V3117

1999 Dodge Intrepid
into a 30° Left Angled Barrier
TRC Test Number: 990604-1

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Section 1.0

Purpose and Test Procedure

Purpose and Test Summary

This 30 mph 30° left angled barrier impact test has as the main objective to investigate both vehicle and occupant dynamics during a 30° left angled barrier test. A secondary objective is to gather information on depowered airbags.

This test was conducted with a 1999 Dodge Intrepid that impacted a 30° left angled barrier. The test vehicle contained two instrumented Hybrid III 50th percentile adult male dummies.

Section 2.0

30° Left Angled Barrier Impact Test Summary

Test Procedure

This test was conducted per VRTC personnel's instructions. Data was obtained relative to FMVSS 208, "Occupant Crash Protection," performance.

The test vehicle was instrumented with eight (8) accelerometers to measure longitudinal, lateral, and vertical axis accelerations and two (2) inductive pickup switches to measure the driver and passenger airbag fire times. The vehicle's specified impact velocity range was 47.5 to 49.1 kph. The vehicle impacted a 30° left angled barrier.

The test vehicle contained two (2) Hybrid III 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the FMVSS 208 laboratory seating procedure.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations; chest deflection potentiometers; left and right femur load cells to measure axial forces; and upper neck load cells to measure forces and moments.

The forty (40) data channels were digitally sampled at 12,500 samples per second and processed per Sections 11.13 through 11.15 of the Laboratory Test Procedure.

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

The vehicle and occupant data are summarized in Section 2.0. The FMVSS 208 data are presented in Section 3.0. The vehicle, occupant, and camera measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the data plots. Appendix C contains the miscellaneous test information.

Test Results Summary

This 30° left angled barrier test was conducted at TRC on June 4, 1999.

The test vehicle, a 1999 Dodge Intrepid, was equipped with airbags at the driver's and right front passenger's seating positions. The vehicle's test weight was 1740.9 kilograms. The vehicle's impact speed was 48.0 kph. The vehicle's maximum static crush was 459 millimeters.

The driver's 15-millisecond HIC was 210 and its 36-millisecond HIC was 296. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 43.1 g. The driver's chest deflection was 32.0 millimeters. The driver's left and right femur maximum compressive forces were 5666 N and 4493 N, respectively.

The right front passenger's 15-millisecond HIC was 288 and its 36-millisecond HIC was 304. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 45.6 g. The passenger's chest deflection was 18.9 millimeters. The right front passenger's left and right femur maximum compressive forces were 6267 N and 6135 N, respectively.

Data Acquisition Explanations

The left brake caliper X-axis accelerometer, BCLXG1, exceeded its full scale capacity at approximately 67 ms, and did not record any data after that time.

Table 1 Crash Test Summary

Test type:	30° left angled barrier impact
Test date:	June 4, 1999
Test time:	1107
Ambient temperature at impact area:	21° C
Vehicle year/make/ model/body style:	1999/Dodge/Intrepid/Sedan
Vehicle test weight:	1740.9 kg
Impact angle[1]:	330°
Impact velocity[2]:	
Primary:	48.0 kph
Secondary:	48.0 kph
Maximum static crush:	459 mm
Average rebound:	N/A
Number of cameras:	
Real-time:	1
High-speed:	14
Door opening data:	
Left-front:	Hard
Right-front:	Easy

[1] With respect to tow track centerline.
[2] Speed trap measurement (± .08 km/h accuracy)

Table 1 Crash Test Summary, Cont'd.

Dummies:	Driver #169	Passenger #168
Type:	Hybrid III 50th percentile adult male	Hybrid III 50th percentile adult male
Location:	Left front	Right front
Restraint:	Airbag	Airbag
Number of data channels:	15	15
Front seat data:		
Seat track failure:	None	None
Seat back failure:	None	None
Visible dummy contact points:		
Head:	Airbag, A-pillar, Sun visor, Header	Airbag, Instrument panel, Rearview mirror, Sun visor, Side header
Chest:	Airbag	Airbag
Abdomen:	None	None
Left knee:	Instrument panel	Instrument panel
Right knee:	Instrument panel	Instrument panel

Table 2 Test Vehicle Information

Vehicle year/make/ model/body style:	1999/Dodge/Intrepid/Sedan
Color:	Green
VIN:	2B3HD46R4XH588108
Engine data:	
Placement:	Transverse
Cylinders:	6
Displacement:	2.7 Liters
Transmission data:	_4_speed, ___manual, _X_automatic, ___overdrive
Final drive:	_X_fwd, ___rwd, ___4wd
Date vehicle received:	N/A
Odometer reading:	18 miles
Dealer's name and address:	Carriage Towne Chrysler-Plymouth 2815 Stratford Rd. Delaware, OH 43015-2647

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by:		Chrysler Corp.
Date of manufacture:		10/98
VIN:		2B3HD46R4XH588108
GVWR:		4551 lb.
GAWR:	Front:	2595 lb.
	Rear:	2031 lb.

Table 2 Test Vehicle Information, Cont'd.

Size of tires on vehicle:	P225/60R16
Spare tire:	Space saver
Type of front seats:	Bucket

Tire & capacity data from vehicle's label:

Recommended tire size:	P225/60R16
Recommended cold tire pressure:	
Front:	32 psi
Rear:	32 psi
Designated Seating Capacity:	
Front	2
Rear	3
Total	5
Vehicle Cargo Weight:	865 lb.

Test vehicle attitudes:

Delivered attitude:	LF:	733 mm	RF:	736 mm	LR:	743 mm	RR:	750 mm
Fully loaded attitude:	LF:	715 mm	RF:	723 mm	LR:	713 mm	RR:	722 mm
Pre-test attitude:	LF:	718 mm	RF:	718 mm	LR:	715 mm	RR:	704 mm
Post-test attitude:	LF:	880 mm	RF:	710 mm	LR:	779 mm	RR:	707 mm

Table 2 Test Vehicle Information, Cont'd.

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

Right front	494.4 kg	Right rear	274.9 kg
Left front	492.1 kg	Left rear	281.7 kg
Total front weight	986.5 kg	(63.9% of total vehicle weight)	
Total rear weight	556.6 kg	(36.1% of total vehicle weight)	
Total delivered weight	1543.1 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (1543.1 kg)

DSC[1] = Designated Seating Capacity (5)

RCLW[2] = 52.2 kg

Target test weight = UDW + RCLW + (number of Hybrid III Dummies x 75.7 kg per dummy)

Target test weight = 1543.1 + 52.2 + 151.4 = 1746.7 kg

Weight of test vehicle with required dummies:

Right front	525.7 kg	Right rear	340.2 kg
Left front	527.1 kg	Left rear	347.9 kg
Total front weight	1052.8 kg	(60.5% of total vehicle weight)	
Total rear weight	688.1 kg	(39.5% of total vehicle weight)	
Total test weight	1740.9 kg	(0.33% under target test weight)	

Weight of ballast secured in vehicle: N/A

Components removed to meet target test weight: Rear bumper facia, Rear tail light assembly, Rear seats and seat backs

CG rearward of front wheel centerline: 1140 mm

Vehicle Wheelbase: 2885 mm

[1] The designated seating capacity is determined by counting the number of seat belts installed in the vehicle.

[2] From vehicle's tire label.

Table 3 Post-Impact Data

Test number:	990604-1
Test date:	June 4, 1999
Test time:	1107
Test type:	30° left angled barrier impact
Impact angle:	330°
Ambient temperature at impact area:	22° C
Temperature in occupant compartment:	21° C

Impact velocity:

Primary:	48.0 kph
Secondary	48.0 kph
Specified range:	47.5 to 49.1 kph

Distance from vehicle to barrier:

Entering velocity trap:	356 mm
Exiting velocity trap:	51 mm

Test vehicle static crush:

Overall length of test vehicle:

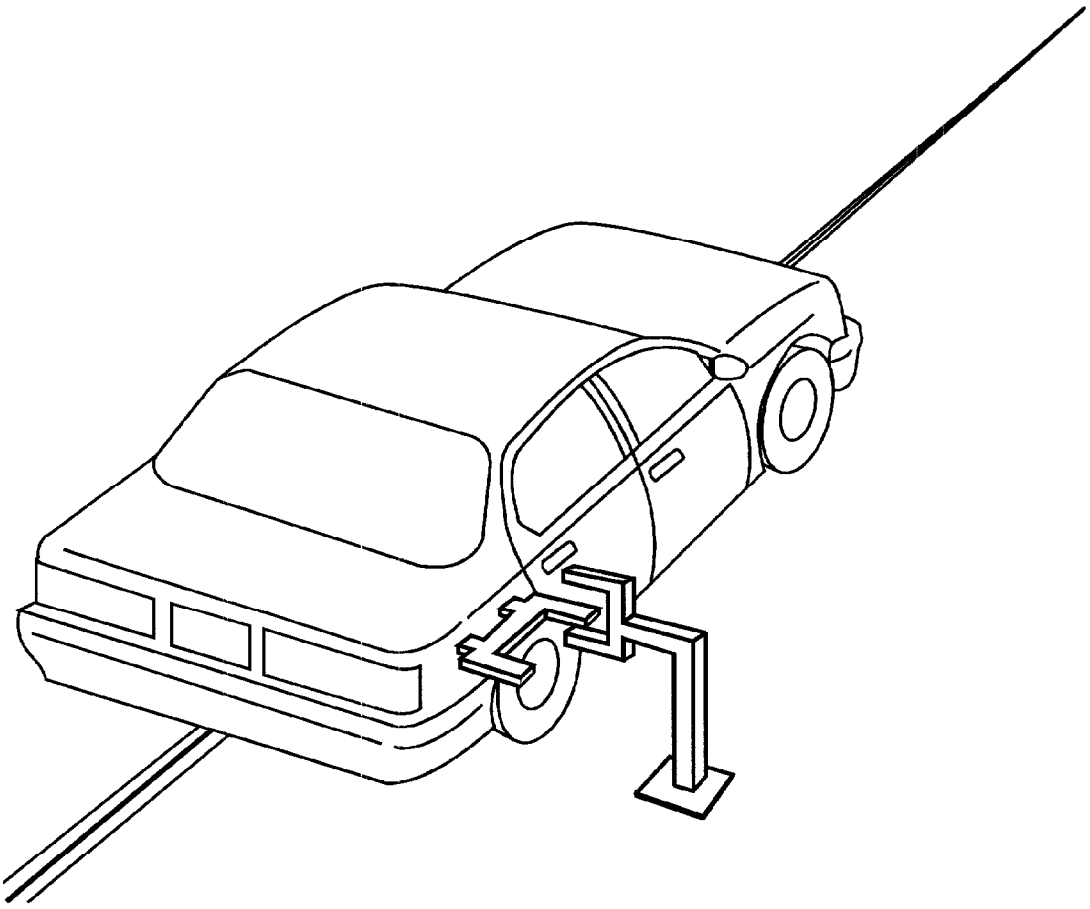
Pre-test:	L:	4990 mm	C: 5200 mm	R:	4995 mm
Post-test:	L:	4674 mm	C: 4842 mm	R:	5161 mm
Total crush:	L:	316 mm	C 358 mm	R:	-166 mm
Average crush:	169 mm				

Test vehicle rebound from 30° left angled barrier:

Distance from test vehicle to barrier:

Post-test:	L:	N/A	C: N/A	R:	N/A
Average rebound:		N/A			

Figure 1. Impact Velocity Measurement System

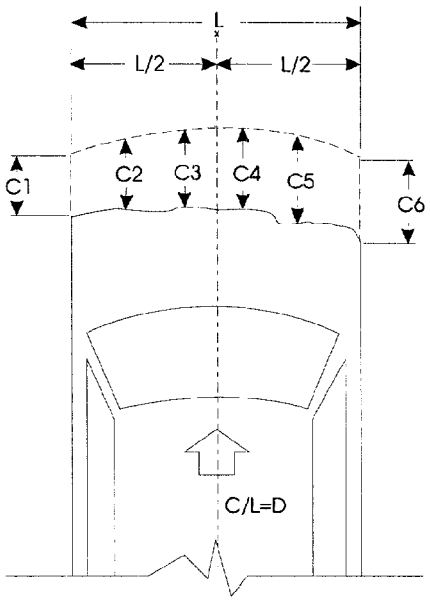


The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 305-millimeter spacing.

Figure 2 Accident Investigation Division Data for 30 mph 30° Left Angled Barrier Impact

Test date:	June 4, 1999
Vehicle year/make/ model/body style:	1999/Dodge/Intrepid/Sedan
VIN:	2B3HD46R4XH588108
Build date:	10/98
Test weight:	1740.9 kg
Vehicle wheelbase:	2885 mm
Maximum width:	1902 mm
Front overhang:	1060 mm



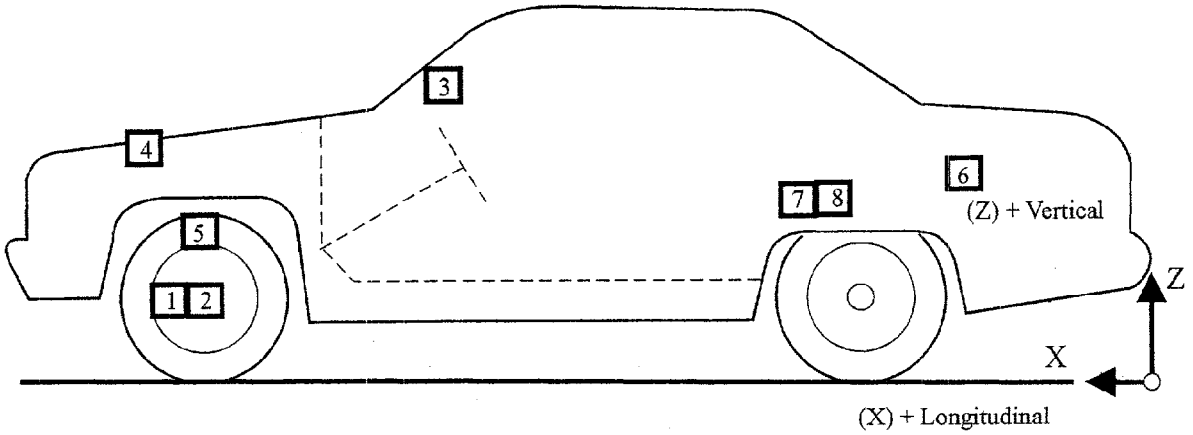
Collision Deformation Classification (CDC) Code: 12FDEW3

Crush depth measurements:	C1: 316 mm
	C2: 418 mm
	C3: 459 mm
	C4: 296 mm
	C5: 41 mm
	C6: -166 mm

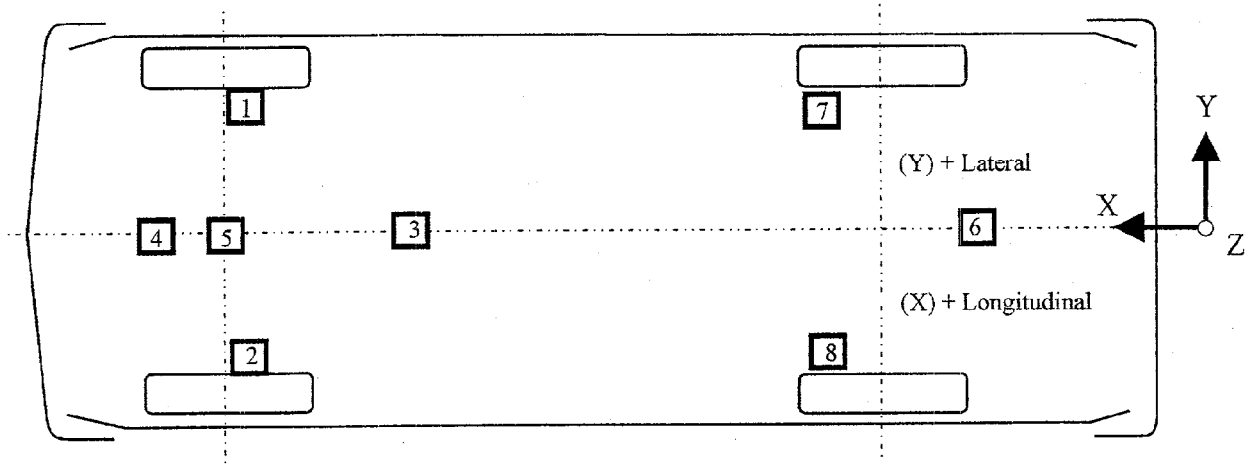
Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1525 mm

Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 990604-1 No. LOCATION		X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 LEFT BRAKE CALIPER	PRE	4225 mm	730 mm	312 mm				
	POST	4160 mm	760 mm	291 mm				
LONGITUDINAL[1]					40.0 g	@ 59.5 ms	71.0 g	@ 49.5 ms
2 RIGHT BRAKE CALIPER	PRE	4225 mm	-730 mm	315 mm				
	POST	4285 mm	-700 mm	285 mm				
LONGITUDINAL					9.6 g	@ 70.7 ms	51.3 g	@ 55.8 ms
3 INSTRUMENT PANEL CENTER	PRE	3443 mm	0 mm	878 mm				
	POST	3450 mm	0 mm	894 mm				
LONGITUDINAL					29.1 g	@ 26.4 ms	55.0 g	@ 35.4 ms
4 ENGINE TOP	PRE	4670 mm	-145 mm	786 mm				
	POST	4525 mm	-20 mm	764 mm				
LONGITUDINAL					20.0 g	@ 55.1 ms	77.2 g	@ 39.0 ms
5 ENGINE BOTTOM	PRE	3603 mm	10 mm	180 mm				
	POST	NA	30 mm	173 mm				
LONGITUDINAL					20.2 g	@ 52.6 ms	62.9 g	@ 42.6 ms

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

TEST NUMBER: 990604-1 No. LOCATION		X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
6 REAR VEHICLE	PRE	290 mm	0 mm	482 mm				
CENTERLINE	POST	290 mm	0 mm	503 mm				
VERTICAL					16.2 g	@ 181.8 ms	9.8 g	@ 99.4 ms
7 LEFT REAR SEAT	PRE	2160 mm	615 mm	376 mm				
	POST	2160 mm	615 mm	394 mm				
LONGITUDINAL					1.6 g	@ 166.0 ms	27.5 g	@ 69.7 ms
8 RIGHT REAR SEAT	PRE	2140 mm	-625 mm	376 mm				
	POST	2140 mm	-625 mm	396 mm				
LONGITUDINAL					1.2 g	@ 182.5 ms	26.6 g	@ 69.4 ms

REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + LEFTWARD FROM VEHICLE CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

[1]See DATA ACQUISITION EXPLANATIONS

Section 3.0

FMVSS 208 Data

Table 5 Dummy Injury Criteria

Maximum Acceleration

	Head				Chest		
	X	Y	Z	R	X	Y	Z
Driver	-36.1 g	56.9 g	20.9 g	61.9 g	-43.1 g	13.3 g	6.3 g
Passenger	34.9 g	56.3 g	32.3 g	57.7 g	-43.1 g	8.2 g	22.8 g

Maximum Femur Compressive Force

	Left Femur	Right Femur
Driver	5666 N	4493 N
Passenger	6267 N	6135 N

15-millisecond Head Injury Criteria [1]

	HIC	Time t_1	Time t_2
Driver	210	97.0 ms	112.1 ms
Passenger	288	133.4 ms	148.5 ms

36-millisecond Head Injury Criteria[1]

	HIC	Time t_1	Time t_2
Driver	296	84.1 ms	120.1 ms
Passenger	304	130.2 ms	150.7 ms

Chest Maximum Resultant Acceleration[2]

	Acceleration	Time t_1	Time t_2
Driver	43.1 g	90.7 ms	93.8 ms
Passenger	45.6 g	95.0 ms	98.0 ms

Maximum Chest Deflection

Driver	32.0 mm
Passenger	18.9 mm

[1] As defined in FMVSS No. 208

[2] Defined as equal to or exceeding 0.003 sec. duration

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag. As the dummy continued forward, it hit the side of its head on the A-pillar. As the dummy's head rebounded, the back of its head contacted the header and sun visor. The dummy came to rest seated upright in the driver's seat, bent slightly forward from the waist.

Right Front Passenger Dummy

Upon impact, the passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag. The dummy's head rotated clockwise and continued to translate forward into the airbag until the top of the dummy's head reached the instrument panel. The dummy's head rebounded off of the instrument panel. As the dummy rebounded, the back of the dummy's head impacted the rearview mirror and the dummy's body translated upward and to the left. The dummy fell back into the passenger seat. The top of the dummy's head then contacted the sun visor and side header. The dummy came to rest seated in the passenger seat with its torso rotated to the right, leaning to the left, and bent slightly forward.

Section 4.0

Vehicle, Occupant, and Camera Measurements

Figure 4 Pre-test and Post-test Measurement Points

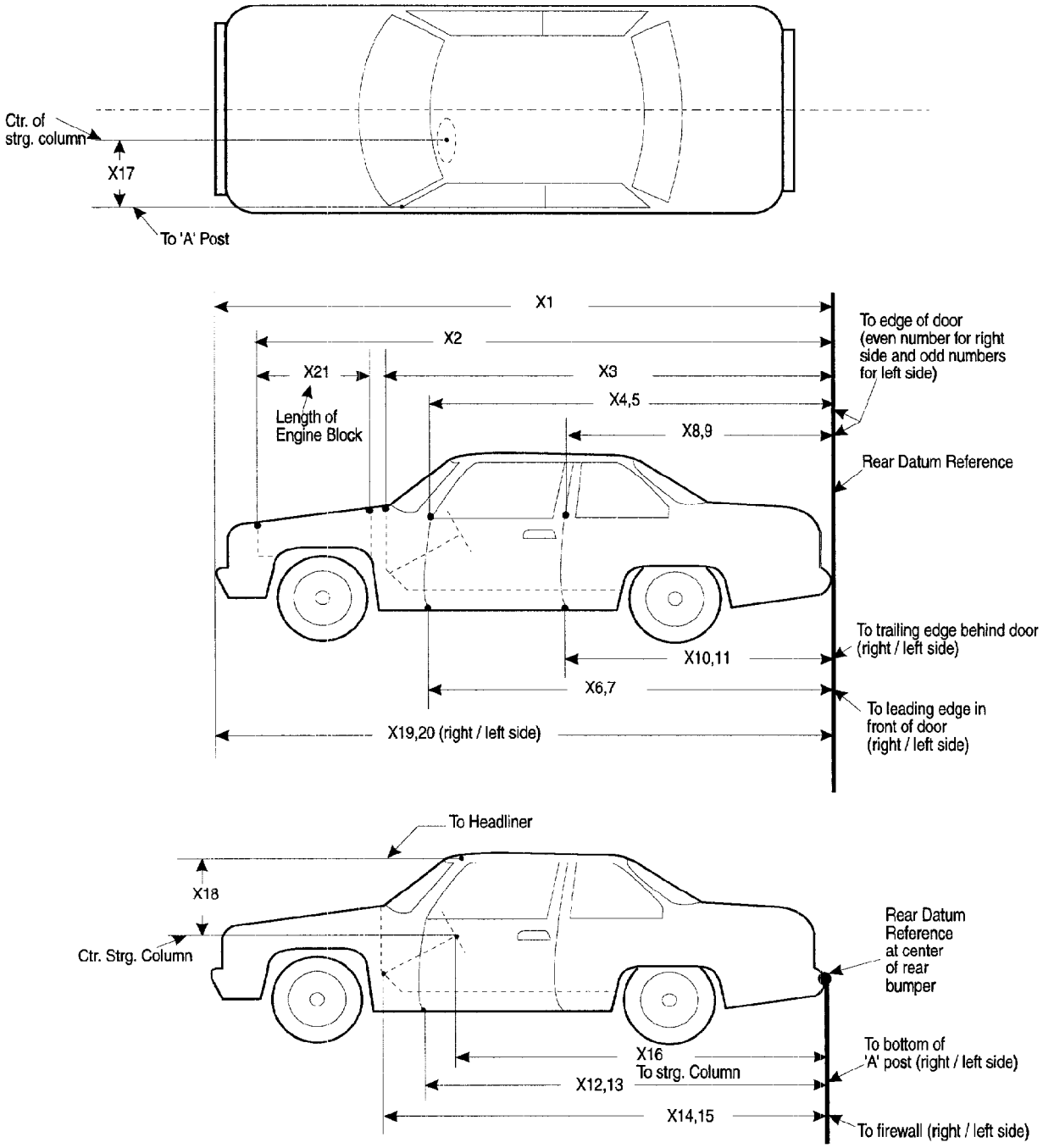


Table 6 Impacted Vehicle Measurements

Vehicle year/make/model/body style: 1999/Dodge/Intrepid/Sedan

Test Number: 990604-1

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Veh. at Centerline	5200	4842	358
X2	Rear Surface of Veh. to Front of Engine Block	4650	4530	120
X3	Rear Surface of Veh. to Firewall	4240	4214	26
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3683	3687	-4
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3686	3698	-12
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3625	3637	-12
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3630	3648	-18
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2590	2594	-4
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2590	2597	-7
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2585	2598	-13
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2593	2616	-23
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3590	3598	-8
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3600	3607	-7
X14	Rear Surface of Veh. to Firewall--Right Side	4266	4270	-4
X15	Rear Surface of Vehicle to Firewall --Left Side	4253	4204	49
X16	Rear Surface of Veh. to Steering Wheel Center	3140	3172	-32
X17	Center of Steering Column to " A " Post	310	298	12
X18	Center of Steering Column to Headliner	400	370	30
X19	Rear Surface of Veh. to Right Side of Front Bumper	4995	5161	-166
X20	Rear Surface of Veh. to Left Side of Front Bumper	4990	4674	316
X21	Length of Engine Block	510	510	0

Figure 5 Vehicle Target Locations

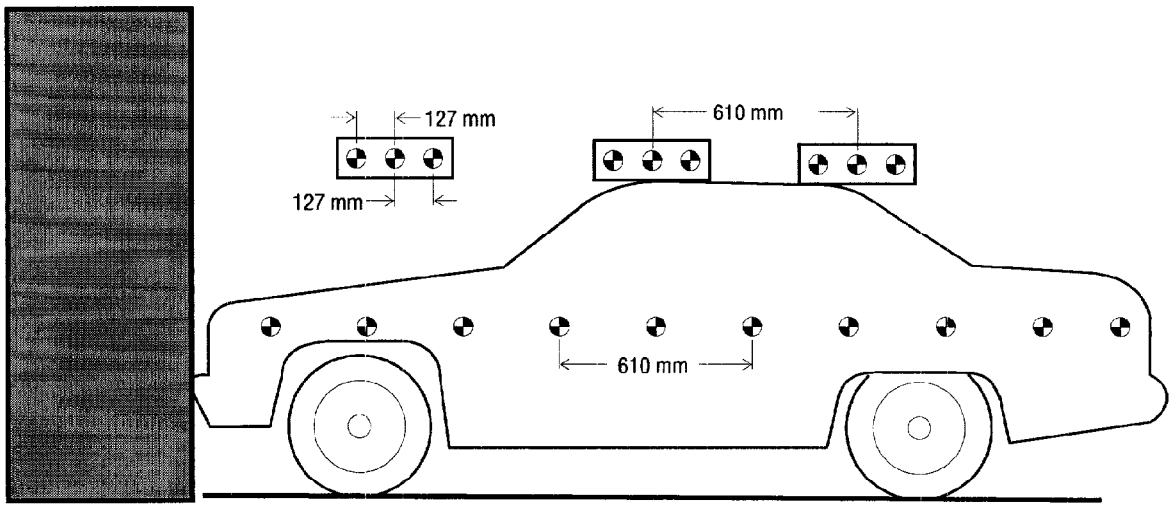


Figure 6 Dummy Measurement Locations for Front Seat Occupants

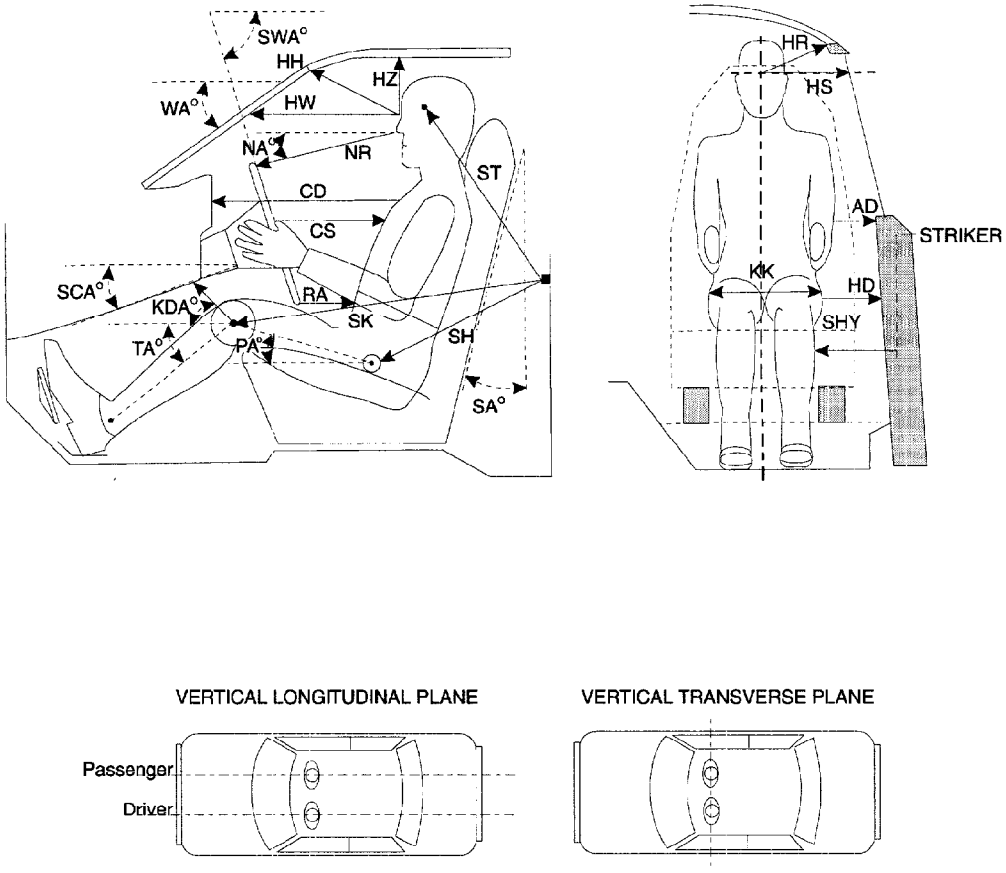


Table 7 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #169)	Passenger (Serial #168)
WA	Windshield angle	22.8°	22.8°
SWA	Steering wheel angle	69.1°	N/A
SCA	Steering column angle	20.9°	N/A
SA	Seat back angle	N/A	N/A
HZ	Head to roof	190 mm	168 mm
HH	Head to header	375 mm	357 mm
HW	Head to windshield	648 mm	612 mm
HR	Head to side header	194 mm	205 mm
NR	Nose to rim	397 mm	N/A
NA	Nose to rim angle	9.4°	N/A
CD	Chest to dash	531 mm	560 mm
CS	Steering wheel to chest	305 mm	N/A
RA	Rim to abdomen	206 mm	N/A
KDL	Left knee to dash	155 mm	193 mm
KDR	Right knee to dash	176 mm	179 mm
KDA	Outboard knee to dash angle	26.2°	25.8°
PA	Pelvic angle	24.7°	23.6°
TA	Tibial angle	42.3°	43.6°
KK	Knee to knee	335 mm	270 mm
ST[1]	Striker to head	541 mm	527 mm
	Striker to head angle	-75.5°	-85.2°
SK	Striker to knee	574 mm	541 mm
	Striker to knee angle	-0.7°	-3.6°
SH[1]	Striker to H-point	230 mm	204 mm
	Striker to H-point angle	40.2°	32.0°
SHY	Striker to H-point (Y dir.)	274 mm	272 mm
HS	Head to side window	316 mm	321 mm
HD	H-point to door	125 mm	138 mm
AD	Arm to door	195 mm	136 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 7 Camera Positions

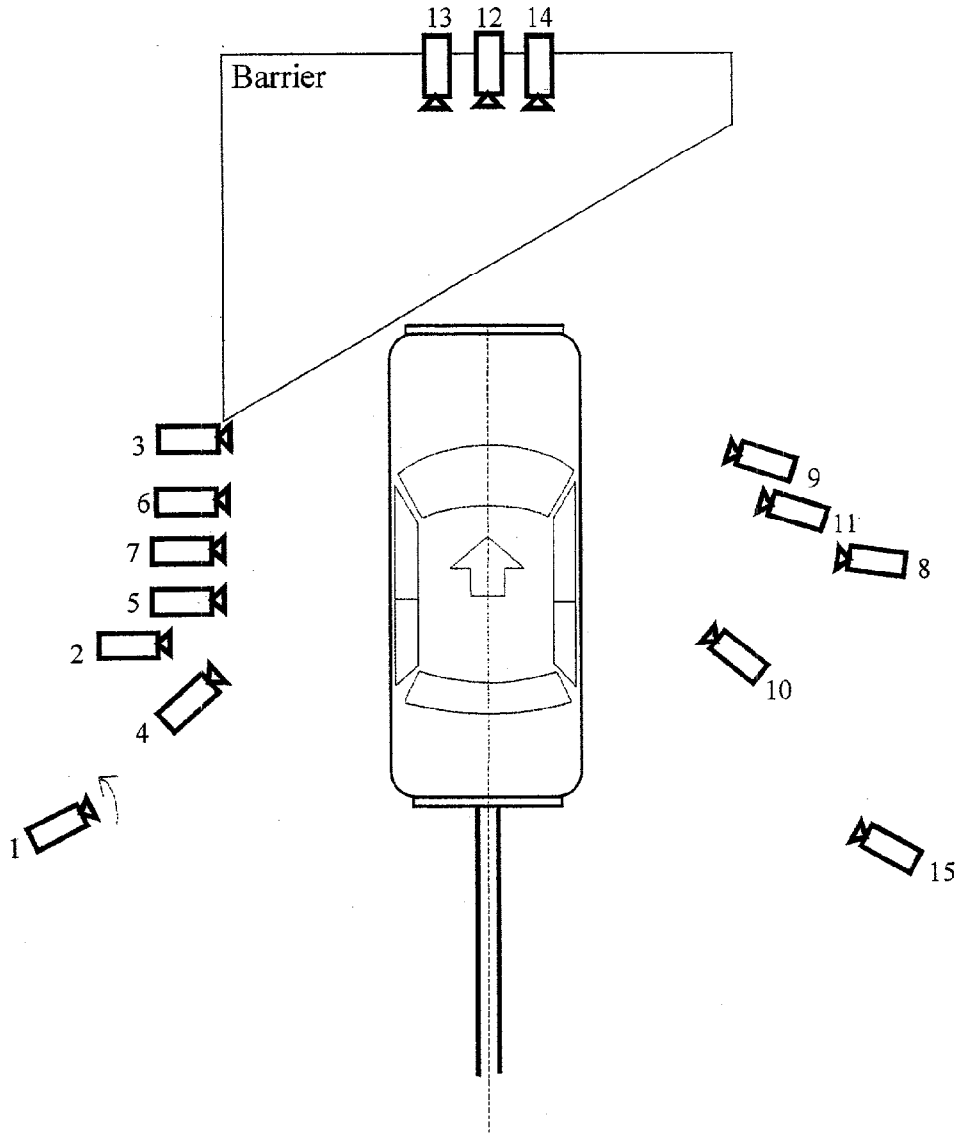


Table 8 Motion Picture Camera Locations

Vehicle year/make/model/body style: 1999/Dodge/Intrepid/Sedan

Test number: 990604-1

Camera Number	View	Camera Positions[1] X	Y	Z	Camera Angle[2]	Film Plane to Head Target	Camera Lens	Film Speed
1	Real-time panning	NA	NA	NA	NA	NA	Zoom	24 frames/s
2	Left wide	6134 mm	6655 mm	1092 mm	2°	7417 mm	13 mm	995 frames/s
3	Left windshield intrusion	4432 mm	5486 mm	1067 mm	1°	6325 mm	50 mm	1000 frames/s
4	Left angle	7049 mm	991 mm	1905 mm	27°	2235 mm	25 mm	987 frames/s
5	Driver kinematics	5144 mm	6096 mm	1461 mm	6°	6934 mm	25 mm	1010 frames/s
6	Upper steering column motion	4813 mm	6096 mm	2540 mm	15°	6934 mm	25 mm	998 frames/s
7	Lower steering column motion	4813 mm	6096 mm	1588 mm	7°	6833 mm	25 mm	998 frames/s
8	Right wide	6033 mm	-7391 mm	1118 mm	0°	8153 mm	13 mm	1000 frames/s
9	Right windshield intrusion	4509 mm	-5486 mm	1067 mm	1°	6325 mm	50 mm	DNR
10	Passenger kinematics	7150 mm	-1067 mm	1905 mm	26°	2362 mm	25 mm	1005 frames/s
11	Passenger kinematics	5118 mm	-6426 mm	1473 mm	5°	7290 mm	25 mm	1012 frames/s
12	Windshield front view	-1499 mm	0 mm	2311 mm	32°	3962 mm	13 mm	1005 frames/s
13	Driver - front view	-1499 mm	381 mm	2311 mm	32°	3962 mm	25 mm	1002 frames/s
14	Passenger - front view	-1499 mm	-343 mm	2311 mm	32°	3962 mm	25 mm	962 frames/s
15	Wide right angle	7963 mm	-5182 mm	1118 mm	0°	6325 mm	13 mm	1000 frames/s

[1] +X: Film plane forward of barrier face
+Y: Film plane to left of monorail centerline
+Z: Film plane above ground level

[2] +Angle: Film plane angled upward from horizontal plane

Appendix A

Photographs

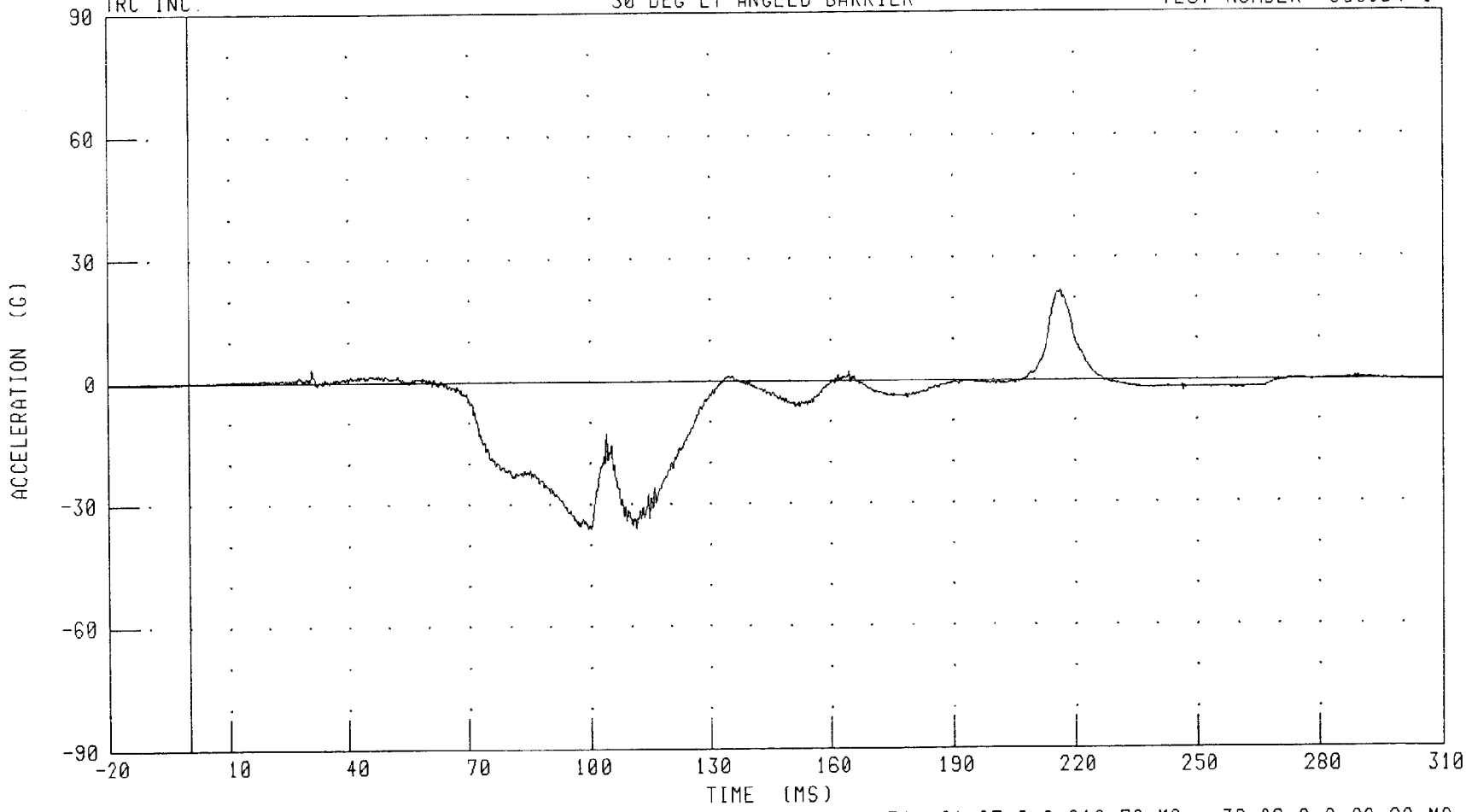
Appendix B

Data Plots

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

DRIVER HEAD X-AXIS ACCELERATION

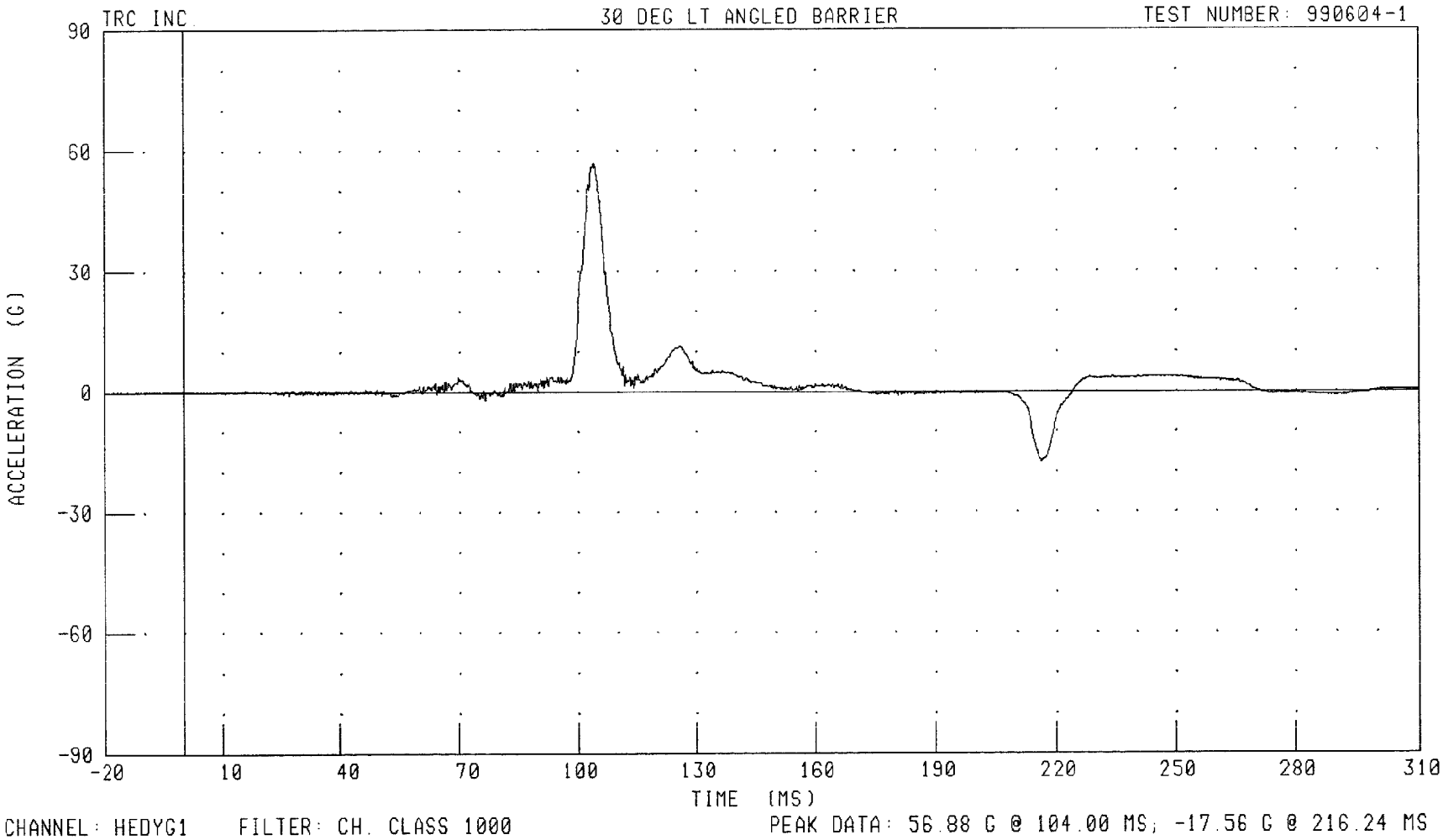
TRC INC. 30 DEG LT ANGLED BARRIER TEST NUMBER: 990604-1



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000 PEAK DATA: 21.87 G @ 216.72 MS; -36.08 G @ 99.60 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

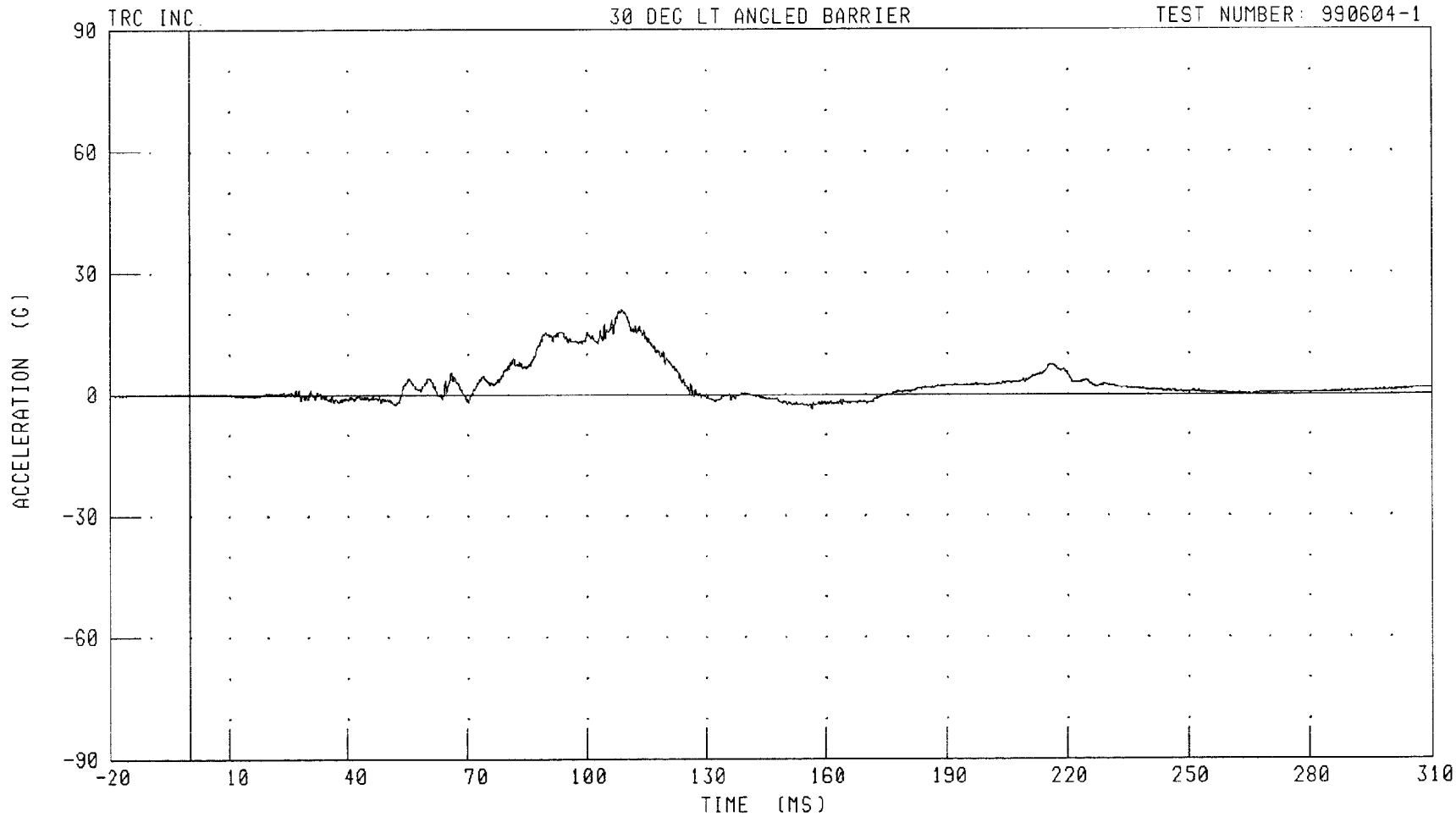
DRIVER HEAD Y-AXIS ACCELERATION



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 56.88 G @ 104.00 MS; -17.56 G @ 216.24 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER HEAD Z-AXIS ACCELERATION

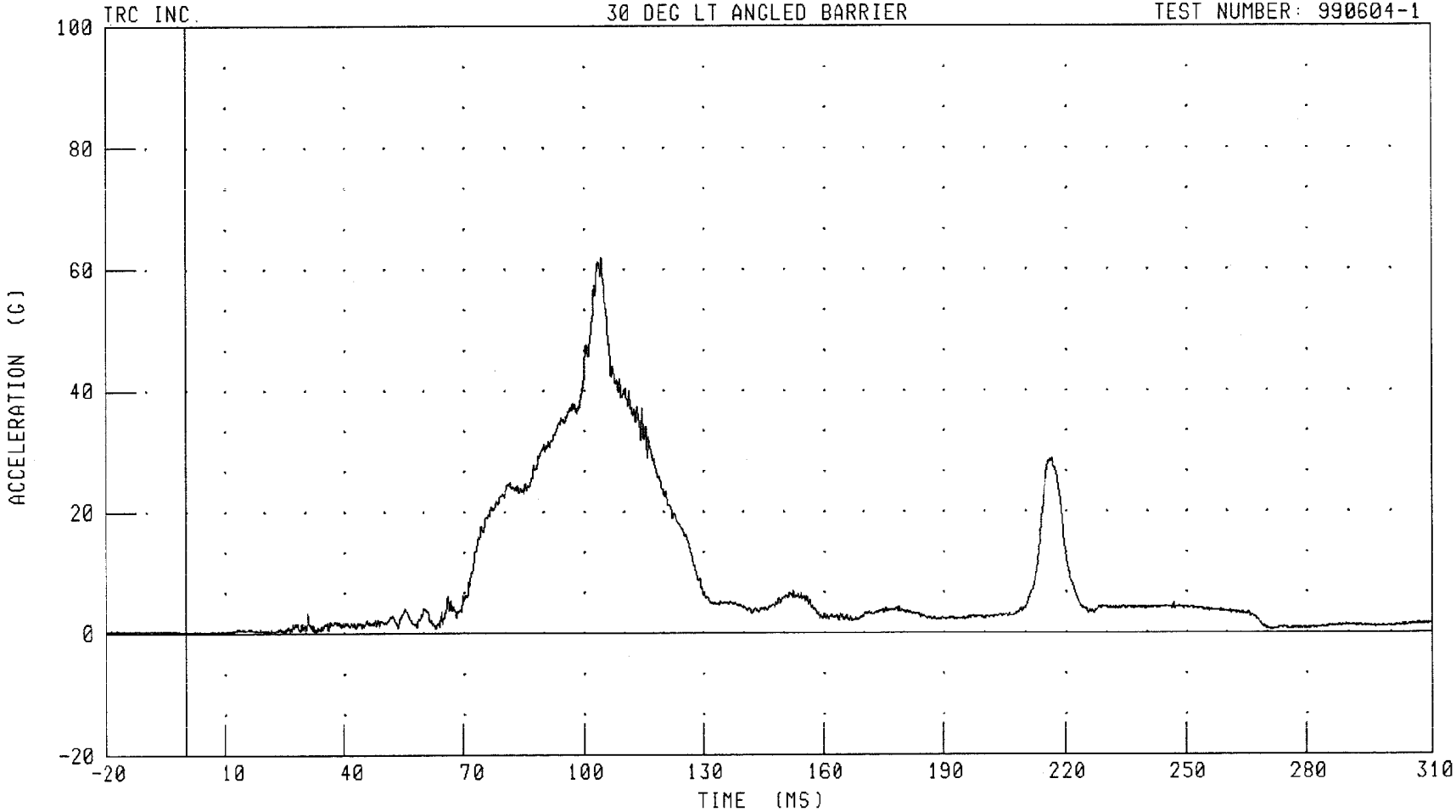


CHANNEL: HEDZG1 FILTER: CH. CLASS 1000 PEAK DATA: 20.94 G @ 108.80 MS; -3.56 G @ 156.64 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

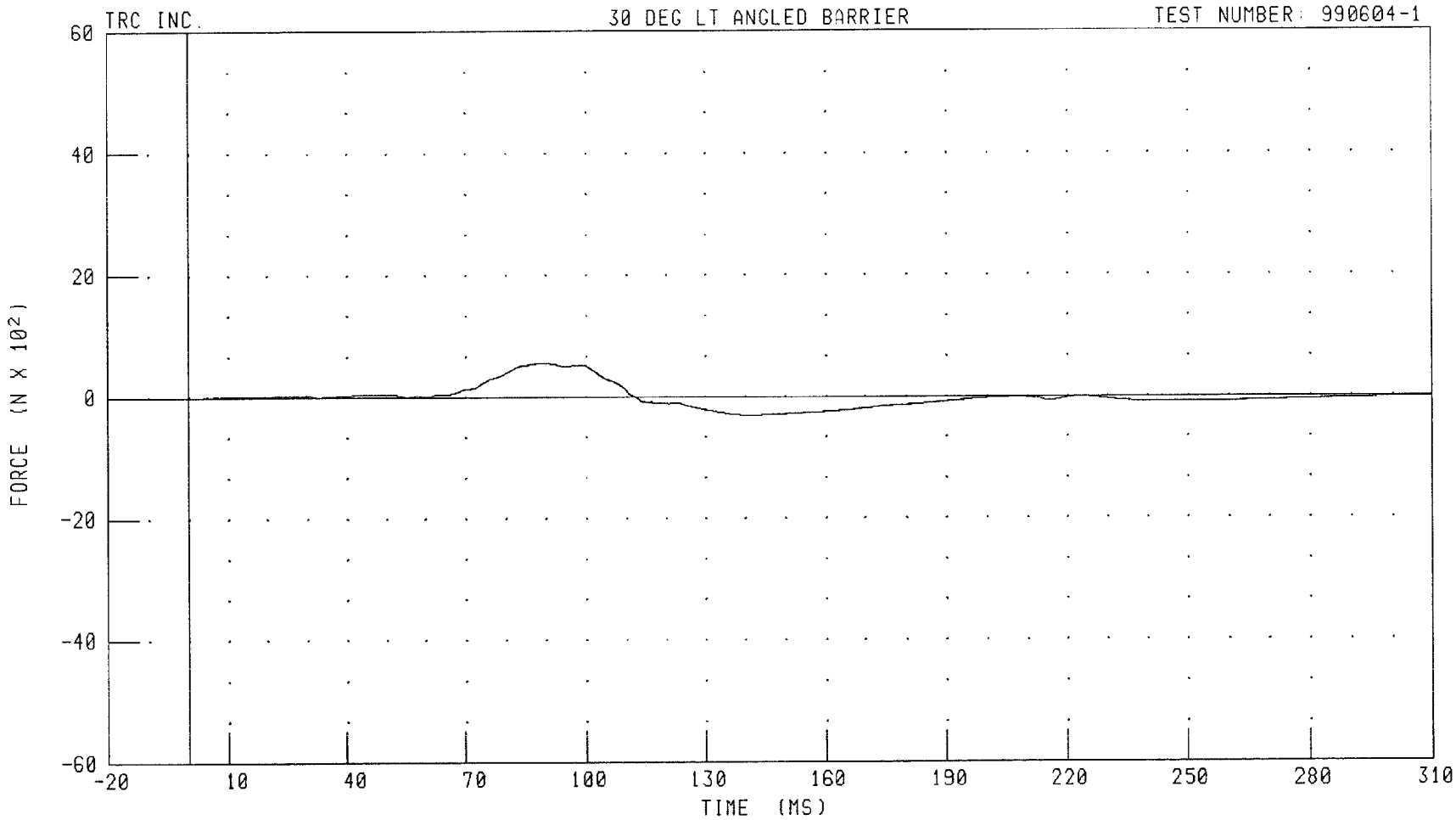
DRIVER HEAD RESULTANT ACCELERATION

TRC INC. 30 DEG LT ANGLED BARRIER TEST NUMBER: 990604-1



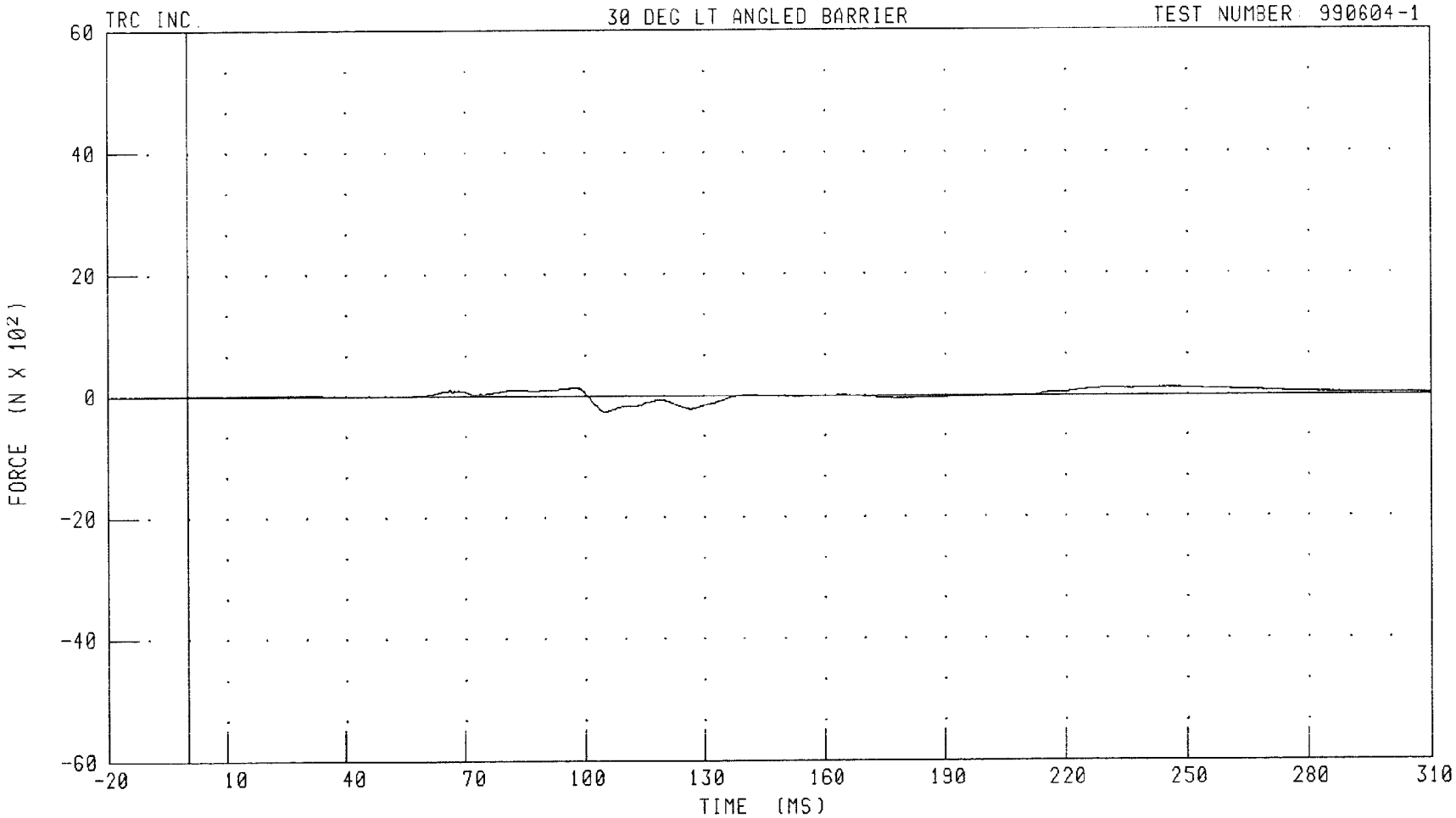
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000 PEAK DATA: 61.90 G @ 104.48 MS; 0.11 G @ -11.36 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER NECK X-AXIS SHEAR FORCE



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000 PEAK DATA: 553.91 N @ 88.72 MS; -309.99 N @ 139.84 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER NECK Y-AXIS SHEAR FORCE



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 123.93 N @ 97.04 MS, -262.97 N @ 105.28 MS

Figure A-1 Pre-Test Front View

Figure A-2 Post-Test Front View

Figure A-3 Pre-Test Left Side View

Figure A-4 Post-Test Left Side View

Figure A-5 Pre-Test Left Rear Three-Quarter View

Figure A-6 Post-Test Left Rear Three-Quarter View

Figure A-7 Pre-Test Rear View

Figure A-8 Post-Test Rear View

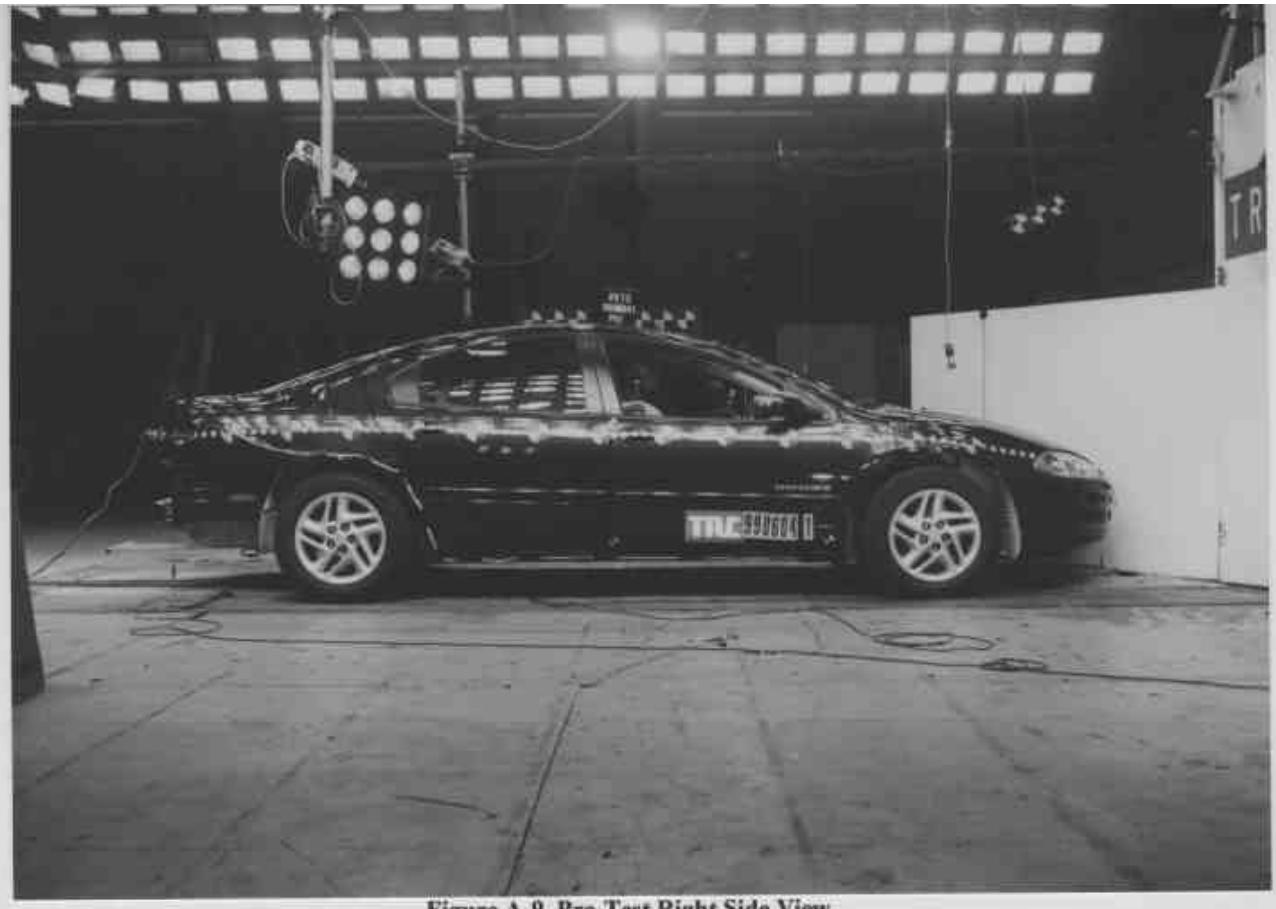


Figure A-9 Pre-Test Right Side View

Figure A-10 Post-Test Right Side View

Figure A-11 Pre-Test Right Front Three-Quarter View

Figure A-12 Post-Test Right Front Three-Quarter View

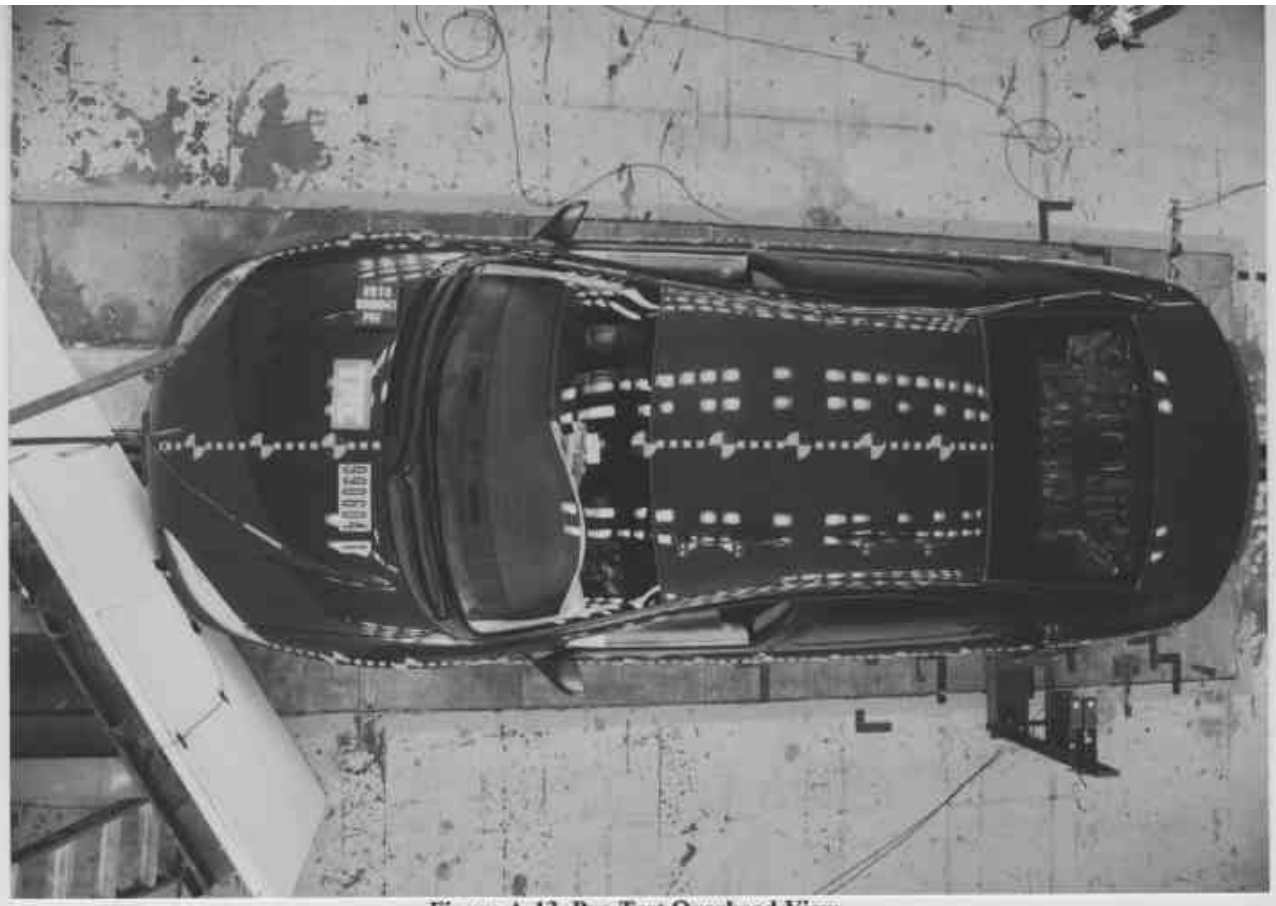


Figure A-13 Pre-Test Overhead View

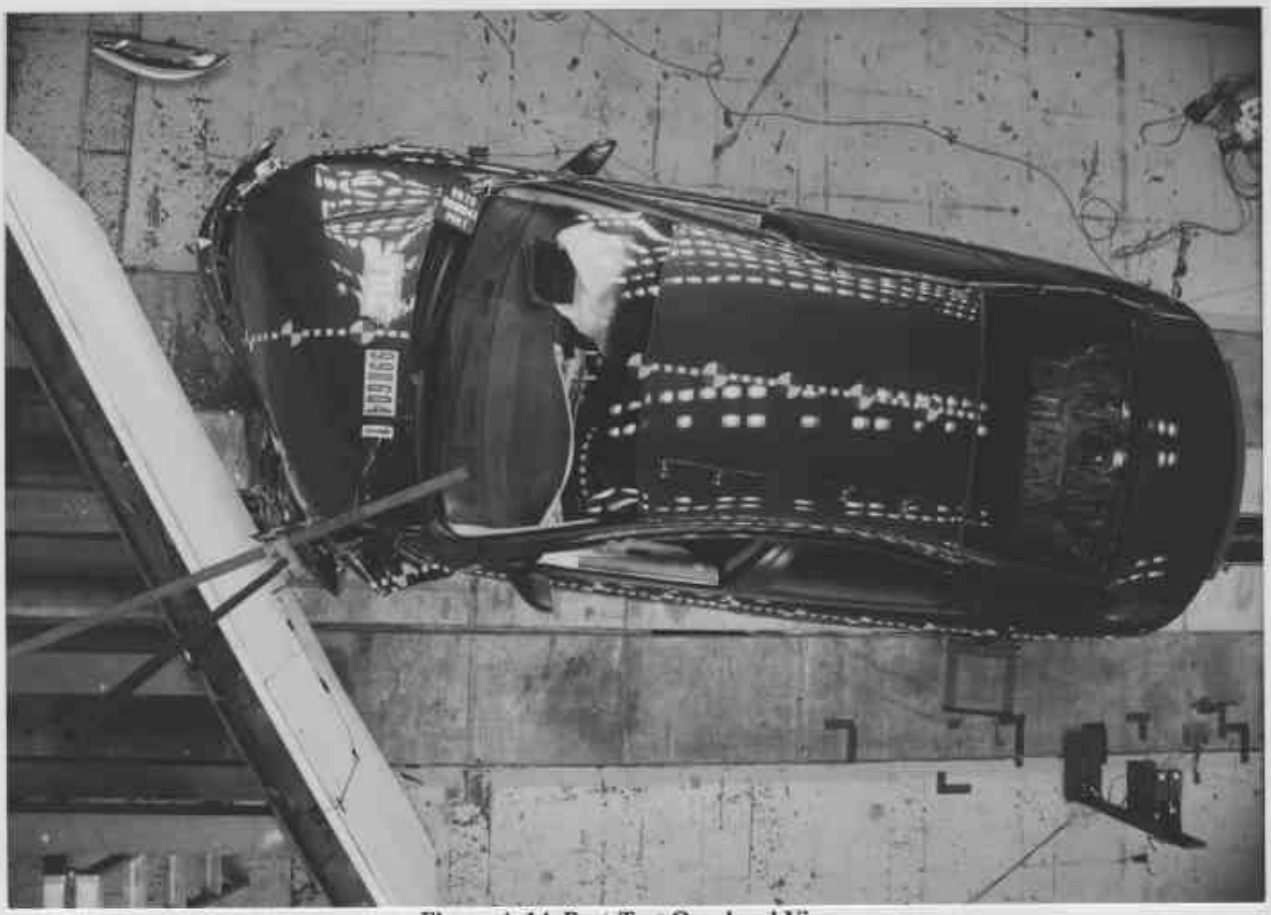


Figure A-14 Post-Test Overhead View

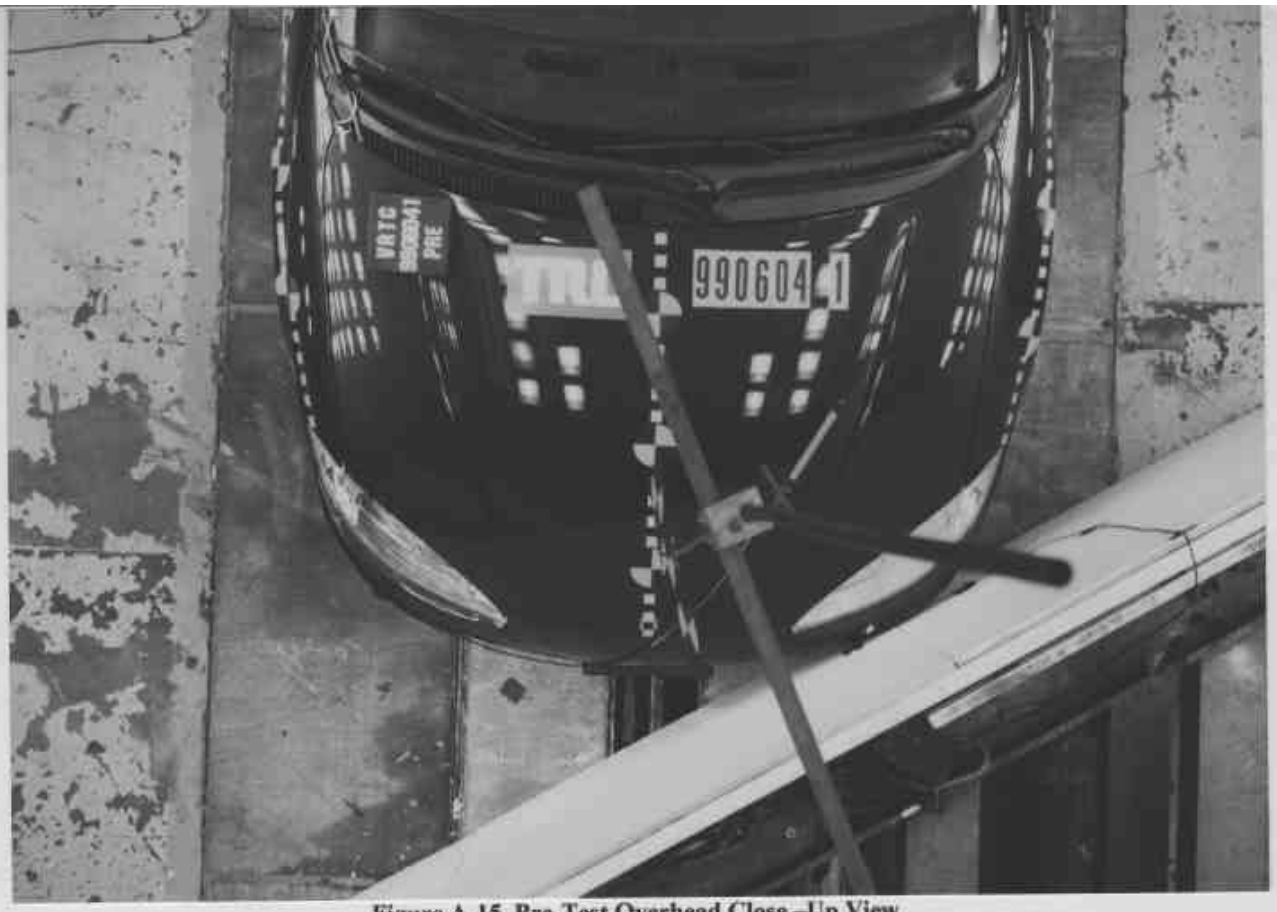


Figure A-15 Pre-Test Overhead Close –Up View

Figure A-16 Post-Test Overhead Close –Up View

Figure A-17 Pre-Test Underbody - View 1

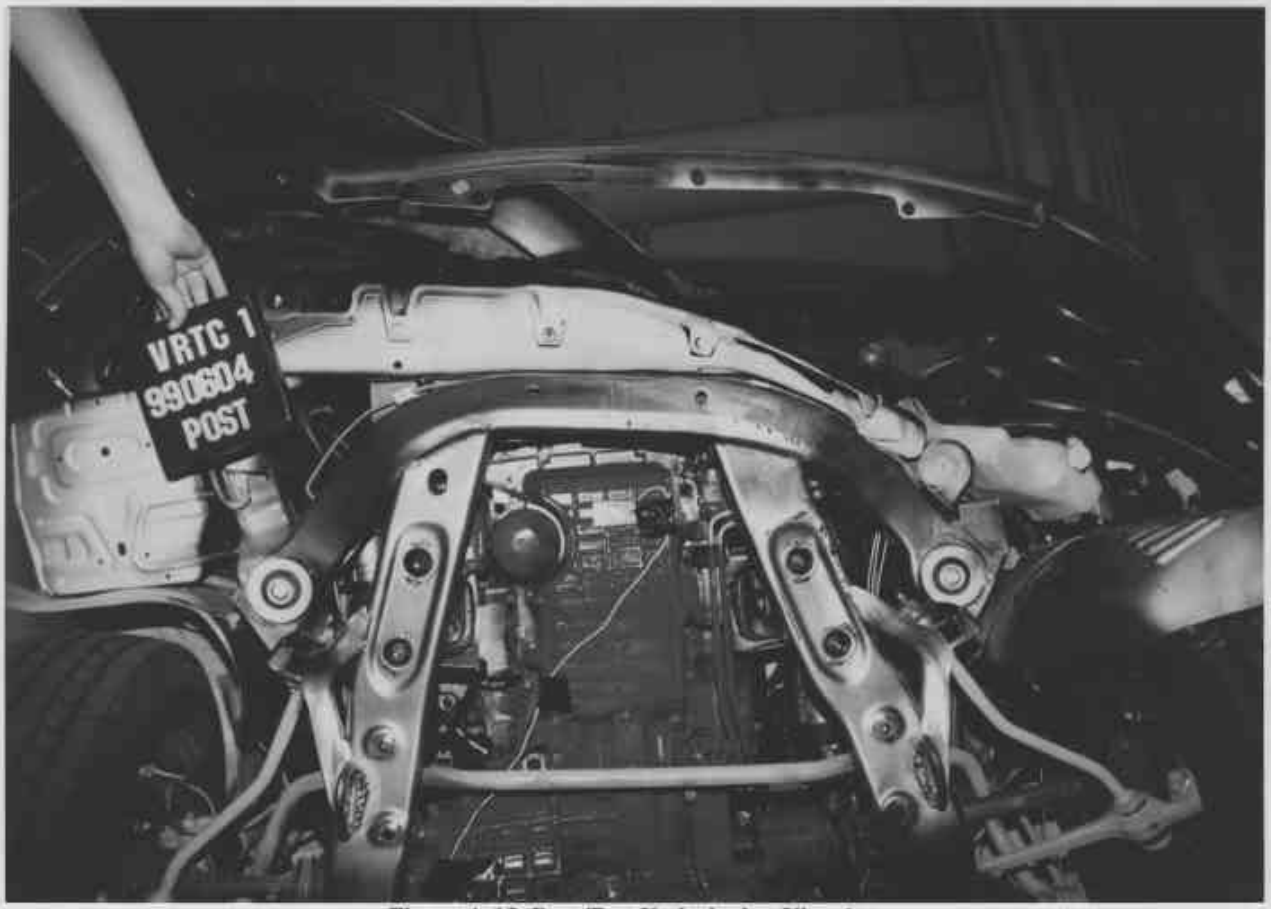


Figure A-18 Post-Test Underbody - View 1

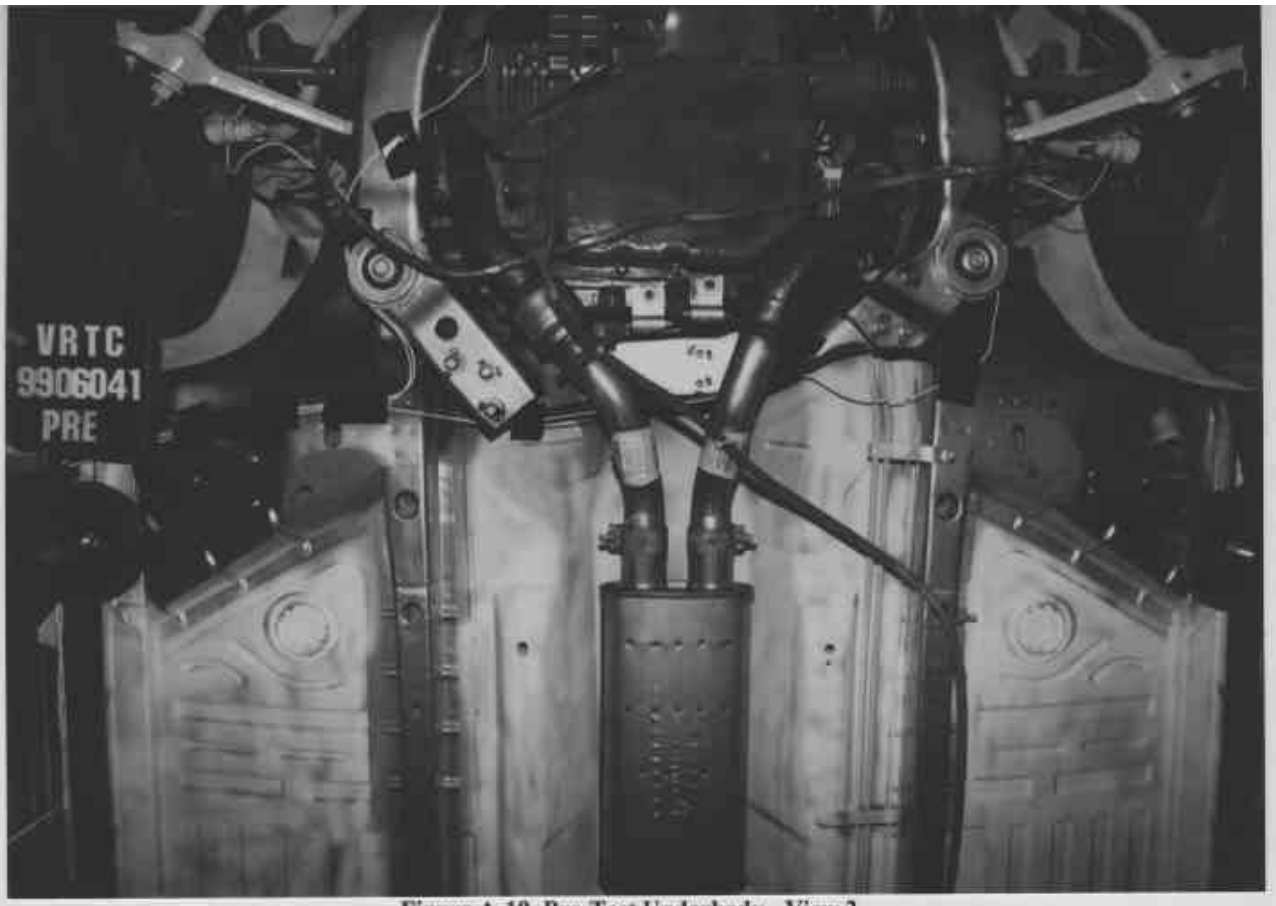


Figure A-19 Pre-Test Underbody - View 2

Figure A-20 Post-Test Underbody - View 2

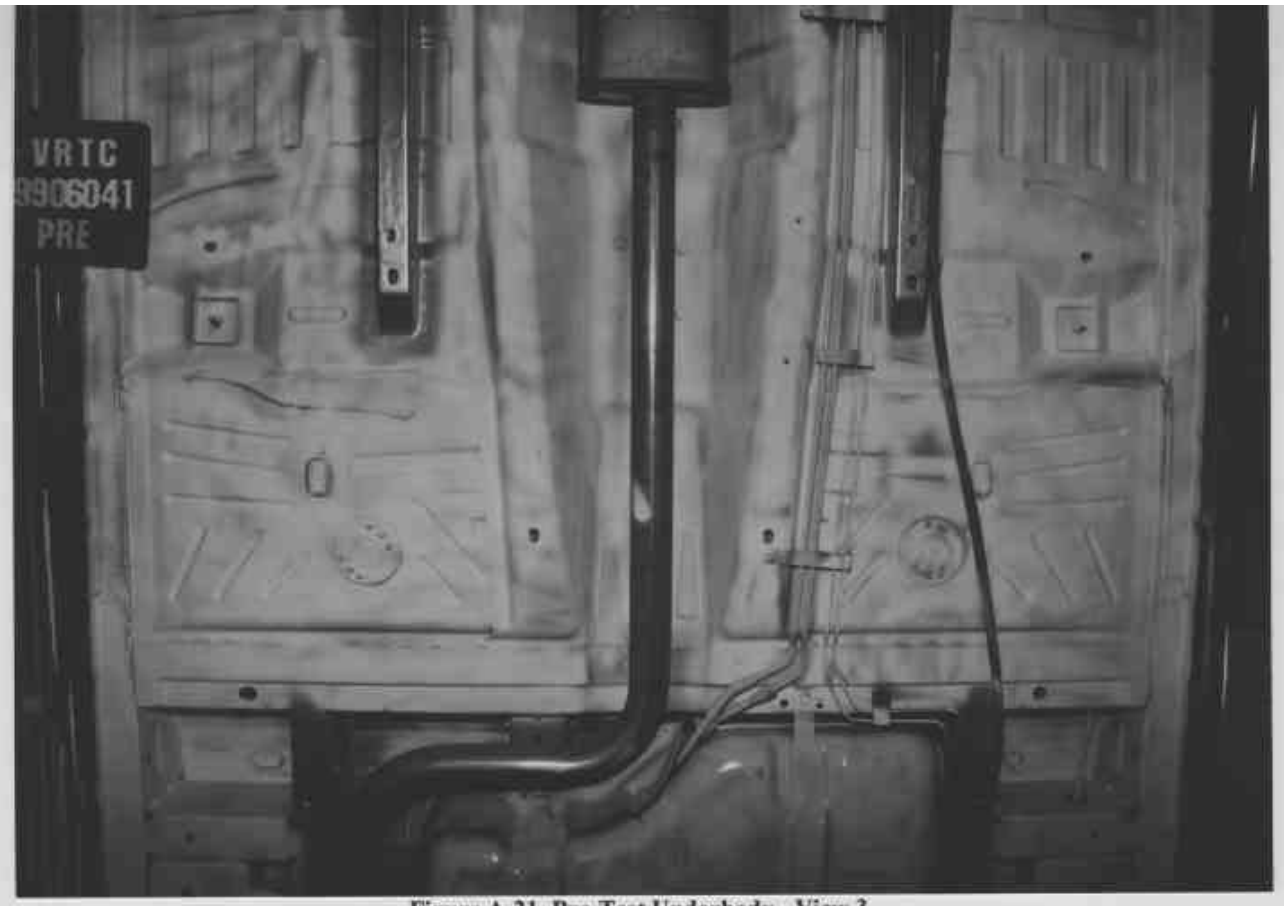


Figure A-21 Pre-Test Underbody - View 3

Figure A-22 Post-Test Underbody - View 3

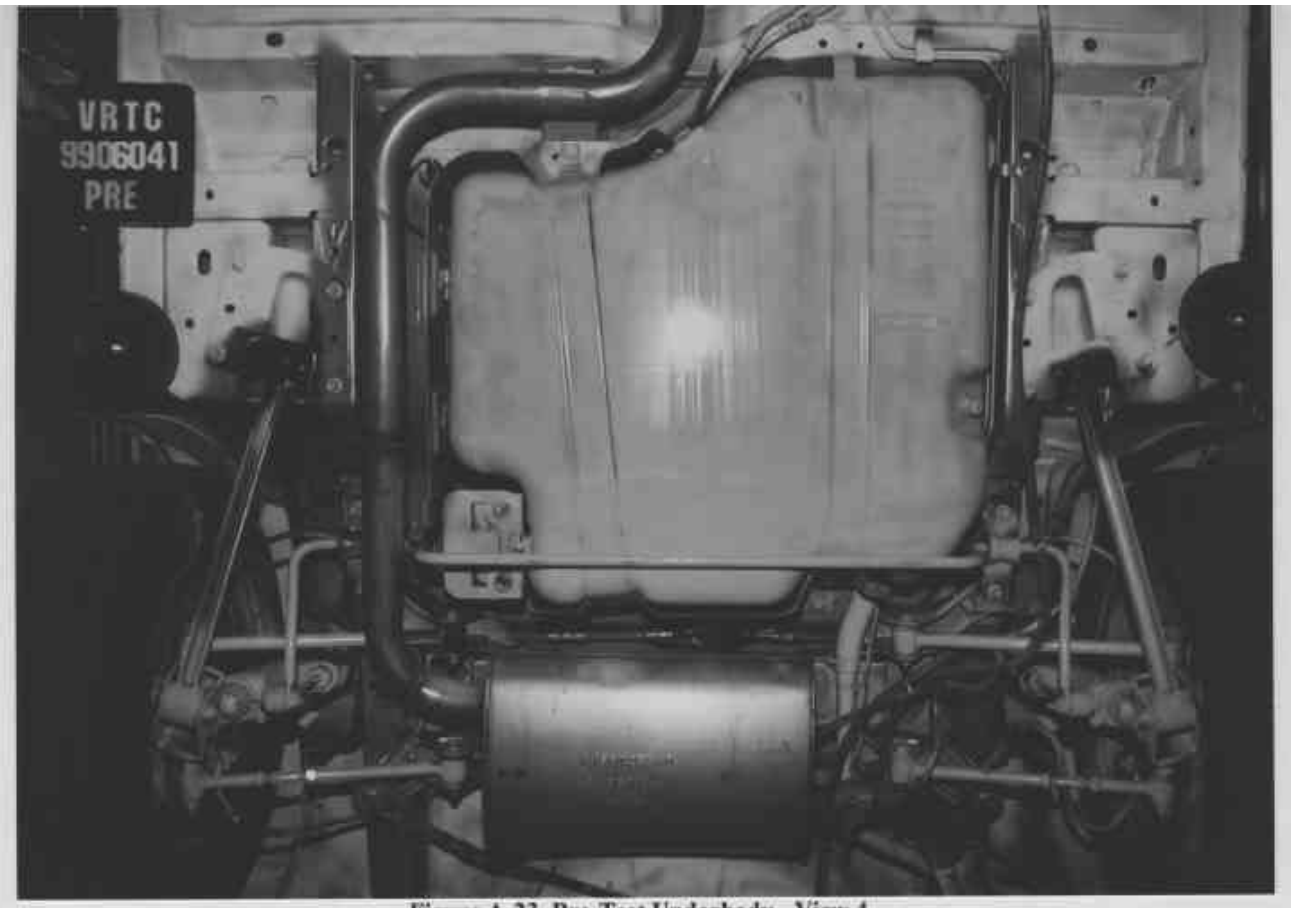


Figure A-23 Pre-Test Underbody - View 4

Figure A-24 Post-Test Underbody - View 4

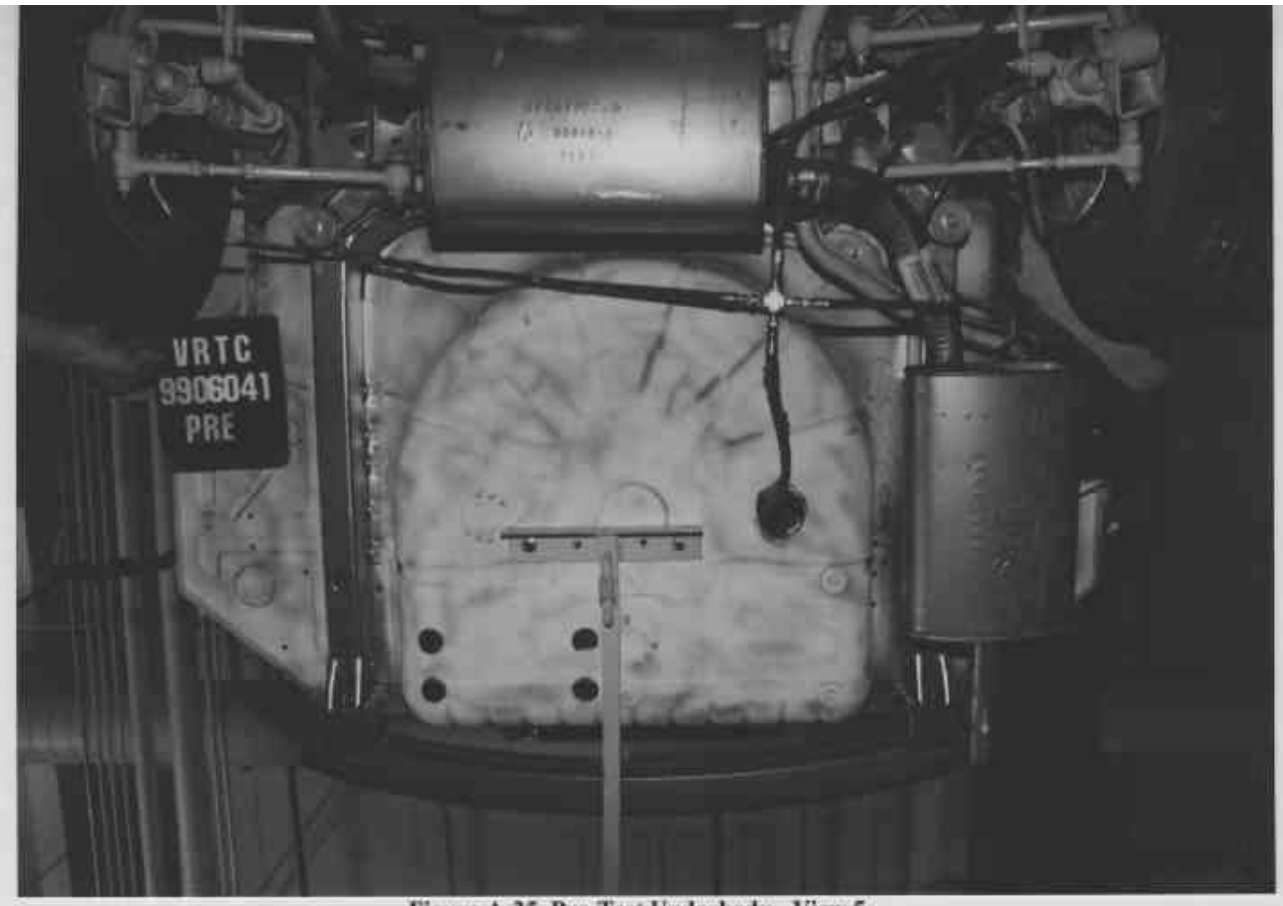


Figure A-25 Pre-Test Underbody - View 5

Figure A-26 Post-Test Underbody - View 5

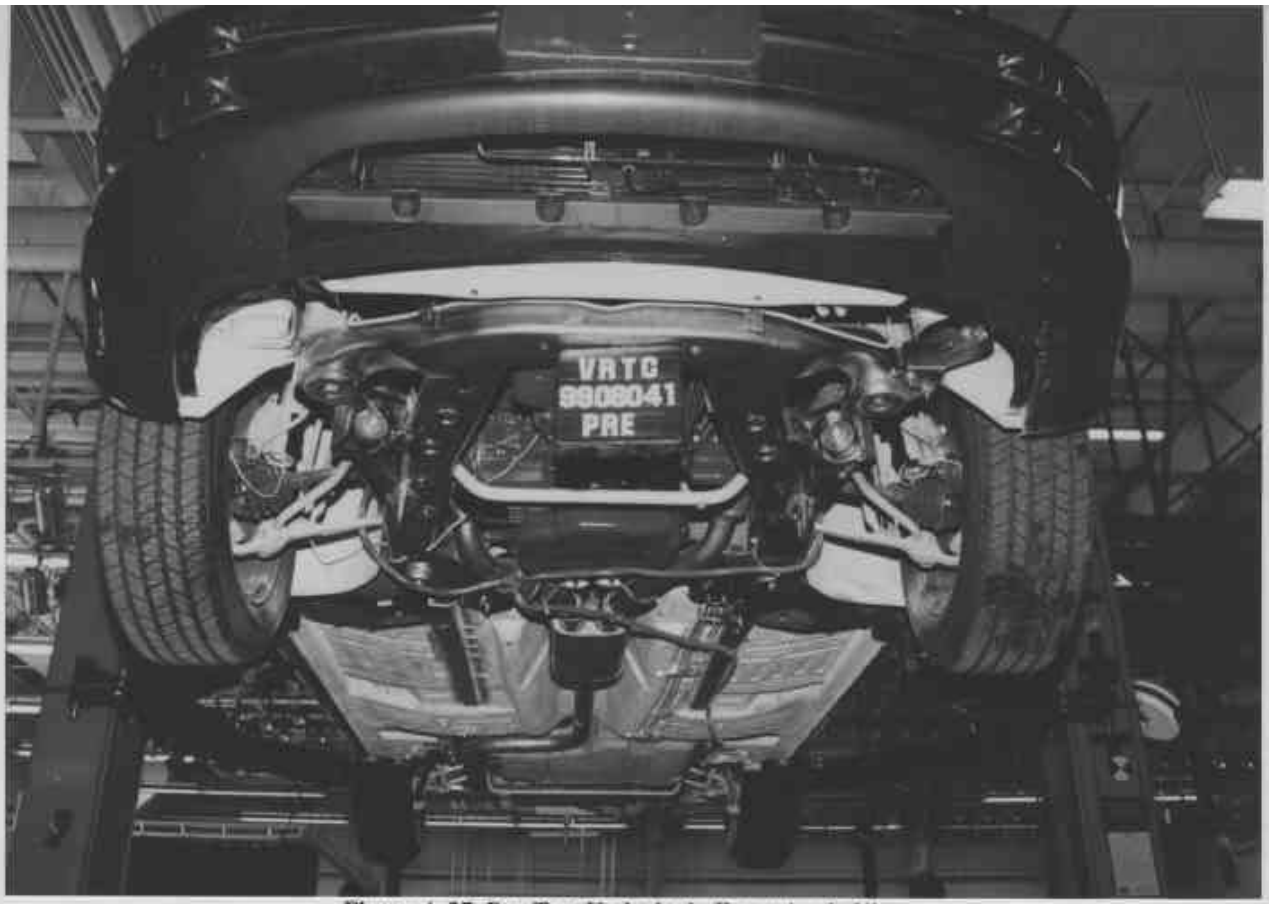


Figure A-27 Pre-Test Underbody Front Angle View

Figure A-28 Pre-Test Underbody Rear Angle View

Figure A-29 Pre-Test Engine Compartment View

Figure A-30 Post-Test Engine Compartment View

Figure A-31 Pre-Test Windshield - View 1

Figure A-32 Post-Test Windshield - View 1

Figure A-33 Pre-Test Windshield - View 2

Figure A-34 Post-Test Windshield - View 2

Figure A-35 Pre-Test Driver Dummy Windshield View

Figure A-36 Post-Test Driver Dummy Windshield View

Figure A-37 Pre-Test Passenger Dummy Windshield View

Figure A-38 Post-Test Passenger Dummy Windshield View

Figure A-39 Pre-Test Driver Dummy Position - View 1

Figure A-40 Post-Test Driver Dummy Position - View 1

Figure A-41 Pre-Test Driver Dummy Position -View 2

Figure A-42 Post-Test Driver Dummy Position - View 2

Figure A-43 Pre-Test Driver Dummy Position -View 3

Figure A-44 Post-Test Driver Dummy Position - View 3

Figure A-45 Pre-Test Passenger Dummy Position - View 1

Figure A-46 Post-Test Passenger Dummy Position - View 1

Figure A-47 Pre-Test Passenger Dummy Position - View 2

Figure A-48 Post-Test Passenger Dummy Position - View 2

Figure A-49 Pre-Test Passenger Dummy Position - View 3

Figure A-50 Post-Test Passenger Dummy Position - View 3

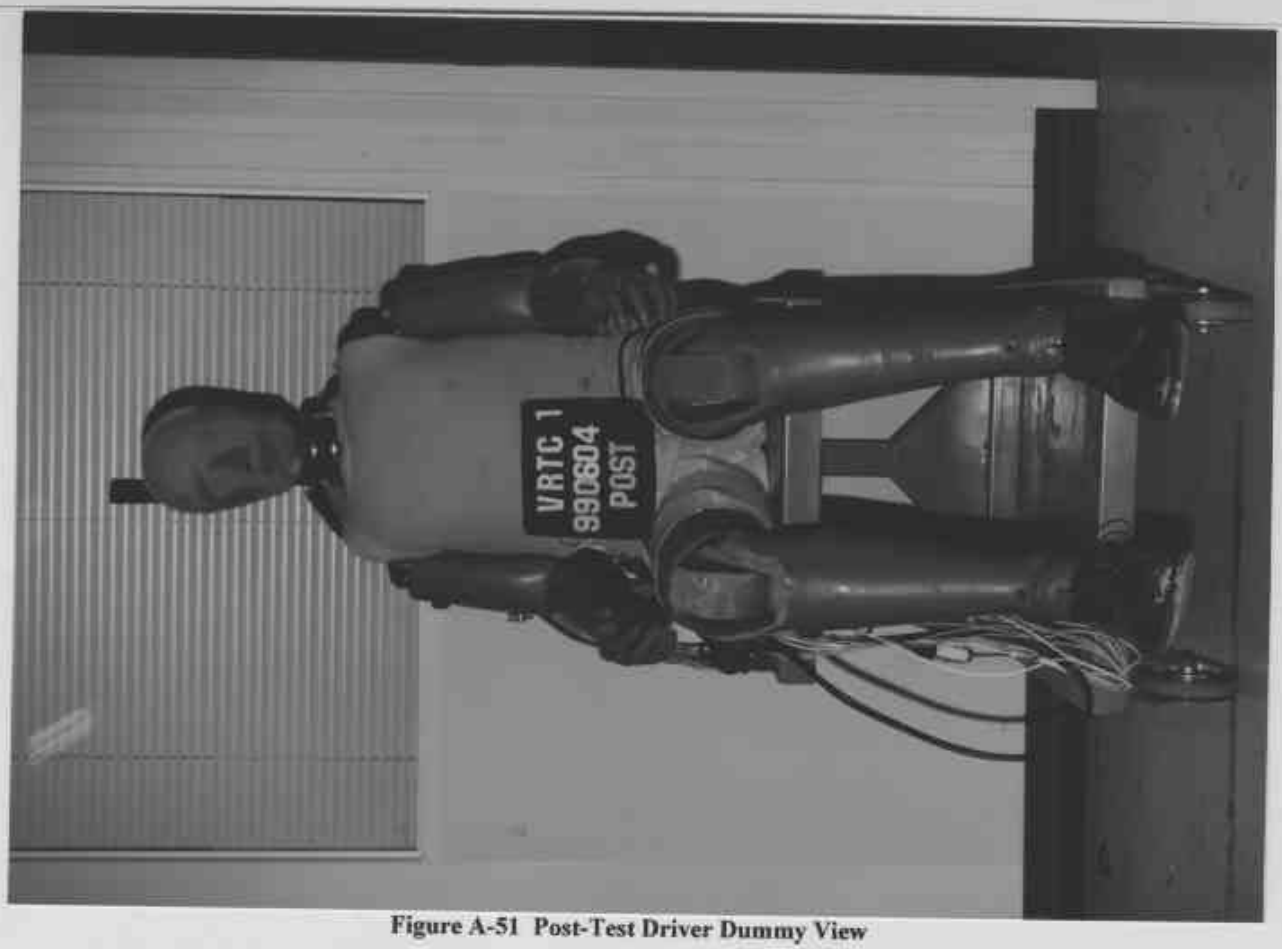


Figure A-51 Post-Test Driver Dummy View

Figure A-52 Post-Test Driver Dummy Head Contact - View 1

Figure A-53 Post-Test Driver Dummy Head Contact - View 2

Figure A-54 Post-Test Driver Dummy Head Contact - View 3

Figure A-55 Post-Test Driver Dummy Knee Contact - View 1

Figure A-56 Post-Test Driver Dummy Knee Contact - View 2

Figure A-57 Post-Test Driver Dummy Knee Contact - View 3

Figure A-58 Post-Test Driver Footwell Deformation View

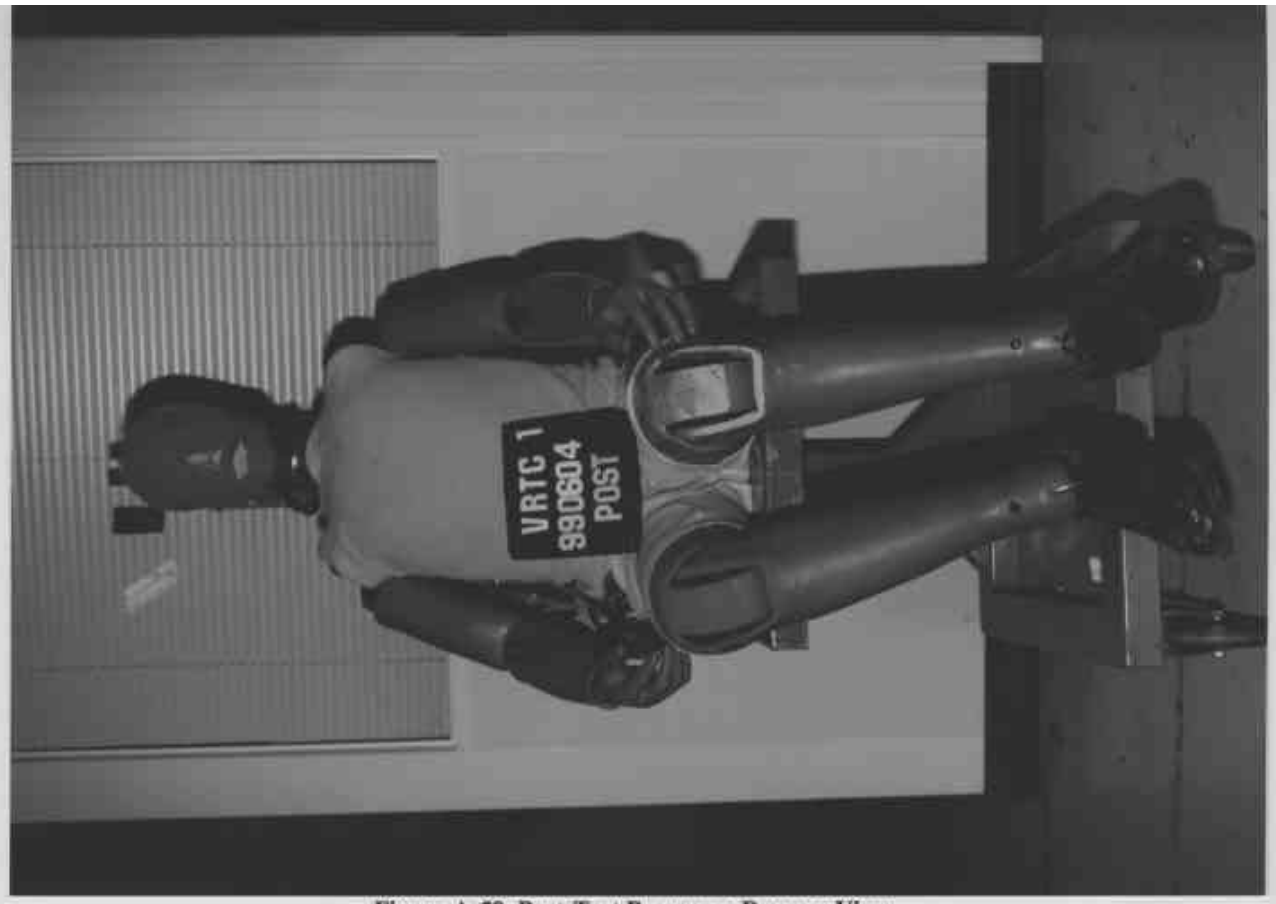


Figure A-59 Post-Test Passenger Dummy View

Figure A-60 Post-Test Passenger Dummy Head Contact - View 1

Figure A-61 Post-Test Passenger Dummy Head Contact - View 2

Figure A-62 Post-Test Passenger Dummy Head Contact - View 3

Figure A-63 Post-Test Passenger Dummy Knee Contact - View 1

Figure A-64 Post-Test Passenger Dummy Knee Contact - View 2

Figure A-65 Post-Test Passenger Footwell Deformation View

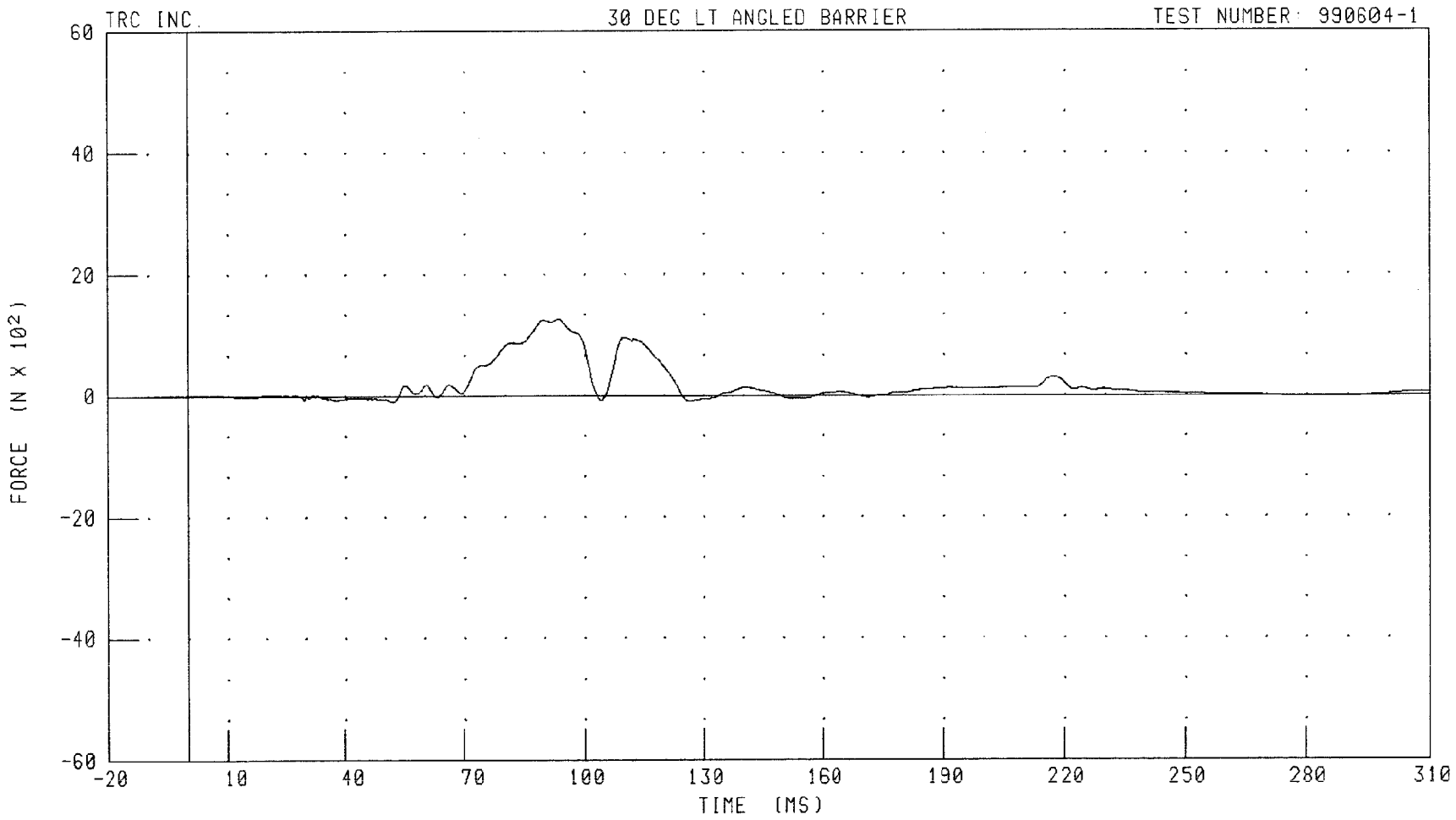
Figure A-66 Pre-Test Fuel Cap View

Figure A-67 Post-Test Fuel Cap View

Figure A-68 Pre-Test Vehicle Certification Label View

Figure A-69 Pre-Test Vehicle Tire Information Label View

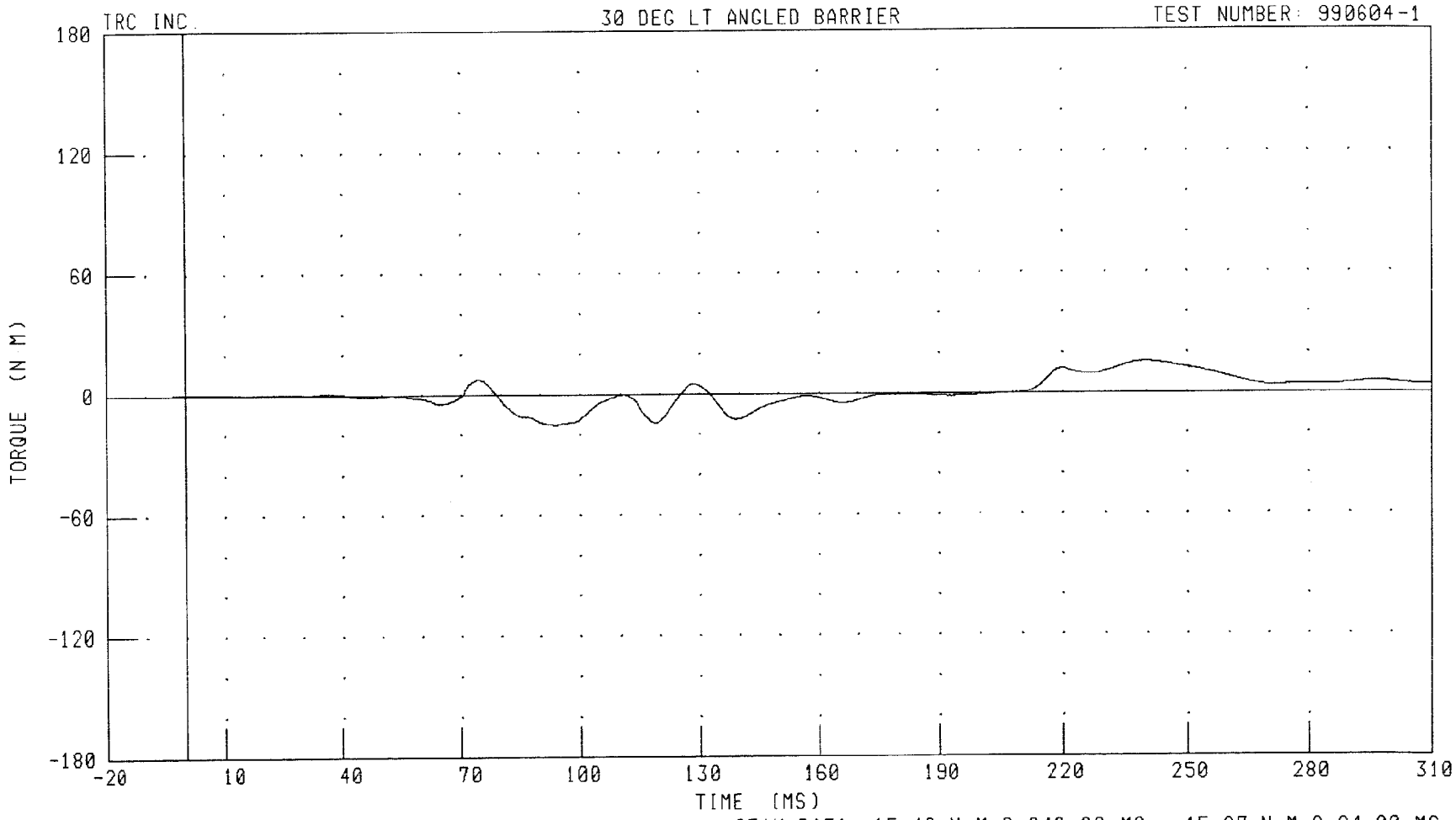
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER NECK Z-AXIS AXIAL FORCE



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

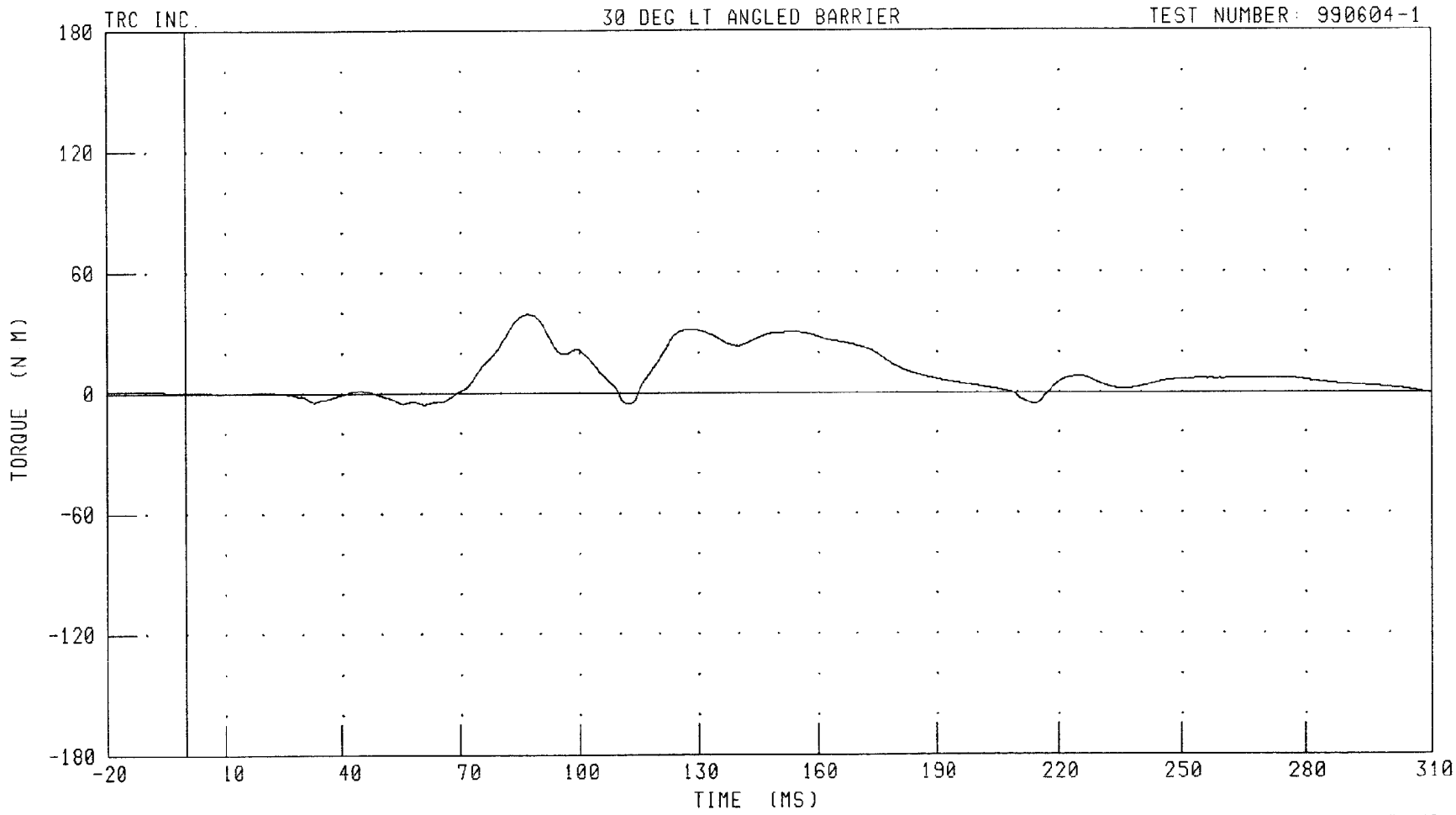
PEAK DATA: 1261.65 N @ 93.36 MS; -106.98 N @ 52.08 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT X AXIS



CHANNEL: NEKXM1 FILTER: CH. CLASS 600 PEAK DATA: 15.46 N-M @ 240.96 MS; -15.27 N-M @ 94.00 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT Y AXIS

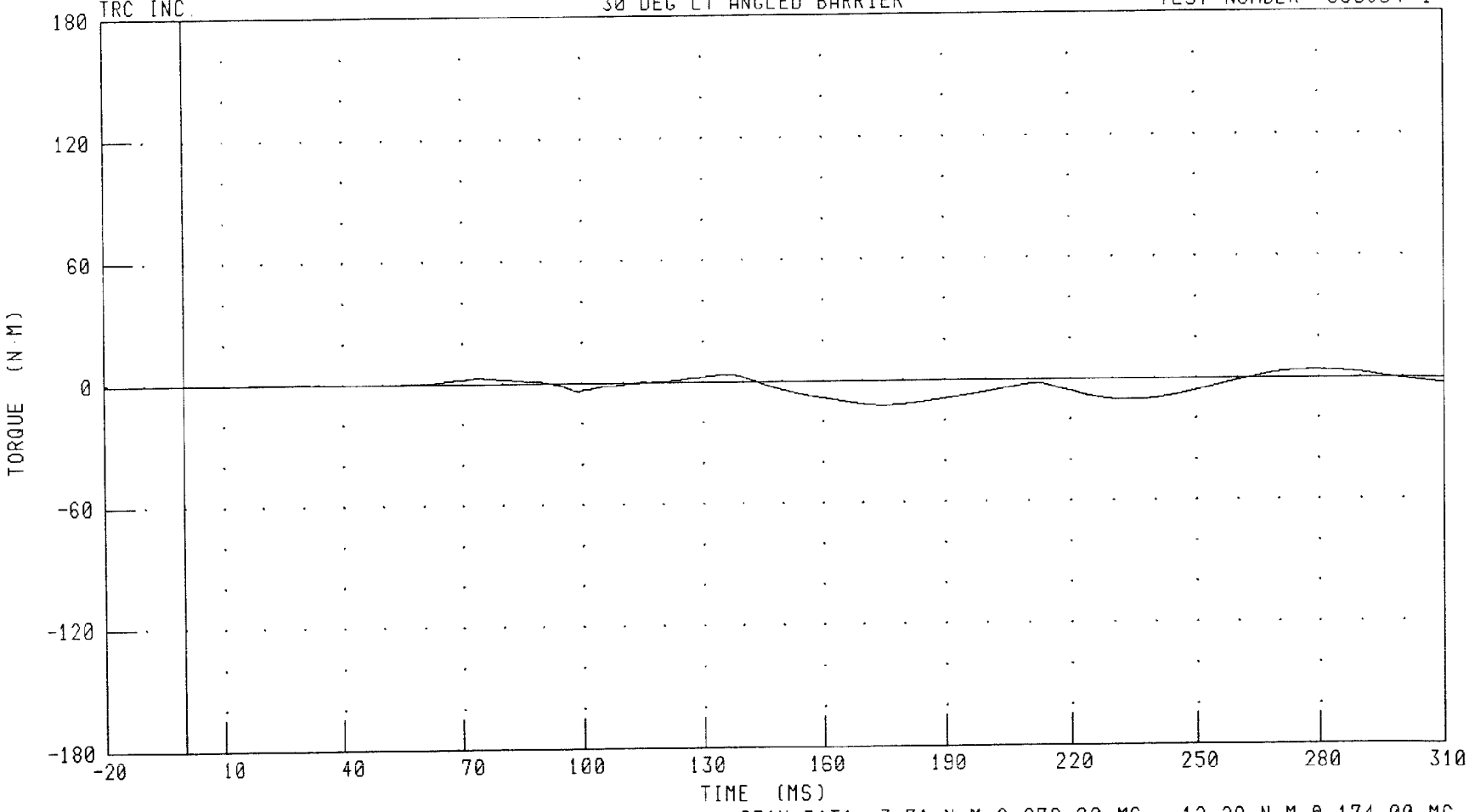


CHANNEL: NEKYM1 FILTER: CH. CLASS 600 PEAK DATA: 39.21 N-M @ 86.88 MS; -5.84 N-M @ 214.16 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

DRIVER NECK MOMENT ABOUT Z AXIS

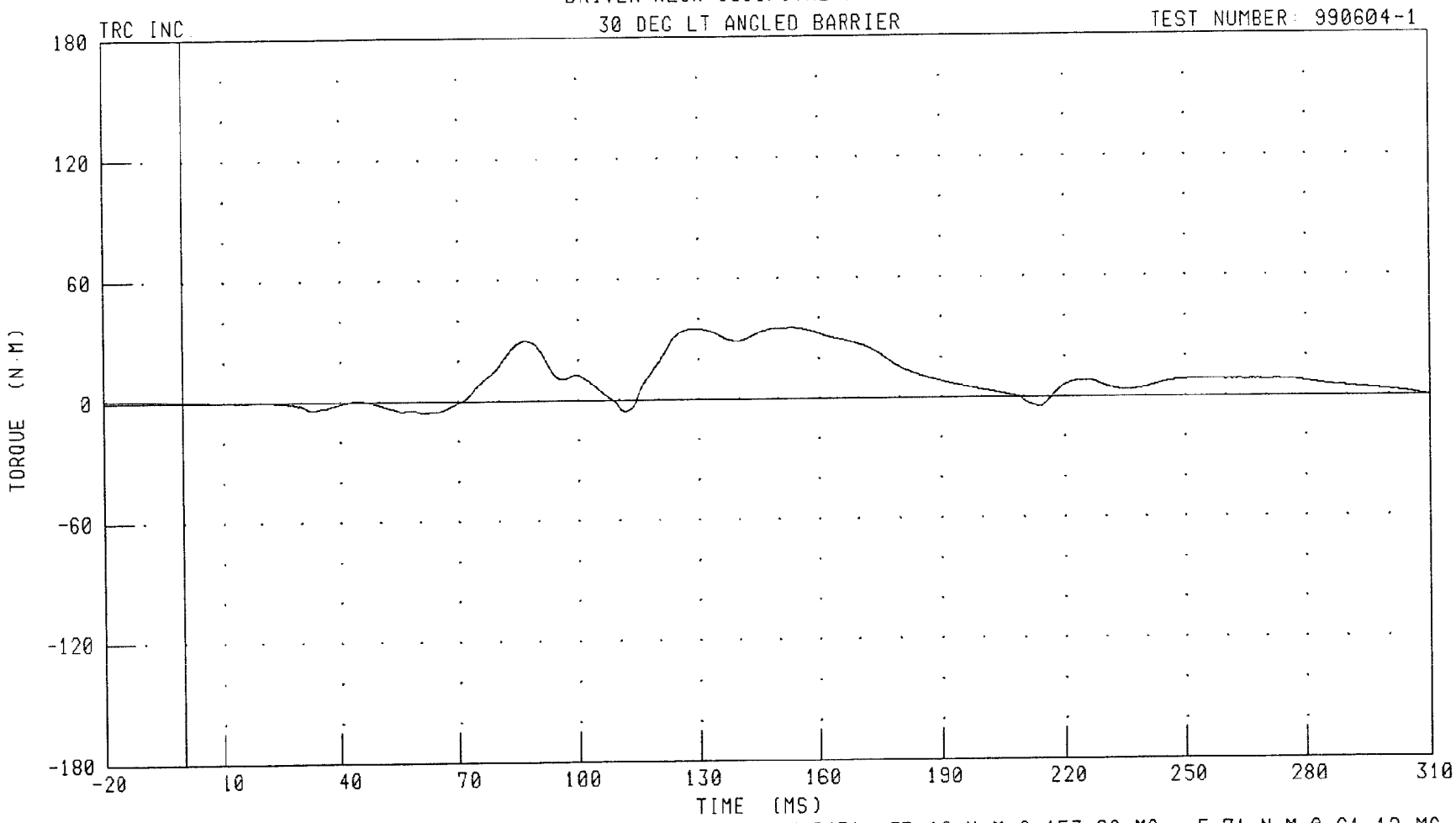
TRC INC 30 DEG LT ANGLED BARRIER TEST NUMBER: 990604-1



CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 3.71 N-M @ 279.20 MS; -12.28 N-M @ 174.00 MS

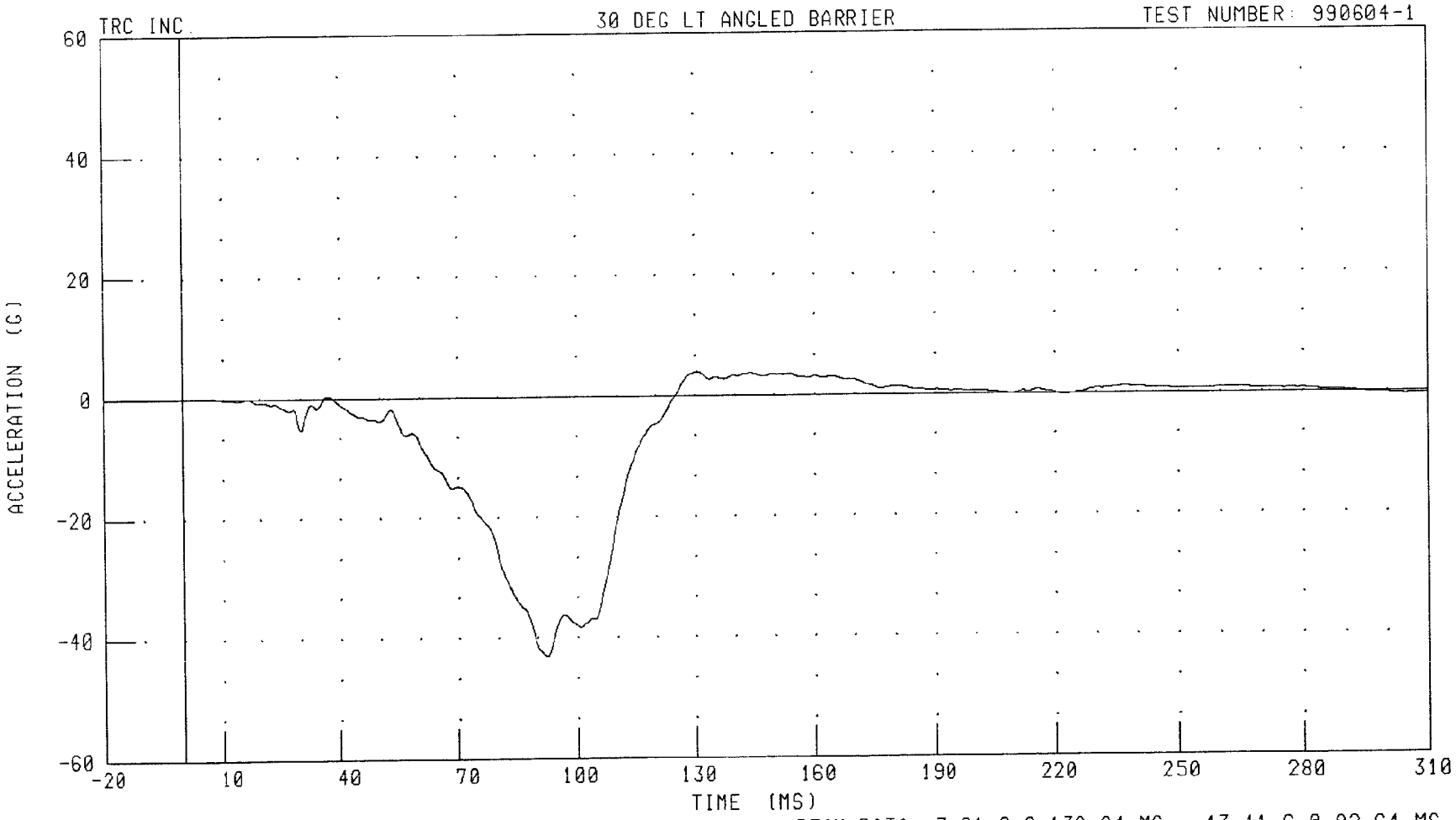
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER NECK OCCIPITAL CONDYLE
30 DEG LT ANGLED BARRIER



CHANNEL: NEKOM1 FILTER: CH. CLASS 600

PEAK DATA: 35.19 N-M @ 153.28 MS; -5.71 N-M @ 61.12 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER CHEST X-AXIS ACCELERATION
30 DEG LT ANGLED BARRIER

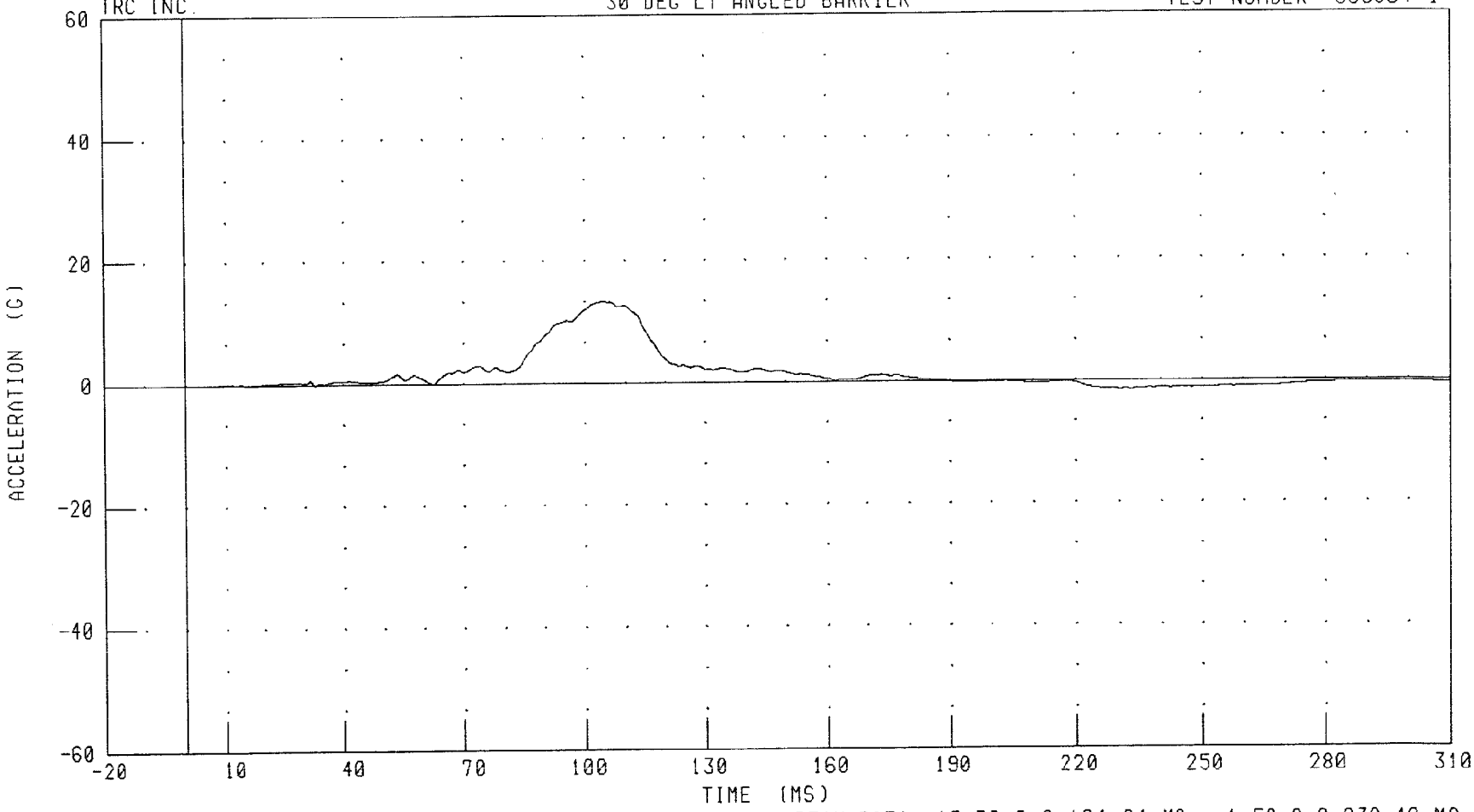


CHANNEL: CSTXG1 FILTER: CH. CLASS 180 PEAK DATA: 3.91 G @ 130.64 MS; -43.11 G @ 92.64 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

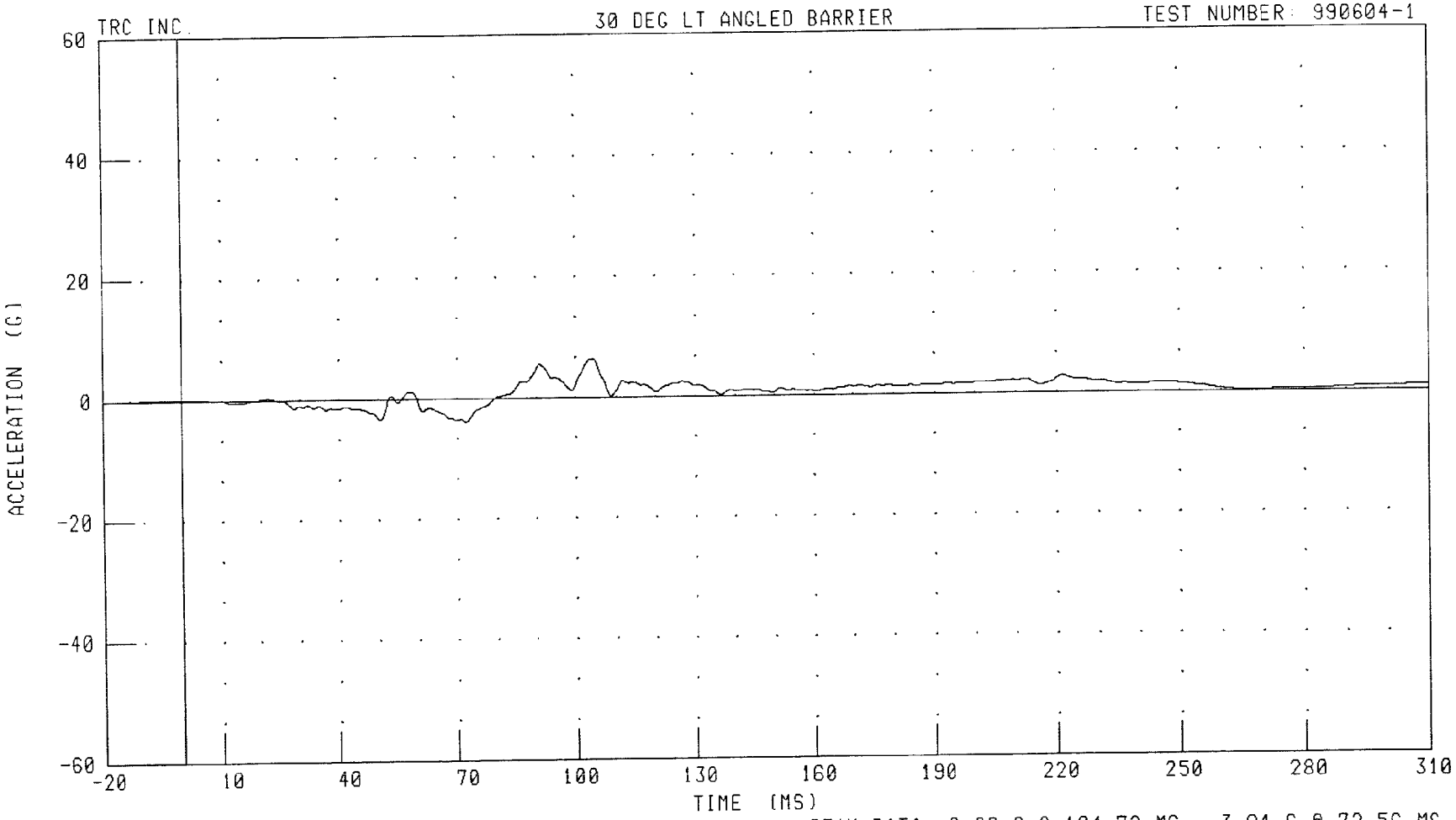
DRIVER CHEST Y-AXIS ACCELERATION

TRC INC. 30 DEG LT ANGLED BARRIER TEST NUMBER: 990604-1



CHANNEL: CSTYG1 FILTER: CH. CLASS 180 PEAK DATA: 13.32 G @ 104.64 MS; -1.56 G @ 230.40 MS

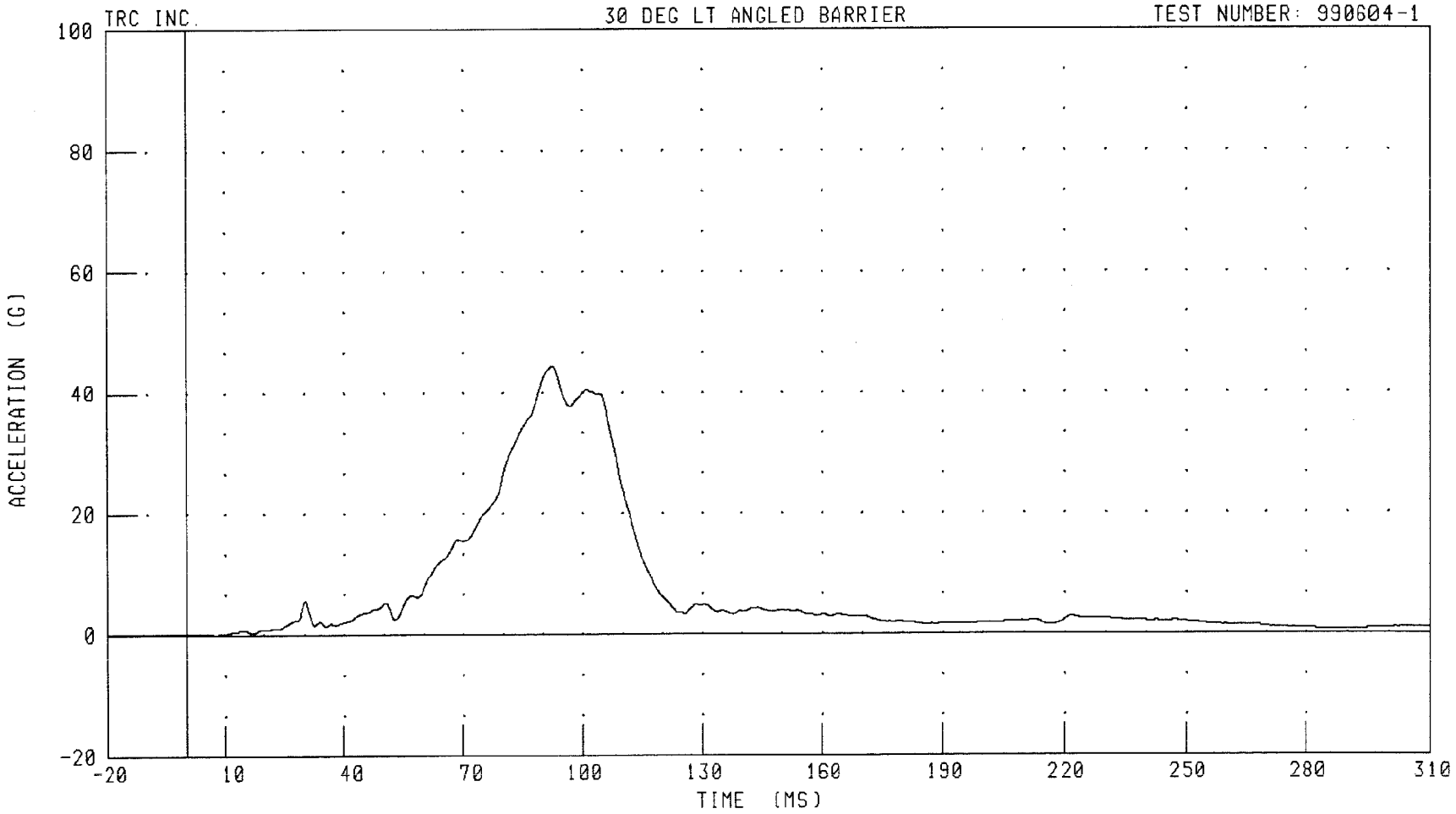
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER CHEST Z-AXIS ACCELERATION
30 DEG LT ANGLED BARRIER



CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 6.28 G @ 104.72 MS; -3.94 G @ 72.56 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER CHEST RESULTANT ACCELERATION

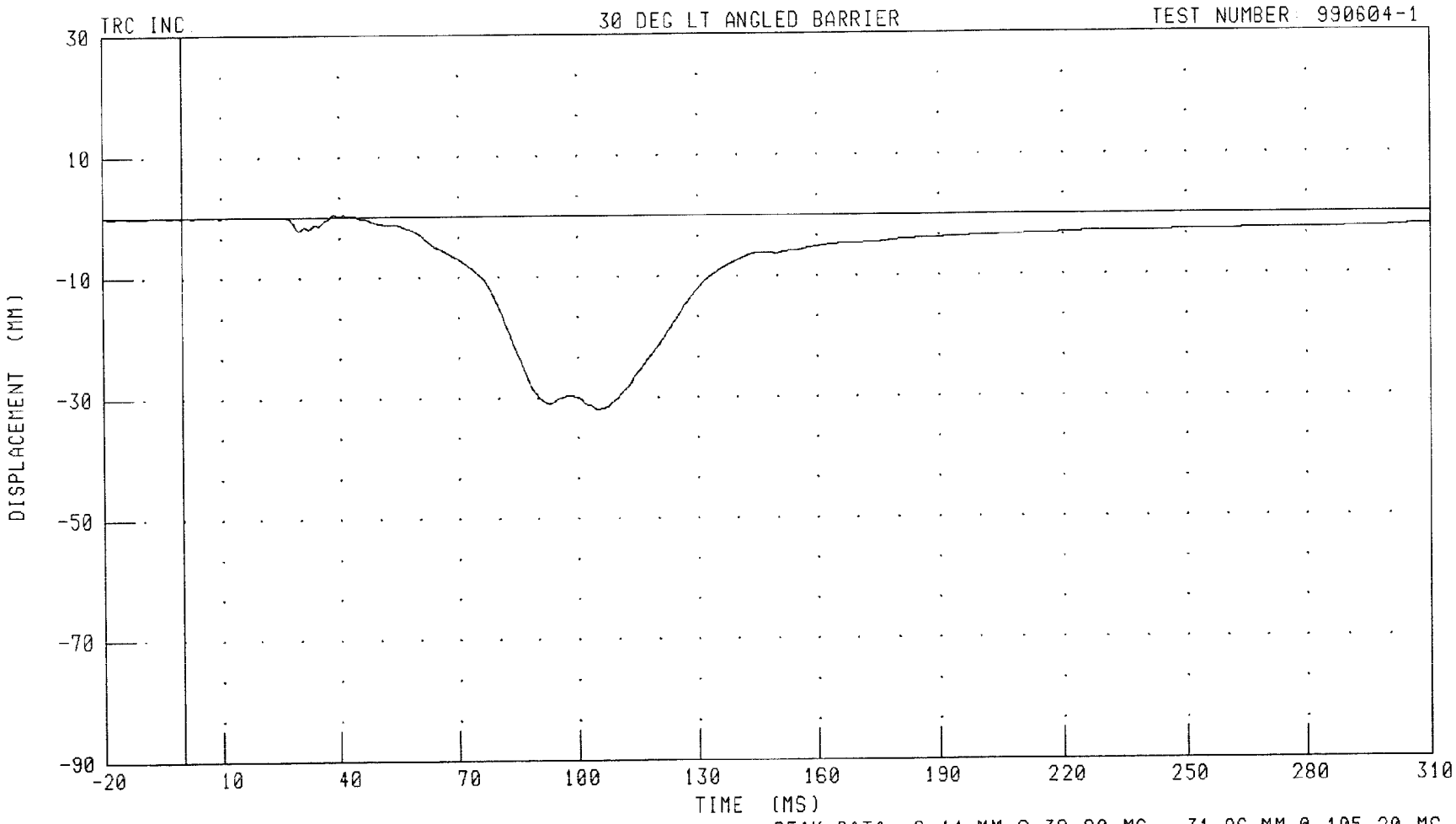


CHANNEL: CSTRG1 FILTER: CH. CLASS 180 PEAK DATA: 44.37 G @ 92.64 MS; 0.01 G @ -20.00 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

DRIVER CHEST DEFLECTION

30 DEG LT ANGLED BARRIER

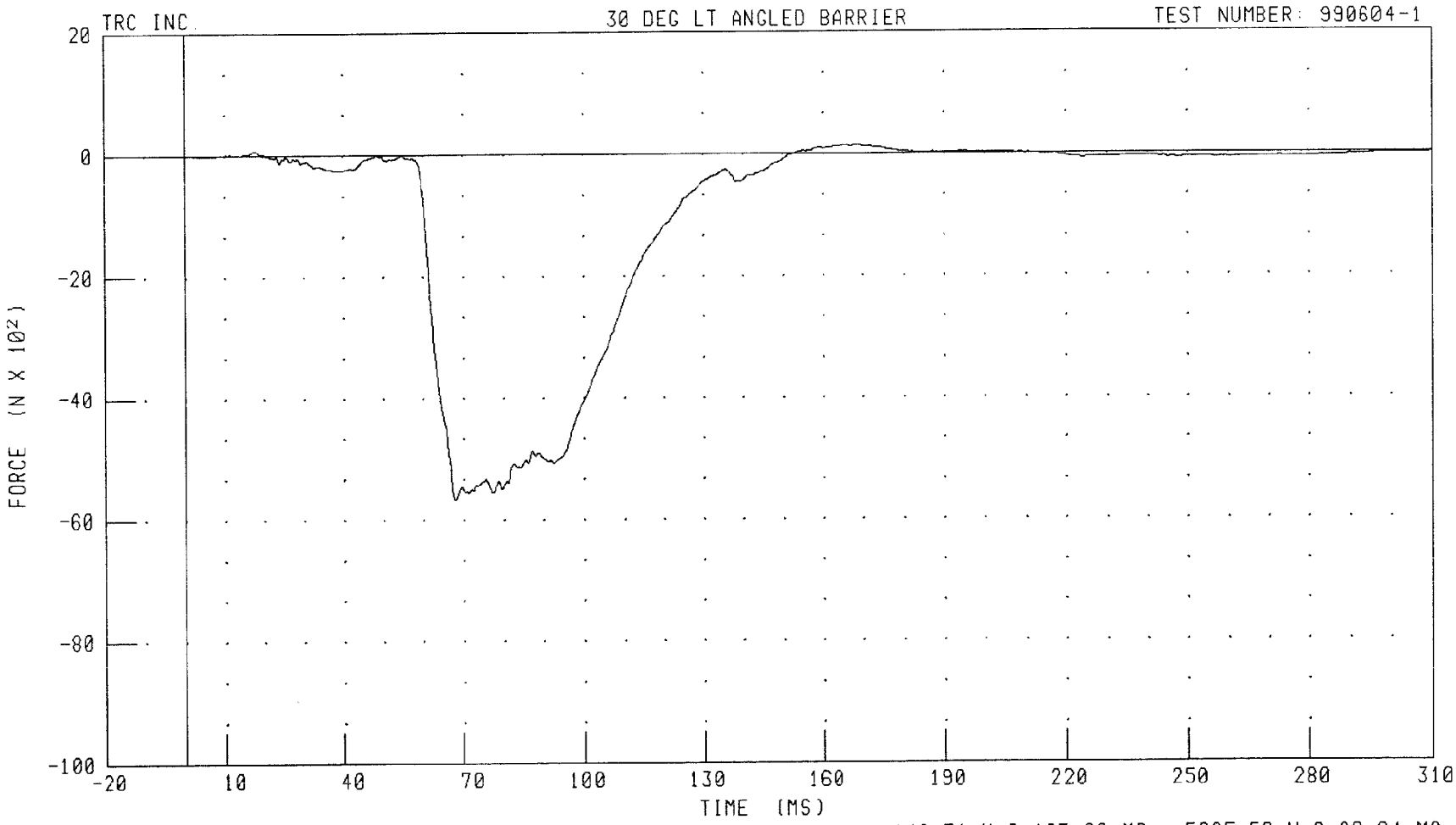


CHANNEL: CSTXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.44 MM @ 38.80 MS; -31.96 MM @ 105.20 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

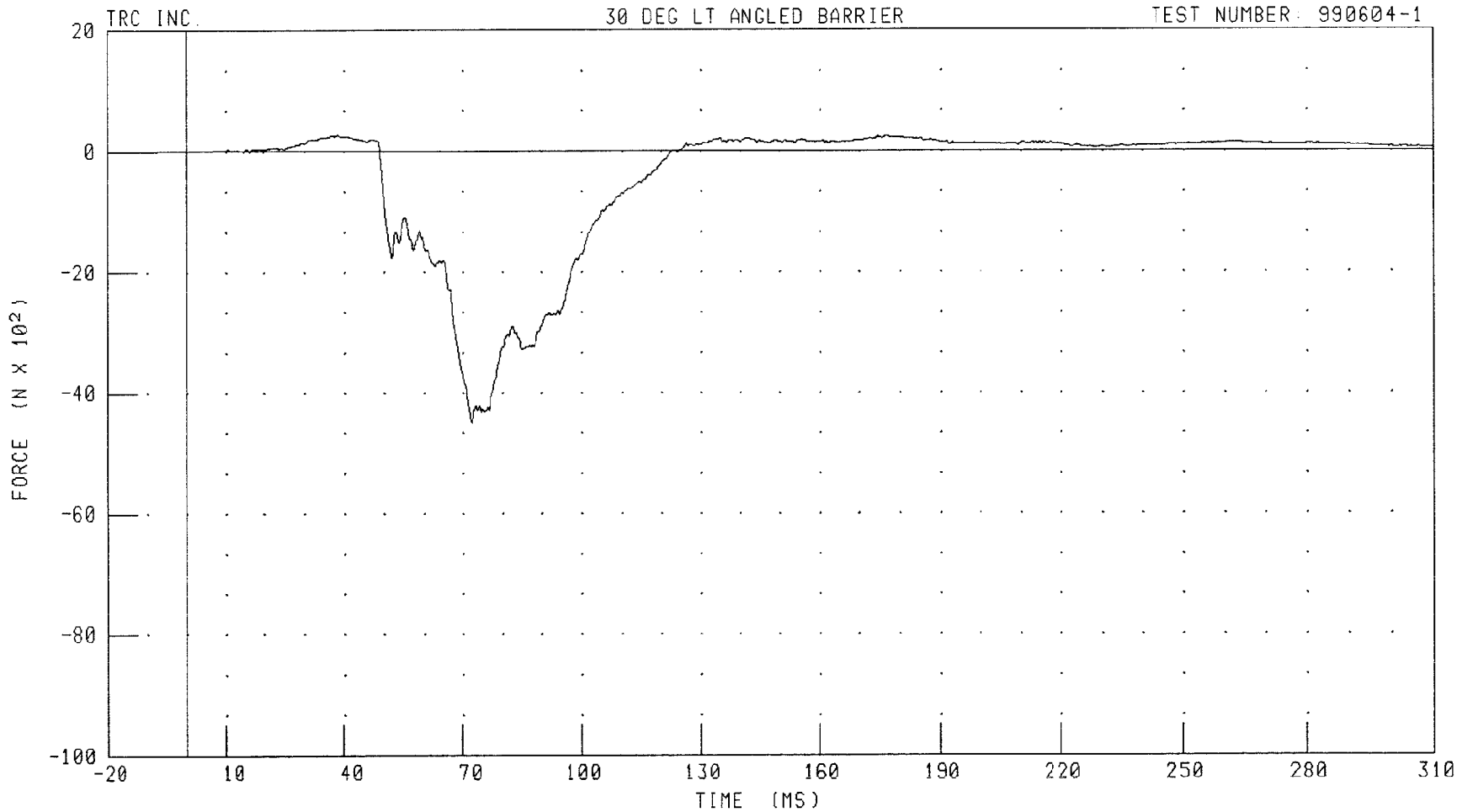
DRIVER LEFT FEMUR FORCE



CHANNEL: LFMF1 FILTER: CH. CLASS 600

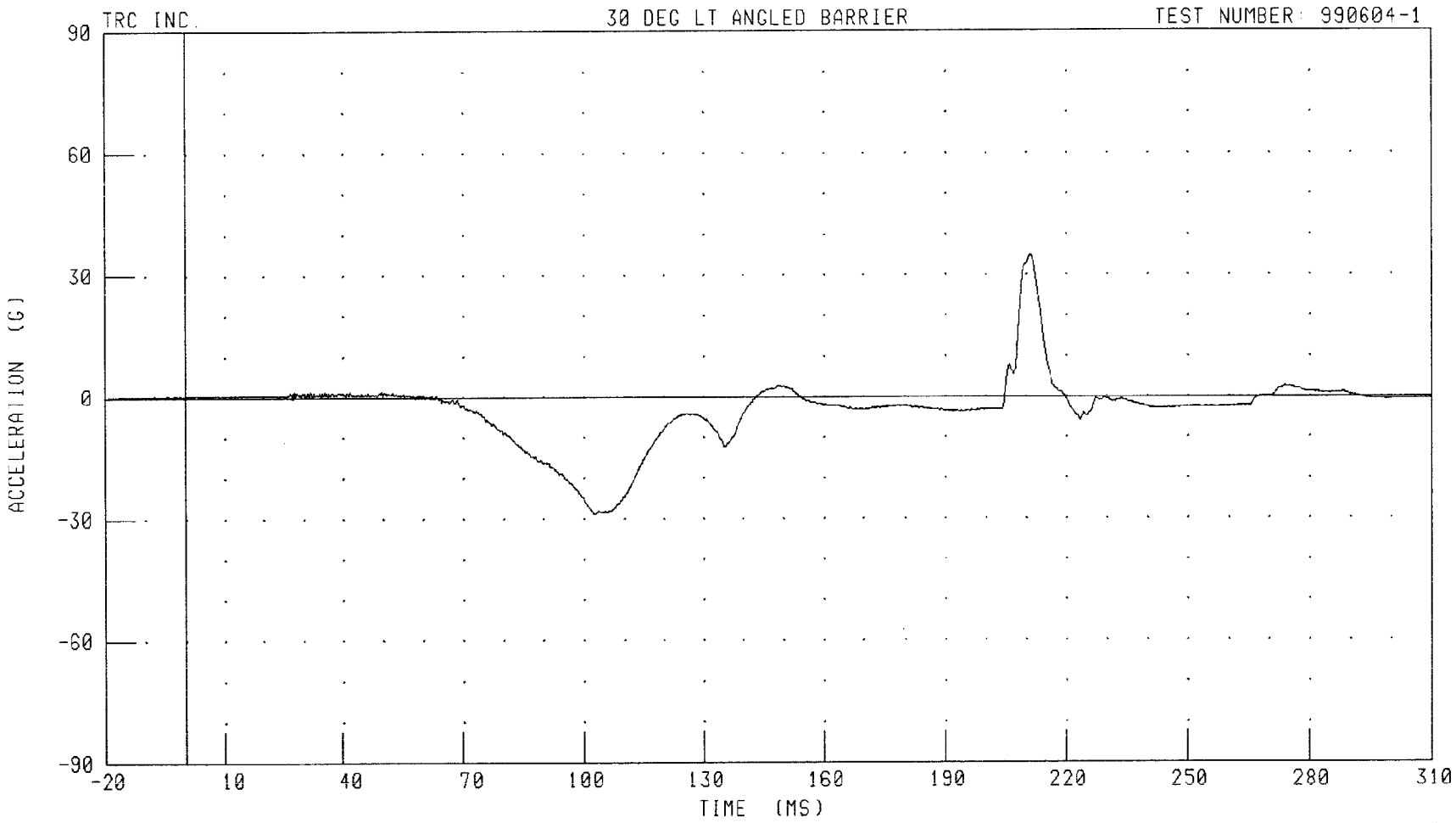
PEAK DATA: 146.51 N @ 165.68 MS; -5665.56 N @ 68.24 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER RIGHT FEMUR FORCE
30 DEG LT ANGLED BARRIER



CHANNEL: RFMF1 FILTER: CH. CLASS 600 PEAK DATA: 273.57 N @ 38.64 MS; -4492.84 N @ 72.32 MS

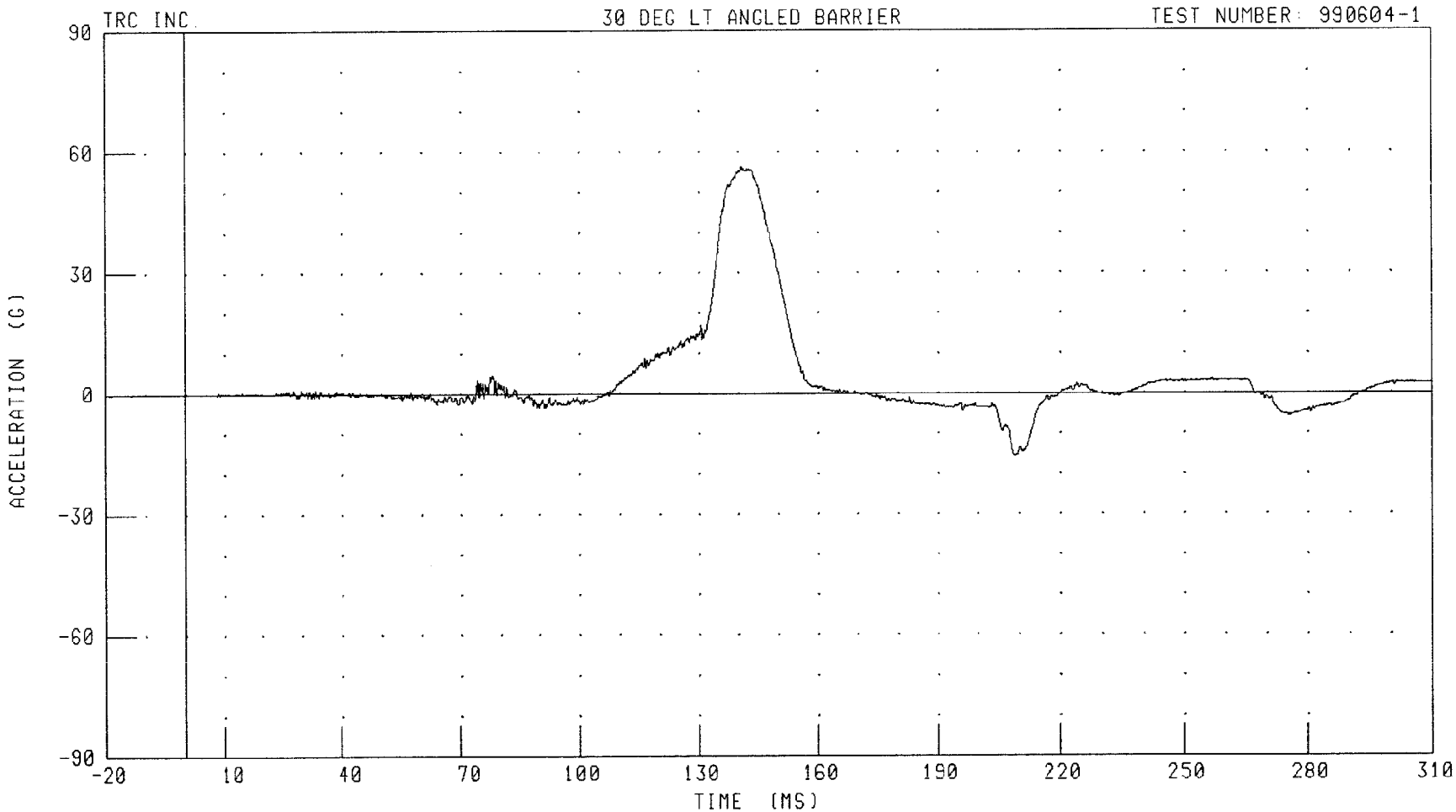
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION



CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

PEAK DATA: 34.91 G @ 211.20 MS; -28.91 G @ 102.80 MS

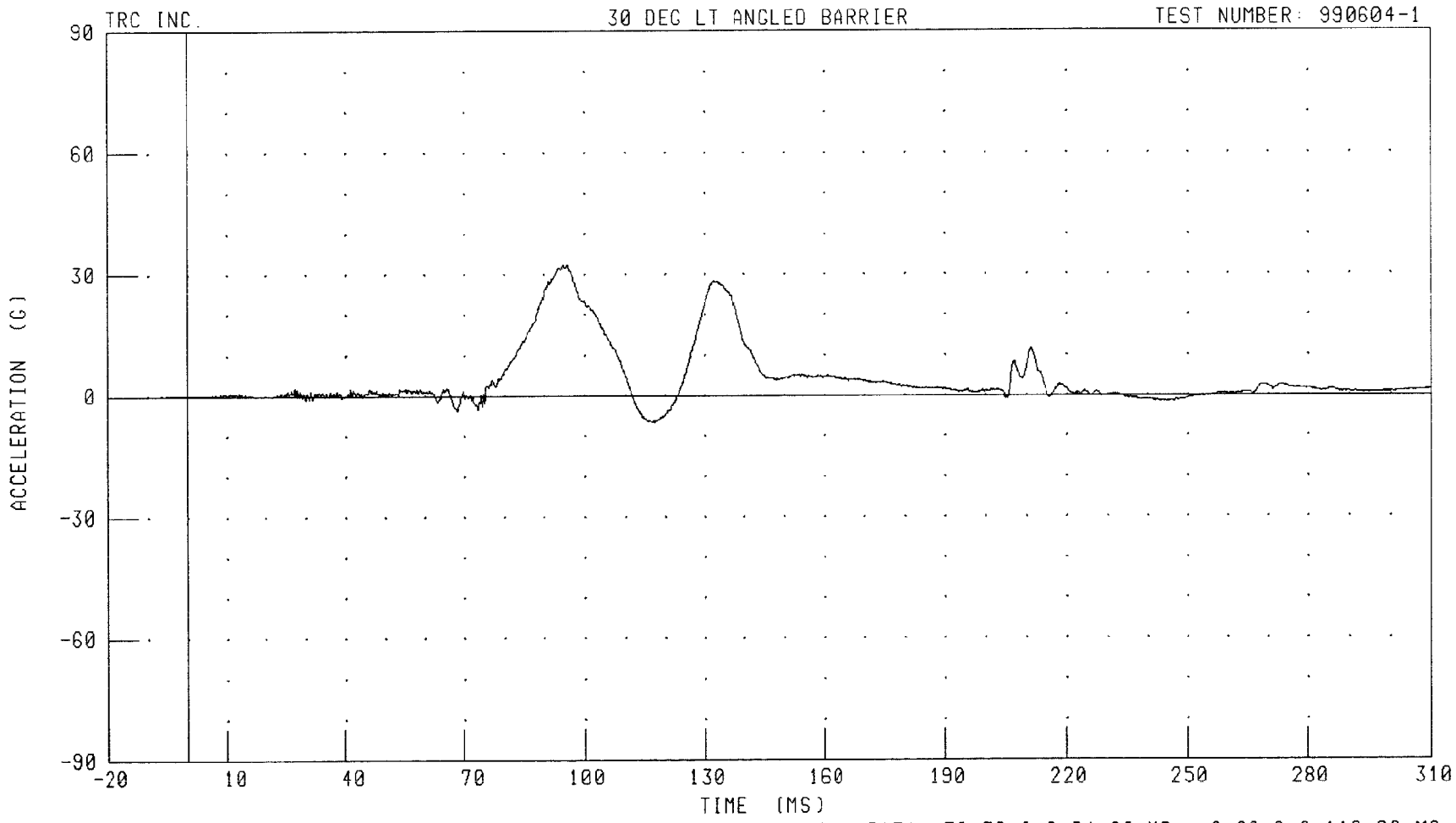
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION



CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

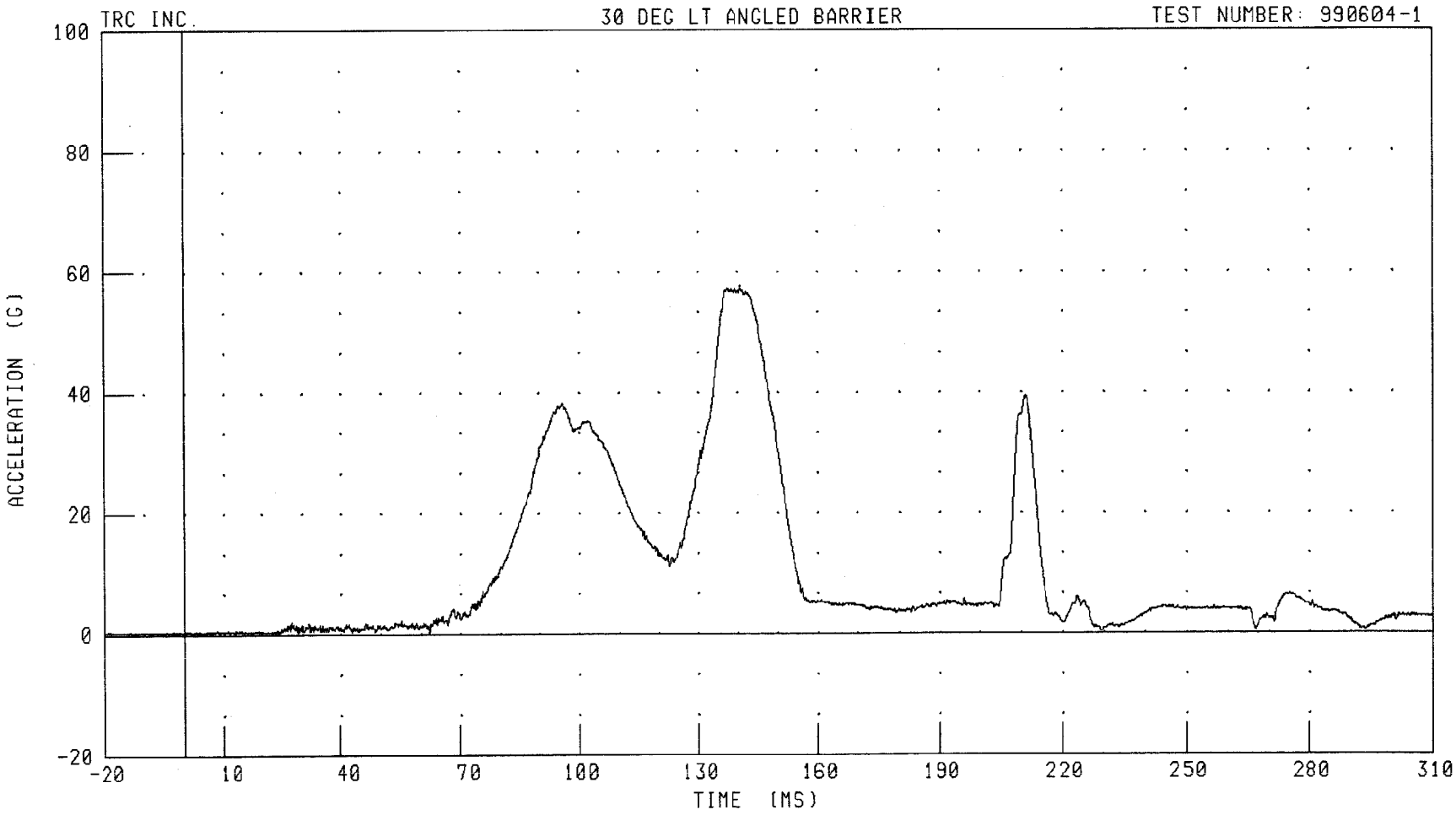
PEAK DATA: 56.33 G @ 140.80 MS; -15.61 G @ 208.88 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION



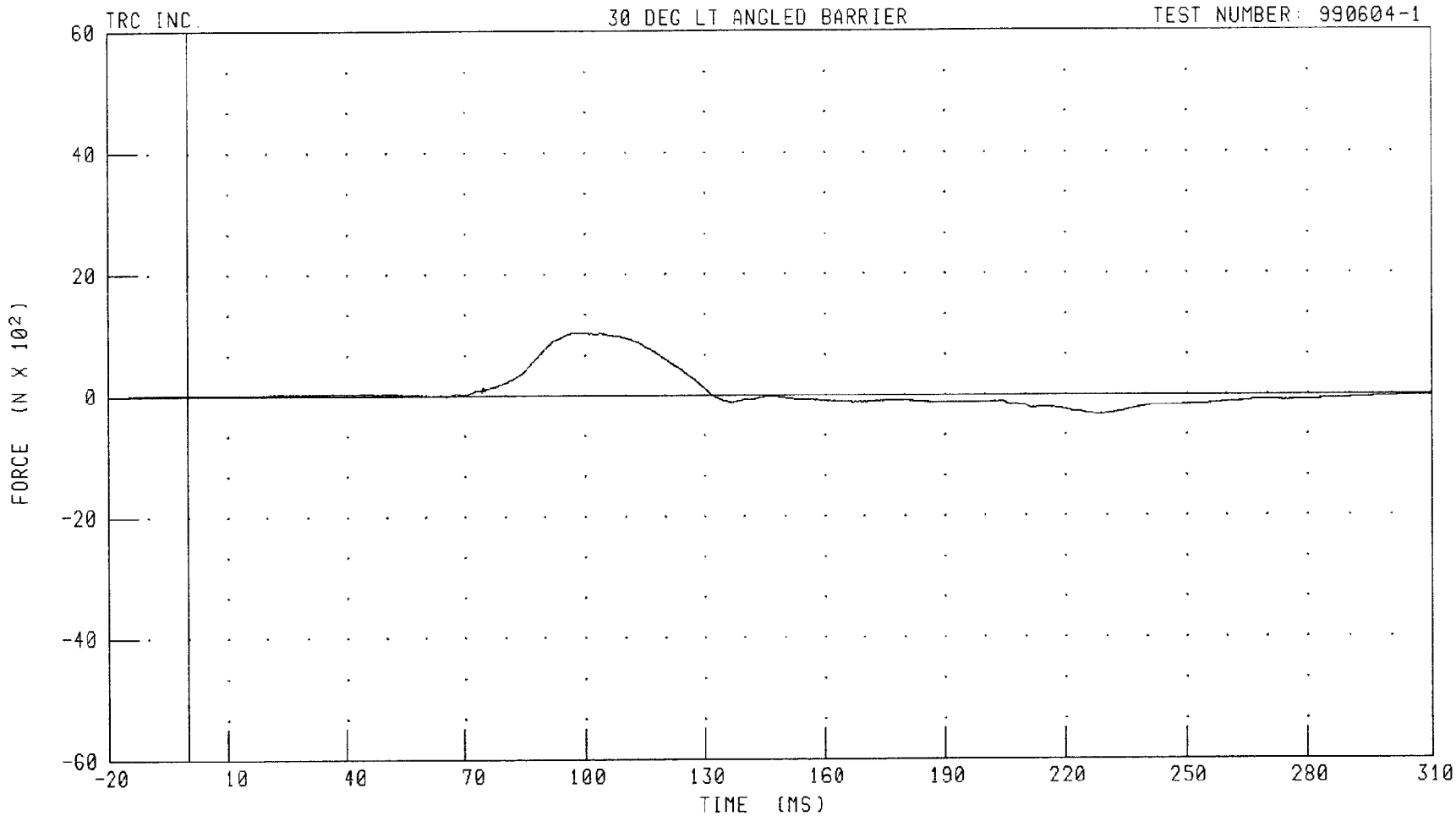
CHANNEL: HEDZG2 FILTER: CH. CLASS 1000 PEAK DATA: 32.30 G @ 94.88 MS; -6.69 G @ 116.88 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION



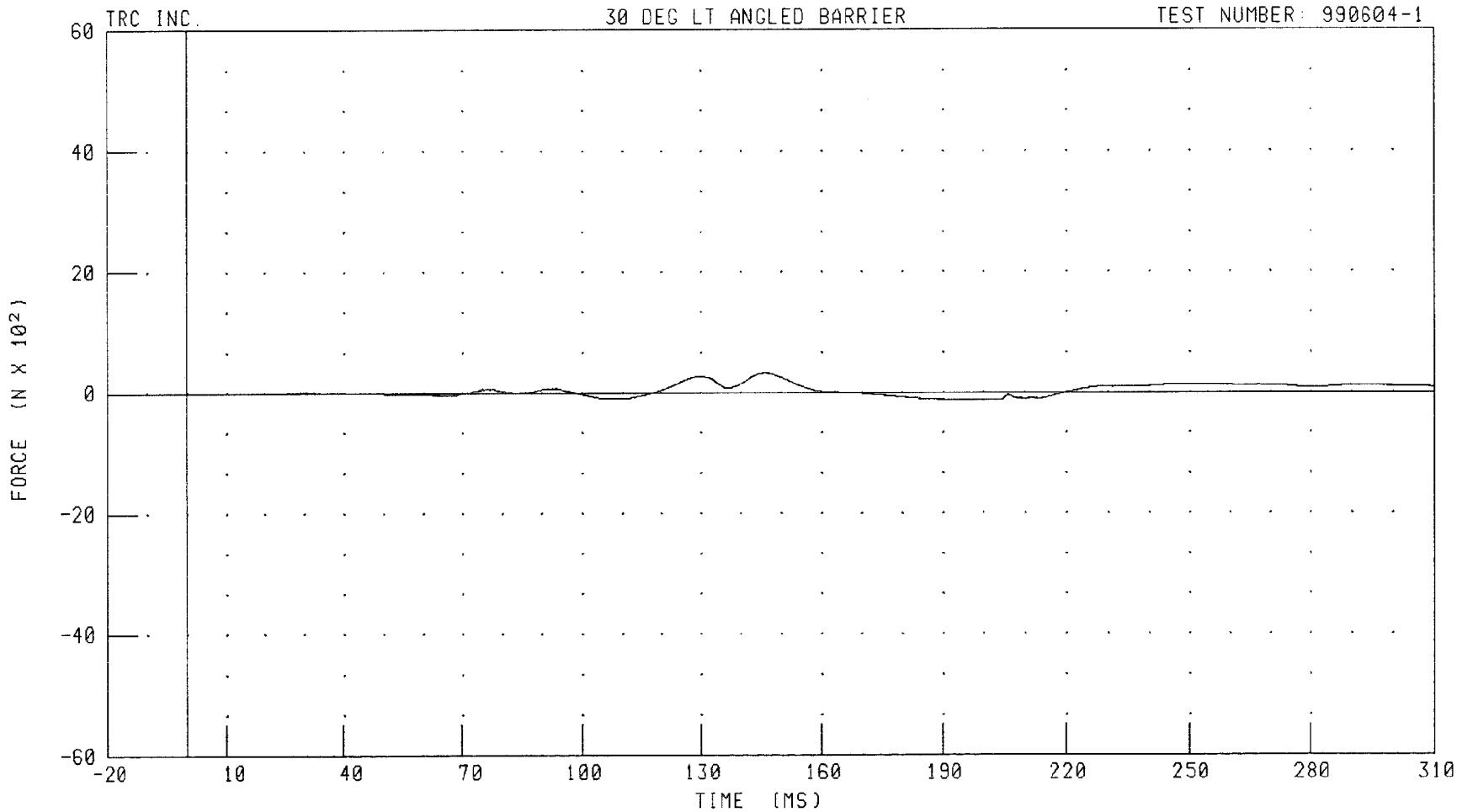
CHANNEL: HEORG2 FILTER: CH. CLASS 1000 PEAK DATA: 57.71 G @ 140.80 MS; 0.09 G @ -13.20 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE



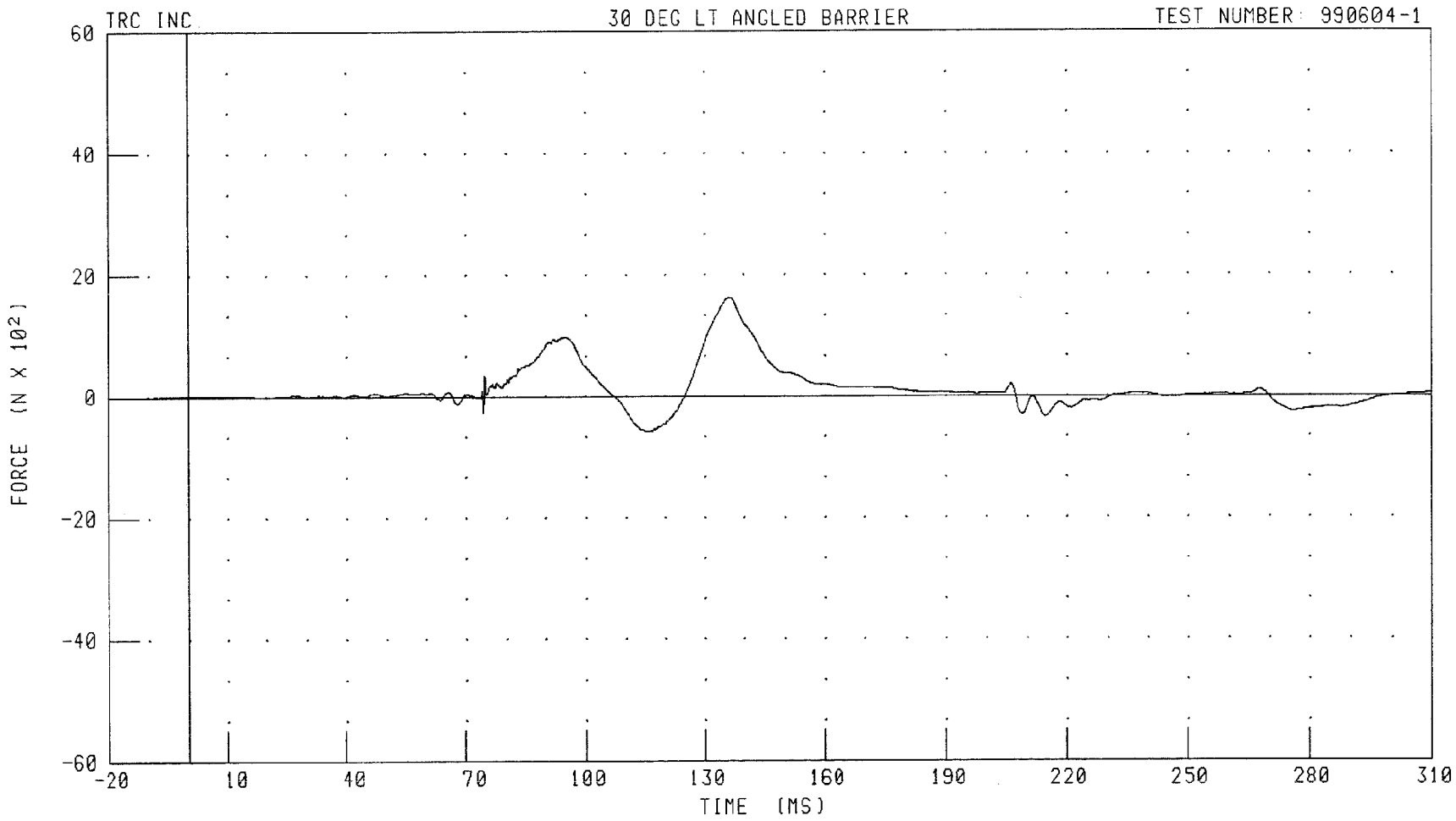
CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 1033.79 N @ 99.52 MS; -330.08 N @ 227.28 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE



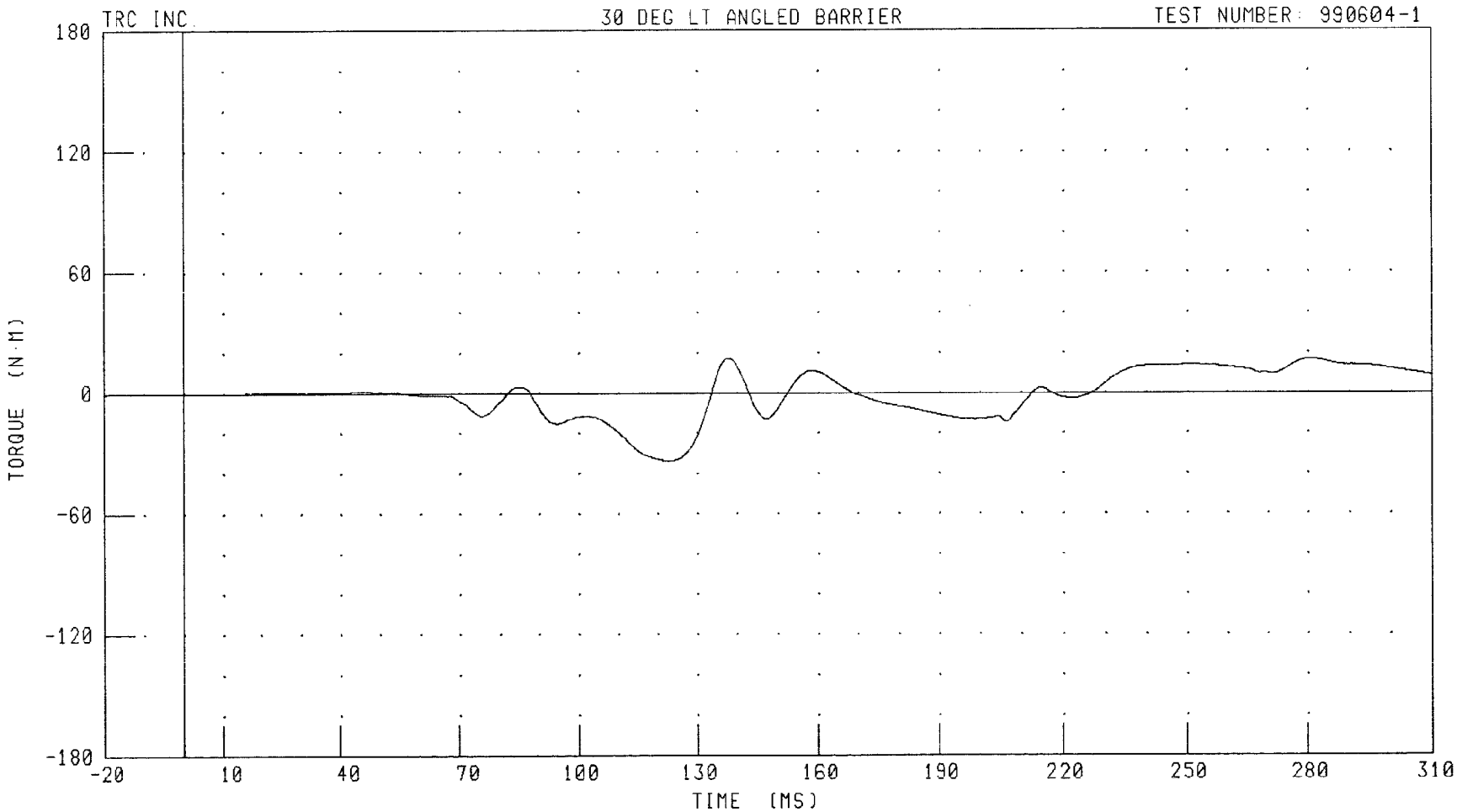
CHANNEL: NEKYF2 FILTER: CH. CLASS 1000 PEAK DATA: 325.90 N @ 145.52 MS; -126.13 N @ 197.84 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE



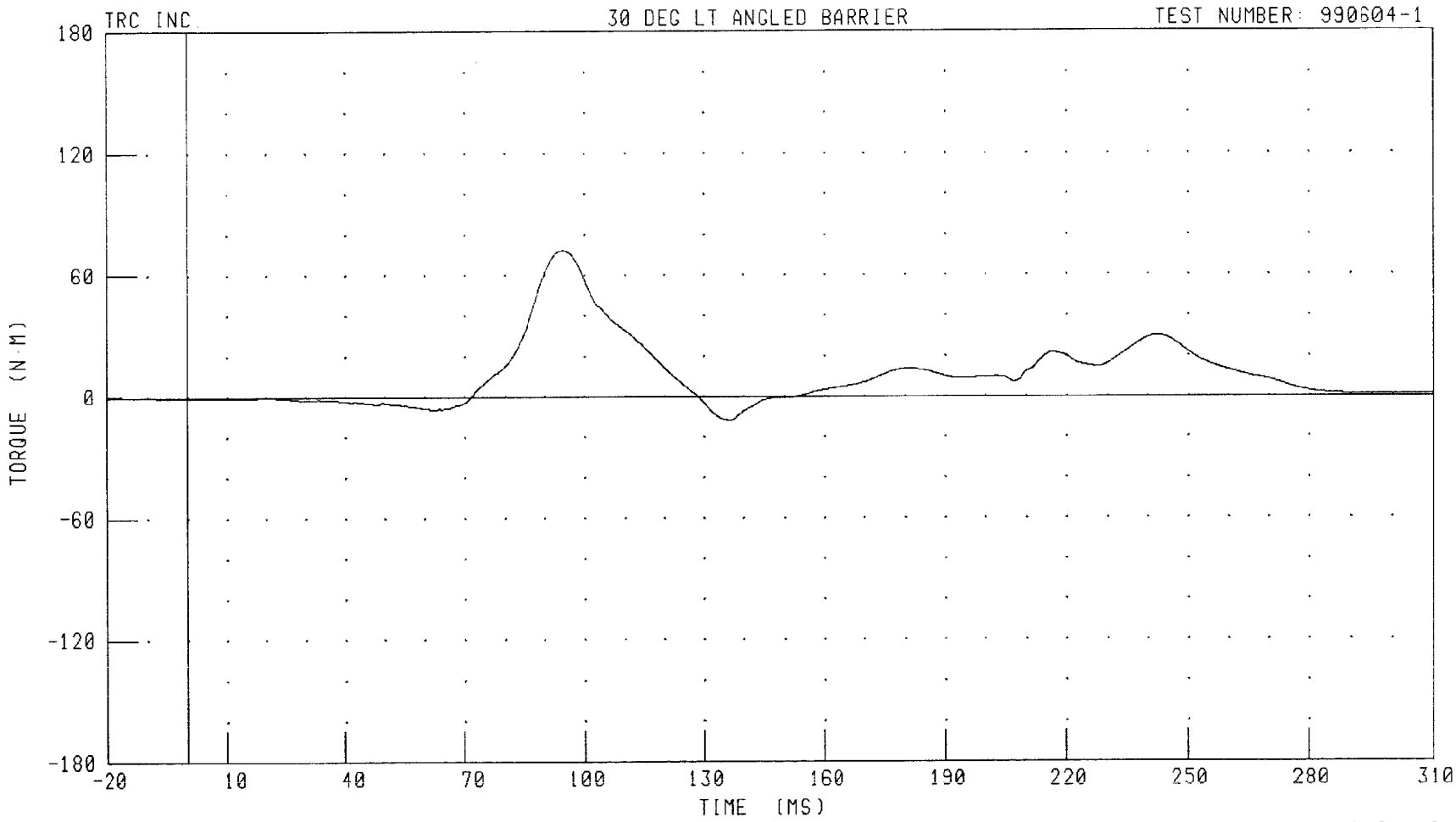
CHANNEL: NEKZF2 FILTER: CH. CLASS 1000 PEAK DATA: 1624.57 N @ 136.08 MS; -583.30 N @ 115.36 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS



CHANNEL: NEKXM2 FILTER: CH. CLASS 600 PEAK DATA: 17.27 N-M @ 137.84 MS; -33.92 N-M @ 122.80 MS

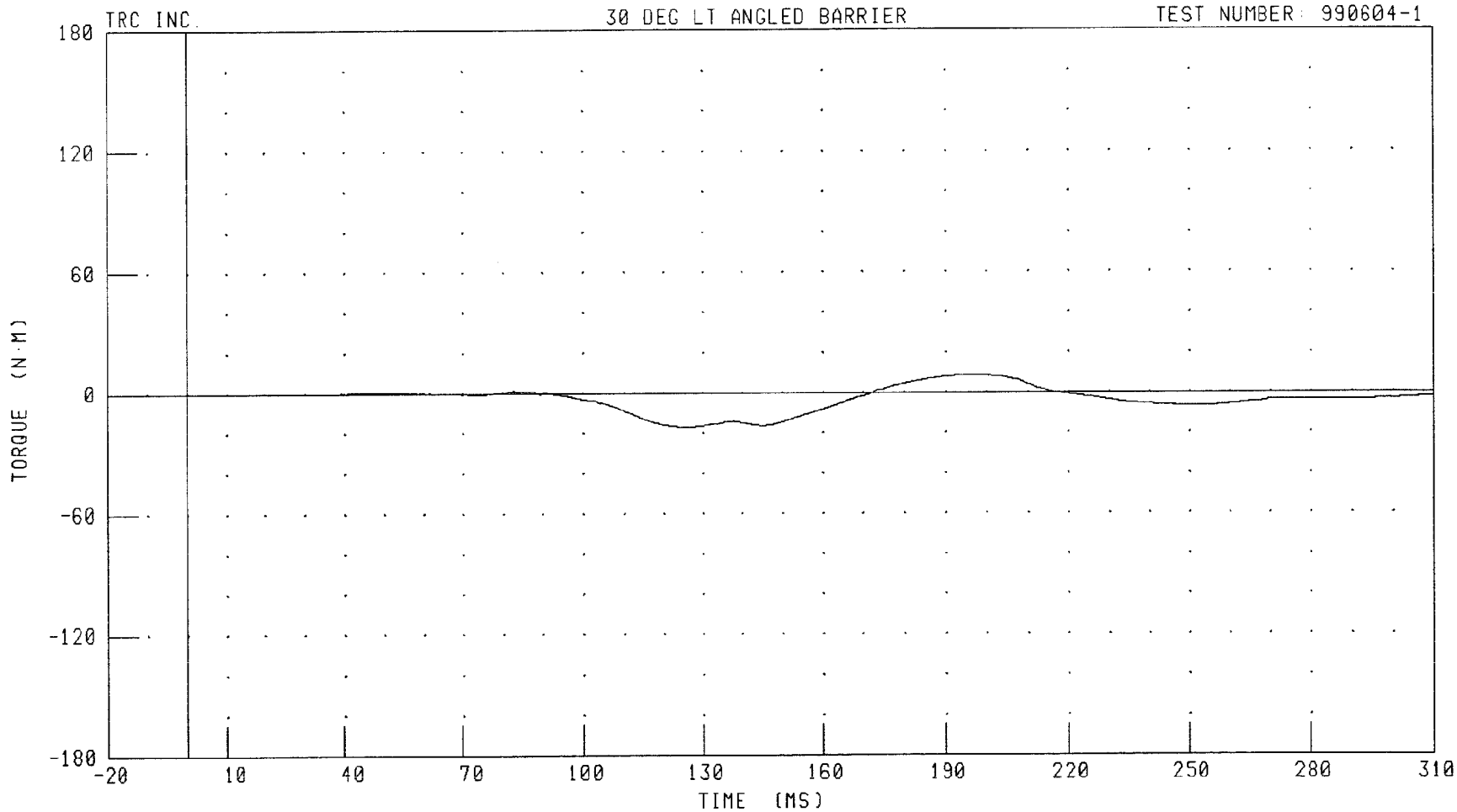
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

PEAK DATA: 72.18 N-M @ 94.72 MS; -11.77 N-M @ 136.24 MS

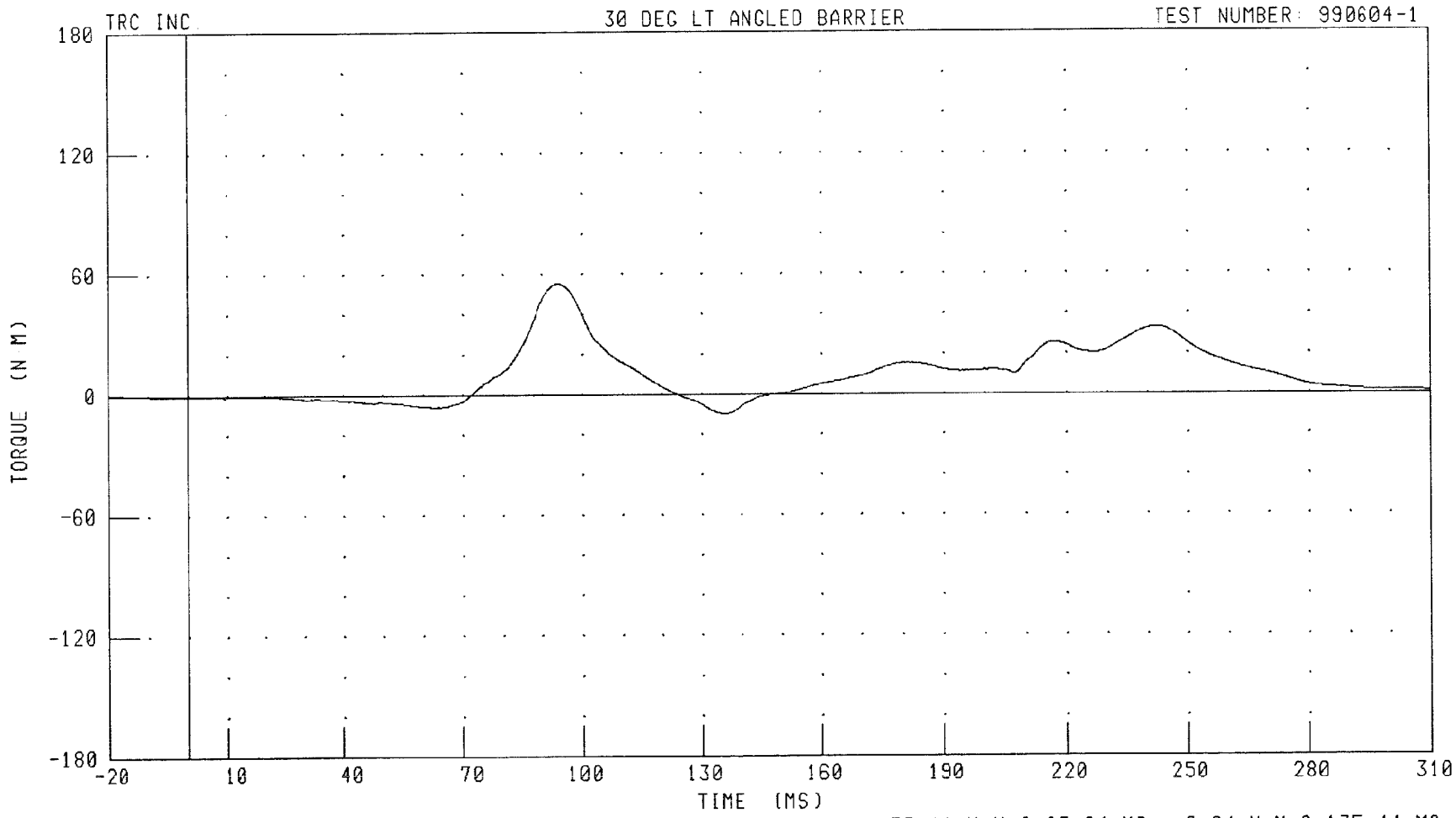
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS



CHANNEL: NEKZM2 FILTER: CH. CLASS 600

PEAK DATA: 8.47 N·M @ 199.20 MS; -17.02 N·M @ 125.20 MS

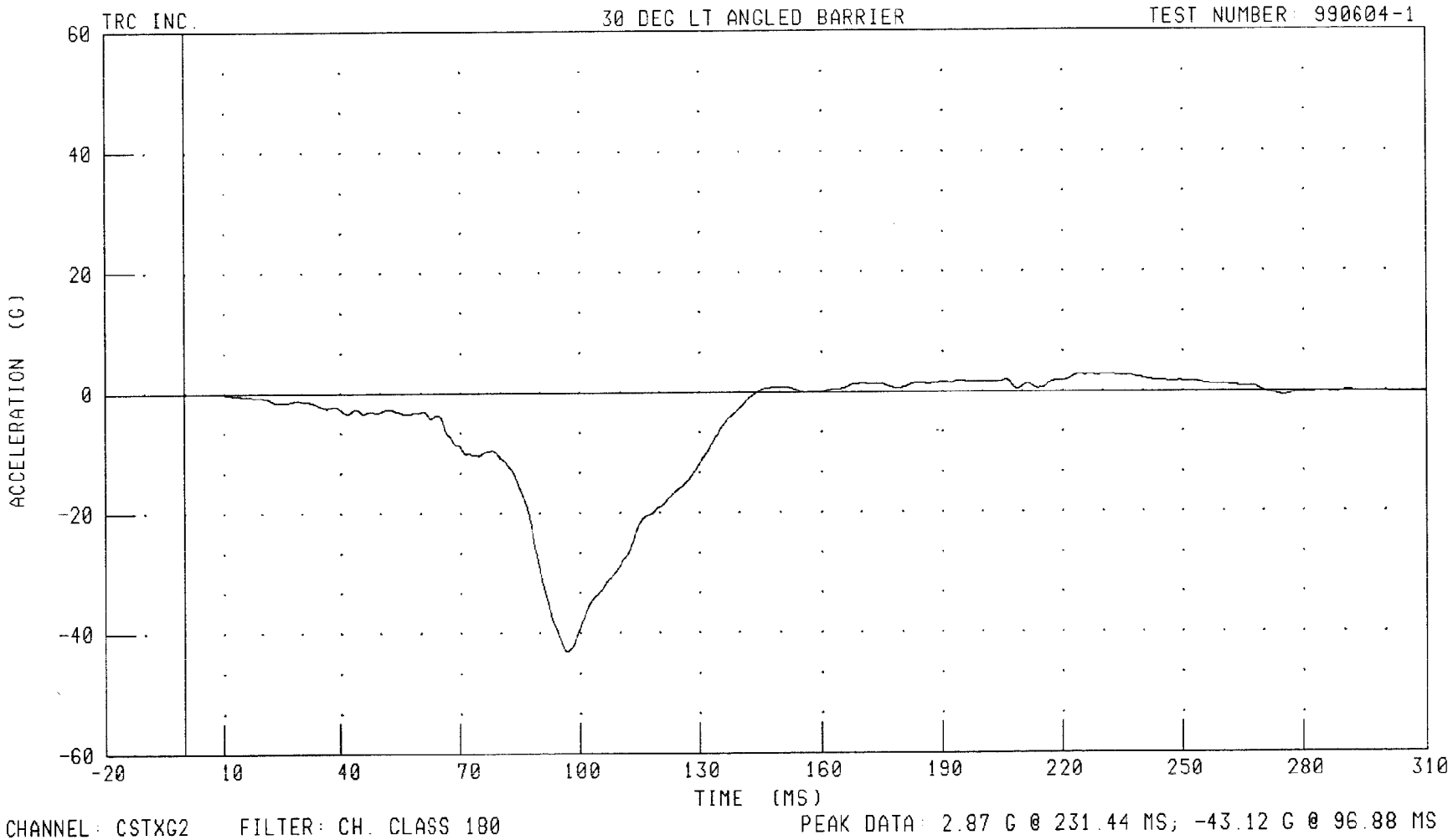
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK OCCIPITAL CONDYLE



CHANNEL: NEKOM2 FILTER: CH. CLASS 600 PEAK DATA: 55.11 N-M @ 93.84 MS; -9.84 N-M @ 135.44 MS

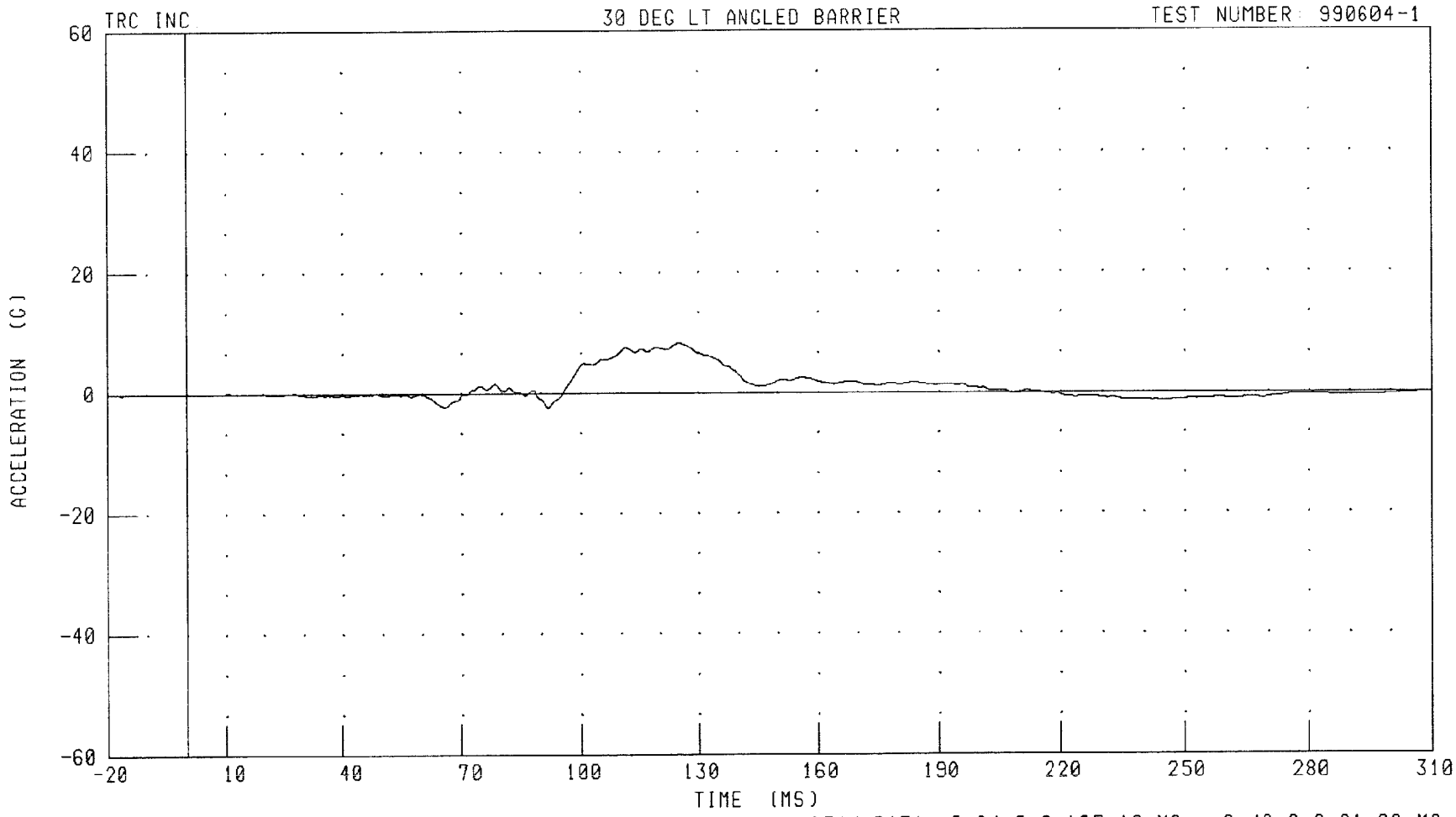
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION



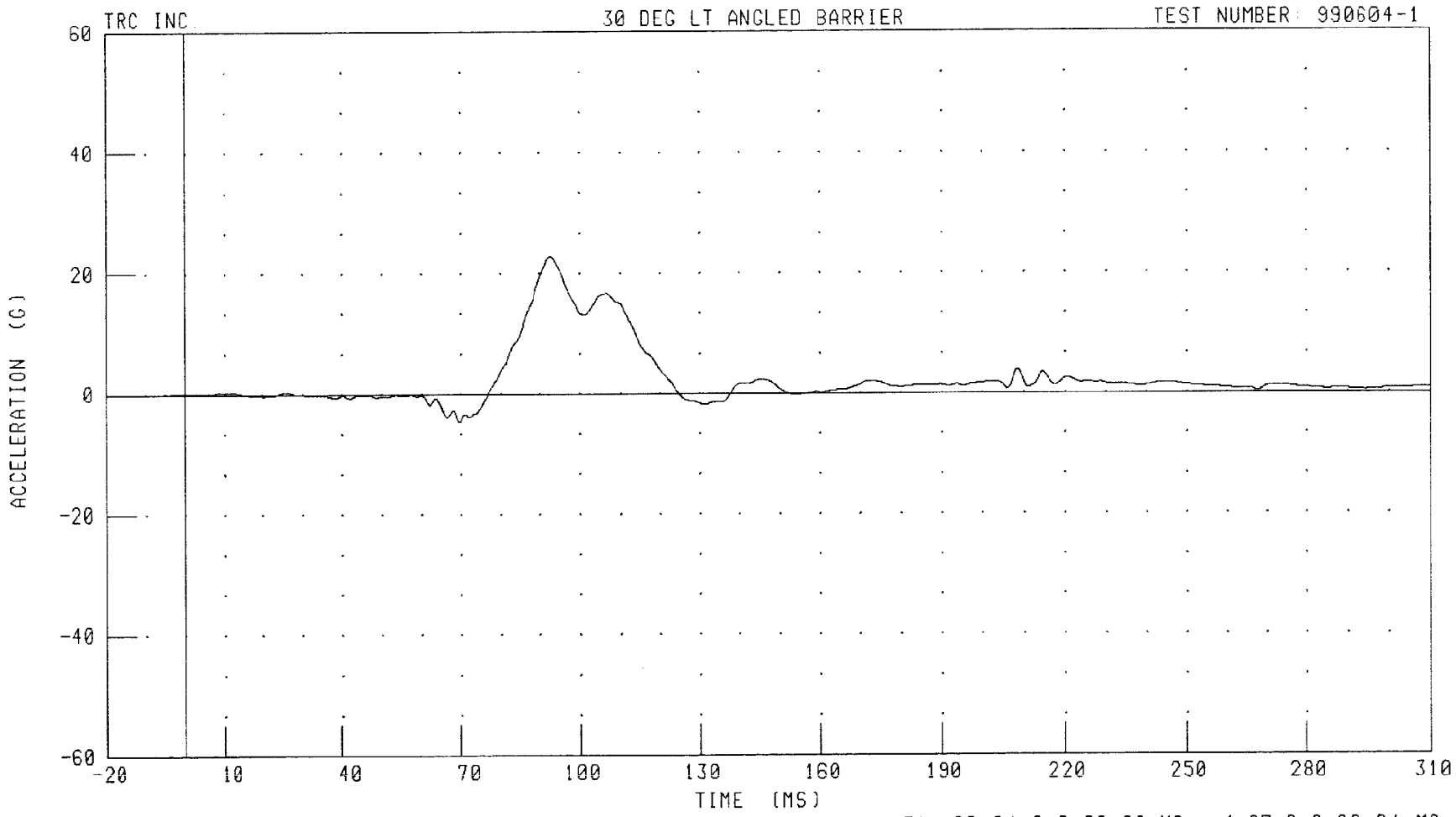
CHANNEL: CSTXG2 FILTER: CH. CLASS 180 PEAK DATA: 2.87 G @ 231.44 MS; -43.12 G @ 96.88 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION



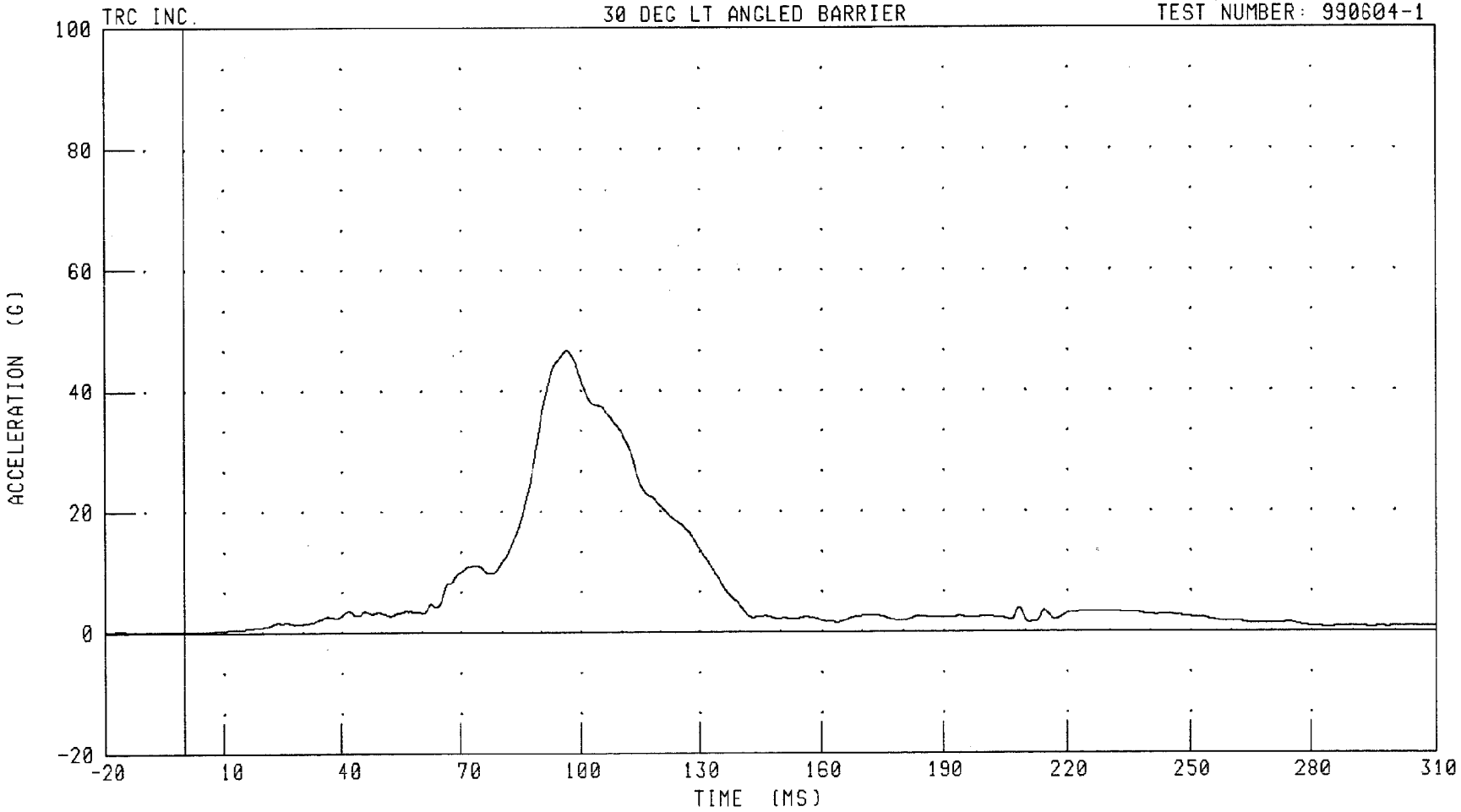
CHANNEL: CSTYG2 FILTER: CH. CLASS 180 PEAK DATA: 8.24 G @ 125.12 MS; -2.48 G @ 91.92 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION



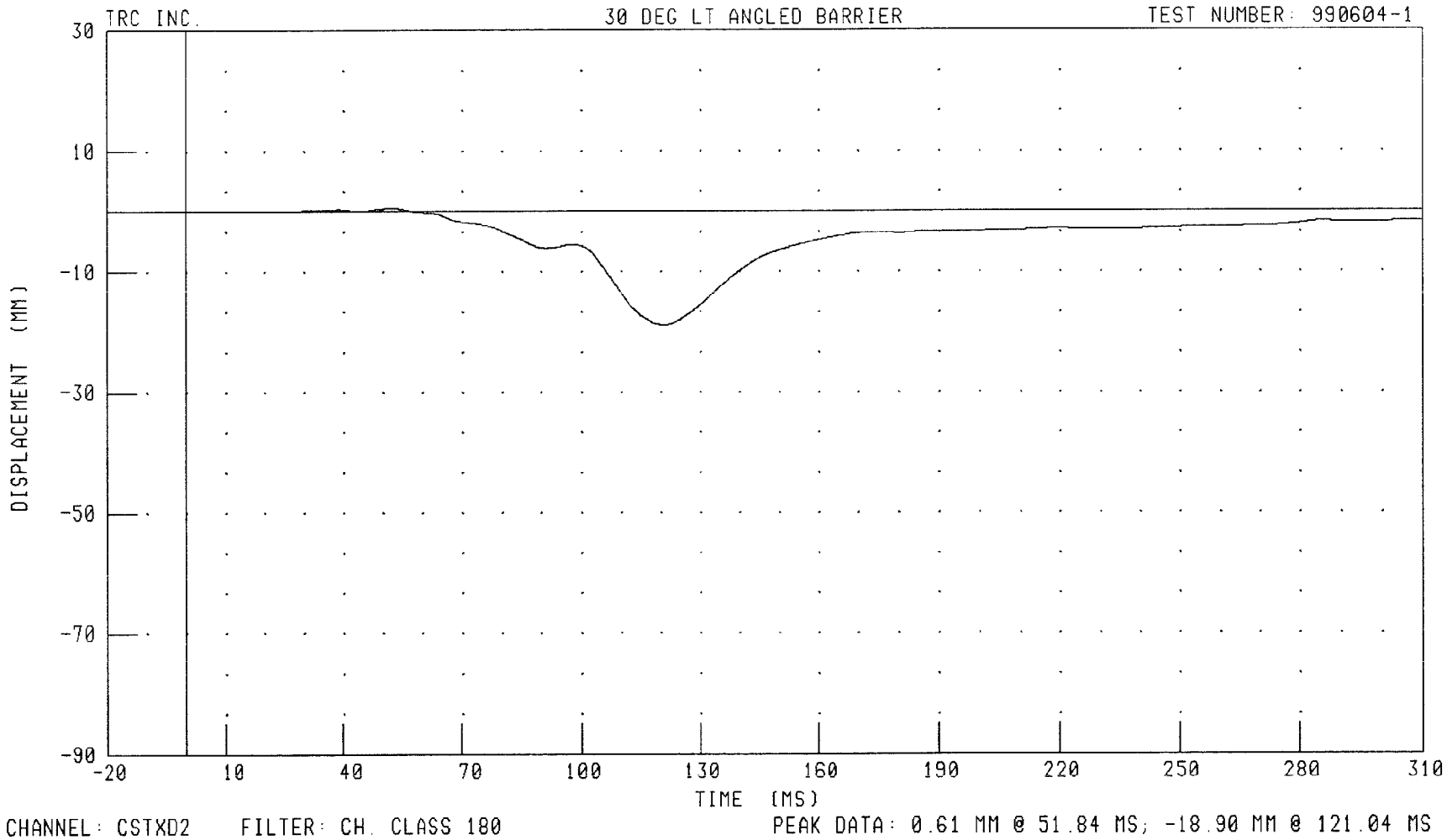
CHANNEL: CSTZG2 FILTER: CH. CLASS 180 PEAK DATA: 22.84 G @ 92.88 MS; -4.67 G @ 69.84 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION



CHANNEL: CSTRG2 FILTER: CH. CLASS 180 PEAK DATA: 46.66 G @ 96.48 MS; 0.01 G @ -20.00 MS

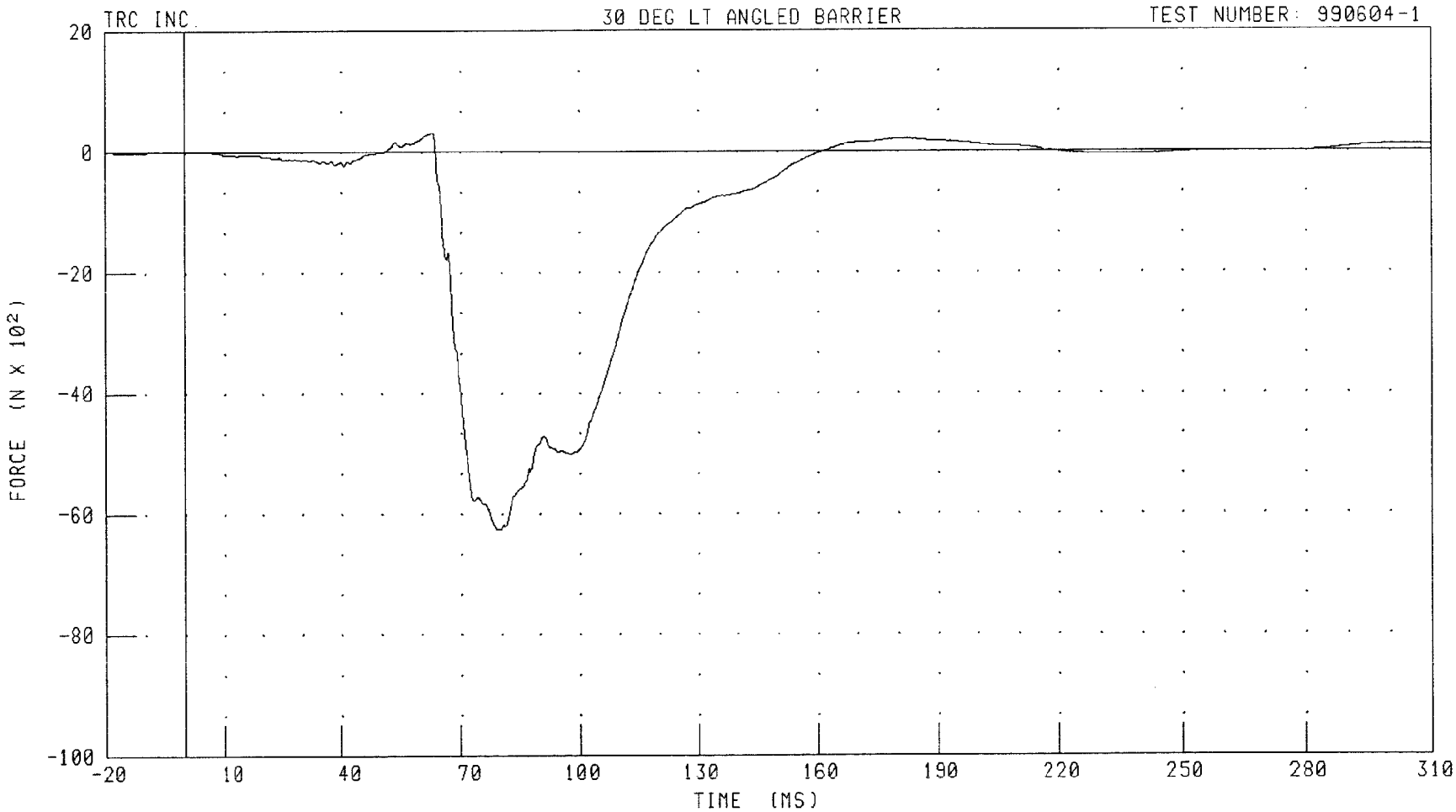
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST DEFLECTION



CHANNEL: CSTXD2 FILTER: CH. CLASS 180

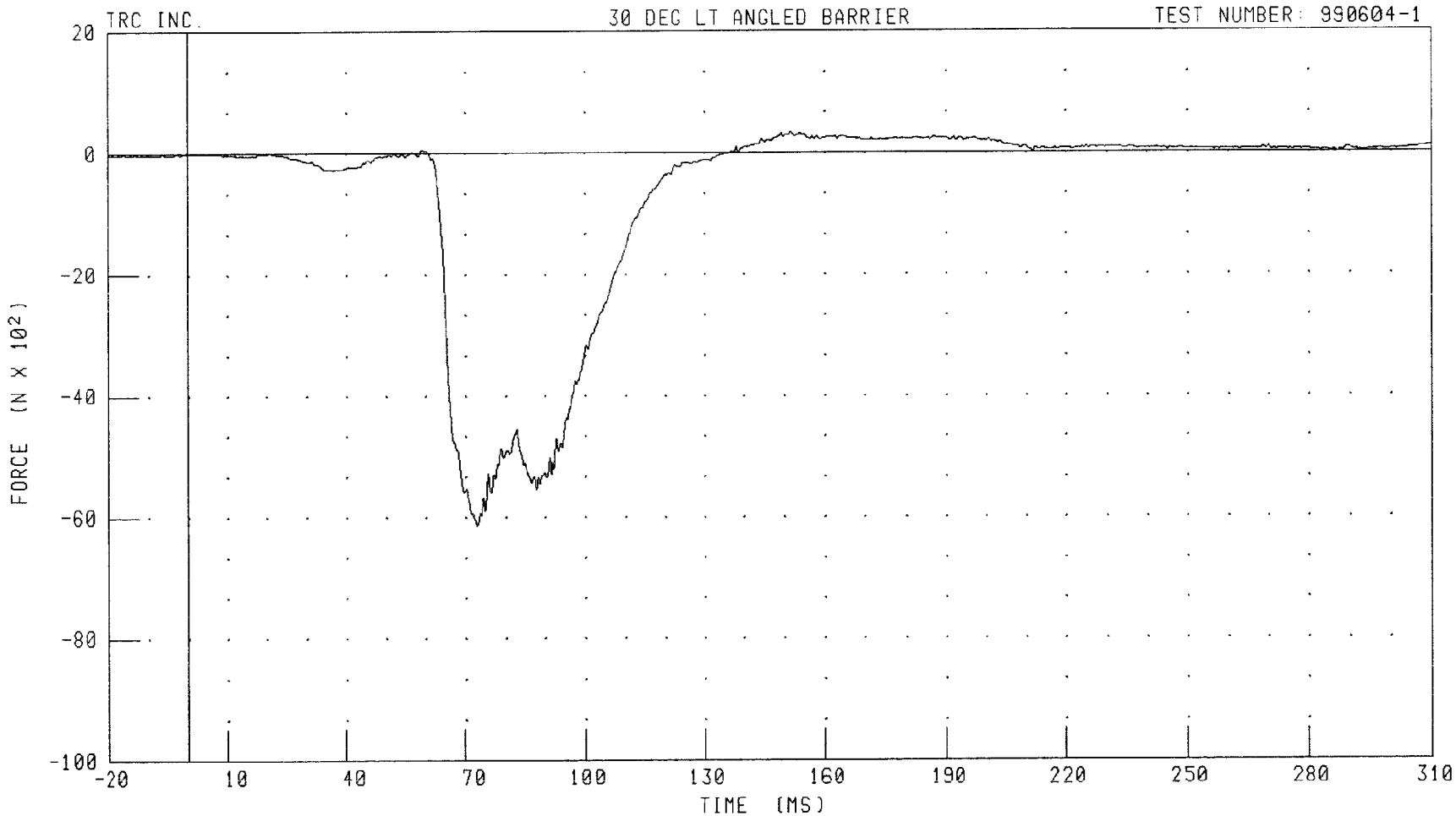
PEAK DATA: 0.61 MM @ 51.84 MS; -18.90 MM @ 121.04 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER LEFT FEMUR FORCE



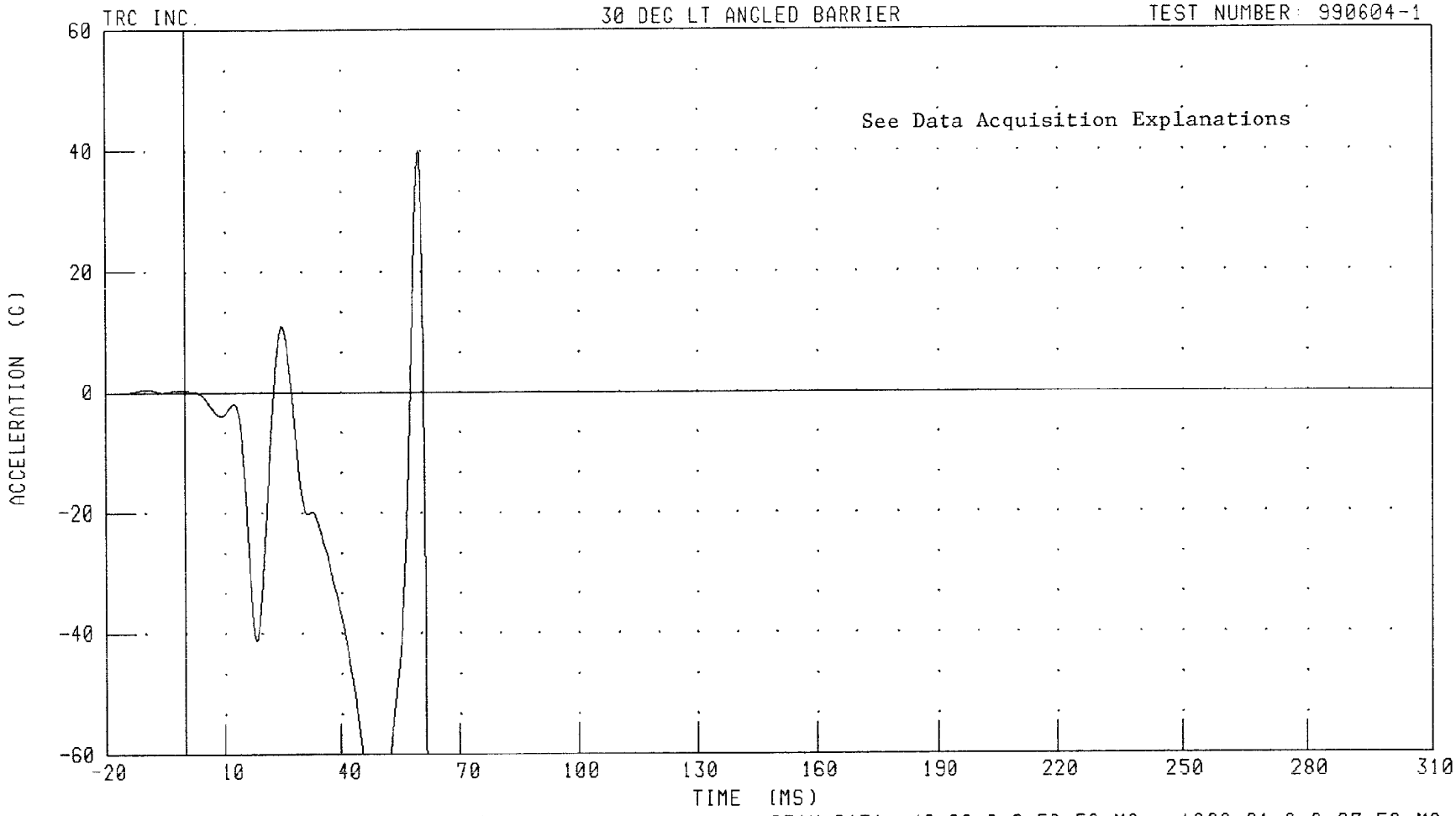
CHANNEL: LFMF2 FILTER: CH. CLASS 600 PEAK DATA: 318.42 N @ 63.28 MS; -6267.07 N @ 79.68 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE



CHANNEL: RFMF2 FILTER: CH. CLASS 600 PEAK DATA: 344.92 N @ 151.84 MS; -6134.93 N @ 73.04 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
LEFT BRAKE CALIPER X-AXIS ACCELERATION

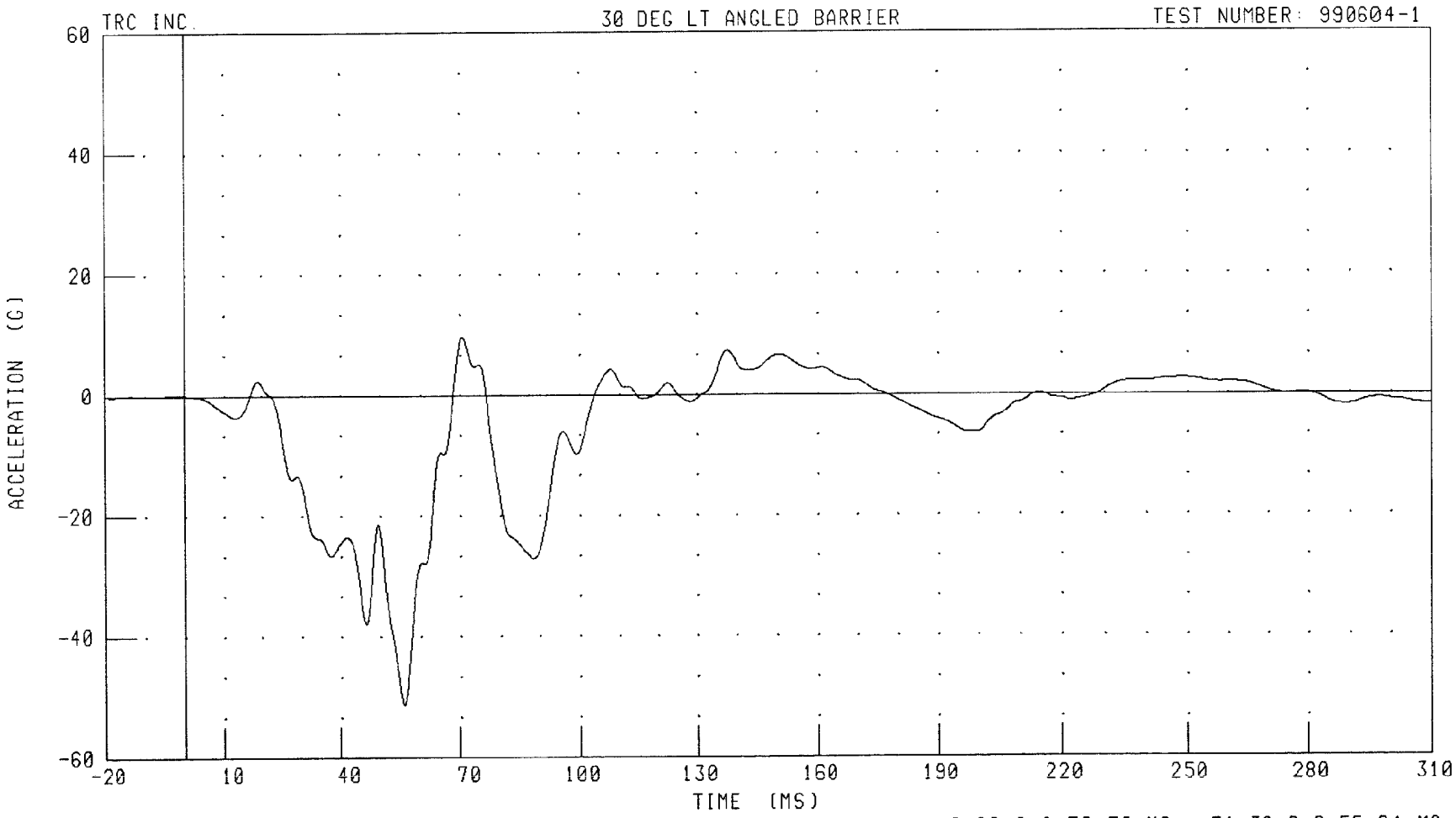


CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 40.00 G @ 59.52 MS; -1028.21 G @ 67.52 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

RIGHT BRAKE CALIPER X-AXIS ACCELERATION

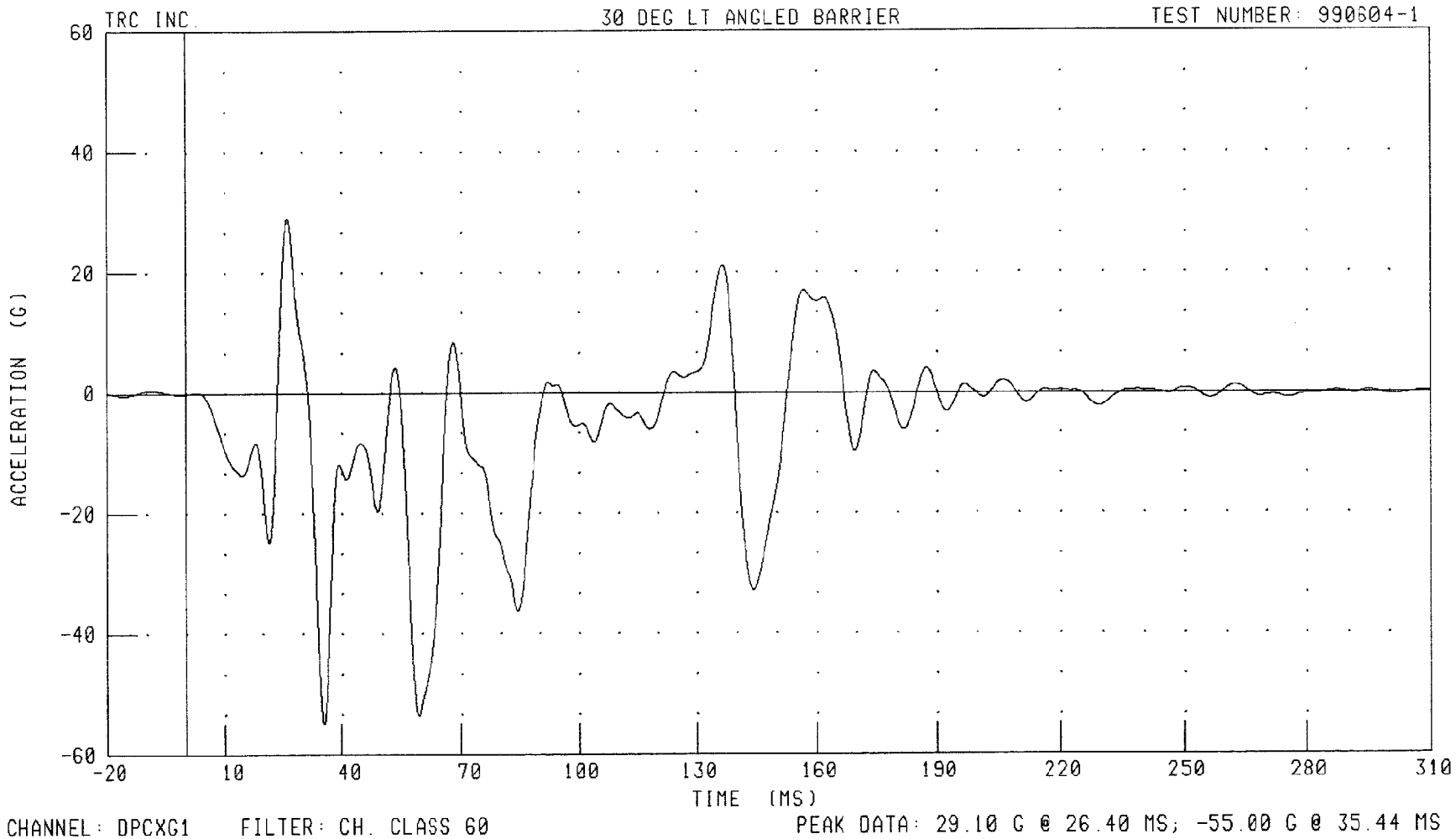


CHANNEL: BCRXG1 FILTER: CH. CLASS 60

PEAK DATA: 9.62 G @ 70.72 MS; -51.30 G @ 55.84 MS

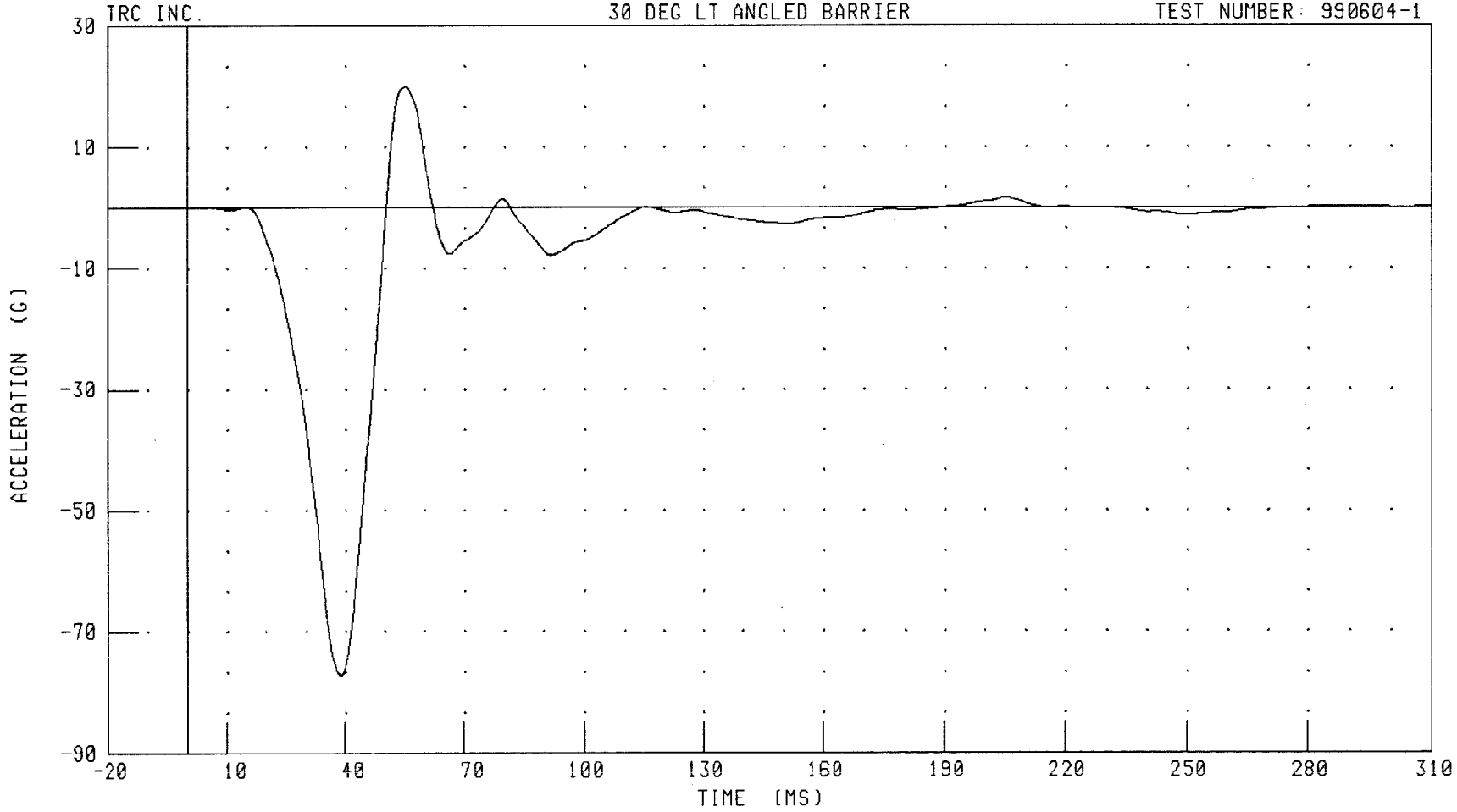
1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH

DASH PANEL CENTER X-AXIS ACCELERATION



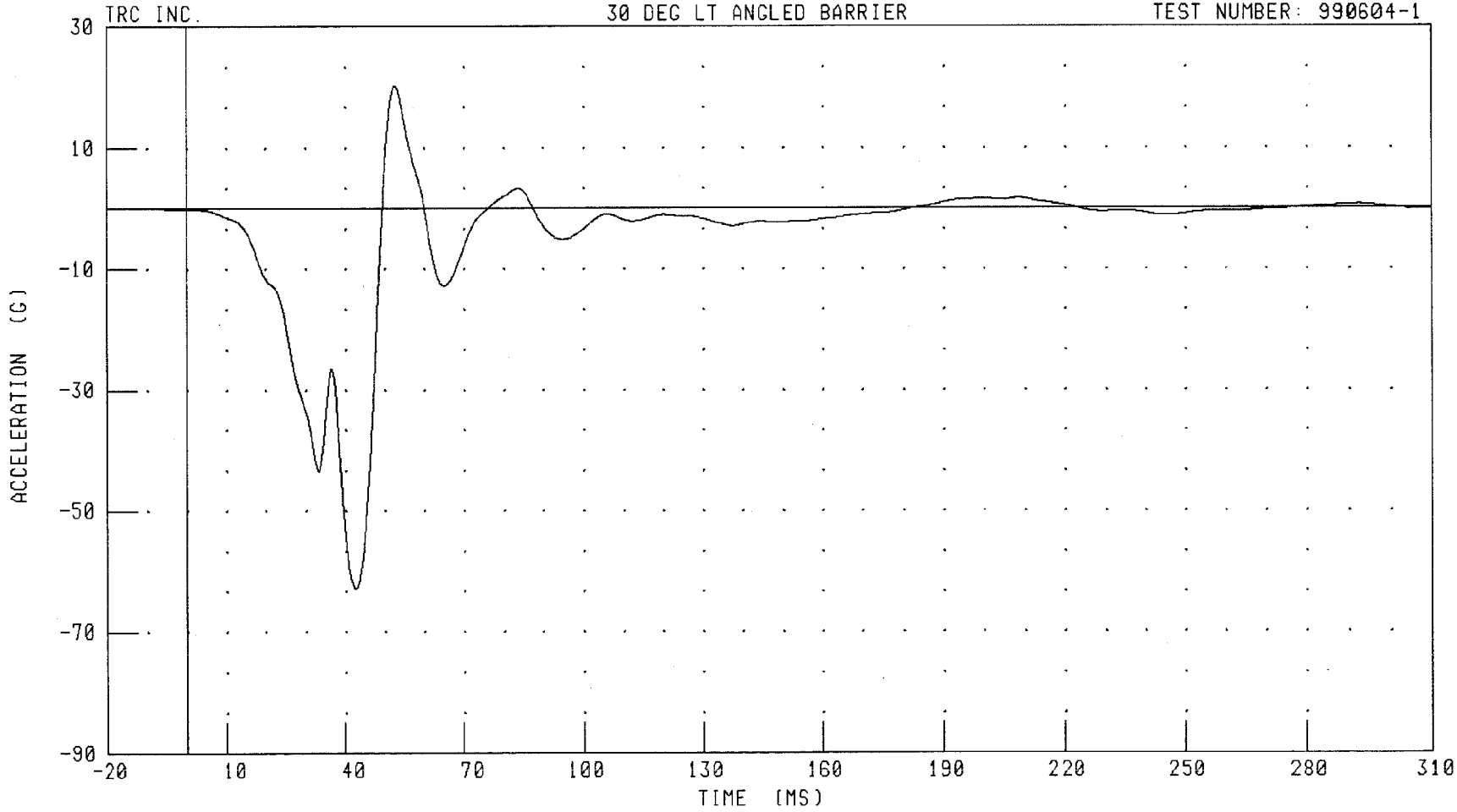
CHANNEL: DPCXG1 FILTER: CH. CLASS 60 PEAK DATA: 29.10 G @ 26.40 MS; -55.00 G @ 35.44 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
ENGINE TOP X-AXIS ACCELERATION



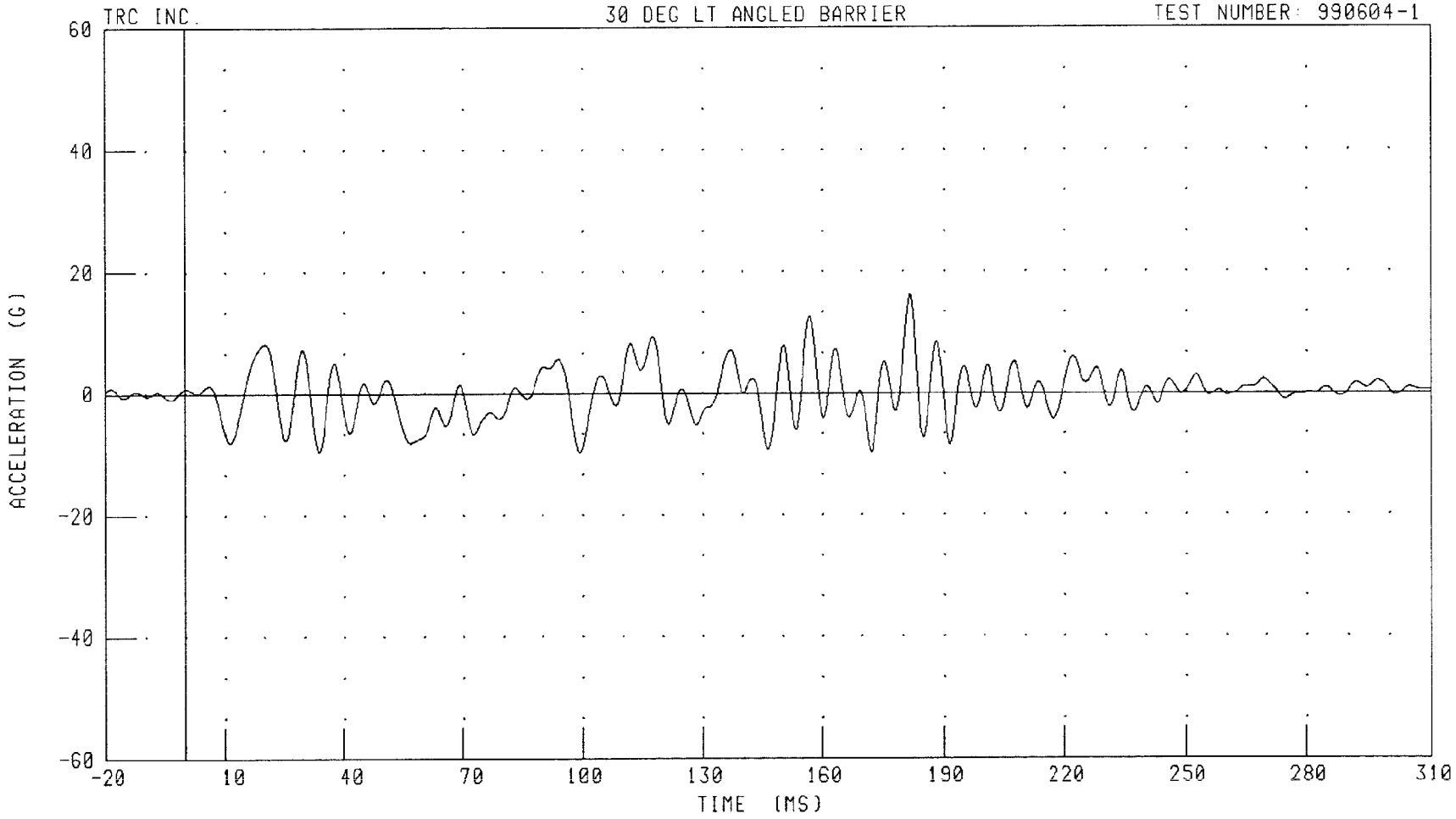
CHANNEL: ENGXG1 FILTER: CH. CLASS 60 PEAK DATA: 19.98 G @ 55.12 MS; -77.24 G @ 39.04 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
ENGINE BOTTOM X-AXIS ACCELERATION



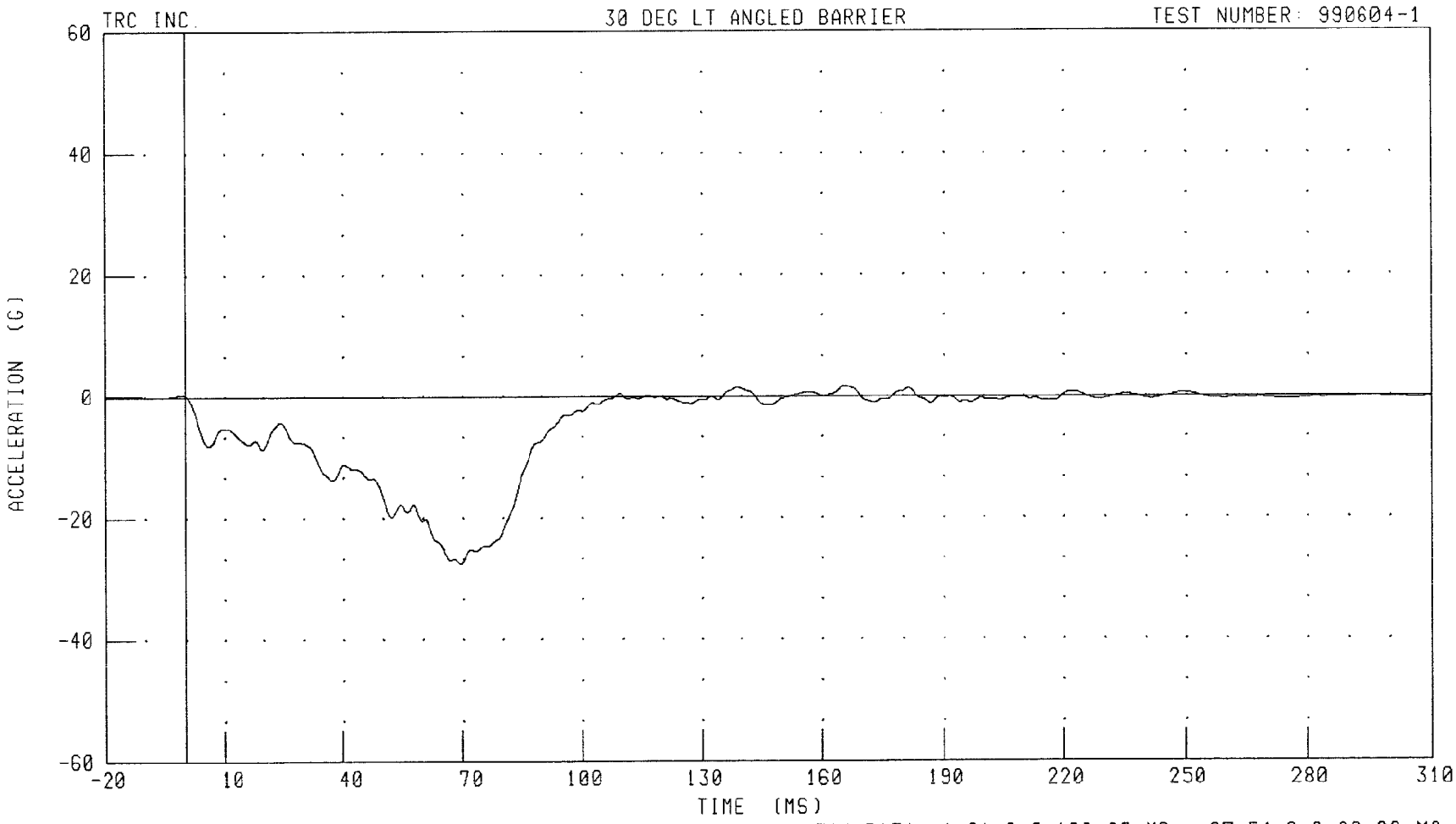
CHANNEL: ENGXG2 FILTER: CH. CLASS 60 PEAK DATA: 20.21 G @ 52.56 MS; -62.89 G @ 42.64 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
VEHICLE REAR CENTER Z-AXIS ACCELERATION



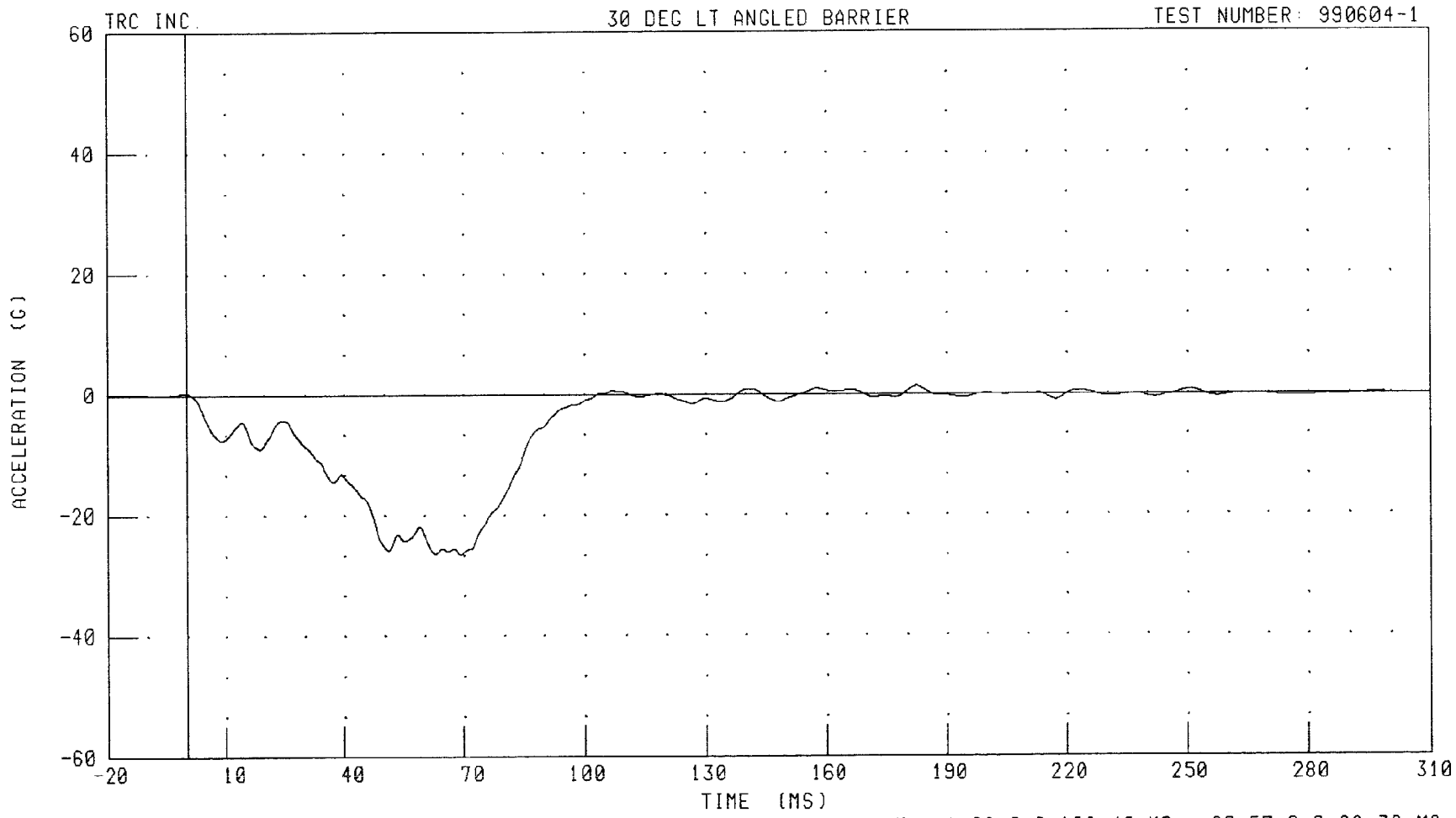
CHANNEL: RDKZG1 FILTER: CH. CLASS 60 PEAK DATA: 16.21 G @ 181.84 MS; -9.76 G @ 99.44 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
LEFT REAR SEAT X-AXIS ACCELERATION



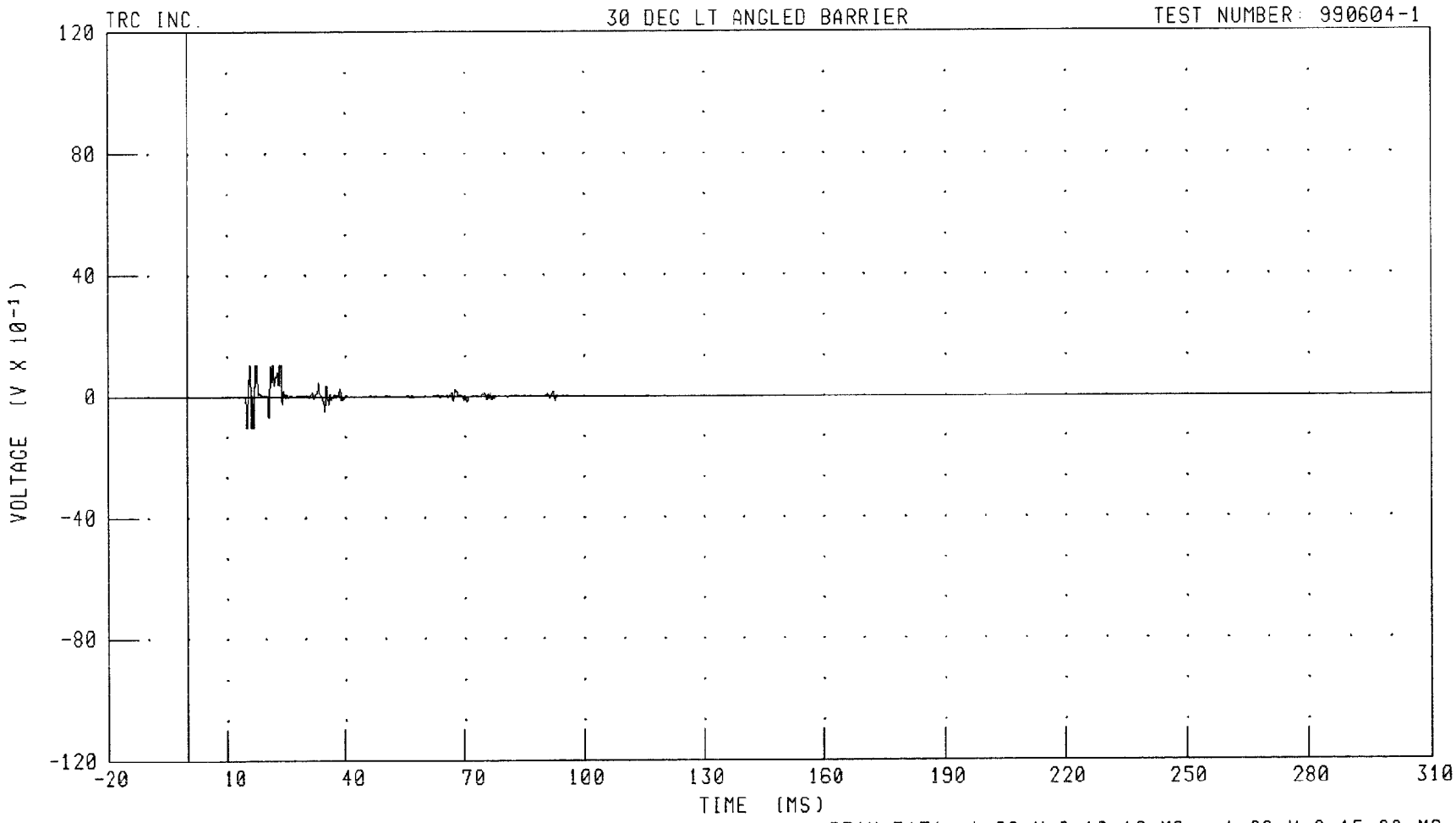
CHANNEL: TLRXG1 FILTER: CH. CLASS 60 PEAK DATA: 1.61 G @ 166.00 MS; -27.54 G @ 69.68 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
RIGHT REAR SEAT X-AXIS ACCELERATION



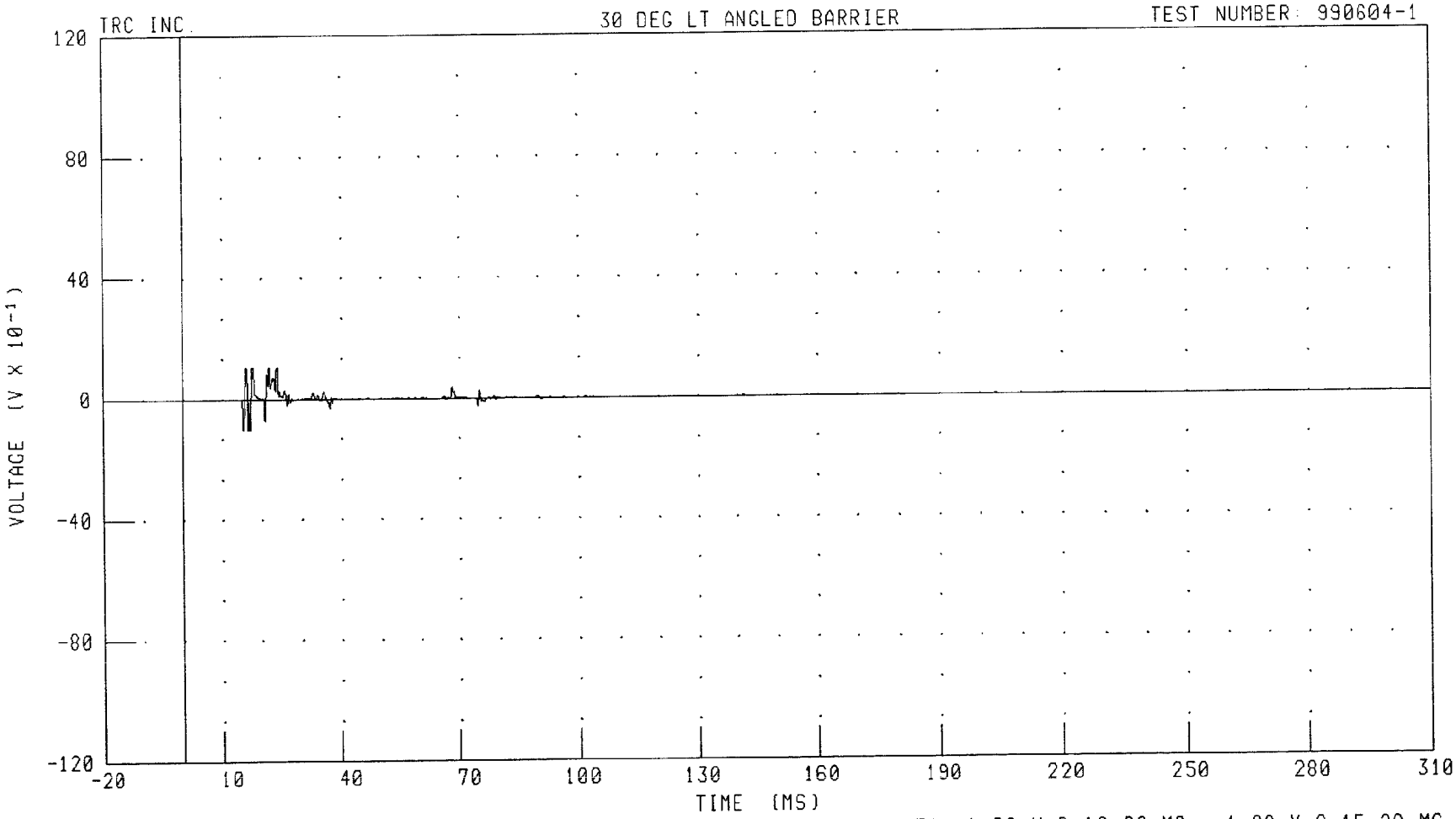
CHANNEL: TRRXG1 FILTER: CH. CLASS 60 PEAK DATA: 1.20 G @ 182.48 MS; -26.57 G @ 69.36 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
DRIVER SIDE INDUCTIVE AIRBAG FIRE PICKUP



CHANNEL: ABSQ1 FILTER: CH. CLASS 1000 PEAK DATA: 1.02 V @ 16.16 MS; -1.02 V @ 15.28 MS

1999 DODGE INTREPID INTO 30 DEGREE LEFT ANGLED BARRIER AT 30 MPH
PASSENGER SIDE INDUCTIVE AIRBAG FIRE PICKUP



CHANNEL: ABSQ2 FILTER: CH. CLASS 1000 PEAK DATA: 1.02 V @ 16.08 MS; -1.02 V @ 15.28 MS

Appendix C

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Miscellaneous Test Information

Dummy Sign Convention

Accelerometers:	+X: Forward	
	+Y: Rightward	
	+Z: Downward	
Potentiometers:	+Chest longitudinal deflection:	Outward
Load cells:	+Femur force:	Tension
Neck load cells:	+X force:	Head rearward
	+Y force:	Head leftward
	+Z force:	Head 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

Filtering Data

J211 MAR95

Load Cell Barrier Forces Class 60

Vehicle Structural Accelerations Class 60

Occupant

Head Accelerometer Class 1000

Neck Class 60

Chest Accelerometer Class 180

Chest Deflection Class 180

Femur Force Class 600

Sternum Accelerometer Class 180

Lower Leg Class 600

Vehicle Instrumentation Placement

Vehicle year/make/model/body style: 1999/Dodge/Intrepid/Sedan

Test number: 990604-1

Number	Location	Axis	Manufacturer	Model	S/N	Orientation (+ Sensing)
1	Left Brake Caliper	X	Entran	EGE-73BQE0-200	99A28-Z01	Forward
2	Right Brake Caliper	X	Entran	EGE-73BQE0-200	99A28-Z15	Forward
3	Instrument Panel Center	X	Entran	EGE-73BQE0-200	99A28-Z21	Forward
4	Engine Top	X	Entran	EGE-73BQE0-200	99A28-Z04	Forward
5	Engine Bottom	X	Entran	EGE-73BQE0-200	99A28-Z07	Forward
6	Vehicle Rear Center	Z	Endevco	7264-2000TZ	J27669	Up
7	Left Rear Seat Crossmember	X	Entran	EGE-73BQE0-200	99A28-Z08	Forward
8	Right Rear Seat Crossmember	X	Entran	EGE-73BQE0-200	99A28-Z23	Forward
9	Driver Airbag	N/A	Fluke	Y8101A	IP1	N/A
10	Passenger Airbag	N/A	Fluke	Y8101A	IP2	N/A

Description Of Timing Marks On TRC High-Speed Film

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

The timing marks appear on the film as small red marks on the right edge of the film. Round marks are left by the Photo-Sonics 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.

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: _168v_____; MFR.: _____; SEATING POSITION: __PASS_____

PROJECT-SEGMENT NO.: _____096017 1314_____; ENGINEER: _____PG_____; TEST DATE: ____6-4-99_____

MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED	ACTUAL	DIRECTION OF POSITIVE POLARITY	CABLE NO.
HEDXG HAP	HEAD X-AXIS ACCEL.	7264	J19535	End.	.2649 mv/g at 10 volts	8-3-1999	400 g		Rear	J19535
HEDYG HLR	HEAD Y-AXIS ACCEL.	"	J19548	"	.2192 mv/g at 10 volts	"	400 g		Left	J19548
HEDZG HIS	HEAD Z-AXIS ACCEL.	"	J27913	"	.2527 mv/g at 10 volts	9-5-99	400 g		Up	J27913
NEKXF NFX*	NECK X-AXIS SHEAR FORCE	1716A	0853	Dento n.	1.7387 MV/V @ 2000 LBS	8-3-1999	900 Kg 2,000 lbs. 9,000 N			FX
NEKYF NFY*	NECK Y-AXIS SHEAR FORCE	"	"	"	1.6587 MV/V @2000 LBS	"	900 Kg 2,000 lbs. 9,000 N			FY
NEKZF NFZ*	NECK Z-AXIS AXIAL FORCE	"	"	"	1.2806 MV/V @3000 LBS	"	1300 Kg 3,000 lbs. 13,500 N			FZ
NEKXM NMX*	NECK MOMENT ABOUT X AXIS	"	"	"	1.6595 MV/V @2500 IN- LBS	"	30 Kgm 200 ft·lbs 275 N·m			MX
NEKYM NMY*	NECK MOMENT ABOUT Y AXIS	"	"	"	1.6596 MV/V @2500 IN-LBS	"	30 Kgm 200 ft·lbs 275 N·m			MY
NEKZM NMZ*	NECK MOMENT ABOUT Z AXIS	"	"	"	2.3663 MV/V @2500 IN-LBS	"	30 Kgm 200 ft·lbs 275 N·m			MZ

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: _168v_____; MFR.: _____; SEATING POSITION: __PASS_____

PROJECT-SEGMENT NO.: _____096017 1314_____; ENGINEER: _____PG_____; TEST DATE: ____6-4-99_____

MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED	ACTUAL	DIRECTION OF POSITIVE POLARITY	CABLE NO.
CSTXG CAP	CHEST X-AXIS ACCEL.	7264	J20011	End.	.2324 mv/g at 10 volts	8-3-1999	400 g		Forward	J20011
CSTYG CLR	CHEST Y-AXIS ACCEL.	"	J20001	"	.2709 mv/g at 10 volts	"	400 g		Left	J20001
CSTZG CIS	CHEST Z-AXIS ACCEL.	"	J20438	"	.2313 mv/g at 10 volts	"	400 g		Up	J20438
CSTXD CAPD	CHEST DEFLECTION	14CB1-2847	168	SERV	27.89 mv/v /in	8-3-1999	6 inch 150 mm			168
PEVXG PAP	PELVIS X-AXIS ACCEL.						400 g			
PEVYG PLR	PELVIS Y-AXIS ACCEL.						400 g			
PEVZG PIS	PELVIS Z-AXIS ACCEL.						400 g			
LFMF LF	LEFT FEMUR FORCE	2430	726	DENT	0.9495 mv/v at 3000 lbs.	8-3-1999	1300 Kg 3,000 lbs. 13,500 N			726
RFMF RF	RIGHT FEMUR FORCE	"	741	"	0.9030 mv/v at 3000 lbs.	"	1300 Kg 3,000 lbs. 13,500 N			741

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: _169v_____; MFR.: _____; SEATING POSITION: __DR_____

PROJECT-SEGMENT NO.: _____096017 1314_____; ENGINEER: _____PG_____; TEST DATE: ____6-4-99_____

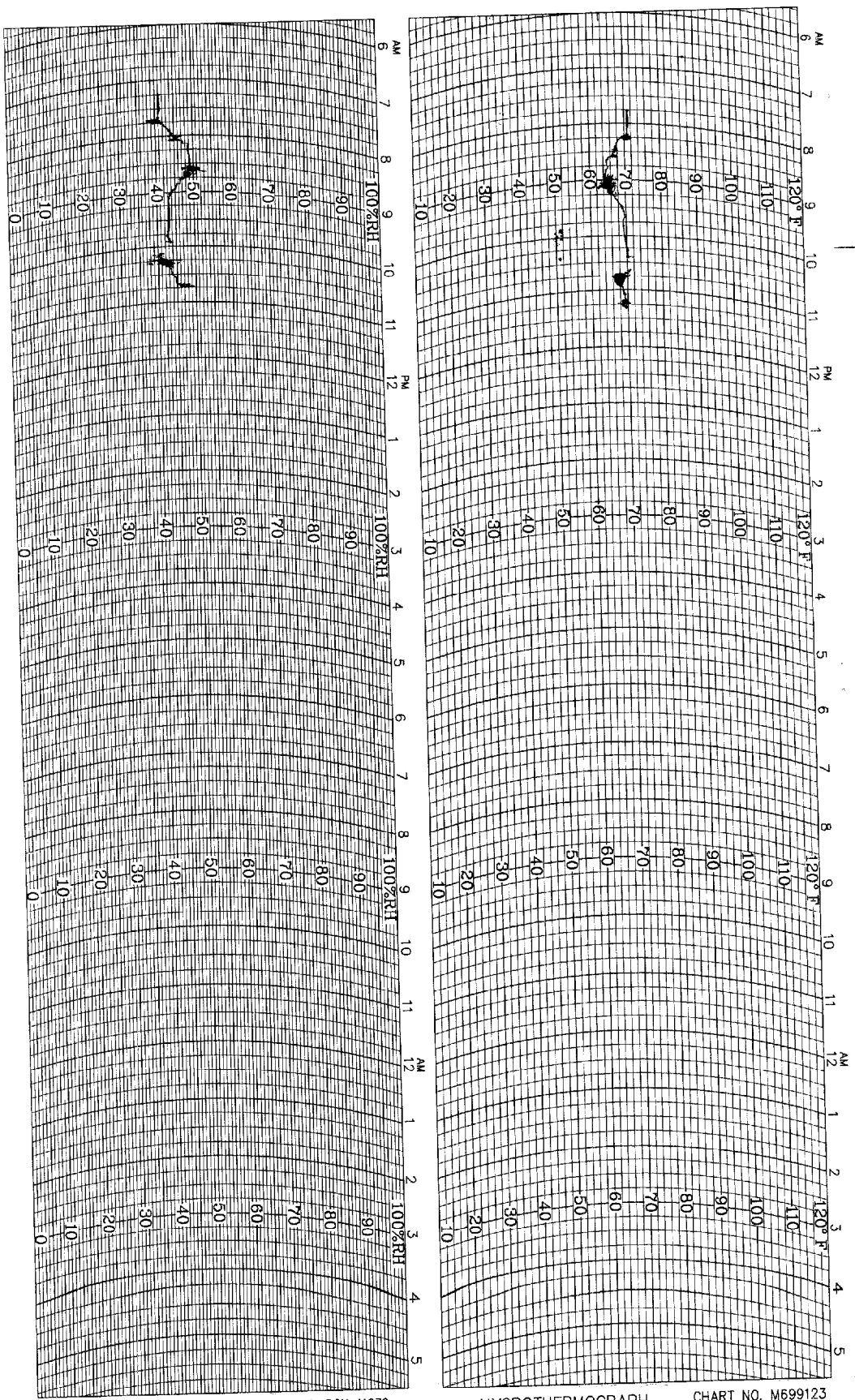
MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED	ACTUAL	DIRECTION OF POSITIVE POLARITY	CABLE NO.
HEDXG HAP	HEAD X-AXIS ACCEL.	7264	J21935	End.	.2409 mv/g at 10 volts	8-3-1999	400 g		Rear	J21935
HEDYG HLR	HEAD Y-AXIS ACCEL.	"	J23912	"	.2827 mv/g at 10 volts	"	400 g		Left	J23912
HEDZG HIS	HEAD Z-AXIS ACCEL.	"	J23810	"	.2826 mv/g at 10 volts	"	400 g		Up	J23810
NEKXF NFX*	NECK X-AXIS SHEAR FORCE	1716	0106	Dento n.	1.7167 MV/V @ 2000 LBS	8-3-1999	900 Kg 2,000 lbs. 9,000 N			FX
NEKYF NFY*	NECK Y-AXIS SHEAR FORCE	"	"	"	1.6802 MV/V @2000 LBS	"	900 Kg 2,000 lbs. 9,000 N			FY
NEKZF NFZ*	NECK Z-AXIS AXIAL FORCE	"	"	"	1.2943 MV/V @3000 LBS	"	1300 Kg 3,000 lbs. 13,500 N			FZ
NEKXM NMX*	NECK MOMENT ABOUT X AXIS	"	"	"	1.6148 MV/V @2500 IN- LBS	"	30 Kgm 200 ft·lbs 275 N·m			MX
NEKYM NMY*	NECK MOMENT ABOUT Y AXIS	"	"	"	1.6205 MV/V @2500 IN-LBS	"	30 Kgm 200 ft·lbs 275 N·m			MY
NEKZM NMZ*	NECK MOMENT ABOUT Z AXIS	"	"	"	2.2982 MV/V @2500 IN-LBS	"	30 Kgm 200 ft·lbs 275 N·m			MZ

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: _169v_____; MFR.: _____; SEATING POSITION: __DR_____

PROJECT-SEGMENT NO.: _____096017 1314_____; ENGINEER: _____PG_____; TEST DATE: ____6-4-99_____

MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED	ACTUAL	DIRECTION OF POSITIVE POLARITY	CABLE NO.
CSTXG CAP	CHEST X-AXIS ACCEL.	7264	J23914	End.	.2528 mv/g at 10 volts	8-3-1999	400 g		Forward	J23914
CSTYG CLR	CHEST Y-AXIS ACCEL.	"	J23808	"	.2843 mv/g at 10 volts	"	400 g		Left	J23808
CSTZG CIS	CHEST Z-AXIS ACCEL.	"	J23774	"	.2405 mv/g at 10 volts	"	400 g		Up	J23774
CSTXD CAPD	CHEST DEFLECTION	14CB1-2847	169	SERV	28.26 mv/v /in	8-3-1999	6 inch 150 mm			169
PEVXG PAP	PELVIS X-AXIS ACCEL.						400 g			
PEVYG PLR	PELVIS Y-AXIS ACCEL.						400 g			
PEVZG PIS	PELVIS Z-AXIS ACCEL.						400 g			
LFMF LF	LEFT FEMUR FORCE	2430	96661	GSE	0.8816 mv/v at 3000 lbs.	8-3-1999	1300 Kg 3,000 lbs. 13,500 N			D105
RFMF RF	RIGHT FEMUR FORCE	"	96662	"	0.8605 mv/v at 3000 lbs.	"	1300 Kg 3,000 lbs. 13,500 N			709



WeatherMeasure
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HYGROTHERMOGRAPH
1 DAY

CHART NO. M699123
C311-D-HF
ECN 2717
6-9-87

06-04-99 VRTC 808 30 Deg V.O.

STATION_____ DATE ON_____ DATE OFF_____