

V3118

**1999 Dodge Intrepid
into a Flat Frontal Barrier
TRC Test Number: 990615-2**

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Section 1.0

Purpose and Test Procedure

Purpose and Test Summary

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

This test was conducted with a 1999 Dodge Intrepid that impacted a flat frontal barrier. The test vehicle contained two instrumented Hybrid III 5th percentile adult female dummies.

Section 2.0

Flat Frontal 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 flat frontal barrier.

The test vehicle contained two (2) Hybrid III 5th percentile adult female 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.

One (1) real-time panning motion picture camera and fourteen (14) high-speed motion picture cameras recorded the crash event. 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 dummy and vehicle data plots. Appendix C contains the miscellaneous test information.

Test Results Summary

This flat frontal barrier test was conducted at TRC on June 15, 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 1689.2 kilograms. The vehicle's impact speed was 48.2 kph. The vehicle's maximum static crush was 429 millimeters.

The driver's 15-millisecond HIC was 139 and its 36-millisecond HIC was 279. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 56.7 g. The driver's chest deflection was 52.8 millimeters. The driver's left and right femur maximum compressive forces were 2668 N and 4779 N, respectively.

The right front passenger's 15-millisecond HIC was 303 and its 36-millisecond HIC was 540. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 62.8 g. The passenger's chest deflection was 13.1 millimeters. The right front passenger's left and right femur maximum compressive forces were 5078 N and 4093 N, respectively.

Data Acquisition Explanations

The driver dummy's head Z-axis acceleration data channel, HEDZG1, recorded a data spike at approximately 102 milliseconds. This anomaly affected the resultant head acceleration, HEDRG1.

The passenger dummy's chest X-axis acceleration data channel, CSTXG2, recorded a data spike at approximately 77 milliseconds. This anomaly affected the resultant chest acceleration, CSTRG2.

The passenger dummy's chest Z-axis acceleration data channel, CSTZG2, recorded a data spike at approximately 109 milliseconds. This anomaly affected the resultant chest acceleration, CSTRG2.

Table 1 Crash Test Summary

Test type:	Flat frontal barrier impact
Test date:	June 15, 1999
Test time:	1455
Ambient temperature at impact area:	21° C
Vehicle year/make/ model/body style:	1999/Dodge/Intrepid/Sedan
Vehicle test weight:	1689.2 kg
Impact angle ¹ :	0°
Impact velocity ² :	
Primary:	48.2 kph
Secondary:	48.2 kph
Maximum static crush:	429 mm
Average rebound:	926 mm
Number of cameras:	
Real-time:	1
High-speed:	14
Door opening data:	
Left-front:	Easy
Right-front:	Hard

¹ With respect to tow track centerline.

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

Table 1. Crash Test Summary, Cont'd.

Dummies:	<u>Driver #369</u>	<u>Passenger #289</u>
Type:	Hybrid III 5 th percentile adult female	Hybrid III 5 th percentile adult female
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, Headrest	Airbag
Chest:	Airbag, Steering wheel	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: Grey

VIN: 2B3HD46R8XH637374

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: N/A

Dealer's name and address: N/A

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

Certification data from vehicle's label:

Vehicle manufactured by: Chrysler Corp.

Date of manufacture: 11/98

VIN: 2B3HD46R8XH637374

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
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Rear:	32 psi
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Designated Seating Capacity:

Front	2
-------	---

Rear	3
------	---

Total	5
-------	---

Vehicle Cargo Weight:	865 lb.
-----------------------	---------

Test vehicle attitudes:

Delivered attitude:	LF: 733 mm	RF: 730 mm	LR: 750 mm	RR: 752 mm
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Fully loaded attitude:	LF: 723 mm	RF: 720 mm	LR: 728 mm	RR: 725 mm
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Pre-test attitude:	LF: 727 mm	RF: 728 mm	LR: 725 mm	RR: 725 mm
--------------------	------------	------------	------------	------------

Post-test attitude:	LF: 754 mm	RF: 810 mm	LR: 693 mm	RR: 756 mm
---------------------	------------	------------	------------	------------

Table 2 Test Vehicle Information, Cont'd.

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

Right front	502.1 kg	Right rear	268.5 kg
Left front	485.8 kg	Left rear	291.7 kg
Total front weight	987.9 kg	(63.8% of total vehicle weight)	
Total rear weight	560.2 kg	(36.2% of total vehicle weight)	
Total delivered weight	1548.1 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (1548.1 kg)

DSC¹ = Designated Seating Capacity (5)

RCLW² = 52.2 kg

Target test weight = UDW + RCLW + (number of Hybrid III Dummies x 47.6 kg per dummy)

Target test weight = 1548.1 + 52.2 + 95.2 = 1695.5 kg

Weight of test vehicle with required dummies:

Right front	514.8 kg	Right rear	329.8 kg
Left front	512.6 kg	Left rear	332.0 kg
Total front weight	1027.4 kg	(60.8% of total vehicle weight)	
Total rear weight	661.8 kg	(39.2% of total vehicle weight)	
Total test weight	1689.2 kg	(0.37% under target test weight)	

Weight of ballast secured in vehicle: N/A

Components removed to meet target test weight: Muffler, Rear seat, Rear taillights

CG rearward of front wheel centerline: 1130 mm

Vehicle Wheelbase: 2884 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: 990615-2
Test date: June 15, 1999
Test time: 1455
Test type: Flat frontal barrier impact
Impact angle: 0°
Ambient temperature
at impact area: 21° C
Temperature in
occupant compartment: 21° C
Impact velocity:
Primary: 48.2 kph
Secondary: 48.2 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:

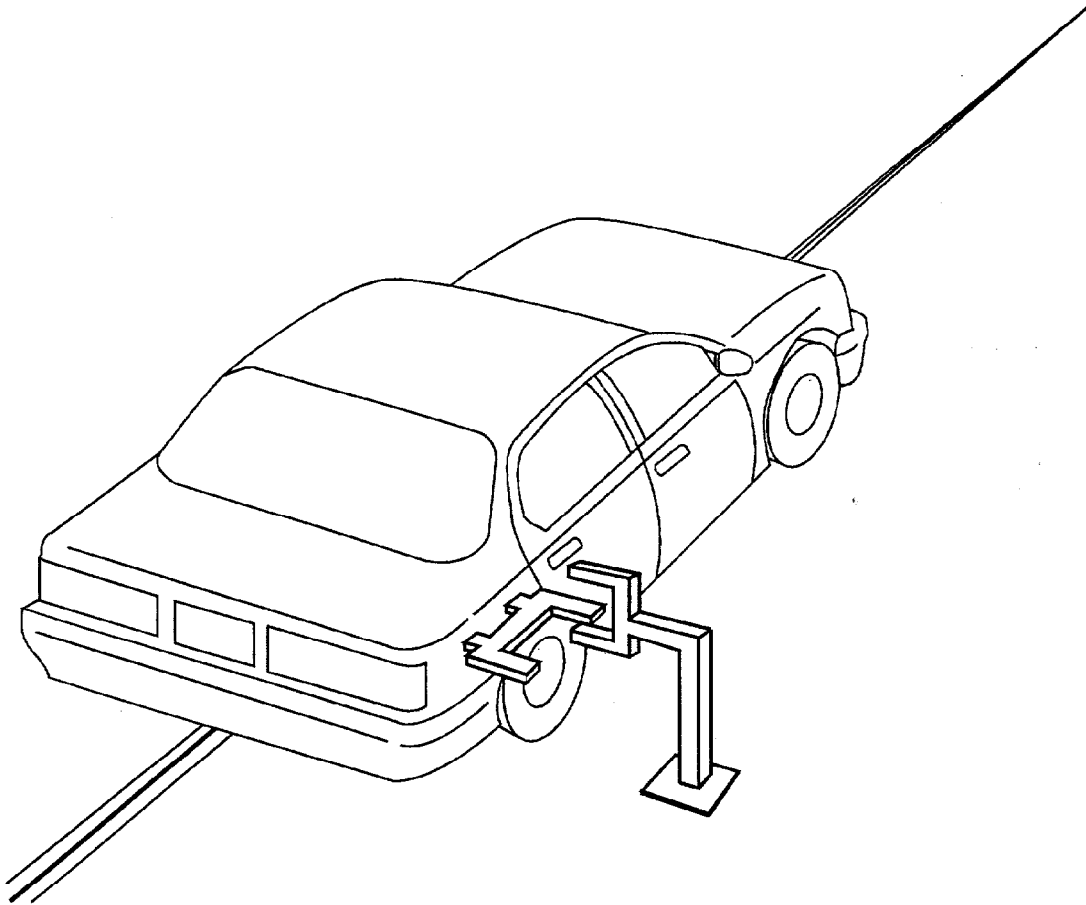
Pre-test:	L: 4973 mm	C: 5164 mm	R: 4994 mm
Post-test:	L: 4754 mm	C: 4749 mm	R: 4750 mm
Total crush:	L: 219 mm	C: 415 mm	R: 244 mm
Average crush:	293 mm		

Test vehicle rebound from flat frontal barrier:

Distance from test vehicle to barrier:

Post-test:	L: 940 mm	C: 920 mm	R: 918 mm
Average rebound:	926 mm		

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 Flat Frontal Barrier Impact

Test date: June 15, 1999
 Vehicle year/make/
 model/body style: 1999/Dodge/Intrepid/Sedan
 VIN: 2B3HD46R8XH637374
 Build date: 11/98
 Test weight: 1689.2 kg
 Vehicle wheelbase: 2884 mm
 Maximum width: 1897 mm
 Front overhang: 1074 mm

Collision Deformation
 Classification (CDC) Code: 12FDEW3

Crush depth
 measurements: C1: 219 mm
 C2: 331 mm
 C3: 399 mm
 C4: 429 mm
 C5: 357 mm
 C6: 244 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged
 region: L: 1525 mm

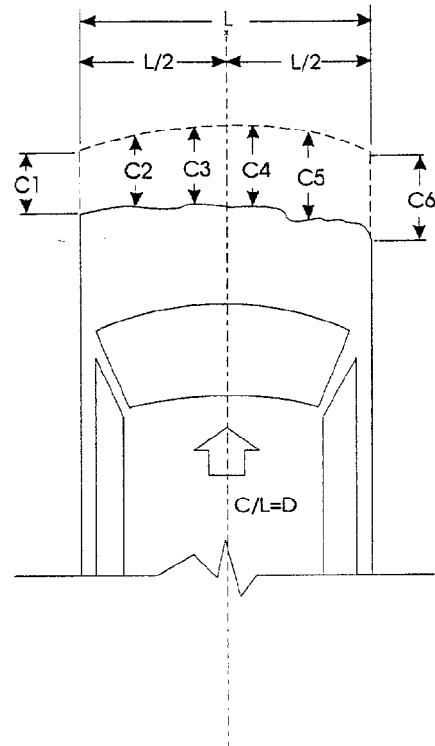


Figure 3 Vehicle Accelerometer Placement

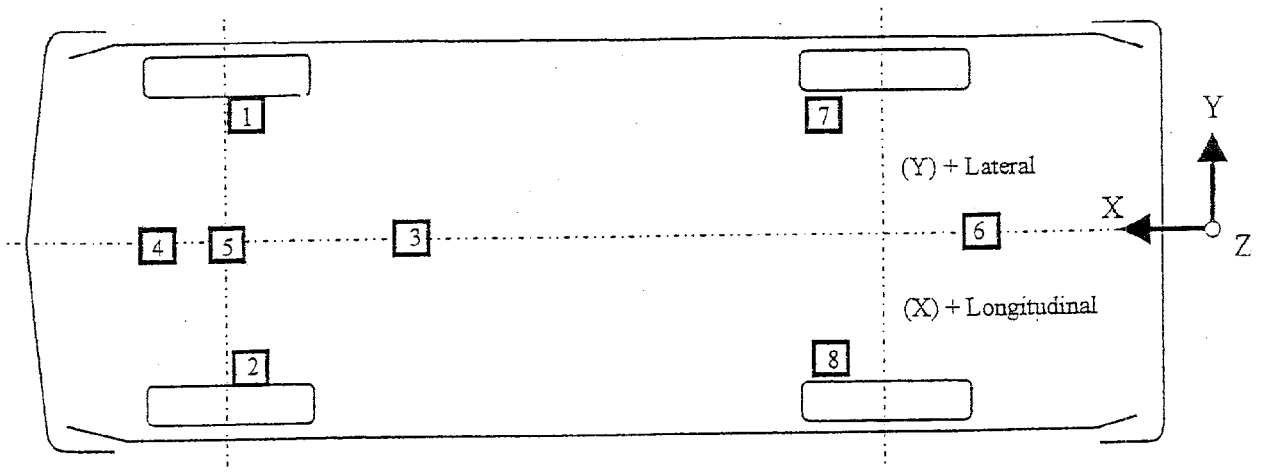
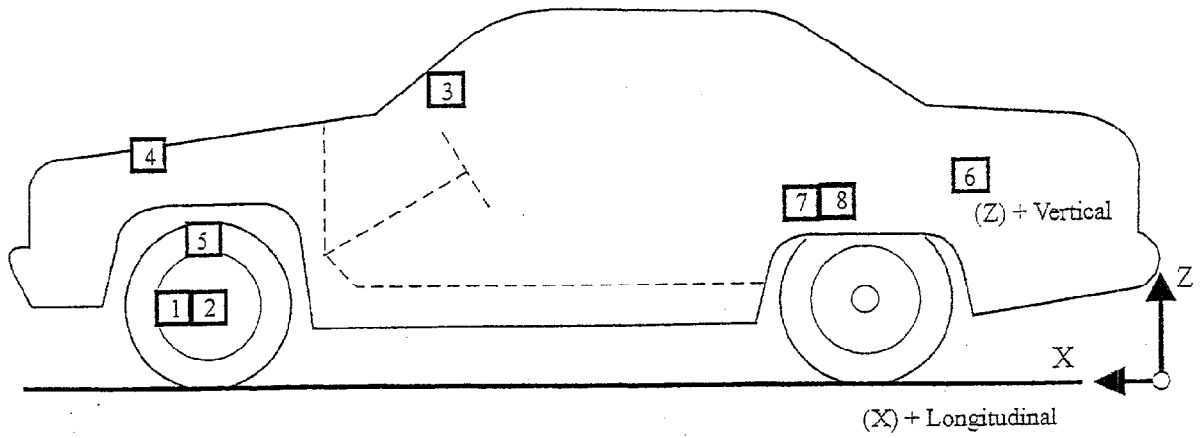


Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 990615-2	X		Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
No. LOCATION								
1 LEFT BRAKE CALIPER LONGITUDINAL	PRE	4250 mm	685 mm	335 mm				
	POST	4174 mm	680 mm	301 mm				
					14.8 g	@ 70.4 ms	57.3 g	@ 42.6 ms
2 RIGHT BRAKE CALIPER LONGITUDINAL	PRE	4250 mm	-685 mm	335 mm				
	POST	4155 mm	-688 mm	272 mm				
					25.3 g	@ 70.2 ms	61.5 g	@ 25.0 ms
3 INSTRUMENT PANEL CENTER LONGITUDINAL	PRE	3405 mm	-27 mm	900 mm				
	POST	3405 mm	-27 mm	905 mm				
					48.7 g	@ 74.2 ms	88.3 g	@ 61.2 ms
4 ENGINE TOP LONGITUDINAL	PRE	4622 mm	-155 mm	797 mm				
	POST	4432 mm	-160 mm	840 mm				
					39.8 g	@ 45.8 ms	150.0 g	@ 31.4 ms
5 ENGINE BOTTOM LONGITUDINAL	PRE	4583 mm	10 mm	208 mm				
	POST	4435 mm	12 mm	210 mm				
					35.9 g	@ 42.0 ms	121.7 g	@ 31.2 ms

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

TEST NUMBER: 990615-2					POSITIVE	NEGATIVE
No. LOCATION	X	Y	Z	DIRECTION	DIRECTION	
6 REAR VEHICLE CENTERLINE VERTICAL	PRE 200 mm	-10 mm	675 mm			
	POST 200 mm	-10 mm	669 mm	6.7 g @ 106.2 ms	8.9 g @ 36.0 ms	
7 LEFT REAR SEAT LONGITUDINAL	PRE 2095 mm	640 mm	397 mm			
	POST 2095 mm	640 mm	368 mm	2.1 g @ 117.6 ms	28.2 g @ 66.4 ms	
8 RIGHT REAR SEAT LONGITUDINAL	PRE 2095 mm	-633 mm	397 mm			
	POST 2095 mm	-633 mm	417 mm	2.1 g @ 107.9 ms	29.9 g @ 66.0 ms	

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

Section 3.0

FMVSS 208 Data

Table 5 Dummy Injury Criteria

	<u>Maximum Acceleration</u>						
	Head				Chest		
	X	Y	Z	R	X	Y	Z
Driver ³	-38.4 g	-11.7 g	-40.7 g	44.1 g	-56.0 g	6.8 g	13.9 g
Passenger ³	-57.4 g	-19.0 g	-45.5 g	59.6 g	-96.0 g	11.8 g	25.3 g

	<u>Maximum Femur Compressive Force</u>	
	Left Femur	Right Femur
Driver	2668 N	4779 N
Passenger	5078 N	4093 N

	<u>15-millisecond Head Injury Criteria ¹</u>		
	HIC	Time t ₁	Time t ₂
Driver	139	76.9 ms	91.9 ms
Passenger	303	71.1 ms	86.2 ms

	<u>36-millisecond Head Injury Criteria ¹</u>		
	HIC	Time t ₁	Time t ₂
Driver	279	55.2 ms	91.2 ms
Passenger	540	64.9 ms	100.9 ms

	<u>Chest Maximum Resultant Acceleration ²</u>		
	Acceleration	Time t ₁	Time t ₂
Driver	56.7 g	76.1 ms	79.1 ms
Passenger	62.8 g	76.0 ms	79.0 ms

	<u>Maximum Chest Deflection</u>	
Driver	52.8 mm	
Passenger	13.1 mm	

¹ As defined in FMVSS No. 208

² Defined as equal to or exceeding 0.003 sec. duration

³ See Data Acquisition Explanations

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 translated forward, the dummy's chest impacted the steering wheel. The dummy rebounded back into its seat whereupon it hit the back of its head against the headrest. The dummy came to a rest seated upright in the driver's seat with its back fully against the driver's seat and its head bent forward.

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. After hitting the airbag, the dummy rebounded to the left. The dummy's right hand broke the plane of the open passenger side window and the fingers on the dummy's right hand contacted the passenger side A-pillar of the vehicle. The passenger dummy came to rest in the passenger's seat leaning to the left.

Section 4.0

Vehicle, Occupant, and Camera Measurements

Figure 4 Pre-test and Post-test Measurement Points

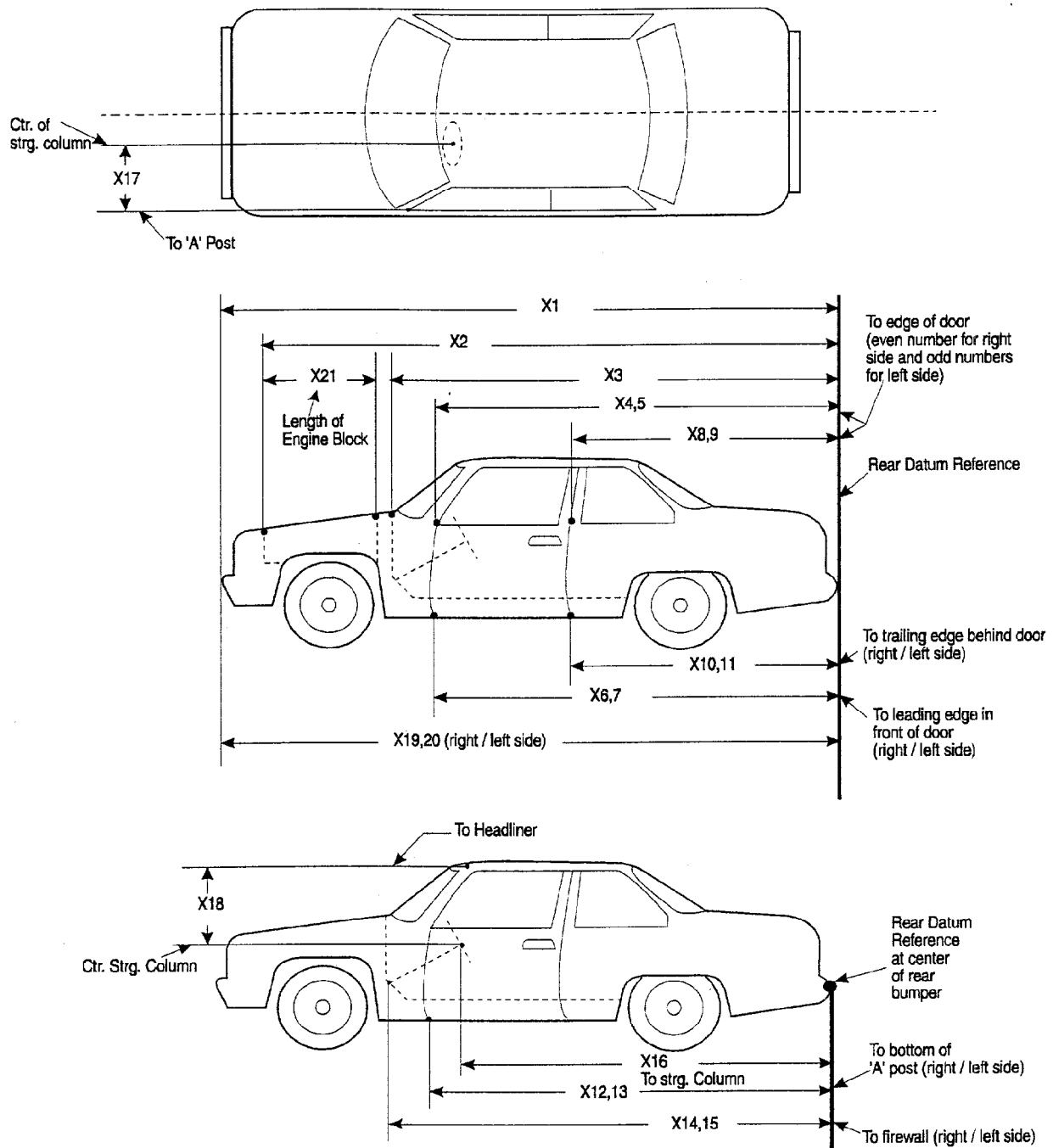


Table 6 Impacted Vehicle Measurements

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

Test Number: 990615-2

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Veh. at Centerline	5164	4749	415
X2	Rear Surface of Veh. to Front of Engine Block	4718	4520	198
X3	Rear Surface of Veh. to Firewall	4202	4173	29
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3635	3633	2
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3635	3640	-5
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3565	3571	-6
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3566	3575	-9
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2545	2544	1
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2542	2540	2
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2540	2547	-7
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2540	2551	-11
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3558	3562	-4
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3566	3563	3
X14	Rear Surface of Veh. to Firewall--Right Side	4240	4232	8
X15	Rear Surface of Vehicle to Firewall --Left Side	4202	4174	28
X16	Rear Surface of Veh. to Steering Wheel Center	3101	3205	-104
X17	Center of Steering Column to " A " Post	306	350	-44
X18	Center of Steering Column to Headliner	410	420	-10
X19	Rear Surface of Veh. to Right Side of Front Bumper	4994	4750	244
X20	Rear Surface of Veh. to Left Side of Front Bumper	4973	4754	219
X21	Length of Engine Block	540	540	0

Figure 5 Vehicle Target Locations

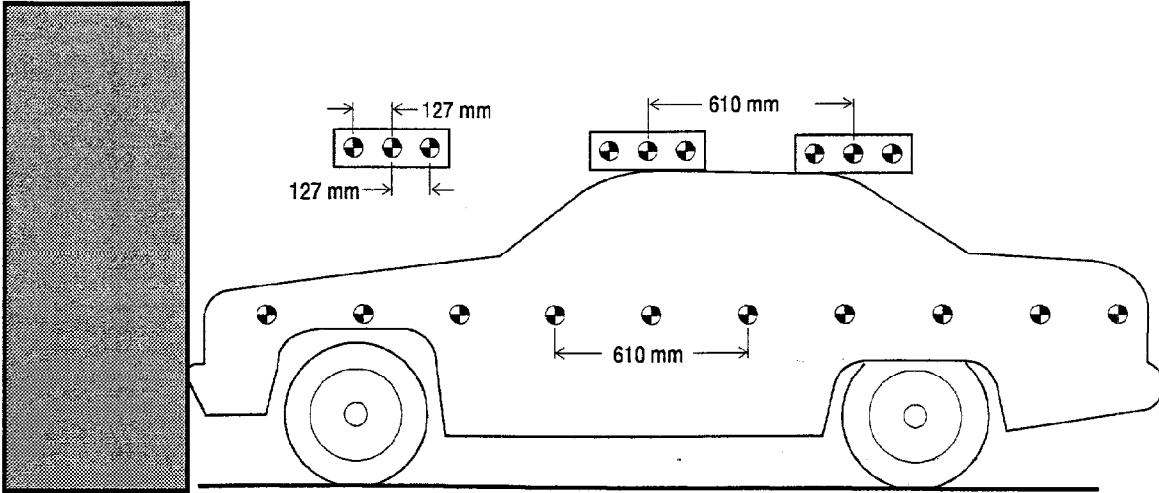


Figure 6 Dummy Measurement Locations for Front Seat Occupants

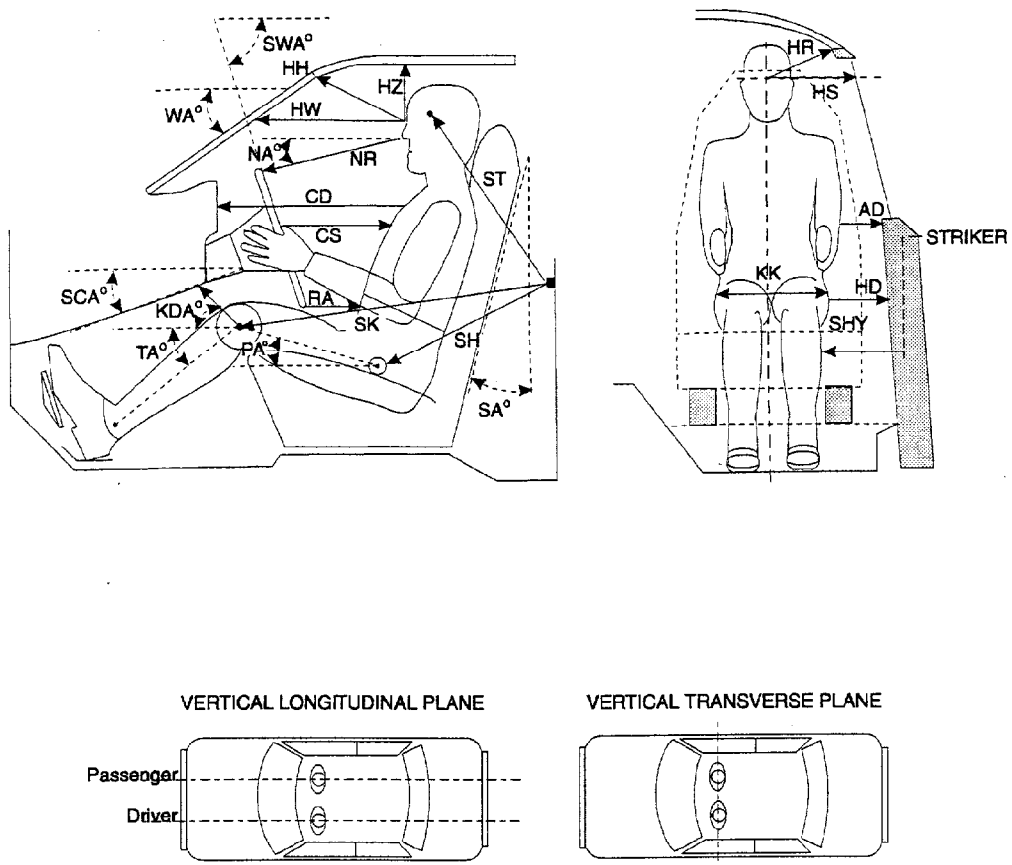


Table 7 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #369)	Passenger (Serial #289)
WA	Windshield angle	22°	22°
SWA	Steering wheel angle	69°	N/A
SCA	Steering column angle	21°	N/A
SA	Seat back angle	15°	18°
HZ ¹	Head to roof	200 mm	199 mm
HH	Head to header	275 mm	290 mm
HW	Head to windshield	652 mm	672 mm
HR	Head to side header	240 mm	248 mm
NR	Nose to rim	245 mm	N/A
NA	Nose to rim angle	0.6°	N/A
CD	Chest to dash	418 mm	410 mm
CS	Steering wheel to chest	178 mm	N/A
RA	Rim to abdomen	80 mm	N/A
KDL	Left knee to dash	97 mm	102 mm
KDR	Right knee to dash	93 mm	90 mm
KDA	Outboard knee to dash angle	31°	38°
PA	Pelvic angle	22°	22°
TA	Tibial angle	44.6°	49°
KK	Knee to knee	255 mm	224 mm
ST ²	Striker to head	484 mm	488 mm
	Striker to head angle	-68.7°	-69°
SK ²	Striker to knee	654 mm	652 mm
	Striker to knee angle	-1.2°	0°
SH ²	Striker to H-point	355 mm	349 mm
	Striker to H-point angle	14.3°	6°
SHY	Striker to H-point (Y dir.)	255 mm	310 mm
HS	Head to side window	350 mm	365 mm
HD	H-point to door	220 mm	230 mm
AD	Arm to door	171 mm	183 mm

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

¹ Measurement taken from head to sun visor.

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

Figure 7 Camera Positions

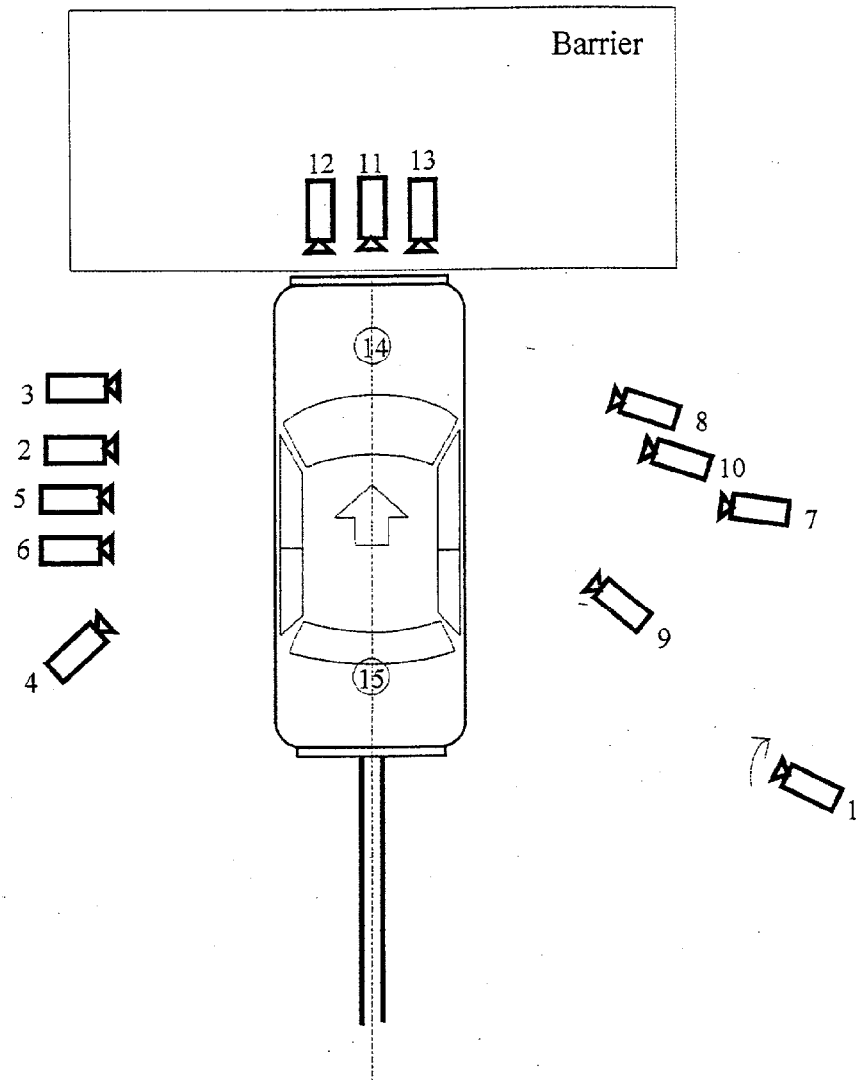


Figure 7 Camera Positions, Cont'd.

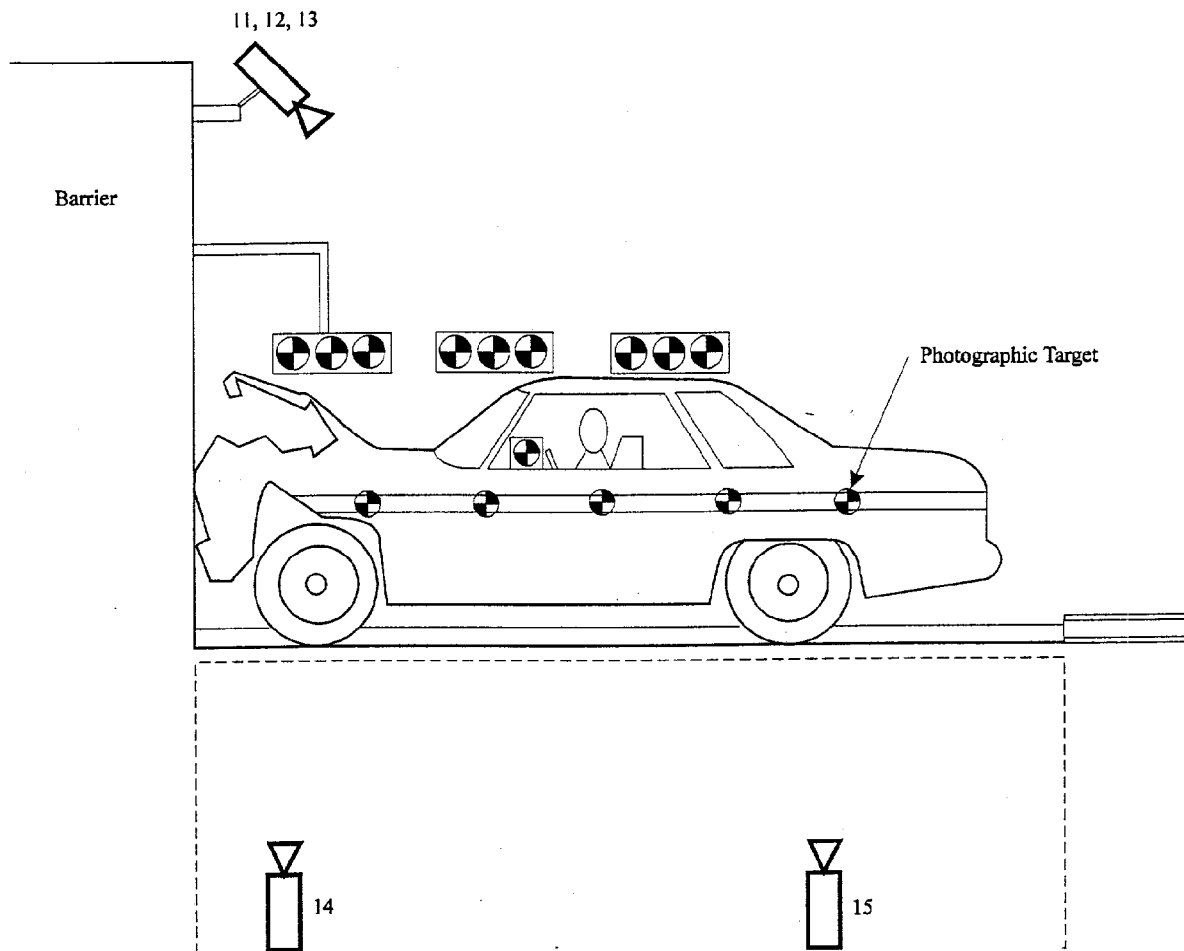


Table 8 Motion Picture Camera Locations

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

Test number: 990615-2

Camera Number	View	Camera Positions ¹			Camera Angle ²	Film Plane to Head Target	Camera Lens	Film Speed
		X	Y	Z				
1	Real-time panning	6706 mm	-8534 mm	1499 mm	-3°	NA	Zoom	24 frames/s
2	Left vehicle crush	1397 mm	7239 mm	1130 mm	1°	8052 mm	13 mm	1005 frames/s
3	Left windshield intrusion	1067 mm	6248 mm	940 mm	3°	NA	50 mm	1000 frames/s
4	Left angle	3912 mm	1829 mm	1994 mm	-16°	2946 mm	25 mm	997 frames/s
5	Steering column motion - upper	2667 mm	6629 mm	2565 mm	-13°	NA	25 mm	997 frames/s
6	Steering column motion - lower	2667 mm	6629 mm	1600 mm	-6°	NA	25 mm	1000 frames/s
7	Right wide	2921 mm	-6909 mm	787 mm	-1°	NA	25 mm	995 frames/s
8	Right windshield intrusion	1118 mm	-5613 mm	1080 mm	0°	NA	13 mm	1000 frames/s
9	Right angle	3962 mm	-1676 mm	1930 mm	-16°	2743 mm	50 mm	990 frames/s
10	Passenger A-pillar to B-pillar	5563 mm	-2362 mm	1461 mm	-3°	6426 mm	25 mm	1007 frames/s
11	Windshield front view	457 mm	0 mm	2337 mm	-55°	NA	25 mm	N/A ³
12	Driver - front view	457 mm	381 mm	2337 mm	-56°	NA	13 mm	1000 frames/s
13	Passenger - front view	457 mm	-381 mm	2337 mm	-55°	NA	25 mm	990 frames/s
14	Pit - front position	1295 mm	0 mm	2972 mm	92°	NA	13 mm	1002 frames/s
15	Pit - rear position	2946 mm	0 mm	2972 mm	90°	NA	13 mm	1002 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

³ The cameras's film speed could not be measured.

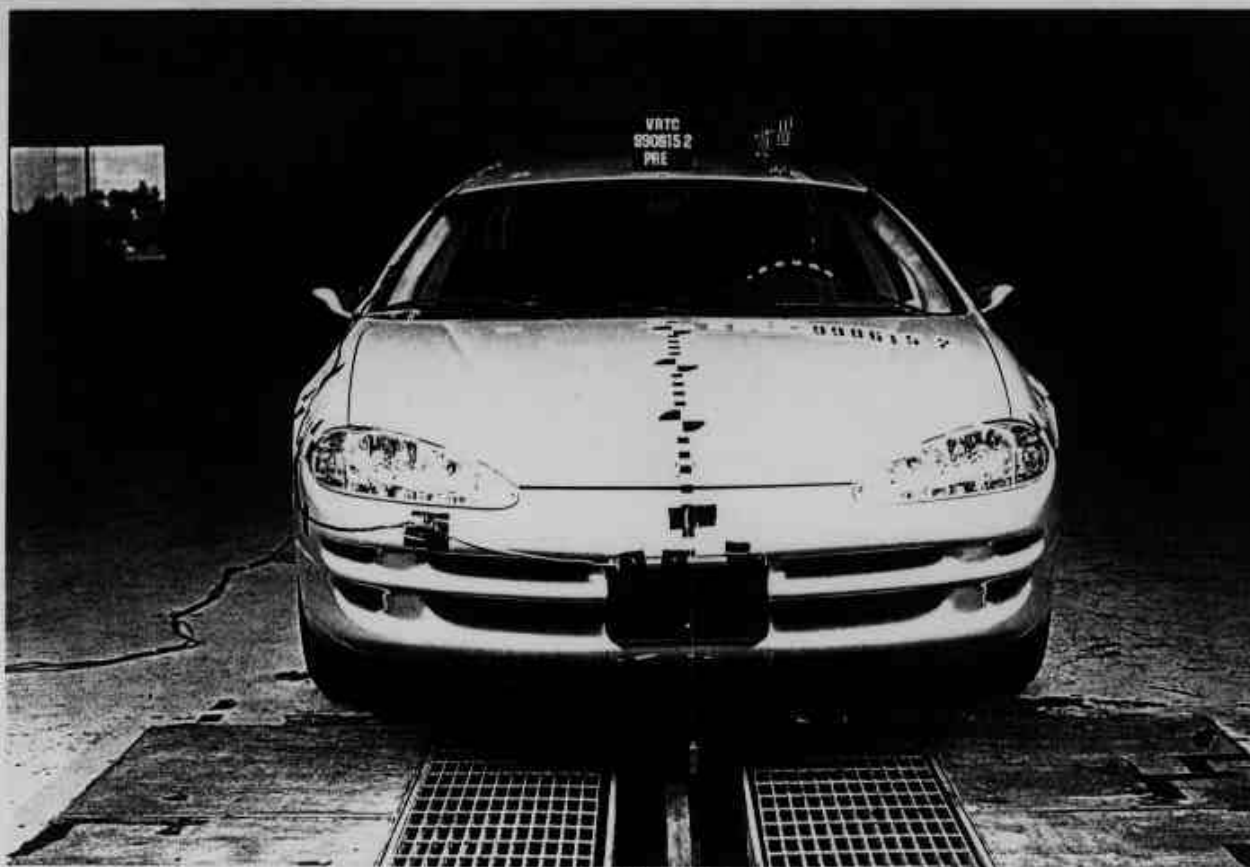


Figure A-1 Pre-Test Front View



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

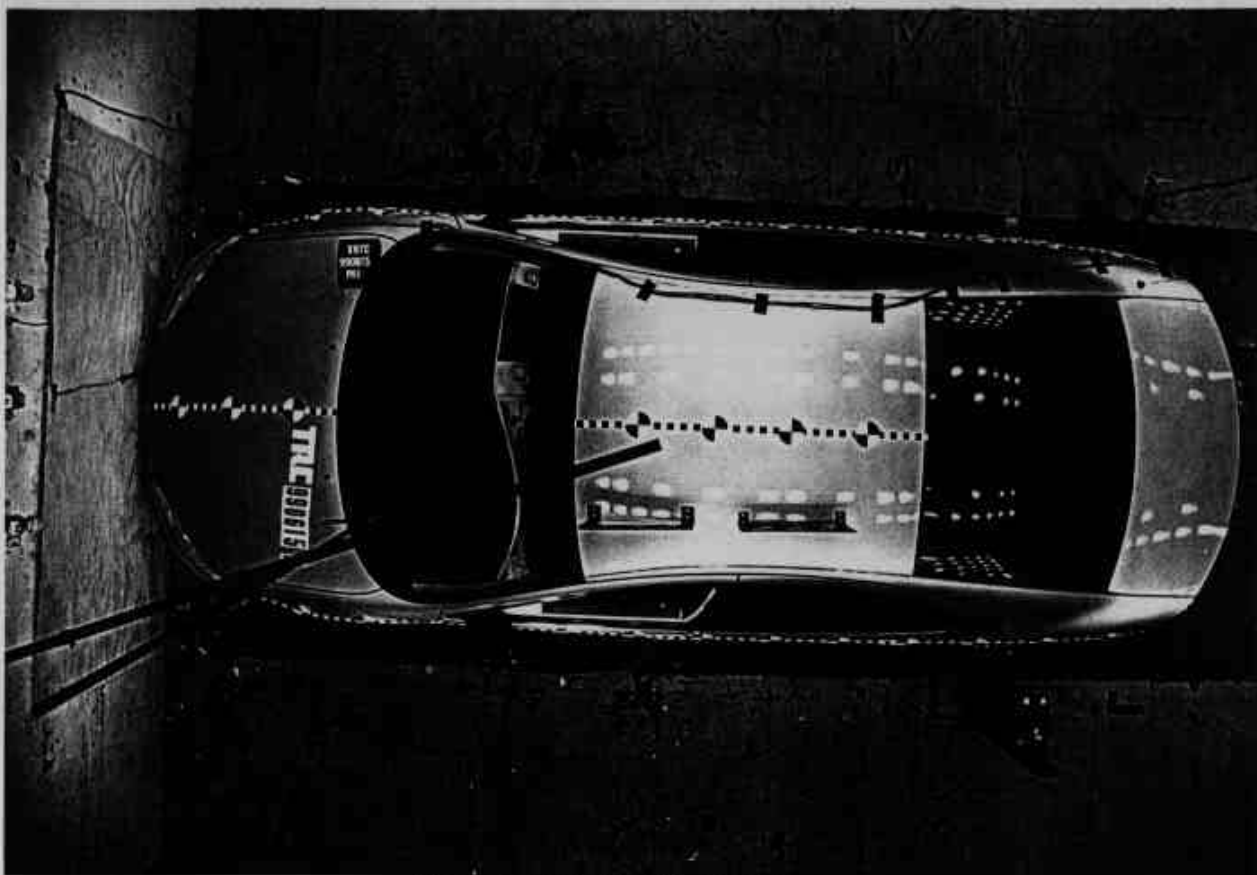


Figure A-13 Pre-Test Overhead View

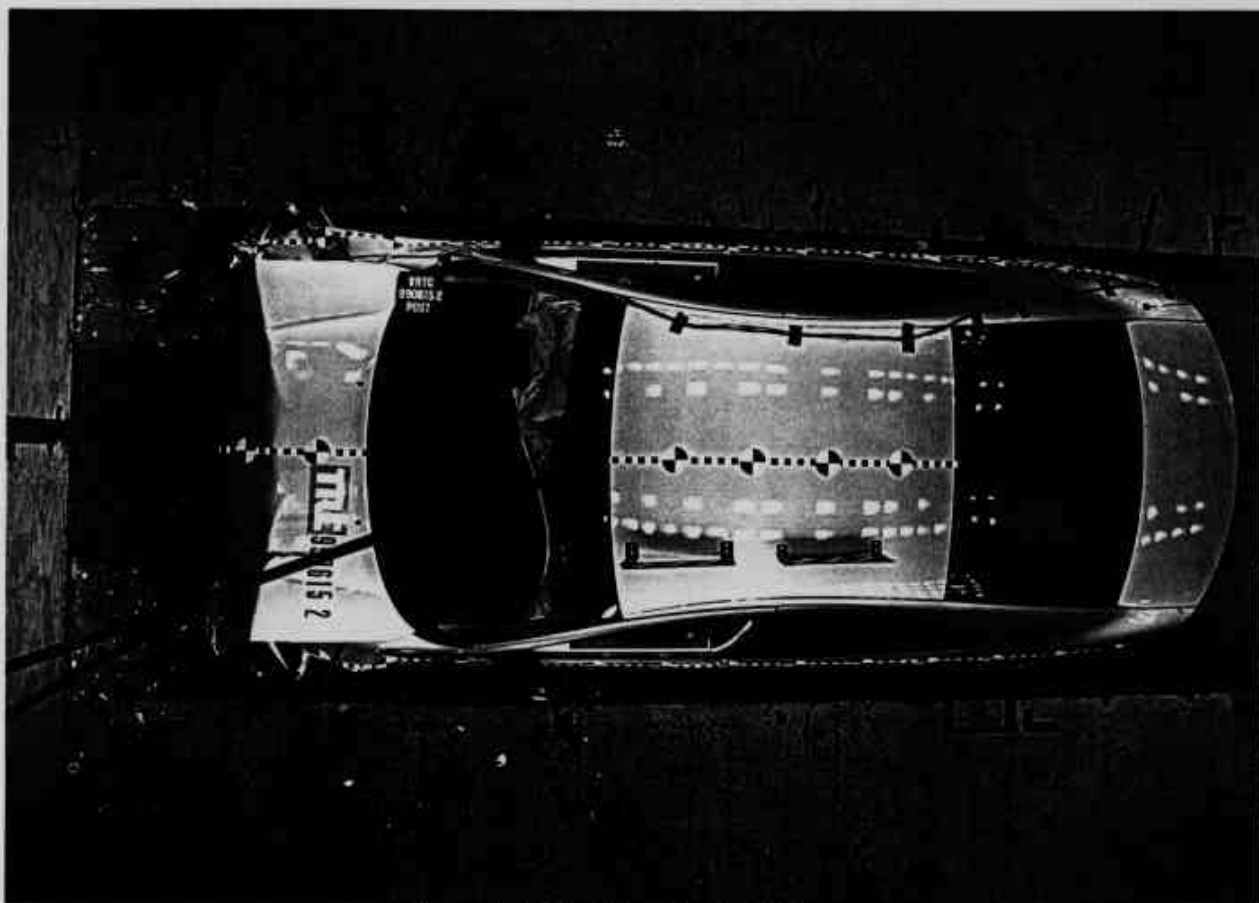


Figure A-14 Post-Test Overhead View



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



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

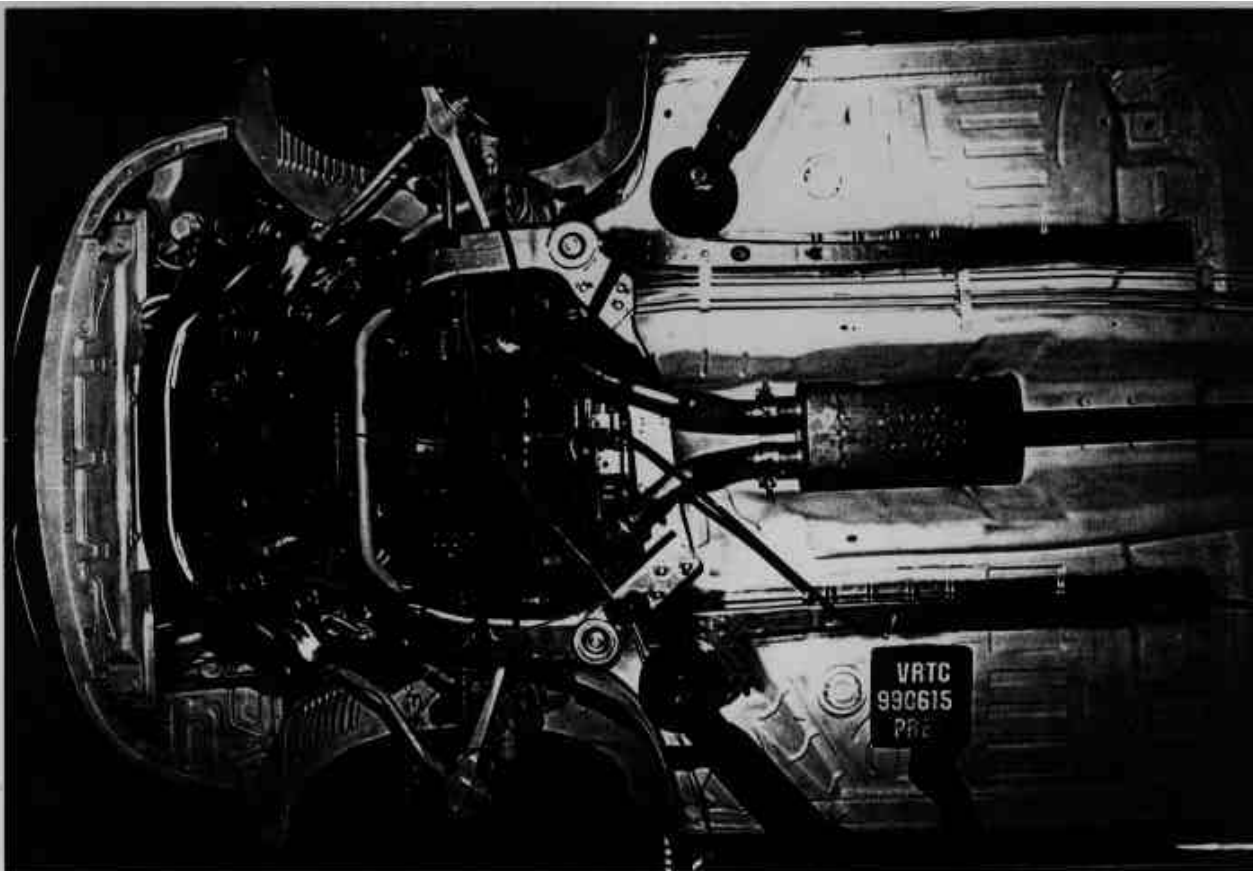


Figure A-17 Pre-Test Front Underbody View

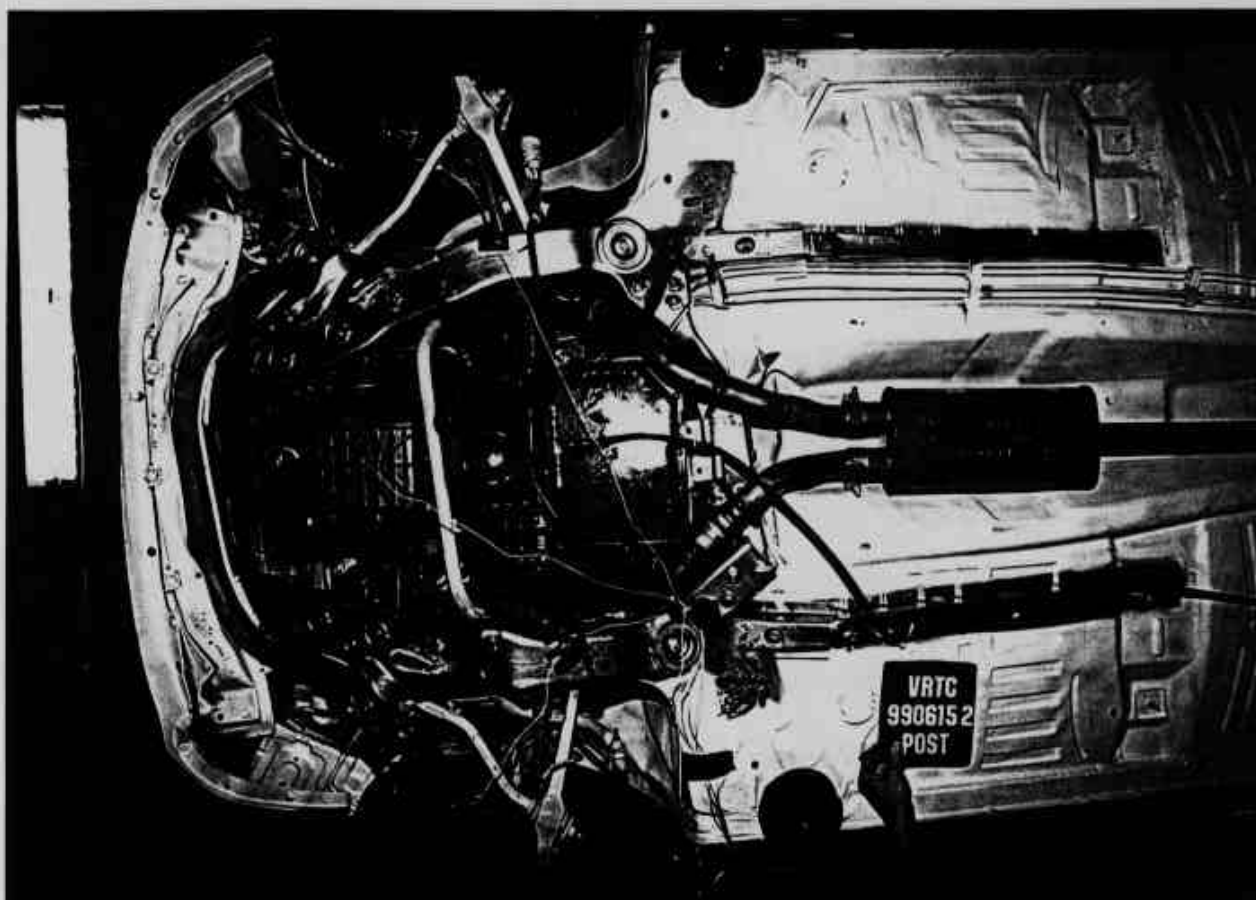


Figure A-18 Post-Test Front Underbody View

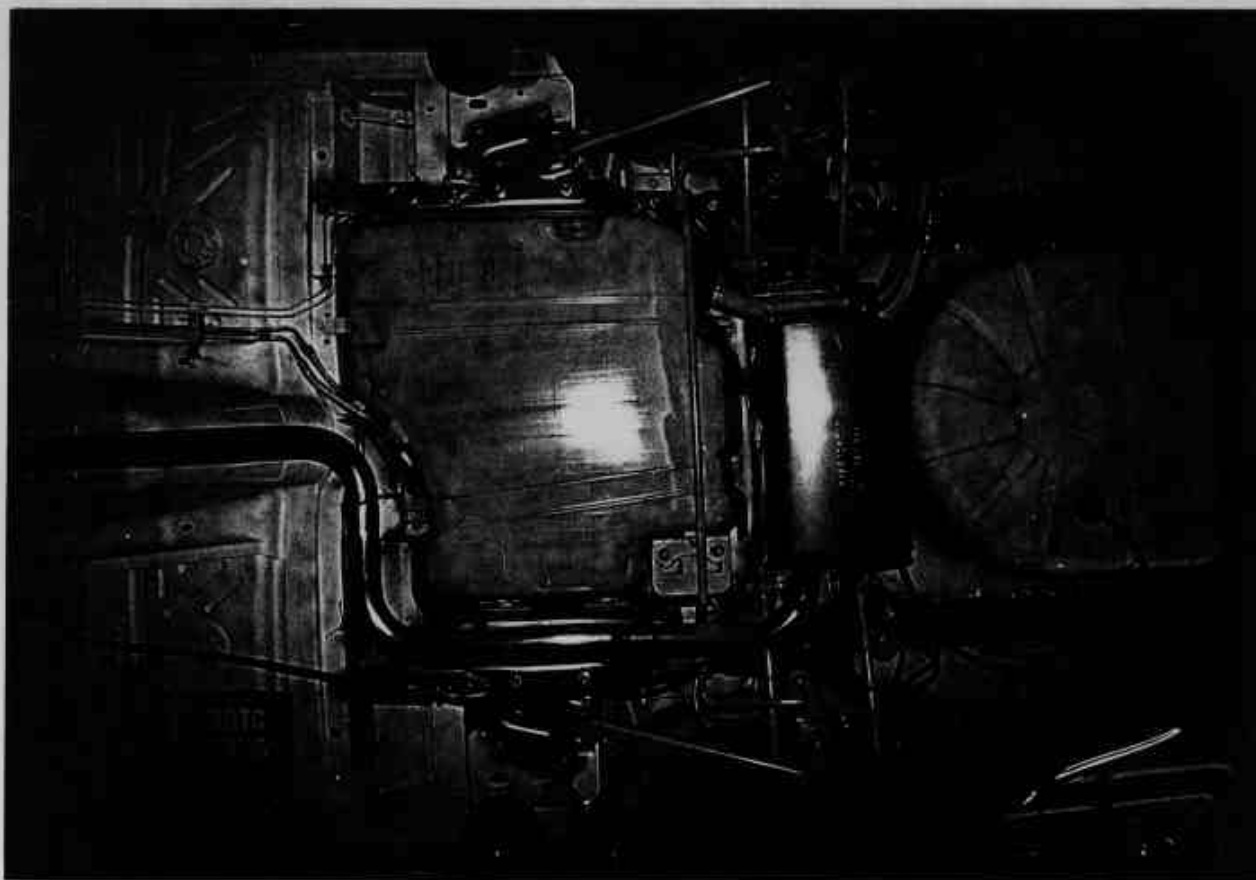


Figure A-19 Pre-Test Rear Underbody View

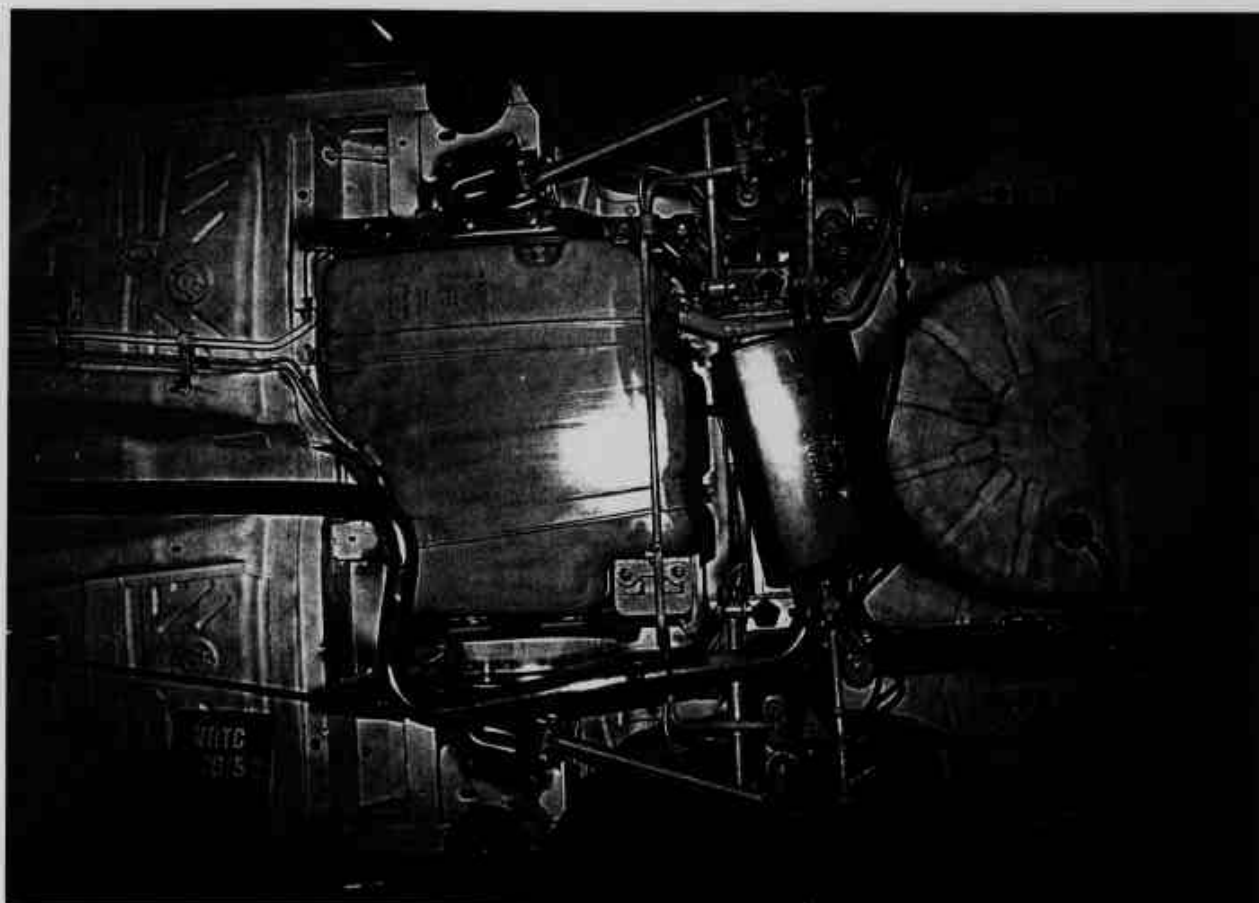


Figure A-20 Post-Test Rear Underbody View

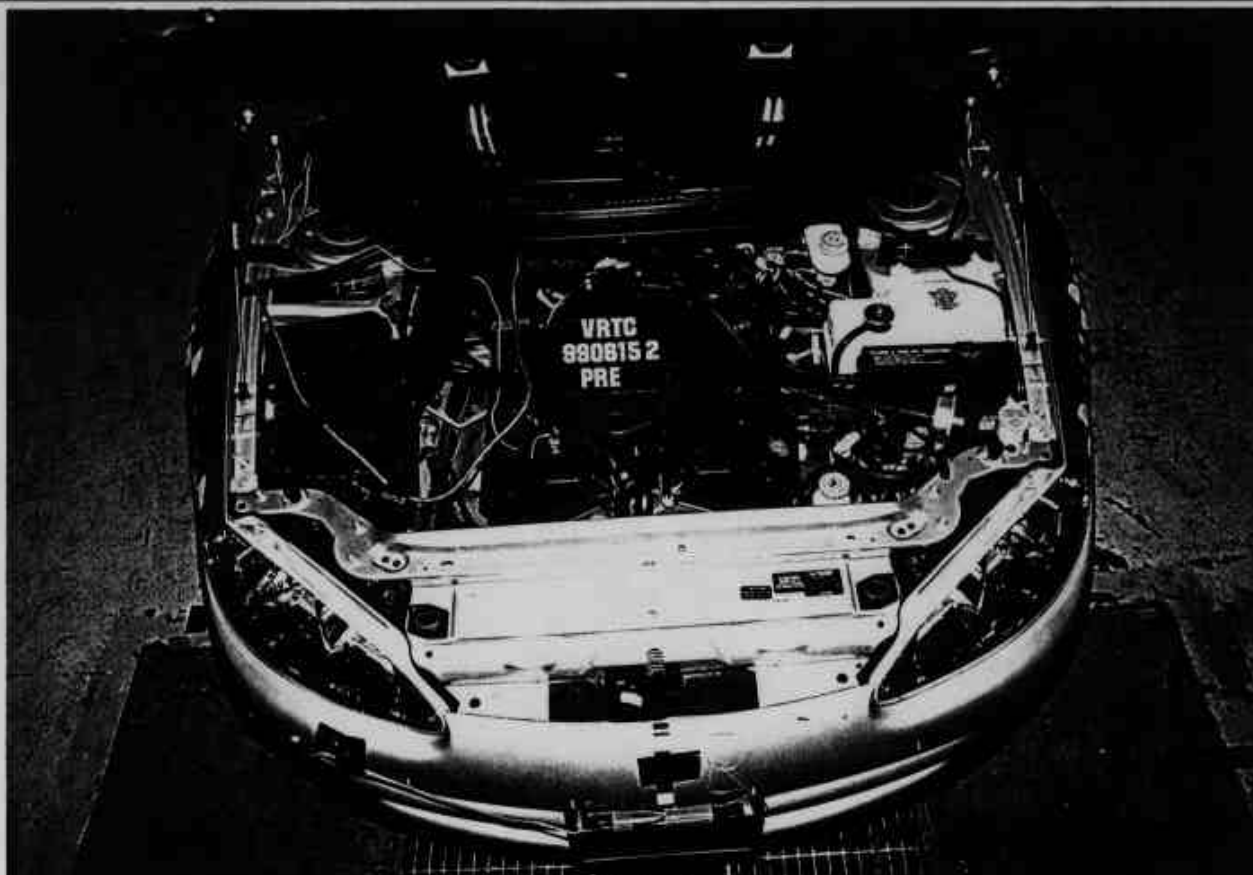


Figure A-21 Pre-Test Engine Compartment View



Figure A-22 Post-Test Engine Compartment View

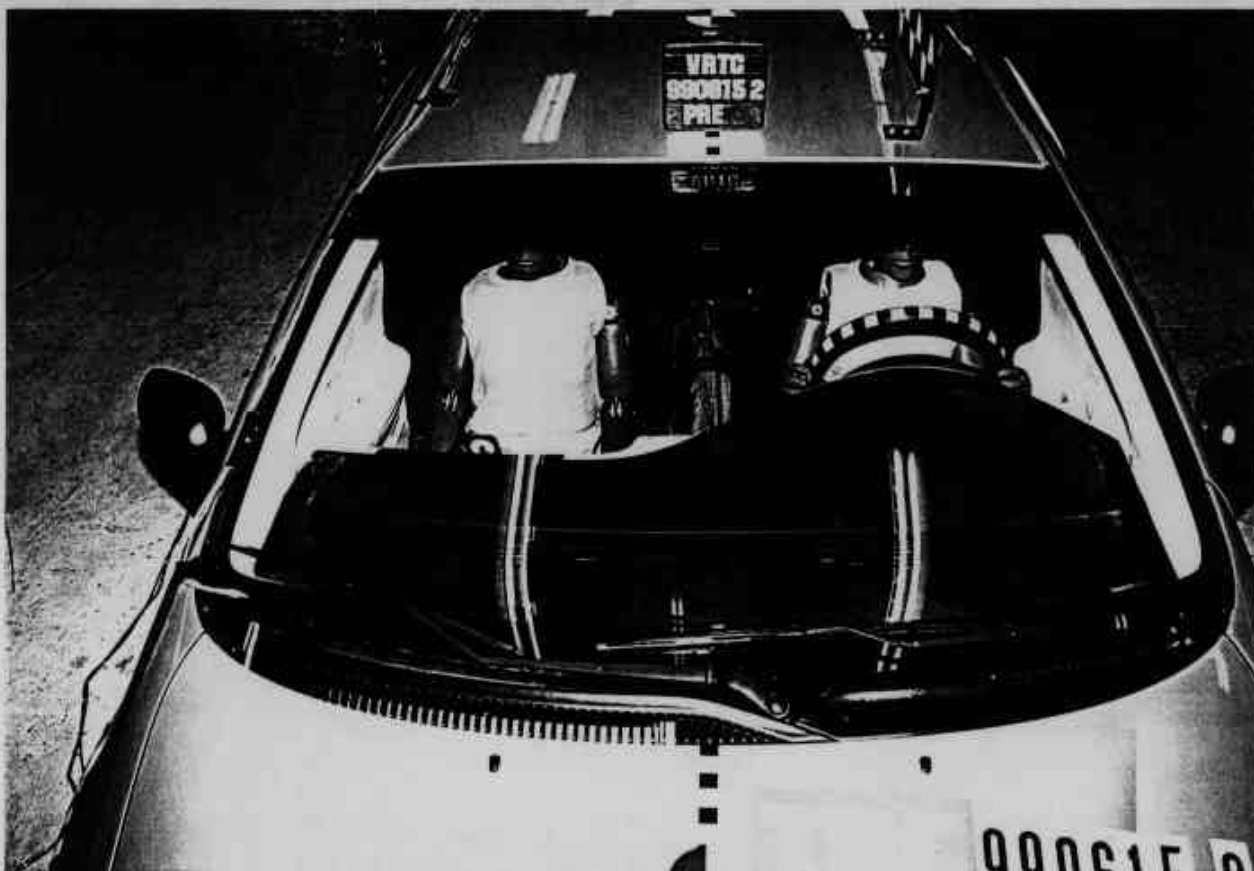


Figure A-23 Pre-Test Windshield - View 1

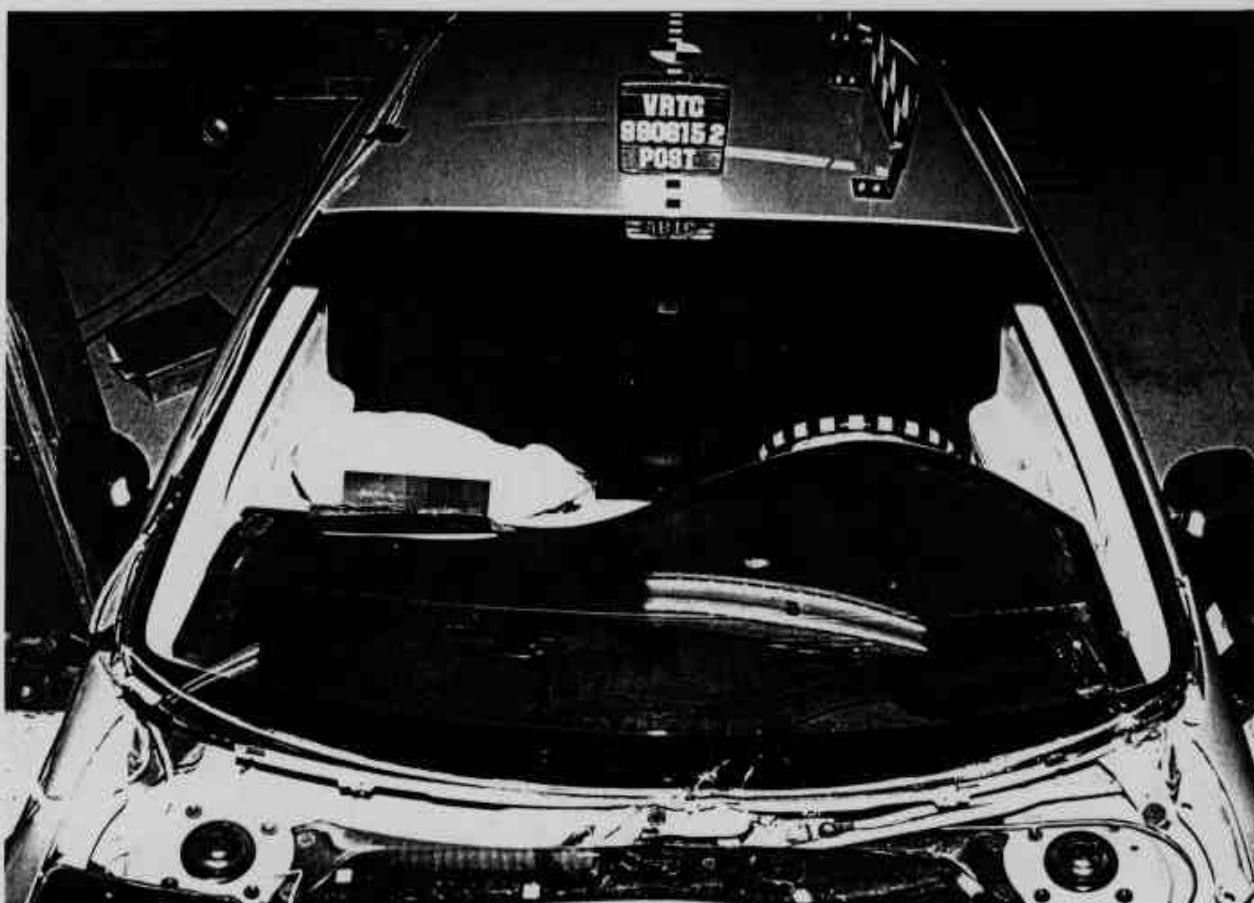


Figure A-24 Post-Test Windshield - View 1



Figure A-25 Pre-Test Windshield - View 2



Figure A-26 Post-Test Windshield - View 2



Figure A-27 Pre-Test Driver Dummy Windshield View



Figure A-28 Post-Test Driver Dummy Windshield View



Figure A-29 Pre-Test Passenger Dummy Windshield View

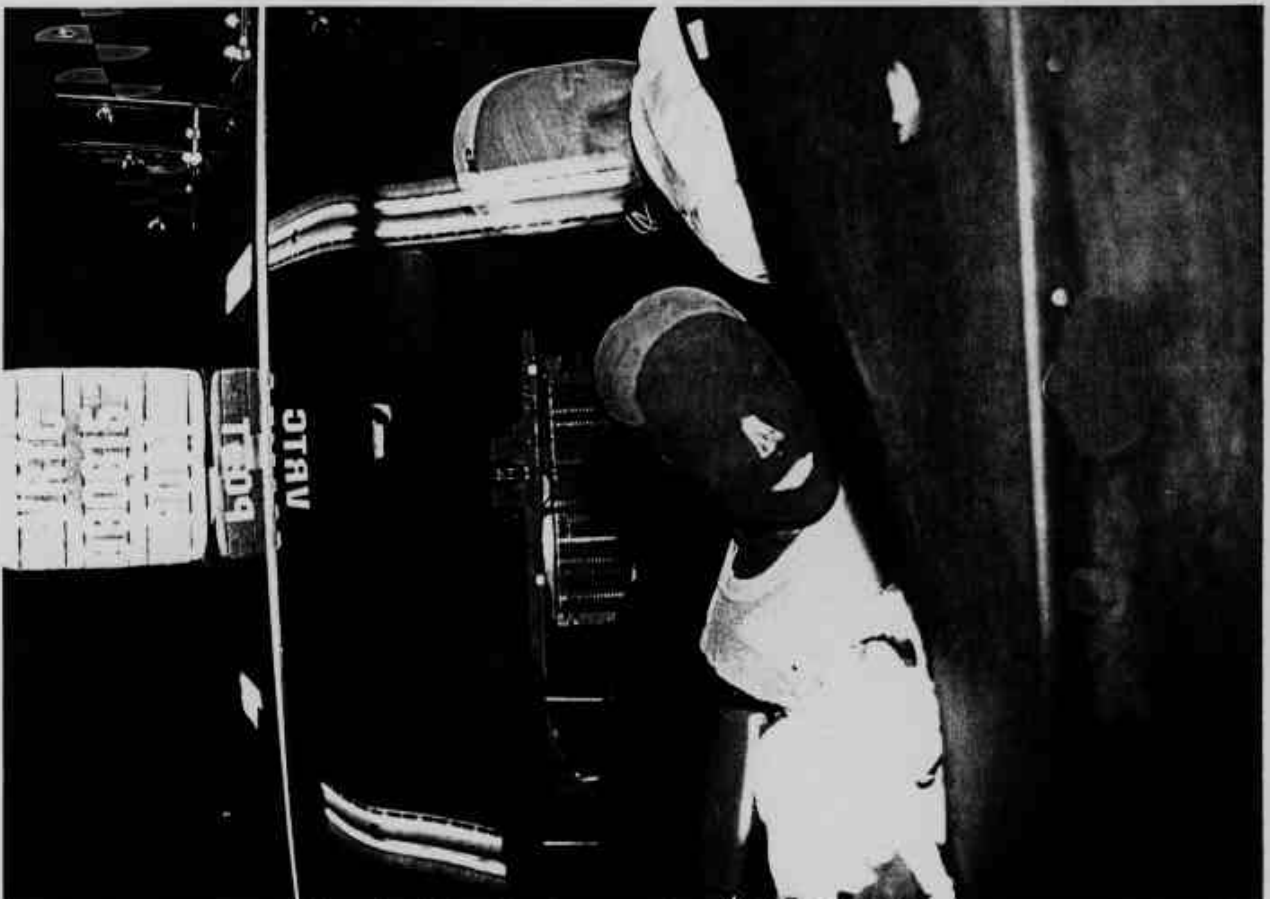


Figure A-30 Post-Test Passenger Dummy Windshield View



Figure A-31 Pre-Test Driver Dummy Position - View 1



Figure A-32 Post-Test Driver Dummy Position - View 1



Figure A-33 Pre-Test Driver Dummy Position - View 2



Figure A-34 Post-Test Driver Dummy Position - View 2

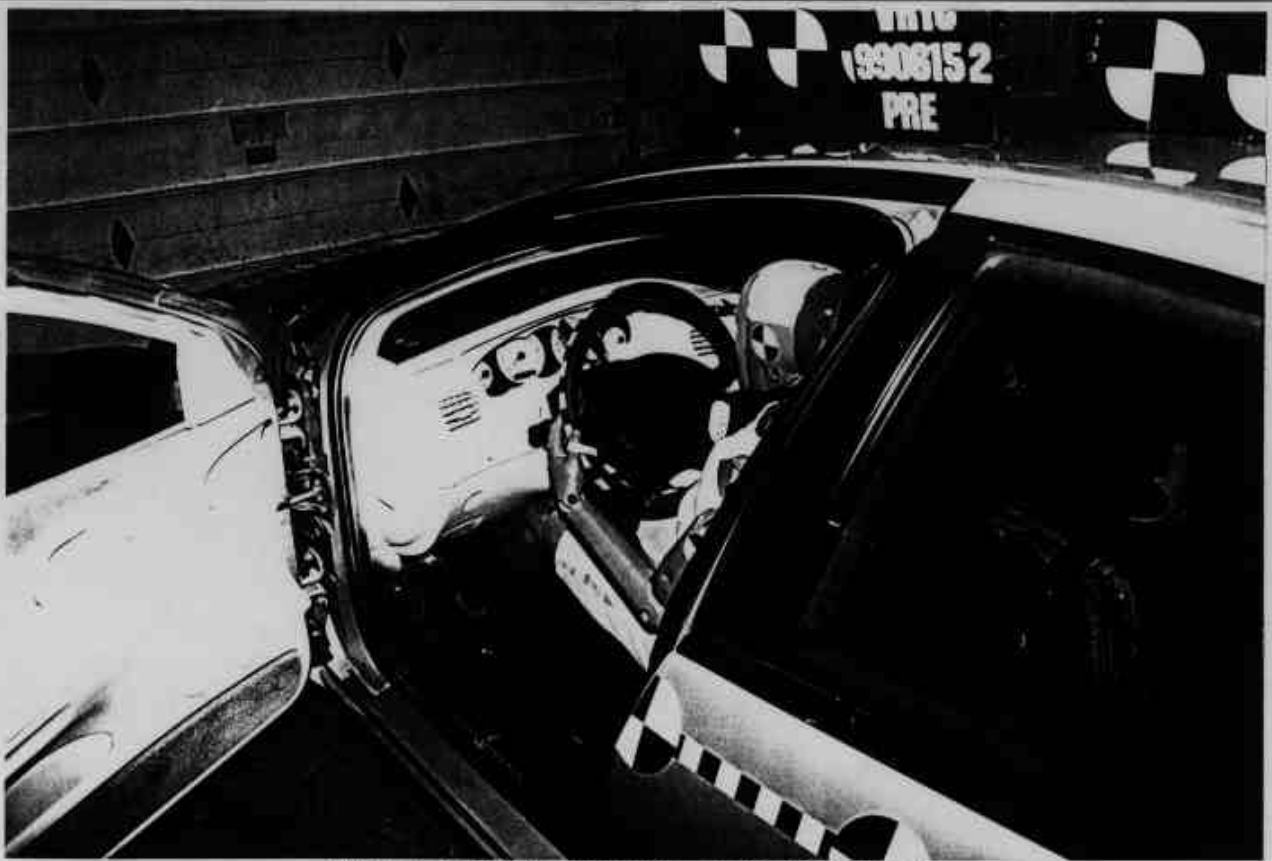


Figure A-35 Pre-Test Driver Dummy Position -View 3



Figure A-36 Post-Test Driver Dummy Position - View 3



Figure A-39 Pre-Test Passenger Dummy Position - View 2



Figure A-40 Post-Test Passenger Dummy Position - View 2



Figure A-37 Pre-Test Passenger Dummy Position - View 1



Figure A-38 Post-Test Passenger Dummy Position - View 1

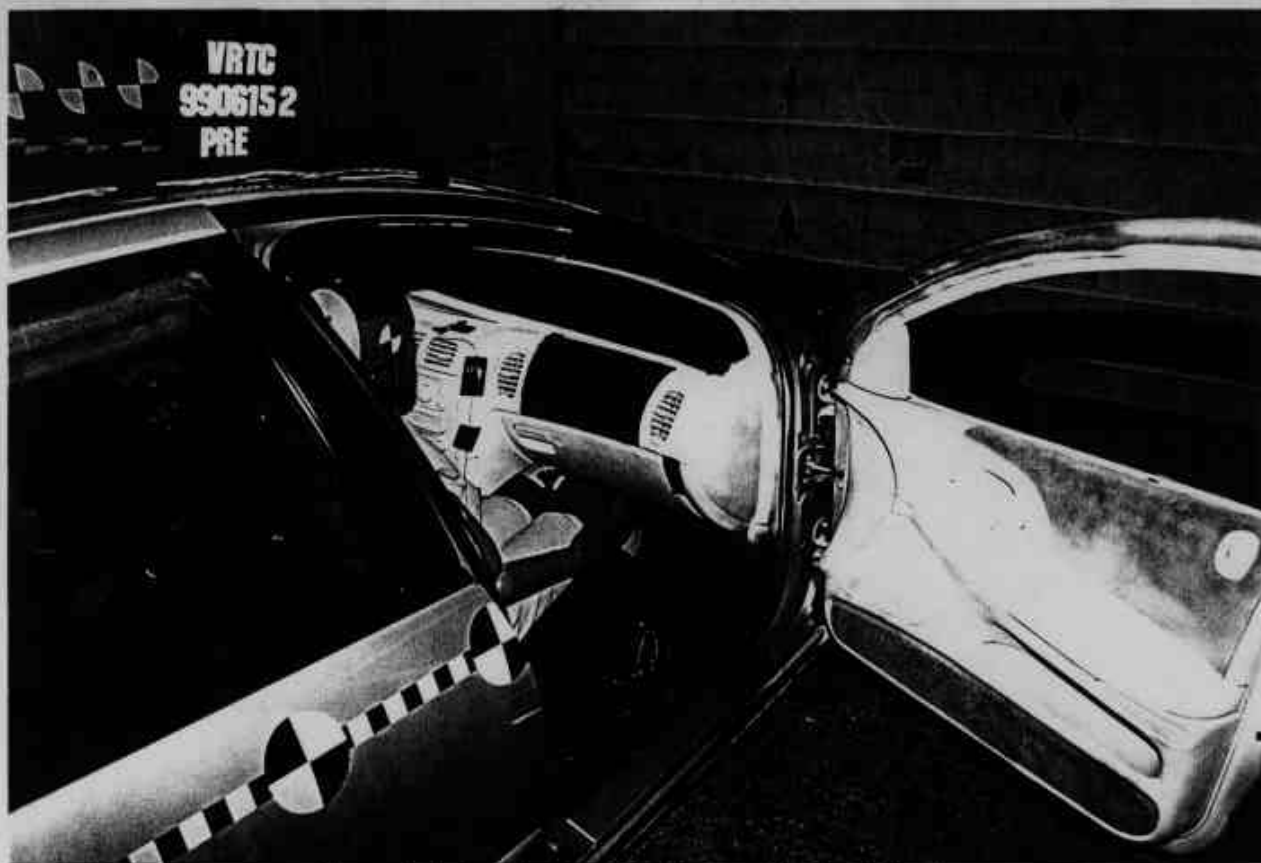


Figure A-41 Pre-Test Passenger Dummy Position - View 3

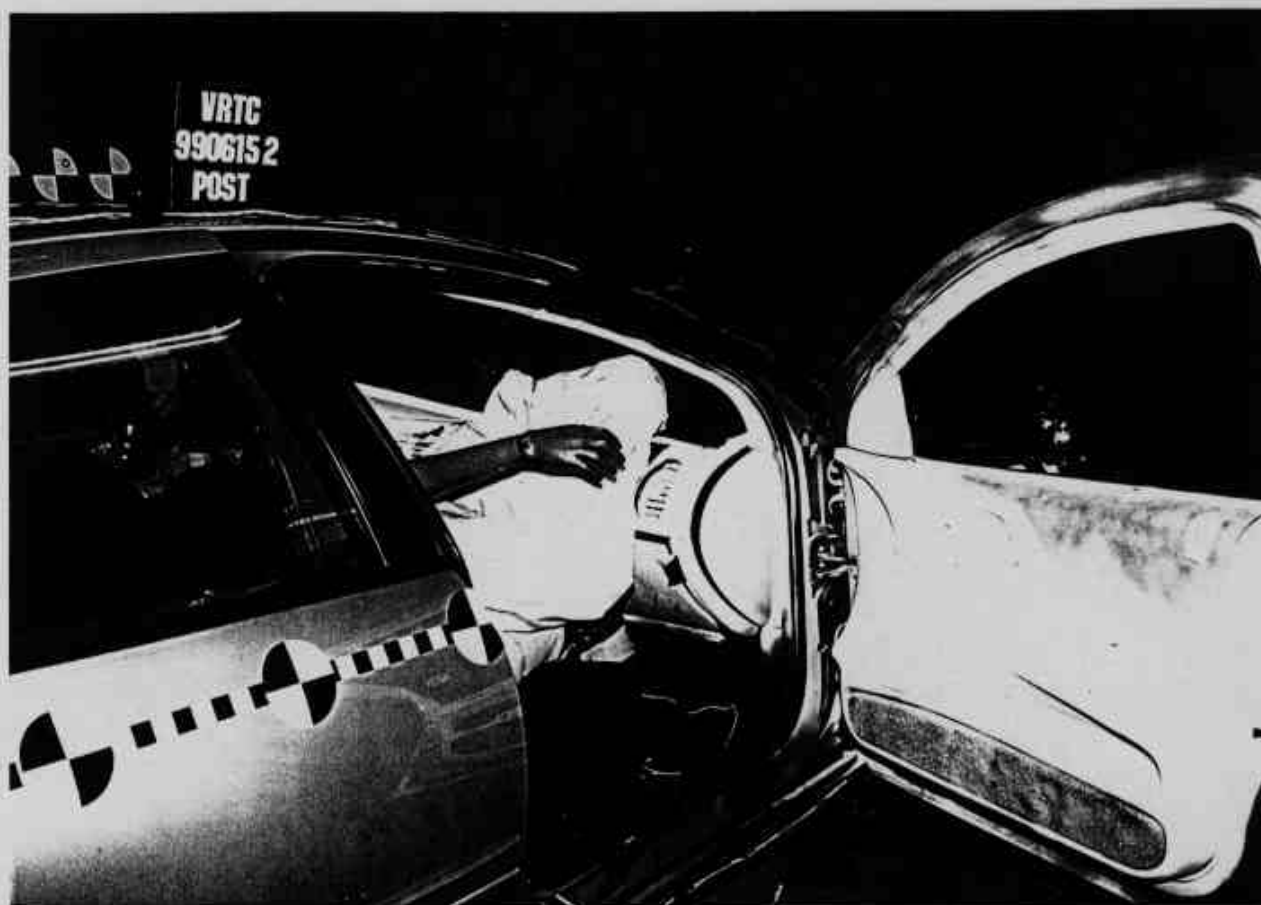


Figure A-42 Post-Test Passenger Dummy Position - View 3

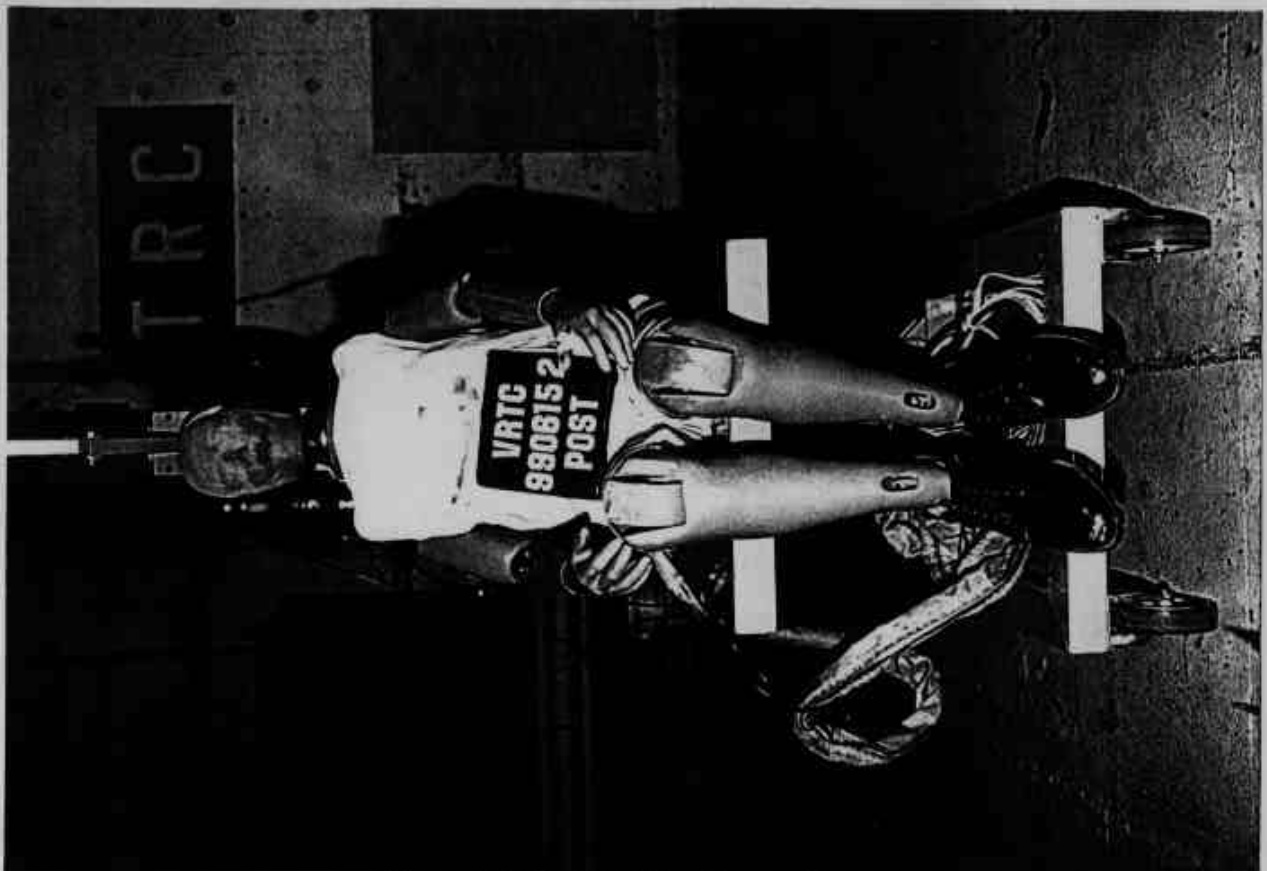


Figure A-43 Post-Test Driver Dummy View



Figure A-44 Post-Test Driver Dummy Head Contact - View 1



Figure A-45 Post-Test Driver Dummy Head Contact - View 2



Figure A-46 Post-Test Driver Dummy Head Contact - View 3



Figure A-47 Post-Test Driver Dummy Knee Contact - View 1



Figure A-48 Post-Test Driver Dummy Knee Contact - View 2



Figure A-49 Post-Test Driver Dummy Knee Contact - View 3



Figure A-50 Post-Test Driver Footwell Deformation View

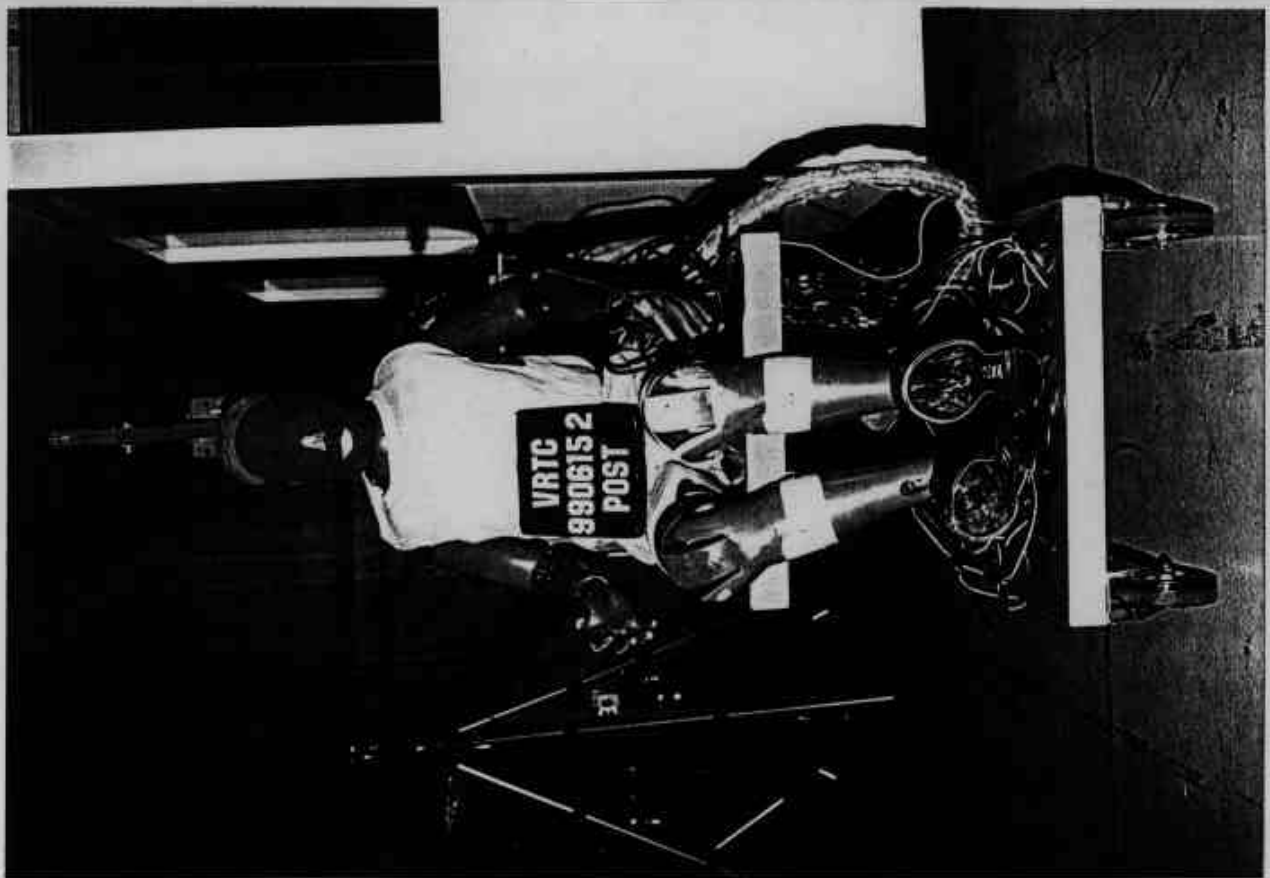


Figure A-51 Post-Test Passenger Dummy View

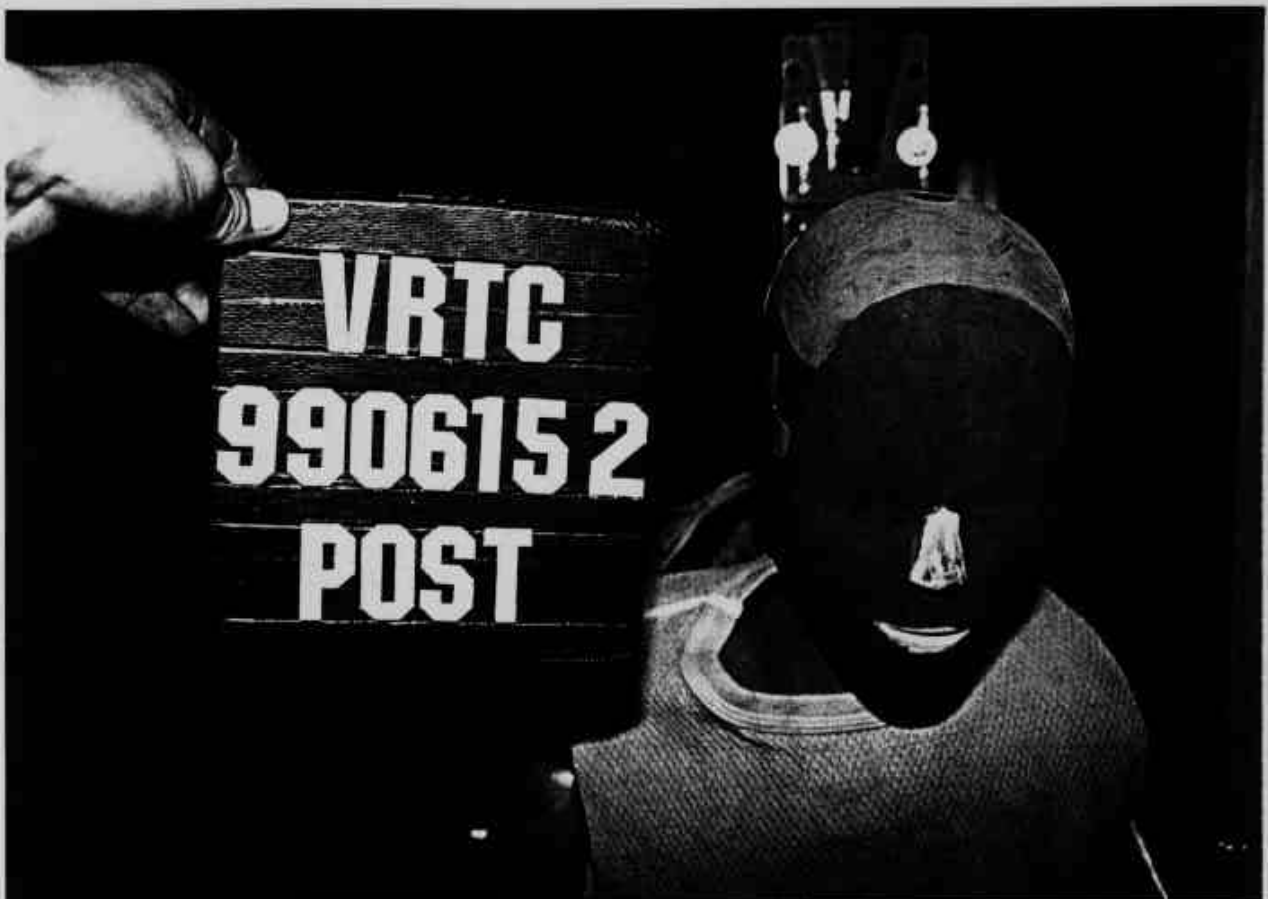


Figure A-52 Post-Test Passenger Dummy Head Contact - View 1



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



Figure A-54 Post-Test Passenger Dummy Knee Contact - View 1



Figure A-55 Post-Test Passenger Dummy Knee Contact - View 2



Figure A-56 Post-Test Passenger Footwell Deformation View



Figure A-57 Pre-Test Fuel Cap View



Figure A-58 Post-Test Fuel Cap View



Figure A-59 Pre-Test Vehicle Certification Label View



Figure A-60 Pre-Test Vehicle Tire Information Label View



Figure A-61 Impact Event

Appendix B

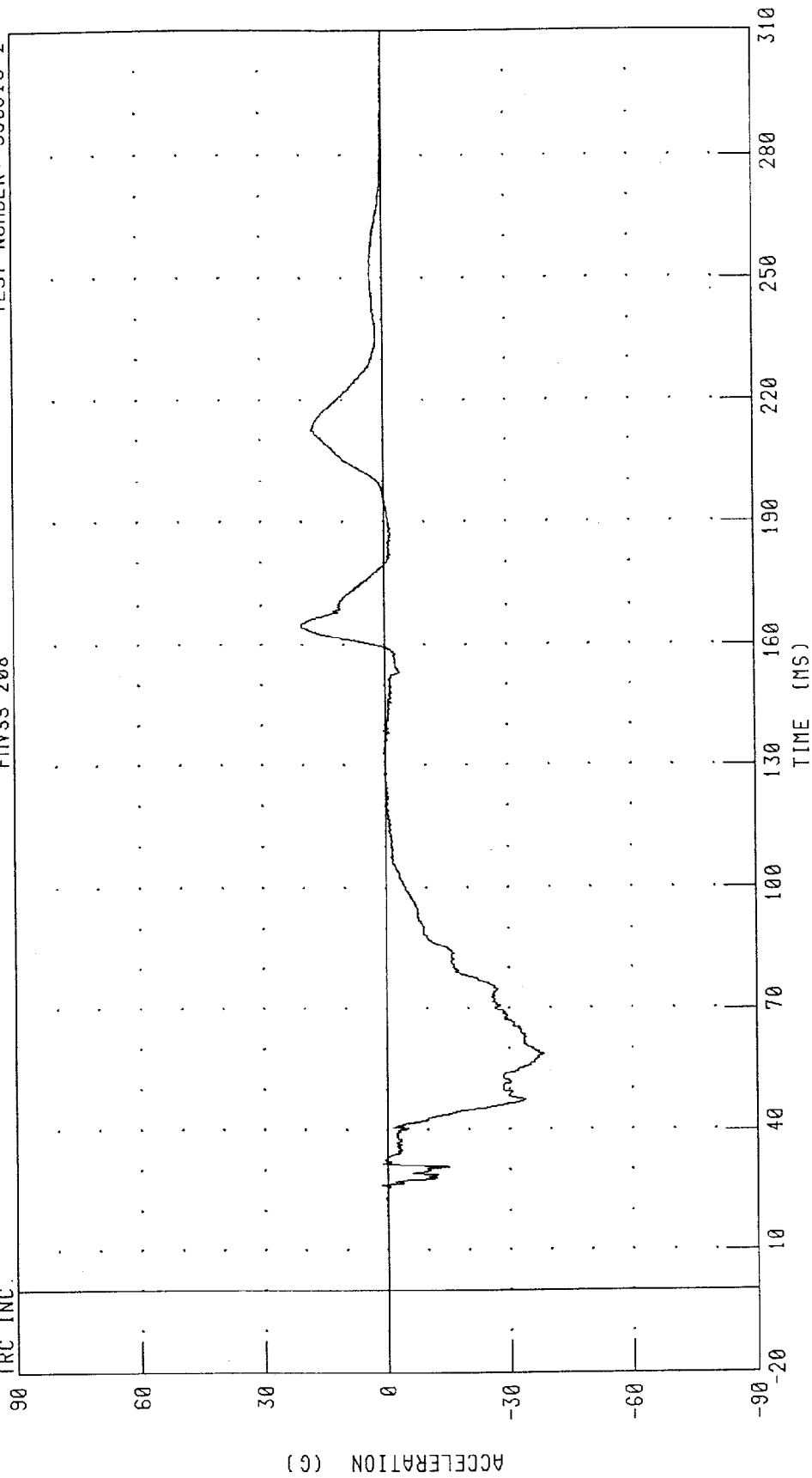
Data Plots

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

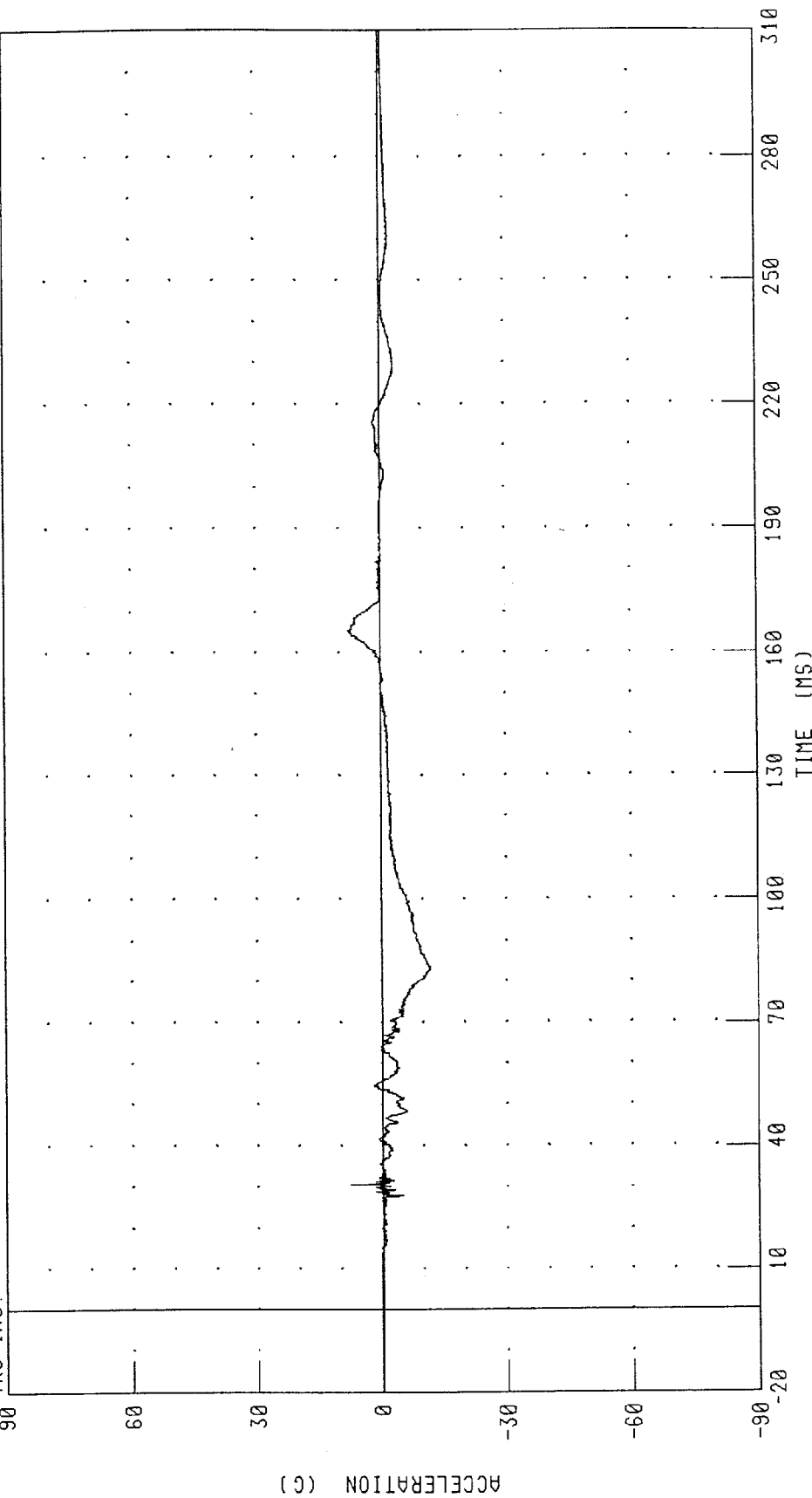
PEAK DATA: 20.29 G @ 164.80 MS; -38.43 G @ 58.80 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 990615-2

FNVS 208

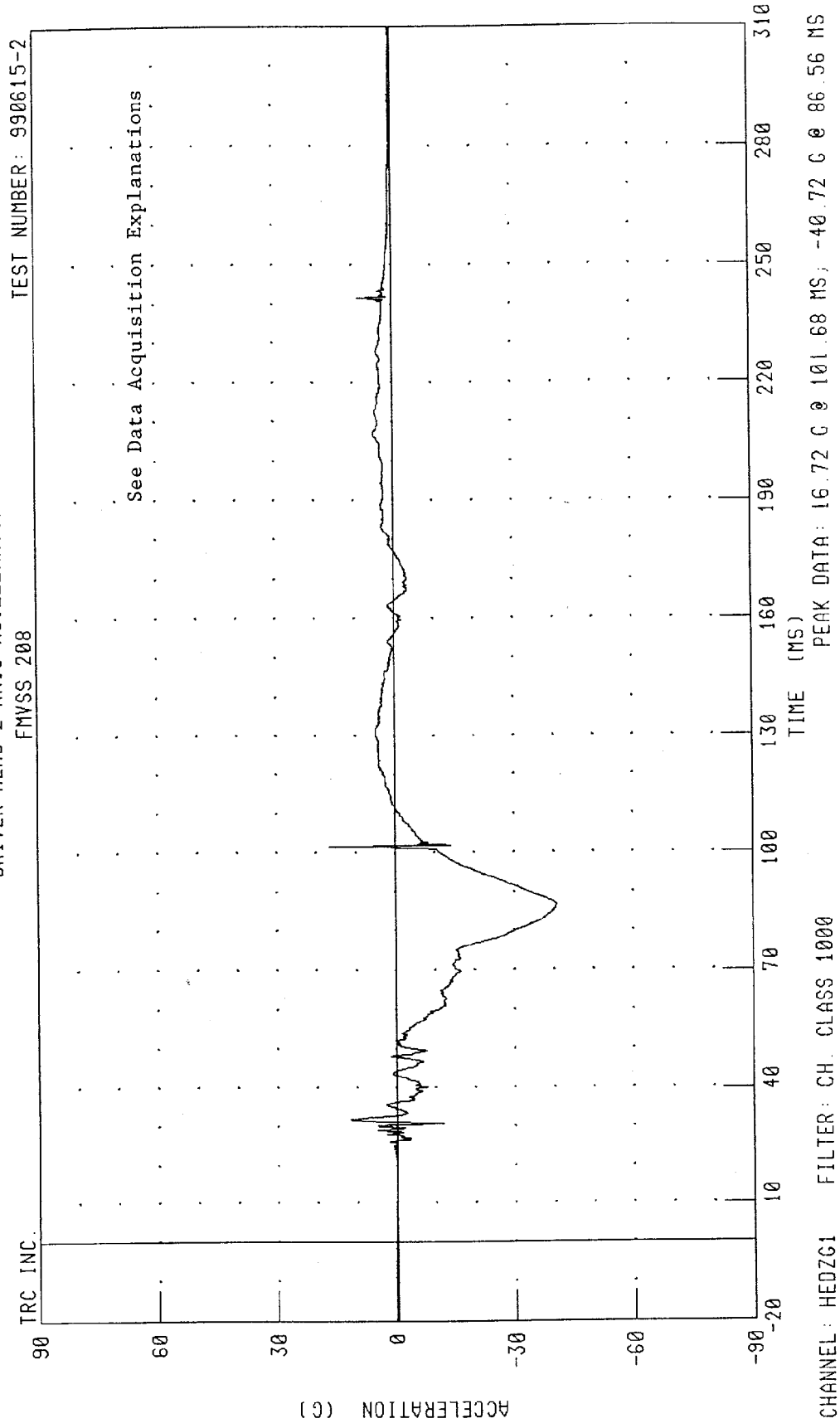
TRC INC.



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 7.89 G @ 30.80 MS; -11.72 G @ 83.04 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD Z-AXIS ACCELERATION

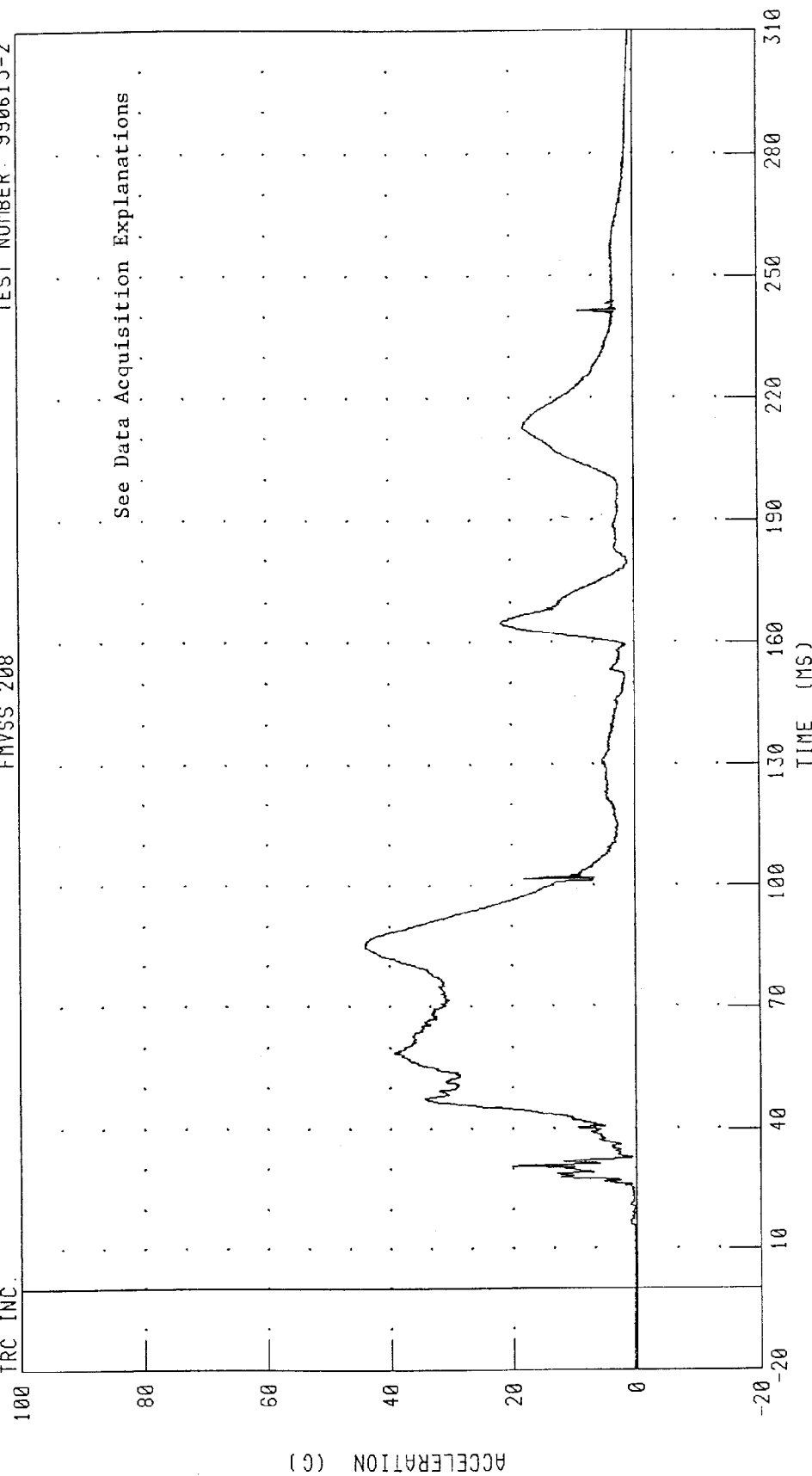


1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD RESULTANT ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



See Data Acquisition Explanations

CHANNEL: HEDRC1 FILTER: CH. CLASS 1000

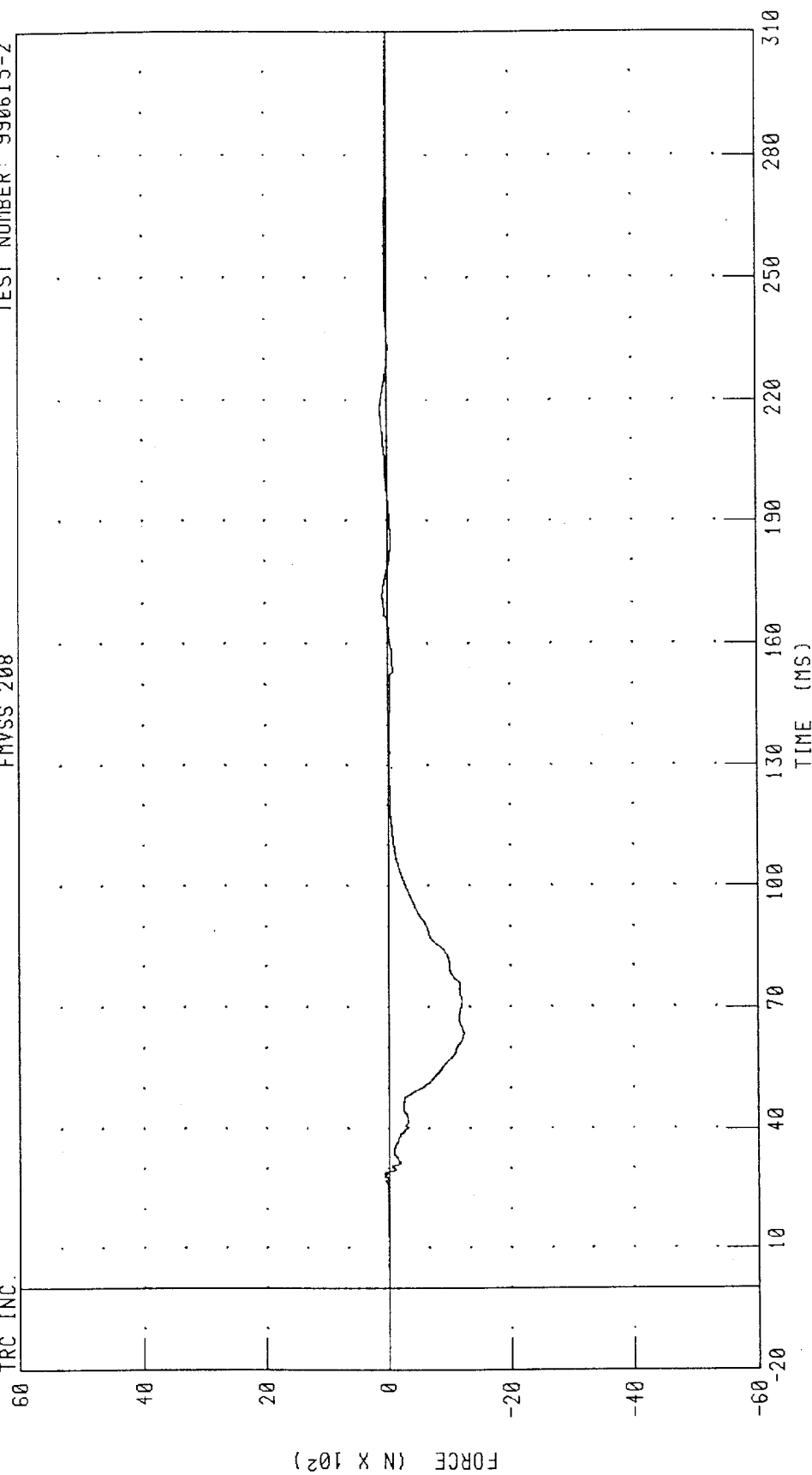
PEAK DATA: 44.07 G @ 85.20 MS; 0.05 G @ -10.08 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK X-AXIS SHEAR FORCE

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 110.98 N @ 217.52 MS; -1248.05 N @ 63.60 MS

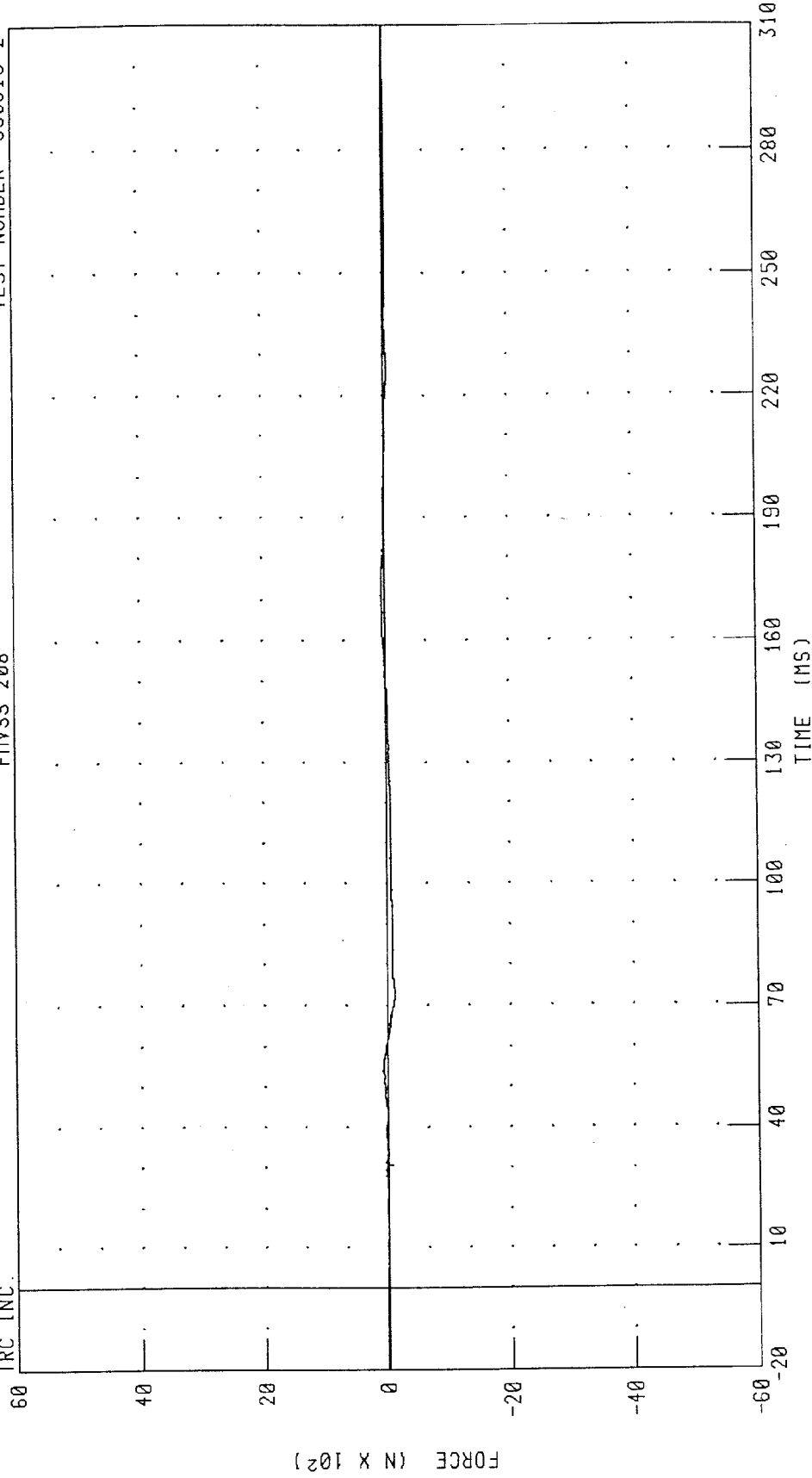
CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK Y-AXIS SHEAR FORCE

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 72.52 N @ 53.84 MS; -131.74 N @ 72.96 MS

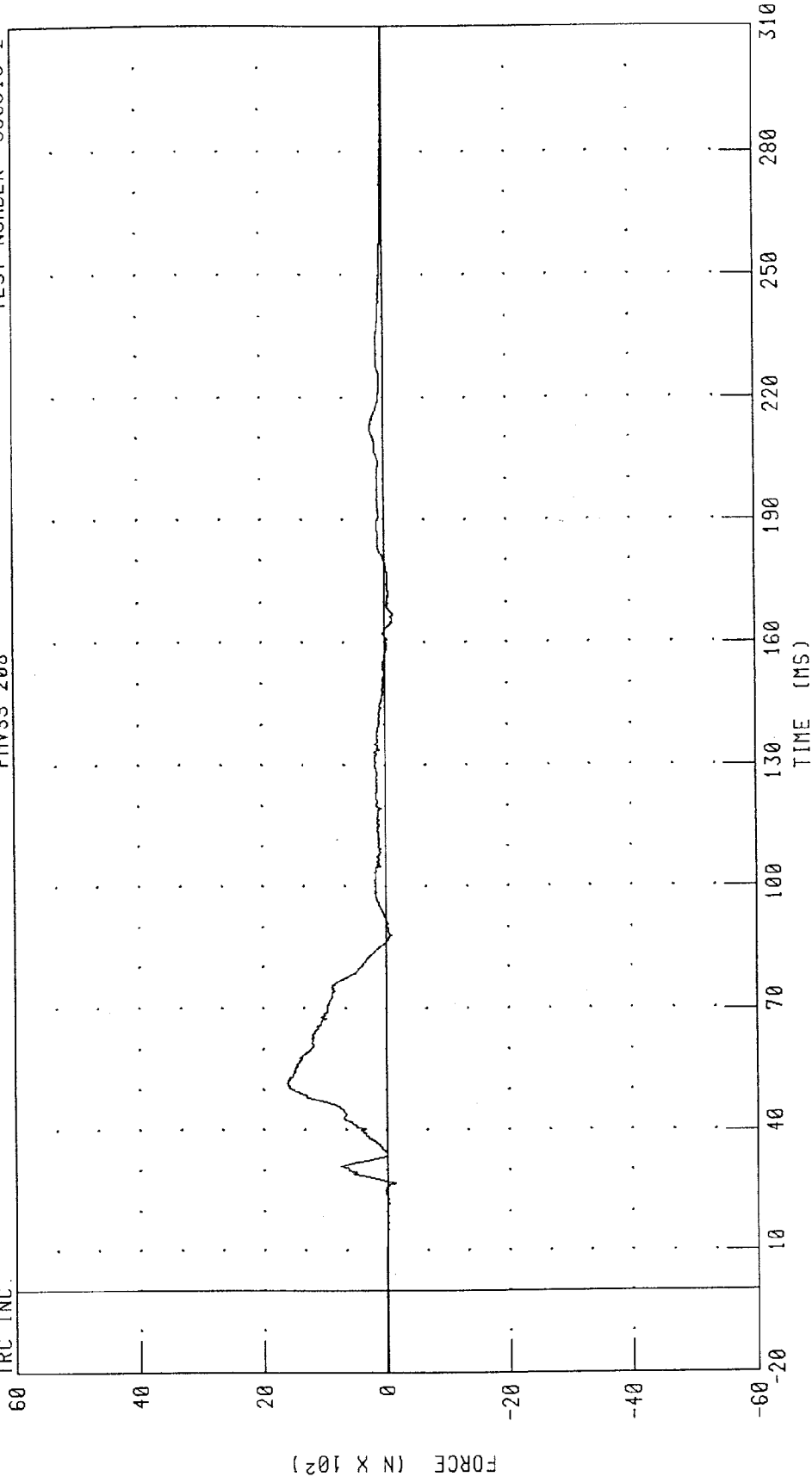
CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK Z-AXIS AXIAL FORCE

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 1614.86 N @ 51.60 MS; -150.44 N @ 166.88 MS

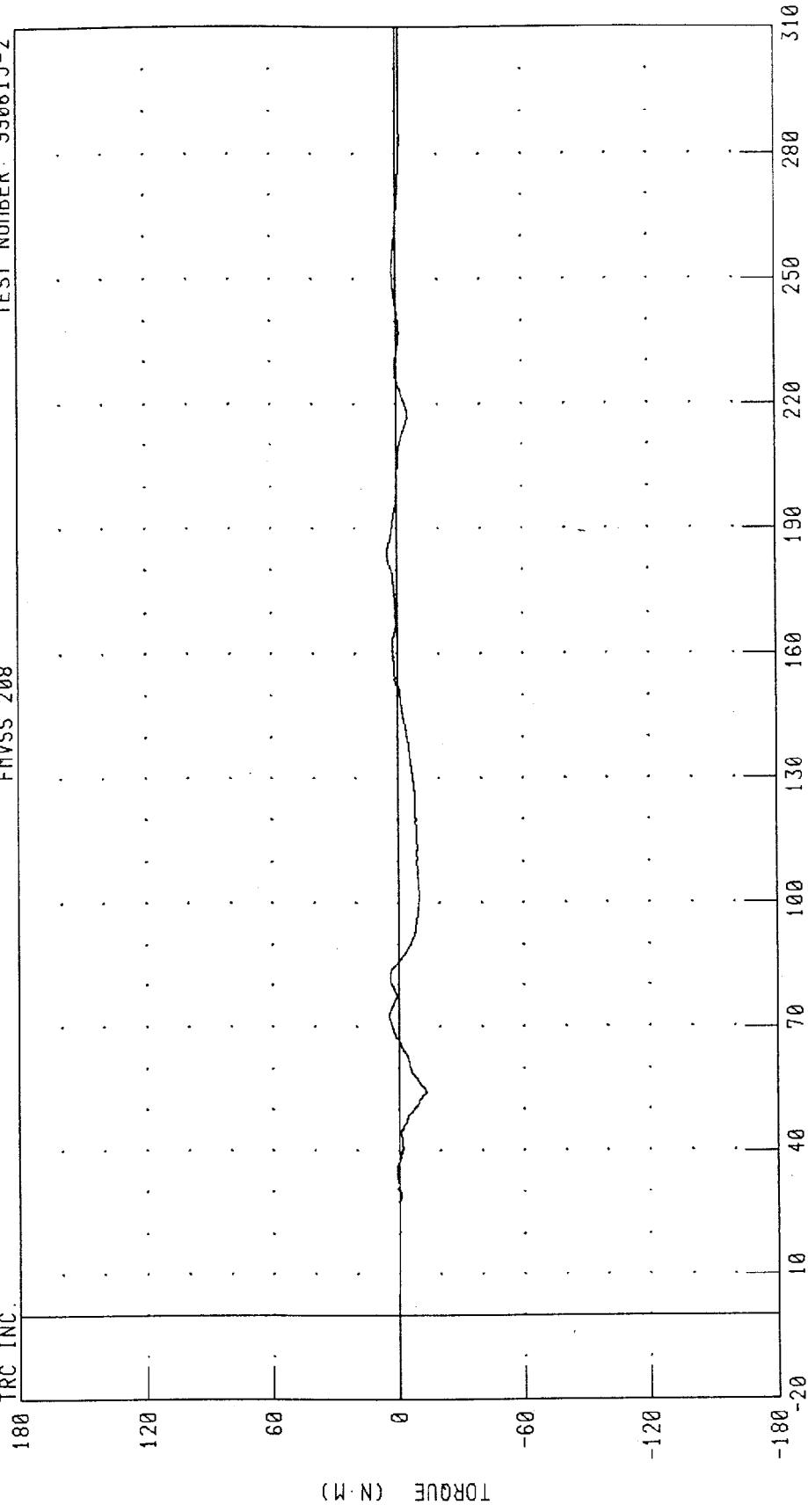
CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT X AXIS

TEST NUMBER: 990615-2

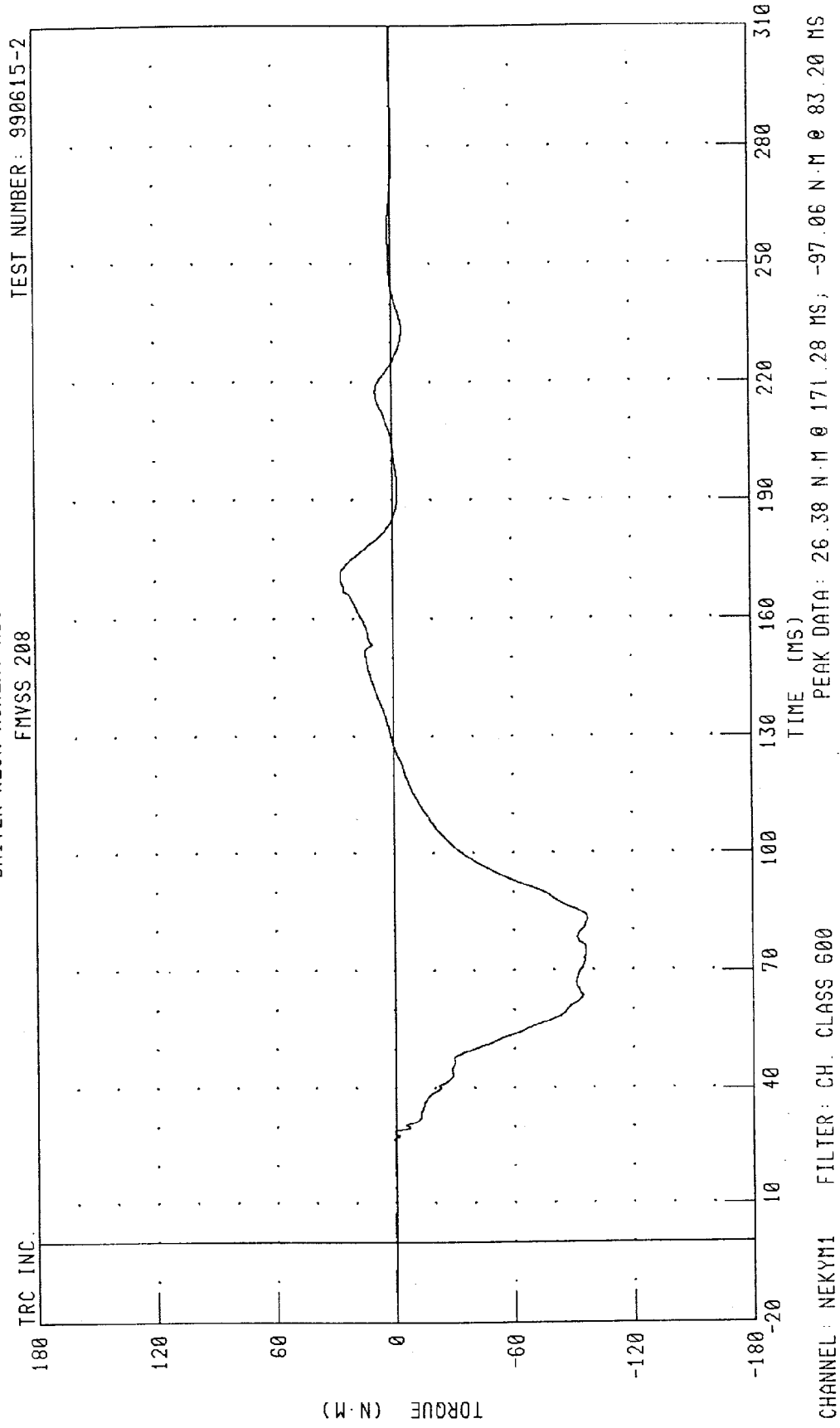
FMVSS 208

TRC INC.



CHANNEL: NEKX11 FILTER: CH. CLASS 600
PEAK DATA: 4.56 N·M @ 183.52 MS; -13.19 N·M @ 54.08 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT Y AXIS

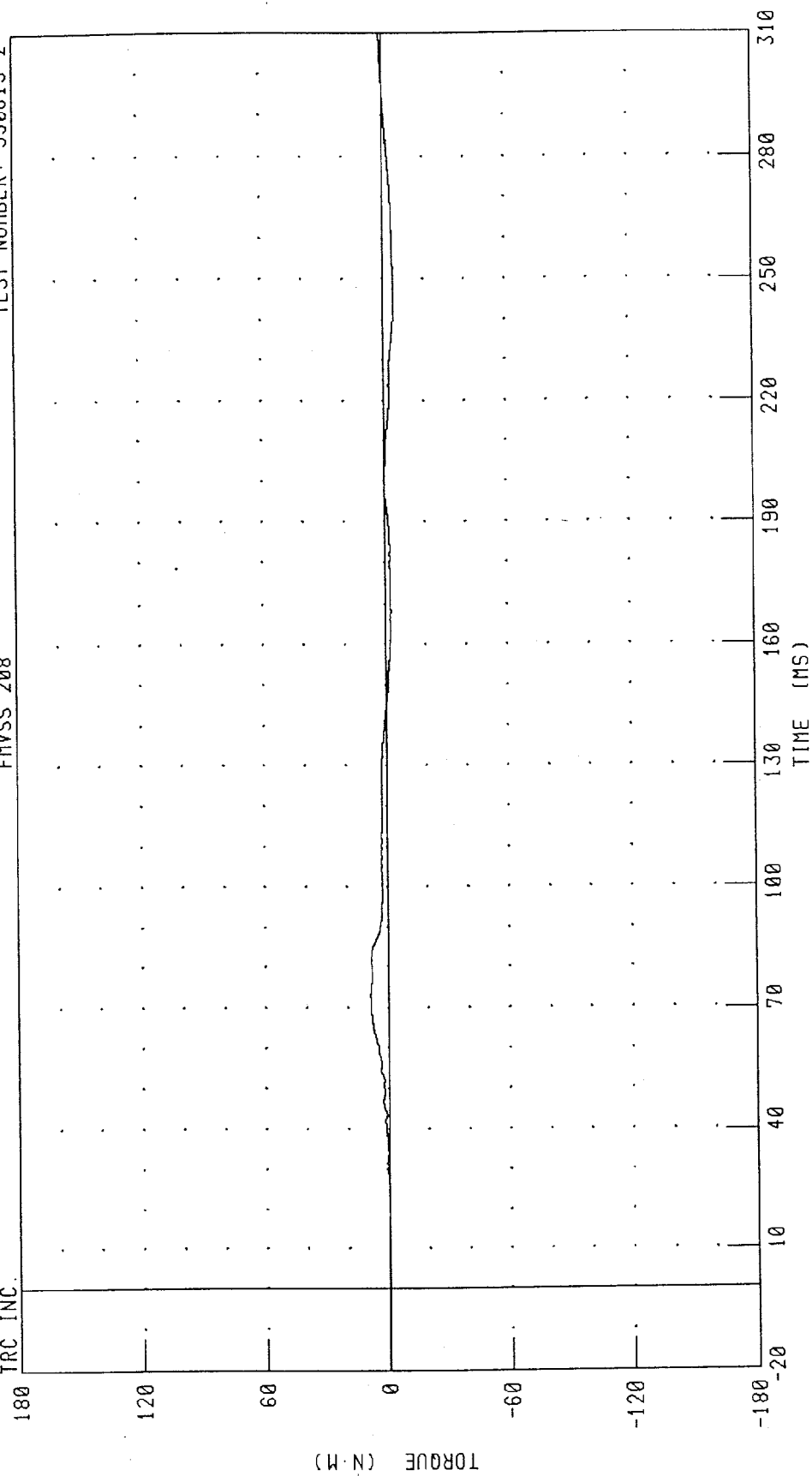


1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 8.75 N·M @ 72.80 MS; -5.43 N·M @ 245.44 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK OCCIPITAL CONDYLE

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.

180

120

60

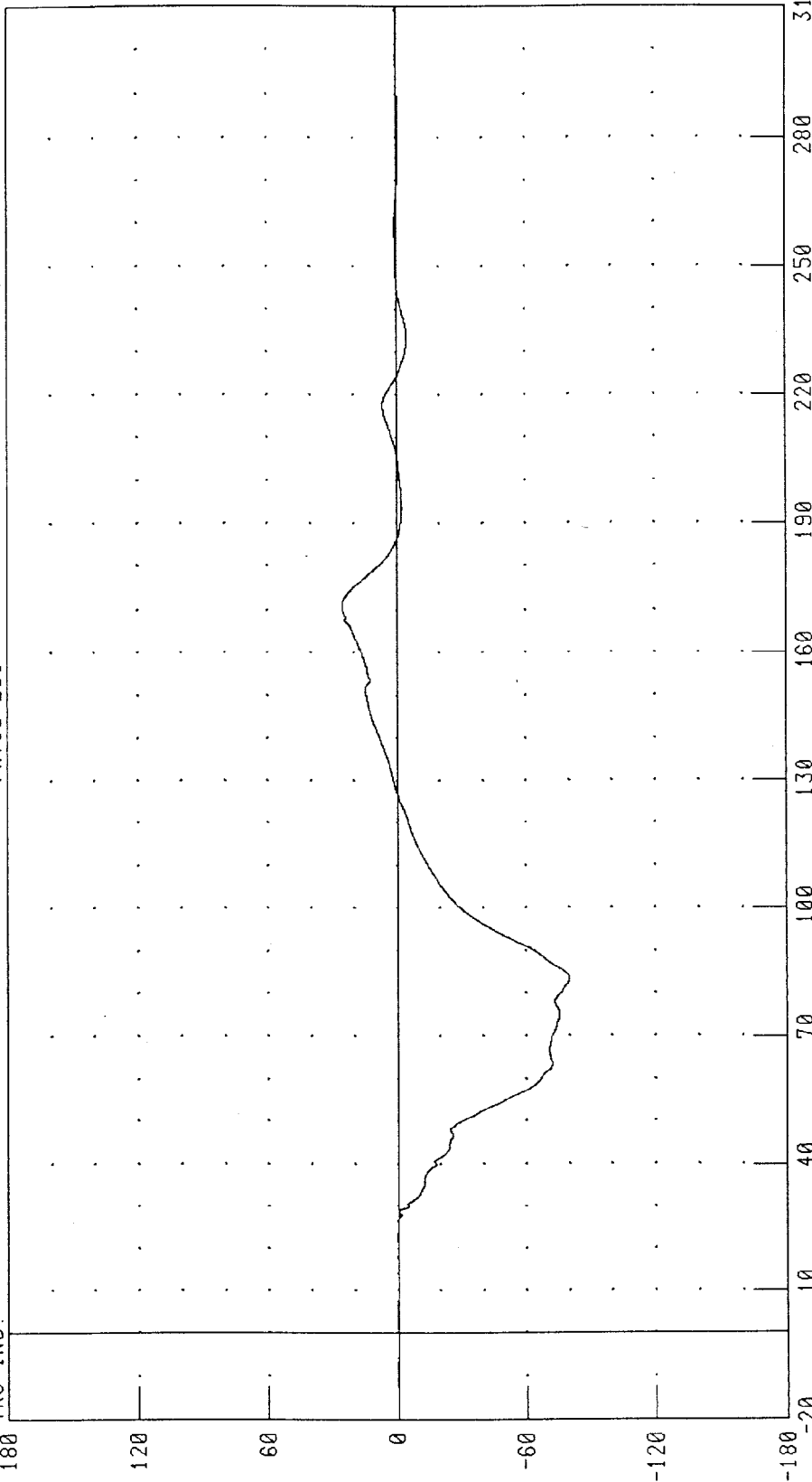
0

-60

-120

-180

TORQUE (N·M)



TIME (MS)

PEAK DATA: 25.16 N·M @ 171.12 MS; -80.12 N·M @ 83.68 MS

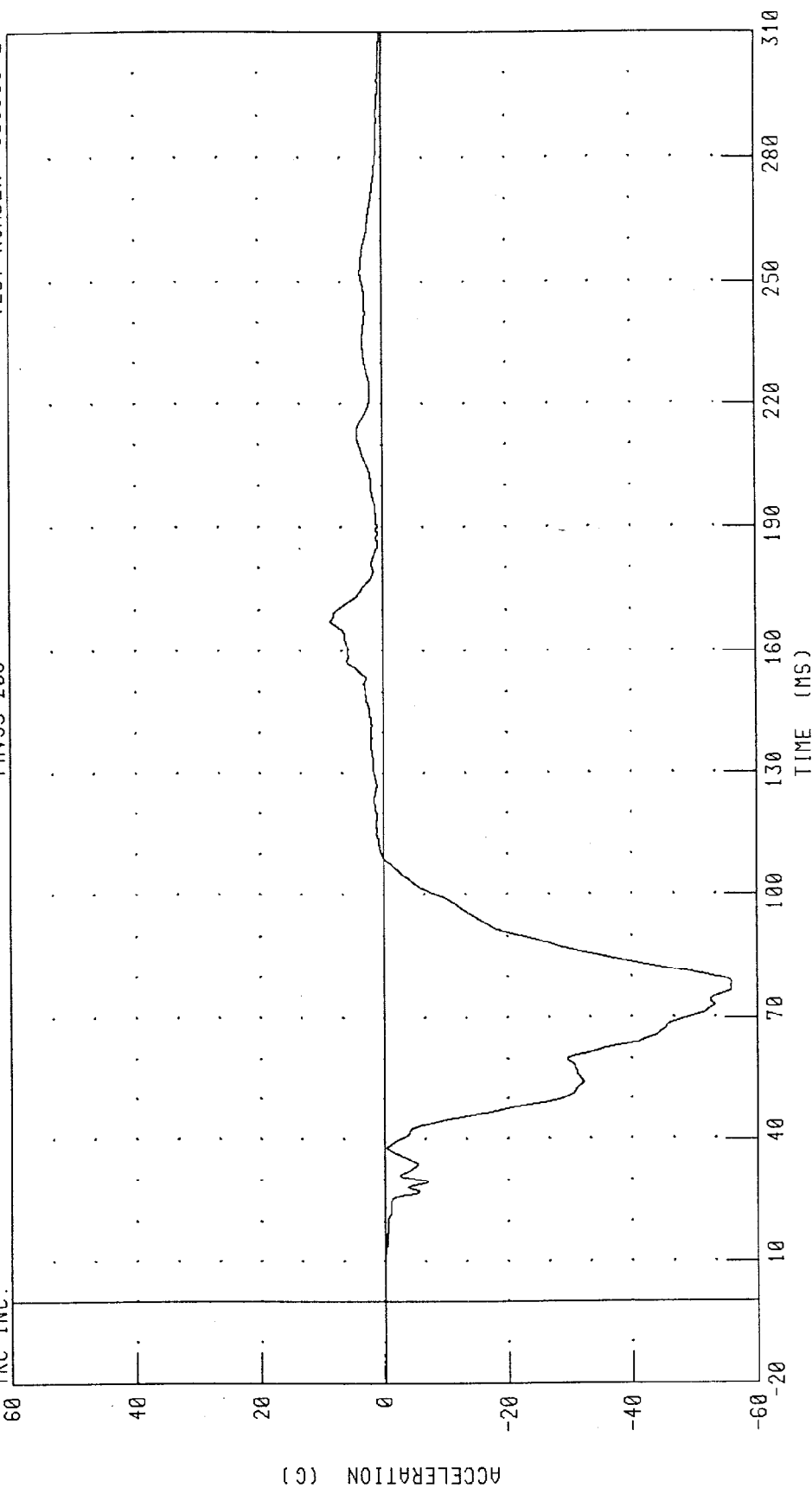
CHANNEL: NEKOM1 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: CSTXG1 FILTER: CH. CLASS 180

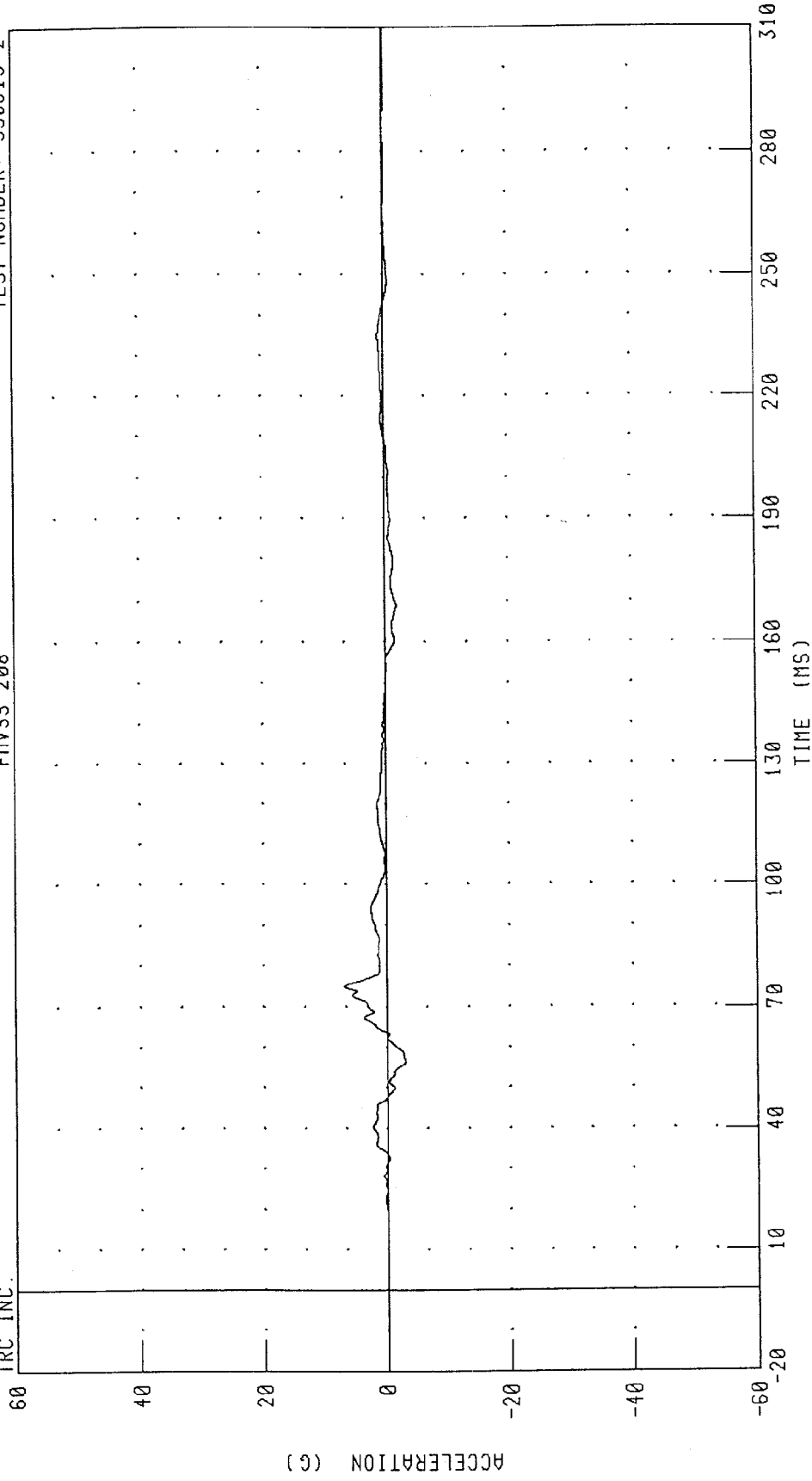
PEAK DATA: 8.35 G @ 167.44 MS; -56.02 G @ 78.56 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST Y-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: CSTYG1 FILTER: CH. CLASS 180

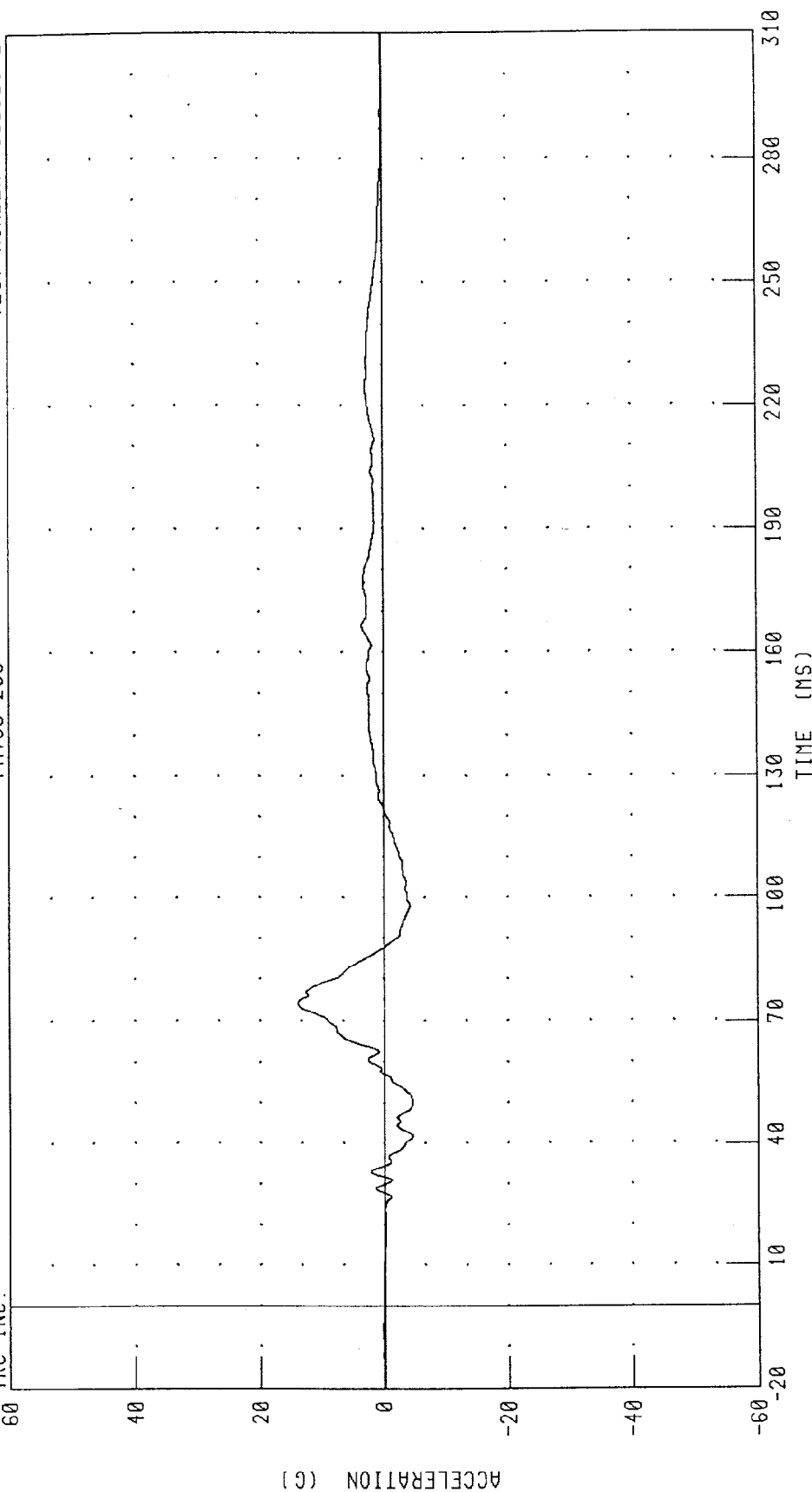
PEAK DATA: 6.83 G @ 75.04 MS; -3.08 G @ 56.56 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST Z-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: CSTZ01 FILTER: CH. CLASS 180

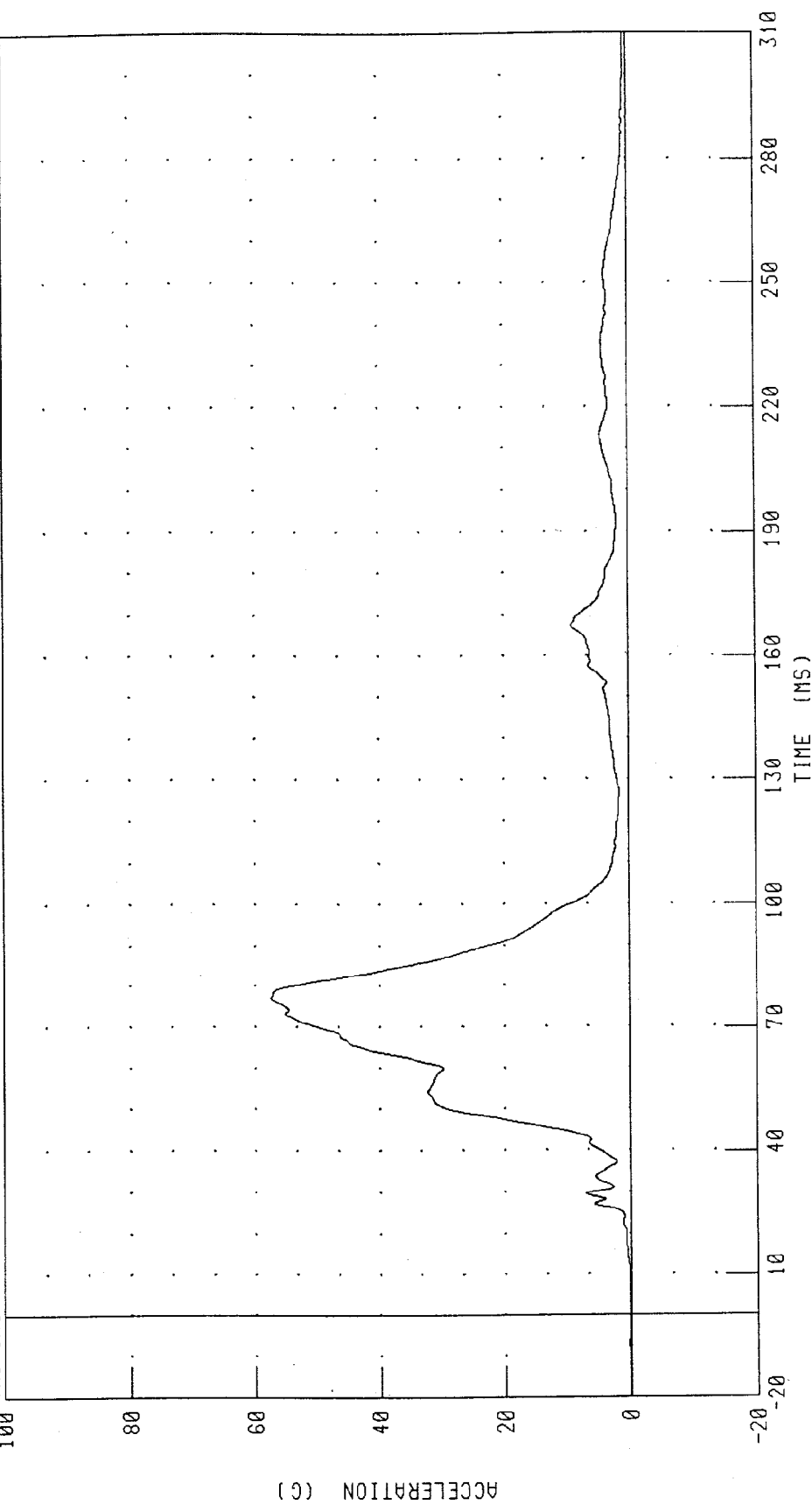
PEAK DATA: 13.94 G @ 74.32 MS, -4.67 G @ 41.92 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST RESULTANT ACCELERATION

TEST NUMBER: 990615-2

FNVS 208

TRC INC.



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

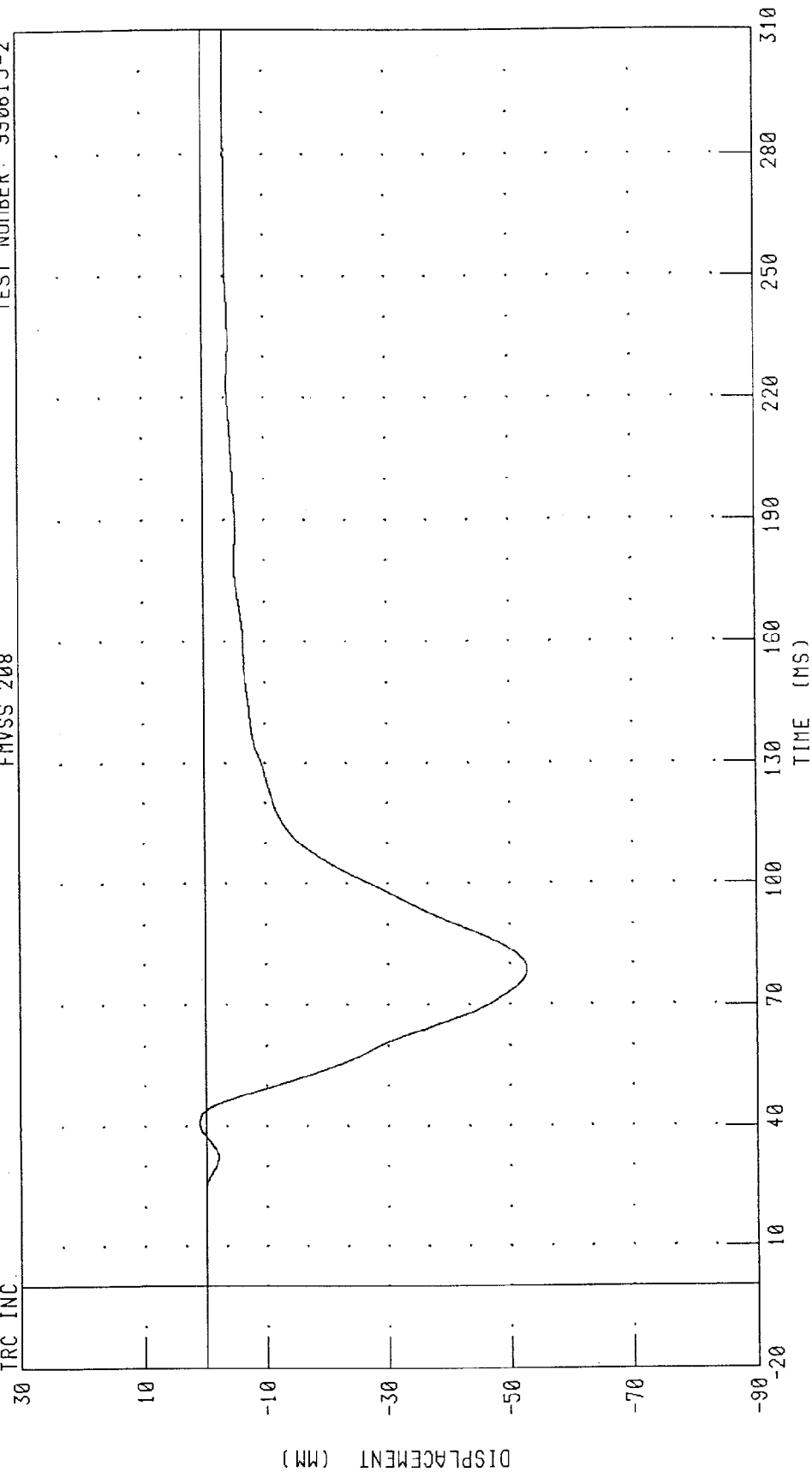
PEAK DATA: 57.47 G @ 76.96 MS; 0.01 G @ -20.00 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST DEFLECTION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 1.04 MM @ 40.88 MS, -52.78 MM @ 78.96 MS

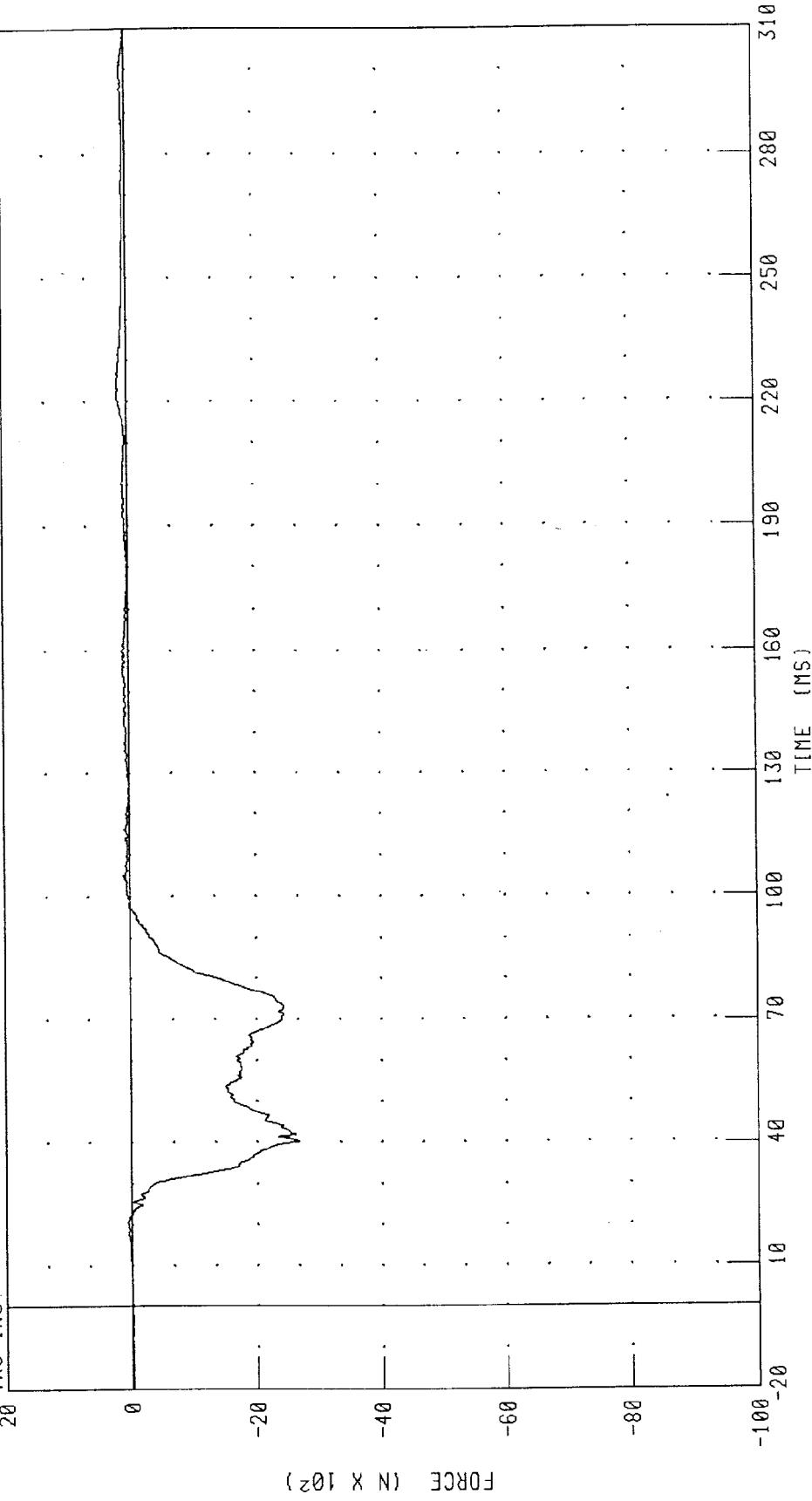
CHANNEL: CSTXD1 FILTER: CH. CLASS 180

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER LEFT FEMUR FORCE

TEST NUMBER: 990615-2

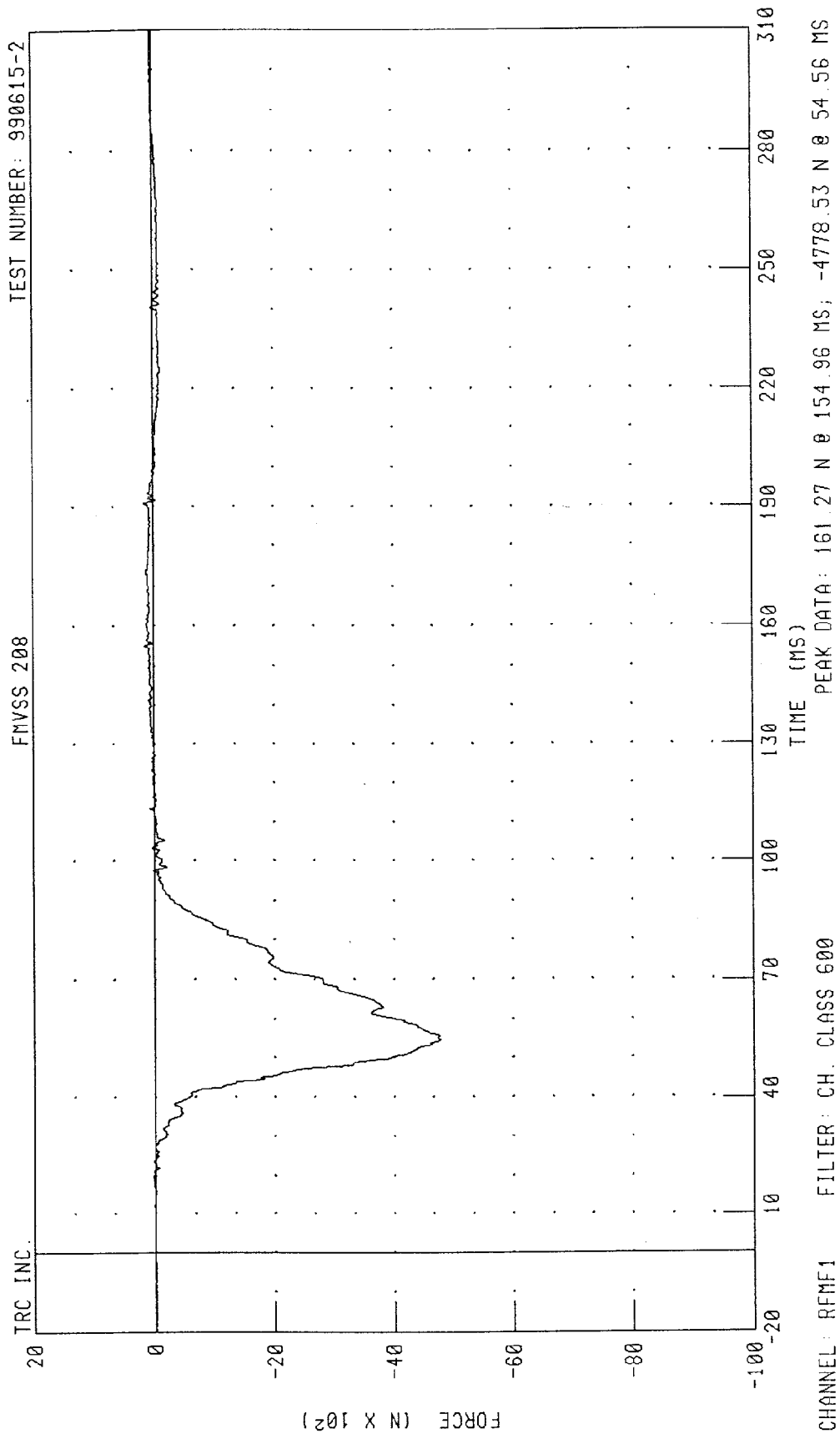
FMVSS 208

TRC INC.



CHANNEL: LFMF1 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER RIGHT FEMUR FORCE

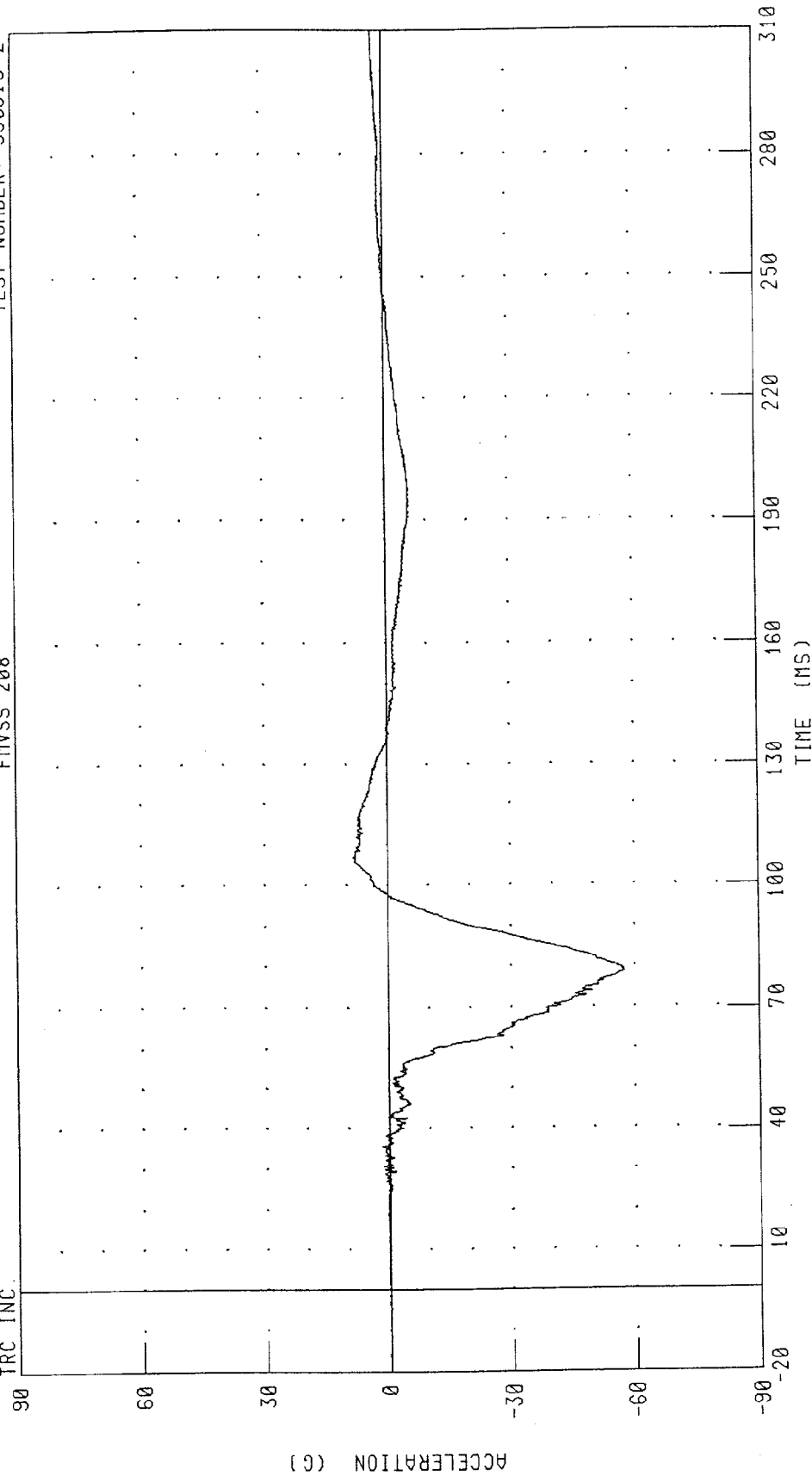


1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

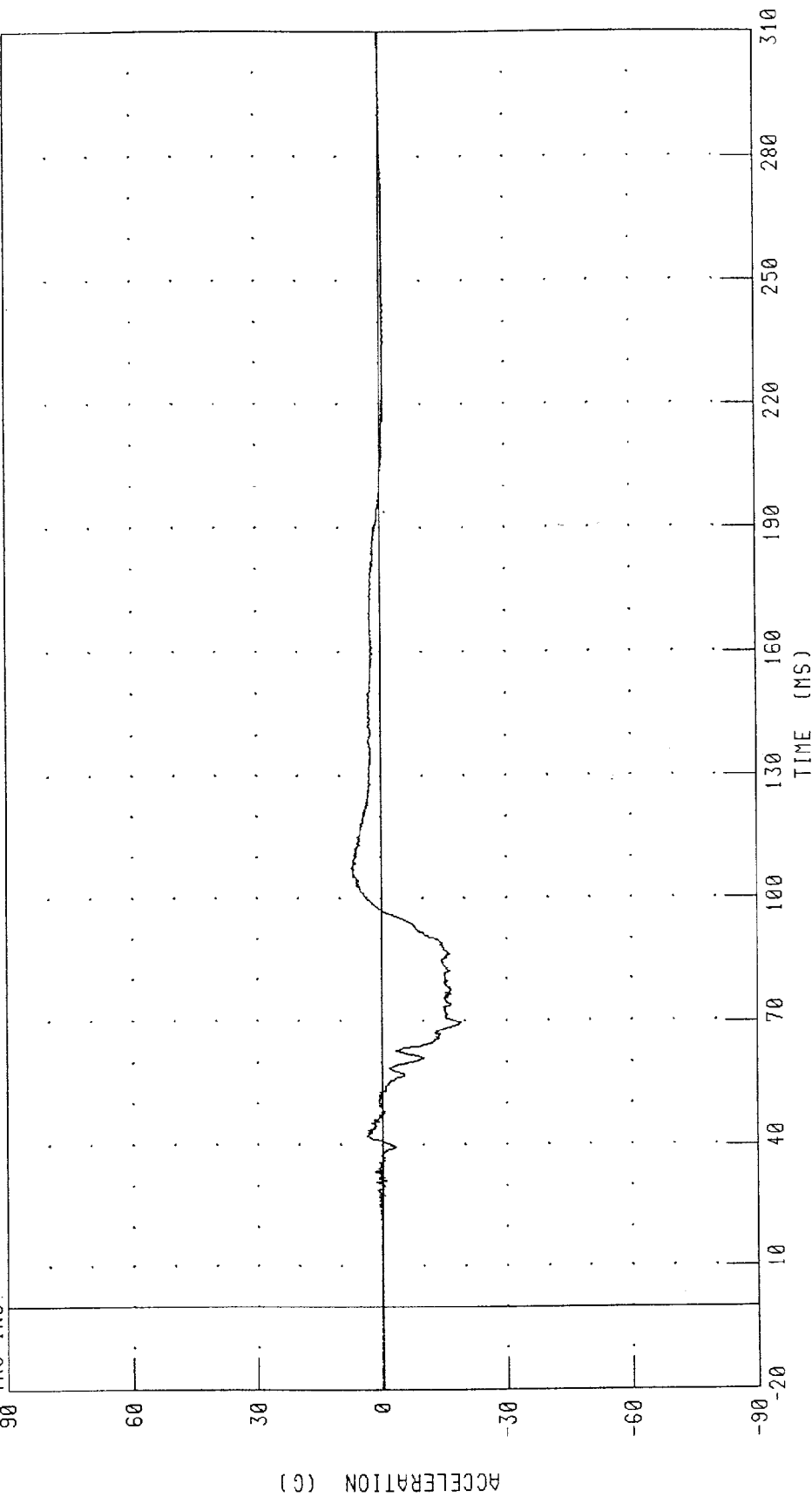
PEAK DATA: 8.23 G @ 106.72 MS, -57.43 G @ 78.80 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 7 04 G @ 107.28 MS; -18.99 G @ 69 60 MS

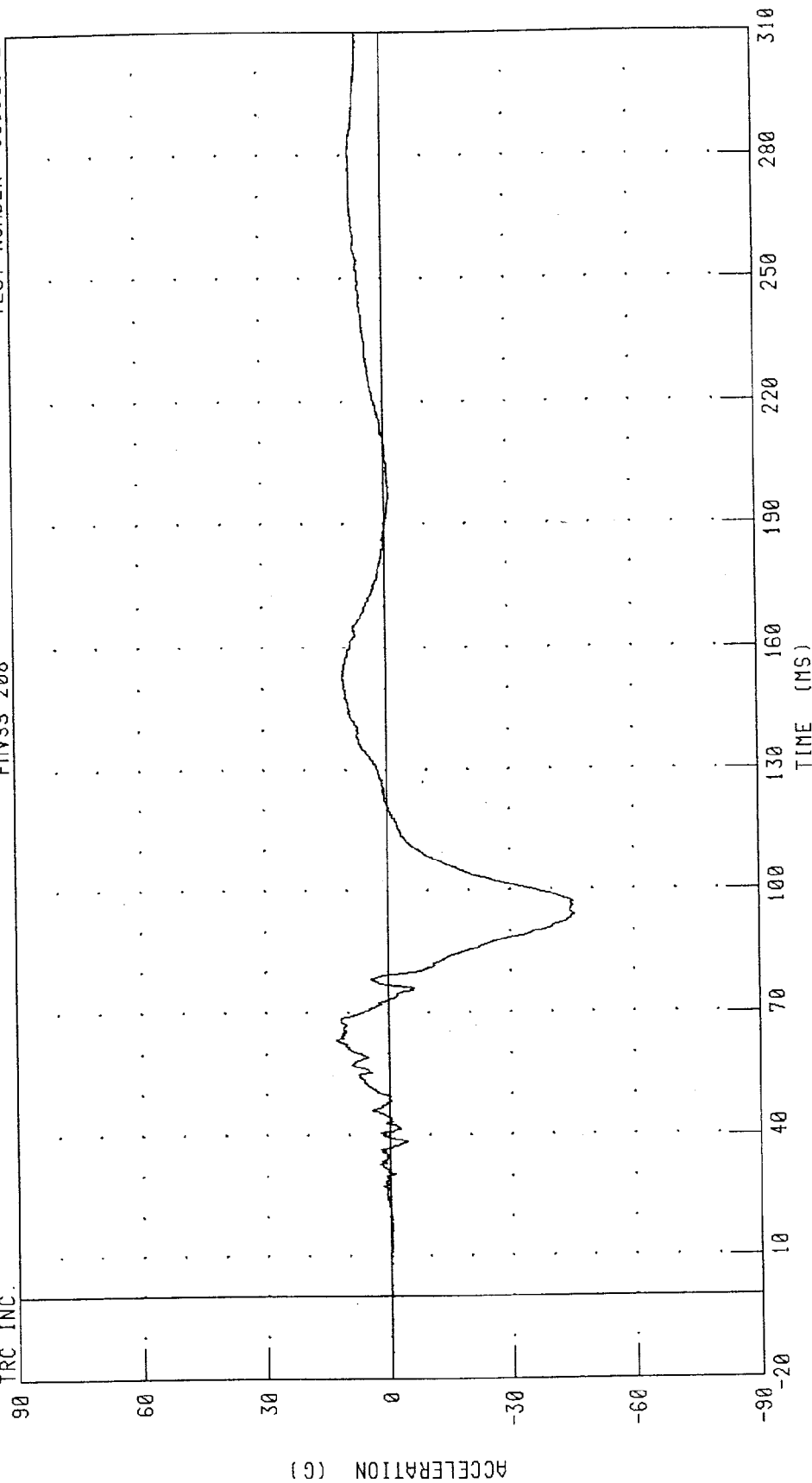
CHANNEL: HEDYC2 FILTER: CH. CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

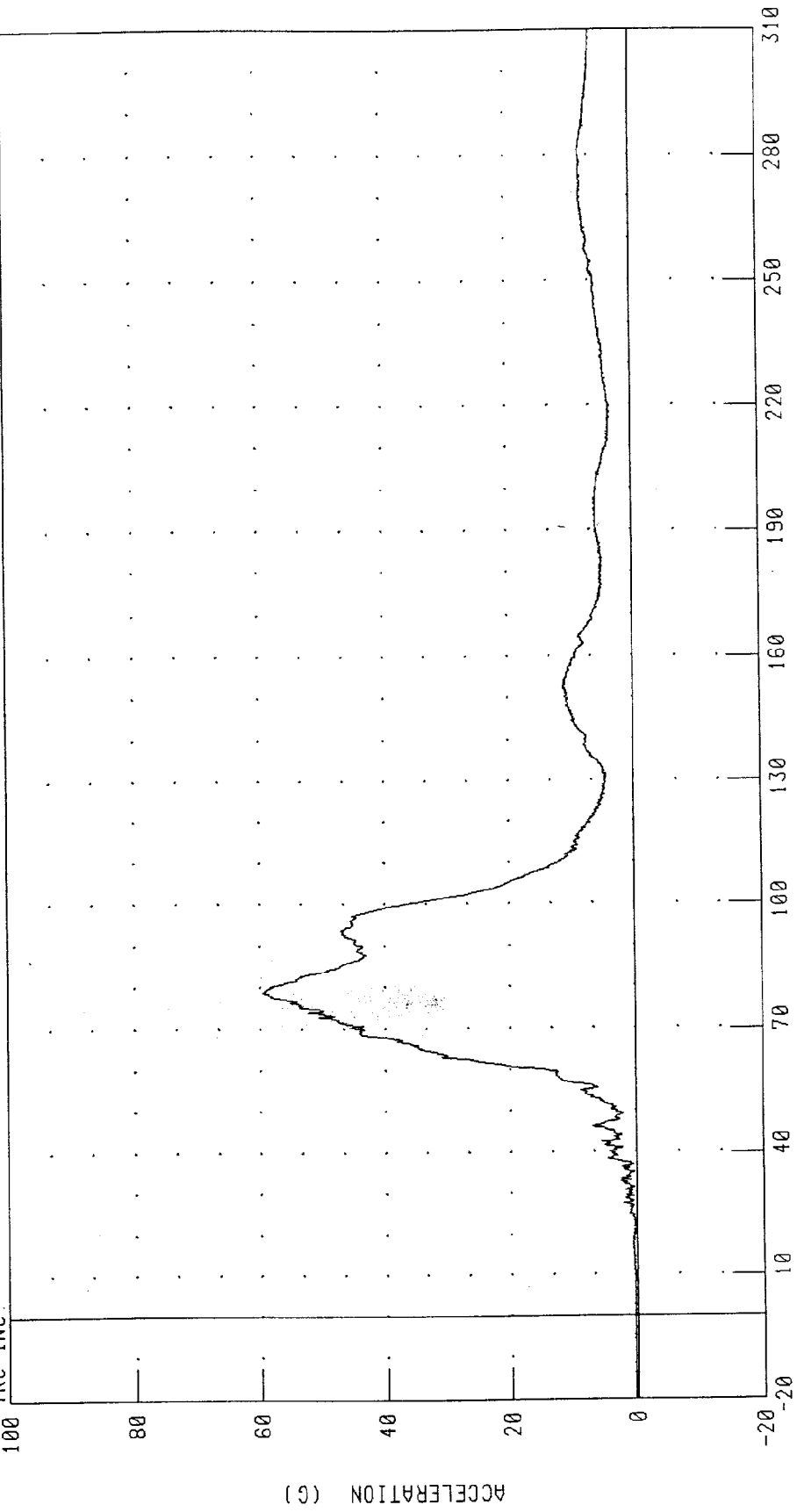
PEAK DATA: 12.93 G @ 63.52 MS; -45.50 G @ 93.84 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

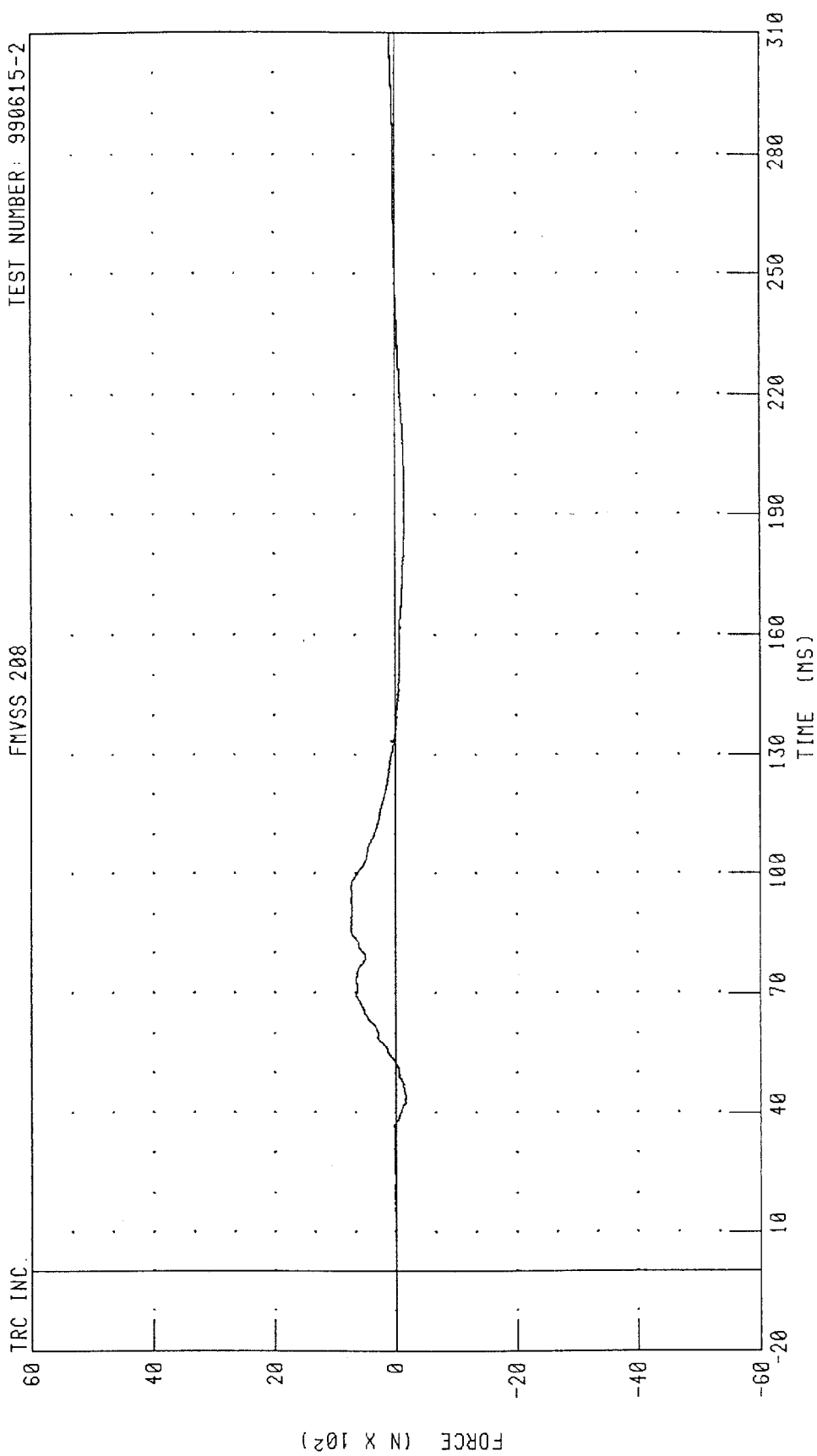
TRC INC



PEAK DATA: 59.61 G @ 78.80 MS; 0.02 G @ 21.44 MS

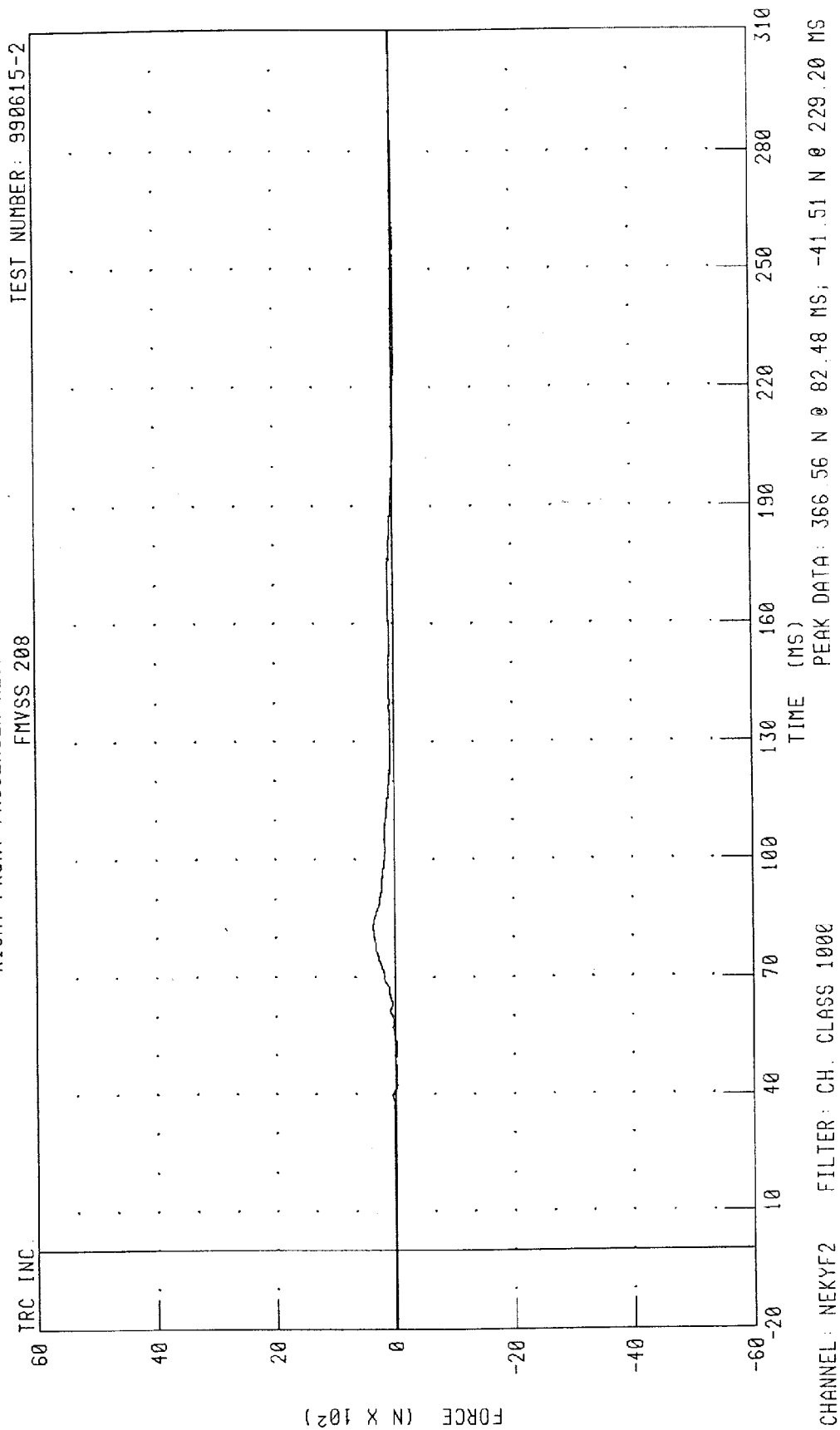
CHANNEL: HEDRC2 FILTER: CH CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 738.19 N @ 86.72 MS, -183.25 N @ 42.64 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE

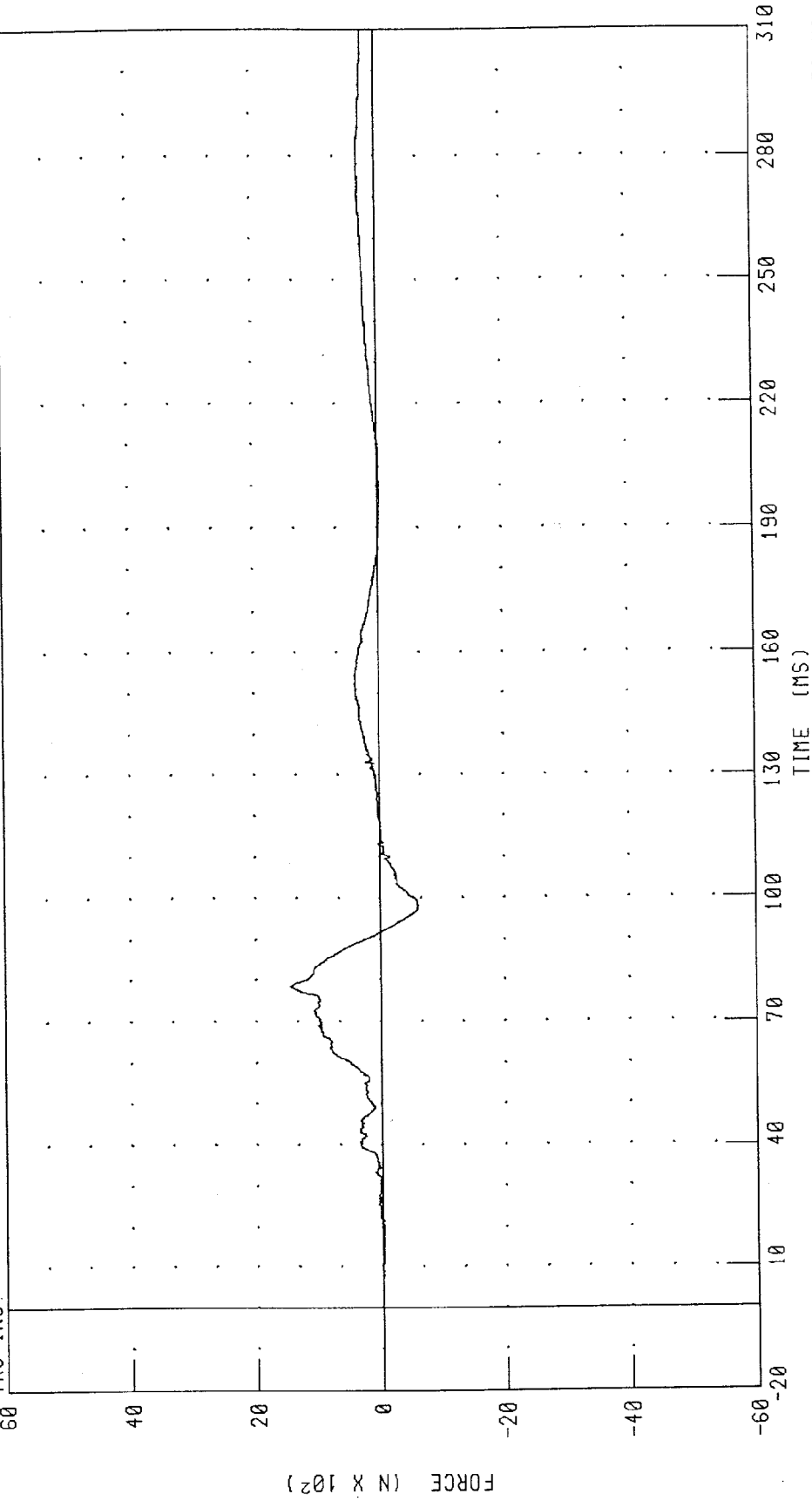


1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 1440.81 N @ 78.40 MS; -612.35 N @ 97.52 MS

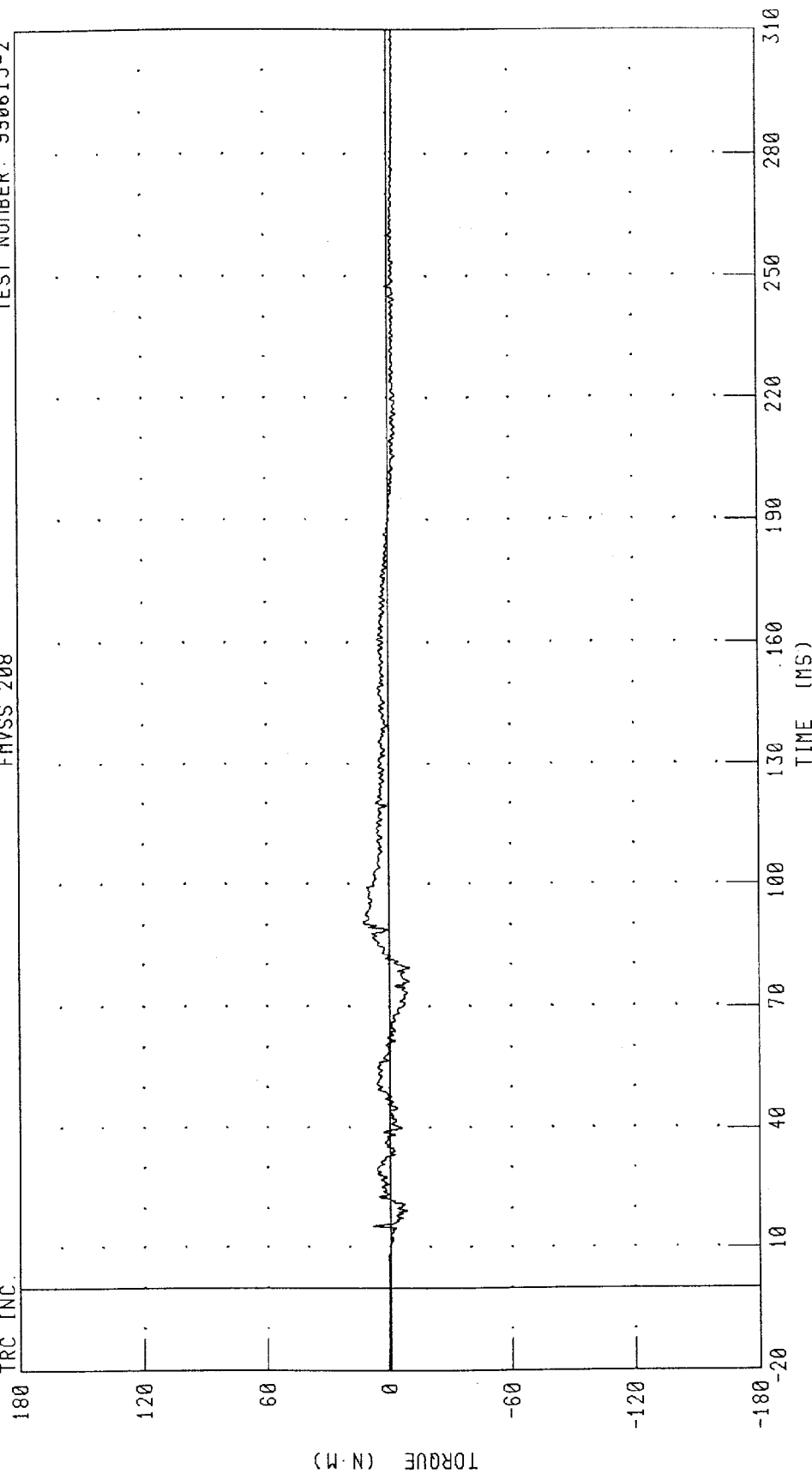
CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 12.58 N.M @ 90.72 MS; -9.89 N.M @ 76.16 MS

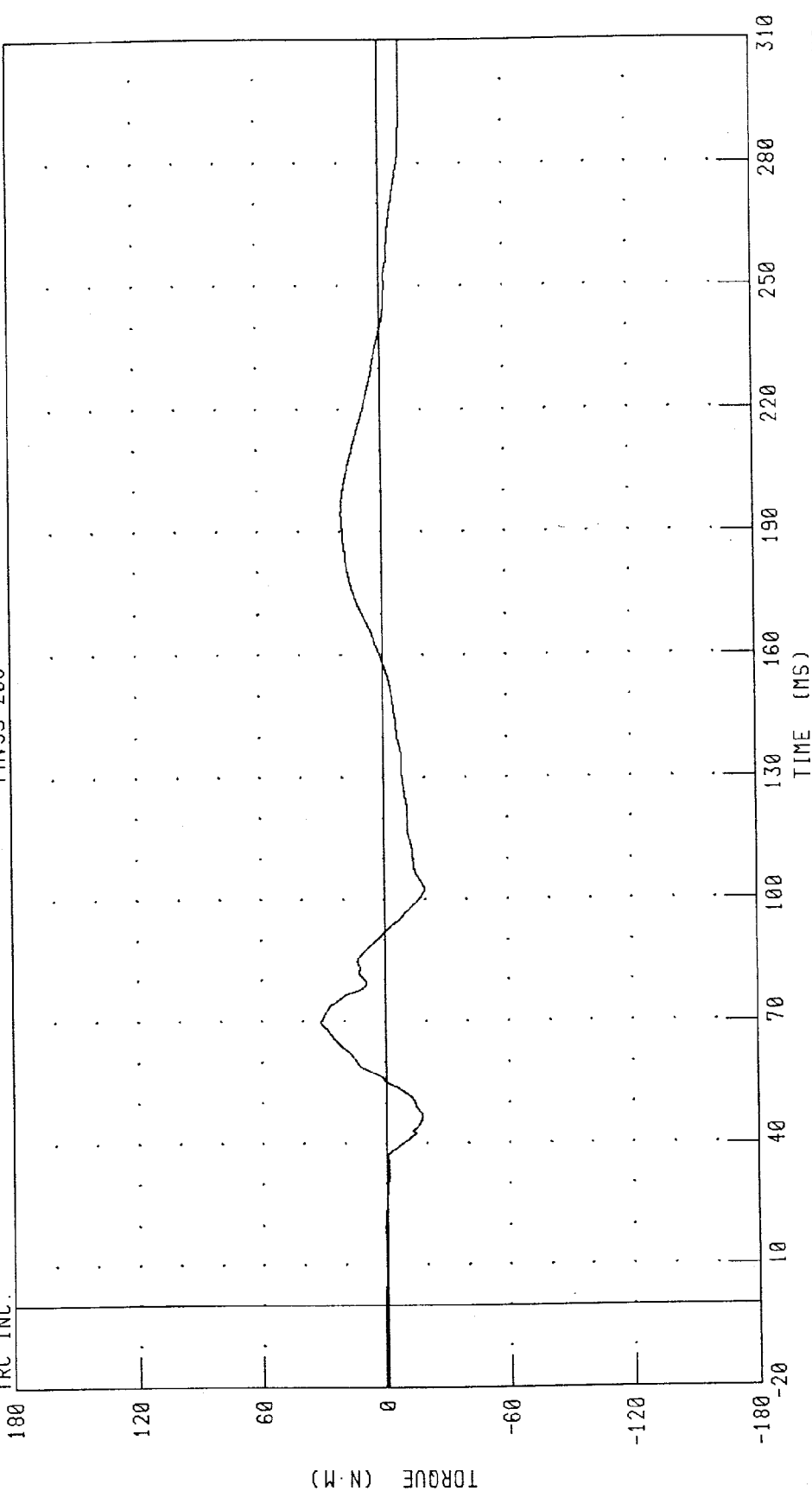
CHANNEL: NEKX2 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 31.19 N-M @ 69.92 MS; -19.46 N-M @ 102.64 MS

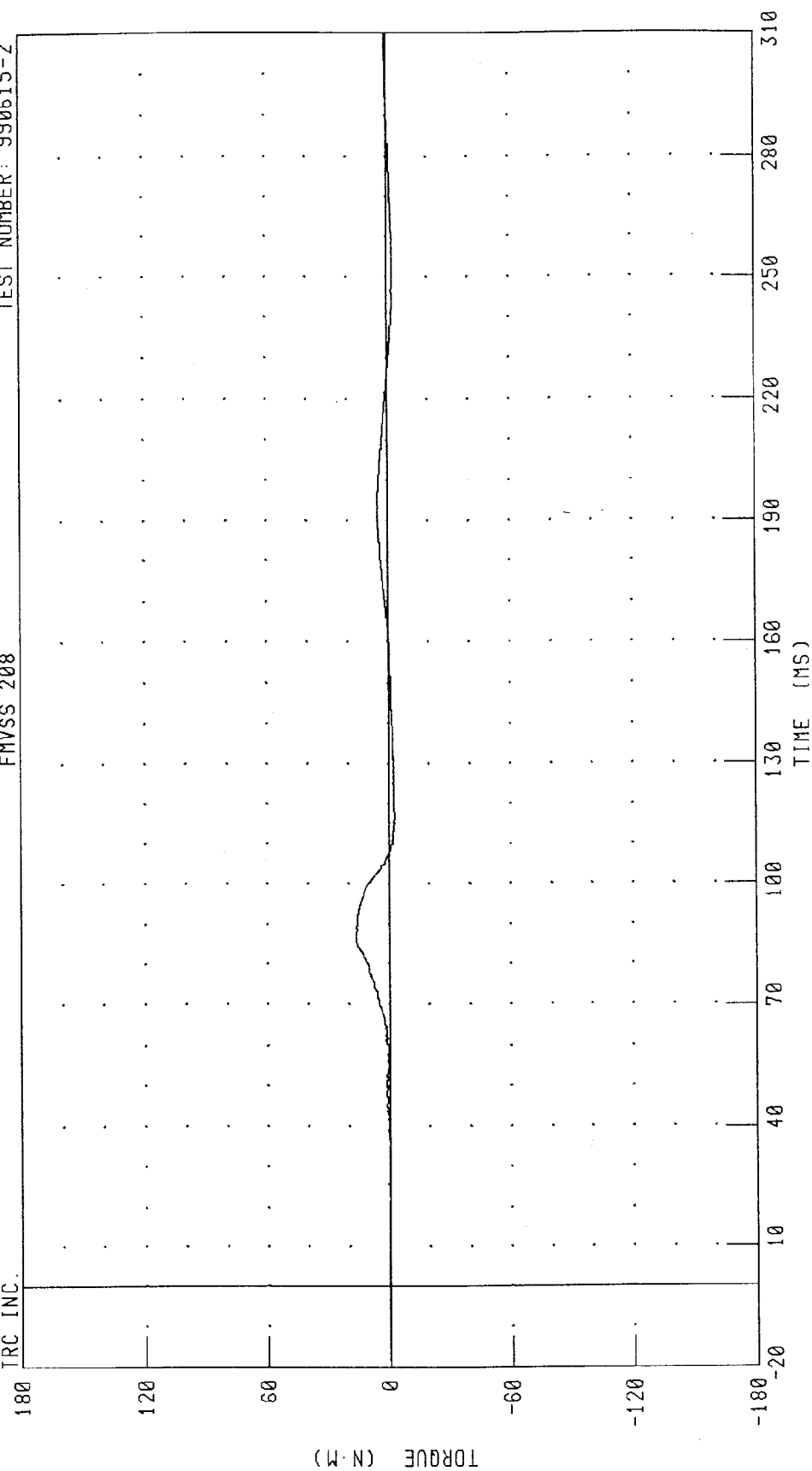
CHANNEL: NEKYM2 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: NEKZM2 FILTER: CH. CLASS 600

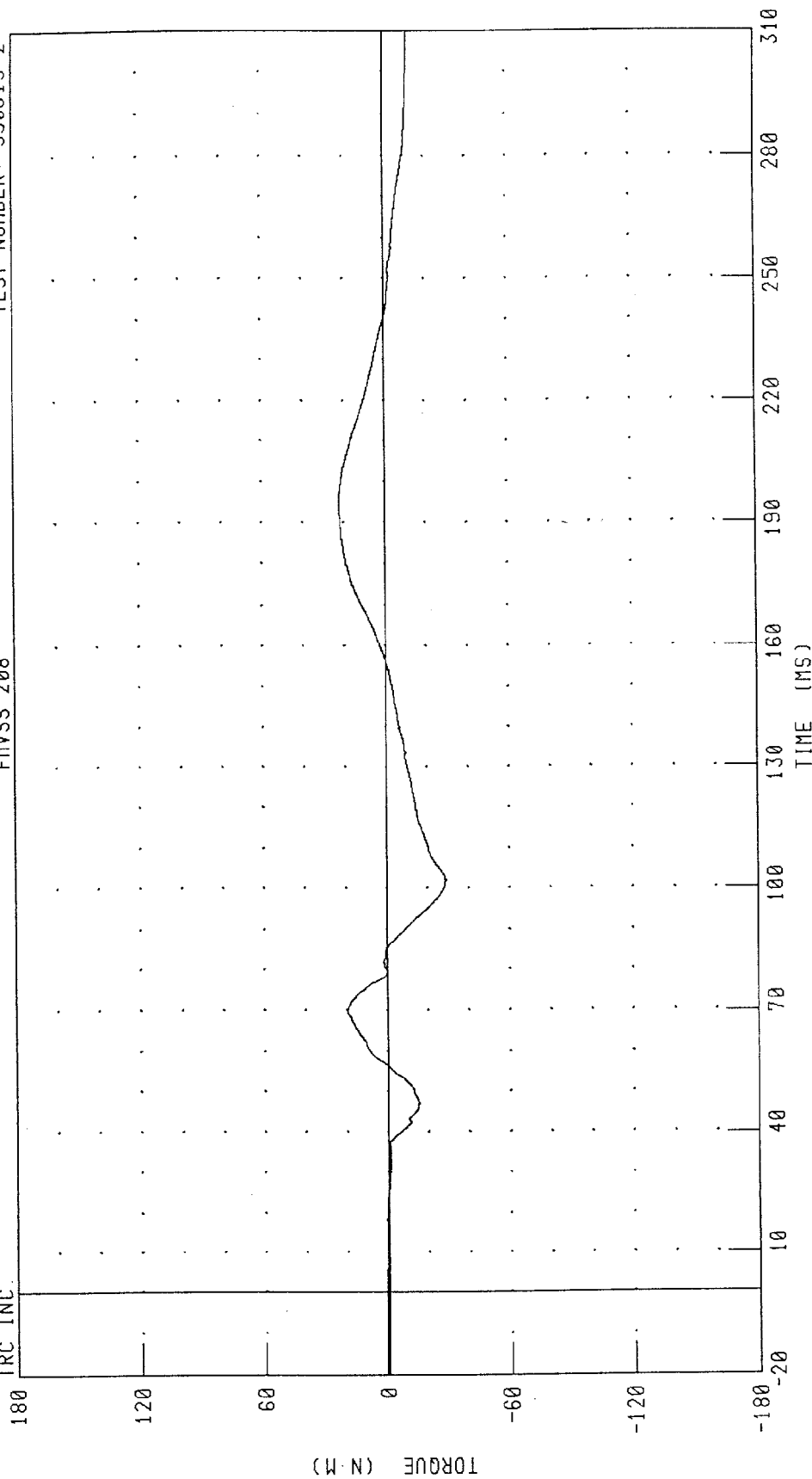
PEAK DATA: 16.32 N-M @ 87.12 MS; -3.21 N-M @ 117.36 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK OCCIPITAL CONDYLE

TEST NUMBER: 990615-2

ENVSS 208

TRC INC.



TIME (MS)

PEAK DATA: 22.17 N.M @ 194.56 MS; -28.92 N.M @ 102.00 MS

CHANNEL: NEKOM2 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION

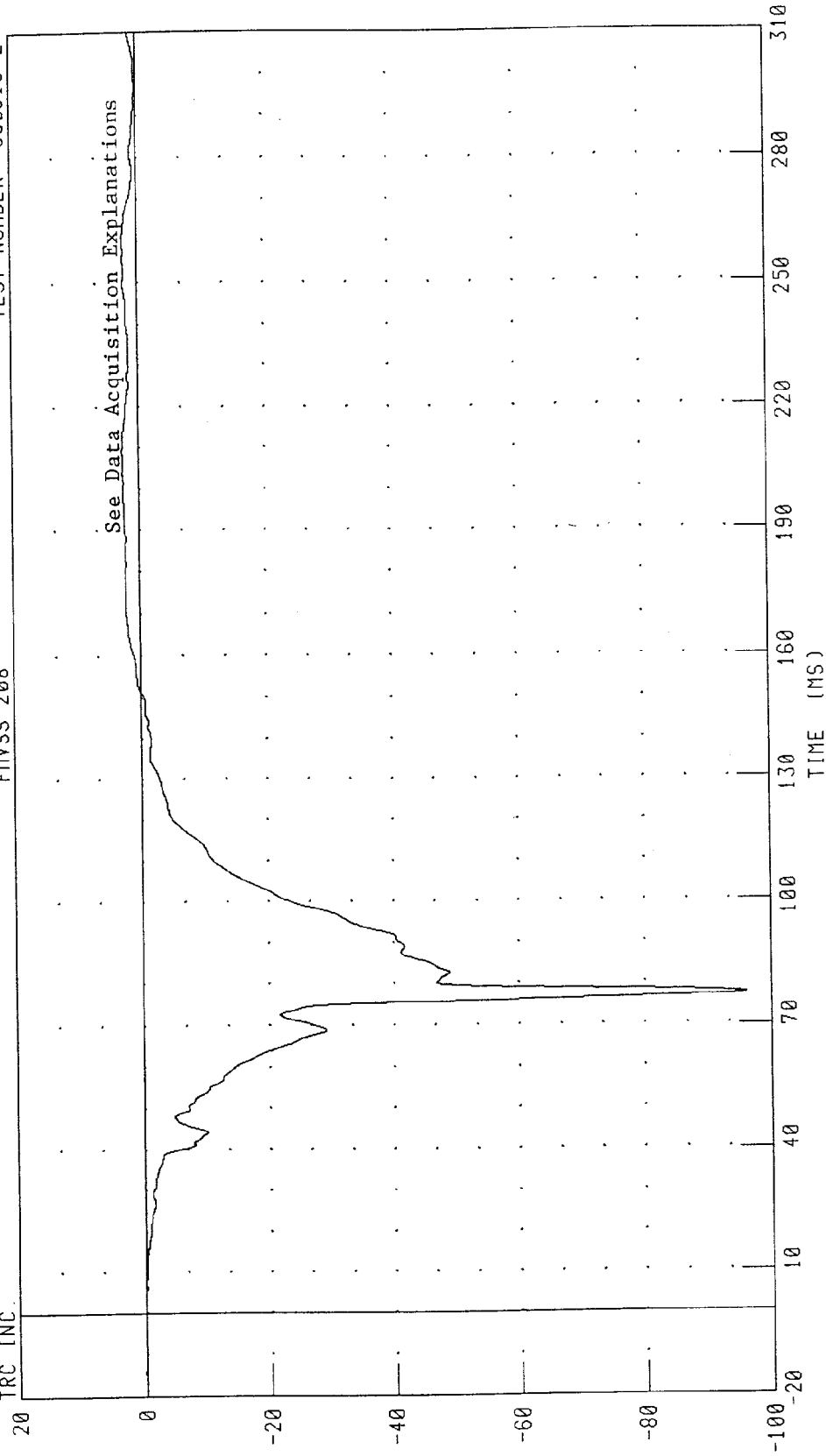
TEST NUMBER: 990615-2

FMVSS 208

TRC INC.

See Data Acquisition Explanations

ACCELERATION (G)



PEAK DATA: 2.72 G @ 203.84 MS, -96.04 G @ 77.44 MS

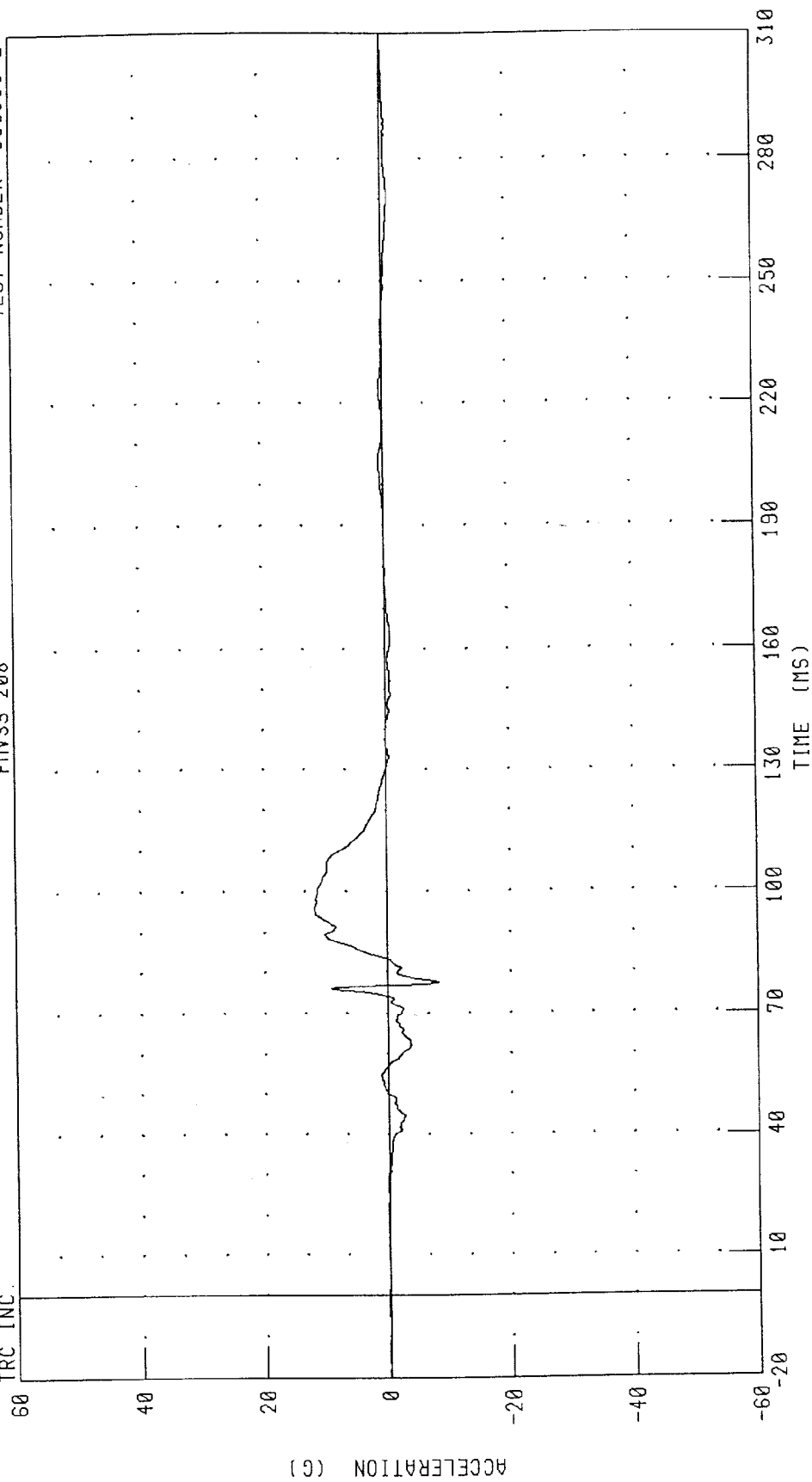
CHANNEL: CSTXG2 FILTER: CH. CLASS 180

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

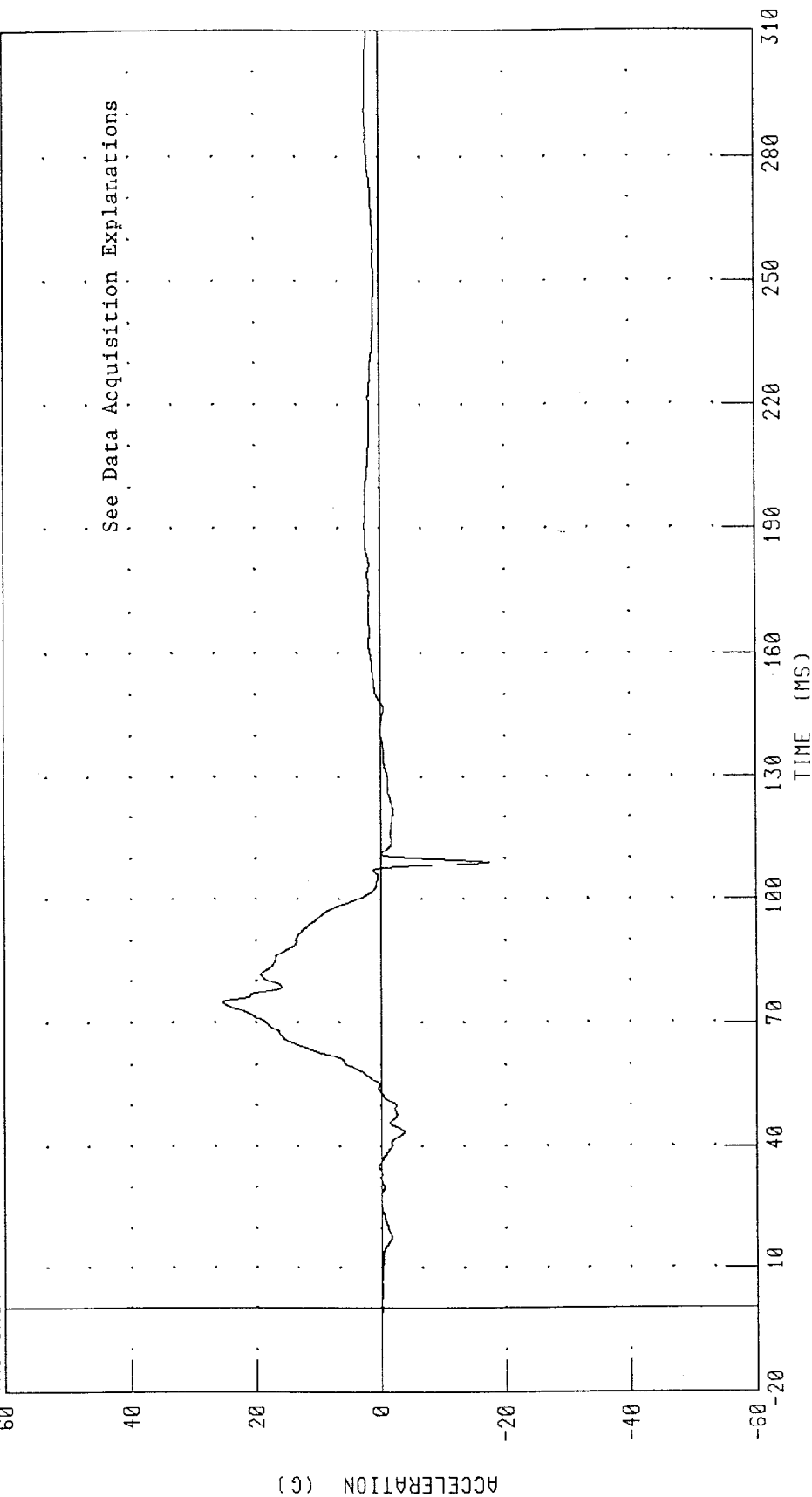
PEAK DATA: 11.83 G @ 95.68 MS; -8.36 G @ 77.68 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION

TEST NUMBER: 990615-2

FNVS 208

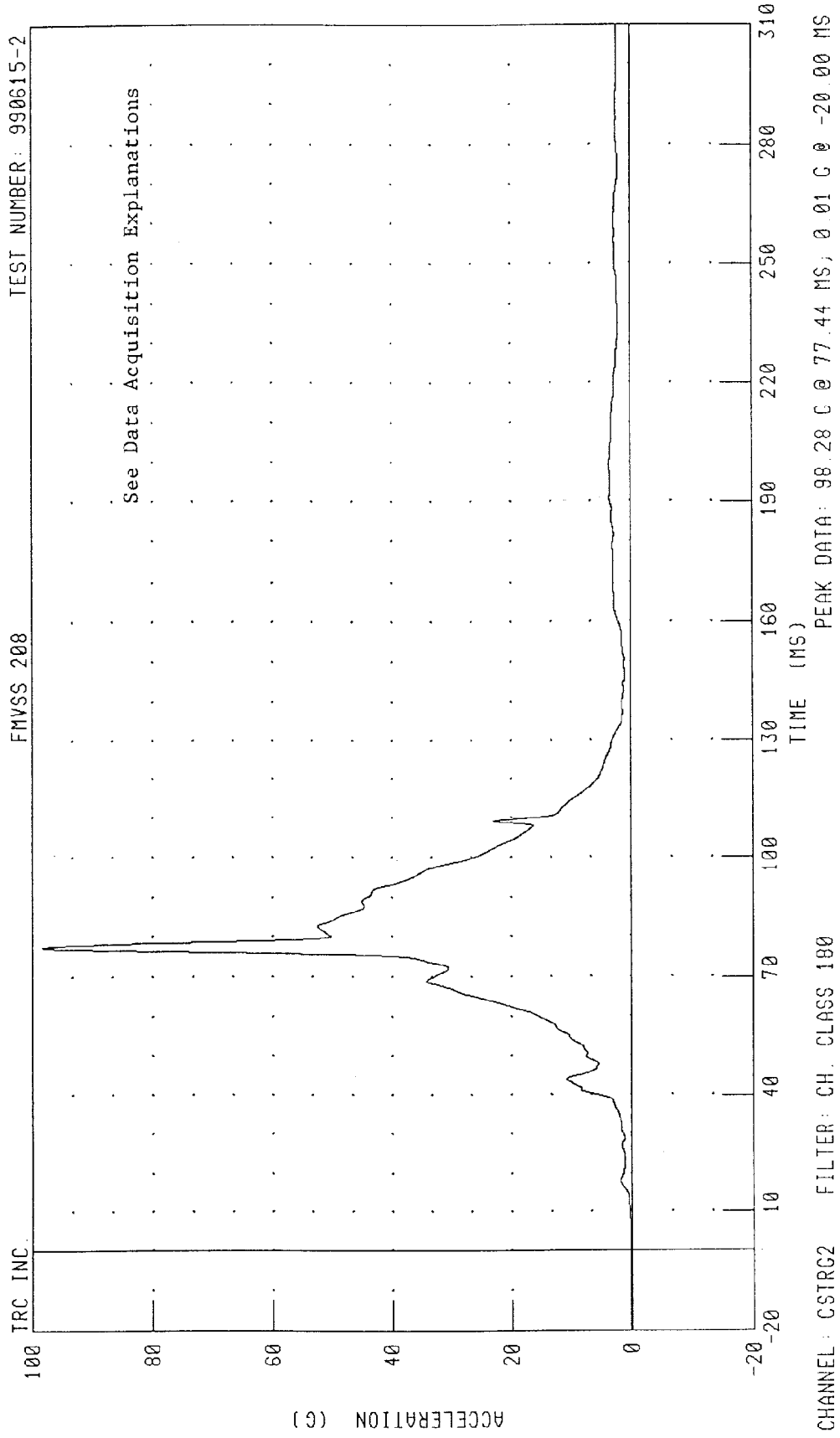
TRC INC.



CHANNEL: CSTZC2 FILTER: CH. CLASS 180

PEAK DATA: 25.34 G @ 74.96 MS; -17.59 G @ 109.12 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION

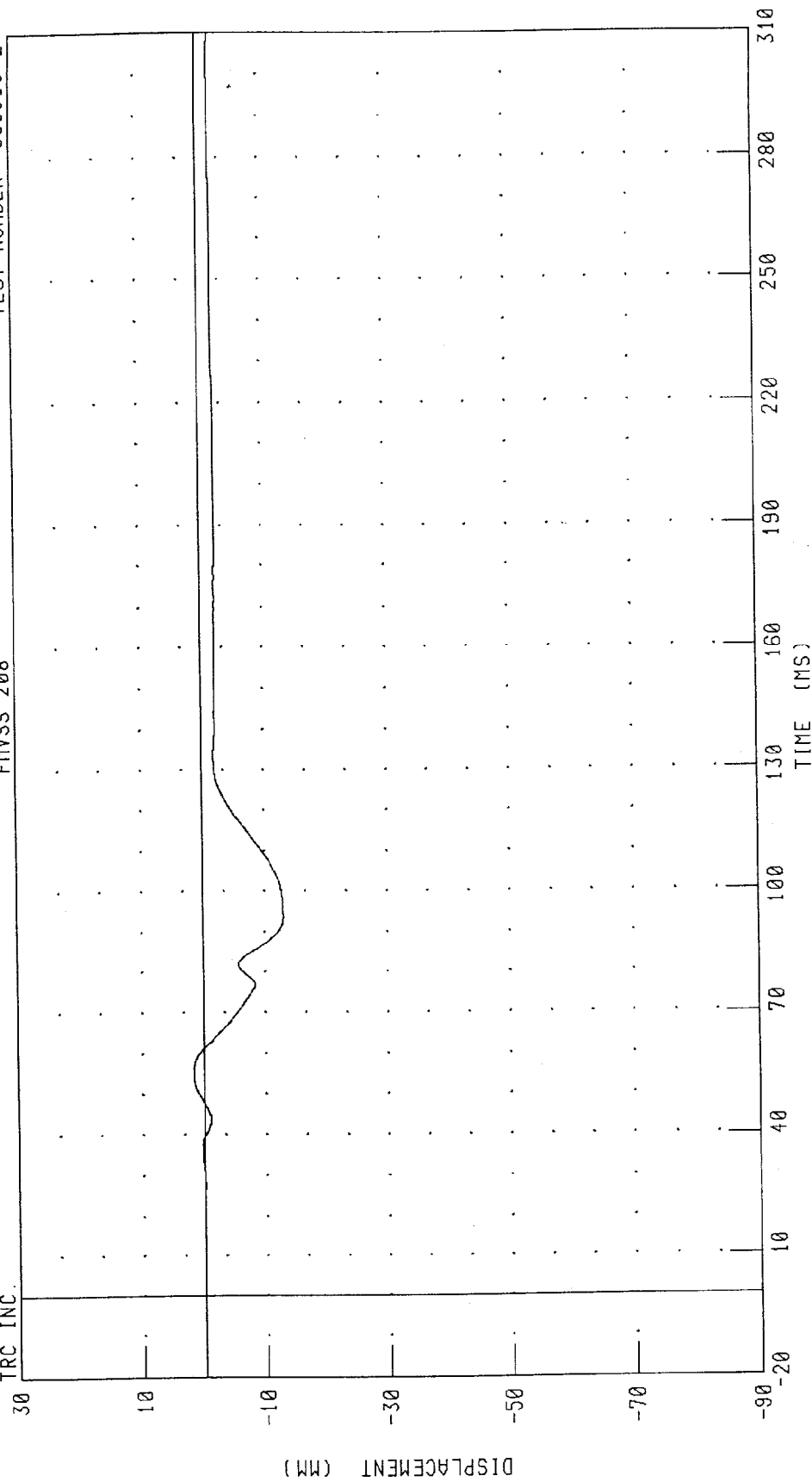


1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST DEFLECTION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 1.78 MM @ 55.04 MS, -13.07 MM @ 93.84 MS

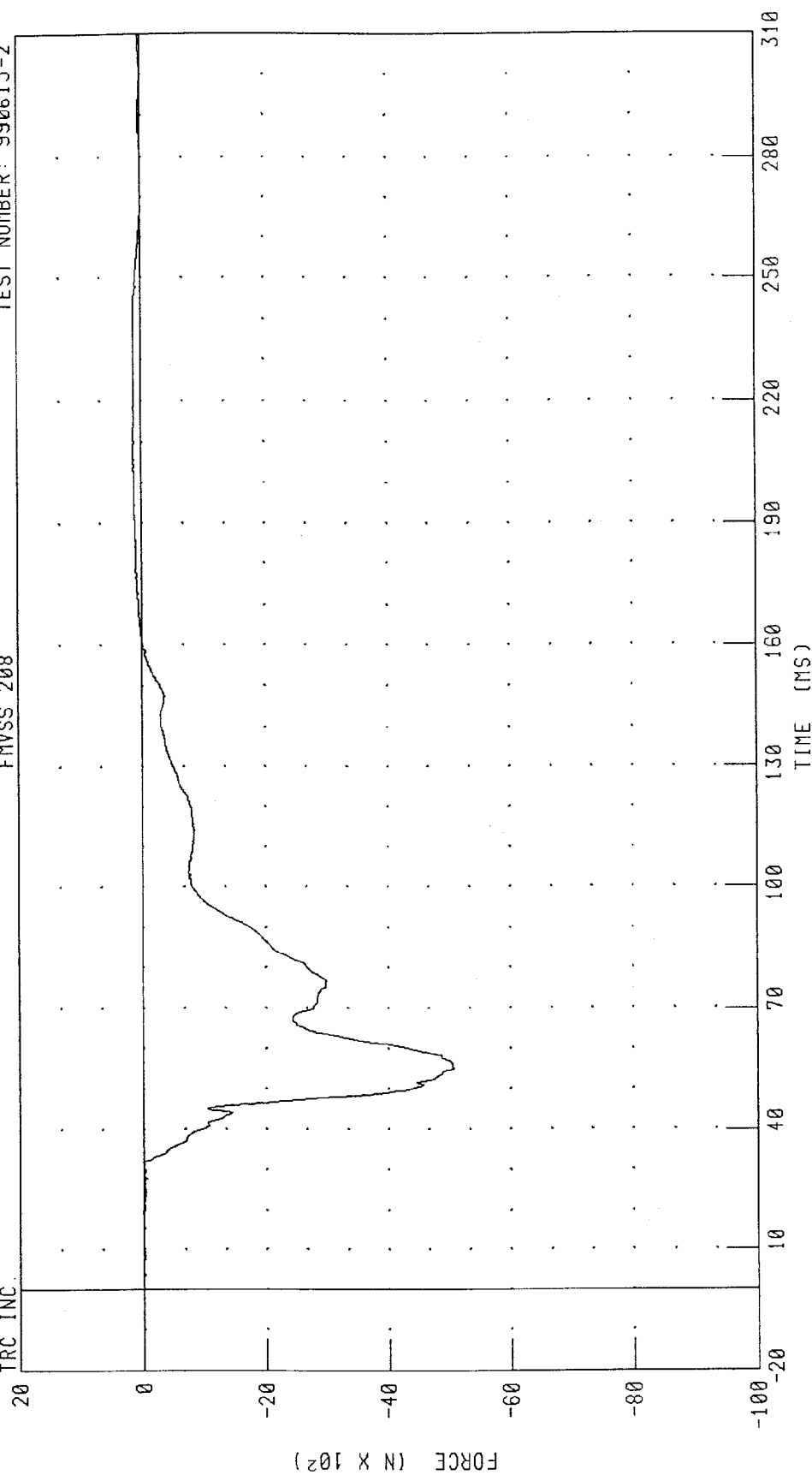
CHANNEL: CSTXD2 FILTER: CH. CLASS 180

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER LEFT FEMUR FORCE

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 142.80 N @ 203.44 MS; -5078.29 N @ 55.04 MS

FILTER: CH. CLASS 600

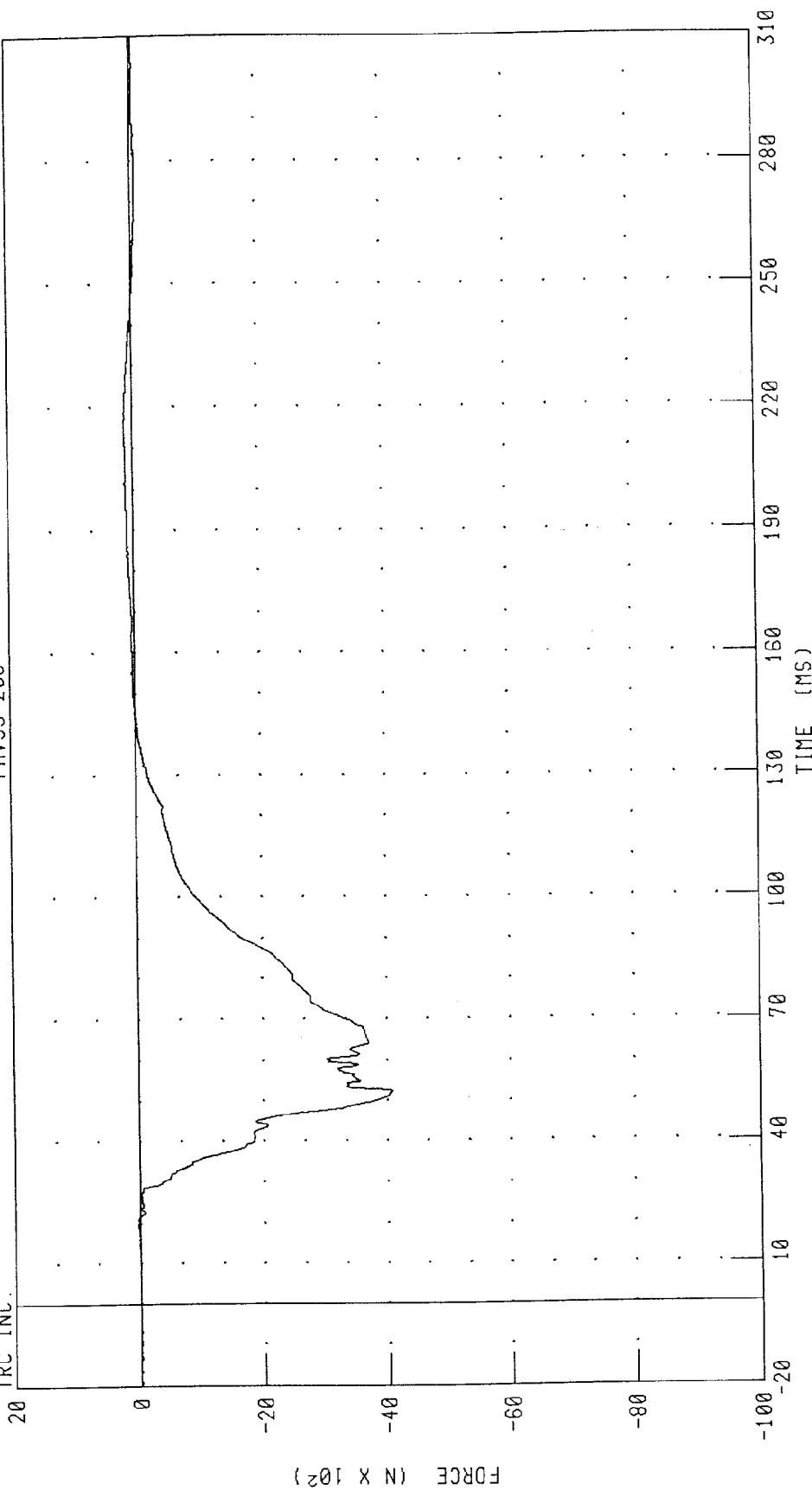
CHANNEL: LFMF2

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 136.00 N @ 215.36 MS; -4092.65 N @ 52.40 MS

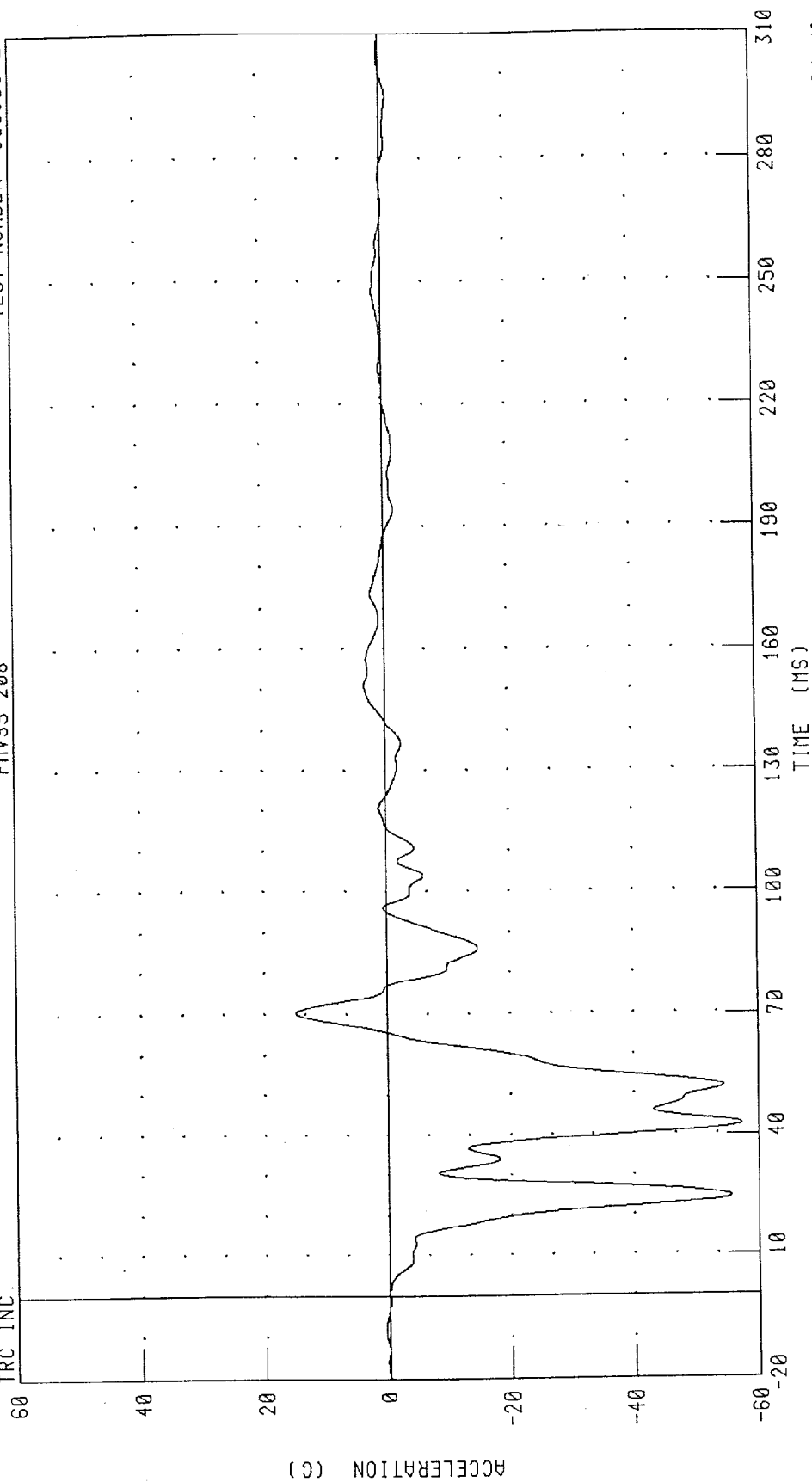
CHANNEL: RFMF2 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

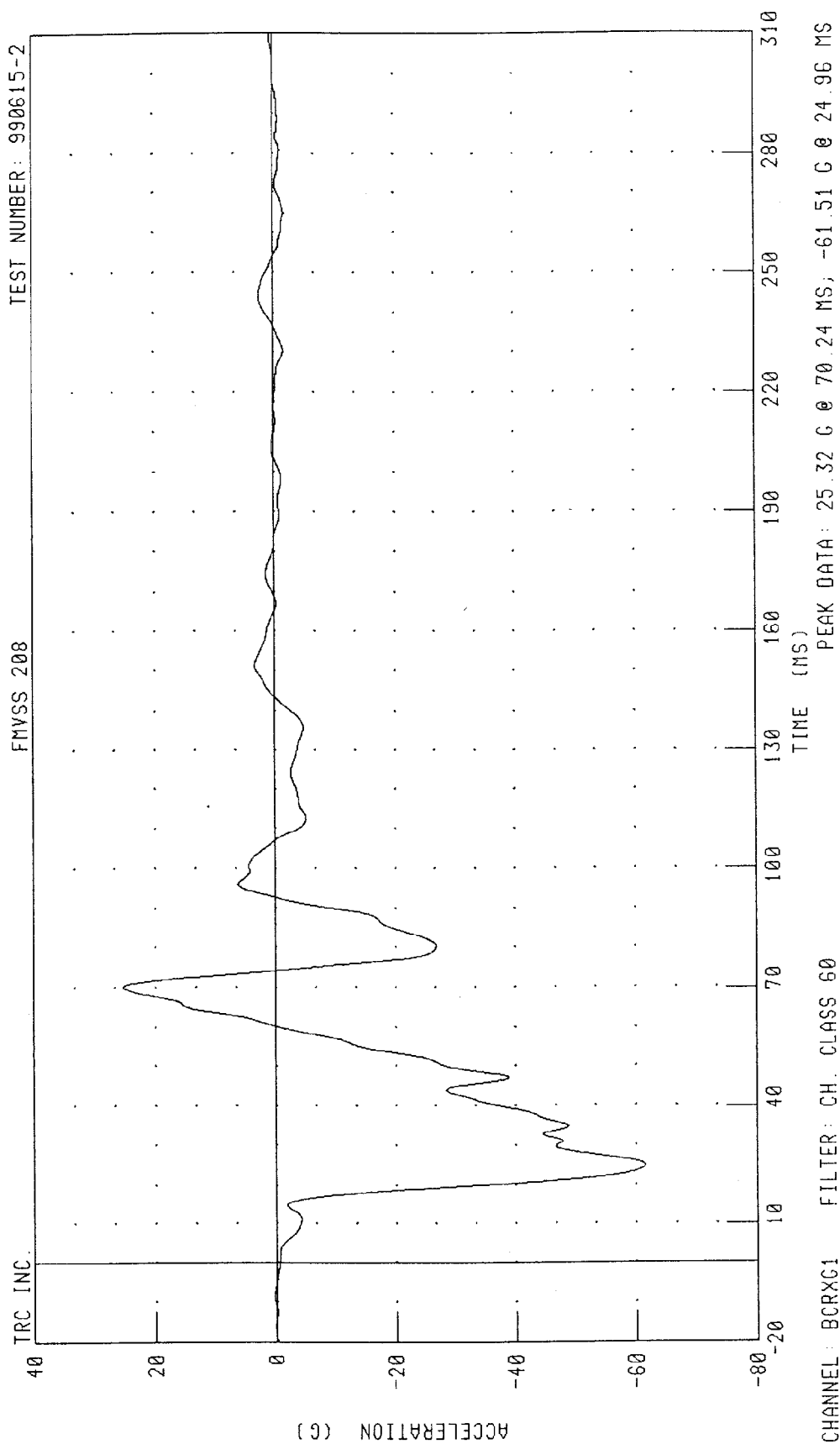
TRC INC.



CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 14.84 G @ 70.40 MS, -57.29 G @ 42.64 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT BRAKE CALIPER X-AXIS ACCELERATION

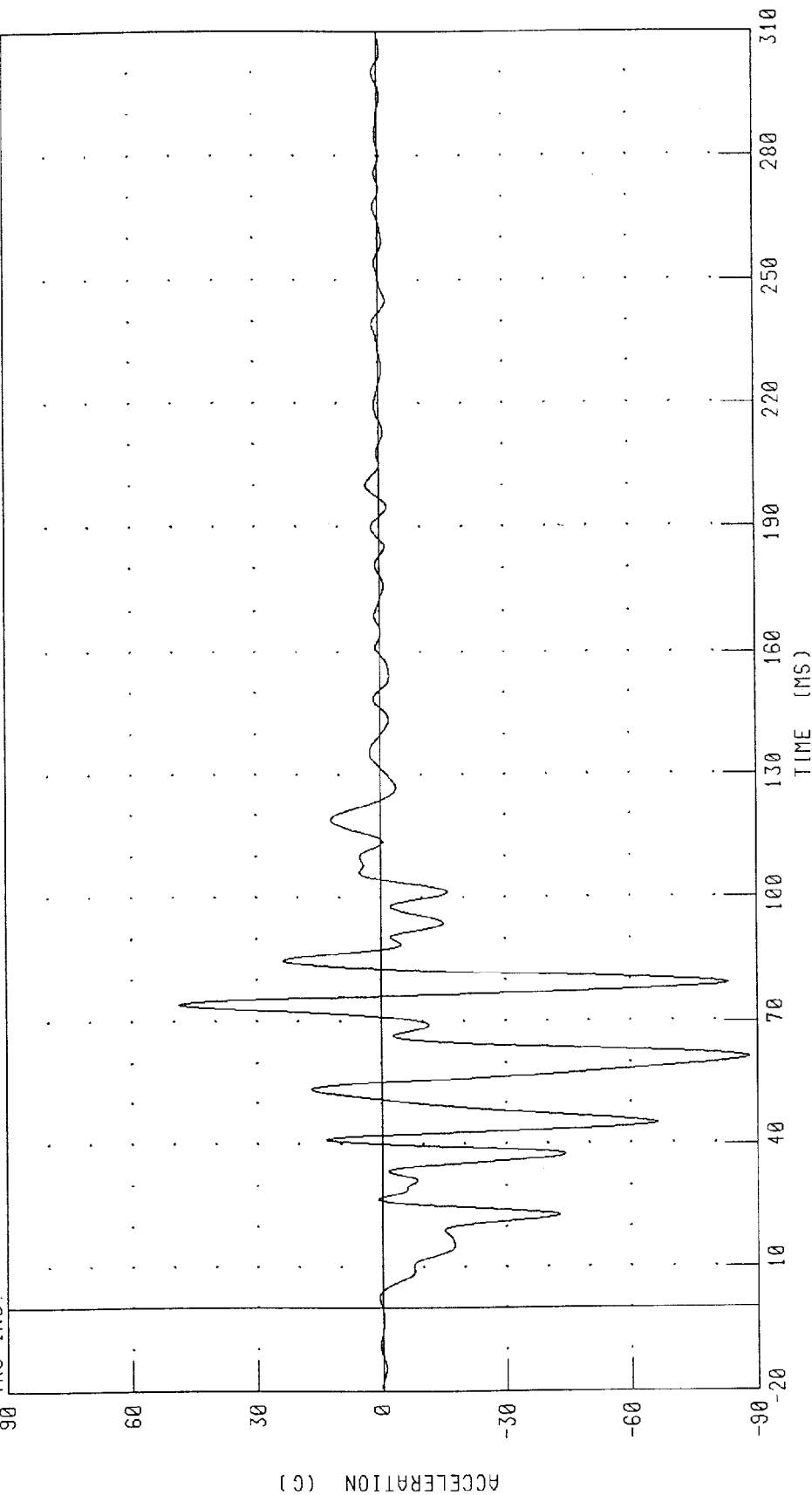


1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
DASH PANEL CENTER X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: DPCXG1

FILTER: CH. CLASS 60

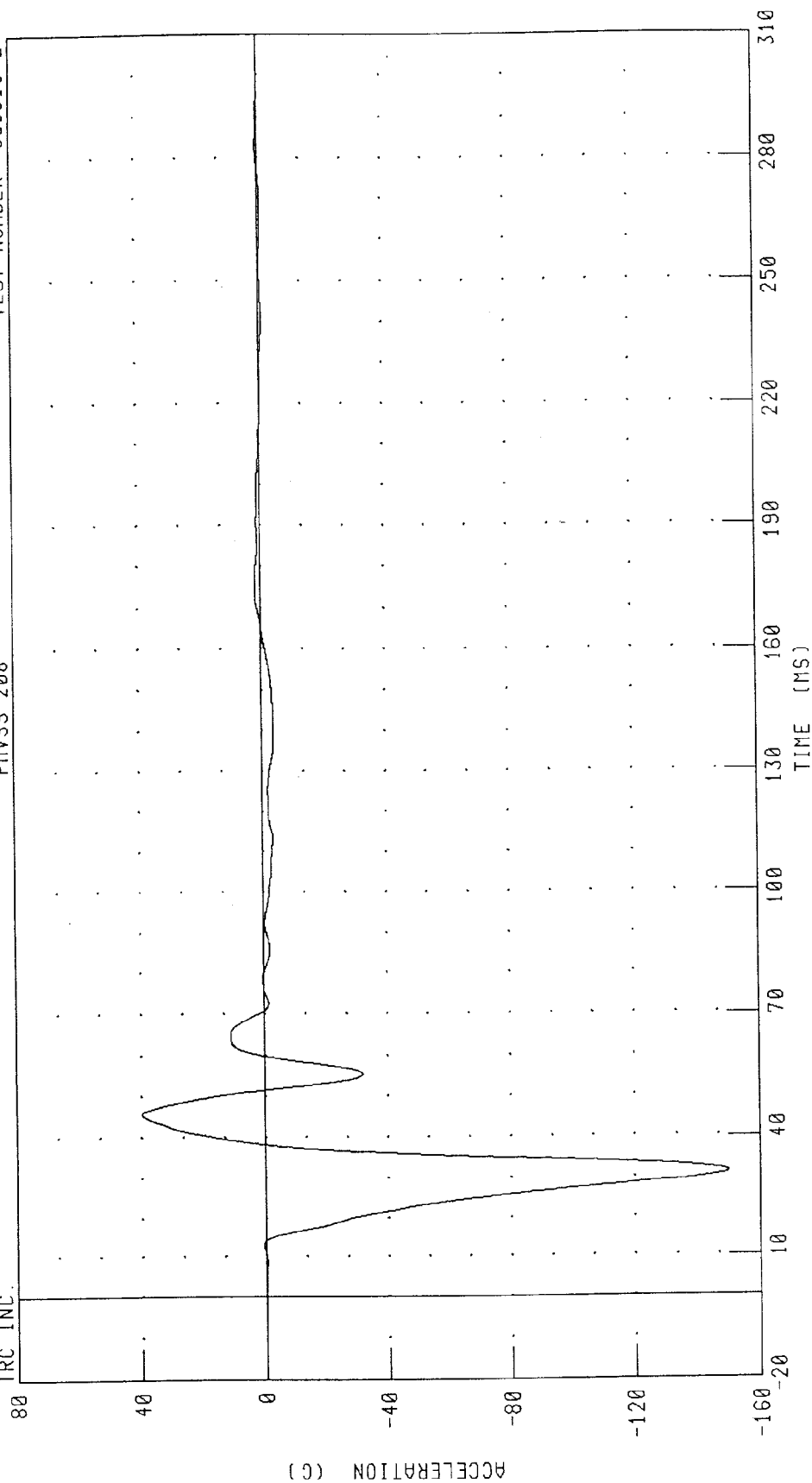
PEAK DATA: 48.70 G @ 74.16 MS; -88.28 G @ 61.20 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
ENGINE TOP X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

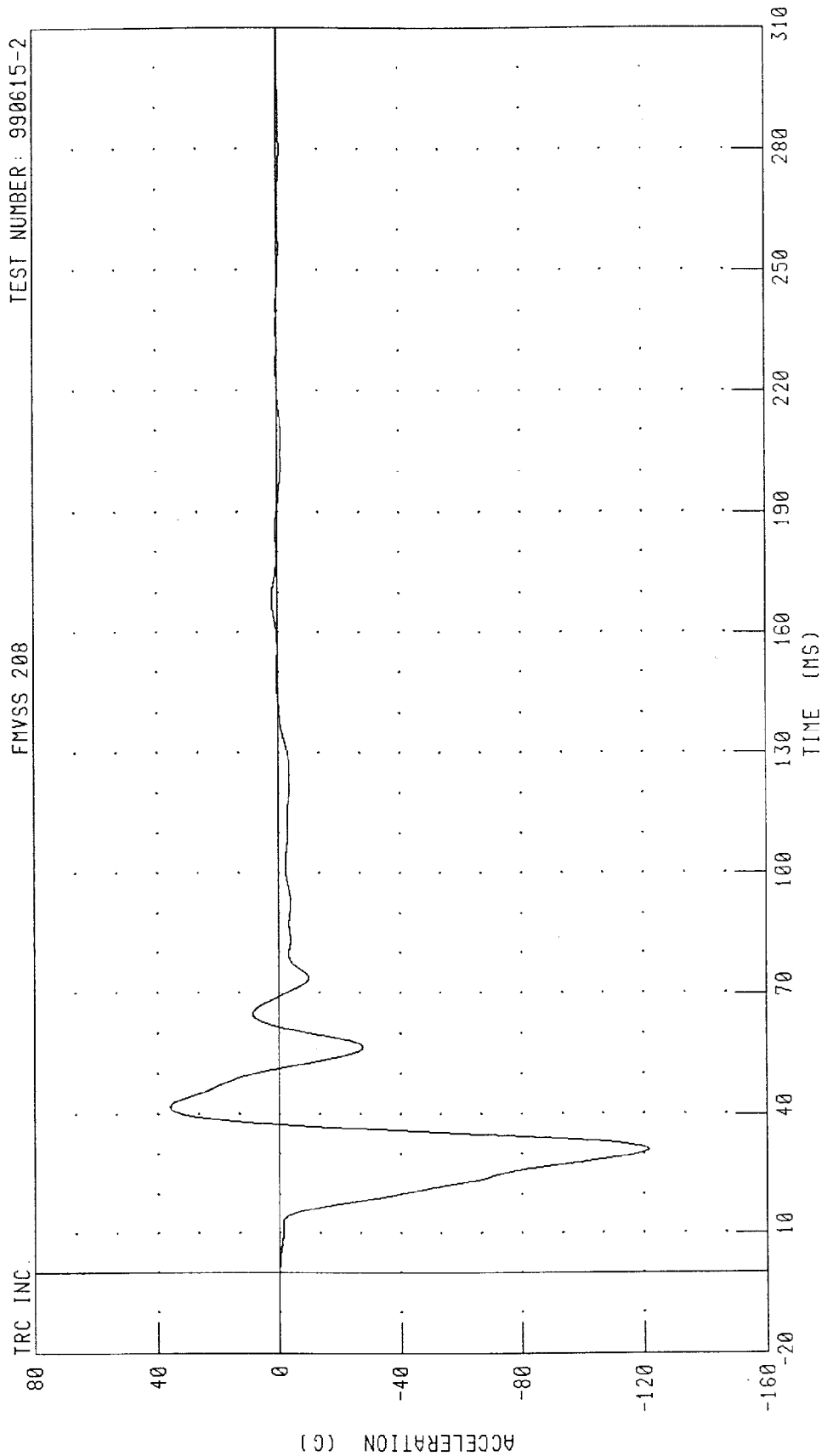
TRC INC.



CHANNEL: ENCXC1 FILTER: CH. CLASS 60

PEAK DATA: 39.78 G @ 45.84 MS, -149.99 G @ 51.44 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
ENGINE BOTTOM X-AXIS ACCELERATION



CHANNEL: ENCXC2 FILTER: CH. CLASS 60

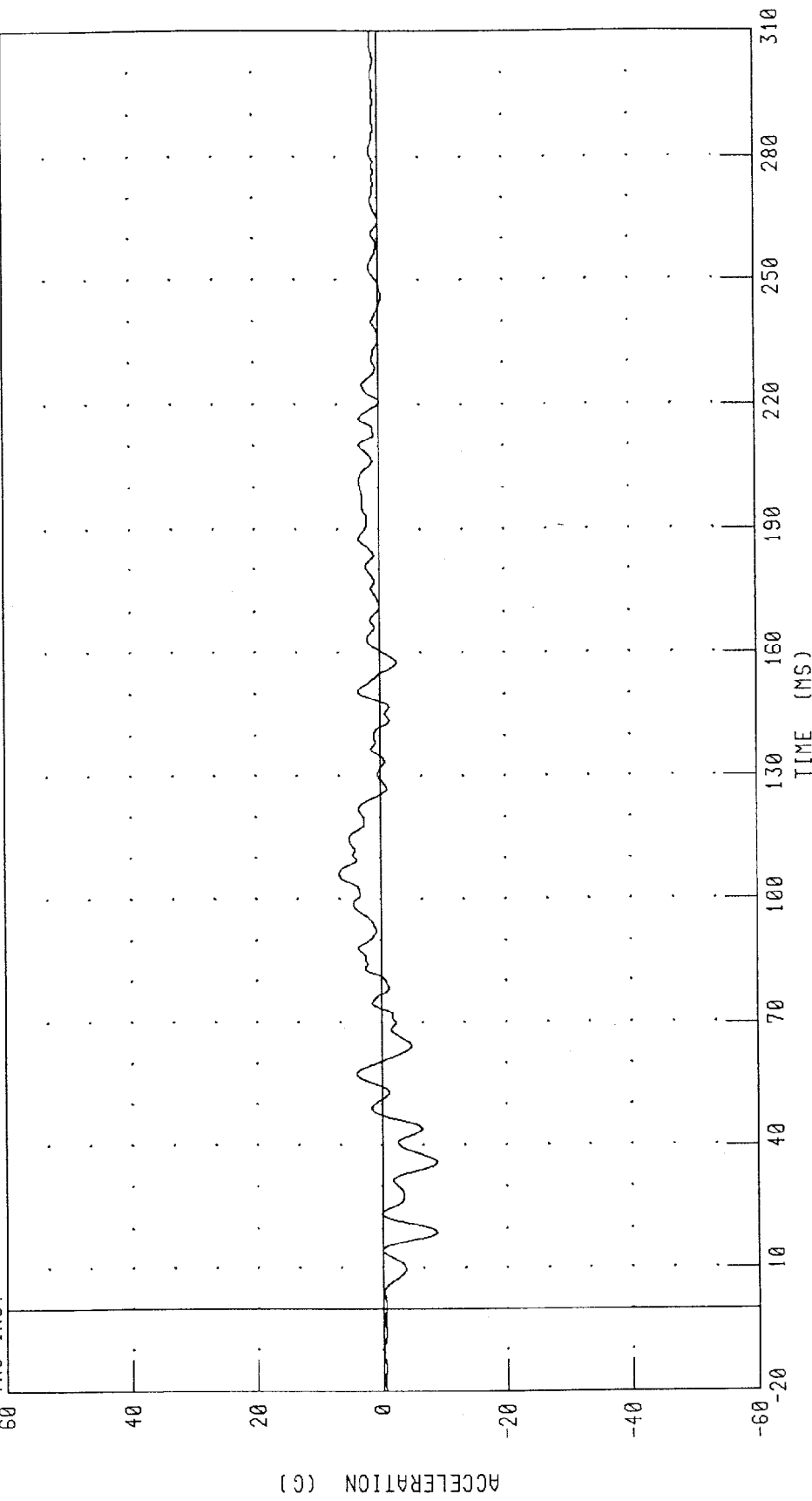
PEAK DATA: 35.89 G @ 42.00 MS, -121.65 G @ 31.20 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
VEHICLE REAR CENTER Z-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: RDK701 FILTER: CH. CLASS 60

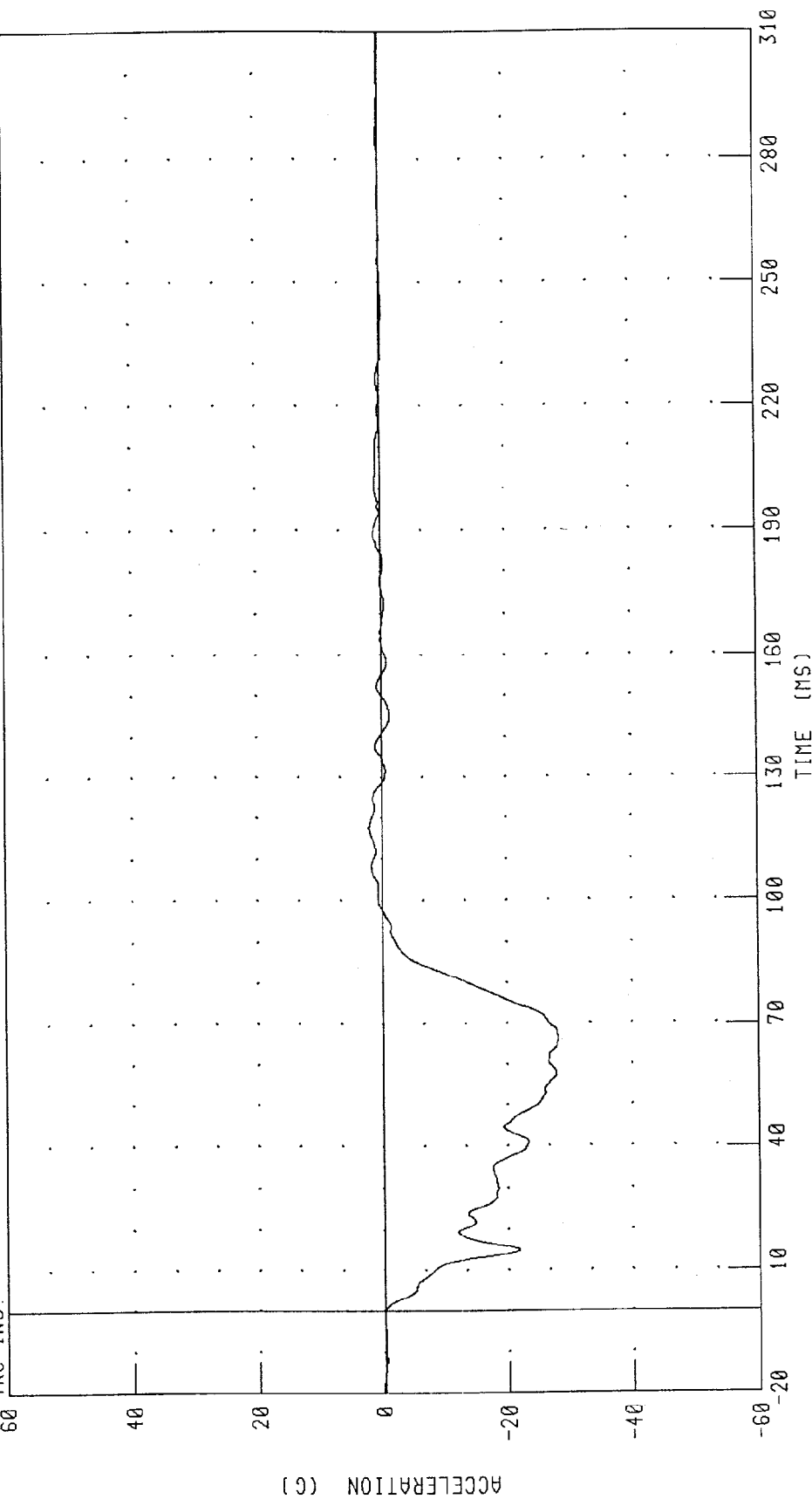
PEAK DATA: 6.68 G @ 106.16 MS, -8.85 G @ 36.00 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: TLRXC1 FILTER: CH. CLASS 60

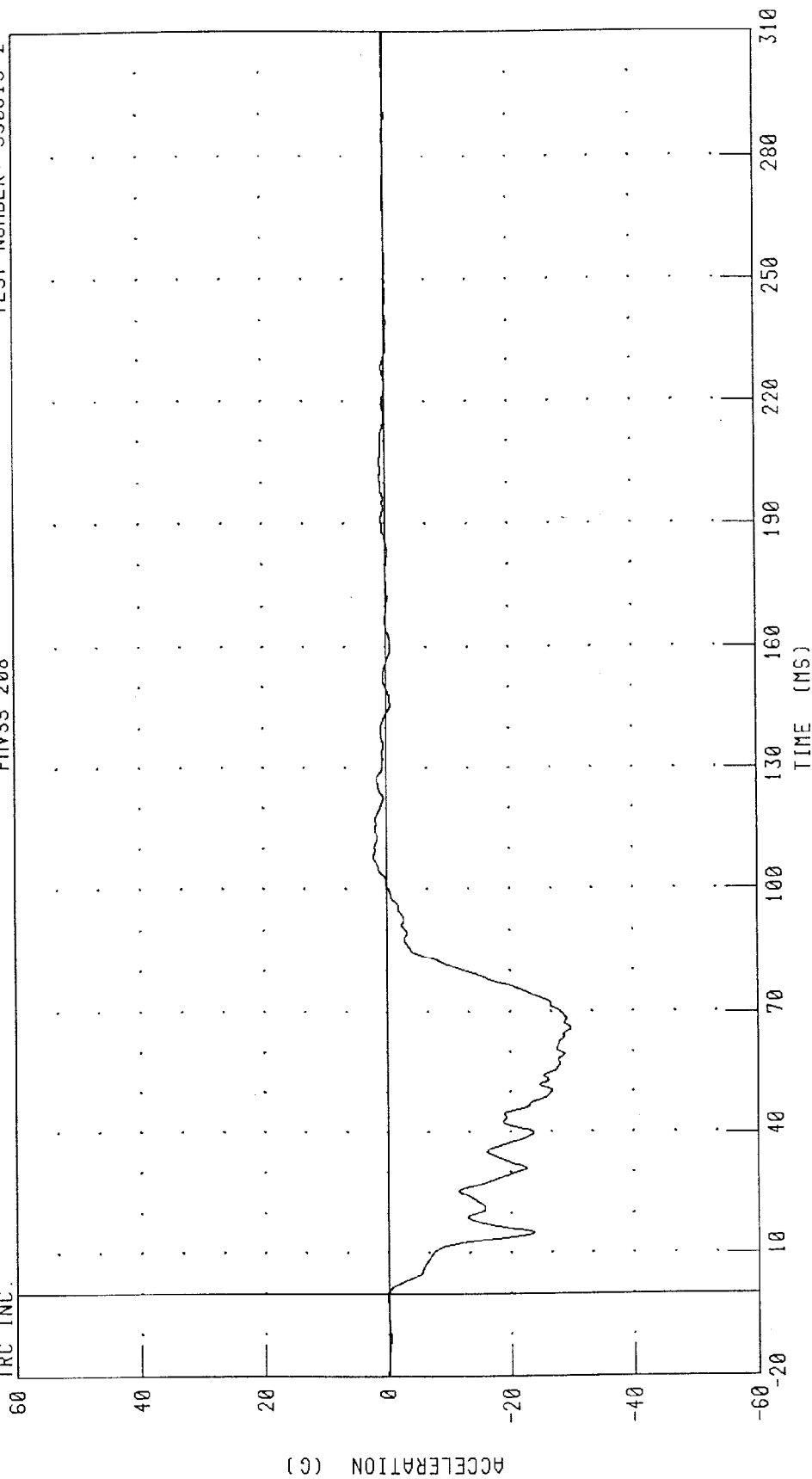
PEAK DATA: 2.05 G @ 117.60 MS, -28.23 G @ 66.40 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



CHANNEL: TRRXG1 FILTER: CH. CLASS 60

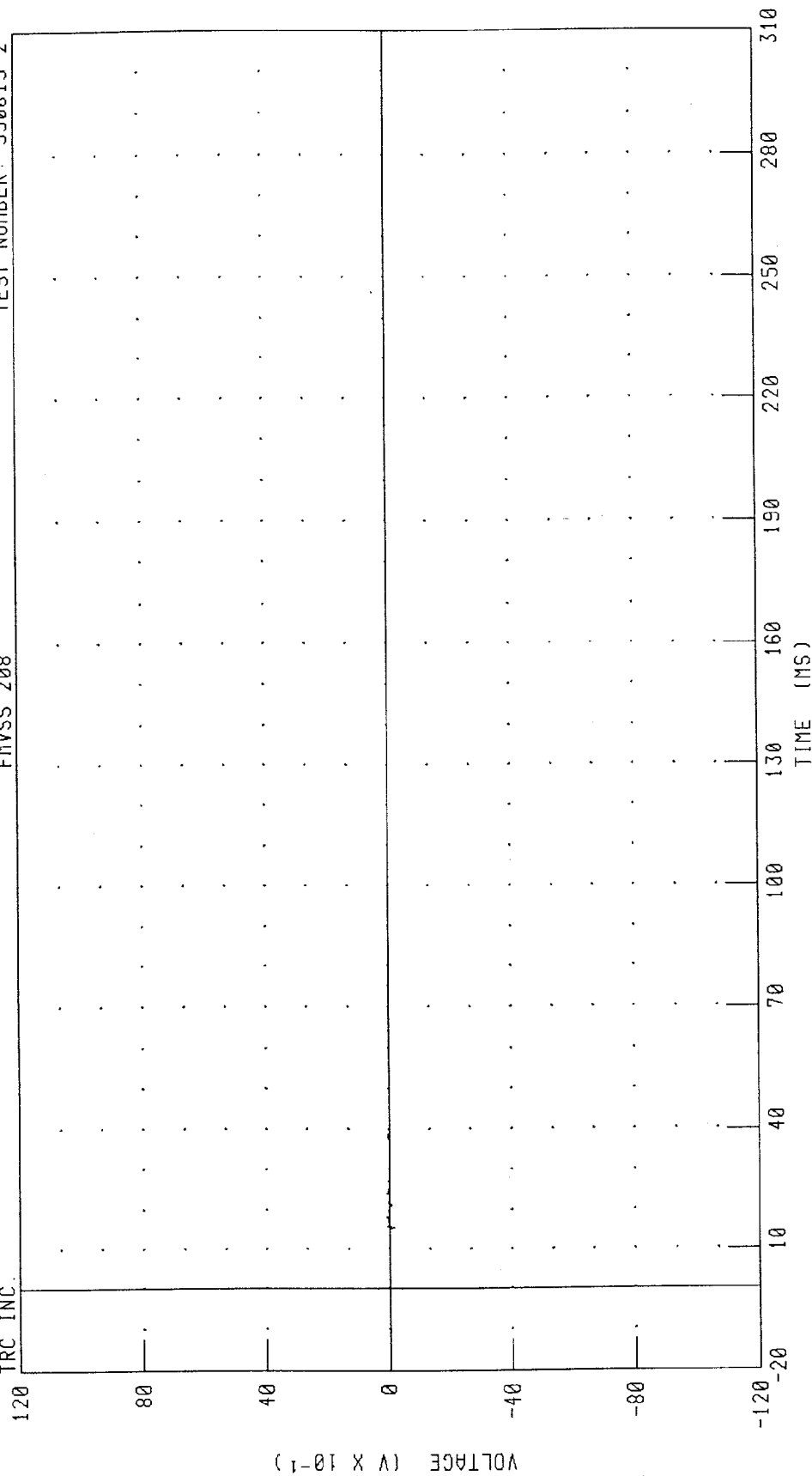
PEAK DATA: 2.13 G @ 107.92 MS; -29.95 G @ 66.00 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
 DRIVER SIDE INDUCTIVE AIRBAG FIRE PICKUP

TEST NUMBER: 990615-2

ENVSS 208

TRC INC.



CHANNEL: ABSQ1

FILTER: CH. CLASS 1000

TIME (MS)

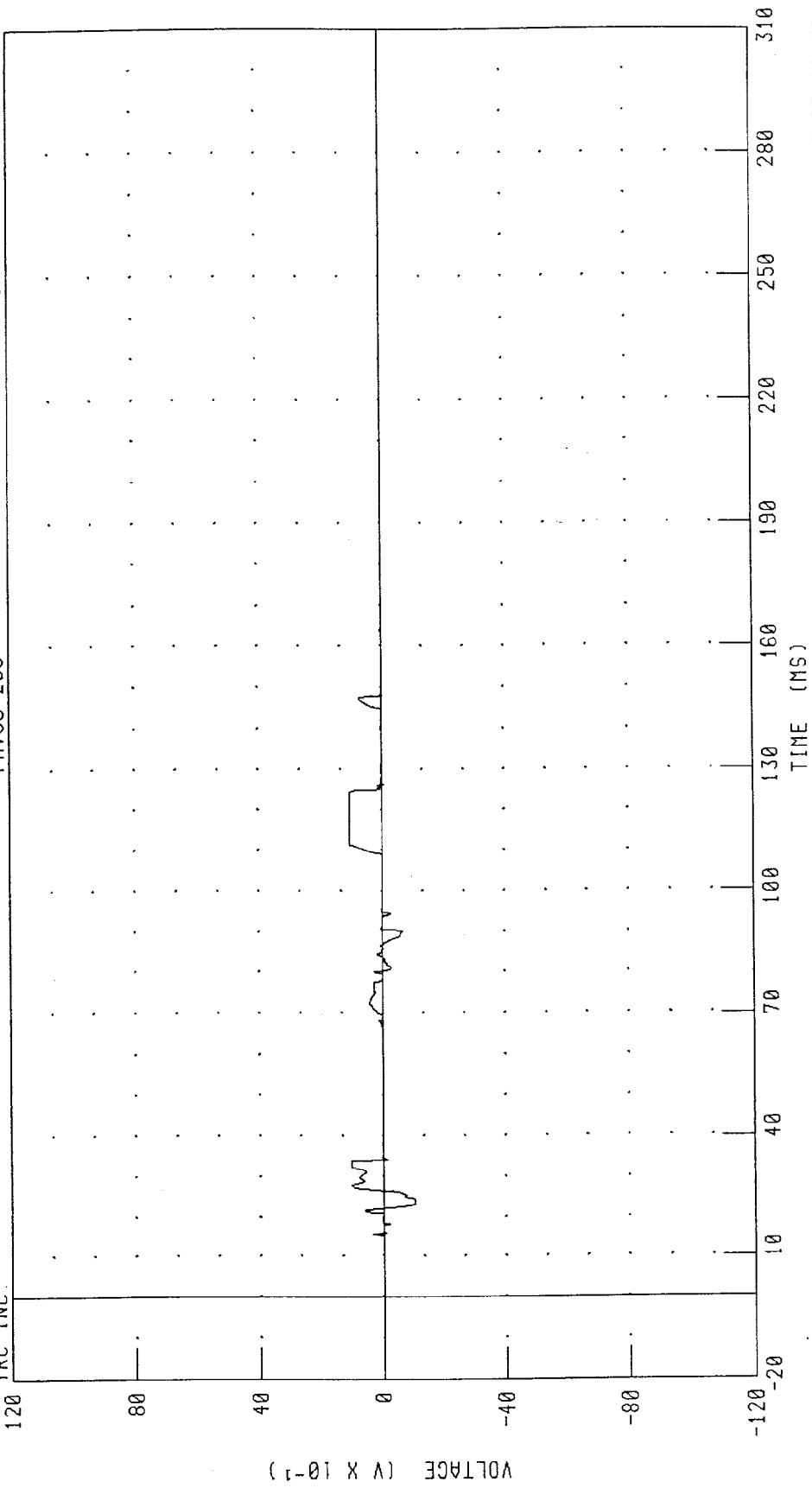
PEAK DATA: 0.09 V @ 18.24 MS; -0.17 V @ 15.52 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 30 MPH
PASSENGER SIDE INDUCTIVE AIRBAG FIRE PICKUP

TEST NUMBER: 990615-2

FMVSS 208

TRC INC.



PEAK DATA: 1.02 V @ 32.40 MS; -1.02 V @ 23.12 MS

CHANNEL: ABSQ2 FILTER: CH. CLASS 1000

Appendix C

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: 990615-2

Number	Location	Axis	Manufacturer	Model	S/N	Orientation (+ Sensing)
1	Left Brake Caliper	X	Endevco	7264-2000T	J20036	Forward
2	Right Brake Caliper	X	Endevco	7264-2000T	J26511	Forward
3	Instrument Panel Center	X	Endevco	7264-2000T	J25018	Rearward
4	Engine Top	X	Endevco	7264-2000T	J26861	Rearward
5	Engine Bottom	X	Endevco	7264-2000T	J25048	Rearward
6	Vehicle Rear Center	Z	Endevco	7264-2000T	J27791	Up
7	Left Rear Seat Crossmember	X	Endevco	7264-2000T	J27446	Rearward
8	Right Rear Seat Crossmember	X	Endevco	7264-2000T	J26525	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.

ACCELEROMETER INFORMATION

ENGINEER: Rhule
TEST DATE: Feb-98
DUMMY S/N: 289
TYPE: 5th female

10-2-99

MEMORIC PARAMETER BEING MEASURED	DESCRIPTION	MODEL NO	SERIAL NO	MFR	SENSITIVITY mv/g @100 Hz	CAL DUE DATE	FULL SCALE DESIRED G	DIRECTION OF POSITIVE POLARITY
CSTXG*	chest x	7264	J20599	Endevco	0.2243, 2237	8/17/98	200	FWD
CSTYG*	chest y	7264	J20580	Endevco	0.2243, 2237	8/17/98	200	LEFT
CSTZG*	chest z	7264	EH881	Endevco	0.2243, 2237	8/17/98	200	UP
STTXG*	sternum top x	7264	J20569	Endevco	0.2243, 2237	8/17/98	2000	FWD
STNXG*	sternum middle x	7264	J20064	Endevco	0.2243, 2237	8/17/98	2000	FWD
STBXG*	sternum bottom x	7264	J20570	Endevco	0.2243, 2237	8/17/98	2000	FWD
SPTXG*	spine top x	7264	J19872	Endevco	0.2243, 2237	8/17/98	200	REAR
SPNXG*	spine middle x	7264	J19877	Endevco	0.2243, 2237	8/17/98	200	REAR
SPBXG*	spine bottom x	7264	J19890	Endevco	0.2243, 2237	8/17/98	200	REAR
HEDXG*	head x	7264	J20165	Endevco	0.2243, 2237	8/17/98	200	FWD
HEDYG*	head y	7264	J19865	Endevco	0.2243, 2237	8/17/98	200	RIGHT
HEDZG*	head z	7264	J19934	Endevco	0.2243, 2237	8/17/98	200	UP
PEVXG*	pelvis x	7264	CY06H	Endevco	0.2243, 2237	8/17/98	200	REAR
PEVYG*	pelvis y	7264	AGAC4	Endevco	0.2243, 2237	8/17/98	200	LEFT
PEVZG*	pelvis z	7264	BF65J	Endevco	0.2243, 2237	8/17/98	200	UP
PEVYLA	11 Y	11	20218	11	0.2243	10-2-99		R & T

15
9
24

ENGINEER:	Rhute
TEST DATE:	Feb-98
DUMMY S/N:	289
TYPE:	Hybrid

ENGINEER:	Rhute
TEST DATE:	Feb-98
DUMMY S/N:	289
TYPE:	Hybrid

MEMORIC PARAMETER BEING MEASURED	DESCRIPTION	MODEL NO	SERIAL NO	SENSITIVITY (mV/V)	POSITIVE POLARITY DESCRIPTION	CAL DUE DATE	FULL SCALE DESIRED
	NECK LOAD CELL					10-7-99	
NEKXF*	neck x-force	1716	425	T-6850 @ 2,000 lbs	head forward/chest rearward	6/6/98	2000
NEKYF*	neck y-force	1716	425	T-6047 @ 2,000 lbs	head left/chest right	6/6/98	2000
NEKZF*	neck z-force	1716	425	T-1561 @ 3,000 lbs	head up/chest down	6/6/98	3000
NEKXM*	neck x-moment	1716	425	T-6614 @ 2500 in-lbs	right ear to right shoulder	6/6/98	2500
NEKYM*	neck y-moment	1716	425	T-6238 @ 2500 in-lbs	chin forward to sternum	6/6/98	2500
NEKZM*	neck z-moment	1716	425	T-2654 @ 2500 in-lbs	chin to left shoulder	6/6/98	2500
	FEMUR LOAD CELLS						
	left femur					10-7-99	
LFMXF	left femur x-force	1914	0259	T-8901 @ 3000 lbs	knee upward/upper femur down	6/30/98	3000
LFMYF	left femur y-force	1914	0259	T-8941 @ 3000 lbs	knee left/upper femur right	6/30/98	3000
LFMZFX*	left femur z-force	1914	0259	T-1877 @ 5000 lbs	knee forward/pelvis rearward	6/30/98	5000
LFMXM	left femur x-moment	1914	0259	T-3037 @ 3000 in-lbs	knee left, hold upper femur in place	6/30/98	3000
LFMYM	left femur y-moment	1914	0259	T-4884 @ 3000 in-lbs	knee up, hold upper femur in place	6/30/98	3000
LFMZM	left femur z-moment	1914	0259	T-6820 @ 3000 in-lbs	twist knee to right, hold up, femur	6/30/98	3000
	right femur					10-7-99	
RFMXF	right femur x-force	1914	0257	T-9480 @ 3000 lbs	knee upward/upper femur down	6/30/98	3000
RFMYF	right femur y-force	1914	0257	T-9240 @ 3000 lbs	knee left/upper femur right	6/30/98	3000
RFMFZ*	right femur z-force	1914	0257	T-1977 @ 5000 lbs	knee forward/pelvis rearward	6/30/98	5000
RFMXM	right femur x-moment	1914	0257				
RFMYM	right femur y-moment	1914	0257				
RFMZM	right femur z-moment	1914	0257				
	HEAD LOAD CELLS						
HCMXF	head x-force						
HCMYF	head y-force						
HCMZF*	head z-force						
HCMXM	head x-moment						
HCMYM	head y-moment						
HCMZM	head z-moment						



ENGINEER:	Rhule
TEST DATE:	Feb-98
DUMMY S/N:	289
TYPE:	Hybrid III 5th %ile

[illegible]

TRANSDUCER INFORMATION

5th Female HYBRID III DUMMY SERIAL NO.: 3691 ; MFR.: ; SEATING POSITION: PASS
 PROJECT-SEGMENT NO.: 097360 4104 ; ENGINEER: PG ; TEST DATE: 6-14-99

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	A20FJ	End.	.2563 mv/g at 10 volts	12-2- 1999	400 g		Rear	A20FJ
HEDYG HLR	HEAD Y-AXIS ACCEL.	"	A31FJ	"	.2683 mv/g at 10 volts	"	400 g		Left	A31FJ
HEDZG HIS	HEAD Z-AXIS ACCEL.	"	CL95H	"	.2822 mv/g at 10 volts	"	400 g		Up	CL95H
NEKXF NFX	NECK X-AXIS SHEAR FORCE	1716A	0534	DEN	1.7247 mv/v at 2000 lbs.	12-2- 1999	2,000 lbs. 9,000 N			FX
NEKYF NFY	NECK Y-AXIS SHEAR FORCE	"	"	"	1.6643 mv/v at 2000 lbs.	"	2,000 lbs. 9,000 N			FY
NEKZF NFZ	NECK Z-AXIS AXIAL FORCE	"	"	"	1.1561 mv/v at 3000 lbs.	"	3,000 lbs. 13,500 N			FZ
NEKXM NMX	NECK MOMENT ABOUT X AXIS	"	"	"	1.6355 mv/v at 2500 in. lbs.	"	200 ft-lbs 275 N-m			MX
NEKYM NMY	NECK MOMENT ABOUT Y AXIS	"	"	"	1.6430 mv/v at 2500 in. lbs.	"	200 ft-lbs 275 N-m			MY
NEKZM NMZ	NECK MOMENT ABOUT Z AXIS	"	"	"	2.3186 mv/v at 2500 in. lbs.	"	200 ft-lbs 275 N-m			MZ

TRANSDUCER INFORMATION

5th Female HYBRID III DUMMY SERIAL NO.: 3691 ; MFR.: ; SEATING POSITION: PASS

PROJECT-SEGMENT NO.: 097360 4104 ; ENGINEER: PG ; TEST DATE: 6-14-99

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	A72JJ	End.	.2773 mv/g at 10 volts	12-2- 1999	400 g	Forward	A72JJ
CSTYG CLR	CHEST Y-AXIS ACCEL.	"	A69JJ	"	.2702 mv/g at 10 volts	"	400 g	Left	A69JJ
CSTZG CIS	CHEST Z-AXIS ACCEL.	"	A34FJ	"	.2565 mv/g at 10 volts	"	400 g	Down up	A34FJ
CSTXD CAPD	CHEST DEFLECTION	14CB1- 2897	289	Bourn	43.6 mv/v/in	"	6 inch 150 mm		S39
PEVXG PAP	PELVIS X-AXIS ACCEL.	7264	CY31H	End.	.2031 mv/g at 10 volts	"	400 g	Rear	C14981
PEVYG PLR	PELVIS Y-AXIS ACCEL.	"	A51JJ	"	.2917 mv/g at 10 volts	"	400 g	Left	C15183
PEVZG PIS	PELVIS Z-AXIS ACCEL.	"	A75JJ	"	.2695 mv/g at 10 volts	"	400 g	Up	C15184
LFMF LF	LEFT FEMUR FORCE	2430	1006	DEN	0.9459 mv/v at 3000 lbs.	12-2- 1999	1300 Kg 3,000 lbs. 13,500 N		1518
RMF RF	RIGHT FEMUR FORCE	"	1007	"	0.9114 mv/v at 3000 lbs.	"	1300 Kg 3,000 lbs. 13,500 N		71

5th Female HYBRID III DUMMY SERIAL NO.: 369t; MFR.: ; SEATING POSITION: PASS

PROJECT-SEGMENT NO.: 097360 4104; ENGINEER: PG; TEST DATE: 6-14-99

[illegible]

