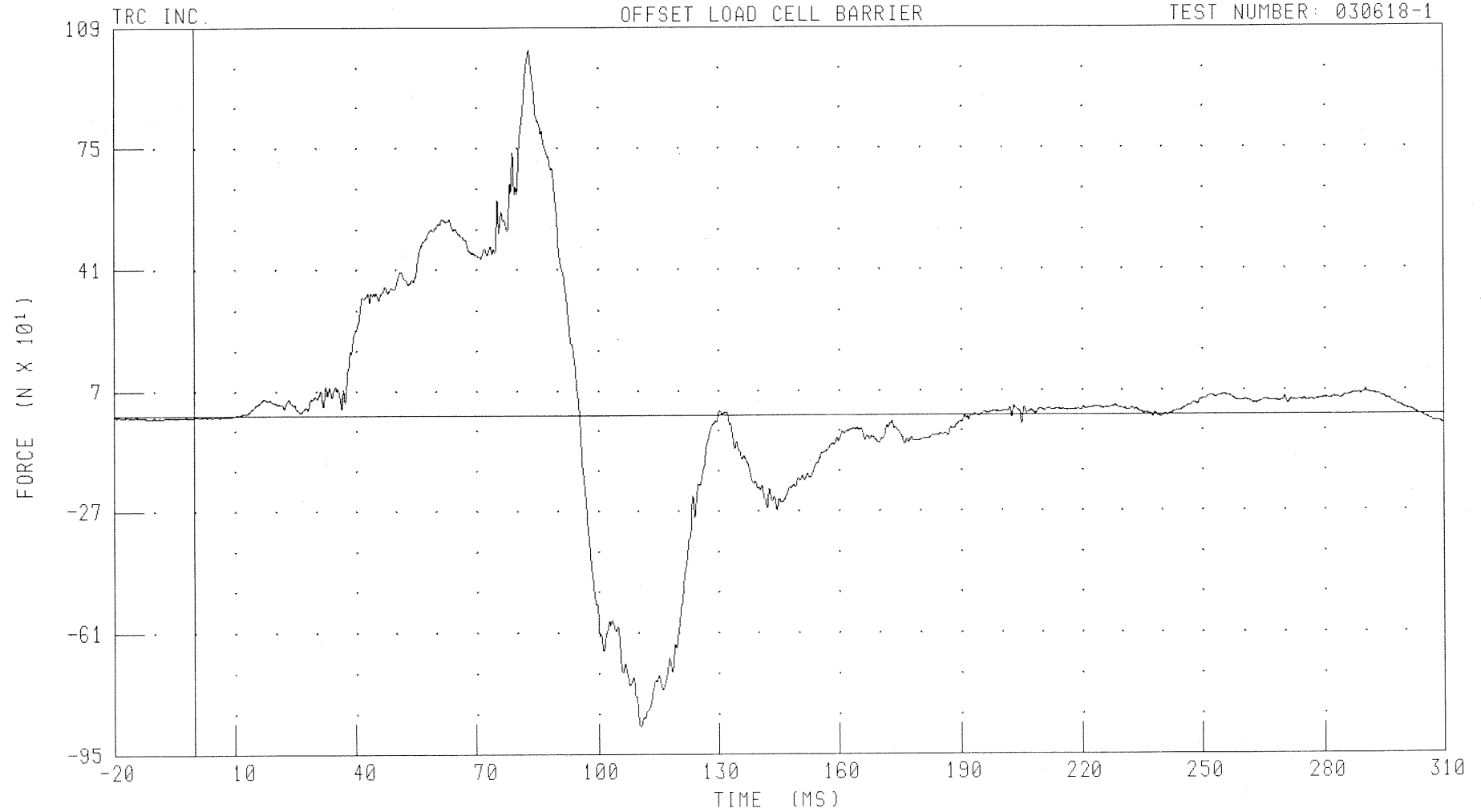
030618-1

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

DRIVER LEFT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMZF1 FILTER: CH. CLASS 600

PEAK DATA: 1026.32 N @ 83.04 MS; -871.33 N @ 110.72 MS

B-36

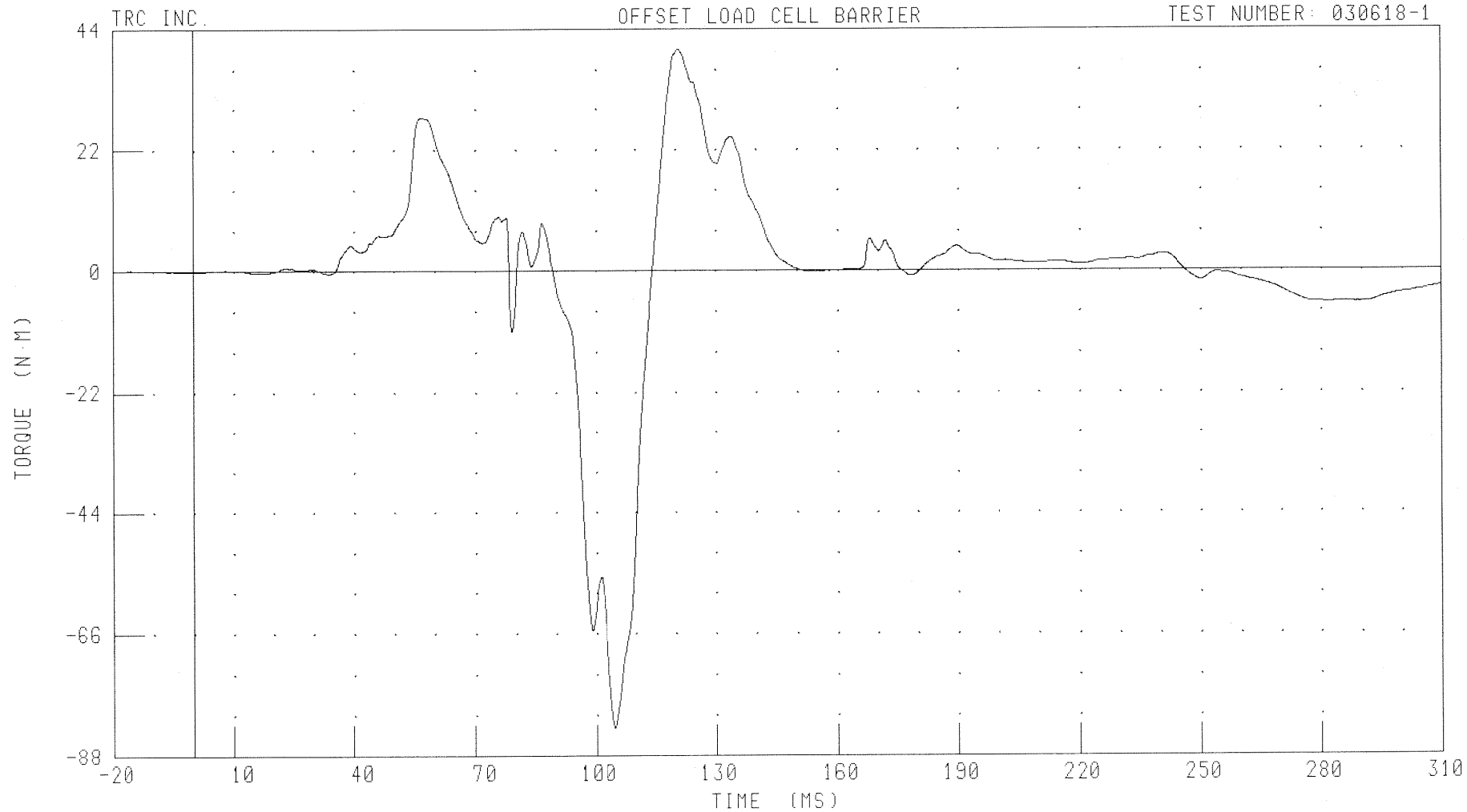
030618-1

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

DRIVER LEFT FEMUR MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMXM1 FILTER: CH. CLASS 600

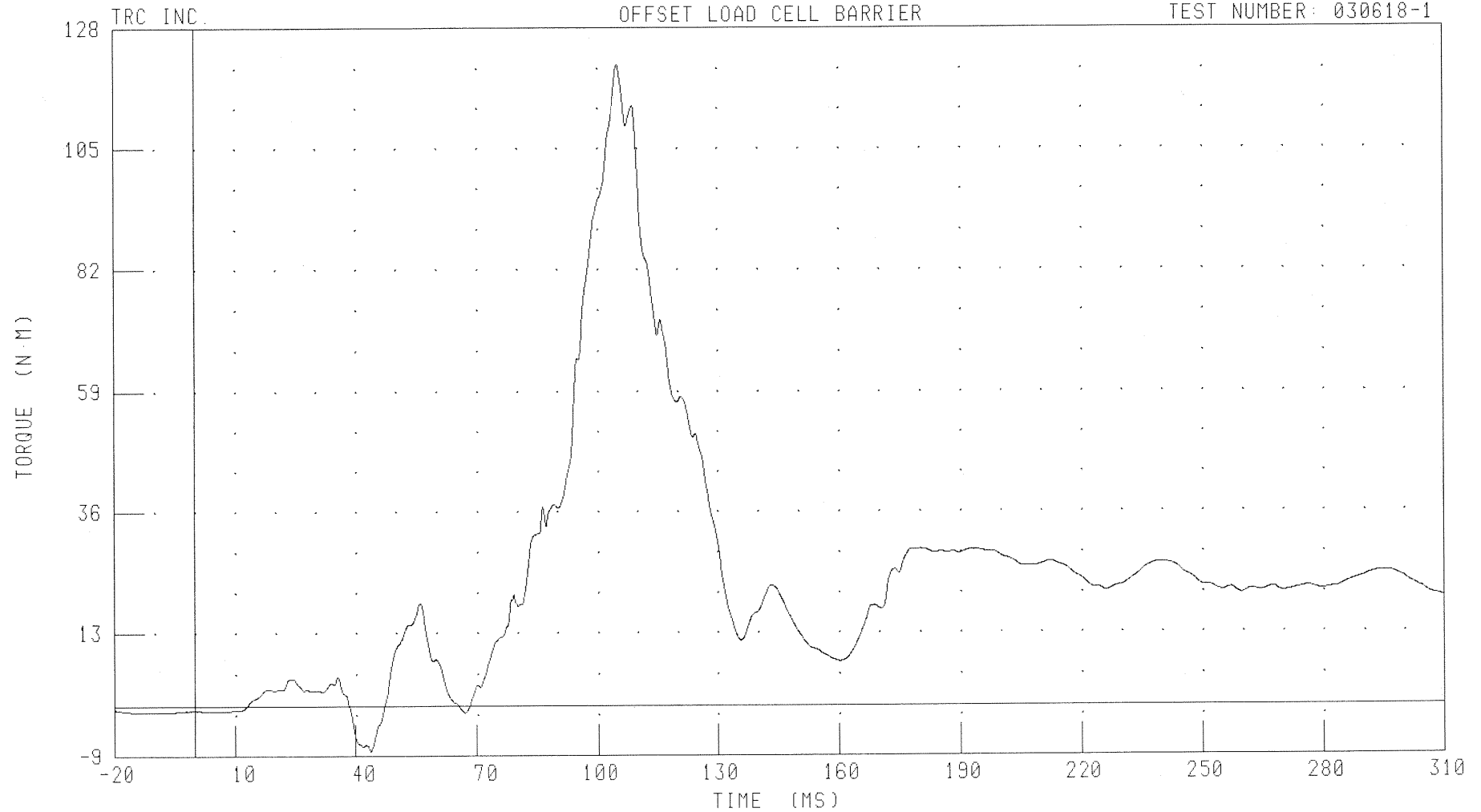
PEAK DATA: 40.36 N·M @ 120.80 MS; -82.90 N·M @ 104.80 MS

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

DRIVER LEFT FEMUR MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMYM1 FILTER: CH. CLASS 600

PEAK DATA: 121.79 N·M @ 105.20 MS; -8.48 N·M @ 43.76 MS

B-38

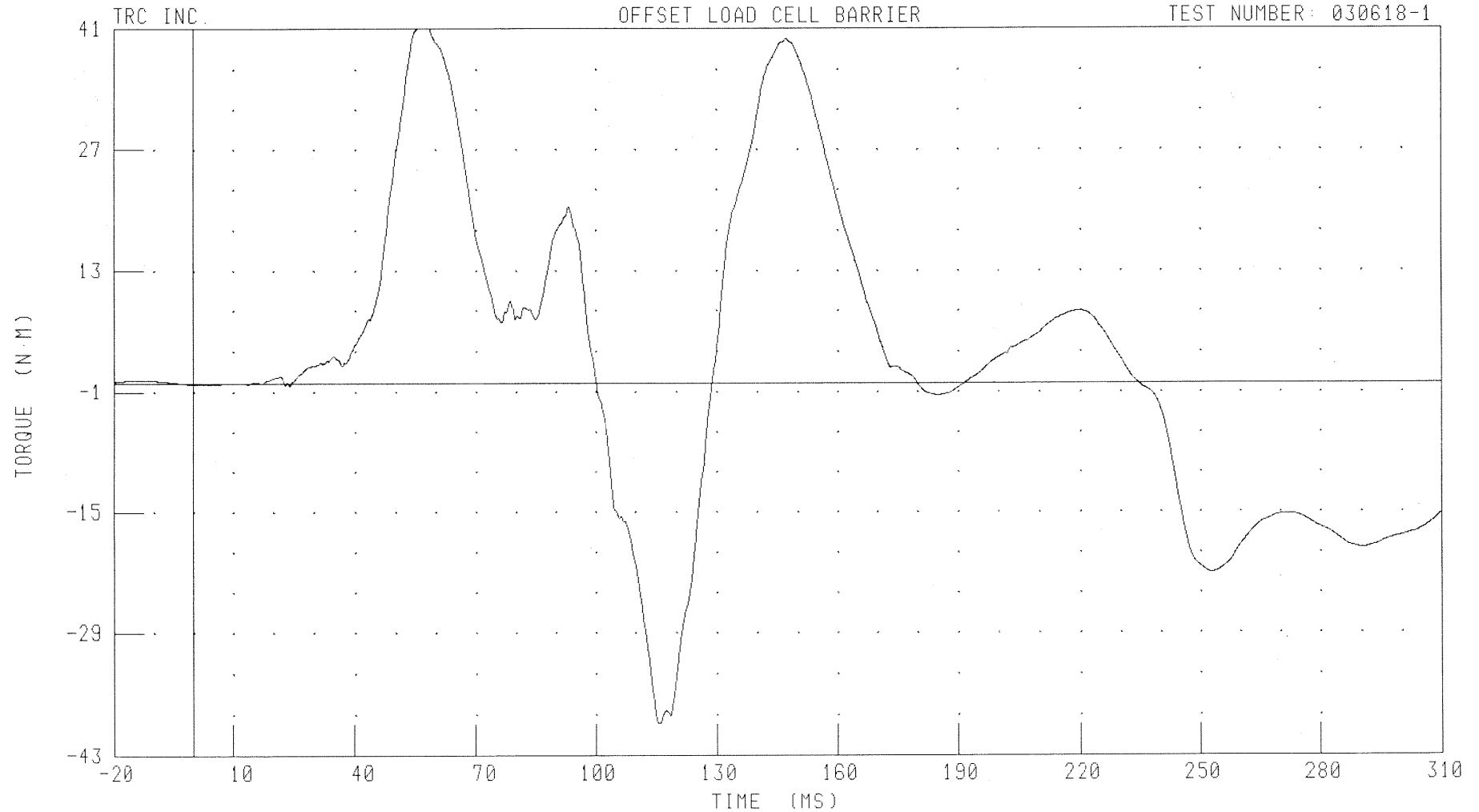
030618-1

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

DRIVER LEFT FEMUR MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMZM1 FILTER: CH. CLASS 600

B-39

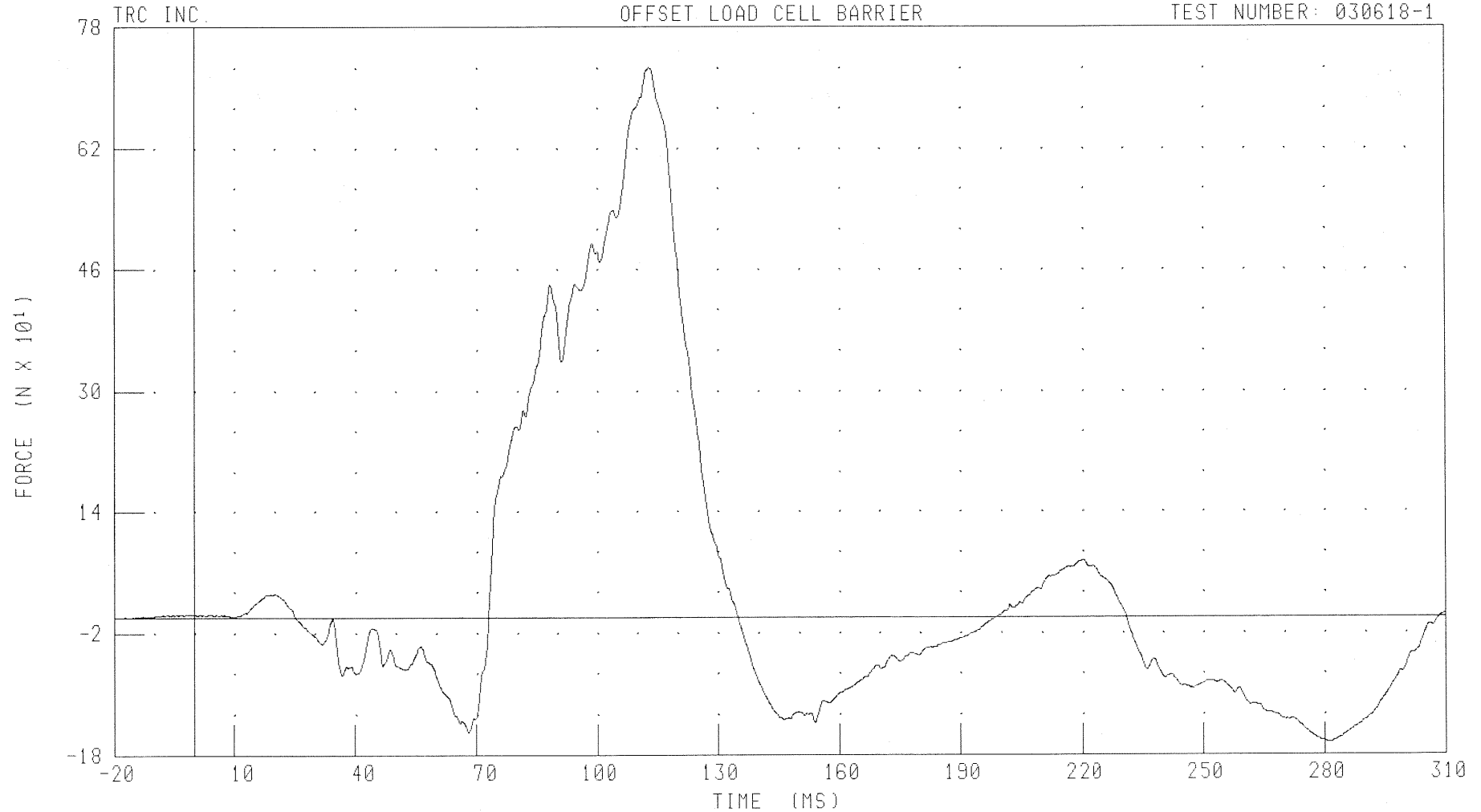
030618-1

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

DRIVER RIGHT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMXF1

FILTER: CH. CLASS 600

PEAK DATA: 727.11 N @ 112.96 MS; -164.40 N @ 281.60 MS

B-40

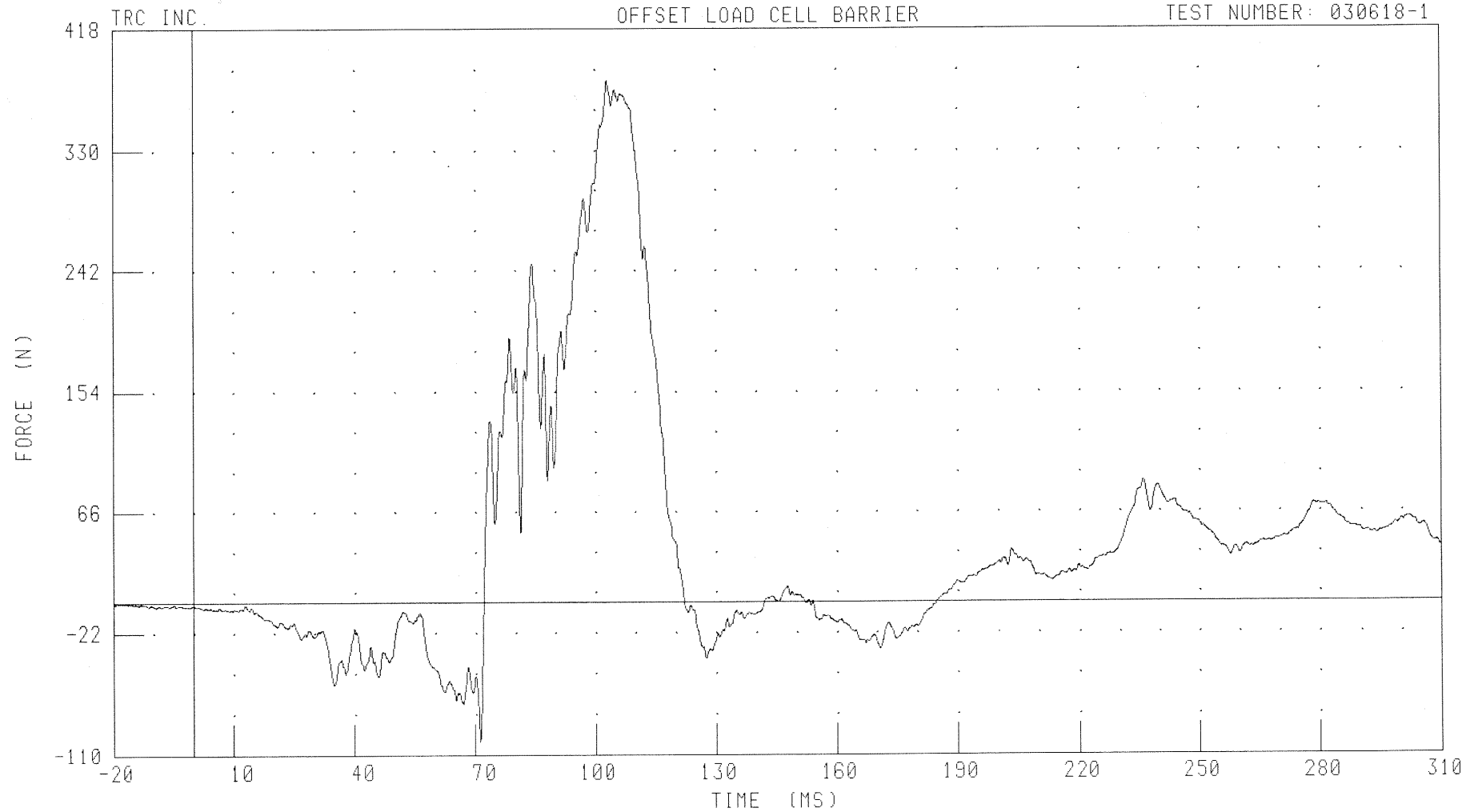
030618-1

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

DRIVER RIGHT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMYF1 FILTER: CH. CLASS 600

PEAK DATA: 381.23 N @ 103.12 MS; -100.11 N @ 71.20 MS

B-41

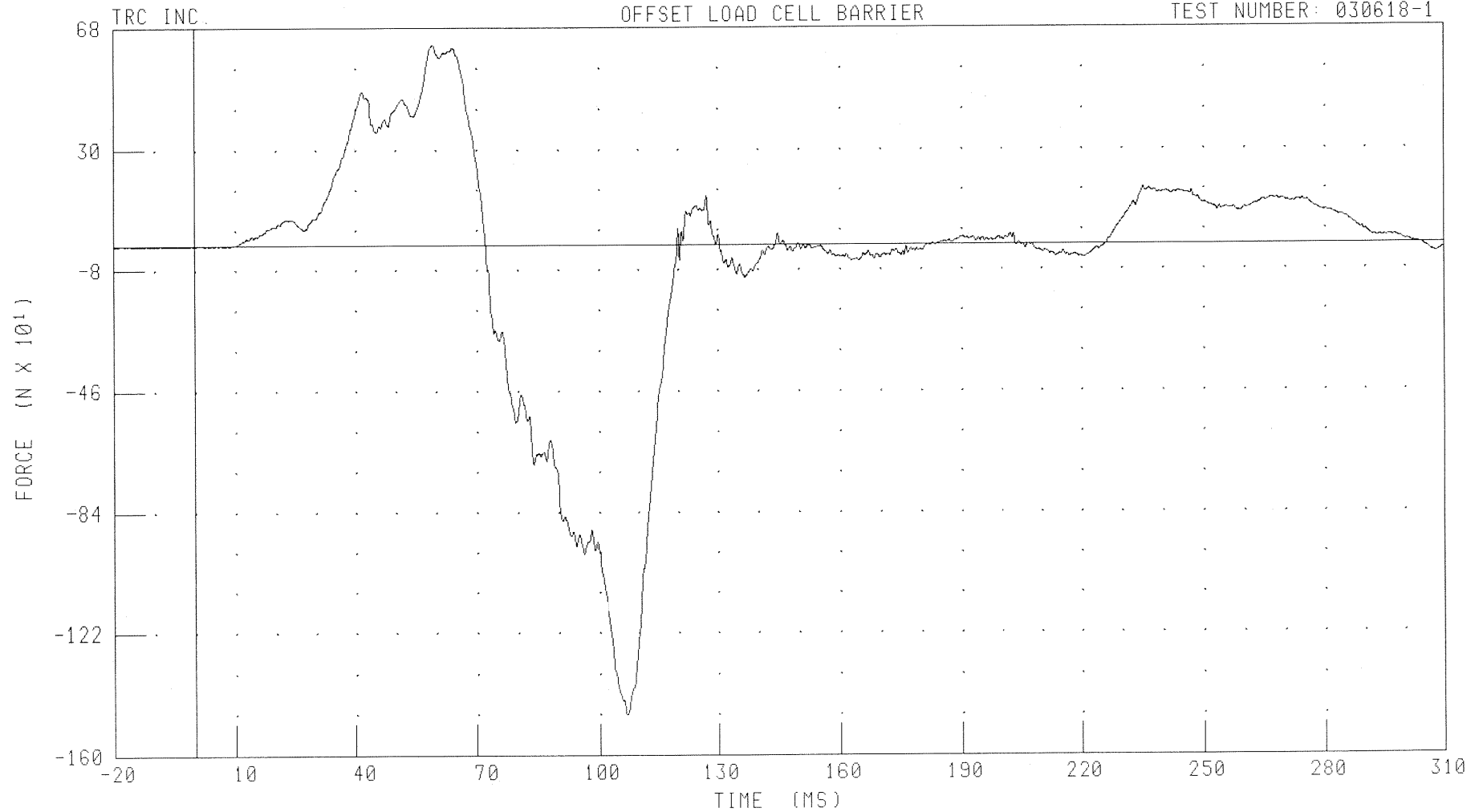
030618-1

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

DRIVER RIGHT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMZFI FILTER: CH. CLASS 600

PEAK DATA: 626.09 N @ 59.36 MS; -1476.14 N @ 106.96 MS

B-42

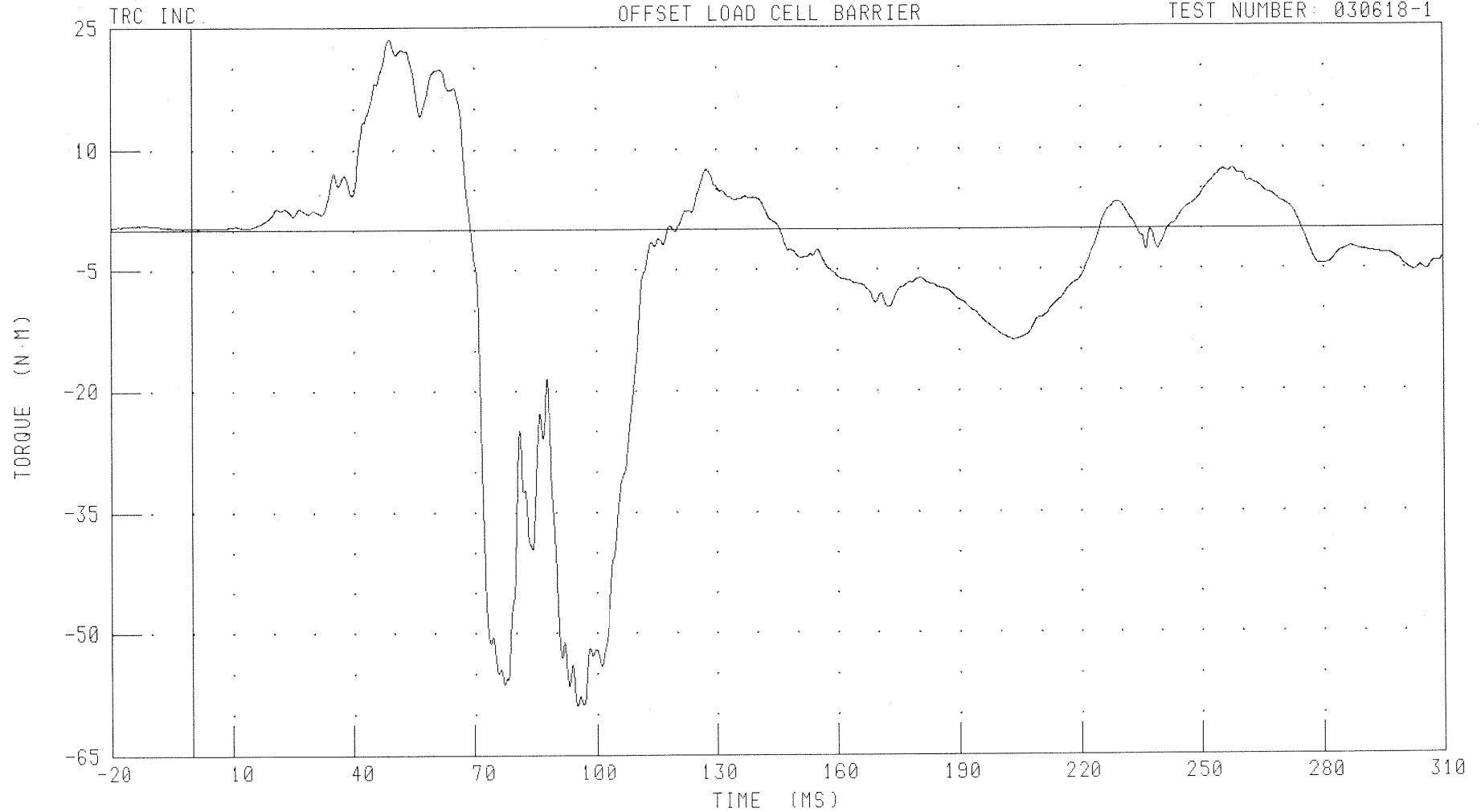
030618-1

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

DRIVER RIGHT FEMUR MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMXM1 FILTER: CH. CLASS 600

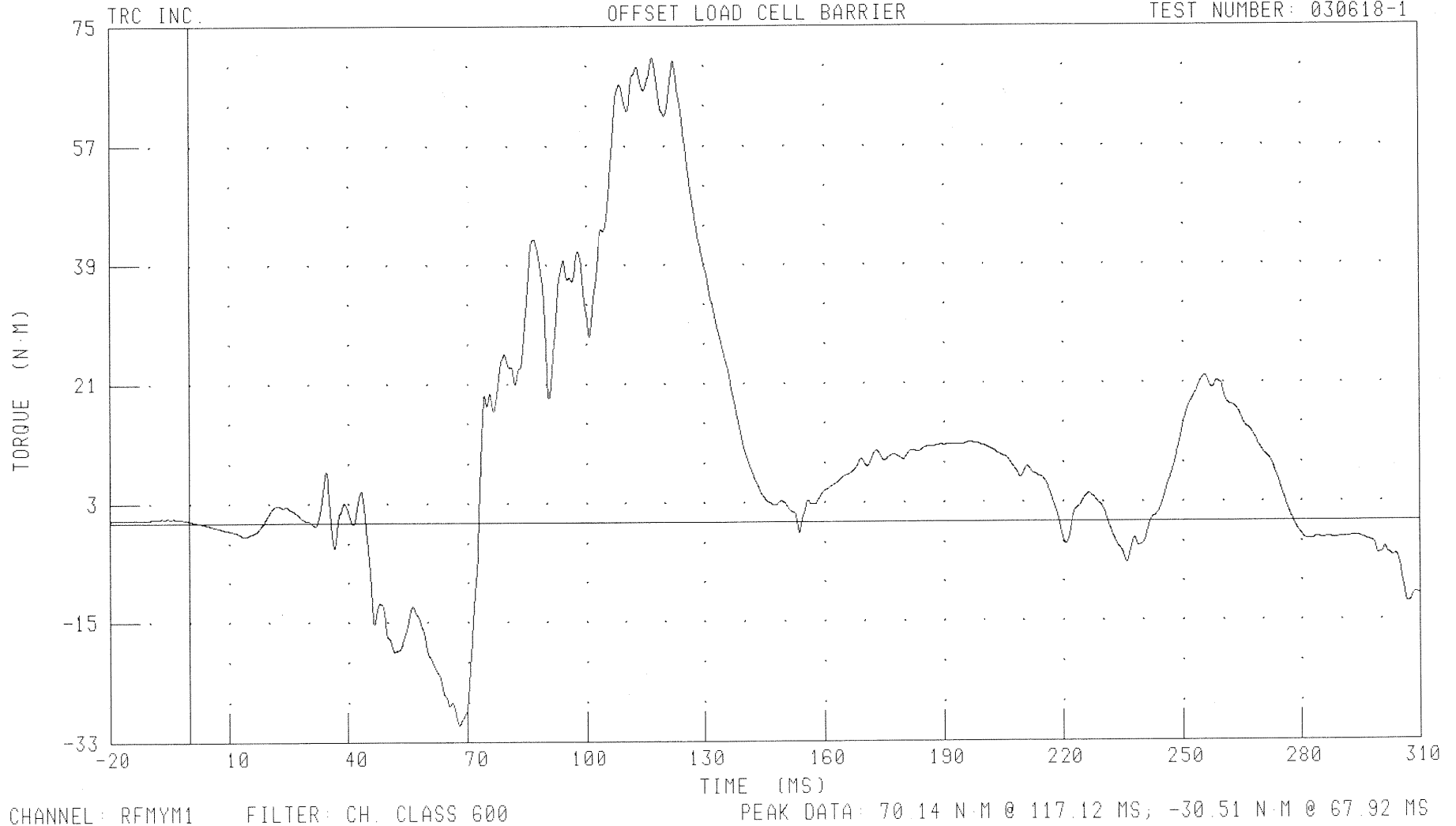
PEAK DATA: 23.55 N·M @ 49.20 MS; -58.94 N·M @ 95.20 MS

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

DRIVER RIGHT FEMUR MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-44

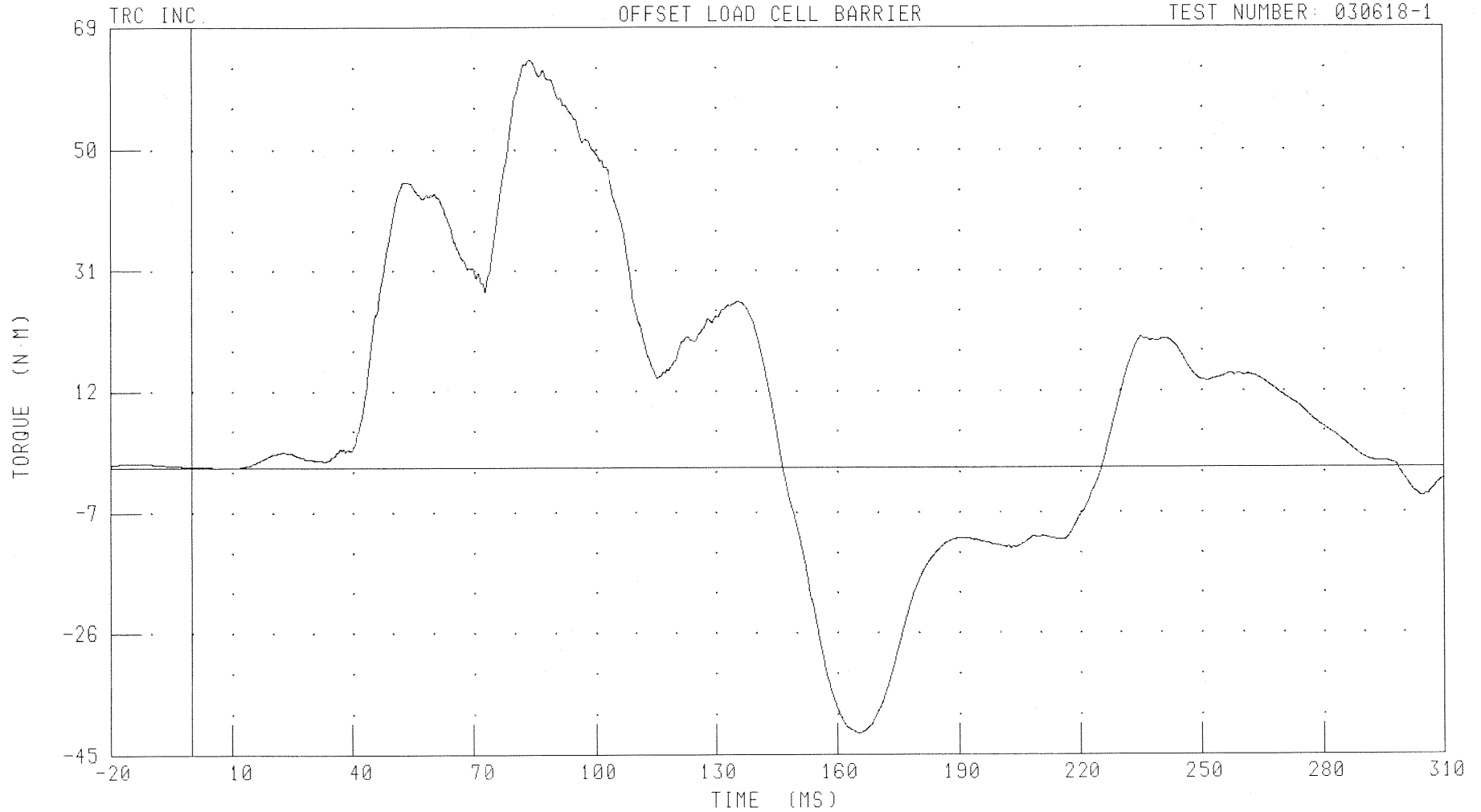
030618-1

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

DRIVER RIGHT FEMUR MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMZM1

FILTER: CH. CLASS 600

PEAK DATA: 63.87 N·M @ 83.60 MS; -41.66 N·M @ 165.28 MS

B-45

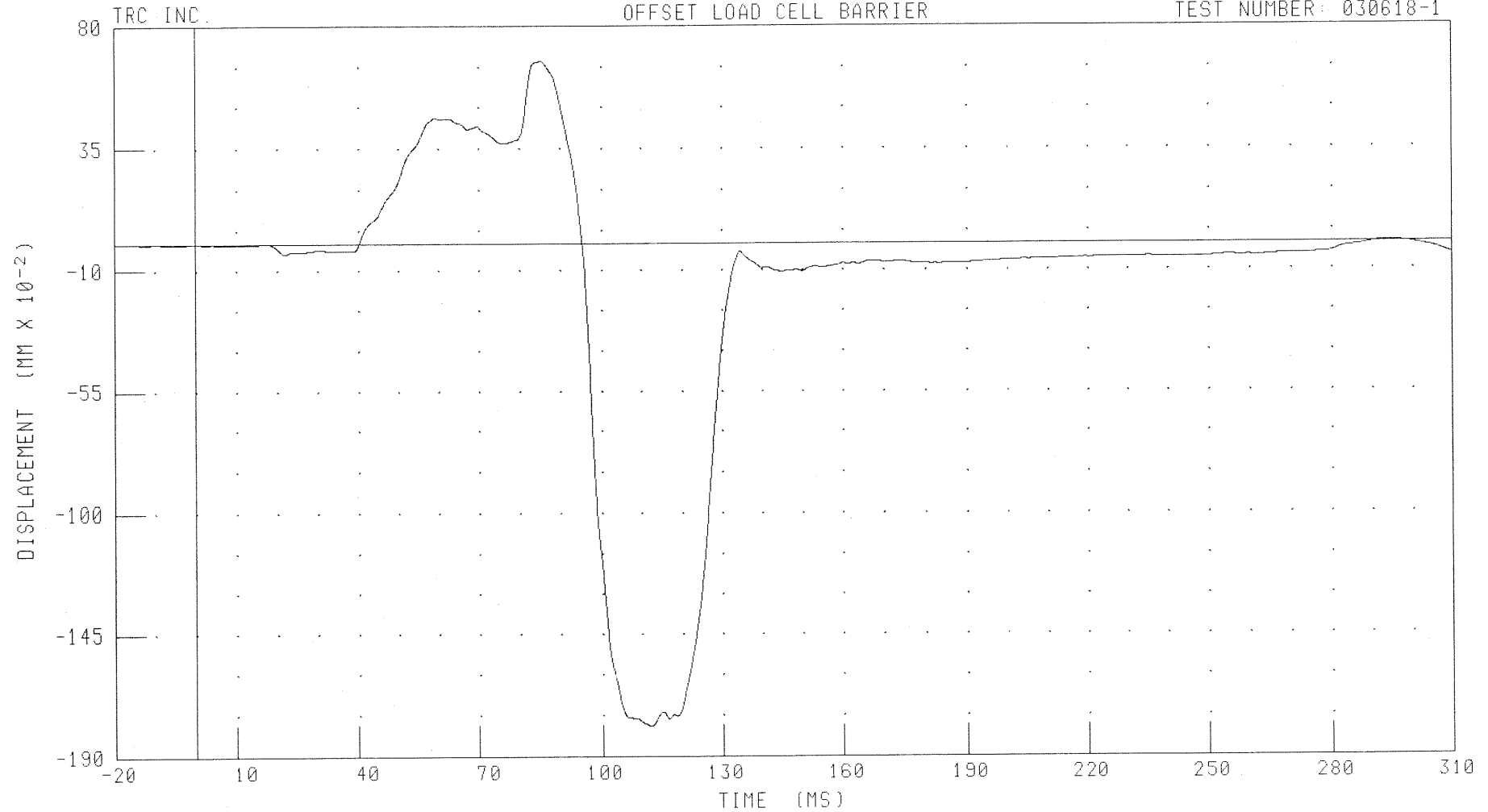
030618-1

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

DRIVER LEFT TIBIA TO FEMUR DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: KNLXD1 FILTER: CH CLASS 180

PEAK DATA: 0.67 MM @ 85.28 MS; -1.79 MM @ 112.32 MS

B-46

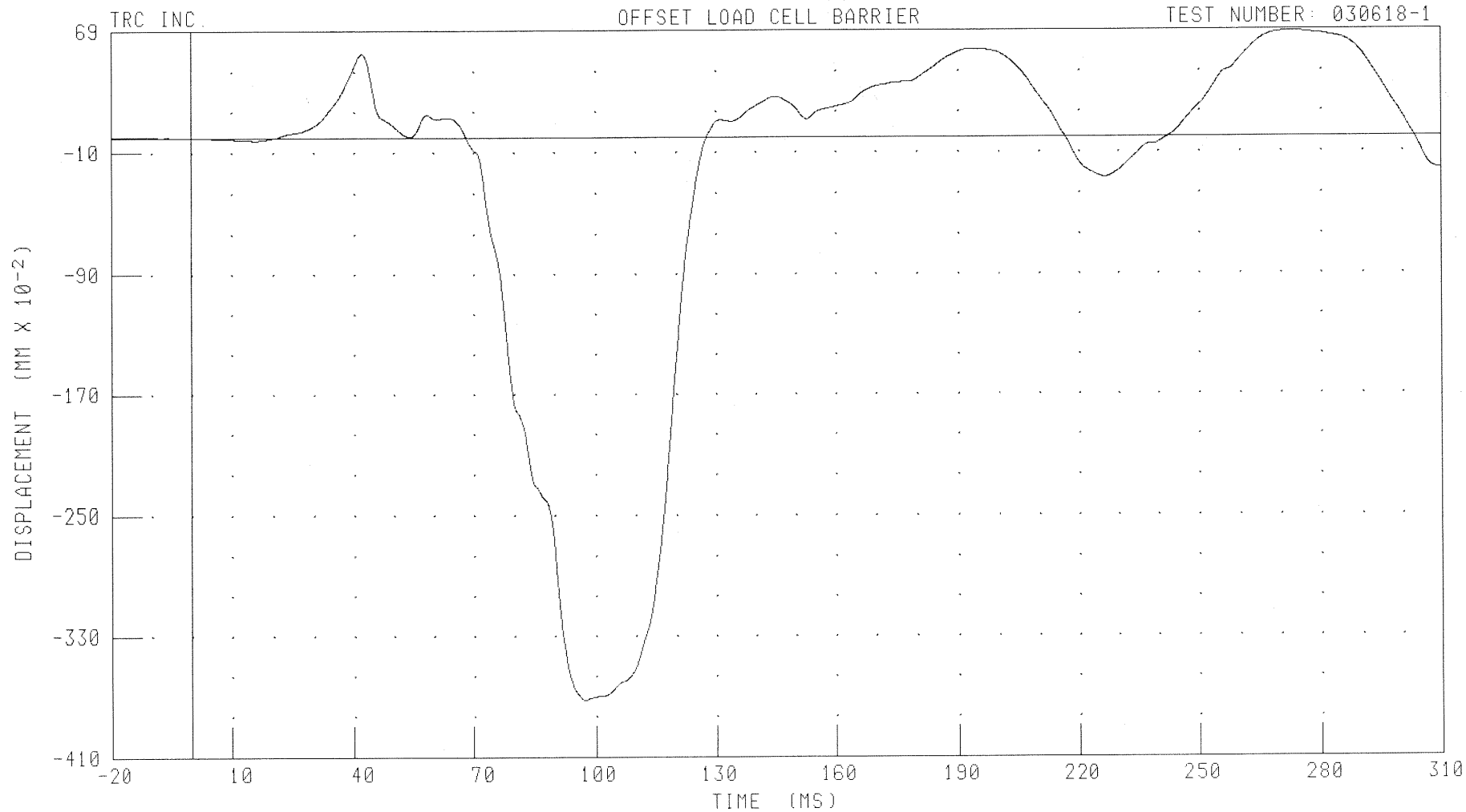
030618-1

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

DRIVER RIGHT TIBIA TO FEMUR DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: KNRXD1

FILTER: CH. CLASS 180

PEAK DATA: 0.69 MM @ 273.60 MS; -3.73 MM @ 97.36 MS

B-47

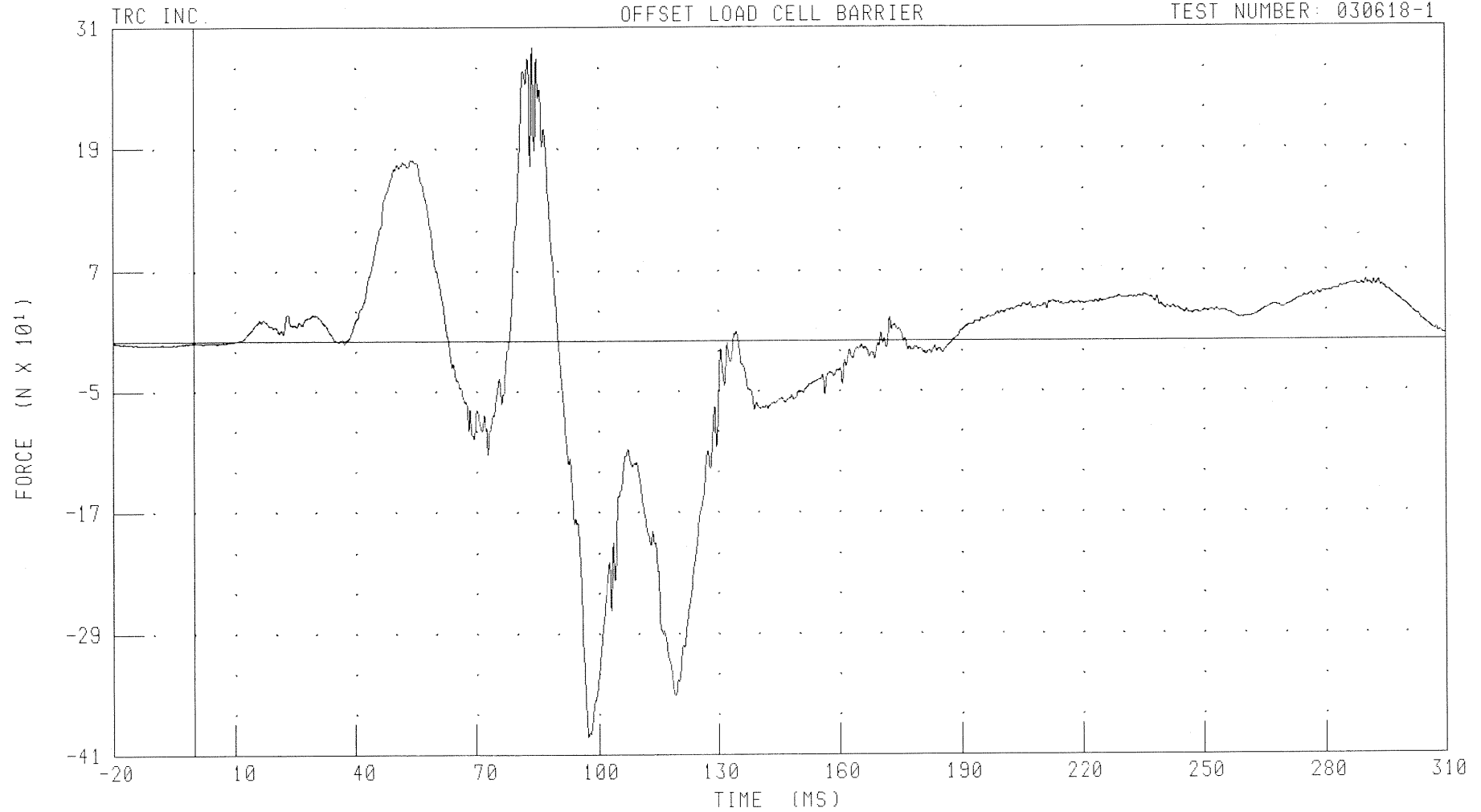
030618-1

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

DRIVER LEFT UPPER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBLXF1 FILTER: CH. CLASS 600

PEAK DATA: 290.33 N @ 83.76 MS; -392.52 N @ 97.44 MS

B-48

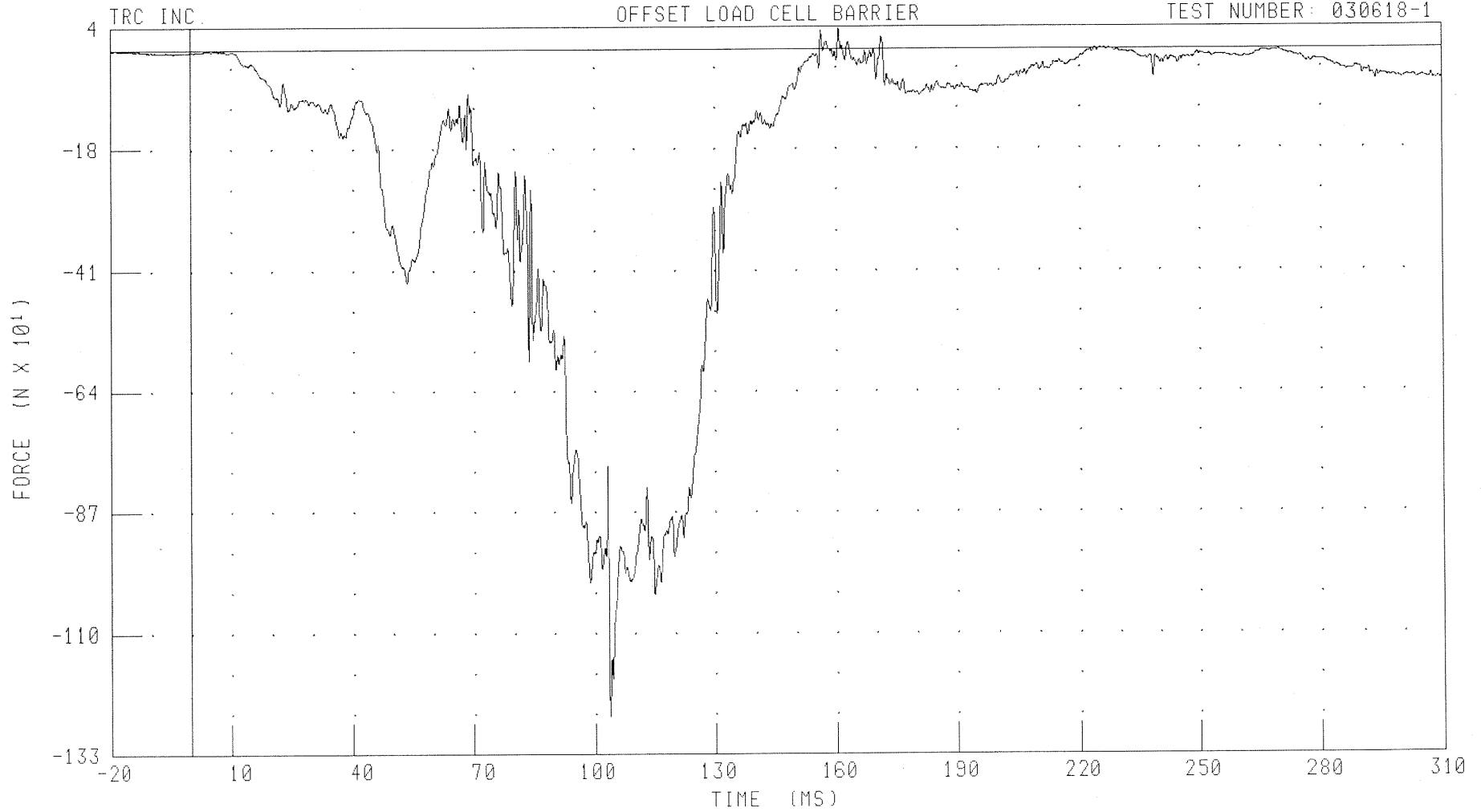
030618-1

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

DRIVER LEFT UPPER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBLZF1 FILTER: CH. CLASS 600

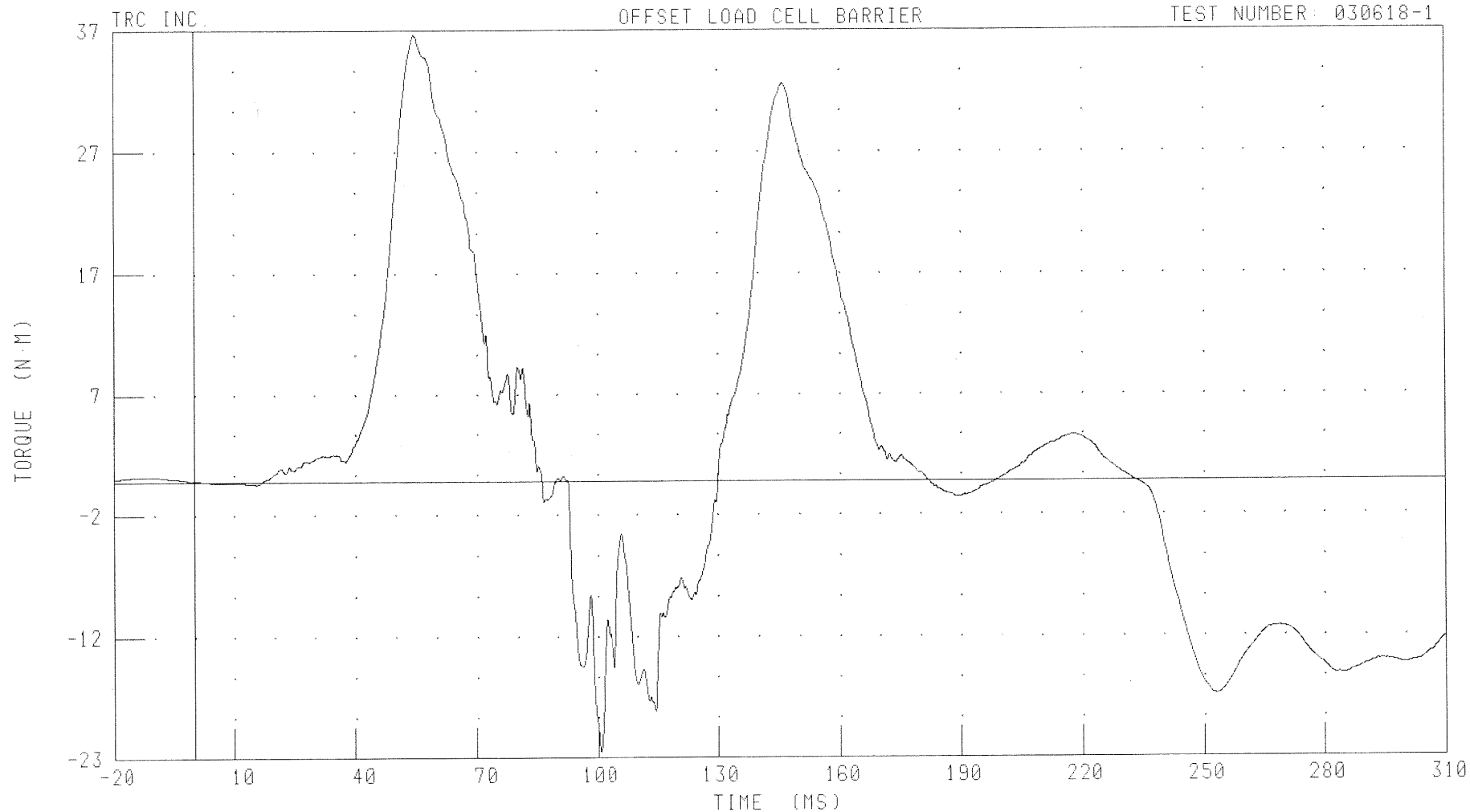
B-49

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: BLXM1 FILTER: CH. CLASS 600

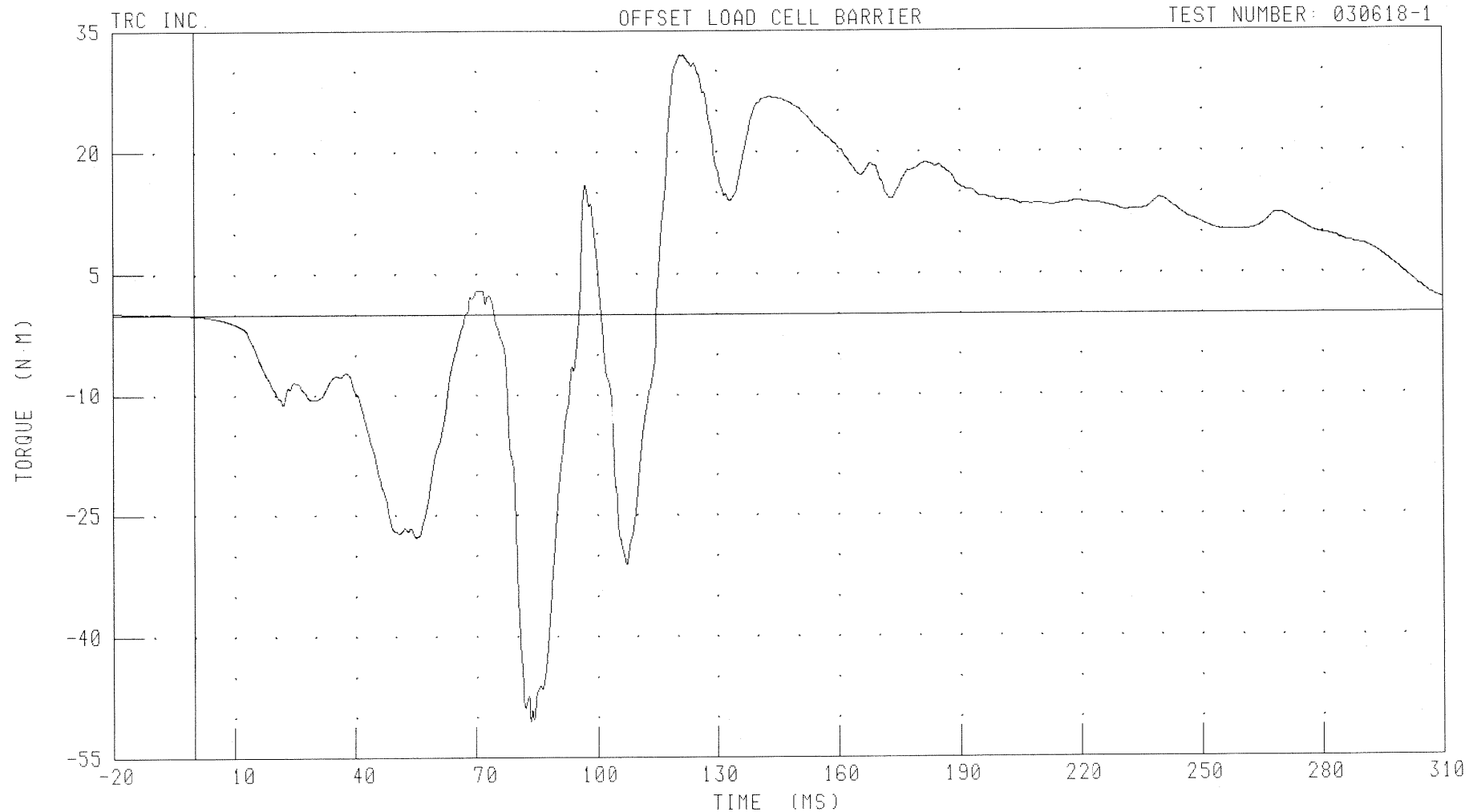
PEAK DATA: 37.24 N·m @ 54.72 MS; -22.54 N·m @ 100.80 MS

B-50

030618-1

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

TEST NUMBER: 030618-1



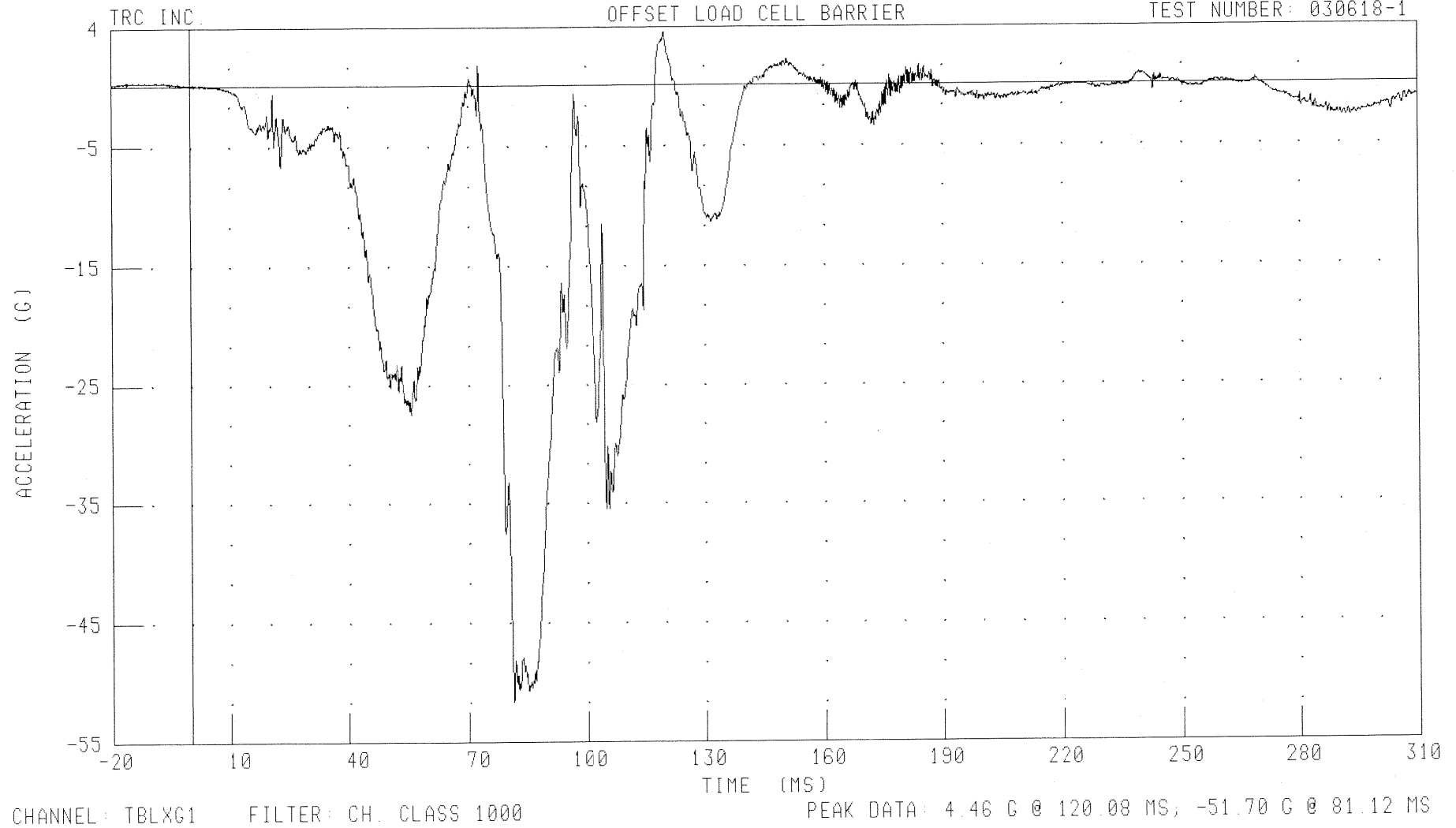
CHANNEL: TBLYM1 FILTER: CH. CLASS 600

B-51

030618-1

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

TEST NUMBER: 030618-1



B-52

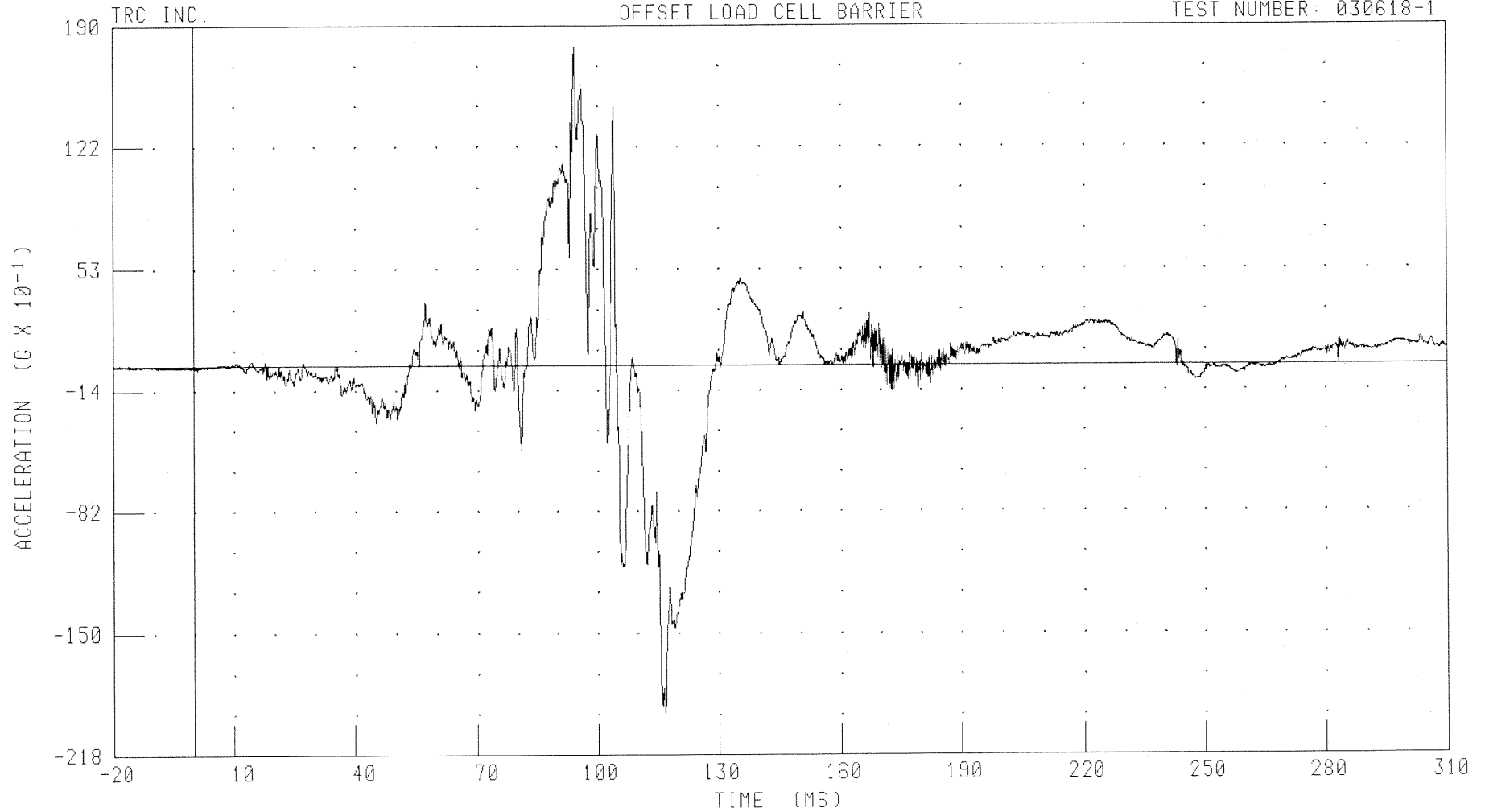
030618-1

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

DRIVER LEFT TIBIA Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBLYG1 FILTER: CH. CLASS 1000

PEAK DATA: 17.83 G @ 94.48 MS; -19.44 G @ 116.96 MS

B-53

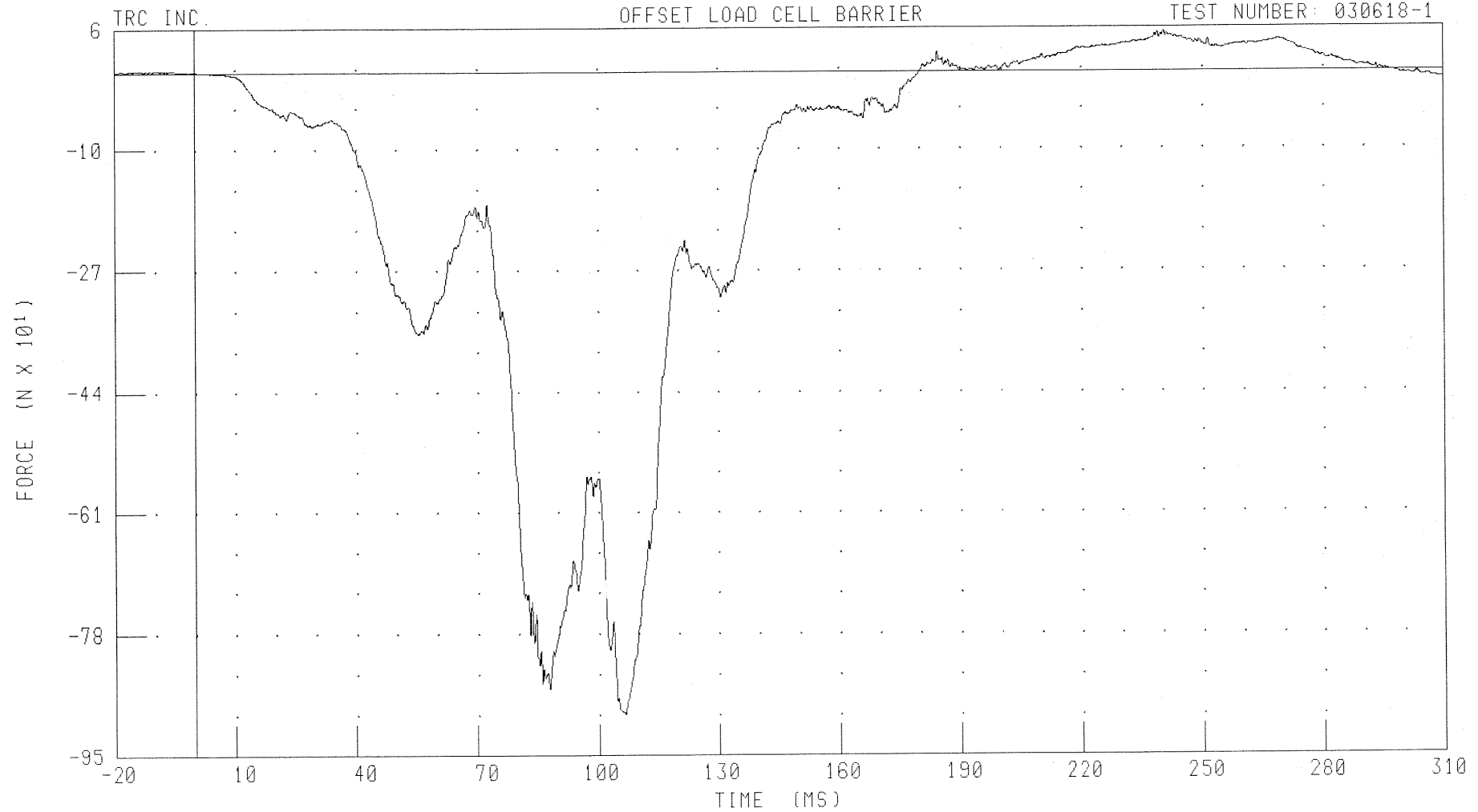
030618-1

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

DRIVER LEFT LOWER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANLXF1 FILTER: CH. CLASS 600

B-54

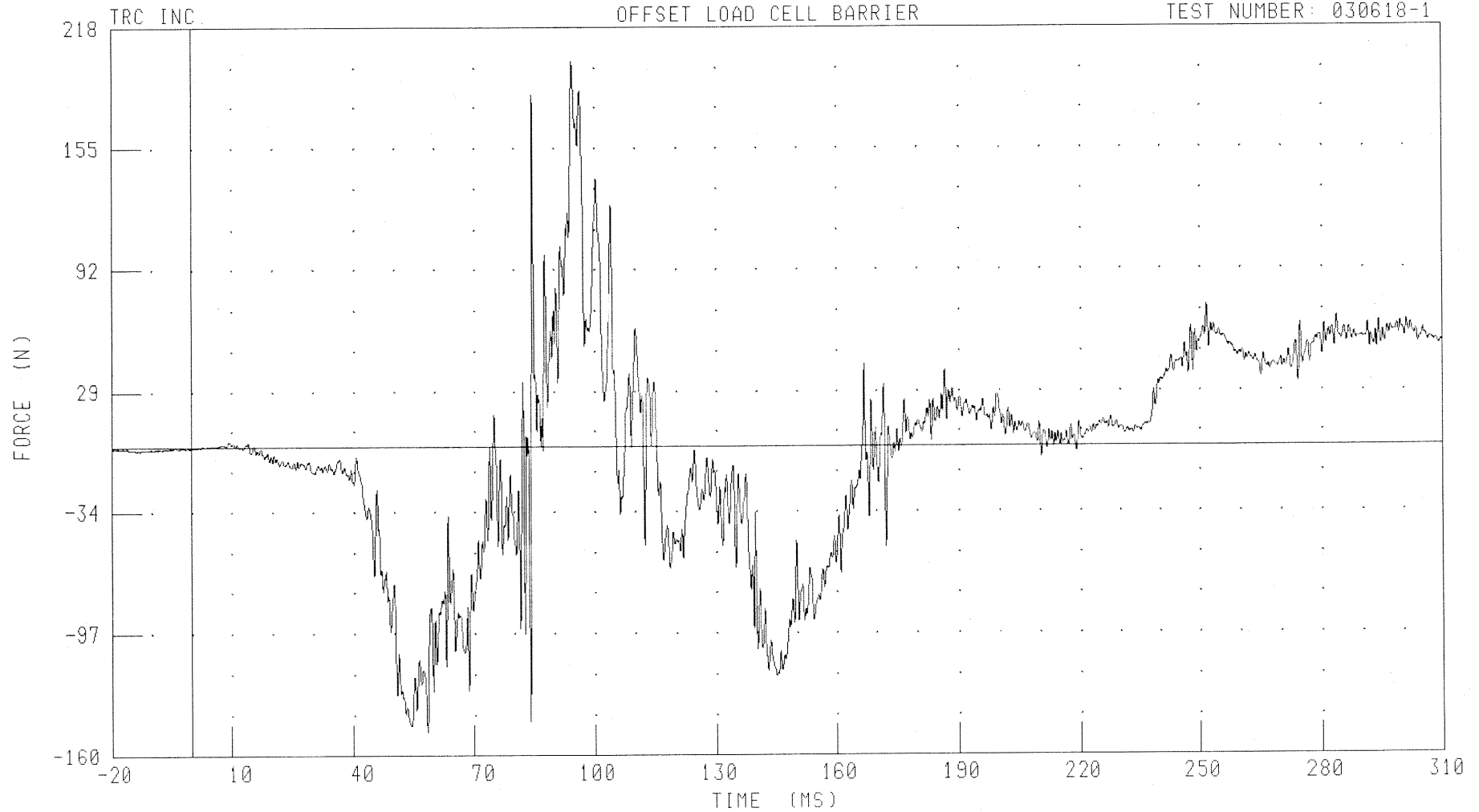
030618-1

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

DRIVER LEFT LOWER TIBIA Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-55

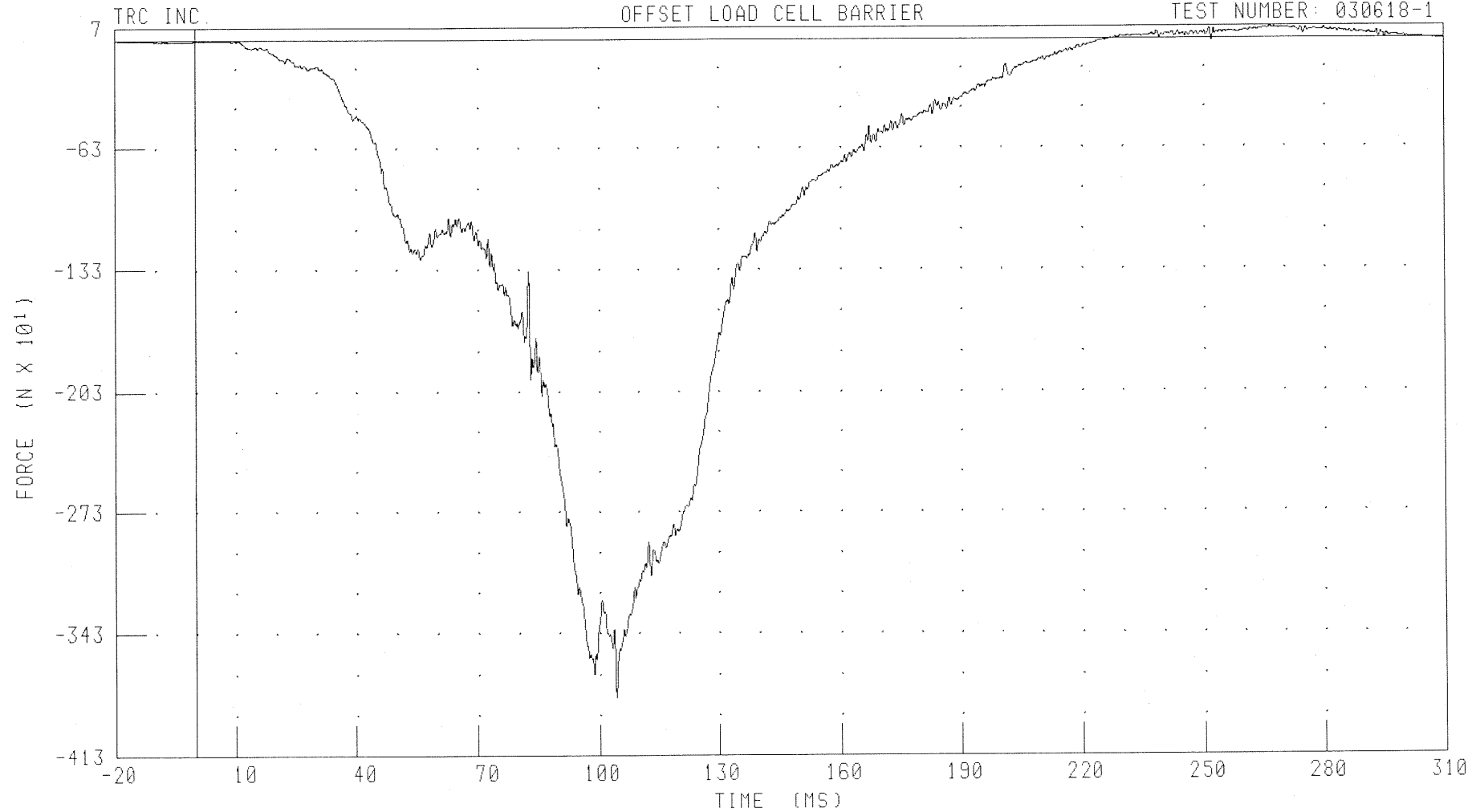
030618-1

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

DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANLZF1 FILTER: CH. CLASS 600

PEAK DATA: 64.14 N @ 266.72 MS; -3798.05 N @ 104.40 MS

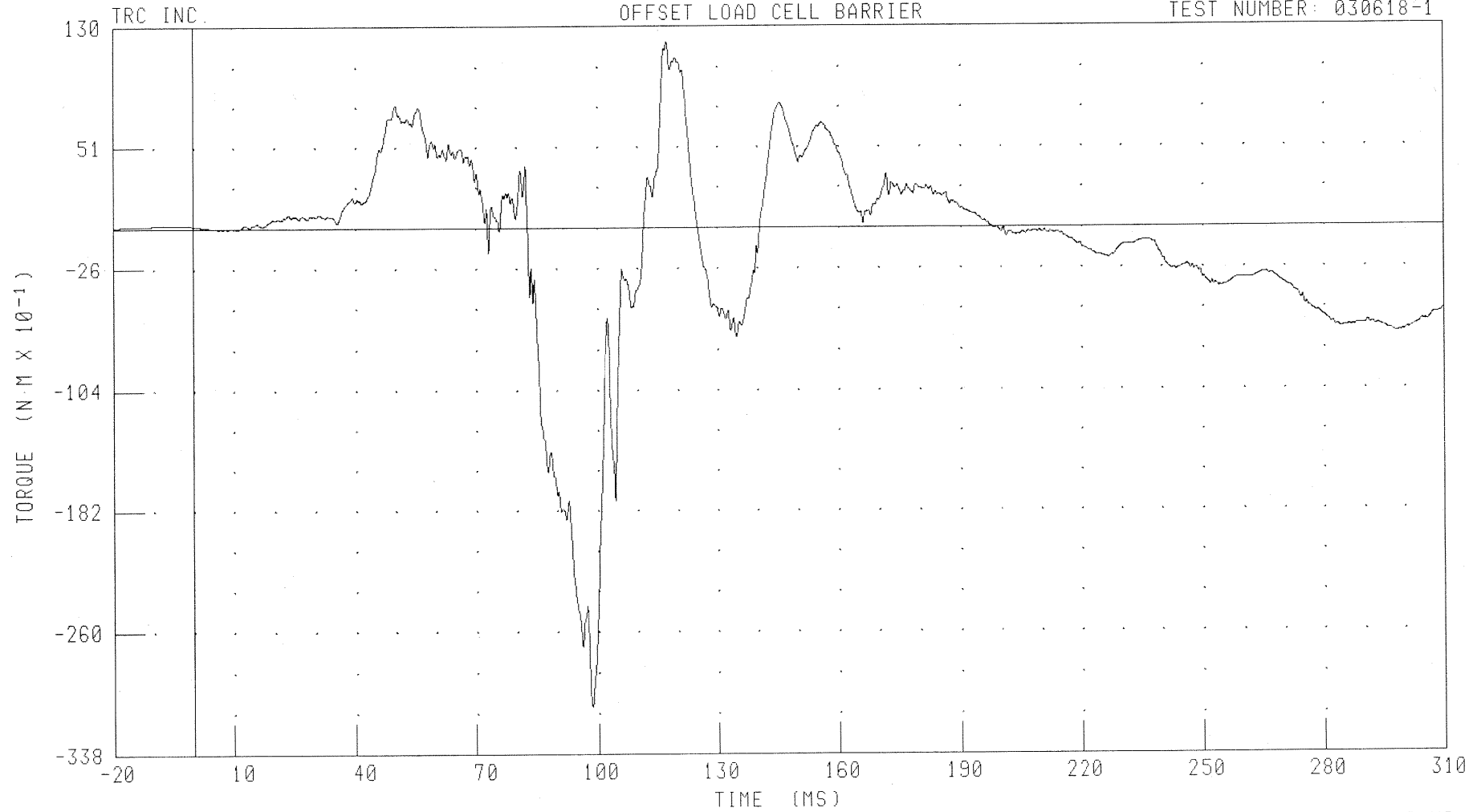
B-56

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANLXM1 FILTER: CH. CLASS 600

PEAK DATA: 12.03 N·M @ 117.44 MS, -30.77 N·M @ 98.56 MS

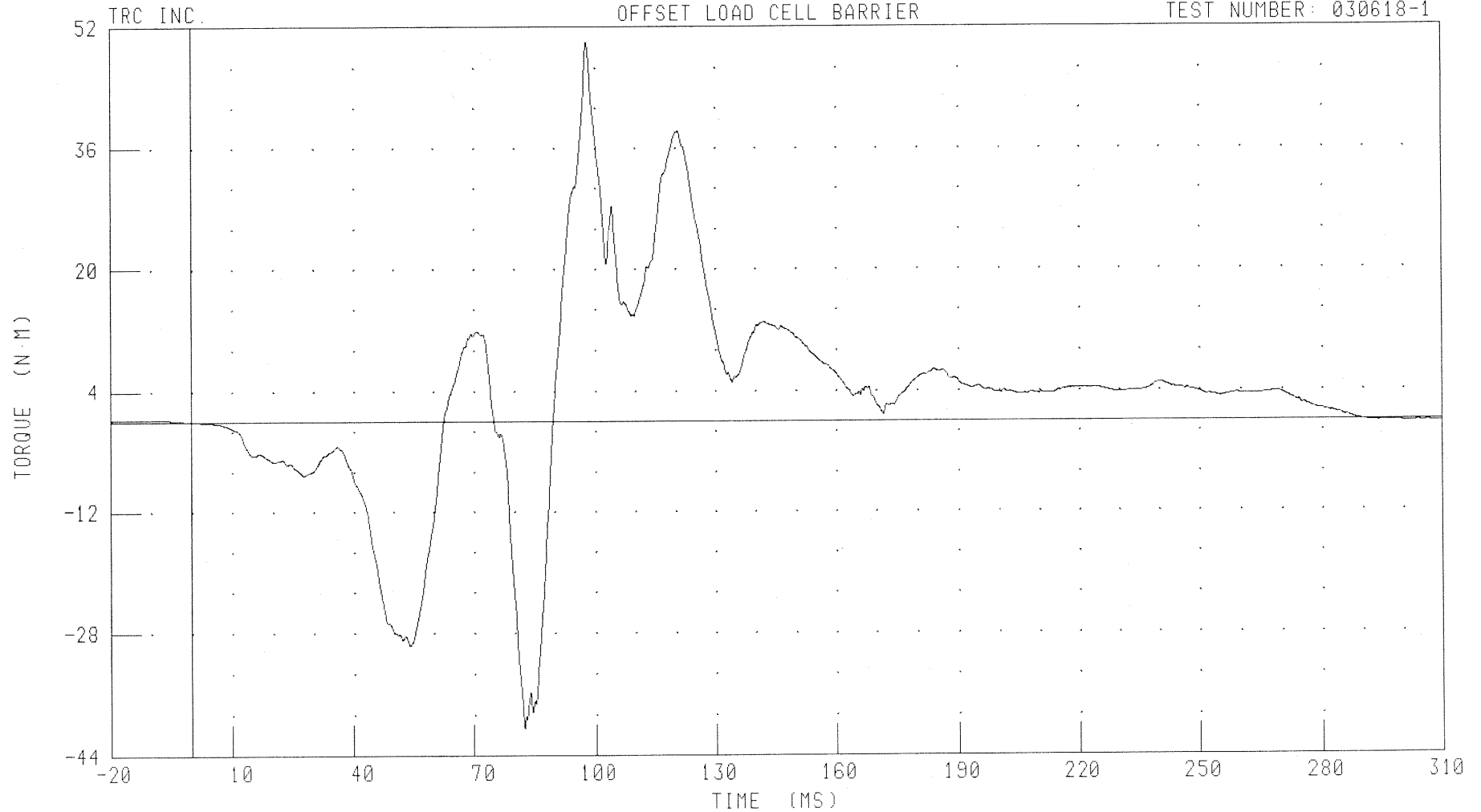
B-57

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANLYM1

FILTER: CH. CLASS 600

PEAK DATA: 50.04 N·M @ 98.00 MS; -40.48 N·M @ 82.48 MS

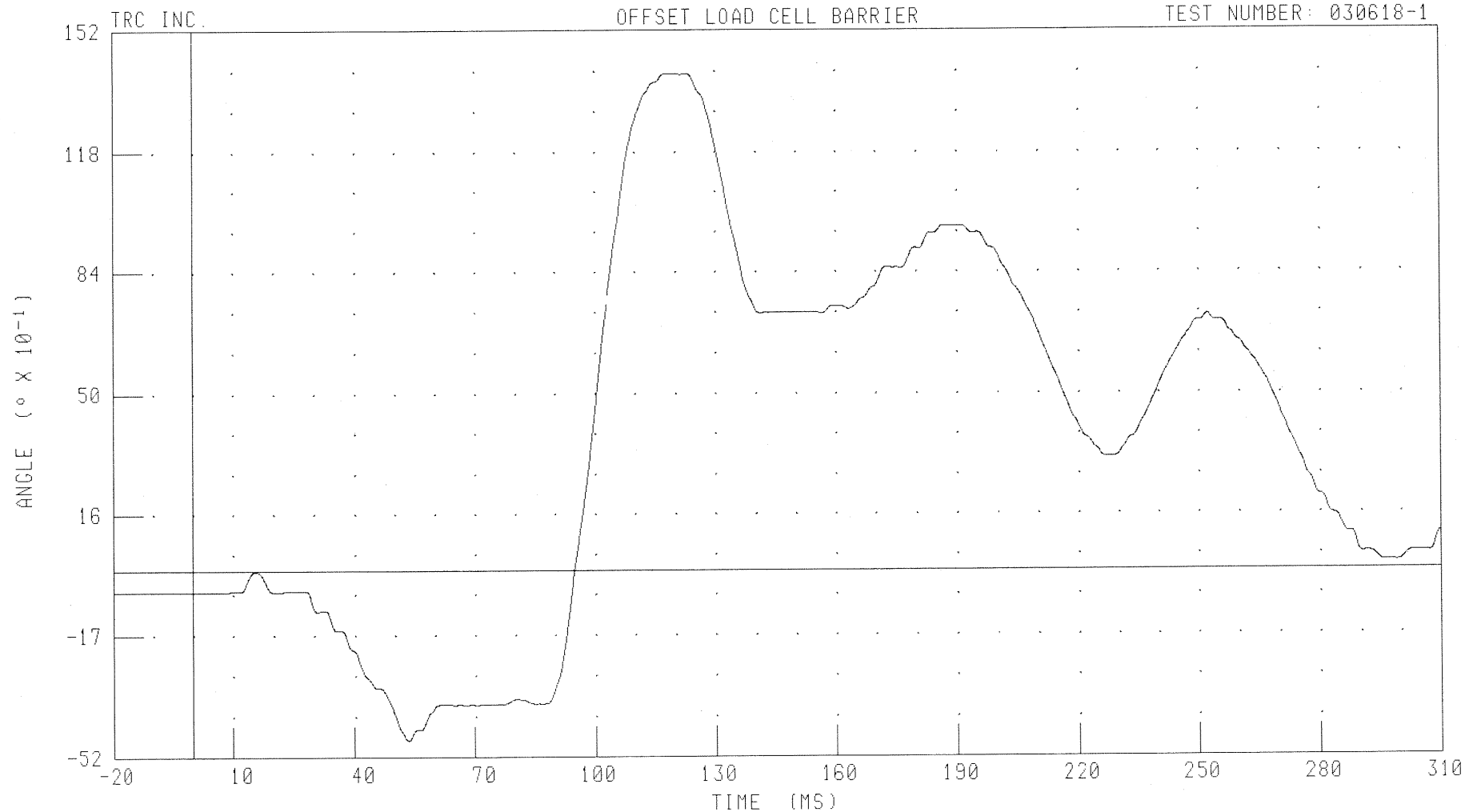
B-58

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLXD1 FILTER: CH. CLASS 180

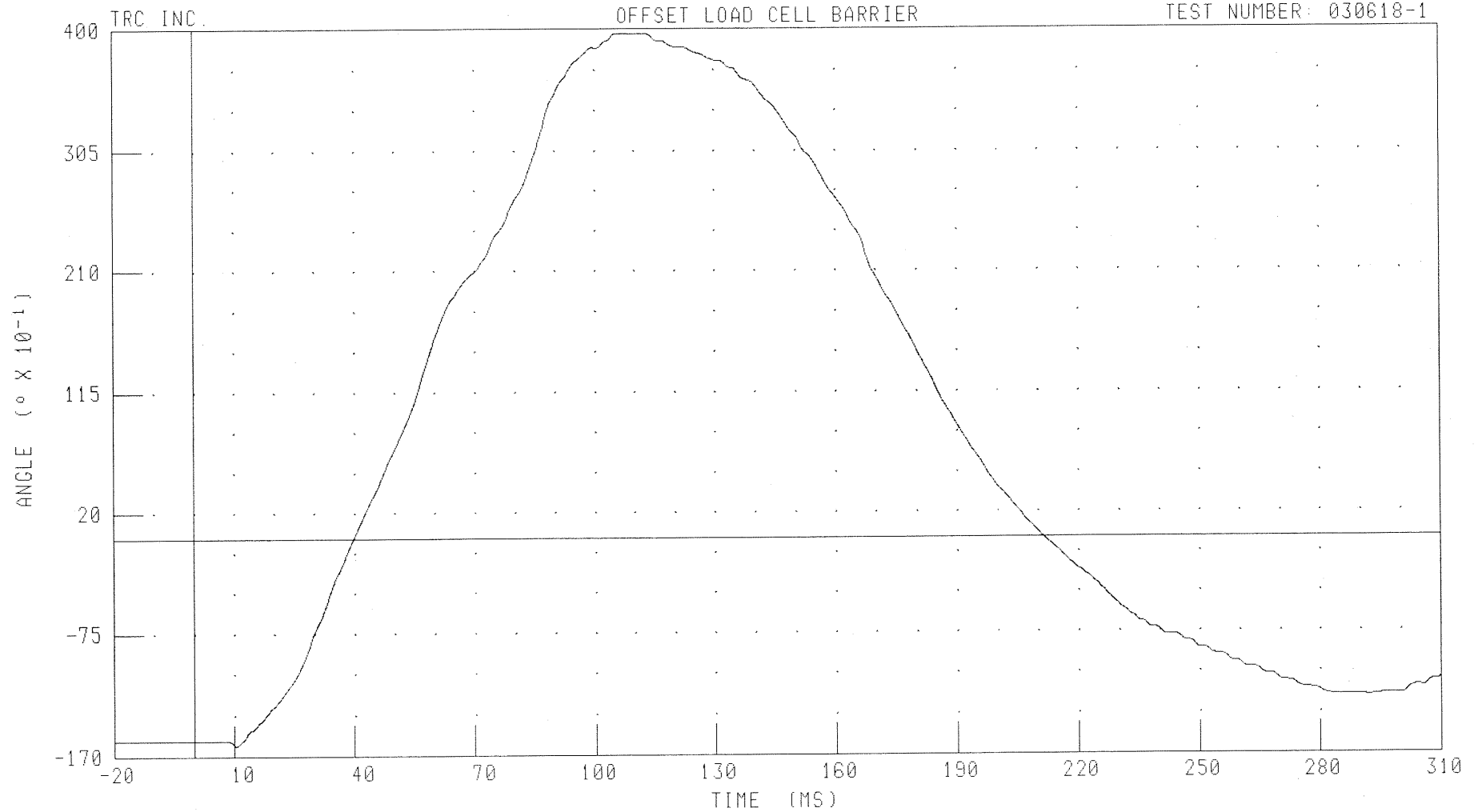
PEAK DATA: 14.00 $^{\circ}$ @ 123.20 MS; -4.73 $^{\circ}$ @ 53.36 MS

B-59

030618-1

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

TEST NUMBER: 030618-1



CHANNEL: FTLYD1 FILTER: CH CLASS 180

PEAK DATA: 39.60 ° @ 105.92 MS, -16.19 ° @ 10.48 MS

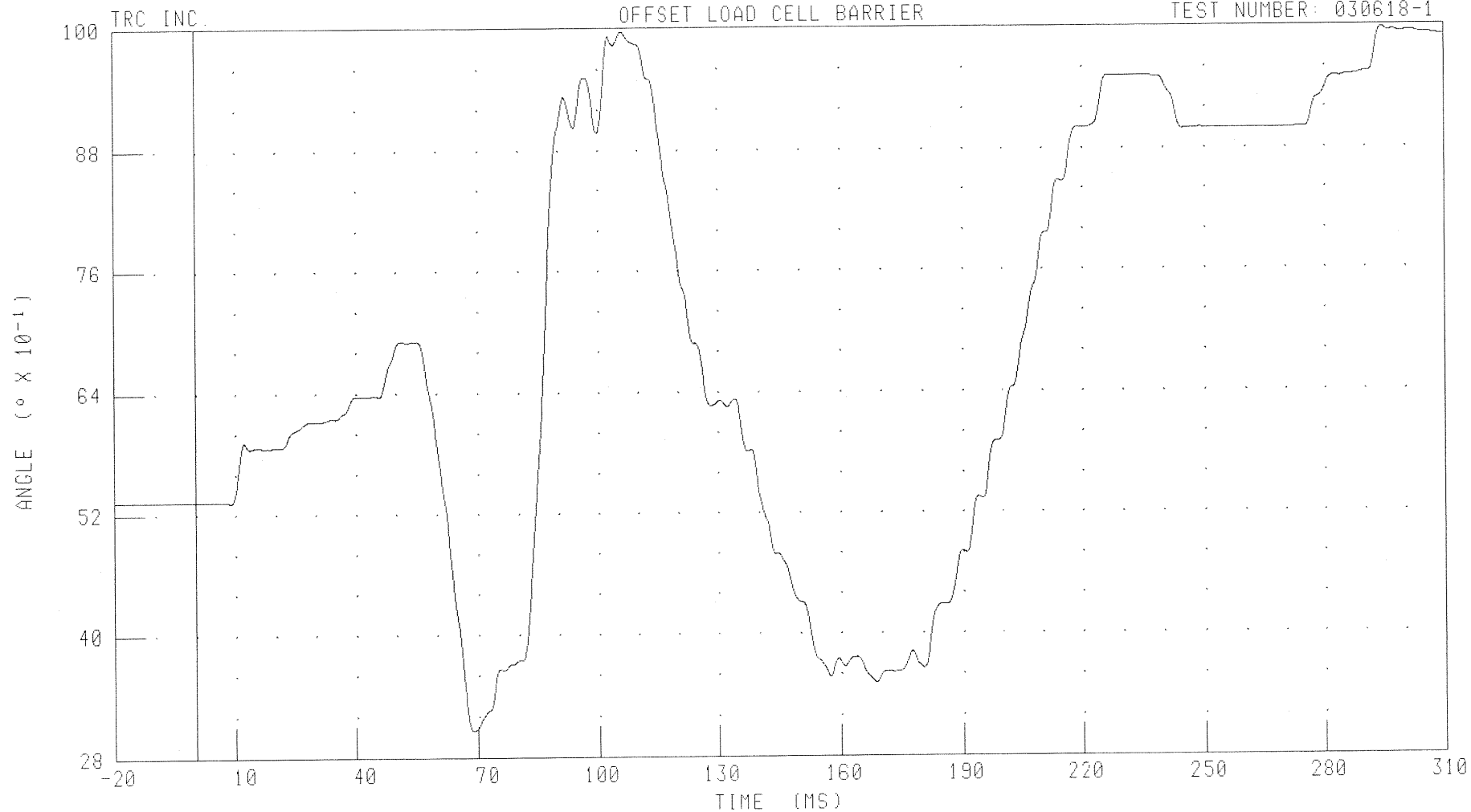
B-60

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLZD1 FILTER: CH CLASS 180

PEAK DATA: 9.97 ° @ 294.40 MS, 3.06 ° @ 68.80 MS

B-61

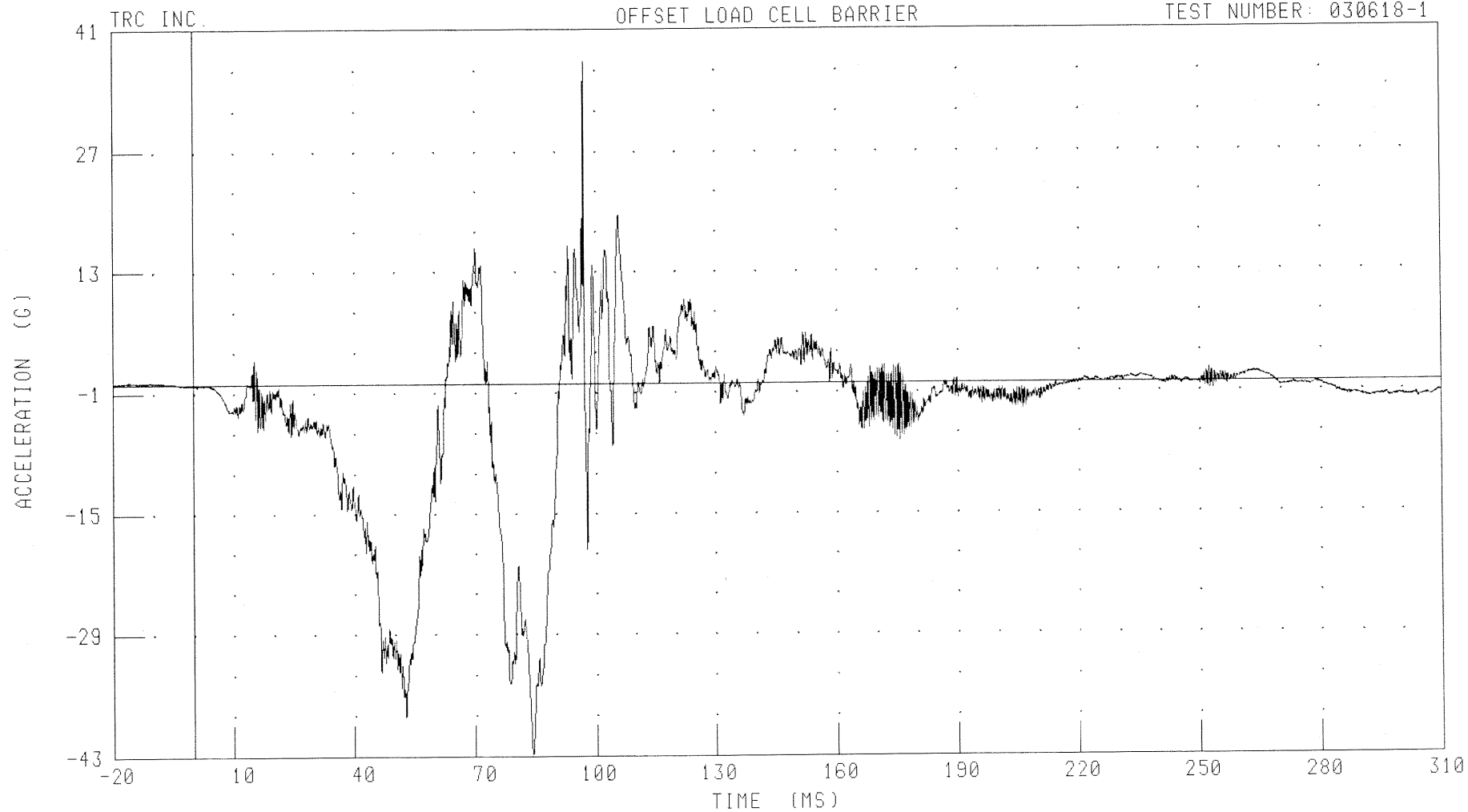
030618-1

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

DRIVER LEFT FOOT X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLXG1 FILTER: CH. CLASS 1000

PEAK DATA: 37.38 G @ 97.20 MS; -42.82 G @ 84.16 MS

B-62

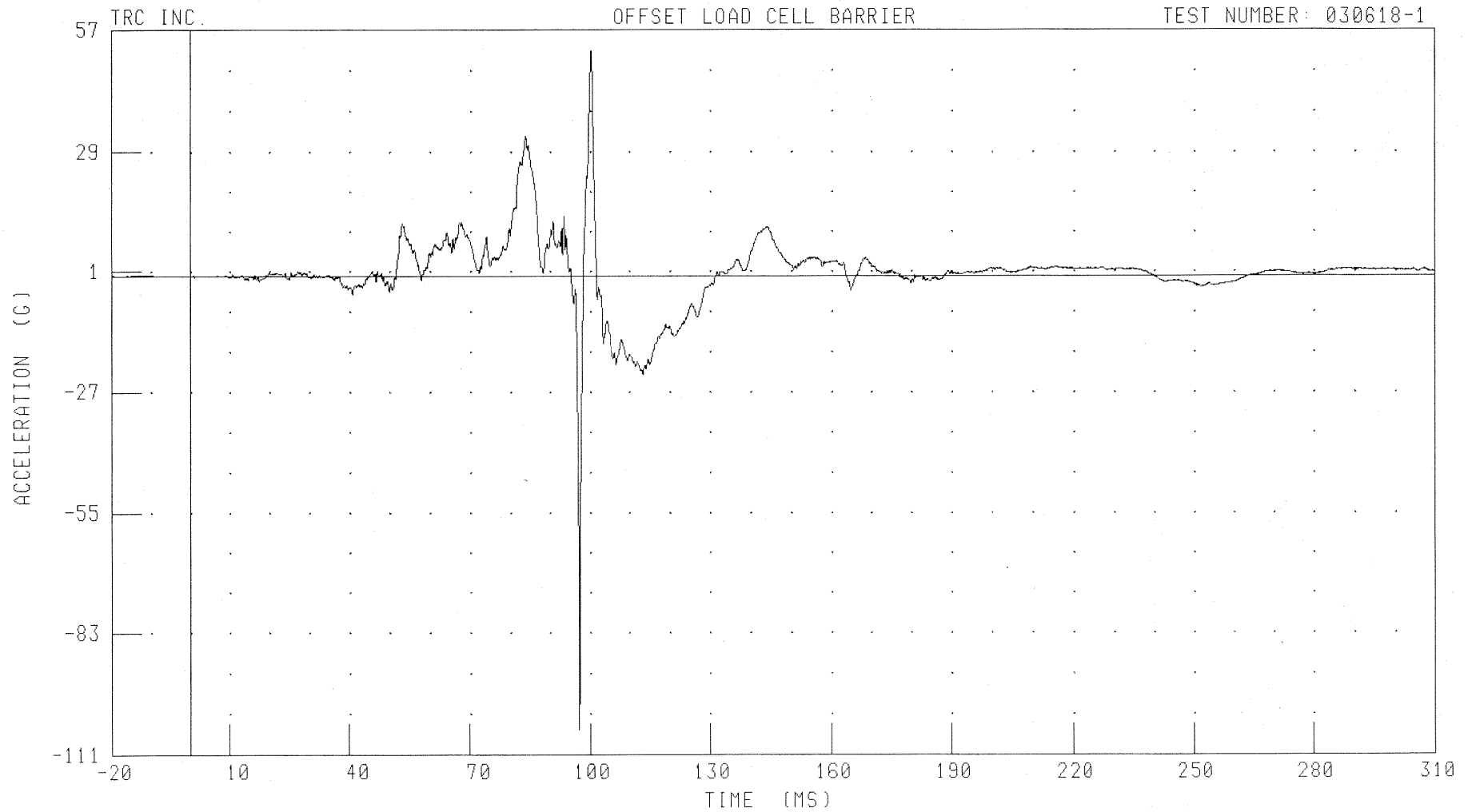
030618-1

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

DRIVER LEFT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLYG1 FILTER: CH. CLASS 1000

PEAK DATA: 52.11 G @ 100.24 MS; -105.33 G @ 97.44 MS

B-63

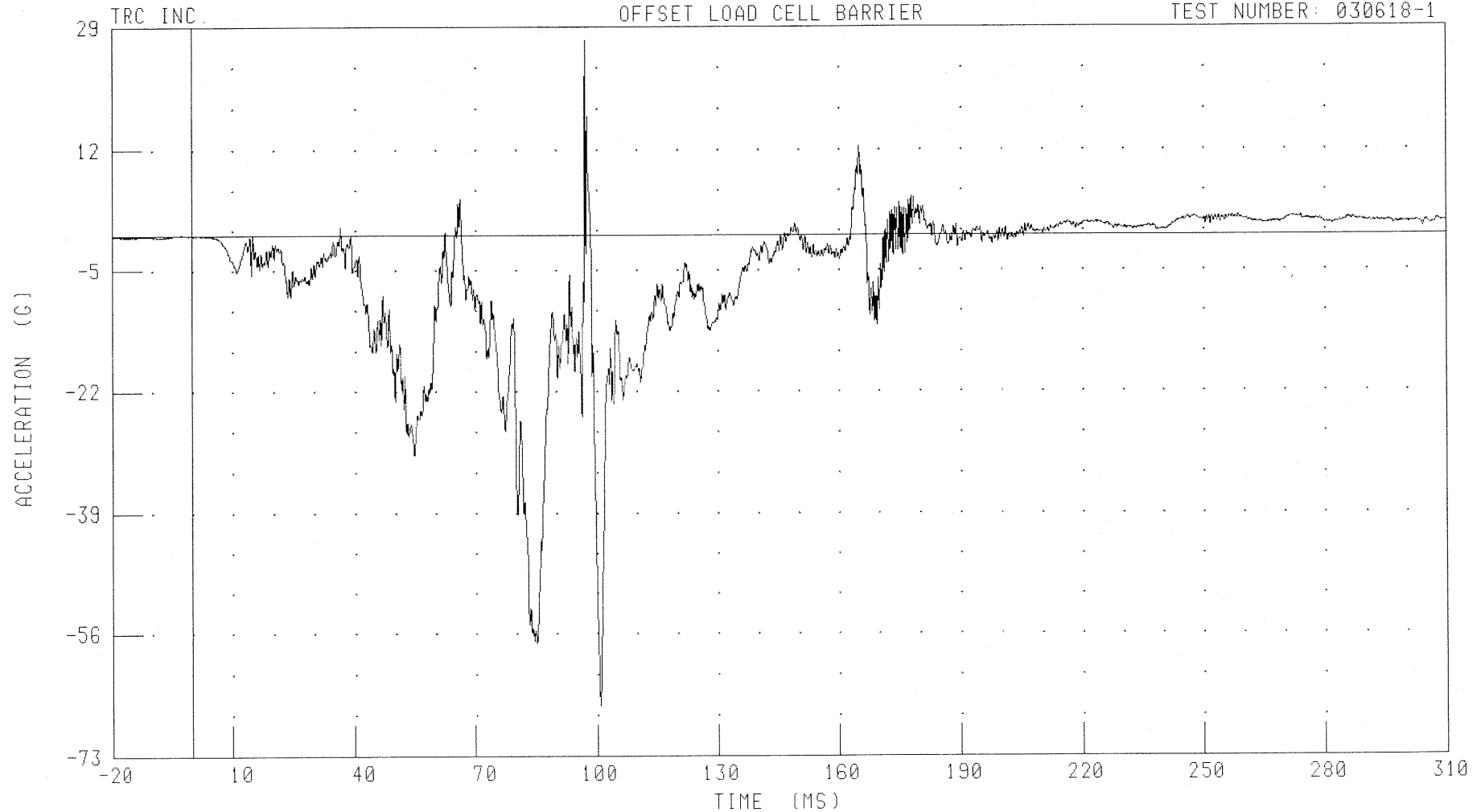
030618-1

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

DRIVER LEFT FOOT Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLZG1 FILTER: CH. CLASS 1000

PEAK DATA: 27.22 G @ 97.20 MS; -66.01 G @ 100.88 MS

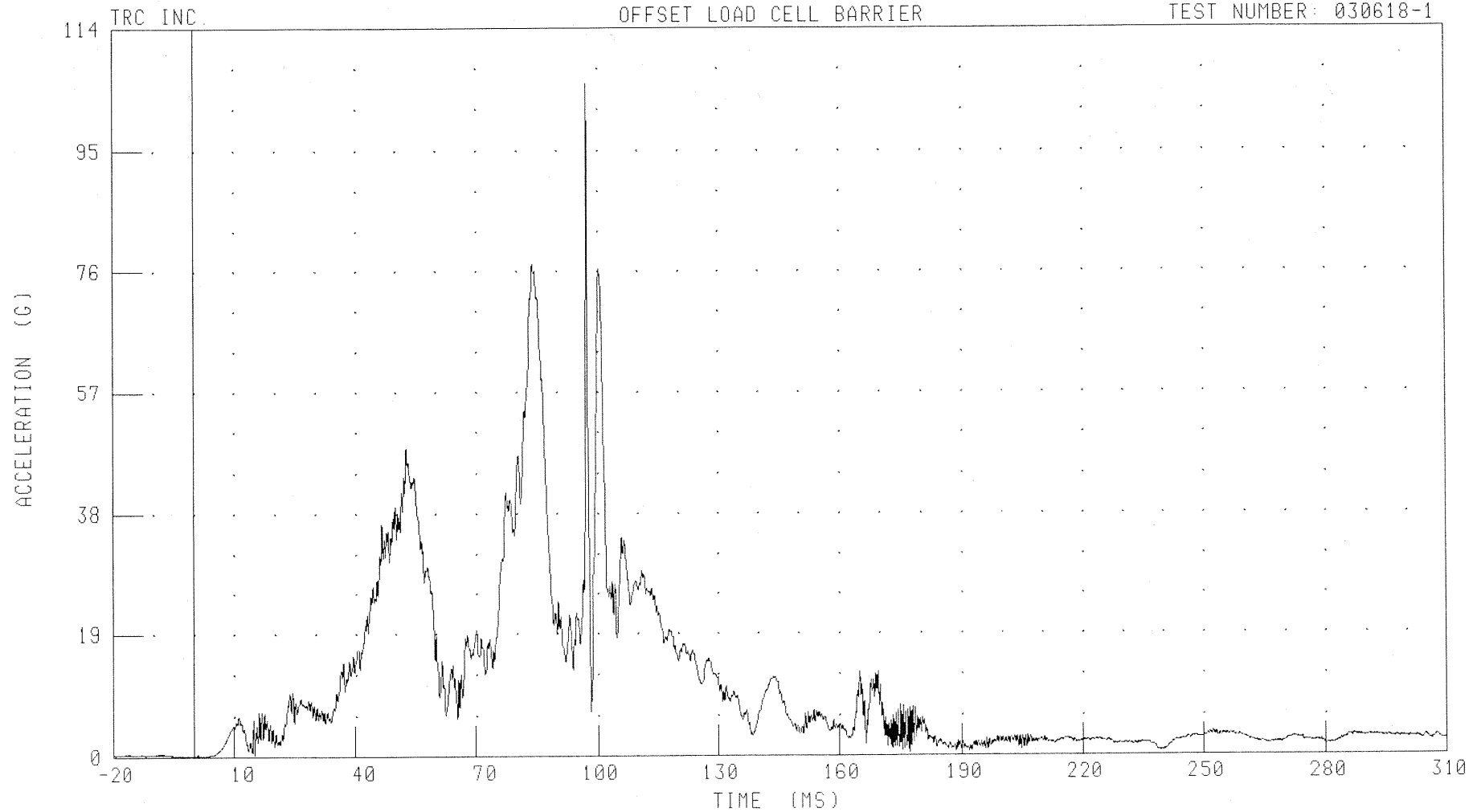
B-64

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLRG1 FILTER: CH. CLASS 1000

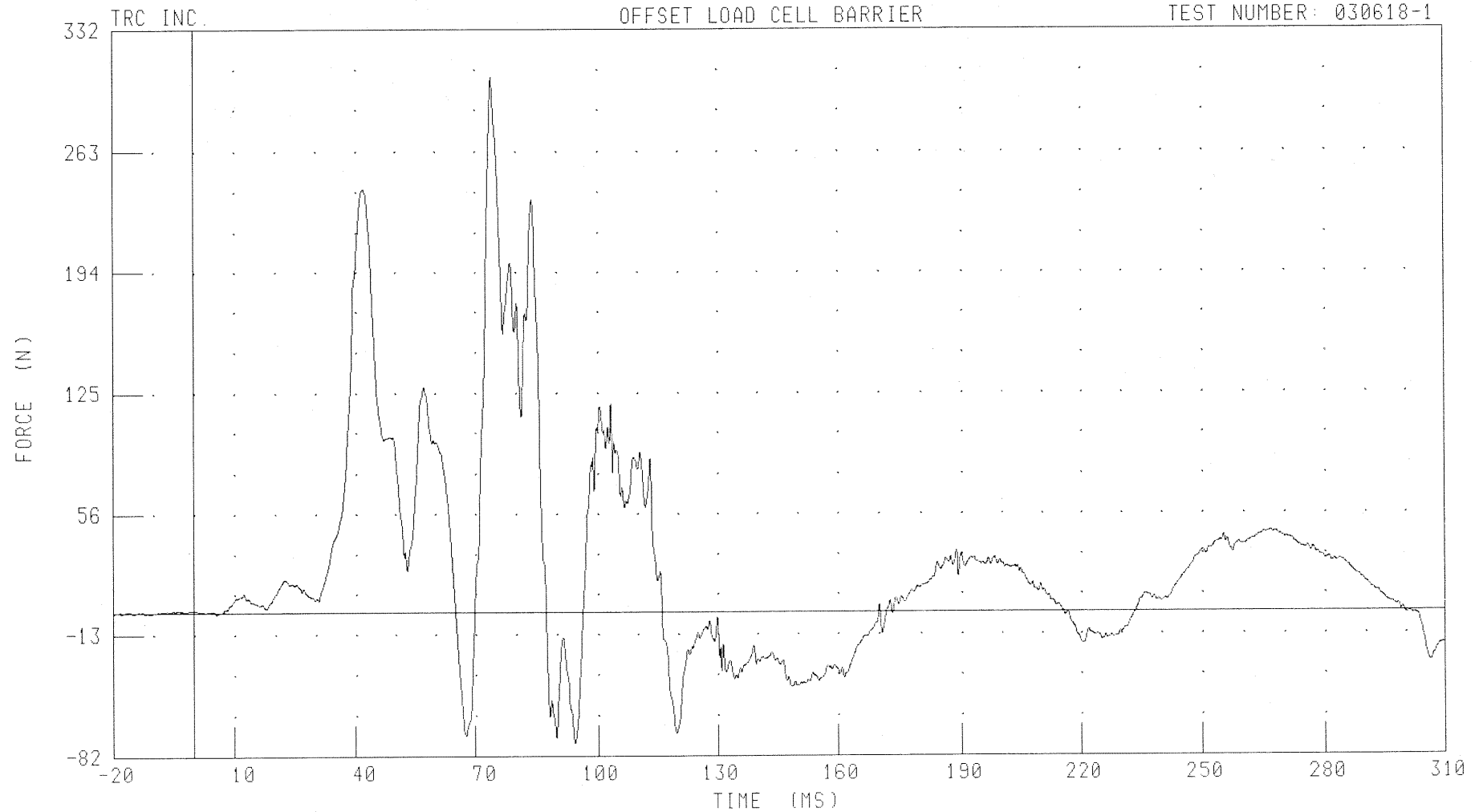
PEAK DATA: 105.33 G @ 97.44 MS; 0.04 G @ -1.36 MS

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

DRIVER RIGHT UPPER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRXF1 FILTER: CH. CLASS 600

PEAK DATA: 304.57 N @ 74.16 MS; -74.71 N @ 94.32 MS

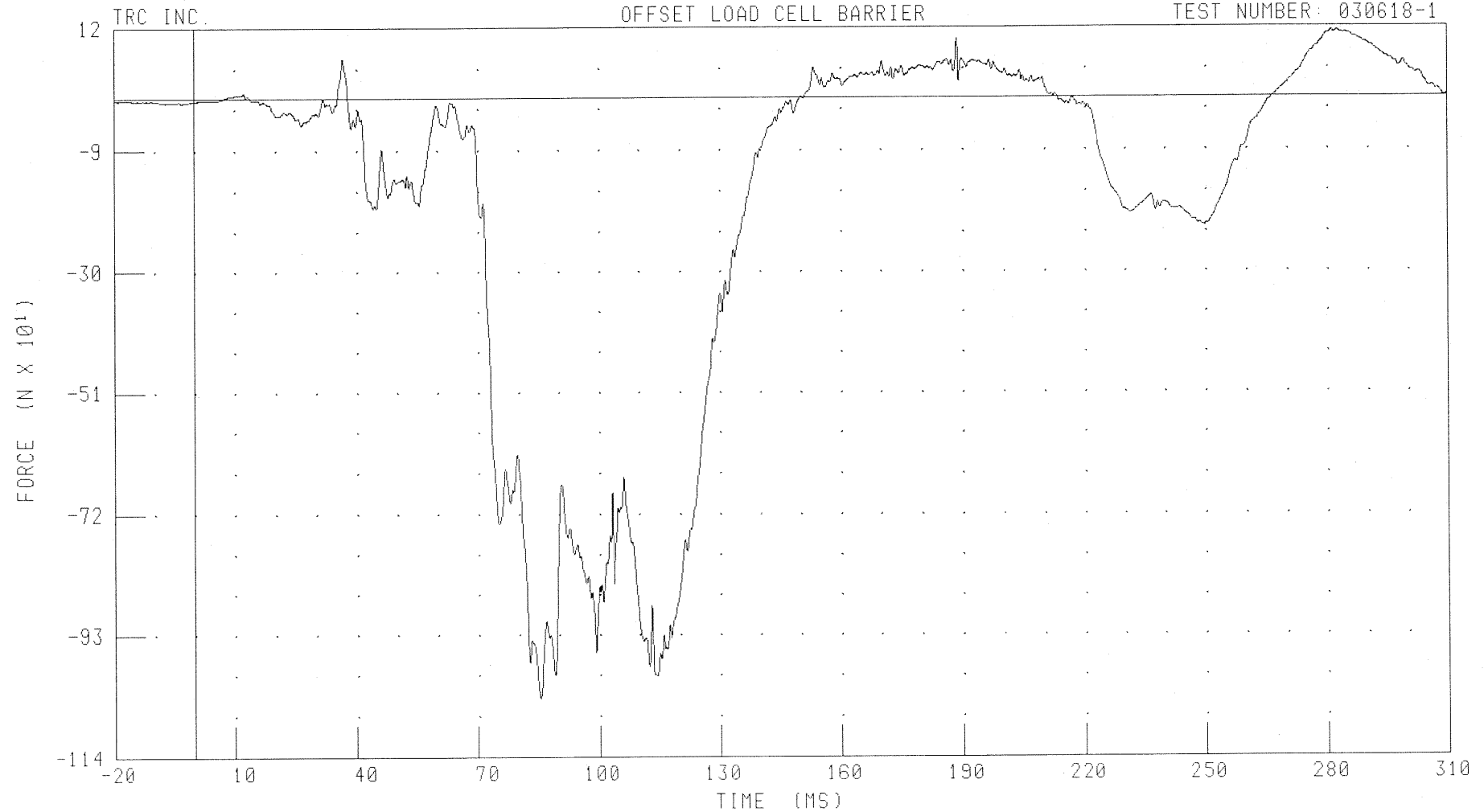
B-66

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRZF1 FILTER: CH. CLASS 600

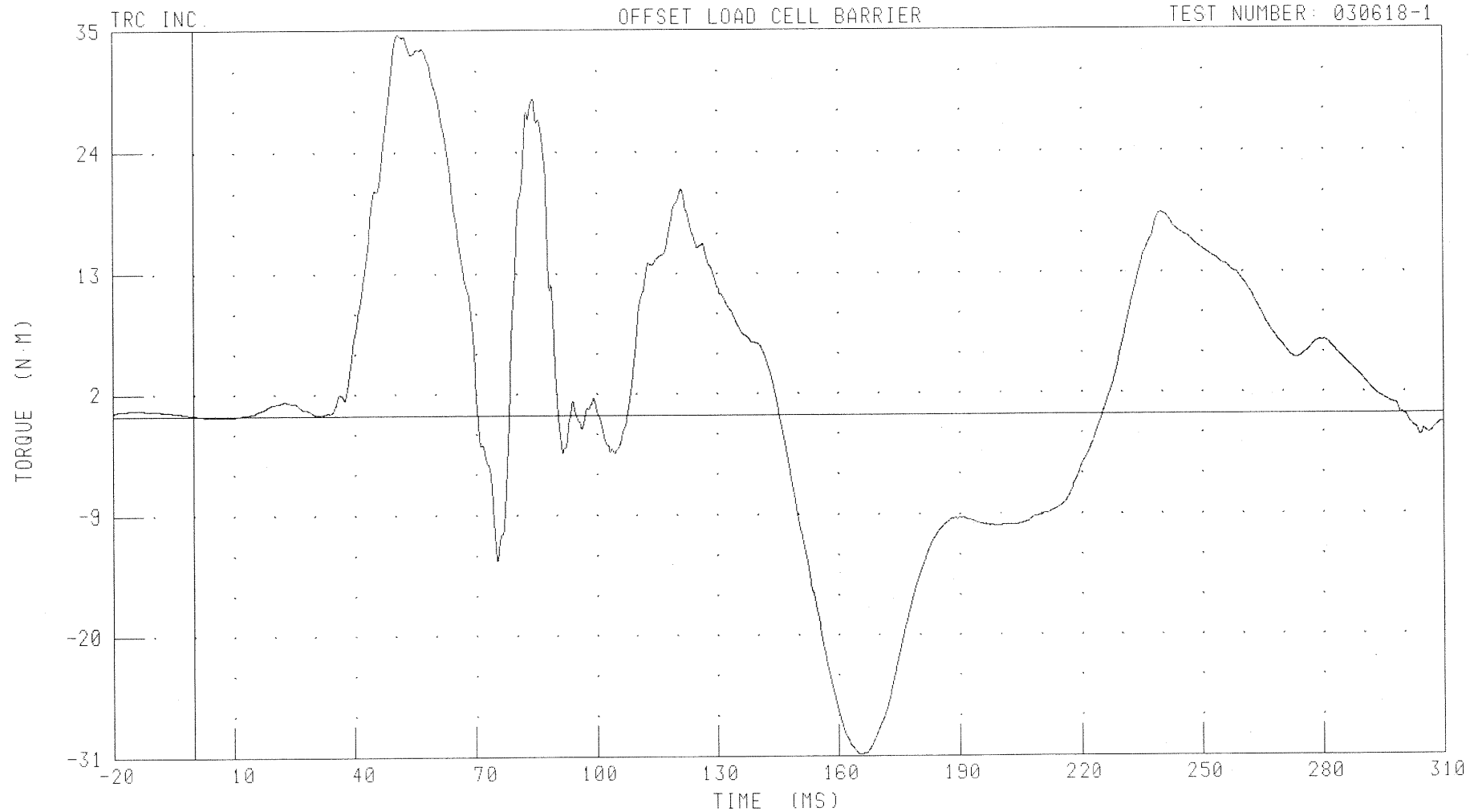
B-67

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRXM1 FILTER: CH CLASS 600

PEAK DATA 34.57 N·m @ 50.96 MS, -30.82 N·m @ 165.28 MS

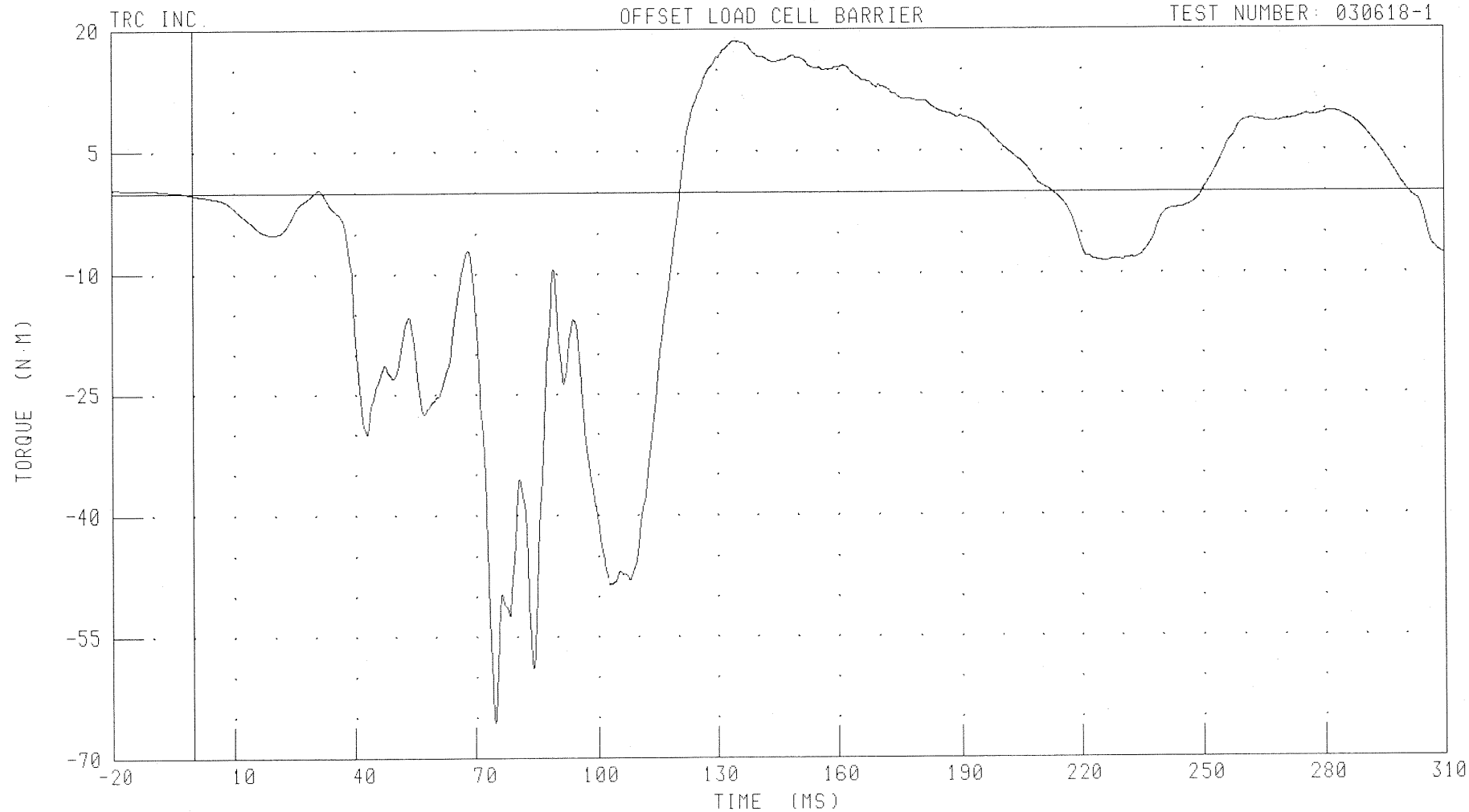
B-68

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRYM1 FILTER: CH. CLASS 600

PEAK DATA: 18.52 N·M @ 134.56 MS; -65.74 N·M @ 74.72 MS

B-69

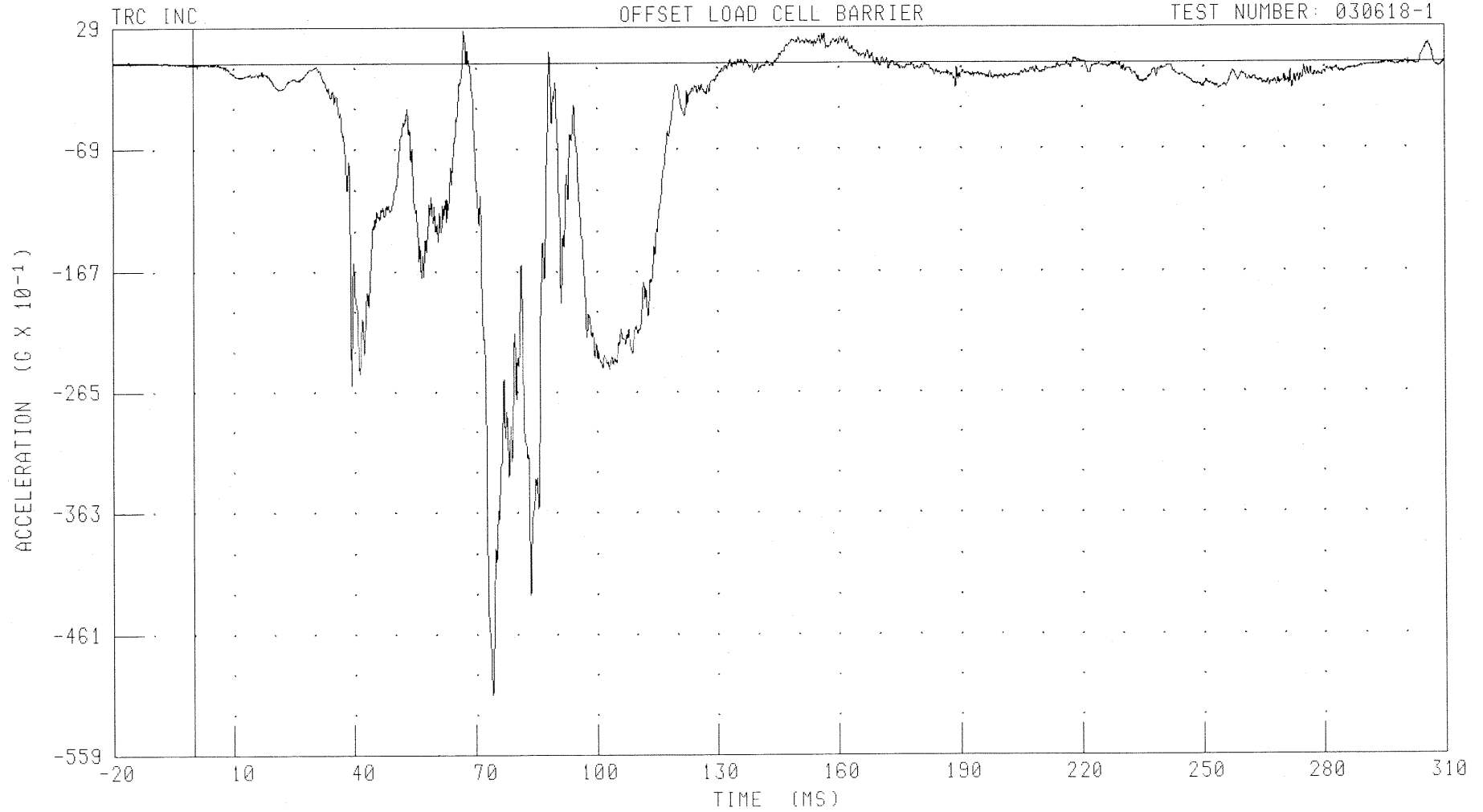
030618-1

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

DRIVER RIGHT TIBIA X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRXC1 FILTER: CH. CLASS 1000

PEAK DATA: 2.64 G @ 67.12 MS; -51.01 G @ 74.00 MS

B-70

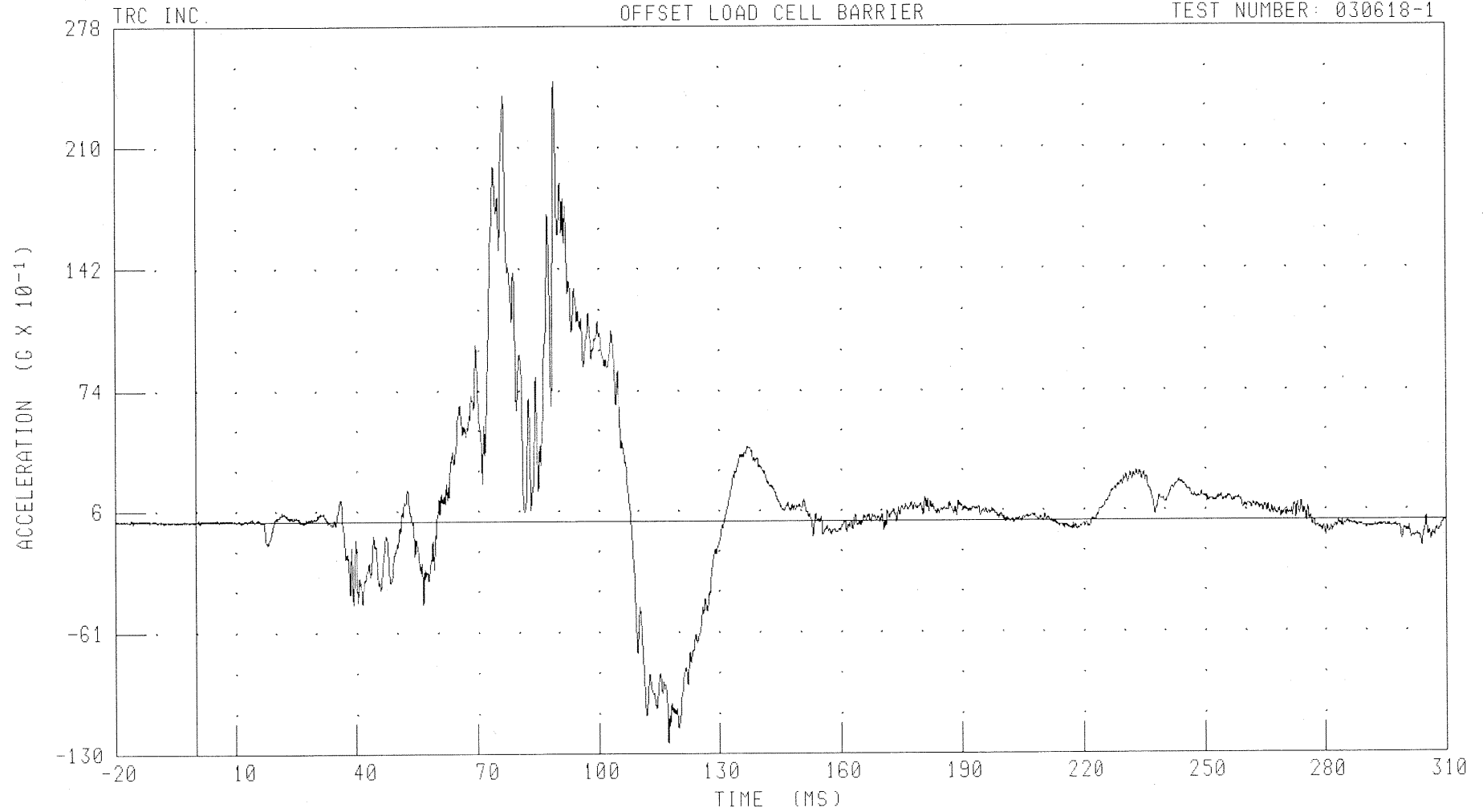
030618-1

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

DRIVER RIGHT TIBIA Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRYG1

FILTER: CH. CLASS 1000

PEAK DATA: 24.71 G @ 88.88 MS; -12.42 G @ 117.52 MS

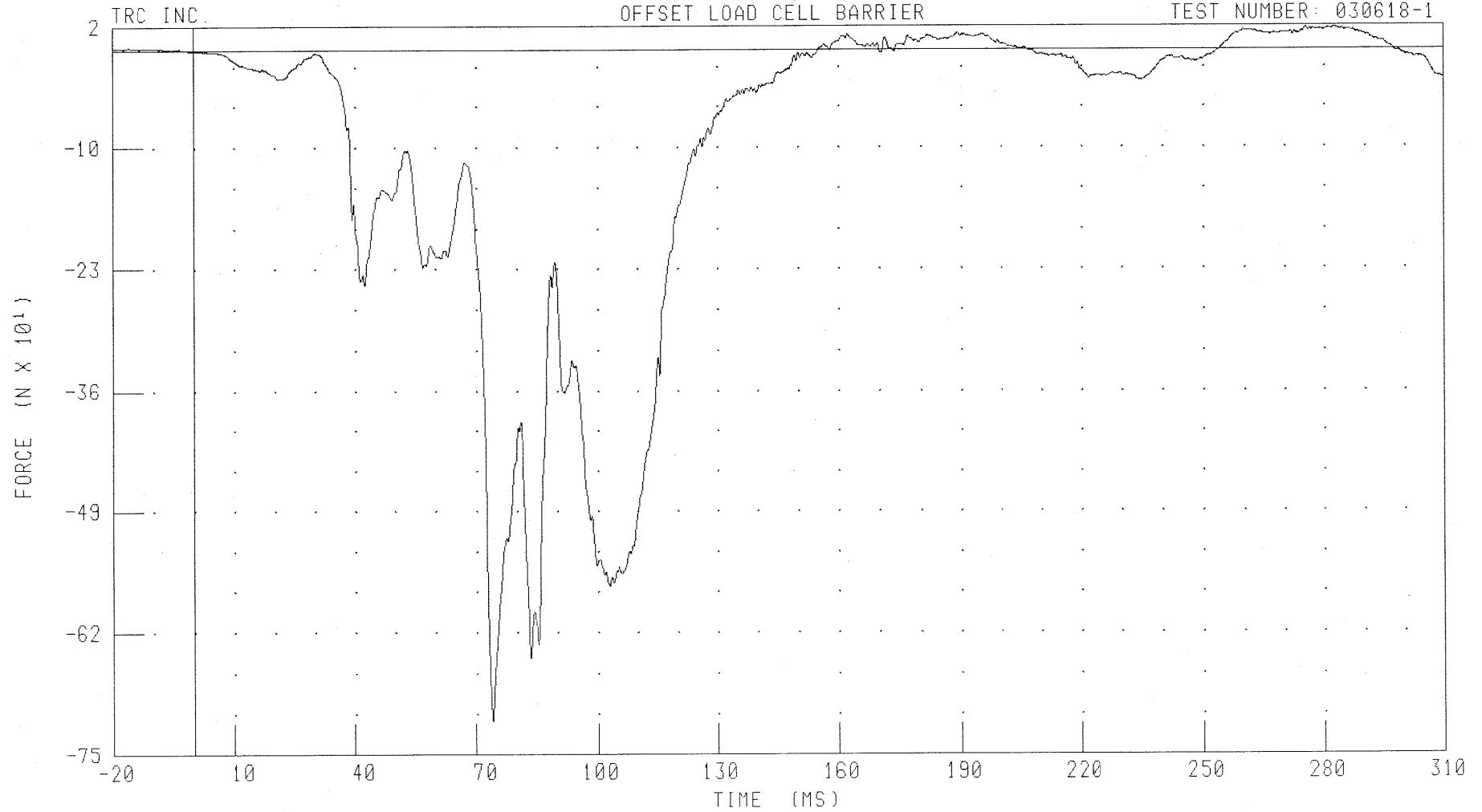
B-71

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRXF1

FILTER: CH. CLASS 600

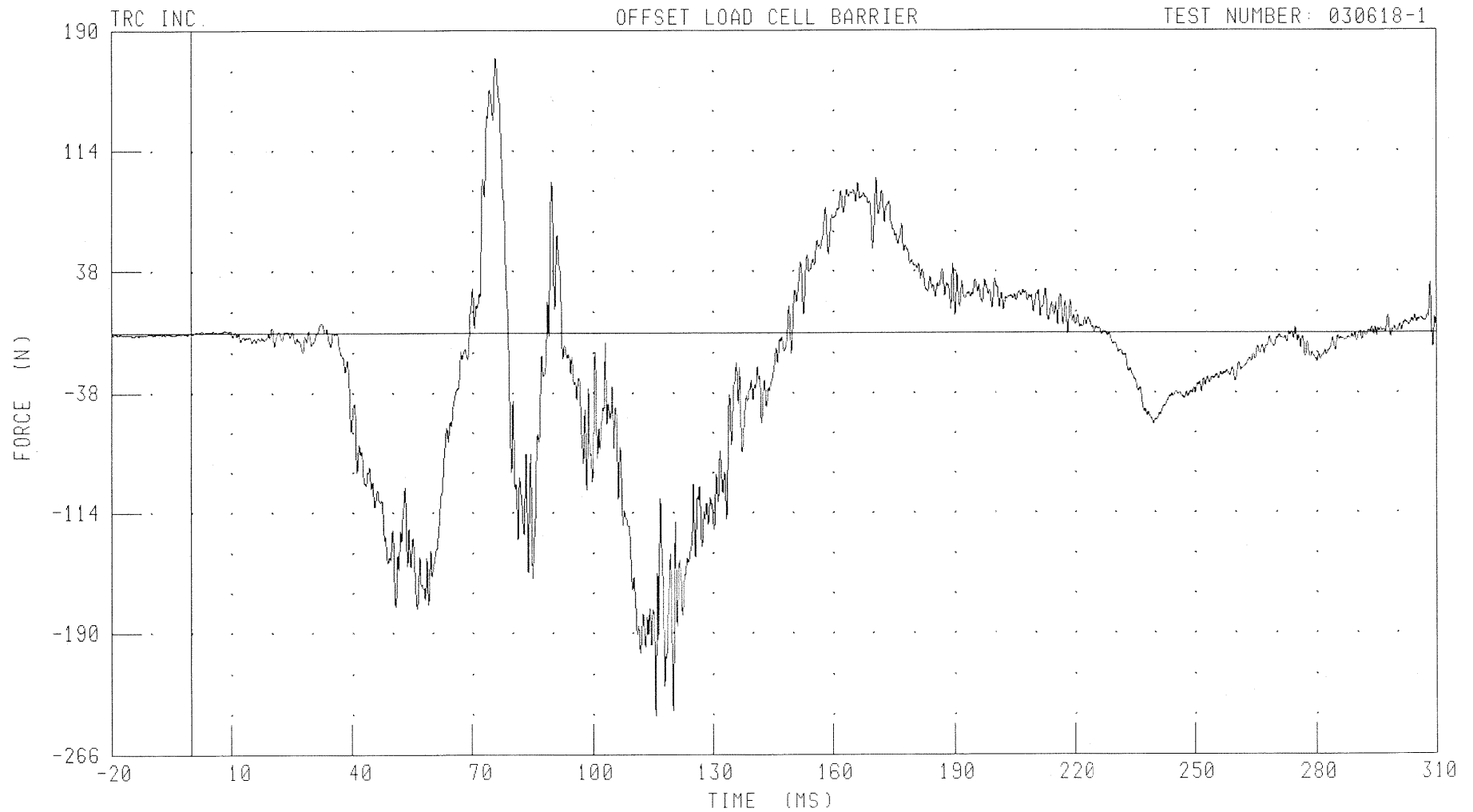
PEAK DATA: 23.38 N @ 282.64 MS; -720.01 N @ 74.08 MS

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

DRIVER RIGHT LOWER TIBIA Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRYF1 FILTER: CH CLASS 600

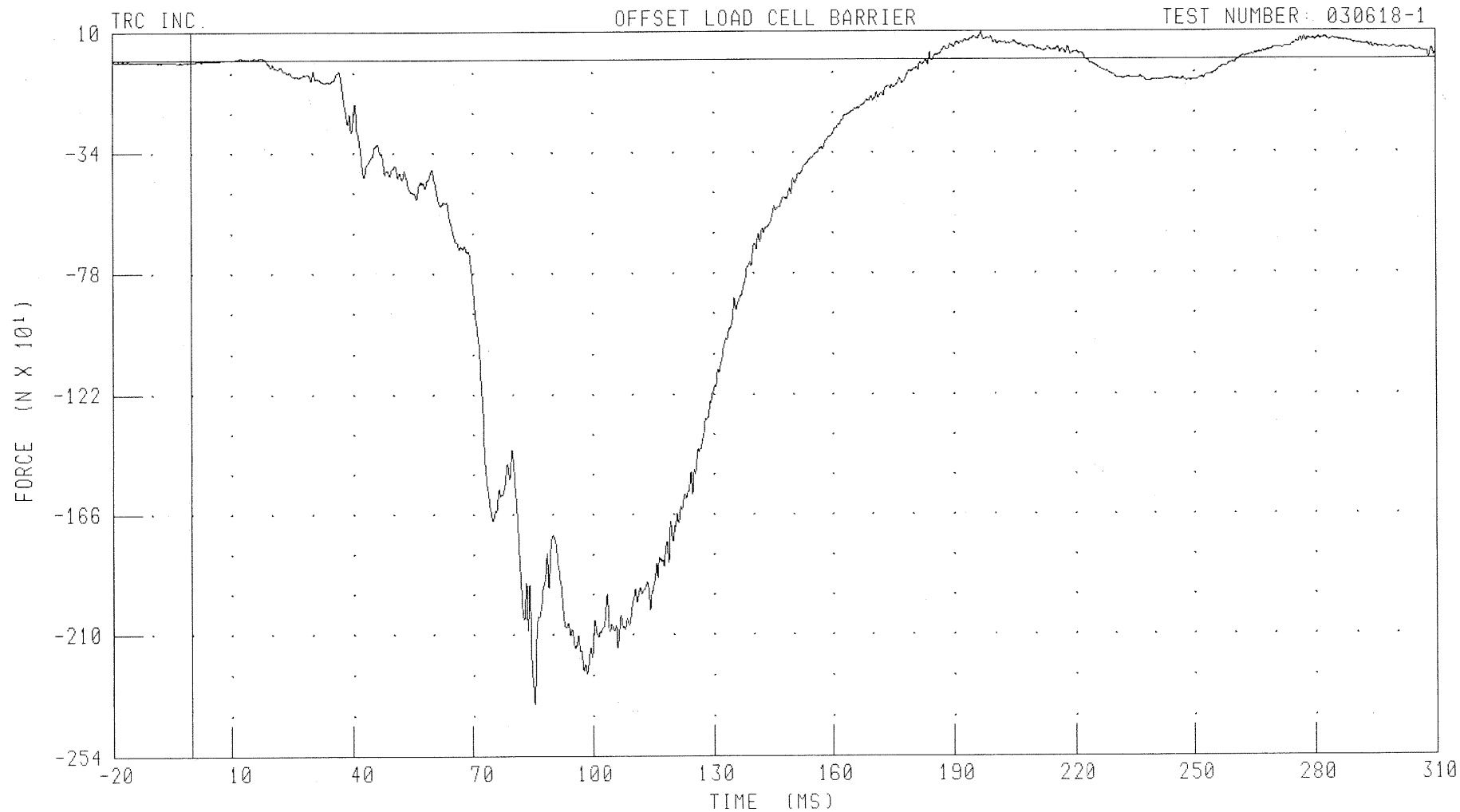
B-73

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRZF1 FILTER: CH. CLASS 600

PEAK DATA: 95.24 N @ 196.80 MS, -2349.48 N @ 85.52 MS

B-74

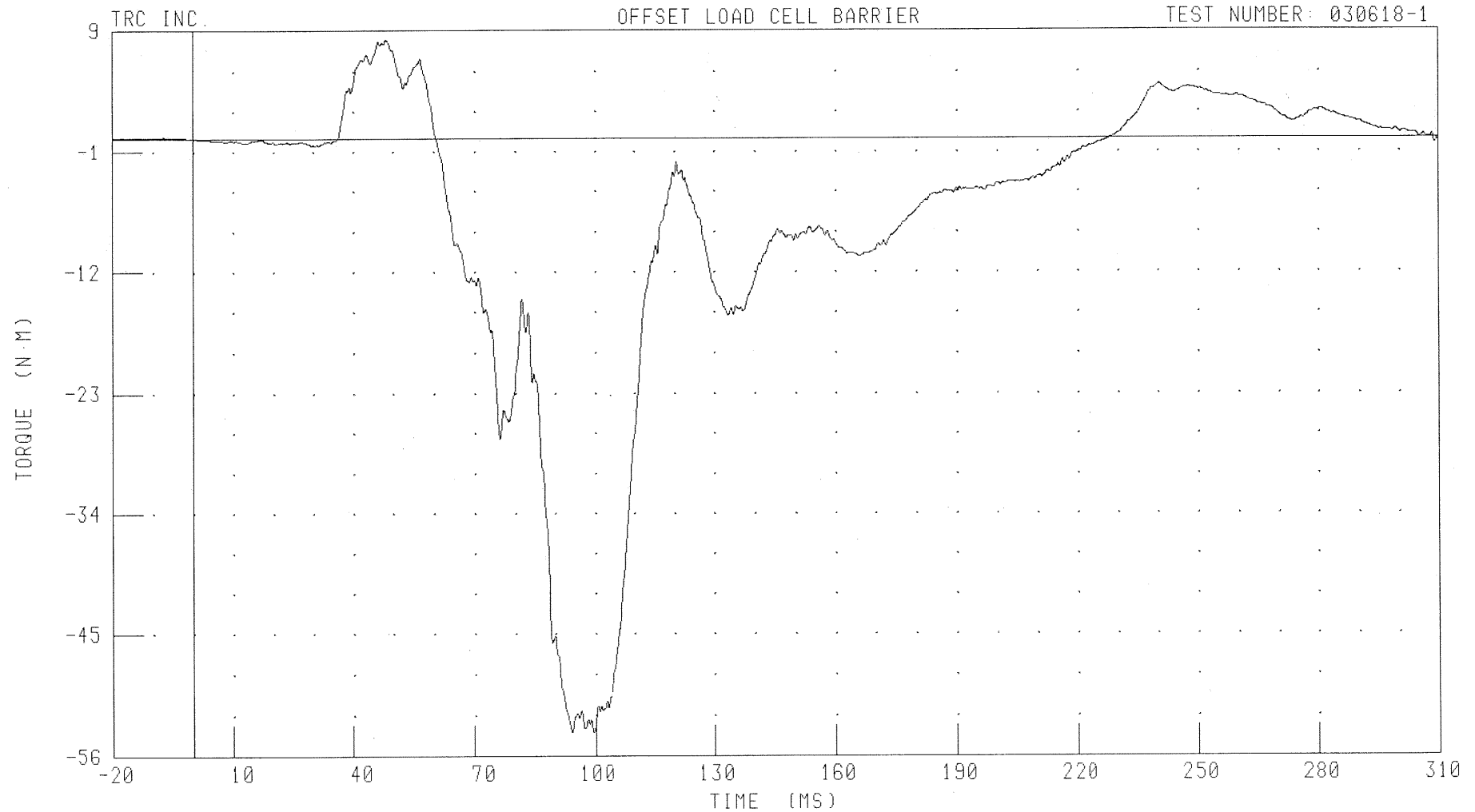
030618-1

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

DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRXM1 FILTER: CH. CLASS 600

PEAK DATA: 8.98 N·M @ 48.40 MS, -54.08 N·M @ 99.52 MS

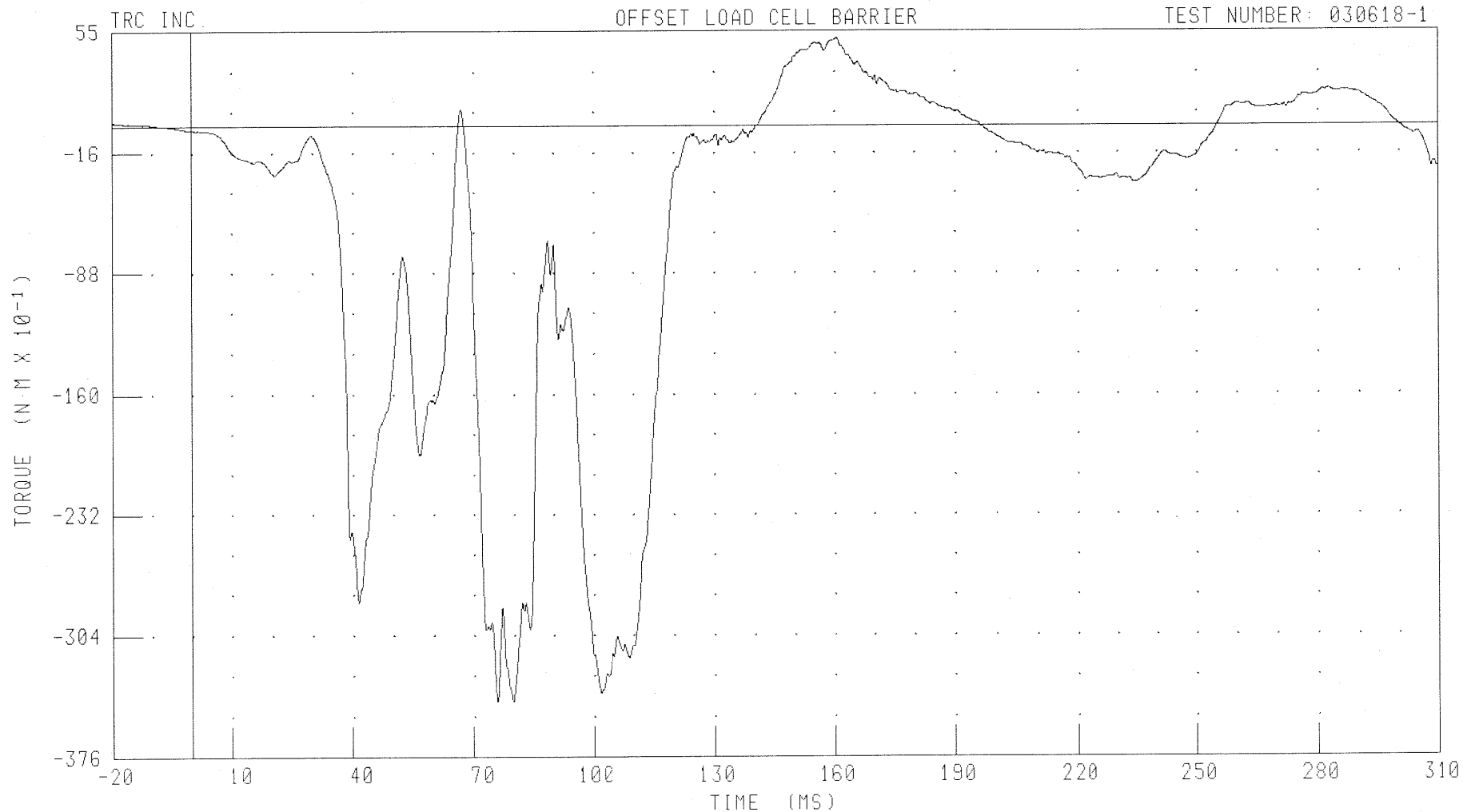
B-75

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRYM1

FILTER: CH. CLASS 600

B-76

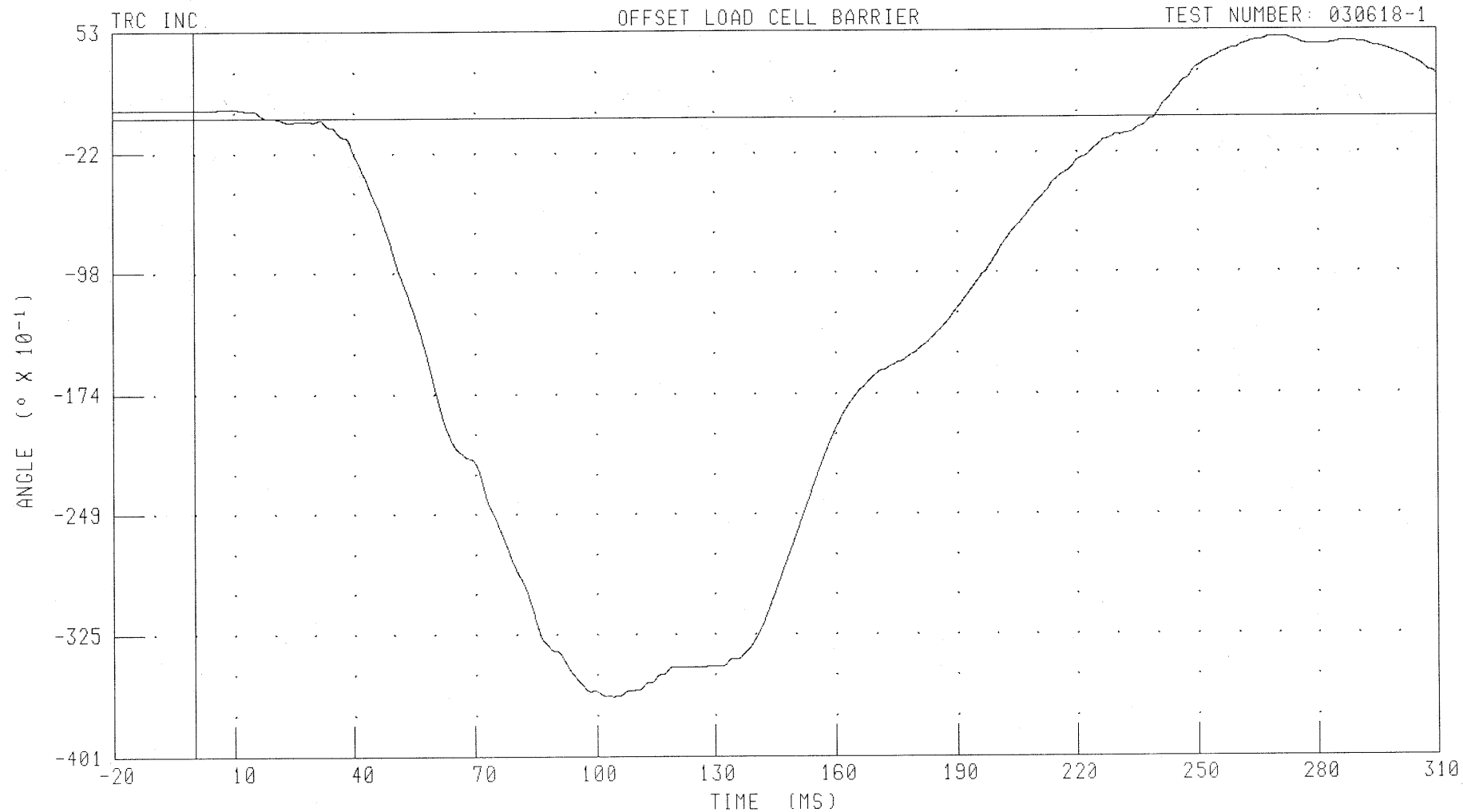
030618-1

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

DRIVER RIGHT FOOT TO ANKLE X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRXD1 FILTER: CH. CLASS 180

PEAK DATA: 4.99 ° @ 268.16 MS; -36.51 ° @ 104.40 MS

B-77

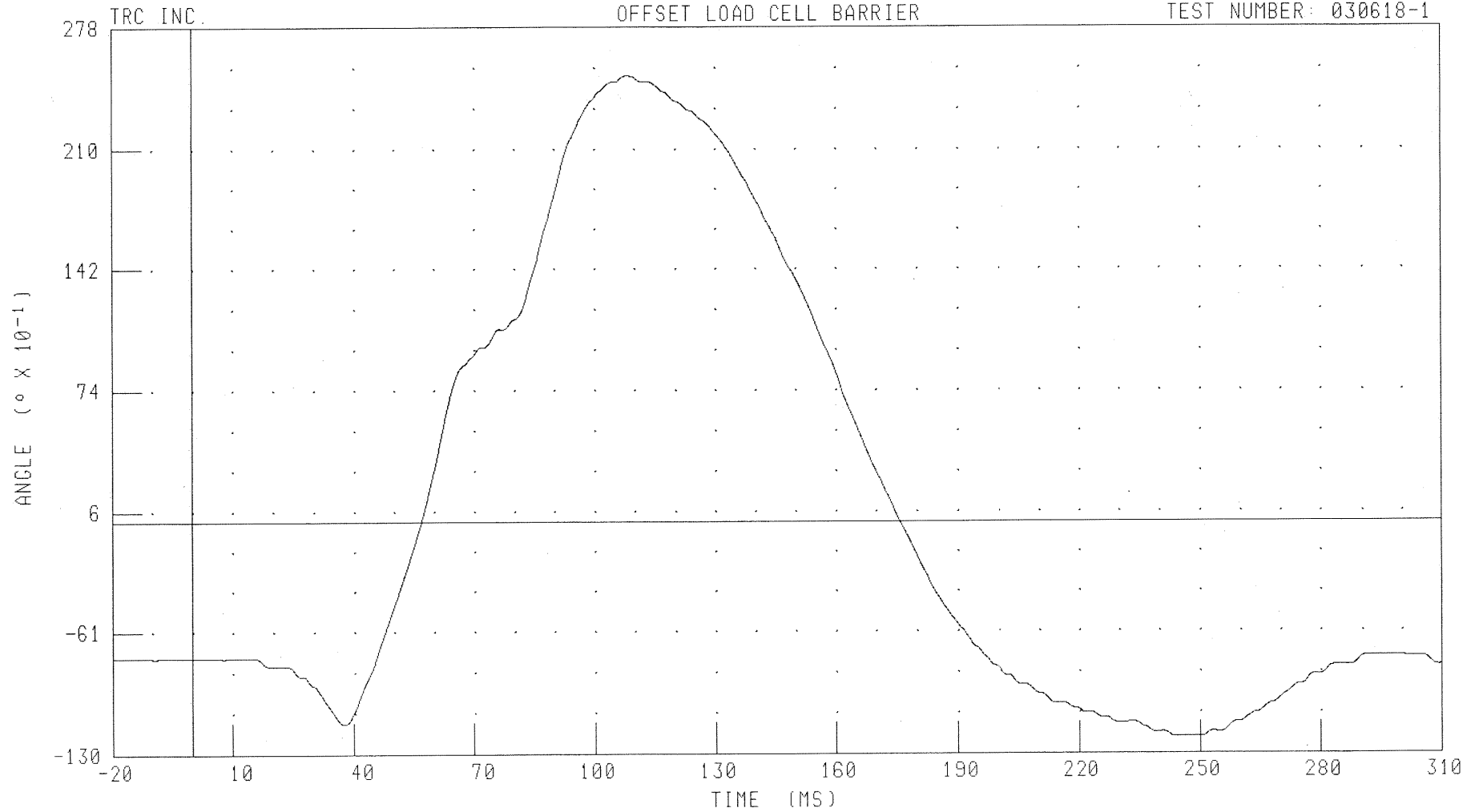
030618-1

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

DRIVER RIGHT FOOT TO ANKLE Y-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRYD1 FILTER: CH. CLASS 180

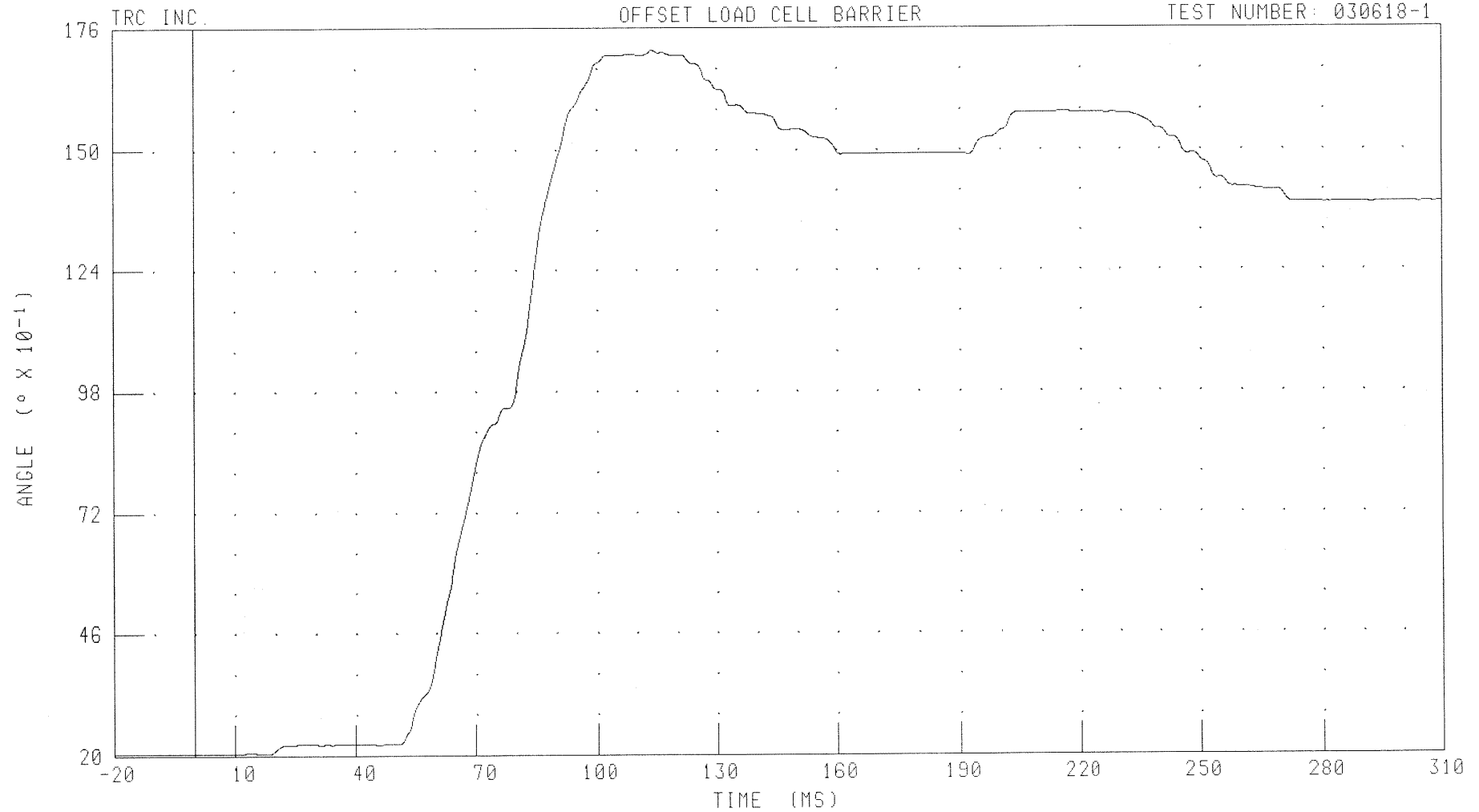
B-78

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRZD1 FILTER: CH. CLASS 180

PEAK DATA: 17.13 $^{\circ}$ @ 113.84 MS; 2.04 $^{\circ}$ @ 17.60 MS

B-79

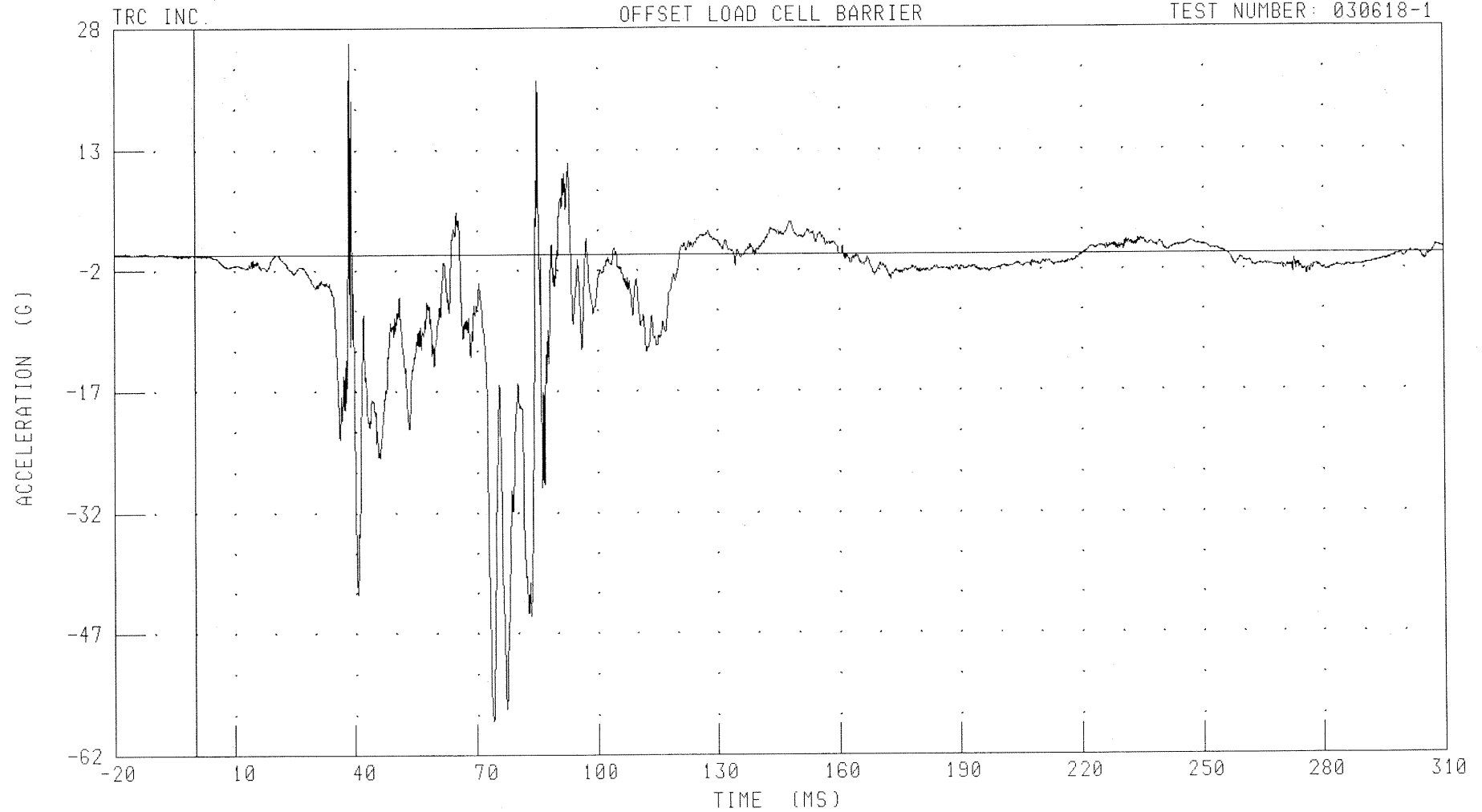
030618-1

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

DRIVER RIGHT FOOT X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRXC1 FILTER: CH. CLASS 1000

PEAK DATA: 26.08 G @ 38.56 MS; -57.81 G @ 74.00 MS

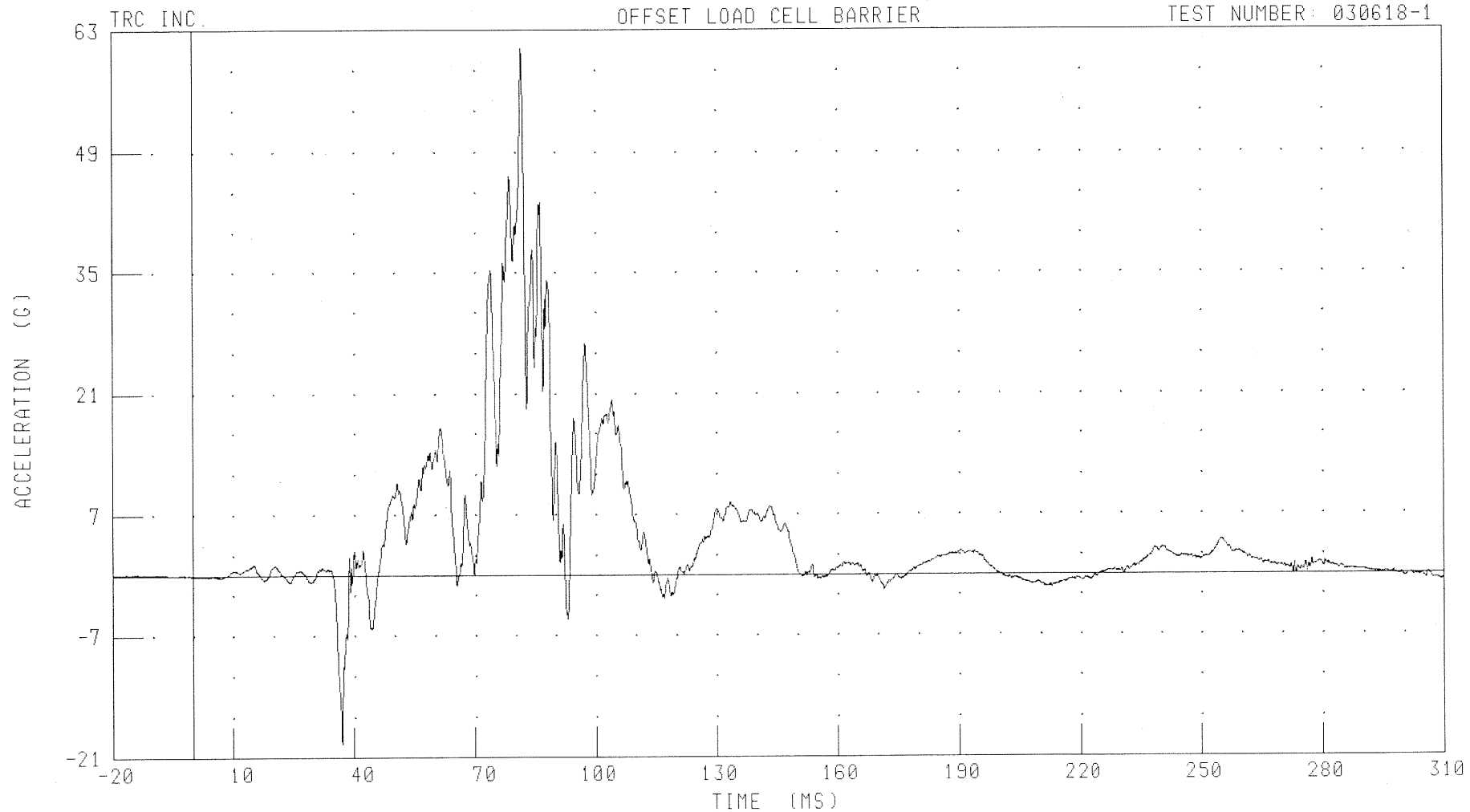
B-80

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRYG1 FILTER: CH CLASS 1000

PEAK DATA: 60.84 G @ 81.68 MS; -19.48 G @ 37.04 MS

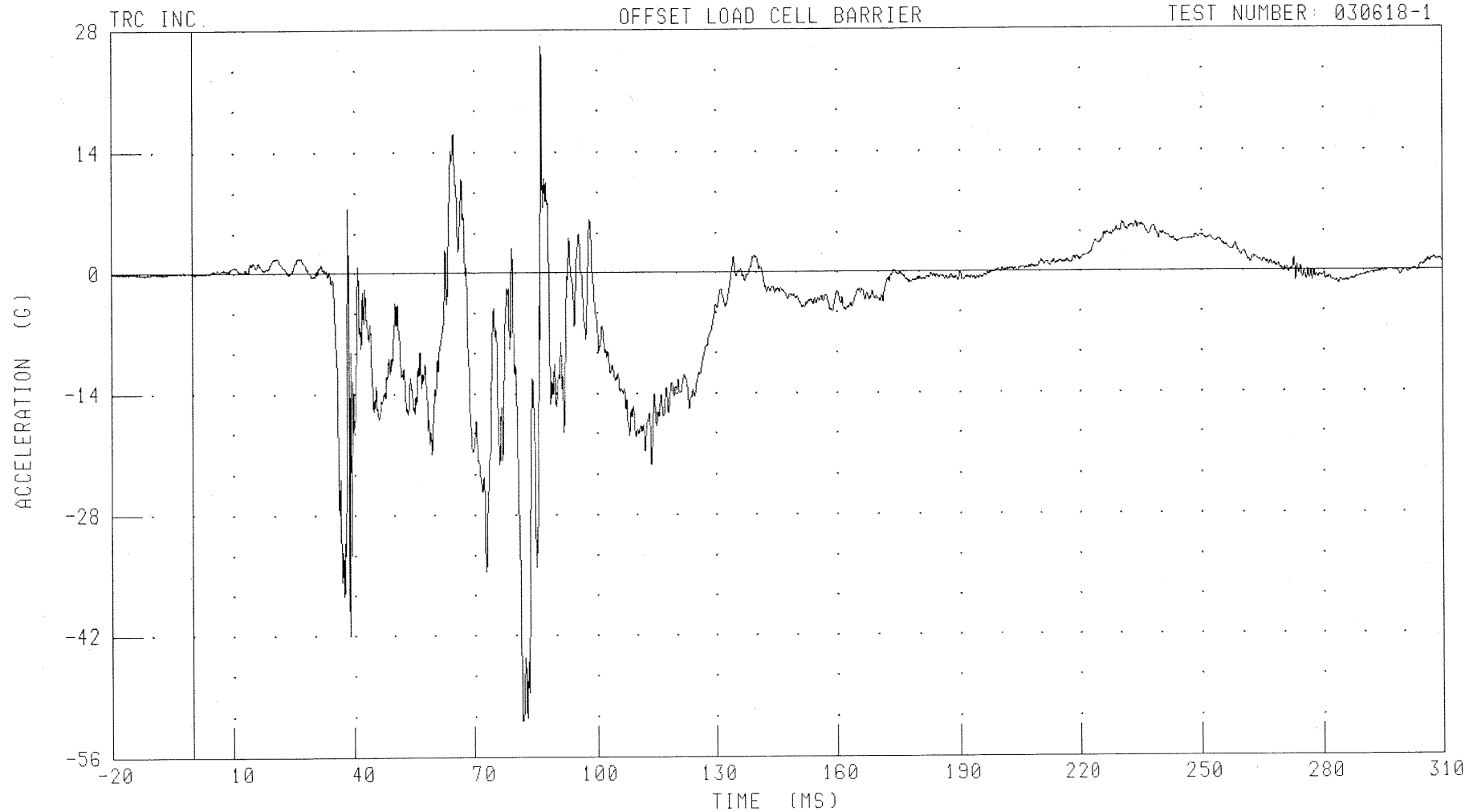
B-81

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRZG1

FILTER: CH. CLASS 1000

PEAK DATA: 26.19 G @ 86.48 MS; -51.88 G @ 81.68 MS

B-82

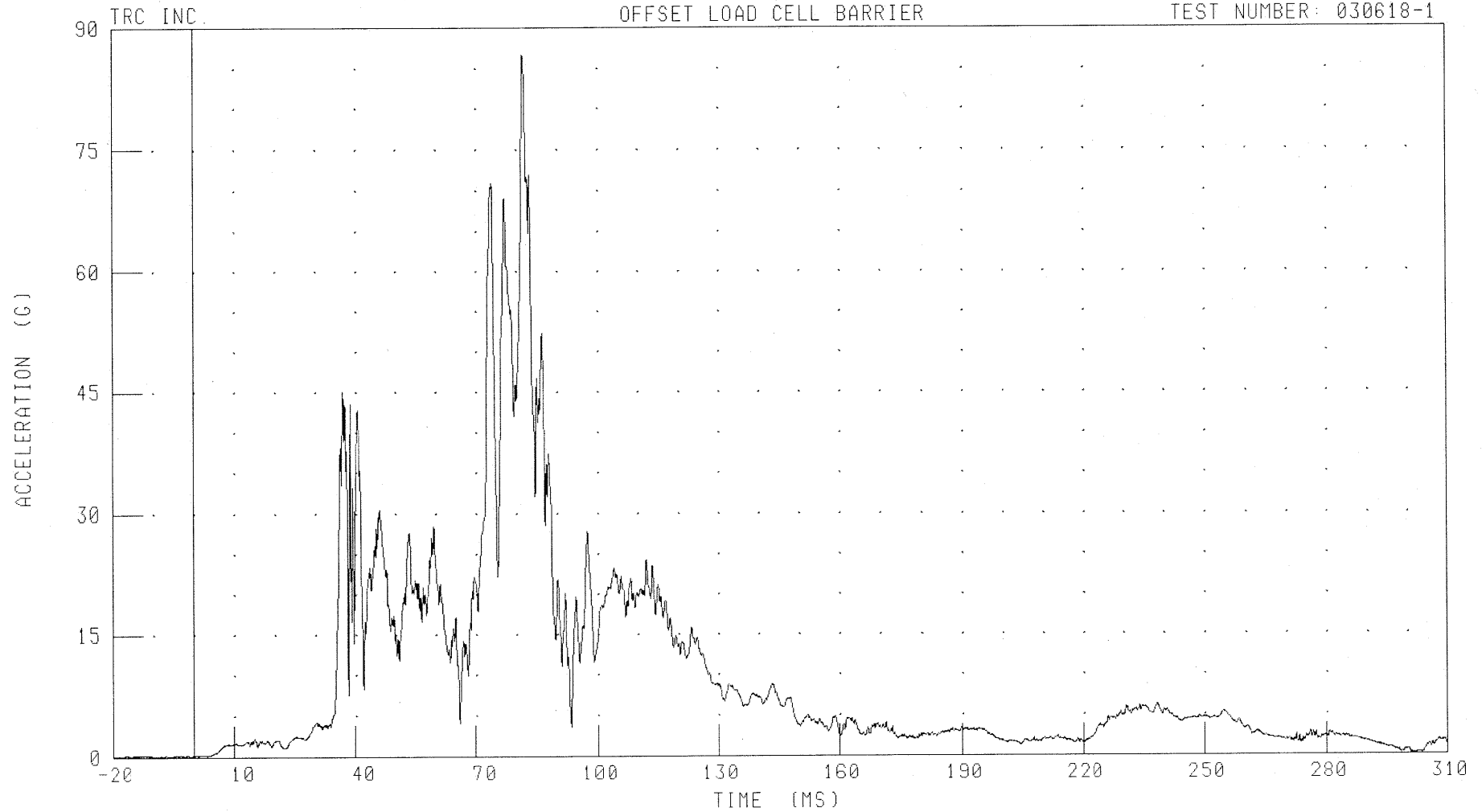
030618-1

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

DRIVER RIGHT FOOT RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTTC01 FILTER: CH. CLASS 1000

PEAK DATA: 86.69 G @ 81.68 MS; 0.04 G @ -5.28 MS

B-83

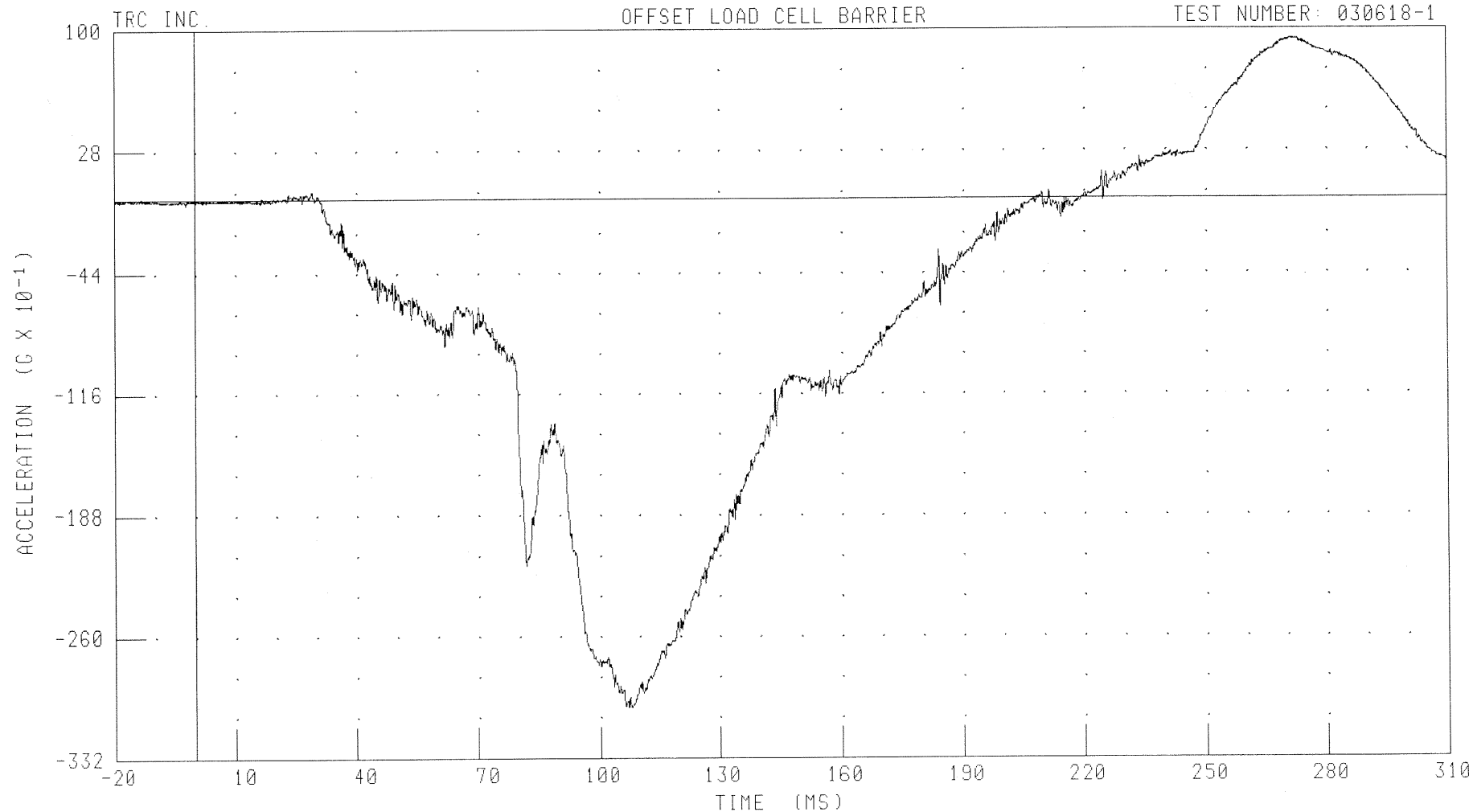
030618-1

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

PASSENGER HEAD X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDXG2

FILTER: CH. CLASS 1000

PEAK DATA: 9.43 G @ 270.88 MS; -30.24 G @ 108.24 MS

B-84

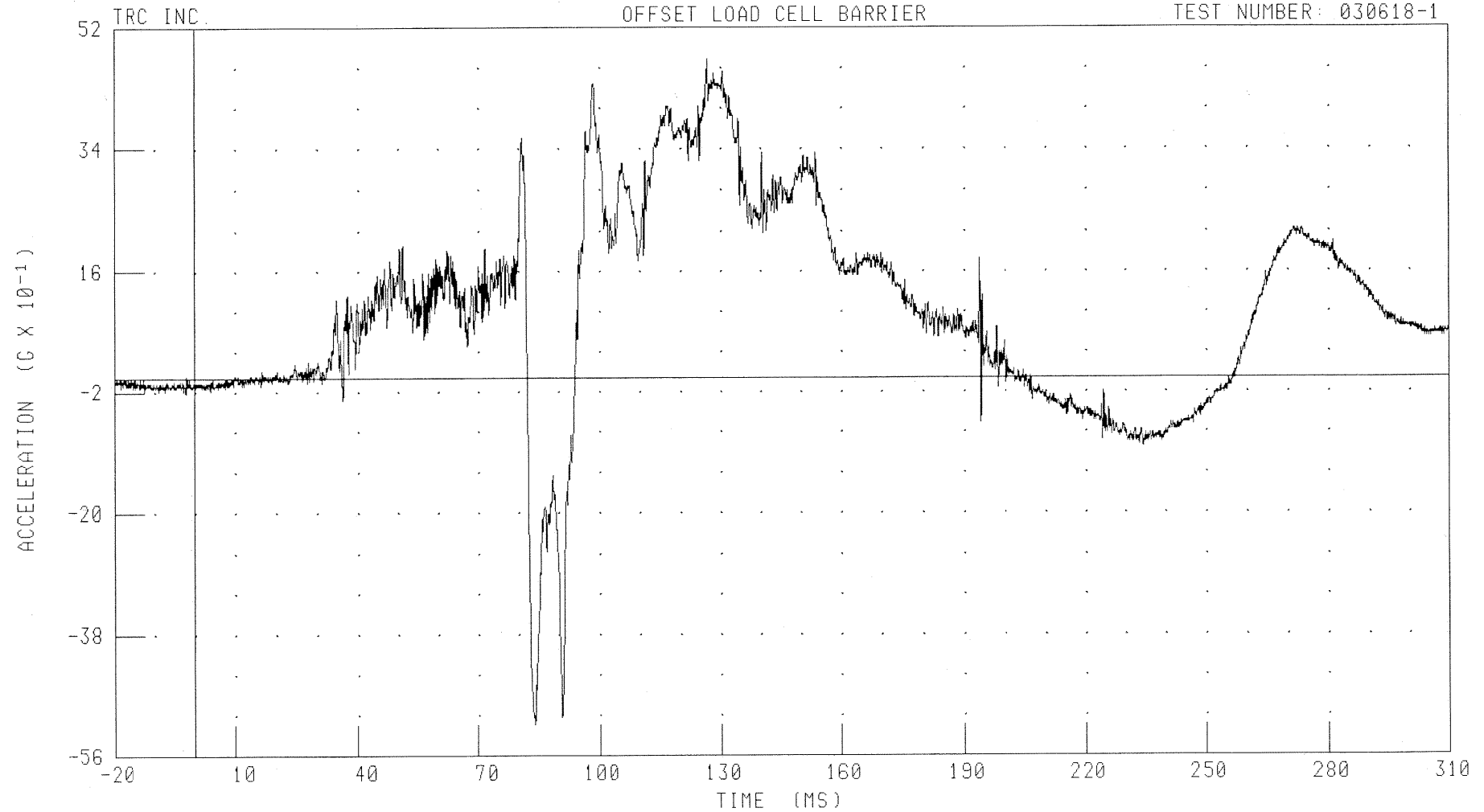
030618-1

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

PASSENGER HEAD Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDYC2 FILTER: CH. CLASS 1000

PEAK DATA: 4.74 G @ 126.80 MS; -5.14 G @ 84.08 MS

B-85

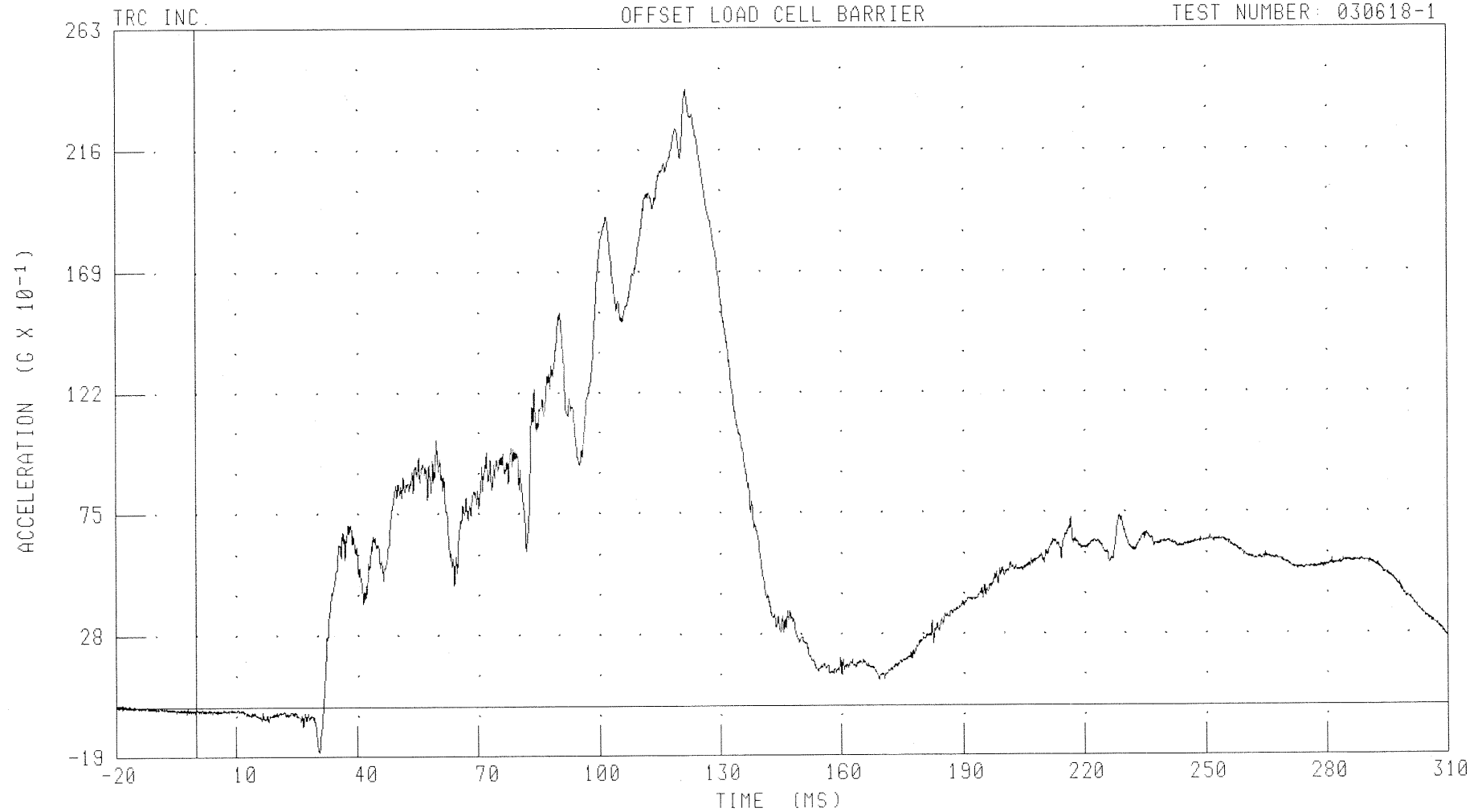
030618-1

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

PASSENGER HEAD Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 23.92 G @ 121.60 MS; -1.76 G @ 30.48 MS

B-86

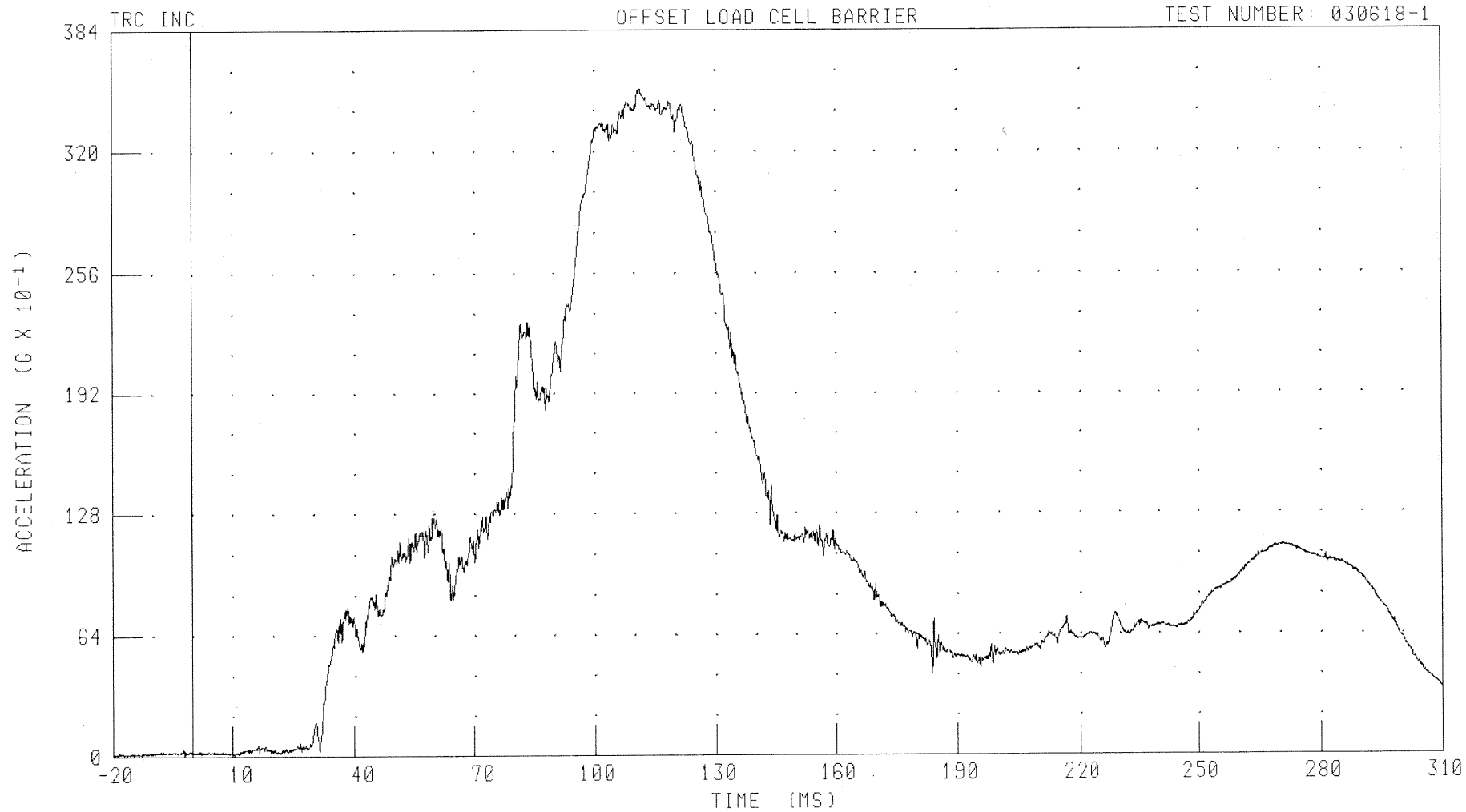
030618-1

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

PASSENGER HEAD RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: HEDRG2

FILTER: CH. CLASS 1000

PEAK DATA: 35.28 G @ 111.60 MS; 0.02 G @ -19.60 MS

B-87

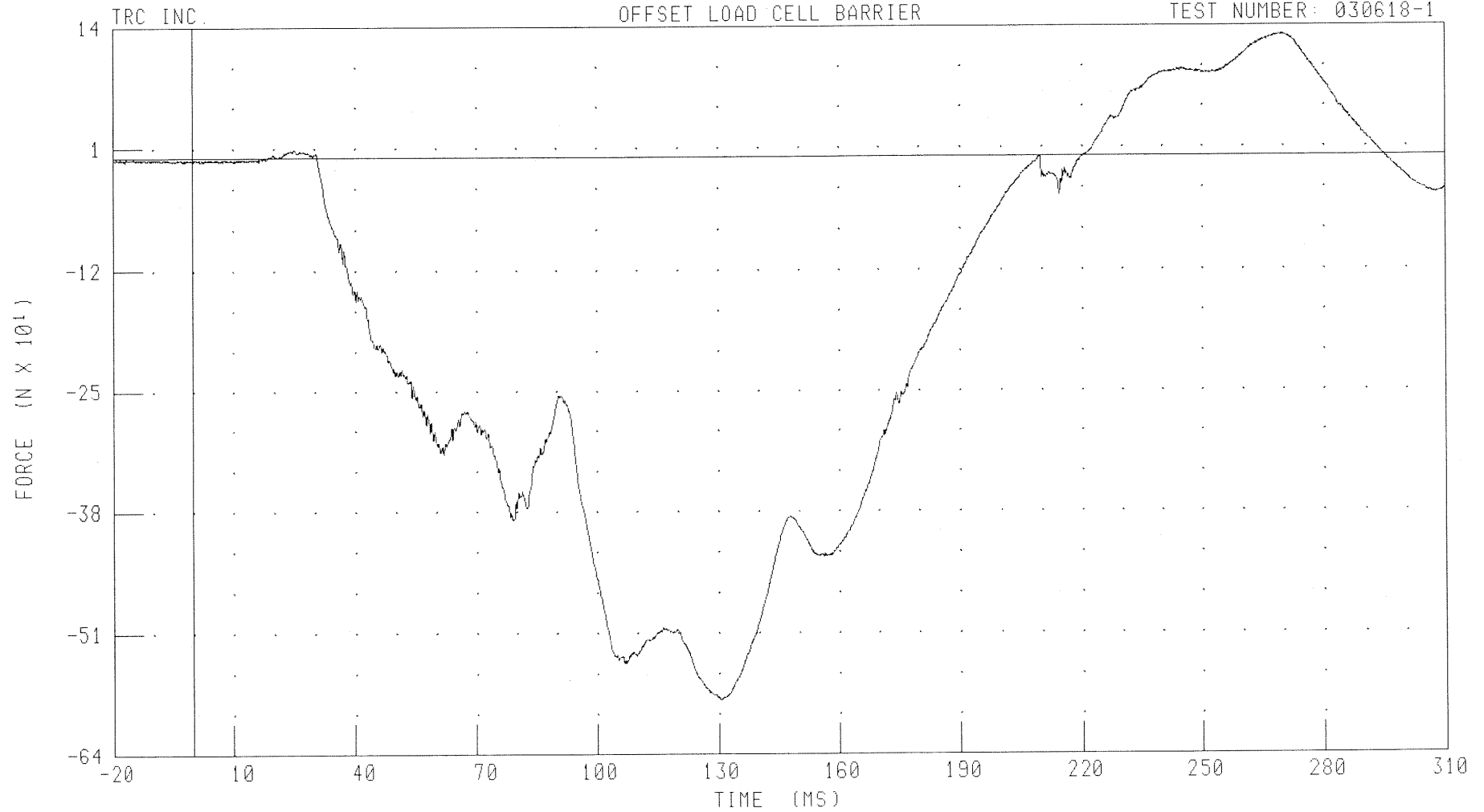
030618-1

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

PASSENGER NECK X-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

PEAK DATA: 130.84 N @ 269.36 MS; -582.03 N @ 130.40 MS

B-88

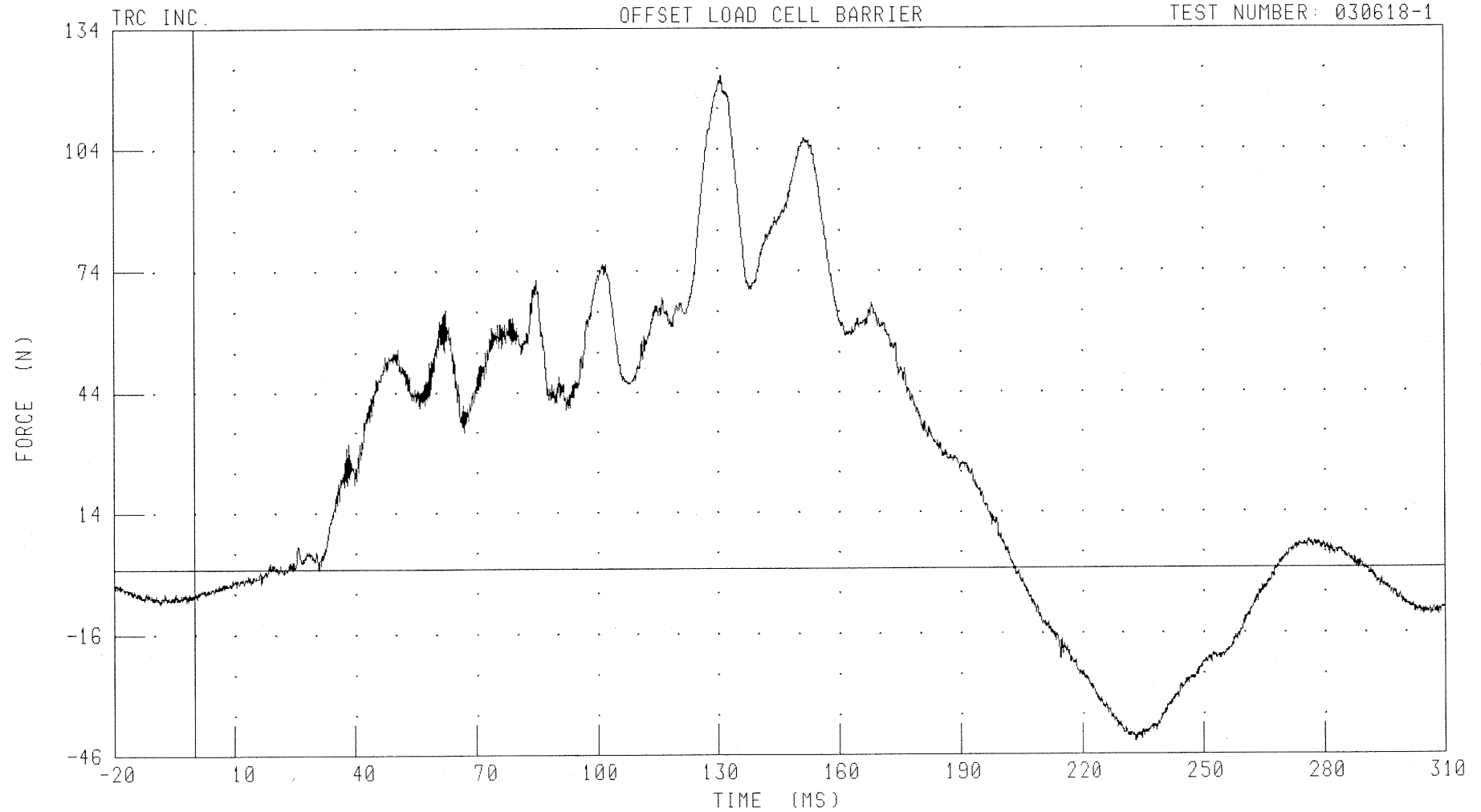
030618-1

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

PASSENGER NECK Y-AXIS SHEAR FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-89

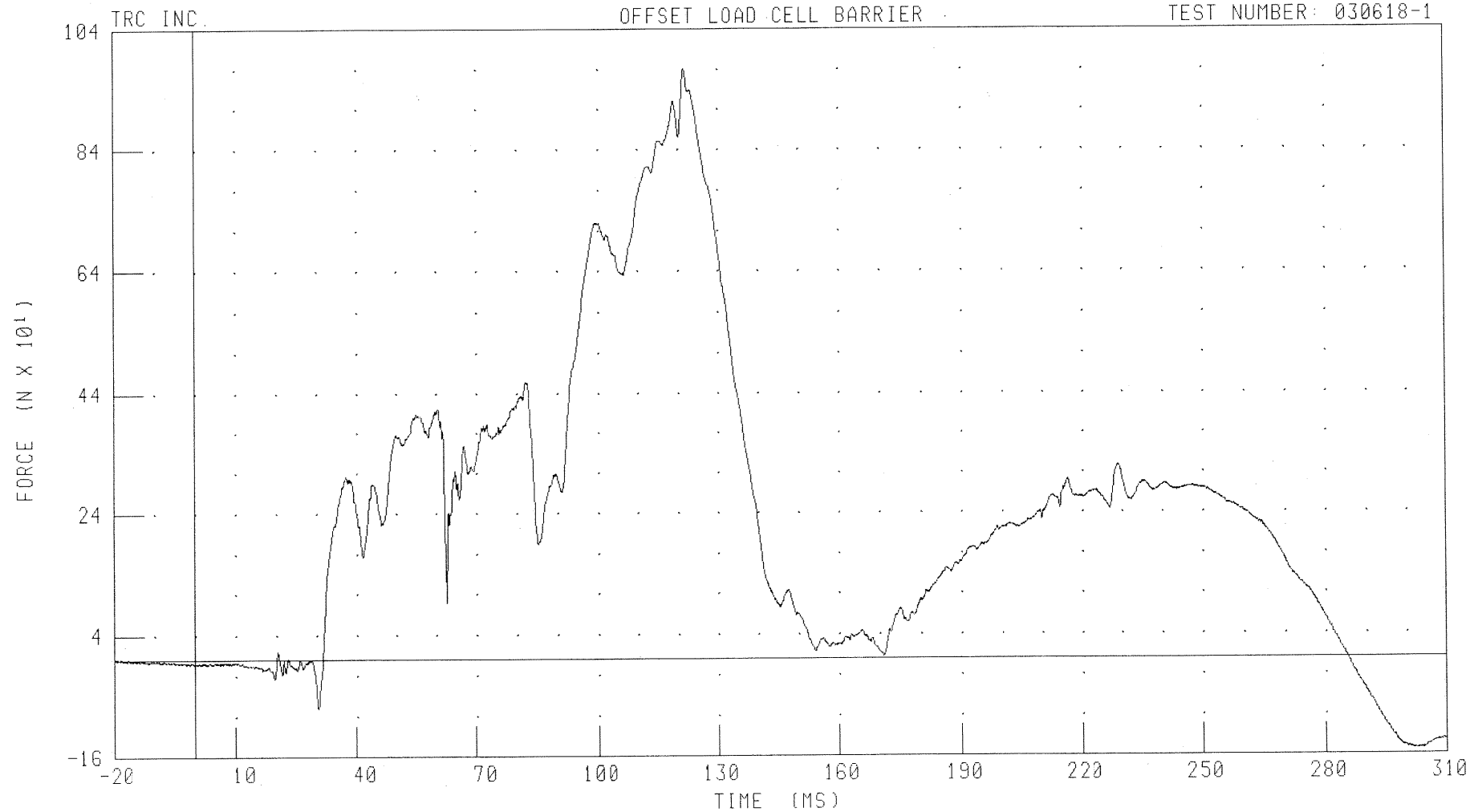
030618-1

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

PASSENGER NECK Z-AXIS AXIAL FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKZF2

FILTER: CH. CLASS 1000

PEAK DATA: 973.83 N @ 121.60 MS; -152.31 N @ 302.56 MS

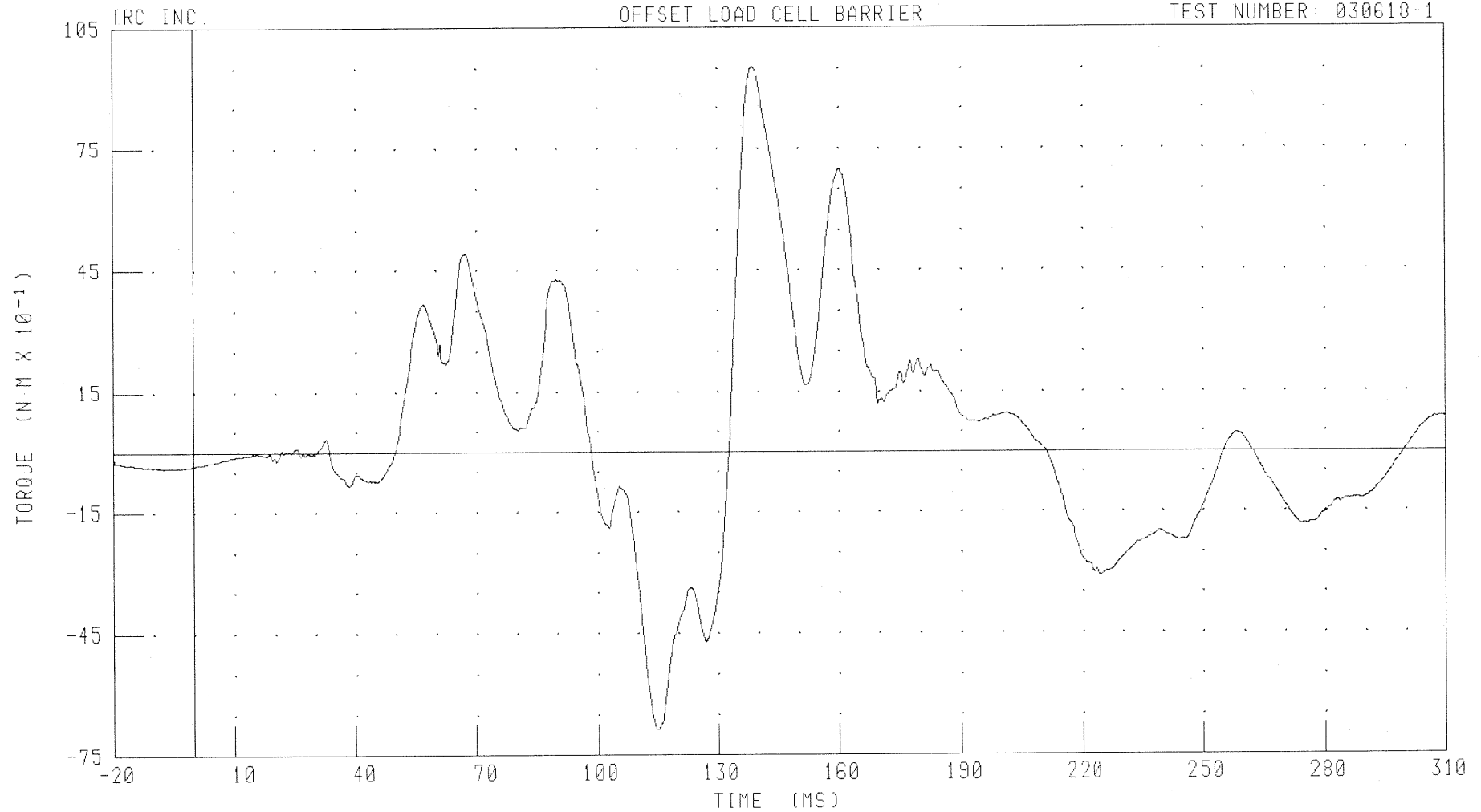
B-90

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKXM2

FILTER: CH. CLASS 600

PEAK DATA: 9.54 N·M @ 138.80 MS; -6.87 N·M @ 115.04 MS

B-91

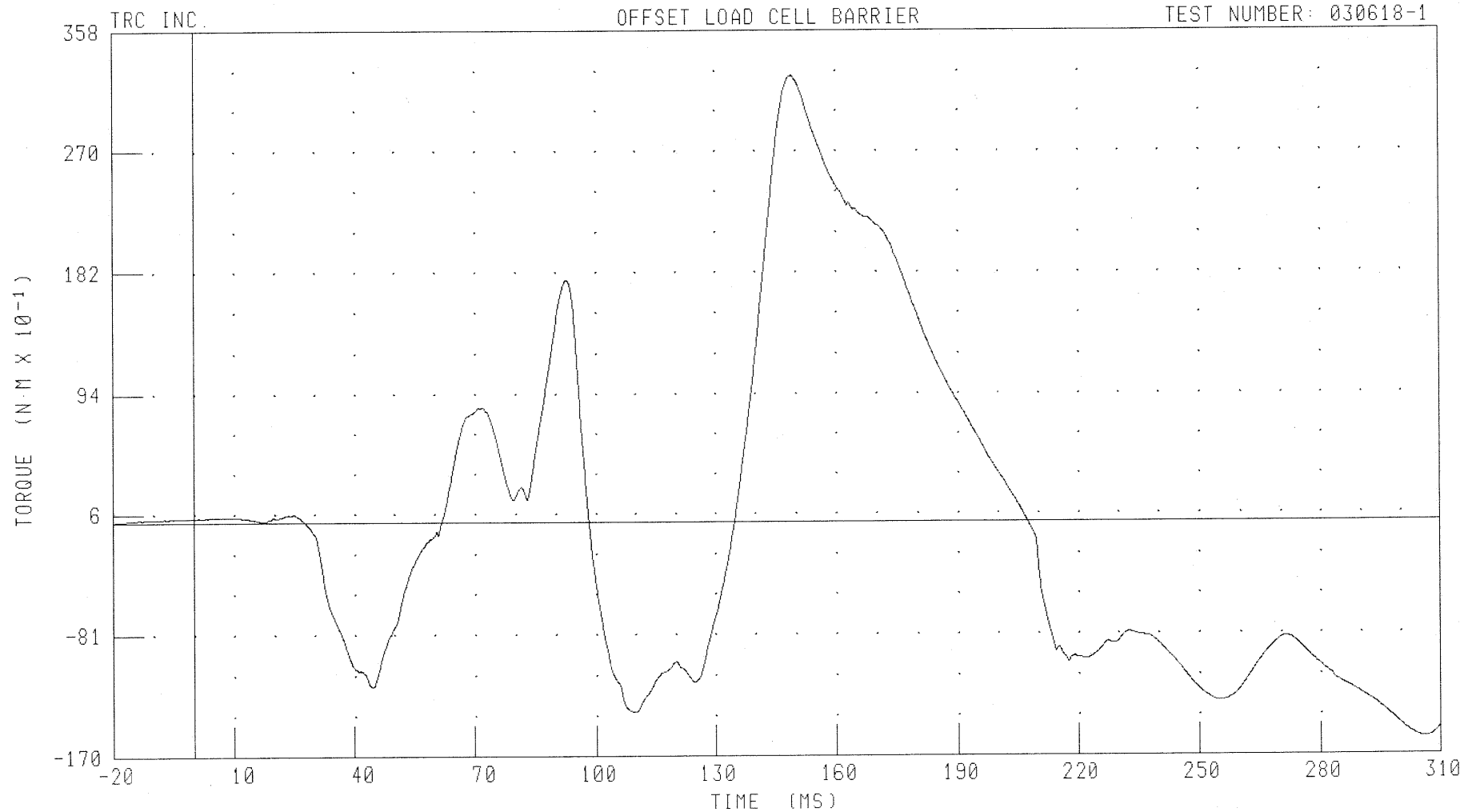
030618-1

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

PASSENGER NECK MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

PEAK DATA: 32.51 N·M @ 149.20 MS, -15.77 N·M @ 306.32 MS

B-92

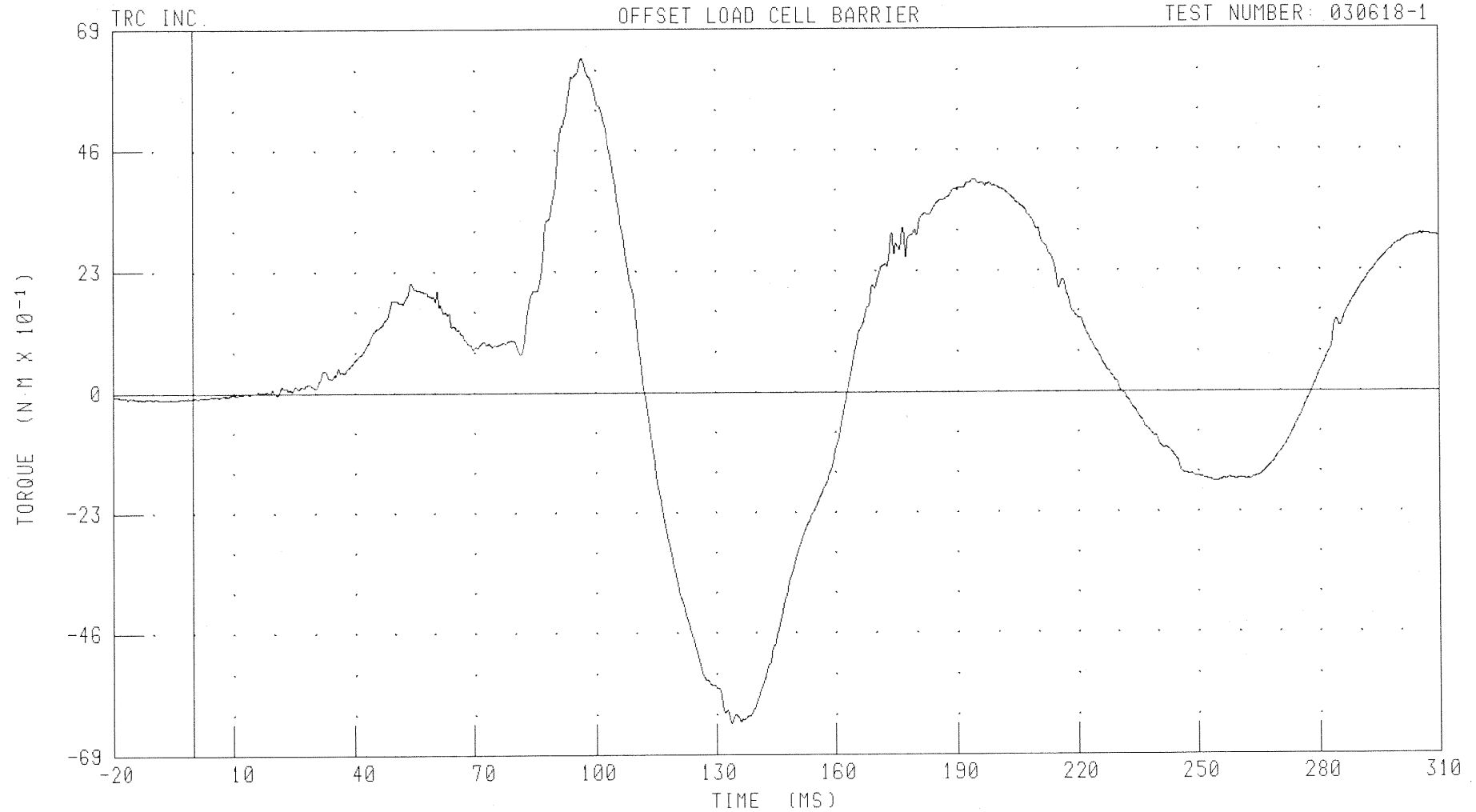
030618-1

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

PASSENGER NECK MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKZM2 FILTER: CH. CLASS 600

PEAK DATA: 6.36 N·m @ 96.64 MS; -6.32 N·m @ 133.84 MS

B-93

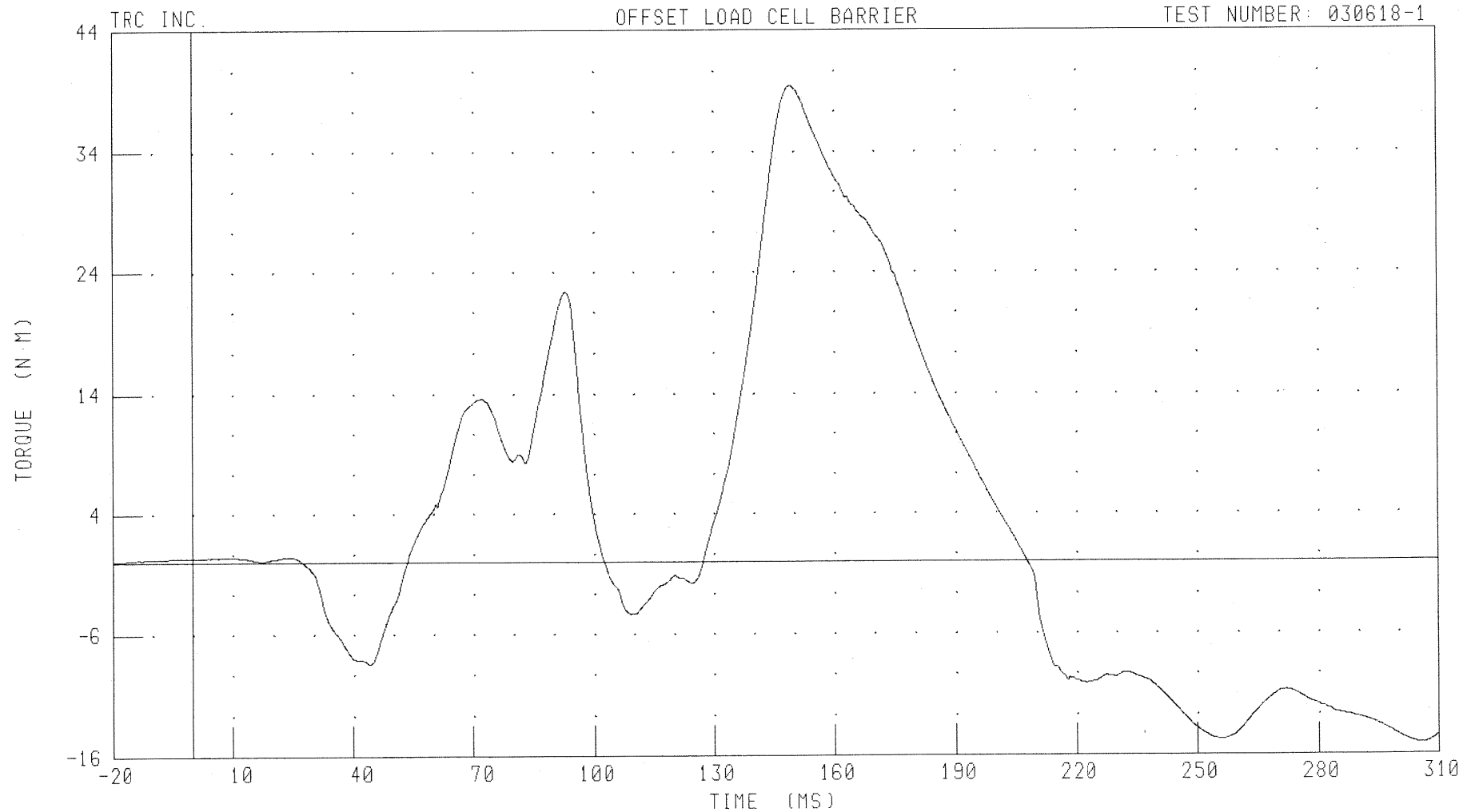
030618-1

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

PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NEKDM2 FILTER: CH. CLASS 600

PEAK DATA: 39.46 N·M @ 149.36 MS; -15.08 N·M @ 306.32 MS

B-94

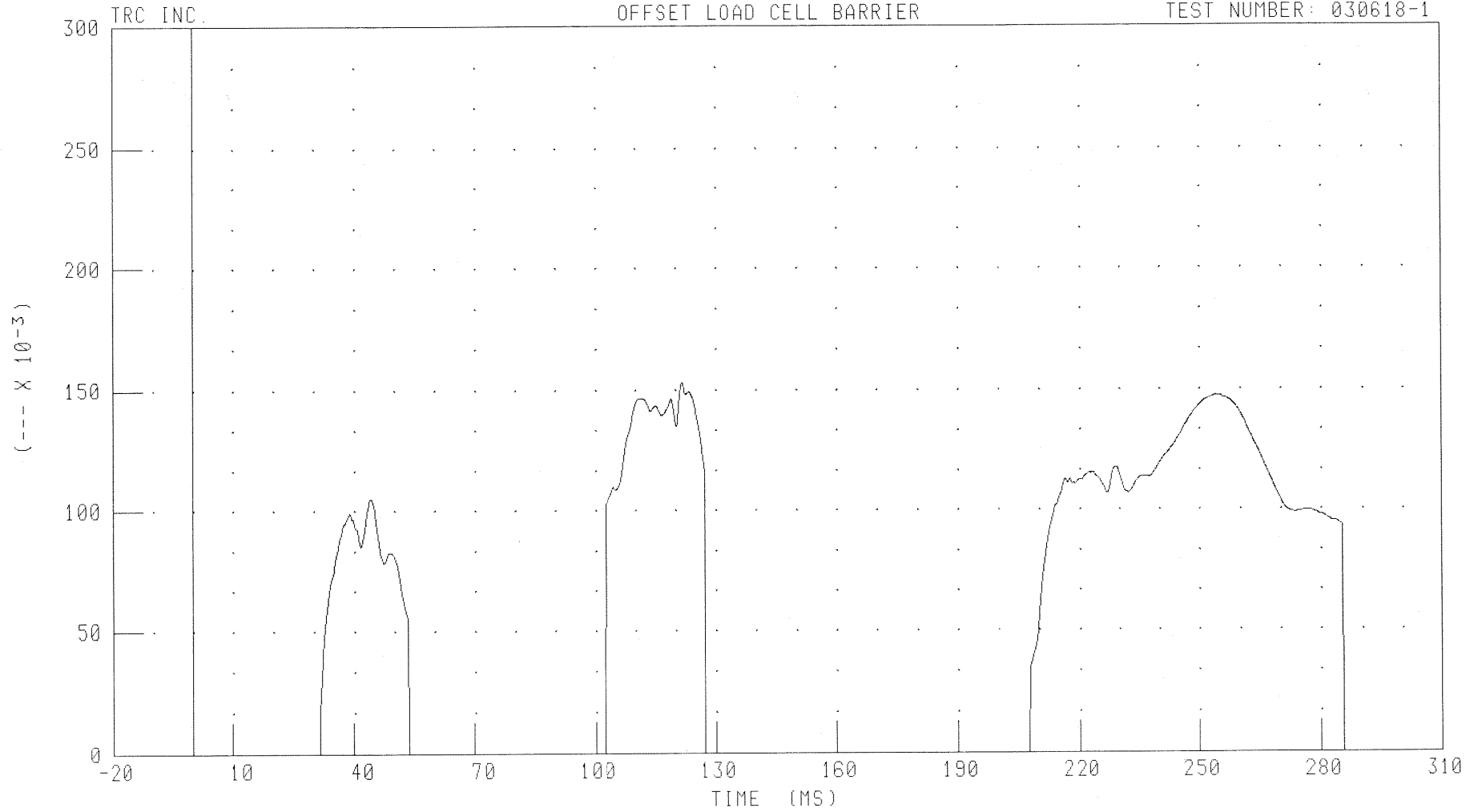
030618-1

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

PASSENGER NIJ TENSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NTE2

FILTER: CH. CLASS 600

PEAK DATA: 0.15 --- @ 121.68 MS; 0.00 --- @ -20.00 MS

B-95

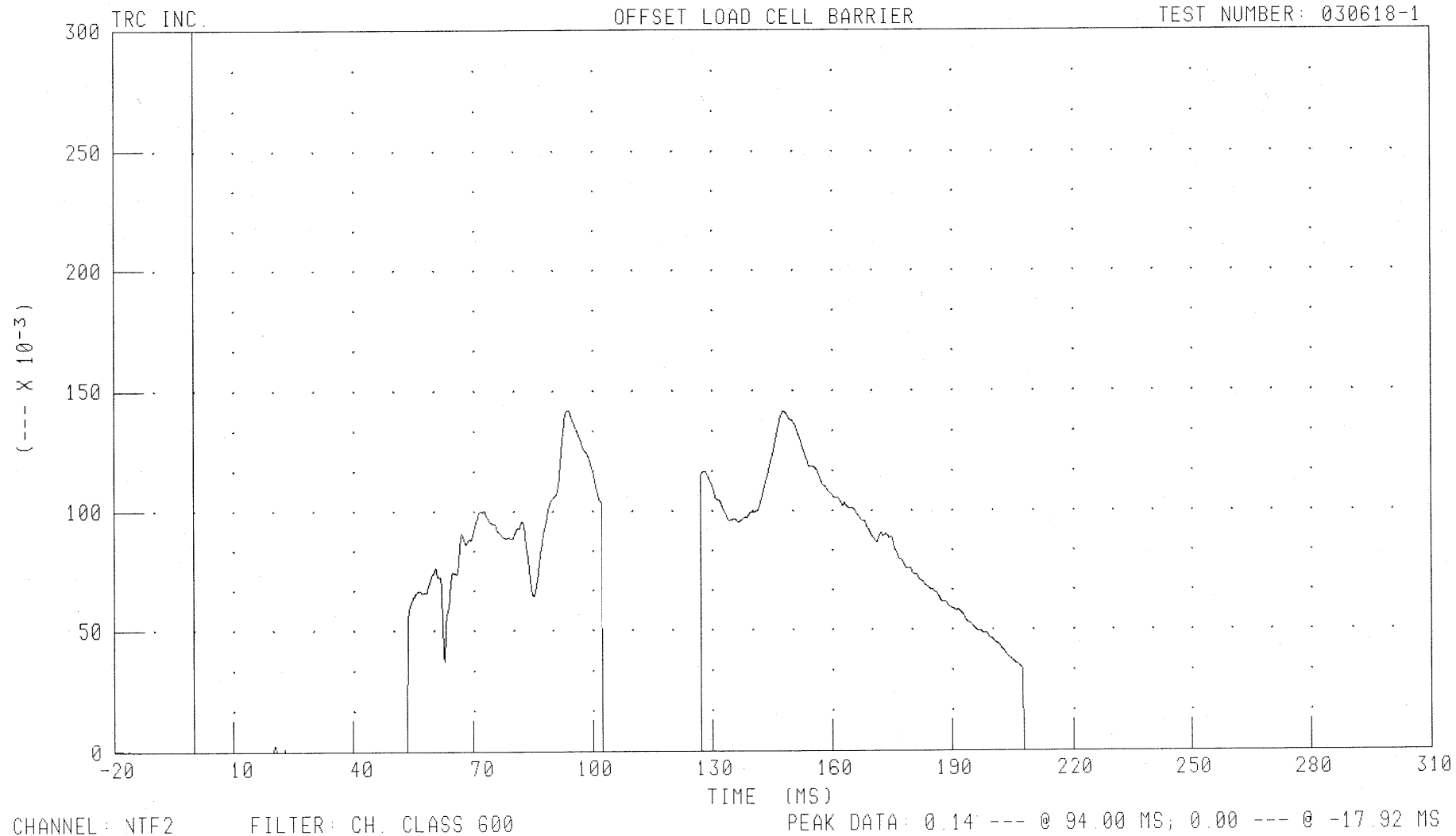
030618-1

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

PASSENGER NIJ TENSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-96

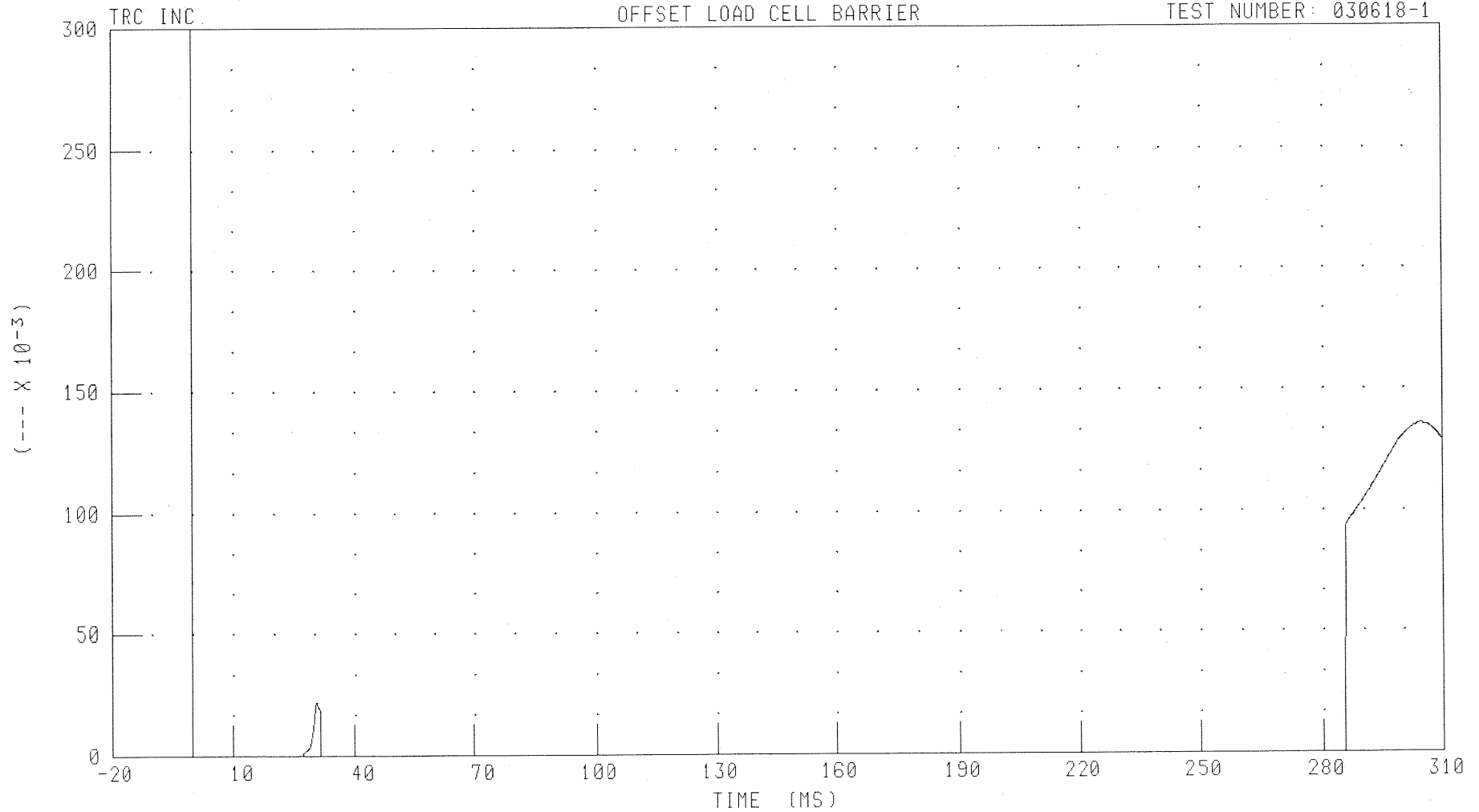
030618-1

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

PASSENGER NIJ COMPRESSION/EXTENSION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NCE2

FILTER: CH. CLASS 600

PEAK DATA: 0.14 --- @ 304.64 MS; 0.00 --- @ -20.00 MS

B-97

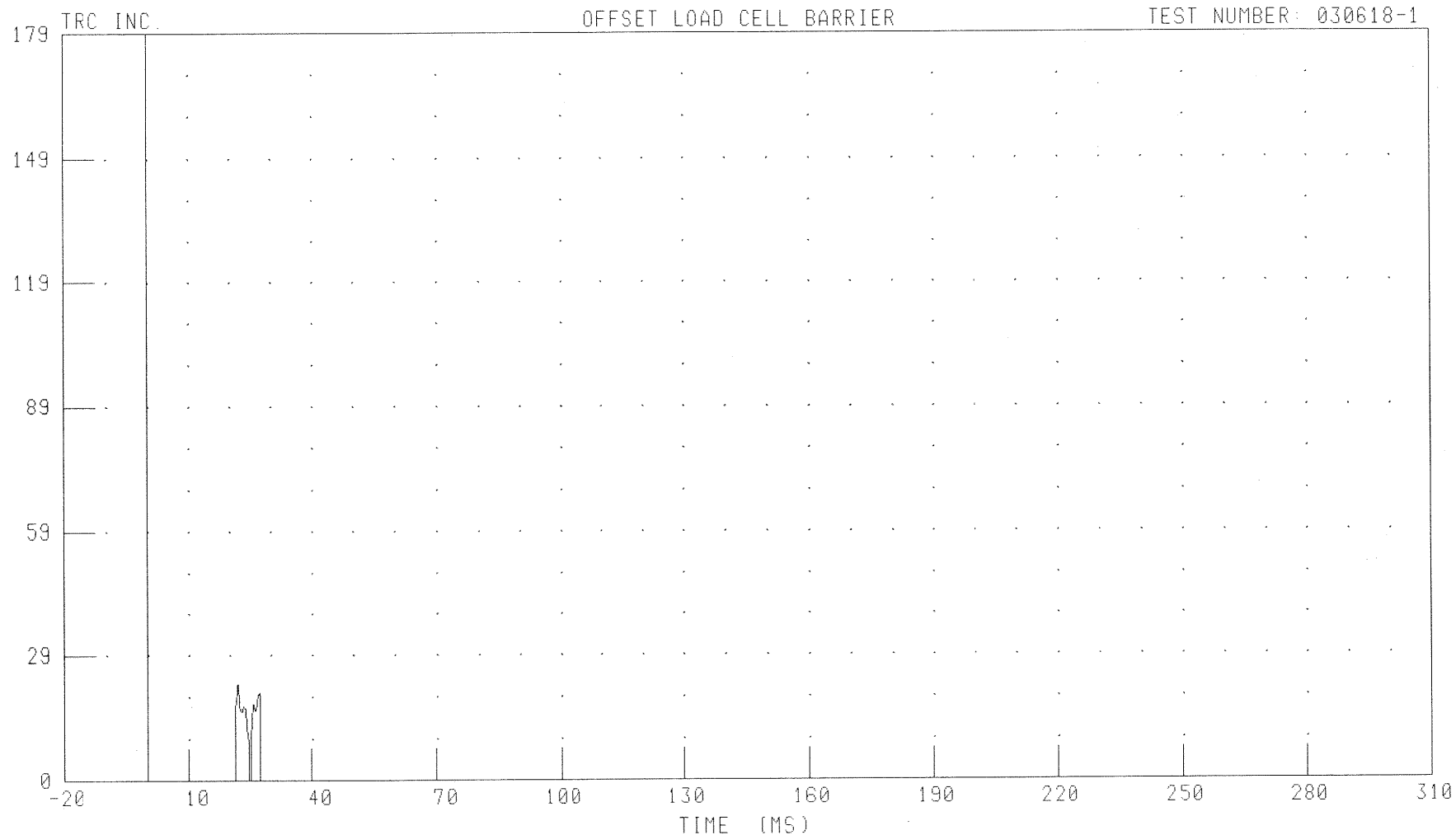
030618-1

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

DRIVER NIJ COMPRESSION/FLEXION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: NCF1

FILTER: CH. CLASS 600

PEAK DATA: 0 00 --- @ 22 08 MS, 0 00 --- @ -20 00 MS

B-98

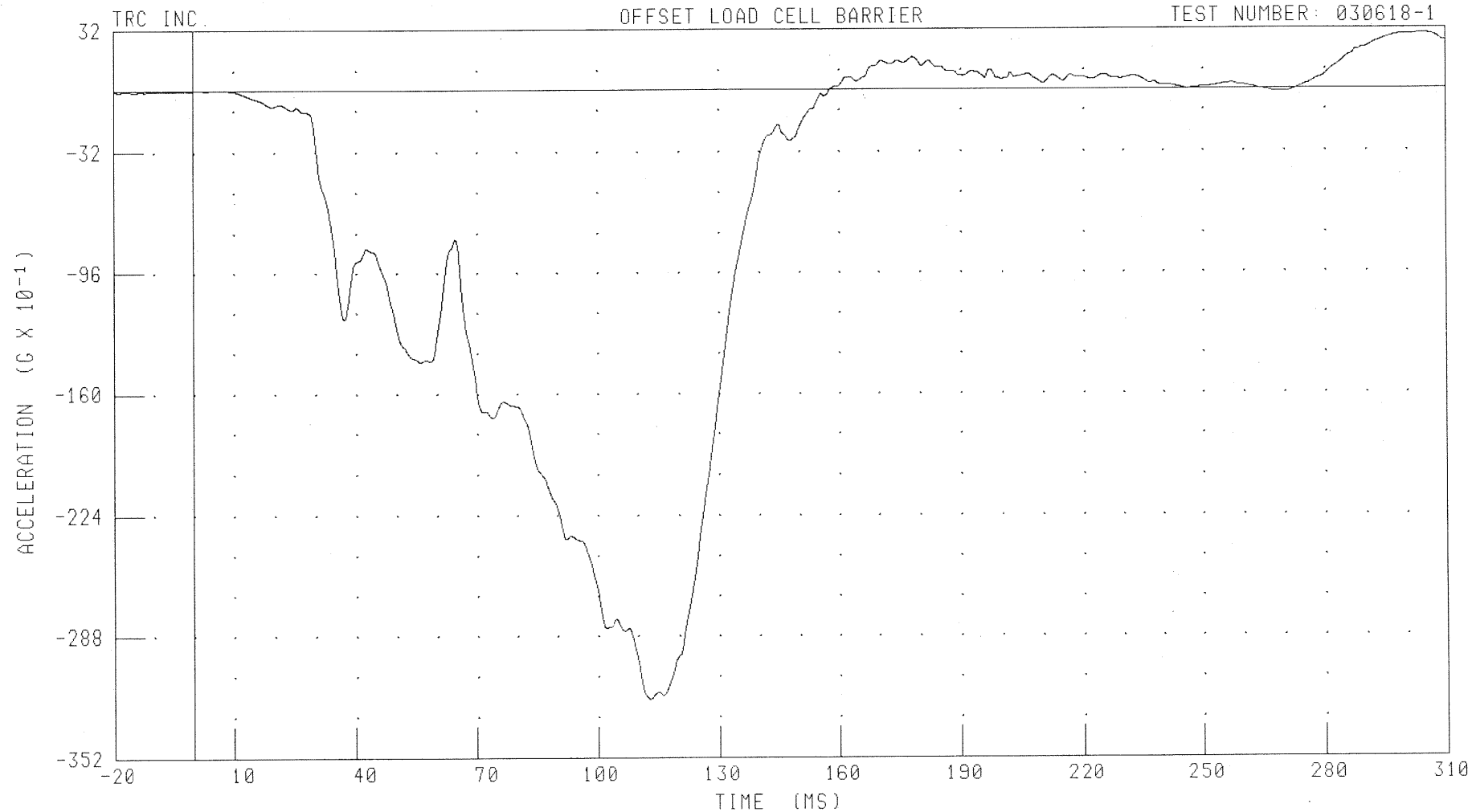
030618-1

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

PASSENGER CHEST X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTXG2

FILTER: CH. CLASS 180

PEAK DATA: 2.96 G @ 304.40 MS; -32.15 G @ 112.96 MS

B-99

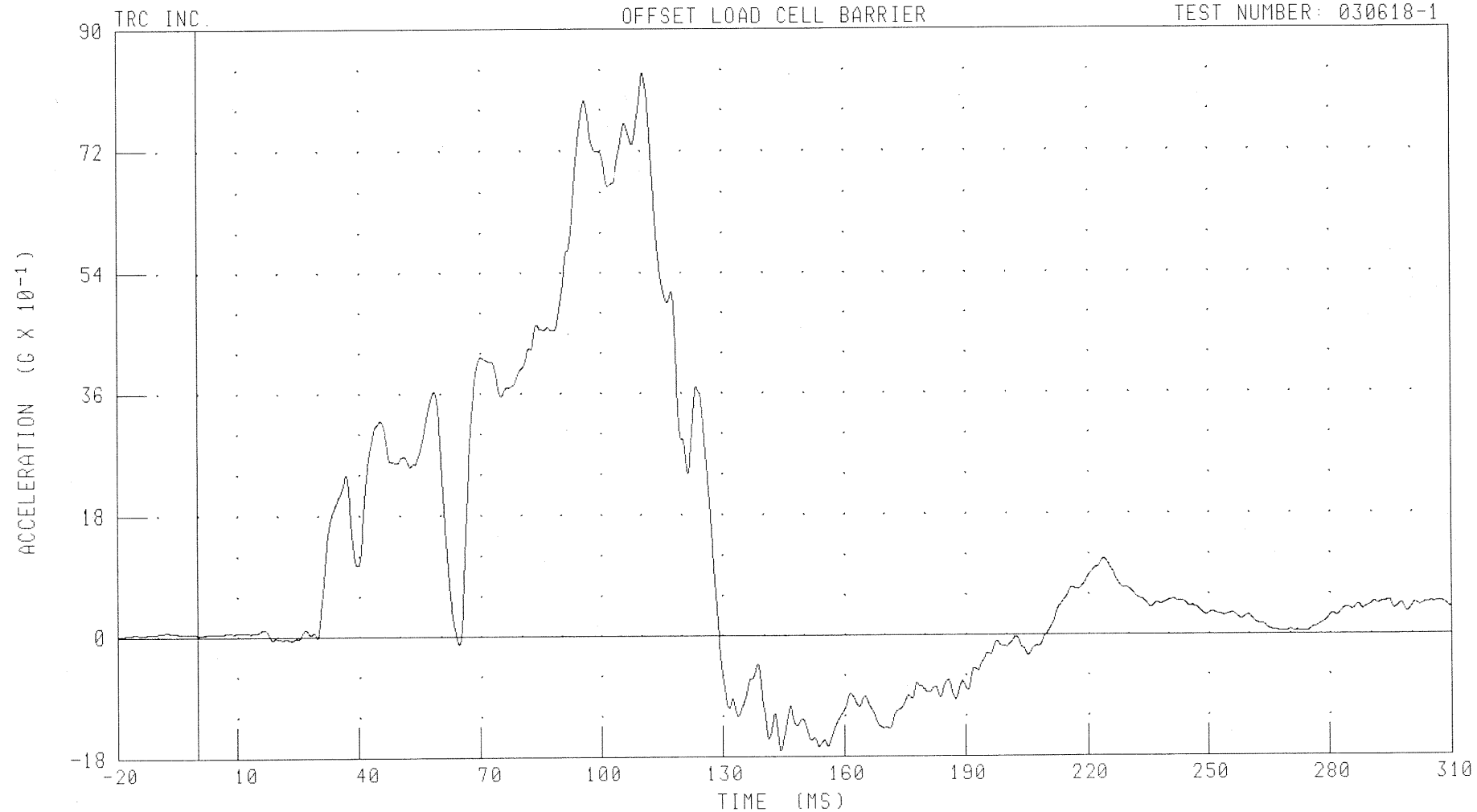
030618-1

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

PASSENGER CHEST Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

PEAK DATA: 83.5 G @ 110.88 MS; -1.72 G @ 144.32 MS

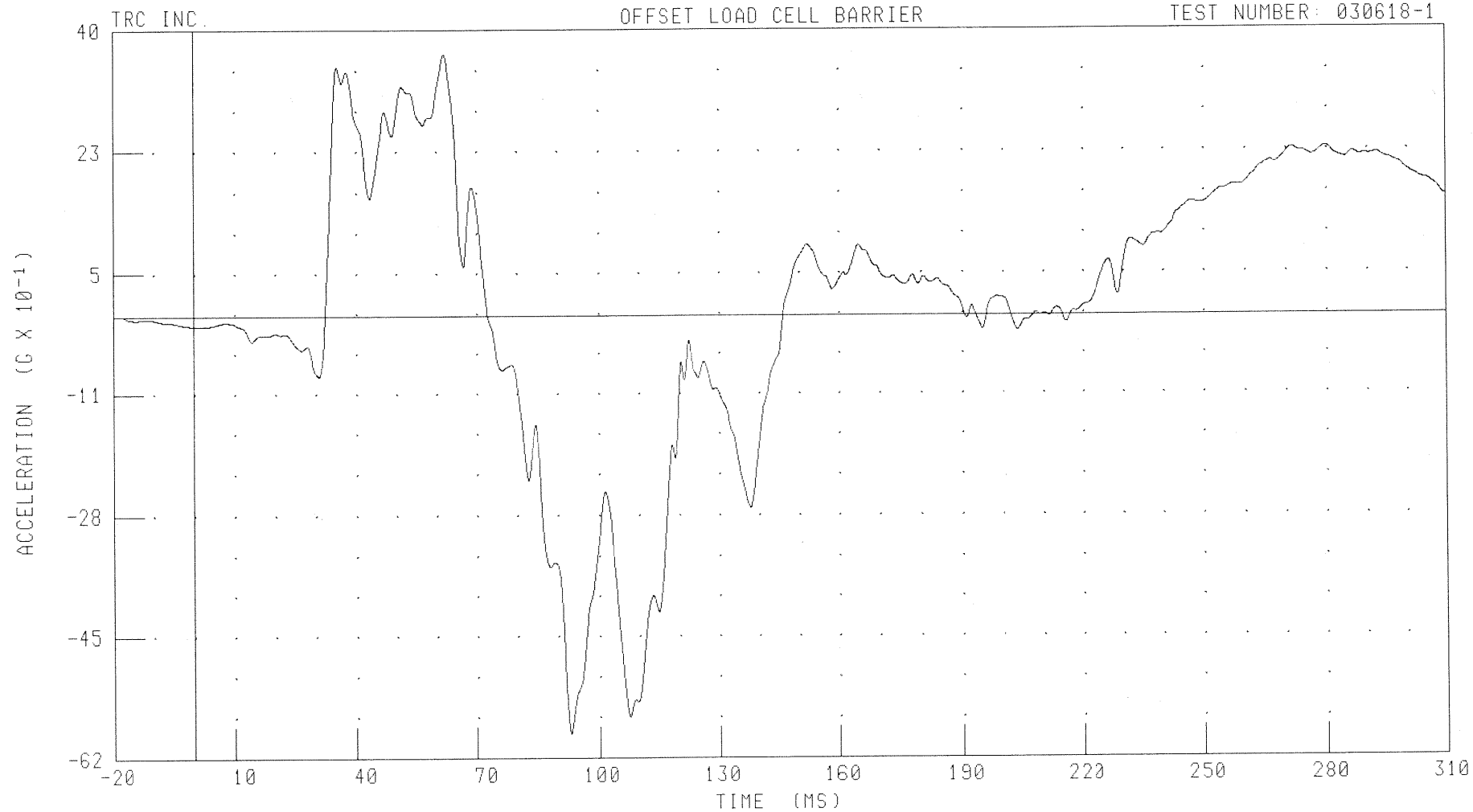
B-100

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 3.66 G @ 62.08 MS; -5.86 G @ 93.04 MS

B-101

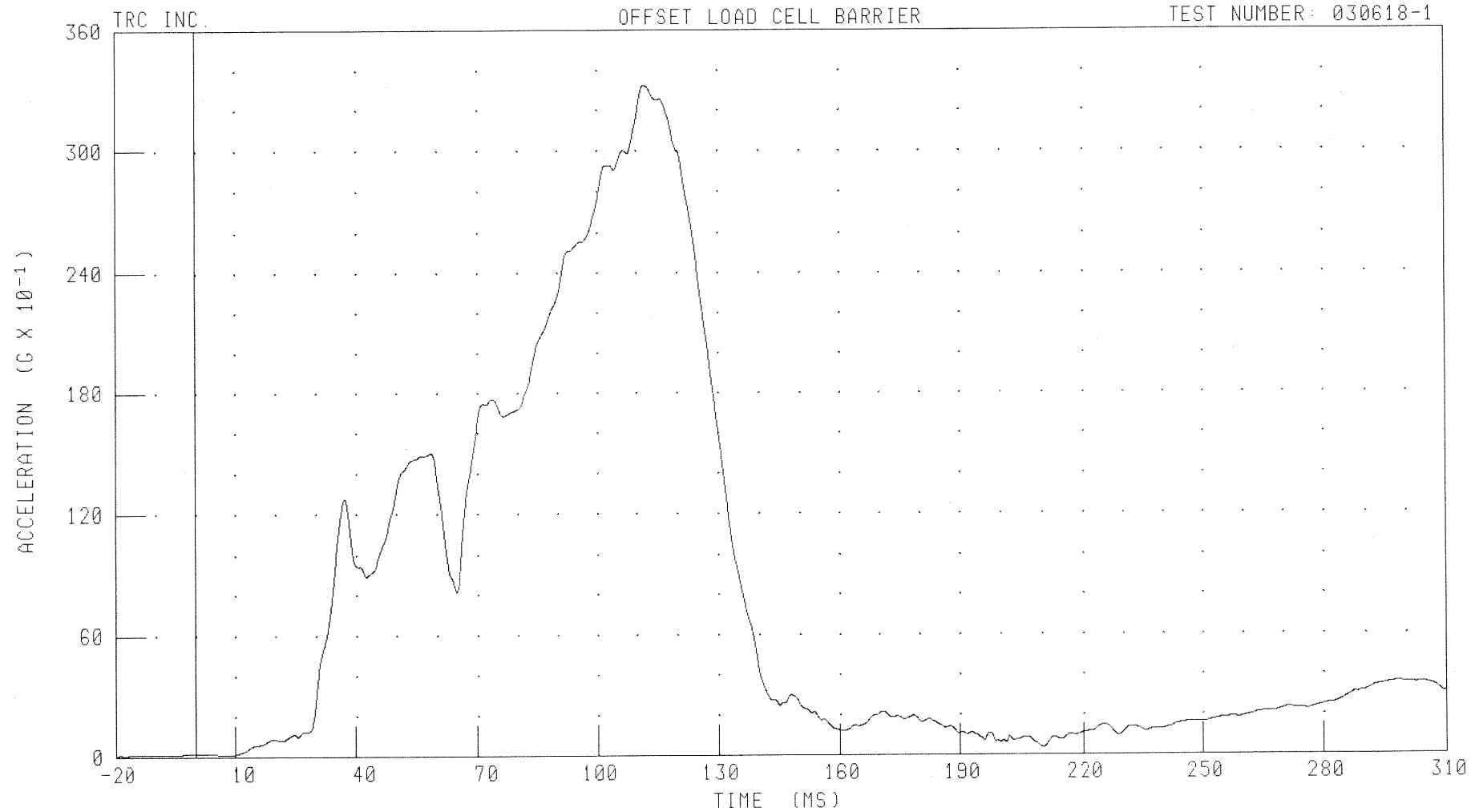
030618-1

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

PASSENGER CHEST RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

PEAK DATA: 33.22 G @ 112.00 MS; 0.01 G @ -20.00 MS

B-102

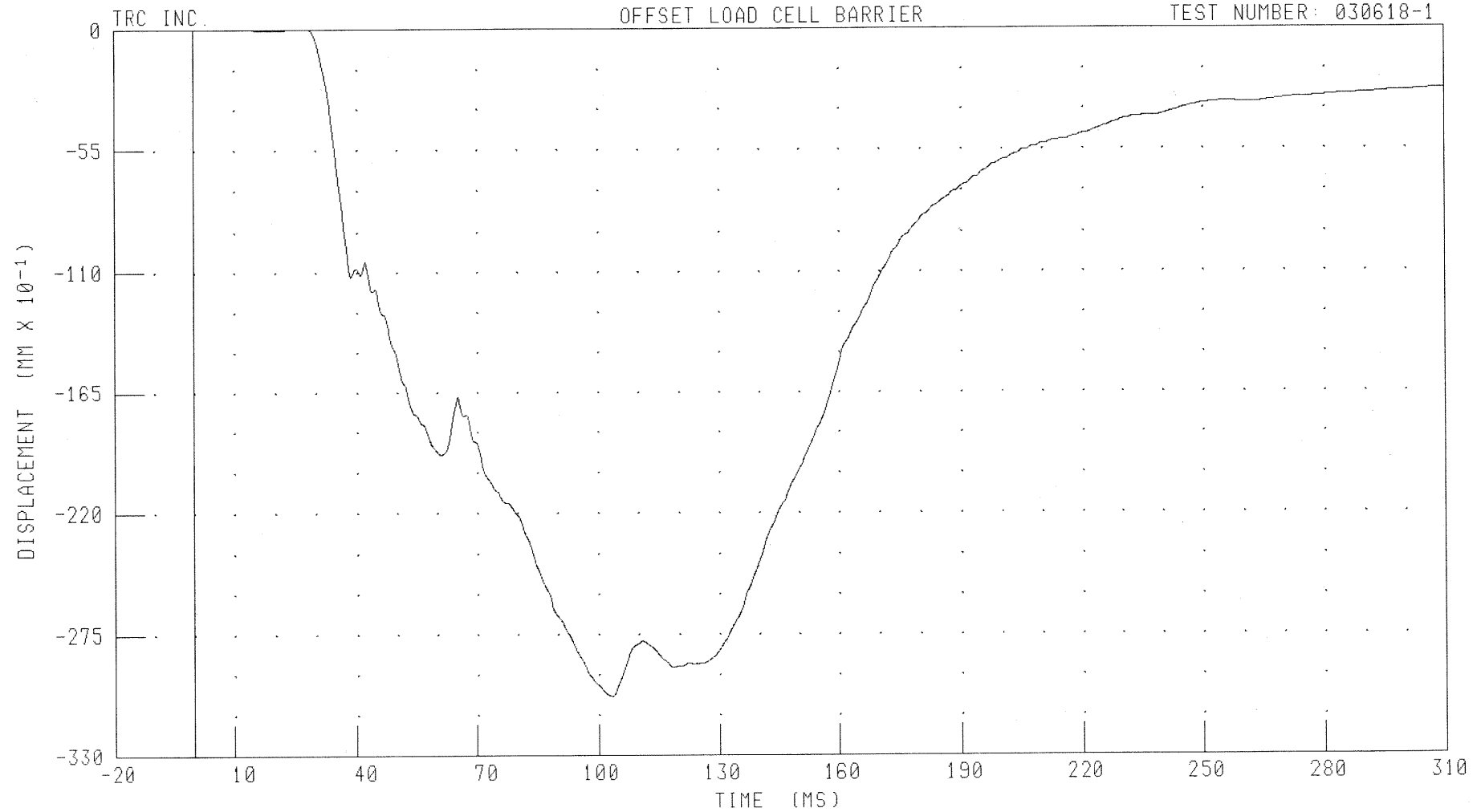
030618-1

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

PASSENGER CHEST DEFLECTION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: CSTXD2 FILTER: CH CLASS 600

PEAK DATA: 0.02 MM @ 27.12 MS; -30.33 MM @ 103.52 MS

B-103

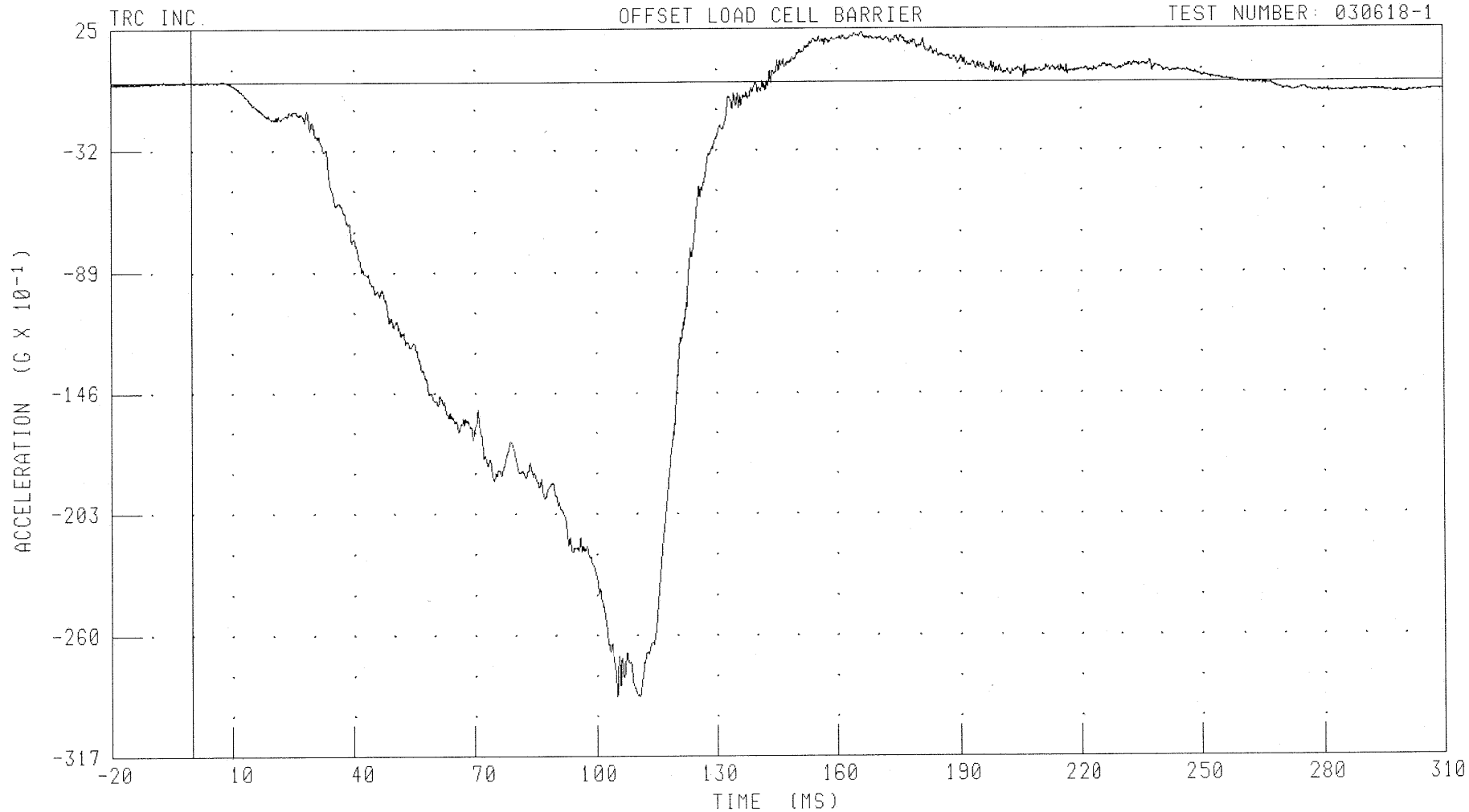
030618-1

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

PASSENGER PELVIS X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PEVXG2

FILTER: CH. CLASS 1000

PEAK DATA: 2.33 G @ 166.08 MS; -28.91 G @ 105.28 MS

B-104

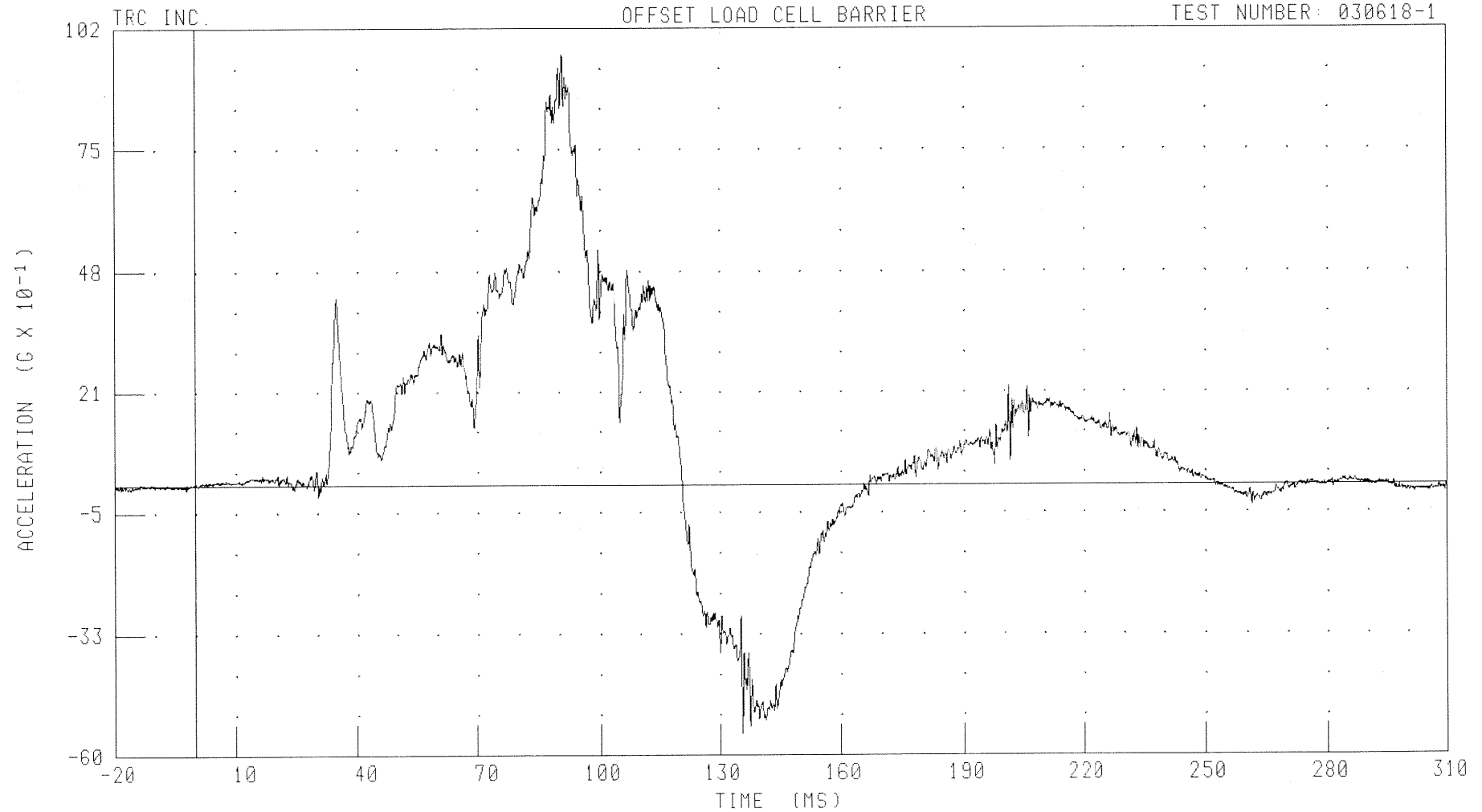
030618-1

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

PASSENGER PELVIS Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PEVYG2 FILTER: CH. CLASS 1000

PEAK DATA: 9.62 G @ 90.80 MS; -5.51 G @ 135.68 MS

B-105

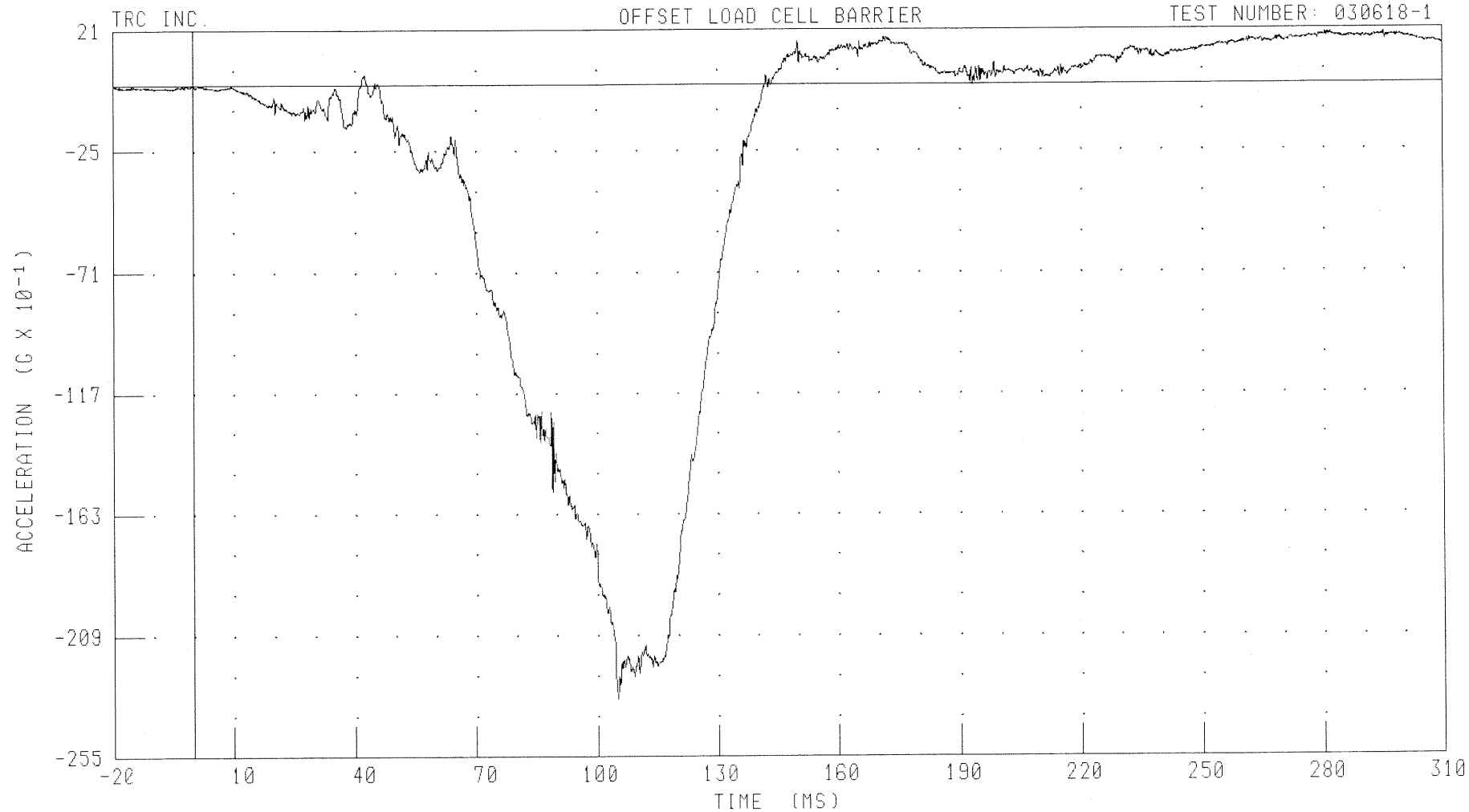
030618-1

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

PASSENGER PELVIS Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PEVZG2

FILTER: CH. CLASS 1000

PEAK DATA: 1.96 G @ 281.12 MS; -23.31 G @ 105.20 MS

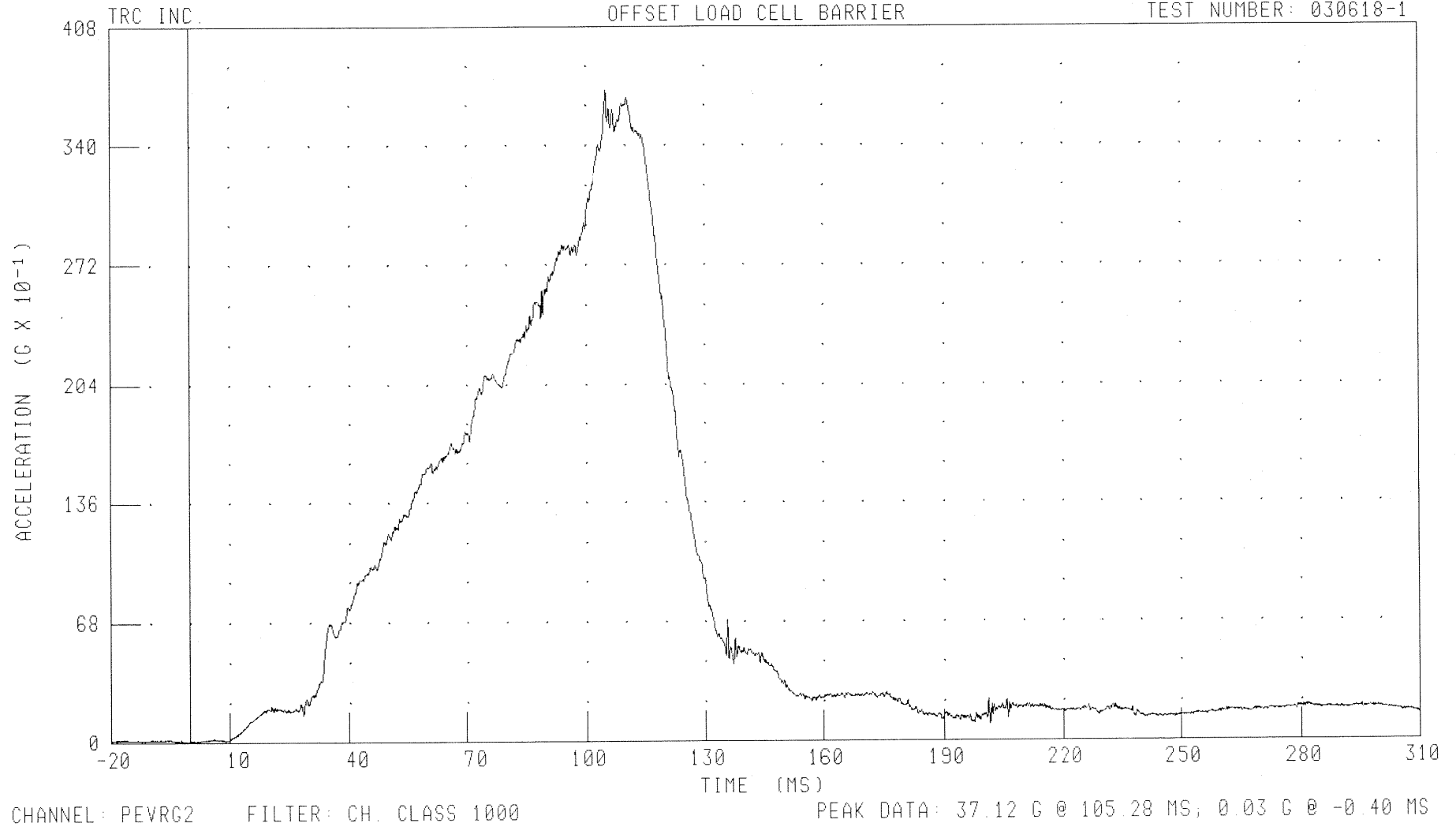
B-106

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-107

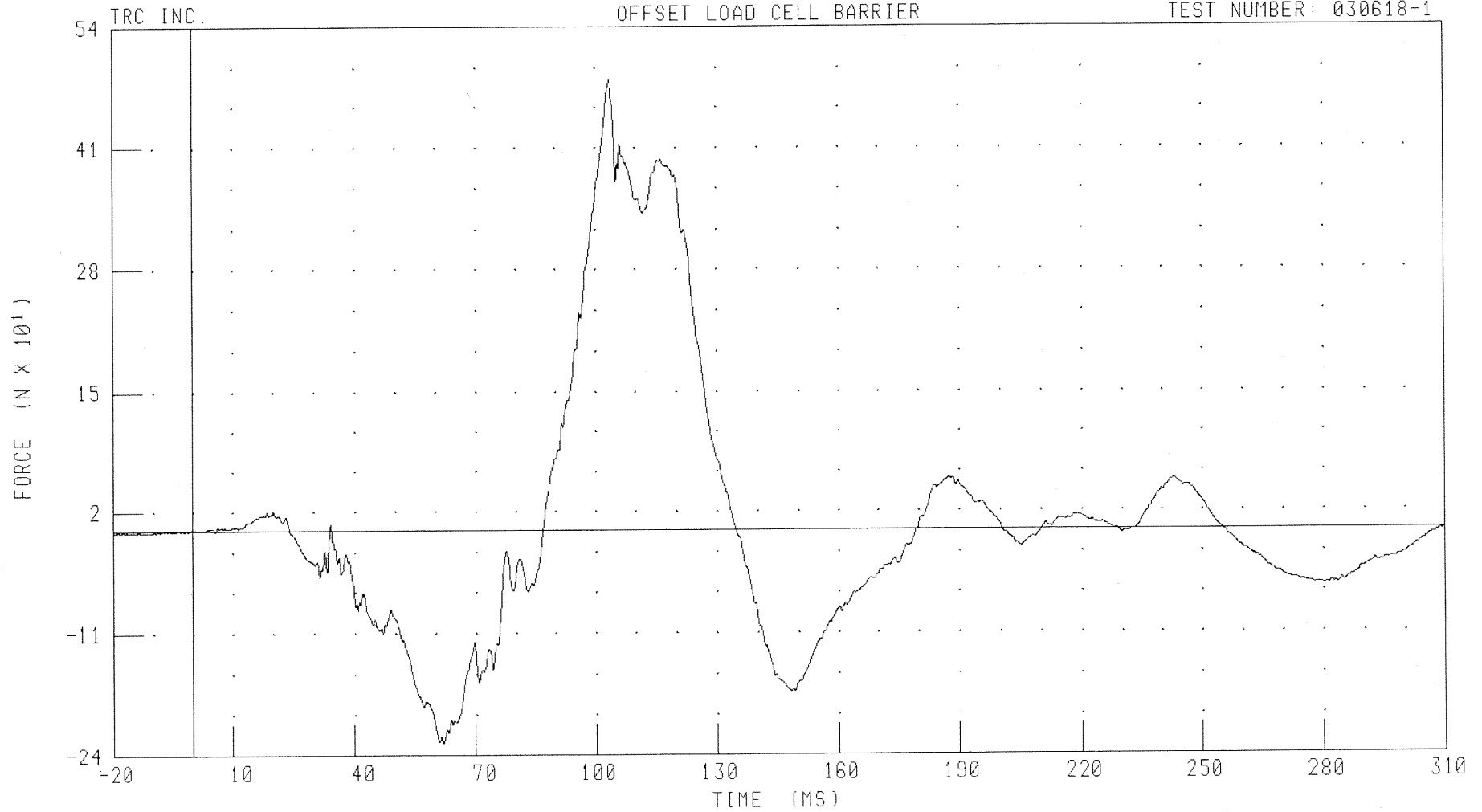
030618-1

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

PASSENGER LEFT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMXF2 FILTER: CH. CLASS 600

PEAK DATA: 484.07 N @ 103.76 MS, -226.66 N @ 61.84 MS

B-108

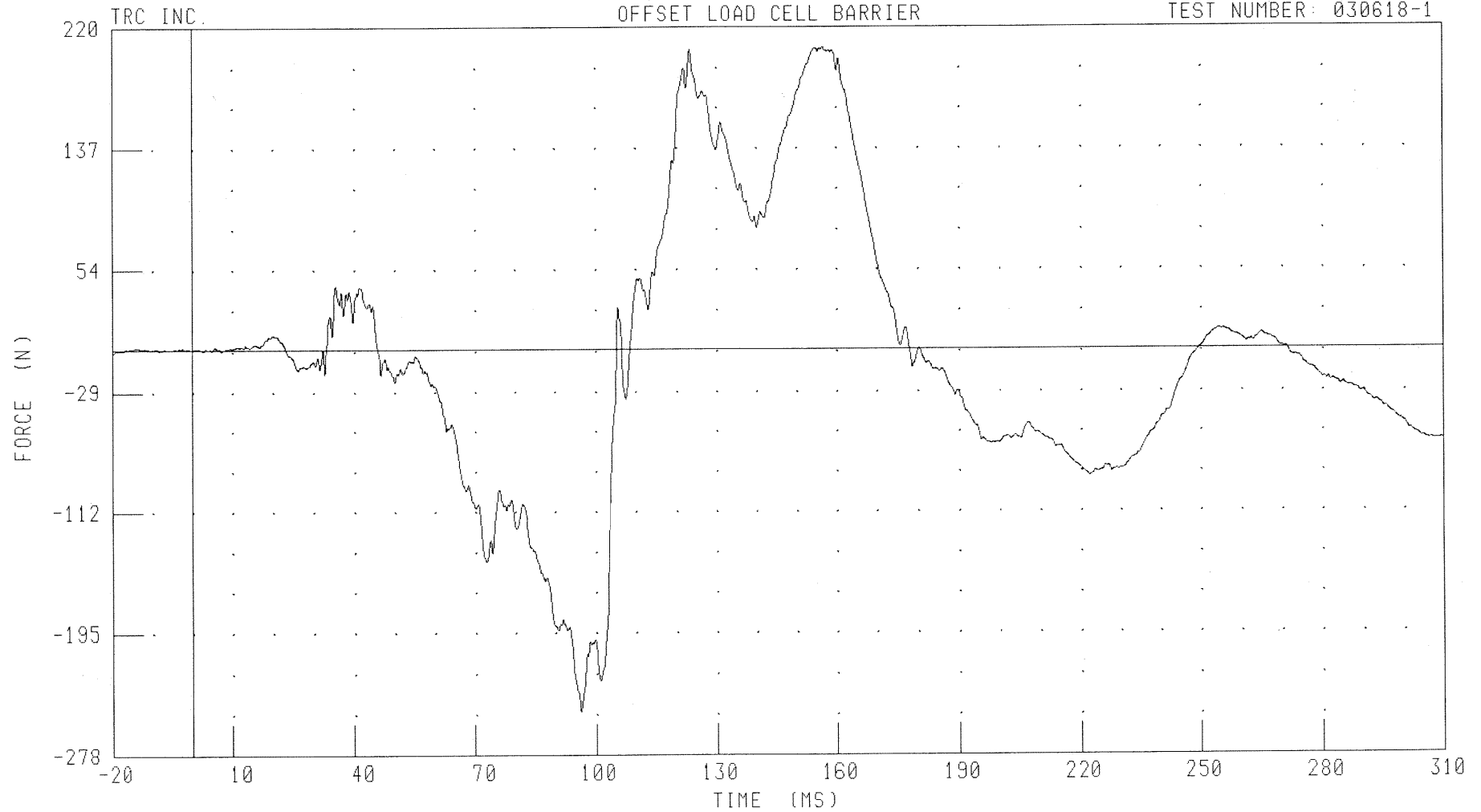
030618-1

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

PASSENGER LEFT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMF2 FILTER: CH. CLASS 600

PEAK DATA: 206.34 N @ 156.80 MS; -248.32 N @ 96.24 MS

B-109

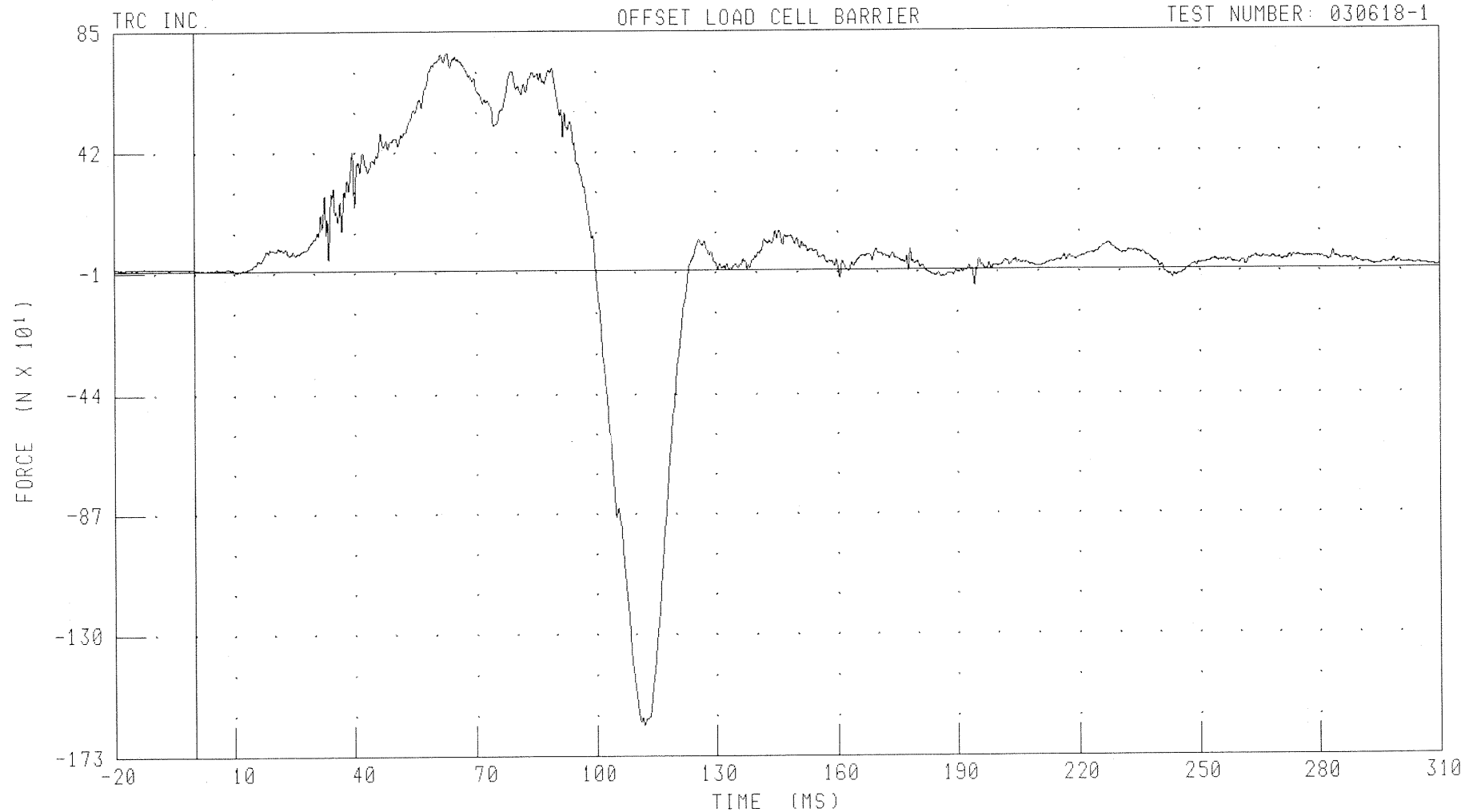
030618-1

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

PASSENGER LEFT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMZF2 FILTER: CH. CLASS 600

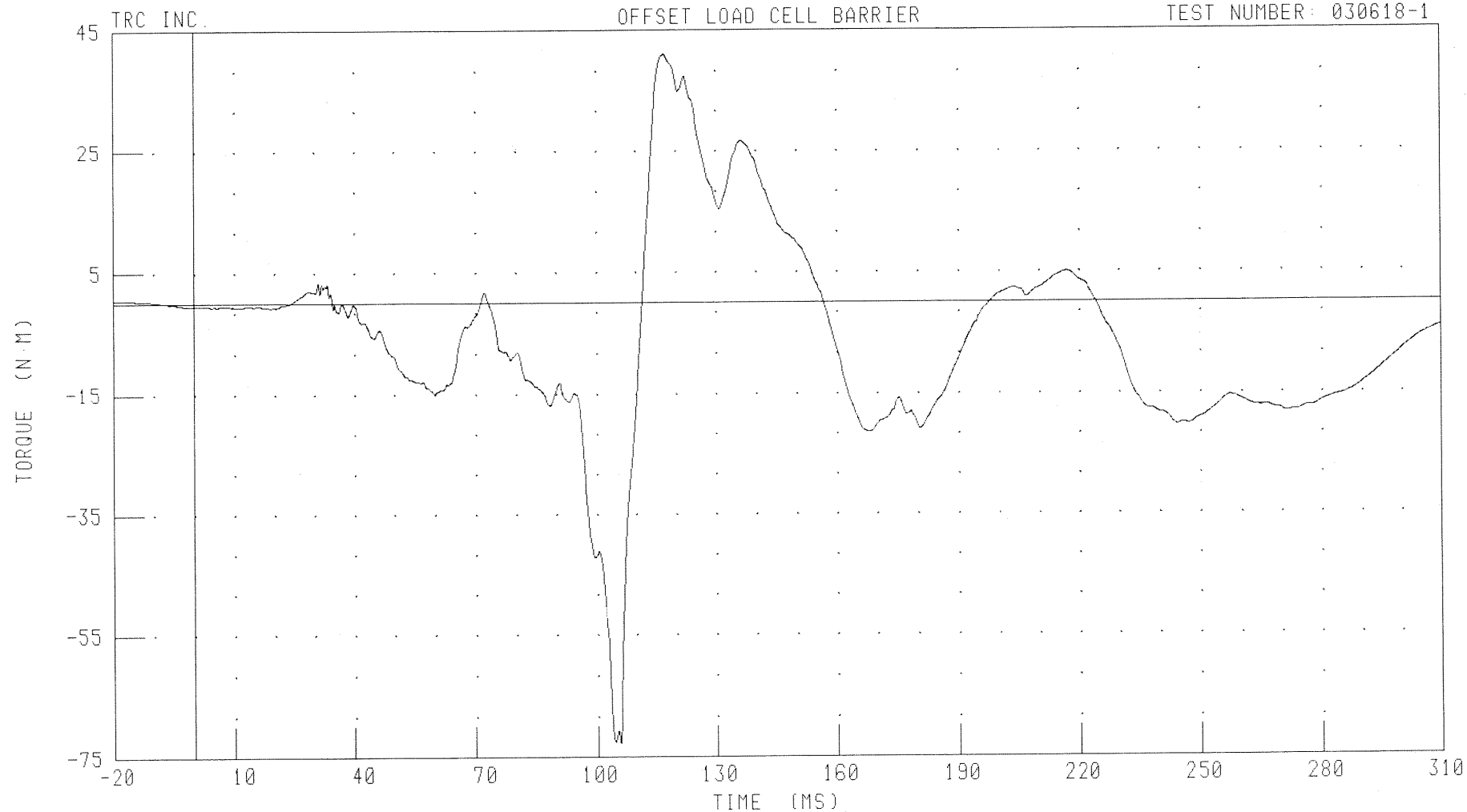
B-110

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMX2 FILTER: CH. CLASS 600

PEAK DATA: 41.07 N·m @ 117.20 ms; -72.83 N·m @ 105.84 ms

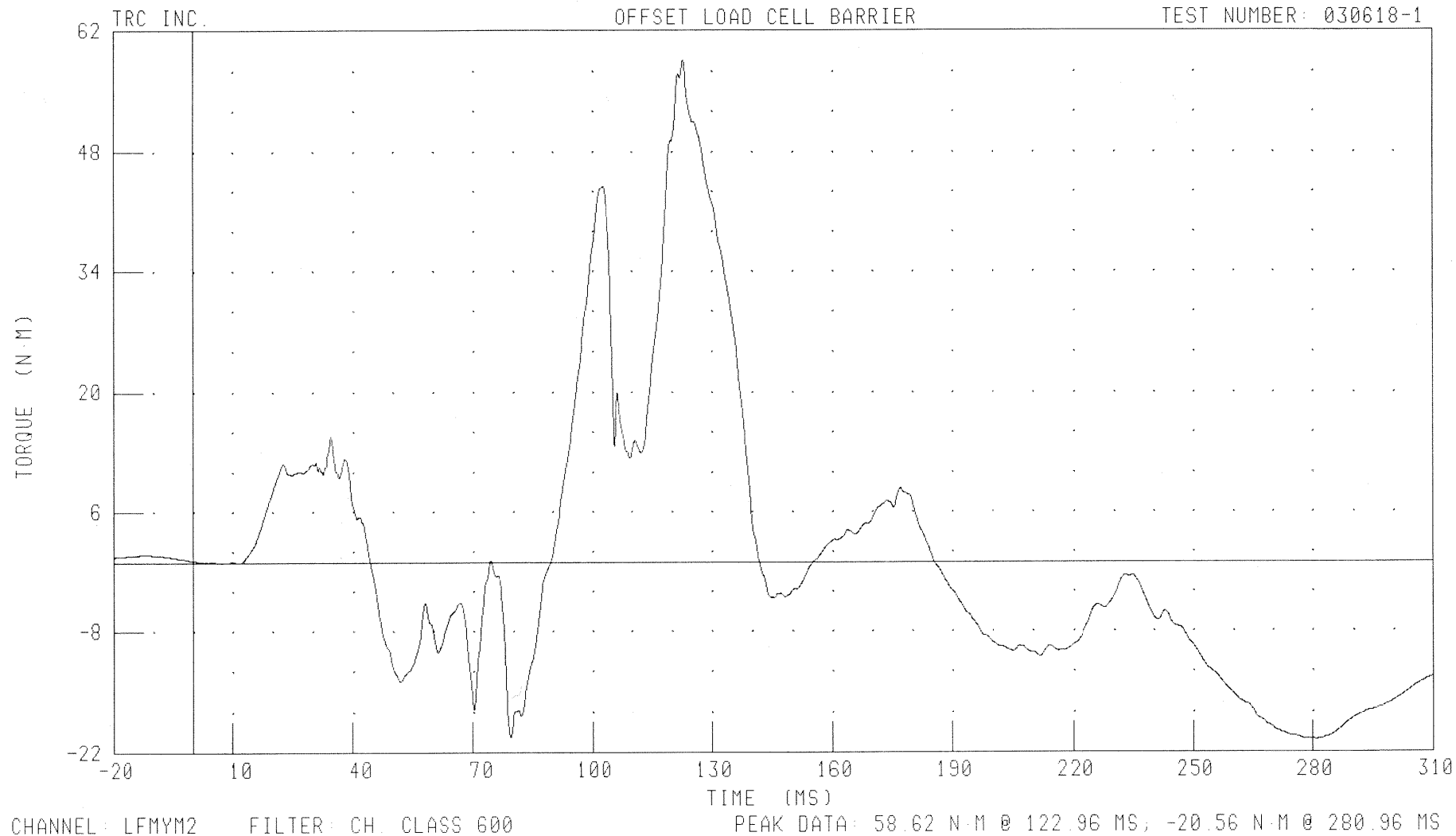
B-111

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-112

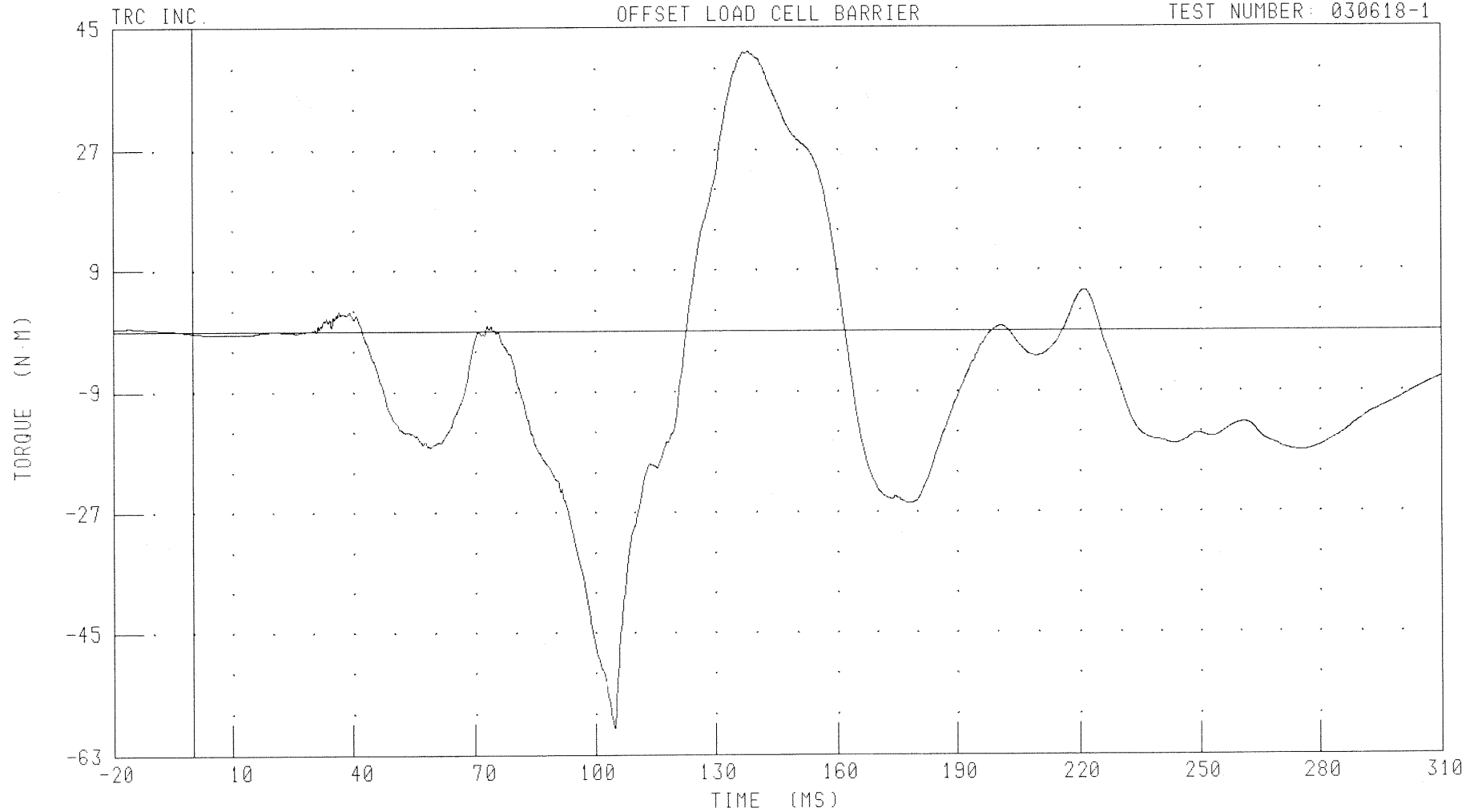
030618-1

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

PASSENGER LEFT FEMUR MOMENT ABOUT Z AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LFMZM2 FILTER: CH. CLASS 600

B-113

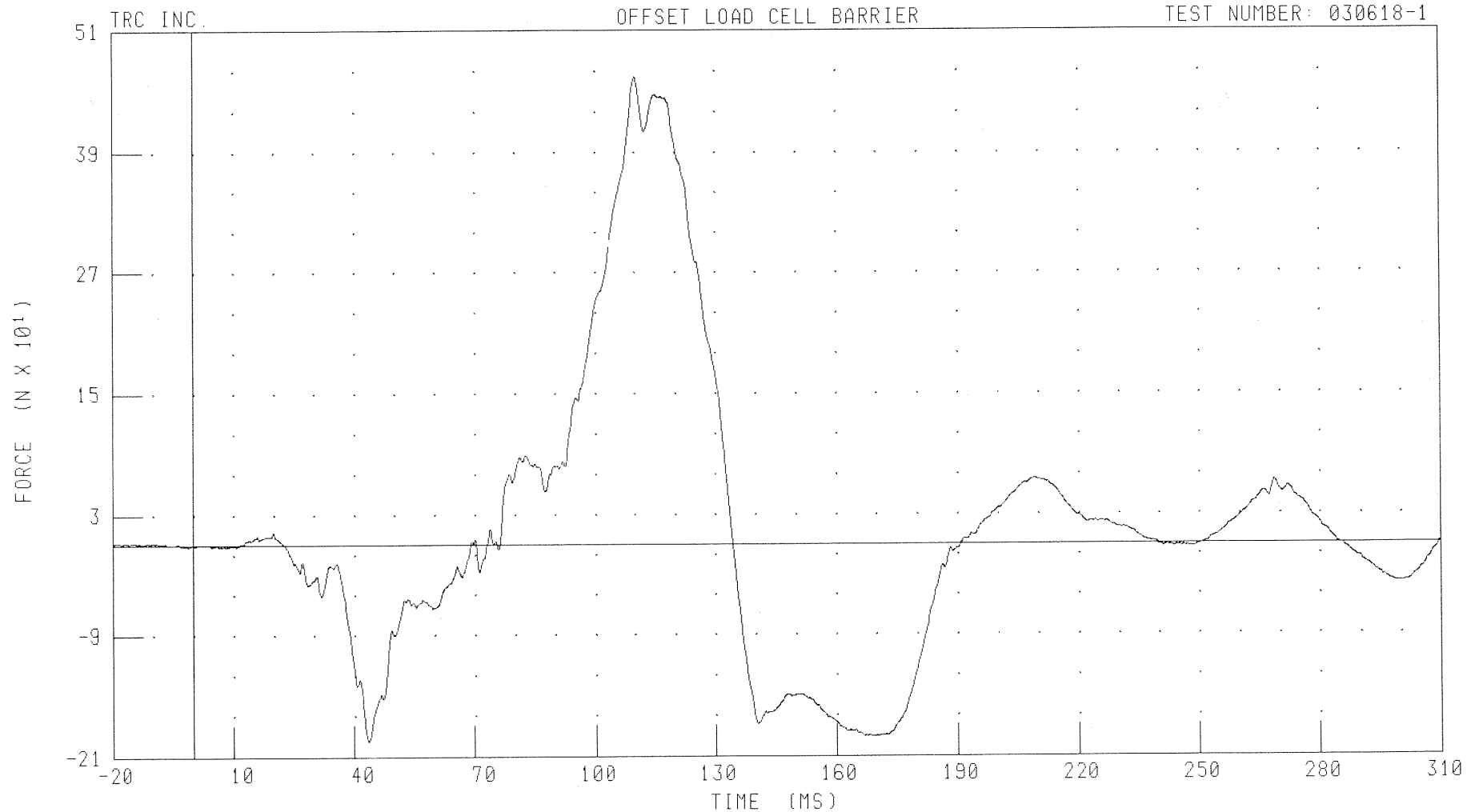
030618-1

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

PASSENGER RIGHT FEMUR X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMXF2 FILTER: CH. CLASS 600

B-114

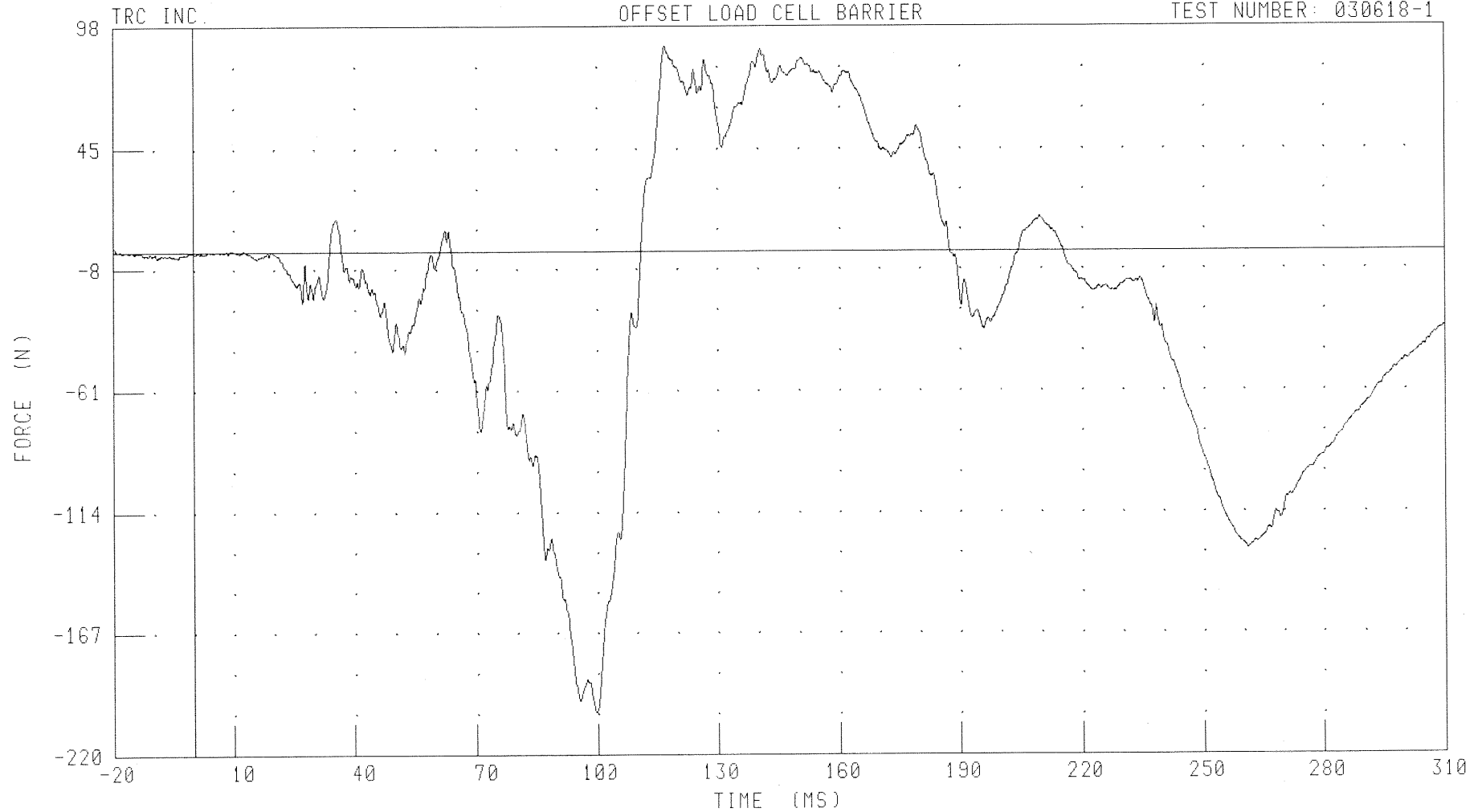
030618-1

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

PASSENGER RIGHT FEMUR Y-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMYF2 FILTER: CH. CLASS 600

B-115

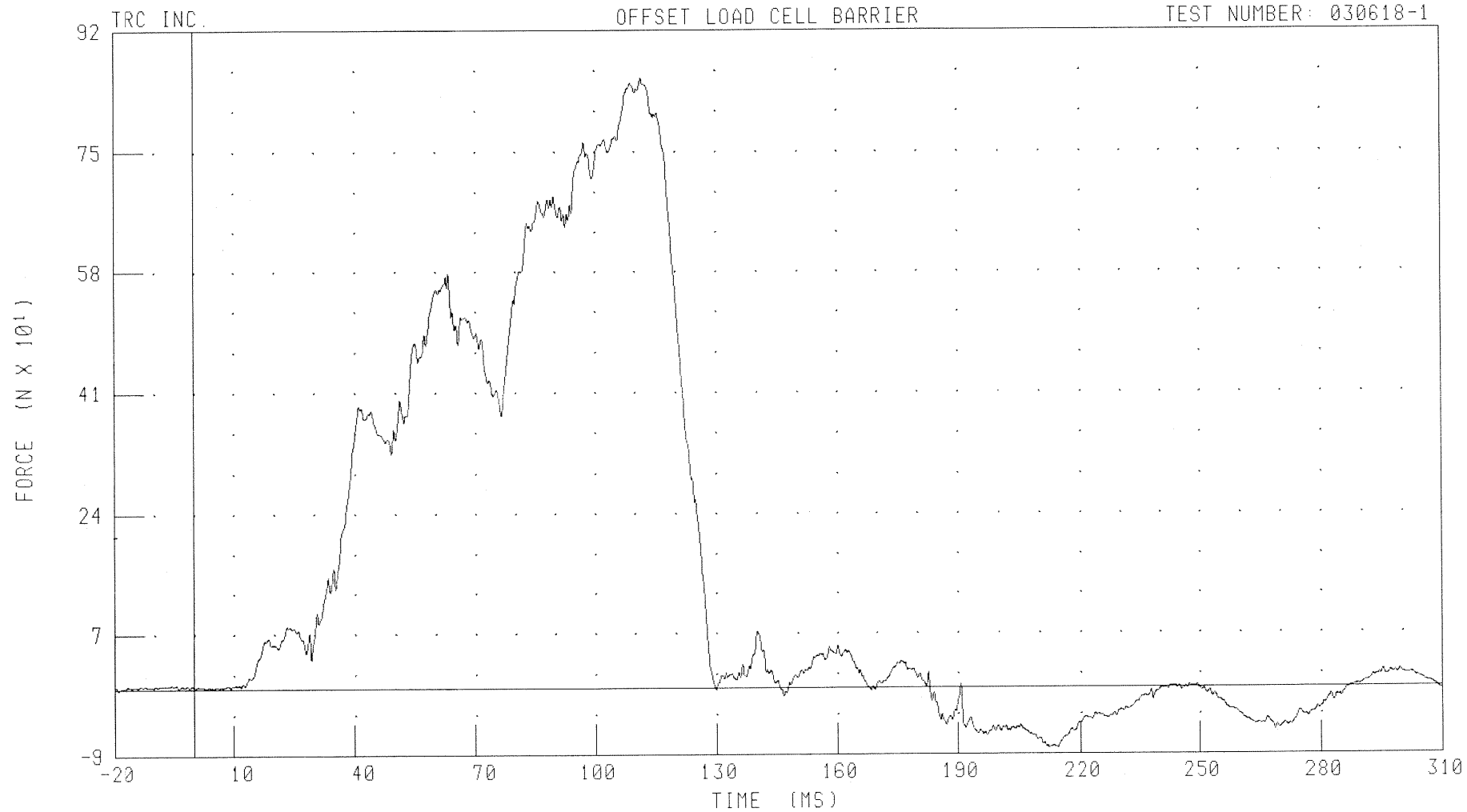
030618-1

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

PASSENGER RIGHT FEMUR Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMZ F2 FILTER: CH. CLASS 600

PEAK DATA: 858.62 N @ 111.84 MS; -85.54 N @ 214.40 MS

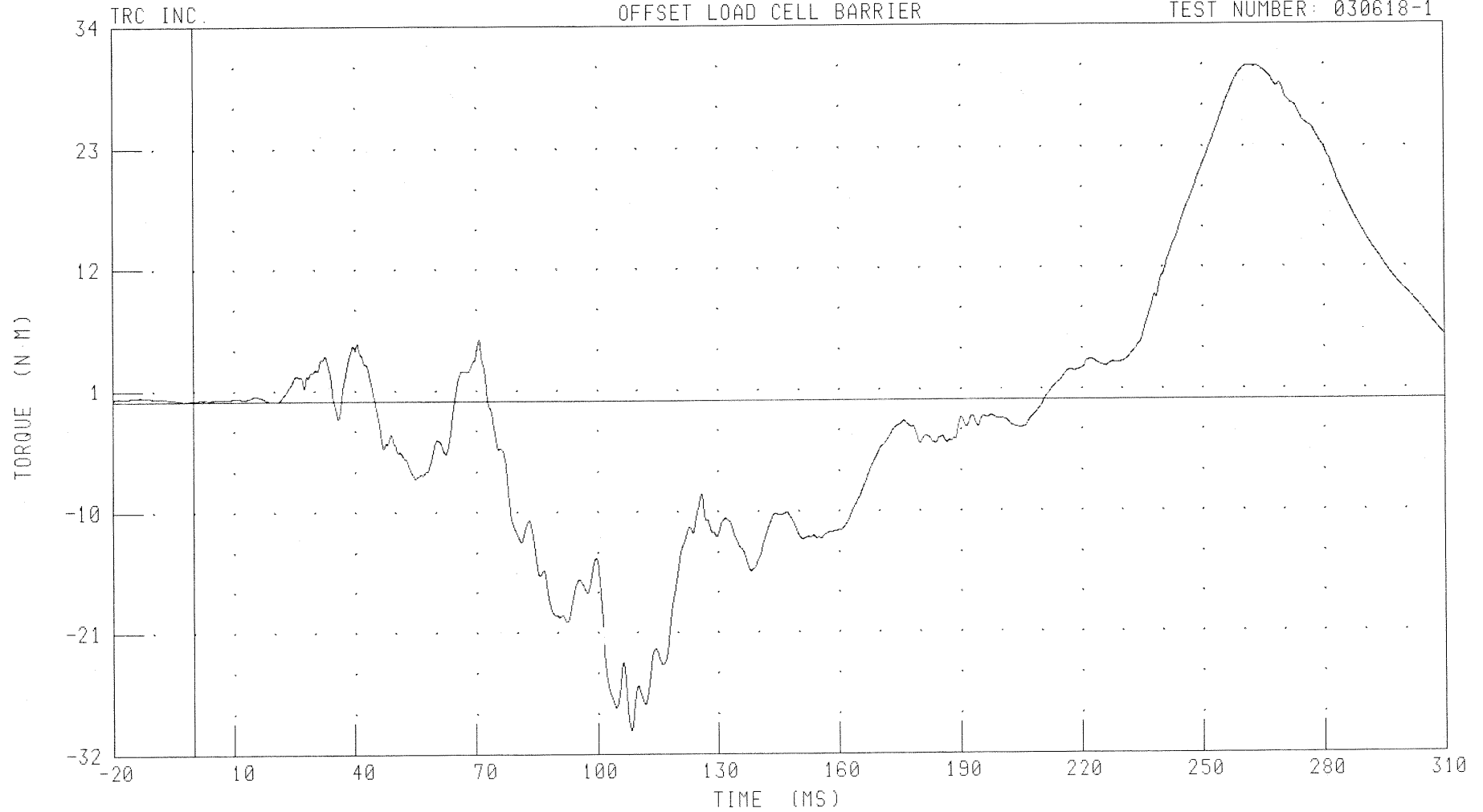
B-116

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMXM2 FILTER: CH CLASS 600

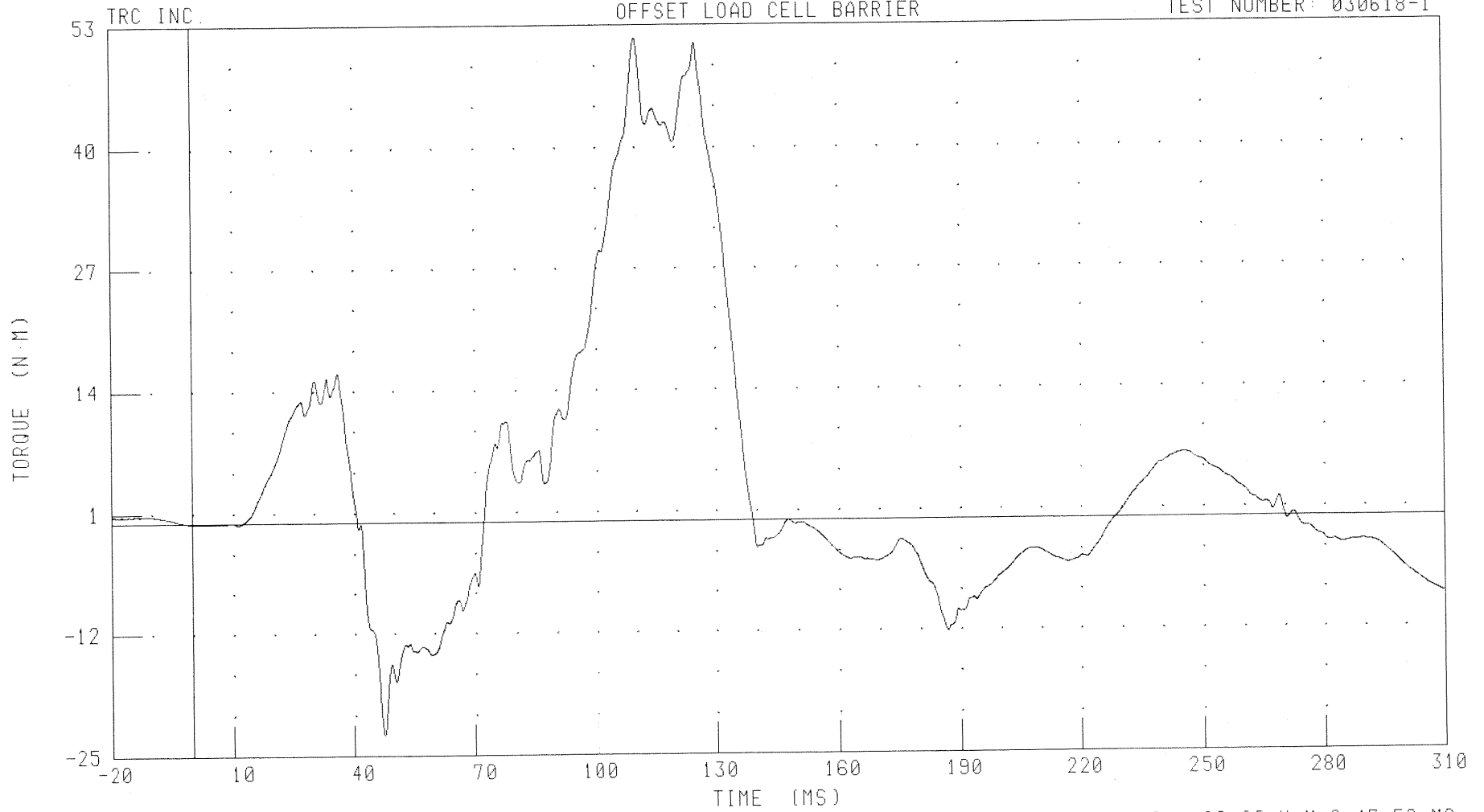
PEAK DATA: 30.21 N·M @ 262.08 MS; -29.85 N·M @ 108.64 MS

B-117

030618-1

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

TEST NUMBER: 030618-1



CHANNEL: RFMYM2 FILTER: CH. CLASS 600

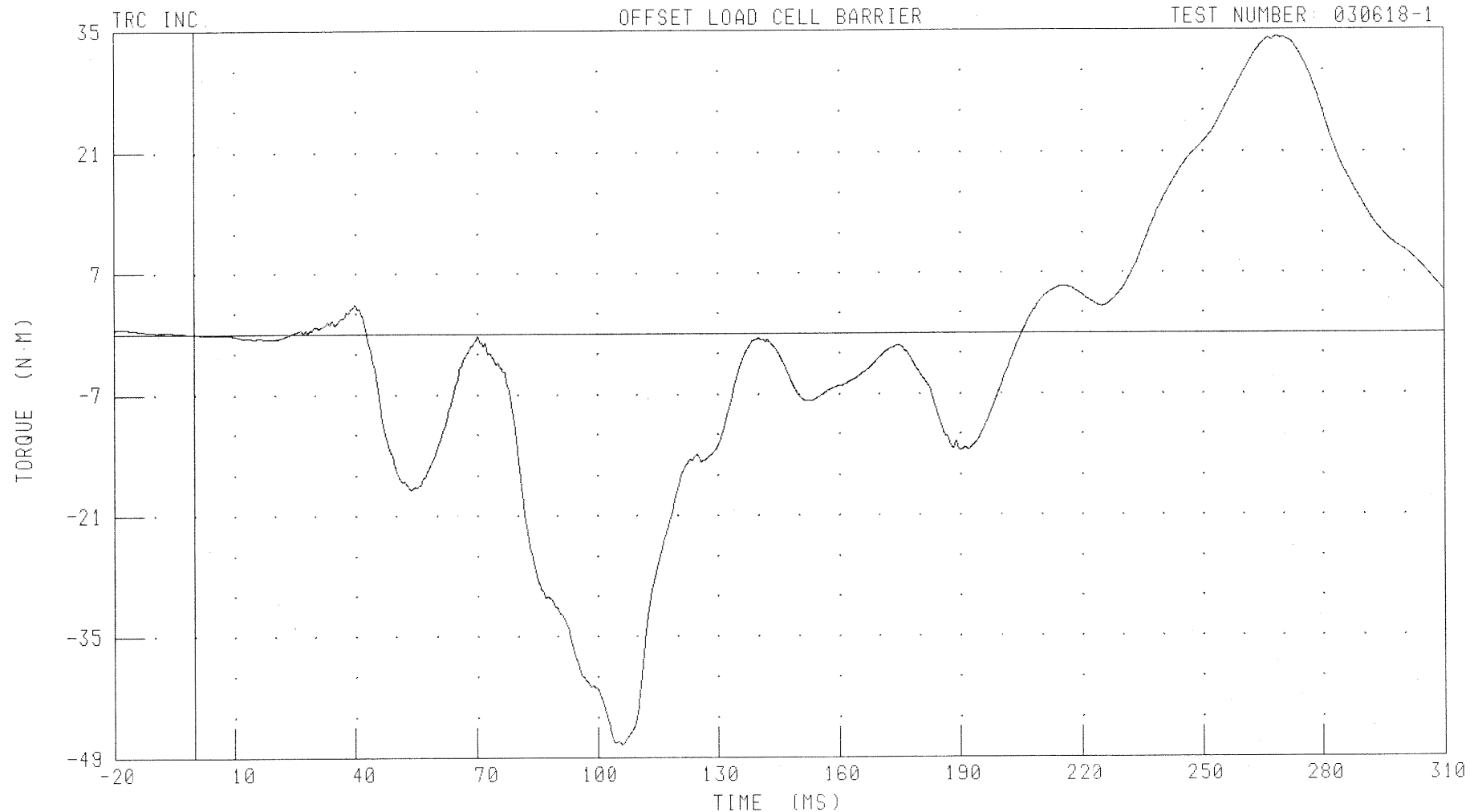
B-118

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RFMZM2

FILTER: CH. CLASS 600

PEAK DATA: 34.19 N·m @ 268.80 MS, -47.46 N·m @ 106.32 MS

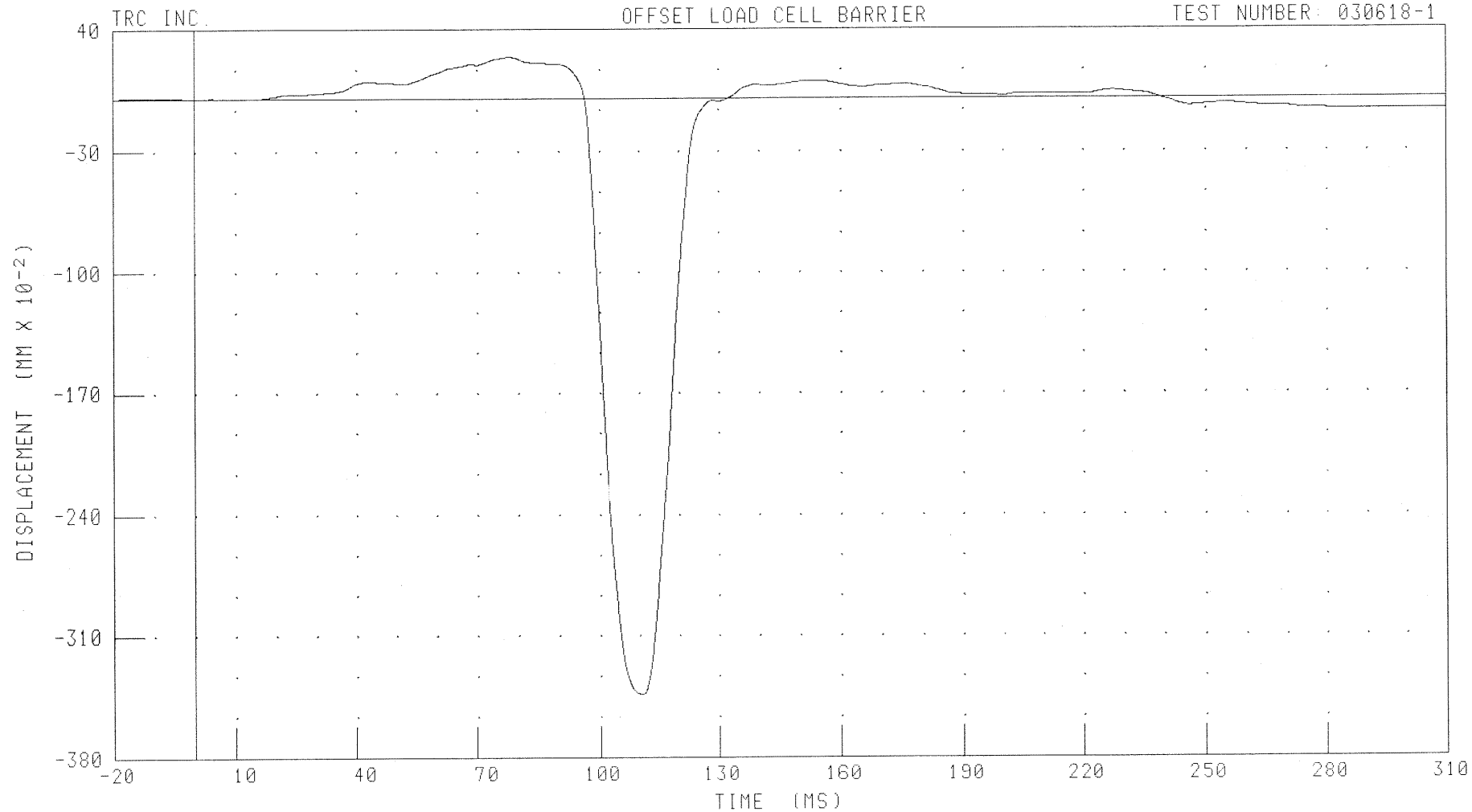
B-119

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: KNLXD2 FILTER: CH CLASS 180

PEAK DATA 0.24 MM @ 77.92 MS, -344 MM @ 110.64 MS

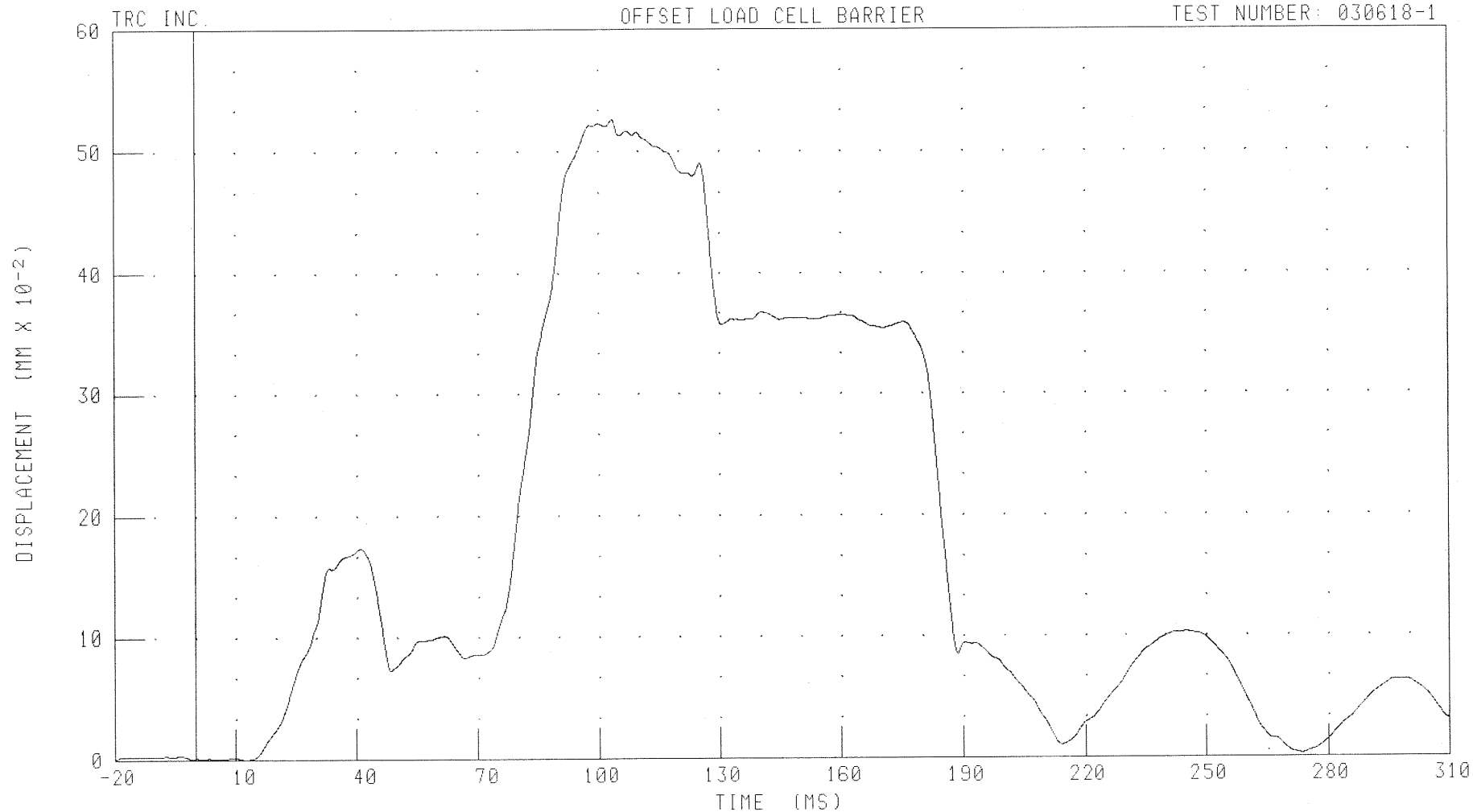
B-120

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: KNRXD2

FILTER: CH. CLASS 180

PEAK DATA: 0.53 MM @ 103.52 MS; 0.00 MM @ 12.64 MS

B-121

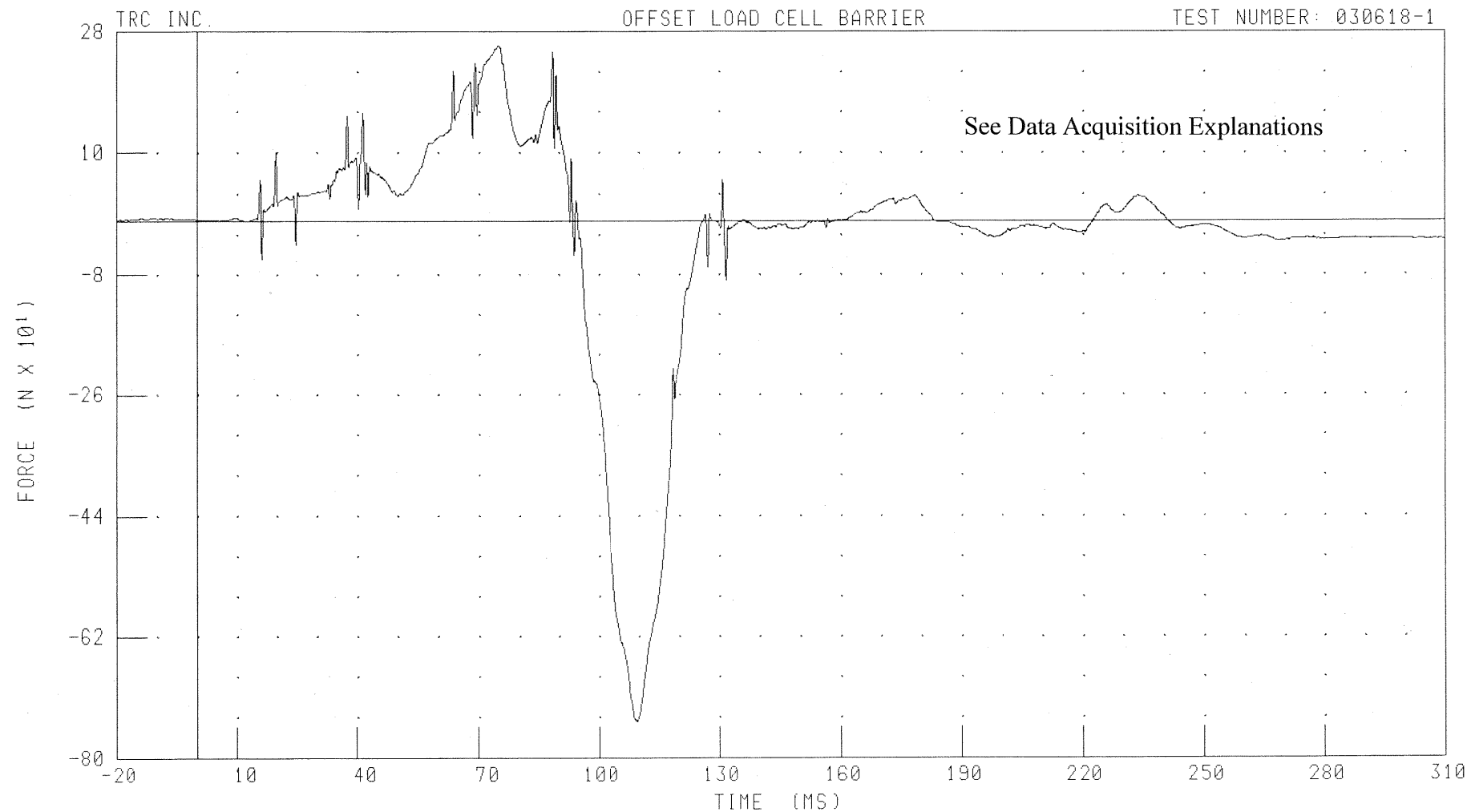
030618-1

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

PASSENGER LEFT UPPER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBLXF2 FILTER: CH. CLASS 600

PEAK DATA: 259.20 N @ 74.88 MS, -747.03 N @ 109.60 MS

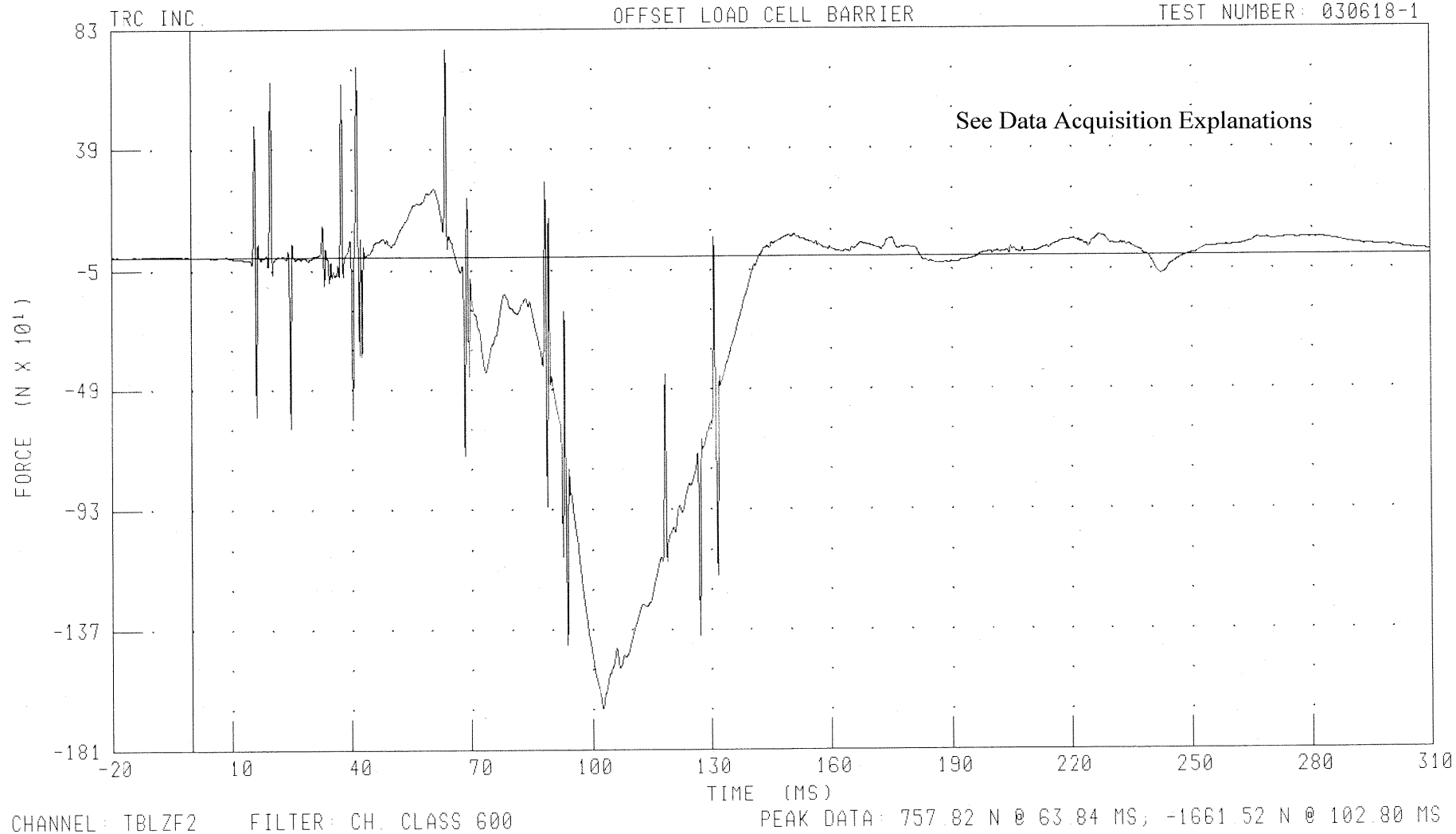
B-122

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



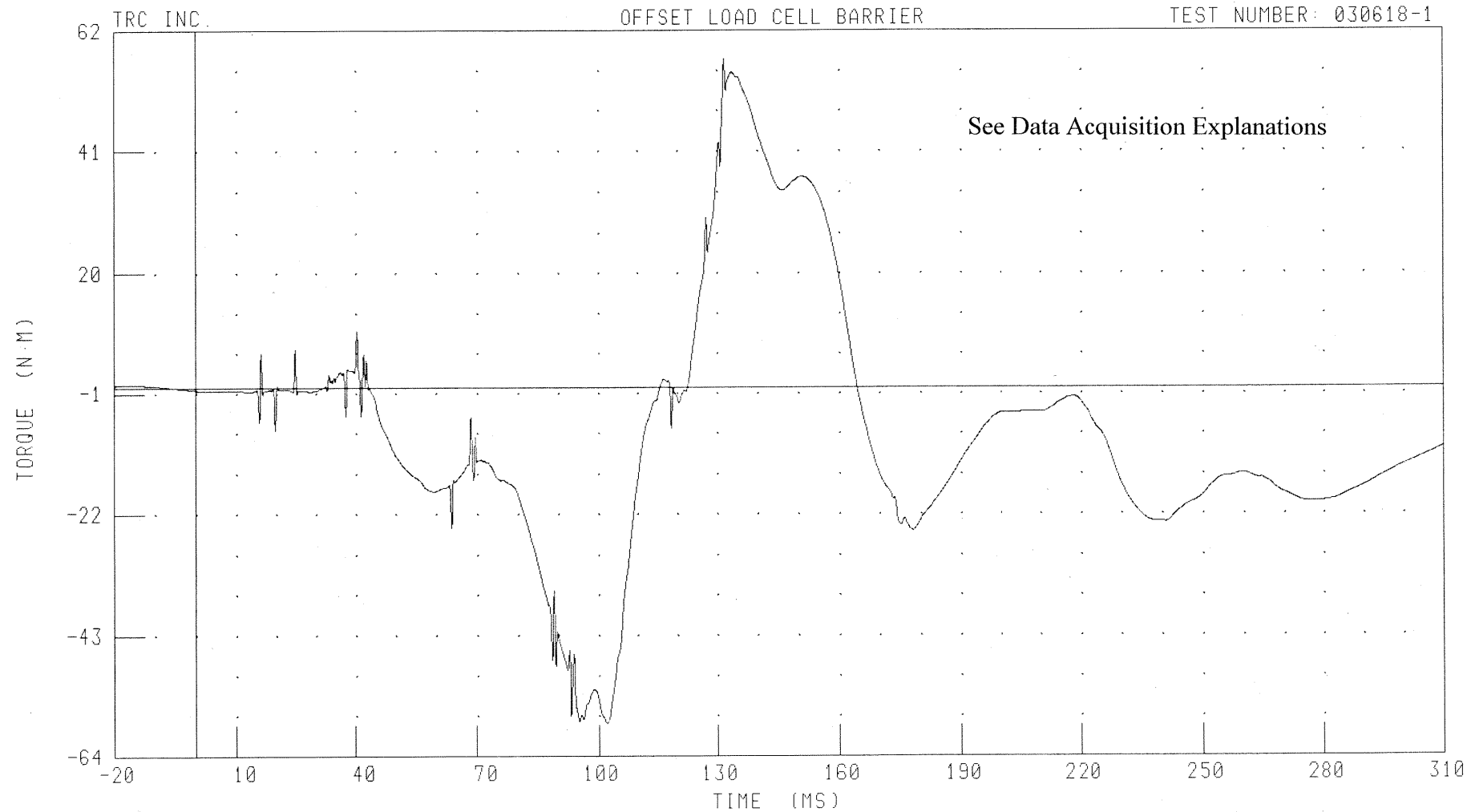
B-123

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBLXM2 FILTER: CH. CLASS 600

PEAK DATA: 57.05 N·M @ 131.84 MS; -58.27 N·M @ 102.16 MS

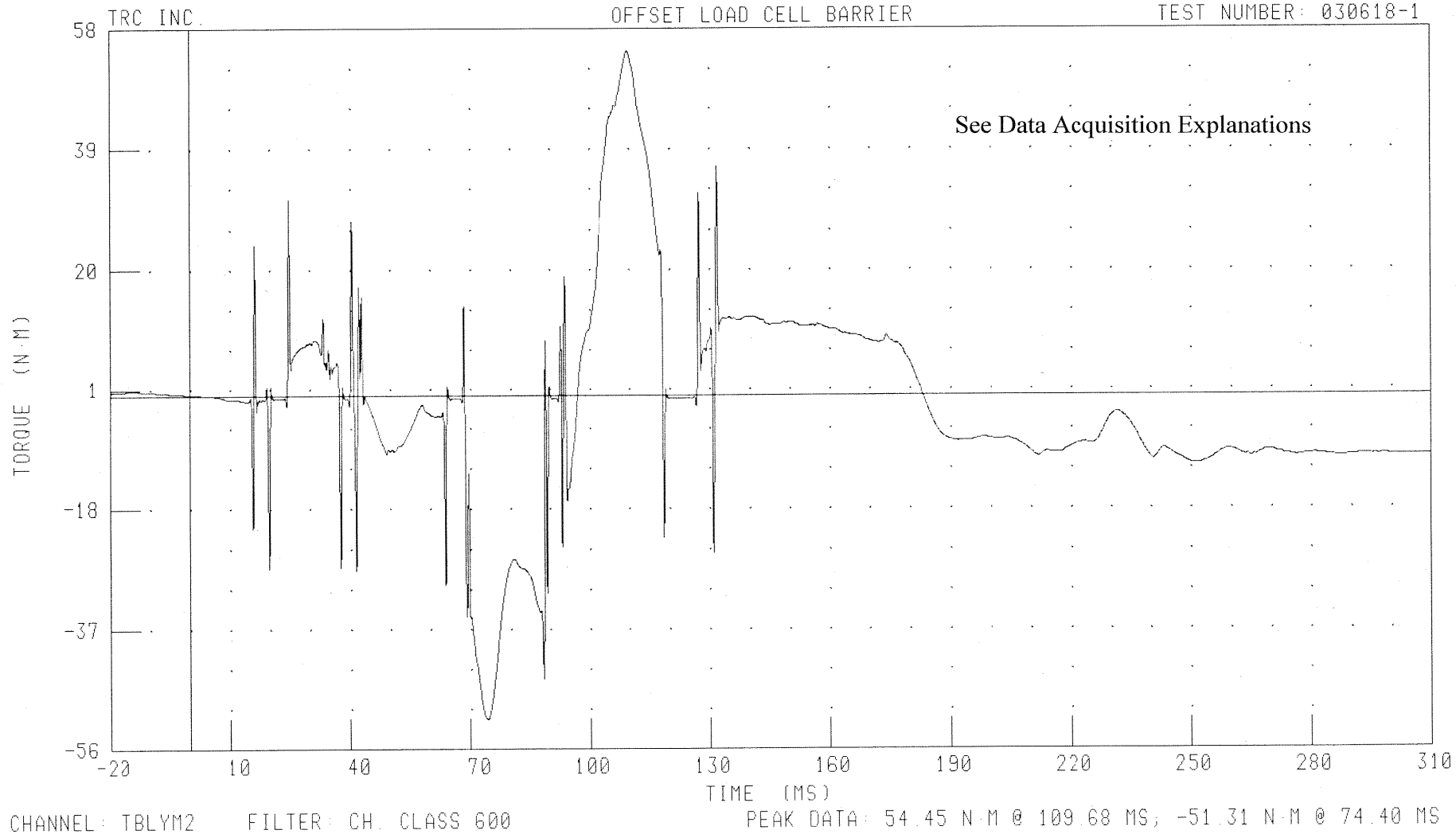
B-124

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1

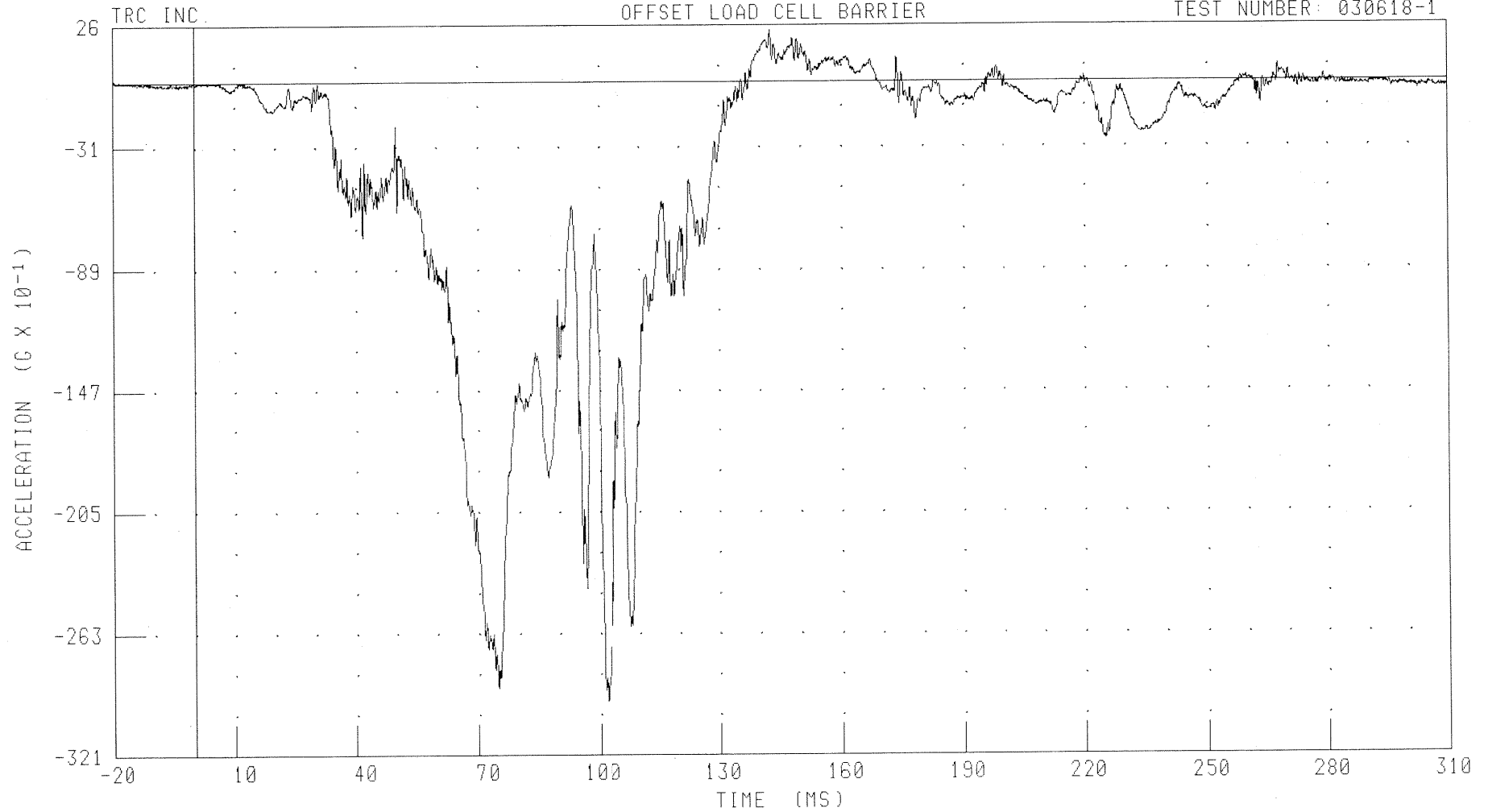


2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H

PASSENGER LEFT TIBIA X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBLXG2 FILTER: CH. CLASS 1000

PEAK DATA: 2.45 G @ 142.80 MS; -29.57 G @ 102.00 MS

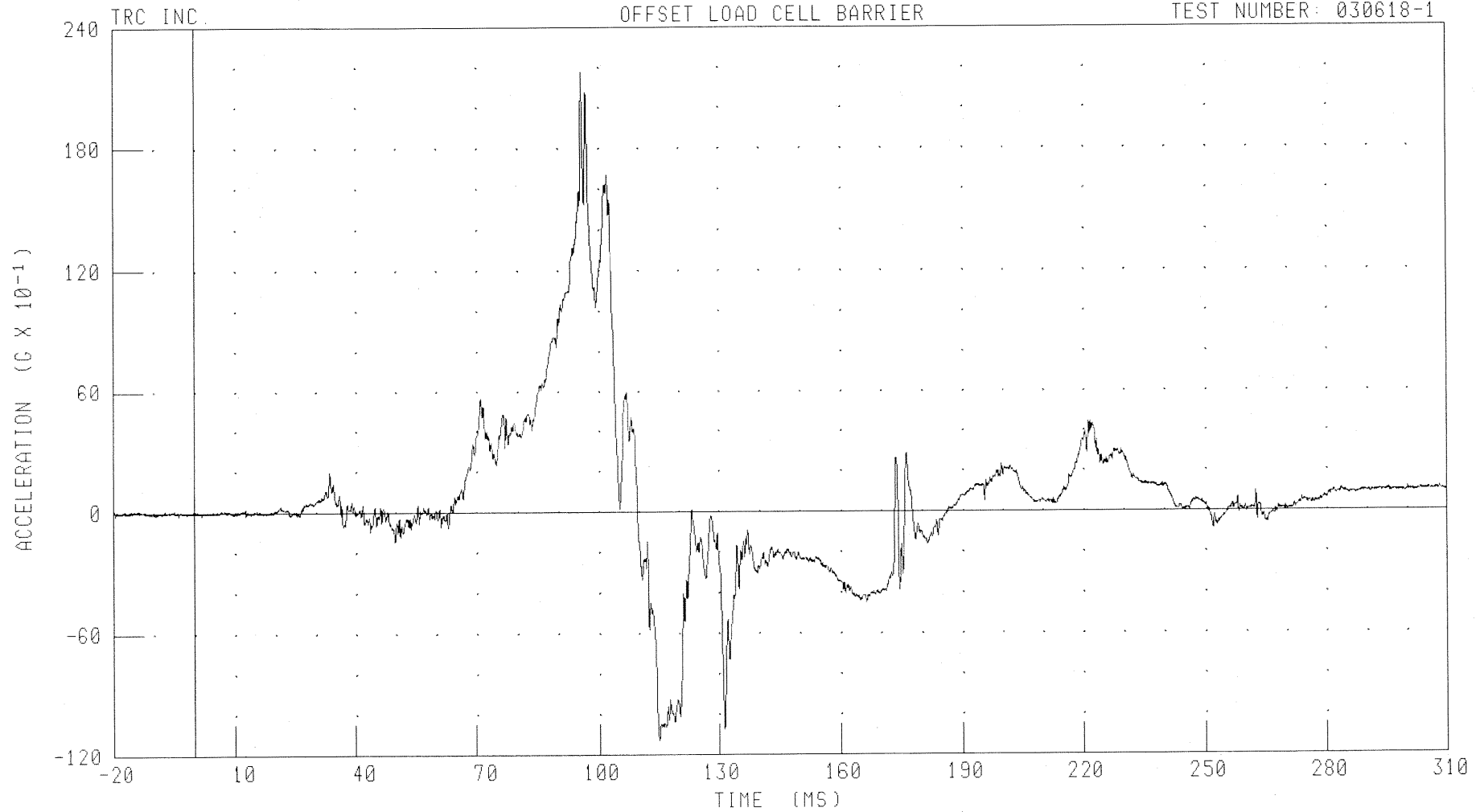
B-126

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBLYG2 FILTER: CH. CLASS 1000

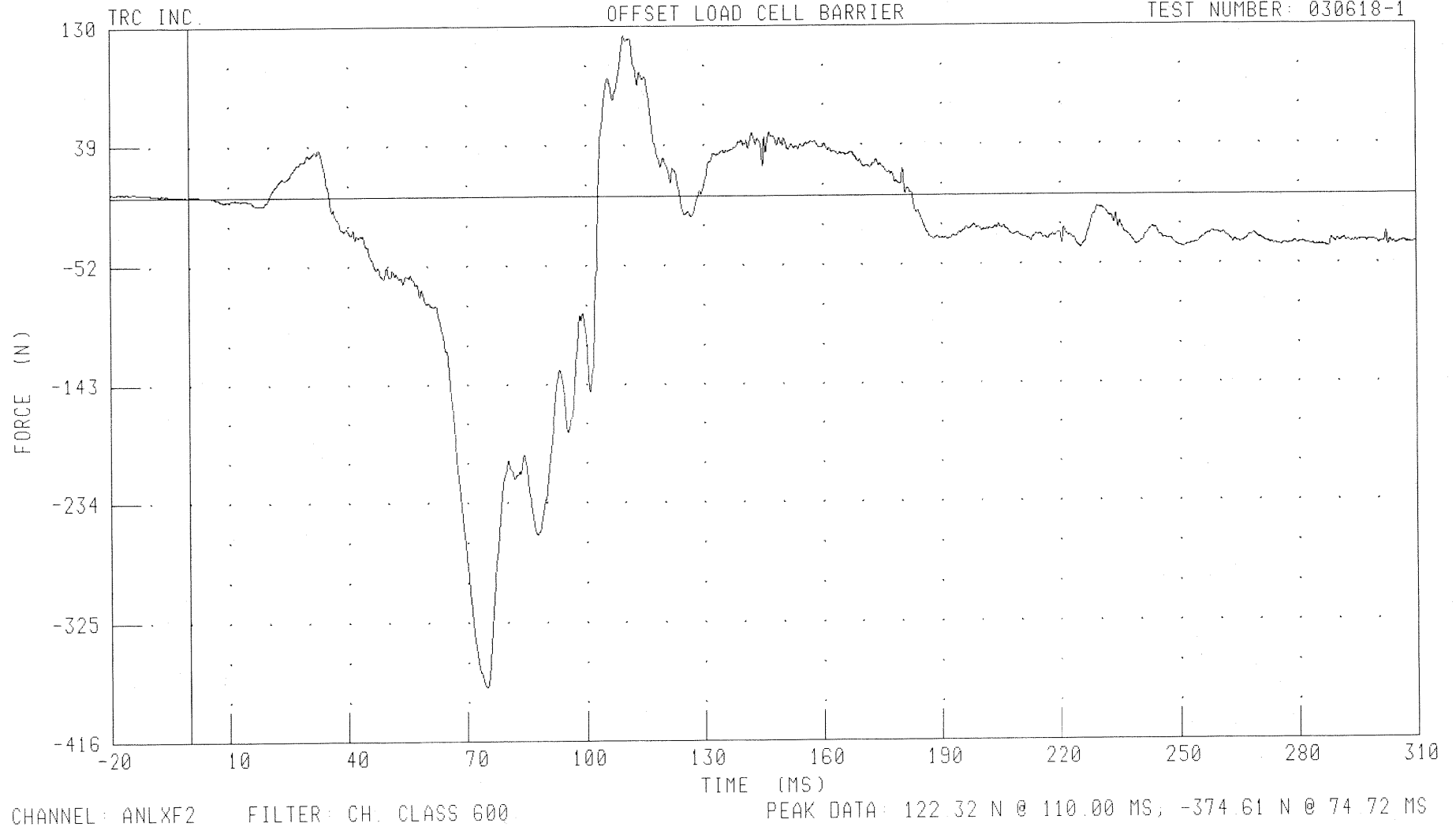
PEAK DATA: 21.77 G @ 95.76 MS; -11.28 G @ 115.12 MS

B-127

030618-1

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

TEST NUMBER: 030618-1



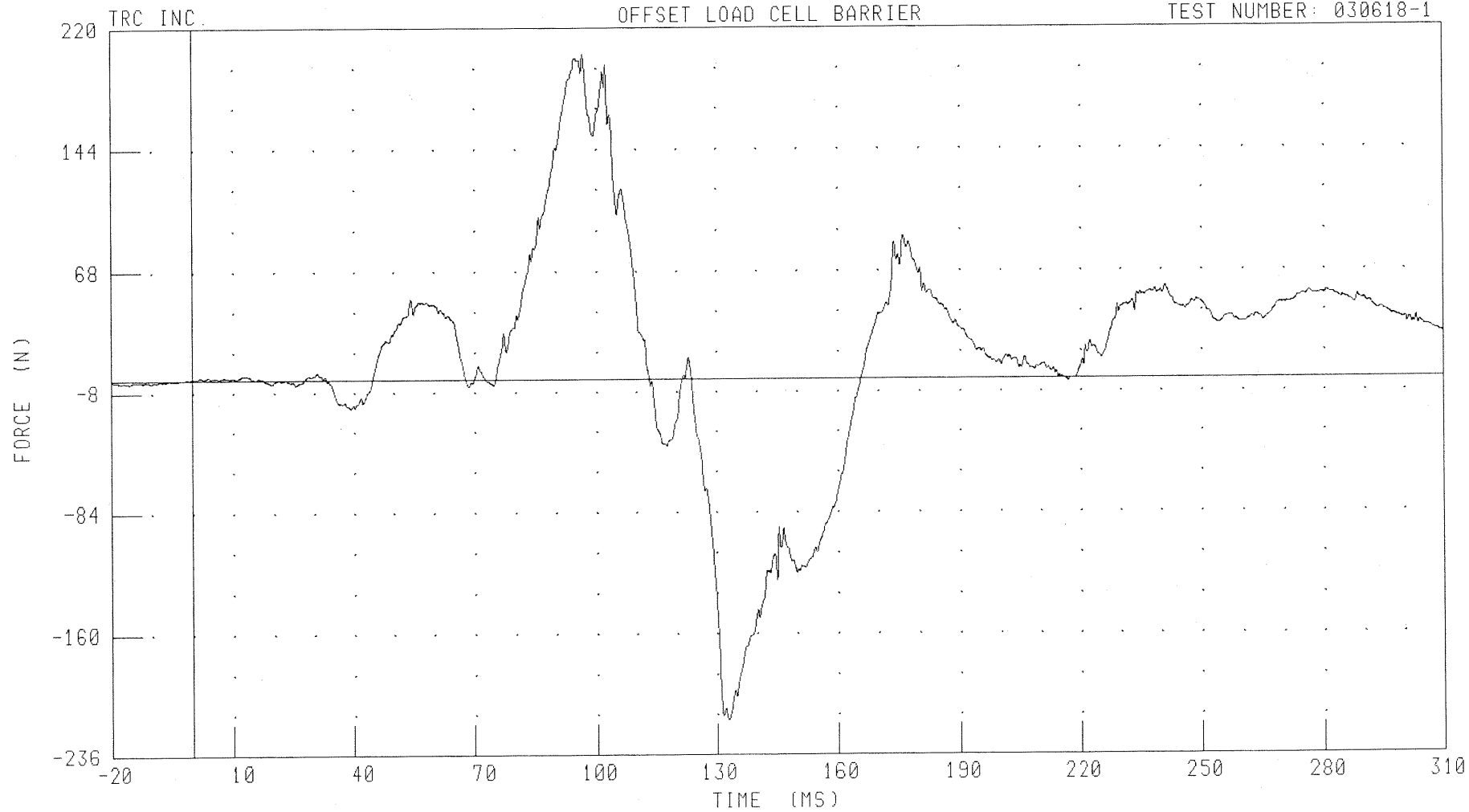
B-128

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANLYF2 FILTER: CH. CLASS 600

PEAK DATA: 203.38 N @ 96.80 MS; -214.43 N @ 132.96 MS

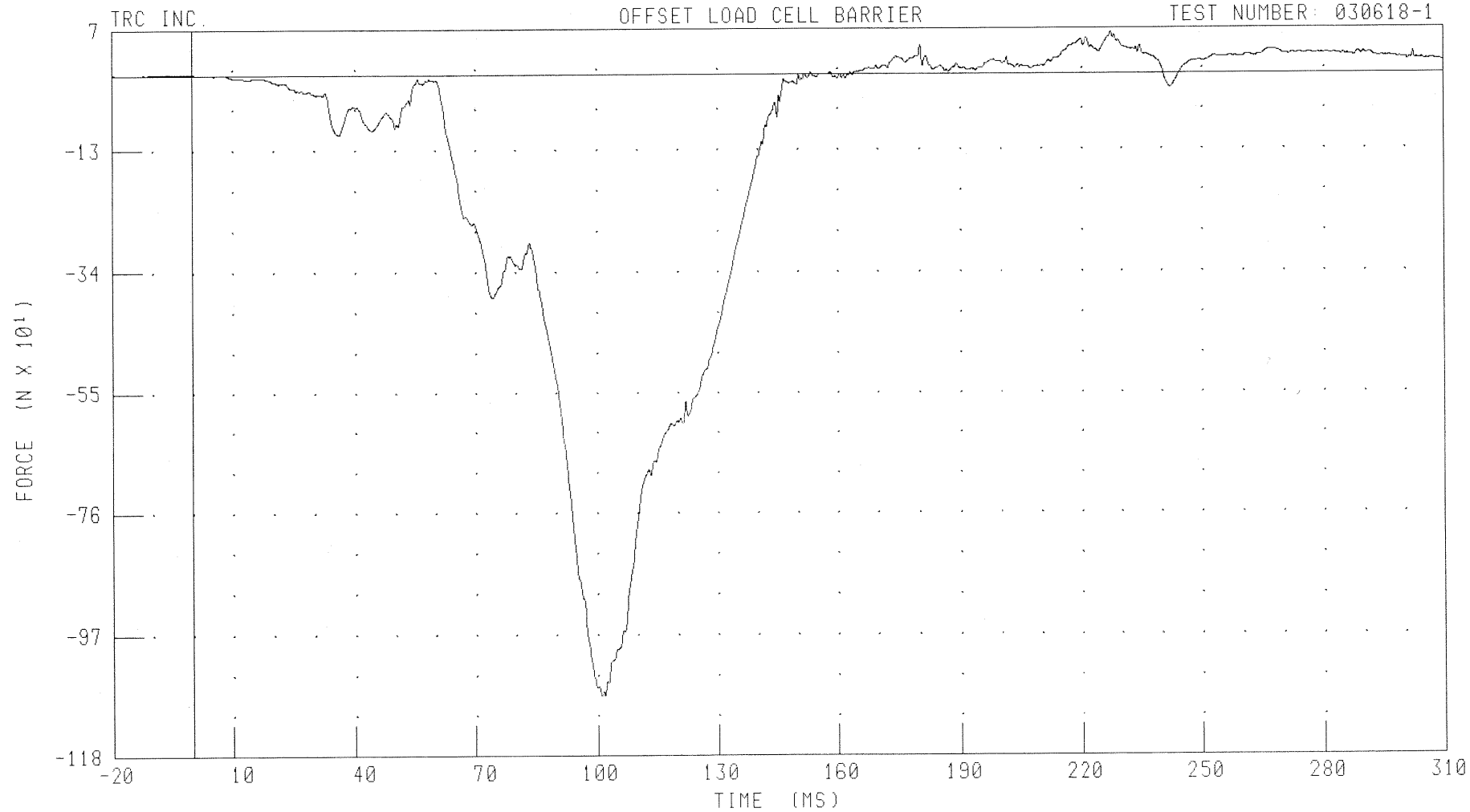
B-129

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANLZF2 FILTER: CH. CLASS 600

PEAK DATA: 72.61 N @ 227.60 MS, -1076.60 N @ 102.08 MS

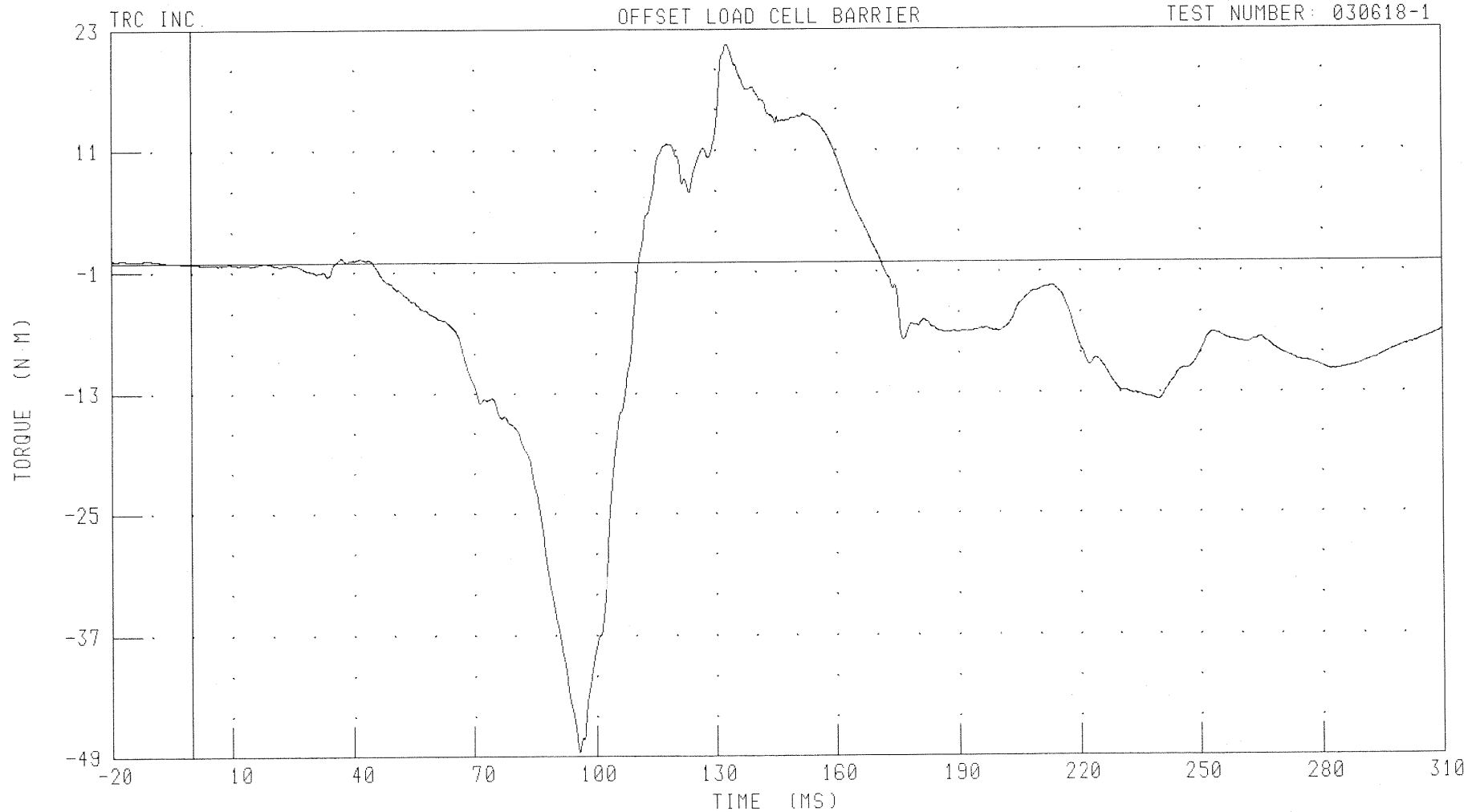
B-130

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANLXM2 FILTER: CH CLASS 600

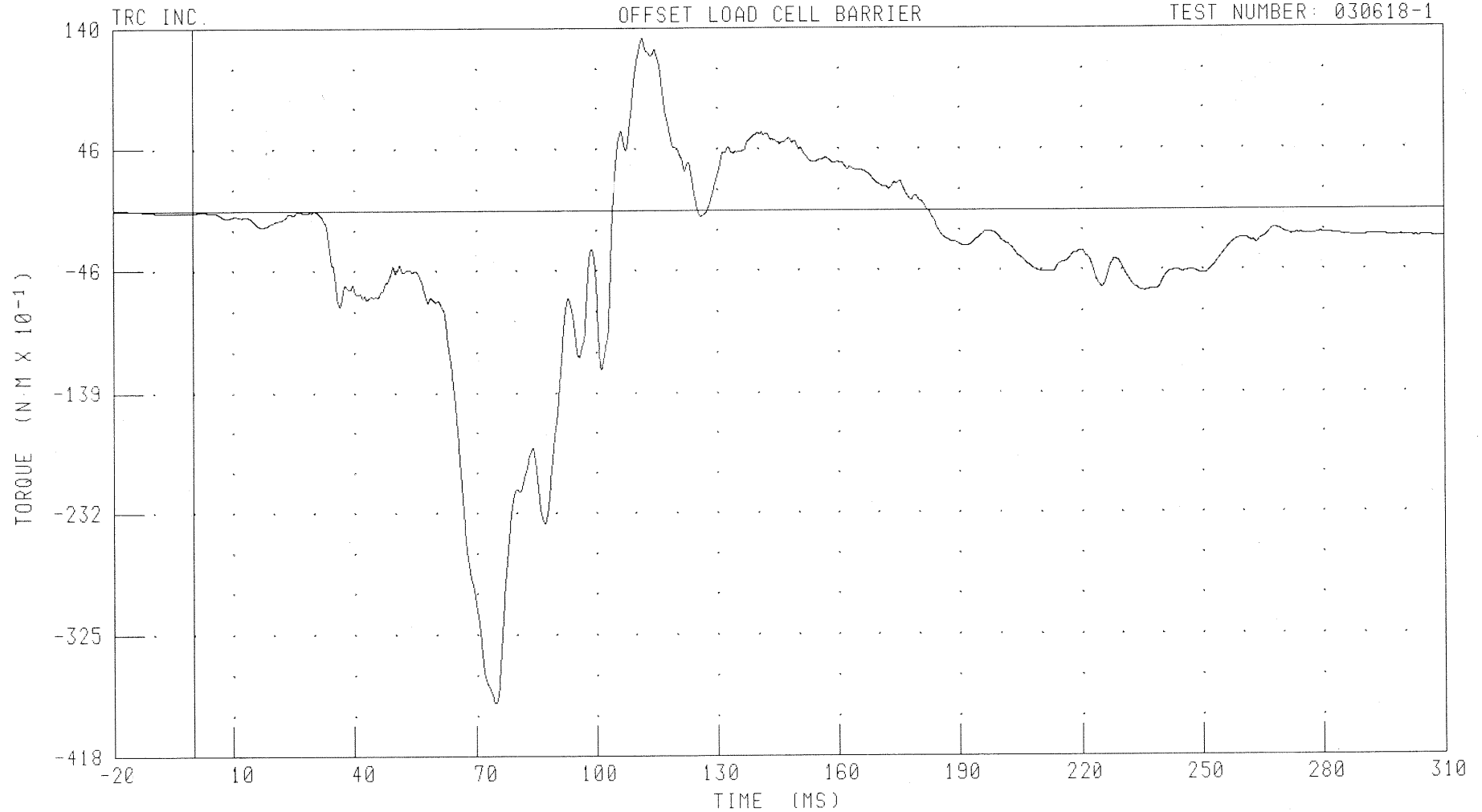
PEAK DATA: 21.54 N·M @ 132.88 MS, -48.56 N·M @ 95.84 MS

B-131

030618-1

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

TEST NUMBER: 030618-1



CHANNEL: ANLYM2 FILTER: CH. CLASS 600

PEAK DATA: 13.21 N·M @ 111.84 MS; -37.72 N·M @ 74.72 MS

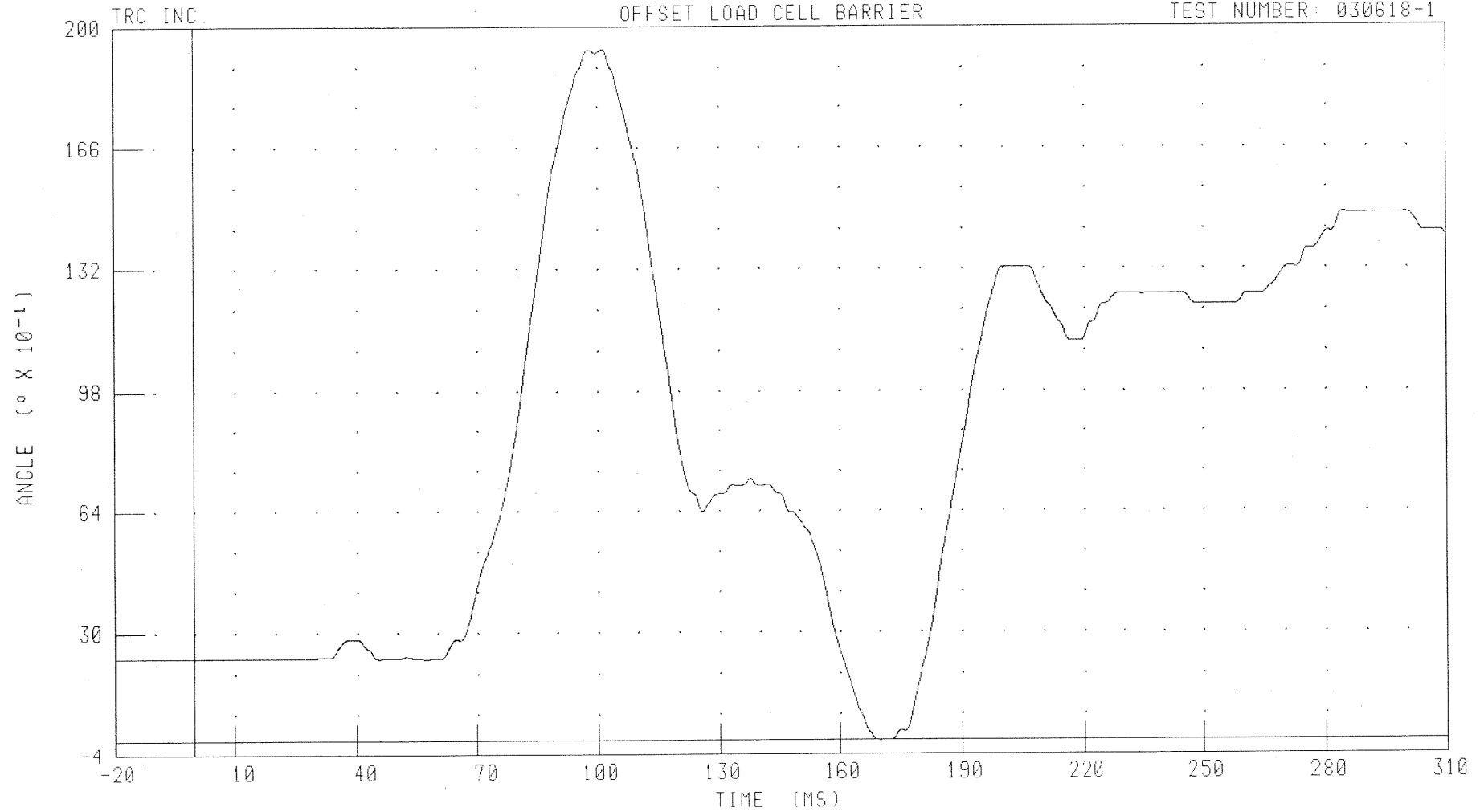
B-132

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLXD2 FILTER: CH. CLASS 180

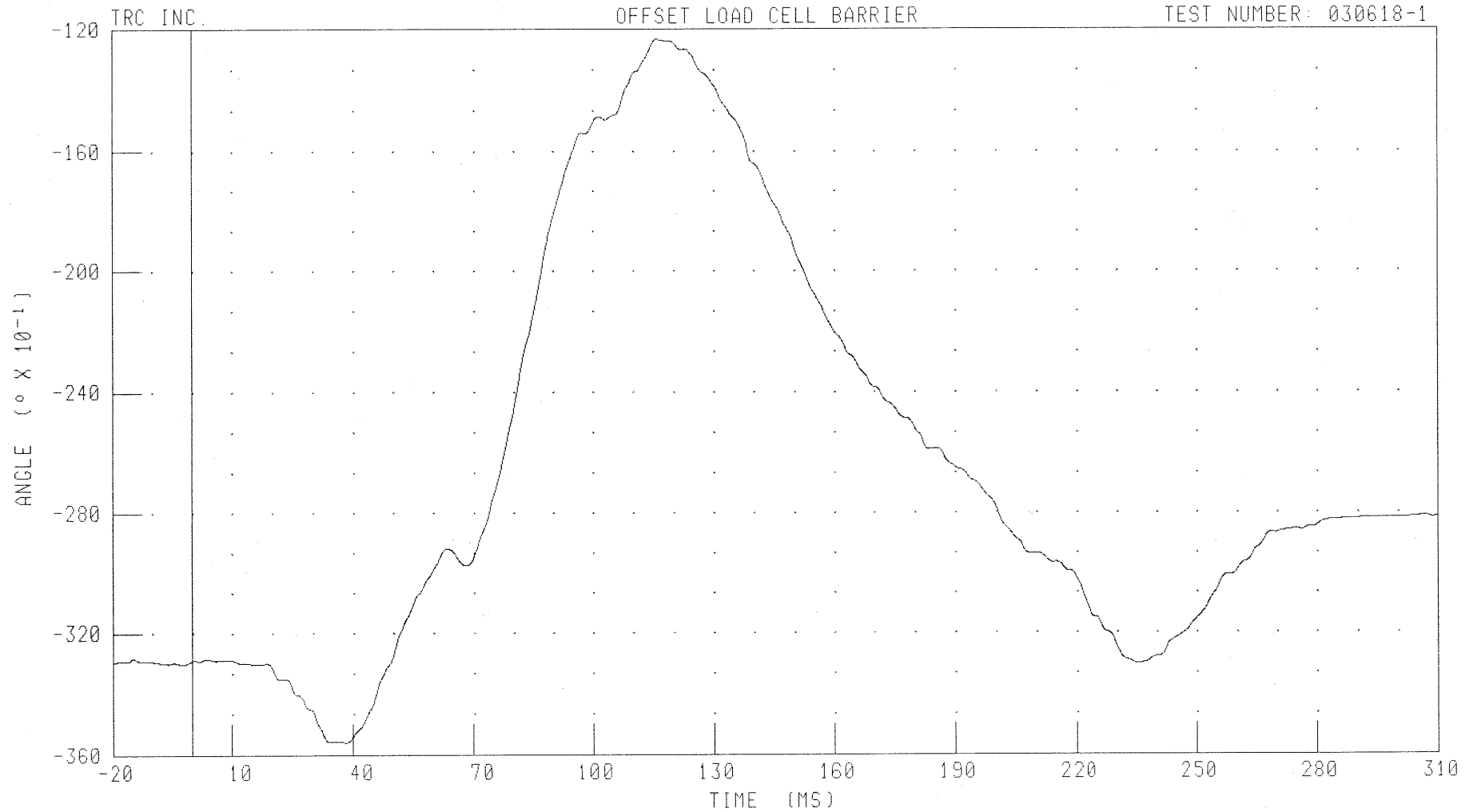
PEAK DATA: 19.38 $^{\circ}$ @ 101.52 MS; -0.01 $^{\circ}$ @ 170.08 MS

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

PASSENGER LEFT FOOT TO ANKLE Y-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLYD2 FILTER: CH. CLASS 180

PEAK DATA: -12.34 ° @ 116.00 MS; -35.58 ° @ 38.24 MS

B-134

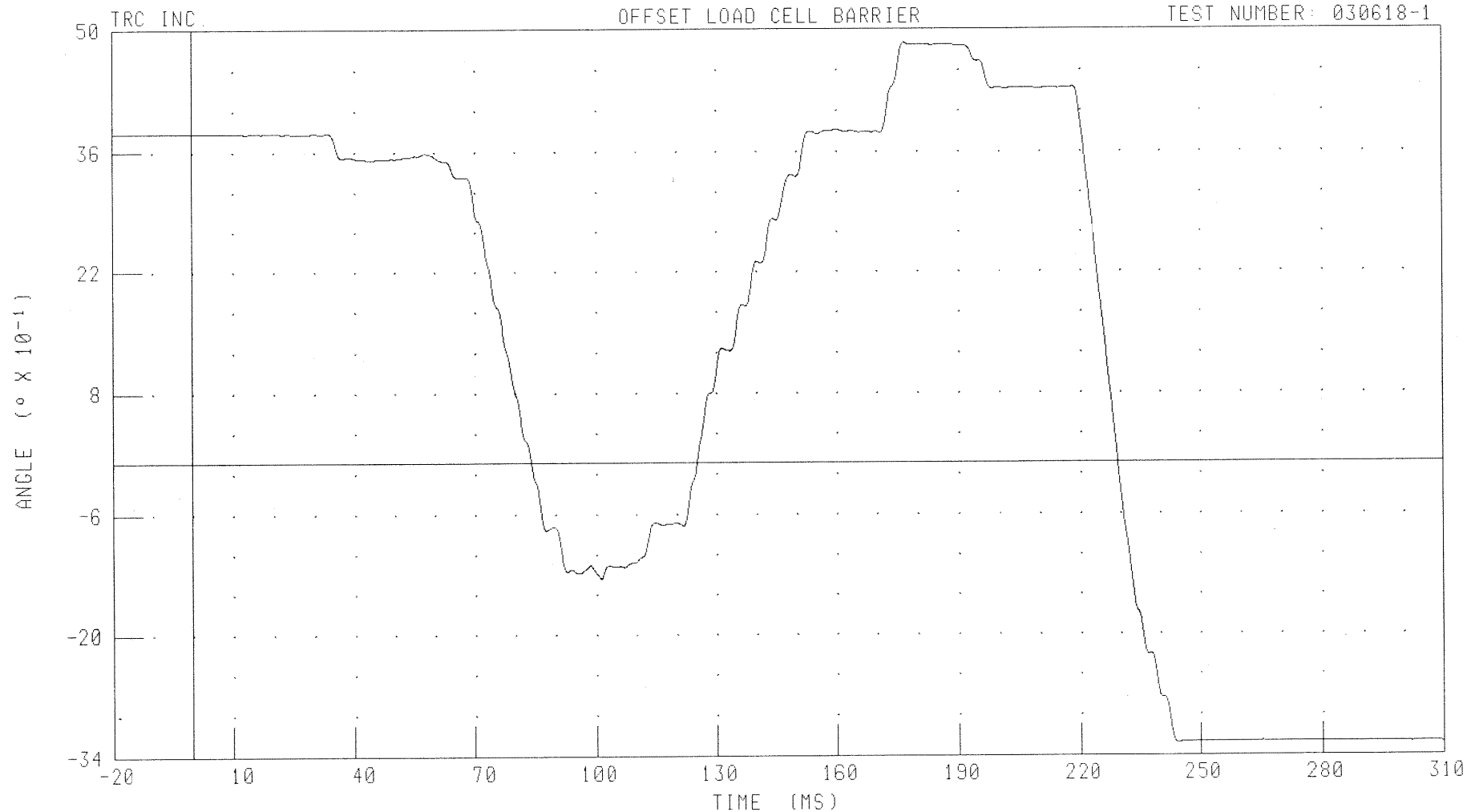
030618-1

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

PASSENGER LEFT FOOT TO ANKLE Z-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLZD2

FILTER: CH. CLASS 180

PEAK DATA: 4.84 ° @ 176.88 MS, -3.26 ° @ 244.24 MS

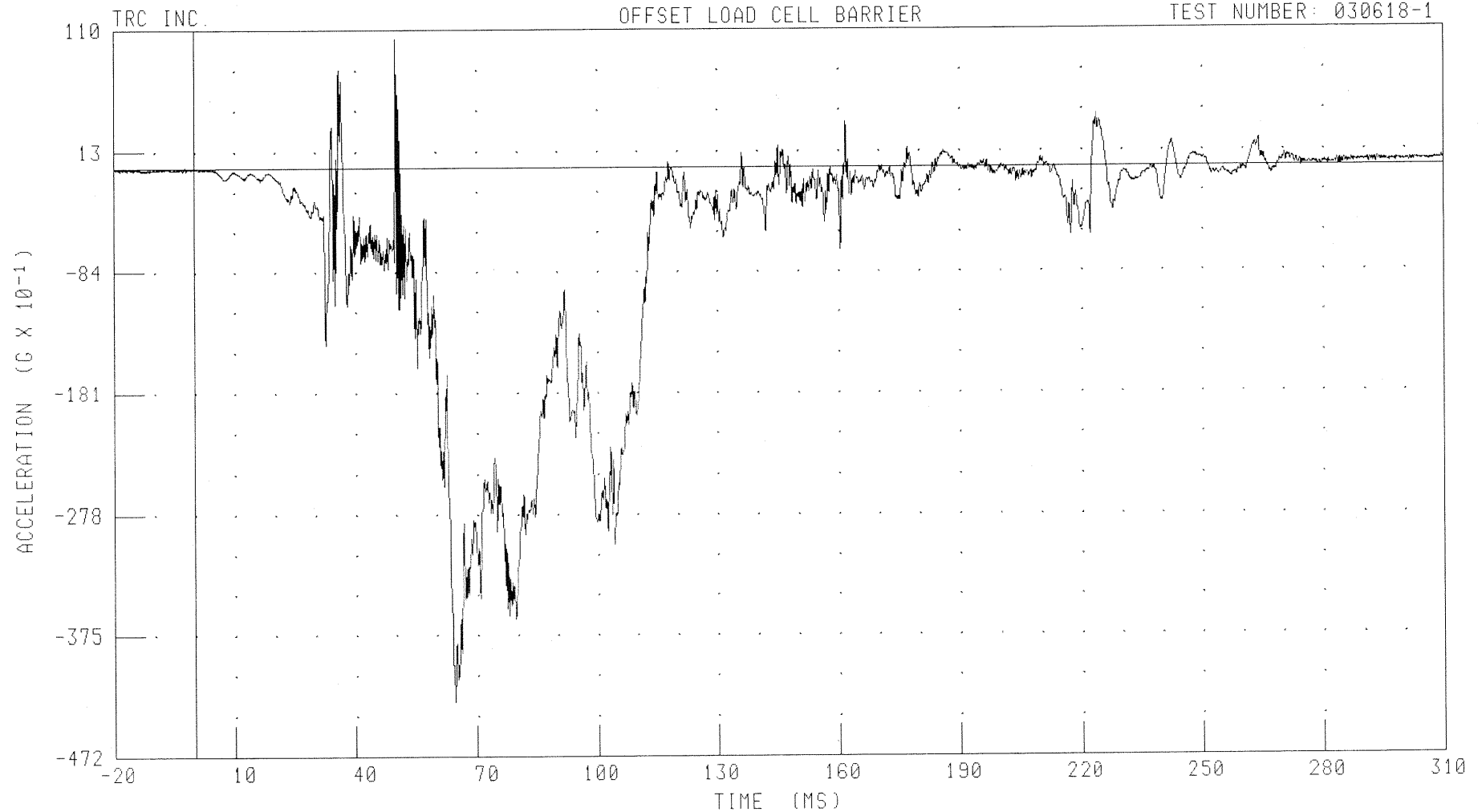
B-135

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLXG2

FILTER: CH. CLASS 1000

PEAK DATA: 10.26 G @ 50.16 MS; -42.88 G @ 64.56 MS

B-136

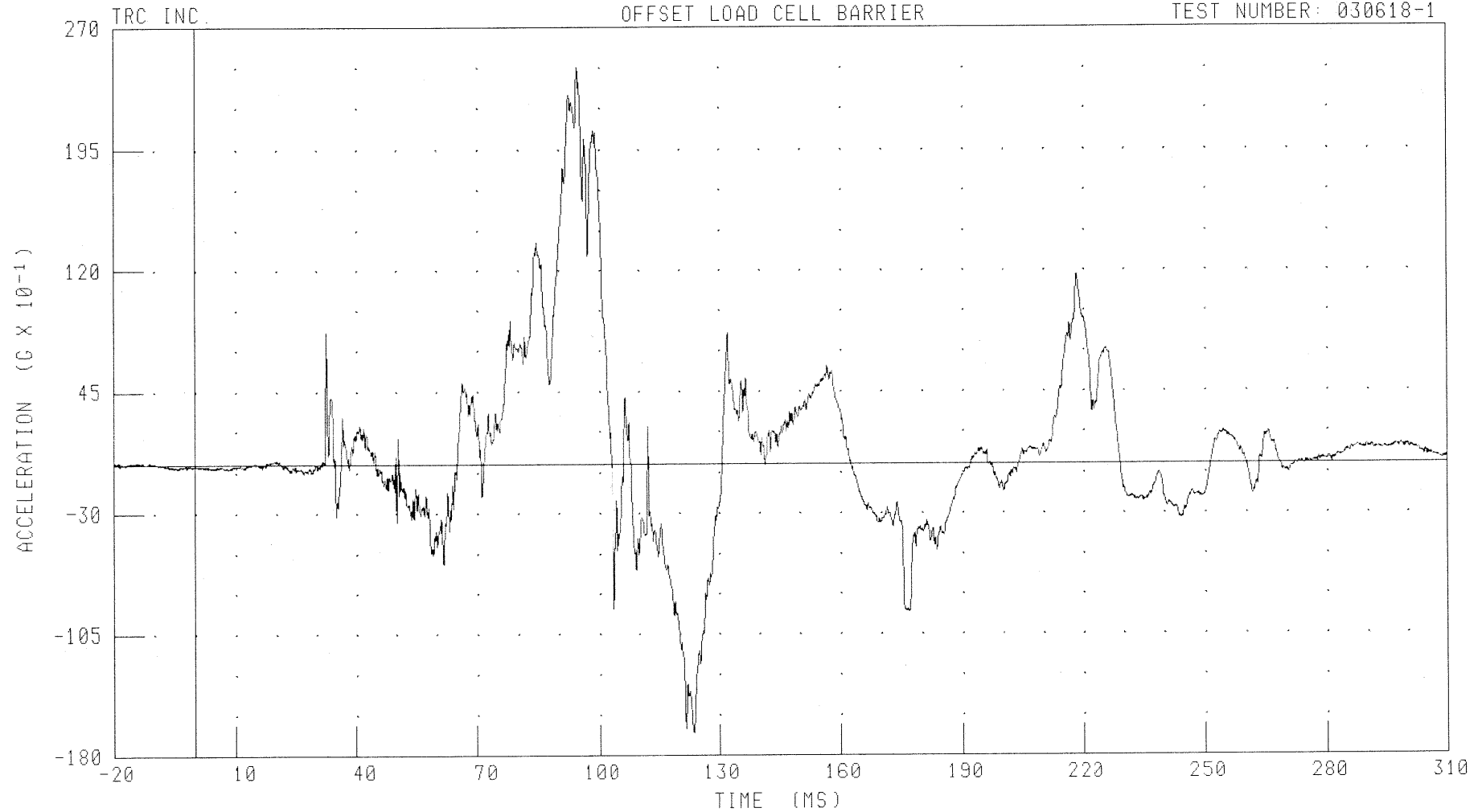
030618-1

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

PASSENGER LEFT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLYG2 FILTER: CH. CLASS 1000

PEAK DATA: 24.57 G @ 94.56 MS; -16.58 G @ 123.68 MS

B-137

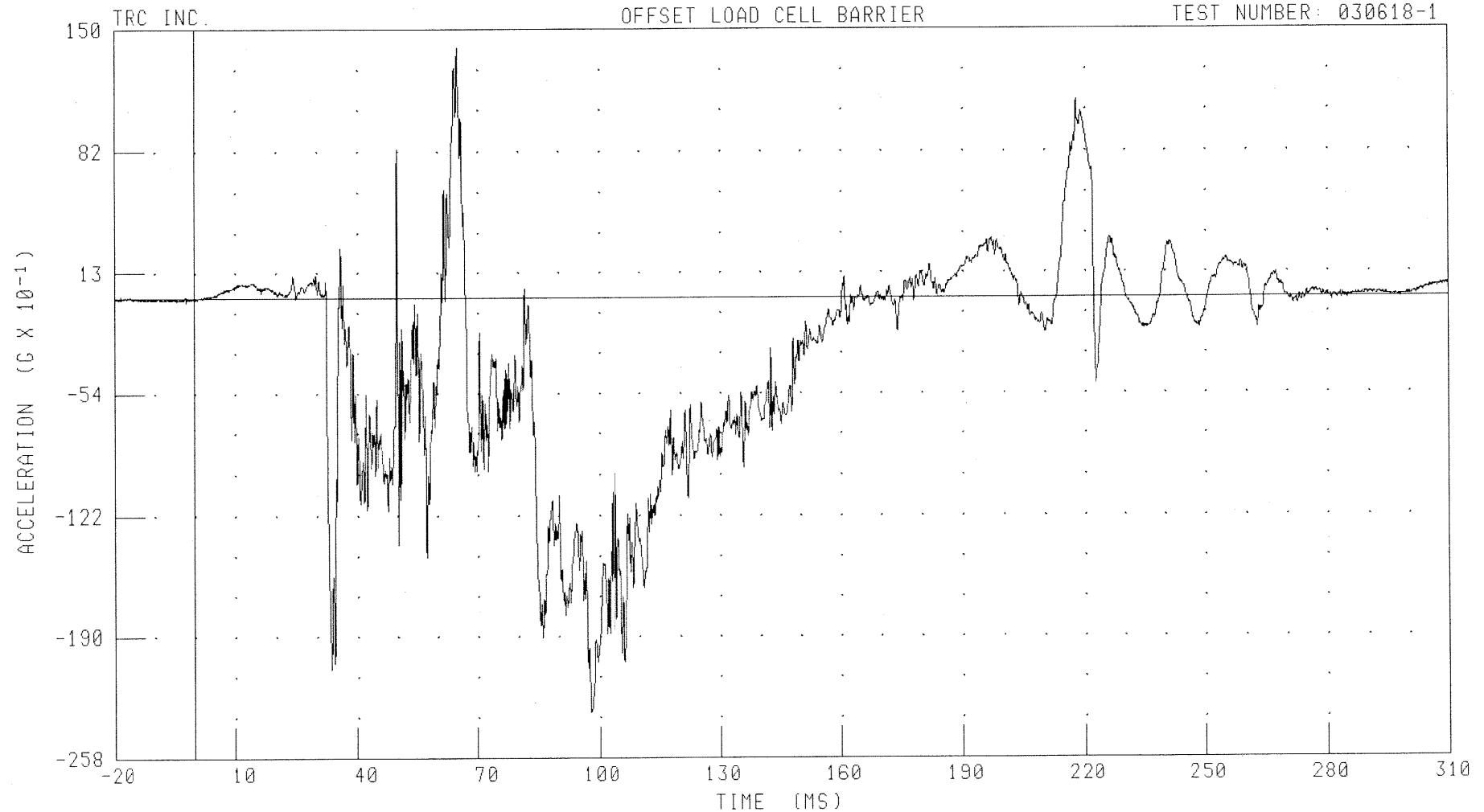
030618-1

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

PASSENGER LEFT FOOT Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLZG2 FILTER: CH. CLASS 1000

PEAK DATA: 14.00 G @ 64.96 MS; -23.27 G @ 97.92 MS

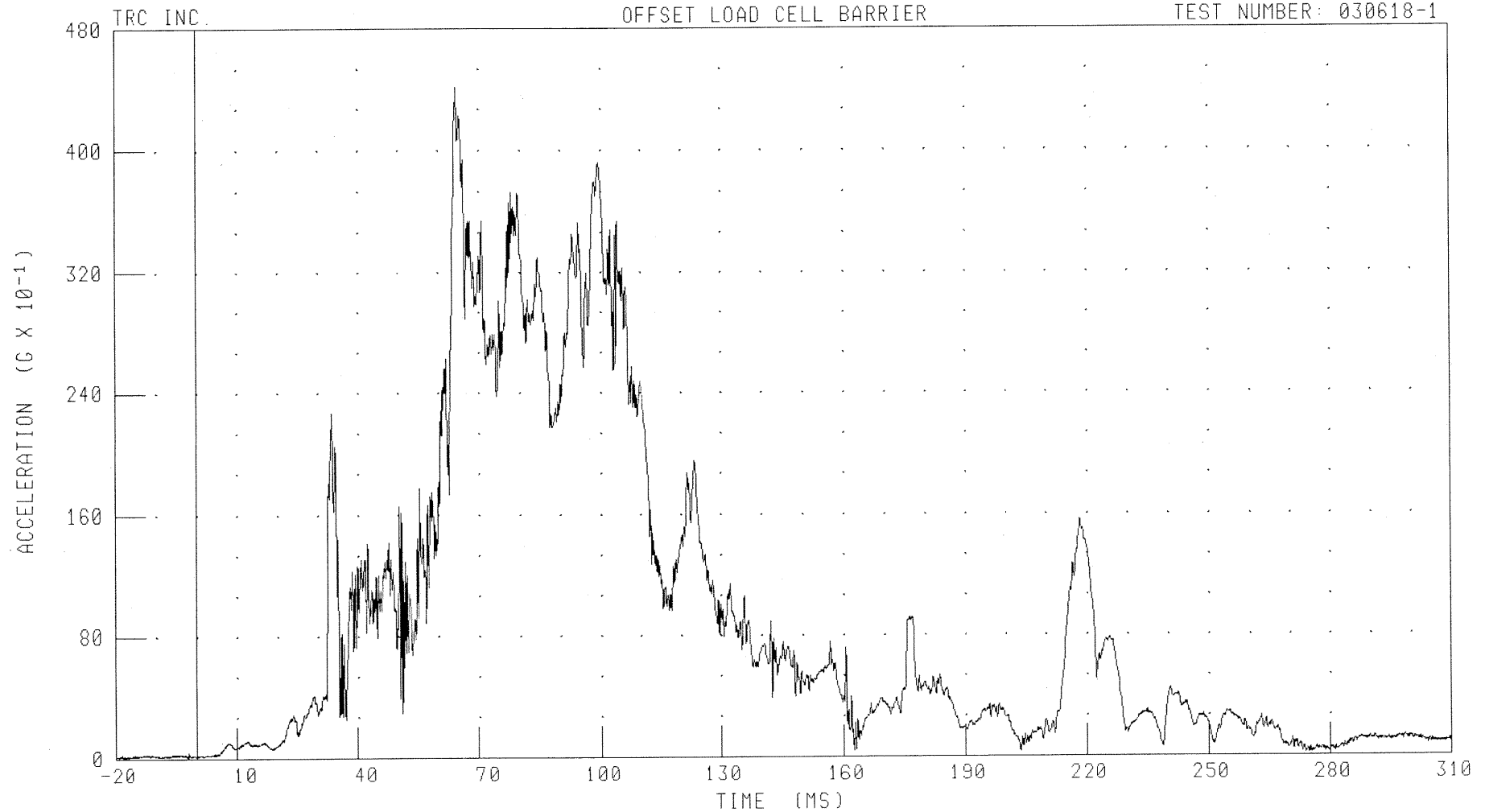
B-138

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTLRG2 FILTER: CH. CLASS 1000

PEAK DATA: 44.17 G @ 64.56 MS; 0.07 G @ -2.08 MS

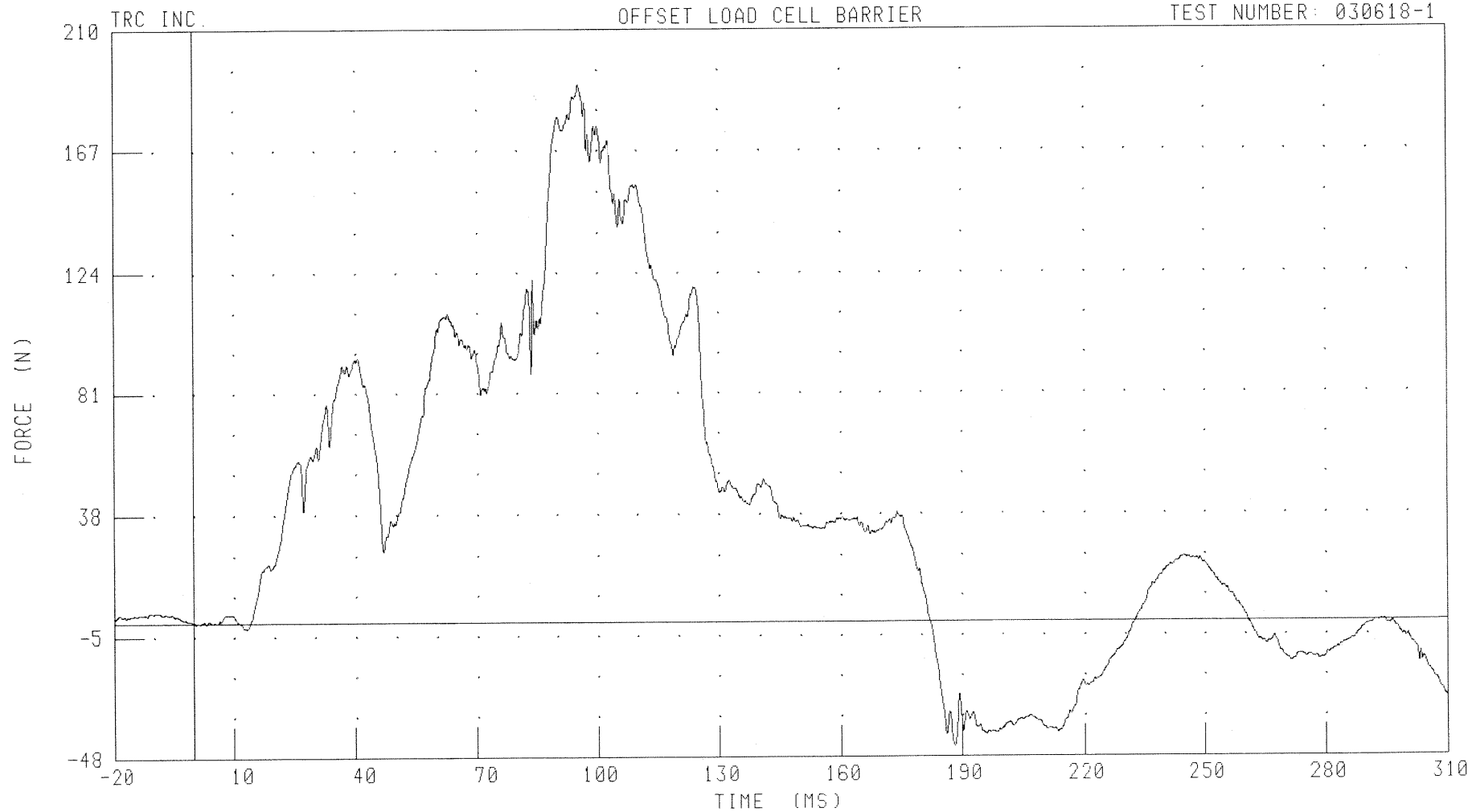
B-139

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRXF2 FILTER: CH. CLASS 600

PEAK DATA: 190.29 N @ 95.44 MS; -44.33 N @ 188.24 MS

B-140

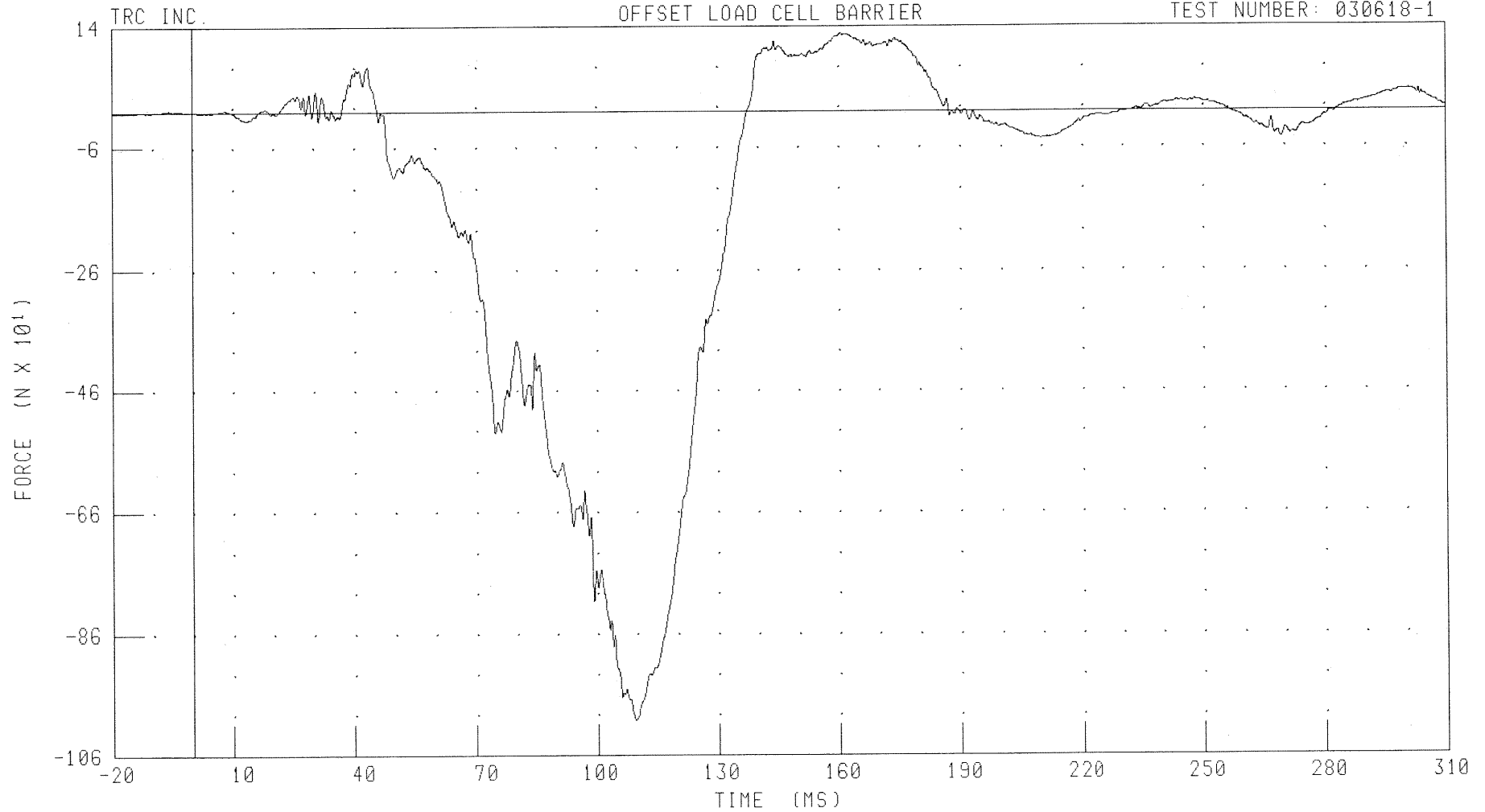
030618-1

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

PASSENGER RIGHT UPPER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRZF2 FILTER: CH. CLASS 600

B-141

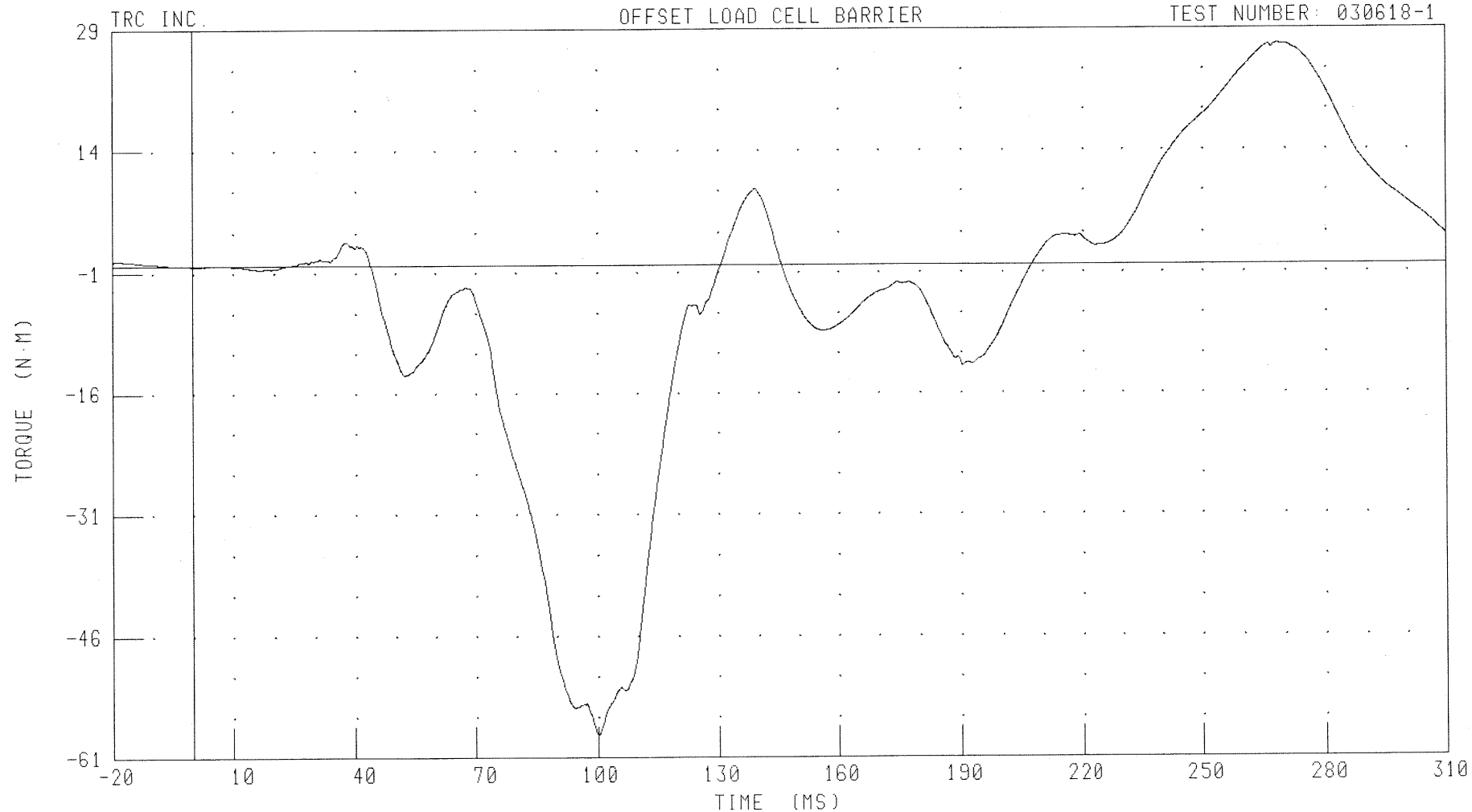
030618-1

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

PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRXM2

FILTER: CH. CLASS 600

PEAK DATA: 27.13 N·M @ 268.32 MS; -58.24 N·M @ 100.16 MS

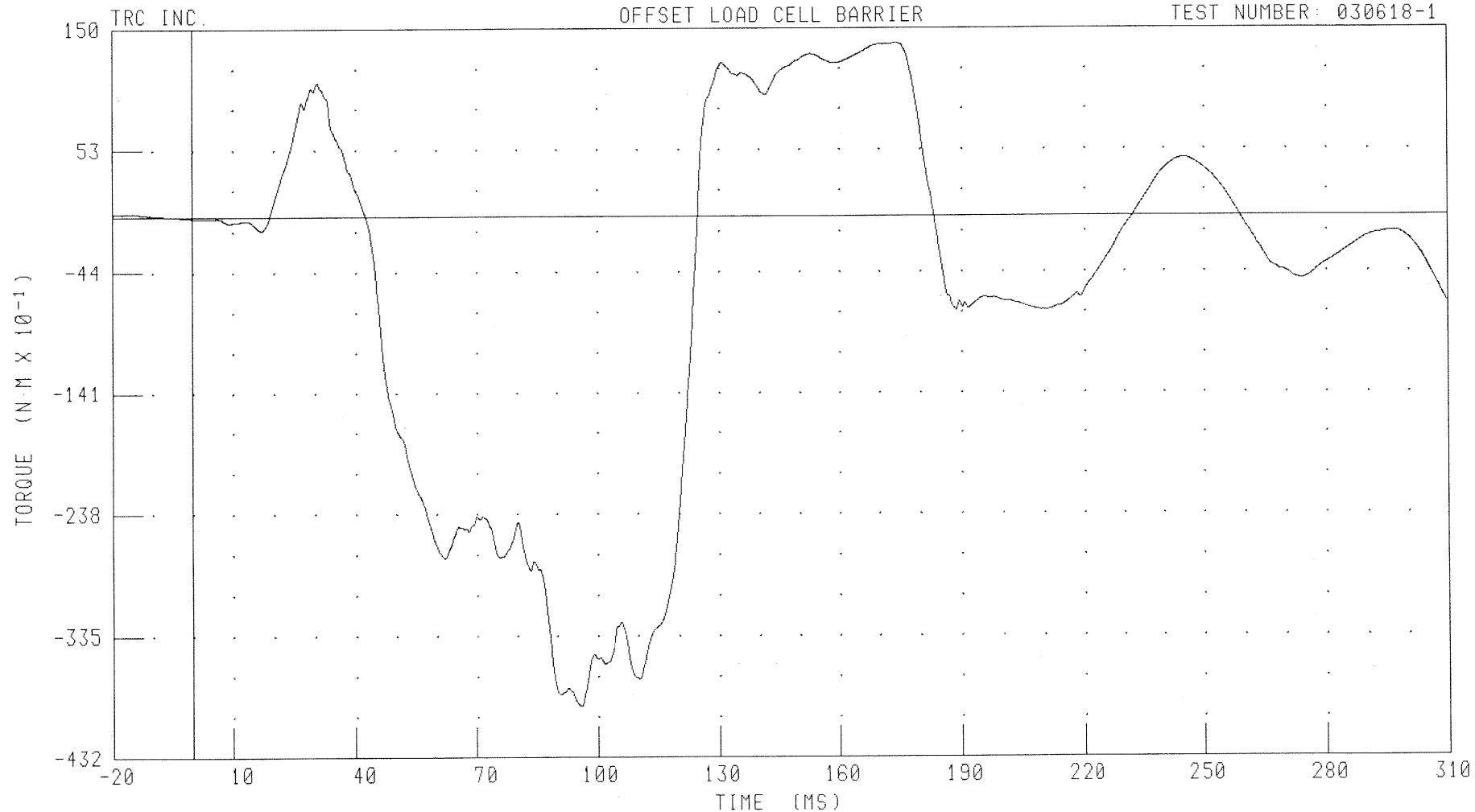
B-142

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRYM2

FILTER: CH. CLASS 600

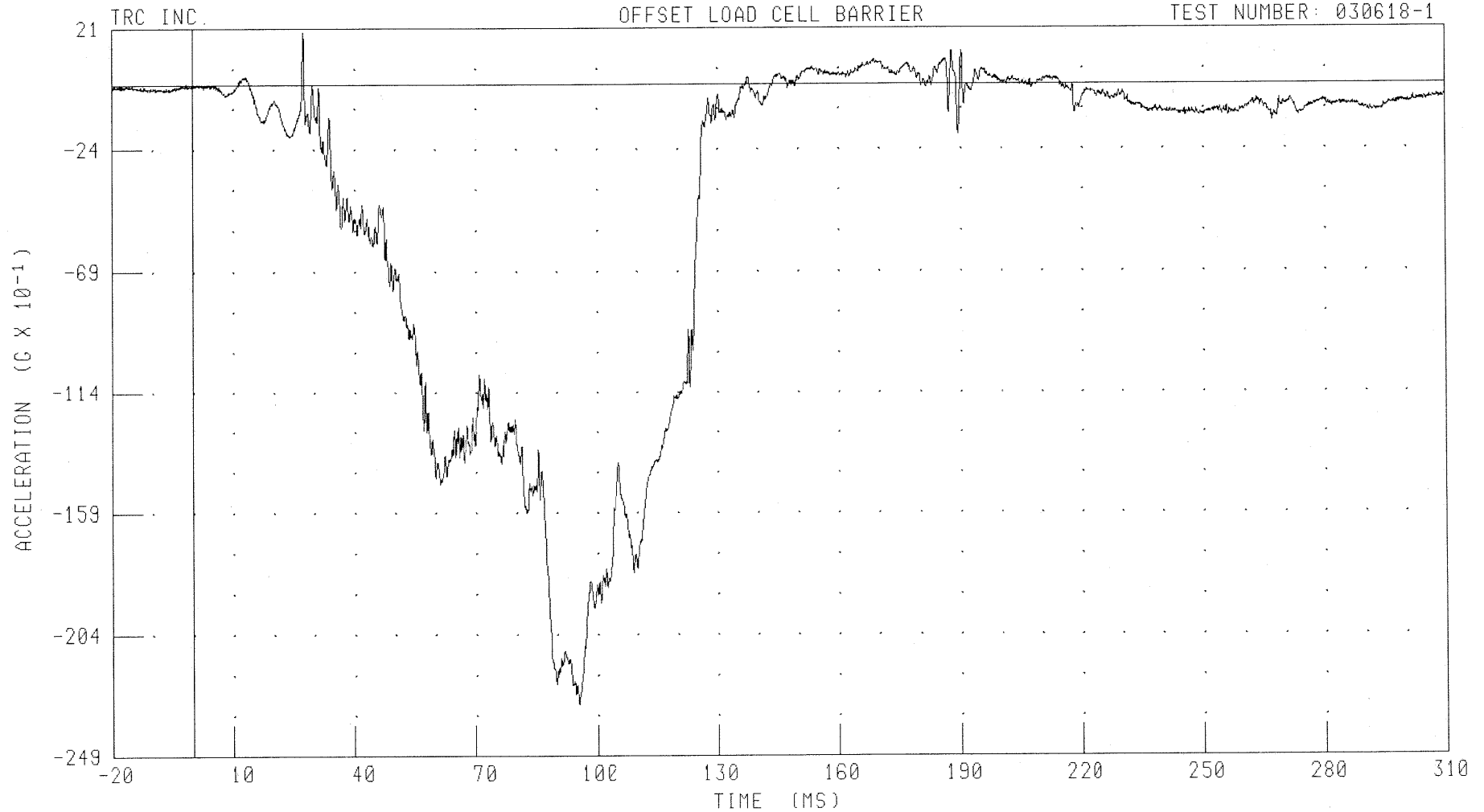
PEAK DATA: 13.79 N·M @ 174.16 MS; -39.13 N·M @ 95.92 MS

B-143

030618-1

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

TEST NUMBER: 030618-1



CHANNEL: TBRXG2 FILTER: CH. CLASS 1000

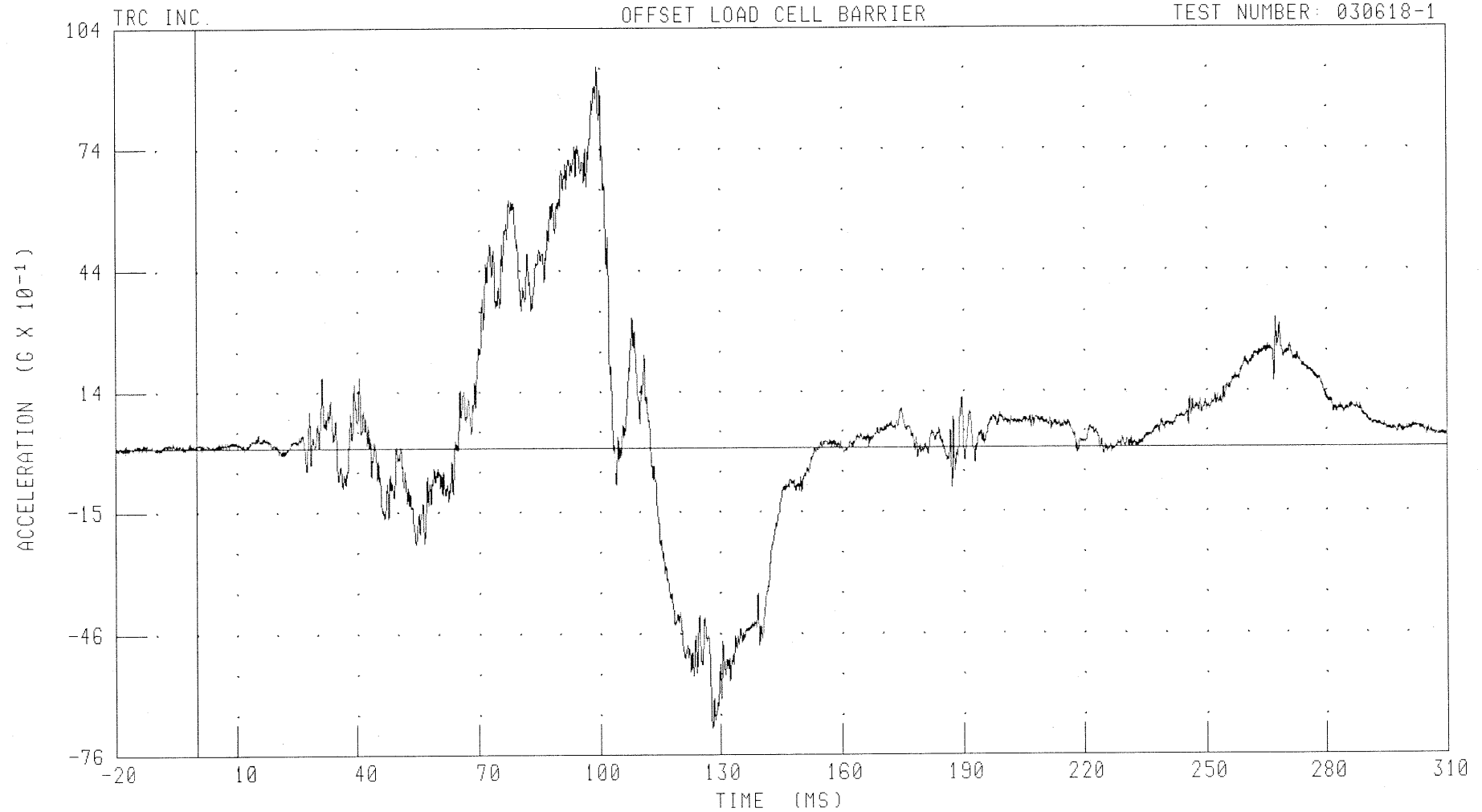
B-144

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TBRYG2 FILTER: CH. CLASS 1000

PEAK DATA: 9.43 G @ 99.44 MS; -6.93 G @ 128.16 MS

B-145

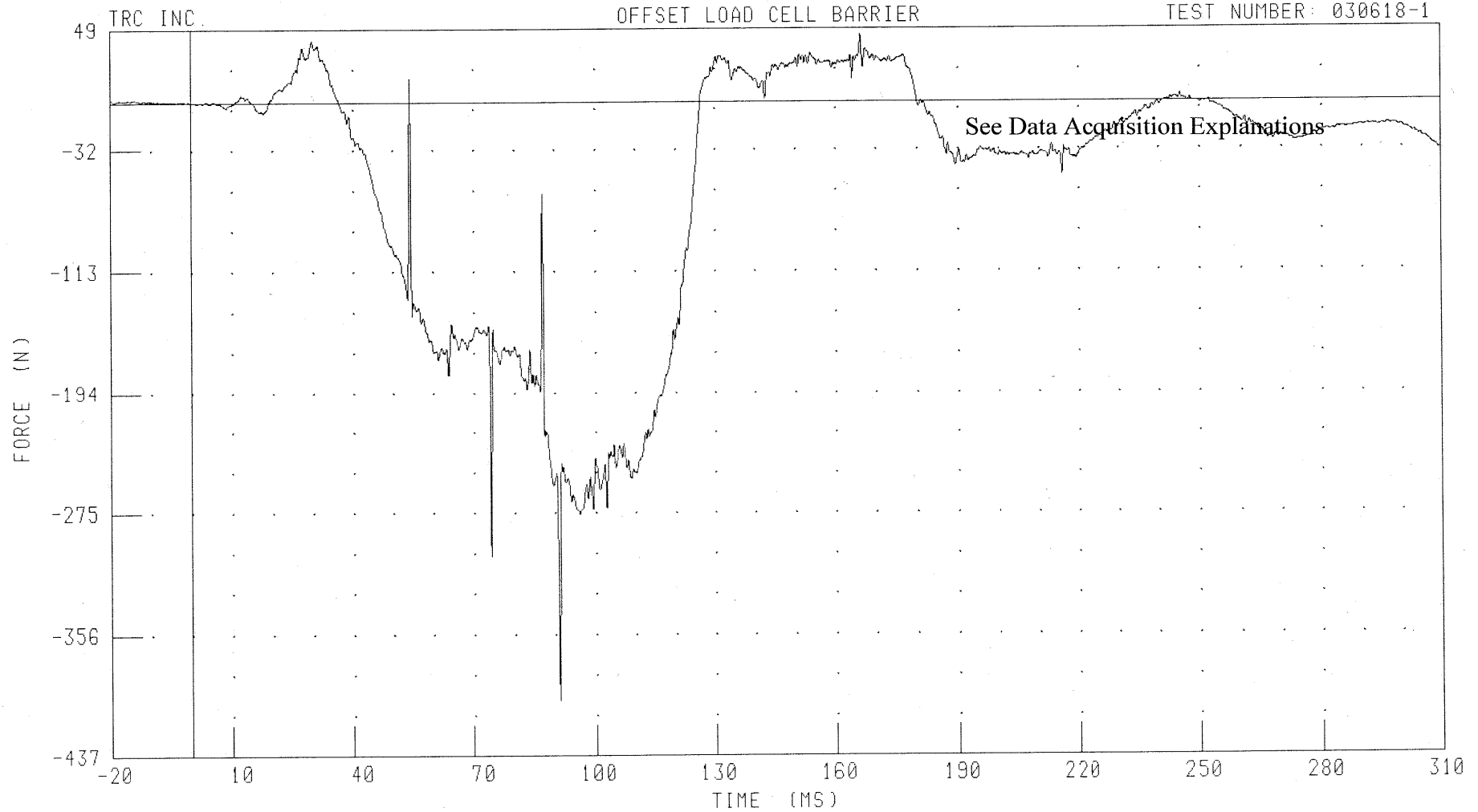
030618-1

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

PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRXF2 FILTER: CH. CLASS 600

PEAK DATA: 44.73 N @ 166.48 MS, -400.17 N @ 91.12 MS

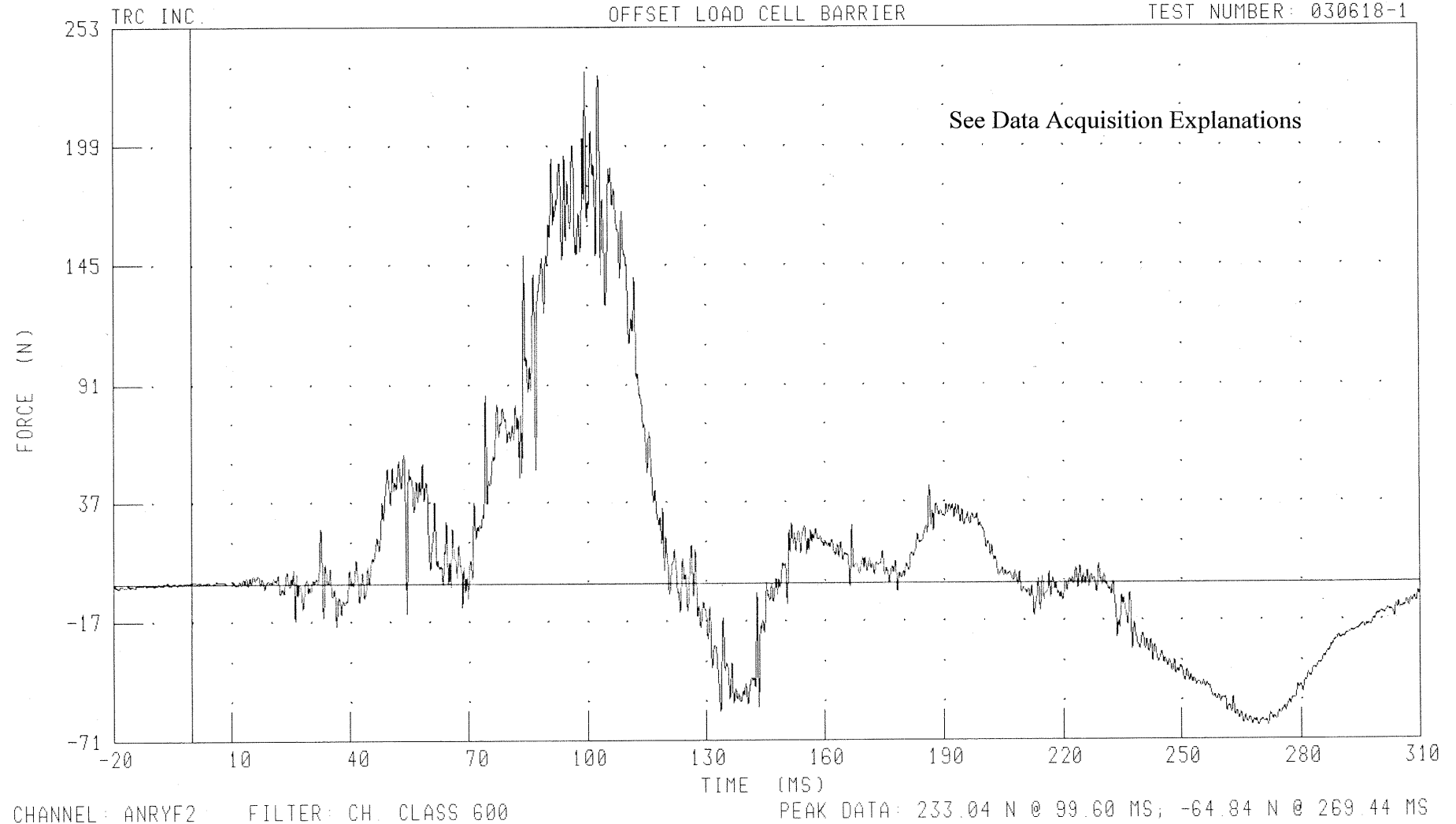
B-146

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-147

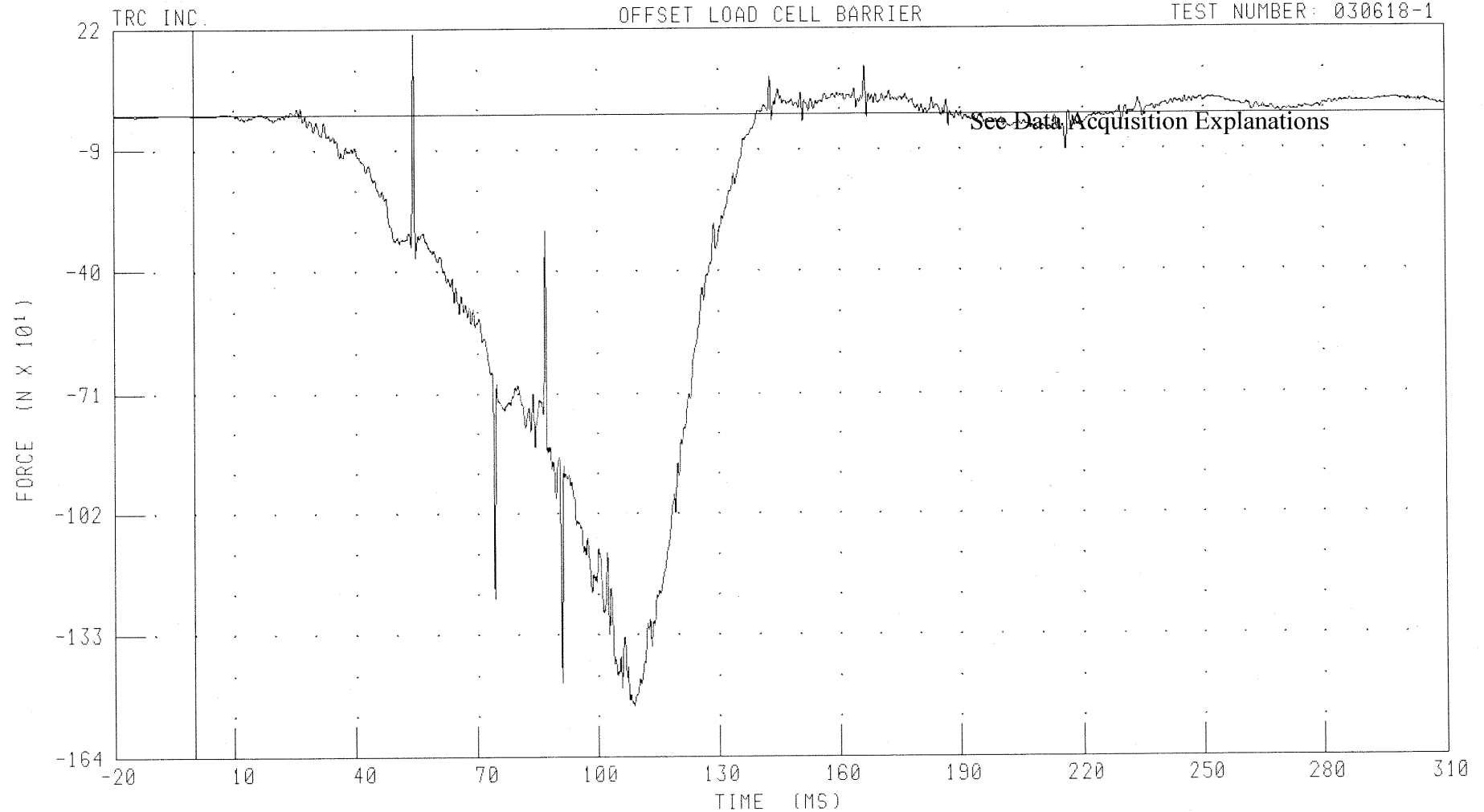
030618-1

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

PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRZF2 FILTER: CH. CLASS 600

PEAK DATA: 207.97 N @ 54.40 MS; -1511.14 N @ 109.20 MS

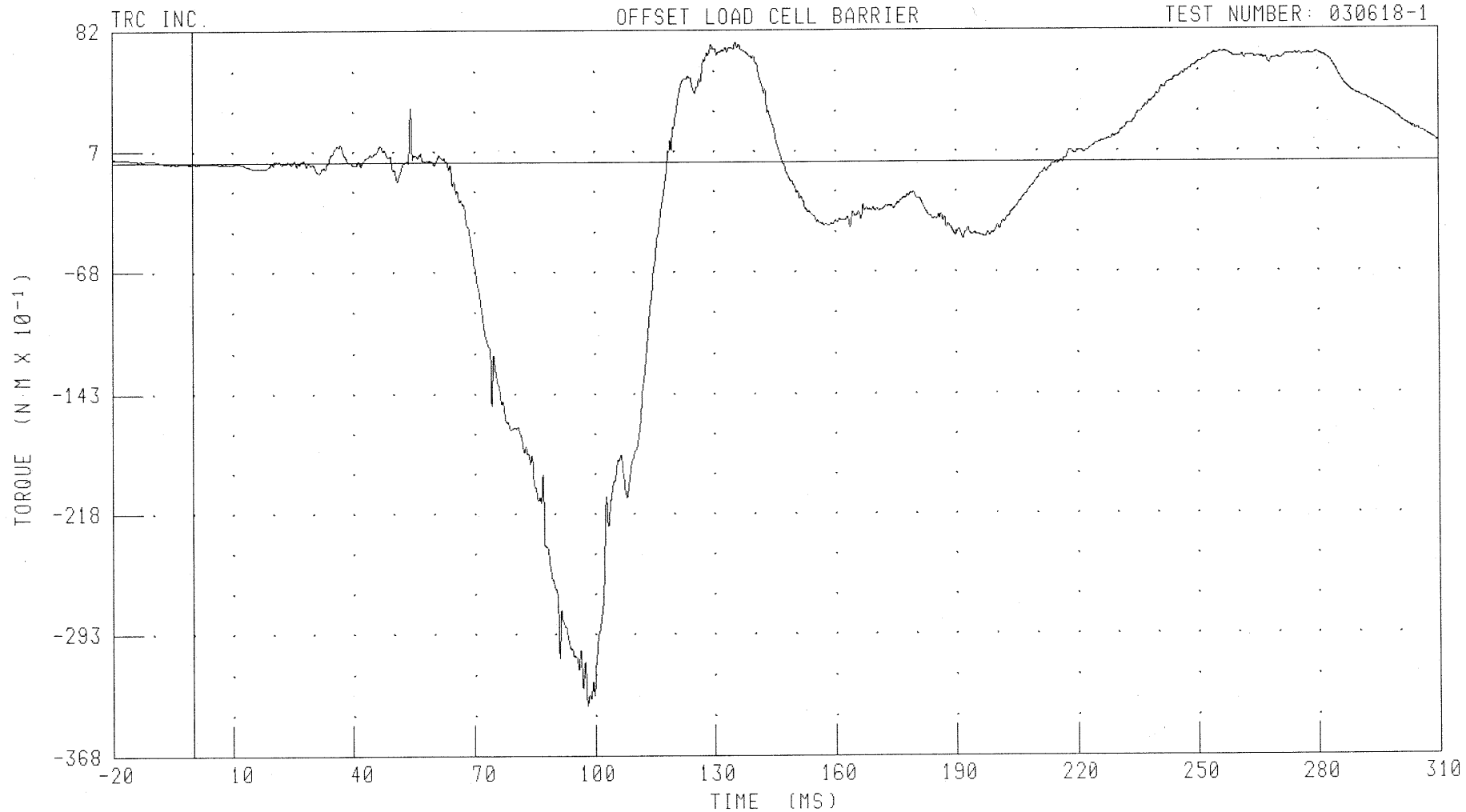
B-148

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRXM2 FILTER: CH. CLASS 600

PEAK DATA: 7.47 N·m @ 135.52 MS; -33.69 N·m @ 98.08 MS

B-149

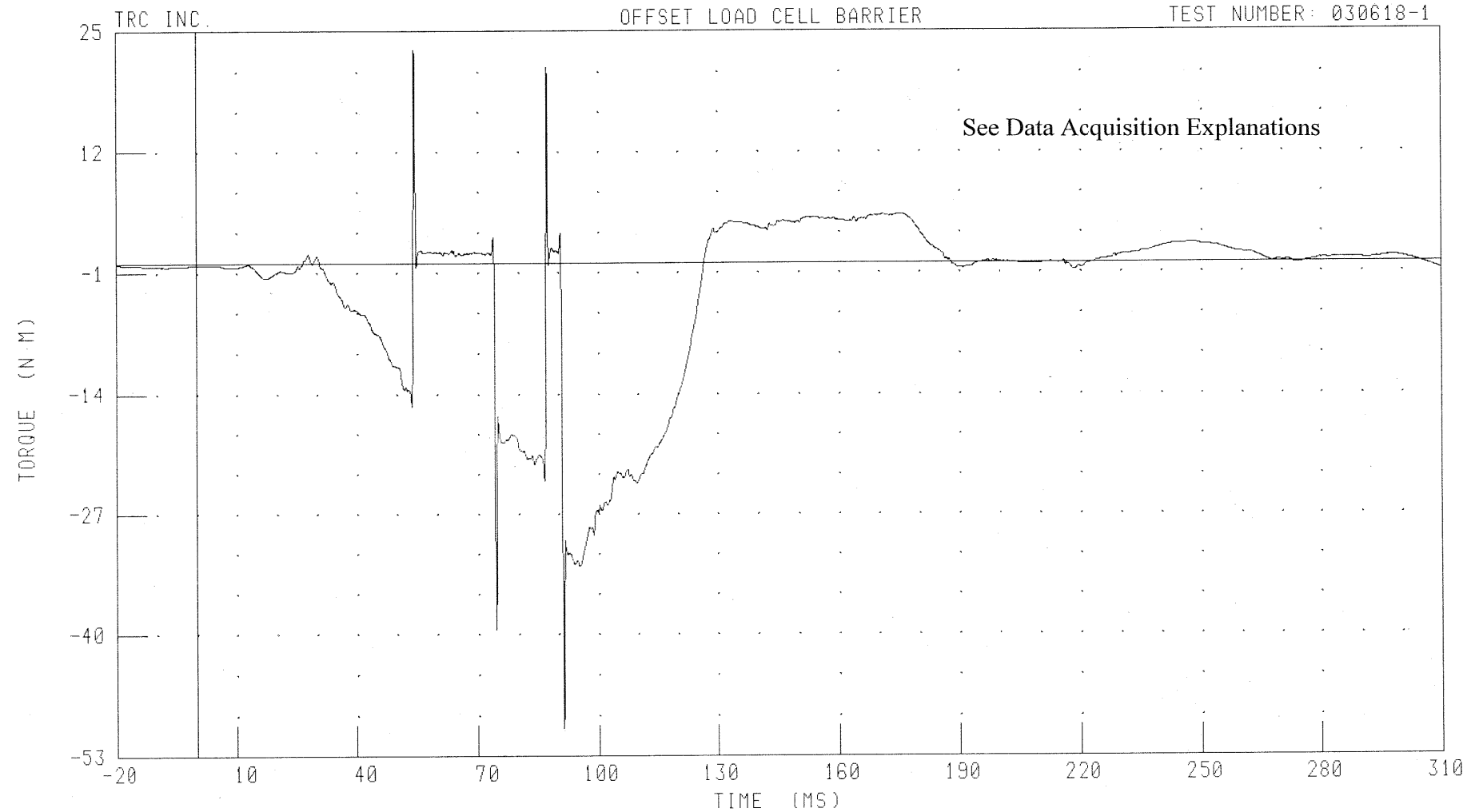
030618-1

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

PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: ANRYM2 FILTER: CH. CLASS 600

PEAK DATA: 23.02 N·M @ 54.48 MS; -50.06 N·M @ 91.28 MS

B-150

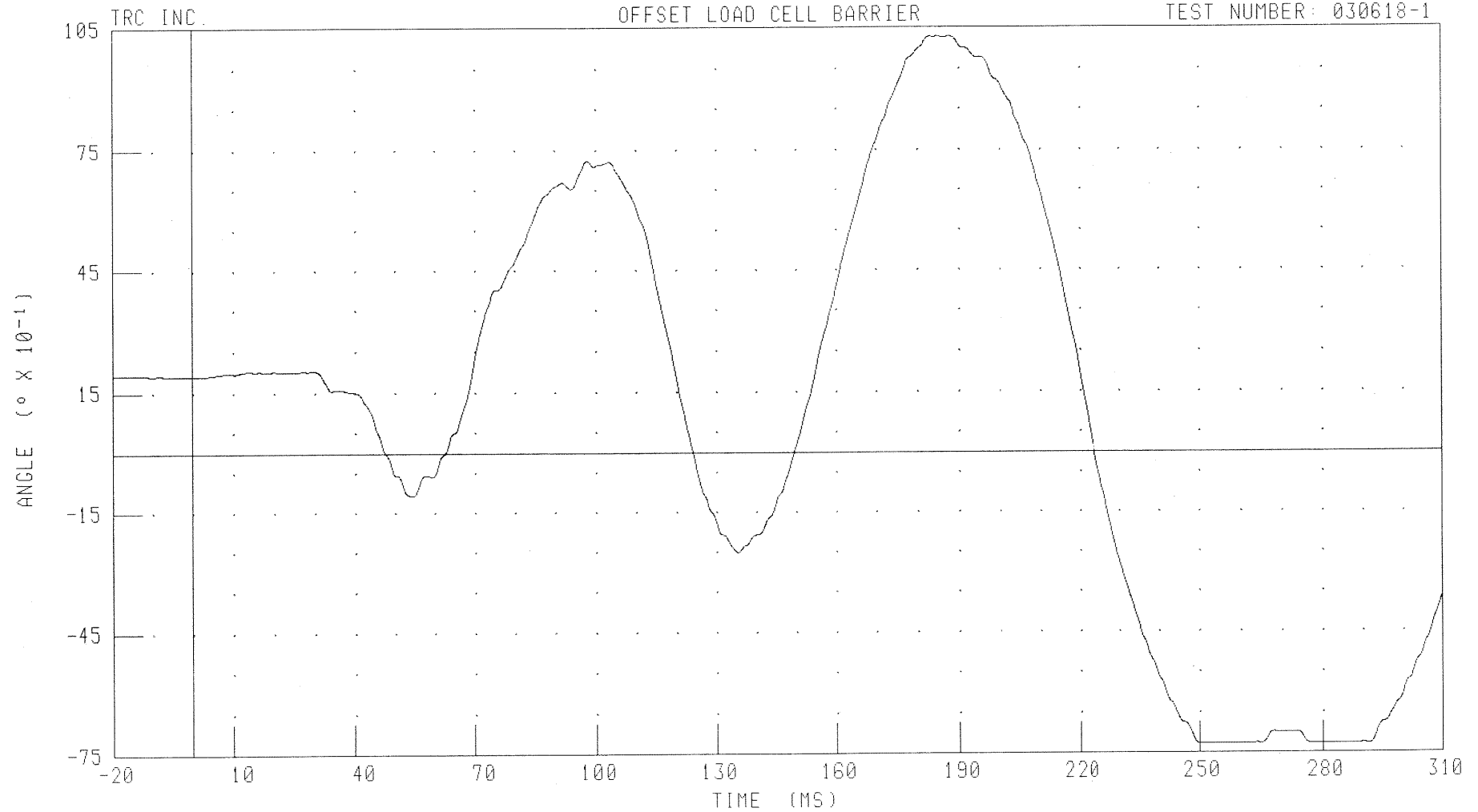
030618-1

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

PASSENGER RIGHT FOOT TO ANKLE X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRXD2 FILTER: CH CLASS 180

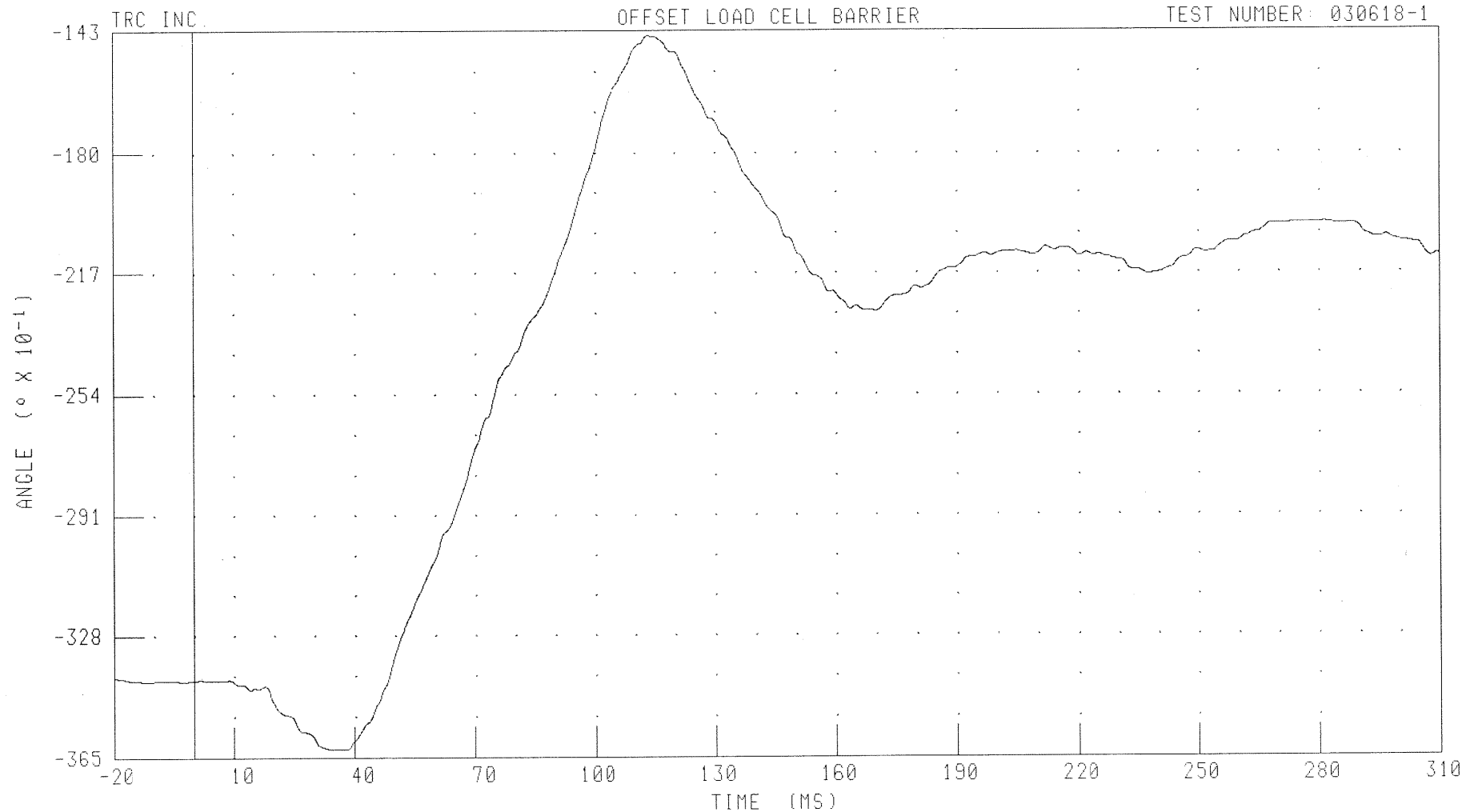
PEAK DATA: 10.27 $^{\circ}$ @ 187.84 MS, -7.27 $^{\circ}$ @ 250.08 MS

B-151

030618-1

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

TEST NUMBER: 030618-1



CHANNEL: FTRYD2 FILTER: CH. CLASS 180

PEAK DATA: -14.46 ° @ 113.44 MS, -36.26 ° @ 37.92 MS

B-152

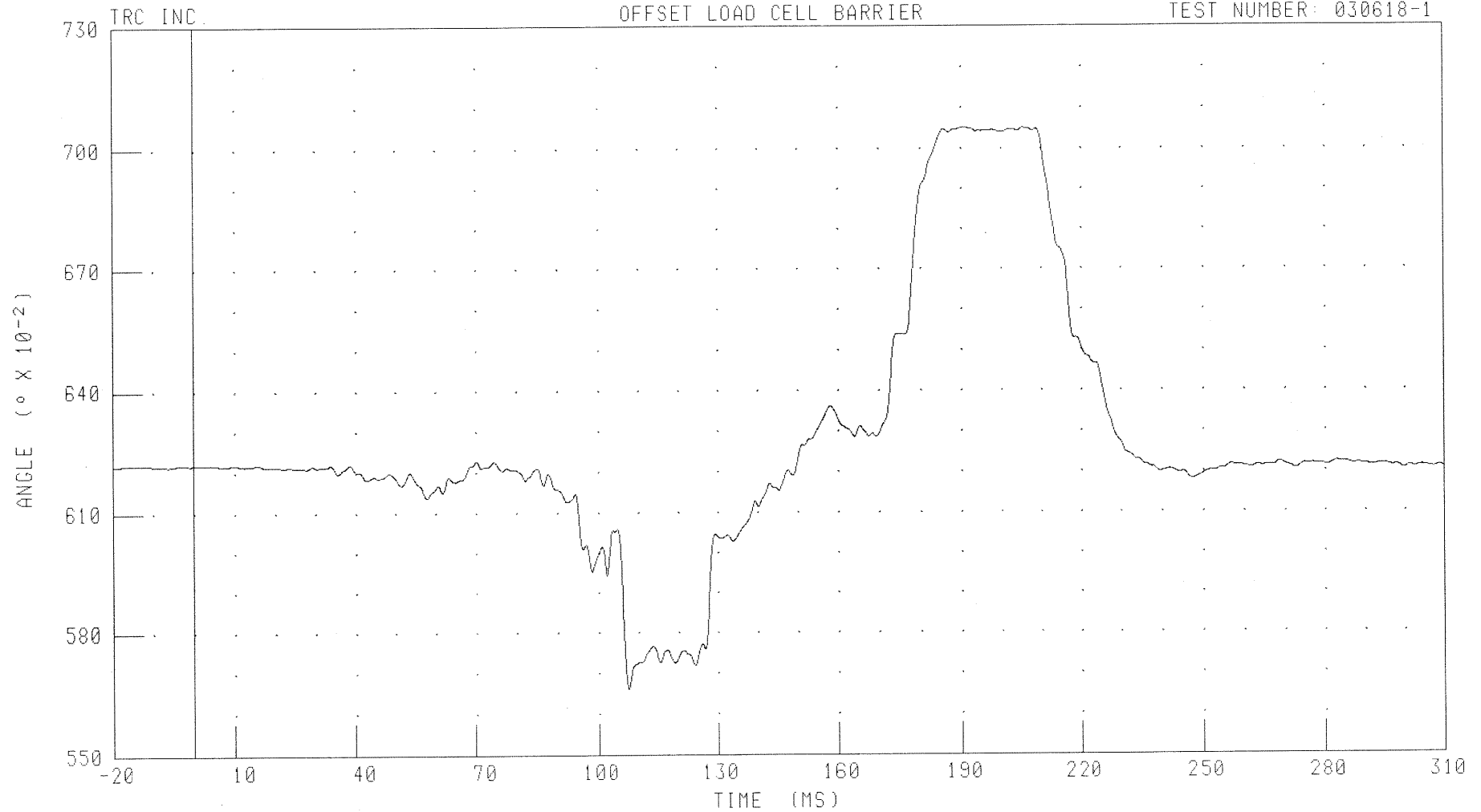
030618-1

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

PASSENGER RIGHT FOOT TO ANKLE Z-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRZD2 FILTER: CH CLASS 180

PEAK DATA: 7.05 ° @ 190.96 MS; 5.66 ° @ 107.68 MS

B-153

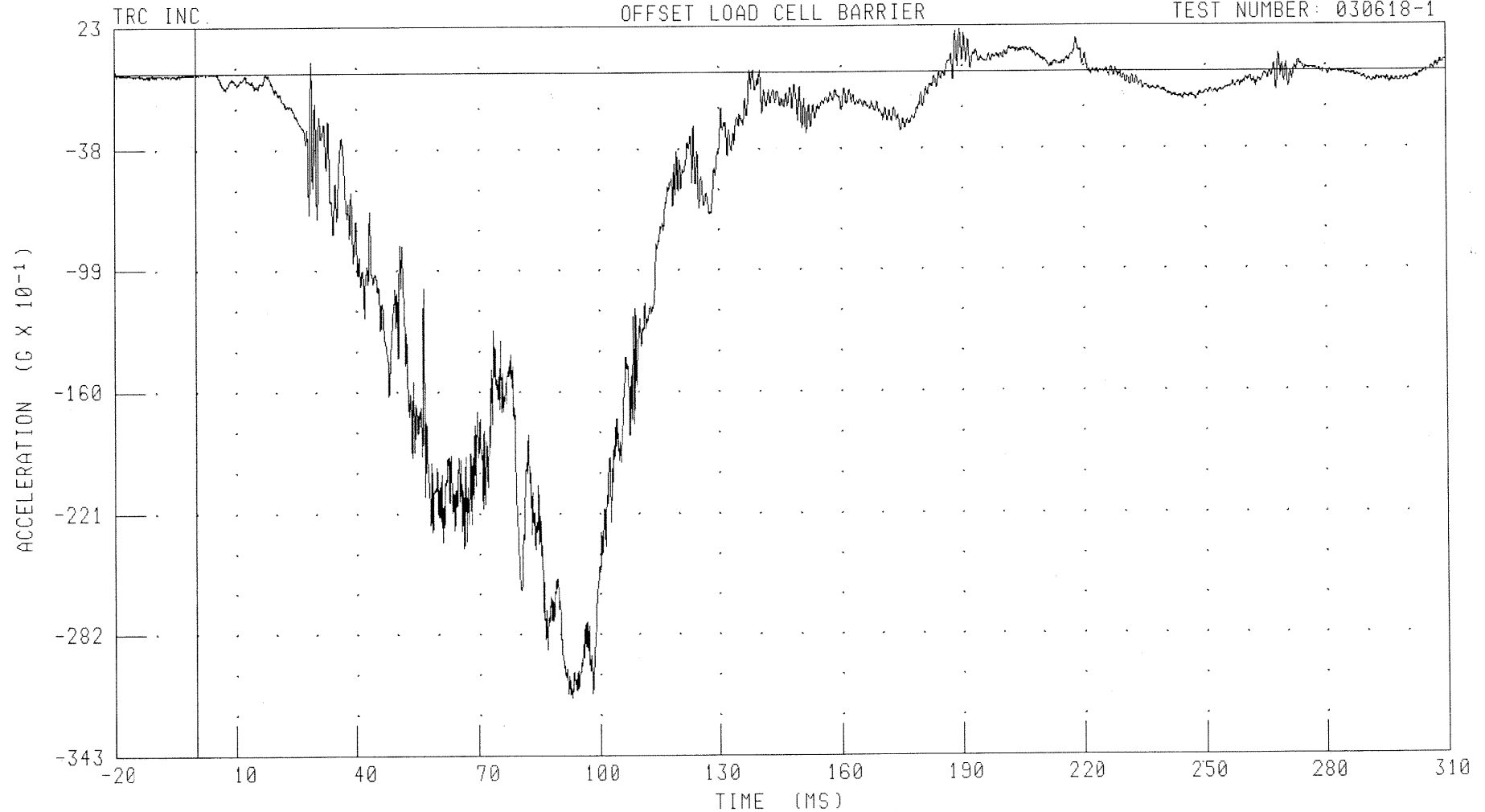
030618-1

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

PASSENGER RIGHT FOOT X-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRXC2

FILTER: CH. CLASS 1000

PEAK DATA: 2.10 G @ 189.52 MS; -31.41 G @ 93.04 MS

B-154

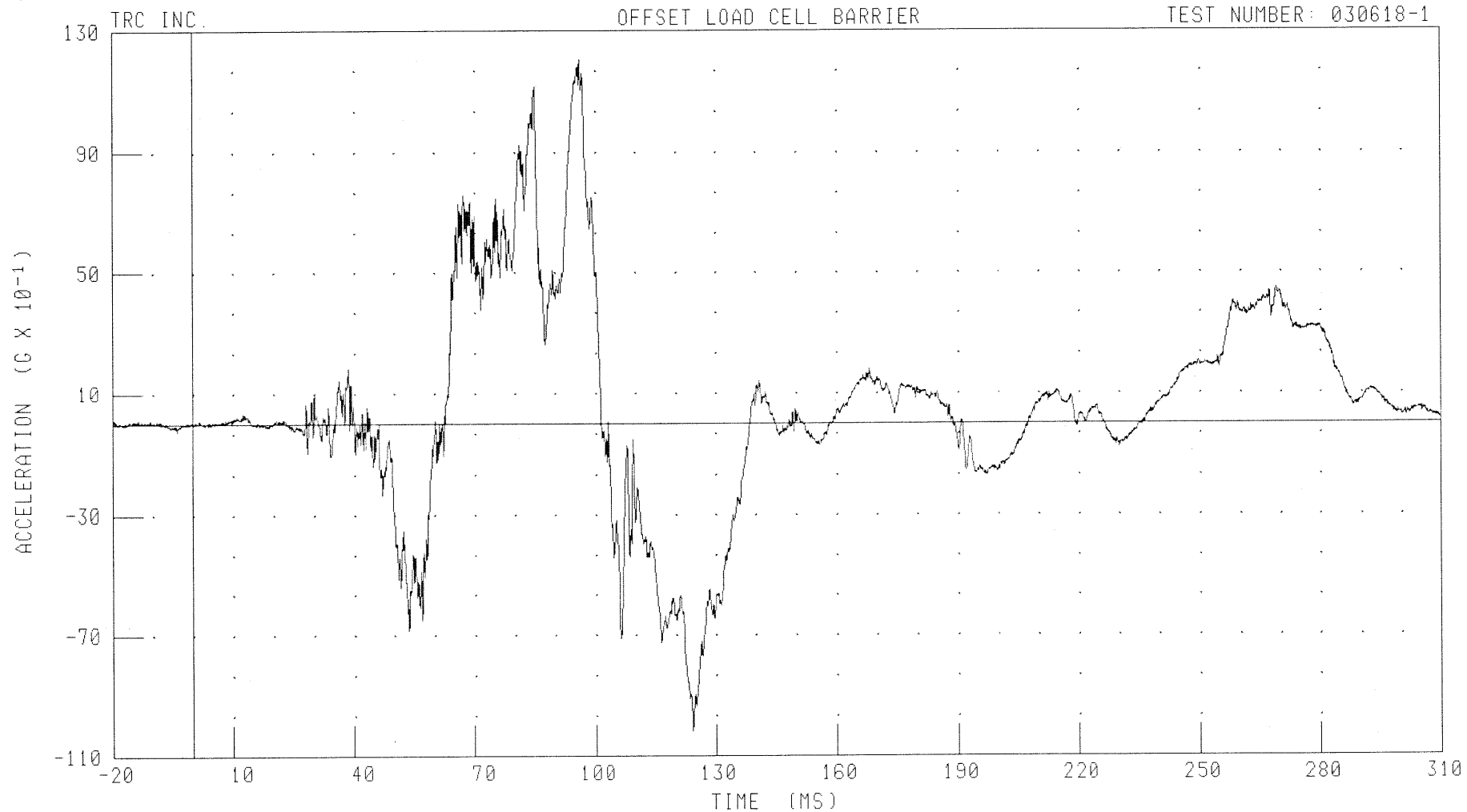
030618-1

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

PASSENGER RIGHT FOOT Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRYG2

FILTER: CH. CLASS 1000

PEAK DATA: 12.01 G @ 96.32 MS; -10.19 G @ 124.32 MS

B-155

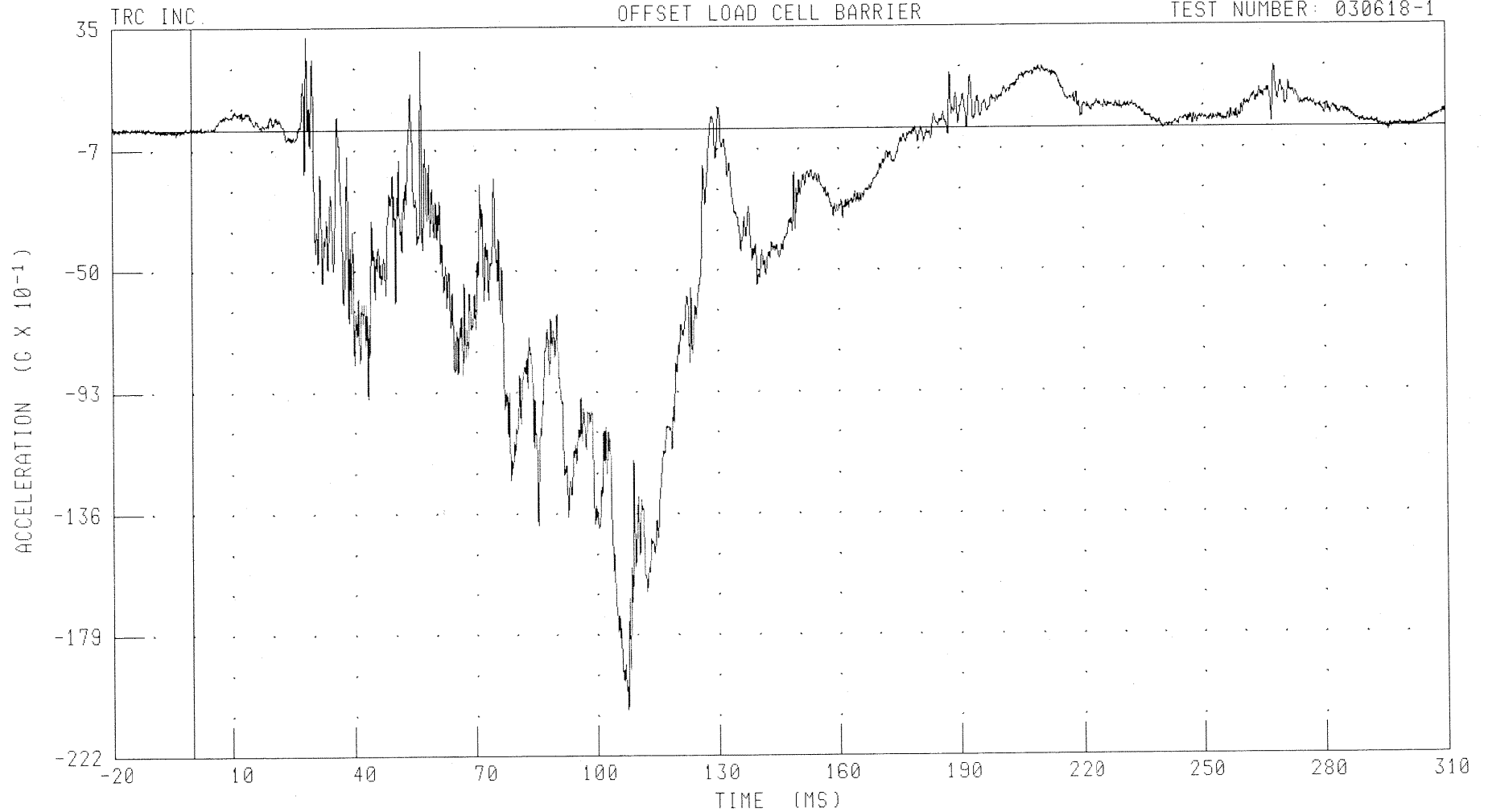
030618-1

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

PASSENGER RIGHT FOOT Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRZG2 FILTER: CH. CLASS 1000

PEAK DATA: 3.29 G @ 28.48 MS; -20.57 G @ 107.84 MS

B-156

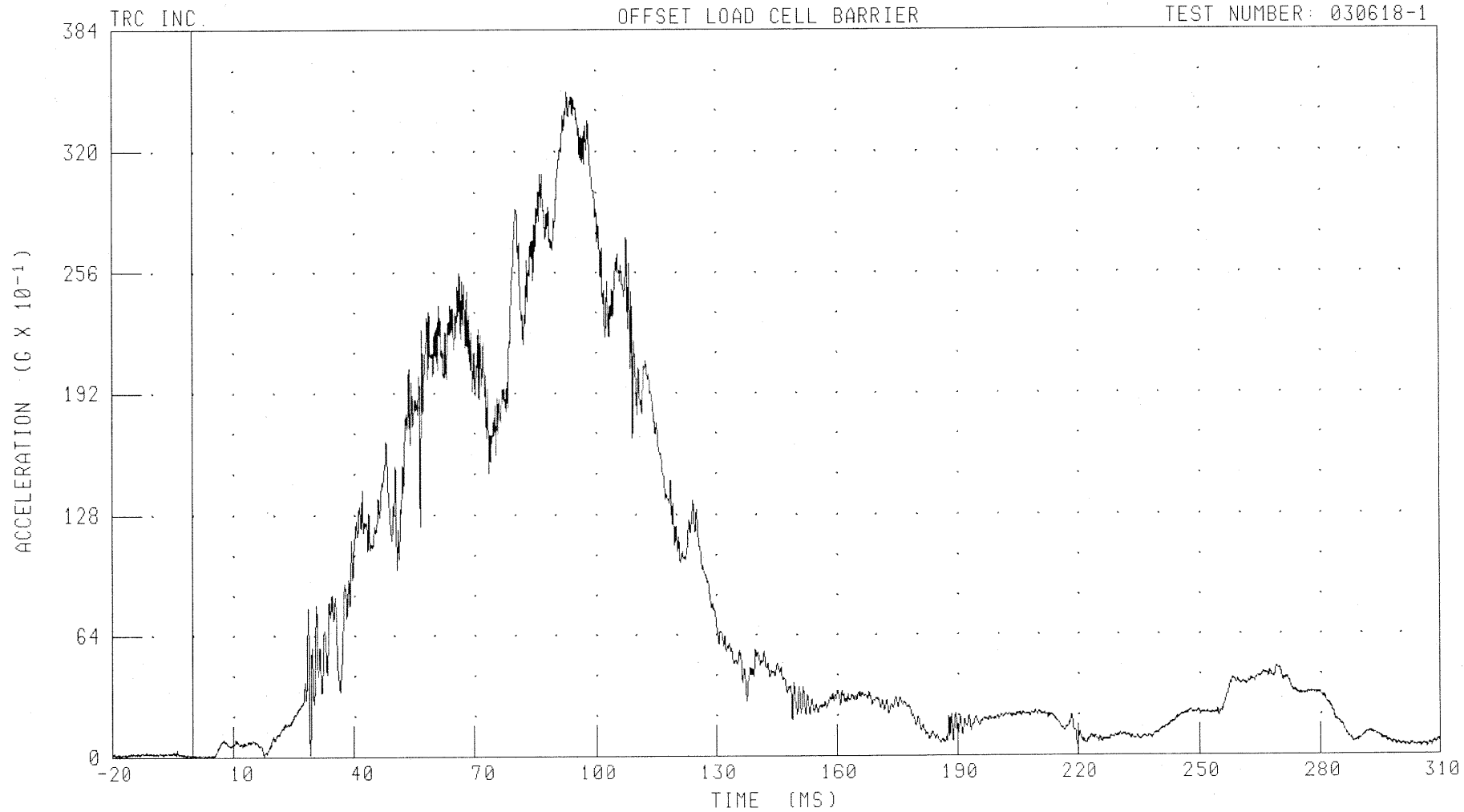
030618-1

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

PASSENGER RIGHT FOOT RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: FTRRG2 FILTER: CH. CLASS 1000

PEAK DATA: 35.09 G @ 93.12 MS; 0.01 G @ 2.32 MS

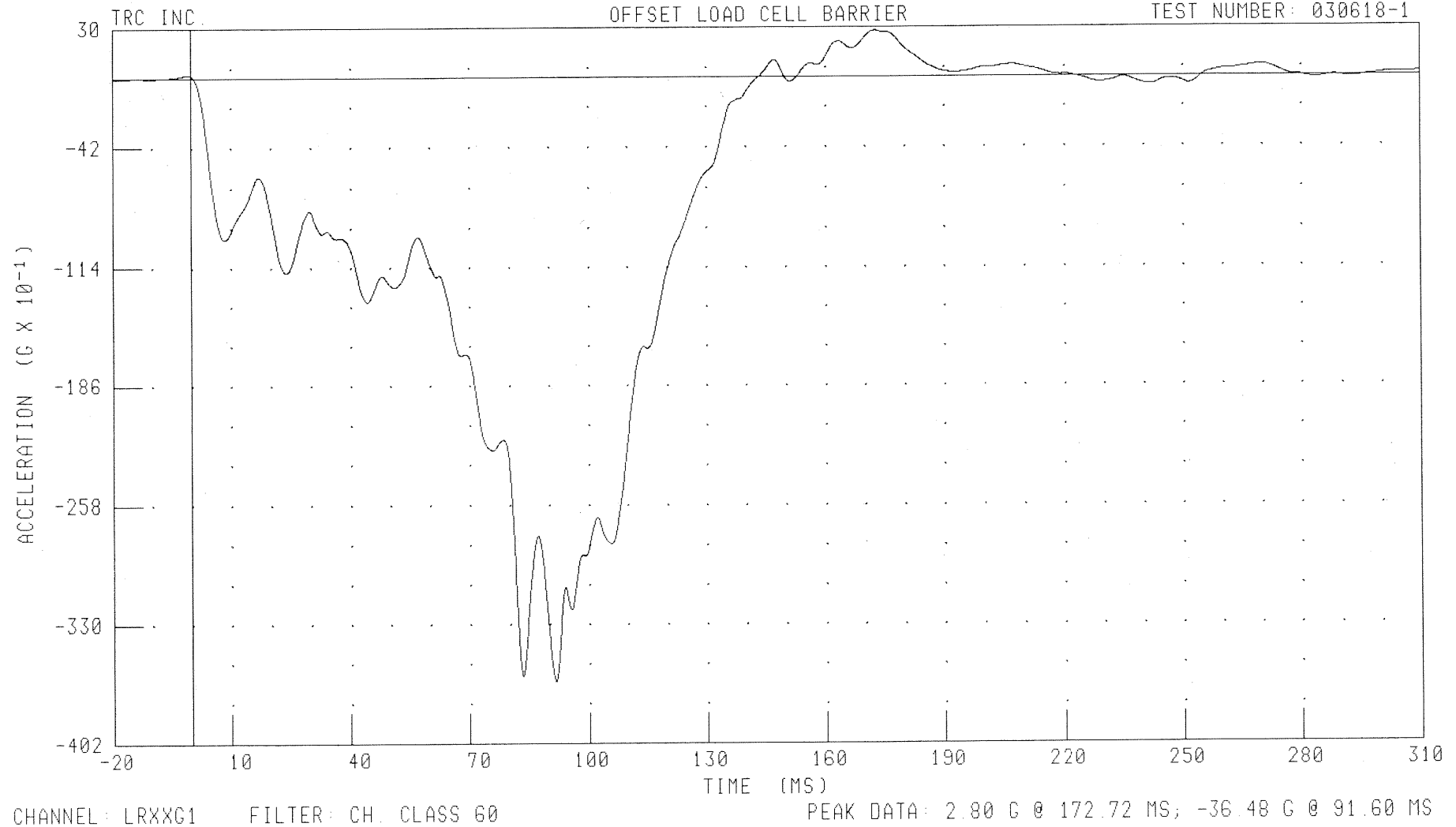
B-157

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



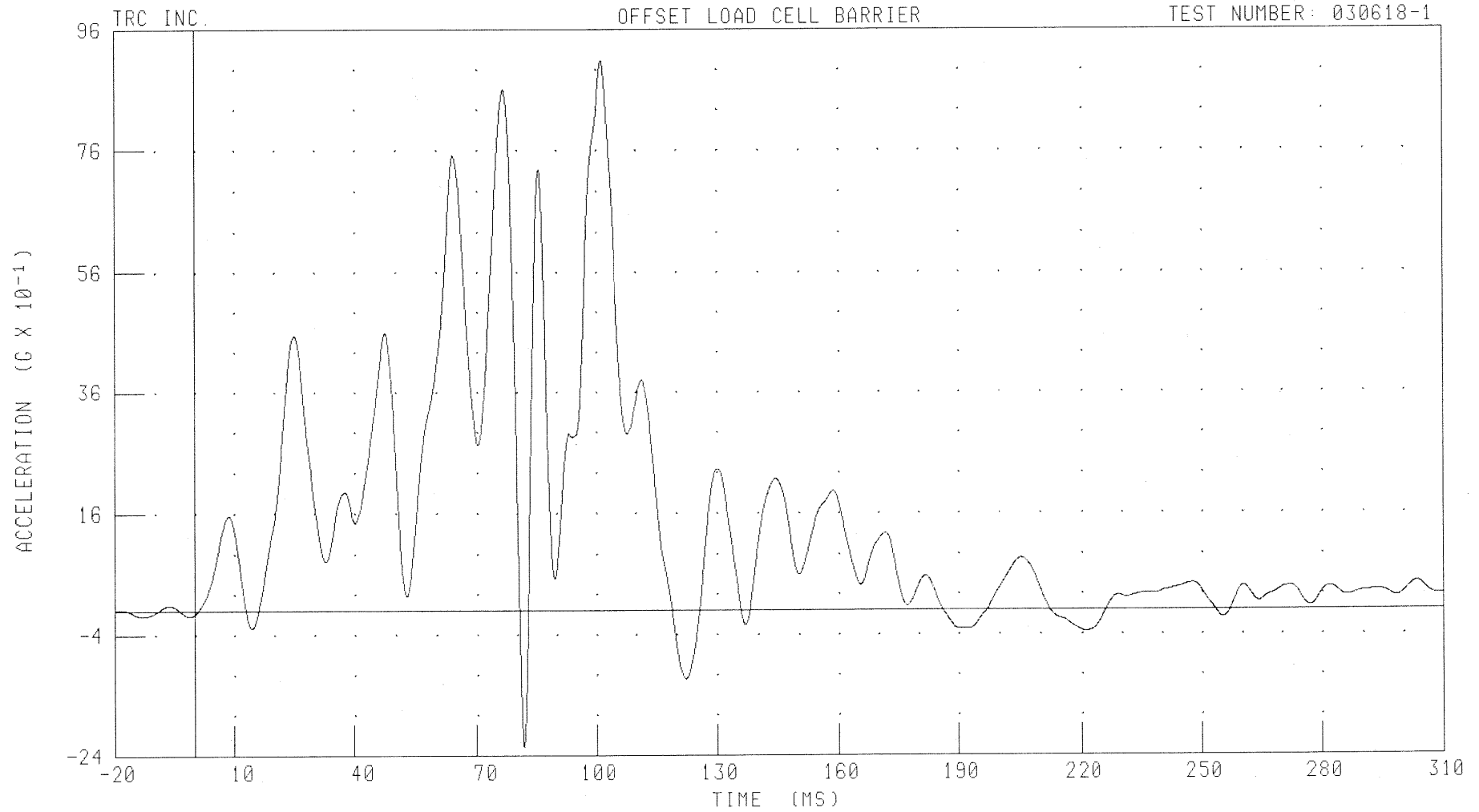
B-158

030618-1

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

LEFT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

TEST NUMBER: 030618-1



CHANNEL: LRXYG1 FILTER: CH. CLASS 60

B-159

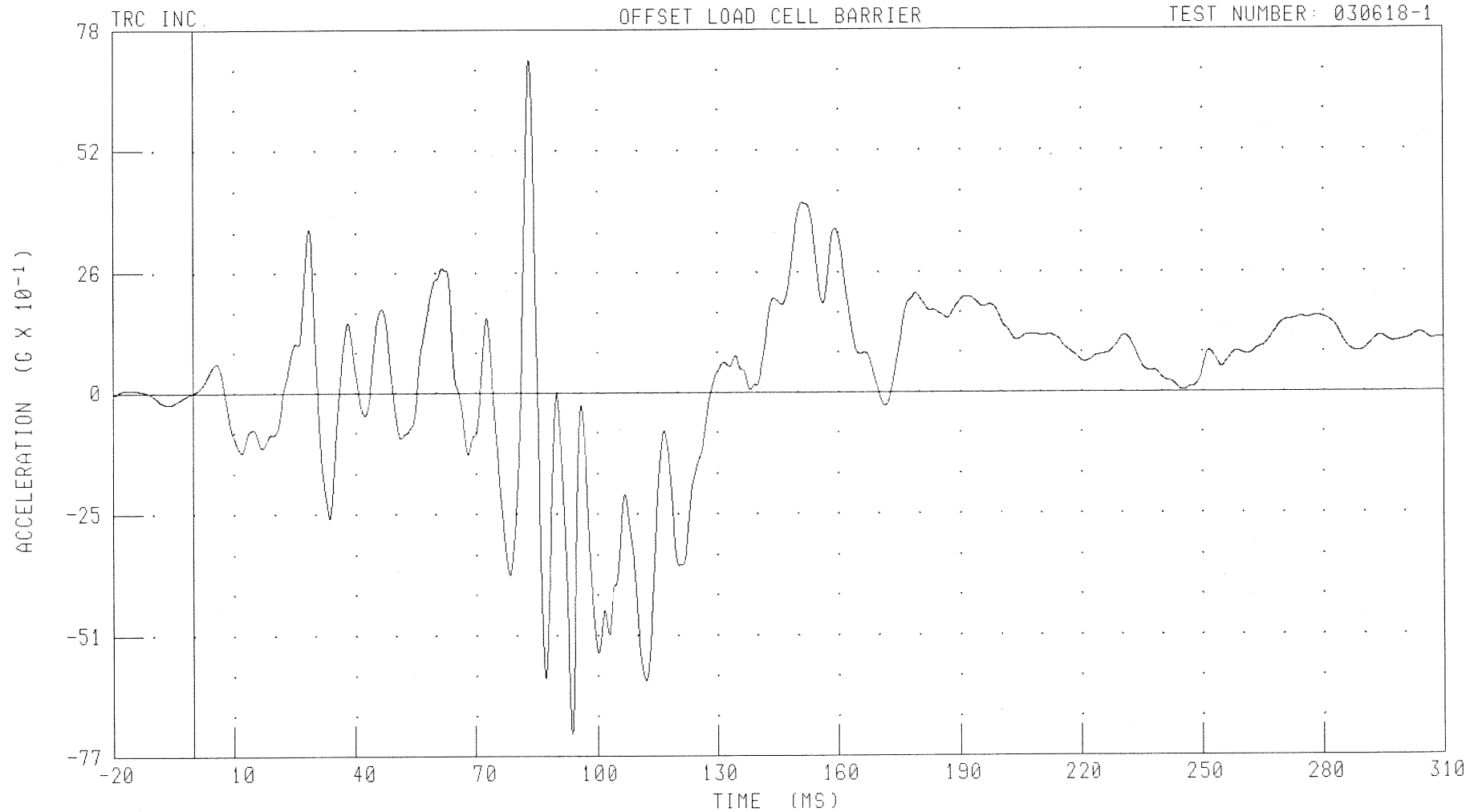
030618-1

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

LEFT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LRXZG1

FILTER: CH. CLASS 60

PEAK DATA: 7.15 G @ 83.44 MS; -7.31 G @ 93.76 MS

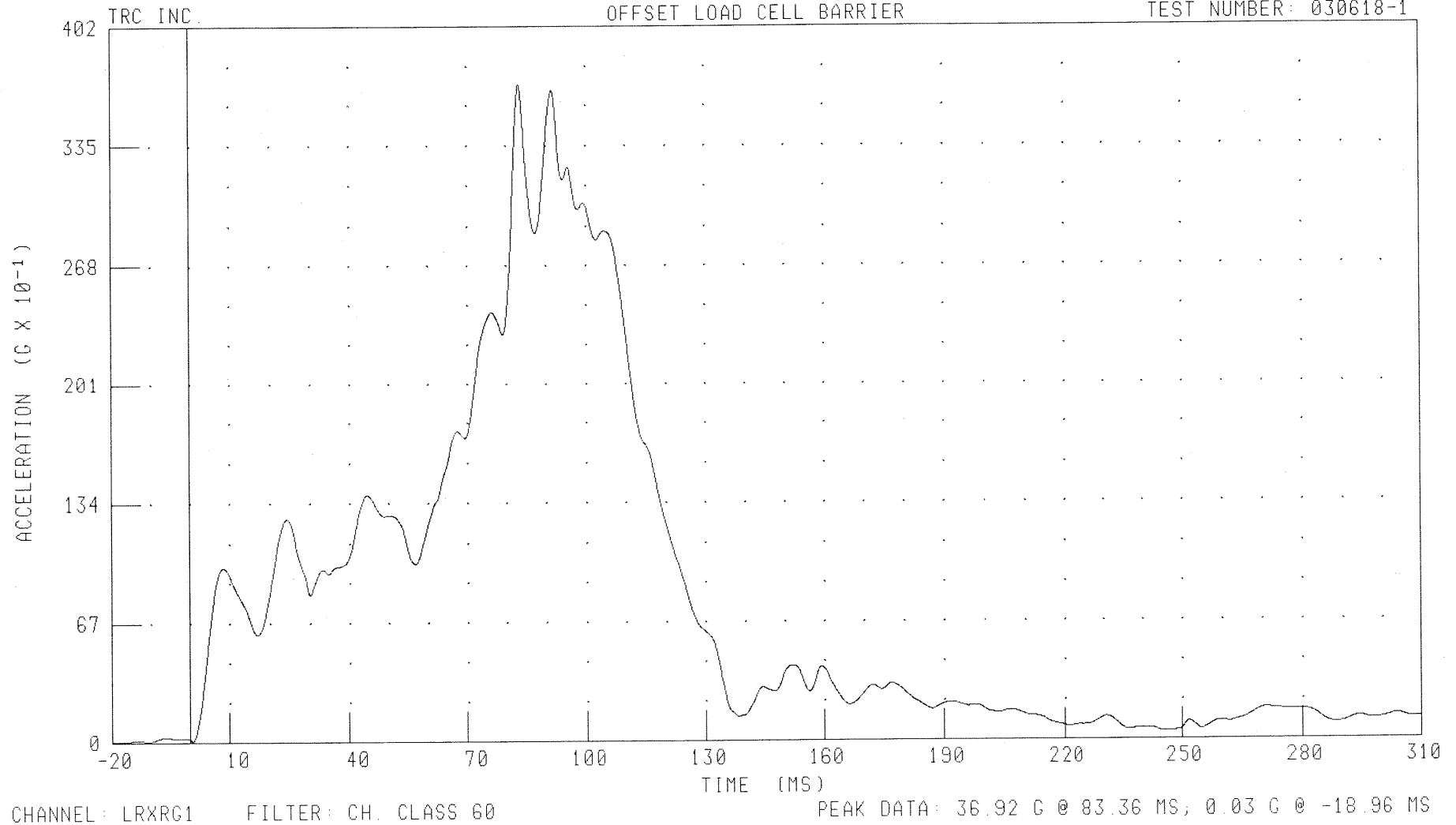
B-160

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



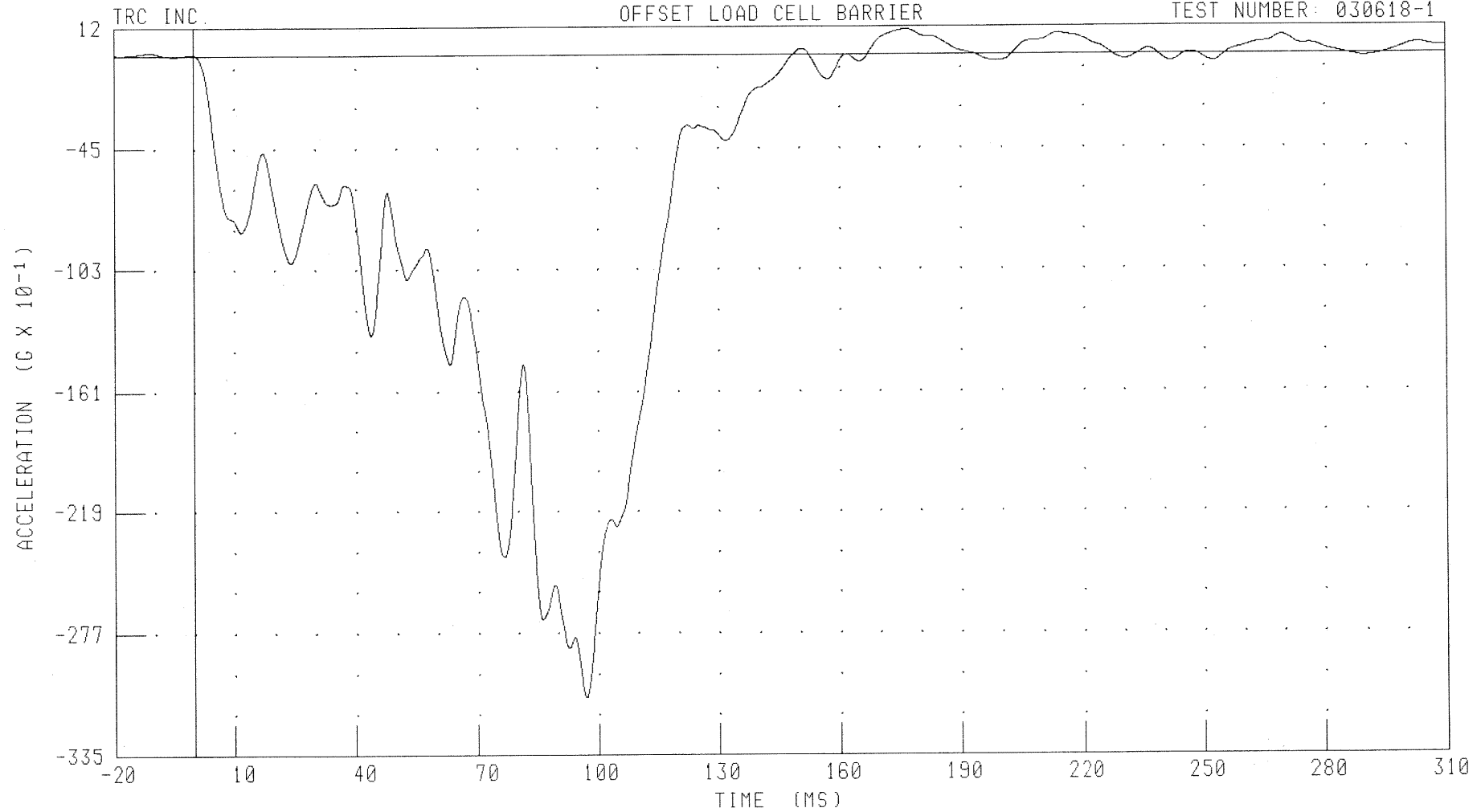
B-161

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RRXXG1 FILTER: CH CLASS 60

PEAK DATA: 1.19 G @ 176.64 MS; -30.77 G @ 97.04 MS

B-162

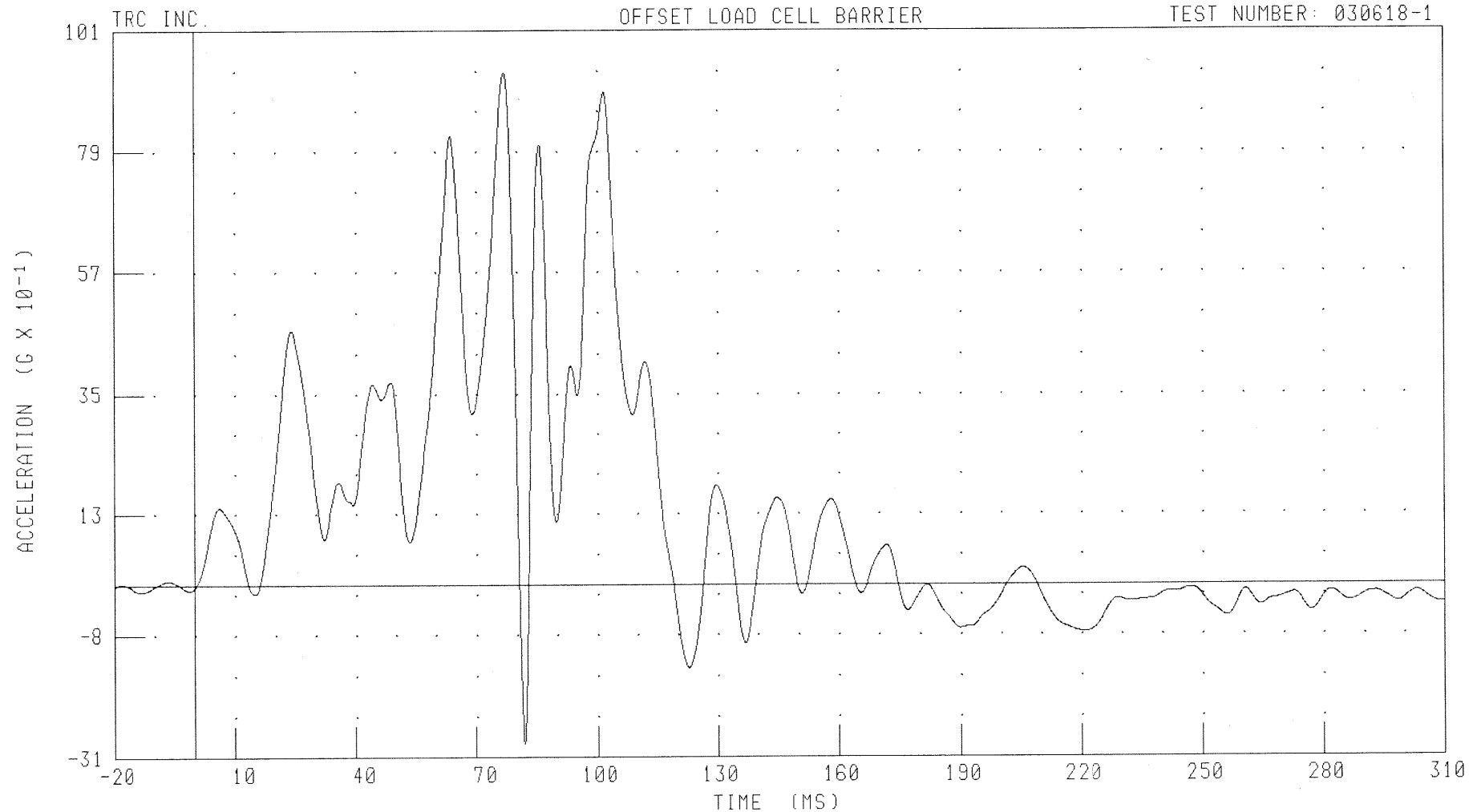
030618-1

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

RIGHT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RRXYG1

FILTER: CH. CLASS 60

PEAK DATA: 9.35 G @ 76.96 MS; -2.86 G @ 81.84 MS

B-163

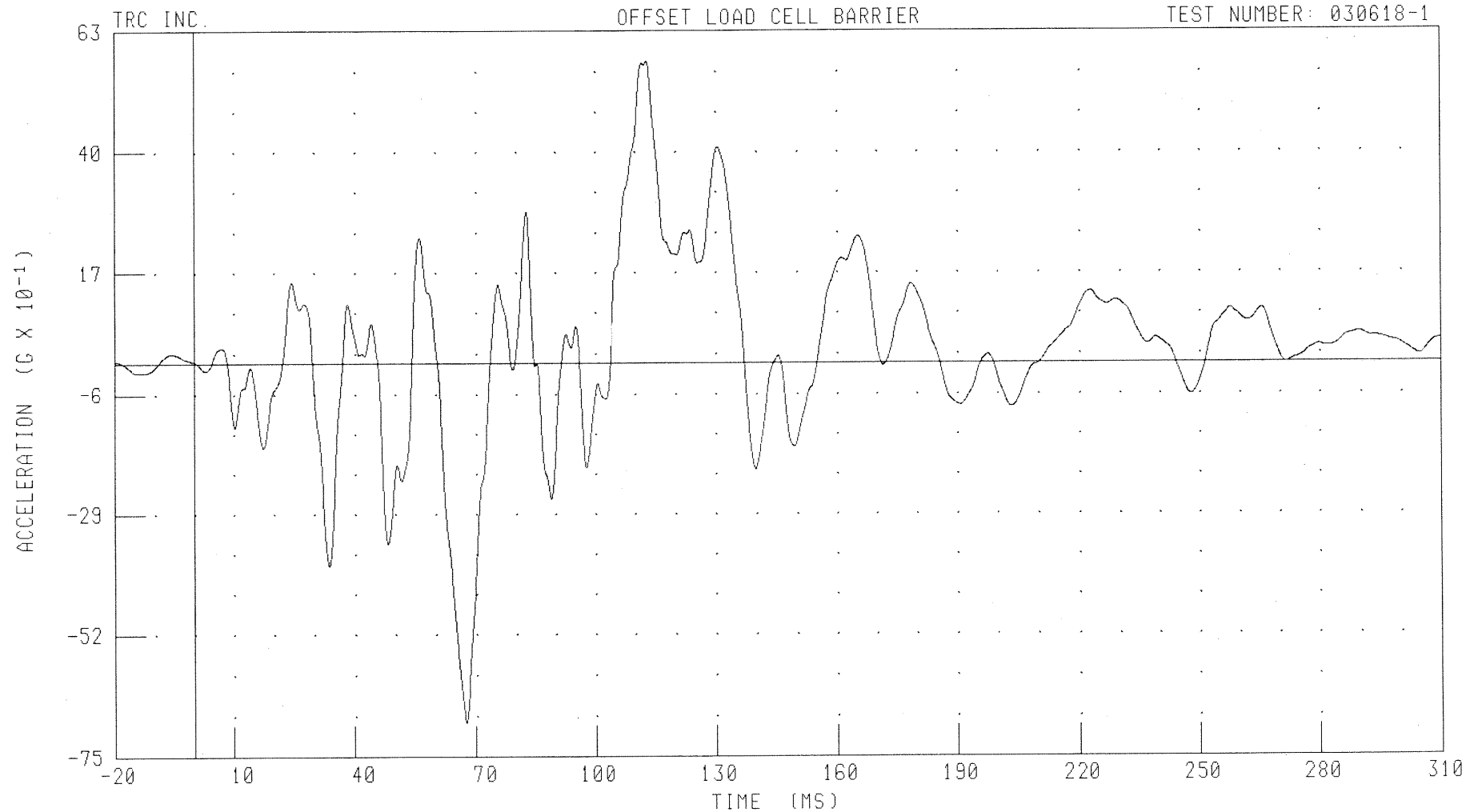
030618-1

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

RIGHT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RRXZG1

FILTER: CH. CLASS 60

PEAK DATA: 5.73 G @ 113.04 MS; -6.85 G @ 67.52 MS

B-164

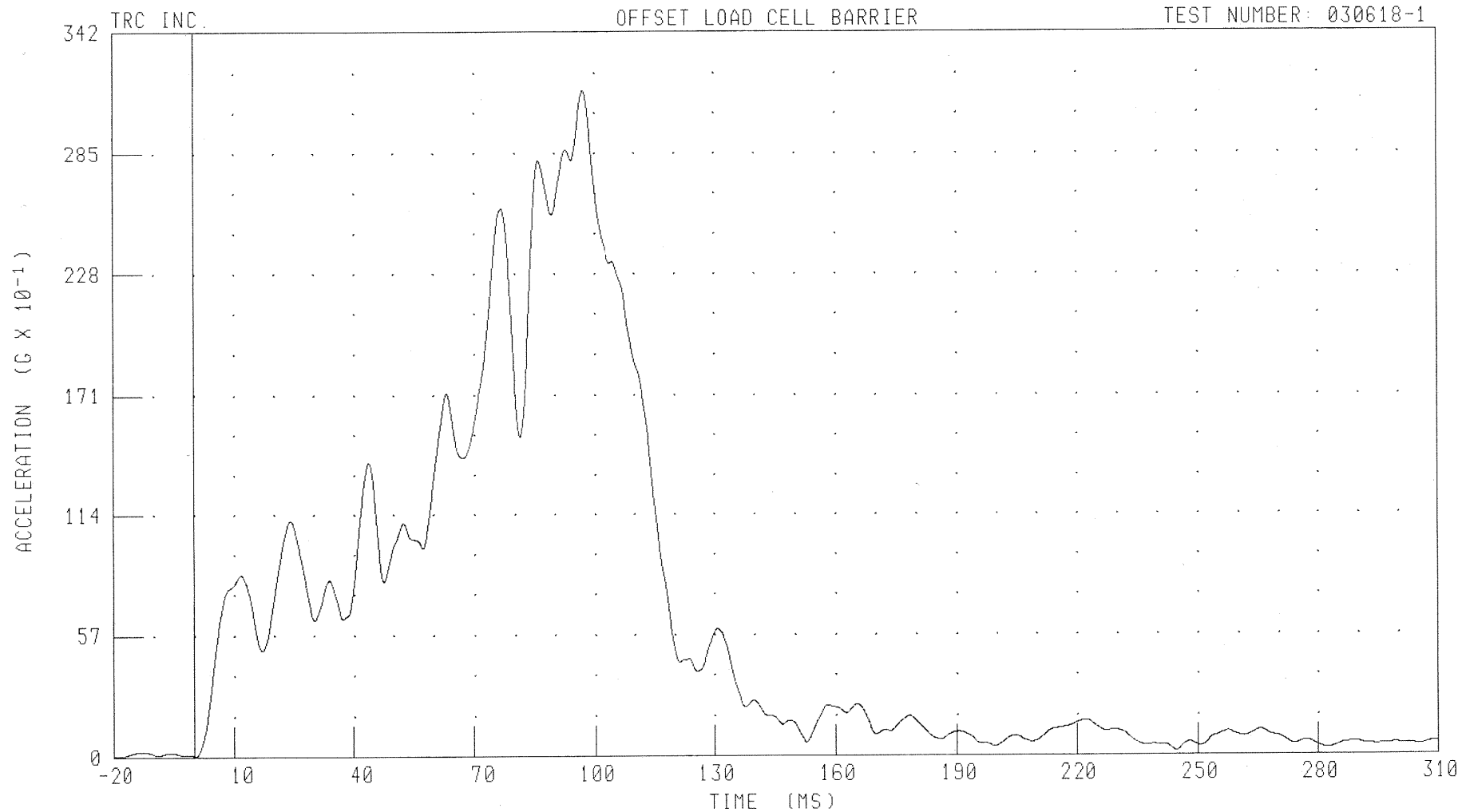
030618-1

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

RIGHT REAR SEAT CROSSMEMBER RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RRXRG1 FILTER: CH. CLASS 60

PEAK DATA: 31.47 G @ 97.28 MS; 0.00 G @ 0.40 MS

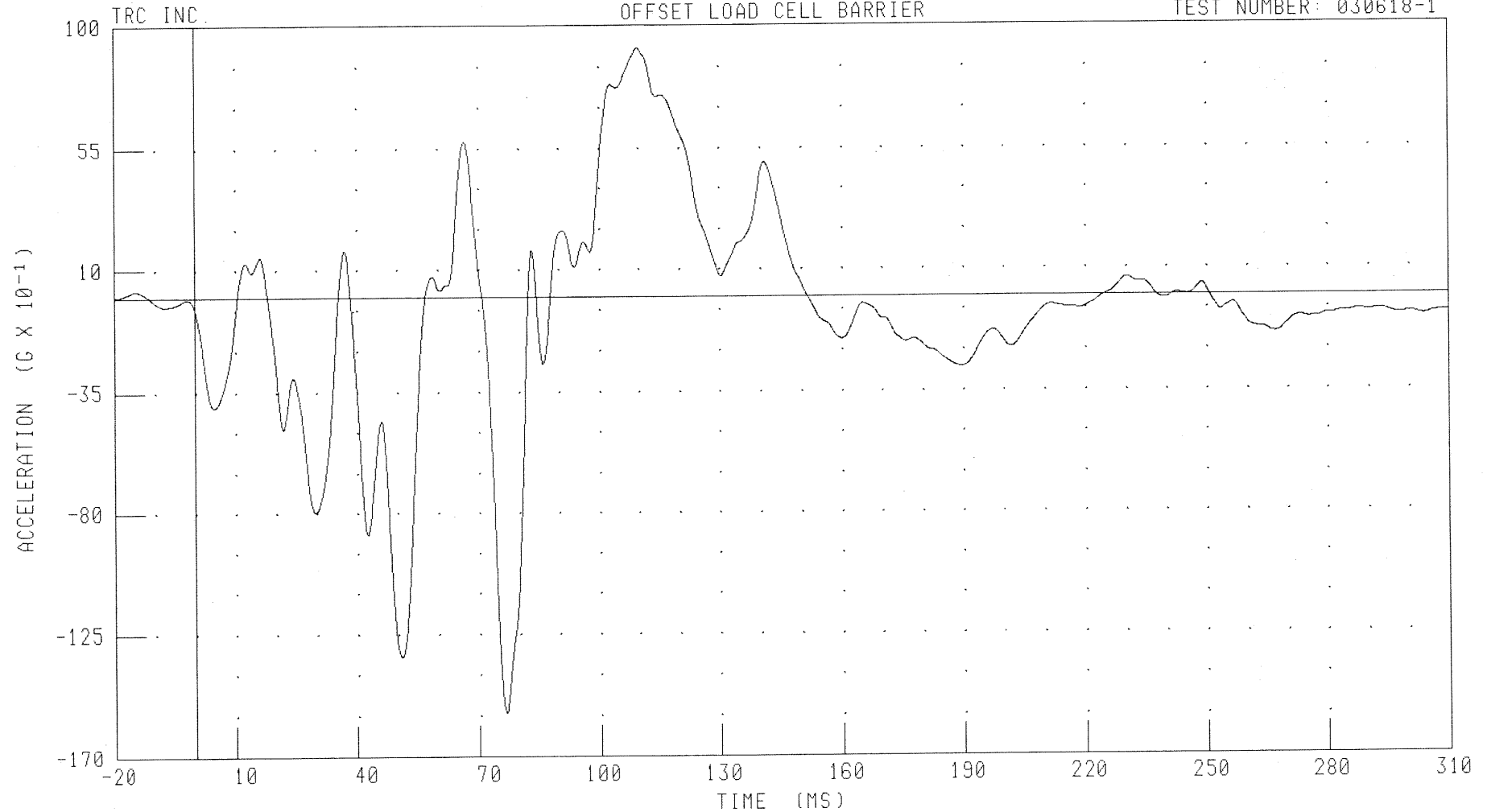
B-165

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LTPXC1 FILTER: CH. CLASS 60

PEAK DATA: 9.17 G @ 110.00 MS; -15.39 G @ 76.64 MS

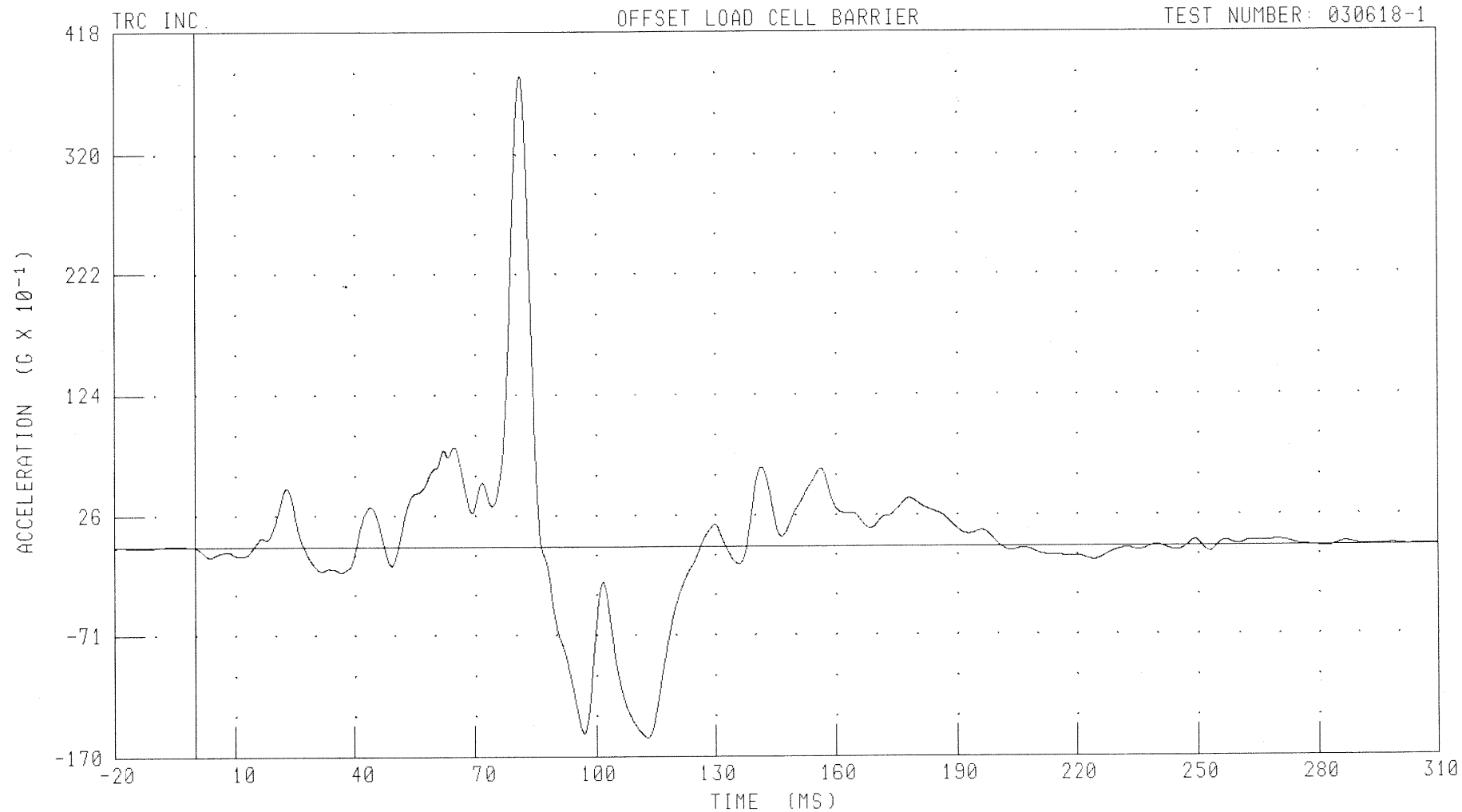
B-166

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LTPYG1 FILTER: CH CLASS 60

PEAK DATA: 38.28 G @ 81.20 MS; -15.50 G @ 113.04 MS

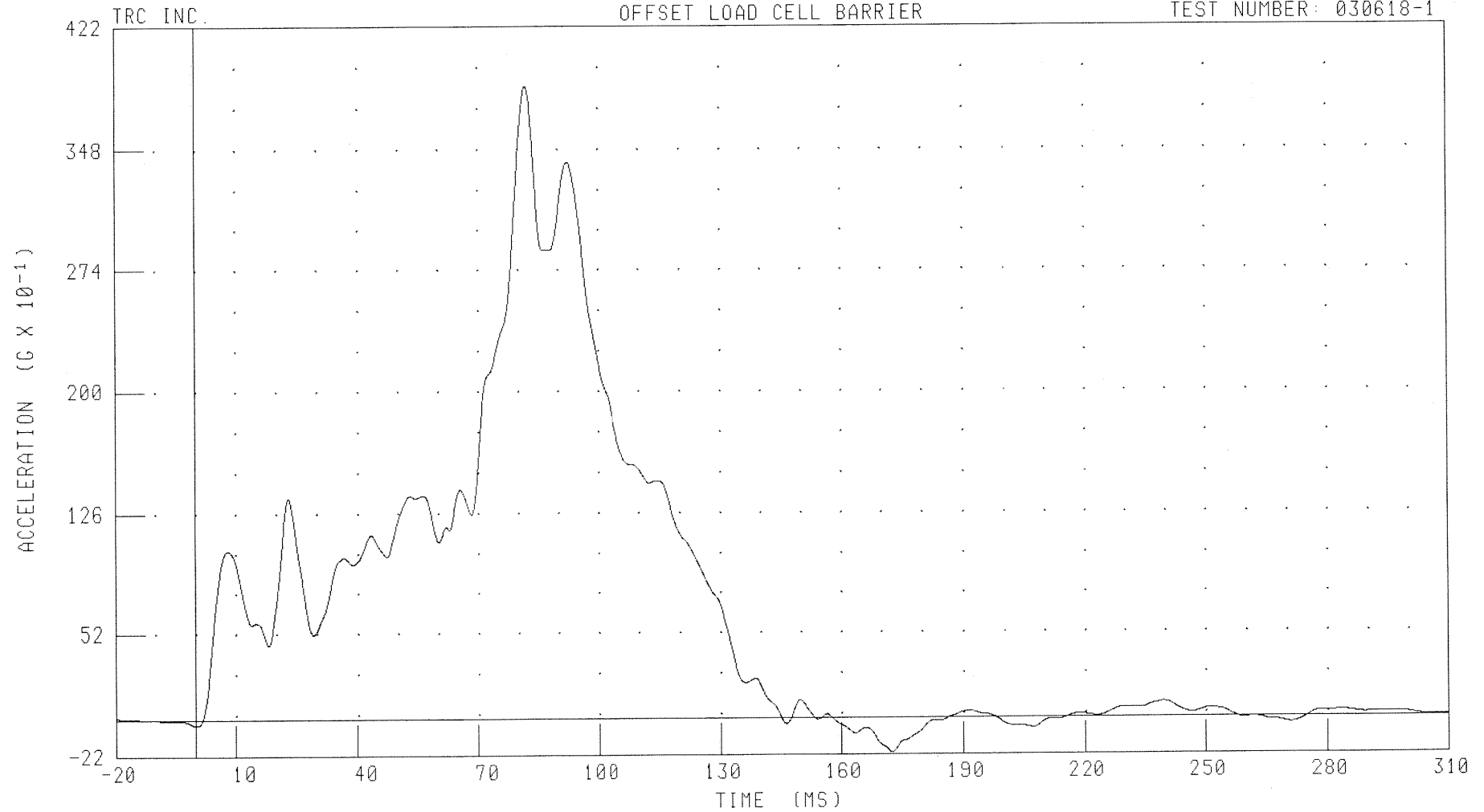
B-167

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LTPZG1 FILTER: CH. CLASS 60

PEAK DATA: 38.59 G @ 82.08 MS; -2.09 G @ 172.72 MS

B-168

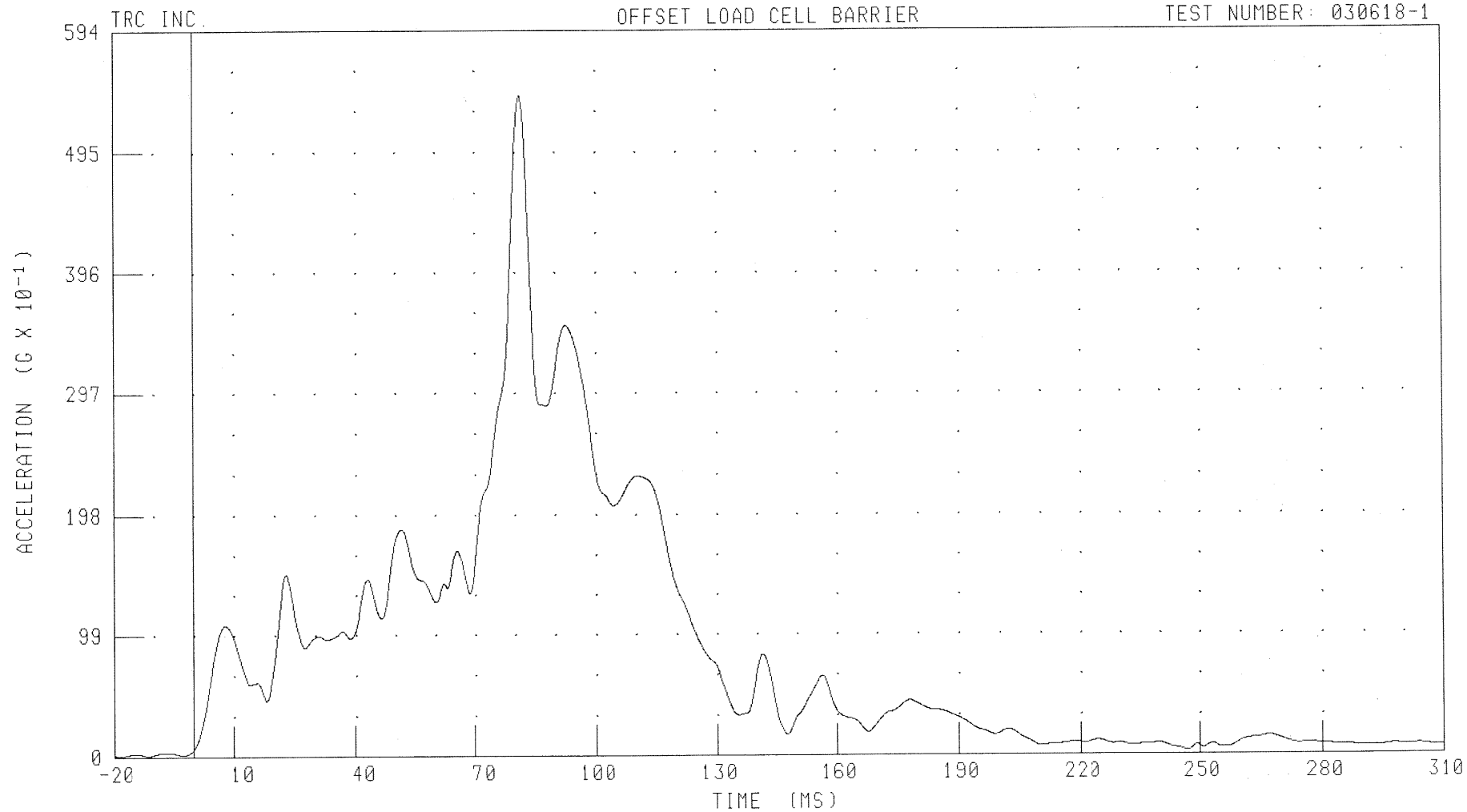
030618-1

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

DRIVERS LEFT SIDE TOE PAN RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



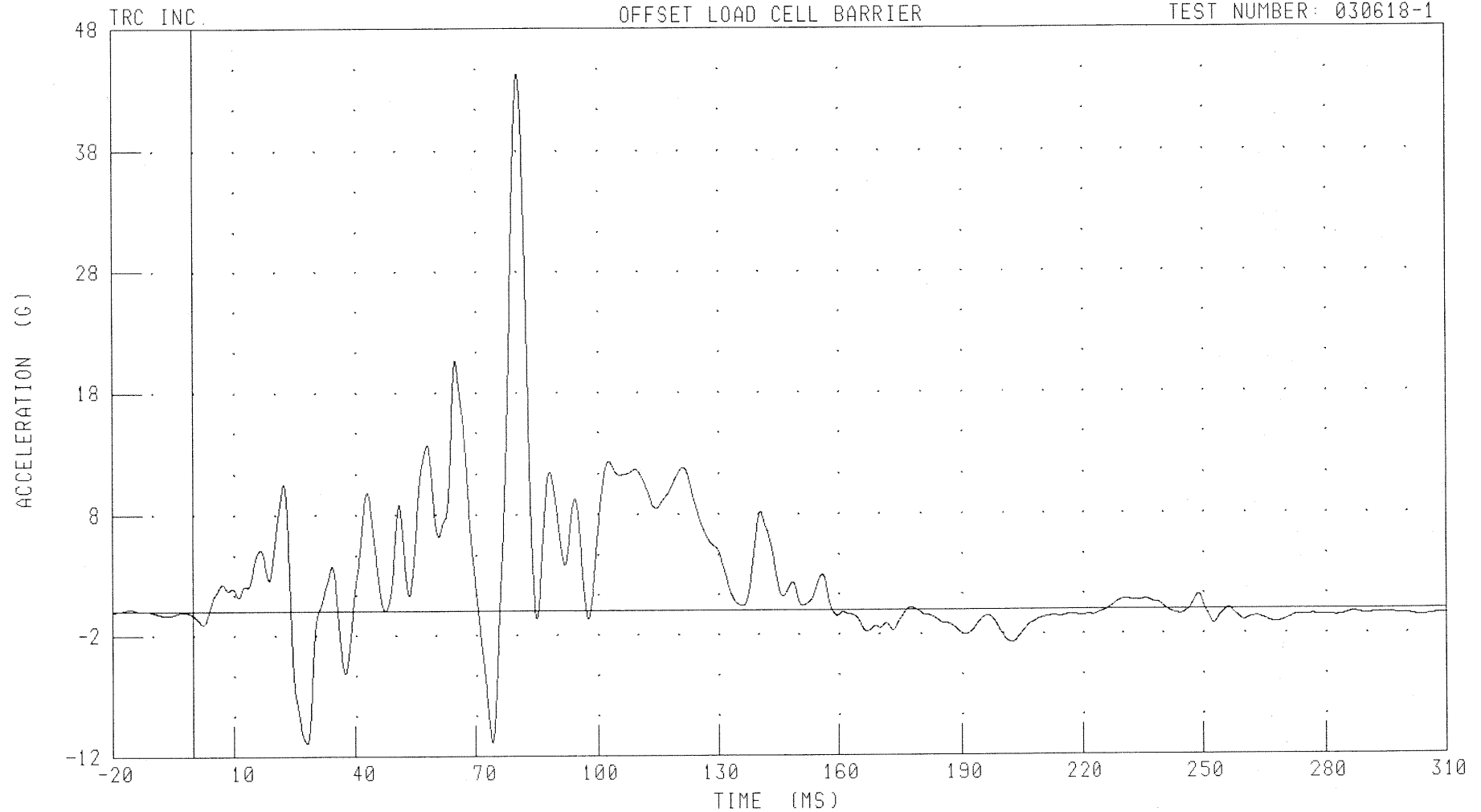
B-169

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RTPXG1 FILTER: CH. CLASS 60

PEAK DATA: 44.19 G @ 80.48 MS, -10.95 G @ 74.16 MS

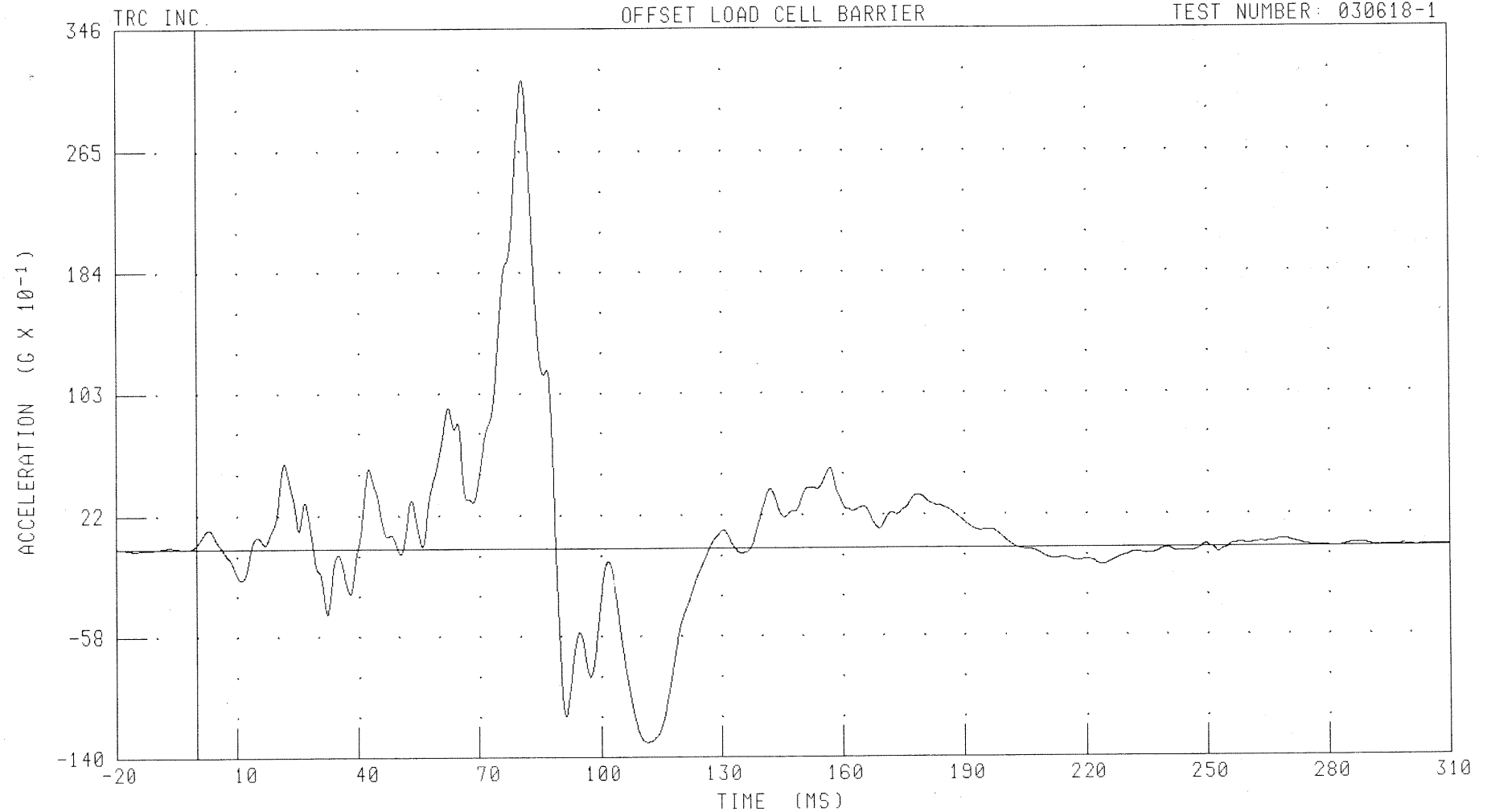
B-170

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RTPYG1

FILTER: CH. CLASS 60

PEAK DATA: 31.18 G @ 80.80 MS, -13.03 G @ 111.76 MS

B-171

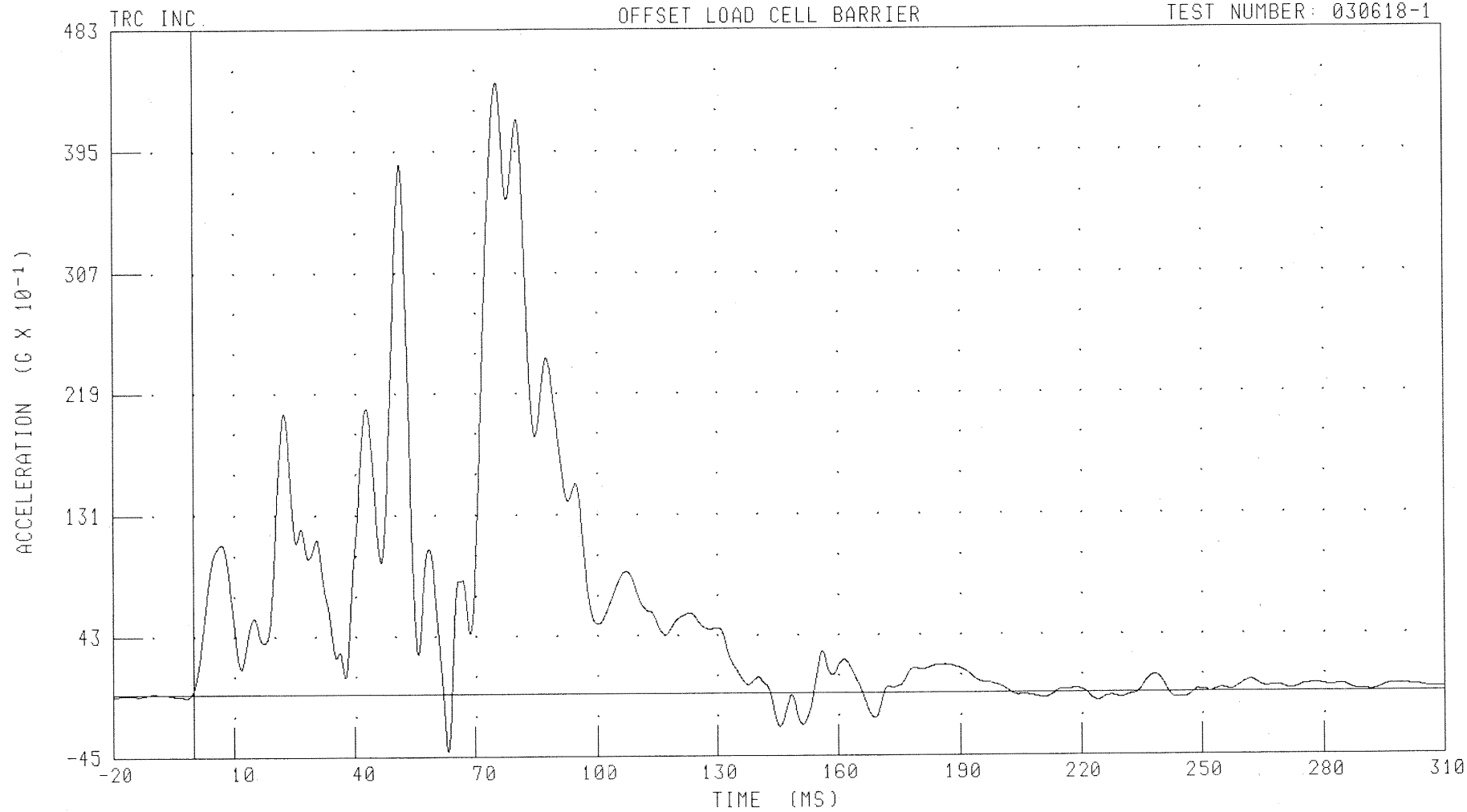
030618-1

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

DRIVERS RIGHT SIDE TOE PAN Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RTPZG1 FILTER: CH. CLASS 60

PEAK DATA: 44.42 G @ 75.44 MS, -4.11 G @ 63.20 MS

B-172

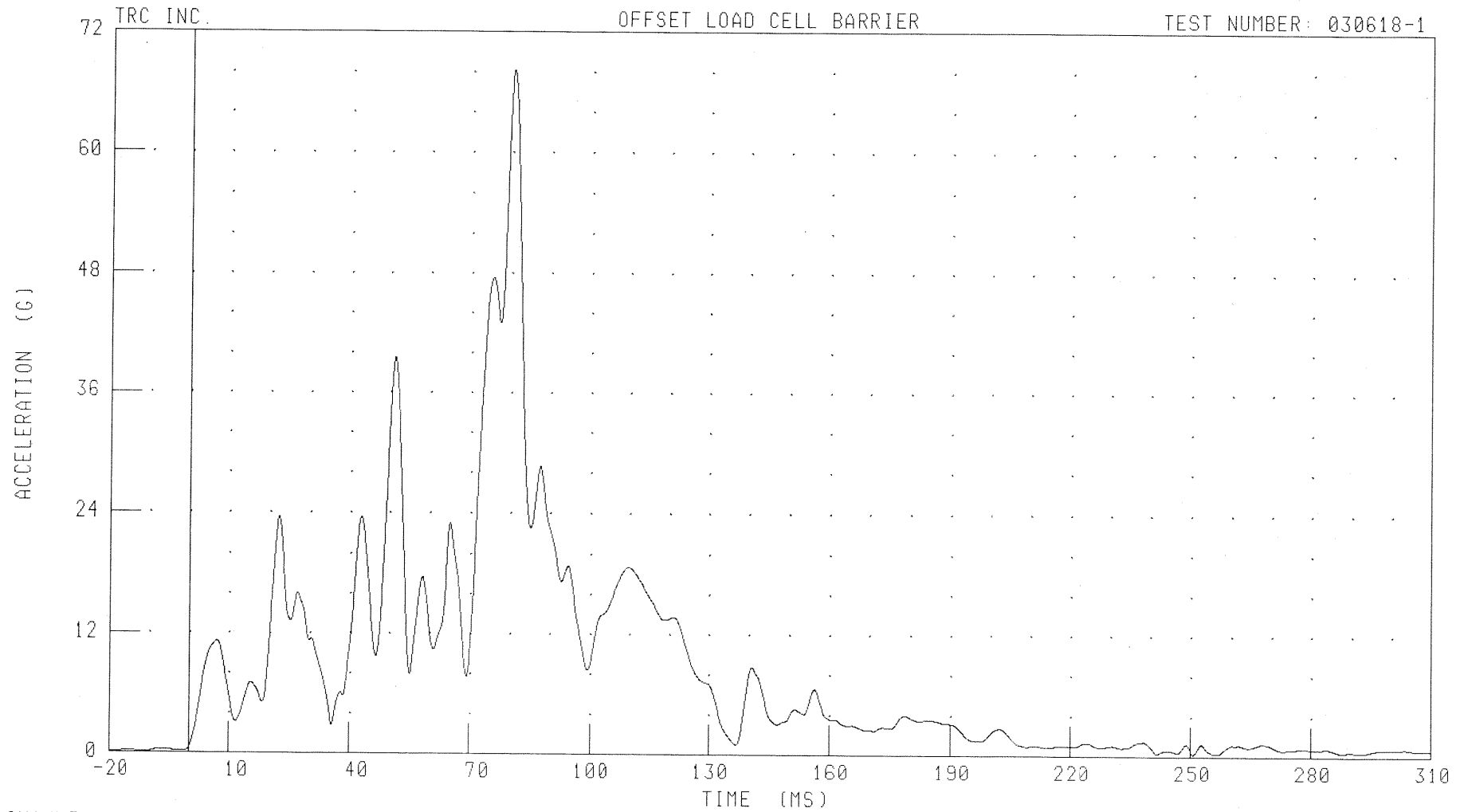
030618-1

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

DRIVERS RIGHT SIDE TOE PAN RESULTANT ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1

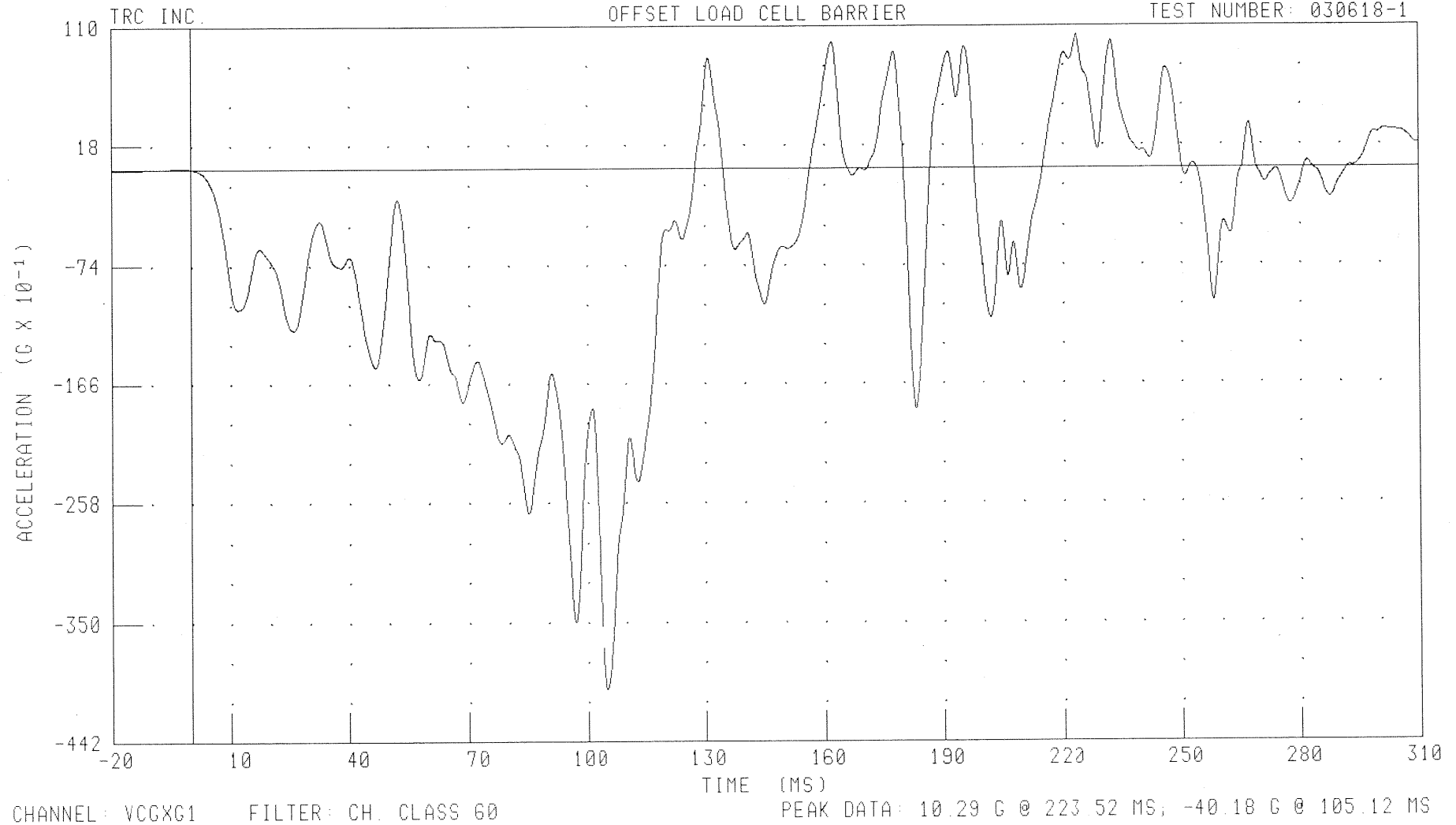


CHANNEL: RTPRG1 FILTER: CH. CLASS 60

PEAK DATA: 68.21 G @ 80.48 MS; 0.07 G @ -18.40 MS

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

TEST NUMBER: 030618-1



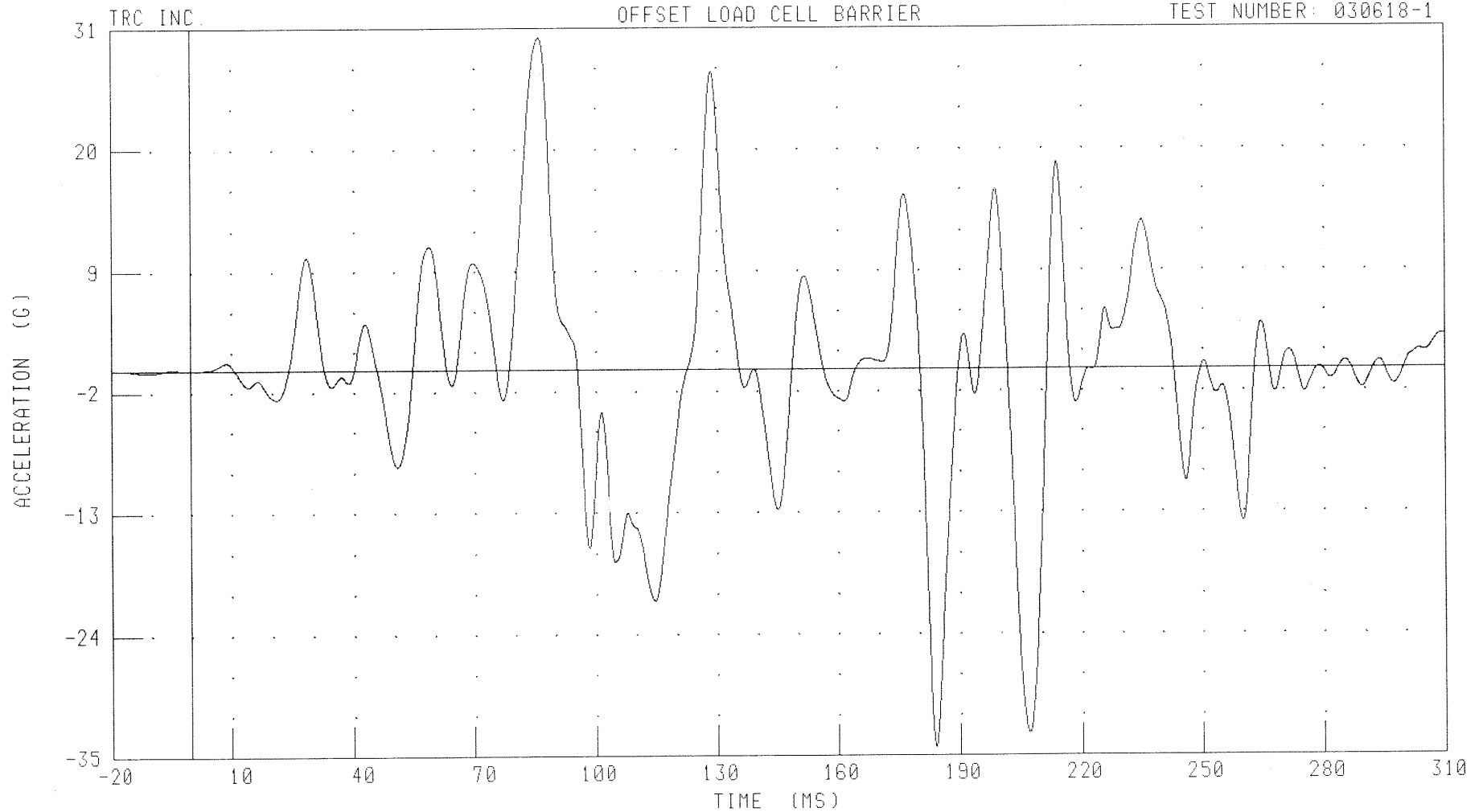
B-174

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: VCCYG1 FILTER: CH CLASS 60

PEAK DATA: 30.14 G @ 86.08 MS, -34.27 G @ 184.08 MS

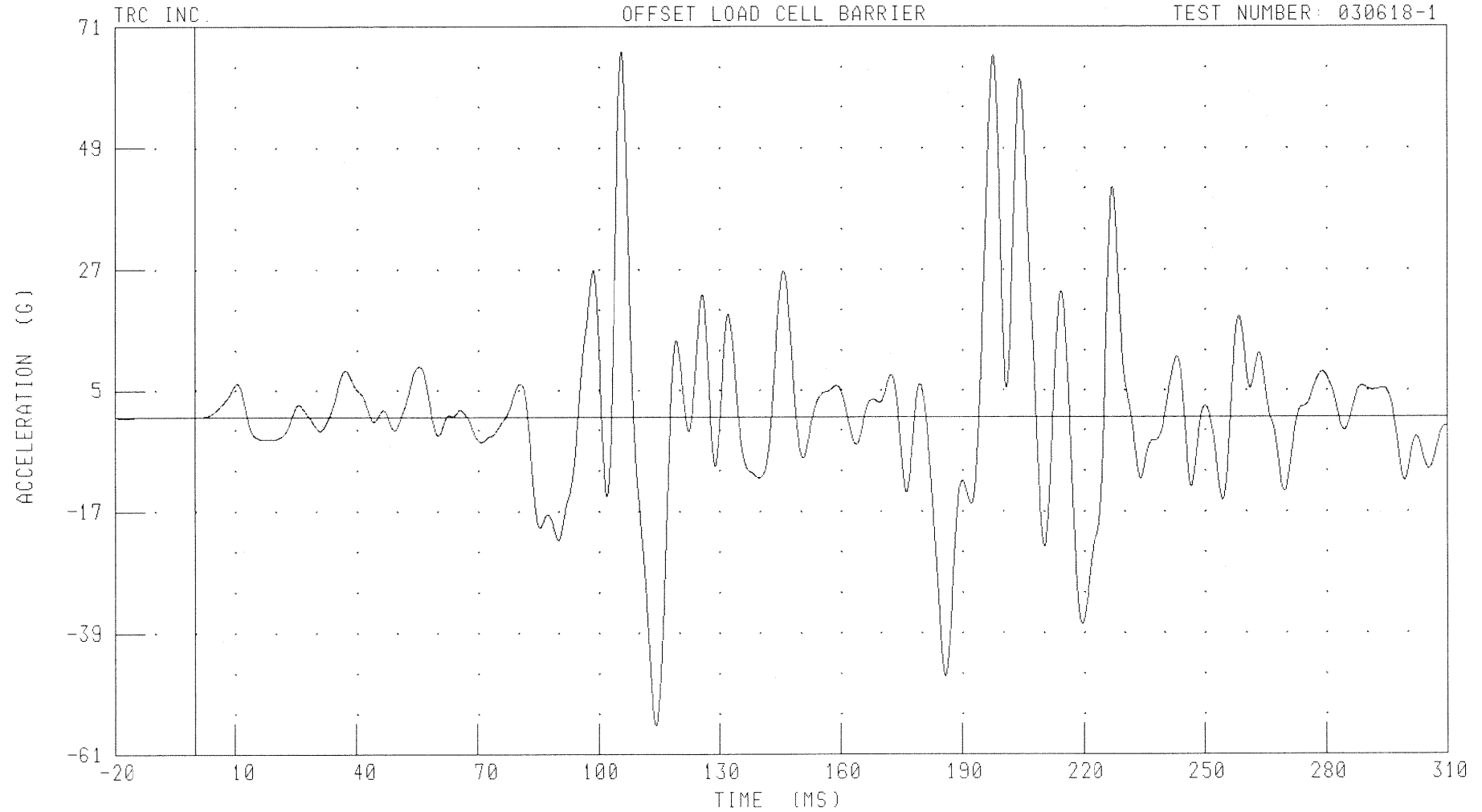
B-175

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: VCGZG1

FILTER: CH. CLASS 60

PEAK DATA: 66.39 G @ 105.76 MS; -55.88 G @ 114.40 MS

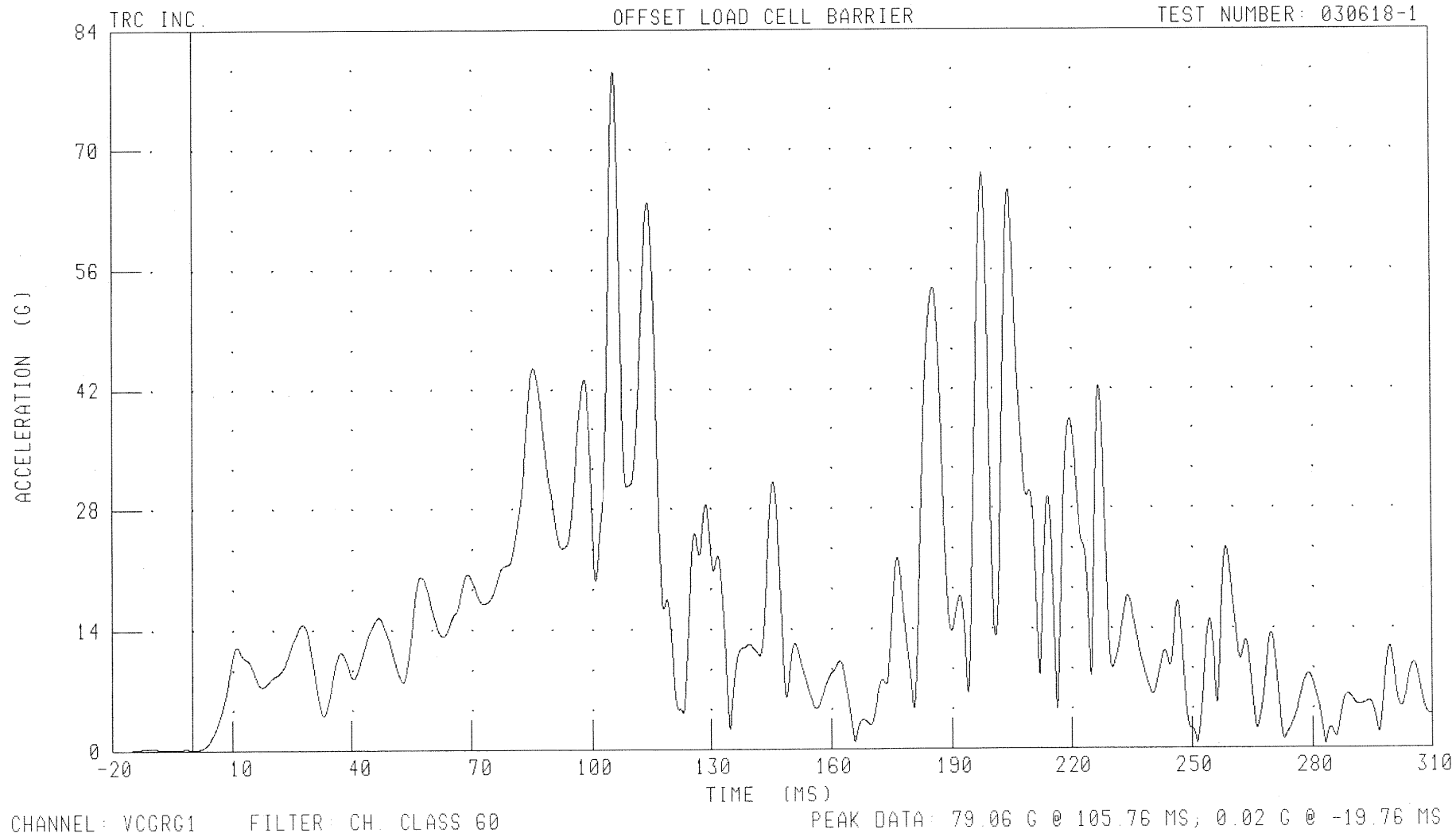
B-176

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



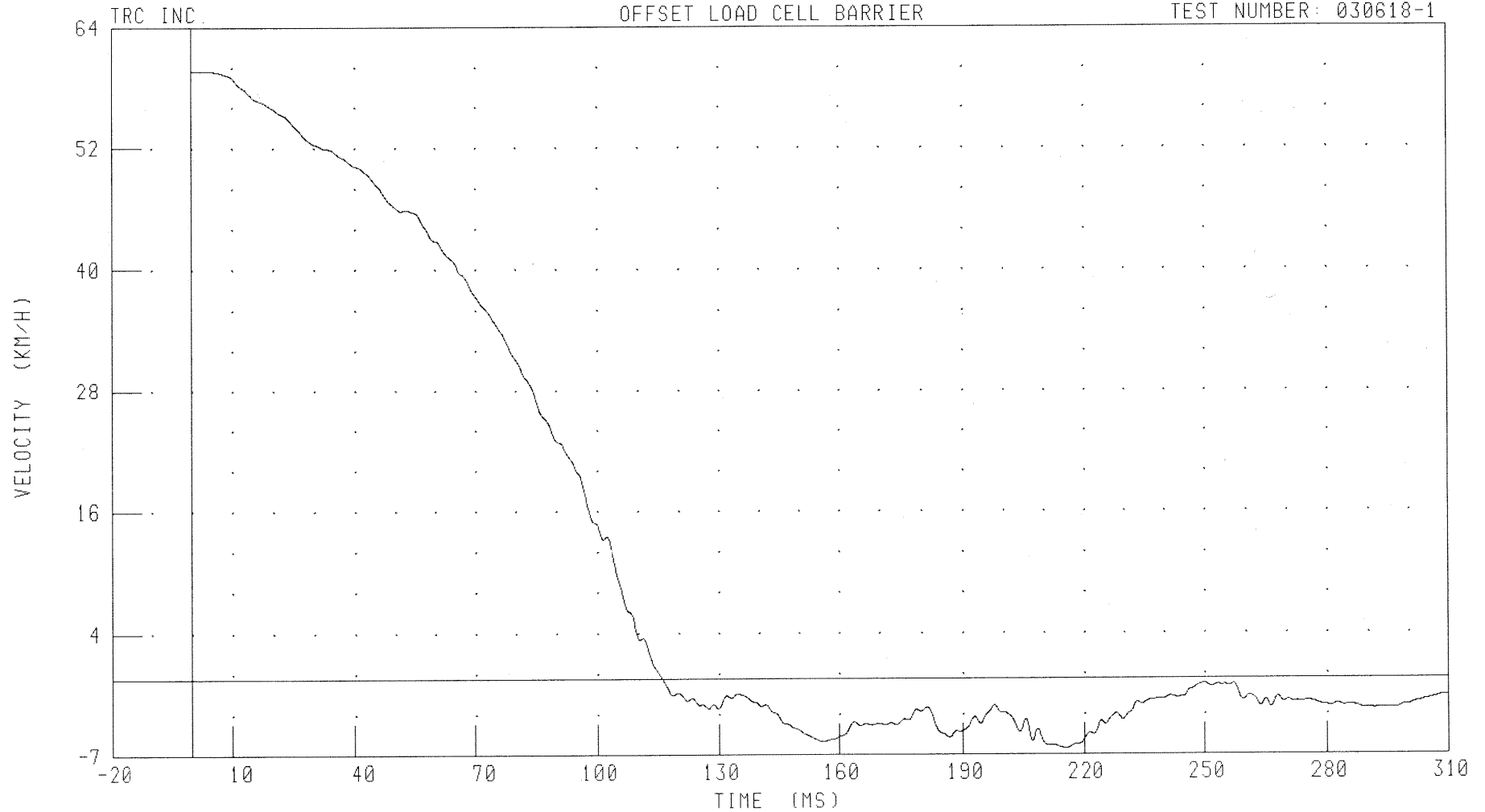
B-177

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: VCGXV1 FILTER: CH. CLASS 180

PEAK DATA: 60.20 KM/H @ 0.00 MS; -6.90 KM/H @ 215.52 MS

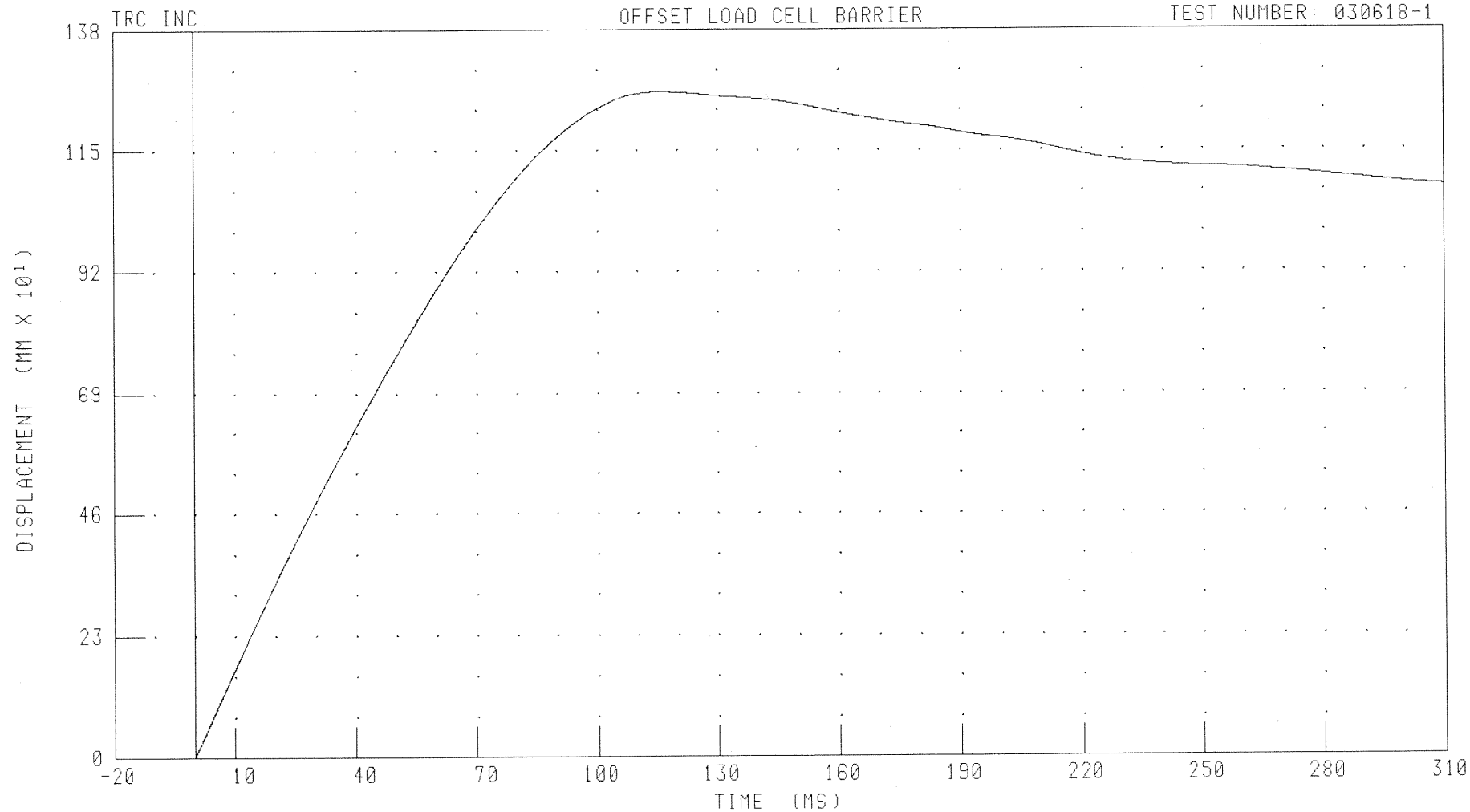
B-178

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: VCGXD1

FILTER: CH. CLASS 180

PEAK DATA: 1261.26 MM @ 116.08 MS; 0.00 MM @ 0.00 MS

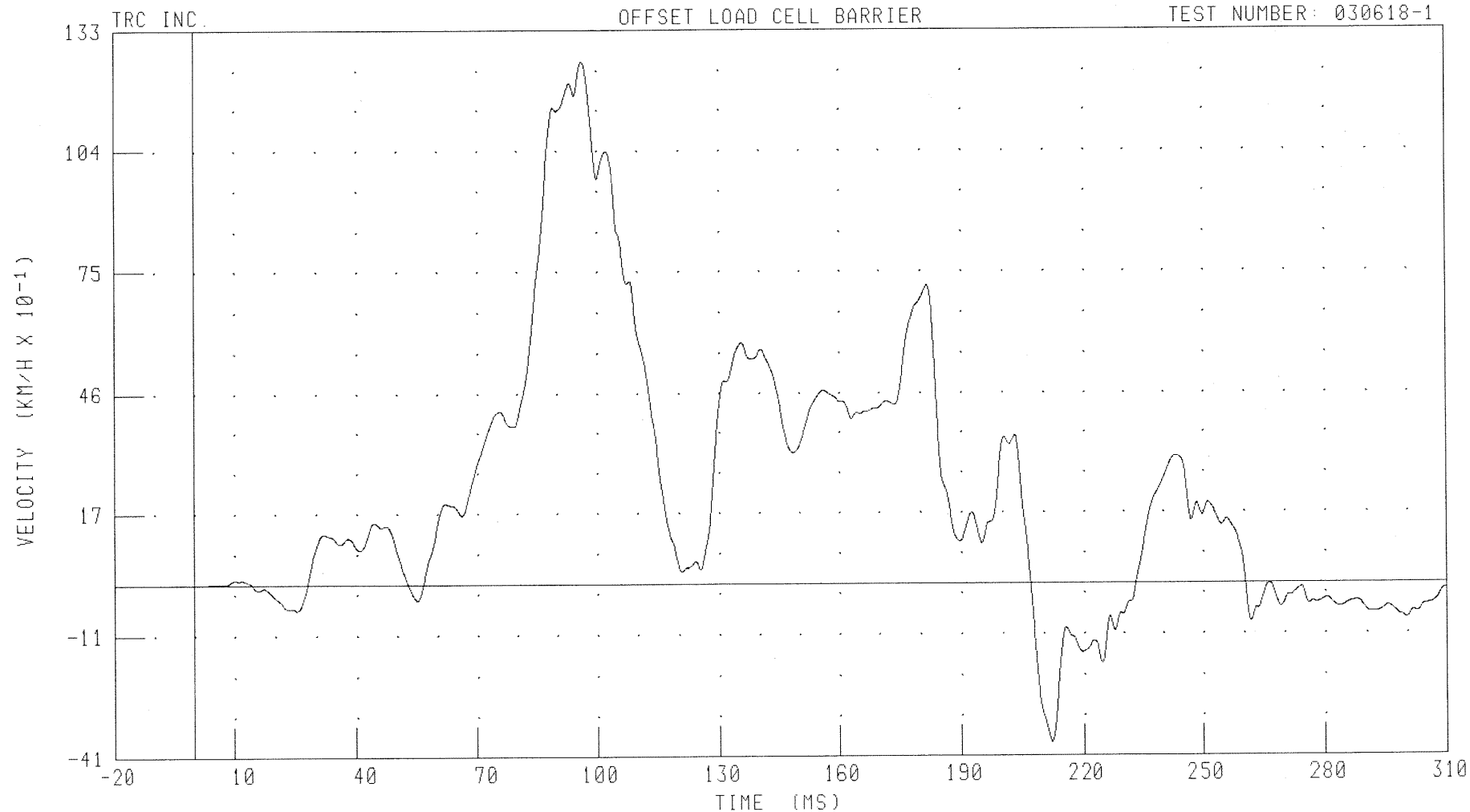
B-179

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: VCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 12.54 KM/H @ 96.48 MS; -3.78 KM/H @ 212.08 MS

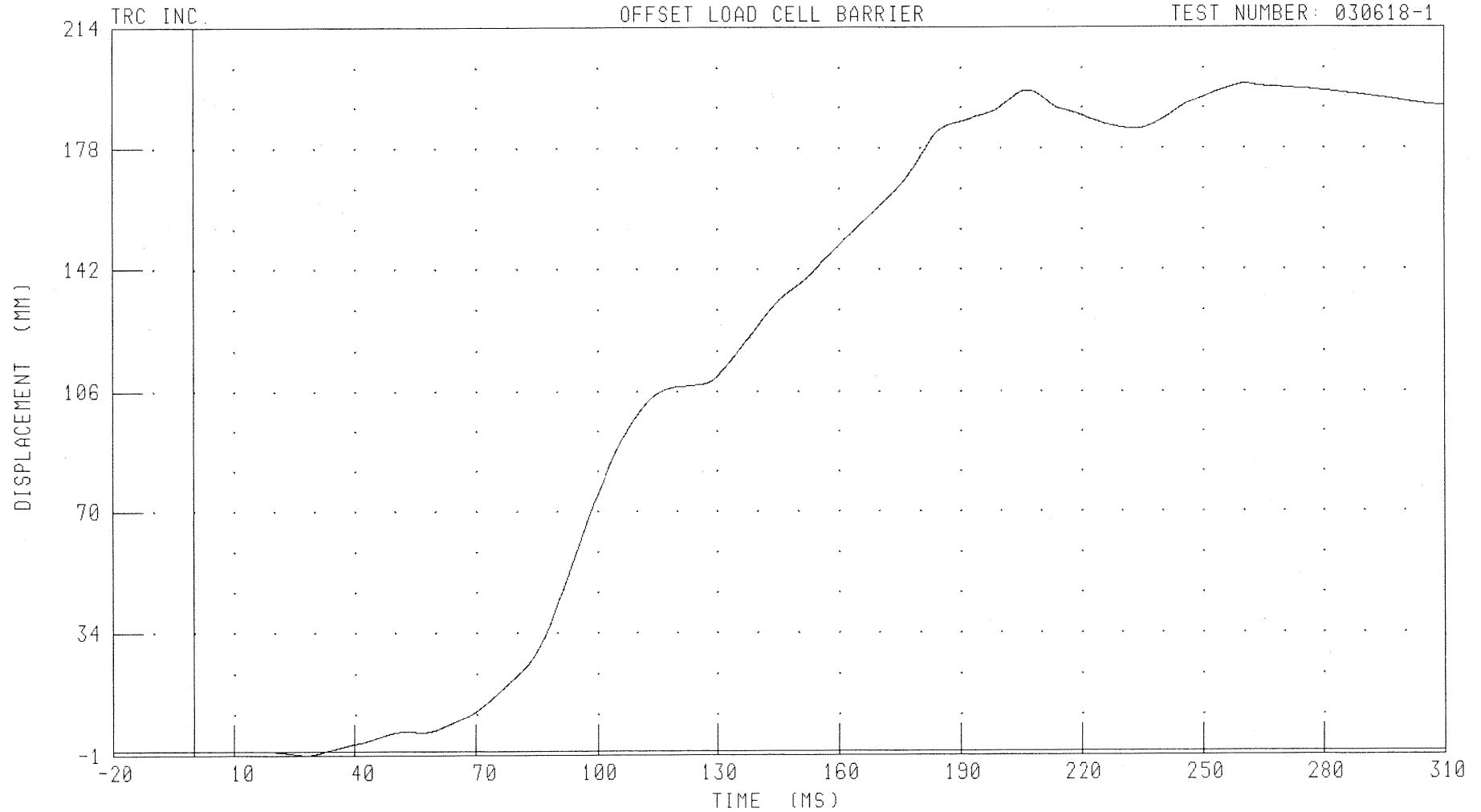
B-180

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: VCGYD1 FILTER: CH. CLASS 180

PEAK DATA: 198.21 MM @ 260.48 MS; -1.06 MM @ 27.92 MS

B-181

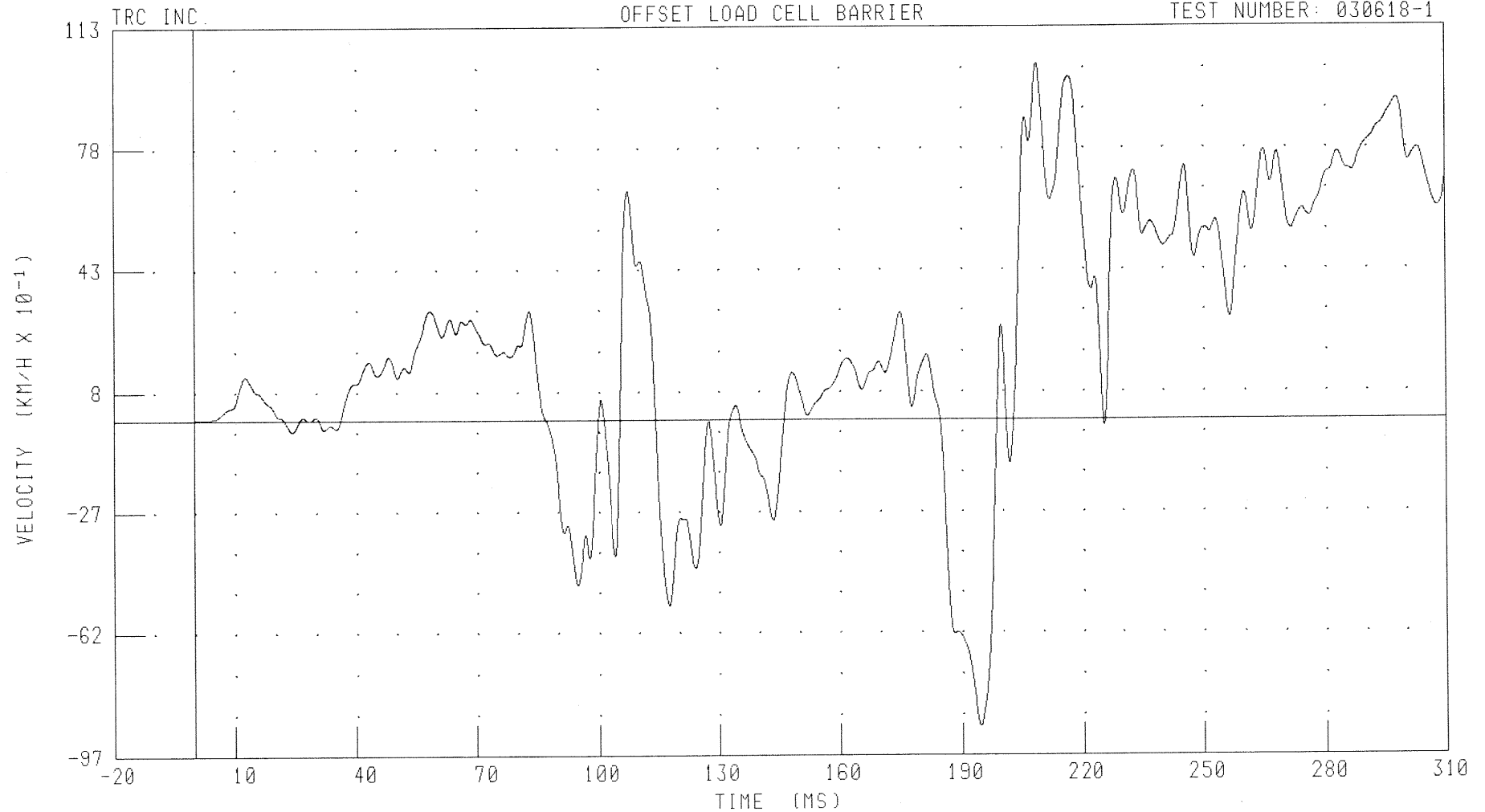
030618-1

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

VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-182

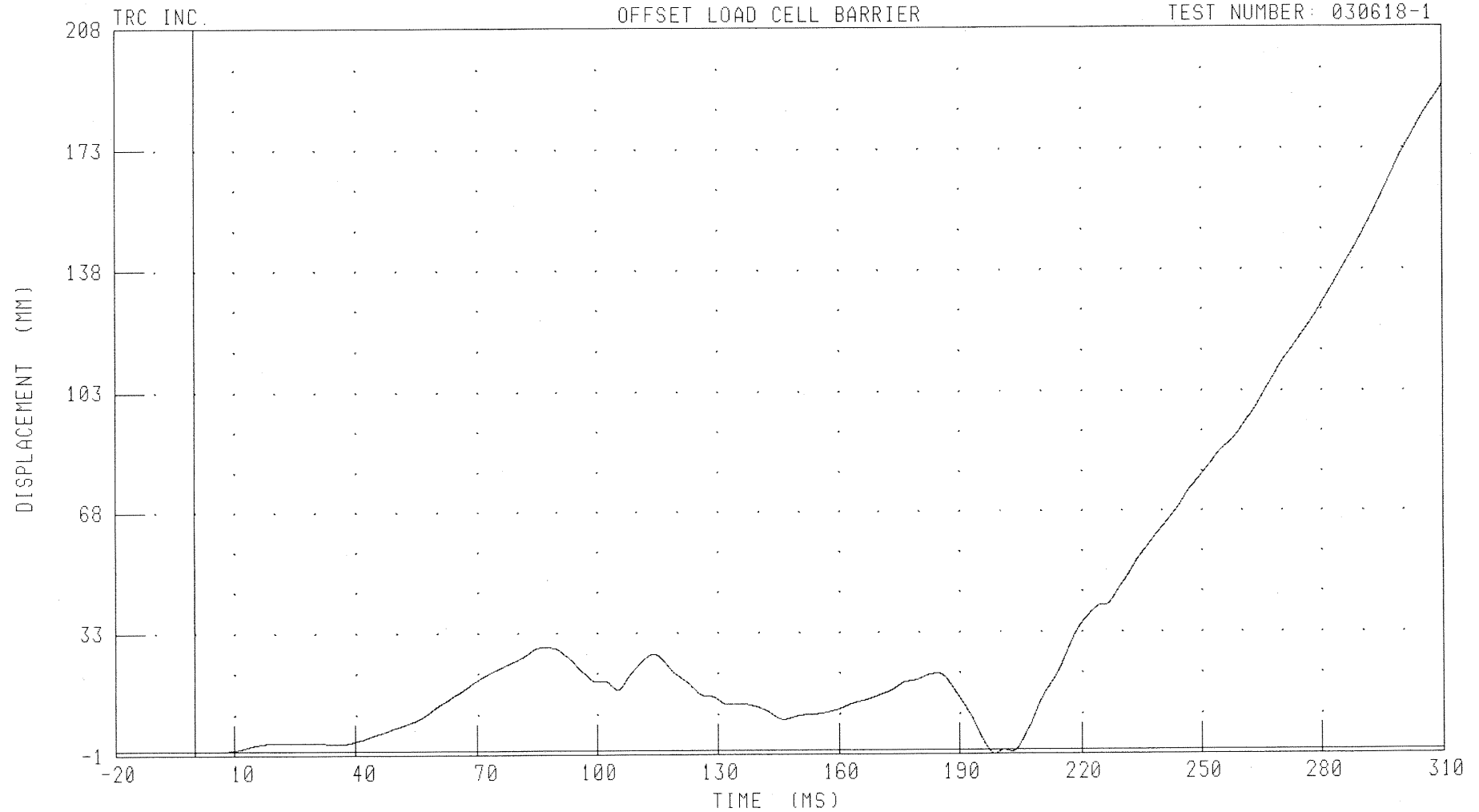
030618-1

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

VEHICLE CENTER OF GRAVITY Z-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: VCGZD1 FILTER: CH. CLASS 180

B-183

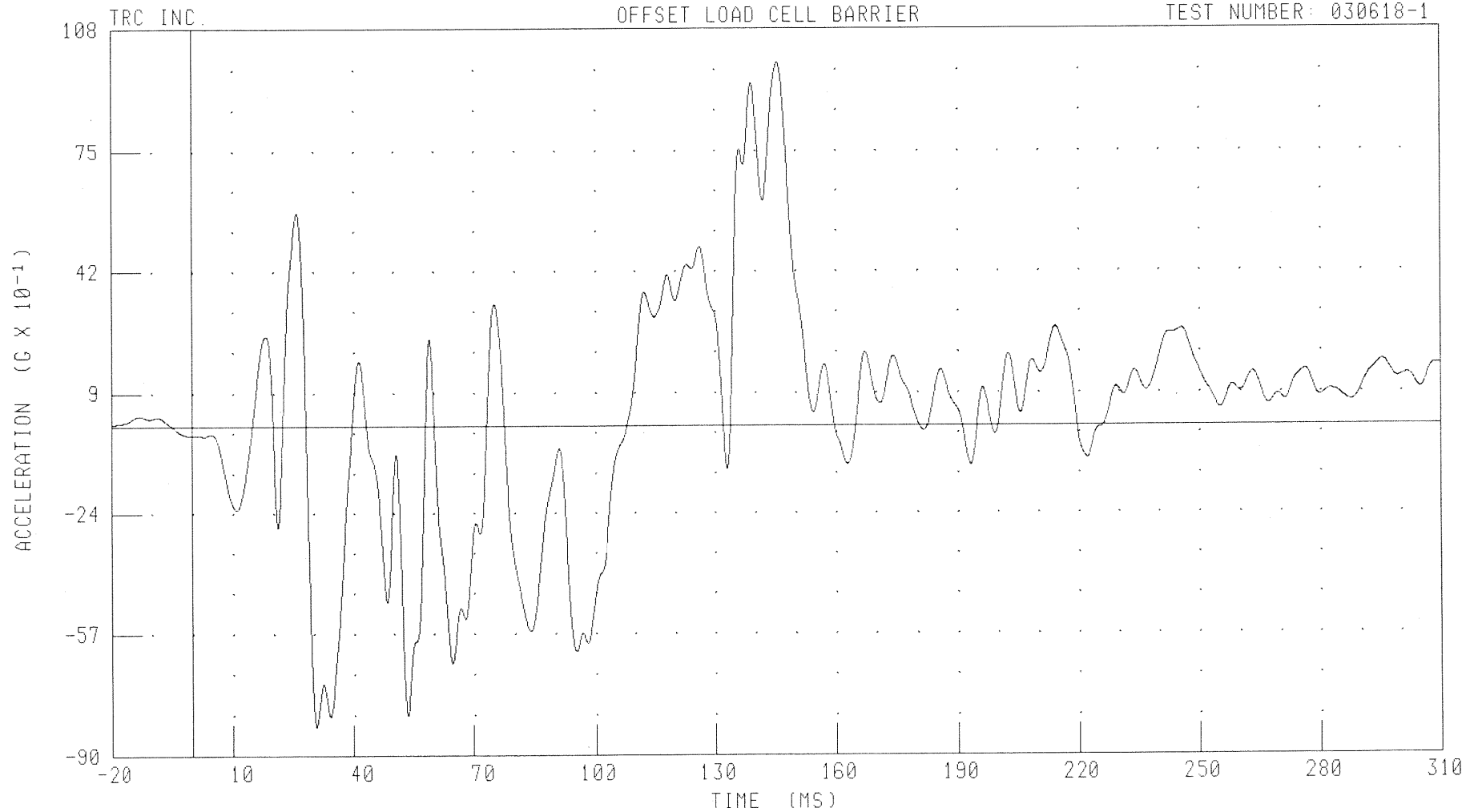
030618-1

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

REAR DECK Z-AXIS ACCELERATION

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: RDKZG1 FILTER: CH. CLASS 60

B-184

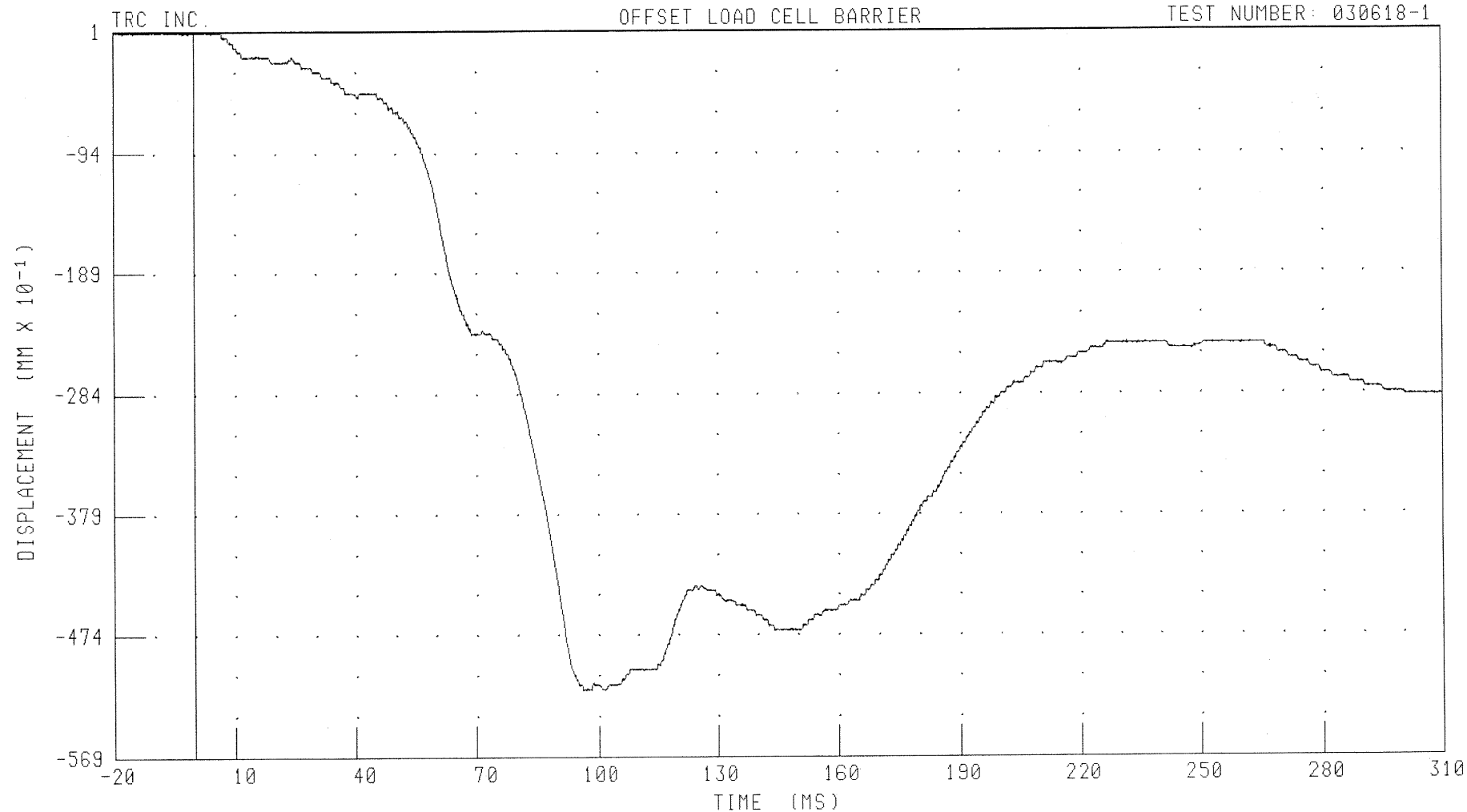
030618-1

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

TOE PAN X-AXIS DISPLACEMENT

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: TPOXD1 FILTER: CH. CLASS 1000

PEAK DATA: 0.14 MM @ -17.60 MS; -51.78 MM @ 96.16 MS

B-185

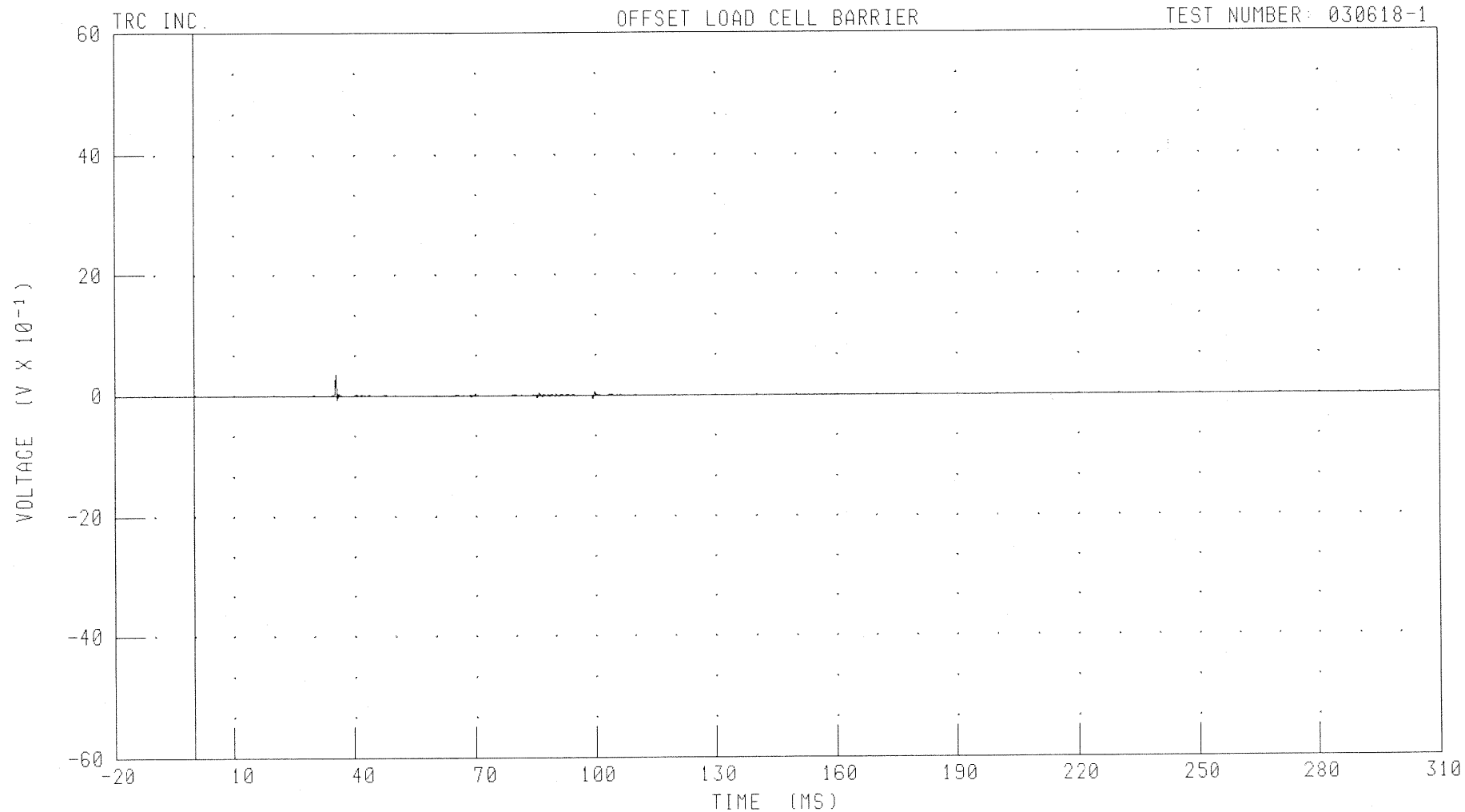
030618-1

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

DRIVER AIRBAG EVENT - WIRE A

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: DABETA FILTER: CH CLASS 1000

PEAK DATA: 0.35 V @ 35.60 MS; -0.07 V @ 35.92 MS

B-186

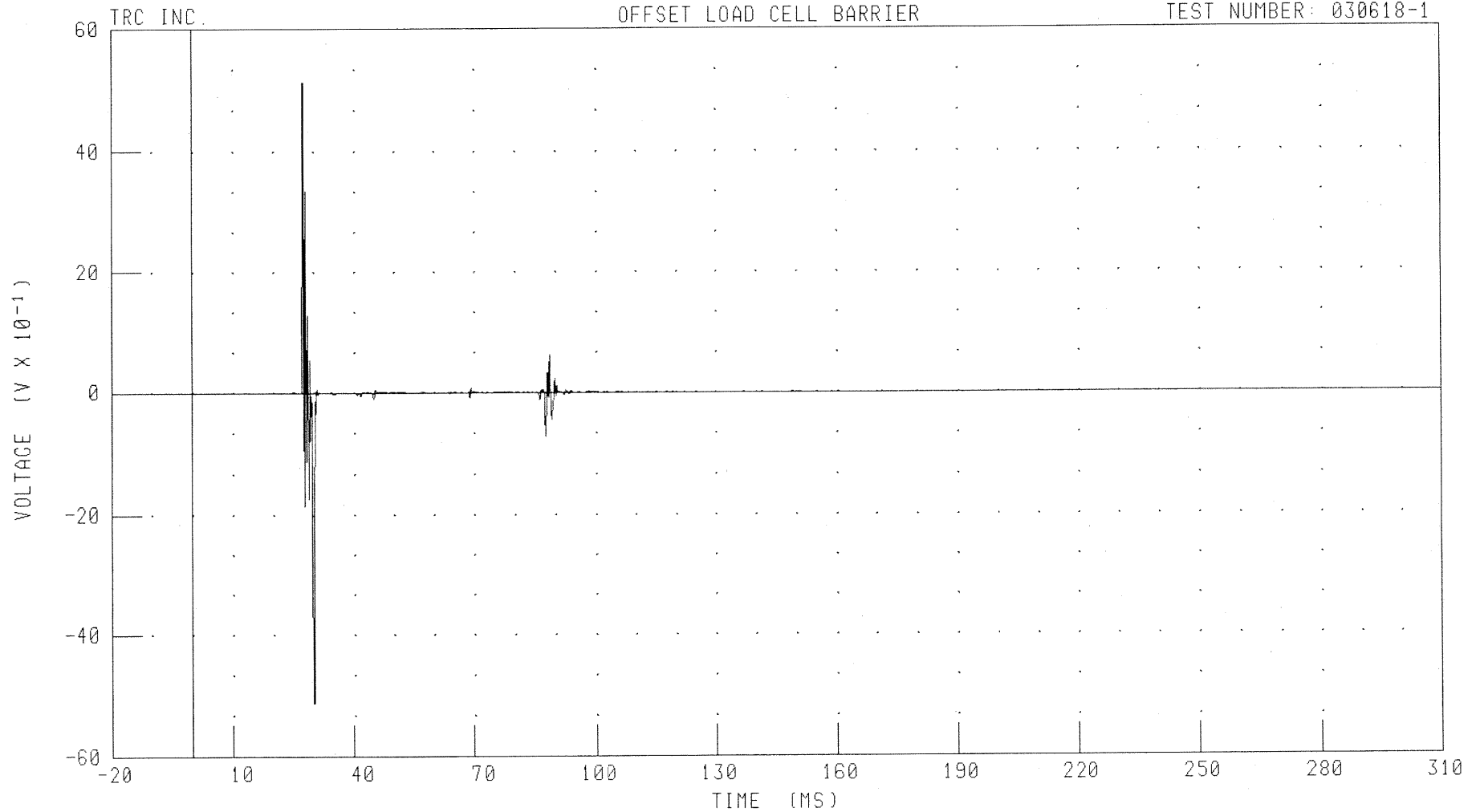
030618-1

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

DRIVER AIRBAG EVENT - WIRE B

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: DABETB FILTER: CH. CLASS 1000

PEAK DATA: 5.12 V @ 27.52 MS; -5.12 V @ 30.00 MS

B-187

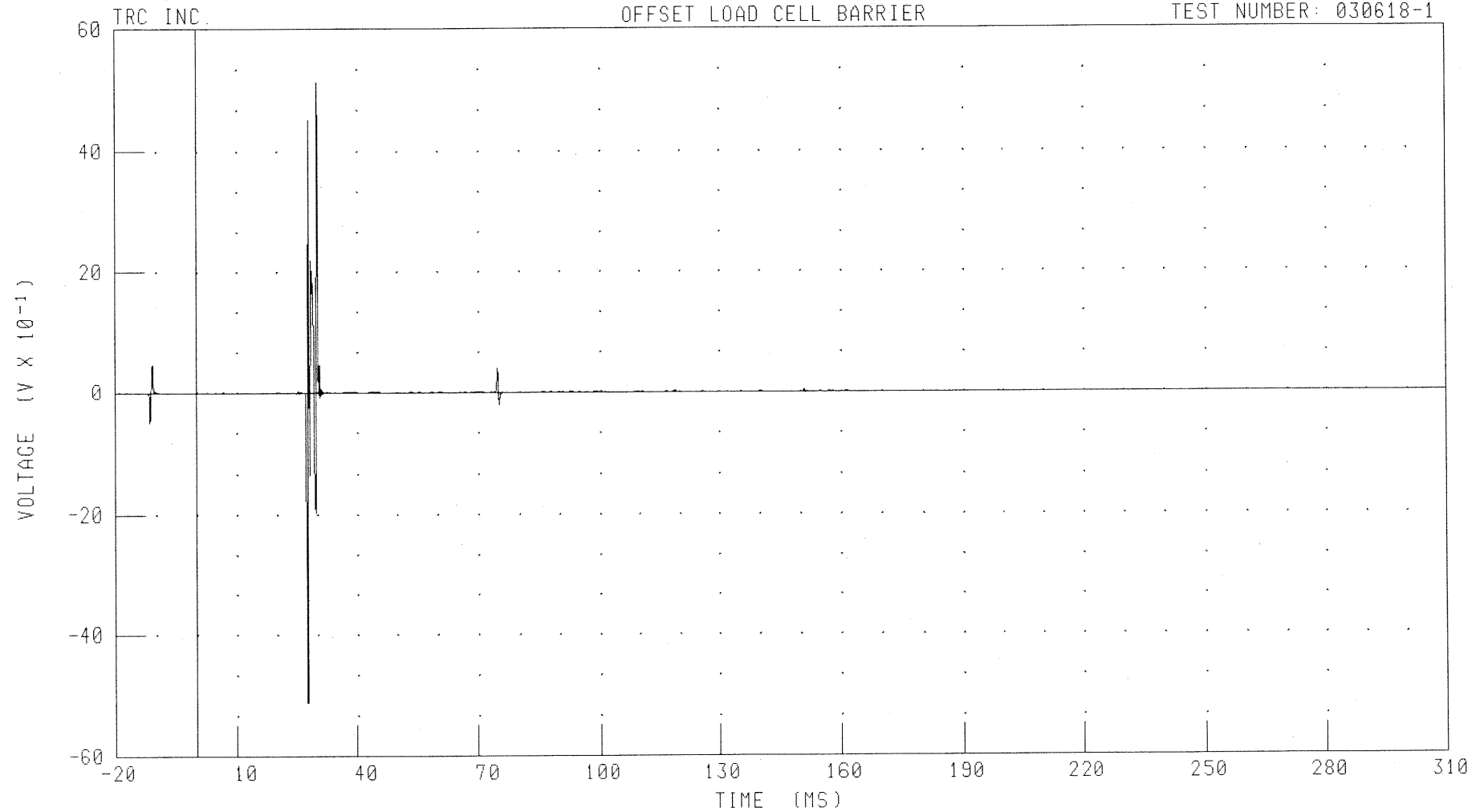
030618-1

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

PASSENGER AIRBAG EVENT - WIRE A

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PABETA FILTER: CH. CLASS 1000

PEAK DATA: 5.12 V @ 30.00 MS; -5.12 V @ 27.52 MS

B-188

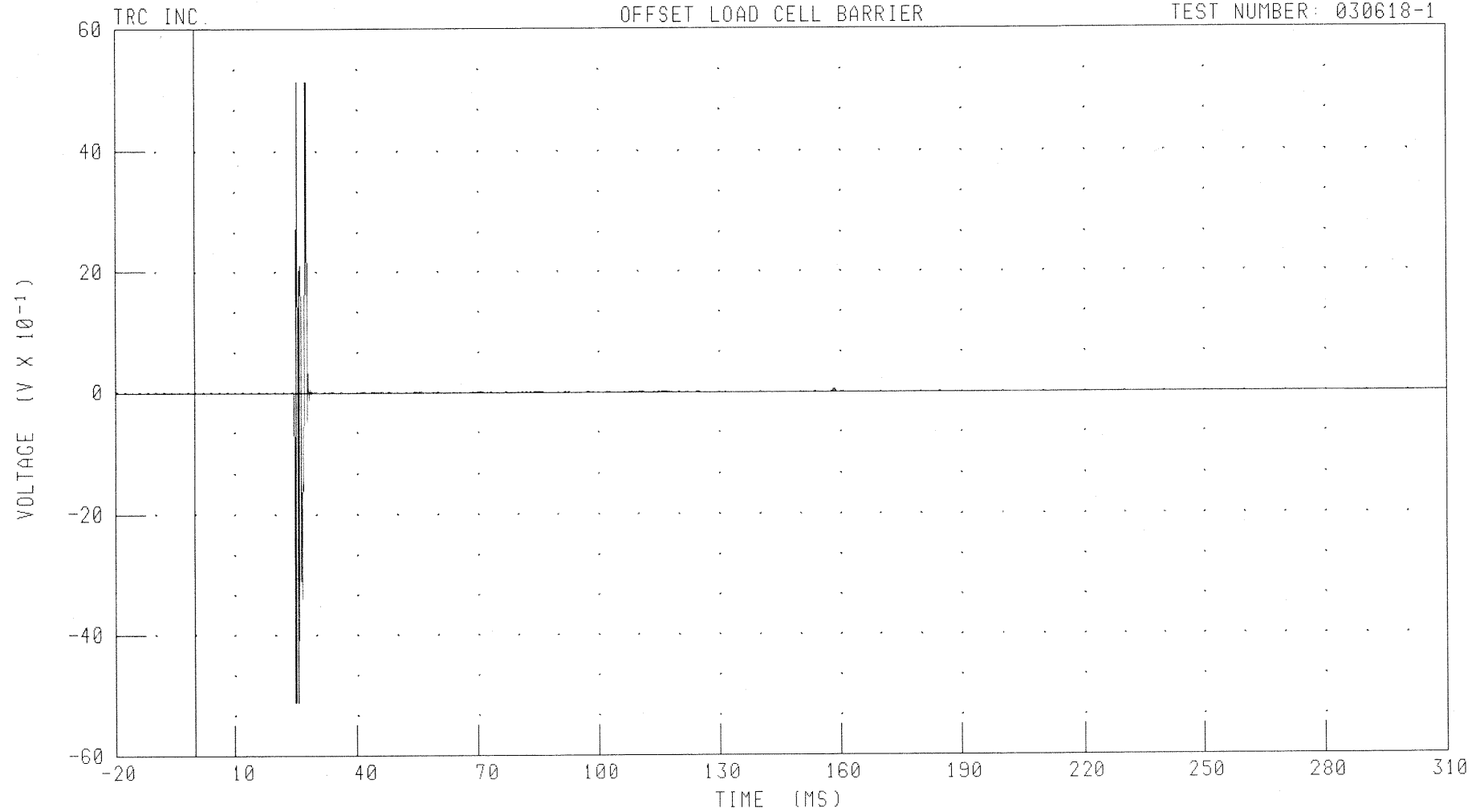
030618-1

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

PASSENGER AIRBAG EVENT - WIRE B

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: PABETB FILTER: CH. CLASS 1000

PEAK DATA: 5.12 V @ 25.44 MS; -5.12 V @ 24.96 MS

B-189

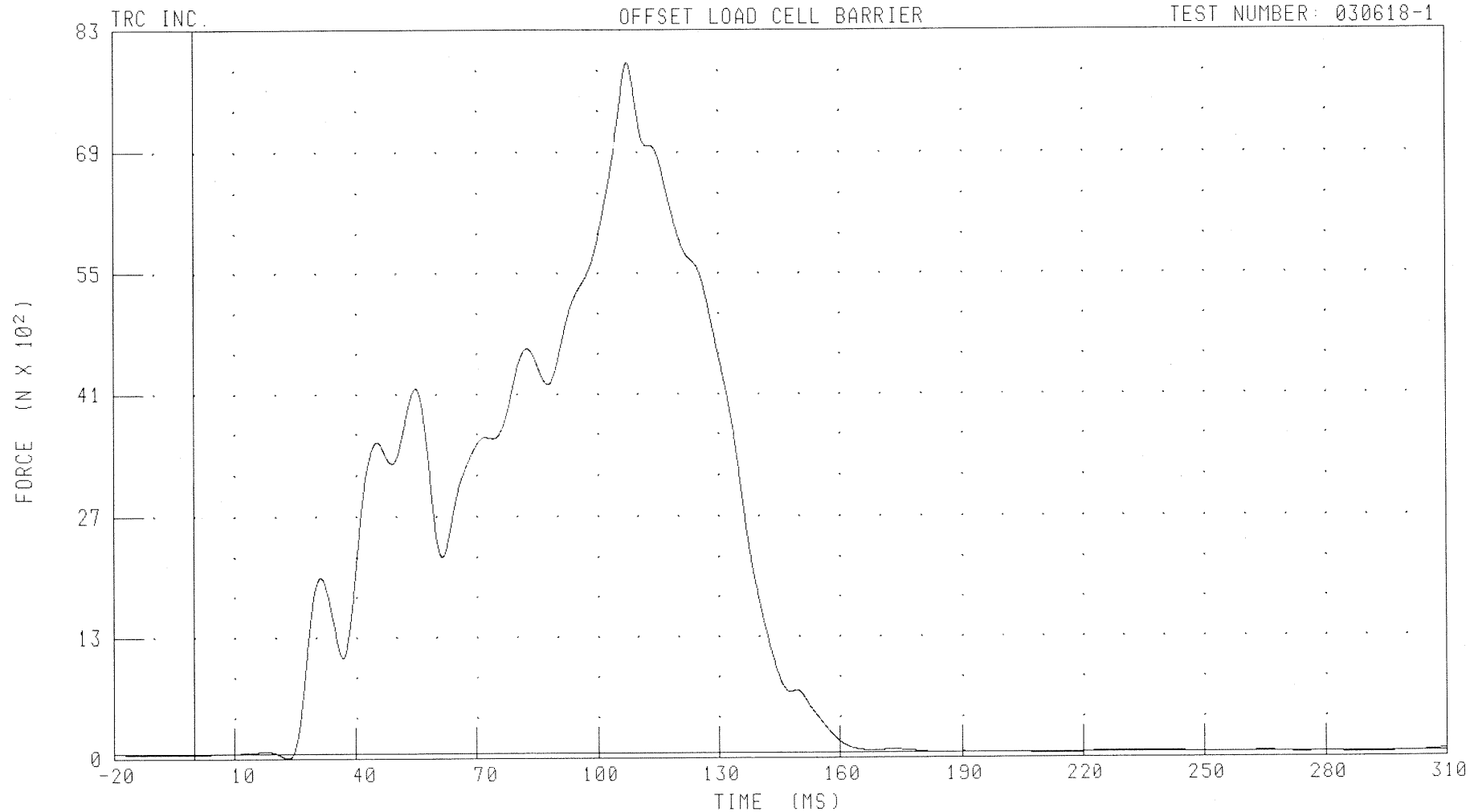
030618-1

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

DRIVER SHOULDER BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: SHBF1

FILTER: CH. CLASS 60

PEAK DATA: 7968.47 N @ 107.68 MS; -50.14 N @ 23.12 MS

B-190

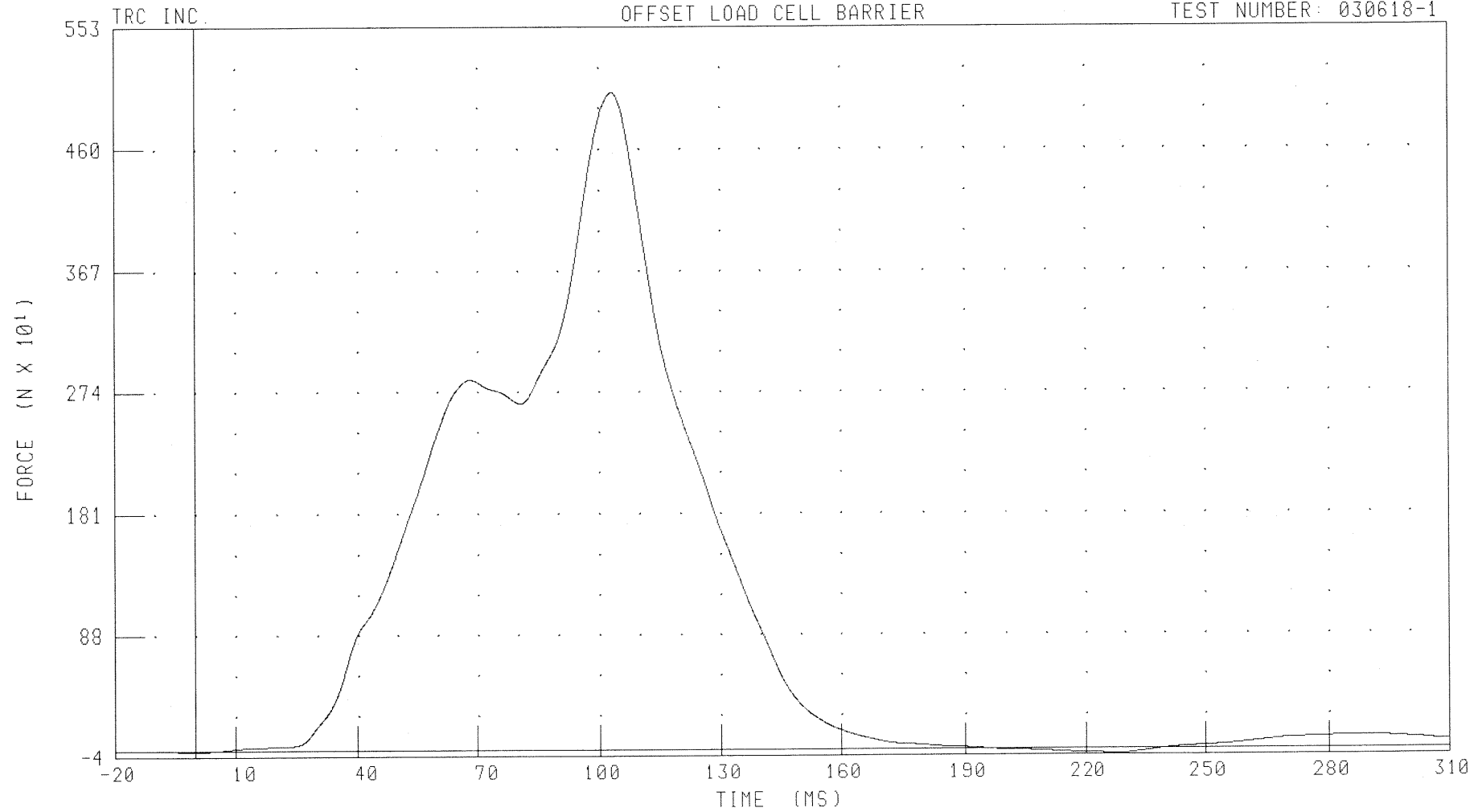
030618-1

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

DRIVER LAP BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LPBF1

FILTER: CH. CLASS 60

PEAK DATA: 5038.43 N @ 103.28 MS; -43.75 N @ 228.24 MS

B-191

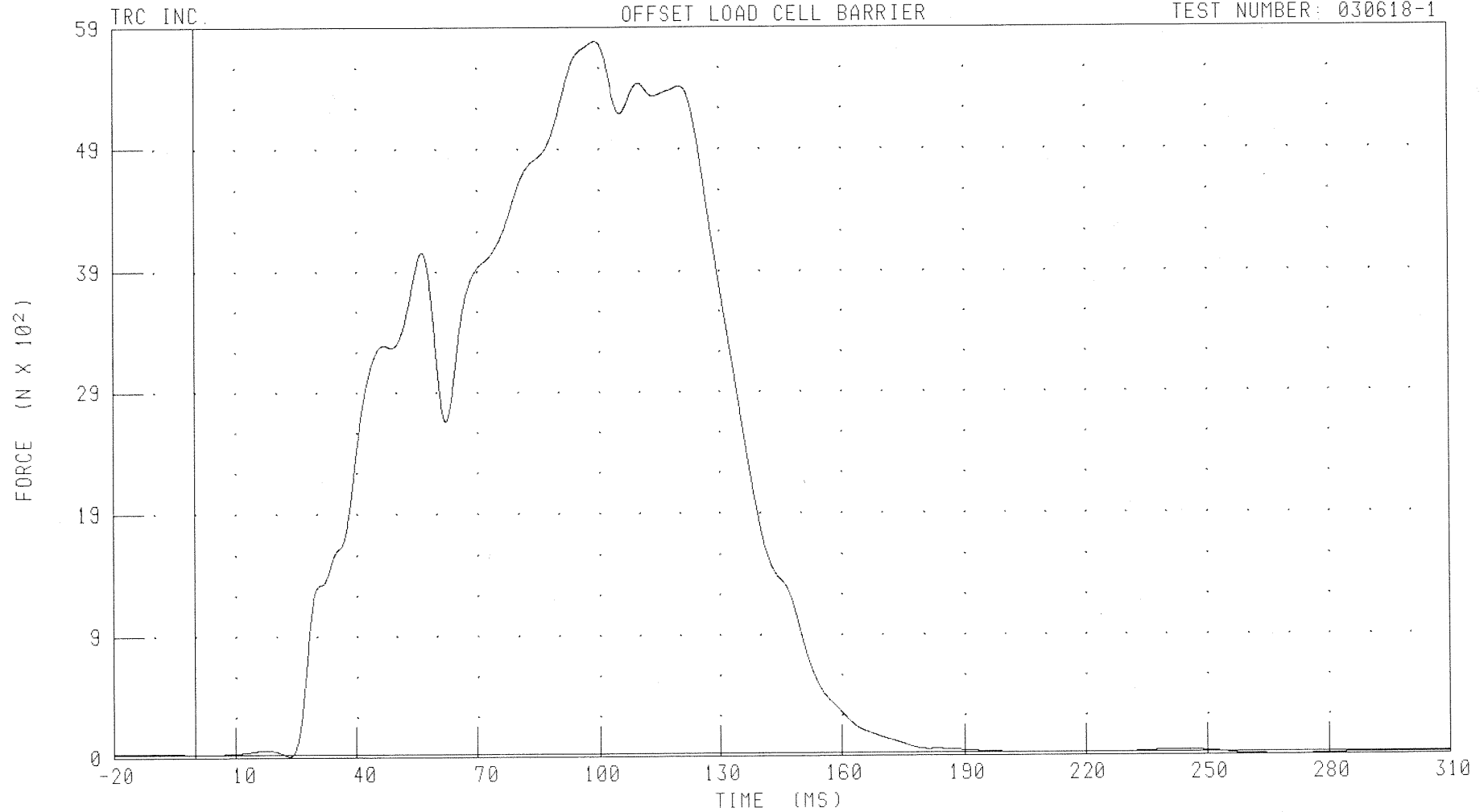
030618-1

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

PASSENGER SHOULDER BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: SHBF2

FILTER: CH. CLASS 60

PEAK DATA: 5853.43 N @ 99.12 MS, -25.79 N @ 272.80 MS

B-192

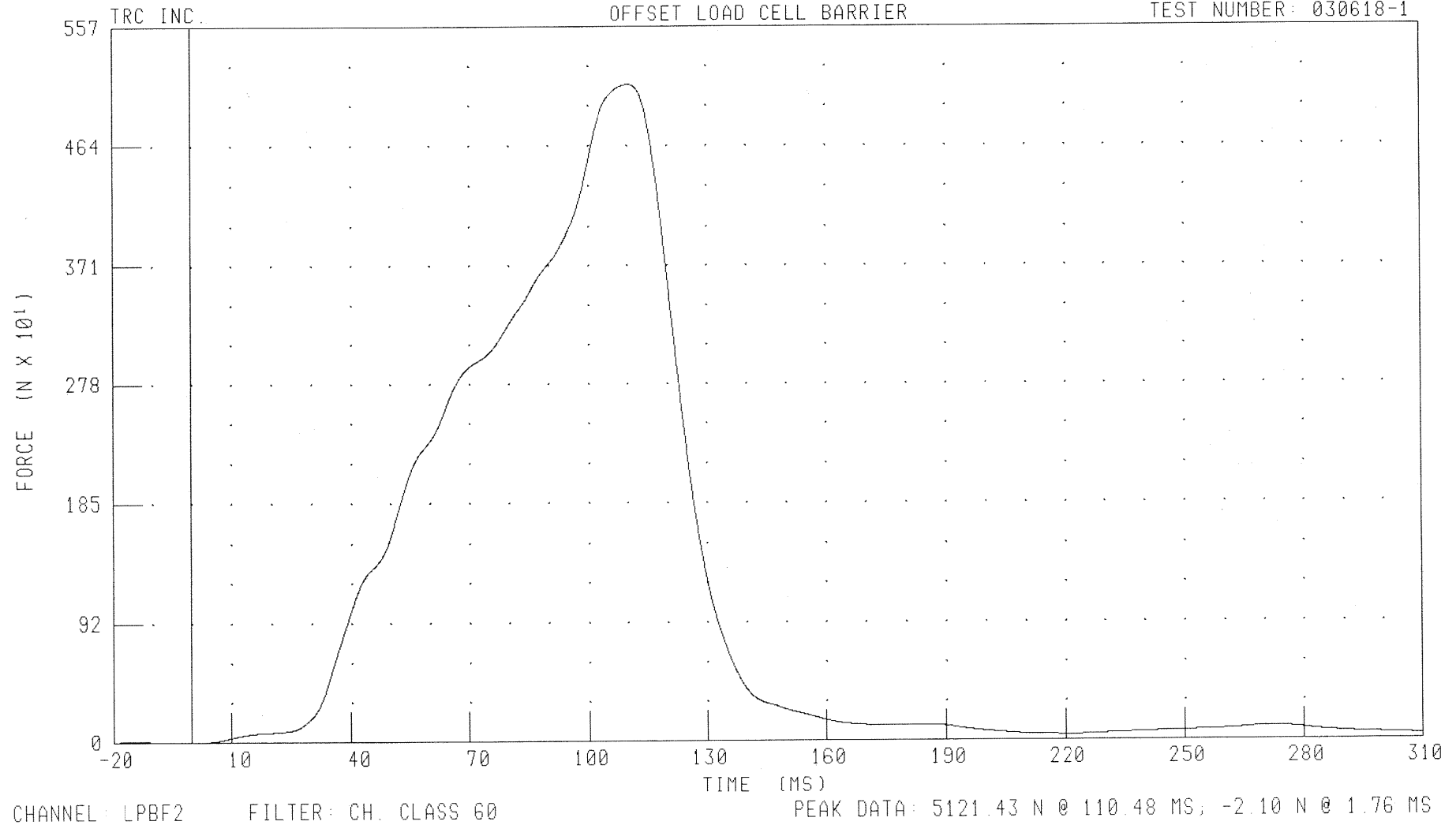
030618-1

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

PASSENGER LAP BELT FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-193

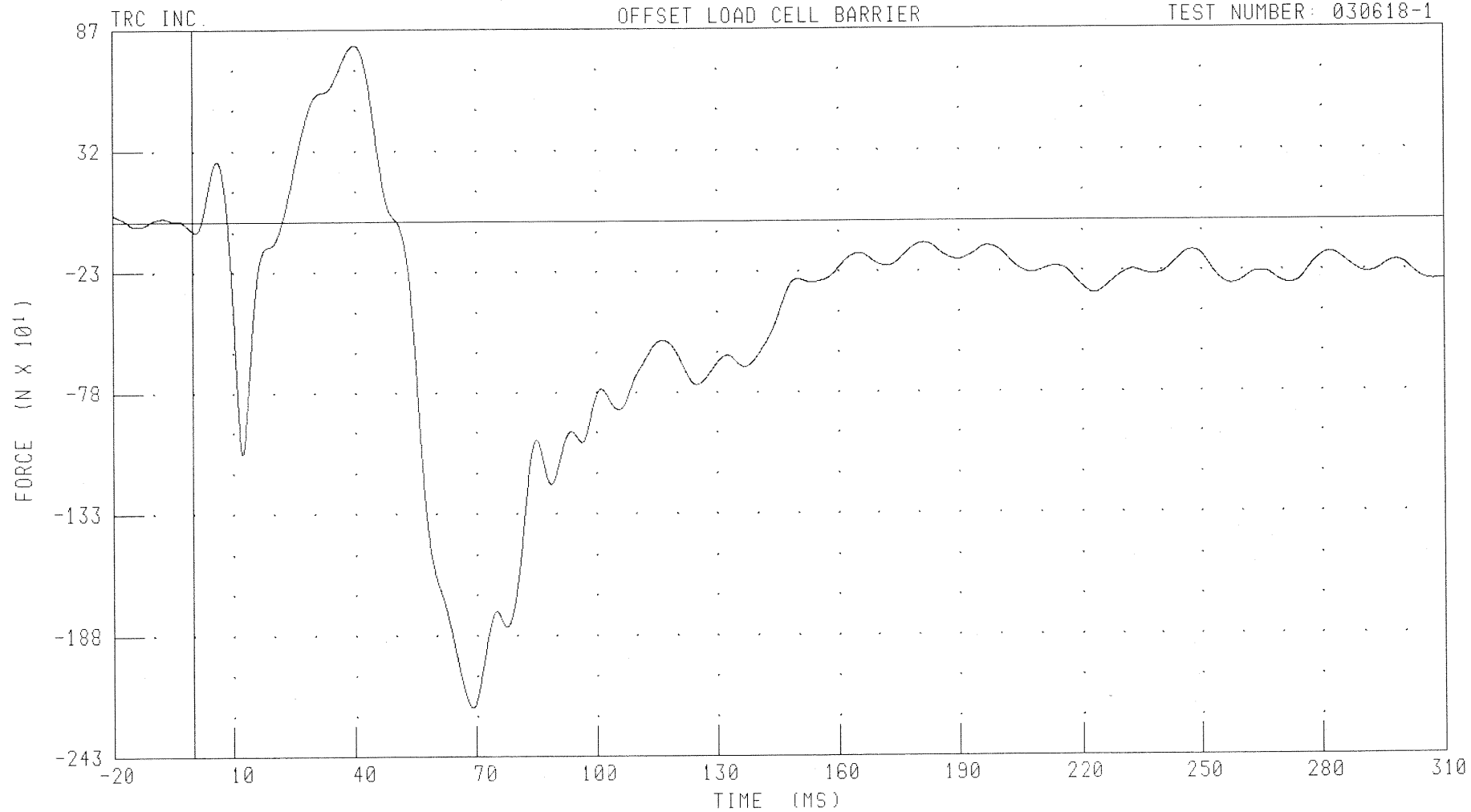
030618-1

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

BARRIER LOAD CELL A1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCA1XF FILTER: CH. CLASS 60

PEAK DATA: 797.47 N @ 40.00 MS; -2207.75 N @ 69.04 MS

B-194

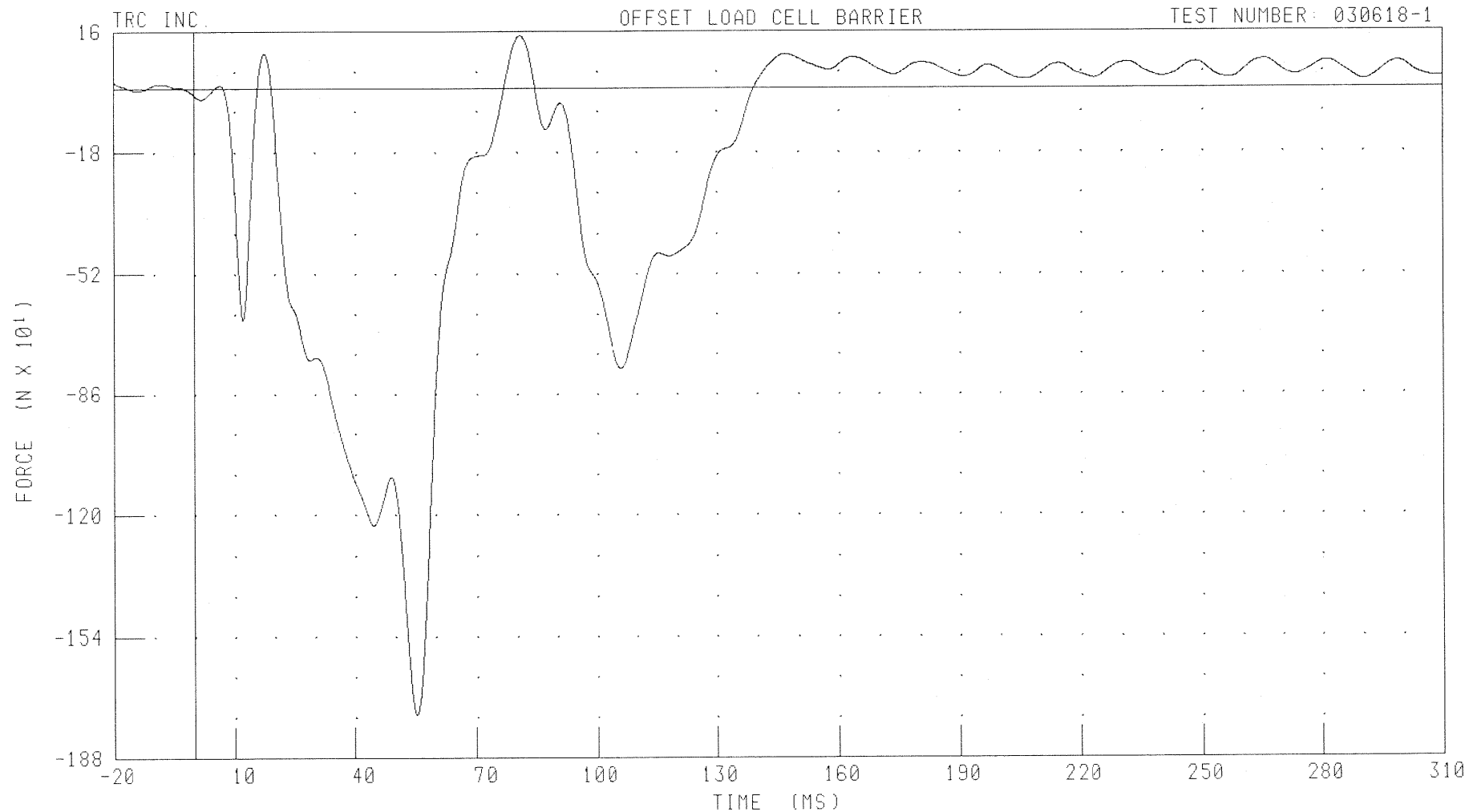
030618-1

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

BARRIER LOAD CELL A2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCA2XF

FILTER: CH. CLASS 60

PEAK DATA: 148.16 N @ 80.88 MS; -1760.73 N @ 55.36 MS

B-195

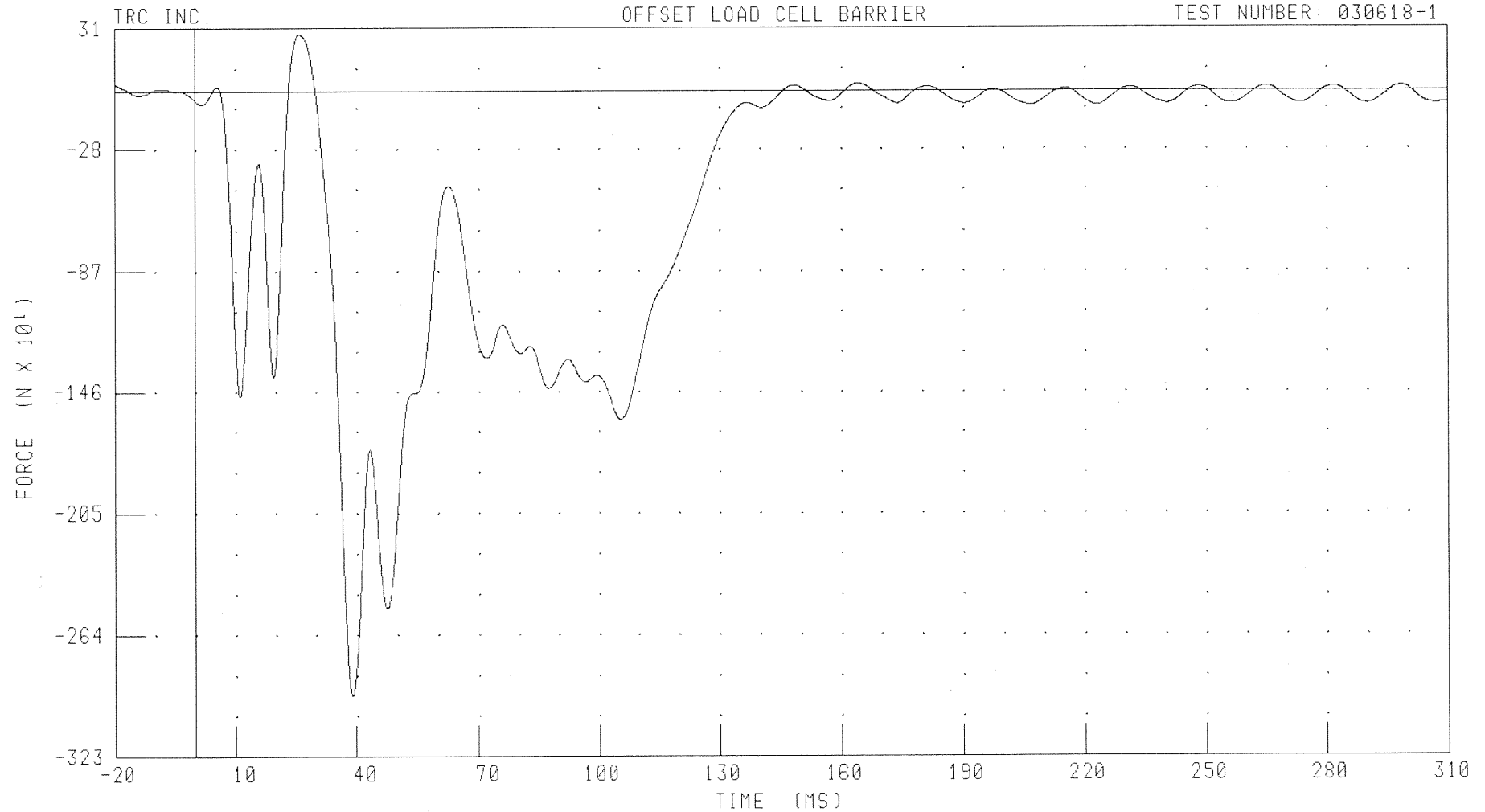
030618-1

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

BARRIER LOAD CELL A3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCA3XF FILTER: CH. CLASS 60

B-196

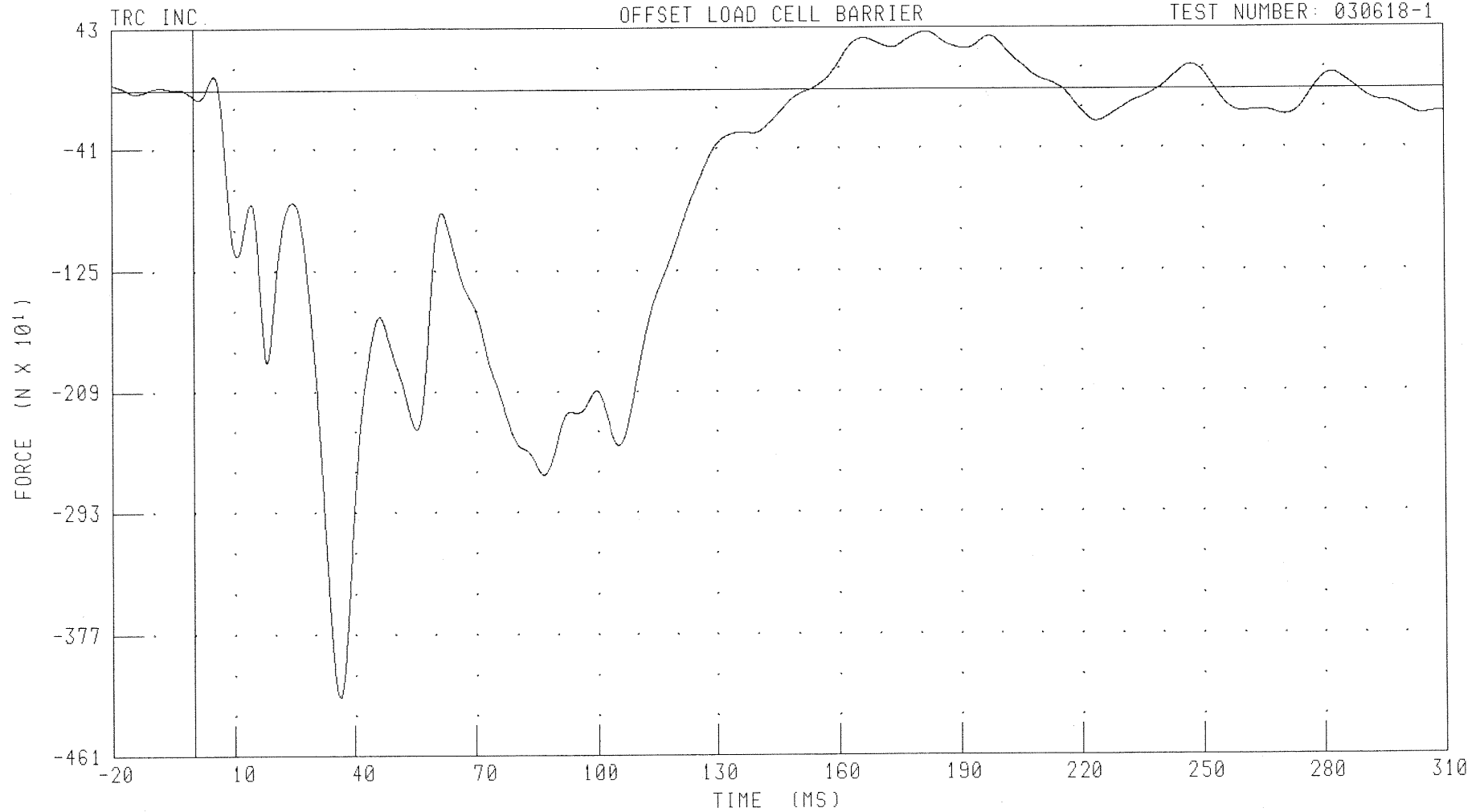
030618-1

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

BARRIER LOAD CELL A4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCA4XF FILTER: CH. CLASS 60

PEAK DATA: 397.36 N @ 181.60 MS; -4206.14 N @ 36.32 MS

B-197

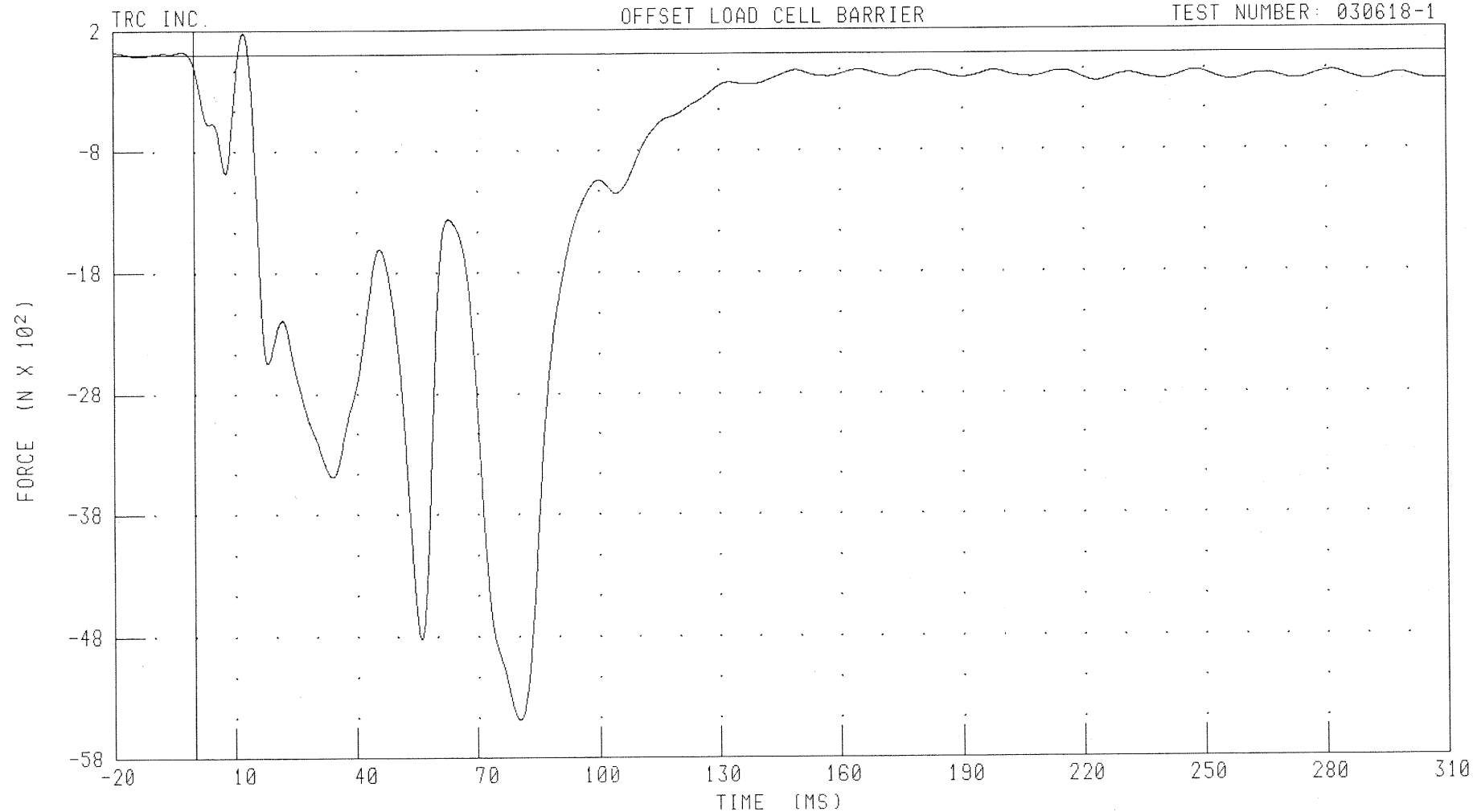
030618-1

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

BARRIER LOAD CELL A5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCA5XF FILTER: CH. CLASS 60

PEAK DATA: 181.84 N @ 12.24 MS, -5488.53 N @ 80.32 MS

B-198

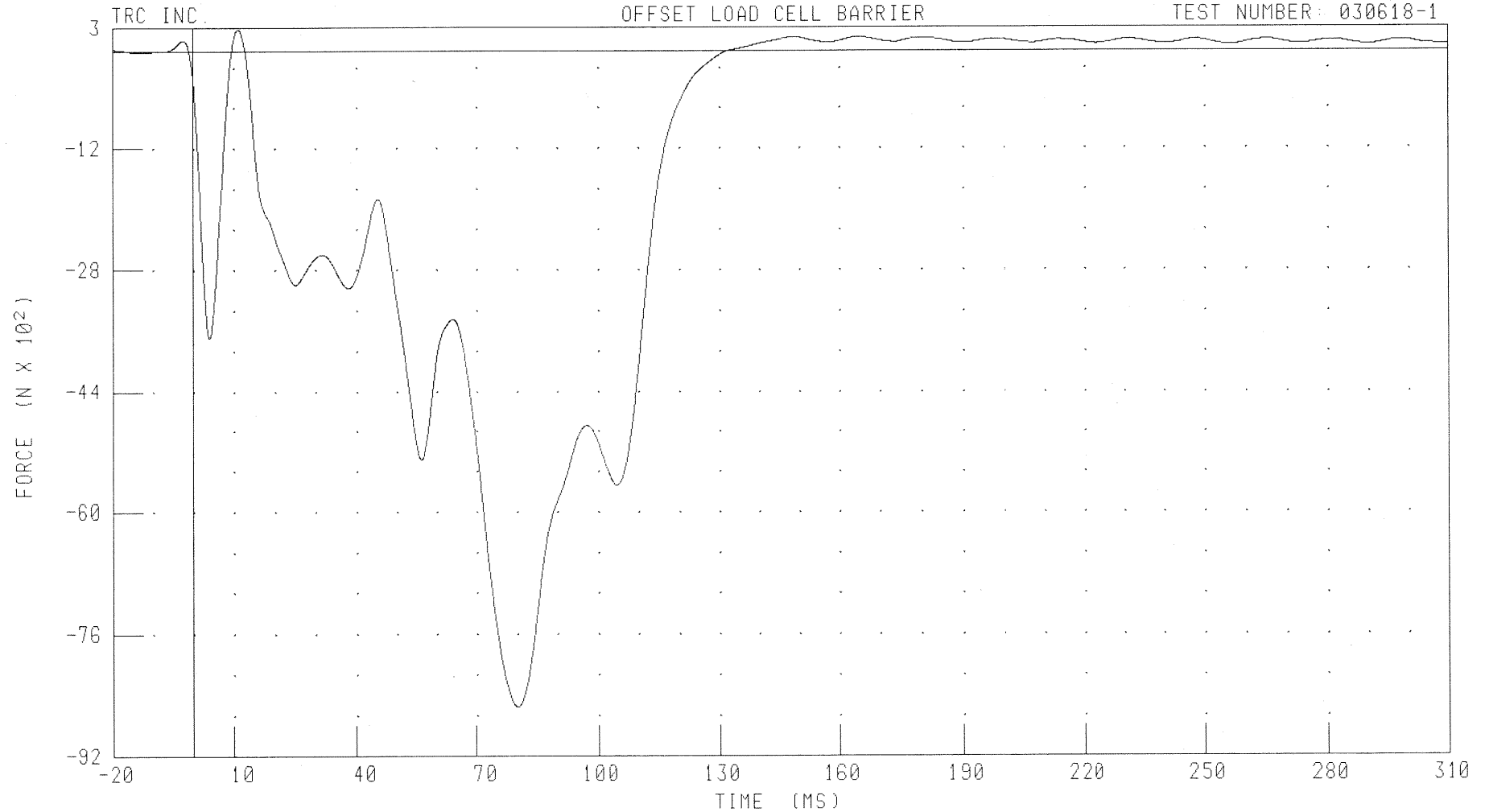
030618-1

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

BARRIER LOAD CELL A6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCA6XF

FILTER: CH. CLASS 60

PEAK DATA: 289.22 N @ 11.12 MS; -8646.41 N @ 80.16 MS

B-199

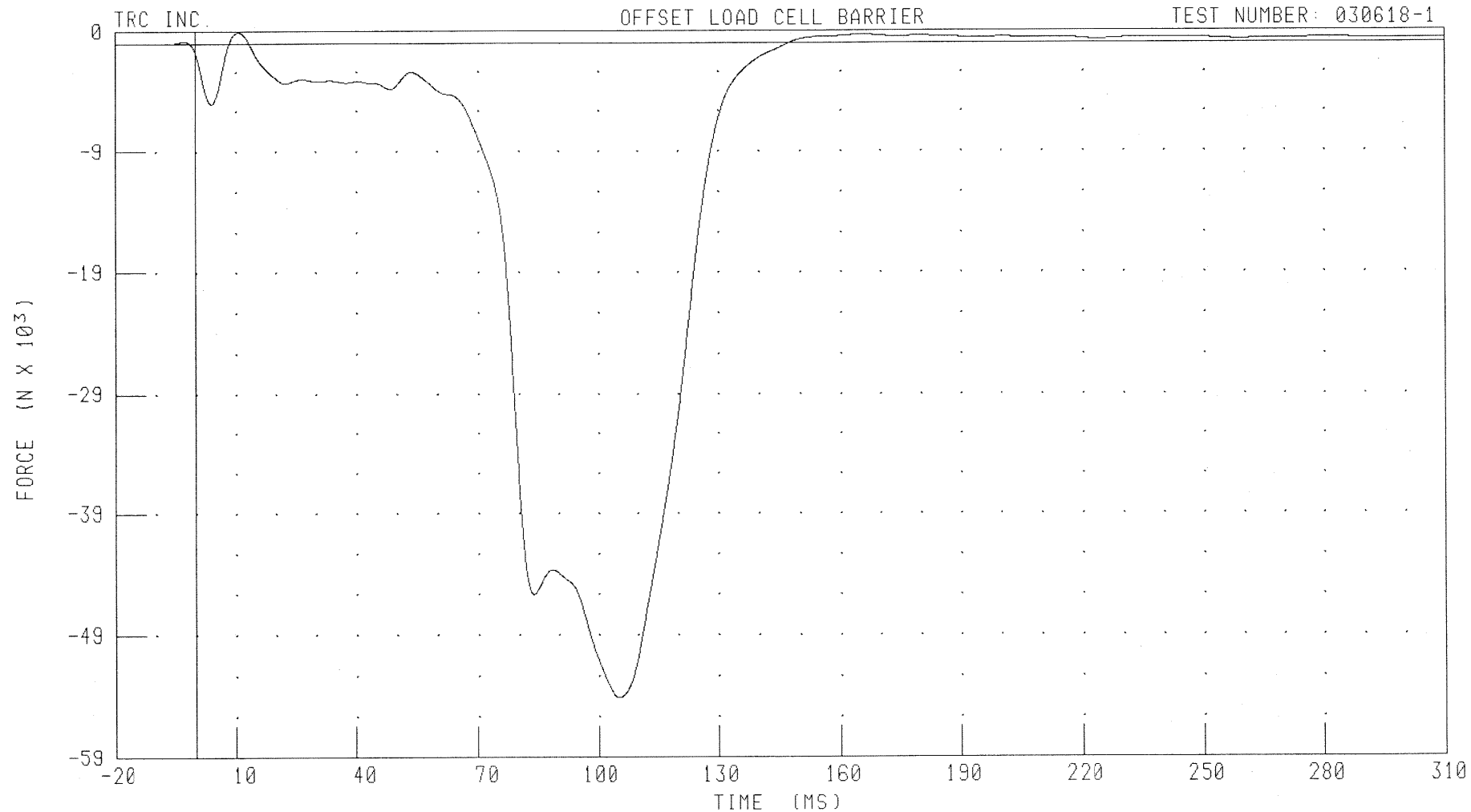
030618-1

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

BARRIER LOAD CELL A7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCA7XF

FILTER: CH. CLASS 60

PEAK DATA: 925.86 N @ 10.72 MS; -54681.19 N @ 105.44 MS

B-200

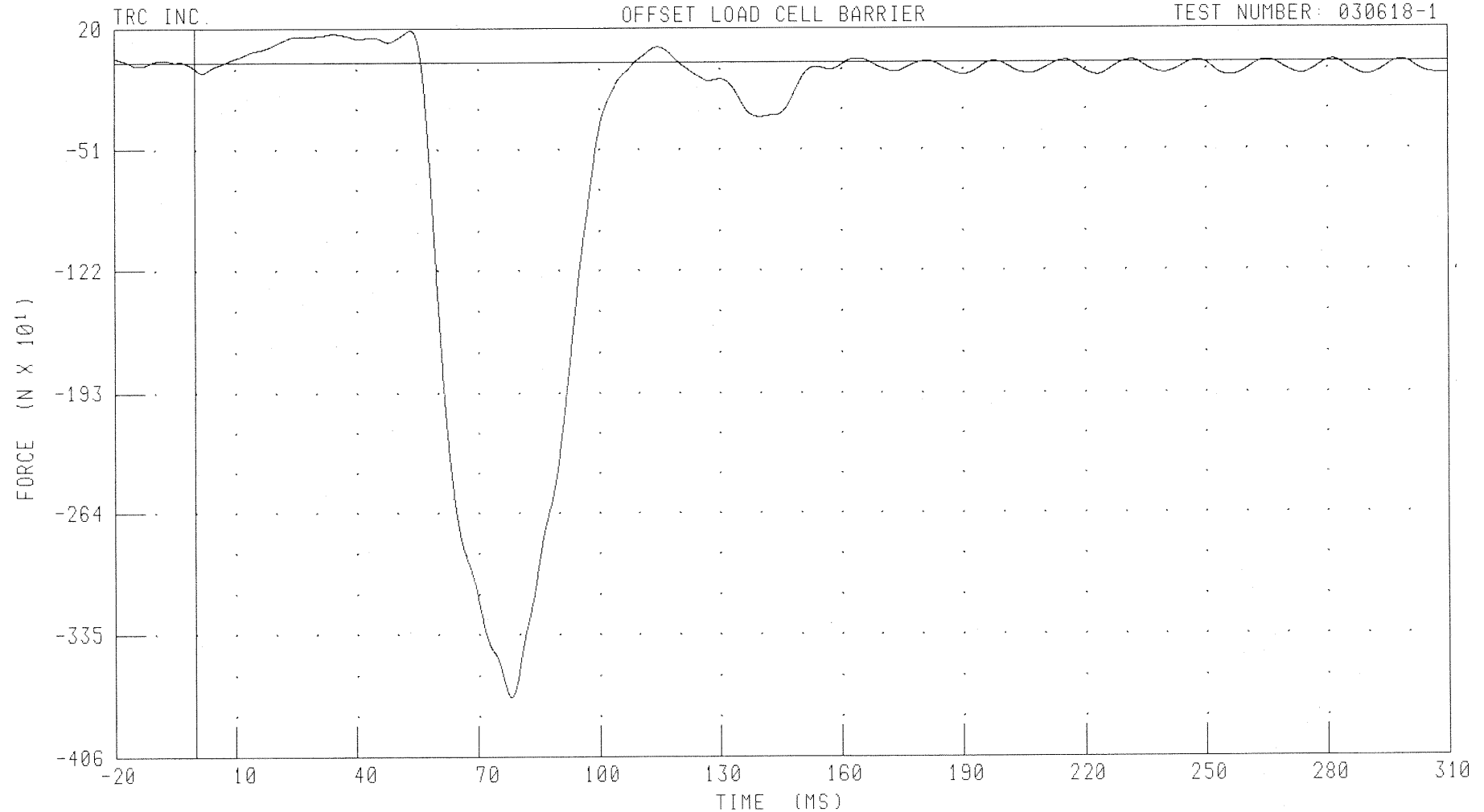
030618-1

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

BARRIER LOAD CELL B1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCB1XF FILTER: CH. CLASS 60

PEAK DATA: 189.18 N @ 53.44 MS; -3712.34 N @ 78.08 MS

B-201

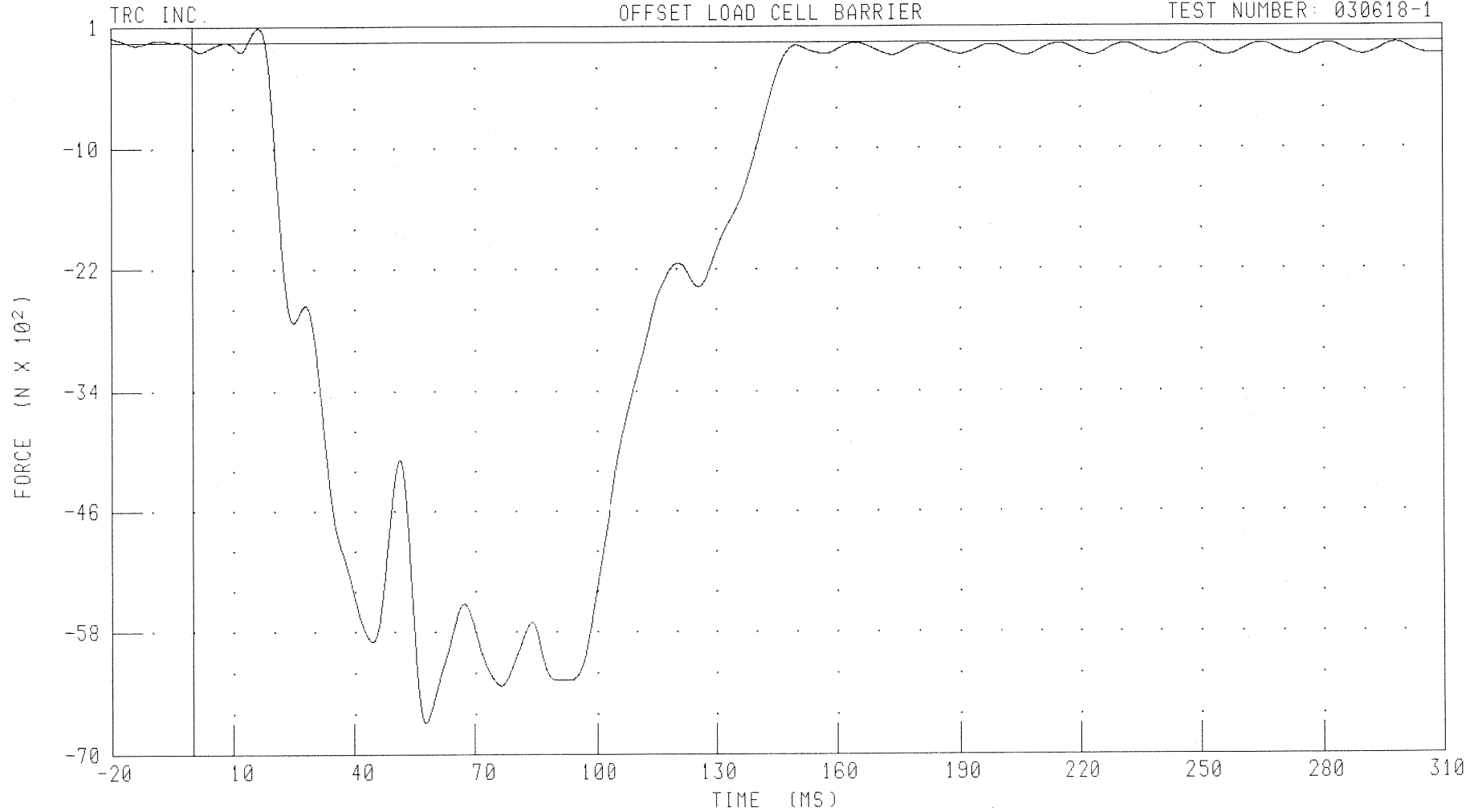
030618-1

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

BARRIER LOAD CELL B2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCB2XF FILTER: CH. CLASS 60

PEAK DATA: 138.20 N @ 16.32 MS, -6738.20 N @ 57.76 MS

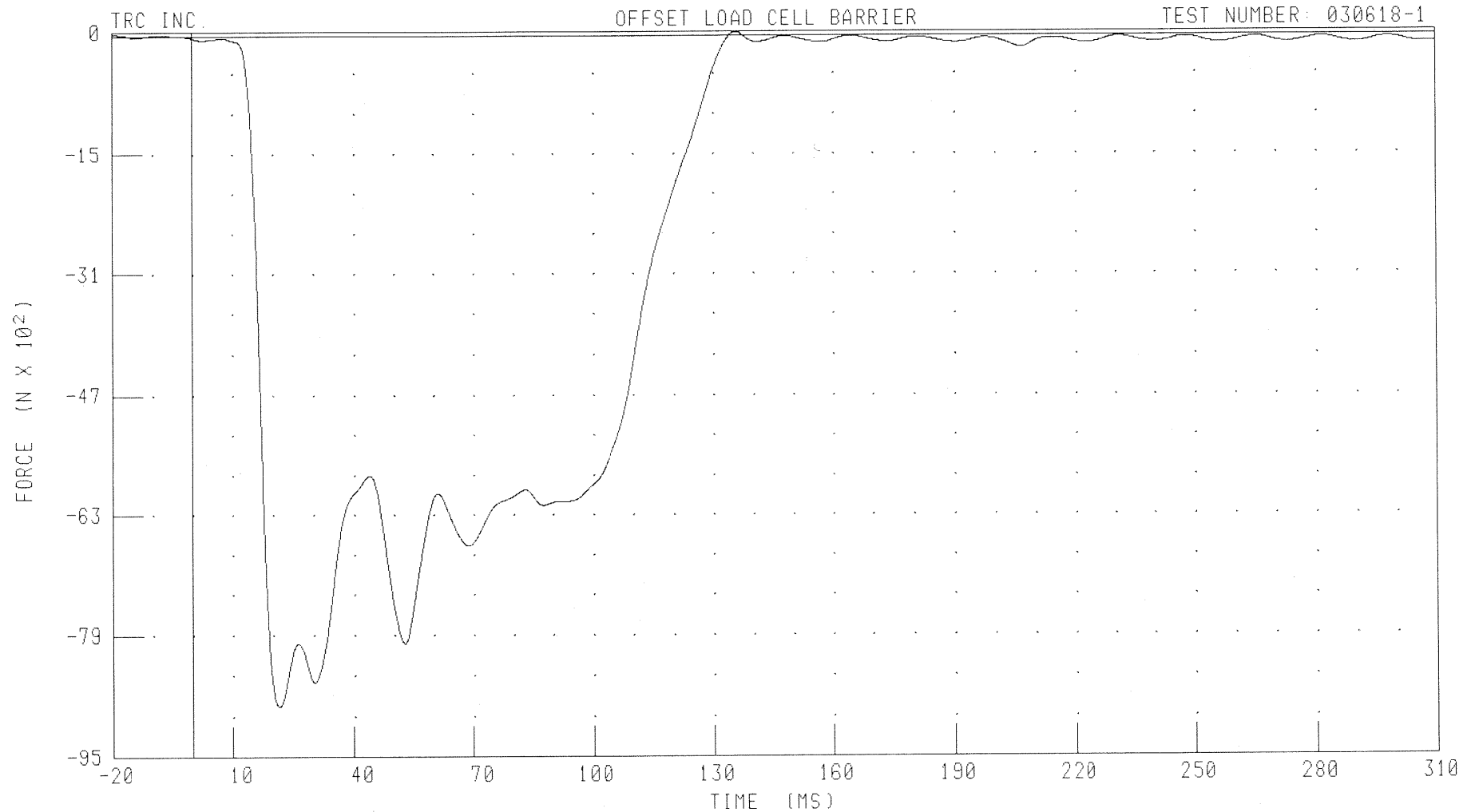
B-202

030618-1

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

BARRIER LOAD CELL B3 X-AXIS FORCE

TEST NUMBER: 030618-1



CHANNEL: LCB3XF FILTER: CH. CLASS 60

PEAK DATA: 45.42 N @ 135.60 MS, -88.94 N @ 21.60 MS

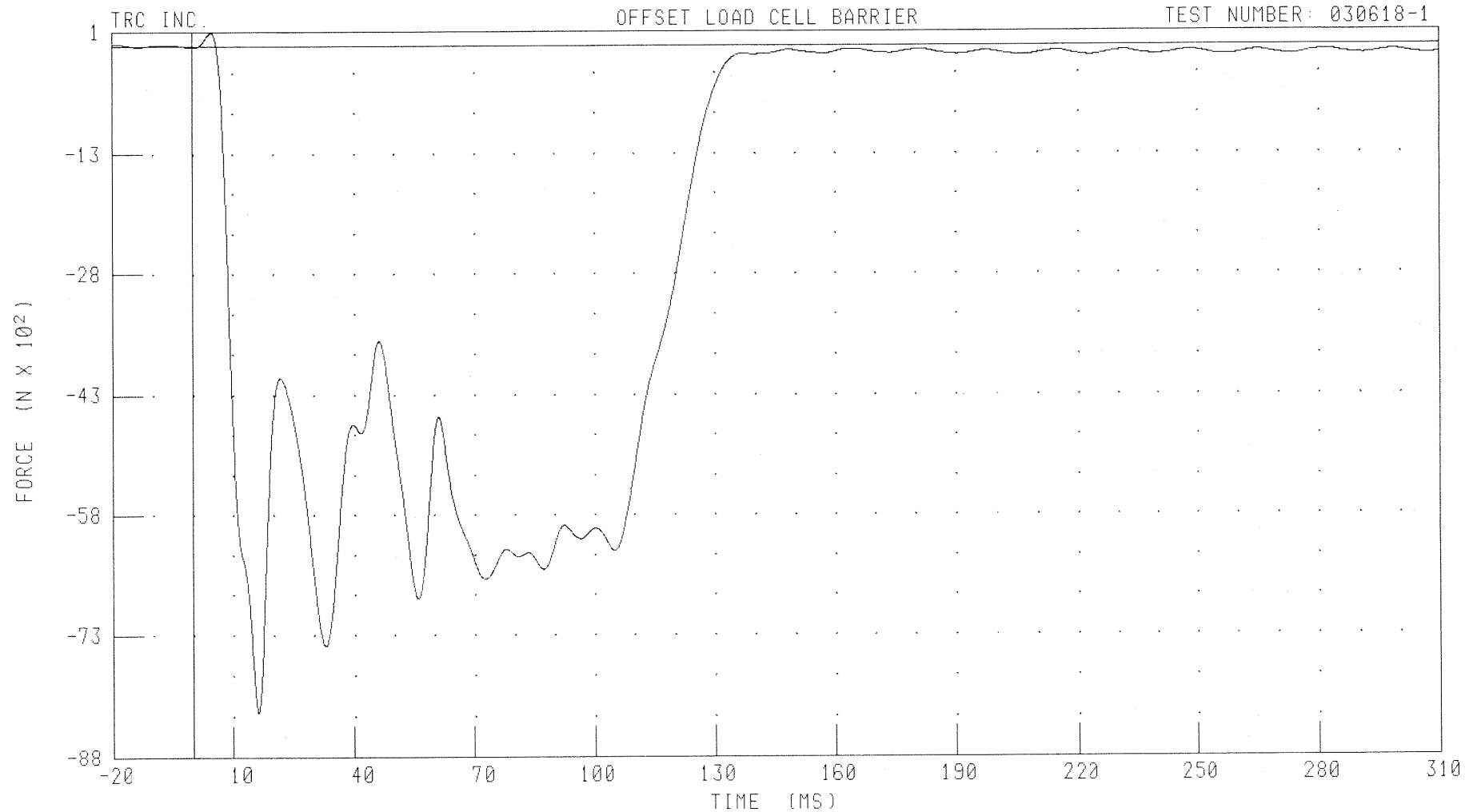
B-203

030618-1

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H
BARRIER LOAD CELL B4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCB4XF FILTER: CH. CLASS 60

PEAK DATA: 162.40 N @ 4.72 MS; -8284.27 N @ 16.24 MS

B-204

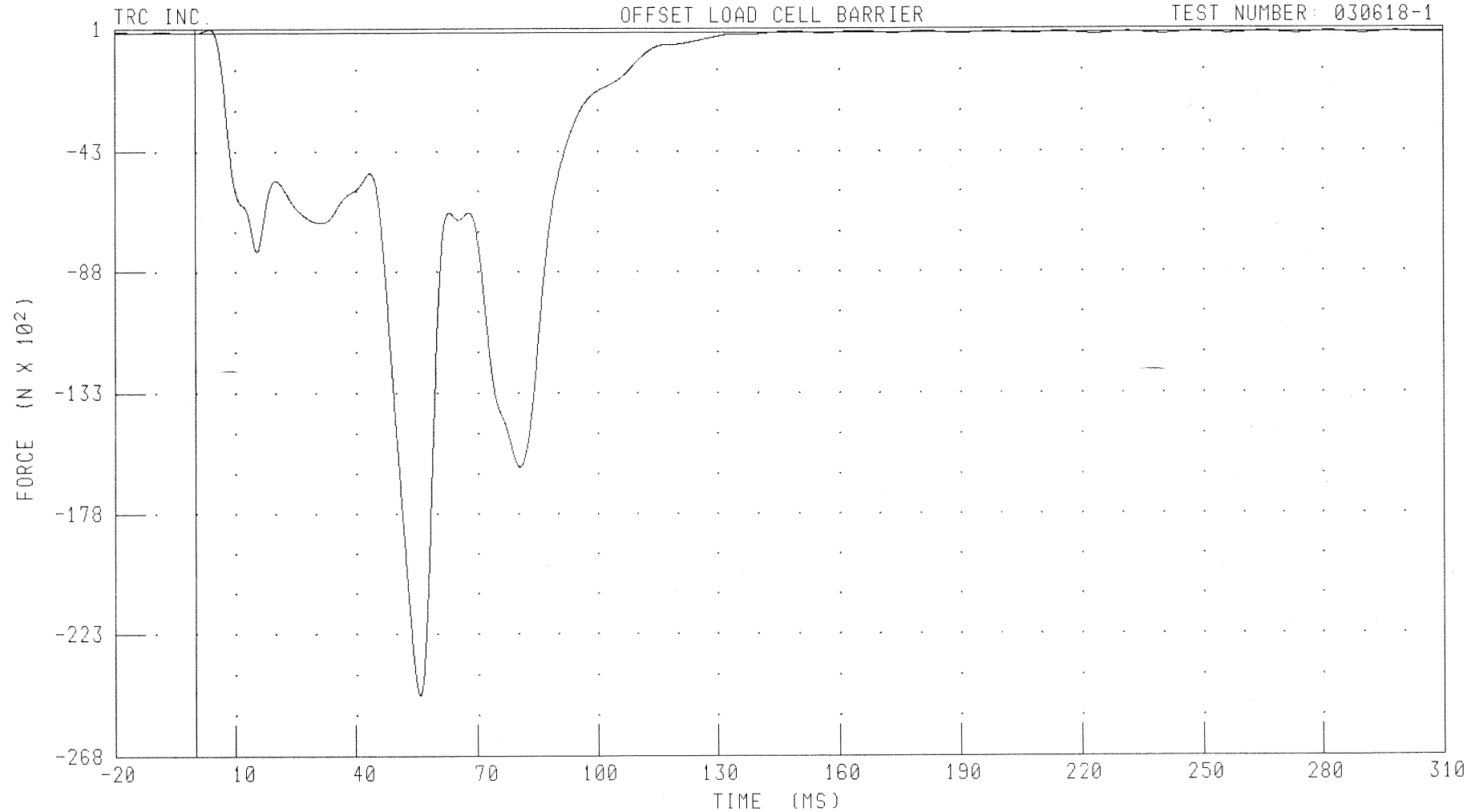
030618-1

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

BARRIER LOAD CELL B5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCB5XF FILTER: CH. CLASS 60

PEAK DATA: 126.48 N @ 3.52 MS; -24652.91 N @ 55.84 MS

B-205

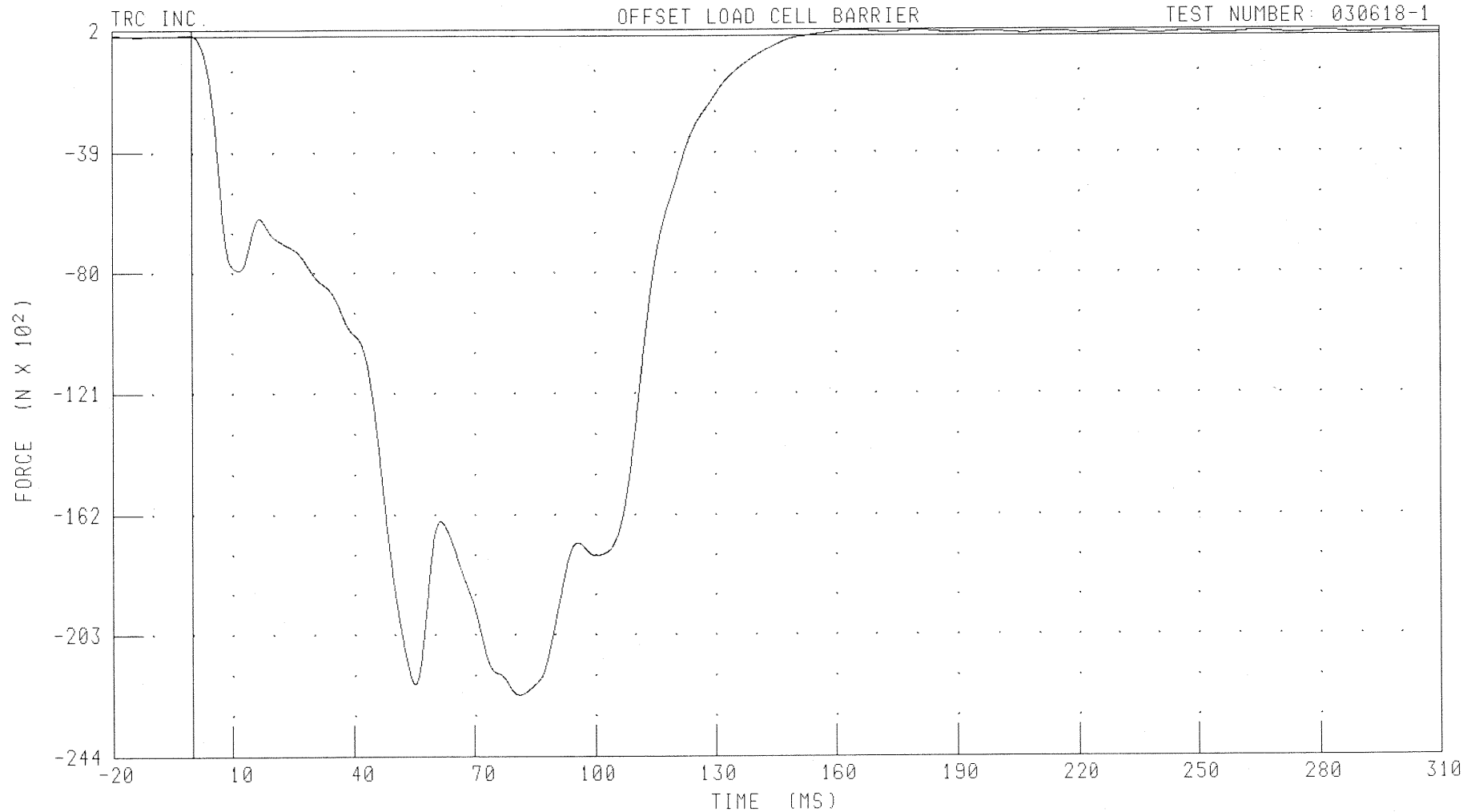
030618-1

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

BARRIER LOAD CELL B6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCB6XF

FILTER: CH. CLASS 60

PEAK DATA: 188.17 N @ 164.40 MS; -22339.99 N @ 81.20 MS

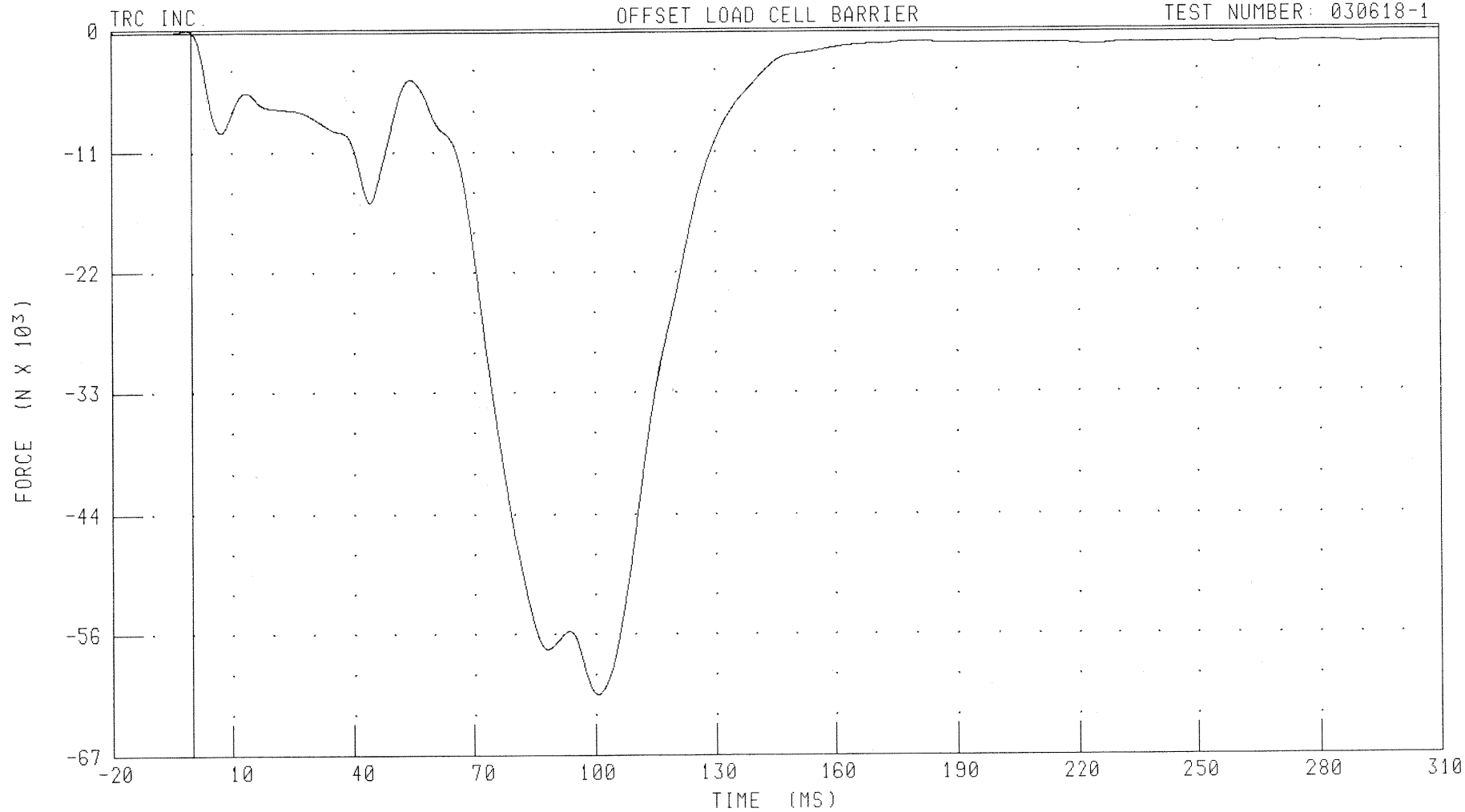
B-206

030618-1

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

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCB7XF FILTER: CH. CLASS 60

PEAK DATA: 229.34 N @ -1.12 MS; -61905.38 N @ 100.72 MS

B-207

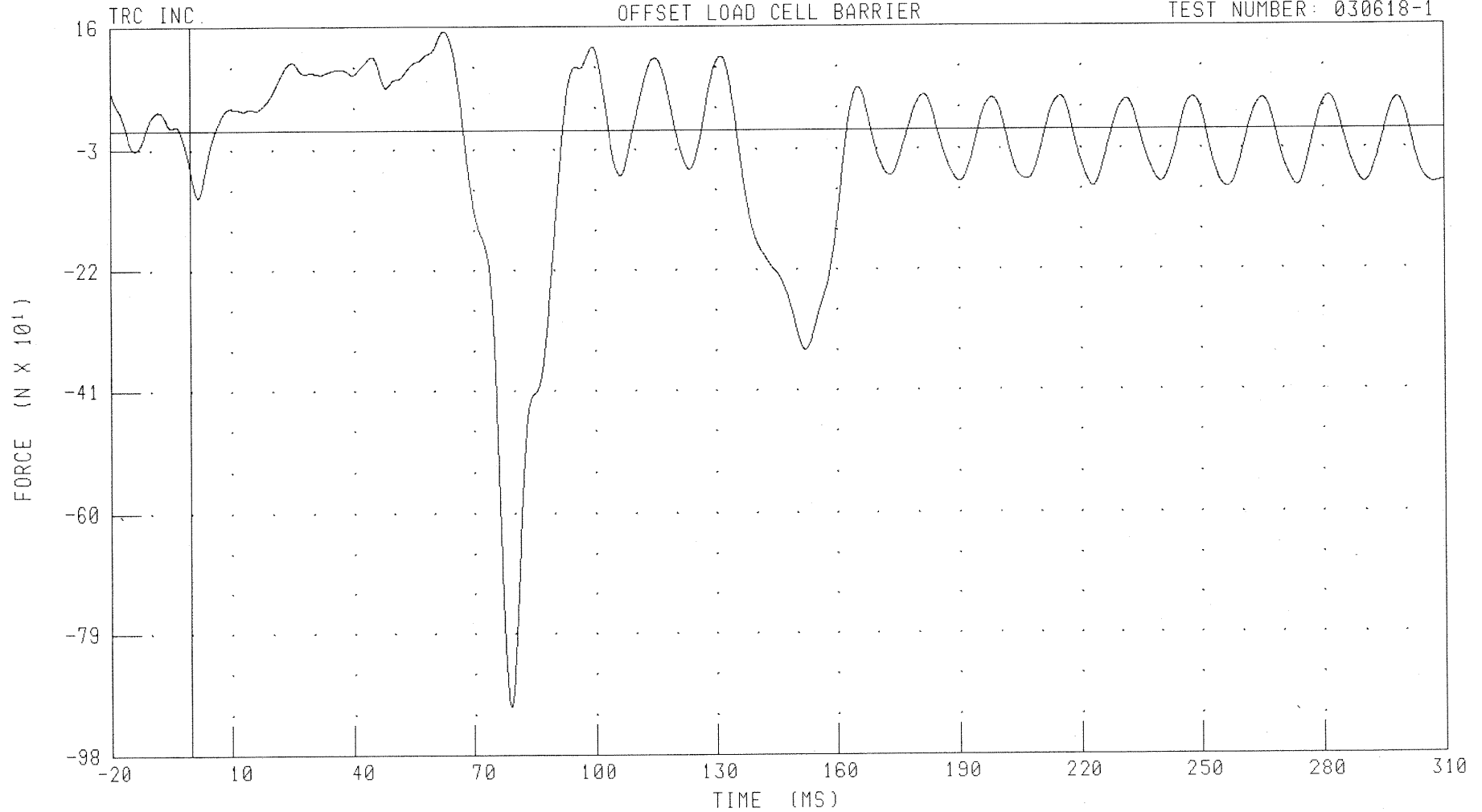
030618-1

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

BARRIER LOAD CELL C1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCC1XF FILTER: CH. CLASS 60

PEAK DATA: 153.00 N @ 62.72 MS; -904.65 N @ 79.12 MS

B-208

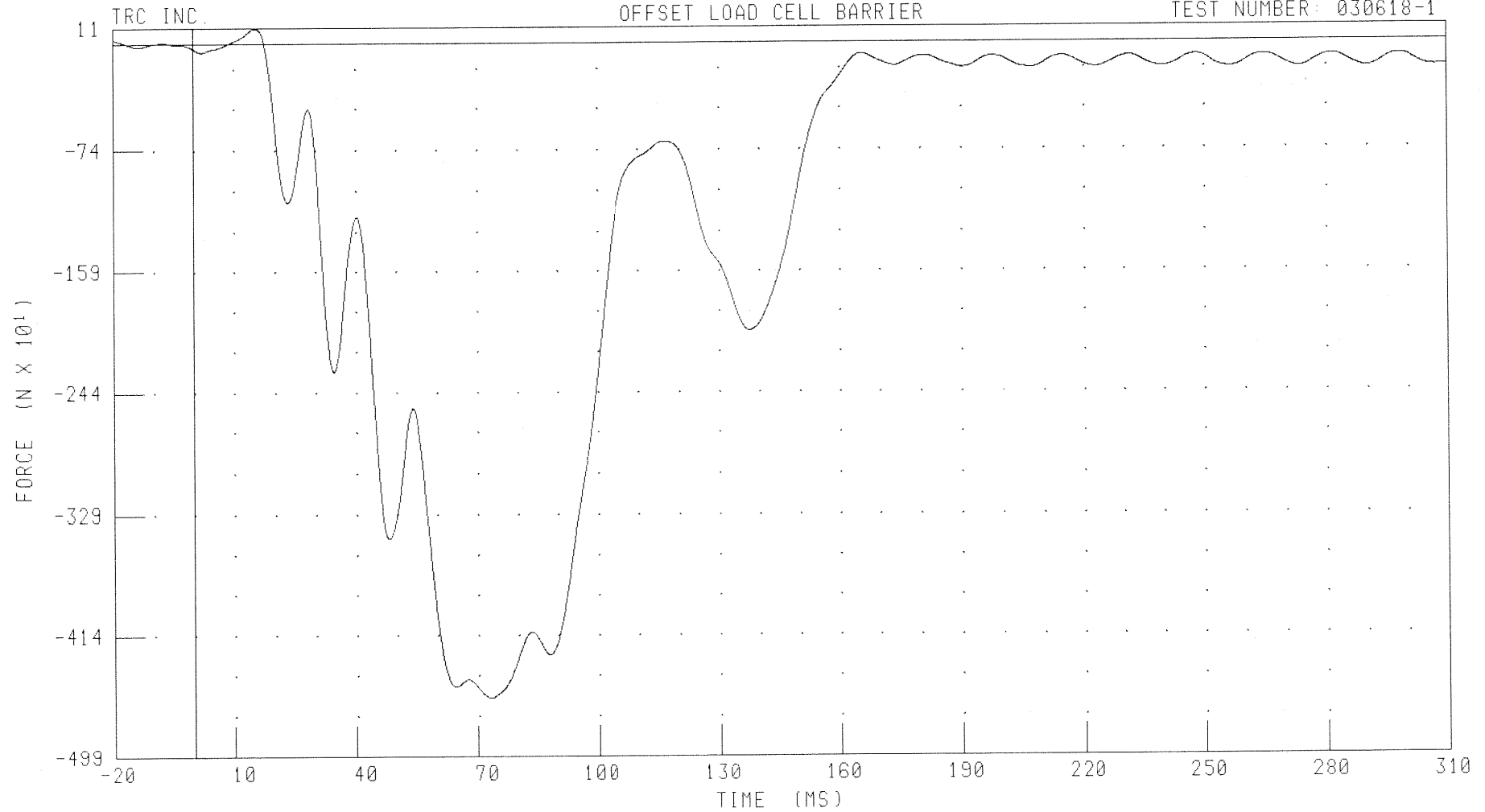
030618-1

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

BARRIER LOAD CELL C2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCC2XF

FILTER: CH. CLASS 60

PEAK DATA: 108.33 N @ 15.44 MS; -4582.39 N @ 73.20 MS

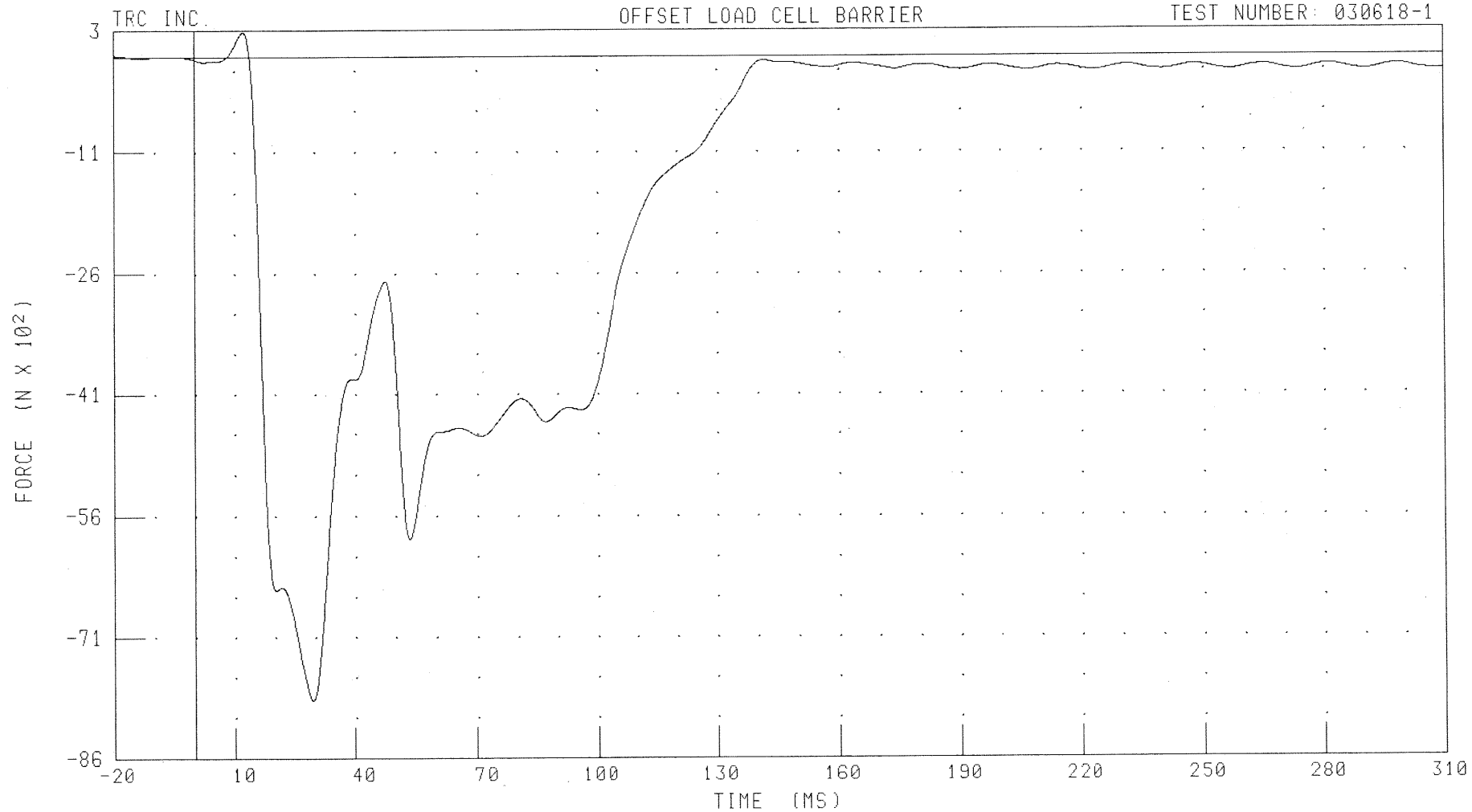
B-209

030618-1

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H
BARRIER LOAD CELL C3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCC3XF

FILTER: CH. CLASS 60

PEAK DATA: 304.94 N @ 12.24 MS; -7961.25 N @ 29.44 MS

B-210

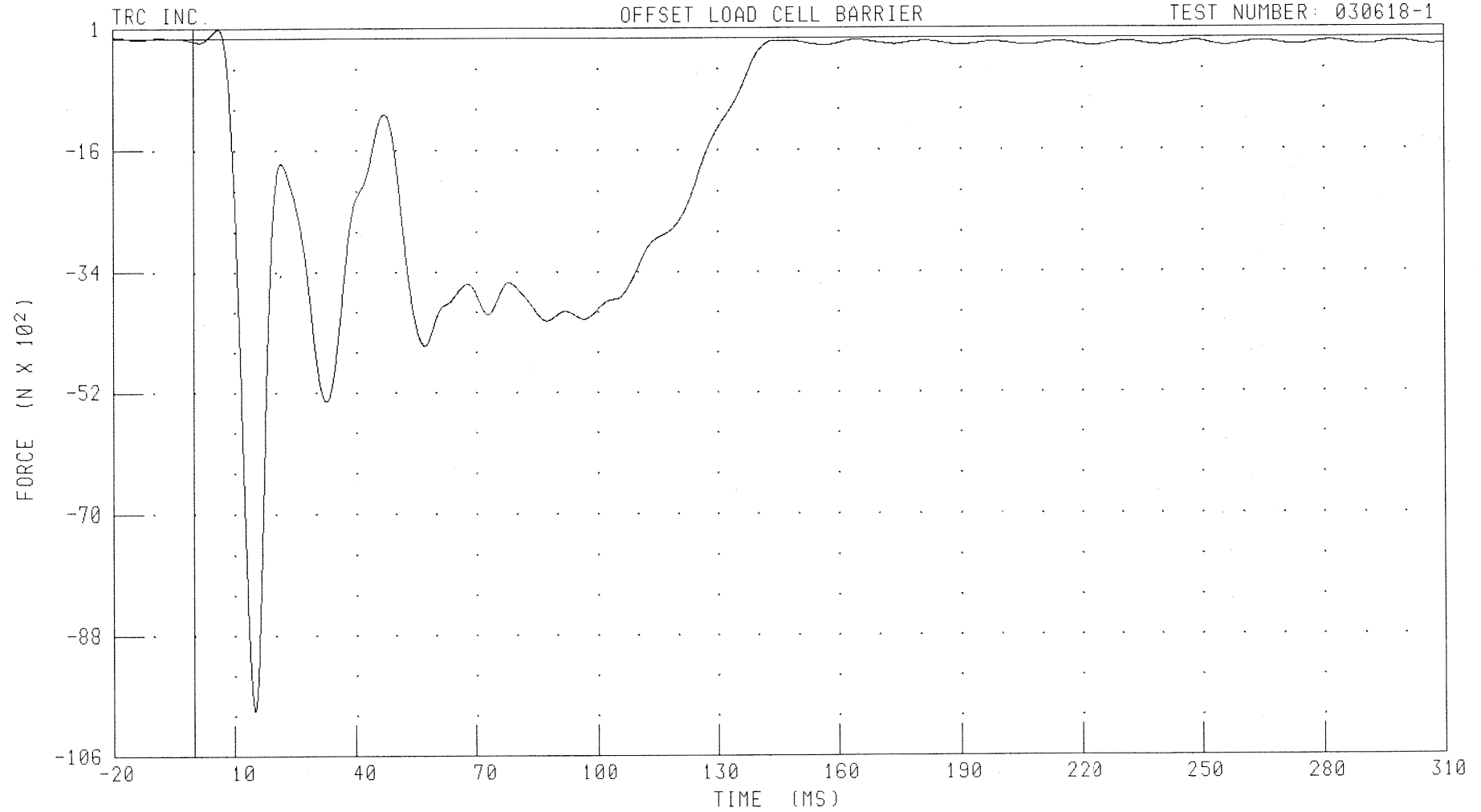
030618-1

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

BARRIER LOAD CELL C4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCC4XF

FILTER: CH. CLASS 60

PEAK DATA: 142.13 N @ 608 MS; -9982.87 N @ 14.96 MS

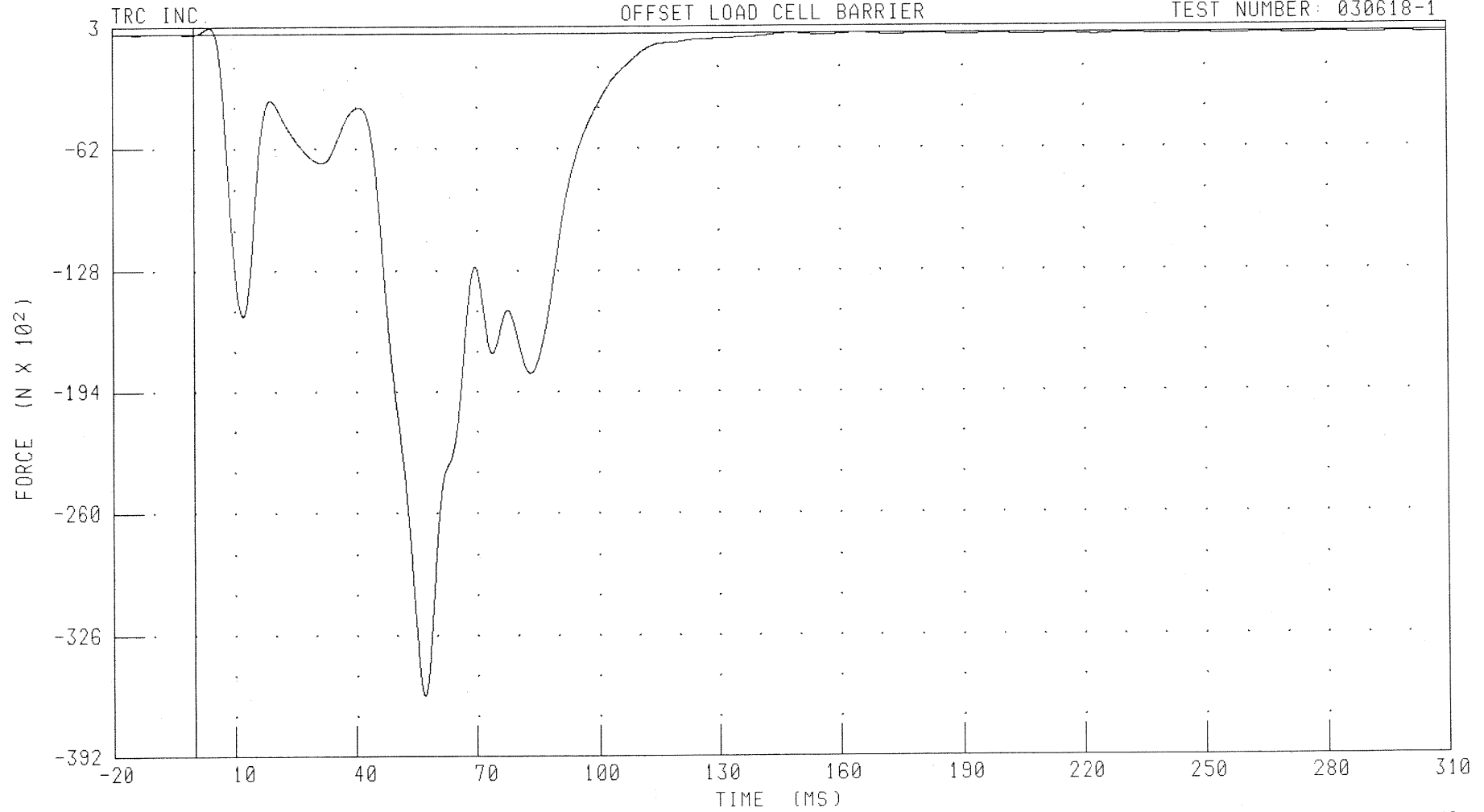
B-211

030618-1

2002 NISSAN ALTIMA INTO 40% LEFT OFFSET LOAD CELL BARRIER AT 60 KM/H
BARRIER LOAD CELL C5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LC05XF FILTER: CH. CLASS 60

PEAK DATA: 355.38 N @ 3.84 MS; -35942.59 N @ 57.04 MS

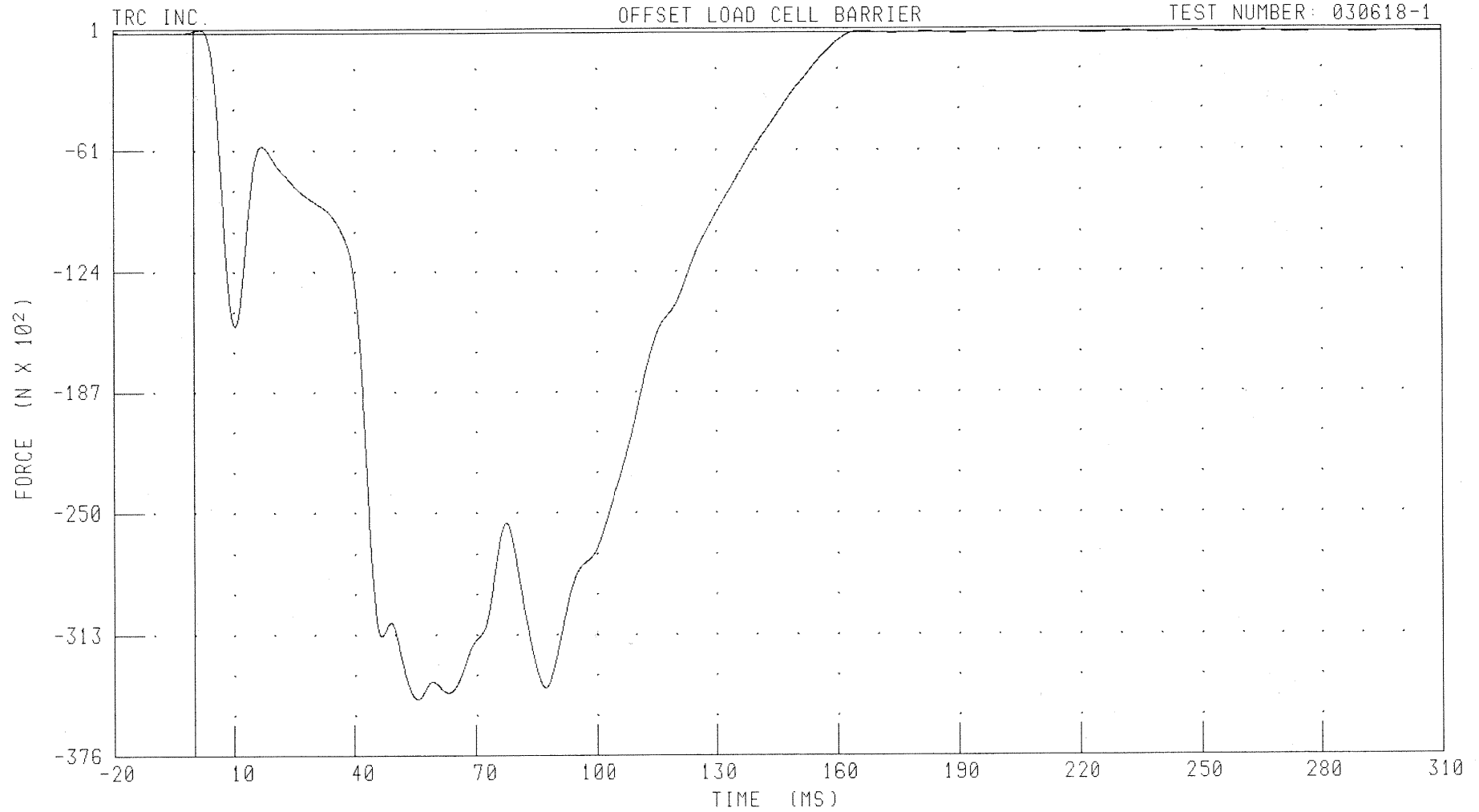
B-212

030618-1

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

BARRIER LOAD CELL C6 X-AXIS FORCE

TEST NUMBER: 030618-1



B-213

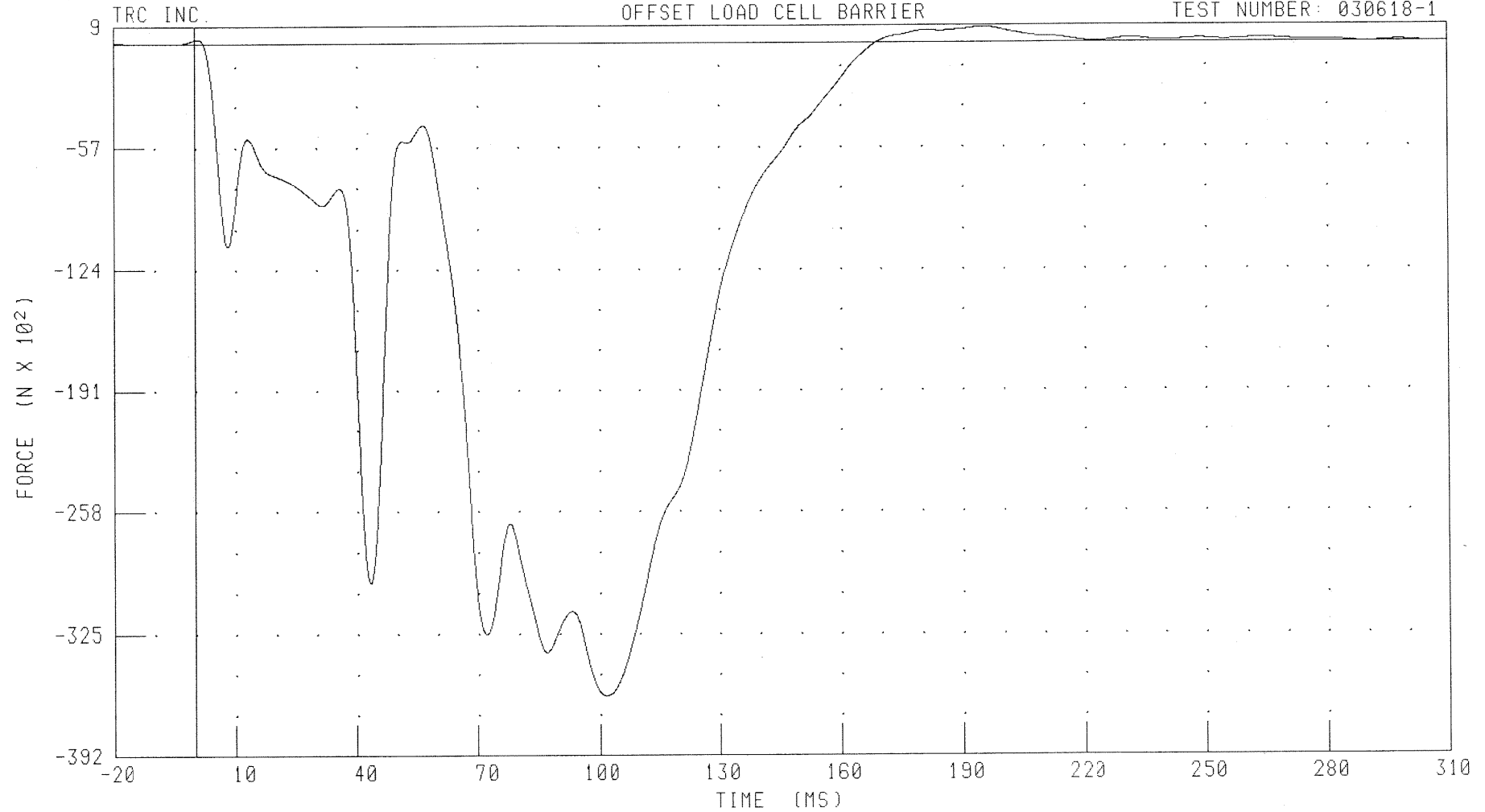
030618-1

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

BARRIER LOAD CELL C7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCC7XF

FILTER: CH. CLASS 60

PEAK DATA: 859.42 N @ 195.28 MS, -35966.97 N @ 101.52 MS

B-214

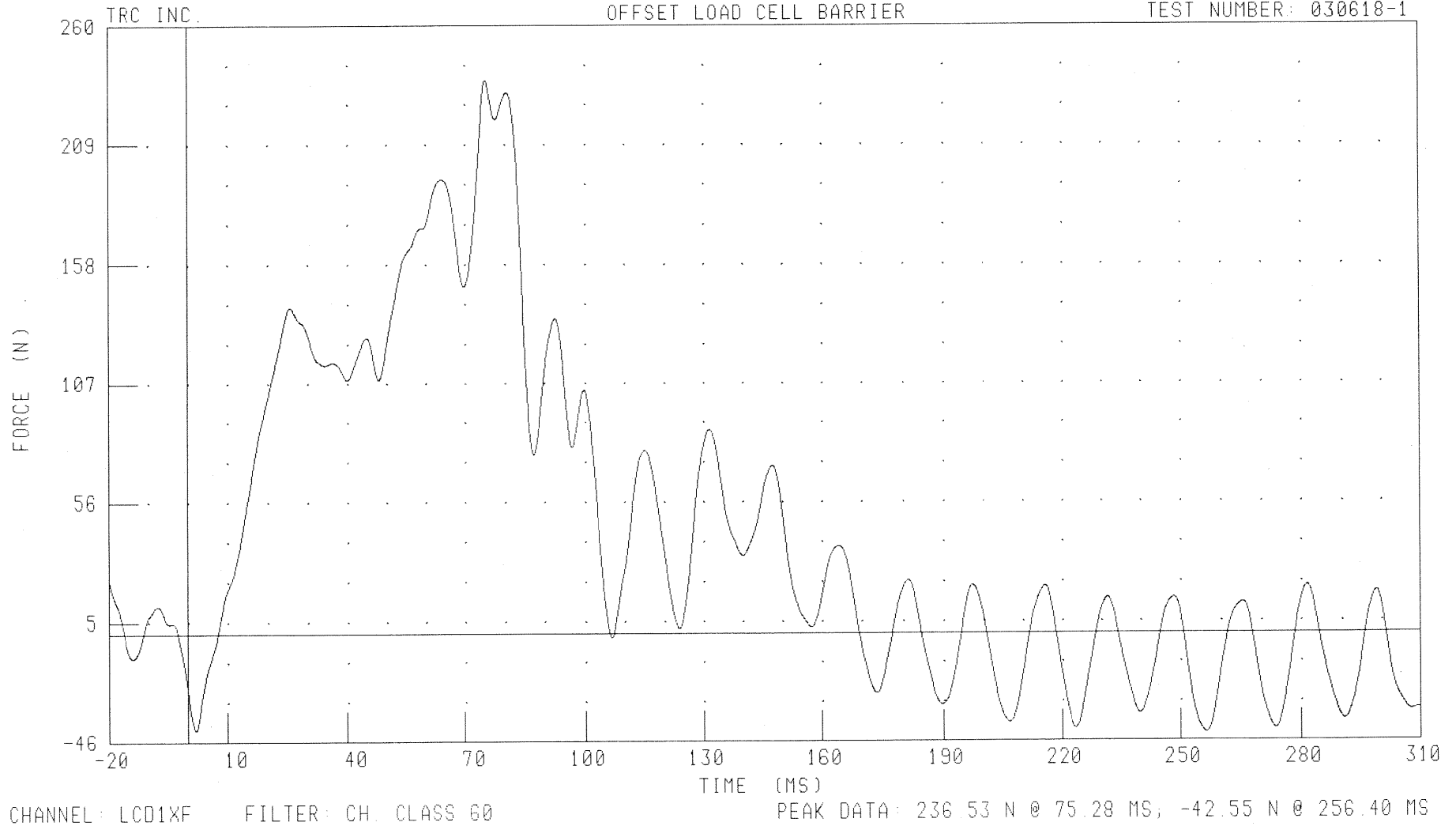
030618-1

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

BARRIER LOAD CELL D1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



B-215

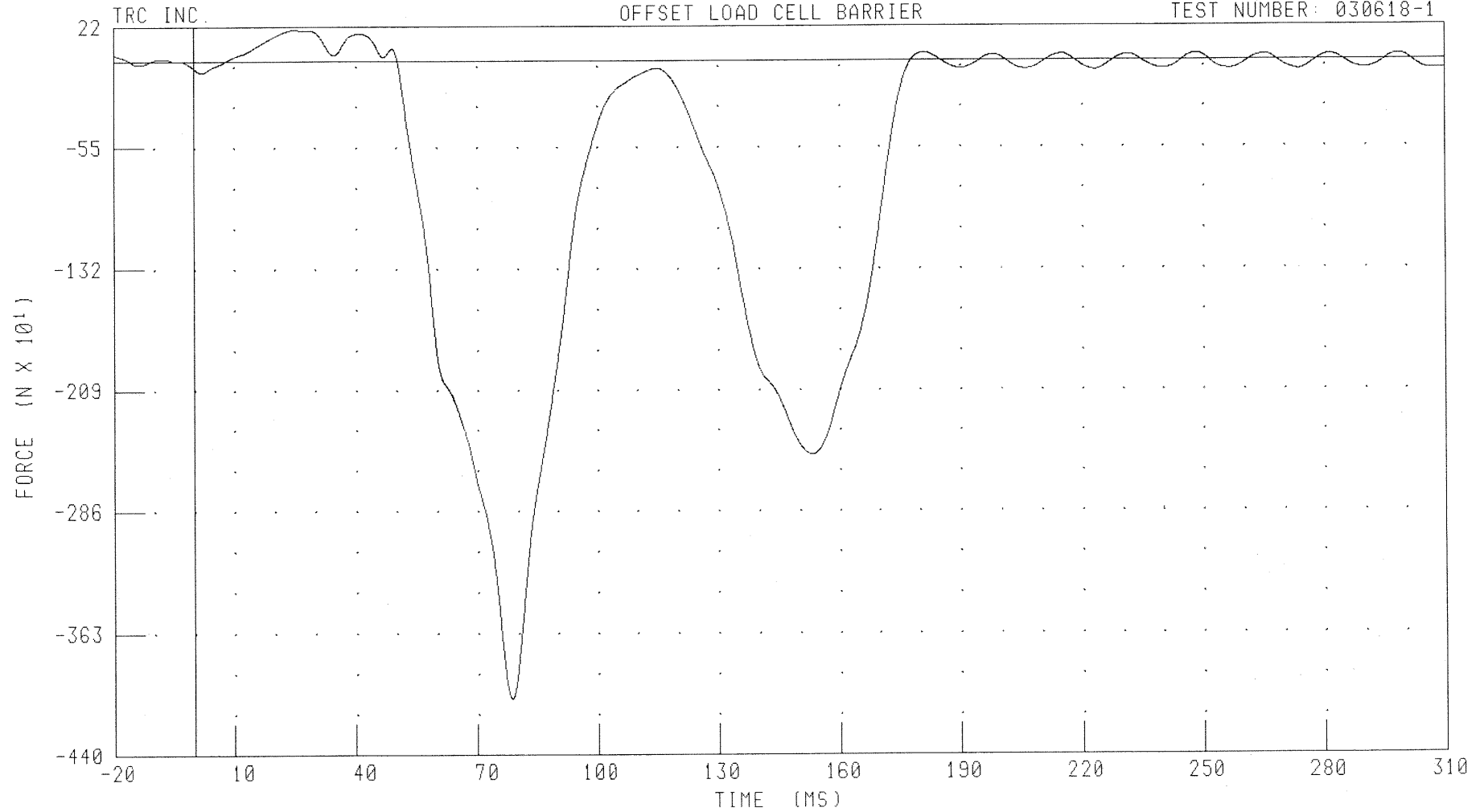
030618-1

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

BARRIER LOAD CELL D2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCD2XF

FILTER: CH. CLASS 60

PEAK DATA: 202.37 N @ 25.12 MS; -4045.66 N @ 78.48 MS

B-216

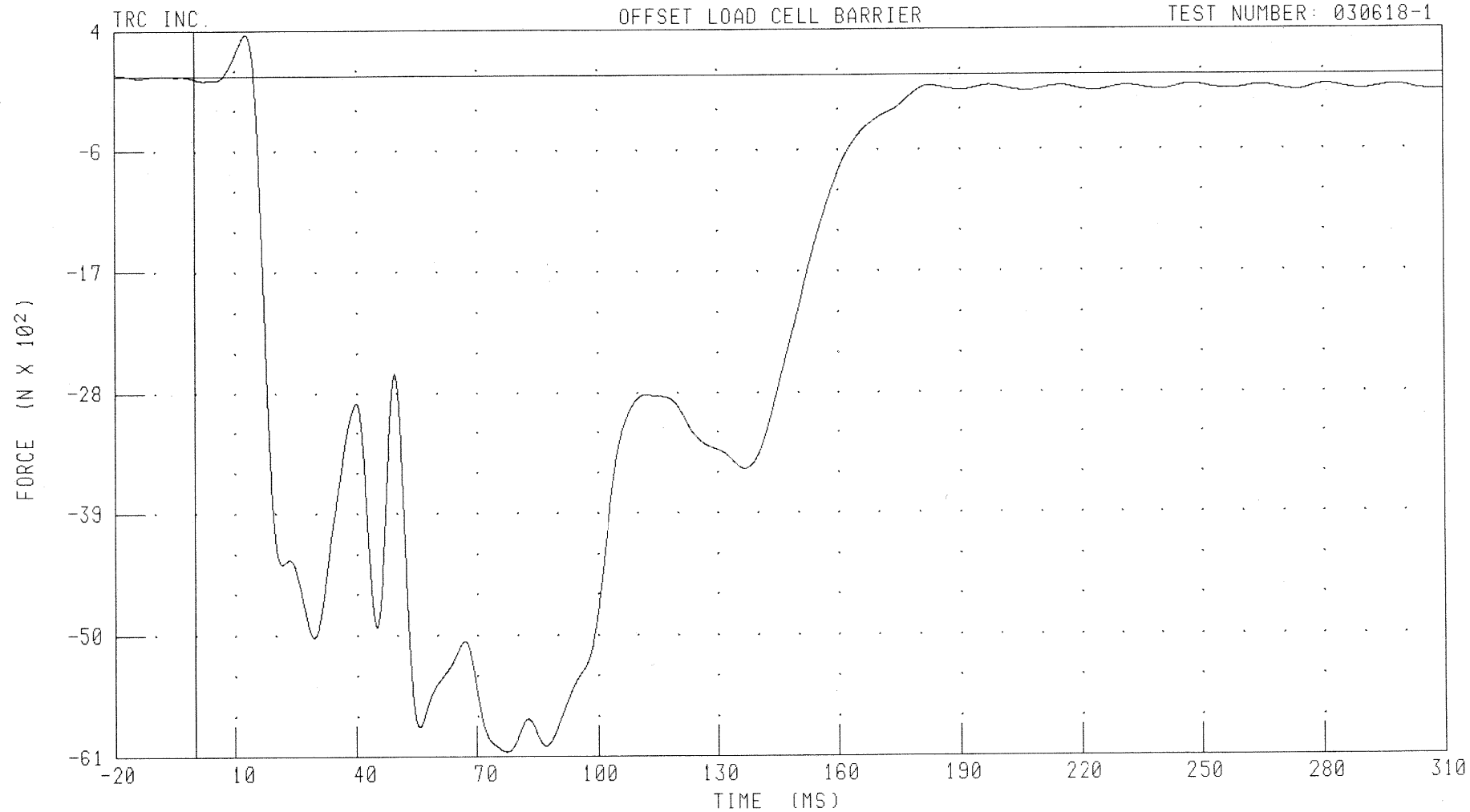
030618-1

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

BARRIER LOAD CELL D3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCD3XF FILTER: CH. CLASS 60

PEAK DATA: 384.42 N @ 12.80 MS; -6139.09 N @ 77.36 MS

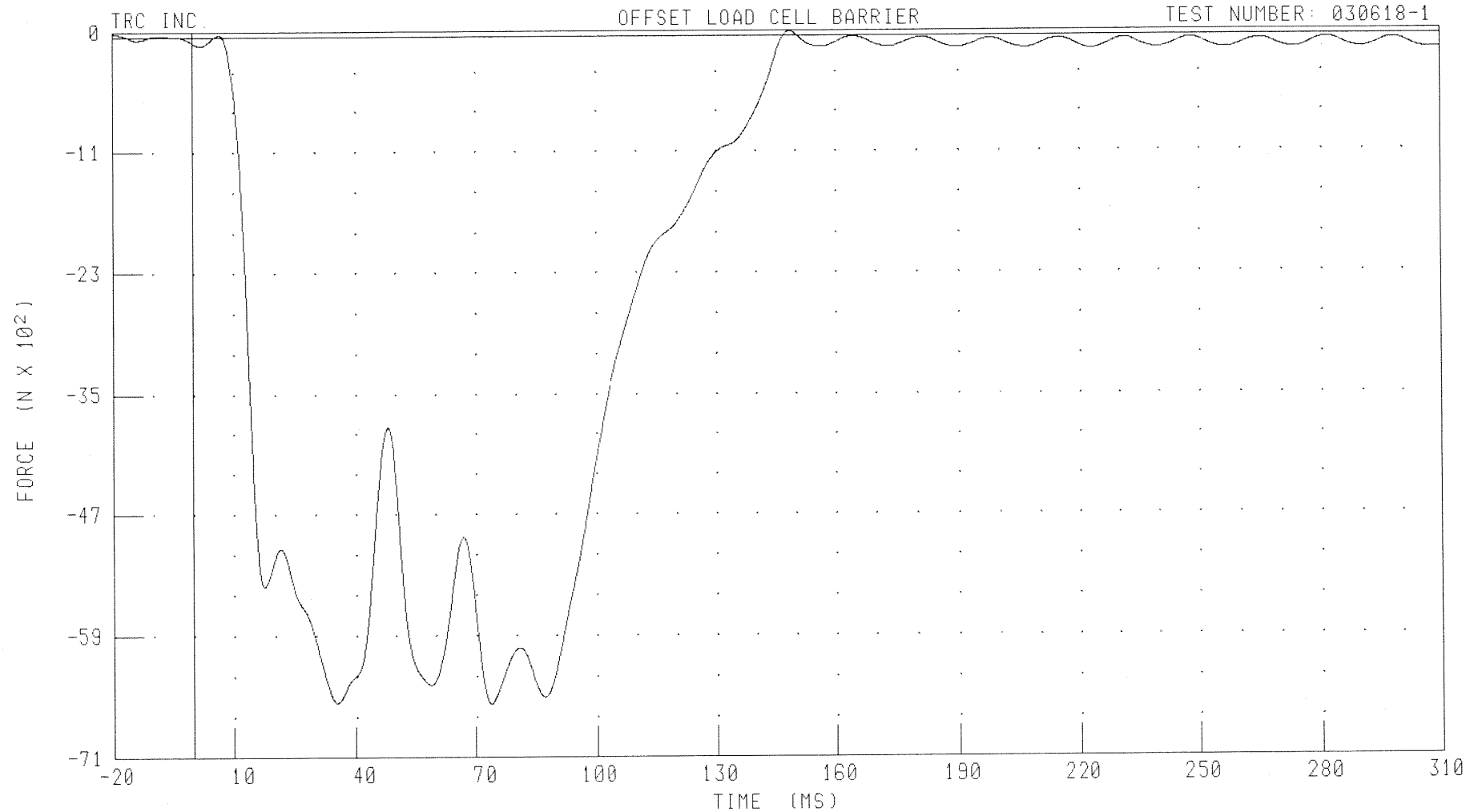
B-217

030618-1

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

BARRIER LOAD CELL D4 X-AXIS FORCE

TEST NUMBER: 030618-1



CHANNEL: LCD4XF FILTER: CH. CLASS 60

PEAK DATA: 45.78 N @ 148.72 MS; -6626.74 N @ 73.76 MS

B-218

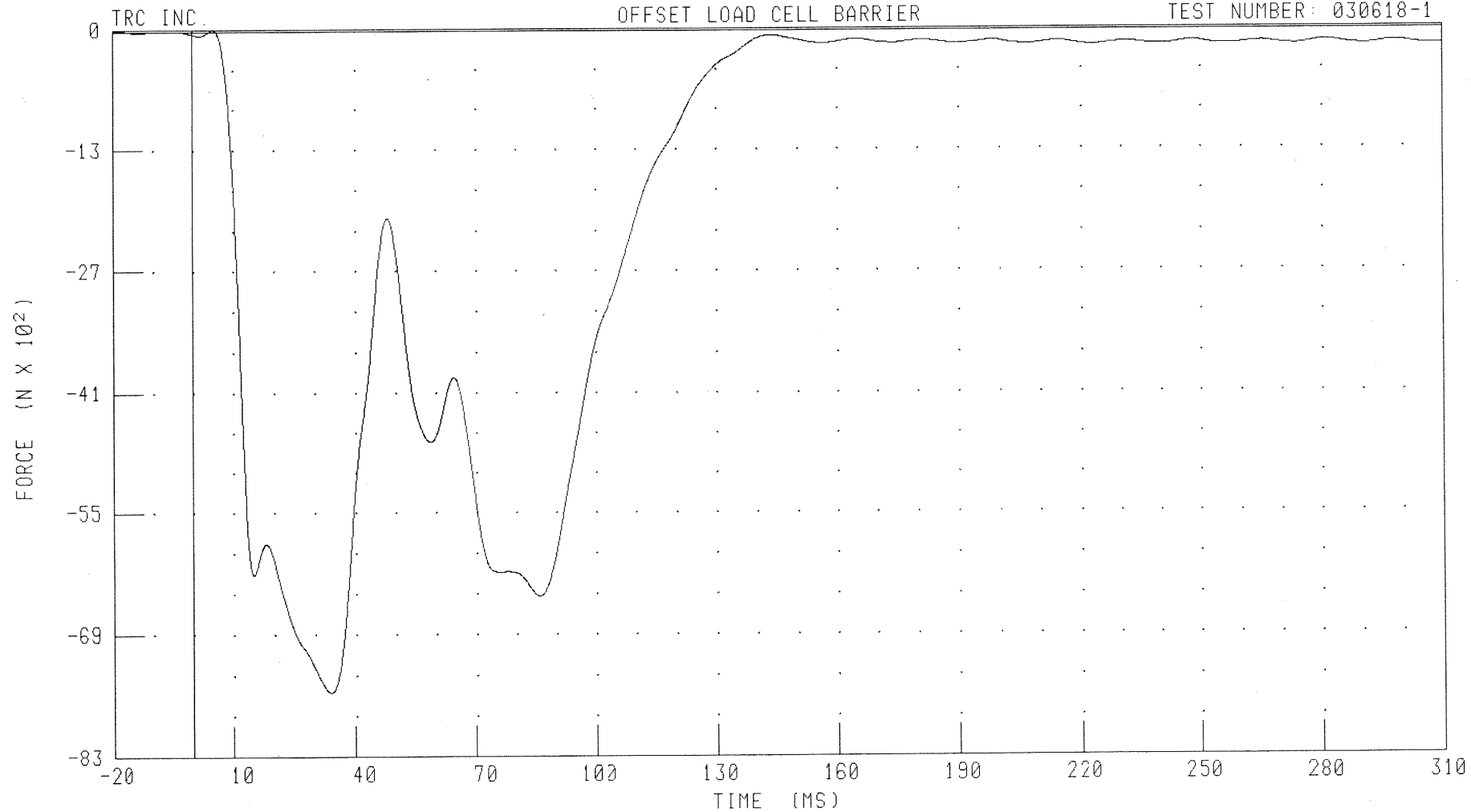
030618-1

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

BARRIER LOAD CELL D5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCD5XF FILTER: CH. CLASS 60

PEAK DATA: 19.96 N @ 5.04 MS; -7641.35 N @ 34.00 MS

B-219

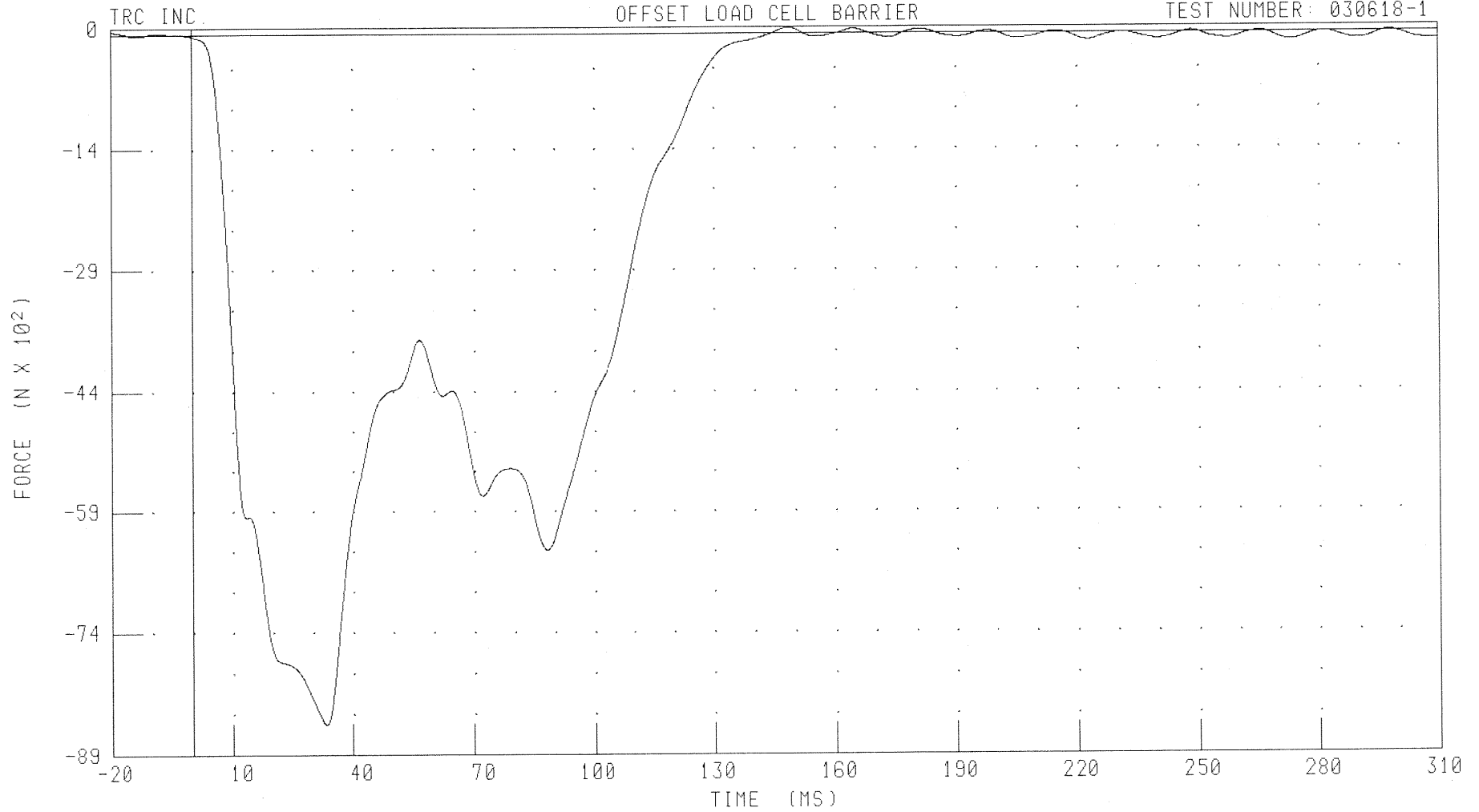
030618-1

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

BARRIER LOAD CELL D6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCD6XF FILTER: CH. CLASS 60

PEAK DATA: 64.63 N @ 148.72 MS; -8563.15 N @ 33.36 MS

B-220

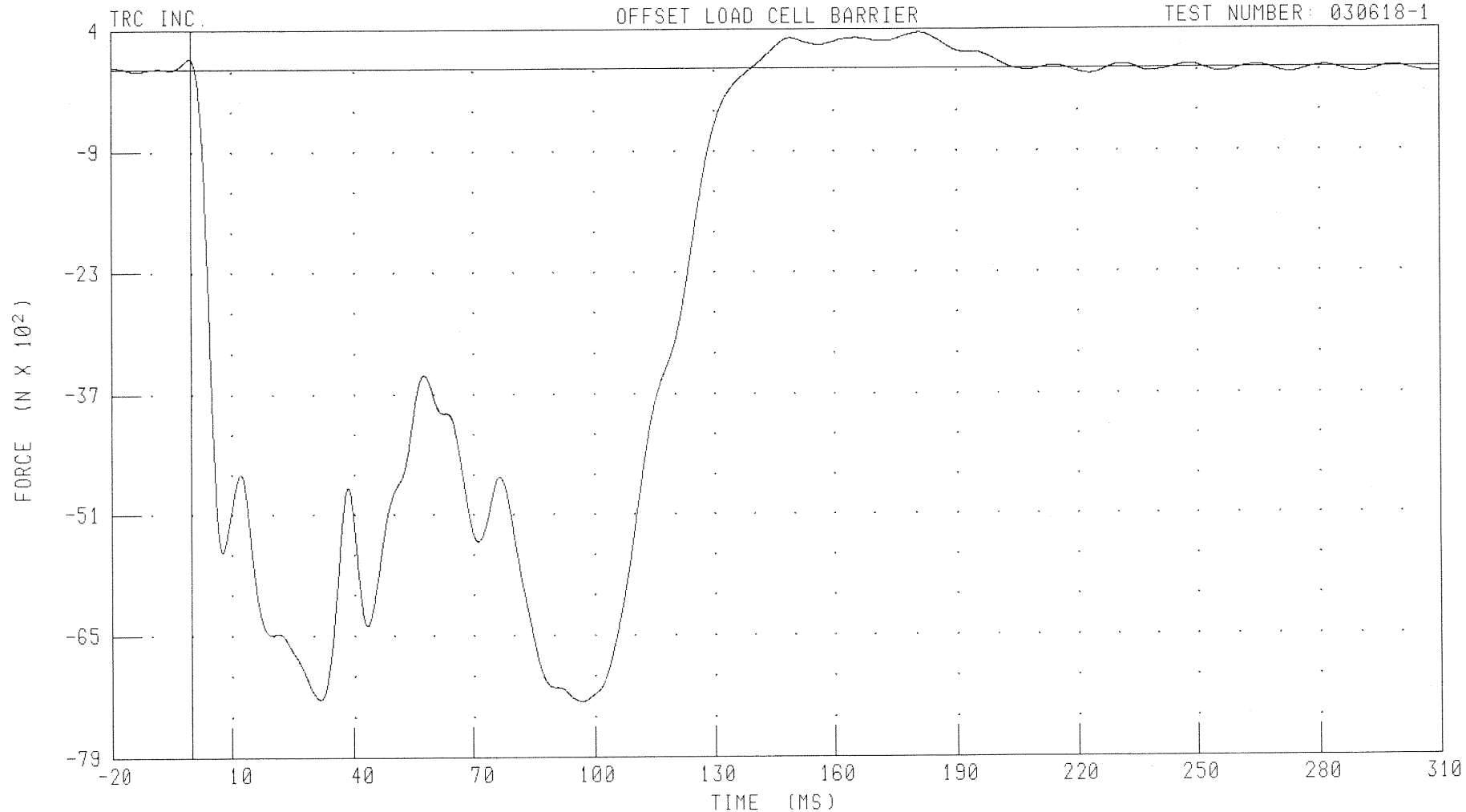
030618-1

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

BARRIER LOAD CELL D7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCD7XF FILTER: CH. CLASS 60

PEAK DATA: 402.66 N @ 181.04 MS; -7319.71 N @ 96.96 MS

B-221

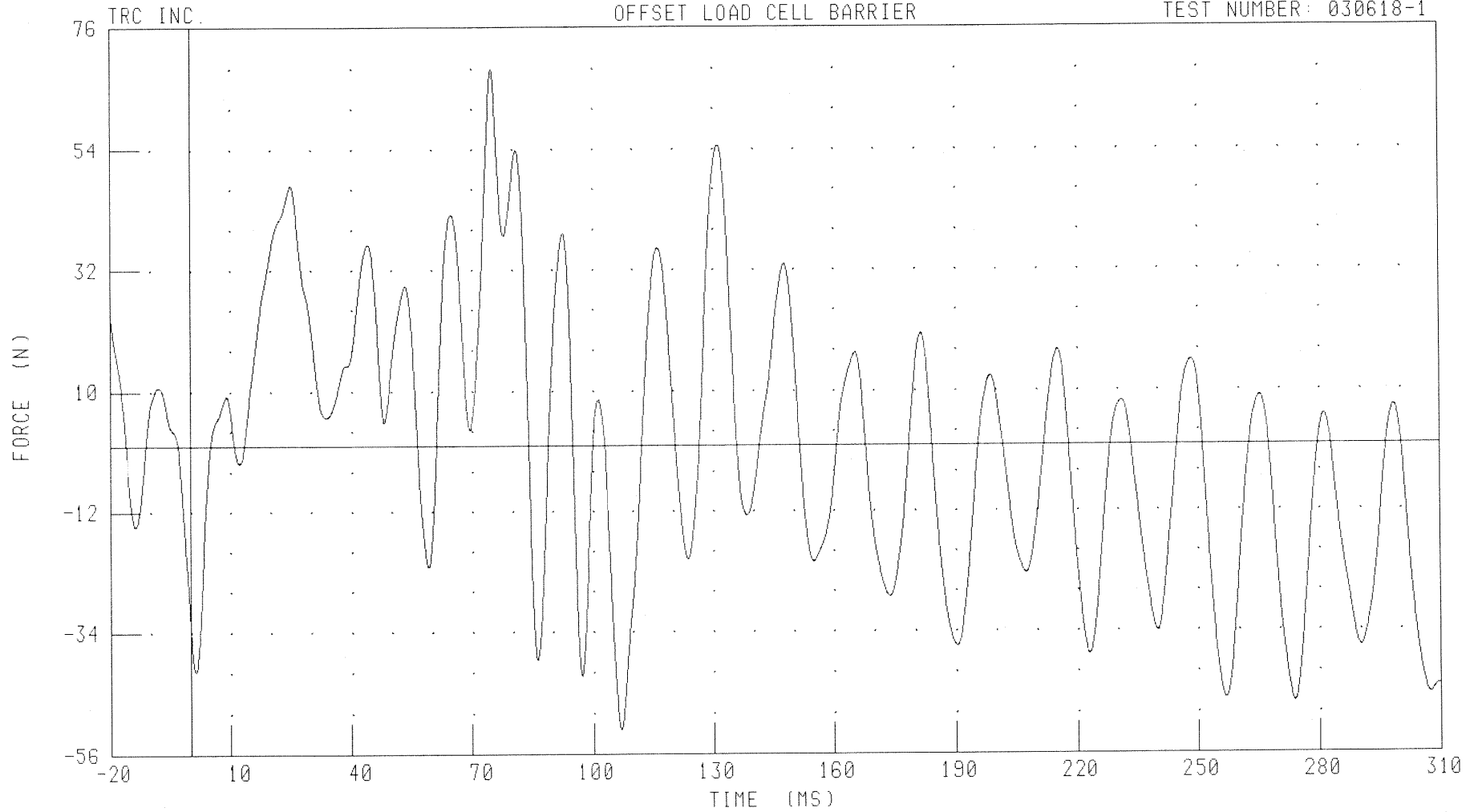
030618-1

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

BARRIER LOAD CELL E1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCE1XF FILTER: CH. CLASS 60

PEAK DATA: 68.54 N @ 74.96 MS, -51.52 N @ 107.04 MS

B-222

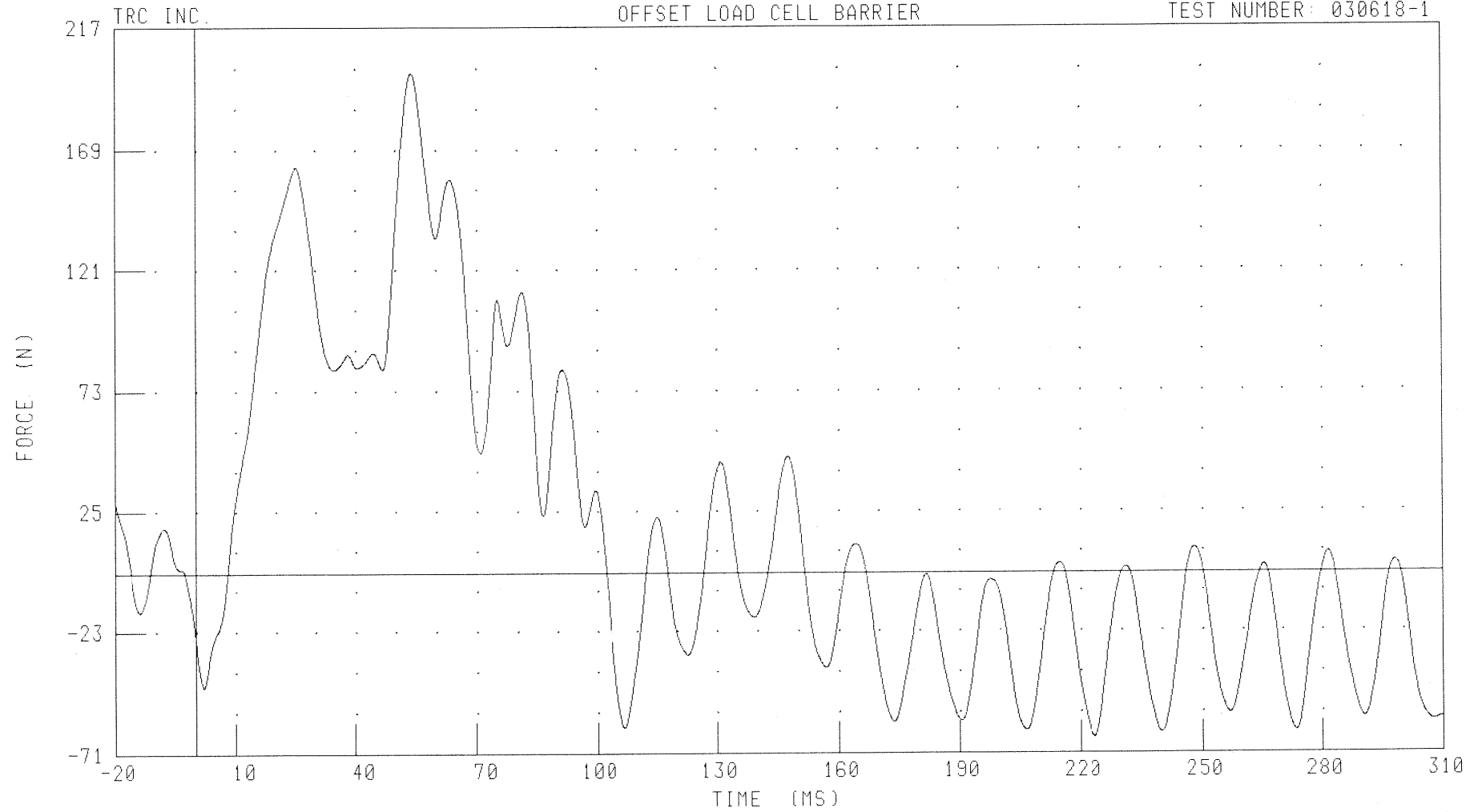
030618-1

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

BARRIER LOAD CELL E2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCE2XF FILTER: CH. CLASS 60

PEAK DATA: 199.31 N @ 54.00 MS; -64.77 N @ 223.36 MS

B-223

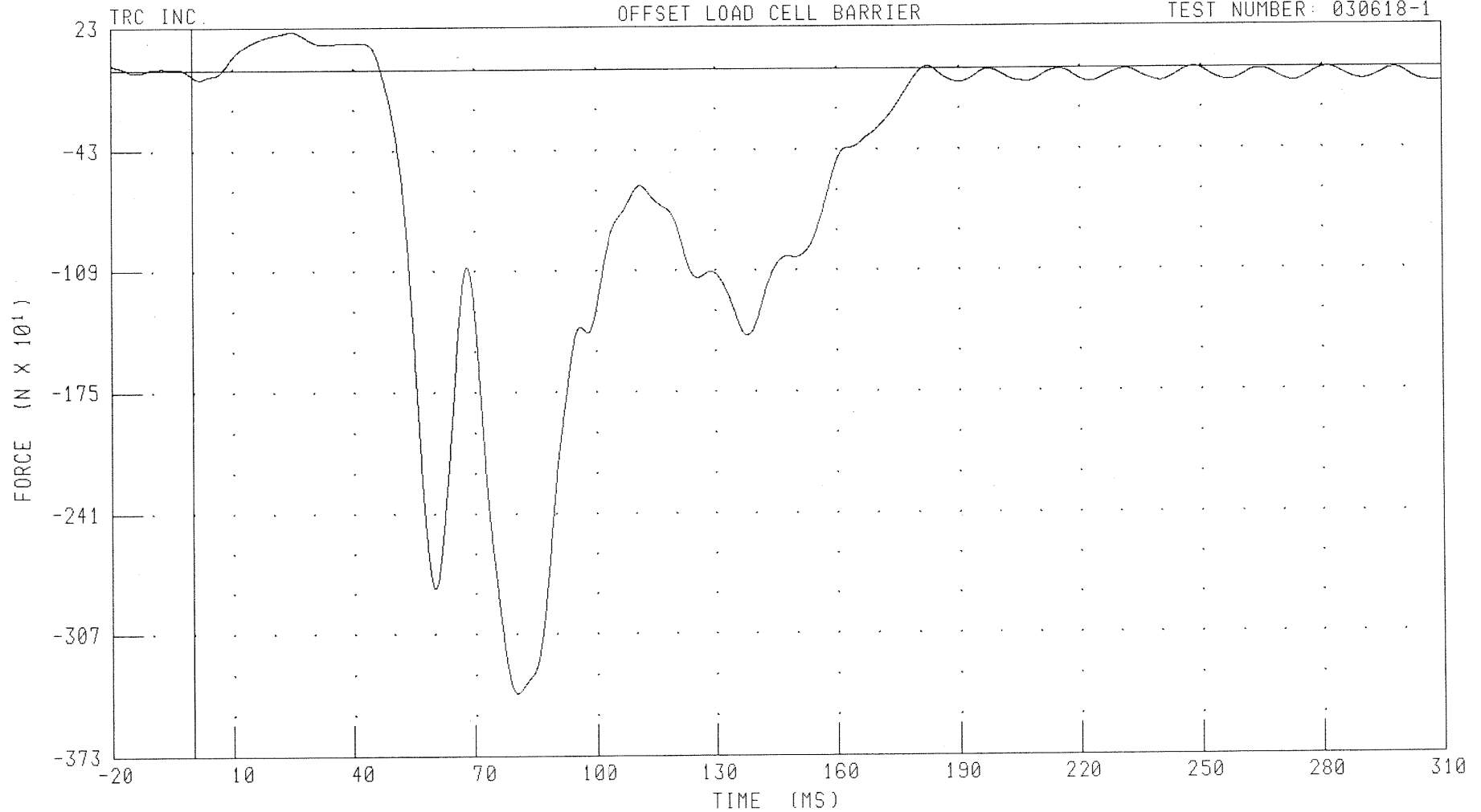
030618-1

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

BARRIER LOAD CELL E3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCE3XF FILTER: CH. CLASS 60

PEAK DATA: 209.59 N @ 24.88 MS, -339.48 N @ 80.40 MS

B-224

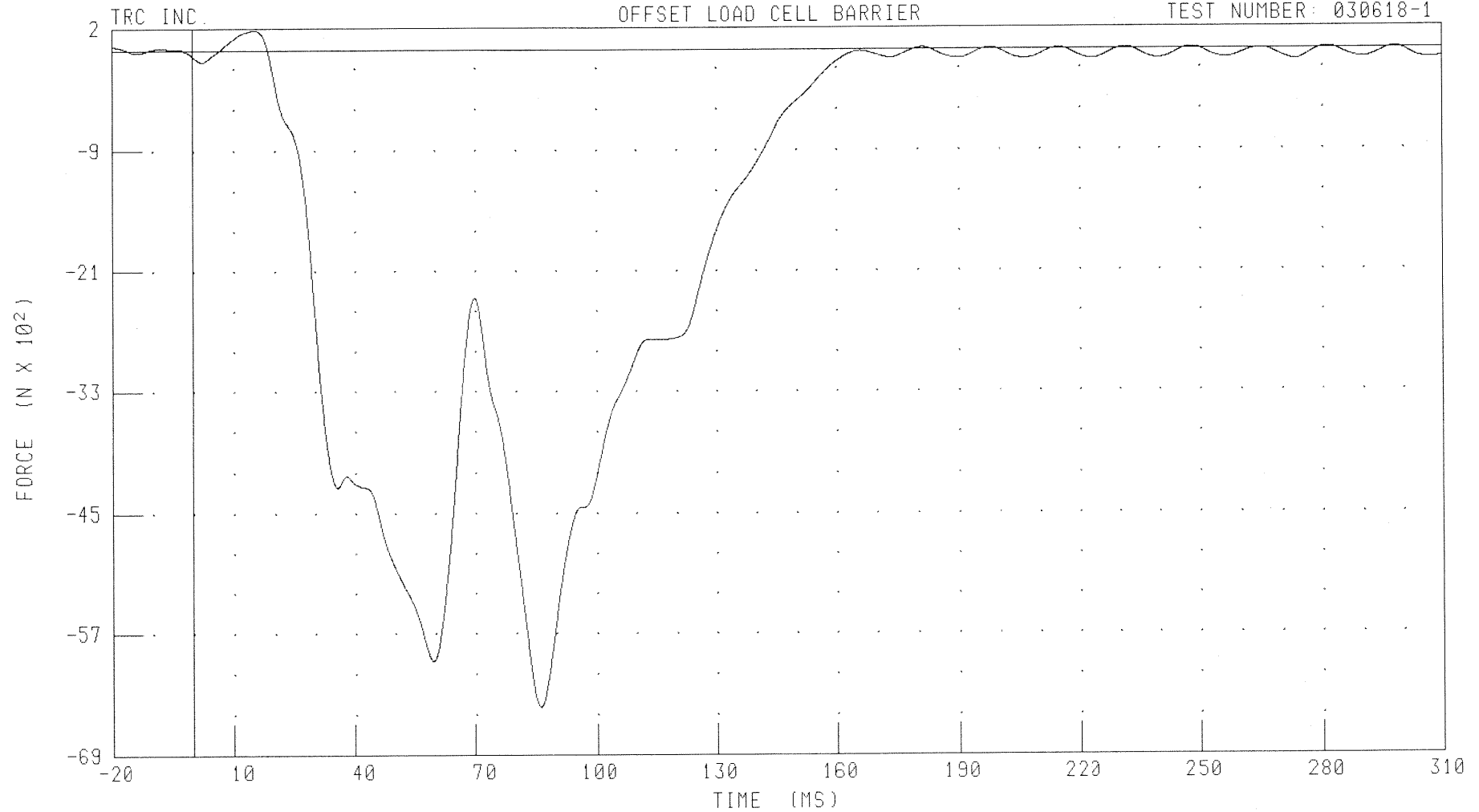
030618-1

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

BARRIER LOAD CELL E4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCE4XF

FILTER: CH. CLASS 60

PEAK DATA: 203.00 N @ 15.20 MS; -6509.12 N @ 86.08 MS

B-225

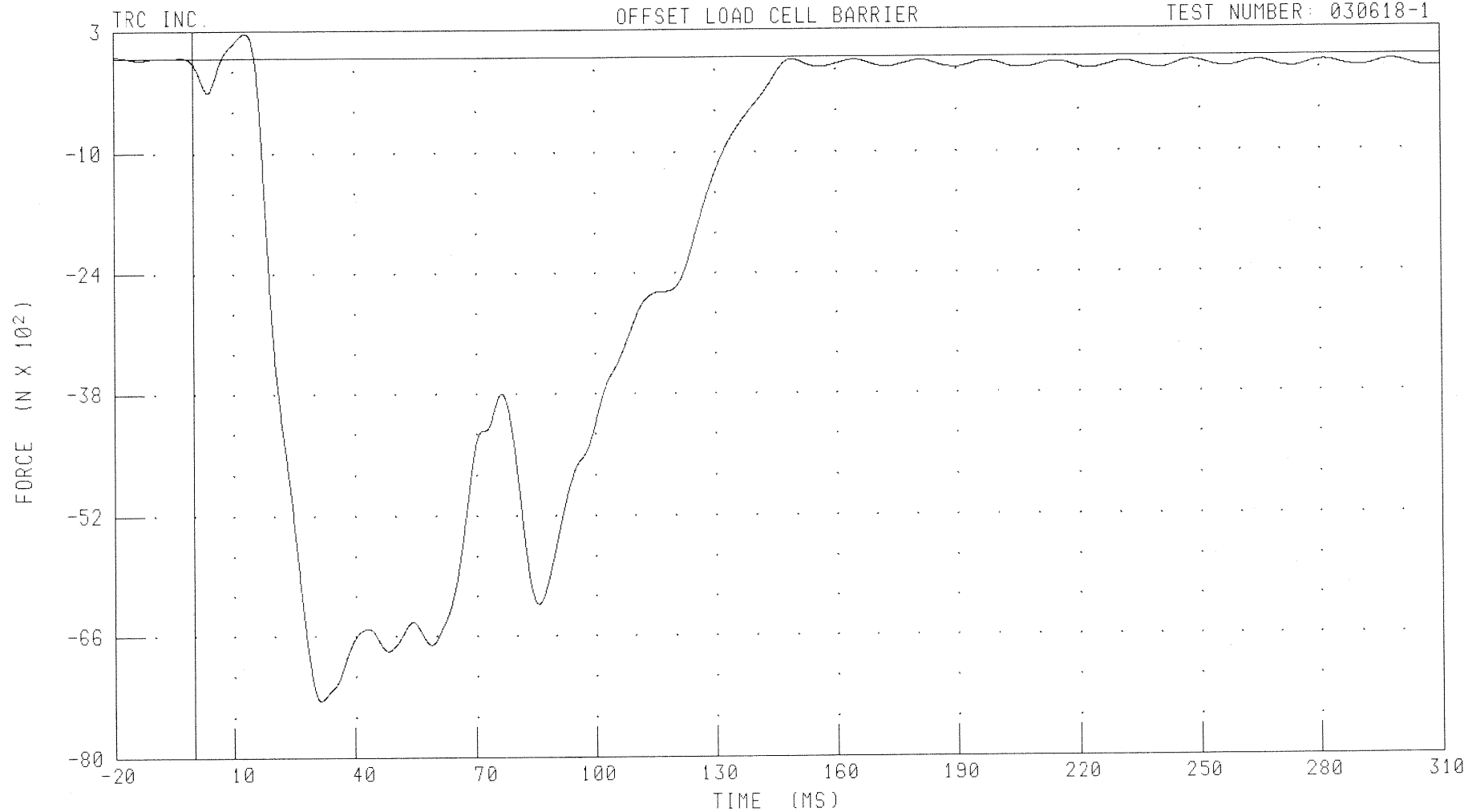
030618-1

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

BARRIER LOAD CELL E5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCE5XF FILTER: CH. CLASS 60

PEAK DATA: 291.38 N @ 13.20 MS; -7426.69 N @ 31.60 MS

B-226

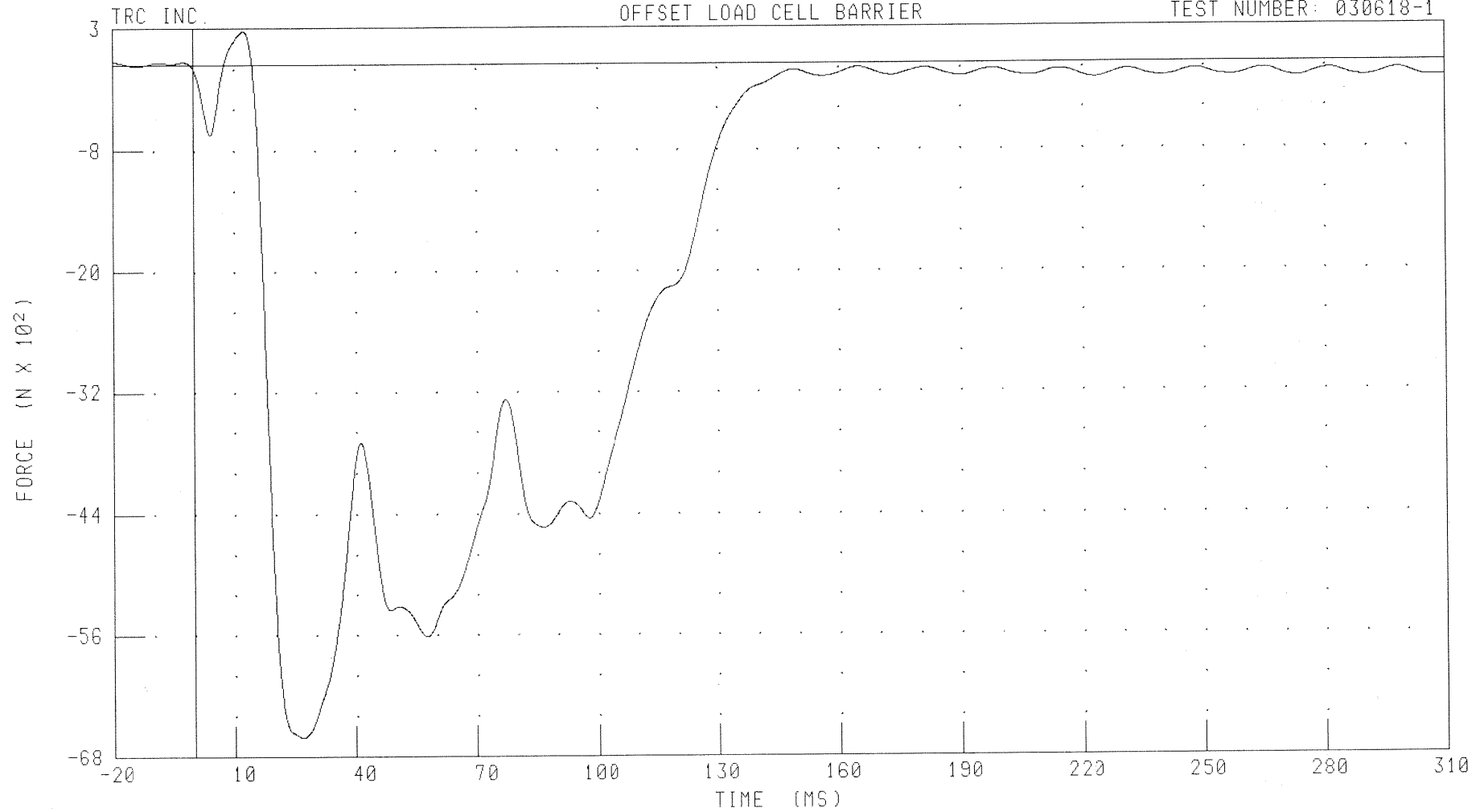
030618-1

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

BARRIER LOAD CELL E6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCE6XF FILTER: CH. CLASS 60

PEAK DATA: 322.82 N @ 12.40 MS; -6661.64 N @ 26.72 MS

B-227

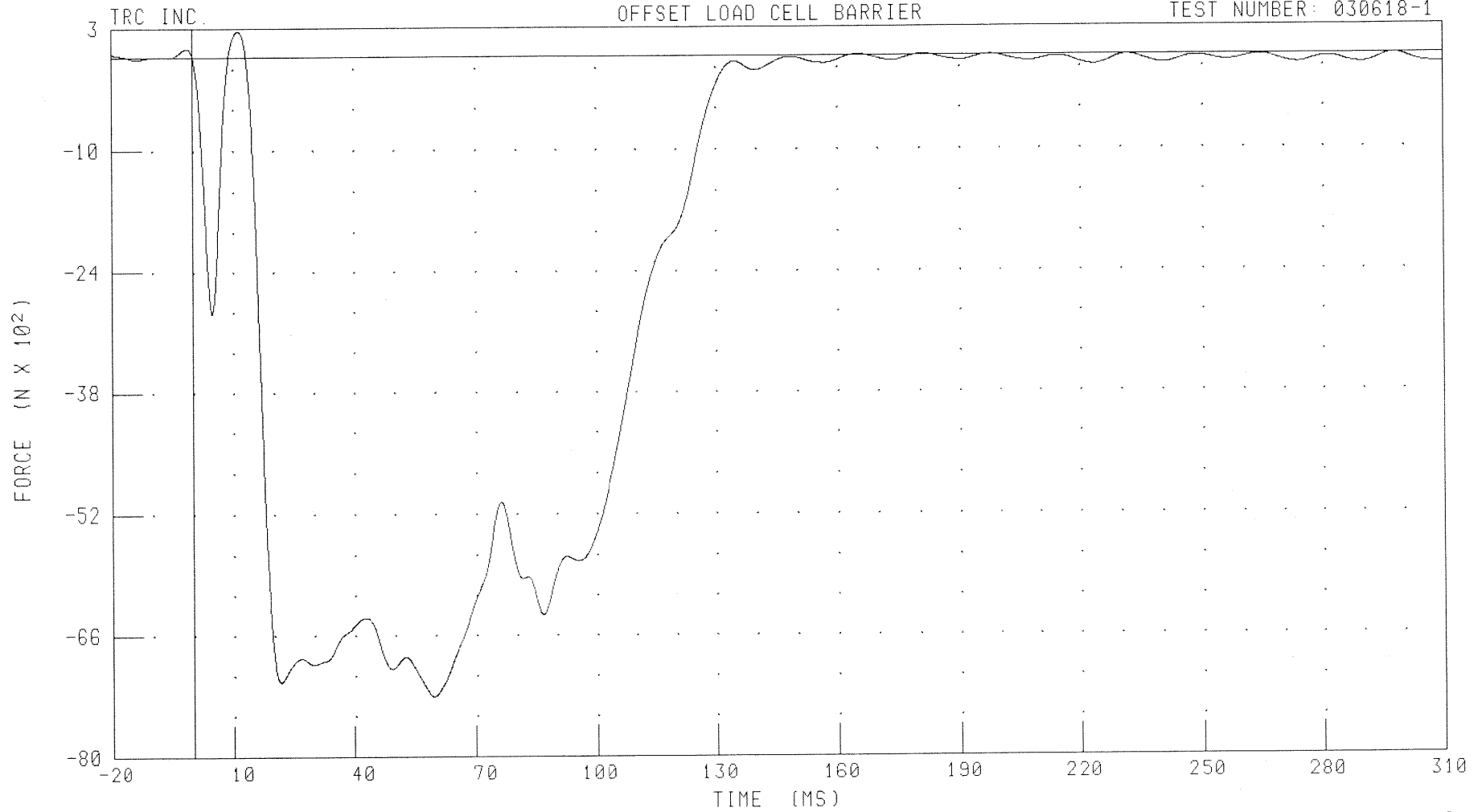
030618-1

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

BARRIER LOAD CELL E7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCE7XF

FILTER: CH. CLASS 60

PEAK DATA: 302.21 N @ 11.36 MS; -7381.55 N @ 59.60 MS

B-228

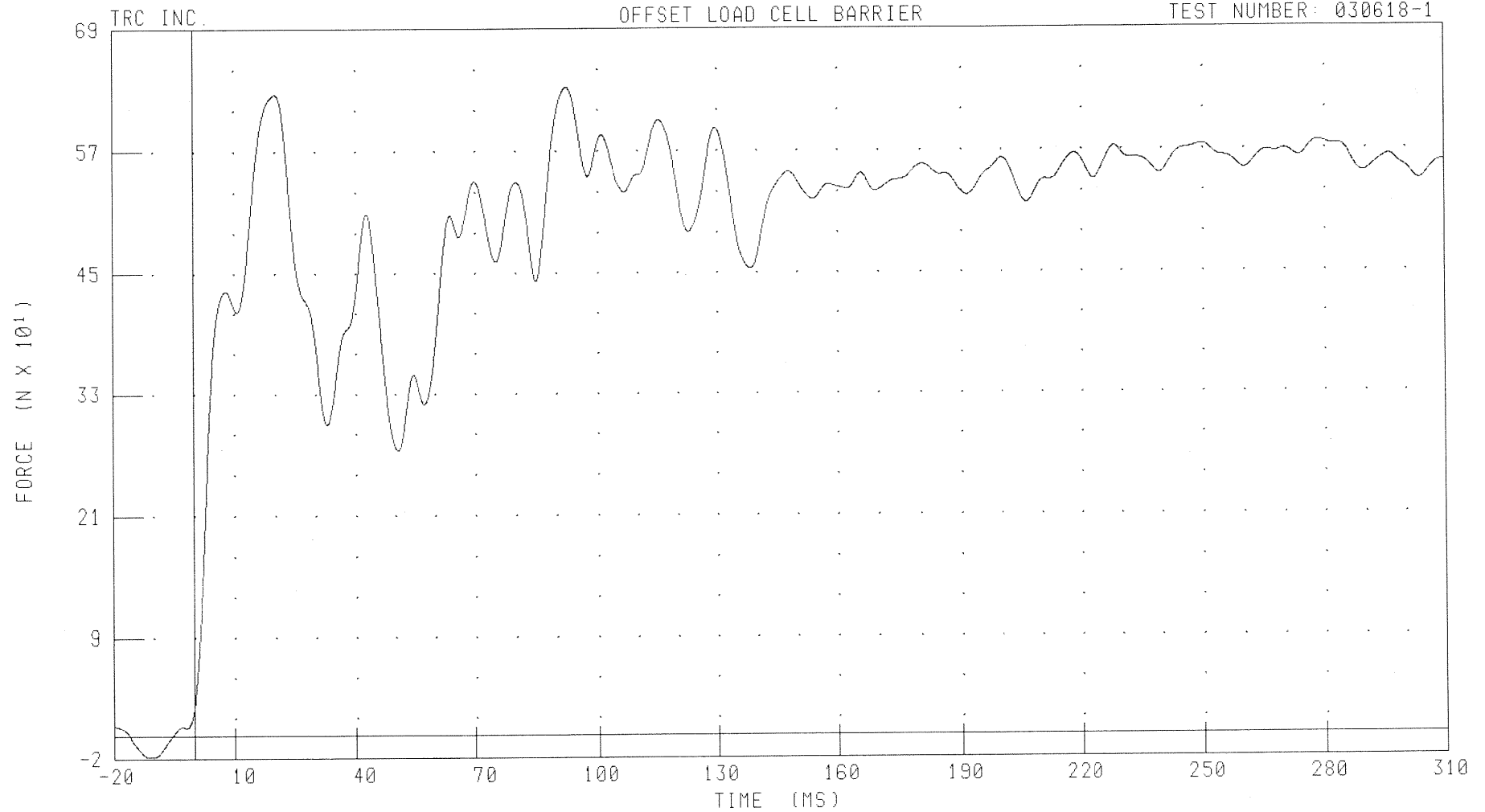
030618-1

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

BARRIER LOAD CELL F1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCF1XF

FILTER: CH. CLASS 60

PEAK DATA: 640.25 N @ 92.56 MS; -20.48 N @ -10.96 MS

B-229

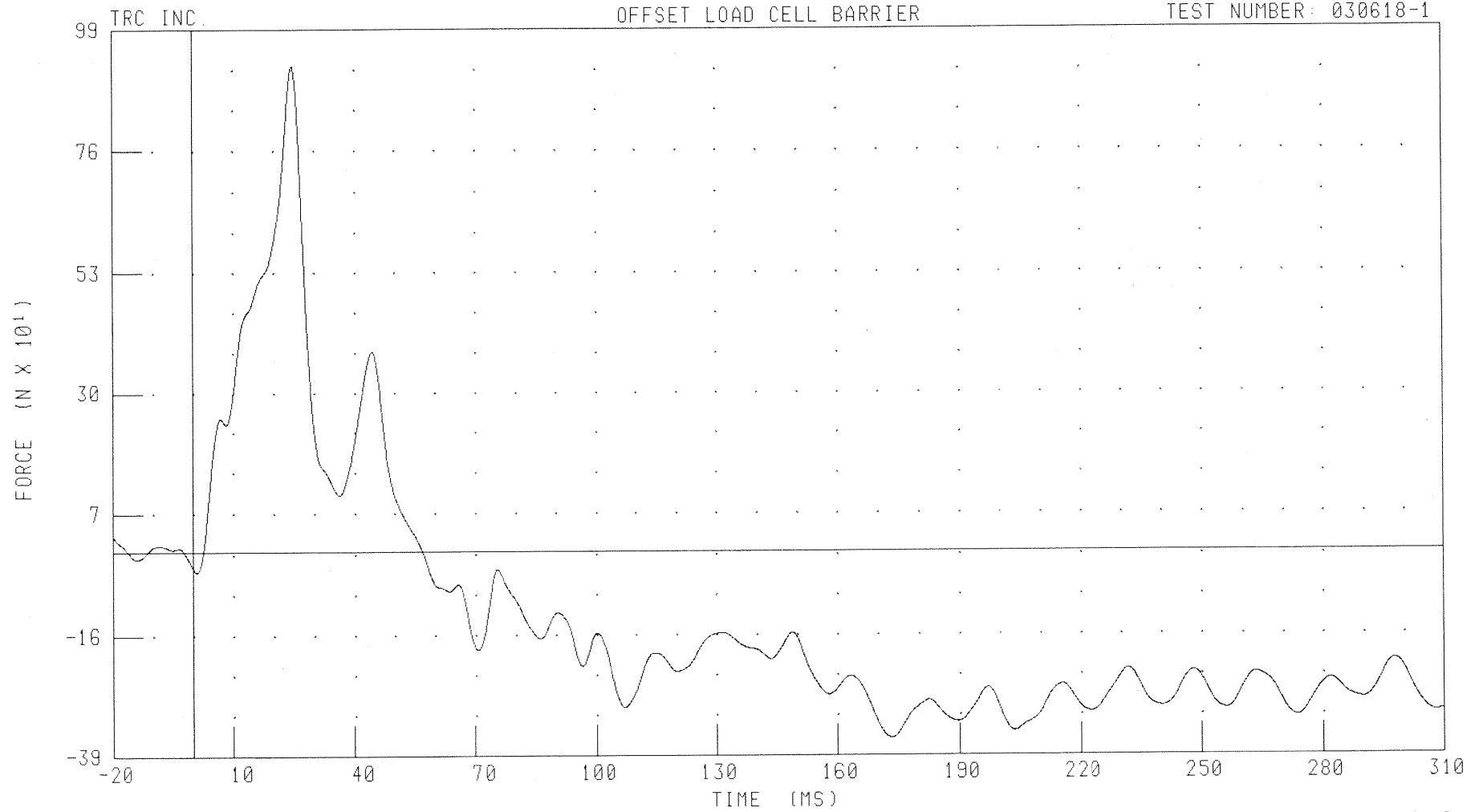
030618-1

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

BARRIER LOAD CELL F2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCF2XF

FILTER: CH. CLASS 60

PEAK DATA: 920.49 N @ 24.72 MS; -357.69 N @ 173.44 MS

B-230

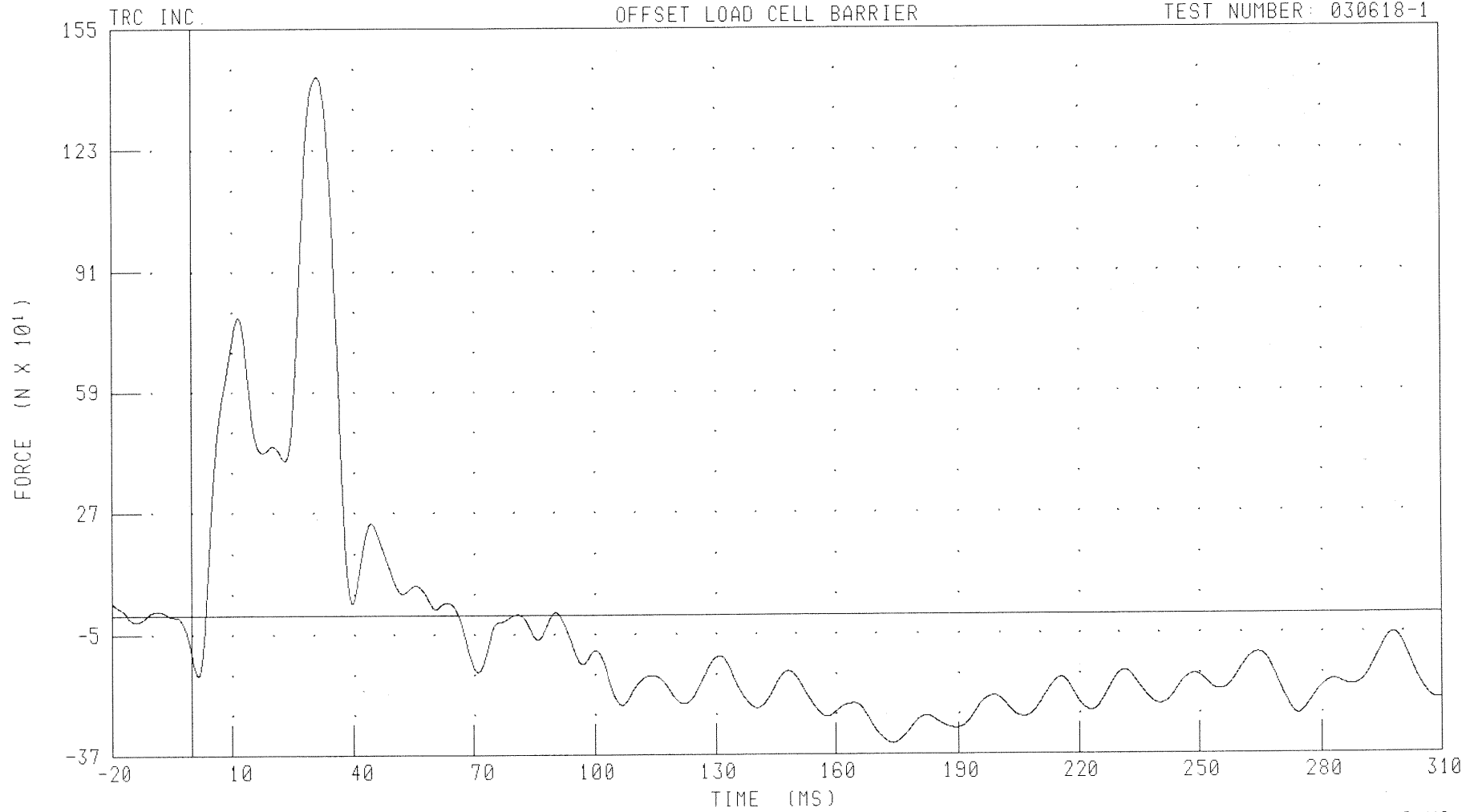
030618-1

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

BARRIER LOAD CELL F3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCF3XF FILTER: CH. CLASS 60

PEAK DATA: 1422.06 N @ 31.20 MS; -341.83 N @ 174.16 MS

B-231

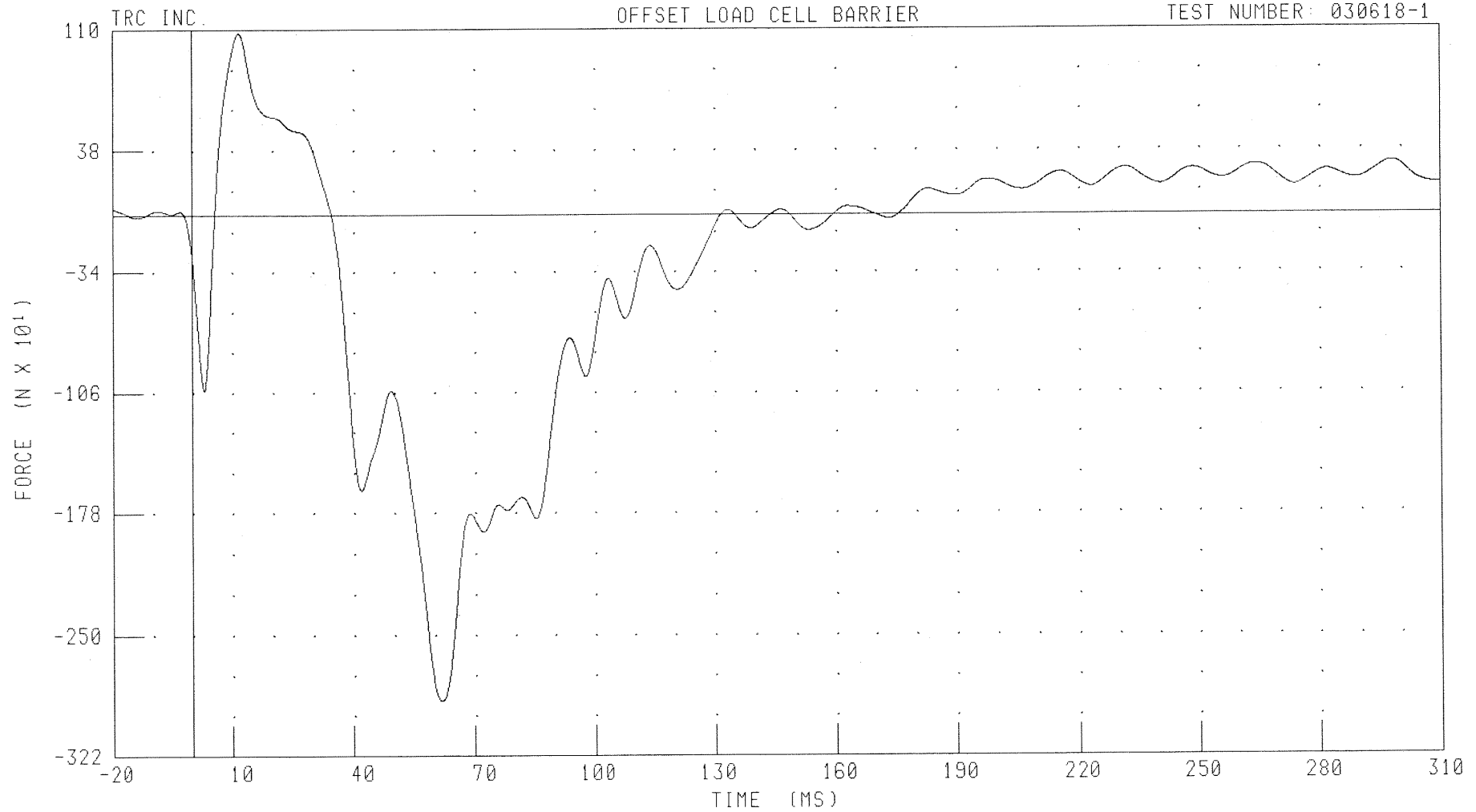
030618-1

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

BARRIER LOAD CELL F4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCF4XF

FILTER: CH. CLASS 60

PEAK DATA: 1080.51 N @ 11.68 MS, -2892.89 N @ 61.60 MS

B-232

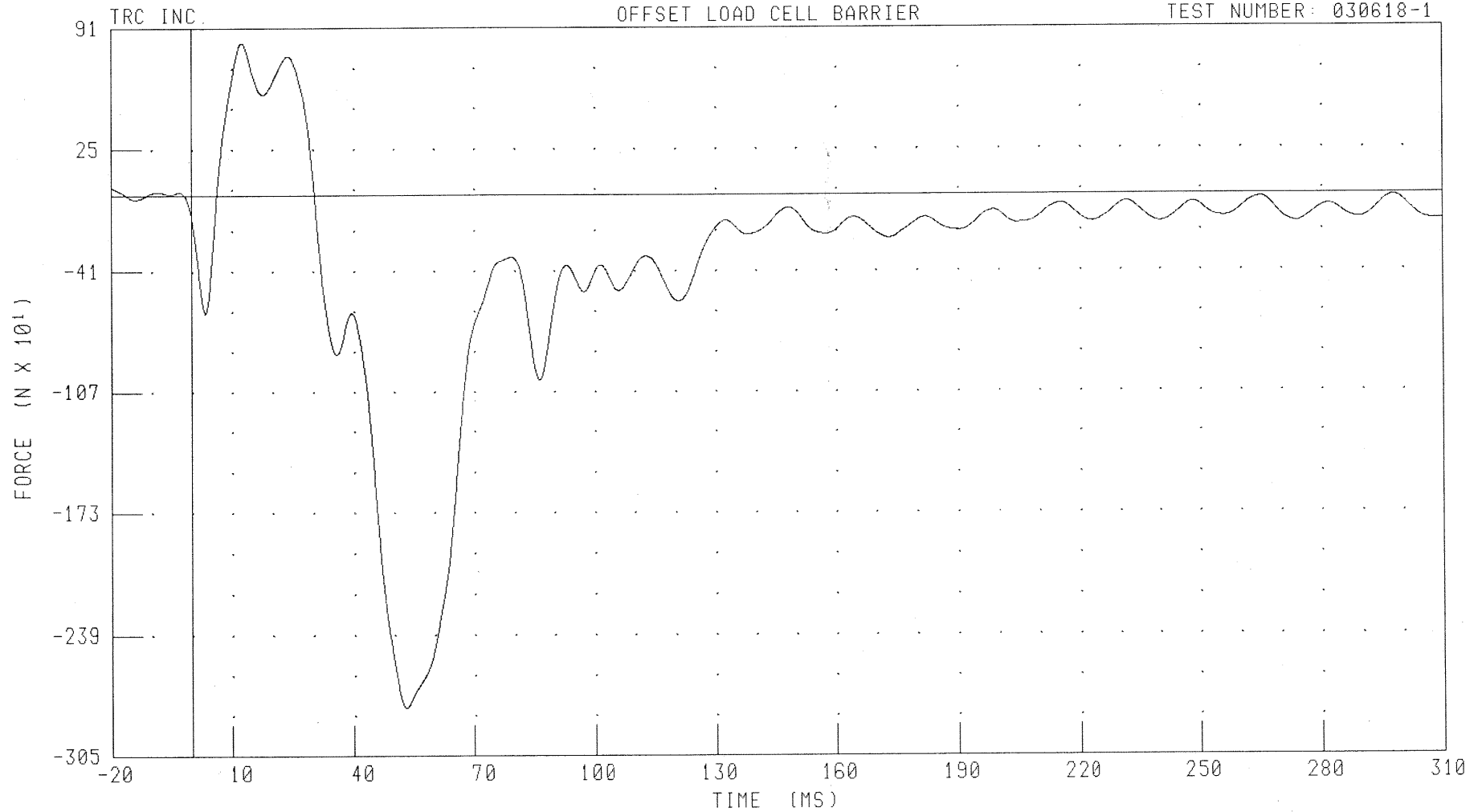
030618-1

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

BARRIER LOAD CELL F5 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCF5XF FILTER: CH. CLASS 60

PEAK DATA: 830.20 N @ 12.56 MS, -2788.55 N @ 52.88 MS

B-233

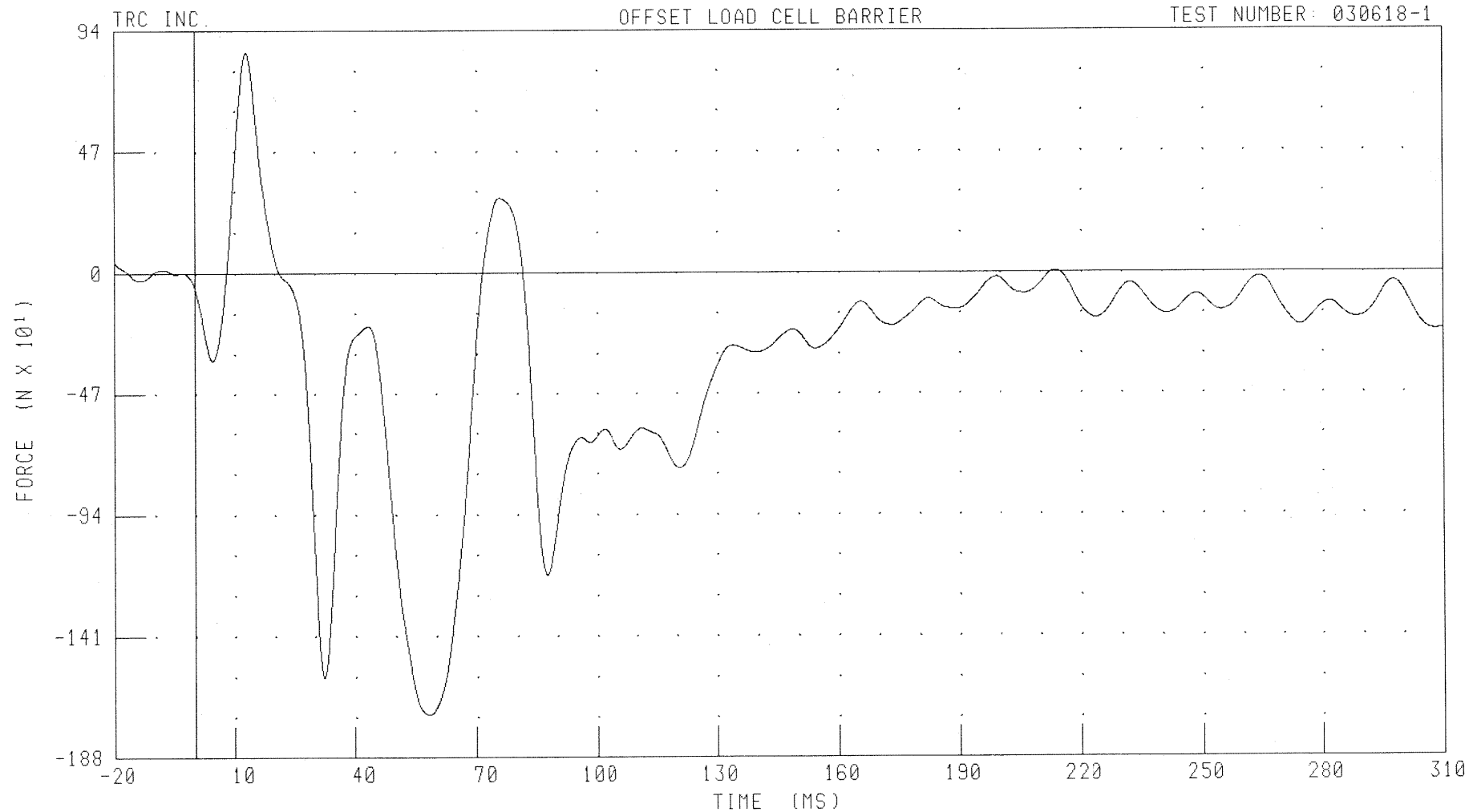
030618-1

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

BARRIER LOAD CELL F6 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCF6XF

FILTER: CH. CLASS 60

PEAK DATA: 856.06 N @ 13.04 MS; -1713.73 N @ 58.24 MS

B-234

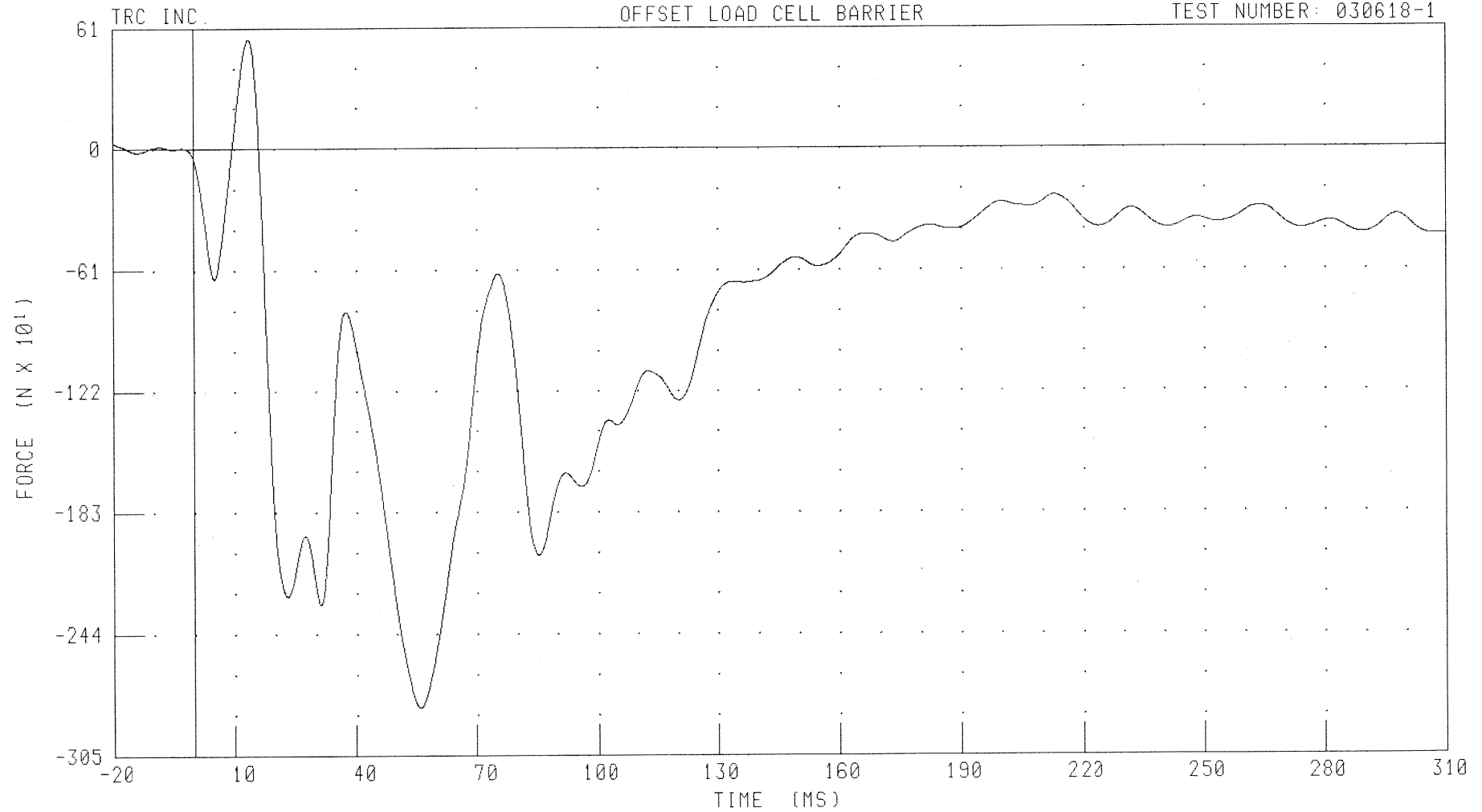
030618-1

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

BARRIER LOAD CELL F7 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCF7XF

FILTER: CH. CLASS 60

PEAK DATA: 555.78 N @ 13.60 MS; -2809.20 N @ 55.92 MS

B-235

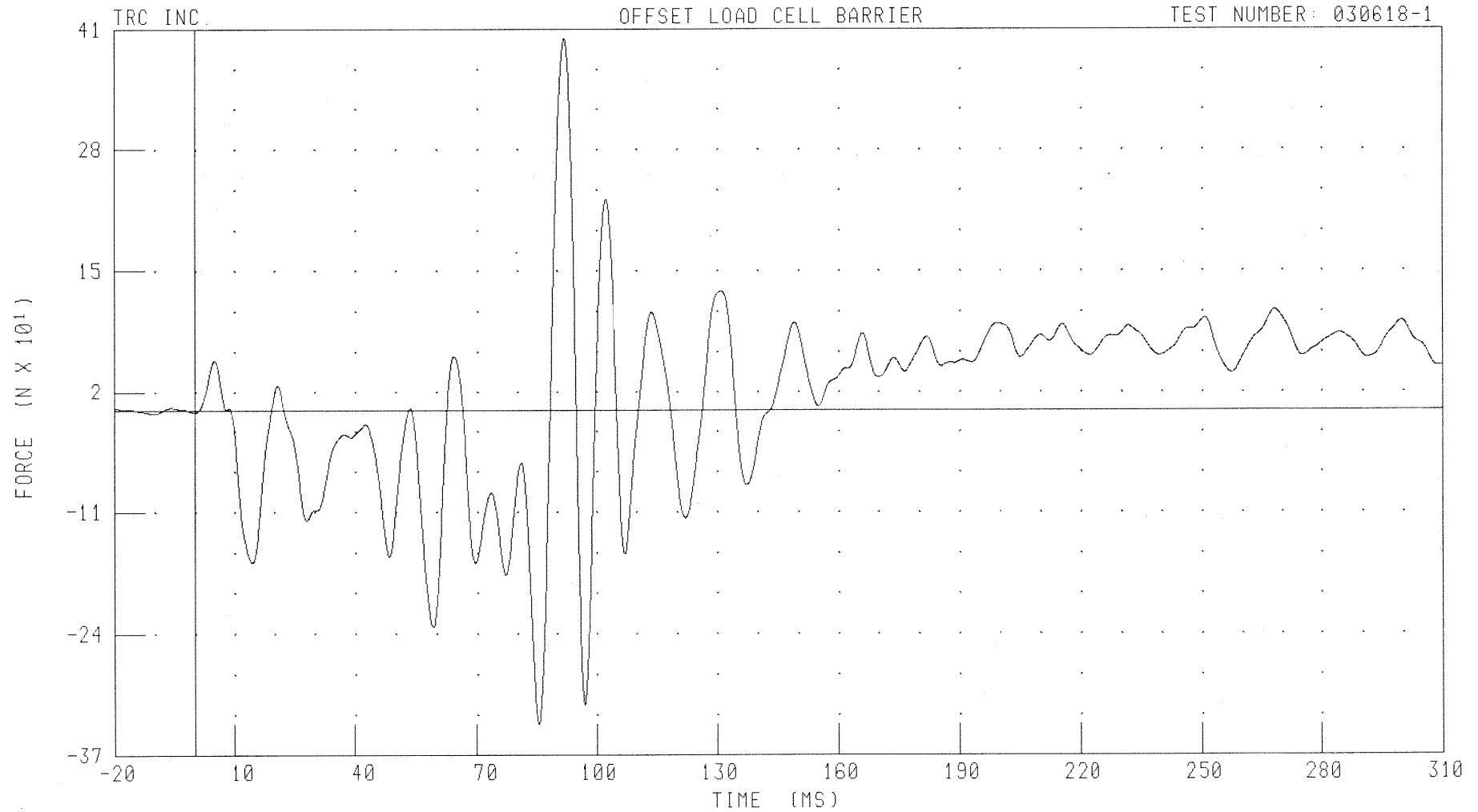
030618-1

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

BARRIER LOAD CELL G1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCG1XF FILTER: CH. CLASS 60

PEAK DATA: 400.13 N @ 91.92 MS; -337.08 N @ 85.44 MS

B-236

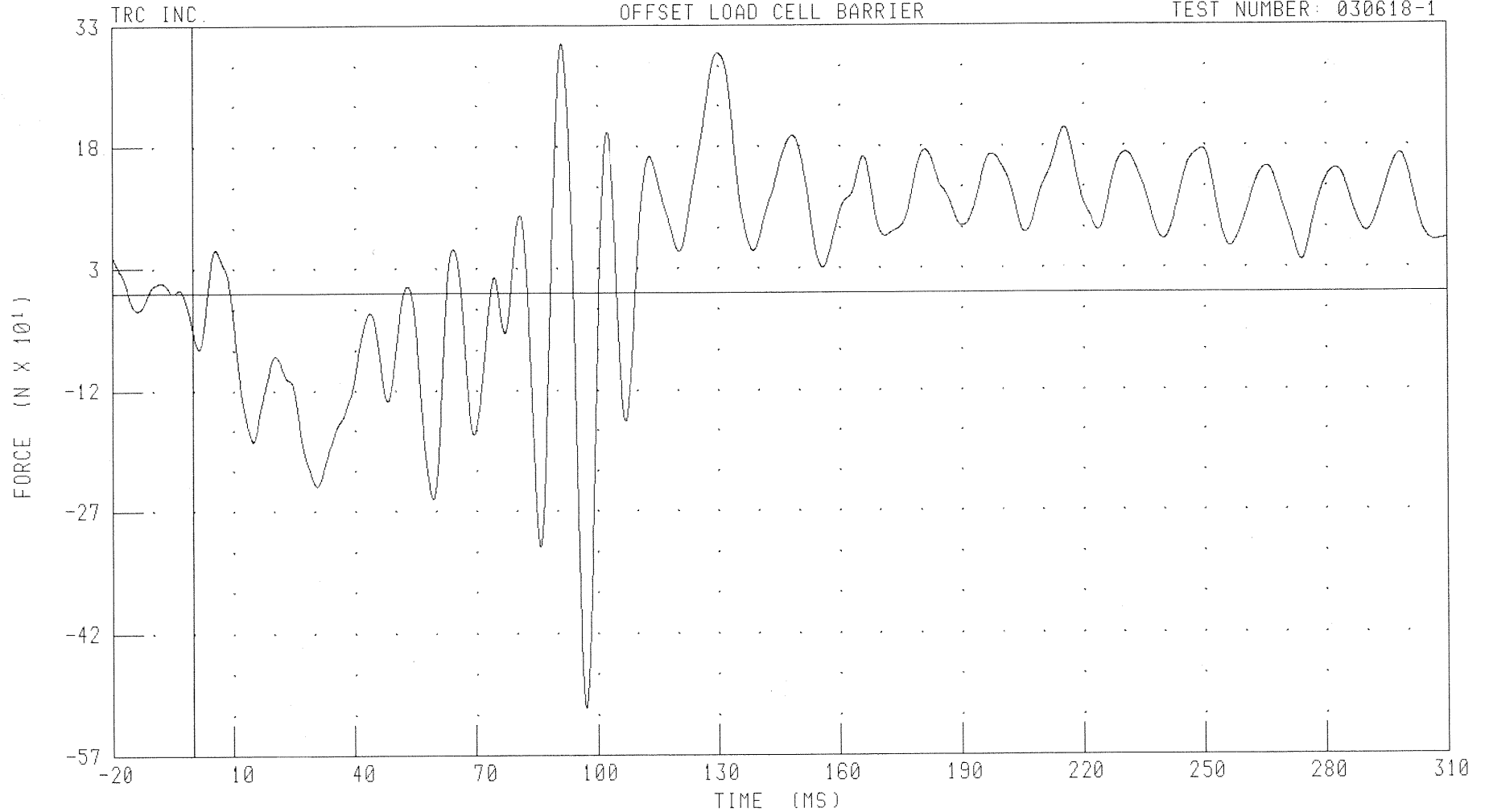
030618-1

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

BARRIER LOAD CELL G2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCG2XF FILTER: CH. CLASS 60

PEAK DATA: 306.87 N @ 91.20 MS; -511.95 N @ 97.12 MS

B-237

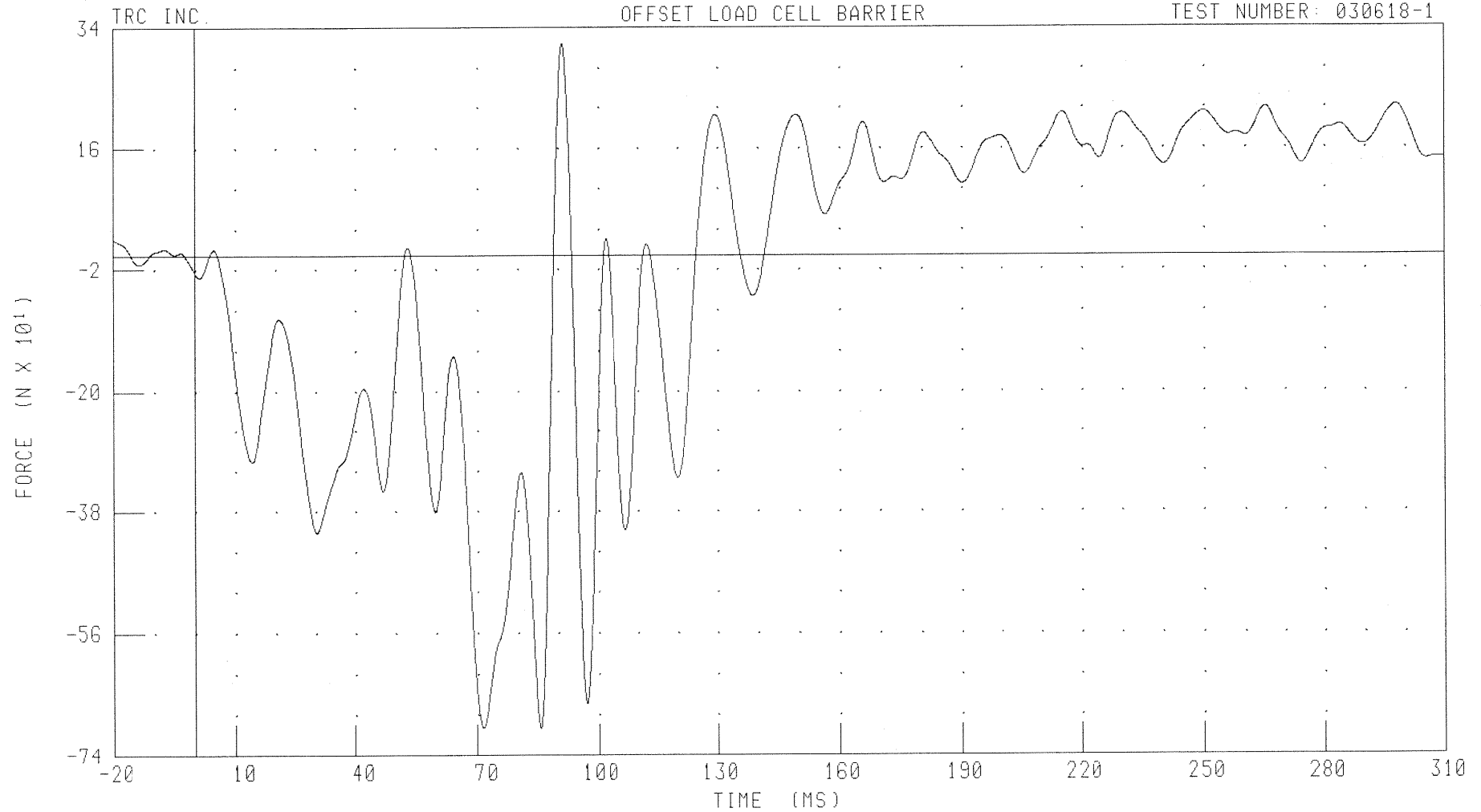
030618-1

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

BARRIER LOAD CELL G3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCG3XF

FILTER: CH. CLASS 60

PEAK DATA: 315.83 N @ 91.04 MS; -700.41 N @ 85.60 MS

B-238

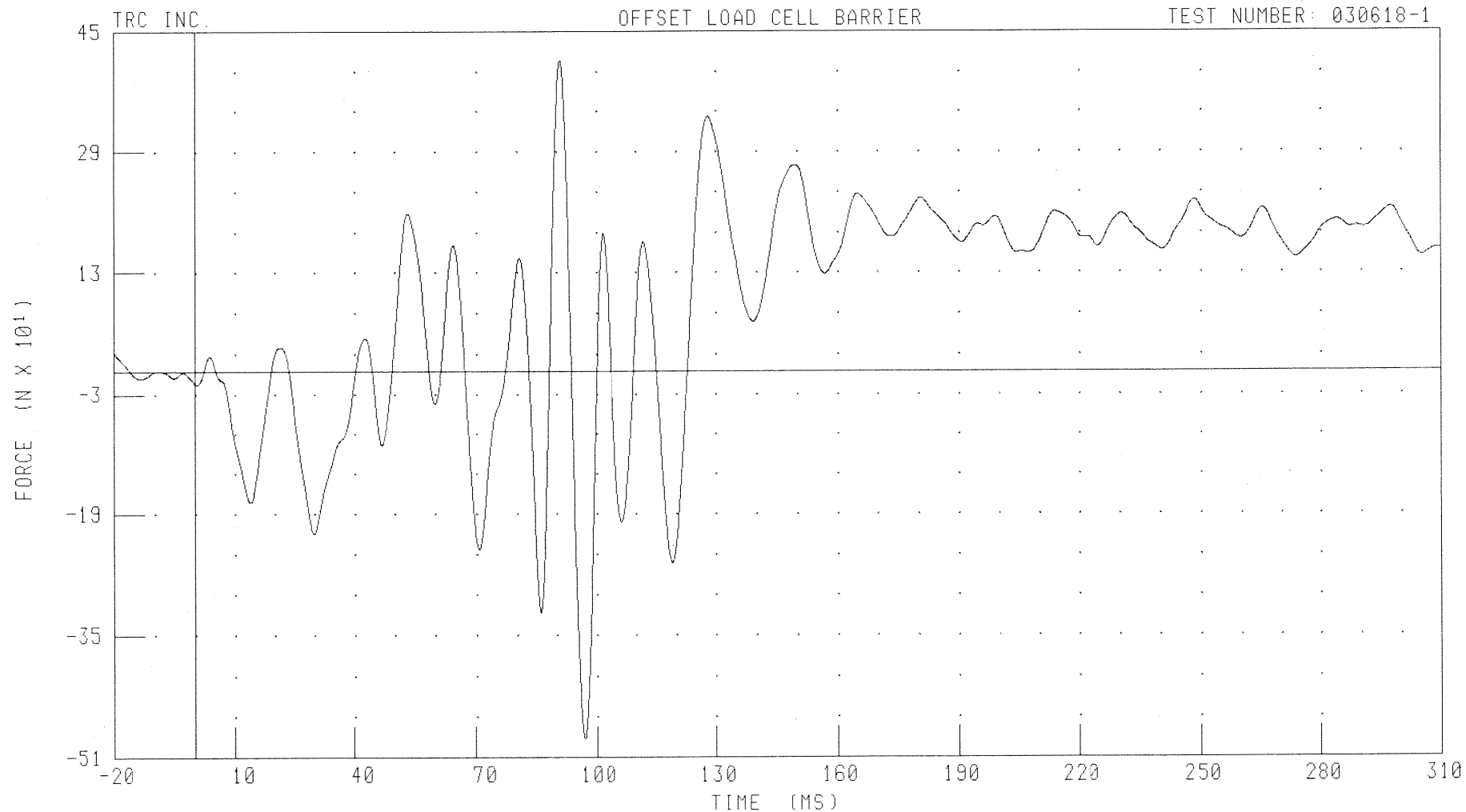
030618-1

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

BARRIER LOAD CELL G4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCG4XF

FILTER: CH. CLASS 60

PEAK DATA: 411.35 N @ 90.96 MS; -486.06 N @ 97.04 MS

B-239

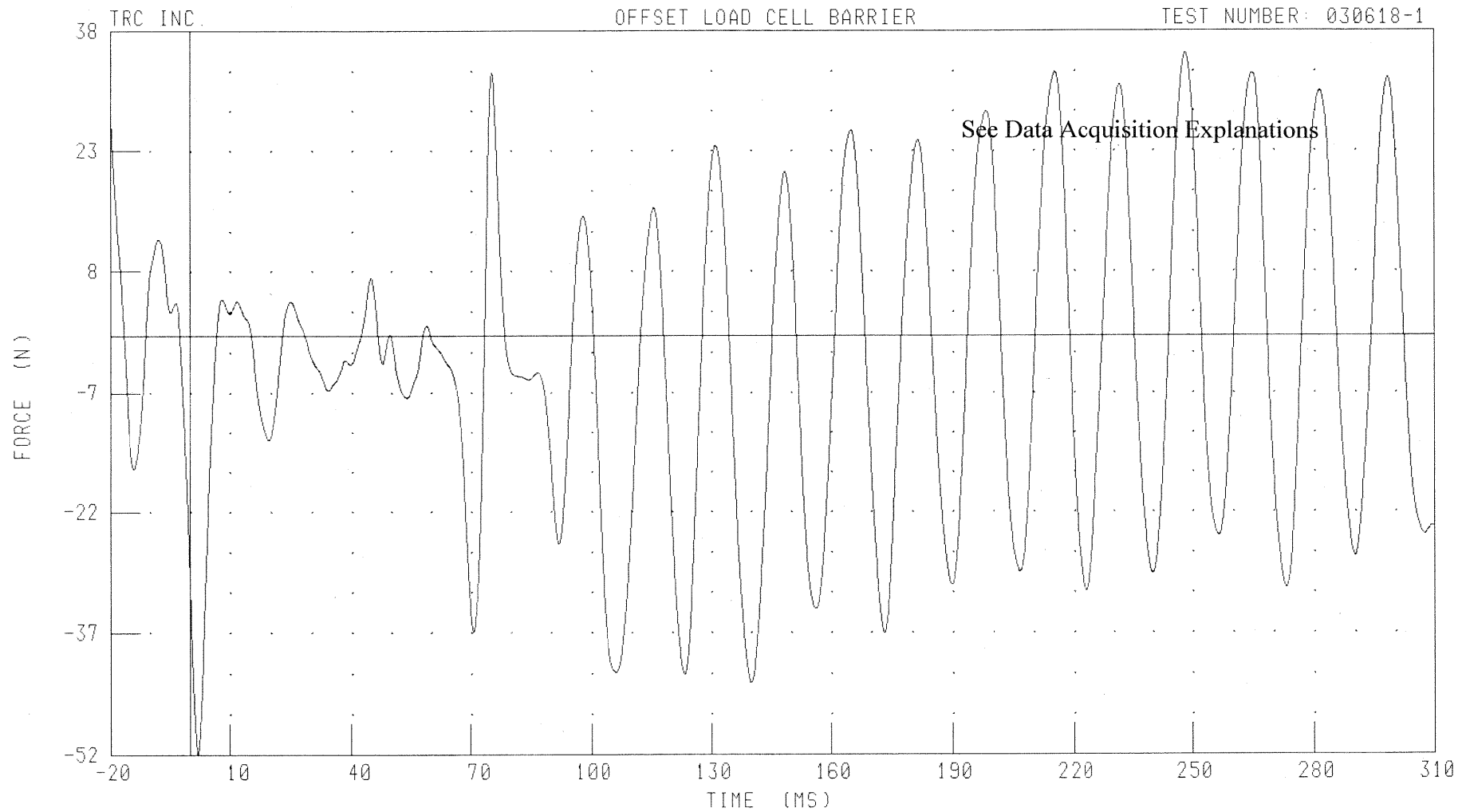
030618-1

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

BARRIER LOAD CELL H1 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCH1XF FILTER: CH: CLASS 60

PEAK DATA: 35.23 N @ 248.16 MS; -51.91 N @ 2.00 MS

B-240

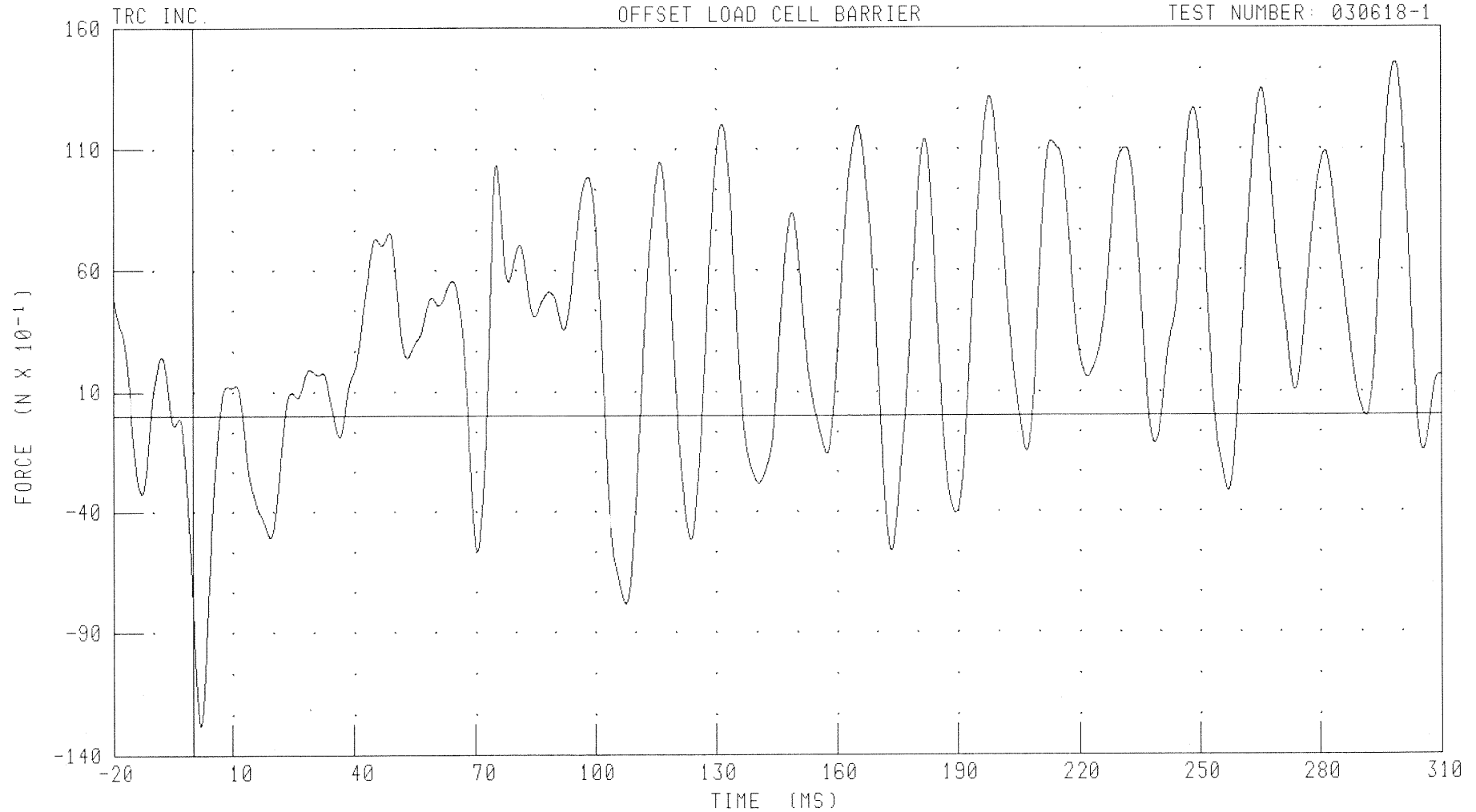
030618-1

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

BARRIER LOAD CELL H2 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCH2XF FILTER: CH CLASS 60

PEAK DATA: 14.58 N @ 298.40 MS; -12.80 N @ 1.92 MS

B-241

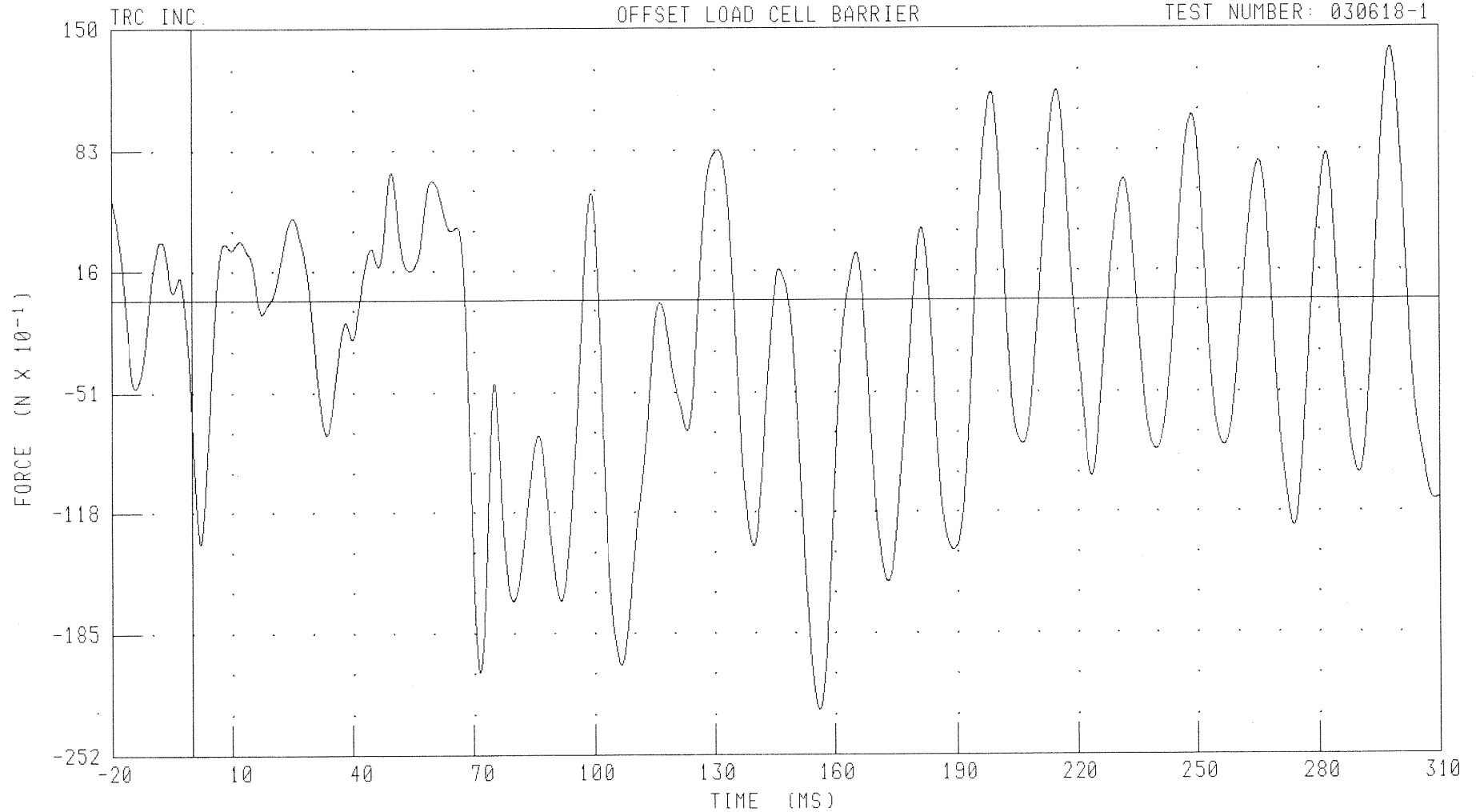
030618-1

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

BARRIER LOAD CELL H3 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCH3XF FILTER: CH. CLASS 60

PEAK DATA: 13.89 N @ 297.68 MS; -22.70 N @ 156.16 MS

B-242

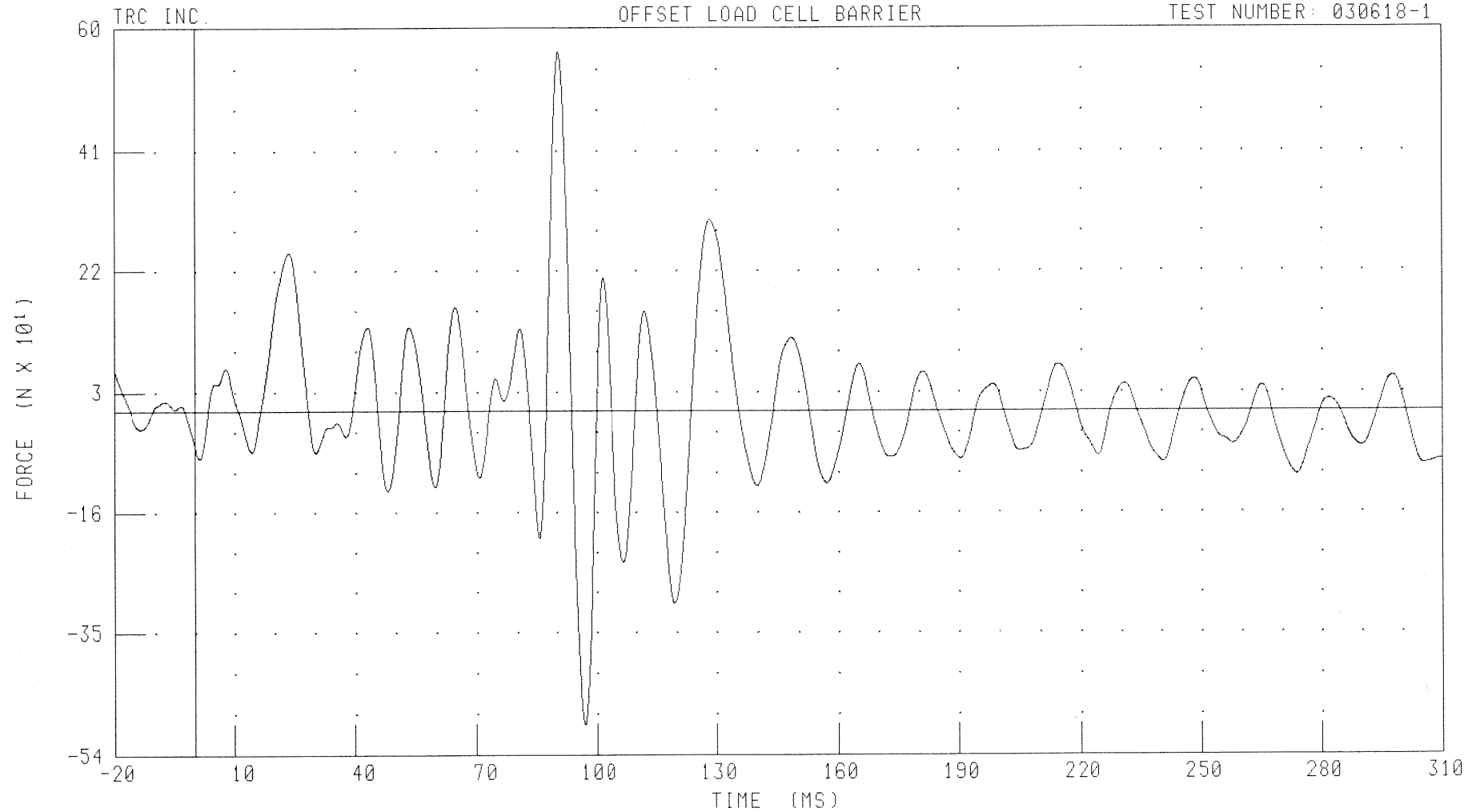
030618-1

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

BARRIER LOAD CELL H4 X-AXIS FORCE

OFFSET LOAD CELL BARRIER

TEST NUMBER: 030618-1



CHANNEL: LCH4XF FILTER: CH. CLASS 60

B-243

030618-1

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 Male Dummy
External Dimensions
Serial No. 168 Calibration No. 21

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	880	Yes
B	Shoulder Pivot Height	505.5 - 520.7	517	Yes
C	H-Point Height	83.8 - 88.9	87	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	91	Yes
F	Thigh Clearance	139.7 - 154.9	146	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	295	Yes
H	Skull Cap To Backline	40.6 - 45.7	43	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	340	Yes
J	Elbow Rest Height	190.5 - 210.8	209	Yes
K	Buttock Knee Length	579.1 - 604.5	585	Yes
L	Popliteal Height	429.3 - 454.7	441	Yes
M	Knee Pivot Height	485.1 - 500.4	490	Yes
N	Buttock Popliteal Length	452.1 - 477.5	473	Yes
O	Chest Depth	213.4 - 228.6	226	Yes
P	Foot Length	251.5 - 266.7	254	Yes
V	Shoulder Breadth	421.6 - 436.9	425	Yes
W	Foot Breadth	91.4 - 106.7	102	Yes
Y	Chest Circumference	970.3 - 1000.8	983	Yes
Z	Waist Circumference	835.7 - 866.1	856	Yes
AA	Location For Chest Circumference	429.3 - 434.3	432	Yes
BB	Location For Waist Circumference	226.1 - 231.1	229	Yes

Technician



Approved



Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

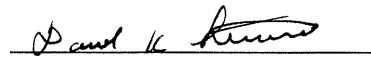
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Peak Resultant Acceleration	225 - 275 g	270.9 g	Yes
Peak Lateral Acceleration	15 g Max	-12.6 g	Yes
Oscillations After Main Pulse	Less Than 10% of Peak Resultant Acceleration?	Yes	Yes

Comments:

Technician



Approved



05.27.2003 11:13:51 612



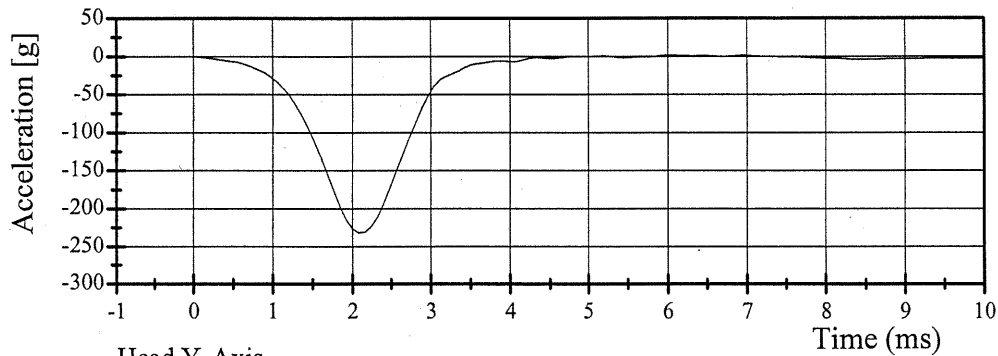
Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Head X-Axis

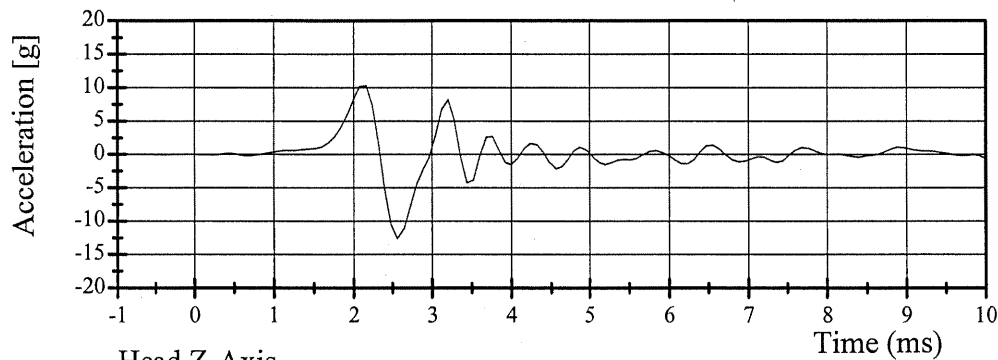


Filter Class: 1000

Max: 1.8 g at 6.1 ms

Min: -231.6 g at 2.1 ms

Head Y-Axis

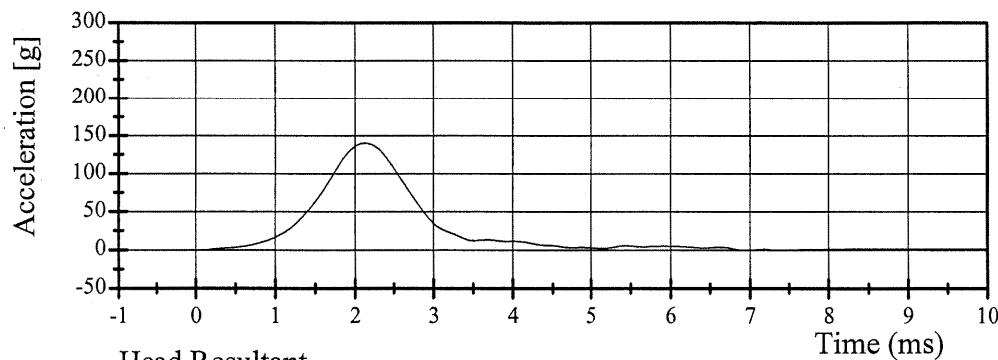


Filter Class: 1000

Max: 10.3 g at 2.2 ms

Min: -12.6 g at 2.6 ms

Head Z-Axis

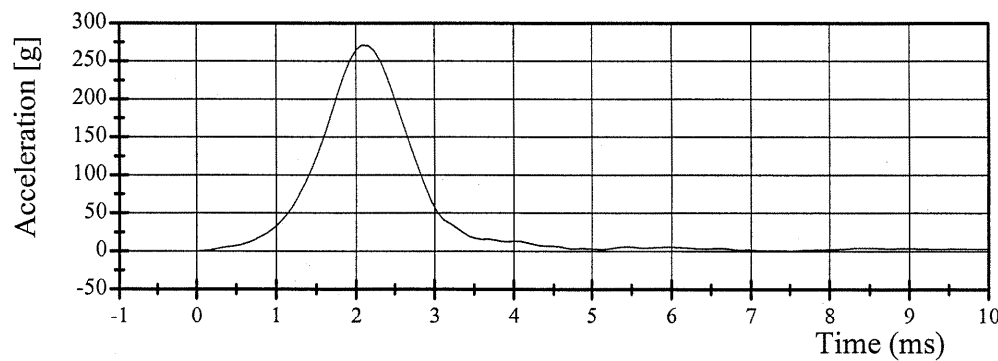


Filter Class: 1000

Max: 140.5 g at 2.2 ms

Min: -0.2 g at 7.4 ms

Head Resultant



Filter Class: 1000

Max: 270.9 g at 2.1 ms

Min: 0.0 g at 2.2 ms

Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

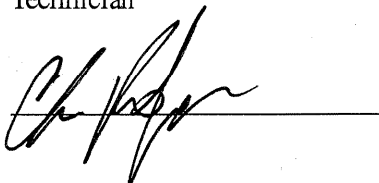
HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

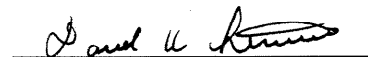
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	23.27 g	Yes
20 ms	17.60 - 22.60 g	22.30 g	Yes
30 ms	12.50 - 18.50 g	17.77 g	Yes
Max Pendulum Deceleration	29.00 g	24.27 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	17.70 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	37.44 ms	Yes
D Plane Rotation			
Max	64 - 78 °	71.31 °	Yes
Time	57 - 64 ms	60.24 ms	Yes
Moment About Occipital Condyle			
Max	88.1 - 108.5 N·m	96.05 N·m	Yes
Time	47 - 58 ms	50.40 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	116.16 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	101.12 ms	Yes

Comments:

Technician



Approved



05.27.2003 12:37:48 492



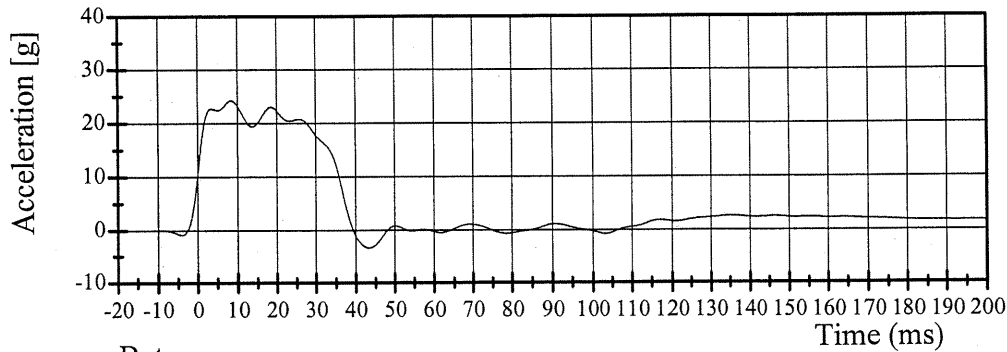
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Pendulum Deceleration

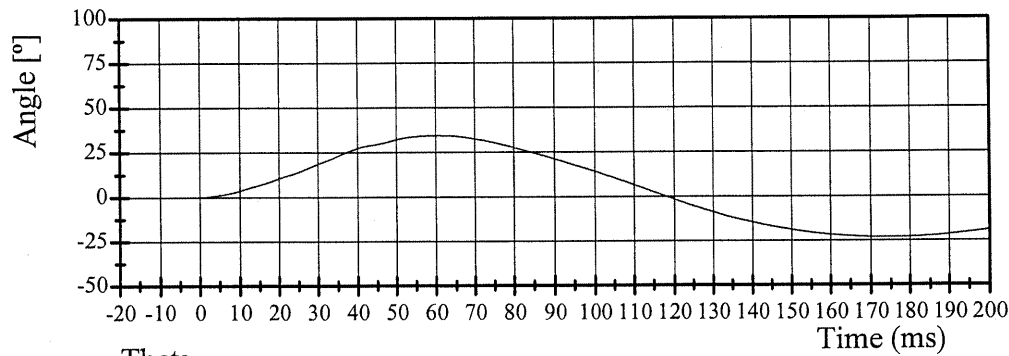


Filter Class: 60

Max: 24.3 g at 8.5 ms

Min: -3.3 g at 43.4 ms

Beta

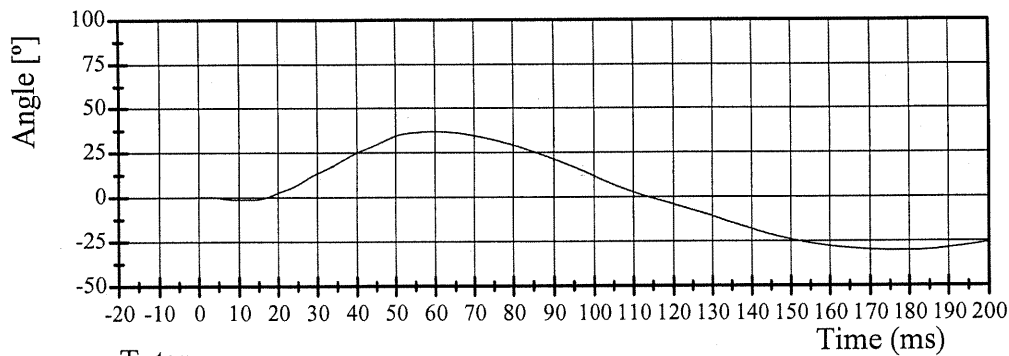


Filter Class: 60

Max: 34.4 ° at 60.8 ms

Min: -23.1 ° at 174.0 ms

Theta

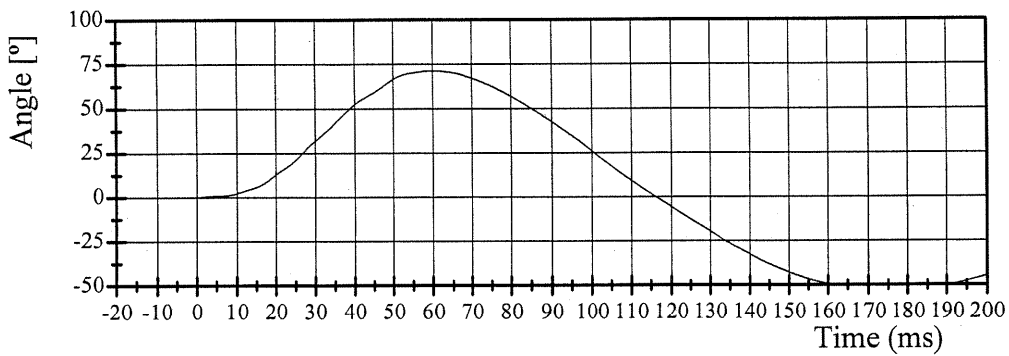


Filter Class: 60

Max: 36.9 ° at 59.8 ms

Min: -30.2 ° at 179.0 ms

Totan



Filter Class: 60

Max: 71.3 ° at 60.2 ms

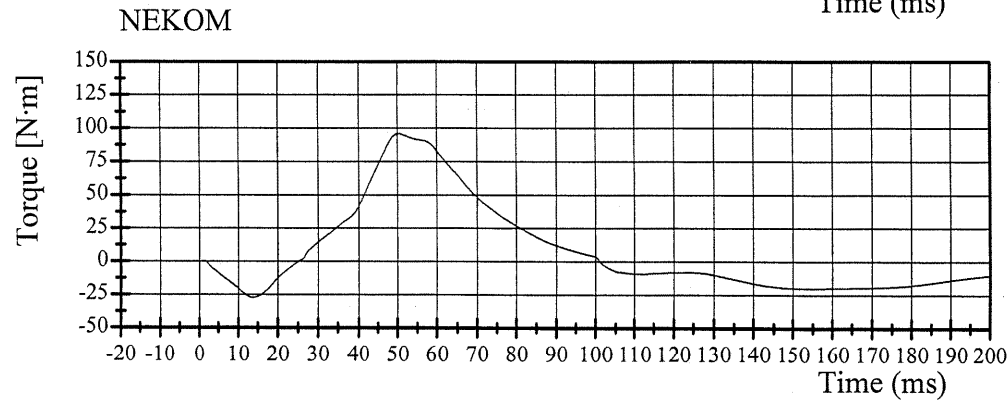
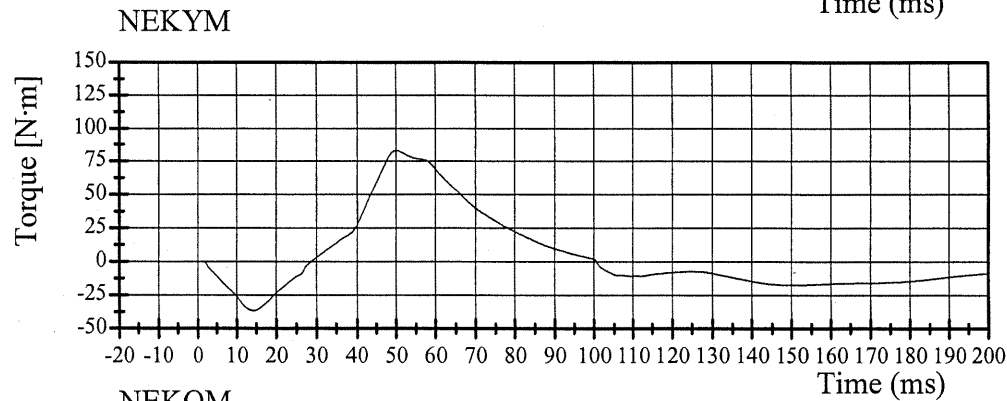
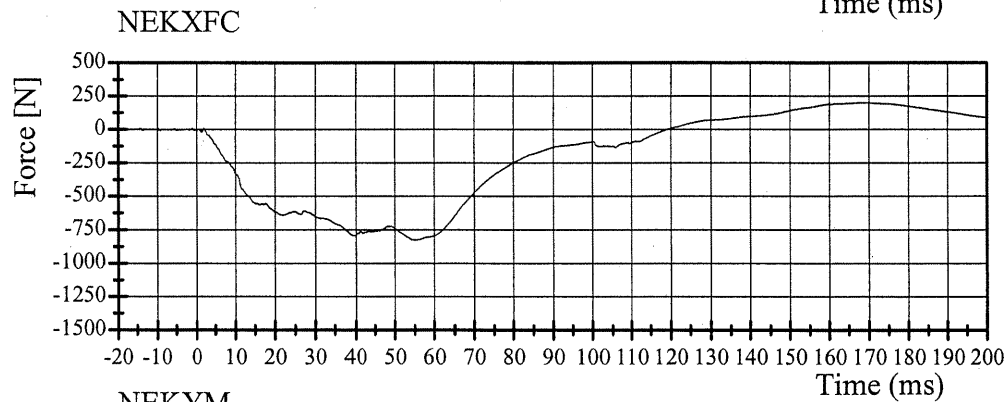
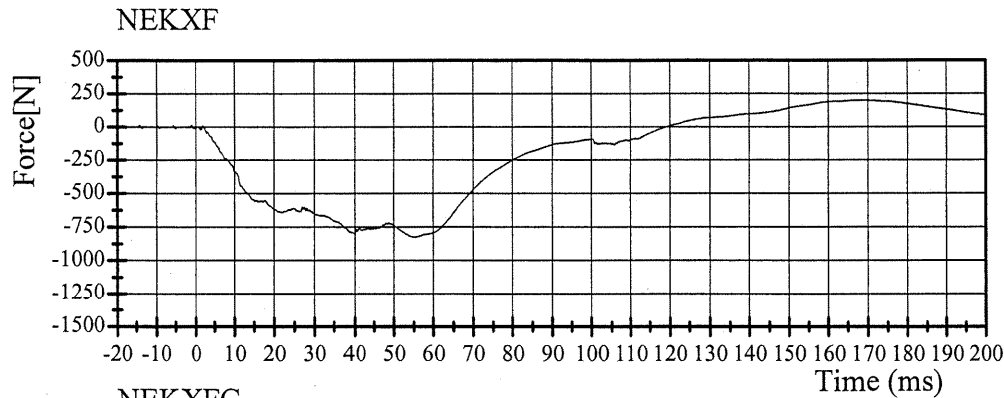
Min: -53.2 ° at 177.0 ms

Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003



05.27.2003 12:37:50 492



Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

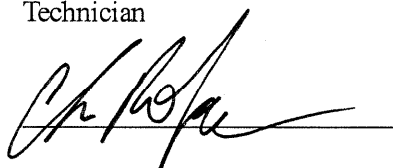
HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.05 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	17.35 g	Yes
20 ms	14.00 - 19.00 g	16.84 g	Yes
30 ms	11.00 - 16.00 g	15.64 g	Yes
Max Pendulum Deceleration	22.00 g	18.08 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	15.60 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	38 - 46 ms	41.52 ms	Yes
D Plane Rotation			
Max	81 - 106 °	95.61 °	Yes
Time	72 - 82 ms	76.56 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-65.38 N·m	Yes
Time	65 - 79 ms	71.60 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	147 - 174 ms	154.80 ms	Yes
Negative Moment-Time Curve			
Decay Time To Zero	120 - 148 ms	143.92 ms	Yes

Comments:

Technician



Approved



05.27.2003 13:07:43 575



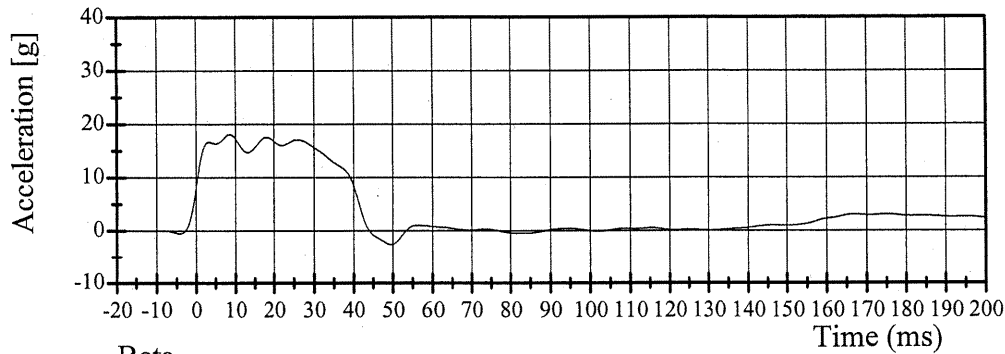
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Pendulum Deceleration

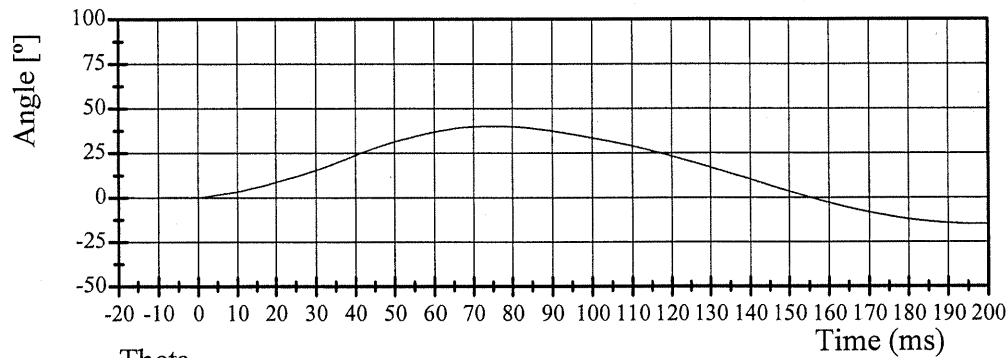


Filter Class: 60

Max: 18.1 g at 8.6 ms

Min: -2.6 g at 49.5 ms

Beta

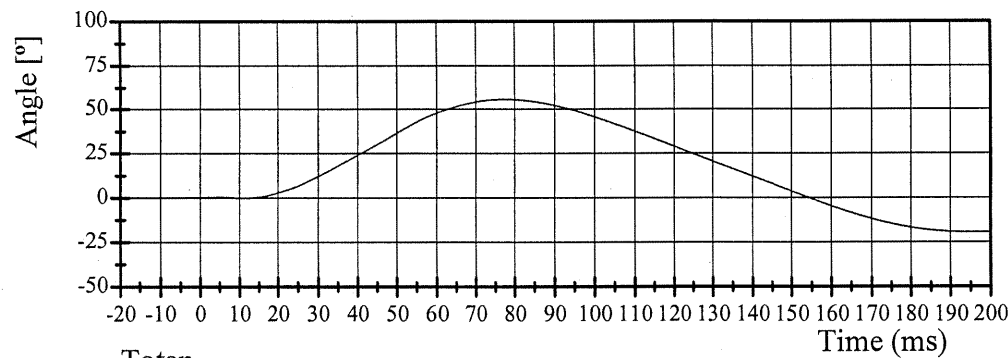


Filter Class: 60

Max: 40.2 ° at 75.0 ms

Min: -14.8 ° at 197.3 ms

Theta

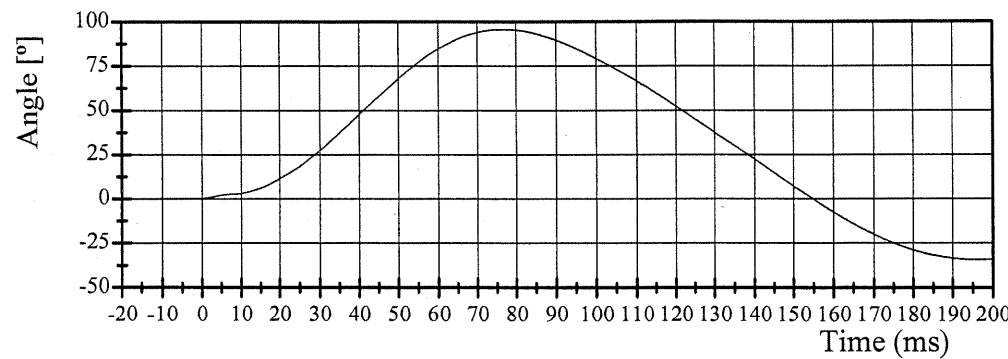


Filter Class: 60

Max: 55.5 ° at 77.8 ms

Min: -19.4 ° at 195.4 ms

Totan



Filter Class: 60

Max: 95.6 ° at 76.6 ms

Min: -34.2 ° at 196.3 ms

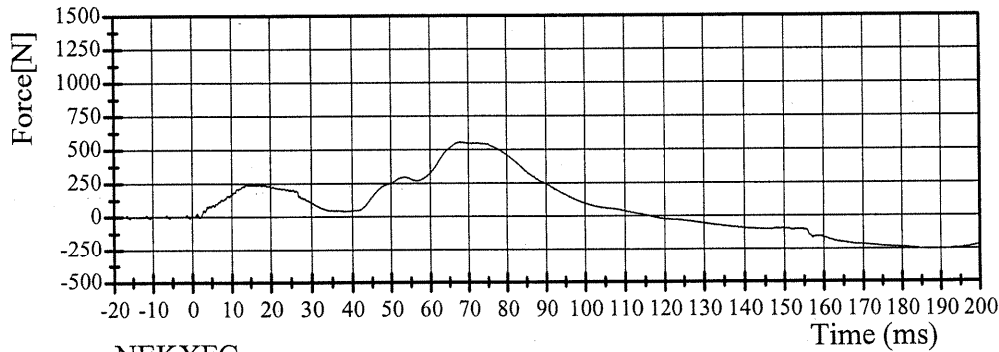
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

NEKXF

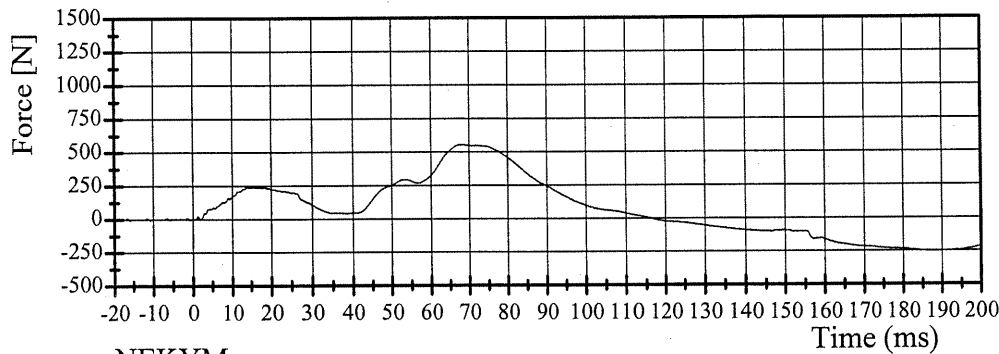


Filter Class: 1000

Max: 556.5 N at 67.8 ms

Min: -251.9 N at 187.0 ms

NEKXFC

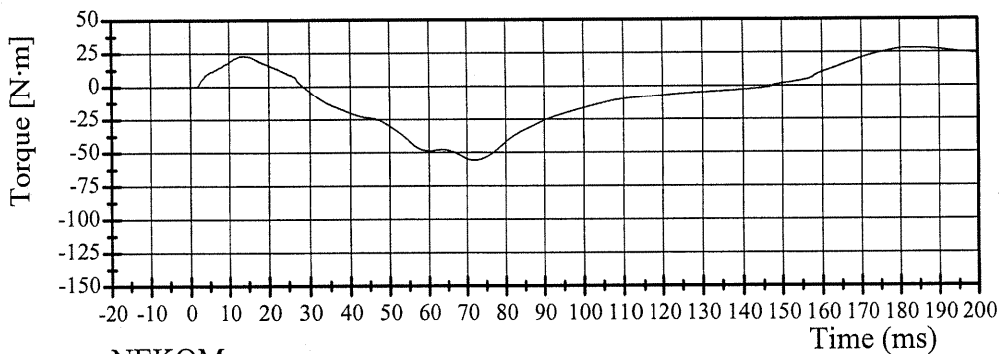


Filter Class: 600

Max: 555.4 N at 67.8 ms

Min: -251.3 N at 187.0 ms

NEKYM

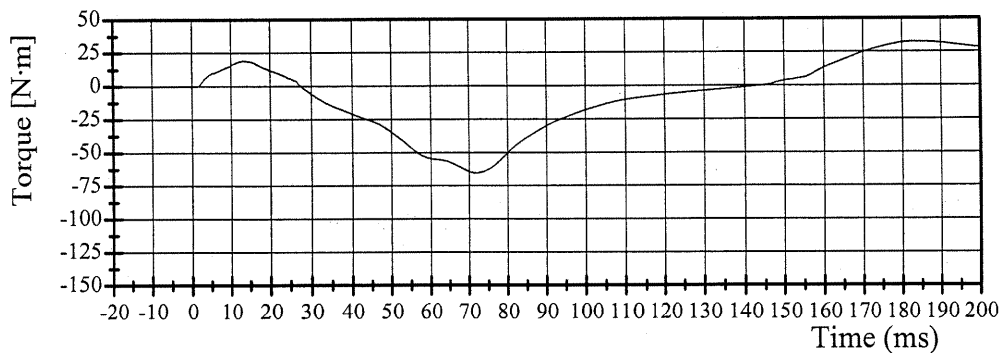


Filter Class: 600

Max: 28.1 N·m at 183.4 ms

Min: -55.7 N·m at 71.5 ms

NEKOM



Filter Class: 600

Max: 32.4 N·m at 184.7 ms

Min: -65.4 N·m at 71.6 ms

Transportation Research Center Inc.

572E Thorax Test

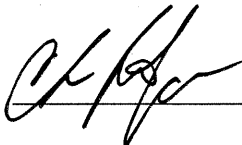
HIH 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

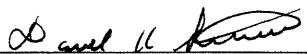
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-64.2 mm	Yes
Maximum Resistive Force	5160 - 5894 N	5708 N	Yes
Internal Hysteresis	69 - 85 %	73 %	Yes

Comments:

Technician



Approved



05.27.2003 08:13:27 945



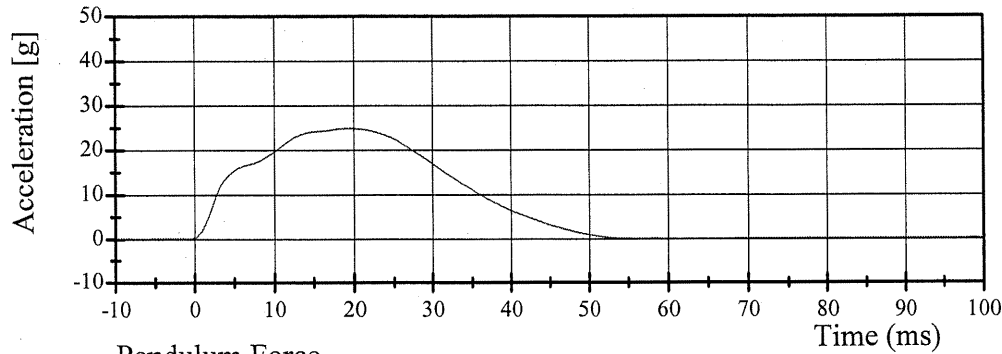
Transportation Research Center Inc.

572E Thorax Test

HHH 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Pendulum Deceleration

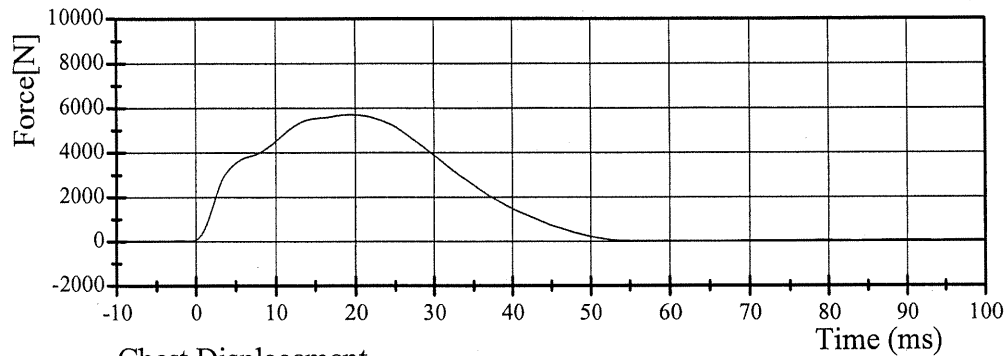


Filter Class: 180

Max: 24.9 g at 19.4 ms

Min: -1.8 g at 467.1 ms

Pendulum Force

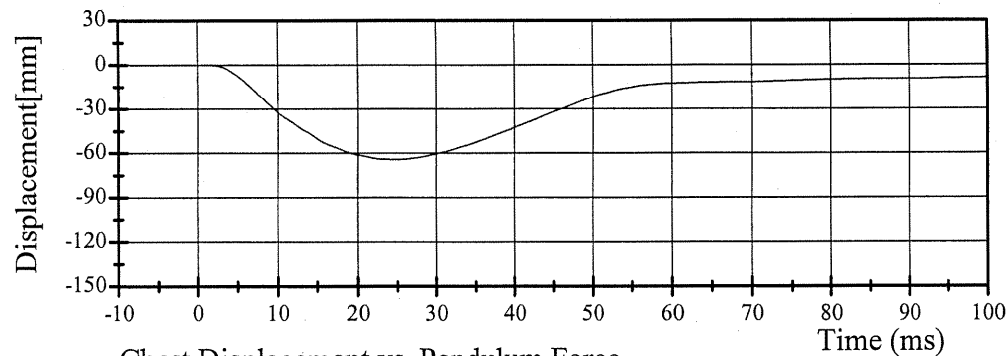


Filter Class: 180

Max: 5707.7 N at 19.4 ms

Min: -407.6 N at 467.1 ms

Chest Displacement

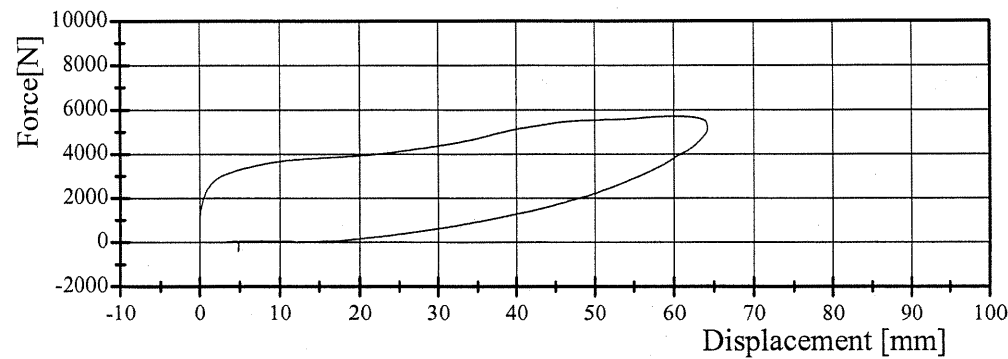


Filter Class: 180

Max: 0.0 mm at 1.2 ms

Min: -64.2 mm at 25.0 ms

Chest Displacement vs. Pendulum Force



05.27.2003 08:13:28 945



Transportation Research Center Inc

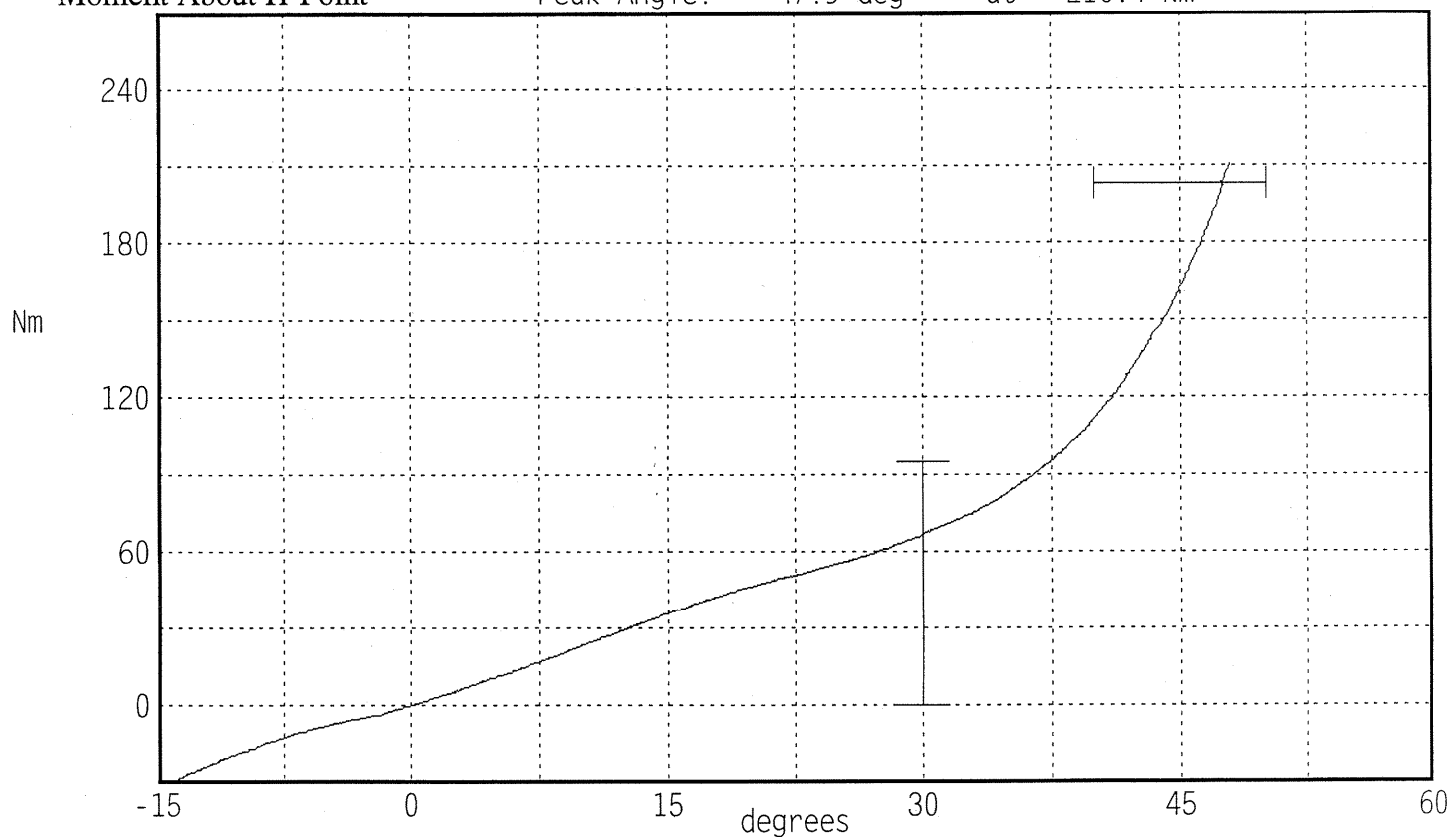
Hybrid III Hip Range of Motion

Serial Number: 168L
Test Number: 168C21
Comments: C

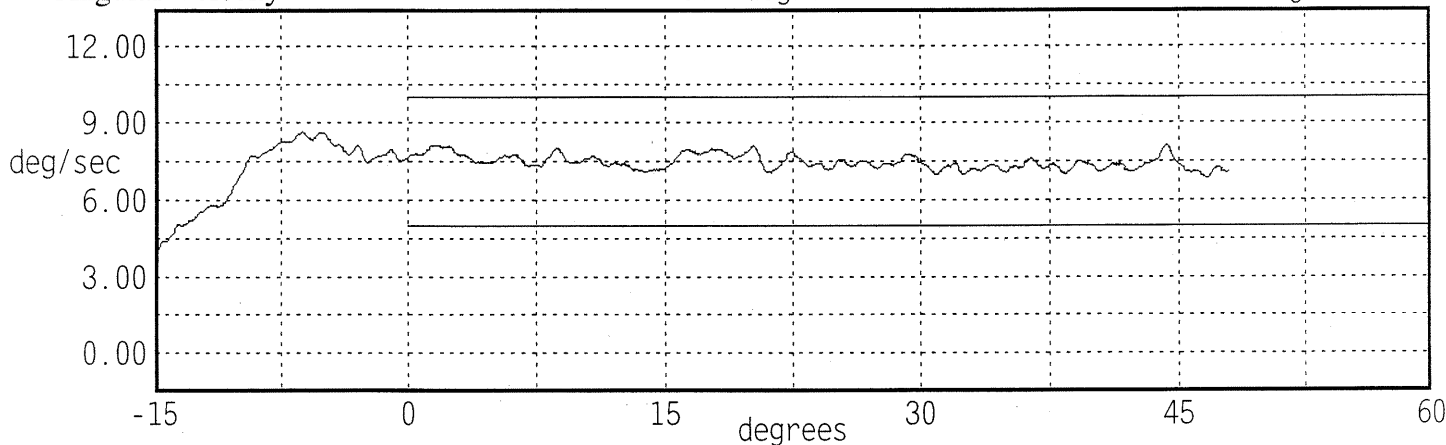
Date: 05/27/2003
Time: 10:11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.7 °C Pass
Humidity	10 - 70	48 % Pass
Moment at 30 deg	<= 94.9	66.8 Nm Pass
Angle at 203 Nm	40.0 - 50.0	47.5 deg Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec Pass

Moment About H-Point
Peak Moment: 210.4 Nm at 47.9 deg
Peak Angle: 47.9 deg at 210.4 Nm



Angular Velocity Max: 8.1 deg/sec Min: 6.9 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

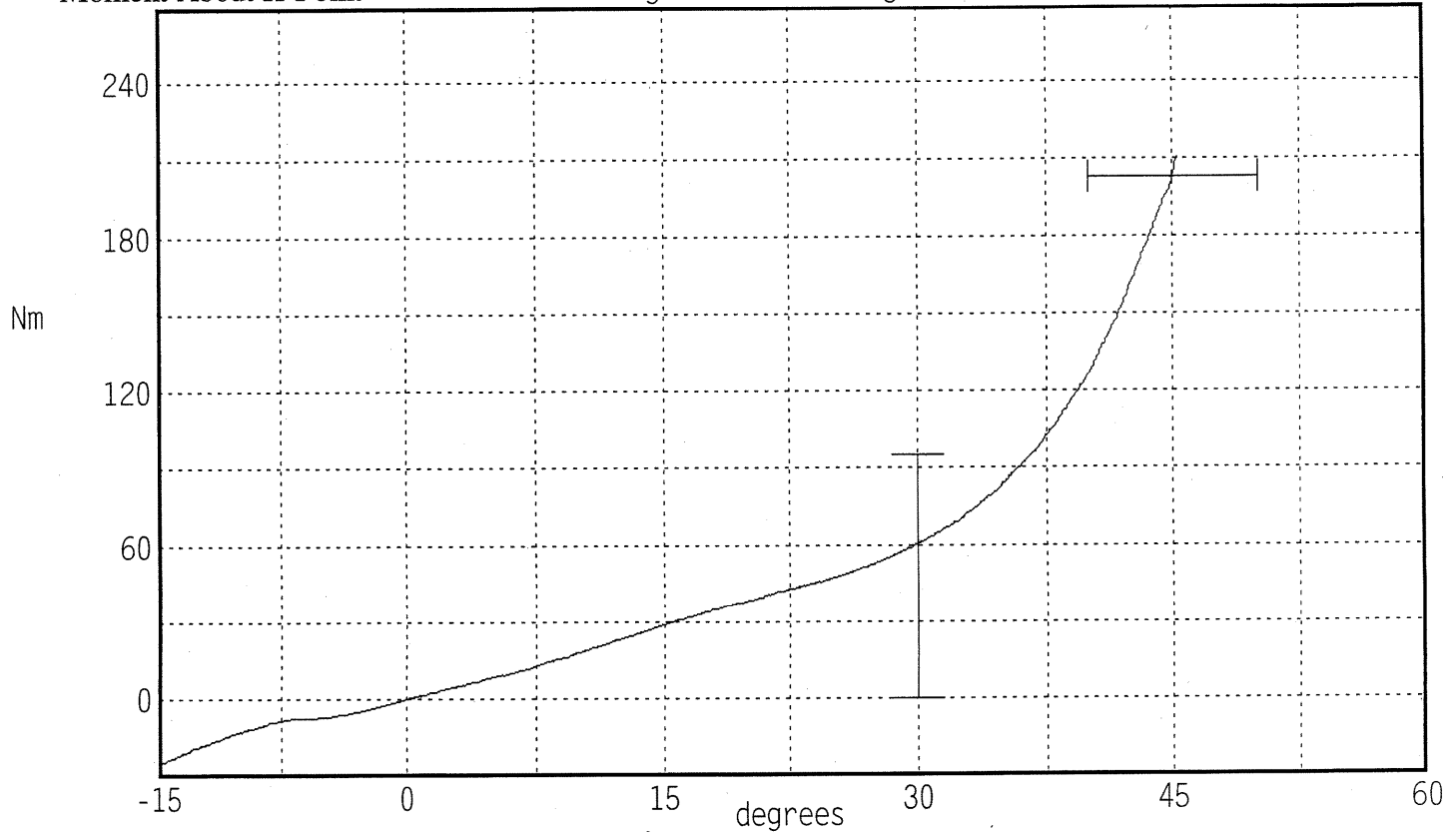
Serial Number: 168R
Test Number: 168C21
Comments: C

Date: 05/27/2003
Time: 10:15

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.7 °C Pass
Humidity	10 - 70	48 % Pass
Moment at 30 deg	<= 94.9	61.0 Nm Pass
Angle at 203 Nm	40.0 - 50.0	45.0 deg Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec Pass

Peak Moment: 210.3 Nm at 45.3 deg
Peak Angle: 45.3 deg at 210.3 Nm

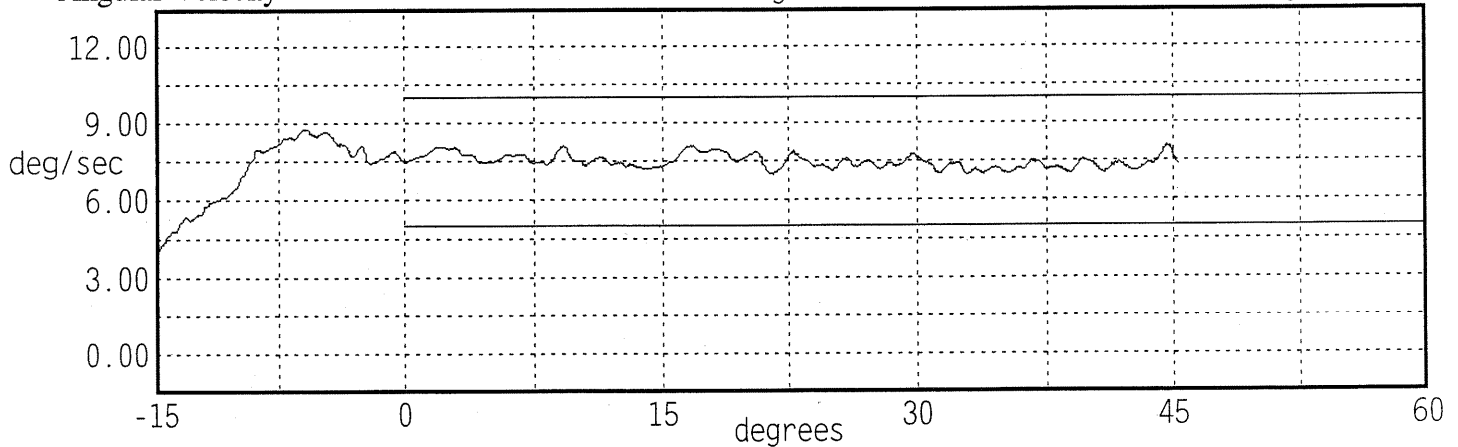
Moment About H-Point



Angular Velocity

Max: 8.1 deg/sec

Min: 7.0 deg/sec

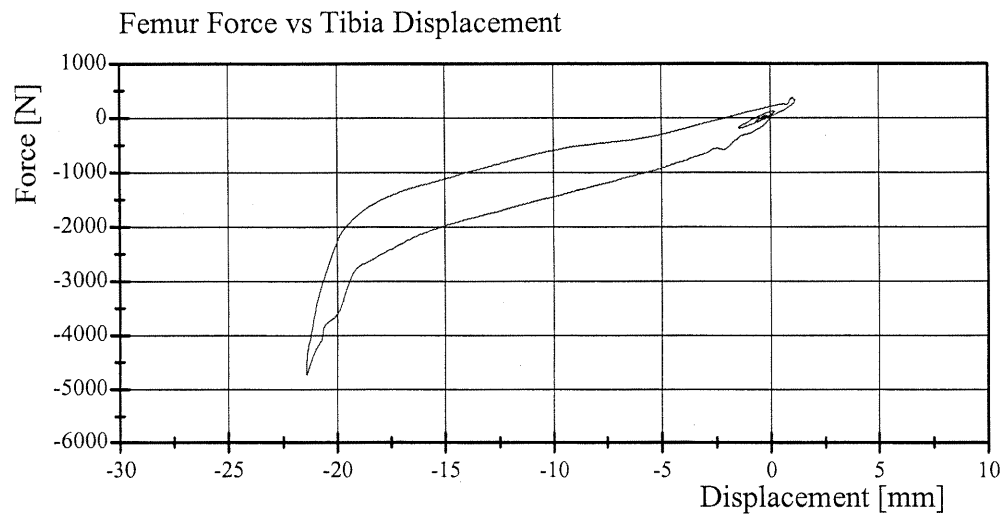
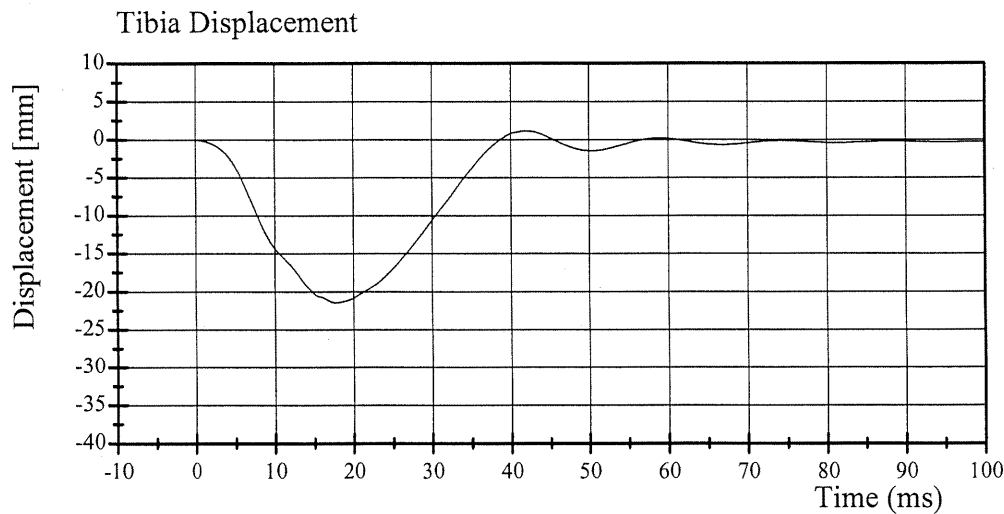
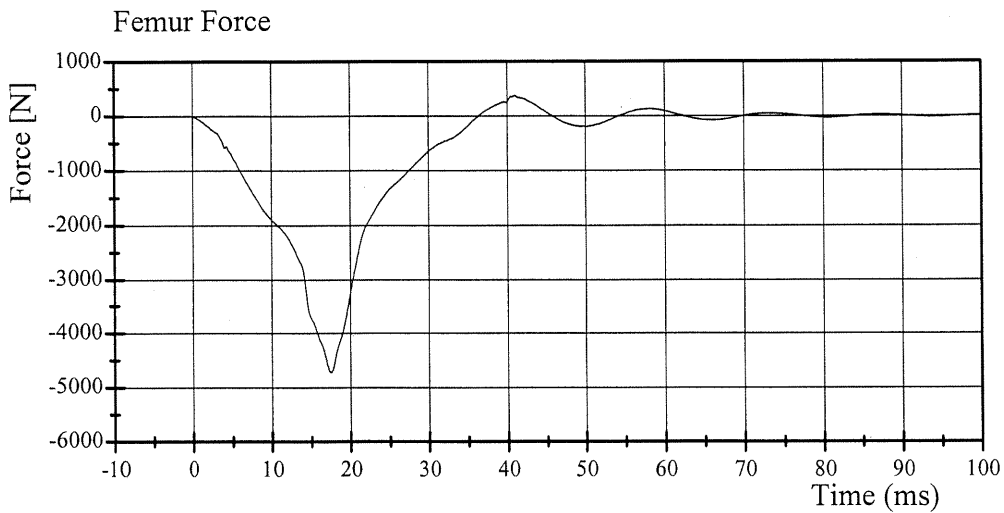


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 2

Test Date 05/28/2003



Transportation Research Center Inc.

572E Right Knee Slider Test

HHH 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

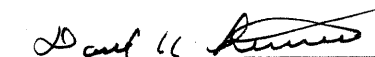
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1606 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2908 N	Yes

Comments:

Technician



Approved

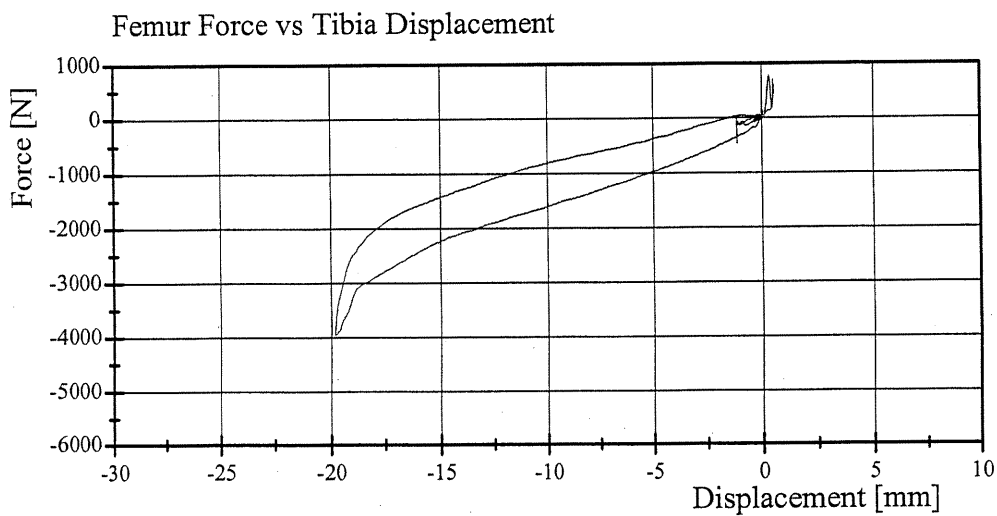
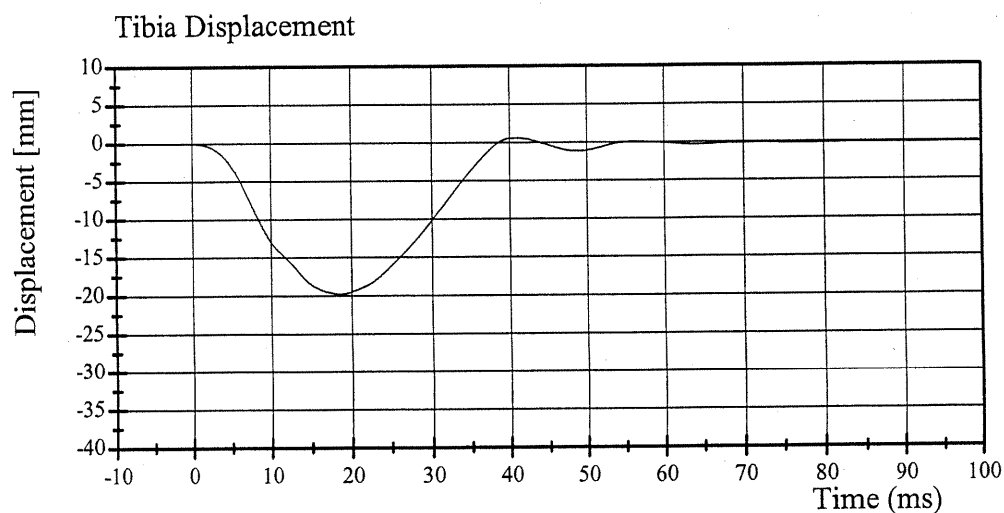
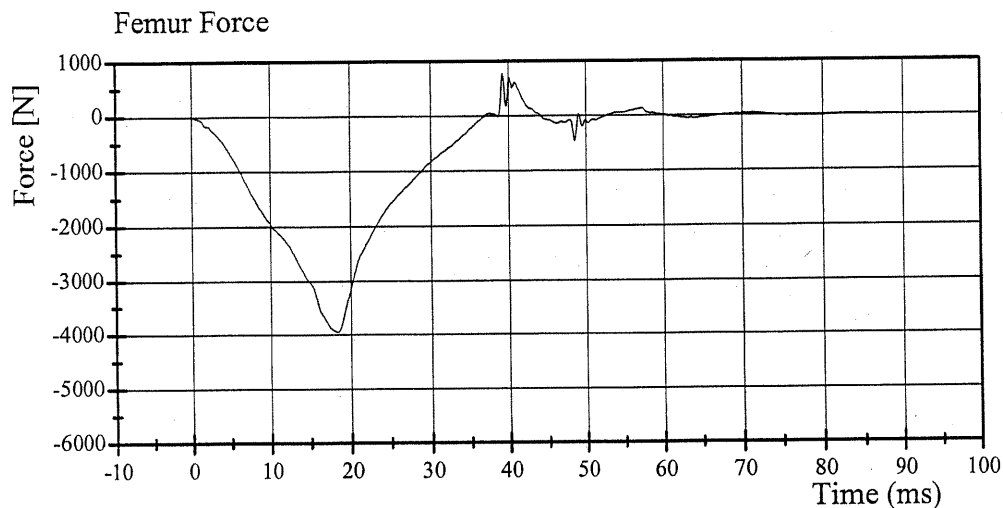


Transportation Research Center Inc.

572E Right Knee Slider Test

HHH 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003



Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 2

Test Date 06/10/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5341 N	Yes

Comments:

New Knee Skin Installed.

Technician



Approved



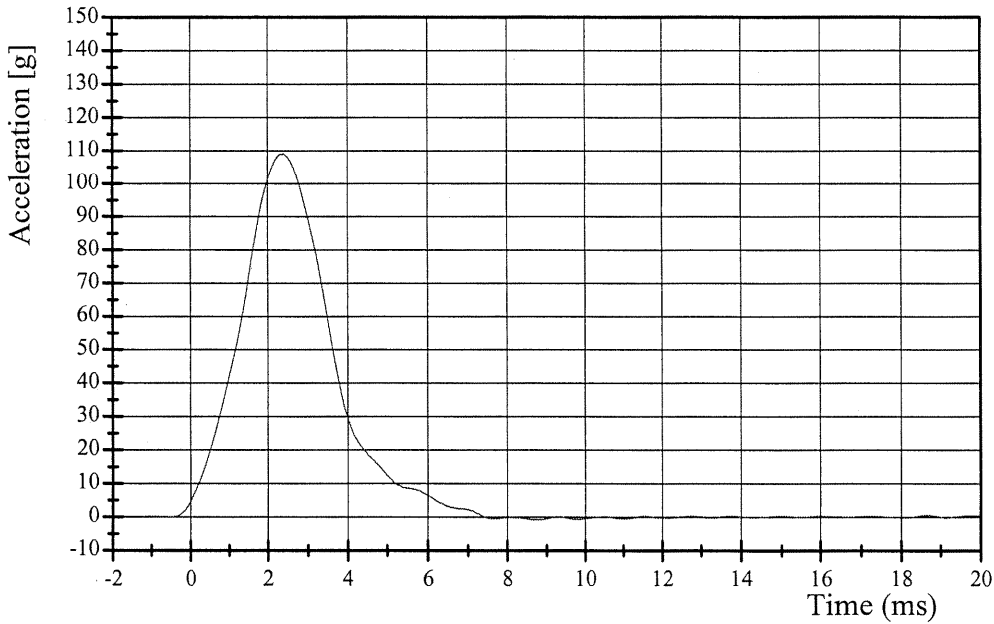
Transportation Research Center Inc.

572E Left Knee Test

IIII 50th Male Serial No. 168 Calibration No. 21 - 2

Test Date 06/10/2003

Pendulum Deceleration

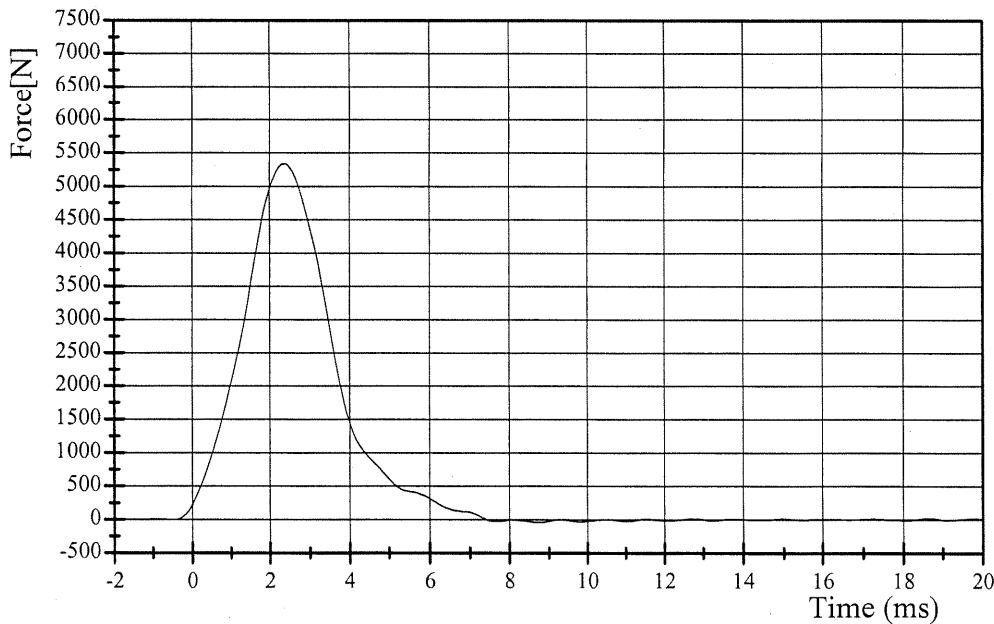


Filter Class: 600

Max: 109.2 g at 2.4 ms

Min: -0.8 g at 8.8 ms

Pendulum Force



Filter Class: 600

Max: 5340.8 N at 2.4 ms

Min: -38.7 N at 8.8 ms

Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

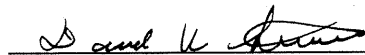
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	4872 N	Yes

Comments:

Technician



Approved



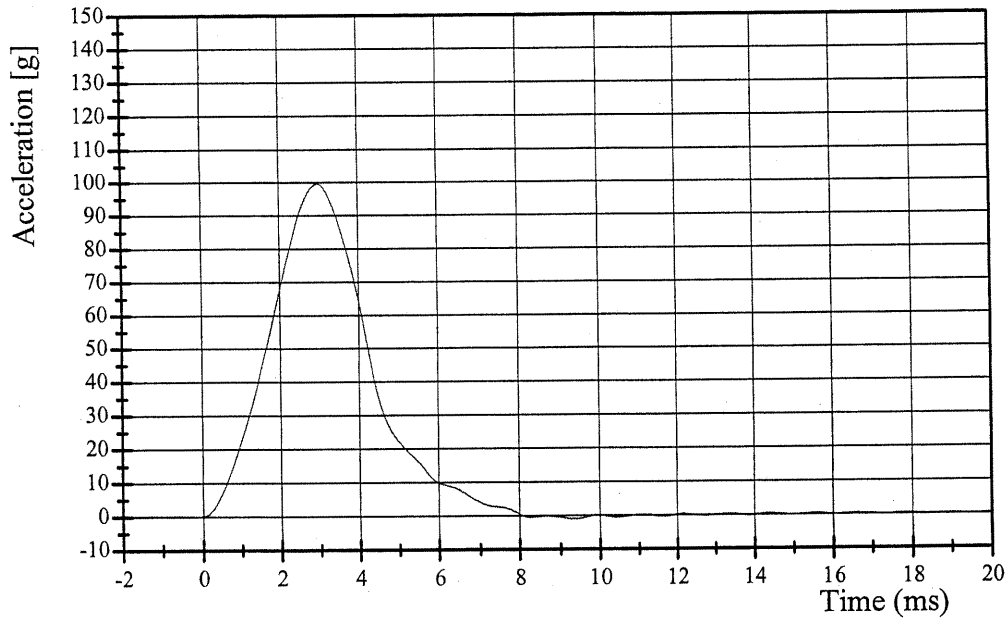
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Pendulum Deceleration

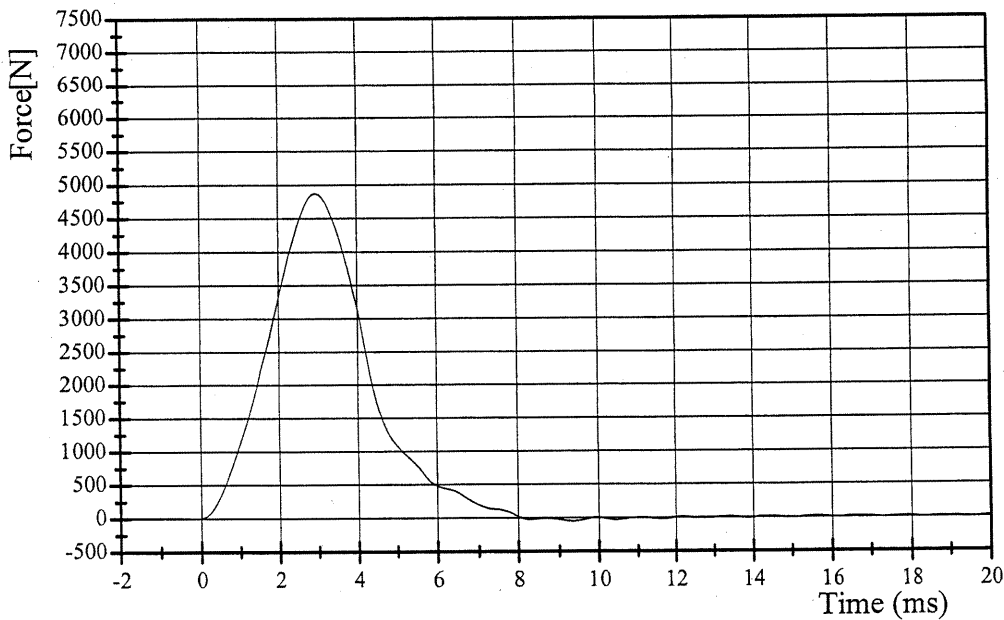


Filter Class: 600

Max: 99.6 g at 3.0 ms

Min: -1.0 g at 9.4 ms

Pendulum Force



Filter Class: 600

Max: 4872.4 N at 3.0 ms

Min: -49.3 N at 9.4 ms

Transportation Research Center Inc.

572E Left Knee Slider Test

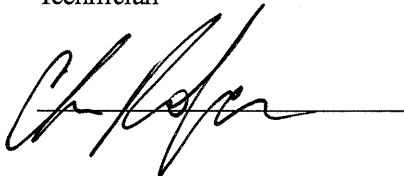
HIH 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

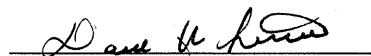
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1644 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2969 N	Yes

Comments:

Technician



Approved



05.27.2003 09:29:13 1767

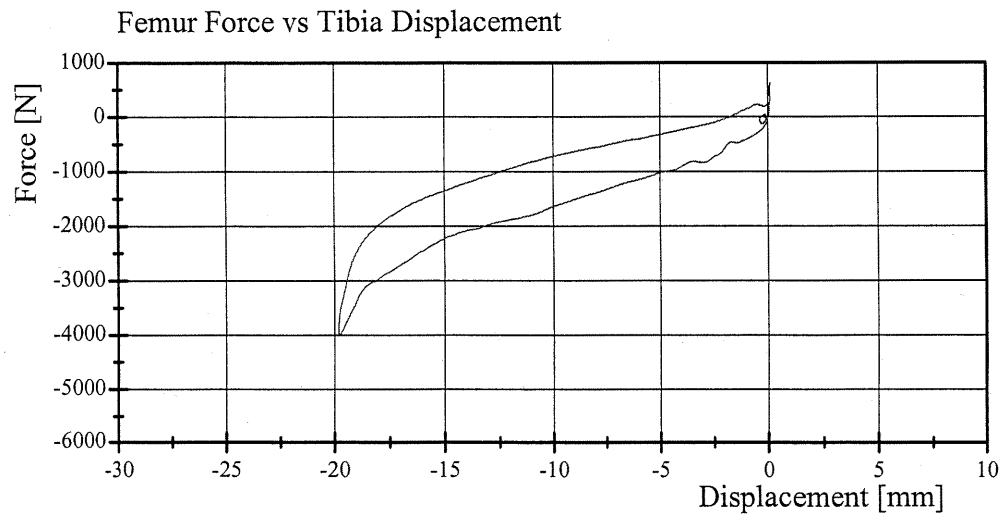
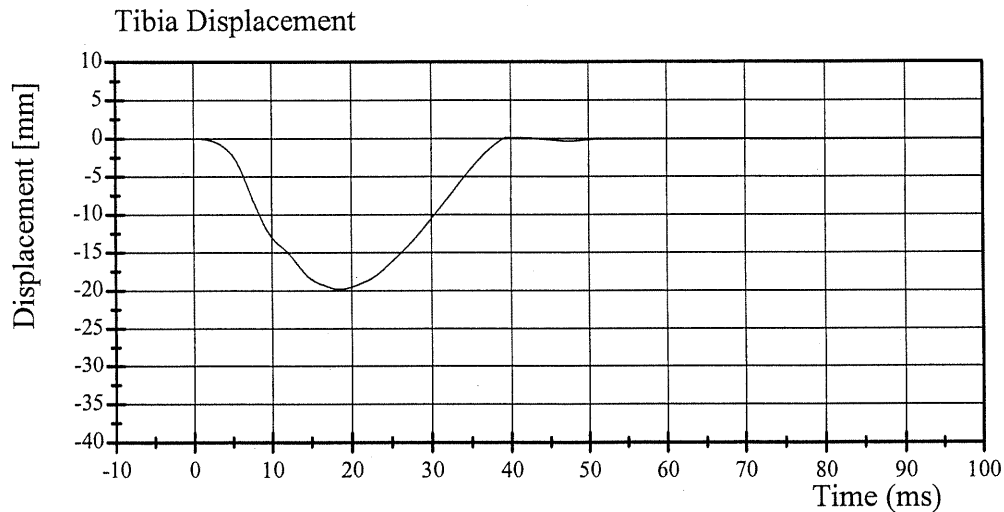
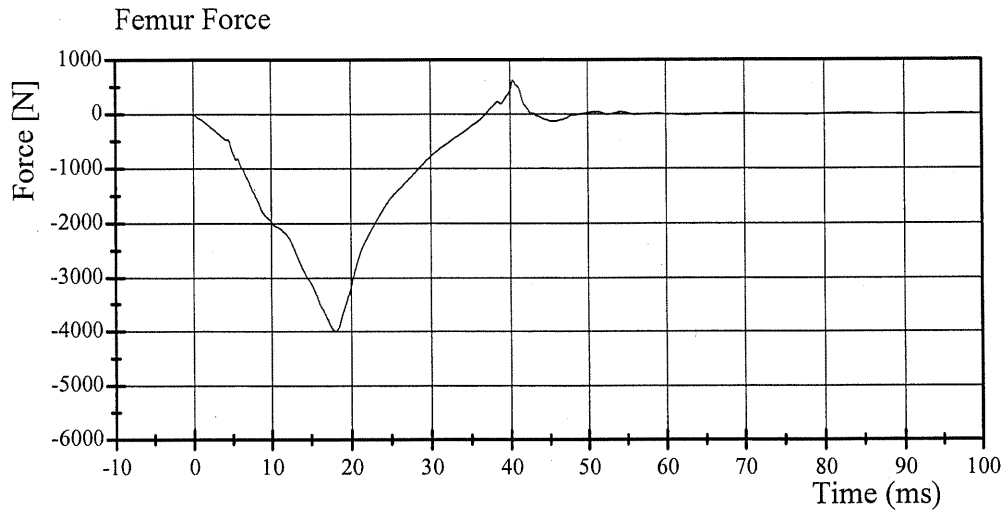


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003



05.27.2003 09:29:14 1767



Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1606 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2908 N	Yes

Comments:

Technician



Approved



05.27.2003 09:01:48 1767



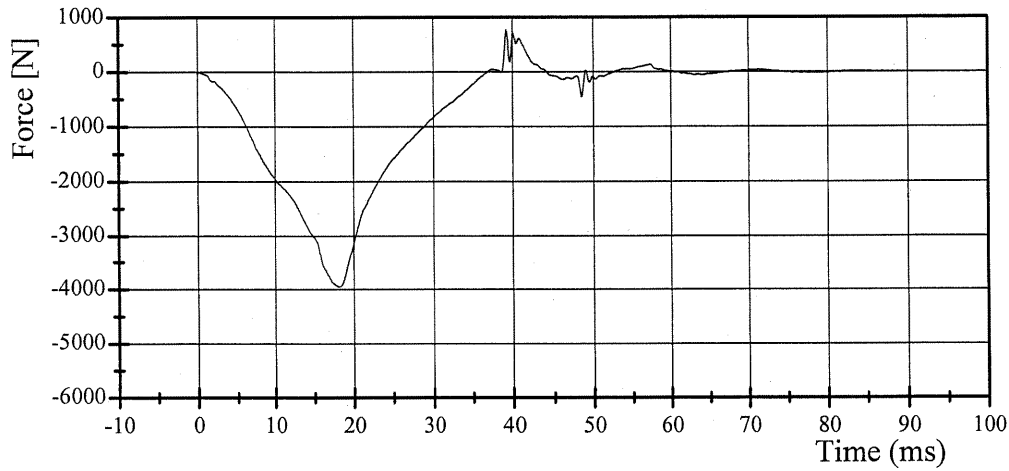
Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Femur Force

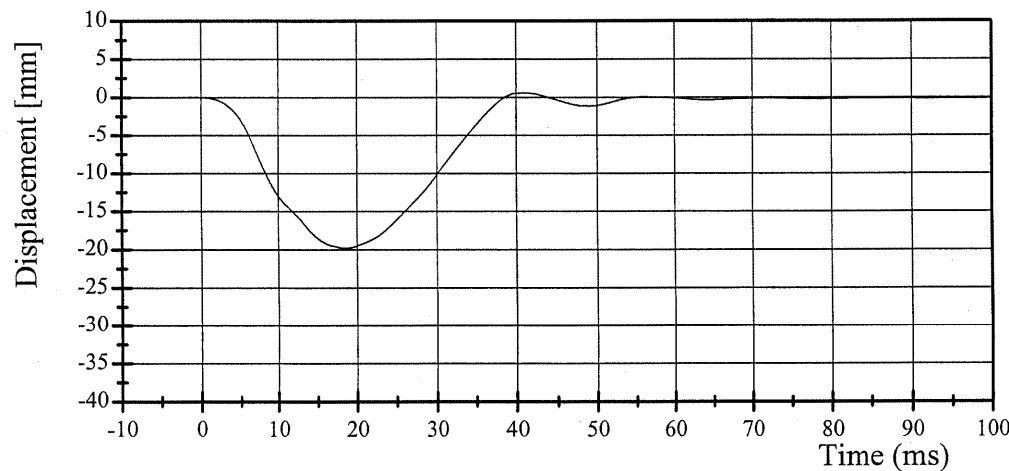


Filter Class: 600

Max: 767.7 N at 39.2 ms

Min: -3952.1 N at 18.2 ms

Tibia Displacement

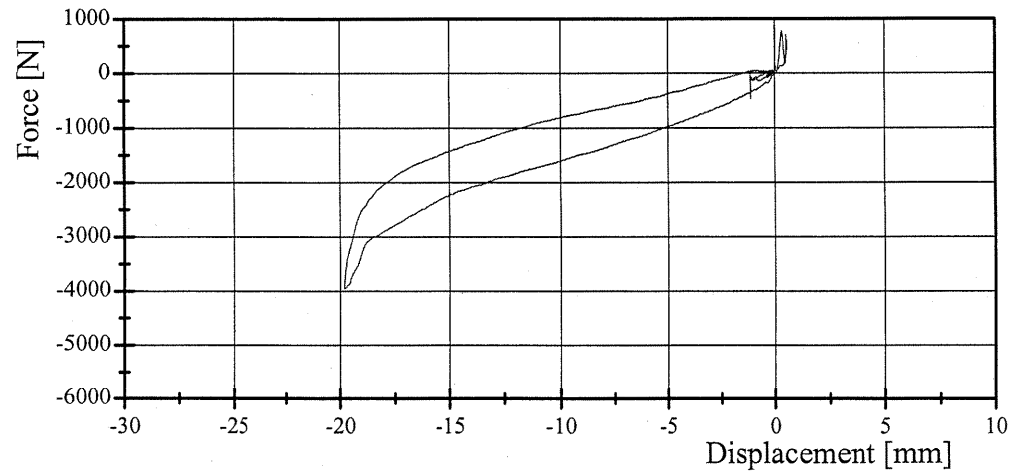


Filter Class: 600

Max: 0.6 mm at 41.0 ms

Min: -19.8 mm at 18.4 ms

Femur Force vs Tibia Displacement



05.27.2003 09:01:49 1767



Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

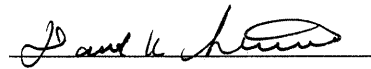
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.09 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5276 N	Yes

Comments:

Technician



Approved



05.27.2003 14:45:26 2108



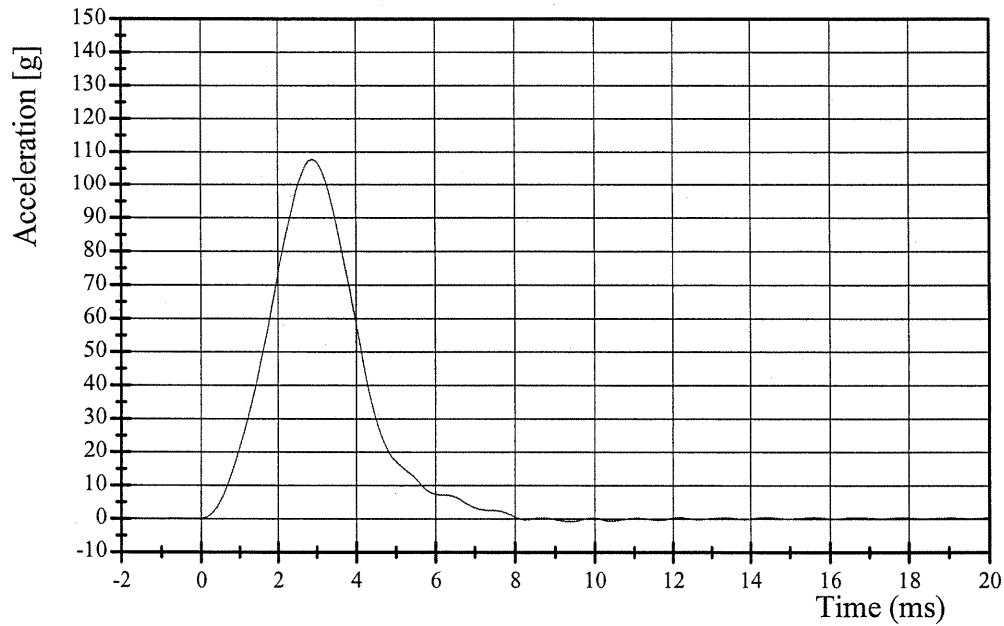
Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Pendulum Deceleration

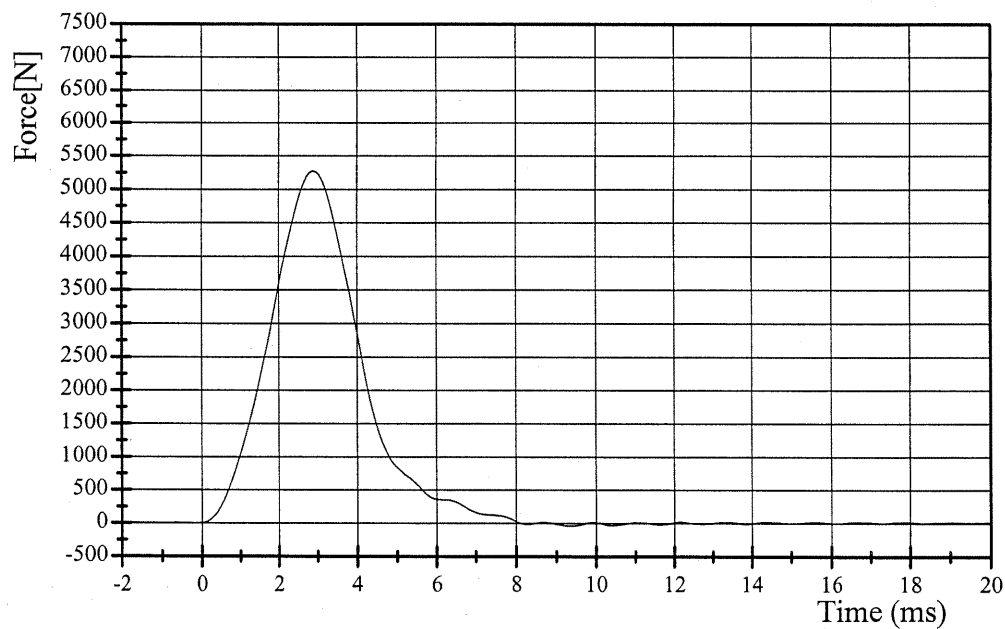


Filter Class: 600

Max: 107.8 g at 2.9 ms

Min: -0.8 g at 9.4 ms

Pendulum Force



Filter Class: 600

Max: 5276.0 N at 2.9 ms

Min: -38.3 N at 9.4 ms

Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

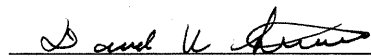
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	4872 N	Yes

Comments:

Technician



Approved



05.27.2003 15:00:48 2110



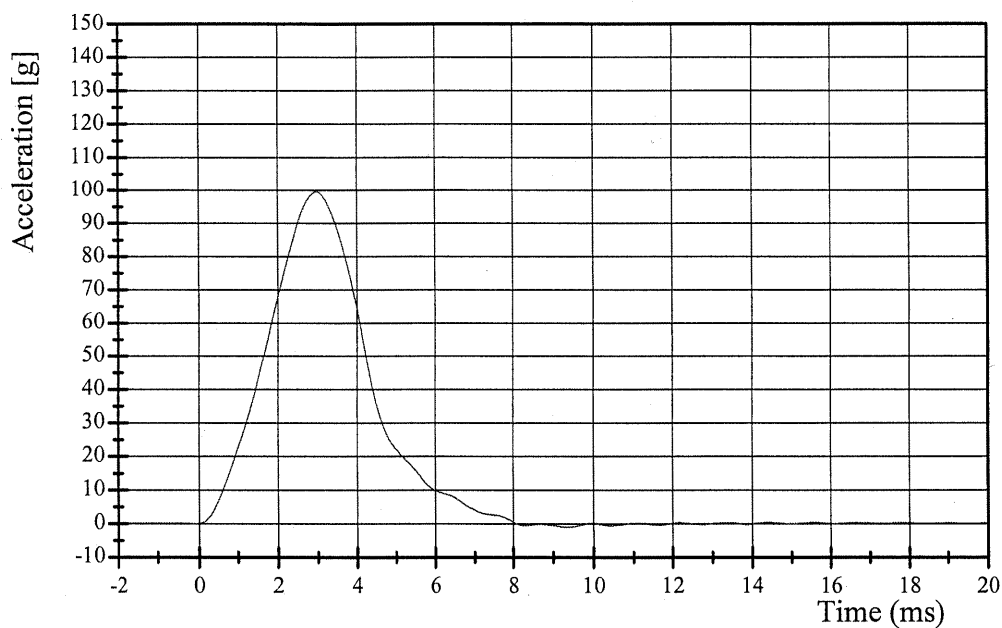
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 21 - 1

Test Date 05/27/2003

Pendulum Deceleration

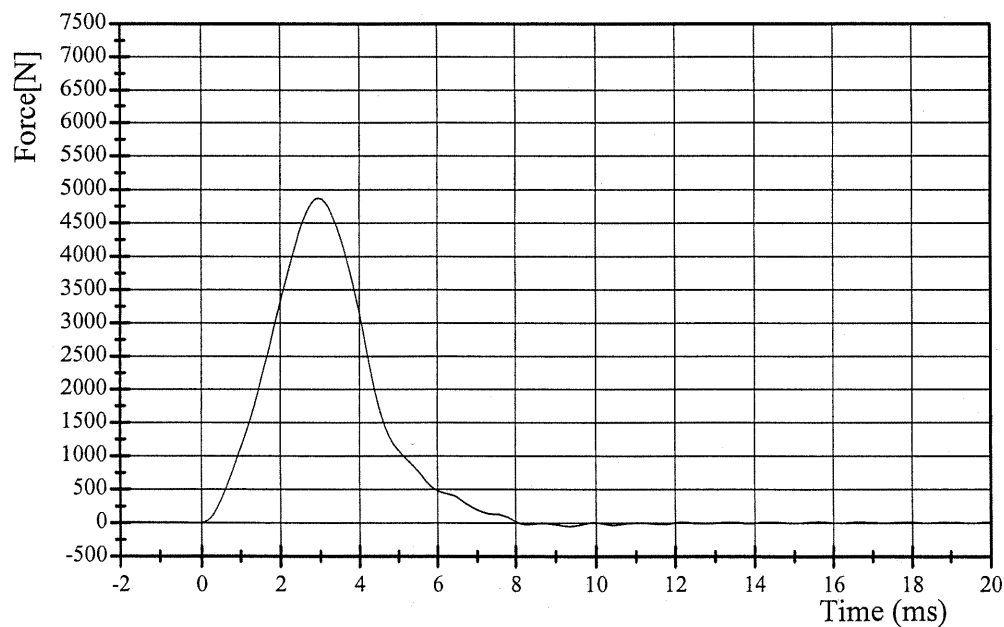


Filter Class: 600

Max: 99.6 g at 3.0 ms

Min: -1.0 g at 9.4 ms

Pendulum Force



Filter Class: 600

Max: 4872.4 N at 3.0 ms

Min: -49.3 N at 9.4 ms

GESAC, INC

DESIGN | MANUFACTURE | TEST | SOFTWARE DEVELOPMENT | ERGONOMICS
125 Orchard Drive, Boonsboro, MD 21713
Tel (301) 432-5885 Fax (301) 432-6199

Thor-LX Test Report

Dynamic Heel of Foot Impact Test

Engineer P. Pope
Y. Wang
Customer TRC
Description Left Lower Extremities

Test Date June 6, 2003
Temp (C)/Hum.(%) 22/61
Serial No. LX110

Testing Summary

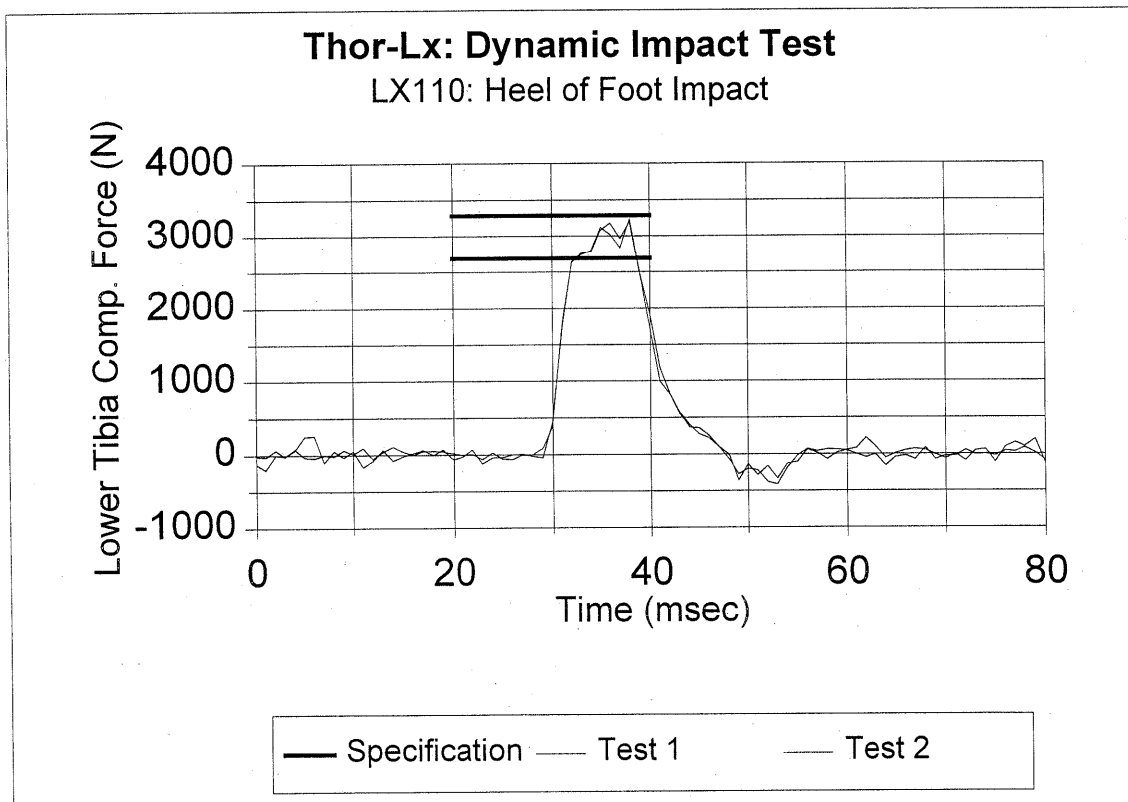
Impact Speed 4.0 m/s Scan Rate 10000 scans/sec
Impact Effective Mass 5.0 kg Filter CFC 600
Impactor NHTSA Dynamic Impactor (TLX-9000-013)

Response

Peak Lower Tibia Compressive Force* (N)	Specification (N)	Within Reference
3222	2694 - 3292	Yes

*Average Value

Test Plot



Tested by:

Patrick Pope

Date:

6-11-03

Analyzed by:

Y. Wang

Date:

6-11-03

GESAC, INC

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125 Orchard Drive, Boonsboro, MD 21713
Tel (301) 432-5885 Fax (301) 432-6199

Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 1)

Engineer P. Pope
Y. Wang
Customer TRC
Description Left Lower Extremities

Test Date June 9, 2003
Temp (C)/Hum.(%) 21/62
Serial No. LX110

Testing Summary

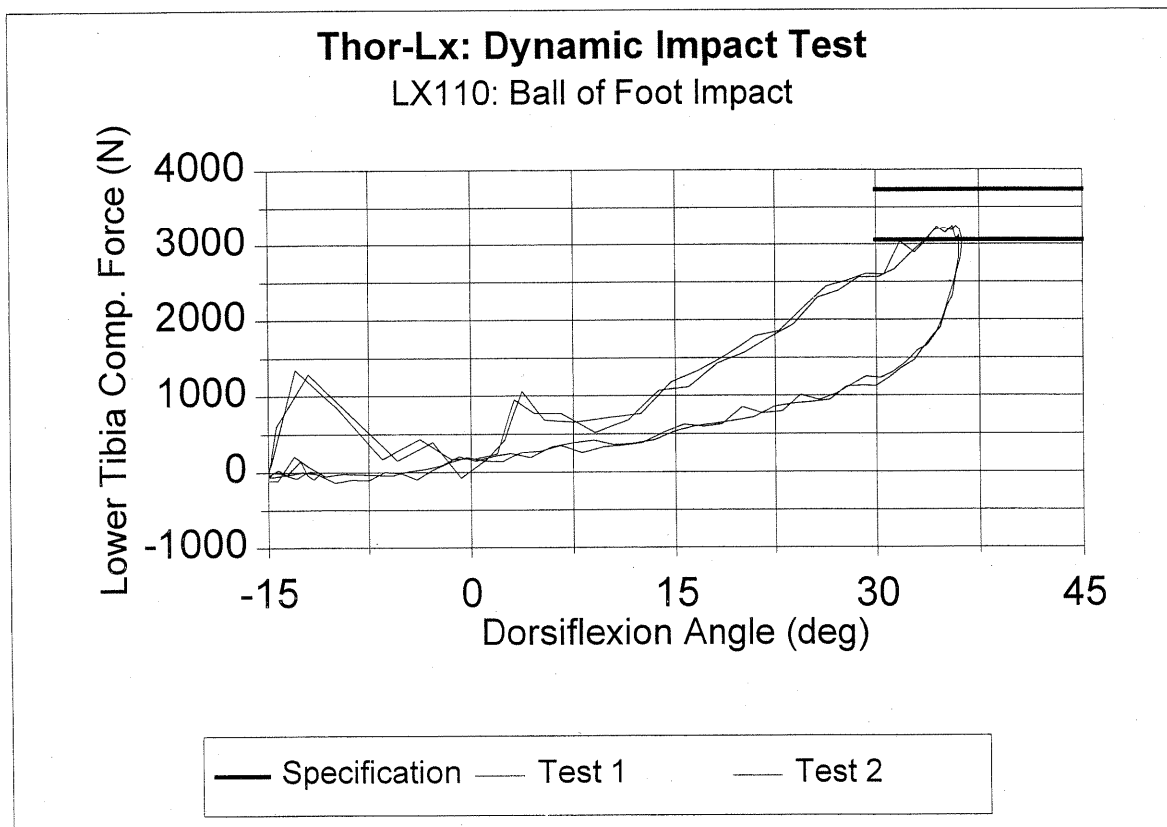
Impact Speed 5.0 m/s Scan Rate 10000 scans/sec
Impact Effective Mass 5.0 kg Filter CFC 600
Impactor NHTSA Dynamic Impactor (TLX-9000-013)

Response

Peak Lower Tibia Compressive Force* (N)	Specification (N)	Within Reference
3251	3058 - 3738	Yes

*Average Value

Test Plot



Tested by: Patrick Pope

Date: 6-11-03

Analyzed by: [Signature]

Date: 6-11-03

GESAC, INC

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125 Orchard Drive, Boonsboro, MD 21713

Tel (301) 432-5885

Fax (301) 432-6199

Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 2)

Engineer P. Pope
Y. Wang
Customer TRC
Description Left Lower Extremities

Test Date June 9, 2003
Temp (C)/Hum.(%) 21/62
Serial No. LX110

Testing Summary

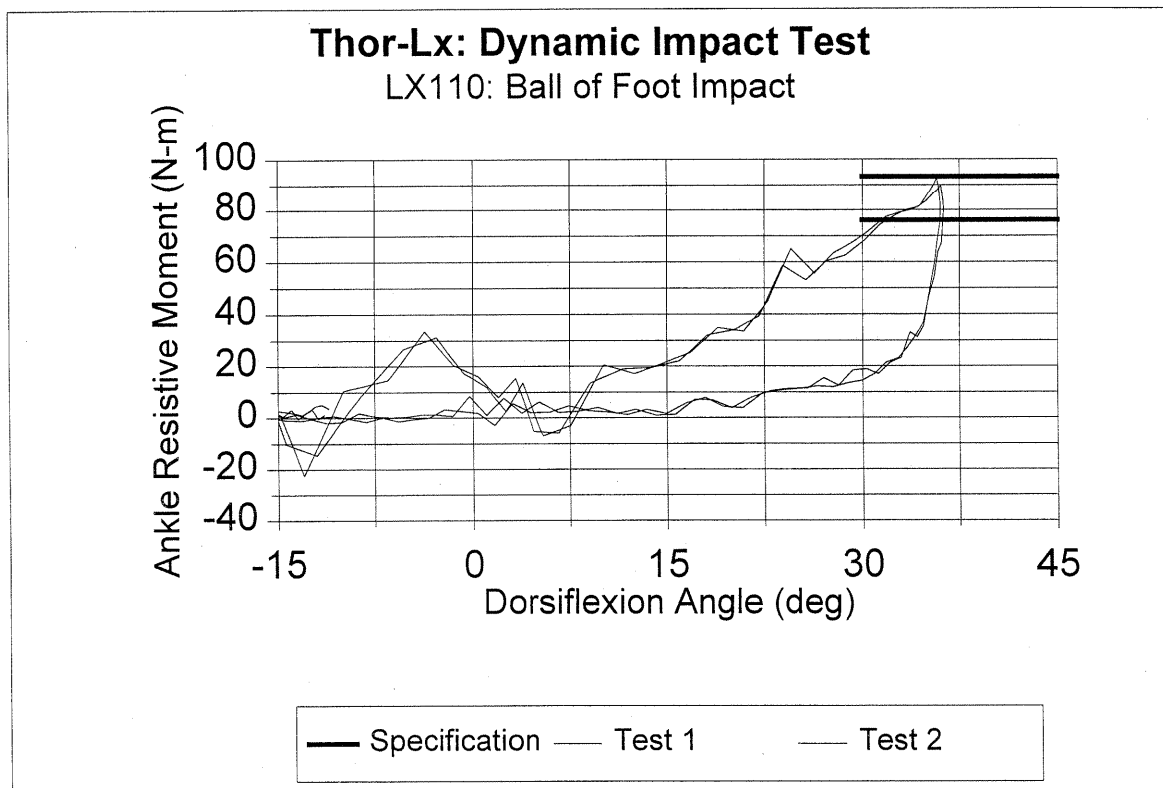
Impact Speed 5.0 m/s Scan Rate 10000 scans/sec
Impact Effective Mass 5.0 kg Filter CFC 600
Impactor NHTSA Dynamic Impactor (TLX-9000-013)

Response

Peak Ankle Resistive Moment* (N-m)	Specification (N-m)	Within Reference
91.3	76.2 - 93.2	Yes

*Average Value

Test Plot



Tested by:

P. Pope

Date:

6-11-03

Analyzed by:

Y. Wang

Date:

6-11-03

GESAC, INC

DESIGN | MANUFACTURE | TEST | SOFTWARE DEVELOPMENT | ERGONOMICS

125 Orchard Drive, Boonsboro, MD 21713

Tel (301) 432-5885 Fax (301) 432-6199

Thor-Lx Test Report

Inversion Quasi-Static Test

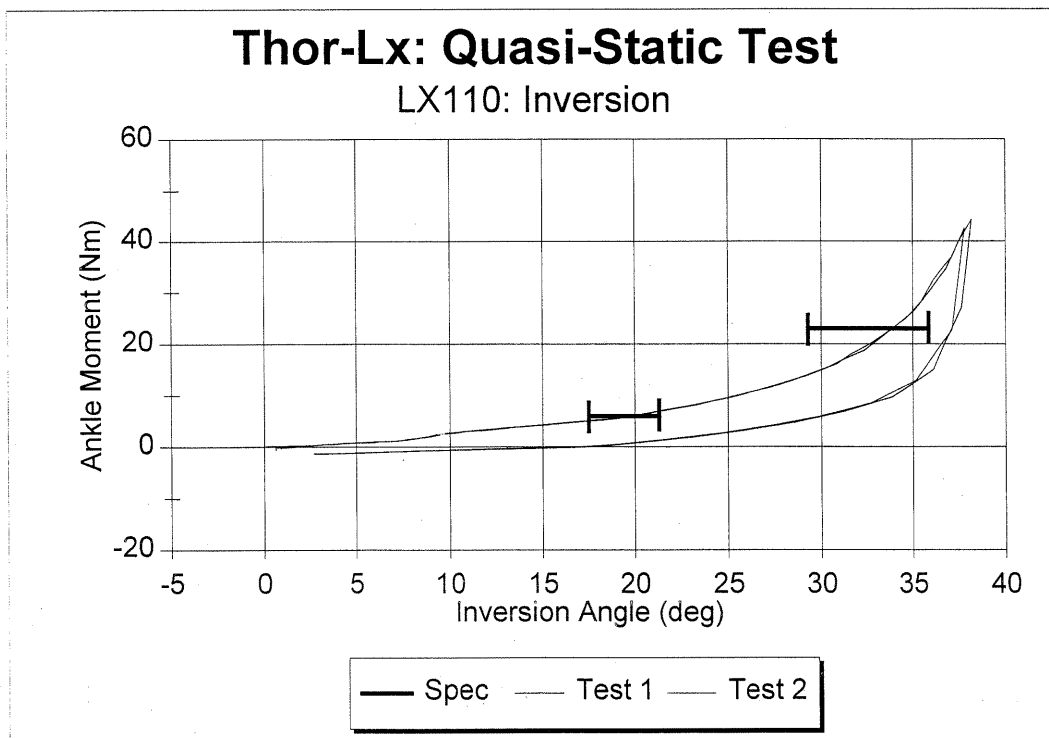
Engineer	P. Pope Y. Wang	Test Date	June 10, 2003
Customer	TRC	Temp. (C)/Hum.(%)	22/61
Description	Left Lower Extremity	Serial No.	LX110

Testing Summary (Design Reference)

Ankle Moment (Nm)	Inversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	19.7	17.5 - 21.3	Yes
23	33.9	29.3 - 35.9	Yes

*Average Value

Result Plot



Tested by: Patricia Pope

Date: 6-11-03

Analyzed by: Y. Wang

Date: 6-11-03

GESAC, INC

DESIGN | MANUFACTURE | TEST | SOFTWARE DEVELOPMENT | ERGONOMICS

125 Orchard Drive, Boonsboro, MD 21713

Tel (301) 432-5885 Fax (301) 432-6199

Thor-Lx Test Report

Eversion Quasi-Static Test

Engineer P. Pope
Y. Wang
Customer TRC
Description Left Lower Extremity

Test Date
Temp. (C)/Hum.(%)
Serial No.

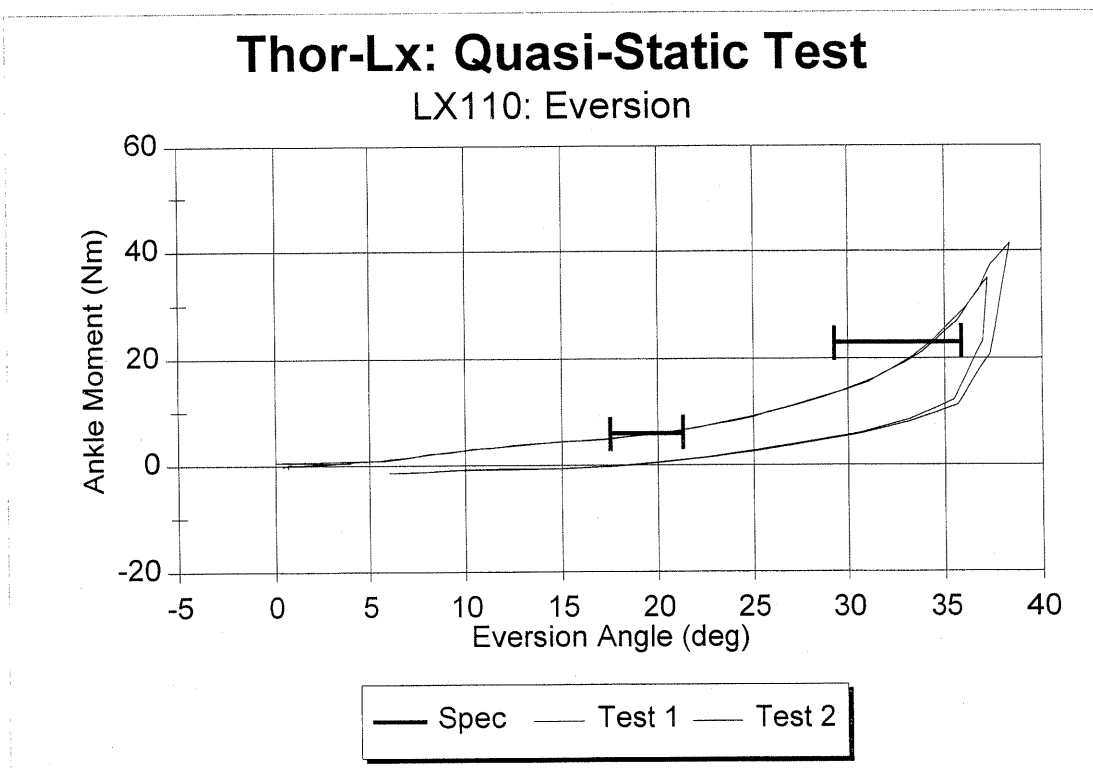
June 11, 2003
22/62
LX110

Testing Summary (Design Reference)

Ankle Moment (Nm)	Eversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	20.1	17.5 - 21.3	Yes
23	34.3	29.3 - 35.9	Yes

*Average Value

Result Plot



Tested by:

Patrick Pope

Date:

6-11-03

Analyzed by:

Y. Wang

Date:

6-11-03

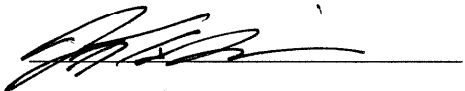
Pre-Test Dummy Configuration and Performance Verification Data

Passenger Dummy S/N: 169

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 169 Calibration No. 18

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	880	Yes
B	Shoulder Pivot Height	505.5 - 520.7	518	Yes
C	H-Point Height	83.8 - 88.9	88	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	92	Yes
F	Thigh Clearance	139.7 - 154.9	149	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	297	Yes
H	Skull Cap To Backline	40.6 - 45.7	43	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	344	Yes
J	Elbow Rest Height	190.5 - 210.8	209	Yes
K	Buttock Knee Length	579.1 - 604.5	594	Yes
L	Popliteal Height	429.3 - 454.7	439	Yes
M	Knee Pivot Height	485.1 - 500.4	493	Yes
N	Buttock Popliteal Length	452.1 - 477.5	477	Yes
O	Chest Depth	213.4 - 228.6	221	Yes
P	Foot Length	251.5 - 266.7	252	Yes
V	Shoulder Breadth	421.6 - 436.9	429	Yes
W	Foot Breadth	91.4 - 106.7	102	Yes
Y	Chest Circumference	970.3 - 1000.8	990	Yes
Z	Waist Circumference	835.7 - 866.1	856	Yes
AA	Location For Chest Circumference	429.3 - 434.3	432	Yes
BB	Location For Waist Circumference	226.1 - 231.1	229	Yes

Technician



Approved



Transportation Research Center Inc.

572E Head Drop Test

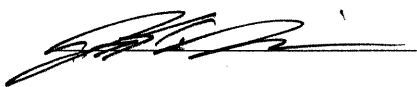
HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Peak Resultant Acceleration	225 - 275 g	252.4 g	Yes
Peak Lateral Acceleration	15 g Max	-5.3 g	Yes
Oscillations After Main Pulse	Less Than 10% of Peak Resultant Acceleration?	Yes	Yes

Comments:

Technician



Approved



04.30.2003 10:54:52 616

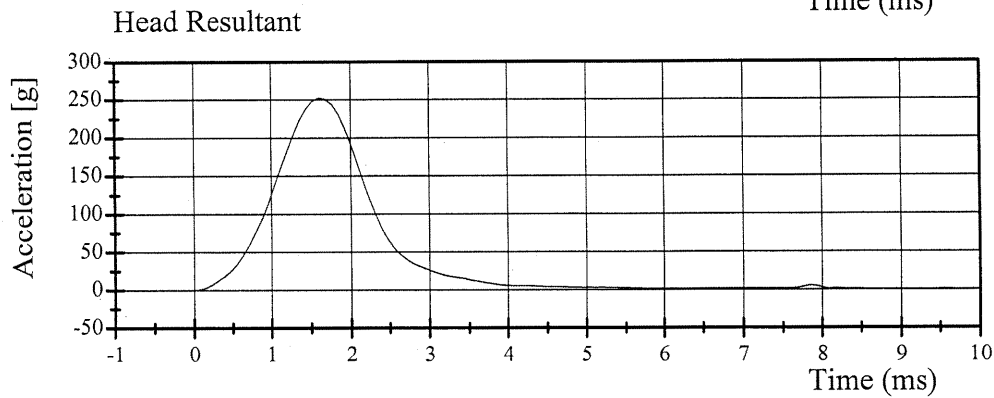
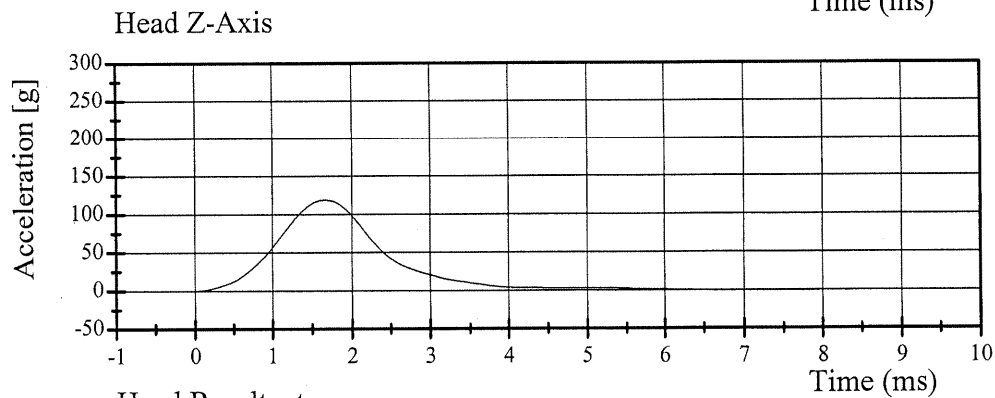
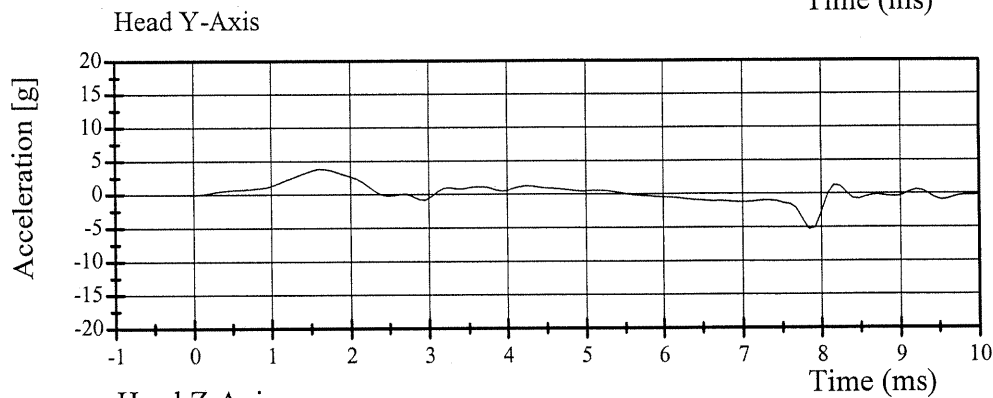
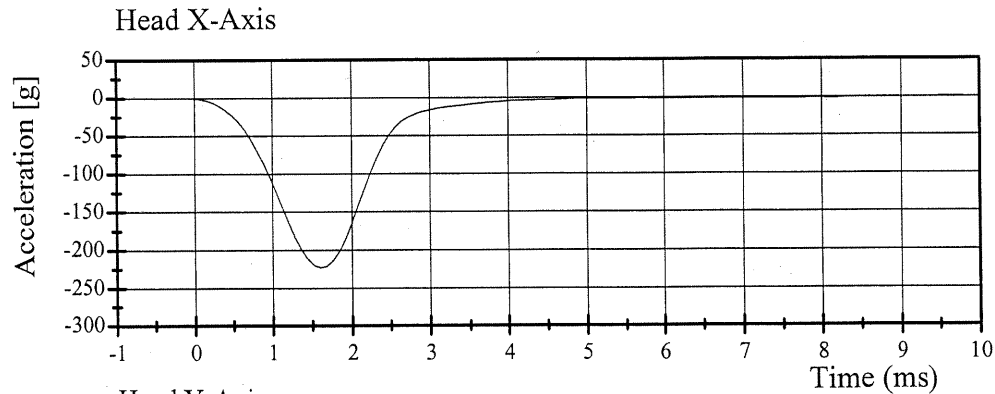


Transportation Research Center Inc.

572E Head Drop Test

HHH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003



04.30.2003 10:54:53 616



Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impact Velocity	6.89 - 7.13 m/s	6.97 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	26.25 g	Yes
20 ms	17.60 - 22.60 g	21.94 g	Yes
30 ms	12.50 - 18.50 g	18.09 g	Yes
Max Pendulum Deceleration	29.00 g	27.57 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	17.98 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	34.24 ms	Yes
D Plane Rotation			
Max	64 - 78 °	71.52 °	Yes
Time	57 - 64 ms	60.00 ms	Yes
Moment About Occipital Condyle			
Max	88.1 - 108.5 N·m	97.91 N·m	Yes
Time	47 - 58 ms	47.12 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	113.36 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	100.40 ms	Yes

Comments:

Technician



Approved



05.02.2003 07:49:50 497



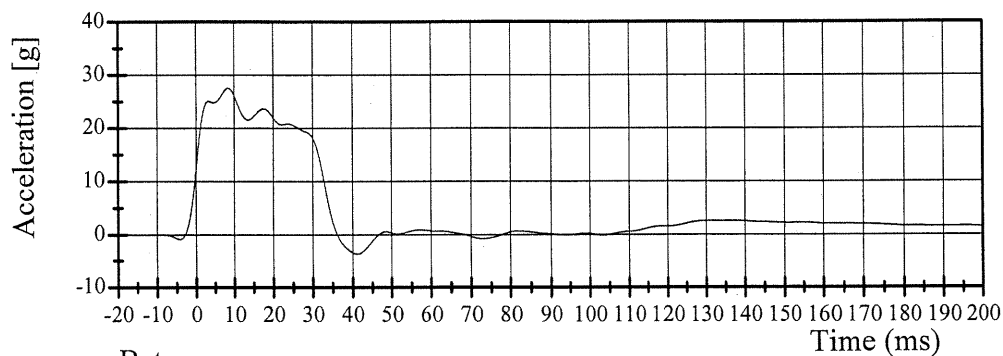
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Pendulum Deceleration

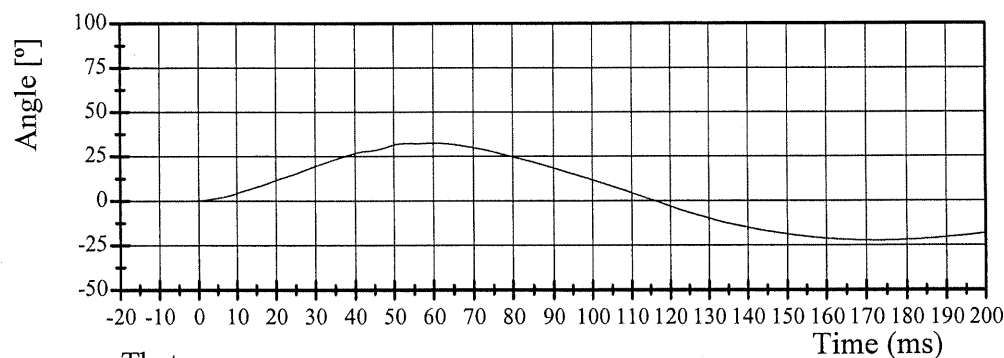


Filter Class: 60

Max: 27.6 g at 8.5 ms

Min: -3.6 g at 41.2 ms

Beta

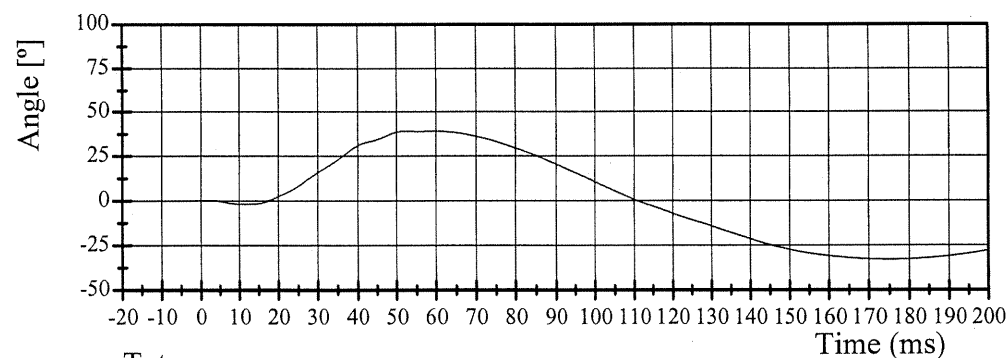


Filter Class: 60

Max: 32.5 ° at 60.4 ms

Min: -22.4 ° at 172.7 ms

Theta

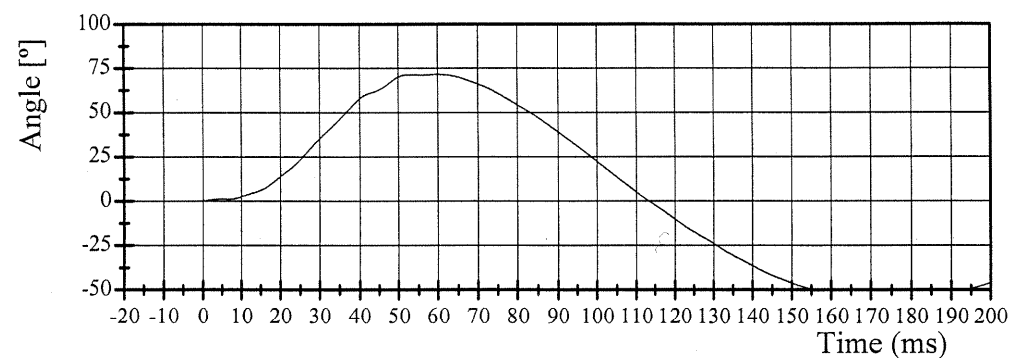


Filter Class: 60

Max: 39.0 ° at 59.5 ms

Min: -32.9 ° at 175.4 ms

Totan



Filter Class: 60

Max: 71.5 ° at 60.0 ms

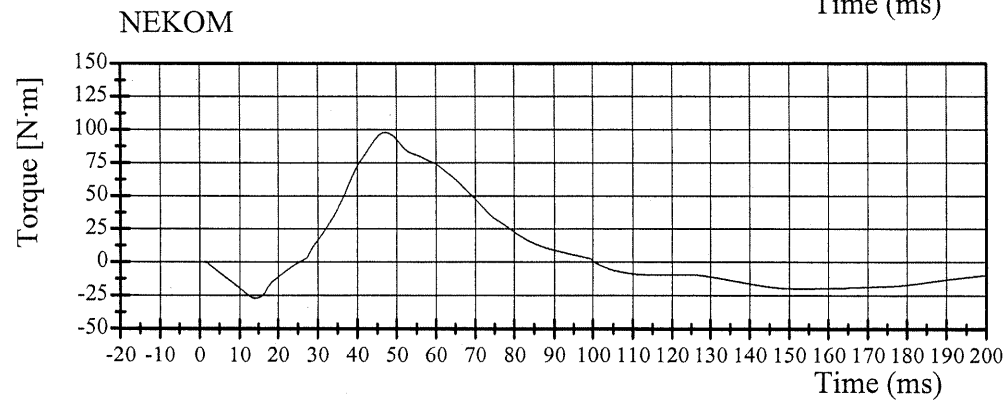
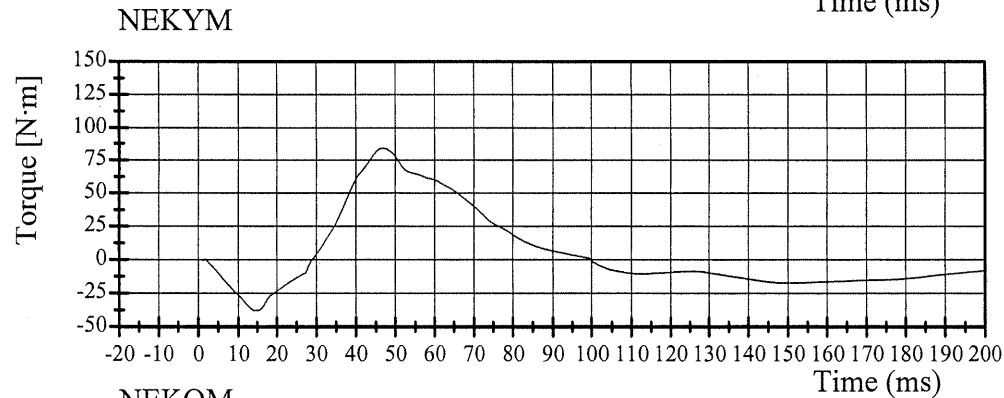
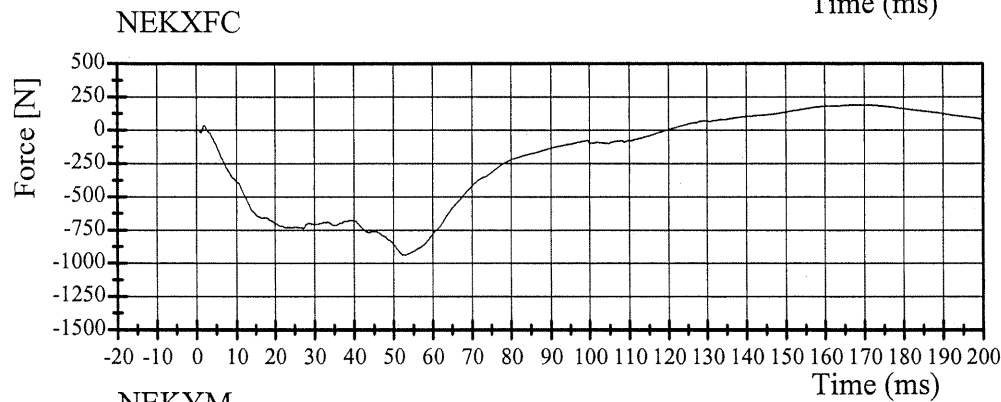
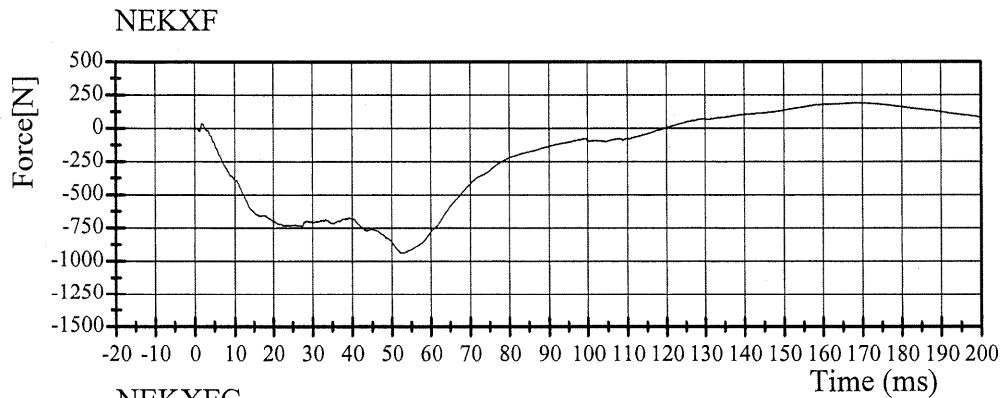
Min: -55.3 ° at 174.0 ms

Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003



05.02.2003 07:49:53 497



Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

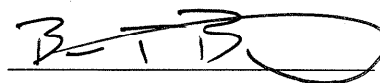
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.02 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	19.28 g	Yes
20 ms	14.00 - 19.00 g	16.56 g	Yes
30 ms	11.00 - 16.00 g	14.47 g	Yes
Max Pendulum Deceleration	22.00 g	19.76 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	14.42 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	38 - 46 ms	39.92 ms	Yes
D Plane Rotation			
Max	81 - 106 °	98.85 °	Yes
Time	72 - 82 ms	74.56 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-71.42 N·m	Yes
Time	65 - 79 ms	69.76 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	147 - 174 ms	155.52 ms	Yes
Negative Moment-Time Curve			
Decay Time To Zero	120 - 148 ms	144.88 ms	Yes

Comments:

Technician



Approved



05.02.2003 08:21:19 575



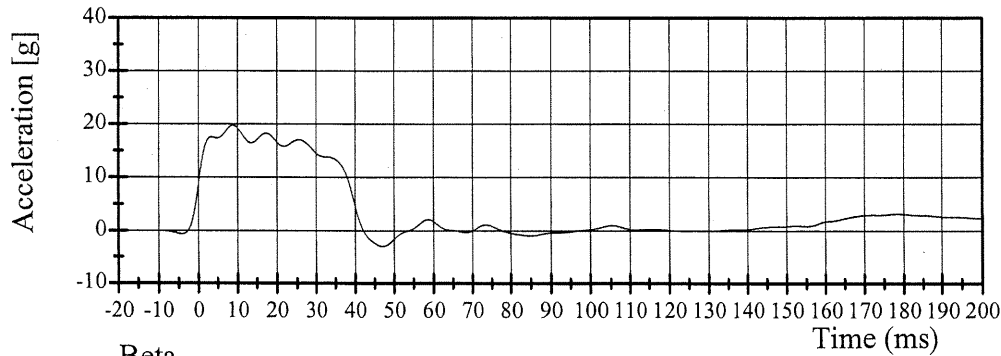
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Pendulum Deceleration

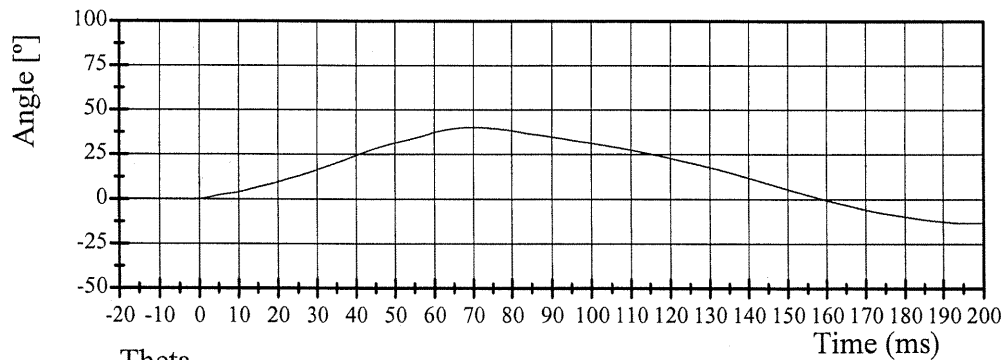


Filter Class: 60

Max: 19.8 g at 8.9 ms

Min: -2.9 g at 47.1 ms

Beta

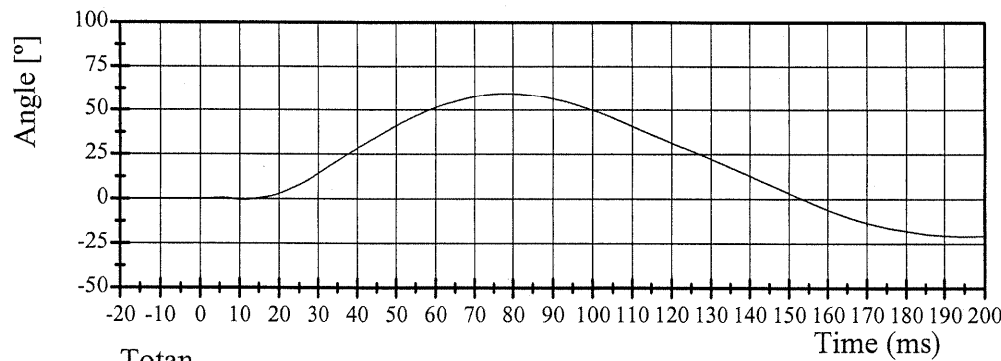


Filter Class: 60

Max: 40.2 ° at 69.9 ms

Min: -13.3 ° at 201.0 ms

Theta

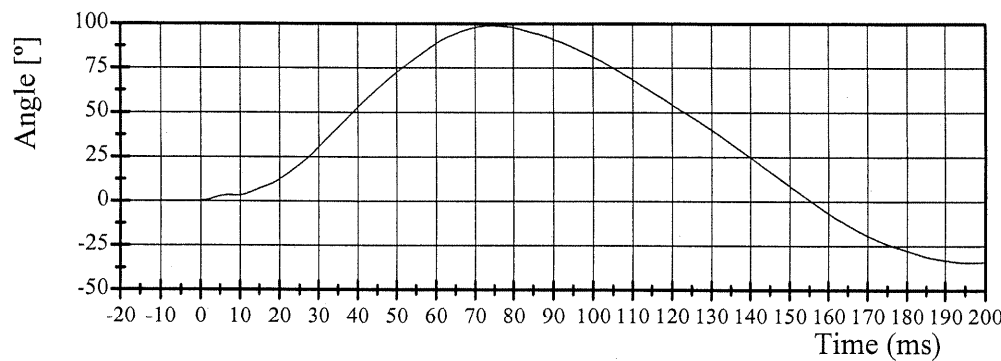


Filter Class: 60

Max: 59.5 ° at 78.7 ms

Min: -20.8 ° at 195.1 ms

Totan



Filter Class: 60

Max: 98.8 ° at 74.6 ms

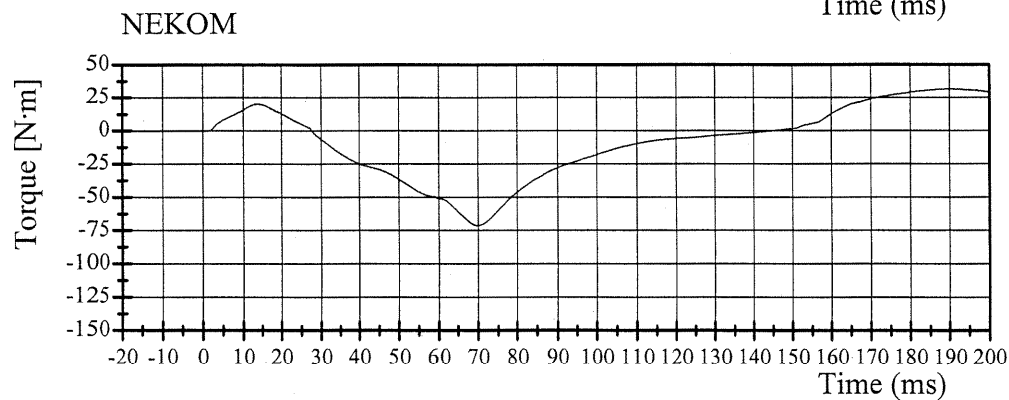
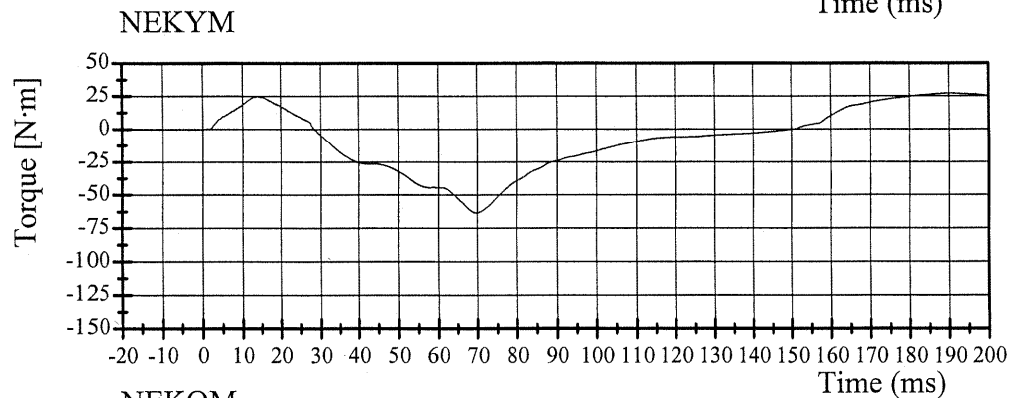
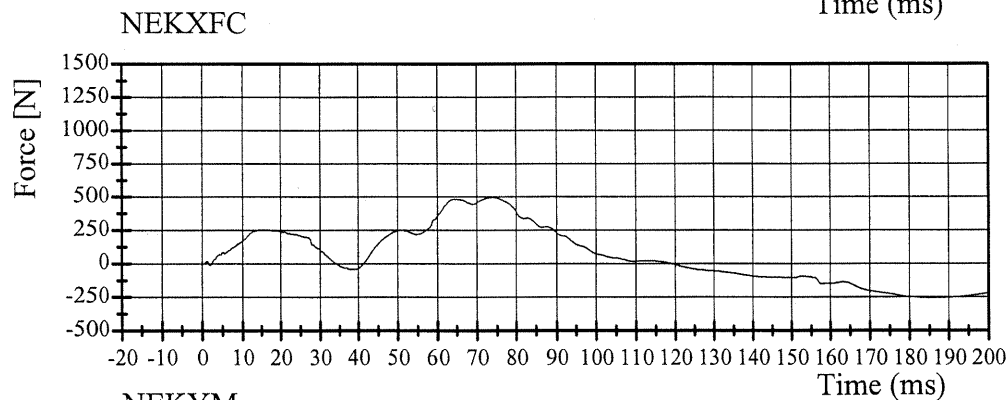
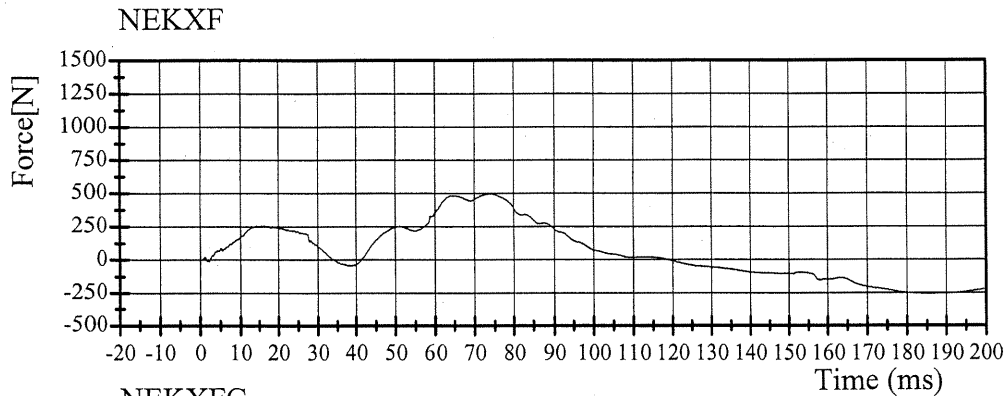
Min: -34.2 ° at 195.8 ms

Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003



05.02.2003 08:21:22 575



Transportation Research Center Inc.

572E Thorax Test

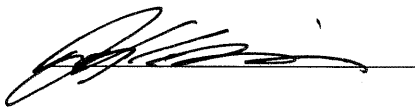
HIH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.66 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-67.3 mm	Yes
Maximum Resistive Force	5160 - 5894 N	5609 N	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

Comments:

Technician



Approved



05.02.2003 13:47:00 963



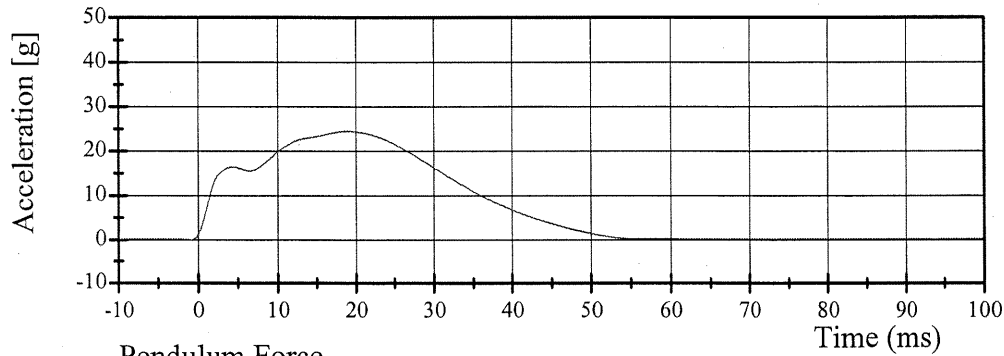
Transportation Research Center Inc.

572E Thorax Test

HIH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Pendulum Deceleration

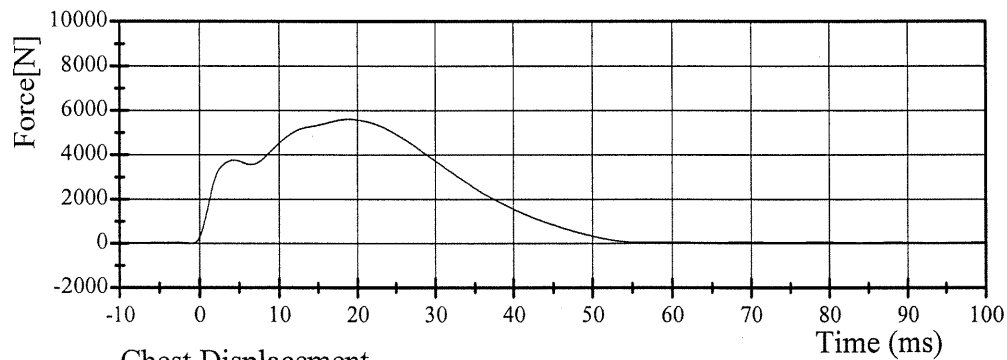


Filter Class: 180

Max: 24.5 g at 18.9 ms

Min: -0.1 g at 261.0 ms

Pendulum Force

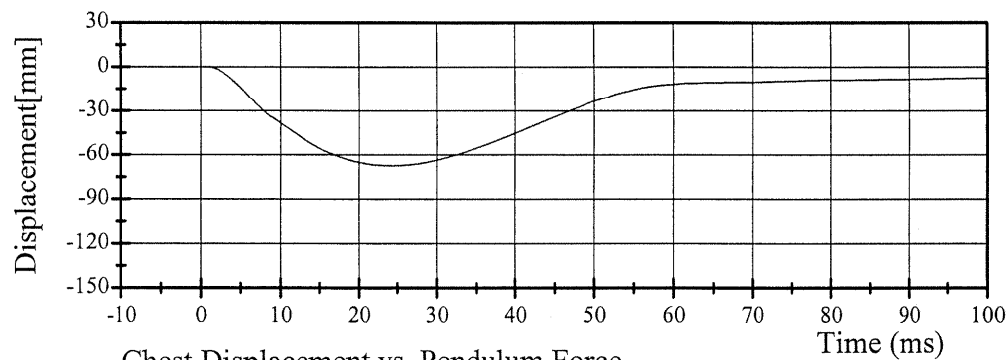


Filter Class: 180

Max: 5608.6 N at 18.9 ms

Min: -19.0 N at 261.0 ms

Chest Displacement

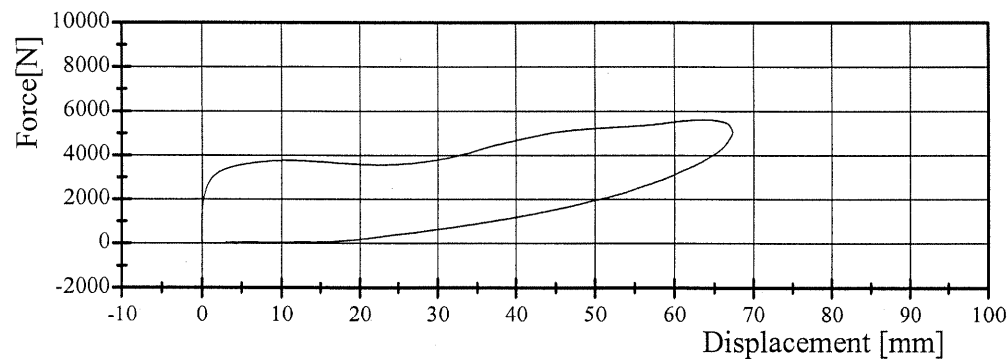


Filter Class: 180

Max: 0.1 mm at 0.5 ms

Min: -67.3 mm at 24.5 ms

Chest Displacement vs. Pendulum Force



05.02.2003 13:47:01 963



Transportation Research Center Inc

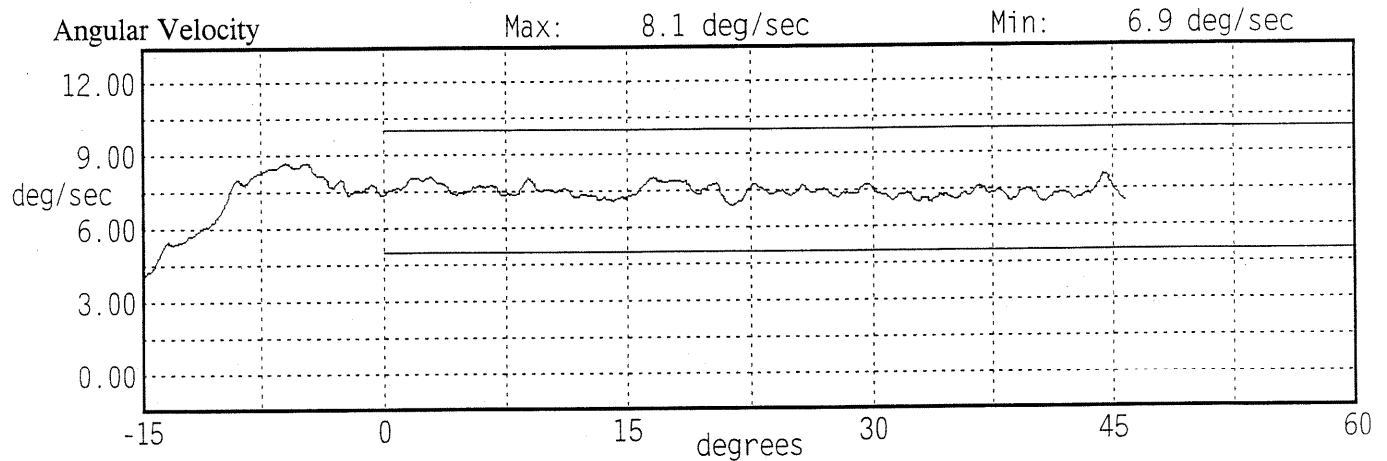
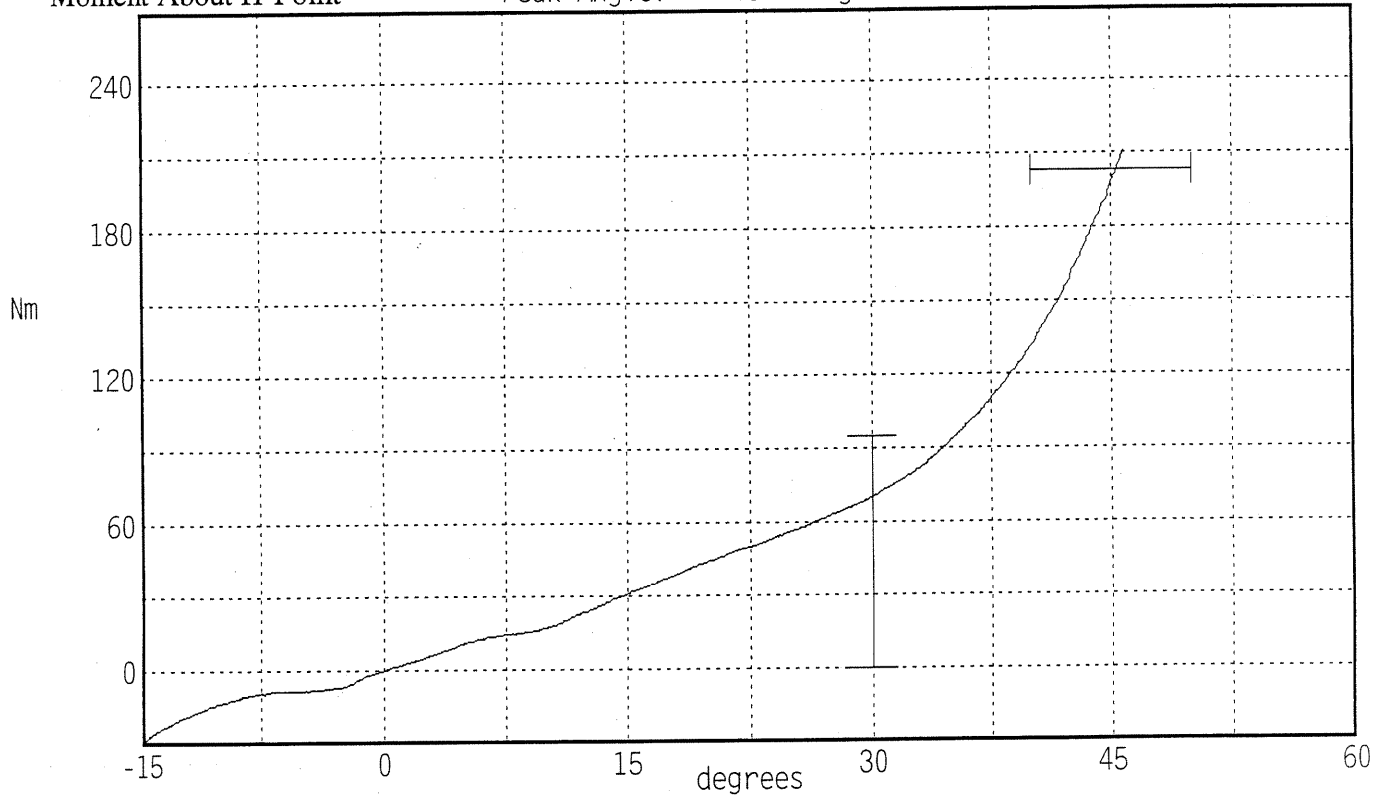
Hybrid III Hip Range of Motion

Serial Number: 169L
Test Number: 169C18
Comments:

Date: 04/30/2003
Time: 08:00

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	34 %	Pass
Moment at 30 deg	<= 94.9	70.4 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.4 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point
Peak Moment: 210.7 Nm at 45.7 deg
Peak Angle: 45.7 deg at 210.7 Nm



Transportation Research Center Inc

Hybrid III Hip Range of Motion

Serial Number: 169R
Test Number: 169C18

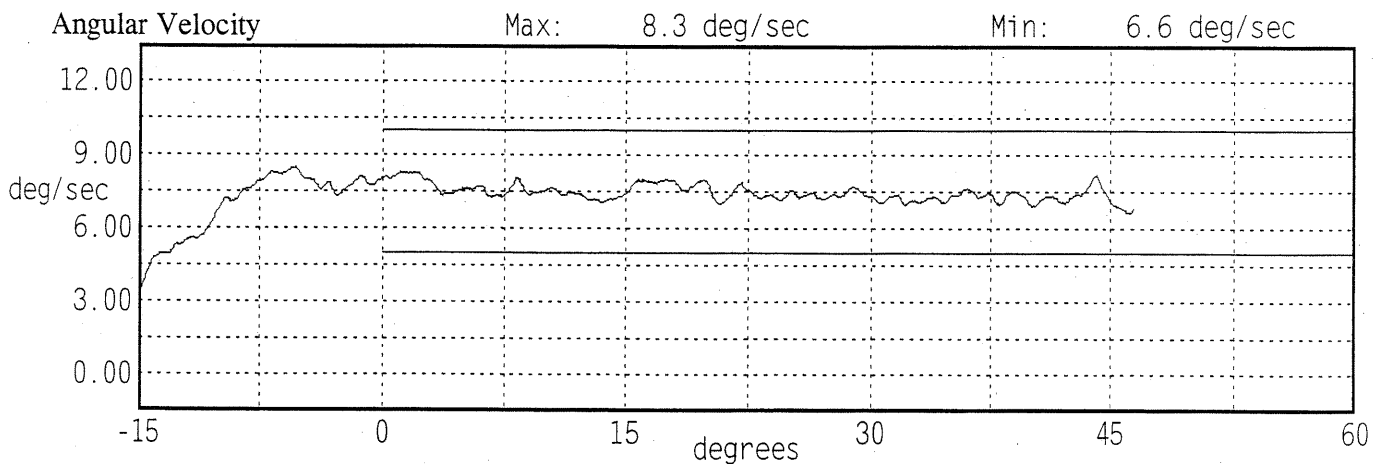
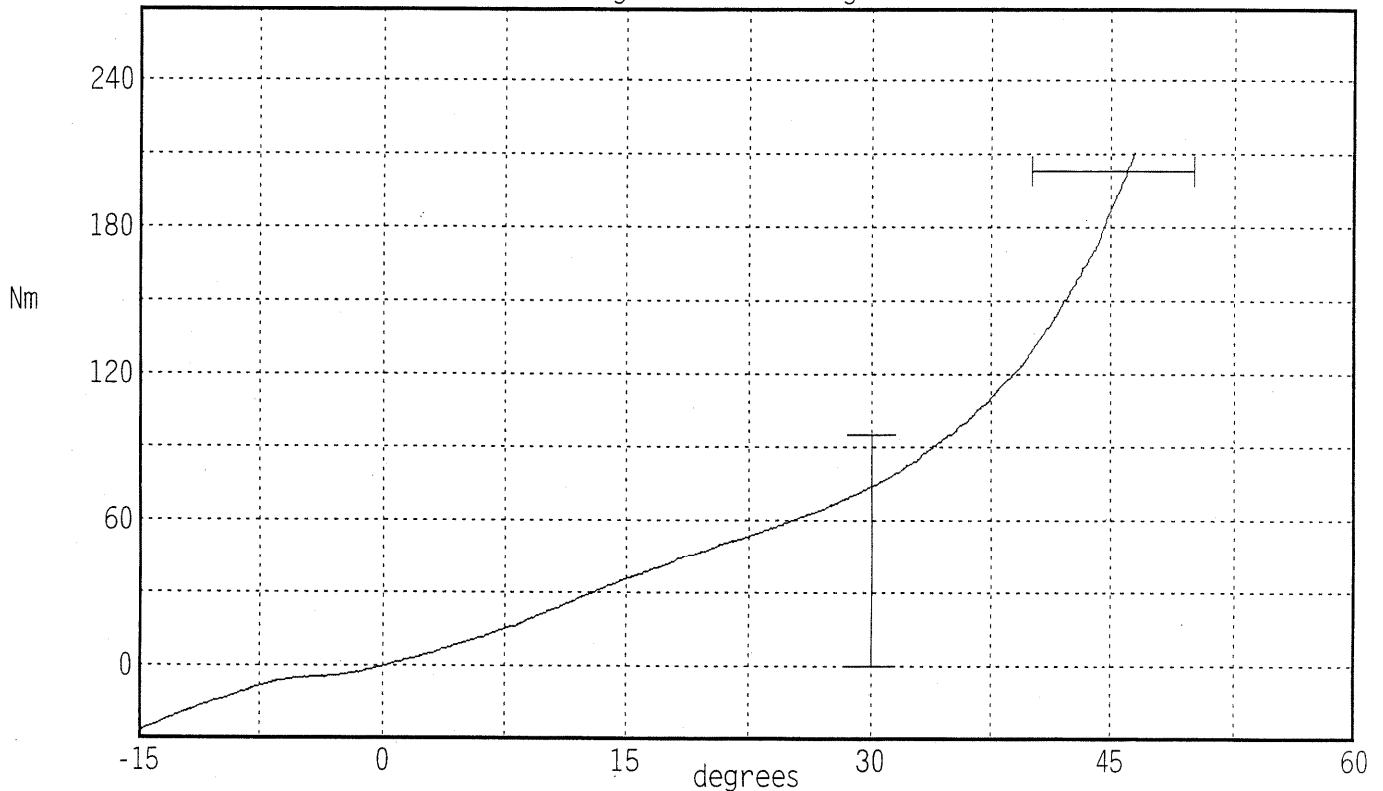
Date: 04/30/2003
Time: 08:04

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	34 %	Pass
Moment at 30 deg	<= 94.9	74.1 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	46.1 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point

Peak Moment: 210.4 Nm at 46.4 deg
Peak Angle: 46.4 deg at 210.4 Nm



Transportation Research Center Inc.

572E Left Knee Slider Test

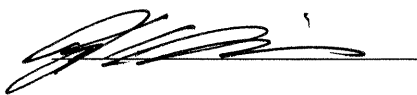
HHH 50th Male Serial No. 169 Calibration No. 18 - 4

Test Date 05/01/2003

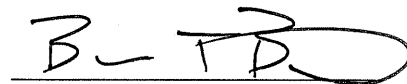
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.73 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1478 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3083 N	Yes

Comments:

Technician



Approved



05.01.2003 14:48:48 1824

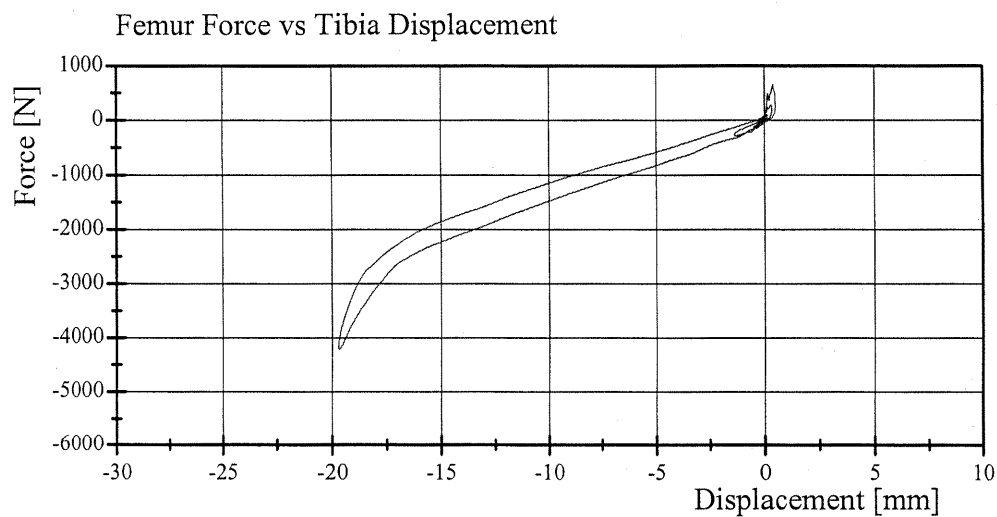
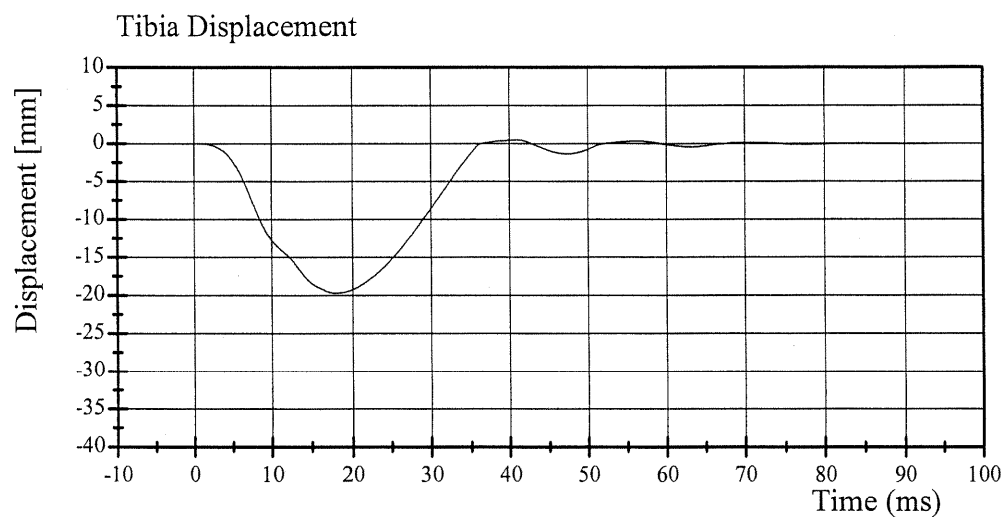
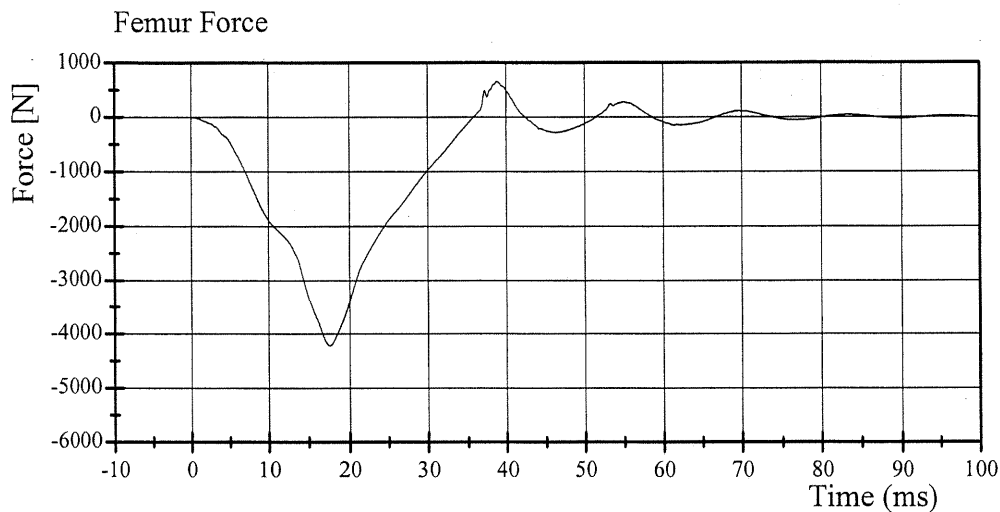


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 4

Test Date 05/01/2003



05.01.2003 14:48:49 1824



Transportation Research Center Inc.

572E Right Knee Slider Test

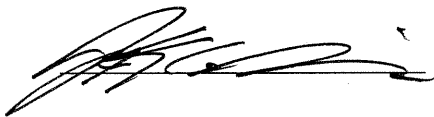
HHH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/01/2003

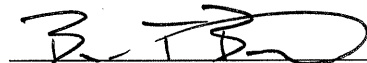
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.73 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1379 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2486 N	Yes

Comments:

Technician



Approved



05.01.2003 15:48:54 1834

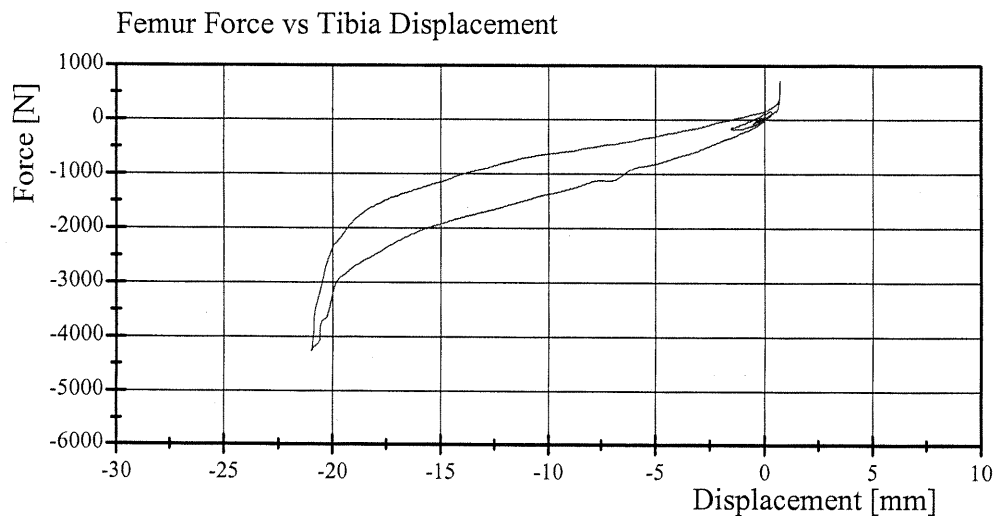
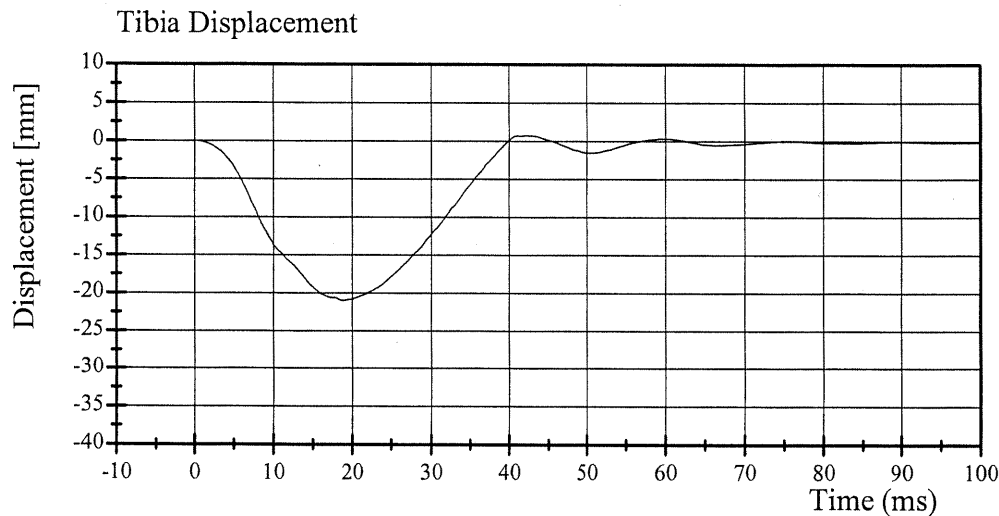
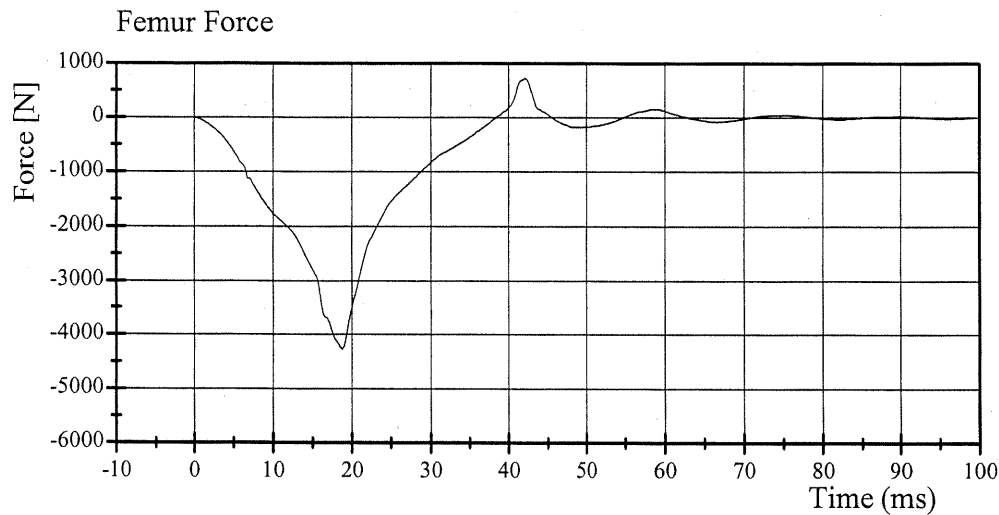


Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/01/2003



05.01.2003 15:48:55 1834



Transportation Research Center Inc.

572E Left Knee Test

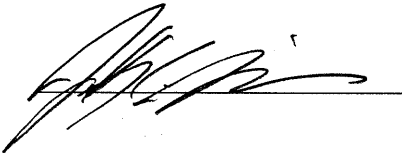
HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5521 N	Yes

Comments:

Technician



Approved



05.02.2003 14:47:20 2173



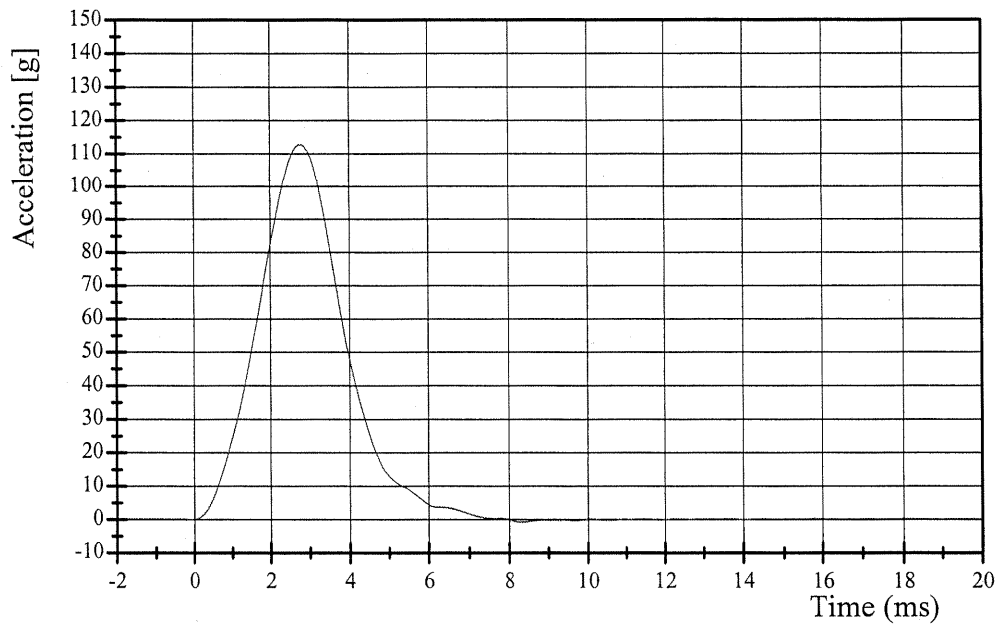
Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

Pendulum Deceleration

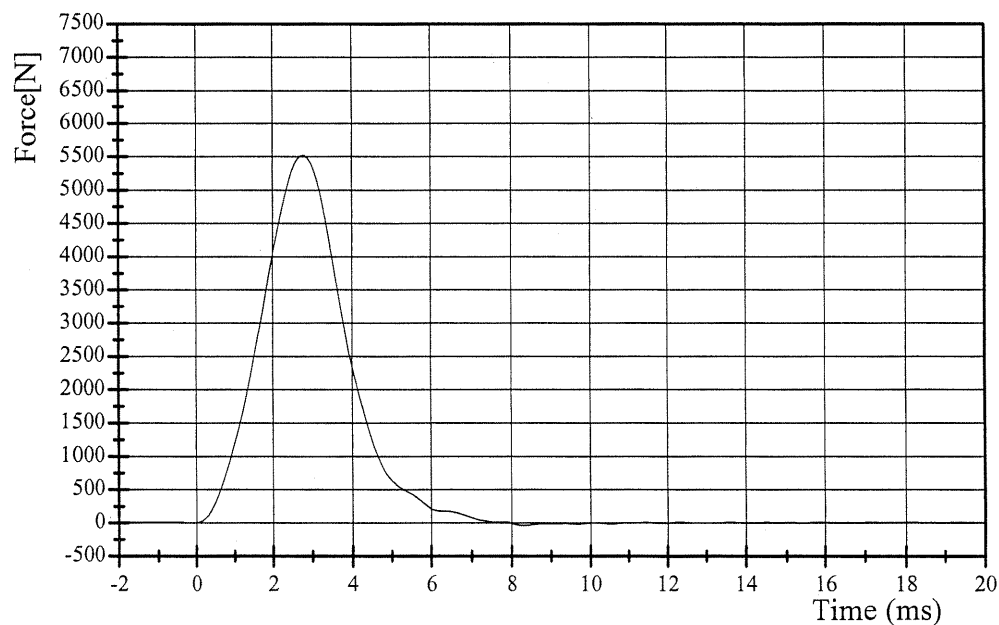


Filter Class: 600

Max: 112.8 g at 2.8 ms

Min: -0.8 g at 8.3 ms

Pendulum Force



Filter Class: 600

Max: 5520.9 N at 2.8 ms

Min: -37.7 N at 8.3 ms

04.30.2003 12:29:42 2173



Transportation Research Center Inc.

572E Right Knee Test

HHH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

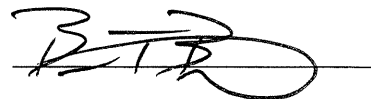
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5383 N	Yes

Comments:

Technician



Approved



04.30.2003 12:24:26 2171



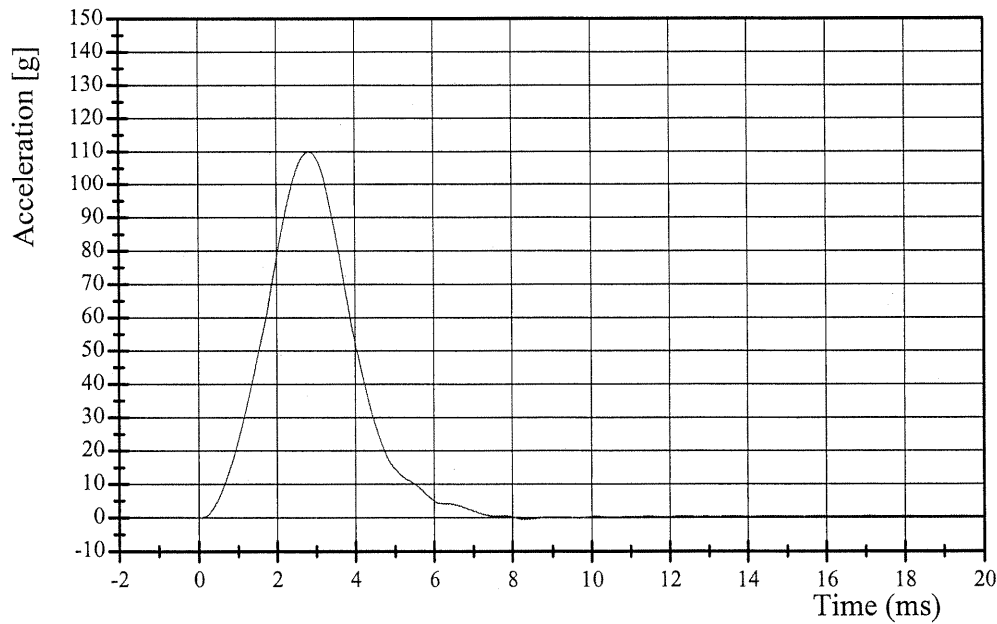
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

Pendulum Deceleration

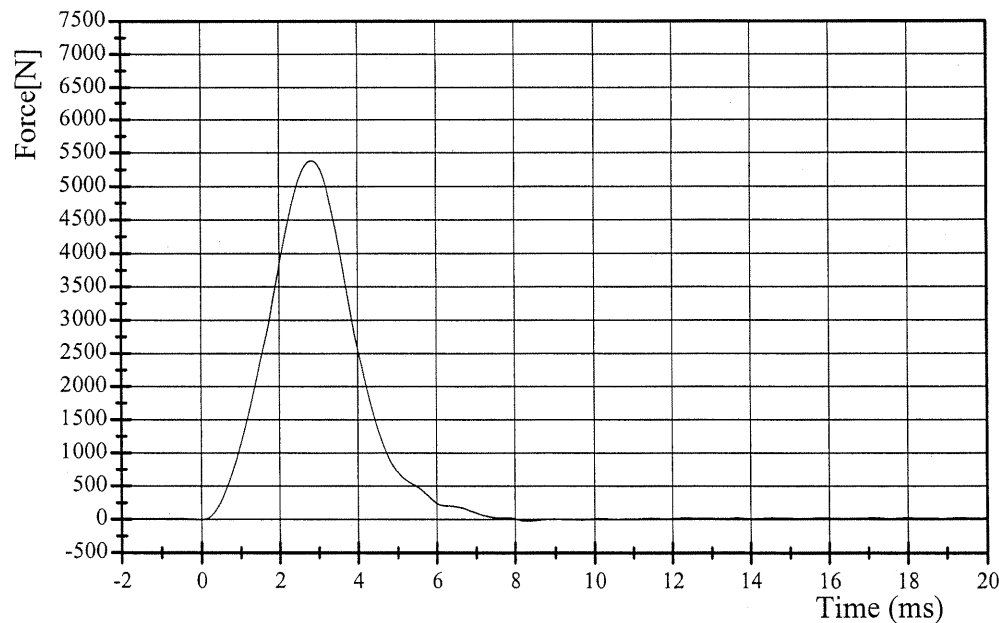


Filter Class: 600

Max: 110.0 g at 2.8 ms

Min: -0.5 g at 8.3 ms

Pendulum Force



Filter Class: 600

Max: 5382.6 N at 2.8 ms

Min: -25.1 N at 8.3 ms

04.30.2003 12:24:27 2171



GESAC, INC

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125 Orchard Drive, Boonsboro, MD 21713
Tel (301) 432-5885 Fax (301) 432-6199

Thor-LX Test Report

Dynamic Heel of Foot Impact Test

Engineer P. Pope
Y. Wang
Customer TRC
Description Right Lower Extremities

Test Date April 16, 2003
Temp (C)/Hum.(%) 22/61
Serial No. LX109

Testing Summary

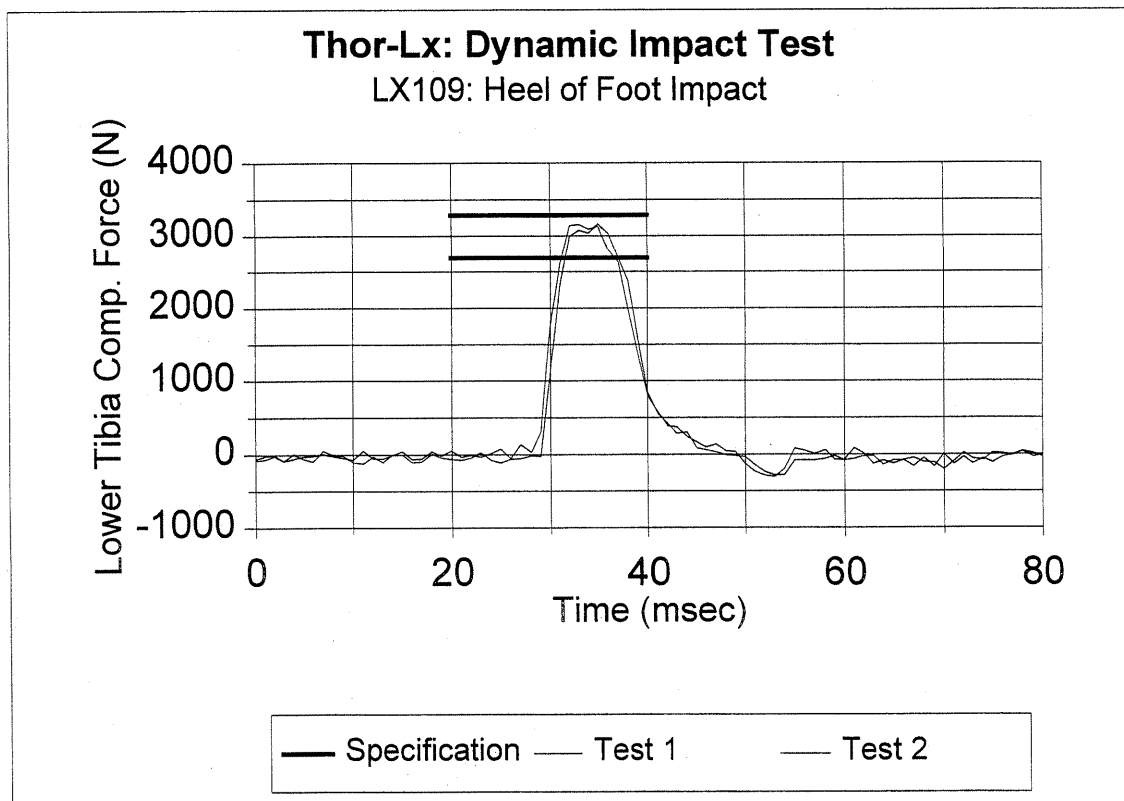
Impact Speed 4.0 m/s Scan Rate 10000 scans/sec
Impact Effective Mass 5.0 kg Filter CFC 600
Impactor NHTSA Dynamic Impactor (TLX-9000-013)

Response

Peak Lower Tibia Compressive Force* (N)	Specification (N)	Within Reference
3166	2694 - 3292	Yes

*Average Value

Test Plot



Tested by:

Patrick Pope

Date:

4-16-03

Analyzed by:

Wang

Date:

04-16-03

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Tel (301) 432-5885 Fax (301) 432-6199

Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 1)

Engineer P. Pope
Y. Wang
Customer TRC
Description Right Lower Extremities

Test Date April 16, 2003
Temp (C)/Hum.(%) 22/62
Serial No. LX109

Testing Summary

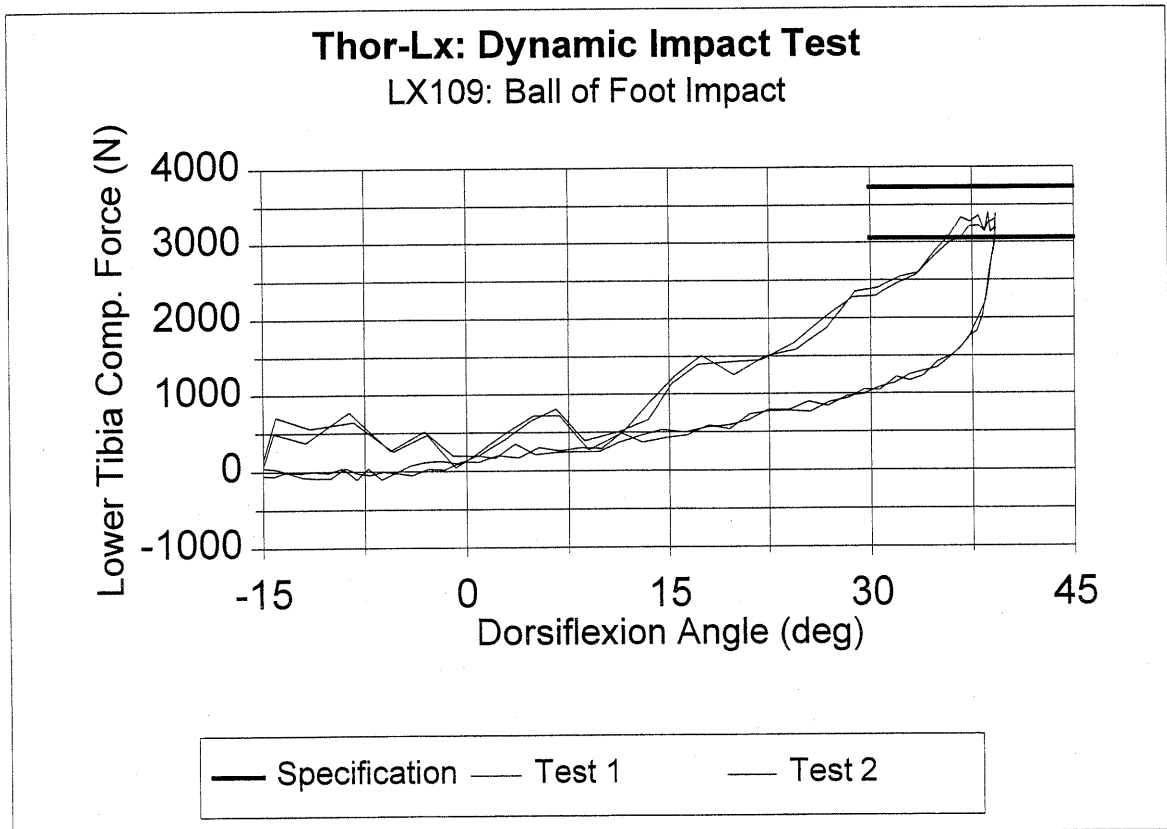
Impact Speed 5.0 m/s Scan Rate 10000 scans/sec
Impact Effective Mass 5.0 kg Filter CFC 600
Impactor NHTSA Dynamic Impactor (TLX-9000-013)

Response

Peak Lower Tibia Compressive Force* (N)	Specification (N)	Within Reference
3383	3058 - 3738	Yes

*Average Value

Test Plot



Tested by: Patricia Pope

Date: 4-16-03

Analyzed by: W. Wang

Date: 04-16-03

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125 Orchard Drive, Boonsboro, MD 21713

Tel (301) 432-5885

Fax (301) 432-6199

Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 2)

Engineer P. Pope
Y. Wang
Customer TRC
Description Right Lower Extremities

Test Date
Temp (C)/Hum.(%)
Serial No.

April 16, 2003
22/62
LX109

Testing Summary

Impact Speed 5.0 m/s
Impact Effective Mass 5.0 kg
Impactor NHTSA Dynamic Impactor (TLX-9000-013)

Scan Rate
Filter

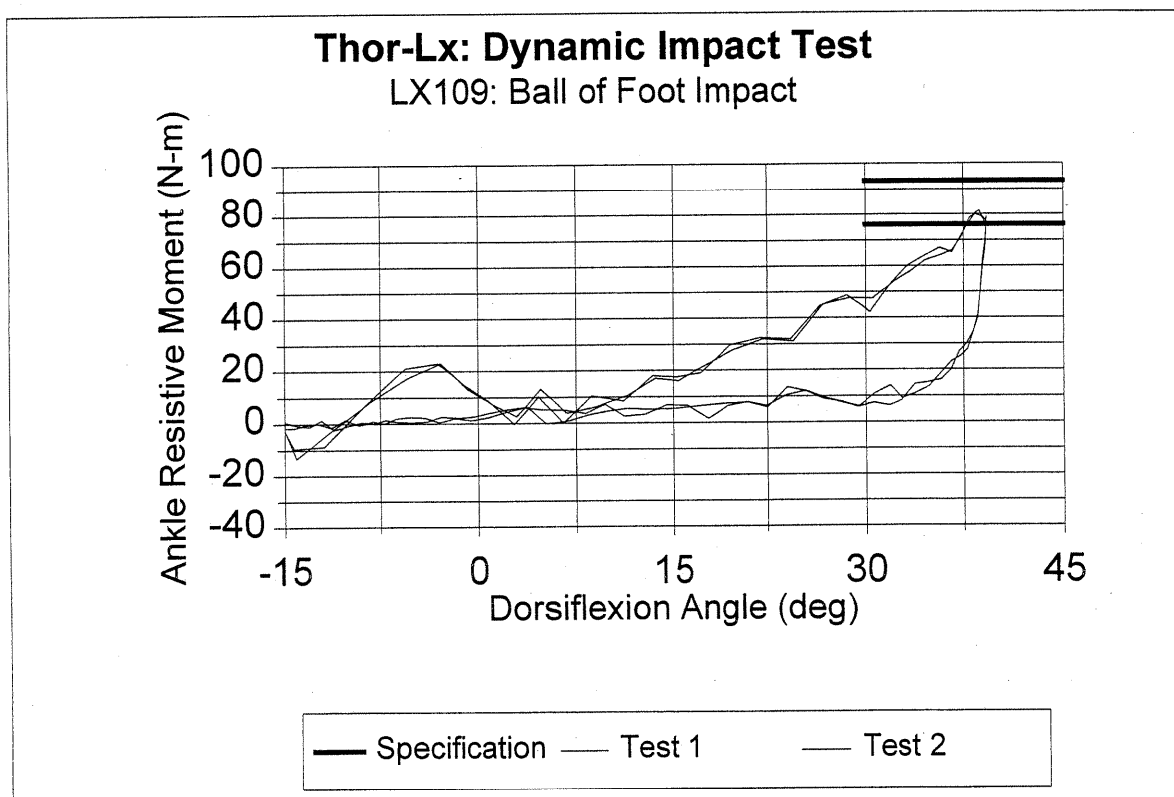
10000 scans/sec
CFC 600

Response

Peak Ankle Resistive Moment* (N-m)	Specification (N-m)	Within Reference
80.7	76.2 - 93.2	Yes

*Average Value

Test Plot



Tested by:

Patrick Pope

Date: 4-16-03

Analyzed by:

Y. Wang

Date: 04-16-03

GESAC, INC

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125 Orchard Drive, Boonsboro, MD 21713

Tel (301) 432-5885 Fax (301) 432-6199

Thor-Lx Test Report

Inversion Quasi-Static Test

Engineer P. Pope
Y. Wang
Customer TRC
Description Right Lower Extremity

Test Date
Temp. (C)/Hum.(%)
Serial No.

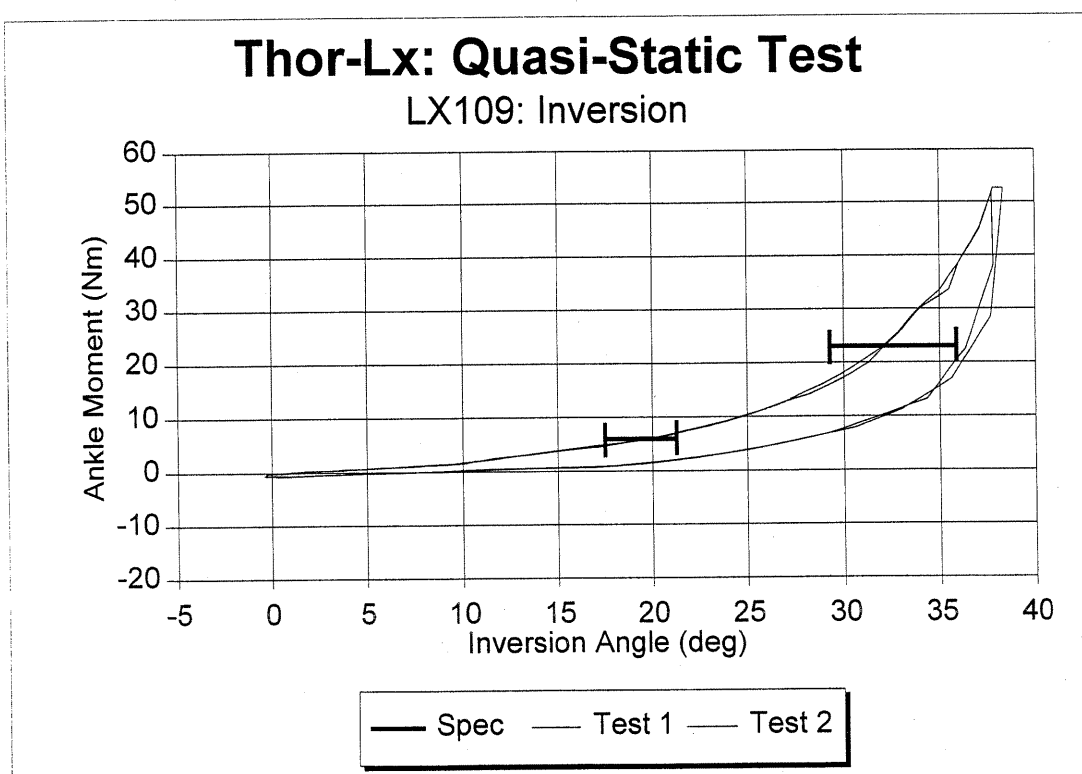
April 15, 2003
22/62
LX109

Testing Summary (Design Reference)

Ankle Moment (Nm)	Inversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	19.9	17.5 - 21.3	Yes
23	32.1	29.3 - 35.9	Yes

*Average Value

Result Plot



Tested by: Patrick Pope

Date: 4-16-03

Analyzed by: Wang

Date: 04-16-03

GESAC, INC

DESIGN | MANUFACTURE | TEST | SOFTWARE DEVELOPMENT | ERGONOMICS

125 Orchard Drive, Boonsboro, MD 21713

Tel (301) 432-5885 Fax (301) 432-6199

Thor-Lx Test Report

Eversion Quasi-Static Test

Engineer P. Pope
Y. Wang
Customer TRC
Description Right Lower Extremity

Test Date
Temp. (C)/Hum.(%)
Serial No.

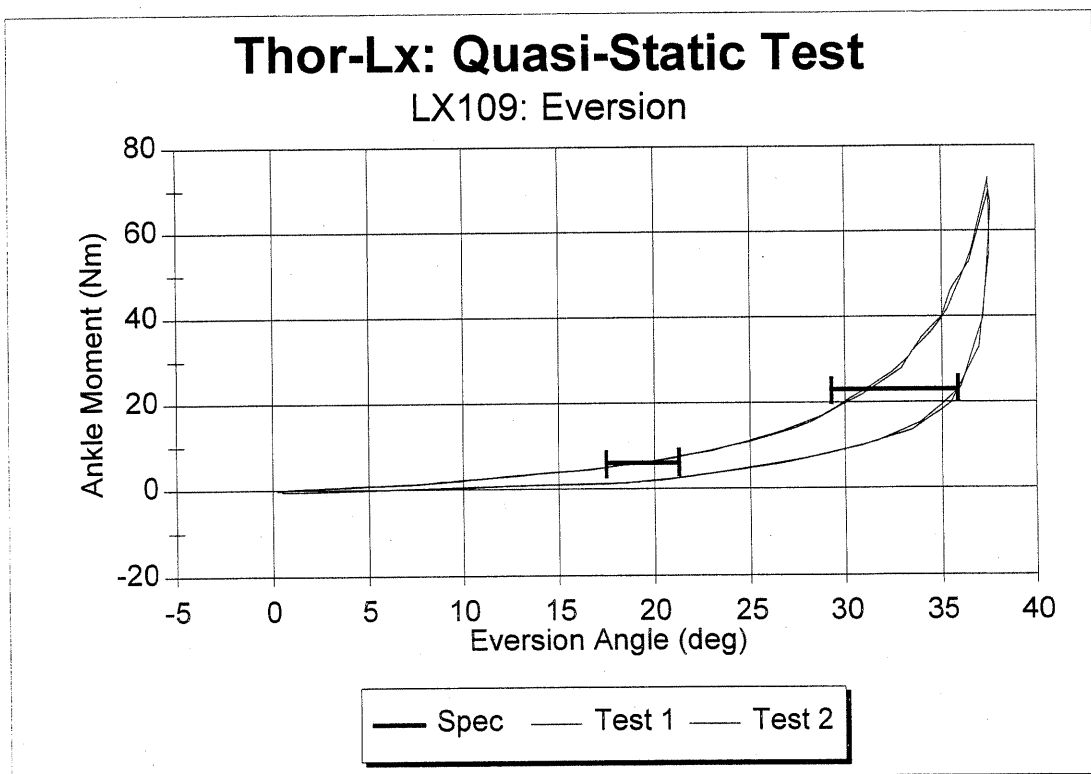
April 15, 2003
22/62
LX109

Testing Summary (Design Reference)

Ankle Moment (Nm)	Eversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	19.2	17.5 - 21.3	Yes
23	31.2	29.3 - 35.9	Yes

*Average Value

Result Plot



Tested by: Patrick Pope
Analyzed by: Y. Wang

Date: 4-16-03
Date: 04-16-03

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

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

Description Of Timing Marks On TRC High-Speed Film

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

The timing marks appear on the film as small red marks on the right edge of the film. Round marks are left by the Photosonic cameras.

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

1. Every frame will have **one** LED appear in it. This indicates a *millisecond* pulse.
2. Every ten frames will have **two** LEDs appear in it. These indicate a *millisecond* pulse plus a *hundredth of a second* pulse.
3. Every one hundred frames will have **three** LEDs appear in it. These indicate a *millisecond* pulse, a *hundredth of a second* pulse, and a *tenth of a second* pulse.

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

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.

Dummy 168v+ Type HIII 50TH Descriptio VRTC - 168v w/ Red. Accel & THOR Legs ICAL'd 5-24-02(DKS 6-10-03)J211

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	7264-2KM5T	J17649	Endevco	0.03243 g	2000	3/12/2003	Rwd	1
HEDYG	Head Accel Y	7264-2000T	AJ454	Endevco	0.02856 g	2000	3/12/2003	Lft	1
HEDZG	Head Accel Z	7264-2000T	J14189	Endevco	0.03309 g	2000	3/12/2003	Up	1
HEDXR	Head Accel Red X S39	7264C-2KLC-2	P17196	Endevco	0.02117 g	2000	3/12/2003	Rwd	1
HEDYR	Head Accel Red Y	EGE-73B6Q-20	B02A25-N09	Entran	0.01897 g	2000	3/12/2003	Lft	1
HEDZR	Head Accel Red Z	EGE-73B6Q-20	01G25-N09	Entran	0.01947 g	2000	3/12/2003	Up	1
NEKXF	Neck Force X	1716A	1716A-851-FX	Denton	0.000193999 N	8896.4	5/29/2002	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-851-FY	Denton	0.000188289 N	8896.4	5/29/2002	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716A	1716A-851-FZ	Denton	0.000147643 N	13344.6	5/29/2002	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-851-MX	Denton	0.005989734 N	282.5	5/29/2002	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-851-MY	Denton	0.005981947 N	282.5	5/29/2002	Chn to Strnm	0
NEKZM	Neck Moment Z	1716A	1716A-851-MZ	Denton	0.008568142 N	282.5	5/29/2002	Chn to Lt Shld	0
CSTXG	Chest Accel X	7264-2000TZ	J35921	Endevco	0.03035 g	2000	3/12/2003	Fwd	0
CSTYG	Chest Accel Y	7264-2000T	AJ7F7	Endevco	0.03042 g	2000	3/12/2003	Lft	1
CSTZG	Chest Accel Z	7264-2000TZ	J36723	Endevco	0.02516 g	2000	3/12/2003	Up	1
CSTXR	Chest Accel Red X	EGE-73BQE0-	99H30-Z14	Entran	0.02071 g	2000	3/12/2003	Rwd	1
CSTYR	Chest Accel Red Y	EGE-73BQ-200	98H14-K05	Entran	0.01747 g	2000	3/12/2003	Lft	1
CSTZR	Chest Accel Red Z	EGE-73BQ-200	98H13-F03	Entran	0.02086 g	2000	3/12/2003	Up	1
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-168	Servo	1.1291 m	100	3/19/2003	Strnm Away Frm Spn	0
PEVXG	Pelvis Accel X	7264-2000T	ACCY2	Endevco	0.0237 g	2000	3/12/2003	Rwd	1
PEVYG	Pelvis Accel Y	7264-2KM5T	J27490	Endevco	0.02212 g	2000	3/12/2003	Lft	1
PEVZG	Pelvis Accel Z	7264-2KM5T	J21963	Endevco	0.02531 g	2000	3/12/2003	Up	1
LFMXF	Left Femur Force X	1914A	1914A-362-FX	Denton	0.000143968 N	13344	5/24/2002	Knee Dn,Fem Up	1
LFMYF	Left Femur Force Y	1914A	1914A-362-FY	Denton	0.000144523 N	13344	5/24/2002	Knee Rt,Fem Lt	0
LFMZG	Left Femur Force Z	1914A	1914A-362-FZ	Denton	0.000059074 N	22240	5/24/2002	Knee Fd,Pel Rr	0
LFMXM	Left Femur Moment X	1914A	1914A-362-MX	Denton	0.004464012 N	339	5/24/2002	Knee Rt,Hld Fem	1

Wednesday, June 18, 168v+
2003

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
LFMYM	Left Femur Moment Y	1914A	1914A-362-MY	Denton	0.004409145 N	339	5/24/2002	Knee Up,Hld Fem	0
LFMZM	Left Femur Moment Z	1914A	1914A-362-MZ	Denton	0.00790413 N	339	5/24/2002	Tib Lt,Hld Pel	0
RFMXF	Right Femur Force X	1914A	1914A-376-FX	Denton	0.000146666 N	13344	5/24/2002	Knee Dn,Fem Up	1
RFMYF	Right Femur Force Y	1914A	1914A-376-FY	Denton	0.000146629 N	13344	5/24/2002	Knee Rt,Fem Lt	0
RFMZF	Right Femur Force Z	1914A	1914A-376-FZ	Denton	0.000059876 N	22240	5/24/2002	Knee Fd,Pel Rr	0
RFMXM	Right Femur Moment X	1914A	1914A-376-MX	Denton	0.004443068 N	339	5/24/2002	Knee Rt,Hld Fem	1
RFMYM	Right Femur Moment Y	1914A	1914A-376-MY	Denton	0.003790977 N	339	5/24/2002	Knee Up,Hld Fem	0
RFMZM	Right Femur Moment Z	1914A	1914A-376-MZ	Denton	0.006787469 N	339	5/24/2002	Tib Lt,Hld Pel	0
KNLXD	Left Knee Displacement	150-0121VR	150-121VR-18026	Space Age	22.993 m	40	3/19/2003	Tib Rr,Hld Fem	1
TBLXF	Left Upper Tibia Force X	4353J	4353J-79-FX	Denton	0.000170486 N	11120.5	7/16/2002	Tib Rr,Knee Fd	1
TBLZF	Left Upper Tibia Force Z	4353J	4353J-79-FZ	Denton	0.000096218 N	11120.5	7/16/2002	Tib Dn,Knee Up	0
TBLXM	Left Upper Tibia Moment X	4353J	4353J-79-MX	Denton	0.007416793 N	395.4	7/16/2002	Tib Rt,Hld Knee	1
TBLYM	Left Upper Tibia Moment Y	4353J	4353J-79-MY	Denton	0.007447900 N	395.4	7/16/2002	Tib Rr,Hld Knee	1
TBLXG	Left Tibia Accel X	EGE-73B6Q-20	01G25-N16	Entran	0.01897 g	2000	5/13/2003	Fwd	0
TBLYG	Left Tibia Accel Y	EGE-73B6Q-20	01G18-F02	Entran	0.0218 g	2000	5/13/2003	Rt	0
ANLXF	Left Lower Tibia Force X	4929J	4929J-77-FX	Denton	0.000172492 N	11120.5	7/16/2002	Ank Fd,Knee Rr	0
ANLYF	Left Lower Tibia Force Y	4929J	4929J-77-FY	Denton	0.000172771 N	11120.5	7/16/2002	Ank Rt,Knee Lt	0
ANLZF	Left Lower Tibia Force Z	4929J	4929J-77-FZ	Denton	0.000095957 N	11120.5	7/16/2002	Ank Dn,Knee Up	0
ANLXM	Left Lower Tibia Moment X	4929J	4929J-77-MX	Denton	0.007497218 N	395.4	7/16/2002	Ank Lt,Hld Knee	0
ANLYM	Left Lower Tibia Moment Y	4929J	4929J-77-MY	Denton	0.007430450 N	395.4	7/16/2002	Ank Fd,Hld Knee	0
FTLXD	Left Foot Disp. X	PD210-4B	LX104X	Contelec	3.169 °	318	7/17/2002	Eversion	0
FTLYD	Left Foot Disp. Y	PD210-4B	LX104Y	Contelec	3.182 °	318	7/17/2002	Dorsiflexion	0
FTLZD	Left Foot Disp. Z	PD210-4B	LX104Z	Contelec	3.1701 °	318	7/17/2002	External Rotation	1
FTLXG	Left Foot Accel X	EGE-73B6Q-20	00L20-A14	Entran	0.01928 g	2000	5/13/2003	Fwd	0
FTLYG	Left Foot Accel Y	EGE-73BQ-200	98H10-F01	Entran	0.01952 g	2000	5/13/2003	Rt	0
FTLZG	Left Foot Accel Z	EGE-73BQE0-	99H12-F03	Entran	0.01888 g	2000	5/13/2003	Dn	0
KNRXD	Right Knee Displacement	150-0121VL	150-121VL-23106	Space Age	23.682 m	40	6/13/2002	Tib Rr,Hld Fem	1
TBRXF	Right Upper Tibia Force X	4353J	4353J-75-FX	Denton	0.000169650 N	11120.5	8/2/2002	Tib Fd,Knee Rr	0

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
TBRZF	Right Upper Tibia Force Z	4353J	4353J-75-FZ	Denton	0.000095400 N	11120.5	8/2/2002	Tib Dn,Knee Up	0
TBRXM	Right Upper Tibia Moment X	4353J	4353J-75-MX	Denton	0.007378351 N	395.4	8/2/2002	Tib Lt,Hld Knee	0
TBRYM	Right Upper Tibia Moment Y	4353J	4353J-75-MY	Denton	0.007360647 N	395.4	8/2/2002	Tib Fd,Hld Knee	0
TBRXG	Right Tibia Accel X	EGE-73BQE0-	99H12-F08	Entran	0.01791 g	2000	5/13/2003	Fwd	0
TBRYG	Right Tibia Accel Y	EGE-73BQE0-	99H30-Z11	Entran	0.02054 g	2000	5/13/2003	Rt	0
ANRXF	Right Lower Tibia Force X	4929J	4929J-76-FX	Denton	0.000171601 N	11120.5	7/16/2002	Ank Fd,Knee Rr	0
ANRYF	Right Lower Tibia Force Y	4929J	4929J-76-FY	Denton	0.000172995 N	11120.5	7/16/2002	Ank Rt,Knee Lt	0
ANRZF	Right Lower Tibia Force Z	4929J	4929J-76-FZ	Denton	0.000095634 N	11120.5	7/16/2002	Ank Dn,Knee Up	0
ANRXM	Right Lower Tibia Moment X	4929J	4929J-76-MX	Denton	0.007504552 N	395.4	7/16/2002	Ank Lt,Hld Knee	0
ANRYM	Right Lower Tibia Moment Y	4929J	4929J-76-MY	Denton	0.007480020 N	395.4	7/16/2002	Ank Fd,Hld Knee	0
FTRXD	Right Foot Disp. X	PD210-4B	PD210-4B-AK-037	Contelec	3.199 °	318	7/18/2002	Eversion	1
FTRYD	Right Foot Disp. Y	PD210-4B	PD210-4B-0225	Contelec	3.1559 °	318	7/18/2002	Dorsiflexion	0
FTRZD	Right Foot Disp. Z	PD210-4B	PD210-4B-AK-039	Contelec	3.1586 °	318	7/18/2002	Internal Rotation	1
FTRXG	Right Foot Accel X	EGE-73B6Q-20	01J02-F08	Entran	0.02001 g	2000	5/13/2003	Fwd	0
FTRYG	Right Foot Accel Y	EGE-73B6Q-20	01J02-F16	Entran	0.0217 g	2000	5/13/2003	Rt	0
FTRZG	Right Foot Accel Z	EGE-73BQ-200	98H10-F10	Entran	0.0185 g	2000	5/13/2003	Dn	0

D-10

030618-1

Dummy	169v+	Type	IIII 50TH	Descriptio	VRTC - 169v IIII 50TH w/THOR LEGS ICAL'd 5-24-02 (DKS 6-10-03)J211					
Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip	
HEDXG	Head Accel X	7264-2000T	J20083	Endevco	0.02184 g	2000	3/11/2003	Rwd	1	
HEDYG	Head Accel Y	7264-2000T	J19843	Endevco	0.02239 g	2000	3/11/2003	Lft	1	
HEDZG	Head Accel Z	7264-2KM5T	J20027	Endevco	0.02586 g	2000	3/11/2003	Up	1	
NEKXF	Neck Force X	1716A	1716A-782-FX	Denton	0.000190504 N	8896	5/30/2002	Hd Fd,Cst Rr	1	
NEKYF	Neck Force Y	1716A	1716A-782-FY	Denton	0.000186052 N	8896	5/30/2002	Hd Lt,Cst Rt	0	
NEKZF	Neck Force Z	1716A	1716A-782-FZ	Denton	0.000096548 N	13344	5/30/2002	Hd Up,Cst Dn	0	
NEKXM	Neck Moment X	1716A	1716A-782-MX	Denton	0.005812389 N	282.5	5/30/2002	Rt Ear to Rt Shld	1	
NEKYM	Neck Moment Y	1716A	1716A-782-MY	Denton	0.005816283 N	282.5	5/30/2002	Chn to Strnm	0	
NEKZM	Neck Moment Z	1716A	1716A-782-MZ	Denton	0.008224071 N	282.5	5/30/2002	Chn to Lt Shld	0	
CSTXG	Chest Accel X	7264-2000T	J23757	Endevco	0.02807 g	2000	3/12/2003	Fwd	0	
CSTYG	Chest Accel Y	7264-2KM5T	J21989	Endevco	0.02343 g	2000	3/12/2003	Lft	1	
CSTZG	Chest Accel Z	7264-2000TZ	J35747	Endevco	0.02829 g	2000	3/12/2003	Up	1	
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-169	Servo	1.1417 m	100	3/19/2003	Strnm Away Frm Spn	0	
PEVXG	Pelvis Accel X	7264-2000TZ	J36741	Endevco	0.02309 g	2000	3/11/2003	Rwd	1	
PEVYG	Pelvis Accel Y	7264-2000TZ	J36605	Endevco	0.02678 g	2000	3/11/2003	Lft	1	
PEVZG	Pelvis Accel Z	7264-2000LC	AAMD7	Endevco	0.0268 g	2000	3/11/2003	Up	1	
LFMXF	Left Femur Force X	1914	1914-0261-FX	Denton	0.000144725 N	13344	5/24/2002	Knee Dn,Fem Up	1	
LFMYF	Left Femur Force Y	1914	1914-0261-FY	Denton	0.000145182 N	13344	5/24/2002	Knee Rt,Fem Lt	0	
LFMZF	Left Femur Force Z	1914	1914-0261-FZ	Denton	0.000053289 N	22240	5/24/2002	Knee Fd,Pel Rr	0	
LFMXM	Left Femur Moment X	1914	1914-0261-MX	Denton	0.004356637 N	339	5/24/2002	Knee Rt,Hld Fem	1	
LFMYM	Left Femur Moment Y	1914	1914-0261-MY	Denton	0.004435398 N	339	5/24/2002	Knee Up,Hld Fem	0	
LFMZM	Left Femur Moment Z	1914	1914-0261-MZ	Denton	0.007827729 N	339	5/24/2002	Tib Lt,Hld Pel	0	
RFMXF	Right Femur Force X	1914A	1914A-383-FX	Denton	0.000147685 N	13344	5/24/2002	Knee Dn,Fem Up	1	
RFMYF	Right Femur Force Y	1914A	1914A-383-FY	Denton	0.00014785 N	13344	5/24/2002	Knee Rt,Fem Lt	0	
RFMZF	Right Femur Force Z	1914A	1914A-383-FZ	Denton	0.00006006 N	22240	5/24/2002	Knee Fd,Pel Rr	0	
RFMXM	Right Femur Moment X	1914A	1914A-383-MX	Denton	0.004435103 N	339	5/24/2002	Knee Rt,Hld Fem	1	

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Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
RFBYM	Right Femur Moment Y	1914A	1914A-383-MY	Denton	0.004437463 N	339	5/24/2002	Knee Up,Hld Fem	0
RFBMZ	Right Femur Moment Z	1914A	1914A-383-MZ	Denton	0.008078761 N	339	5/24/2002	Tib Lt,Hld Pel	0
KNLXD	Left Knee Displacement	150-0121VR	150-121VR-17169	Space Age	23.348 m	40	3/11/2003	Tib Rr,Hld Fem	1
TBLXF	Left Upper Tibia Force X	4353J	4353J-78-FX	Denton	0.000171934 N	11120.5	7/17/2002	Tib Rr,Knee Fd	1
TBLZF	Left Upper Tibia Force Z	4353J	4353J-78-FZ	Denton	0.000095643 N	11120.5	7/17/2002	Tib Dn,Knee Up	0
TBLXM	Left Upper Tibia Moment X	4353J	4353J-78-MX	Denton	0.007485837 N	395.4	7/17/2002	Tib Rt,Hld Knee	1
TBLYM	Left Upper Tibia Moment Y	4353J	4353J-78-MY	Denton	0.007496459 N	395.4	7/17/2002	Tib Rr,Hld Knee	1
TBLXG	Left Tibia Accel X	EGE-73BQ-200	98H10-F13	Entran	0.01923 g	2000	5/13/2003	Fwd	0
TBLYG	Left Tibia Accel Y	EGE-73BQ-200	98H10-F12	Entran	0.02364 g	2000	5/13/2003	Rt	0
ANLXF	Left Lower Tibia Force X	4929J	4929J-78-FX	Denton	0.000171601 N	11120.5	7/16/2002	Ank Fd,Knee Rr	0
ANLYF	Left Lower Tibia Force Y	4929J	4929J-78-FY	Denton	0.000171449 N	11120.5	7/16/2002	Ank Rt,Knee Lt	0
ANLZF	Left Lower Tibia Force Z	4929J	4929J-78-FZ	Denton	0.000173490 N	11120.5	7/16/2002	Ank Dn,Knee Up	0
ANLXM	Left Lower Tibia Moment X	4929J	4929J-78-MX	Denton	0.007487860 N	395.4	7/16/2002	Ank Lt,Hld Knee	0
ANLYM	Left Lower Tibia Moment Y	4929J	4929J-78-MY	Denton	0.007416540 N	395.4	7/16/2002	Ank Fd,Hld Knee	0
FTLXD	Left Foot Disp. X	PD210-4B	LX0019X	Contelec	3.167281 °	318	7/23/2002	Eversion	0
FTLYD	Left Foot Disp. Y	PD210-4B	LX0019Y	Contelec	3.165088 °	318	7/23/2002	Dorsiflexion	0
FTLZD	Left Foot Disp. Z	PD210-4B	LX0019Z	Contelec	3.191877 °	318	7/23/2002	External Rotation	1
FTLXG	Left Foot Accel X	EGE-73B6Q-20	01G25-N04	Entran	0.01981 g	2000	5/13/2003	Fwd	0
FTLYG	Left Foot Accel Y	EGE-73B6Q-20	00L13-F29	Entran	0.02132 g	2000	5/13/2003	Rt	0
FTLZG	Left Foot Accel Z	EGE-73BQ-200	98H10-F18	Entran	0.02088 g	2000	5/13/2003	Dn	0
KNRXd	Right Knee Displacement	150-0121VL	150-121VL-21033	Space Age	23.862 m	40	3/11/2003	Tib Rr,Hld Fem	1
TBRXF	Right Upper Tibia Force X	4353J	4353J-77-FX	Denton	0.000174173 N	11120.5	7/17/2002	Tib Rr,Knee Fd	1
TBRZF	Right Upper Tibia Force Z	4353J	4353J-77-FZ	Denton	0.000096560 N	11120.5	7/17/2002	Tib Dn,Knee Up	0
TBRXM	Right Upper Tibia Moment X	4353J	4353J-77-MX	Denton	0.007570055 N	395.4	7/17/2002	Tib Rt,Hld Knee	1
TBRYM	Right Upper Tibia Moment Y	4353J	4353J-77-MY	Denton	0.007618361 N	395.4	7/17/2002	Tib Rr,Hld Knee	1
TBRXG	Right Tibia Accel X	EGE-73B6Q-20	02D02C21-N01	Entran	0.01953 g	2000	4/17/2003	Fwd	0
TBRYG	Right Tibia Accel Y	EGE-73B6Q-20	01J02-F19	Entran	0.02246 g	2000	5/13/2003	Rt	0
ANRXF	Right Lower Tibia Force X	4929J	4929J-75-FX	Denton	0.000171925 N	11120.5	7/17/2002	Ank Fd,Knee Rr	0

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Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
ANRYF	Right Lower Tibia Force Y	4929J	4929J-75-FY	Denton	0.000173499 N	11120.5	7/17/2002	Ank Rt,Knee Lt	0
ANRZF	Right Lower Tibia Force Z	4929J	4929J-75-FZ	Denton	0.000096434 N	11120.5	7/17/2002	Ank Dn,Knee Up	0
ANRXM	Right Lower Tibia Moment X	4929J	4929J-75-MX	Denton	0.007555639 N	395.4	7/17/2002	Ank Lt,Hld Knee	0
ANRYM	Right Lower Tibia Moment Y	4929J	4929J-77-MY	Denton	0.007430450 N	395.4	7/16/2002	Ank Fd,Hld Knee	0
FTRXD	Right Foot Disp. X	PD210-4B	LX0018X	Contelec	3.133298 °	318	7/23/2002	Eversion	1
FTRYD	Right Foot Disp. Y	PD210-4B	LX0018Y	Contelec	3.155877 °	318	7/23/2002	Dorsiflexion	0
FTRZD	Right Foot Disp. Z	PD210-4B	LX0018Z	Contelec	3.165772 °	318	7/23/2002	Internal Rotation	1
FTRXG	Right Foot Accel X	EGE-73BQ-200	98H13-F20	Entran	0.01855 g	2000	5/13/2003	Fwd	0
FTRYG	Right Foot Accel Y	EGE-73BQ-200	98H10-F19	Entran	0.02068 g	2000	10/5/2001	Rt	0
FTRZG	Right Foot Accel Z	EGE-73B6Q-20	00L20-A15	Entran	0.0192 g	2000	5/13/2003	Dn	0

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Channel Report

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Name of Test 030618-1

System MINIDAU

Name of DAU DAU06

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
6001	EVENT	EVENT	EVENT		5.12	V	+ 10/15/2002	OK -1	TRC	Event
6002	6244-02-119-FZ	LCA1XF	Barr. L.C. A1 X-Axis Force		111120.56	N	- 3/6/2003	OK VRTC	Key	6244-02
6003	6244-02-128-FZ	LCA2XF	Barr. L.C. A2 X-Axis Force		111436.37	N	- 3/5/2003	OK VRTC	Key	6244-02
6004	6244-02-149-FZ	LCA3XF	Barr. L.C. A3 X-Axis Force		110996.64	N	- 3/6/2003	OK VRTC	Key	6244-02
6005	6244-02-131-FZ	LCA4XF	Barr. L.C. A4 X-Axis Force		110991.01	N	- 3/3/2003	OK VRTC	Key	6244-02
6006	6244-02-136-FZ	LCA5XF	Barr. L.C. A5 X-Axis Force		110940.07	N	- 2/28/2003	OK VRTC	Key	6244-02
6007	6244-02-102-FZ	LCA6XF	Barr. L.C. A6 X-Axis Force		111000.11	N	- 3/3/2003	OK VRTC	Key	6244-02
6008	6244-02-145-FZ	LCA7XF	Barr. L.C. A7 X-Axis Force		111119.88	N	- 3/5/2003	OK VRTC	Key	6244-02
6009	6244-02-148-FZ	LCB1XF	Barr. L.C. B1 X-Axis Force		111051.19	N	- 3/6/2003	OK VRTC	Key	6244-02
6010	6244-02-114-FZ	LCB2XF	Barr. L.C. B2 X-Axis Force		111185.98	N	- 3/4/2003	OK VRTC	Key	6244-02
6011	6244-02-132-FZ	LCB3XF	Barr. L.C. B3 X-Axis Force		111059.55	N	- 3/4/2003	OK VRTC	Key	6244-02
6012	6244-02-101-FZ	LCB4XF	Barr. L.C. B4 X-Axis Force		111422.84	N	- 2/28/2003	OK VRTC	Key	6244-02
6013	6244-02-140-FZ	LCB5XF	Barr. L.C. B5 X-Axis Force		111135.71	N	- 2/28/2003	OK VRTC	Key	6244-02
6014	6244-02-143-FZ	LCB6XF	Barr. L.C. B6 X-Axis Force		111341.52	N	- 3/3/2003	OK VRTC	Key	6244-02
6015	6244-02-129-FZ	LCB7XF	Barr. L.C. B7 X-Axis Force		111085.94	N	- 3/5/2003	OK VRTC	Key	6244-02
6016	6244-02-161-FZ	LCC1XF	Barr. L.C. C1 X-Axis Force		110932.96	N	- 2/27/2003	OK VRTC	Key	6244-02
6017	6244-02-166-FZ	LCC2XF	Barr. L.C. C2 X-Axis Force		111213.56	N	- 3/12/2003	OK VRTC	Key	6244-02
6018	6244-02-157-FZ	LCC3XF	Barr. L.C. C3 X-Axis Force		111111.11	N	- 3/12/2003	OK VRTC	Key	6244-02
6019	6244-02-137-FZ	LCC4XF	Barr. L.C. C4 X-Axis Force		111452.38	N	- 3/5/2003	OK VRTC	Key	6244-02
6020	6244-02-118-FZ	LCC5XF	Barr. L.C. C5 X-Axis Force		111009.64	N	- 3/5/2003	OK VRTC	Key	6244-02
6021	6244-02-104-FZ	LCC6XF	Barr. L.C. C6 X-Axis Force		111368.72	N	- 2/27/2003	OK VRTC	Key	6244-02
6022	6244-02-135-FZ	LCC7XF	Barr. L.C. C7 X-Axis Force		110955.08	N	+ 3/5/2003	OK -1	Key	6244-02
6024	6244-02-165-FZ	LCD1XF	Barr. L.C. D1 X-Axis Force		110972.53	N	- 2/27/2003	OK VRTC	Key	6244-02
6025	6244-02-109-FZ	LCD2XF	Barr. L.C. D2 X-Axis Force		111119.93	N	- 3/5/2003	OK VRTC	Key	6244-02
6026	6244-02-144-FZ	LCD3XF	Barr. L.C. D3 X-Axis Force		111080.52	N	- 3/5/2003	OK VRTC	Key	6244-02
6027	6244-02-106-FZ	LCD4XF	Barr. L.C. D4 X-Axis Force		111035.15	N	- 3/5/2003	OK VRTC	Key	6244-02
6028	6244-02-134-FZ	LCD5XF	Barr. L.C. D5 X-Axis Force		111266.03	N	- 3/3/2003	OK VRTC	Key	6244-02
6029	6244-02-111-FZ	LCD6XF	Barr. L.C. D6 X-Axis Force		110979.61	N	- 3/6/2003	OK VRTC	Key	6244-02
6030	6244-02-142-FZ	LCD7XF	Barr. L.C. D7 X-Axis Force		111042.19	N	- 2/27/2003	OK VRTC	Key	6244-02
6031	6244-02-117-FZ	LCE1XF	Barr. L.C. E1 X-Axis Force		111452.38	N	- 2/28/2003	OK VRTC	Key	6244-02
6032	6244-02-122-FZ	LCE2XF	Barr. L.C. E2 X-Axis Force		111235.86	N	- 3/6/2003	OK VRTC	Key	6244-02

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Channel Report

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Name of Test 030618-1

System MINIDAU

Name of DAU DAU0B

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	6244-02-163-FZ	LCE3XF	Barr. L.C. E3 X-Axis Force		111215.06	N	- 2/27/2003	OK	VRTC	Key 6244-02
0003	6244-02-124-FZ	LCE4XF	Barr. L.C. E4 X-Axis Force		111170.55	N	- 3/5/2003	OK	VRTC	Key 6244-02
0004	6244-02-116-FZ	LCE5XF	Barr. L.C. E5 X-Axis Force		111038.82	N	- 2/27/2003	OK	VRTC	Key 6244-02
0005	6244-02-130-FZ	LCE6XF	Barr. L.C. E6 X-Axis Force		111210.30	N	- 3/3/2003	OK	VRTC	Key 6244-02
0006	6244-02-123-FZ	LCE7XF	Barr. L.C. E7 X-Axis Force		111388.42	N	- 3/5/2003	OK	VRTC	Key 6244-02
0007	6244-02-113-FZ	LCF1XF	Barr. L.C. F1 X-Axis Force		111459.15	N	- 3/4/2003	OK	VRTC	Key 6244-02
0008	6244-02-107-FZ	LCF2XF	Barr. L.C. F2 X-Axis Force		111452.72	N	- 3/5/2003	OK	VRTC	Key 6244-02
0009	6244-02-126-FZ	LCF3XF	Barr. L.C. F3 X-Axis Force		111111.35	N	- 3/3/2003	OK	VRTC	Key 6244-02
0010	6244-02-139-FZ	LCF4XF	Barr. L.C. F4 X-Axis Force		110957.99	N	- 2/28/2003	OK	VRTC	Key 6244-02
0011	6244-02-127-FZ	LCF5XF	Barr. L.C. F5 X-Axis Force		111455.92	N	- 3/6/2003	OK	VRTC	Key 6244-02
0012	6244-02-147-FZ	LCF6XF	Barr. L.C. F6 X-Axis Force		111125.45	N	- 3/6/2003	OK	VRTC	Key 6244-02
0013	6244-02-108-FZ	LCF7XF	Barr. L.C. F7 X-Axis Force		111004.15	N	- 3/3/2003	OK	VRTC	Key 6244-02
0014	6244-02-168-FZ	LCG1XF	Barr. L.C. G1 X-Axis Force		111449.71	N	- 2/27/2003	OK	VRTC	Key 6244-02
0015	6244-02-160-FZ	LCG2XF	Barr. L.C. G2 X-Axis Force		111392.20	N	+ 3/5/2003	OK	-1	Key 6244-02
0016	6244-02-115-FZ	LCG3XF	Barr. L.C. G3 X-Axis Force		111339.92	N	- 2/27/2003	OK	VRTC	Key 6244-02
0017	6244-02-125-FZ	LCG4XF	Barr. L.C. G4 X-Axis Force		111036.31	N	- 3/5/2003	OK	VRTC	Key 6244-02
0018	6244-02-167-FZ	LCH1XF	Barr. L.C. H1 X-Axis Force		111030.44	N	- 2/27/2003	OK	VRTC	Key 6244-02
0020	6244-02-138-FZ	LCH2XF	Barr. L.C. H2 X-Axis Force		111427.76	N	- 3/3/2003	OK	VRTC	Key 6244-02
0021	6244-02-159-FZ	LCH3XF	Barr. L.C. H3 X-Axis Force		111069.55	N	- 2/27/2003	OK	VRTC	Key 6244-02
0022	6244-02-164-FZ	LCH4XF	Barr. L.C. H4 X-Axis Force		111296.60	N	- 4/4/2003	OK	VRTC	Key 6244-02

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Channel Report

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Name of Test 030618-1

System MINIDAU

Name of DAU DAU8

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
8001	J17649	HEDXG1	Head Accel X	Rwd	1214.4500 g	-	3/12/2003	OK	168v+	Endevco 7264-2KM5T
8002	AJ454	HEDYG1	Head Accel Y	Lft	1195.1447 g	-	3/12/2003	OK	168v+	Endevco 7264-2000T
8003	J14189	HEDZG1	Head Accel Z	Up	1190.2271 g	-	3/12/2003	OK	168v+	Endevco 7264-2000T
8004	P17196	HEDXR1	Head Accel Red X S39	Rwd	1209.2583 g	-	3/12/2003	OK	168v+	Endevco 7264C-2KLC-2-
8005	B02A25-N09	HEDYR1	Head Accel Red Y	Lft	1226.8174 g	-	3/12/2003	OK	168v+	Entran EGE-73B6Q-200
8006	01G25-N09	HEDZR1	Head Accel Red Z	Up	1195.3121 g	-	3/12/2003	OK	168v+	Entran EGE-73B6Q-200
8007	1716A-851-FX	NEKXF1	Neck Force X	Hd	13329.236 N	-	5/29/2002	---	168v+	Denton 1716A
8008	1716A-851-FY	NEKYF1	Neck Force Y	Hd	13329.530 N	+	5/29/2002	---	168v+	Denton 1716A
8009	1716A-851-FZ	NEKZF1	Neck Force Z	Hd	20045.227 N	+	5/29/2002	---	168v+	Denton 1716A
8010	1716A-851-MX	NEKXM1	Neck Moment X	Rt Ear	423.16624 N·m	-	5/29/2002	---	168v+	Denton 1716A
8011	1716A-851-MY	NEKYM1	Neck Moment Y	Chn	423.71713 N·m	+	5/29/2002	---	168v+	Denton 1716A
8012	1716A-851-MZ	NEKZM1	Neck Moment Z	Chn	423.80316 N·m	+	5/29/2002	---	168v+	Denton 1716A
8013	J35921	CSTXG1	Chest Accel X	Fwd	602.49470 g	+	3/12/2003	OK	168v+	Endevco 7264-2000TZ
8014	AJ7F7	CSTYG1	Chest Accel Y	Lft	601.10829 g	-	3/12/2003	OK	168v+	Endevco 7264-2000T
8015	J36723	CSTZG1	Chest Accel Z	Up	598.52239 g	-	3/12/2003	OK	168v+	Endevco 7264-2000TZ
8016	99H30-Z14	CSTXR1	Chest Accel Red X	Rwd	602.98430 g	-	3/12/2003	OK	168v+	Entran EGE-73BQE0-20
8017	98H14-K05	CSTYR1	Chest Accel Red Y	Lft	598.10987 g	-	3/12/2003	OK	168v+	Entran EGE-73BQ-2000
8018	98H13-F03	CSTZR1	Chest Accel Red Z	Up	598.64836 g	-	3/12/2003	OK	168v+	Entran EGE-73BQ-2000
8019	14CB1-2847-168	CSTXD1	Chest Deflection X	Strnm	99.661210 mm	+	3/19/2003	OK	168v+	Servo 14CB1-2847
8020	ACCY2	PEVXG1	Pelvis Accel X	Rwd	600.09376 g	-	3/12/2003	OK	168v+	Endevco 7264-2000T
8021	J27490	PEVYG1	Pelvis Accel Y	Lft	593.49932 g	-	3/12/2003	OK	168v+	Endevco 7264-2KM5T
8022	J21963	PEVZG1	Pelvis Accel Z	Up	594.97524 g	-	3/12/2003	OK	168v+	Endevco 7264-2KM5T
8023	1914A-362-FX	LFMXF1	Left Femur Force X	Knee	19979.471 N	-	5/24/2002	---	168v+	Denton 1914A
8024	1914A-362-FY	LFMYF1	Left Femur Force Y	Knee	33421.591 N	+	5/24/2002	---	168v+	Denton 1914A
8025	1914A-362-FZ	LFMZF1	Left Femur Force Z	Knee	33334.982 N	+	5/24/2002	---	168v+	Denton 1914A
8026	1914A-362-MX	LFMXM1	Left Femur Moment X	Knee	509.75569 N·m	-	5/24/2002	---	168v+	Denton 1914A
8027	1914A-362-MY	LFMYM1	Left Femur Moment Y	Knee	509.30827 N·m	+	5/24/2002	---	168v+	Denton 1914A
8028	1914A-362-MZ	LFMZM1	Left Femur Moment Z	Tib	510.04931 N·m	+	5/24/2002	---	168v+	Denton 1914A
8029	150-121VR-1802	KNLXD1	Left Knee Displacement	Tib	40.486630 mm	-	3/19/2003	OK	168v+	Space Age 150-0121VR
8030	4353J-79-FX	TBLXF1	Left Upper Tibia Force X	Tib	8885.0964 N	-	7/16/2002	OK	168v+	Denton 4353J
8031	4353J-79-FZ	TBLZF1	Left Upper Tibia Force Z	Tib	8898.3465 N	+	7/16/2002	OK	168v+	Denton 4353J
8032	4353J-79-MX	TBLXM1	Left Upper Tibia Moment X	Tib	281.76543 N·m	-	7/16/2002	OK	168v+	Denton 4353J

Channel Report

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Name of Test 030618-1

System MINIDAU

Name of DAU DAU9

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
9001	4353J-79-MY	TBLYM1	Left Upper Tibia Moment Y	Tib	281.73853	N·m	- 7/16/2002	OK 168v+	Denton	4353J
9002	01G25-N16	TBLXG1	Left Tibia Accel X	Fwd	1226.8174	g	+ 5/13/2003	OK 168v+	Entran	EGE-73B6Q-200
9003	01G18-F02	TBLYG1	Left Tibia Accel Y	Rt	1174.3119	g	+ 5/13/2003	OK 168v+	Entran	EGE-73B6Q-200
9004	4929J-77-FX	ANLXF1	Left Lower Tibia Force X	Ank	8886.9742	N	+ 7/16/2002	OK 168v+	Denton	4929J
9005	4929J-77-FY	ANLYF1	Left Lower Tibia Force Y	Ank	8899.2801	N	+ 7/16/2002	OK 168v+	Denton	4929J
9006	4929J-77-FZ	ANLZF1	Left Lower Tibia Force Z	Ank	8892.7873	N	+ 7/16/2002	OK 168v+	Denton	4929J
9007	4929J-77-MX	ANLXM1	Left Lower Tibia Moment X	Ank	282.19834	N·m	+ 7/16/2002	OK 168v+	Denton	4929J
9008	4929J-77-MY	ANLYM1	Left Lower Tibia Moment Y	Ank	282.40020	N·m	+ 7/16/2002	OK 168v+	Denton	4929J
9009	LX104X	FTLXD1	Left Foot Disp. X	Eversi	161.56516	°	+ 7/17/2002	OK 168v+	Contelec	PD210-4B
9010	LX104Y	FTLYD1	Left Foot Disp. Y	Dorsif	160.90509	°	+ 7/17/2002	OK 168v+	Contelec	PD210-4B
9011	LX104Z	FTLZD1	Left Foot Disp. Z	Exter	161.50910	°	- 7/17/2002	OK 168v+	Contelec	PD210-4B
9012	00L20-A14	FTLXG1	Left Foot Accel X	Fwd	1207.0916	g	+ 5/13/2003	OK 168v+	Entran	EGE-73B6Q-200
9013	98H10-F01	FTLYG1	Left Foot Accel Y	Rt	1192.2503	g	+ 5/13/2003	OK 168v+	Entran	EGE-73BQ-2000
9014	99H12-F03	FTLZG1	Left Foot Accel Z	Dn	1179.0714	g	+ 5/13/2003	OK 168v+	Entran	EGE-73BQE0-20
9015	1914A-376-FX	RFMXF1	Right Femur Force X	Knee	20062.787	N	- 5/24/2002	--- 168v+	Denton	1914A
9016	1914A-376-FY	RFLYF1	Right Femur Force Y	Knee	20067.849	N	+ 5/24/2002	--- 168v+	Denton	1914A
9017	1914A-376-FZ	RFLZF1	Right Femur Force Z	Knee	33402.364	N	+ 5/24/2002	--- 168v+	Denton	1914A
9018	1914A-376-MX	RFMXM1	Right Femur Moment X	Knee	509.89242	N·m	- 5/24/2002	--- 168v+	Denton	1914A
9019	1914A-376-MY	RFLYM1	Right Femur Moment Y	Knee	509.65106	N·m	+ 5/24/2002	--- 168v+	Denton	1914A
9020	1914A-376-MZ	RFLMZ1	Right Femur Moment Z	Tib	509.68327	N·m	+ 5/24/2002	--- 168v+	Denton	1914A
9021	150-121VL-2310	KNRXD1	Right Knee Displacement	Tib	39.308719	mm	- 6/13/2002	--- 168v+	Space Age	150-0121VL
9022	4353J-75-FX	TBRXF1	Right Upper Tibia Force X	Tib	8902.5566	N	+ 8/2/2002	OK 168v+	Denton	4353J
9023	4353J-75-FZ	TBRZF1	Right Upper Tibia Force Z	Tib	8900.2563	N	+ 8/2/2002	OK 168v+	Denton	4353J
9024	4353J-75-MX	TBRXM1	Right Upper Tibia Moment X	Tib	282.08210	N·m	+ 8/2/2002	OK 168v+	Denton	4353J
9025	4353J-75-MY	TBRYM1	Right Upper Tibia Moment Y	Tib	281.61578	N·m	+ 8/2/2002	OK 168v+	Denton	4353J
9026	99H12-F08	TBRXG1	Right Tibia Accel X	Fwd	1191.1408	g	+ 5/13/2003	OK 168v+	Entran	EGE-73BQE0-20
9027	99H30-Z11	TBRYG1	Right Tibia Accel Y	Rt	1186.9986	g	+ 5/13/2003	OK 168v+	Entran	EGE-73BQE0-20
9028	4929J-76-FX	ANRXF1	Right Lower Tibia Force X	Ank	8906.4127	N	+ 7/16/2002	OK 168v+	Denton	4929J
9029	4929J-76-FY	ANRYF1	Right Lower Tibia Force Y	Ank	8887.7150	N	+ 7/16/2002	OK 168v+	Denton	4929J
9030	4929J-76-FZ	ANRZF1	Right Lower Tibia Force Z	Ank	8893.2456	N	+ 7/16/2002	OK 168v+	Denton	4929J
9031	4929J-76-MX	ANRXM1	Right Lower Tibia Moment X	Ank	281.92254	N·m	+ 7/16/2002	OK 168v+	Denton	4929J
9032	4929J-76-MY	ANRYM1	Right Lower Tibia Moment Y	Ank	281.68318	N·m	+ 7/16/2002	OK 168v+	Denton	4929J

Channel Report

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Name of Test 030618-1

System MINIDAU

Name of DAU DAUA

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	PD210-4B-AK-03	FTRXD1	Right Foot Disp. X	Eversi	160.05001	°	- 7/18/2002	OK 168v+	Contelec	PD210-4B
0002	PD210-4B-0225	FTRYD1	Right Foot Disp. Y	Dorsif	162.23581	°	+ 7/18/2002	OK 168v+	Contelec	PD210-4B
0003	PD210-4B-AK-03	FTRZD1	Right Foot Disp. Z	Intern	162.09713	°	- 7/18/2002	OK 168v+	Contelec	PD210-4B
0004	01J02-F08	FTRXG1	Right Foot Accel X	Fwd	1218.4383	g	+ 5/13/2003	OK 168v+	Entran	EGE-73B6Q-200
0005	01J02-F16	FTRYG1	Right Foot Accel Y	Rt	1179.7235	g	+ 5/13/2003	OK 168v+	Entran	EGE-73B6Q-200
0006	98H10-F10	FTRZG1	Right Foot Accel Z	Dn	1203.2902	g	+ 5/13/2003	OK 168v+	Entran	EGE-73BQ-2000
0007	J20083	HEDXG2	Head Accel X	Rwd	1172.1611	g	- 3/11/2003	OK 169v+	Endevco	7264-2000T
0008	J19843	HEDYG2	Head Accel Y	Lft	1203.5448	g	- 3/11/2003	OK 169v+	Endevco	7264-2000T
0009	J20027	HEDZG2	Head Accel Z	Up	1237.4323	g	- 3/11/2003	OK 169v+	Endevco	7264-2KM5T
0010	1716A-782-FX	NEKXF2	Neck Force X	Hd	13371.182	N	- 5/30/2002	--- 169v+	Denton	1716A
0011	1716A-782-FY	NEKYF2	Neck Force Y	Hd	13358.829	N	+ 5/30/2002	--- 169v+	Denton	1716A
0012	1716A-782-FZ	NEKZF2	Neck Force Z	Hd	20011.553	N	+ 5/30/2002	--- 169v+	Denton	1716A
0013	1716A-782-MX	NEKXM2	Neck Moment X	Rt Ear	423.49857	N·m	- 5/30/2002	--- 169v+	Denton	1716A
0014	1716A-782-MY	NEKYM2	Neck Moment Y	Chn	423.21504	N·m	+ 5/30/2002	--- 169v+	Denton	1716A
0015	1716A-782-MZ	NEKZM2	Neck Moment Z	Chn	423.51205	N·m	+ 5/30/2002	--- 169v+	Denton	1716A
0016	J23757	CSTXG2	Chest Accel X	Fwd	608.00380	g	+ 3/12/2003	OK 169v+	Endevco	7264-2000T
0017	J21989	CSTYG2	Chest Accel Y	Lft	607.00905	g	- 3/12/2003	OK 169v+	Endevco	7264-2KM5T
0018	J35747	CSTZG2	Chest Accel Z	Up	603.27559	g	- 3/12/2003	OK 169v+	Endevco	7264-2000TZ
0019	14CB1-2847-169	CSTXD2	Chest Deflection X	Strmm	99.656457	mm	+ 3/19/2003	OK 169v+	Servo	14CB1-2847
0020	J36741	PEVXG2	Pelvis Accel X	Rwd	599.30003	g	- 3/11/2003	OK 169v+	Endevco	7264-2000TZ
0021	J36605	PEVYG2	Pelvis Accel Y	Lft	597.46079	g	- 3/11/2003	OK 169v+	Endevco	7264-2000TZ
0022	AAMD7	PEVZG2	Pelvis Accel Z	Up	597.01492	g	- 3/11/2003	OK 169v+	Endevco	7264-2000LC
0023	1914-0261-FX	LFMXF2	Left Femur Force X	Knee	19987.254	N	- 5/24/2002	--- 169v+	Denton	1914
0024	1914-0261-FY	LFMYF2	Left Femur Force Y	Knee	20037.545	N	+ 5/24/2002	--- 169v+	Denton	1914
0025	1914-0261-FZ	LFMZF2	Left Femur Force Z	Knee	33361.064	N	+ 5/24/2002	--- 169v+	Denton	1914
0026	1914-0261-MX	LFMXM2	Left Femur Moment X	Knee	508.75255	N·m	- 5/24/2002	--- 169v+	Denton	1914
0027	1914-0261-MY	LFMYM2	Left Femur Moment Y	Knee	508.52406	N·m	+ 5/24/2002	--- 169v+	Denton	1914
0028	1914-0261-MZ	LFMZM2	Left Femur Moment Z	Tib	507.04262	N·m	+ 5/24/2002	--- 169v+	Denton	1914
0029	01G25-N04	FTLXG2	Left Foot Accel X	Fwd	1174.7969	g	+ 5/13/2003	OK 169v+	Entran	EGE-73B6Q-200
0030	00L13-F29	FTLYG2	Left Foot Accel Y	Rt	1200.7504	g	+ 5/13/2003	OK 169v+	Entran	EGE-73B6Q-200
0031	98H10-F18	FTLZG2	Left Foot Accel Z	Dn	1226.0536	g	+ 5/13/2003	OK 169v+	Entran	EGE-73BQ-2000
0032	LX0019X	FTLXD2	Left Foot Disp. X	Eversi	161.65284	°	+ 7/23/2002	OK 169v+	Contelec	PD210-4B

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Name of Test 030618-1

System MINIDAU

Name of DAU DAUC

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model	
0001	LX0019Y	FTLYD2	Left Foot Disp. Y	Dorsif	161.76485 °	+	7/23/2002	OK	169v+	Contelec	PD210-4B
0002	LX0019Z	FTLZD2	Left Foot Disp. Z	Exter	160.40718 °	-	7/23/2002	OK	169v+	Contelec	PD210-4B
0003	150-121VR-1716	KNLXD2	Left Knee Displacement	Tib	39.871042 mm	-	3/11/2003	OK	169v+	Space Age	150-0121VR
0004	4929J-78-FX	ANLXF2	Left Lower Tibia Force X	Ank	8906.4127 N	+	7/16/2002	OK	169v+	Denton	4929J
0005	4929J-78-FY	ANLYF2	Left Lower Tibia Force Y	Ank	8887.8232 N	+	7/16/2002	OK	169v+	Denton	4929J
0006	4929J-78-FZ	ANLZF2	Left Lower Tibia Force Z	Ank	8889.0720 N	+	7/16/2002	OK	169v+	Denton	4929J
0007	4929J-78-MX	ANLXM2	Left Lower Tibia Moment X	Ank	282.55100 N·m	+	7/16/2002	OK	169v+	Denton	4929J
0008	4929J-78-MY	ANLYM2	Left Lower Tibia Moment Y	Ank	281.77504 N·m	+	7/16/2002	OK	169v+	Denton	4929J
0009	98H10-F13	TBLXG2	Left Tibia Accel X	Fwd	1210.2302 g	+	5/13/2003	OK	169v+	Entran	EGE-73BQ-2000
0010	98H10-F12	TBLYG2	Left Tibia Accel Y	Rt	1203.2336 g	+	5/13/2003	OK	169v+	Entran	EGE-73BQ-2000
0011	4353J-78-FX	TBLXF2	Left Upper Tibia Force X	Tib	8889.1775 N	-	7/17/2002	OK	169v+	Denton	4353J
0012	4353J-78-FZ	TBLZF2	Left Upper Tibia Force Z	Tib	8892.4095 N	+	7/17/2002	OK	169v+	Denton	4353J
0013	4353J-78-MX	TBLXM2	Left Upper Tibia Moment X	Tib	281.46429 N·m	-	7/17/2002	OK	169v+	Denton	4353J
0014	4353J-78-MY	TBLYM2	Left Upper Tibia Moment Y	Tib	282.22690 N·m	-	7/17/2002	OK	169v+	Denton	4353J
0015	1914A-383-FX	RFMXF2	Right Femur Force X	Knee	20039.527 N	-	5/24/2002	---	169v+	Denton	1914A
0016	1914A-383-FY	RFMYF2	Right Femur Force Y	Knee	20017.163 N	+	5/24/2002	---	169v+	Denton	1914A
0017	1914A-383-FZ	RFMZ2	Right Femur Force Z	Knee	33300.033 N	+	5/24/2002	---	169v+	Denton	1914A
0018	1914A-383-MX	RFMXM2	Right Femur Moment X	Knee	508.55788 N·m	-	5/24/2002	---	169v+	Denton	1914A
0019	1914A-383-MY	RFMYM2	Right Femur Moment Y	Knee	508.28741 N·m	+	5/24/2002	---	169v+	Denton	1914A
0020	1914A-383-MZ	RFMZM2	Right Femur Moment Z	Tib	507.00843 N·m	+	5/24/2002	---	169v+	Denton	1914A
0021	98H13-F20	FTRXG2	Right Foot Accel X	Fwd	1200.0468 g	+	5/13/2003	OK	169v+	Entran	EGE-73BQ-2000
0022	98H10-F19	FTRYG2	Right Foot Accel Y	Rt	1178.9628 g	+	10/5/2001	---	169v+	Entran	EGE-73BQ-2000
0023	00L20-A15	FTRZG2	Right Foot Accel Z	Dn	1212.1212 g	+	5/13/2003	OK	169v+	Entran	EGE-73B6Q-200
0024	LX0018X	FTRXD2	Right Foot Disp. X	Eversi	163.40609 °	-	7/23/2002	OK	169v+	Contelec	PD210-4B
0025	LX0018Y	FTRYD2	Right Foot Disp. Y	Dorsif	162.23699 °	+	7/23/2002	OK	169v+	Contelec	PD210-4B
0026	LX0018Z	FTRZD2	Right Foot Disp. Z	Intern	161.72990 °	-	7/23/2002	OK	169v+	Contelec	PD210-4B
0027	150-121VL-2103	KNRXD2	Right Knee Displacement	Tib	39.012198 mm	-	3/11/2003	OK	169v+	Space Age	150-0121VL
0028	4929J-75-FX	ANRXF2	Right Lower Tibia Force X	Ank	8889.6424 N	+	7/17/2002	OK	169v+	Denton	4929J
0029	4929J-75-FY	ANRYF2	Right Lower Tibia Force Y	Ank	8888.6113 N	+	7/17/2002	OK	169v+	Denton	4929J
0030	4929J-75-FZ	ANRZF2	Right Lower Tibia Force Z	Ank	8893.3040 N	+	7/17/2002	OK	169v+	Denton	4929J
0031	4929J-75-MX	ANRXM2	Right Lower Tibia Moment X	Ank	282.34979 N·m	+	7/17/2002	OK	169v+	Denton	4929J
0032	4929J-77-MY	ANRYM2	Right Lower Tibia Moment Y	Ank	282.40020 N·m	+	7/16/2002	OK	169v+	Denton	4929J

Channel Report

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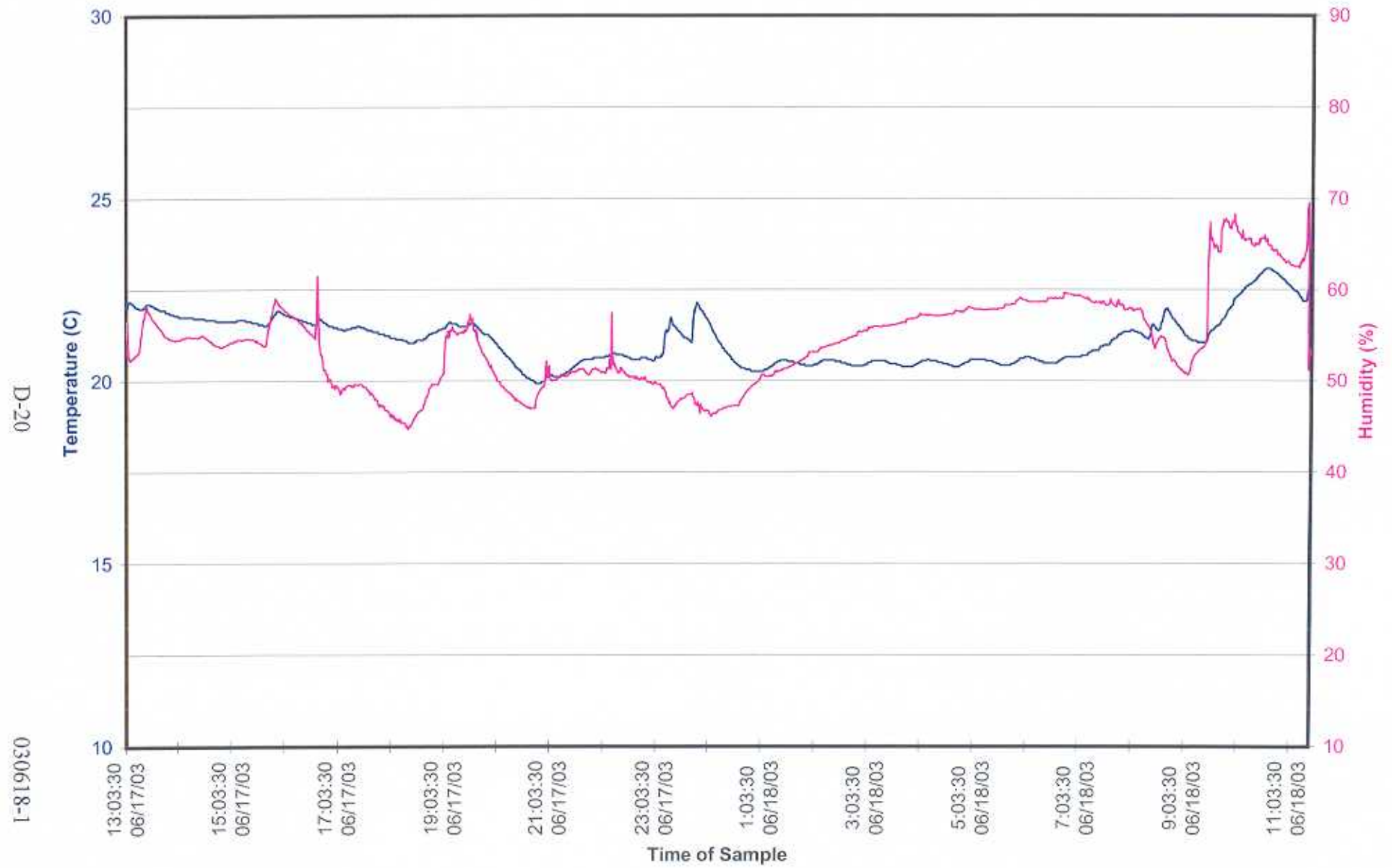
Name of Test 030618-1

System MINIDAU

Name of DAU DAUD

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.	Group	Mfg.	Model	
0001	02D02C21-N01	TBRXG2	Right Tibia Accel X	Fwd	1191.6399	g	+	4/17/2003	OK	169v+	Entran	EGE-73B6Q-200
0002	01J02-F19	TBRYG2	Right Tibia Accel Y	Rt	1199.7937	g	+	5/13/2003	OK	169v+	Entran	EGE-73B6Q-200
0003	4353J-77-FX	TBRXF2	Right Upper Tibia Force X	Tib	8907.8549	N	-	7/17/2002	OK	169v+	Denton	4353J
0004	4353J-77-FZ	TBRZF2	Right Upper Tibia Force Z	Tib	8896.6112	N	+	7/17/2002	OK	169v+	Denton	4353J
0005	4353J-77-MX	TBRXM2	Right Upper Tibia Moment X	Tib	281.81210	N·m	-	7/17/2002	OK	169v+	Denton	4353J
0006	4353J-77-MY	TBRYM2	Right Upper Tibia Moment Y	Tib	282.37838	N·m	-	7/17/2002	OK	169v+	Denton	4353J
0007	03C03C14-F03	LRXXG1	REAR SEAT X-MEMBER	FWD	992.24806	g	+	3/31/2003	OK	-1	Entran	EGE-73B6Q-200
0008	03D03C27-N12	LRXYG1	REAR SEAT Y-MEMBER	LT	1007.2791	g	-	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
0009	03D03C28-N13	LRXZG1	REAR SEAT Z-MEMBER	UP	1006.2893	g	-	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
0010	P27185	RRXXG1	REAR SEAT X-MEMBER	FWD	999.68759	g	+	5/7/2003	OK	-1	Endevco	7264C-2K-2-180
0011	03C03C14-F02	RRXYG1	REAR SEAT Y-MEMBER	LT	999.02439	g	-	3/31/2003	OK	-1	Entran	EGE-73B6Q-200
0012	03C03C14-F06	RRXZG1	REAR SEAT Z-MEMBER	UP	992.24806	g	-	3/31/2003	OK	-1	Entran	EGE-73B6Q-200
0013	P27190	LTPXG1	DRIVERS LT. SIDE TOE PAN	FWD	986.17049	g	+	5/7/2003	OK	-1	Endevco	7264C-2K-2-180
0014	P27180	LTPYG1	DRIVERS LT. SIDE TOE PAN	LT	1012.9787	g	-	5/7/2003	OK	-1	Endevco	7264C-2K-2-180
0015	P27476	LTPZG1	DRIVERS LT. SIDE TOE PAN	UP	1016.6395	g	-	5/6/2003	OK	-1	Endevco	7264C-2K-2-180
0016	P21366	RTPXG1	DRIVERS RT. SIDE TOE PAN	FWD	985.37336	g	+	6/10/2003	OK	-1	Endevco	7264C-2K-2-180
0017	P27499	RTPYG1	DRIVERS RT. SIDE TOE PAN	LT	989.48670	g	-	5/7/2003	OK	-1	Endevco	7264C-2K-2-180
0018	P27493	RTPZG1	DRIVERS RT. SIDE TOE PAN	UP	985.56304	g	-	5/6/2003	OK	-1	Endevco	7264C-2K-2-180
0019	P23188	VCGXG1	VEHICLE CG X-AXIS	FWD	999.10236	g	+	3/3/2003	OK	-1	Endevco	7264C-2K-2-180
0020	P27468	VCGYG1	VEHICLE CG Y-AXIS	RT	1012.3578	g	+	5/6/2003	OK	-1	Endevco	7264C-2K-2-180
0021	P23380	VCGZG1	VEHICLE CG Z-AXIS	UP	998.08959	g	-	3/3/2003	OK	-1	Endevco	7264C-2K-2-180
0022	P27191	RDKZG1	REAR DECK Z-AXIS	UP	978.59327	g	-	5/7/2003	OK	-1	Endevco	7264C-2K-2-180
0023	A60896	TPDXD1	TOE PAN DISPLACEMENT	106	1241.8497	mm	+	3/12/2003	OK	-1	Celesco	PT-101-0050-11
0024	ABFire1	DABETA	DRIVER AIRBAG EVENT -	A	5.12	V	+	8/20/2002	OK	-1	FLUKE	Y8101A
0025	ABFire2	DABETB	DRIVER AIRBAG EVENT-	1	5.12	V	+	8/20/2002	OK	-1	FLUKE	Y8101A
0026	ABFire3	PABETA	PASSENGER AIRBAG EVENT	8	5.12	V	+	8/20/2002	OK	-1	FLUKE	Y8101A
0027	ABFire4	PABETB	PASSENGER AIRBAG EVENT	2	5.12	V	+	8/20/2002	OK	-1	FLUKE	Y8101A
0028	134	SHBF1	DRIVER SHOULDER FORCE		15571.574	N	+	12/23/2002	OK	-1	Lebow	3419T
0029	571	LPBF1	DRIVER LAP FORCE		15551.619	N	+	12/18/2002	OK	-1	Lebow	3419T
0030	243	SHBF2	PASSENGER SHOULDER		15584.784	N	+	4/3/2003	OK	-1	Lebow	3419T
0031	606	LPBF2	PASSENGER LAP FORCE		13360.164	N	+	12/23/2002	OK	-1	Lebow	3419T

LEFT OFFSET DEFORMABLE BARRIER/030618-1



Appendix E

INSIA Report on Structural Measurements

STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY

APARICIO IZQUIERDO, FRANCISCO
PÁEZ AYUSO, FRANCISCO JAVIER

INSIA
Carretera de Valencia, km. 7
Campus Sur de la Universidad Politécnica de Madrid
28031 – MADRID – (SPAIN)

March, 1999

REPORT DOCUMENTATION PAGE

Title: <i>STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY</i>
Author(s): Aparicio Izquierdo, Francisco Páez Ayuso, Francisco Javier
Performing Organisation name and address: INSIA – University Institute for Automobile Research Carretera de Valencia, Km. 7 – Campus Sur de la Universidad Politécnica de Madrid 28031 – Madrid – Spain
Supplementary notes: Under contract to: THE EUROPEAN COMMUNITY Project: "Improvement of Crash Compatibility between Cars" Contract N°: RO – 97 – SC.1064
Abstract: The main aim of this working package - <i>Structural Survey of Cars</i> - is the reduction of incompatibilities, both structural and geometric, between passenger vehicles and their potential collision partners. The understanding of these incompatibilities needs a previous step for the knowledge of the existing car fleet. Firstly, it is necessary to select the main resistant elements in the car body. These elements have to be chosen from the point of view of the sort of collision that we want to study, that is to say, frontal and side impacts. Detailed measurements have been taken from exterior and interior elements, spread to a total number of 74 models selected from the main vehicle manufacturers at Spain. All of them are being sold this year. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars will be defined. This report shows the methodology followed to get these measurements.
Subject terms: Crash compatibility, geometric compatibility, resistant elements, measure methodology
Date: March, 1999

1.- METHODOLOGY.

Detailed measurements have been taken from exterior and interior elements. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars have been defined. These elements are presented in the following figures, and have been divided in two main groups according to the vehicle zones studied in this project.

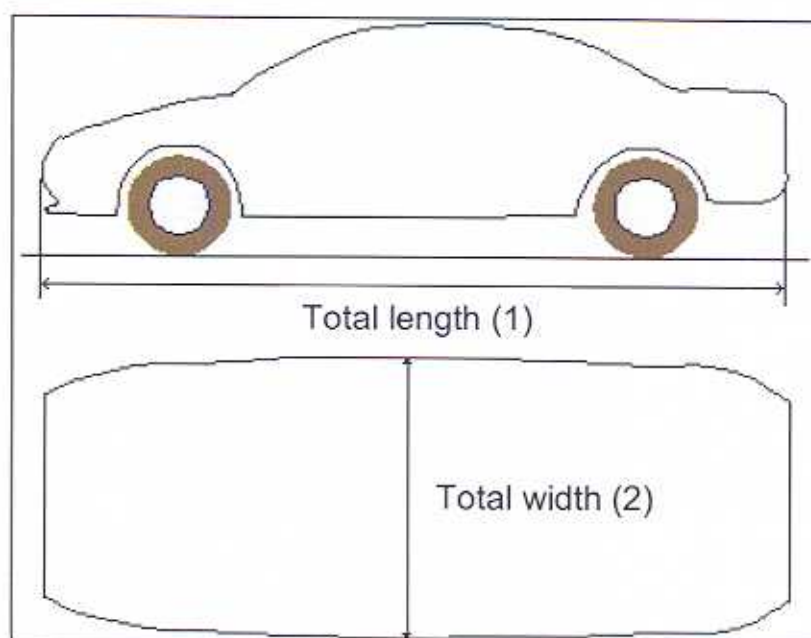


Figure 1.- Definition of the main resistant elements. General dimensions.

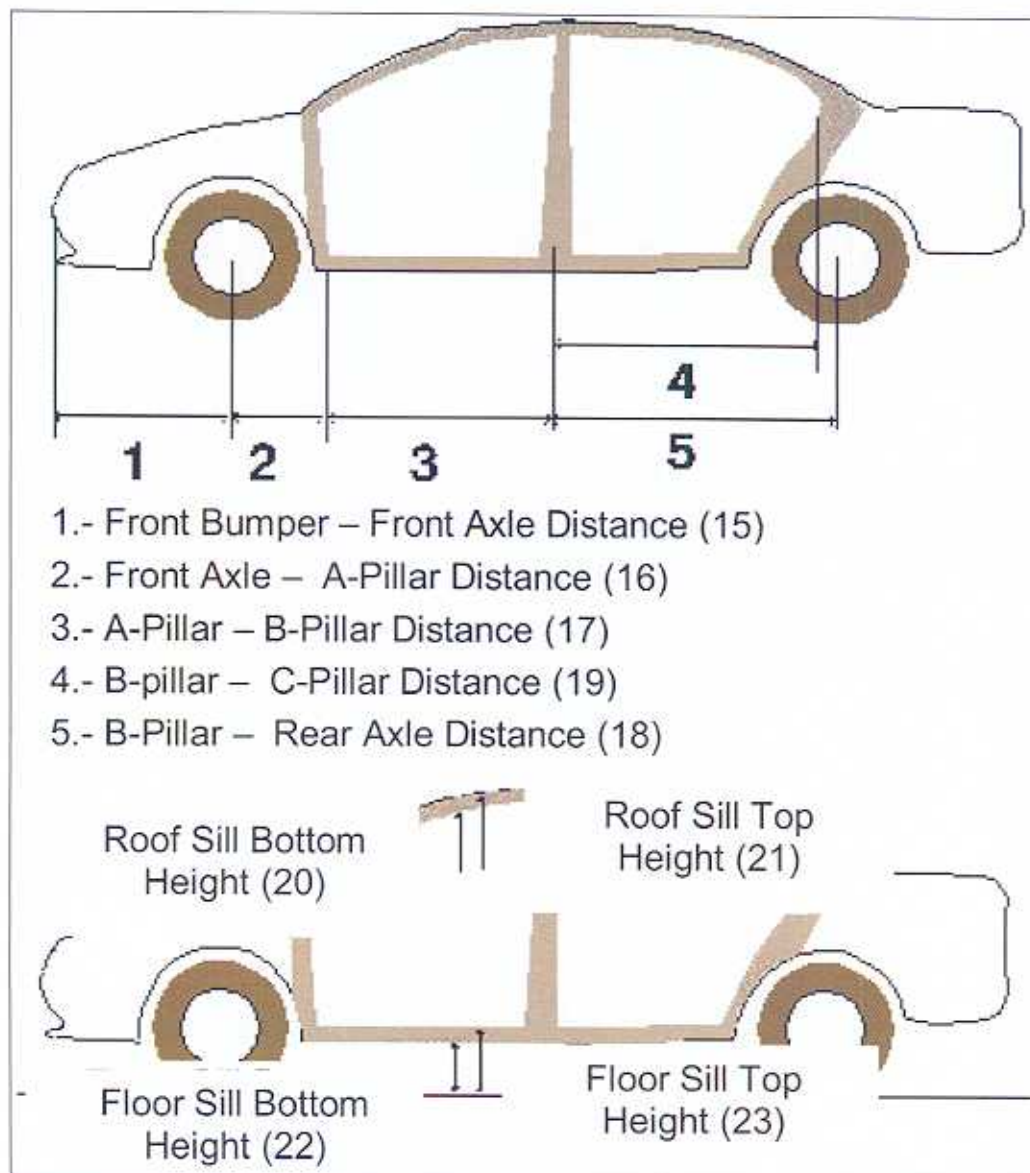


Figure 2.- Definition of the main resistant elements. Side elements.

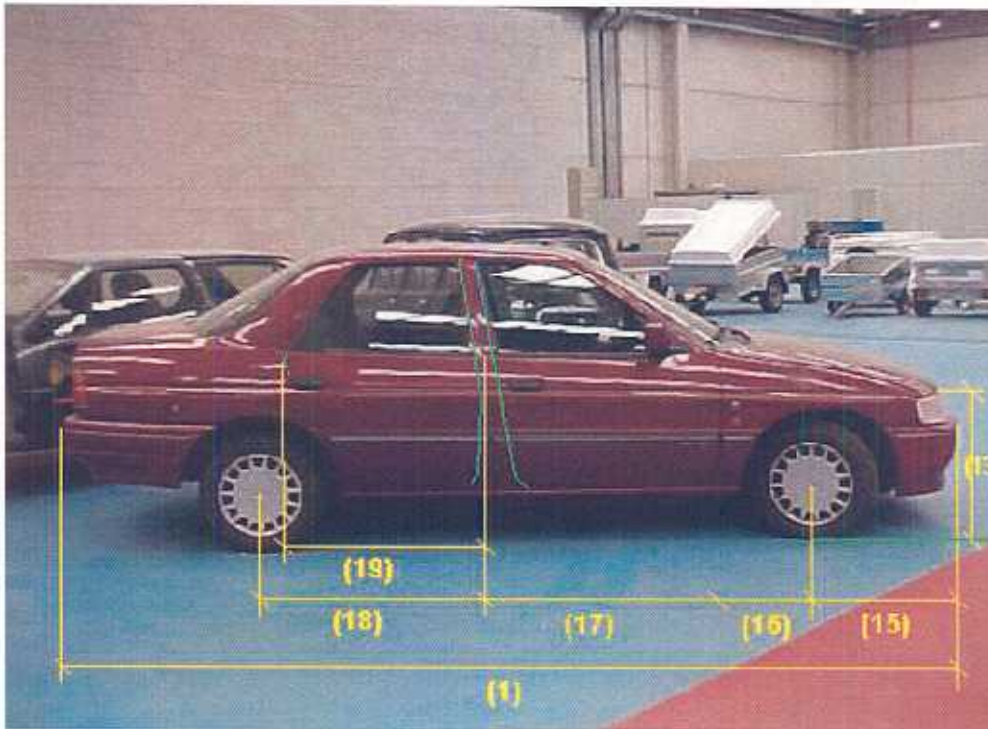
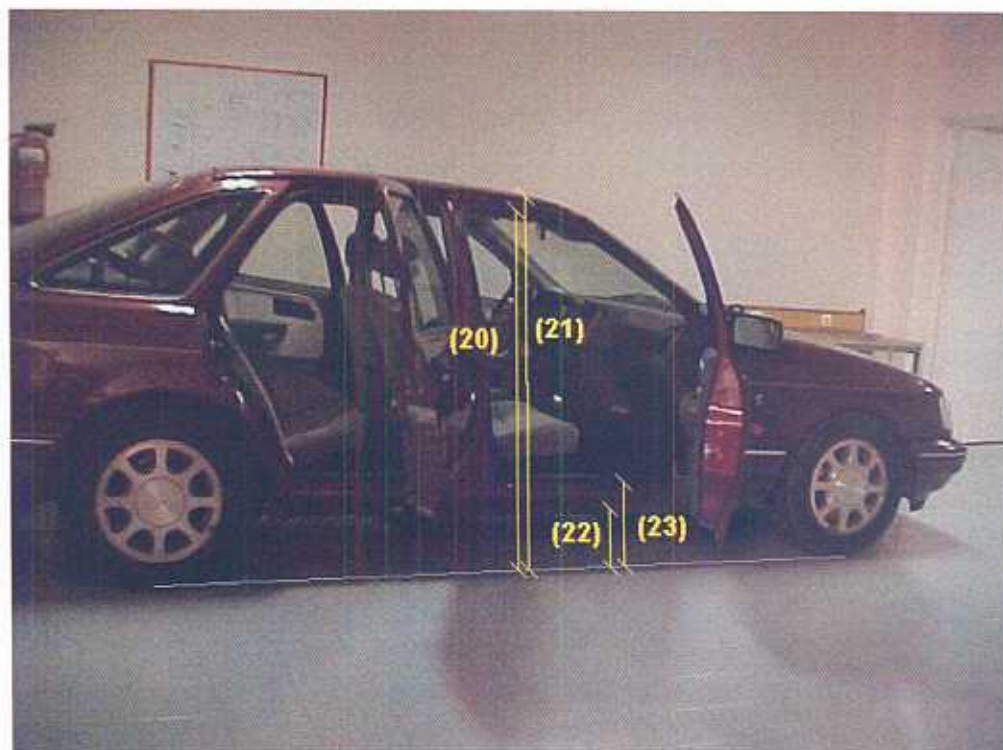


Figure 3.-
Measurements of
the side resistant
elements (outer).

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



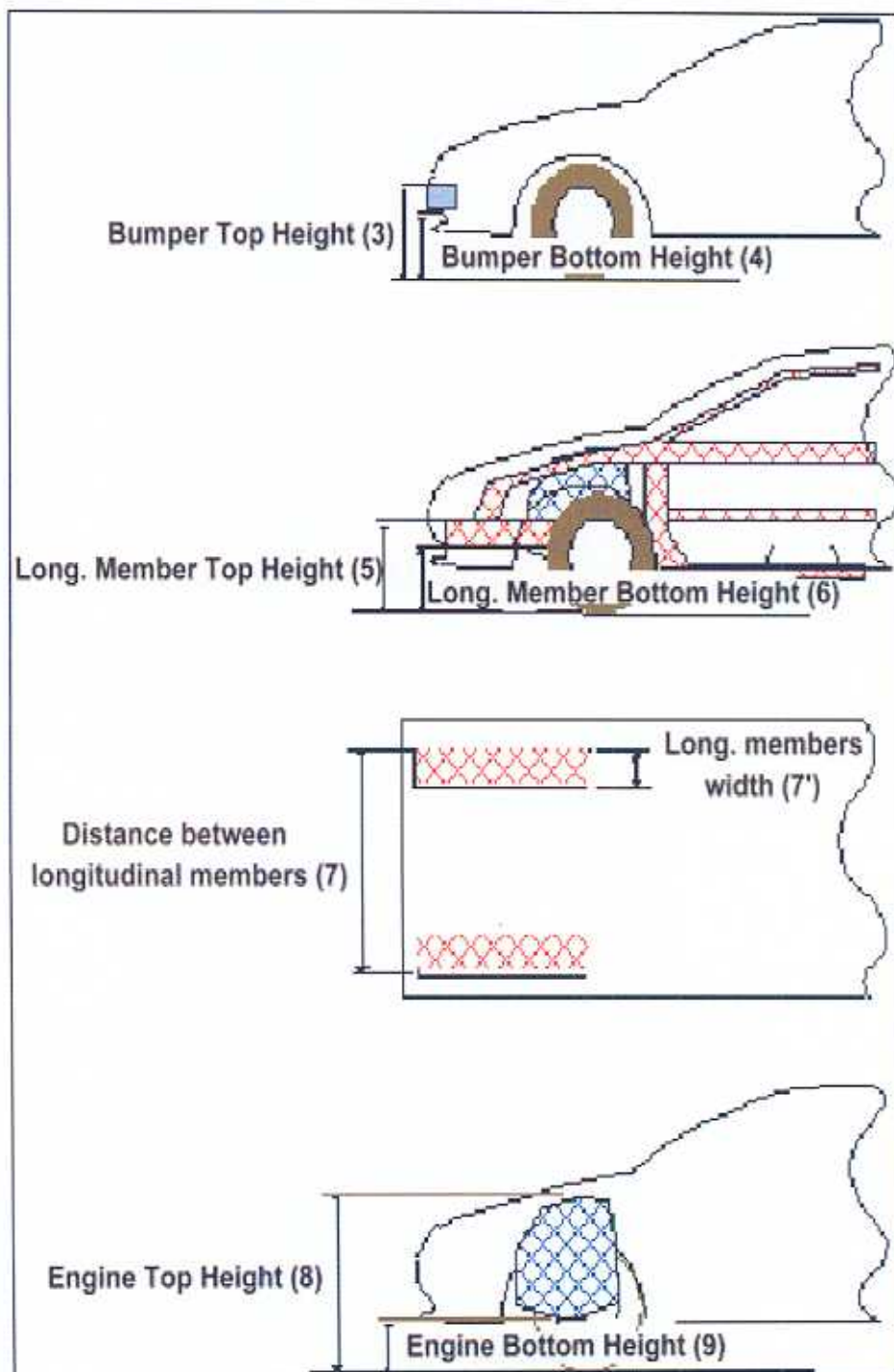


Figure 5.- Definition of the main resistant elements. Front elements.

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

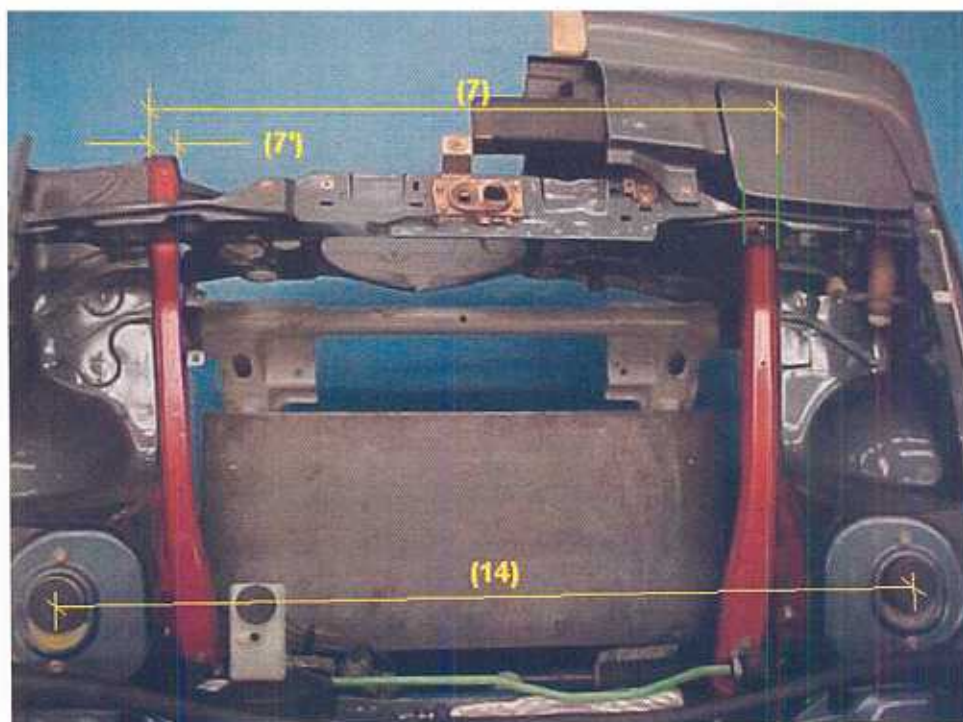
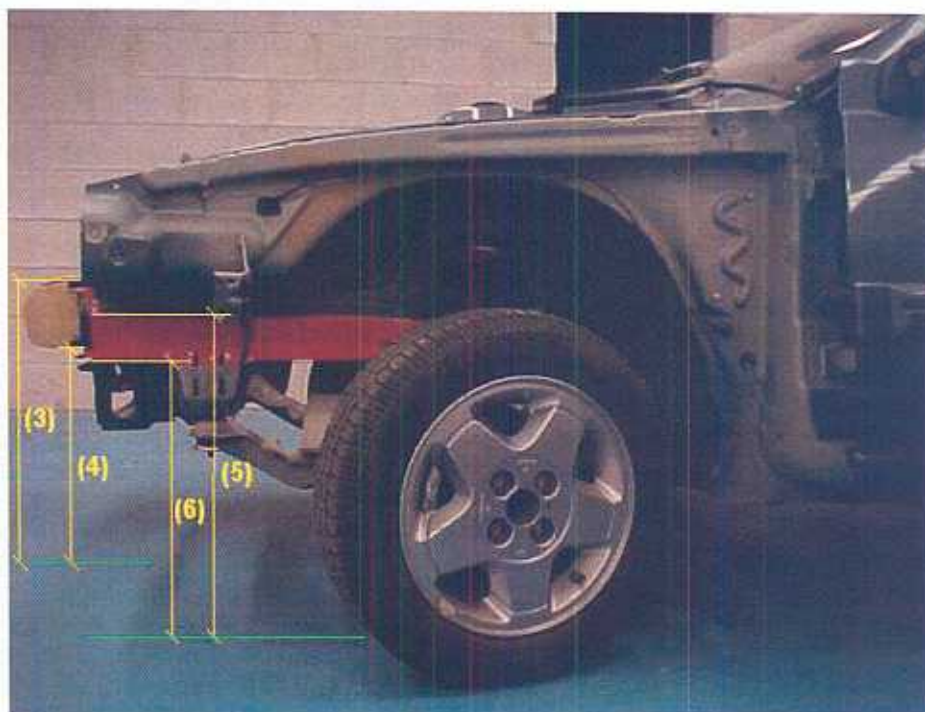


Figure 7.-
Measurements
of the main
resistant
elements. Front
elements 2.

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

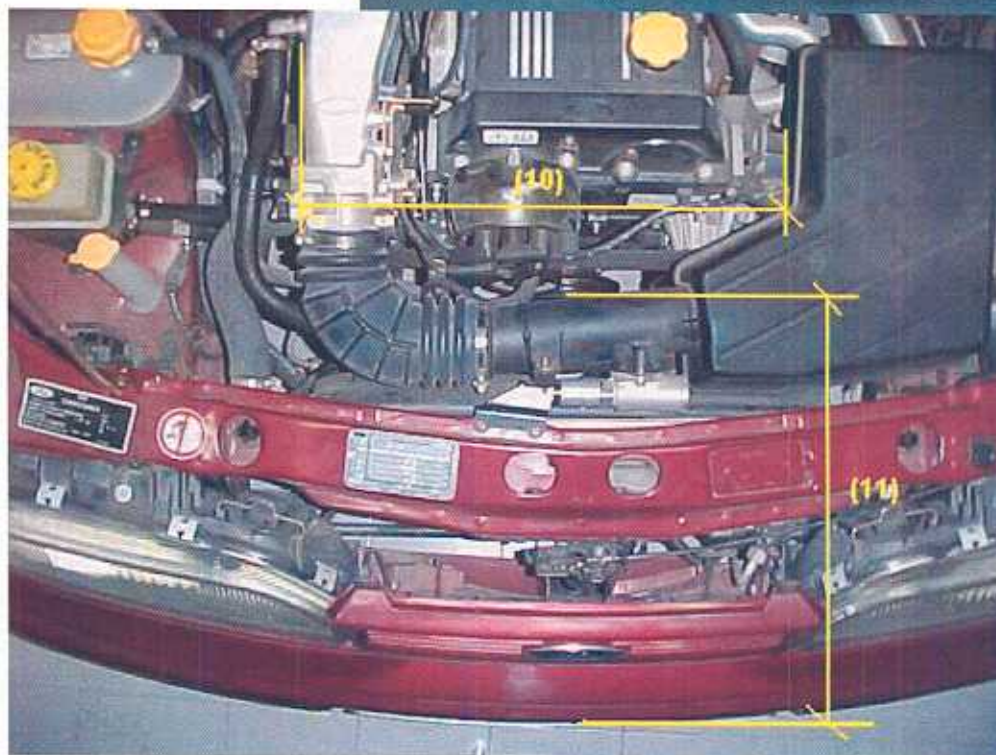
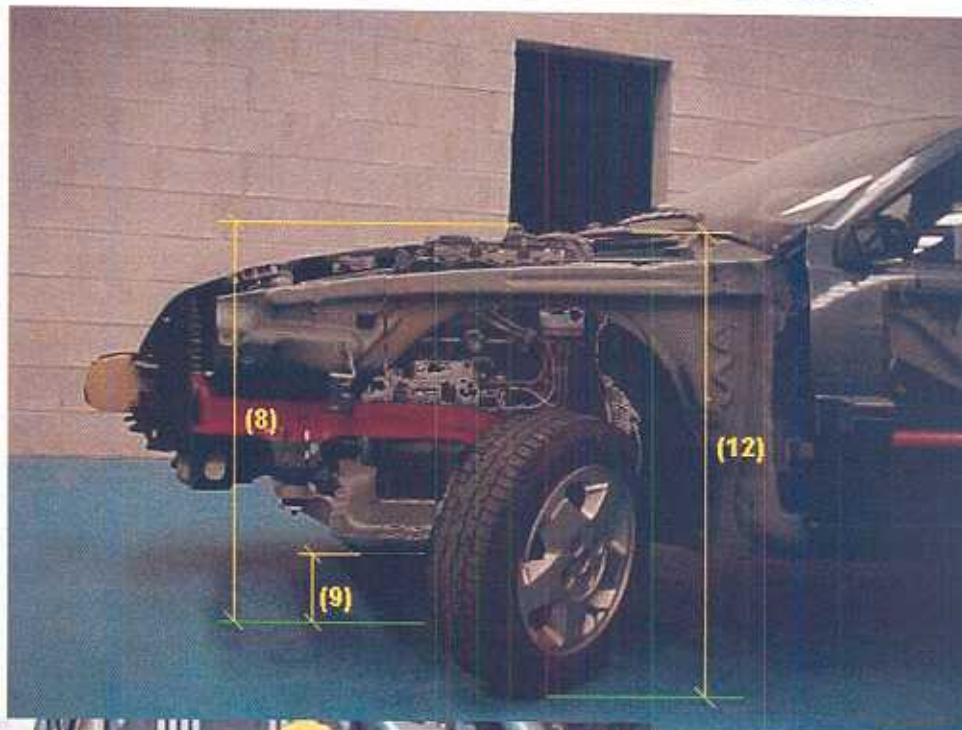


Figure 9.-
Definition of
the main
resistant
elements. Front
elements
(Longitudinal
engine).

The procedure considered to measure these elements is described as follows, where it is indicated the location of these ones in the Excel Sheet (SURVEY.XLS) into brackets:

FRONT ELEMENTS

- **Total Length –(1)- (Side & Front Sheets - C column):** distance between the point in the front bumper further on and the point in the rear bumper further back.
- **Weight (Side & Front Sheets - D column):** mass, including an average driver weight (70 kg), and the fuel tank mass (at half-capacity).
- **Total Width –(2)- (Side & Front Sheets - E column):** distance between the outer side points in a transverse plane of the vehicle (middle plane between the front and rear axles).
- **Bumper bottom height –(4)- (Front Sheet G column):** distance between the ground and the lowest point on the front bumper, being a resistant member (aerodynamic elements under the front bumper are not considered).
- **Bumper top height –(3)- (Front Sheet H column):** distance between the ground and the highest point on the front bumper, being a resistant member (aerodynamic elements are not considered).
- **Longitudinal member top height –(5)- (Front Sheet I column):** distance between the ground and the highest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint (when accessible).
- **Longitudinal member bottom height –(6)- (Front Sheet J column):** distance between the ground and the lowest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint.
- **Distance between longitudinal members (Front Sheet K column):** transverse distance between extreme points in longitudinal members, measured approximately in the front bumper-longitudinal member joint.

Depending on the accessibility of these members, the extreme points are the inner points (I) or the outer points (O).

- **Longitudinal member width -7'- (Front Sheet L column):** width of one of the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

- **Engine top height (8) (Front Sheet N column):** distance between the ground and the highest point on the engine that can be a resistant member in case of accident (usually, the highest point on the head, or the highest point of the inlet or exhaust manifolds).
- **Engine bottom height (9) (Front Sheet M column):** distance between the ground and the lowest point on the engine (usually, the lowest point on the crankcase).
- **Engine and Gearbox width (10) (Front Sheet O & P columns):**
 - *Transverse configuration engine:* distance between extreme points in the gearbox-cylinder block unit or others resistant members attached to the cylinder block unit, i.e. fan belts (from a front point of view).
 - *Longitudinal configuration engine:* distance between extreme points in the cylinder block unit (from a front point of view).
- **Front bumper - Engine distance (11) (Front Sheet Q column):** distance between the point in the front bumper further on and the point in the engine further on that is a resistant element, i.e. the further on point of the exhaust manifold placed in the front of the engine.
- **Front shock absorber fixing width (14) (Front Sheet R column):** transverse distance between the front shock absorber - body car joints.
- **Front shock absorber fixing height (12) (Front Sheet S column):** distance between the ground and the front shock absorber-body car joint.
- **Bonnet leading edge height (Front Sheet T column):** distance between the ground and the bonnet edge further on.

SIDE ELEMENTS

- **Front bumper - Front axle distance (15) (Side Sheet G column):** distance between the point in the front bumper further on and the middle point in the front tyre-road contact patch.
- **Front axle - A Pillar distance (16) (Side Sheet H column):** distance between the middle point in the front tyre-road contact patch and the point in the A-pillar further back.
- **A Pillar - B Pillar distance (17) (Side Sheet I column):** distance between the point in the A-pillar further back and the middle point in the B-pillar.
- **B Pillar - C Pillar distance (19) (Side Sheet J column):** distance between the middle point in the B-pillar and the point in the C-pillar further back (only 4/5-door vehicles).
- **B Pillar - Rear axle distance (18) (Side Sheet K column):** distance between the middle point in the B-pillar and the middle point in the rear tyre-road contact patch.
- **Roof sill bottom height (20) (Side Sheet L column):** distance between the ground and the lowest point on the roof sill, measured in the front door middle point.
- **Roof sill top height (21) (Side Sheet M column):** distance between the ground and the highest point on the roof sill (usually located in the sill-roof joint), measured in the front door middle point.
- **Floor sill bottom height (22) (Side Sheet N column):** distance between the ground and the lowest point on the floor sill, measured in the front door middle point.
- **Floor sill top height (23) (Side Sheet O column):** distance between the ground and the highest point on the floor sill, measured in the front door middle point.

NOTE

- N/A: dimension not available.

Appendix F

Manufacturer's Information

TEST VEHICLE INFORMATION

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

1. NOMINAL DESIGN RIDING POSITION **

For adjustable driver and passenger seat backs.

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

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

*1 = Nominal Design Angle

*2 = Measured Angle on seat head rest post

Measurement Instructions:

A) MANUAL SEAT

Measurements are without dummy in the seat.

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

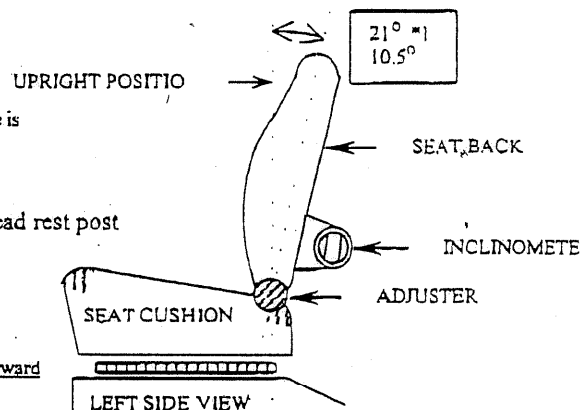
B) POWER SEAT

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

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

Measurement Instructions:

Same procedure as Driver side.

**FRONT SEAT ASSEMBLY****2. SEAT FOR & AFT POSITIONS ****

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

Positioning of driver's seat:

A: MANUAL SEAT

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

B: POWER SEAT

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

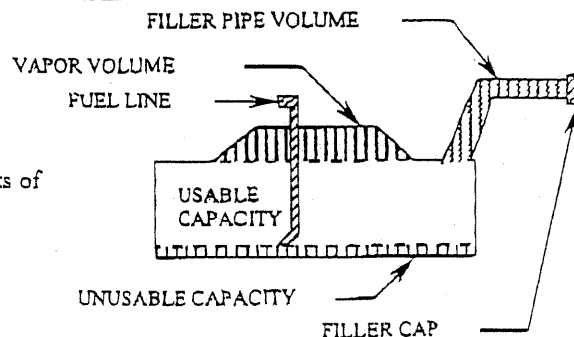
Positioning of the passenger's seat (if applicable):

Same procedure as drive side.

3. FUEL TANK DATA **

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

Operational Instructions:

**VEHICLE FUEL TANK ASSEMBLY**

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

3.3 Is vehicle equipped with electric fuel pump? ✓ YES NO

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

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

2) while the engine is running.

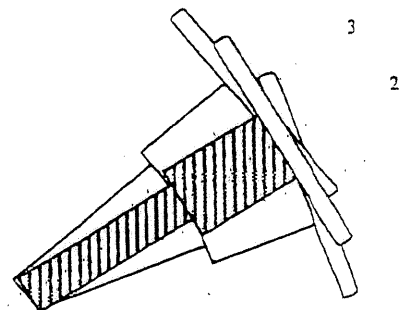
3) for 1.5 seconds after the engine stops running.

4. STEERING COLUMN ADJUSTMENTS **

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

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

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



5. ADJUSTABLE SEAT BELT D-RING ANCHORAGE

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



2002 ALTIMA 2.5

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE

2.5L DOHC 175HP 4-Cylinder Engine
Liquid-Filled Engine Mounts
Front and Rear Stabilizer Bars
Engine Speed Sensitive Power Steering
Power Vented Front Disc Brakes
Multi-Link Independent Rear Suspension
Rear Disc Brakes
Continuously Variable Timing Control (CVTC)
Engine Cover
20 Gallon Fuel Tank
105,000 Mile Tune Up Interval

EXTERIOR STYLING

205/65R16 Tires
Flush Mounted Halogen Headlamps
UV Reducing Tinted Glass
Body-Color Bumpers
Body-Color Side Moldings
In-Glass Antenna

Full Wheel Covers
Body Color Dual Outside Mirrors

COMFORT & CONVENIENCE

Power Door Locks
Dual Cup Holders in Front & Rear
Variable Intermittent Wipers
Pwr Windows w/ Dr Automatic Down & Anti Pinch
Driver & Passenger Sunvisor w/ Vanity Mirror
Dual 12-Volt DC Power Sources
Tilt & Telescopic Steering Column
60/40 Split Fold-Down Rear Seat
Illuminated Ignition Cylinder
Remote Trunk, Fuel-Filler Door, & Hood Releases
Rear Window Defroster
Center Console w/ Height Adjustable Armrest
Rear Seat Armrest
Retractable Assist Grip Front & Rear
Retained Accessory Power for Windows
Room Light Auto-Off Battery Saver
Front Map Lights & Sunglass Storage

Glov
Fron

SAF

Dual

Imm

Side

Ener

Ener

Chilc

Fron

Adju

3-po

ELR

Chilc

LAT

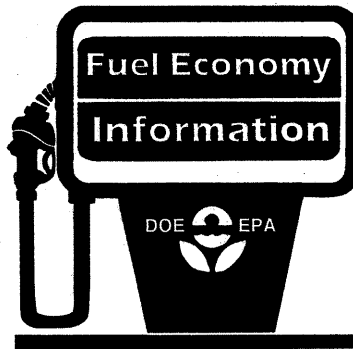
Power

Eme

Compare this vehicle to others in the **FREE FUEL ECONOMY GUIDE** available at the dealer.

CITY MPG

23



HIGHWAY MPG

29

Actual Mileage will vary with options, driving conditions, driving habits and vehicle's conditions. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between

19 and 27 mpg in the city and between

4 and 34 mpg on the highway.

2002 NISSAN ALTIMA 2.5
153 CUBIC INCH ENGINE,
4 CYLINDERS,
FUEL INJECTION,
FEEDBACK FUEL SYSTEM,
4-SPEED AUTOMATIC TRANSMISSION,
CATALYTIC CONVERTER,
50 STATE EMISSION CONTROL SYSTEM.

Estimated Annual Fuel Cost:
\$900

For Comparison Shopping,
all vehicles classified as
MIDSIZE

have been issued mileage ratings
ranging from 00 to 00 mpg city
and to mpg hwy

Dealer:

Transp
Final A

Secu
The

WWW.FUELECONOMY.GOV

3582 36 09184A PB01

139064 3582
030618-1

0

ALTIMA 2.5

AUTOMATIC TRANSMISSION
Color: BX4 OPAL BLUE METAL

The Total The Cure

1 Covers
or Dual Outside Mirrors

RT & CONVENIENCE

or Locks
Holders in Front & Rear
Intermittent Wipers
ows w/ Dr Automatic Down & Anti Pinch
Passenger Sunvisor w/ Vanity Mirror
olt DC Power Sources
lescopic Steering Column
t Fold-Down Rear Seat
d Ignition Cylinder
unk, Fuel-Filler Door, & Hood Releases
low Defroster
nsole w/ Height Adjustable Armrest
Armrest
e Assist Grip Front & Rear
ccessory Power for Windows
t Auto-Off Battery Saver
Lights & Sunglass Storage

Glove Compartment Light
Front Bucket Seats w/ Velour Trim

SAFETY & SECURITY

Dual Front Airbags
Immobilizer Anti-Theft System
Side-Door Guard Beams
Energy-Absorbing Steering Column
Energy-Absorbing Bumpers
Child Safety Rear Door Locks
Front and Rear Crumple Zones
Adjustable Front Shoulder Belt Anchors
3-point Front, Rear, & Center Seat Belts
ELR Driver, ALR/ELR Passenger Seat Belt System
Child Safety Anchors
LATCH System
Power Window Lockout Button
Emergency Inside Trunk Release

Manufacturer's Suggested
Options Included by Mani

FLOOR MATS
SPLASH GUARDS
IN-CABIN MICRO

Y GUIDE available at the dealer.

HIGHWAY MPG

29

For Comparison Shopping,
all vehicles classified as
MIDSIZE

have been issued mileage ratings
ranging from 00 to 00 mpg city
and to mpg hwy

Dealer: SPITZER NISSAN
4716 WILLIAM PENN HWY
MONROEVILLE PA 15146

Transport Method: TRUCK
Final Assembly Point: SMYRNA

This vehicle qualifies for Nissan's
Security+Plus Vehicle Protection Plan
The only service agreement backed by Nissan!
Ask your dealer for details, or call
1-800-NISSAN-6 for information.

* Does not include dealer installed
pre-delivery service. This label t

2002 A
VIN:
|||

V

B01

139064 3582

092001

F-5

7090

030618-1

AUTOMATIC TRANSMISSION
Color: BX4 OPAL BLUE METAL

The Totally New Nissan Altima

The Cure for the Common Car

mpartment Light
ket Seats w/ Velour Trim

7 & SECURITY

it Airbags
er Anti-Theft System
r Guard Beams
bsorbing Steering Column
bsorbing Bumpers
ety Rear Door Locks
Rear Crumple Zones
e Front Shoulder Belt Anchors
ront, Rear, & Center Seat Belts
er, ALR/ELR Passenger Seat Belt System
ety Anchors
System
indow Lockout Button
cy Inside Trunk Release

Manufacturer's Suggested Retail Base Price
Options Included by Manufacturer

17,149.00

FLOOR MATS
SPLASH GUARDS
IN-CABIN MICROFILTER

79.00
109.00
49.00

Destination Charges 540.00

Total* 17,926.00

SPITZER NISSAN
4716 WILLIAM PENN HWY
MONROEVILLE PA 15146

ethod: TRUCK
bly Point: SMYRNA

This vehicle qualifies for Nissan's
y+Plus Vehicle Protection Plan
ly service agreement backed by Nissan!
Ask your dealer for details, or call
800-NISSAN-6 for information.

* Does not include dealer installed options & accessories, local taxes or license fees, does not include manufacturer's recommended pre-delivery service. This label has been applied pursuant to federal law. Do not remove prior to delivery to the ultimate purchaser.

2002 ALTIMA 2.5

VIN: 14AL11D12C119251



119251

BX4

0918



OFFSET FRONTAL BARRIER CERTIFICATION

Date: February 25, 2003
To: Honda R & D Americas, Inc.
21001 State Route 739
Raymond, OH 43067-9705

PURCHASE ORDER INFORMATION

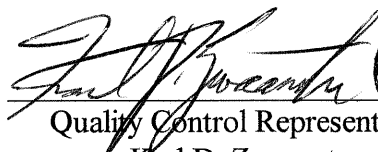
Customer P.O. Number: HOA-332773
Work Order Number: 15894
Quantity: 01 piece

CORE INFORMATION

Core Type: PCGA-5.2-1/4-P-3003-T
Cell Size: 0.250 inch
Density: 5.2 pcf

Unit Number: 044B0103

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 248.1 psi +0, -10% per DWG# WG11.


Quality Control Representative
Karl D. Zwaanstra





PLASCORE

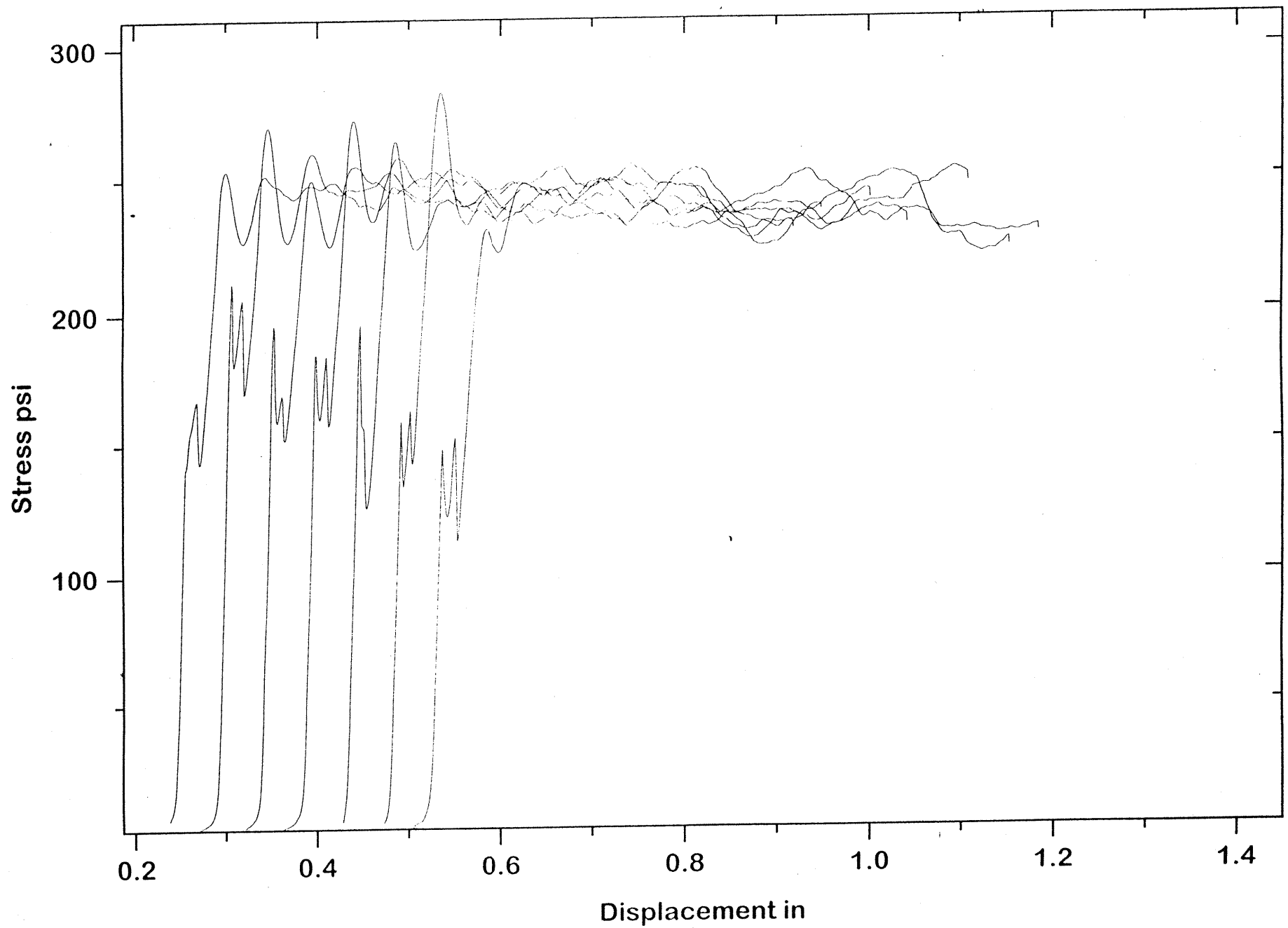
Crush Data

248.1 psi +0, -10% psi per DWG #WG11

Block Number: 044B0103

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	240.01	235.30	232.82
2	244.26	244.05	234.65
3	245.40	238.38	233.07
4	248.19	241.78	233.76
5	241.32	240.94	238.13
6	244.34	235.85	246.16
7	240.98	242.57	232.99

BLOCK # 044B0103 Sample ID: IN226402



OFFSET FRONTAL BARRIER CERTIFICATION

Date: February 25, 2003
To: Honda R & D Americas, Inc
21001 State Route 739
Raymond, OH 43067-9705

PURCHASE ORDER INFORMATION

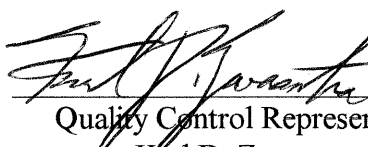
Customer P.O. Number: HOA-332773
Work Order Number: 15894
Quantity: 01 piece

CORE INFORMATION

Core Type: PCGA-3/4-1.8-P-3003-T
Cell Size: 0.750 inch
Density: 1.8 pcf

Unit Number: 085A0103

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 49.59 psi +0, -10% per DWG# WG11


Quality Control Representative
Karl D. Zwaanstra



Crush Data
49.59 psi +0, -10% psi per DWG #WG11

Block Number: 085A0103

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	46.18	45.03	48.38
2	48.57	48.51	47.94
3	48.21	46.42	48.13
4	47.42	46.34	46.10
5	47.07	47.68	47.22
6	47.41	47.48	47.86
7	45.41	46.51	45.33

BLOCK # 085A0103 Sample ID: IN226612

