

**Vehicle Research and Test Center
1999 Lincoln Navigator into Front of
1996 Dodge Neon - 0% Offset, 0 Degree
TRC Inc. Test Number: 020928**

**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 48.3 km/h (30.0 mph), 0% offset, 0 degrees, vehicle-to-vehicle 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 test mode was defined with both vehicles moving at 48.3 km/h to impact the bullet vehicle into the front of the target, at 0% offset with an impact angle of 0 degrees. The purpose of this test was to evaluate the aggressiveness of the bullet vehicle, a 1999 Lincoln Navigator MPV, and the vehicle and occupant response of the target vehicle, a 1996 Dodge Neon 4-door sedan, in this vehicle-to-vehicle impact mode.

Test Procedure

This test was conducted in accordance with VRTC instructions for a 0% offset, 0 degrees, vehicle-to-vehicle test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection" (December 18, 2001) performance for the 30 mph test mode.

The target vehicle, a 1996 Dodge Neon, was instrumented with twelve (12) accelerometers to measure longitudinal, lateral and vertical axis accelerations. The driver's and passenger's airbag signals were monitored with inductive pickups. The vehicle's specified impact velocity range was 47.5 to 49.1 km/h.

The bullet vehicle, a 1999 Lincoln Navigator, was instrumented with twelve (12) accelerometers to measure longitudinal, lateral and vertical axis accelerations. The driver's and passenger's airbag signals were monitored with inductive pickups. The vehicle's specified impact velocity range was 47.5 to 49.1 km/h.

The bullet vehicle impacted the front of the target, with 0% offset, at an impact angle of 0 degrees. The bullet vehicle's centerline was aligned with the target vehicle's centerline.

One (1) 50th percentile adult male Hybrid III dummy and one (1) 5th percentile adult female Hybrid III dummy were placed in the target vehicle's left front and right front designated seating positions, respectively, according to FMVSS 208 procedures (December 18, 2001). The driver dummy and passenger dummy were both belted and were restrained with front single stage airbags.

The target vehicle's driver dummy was instrumented with six (6) accelerometers in the head, plus six (6) chest, and three (3) pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations (primary and redundant in the head and chest). The driver dummy was also instrumented with upper neck moment and force load cells, a chest deflection potentiometer, left and right femur axial force load cells, and tibia to femur displacement potentiometers at each knee. The driver dummy was also equipped with THOR-LX legs and

with upper and lower tibia load cells to measure forces and moments (other THOR-LX data channels were not recorded).

The target vehicle's passenger dummy was instrumented with six (6) accelerometers in the head, plus six (6) chest, and three (3) pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations (primary and redundant in the head and chest). The passenger dummy was also instrumented with upper and lower neck moment and force load cells, left and right femur axial force load cells, and a chest deflection potentiometer. The passenger dummy was also equipped with THOR-FLX legs, which included upper and lower tibia load cells to measure forces and moments, and a tibia to femur displacement potentiometer at each knee (other THOR-FLX data channels were not recorded).

One (1) 50th percentile adult male Hybrid III dummy and one (1) 5th percentile adult female Hybrid III dummy were placed in the bullet vehicle's front outboard designated seating positions according to FMVSS 208 (December 18, 2001). The driver dummy and passenger dummy were both belted and were restrained with front single stage airbags.

The bullet vehicle driver dummy was instrumented with three (3) accelerometers in the head, plus three (3) chest, and three (3) pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations. The driver dummy was also instrumented with upper neck moment and force load cells, a chest deflection potentiometer, left and right femur axial force load cells, and a tibia to femur displacement potentiometer at each knee. The driver dummy was also instrumented with THOR-LX legs, which include upper and lower tibia load cells to measure forces and moments (other THOR-LX data channels were not recorded).

The bullet vehicle's passenger dummy was instrumented with six (6) accelerometers in the head, plus six (6) chest and three (3) pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations (primary and redundant in the head and chest). The bullet passenger dummy was also instrumented with upper and lower neck moment and force load cells, left and right femur load cells to measure axial forces, and a chest deflection potentiometer. The passenger dummy was also equipped with THOR-FLX legs, which included upper and lower

tibia load cells to measure forces and moments, and a tibia to femur displacement potentiometer at each knee (other THOR-FLX data channels were not recorded).

The 188 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 fourteen (14) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

The test summary data are presented in Section 2.0. The summary of FMVSS 208 data are presented in Section 3.0. The occupant, camera, and vehicle measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy verification data. Appendix D contains miscellaneous test information. Appendix E contains an INSIA report which was the basis for the Structural Measurements presented in Tables 13 and 18 of this report. Appendix F contain vehicle manufacturer's information.

Section 2.0

Front 0% Offset, 0 Degree Impact Test Summary

Test Results Summary

This 48.3 km/h 0% offset, 0 degree, vehicle-to-vehicle impact test was conducted by TRC Inc. on September 28, 2002.

The target test vehicle, a 1996 Dodge Neon 4 door sedan, was equipped with a 2.0-liter transverse engine, automatic transmission, power steering, power brakes, and single stage front airbags. The target vehicle's test weight was 1377.6 kg. The target vehicle's impact speed was 48.5 km/h. The target vehicle sustained 864 mm of static crush, at the front of the hood, during the impact. The bullet test vehicle, a 1999 Lincoln Navigator MPV, was equipped with a 5.4-liter inline engine, automatic transmission, power steering, power brakes, and single stage front airbags. The bullet vehicle's test weight was 2873.0 kg. The bullet vehicle's impact speed was 48.5 km/h. The bullet vehicle sustained 550 mm of static crush, at the bottom of the front bumper, during the impact. Event signal sensors were attached to two (2) wires on each airbag.

The target vehicle driver dummy's 36-millisecond Head Injury Criteria (HIC) was 650 (See Data Acquisition Explanations). The target vehicle driver dummy's 15-millisecond HIC was 327 (See Data Acquisition Explanations). The target vehicle driver dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 64.5 g. The target vehicle driver dummy's maximum chest deflection was 43 mm. The target vehicle driver dummy's left and right femur maximum axial compressive forces were 10,094 N and 3373 N (See Data Acquisition Explanations), respectively. The target vehicle driver dummy's upper neck injury calculations were as follows: neck tension-flexion (NTF), 0.18; neck tension-extension (NTE), 0.37; neck compression-flexion (NCF), 0.21; and neck compression-extension (NCE), 0.31. The target vehicle driver dummy's peak upper neck tension force was 1677 N and peak upper neck compression force was 326 N.

The target vehicle right front passenger dummy's 36-millisecond HIC was 490. The target vehicle passenger's 15-millisecond HIC was 279. The target vehicle passenger dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 57.8 g. The target vehicle passenger dummy's maximum chest deflection was 23 mm. The target vehicle passenger dummy's left and right femur maximum axial compressive forces were 4280 N and

3511 N, respectively. The target vehicle right front passenger dummy's upper neck injury calculations were as follows: NTF, 0.52; NTE, 0.56; NCF, 0.14, and NCE, 0.54. The target vehicle right front passenger dummy's peak upper neck tension force was 1531 N and peak upper neck compression force was 474 N.

The bullet vehicle driver dummy's 36-millisecond HIC was 182. The bullet vehicle driver dummy's 15-millisecond HIC was 119. The bullet vehicle driver dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 31.2 g. The bullet vehicle driver dummy's maximum chest deflection was 34 mm. The bullet vehicle driver dummy's left and right femur maximum axial compressive forces were 1945 N and 311 N, respectively. The bullet vehicle driver dummy's upper neck injury calculations were as follows: NTF, 0.16; NTE, 0.16; NCF, 0.12; and NCE, 0.01. The bullet vehicle driver dummy's peak upper neck tension force was 781 N and peak upper neck compression force was 108 N.

The bullet vehicle right front passenger dummy's 36-millisecond HIC was 165. The bullet vehicle passenger dummy's 15-millisecond HIC was 105. The bullet vehicle passenger dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 31.1 g. The bullet vehicle passenger dummy's maximum chest deflection was 26 mm. The bullet vehicle passenger dummy's left and right femur maximum axial compressive forces were 1111 N and 217 N, respectively. The bullet vehicle right front passenger dummy's upper neck injury calculations were as follows: NTF, 0.17; NTE, 0.41; NCF, 0.15; NCE, and 0.01. The bullet vehicle right front passenger dummy's peak upper neck tension force was 649 N and peak upper neck compression force was 251 N.

Data Acquisition Explanations

The target vehicle driver dummy's head X-axis primary acceleration data channel, HEDXG1, recorded no valid data between approximately 16 and 90 milliseconds. This affected the target vehicle driver dummy's head resultant acceleration calculation. The redundant X-axis acceleration data channel was used in conjunction with the primary head Y-axis and Z-axis acceleration data channels to calculate the target vehicle driver dummy's head resultant acceleration peak data and Head Injury Criteria data included in this report.

The target vehicle driver's right femur force data channel, RFMZF1, exceeded the data channel's full scale between approximately 55 and 90 milliseconds. The full scale had inadvertently been set to only one-tenth of the desired full scale.

An anomalous data spike appeared at approximately 0.6 millisecond on several target driver and bullet passenger dummy tibia load cell channels and a few bullet passenger neck load cell channels. It was apparently caused by interference from the strobe light used to indicate time-zero in camera views. None of the calculated peak tibia index values or peak neck injury values (NIJ) were affected. The channels noticeably affected include:

target driver right upper tibia Z-axis force, TBRZF1

target driver right upper tibia moment about the X-axis, TBRXM1

bullet passenger upper neck Y-axis shear force, NEKYFB

bullet passenger lower neck Y-axis shear force, NKLYFB

bullet passenger lower neck Z-axis force, NKLZFB

bullet passenger left upper tibia Z-axis force, TBLZFB

bullet passenger left upper tibia moment about the X-axis, TBLXMB

bullet passenger left lower tibia Z-axis force, ANLZFB

bullet passenger right upper tibia Z-axis force, TBRZFB

bullet passenger right lower tibia Z-axis force, ANRZFB

bullet passenger right lower tibia moment about the X-axis, ANRXMB

The bullet vehicle driver's left upper tibia force and moment data channels, TBLZF1, TBLXMA, and TBLYMA, had concurrent questionable data spikes at approximately 24 and 130 milliseconds. None of the calculated peak tibia index values were affected.

The target vehicle's center of gravity X-axis, Y-axis, and Z-axis acceleration data channels, VCGXG1, VCGYG1, and VCGZG1, recorded no valid data after approximately 73 milliseconds. The accelerometer mount dislodged. This affected the resultant acceleration channel calculation, VCGRG1.

The bullet vehicle had single stage airbags on both driver and passenger side, but two inductive pickups, designated Wire A and Wire B, were placed over squib wires on the driver side, channels DABETA and DABETB, and on the passenger side, channels PABETA and PABETB.

Table 1 Crash Test Summary

Test mode:	Front 0% Offset, 0 Degree Impact		
Test date:	9/28/02		
Test time:	1656		
Ambient temperature:	19° C		
Target vehicle year/make/ model/body style:	1996/Dodge/Neon/4-door sedan		
Target vehicle test weight:	1377.6 kg		
Bullet vehicle year/make/ model/body style:	1999/Lincoln/Navigator/MPV		
Bullet vehicle test weight:	2873.0 kg		
Impact angle ¹ :	0°		
Impact velocity ² :	Target vehicle = 48.5 km/h Bullet vehicle = 48.5 km/h ³		
Target vehicle maximum static crush:	864 mm (at the front of hood level)		
Bullet vehicle maximum static crush:	550 mm (at the bottom of front bumper level)		
Total number of data channels:	188		
Number of cameras:	High-speed	14	Real-time 1
<u>Target vehicle dummies:</u>	<u>Driver #168</u>	<u>Passenger #421</u>	
Type:	HIII-50 (572E)	HIII-5 (572O)	
Location:	Left Front	Right Front	
Restraint:	Seat belt, single stage airbag	Seat belt, single stage airbag	
<u>Bullet vehicle dummies:</u>	<u>Driver #169</u>	<u>Passenger #416</u>	
Type:	HIII-50 (572E)	HIII-5 (572O)	
Location:	Left Front	Right Front	
Restraint:	Seat belt, single stage airbag	Seat belt, single stage airbag	

¹ With respect to tow track centerline.

² Speed trap measurement ($\pm .08$ km/h accuracy)

³ Bullet vehicle speed is taken from the cable speed.

Table 1 Crash Test Summary, Cont'd.

Target vehicle seat track position for test:

Driver: Mid, 12th notch of 23 notches

Passenger: Full forward

Target vehicle seat back position for test:

Driver: 17°

Passenger: 17°

Target vehicle head restraint position for test:

Driver: Full up

Passenger: One notch up

Steering column position: 27 mm up from lowest position

Bullet vehicle seat track position for test:

Driver: Mid of power seat track

Passenger: Full forward

Bullet vehicle seat back position for test:

Driver: 25.5°

Passenger: 21.3°

Bullet vehicle head restraint position for test:

Driver: Full up

Passenger: Full down

Steering column position: Mid position of 5 positions

Table 2 Target General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	1996/Dodge/Neon/4-door sedan
VIN:	1B3ES47C7TD514496
Model year:	1996
Body style:	4-door sedan
Color:	White
Engine data:	
Cylinders:	4
Displacement	2.0-liters
Cylinder placement:	Transverse
Engine placement:	Inline
Transmission data:	<u>3</u> speed, ___ manual, <u>X</u> automatic, ___ overdrive
Final drive:	<u>X</u> FWD, ___ RWD, ___ 4WD
Date vehicle received:	9/23/02
Odometer reading:	67216
Dealer's name and address:	Roberts Oldsmobile-Cadillac Beavercreek, Ohio

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by:	Chrysler Corporation, USA
Date of manufacture:	9-95
VIN:	1B3ES47C7TD514496
GVWR:	1584 kg (3490 lbs.)
GAWR: Front:	887 kg (1954 lbs.)
Rear:	731 kg (1611 lbs.)

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

Tires on vehicle (mfr., line, size): Merit, Four Season 65, P185/65R14

Tire pressure with maximum capacity vehicle load:

Front:	32 psi	(220 kPa)
Rear:	32 psi	(220 kPa)

Spare tire (mfr., line, size): Goodyear, Temporary, T115/70D14

Type of seats:

Front	Bucket
Rear	Bench

Maximum width: 1721 mm

Wheelbase: 2645 mm

Location of "Recommended Tire Pressure" label:

The label was located on driver door.

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

Recommended tire size: P165/80R13

Recommended cold tire pressure:

Front:	32 psi	(220 kPa)
Rear:	32 psi	(220 kPa)

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front	2
Rear	3
Total	5

Vehicle capacity weight: 392 kg (865 lbs.)

Rated cargo/luggage weight 52 kg (115 lbs.)

Test vehicle attitude:

Delivered attitude:	LF	640 mm;	RF	640 mm;	LR	662 mm;	RR	670 mm
Fully loaded attitude:	LF	629 mm;	RF	632 mm;	LR	644 mm;	RR	645 mm
Pre-test attitude:	LF	622 mm;	RF	635 mm;	LR	623 mm;	RR	625 mm
Post-test attitude: ¹	LF	585 mm;	RF	601 mm;	LR	630 mm;	RR	655 mm
Post-test attitude: ²	LF	643 mm;	RF	650 mm;	LR	610 mm;	RR	625 mm

¹ Recorded immediately post-test with vehicles engaged.

² Recorded after the vehicles were disengaged.

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

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

Right front	372.0 kg	Right rear	201.0 kg
Left front	379.0 kg	Left rear	210.0 kg
Total front weight	751.0 kg	(64.6 % of total vehicle weight)	
Total rear weight	411.0 kg	(35.4 % of total vehicle weight)	
Total delivered weight	1162.0 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1162.0 kg
Rated Cargo/Luggage Weight (RCLW) ¹ =	52.0 kg
Weight of 1 Part 572O Dummy @ 49 kg	
and 1 Part 572E Dummy at 76 kg =	125.0 kg
Target test weight =	1339 kg

Weight of test vehicle with required dummies and 90.6 kg of cargo weight:

Right front	398.0 kg	Right rear	279.6 kg
Left front	415.0 kg	Left rear	285.0 kg
Total front weight	813.0 kg	(59.0% of total vehicle weight)	
Total rear weight	564.6 kg	(41.0% of total vehicle weight)	
Total test weight	1377.6 kg	(0.3% over target test weight)	

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: All door glass, rear bumper fascia, front door mirrors, trunk lid, tail lights, exhaust, rear beam, and fuel.

Location of Vehicle's CG: 1084 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity	42.4 liters (from manufacturer's information)
Actual test volume: ²	0.0 liters (0% 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.

² Fuel removed to achieve test weight.

Table 3 Bullet General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	1999/Lincoln/Navigator/MPV
VIN:	5LMPU28A0XLJ40448
Model year:	1999
Body style:	MPV
Color:	Black
Engine data:	
Cylinders:	8
Displacement	5.4-liters
Cylinder placement:	Straight
Engine placement:	Inline
Transmission data:	<u>3</u> speed, ___ manual, <u>X</u> automatic, ___ overdrive
Final drive:	___ FWD, ___ RWD, <u>X</u> 4WD
Date vehicle received:	9/23/02
Odometer reading:	38164
Dealer's name and address:	Franklin Park 5272 Monroe Street Toledo, Ohio 43623

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by:	Ford Motor Company, USA
Date of manufacture:	07/99
VIN:	5LMPU28A0XLJ40448
GVWR:	3265 kg (7200 lbs.)
GAWR: Front:	1596 kg (3520 lbs.)
Rear:	1872 kg (4128 lbs.)

Table 3 Bullet General Test and Vehicle Parameter Data, Cont'd.

Tires on vehicle (mfr., line, size): Continental, Contitrac AT, P255/75R17

Tire pressure with maximum capacity vehicle load:

Front:	32 psi	(221 kPa)
Rear:	38 psi	(262 kPa)

Spare tire (mfr., line, size): None (weight for spare tire was included)

Type of seats:

Front	Bucket
Rear	Bucket

Maximum width: 2049 mm

Wheelbase: 3020 mm

Location of "Recommended Tire Pressure" label:

The label was located on driver door.

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

Recommended tire size: P255/75R17

Recommended cold tire pressure:

Front:	32 psi	(221 kPa)
Rear:	38 psi	(262 kPa)

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front	2
Mid	2
Rear	3
Total	7

Vehicle capacity weight: 644 kg (1416.8 lbs.)

Rated cargo/luggage weight 136 kg (299.2 lbs.)

Test vehicle attitude:

Delivered attitude:	LF	912 mm;	RF	905 mm;	LR	863 mm;	RR	861 mm
Fully loaded attitude:	LF	902 mm;	RF	908 mm;	LR	824 mm;	RR	824 mm
Pre-test attitude:	LF	890 mm;	RF	883 mm;	LR	821 mm;	RR	813 mm
Post-test attitude: ¹	LF	962 mm;	RF	945 mm;	LR	828 mm;	RR	808 mm
Post-test attitude: ²	LF	882 mm;	RF	844 mm;	LR	858 mm;	RR	815 mm

¹ Recorded immediately post-test with vehicles engaged.

² Recorded after the vehicles were disengaged.

Table 3 Bullet General Test and Vehicle Parameter Data Cont'd

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

Right front	658.0 kg	Right rear	626.0 kg
Left front	710.5 kg	Left rear	626.5 kg
Total front weight	1368.5 kg	(52.2 % of total vehicle weight)	
Total rear weight	1252.5 kg	(47.8 % of total vehicle weight)	
Total delivered weight	2621.0 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	2621.0 kg
Rated Cargo/Luggage Weight (RCLW) ¹ =	136.0 kg
Weight of 1 Part 572O Dummy @ 49 kg	
and 1 Part 572E Dummy at 76 kg =	125.0 kg
Target test weight =	2882 kg

Weight of test vehicle with required dummies and 127 kg of cargo weight:

Right front	676.8 kg	Right rear	730.6 kg
Left front	743.6 kg	Left rear	722.0 kg
Total front weight	1420.4 kg	(49.4% of total vehicle weight)	
Total rear weight	1452.6 kg	(50.6% of total vehicle weight)	
Total test weight	2873.0 kg	(0.3% under target test weight)	

Weight of ballast secured in vehicle: 49.9 kg

Components removed to meet target test weight: None

Location of Vehicle's CG: 1527 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity	99.6 liters (calculated from manufacturer's information)
Actual test volume:	91.6 liters (92% of usable)

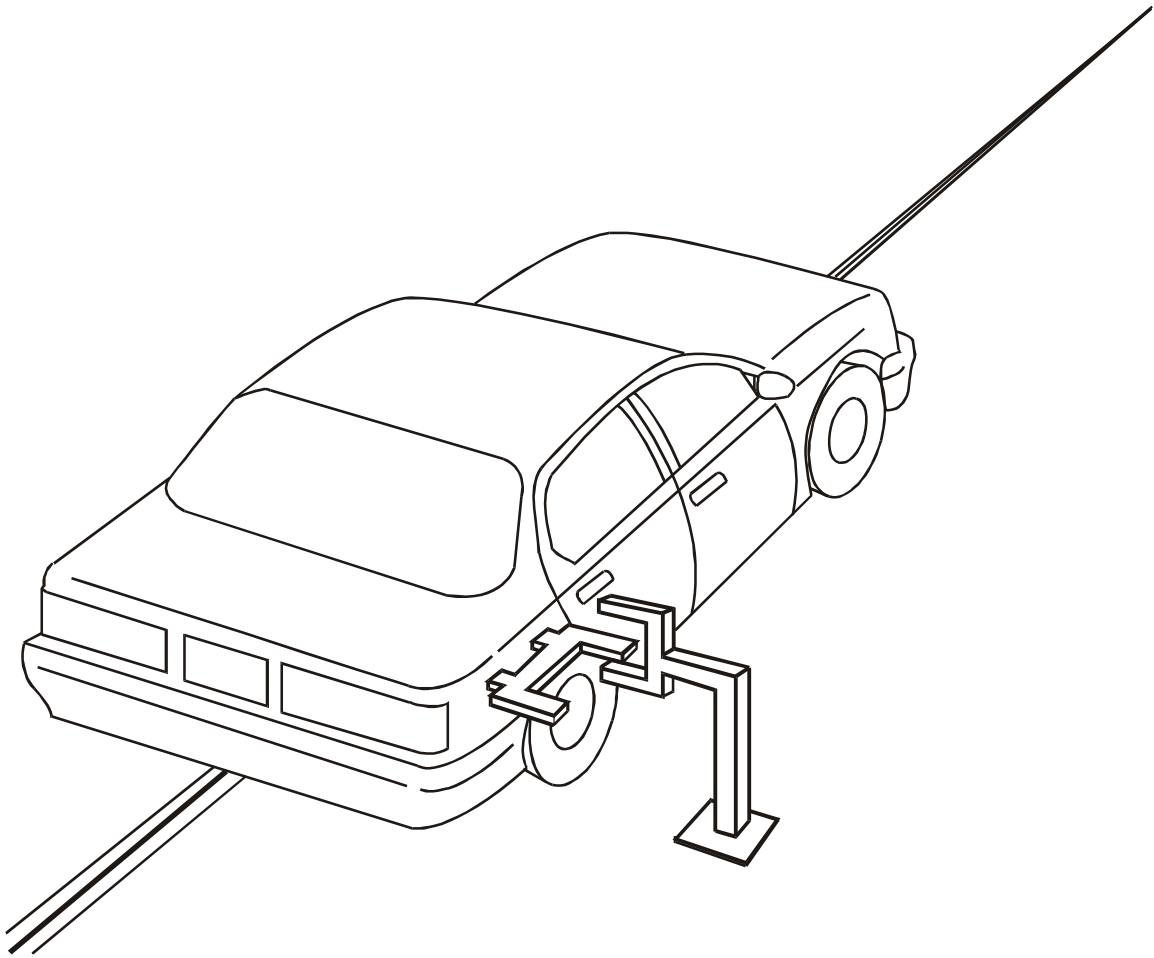
¹ Cargo weight for multipurpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kilograms, whichever is less.

Table 4 Post-Impact Data

Test number:	020928
Test date:	09/28/02
Test time:	1656
Test type:	0% Offset, 0 Degrees
Impact angle:	0°
Ambient temperature at impact area:	19° C
Impact velocity:	
Target vehicle:	48.5 km/h
Bullet vehicle:	48.5 km/h ¹
Required impact velocity range:	47.5 to 49.1 km/h
Distance from each vehicle to intended impact point:	
Entering velocity trap:	661 mm
Exiting velocity trap:	51 mm, approximately
Impact point:	0 mm from intended impact point (referenced to target vehicle coordinate system)

¹ Bullet vehicle speed is taken from the cable speed.

Figure 1 Impact Velocity Measurement System



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

The vanes have 610-millimeter spacing.

Figure 2 Target Vehicle Accelerometer Placement

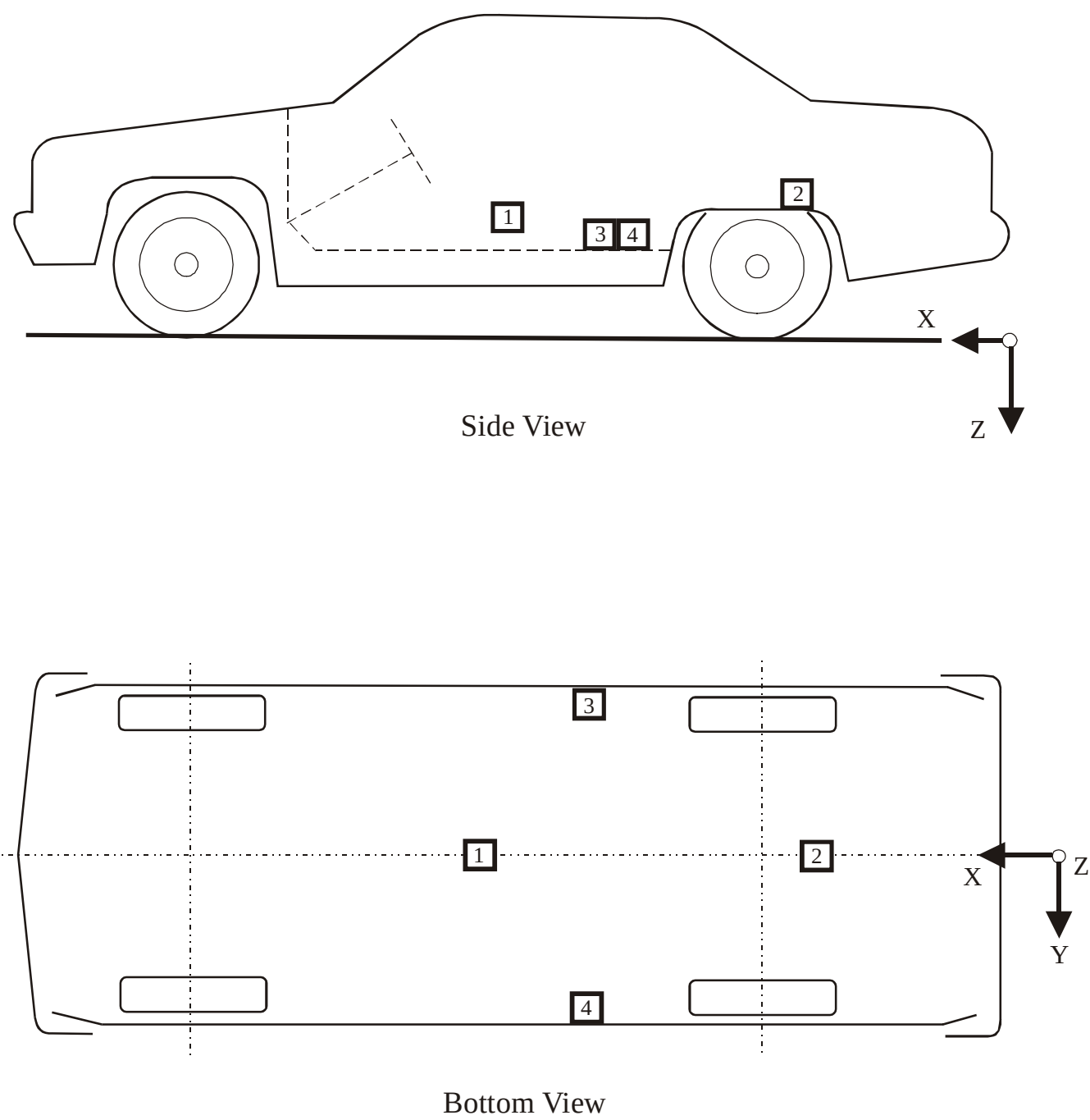


Table 5 Target Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 020928
No. LOCATION

	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2426 mm	0 mm	-380 mm				
LONGITUDINAL ¹				34.1 g	@ 103.1 ms	59.7 g	@ 89.6 ms
LATERAL ¹				45.4 g	@ 103.0 ms	33.7 g	@ 84.1 ms
VERTICAL ¹				39.1 g	@ 87.8 ms	41.4 g	@ 103.4 ms
RESULTANT ¹				71.1 g	@ 88.8 ms		
2 REAR DECK	NA	NA	NA				
LONGITUDINAL				2.6 g	@ 174.7 ms	33.4 g	@ 56.4 ms
LATERAL				10.2 g	@ 37.5 ms	6.5 g	@ 99.4 ms
VERTICAL				16.3 g	@ 106.4 ms	25.9 g	@ 29.2 ms
RESULTANT				37.9 g	@ 56.2 ms		
3 LEFT REAR SILL	NA	NA	NA				
LONGITUDINAL				1.4 g	@ 221.6 ms	35.2 g	@ 52.6 ms
LATERAL				8.4 g	@ 19.9 ms	12.1 g	@ 52.6 ms
VERITCAL				24.1 g	@ 69.2 ms	18.3 g	@ 50.0 ms
RESULTANT				39.5 g	@ 68.4 ms		
4 RIGHT REAR SILL	NA	NA	NA				
LONGITUDINAL				2.1 g	@ 223.0 ms	36.0 g	@ 71.9 ms
LATERAL				16.5 g	@ 51.4 ms	15.1 g	@ 47.9 ms
VERITCAL				14.5 g	@ 58.0 ms	19.6 g	@ 48.4 ms
RESULTANT				37.8 g	@ 51.4 ms		

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

¹See Data Acquisition Explanations

Figure 3 Bullet Vehicle Accelerometer Placement

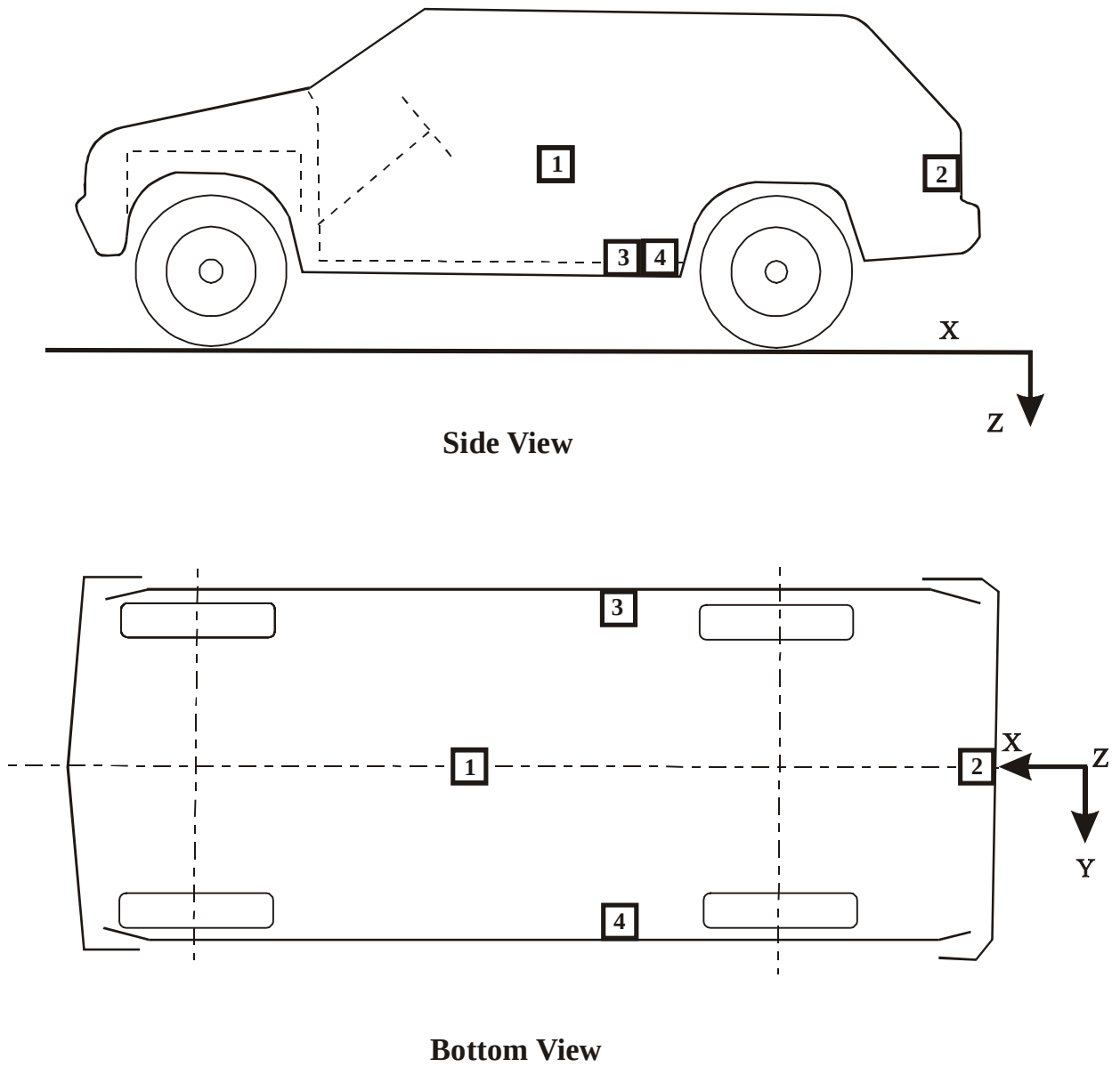


Table 6 Bullet Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 020928 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2575 mm	0 mm	-815 mm				
LONGITUDINAL				1.6 g	@ 263.1 ms	14.9 g	@ 35.8 ms
LATERAL				3.0 g	@ 88.5 ms	4.0 g	@ 74.2 ms
VERTICAL				5.4 g	@ 140.3 ms	6.5 g	@ 69.7 ms
RESULTANT				15.9 g	@ 78.7 ms		
2 REAR DECK	NA	NA	NA				
LONGITUDINAL				0.5 g	@ 264.0 ms	17.1 g	@ 38.2 ms
LATERAL				2.9 g	@ 72.2 ms	2.5 g	@ 97.2 ms
VERTICAL				6.5 g	@ 71.5 ms	10.8 g	@ 22.0 ms
RESULTANT				17.6 g	@ 37.8 ms		
3 LEFT REAR SILL	NA	NA	NA				
LONGITUDINAL				0.6 g	@ 193.0 ms	16.9 g	@ 48.3 ms
LATERAL				3.1 g	@ 31.4 ms	3.3 g	@ 73.5 ms
VERTICAL				3.5 g	@ 42.8 ms	8.9 g	@ 66.6 ms
RESULTANT				17.3 g	@ 66.5 ms		
4 RIGHT REAR SILL	NA	NA	NA				
LONGITUDINAL				1.0 g	@ 162.0 ms	14.9 g	@ 46.7 ms
LATERAL				6.3 g	@ 39.8 ms	4.1 g	@ 53.4 ms
VERTICAL				7.9 g	@ 25.4 ms	10.3 g	@ 50.0 ms
RESULTANT				16.4 g	@ 39.8 ms		

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

Section 3.0

Summary of FMVSS 208 Data

Table 7 Target Vehicle Dummy Injury Criteria Data

<u>Maximum Acceleration¹</u>								
	Head				Chest			
	X	Y	Z	R	X	Y	Z	R
Driver ⁴	52.2 g	17.0 g	29.7 g	60.1 g	-62.5 g	-10.0 g	26.0 g	65.9 g
Passenger	-60.0 g	-16.9 g	34.9 g	62.0 g	-68.0 g	10.8 g	-18.3 g	68.2 g

<u>Maximum Femur Compressive Force</u>		
	Left Femur	Right Femur
Driver ⁴	10094 N	N/A ⁴
Passenger	4280 N	3511 N

<u>Head Injury Criteria²</u>			
36 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver ⁴	650	69.68 ms	105.68 ms
Passenger	490	51.04 ms	87.04 ms

15 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver ⁴	327	71.68 ms	86.72 ms
Passenger	279	59.28 ms	74.32 ms

<u>Chest Maximum Resultant Acceleration³</u>			
	Acceleration	Start Time t ₁	End Time t ₂
Driver	64.5 g	81.46 ms	84.42 ms
Passenger	57.8 g	59.15 ms	62.11 ms

Table 7 Target Vehicle Dummy Injury Criteria Data, Cont'd.

<u>Maximum Chest Deflection</u>				
Driver	43 mm			
Passenger	23 mm			
 <u>Neck Injury Calculations (Nij)²</u>				
	NTF	NTE	NCF	NCE
Driver	0.18	0.37	0.21	0.31
Passenger	0.52	0.56	0.14	0.54
 <u>Upper Neck Axial Force</u>				
	Tension	Compression		
Driver	1677 N	369 N		
Passenger	1531 N	474 N		
 <u>Tibia Index</u>				
	Upper Tibia	Lower Tibia		
Driver-left	0.92	0.57		
Driver-right	0.82	0.74		
Passenger-left	1.41	1.69		
Passenger-right	1.02	1.03		

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.

⁴ See Data Acquisition Explanation in Section 2.0.

Table 8 Bullet Vehicle Dummy Injury Criteria Data

<u>Maximum Acceleration¹</u>								
	Head				Chest			
	X	Y	Z	R	X	Y	Z	R
Driver	-38.9 g	-4.1 g	15.2 g	39.2 g	-31.2 g	-3.7 g	-15.3 g	31.5 g
Passenger	-36.6 g	13.3 g	17.1 g	37.4 g	-31.6 g	4.3 g	-14.7 g	31.9 g

<u>Maximum Femur Compressive Force</u>		
	Left Femur	Right Femur
Driver	1945 N	311 N
Passenger	1111 N	217 N

<u>Head Injury Criteria²</u>			
36 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	182	79.36 ms	115.36 ms
Passenger	165	90.96 ms	126.96 ms

15 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	119	92.64 ms	107.68 ms
Passenger	105	97.92 ms	112.96 ms

<u>Chest Maximum Resultant Acceleration³</u>			
	Acceleration	Start Time t ₁	End Time t ₂
Driver	31.2 g	83.76 ms	86.88 ms
Passenger	31.1 g	77.73 ms	80.69 ms

Table 8 Bullet Vehicle Dummy Injury Criteria Data, Cont'd.

Maximum Chest Deflection

Driver	34 mm
Passenger	26 mm

Upper Neck Injury Calculations (Nij)²

	NTF	NTE	NCF	NCE
Driver	0.16	0.16	0.12	0.01
Passenger	0.17	0.41	0.15	0.01

Upper Neck Axial Force

	Tension	Compression
Driver	781 N	108 N
Passenger	649 N	251 N

Tibia Index

	Upper Tibia	Lower Tibia
Driver-left	0.42	0.29
Driver-right	0.24	0.34
Passenger-left	0.22	0.29
Passenger-right	0.24	0.28

¹ See Report Sign Convention in Appendix D.

² As defined in FMVSS No. 208.

³ Defined as equal to or exceeding 0.003 sec. duration.

Table 9 Target Vehicle Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

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

Door opening:

	<u>Left</u>	<u>Right</u>
Front	N/A	N/A
Rear	N/A	N/A

Seat movement:

	<u>Seat back failure</u>	<u>Seat shift</u>
Left Front	N/A	N/A
Right Front	N/A	N/A
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: Windshield cracked all over.

Other notable impact effects: Movement ceased with front end of target under bullet front end.

Table 10 Bullet Vehicle Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

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

Door opening:

	<u>Left</u>	<u>Right</u>
Front	N/A	N/A
Rear	N/A	N/A

Seat movement:

	<u>Seat back failure</u>	<u>Seat shift</u>
Left Front	N/A	N/A
Right Front	N/A	N/A
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: None

Other notable impact effects: Movement ceased with front end of target under bullet front end.

Section 4.0

Occupant, Camera, and Vehicle Information

Target Vehicle Dummy Kinematic Summary

Driver Dummy

Upon impact, the target driver dummy translated forward with the head and chest contacting the airbag. The face was rotated to the left as it went further forward into the airbag. The knees contacted the dash panel. The dummy rebounded upward into the seatback. The neck went into extension and the head contacted the headrest and B-pillar. The dummy came to rest seated in the driver's seat.

Right Front Passenger Dummy

Upon impact, the target passenger dummy translated forward and the head and chest contacted the airbag and the knees contacted the dash panel. As the dummy went further forward into the airbag, the neck went into sharp extension and the dummy was pushed downward into the seat. The dummy rebounded upward and rearward, the neck came out of the sharp extension, and the head contacted the headrest. The dummy came to rest seated upright in the passenger seat, leaning slightly forward.

Bullet Vehicle Dummy Kinematic Summary

Driver Dummy

Upon impact, the bullet driver dummy translated forward with the head and neck flexing forward as the head and chest contacted the airbag. The knees contacted the dash panel. The head and neck straightened and then extended on rebound. The back of the driver dummy's head contacted the seatback. The dummy came to rest seated upright in the driver's seat, leaning slightly to the right.

Right Front Passenger Dummy

Upon impact, the bullet passenger dummy translated forward with the head and neck flexing forward as the head and chest contacted the airbag. The knees contacted the dash panel. The dummy rebounded upward and rearward into the seatback with the head contacting the passenger head restraint. The dummy came to rest seated in the passenger seat, leaning to the right.

Figure 4 Vehicle Dummy Measurement Locations for Front Seat Occupants

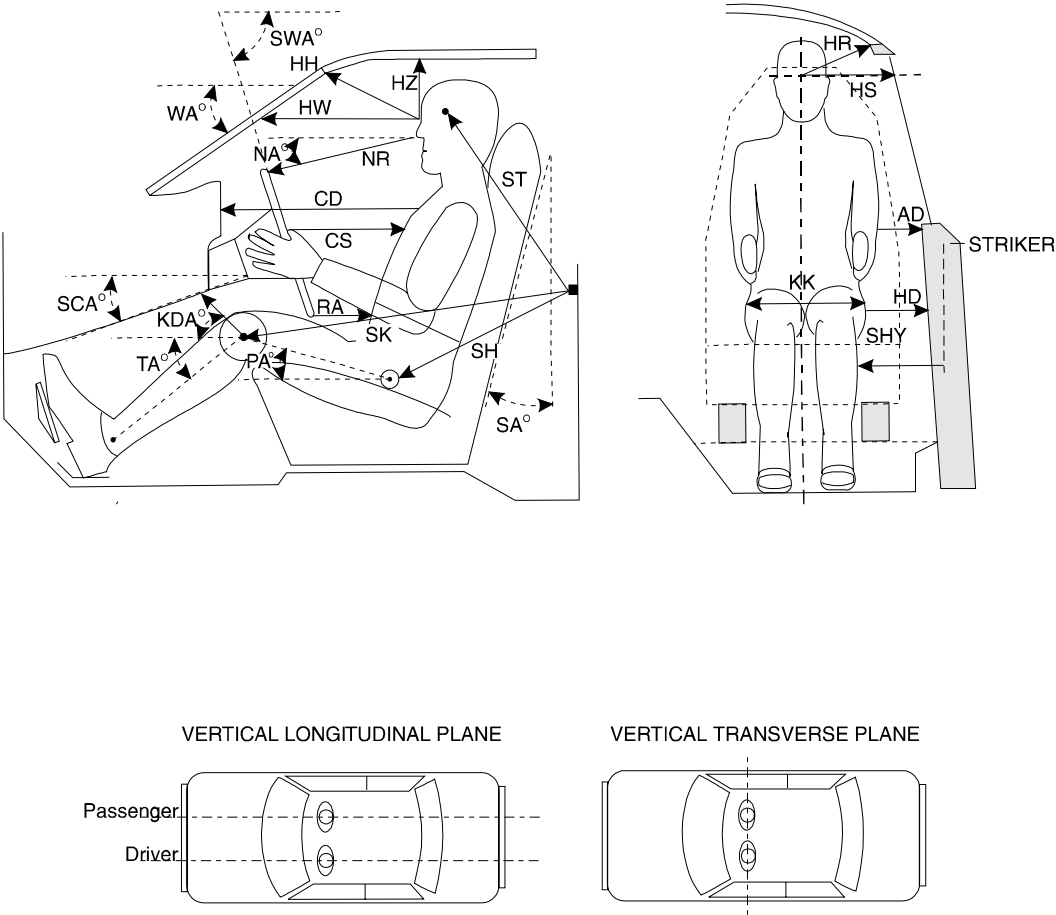


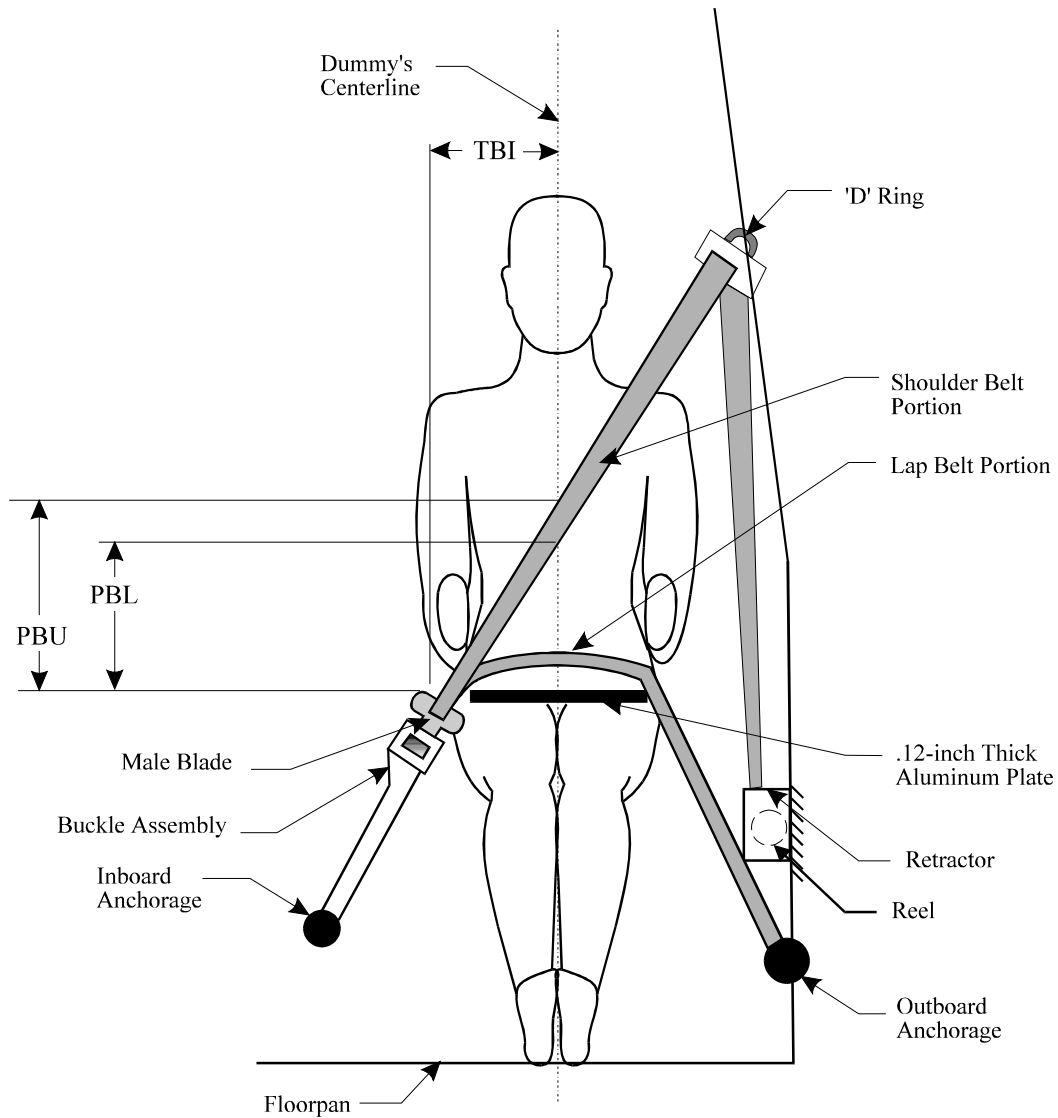
Table 11 Target Vehicle Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial # 168)	Passenger (Serial # 421)
WA	Windshield angle	26.8°	N/A
SWA	Steering wheel angle	66.9°	N/A
SCA	Steering column angle	23.1°	N/A
SA	Seat back angle	17.0°	17.0°
HZ	Head to roof	192 mm	230 mm
HH	Head to header	322 mm	272 mm
HW	Head to windshield	583 mm	545 mm
HR	Head to side header	230 mm	240 mm
NR	Nose to rim	261 mm	N/A
NA	Nose to rim angle	11.2°	N/A
CD	Chest to dash	512 mm	338 mm
CS	Steering wheel to chest	270 mm	N/A
RA	Rim to abdomen	175 mm	N/A
KDL	Left knee to dash	150 mm	110 mm
KDR	Right knee to dash	135 mm	113 mm
KDA	Outboard knee to dash angle	50.0°	59.3°
PA	Pelvic angle	23.2°	21.6°
TA	Tibia angle	40.2°	43°
KK	Knee to knee	320 mm	165 mm
ST ¹	Striker to head	542 mm	510 mm
	Striker to head angle	-74.8°	-66.4°
SK ¹	Striker to knee	581 mm	683 mm
	Striker to knee angle	-3.5°	0.5°
SH ¹	Striker to H-point	240 mm	350 mm
	Striker to H-point angle	42.1°	13.0°
SHY	Striker to H-point (Y dir.)	230 mm	240 mm
HS	Head to side window	233 mm	247 mm
HD	H-point to door	123 mm	173 mm
AD	Arm to door	94 mm	128 mm

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

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

Figure 5 Target Vehicle Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
PBU - Top surface of aluminum plate to belt upper edge	240 mm	184 mm
PBL - Top surface of aluminum plate to belt lower edge	320 mm	266 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	225 mm	185 mm

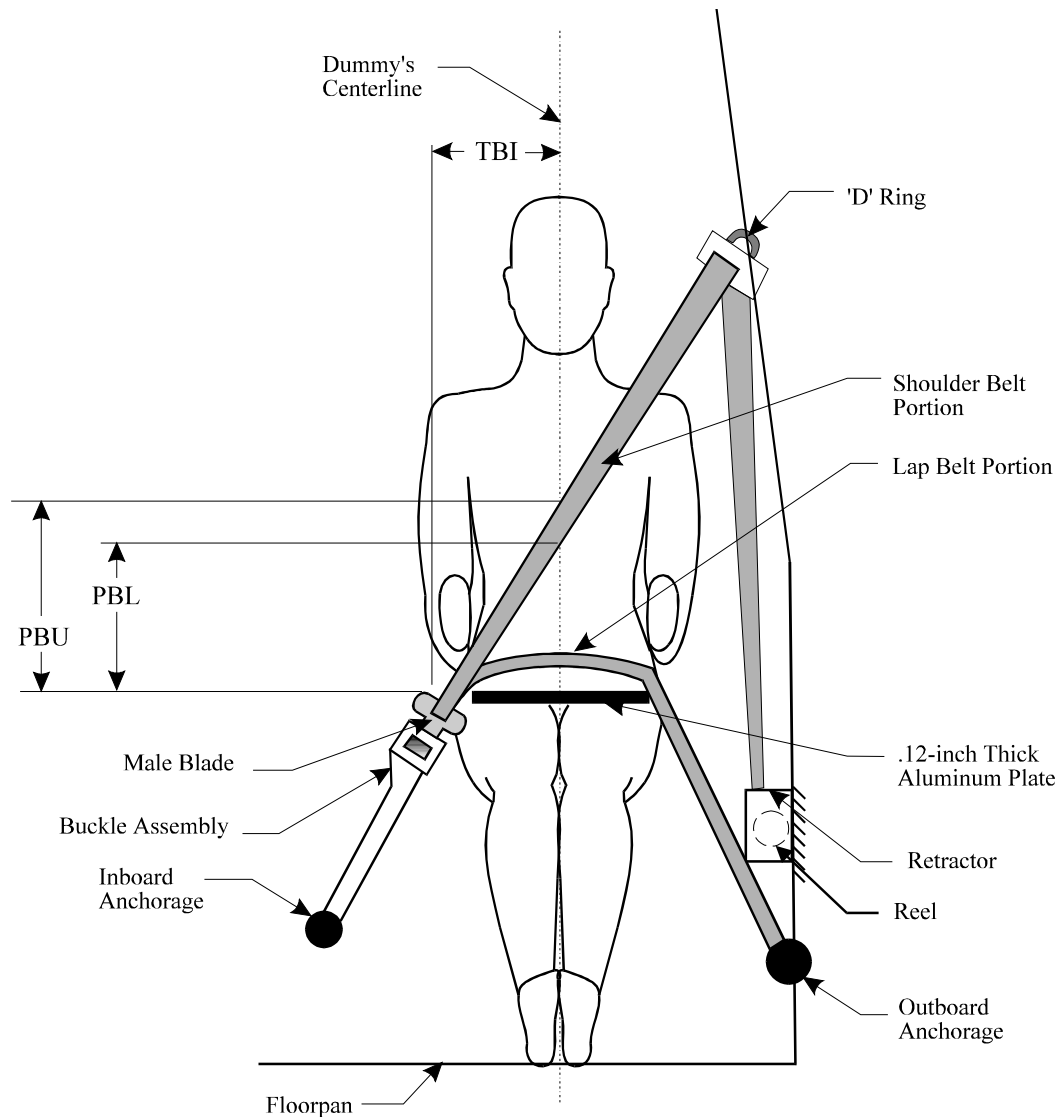
Table 12 Bullet Vehicle Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial # 169)	Passenger (Serial # 416)
WA	Windshield angle	33.0°	N/A
SWA	Steering wheel angle	20.4°	N/A
SCA	Steering column angle	69.6°	N/A
SA	Seat back angle	25.5°	21.3°
HZ	Head to roof	255 mm	330 mm
HH	Head to header	465 mm	390 mm
HW	Head to windshield	720 mm	690 mm
HR	Head to side header	265 mm	320 mm
NR	Nose to rim	440 mm	N/A
NA	Nose to rim angle	6.5°	N/A
CD	Chest to dash	612 mm	470 mm
CS	Steering wheel to chest	360 mm	N/A
RA	Rim to abdomen	235 mm	N/A
KDL	Left knee to dash	193 mm	159 mm
KDR	Right knee to dash	194 mm	161 mm
KDA	Outboard knee to dash angle	15.7°	16.7°
PA	Pelvic angle	23.1°	20.0°
TA	Tibia angle	45.8°	51.5°
KK	Knee to knee	390 mm	270 mm
ST ¹	Striker to head	635 mm	599 mm
	Striker to head angle	-84.6°	-70.9°
SK ¹	Striker to knee	578 mm	687 mm
	Striker to knee angle	-7.6°	-2°
SH ¹	Striker to H-point	217 mm	347 mm
	Striker to H-point angle	16.4°	1.8°
SHY	Striker to H-point (Y dir.)	275 mm	265 mm
HS	Head to side window	355 mm	365 mm
HD	H-point to door	192 mm	202 mm
AD	Arm to door	118 mm	170 mm

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

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

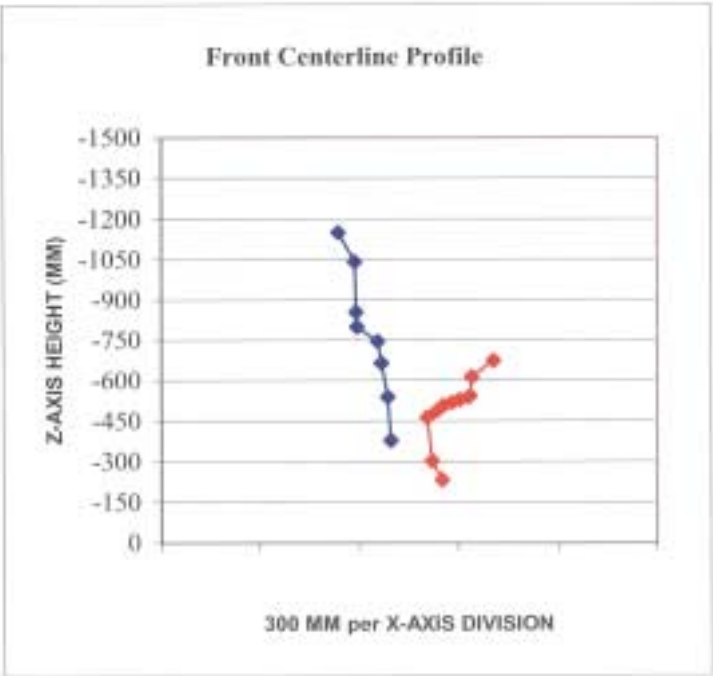
Figure 6 Bullet Vehicle Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
PBU - Top surface of aluminum plate to belt upper edge	345 mm	260 mm
PBL - Top surface of aluminum plate to belt lower edge	270 mm	170 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	250 mm	215 mm

Figure 7 Vehicle Pre-Test Front Centerline Profiles

Bullet Vehicle		Target Vehicle	
X, mm	Z, mm	X, mm	Z, mm
5736	-1148	4495	-675
5786	-1040	4560	-615
5790	-853	4565	-545
5793	-800	4570	-540
5855	-745	4596	-530
5867	-665	4620	-520
5886	-540	4646	-510
5895	-380	4665	-490
		4695	-465
		4680	-305
		4650	-235



+X, forward of rear bumper; +Z downward from ground level

Table 13 Target Vehicle Structural Measurements¹

	Elements	Pre-Test
1	Total Length	4328
2	Total Width	1721
3	Bumper Top Height	542
4	Bumper Bottom Height	206
5	Longitudinal Member Top Height	515
6	Longitudinal Member Bottom Height	309
7	Distance Between Longitudinal Members	1075
7'	Longitudinal Member Width	65
8	Engine Top Height	740
9	Engine Bottom Height	138
10	Engine and Gearbox Width	650
11	Front Bumper - Engine Distance	475
12	Front Shock Absorber Fixing Height	740
13	Bonnet Leading Edge Height	610
14	Front Shock Absorber Fixing Width	1100
15	Front Bumper - Front Axle Distance	623
16	Front Axle - A Pillar Distance	560
17	A Pillar - B Pillar Distance	930
18	B Pillar - Rear Axle Distance	1145
19	B Pillar - C Pillar Distance	1275
20	Roof Sill Bottom Height	1184
21	Roof Sill Top Height	1204
22	Floor Sill Bottom Height	253
23	Floor Sill Top Height	282

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.

Figure 8 Target Vehicle Pre-Test And Post-Test Measurement Points

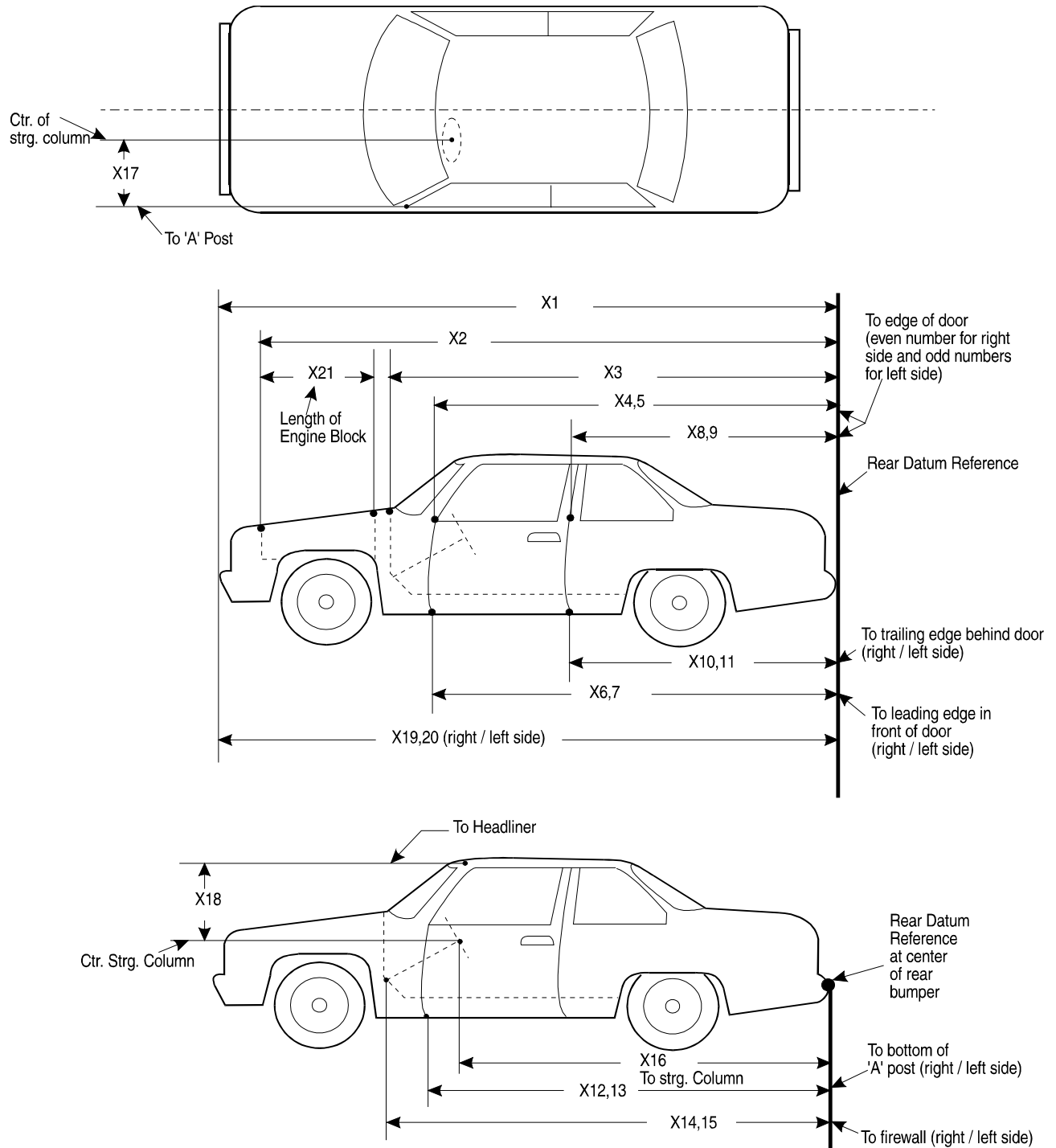


Table 14 Target Vehicle Impacted Measurements

Test number: 020928

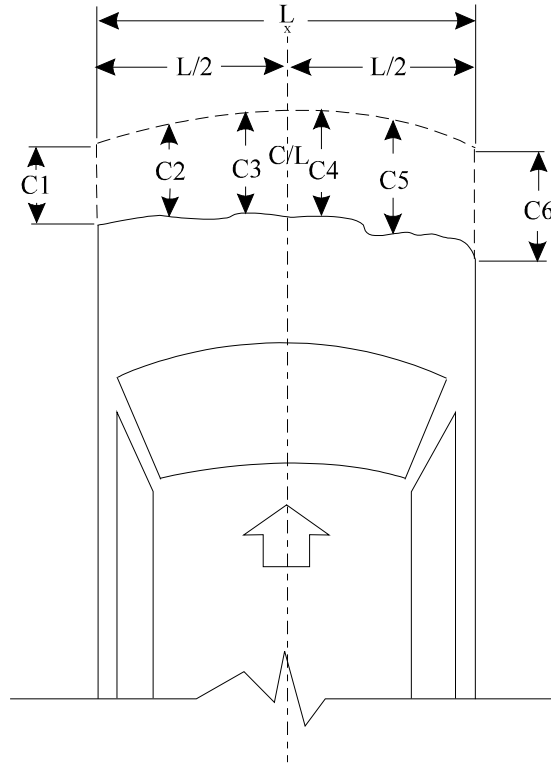
Vehicle year/make/model/body style: 1996/Dodge/Neon/Sedan

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4328	3965	363
X2	Rear Surface of Vehicle to Front of Engine Block	3508	--- ¹	--- ¹
X3	Rear Surface of Vehicle to Firewall	3178	3006	17
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	2943	2855	88
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	2937	--- ¹	--- ¹
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	2998	2885	113
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	2998	--- ¹	--- ¹
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	1981	1941	40
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	1988	--- ¹	--- ¹
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	1990	1885	105
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	1991	---- ¹	---- ¹
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	2999	2863	136
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	2999	2848	151
X14	Rear Surface of Vehicle to Firewall - Right Side	3331	3015	316
X15	Rear Surface of Vehicle to Firewall - Left Side	3322	3065	257
X16	Rear Surface of Vehicle to Steering Wheel Center	2565	2365	200
X17	Center of Steering Column to " A " Post	279	198	81
X18	Center of Steering Column to Headliner	450	411	39
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4121	3615	506
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4122	3909	213
X21	Length of Engine Block	500	500	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2715	2538	177
CD	Rear Surface of Vehicle to Center of Dash Panel	2705	2475	230
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2715	2541	174

All distance measurements are in millimeters.

¹ Door sheet metal containing measurement targets separated during impact.

Figure 9 Target Vehicle Crush

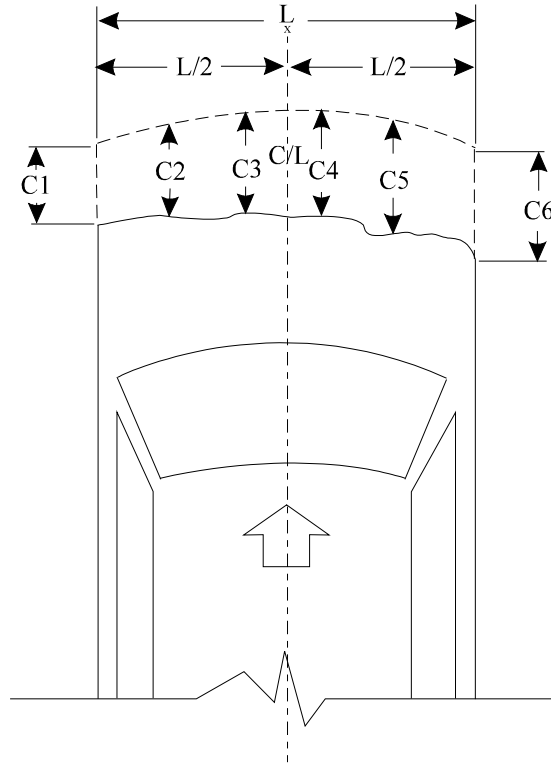


Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 1996 Dodge Neon
Measured with bumper fascia:

Location	Pre-test	Post-test	Difference
L	1524 mm		
C1	4122 mm	3909 mm	213 mm
C2	4274 mm	4095 mm	179 mm
C3	4322 mm	3974 mm	348 mm
C4	4320 mm	3950 mm	370 mm
C5	4283 mm	3919 mm	364 mm
C6	4121 mm	3615 mm	506 mm
CL	4328 mm	3965 mm	363 mm

Figure 9 Target 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: 1996 Dodge Neon

Measured to bumper beam without bumper fascia:

Location	Pre-test	Post-test	Difference
L	1270 mm		
C1	4185 mm	3835 mm	350 mm
C2	4230 mm	3831 mm	399 mm
C3	4250 mm	3853 mm	397 mm
C4	4250 mm	3839 mm	411 mm
C5	4225 mm	3782 mm	443 mm
C6	4170 mm	3790 mm	380 mm
CL	4260 mm	3854 mm	406 mm

Table 15 Target 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	4130 mm	4287 mm	4327 mm	4327 mm	4282 mm	4105 mm
	Y	-761 mm	-466 mm	-178 mm	178 mm	462 mm	772 mm
	Z	-370 mm	-380 mm	-275 mm	-380 mm	-390 mm	-380 mm
Top of Front Bumper	X	4125 mm	4255 mm	4290 mm	4290 mm	4240 mm	4095 mm
	Y	-758 mm	-465 mm	-155 mm	152 mm	455 mm	762 mm
	Z	-505 mm	-505 mm	-520 mm	-520 mm	-520 mm	-515 mm
Center of Grille	X	4105 mm	4170 mm	4210 mm	4210 mm	4165 mm	4100 mm
	Y	-655 mm	-450 mm	-150 mm	147 mm	446 mm	669 mm
	Z	-575 mm	-570 mm	-565 mm	-575 mm	-580 mm	-580 mm
Front of Hood	X	4026 mm	4165 mm	4210 mm	4210 mm	4165 mm	4030 mm
	Y	-685 mm	-446 mm	-146 mm	145 mm	446 mm	689 mm
	Z	-675 mm	-600 mm	-610 mm	-620 mm	-620 mm	-675 mm

Post-Test Profile							
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	3831 mm	3961 mm	3997 mm	3963 mm	3919 mm	3767 mm
	Y	-706 mm	-412 mm	-135 mm	223 mm	495 mm	766 mm
	Z	-185 mm	-245 mm	-285 mm	-300 mm	-335 mm	-285 mm
Top of Front Bumper	X	3913 mm	3922 mm	3942 mm	3929 mm	3892 mm	3535 mm
	Y	-736 mm	-481 mm	-99 mm	204 mm	479 mm	863 mm
	Z	-310 mm	-400 mm	-435 mm	-445 mm	-400 mm	-405 mm
Center of Grille	X	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
	Y	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
	Z	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
Front of Hood	X	3303 mm	3368 mm	3410 mm	3388 mm	3301 mm	3355 mm
	Y	-642 mm	-419 mm	-148 mm	144 mm	415 mm	639 mm
	Z	-840 mm	-715 mm	-808 mm	-730 mm	-635 mm	-785 mm

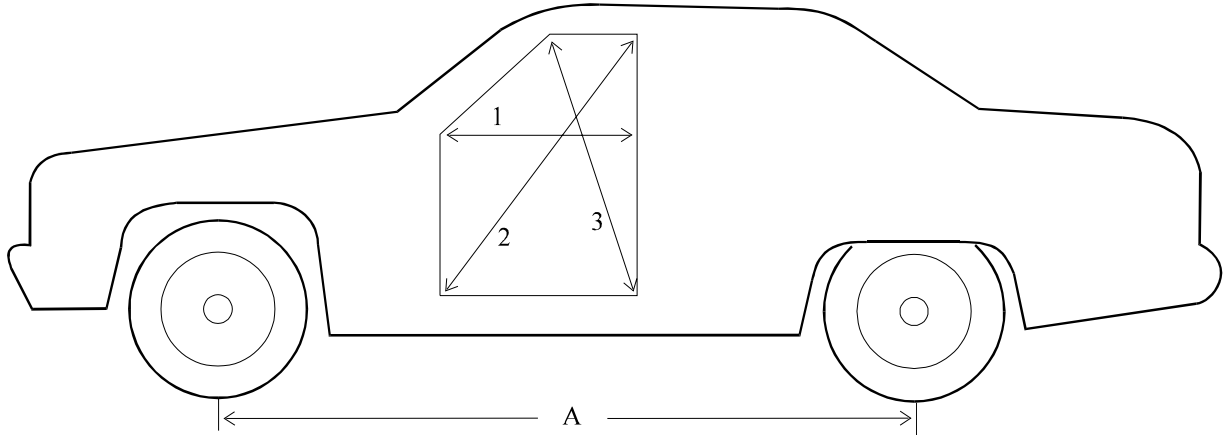
Difference							
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	299 mm	326 mm	330 mm	364 mm	363 mm	338 mm
	Y	-55 mm	-54 mm	-43 mm	-45 mm	-33 mm	6 mm
	Z	-185 mm	-135 mm	10 mm	-80 mm	-55 mm	-95 mm
Top of Front Bumper	X	212 mm	333 mm	348 mm	361 mm	348 mm	560 mm
	Y	-22 mm	16 mm	-56 mm	-52 mm	-24 mm	-101 mm
	Z	-195 mm	-105 mm	-85 mm	-75 mm	-120 mm	-110 mm
Center of Grille	X	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
	Y	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
	Z	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
Front of Hood	X	723 mm	797 mm	800 mm	822 mm	864 mm	675 mm
	Y	-43 mm	-27 mm	2 mm	1 mm	31 mm	50 mm
	Z	165 mm	115 mm	198 mm	110 mm	15 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 Grille was destroyed during impact event.

Figure 10 Target Vehicle Intrusion Measurements

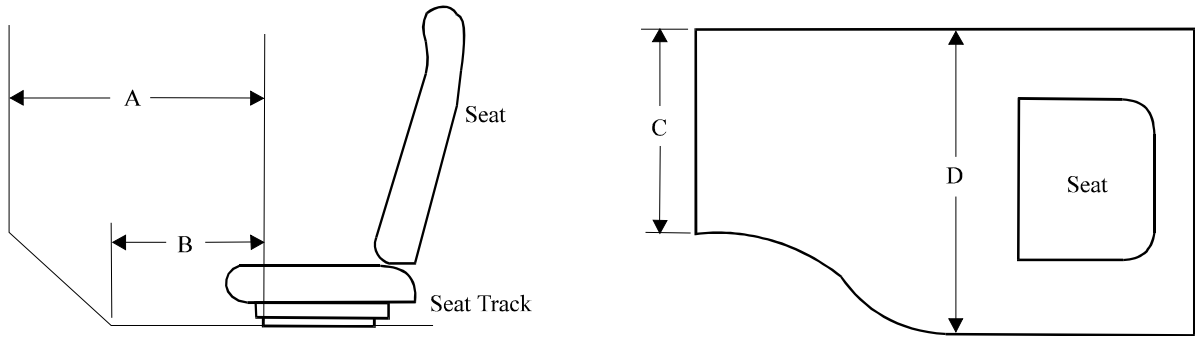
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1000 mm	1430 mm	980 mm	1012 mm	1440 mm	980 mm
Post-Test	886 mm	1403 mm	1121 mm	923 mm	1417 mm	1096 mm
Difference	114 mm	27 mm	-141 mm	89 mm	23 mm	-116 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2645 mm	2645 mm
Post-Test	2570 mm	2505 mm
Difference	75 mm	140 mm

Figure 11 Target Vehicle Intrusion Measurements
Static Footwell Deformation



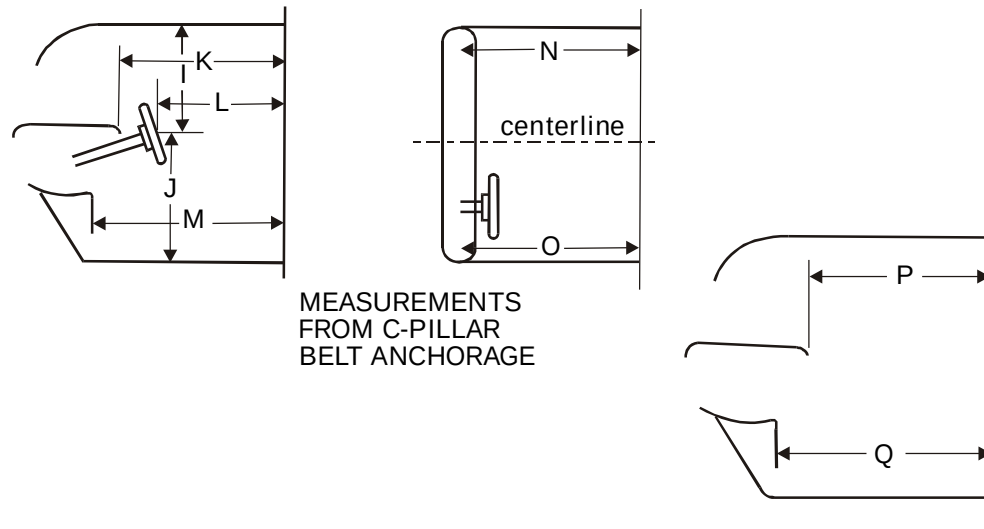
Driver's Side

Measurement	Pre-Test	Post-Test	Difference
A	885 mm	775 mm	110 mm
B	618 mm	604 mm	14 mm
C	435 mm	432 mm	3 mm
D	390 mm	382 mm	8 mm

Passenger's Side

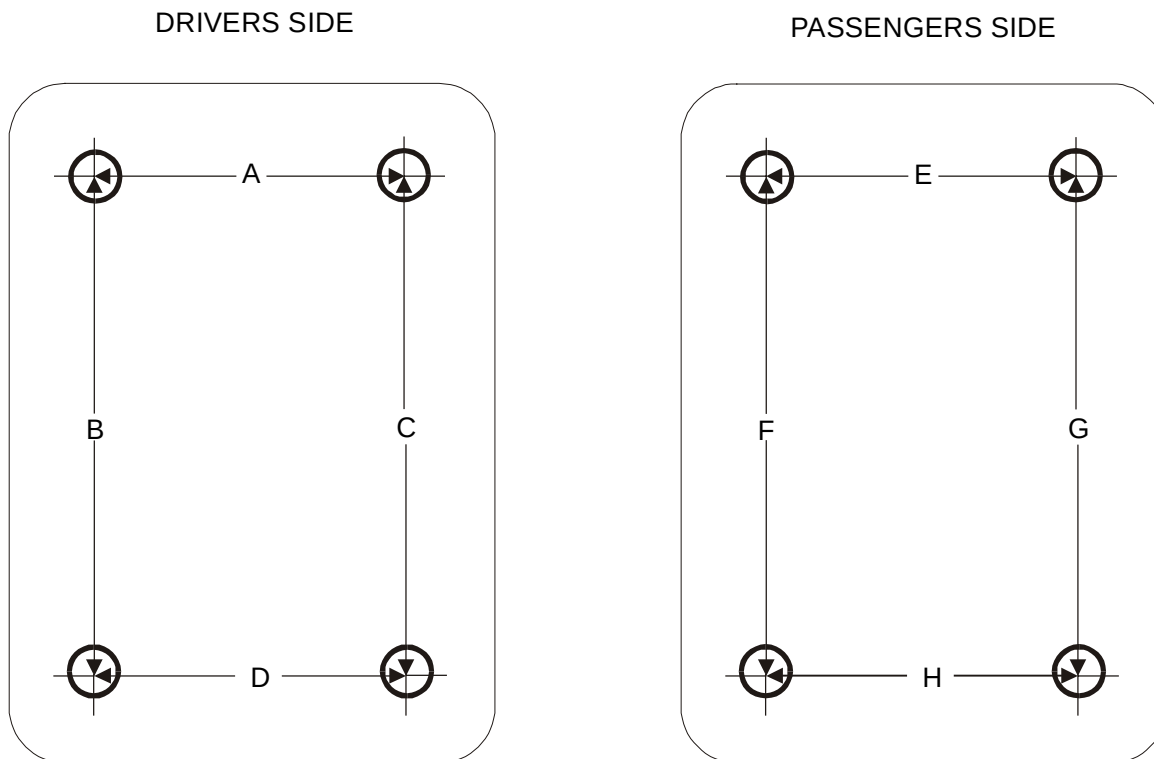
Measurement	Pre-Test	Post-Test	Difference
A	835 mm	669 mm	166 mm
B	595 mm	589 mm	6 mm
C	376 mm	375 mm	1 mm
D	343 mm	435 mm	-92 mm

Figure 12 Target Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



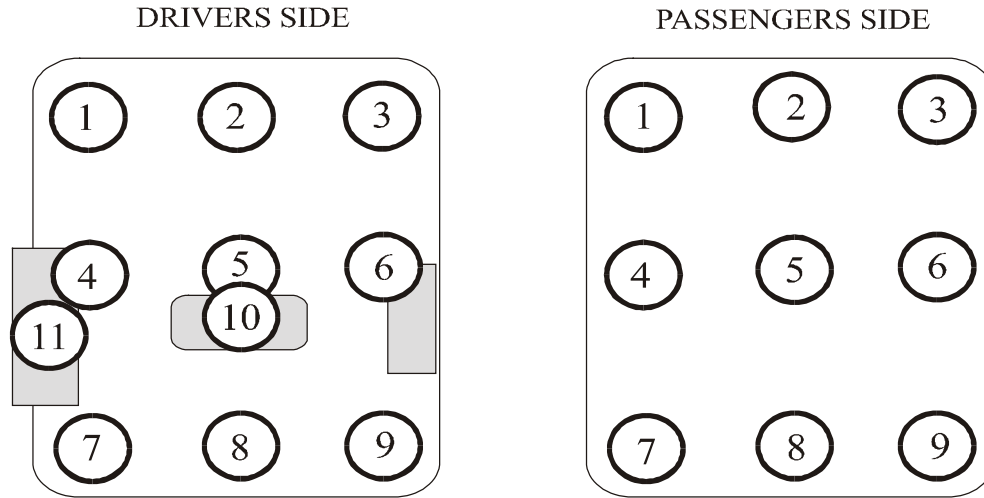
Measurement	Pre-Test	Post-Test	Difference
I	412 mm	456 mm	-44 mm
J	623 mm	699 mm	-76 mm
K (driver's side)	1517 mm	1310 mm	207 mm
L	1395 mm	1218 mm	177 mm
M (driver's side)	1627 mm	1591 mm	36 mm
N (passenger's side)	1487 mm	1270 mm	217 mm
O (driver's side)	1475 mm	1348 mm	127 mm
P (passenger's side)	1518 mm	1303 mm	215 mm
Q (passenger's side)	1634 mm	1527 mm	107 mm

Figure 13 Target Vehicle Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	435 mm	432 mm	3 mm
B	540 mm	533 mm	7 mm
C	480 mm	478 mm	2 mm
D	390 mm	392 mm	-2 mm
E	376 mm	375 mm	1 mm
F	430 mm	416 mm	14 mm
G	443 mm	435 mm	8 mm
H	434 mm	435 mm	-1 mm

Figure 14 Target Vehicle Toeboard Measurements



Driver's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3169	-500	-289	3106	-455	-262	63	-45	-27
2	3166	-305	-285	3104	-308	-225	62	3	-60
3	3181	-175	-295	3108	-155	-211	73	-20	-84
4	3115	-500	-255	3054	-430	-165	61	-70	-90
5	3104	-305	-245	3052	-285	-155	52	-20	-90
6	3115	-155	-225	3067	-135	-131	48	-20	-94
7	3038	-500	-197	3003	-435	-93	35	-65	-104
8	3039	-305	-172	3002	-285	-83	37	-20	-89
9	3032	-175	-167	3012	-155	-61	24	-20	-106
10	3038	-345	-385	2846	-385	-260	192	40	-125
11	3106	-547	-375	3037	-560	-228	69	13	-147

Passenger's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3174	204	-295	3047	246	-220	127	-42	-75
2	3172	307	-290	3051	351	-220	121	-44	-70
3	3186	437	-315	3069	451	-220	117	-14	-95
4	3106	204	-260	3042	231	-170	64	-27	-90
5	3115	307	-255	3025	335	-160	90	-28	-95
6	3120	445	-240	3033	451	-155	87	-6	-85
7	3051	204	-225	3009	212	-96	42	-8	-129
8	3049	307	-220	2979	327	-82	70	-20	-138
9	3052	451	-215	3001	460	-85	51	-9	-130

Reference: +X forward from rear bumper; +Y rightward from centerline; +Z downward from ground level

Table 16 Target Vehicle Intrusion of Upper Instrument Panel

Pre-Test	X	Y	Z
Driver Left Knee	2797	-518	-600
Driver Right Knee	2741	-227	-595
Passenger Left Knee	2798	257	-610
Passenger Right Knee	2772	476	-625

Post-Test	X	Y	Z
Driver Left Knee	2668	-527	-461
Driver Right Knee	2631	-237	-465
Passenger Left Knee	2601	262	-444
Passenger Right Knee	2652	478	-432

Difference	X	Y	Z
Driver Left Knee	129	9	-139
Driver Right Knee	110	10	-130
Passenger Left Knee	197	-5	-166
Passenger Right Knee	120	-2	-193

All measurements are in millimeters.

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

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

**Table 17 Target Vehicle 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	2528	2371	157	-365	-401	36	-615	-721	106
2	2747	2622	125	-504	-509	5	-630	-485	-145
3	2789	2580	209	-208	-228	20	-617	-494	-123
4	3038	2846	192	-345	-385	40	-385	-260	-125
5	3115	3054	61	-500	-430	-70	-255	-165	-90
6	3104	3052	52	-305	-285	-20	-245	-155	-90
7	3115	3067	48	-155	-135	-20	-225	-131	-94
8	3106	3037	69	-547	560	13	-375	-228	-147
17	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
18	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹

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	2406	2404	2	-552	-552	0	-180	-80	-100
P1	2962	2961	1	-558	-539	-19	-170	-70	-100
P2	2959	2944	15	-398	-370	-28	-170	-60	-110
P3	2956	2952	4	-278	-245	-33	-170	-45	-125
P4	2865	2839	26	-565	-531	-34	-165	-55	-110
P5	2858	2833	25	-370	-384	14	-165	-61	-104
P6	2856	2826	30	-278	-245	-33	-165	-55	-110
P7	2699	2692	7	-580	-523	-57	-160	-44	-116
P8	2700	2696	4	-381	-375	-6	-160	-62	-98
P9	2697	2699	-2	-268	-236	-32	-160	-50	-110

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**

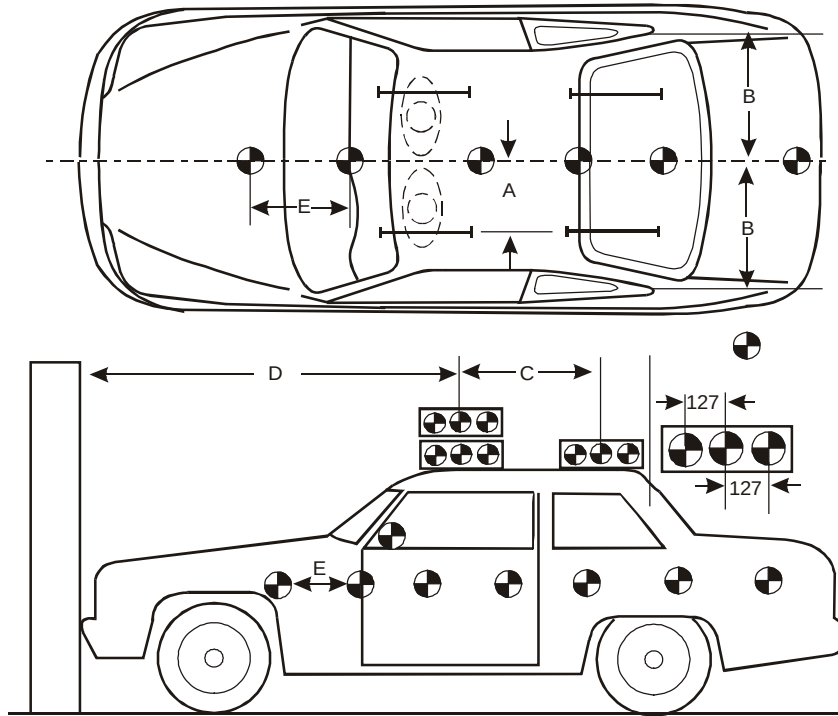
P0 Front Outside Seat Anchor Bolt

- 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.

¹ Measurement was not recorded.

Figure 15 Target Vehicle Reference Photo Target Locations



Measurement	Pre-Test
A	Left 345 mm Right 345 mm
B	Left N/A Right N/A
C	Left 613 mm Right 610 mm
D	N/A
E ¹	300 mm

¹ The first side target is placed 600 mm from front edge of bumper, and others are at 300 mm intervals.

Table 18 Bullet Vehicle Structural Measurements¹

	Elements	Pre-Test
1	Total Length	5175
2	Total Width	2049
3	Bumper Top Height	760
4	Bumper Bottom Height	403
5	Longitudinal Member Top Height	578
6	Longitudinal Member Bottom Height	453
7	Distance Between Longitudinal Members	895
7'	Longitudinal Member Width	85
8	Engine Top Height	1230
9	Engine Bottom Height	311
10	Engine and Gearbox Width	696
11	Front Bumper - Engine Distance	825
12	Front Shock Absorber Fixing Height	733
13	Bonnet Leading Edge Height	1126
14	Front Shock Absorber Fixing Width	1120
15	Front Bumper - Front Axle Distance	955
16	Front Axle - A Pillar Distance	765
17	A Pillar - B Pillar Distance	952
18	B Pillar - Rear Axle Distance	1220
19	B Pillar - C Pillar Distance	1240
20	Roof Sill Bottom Height	1703
21	Roof Sill Top Height	1764
22	Floor Sill Bottom Height	496
23	Floor Sill Top Height	1688

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.

Figure 16 Bullet Pre-Test And Post-Test Measurement Points

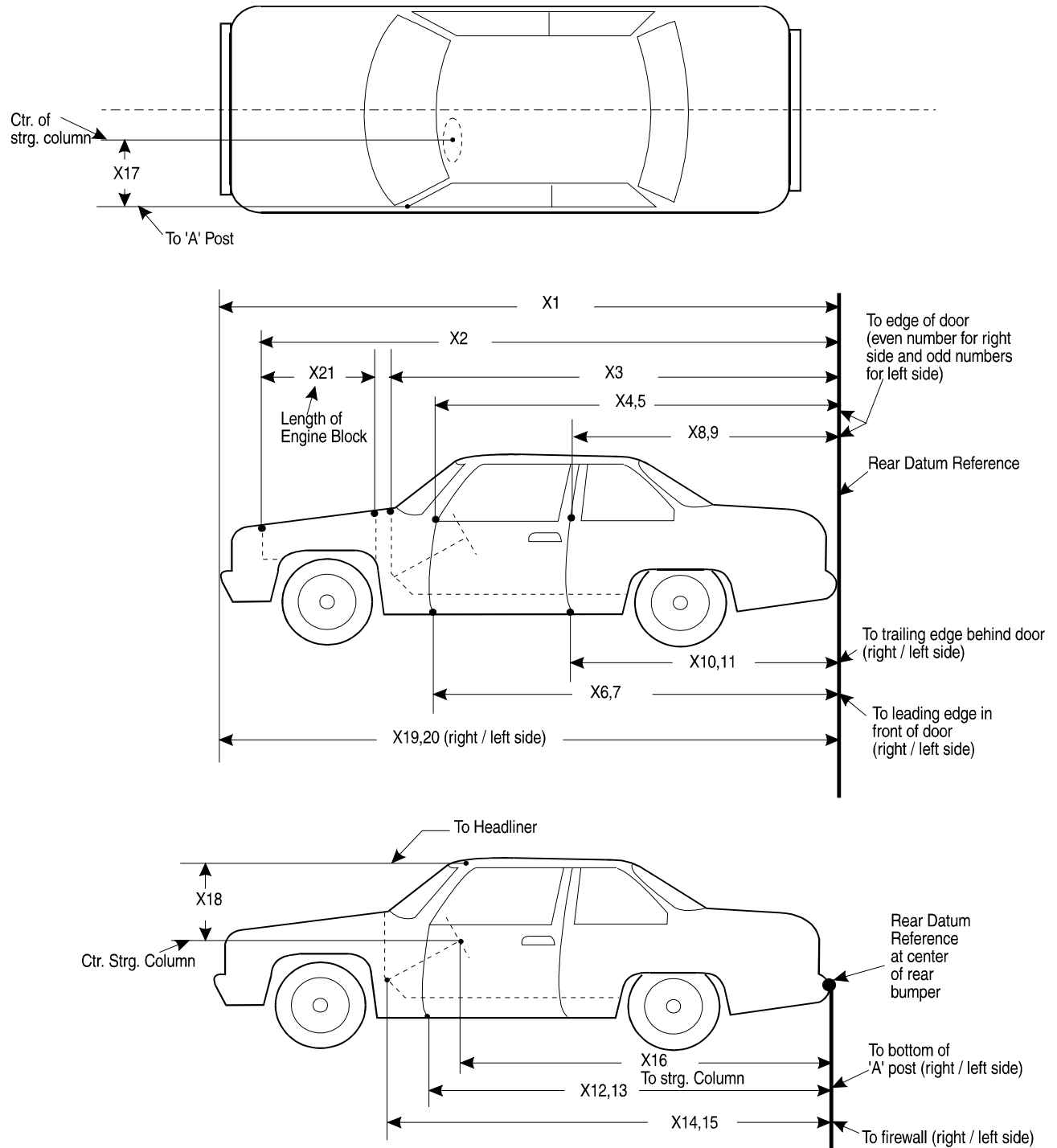


Table 19 Bullet Vehicle Impacted Measurements

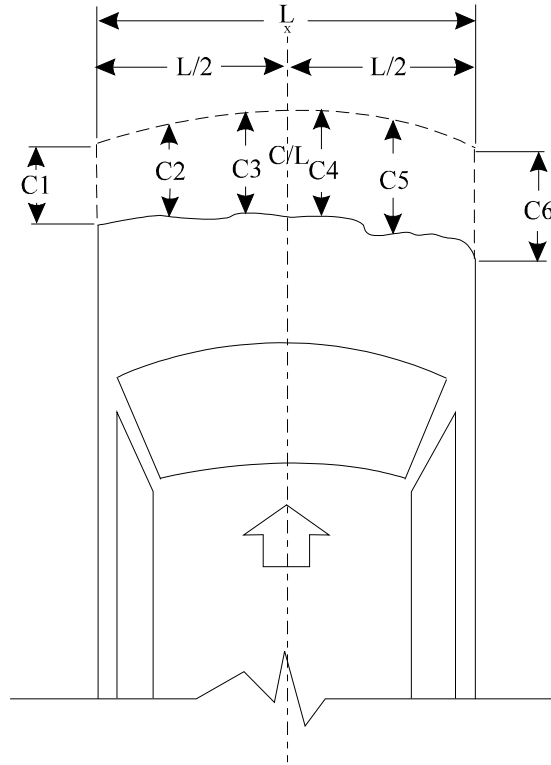
Test number: 020928

Vehicle year/make/model/body style: 1999/Lincoln/Navigator/MPV

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5175	5020	155
X2	Rear Surface of Vehicle to Front of Engine Block	4525	4525	0
X3	Rear Surface of Vehicle to Firewall	4051	4051	0
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3603	3611	-8
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3600	3600	0
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3532	3551	-19
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3525	3537	-12
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2518	2527	-9
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2510	2509	1
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2510	2532	-22
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2510	2521	-11
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3552	3562	-10
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3537	3540	-3
X14	Rear Surface of Vehicle to Firewall - Right Side	4000	4000	0
X15	Rear Surface of Vehicle to Firewall - Left Side	3987	3987	0
X16	Rear Surface of Vehicle to Steering Wheel Center	3119	3111	8
X17	Center of Steering Column to " A " Post	310	298	12
X18	Center of Steering Column to Headliner	485	477	8
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5085	4761	324
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5068	4855	213
X21	Length of Engine Block	480	480	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3443	3458	-15
CD	Rear Surface of Vehicle to Center of Dash Panel	3305	3323	-18
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3240	3245	-5

All distance measurements are in millimeters.

Figure 17 Bullet Vehicle Crush

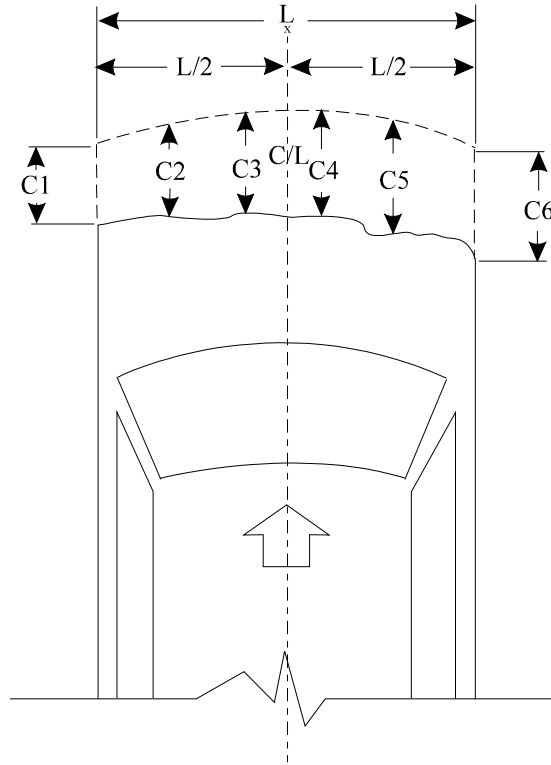


Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 1999 Lincoln Navigator
Measured with bumper fascia:

Location	Pre-test	Post-test	Difference
L	1524 mm		
C1	5068 mm	4855 mm	213 mm
C2	5150 mm	4971 mm	179 mm
C3	5175 mm	4995 mm	180 mm
C4	5175 mm	5016 mm	159 mm
C5	5153 mm	4987 mm	166 mm
C6	5085 mm	4761 mm	324 mm
CL	5175 mm	5020 mm	155 mm

Figure 17 Bullet 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: 1999 Lincoln Navigator

Measured to bumper beam without bumper fascia:

Location	Pre-test	Post-test	Difference
L	1524 mm		
C1	5060 mm	4855 mm	205 mm
C2	5140 mm	4973 mm	167 mm
C3	5170 mm	4995 mm	175 mm
C4	5170 mm	5016 mm	154 mm
C5	5145 mm	4987 mm	158 mm
C6	5070 mm	4811 mm	259 mm
CL	5170 mm	5020 mm	150 mm

Table 20 Bullet 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	5054 mm	5162 mm	5186 mm	5200 mm	5165 mm	5072 mm
	Y	-771 mm	-458 mm	-153 mm	150 mm	456 mm	772 mm
	Z	-490 mm	-565 mm	-548 mm	-540 mm	-560 mm	-490 mm
Top of Front Bumper	X	5070 mm	5140 mm	5174 mm	5170 mm	5150 mm	5088 mm
	Y	-761 mm	-455 mm	-153 mm	150 mm	454 mm	760 mm
	Z	-730 mm	-730 mm	-730 mm	-730 mm	-735 mm	-727 mm
Center of Grille	X	4962 mm	5050 mm	5093 mm	5094 mm	5060 mm	4979 mm
	Y	-764 mm	-451 mm	-154 mm	150 mm	440 mm	755 mm
	Z	-940 mm	-955 mm	-945 mm	-955 mm	-950 mm	-940 mm
Front of Hood	X	4930 mm	5002 mm	5030 mm	5025 mm	5006 mm	4953 mm
	Y	-758 mm	-444 mm	-148 mm	146 mm	435 mm	750 mm
	Z	-1030 mm	-1100 mm	-1140 mm	-1140 mm	-1115 mm	-1035 mm

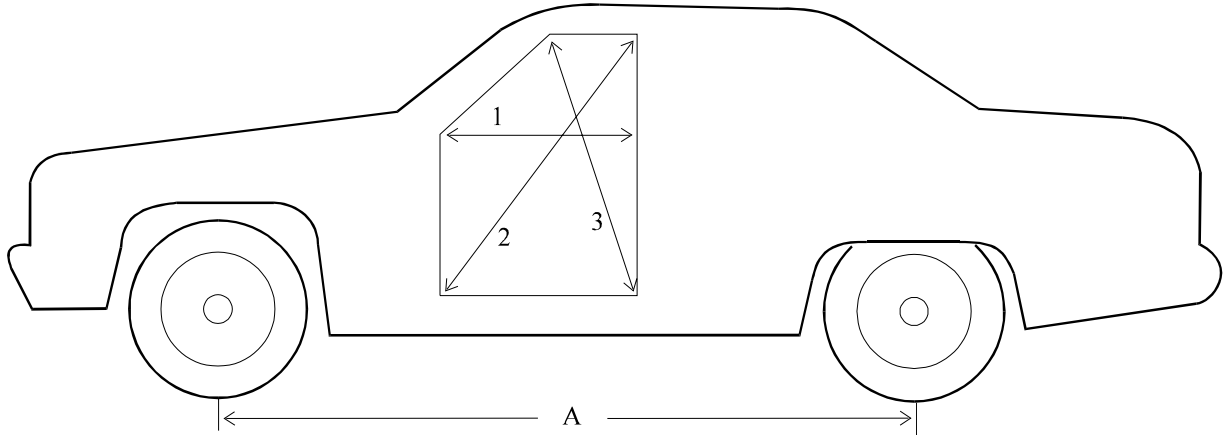
Post-Test Profile							
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	4687 mm	4950 mm	4858 mm	4826 mm	4929 mm	4522 mm
	Y	-692 mm	-433 mm	-136 mm	140 mm	440 mm	625 mm
	Z	-530 mm	-582 mm	-645 mm	-680 mm	-600 mm	-578 mm
Top of Front Bumper	X	4977 mm	4993 mm	5018 mm	5028 mm	5000 mm	4837 mm
	Y	-726 mm	-451 mm	-152 mm	153 mm	455 mm	720 mm
	Z	-730 mm	-735 mm	-735 mm	-750 mm	-762 mm	-750 mm
Center of Grille	X	4955 mm	4960 mm	5011 mm	5018 mm	4971 mm	4946 mm
	Y	-745 mm	-444 mm	-142 mm	180 mm	452 mm	760 mm
	Z	-1052 mm	-1075 mm	-1055 mm	-1040 mm	-1040 mm	-1020 mm
Front of Hood	X	4937 mm	5011 mm	5020 mm	5009 mm	5006 mm	4946 mm
	Y	-758 mm	-443 mm	-150 mm	141 mm	434 mm	747 mm
	Z	-1183 mm	-1260 mm	-1290 mm	-1288 mm	-1256 mm	-1185 mm

Difference							
		Vehicle Left			Vehicle Right		
		Point 1	Point 2	Point 3	Point 4	Point 5	Point 6
Bottom of Front Bumper	X	367 mm	312 mm	328 mm	374 mm	236 mm	550 mm
	Y	-79 mm	2-5 mm	-17 mm	10 mm	16 mm	147 mm
	Z	40 mm	17 mm	97 mm	140 mm	40 mm	88 mm
Top of Front Bumper	X	93 mm	147 mm	156 mm	142 mm	150 mm	251 mm
	Y	-35 mm	-4 mm	-1 mm	-3 mm	-1 mm	40 mm
	Z	0 mm	5 mm	5 mm	20 mm	27 mm	23 mm
Center of Grille	X	-7 mm	-9 mm	10 mm	16 mm	0 mm	7 mm
	Y	-19 mm	-7 mm	-12 mm	-30 mm	-12 mm	-5 mm
	Z	112 mm	120 mm	110 mm	85 mm	90 mm	80 mm
Front of Hood	X	-7 mm	-9 mm	10 mm	16 mm	0 mm	7 mm
	Y	0 mm	-1 mm	2 mm	5 mm	1 mm	3 mm
	Z	153 mm	160 mm	150 mm	148 mm	141 mm	150 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.

Figure 18 Bullet Vehicle Intrusion Measurements

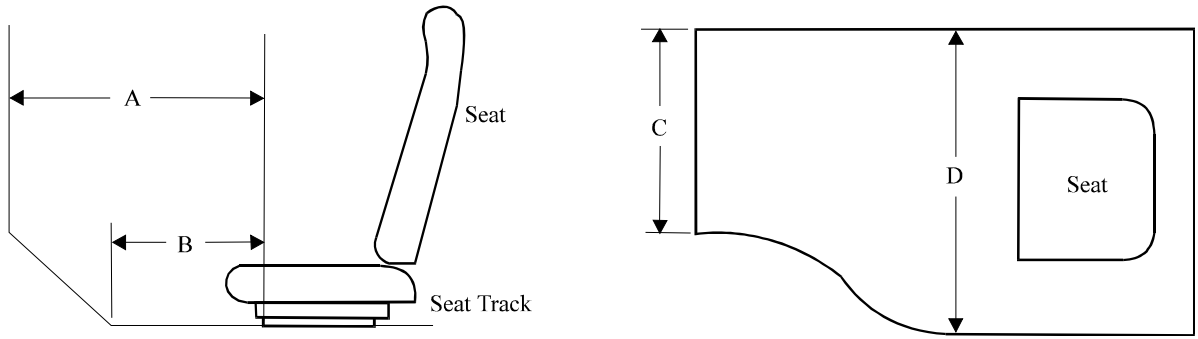
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1030 mm	1550 mm	1280 mm	1015 mm	1585 mm	1280 mm
Post-Test	1030 mm	1544 mm	1287 mm	1013 mm	1584 mm	1283 mm
Difference	0 mm	6 mm	-7 mm	2 mm	1 mm	-3 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	3020 mm	3020 mm
Post-Test	3004 mm	3000 mm
Difference	16 mm	20 mm

Figure 19 Bullet Vehicle Intrusion Measurements
Static Footwell Deformation



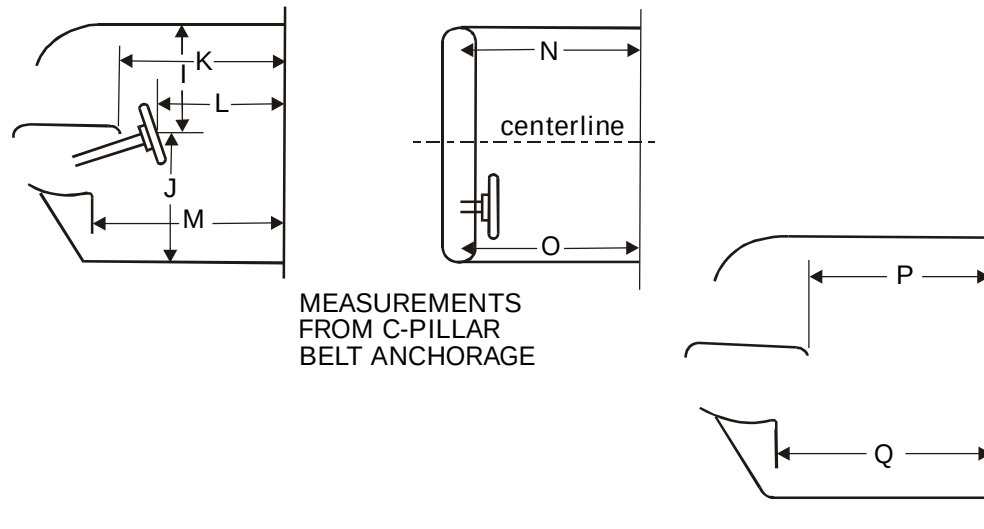
Driver's Side

Measurement	Pre-Test	Post-Test	Difference
A	820 mm	823 mm	-3 mm
B	519 mm	507 mm	12 mm
C	470 mm	468 mm	2 mm
D	448 mm	450 mm	-2 mm

Passenger's Side

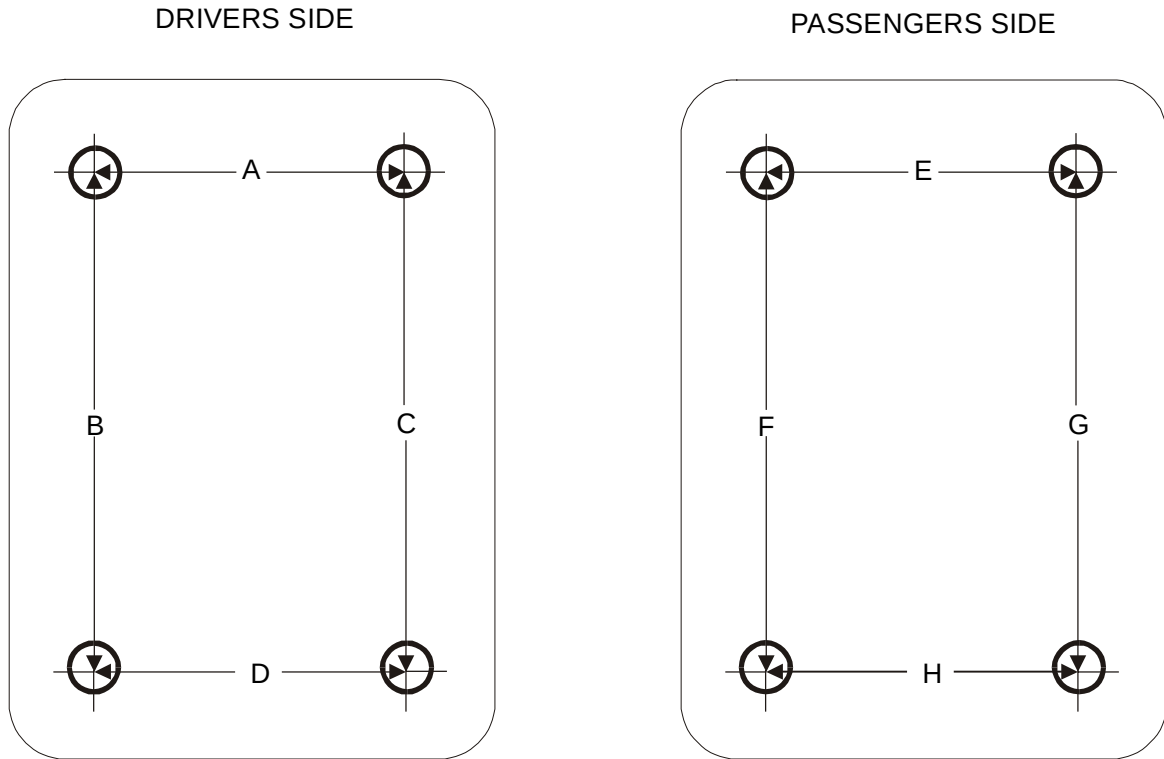
Measurement	Pre-Test	Post-Test	Difference
A	790 mm	794 mm	-4 mm
B	529 mm	518 mm	11 mm
C	426 mm	427 mm	-1 mm
D	450 mm	450 mm	0 mm

Figure 20 Bullet Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



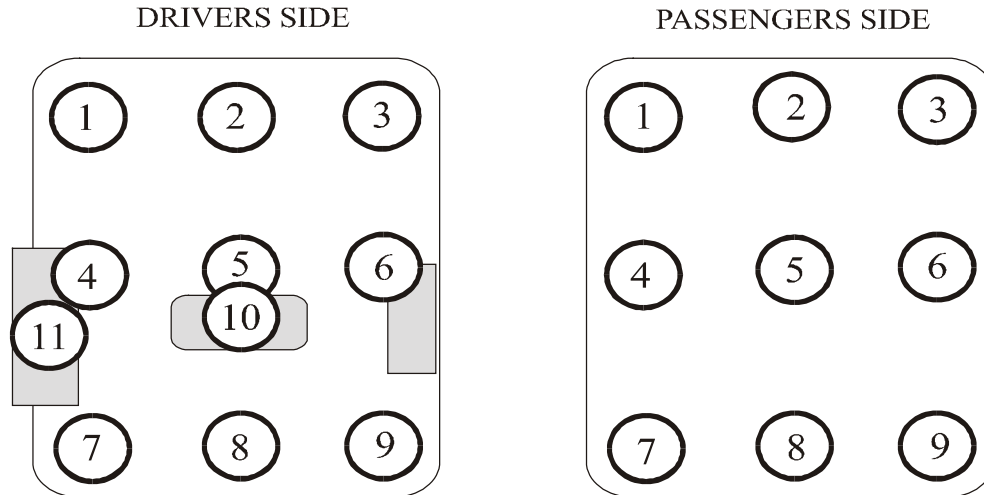
Measurement	Pre-Test	Post-Test	Difference
I	478 mm	465 mm	13 mm
J	713 mm	735 mm	-22 mm
K (driver's side)	1440 mm	1444 mm	-4 mm
L	1379 mm	1369 mm	10 mm
M (driver's side)	1625 mm	1628 mm	-3 mm
N (passenger's side)	1590 mm	1583 mm	7 mm
O (driver's side)	1464 mm	1469 mm	-5 mm
P (passenger's side)	1619 mm	1633 mm	-14 mm
Q (passenger's side)	1654 mm	1650 mm	4 mm

Figure 21 Bullet Vehicle Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	470 mm	468 mm	2 mm
B	443 mm	442 mm	1 mm
C	390 mm	383 mm	7 mm
D	448 mm	450 mm	-2 mm
E	426 mm	427 mm	-1 mm
F	384 mm	384 mm	0 mm
G	394 mm	393 mm	1 mm
H	450 mm	450 mm	0 mm

Figure 22 Bullet Vehicle Toeboard Measurements



Driver's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3738	-682	-575	3735	-680	-639	3	-2	64
2	3723	-482	-590	3720	-480	-632	3	-2	42
3	3720	-300	-575	3720	-302	-627	0	2	52
4	3665	-687	-565	3663	-682	-582	2	-5	17
5	3657	-487	-555	3651	-480	-605	6	-7	50
6	3645	-299	-542	3648	-298	-600	-3	-1	58
7	3598	-691	-525	3600	-688	-567	-2	-3	42
8	3584	-483	-535	3581	-480	-562	3	-3	27
9	3572	-299	-545	3580	-297	-568	-8	-2	23
10	3623	-442	-725	3622	-453	-765	1	11	40
11	3665	-687	-565	3663	-682	-582	2	-5	17

Passenger's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3711	288	-590	3714	287	-630	-3	1	40
2	3717	482	-595	3714	482	-614	3	0	19
3	3723	675	-600	3720	680	-643	3	-5	43
4	3654	288	-565	3650	278	-584	4	10	19
5	3665	482	-570	3664	473	-608	1	9	38
6	3680	675	-580	3678	671	-625	2	4	45
7	3603	280	-535	3598	302	-580	5	-22	45
8	3602	482	-550	3603	495	-594	-1	-13	44
9	3619	675	-545	3618	689	-595	1	-14	50

Reference: +X forward from rear bumper; +Y rightward from centerline; +Z downward from ground level

Table 21 Bullet Vehicle Intrusion of Upper Instrument Panel

Pre-Test	X	Y	Z
Driver Left Knee	3333	-588	-1045
Driver Right Knee	3339	-312	-1050
Passenger Left Knee	3380	292	-1030
Passenger Right Knee	3376	594	-1030

Post-Test	X	Y	Z
Driver Left Knee	3336	-587	-1080
Driver Right Knee	3342	-314	-1078
Passenger Left Knee	3386	298	-1065
Passenger Right Knee	3393	597	-1080

Difference	X	Y	Z
Driver Left Knee	-3	-1	35
Driver Right Knee	-3	2	28
Passenger Left Knee	-6	-6	35
Passenger Right Knee	-17	-3	50

All measurements are in millimeters.

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

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

**Table 22 Bullet Vehicle 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	3118	3137	-19	-440	-440	0	-710	-1260	550
2	3374	3378	-4	-596	-596	0	-975	-1025	50
3	3394	3403	-9	-288	-288	0	-980	-1020	40
4	3623	3622	1	-442	-453	11	-725	-765	40
5	3665	3663	2	-687	-682	-5	-565	-582	17
6	3657	3651	6	-487	-480	-7	-555	-605	50
7	3645	3648	-3	-299	-298	-1	-542	-600	58
8	3665	3663	2	-687	-682	-5	-565	-582	17
17	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
18	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹

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	3063	3063	0	-608	-608	0	-570	-559	-11
P1	3569	3564	5	-685	-672	-13	-520	-545	25
P2	3551	3546	6	-479	-455	-24	-530	-550	20
P3	3538	3532	6	-292	-272	-20	-540	-554	14
P4	3430	3425	5	-695	-680	-15	-520	-542	22
P5	3410	3408	2	-490	-475	-15	-530	-545	15
P6	3398	3393	5	-308	-293	-15	-525	-550	25
P7	3240	3234	6	-686	-681	-5	-520	-531	11
P8	3238	3238	0	-485	-479	-6	-530	-535	5
P9	3237	3234	3	-305	-300	-5	-530	-532	2

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**

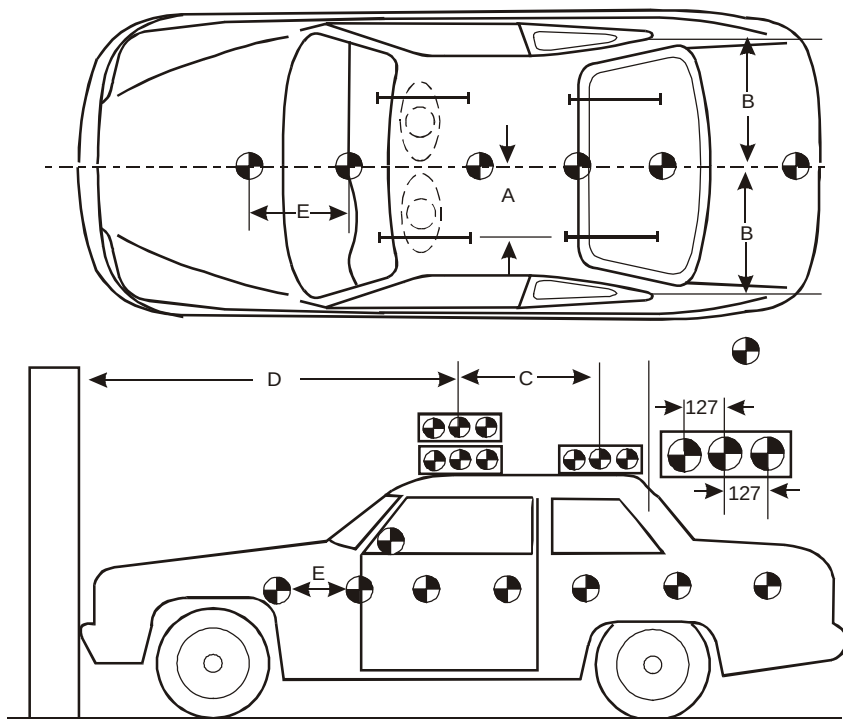
P0 Front Outside Seat Anchor Bolt

- 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 Toeapan Left - Taken 15 cm to the left of the brake pedal center on the same vertical plane on the vehicle toeapan.
- 6 Toeapan Center - Taken directly behind the brake pedal center on the same vertical plane on the vehicle.
- 7 Toeapan Right - Taken 15 cm to the right of the brake pedal center on the same vertical plane on the vehicle toeapan.
- 8 Left Footrest - Taken 25 cm to the left of the brake pedal center on the same vertical plane on the vehicle toeapan.
- 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.

¹ Measurement was not recorded.

Figure 23 Bullet Vehicle Reference Photo Target Locations



Measurement	Pre-Test
A	Left 430 mm Right 430 mm
B	Left N/A mm Right N/A mm
C	Left 610 mm Right 610 mm
D	N/A
E ¹	300 mm

¹ The first side target is placed 600 mm from front edge of bumper, and others are at 300 mm intervals.

Figure 24 Camera Positions

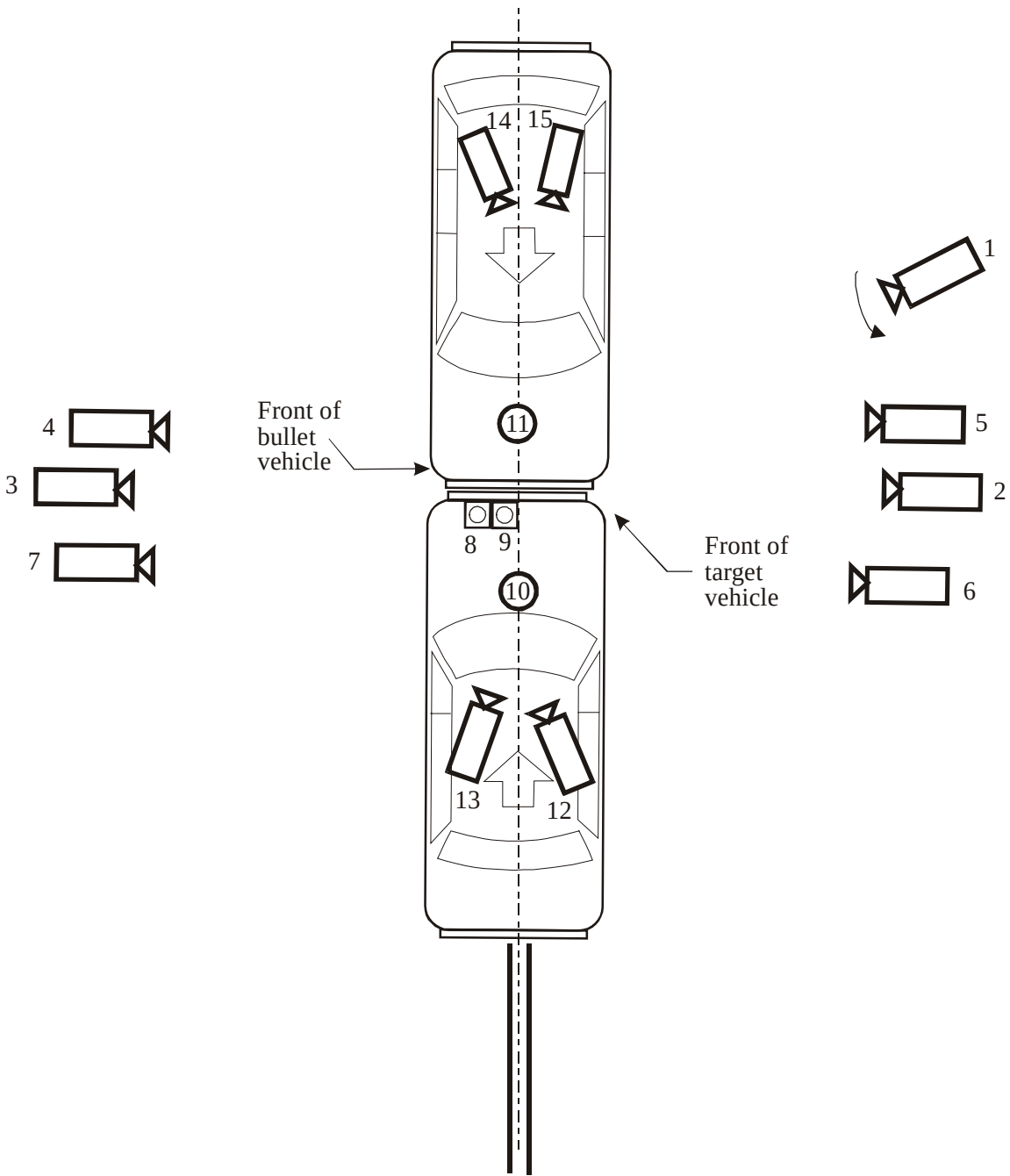


Table 23 Camera Information

Camera Number	Location	Type	Lens (mm)	Speed (fps)	Purpose of camera data
1	Panning	Bolex	Zoom	24	Vehicle dynamics
2	Right wide (reference to target vehicle)	Photosonic	13	1000	Vehicle dynamics
3	Left wide (reference to target vehicle)	Digital HG	Zoom	--- ¹	Vehicle dynamics
4	Bullet vehicle right medium	Photosonic	25	1050	Vehicle dynamics
5	Bullet vehicle left medium	Digital HG	Zoom	--- ¹	Vehicle dynamics
6	Target vehicle right medium	Digital HG	Zoom	--- ¹	Vehicle dynamics
7	Target vehicle left medium	Photosonic	25	--- ²	Vehicle dynamics
8	Overhead wide	Photosonic	8.5	--- ²	Vehicle dynamics
9	Overhead tight	Photosonic	25	--- ²	Vehicle crush
10	Pit-target vehicle	Photosonic	Zoom	--- ¹	Vehicle crush
11	Pit-bullet vehicle	Photosonic	13	1000	Vehicle crush
12	Onboard target vehicle driver	Digital HG	8	1000	Dummy kinematics
13	Onboard target vehicle passenger	Digital HG	8	1000	Dummy kinematics
14	Onboard bullet vehicle driver	Digital HG	8	1000	Dummy kinematics
15	Onboard bullet vehicle passenger	Digital HG	8	1000	Dummy kinematics

¹ Did not run.

² Unable to determine film speed.

Appendix A

Photographs



Figure A-1 Pre-Test Car to Car Overall - View 1



Figure A-2 Post-Test Car to Car Overall - View 1



Figure A-3 Pre-Test Car to Car Overall - View 2



Figure A-4 Post-Test Car to Car Overall - View 2



Figure A-5 Pre-Test Car to Car Close-Up - View 1



Figure A-6 Post-Test Car to Car Close-Up - View 1



Figure A-7 Post-Test Car to Car Close-Up - View 2

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Figure A-8 Pre-Test Overhead Wide View

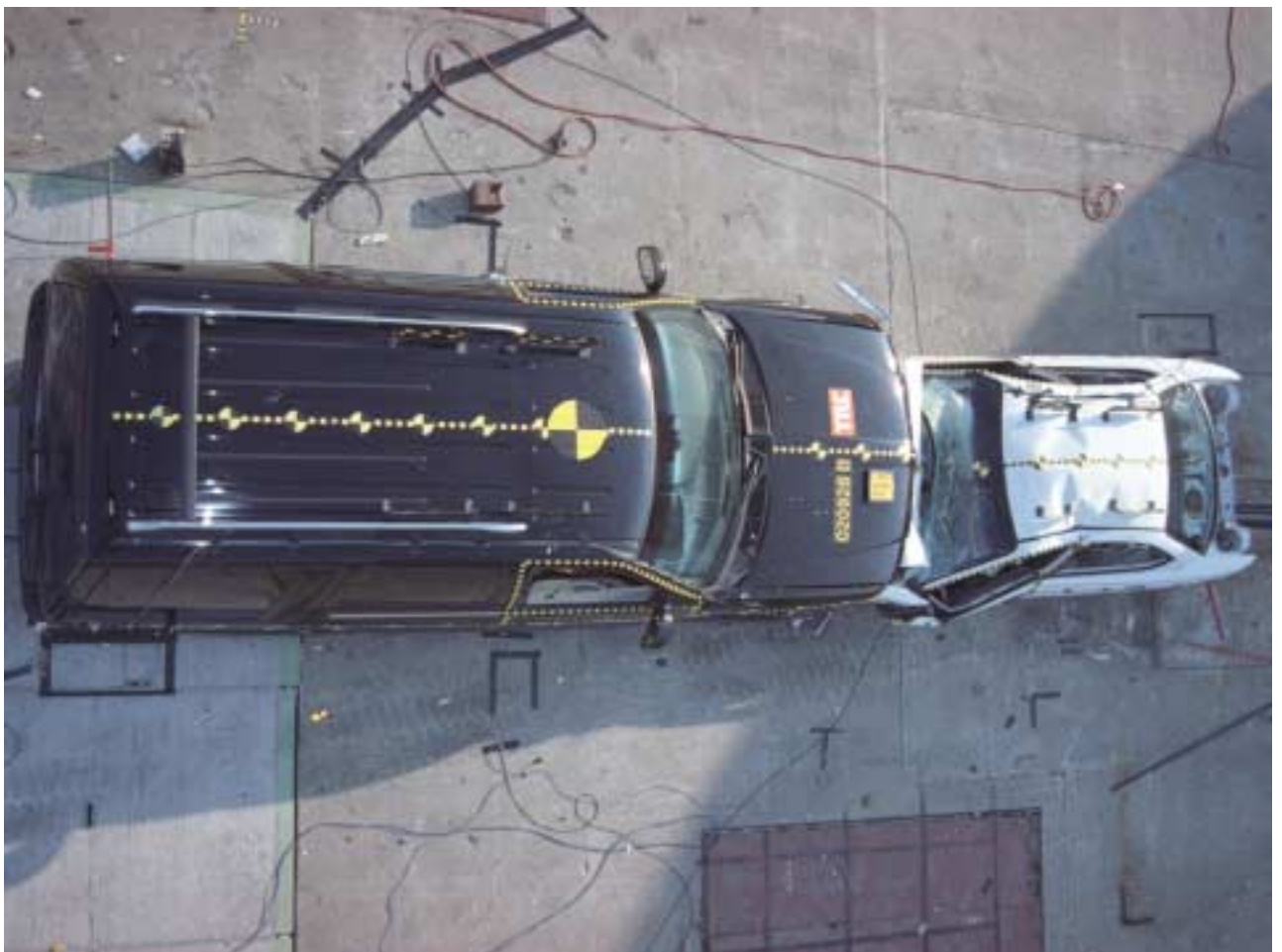


Figure A-9 Post-Test Overhead Wide View



Figure A-10 Pre-Test Overhead Medium View



Figure A-11 Post-Test Overhead Medium View



Figure A-12 Pre-Test Overhead Close-Up View



Figure A-13 Post-Test Overhead Close-Up View



Figure A-14 Pre-Test Target Vehicle Front View

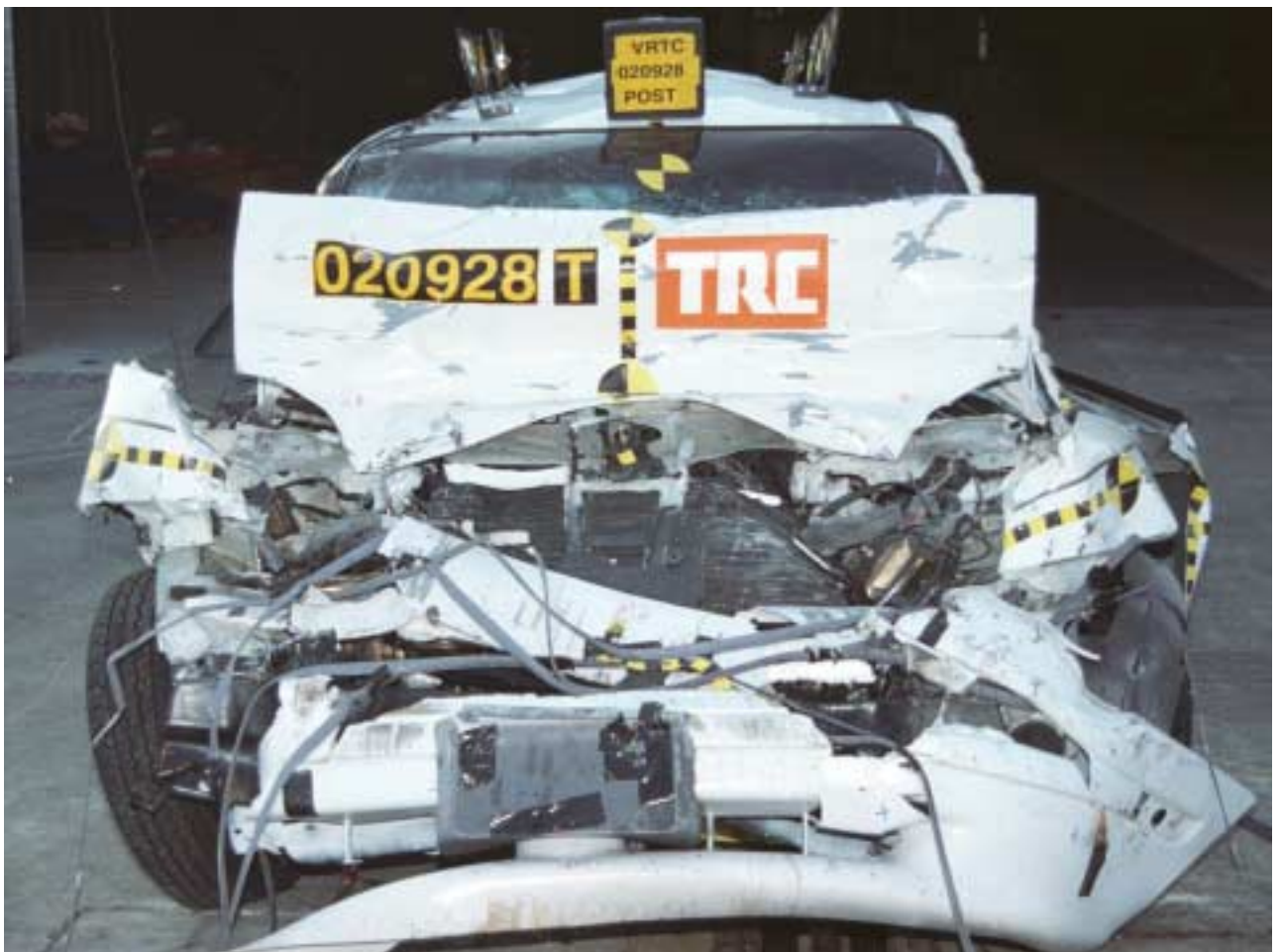


Figure A-15 Post-Test Target Vehicle Front View



Figure A-16 Pre-Test Target Vehicle Left Front View



Figure A-17 Post-Test Target Vehicle Left Front View



Figure A-18 Pre-Test Target Vehicle Left Side View



Figure A-19 Post-Test Target Vehicle Left Side View



Figure A-20 Pre-Test Target Vehicle Left Rear View



Figure A-21 Post-Test Target Vehicle Left Rear View



Figure A-22 Pre-Test Target Vehicle Rear View



Figure A-23 Post-Test Target Vehicle Rear View



Figure A-24 Pre-Test Target Vehicle Right Rear View



Figure A-25 Post-Test Target Vehicle Right Rear View



Figure A-26 Pre-Test Target Vehicle Right Side View



Figure A-27 Post-Test Target Vehicle Right Side View



Figure A-28 Pre-Test Target Vehicle Right Front View



Figure A-29 Post-Test Target Vehicle Right Front View

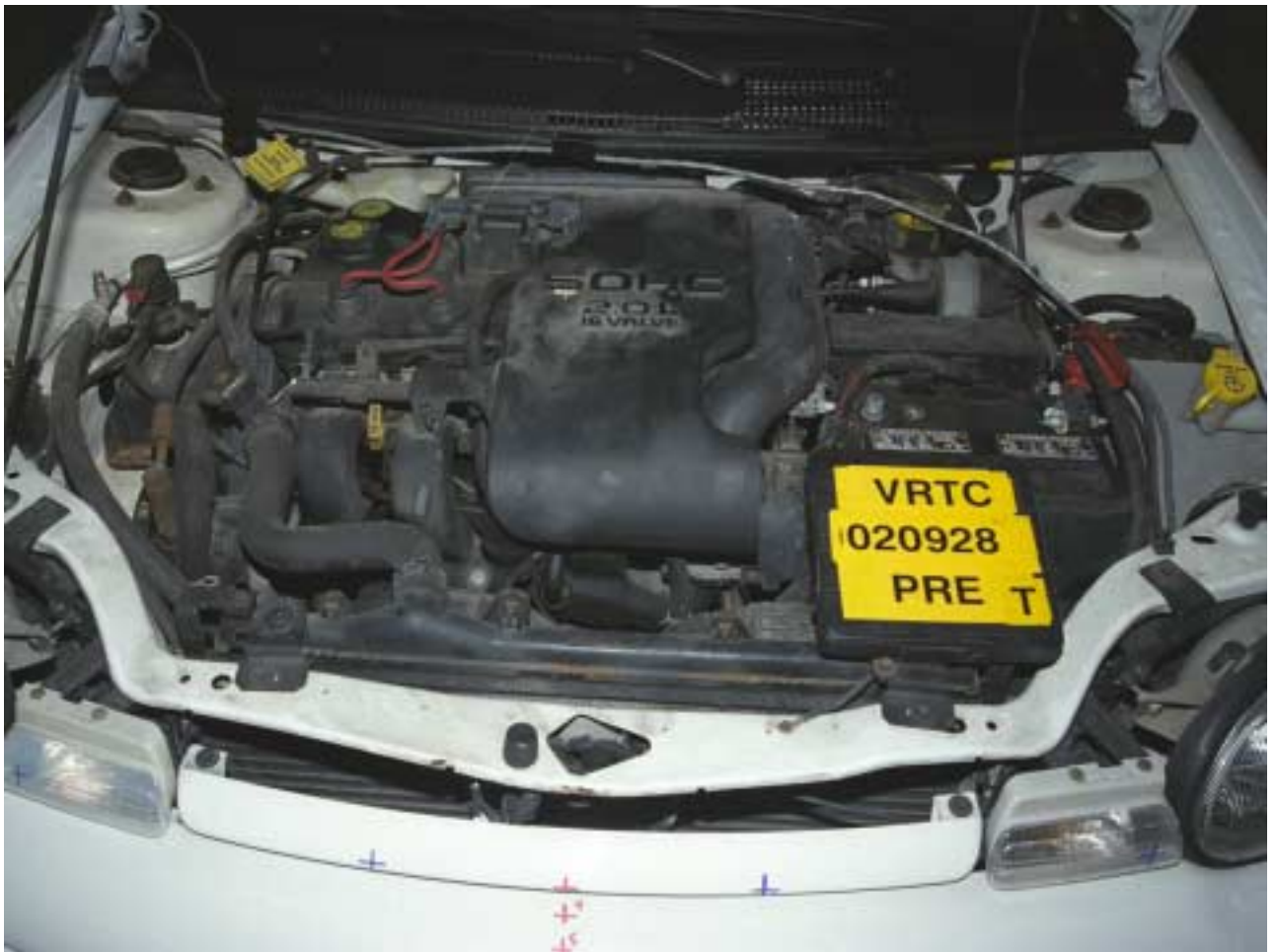


Figure A-30 Pre-Test Target Vehicle Engine Compartment View



Figure A-31 Post-Test Target Vehicle Engine Compartment View



Figure A-32 Pre-Test Target Vehicle Front Underbody View



Figure A-33 Post-Test Target Vehicle Front Underbody View

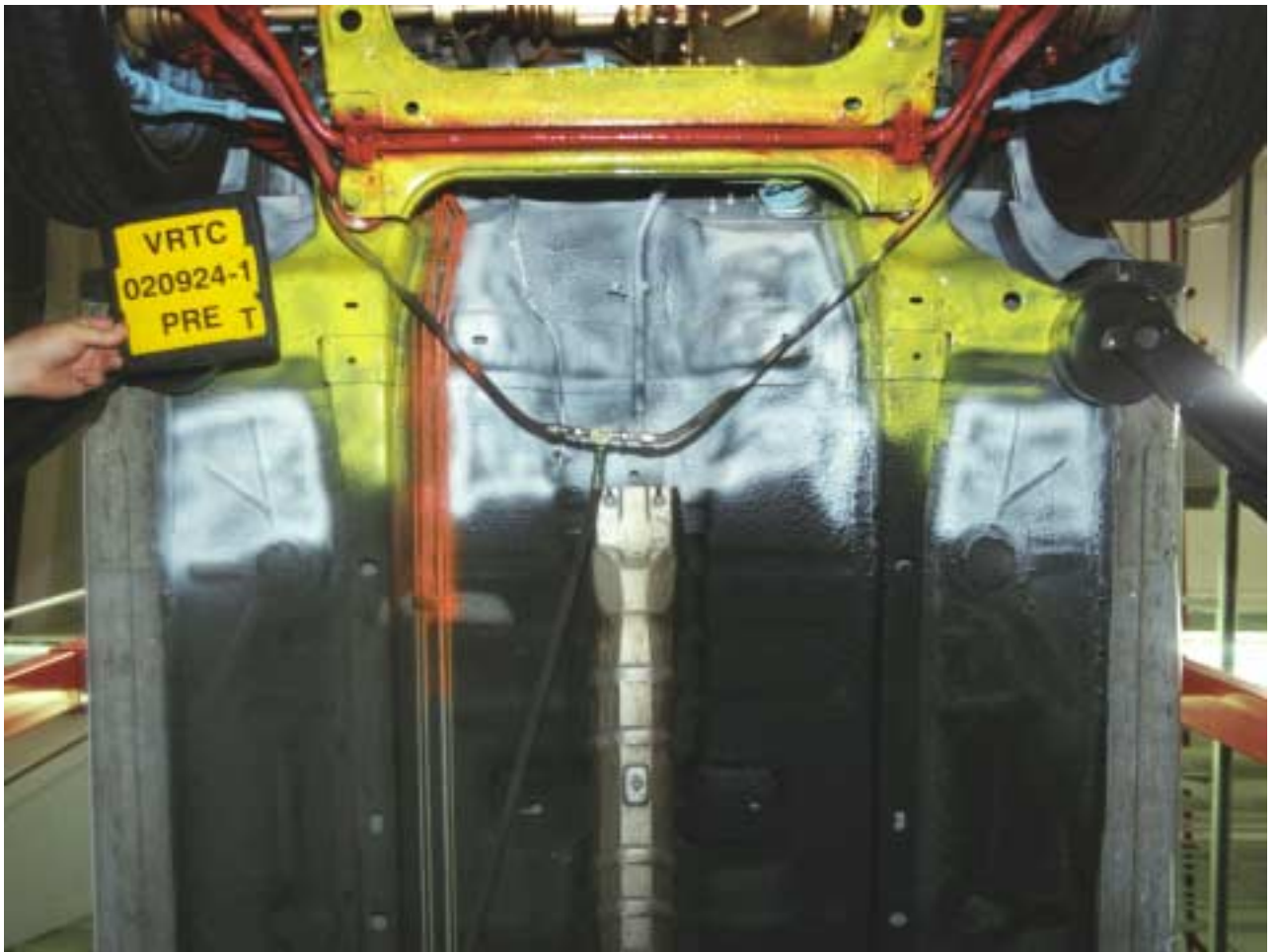


Figure A-34 Pre-Test Target Vehicle Front Mid Underbody View

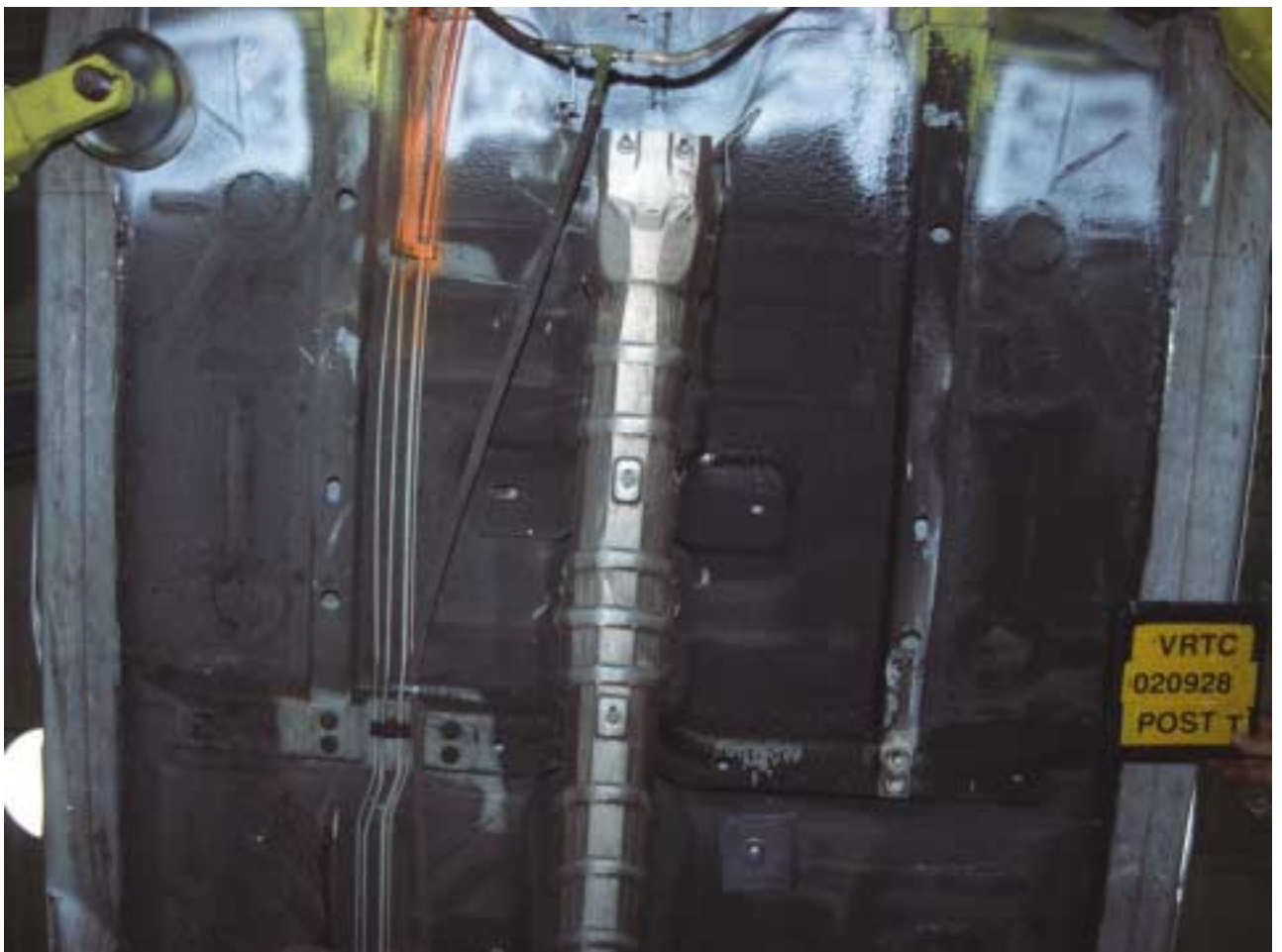


Figure A-35 Post-Test Target Vehicle Front Mid Underbody View



Figure A-36 Pre-Test Target Vehicle Rear Mid Underbody View



Figure A-37 Post-Test Target Vehicle Rear Mid Underbody View

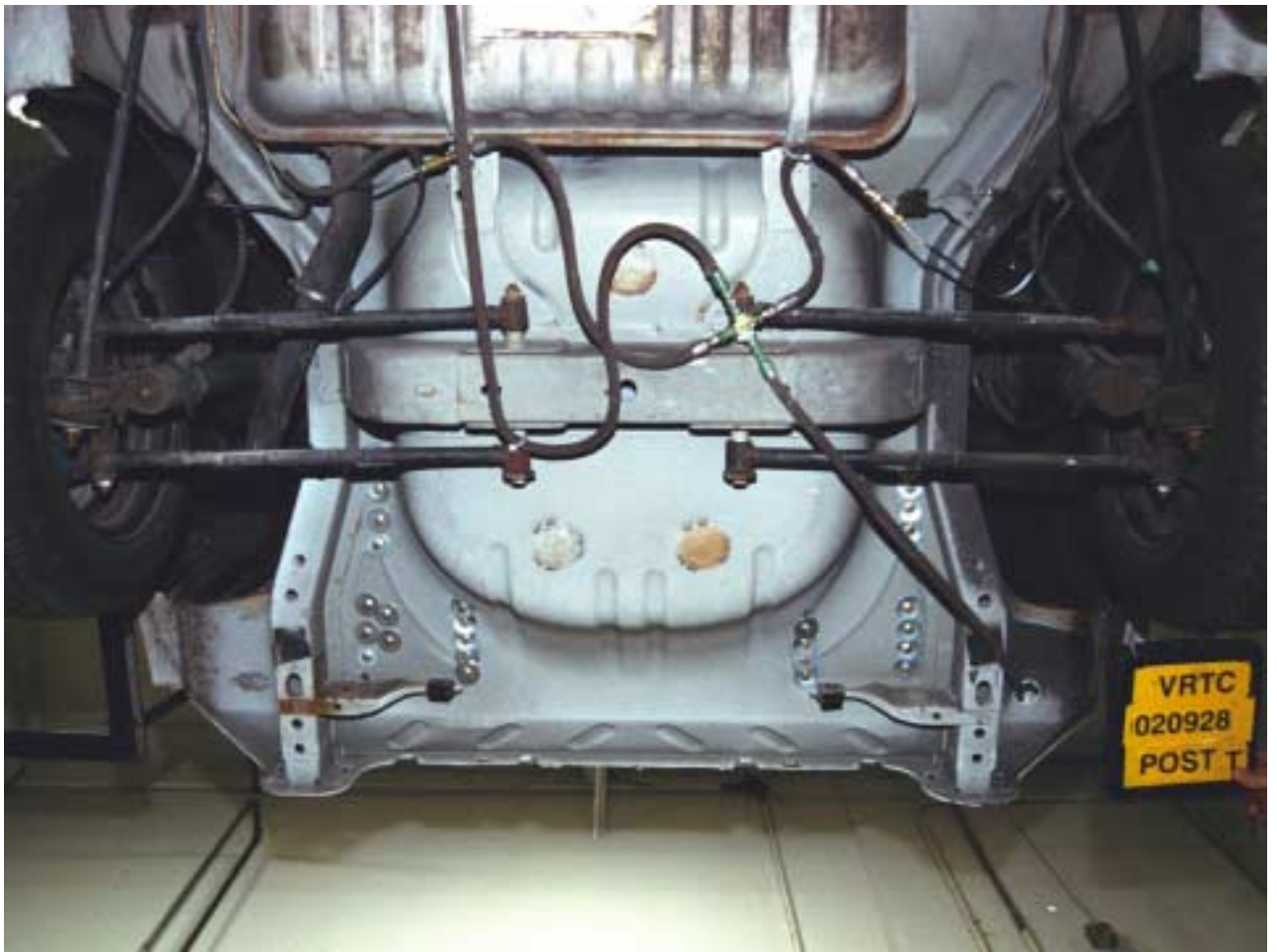


Figure A-38 Post-Test Target Vehicle Rear Underbody View

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Figure A-39 Pre-Test Bullet Vehicle Front View



Figure A-40 Post-Test Bullet Vehicle Front View



Figure A-41 Pre-Test Bullet Vehicle Left Front View



Figure A-42 Post-Test Bullet Vehicle Left Front View



Figure A-43 Pre-Test Bullet Vehicle Left Side View



Figure A-44 Post-Test Bullet Vehicle Left Side View



Figure A-45 Pre-Test Bullet Vehicle Left Rear View



Figure A-46 Post-Test Bullet Vehicle Left Rear View



Figure A-47 Pre-Test Bullet Vehicle Rear View



Figure A-48 Post-Test Bullet Vehicle Rear View



Figure A-49 Pre-Test Bullet Vehicle Right Rear View



Figure A-50 Post-Test Bullet Vehicle Right Rear View



Figure A-51 Pre-Test Bullet Vehicle Right Side View



Figure A-52 Post-Test Bullet Vehicle Right Side View



Figure A-53 Pre-Test Bullet Vehicle Right Front View



Figure A-54 Post-Test Bullet Vehicle Right Front View



Figure A-55 Pre-Test Bullet Vehicle Engine Compartment View



Figure A-56 Post-Test Bullet Vehicle Engine Compartment View



Figure A-57 Pre-Test Bullet Vehicle Front Underbody View



Figure A-58 Post-Test Bullet Vehicle Front Underbody View



Figure A-59 Pre-Test Bullet Vehicle Front Mid Underbody View



Figure A-60 Pre-Test Bullet Vehicle Mid Underbody View



Figure A-61 Pre-Test Bullet Vehicle Rear Mid Underbody View



Figure A-62 Post-Test Bullet Vehicle Mid Underbody View



Figure A-63 Pre-Test Bullet Vehicle Rear Underbody View



Figure A-64 Post-Test Bullet Vehicle Rear Underbody View

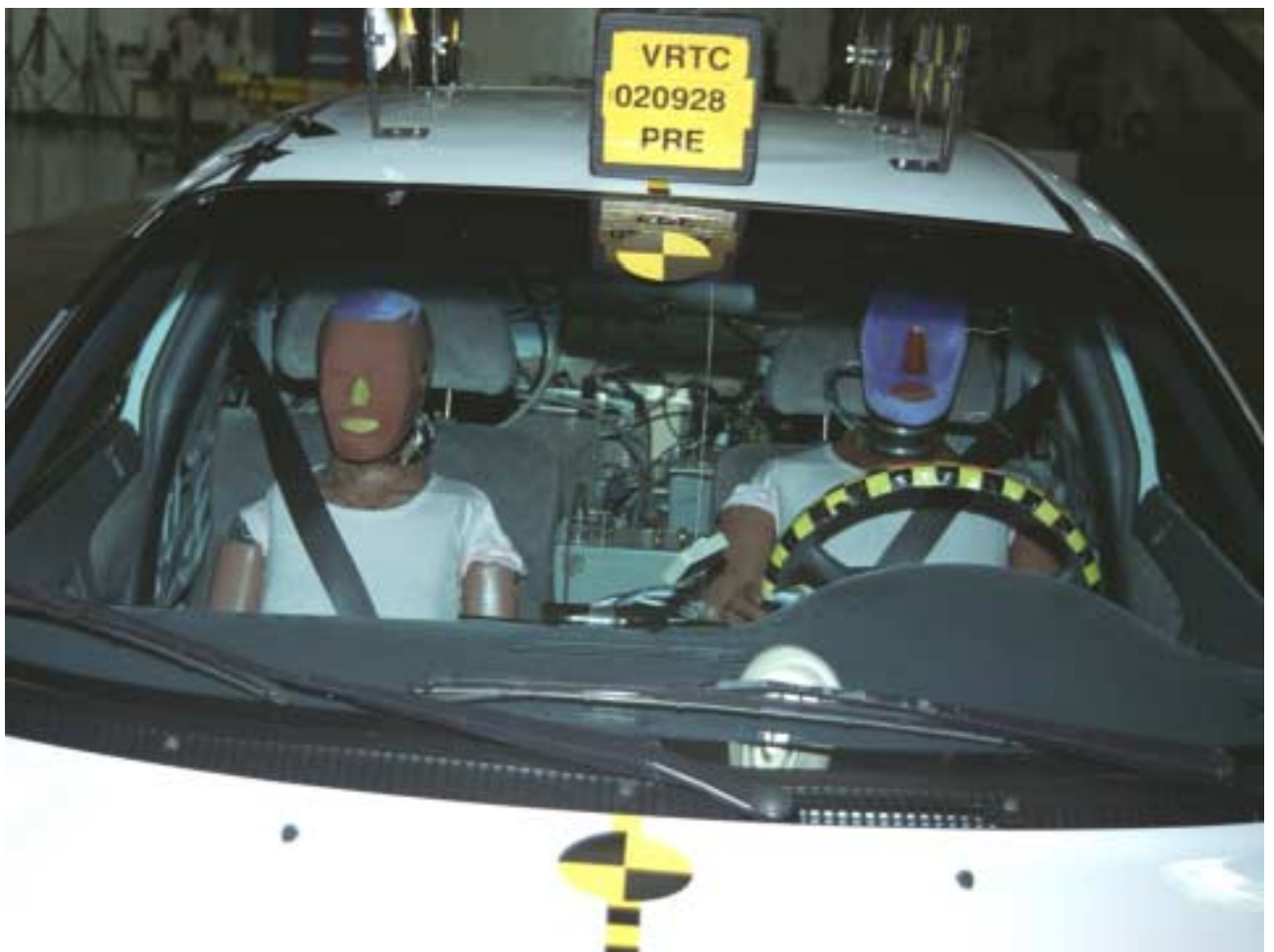


Figure A-65 Pre-Test Target Vehicle Driver and Passenger Dummies through Windshield View



Figure A-66 Pre-Test Target Vehicle Driver Dummy - View 1



Figure A-67 Pre-Test Target Vehicle Driver Dummy - View 2



Figure A-68 Post-Test Target Vehicle Driver Dummy - View 2



Figure A-69 Pre-Test Target Vehicle Driver Dummy - View 3



Figure A-70 Post-Test Target Vehicle Driver Dummy - View 3



Figure A-71 Pre-Test Target Vehicle Driver Dummy - View 4



Figure A-72 Post-Test Target Vehicle Driver Dummy - View 4



Figure A-73 Pre-Test Target Vehicle Passenger Dummy - View 1

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Figure A-74 Pre-Test Target Vehicle Passenger Dummy - View 2



Figure A-75 Post-Test Target Vehicle Passenger Dummy - View 2



Figure A-76 Pre-Test Target Vehicle Passenger Dummy - View 3



Figure A-77 Post-Test Target Vehicle Passenger Dummy - View 3



Figure A-78 Pre-Test Target Vehicle Passenger Dummy - View 4



Figure A-79 Post-Test Target Vehicle Passenger Dummy - View 4



Figure A-80 Pre-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View



Figure A-81 Post-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View



Figure A-82 Pre-Test Bullet Vehicle Driver Dummy - View 1

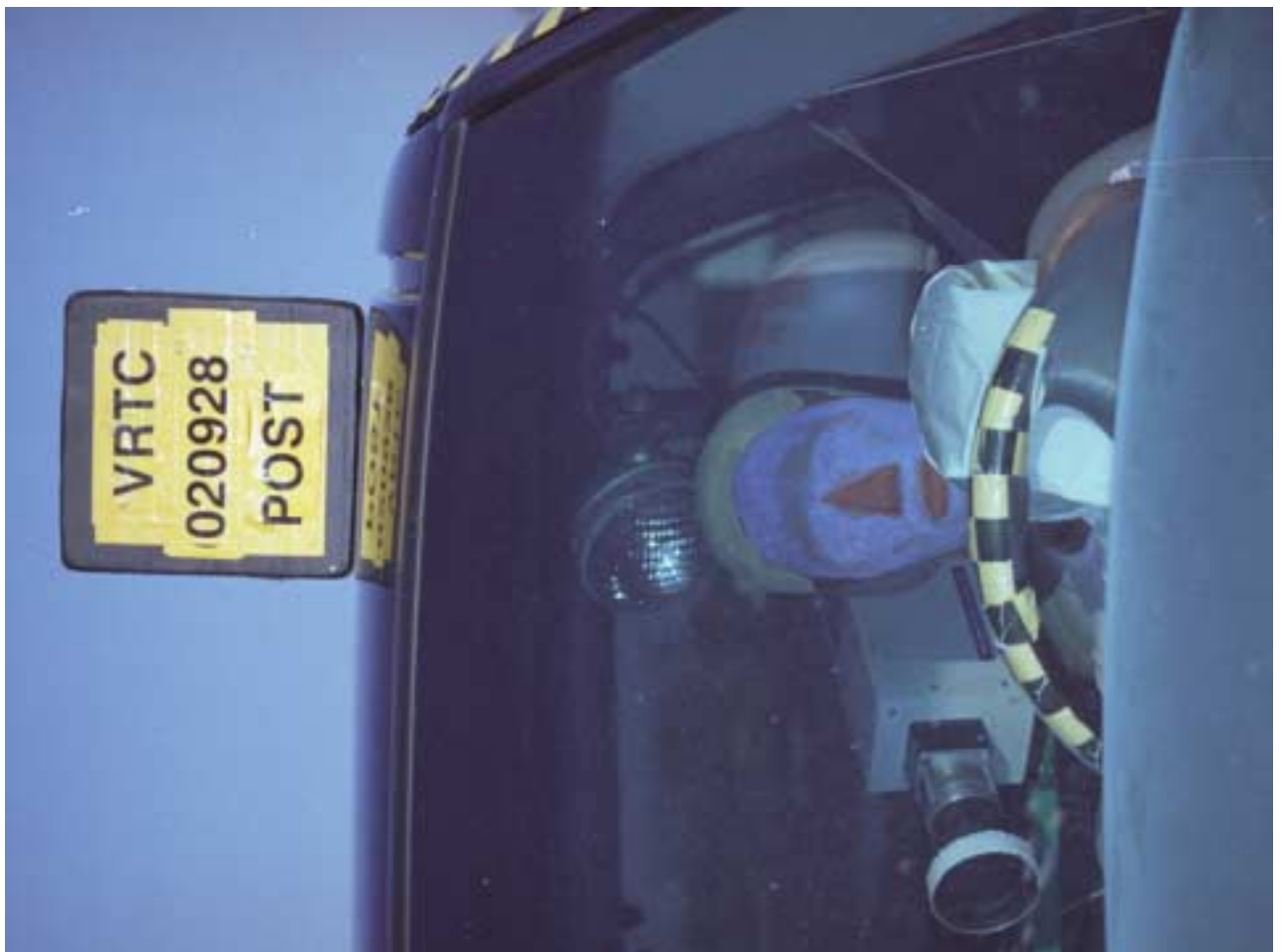


Figure A-83 Post-Test Bullet Vehicle Driver Dummy - View 1



Figure A-84 Pre-Test Bullet Vehicle Driver Dummy - View 2



Figure A-85 Post-Test Bullet Vehicle Driver Dummy - View 2



Figure A-86 Pre-Test Bullet Vehicle Driver Dummy - View 3



Figure A-87 Post-Test Bullet Vehicle Driver Dummy - View 3



Figure A-88 Pre-Test Bullet Vehicle Driver Dummy - View 4



Figure A-89 Post-Test Bullet Vehicle Driver Dummy - View 4



Figure A-90 Pre-Test Bullet Vehicle Passenger Dummy - View 1



Figure A-91 Post-Test Bullet Vehicle Passenger Dummy - View 1



Figure A-92 Pre-Test Bullet Vehicle Passenger Dummy - View 2



Figure A-93 Post-Test Bullet Vehicle Passenger Dummy - View 2



Figure A-94 Pre-Test Bullet Vehicle Passenger Dummy - View 3



Figure A-95 Post-Test Bullet Vehicle Passenger Dummy - View 3



Figure A-96 Pre-Test Bullet Vehicle Passenger Dummy - View 4



Figure A-97 Post-Test Bullet Vehicle Passenger Dummy - View 4



Figure A-98 Post-Test Target Vehicle Driver Dummy Overall Contact View



Figure A-99 Post-Test Target Vehicle Driver Dummy Head Contact - View 1



Figure A-100 Post-Test Target Vehicle Driver Dummy Head Contact - View 2



Figure A-101 Post-Test Target Vehicle Driver Dummy Head Contact - View 3



Figure A-102 Post-Test Target Vehicle Driver Dummy Head Contact - View 4



Figure A-103 Post-Test Target Vehicle Driver Dummy Knee Contact - View 1



Figure A-104 Post-Test Target Vehicle Driver Dummy Knee Contact - View 2



Figure A-105 Post-Test Target Vehicle Driver Dummy Knee Contact - View 3



Figure A-106 Post-Test Target Vehicle Passenger Dummy Overall Contact View



Figure A-107 Post-Test Target Vehicle Passenger Dummy Head Contact - View 1



Figure A-108 Post-Test Target Vehicle Passenger Dummy Head Contact - View 2



Figure A-109 Post-Test Target Vehicle Passenger Dummy Head Contact - View 3



Figure A-110 Post-Test Target Vehicle Passenger Dummy Knee Contact - View 1



Figure A-111 Post-Test Target Vehicle Passenger Dummy Knee Contact - View 2



Figure A-112 Post-Test Bullet Vehicle Driver Dummy Overall Contact View



Figure A-113 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 1



Figure A-114 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 2



Figure A-115 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 3



Figure A-116 Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 1



Figure A-117 Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 2



Figure A-118 Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 3



Figure A-119 Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 4



Figure A-120 Post-Test Bullet Vehicle Passenger Dummy Overall Contact View



Figure A-121 Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 1



Figure A-122 Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 2



Figure A-123 Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 3



Figure A-124 Post-Test Bullet Vehicle Passenger Dummy Knee Contact - View 1



Figure A-125 Post-Test Bullet Vehicle Passenger Dummy Knee Contact - View 2



Figure A-126 Pre-Test Target Vehicle Certification Label View

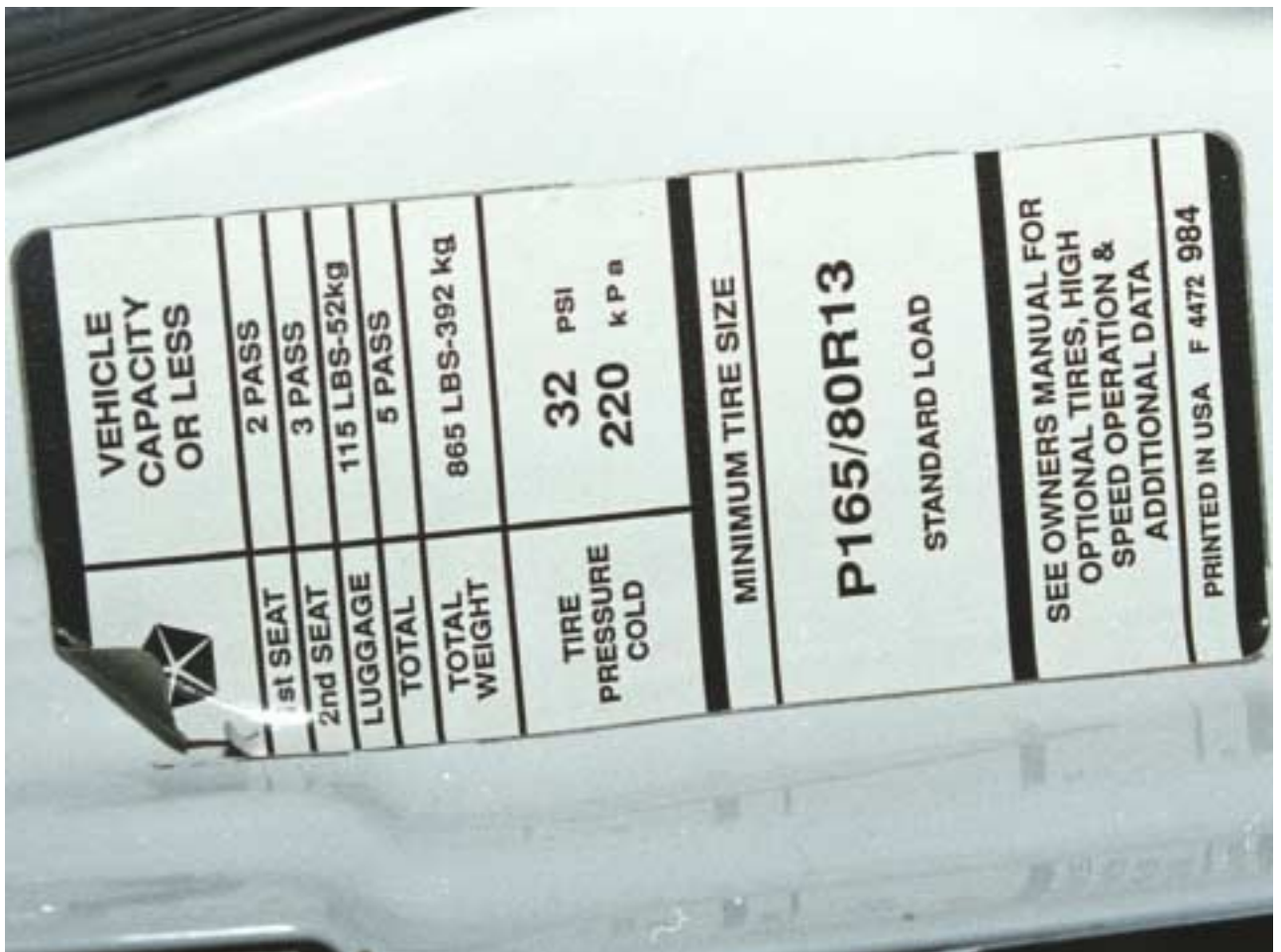


Figure A-127 Pre-Test Target Vehicle Tire Load Label View

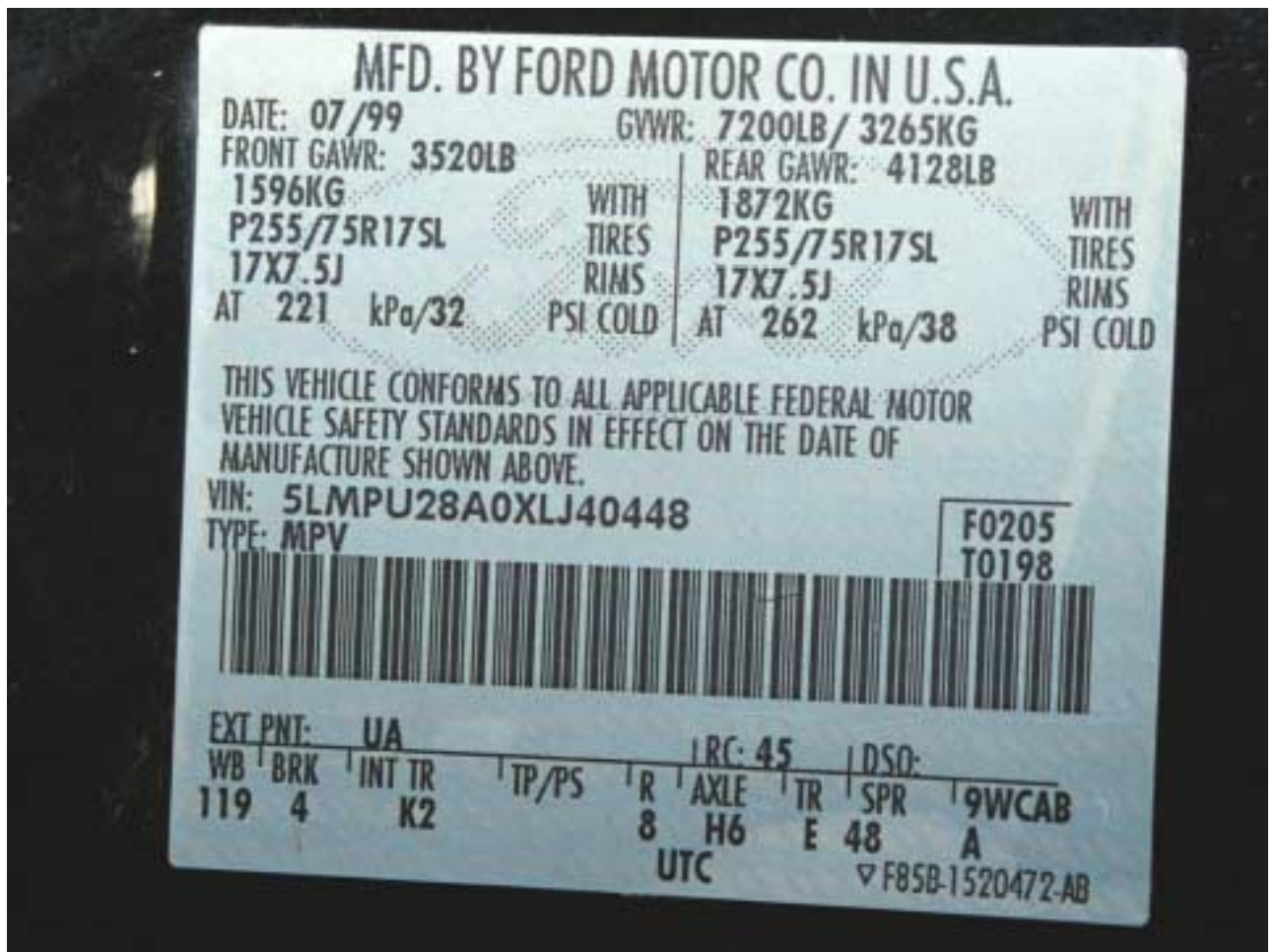


Figure A-128 Pre-Test Bullet Vehicle Certification/Tire Information Label View



Figure A-129 Bullet Vehicle Ballast View

Appendix B

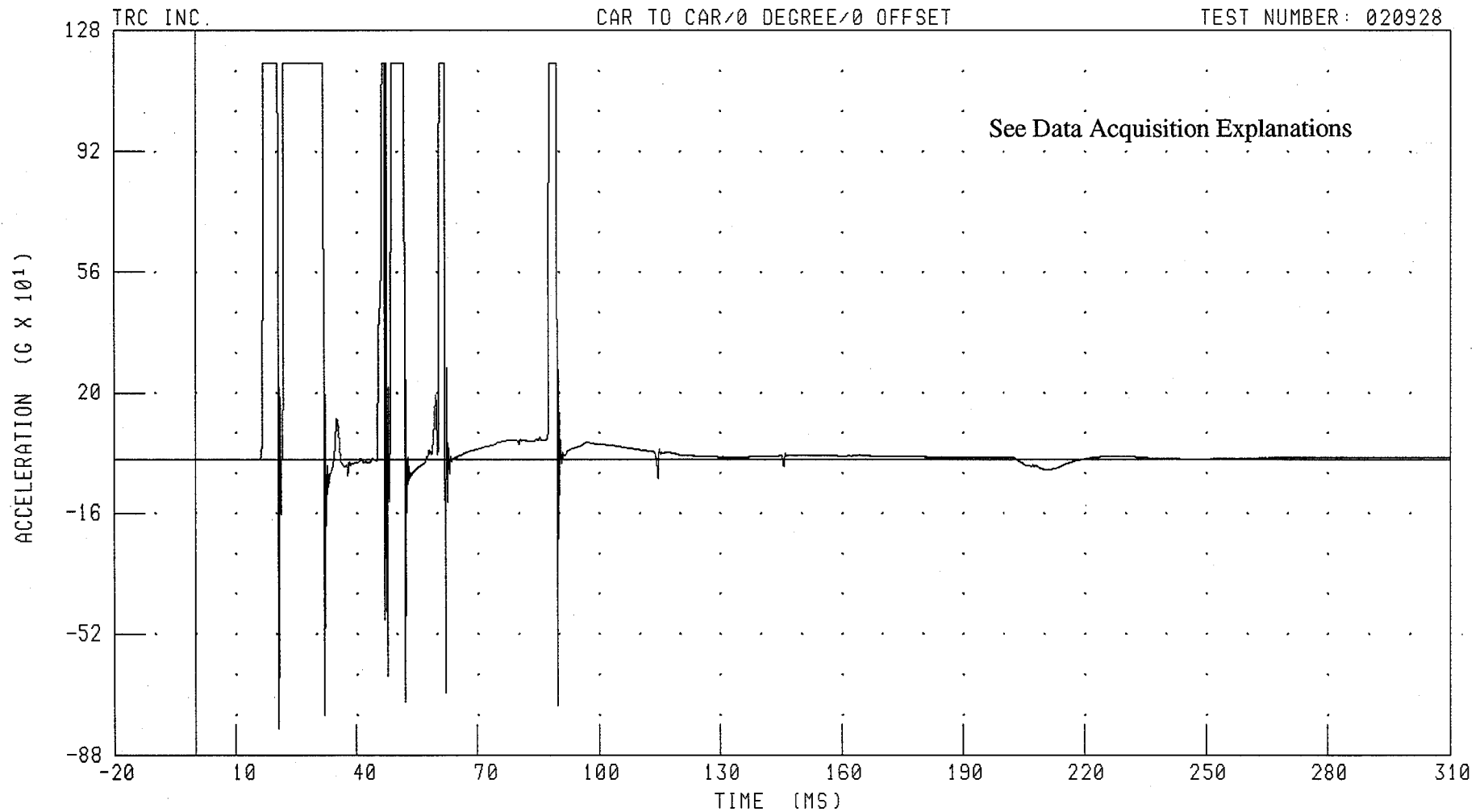
Data Plots

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDXC1 FILTER: CH. CLASS 1000

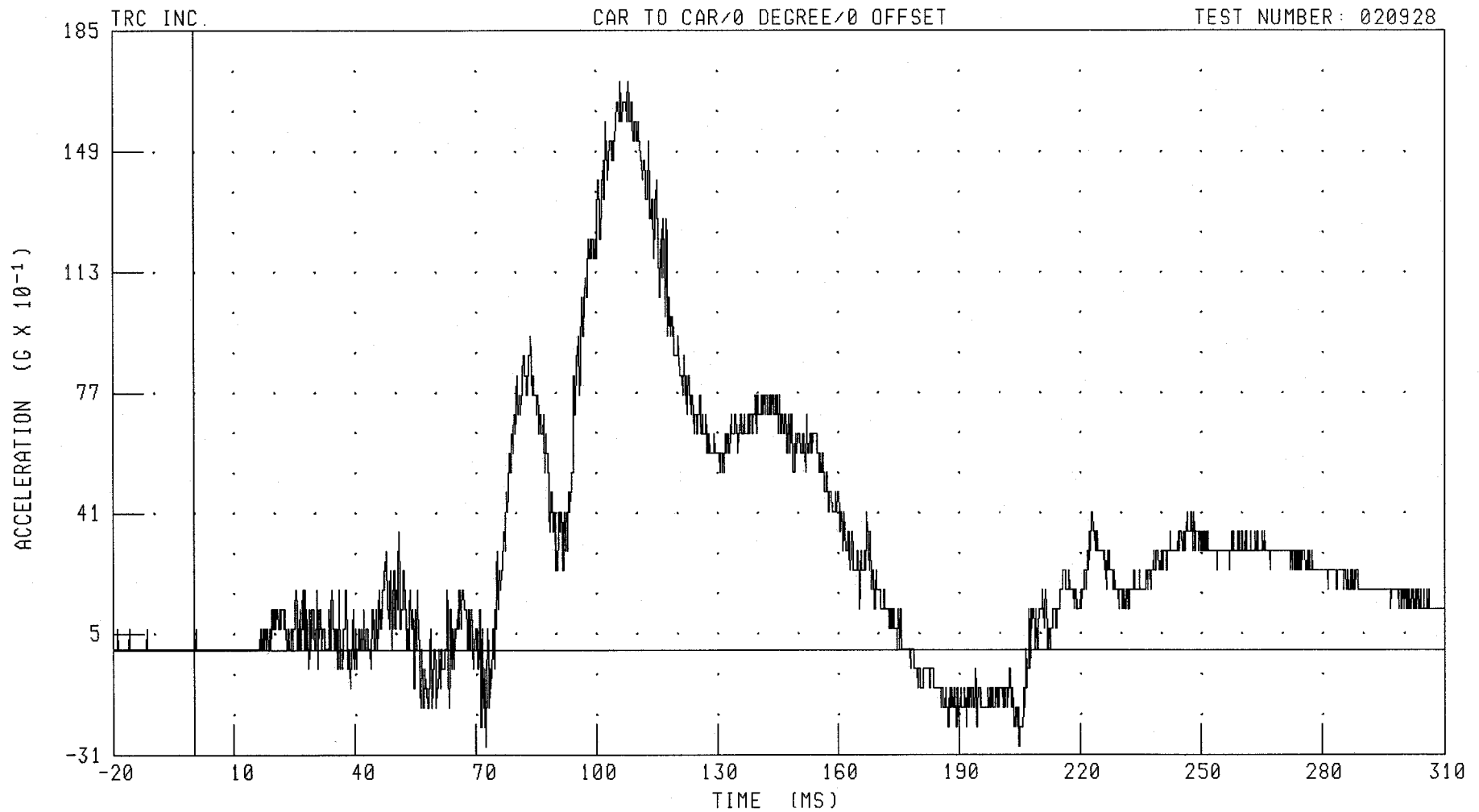
PEAK DATA: 1184.26 G @ 16.80 MS, -802.31 G @ 20.72 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

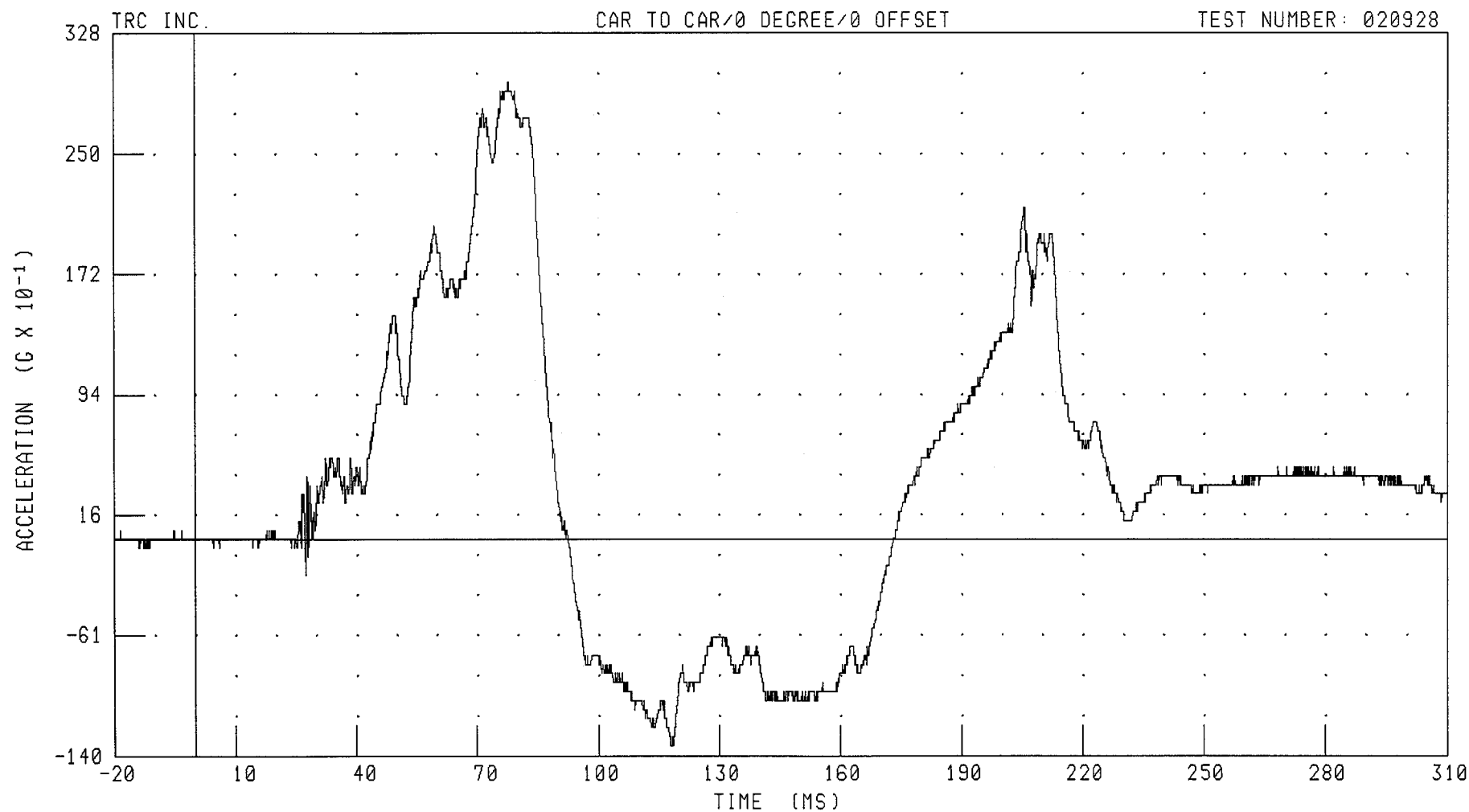
PEAK DATA: 16.97 G @ 106.24 MS; -2.87 G @ 72.40 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

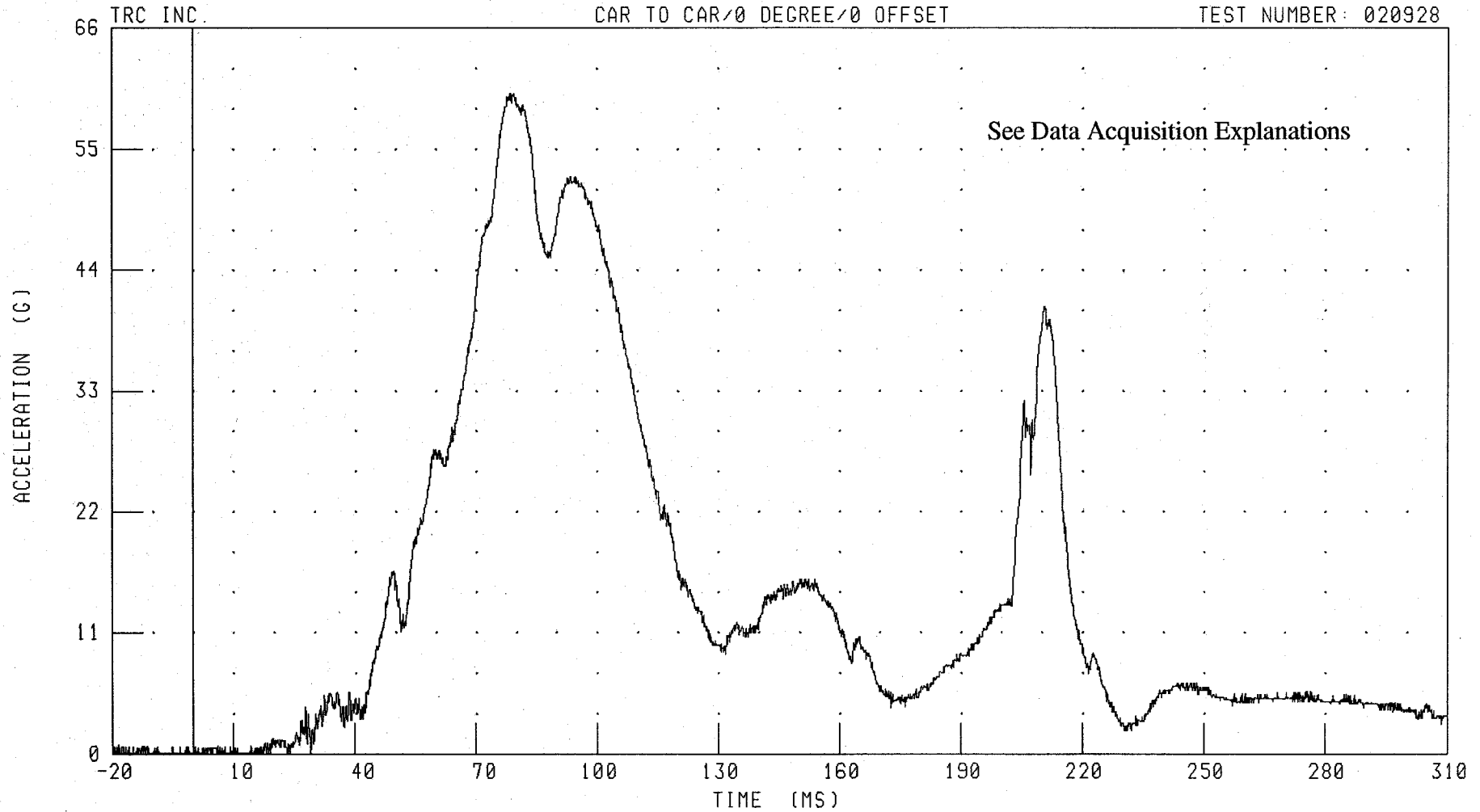
PEAK DATA: 29.66 G @ 77.76 MS; -13.33 G @ 117.84 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

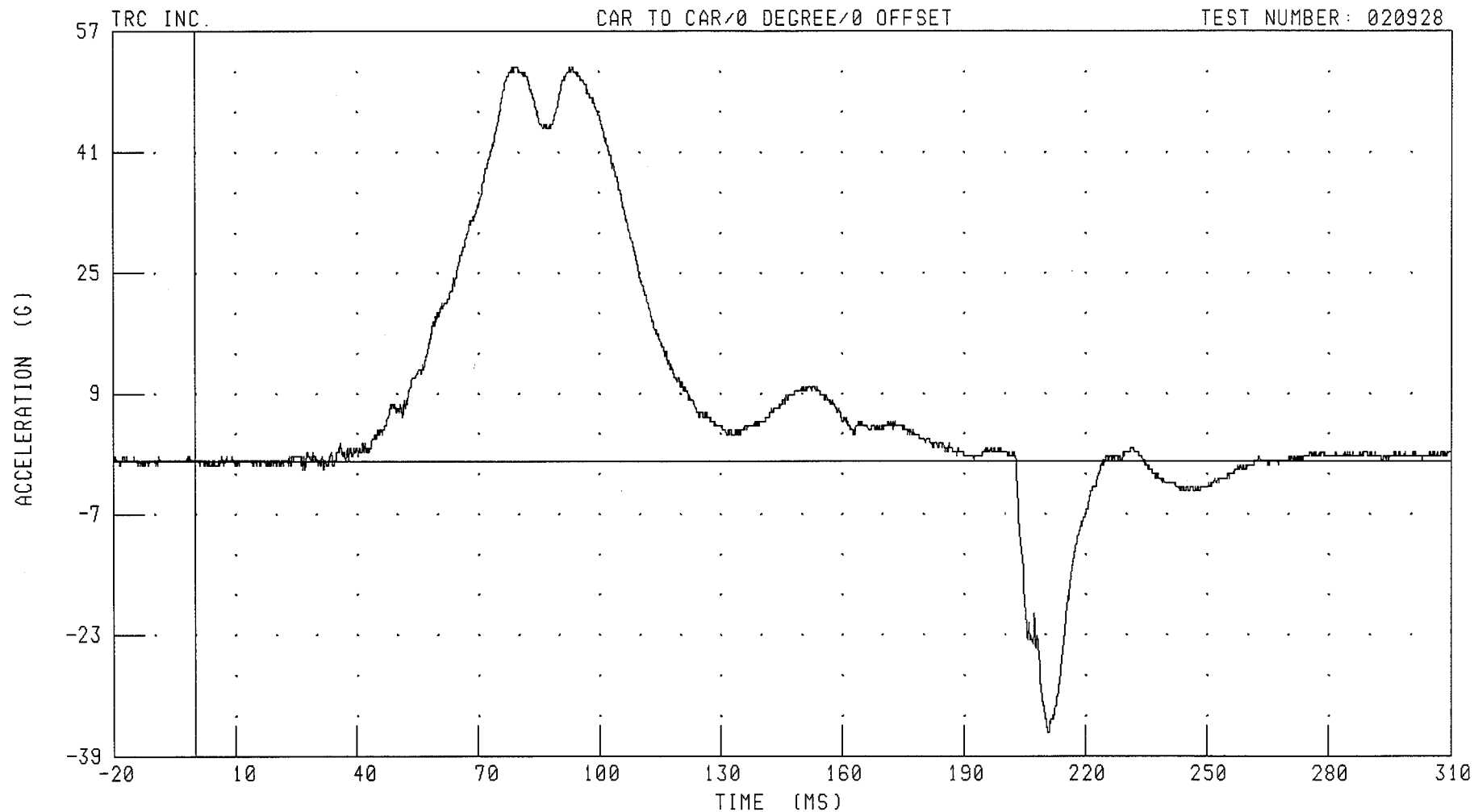
PEAK DATA: 60.08 G @ 78.64 MS; 0.10 G @ -20.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD X-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

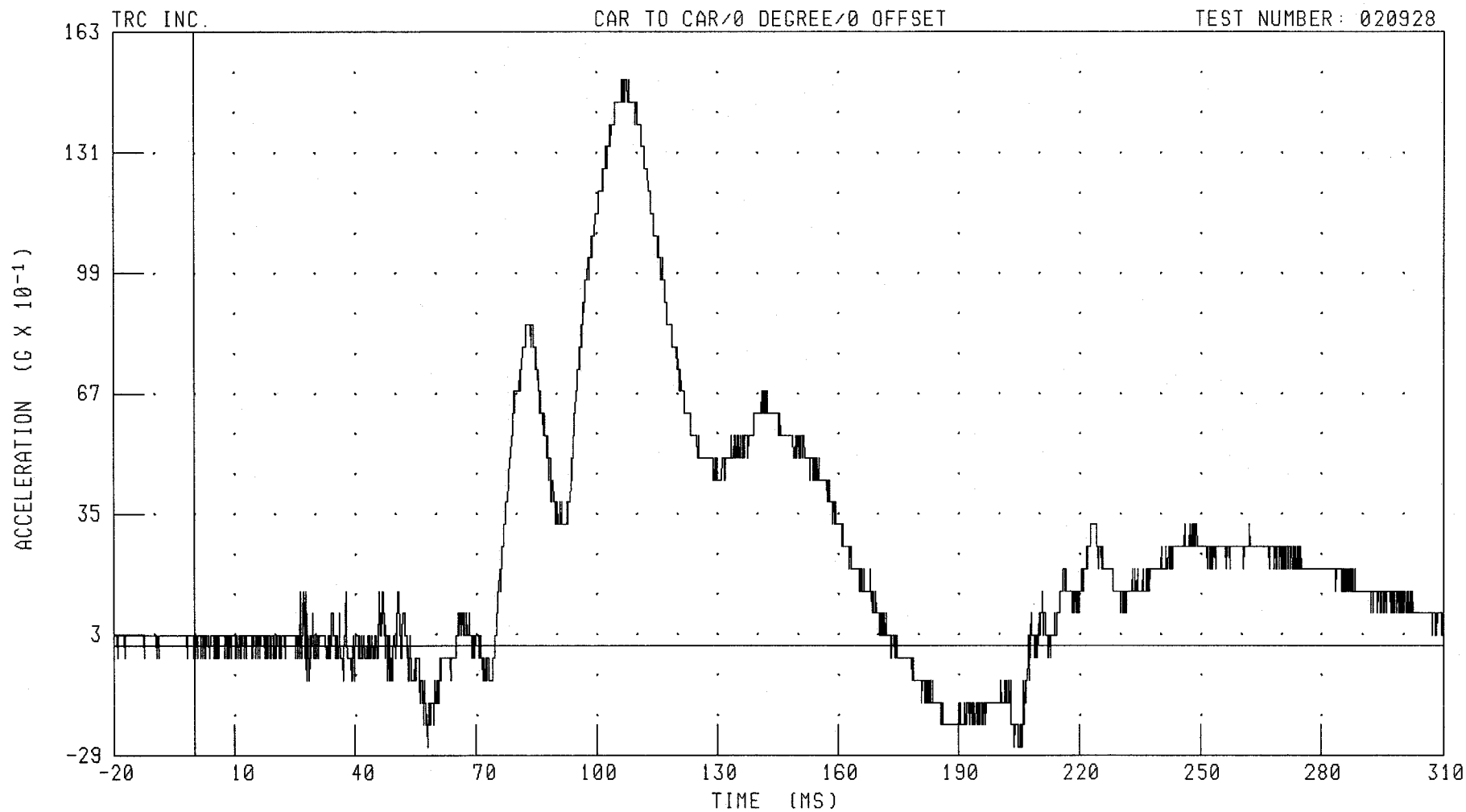
PEAK DATA: 52.24 G @ 78.40 MS; -35.86 G @ 210.64 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD Y-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

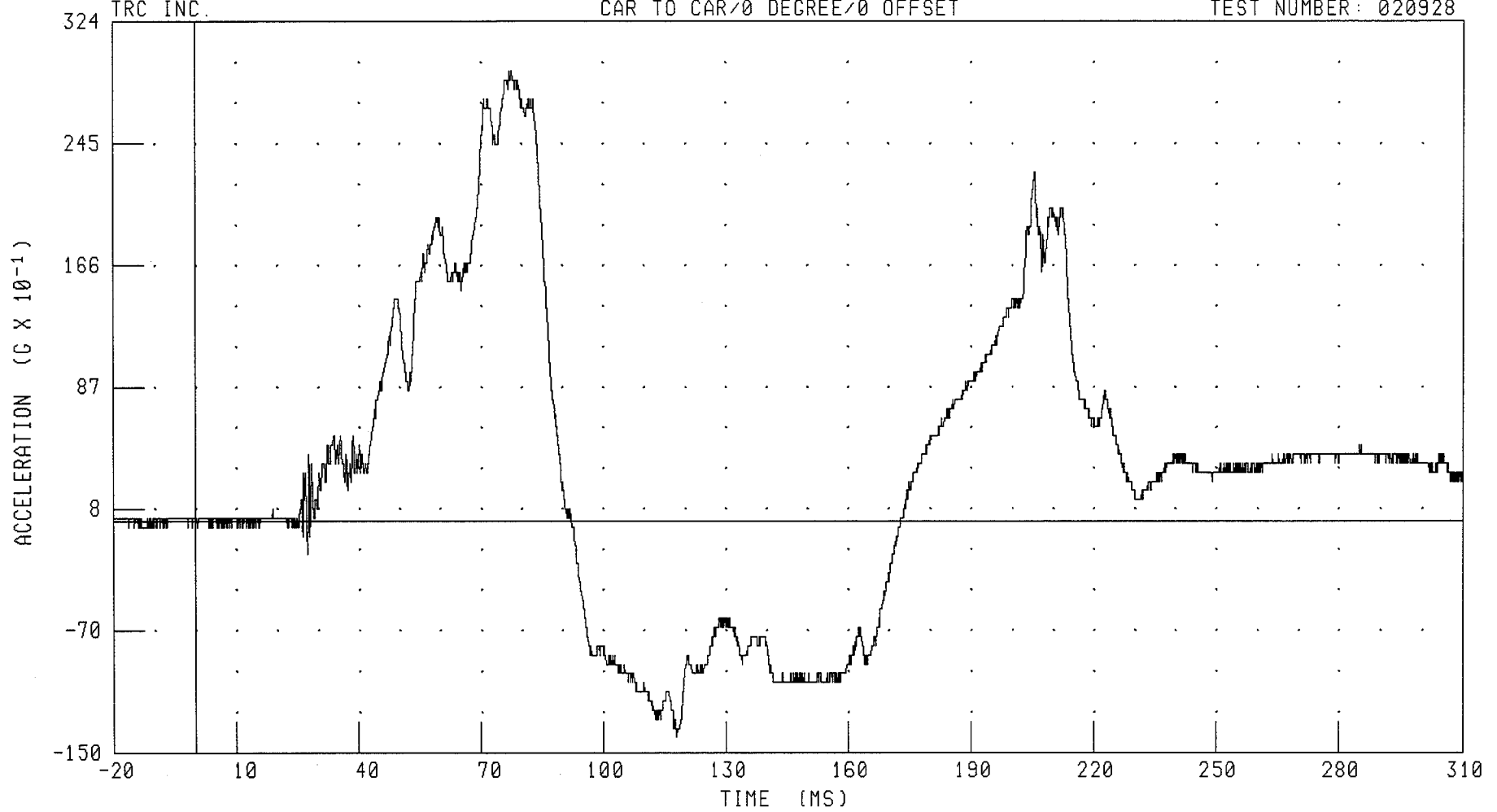
PEAK DATA: 15.03 G @ 106.48 MS; -2.69 G @ 57.84 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD Z-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDZR1 FILTER: CH. CLASS 1000

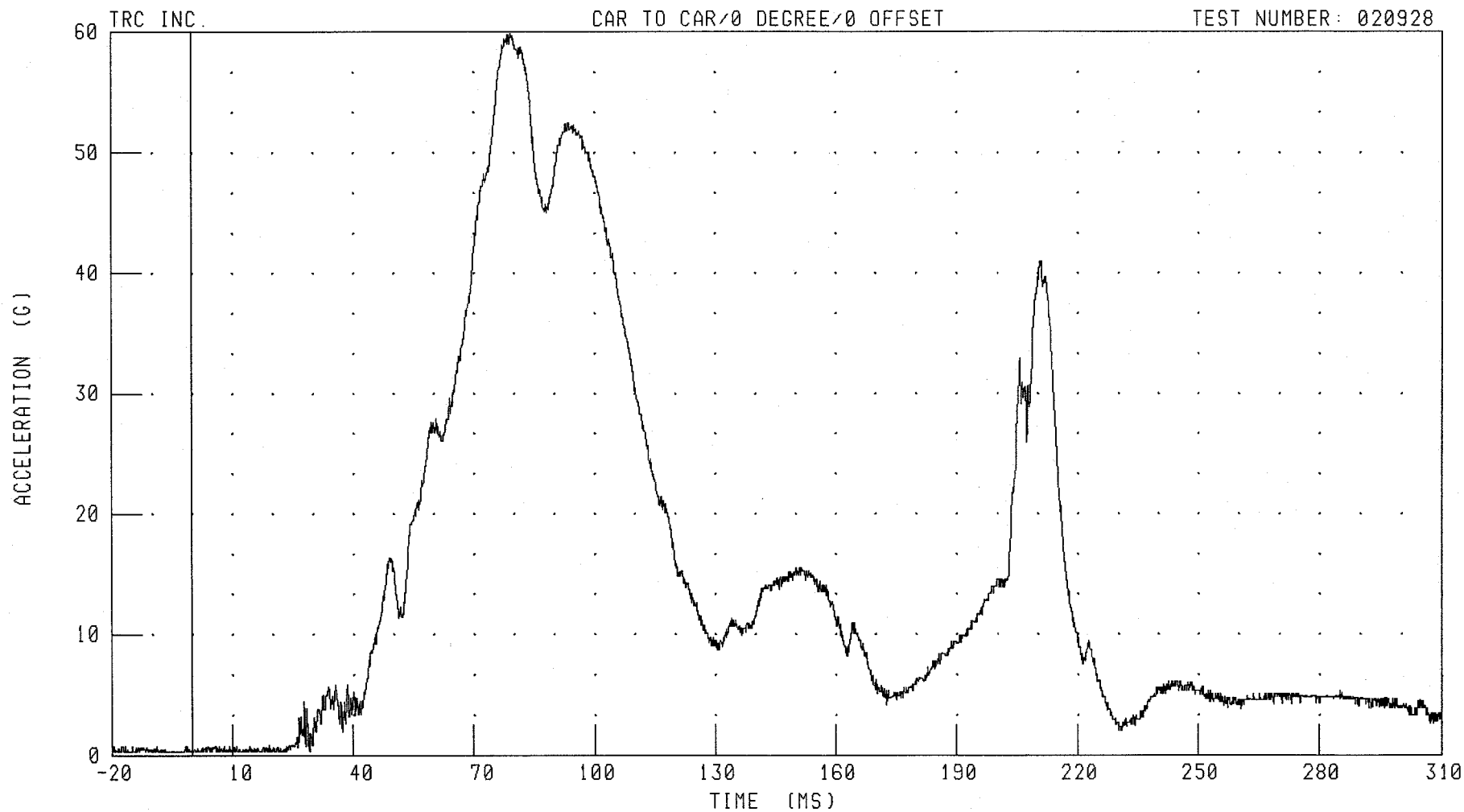
PEAK DATA: 29.20 G @ 77.28 MS; -14.03 G @ 117.92 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER HEAD RESULTANT ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

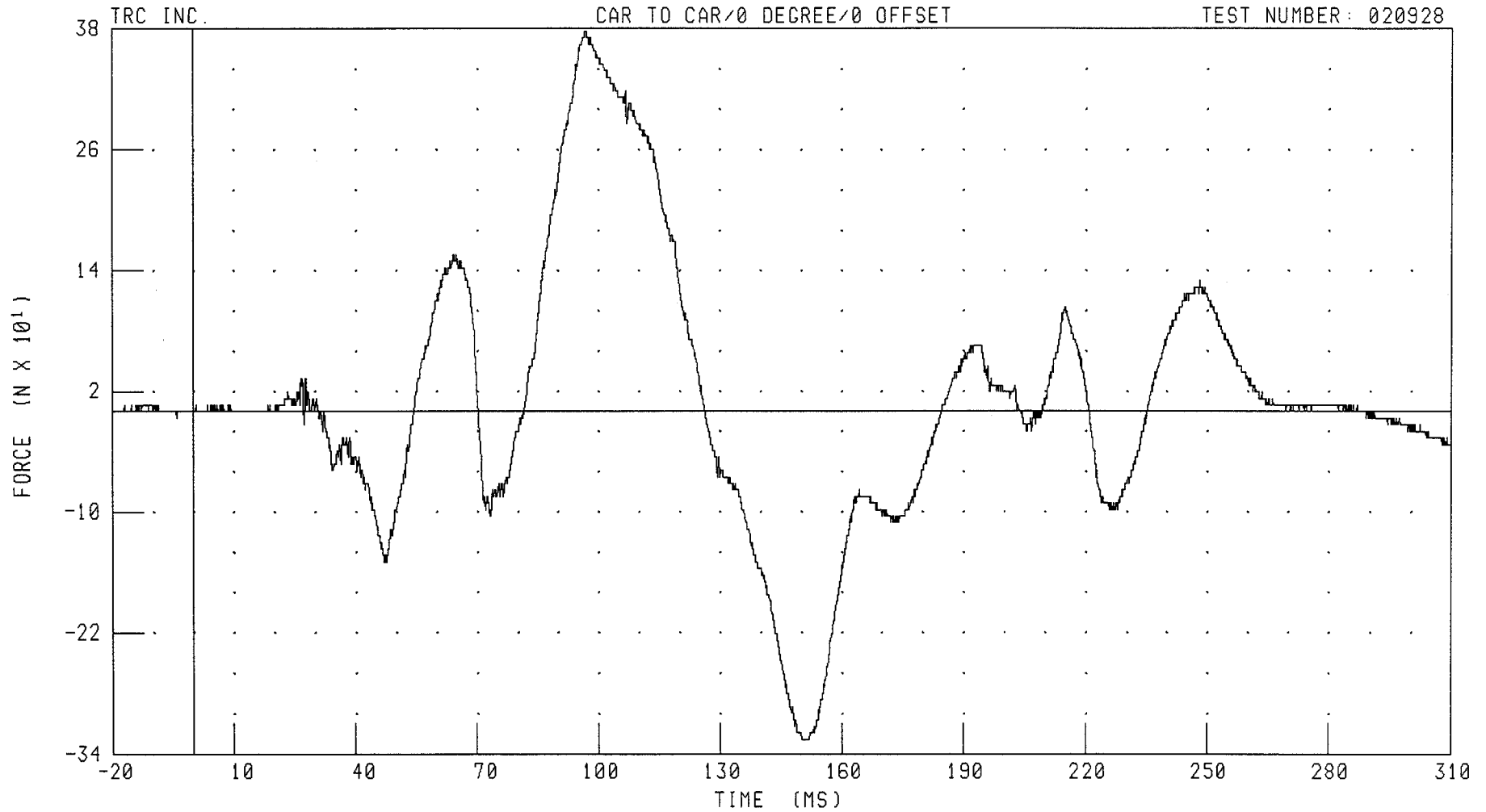
PEAK DATA: 59.88 G @ 79.36 MS; 0.33 G @ -20.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NECK X-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

B-10

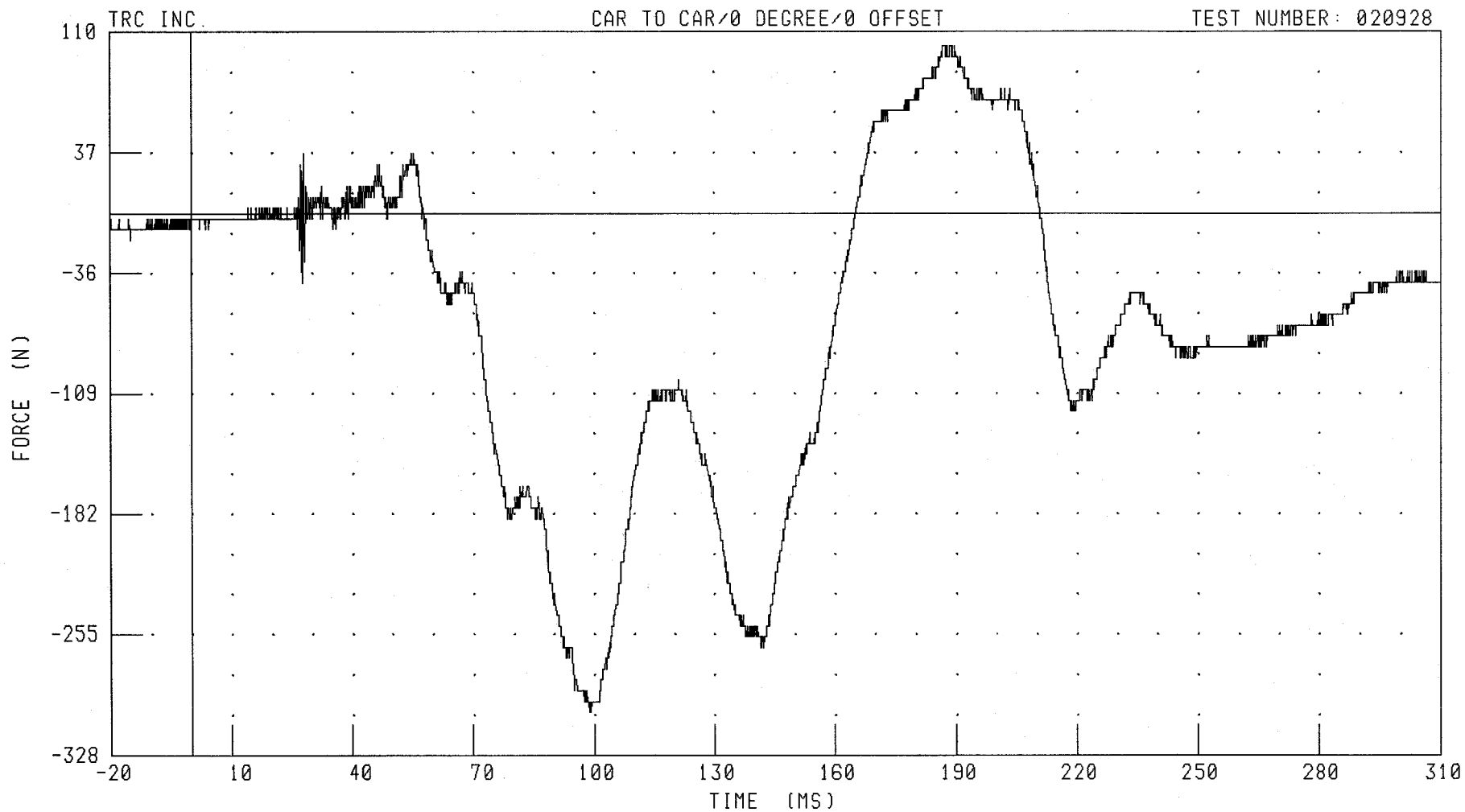
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NECK Y-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 101.39 N @ 186.64 MS; -302.14 N @ 98.72 MS

B-11

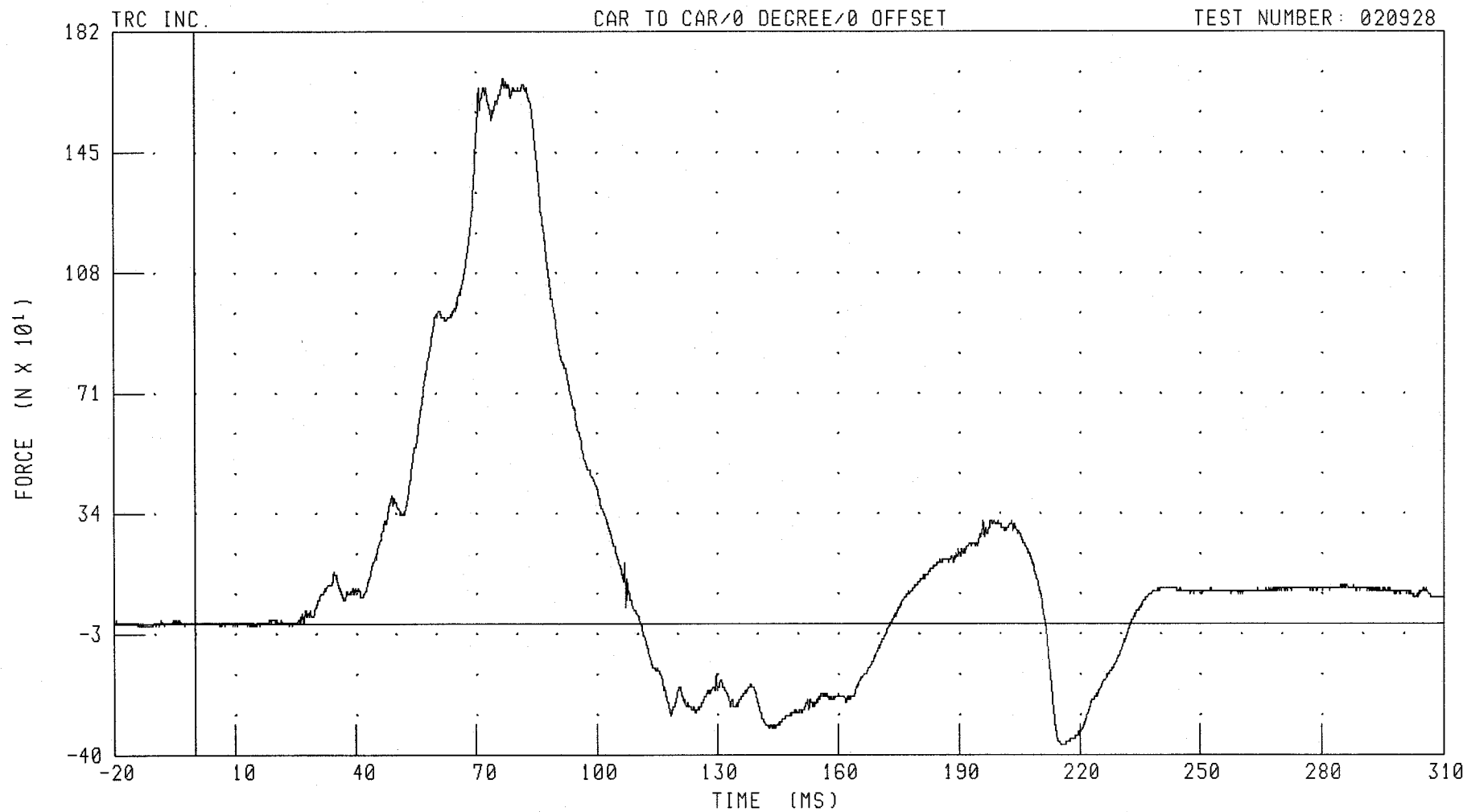
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NECK Z-AXIS AXIAL FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 1676.70 N @ 76.80 MS; -368.93 N @ 215.04 MS

B-12

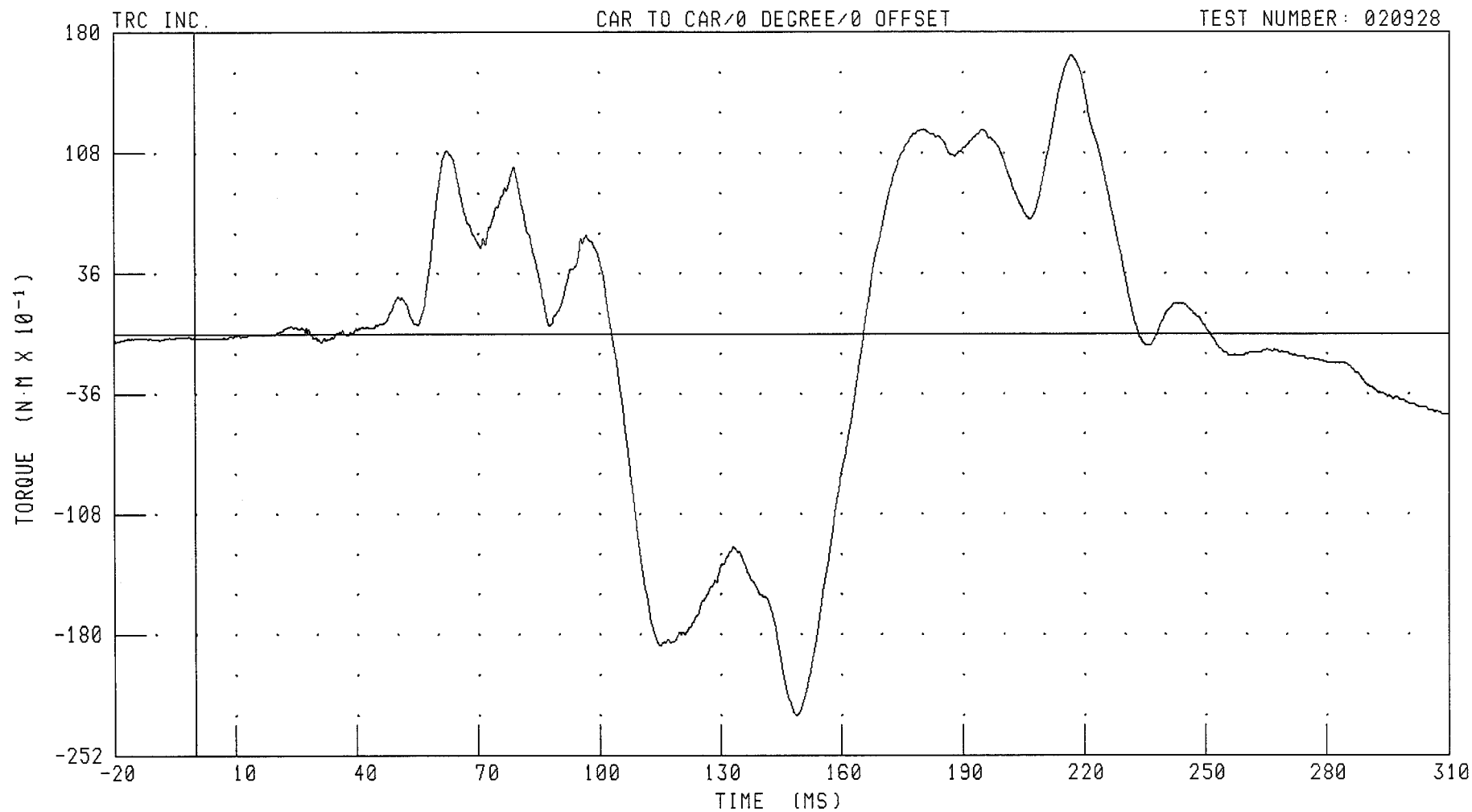
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NECK MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXM1

FILTER: CH. CLASS 600

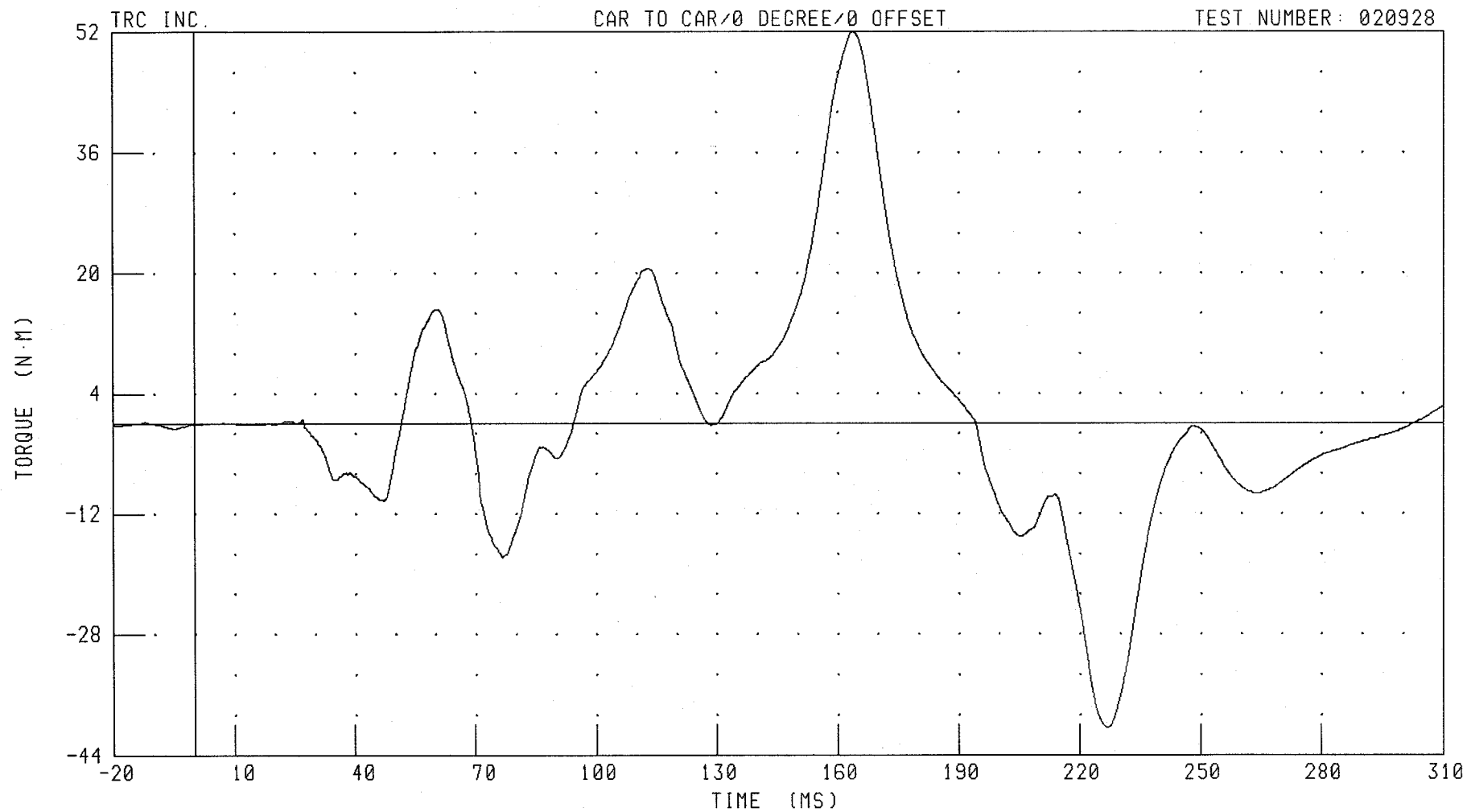
PEAK DATA: 16.63 N-M @ 217.04 MS; -22.81 N-M @ 148.96 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NECK MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

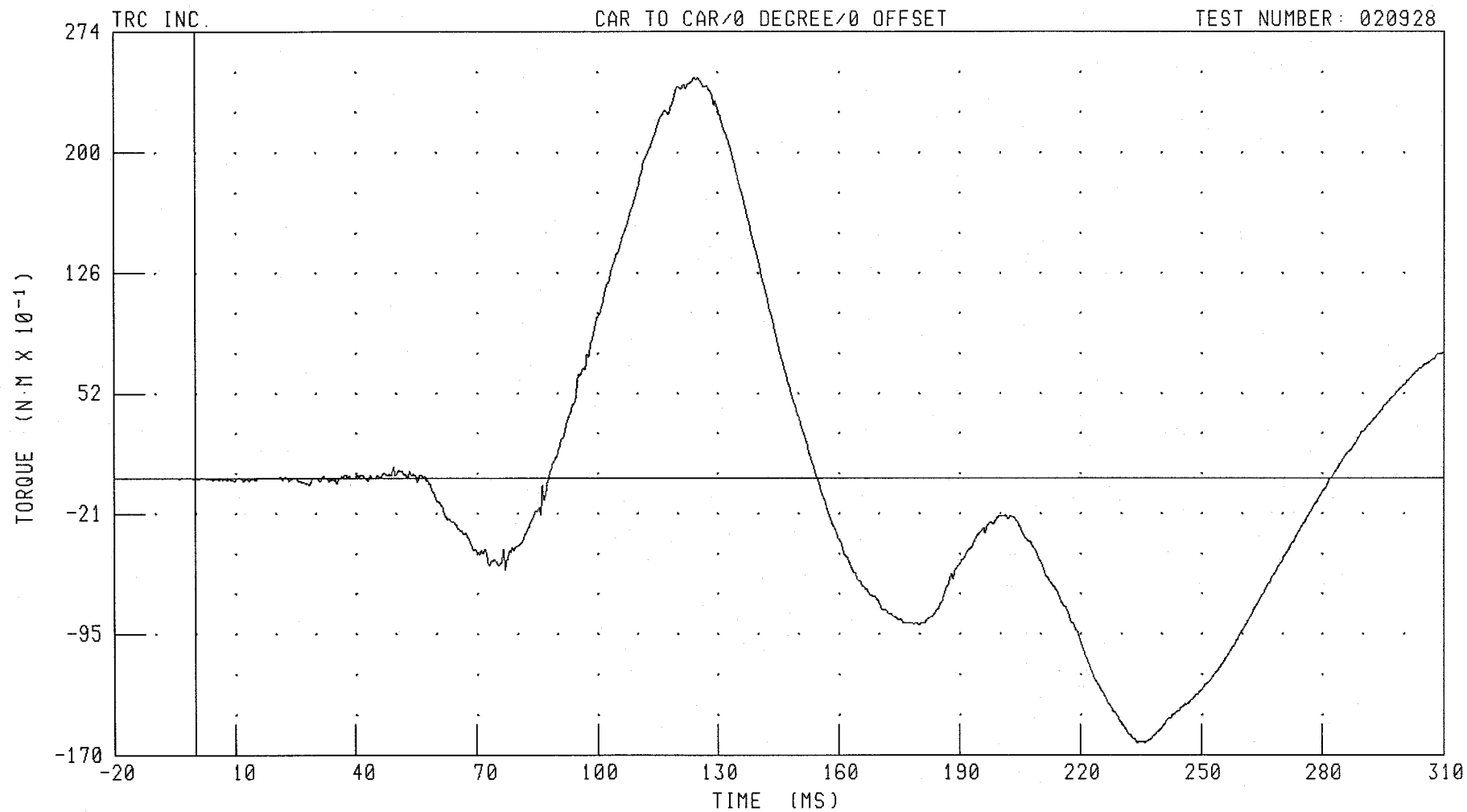
PEAK DATA: 52.03 N·M @ 164.16 MS; -40.33 N·M @ 226.72 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NECK MOMENT ABOUT Z AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 24.58 N·M @ 124.32 MS; -16.23 N·M @ 234.16 MS

B-15

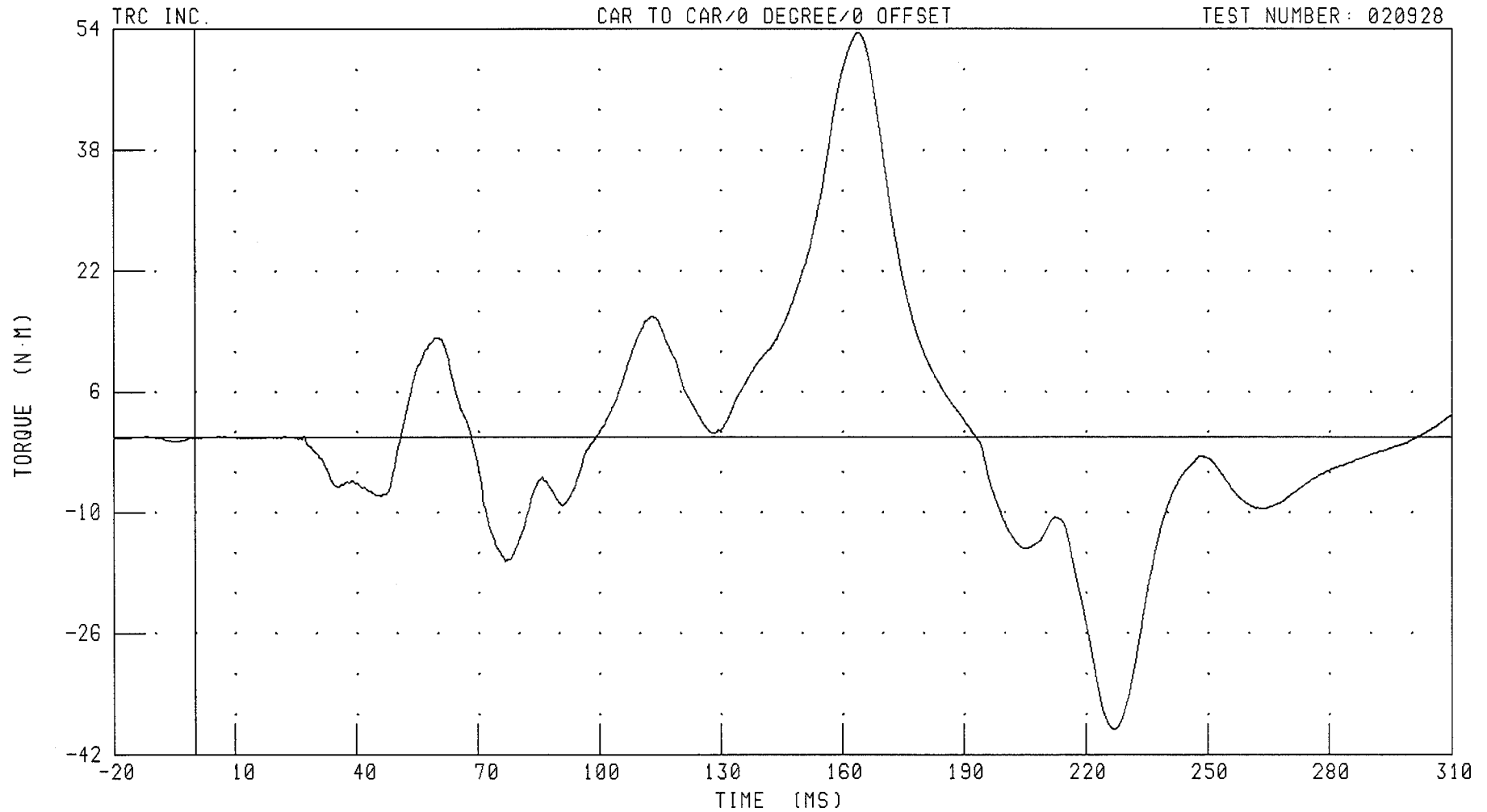
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKOM1 FILTER: CH. CLASS 600

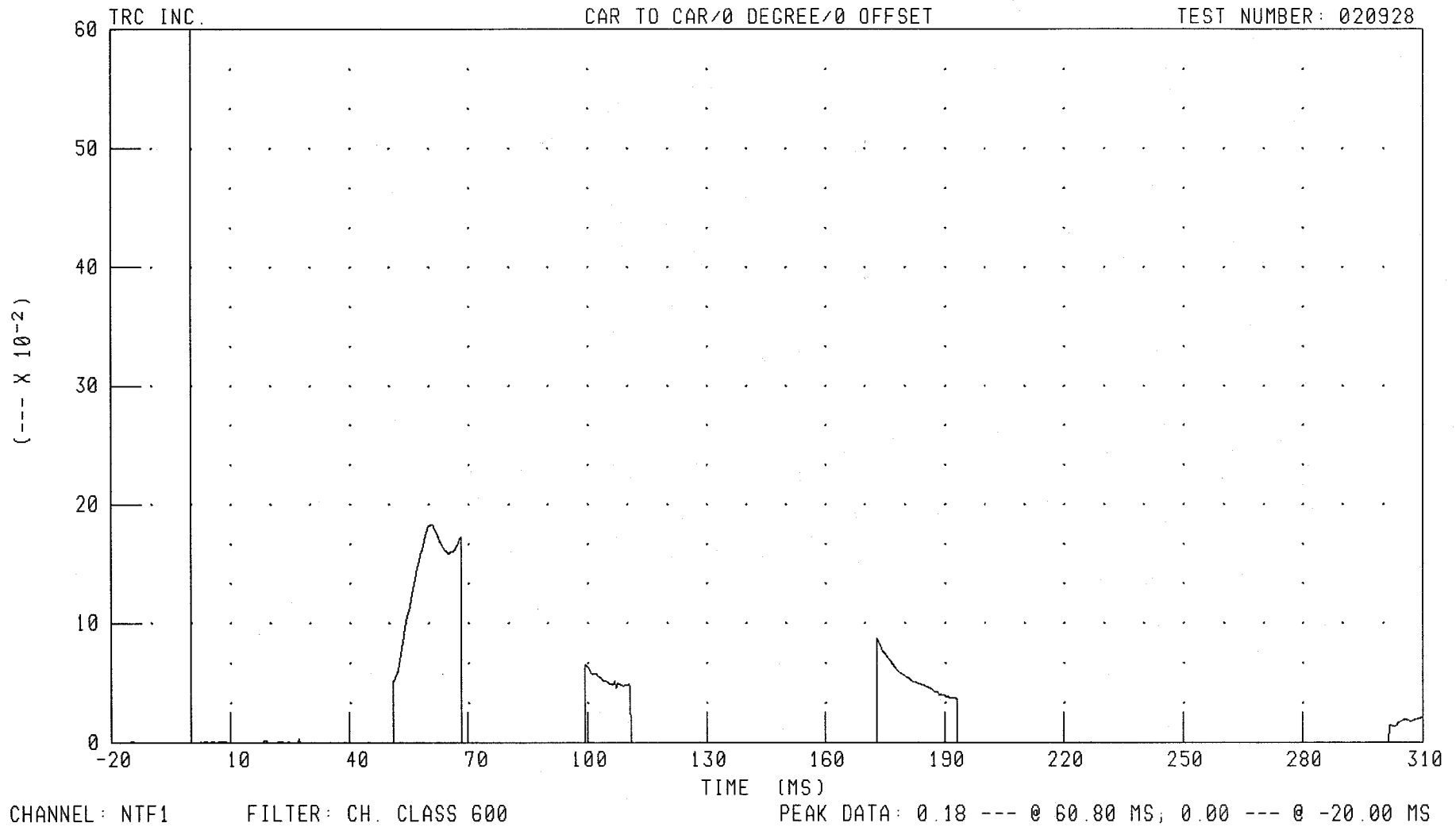
PEAK DATA: 53.54 N·M @ 164.08 MS; -38.61 N·M @ 226.80 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NIJ TENSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



B-17

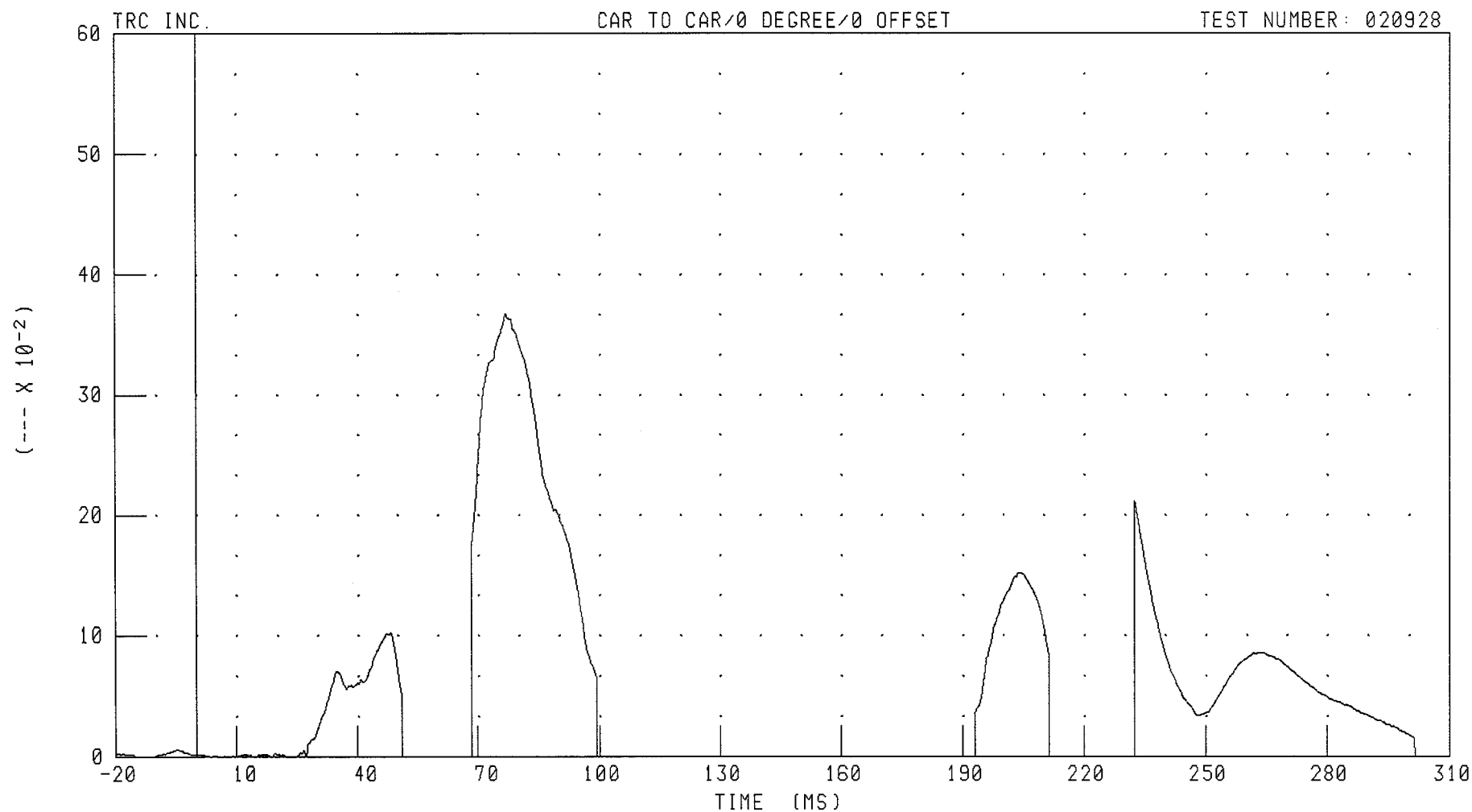
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NIJ TENSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NTE1

FILTER: CH. CLASS 600

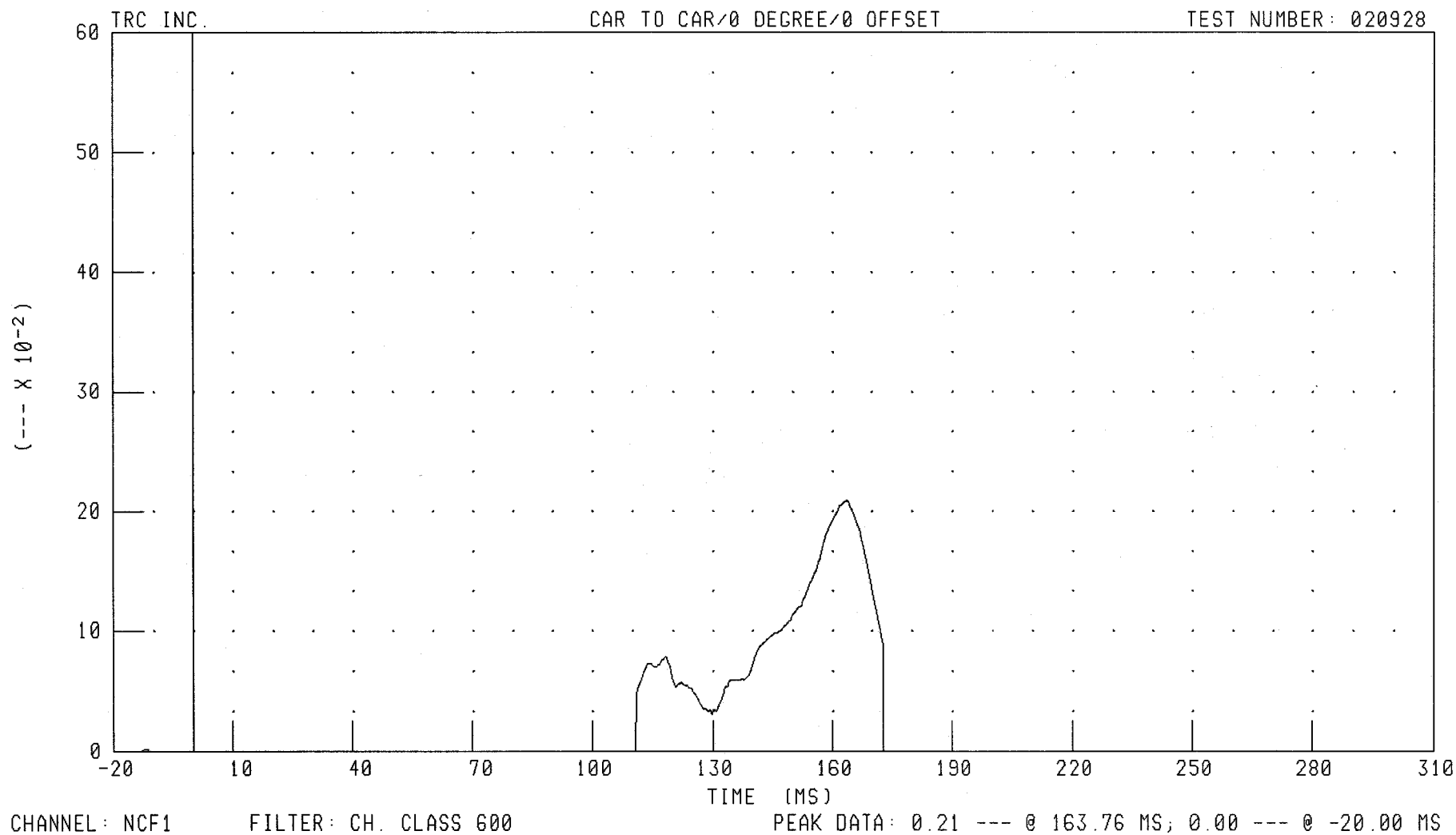
PEAK DATA: 0.37 --- @ 76.80 MS; 0.00 --- @ -15.28 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NIJ COMPRESSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



B-19

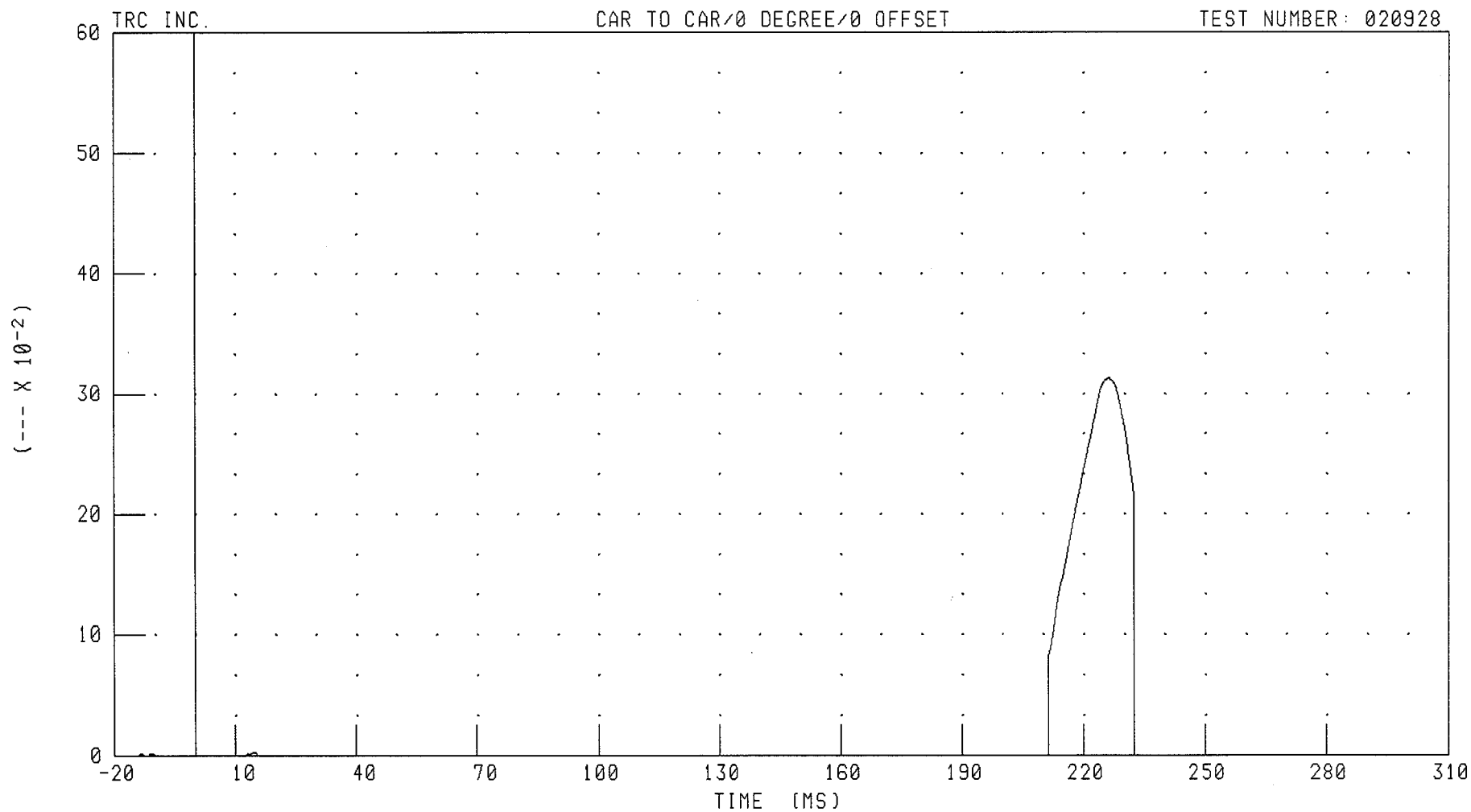
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER NIJ COMPRESSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NCE1

FILTER: CH. CLASS 600

PEAK DATA: 0.31 --- @ 226.32 MS; 0.00 --- @ -20.00 MS

B-20

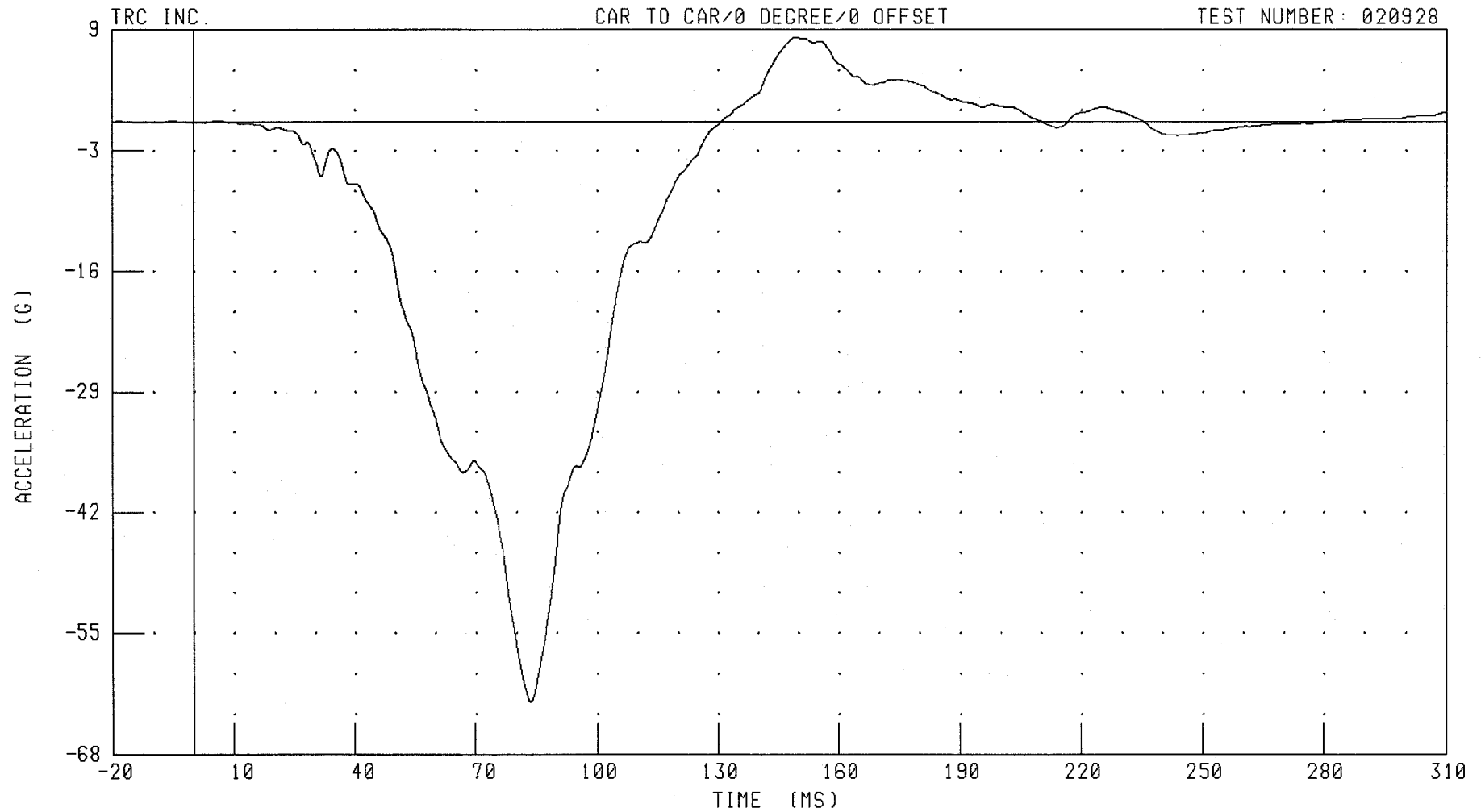
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXG1 FILTER: CH. CLASS 180

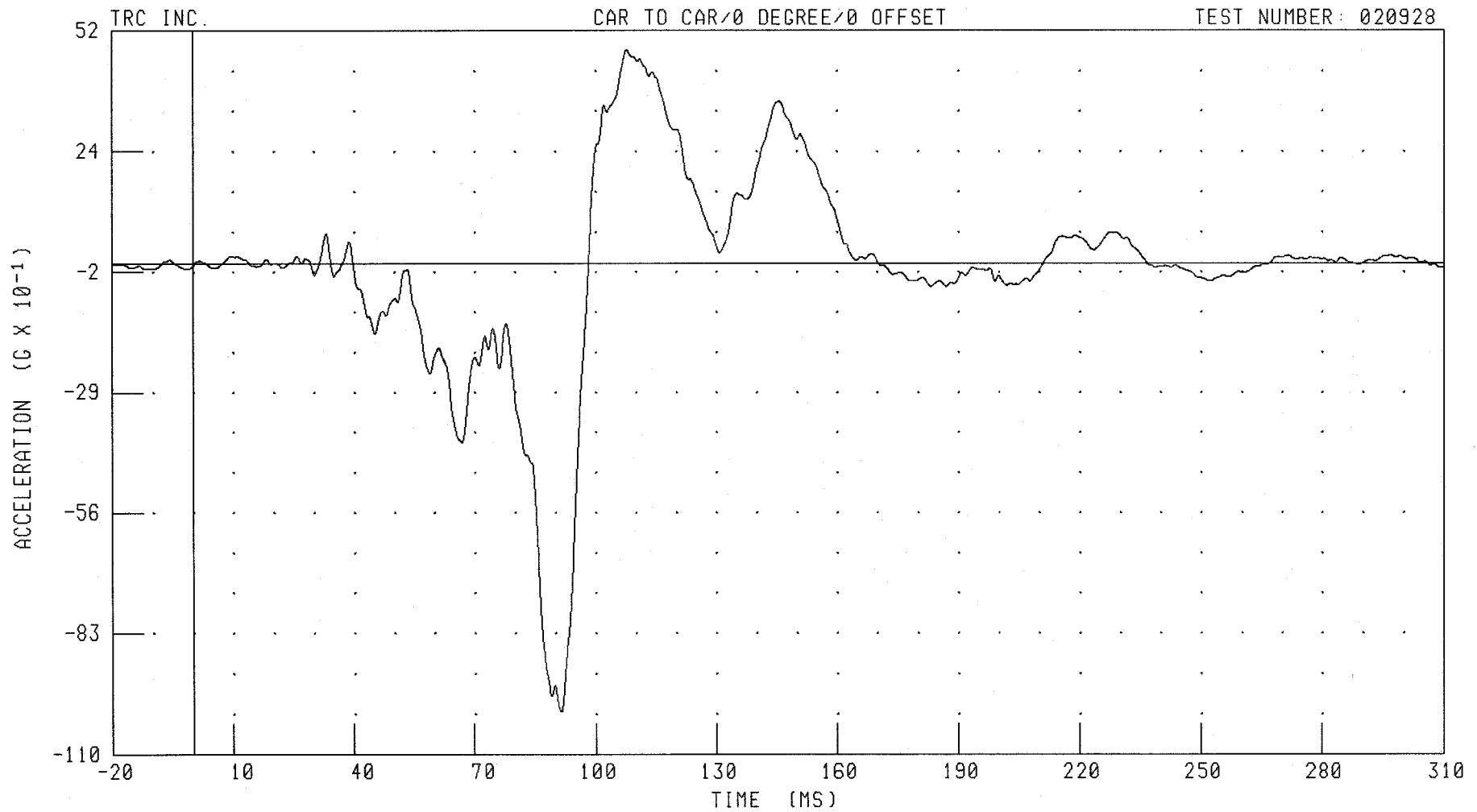
PEAK DATA: 9.08 G @ 149.36 MS, -62.47 G @ 83.52 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 4.78 G @ 107.84 MS; -10.05 G @ 91.44 MS

B-22

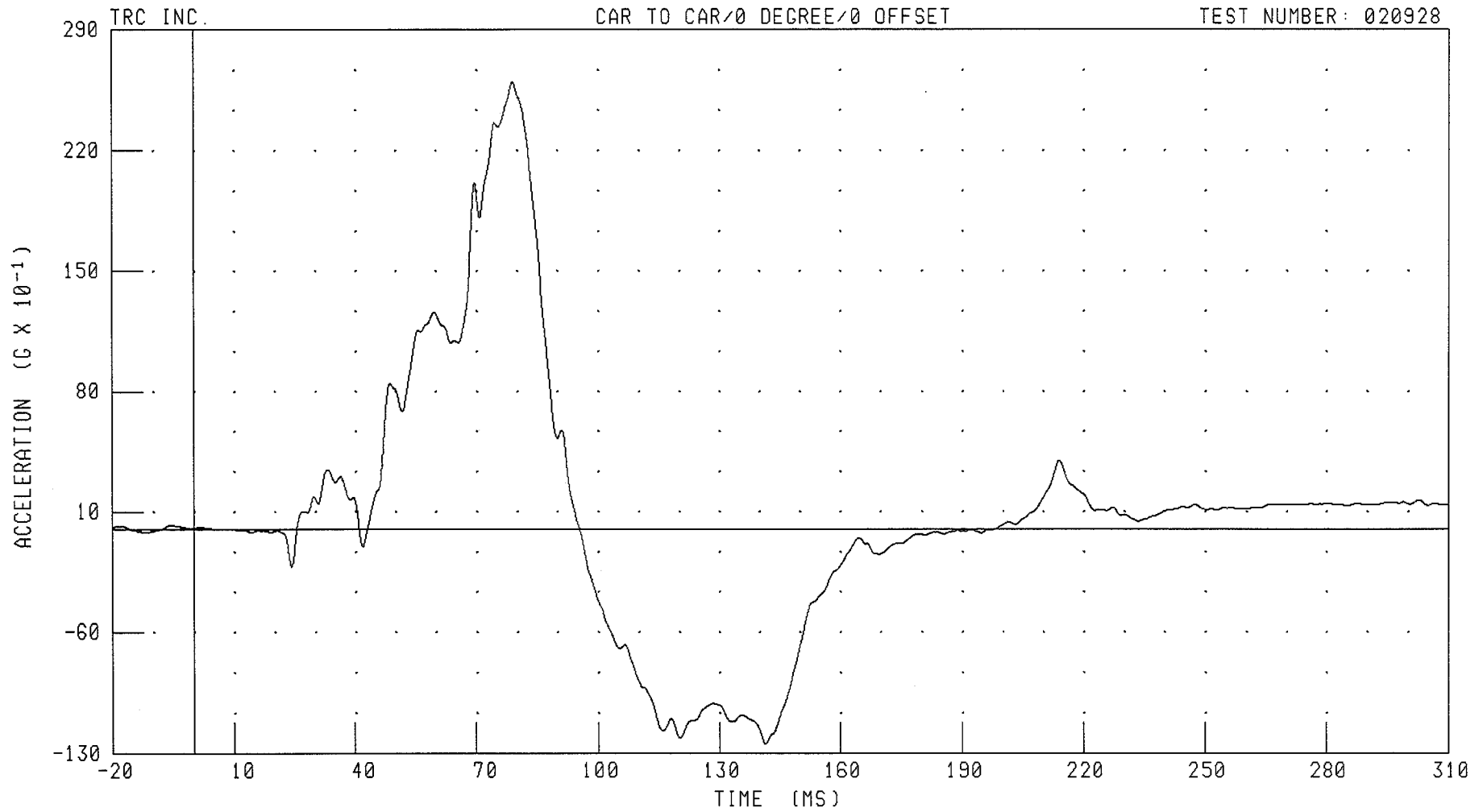
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 25.96 G @ 79.04 MS; -12.45 G @ 141.52 MS

B-23

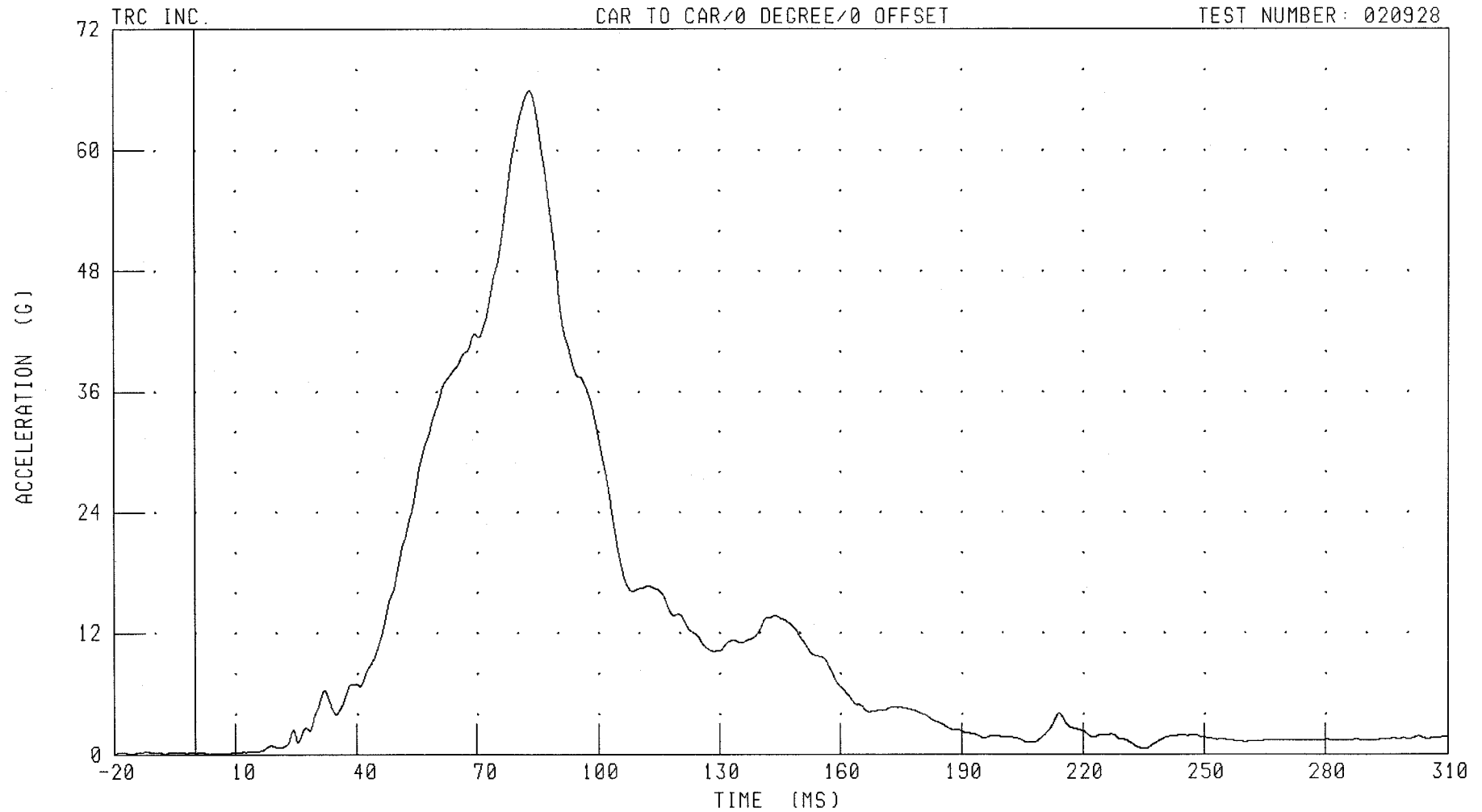
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 65.90 G @ 83.12 MS; 0.01 G @ -20.00 MS

B-24

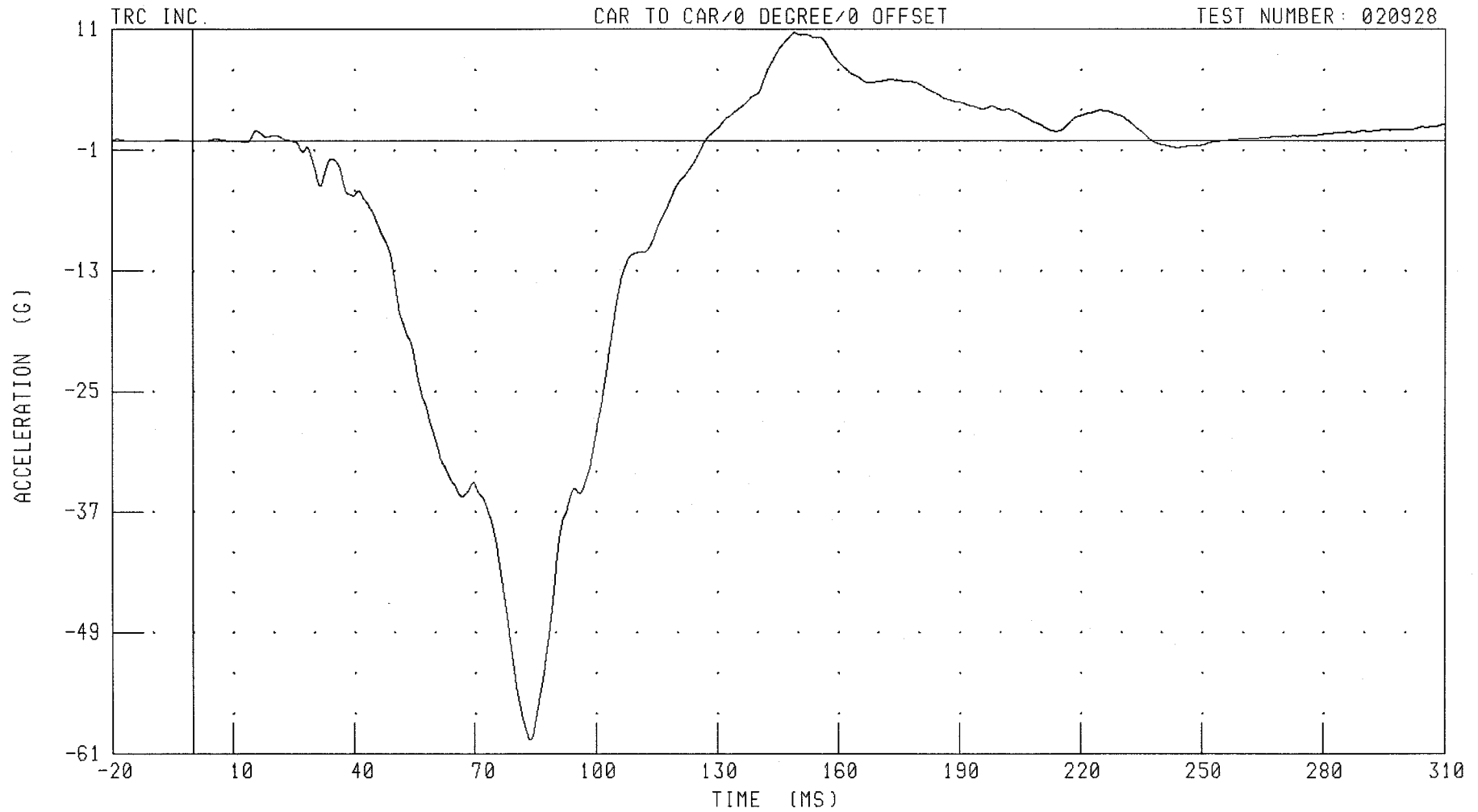
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST X-AXIS REDUNDANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXR1 FILTER: CH. CLASS 180

PEAK DATA: 10.68 G @ 149.28 MS; -59.61 G @ 83.68 MS

B-25

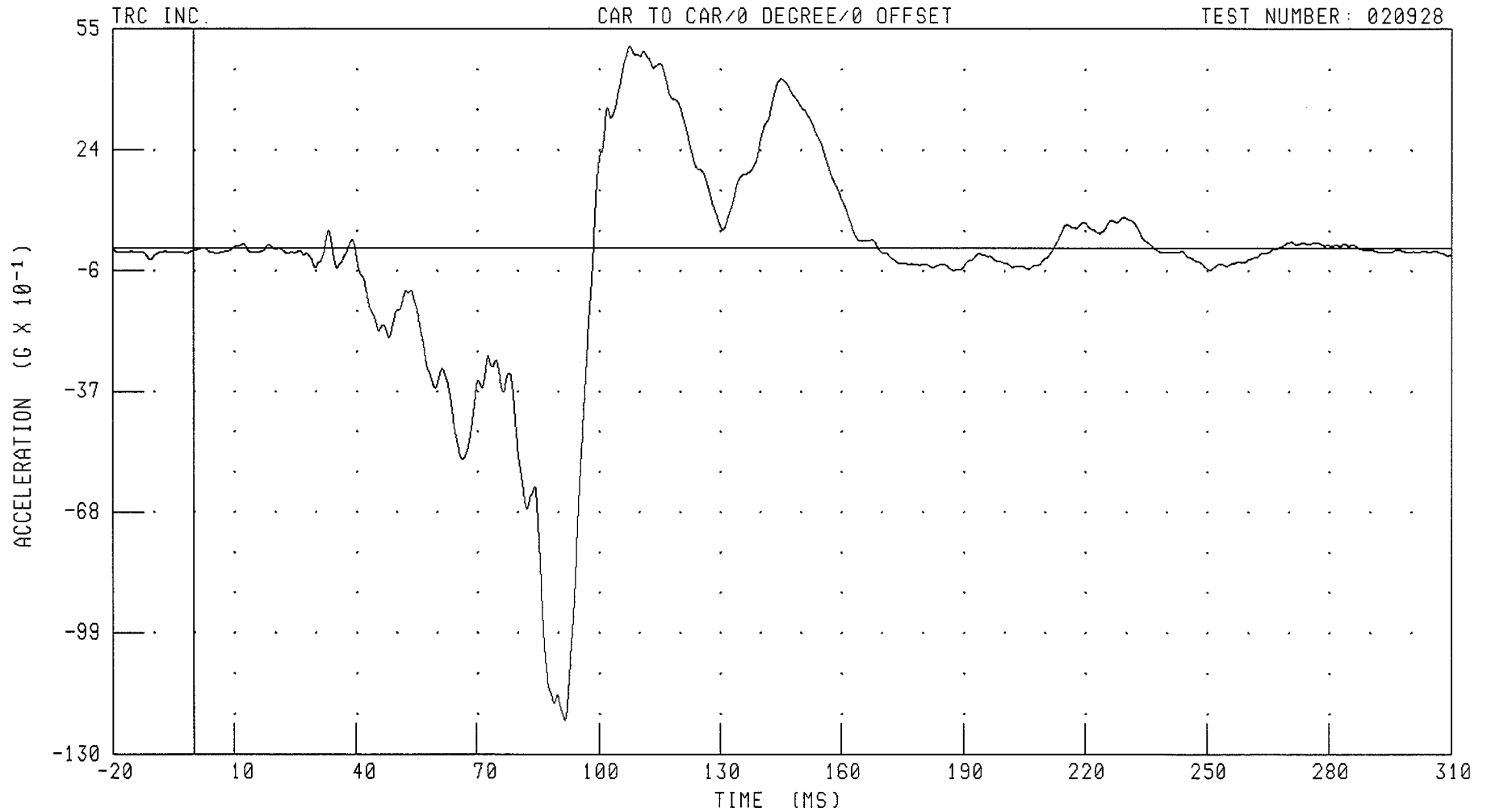
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST Y-AXIS REDUNDANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTYR1 FILTER: CH. CLASS 180

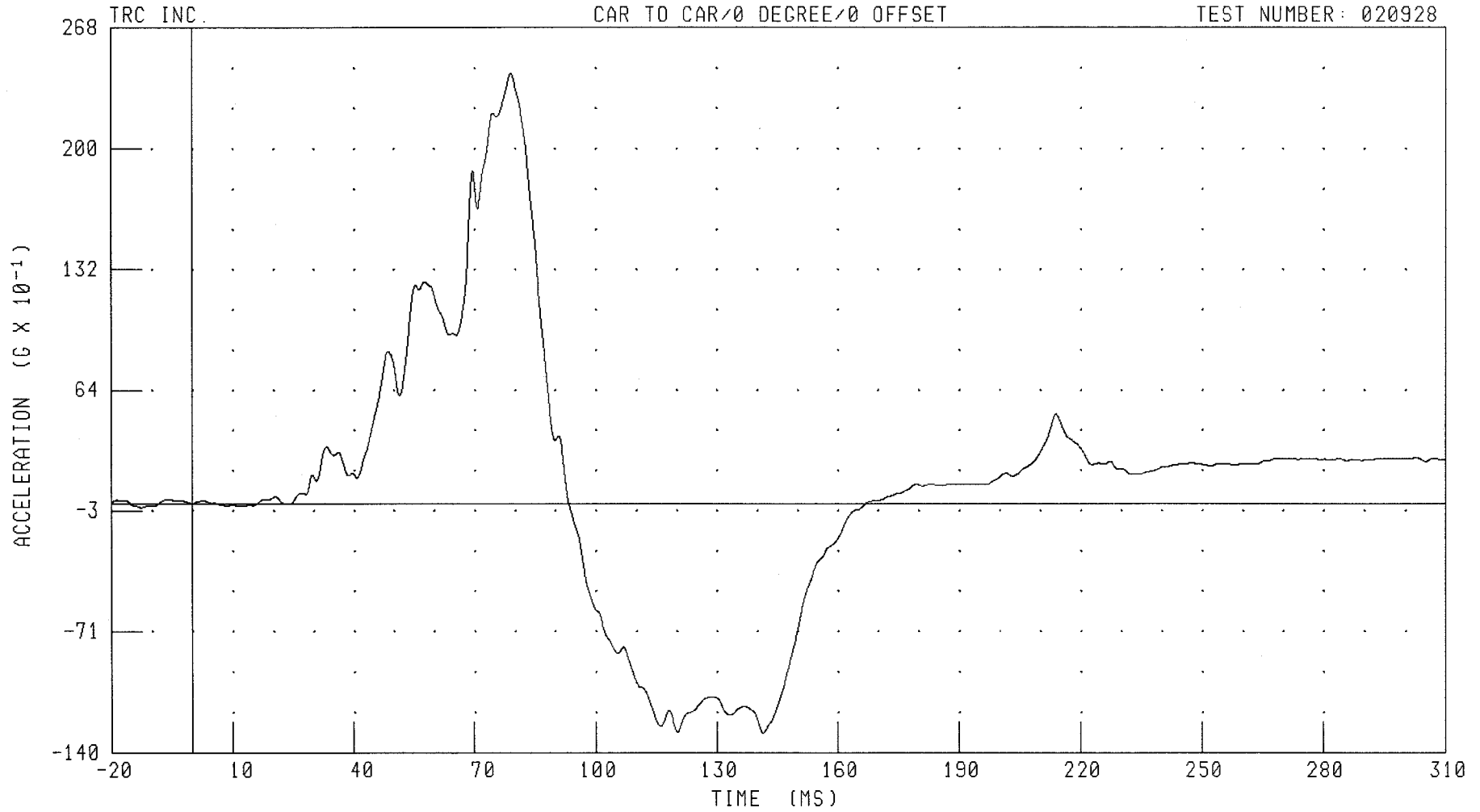
PEAK DATA: 5.16 G @ 107.76 MS; -12.14 G @ 91.68 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST Z-AXIS REDUNDANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTZR1 FILTER: CH. CLASS 180

PEAK DATA: 24.23 G @ 79.12 MS; -12.90 G @ 141.44 MS

B-27

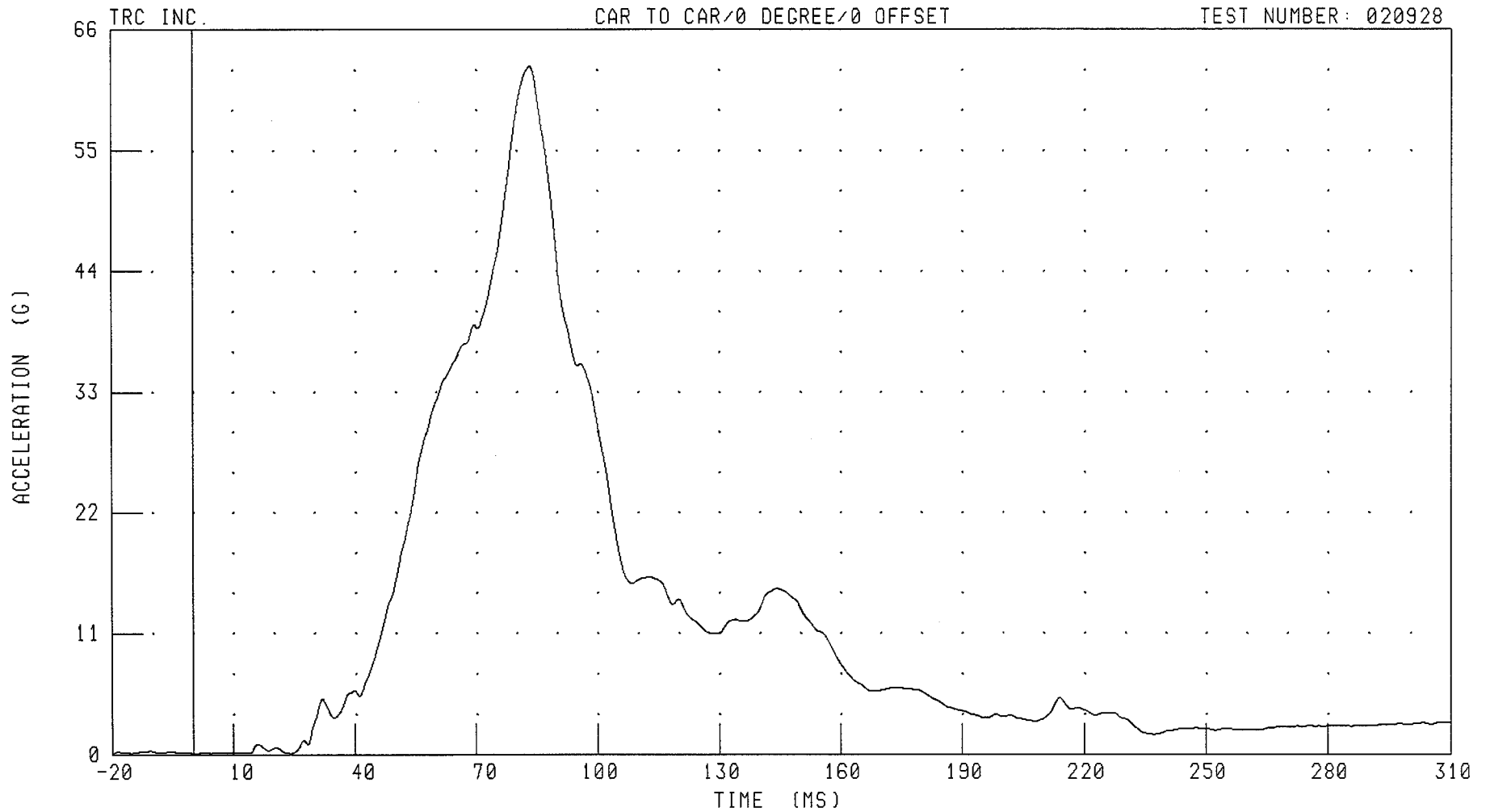
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST REDUNDANT RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTR1 FILTER: CH. CLASS 180

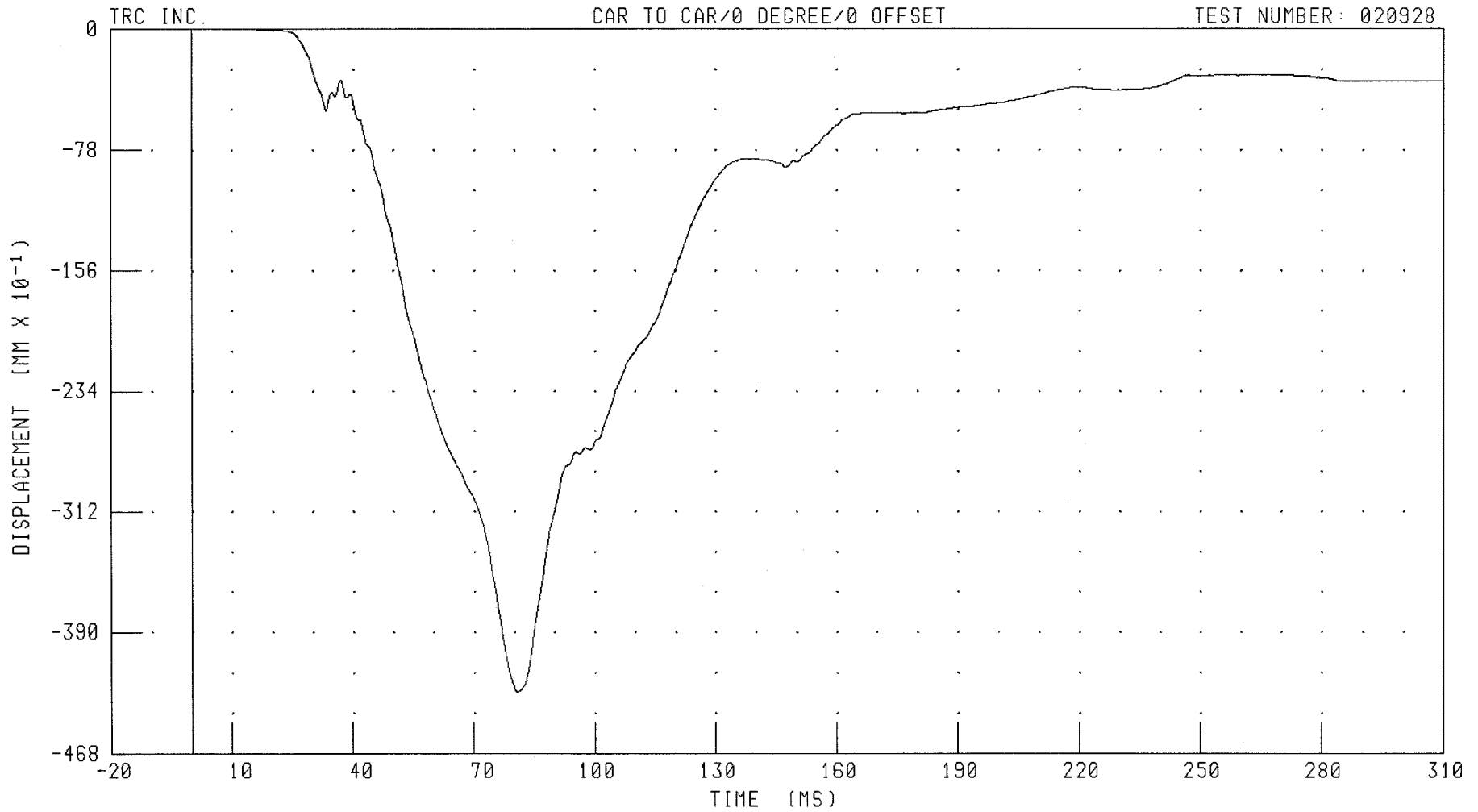
PEAK DATA: 62.67 G @ 83.28 MS; 0.01 G @ -20.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER CHEST DEFLECTION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXD1 FILTER: CH. CLASS 600

PEAK DATA: 0.01 MM @ 6.08 MS; -42.83 MM @ 80.80 MS

B-29

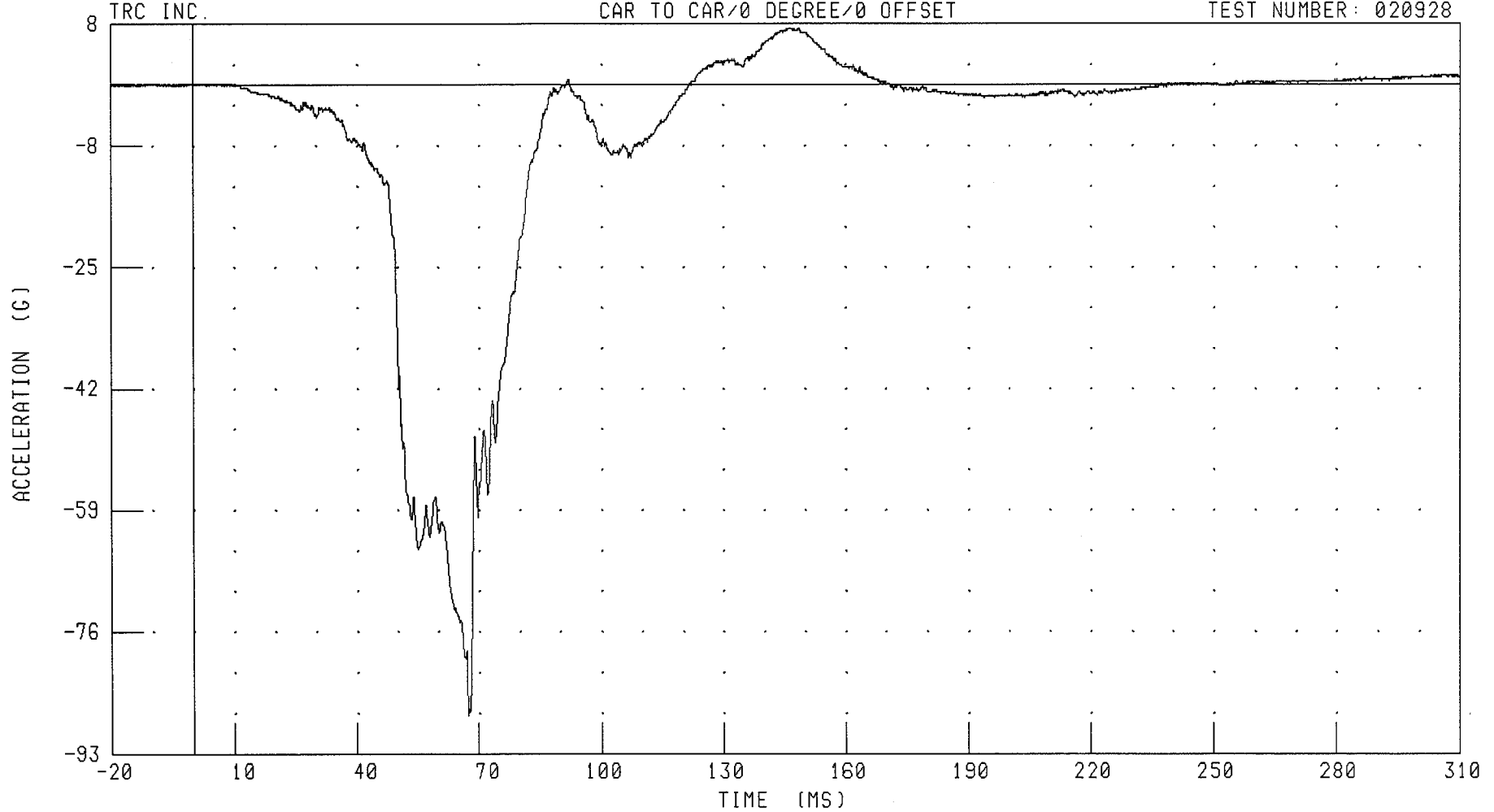
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER PELVIS X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVXG1 FILTER: CH. CLASS 1000

PEAK DATA: 7.70 G @ 145.60 MS; -88.32 G @ 67.44 MS

B-30

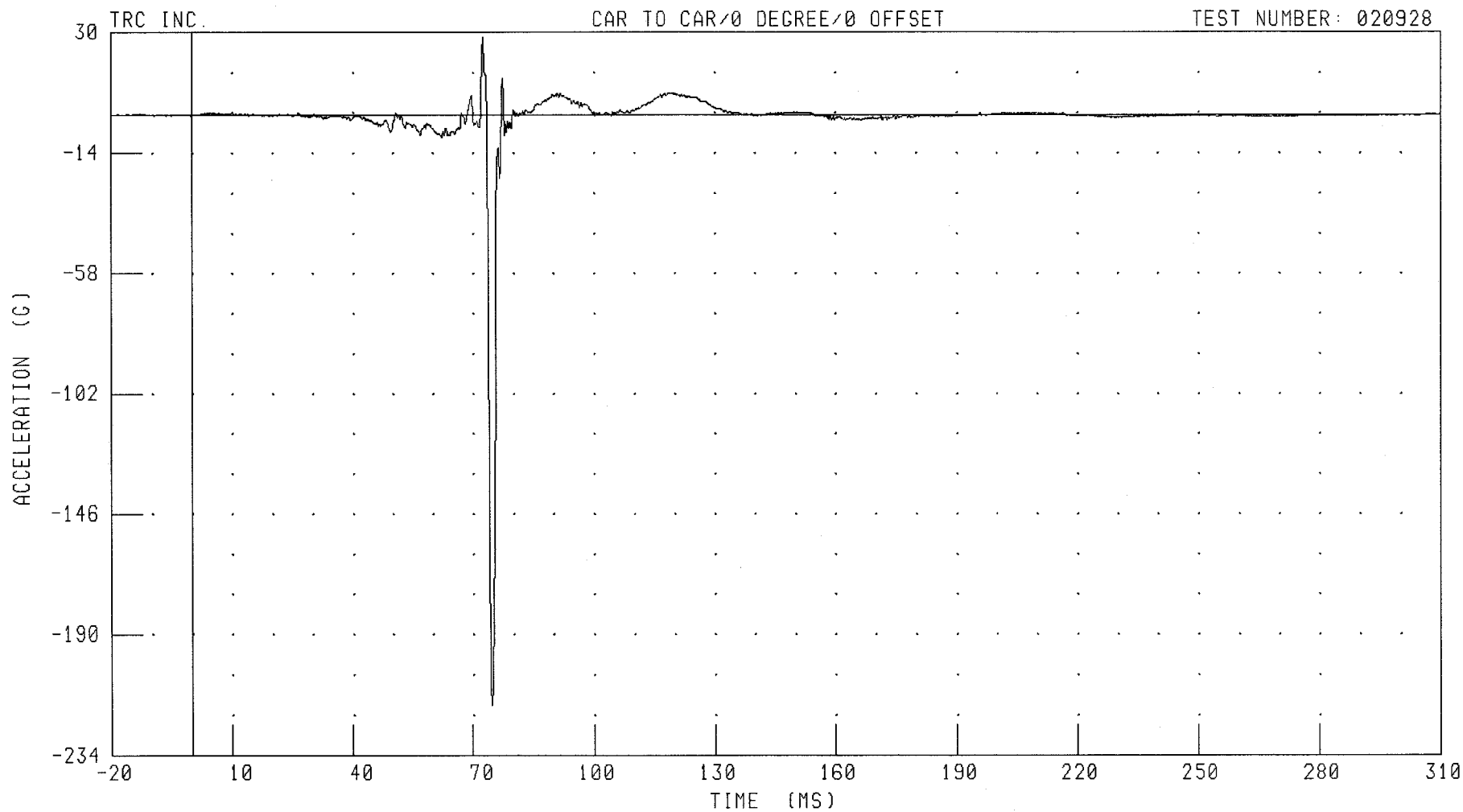
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER PELVIS Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

PEAK DATA: 28.10 G @ 72.64 MS; -215.62 G @ 74.72 MS

B-31

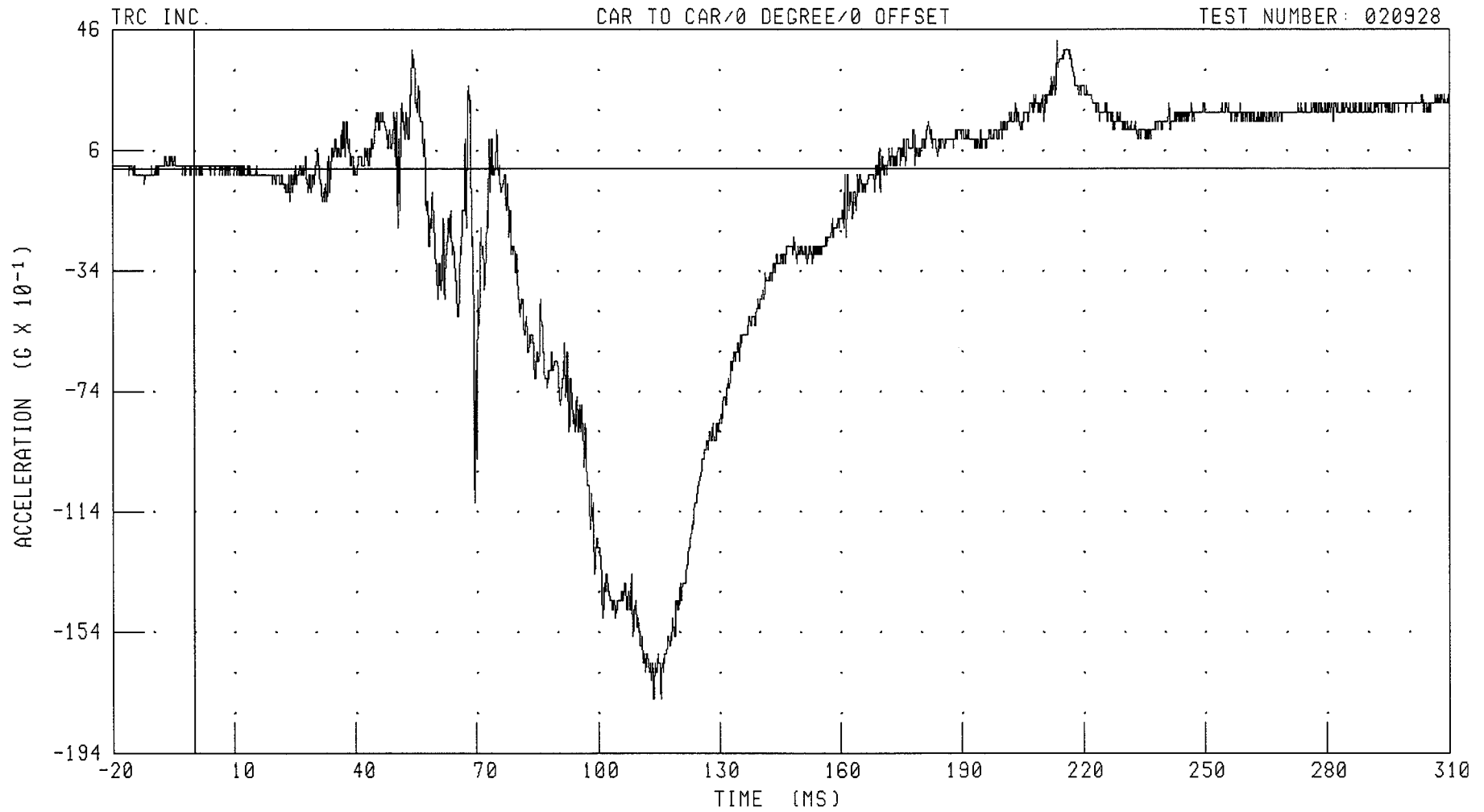
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER PELVIS Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

PEAK DATA: 4.23 G @ 213.60 MS; -17.60 G @ 113.68 MS

B-32

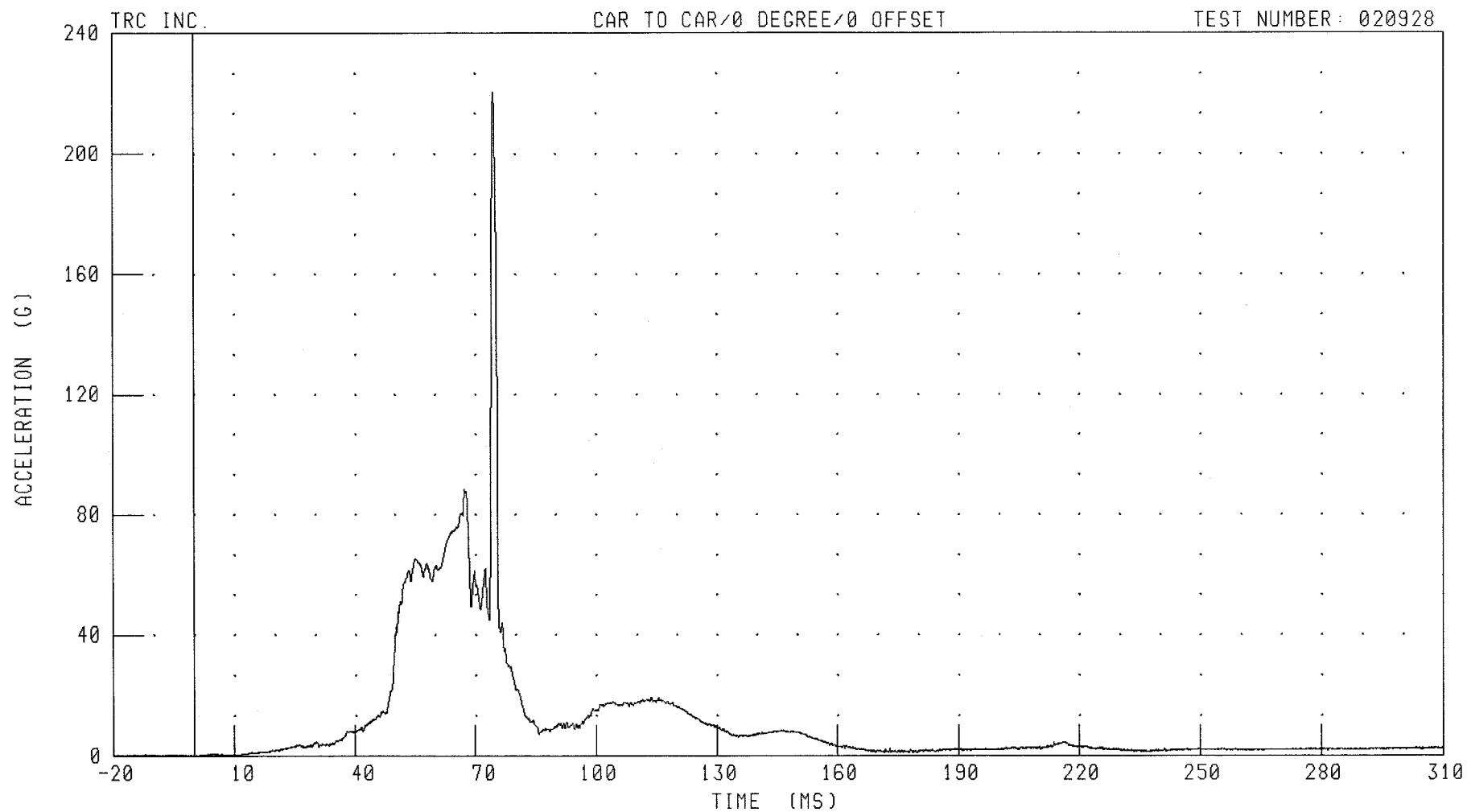
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER PELVIS RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVRG1 FILTER: CH. CLASS 1000

PEAK DATA: 220.48 G @ 74.72 MS; 0.13 G @ -19.92 MS

B-33

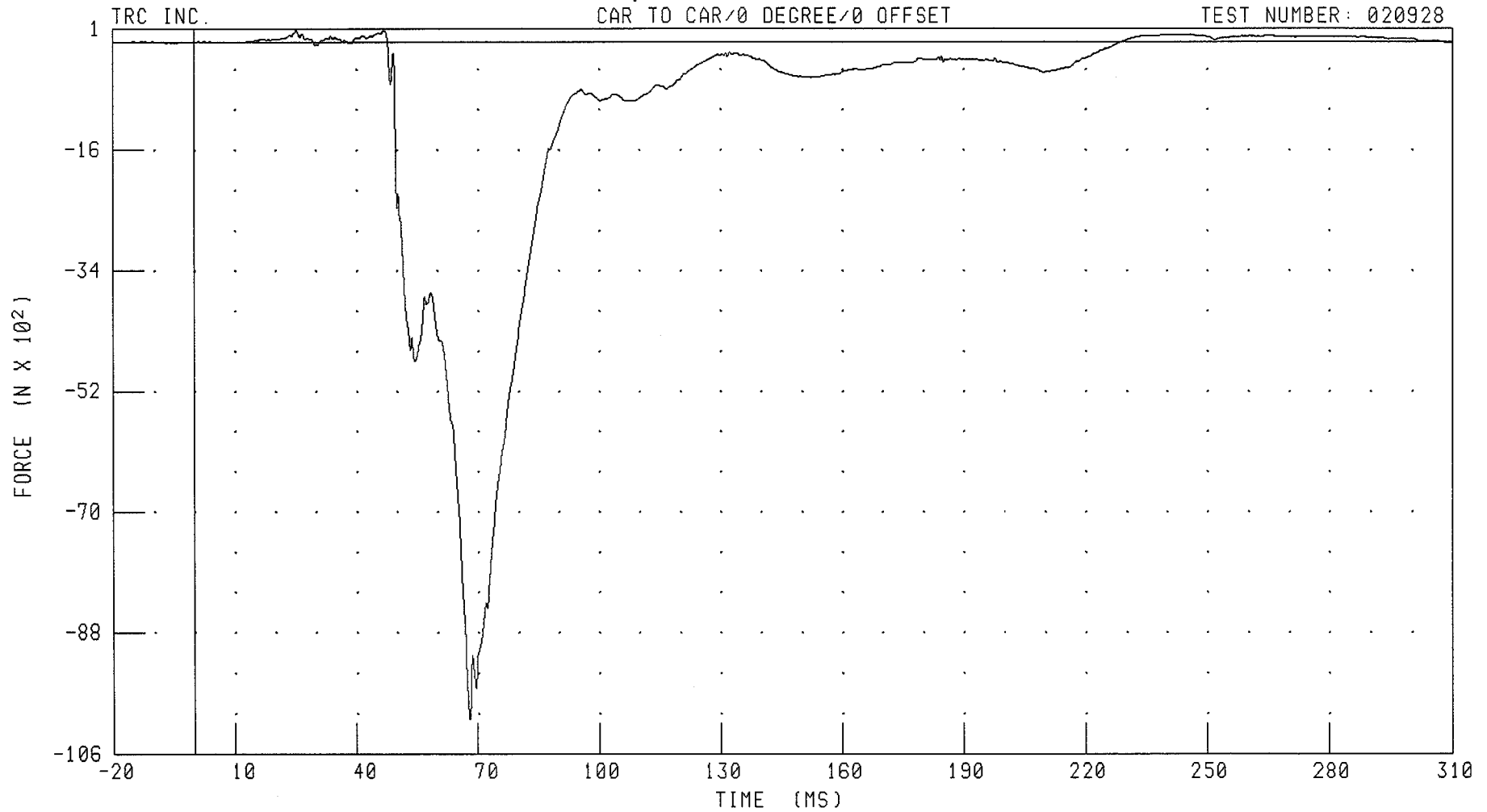
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER LEFT FEMUR Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LFMZF1 FILTER: CH. CLASS 600

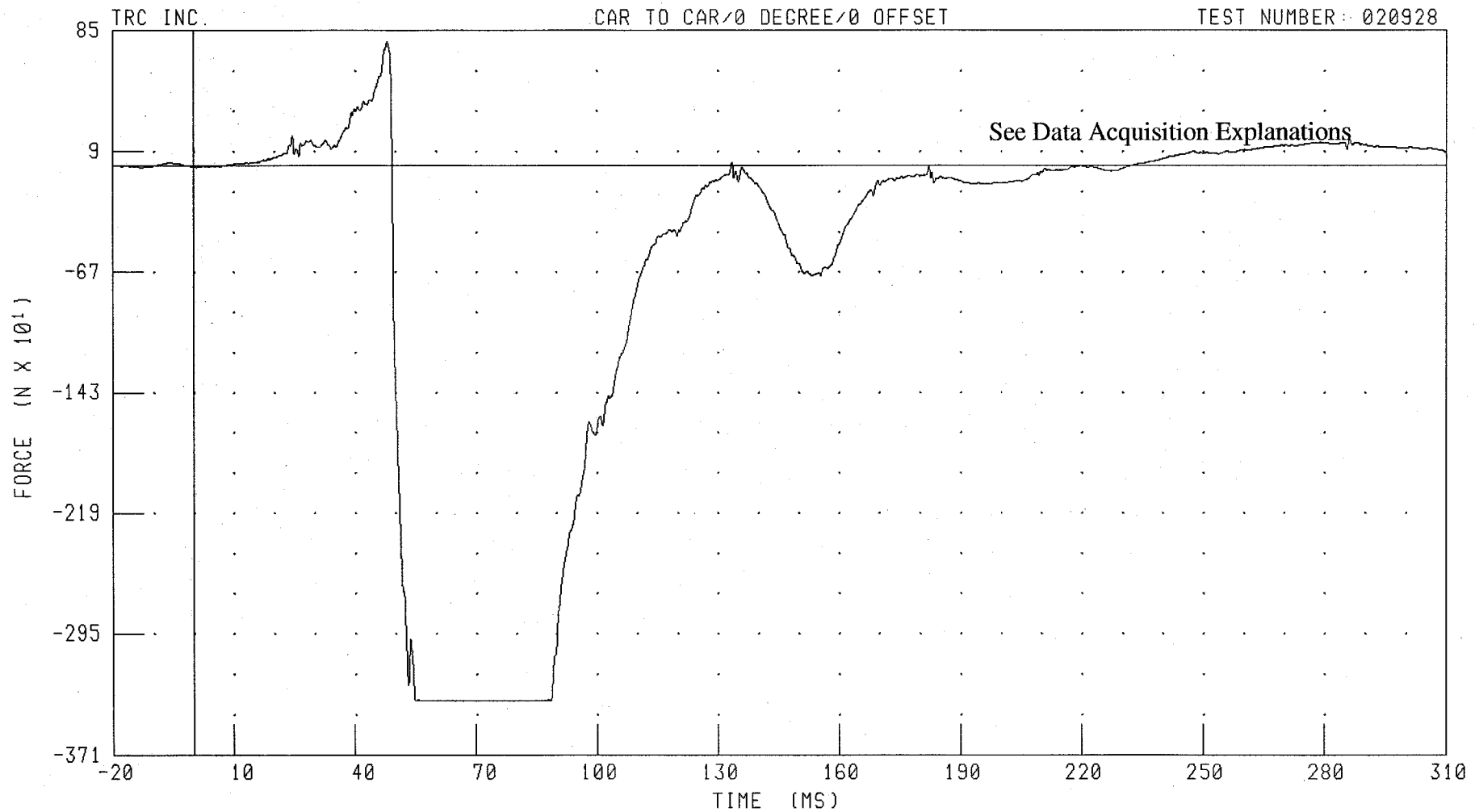
PEAK DATA: 178.56 N @ 25.36 MS; -10093.71 N @ 68.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT FEMUR Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RFMZFI FILTER: CH. CLASS 600

PEAK DATA: 779.91 N @ 48.08 MS; -3372.91 N @ 54.96 MS

B-35

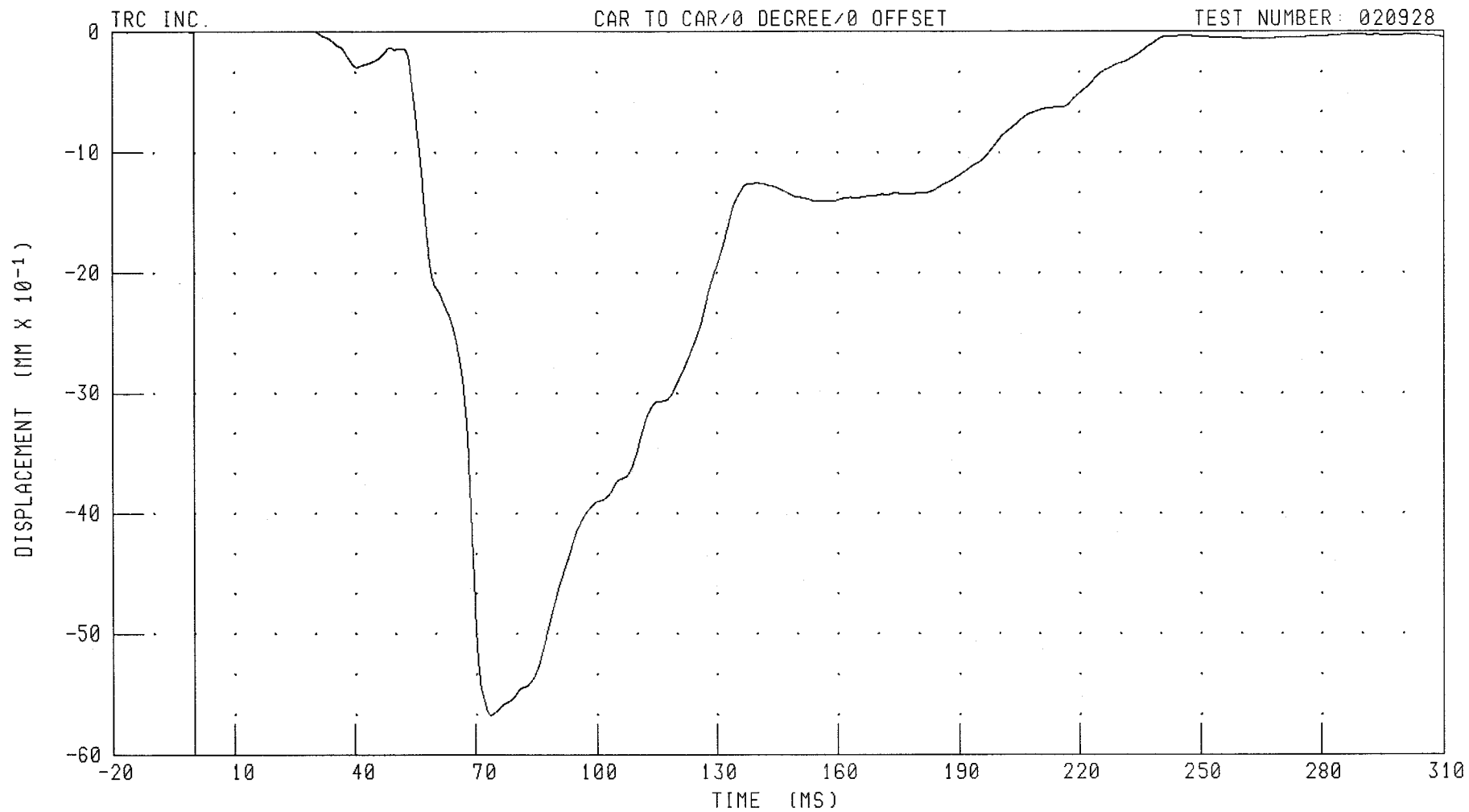
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER LEFT KNEE DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: KNLXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.02 MM @ 27.20 MS; -5.68 MM @ 73.76 MS

B-36

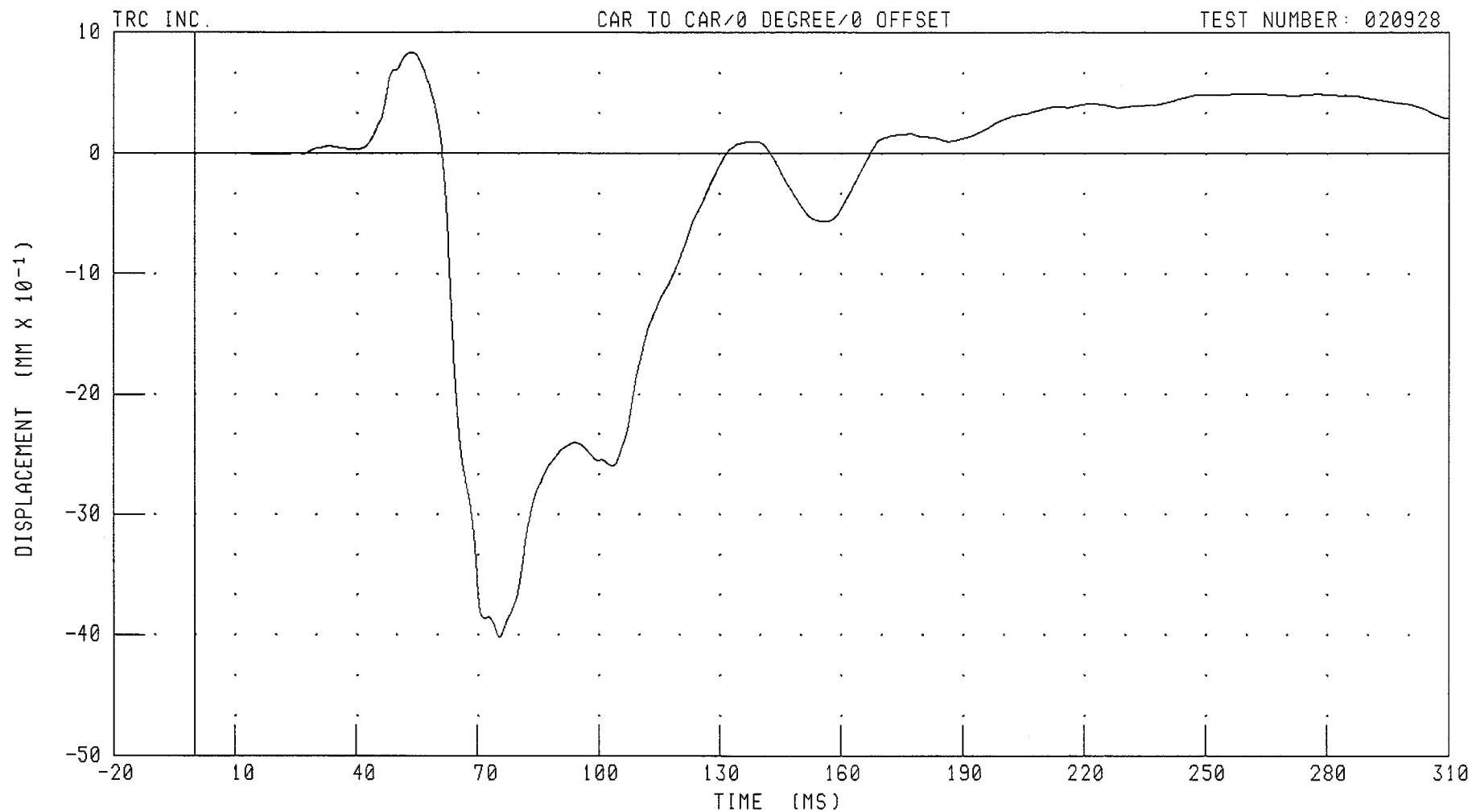
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT KNEE DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: KNRXD1

FILTER: CH. CLASS 180

PEAK DATA: 0.84 MM @ 53.84 MS; -4.02 MM @ 75.52 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

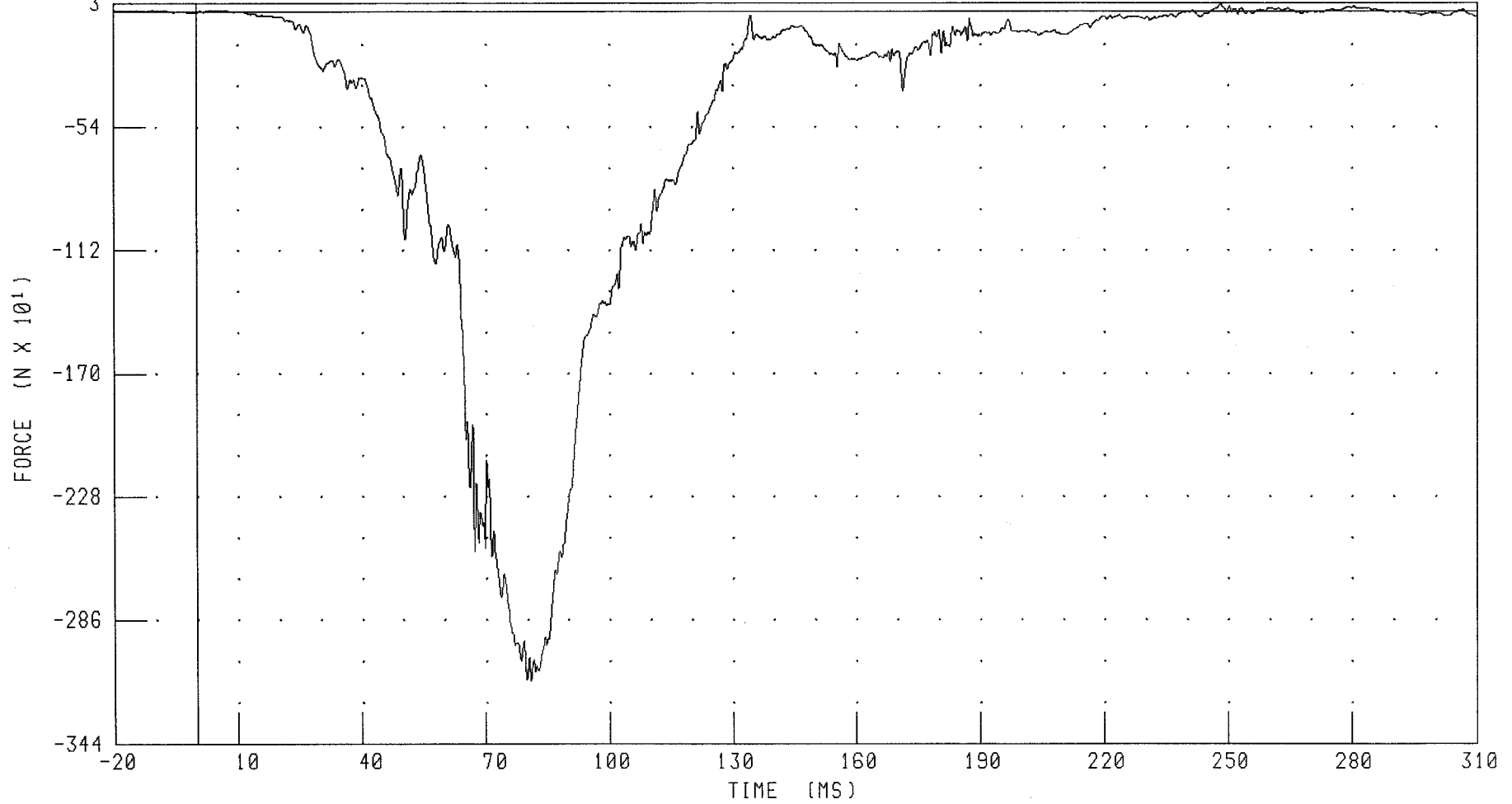
TARGET DRIVER LEFT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928

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3



CHANNEL: TBLZF1 FILTER: CH. CLASS 600

PEAK DATA: 32.77 N @ 248.24 MS; -3148.89 N @ 80.88 MS

B-38

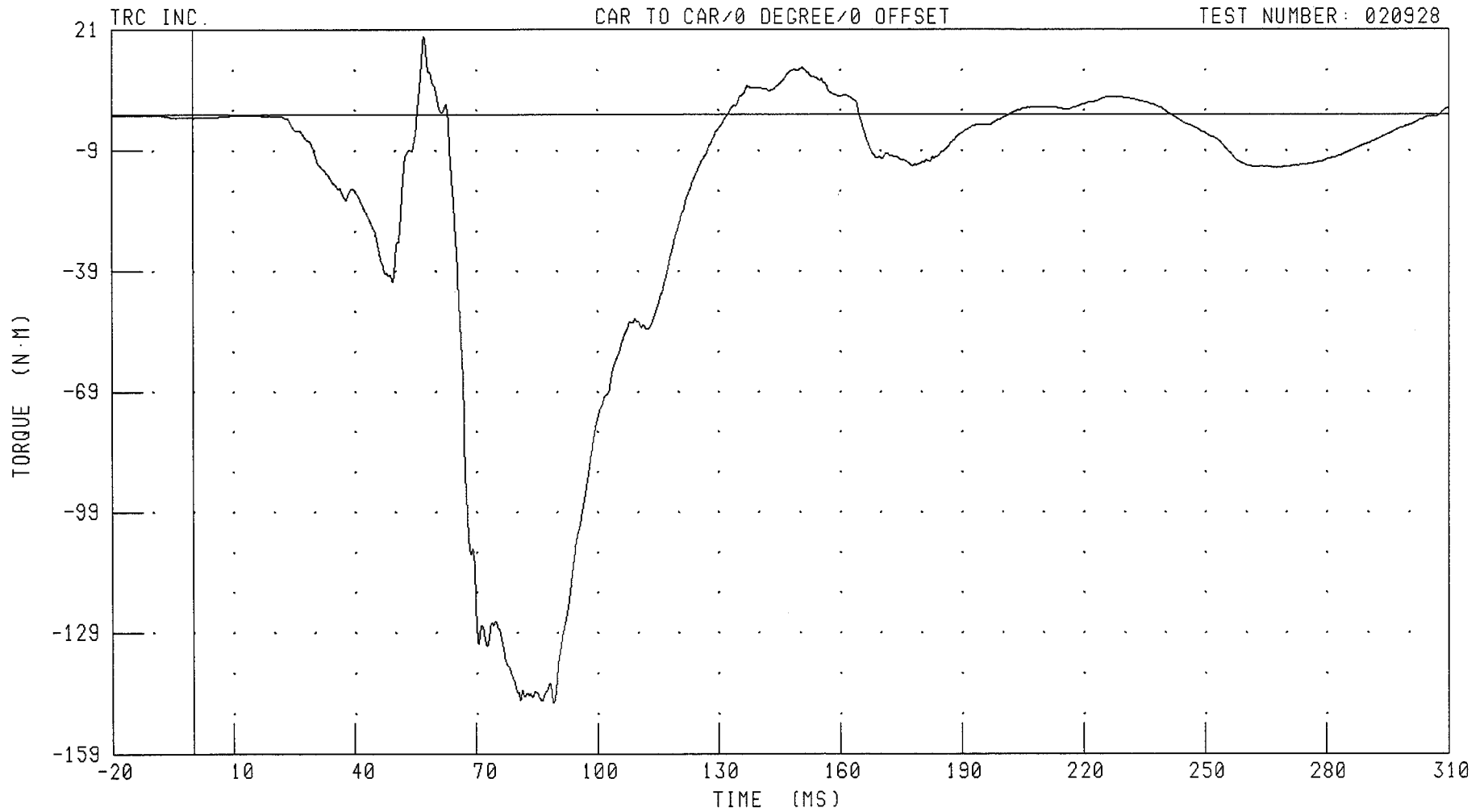
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLXM1 FILTER: CH. CLASS 600

PEAK DATA: 19.25 N·M @ 57.28 MS; -146.38 N·M @ 89.12 MS

B-39

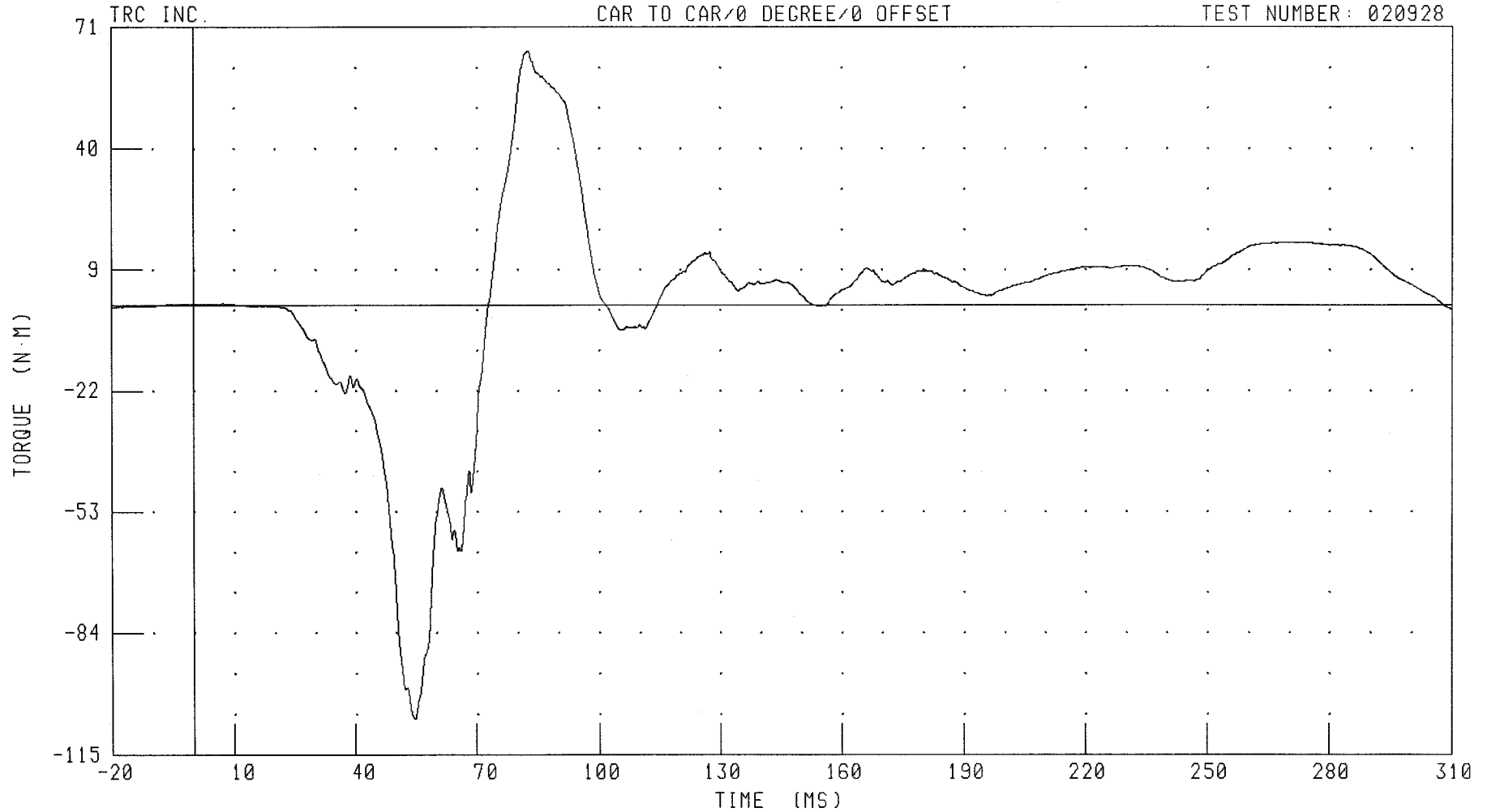
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLYM1 FILTER: CH. CLASS 600

PEAK DATA: 64.79 N·M @ 82.56 MS; -105.92 N·M @ 54.64 MS

B-40

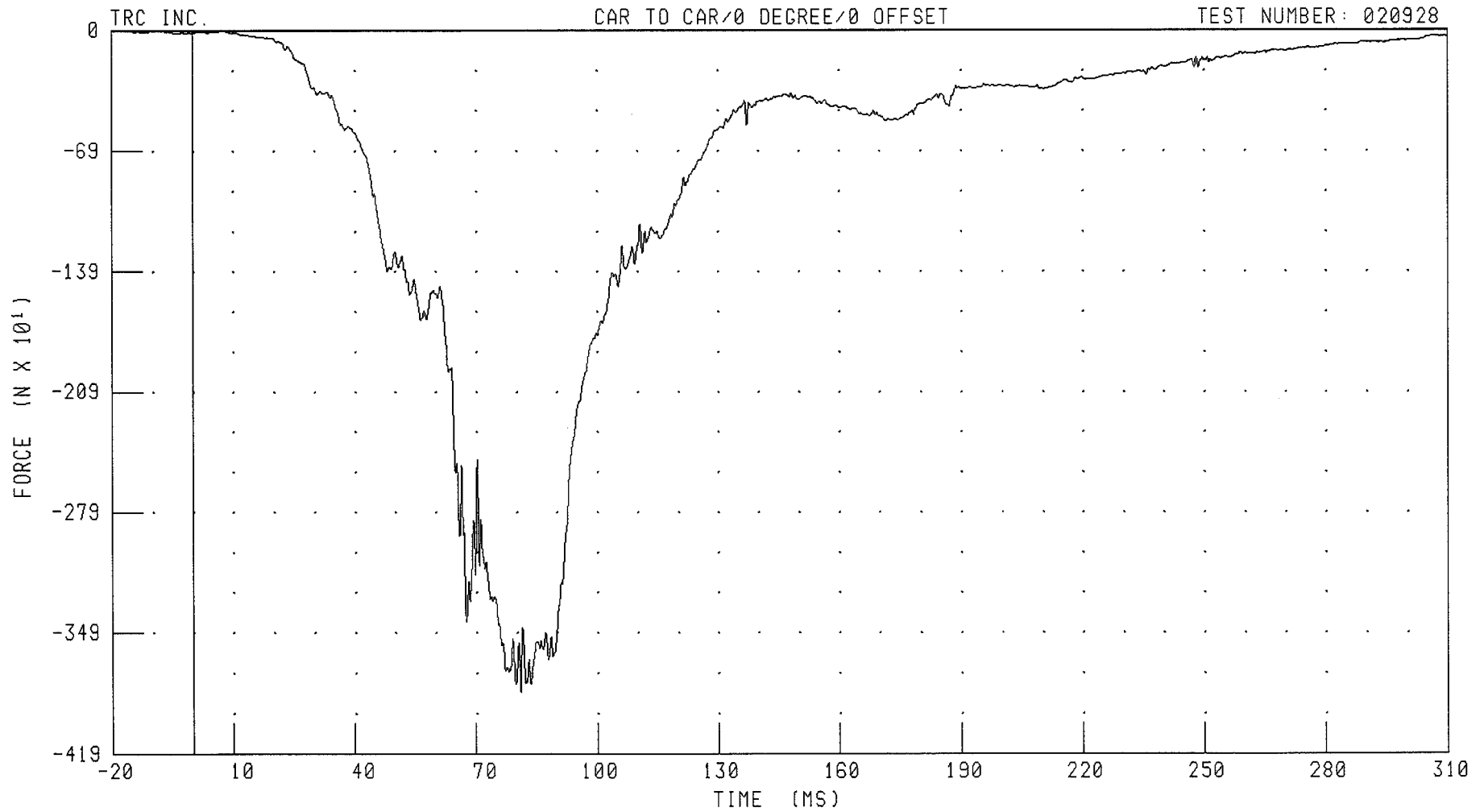
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLZF1 FILTER: CH. CLASS 600

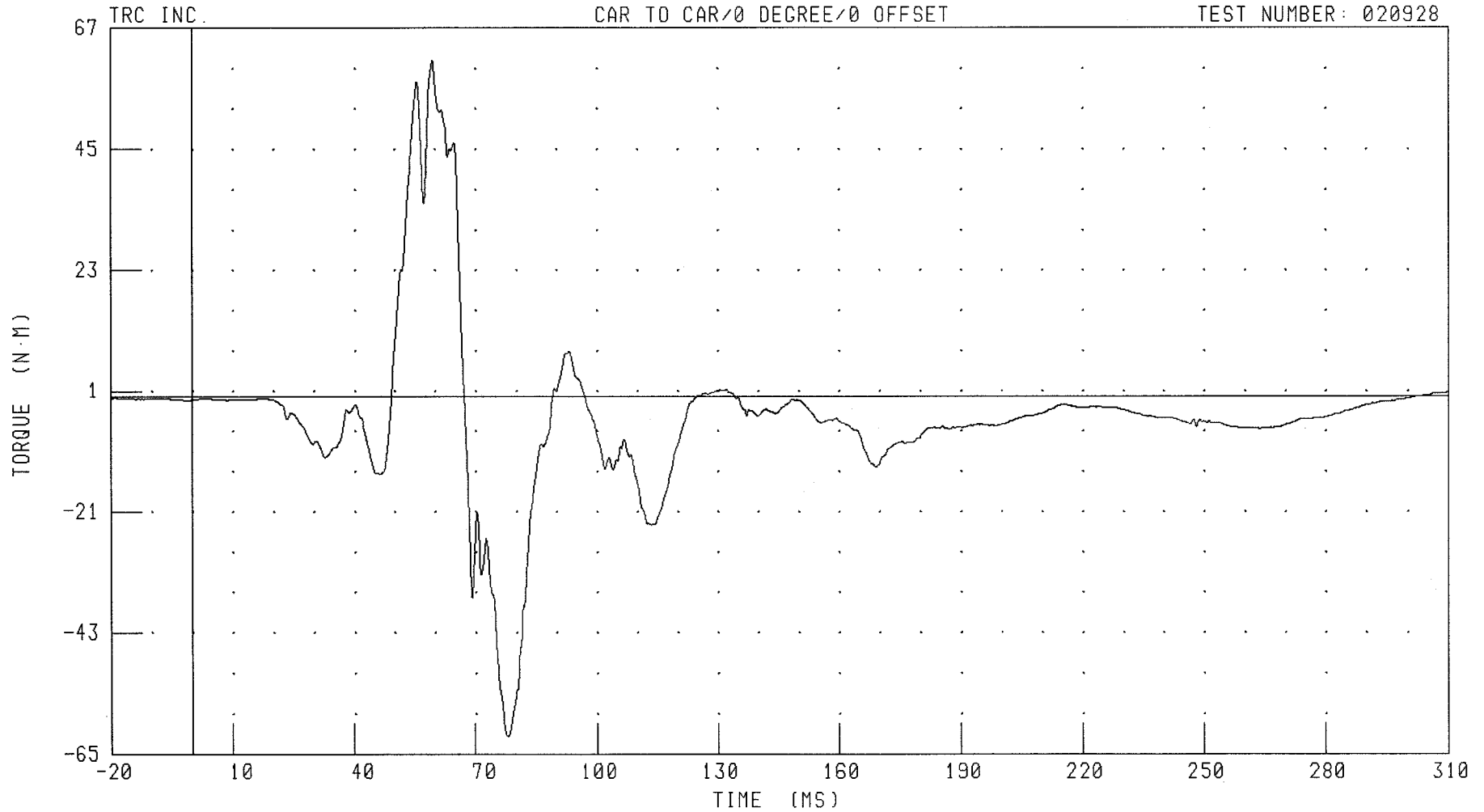
PEAK DATA: 6.90 N @ -9.28 MS; -3835.93 N @ 80.96 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLXM1 FILTER: CH. CLASS 600

PEAK DATA: 61.01 N·M @ 59.52 MS; -61.77 N·M @ 77.92 MS

B-42

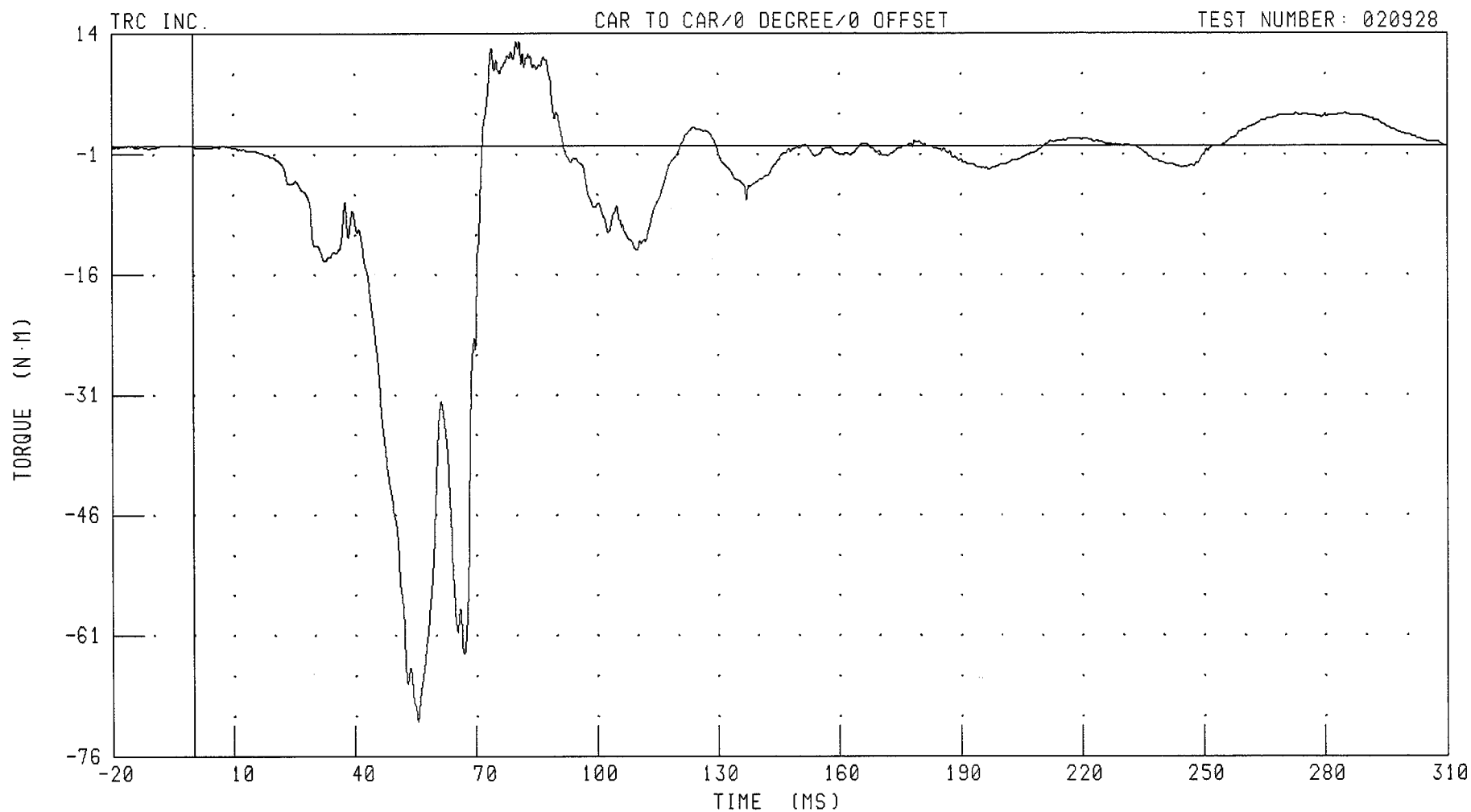
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLYM1 FILTER: CH. CLASS 600

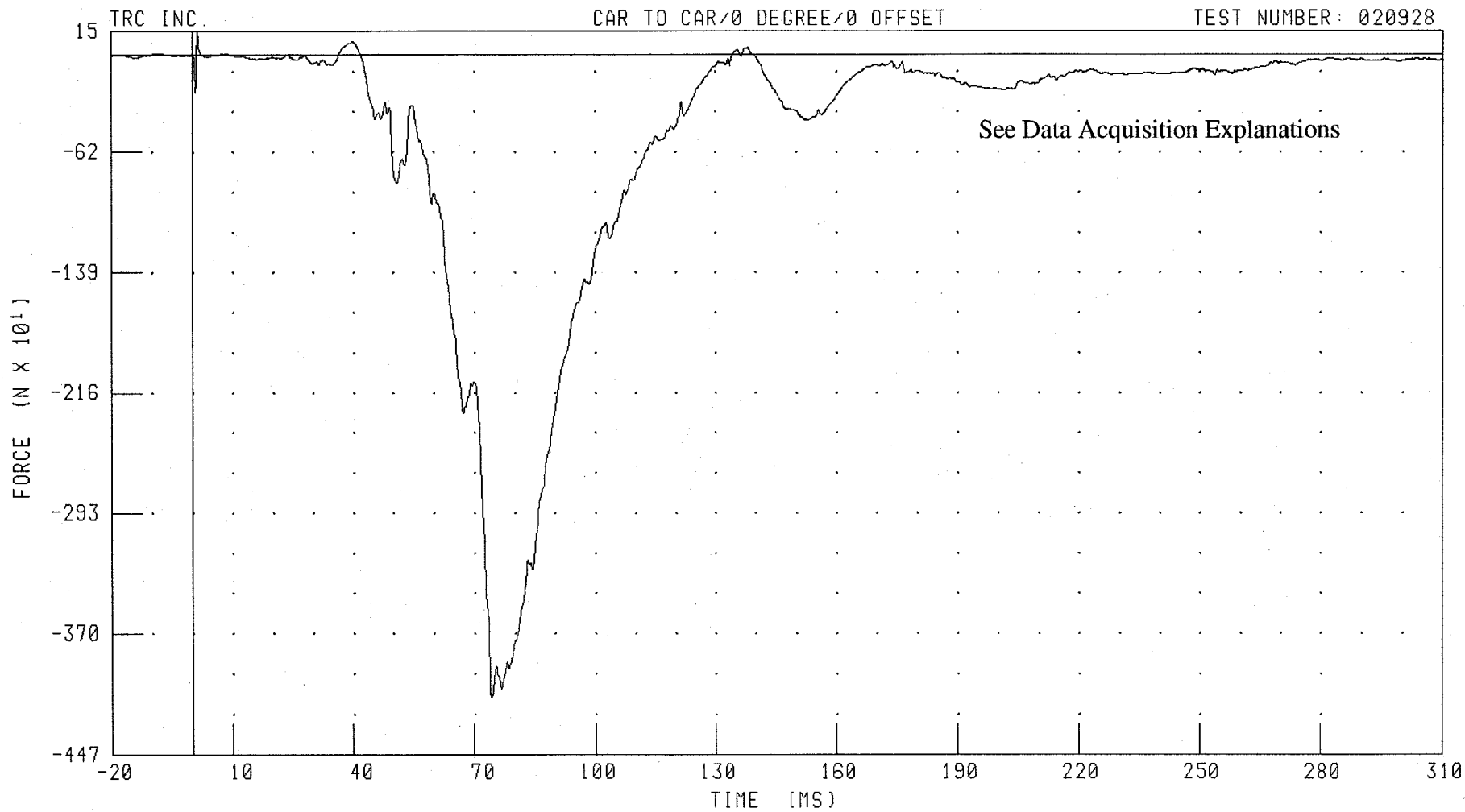
PEAK DATA: 13.00 N·m @ 80.08 ms; -71.65 N·m @ 55.68 ms

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRZF1 FILTER: CH. CLASS 600

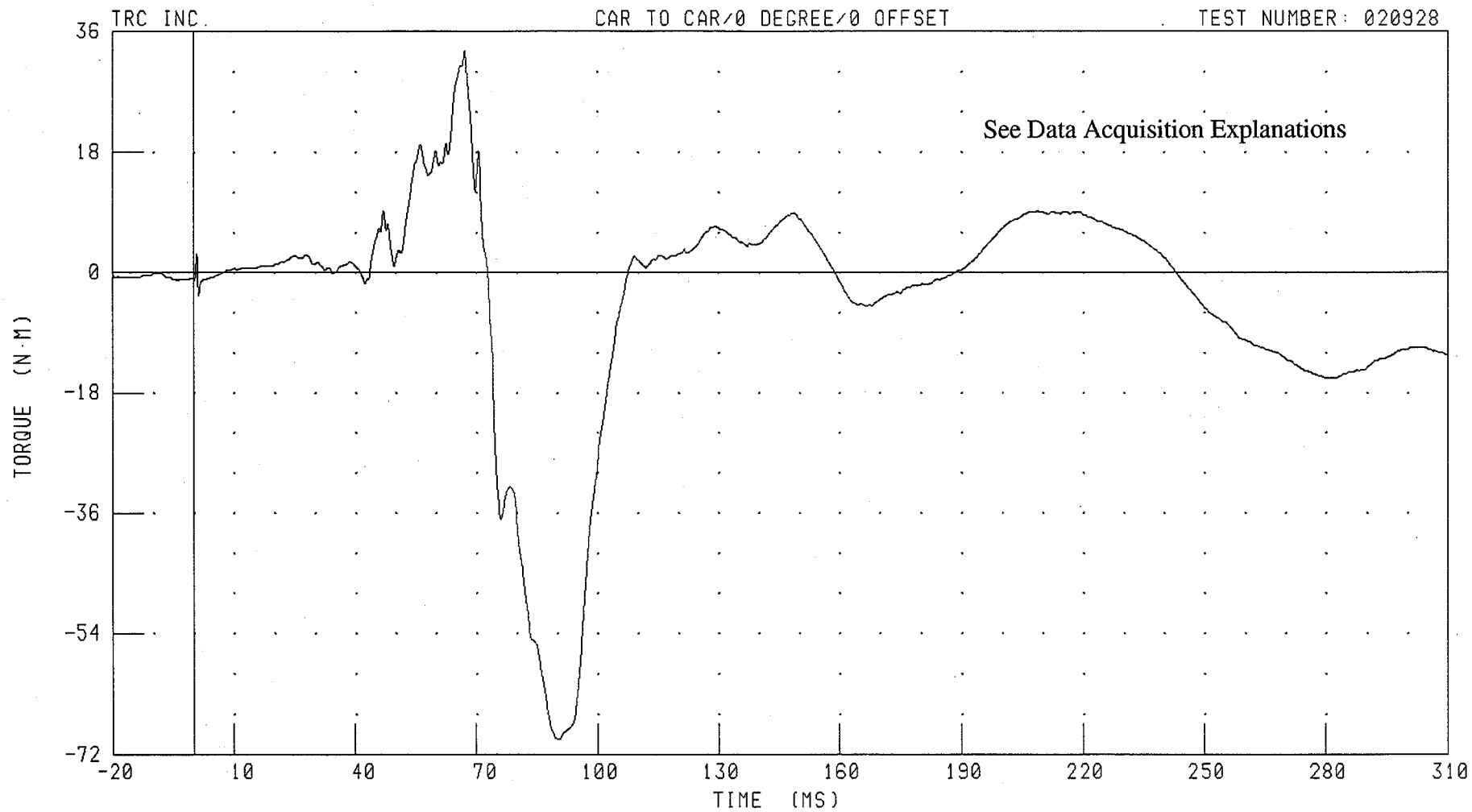
PEAK DATA: 144.28 N @ 1.28 MS; -4104.70 N @ 74.56 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRXM1 FILTER: CH. CLASS 600

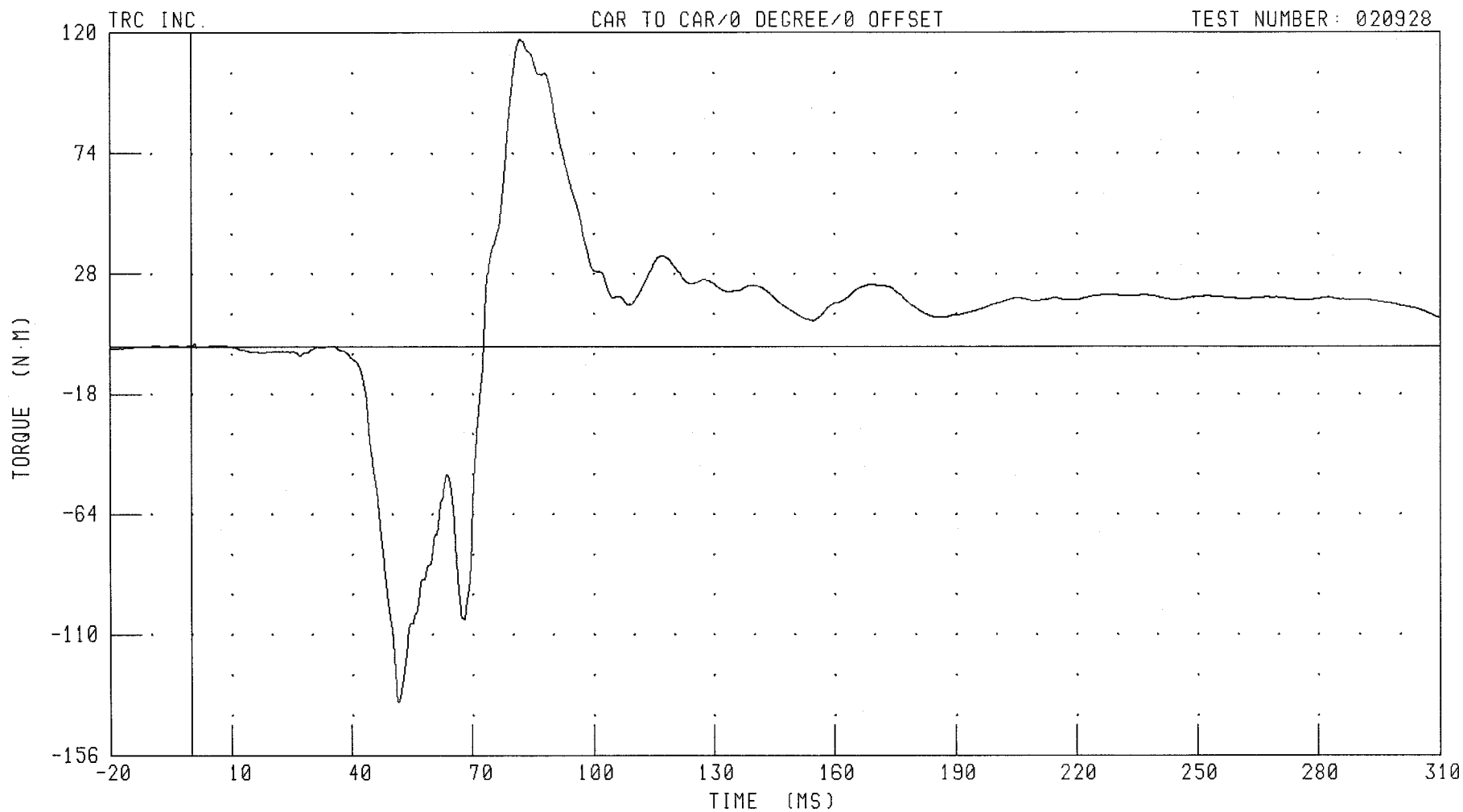
PEAK DATA: 33.11 N·m @ 67.28 ms; -69.67 N·m @ 90.48 ms

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRYM1 FILTER: CH. CLASS 600

PEAK DATA: 117.21 N·M @ 82.00 MS; -135.97 N·M @ 51.60 MS

B-46

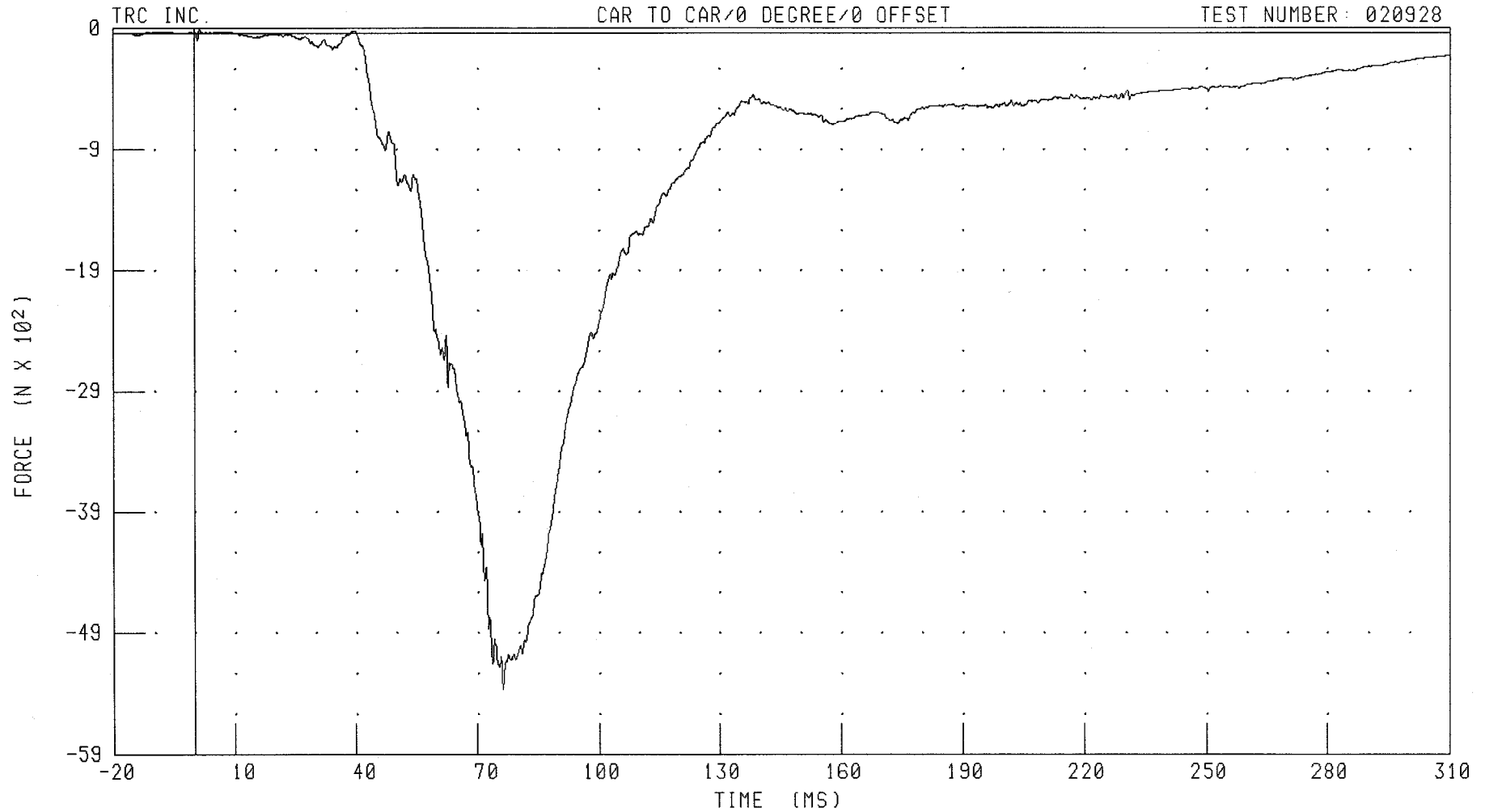
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRZF1 FILTER: CH. CLASS 600

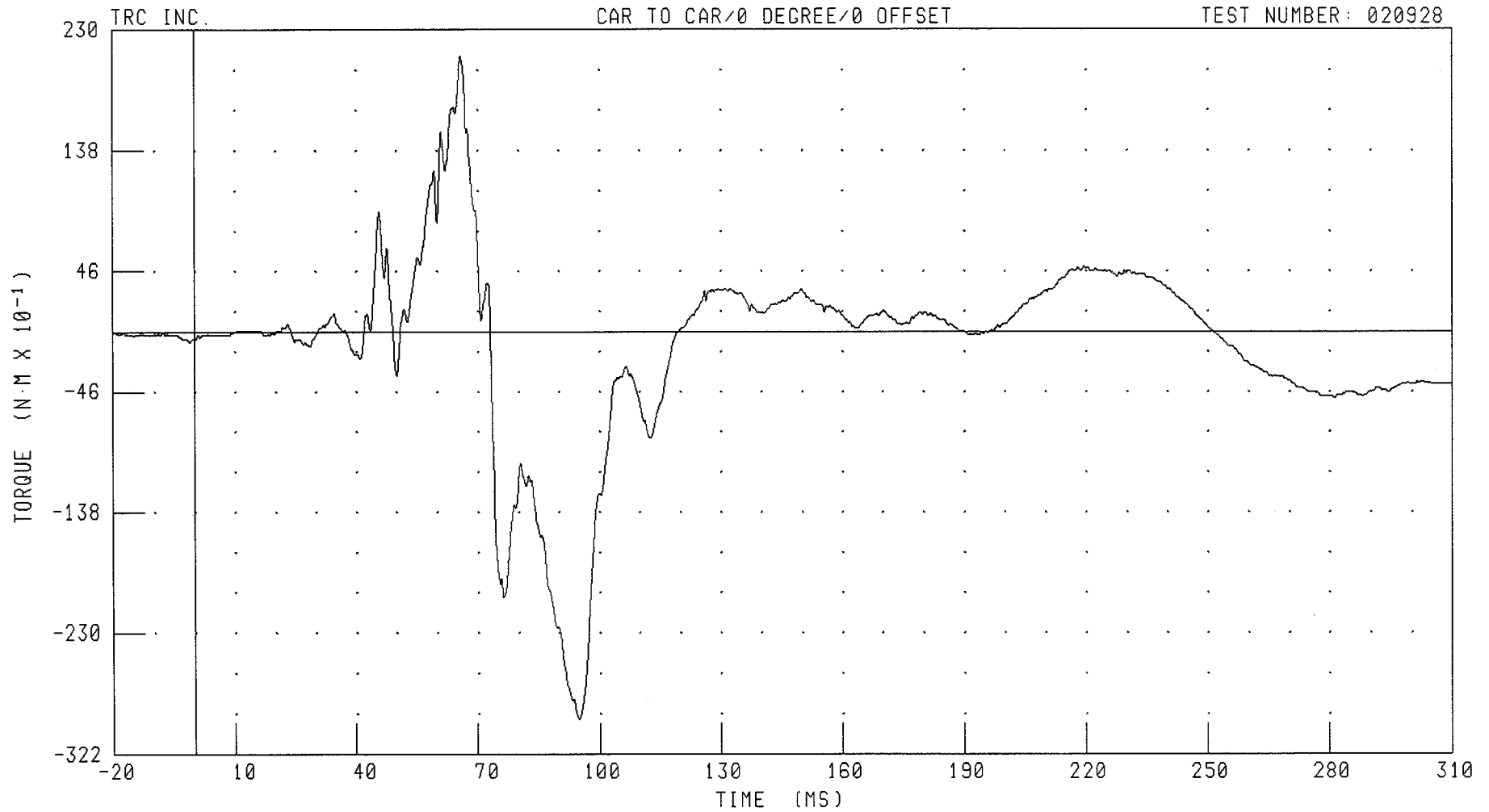
PEAK DATA: 35.46 N @ 1.28 MS; -5431.63 N @ 76.24 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRXM1 FILTER: CH. CLASS 600

PEAK DATA: 20.95 N·M @ 66.00 MS; -29.55 N·M @ 94.96 MS

B-48

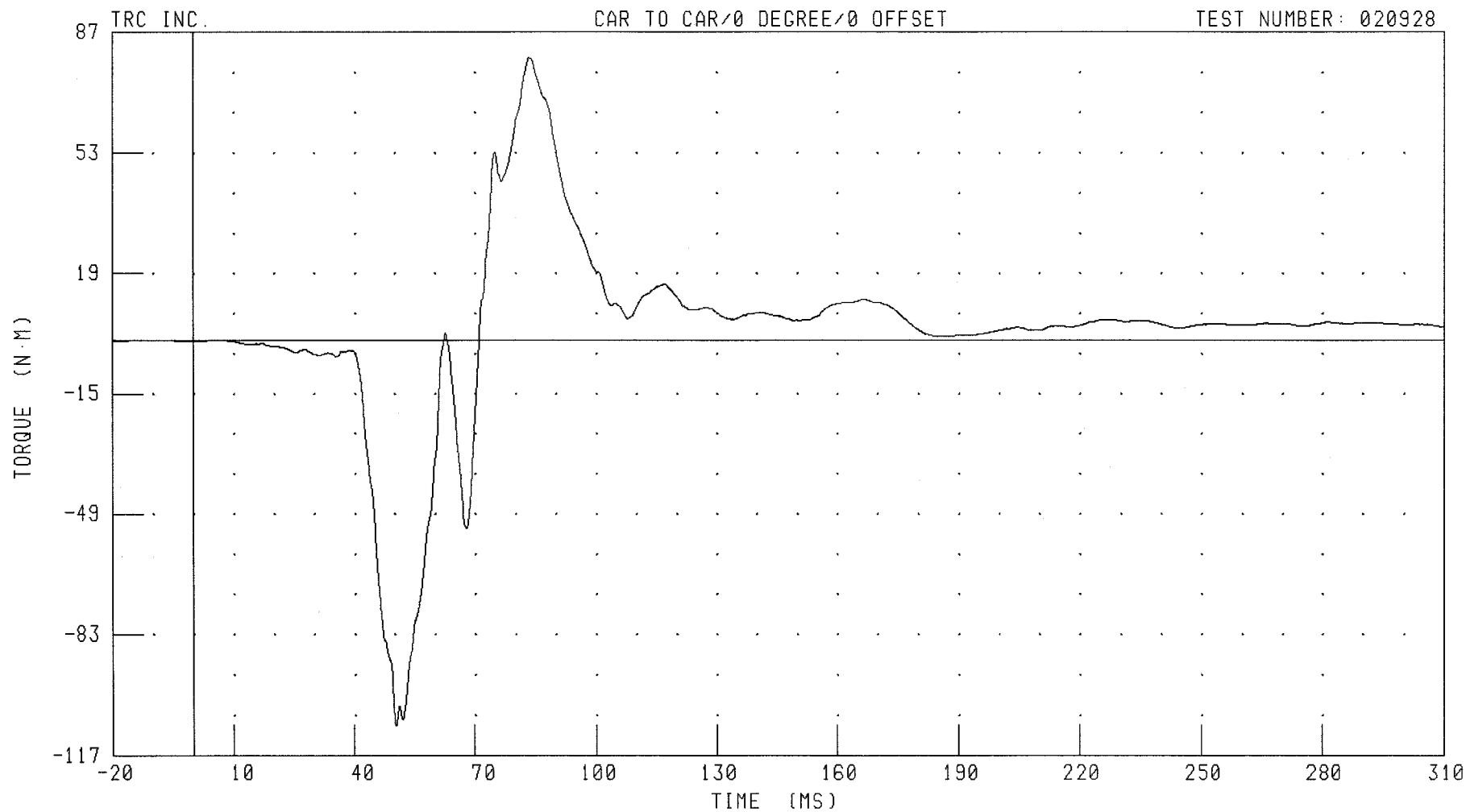
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRYM1 FILTER: CH. CLASS 600

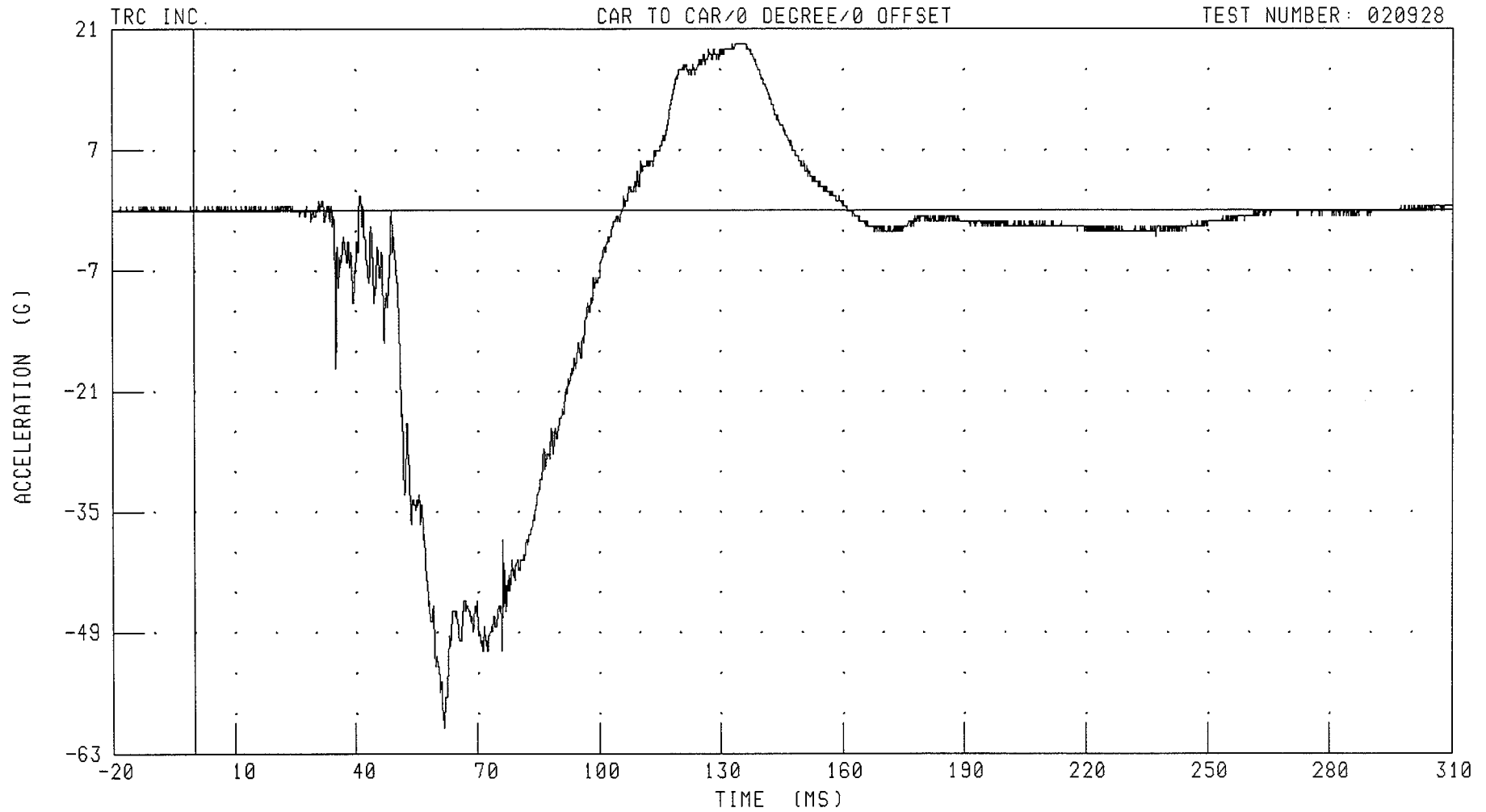
PEAK DATA: 79.79 N·M @ 83.36 MS; -108.73 N·M @ 50.32 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER HEAD X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDXC2 FILTER: CH. CLASS 1000

PEAK DATA: 19.27 G @ 133.20 MS; -60.01 G @ 61.76 MS

B-50

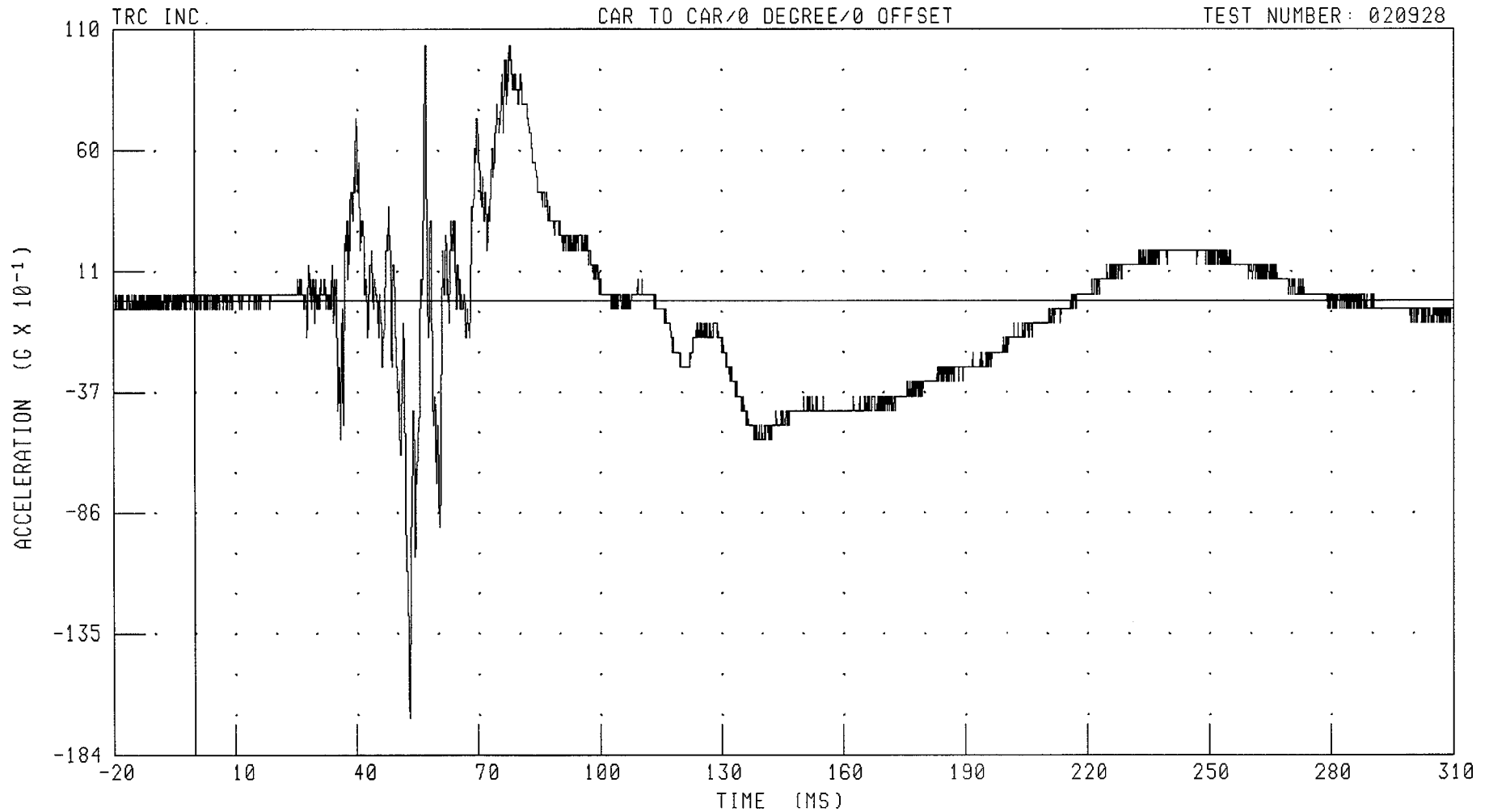
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER HEAD Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDYC2 FILTER: CH. CLASS 1000

PEAK DATA: 10.36 G @ 57.04 MS; -16.91 G @ 53.04 MS

B-51

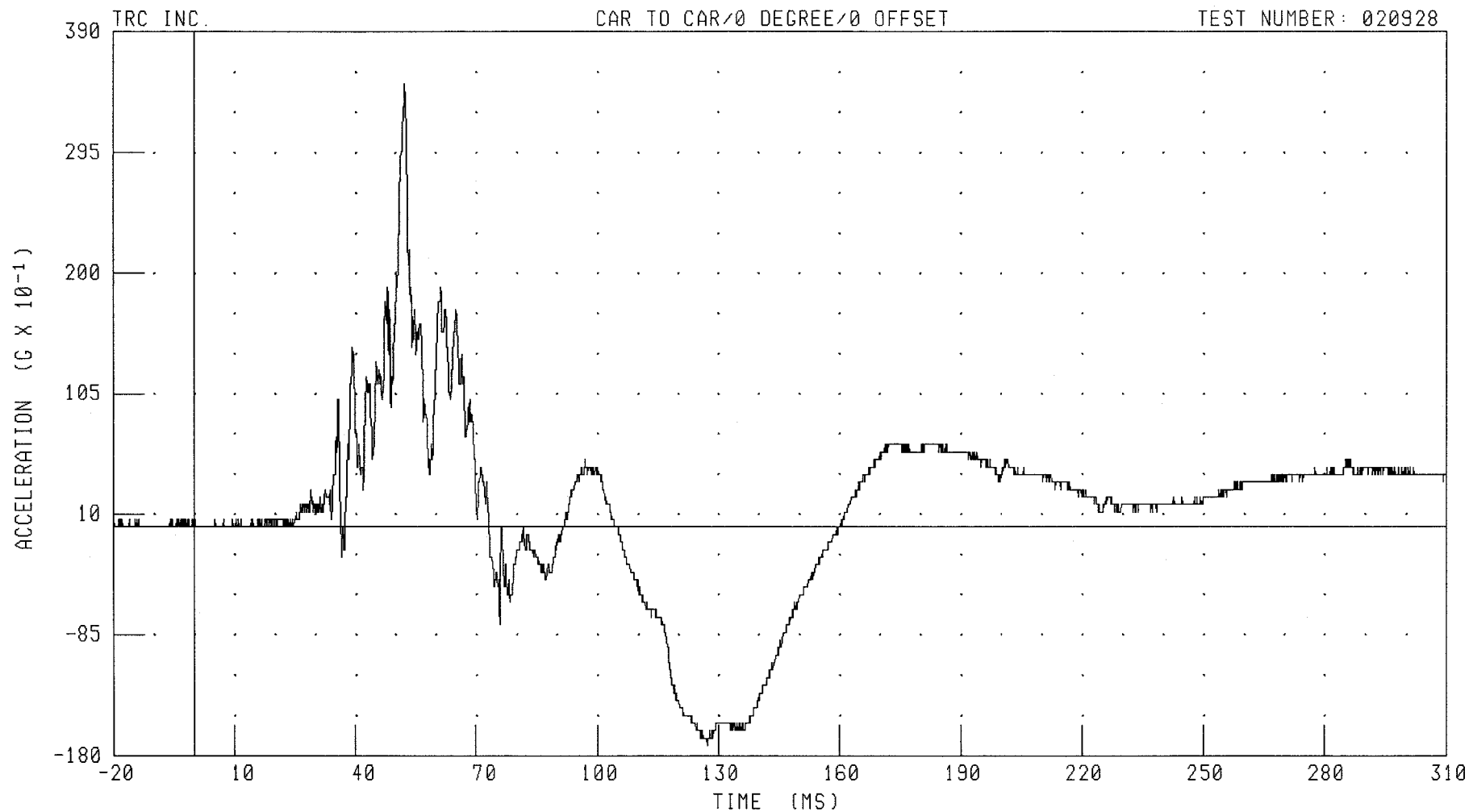
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER HEAD Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 34.94 G @ 52.40 MS; -17.21 G @ 127.20 MS

B-52

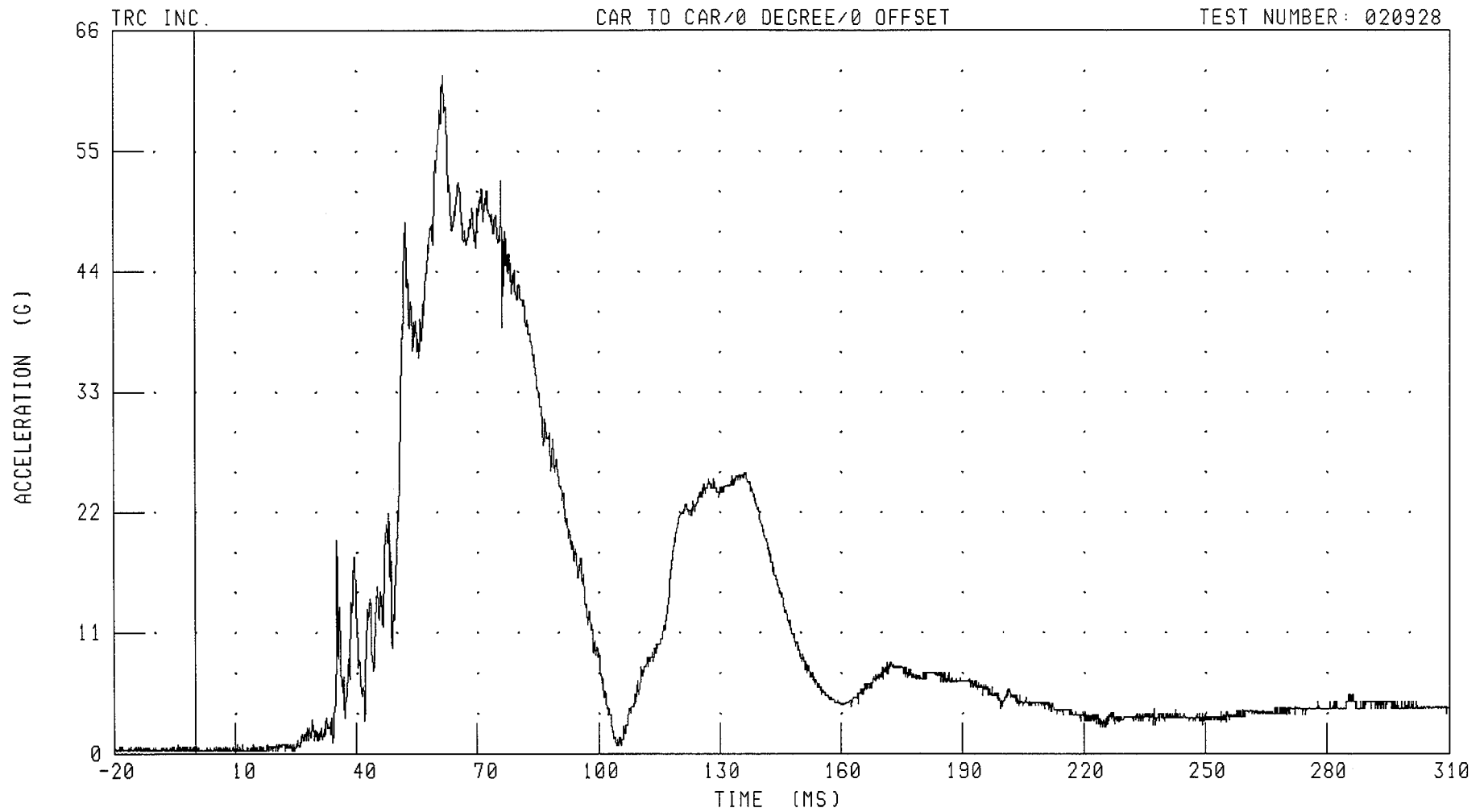
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER HEAD RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

B-53

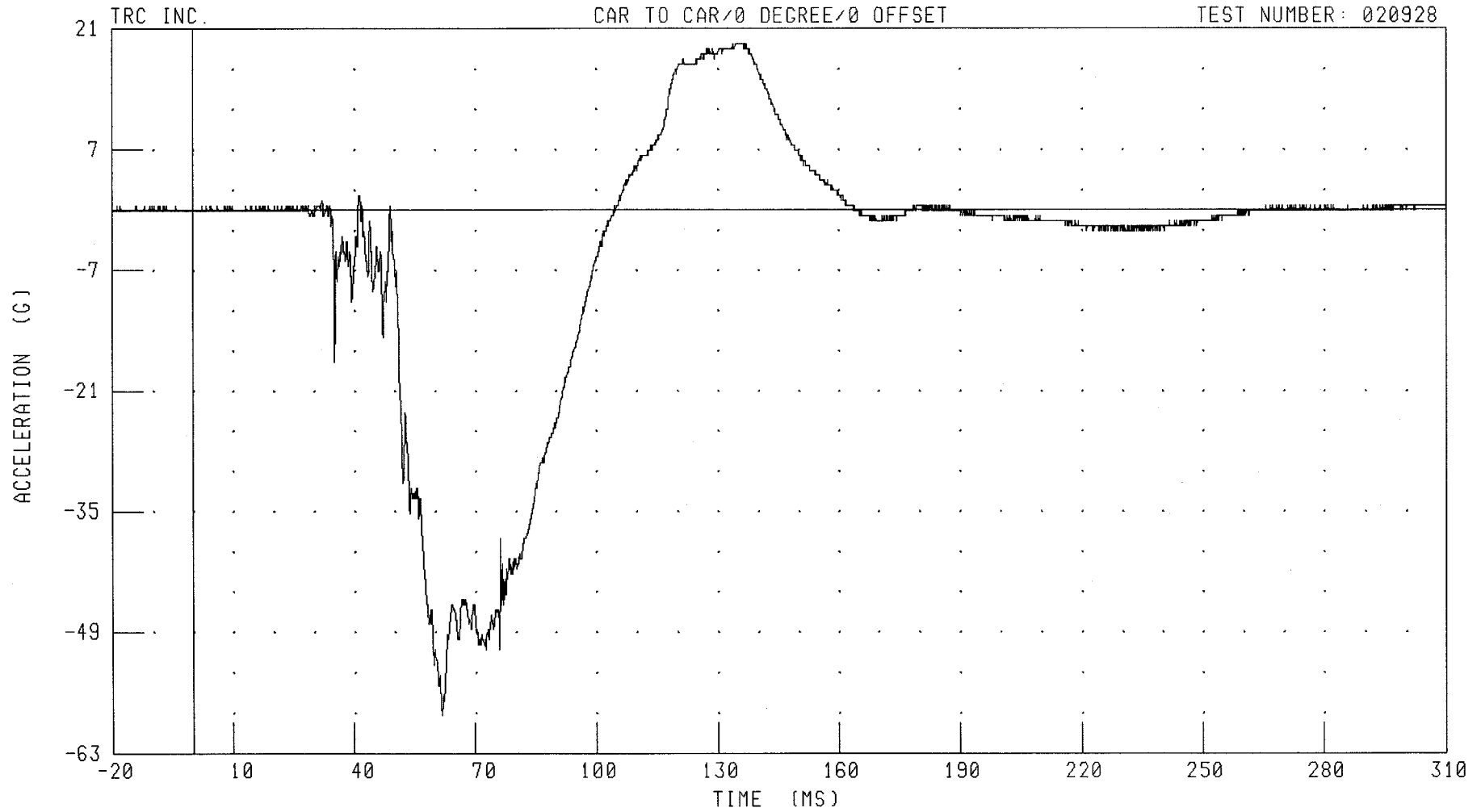
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER HEAD X-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDXR2 FILTER: CH. CLASS 1000

PEAK DATA: 19.26 G @ 133.76 MS; -58.68 G @ 61.68 MS

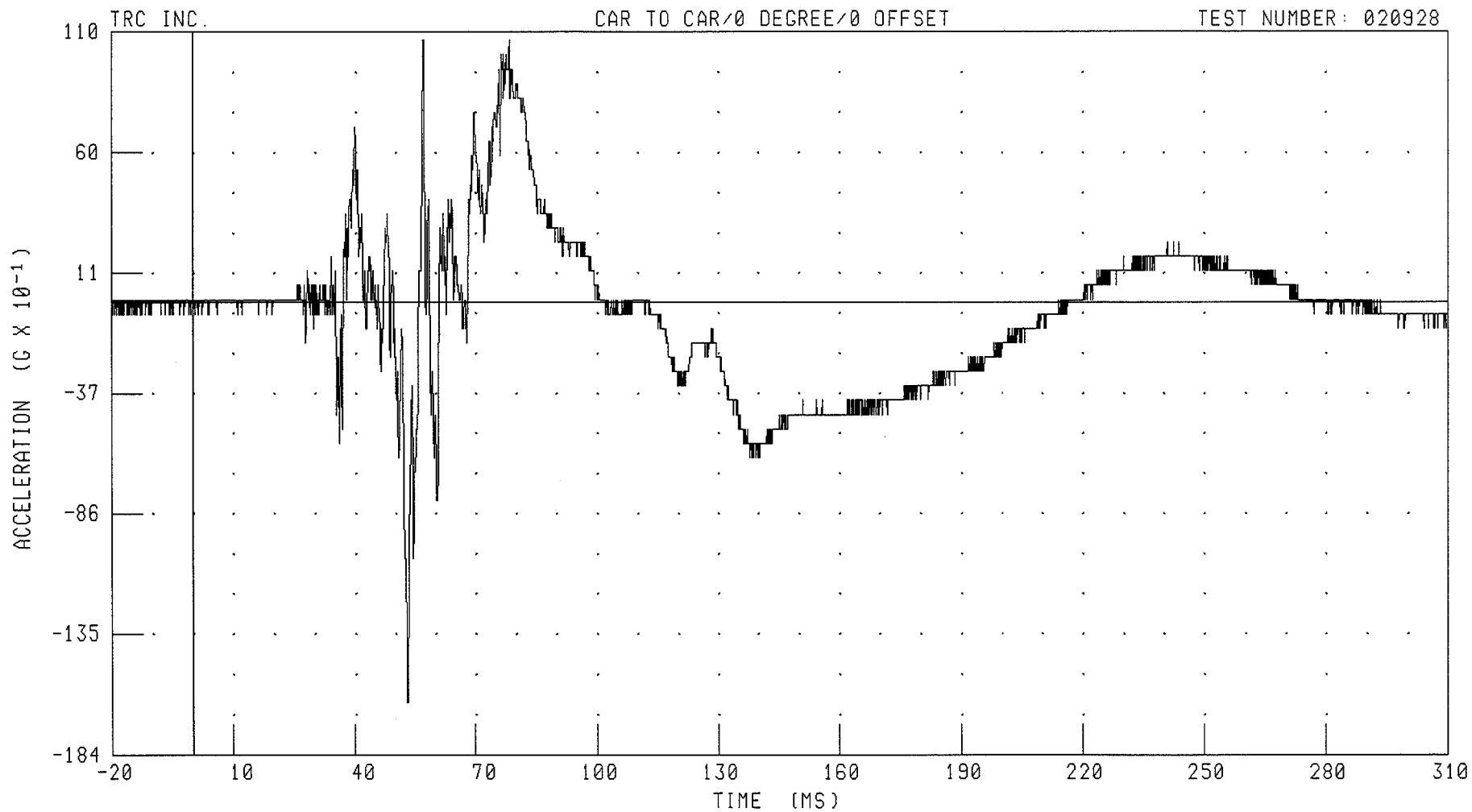
B-54

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
TARGET PASSENGER HEAD Y-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDYR2 FILTER: CH. CLASS 1000

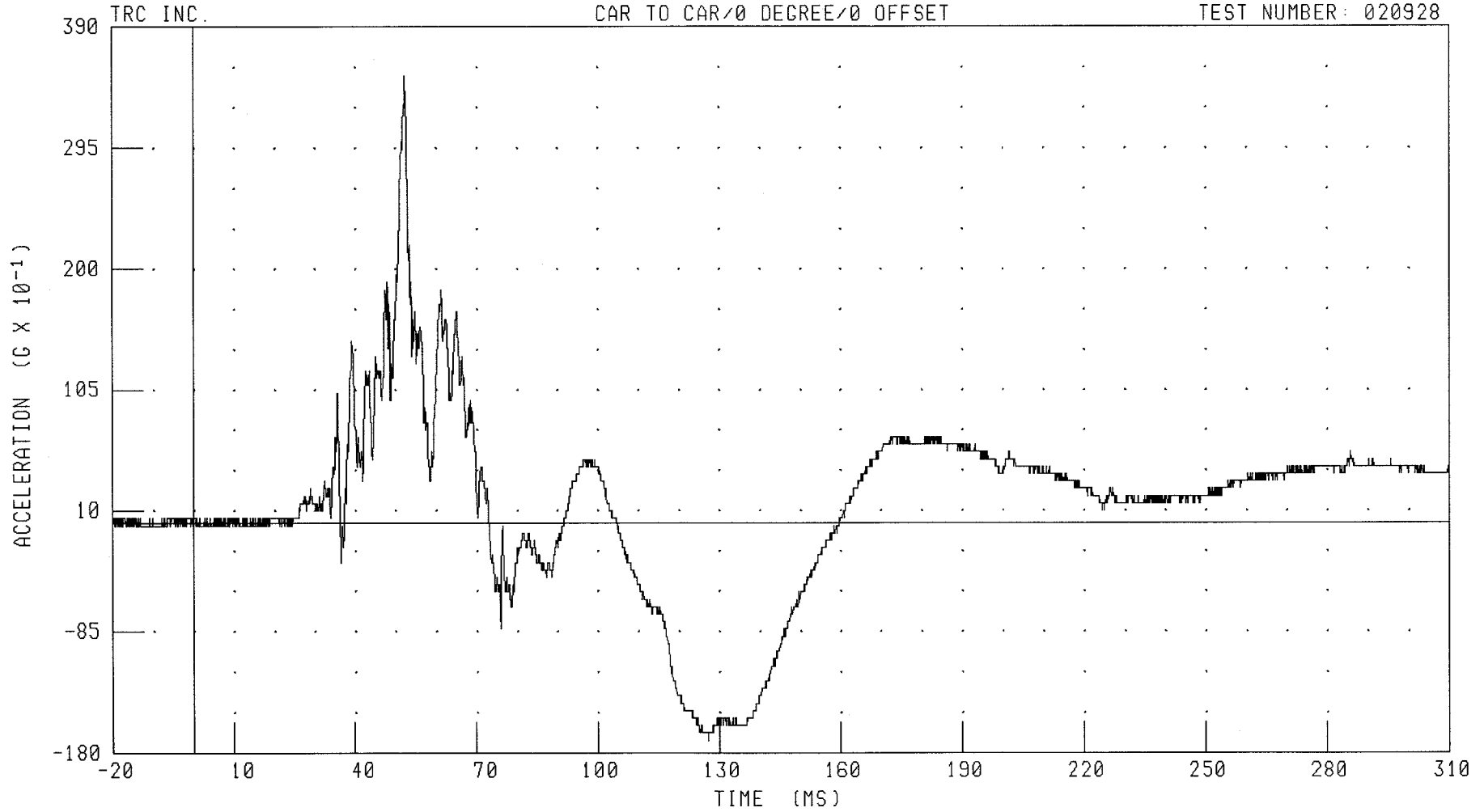
PEAK DATA: 10.66 G @ 57.04 MS; -16.29 G @ 52.96 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER HEAD Z-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDZR2 FILTER: CH. CLASS 1000

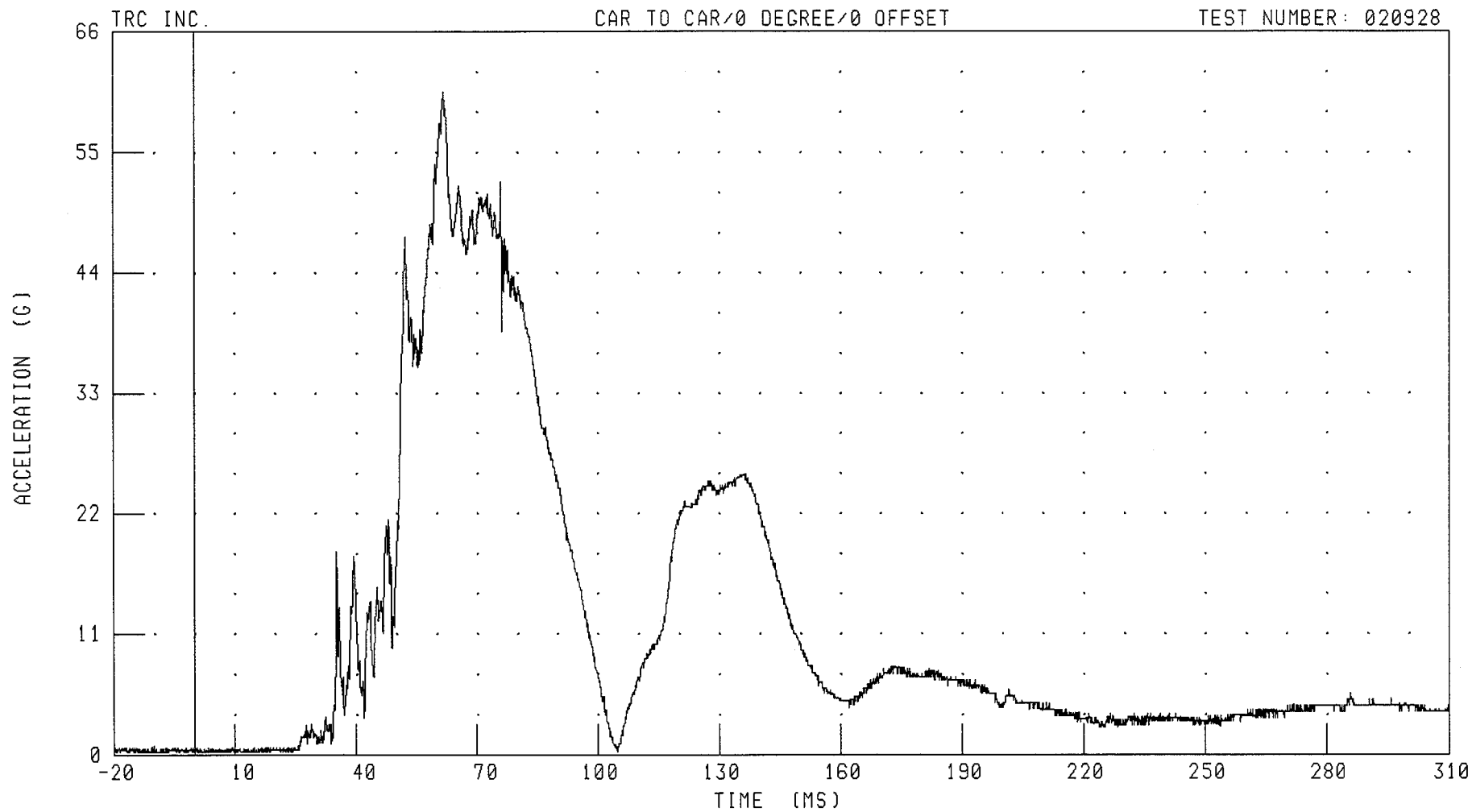
PEAK DATA: 35.20 G @ 52.40 MS; -17.02 G @ 127.28 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER HEAD RESULTANT ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDRR2 FILTER: CH. CLASS 1000

PEAK DATA: 60.57 G @ 61.76 MS; 0.24 G @ -20.00 MS

B-57

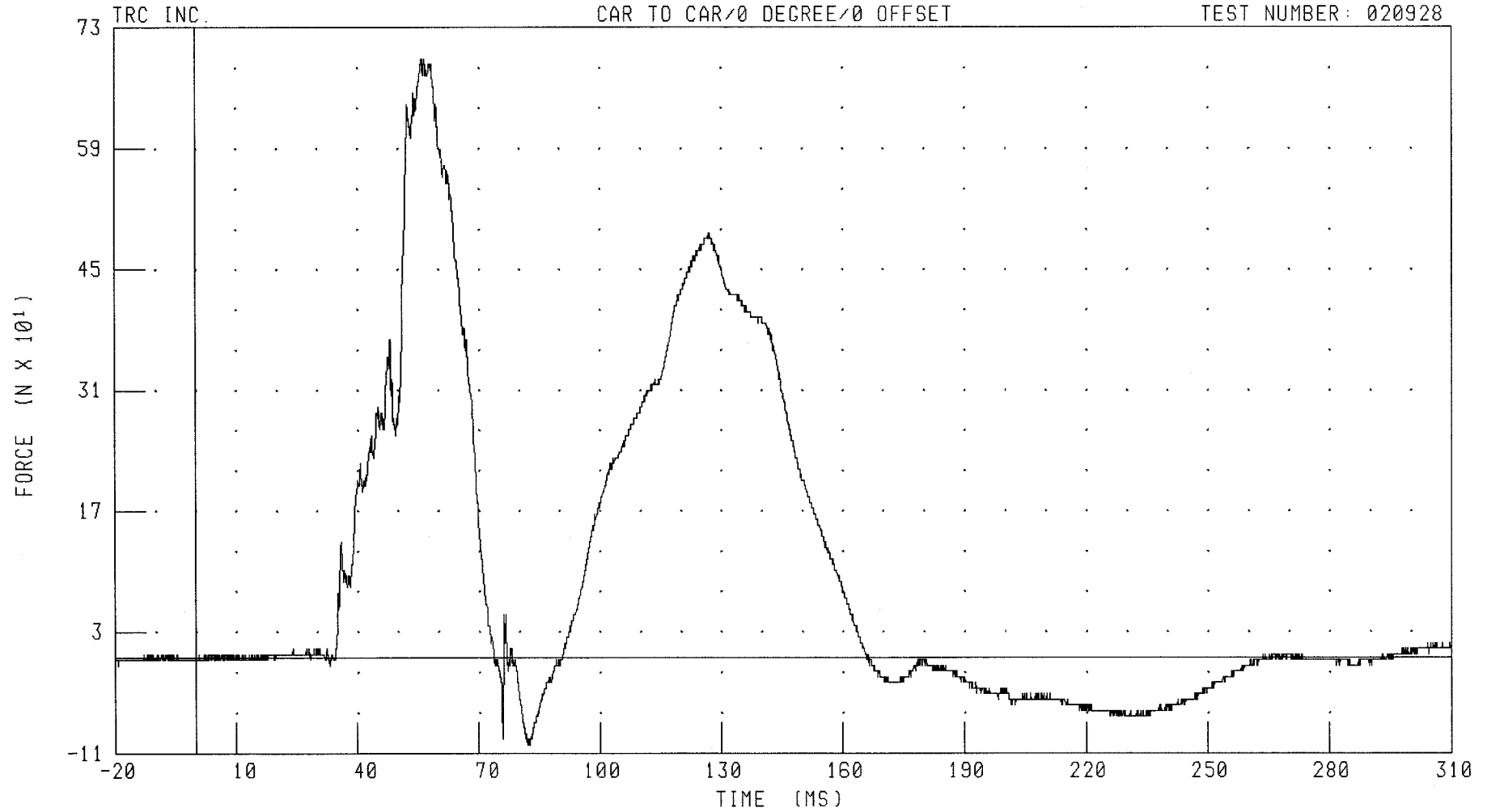
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NECK X-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

PEAK DATA: 693.80 N @ 56.00 MS; -100.44 N @ 82.00 MS

B-58

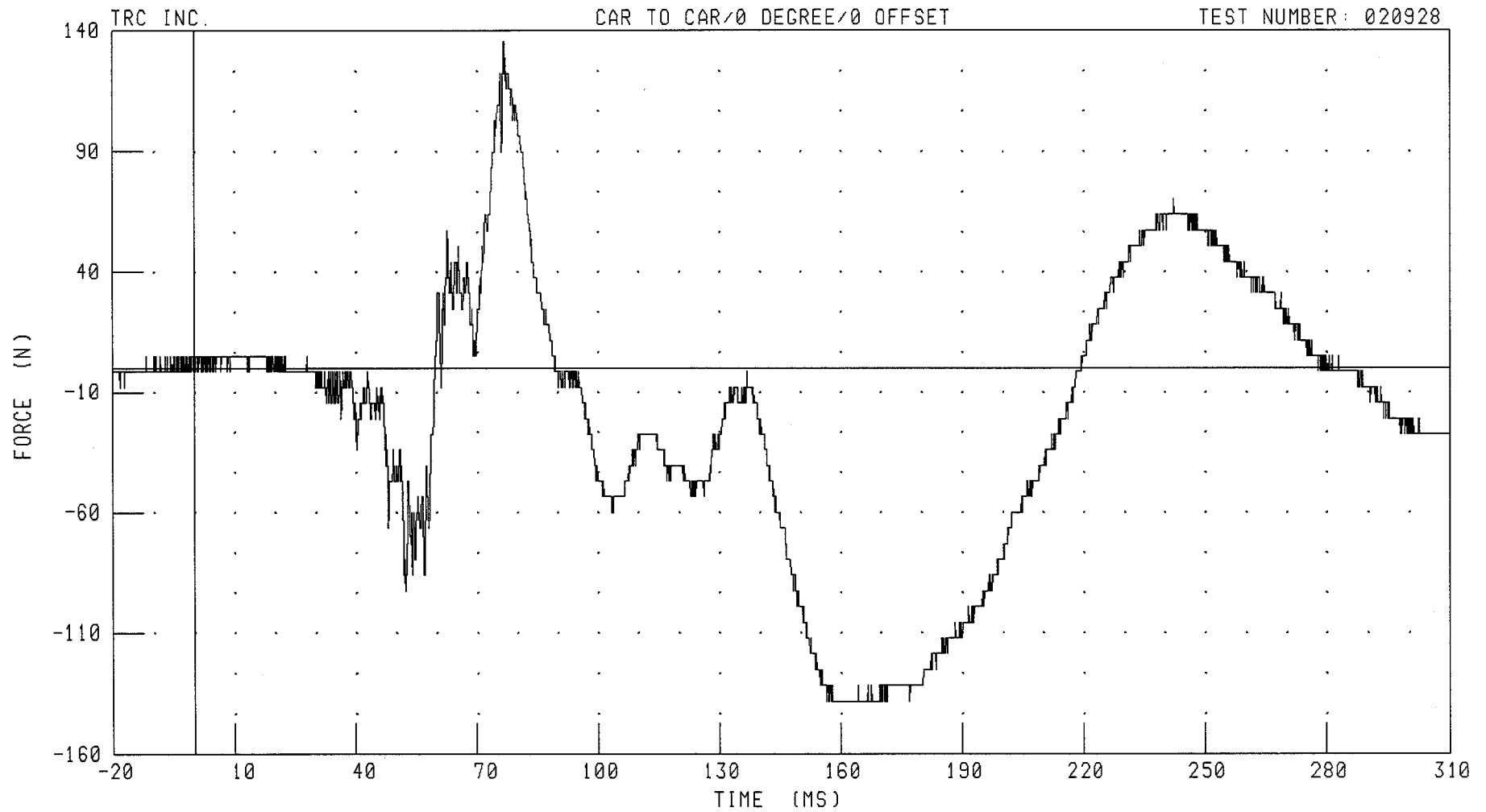
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NECK Y-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

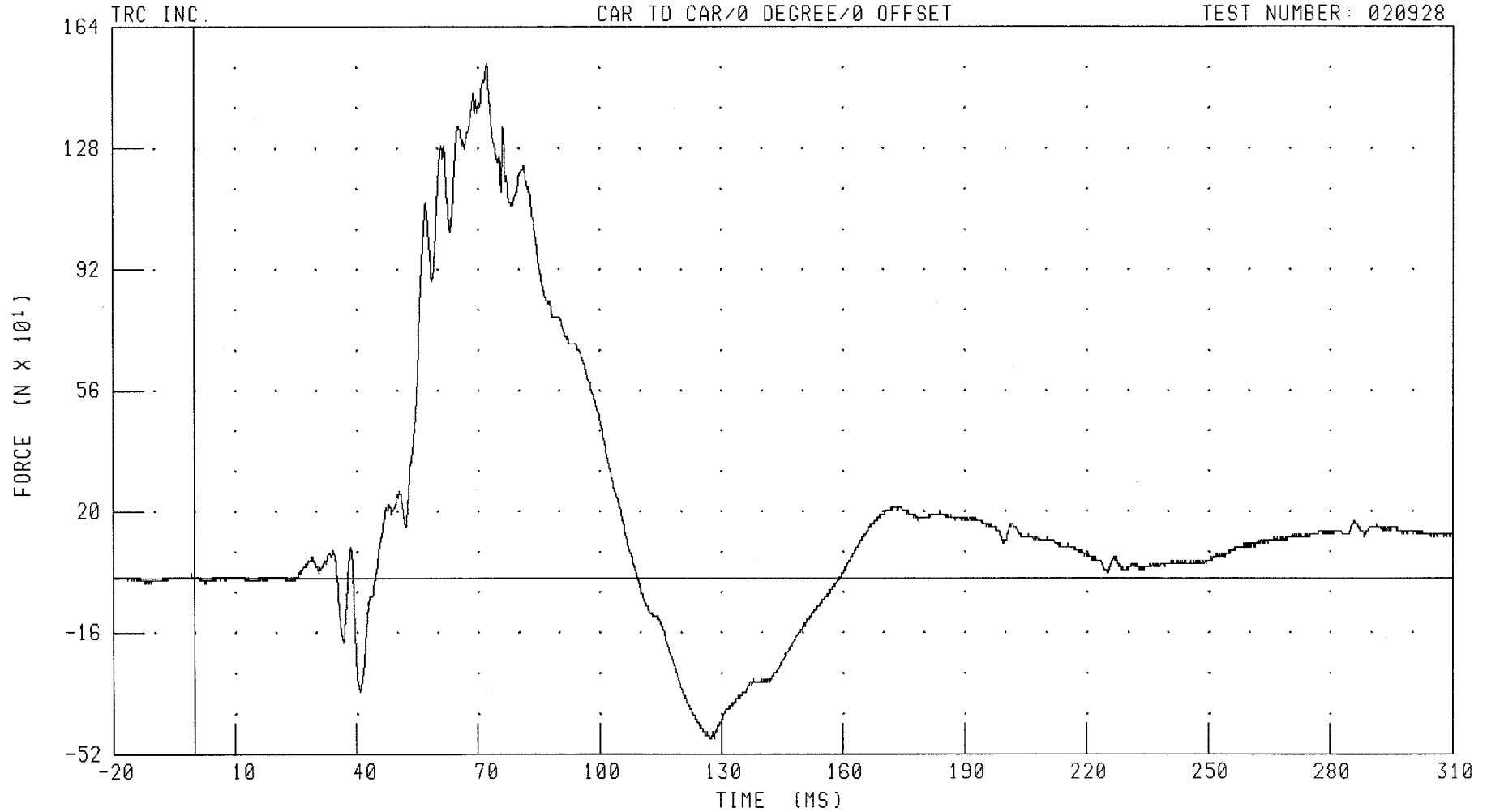
PEAK DATA: 135.40 N @ 76.72 MS; -138.27 N @ 156.56 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NECK Z-AXIS AXIAL FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

PEAK DATA: 1531.26 N @ 72.32 MS; -474.01 N @ 127.12 MS

B-60

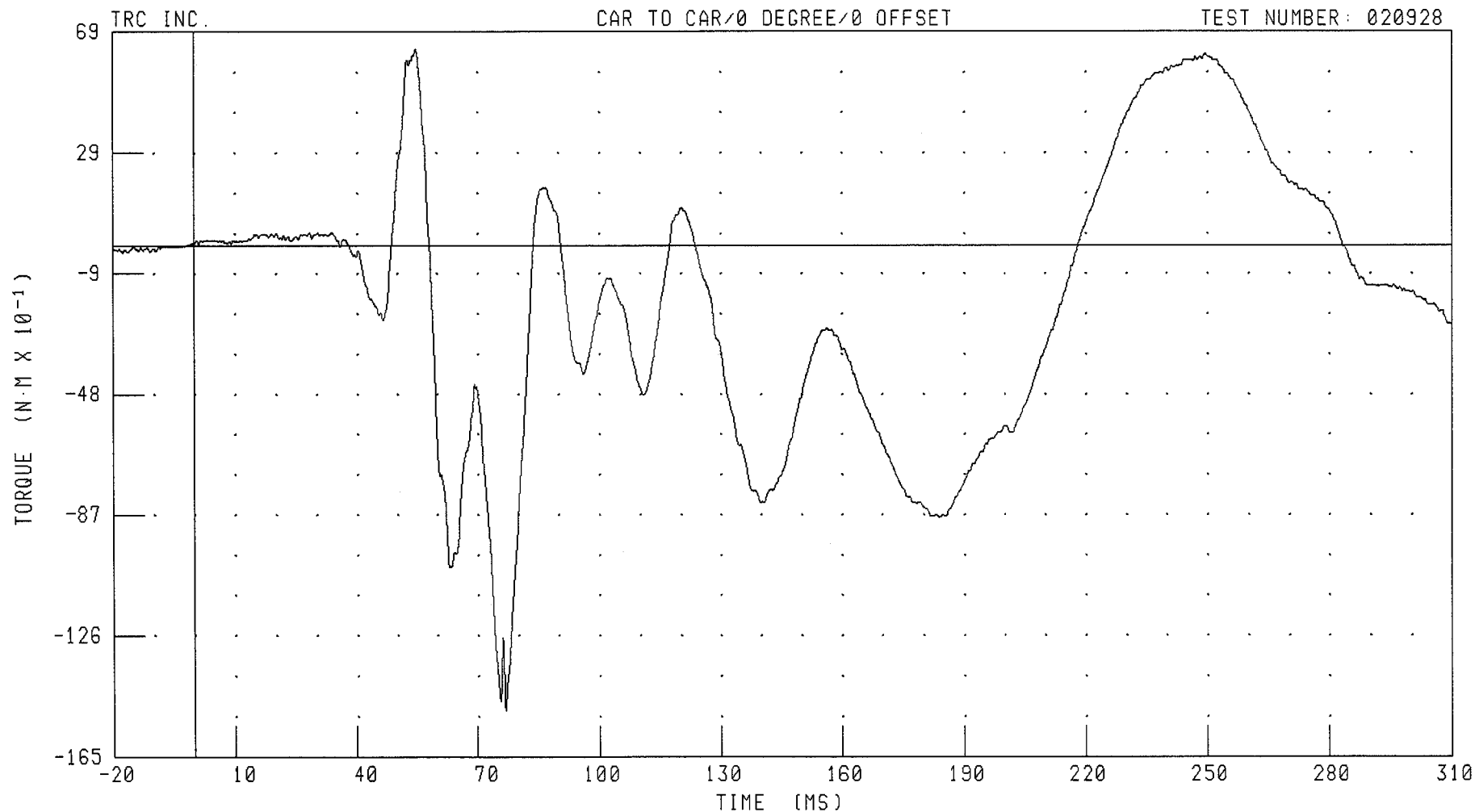
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NECK MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXM2 FILTER: CH. CLASS 600

PEAK DATA: 6.35 N·M @ 54.80 MS; -15.03 N·M @ 76.96 MS

B-61

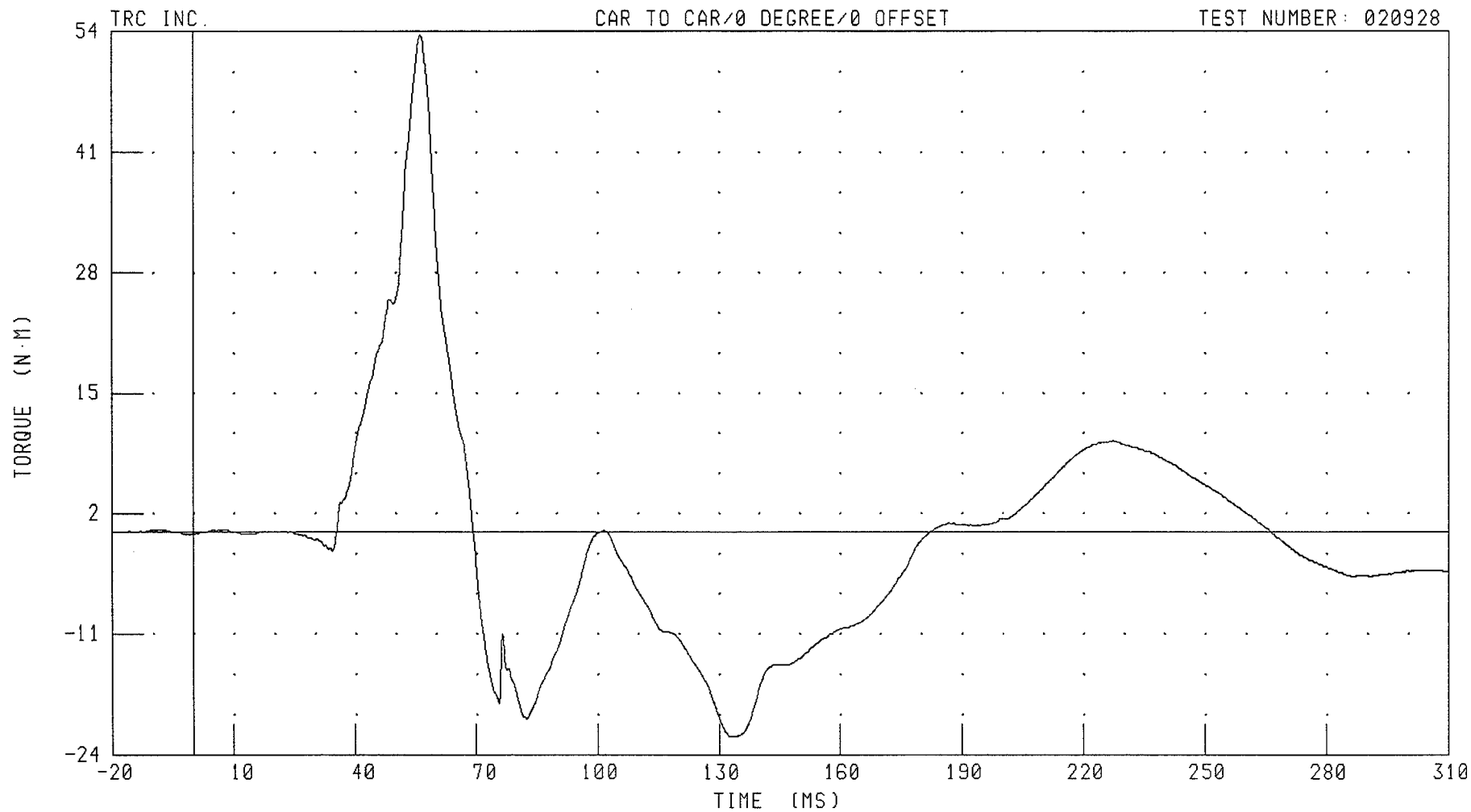
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NECK MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

PEAK DATA: 53.56 N·M @ 56.16 MS; -21.99 N·M @ 132.56 MS

B-62

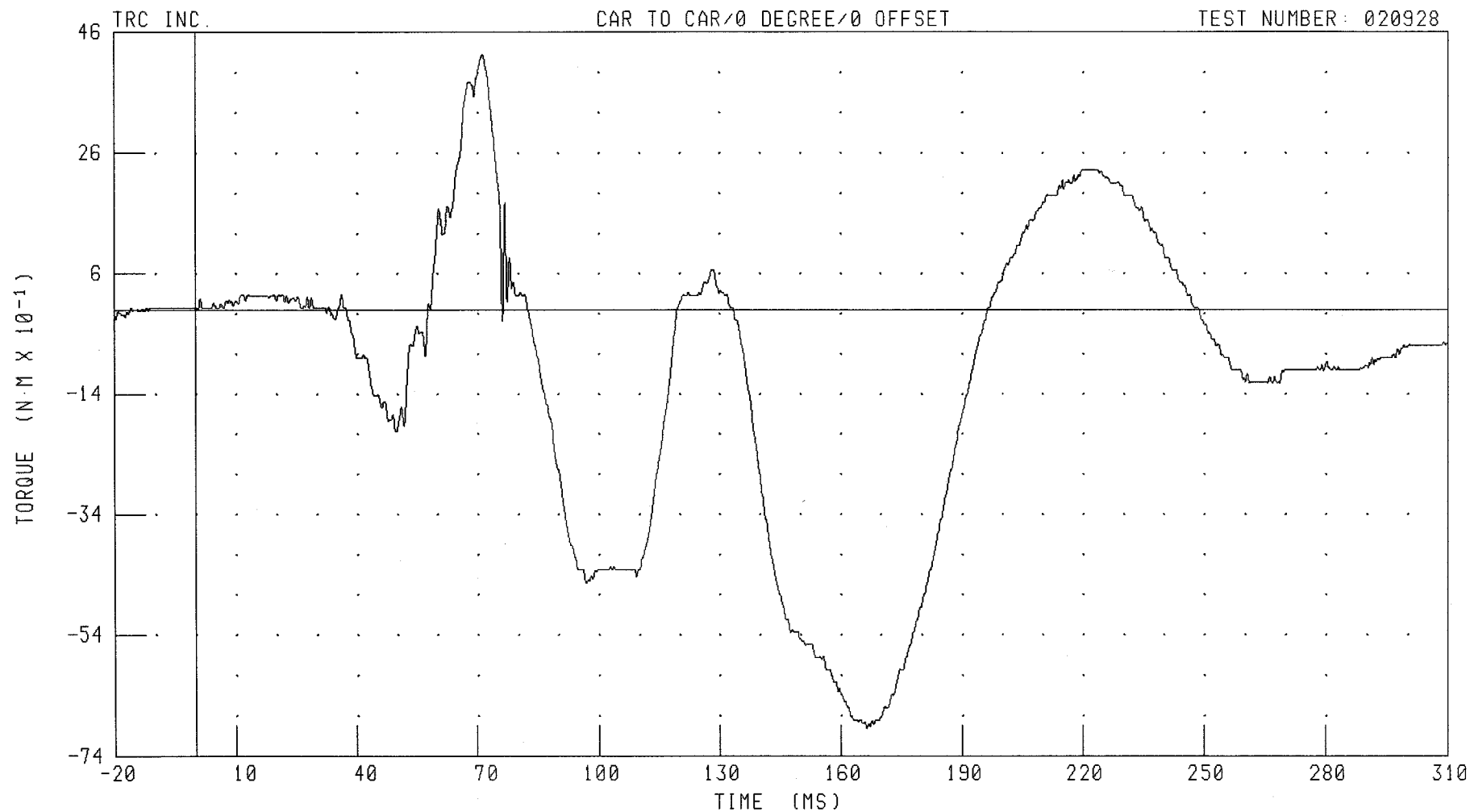
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NECK MOMENT ABOUT Z AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZM2 FILTER: CH. CLASS 600

PEAK DATA: 4.23 N·M @ 71.44 MS; -6.95 N·M @ 166.56 MS

B-63

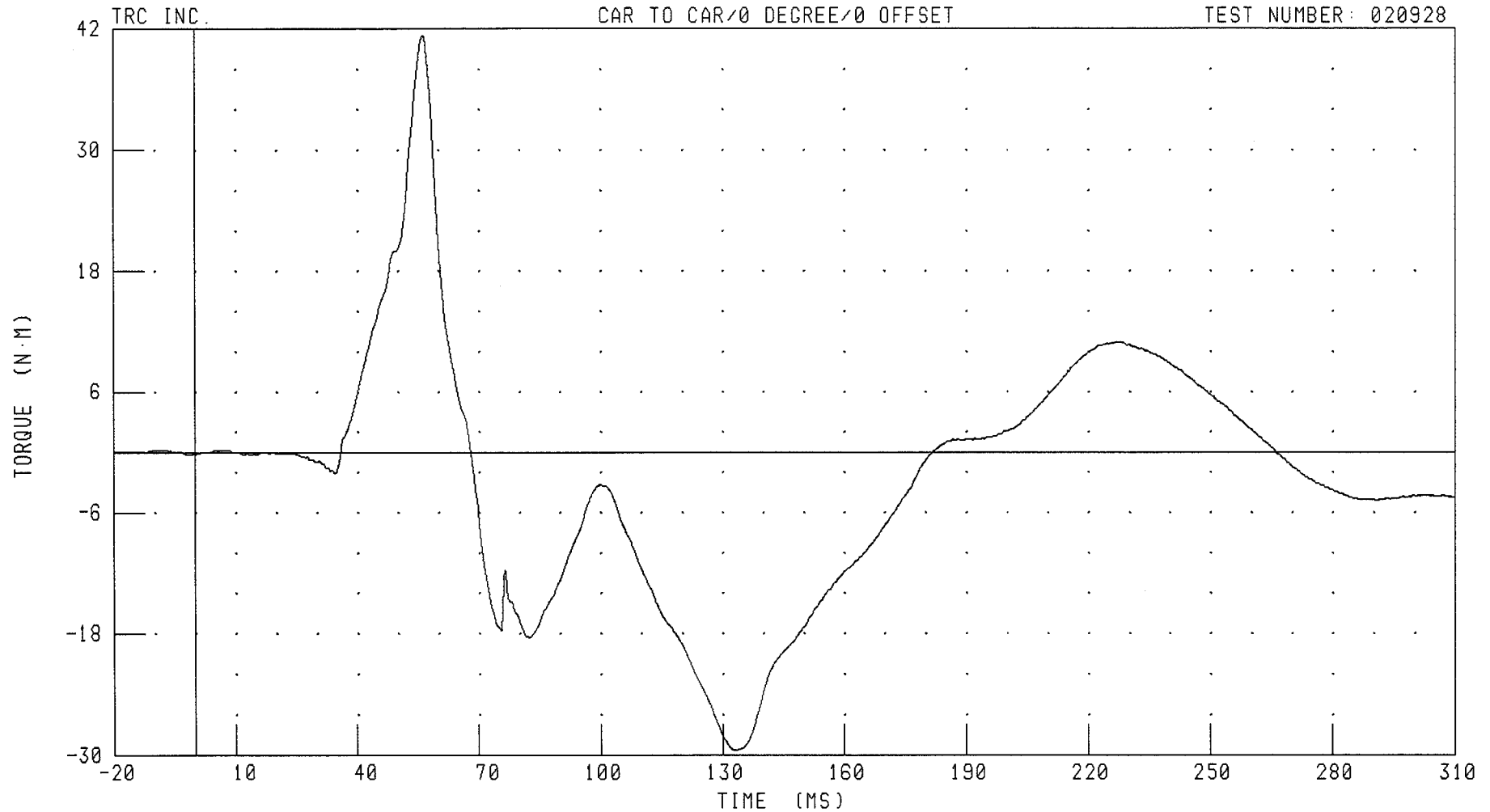
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKOM2 FILTER: CH. CLASS 600

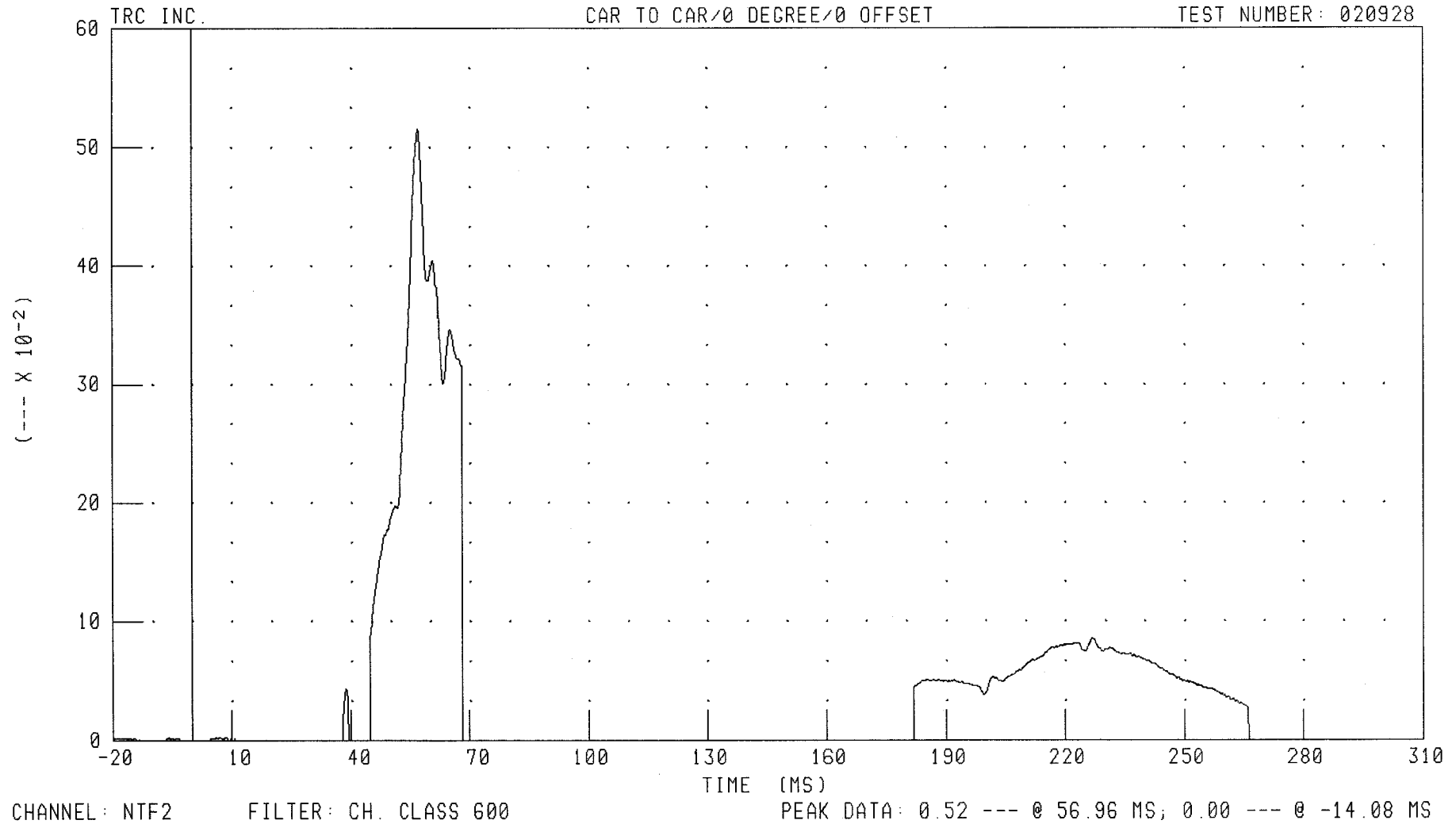
PEAK DATA: 41.36 N·M @ 56.24 MS; -29.46 N·M @ 132.56 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NIJ TENSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



B-65

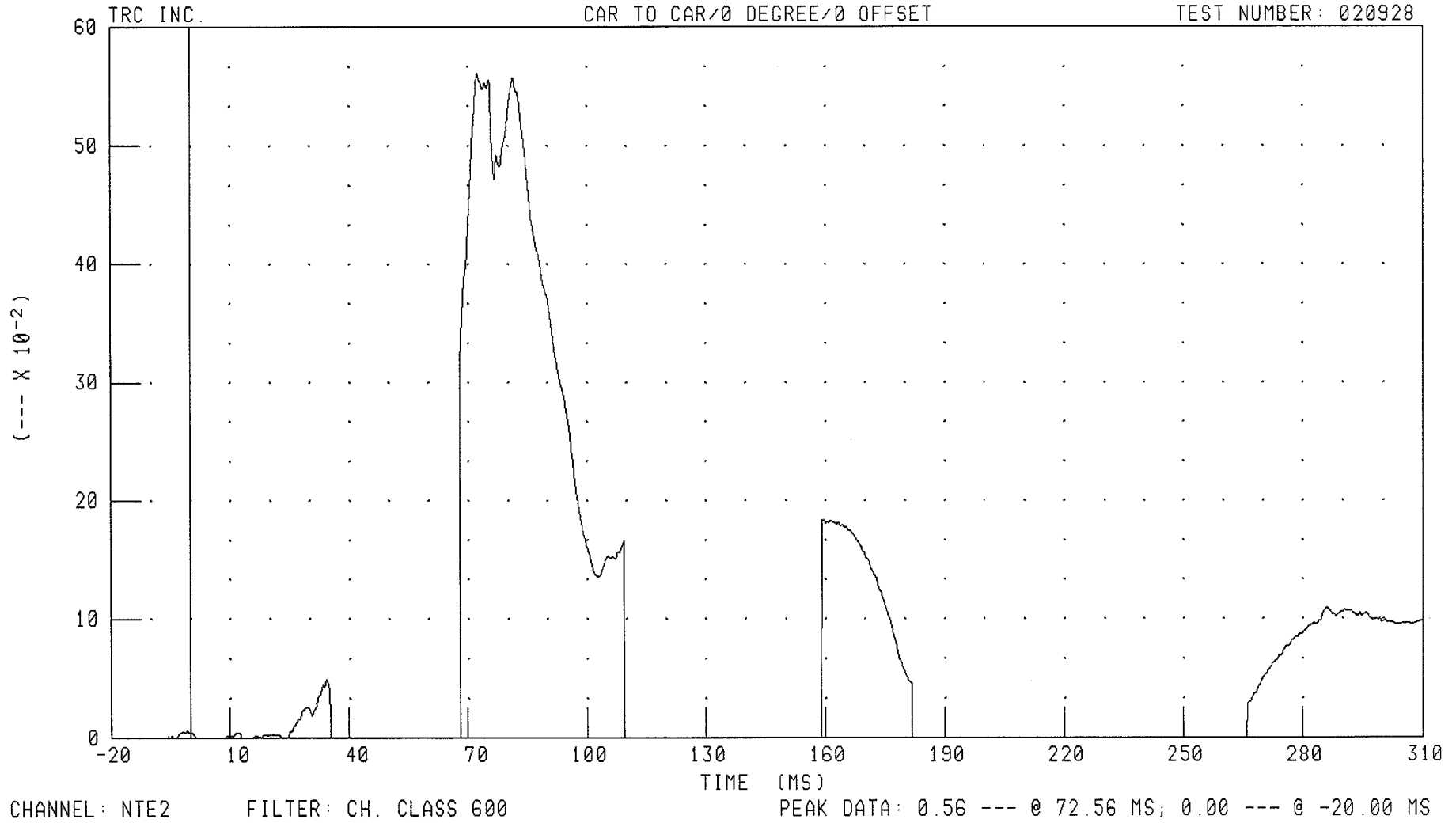
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NIJ TENSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



B-66

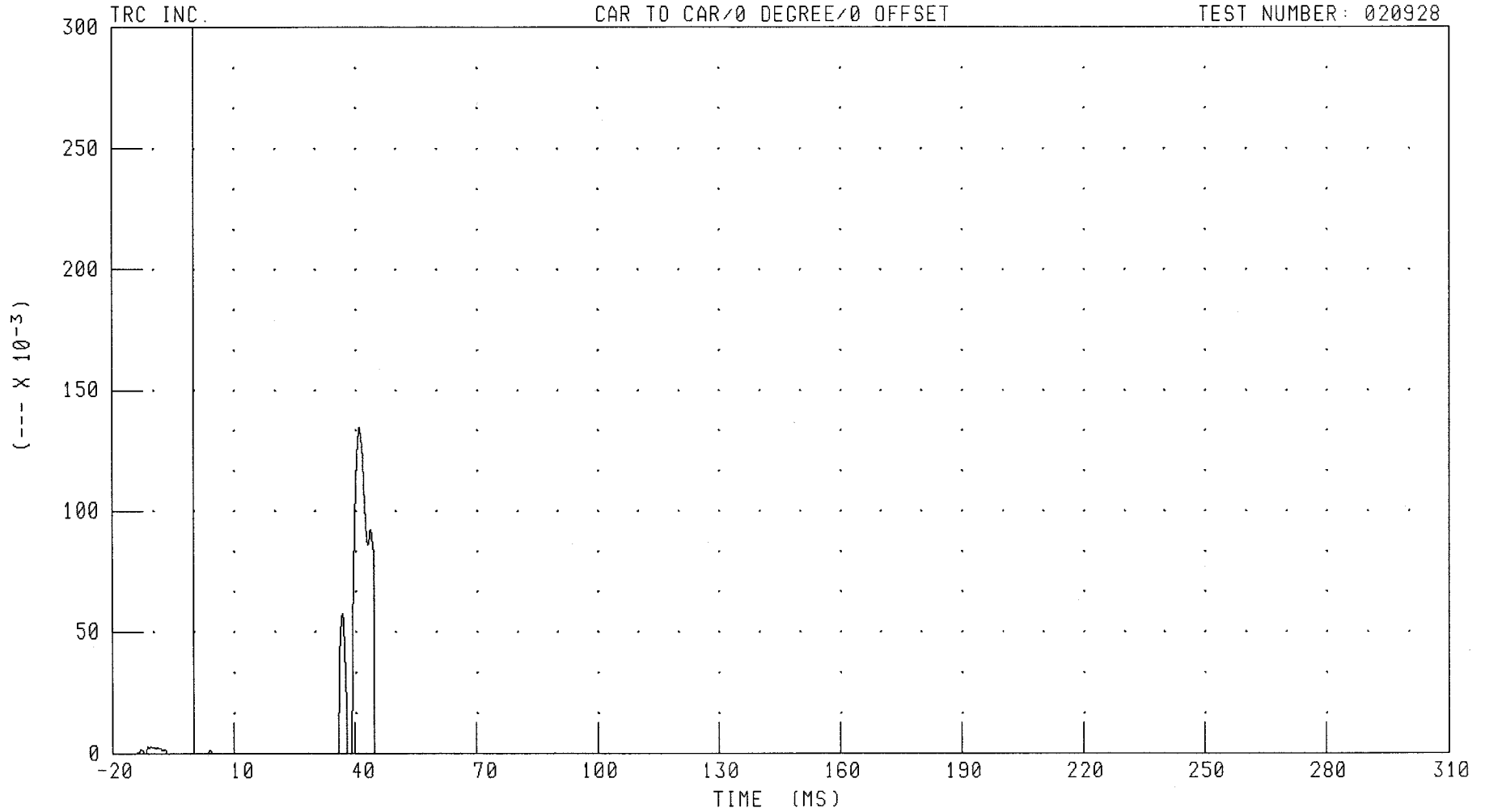
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NIJ COMPRESSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NCF2

FILTER: CH. CLASS 600

PEAK DATA: 0.13 --- @ 41.04 MS; 0.00 --- @ -20.00 MS

B-67

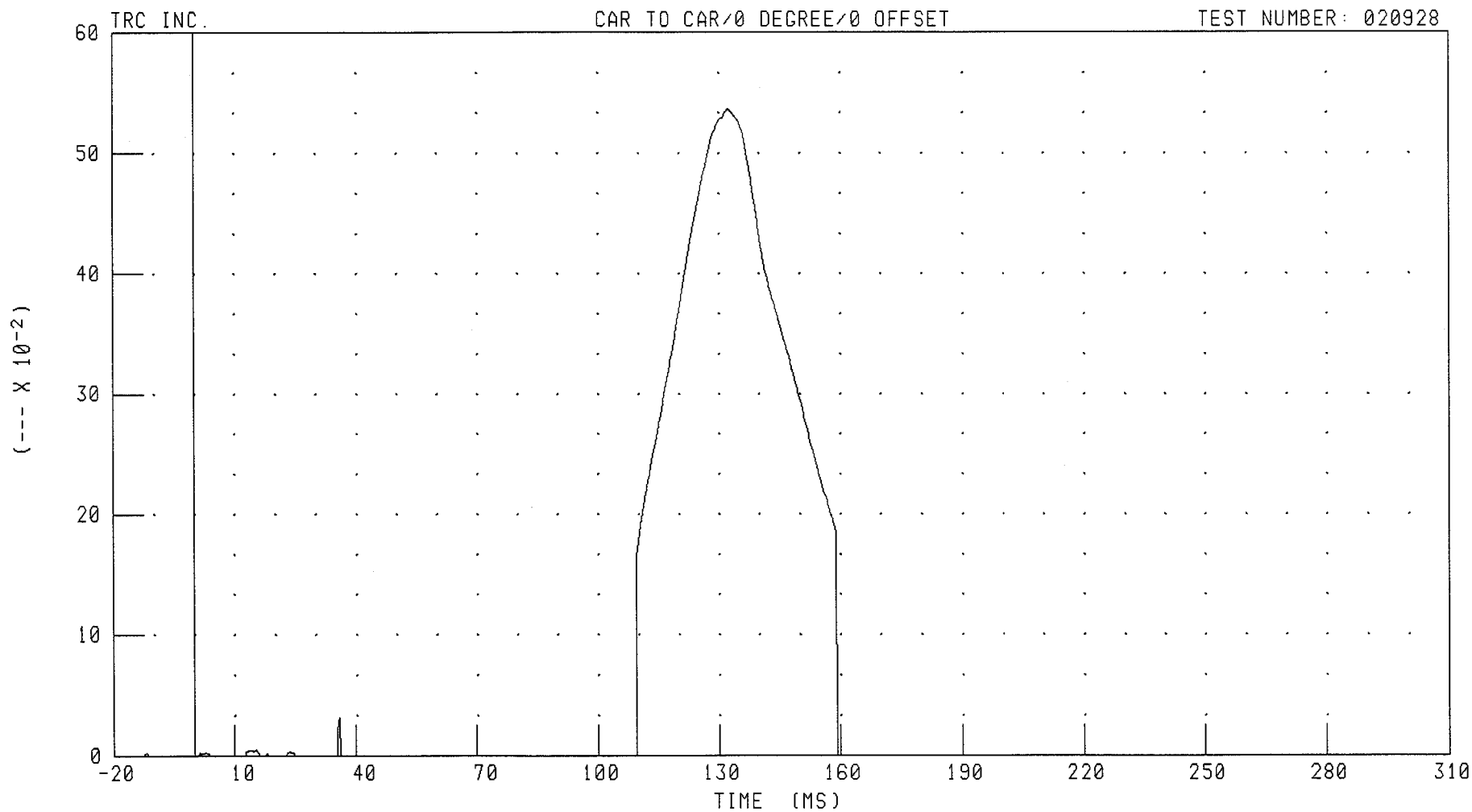
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER NIJ COMPRESSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NCE2

FILTER: CH. CLASS 600

PEAK DATA: 0.54 --- @ 132.48 MS; 0.00 --- @ -20.00 MS

B-68

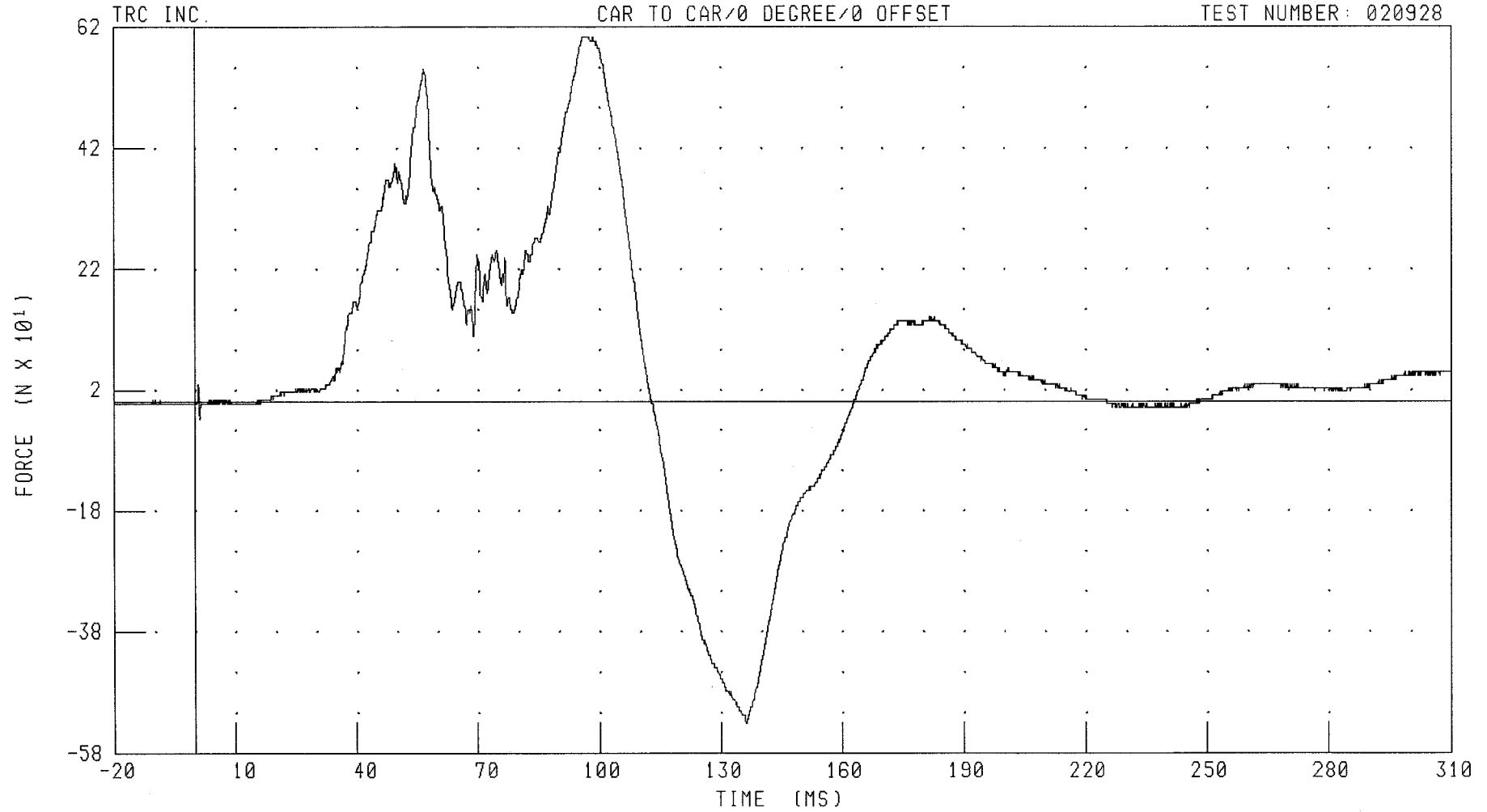
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LOWER NECK X-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLXF2 FILTER: CH. CLASS 1000

PEAK DATA: 603.54 N @ 95.84 MS; -530.52 N @ 136.08 MS

69-B

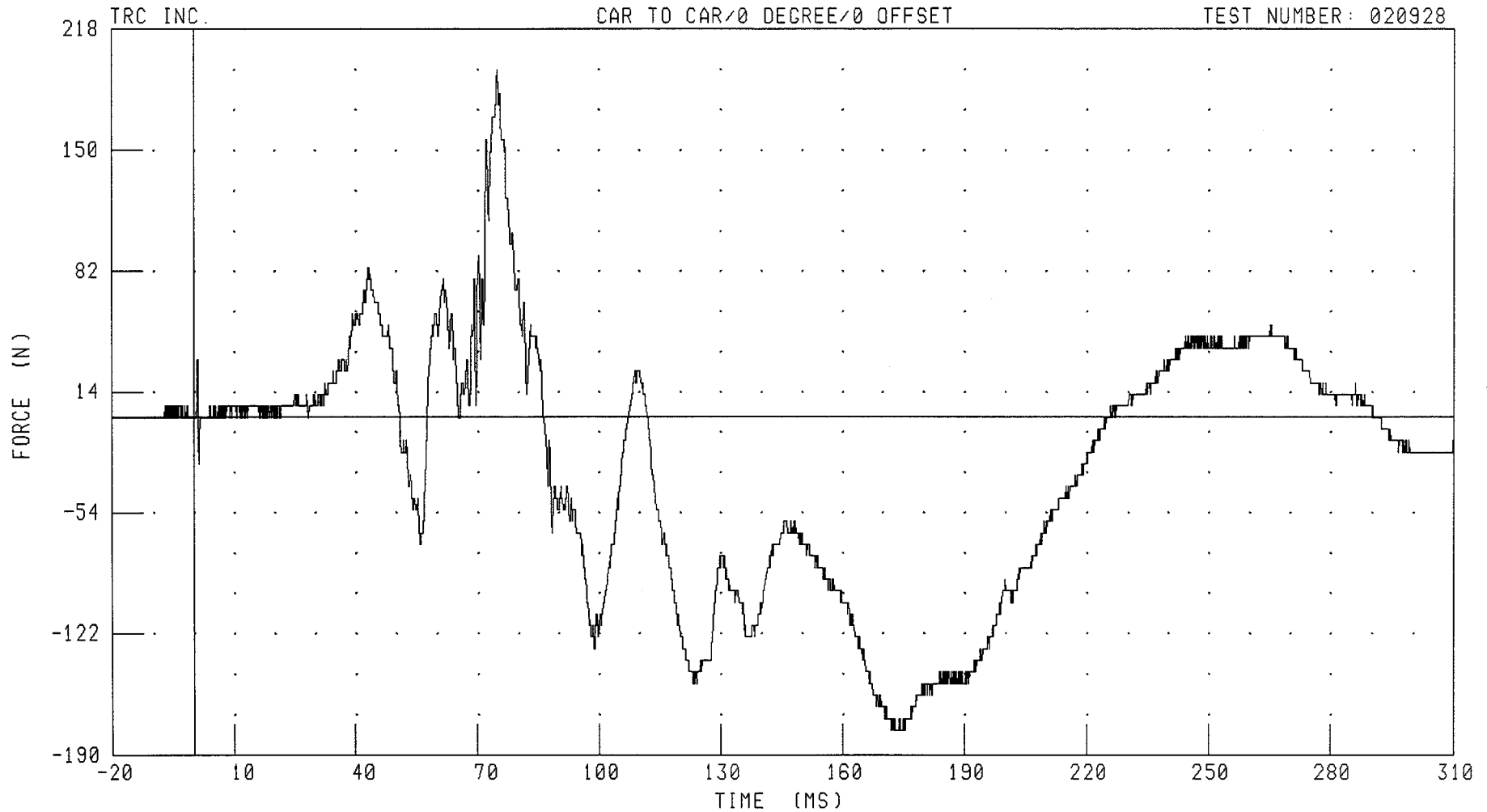
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LOWER NECK Y-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLYF2 FILTER: CH. CLASS 1000

PEAK DATA: 194.84 N @ 74.88 MS; -176.20 N @ 172.08 MS

B-70

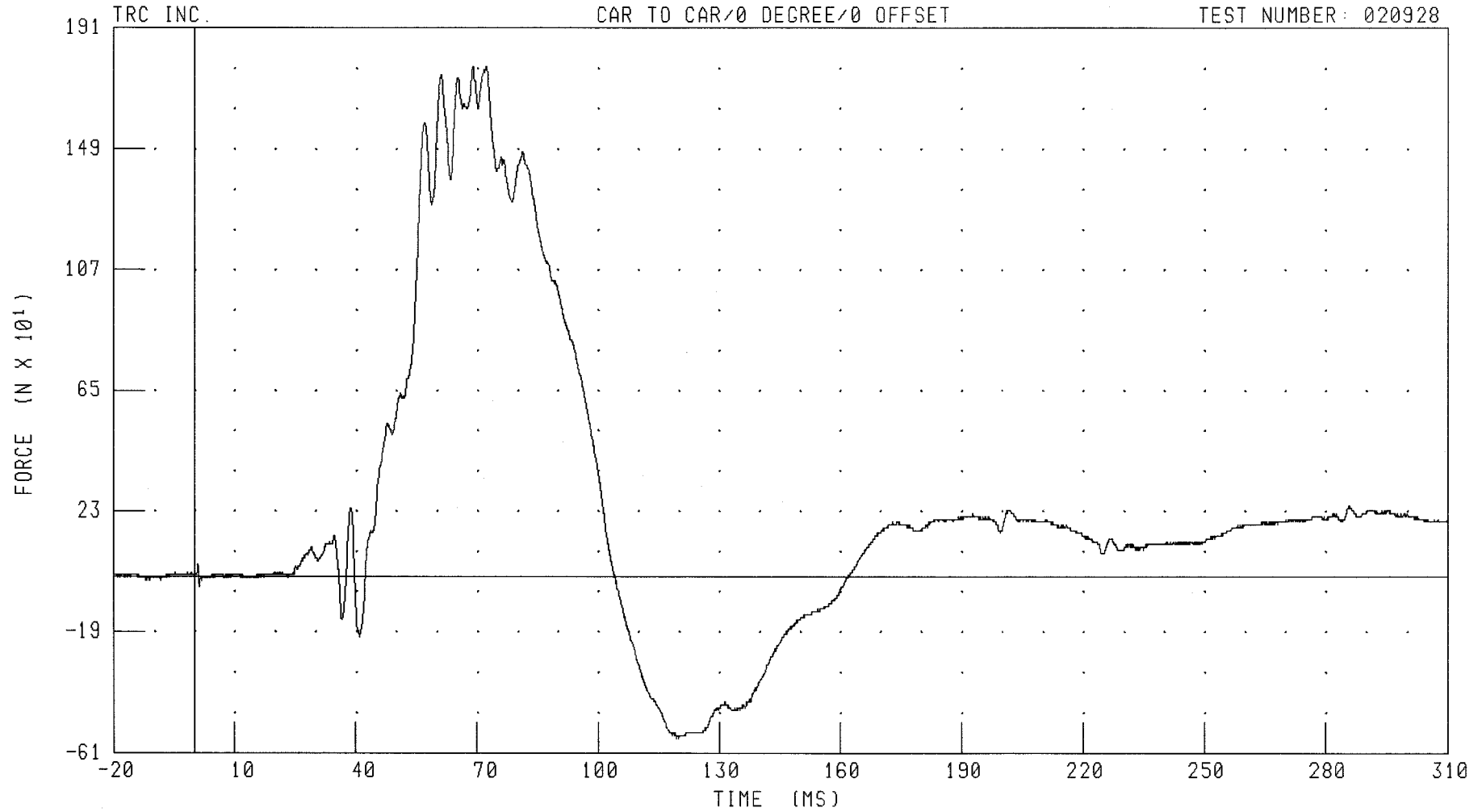
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LOWER NECK Z-AXIS AXIAL FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLZF2 FILTER: CH. CLASS 1000

PEAK DATA: 1775.20 N @ 68.80 MS; -560.22 N @ 119.44 MS

B-71

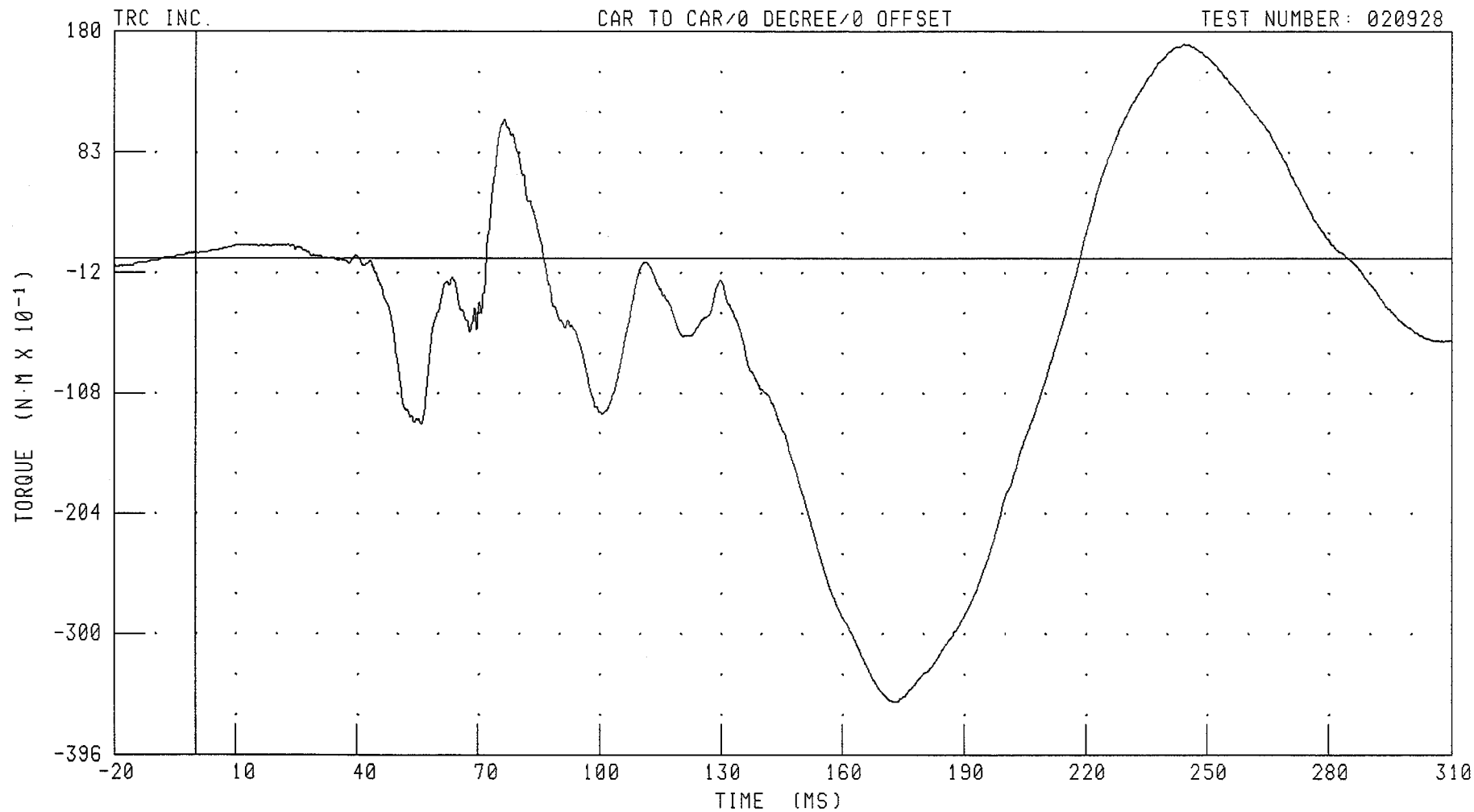
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LOWER NECK MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLXM2 FILTER: CH. CLASS 600

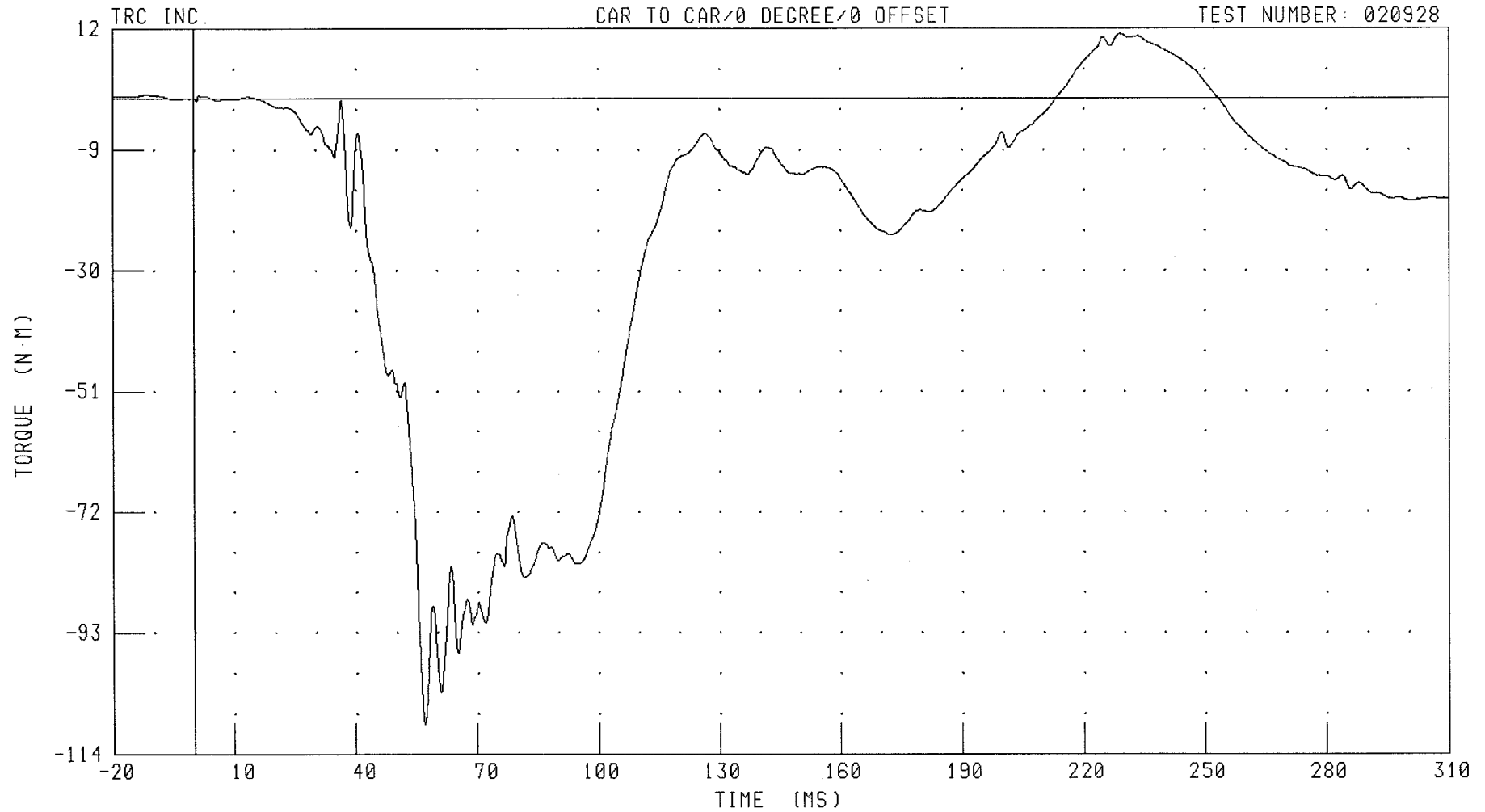
PEAK DATA: 17.01 N·M @ 244.32 MS; -35.37 N·M @ 173.76 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LOWER NECK MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLYM2 FILTER: CH. CLASS 600

PEAK DATA: 11.10 N·M @ 229.20 MS; -108.81 N·M @ 56.96 MS

B-73

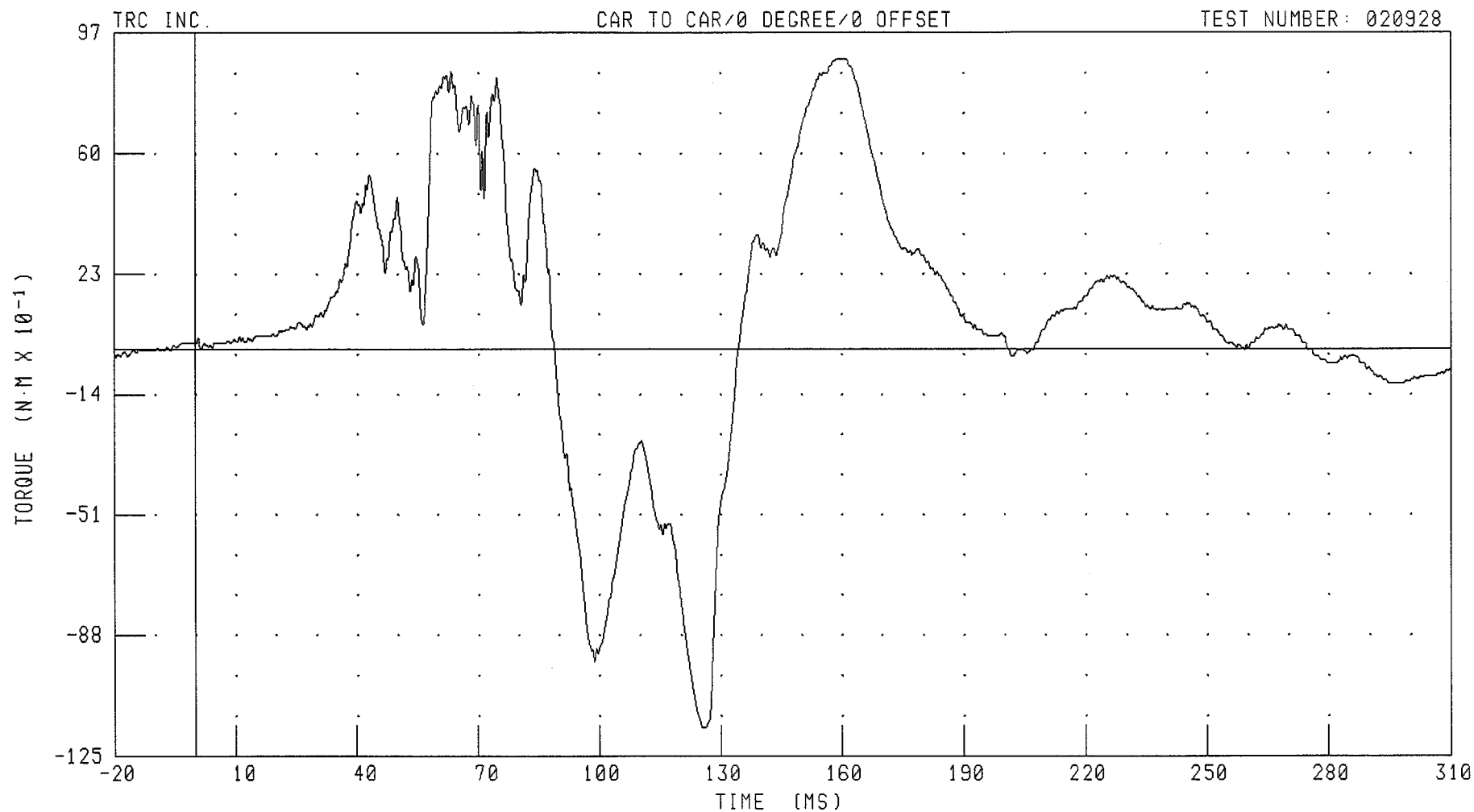
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LOWER NECK MOMENT ABOUT Z AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLZM2

FILTER: CH. CLASS 600

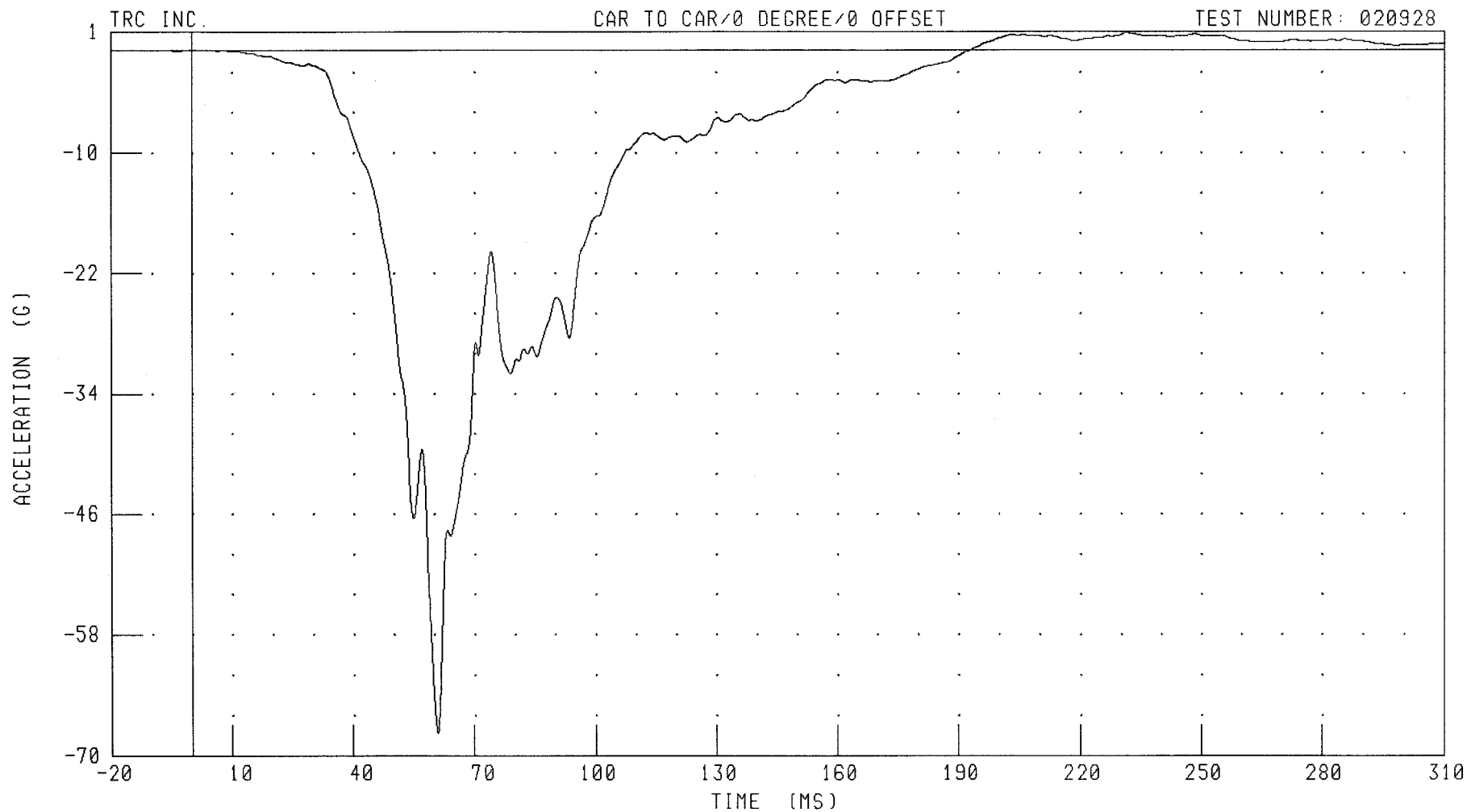
PEAK DATA: 8.89 N·M @ 161.44 MS; -11.62 N·M @ 125.52 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXC2 FILTER: CH. CLASS 180

PEAK DATA: 1.69 G @ 231.60 MS; -67.99 G @ 60.96 MS

B-75

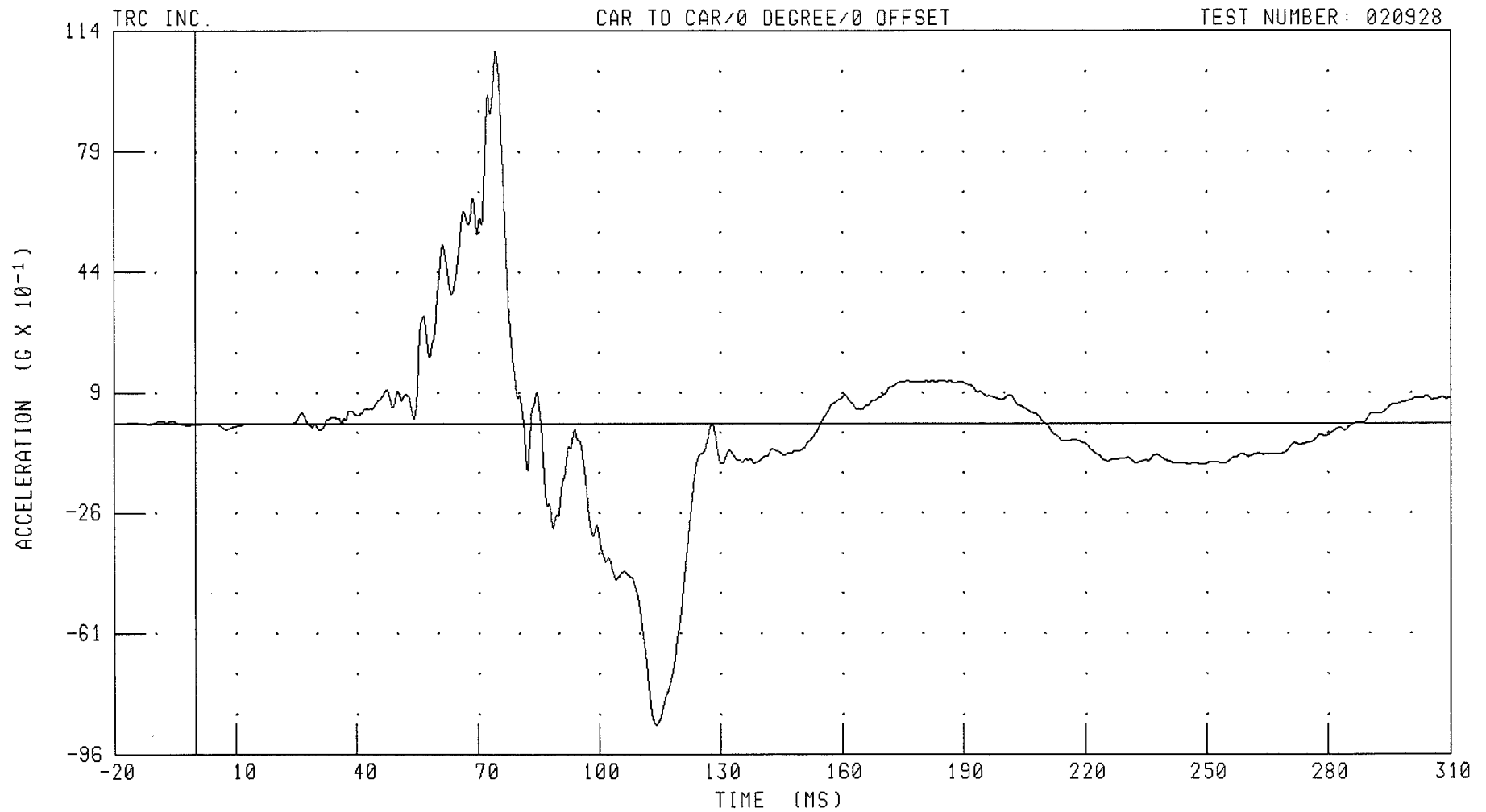
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

PEAK DATA: 10.81 G @ 74.40 MS; -8.75 G @ 114.24 MS

B-76

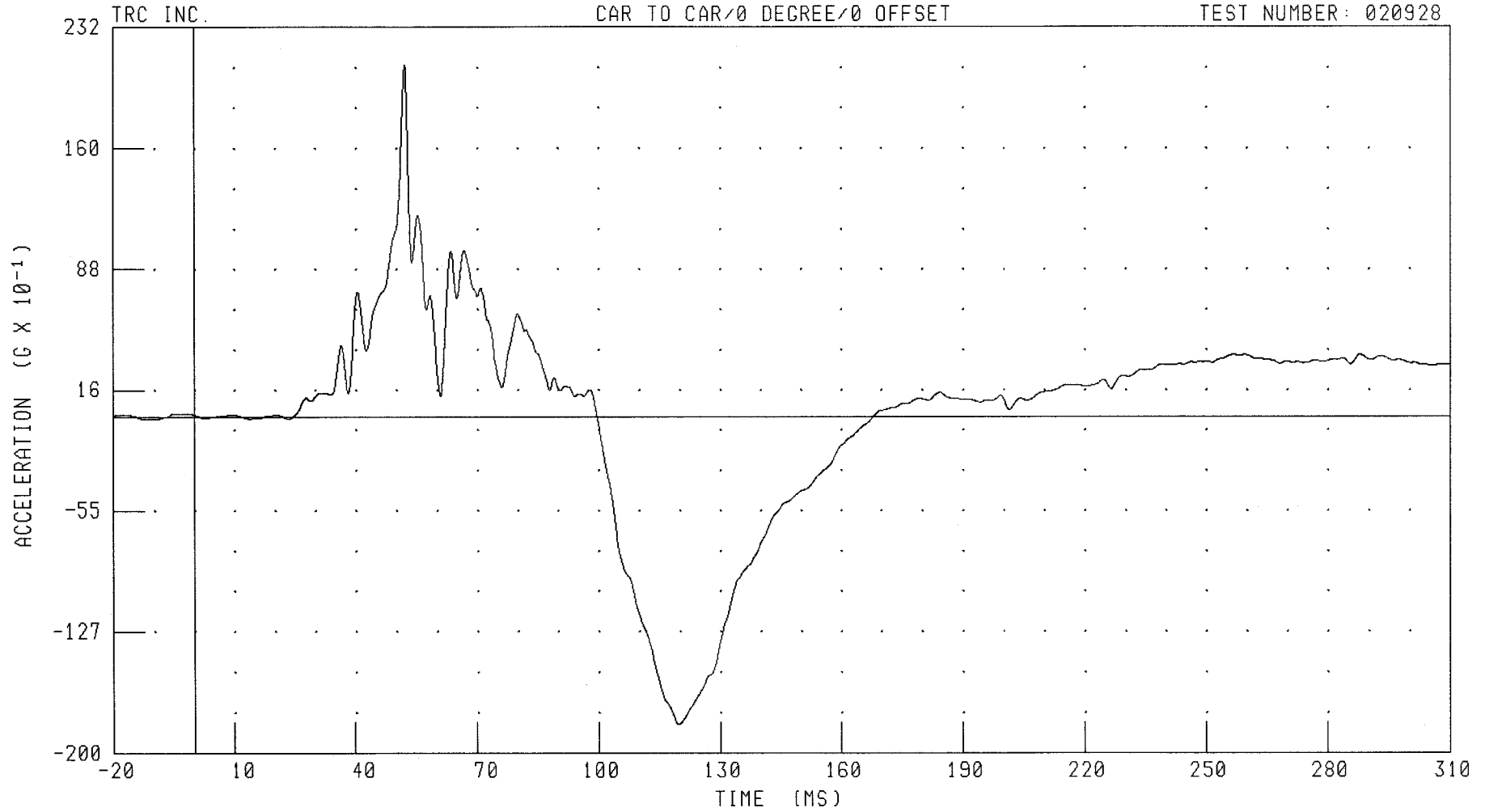
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 20.96 G @ 52.16 MS; -18.31 G @ 119.76 MS

B-77

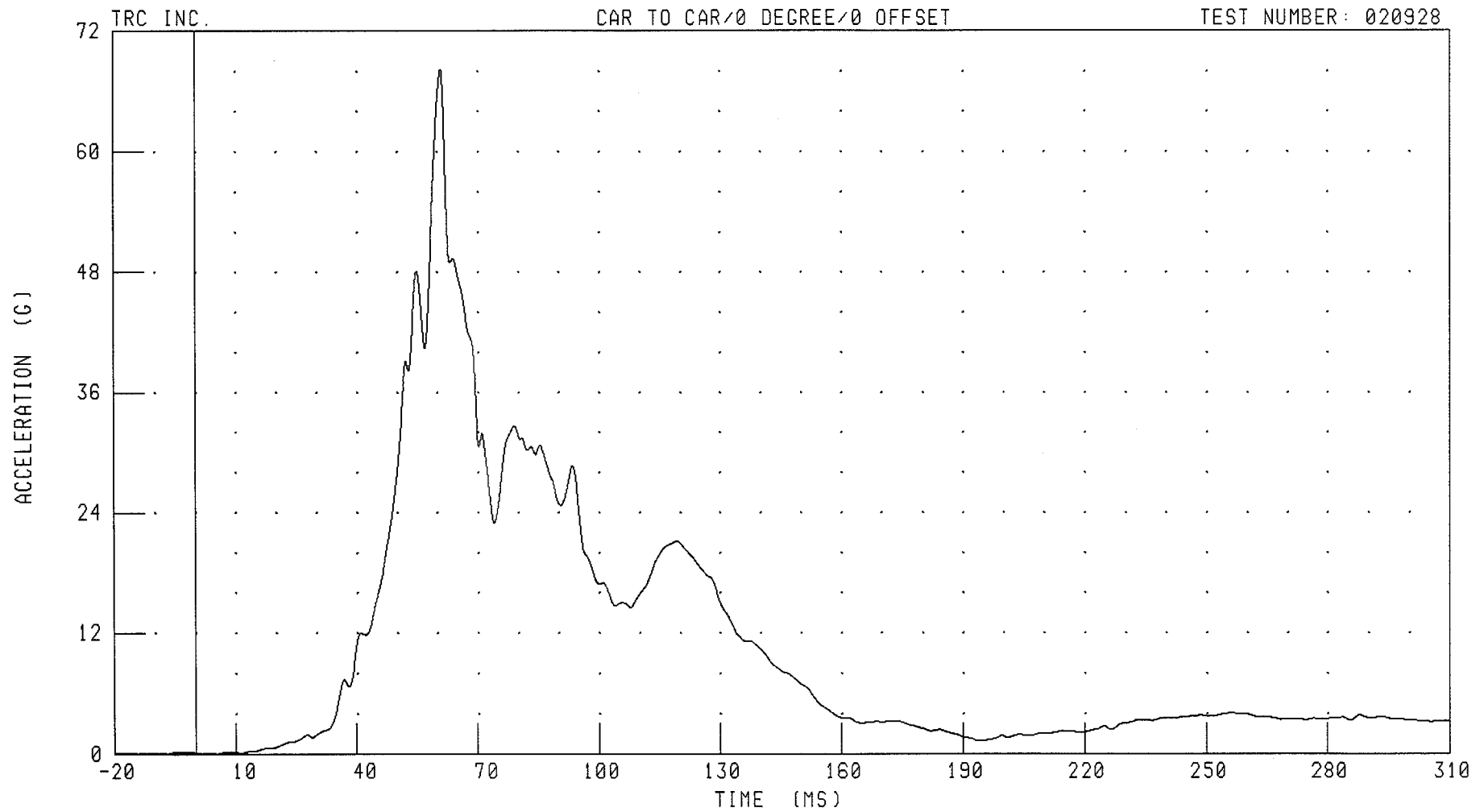
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

PEAK DATA: 68.18 G @ 60.96 MS; 0.01 G @ -20.00 MS

B-78

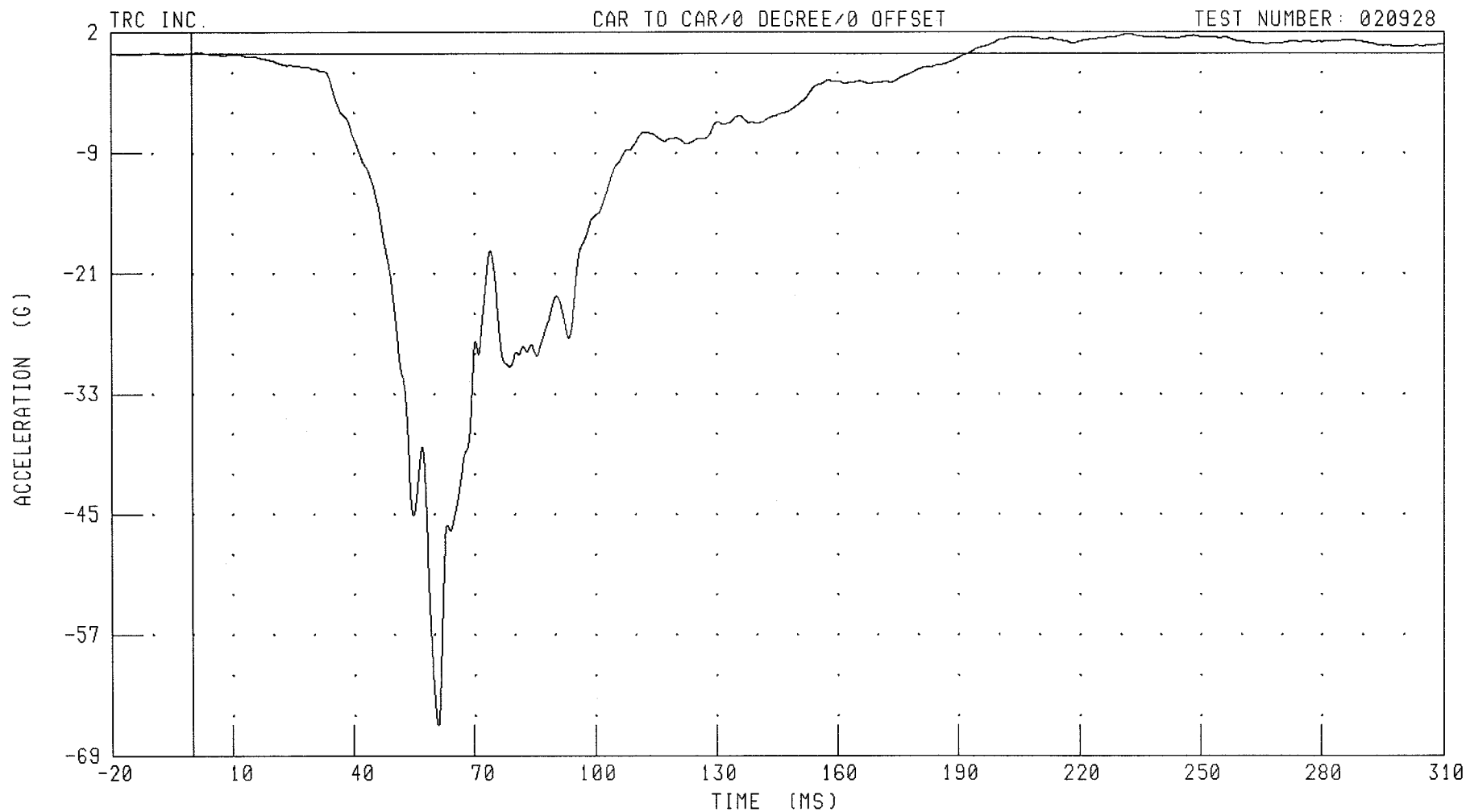
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST X-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXR2 FILTER: CH. CLASS 180

PEAK DATA: 1.95 G @ 232.00 MS; -66.91 G @ 60.96 MS

B-79

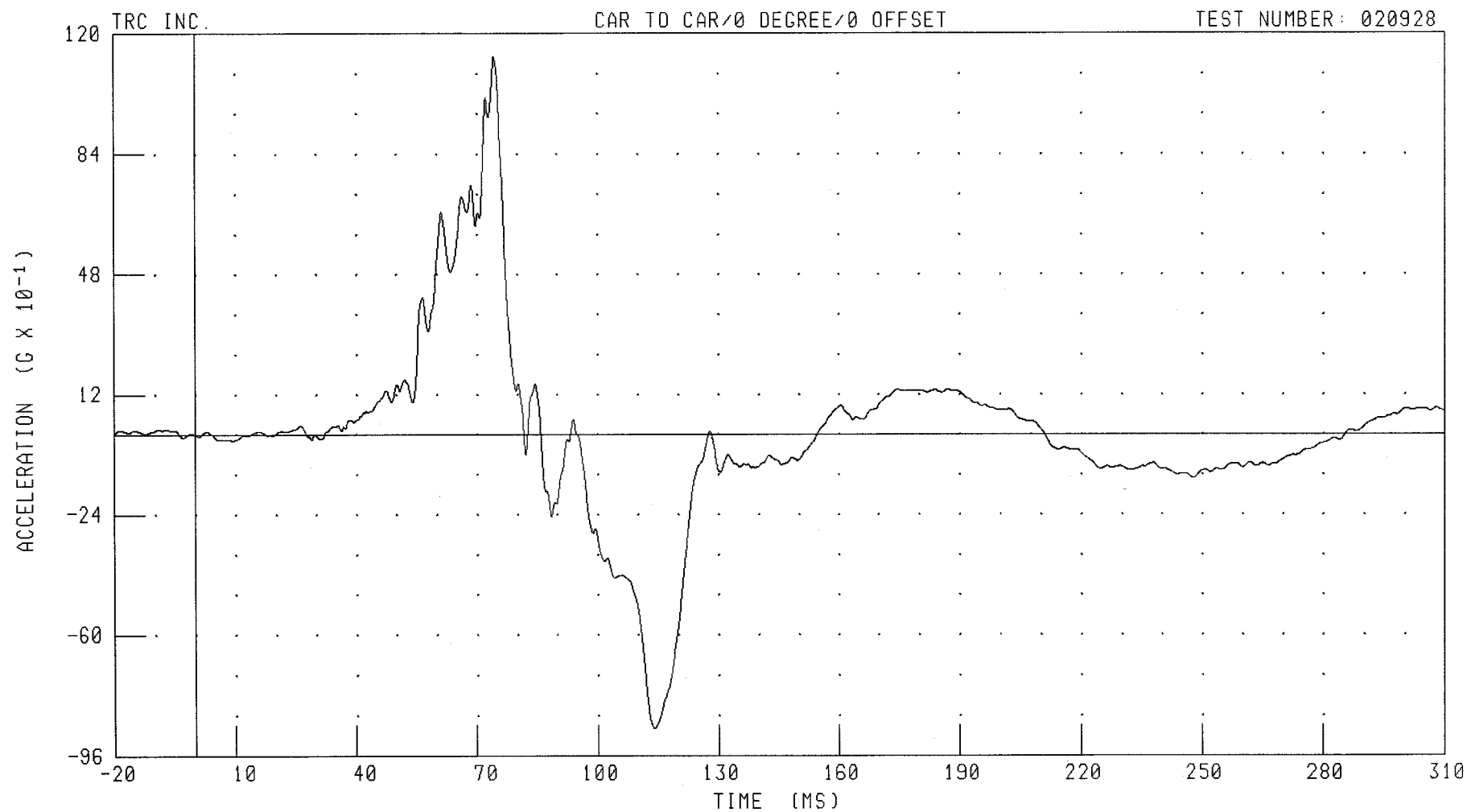
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST Y-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTYR2 FILTER: CH. CLASS 180

PEAK DATA: 11.31 G @ 74.40 MS; -8.79 G @ 114.16 MS

08-B

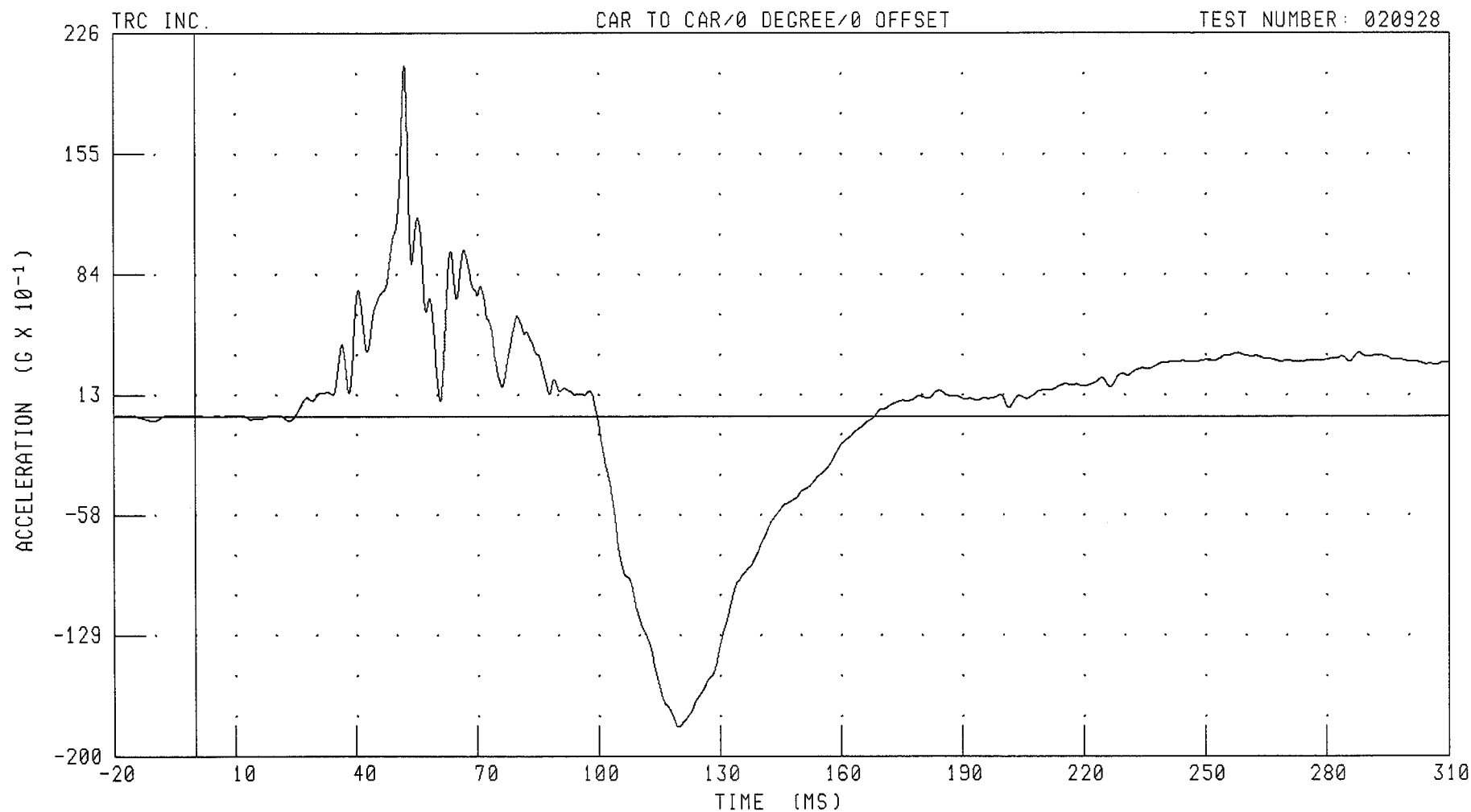
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST Z-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTZR2 FILTER: CH. CLASS 180

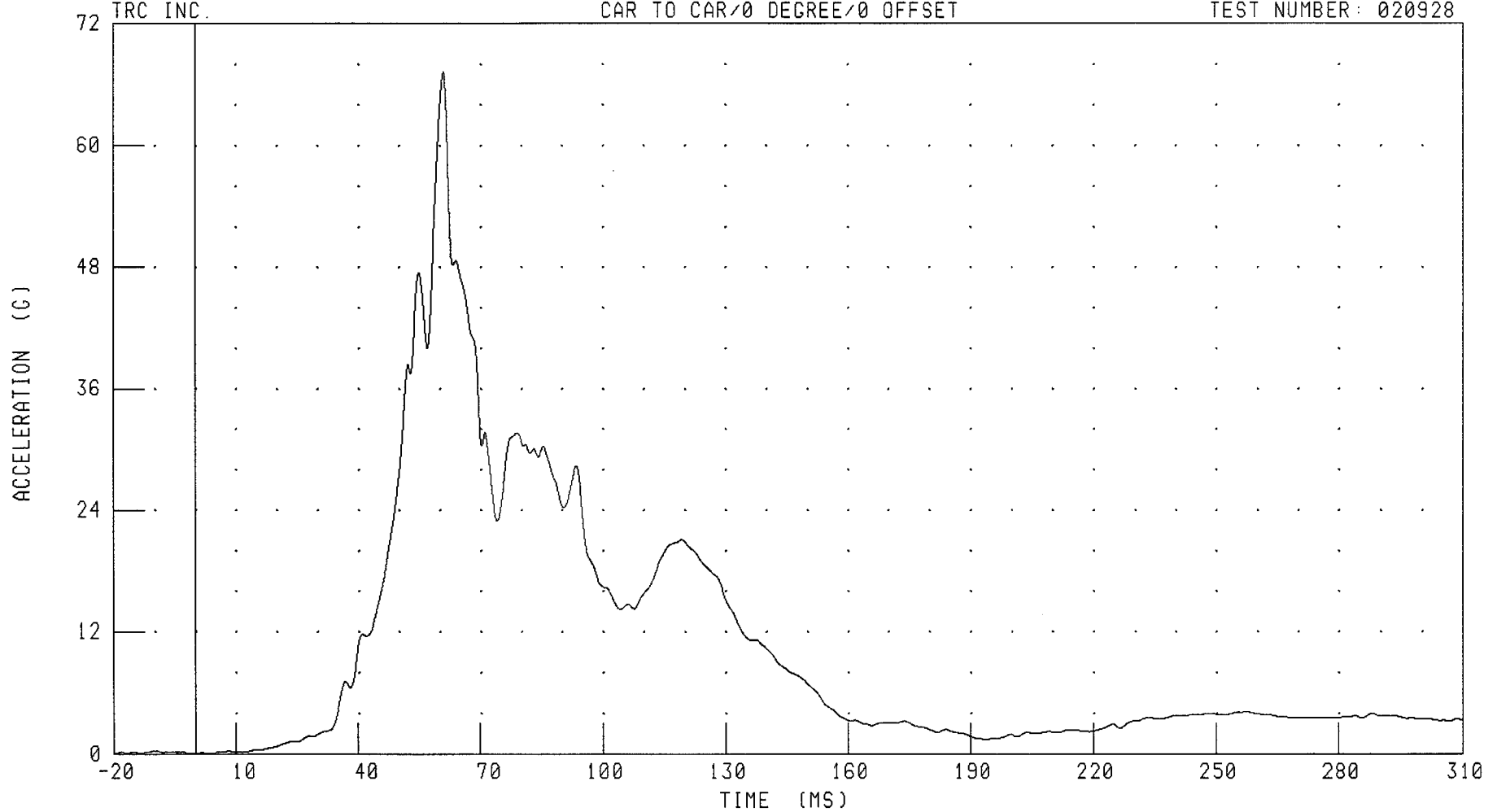
PEAK DATA: 20.70 G @ 52.16 MS; -18.29 G @ 119.68 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST RESULTANT ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTR2 FILTER: CH. CLASS 180

PEAK DATA: 67.23 G @ 60.96 MS; 0.01 G @ -20.00 MS

B-82

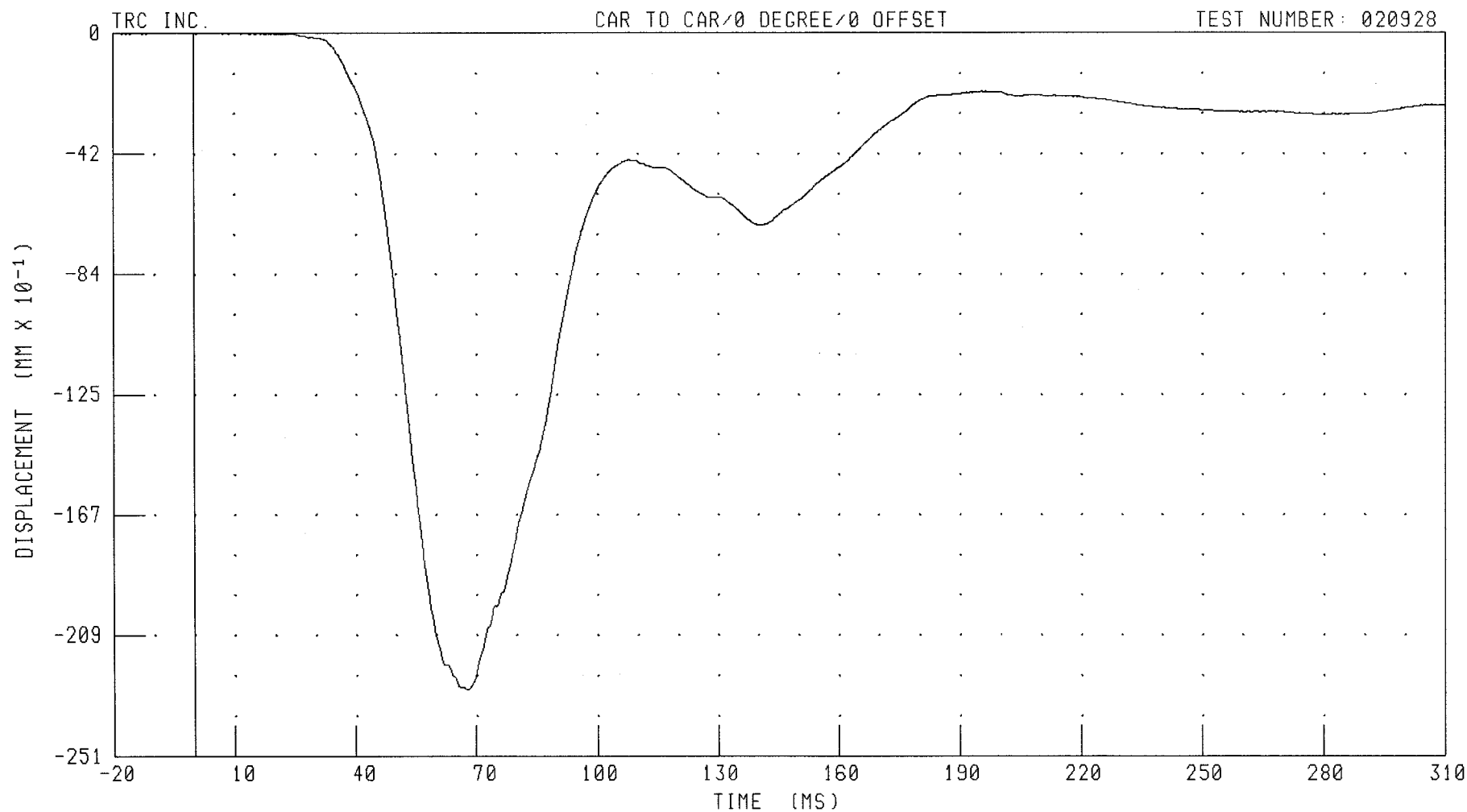
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER CHEST DEFLECTION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXD2 FILTER: CH. CLASS 600

PEAK DATA: 0.03 MM @ -8.16 MS; -22.88 MM @ 68.08 MS

B-83

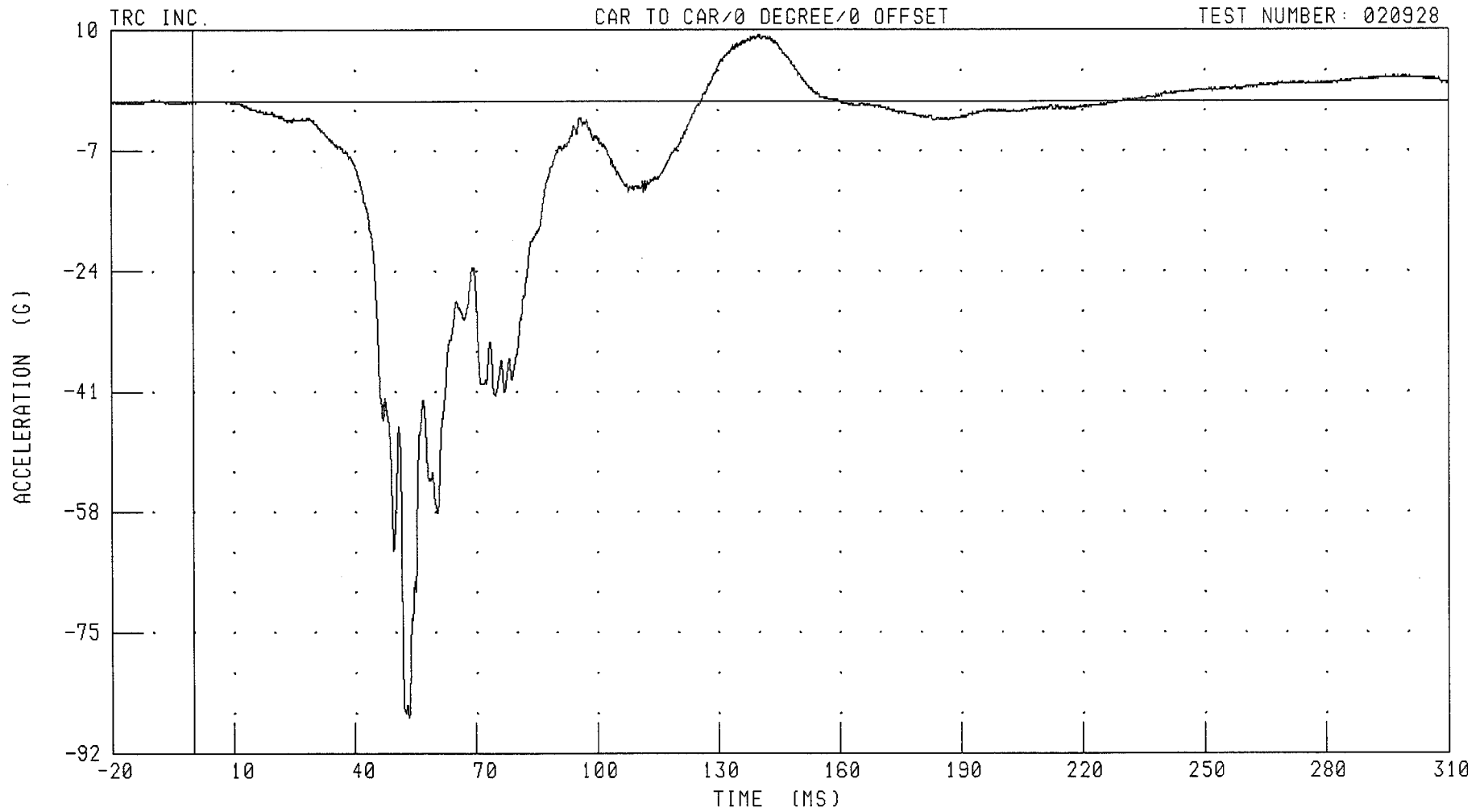
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER PELVIS X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVXC2 FILTER: CH. CLASS 1000

PEAK DATA: 9.34 G @ 140.08 MS; -87.04 G @ 53.36 MS

B-84

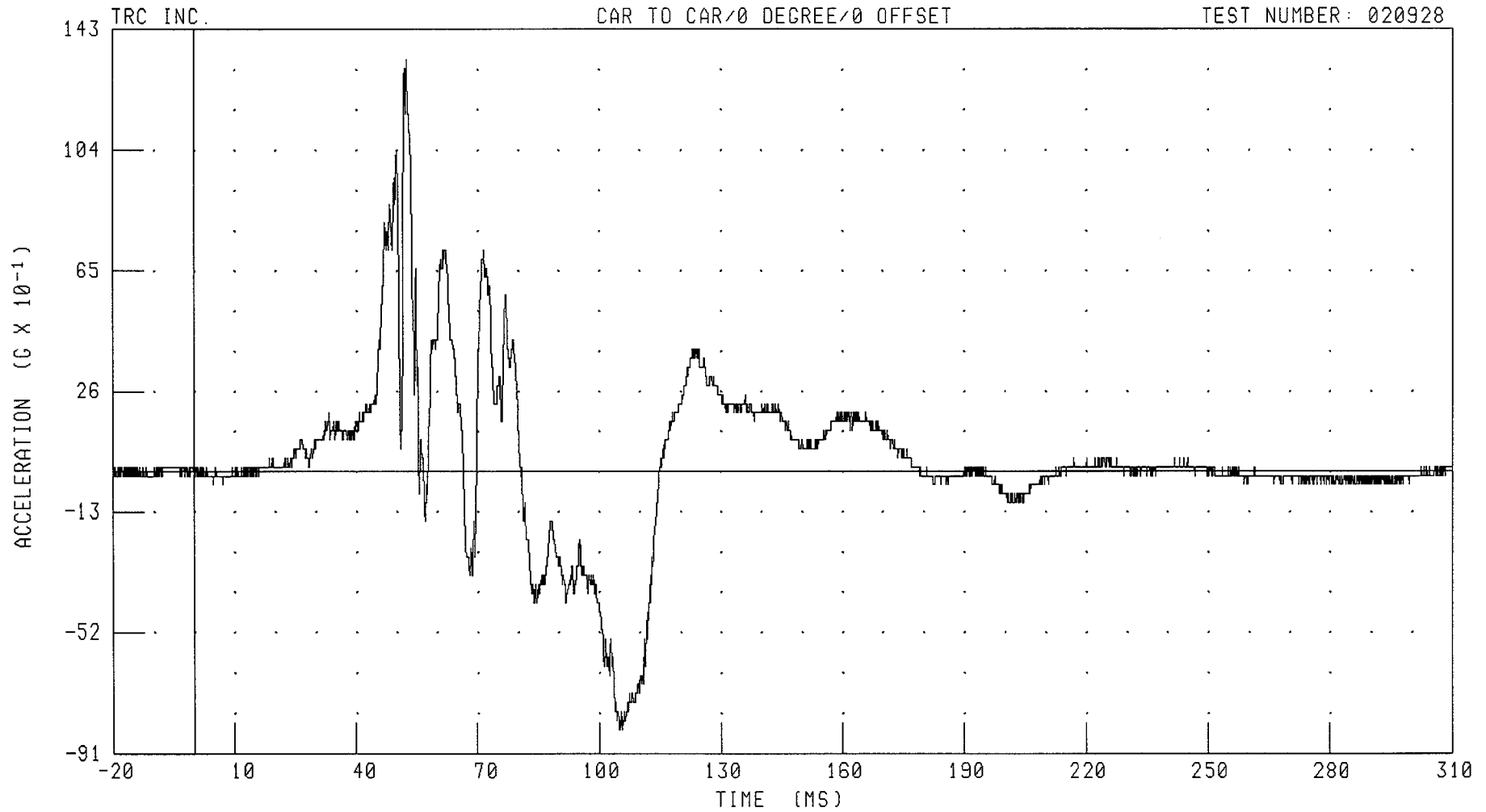
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER PELVIS Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVYG2 FILTER: CH. CLASS 1000

PEAK DATA: 13.33 G @ 52.56 MS; -8.34 G @ 105.04 MS

B-85

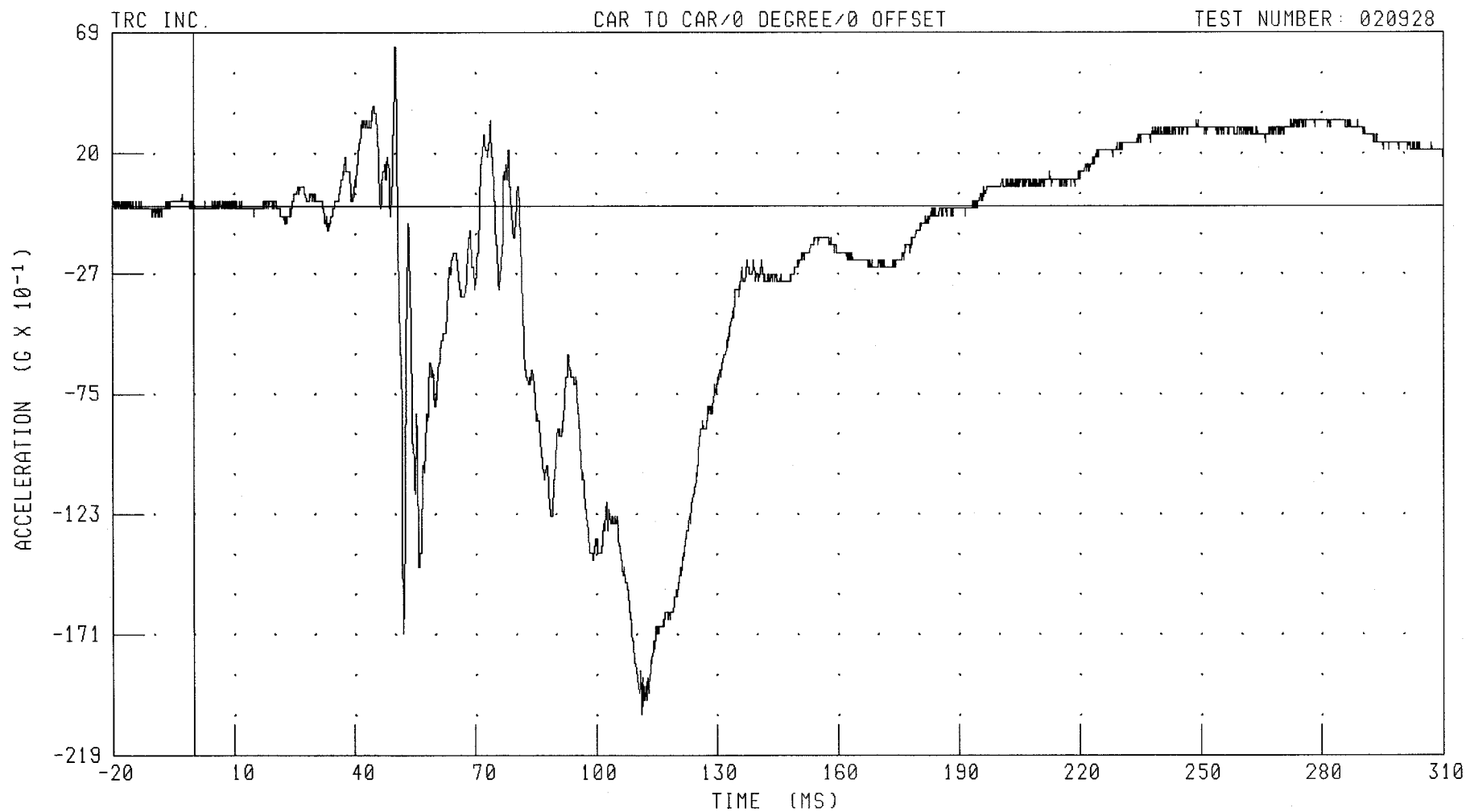
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER PELVIS Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

PEAK DATA: 6.34 G @ 50.16 MS; -20.30 G @ 111.36 MS

B-86

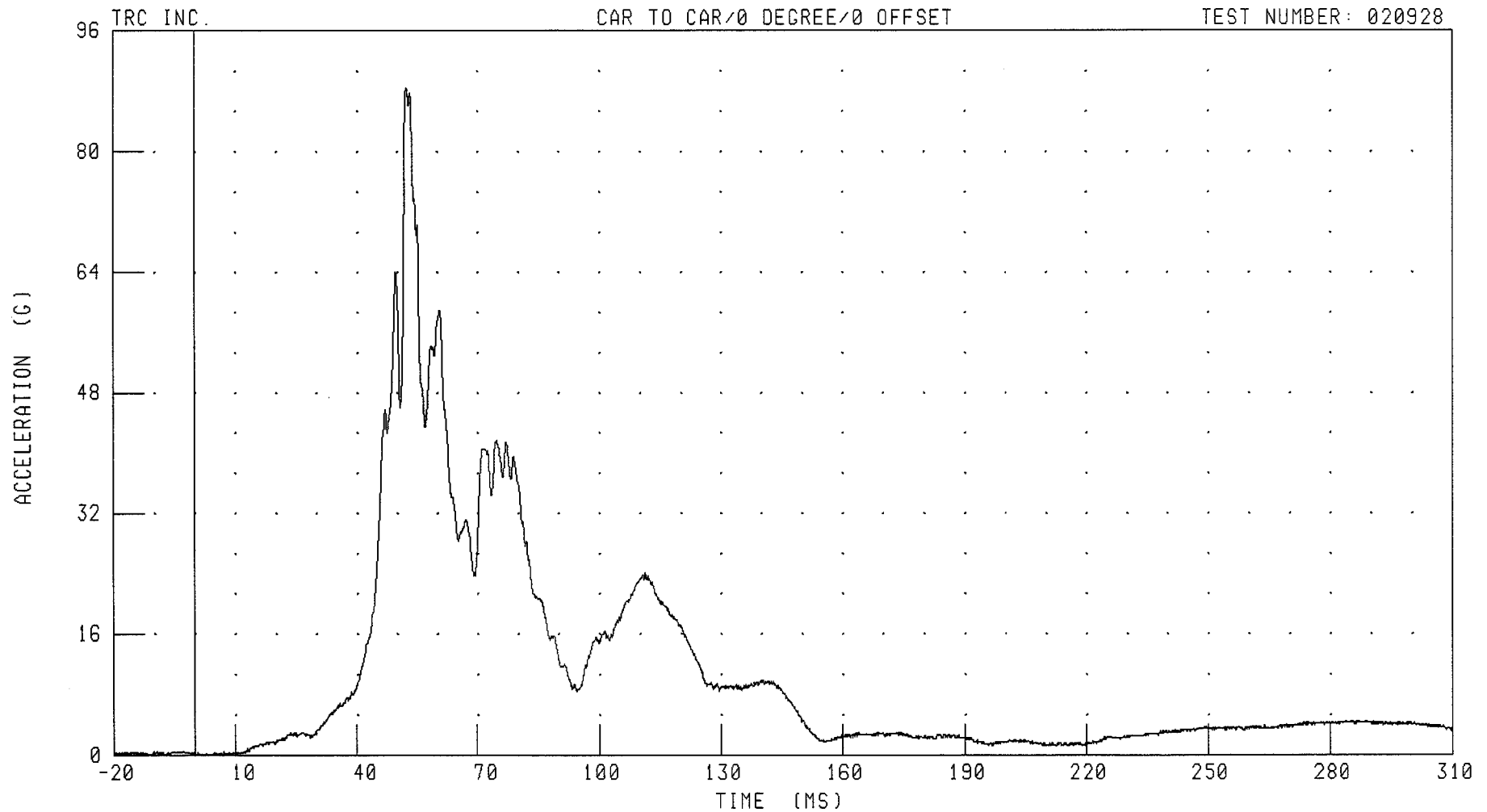
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER PELVIS RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVRG2 FILTER: CH. CLASS 1000

PEAK DATA: 88.48 G @ 52.24 MS; 0.17 G @ -19.36 MS

B-87

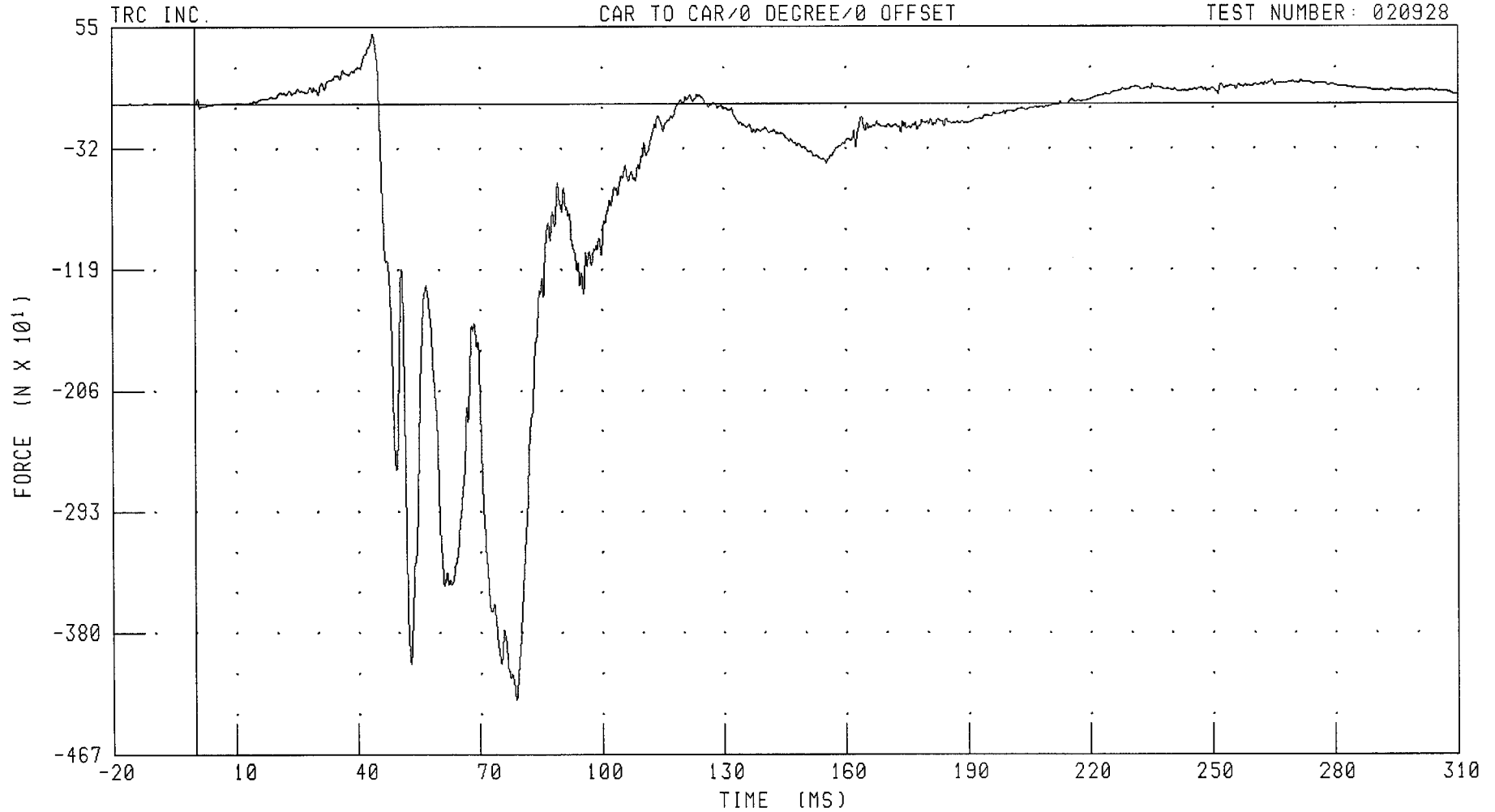
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT FEMUR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LFMZF2 FILTER: CH. CLASS 600

B-88

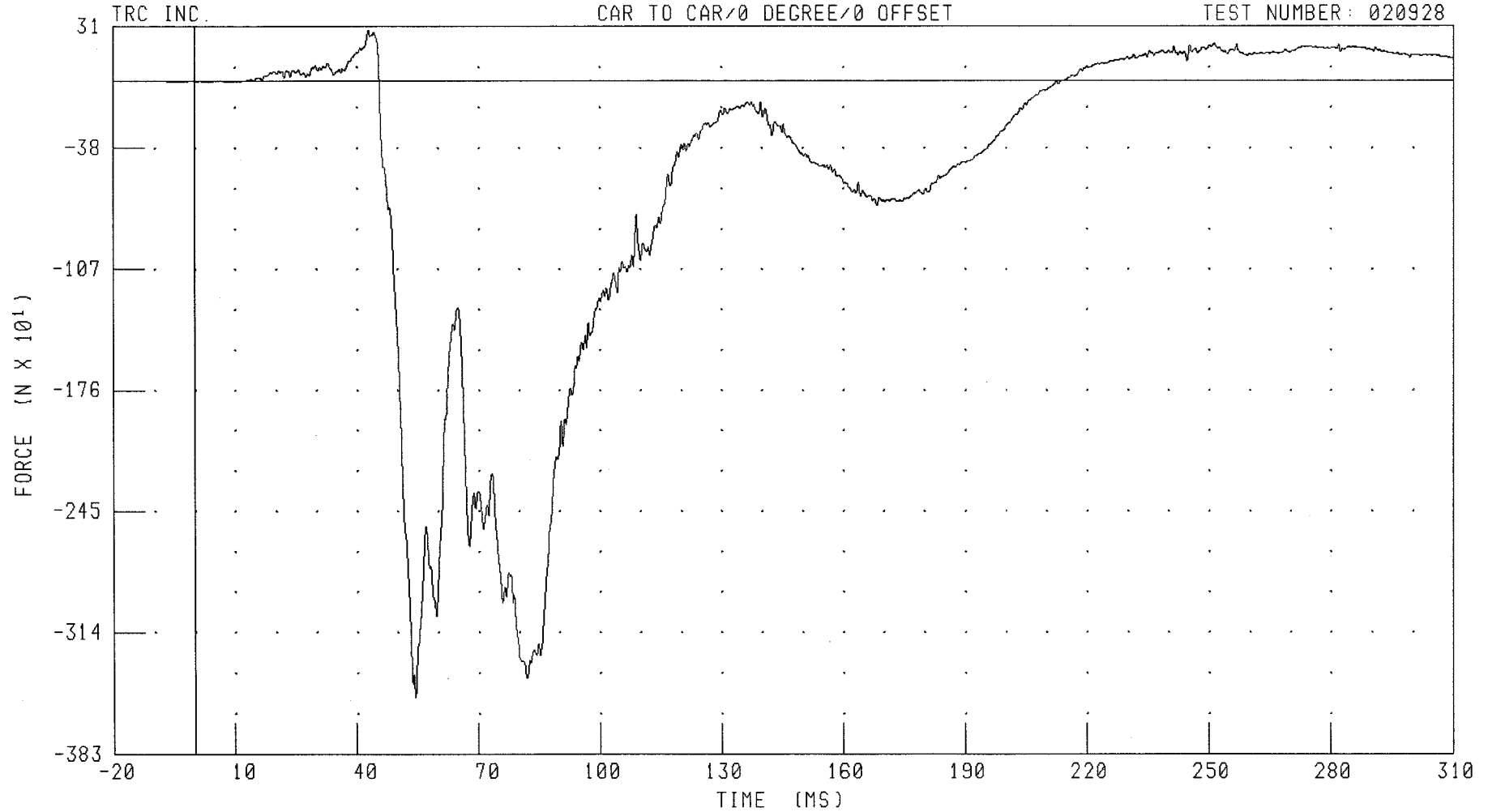
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT FEMUR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RFMZ2 FILTER: CH. CLASS 600

B-89

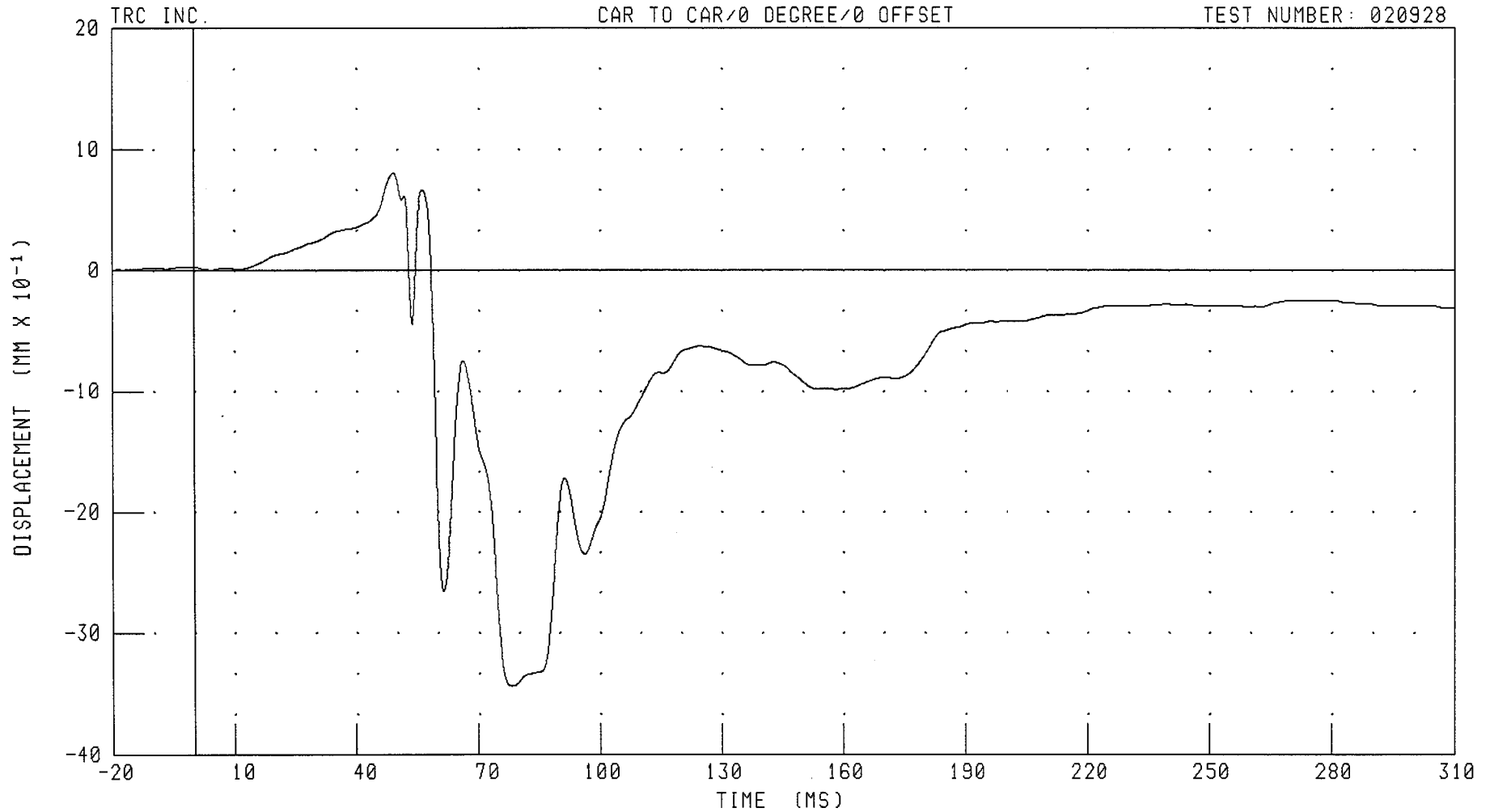
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT KNEE DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: KNLXD2

FILTER: CH. CLASS 180

PEAK DATA: 0.81 MM @ 49.12 MS; -3.44 MM @ 78.24 MS

00-B

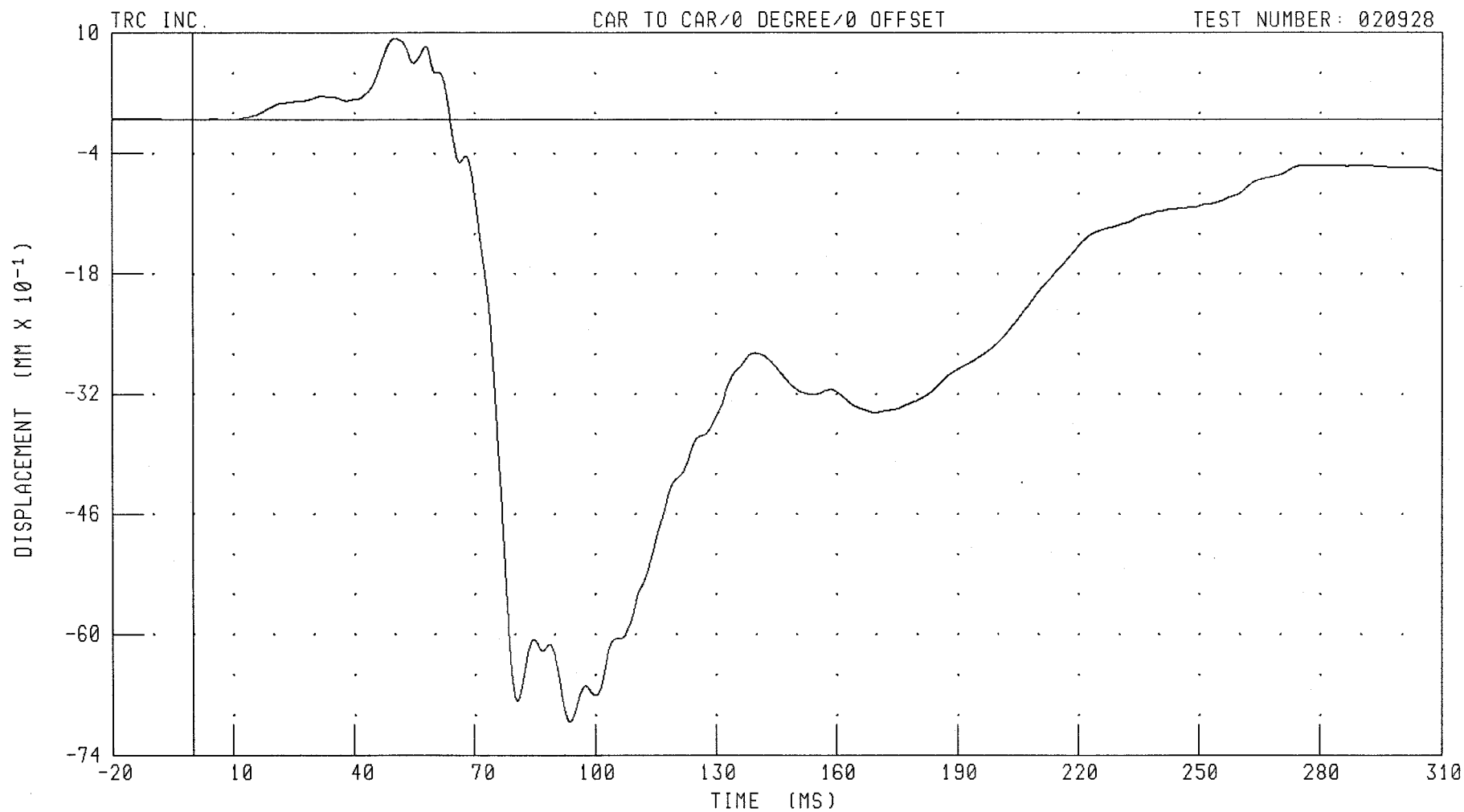
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT KNEE DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: KNRXD2 FILTER: CH. CLASS 180

PEAK DATA: 0.94 MM @ 50.16 MS; -7.01 MM @ 93.84 MS

B-91

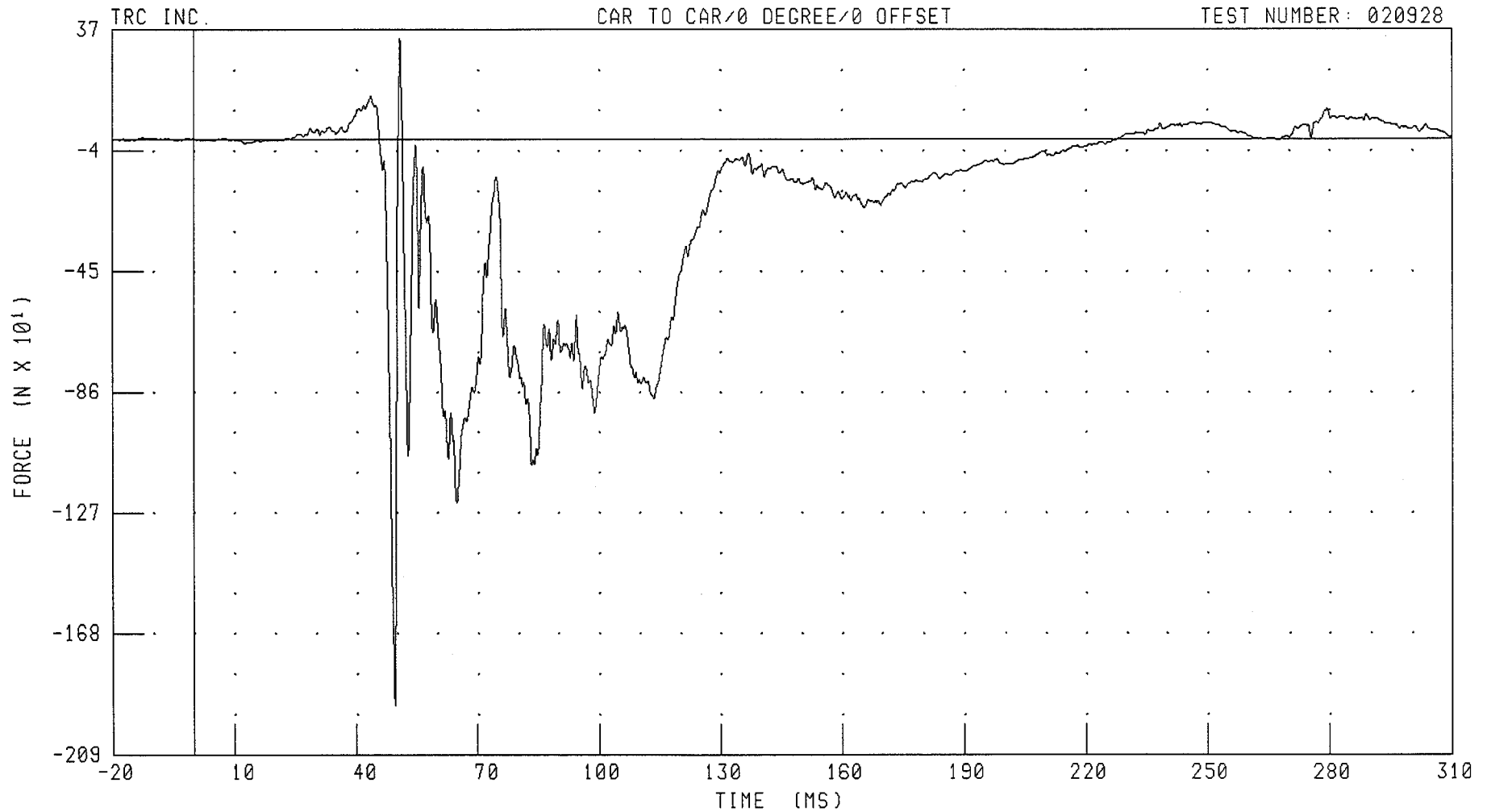
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLZF2 FILTER: CH. CLASS 600

B-92

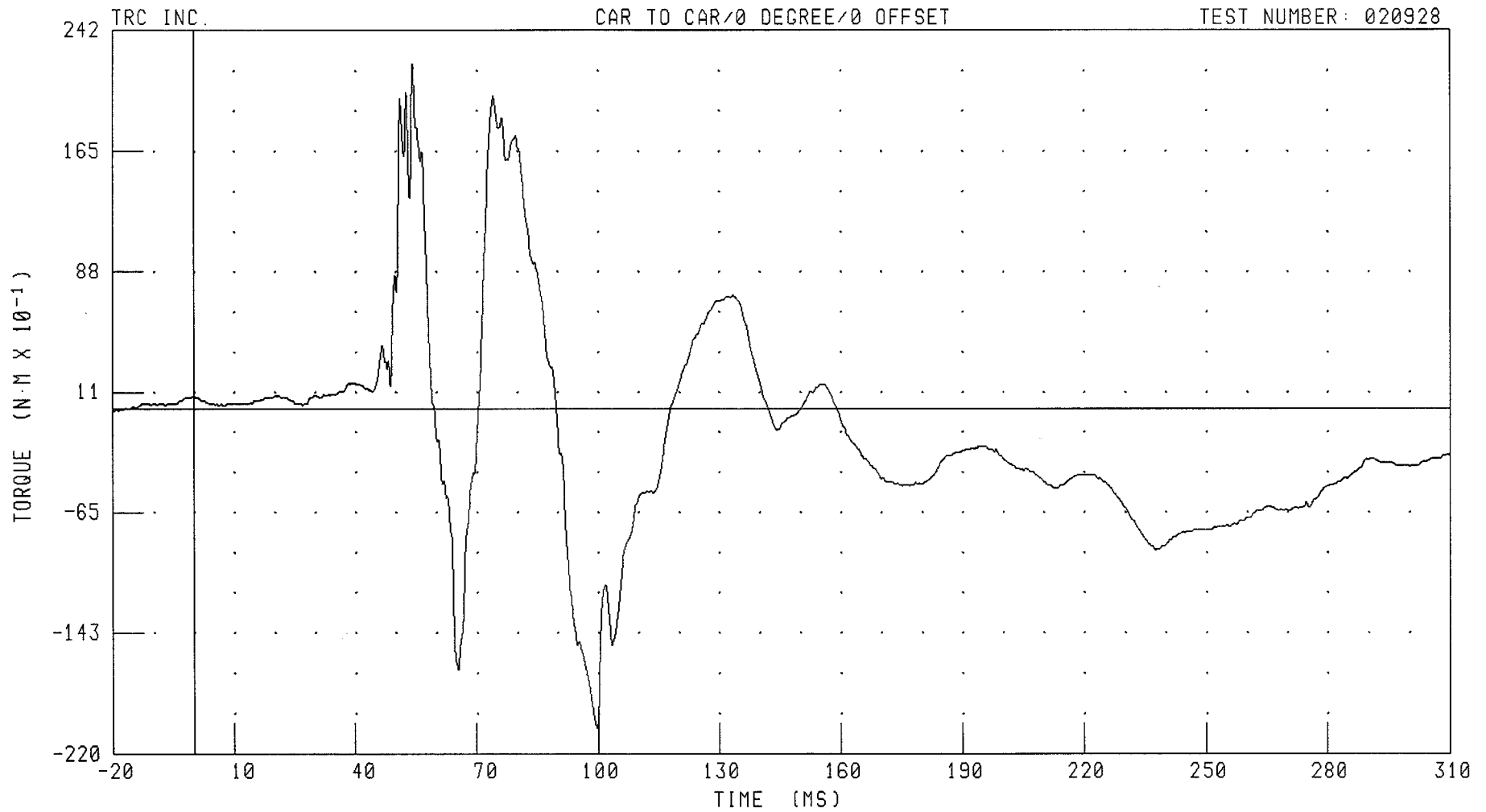
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLXM2 FILTER: CH. CLASS 600

B-93

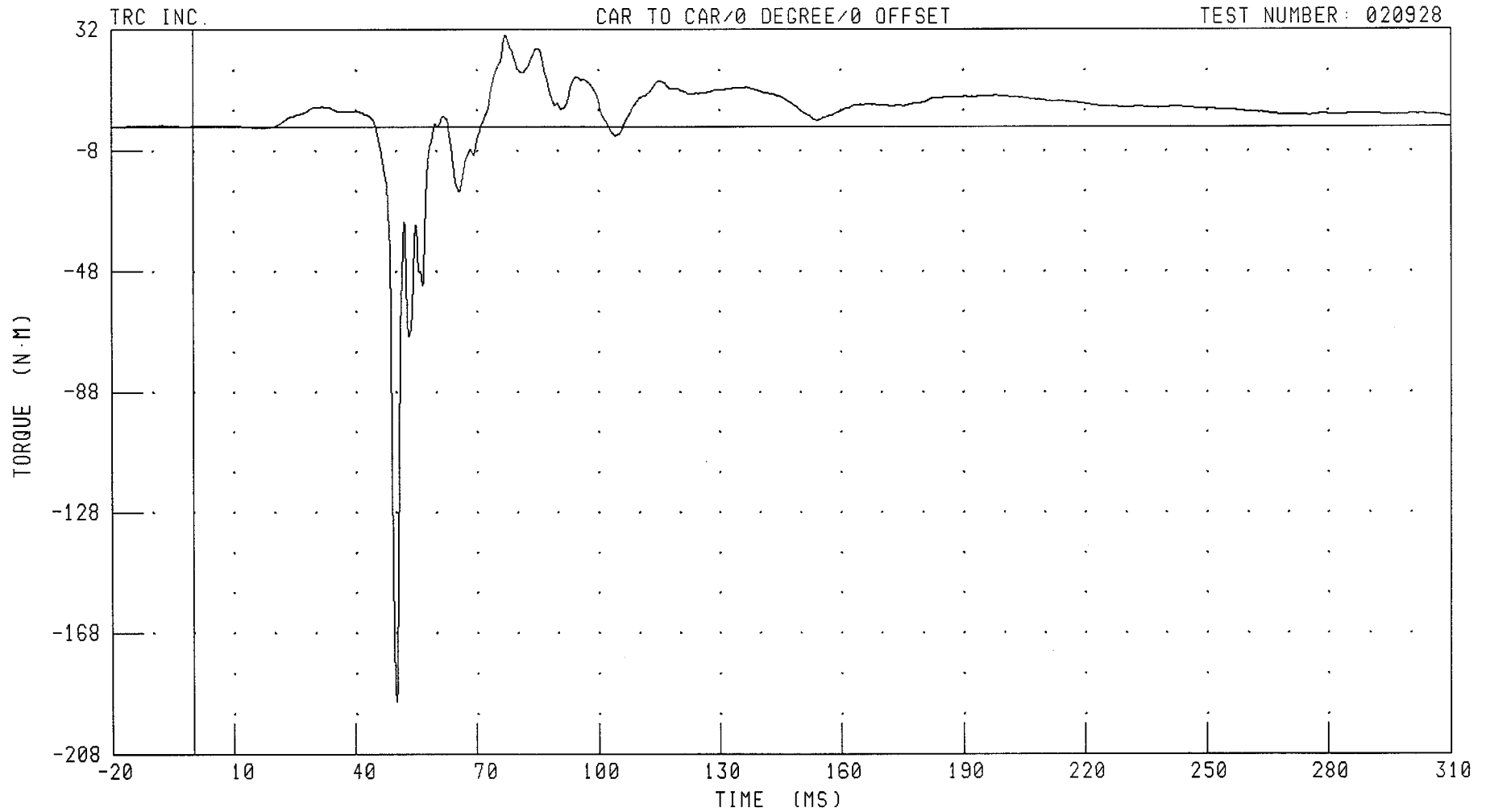
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLYM2 FILTER: CH. CLASS 600

PEAK DATA: 29.94 N·M @ 77.20 MS; -190.92 N·M @ 50.08 MS

B-94

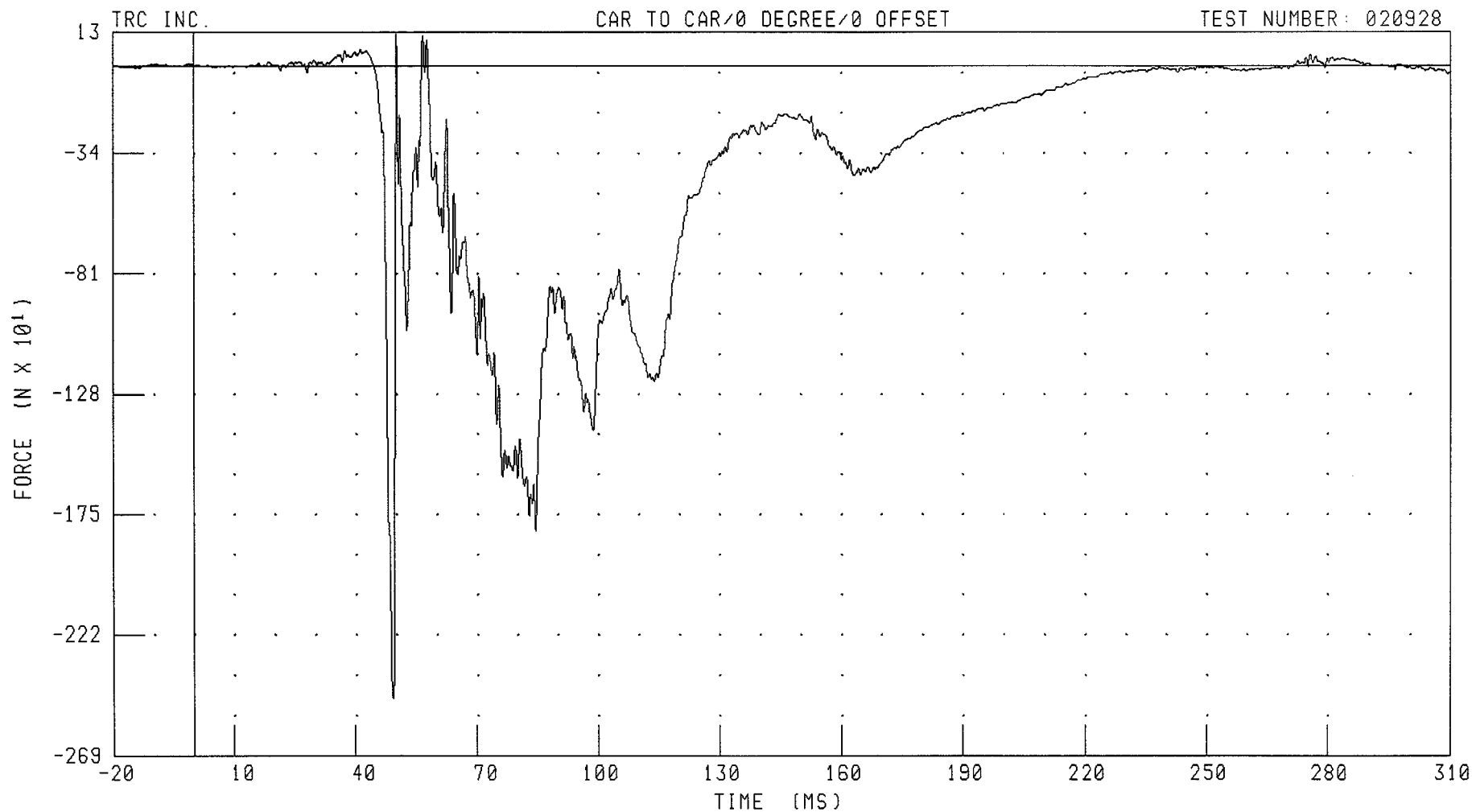
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLZF2 FILTER: CH. CLASS 600

PEAK DATA: 122.65 N @ 50.16 MS; -2465.78 N @ 49.20 MS

B-95

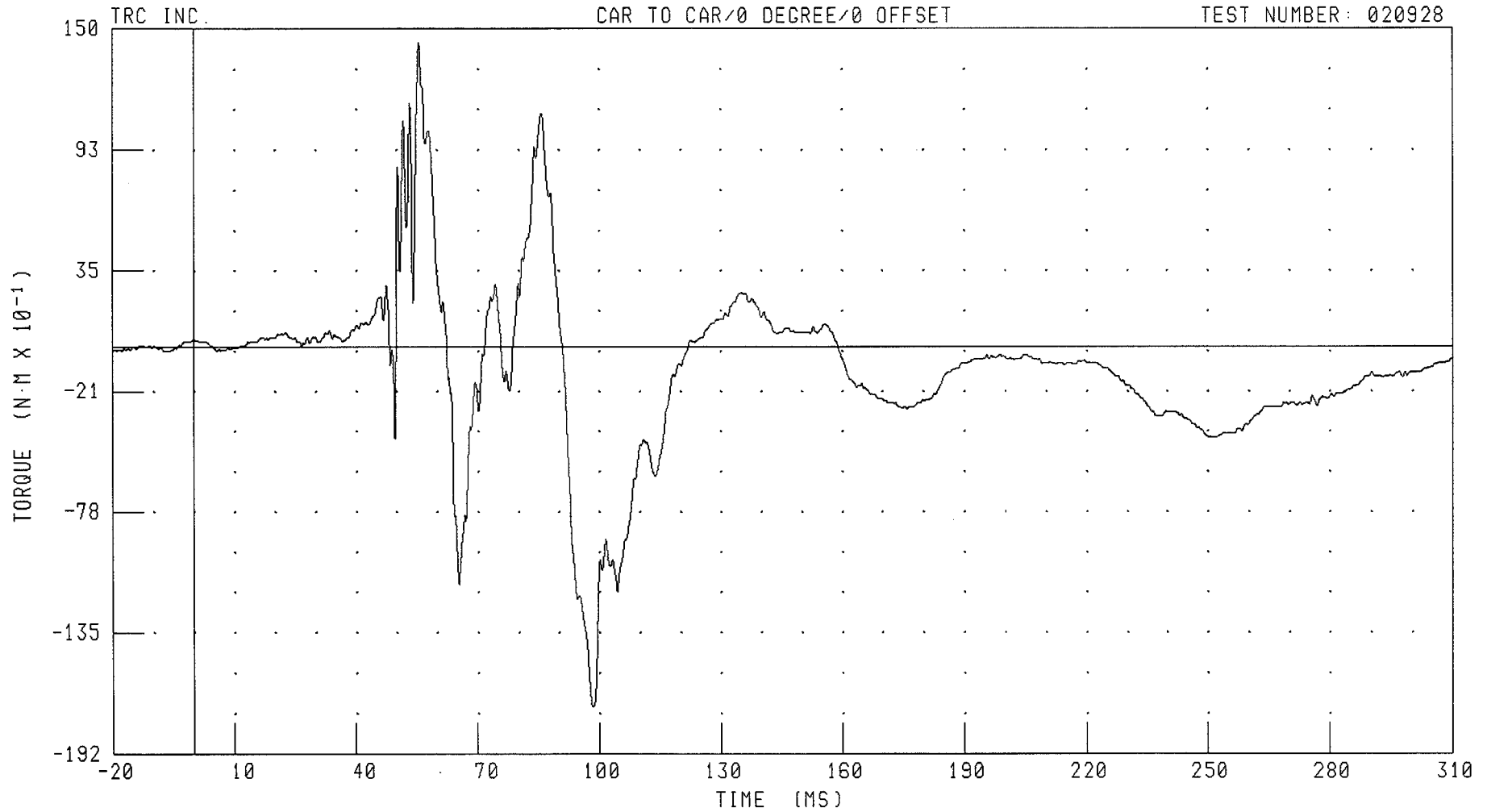
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLXM2 FILTER: CH. CLASS 600

PEAK DATA: 14.34 N·m @ 55.68 MS; -17.01 N·m @ 98.40 MS

B-96

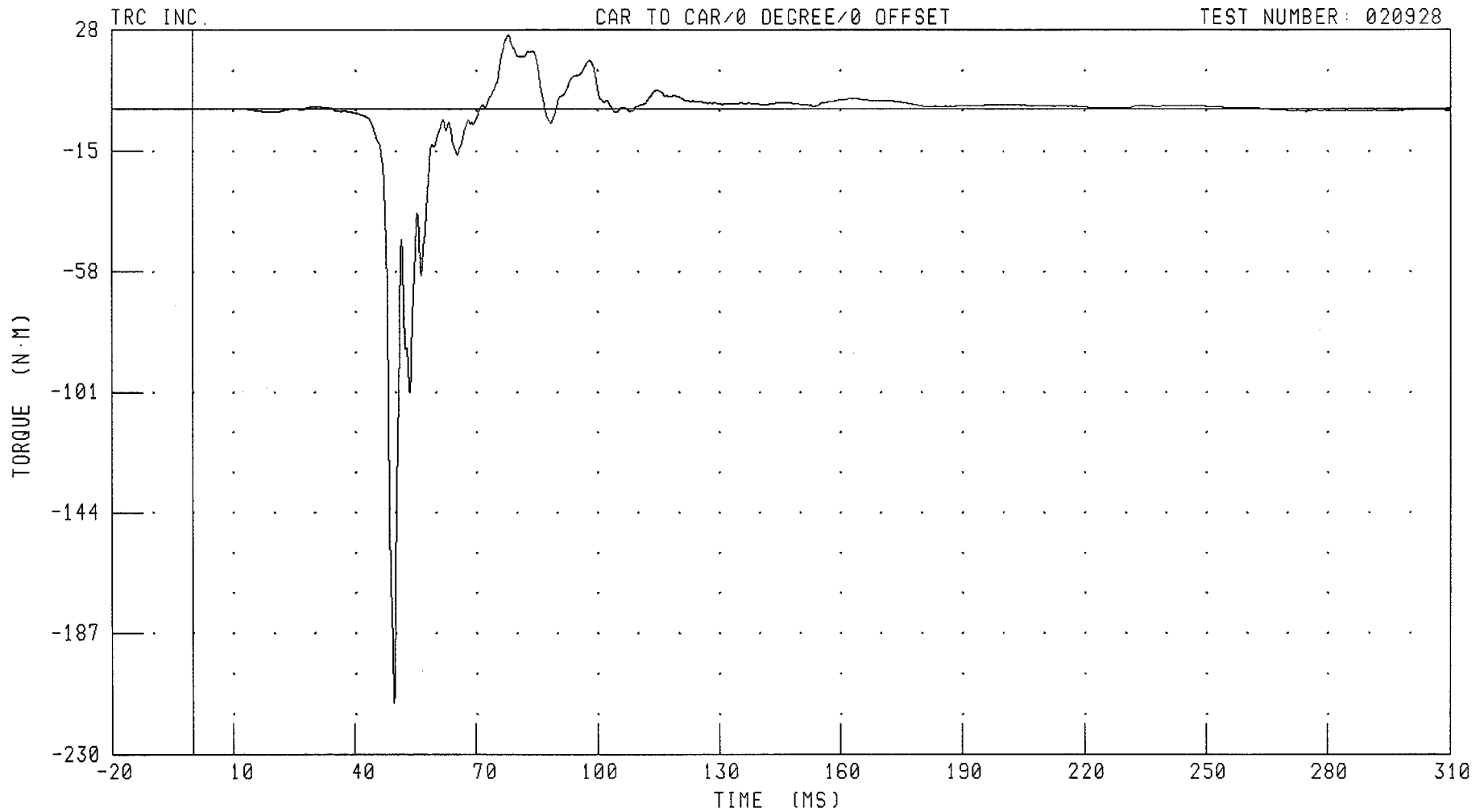
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLYM2 FILTER: CH. CLASS 600

PEAK DATA: 26.34 N·M @ 78.08 MS; -211.73 N·M @ 49.68 MS

B-97

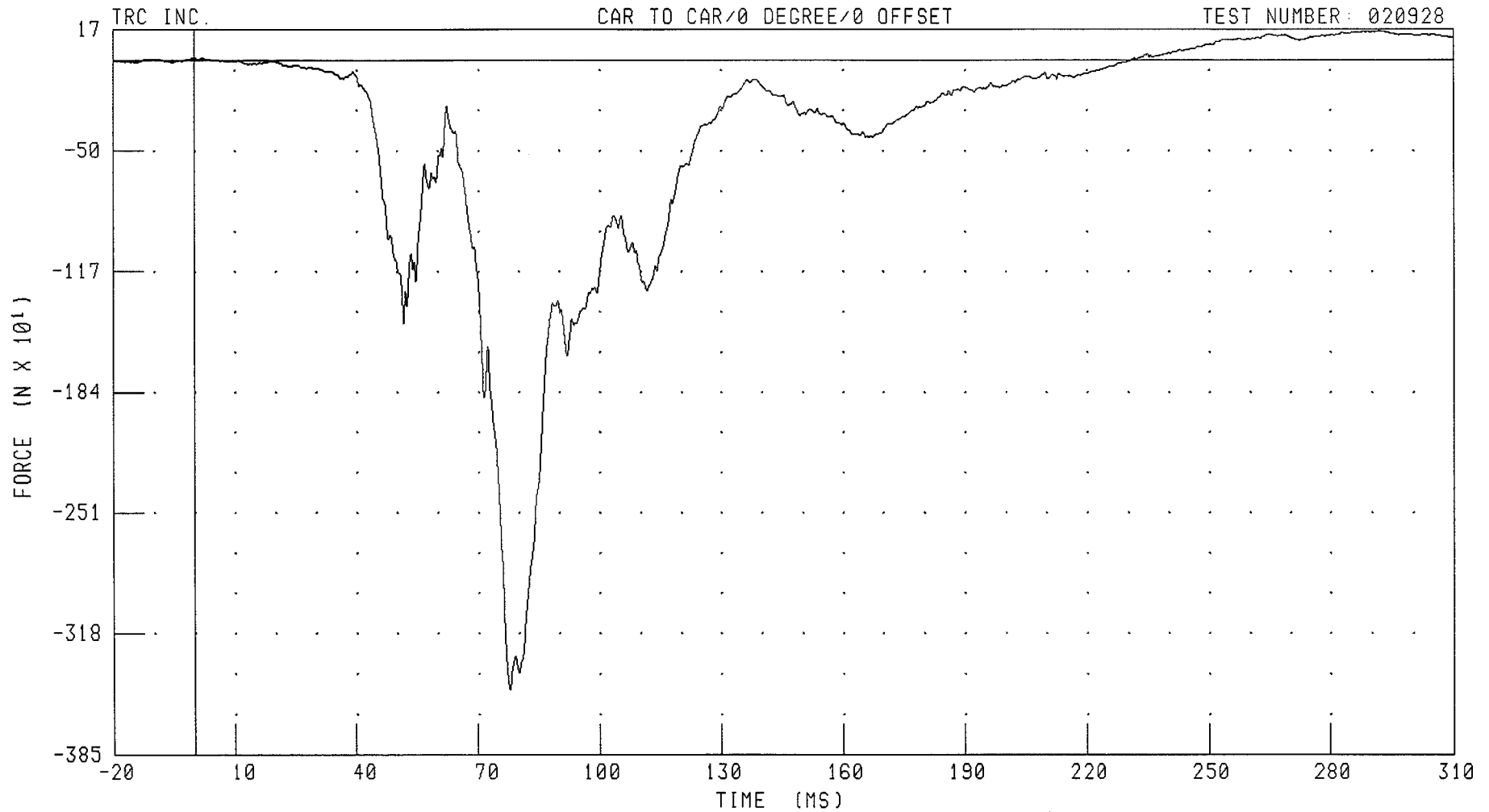
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRZF2 FILTER: CH. CLASS 600

PEAK DATA: 162.84 N @ 292.00 MS; -3493.34 N @ 77.92 MS

B-98

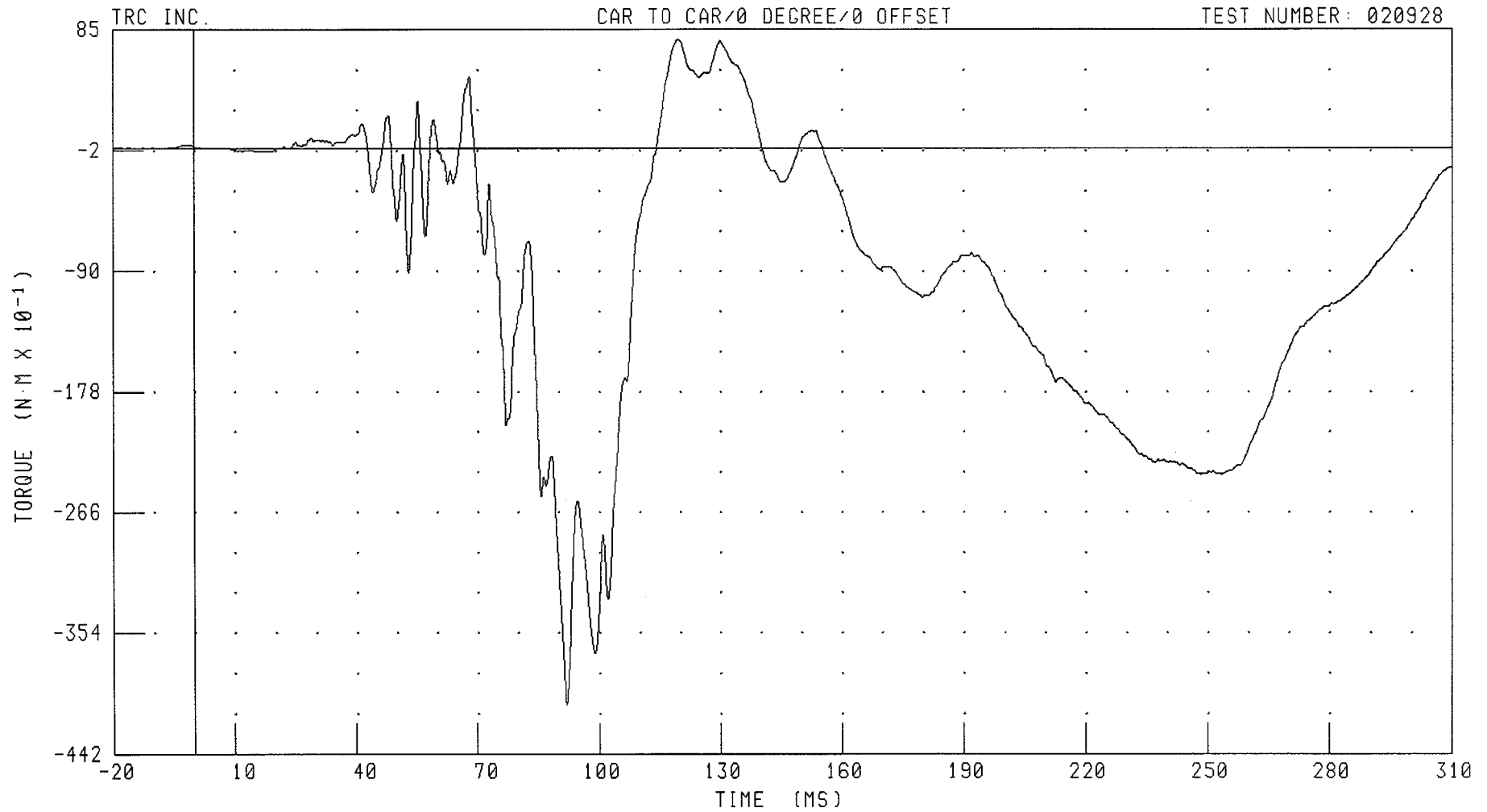
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRXM2 FILTER: CH. CLASS 600

PEAK DATA: 7.85 N·M @ 119.60 MS; -40.61 N·M @ 92.00 MS

B-99

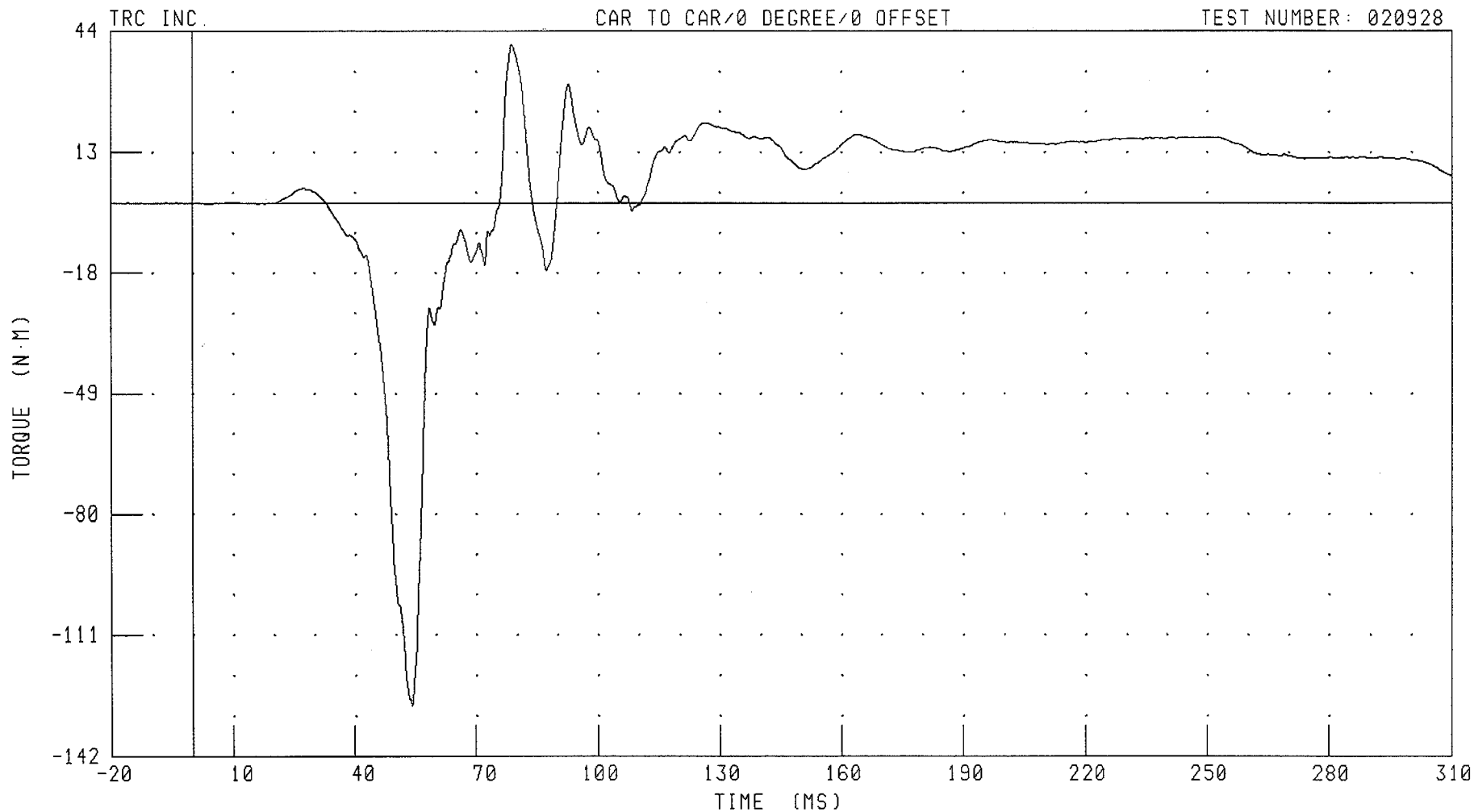
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRYM2 FILTER: CH. CLASS 600

PEAK DATA: 40.57 N·M @ 78.80 MS; -129.05 N·M @ 54.24 MS

B-100

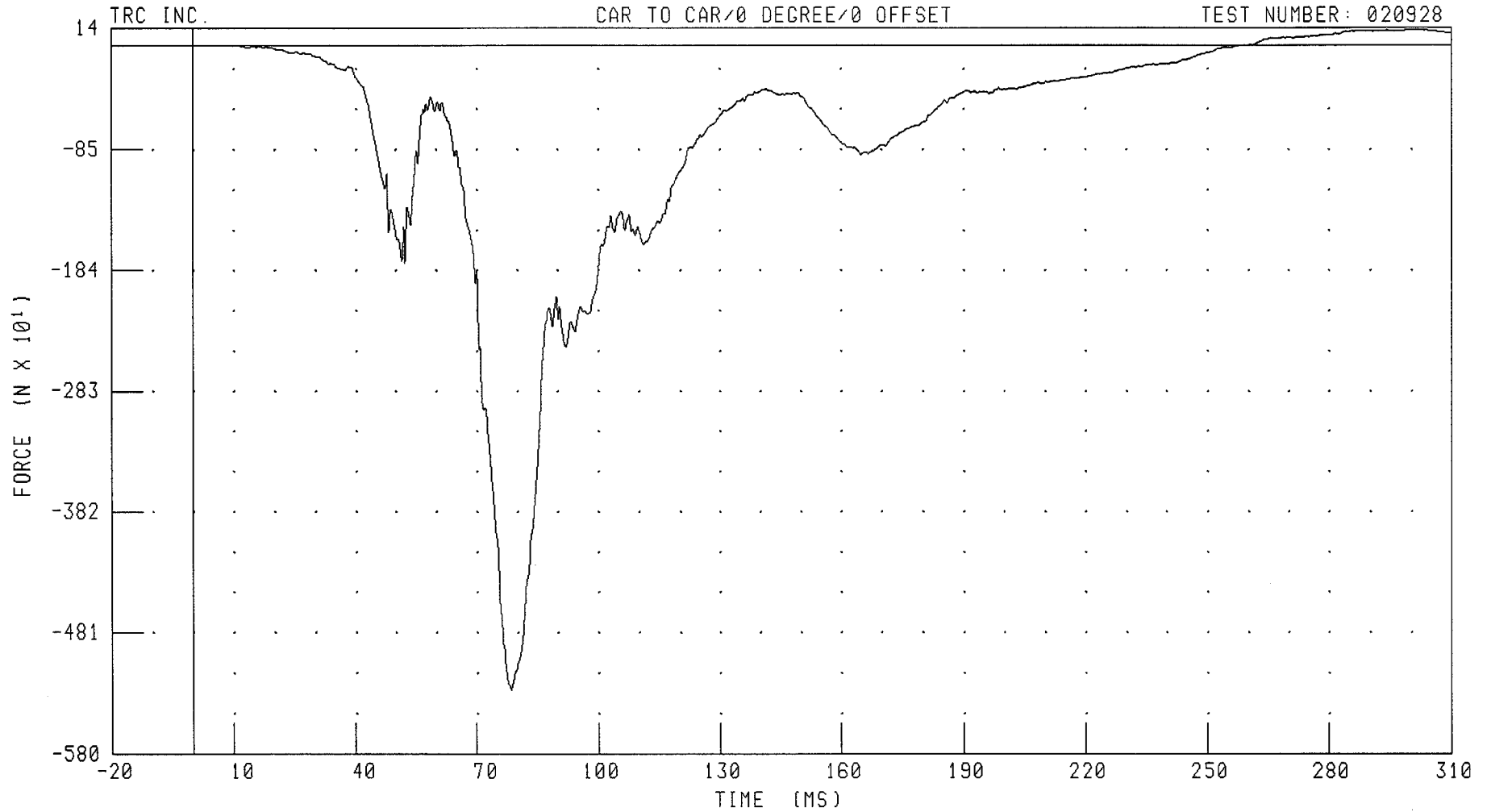
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRZF2 FILTER: CH. CLASS 600

B-101

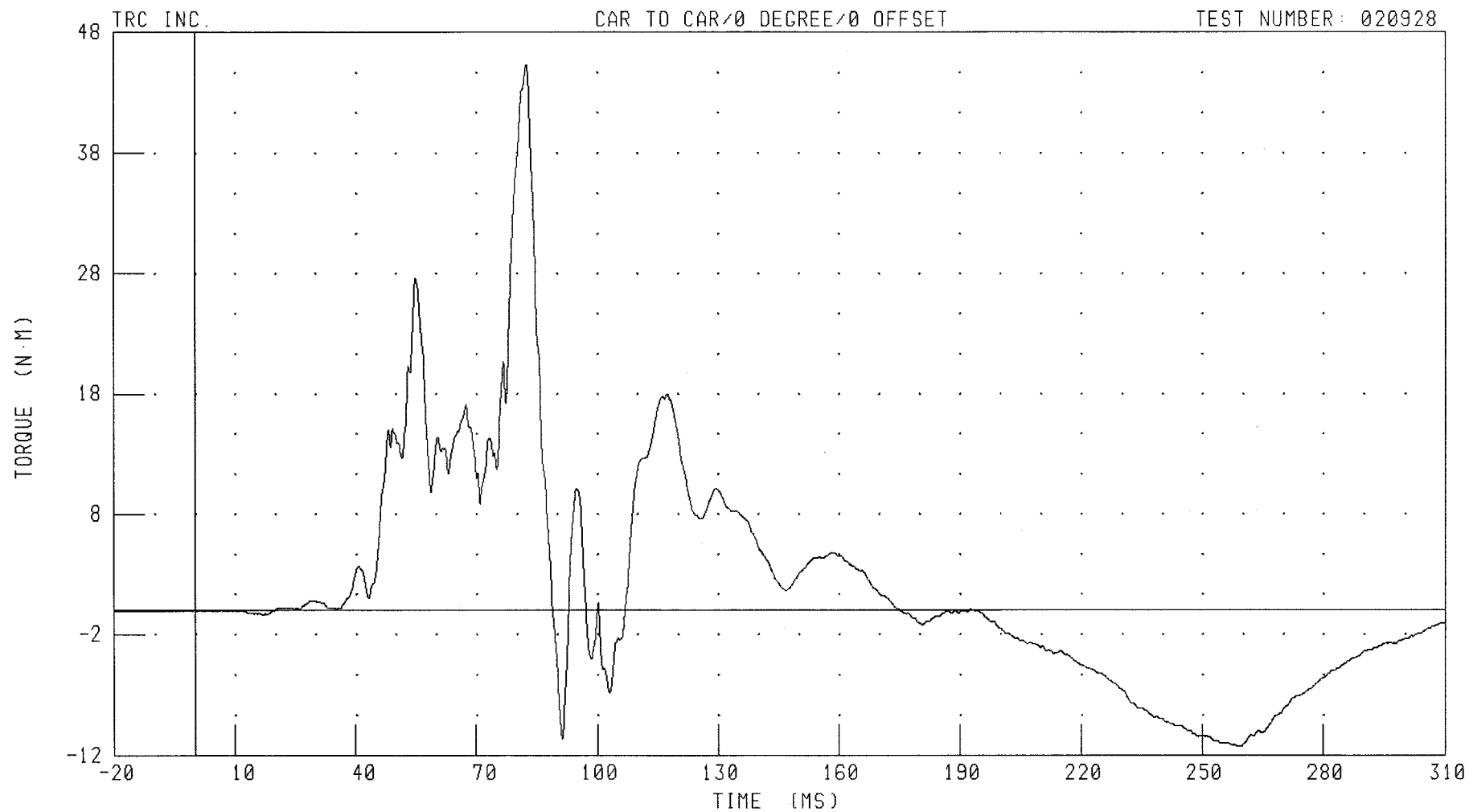
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRXM2 FILTER: CH. CLASS 600

PEAK DATA: 45.33 N·M @ 82.40 MS; -11.24 N·M @ 259.52 MS

B-102

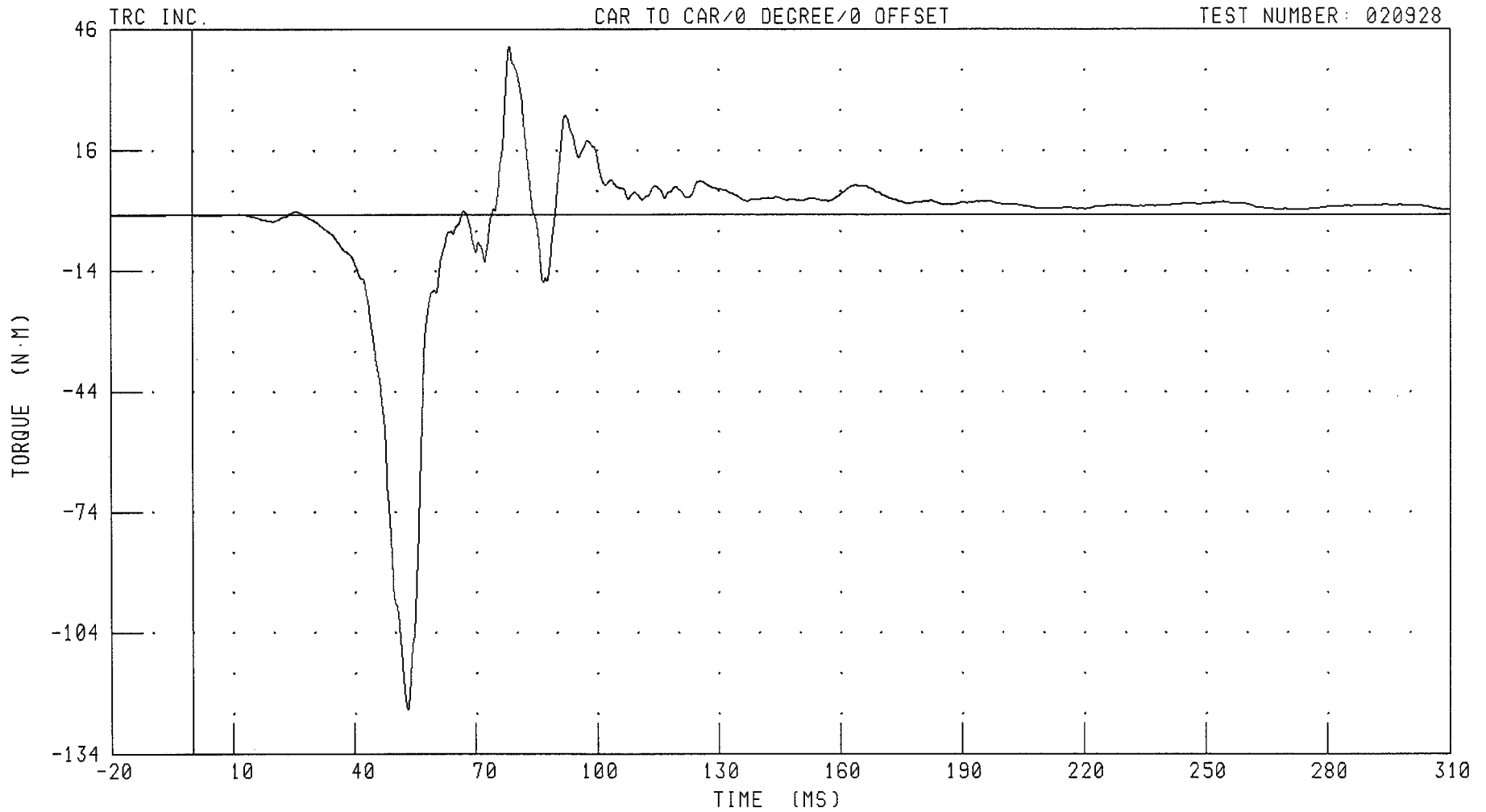
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRYM2 FILTER: CH. CLASS 600

PEAK DATA: 41.83 N·M @ 78.32 MS; -123.14 N·M @ 53.12 MS

B-103

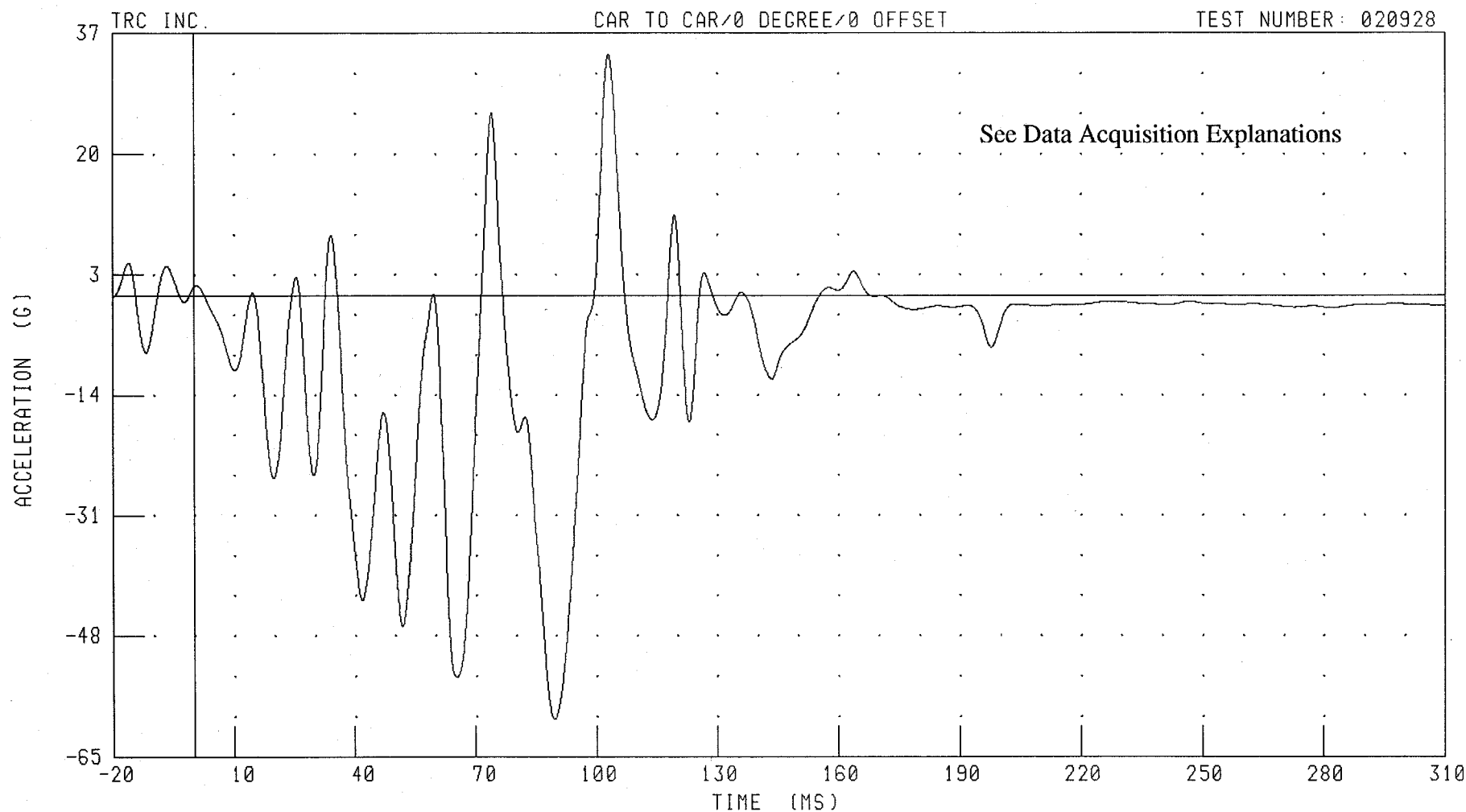
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 34.08 G @ 103.12 MS; -59.75 G @ 89.60 MS

B-104

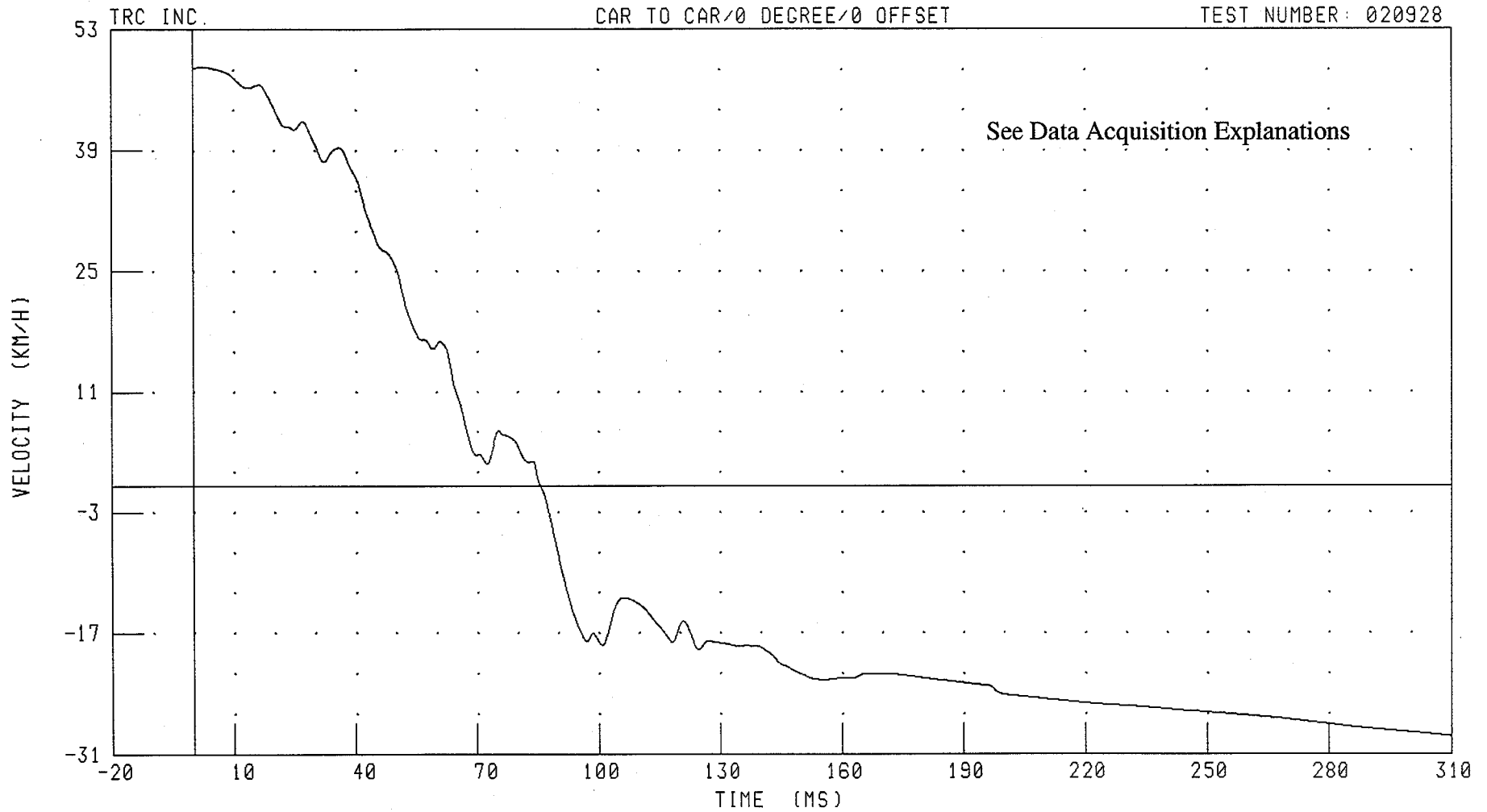
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGXV1 FILTER: CH. CLASS 180

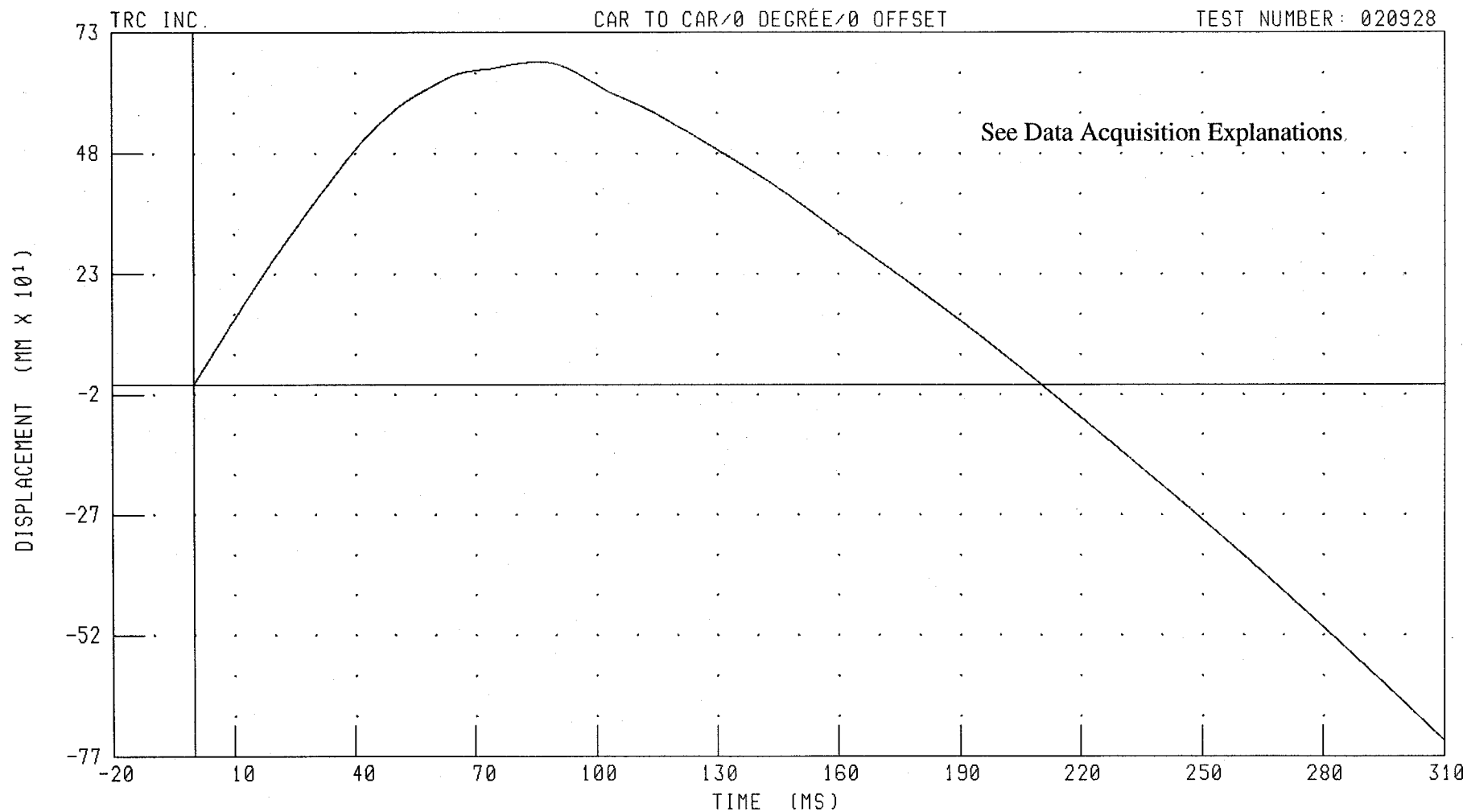
PEAK DATA: 48.69 KM/H @ 2.40 MS; -28.96 KM/H @ 310.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGXD1 FILTER: CH. CLASS 180

PEAK DATA: 669.31 MM @ 85.68 MS; -739.09 MM @ 310.00 MS

B-106

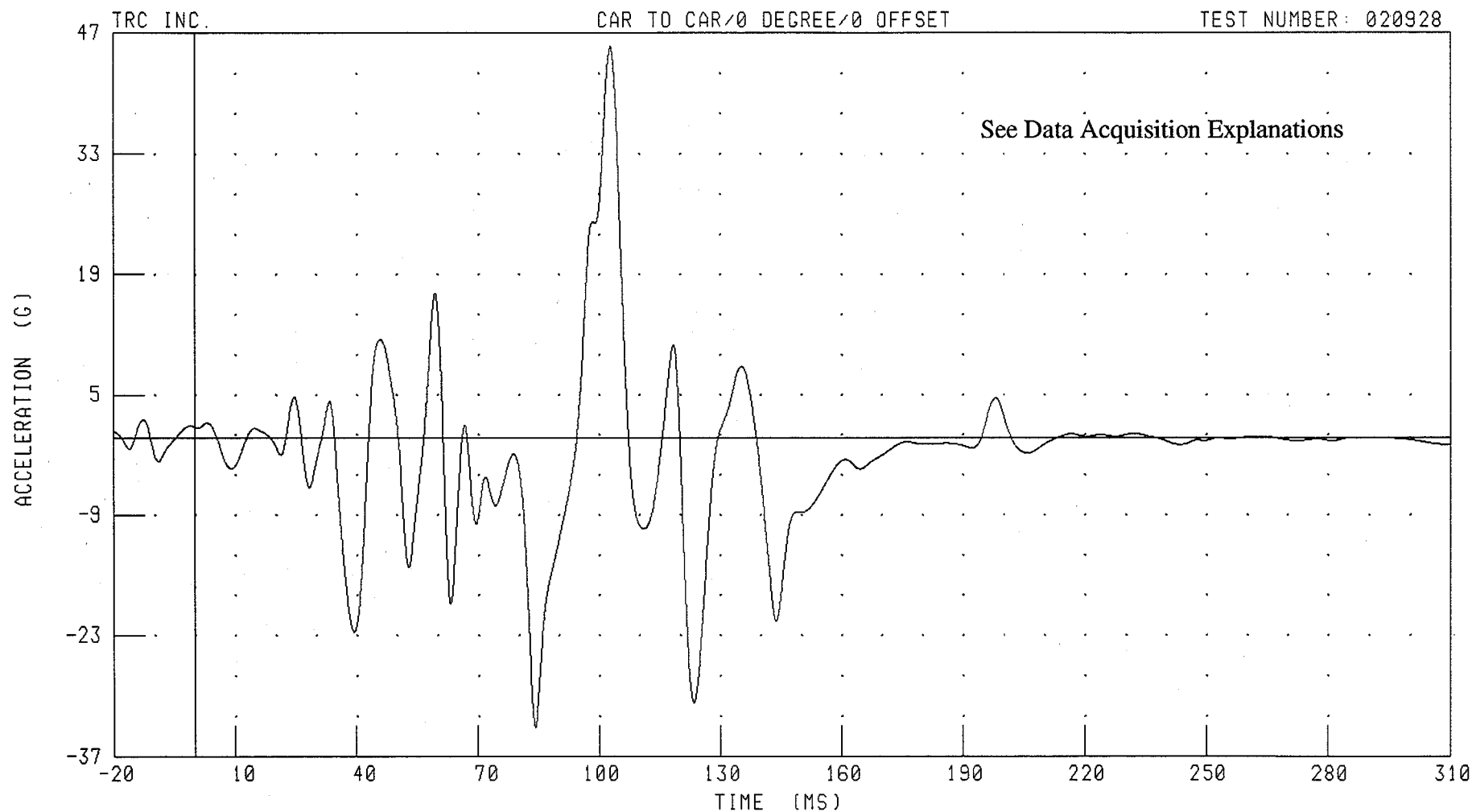
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGY01 FILTER: CH. CLASS 60

PEAK DATA: 45.44 G @ 102.96 MS; -33.68 G @ 84.08 MS

B-107

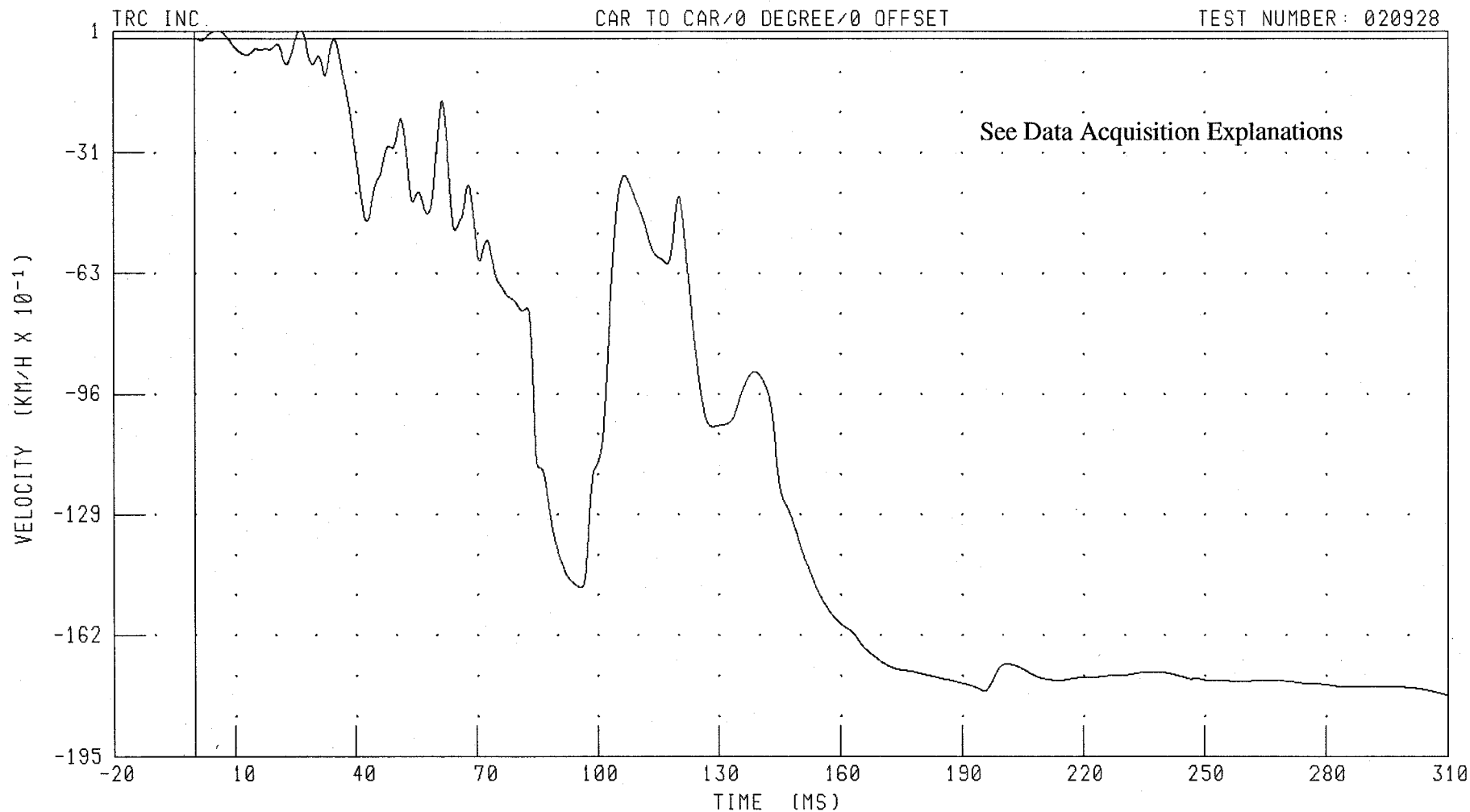
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 0.27 KM/H @ 26.48 MS; -17.94 KM/H @ 310.00 MS

B-108

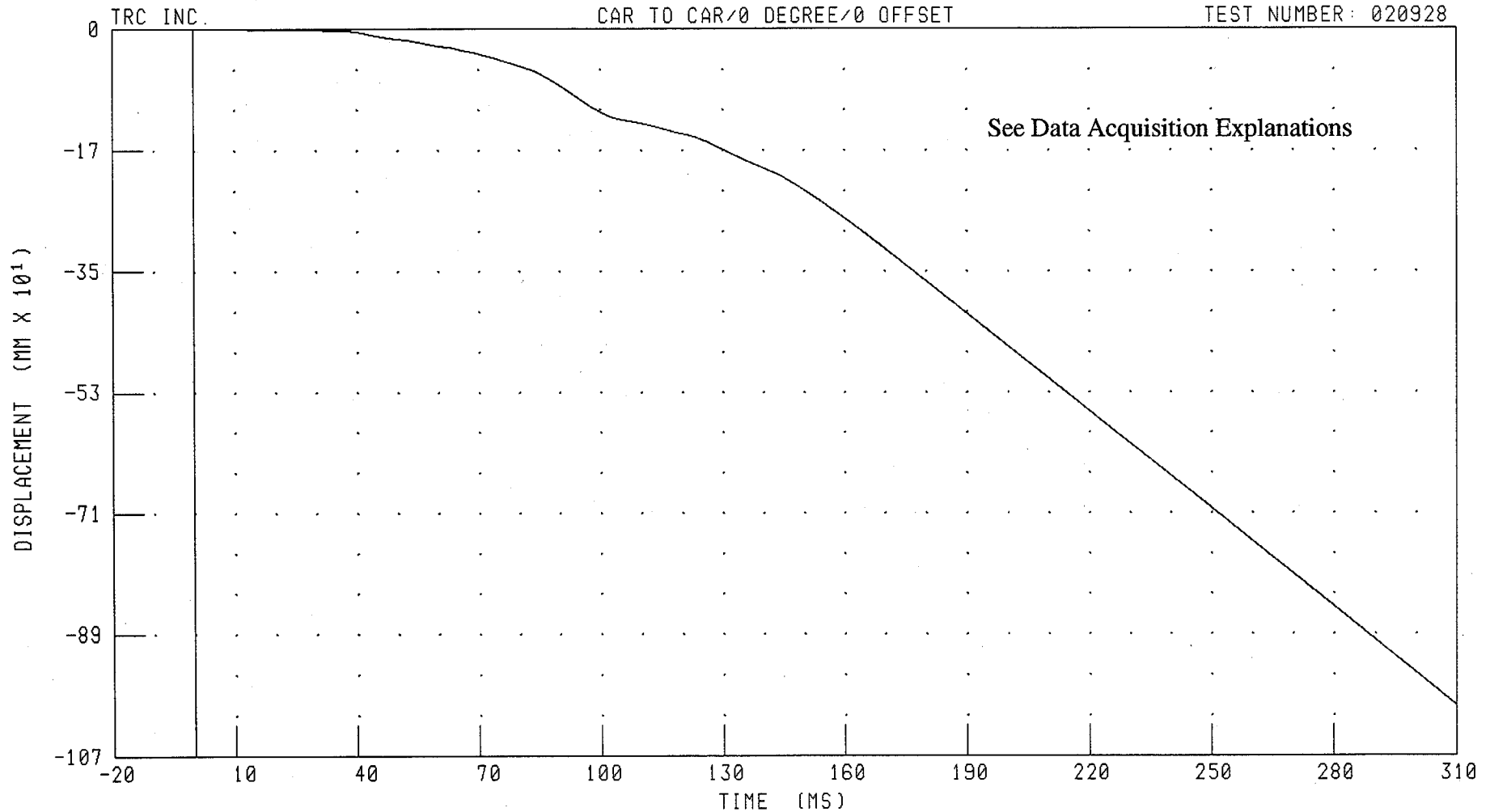
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGYD1 FILTER: CH. CLASS 180

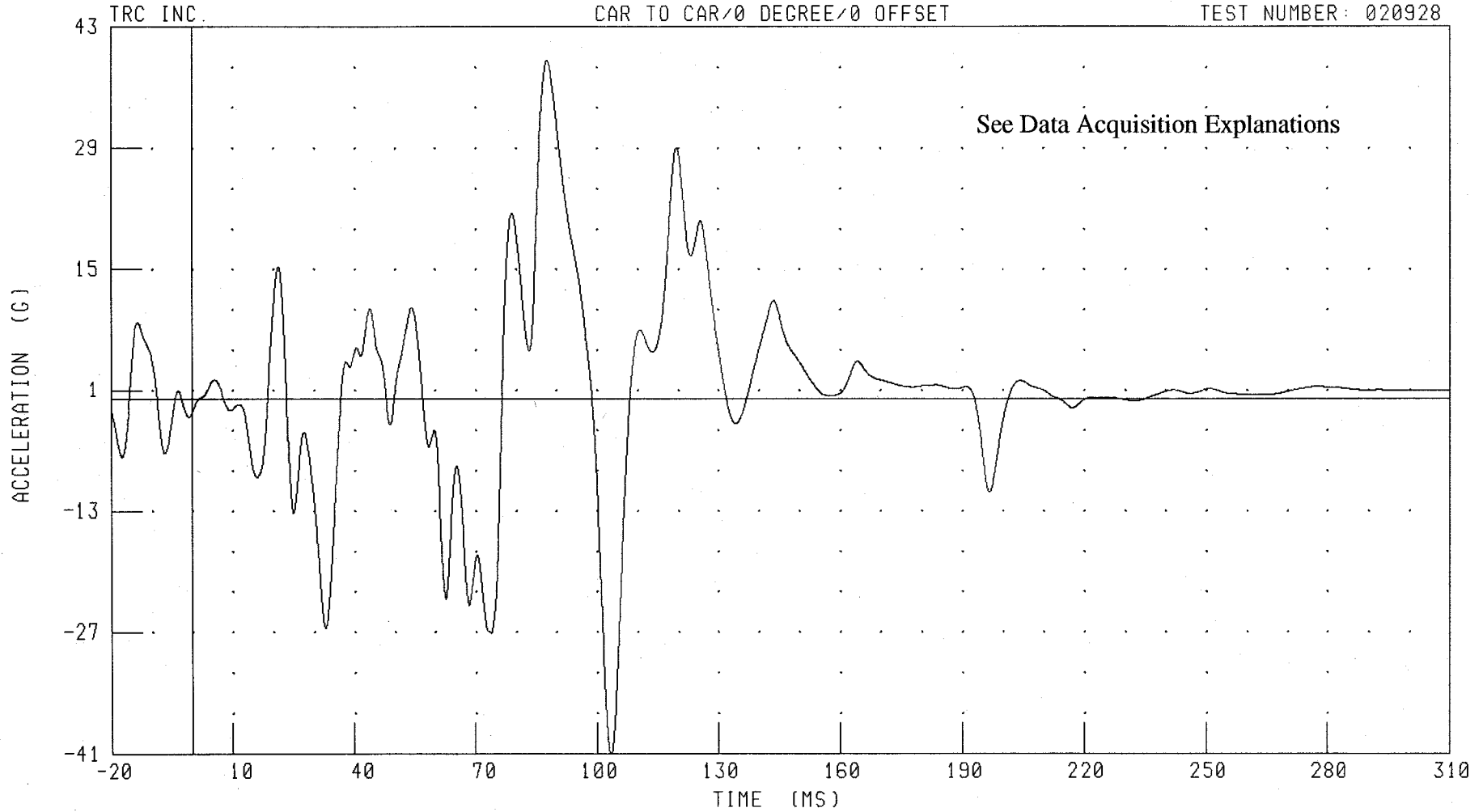
PEAK DATA: 0.23 MM @ 8.40 MS; -1006.47 MM @ 310.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 39.14 G @ 87.76 MS, -41.41 G @ 103.44 MS

B-110

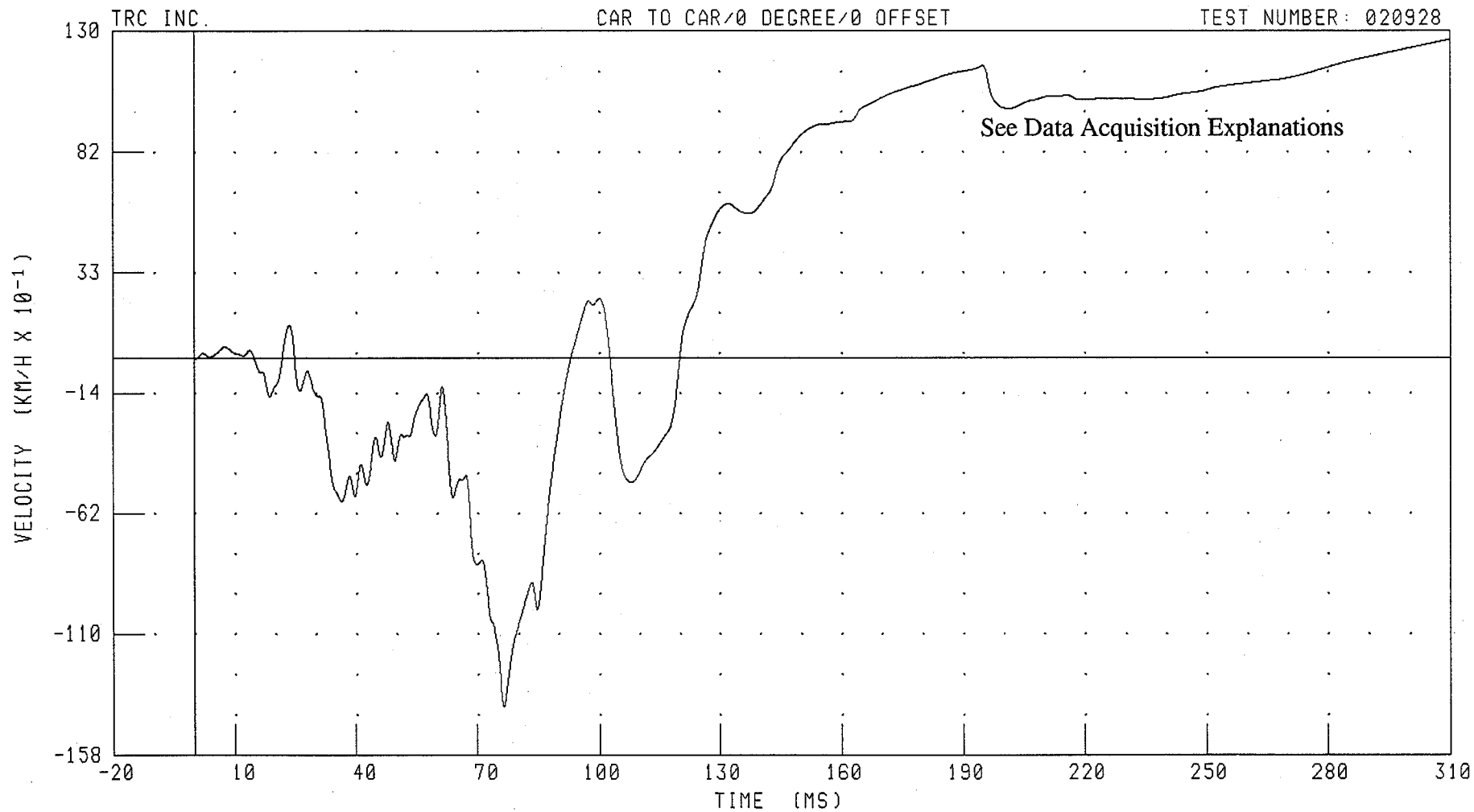
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGZV1 FILTER: CH. CLASS 180

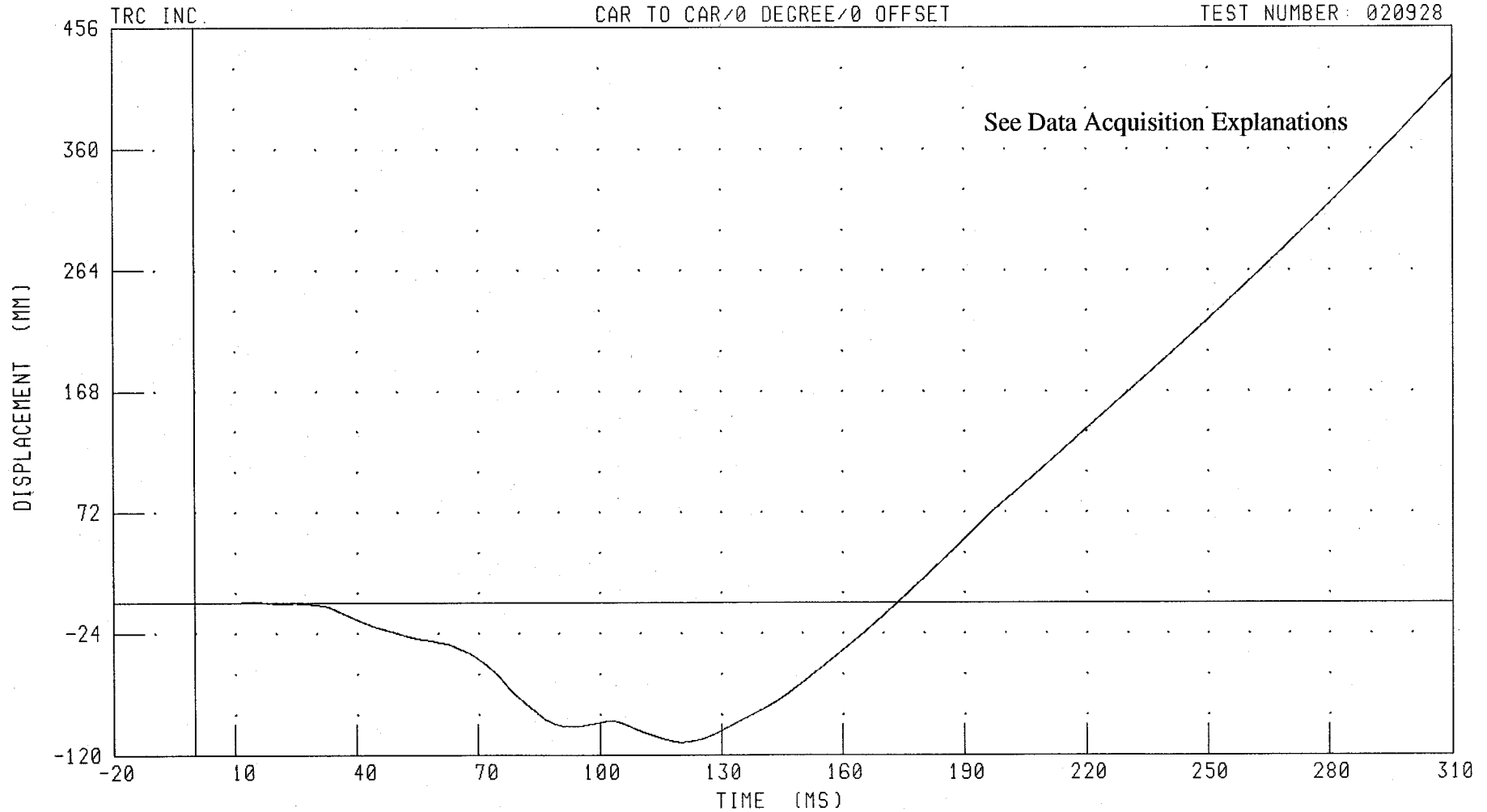
PEAK DATA: 12.66 KM/H @ 310.00 MS; -13.88 KM/H @ 76.48 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Z-AXIS DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGZD1 FILTER: CH. CLASS 180

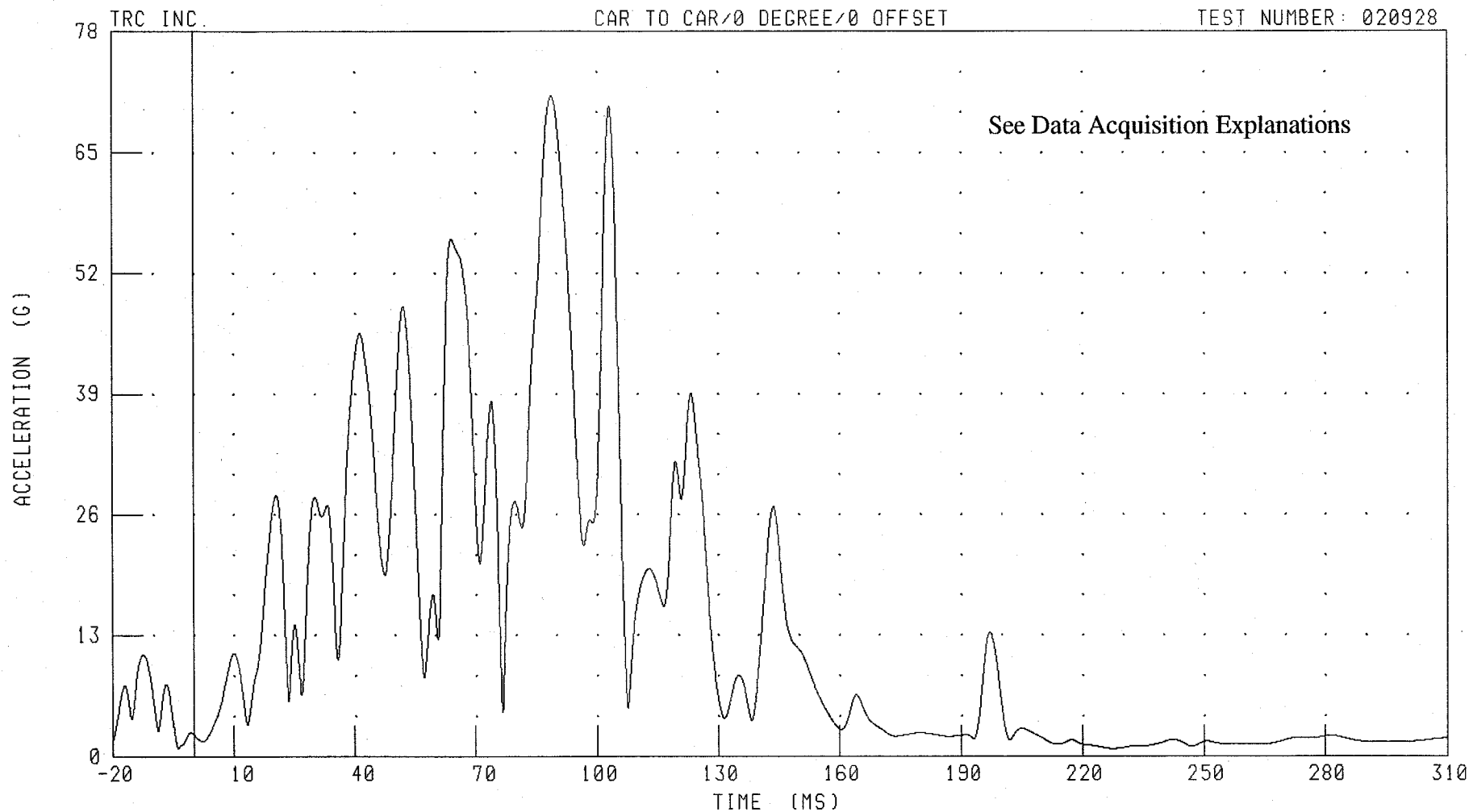
PEAK DATA: 417.62 MM @ 310.00 MS, -110.01 MM @ 120.08 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGRG1 FILTER: CH. CLASS 60

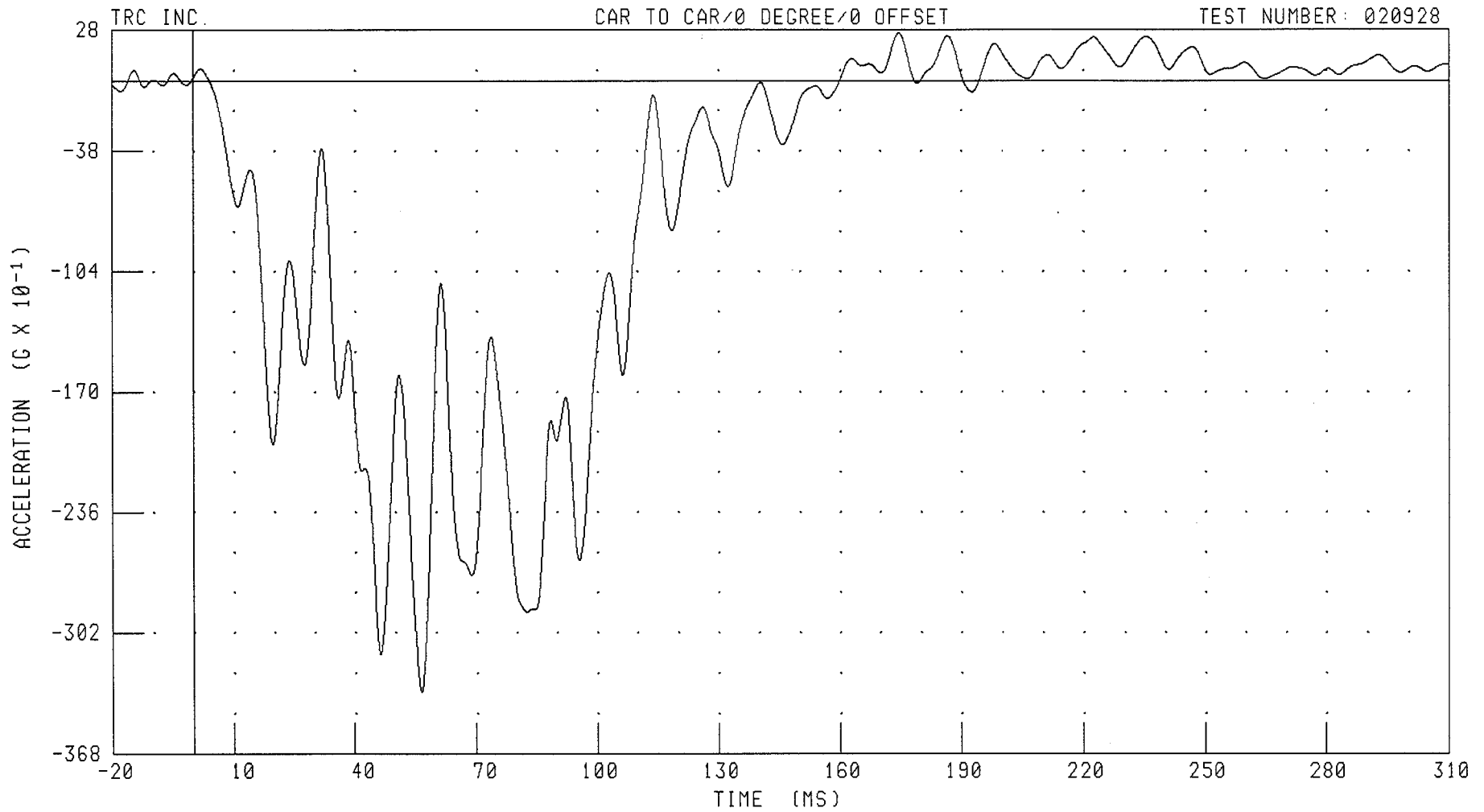
PEAK DATA: 71.08 G @ 88.80 MS; 0.80 G @ 227.36 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET REAR DECK X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKXG1 FILTER: CH. CLASS 60

PEAK DATA: 2.63 G @ 174.72 MS; -33.43 G @ 56.40 MS

B-114

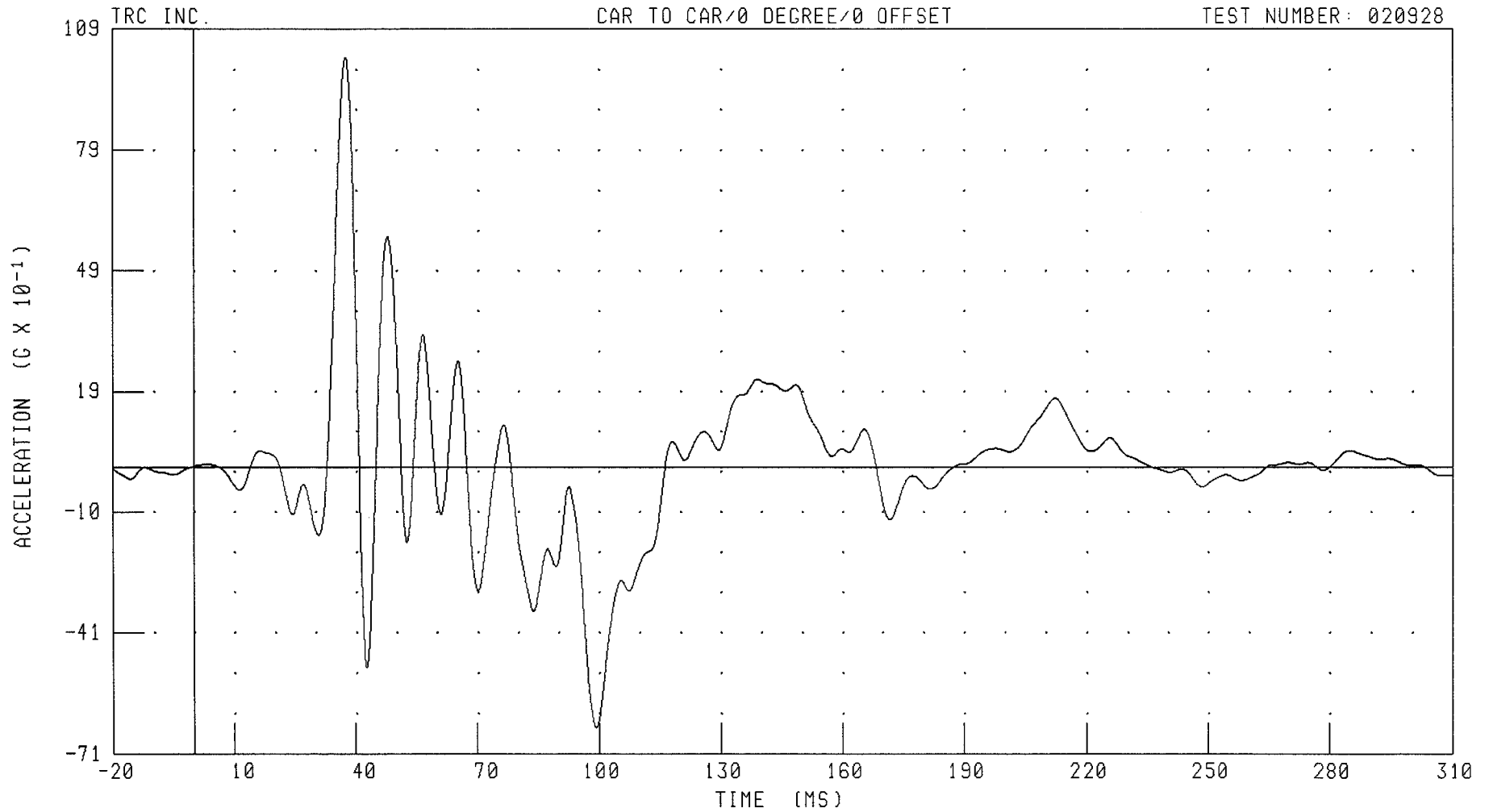
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET REAR DECK Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKYG1 FILTER: CH. CLASS 60

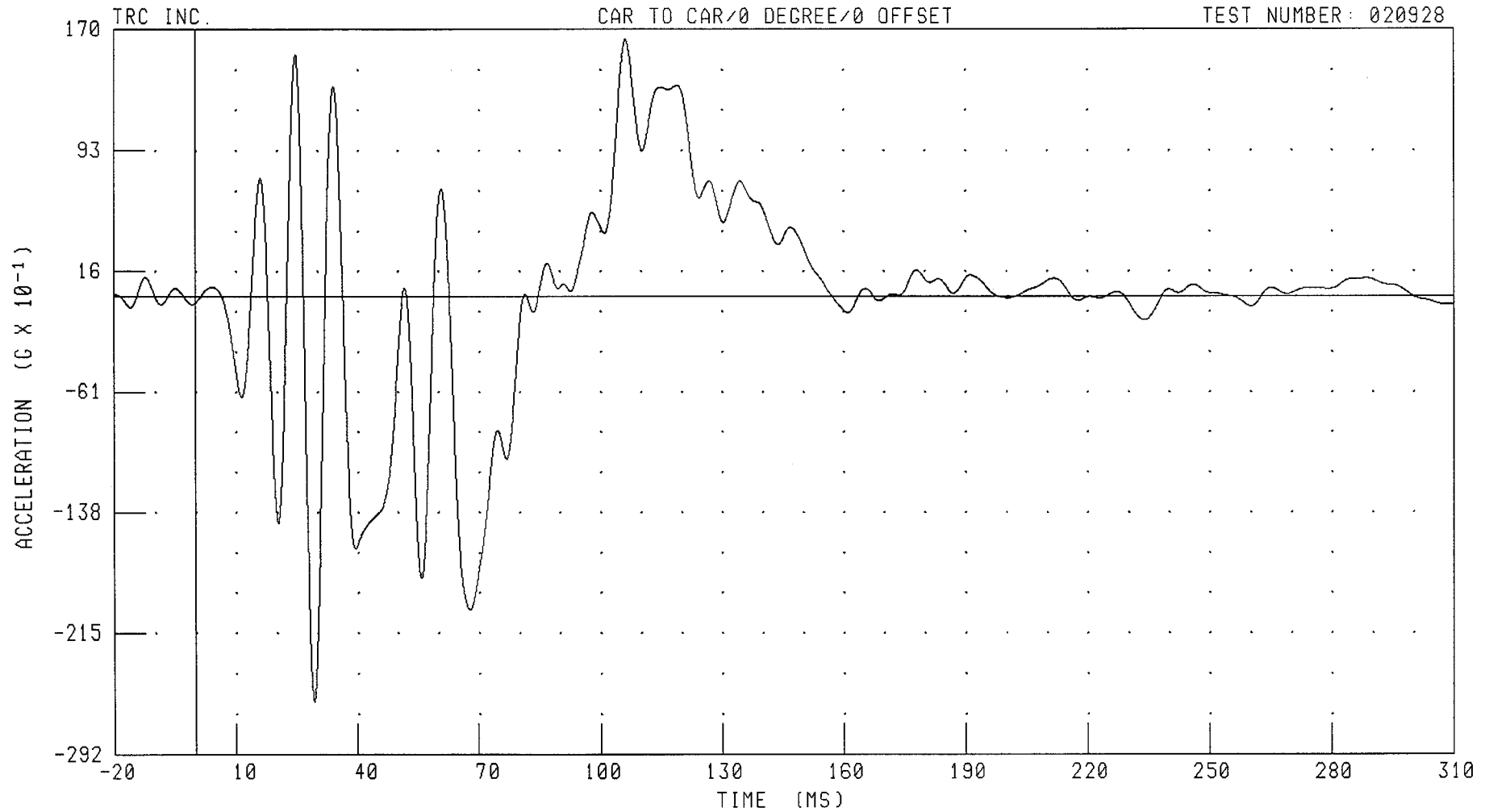
PEAK DATA: 10.19 G @ 37.52 MS; -6.46 G @ 99.36 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET REAR DECK Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKZG1 FILTER: CH. CLASS 60

PEAK DATA: 16.35 G @ 106.40 MS; -25.87 G @ 29.20 MS

B-116

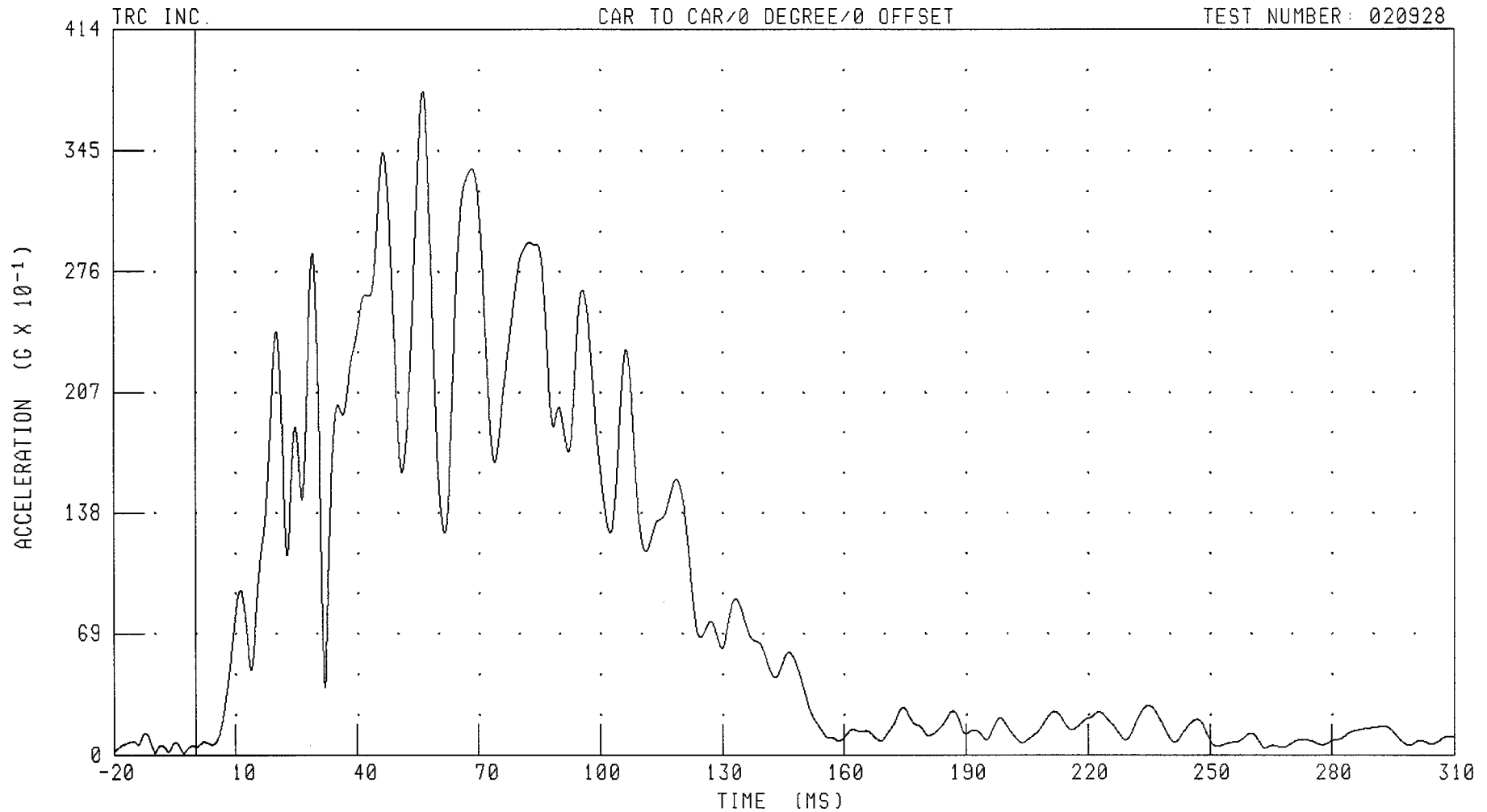
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET REAR DECK RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKRG1 FILTER: CH. CLASS 60

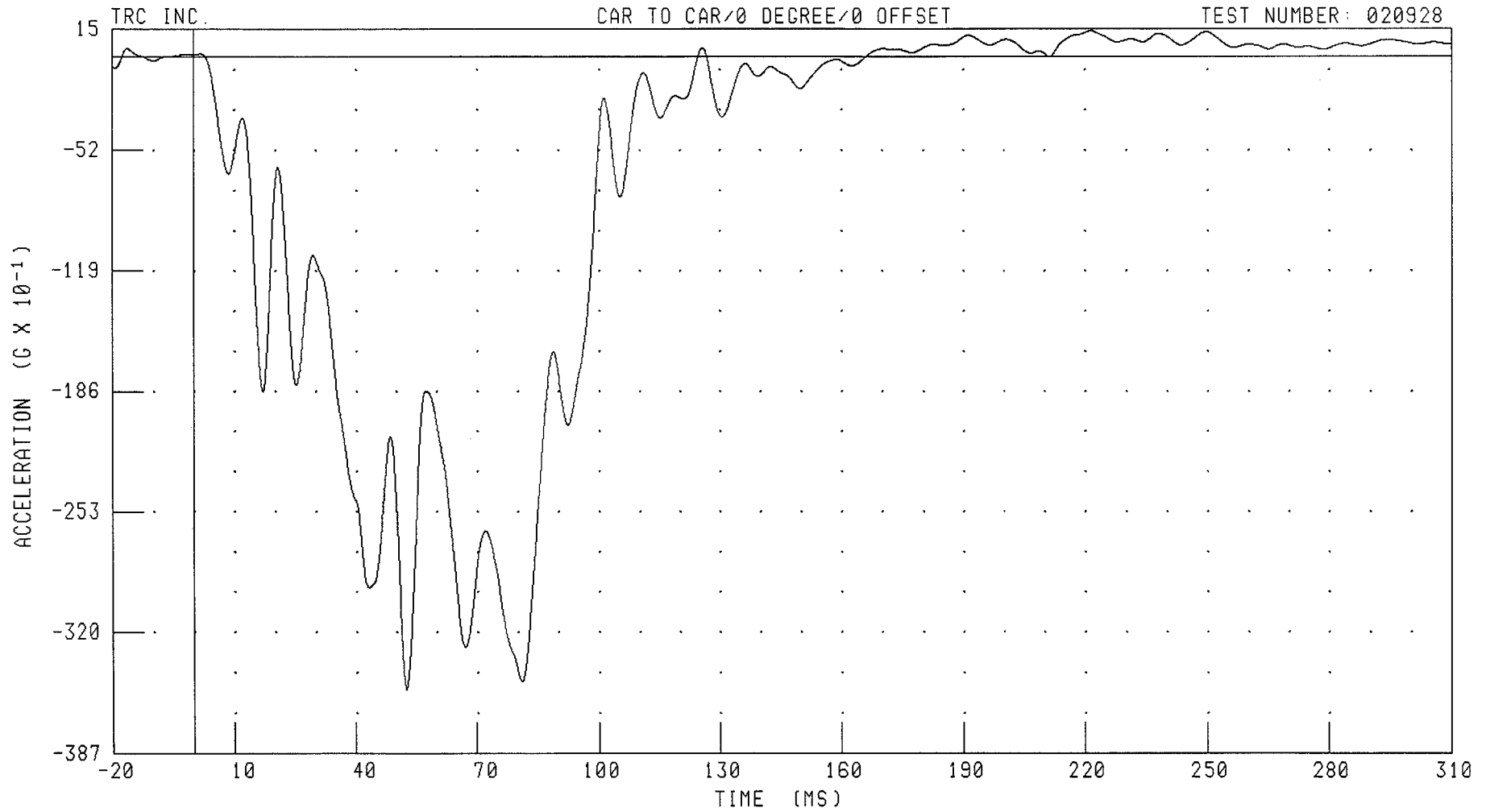
PEAK DATA: 37.87 G @ 56.16 MS; 0.08 G @ -2.88 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET LEFT REAR SILL X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.40 G @ 221.60 MS; -35.17 G @ 52.56 MS

B-118

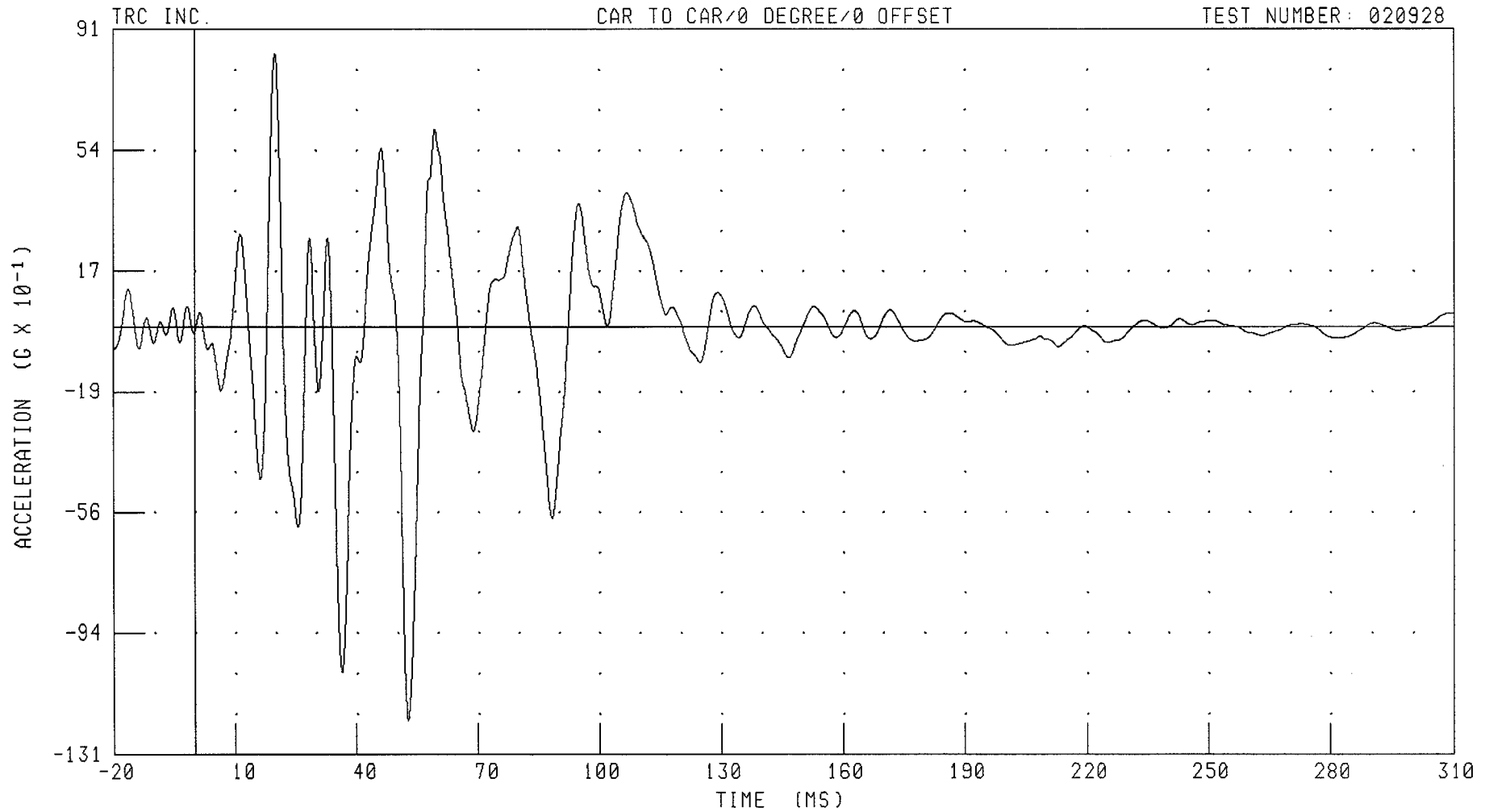
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET LEFT REAR SILL Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSYG1 FILTER: CH. CLASS 60

B-119

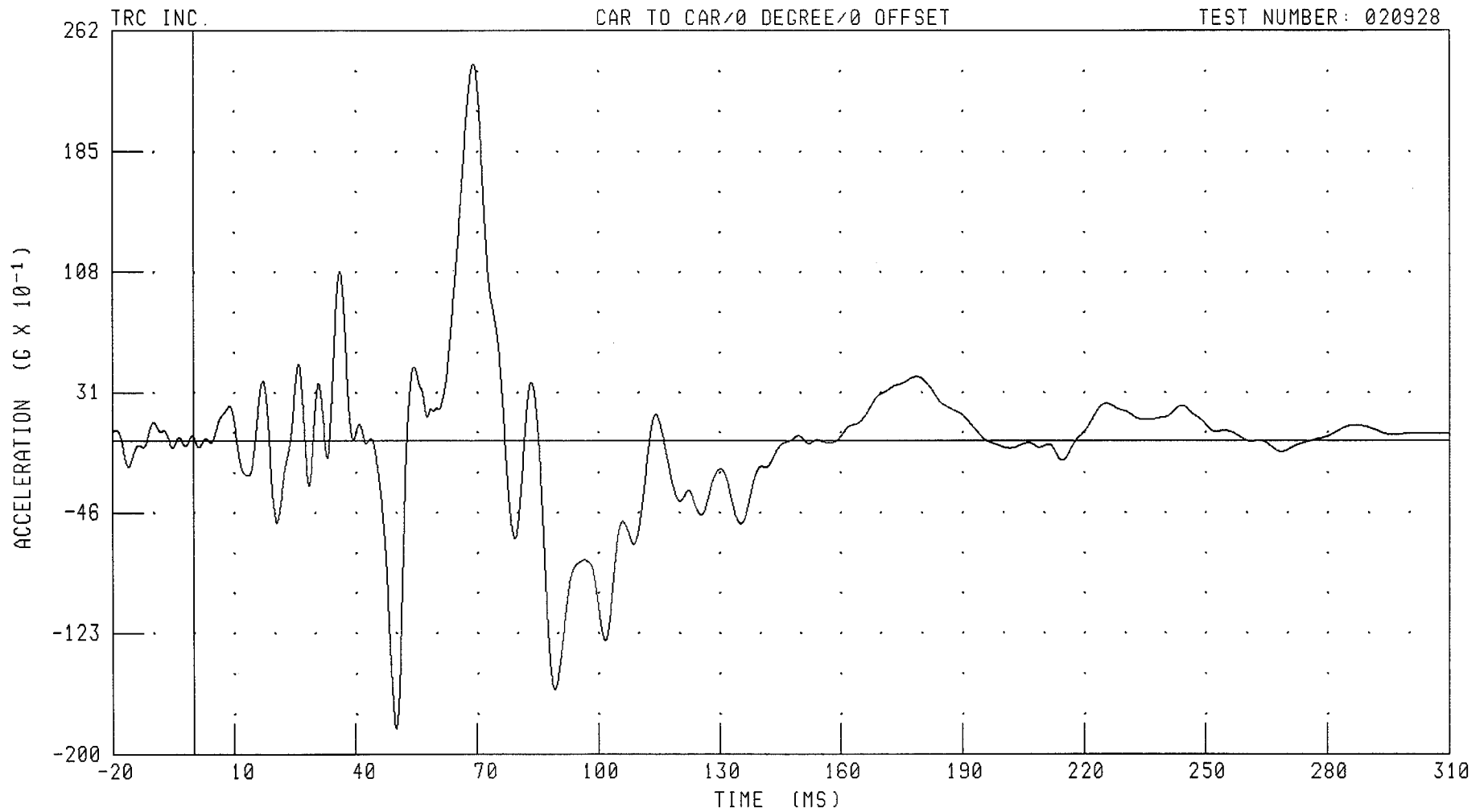
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET LEFT REAR SILL Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSZG1 FILTER: CH. CLASS 60

PEAK DATA: 24.08 G @ 69.20 MS; -18.35 G @ 50.00 MS

B-120

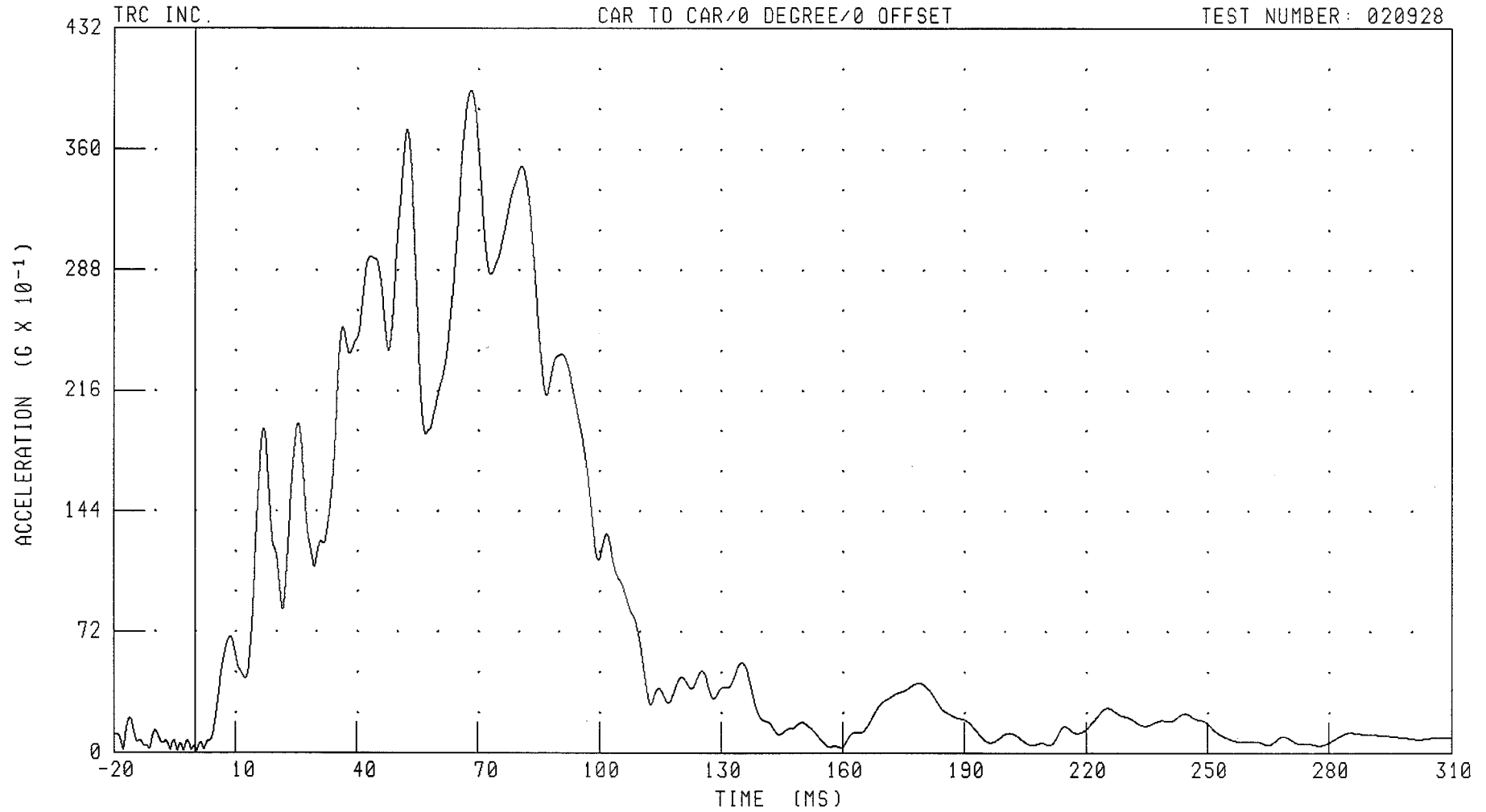
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET LEFT REAR SILL RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSG1 FILTER: CH. CLASS 60

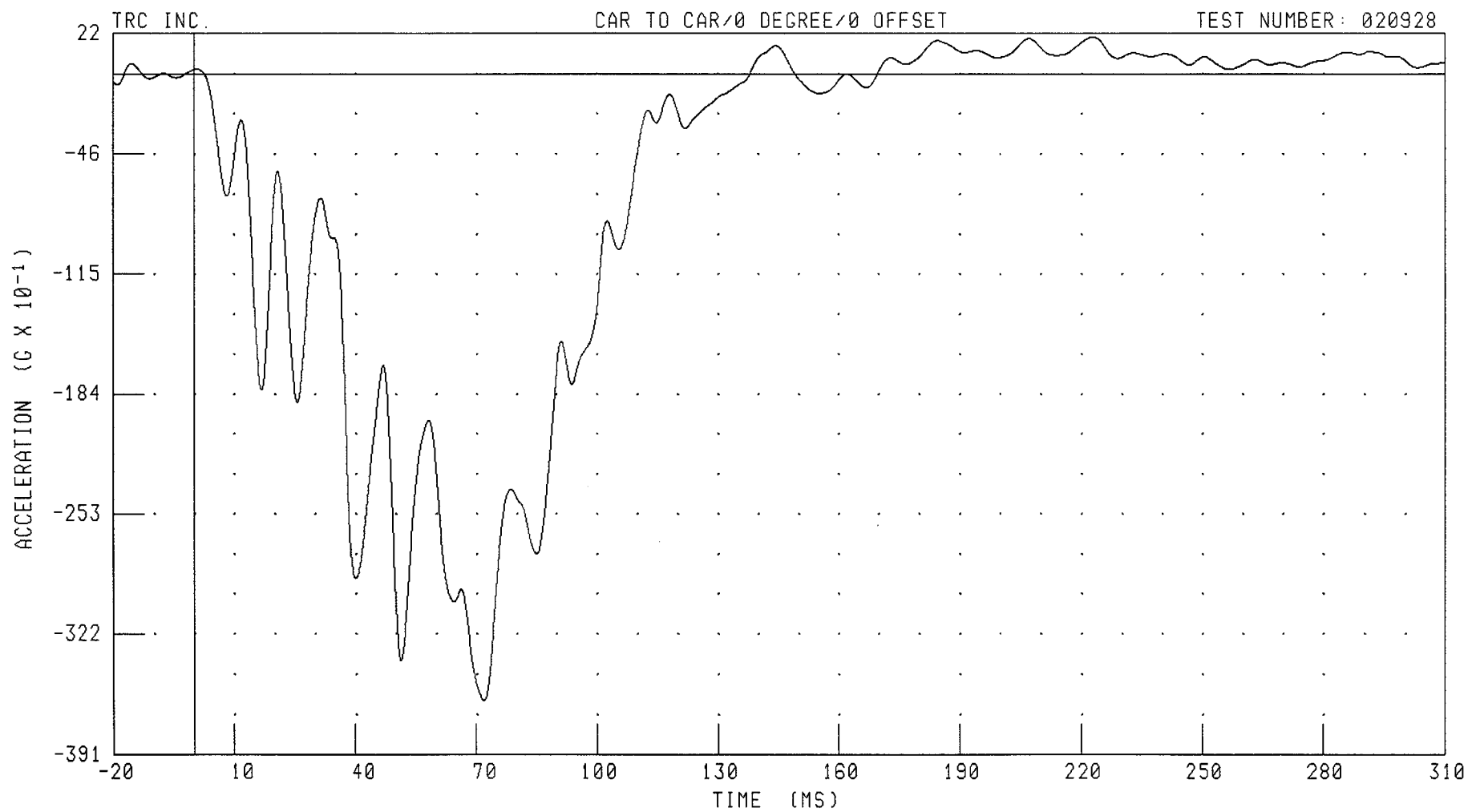
PEAK DATA: 39.52 G @ 68.40 MS; 0.09 G @ -2.88 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET RIGHT REAR SILL X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSXC1 FILTER: CH. CLASS 60

PEAK DATA: 2.10 G @ 223.04 MS; -36.01 G @ 71.92 MS

B-122

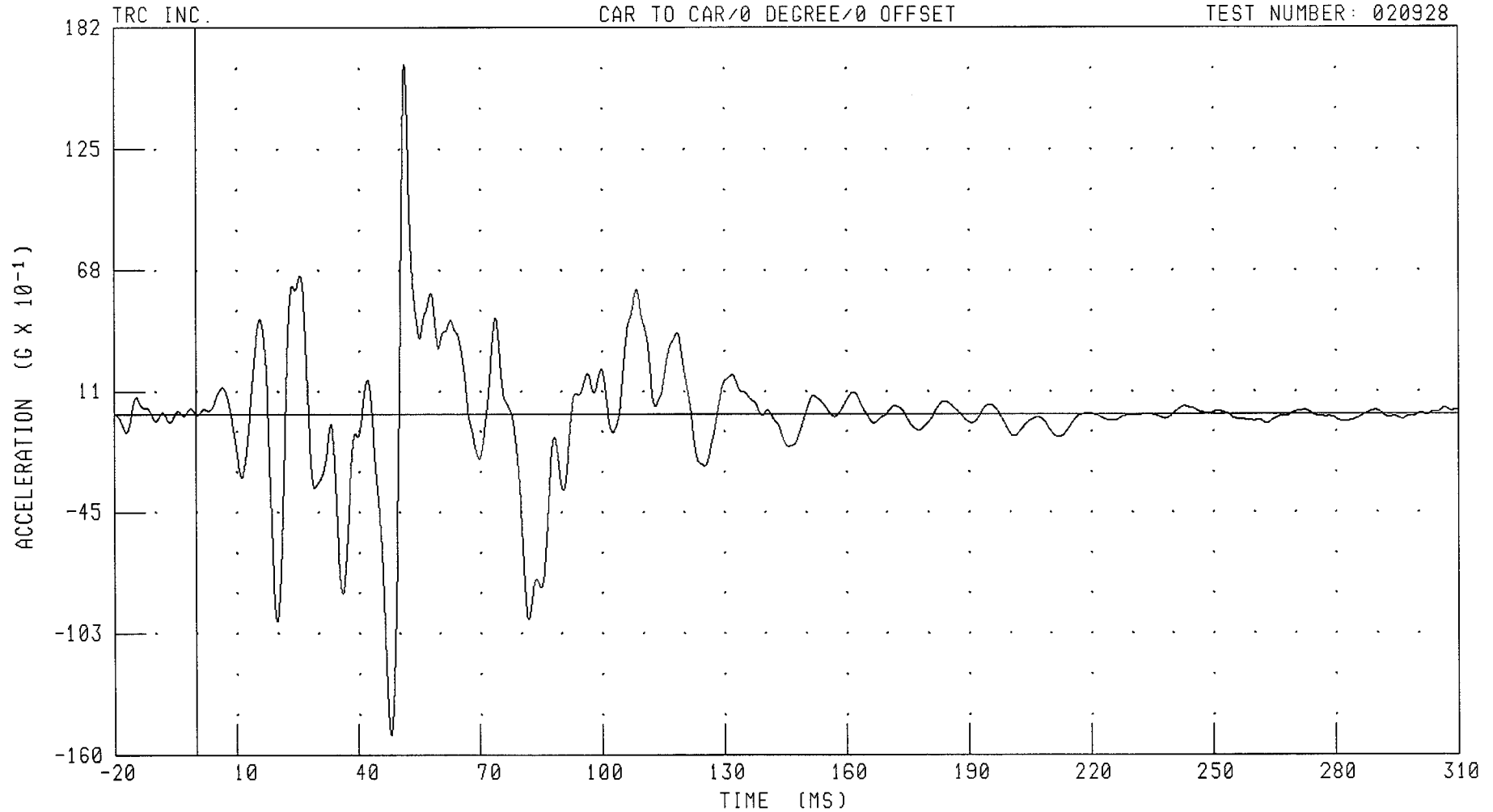
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET RIGHT REAR SILL Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 16.49 G @ 51.36 MS; -15.07 G @ 47.92 MS

B-123

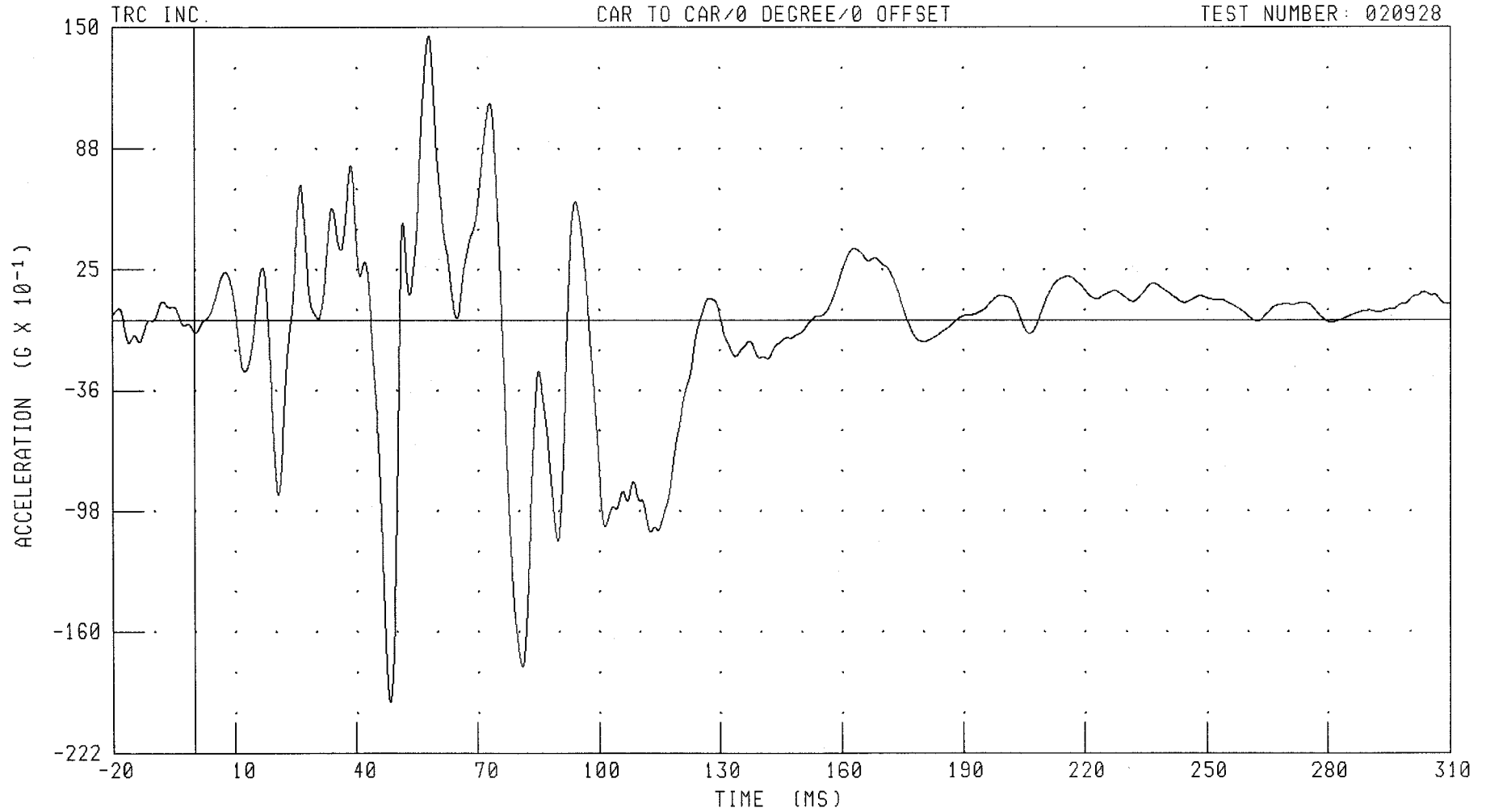
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET RIGHT REAR SILL Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSZG1 FILTER: CH. CLASS 60

PEAK DATA: 14.54 G @ 58.00 MS; -19.59 G @ 48.40 MS

B-124

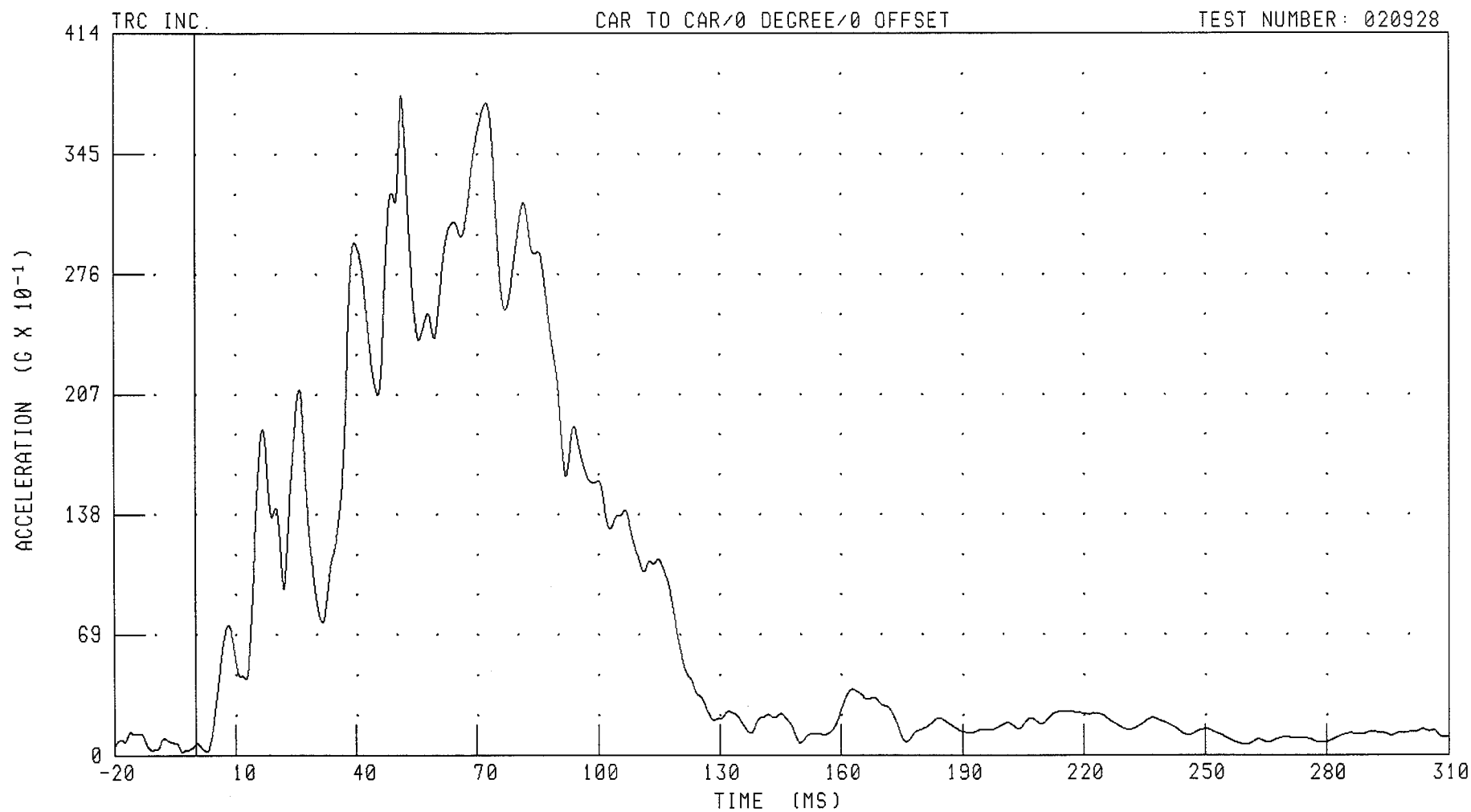
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET RIGHT REAR SILL RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSRG1 FILTER: CH. CLASS 60

PEAK DATA: 37.83 G @ 51.36 MS; 0.17 G @ -3.36 MS

B-125

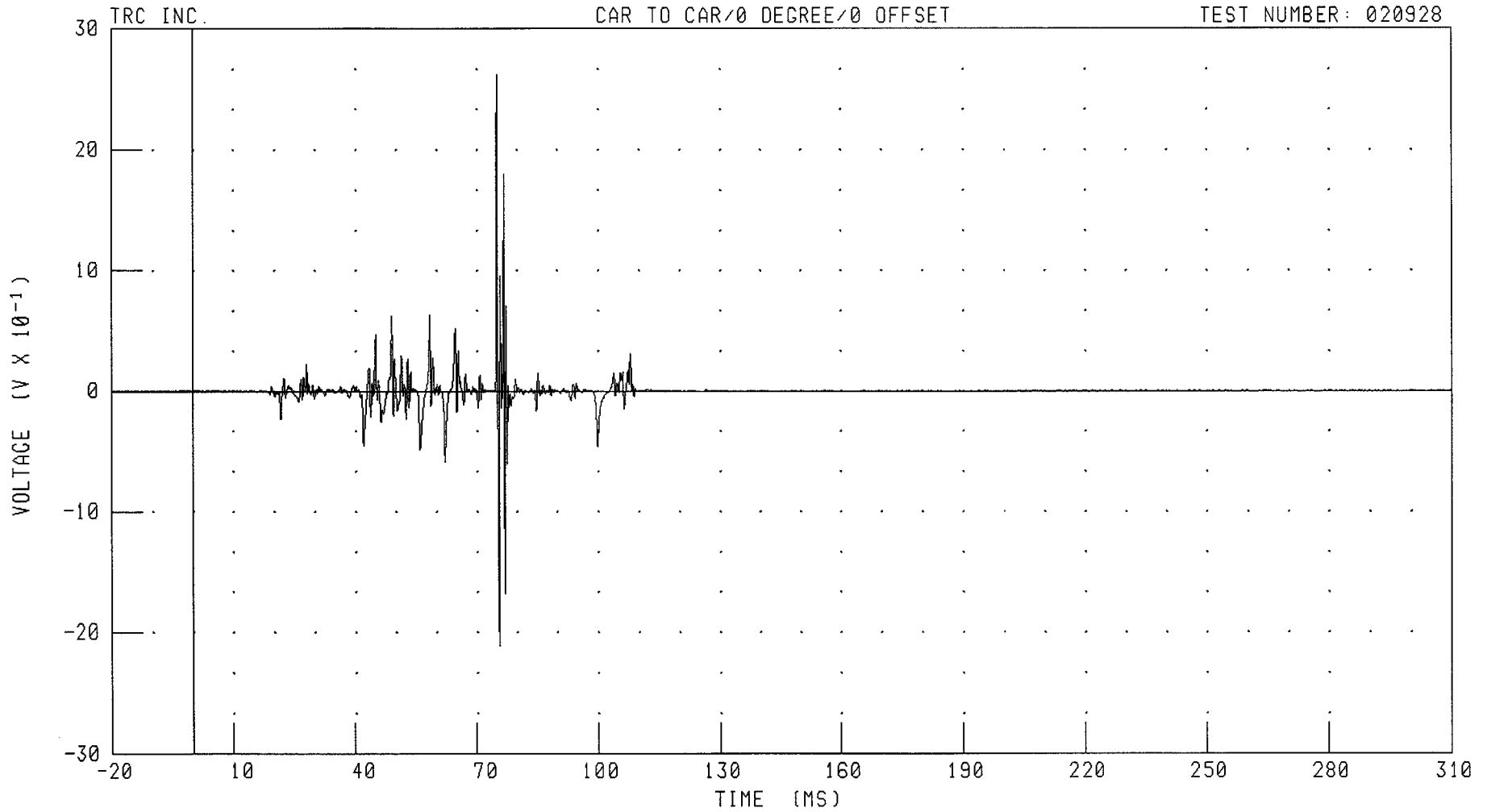
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET DRIVER AIRBAG EVENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: DABET1 FILTER: CH. CLASS 1000

B-126

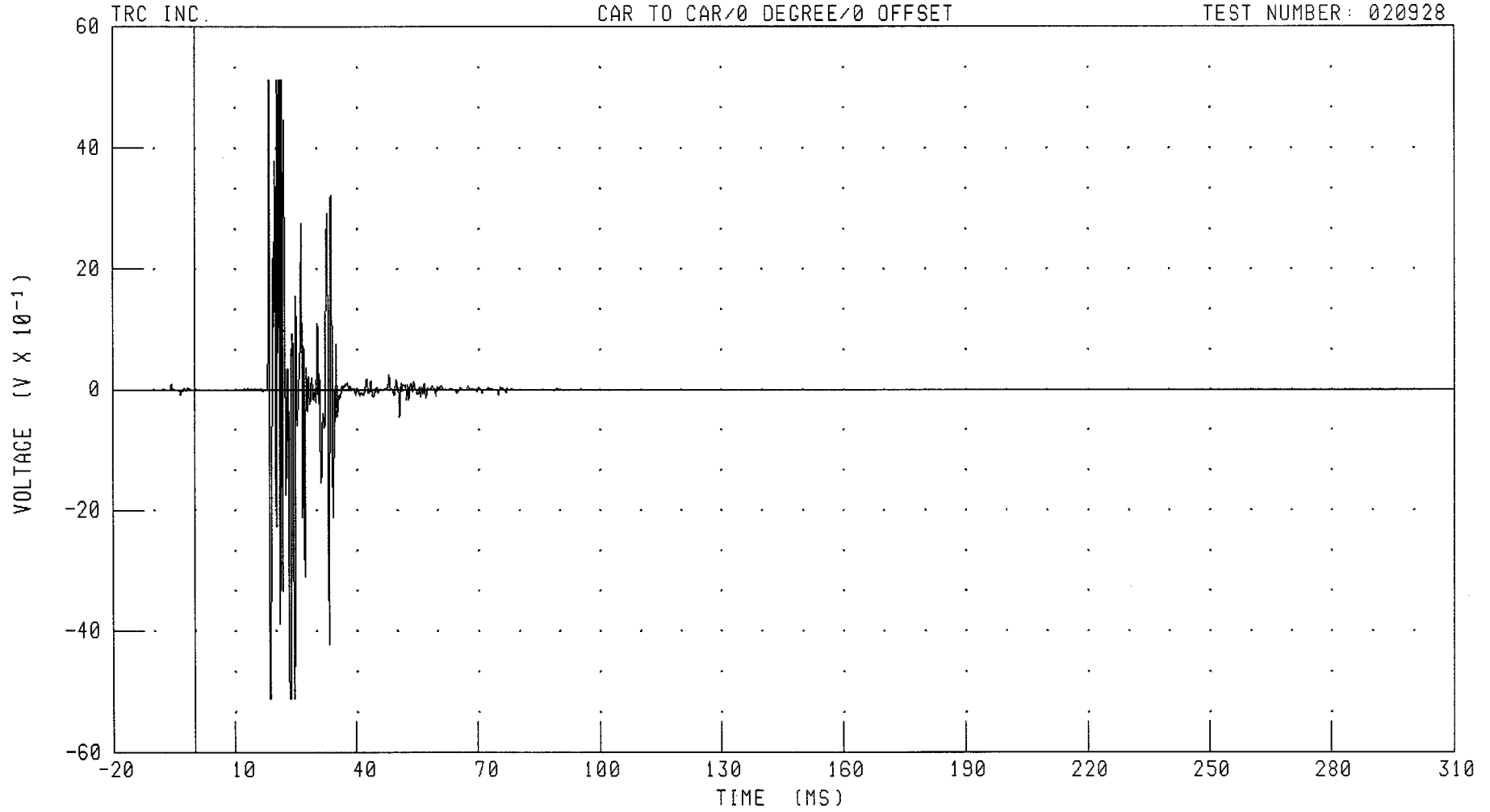
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

TARGET PASSENGER AIRBAG EVENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PABET2 FILTER: CH. CLASS 1000

PEAK DATA: 5.12 V @ 18.40 MS; -5.12 V @ 18.64 MS

B-127

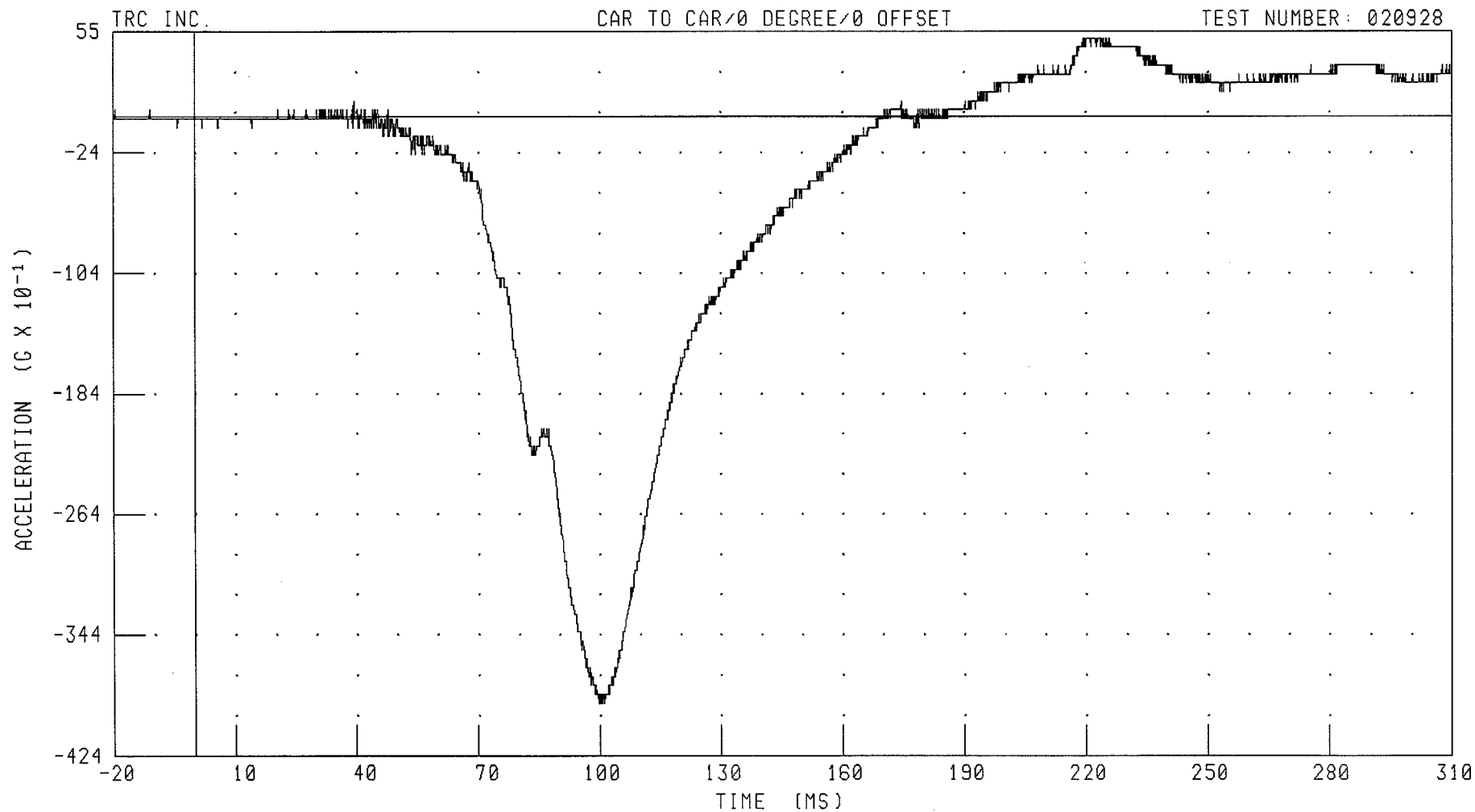
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER HEAD X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDXGA FILTER: CH. CLASS 1000

PEAK DATA: 5.15 G @ 219.36 MS; -38.93 G @ 99.76 MS

B-128

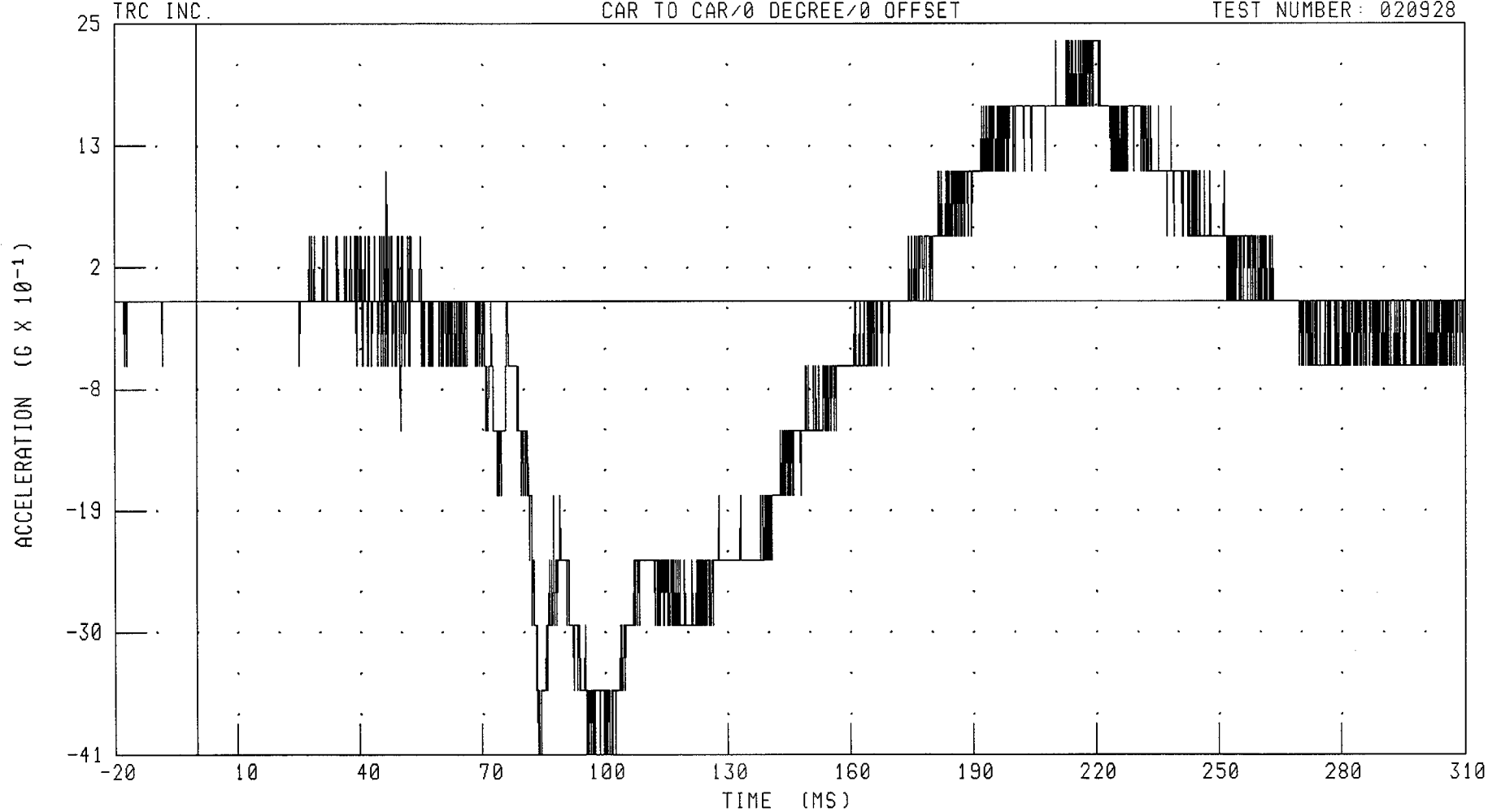
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER HEAD Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDYGA

FILTER: CH. CLASS 1000

PEAK DATA: 2.35 G @ 210.32 MS; -4.12 G @ 83.52 MS

B-129

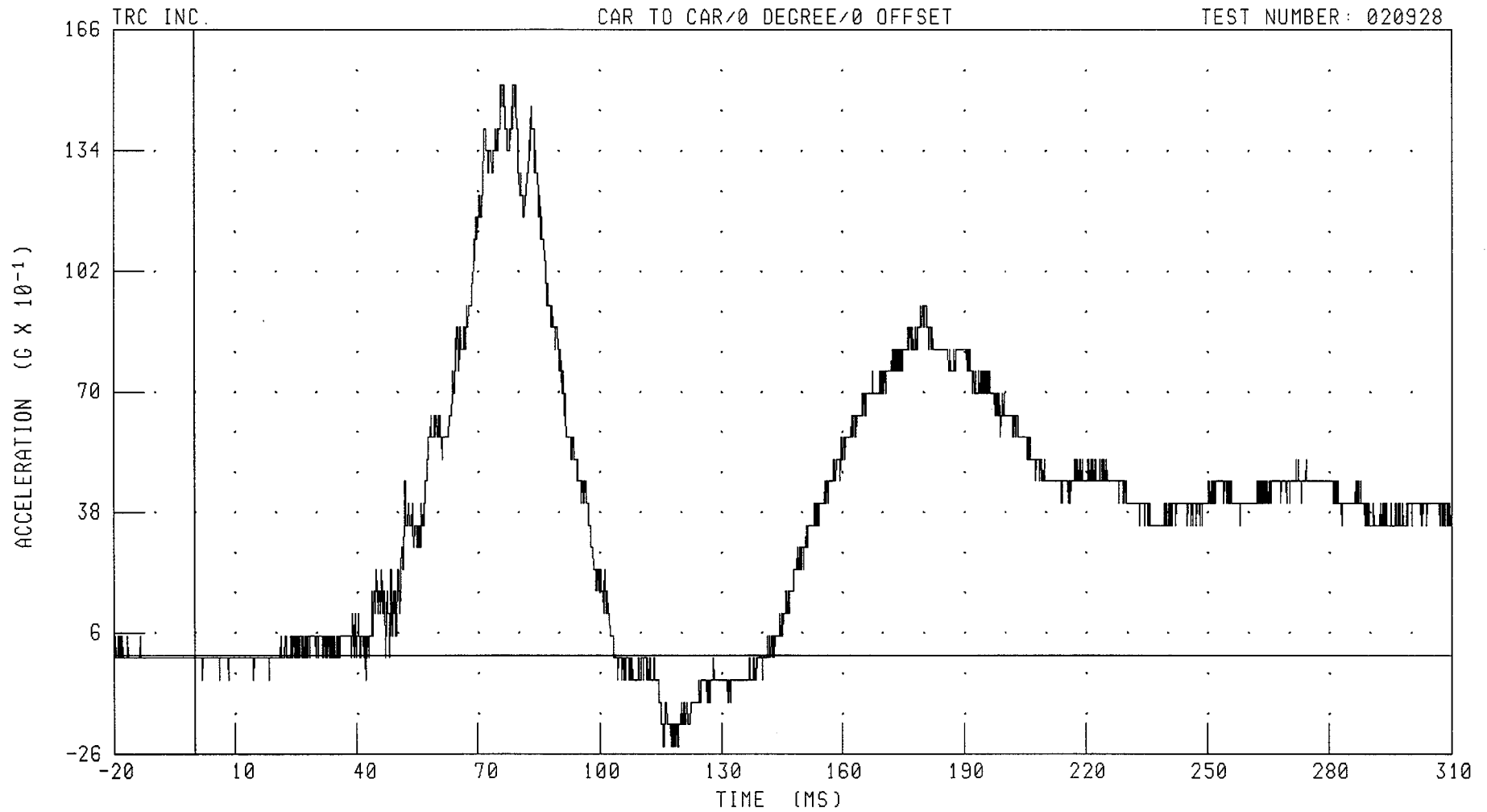
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER HEAD Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDZGA FILTER: CH. CLASS 1000

PEAK DATA: 15.15 G @ 75.76 MS; -2.40 G @ 115.60 MS

B-130

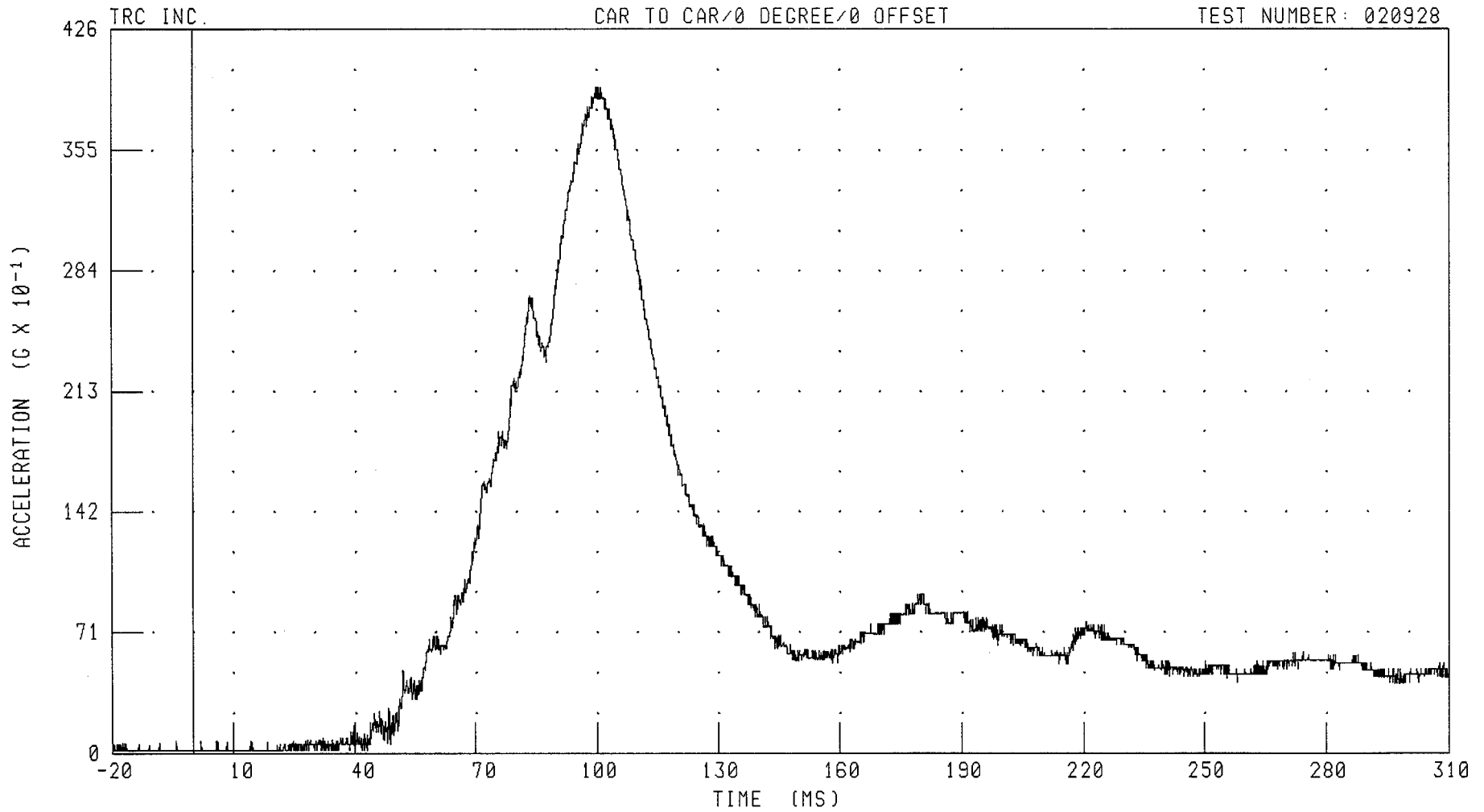
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER HEAD RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDRGA FILTER: CH. CLASS 1000

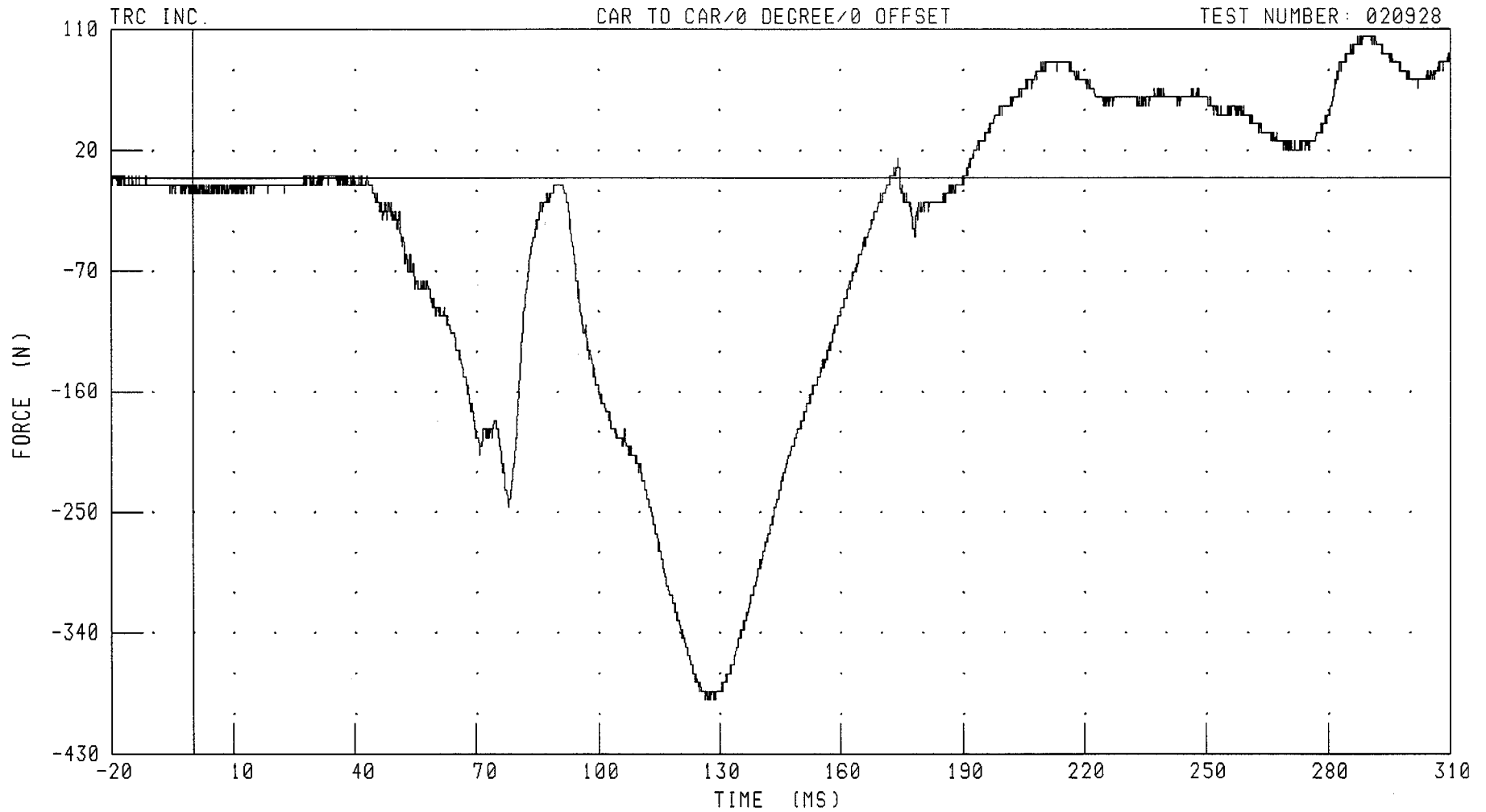
PEAK DATA: 39.19 G @ 100.16 MS; 0.15 G @ -20.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NECK X-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXFA FILTER: CH. CLASS 1000

PEAK DATA: 105.15 N @ 287.28 MS; -389.81 N @ 126.64 MS

B-132

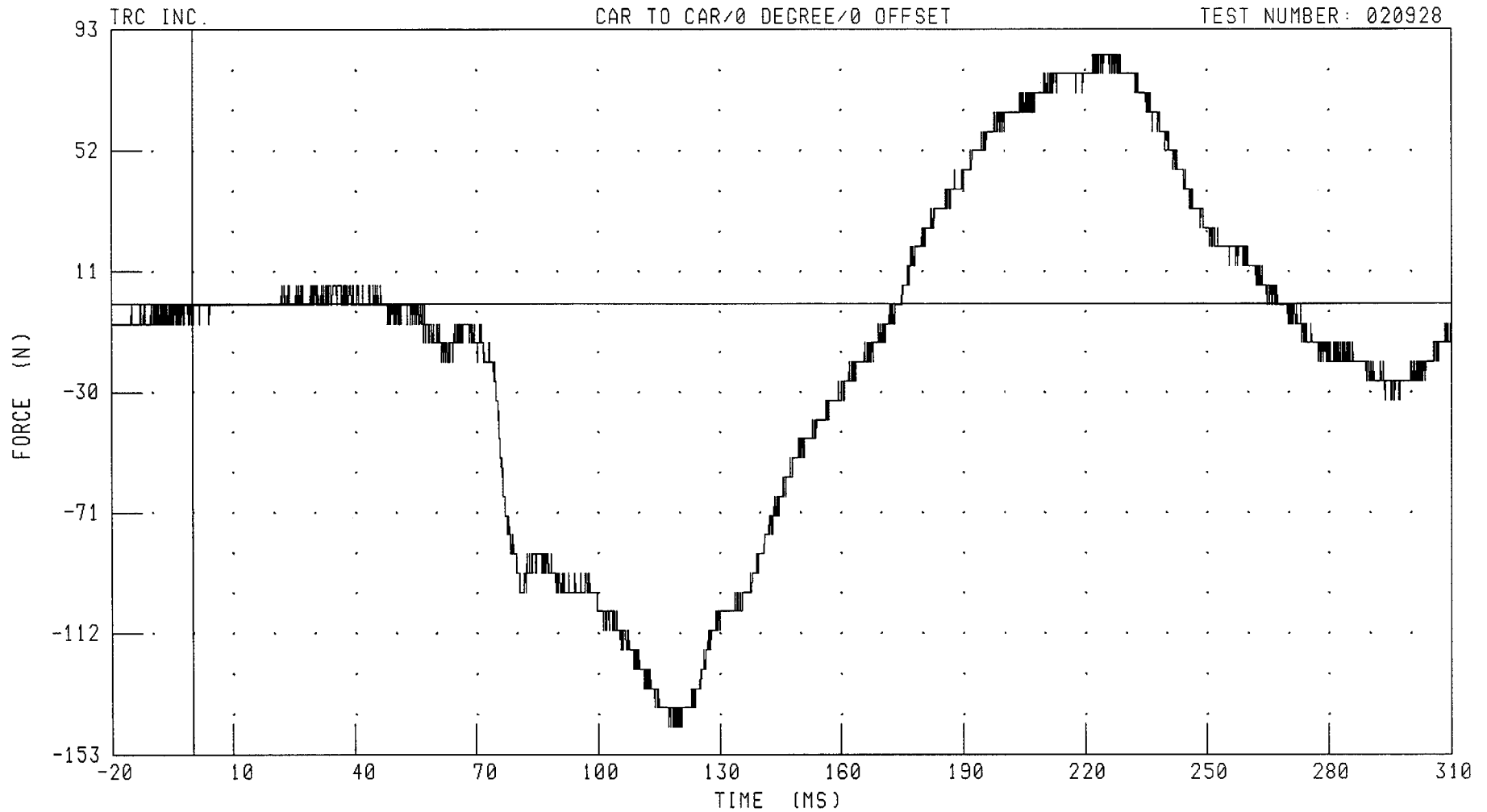
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NECK Y-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYFA FILTER: CH. CLASS 1000

B-133

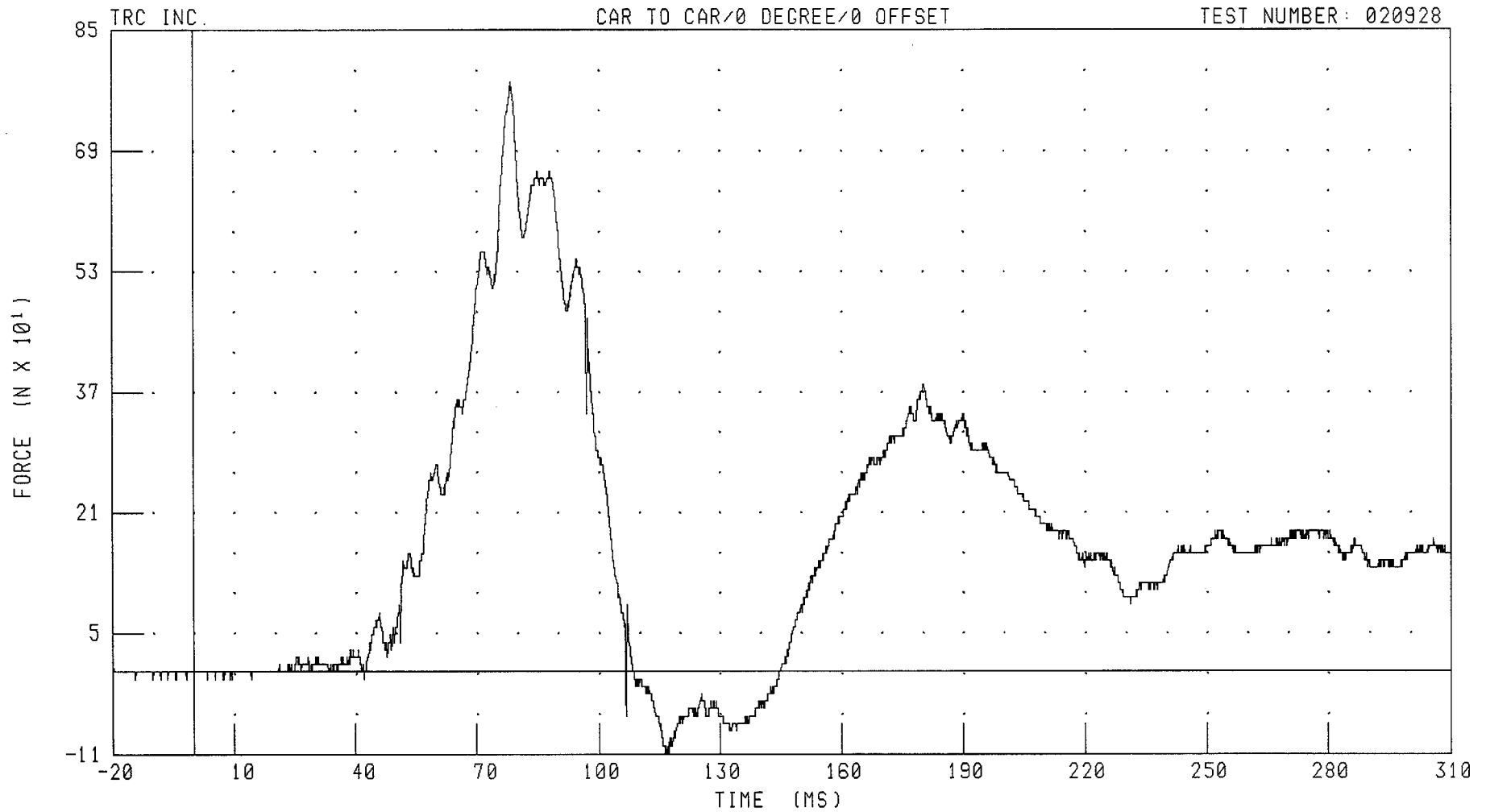
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NECK Z-AXIS AXIAL FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZFA FILTER: CH. CLASS 1000

PEAK DATA: 780.75 N @ 78.40 MS; -108.44 N @ 116.40 MS

B-134

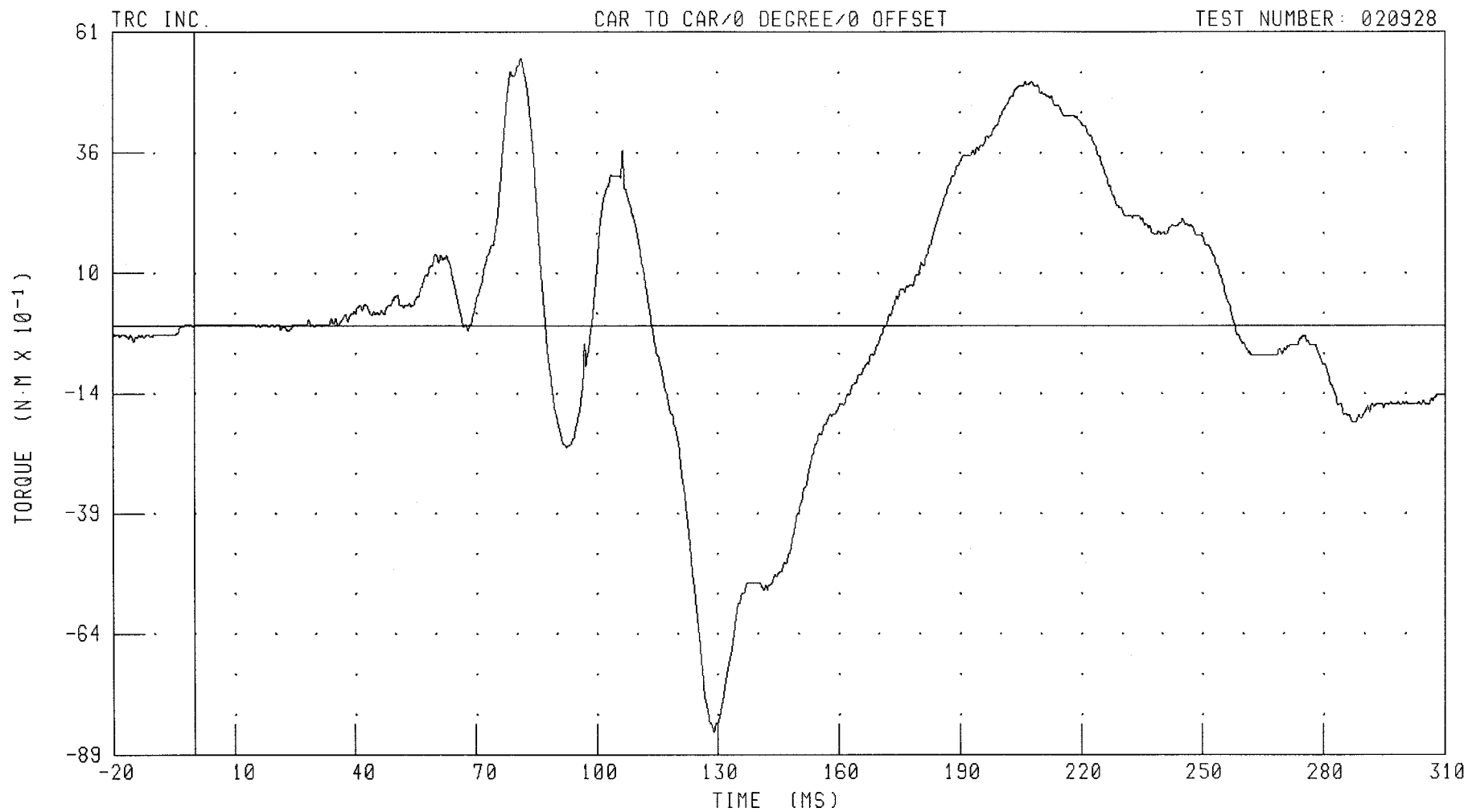
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NECK MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXMA FILTER: CH. CLASS 600

PEAK DATA: 5.55 N·M @ 81.12 MS; -8.44 N·M @ 129.04 MS

B-135

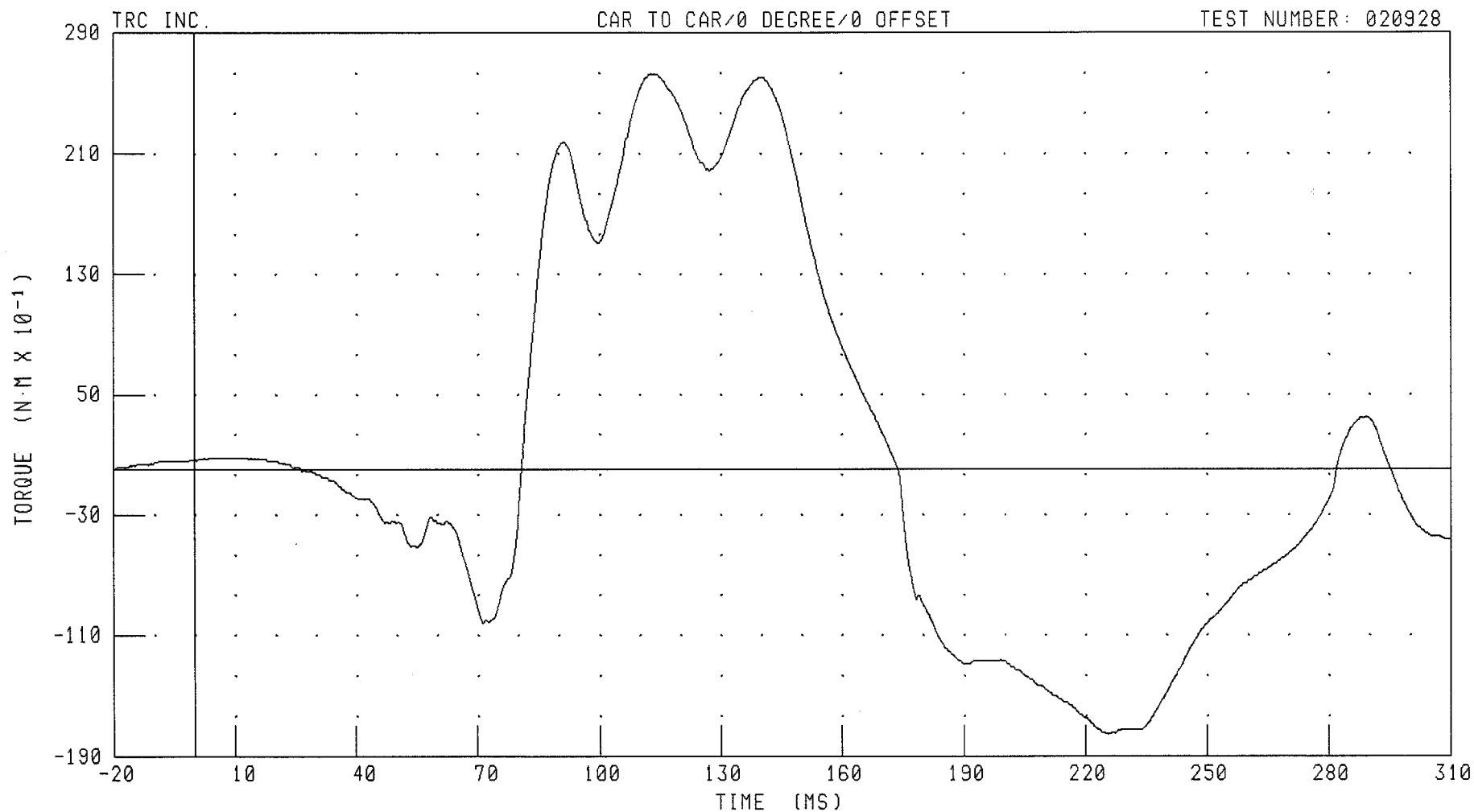
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NECK MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYMA

FILTER: CH. CLASS 600

PEAK DATA: 26.27 N·M @ 113.04 MS; -17.56 N·M @ 225.52 MS

B-136

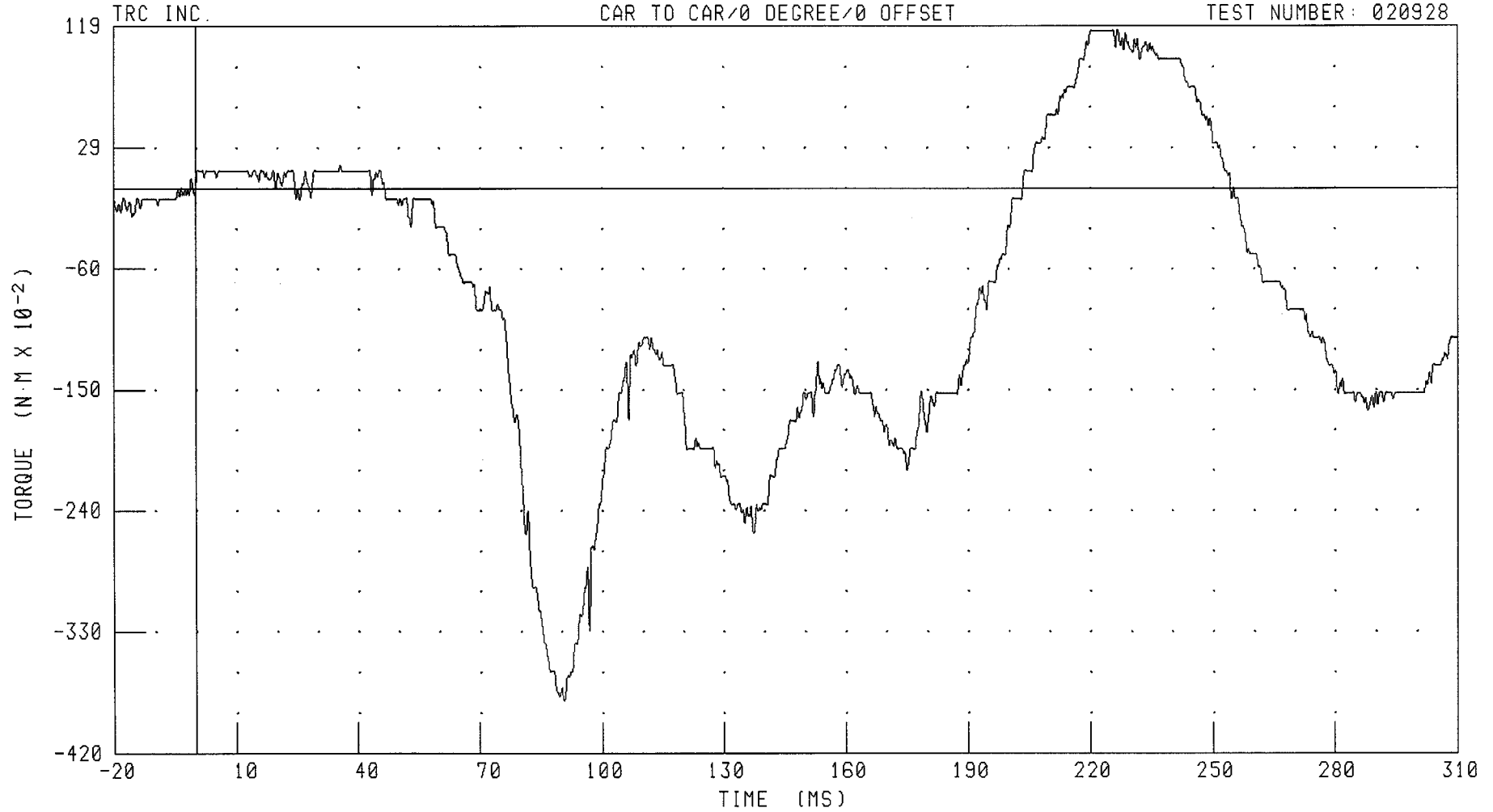
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NECK MOMENT ABOUT Z AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZMA FILTER: CH. CLASS 600

PEAK DATA: 1.17 N·M @ 227.04 MS; -3.81 N·M @ 90.72 MS

B-137

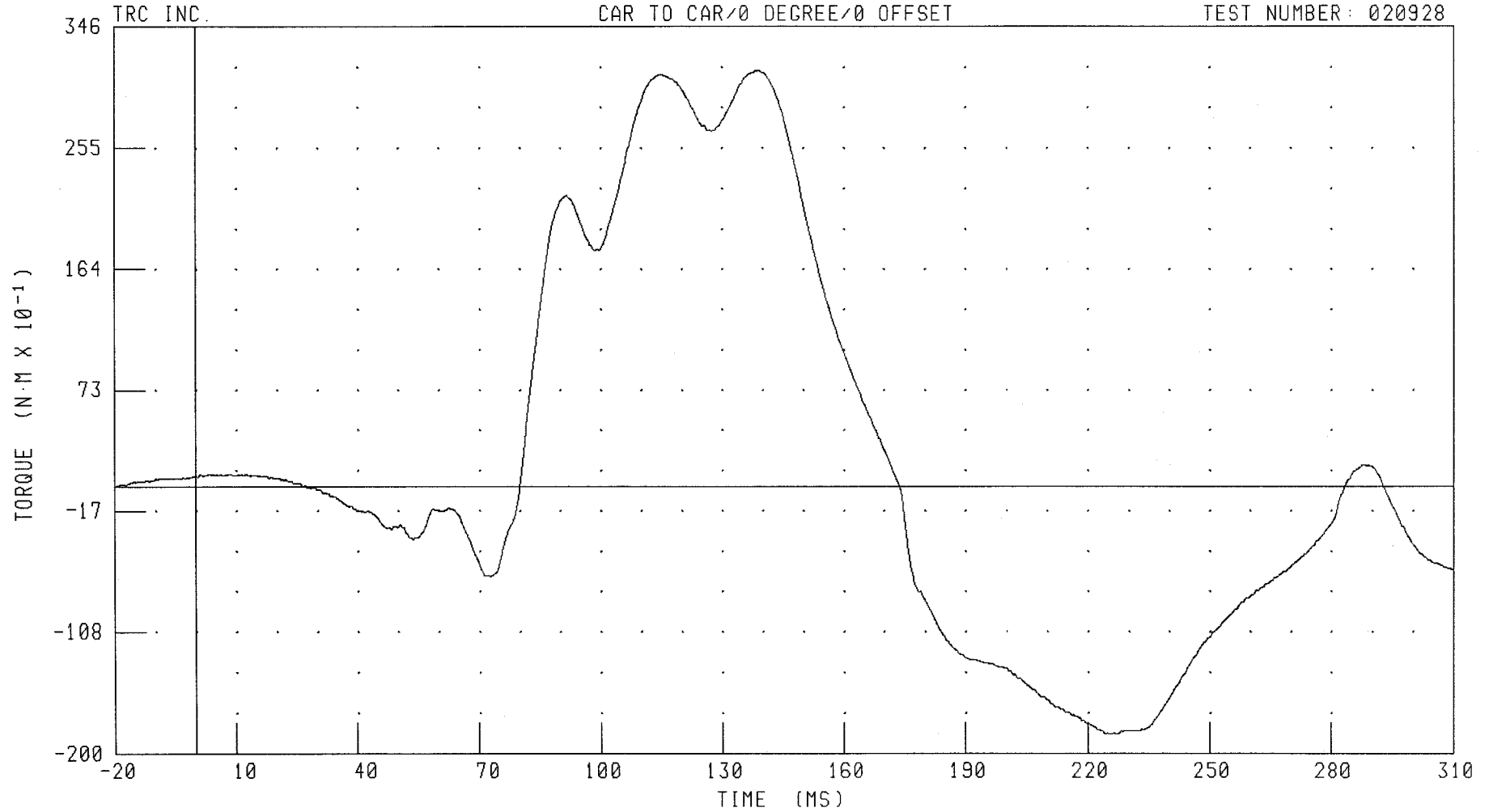
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKOMA FILTER: CH. CLASS 600

PEAK DATA: 31.32 N·M @ 138.32 MS; -18.58 N·M @ 225.60 MS

B-138

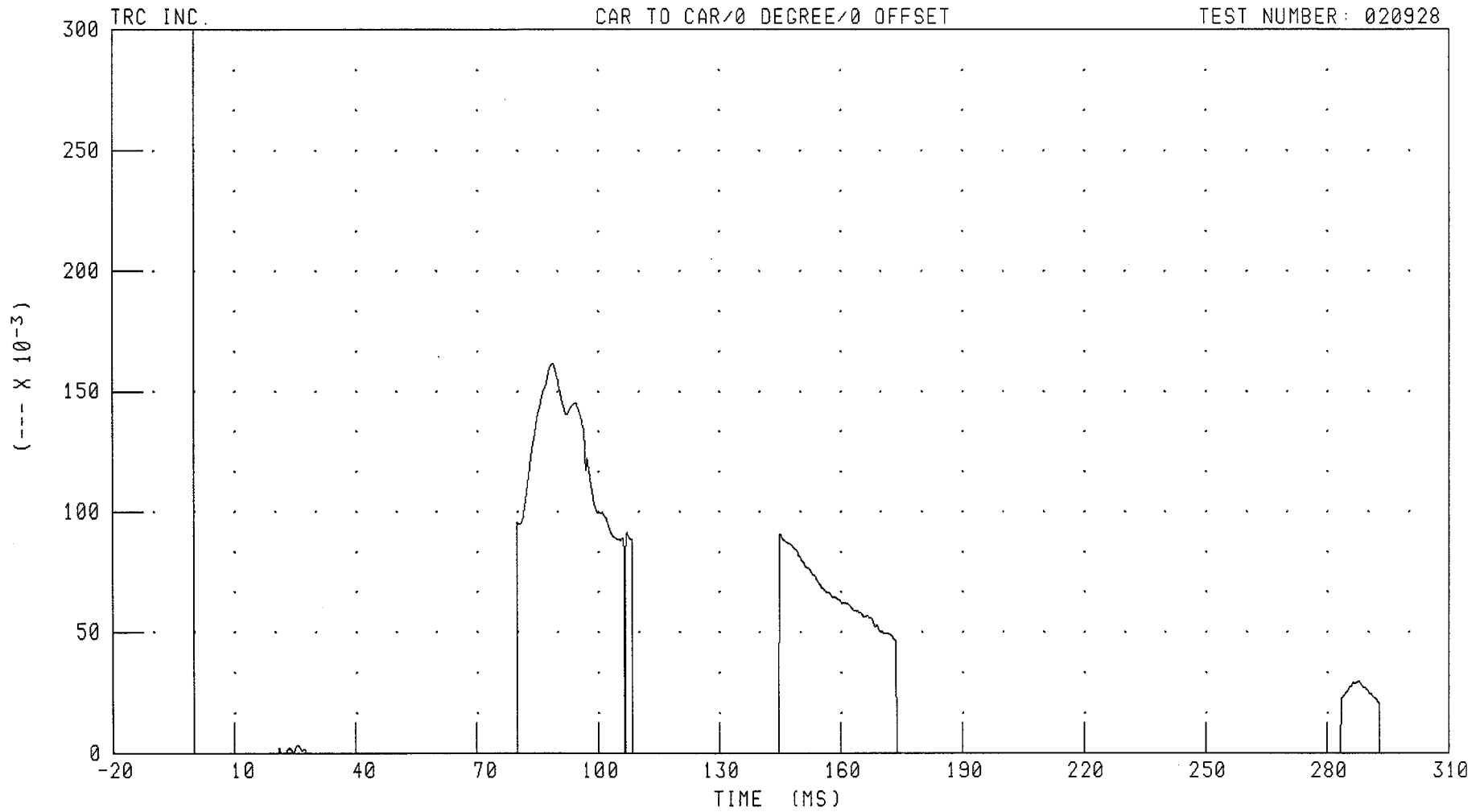
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NIJ TENSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NTFA

FILTER: CH. CLASS 600

PEAK DATA: 0.16 --- @ 88.72 MS; 0.00 --- @ -19.68 MS

B-139

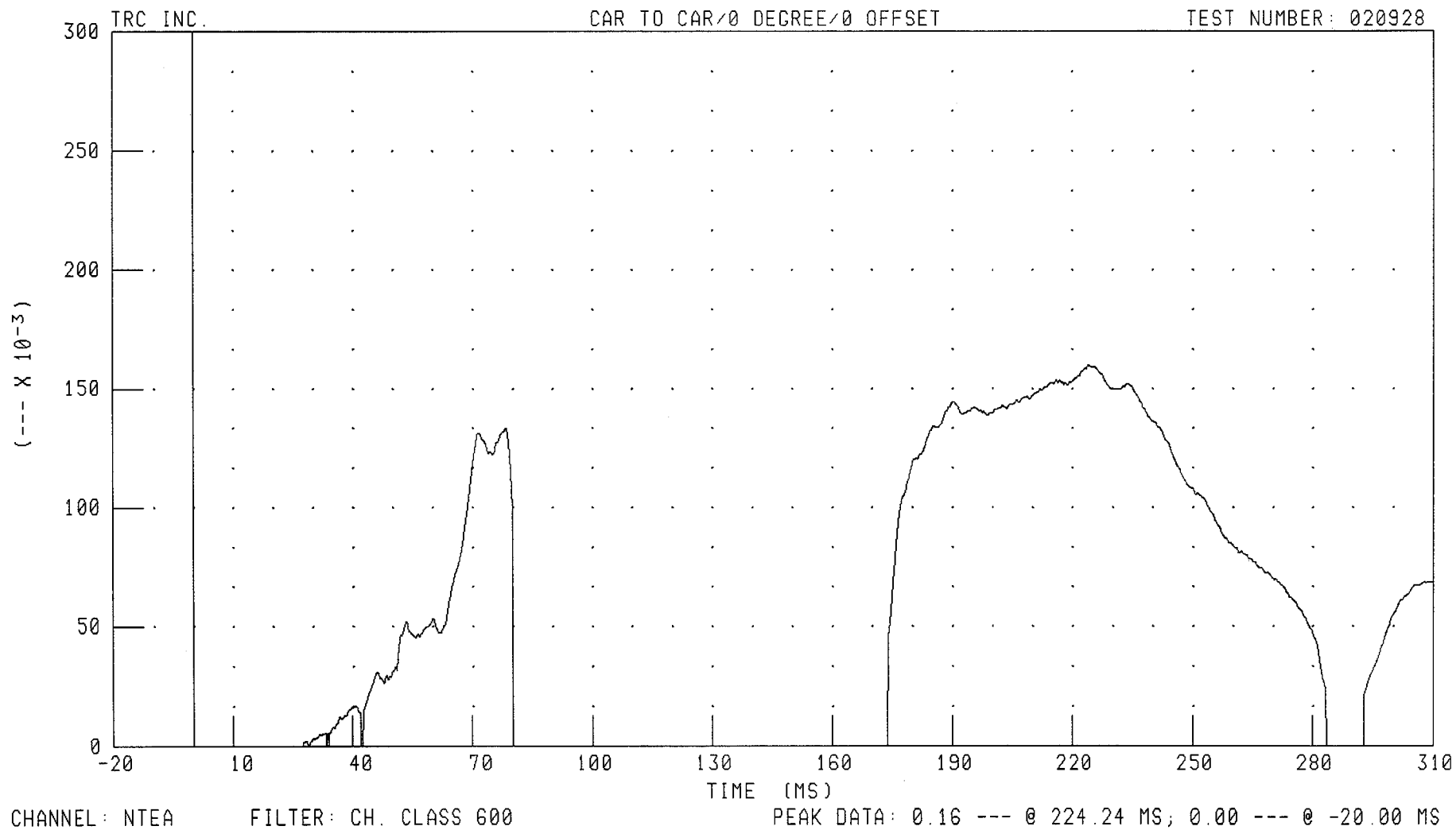
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NIJ TENSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



B-140

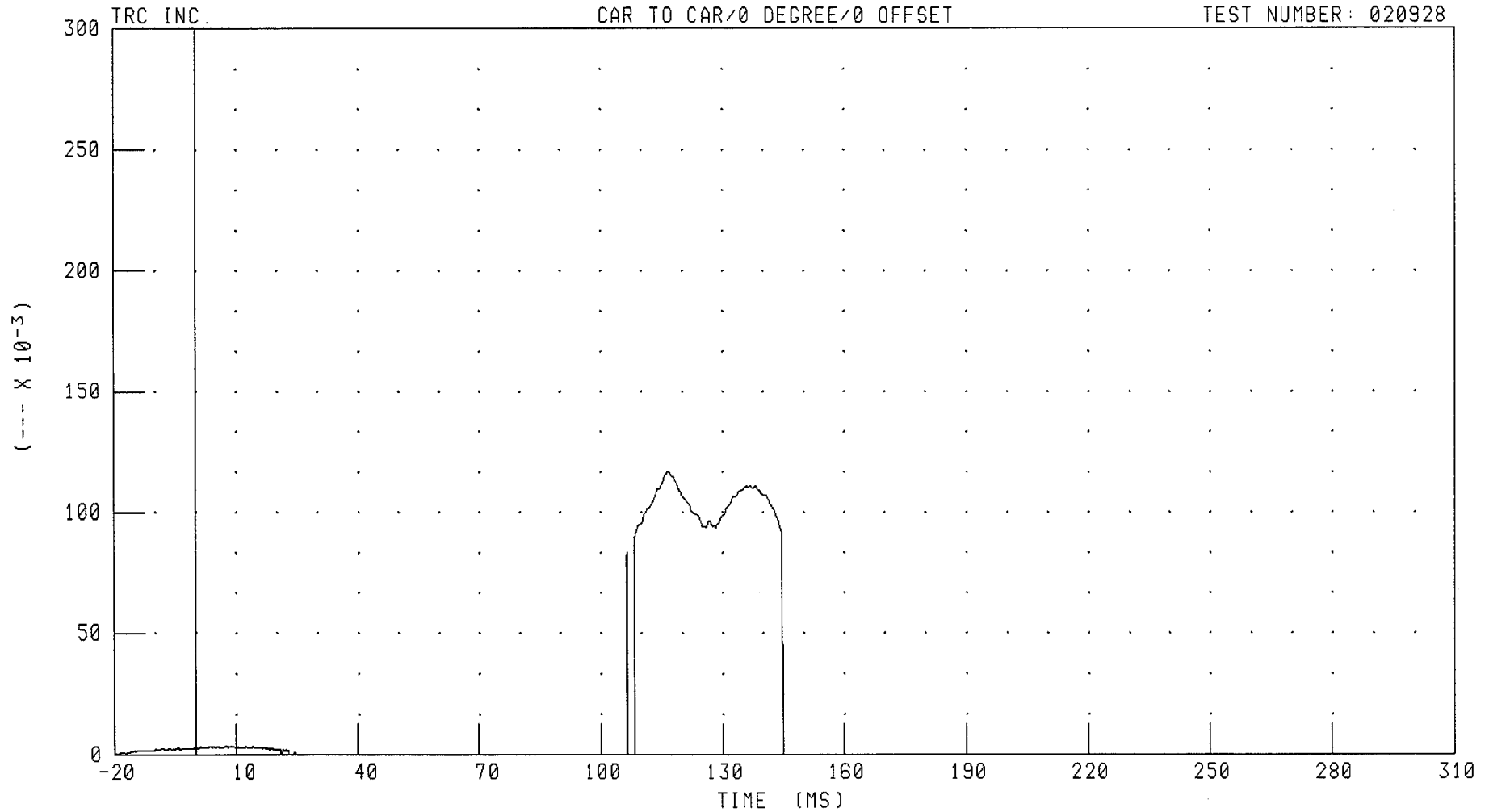
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NIJ COMPRESSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NCFA

FILTER: CH. CLASS 600

PEAK DATA: 0.12 --- @ 116.64 MS; 0.00 --- @ -20.00 MS

B-141

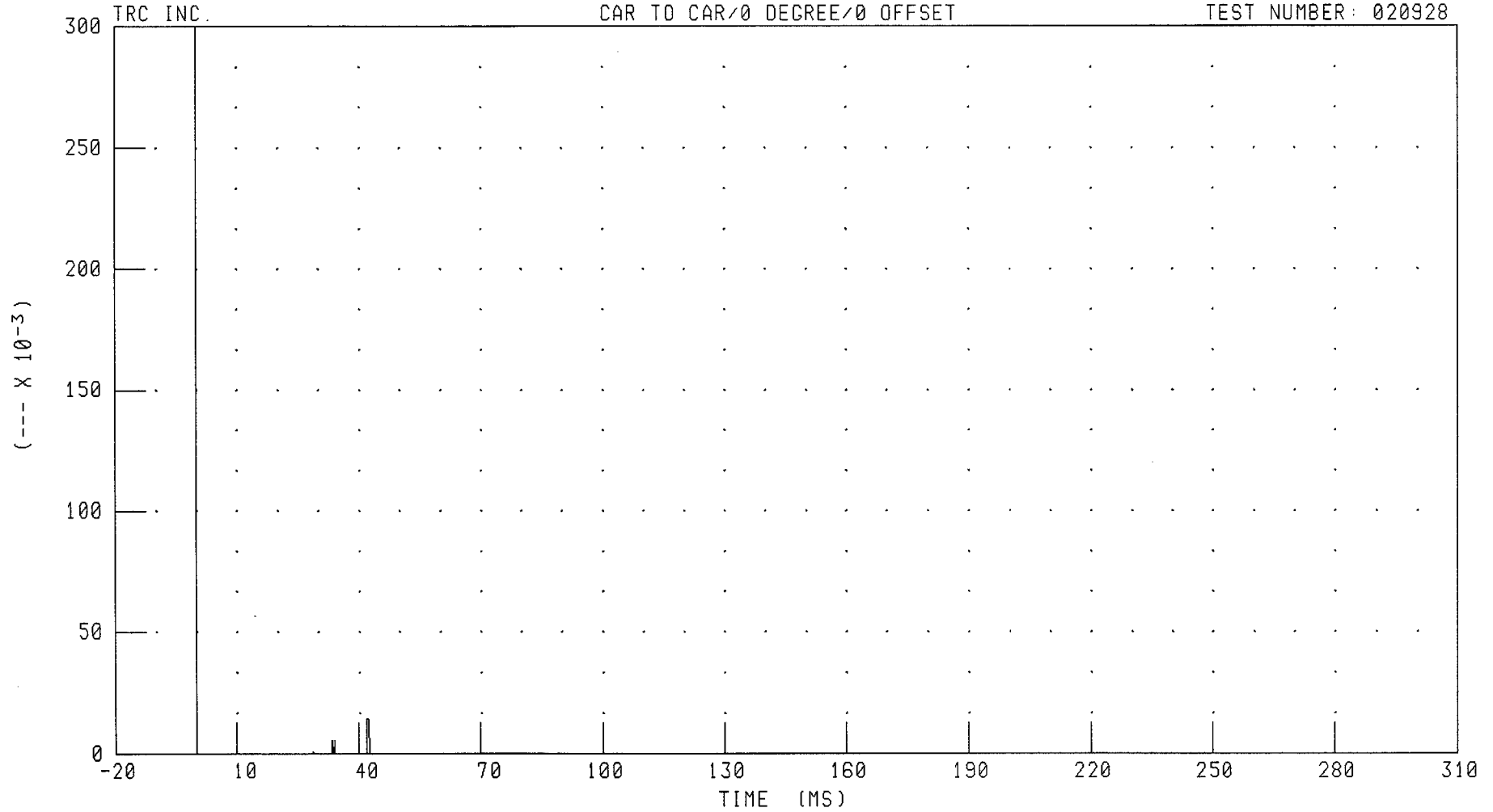
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER NIJ COMPRESSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NCEA

FILTER: CH. CLASS 600

PEAK DATA: 0.01 --- @ 42.16 MS; 0.00 --- @ -20.00 MS

B-142

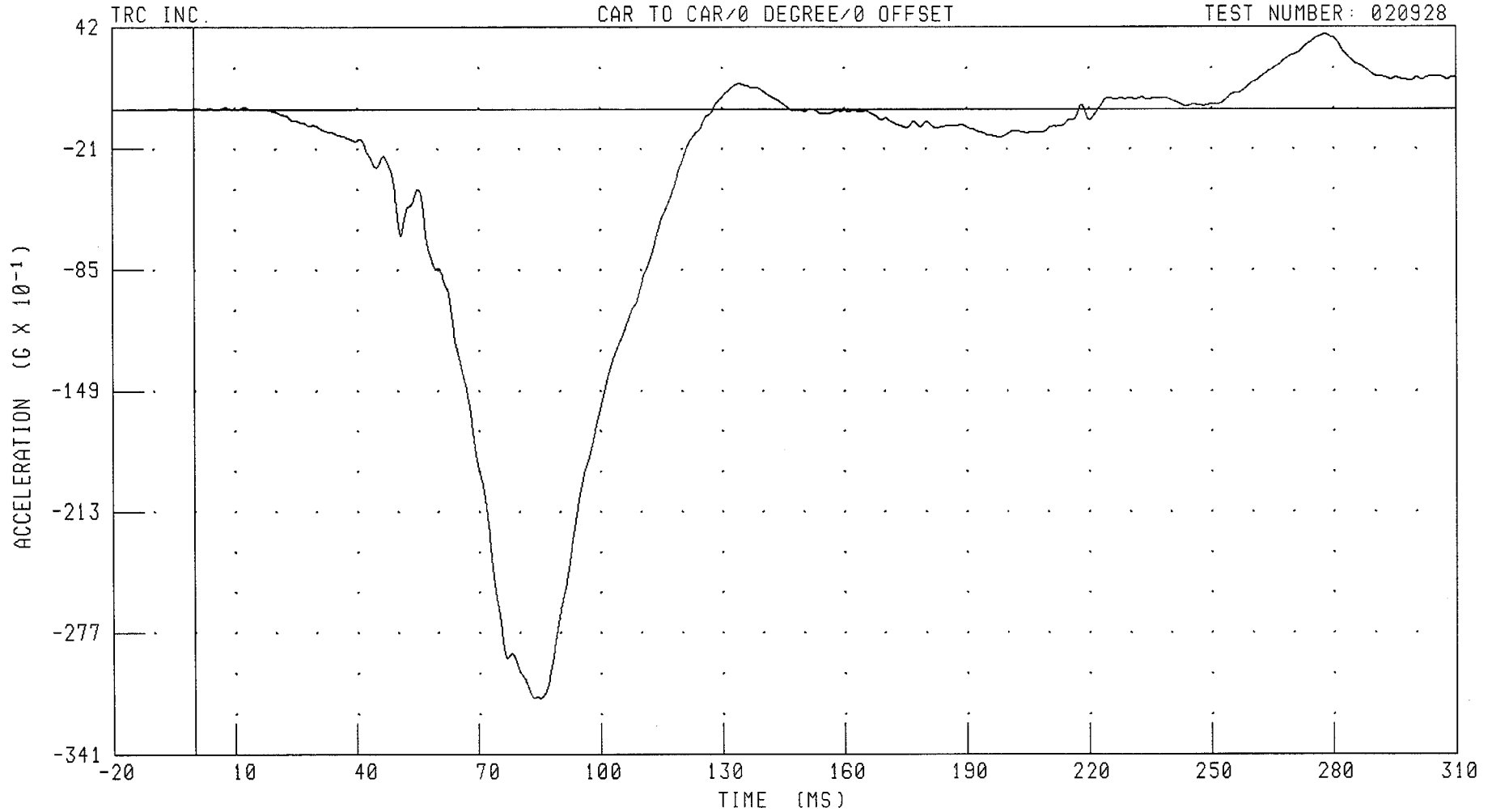
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER CHEST X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXGA FILTER: CH. CLASS 180

PEAK DATA: 3.92 G @ 278.00 MS; -31.15 G @ 85.20 MS

B-143

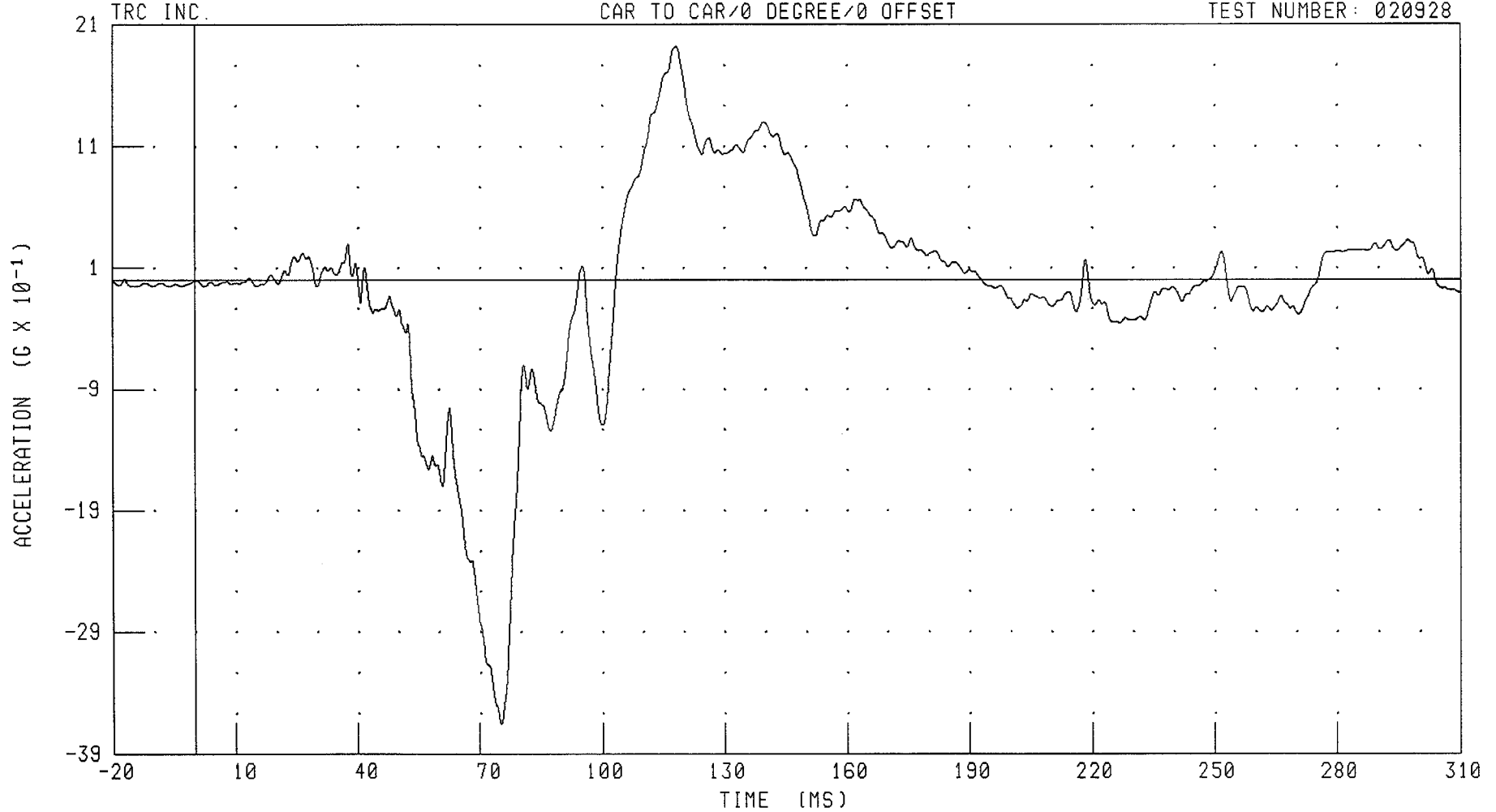
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER CHEST Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTYGA FILTER: CH. CLASS 180

PEAK DATA: 1.92 G @ 118.40 MS; -3.66 G @ 75.20 MS

B-144

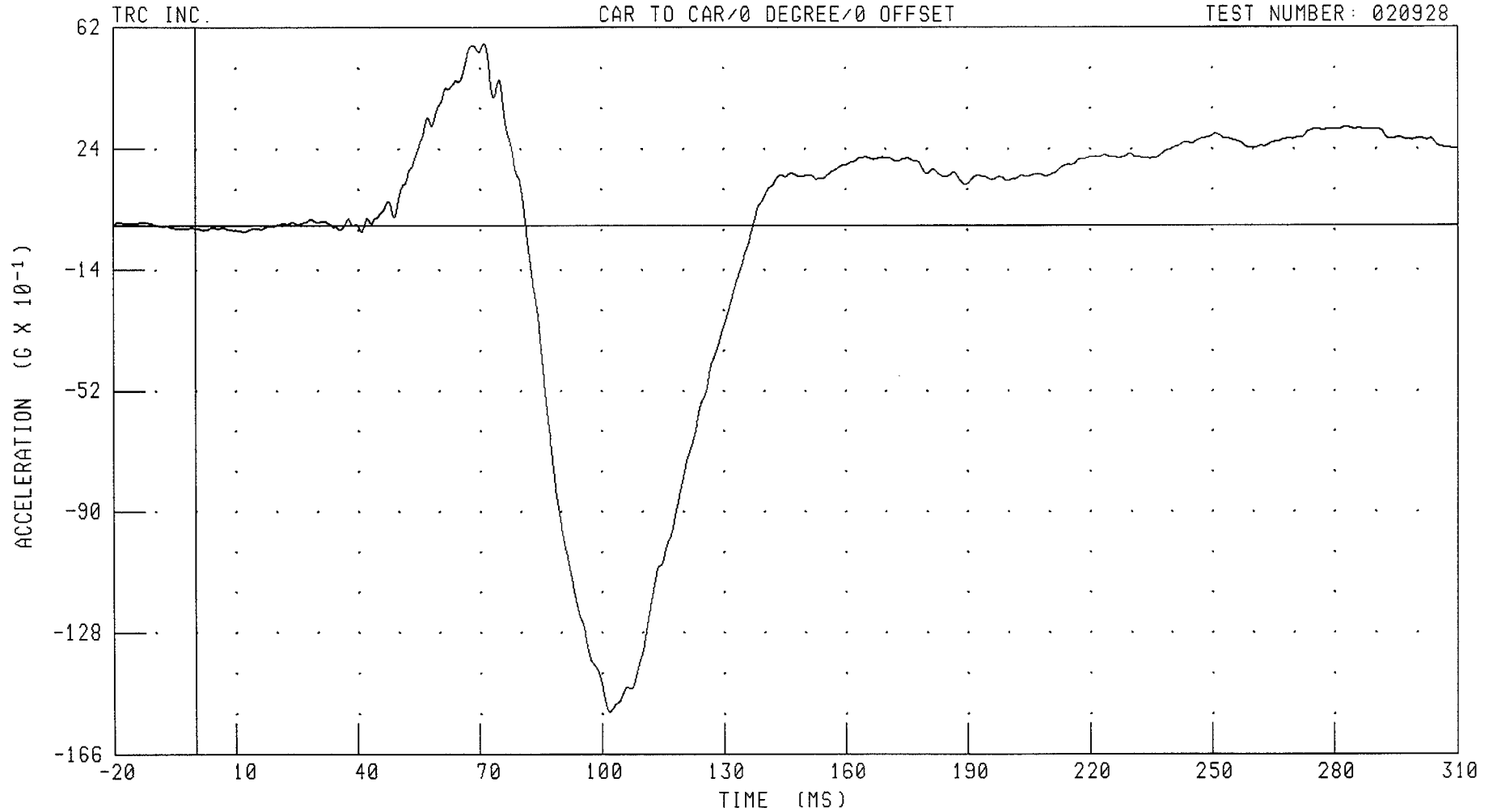
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER CHEST Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTZGA FILTER: CH. CLASS 180

PEAK DATA: 5.70 G @ 71.36 MS; -15.28 G @ 101.92 MS

B-145

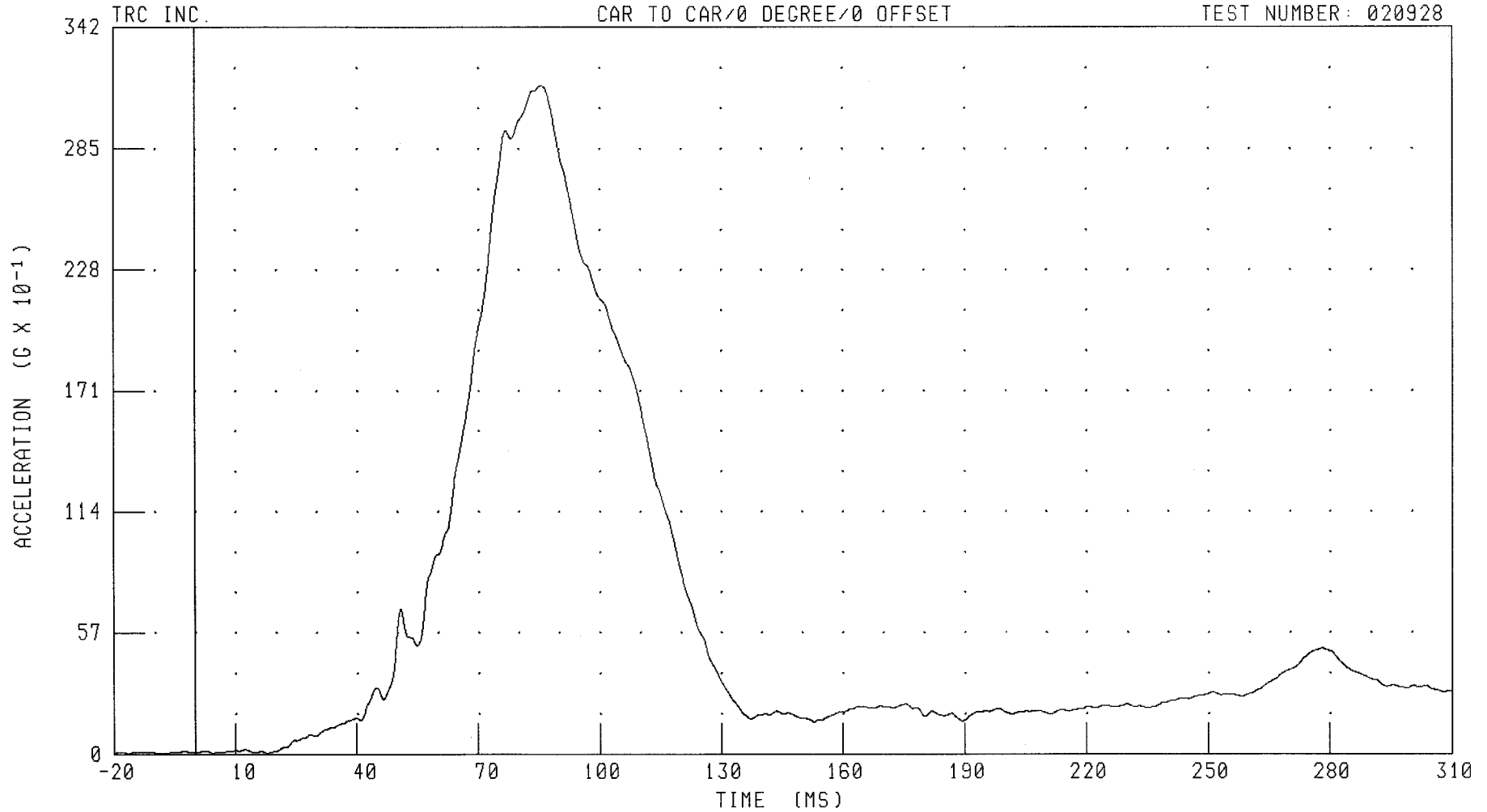
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER CHEST RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTRGA FILTER: CH. CLASS 180

PEAK DATA: 31.45 G @ 85.60 MS; 0.01 G @ -20.00 MS

B-146

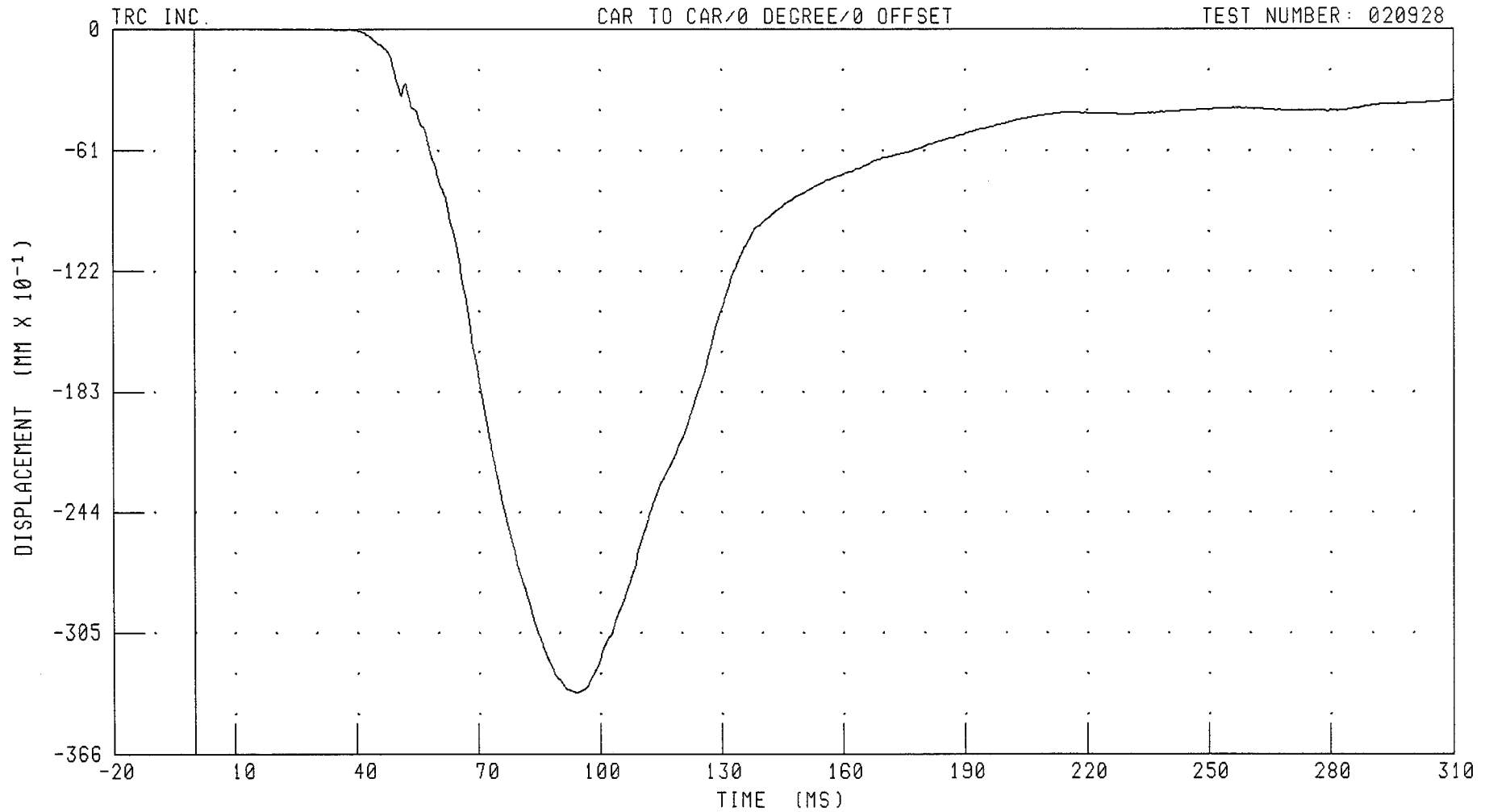
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER CHEST DEFLECTION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXDA FILTER: CH. CLASS 600

PEAK DATA: 0.02 MM @ 29.68 MS; -33.52 MM @ 94.32 MS

B-147

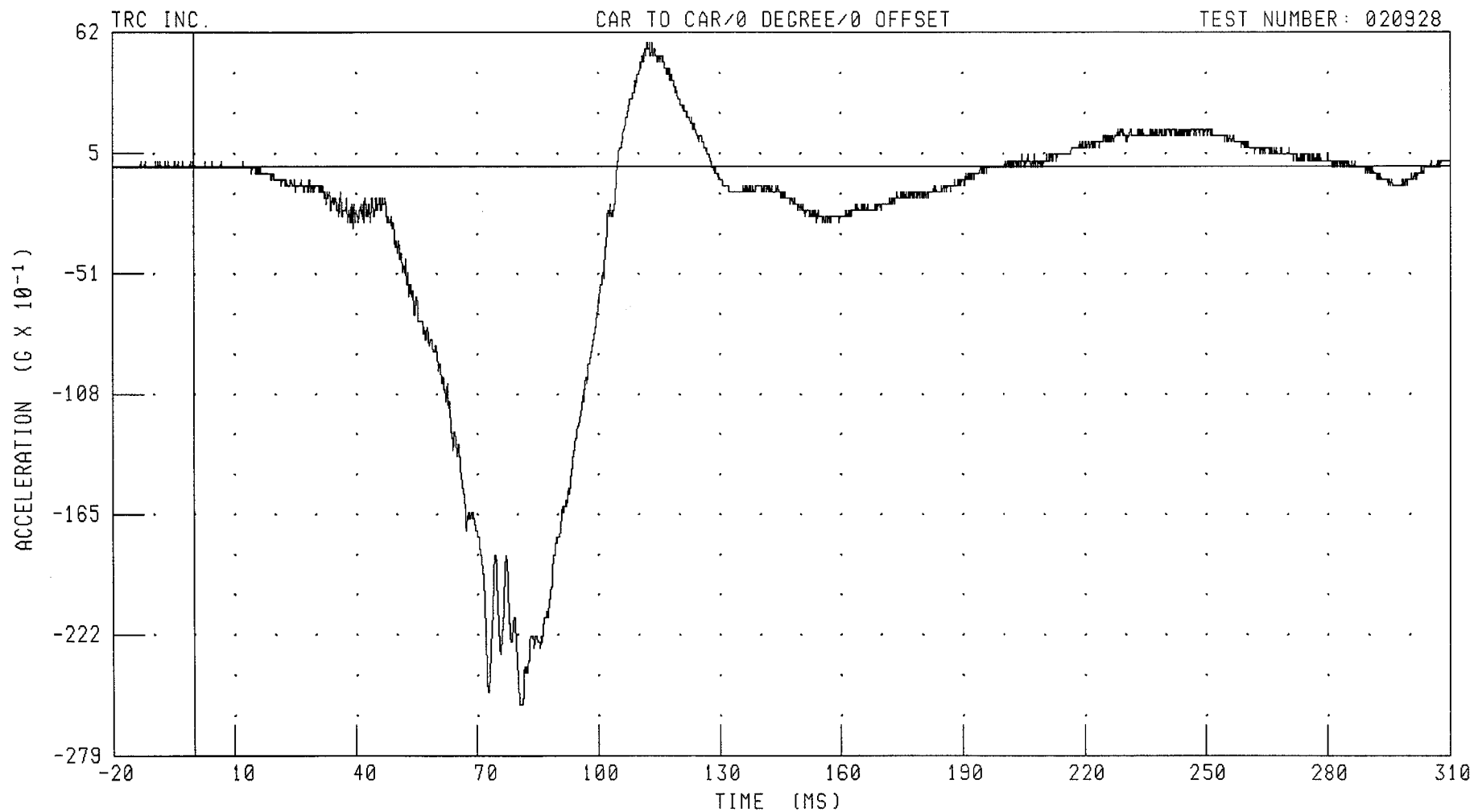
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER PELVIS X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVXGA FILTER: CH. CLASS 1000

PEAK DATA: 5.81 G @ 112.32 MS; -25.48 G @ 80.64 MS

B-148

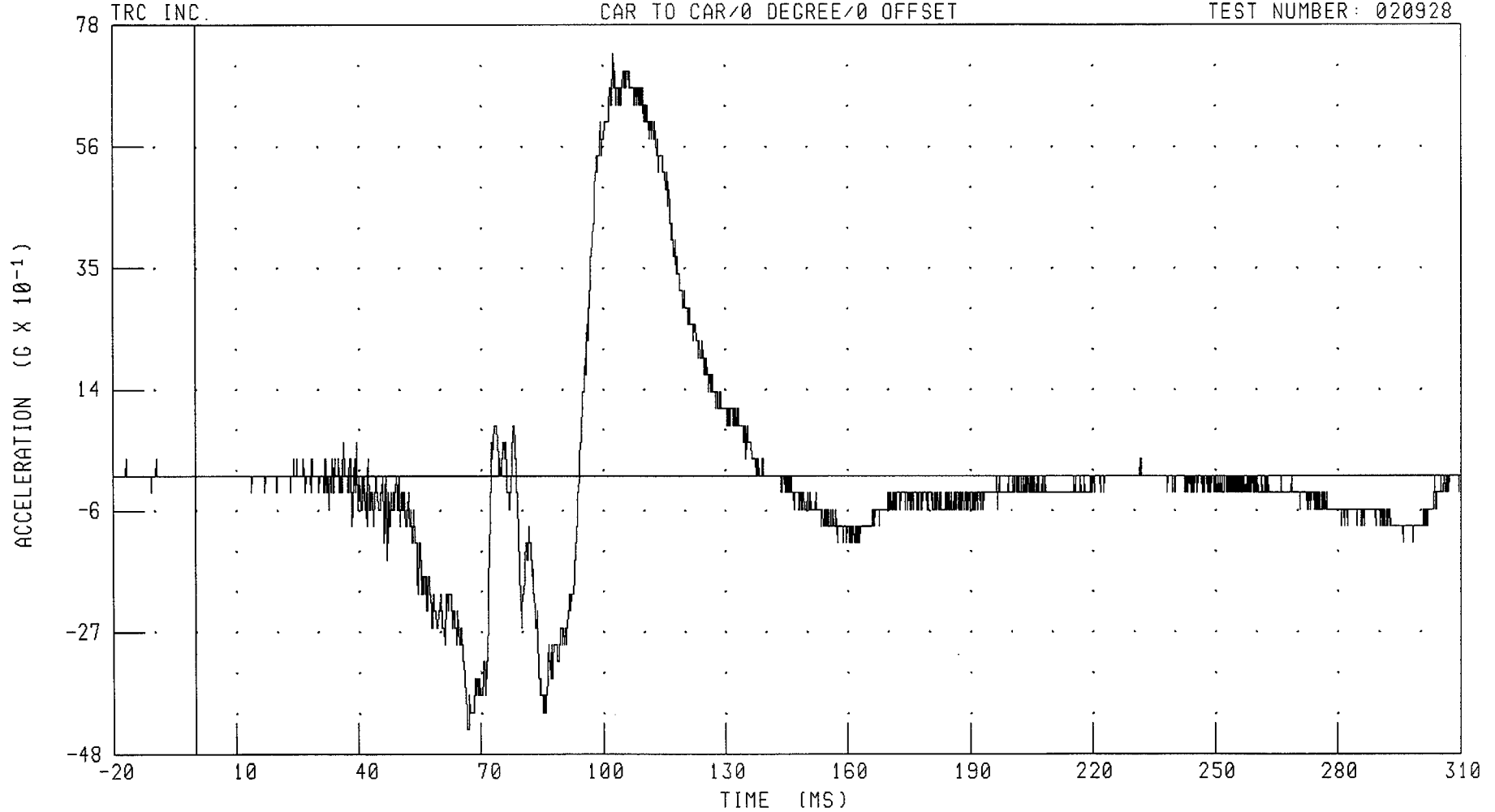
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER PELVIS Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVYGA FILTER: CH. CLASS 1000

PEAK DATA: 7.30 G @ 102.72 MS; -4.38 G @ 66.56 MS

B-149

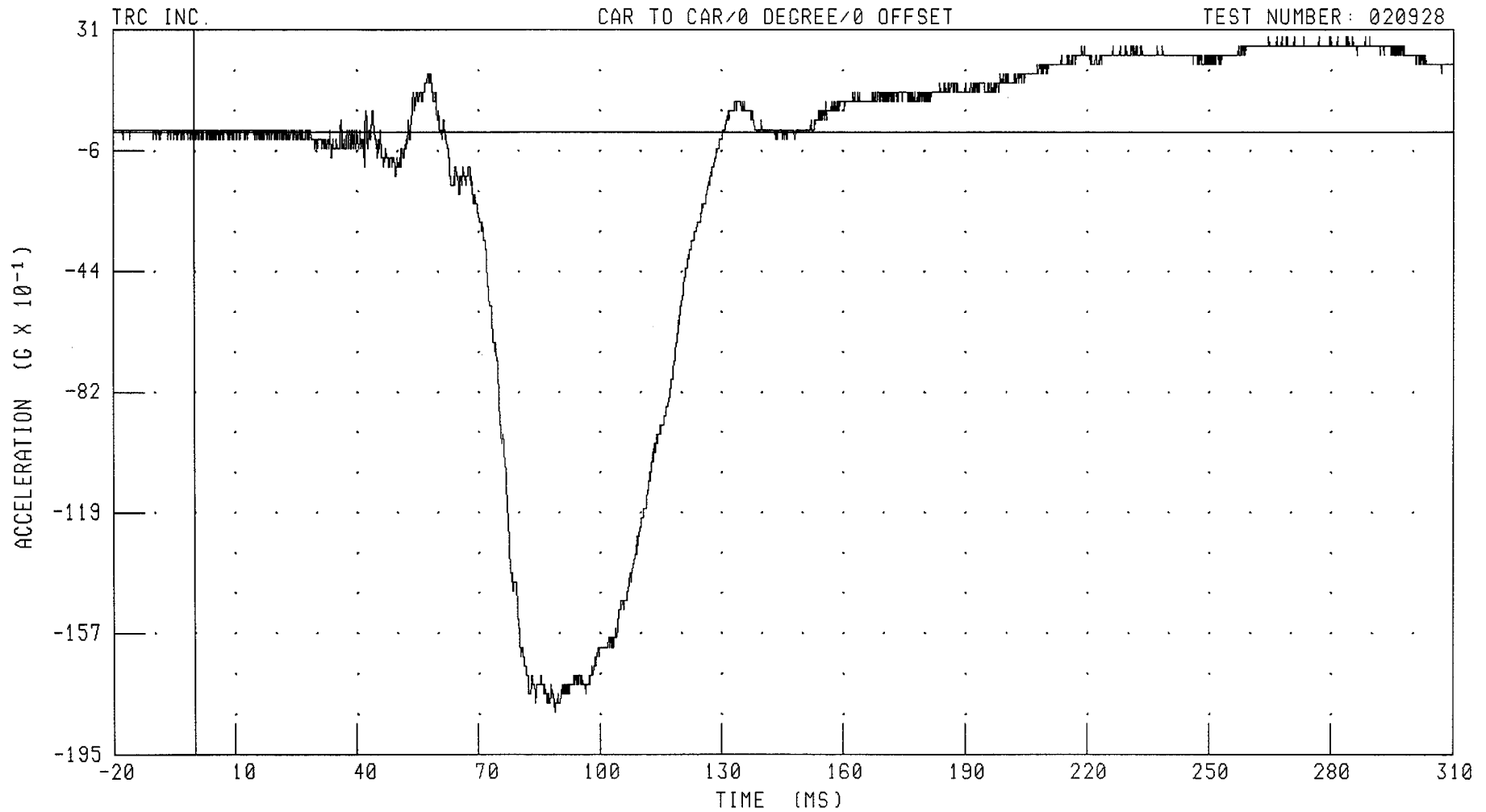
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER PELVIS Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVZGA FILTER: CH. CLASS 1000

PEAK DATA: 2.98 G @ 264.80 MS; -18.28 G @ 88.88 MS

B-150

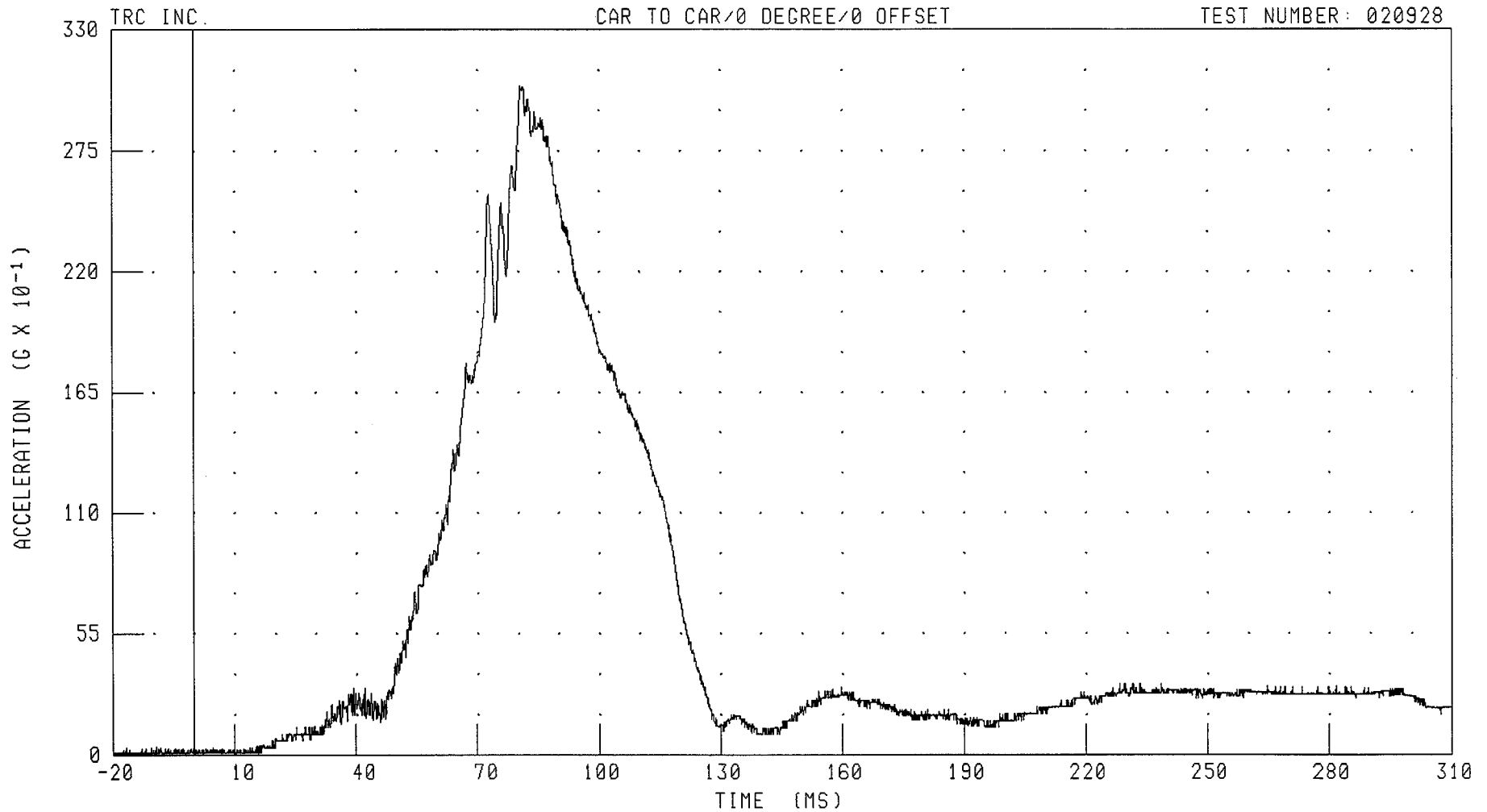
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER PELVIS RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVRGA FILTER: CH. CLASS 1000

PEAK DATA: 30.44 G @ 80.64 MS; 0.08 G @ -20.00 MS

B-151

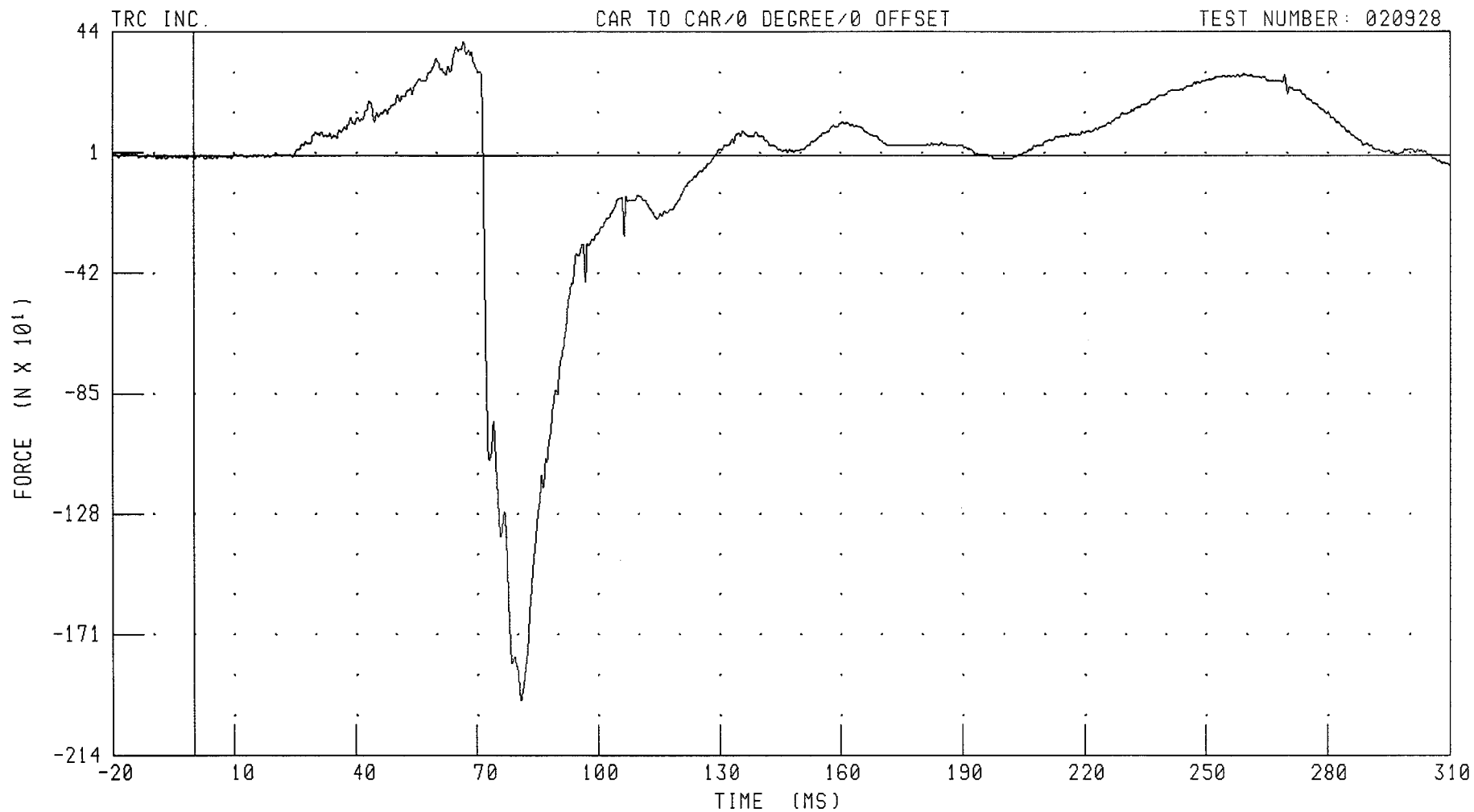
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT FEMUR Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LFMZFA FILTER: CH. CLASS 600

PEAK DATA: 405.48 N @ 66.72 MS; -1944.64 N @ 80.88 MS

B-152

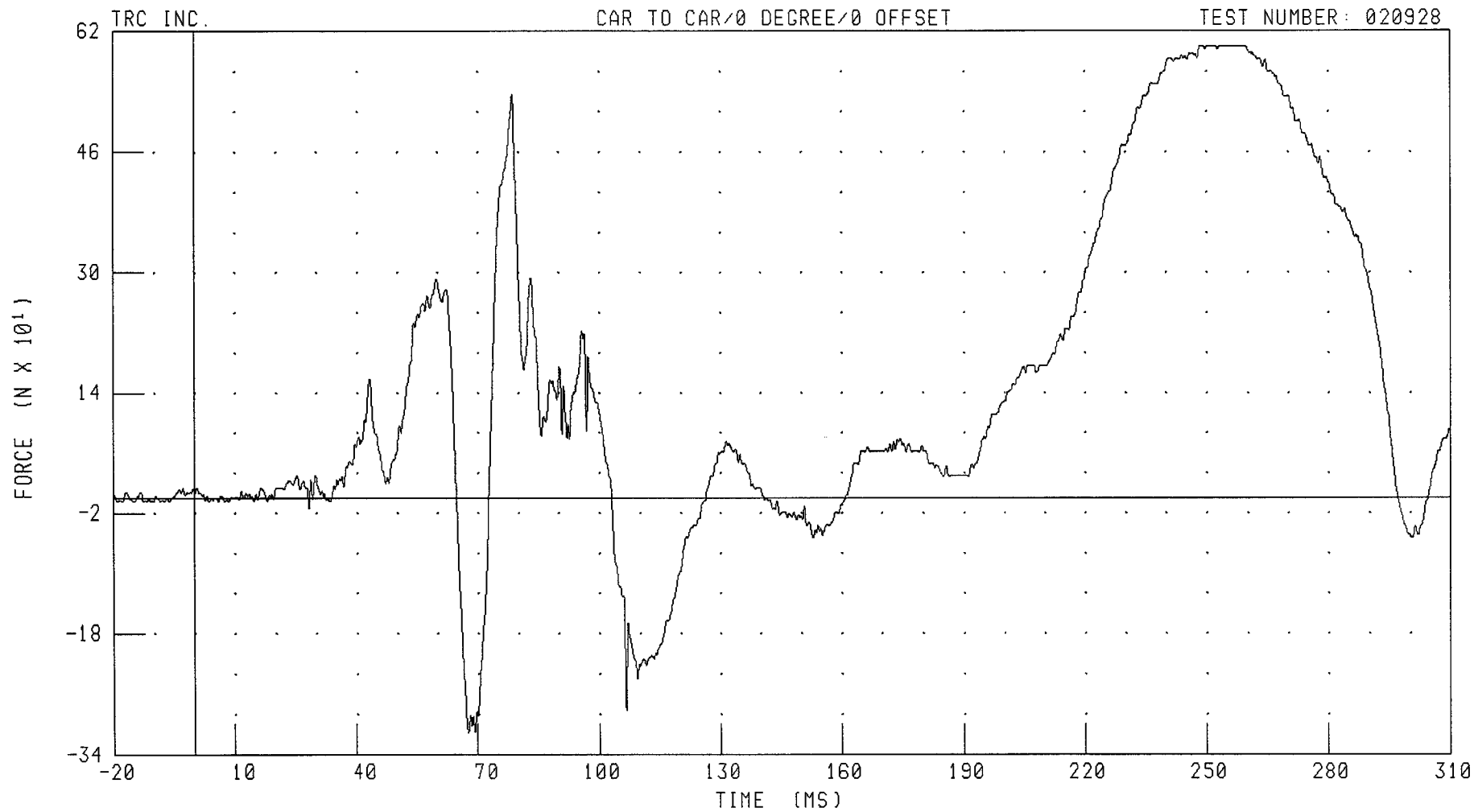
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER RIGHT FEMUR Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RFMZFA FILTER: CH. CLASS 600

PEAK DATA: 599.93 N @ 248.64 MS; -311.49 N @ 67.68 MS

B-153

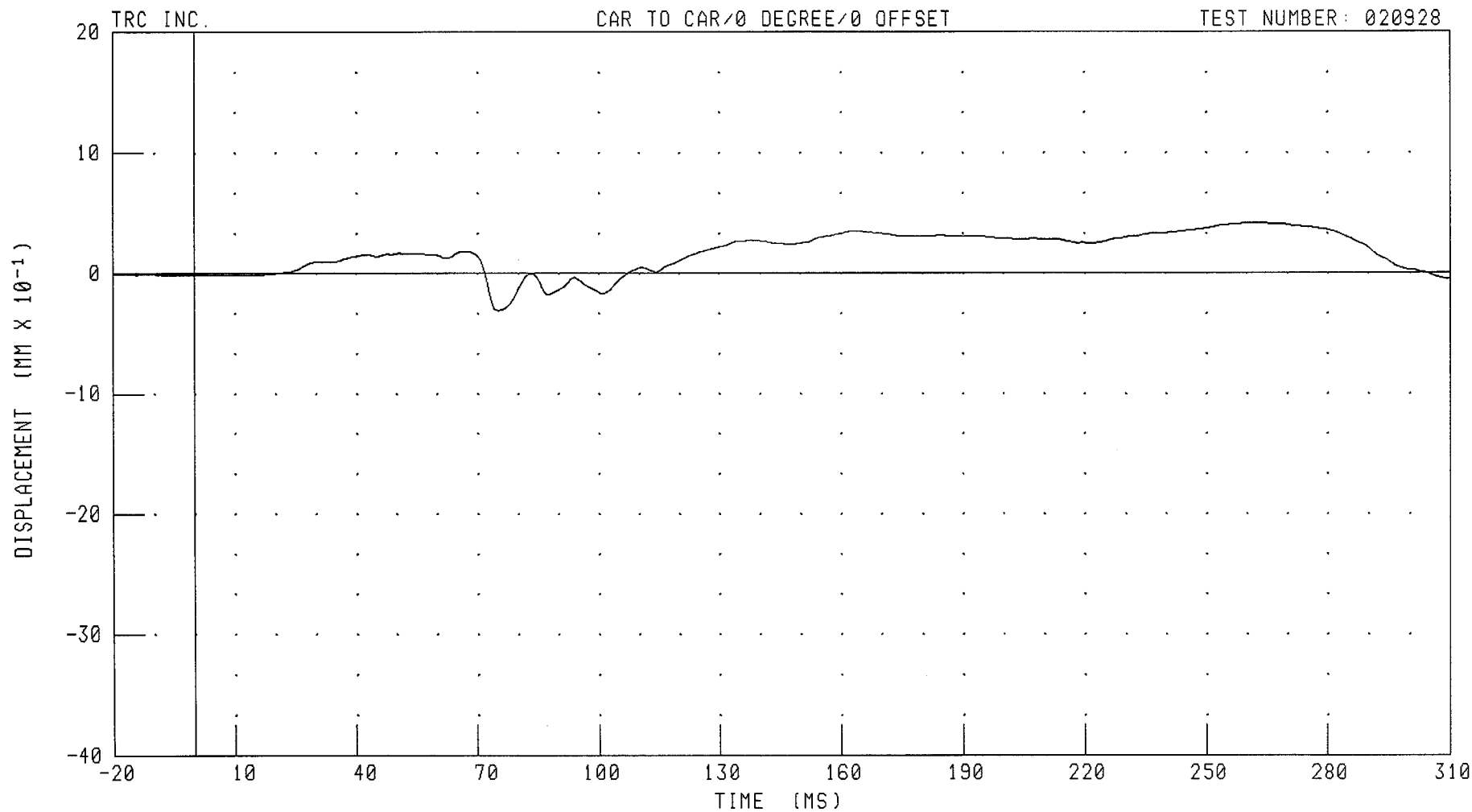
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT KNEE DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: KNLXDA FILTER: CH. CLASS 180

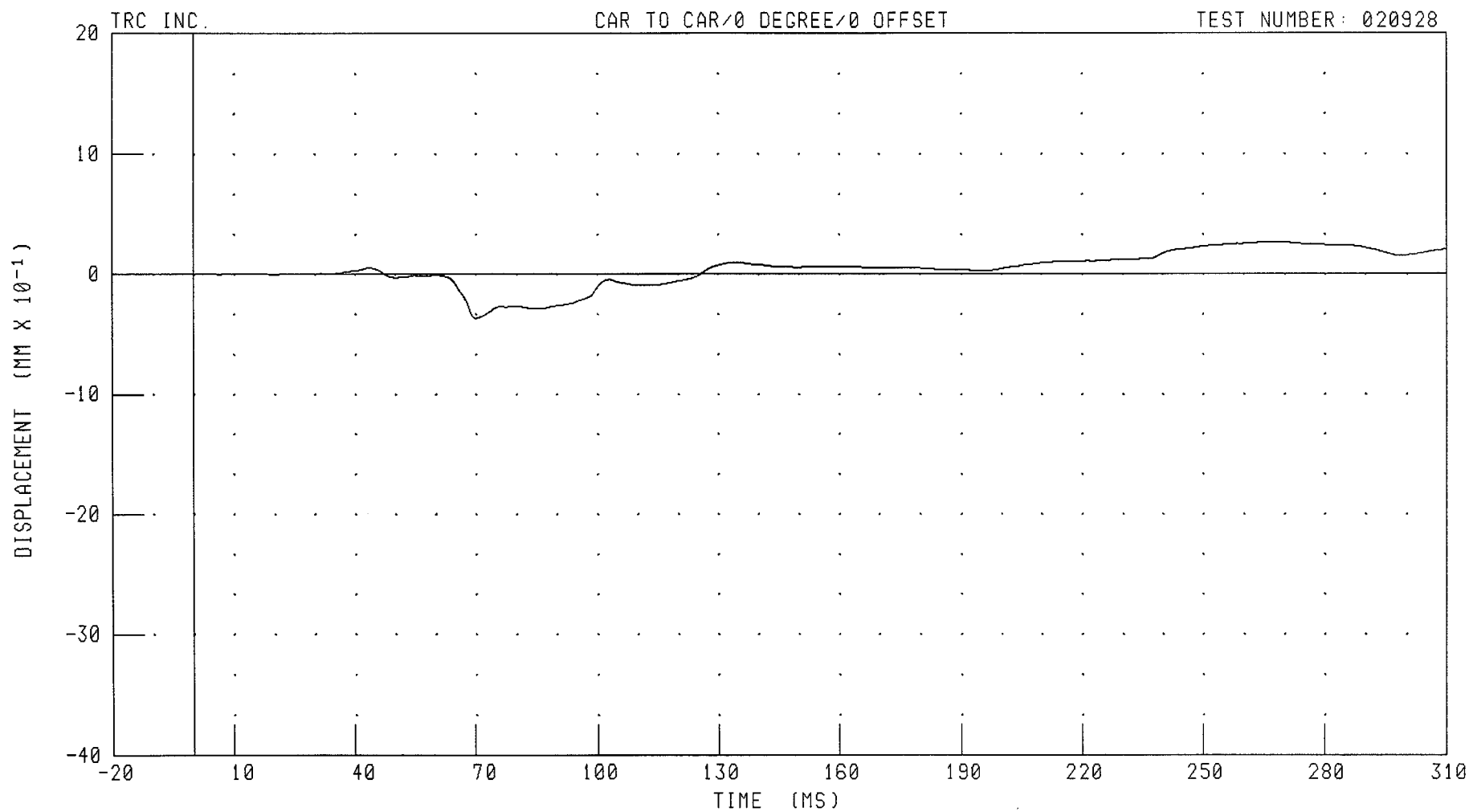
PEAK DATA: 0.42 MM @ 260.72 MS; -0.31 MM @ 75.28 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER RIGHT KNEE DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: KNRXDA FILTER: CH. CLASS 180

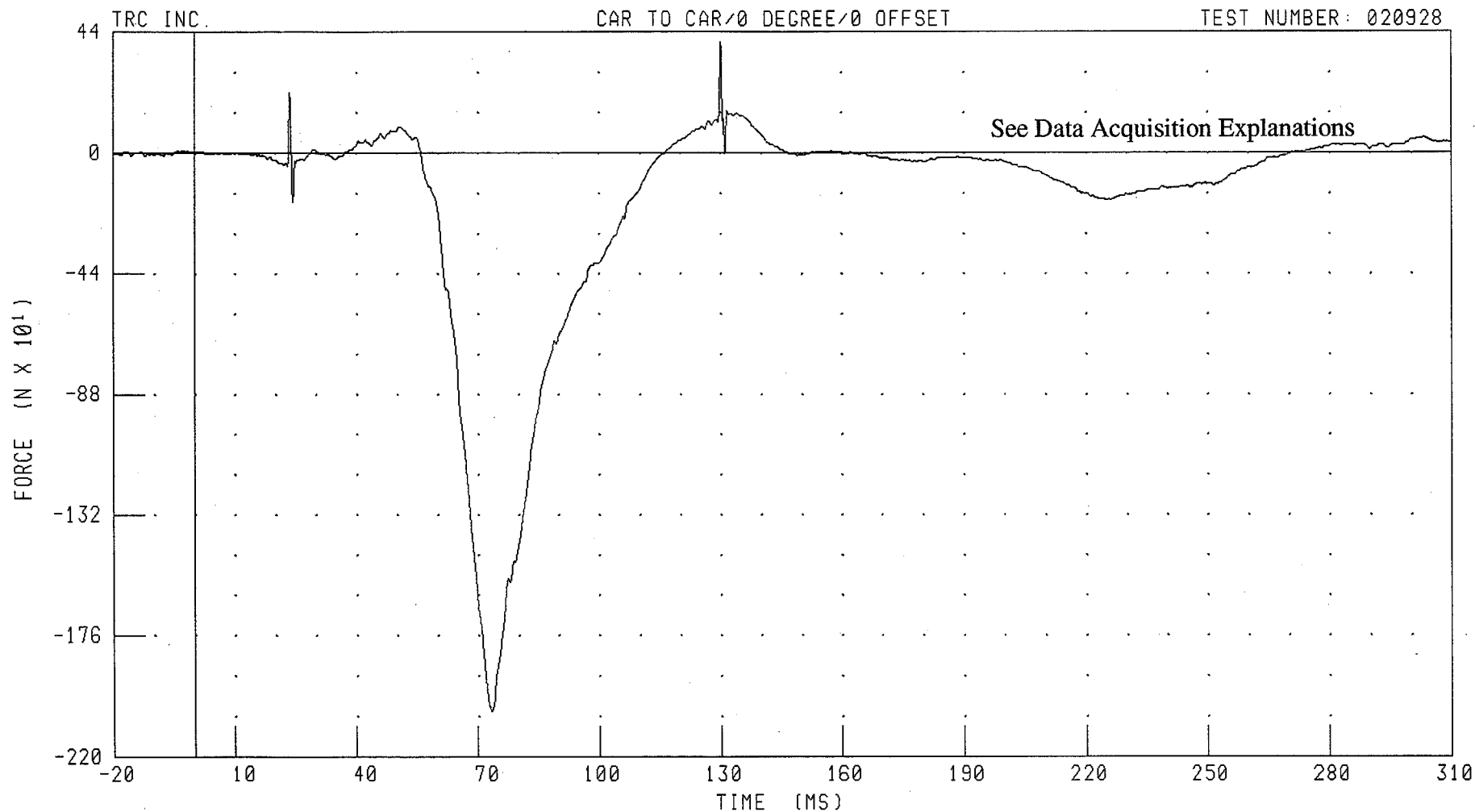
PEAK DATA: 0.26 MM @ 268.96 MS; -0.37 MM @ 70.08 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLZFA FILTER: CH. CLASS 600

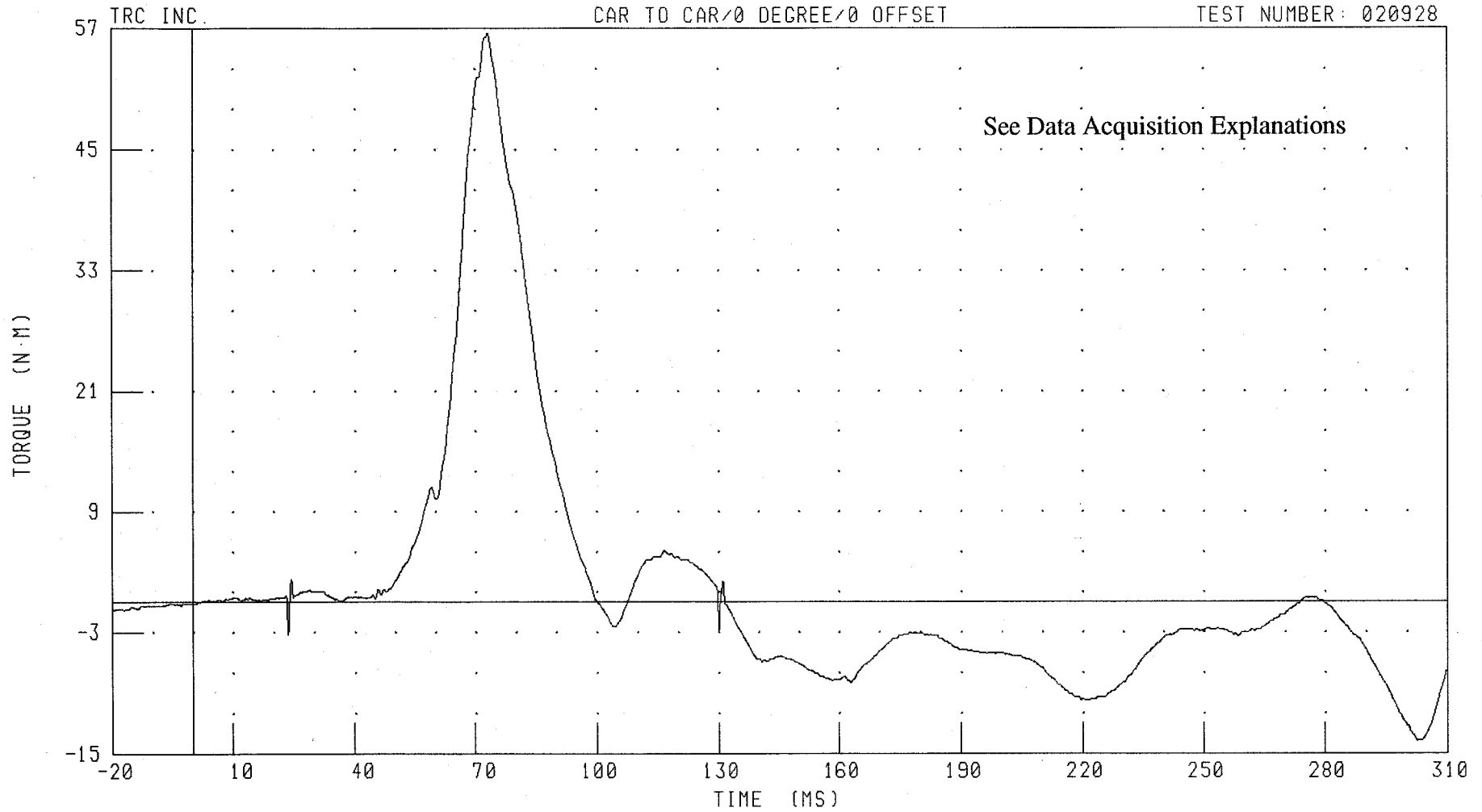
PEAK DATA: 403.82 N @ 130.16 MS; -2036.32 N @ 73.36 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLXMA FILTER: CH. CLASS 600

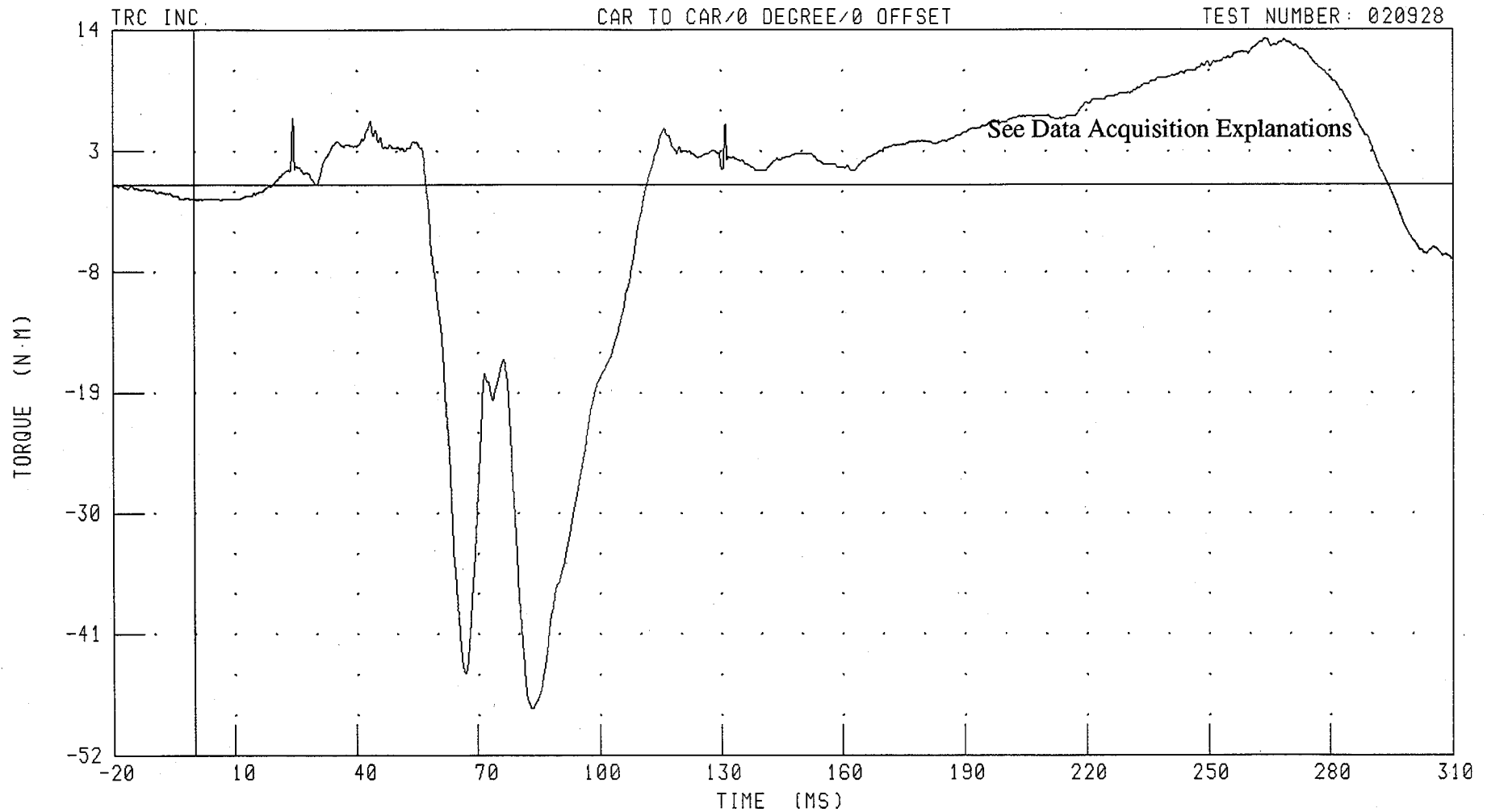
PEAK DATA: 56.48 N·M @ 73.36 MS; -13.74 N·M @ 302.64 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLYMA FILTER: CH. CLASS 600

PEAK DATA: 13.17 N·M @ 264.56 MS; -47.76 N·M @ 83.44 MS

B-158

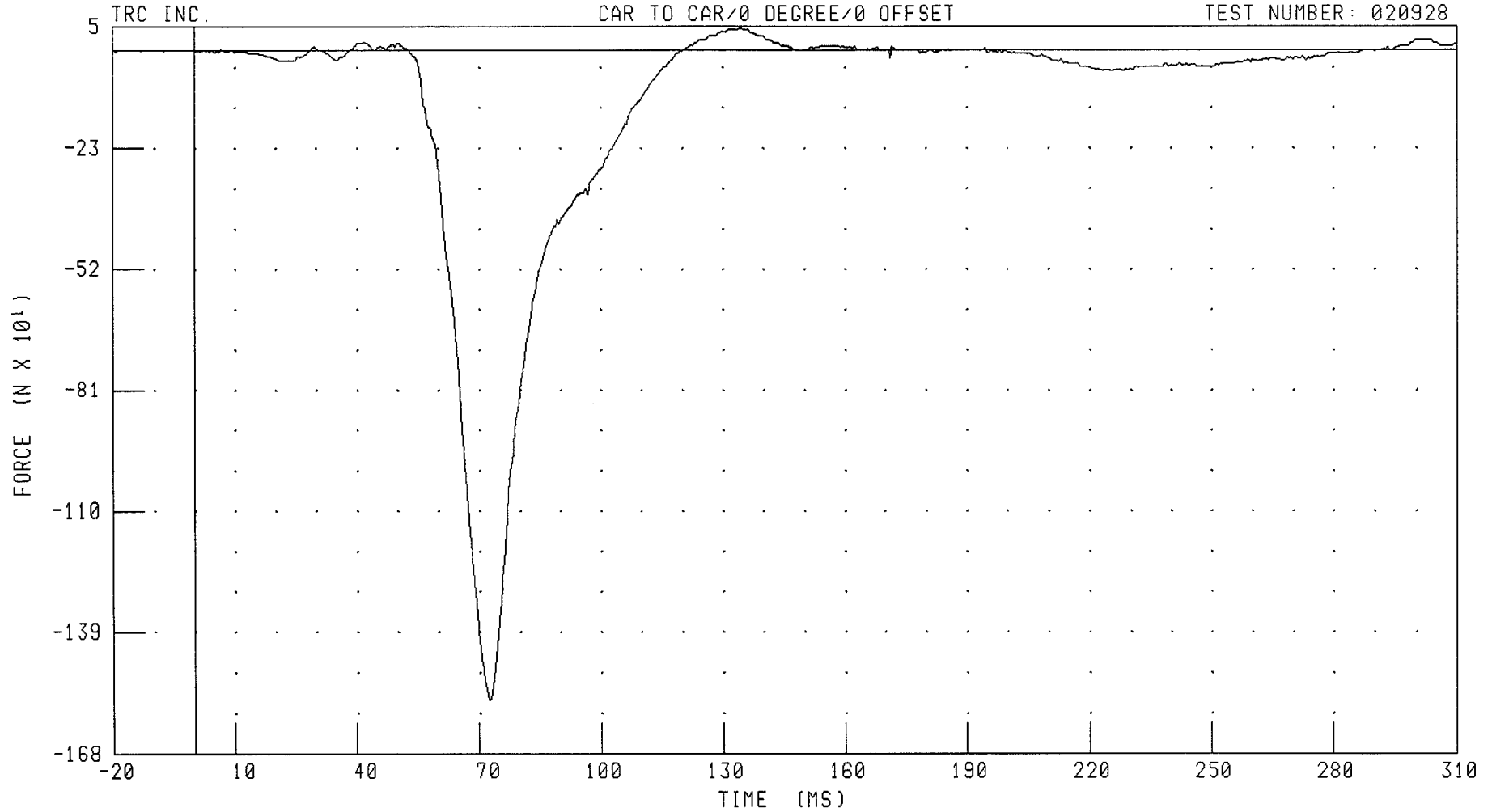
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLZFA FILTER: CH. CLASS 600

PEAK DATA: 52.64 N @ 134.80 MS; -155.61 N @ 72.64 MS

B-159

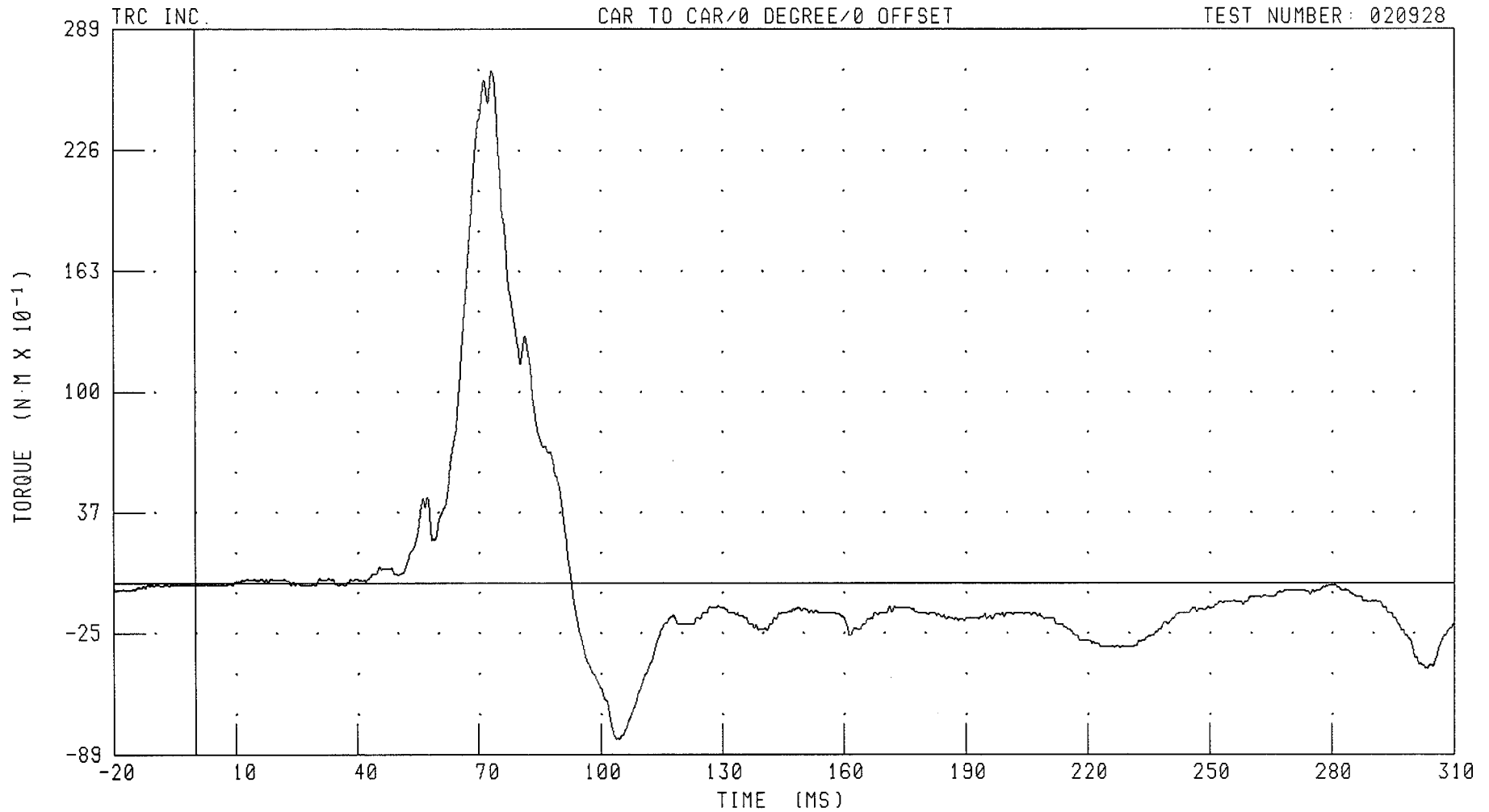
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLXMA FILTER: CH. CLASS 600

PEAK DATA: 26.72 N·M @ 73.36 MS; -8.12 N·M @ 104.64 MS

B-160

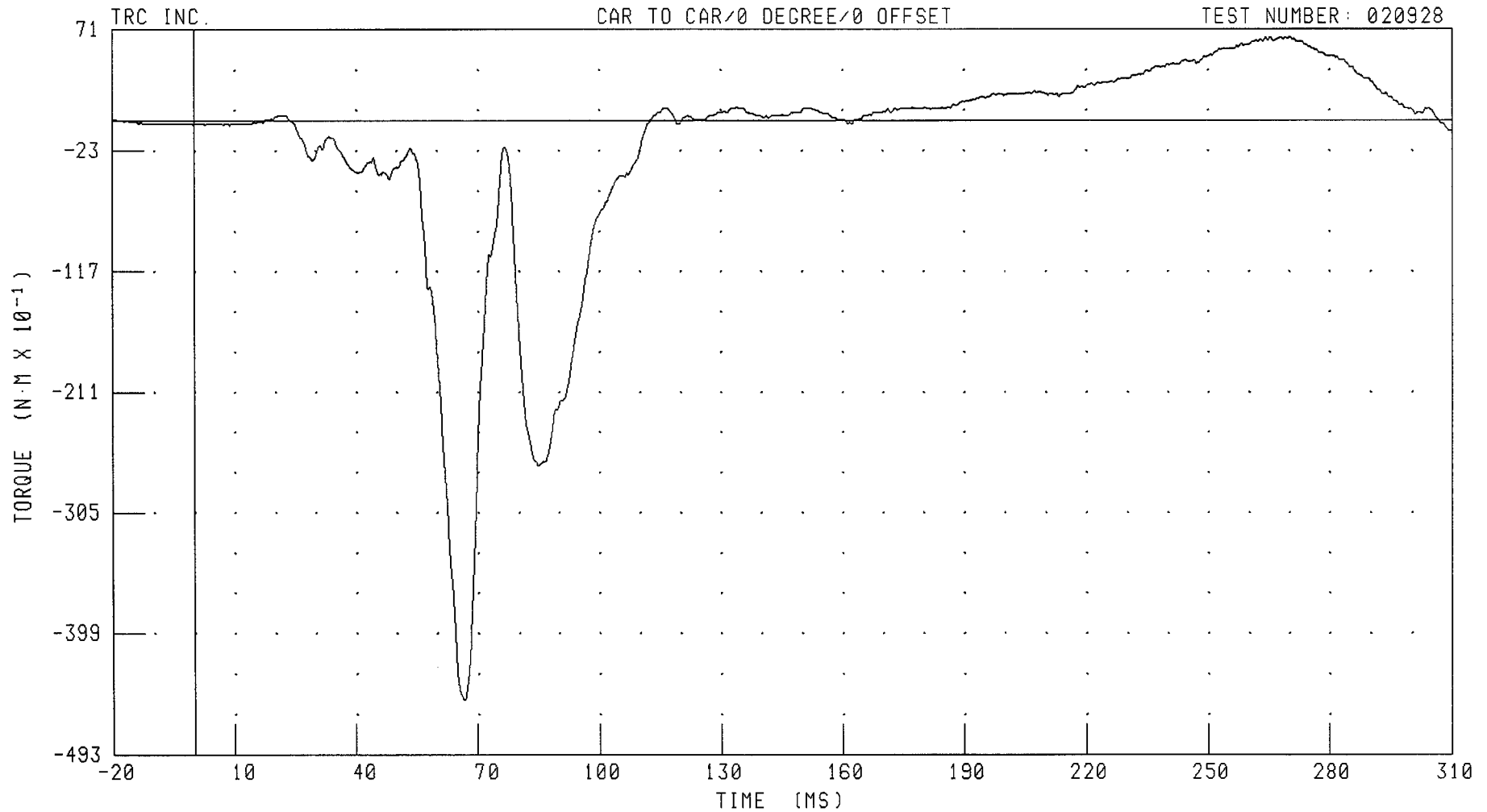
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLYMA FILTER: CH. CLASS 600

PEAK DATA: 6.49 N·M @ 265.44 MS; -45.07 N·M @ 66.72 MS

B-161

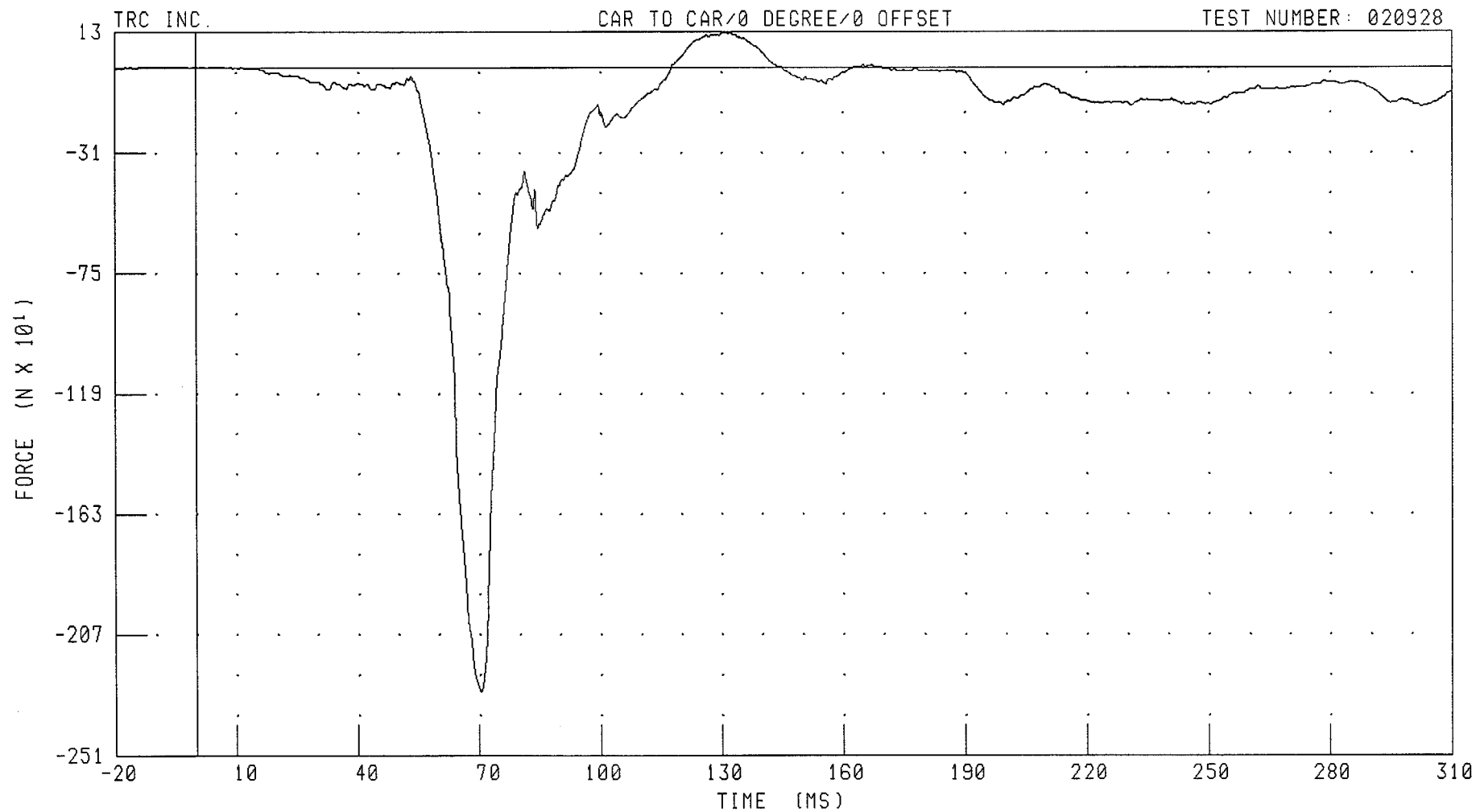
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER RIGHT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRZFA FILTER: CH. CLASS 600

PEAK DATA: 126.98 N @ 132.32 MS; -227.78 N @ 70.40 MS

B-162

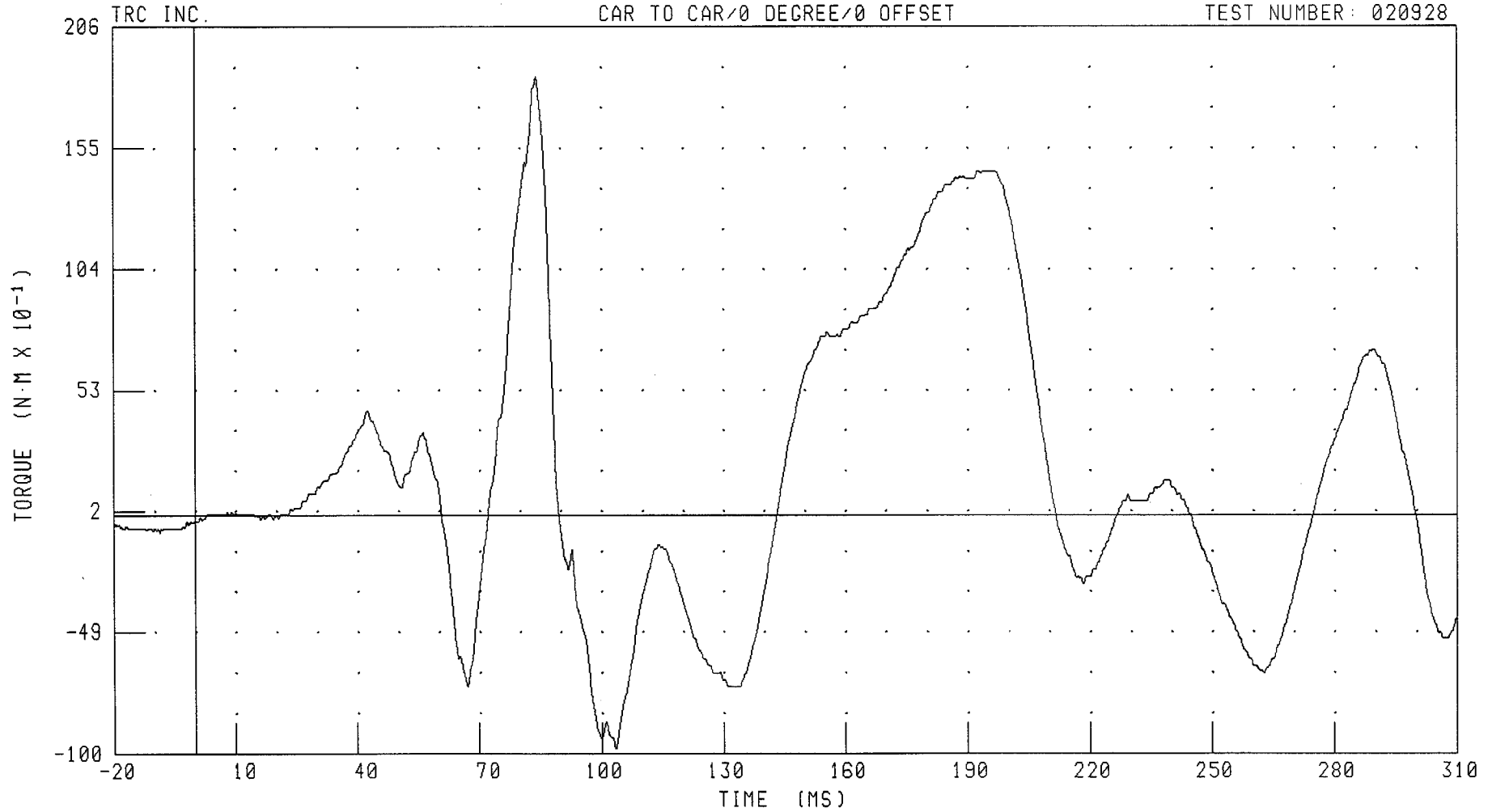
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRXMA

FILTER: CH. CLASS 600

PEAK DATA: 18.49 N·M @ 84.08 MS; -9.80 N·M @ 103.52 MS

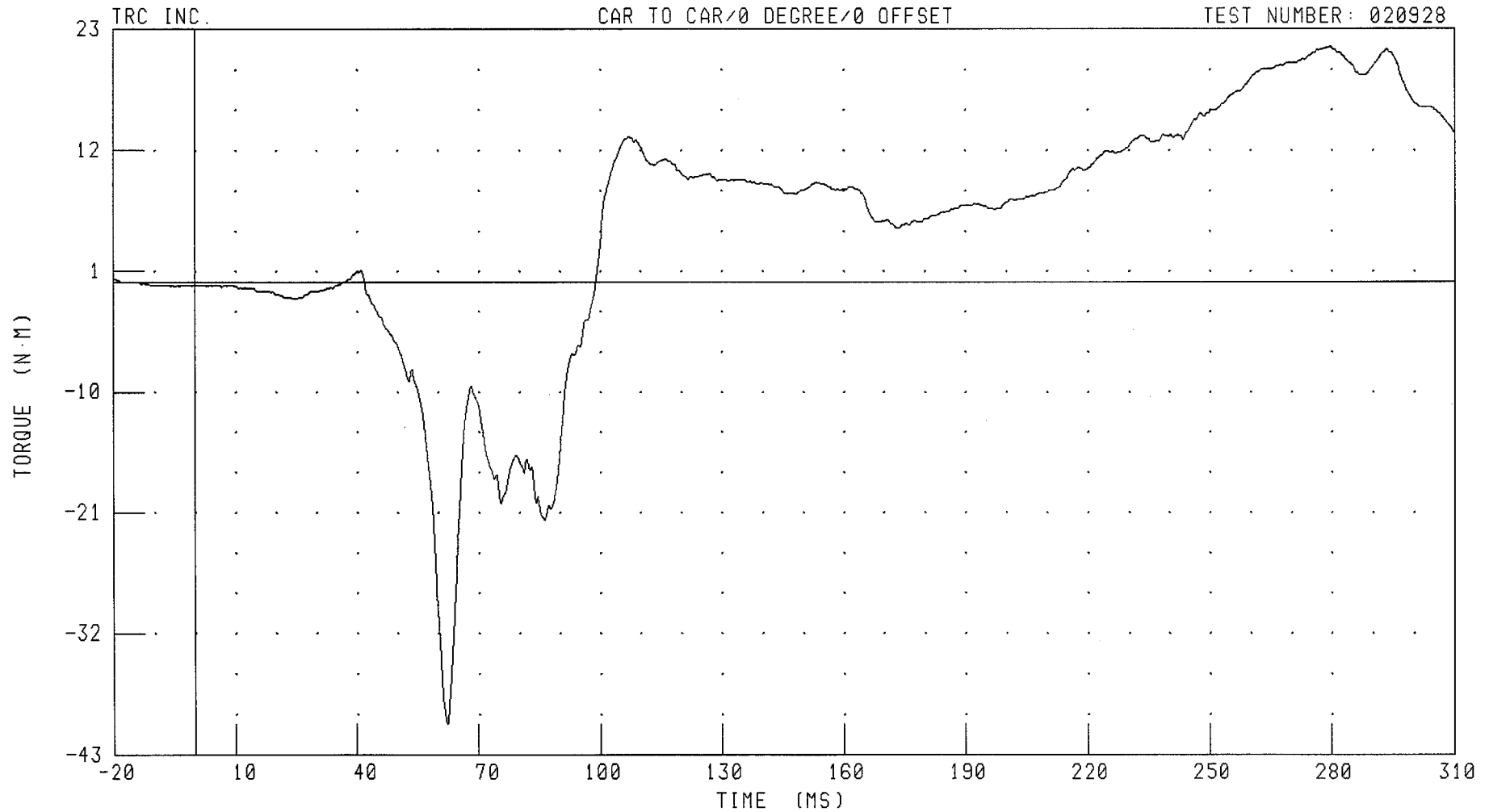
B-163

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
BULLET DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRYMA FILTER: CH. CLASS 600

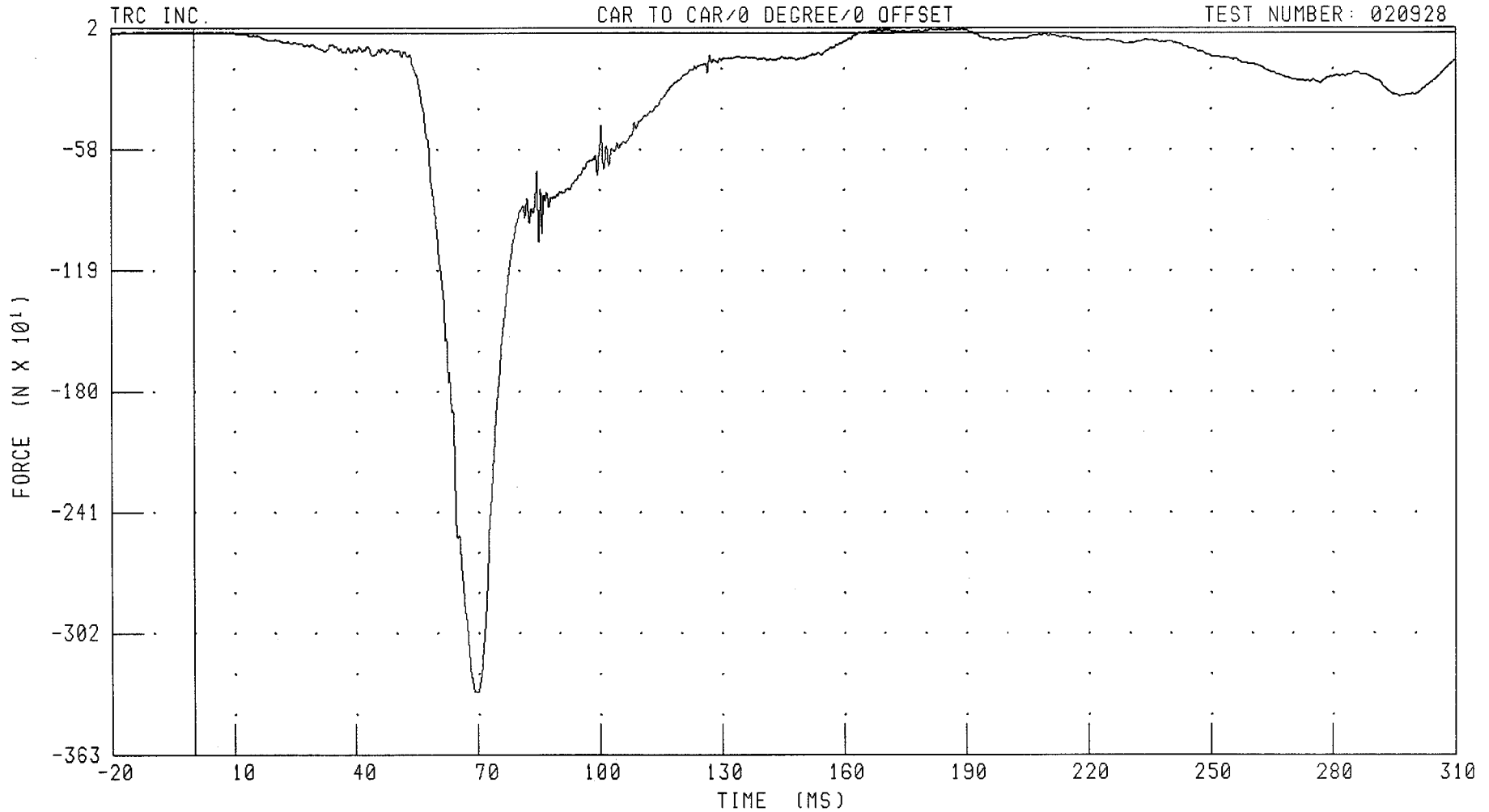
PEAK DATA: 21.43 N·M @ 279.84 MS; -40.23 N·M @ 62.24 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRZFA FILTER: CH. CLASS 600

B-165

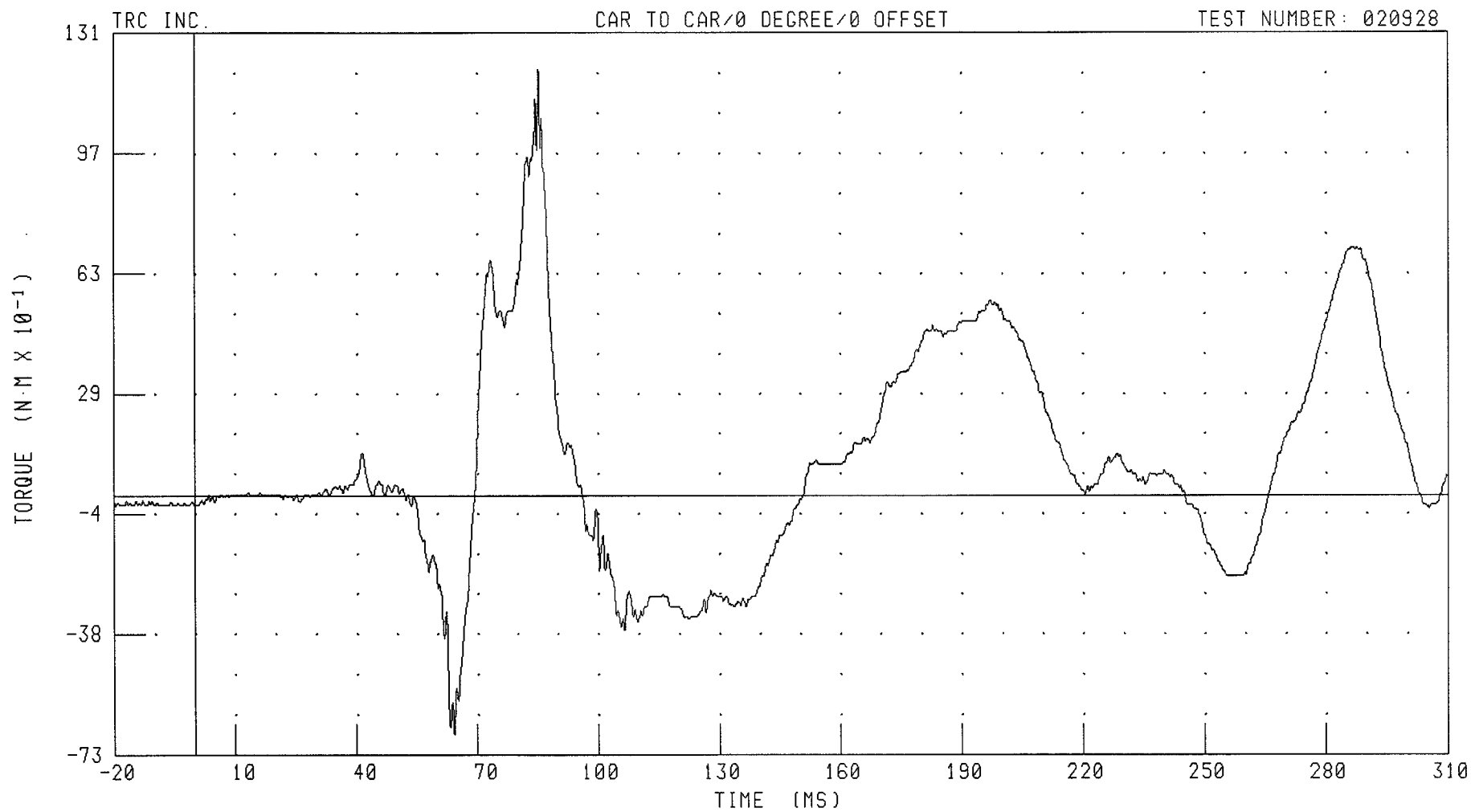
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRXMA FILTER: CH. CLASS 600

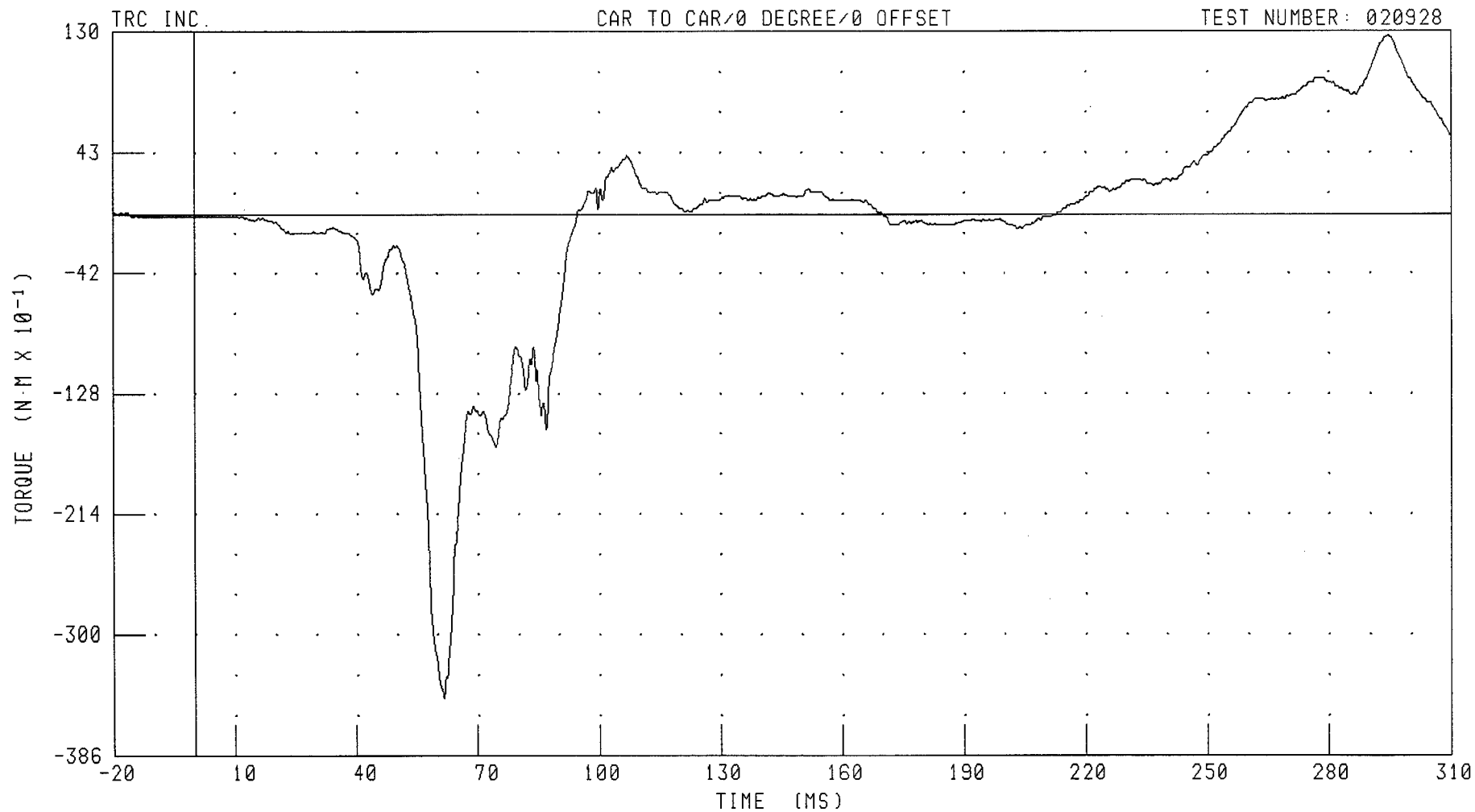
PEAK DATA: 12.06 N·M @ 85.44 MS; -6.72 N·M @ 64.24 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRYMA FILTER: CH. CLASS 600

PEAK DATA: 12.69 N·M @ 294.64 MS; -34.56 N·M @ 61.76 MS

B-167

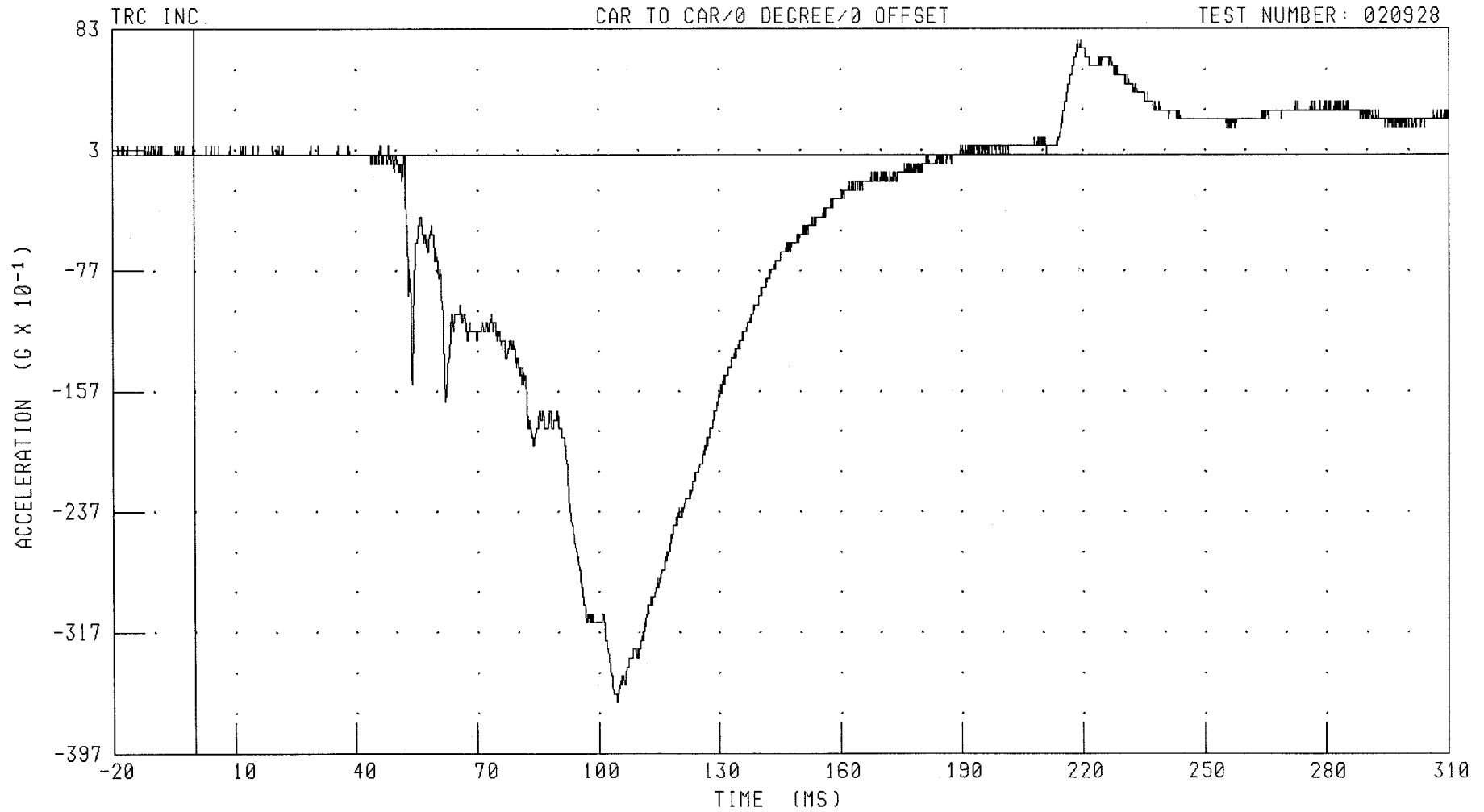
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER HEAD X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDXCB

FILTER: CH. CLASS 1000

PEAK DATA: 7.60 G @ 218.88 MS; -36.34 G @ 104.48 MS

B-168

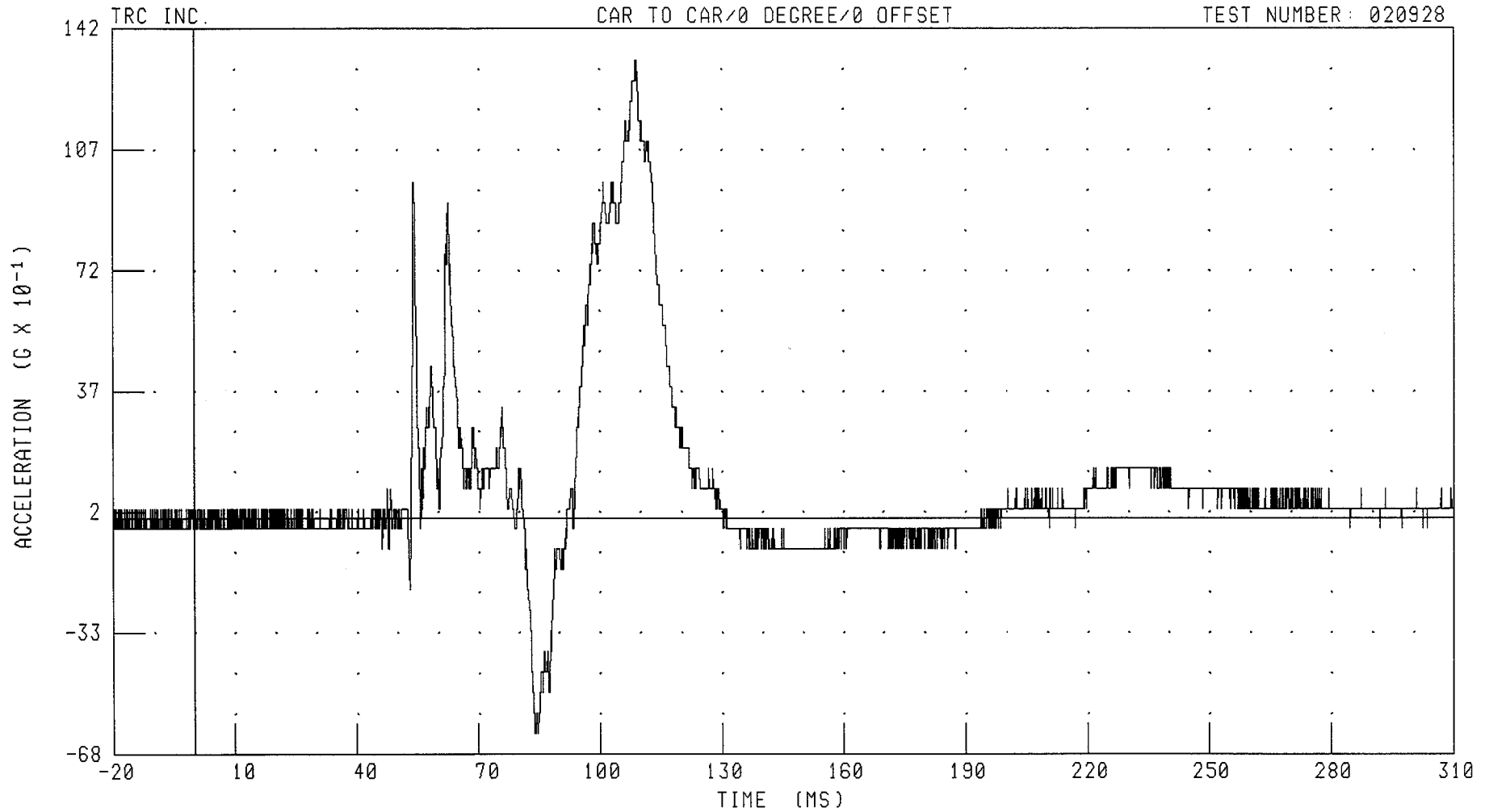
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER HEAD Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDYCB FILTER: CH. CLASS 1000

PEAK DATA: 13.30 G @ 108.96 MS; -6.21 G @ 83.84 MS

B-169

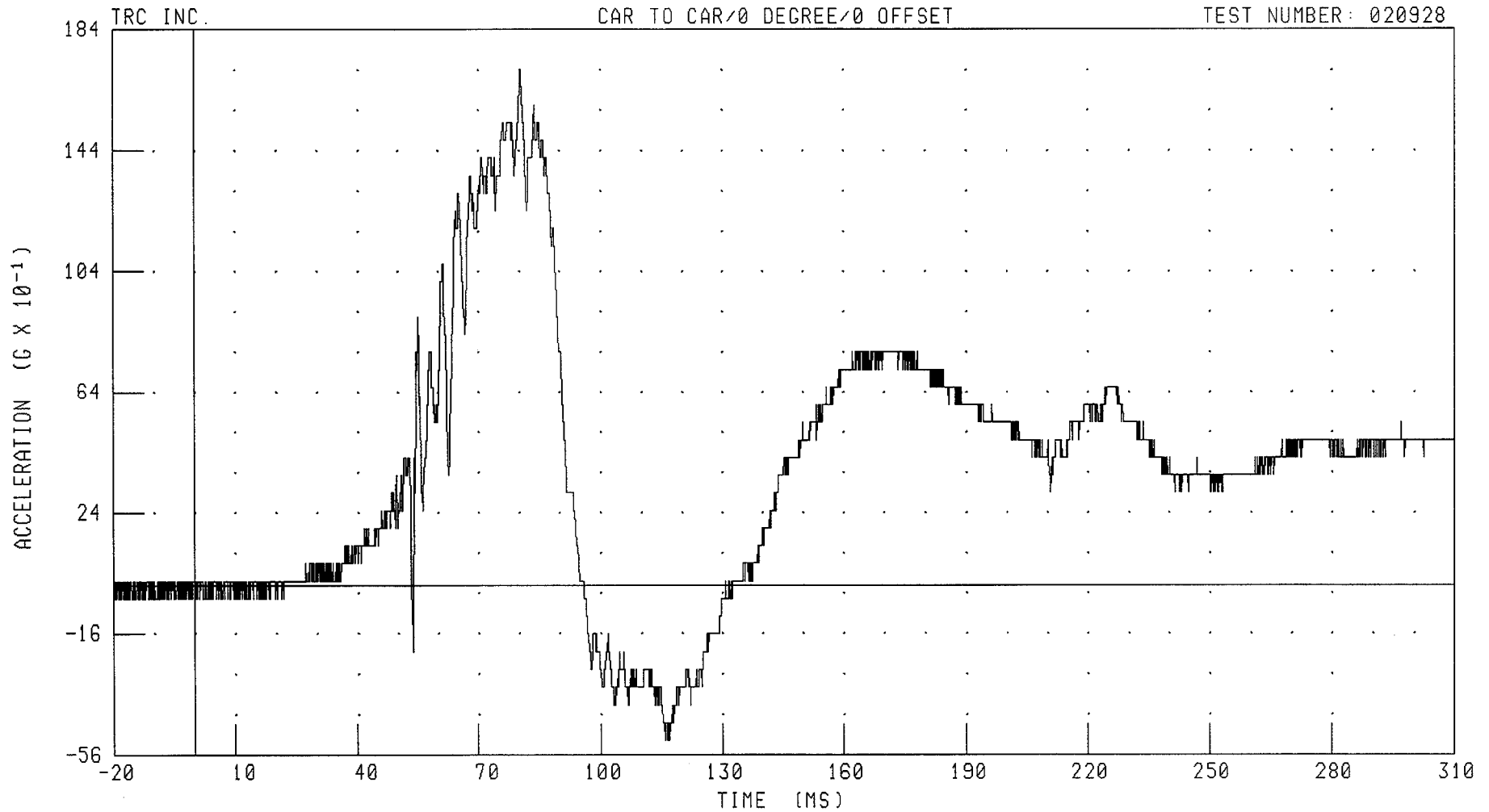
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER HEAD Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDZGB FILTER: CH. CLASS 1000

PEAK DATA: 17.09 G @ 80.40 MS; -5.13 G @ 115.76 MS

B-170

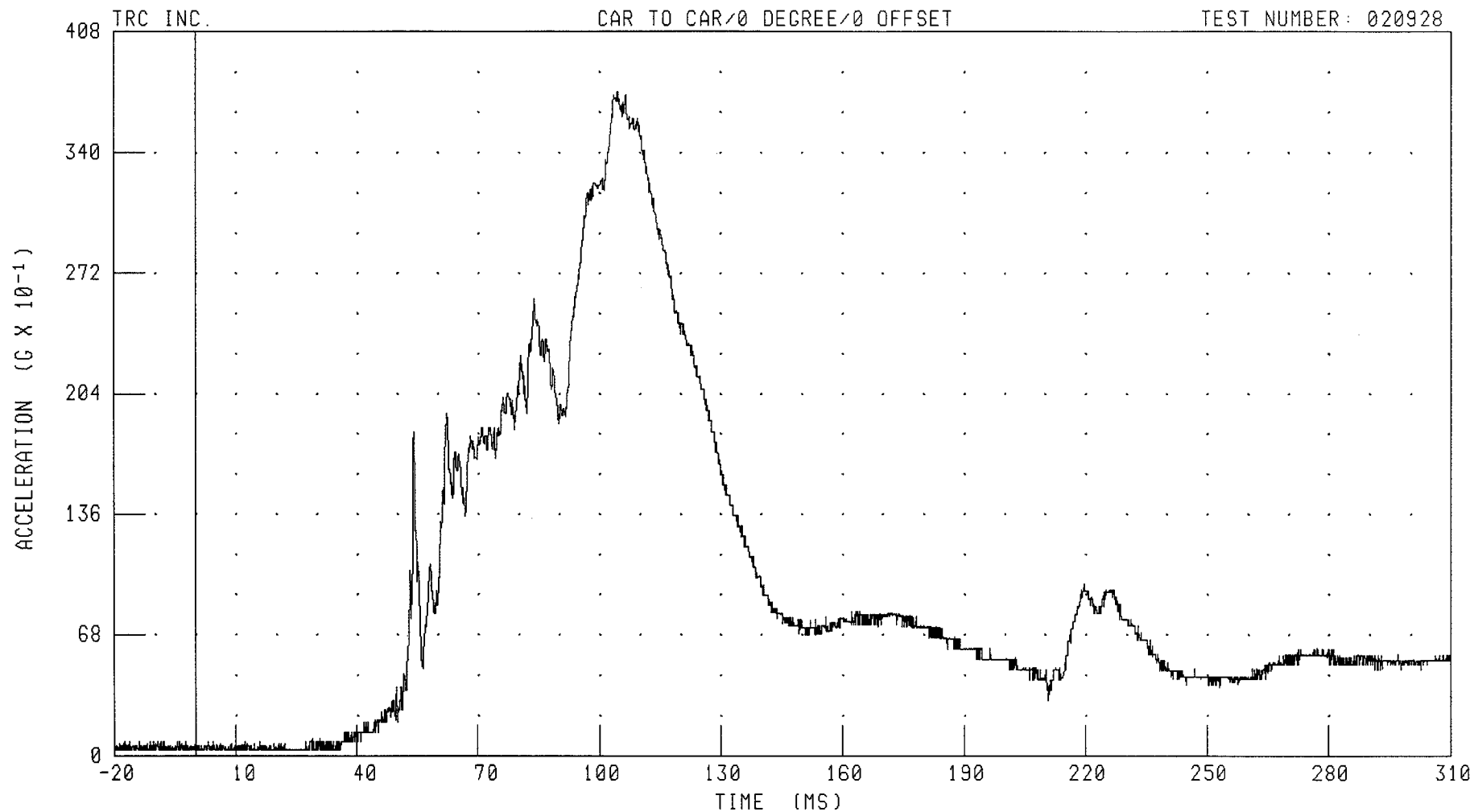
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER HEAD RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDRGB FILTER: CH. CLASS 1000

PEAK DATA: 37.44 G @ 104.48 MS; 0.32 G @ -19.92 MS

B-171

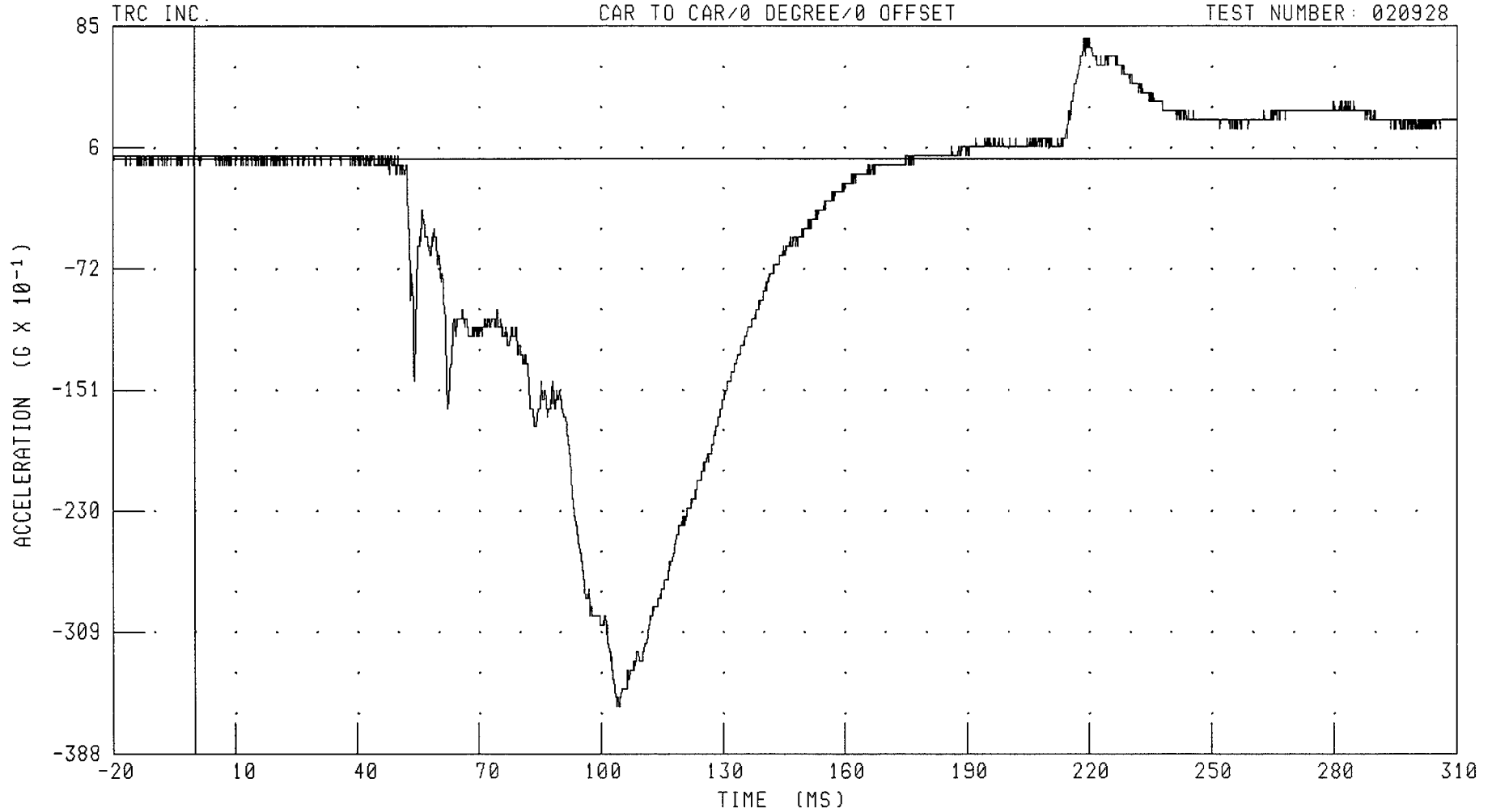
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER HEAD X-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDXRB FILTER: CH. CLASS 1000

PEAK DATA: 7.83 G @ 218.80 MS; -35.74 G @ 104.00 MS

B-172

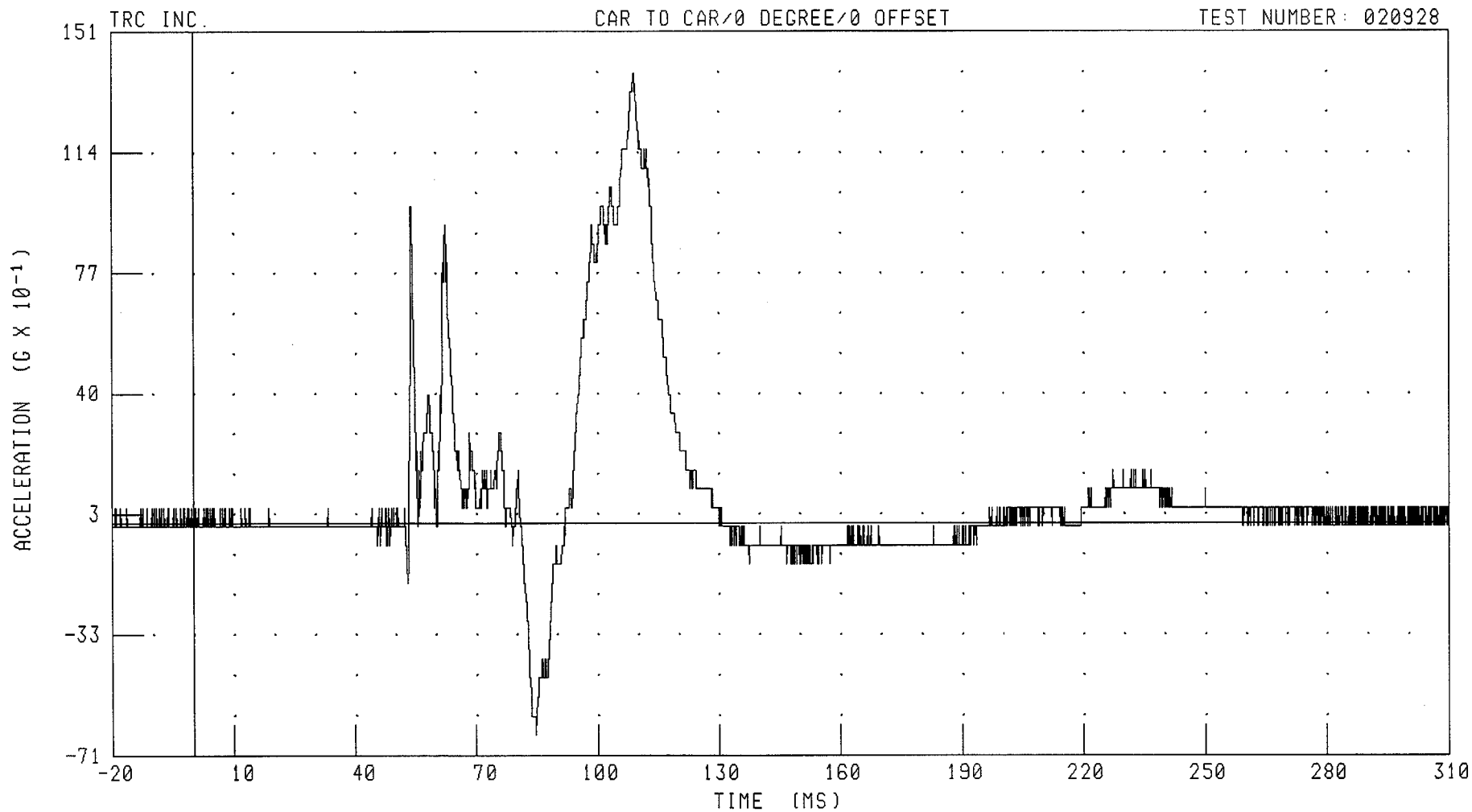
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER HEAD Y-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDYRB FILTER: CH. CLASS 1000

PEAK DATA: 13.82 G @ 108.88 MS; -6.48 G @ 84.56 MS

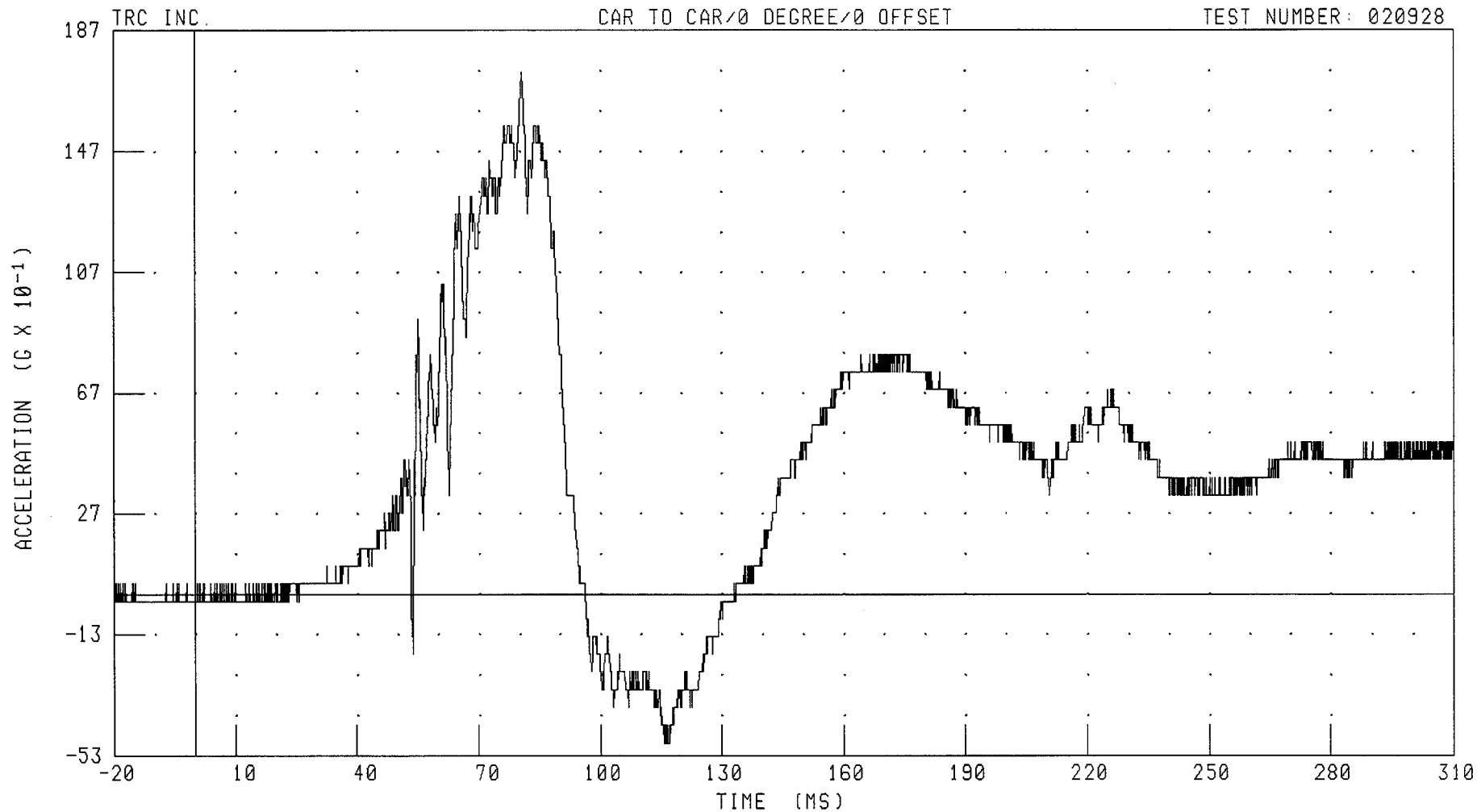
B-173

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
BULLET PASSENGER HEAD Z-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDZRB FILTER: CH. CLASS 1000

B-174

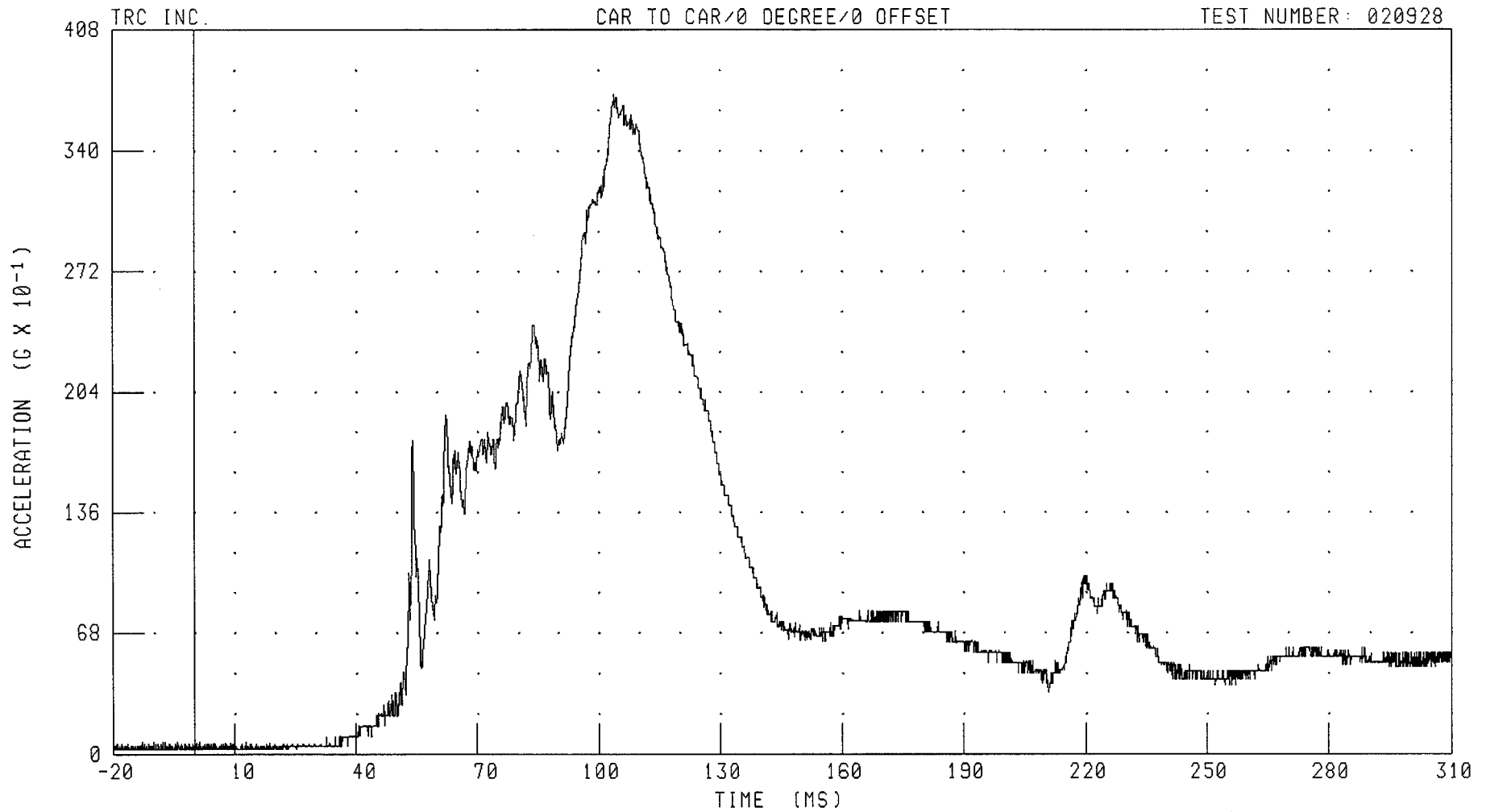
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER HEAD RESULTANT ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: HEDRRB FILTER: CH. CLASS 1000

PEAK DATA: 37.18 G @ 104.00 MS; 0.29 G @ -19.76 MS

B-175

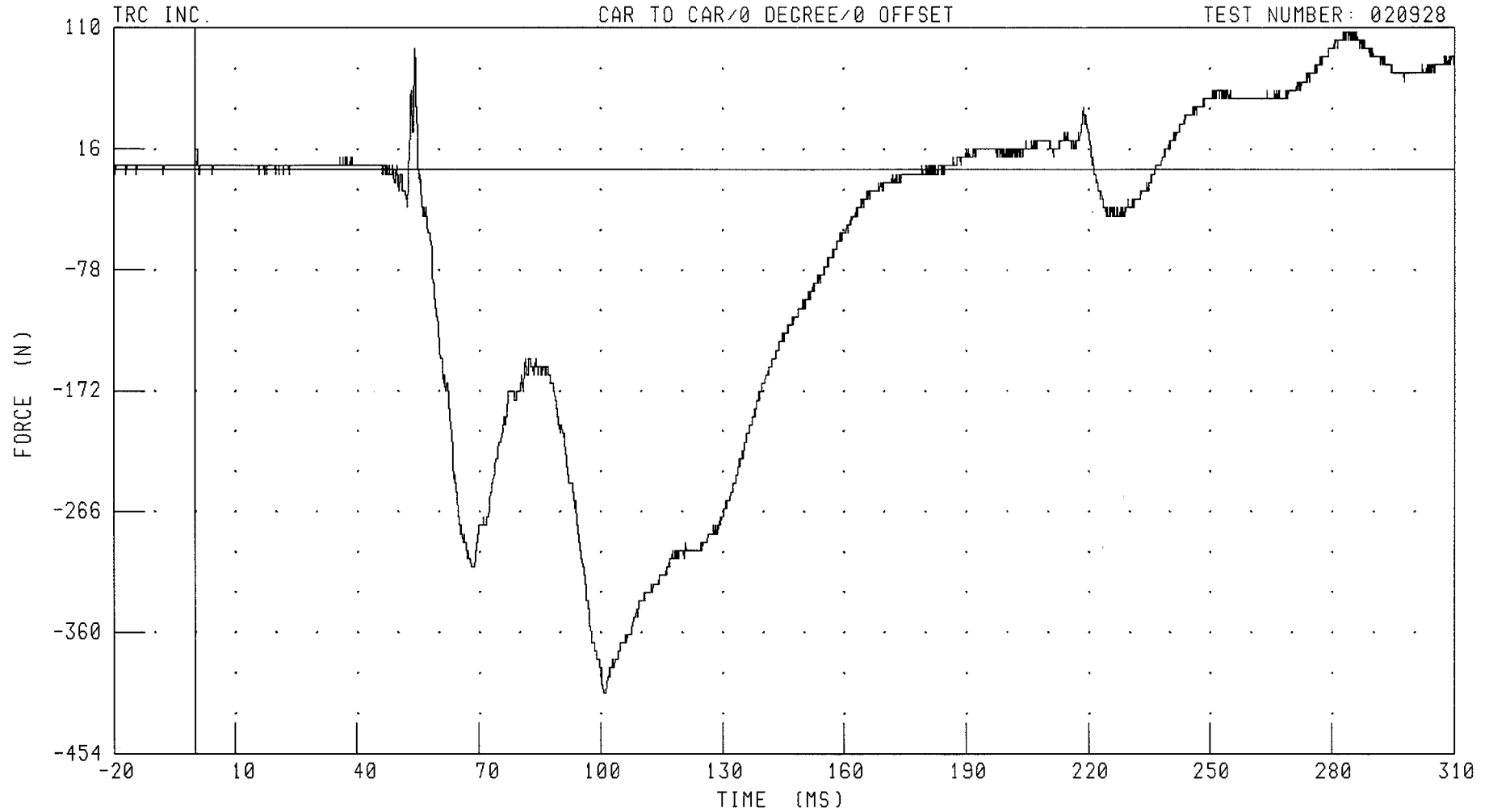
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NECK X-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXFB FILTER: CH. CLASS 1000

PEAK DATA: 107.39 N @ 282.72 MS; -407.15 N @ 100.80 MS

B-176

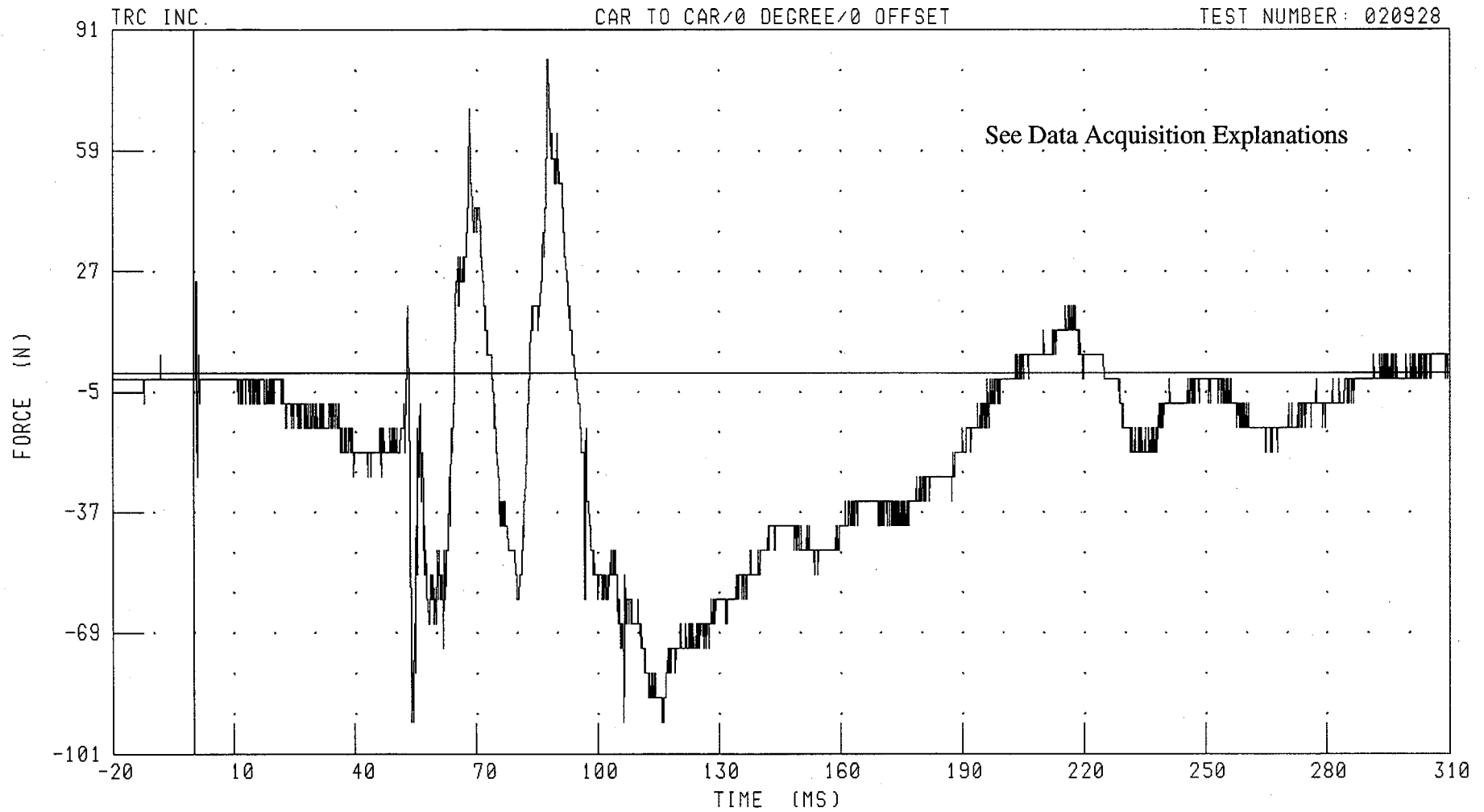
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NECK Y-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYFB FILTER: CH. CLASS 1000

PEAK DATA: 83.11 N @ 87.76 MS; -92.74 N @ 53.92 MS

B-177

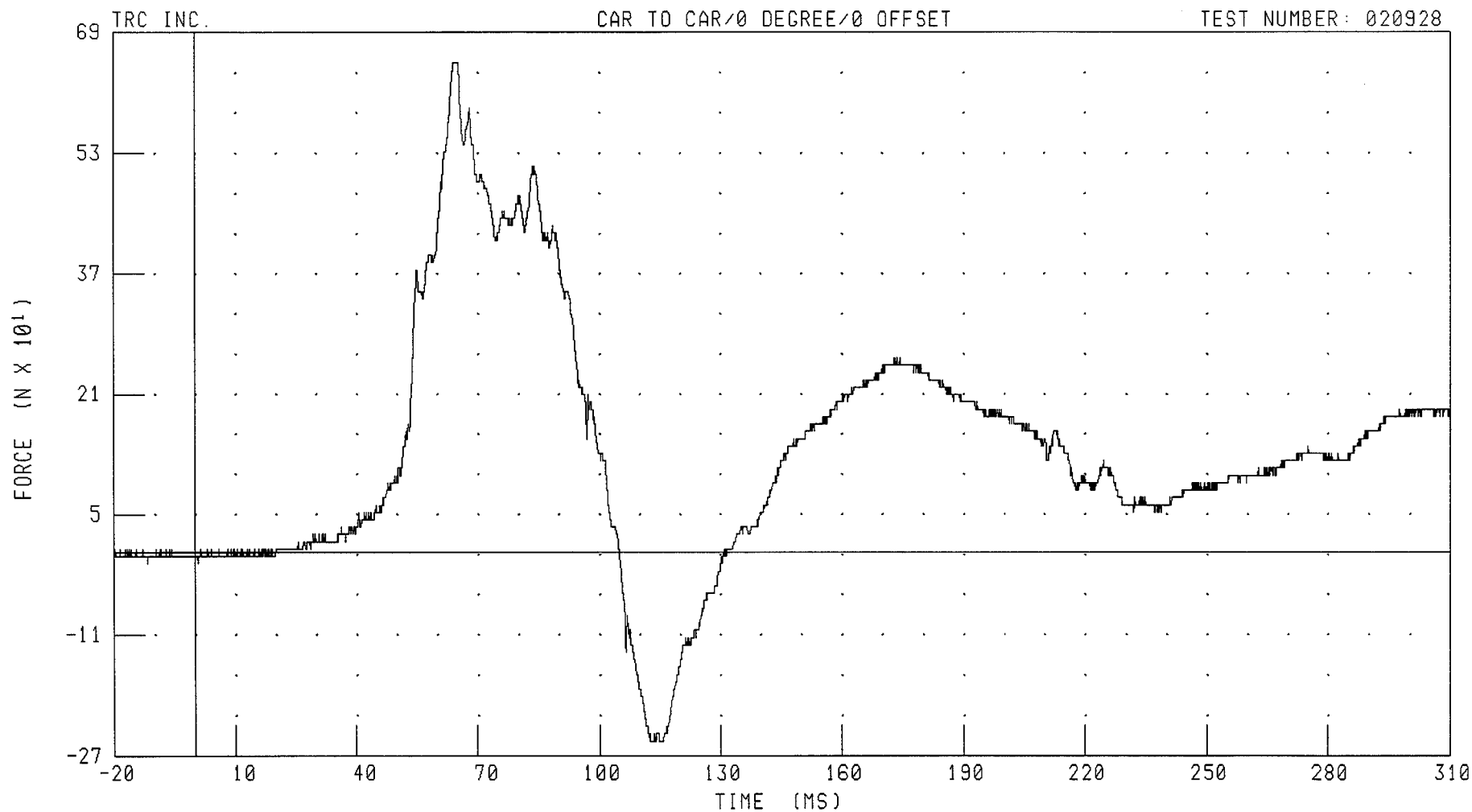
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NECK Z-AXIS AXIAL FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZFB FILTER: CH. CLASS 1000

B-178

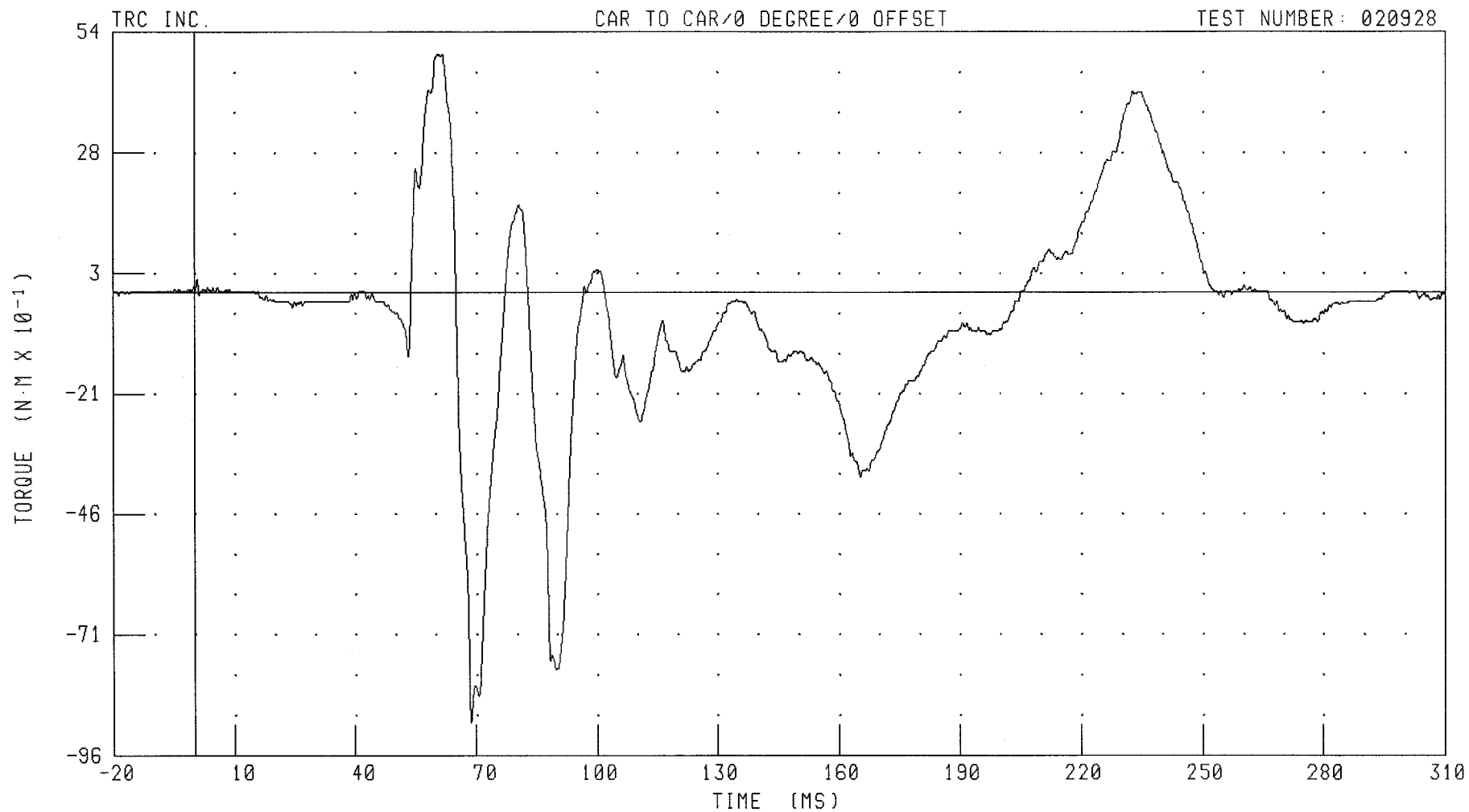
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NECK MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKXMB FILTER: CH. CLASS 600

PEAK DATA: 4.95 N·M @ 60.56 MS; -8.92 N·M @ 68.72 MS

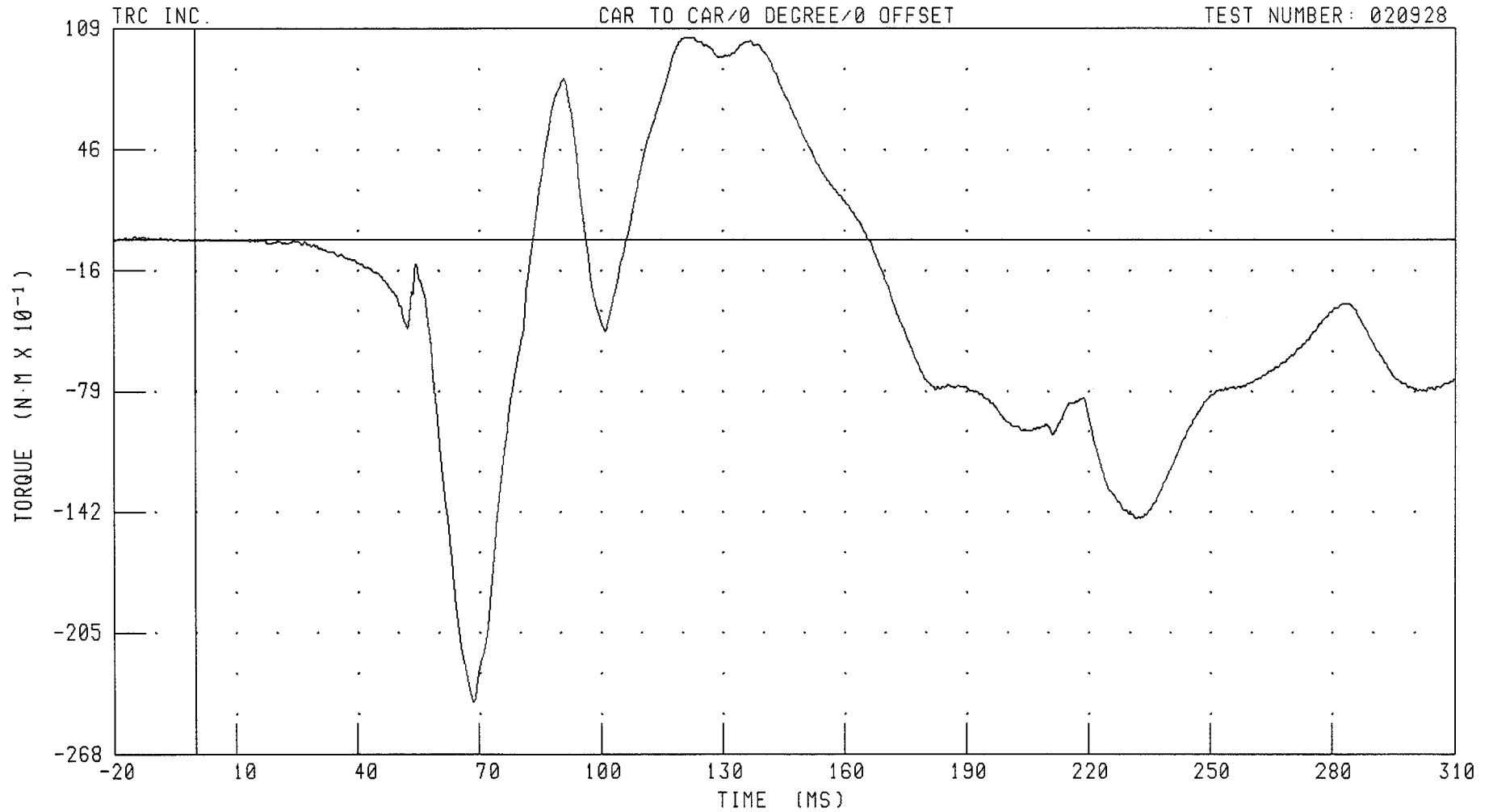
B-179

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
BULLET PASSENGER NECK MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKYMB FILTER: CH. CLASS 600

PEAK DATA: 10.55 N·M @ 120.88 MS; -24.08 N·M @ 68.64 MS

B-180

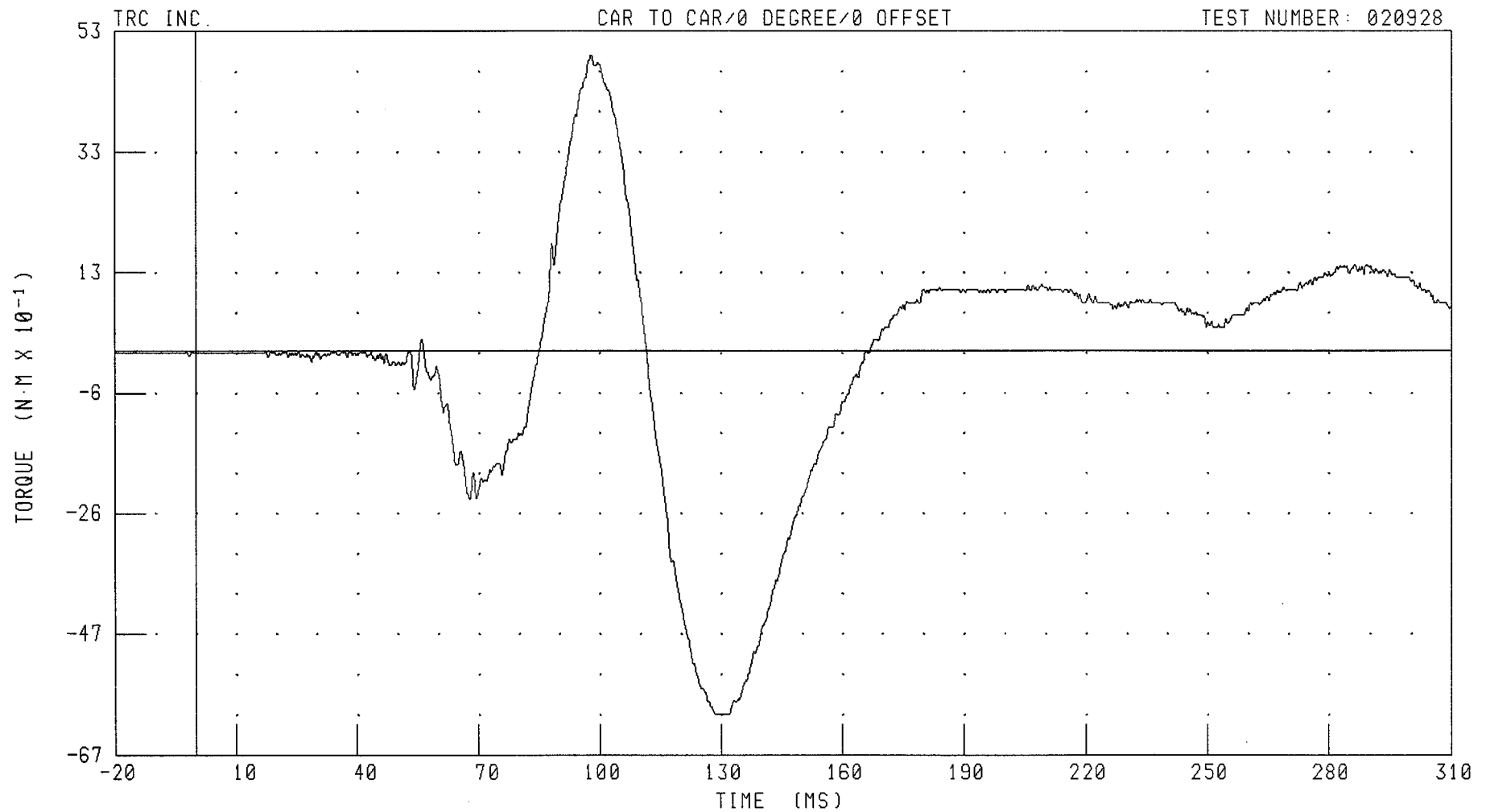
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NECK MOMENT ABOUT Z AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKZMB FILTER: CH. CLASS 600

PEAK DATA: 4.90 N·M @ 98.08 MS; -6.03 N·M @ 132.00 MS

B-181

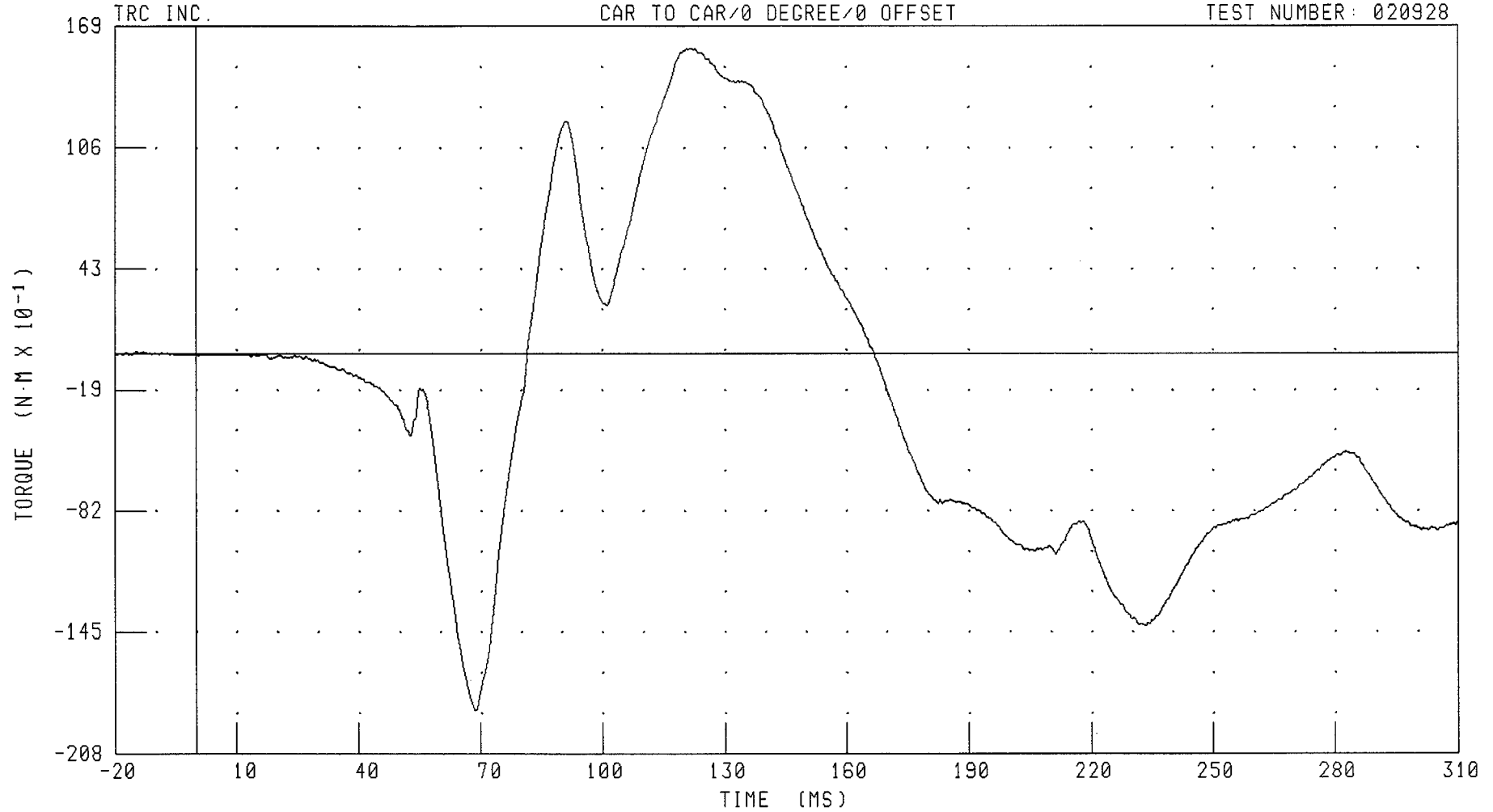
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NEKOMB FILTER: CH. CLASS 600

PEAK DATA: 15.83 N·M @ 120.72 MS; -18.57 N·M @ 68.64 MS

B-182

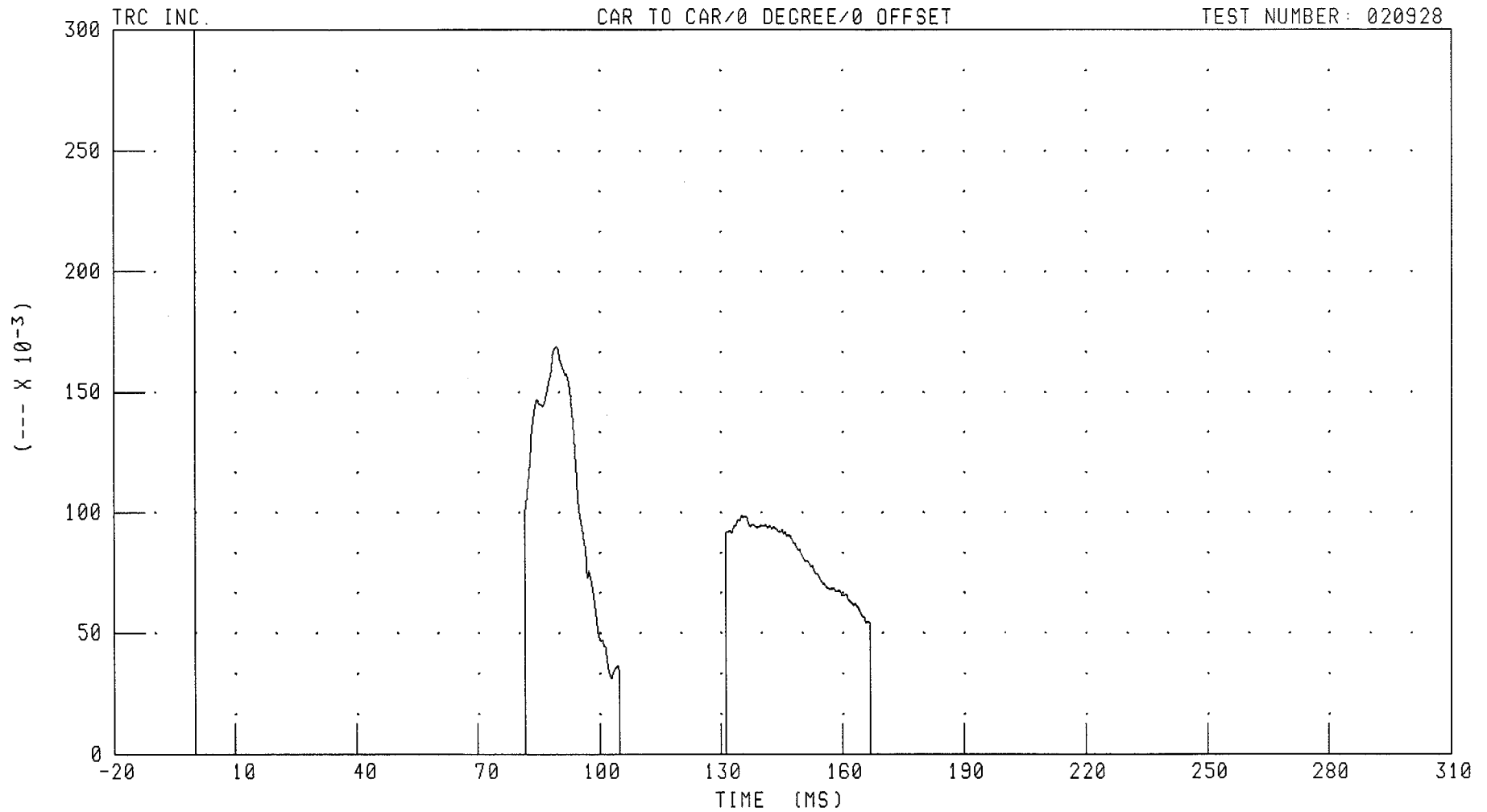
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NIJ TENSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NTFB

FILTER: CH. CLASS 600

PEAK DATA: 0.17 --- @ 89.44 MS; 0.00 --- @ -20.00 MS

B-183

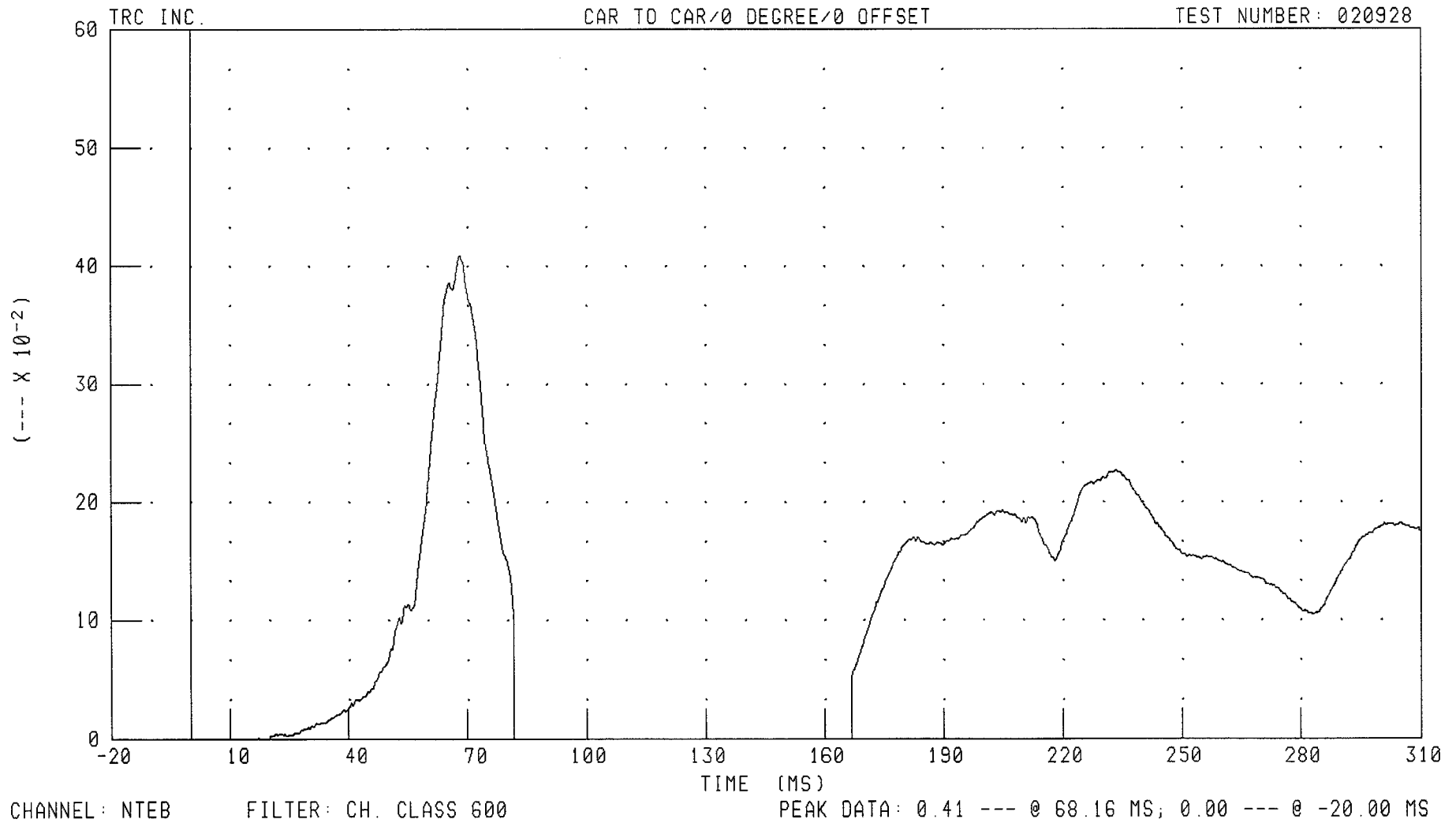
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NIJ TENSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



B-184

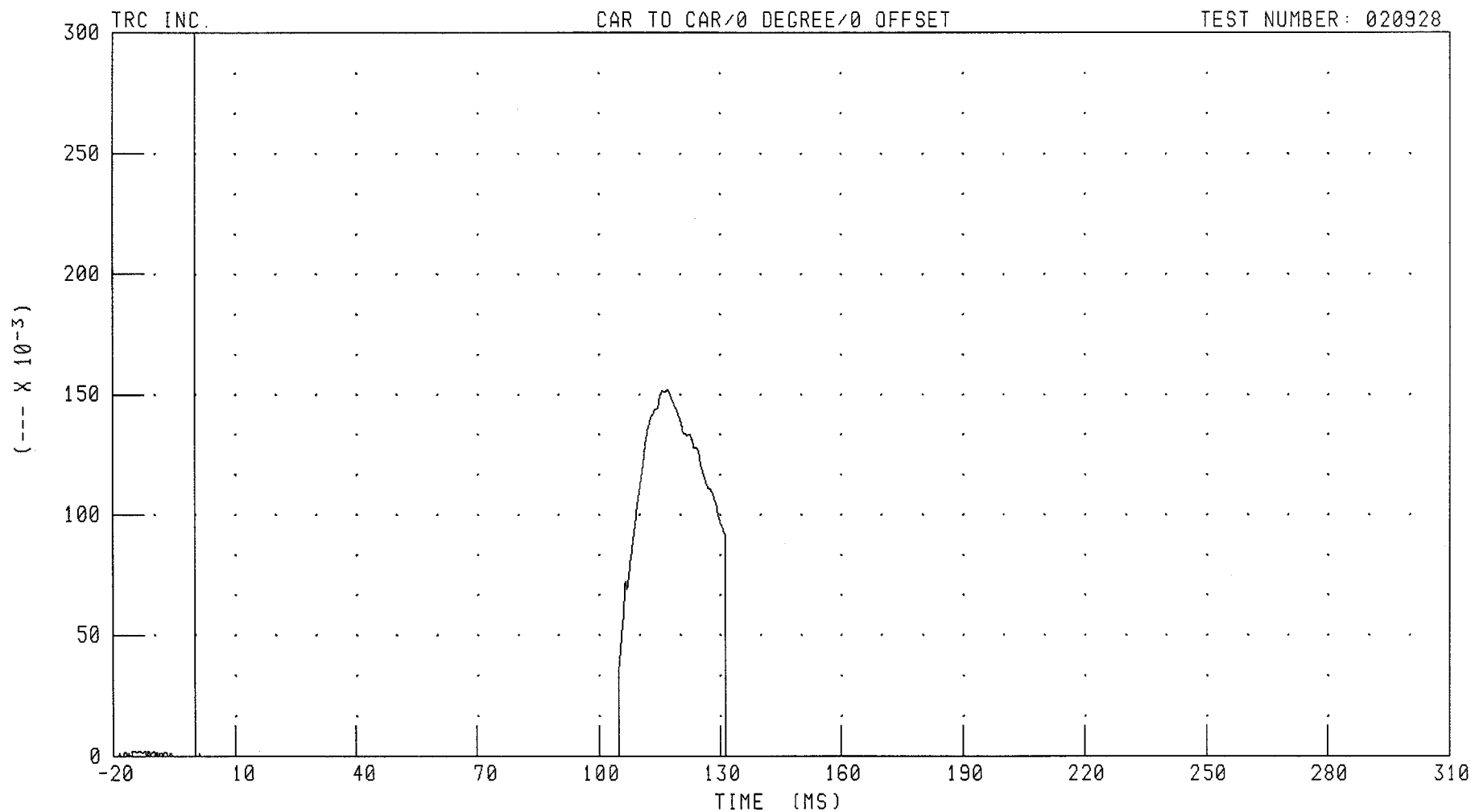
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NIJ COMPRESSION/FLEXION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NCFB

FILTER: CH. CLASS 600

PEAK DATA: 0.15 --- @ 116.96 MS; 0.00 --- @ -20.00 MS

B-185

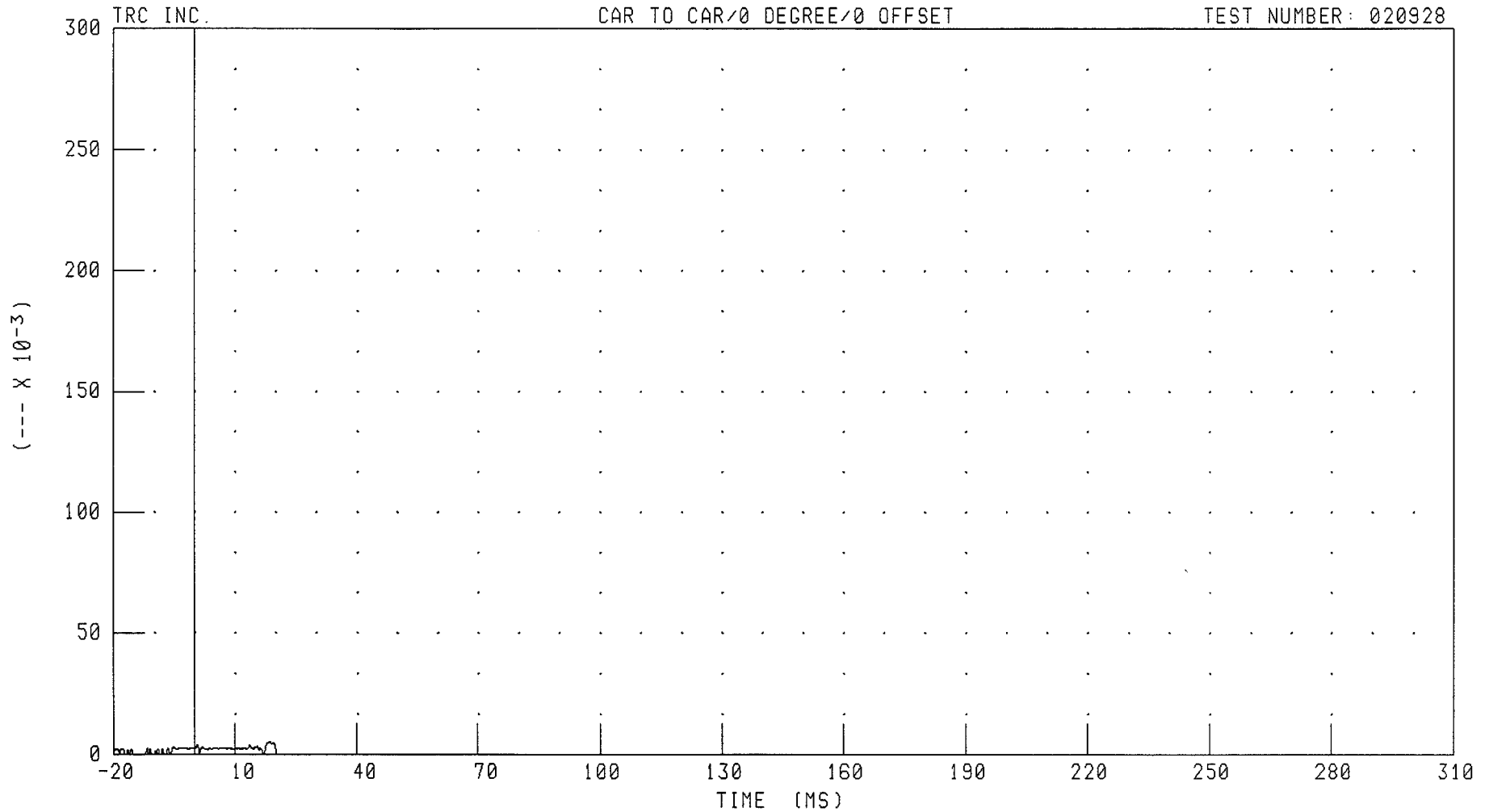
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER NIJ COMPRESSION/EXTENSION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NCEB

FILTER: CH. CLASS 600

PEAK DATA: 0.00 --- @ 18.64 MS; 0.00 --- @ -18.64 MS

B-186

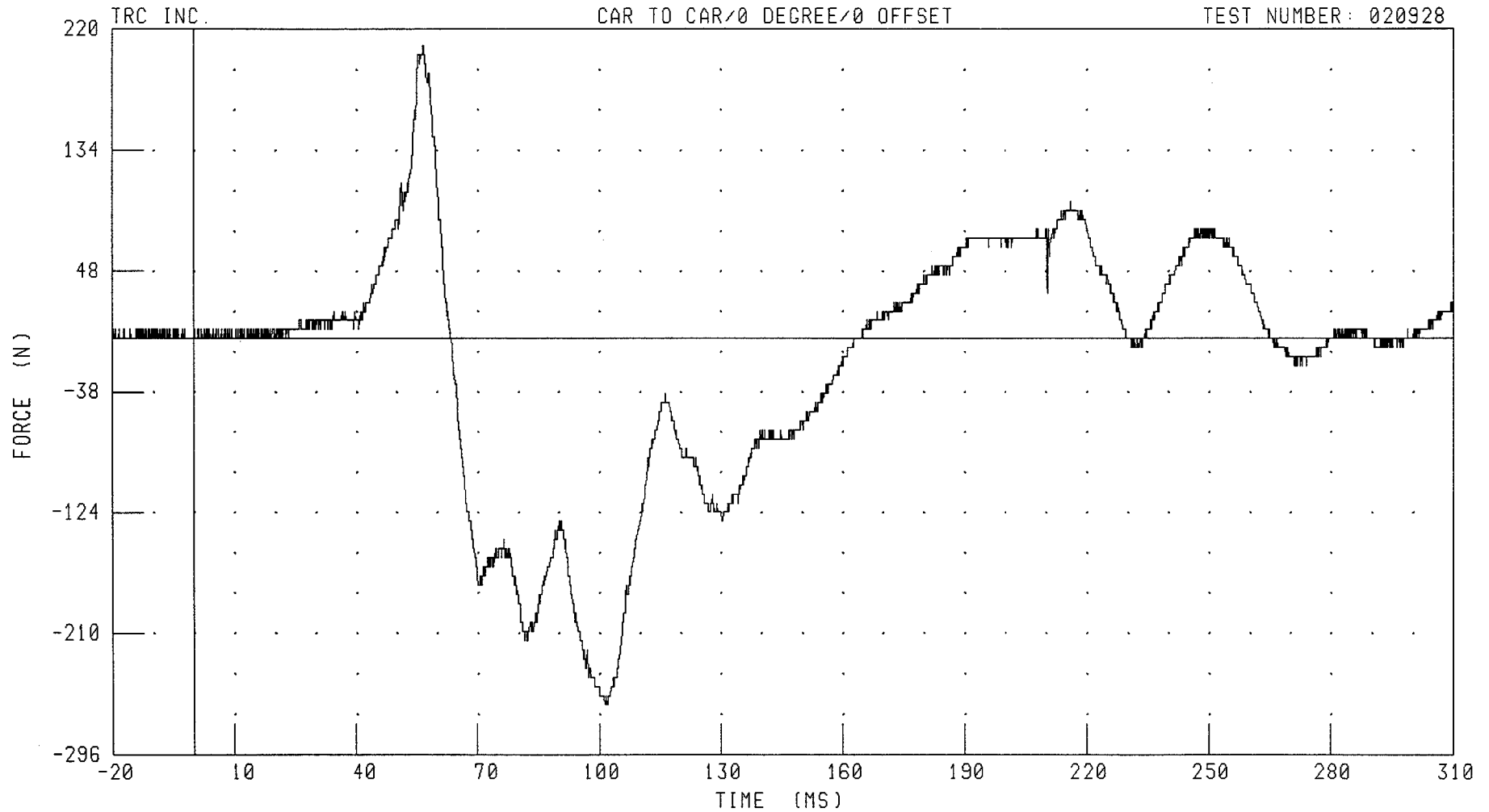
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LOWER NECK X-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLXFB FILTER: CH. CLASS 1000

PEAK DATA: 208.59 N @ 56.64 MS; -260.75 N @ 101.28 MS

B-187

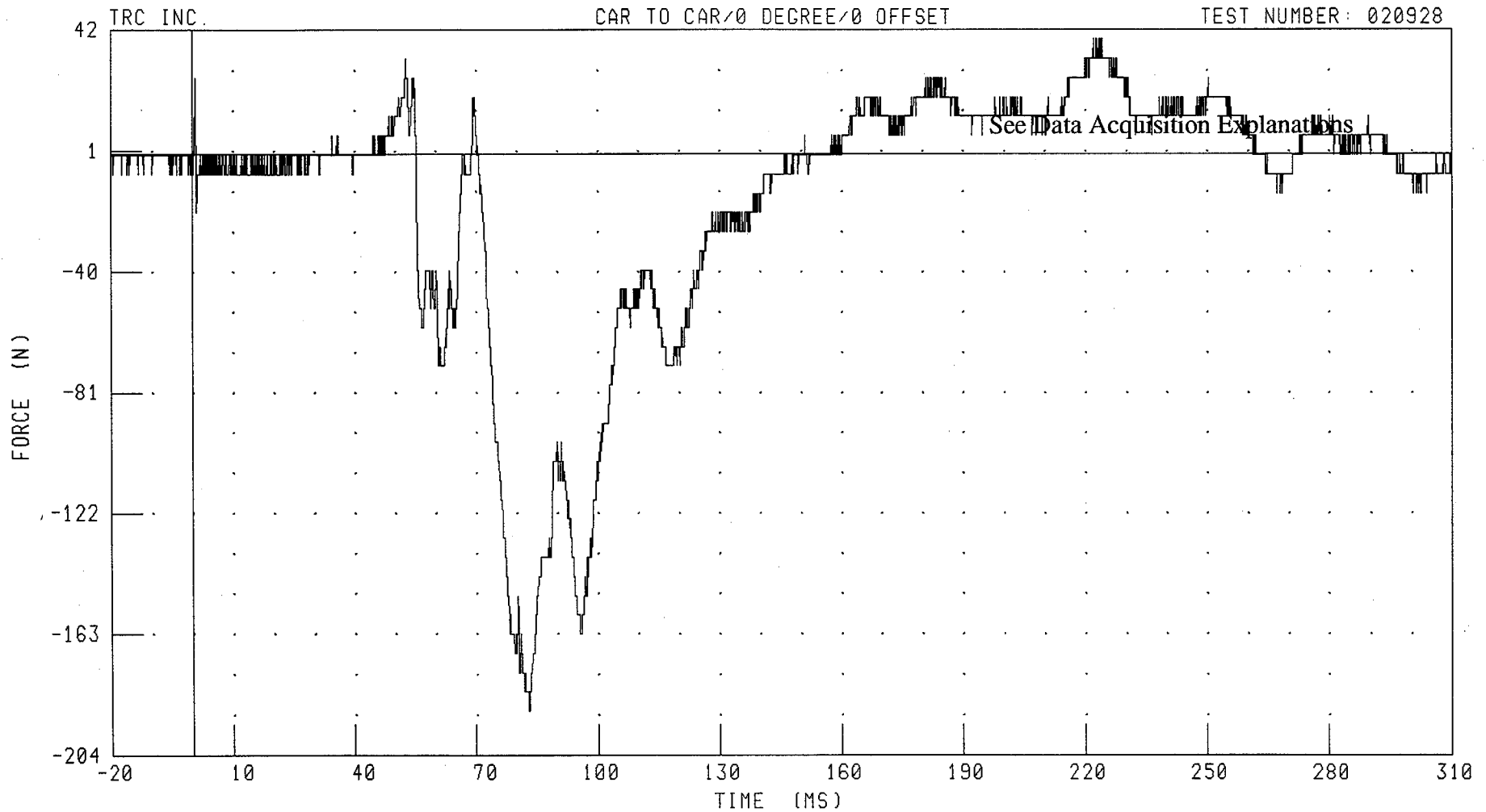
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LOWER NECK Y-AXIS SHEAR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLYFB FILTER: CH. CLASS 1000

PEAK DATA: 38.80 N @ 222.16 MS; -189.14 N @ 82.80 MS

B-188

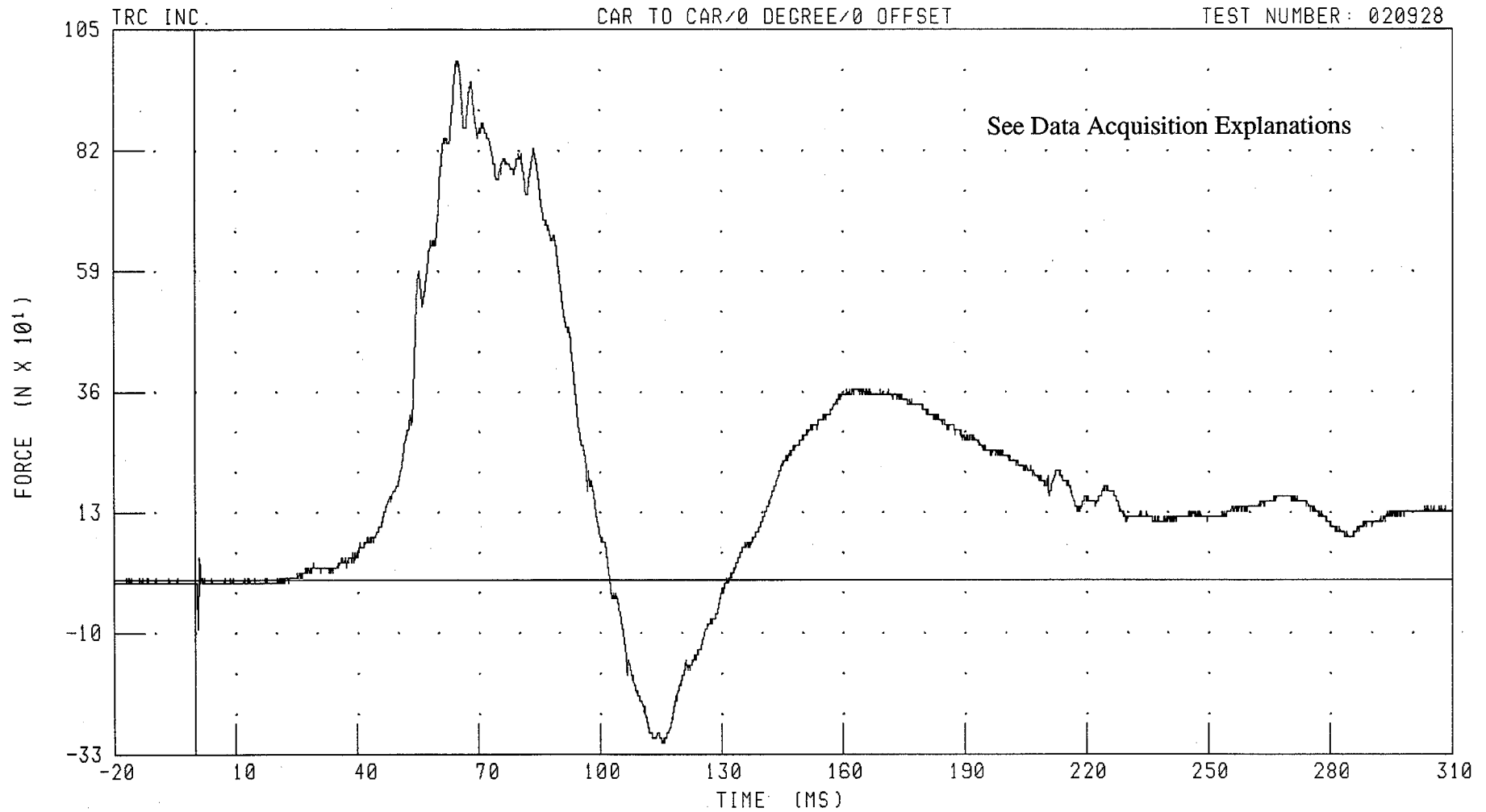
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LOWER NECK Z-AXIS AXIAL FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLZFB FILTER: CH. CLASS 1000

PEAK DATA: 990.78 N @ 64.48 MS; -308.03 N @ 115.12 MS

B-189

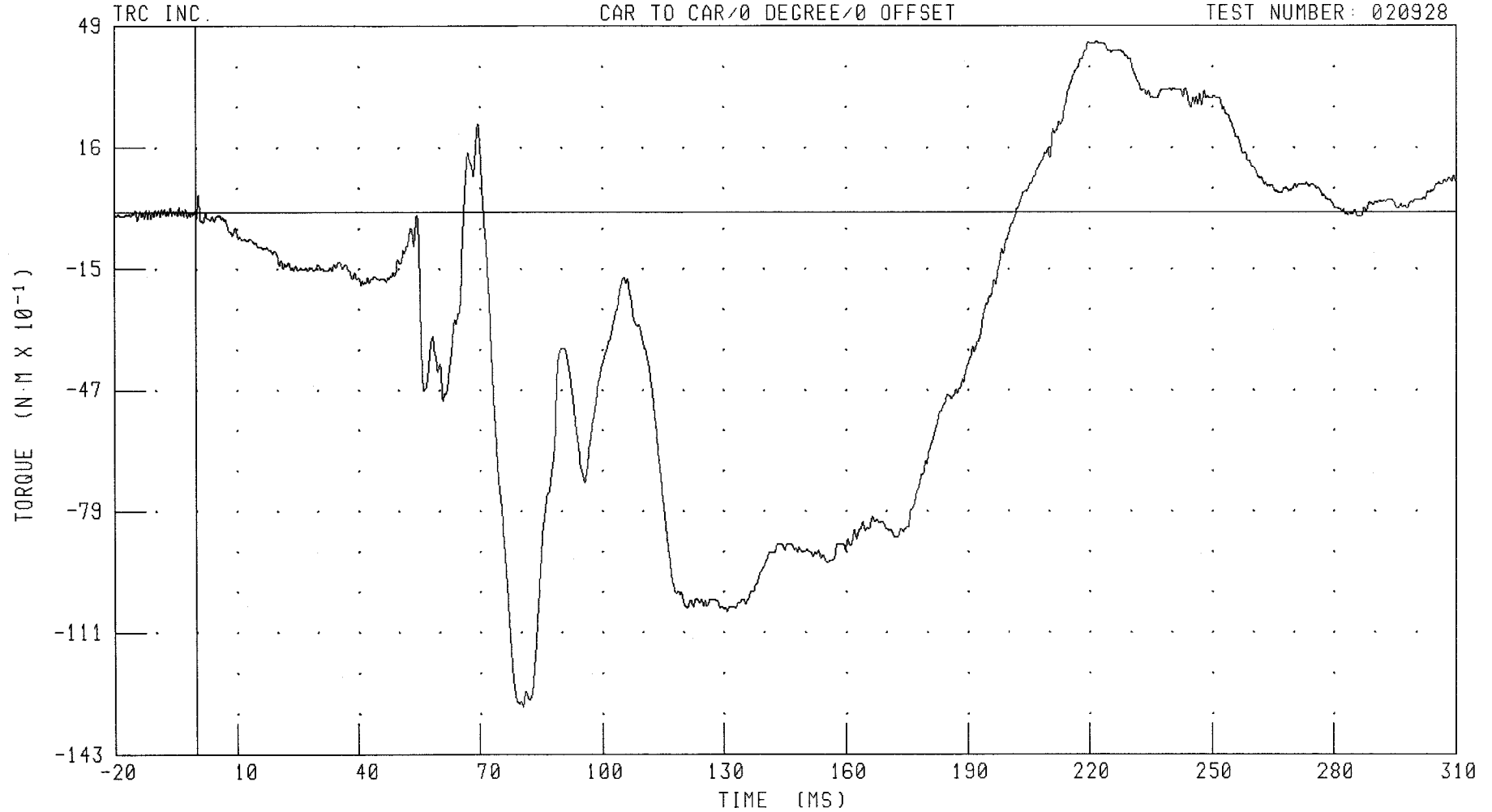
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LOWER NECK MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLXMB FILTER: CH. CLASS 600

PEAK DATA: 4.50 N·M @ 221.84 MS; -13.05 N·M @ 80.56 MS

B-190

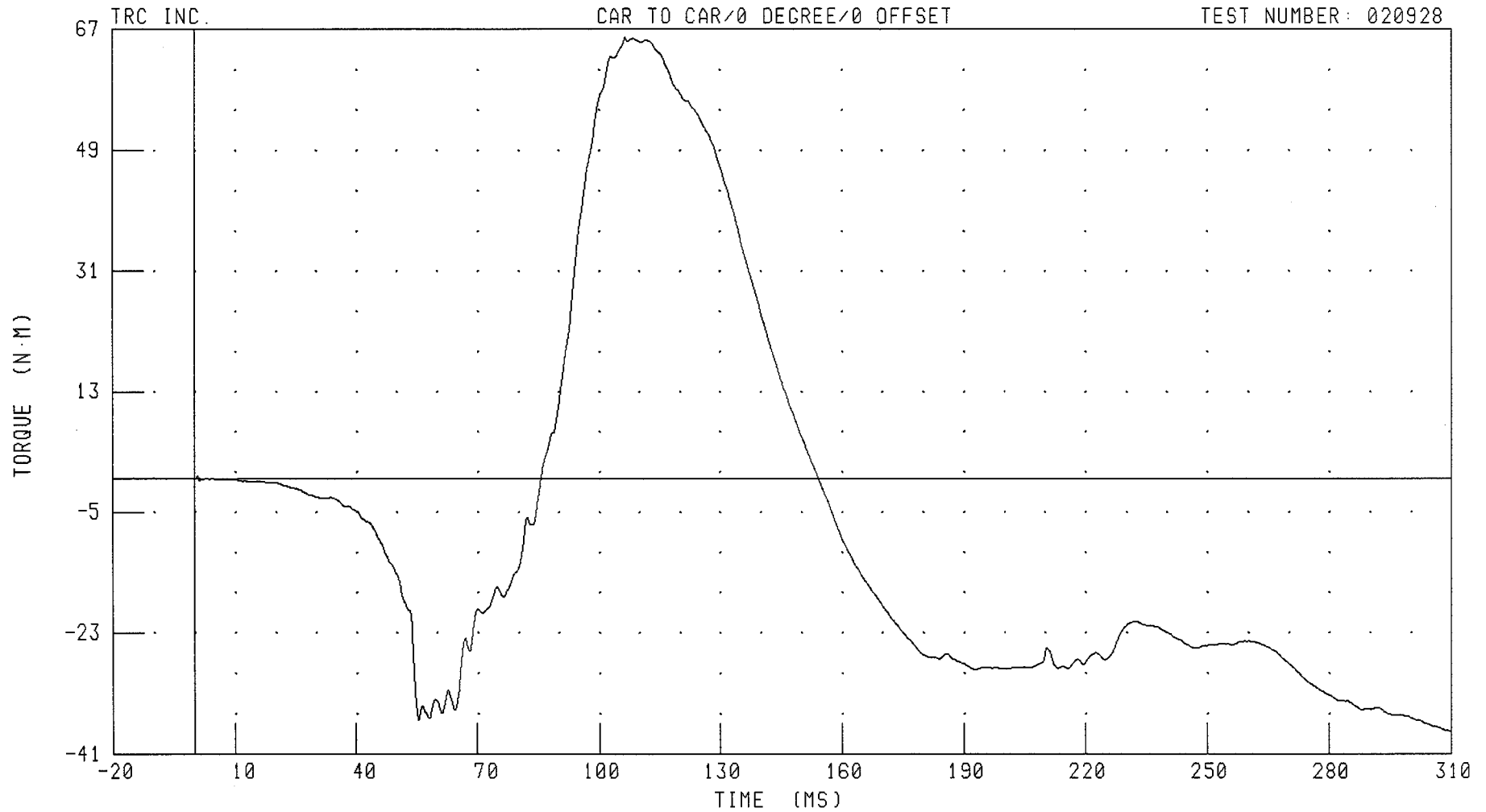
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LOWER NECK MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLYMB FILTER: CH. CLASS 600

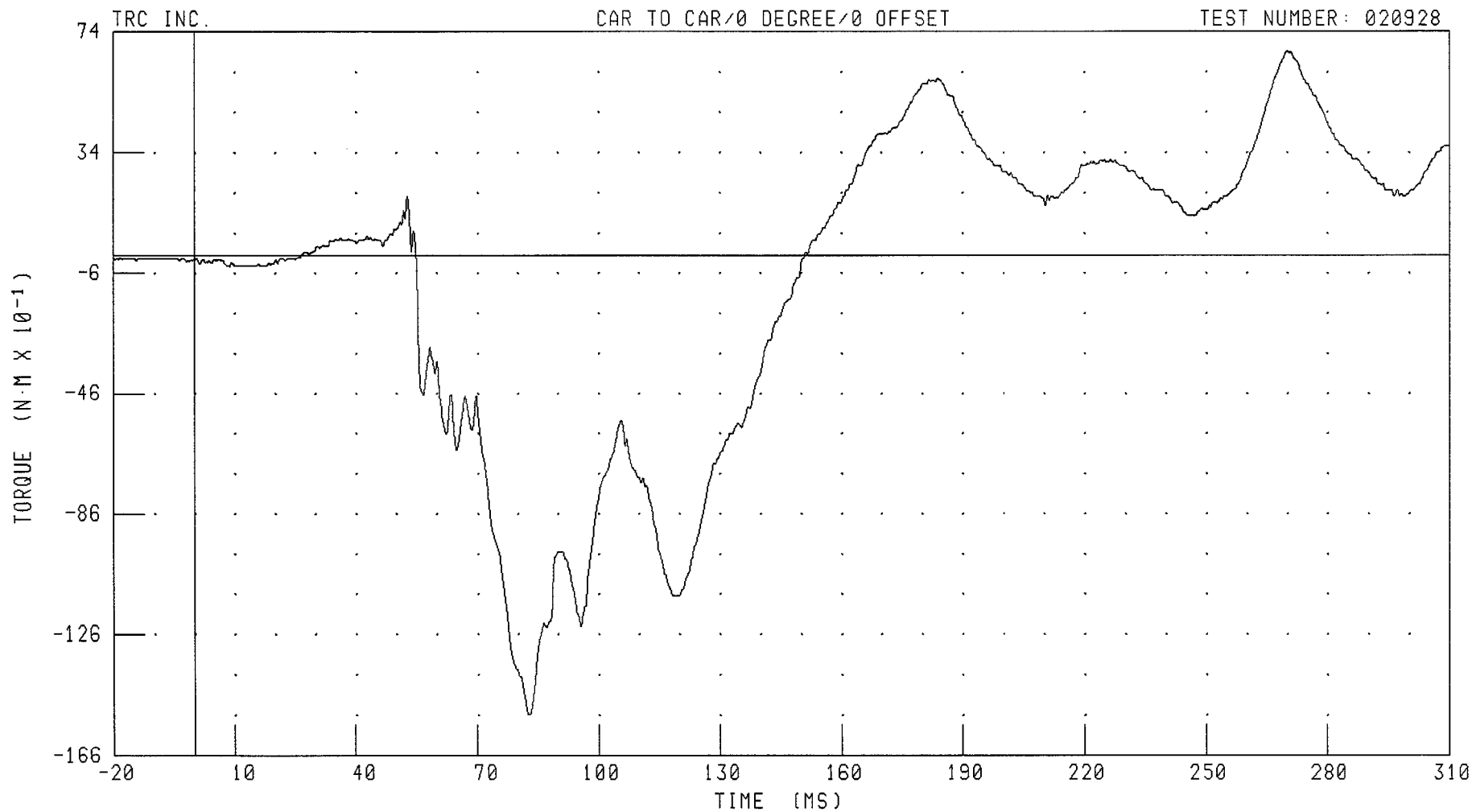
PEAK DATA: 65.77 N·M @ 106.64 MS; -37.68 N·M @ 309.68 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LOWER NECK MOMENT ABOUT Z AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: NKLZMB FILTER: CH. CLASS 600

PEAK DATA: 6.76 N·M @ 270.16 MS; -15.26 N·M @ 82.96 MS

B-192

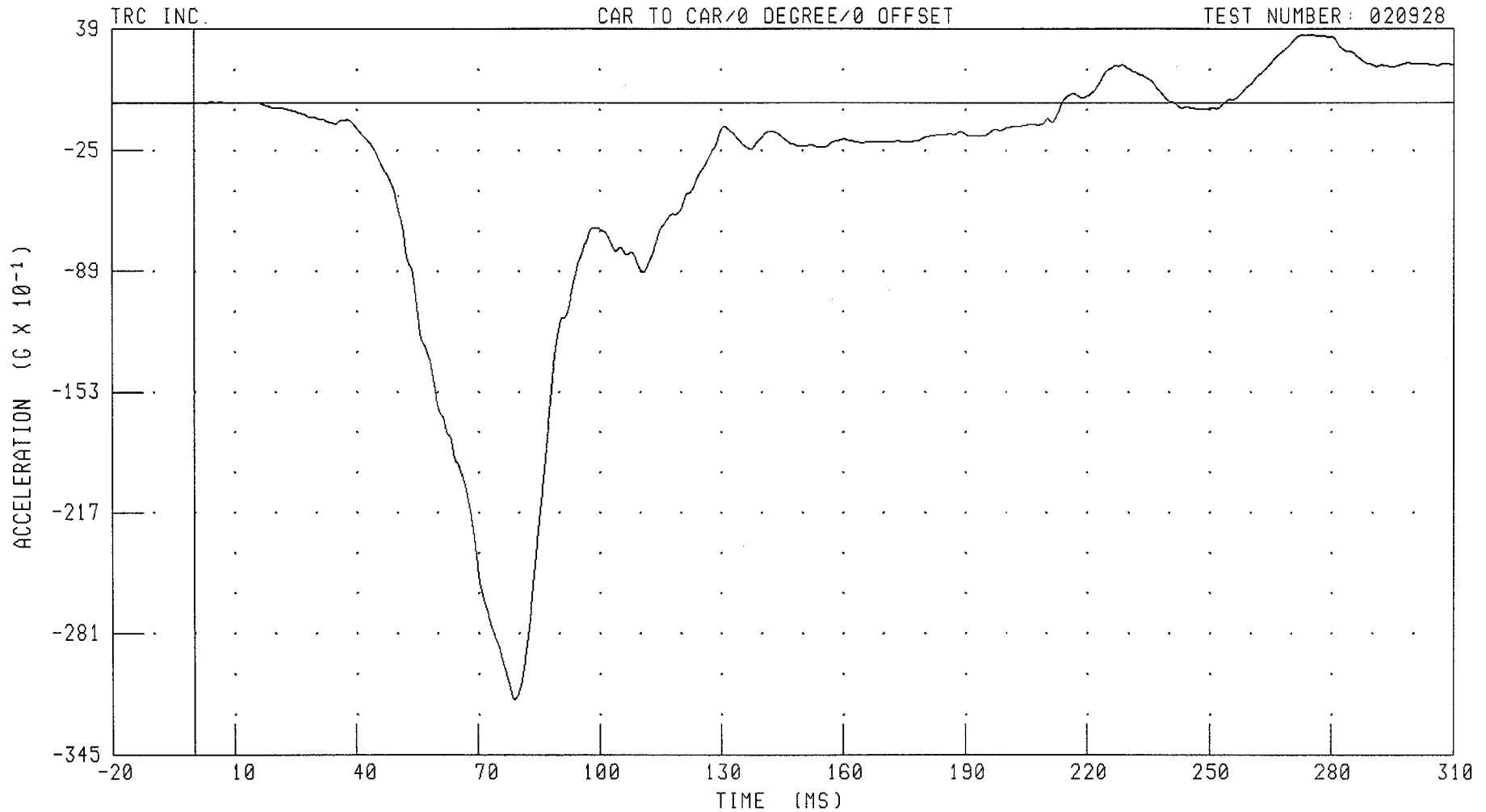
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXGB FILTER: CH. CLASS 180

PEAK DATA: 3.61 G @ 274.48 MS; -31.57 G @ 79.04 MS

B-193

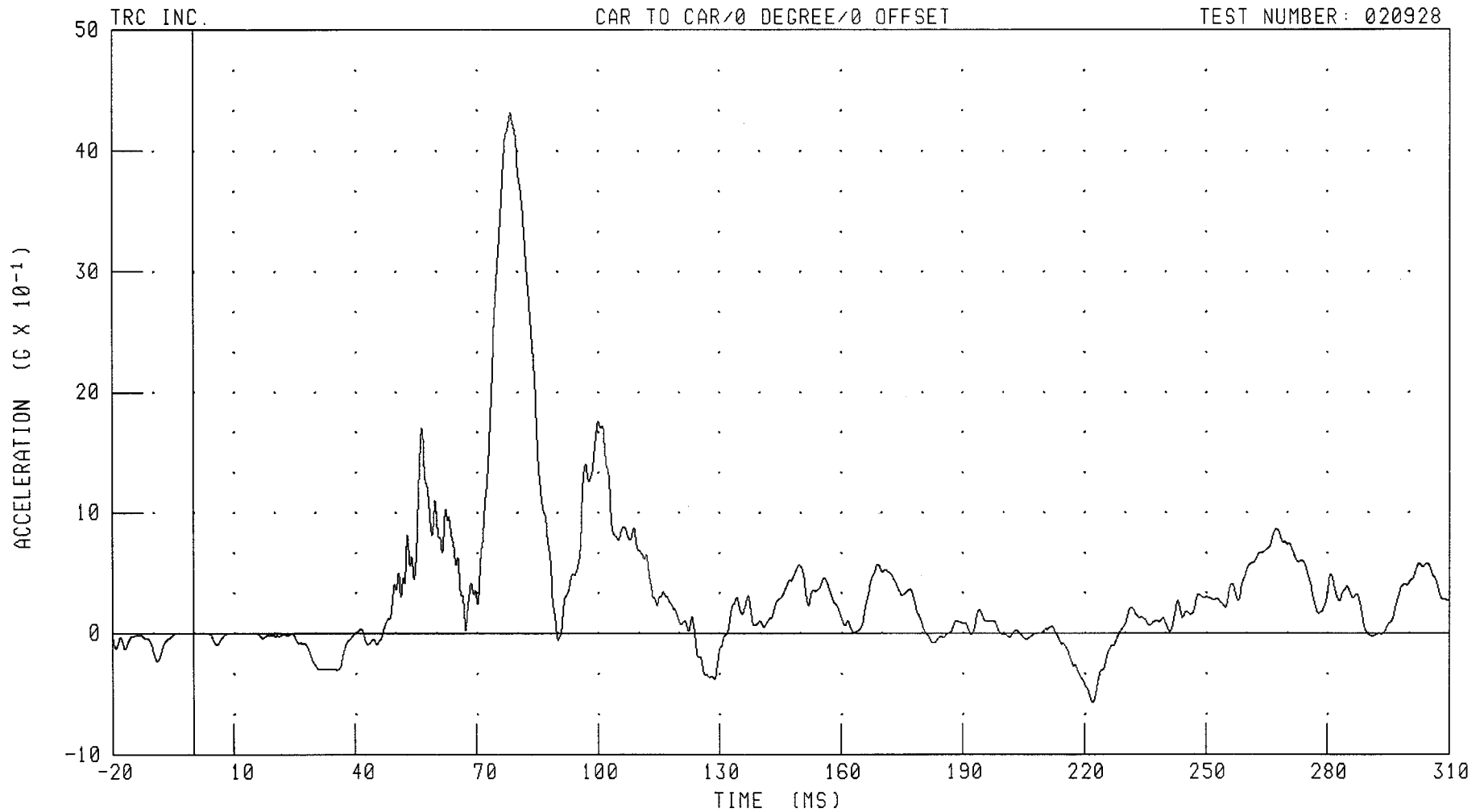
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTYGB FILTER: CH. CLASS 180

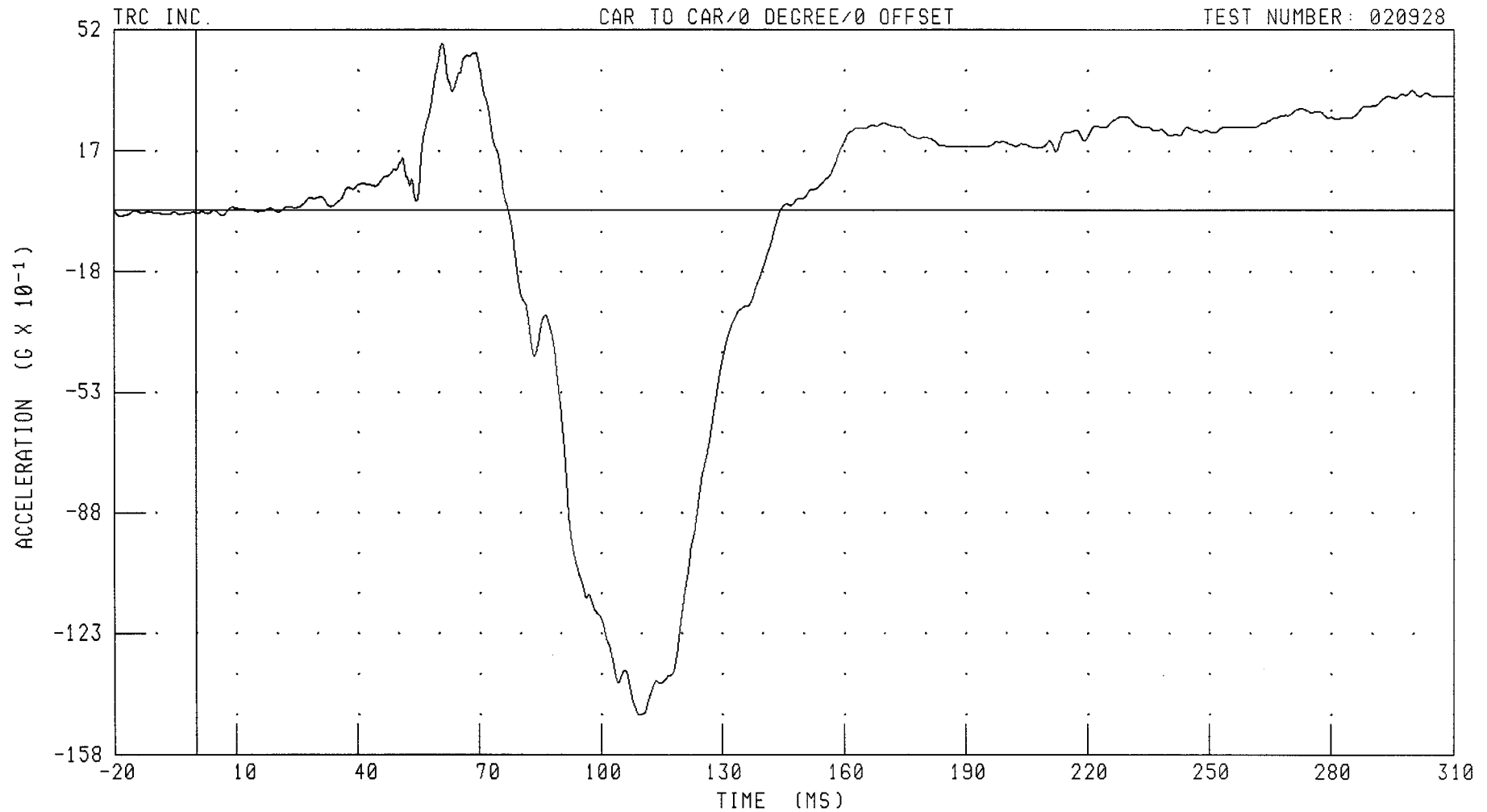
PEAK DATA: 4.31 G @ 78.56 MS; -0.57 G @ 222.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTZGB FILTER: CH. CLASS 180

PEAK DATA: 4.80 G @ 60.80 MS; -14.65 G @ 109.60 MS

B-195

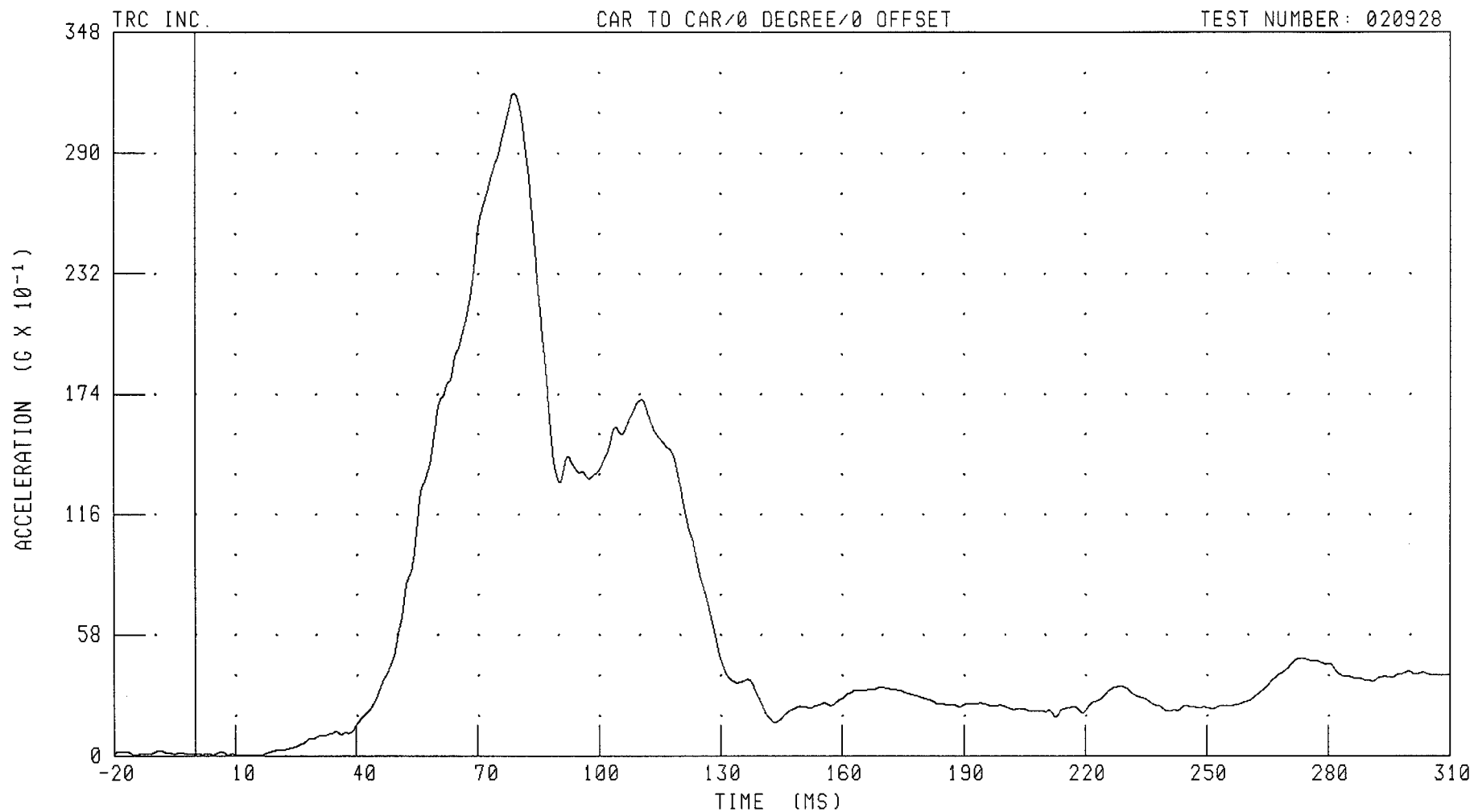
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTRGB FILTER: CH. CLASS 180

PEAK DATA: 31.89 G @ 79.12 MS; 0.02 G @ -20.00 MS

B-196

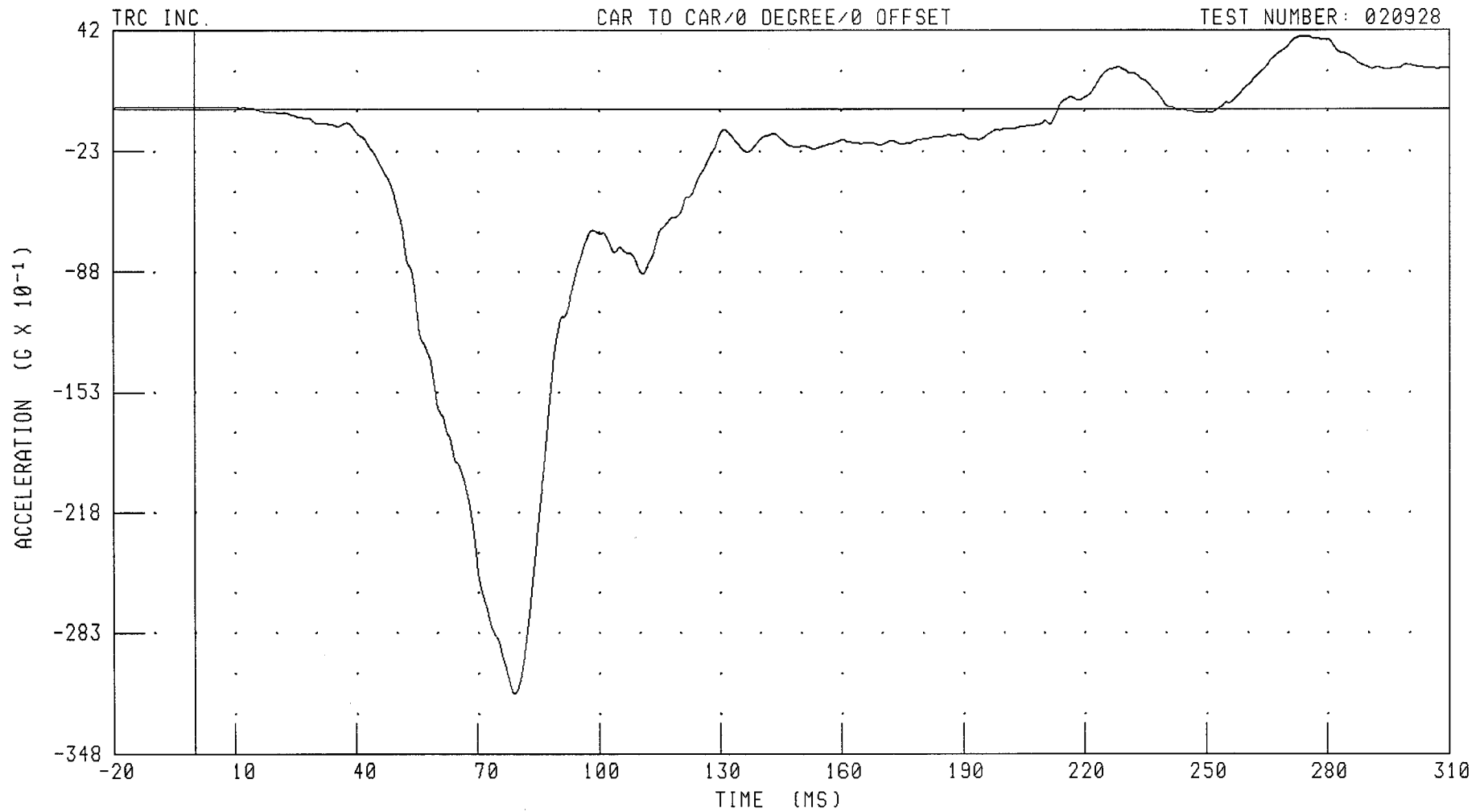
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST X-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXRB FILTER: CH. CLASS 180

PEAK DATA: 3.90 G @ 274.64 MS; -31.58 G @ 79.04 MS

B-197

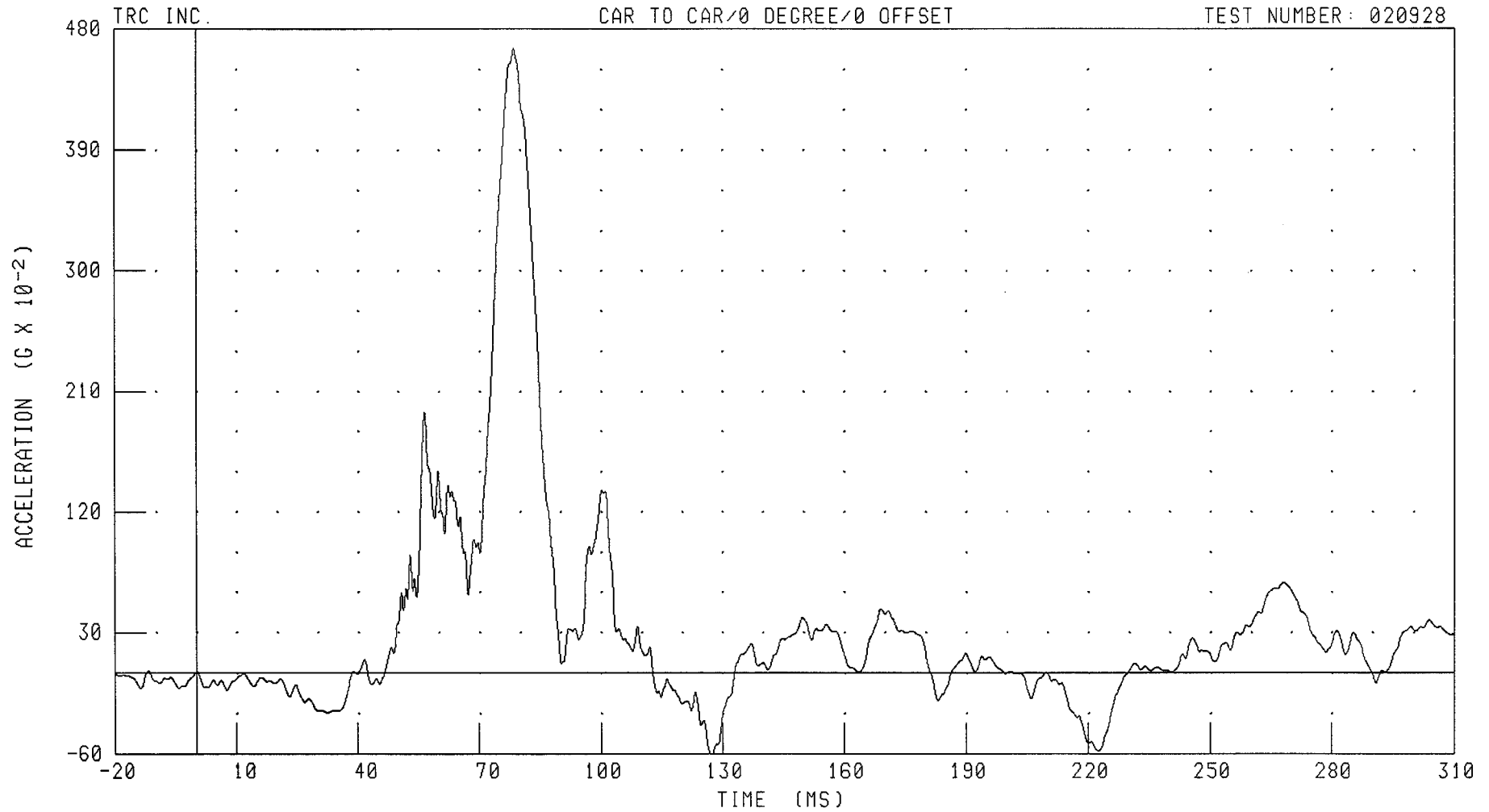
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST Y-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTYRB FILTER: CH. CLASS 180

B-198

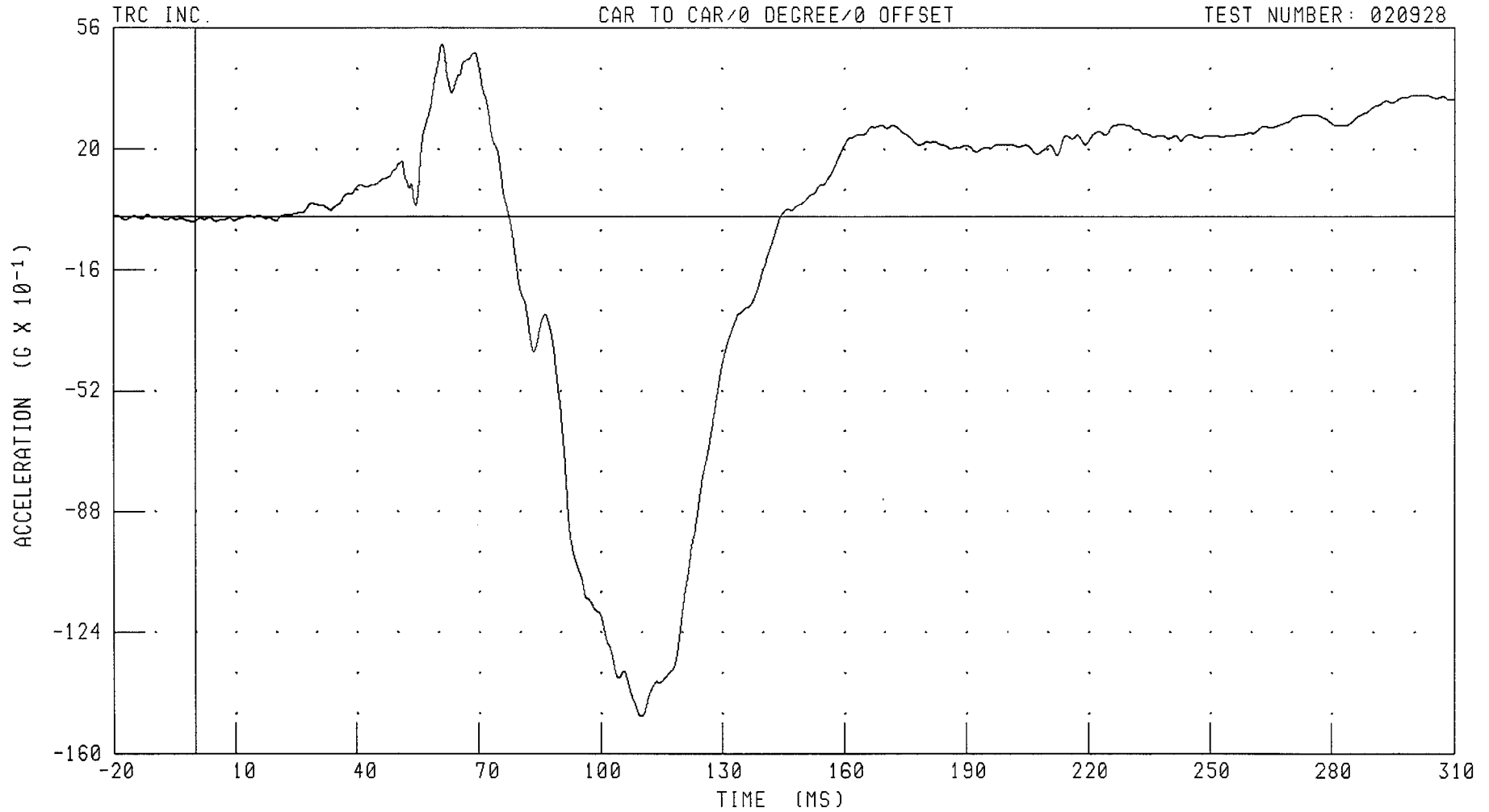
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST Z-AXIS ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTZRB FILTER: CH. CLASS 180

PEAK DATA: 5.11 G @ 60.96 MS; -14.88 G @ 109.92 MS

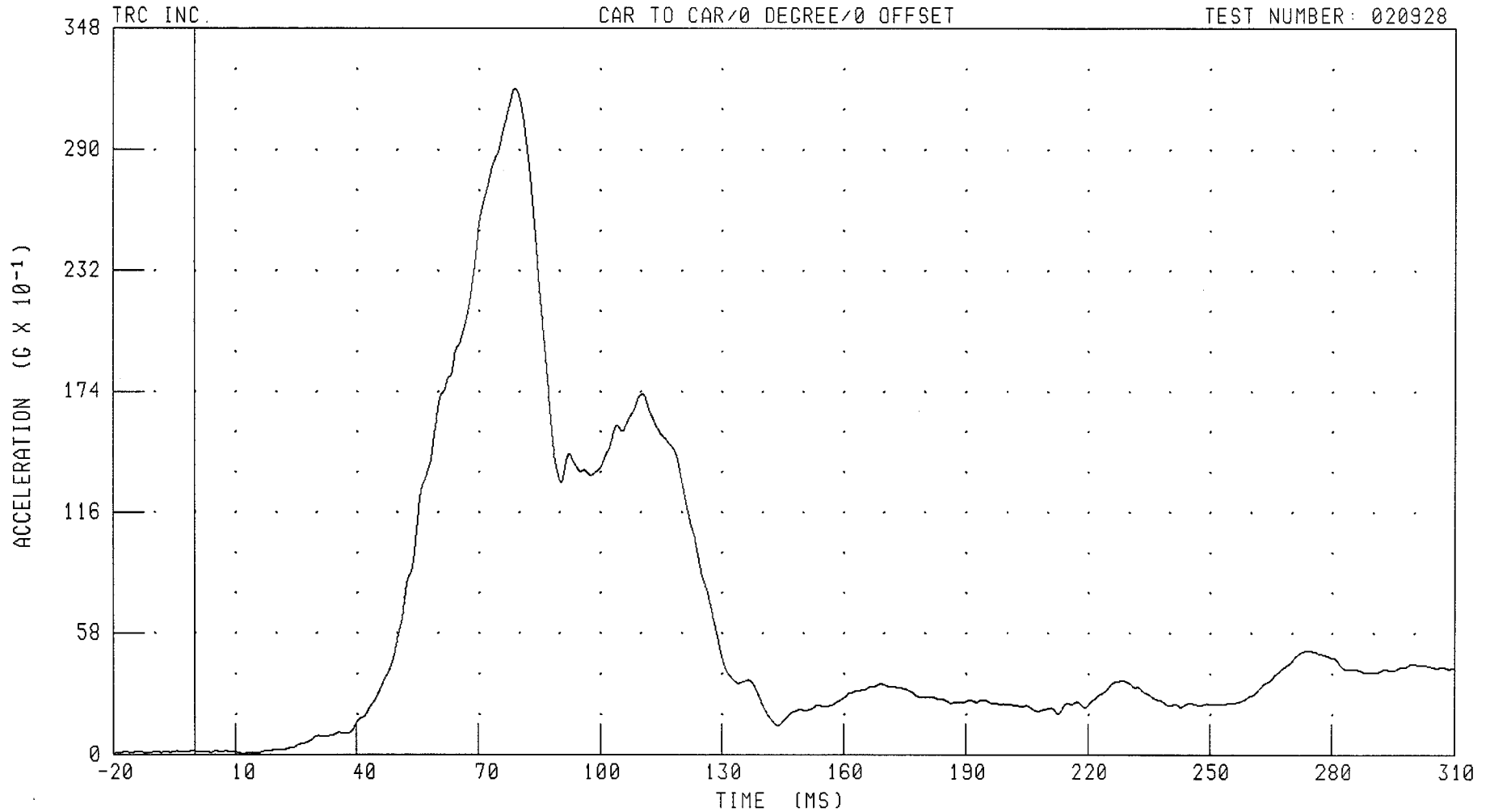
B-199

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
BULLET PASSENGER CHEST RESULTANT ACCELERATION REDUNDANT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTRRB FILTER: CH. CLASS 180

PEAK DATA: 31.94 G @ 79.04 MS; 0.01 G @ -20.00 MS

B-200

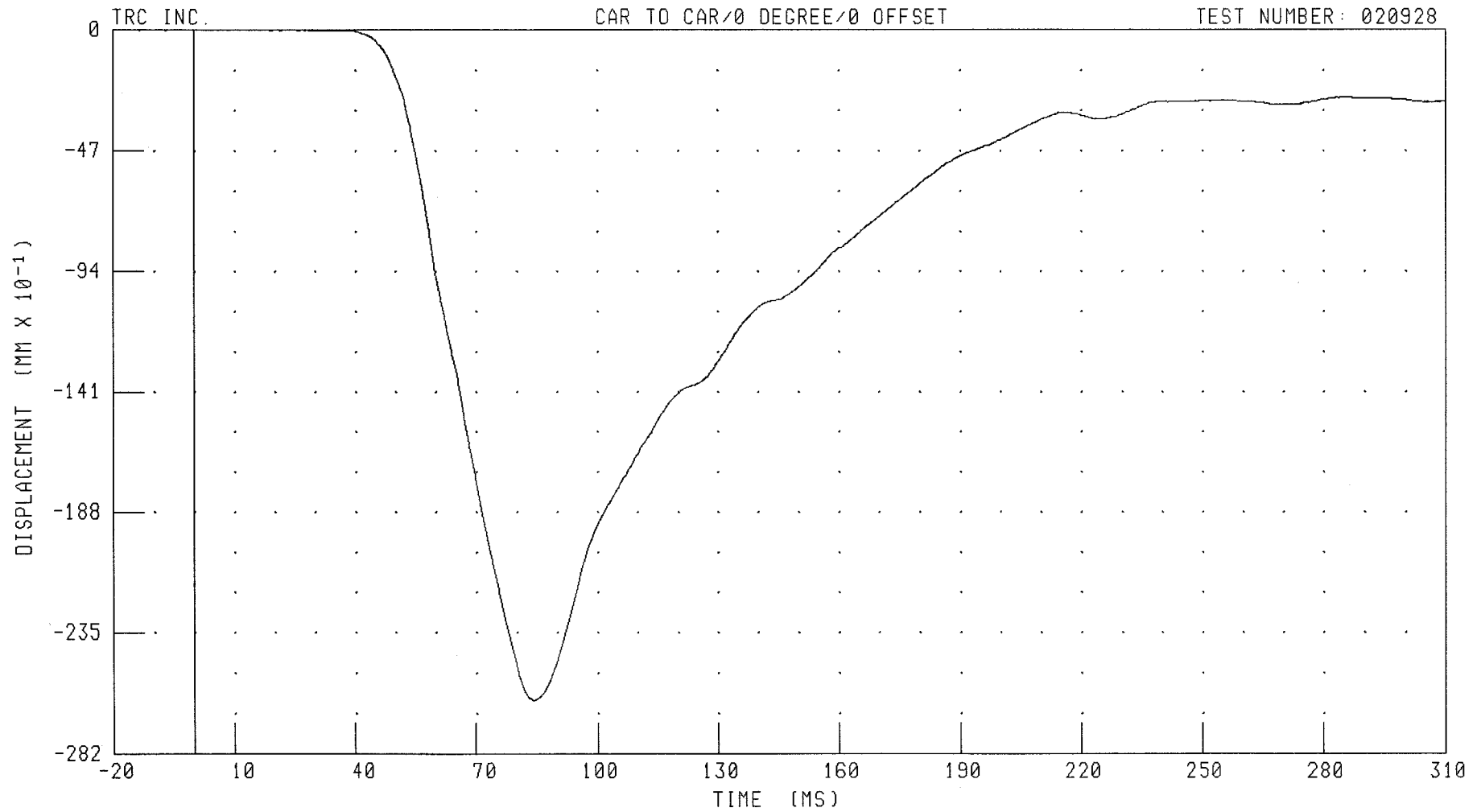
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER CHEST DEFLECTION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: CSTXDB FILTER: CH. CLASS 600

PEAK DATA: 0.01 MM @ 28.08 MS; -26.13 MM @ 84.24 MS

B-201

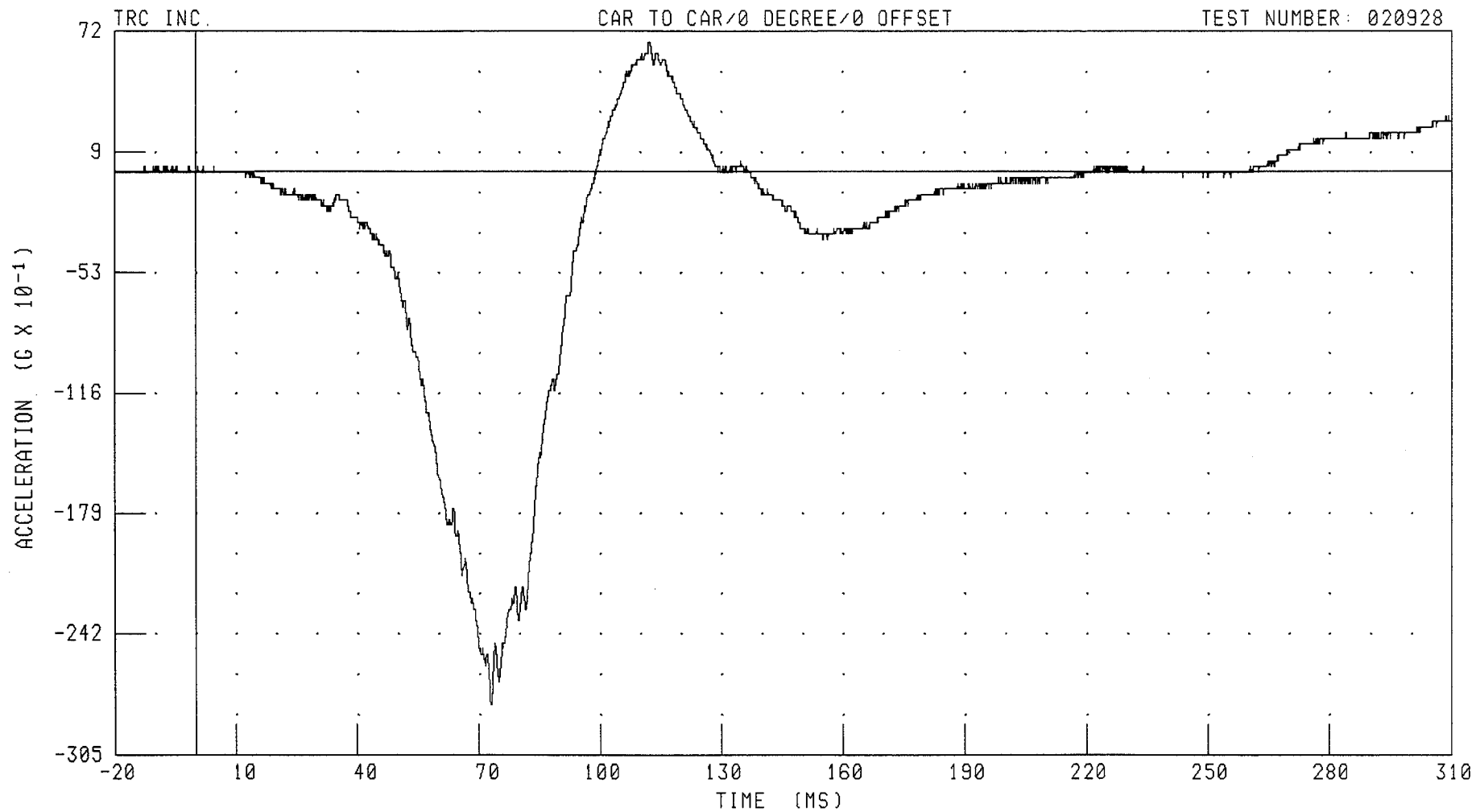
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER PELVIS X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVXGB FILTER: CH. CLASS 1000

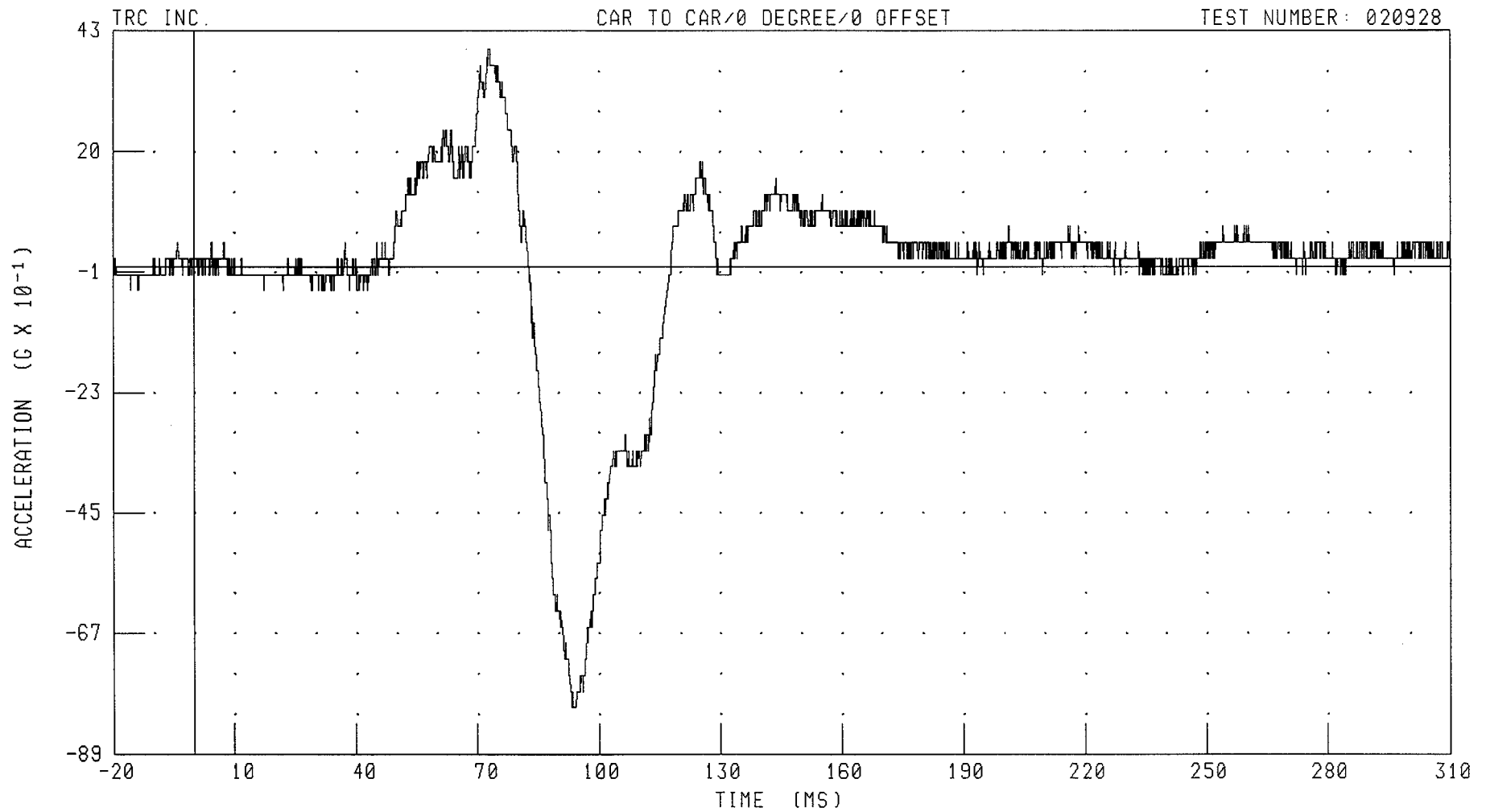
PEAK DATA: 6.72 G @ 112.16 MS; -27.91 G @ 72.88 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER PELVIS Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVYGB FILTER: CH. CLASS 1000

PEAK DATA: 3.96 G @ 72.56 MS; -8.05 G @ 93.28 MS

B-203

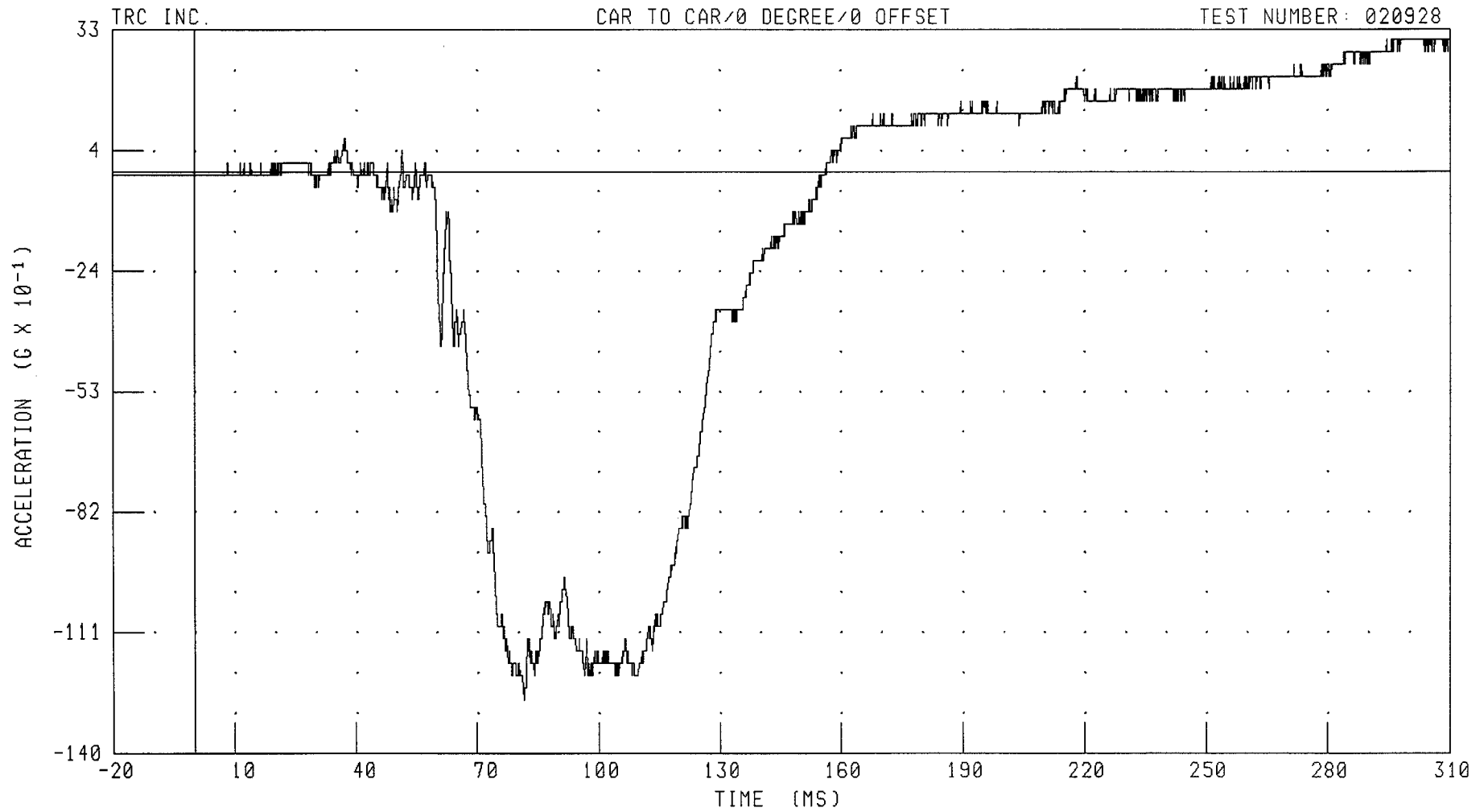
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER PELVIS Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



B-204

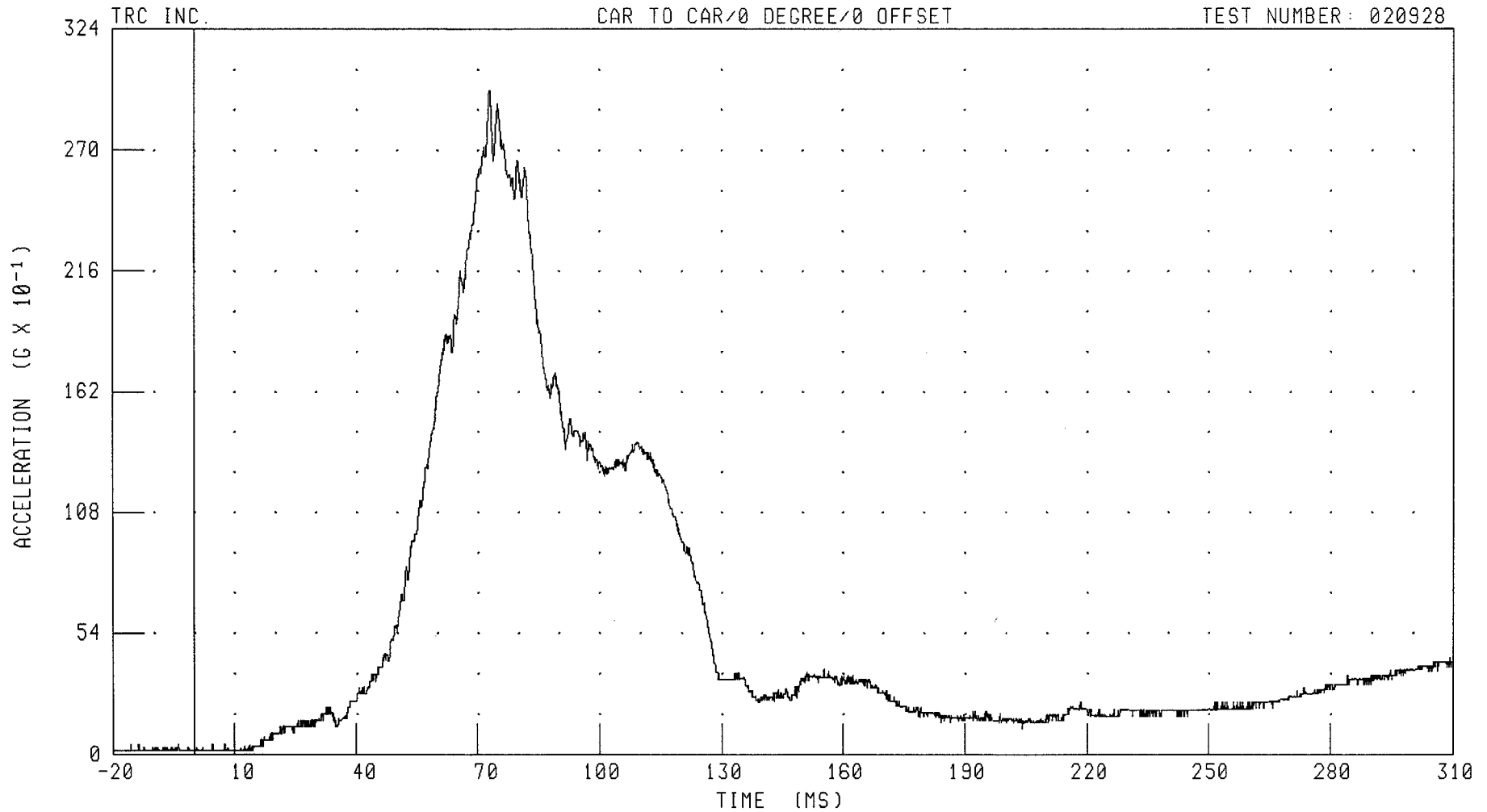
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER PELVIS RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PEVRGB FILTER: CH. CLASS 1000

PEAK DATA: 29.66 G @ 72.88 MS; 0.16 G @ -20.00 MS

B-205

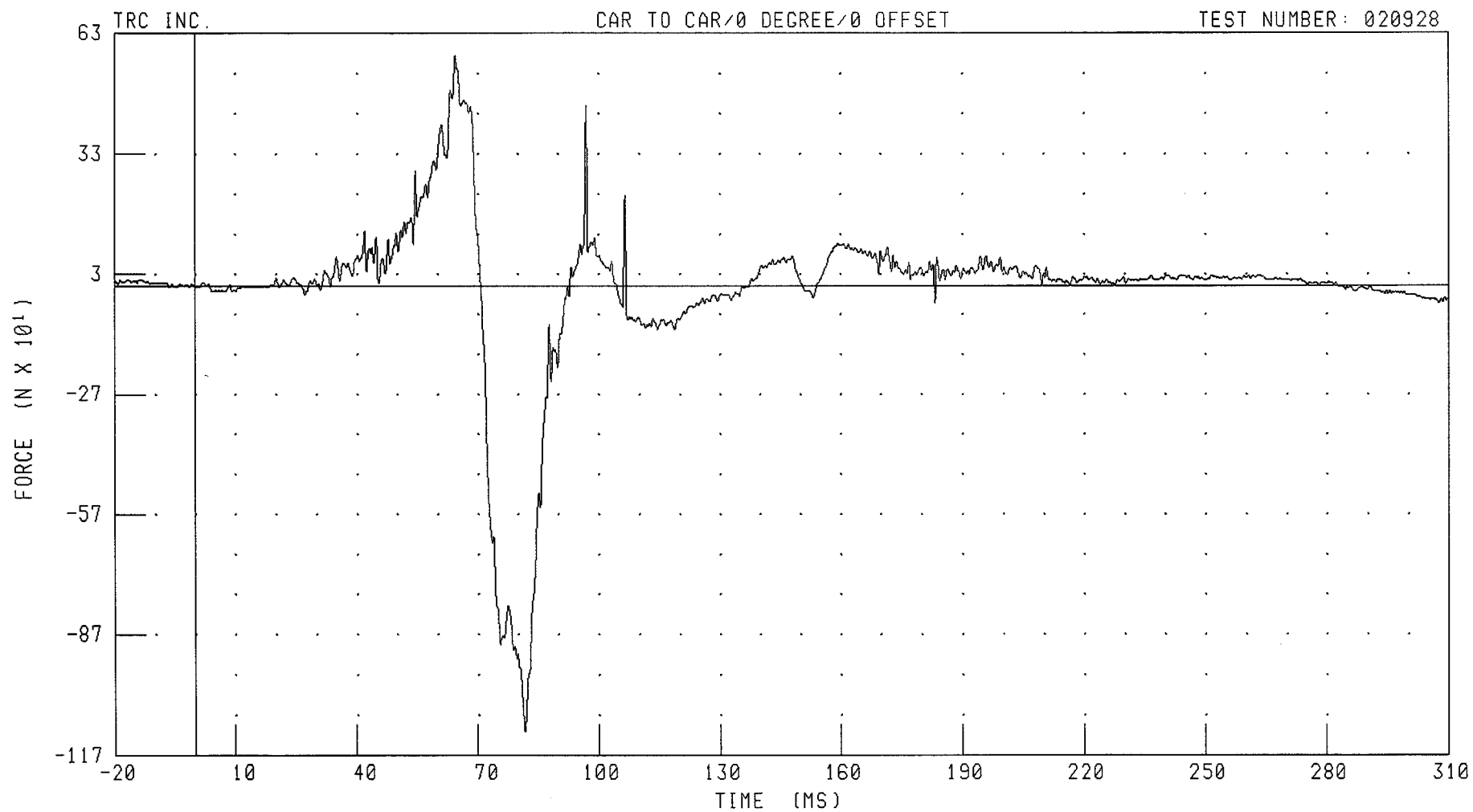
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT FEMUR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LFMZFB FILTER: CH. CLASS 600

B-206

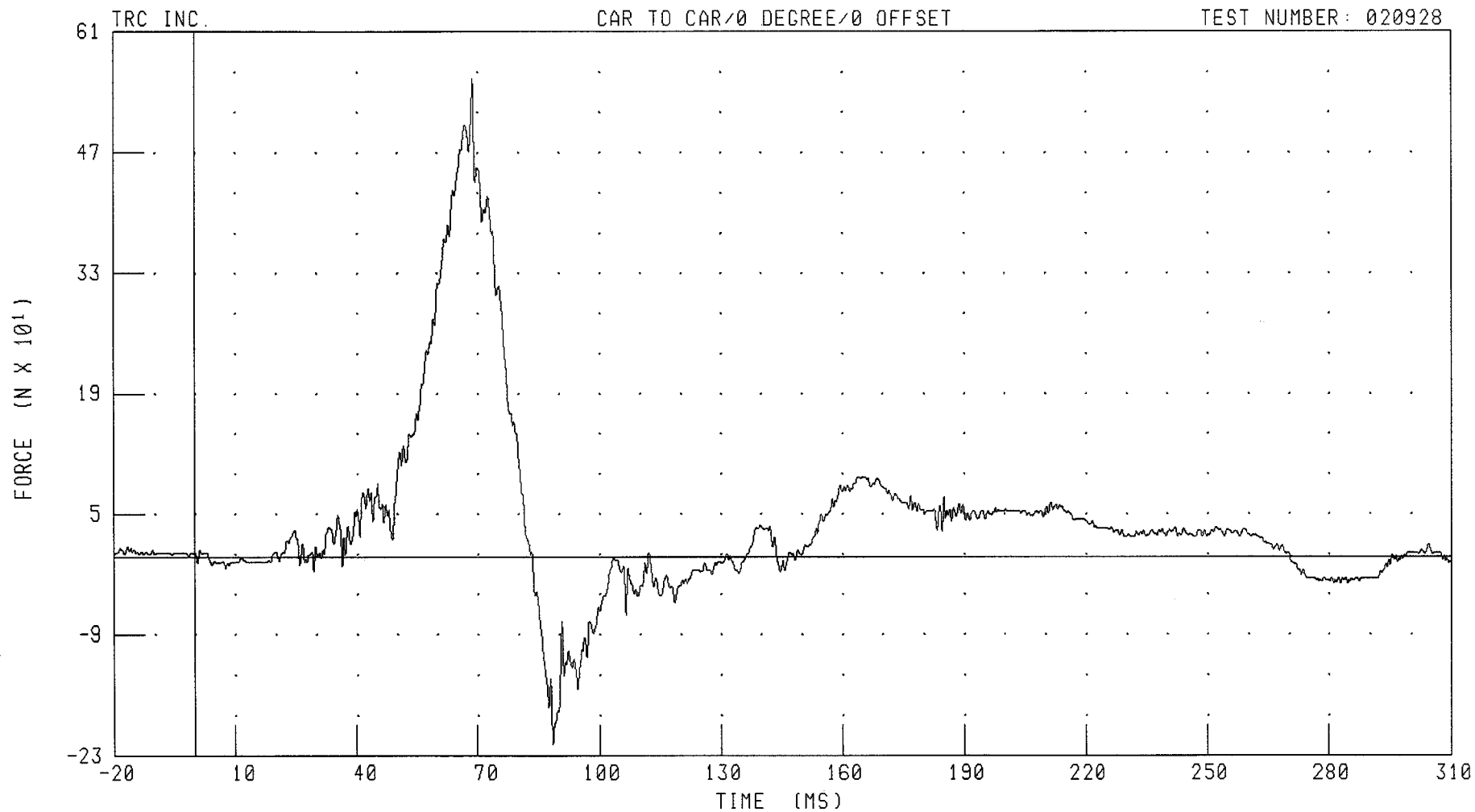
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER RIGHT FEMUR FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RFMZFB FILTER: CH. CLASS 600

PEAK DATA: 555.98 N @ 68.96 MS; -216.59 N @ 88.48 MS

B-207

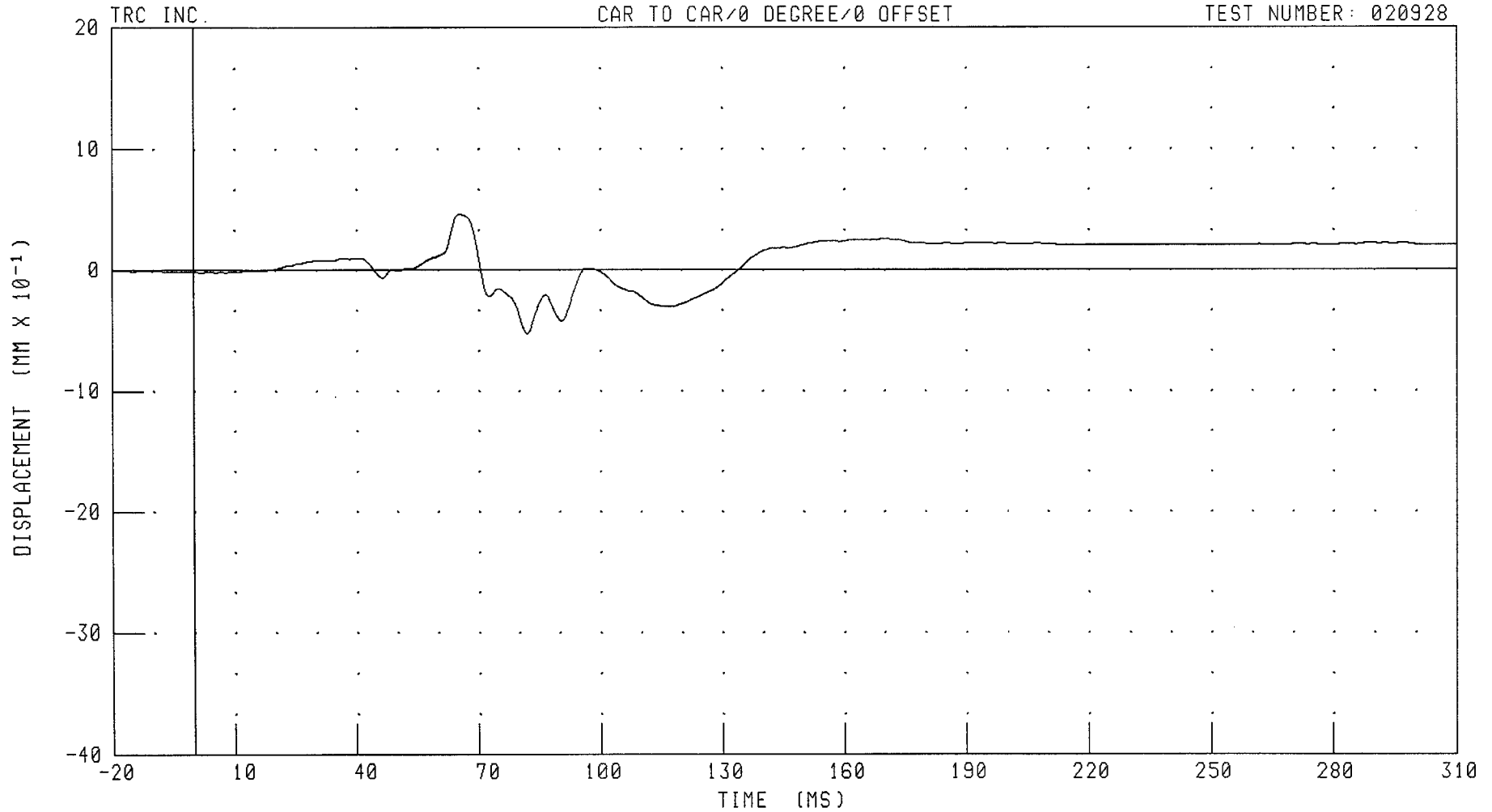
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT KNEE DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: KNLXDB FILTER: CH. CLASS 180

PEAK DATA: 0.46 MM @ 65.44 MS; -0.53 MM @ 82.08 MS

B-208

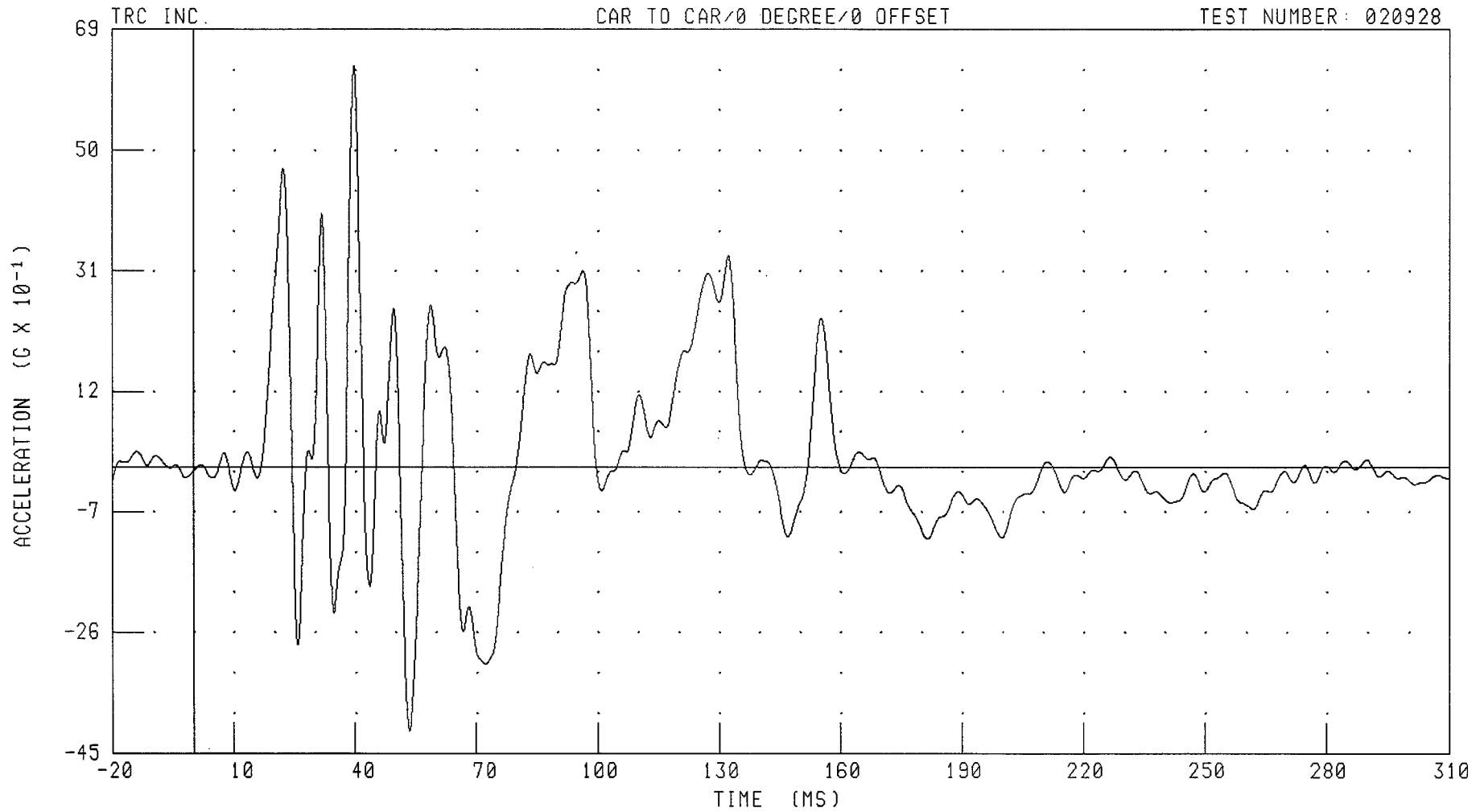
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET RIGHT REAR SILL Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSYGA FILTER: CH. CLASS 60

PEAK DATA: 6.32 G @ 39.84 MS; -4.14 G @ 53.44 MS

B-241

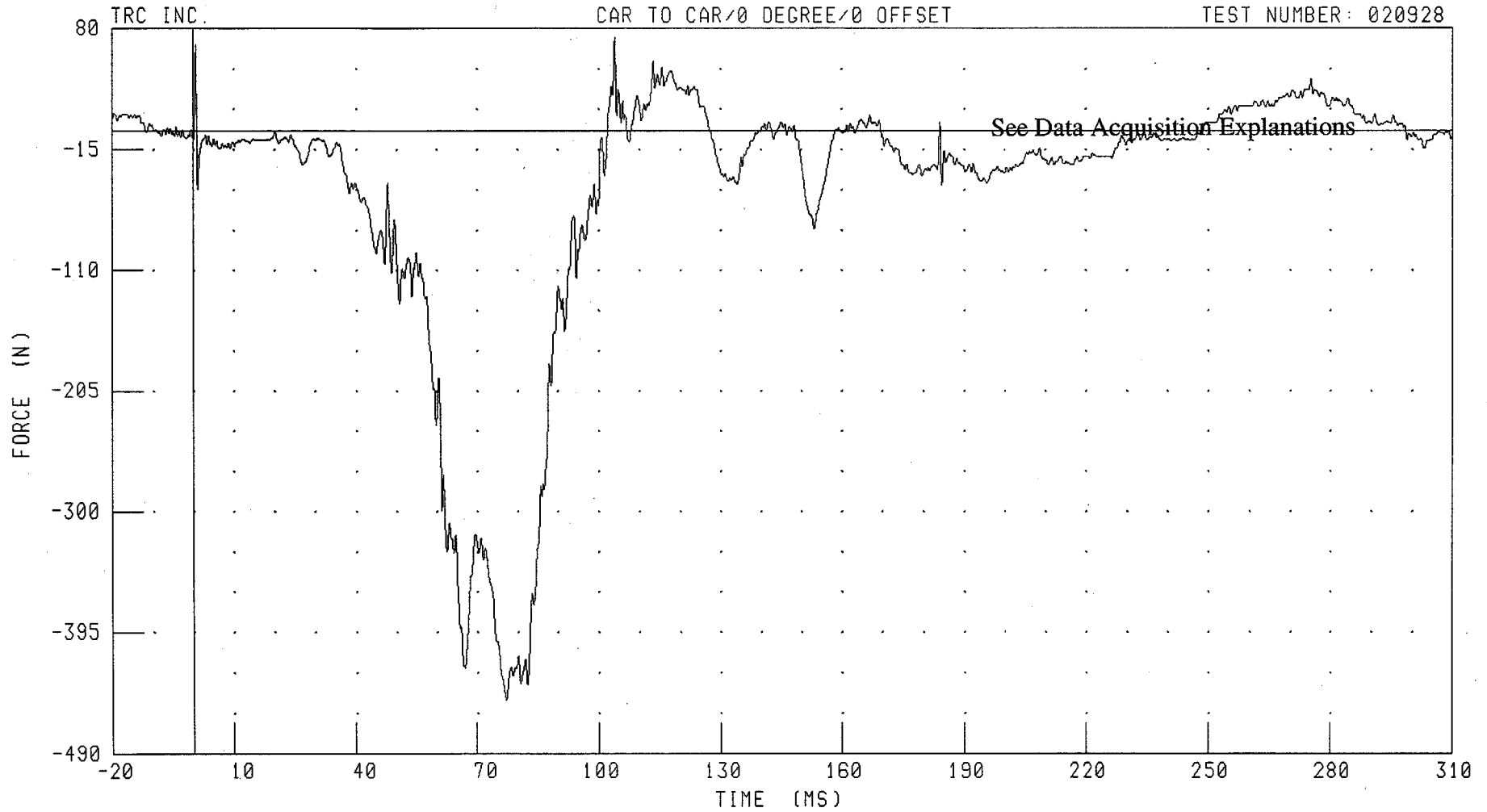
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLZFB FILTER: CH. CLASS 600

PEAK DATA: 72.94 N @ 104.08 MS; -447.98 N @ 77.36 MS

B-210

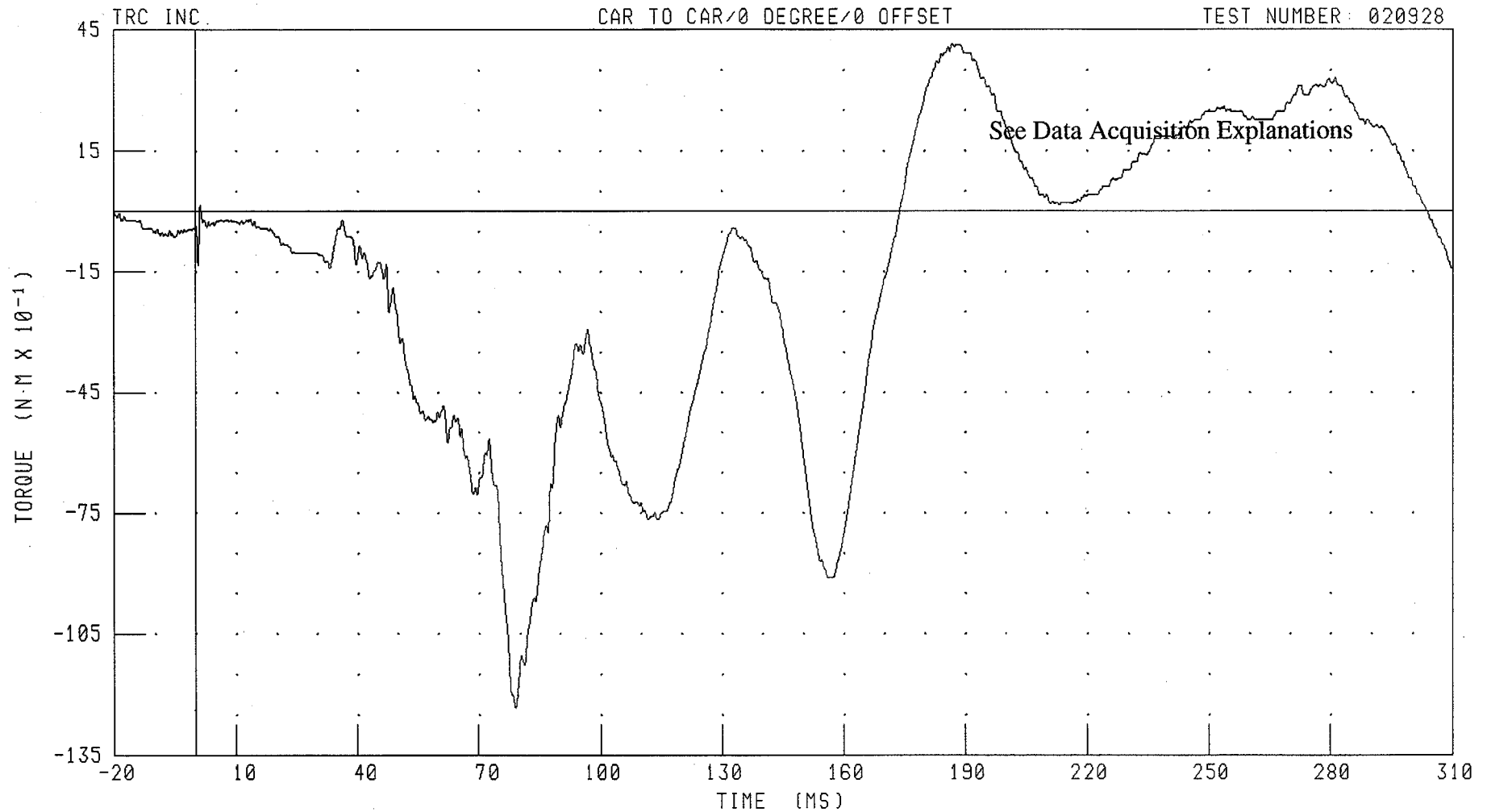
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLXMB

FILTER: CH. CLASS 600

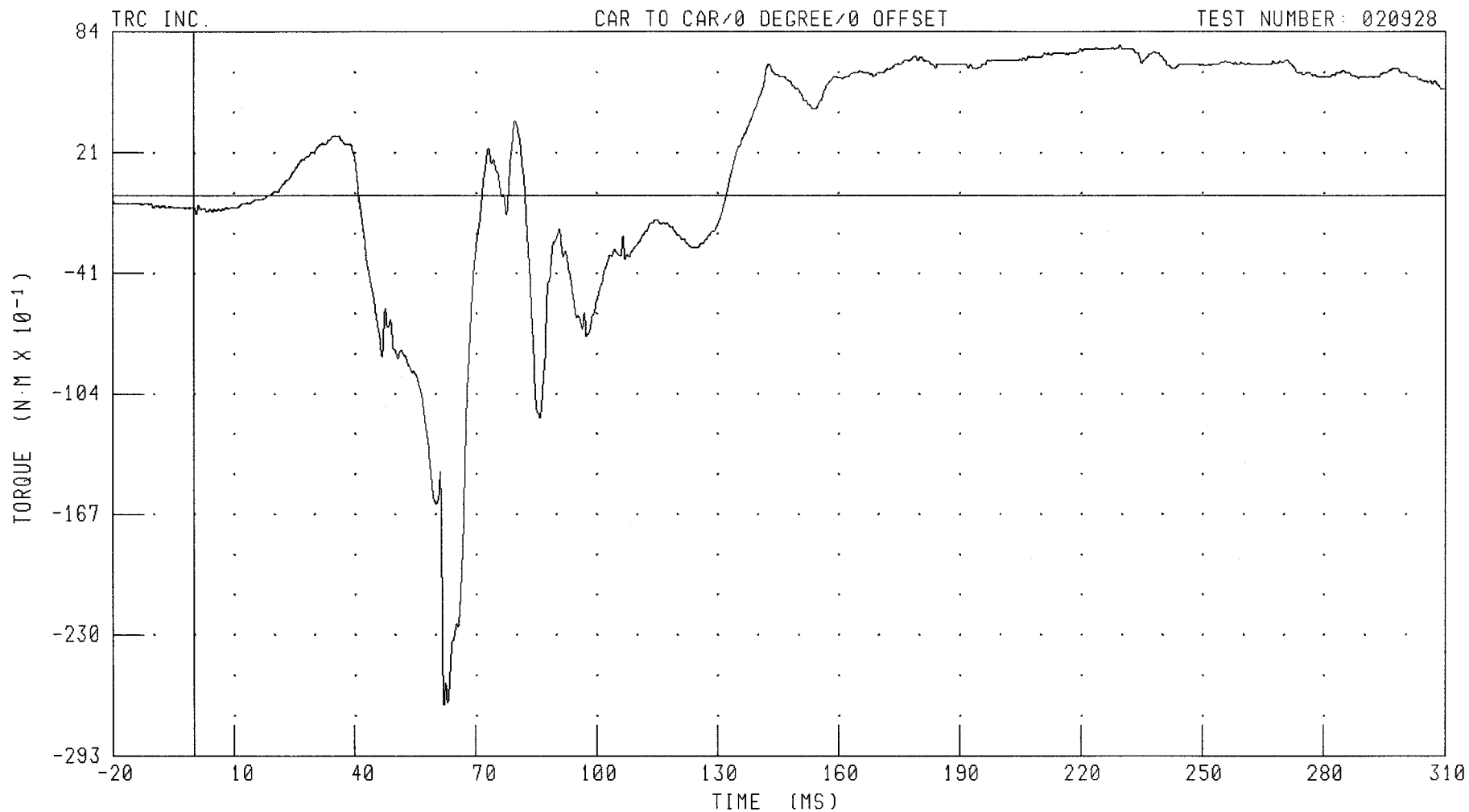
PEAK DATA: 4.14 N·M @ 186.96 MS; -12.34 N·M @ 79.04 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBLYMB FILTER: CH. CLASS 600

PEAK DATA: 7.80 N·M @ 229.76 MS; -26.65 N·M @ 62.08 MS

B-212

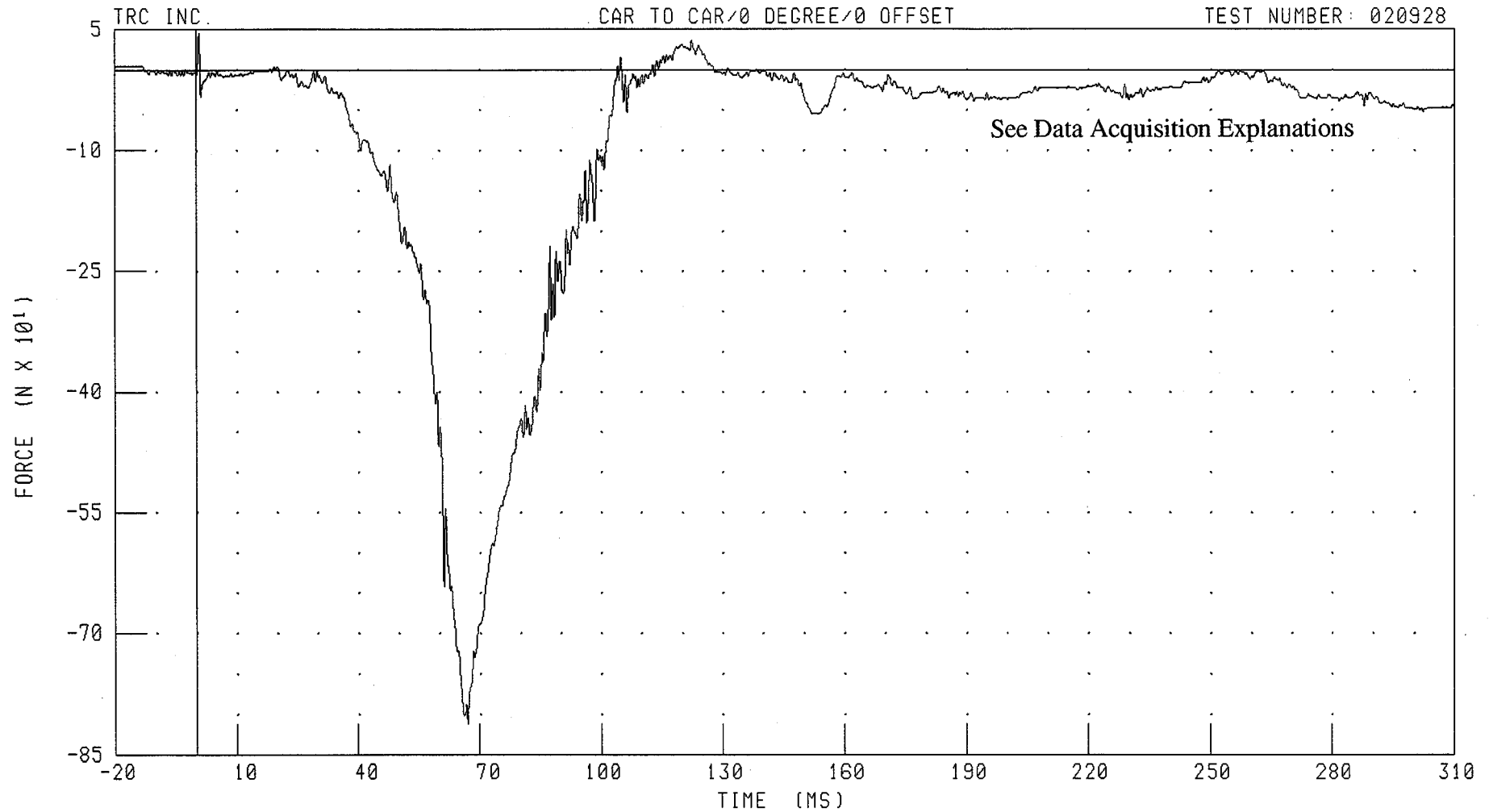
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLZFB FILTER: CH. CLASS 600

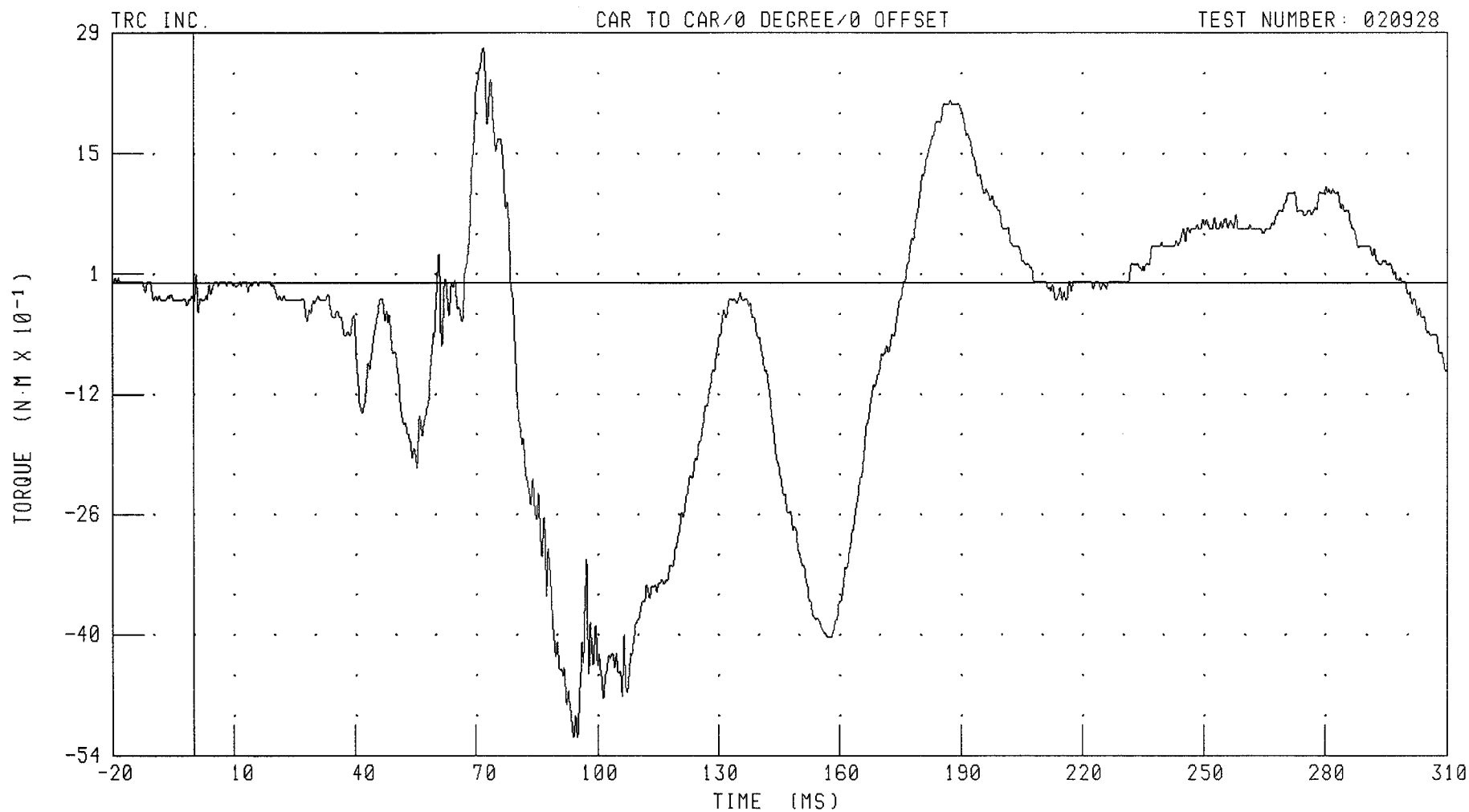
PEAK DATA: 45.87 N @ 0.72 MS; -811.68 N @ 67.04 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLXMB

FILTER: CH. CLASS 600

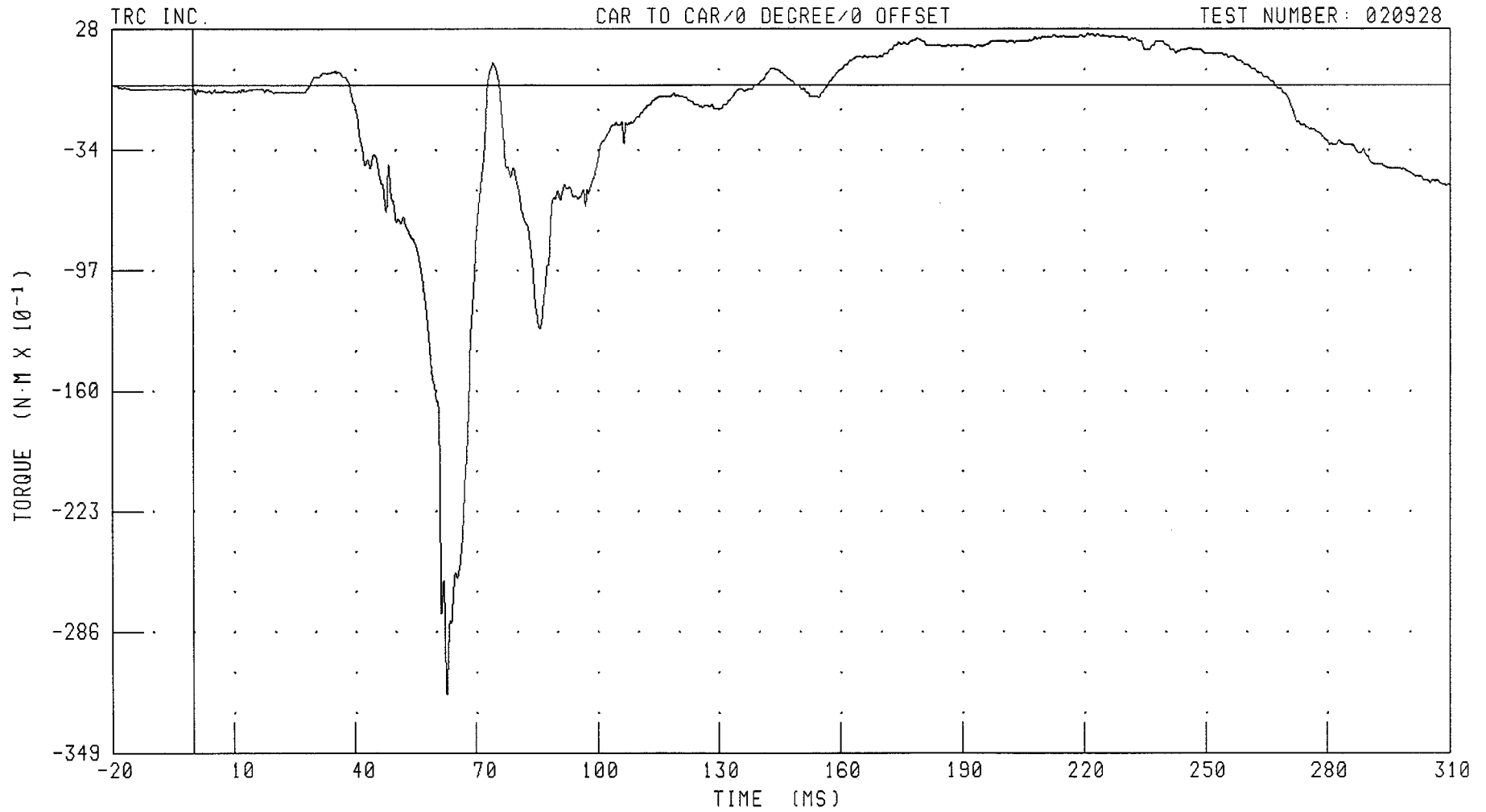
PEAK DATA: 2.72 N·M @ 71.84 MS; -5.29 N·M @ 95.04 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANLYMB FILTER: CH. CLASS 600

PEAK DATA: 2.68 N·M @ 220.96 MS; -31.85 N·M @ 62.64 MS

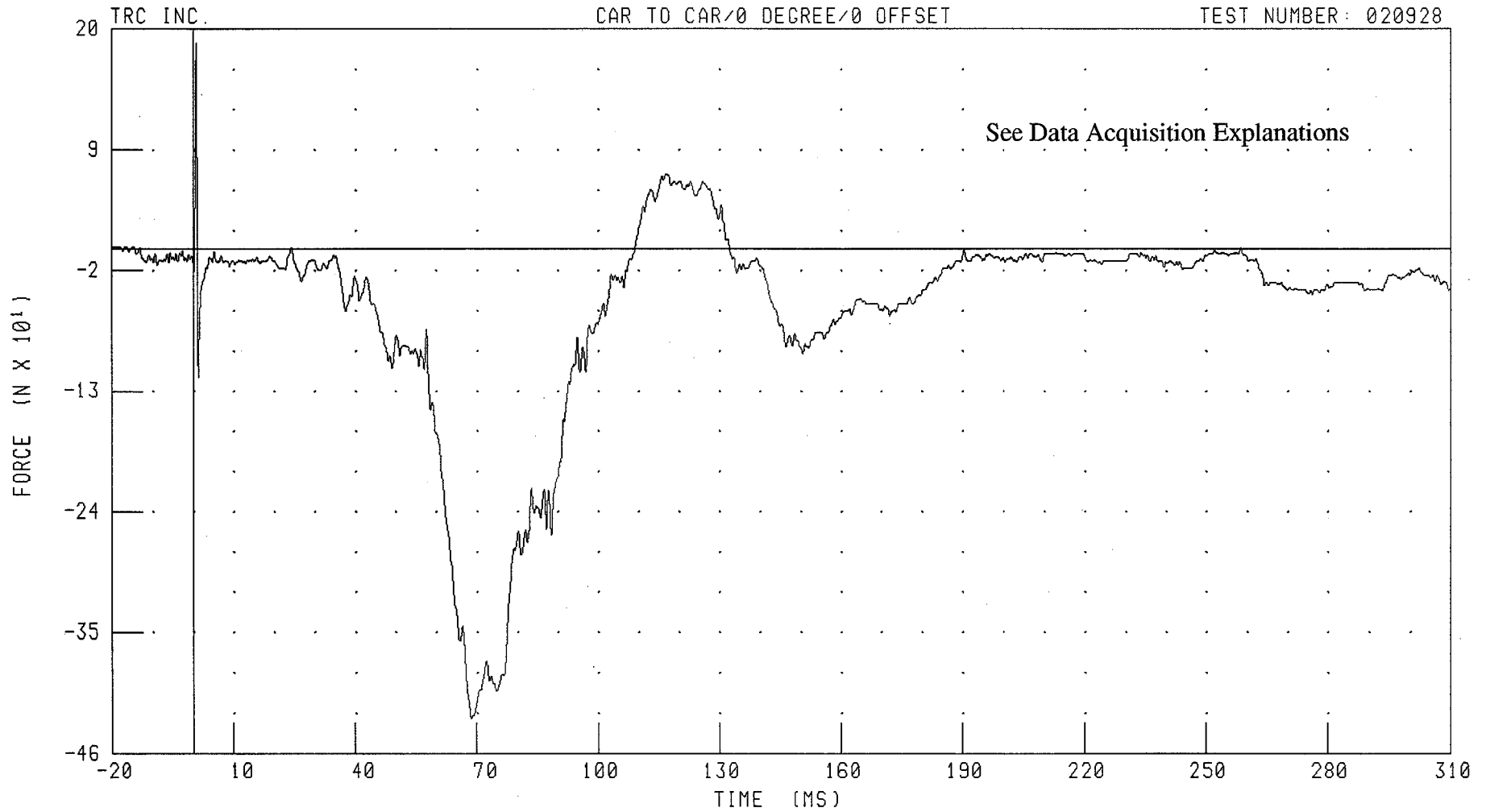
B-215

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
BULLET PASSENGER RIGHT UPPER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRZFB FILTER: CH. CLASS 600

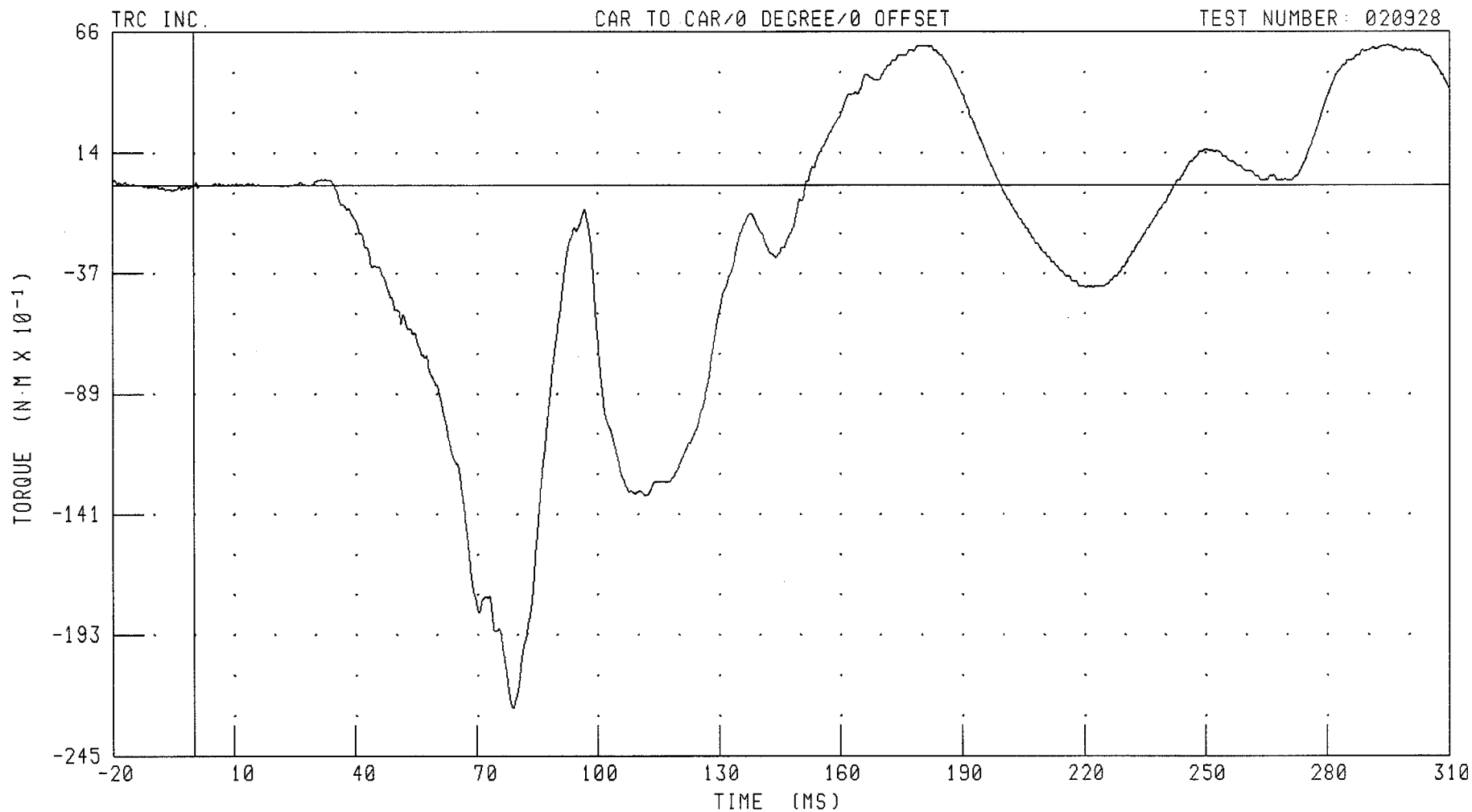
PEAK DATA: 187.44 N @ 0.72 MS; -428.17 N @ 68.64 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRXMB FILTER: CH. CLASS 600

PEAK DATA: 6.05 N·M @ 294.80 MS; -22.53 N·M @ 79.04 MS

B-217

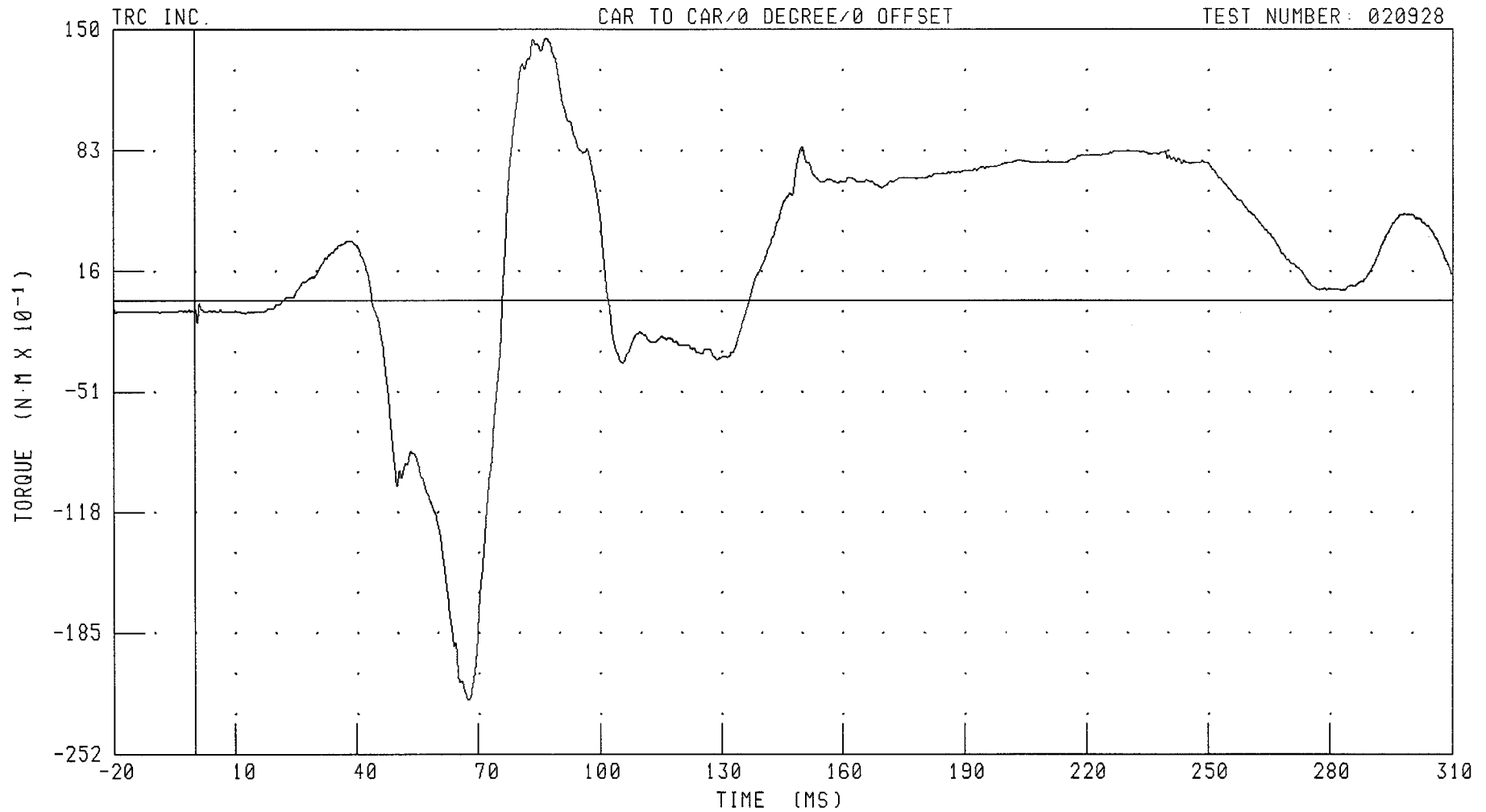
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: TBRYMB FILTER: CH. CLASS 600

PEAK DATA: 14.51 N·M @ 86.96 MS; -22.22 N·M @ 67.60 MS

B-218

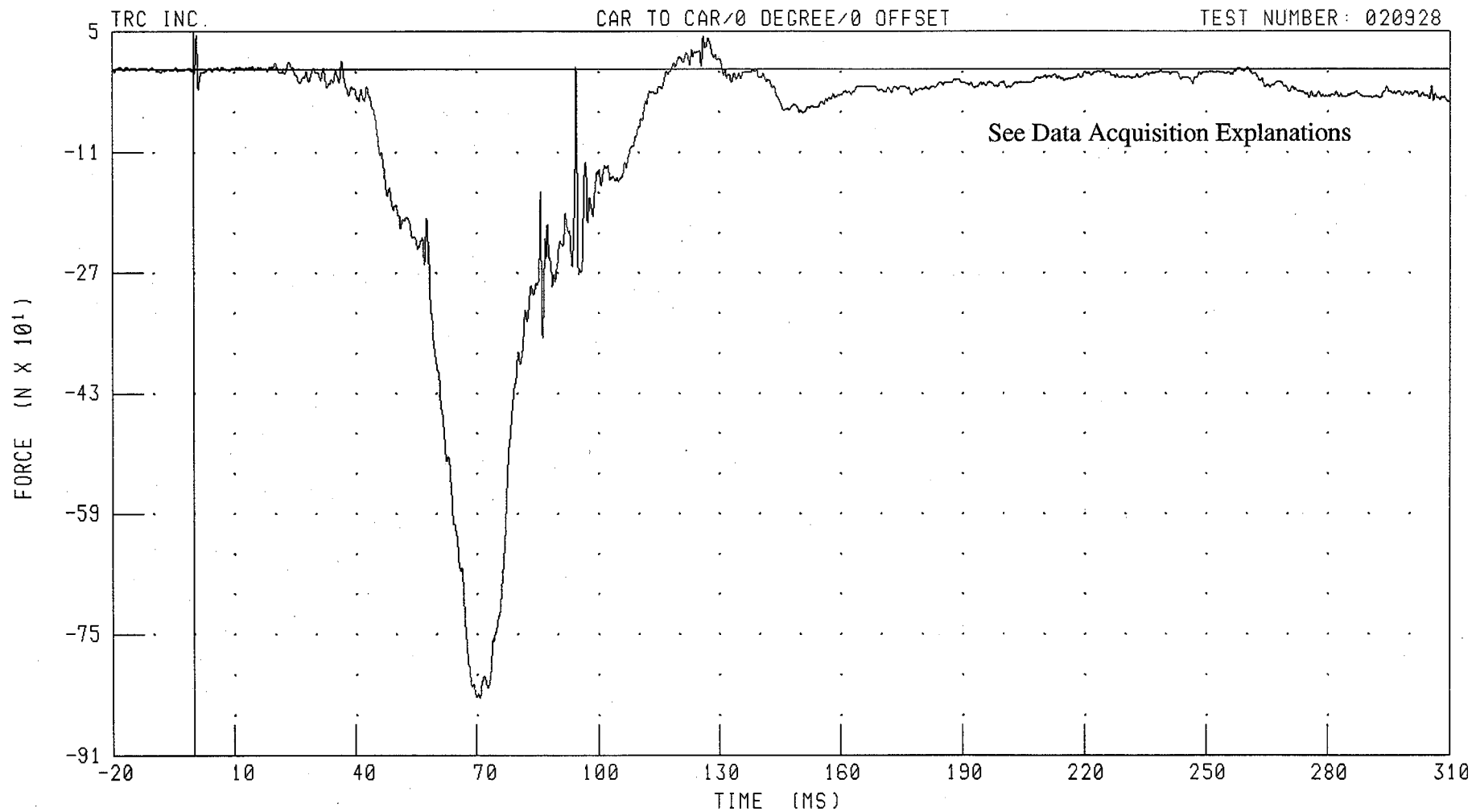
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRZFB FILTER: CH. CLASS 600

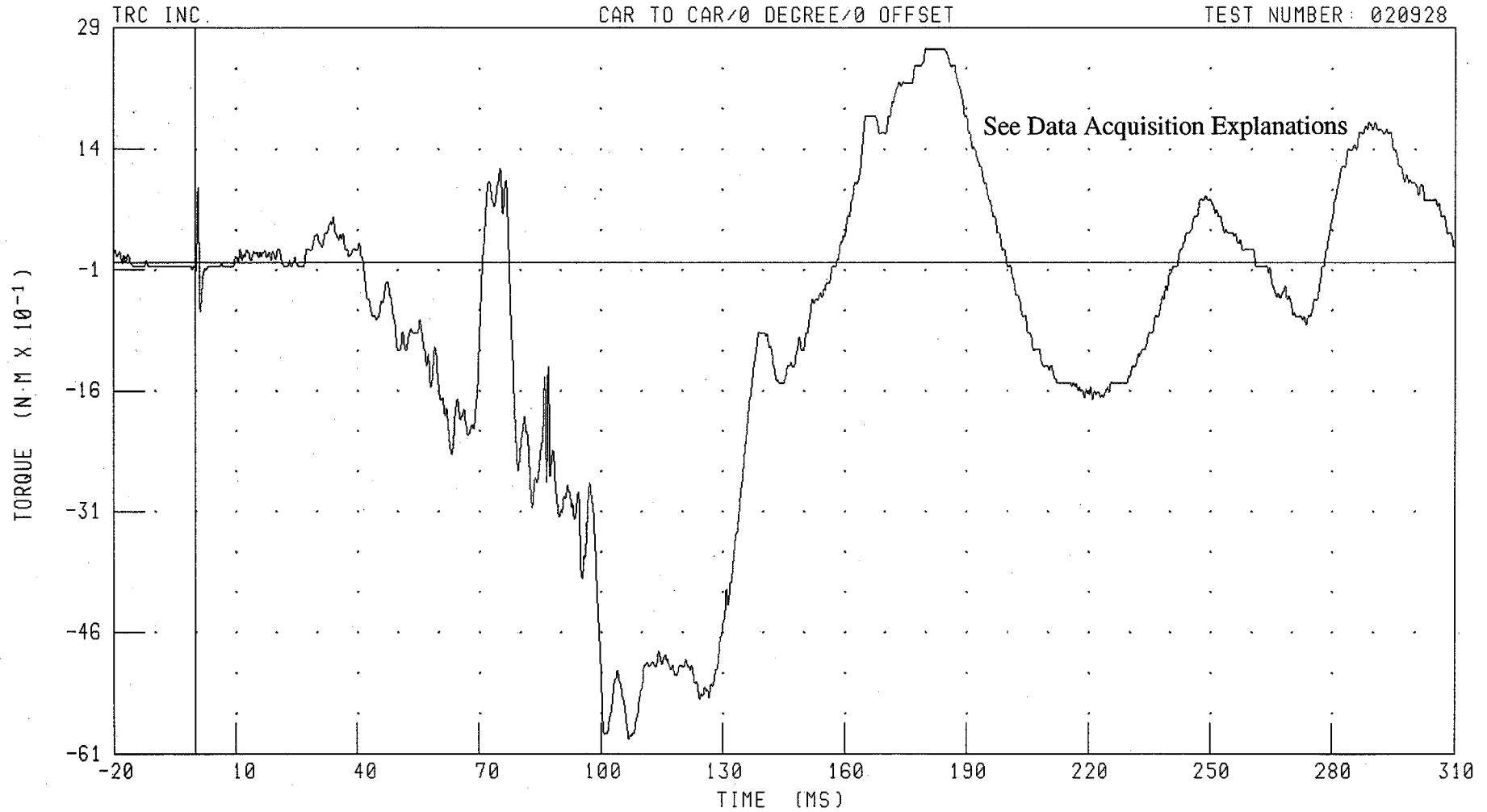
PEAK DATA: 45.48 N @ 0.72 MS; -833.81 N @ 70.80 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRXMB FILTER: CH. CLASS 600

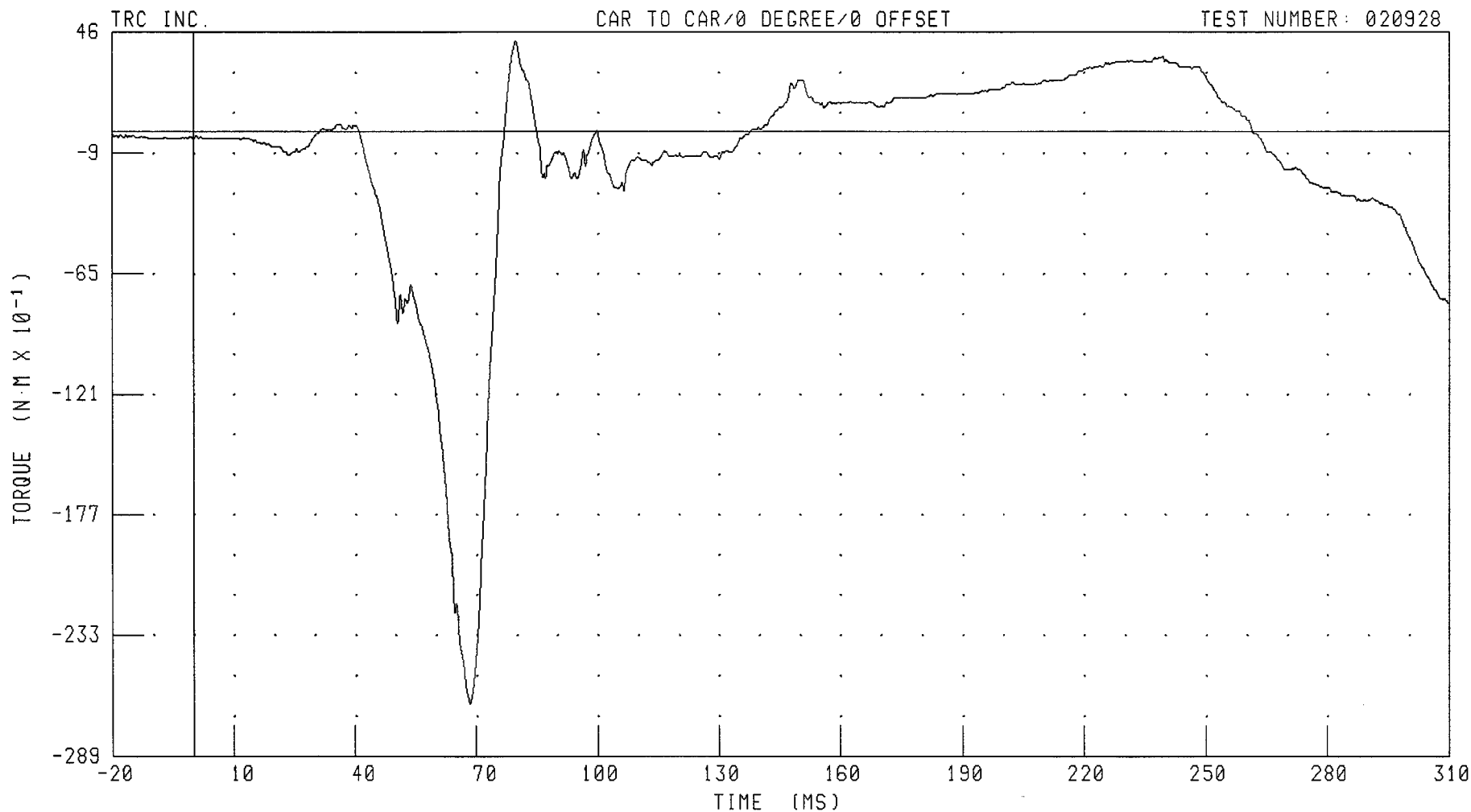
PEAK DATA: 2.64 N·M @ 180.32 MS; -5.92 N·M @ 106.88 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: ANRYMB FILTER: CH. CLASS 600

PEAK DATA: 4.19 N·M @ 79.76 MS; -26.57 N·M @ 68.40 MS

B-221

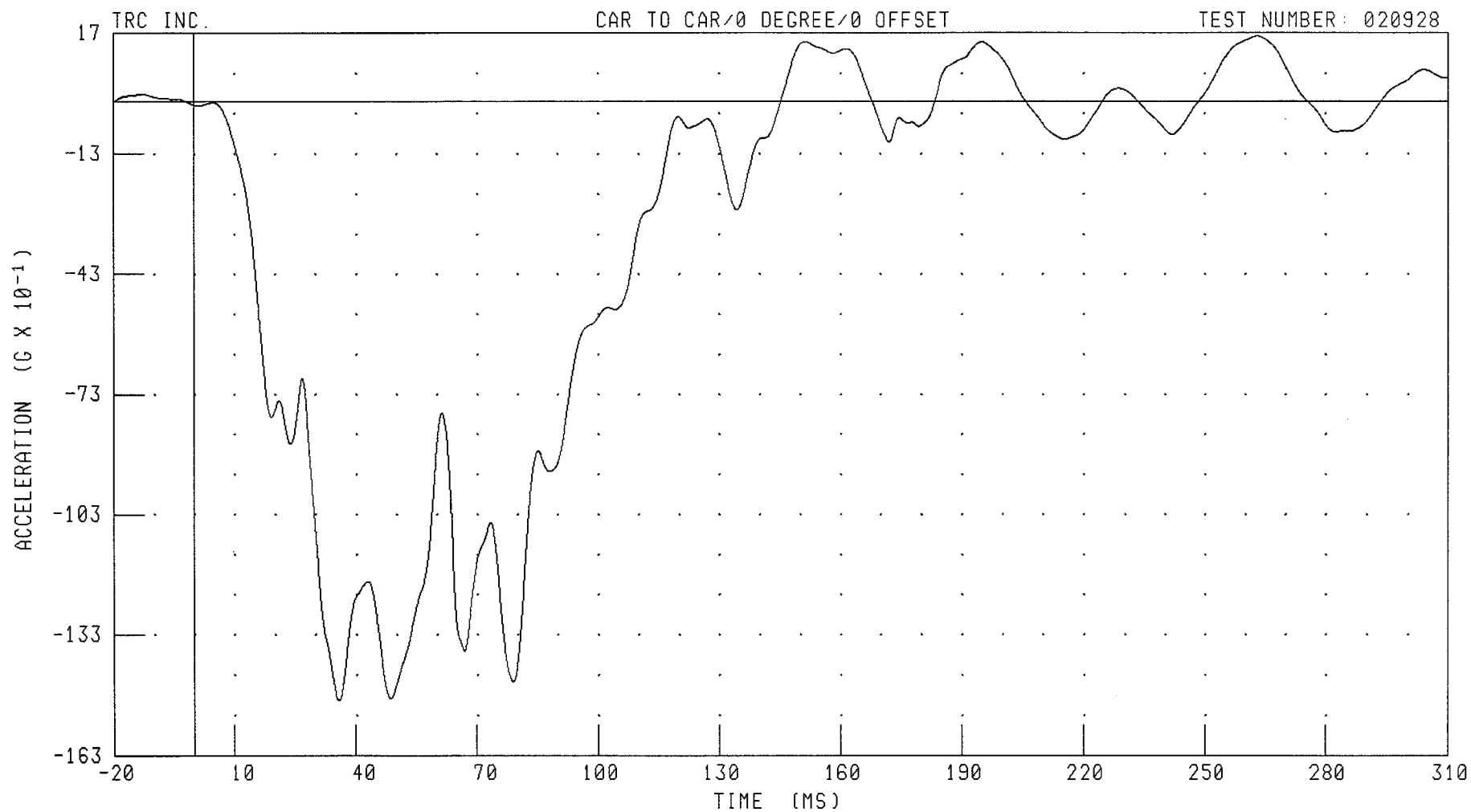
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGXGA FILTER: CH. CLASS 60

PEAK DATA: 1.62 G @ 263.12 MS; -14.94 G @ 35.76 MS

B-222

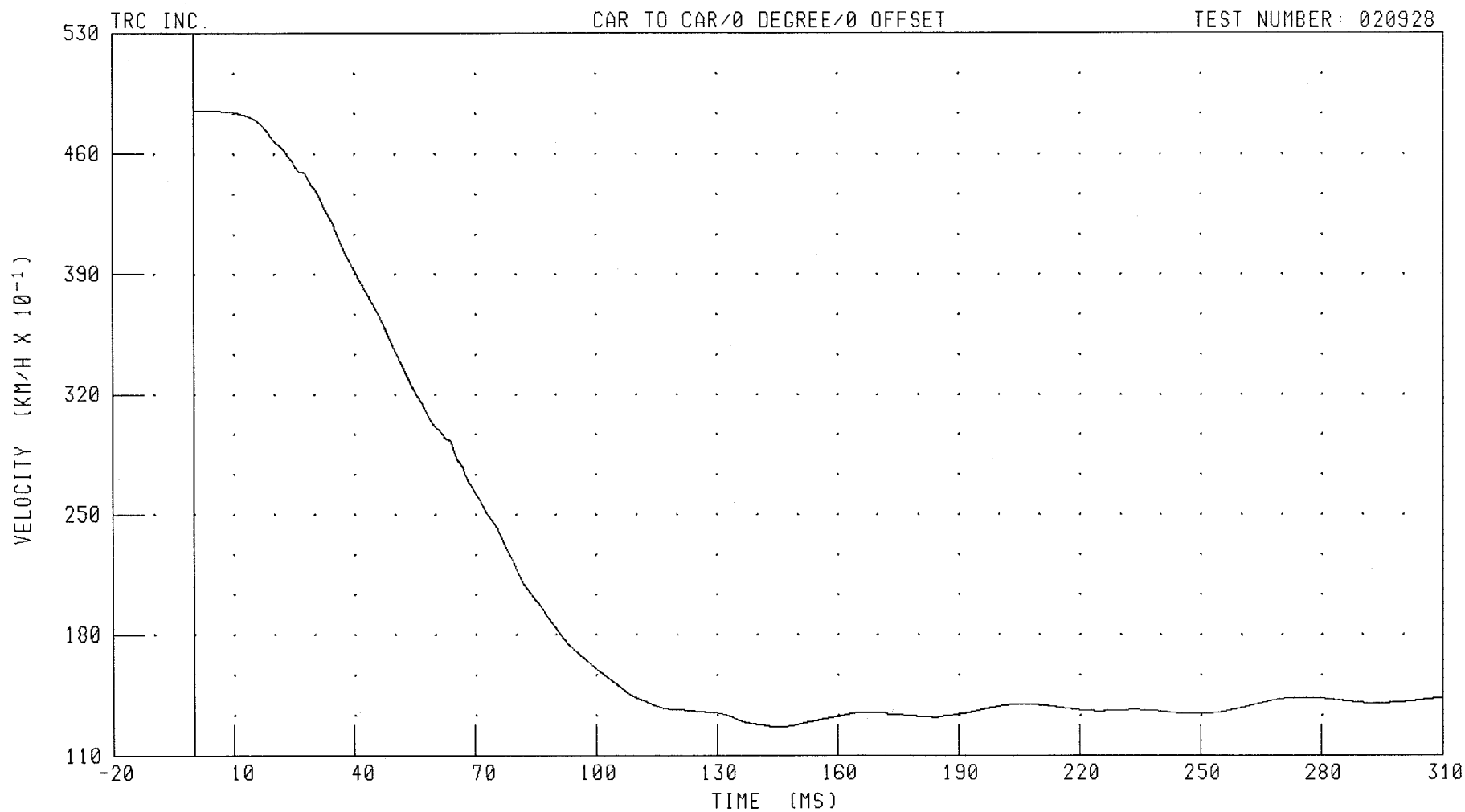
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGXVA FILTER: CH. CLASS 180

PEAK DATA: 48.50 KM/H @ 0.00 MS; 12.65 KM/H @ 144.64 MS

B-223

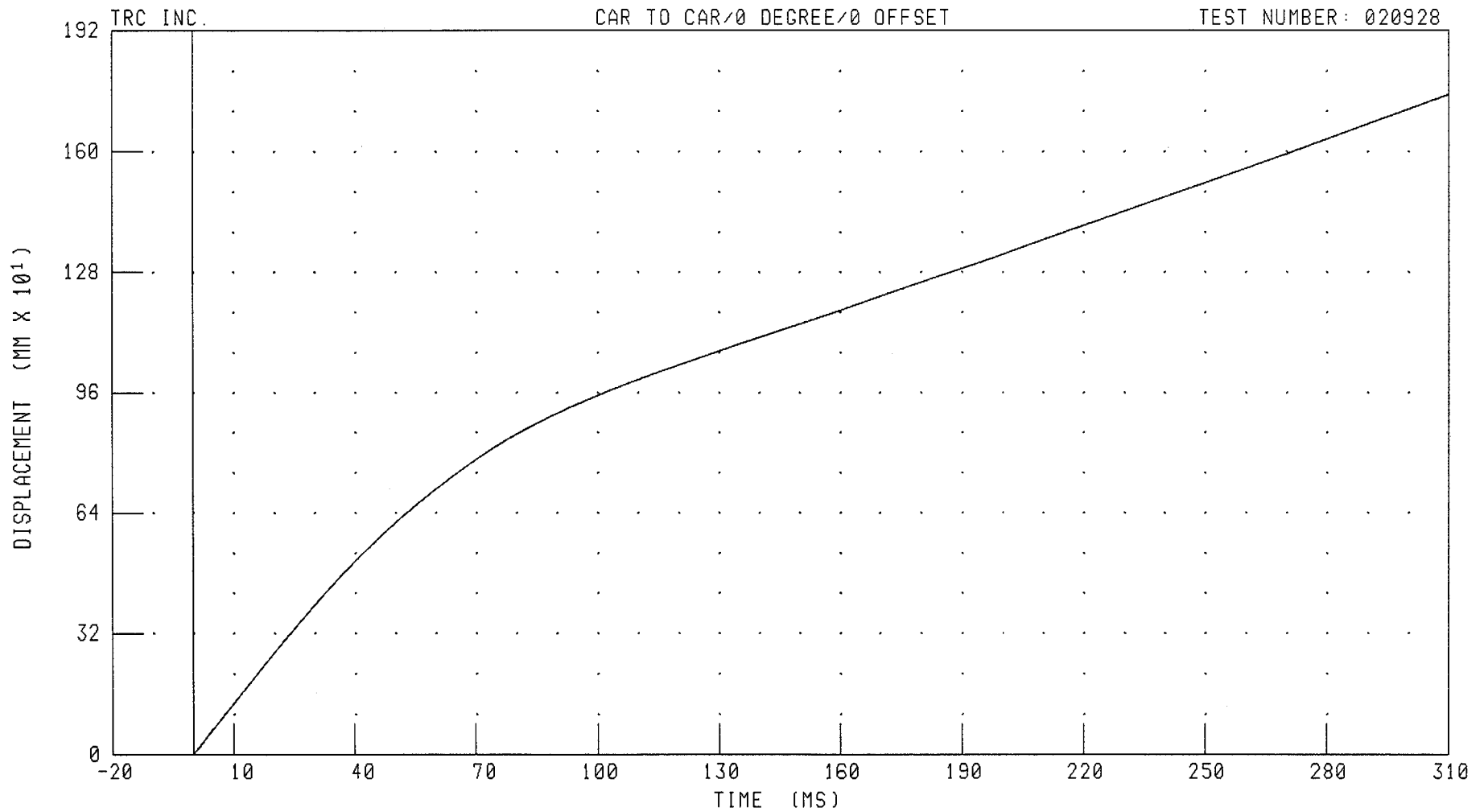
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGXDA FILTER: CH. CLASS 180

PEAK DATA: 1751.20 MM @ 310.00 MS; 0.00 MM @ 0.00 MS

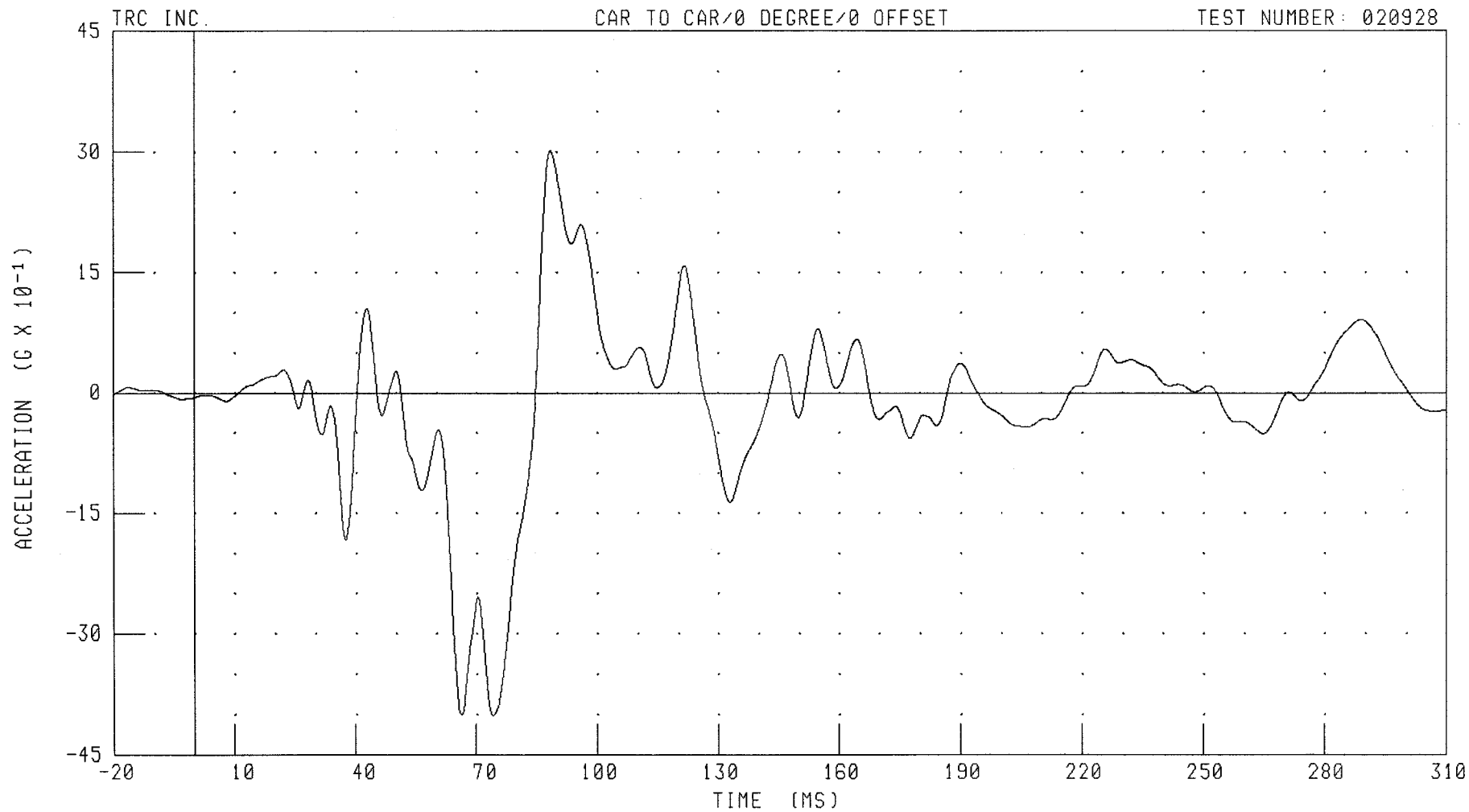
B-224

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
BULLET VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGYGA FILTER: CH. CLASS 60

B-225

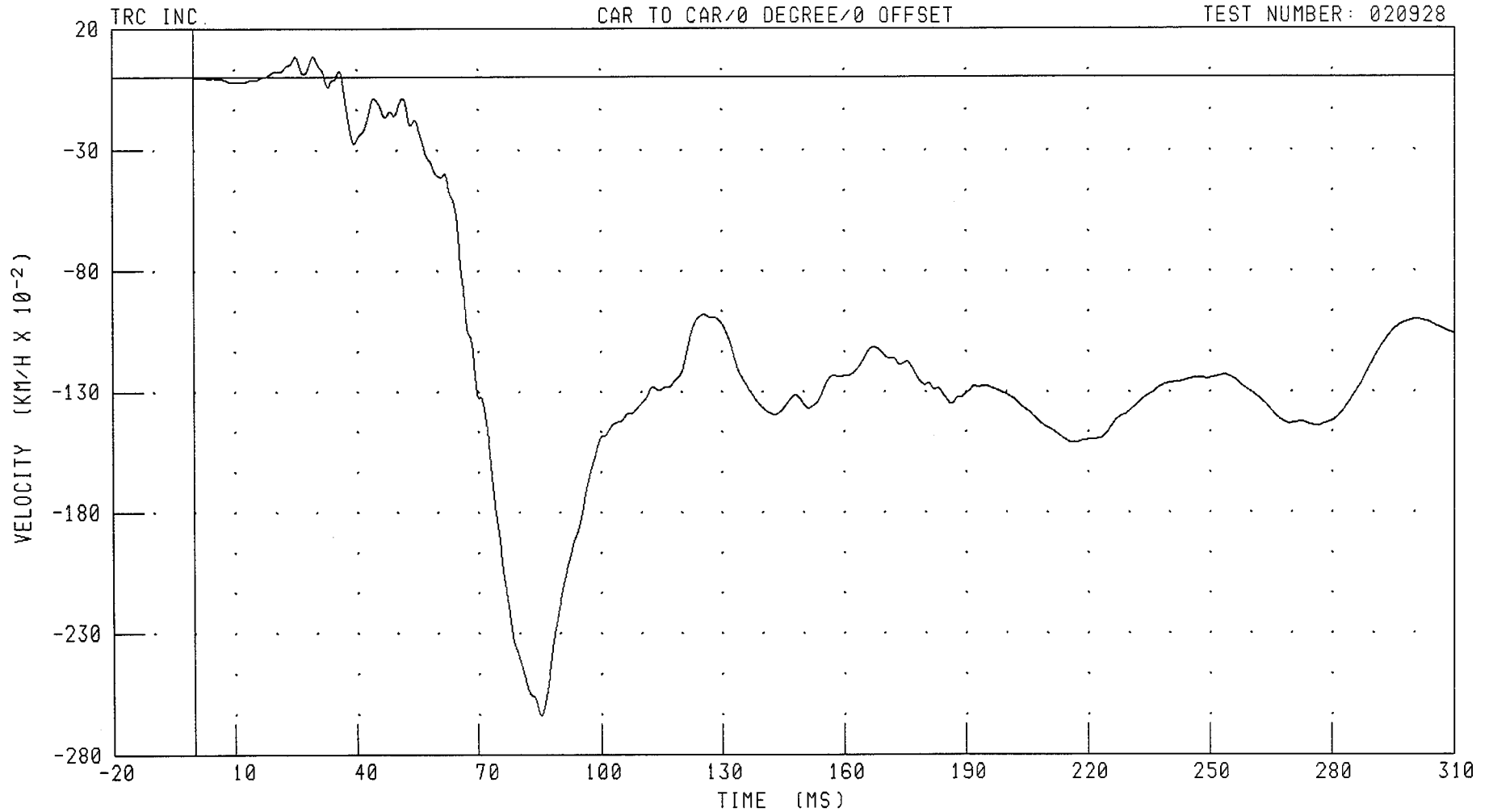
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGYVA FILTER: CH. CLASS 180

PEAK DATA: 0.09 KM/H @ 29.44 MS; -2.64 KM/H @ 85.36 MS

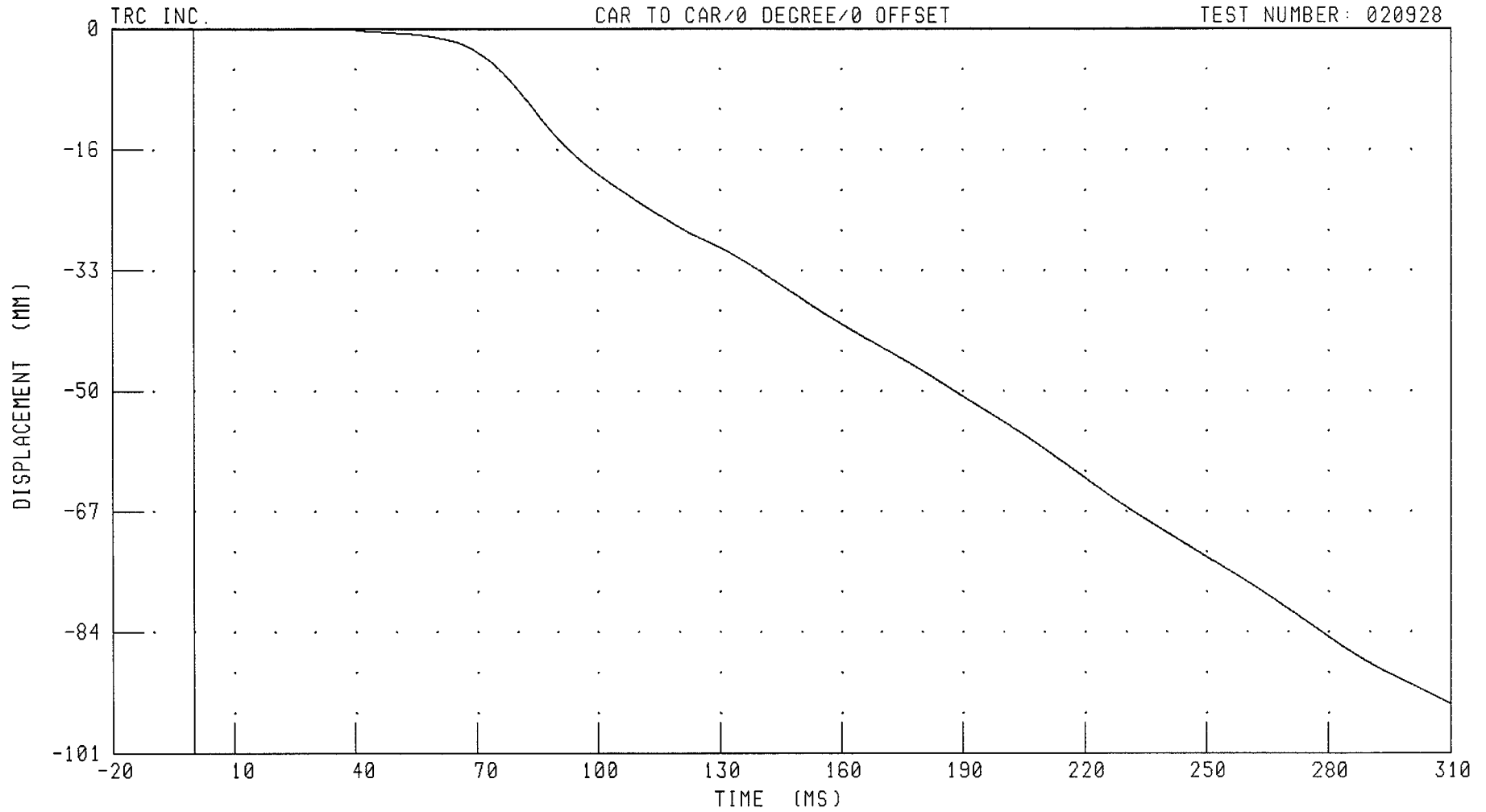
B-226

020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES
BULLET VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCCYDA FILTER: CH. CLASS 180

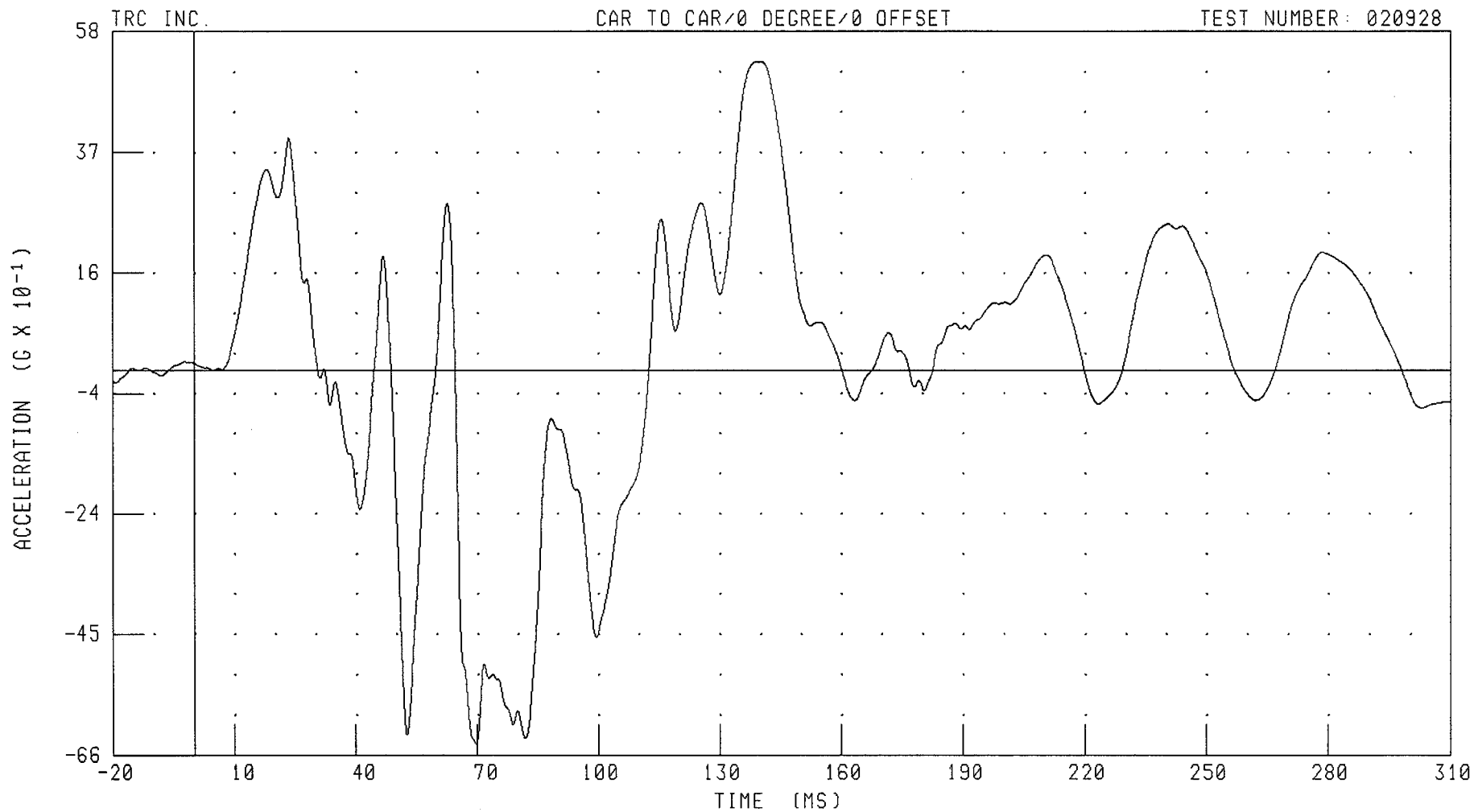
PEAK DATA: 0.11 MM @ 32.16 MS; -95.04 MM @ 310.00 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGZGA FILTER: CH. CLASS 60

B-228

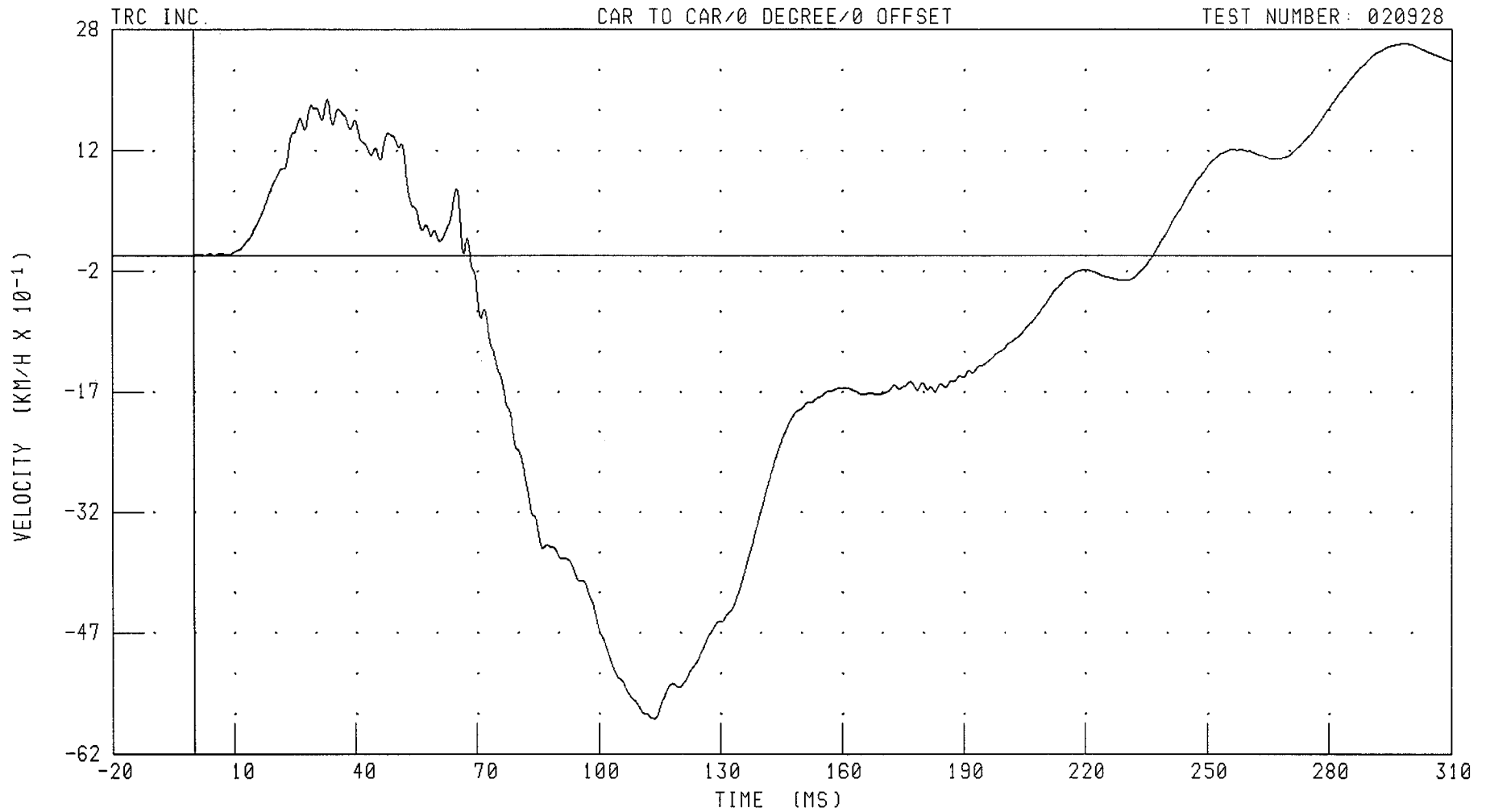
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGZVA FILTER: CH. CLASS 180

PEAK DATA: 2.62 KM/H @ 298.08 MS; -5.77 KM/H @ 113.68 MS

B-229

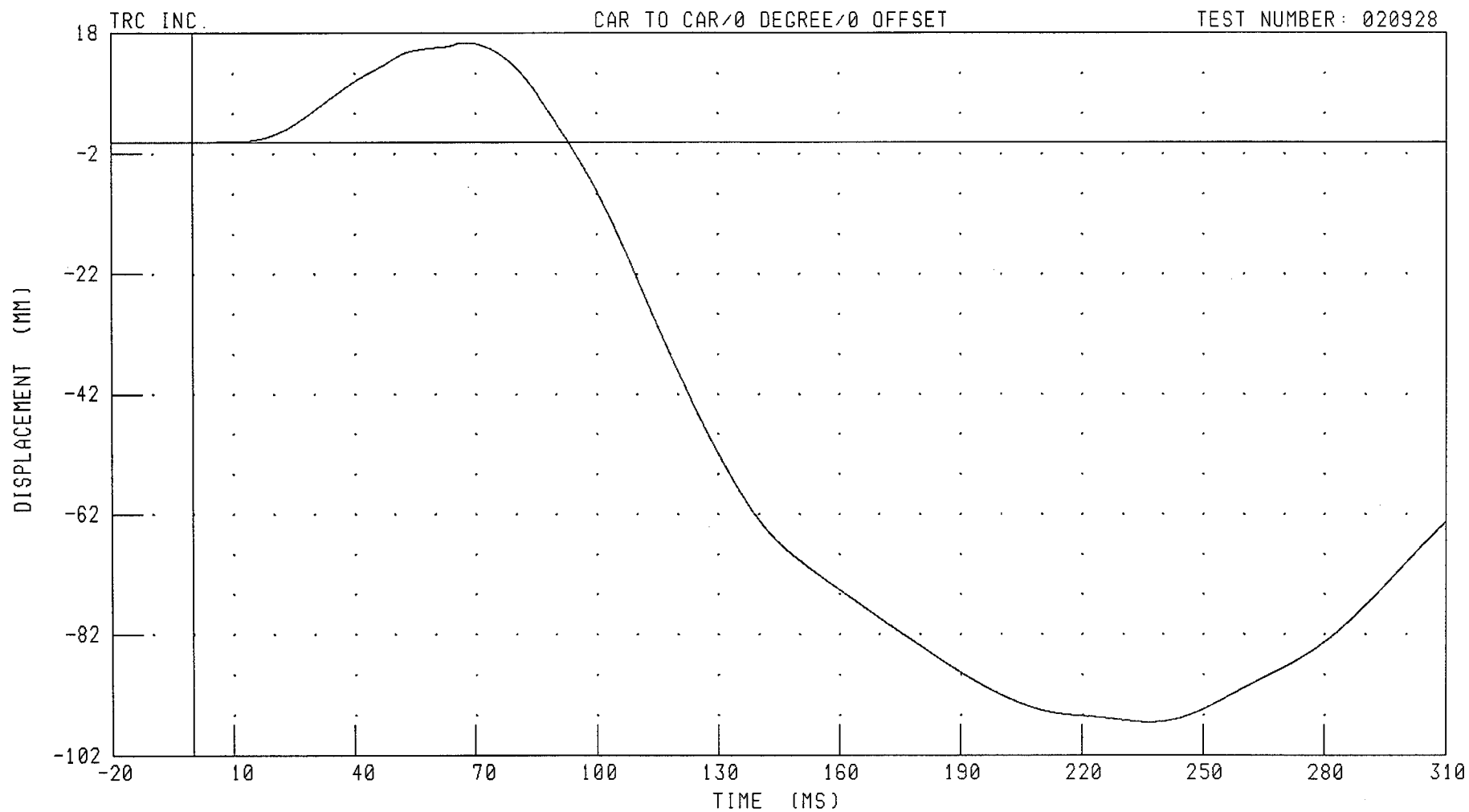
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY Z-AXIS DISPLACEMENT

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGZDA FILTER: CH. CLASS 100

PEAK DATA: 16.39 MM @ 68.32 MS; -96.55 MM @ 236.64 MS

B-230

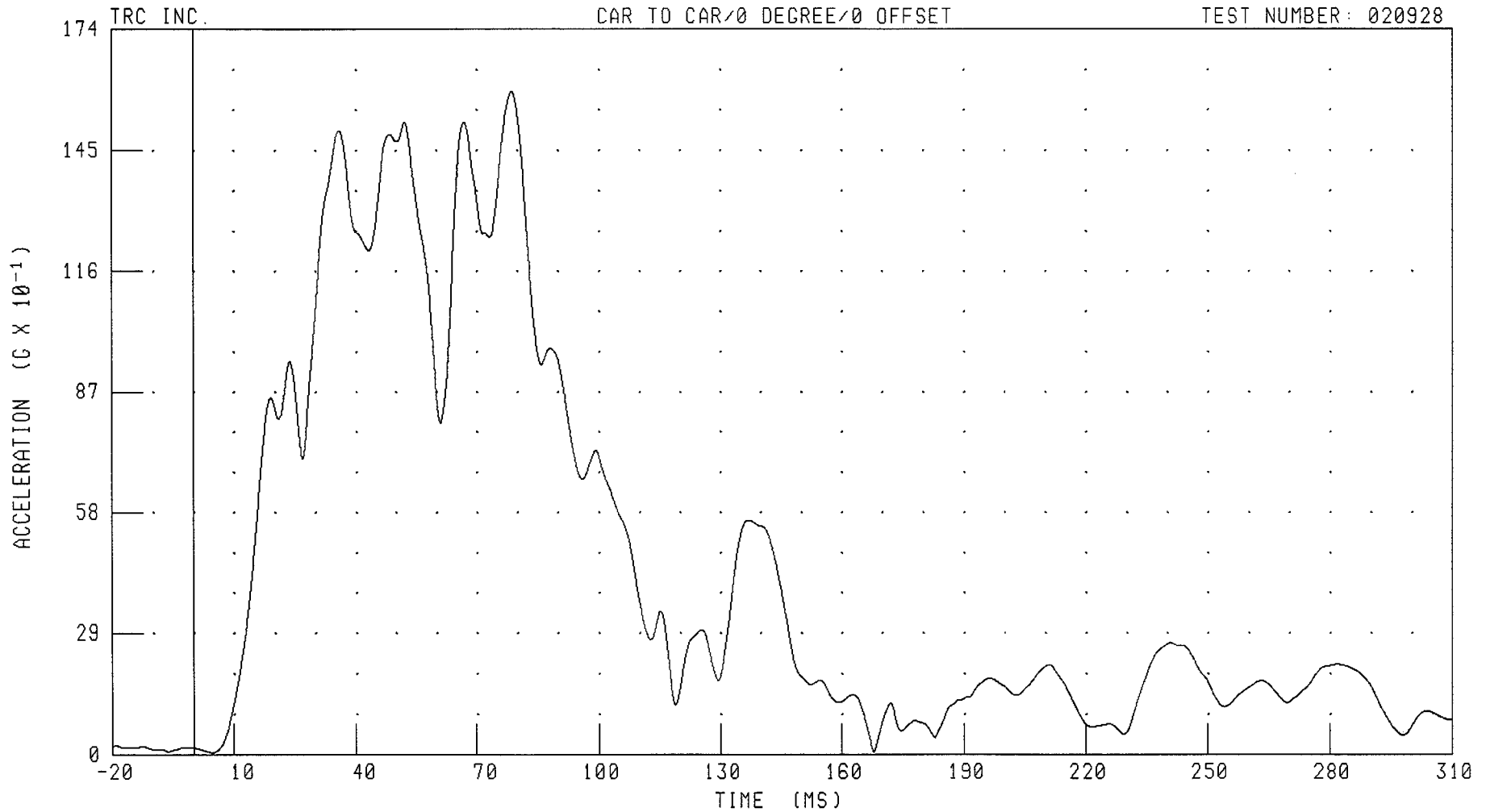
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: VCGRGA FILTER: CH. CLASS 60

PEAK DATA: 15.92 G @ 78.72 MS; 0.04 G @ 4.40 MS

B-231

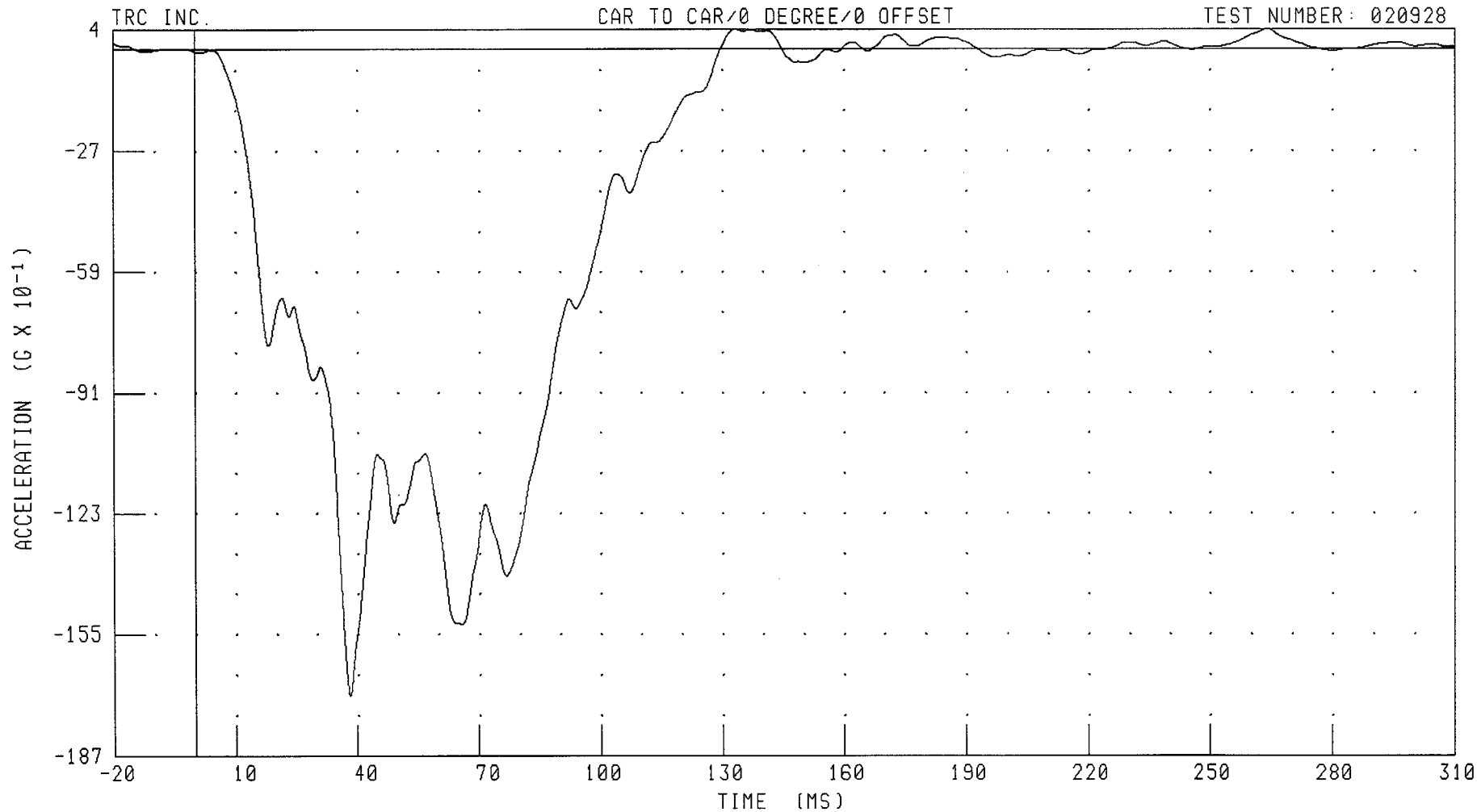
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET REAR DECK X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKXGA FILTER: CH. CLASS 60

PEAK DATA: 0.51 G @ 264.00 MS; -17.12 G @ 38.24 MS

B-232

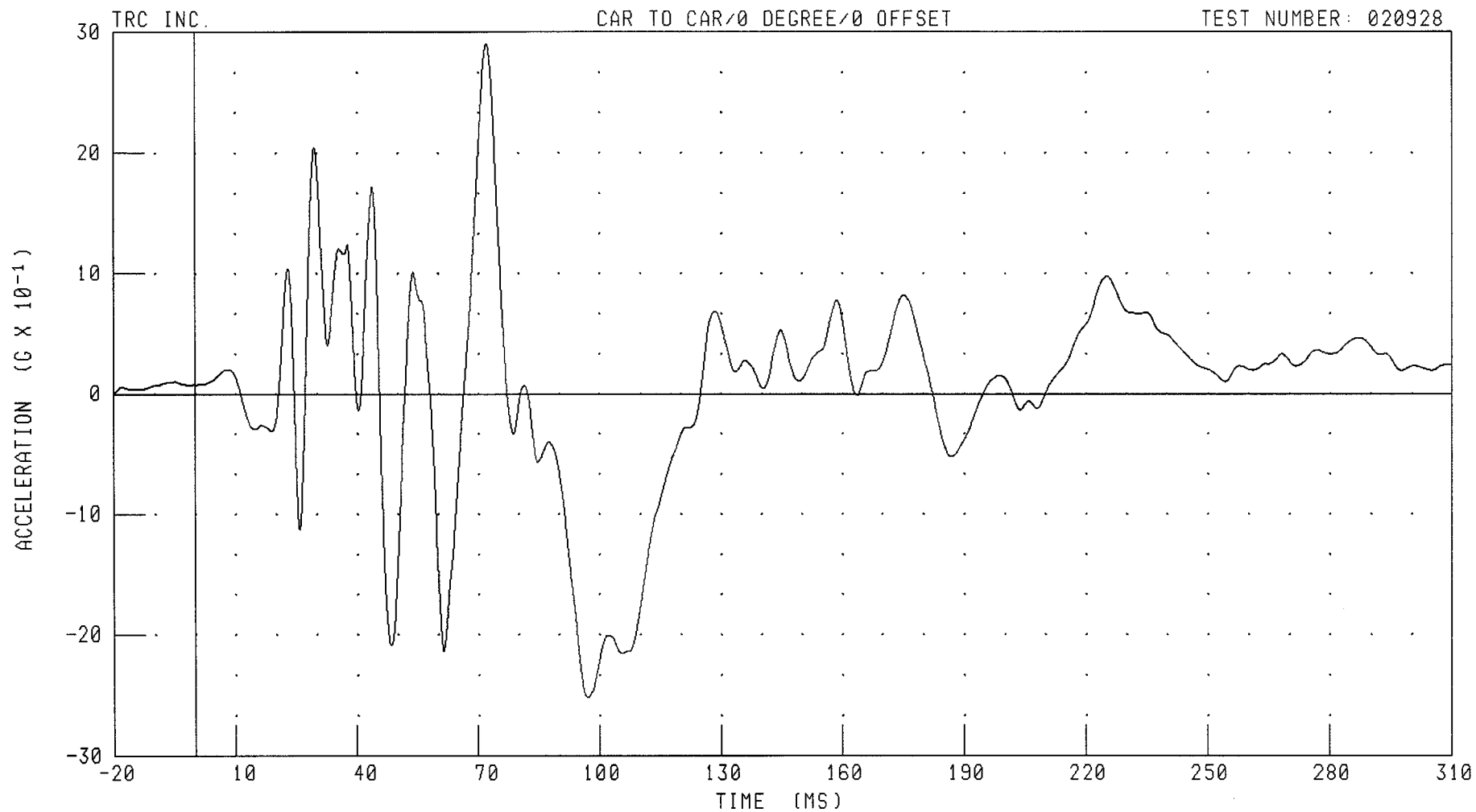
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET REAR DECK Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKYGA FILTER: CH. CLASS 60

PEAK DATA: 2.90 G @ 72.24 MS; -2.52 G @ 97.20 MS

B-233

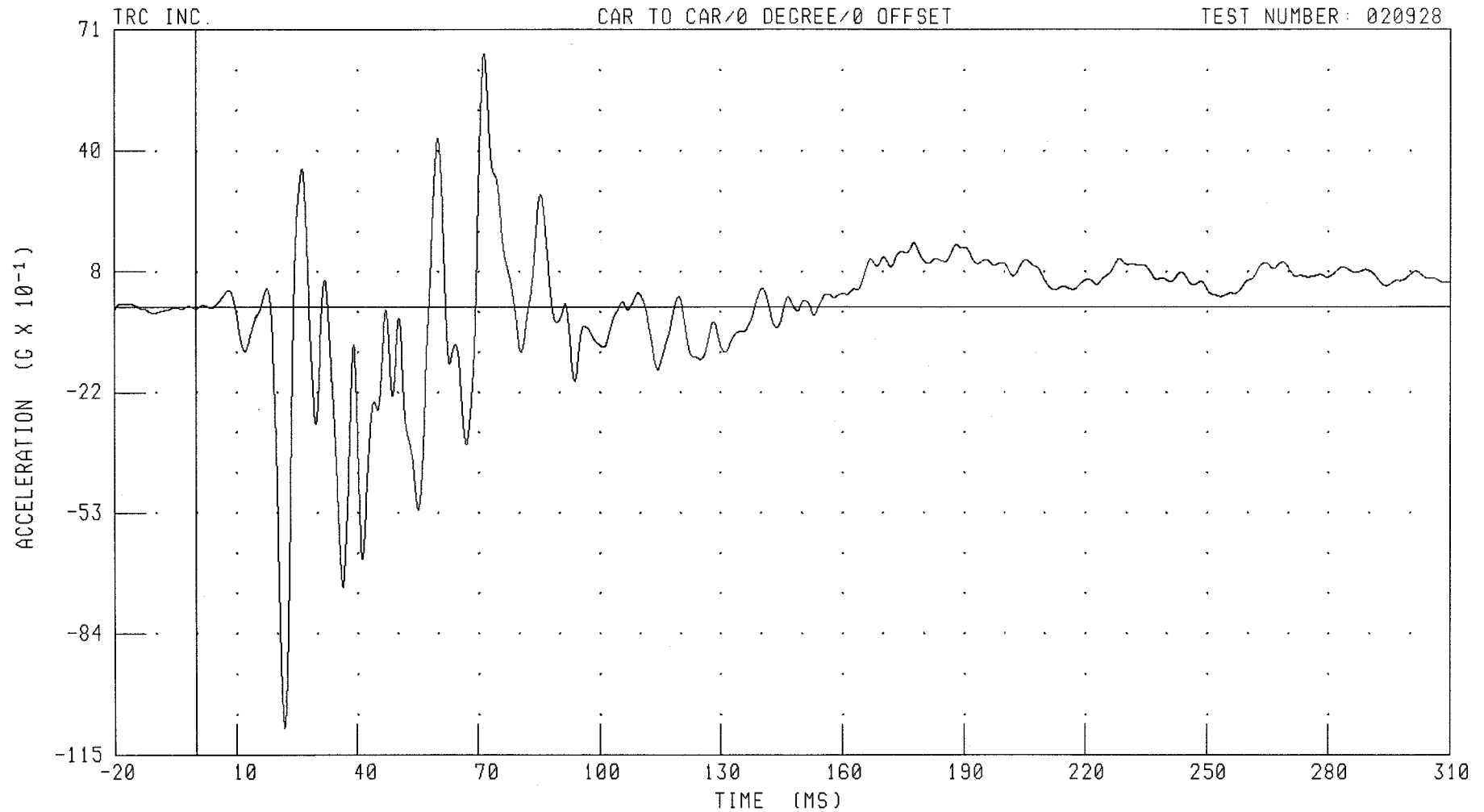
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET REAR DECK Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKZGA FILTER: CH. CLASS 60

PEAK DATA: 6.49 G @ 71.52 MS; -10.81 G @ 22.00 MS

B-234

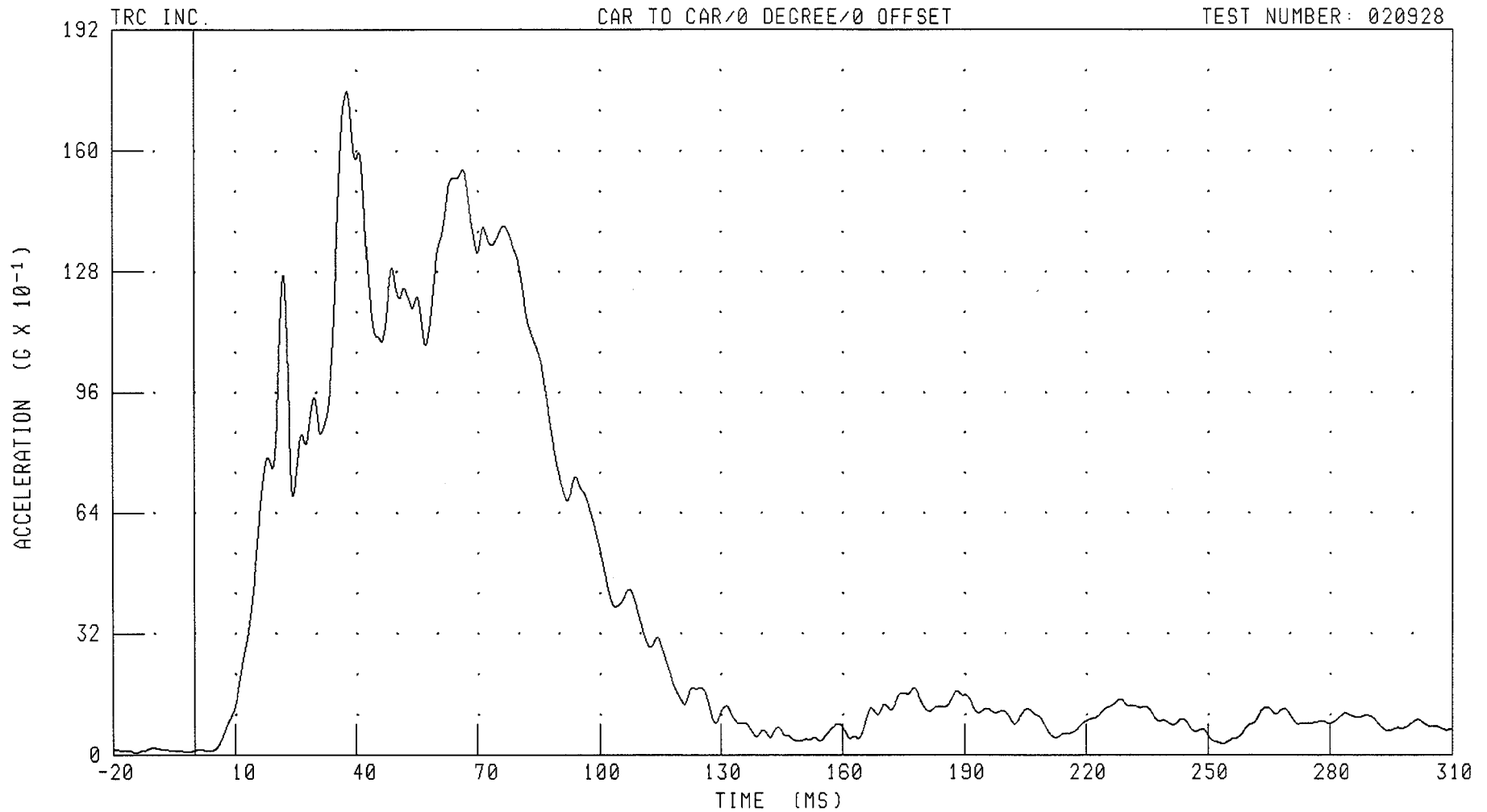
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET REAR DECK RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RDKRGA FILTER: CH. CLASS 60

PEAK DATA: 17.59 G @ 37.84 MS; 0.04 G @ -14.64 MS

B-235

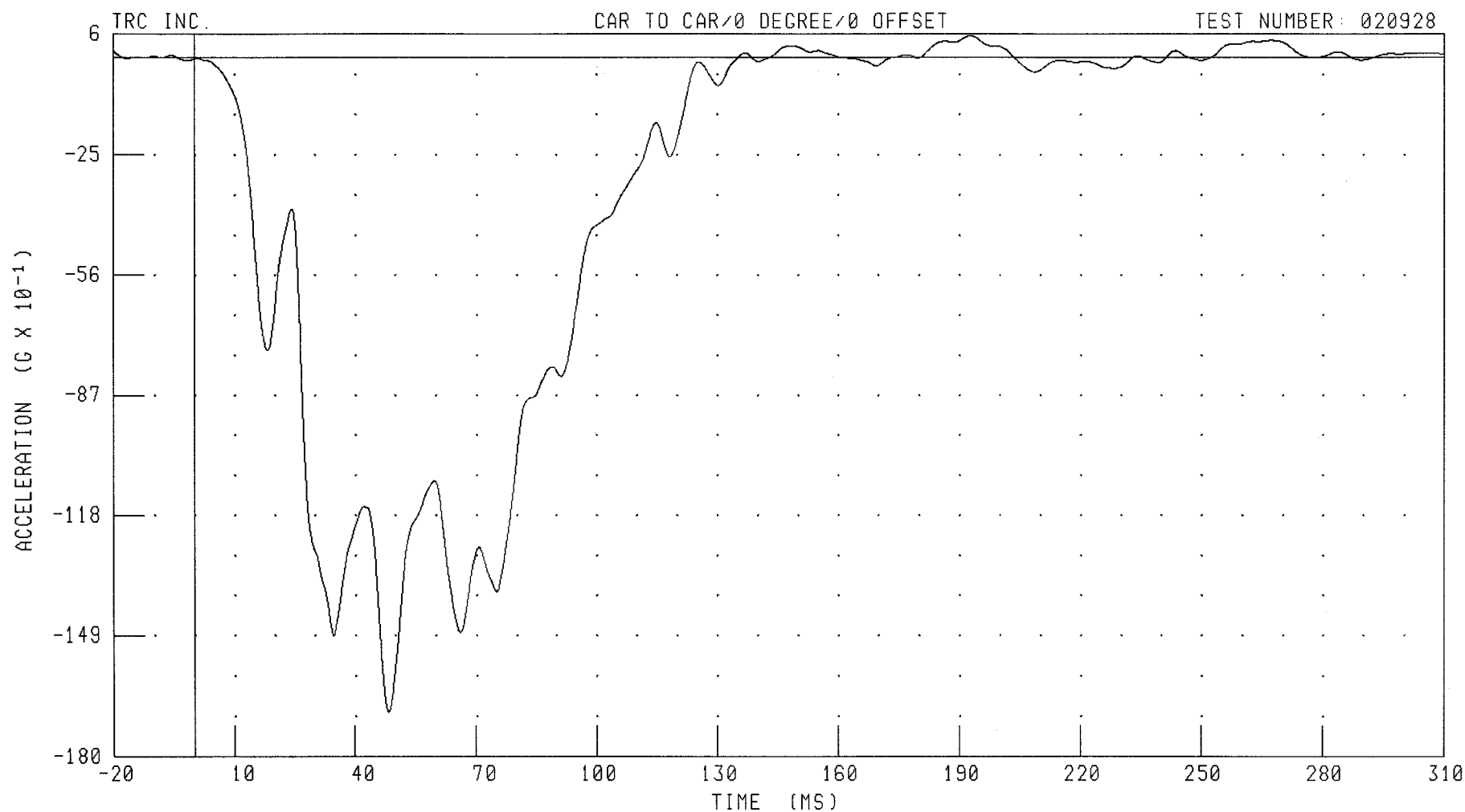
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET LEFT REAR SILL X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSXGA FILTER: CH. CLASS 60

PEAK DATA: 0.56 G @ 192.96 MS; -16.87 G @ 48.32 MS

B-236

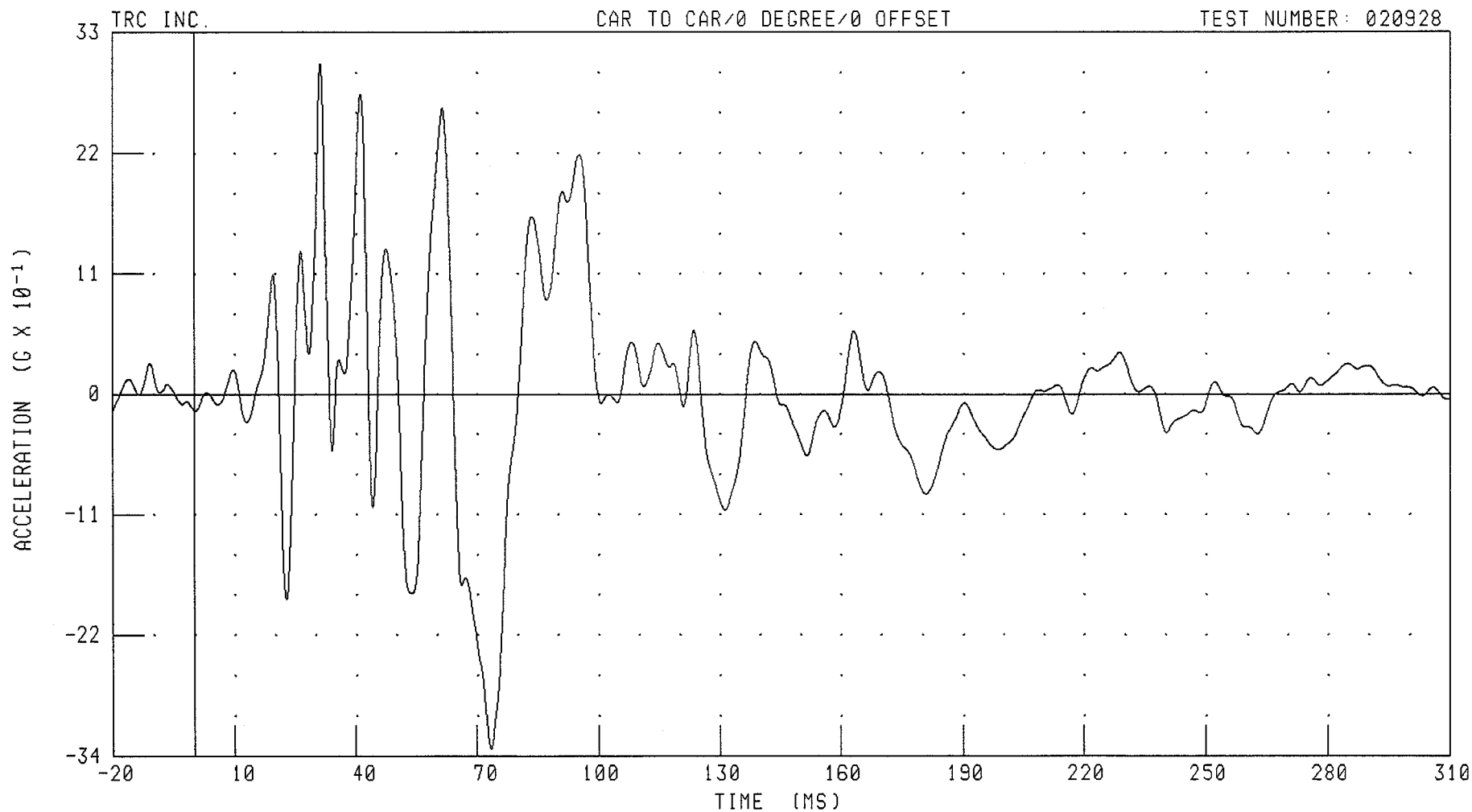
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET LEFT REAR SILL Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSYGA FILTER: CH. CLASS 60

PEAK DATA: 3.11 G @ 31.36 MS; -3.34 G @ 73.52 MS

B-237

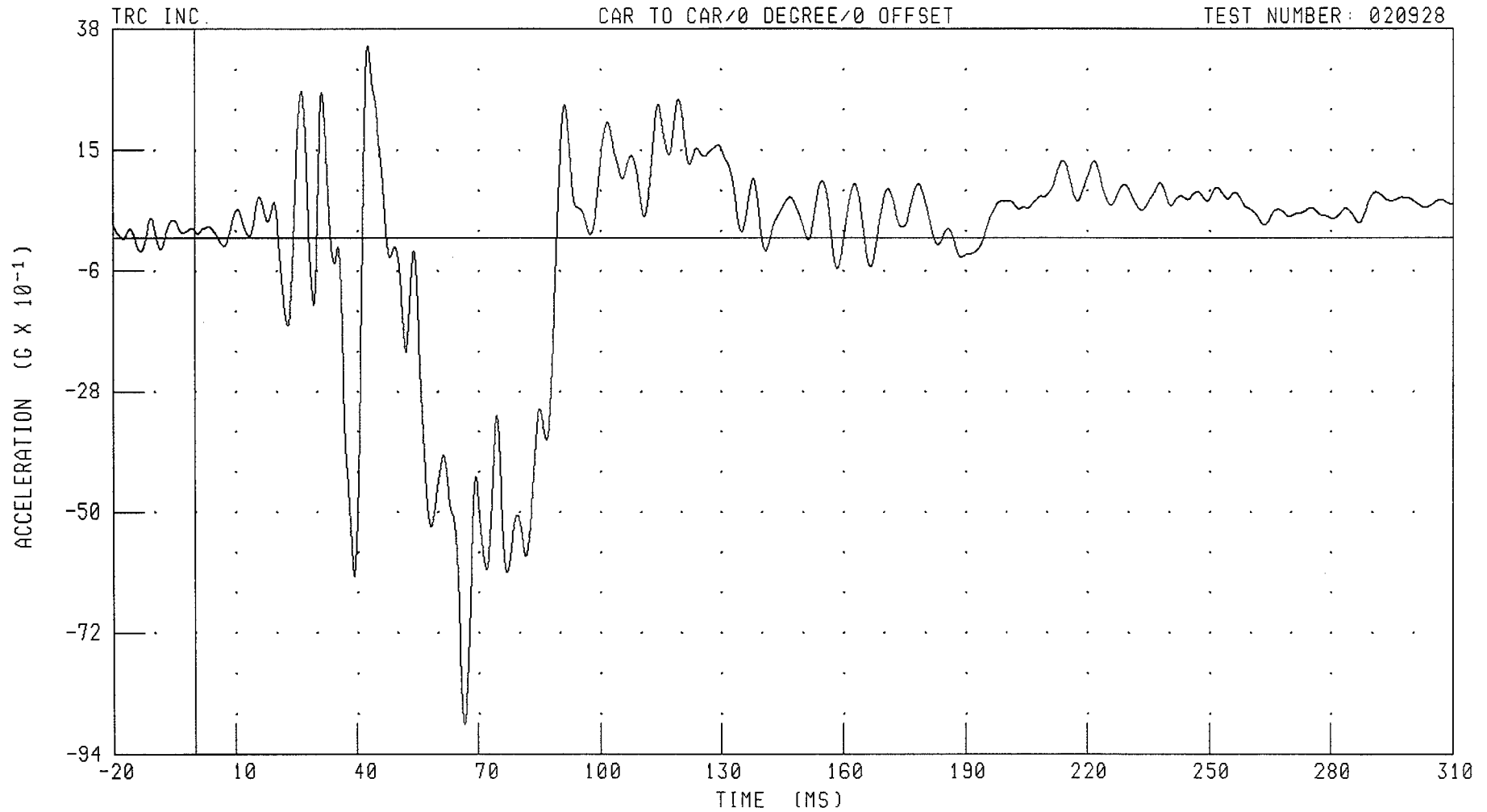
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET LEFT REAR SILL Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSZGA FILTER: CH. CLASS 60

PEAK DATA: 3.49 G @ 42.80 MS; -8.86 G @ 66.56 MS

B-238

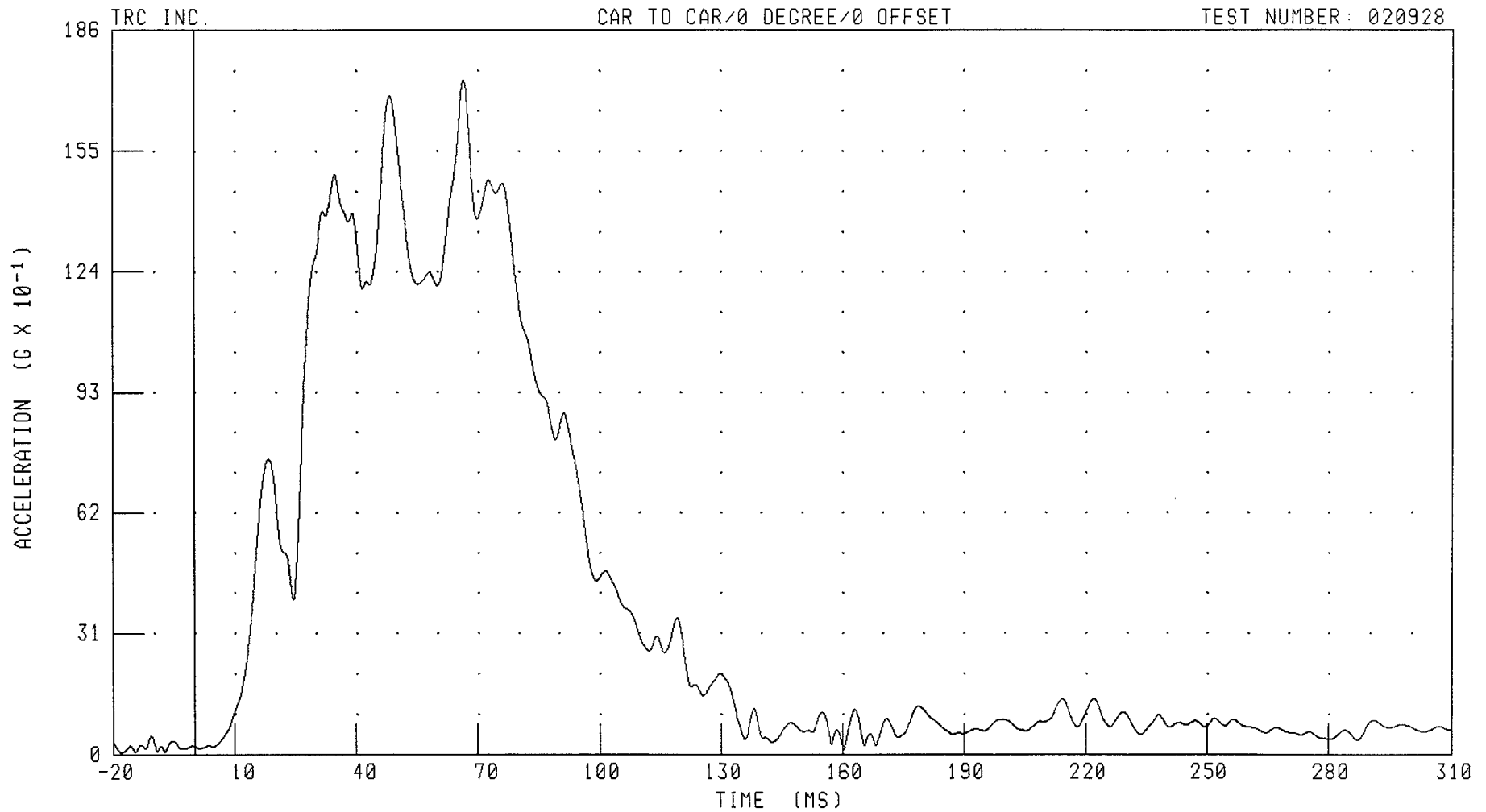
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET LEFT REAR SILL RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: LRSRGA FILTER: CH. CLASS 60

PEAK DATA: 17.32 G @ 66.48 MS; 0.03 G @ -18.08 MS

B-239

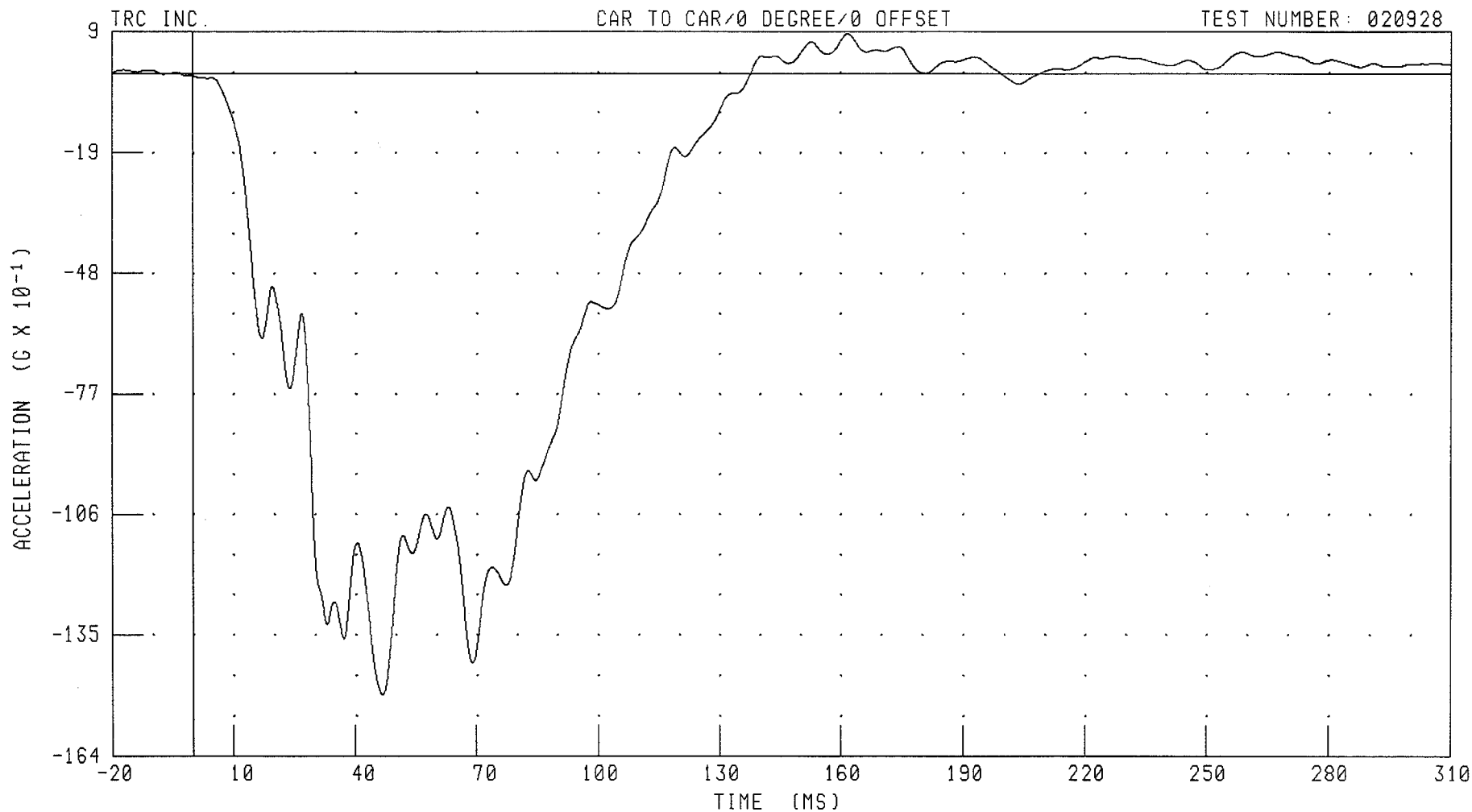
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET RIGHT REAR SILL X-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSXGA FILTER: CH. CLASS 60

PEAK DATA: 0.95 G @ 162.00 MS; -14.94 G @ 46.72 MS

B-240

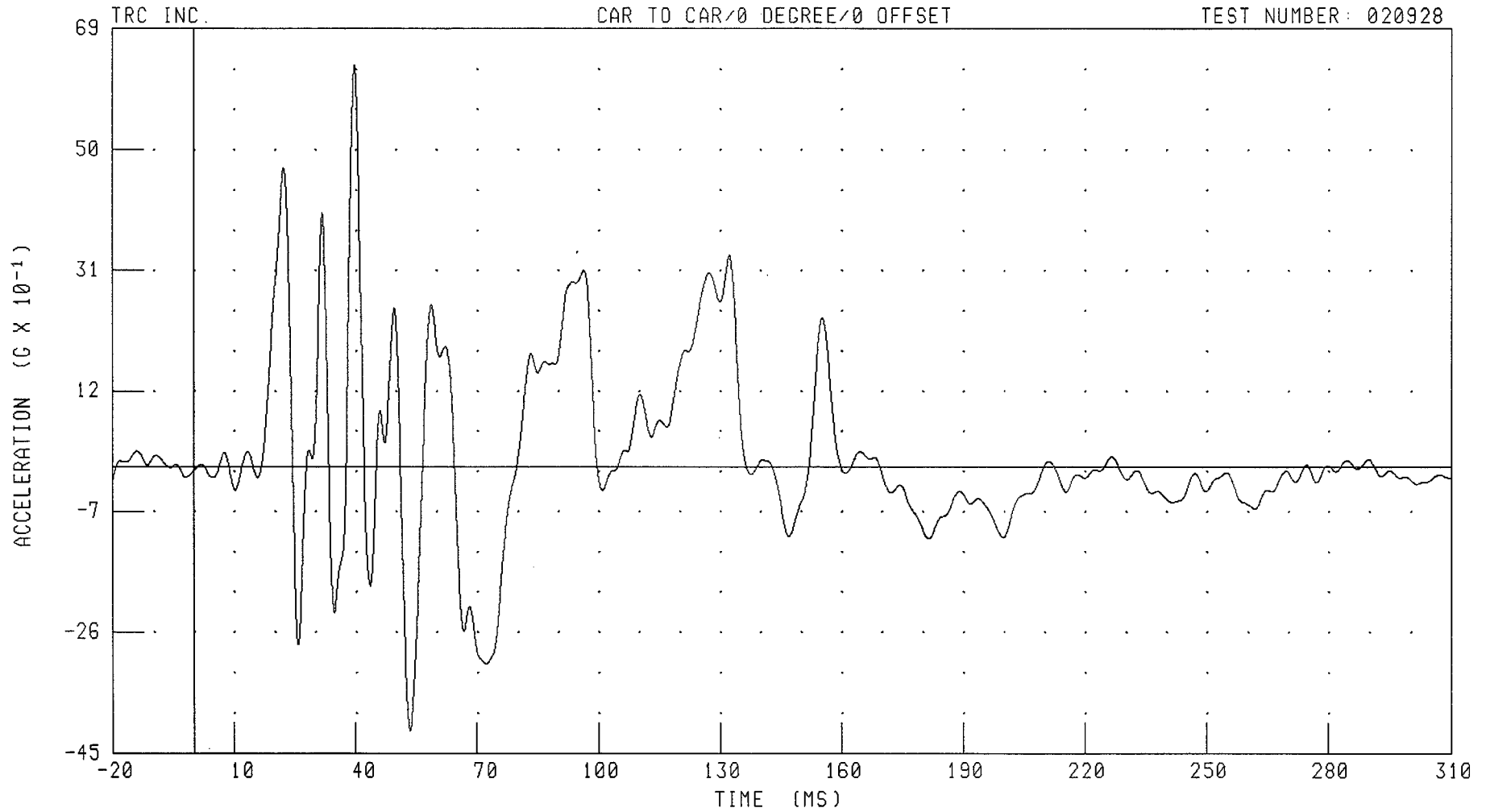
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET RIGHT REAR SILL Y-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSYGA FILTER: CH. CLASS 60

PEAK DATA: 6.32 G @ 39.84 MS; -4.14 G @ 53.44 MS

B-241

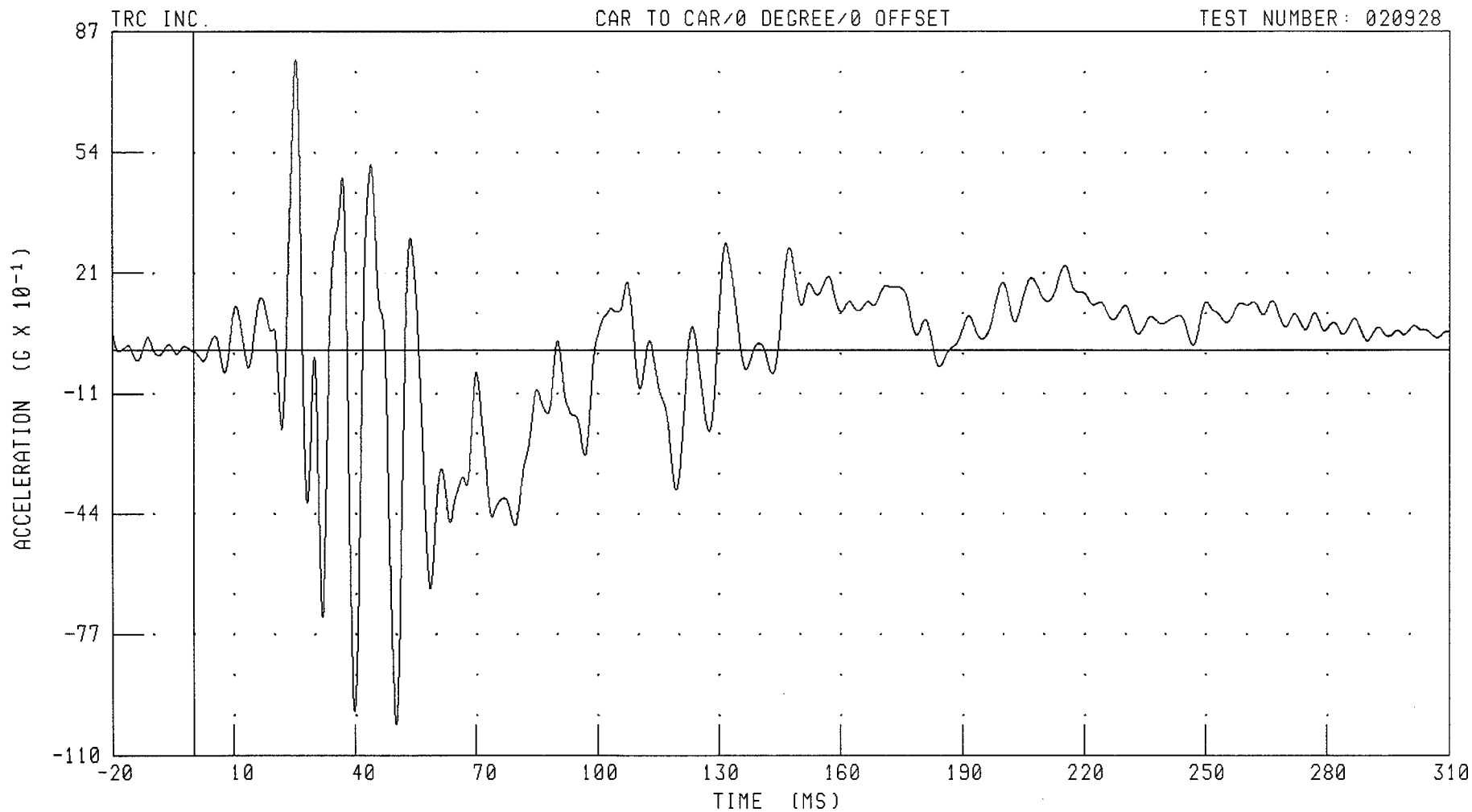
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET RIGHT REAR SILL Z-AXIS ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSZGA FILTER: CH. CLASS 60

PEAK DATA: 7.93 G @ 25.44 MS; -10.28 G @ 50.00 MS

B-242

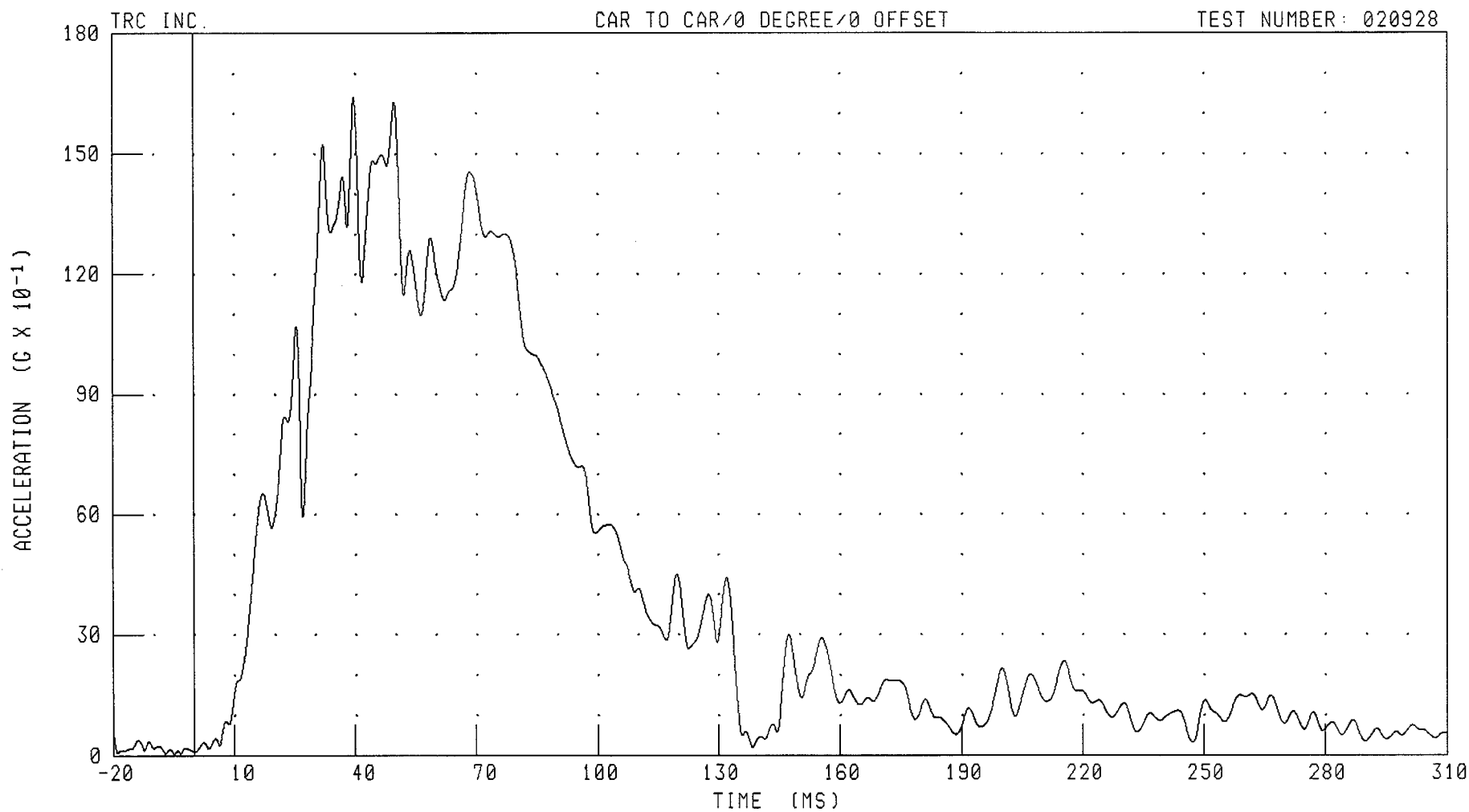
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET RIGHT REAR SILL RESULTANT ACCELERATION

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: RRSRGA FILTER: CH. CLASS 60

PEAK DATA: 16.41 G @ 39.76 MS; 0.03 G @ -5.04 MS

B-243

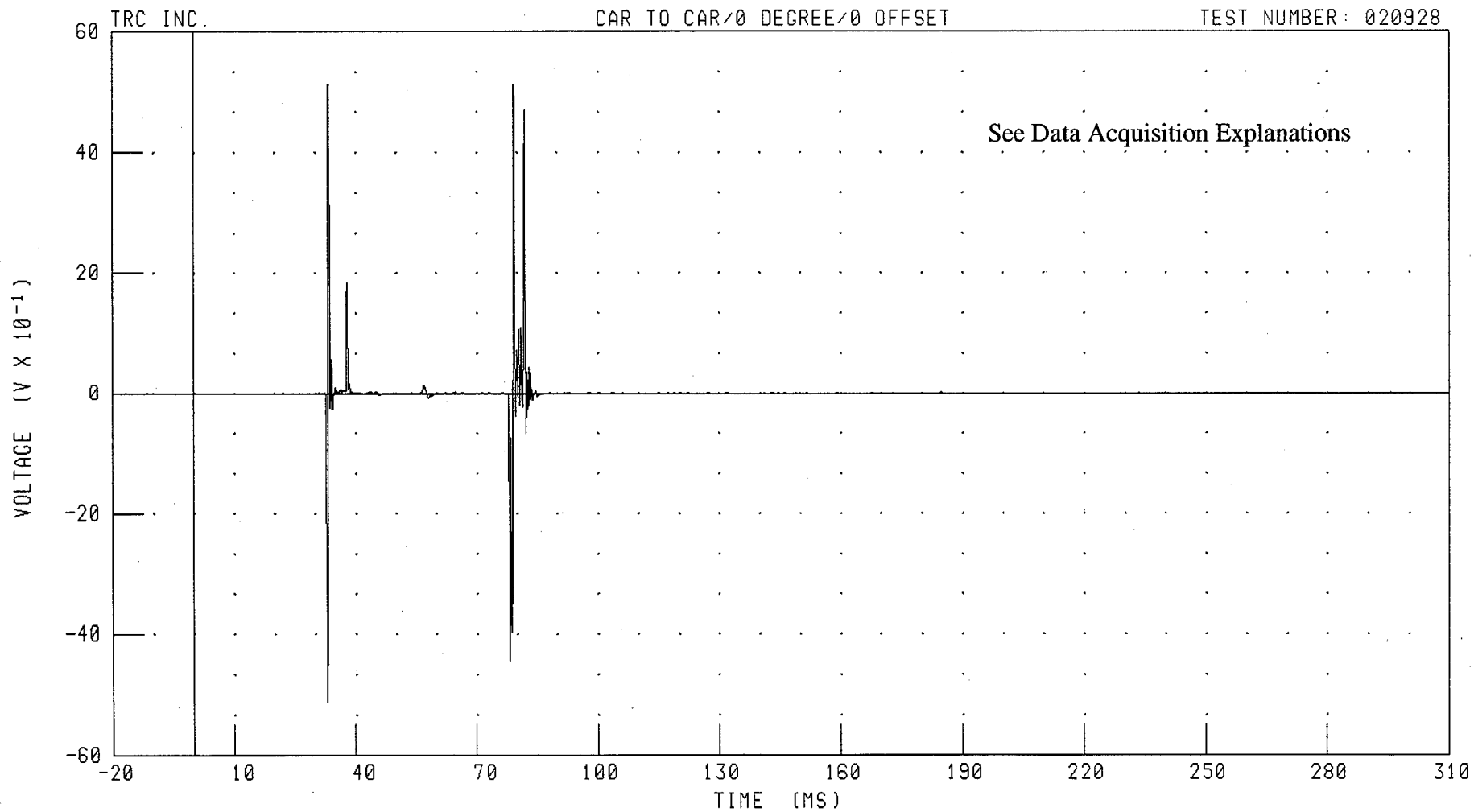
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER AIRBAG EVENT - WIRE A

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: DABETA FILTER: CH. CLASS 1000

PEAK DATA: 5.12 V @ 33.36 MS; -5.12 V @ 33.04 MS

B-244

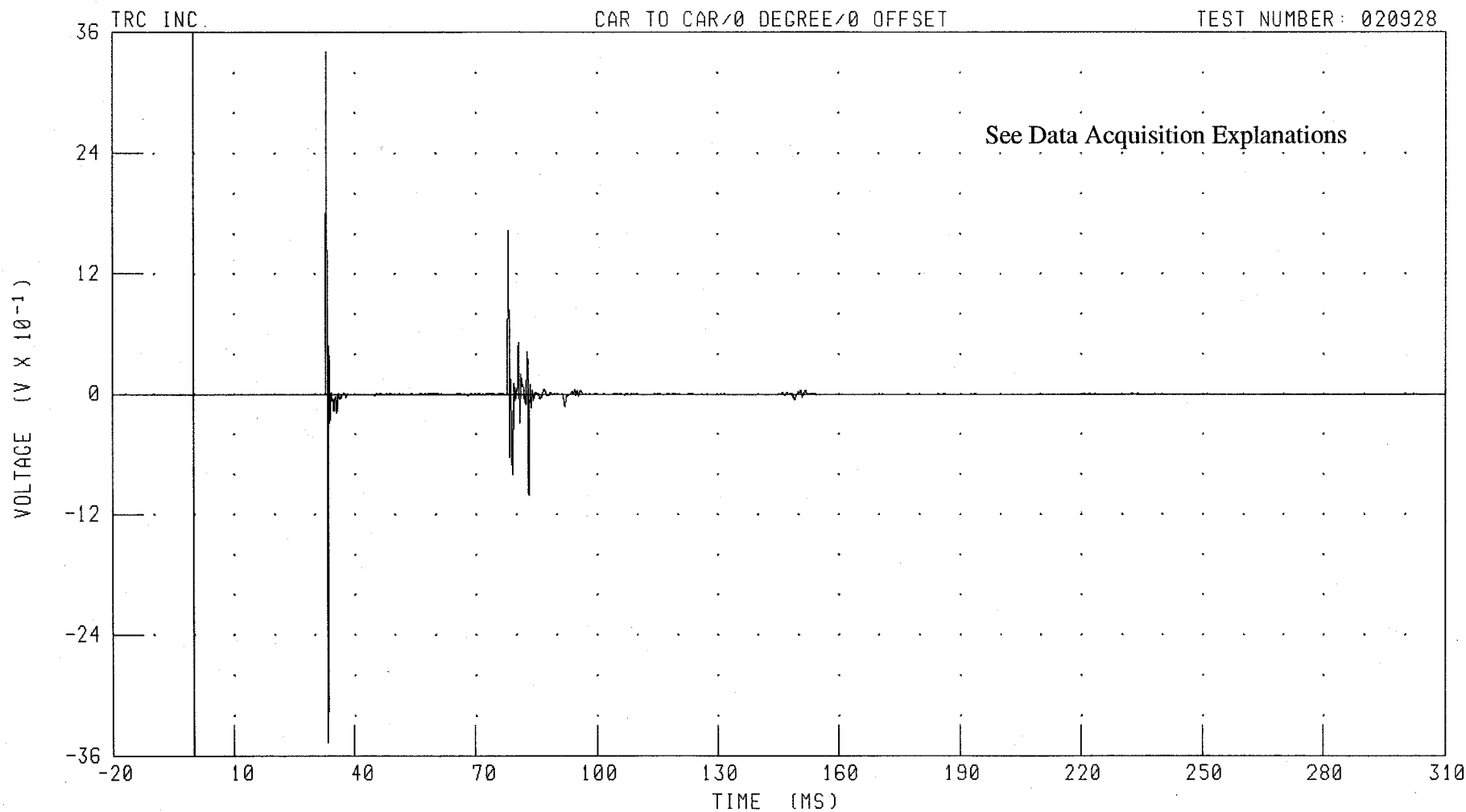
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET DRIVER AIRBAG EVENT - WIRE B

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: DABETB FILTER: CH. CLASS 1000

PEAK DATA: 3.40 V @ 33.04 MS; -3.47 V @ 33.36 MS

B-245

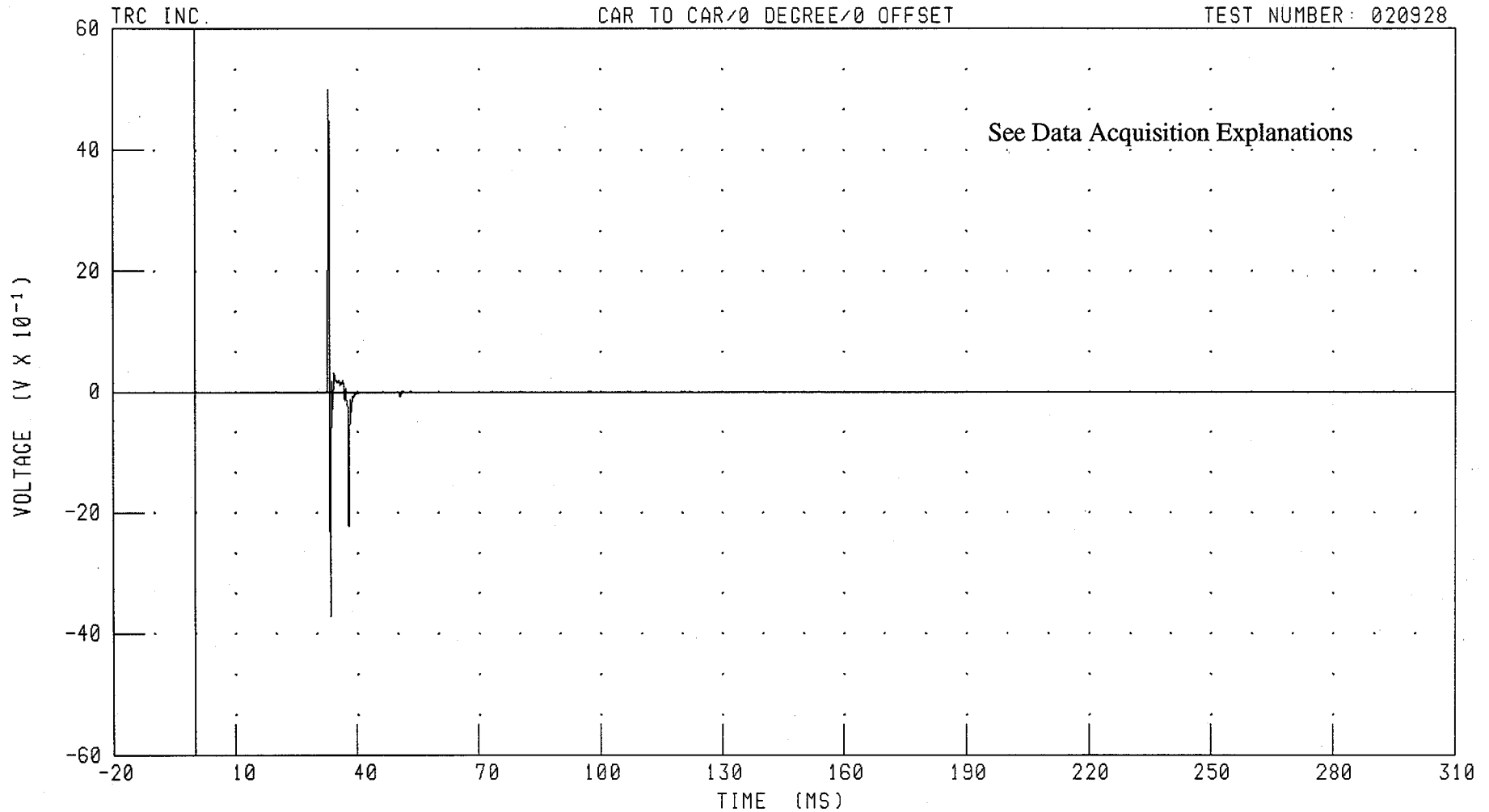
020928

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER AIRBAG EVENT - WIRE A

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PABETA FILTER: CH. CLASS 1000

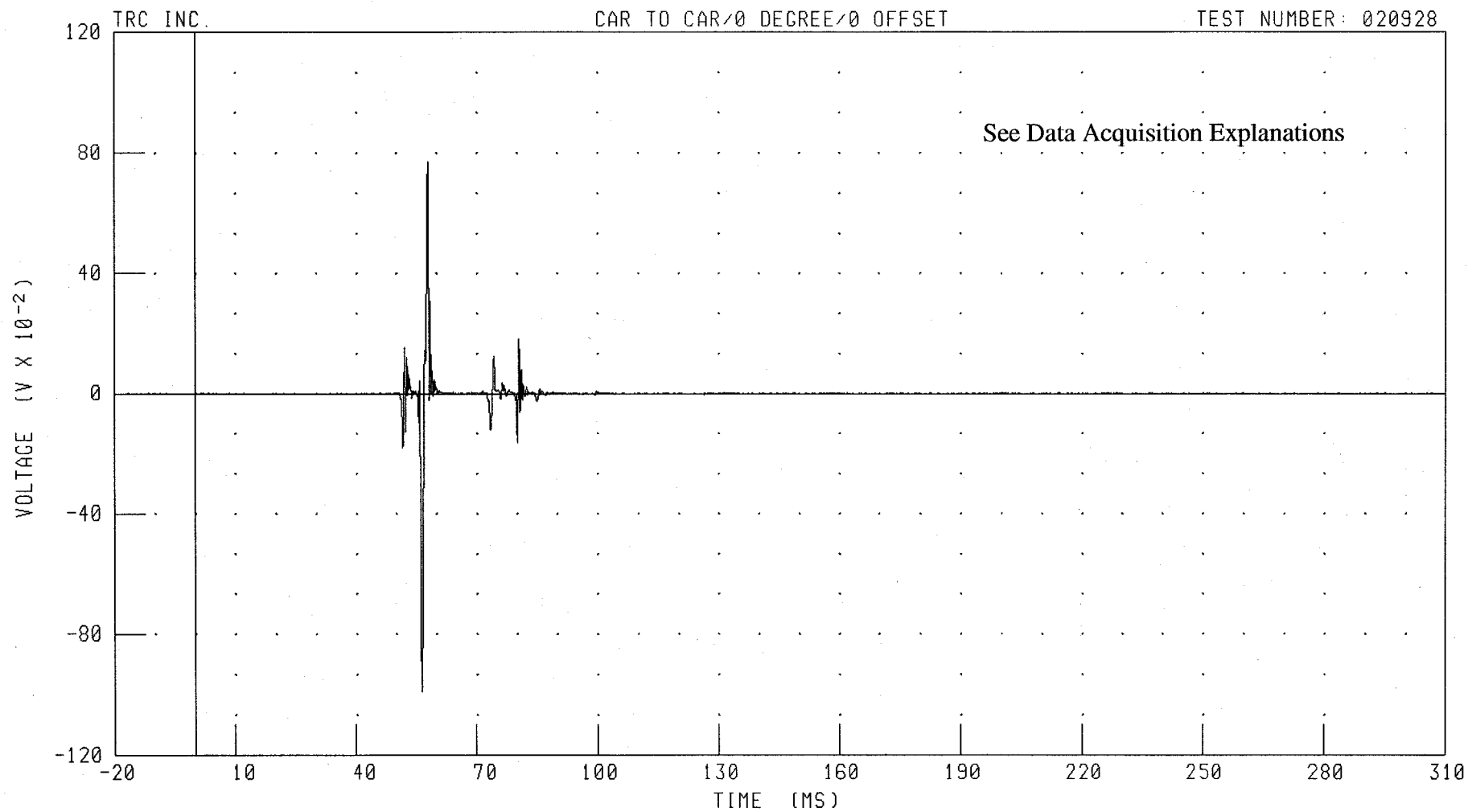
PEAK DATA: 5.00 V @ 33.12 MS; -3.71 V @ 33.52 MS

1999 LINCOLN NAVIGATOR INTO 1996 DODGE NEON - 0% OFFSET - 0 DEGREES

BULLET PASSENGER AIRBAG EVENT - WIRE B

CAR TO CAR/0 DEGREE/0 OFFSET

TEST NUMBER: 020928



CHANNEL: PABETB FILTER: CH. CLASS 1000

PEAK DATA: 0.77 V @ 57.84 MS; -0.99 V @ 56.40 MS

B-247

020928

Appendix C

Dummy Configuration and Performance Verification Data

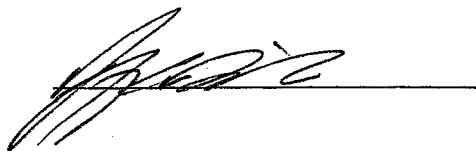
Pre-Test Dummy Configuration and Performance Verification Data

Target Vehicle Driver Dummy S/N: 168

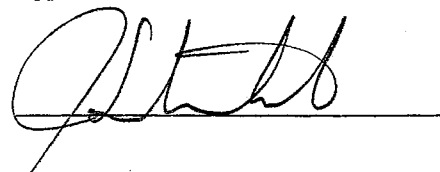
Transportation Research Center Inc.
572E HIII 50th Dummy
External Dimensions
Serial No. 168 Calibration No. 17

Test Parameter	Dimension	Specification	Results	Pass
Location For Chest Circumference	AA	429 - 434 mm	432 mm	Yes
Location For Waist Circumference	BB	226 - 231 mm	229 mm	Yes
Chest Circumference	Y	970 - 1001 mm	983 mm	Yes
Waist Circumference	Z	836 - 866 mm	855 mm	Yes
Chest Depth	O	213 - 229 mm	225 mm	Yes
H-Point Height	C	84 - 89 mm	85 mm	Yes
H-Point From Seatback	D	135 - 140 mm	137 mm	Yes
Skull Cap To Backline	H	41 - 46 mm	45 mm	Yes
Total Sitting Height	A	879 - 889 mm	883 mm	Yes
Thigh Clearance	F	140 - 155 mm	150 mm	Yes
Buttock Knee Length	K	579 - 605 mm	597 mm	Yes
Buttock Popliteal Length	N	452 - 478 mm	472 mm	Yes
Popliteal Height	L	429 - 455 mm	445 mm	Yes
Knee Pivot Height	M	485 - 500 mm	493 mm	Yes
Foot Length	P	252 - 267 mm	262 mm	Yes
Foot Breadth	W	91 - 107 mm	102 mm	Yes
Shoulder Pivot From Backline	E	84 - 94 mm	90 mm	Yes
Shoulder Breadth	V	422 - 437 mm	431 mm	Yes
Shoulder Pivot Height	B	506 - 521 mm	515 mm	Yes
Elbow Rest Height	J	191 - 211 mm	207 mm	Yes
Shoulder-Elbow Length	I	330 - 345 mm	339 mm	Yes
Back Of Elbow To Wrist Pivot	G	290 - 305 mm	297 mm	Yes

Technician



Approved




Transportation Research Center Inc.

572E Head Drop Test

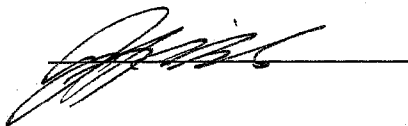
HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/24/2002

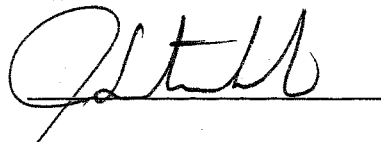
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Peak Resultant Acceleration	225 - 275 g	247.2 g	Yes
Peak Lateral Acceleration	15 g Max	8.3 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



09.24.2002 14:53:40 612

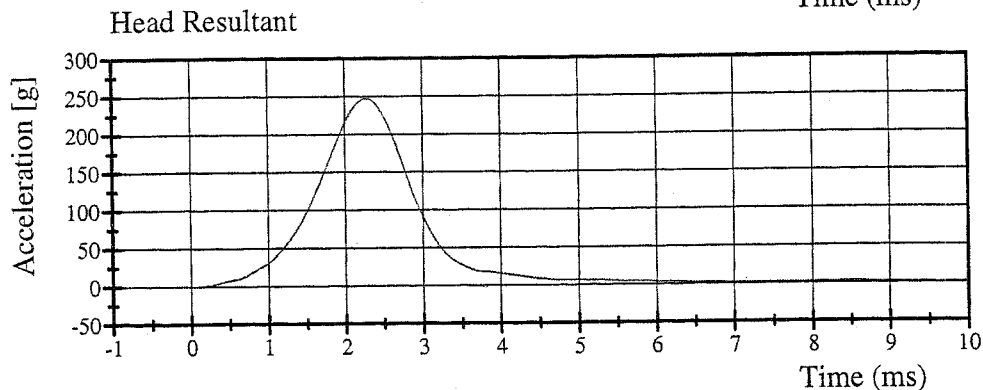
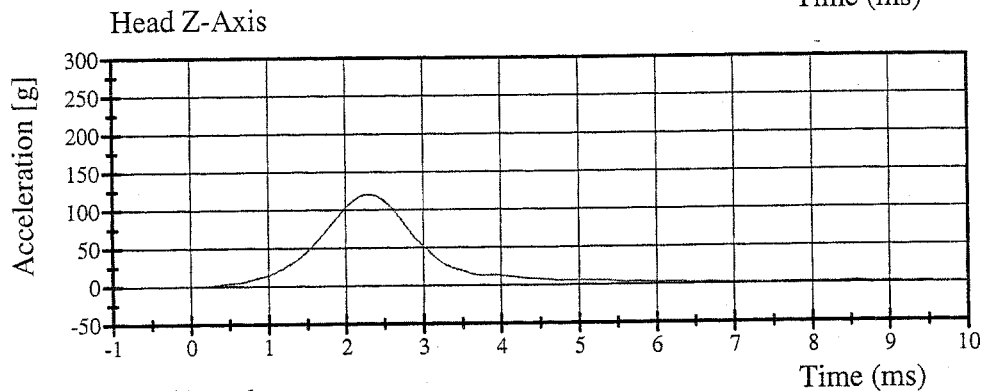
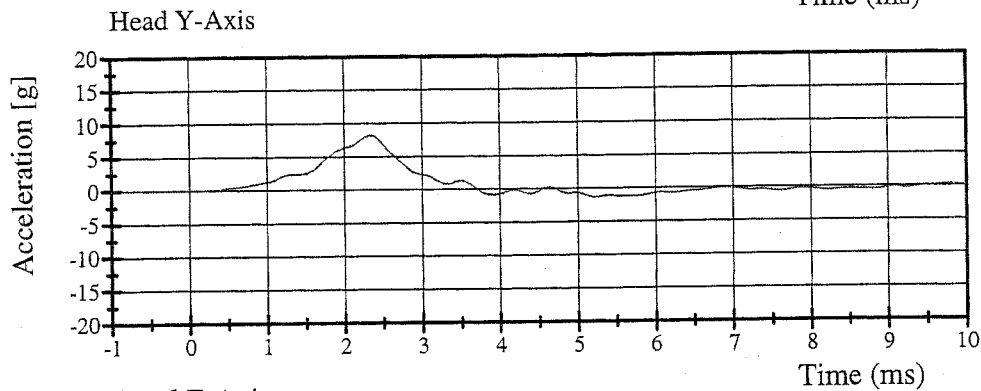
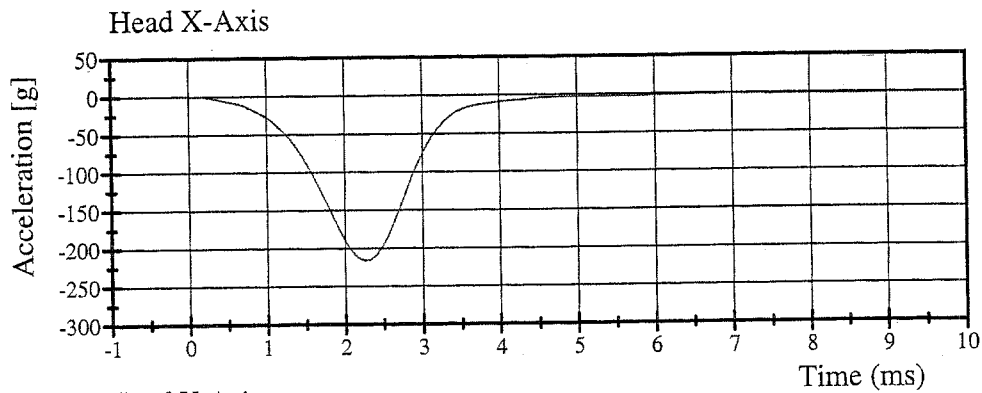


Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/24/2002



09.24.2002 14:53:41 612



Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002

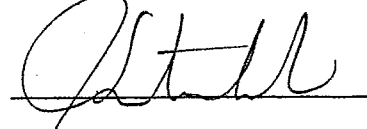
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	25.99 g	Yes
20 ms	17.60 - 22.60 g	21.59 g	Yes
30 ms	12.50 - 18.50 g	16.91 g	Yes
Max Pendulum Deceleration	29.00 g	26.42 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	16.87 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	37.12 ms	Yes
D Plane Rotation			
Max	64 - 78 °	69.09 °	Yes
Time	57 - 64 ms	57.68 ms	Yes
Moment About Occipital Condyle			
Max	88.2 - 108.4 N·m	105.78 N·m	Yes
Time	47 - 58 ms	49.60 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	113.84 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	97.60 ms	Yes

Comments:

Technician



Approved



09.23.2002 13:11:04 462



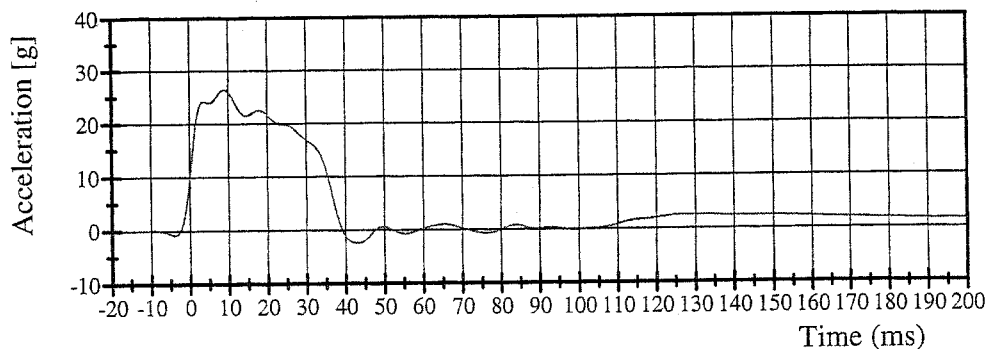
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002

Pendulum Deceleration

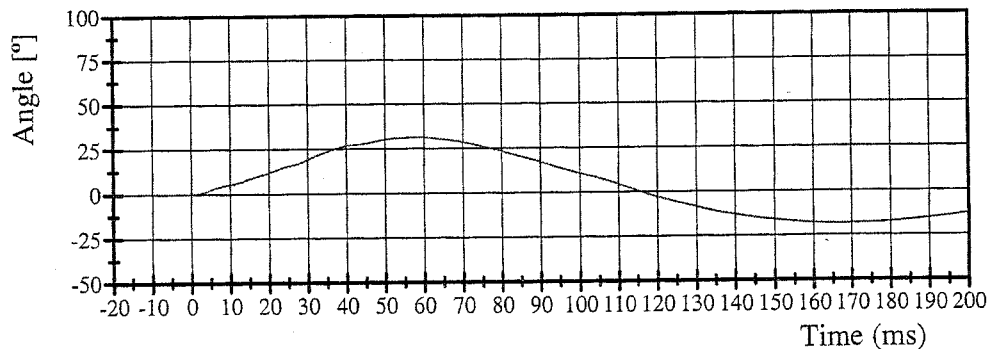


Filter Class: 60

Max: 26.4 g at 9.0 ms

Min: -2.4 g at 43.0 ms

Beta

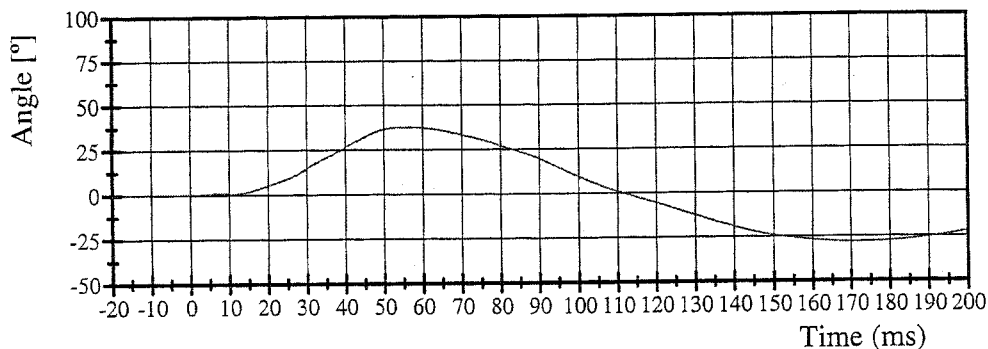


Filter Class: 60

Max: 31.4 ° at 58.5 ms

Min: -18.3 ° at 167.4 ms

Theta

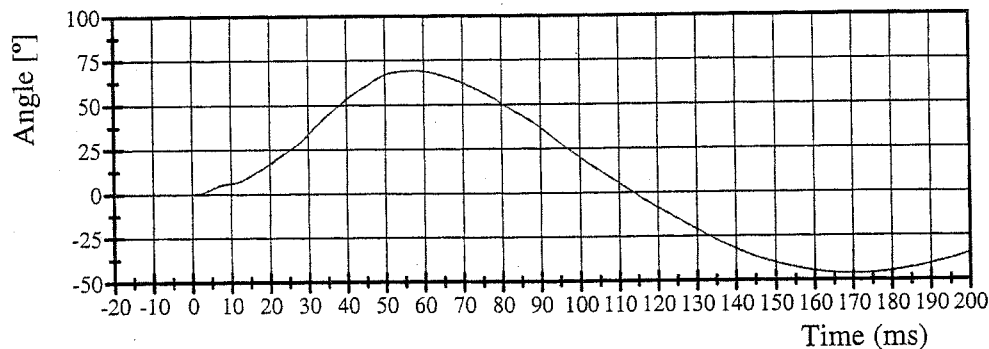


Filter Class: 60

Max: 37.7 ° at 56.2 ms

Min: -28.1 ° at 171.1 ms

Totan



Filter Class: 60

Max: 69.1 ° at 57.7 ms

Min: -46.4 ° at 169.8 ms

09.23.2002 13:11:07 462

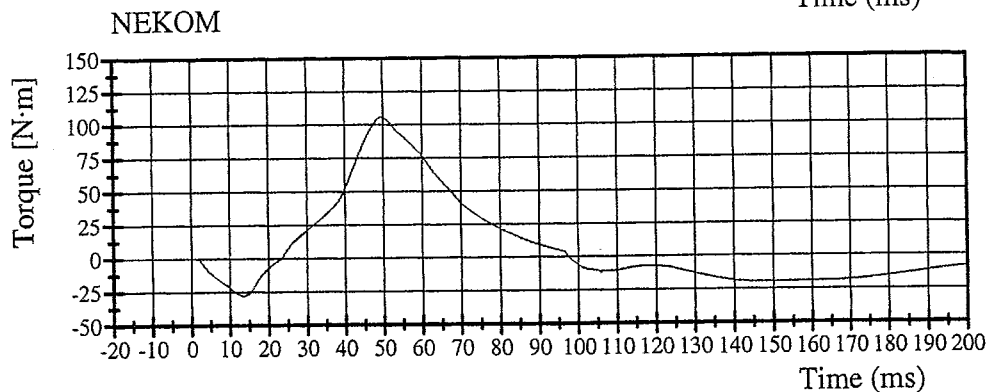
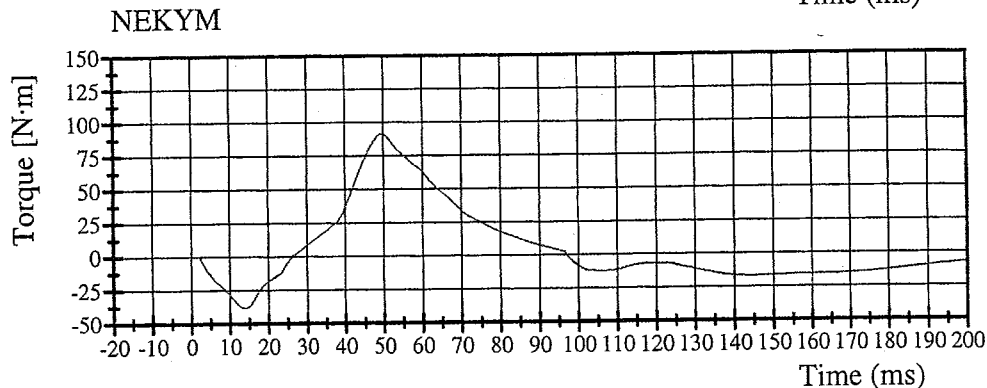
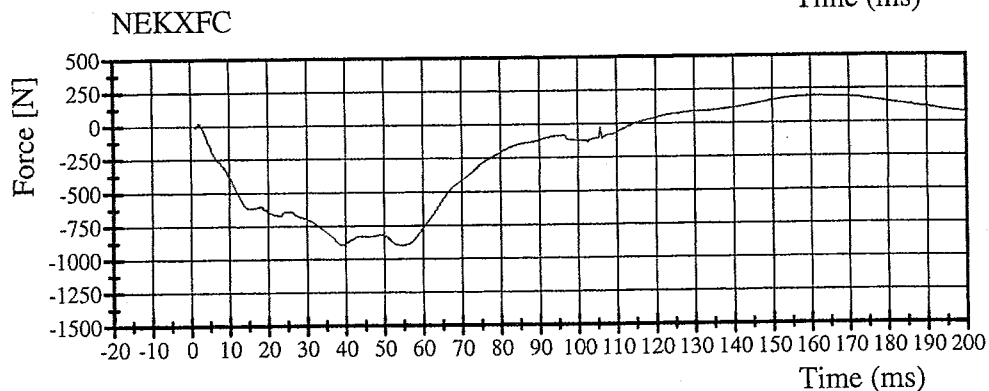
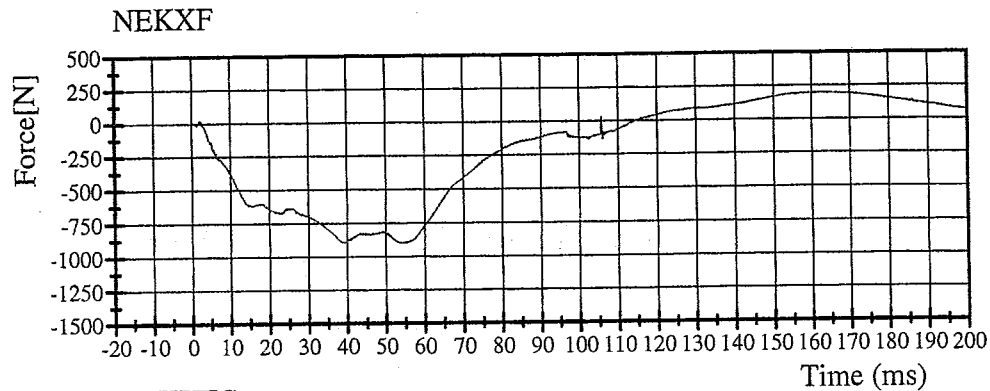


Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002



09.23.2002 13:11:09 462



Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

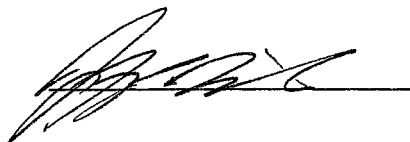
HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 09/24/2002

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.11 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	18.51 g	Yes
20 ms	14.00 - 19.00 g	17.01 g	Yes
30 ms	11.00 - 16.00 g	15.37 g	Yes
Max Pendulum Deceleration	22.00 g	18.84 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	15.35 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	38 - 46 ms	42.64 ms	Yes
D Plane Rotation			
Max	81 - 106 °	91.96 °	Yes
Time	72 - 82 ms	76.24 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-68.70 N·m	Yes
Time	65 - 79 ms	70.96 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	147 - 174 ms	154.16 ms	Yes
Positive Moment-Time Curve			
Decay Time To Zero	120 - 148 ms	141.52 ms	Yes

Comments:

Technician



Approved



09.24.2002 07:23:20 533

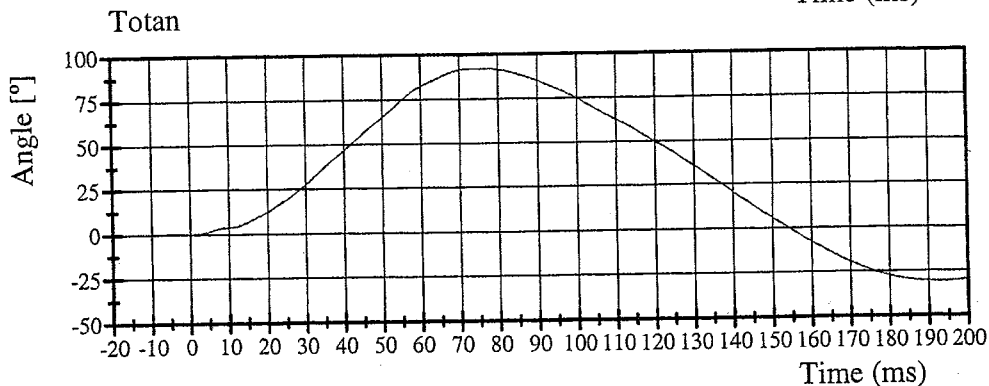
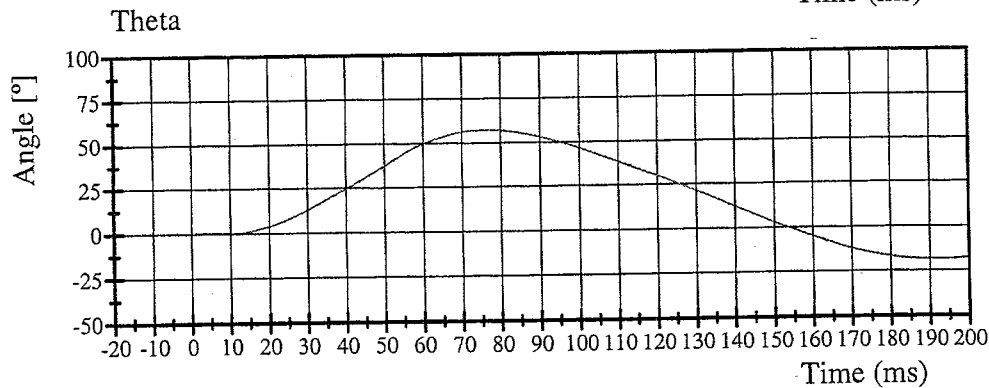
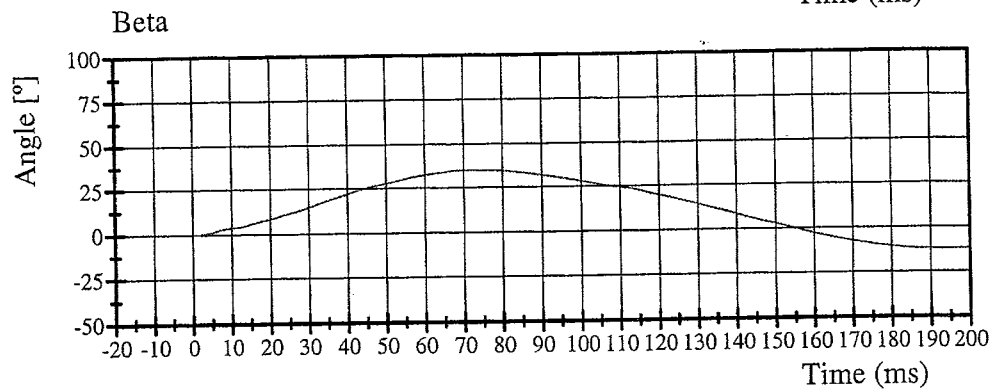
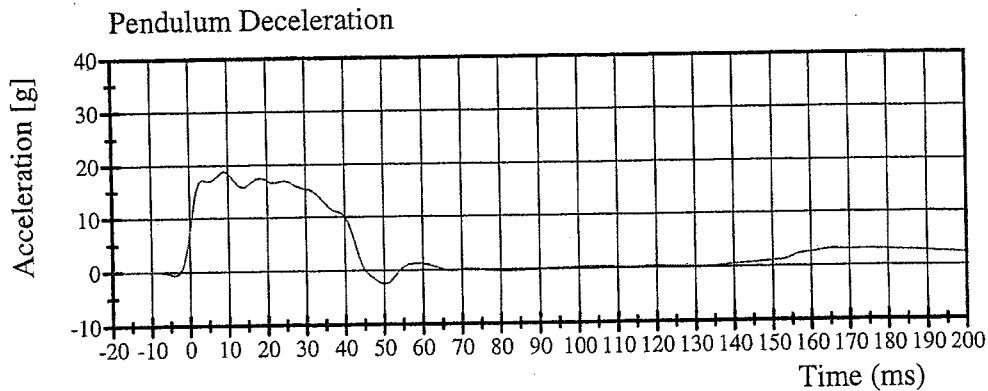


Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 09/24/2002



09.24.2002 07:23:21 533

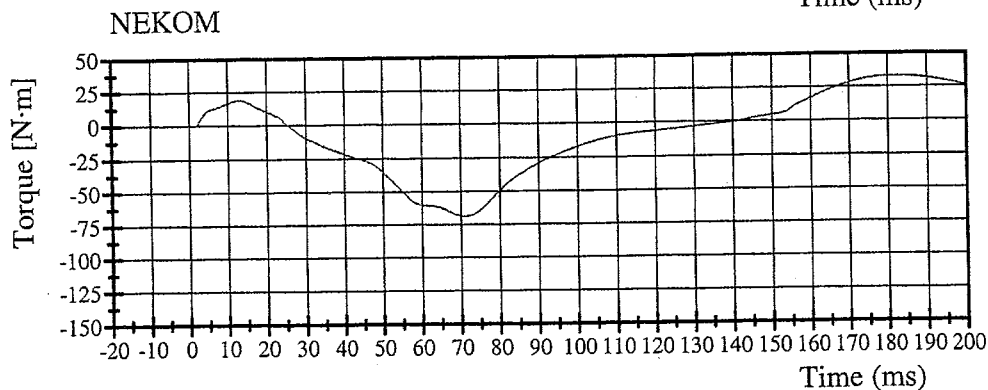
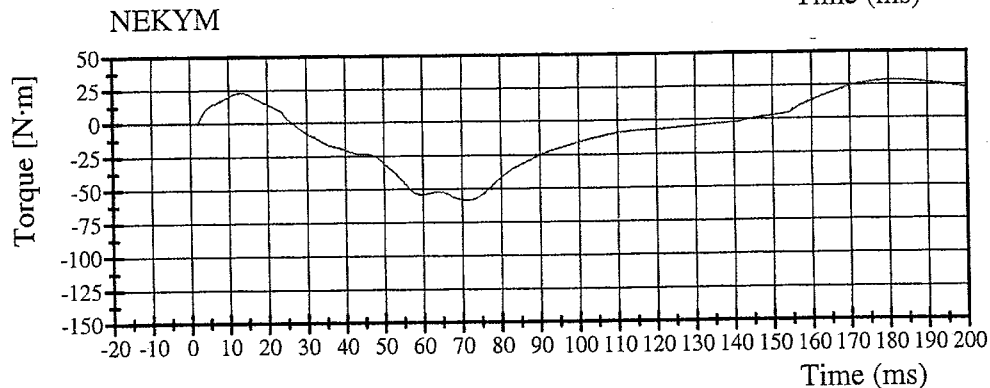
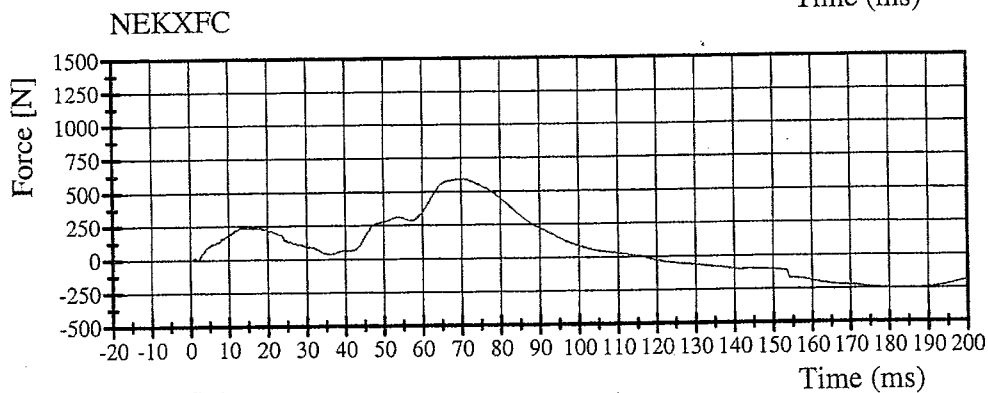
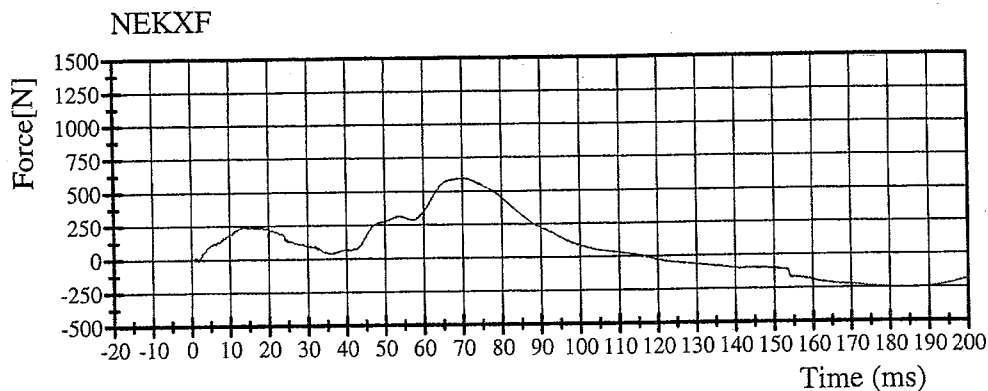


Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 09/24/2002



09.24.2002 07:23:22 533



Transportation Research Center Inc.

572E Thorax Test

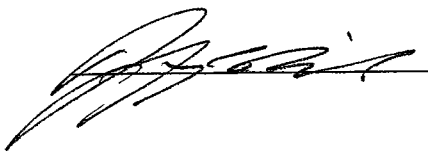
HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002

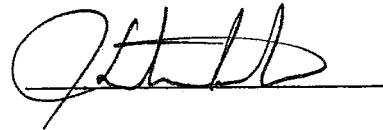
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.68 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-67.4 mm	Yes
Maximum Resistive Force	5159 - 5894 N	5694 N	Yes
Internal Hysteresis	69 - 85 %	71 %	Yes

Comments:

Technician



Approved



09.23.2002 09:14:40 974



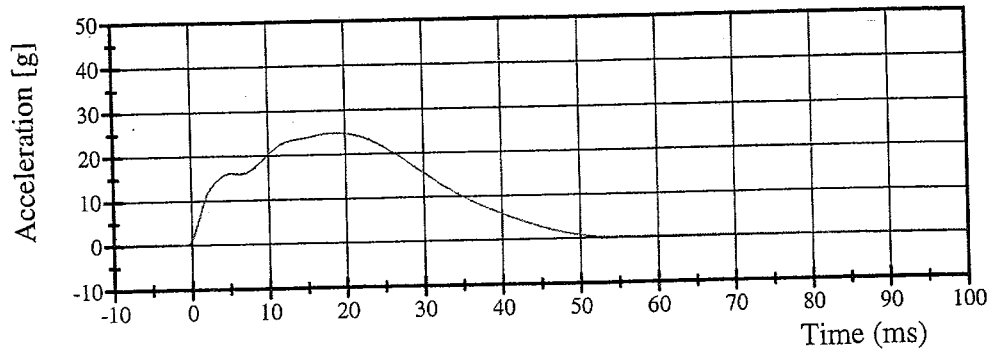
Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002

Pendulum Deceleration

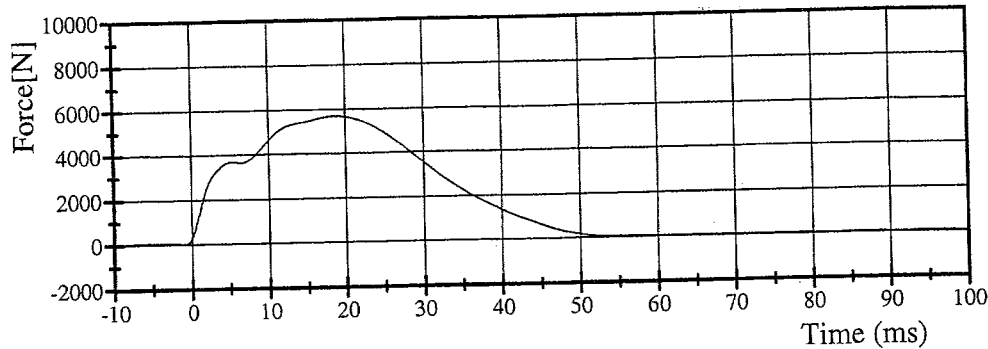


Filter Class: 180

Max: 24.9 g at 18.7 ms

Min: -0.0 g at -77.8 ms

Pendulum Force

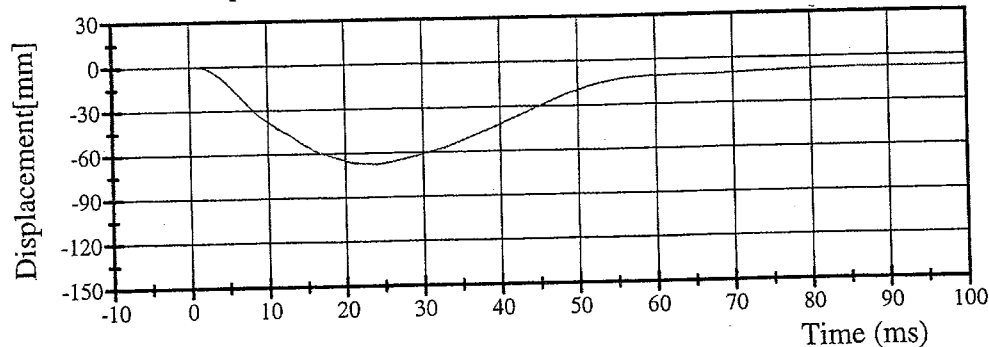


Filter Class: 180

Max: 5693.7 N at 18.7 ms

Min: -9.1 N at -77.8 ms

Chest Displacement

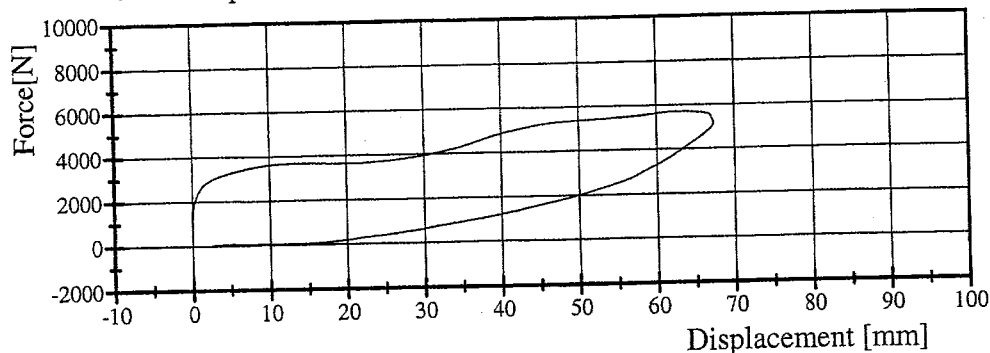


Filter Class: 180

Max: 0.0 mm at 0.4 ms

Min: -67.4 mm at 23.8 ms

Chest Displacement vs. Pendulum Force



09.23.2002 09:14:42 974



Transportation Research Center Inc

Hybrid III Hip Range of Motion

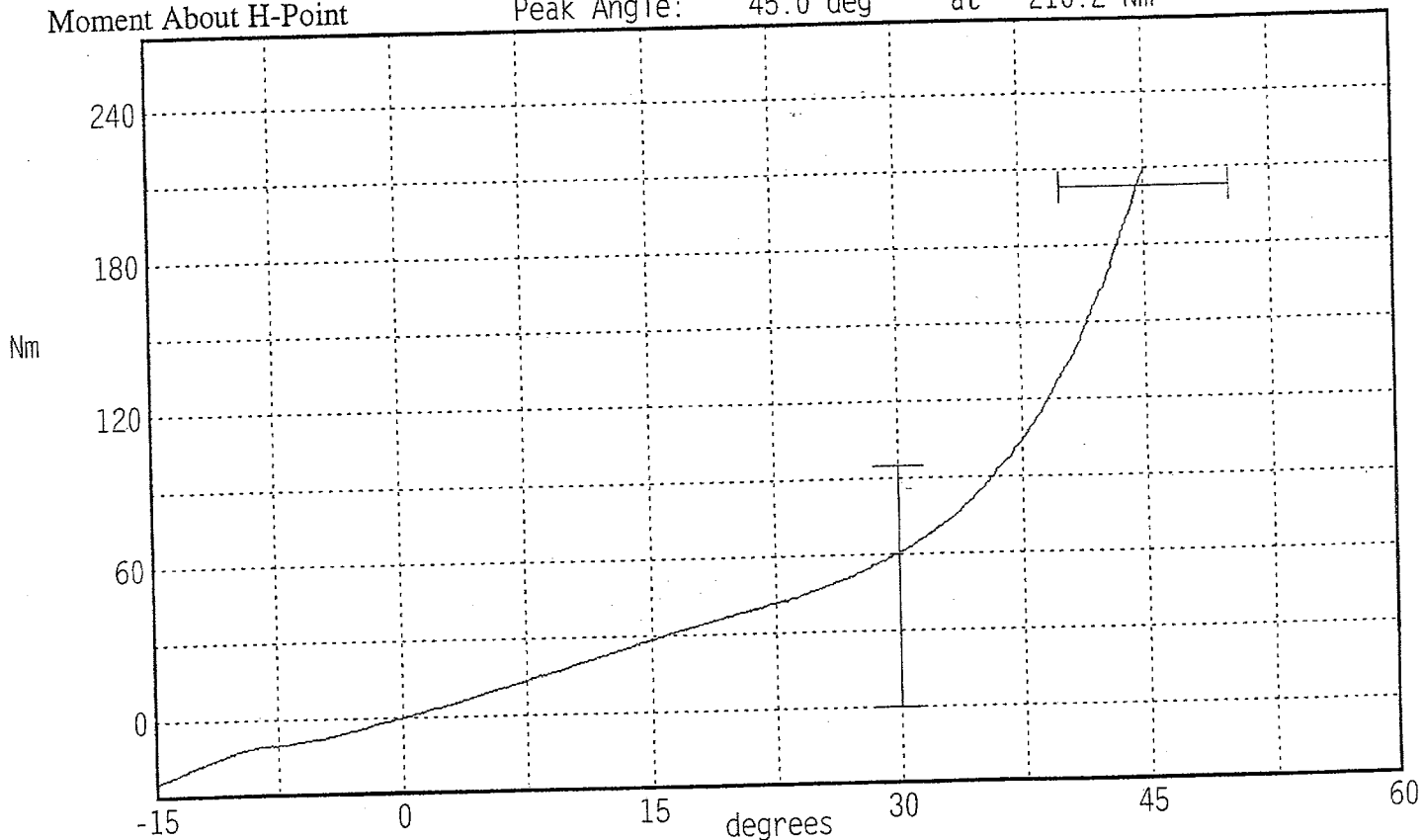
Serial Number: 168L
Test Number: 168C17
Comments:

Date: 09/23/2002
Time: 15:26

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	60.9 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	44.7 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Peak Moment: 210.2 Nm at 45.0 deg
Peak Angle: 45.0 deg at 210.2 Nm

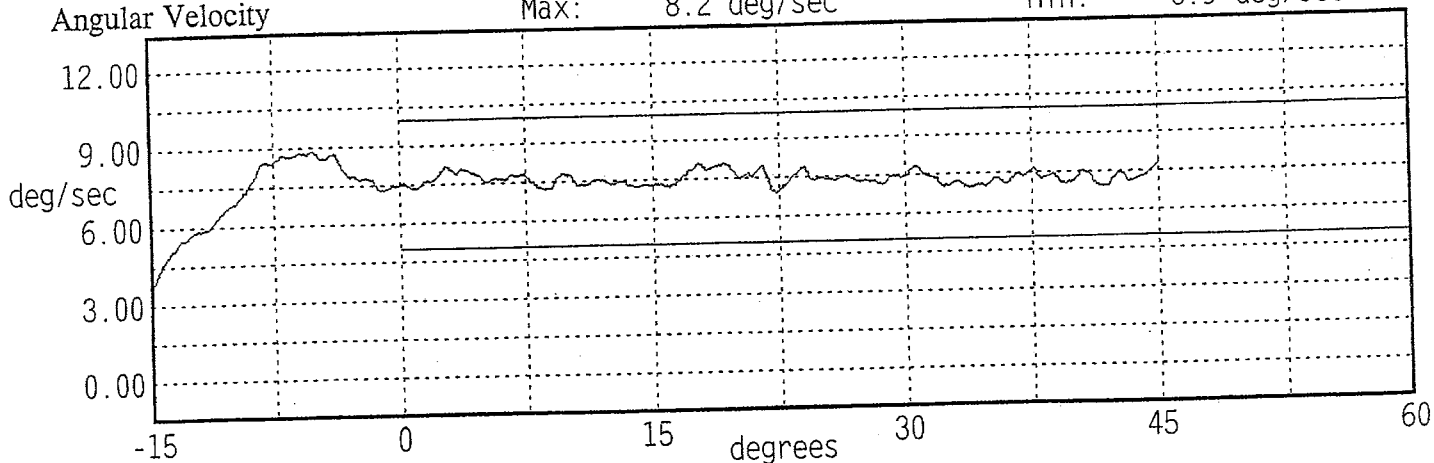
Moment About H-Point



Angular Velocity

Max: 8.2 deg/sec

Min: 6.9 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

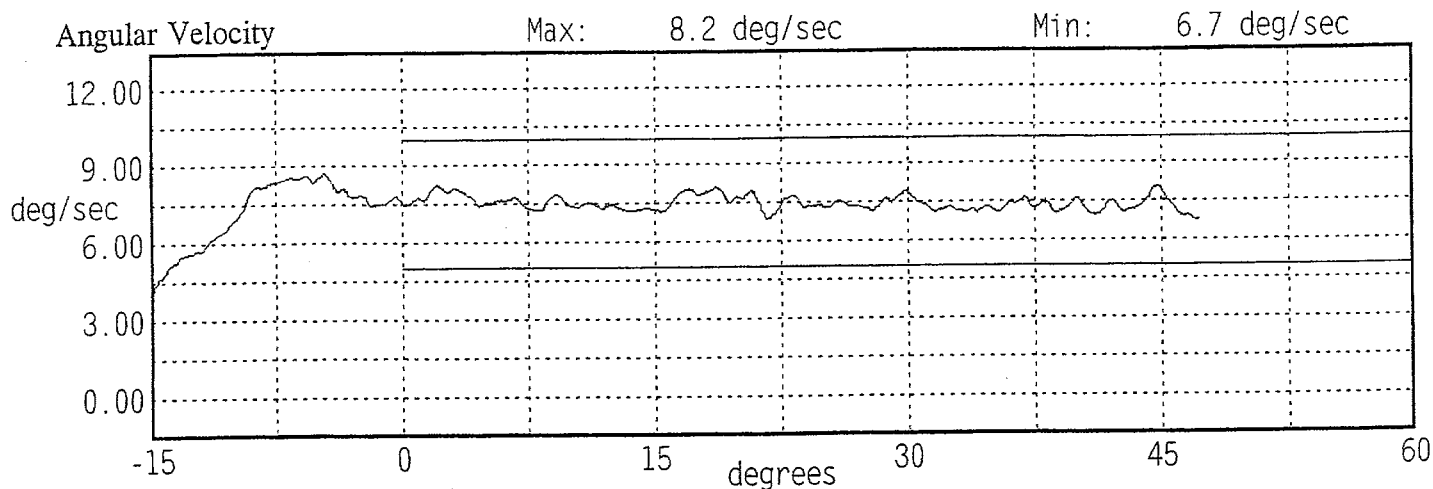
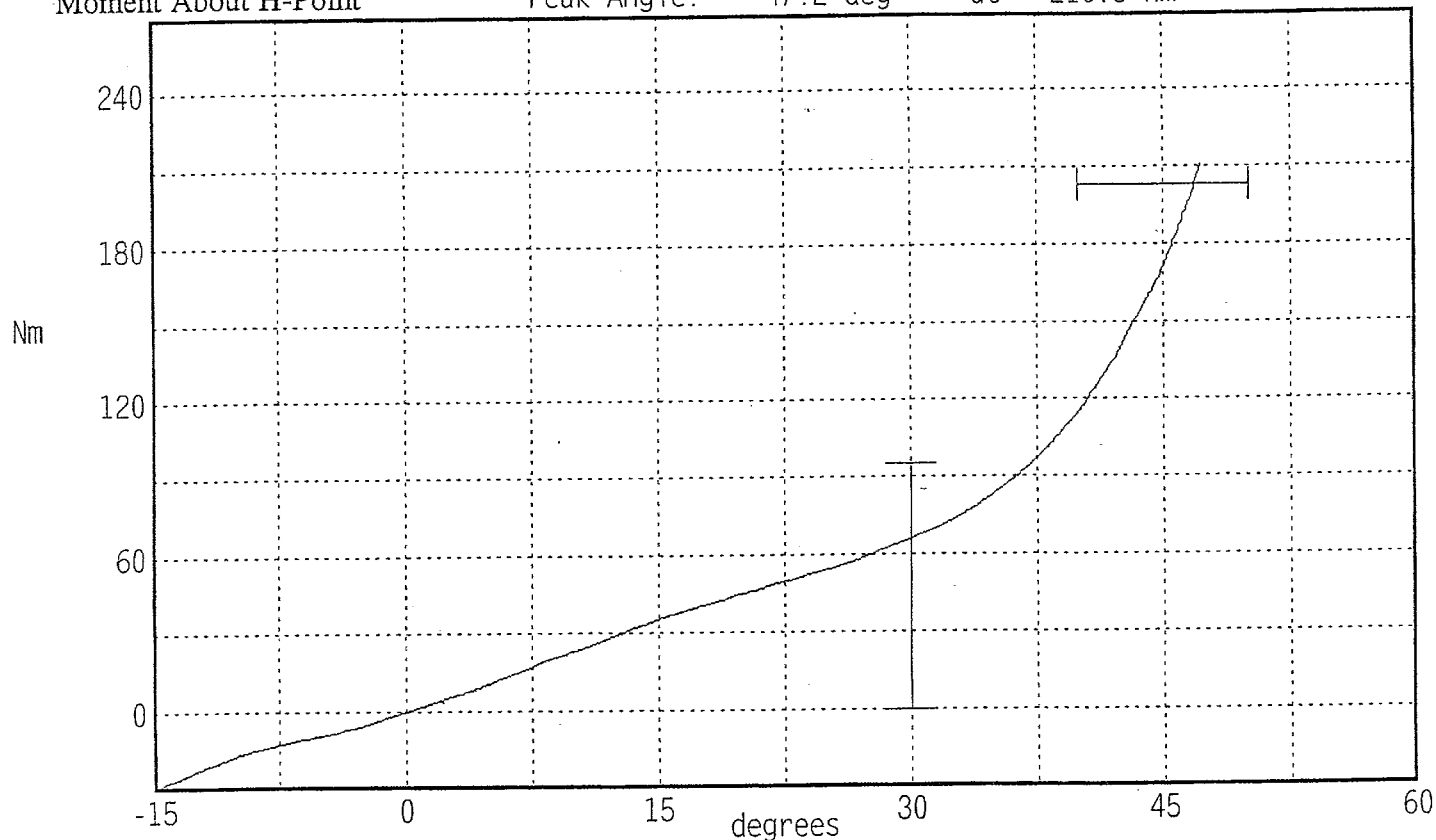
Serial Number: 168R
Test Number: 168C17
Comments:

Date: 09/23/2002
Time: 15:29

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	66.4 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	46.9 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Peak Moment: 210.3 Nm at 47.2 deg
Peak Angle: 47.2 deg at 210.3 Nm

Moment About H-Point



Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

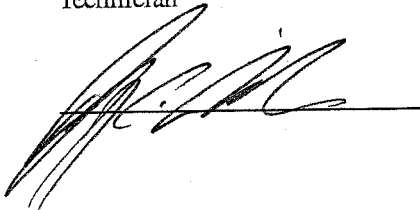
Test Date 09/24/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °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	-1458 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3282 N	No

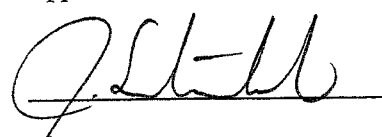
Comments:

Will Replace Left Knee Slider Prior To More Crash Testing.

Technician



Approved



09.25.2002 09:55:37 1155

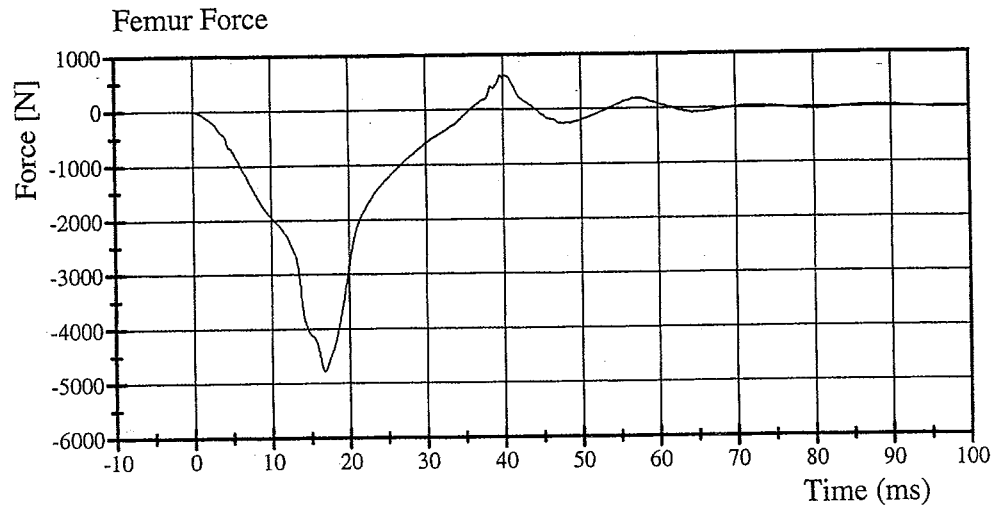


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

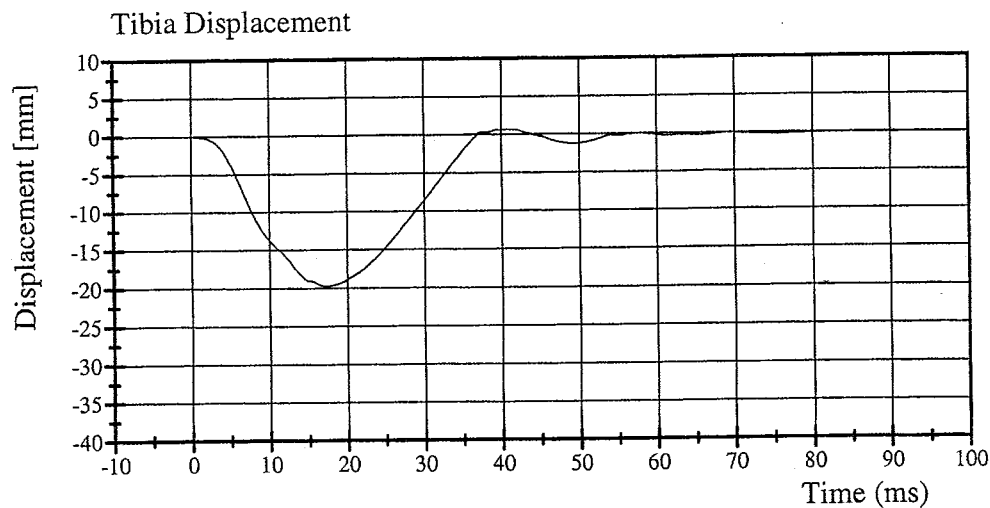
Test Date 09/24/2002



Filter Class: 600

Max: 621.3 N at 40.2 ms

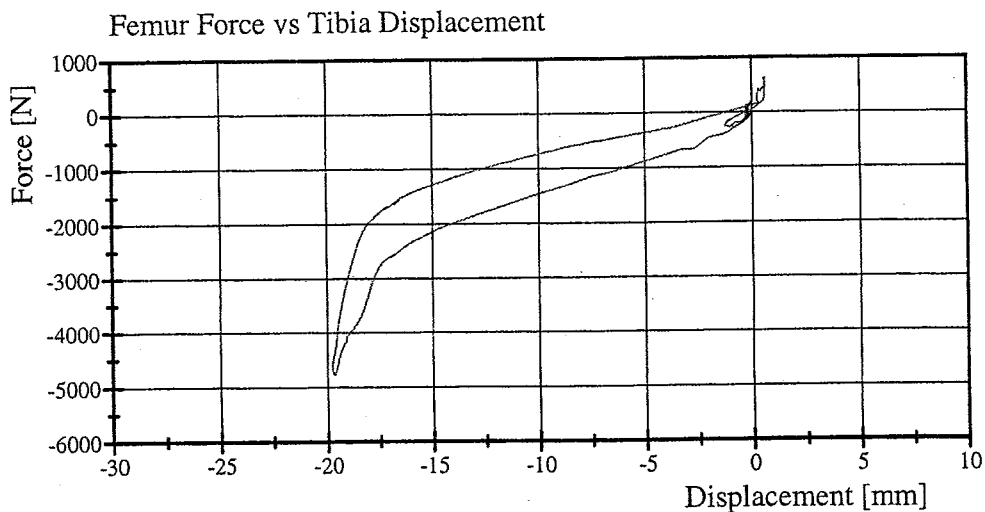
Min: -4774.5 N at 16.7 ms



Filter Class: 600

Max: 0.6 mm at 40.2 ms

Min: -19.8 mm at 17.2 ms



09.24.2002 14:47:56 1155



Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 4

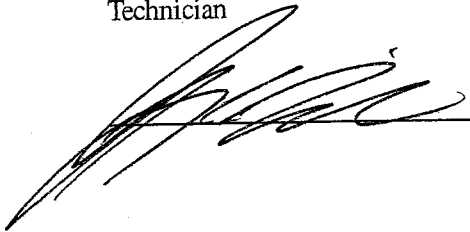
Test Date 09/25/2002

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	2.70 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1586 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3022 N	Yes

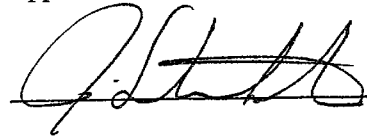
Comments:

Replaced Knee Slider With A New Knee Slider.

Technician



Approved



09.25.2002 14:25:42 1174

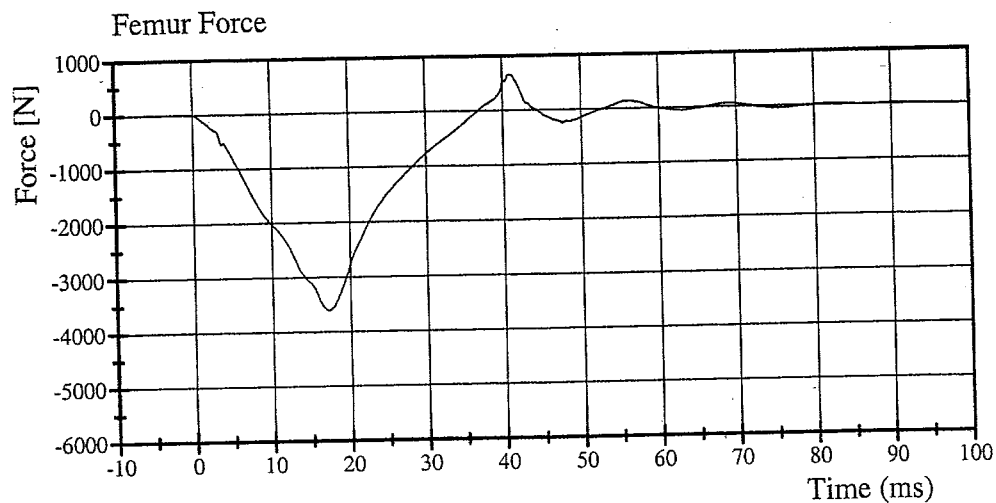


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 4

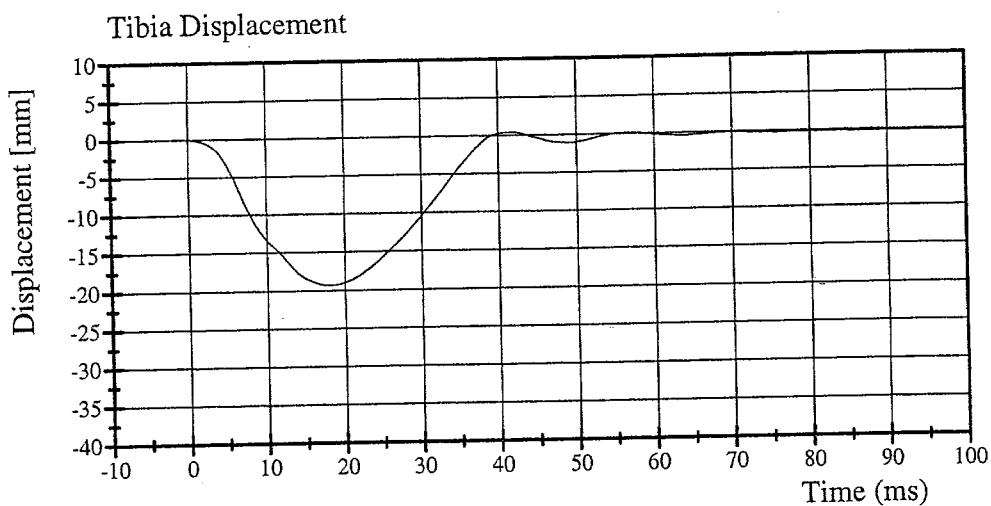
Test Date 09/25/2002



Filter Class: 600

Max: 657.0 N at 40.8 ms

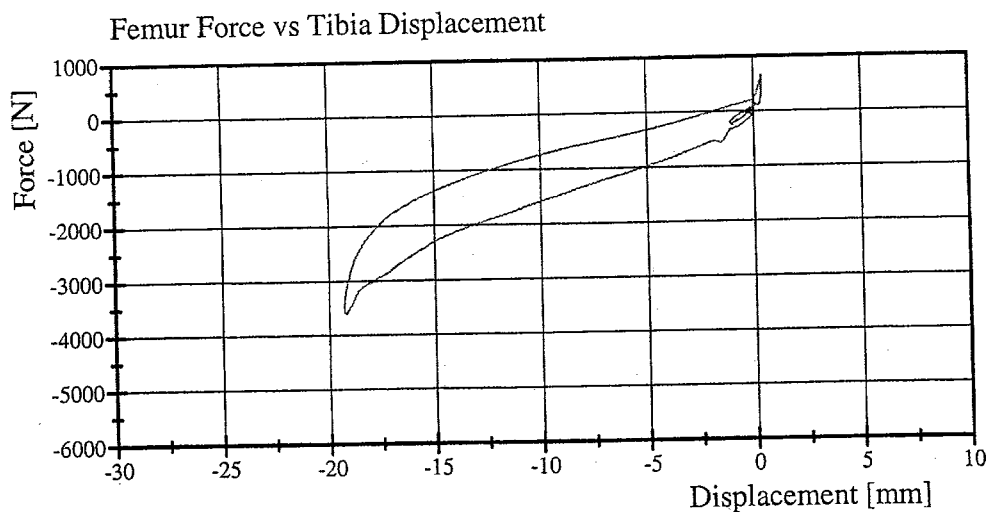
Min: -3603.6 N at 17.2 ms



Filter Class: 600

Max: 0.4 mm at 41.5 ms

Min: -19.3 mm at 18.1 ms



09.25.2002 09:52:59 1174



Transportation Research Center Inc.

572E Right Knee Slider Test

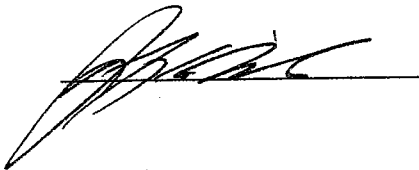
HHH 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/24/2002

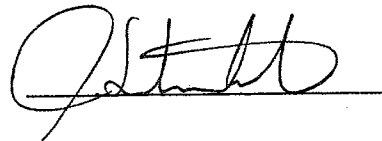
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.77 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1374 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2353 N	Yes

Comments:

Technician



Approved



09.24.2002 13:41:29 1133

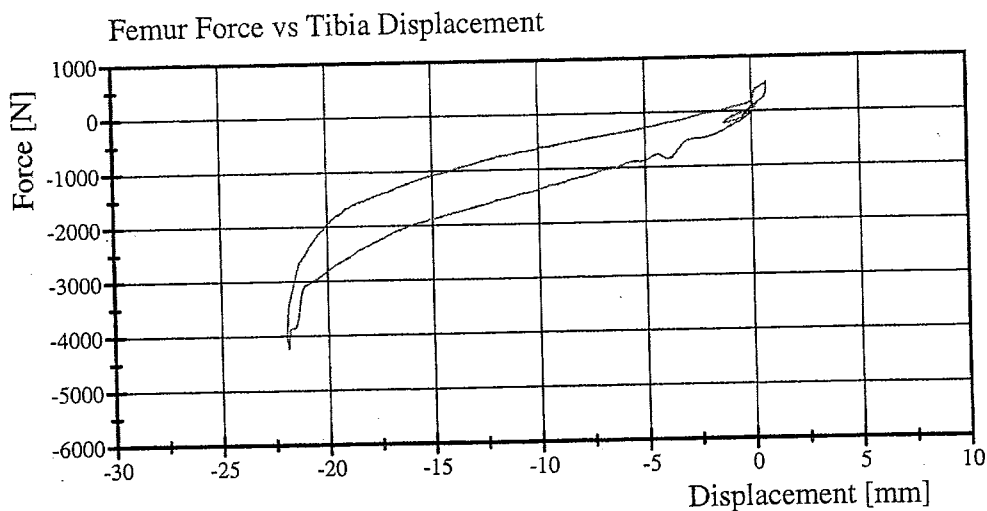
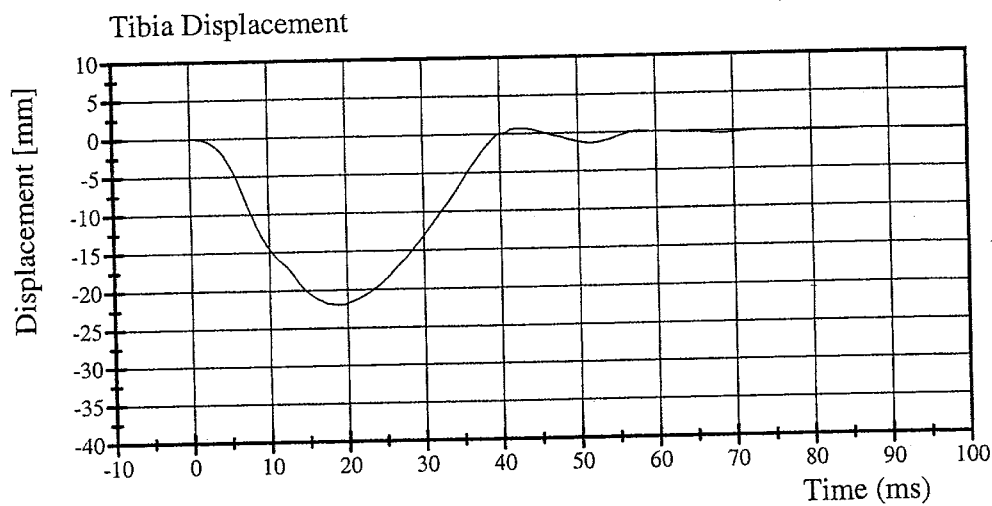
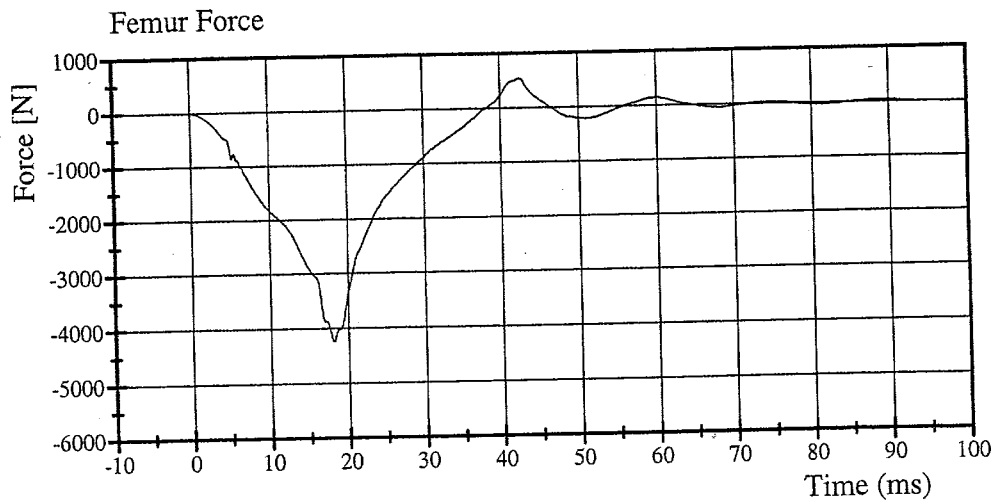


Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/24/2002



09.24.2002 13:41:30 1133



Transportation Research Center Inc.

572E Left Knee Test

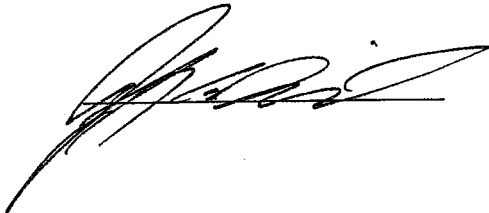
HIH 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002

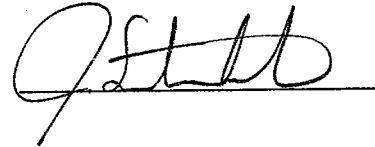
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5066 N	Yes

Comments:

Technician



Approved



09.23.2002 13:02:48 2142

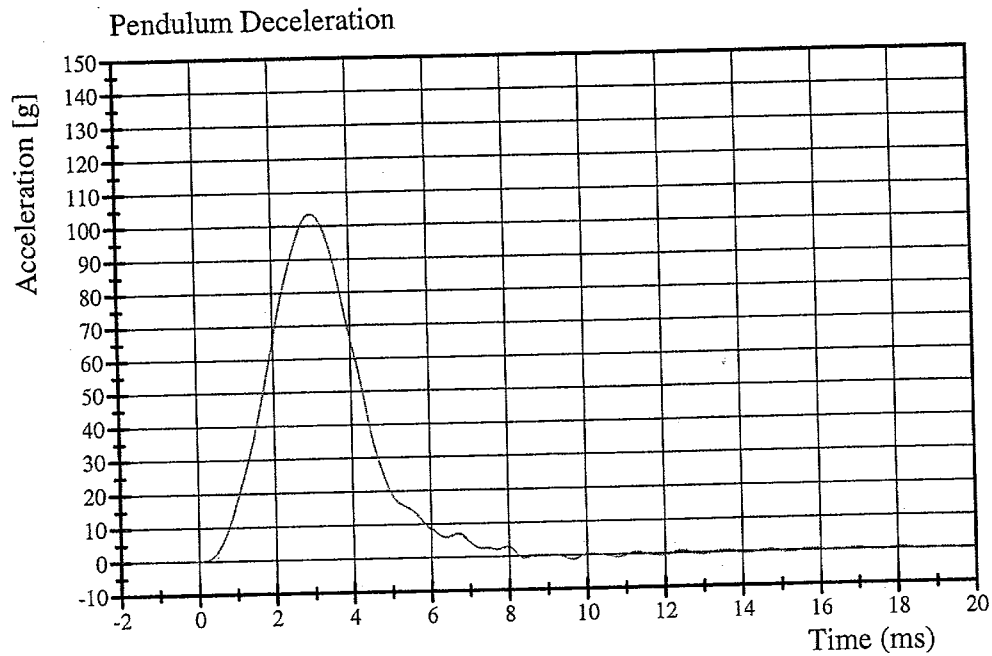


Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 1

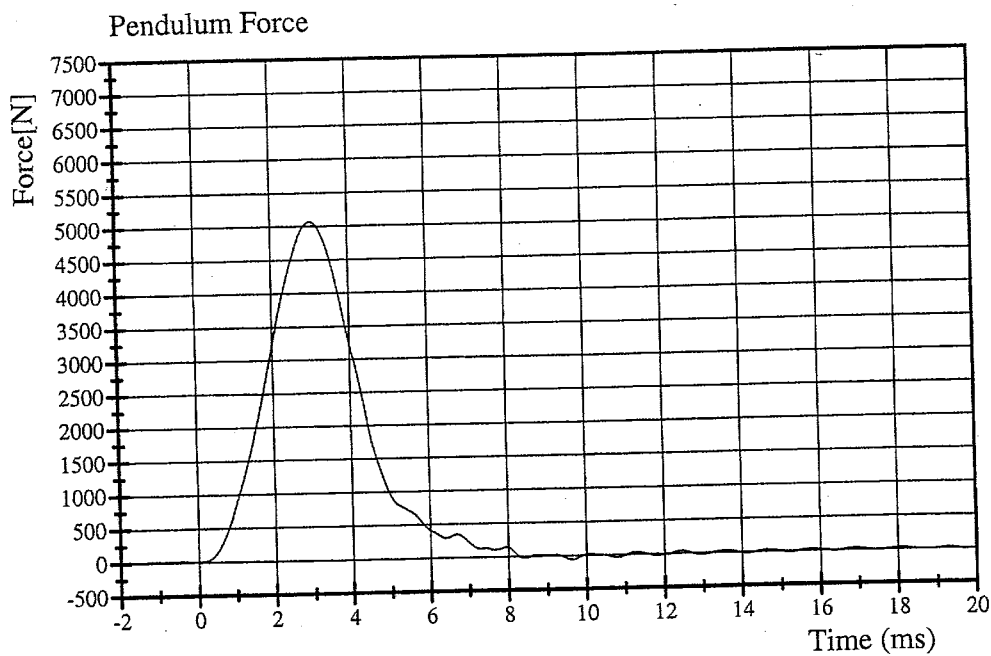
Test Date 09/23/2002



Filter Class: 600

Max: 103.5 g at 3.0 ms

Min: -1.3 g at 9.6 ms



Filter Class: 600

Max: 5065.7 N at 3.0 ms

Min: -61.3 N at 9.6 ms

09.23.2002 13:02:50 2142



Transportation Research Center Inc.

572E Right Knee Test

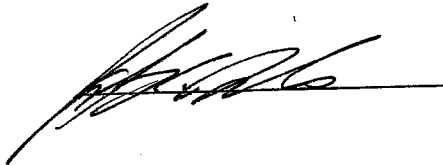
HIII 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002

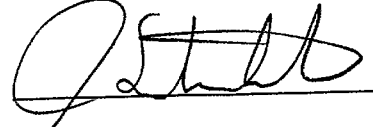
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5070 N	Yes

Comments:

Technician



Approved



09.23.2002 13:06:15 2148



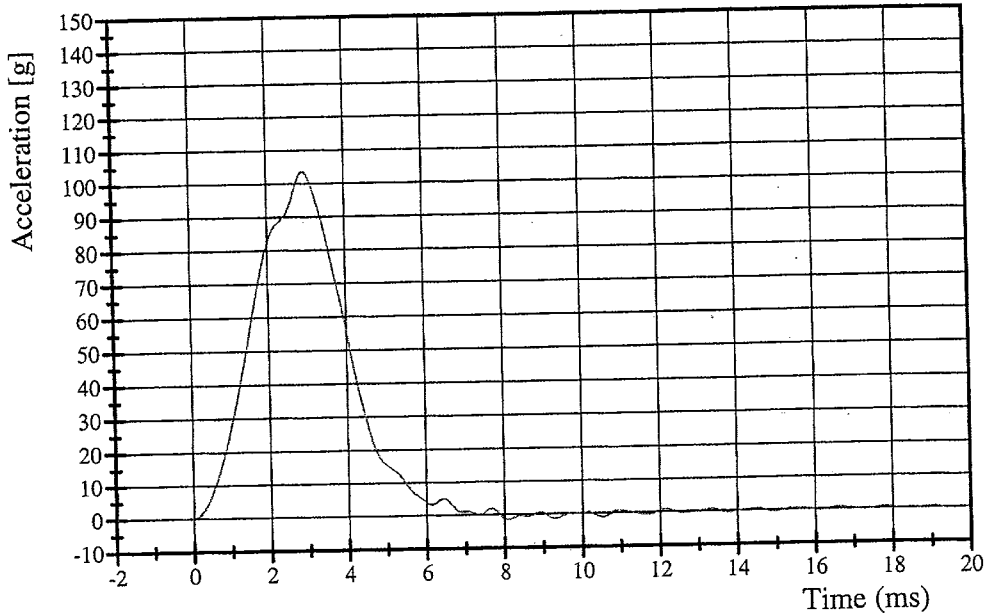
Transportation Research Center Inc.

572E Right Knee Test

HIH 50th Male Serial No. 168 Calibration No. 17 - 1

Test Date 09/23/2002

Pendulum Deceleration

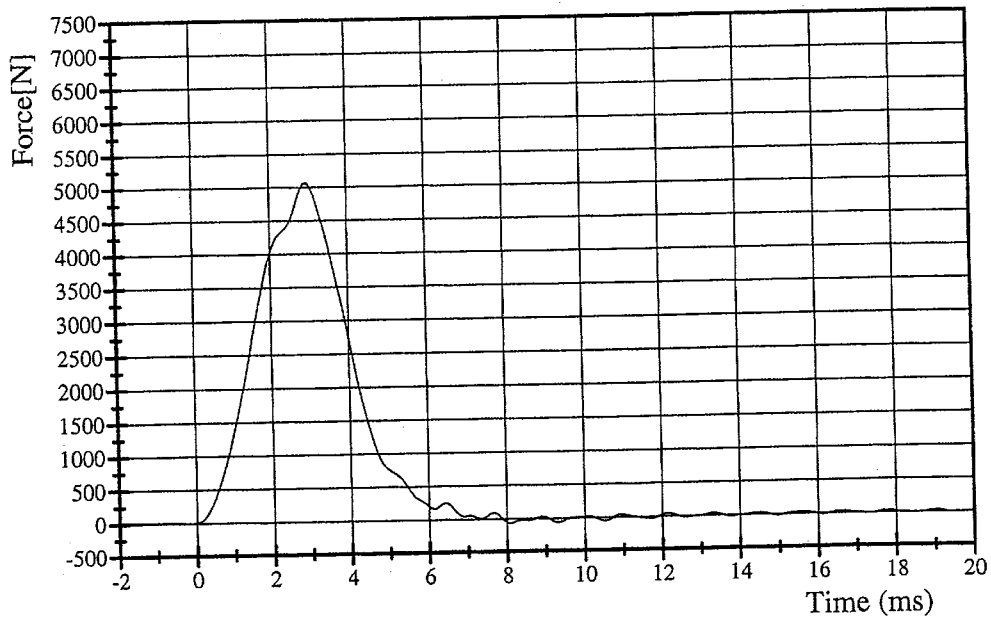


Filter Class: 600

Max: 103.6 g at 3.0 ms

Min: -1.6 g at 8.1 ms

Pendulum Force



Filter Class: 600

Max: 5070.4 N at 3.0 ms

Min: -76.7 N at 8.1 ms

09.23.2002 13:06:16 2148



Pre-Test Dummy Configuration and Performance Verification Data

Target Vehicle Passenger Dummy S/N: 421

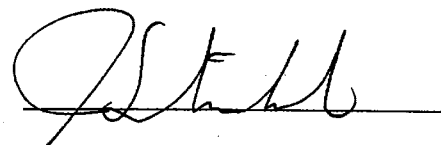
Transportation Research Center Inc.
5720 HHH 5th Dummy
External Dimensions
Serial No. 421 Calibration No. 10

Test Parameter	Dimension	Specification	Results	Pass
Total Sitting Height	A	774.7 - 800.1 mm	793 mm	Yes
Shoulder Pivot Height	B	431.8 - 457.2 mm	450 mm	Yes
Hip Pivot Height	C	81.3 - 86.3 mm	84 mm	Yes
Hip Pivot from Backline	D	144.8 - 149.8 mm	147 mm	Yes
Shoulder Pivot from Backline	E	68.6 - 83.8 mm	81 mm	Yes
Thigh Clearance	F	119.4 - 134.6 mm	127 mm	Yes
Back of Elbow to Wrist Pivot	G	243.9 - 259.0 mm	253 mm	Yes
Head Back to Backline	H	40.7 - 45.7 mm	45 mm	Yes
Shoulder to Elbow Length	I	276.9 - 297.1 mm	289 mm	Yes
Elbow Rest Height	J	182.9 - 203.2 mm	200 mm	Yes
Buttock Knee Length	K	520.7 - 546.1 mm	532 mm	Yes
Popliteal Height	L	355.6 - 375.9 mm	369 mm	Yes
Knee Pivot Height	M	393.7 - 419.1 mm	413 mm	Yes
Buttock Popliteal Height	N	414.1 - 439.4 mm	421 mm	Yes
Chest Depth without Jacket	O	175.3 - 190.5 mm	185 mm	Yes
Foot Length	P	218.5 - 233.6 mm	226 mm	Yes
Buttock to Knee Pivot Length	R	457.2 - 482.6 mm	481 mm	Yes
Head Breadth	S	137.2 - 147.3 mm	140 mm	Yes
Head Depth	T	177.8 - 187.9 mm	183 mm	Yes
Hip Breadth	U	299.8 - 314.9 mm	310 mm	Yes
Shoulder Breadth	V	350.6 - 365.7 mm	354 mm	Yes
Foot Breadth	W	78.8 - 93.9 mm	87 mm	Yes
Head Circumference	X	528.4 - 548.6 mm	540 mm	Yes
Chest Circumference with Jacket	Y	850.9 - 881.3 mm	879 mm	Yes
Waist Circumference	Z	759.5 - 789.9 mm	774 mm	Yes
Reference Location for Chest Circumference	AA	299.8 - 309.8 mm	305 mm	Yes
Reference Location for Waist Circumference	BB	160.1 - 170.1 mm	165 mm	Yes

Technician



Approved




Transportation Research Center Inc.

5720 Head Drop Test

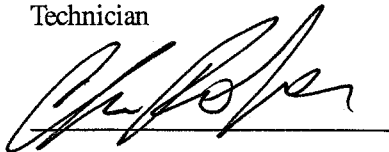
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

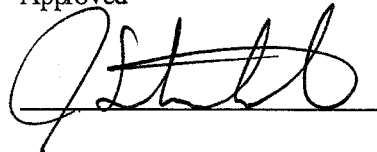
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	64 %	Yes
Peak Resultant Acceleration	250 - 300 g	264.1 g	Yes
Peak Lateral Acceleration	15 g Max	6.1 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



08.26.2002 11:02:55 617



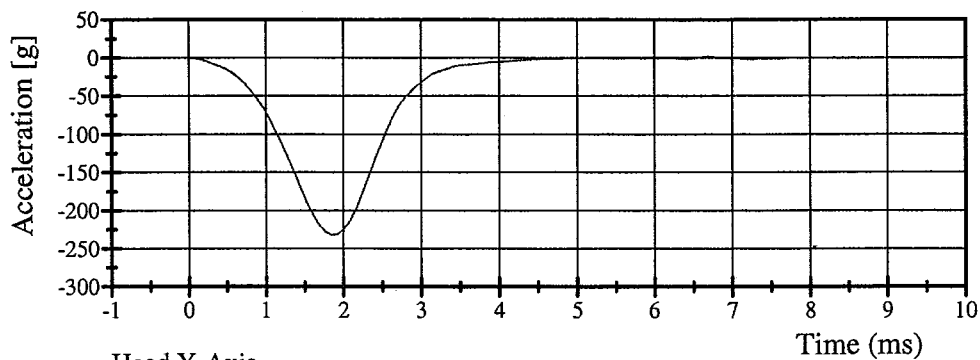
Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

Head X-Axis

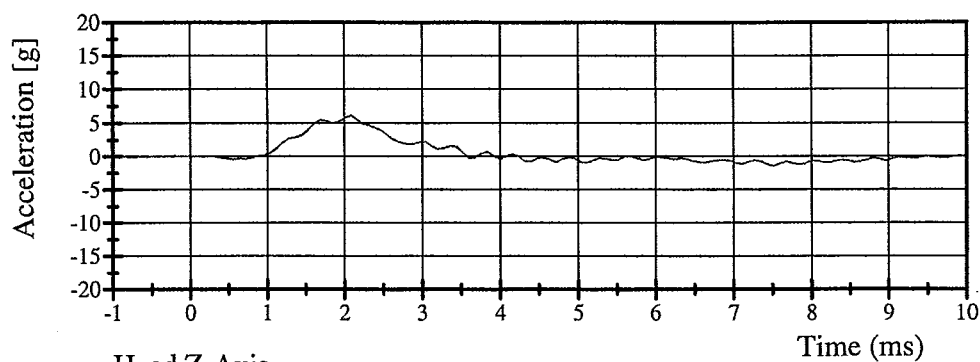


Filter Class: 1000

Max: 1.5 g at 6.7 ms

Min: -232.1 g at 1.8 ms

Head Y-Axis

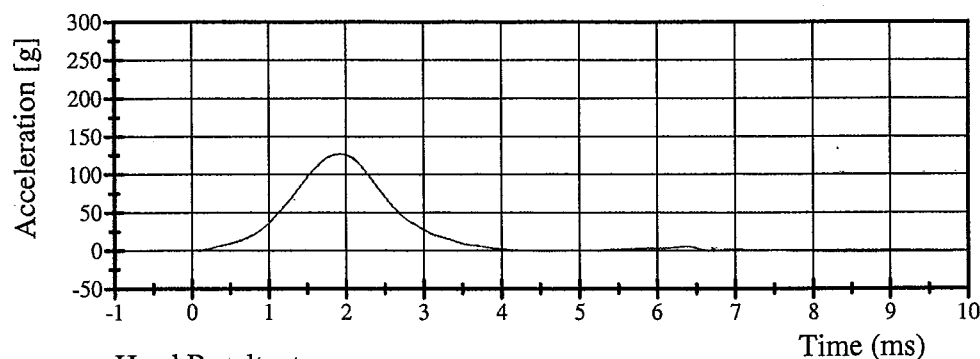


Filter Class: 1000

Max: 6.1 g at 2.1 ms

Min: -1.5 g at 7.5 ms

Head Z-Axis

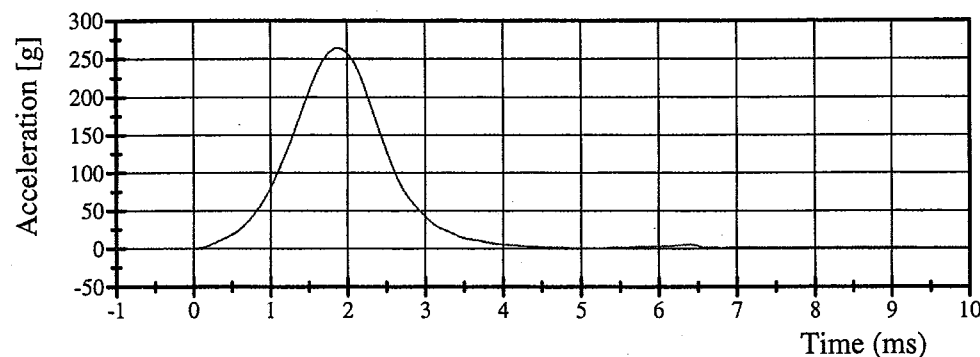


Filter Class: 1000

Max: 127.1 g at 1.9 ms

Min: -1.8 g at 8.6 ms

Head Resultant



Filter Class: 1000

Max: 264.1 g at 1.8 ms

Min: 0.0 g at 1.6 ms

08.26.2002 11:03:02 617



Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

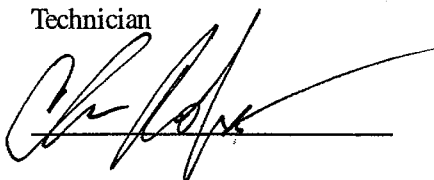
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

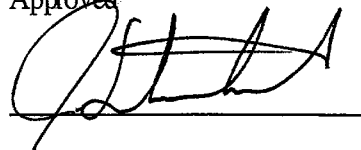
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.10 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.33 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.68 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.85 m/s	Yes
Peak D Plane Rotation	77 - 91 °	81.3 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	77.15 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	88.32 ms	Yes

Comments:

Technician



Approved



08.28.2002 12:29:18 456



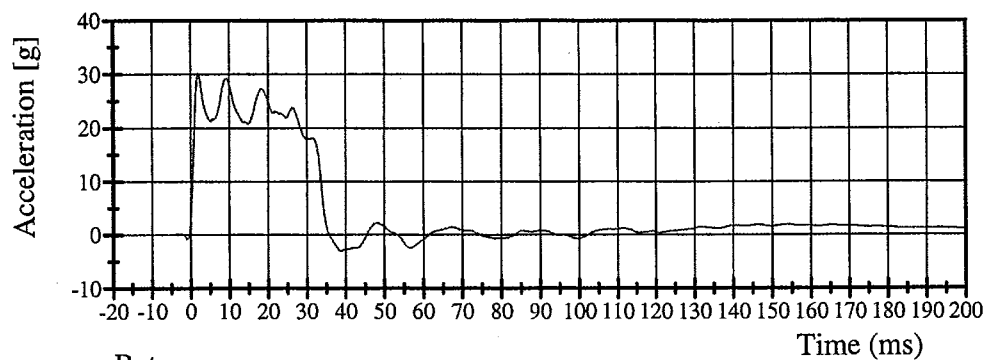
Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

Pendulum Deceleration

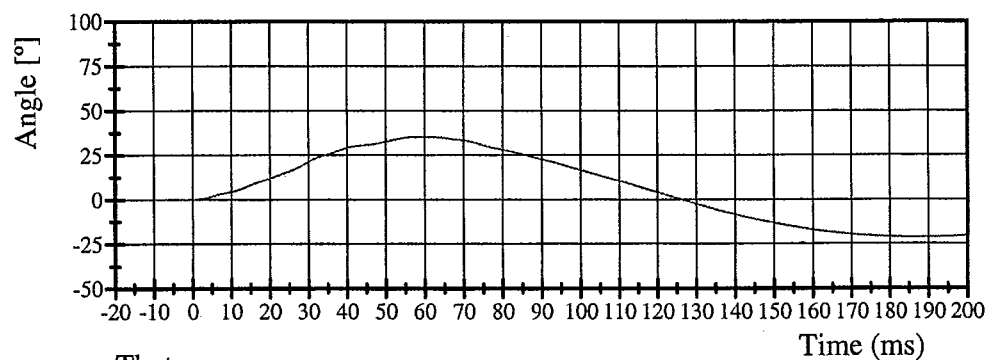


Filter Class: 180

Max: 30.2 g at 1.9 ms

Min: -3.0 g at 38.8 ms

Beta

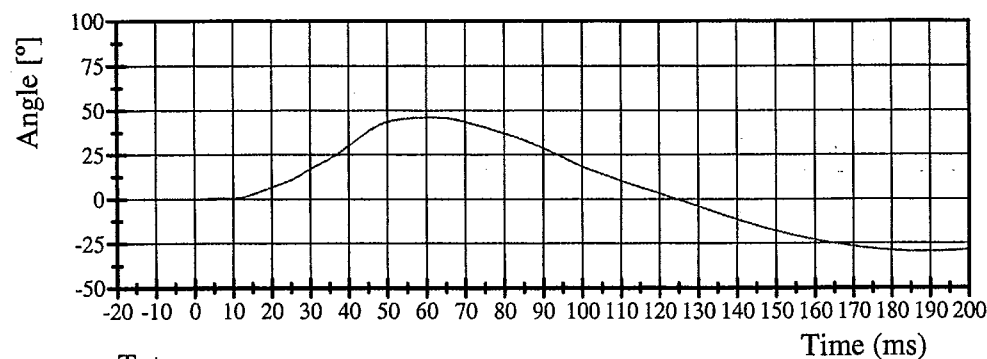


Filter Class: 60

Max: 35.4 ° at 58.7 ms

Min: -21.2 ° at 185.6 ms

Theta

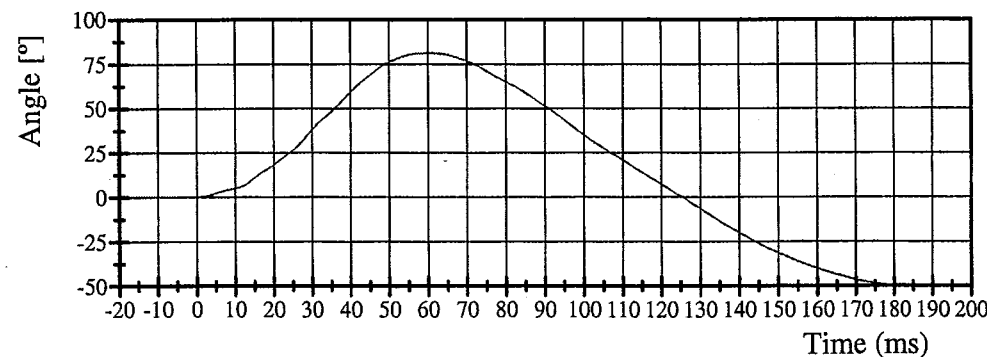


Filter Class: 60

Max: 45.9 ° at 61.0 ms

Min: -29.5 ° at 188.1 ms

Totan



Filter Class: 60

Max: 81.3 ° at 60.4 ms

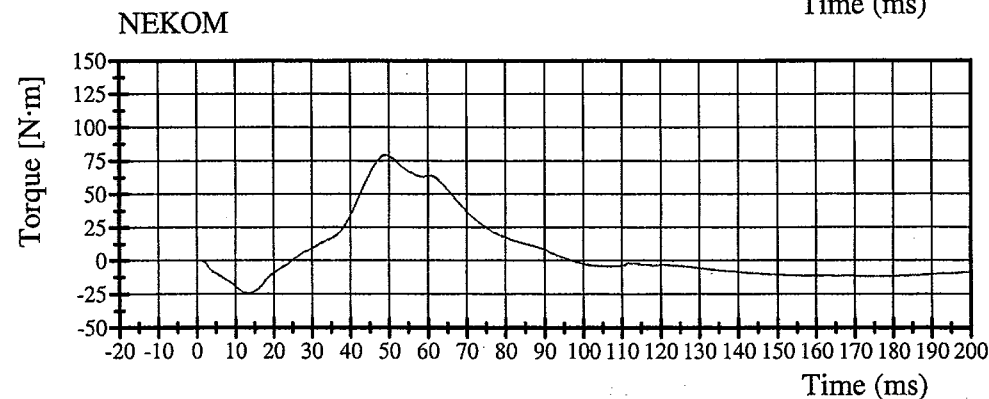
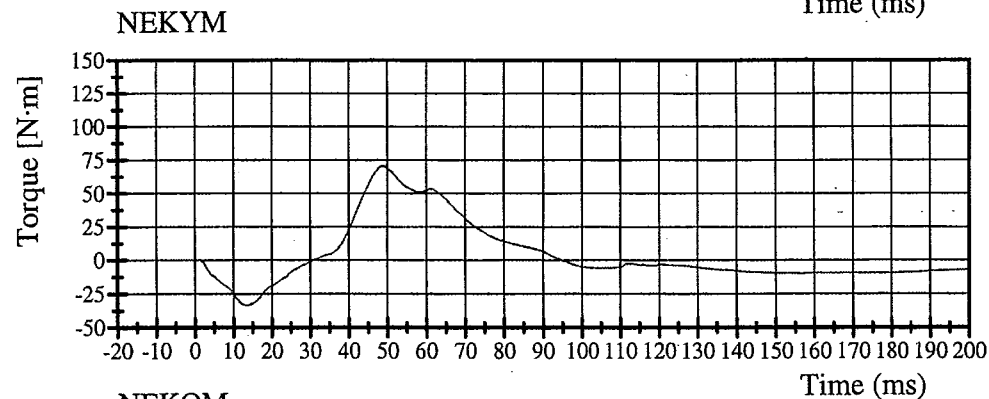
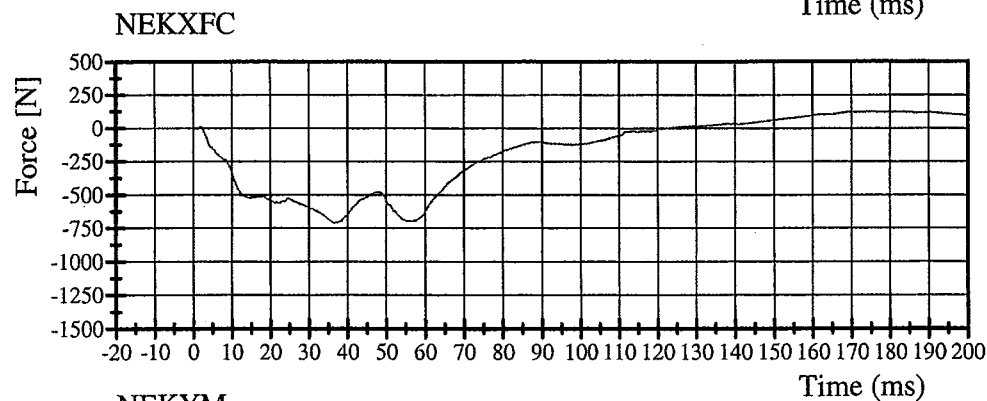
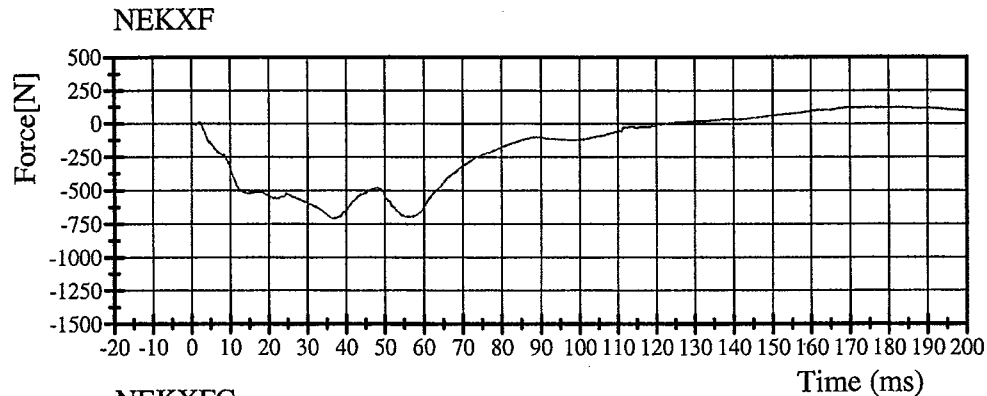
Min: -50.7 ° at 187.2 ms

Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002



08.28.2002 12:29:22 456



Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

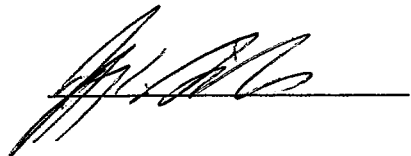
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

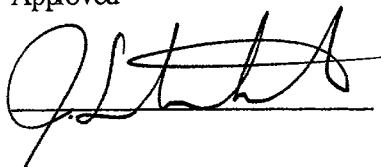
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.18 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.50 - 1.90 m/s	1.64 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.30 m/s	Yes
30 ms	4.60 - 5.60 m/s	4.95 m/s	Yes
Peak D Plane Rotation	99 - 114 °	104.9 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-54.53 N·m	Yes
Positive Moment Decay Time To -10 N·m	94 - 114 ms	106.40 ms	Yes

Comments:

Technician



Approved



08.28.2002 12:52:06 528



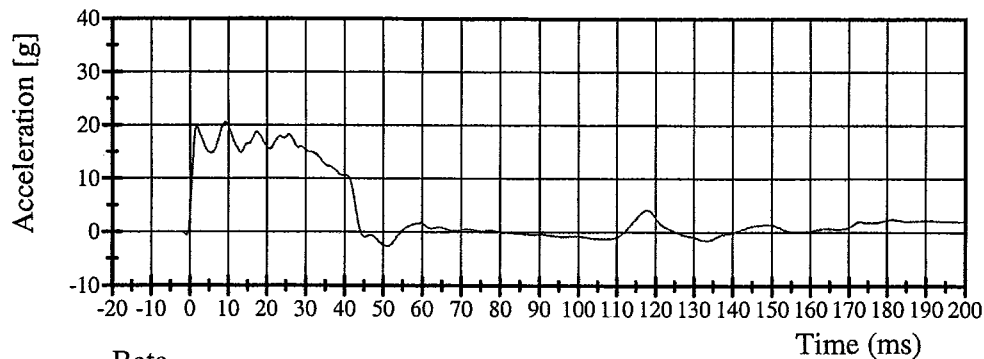
Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

Pendulum Deceleration

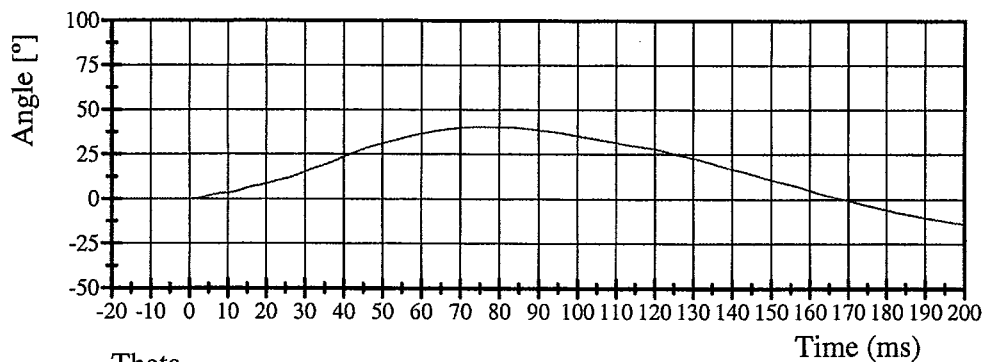


Filter Class: 180

Max: 20.5 g at 9.2 ms

Min: -2.7 g at 51.0 ms

Beta

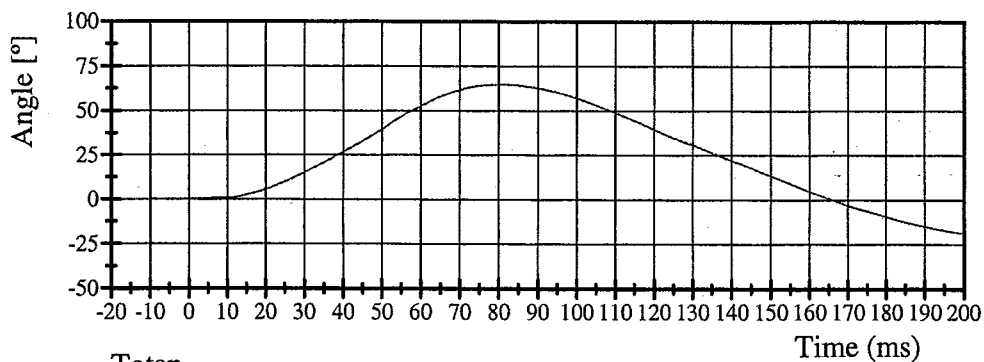


Filter Class: 60

Max: 40.3 ° at 74.8 ms

Min: -16.4 ° at 213.4 ms

Theta

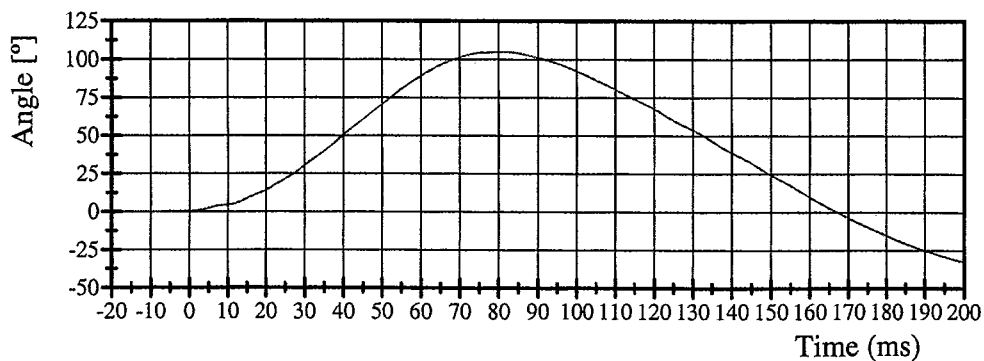


Filter Class: 60

Max: 64.8 ° at 81.4 ms

Min: -20.6 ° at 213.1 ms

Totan



Filter Class: 60

Max: 104.9 ° at 81.2 ms

Min: -36.9 ° at 213.3 ms

08.28.2002 12:52:11 528

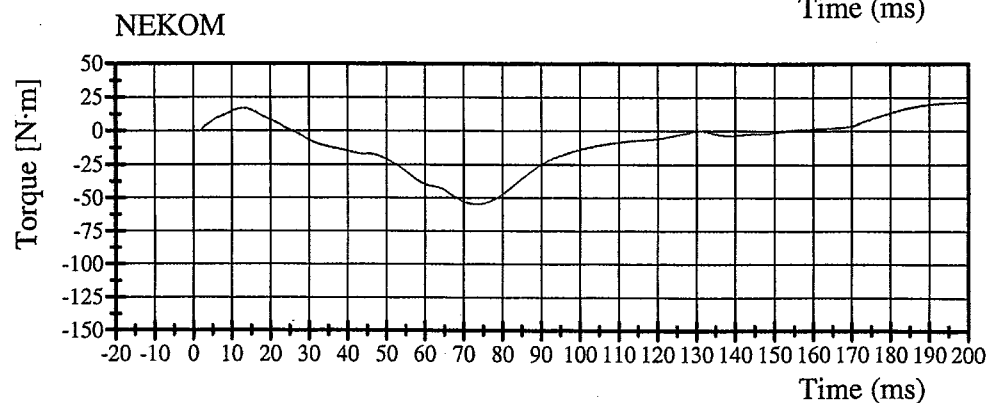
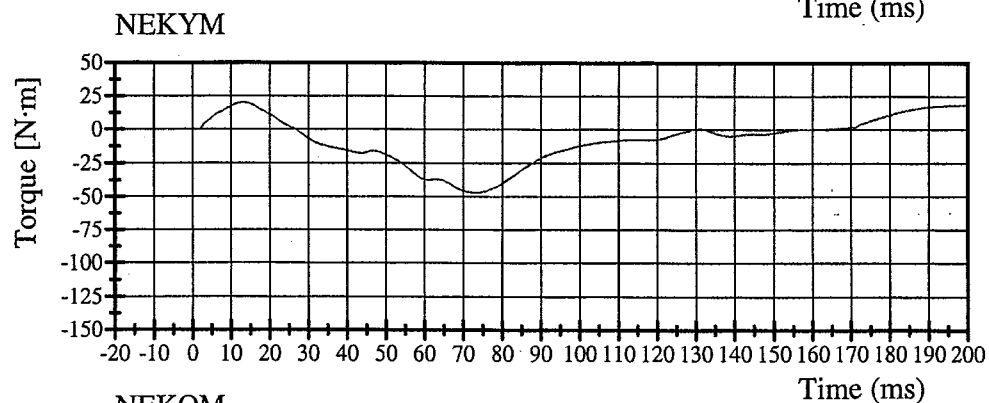
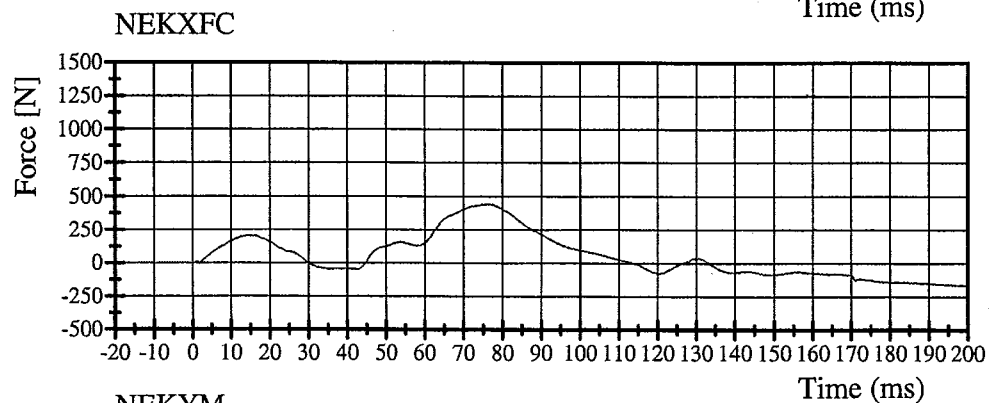
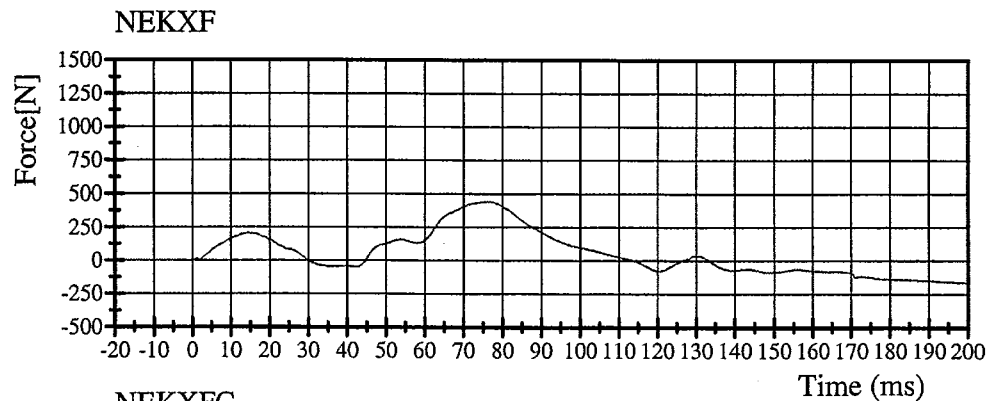


Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002



08.28.2002 12:52:19 528



Transportation Research Center Inc.

5720 Thorax Test

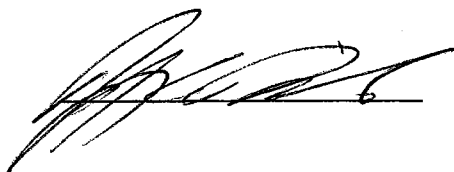
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 09/10/2002

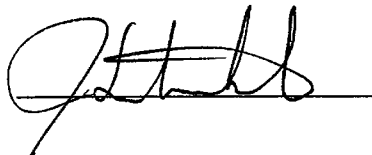
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-52.8 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4106 N	Yes
Internal Hysteresis	105 % Max.	100 %	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

Comments:

Technician



Approved



09.10.2002 07:24:16 1712



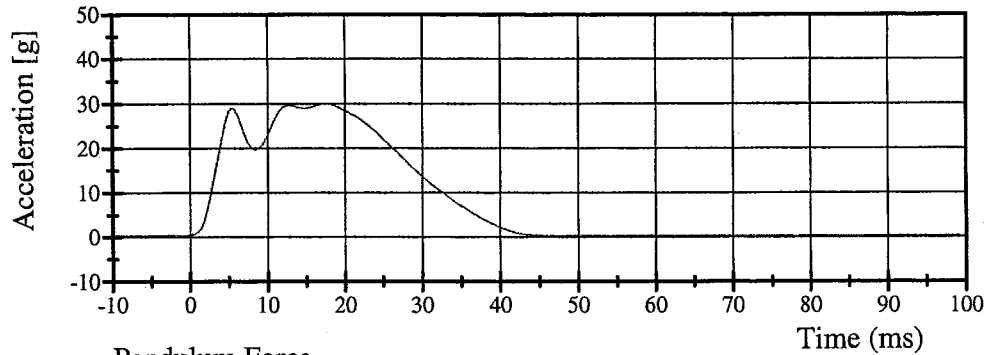
Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 09/10/2002

Pendulum Deceleration

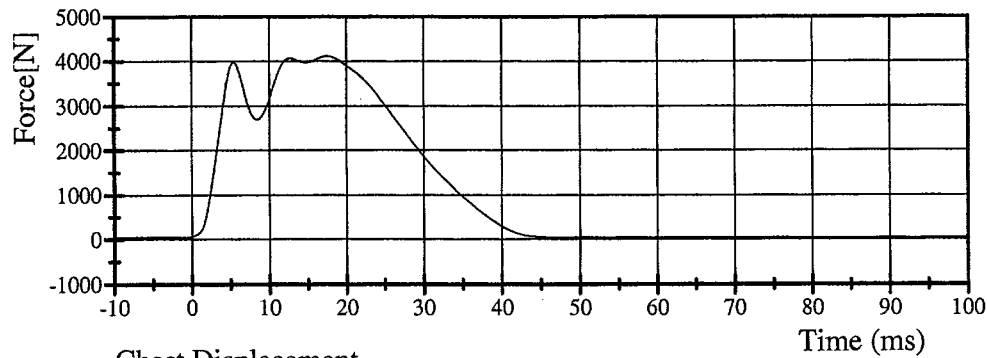


Filter Class: 180

Max: 30.0 g at 17.5 ms

Min: -0.0 g at -135.8 ms

Pendulum Force

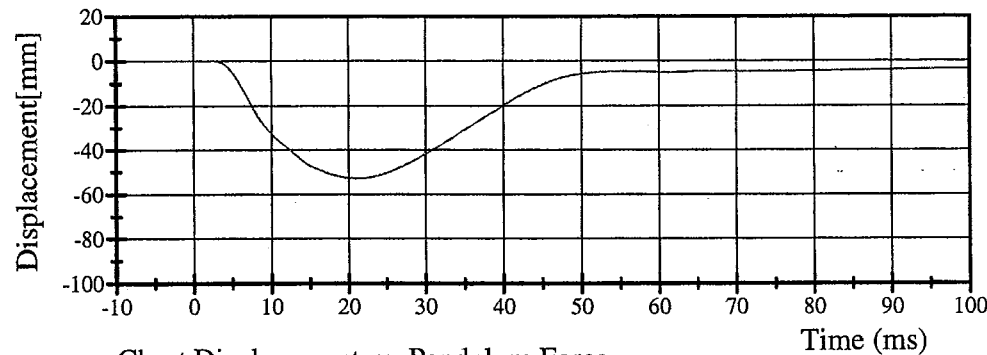


Filter Class: 180

Max: 4106.2 N at 17.5 ms

Min: -2.0 N at -135.8 ms

Chest Displacement

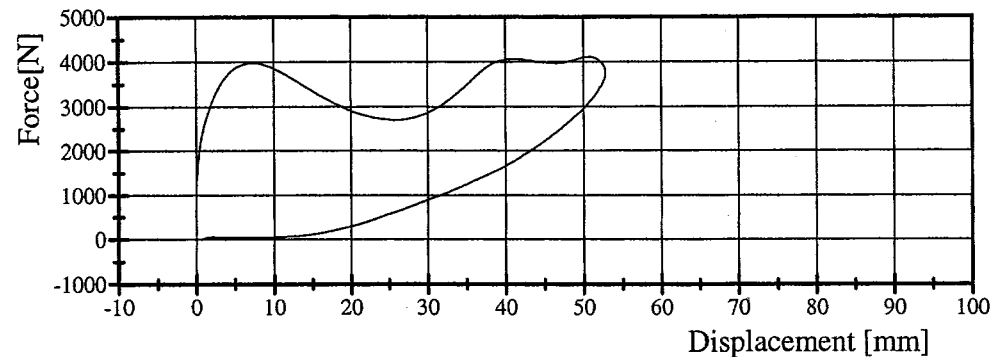


Filter Class: 180

Max: 0.0 mm at 2.0 ms

Min: -52.8 mm at 21.1 ms

Chest Displacement vs. Pendulum Force



09.10.2002 07:24:20 1712



TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

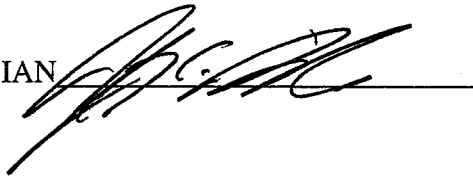
CAL DATE: 06-Sep-02

TRC, INC. TEST NO: 421C10TF1 572 O SN421 TORSO FLEX CAL 10

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 – 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 – 70 %	55 %
INITIAL ANGLE OF UNSUPPORTRED DUMMY	<= 20 DEG. REFERENCED TO VERTICAL	14.8 DEG.
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	323.70 N
RETURN ANGLE		19.8 DEG.
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 DEG. OF INTIAL ANGLE	5.0 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

5720 Left Knee Slider Test

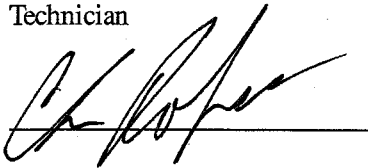
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-14.6 mm	Yes

Comments:

Technician



Approved



08.28.2002 08:10:11 1360



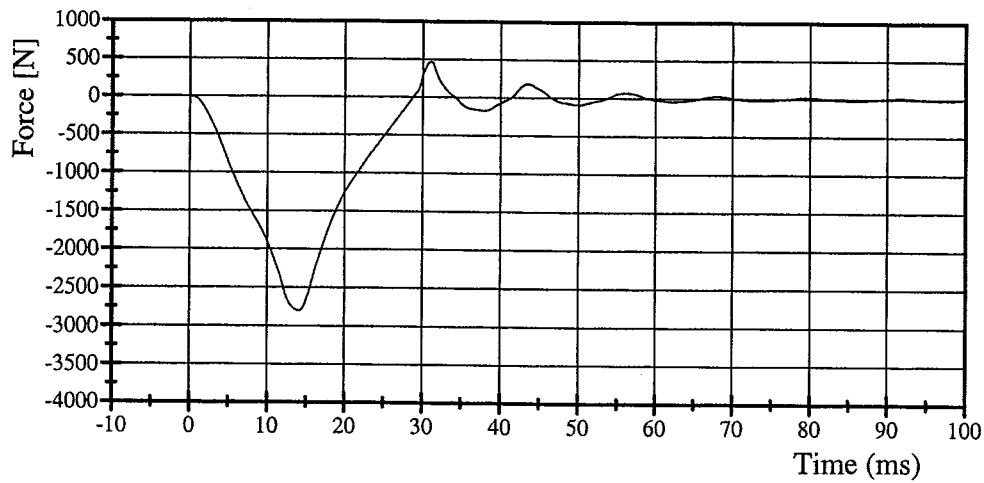
Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

Femur Force

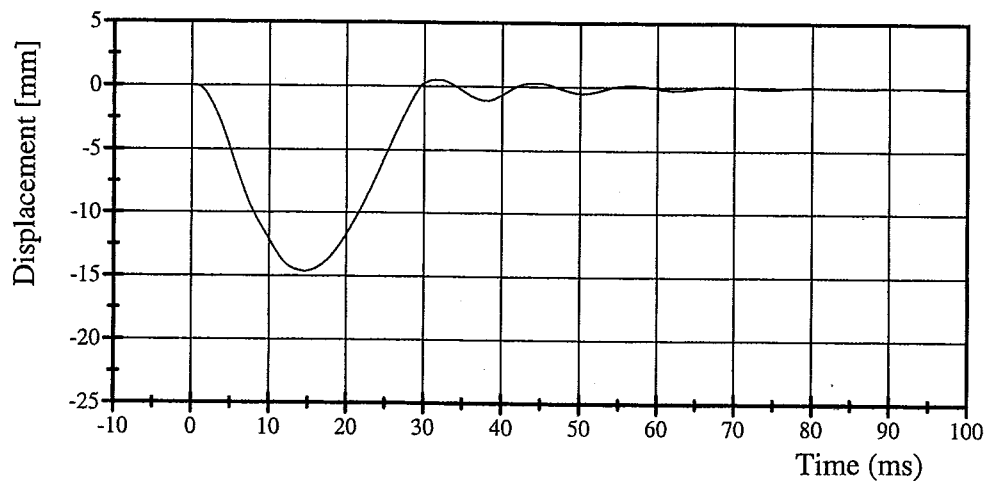


Filter Class: 600

Max: 465.7 N at 31.0 ms

Min: -2800.3 N at 14.1 ms

Tibia Displacement

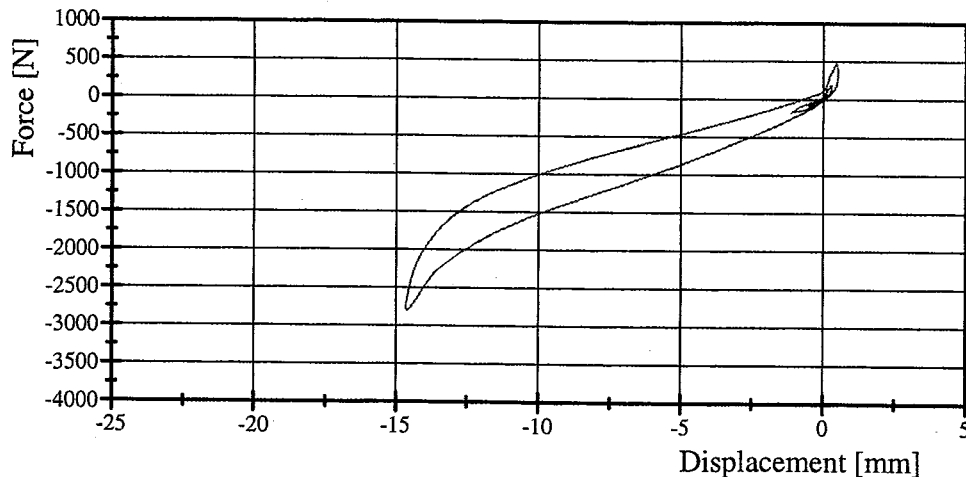


Filter Class: 600

Max: 0.5 mm at 31.8 ms

Min: -14.6 mm at 14.6 ms

Femur Force vs Tibia Displacement



08.28.2002 08:07:02 1360



Transportation Research Center Inc.

5720 Right Knee Slider Test

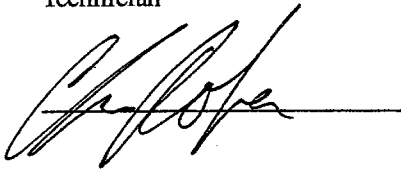
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002

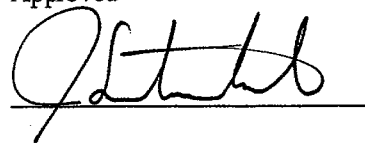
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-14.6 mm	Yes

Comments:

Technician



Approved



08.26.2002 15:11:50 1361

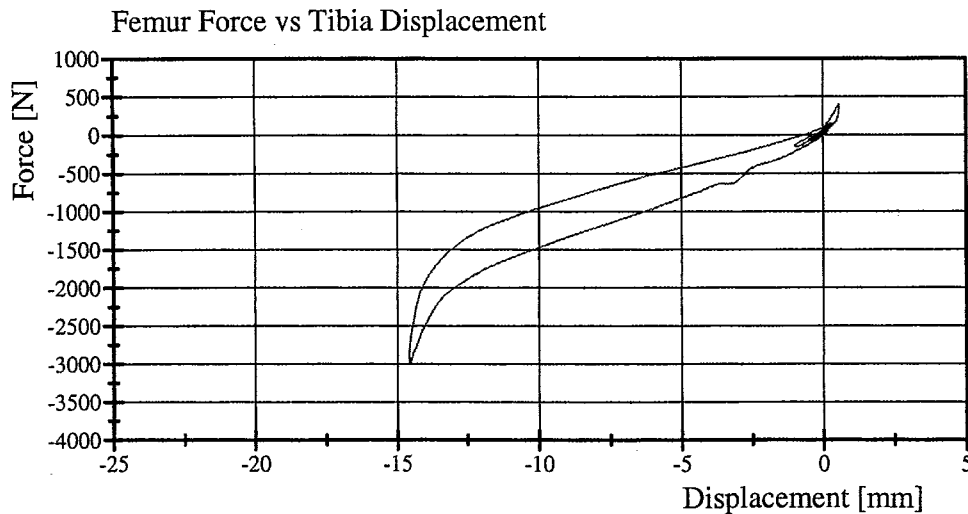
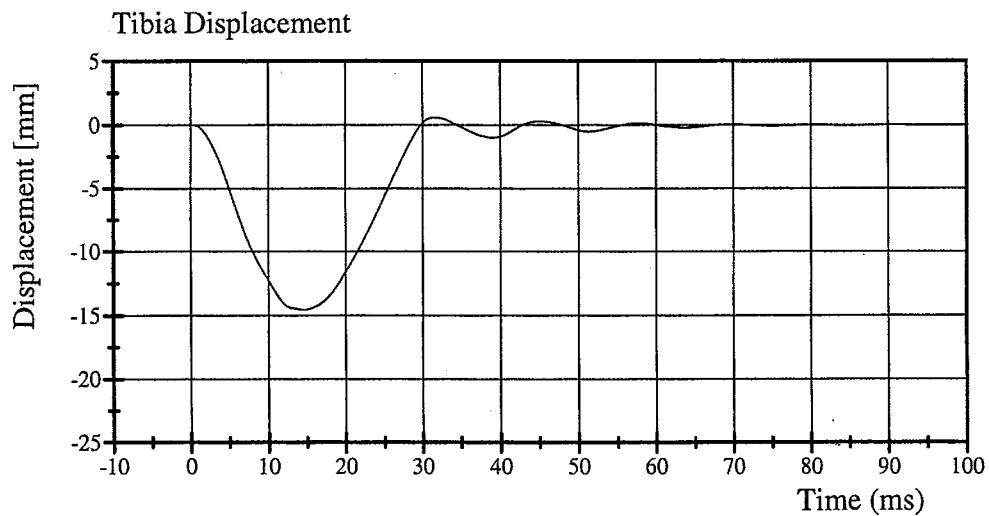
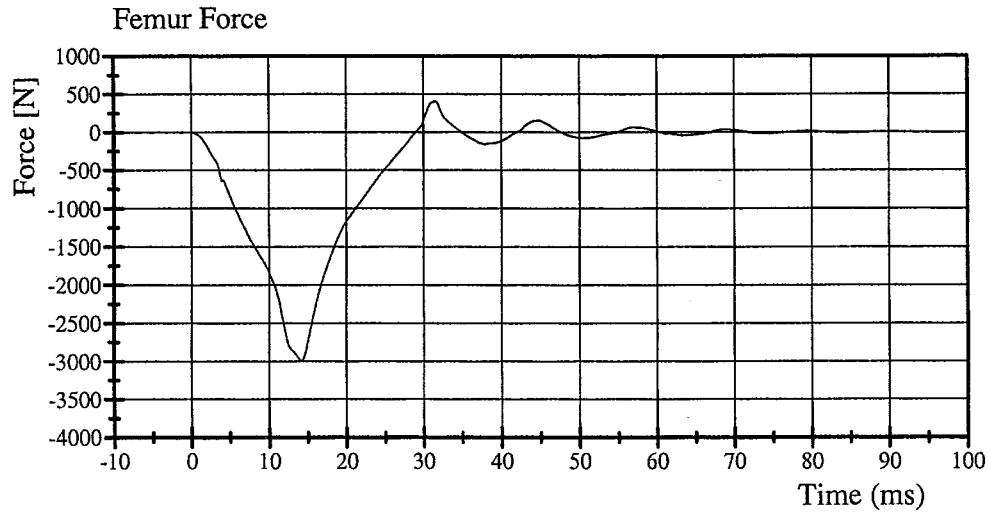


Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/26/2002



08.26.2002 15:11:52 1361



Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

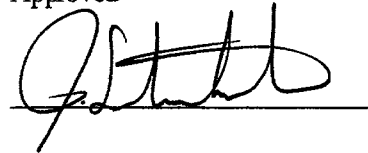
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3946 N	Yes

Comments:

Technician



Approved



08.28.2002 10:17:39 1760

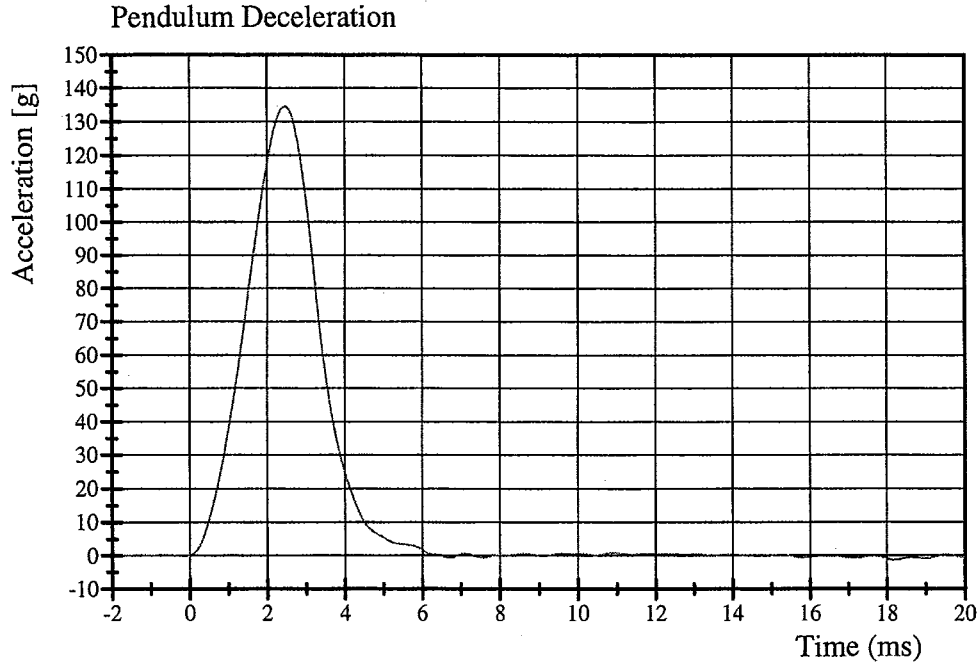


Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

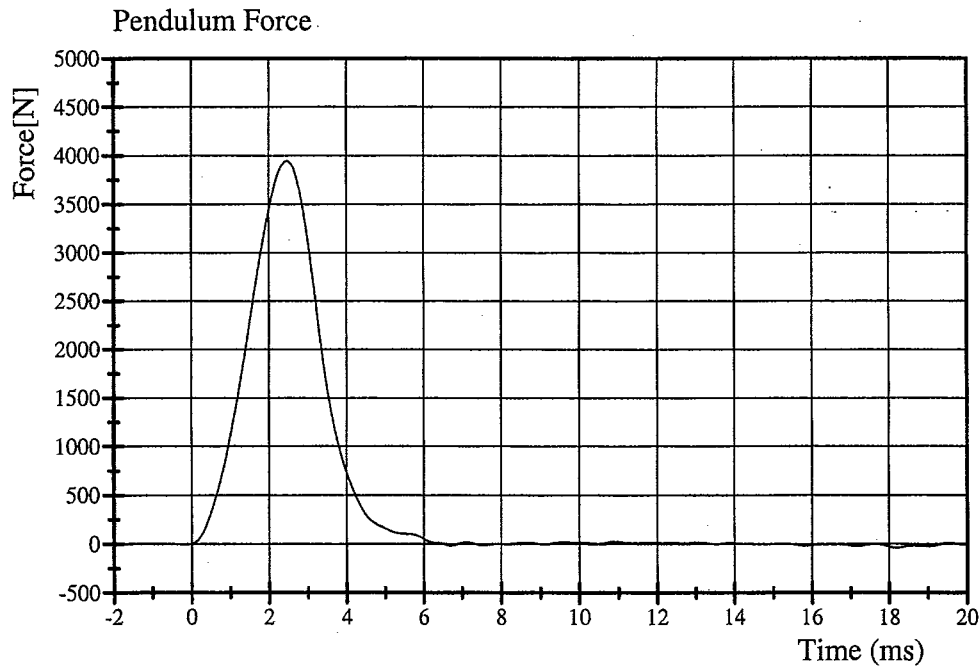
Test Date 08/28/2002



Filter Class: 600

Max: 134.6 g at 2.5 ms

Min: -1.3 g at 18.2 ms



Filter Class: 600

Max: 3945.9 N at 2.5 ms

Min: -37.8 N at 18.2 ms

08.28.2002 10:17:41 1760



Transportation Research Center Inc.

5720 Right Knee Test

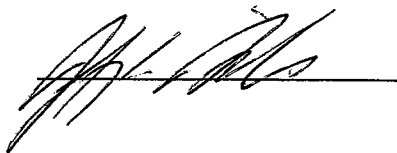
HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

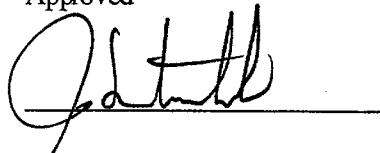
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3748 N	Yes

Comments:

Technician



Approved



08.28.2002 10:21:48 1755



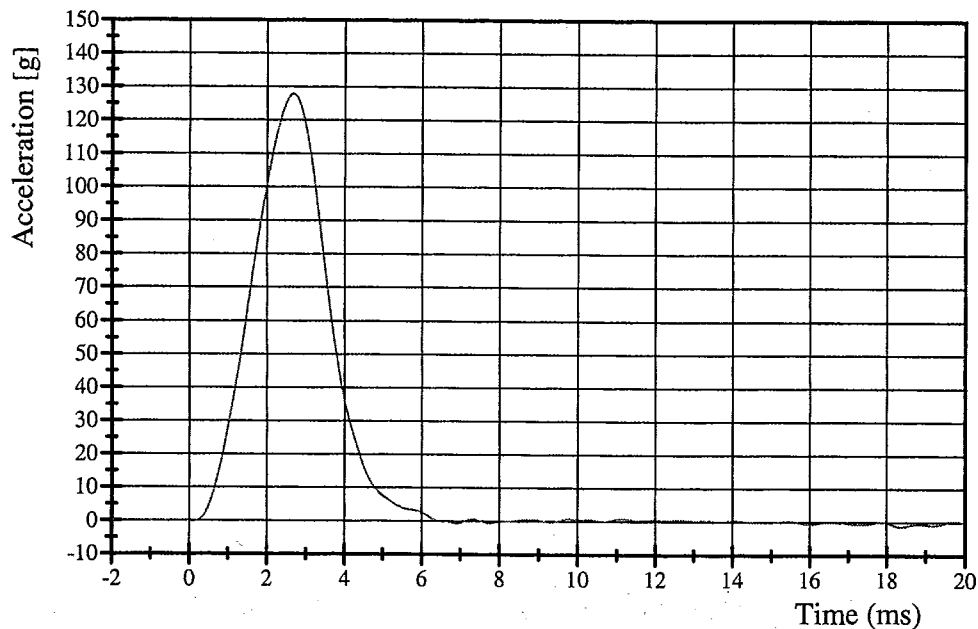
Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 421 Calibration No. 10 - 1

Test Date 08/28/2002

Pendulum Deceleration

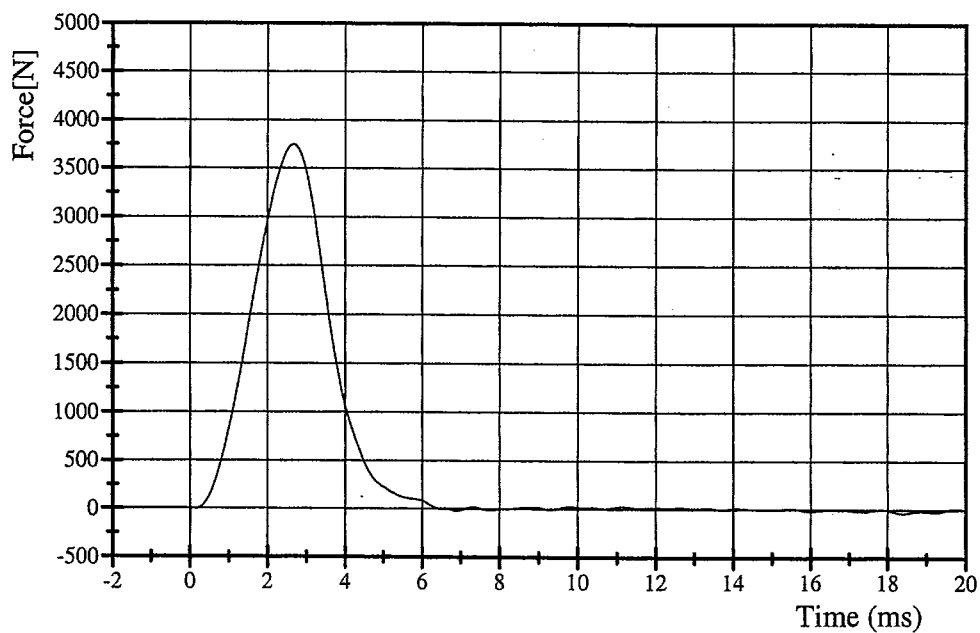


Filter Class: 600

Max: 127.8 g at 2.6 ms

Min: -1.3 g at 18.4 ms

Pendulum Force



Filter Class: 600

Max: 3748.3 N at 2.6 ms

Min: -36.7 N at 18.4 ms

Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Driver Dummy S/N: 169

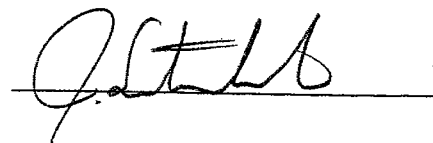
Transportation Research Center Inc.
572E HIII 50th Dummy
External Dimensions
Serial No. 169 Calibration No. 15

Test Parameter	Dimension	Specification	Results	Pass
Location For Chest Circumference	AA	429 - 434 mm	432 mm	Yes
Location For Waist Circumference	BB	226 - 231 mm	229 mm	Yes
Chest Circumference	Y	970 - 1001 mm	994 mm	Yes
Waist Circumference	Z	836 - 866 mm	862 mm	Yes
Chest Depth	O	213 - 229 mm	223 mm	Yes
H-Point Height	C	84 - 89 mm	86 mm	Yes
H-Point From Seatback	D	135 - 140 mm	136 mm	Yes
Skull Cap To Backline	H	41 - 46 mm	45 mm	Yes
Total Sitting Height	A	879 - 889 mm	882 mm	Yes
Thigh Clearance	F	140 - 155 mm	147 mm	Yes
Buttock Knee Length	K	579 - 605 mm	591 mm	Yes
Buttock Popliteal Length	N	452 - 478 mm	470 mm	Yes
Popliteal Height	L	429 - 455 mm	438 mm	Yes
Knee Pivot Height	M	485 - 500 mm	488 mm	Yes
Foot Length	P	252 - 267 mm	254 mm	Yes
Foot Breadth	W	91 - 107 mm	102 mm	Yes
Shoulder Pivot From Backline	E	84 - 94 mm	90 mm	Yes
Shoulder Breadth	V	422 - 437 mm	428 mm	Yes
Shoulder Pivot Height	B	506 - 521 mm	517 mm	Yes
Elbow Rest Height	J	191 - 211 mm	206 mm	Yes
Shoulder-Elbow Length	I	330 - 345 mm	342 mm	Yes
Back Of Elbow To Wrist Pivot	G	290 - 305 mm	298 mm	Yes

Technician



Approved




Transportation Research Center Inc.

572E Head Drop Test

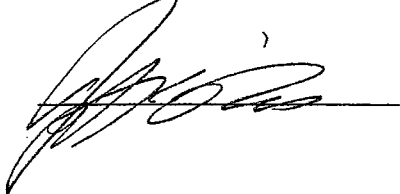
HIH 50th Male Serial No. 169 Calibration No. 15 - 2

Test Date 09/23/2002

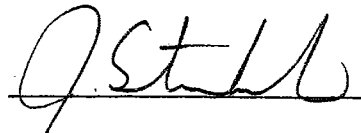
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Peak Resultant Acceleration	225 - 275 g	260.2 g	Yes
Peak Lateral Acceleration	15 g Max	3.3 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



09.23.2002 13:39:18 610



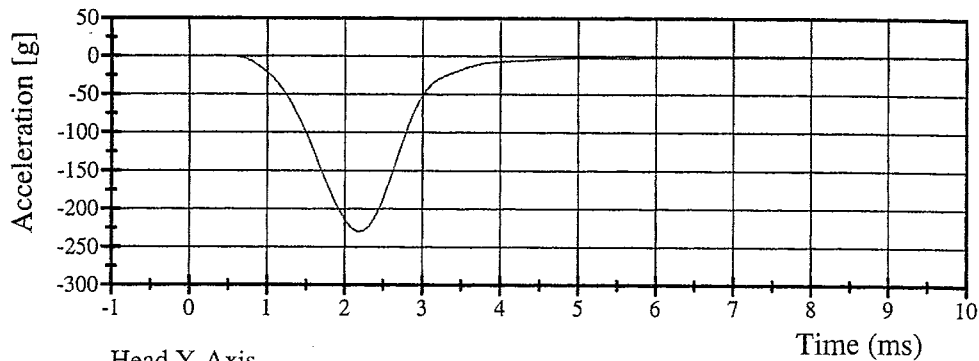
Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 2

Test Date 09/23/2002

Head X-Axis

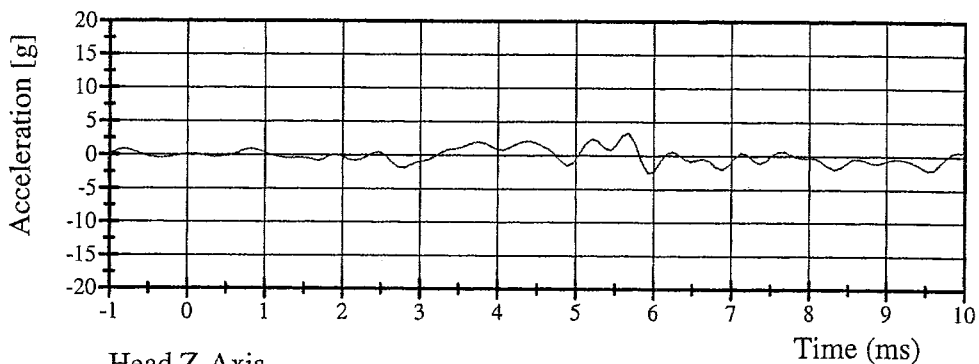


Filter Class: 1000

Max: 0.2 g at 9.9 ms

Min: -229.9 g at 2.2 ms

Head Y-Axis

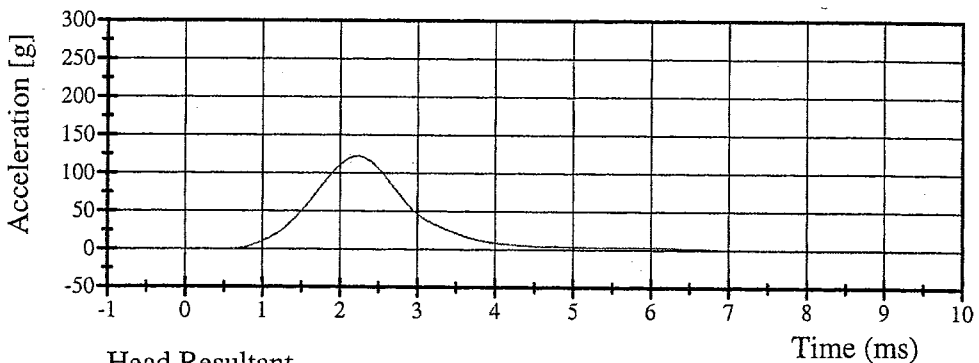


Filter Class: 1000

Max: 3.3 g at 5.7 ms

Min: -2.5 g at 5.9 ms

Head Z-Axis

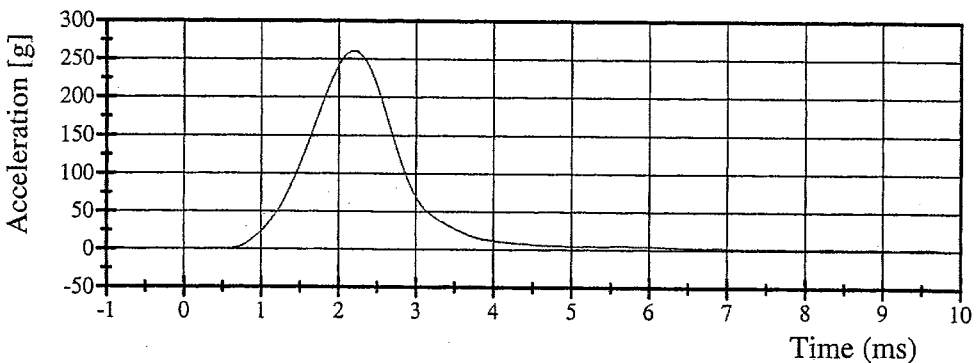


Filter Class: 1000

Max: 122.6 g at 2.2 ms

Min: -0.8 g at 8.9 ms

Head Resultant



Filter Class: 1000

Max: 260.2 g at 2.2 ms

Min: 0.0 g at 2.6 ms

09.23.2002 13:39:19 610



Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

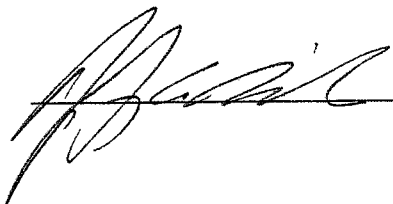
HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

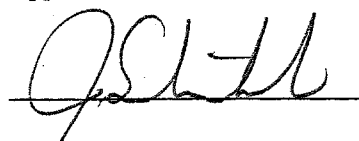
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	24.32 g	Yes
20 ms	17.60 - 22.60 g	22.09 g	Yes
30 ms	12.50 - 18.50 g	16.90 g	Yes
Max Pendulum Deceleration	29.00 g	25.01 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	16.88 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	38.32 ms	Yes
D Plane Rotation			
Max	64 - 78 °	71.42 °	Yes
Time	57 - 64 ms	57.44 ms	Yes
Moment About Occipital Condyle			
Max	88.2 - 108.4 N·m	96.14 N·m	Yes
Time	47 - 58 ms	51.44 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	114.88 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	101.36 ms	Yes

Comments:

Technician



Approved



09.23.2002 09:04:38 461



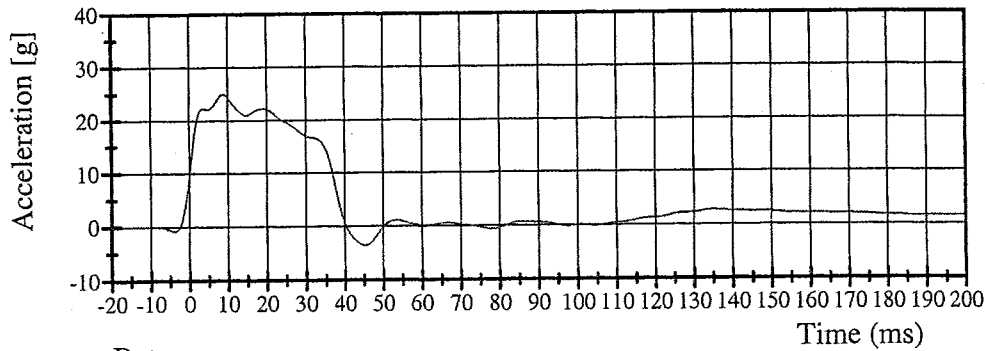
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

Pendulum Deceleration

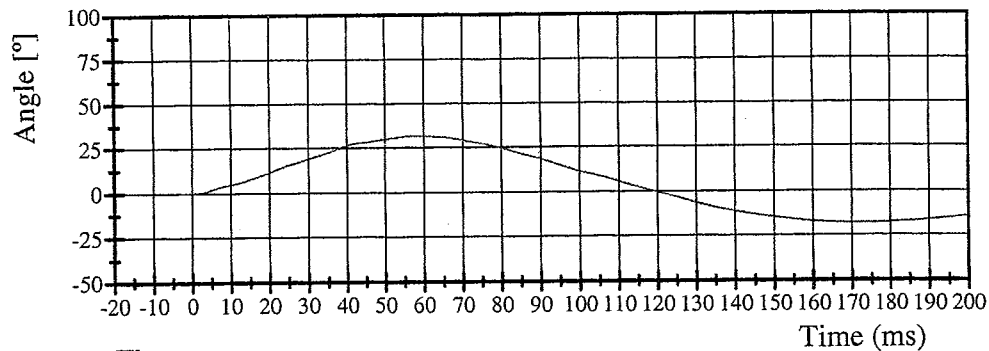


Filter Class: 60

Max: 25.0 g at 8.7 ms

Min: -3.6 g at 45.3 ms

Beta

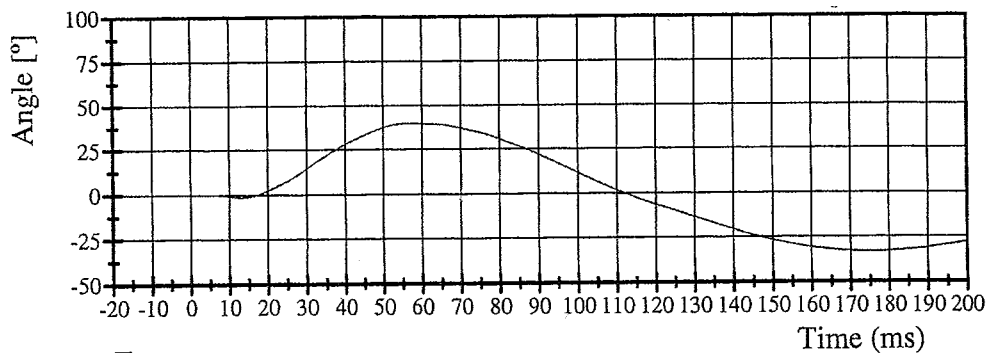


Filter Class: 60

Max: 31.6 ° at 58.0 ms

Min: -18.1 ° at 171.8 ms

Theta

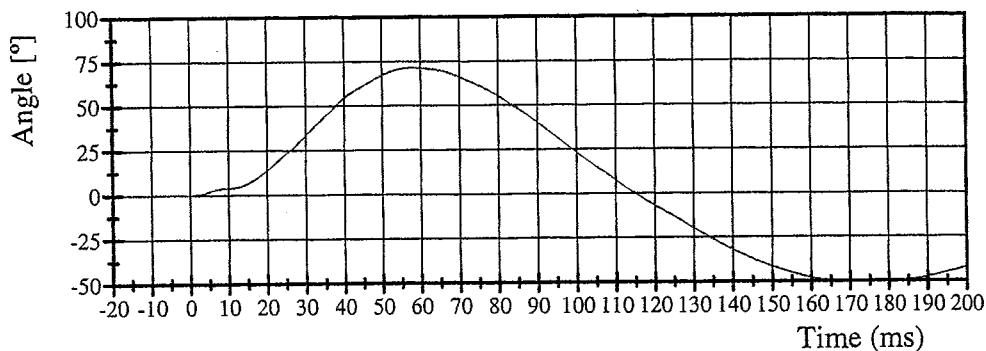


Filter Class: 60

Max: 39.8 ° at 56.7 ms

Min: -33.1 ° at 175.2 ms

Totan



Filter Class: 60

Max: 71.4 ° at 57.4 ms

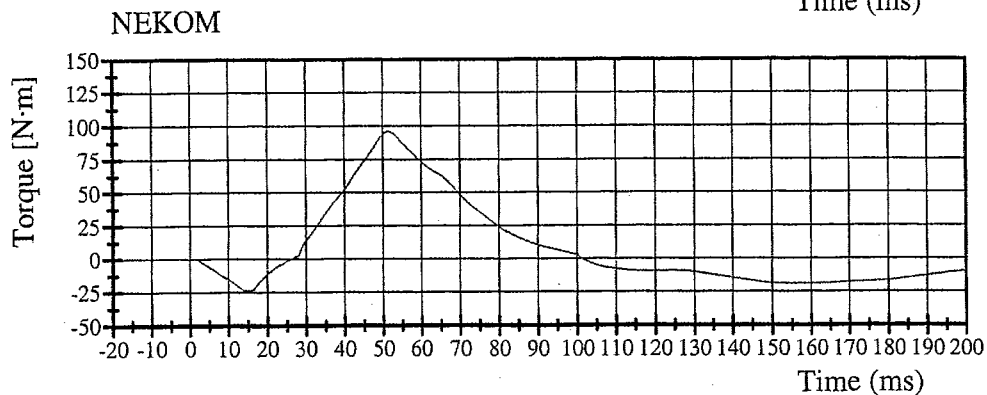
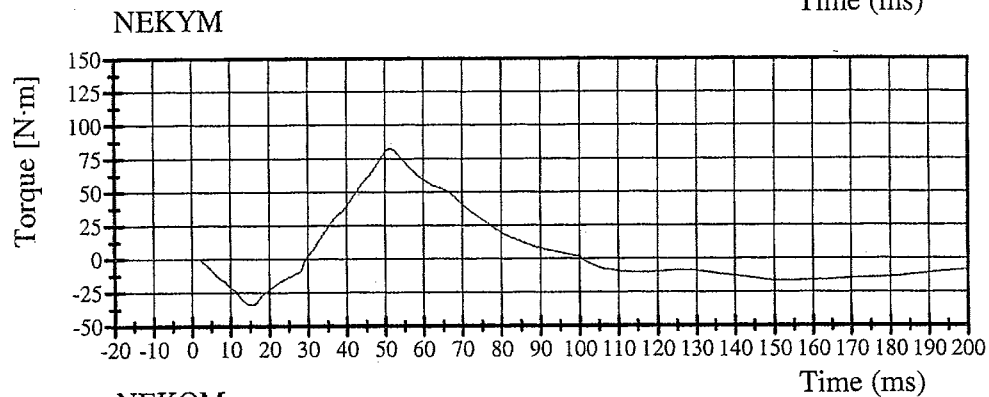
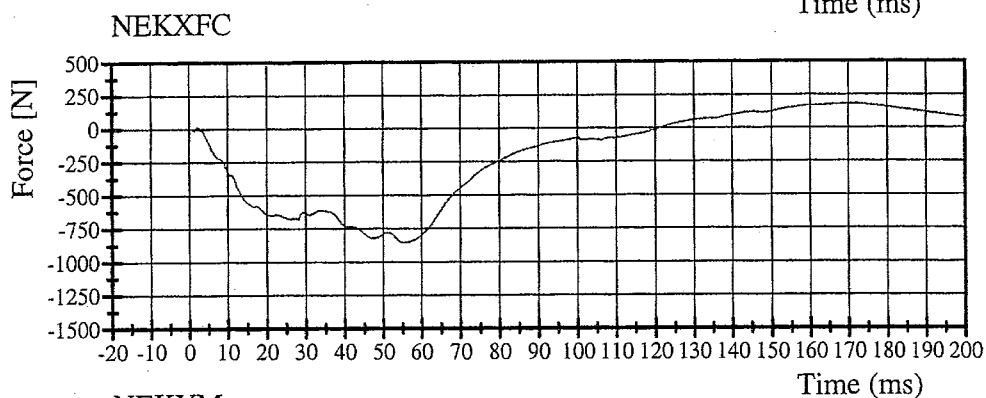
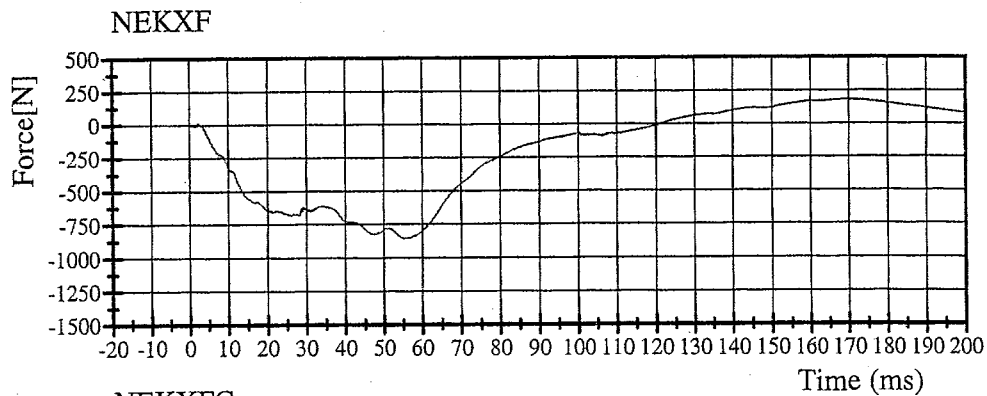
Min: -51.2 ° at 174.1 ms

Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002



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Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

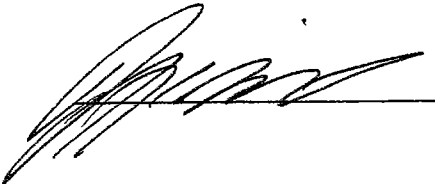
HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

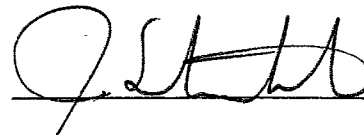
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.11 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	18.68 g	Yes
20 ms	14.00 - 19.00 g	17.66 g	Yes
30 ms	11.00 - 16.00 g	15.96 g	Yes
Max Pendulum Deceleration	22.00 g	18.81 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	15.93 g	Yes
Deceleration-Time Curve Decay Time To 5g	38 - 46 ms	41.76 ms	Yes
D Plane Rotation			
Max	81 - 106 °	97.95 °	Yes
Time	72 - 82 ms	74.88 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-65.87 N·m	Yes
Time	65 - 79 ms	72.08 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	147 - 174 ms	155.52 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	120 - 148 ms	143.68 ms	Yes

Comments:

Technician



Approved



09.23.2002 09:56:36 535



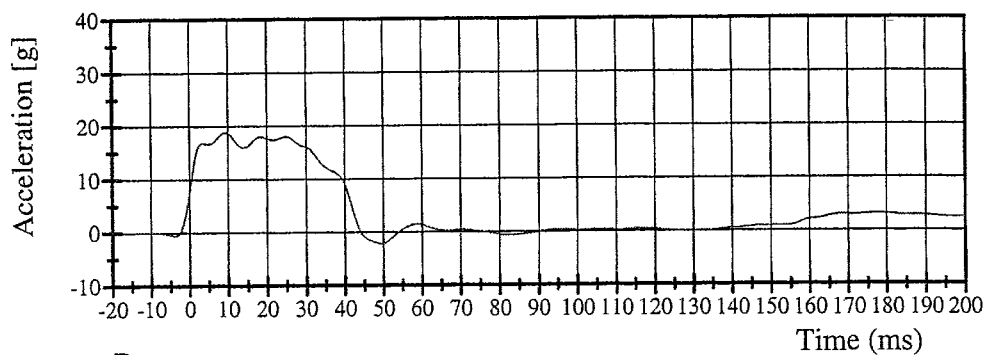
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

Pendulum Deceleration

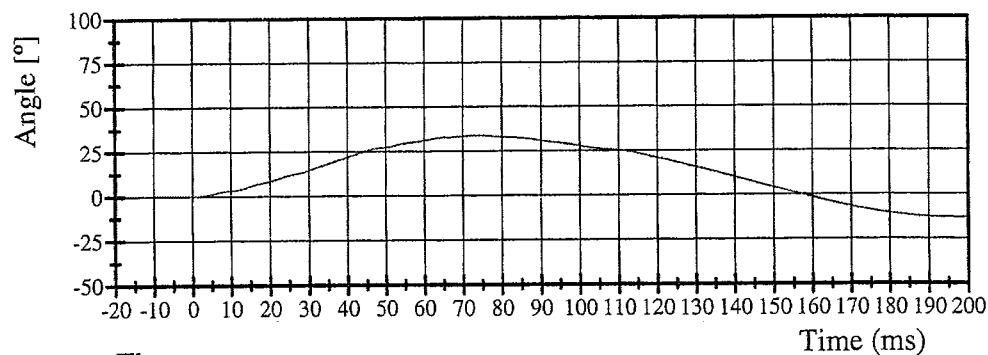


Filter Class: 60

Max: 18.8 g at 9.4 ms

Min: -2.2 g at 49.4 ms

Beta

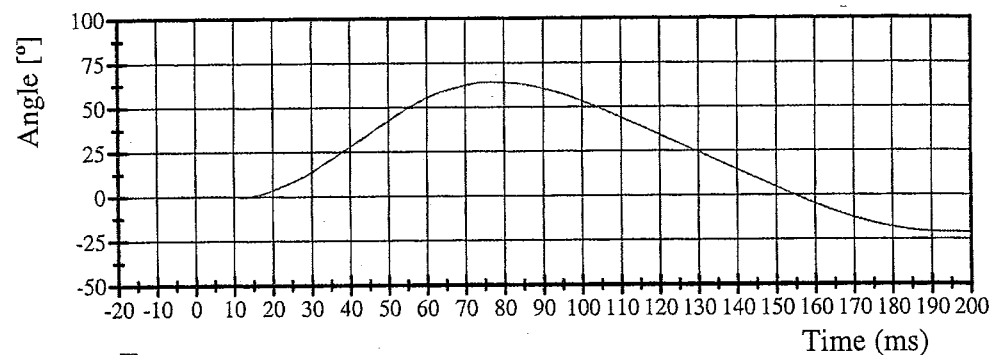


Filter Class: 60

Max: 33.9 ° at 73.8 ms

Min: -13.3 ° at 197.7 ms

Theta

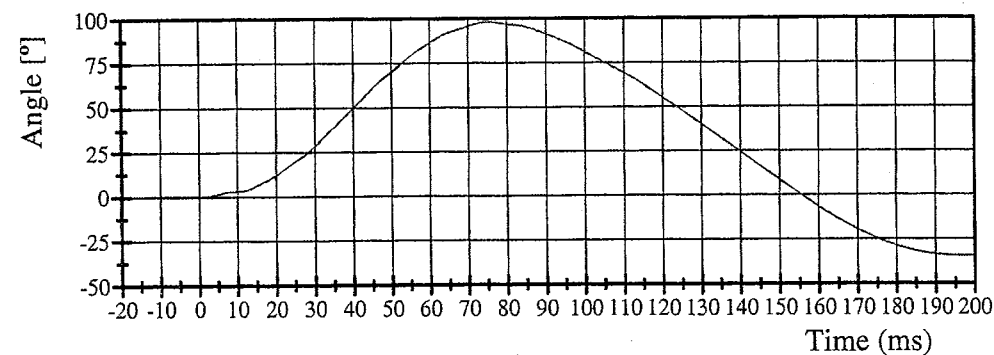


Filter Class: 60

Max: 64.2 ° at 75.8 ms

Min: -21.0 ° at 196.2 ms

Totan



Filter Class: 60

Max: 98.0 ° at 74.9 ms

Min: -34.3 ° at 197.0 ms

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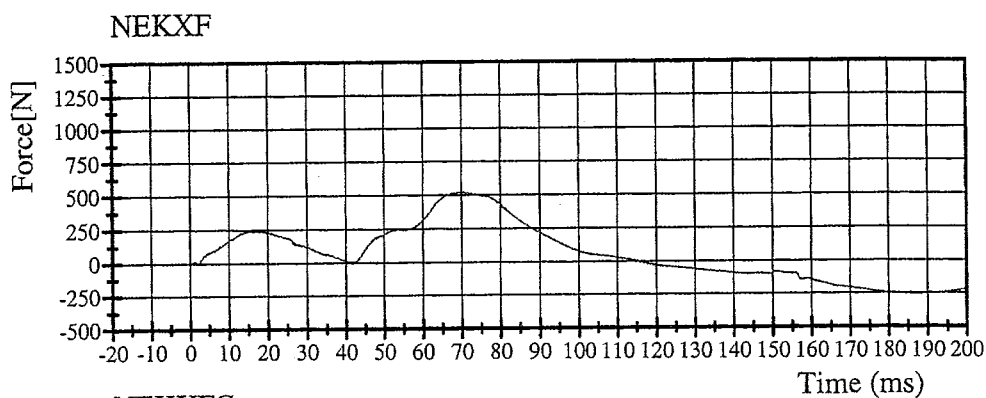


Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

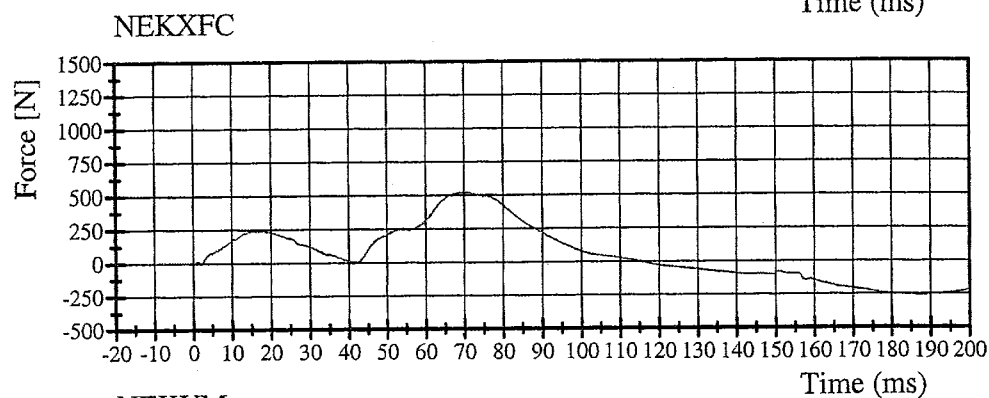
Test Date 09/23/2002



Filter Class: 1000

Max: 519.3 N at 69.6 ms

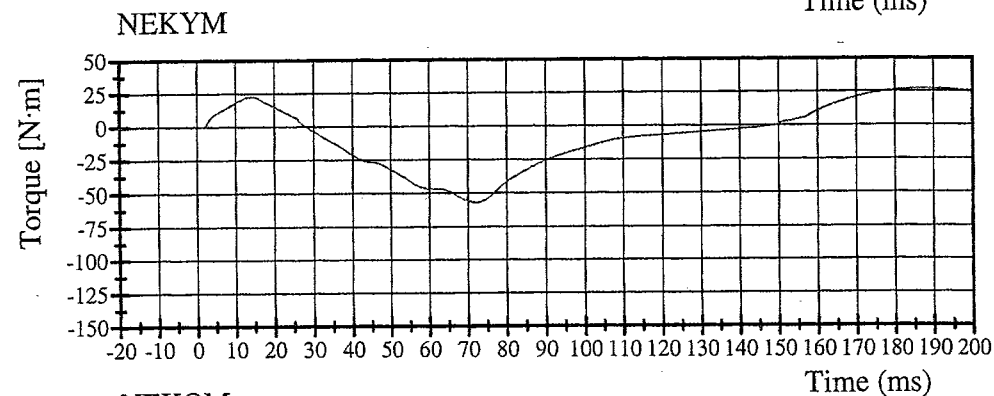
Min: -256.9 N at 186.5 ms



Filter Class: 600

Max: 519.1 N at 70.2 ms

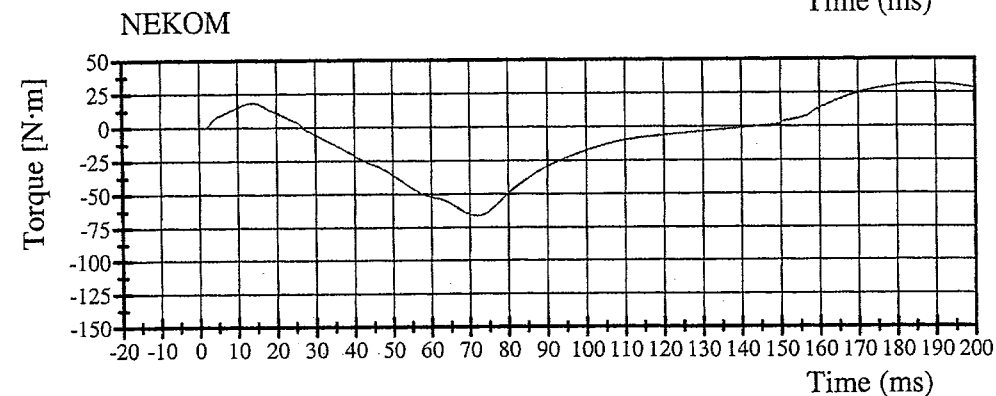
Min: -256.6 N at 187.8 ms



Filter Class: 600

Max: 27.0 N·m at 186.6 ms

Min: -56.9 N·m at 72.2 ms



Filter Class: 600

Max: 31.5 N·m at 186.6 ms

Min: -65.9 N·m at 72.1 ms

Transportation Research Center Inc.

572E Thorax Test

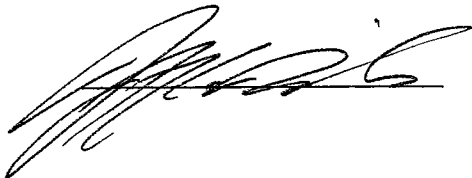
HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

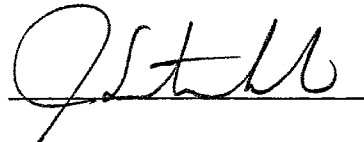
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.66 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-68.3 mm	Yes
Maximum Resistive Force	5159 - 5894 N	5504 N	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

Comments:

Technician



Approved



09.23.2002 08:19:15 972



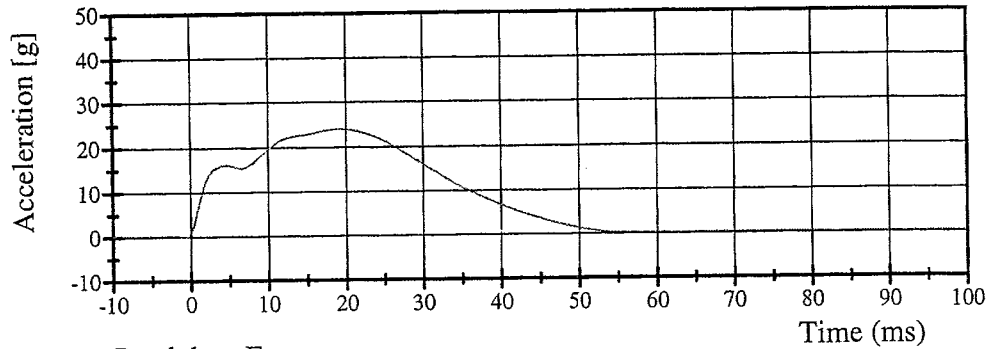
Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

Pendulum Deceleration

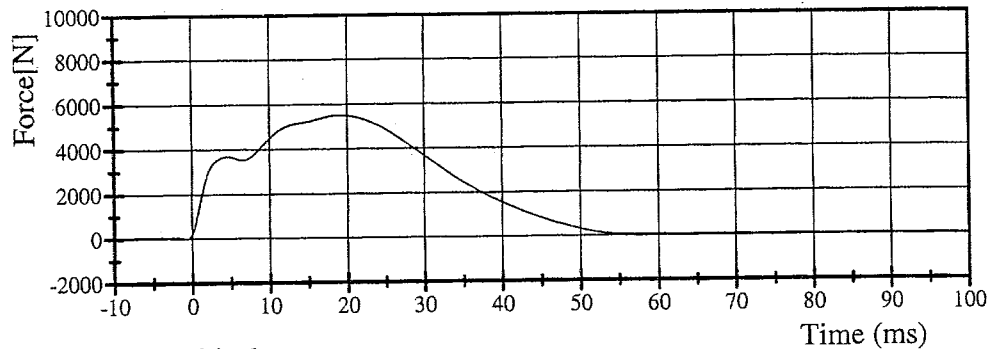


Filter Class: 180

Max: 24.0 g at 19.0 ms

Min: -0.0 g at -0.7 ms

Pendulum Force

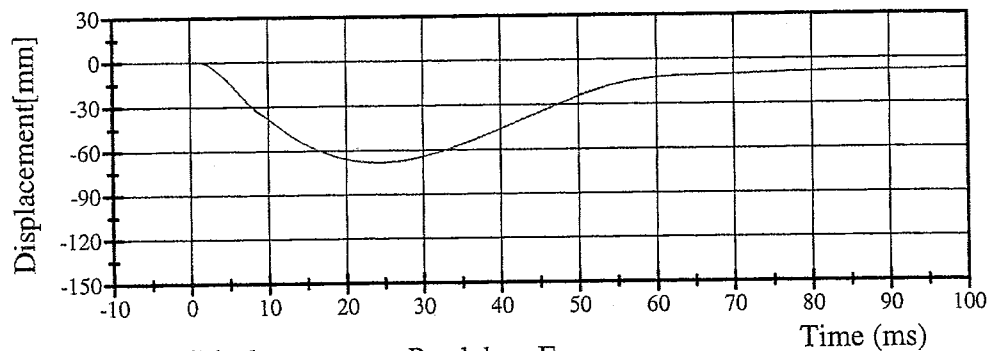


Filter Class: 180

Max: 5503.7 N at 19.0 ms

Min: -10.2 N at -0.7 ms

Chest Displacement

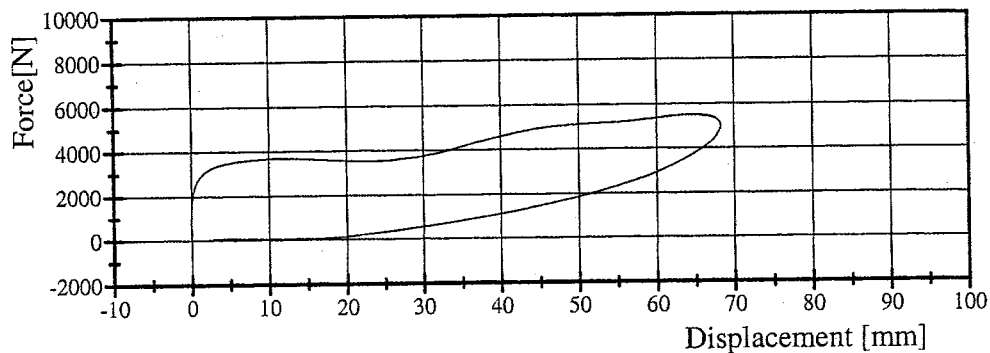


Filter Class: 180

Max: 0.1 mm at 0.6 ms

Min: -68.3 mm at 24.2 ms

Chest Displacement vs. Pendulum Force



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Transportation Research Center Inc

Hybrid III Hip Range of Motion

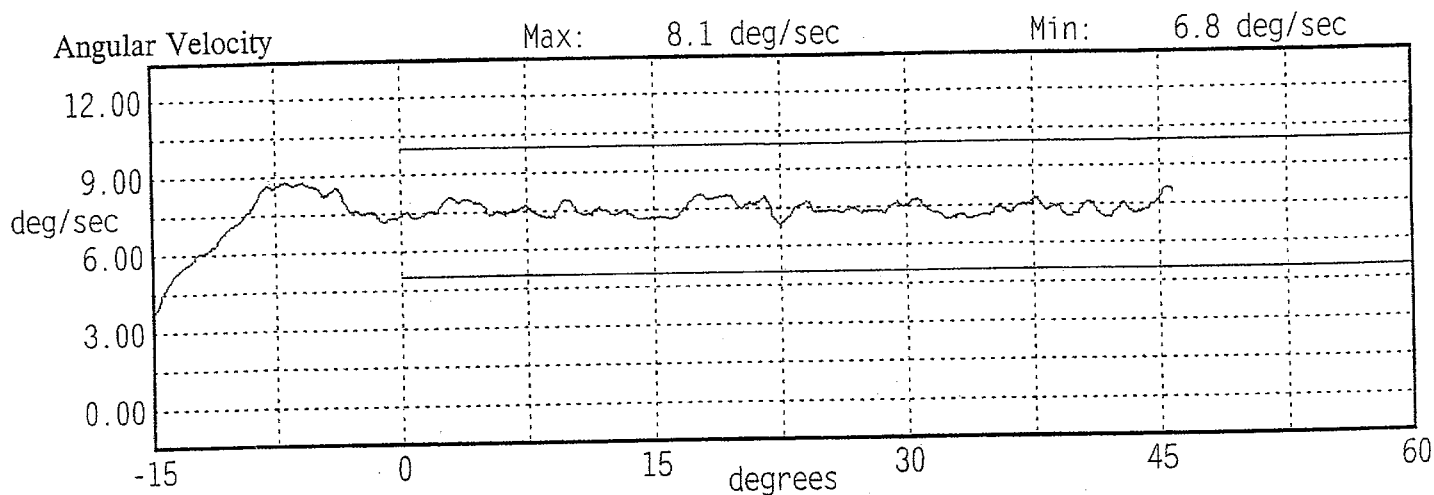
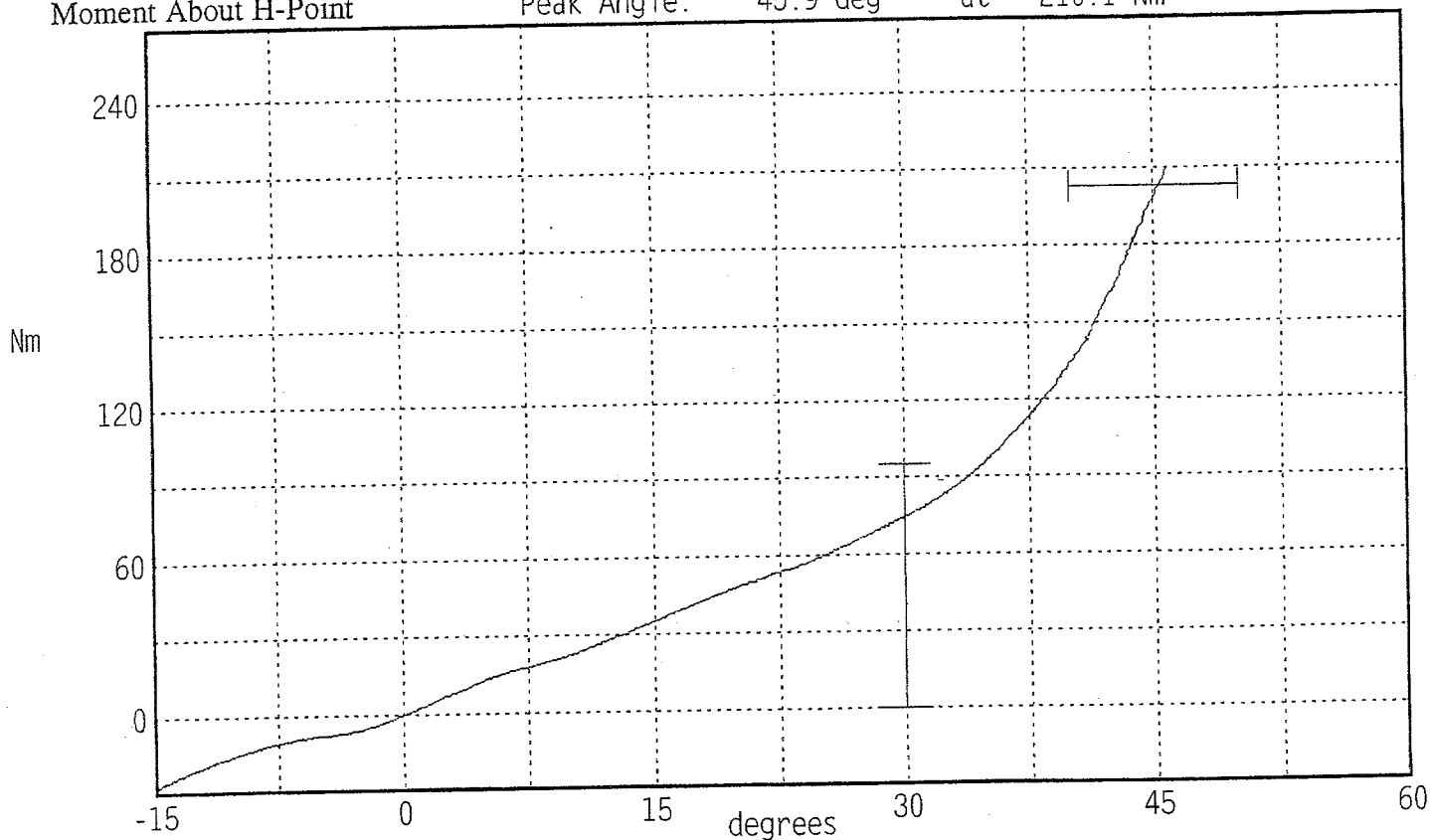
Serial Number: 169L
Test Number: 169C15
Comments:

Date: 09/23/2002
Time: 09:27

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	74.8 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.4 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Peak Moment: 210.1 Nm at 45.9 deg
Peak Angle: 45.9 deg at 210.1 Nm

Moment About H-Point



Transportation Research Center Inc

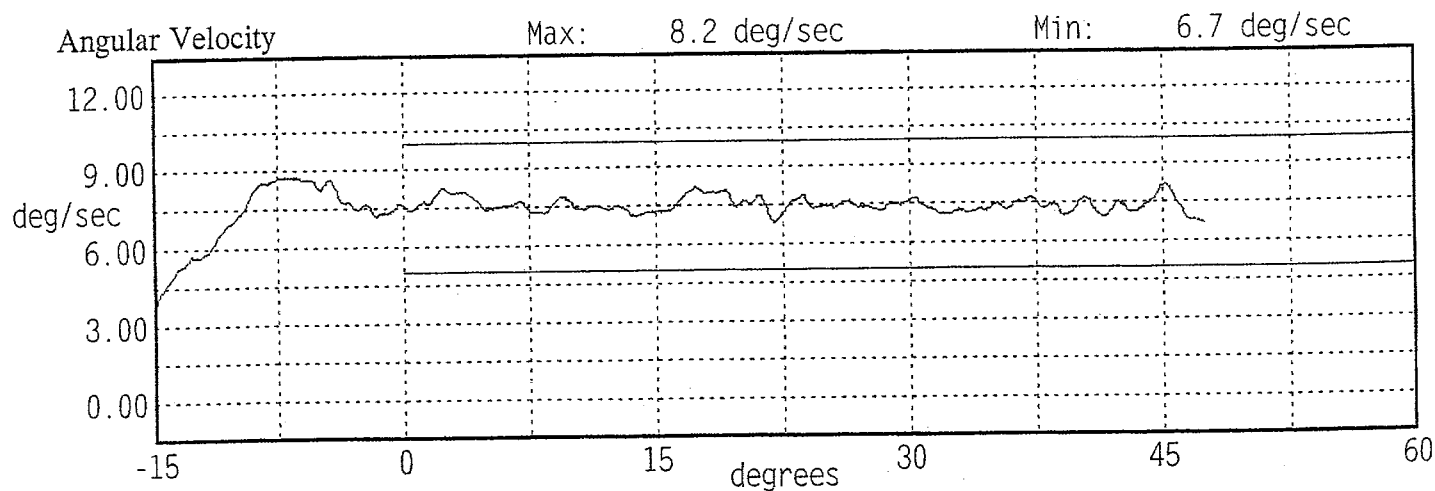
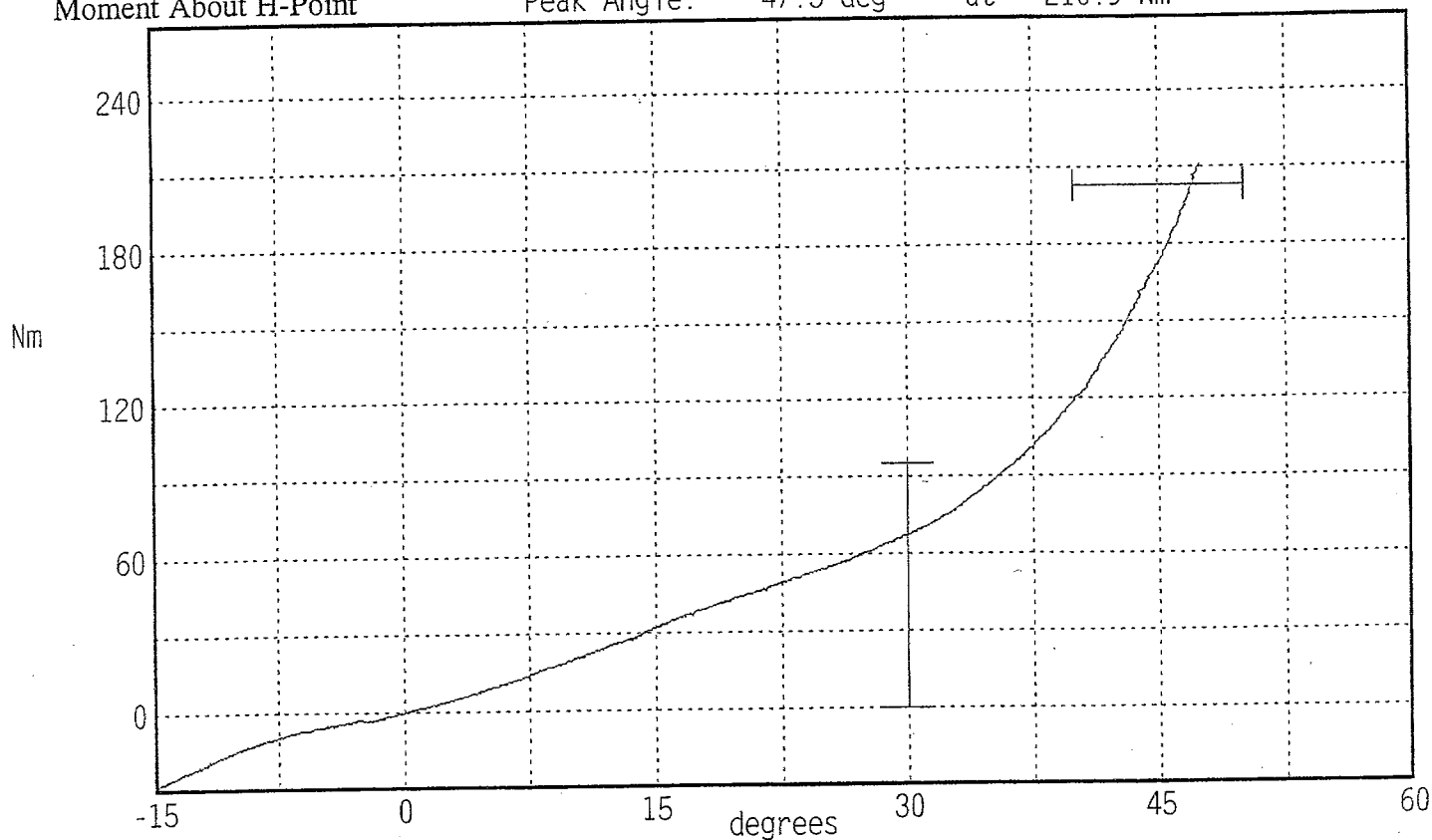
Hybrid III Hip Range of Motion

Serial Number: 169R
Test Number: 169C15
Comments:

Date: 09/23/2002
Time: 09:20

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	67.3 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	47.1 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Moment About H-Point
Peak Moment: 210.9 Nm at 47.5 deg
Peak Angle: 47.5 deg at 210.9 Nm



Transportation Research Center Inc.

572E Left Knee Slider Test

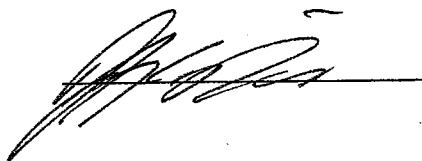
HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/25/2002

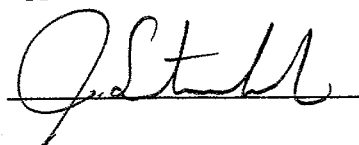
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.71 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1390 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2916 N	Yes

Comments:

Technician



Approved



09.25.2002 08:42:06 1160

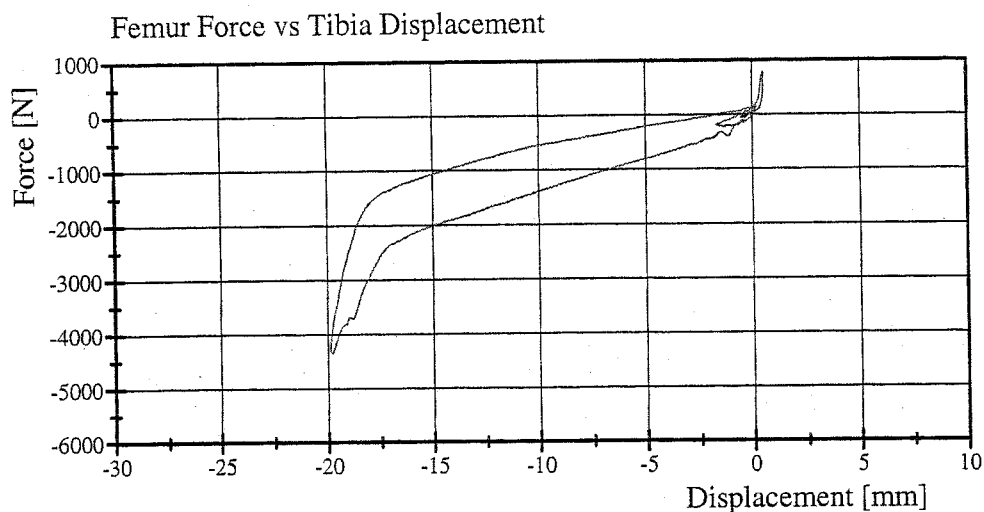
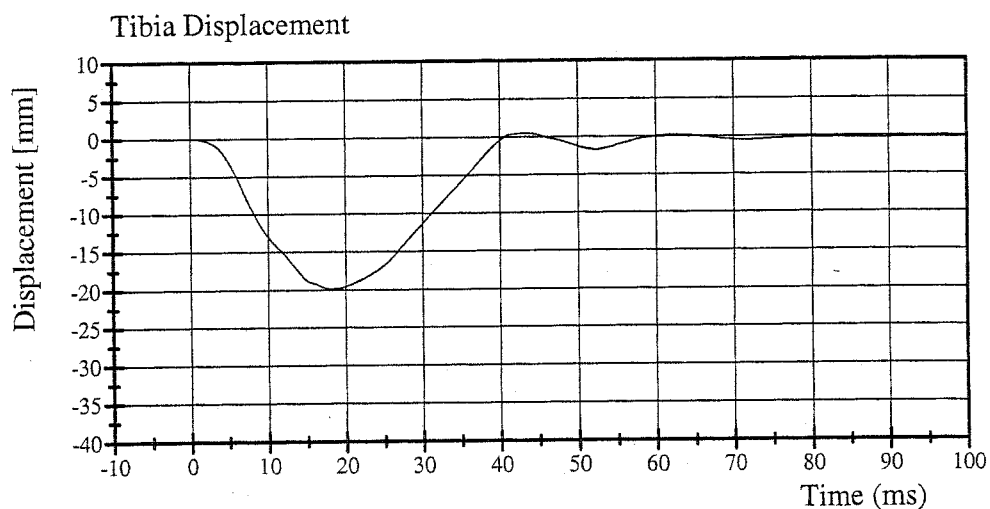
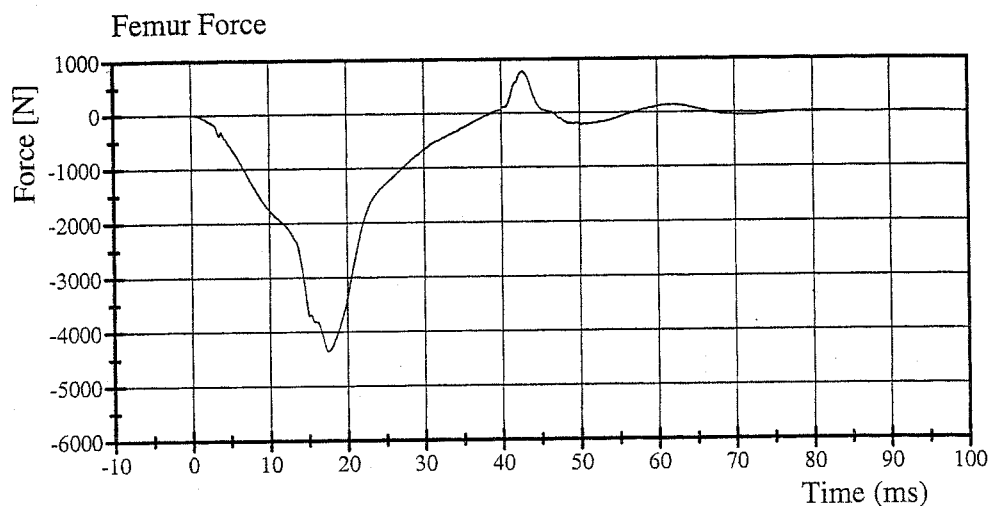


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/25/2002



09.25.2002 08:42:07 1160



Transportation Research Center Inc.

572E Right Knee Slider Test

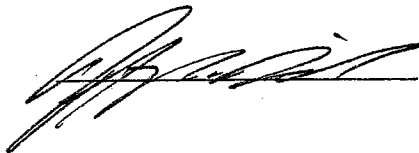
HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/25/2002

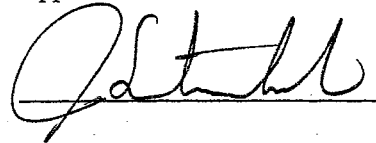
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.70 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1467 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2644 N	Yes

Comments:

Technician



Approved



09.25.2002 07:43:48 1165

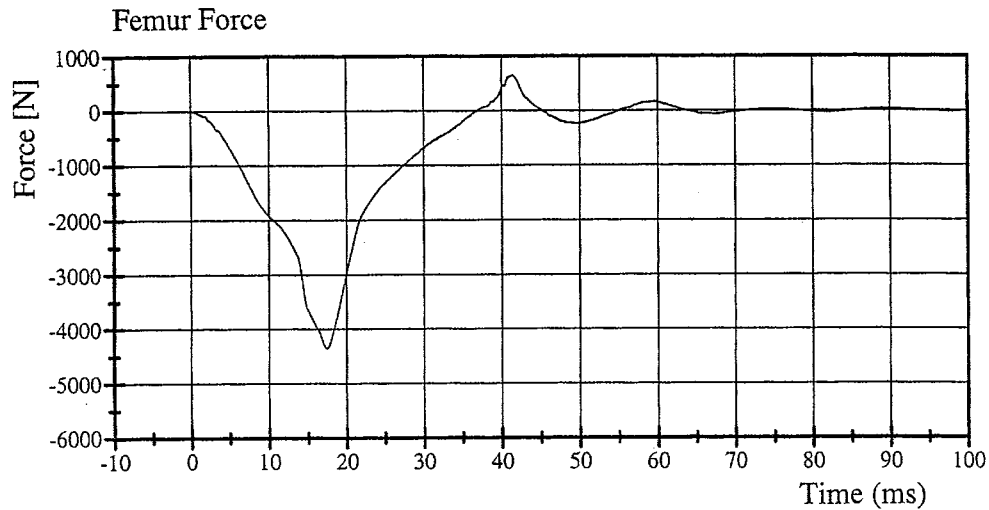


Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

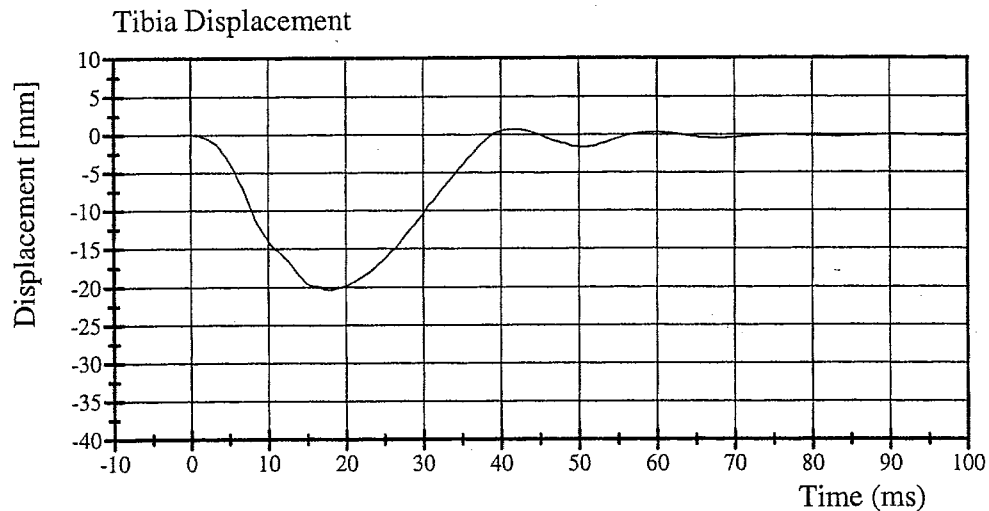
Test Date 09/25/2002



Filter Class: 600

Max: 650.3 N at 41.4 ms

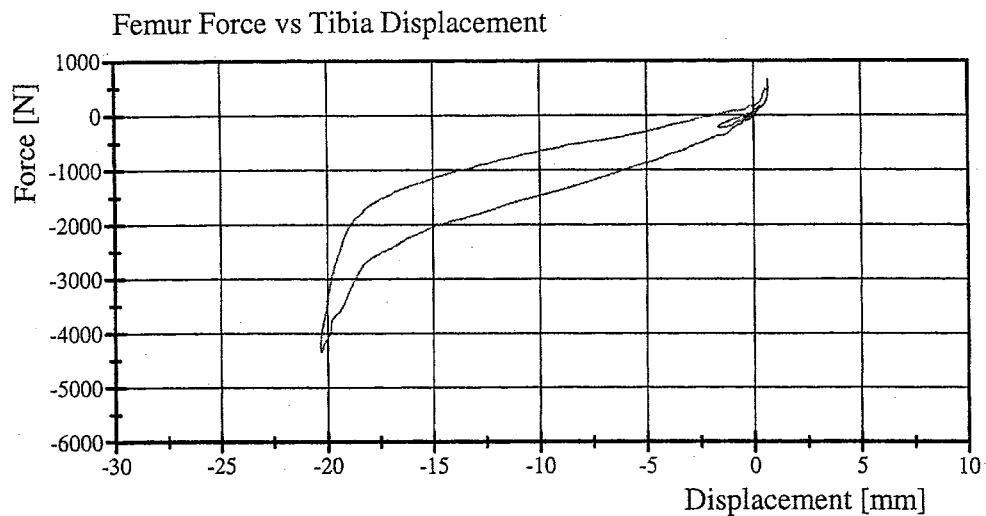
Min: -4352.1 N at 17.4 ms



Filter Class: 600

Max: 0.7 mm at 41.5 ms

Min: -20.3 mm at 17.8 ms



09.25.2002 07:43:52 1165



Transportation Research Center Inc.

572E Left Knee Test

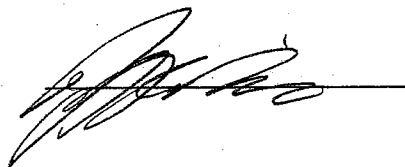
HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

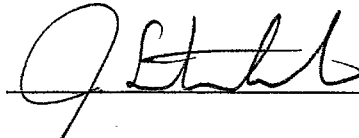
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5328 N	Yes

Comments:

Technician



Approved



09.23.2002 12:58:32 2146

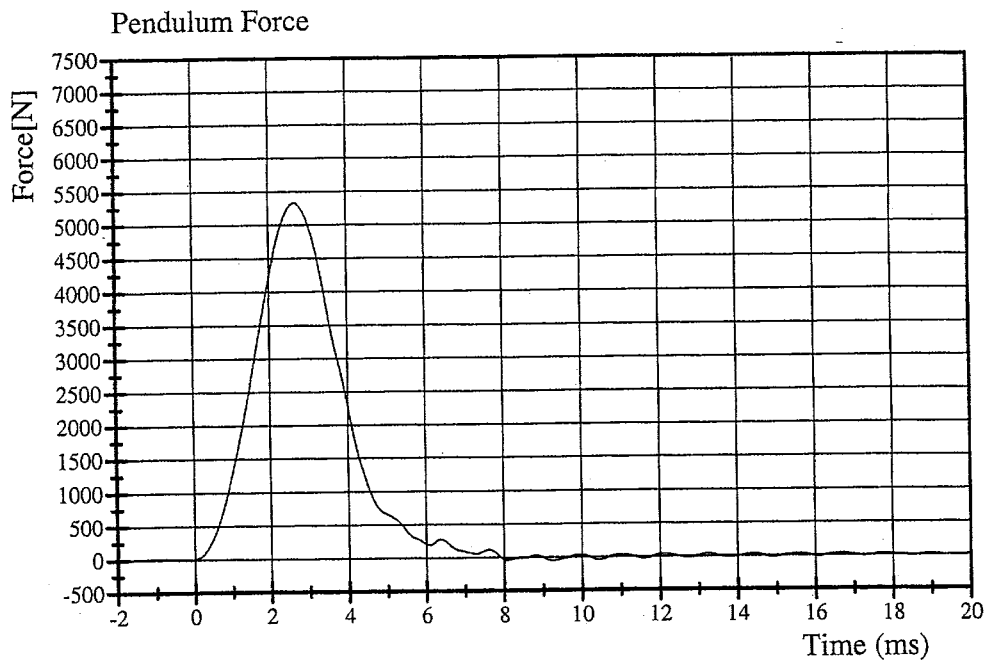
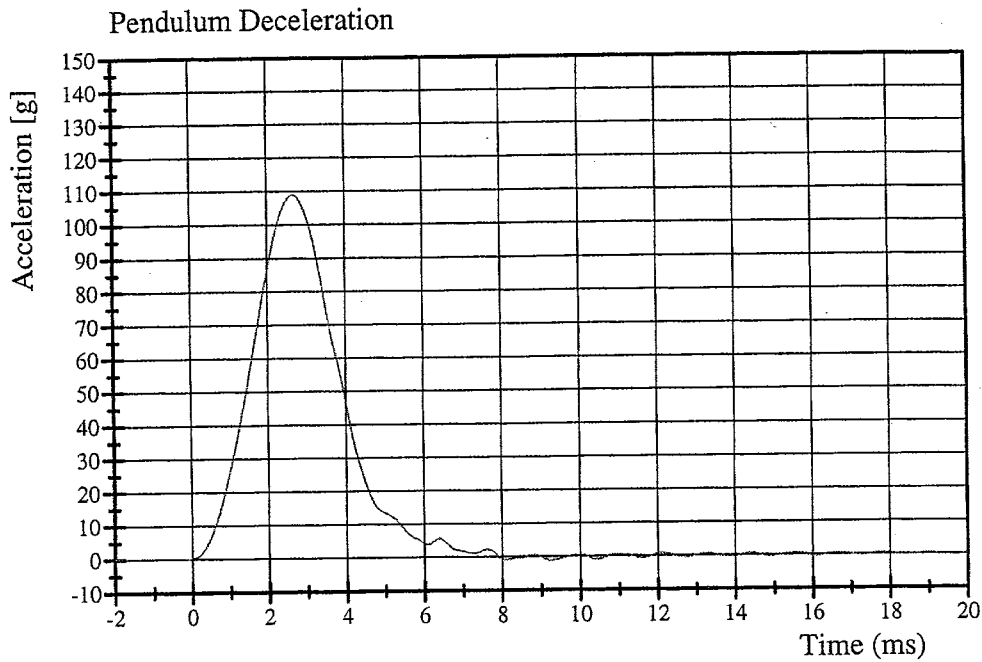


Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002



09.23.2002 12:58:45 2146



Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

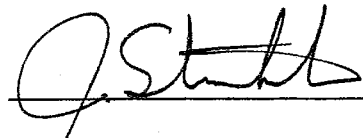
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5005 N	Yes

Comments:

Technician



Approved



09.23.2002 12:52:10 2144



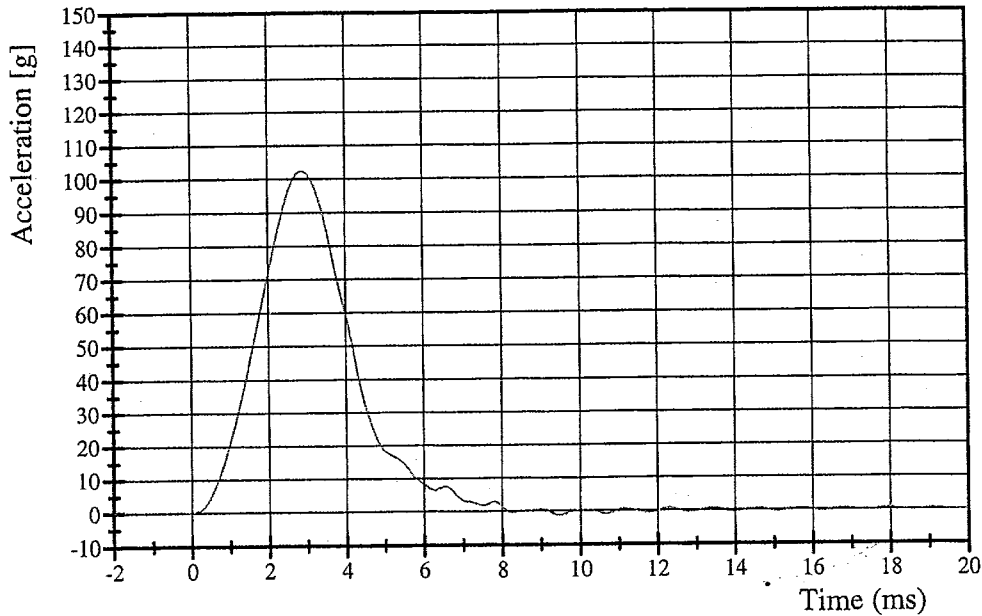
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 15 - 1

Test Date 09/23/2002

Pendulum Deceleration

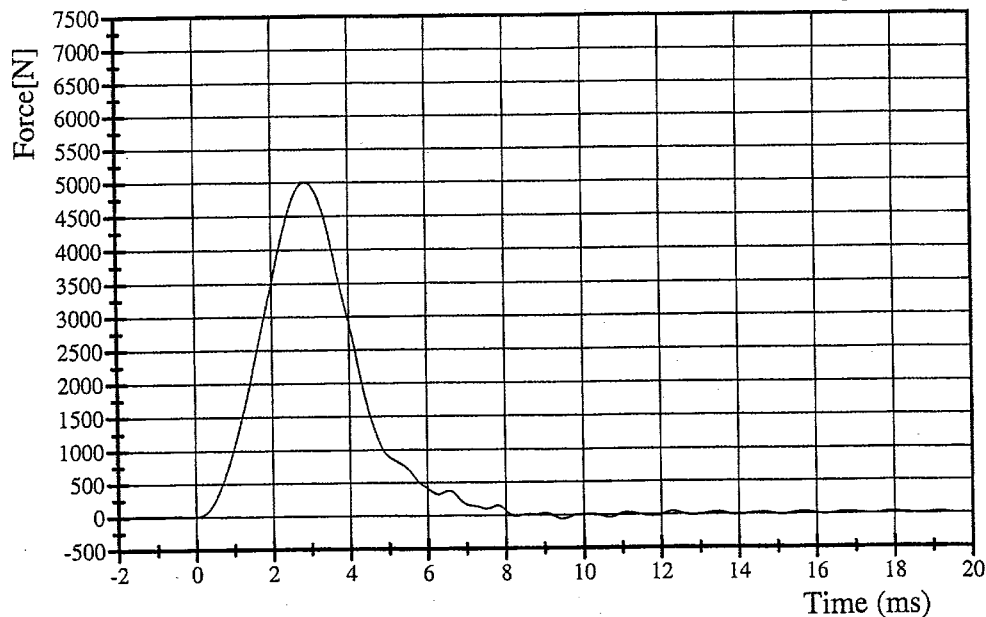


Filter Class: 600

Max: 102.3 g at 2.9 ms

Min: -1.2 g at 9.4 ms

Pendulum Force



Filter Class: 600

Max: 5005.4 N at 2.9 ms

Min: -60.8 N at 9.4 ms

Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Passenger Dummy S/N: 416

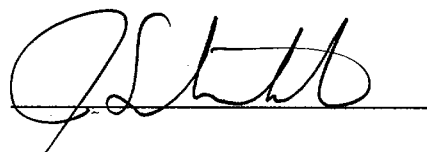
Transportation Research Center Inc.
5720 HIII 5th Dummy
External Dimensions
Serial No. 416 Calibration No. 17

Test Parameter	Dimension	Specification	Results	Pass
Total Sitting Height	A	774.7 - 800.1 mm	779 mm	Yes
Shoulder Pivot Height	B	431.8 - 457.2 mm	443 mm	Yes
Hip Pivot Height	C	81.3 - 86.3 mm	83 mm	Yes
Hip Pivot from Backline	D	144.8 - 149.8 mm	145 mm	Yes
Shoulder Pivot from Backline	E	68.6 - 83.8 mm	76 mm	Yes
Thigh Clearance	F	119.4 - 134.6 mm	123 mm	Yes
Back of Elbow to Wrist Pivot	G	243.9 - 259.0 mm	251 mm	Yes
Head Back to Backline	H	40.7 - 45.7 mm	45 mm	Yes
Shoulder to Elbow Length	I	276.9 - 297.1 mm	287 mm	Yes
Elbow Rest Height	J	182.9 - 203.2 mm	198 mm	Yes
Buttock Knee Length	K	520.7 - 546.1 mm	539 mm	Yes
Popliteal Height	L	355.6 - 375.9 mm	360 mm	Yes
Knee Pivot Height	M	393.7 - 419.1 mm	399 mm	Yes
Buttock Popliteal Height	N	414.1 - 439.4 mm	423 mm	Yes
Chest Depth without Jacket	O	175.3 - 190.5 mm	188 mm	Yes
Foot Length	P	218.5 - 233.6 mm	227 mm	Yes
Buttock to Knee Pivot Length	R	457.2 - 482.6 mm	466 mm	Yes
Head Breadth	S	137.2 - 147.3 mm	142 mm	Yes
Head Depth	T	177.8 - 187.9 mm	184 mm	Yes
Hip Breadth	U	299.8 - 314.9 mm	300 mm	Yes
Shoulder Breadth	V	350.6 - 365.7 mm	360 mm	Yes
Foot Breadth	W	78.8 - 93.9 mm	91 mm	Yes
Head Circumference	X	528.4 - 548.6 mm	546 mm	Yes
Chest Circumference with Jacket	Y	850.9 - 881.3 mm	872 mm	Yes
Waist Circumference	Z	759.5 - 789.9 mm	783 mm	Yes
Reference Location for Chest Circumference	AA	299.8 - 309.8 mm	305 mm	Yes
Reference Location for Waist Circumference	BB	160.1 - 170.1 mm	165 mm	Yes

Technician



Approved




Transportation Research Center Inc.

5720 Head Drop Test

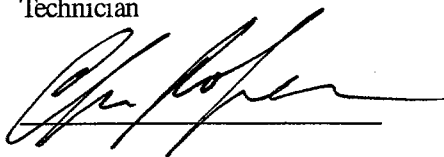
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/26/2002

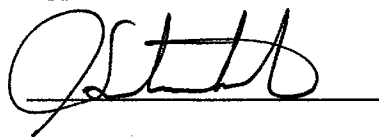
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Peak Resultant Acceleration	250 - 300 g	288.8 g	Yes
Peak Lateral Acceleration	15 g Max	13.3 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Comments:

Technician



Approved



08.26.2002 12:45:37 608



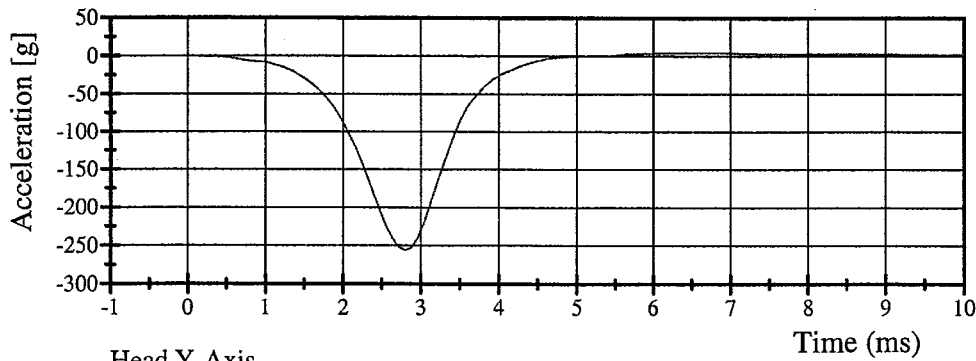
Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/26/2002

Head X-Axis

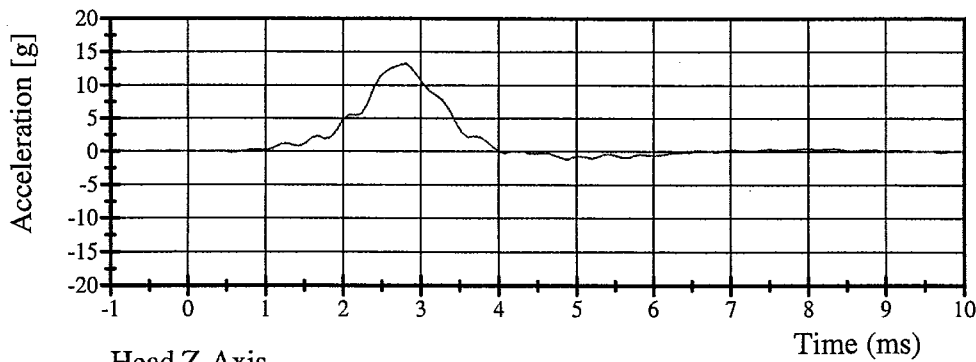


Filter Class: 1000

Max: 4.4 g at 6.5 ms

Min: -256.5 g at 2.8 ms

Head Y-Axis

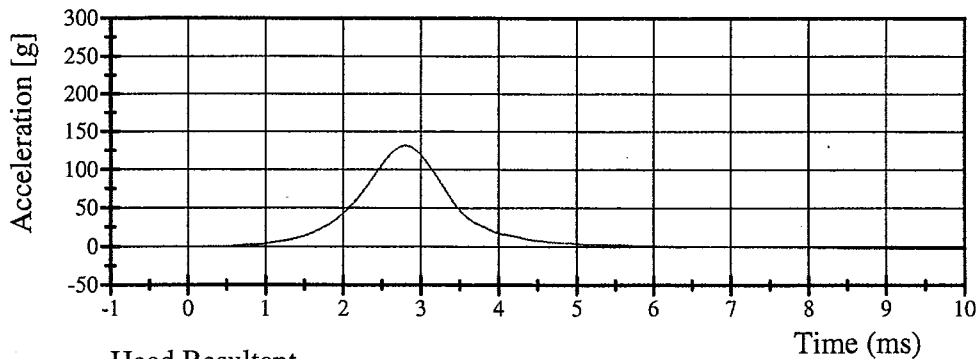


Filter Class: 1000

Max: 13.3 g at 2.8 ms

Min: -1.2 g at 4.9 ms

Head Z-Axis

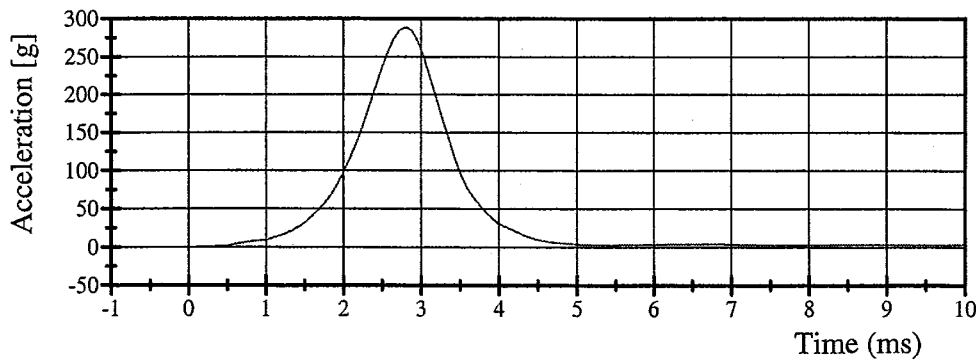


Filter Class: 1000

Max: 132.1 g at 2.8 ms

Min: -2.7 g at 9.9 ms

Head Resultant



Filter Class: 1000

Max: 288.8 g at 2.8 ms

Min: 0.0 g at 2.6 ms

08.26.2002 12:45:46 608



Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

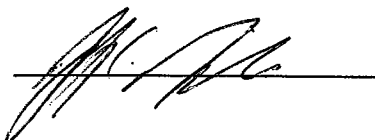
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

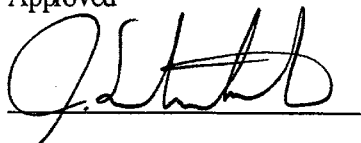
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.11 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.21 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.24 m/s	Yes
Peak D Plane Rotation	77 - 91 °	77.4 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	73.30 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	88.48 ms	Yes

Comments:

Technician



Approved



08.28.2002 13:53:36 462



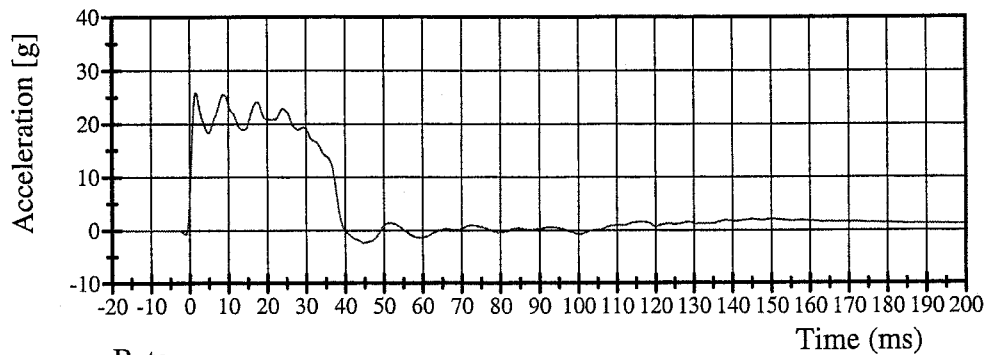
Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

Pendulum Deceleration

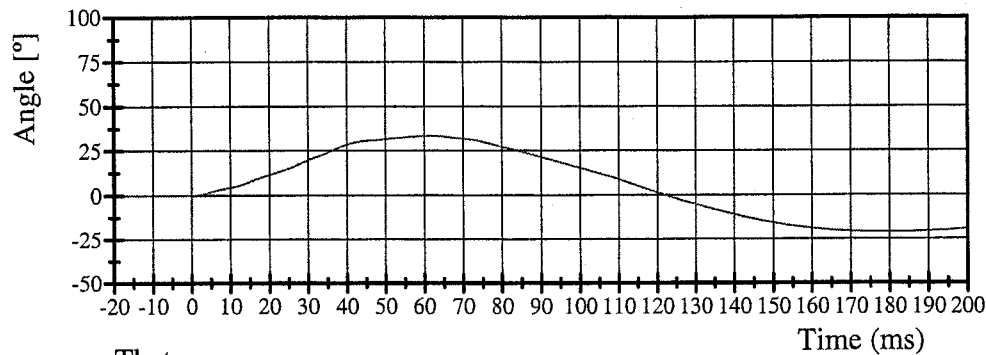


Filter Class: 180

Max: 25.9 g at 1.6 ms

Min: -2.4 g at 44.9 ms

Beta

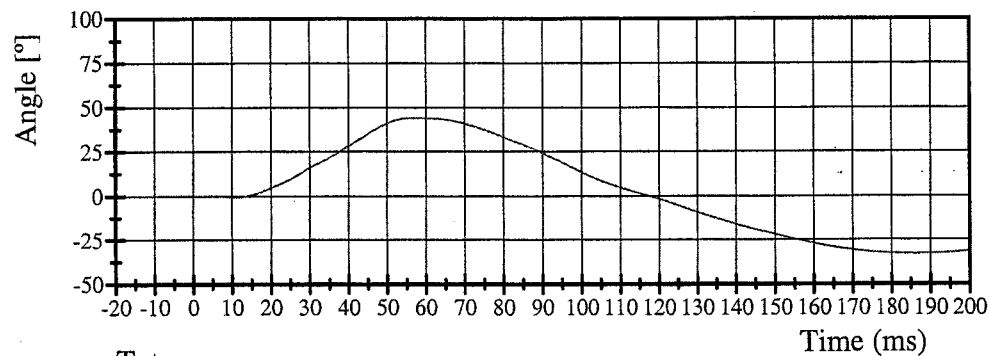


Filter Class: 60

Max: 33.5 ° at 61.9 ms

Min: -21.0 ° at 181.8 ms

Theta

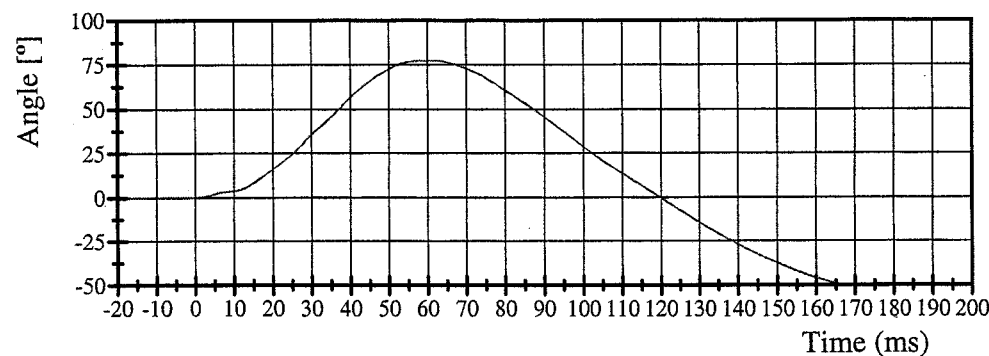


Filter Class: 60

Max: 44.2 ° at 57.0 ms

Min: -32.9 ° at 186.5 ms

Totan



Filter Class: 60

Max: 77.4 ° at 60.7 ms

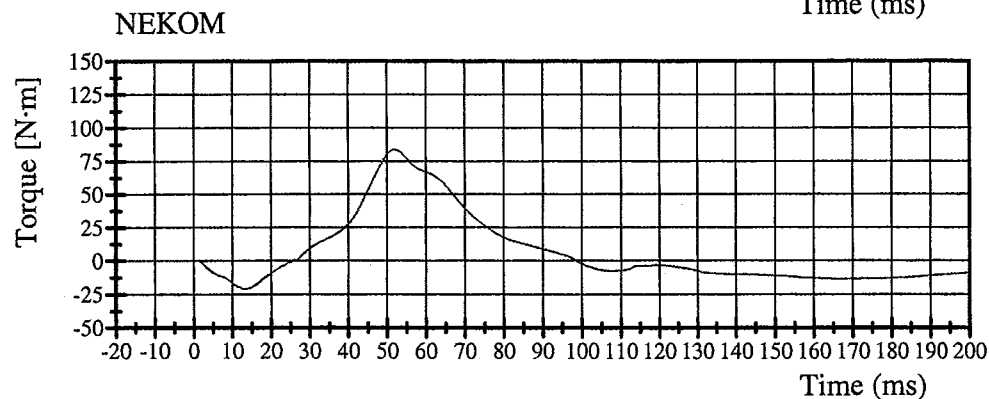
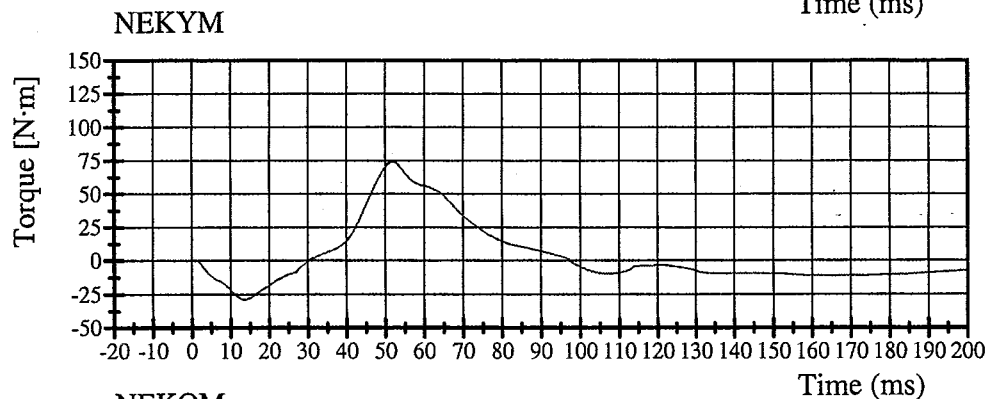
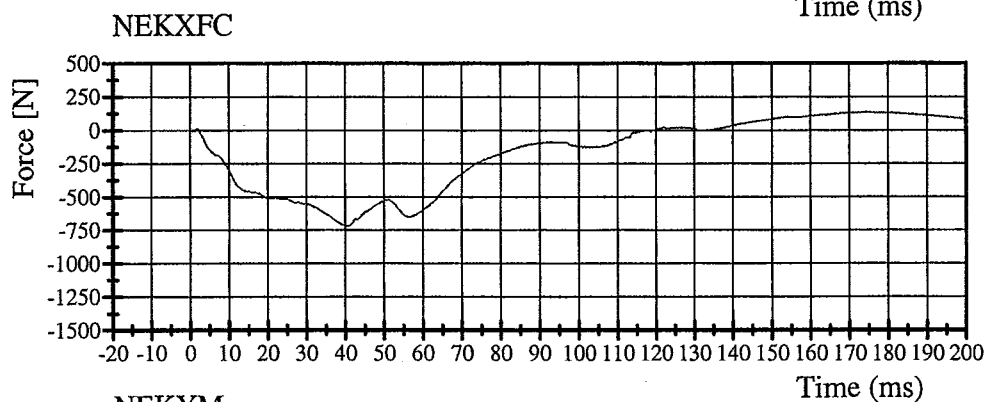
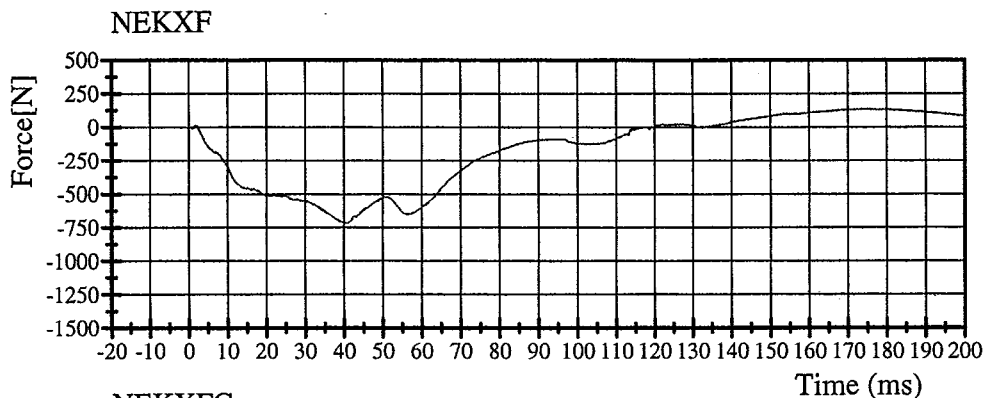
Min: -53.8 ° at 184.5 ms

Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002



08.28.2002 13:53:38 462



Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

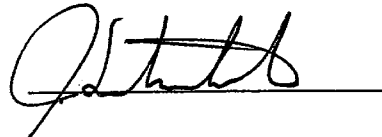
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.15 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.50 - 1.90 m/s	1.73 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.47 m/s	Yes
30 ms	4.60 - 5.60 m/s	5.09 m/s	Yes
Peak D Plane Rotation	99 - 114 °	100.7 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-60.47 N·m	Yes
Positive Moment Decay Time To -10 N·m	94 - 114 ms	102.32 ms	Yes

Comments:

Technician



Approved



08.28.2002 14:59:02 528



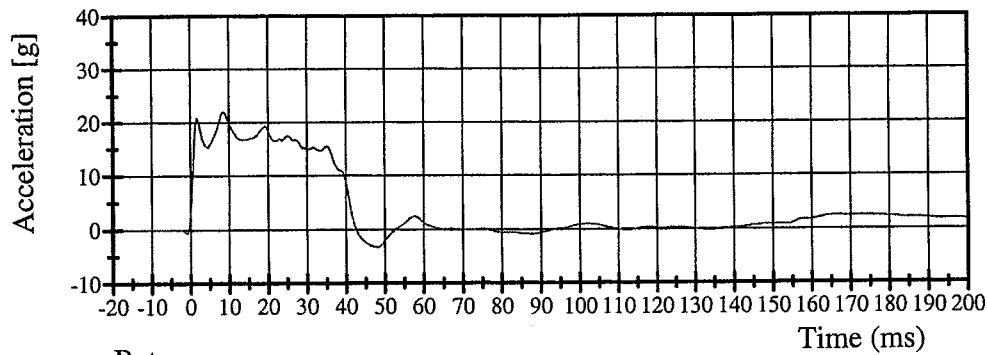
Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

Pendulum Deceleration

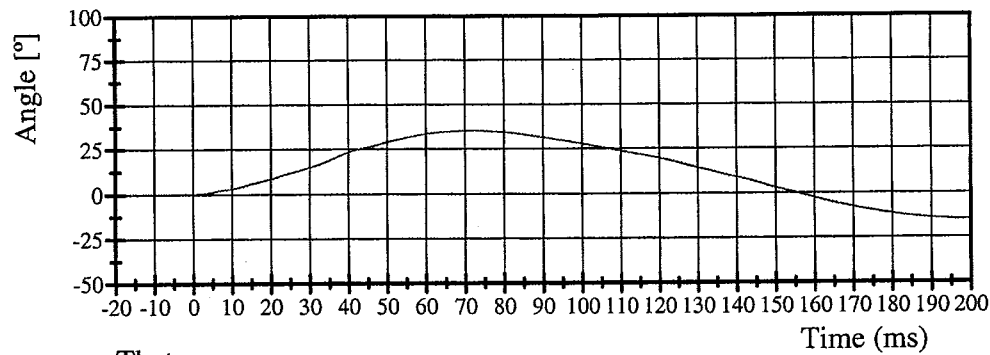


Filter Class: 180

Max: 22.0 g at 8.6 ms

Min: -3.3 g at 48.2 ms

Beta

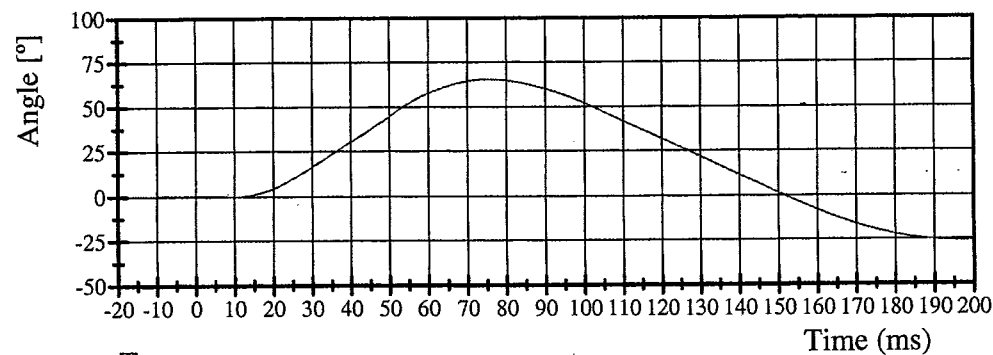


Filter Class: 60

Max: 35.4 ° at 71.9 ms

Min: -14.8 ° at 199.4 ms

Theta

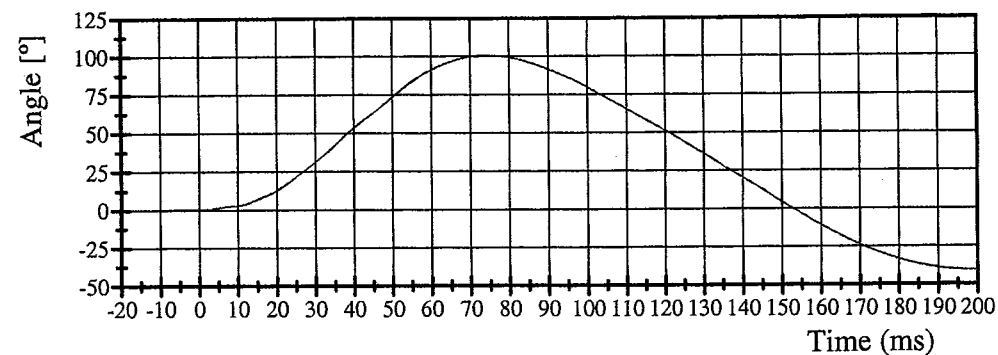


Filter Class: 60

Max: 65.4 ° at 74.6 ms

Min: -25.8 ° at 196.9 ms

Totan



Filter Class: 60

Max: 100.7 ° at 73.5 ms

Min: -40.6 ° at 197.9 ms

08.28.2002 14:59:07 528

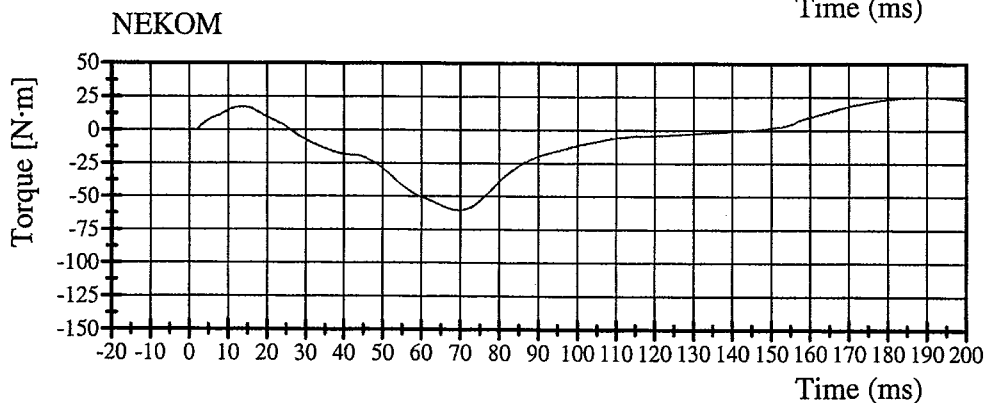
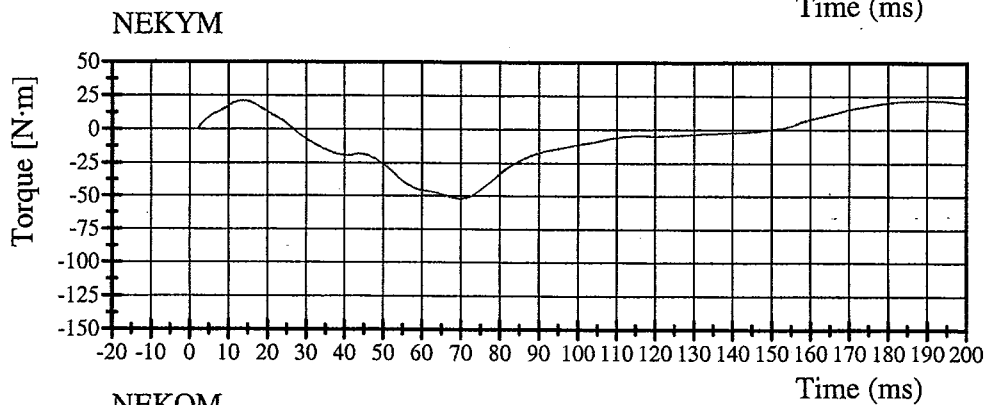
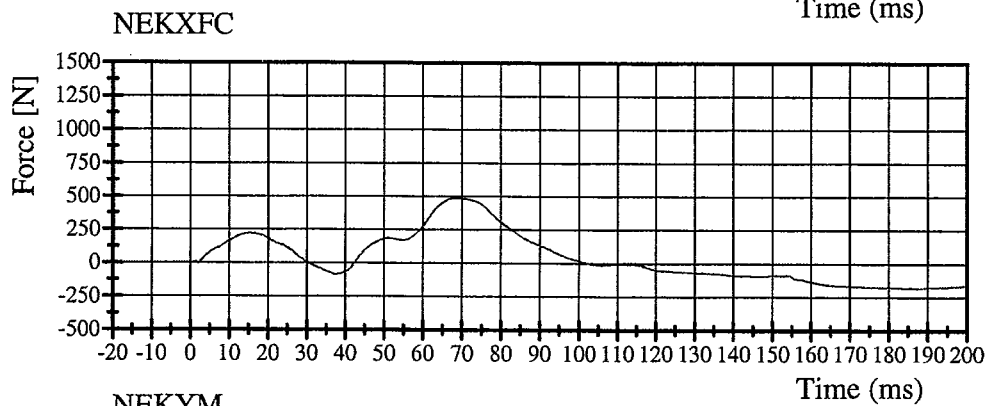
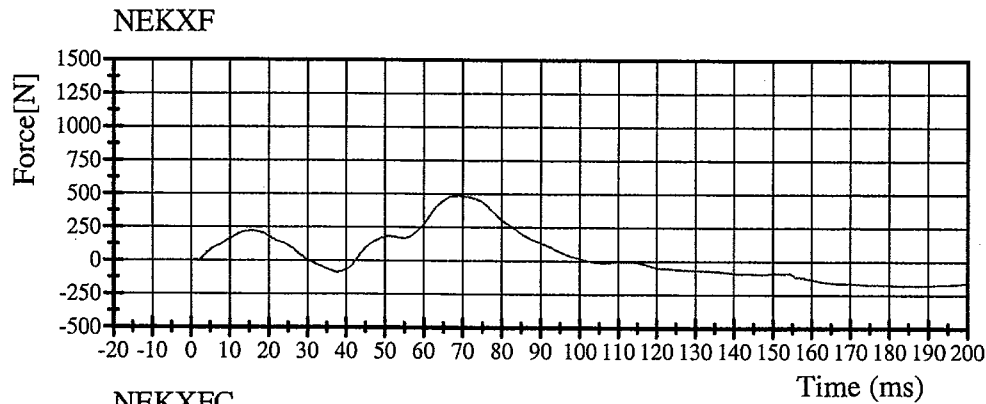


Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002



08.28.2002 14:59:09 528



Transportation Research Center Inc.

5720 Thorax Test

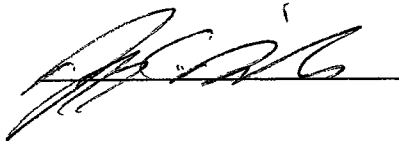
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 09/09/2002

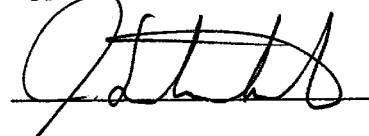
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-56.6 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4395 N	Yes
Internal Hysteresis	105 % Max.	93 %	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

Comments:

Technician



Approved



09.09.2002 13:39:28 1072



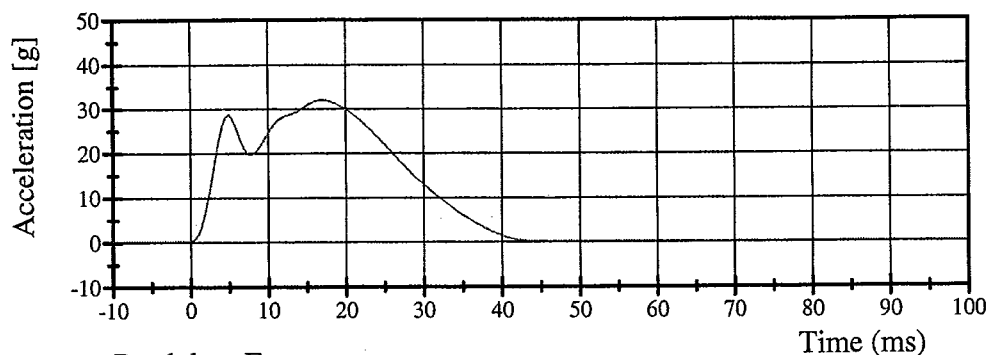
Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 09/09/2002

Pendulum Deceleration

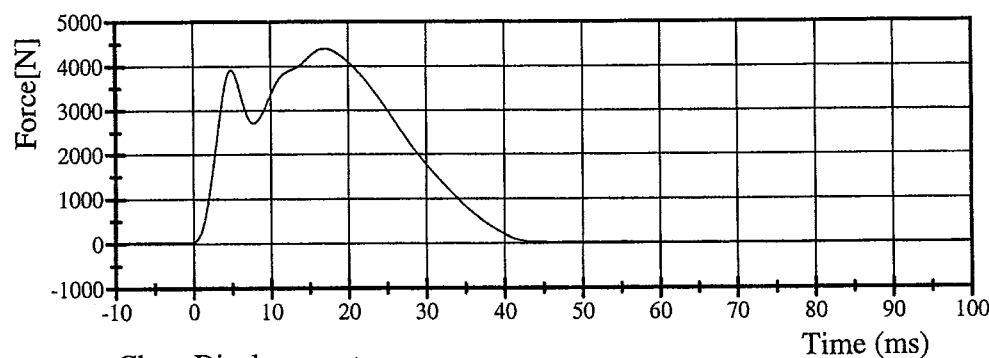


Filter Class: 180

Max: 32.1 g at 17.0 ms

Min: -0.0 g at -85.7 ms

Pendulum Force

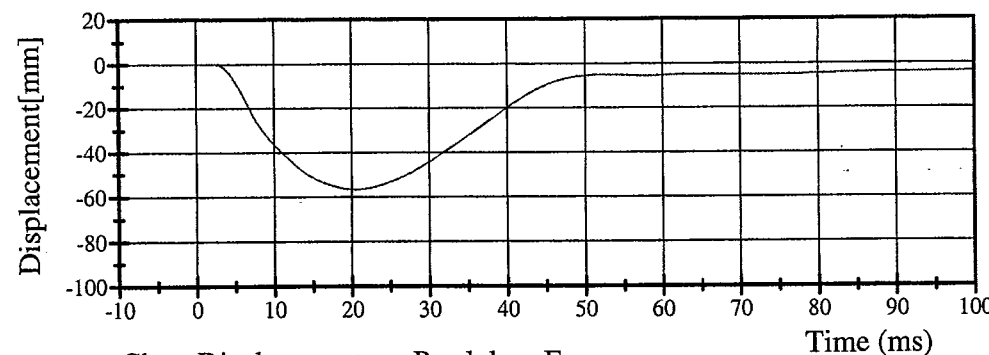


Filter Class: 180

Max: 4395.0 N at 17.0 ms

Min: -5.0 N at -85.7 ms

Chest Displacement

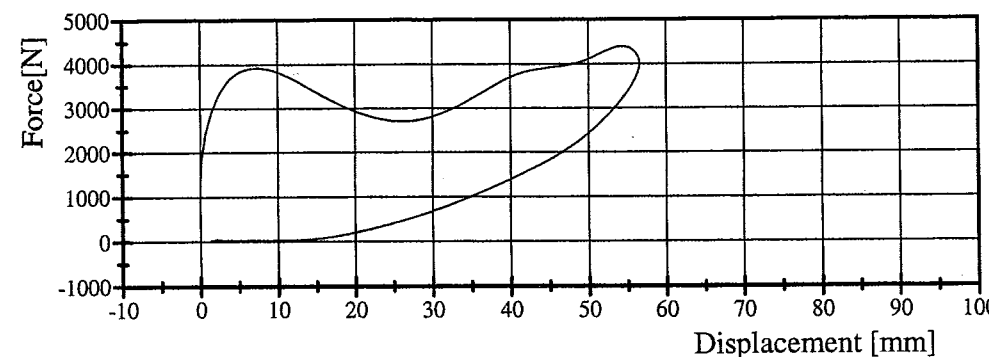


Filter Class: 180

Max: 0.1 mm at 1.8 ms

Min: -56.6 mm at 20.6 ms

Chest Displacement vs. Pendulum Force



09.09.2002 13:39:30 1072



TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

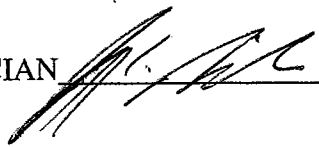
HYBRID III SMALL FEMALE

CAL DATE: 30-Aug-02

TRC, INC. TEST NO: 416C17TF1 572 O SN416 TORSO FLEX CAL 17

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 – 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 – 70 %	60 %
INITIAL ANGLE OF UNSUPPORTTED DUMMY	<= 20 DEG. REFERENCED TO VERTICAL	12.5 DEG.
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	321.5 N
RETURN ANGLE		19.3 DEG.
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 DEG. OF INTIAL ANGLE	6.8 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN 

Transportation Research Center Inc.

5720 Left Knee Slider Test

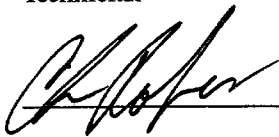
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

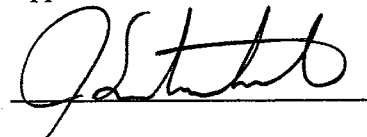
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.75 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.7 mm	Yes

Comments:

Technician



Approved



08.28.2002 08:16:52 1363

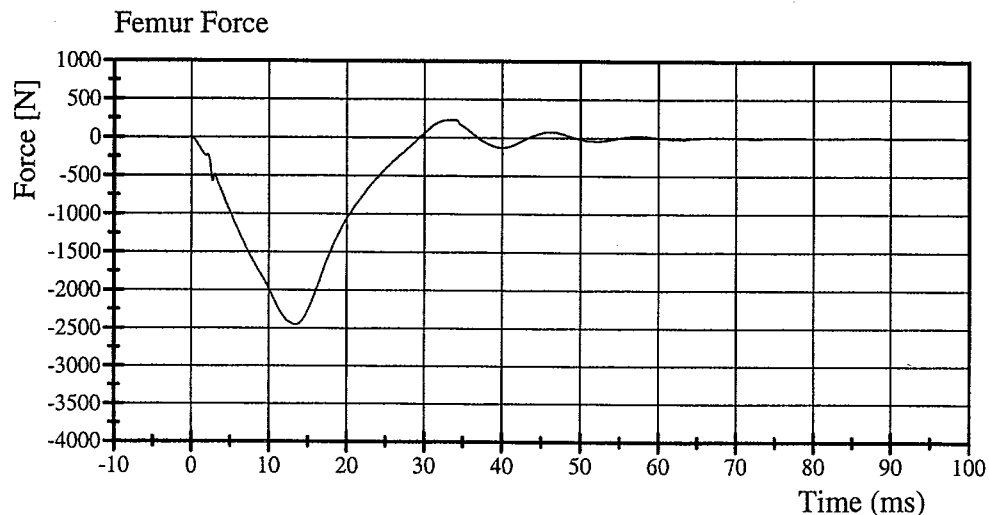


Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

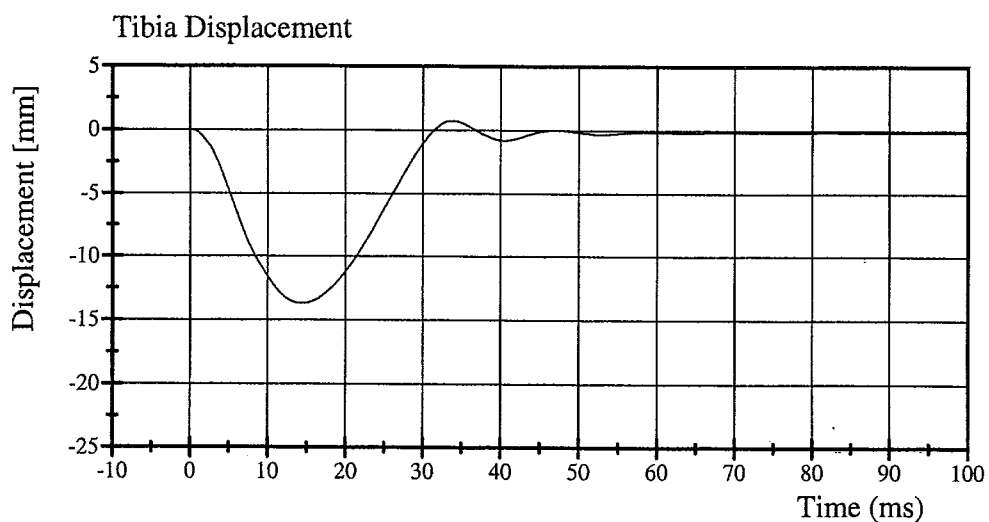
Test Date 08/28/2002



Filter Class: 600

Max: 231.2 N at 33.5 ms

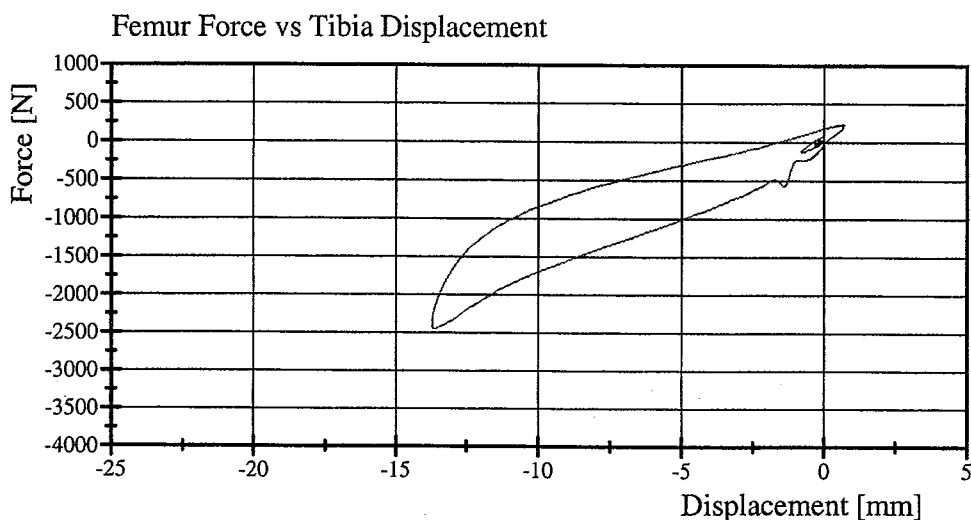
Min: -2449.0 N at 13.4 ms



Filter Class: 600

Max: 0.7 mm at 33.7 ms

Min: -13.7 mm at 14.3 ms



08.28.2002 08:16:40 1363



Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

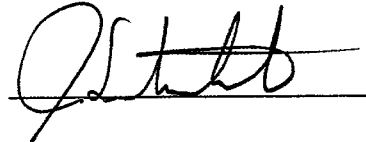
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.9 mm	Yes

Comments:

Technician



Approved



08.28.2002 08:29:48 1360

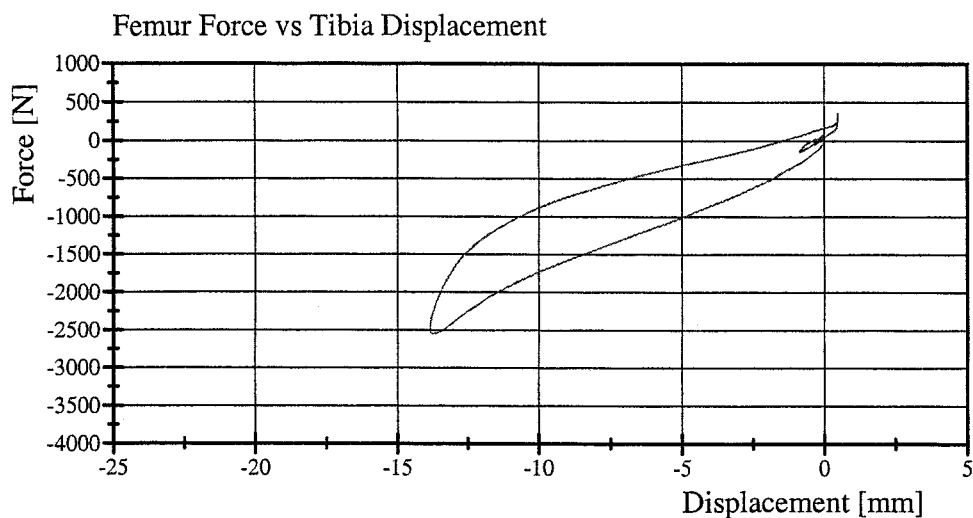
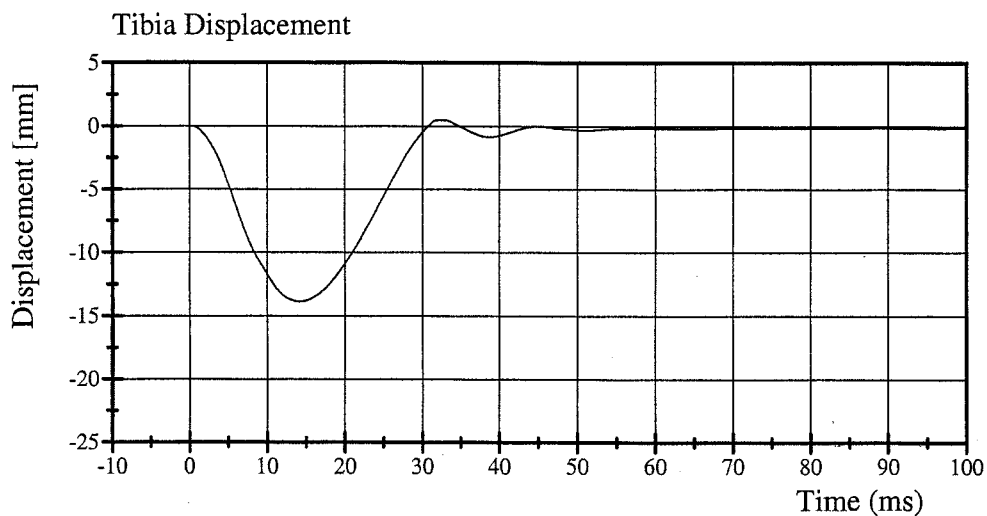
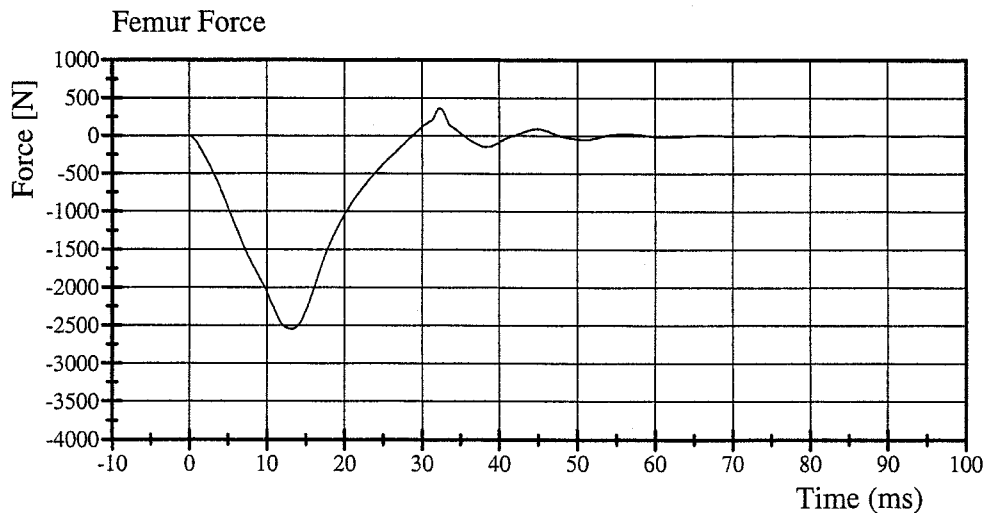


Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002



08.28.2002 08:29:50 1360



Transportation Research Center Inc.

5720 Left Knee Test

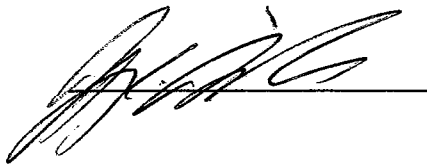
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

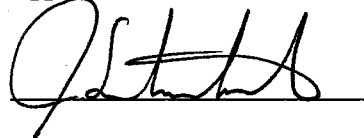
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3935 N	Yes

Comments:

Technician



Approved



08.28.2002 10:10:40 1761



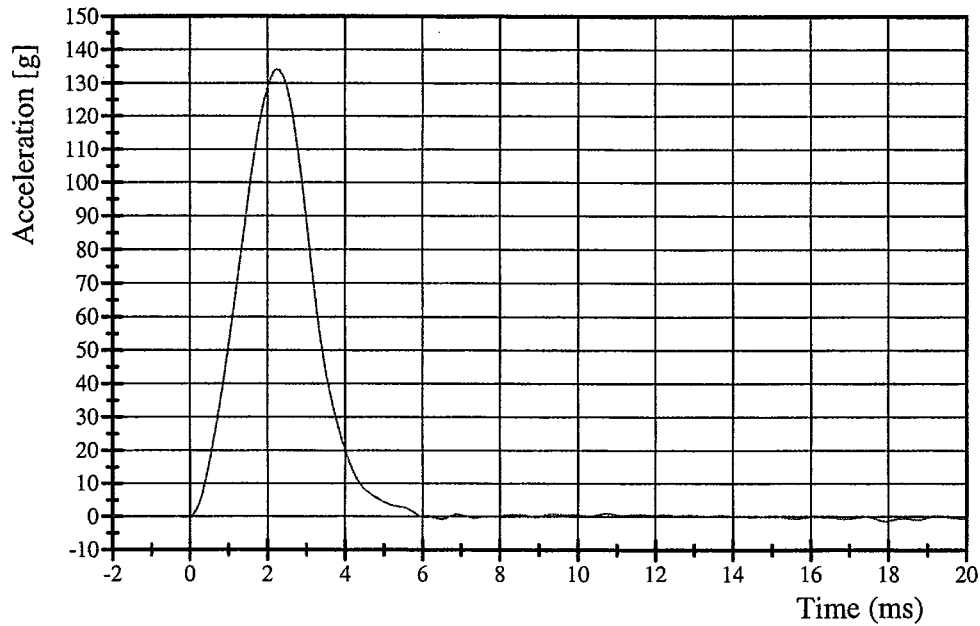
Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

Pendulum Deceleration

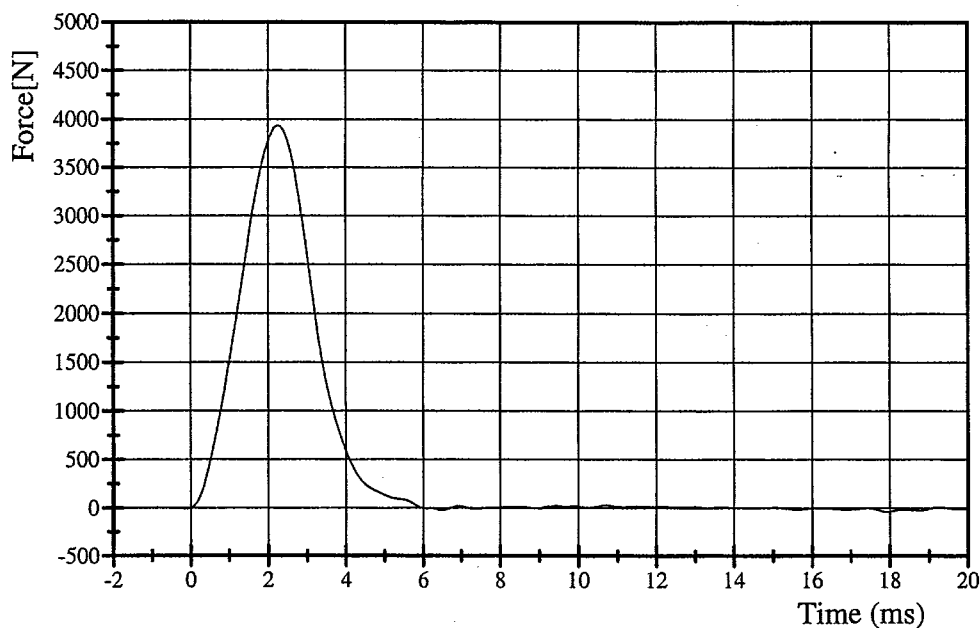


Filter Class: 600

Max: 134.2 g at 2.2 ms

Min: -1.3 g at 17.9 ms

Pendulum Force



Filter Class: 600

Max: 3935.0 N at 2.2 ms

Min: -39.2 N at 17.9 ms

08.28.2002 10:10:41 1761



Transportation Research Center Inc.

5720 Right Knee Test

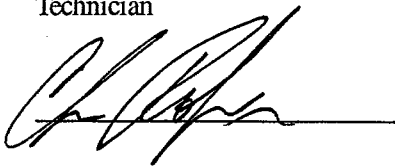
HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

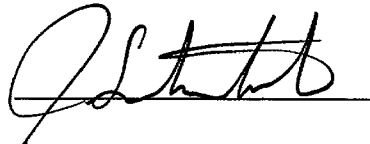
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.12 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3663 N	Yes

Comments:

Technician



Approved



08.28.2002 09:26:00 1721



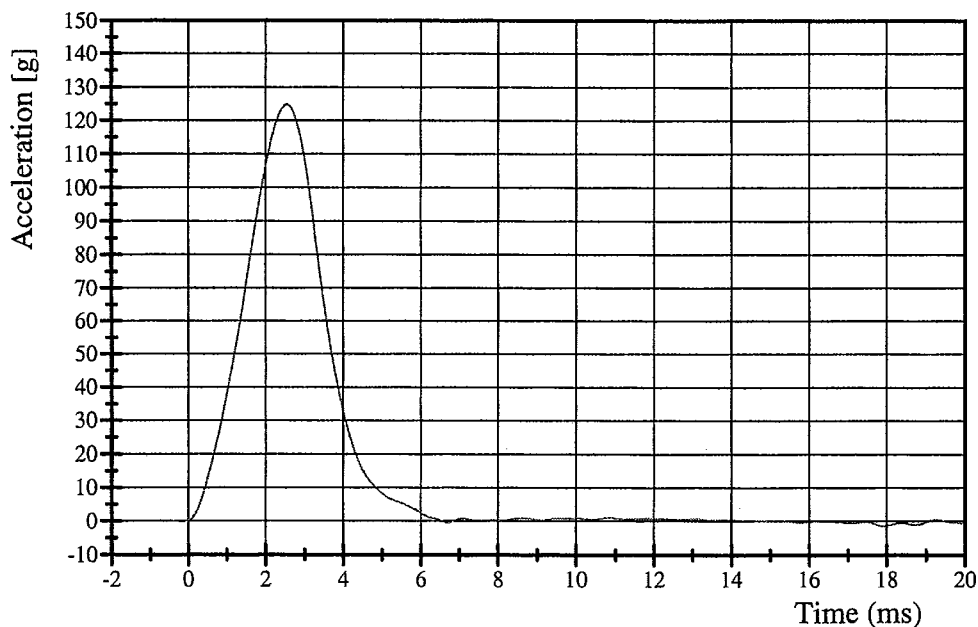
Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 17 - 1

Test Date 08/28/2002

Pendulum Deceleration

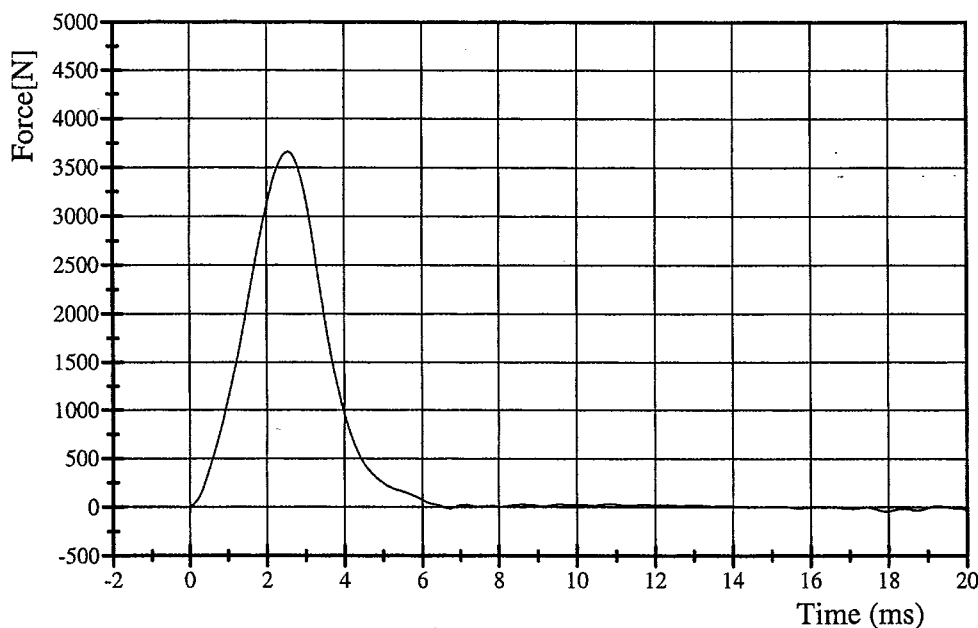


Filter Class: 600

Max: 124.9 g at 2.6 ms

Min: -1.5 g at 17.9 ms

Pendulum Force



Filter Class: 600

Max: 3662.9 N at 2.6 ms

Min: -42.8 N at 17.9 ms

08.28.2002 09:26:02 1721



Post-Test Dummy Configuration and Performance Verification Data

Target Vehicle Driver Dummy S/N: 168

Partial Calibrations:

Thorax Test

Left Knee Test

Right Knee Test

Target Vehicle Passenger Dummy S/N: 421

No post-test calibration

Bullet Vehicle Driver Dummy S/N: 169

No post-test calibration

Bullet Vehicle Passenger Dummy S/N: 416

No post-test calibration

Transportation Research Center Inc.

572E Thorax Test

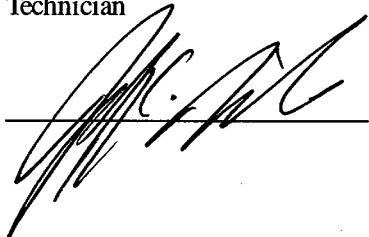
HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 10/04/2002

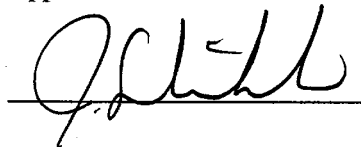
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	63 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.66 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-65.5 mm	Yes
Maximum Resistive Force	5159 - 5894 N	5721 N	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

Comments:

Technician



Approved



10.04.2002 13:03:21 985



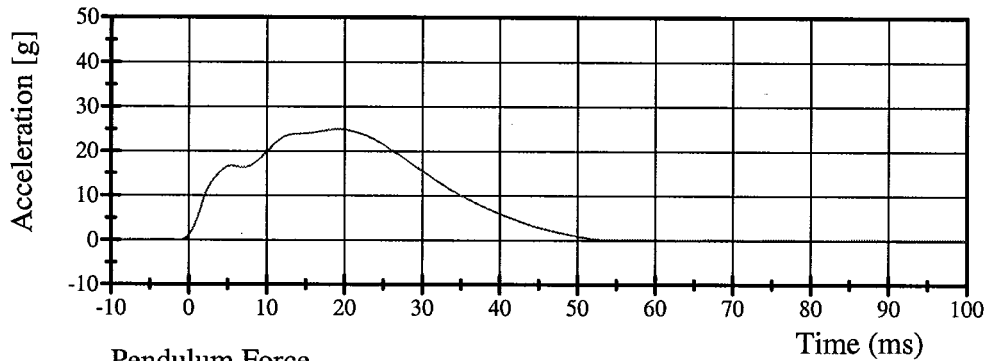
Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 10/04/2002

Pendulum Deceleration

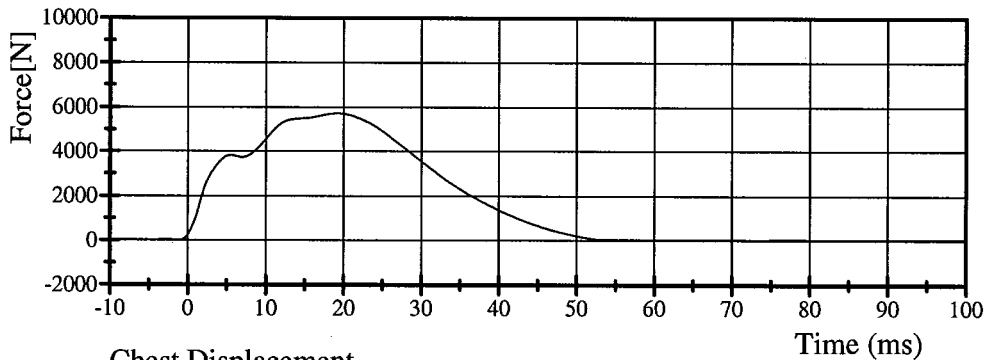


Filter Class: 180

Max: 25.0 g at 19.2 ms

Min: -0.0 g at -77.4 ms

Pendulum Force

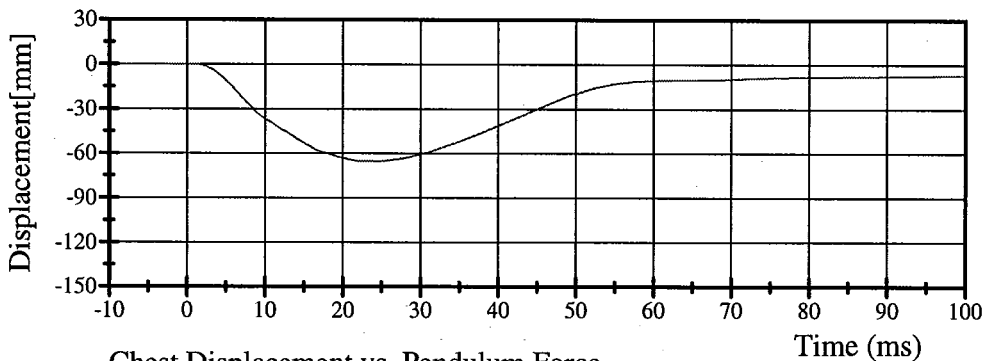


Filter Class: 180

Max: 5721.2 N at 19.2 ms

Min: -8.6 N at -77.4 ms

Chest Displacement

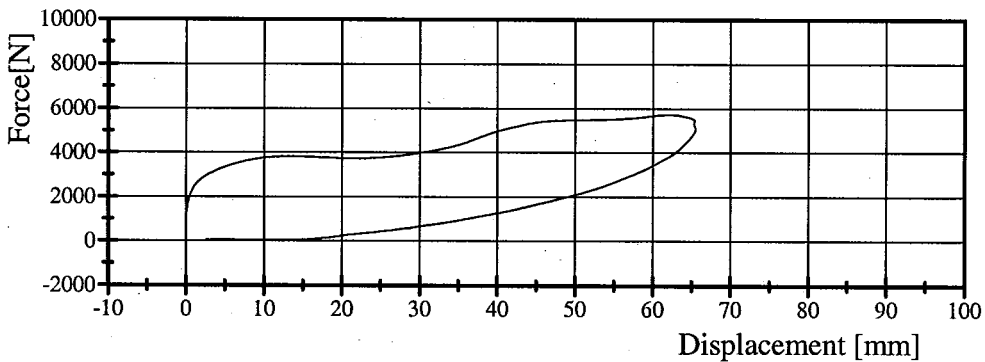


Filter Class: 180

Max: 0.0 mm at 0.5 ms

Min: -65.5 mm at 24.4 ms

Chest Displacement vs. Pendulum Force



10.04.2002 13:03:27 985



Transportation Research Center Inc.

572E Left Knee Test

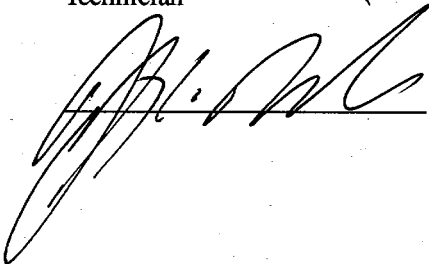
HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 10/04/2002

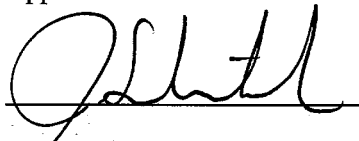
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5321 N	Yes

Comments:

Technician



Approved



10.07.2002 13:30:16 2106



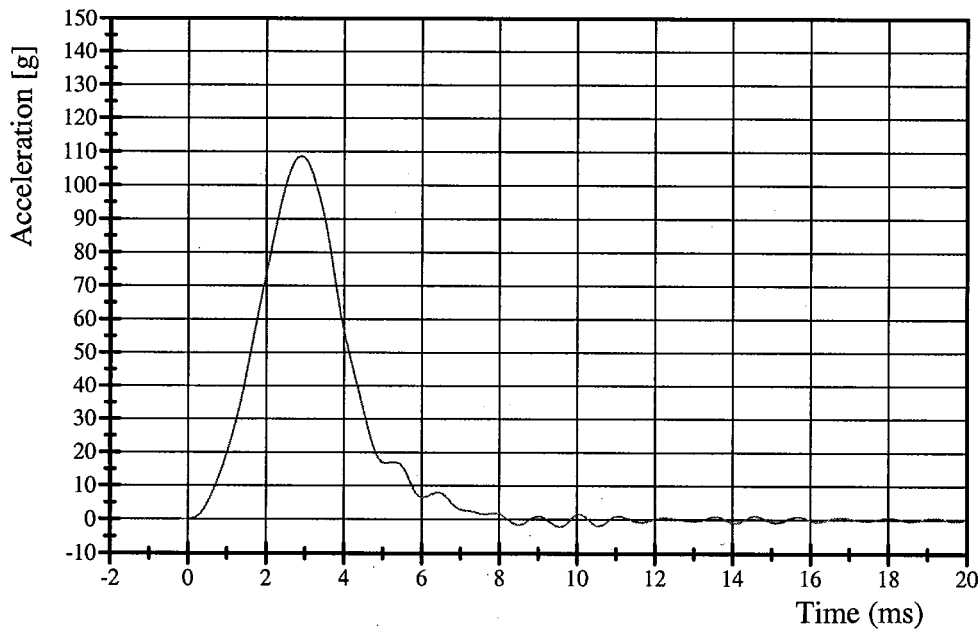
Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 10/04/2002

Pendulum Deceleration

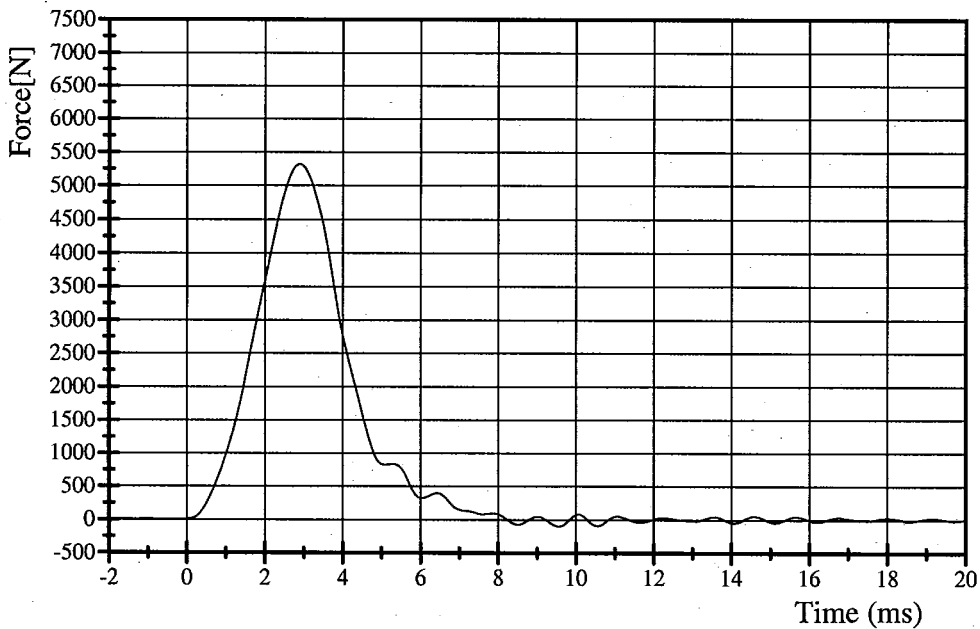


Filter Class: 600

Max: 108.8 g at 2.9 ms

Min: -2.0 g at 9.6 ms

Pendulum Force



Filter Class: 600

Max: 5321.2 N at 2.9 ms

Min: -95.8 N at 9.6 ms

Transportation Research Center Inc.

572E Right Knee Test

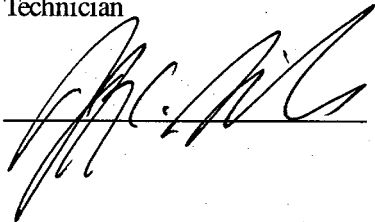
HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 10/04/2002

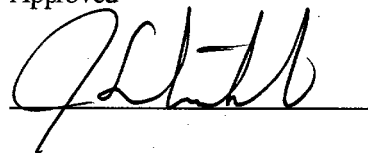
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	63 %	Yes
Pendulum Velocity	2.08 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4716 - 5782 N	5708 N	Yes

Comments:

Technician



Approved



10.07.2002 13:31:15 2108



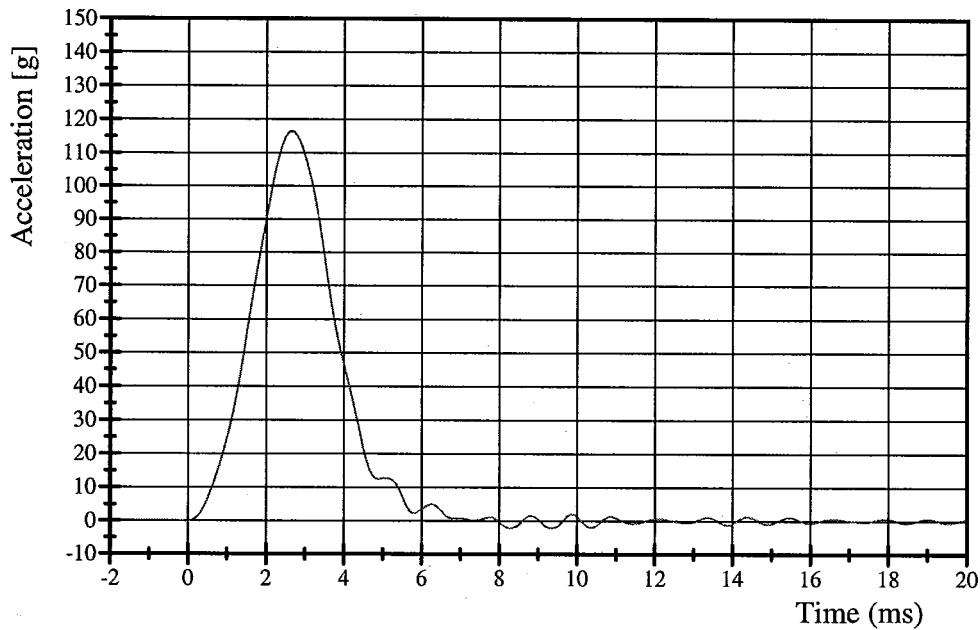
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 17 - 2

Test Date 10/04/2002

Pendulum Deceleration

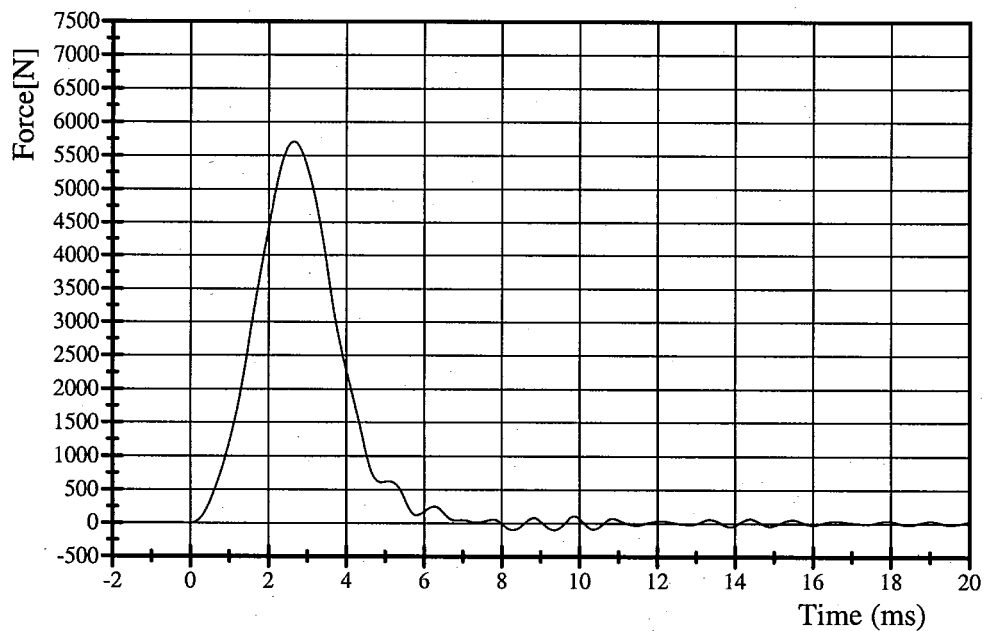


Filter Class: 600

Max: 116.7 g at 2.6 ms

Min: -2.1 g at 9.4 ms

Pendulum Force



Filter Class: 600

Max: 5708.0 N at 2.6 ms

Min: -103.4 N at 9.4 ms

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

Frequency Response Classes
SAE J211 MAR95

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

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

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

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

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

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

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

Dual Stage Airbag Event Information

Two inductive pick-ups to monitor airbag fire times on the bullet vehicle driver and passenger sides were labeled “A” and “B” because wiring information was not available. Both driver and passenger airbags were identified by VRTC as single-stage airbags.

The following set-up information was recorded for test 020928:

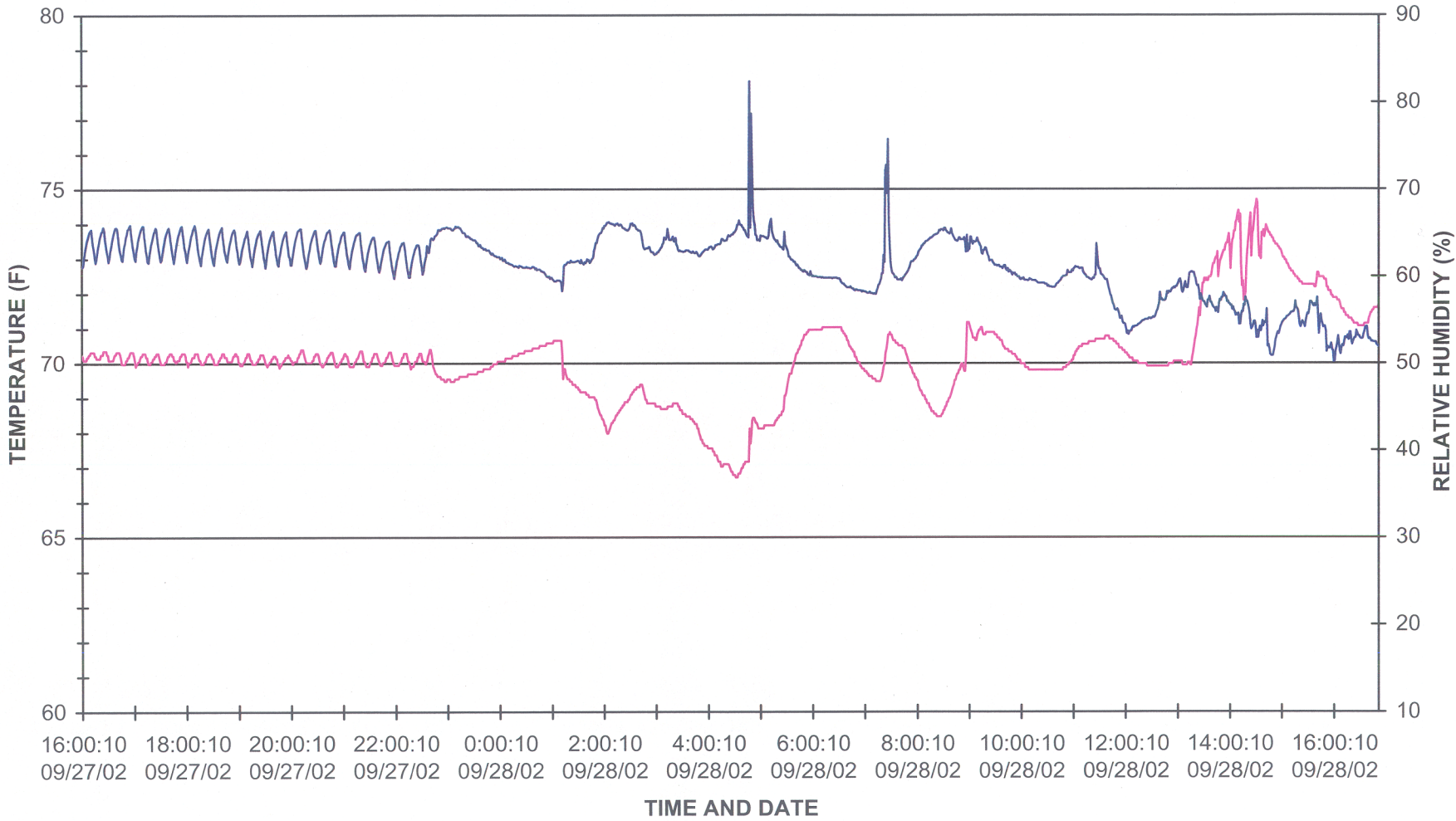
Driver A, DABETA, inductive pick-up was placed on the gray with orange airbag plug wire.

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

No wire color information was recorded for Driver B, DABETB, or Passenger B, PABETB.

TARGET VEHICLE TEMPERATURE AND RELATIVE HUMIDITY CHART 020928

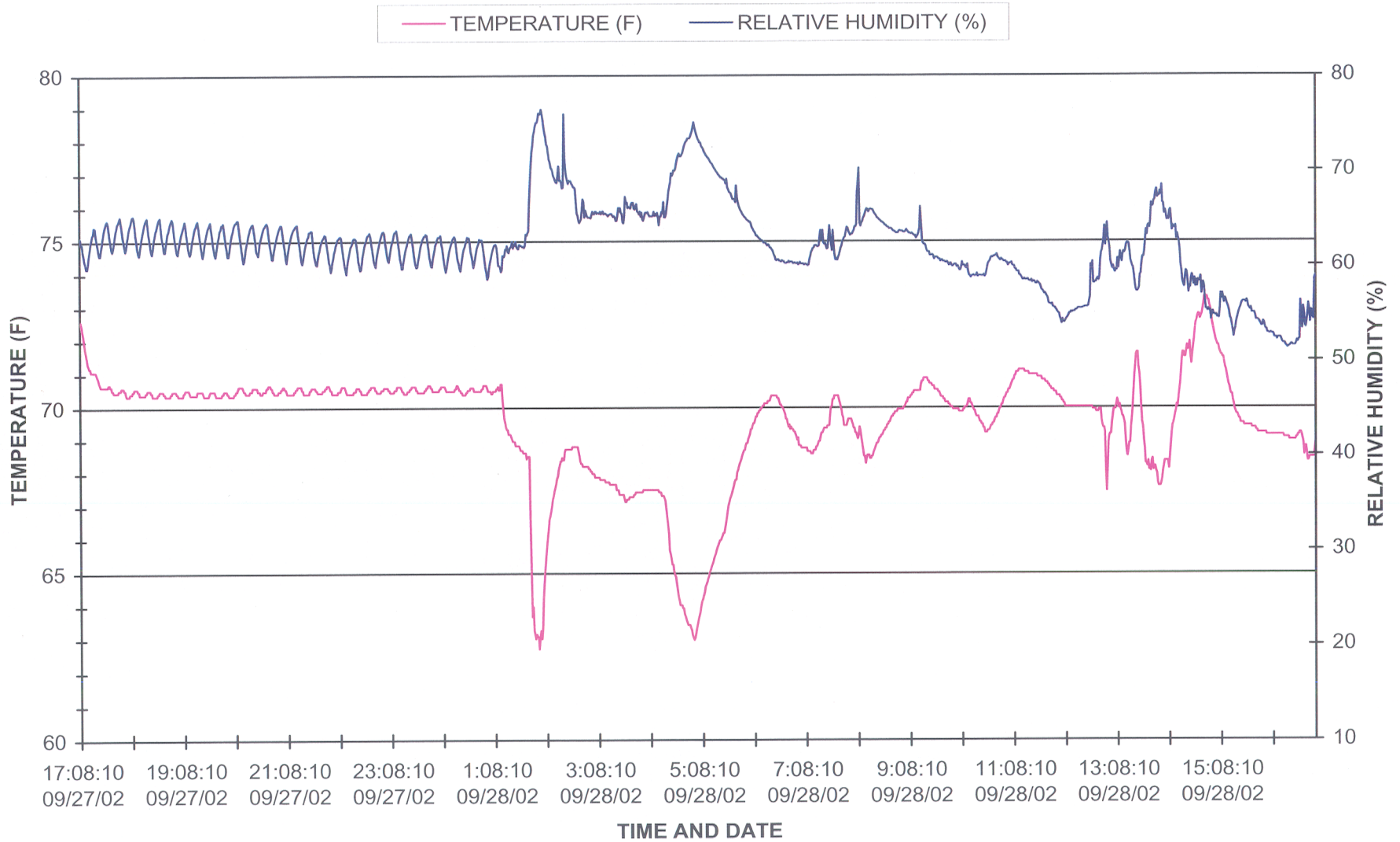
— TEMPERATURE (F) — RELATIVE HUMIDITY (%)



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020928

BULLET VEHICLE TEMPERATURE AND RELATIVE HUMIDITY CHART 020928



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020928

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

Channel Report

9/28/2002 2:40:32 PM

Name of Test 020928

System K3600

Name of DAU DAU0

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model	
0000	EVENT	SYNC0	SYNC0		10.24	V	+ 4/15/2002	---	-1	TRC	Event
0001	J20083	HEDXGA	Head Accel X	Rwd	1203.8703	g	- 5/24/2002	OK	169v	Endevco	7264-2000T
0002	J19843	HEDYGA	Head Accel Y	Lft	1203.0075	g	- 5/24/2002	OK	169v	Endevco	7264-2000T
0003	J20027	HEDZGA	Head Accel Z	Up	1198.544	g	- 5/24/2002	OK	169v	Endevco	7264-2KM5T
0004	1716A-782-FX	NEKXFA	Neck Force X	Hd Fd	13338.003	N	- 5/30/2002	OK	169v	Denton	1716A
0005	1716A-782-FY	NEKYFA	Neck Force Y	Hd Lt	13358.829	N	+ 5/30/2002	OK	169v	Denton	1716A
0006	1716A-782-FZ	NEKZFA	Neck Force Z	Hd U	20011.554	N	+ 5/30/2002	OK	169v	Denton	1716A
0007	1716A-782-MX	NEKXMA	Neck Moment X	Rt Ear	423.49858	N-m	- 5/30/2002	OK	169v	Denton	1716A
0008	1716A-782-MY	NEKYMA	Neck Moment Y	Chn t	424.23484	N-m	+ 5/30/2002	OK	169v	Denton	1716A
0009	1716A-782-MZ	NEKZMA	Neck Moment Z	Chn t	423.51205	N-m	+ 5/30/2002	OK	169v	Denton	1716A
0010	J23757	CSTXGA	Chest Accel X	Fwd	599.31757	g	+ 5/24/2002	OK	169v	Endevco	7264-2000T
0011	J21989	CSTYGA	Chest Accel Y	Lft	601.26006	g	- 5/24/2002	OK	169v	Endevco	7264-2KM5T
0012	J35747	CSTZGA	Chest Accel Z	Up	602.63653	g	- 5/24/2002	OK	169v	Endevco	7264-2000TZ
0013	14CB1-2847-169	CSTXDA	Chest Deflection X	Strnm	102.03095	mm	+ 6/6/2002	OK	169v	Servo	14CB1-2847
0014	J36741	PEVXGA	Pelvis Accel X	Rwd	598.78139	g	- 5/24/2002	OK	169v	Endevco	7264-2000TZ
0015	J36605	PEVYGA	Pelvis Accel Y	Lft	597.68397	g	- 5/24/2002	OK	169v	Endevco	7264-2000TZ
0016	AAMD7	PEVZGA	Pelvis Accel Z	Up	596.56972	g	- 5/24/2002	OK	169v	Endevco	7264-2000LC
0017	1914-0261-FZ	LFMZFA	Left Femur Force Z	Knee	33361.065	N	+ 5/24/2002	OK	169v	Denton	1914
0018	1914A-383-FZ	RFMZFA	Right Femur Force Z	Knee	33365.2	N	+ 5/24/2002	OK	169v	Denton	1914A
0019	150-0121VR-1716	KNLXDA	Left Knee Displacement	Tib Rr	28.758390	mm	- 6/13/2002	OK	169v	SpaceAge	150-0121VR
0020	150-0121VL-2103	KNRXDA	Right Knee Displacement	Tib Rr	22.515391	mm	- 6/13/2002	OK	169v	SpaceAge	150-0121VL
0021	4353J-78-FZ	TBLZFA	Left Upper Tibia Force Z	Tib D	16676.731	N	+ 7/17/2002	OK	169v	Denton	4353J
0022	4353J-78-MX	TBLXMA	Left Upper Tibia Moment X	Tib Rt	592.17164	N-m	- 7/17/2002	OK	169v	Denton	4353J
0023	4353J-78-MY	TBLYMA	Left Upper Tibia Moment Y	Tib Rr	593.90357	N-m	- 7/17/2002	OK	169v	Denton	4353J
0024	4929J-78-FZ	ANLZFA	Left Lower Tibia Force Z	Ank D	16673.288	N	+ 7/16/2002	OK	169v	Denton	4929J
0025	4929J-78-MX	ANLXMA	Left Lower Tibia Moment X	Ank L	592.01164	N-m	+ 7/16/2002	OK	169v	Denton	4929J
0026	4929J-78-MY	ANLYMA	Left Lower Tibia Moment Y	Ank F	592.57412	N-m	+ 7/16/2002	OK	169v	Denton	4929J
0027	4353J-77-FZ	TBRZFA	Right Upper Tibia Force Z	Tib D	16674.152	N	+ 7/17/2002	OK	169v	Denton	4353J
0028	4353J-77-MX	TBRXMA	Right Upper Tibia Moment X	Tib Rt	593.28865	N-m	- 7/17/2002	OK	169v	Denton	4353J
0029	4353J-77-MY	TBRYMA	Right Upper Tibia Moment Y	Tib Rr	592.12385	N-m	- 7/17/2002	OK	169v	Denton	4353J

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Channel Report

9/28/2002 2:40:32 PM

0030	4929J-75-FZ	ANRZFA	Right Lower Tibia Force Z	Ank D	16669.71	N	+	7/17/2002	OK	169v	Denton	4929J
0031	4929J-75-MX	ANRXMA	Right Lower Tibia Moment X	Ank L	591.82489	N·m	+	7/17/2002	OK	169v	Denton	4929J
0032	4929J-75-MY	ANRYMA	Right Lower Tibia Moment Y	Ank F	592.1299	N·m	+	7/17/2002	OK	169v	Denton	4929J
0033	02A02-F02	HEDXGB	Head Accel X	Fwd	1199.9063	g	+	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0034	02A18-N10	HEDYGB	Head Accel Y	Lft	1210.6738	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0035	02A09-F15	HEDZGB	Head Accel Z	Up	1197.3807	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0036	01L26-F02	HEDXRB	Head Accel Red X	Rwd	1205.784	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0037	02A09-F13	HEDYRB	Head Accel Red Y	Lft	1187.9902	g	-	8/5/2002	OK	416v	Entran	EGE-73B6Q-200
0038	02A16-A06	HEDZRB	Head Accel Red Z	Up	1196.5412	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0039	IF-205-161-FX	NEKXFB	Neck Force X	Hd Fd	13338.750	N	-	3/18/2002	OK	416v	FTSS	IF-205
0040	IF-205-161-FY	NEKYFB	Neck Force Y	Hd Lt	13338.787	N	+	3/18/2002	OK	416v	FTSS	IF-205
0041	IF-205-161-FZ	NEKZFB	Neck Force Z	Hd U	20027.557	N	+	3/18/2002	OK	416v	FTSS	IF-205
0042	IF-205-161-MX	NEKXMB	Neck Moment X	Rt Ear	423.58502	N·m	-	3/18/2002	OK	416v	FTSS	IF-205
0043	IF-205-161-MY	NEKYMB	Neck Moment Y	Chn t	424.3428	N·m	+	3/18/2002	OK	416v	FTSS	IF-205
0044	IF-205-161-MZ	NEKZMB	Neck Moment Z	Chn t	423.65465	N·m	+	3/18/2002	OK	416v	FTSS	IF-205
0045	3251-108-FX	NKLXFB	Neck Lwr Force X	Hd Fd	13350.195	N	-	8/21/2001	---	416v	Denton	3251
0046	3251-108-FY	NKLYFB	Neck Lwr Force Y	Hd Lt	13337.913	N	+	8/21/2001	---	416v	Denton	3251
0047	3251-108-FZ	NKLZFB	Neck Lwr Force Z	Hd U	19999.8	N	+	8/21/2001	---	416v	Denton	3251
0048	3251-108-MX	NKLXMB	Neck Lwr Moment X	Rt Ear	423.72626	N·m	-	8/21/2001	---	416v	Denton	3251
0049	3251-108-MY	NKLYMB	Neck Lwr Moment Y	Chn t	423.94741	N·m	+	8/21/2001	---	416v	Denton	3251
0050	3251-108-MZ	NKLZMB	Neck Lwr Moment Z	Chn t	424.30015	N·m	+	8/21/2001	---	416v	Denton	3251
0051	02A16-A04	CSTXGB	Chest Accel X	Fwd	602.28563	g	+	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0052	C02B19-F02	CSTYGB	Chest Accel Y	Lft	598.86893	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0053	C02B19-F06	CSTZGB	Chest Accel Z	Up	597.88638	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0054	B02A25-N08	CSTXRB	Chest Accel Red X	Rwd	597.46776	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0055	01L17-F09	CSTYRB	Chest Accel Red Y	Lft	598.88645	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0056	C02B19-F04	CSTZRB	Chest Accel Red Z	Up	600.93897	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0057	14CB1-2897-416	CSTXDB	Chest Deflection X 516	Strnm	98.566265	mm	+	6/18/2001	---	416v	Servo	14CB1-2897
0058	C02B19-F03	PEVXGB	Pelvis Accel X	Rwd	601.17887	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0059	02A16-A27	PEVYGB	Pelvis Accel Y	Lft	600.09376	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0060	C02B19-F01	PEVZGB	Pelvis Accel Z	Up	602.05192	g	-	8/1/2002	OK	416v	Entran	EGE-73B6Q-200
0061	2430-736	LFMZFB	Left Femur Force Z #8	Knee	20010.994	N	+	3/18/2002	OK	416v	GSE	2430
0062	2430-742	RFMZFB	Right Femur Force Z 507	Knee	20018.276	N	+	3/18/2002	OK	416v	GSE	2430
0063	150-0121VR-5556	KNLXDB	Left Knee Displacement	Tib Rr	43.132134	mm	-	5/8/2002	OK	416v	SpaceAge	150-0121VR
0064	150-0121VL-5482	KNRXDB	Right Knee Displacement	Tib Rr	43.923991	mm	-	5/8/2002	OK	416v	SpaceAge	150-0121VL

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Channel Report

0065	4825J-79-FZ	TBLZFB	Left Upr Tibia Force Z	Tib D	13346.797	N	+	7/16/2002	OK	416v	Denton	4825J
0066	4825J-79-MX	TBLXMB	Left Upr Tibia Moment X	Ank L	423.46176	N·m	+	7/16/2002	OK	416v	Denton	4825J
0067	4825J-79-MY	TBLYMB	Left Upr Tibia Moment Y	Ank F	423.81802	N·m	+	7/16/2002	OK	416v	Denton	4825J
0068	4826J-77-FZ	ANLZFB	Left Lwr Tibia Force Z	Ank D	13338.746	N	+	7/16/2002	OK	416v	Denton	4826J
0069	4826J-77-MX	ANLXMB	Left Lwr Tibia Moment X	Ank L	423.27858	N·m	+	7/16/2002	OK	416v	Denton	4826J
0070	4826J-77-MY	ANLYMB	Left Lwr Tibia Moment Y	Ank F	424.61364	N·m	+	7/16/2002	OK	416v	Denton	4826J
0071	4825J-76-FZ	TBRZFB	Right Upr Tibia Force Z	Tib D	13342.012	N	+	7/16/2002	OK	416v	Denton	4825J
0072	4825J-76-MX	TBRXMB	Right Upr Tibia Moment X	Ank L	423.38267	N·m	+	7/16/2002	OK	416v	Denton	4825J
0073	4825J-76-MY	TBRYMB	Right Upr Tibia Moment Y	Ank F	424.24213	N·m	+	7/16/2002	OK	416v	Denton	4825J
0074	4826J-78-FZ	ANRZFB	Right Lwr Tibia Force Z	Ank D	13338.830	N	+	7/16/2002	OK	416v	Denton	4826J
0075	4826J-78-MX	ANRXMB	Right Lwr Tibia Moment X	Ank L	423.56701	N·m	+	7/16/2002	OK	416v	Denton	4826J
0076	4826J-78-MY	ANRYMB	Right Lwr Tibia Moment Y	Ank F	423.89026	N·m	+	7/16/2002	OK	416v	Denton	4826J
0077	J41113	VCGXGA	VEHICLE CG X-AXIS ACCEL	FWD	994.56099	g	+	4/3/2002	OK	-1	Endevco	7264-2000TZ
0078	J41114	VCGYGA	VEHICLE CG Y-AXIS ACCEL	LT	996.44821	g	-	4/3/2002	OK	-1	Endevco	7264-2000TZ
0079	J39033	VCGZGA	VEHICLE CG Z-AXIS ACCEL	UP	990.59707	g	-	7/17/2002	OK	-1	Endevco	7264-2000TZ
0080	J29018	RDKXGA	REAR DECK X-AXIS ACCELE	FWD	988.74148	g	+	8/27/2002	OK	-1	Endevco	7264-2000TZ
0081	J40086	RDKYGA	REAR DECK Y-AXIS ACCELE	LT	1012.6783	g	-	6/19/2002	OK	-1	Endevco	7264-2000TZ
0082	J35767	RDKZGA	REAR DECK Z-AXIS ACCELE	UP	996.57428	g	-	5/13/2002	OK	-1	Endevco	7264-2000TZ
0083	J15383	LRSXGA	LEFT REAR SILL X-AXIS AC	FWD	1523.8095	g	+	8/27/2002	OK	-1	Endevco	7264-2000TZ

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Name of Test 020928

System K3600

Name of DAU DAU1

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model
1000	EVENT	SYNC1	SYNC1		10.24 V	+	4/15/2002 OK	-1	TRC	Event
1001	J17649	HEDXG1	Head Accel X	Rwd	1184.0751 g	-	5/24/2002 OK	168v	Endevco	7264-2KM5T
1002	AJ454	HEDYG1	Head Accel Y	Lft	1195.1447 g	-	5/24/2002 OK	168v	Endevco	7264-2000T
1003	J14189	HEDZG1	Head Accel Z	Up	1189.8675 g	-	5/24/2002 OK	168v	Endevco	7264-2000T
1004	P17196	HEDXR1	Head Accel Red X S39	Rwd	1187.0537 g	-	1/25/2002 ---	168v	Endevco	7264C-2KLC-2-2
1005	B02A25-N05	HEDYR1	Head Accel Red Y	Lft	1210.0586 g	-	2/8/2002 OK	168v	Entran	EGE-73B6Q-200
1006	01G25-N09	HEDZR1	Head Accel Red Z	Up	1212.7529 g	-	1/24/2002 OK	168v	Entran	EGE-73B6Q-200
1007	1716A-851-FX	NEKXF1	Neck Force X	Hd Fd	13329.237 N	-	5/29/2002 OK	168v	Denton	1716A
1008	1716A-851-FY	NEKYF1	Neck Force Y	Hd Lt	13329.530 N	+	5/29/2002 OK	168v	Denton	1716A
1009	1716A-851-FZ	NEKZF1	Neck Force Z	Hd U	20045.228 N	+	5/29/2002 OK	168v	Denton	1716A
1010	1716A-851-MX	NEKXM1	Neck Moment X	Rt Ear	424.21629 N-m	-	5/29/2002 OK	168v	Denton	1716A
1011	1716A-851-MY	NEKYM1	Neck Moment Y	Chn t	423.71714 N-m	+	5/29/2002 OK	168v	Denton	1716A
1012	1716A-851-MZ	NEKZM1	Neck Moment Z	Chn t	423.80316 N-m	+	5/29/2002 OK	168v	Denton	1716A
1013	J35921	CSTXG1	Chest Accel X	Fwd	601.70169 g	+	5/24/2002 OK	168v	Endevco	7264-2000TZ
1014	AJ7F7	CSTYG1	Chest Accel Y	Lft	597.08455 g	-	5/24/2002 OK	168v	Endevco	7264-2000T
1015	J36723	CSTZG1	Chest Accel Z	Up	597.09847 g	-	5/24/2002 OK	168v	Endevco	7264-2000TZ
1016	99H30-Z14	CSTXR1	Chest Accel Red X	Rwd	602.40255 g	-	4/25/2002 OK	168v	Entran	EGE-73BQE0-20
1017	98H14-K05	CSTYR1	Chest Accel Red Y	Lft	599.48248 g	-	4/25/2002 OK	168v	Entran	EGE-73BQ-2000
1018	98H13-F03	CSTZR1	Chest Accel Red Z	Up	600.08673 g	-	4/25/2002 OK	168v	Entran	EGE-73BQ-2000
1019	14CB1-2847-168	CSTXD1	Chest Deflection X	Strnm	101.85558 mm	+	6/5/2002 OK	168v	Servo	14CB1-2847
1020	ACCY2	PEVXG1	Pelvis Accel X	Rwd	601.36246 g	-	5/24/2002 OK	168v	Endevco	7264-2000T
1021	J27490	PEVYG1	Pelvis Accel Y	Lft	600.66402 g	-	5/24/2002 OK	168v	Endevco	7264-2KM5T
1022	J21963	PEVZG1	Pelvis Accel Z	Up	604.09415 g	-	5/24/2002 OK	168v	Endevco	7264-2KM5T
1023	1914A-362-FZ	LFMZFI	Left Femur Force Z	Knee	33334.983 N	+	5/24/2002 OK	168v	Denton	1914A
1024	1914A-376-FZ	RFMZFI	Right Femur Force Z	Knee	3359.9235 N	+	5/24/2002 OK	168v	Denton	1914A
1025	150-0121VR-1802	KNLXD1	Left Knee Displacement	Tib Rr	29.03976 mm	-	6/13/2002 OK	168v	SpaceAge	150-0121VR
1026	150-0121VL-1812	KNRXD1	Right Knee Displacement	Tib Rr	22.301594 mm	-	6/13/2002 OK	168v	SpaceAge	150-0121VL
1027	4353J-79-FZ	TBLZFI	Left Upper Tibia Force Z	Tib D	16680.913 N	+	7/16/2002 OK	168v	Denton	4353J
1028	4353J-79-MX	TBLXM1	Left Upper Tibia Moment X	Tib Rt	592.55391 N-m	-	7/16/2002 OK	168v	Denton	4353J
1029	4353J-79-MY	TBLYM1	Left Upper Tibia Moment Y	Tib Rr	592.62243 N-m	-	7/16/2002 OK	168v	Denton	4353J

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1030	4929J-77-FZ	ANLZF1	Left Lower Tibia Force Z	Ank D	16673.976	N	+	7/16/2002	OK	168v	Denton	4929J
1031	4929J-77-MX	ANLXM1	Left Lower Tibia Moment X	Ank L	593.84346	N-m	+	7/16/2002	OK	168v	Denton	4929J
1032	4929J-77-MY	ANLYM1	Left Lower Tibia Moment Y	Ank F	594.01423	N-m	+	7/16/2002	OK	168v	Denton	4929J
1033	4353J-75-FZ	TBRZF1	Right Upper Tibia Force Z	Tib D	16693.171	N	+	8/2/2002	OK	168v	Denton	4353J
1034	4353J-75-MX	TBRXM1	Right Upper Tibia Moment X	Tib Lt	593.09572	N-m	+	8/2/2002	OK	168v	Denton	4353J
1035	4353J-75-MY	TBRYM1	Right Upper Tibia Moment Y	Tib F	591.99233	N-m	+	8/2/2002	OK	168v	Denton	4353J
1036	4929J-76-FZ	ANRZF1	Right Lower Tibia Force Z	Ank D	16678.299	N	+	7/16/2002	OK	168v	Denton	4929J
1037	4929J-76-MX	ANRXM1	Right Lower Tibia Moment X	Ank L	593.26309	N-m	+	7/16/2002	OK	168v	Denton	4929J
1038	4929J-76-MY	ANRYM1	Right Lower Tibia Moment Y	Ank F	592.63215	N-m	+	7/16/2002	OK	168v	Denton	4929J
1039	AJ4R6	HEDXG2	Head Accel X VRTC 5	Fwd	1202.7673	g	+	8/6/2002	OK	421v	Endevco	7264-2KM5T
1040	02A16-A01	HEDYG2	Head Accel Y	Lft	1213.8454	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1041	01L26-F06	HEDZG2	Head Accel Z	Up	1213.7591	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1042	02A16-A03	HEDXR2	Head Accel Red X	Rwd	1200.1594	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1043	02A16-A08	HEDYR2	Head Accel Red Y	Lft	1199.9063	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1044	02A16-A09	HEDZR2	Head Accel Red Z	Up	1188.1556	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1045	IF-205-180-FX	NEKXF2	Neck Force X	Hd Fd	13332.807	N	-	3/18/2002	OK	421v	FTSS	IF-205
1046	IF-205-180-FY	NEKYF2	Neck Force Y	Hd Lt	13344.549	N	+	3/18/2002	OK	421v	FTSS	IF-205
1047	IF-205-180-FZ	NEKZF2	Neck Force Z	Hd U	20033.116	N	+	3/18/2002	OK	421v	FTSS	IF-205
1048	IF-205-180-MX	NEKXM2	Neck Moment X	Rt Ear	423.99134	N-m	-	3/18/2002	OK	421v	FTSS	IF-205
1049	IF-205-180-MY	NEKYM2	Neck Moment Y	Chn t	424.10166	N-m	+	3/18/2002	OK	421v	FTSS	IF-205
1050	IF-205-180-MZ	NEKZM2	Neck Moment Z	Chn t	424.47778	N-m	+	3/18/2002	OK	421v	FTSS	IF-205
1051	3251-107-FX	NKLXF2	Neck Lwr Force X	Hd Fd	13348.061	N	-	7/6/2001	---	421v	Denton	3251
1052	3251-107-FY	NKLYF2	Neck Lwr Force Y	Hd Lt	13331.263	N	+	7/6/2001	---	421v	Denton	3251
1053	3251-107-FZ	NKLZF2	Neck Lwr Force Z	Hd U	20012.257	N	+	7/6/2001	---	421v	Denton	3251
1054	3251-107-MX	NKLXM2	Neck Lwr Moment X	Rt Ear	423.89906	N-m	-	7/6/2001	---	421v	Denton	3251
1055	3251-107-MY	NKLYM2	Neck Lwr Moment Y	Chn t	424.11583	N-m	+	7/6/2001	---	421v	Denton	3251
1056	3251-107-MZ	NKLZM2	Neck Lwr Moment Z	Chn t	424.01392	N-m	+	7/6/2001	---	421v	Denton	3251
1057	B02A25-N03	CSTXG2	Chest Accel X	Fwd	599.26146	g	+	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1058	02A18-N12	CSTYG2	Chest Accel Y	Lft	597.38411	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1059	B02A25-N10	CSTZG2	Chest Accel Z	Up	598.37900	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1060	AE9B7	CSTXR2	Chest Accel Red X	Rwd	598.41047	g	-	8/6/2002	OK	421v	Endevco	7264-2KM5T
1061	02A04-A24	CSTYR2	Chest Accel Red Y	Lft	598.00509	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1062	B02A18-N22	CSTZR2	Chest Accel Red Z	Up	600.28373	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1063	14CB1-2897-1355	CSTXD2	Chest Deflection X	Strnm	99.823165	mm	+	3/25/2002	OK	421v	Servo	14CB1-2897
1064	AF9K3	PEVXG2	Pelvis Accel X	Rwd	596.31959	g	-	8/5/2002	OK	421v	Endevco	7264-2000LC

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1065	02A16-A26	PEVYG2	Pelvis Accel Y	Lft	599.6545	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1066	02A18-N15	PEVZG2	Pelvis Accel Z	Up	599.50705	g	-	8/5/2002	OK	421v	Entran	EGE-73B6Q-200
1067	2430-739	LFMZ2	Left Femur Force Z S37	Knee	20014.442	N	+	3/18/2002	OK	421v	GSE	2430
1068	2430-760	RFMZ2	Right Femur Force Z VRTC 4	Knee	20010.299	N	+	3/18/2002	OK	421v	GSE	2430
1069	150-0121VR-1502	KNLXD2	Left Knee Displacement POT10	Tib F	43.785009	mm	+	5/8/2002	OK	421v	SpaceAge	150-0121VR
1070	150-0121VL-1494	KNRDX2	Right Knee Displacement AXR	Tib F	43.693463	mm	+	5/8/2002	OK	421v	SpaceAge	150-0121VL
1071	4825J-82-FZ	TBLZF2	Left Upr Tibia Force Z	Tib D	13349.228	N	+	7/16/2002	OK	421v	Denton	4825J
1072	4825J-82-MX	TBLXM2	Left Upr Tibia Moment X	Ank L	424.53401	N-m	+	7/16/2002	OK	421v	Denton	4825J
1073	4825J-82-MY	TBLYM2	Left Upr Tibia Moment Y	Ank F	423.39473	N-m	+	7/16/2002	OK	421v	Denton	4825J
1074	4826J-82-FZ	ANLZF2	Left Lwr Tibia Force Z	Ank D	13352.351	N	+	7/16/2002	OK	421v	Denton	4826J
1075	4826J-82-MX	ANLXM2	Left Lwr Tibia Moment X	Ank L	424.04753	N-m	+	7/16/2002	OK	421v	Denton	4826J
1076	4826J-82-MY	ANLYM2	Left Lwr Tibia Moment Y	Ank F	424.82149	N-m	+	7/16/2002	OK	421v	Denton	4826J
1077	4825J-80-FZ	TBRZF2	Right Upr Tibia Force Z	Tib D	13343.872	N	+	7/16/2002	OK	421v	Denton	4825J
1078	4825J-80-MX	TBRXM2	Right Upr Tibia Moment X	Ank L	423.40535	N-m	+	7/16/2002	OK	421v	Denton	4825J
1079	4825J-80-MY	TBRYM2	Right Upr Tibia Moment Y	Ank F	424.36005	N-m	+	7/16/2002	OK	421v	Denton	4825J
1080	4826J-76-FZ	ANRZF2	Right Lwr Tibia Force Z	Ank D	13335.636	N	+	7/16/2002	OK	421v	Denton	4826J
1081	4826J-76-MX	ANRXM2	Right Lwr Tibia Moment X	Ank L	424.28765	N-m	+	7/16/2002	OK	421v	Denton	4826J
1082	4826J-76-MY	ANRYM2	Right Lwr Tibia Moment Y	Ank F	423.73255	N-m	+	7/16/2002	OK	421v	Denton	4826J
1083	J36213	VCGXG1	VEHICLE CG X-AXIS ACCEL	FWD	1011.398	g	+	8/15/2002	OK	-1	Endevco	7264-2000TZ
1084	J35573	VCGYG1	VEHICLE CG Y-AXIS ACCEL	RT	997.827	g	+	8/15/2002	OK	-1	Endevco	7264-2000TZ
1085	J41123	VCGZG1	VEHICLE CG Z-AXIS ACCEL	UP	989.71623	g	-	4/4/2002	OK	-1	Endevco	7264-2000TZ
1086	J41027	RDKXG1	REAR DECK X-AXIS ACCELE	FWD	997.54510	g	+	8/19/2002	OK	-1	Endevco	7264-2000TZ
1087	J38530	RDKYG1	REAR DECK Y-AXIS ACCELE	LT	999.74616	g	-	9/19/2002	OK	-1	Endevco	7264-2000TZ
1088	AAL44	RDKZG1	REAR DECK Z-AXIS ACCELE	DN	986.96893	g	+	9/10/2002	OK	-1	Endevco	7264-2000TZ
1089	J39062	LRXSG1	LEFT REAR SILL X-AXIS AC	FWD	1523.1749	g	+	7/15/2002	OK	-1	Endevco	7264-2000TZ
1090	J39618	LRSYG1	LEFT REAR SILL Y-AXIS AC	RT	1516.1161	g	+	5/9/2002	OK	-1	Endevco	7264-2000TZ
1091	J27503	LRSZG1	LEFT REAR SILL Z-AXIS ACC	DN	1491.0160	g	+	7/30/2002	OK	-1	Endevco	7264-2000TZ
1092	J35719	RRSXG1	RIGHT REAR SILL X-AXIS A	RR	1516.1386	g	-	9/10/2002	OK	-1	Endevco	7264-2000TZ
1093	J35794	RRSYG1	RIGHT REAR SILL Y-AXIS A	LT	1498.1712	g	-	9/5/2002	OK	-1	Endevco	7264-2000TZ
1094	J41089	RRSZG1	RIGHT REAR SILL Z-AXIS AC	DN	1484.5313	g	+	6/4/2002	OK	-1	Endevco	7264-2000TZ
1095	ABFire	DABET1	DRIVER AIRBAG EVENT - WI	A	5.12	V	+	8/20/2002	OK	-1	FLUKE	Y8101A
1096	ABFire	PABET1	PASSENGER AIRBAG EVENT	8	5.12	V	+	8/20/2002	OK	-1	FLUKE	Y8101A
1097	ABFire	PABET2	PASSENGER AIRBAG EVENT	6	5.12	V	+	8/20/2002	OK	-1	FLUKE	Y8101A

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Name of Test 020928

System MINIDAU

Name of DAU DAU6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal. Date/Status	Group	Mfg.	Model
6001	J35571	LRSYGA	LEFT REAR SILL Y-AXIS AC	LT	1515.0170 g	-	8/27/2002 OK	-1	Endevco	7264-2000TZ
6002	J36196	LRSZGA	LEFT REAR SILL Z-AXIS ACC	UP	1495.1524 g	-	5/1/2002 OK	-1	Endevco	7264-2000TZ
6003	J34078	RRSXGA	RIGHT REAR SILL X-AXIS A	FWD	1534.1284 g	+	8/1/2002 OK	-1	Endevco	7264-2000TZ
6004	J34630	RRSYGA	RIGHT REAR SILL Y-AXIS A	LT	1480.0682 g	-	8/1/2002 OK	-1	Endevco	7264-2000TZ
6005	J36709	RRSZGA	RIGHT REAR SILL Z-AXIS AC	UP	1496.2448 g	+	5/2/2002 OK	-1	Endevco	7264-2000TZ
6006	ABFire	DABETA	DRIVER AIRBAG EVENT - WI	69	5.12 V	+	8/20/2002 OK	-1	FLUKE	Y8101A
6007	ABFire	DABETB	DRIVER AIRBAG EVENT - WI	D	5.12 V	+	8/20/2002 OK	-1	FLUKE	Y8101A
6008	ABFire	PABETA	PASSENGER AIRBAG EVENT	1	5.12 V	+	8/20/2002 OK	-1	FLUKE	Y8101A
6009	ABFire	PABETB	PASSENGER AIRBAG EVENT	5	5.12 V	+	8/20/2002 OK	-1	FLUKE	Y8101A

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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.

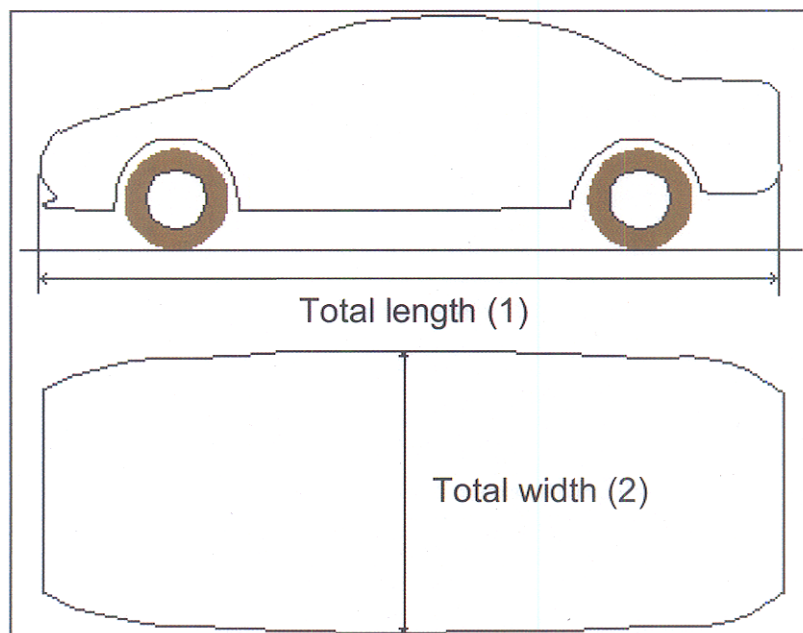


Figure 1.- Definition of the main resistant elements. General dimensions.

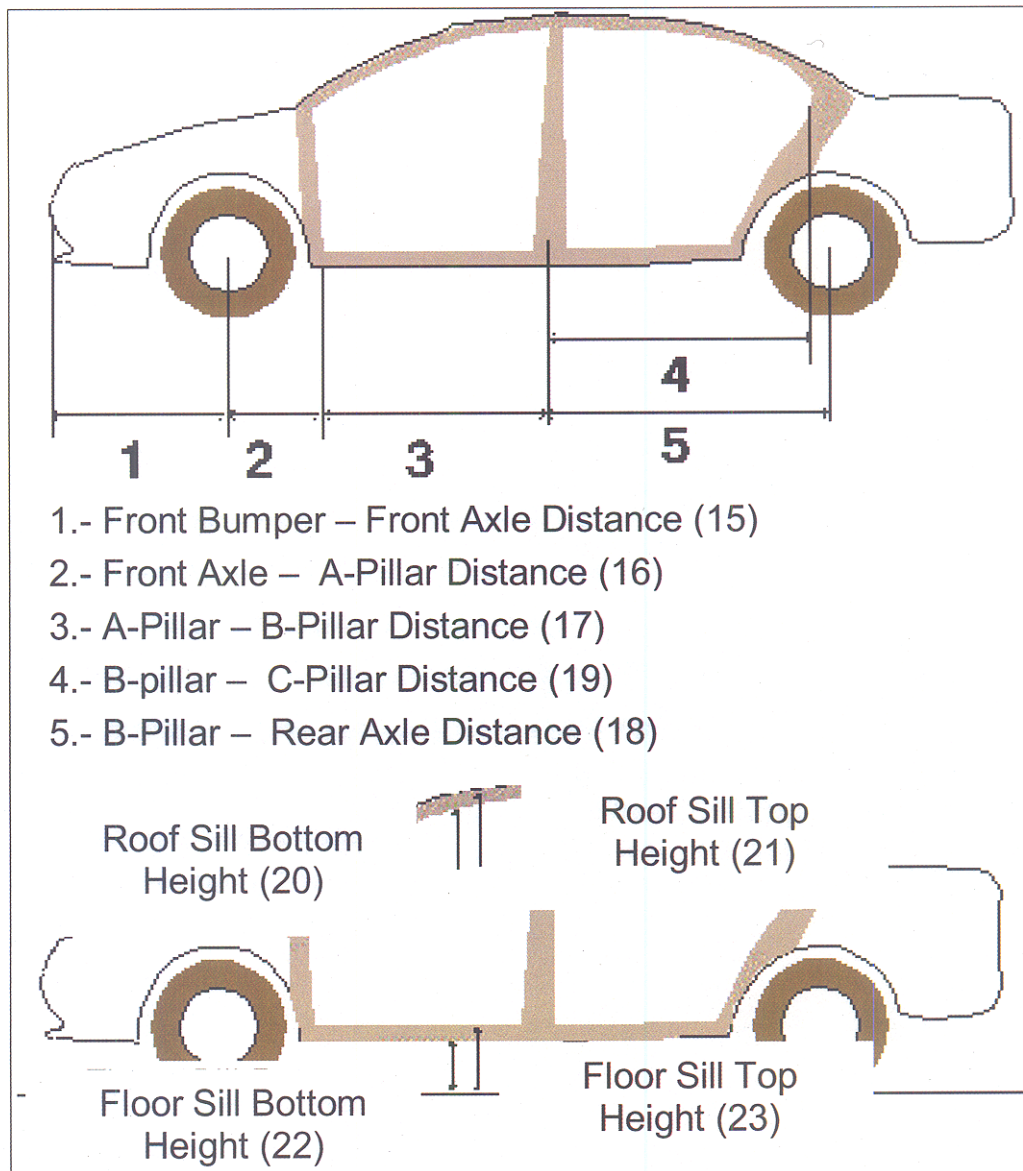


Figure 2.- Definition of the main resistant elements. Side elements.

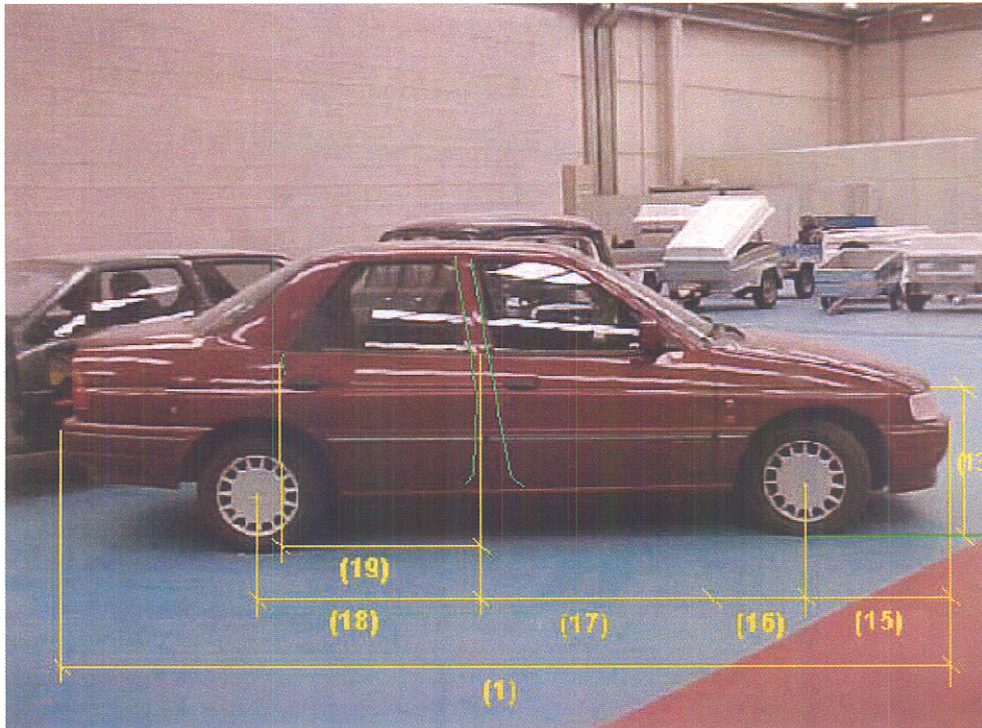


Figure 3.-
Measurements of
the side resistant
elements (outer).

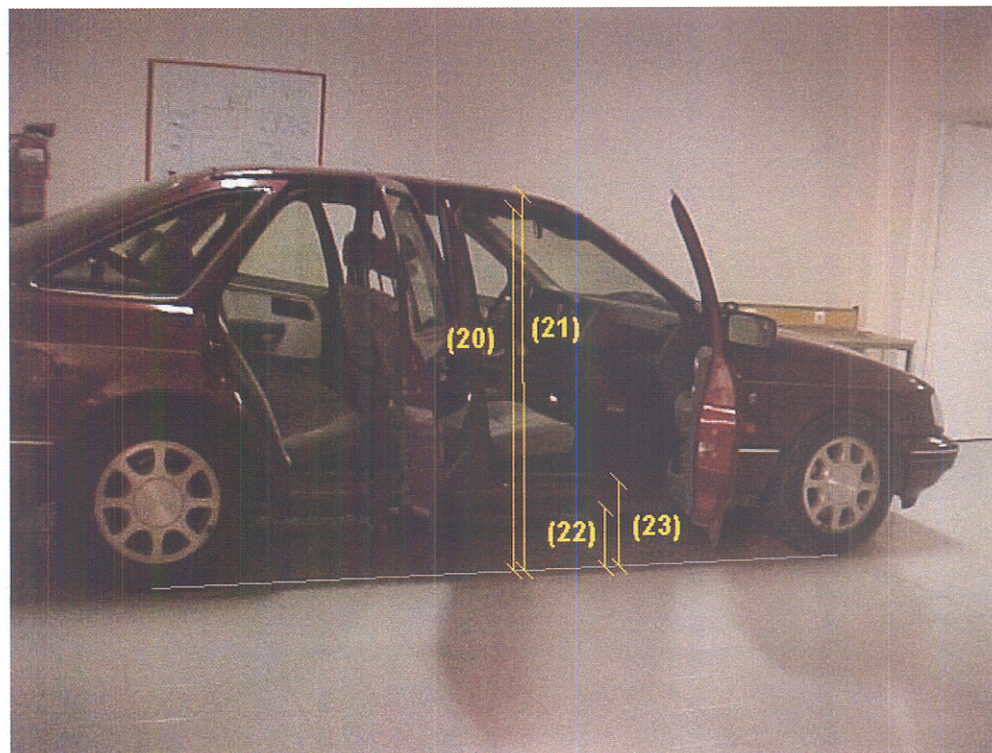


Figure 4.- Measurements
of the side resistant
elements (inner).

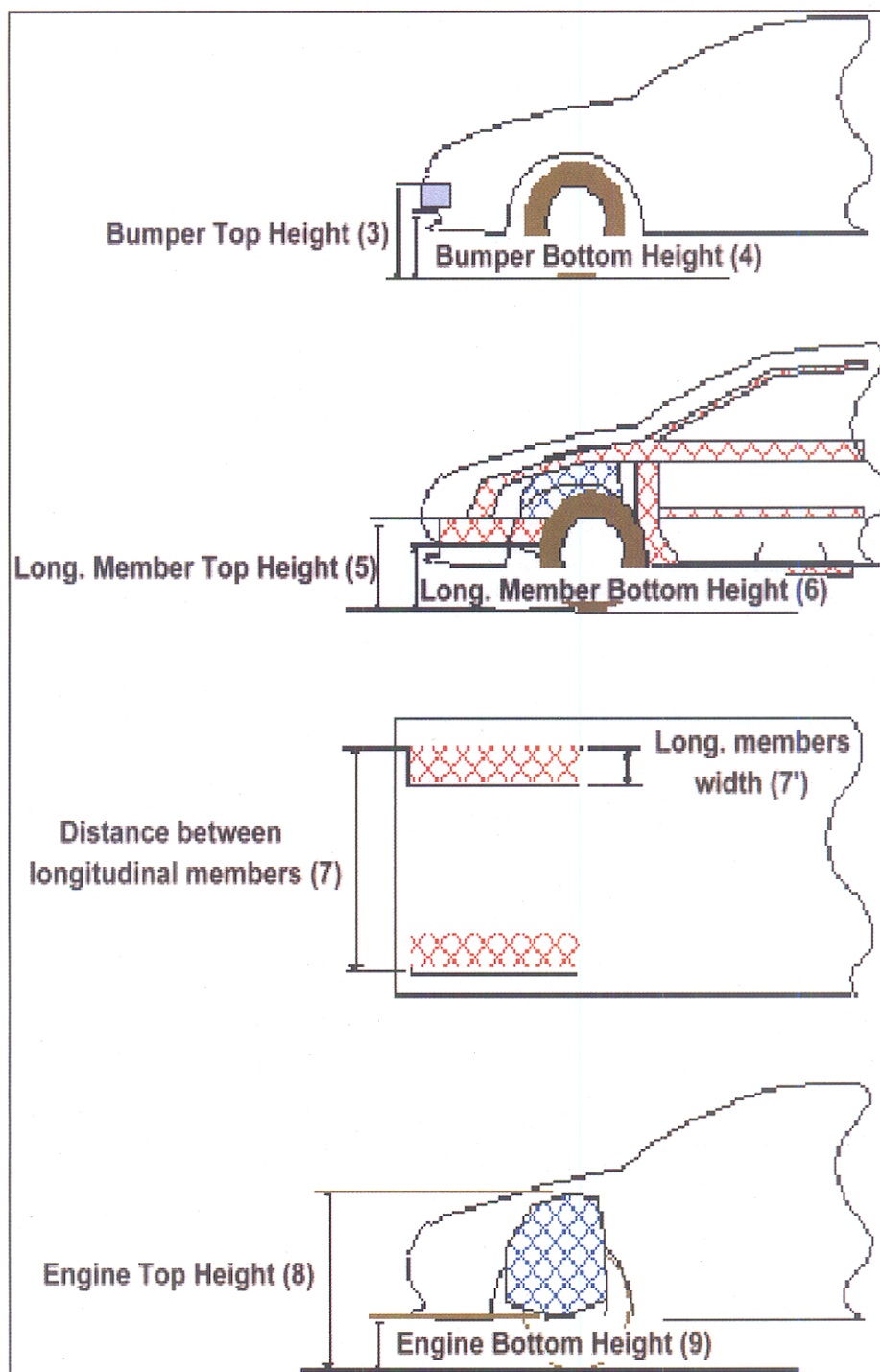


Figure 5.- Definition of the main resistant elements. Front elements.

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

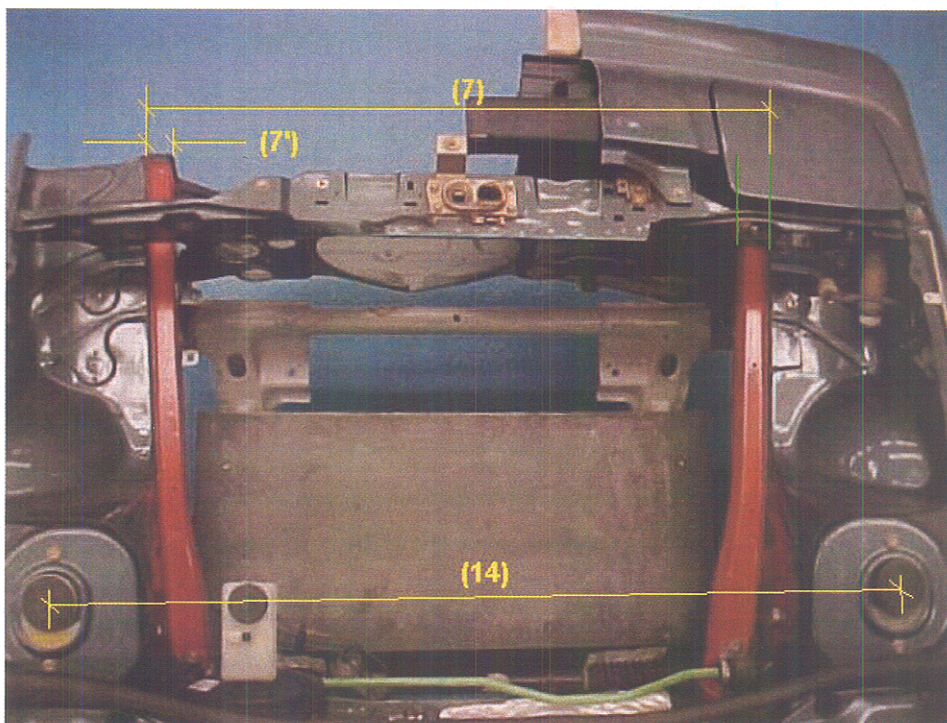
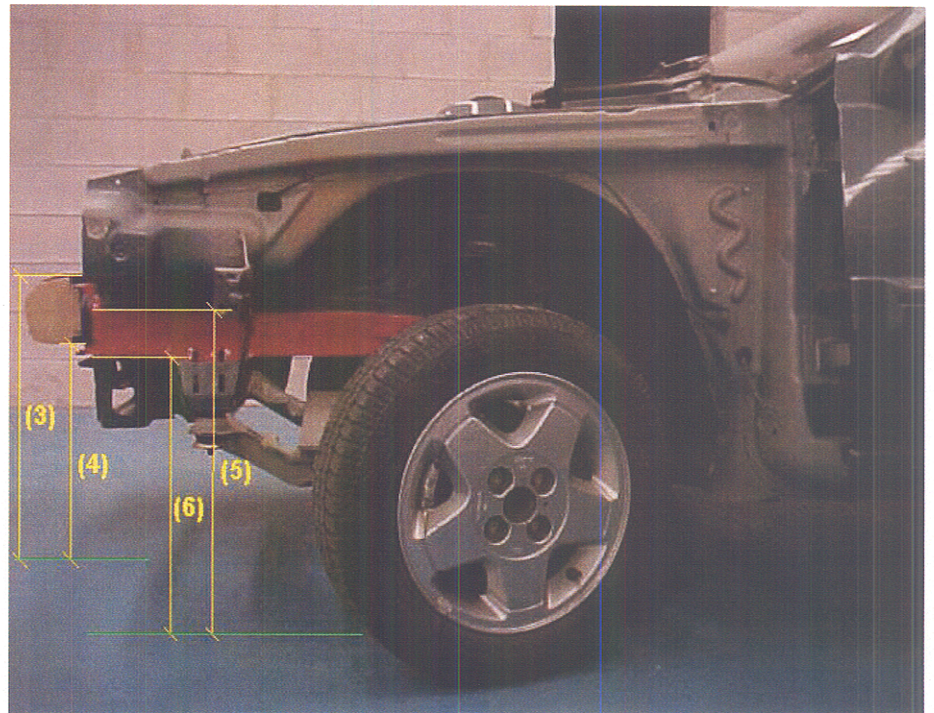


Figure 7.-
Measurements
of the main
resistant
elements. Front
elements 2.

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

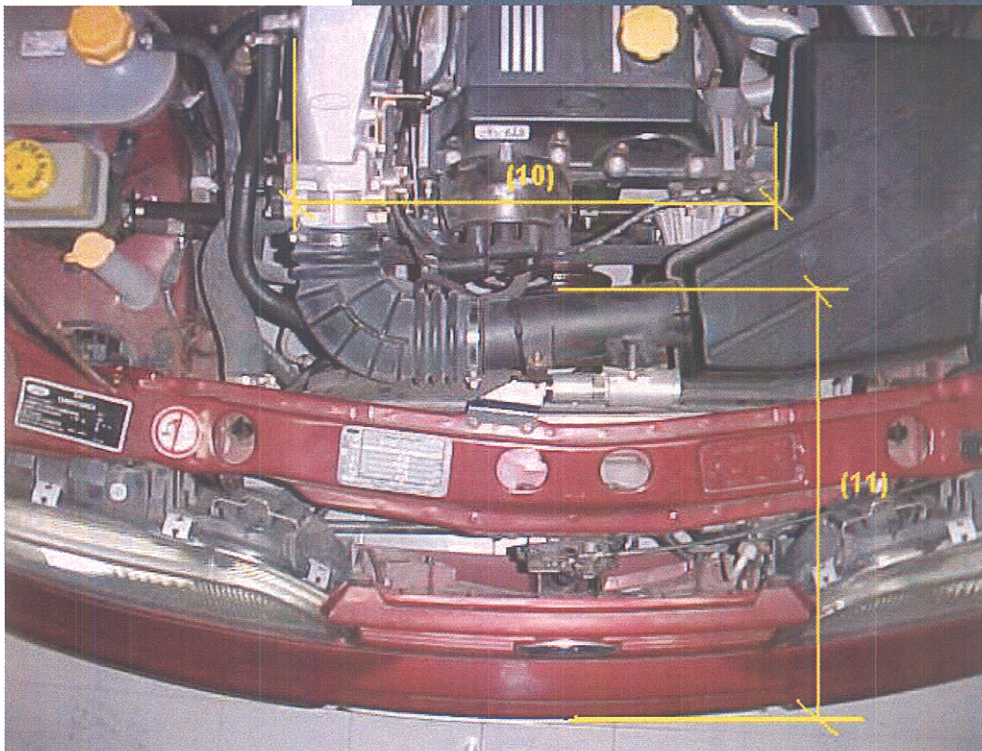
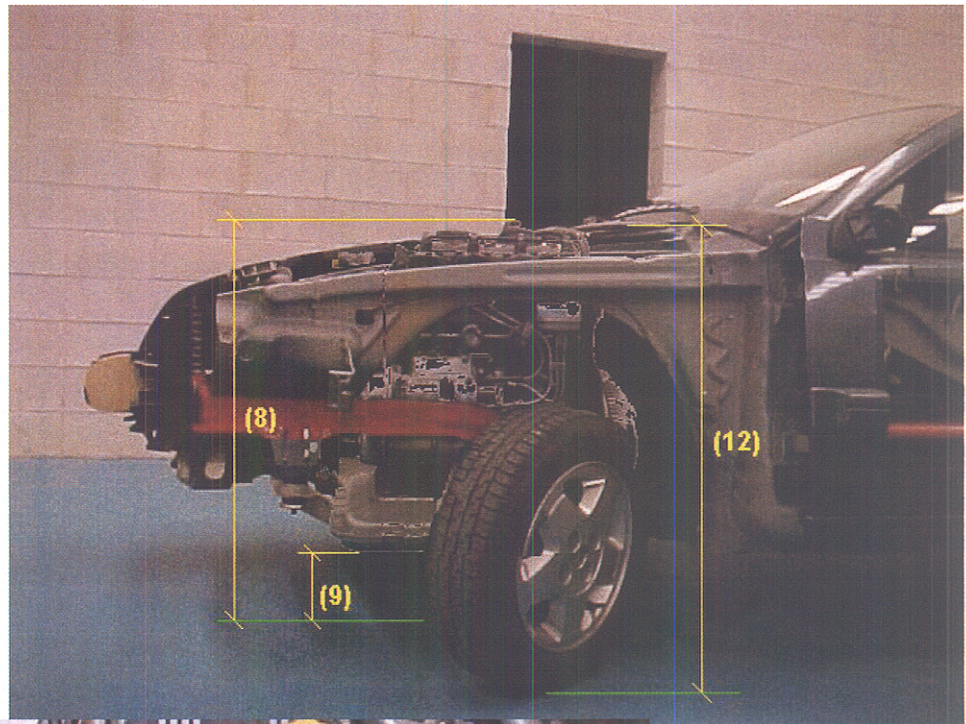


Figure 9.-
Definition of
the main
resistant
elements. Front
elements
(Longitudinal
engine).

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

Vehicle Manufacturer's Information

DATA SHEET NO. 4

(Same information as 99 Navigator per A. Prasad (VRTC).

TEST VEHICLE INFORMATION

Test Vehicle: 1999 FORD EXPEDITION XLT SUV

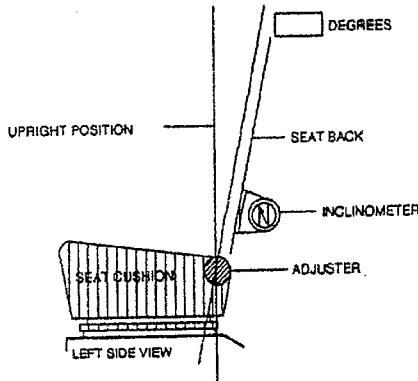
NHTSA No.: MX0200

Test Program: 1999 35 MPH FRONTAL IMPACT

Test Date: 1/26/99

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"?).



FRONT SEAT ASSEMBLY

Measurement Instructions: A special application tool with pointed probes was inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly approximately 13 inches above the pivot point of the seat back. The inclinometer was placed against the flat surface of the tool and the seat back angle was measured directly from the dial face. For reference purposes the first detent from the front of the seat was identified as number "1".

Seat back angle for driver's seat = 25° w/seated dummy, taken at seat back cushion.

Measurement Instructions: A special application tool with pointed probes was inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly approximately 13 inches above the pivot point of the seat back. The inclinometer was placed against the flat surface of the tool and the seat back angle was measured directly from the dial face. For reference purposes the first detent from the front of the seat was identified as number "1".

Seat back angle for passenger's seat = 25° w/seated dummy, taken at seat back cushion.

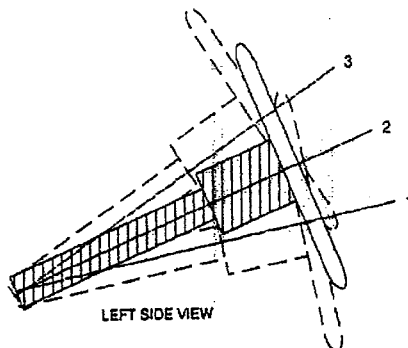
2. SEAT FORE & AFT POSITIONS:

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat: Power seating, total travel was 202mm seat set at 101mm.

Positioning of the passenger's seat (if applicable): 19 seating positions, set to 10th detent from the front.

3. STEERING COLUMN ADJUSTMENTS:



STEERING COLUMN ASSEMBLY

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:

Position No. 1 is at 13°

Position No. 2 is at 21°

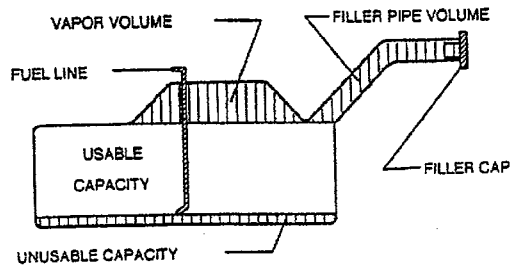
Position No. 3 is at 30°

4. SEAT BELT UPPER ANCHORAGE:

5 Positions, set at the mid position #3.

DATA SHEET NO, 4 (continued)

5. FUEL TANK CAPACITY DATA



5.1

A. "Usable Capacity" of standard equipment fuel tank = n/a liters.

B. "Usable Capacity" of optional equipment fuel tank = N/A liters.

C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 90.5 to 92.5 liters.

VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 91.5 liters

5.3 Is vehicle equipped with electric fuel pump?

Yes X No

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.
Key operated w/automatic shut off after a few seconds.

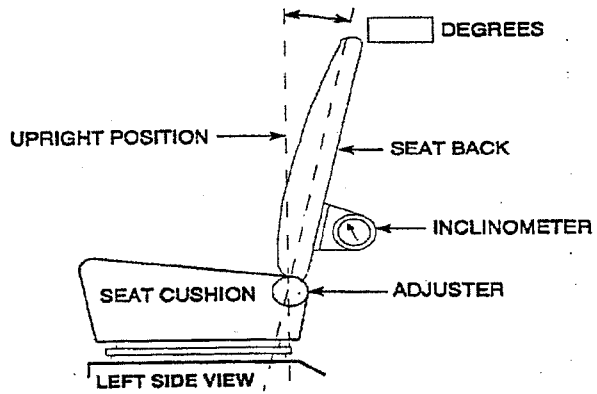
Figure 1

TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1996 Vehicle Model: Dodge Neon Body Style : 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.



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat : N/A

Measurement instructions : Remove seat recliner mechanism (seat in full up position), insert 6 mm. dowel pin in gauge hole, recline seat rearward until it stops at dowel.

Seat back angle for passenger's seat : N/A

Measurement instructions : Same as driver

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : Place seat in 12th detent (mid-position) from a total of 23 detent locations.

Positioning of the passenger's seat (if applicable) : Same as driver.

3. Fuel Tank Capacity Data

A. "Usable Capacity" of the standard equipment fuel tank is 11.2 gallons

B. "Usable Capacity" of the optional equipment fuel tank is - gallons

4. Steering Column Position :

27 mm. up from lowest position.

5. Other:

None.

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Table 4

FRONT SEAT OCCUPANT MEASUREMENTS

(All dimensions excluding angles are in inches).

	DRIVER (Serial #341)			PASSENGER (Serial #342)		
WA°	26 deg.			-		
SWA°	23 deg.			-		
SCA°	67 deg.			-		
SA°	18 deg.			18 deg.		
HZ	7.4			6.8		
HH	11.1			11.2		
HW	20.2			18.7		
HR	8.5			7.6		
NR	13.2	Angle	9 deg.	-		
CD	19.5			18.2		
CS	10.0			-		
RA	5.5			-		
KDL/KDA	4.6	Angle	38 deg.	6.1		
KDR/KDA	3.5			6.2	Angle	40 deg.
PA°	24 deg.			24 deg.		
TA°	36 deg.			34 deg.		
KK	12.1			10.5		
ST	21.5	Angle	75 deg.	21.5	Angle	81 deg.
SK	23.5	Angle	-1 deg.	22.2	Angle	-2 deg.
SH	9.6	Angle	-34 deg.	9.1	Angle	-32 deg.
SHY	9.5			9.8		
HS	11.6			10.8		
HD	4.0**			4.5**		
AD	2.4			2.9		

** Measurement taken to door pocket

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Table 9 Target Vehicle Dummy Measurement Data for Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #090)	Passenger (Serial #416)
WA	Windshield angle	27.3°	N/A
SWA	Steering wheel angle	67.4°	NA
SCA	Steering column angle	22.6°	NA
SA	Seat back angle	20.9°	17.9°
HZ ²	Head to roof	207 mm	230 mm
HH	Head to header	334 mm	283 mm
HW	Head to windshield	587 mm	597 mm
HR	Head to side header	227 mm	262 mm
NR	Nose to rim	354 mm	NA
NA	Nose to rim angle	13.5°	NA
CD	Chest to dash	516 mm	340 mm
CS	Steering wheel to chest	283 mm	NA
RA	Rim to abdomen	165 mm	NA
KDL	Left knee to dash	142 mm	95 mm
KDR	Right knee to dash	120 mm	97 mm
KDA	Outboard knee to dash angle	29.0°	32.9°
PA	Pelvic angle	25.0°	20.1°
TA	Tibial angle	42.9°	58.6°
KK	Knee to knee	320 mm	240 mm
ST ¹	Striker to head	510 mm	504 mm
	Striker to head angle	-85.4°	-67.1°
SK	Striker to knee	556 mm	641 mm
	Striker to knee angle	-3.2°	-2.0°
SH	Striker to H-point	227 mm	333 mm
	Striker to H-point angle	28.2°	15.3°
SHY	Striker to H-point (Y dir.)	212 mm	255
HS	Head to side window	294 mm	332 mm
HD	H-point to door	112 mm	148 mm
AD	Arm to door	99 mm	80 mm

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

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

² Passenger's measurement was taken to the visor.