Report Numbers: 208-TRC-02-002
212-TRC-02-002
219-TRC-02-002
301-TRC-02-002

Vehicle Safety Compliance Testing for Occupant Crash Protection, Windshield Retention, Windshield Zone Intrusion, and Fuel System Integrity

Saturn Corporation

2002 Saturn VUE 4-door MPV

NHTSA Number: C20108

TRC Inc. Test Number: 020329

Transportation Research Center Inc.
10820 State Route 347
East Liberty, OH 43319

April 11, 2002

Final Report

Prepared For:

U. S. Department of Transportation

National Highway Traffic Safety Administration

Safety Assurance

Office of Vehicle Safety Compliance (Mail Code: NSA-30)

400 Seventh Street, S.W., Room 6115

Washington, DC 20590

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Report Approved By

Virginia Watters Date 4/11/02

Virginia L Watters, Project Manager
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Final Report Acceptance By OVSC:
Accepted By:

Date 5/9/02

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15 Supplemental Notes

16 Abstract

Compliance tests were conducted on the subject vehicle, a 2002 Saturn VUE 4-door MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-208-10 and OVSC instructions for the determination of FMVSS 208 compliance in the 25 mph unbelted test mode. Test failures were identified as follows:
None

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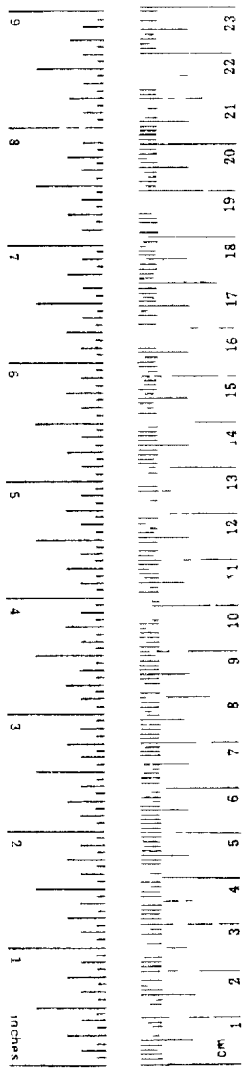
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

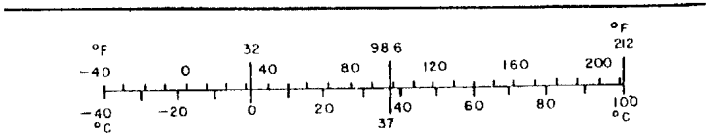
Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2 5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0 9	meters	m
mi	miles	1 6	kilometers	km
	AREA			
in^2	square inches	6 5	square centimeters	cm^2
ft^2	square feet	0 09	square meters	m^2
yd^2	square yards	0 8	square meters	m^2
mi^2	square miles	2 6	square kilometers	km^2
	acres	0 4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0 45	kilograms	kg
	short tons (2000 lb)	0 9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0 24	liters	l
pt	pints	0 47	liters	l
qt	quarts	0 95	liters	l
gal	gallons	3 8	liters	l
ft^3	cubic feet	0 03	cubic meters	m^3
yd^3	cubic yards	0 76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

1 in = 2 54 (exactly). For other exact and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2 25, SD Catalog No. C13 10 286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0 04	inches	in
cm	centimeters	0 4	inches	in
m	meters	3 3	feet	ft
m	meters	1 1	yards	yd
km	kilometers	0 6	miles	mi
	AREA			
cm^2	square centimeters	0 16	square inches	in^2
m^2	square meters	1 2	square yards	yd^2
km^2	square kilometers	0 4	square miles	mi^2
ha	hectares (10 000 m^2)	2 5	acres	
	MASS (weight)			
g	grams	0 035	ounces	oz
kg	kilograms	2 2	pounds	lb
t	tonnes (1000 kg)	1 1	short tons	
	VOLUME			
ml	milliliters	0 03	fluid ounces	fl oz
l	liters	2 1	pints	pt
l	liters	1 06	quarts	qt
l	liters	0 26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1 3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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Section 1.0

Purpose and Test Procedure

Purpose

This 25 mph flat frontal barrier impact test is part of the Federal Motor Vehicle Safety Standards (FMVSS) 208, 212, 219 (partial), and 301 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by the Transportation Research Center Inc. (TRC Inc) under Contract No DTNH22-98-D-01055 The purpose of this test was to determine if the subject vehicle, a 2002 Saturn VUE 4-door MPV, NHTSA No. C20108, meets the performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219 (partial), "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity" in the flat frontal barrier impact mode

Test Procedure

This test was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-208-10 dated January 15, 1998 and instructions from OVSC for the 25 mph unbelted test mode. Data was obtained relative to FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219 (partial), "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity" performance.

The test vehicle was instrumented with seven (7) accelerometers to measure longitudinal axis accelerations and one (1) accelerometer to measure vertical axis acceleration The vehicle's specified impact velocity range was 23.7 to 24.7 mph. The vehicle impacted a flat frontal barrier.

The test vehicle contained two (2) Part 572 E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedure specified in Appendix B of the Laboratory Test Procedure The dummies were not restrained by seat belts.

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 6-axis upper neck load cells to measure forces and moments.

The thirty-eight (38) 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, 212, 219 (partial), and 301 data are presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the manufacturer's vehicle information. Appendix D contains miscellaneous test information including transducer information.

Section 2.0

Frontal Barrier Impact Test Summary

Test Results Summary

This flat frontal barrier test was conducted by TRC Inc on March 29, 2002.

The test vehicle, a 2002 Saturn VUE 4-door MPV, NHTSA No C20108, was equipped with a 3 0 liter engine, 5-speed automatic transmission, power steering and power brakes The total test weight of the vehicle with dummies and cargo ballast weight was 3935.2 lbs The test vehicle was equipped with airbags at the driver and right front passenger's seating positions The vehicle's impact speed was 24 1 mph

The vehicle does appear to comply with the performance requirements of FMVSS 208 as measured by Hybrid III 50th percentile male dummies in the 25 mph flat frontal barrier impact mode

	FMVSS 208 Max. Allowable Injury Assessment Values	Driver	Passenger
HIC-15	700	48	104
Chest g	60 g	35.8	35 7
Chest Displacement	2.5 inches	1 3	0 3
Left Femur	2250 lbs	1318	1256
Right Femur	2250 lbs	1000	1287
Neck Tension	4170 N	892	1629
Neck Compression	4000 N	429	340
NTE	1.00	0 07	0 30
NTF	1.00	0 24	0.17
NCE	1.00	0 09	0 08
NCF	1 00	0 15	0 07

The subject vehicle, a 2002 Saturn VUE, NHTSA No. C20108, appears to meet the other FMVSS 208 requirements for which it was tested These results are shown in the data sheets that are included in this report.

The subject vehicle does appear to comply with FMVSS 212, 219 (partial) and 301 in the flat frontal barrier impact mode. The windshield periphery retention was 100 percent. There was no penetration into any portion of the windshield. No fluid spilled from the vehicle's fuel system following the impact.

Data Acquisition Explanations

The engine top X-axis acceleration data channel, ENGXG1, recorded invalid data after approximately 90 milliseconds.

Post-test measurements to determine vehicle crush could not be taken due to post-test displacement of the front bumper. The plastic bumper fascia shifted outward and downward after the test, prior to the time the measurements could be taken.

Table 1 Crash Test Summary

Vehicle NHTSA number:	C20108	
Test mode·	Frontal barrier impact	
Test date:	03/29/02	
Test time:	1154	
Ambient temperature at impact area:	70° F	
Vehicle year/make/ model/body style·	2002/Saturn/VUE/4-door/MPV	
Vehicle test weight·	3935 2 lbs	
Vehicle/barrier impact angle[1]·	0°	
Impact velocity[2]		
Primary·	24.1 mph	
Secondary:	24 1 mph	
Maximum static crush·	N/A[3]	
Average vehicle rebound·	58 3 in	
Dummies·	Driver	Passenger
Dummy type:	Part 572 E	Part 572 E
Serial number:	230	314
Restraint·	Airbag, supplemental	Airbag, supplemental
Number of data channels·	15	15
Number of cameras·		
Real-time·	1	
High-speed·	14	
Door opening data:		
Left front	Easy	
Right front·	Easy	
Front seat data·	Driver	Passenger
Seat track failure	None	None
Seat back failure:	None	None
Visible dummy contact points:	Driver	Passenger
Head·	Airbag	Airbag
Chest:	Airbag	Airbag
Abdomen·	None	None
Left knee:	Knee bolster	Knee bolster
Right knee:	Knee bolster	Knee bolster

[1] With respect to tow track centerline.
[2] Speed trap measurement (± .05 mph accuracy)
[3] See Data Acquisition Explanations

Table 2 General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	2002/Saturn/VUE/4-door/MPV
NHTSA number:	C20108
VIN:	5GZCZ63B22S808231
Color:	White
Engine data:	
Cylinders:	6
Displacement:	3.0 liters
Placement:	Transverse
Transmission data:	_5_speed, __manual, _X_automatic, ___overdrive
Final drive:	__fwd, ___rwd, _X_4wd
Date vehicle received:	03/05/2002
Odometer reading:	80
Dealer's name and address:	Saturn Southeast 4141 Hamilton Square Blvd. Groveport, Ohio 43125

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
Air conditioning	Yes	Anti-skid brake	No
Rear window defroster	Yes	Power door locks	Yes

Other: Driver seat height adjuster, center console, LATCH childseat restraint system

Certification data from vehicle's label:

Vehicle manufactured by:	Saturn Corporation
Date of manufacture:	2/02
VIN:	5GZCZ63B22S808231
GVWR:	4364 lbs.
GAWR: Front:	2293 lbs.
Rear:	2071 lbs.

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

Size of tires on vehicle:	P235/65R16 101S M+S
Tire capacity with max capacity vehicle load:	
Front	35 psi
Rear	35 psi
Spare tire:	T155/90R16 110M

Tire & capacity data from vehicle's label:

Recommended tire size:	P235/65R16 psi
Recommended cold tire pressure:	
Front	30 psi
Rear:	30 psi

Designated Seating Capacity (from seat belt count, not on tire label):

Front	2
2nd Row	3
Total	5

Vehicle Capacity Weight: N/A

Test vehicle attitudes

Delivered attitude:	LF:	32.6 in	RF:	32.6 in	LR:	33.3 in	RR:	33.1 in.
Fully loaded attitude:	LF:	32.0 in	RF:	32.0 in	LR:	32.4 in	RR:	32.1 in.
Pre-test attitude:	LF:	32.2 in	RF:	32.1 in	LR:	32.5 in	RR:	32.3 in.
Post-test attitude:	LF:	32.9 in	RF:	32.9 in	LR:	32.0 in	RR:	31.6 in

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

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

Right front	1000.9	lbs.	Right rear	741.8 lbs.
Left front	1052.7	lbs	Left rear	737.4 lbs.
Total front weight	2053.6	lbs.	(58.1 % of total vehicle weight)	
Total rear weight	1479.2	lbs.	(41.9 % of total vehicle weight)	
Total delivered weight	3532.8	lbs.		

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3532 8 lbs.)

VCW = GVWR - UDW = 4364 - 3532.8 = 831.2 lbs.

DSC = Designated Seating Capacity (5)

RCLW = GVWR - UDW - 150 (DSC) = 4364 - 3532.8 - 5(150) = 81.2 lbs.

Target test weight = UDW + RCLW + (No. of Hybrid III dummies x 167 lbs. per dummy)

Target test weight = 3532 8 + 81.2 + 334 = 3948 0 lbs

Weight of test vehicle with required dummies and 68 4 lbs. of cargo weight:

Right front	1082.9	lbs.	Right rear	859 8 lbs
Left front	1109.8	lbs.	Left rear	882.7 lbs
Total front weight	2192.7	lbs.	(55.7 % of total vehicle weight)	
Total rear weight	1742.5	lbs	(44 3 % of total vehicle weight)	
Total test weight	3935.2	lbs.	(0.3 % under target test weight)	

Weight of ballast secured in vehicle cargo area· None

Components removed to meet target test weight: Tail lights, rear wiper and rear hatch seal.

Vehicle Wheelbase: 106.5 in.

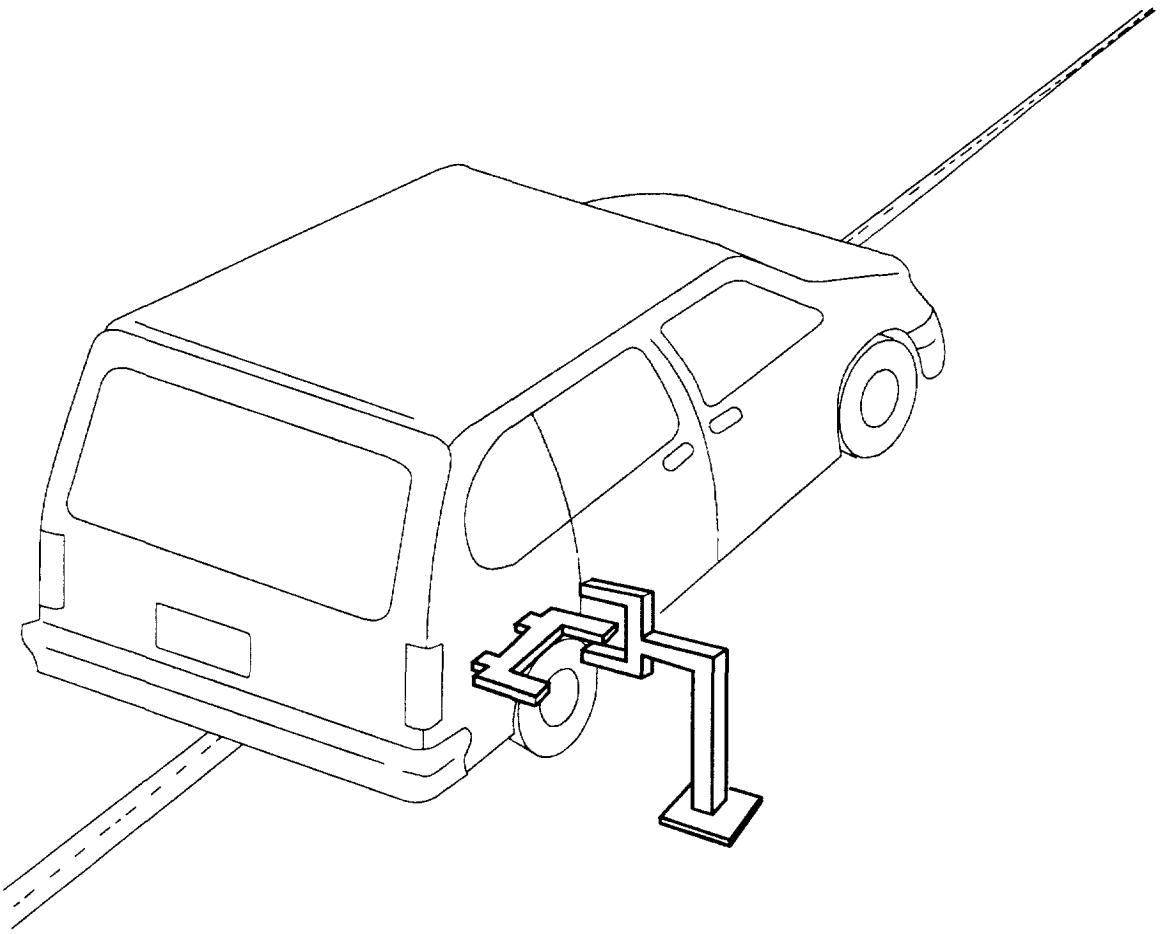
CG rearward of front wheel centerline: 47.2 in.

Table 3 Post-Impact Data

Test type·	Frontal barrier impact					
Impact angle:	0°					
Test date·	03/29/02					
Test time·	1154					
Ambient temperature at impact area·	70° F					
Temperature in occupant compartment:	71° F					
NHTSA number·	C20108					
VIN·	5GZCZ63B22S808231					
Required impact velocity·	23 7 mph to 24 7 mph					
Barrier impact velocity·						
Primary.	24.1 mph					
Secondary·	24 1 mph					
Distance from vehicle to barrier:						
Entering velocity trap·	14 0 in.					
Exiting velocity trap·	2 0 in.					
Test vehicle static crush·						
Overall length of test vehicle·						
Pre-test·	L·	172.5 in.	C:	181 2 in.	R:	172 7 in
Post-test·[1]	L·	N/A	C:	N/A	R:	N/A
Total crush·[1]	L·	N/A	C·	N/A	R:	N/A
Average crush:[1]	N/A					
Test vehicle rebound from flat barrier·						
Distance from test vehicle to barrier:						
Post-test:	L:	61.6 in.	C	53.8 in	R:	59 6 in.
Average rebound:	58 3 in.					

[1] See Data Acquisition Explanations

Figure 1 Impact Velocity Measurement System

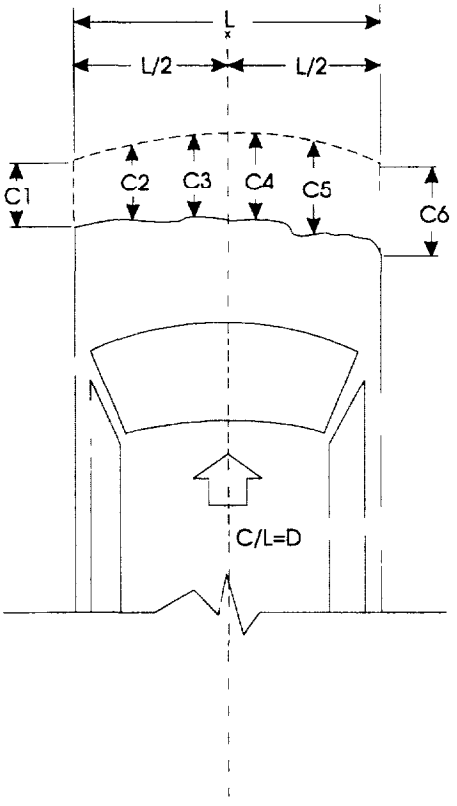


The final vane clears the final emitter/receiver pair two inches before impact.

The vanes have a one-foot spacing.

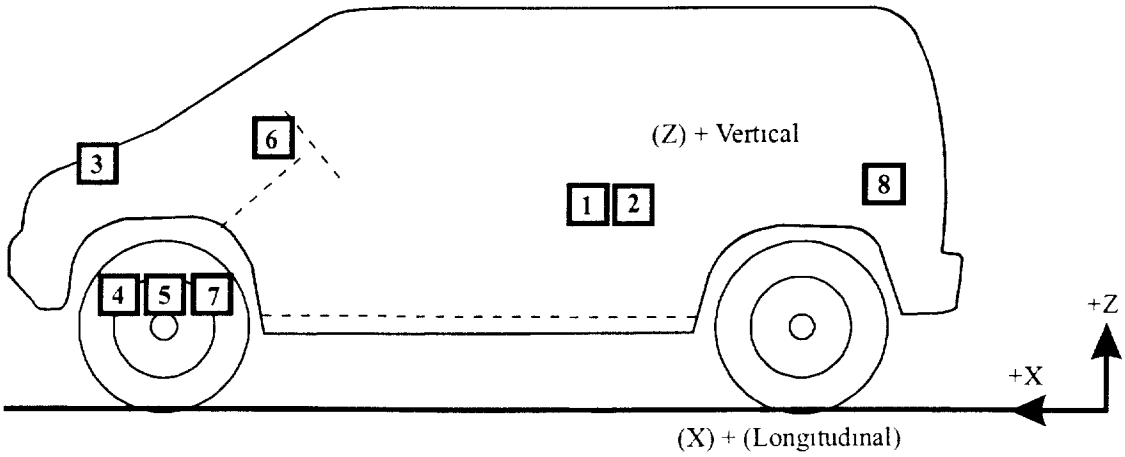
Figure 2 Accident Investigation Division Data

Vehicle year/make/ model/body style·	2002/Saturn/VUE/4-door/MPV
Vehicle NHTSA number·	C20108
VIN:	5GZCZ63B22S808231
Wheelbase	106 5 in
Build date·	2/02
Test date·	03/29/02
Vehicle size category·	Special purpose
Test weight:	3935 2 lbs
Front overhang·	37.1 in.
Maximum width:	69.9 in
Impact speed·	24.1 mph
Collision Deformation Classification (CDC) code·	12FDEW1
Crush depth measurements·[1]	
C1	N/A
C2·	N/A
C3	N/A
C4:	N/A
C5·	N/A
C6	N/A
Midpoint of damage:	
D·	0 0 in (Vehicle Longitudinal Centerline)
Length of damaged region:	
L·	69 9 in.

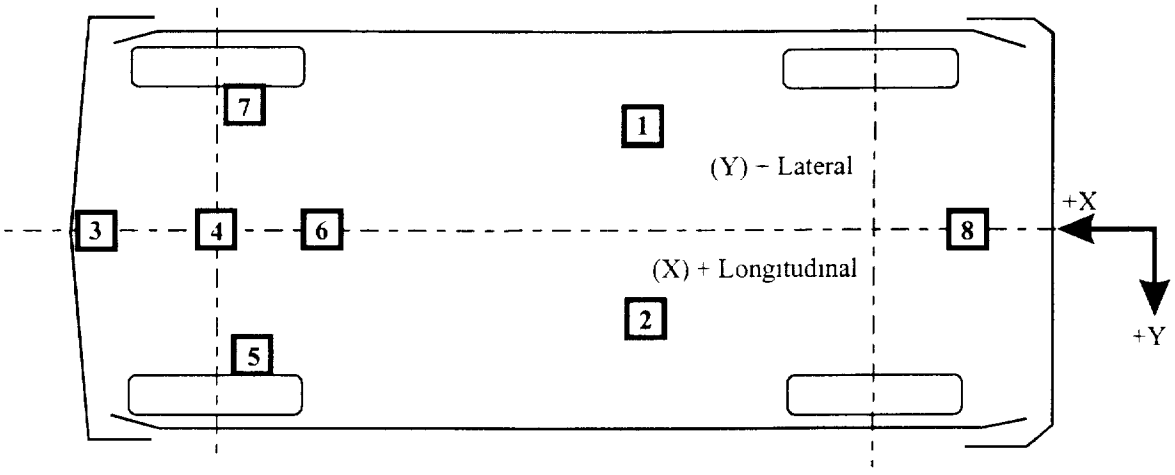


[1] See Data Acquisition Explanations

Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 020329 No. LOCATION		X	Y	POSITIVE[1] DIRECTION		NEGATIVE[1] DIRECTION	
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE	64.8 in	-19.3 in	1.4 g	@ 111.0 ms	26.9 g	@ 60.2 ms
	POST	64.7 in	-19.3 in				
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE	64.8 in	19.3 in	1.3 g	@ 115.5 ms	26.1 g	@ 62.2 ms
	POST	64.0 in	19.3 in				
3 ENGINE TOP LONGITUDINAL[2]	PRE	154.0 in	0.4 in	---	---	---	---
	POST	149.8 in	0.0 in				
4 ENGINE BOTTOM LONGITUDINAL	PRE	126.2 in	0.7 in	11.7 g	@ 67.3 ms	40.6 g	@ 42.0 ms
	POST	124.2 in	0.0 in				
5 RIGHT FRONT BRAKE CALIPER LONGITUDINAL	PRE	125.8 in	26.8 in	4.7 g	@ 111.5 ms	35.3 g	@ 71.7 ms
	POST	126.6 in	26.8 in				

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

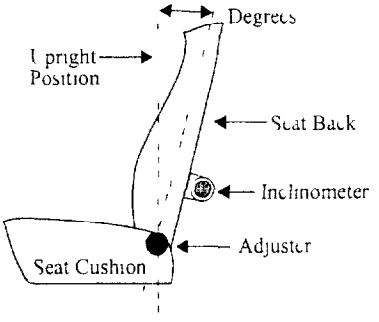
TEST NUMBER: 020329 No. LOCATION	X	Y	POSITIVE[1] DIRECTION		NEGATIVE[1] DIRECTION	
6 INSTRUMENT PANEL CENTER	PRE 117.6 in POST 117.6 in	0.0 in 0.0 in				
LONGITUDINAL			21.2 g	@ 99.1 ms	35.5 g	@ 83.8 ms
7 LEFT FRONT BRAKE CALIPER	PRE 125.8 in POST 124.6 in	-26.8 in -26.8 in				
LONGITUDINAL			7.4 g	@ 102.0 ms	34.9 g	@ 63.0 ms
8 REAR TRUNK CENTERLINE	PRE 12.9 in POST 12.9 in	0.0 in 0.0 in				
VERTICAL			9.6 g	@ 90.2 ms	12.0 g	@ 70.2 ms

REFERENCE: X: + FORWARD FROM VEHICLE REAR BUMPER
Y: + RIGHTWARD FROM VEHICLE CENTERLINE

[1] Sign convention per SAEJ211 March 1995.
[2] See Data Acquisition Explanations.

Table 5 Seat and Steering Column Positioning Data

Vehicle 2002/Saturn/VUE/4-door MPV NHTSA No C20108



Front Seat Assembly
Left Side View

Nominal Design Riding Position

Driver Seat — Seat Back Angle = 19° Manual

The seat back was adjusted, prior to seating the dummy, by measuring 4 5° on the headrest post per manufacturer's instructions This resulted in a back angle of 19°, with dummy installed, when measured by an inclinometer on the outboard seatback frame just above the pivot

Passenger Seat — Seat Back Angle = 19 5° Manual

The seat back was adjusted, prior to seating the dummy, by measuring 4 5° on the headrest post per manufacturer's instructions This resulted in a back angle of 19 5°, with dummy installed, when measured by an inclinometer on the outboard seatback frame just above the pivot

Seat Fore and Aft Positions

Driver Seat — Mid position

The seat was set in the 13th locking notch (center) of 25 locking positions

Passenger — Mid position

The seat was set in the 13th locking notch (center) of 25 locking positions

Steering Column Adjustments

The steering column was set to 24° which is the mid-point of travel

Section 3.0

FMVSS 208, 212, 219 (Partial), and 301 Data

Figure 4 Dummy Measurement Locations for Front Seat Occupants

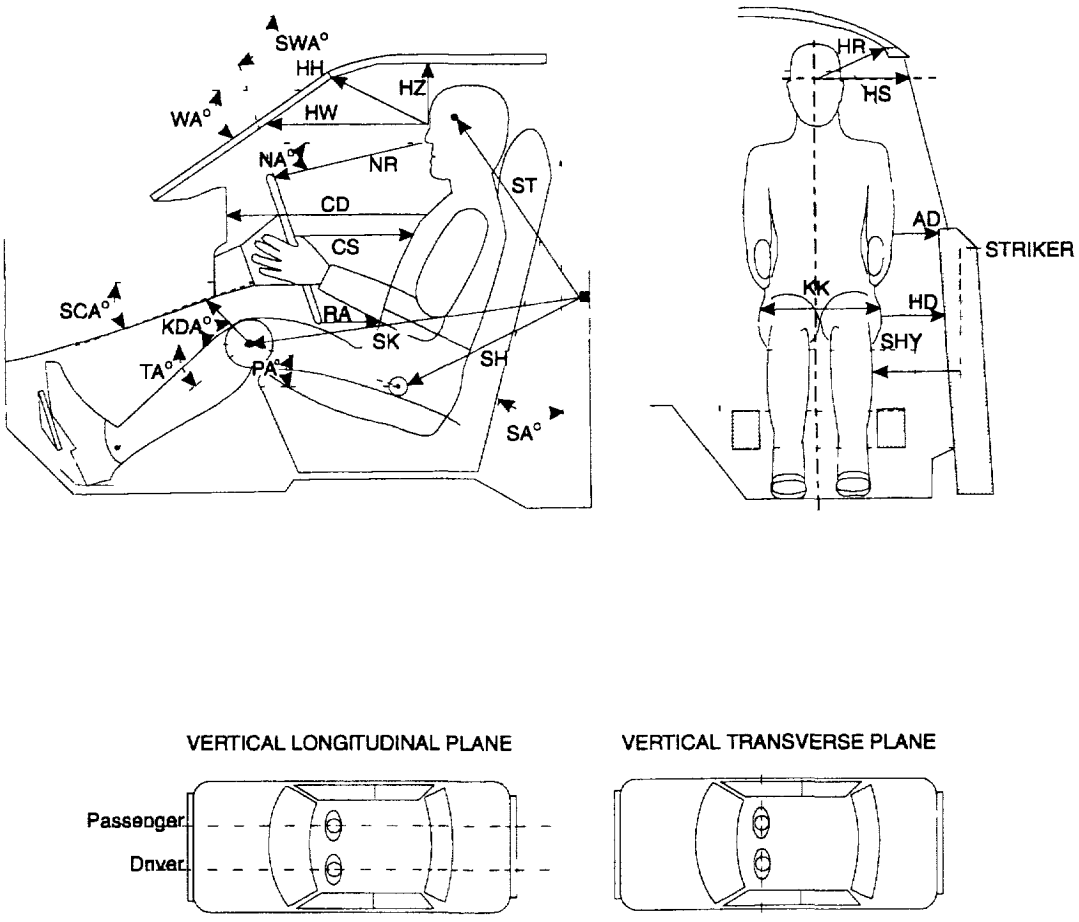


Table 6 Dummy Measurement Data for Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #230)	Passenger (Serial #314)
WA	Windshield angle	32.4°	32.4°
SWA	Steering wheel angle	66°	NA
SCA	Steering column angle	24°	NA
SA	Seat back angle	19°	19.5°
HZ	Head to roof	9.1 in.	9.0 in.
HH	Head to header	17.0 in.	17.2 in.
HW	Head to windshield	28.0 in.	28.4 in.
HR	Head to side header	9.3 in.	9 5 in.
NR	Nose to rim	17.1 in.	NA
NA	Nose to rim angle	13.3°	NA
CD	Chest to dash	22 2 in.	22.2 in
CS	Steering wheel to chest	13.7 in.	NA
RA	Rim to abdomen	8.8 in	NA
KDL	Left knee to dash	6 3 in	5.7 in.
KDR	Right knee to dash	6.3 in	6.1 in.
KDA	Outboard knee to dash angle	60 2°	65.6°
PA	Pelvis angle	22.7°	24.2°
TA	Tibia angle	49.7°	47.5°
KK	Knee to knee	12 2 in.	10.6 in.
ST1	Striker to head	22.2 in.	22.6 in.
	Striker to head angle[1]	-83 1°	-86.9°
SK[1]	Striker to knee	21.9 in.	22.9 in.
	Striker to knee angle[1]	-1.5°	-2.9°
SH[1]	Striker to H-point	8.3 in.	8.3 in.
	Striker to H-point angle[1]	30.2°	25.4°
SHY	Striker to H-point (Y dir.)	9.3 in.	9.1 in.
HS	Head to side window	10 7 in.	10.6 in.
HD	H-point to door	5.8 in.	5.8 in.
AD	Arm to door	4.0 in	4.3 in.

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 located above the striker.

Descriptions of Dummy Measurements

When a level is to be used, it is to ensure that the line containing the two points described is either parallel or perpendicular to the ground. If a measurement to be made is less than 10 inches ignore the directions to use a level and approximate a level measurement. Also, when a measurement is to be taken to or from the center of a bolt on the dummy, take the measurement from the center of the bolt hole if the bolt is recessed

The following measurements are to be made within a vertical longitudinal plane.

* HH Head to Header, taken from the point where the dummy's nose meets his forehead (between his eyes) to the furthest point forward on the header

* HW Head to Windshield, taken from the point where the dummy's nose meets his forehead (between his eyes) to a point on the windshield Use a level

HZ Head to Roof, taken from the point where the dummy's nose meets his forehead (between his eyes) to the point on the roof directly above it Use a level

* CS Steering Wheel to Chest, taken from the center of the steering wheel hub to the dummy's chest Use a level

* CD Chest to Dash, place a tape measure on the tip of the dummy's chin and rotate five inches of it downward toward the dummy to the point of contact on the transverse center of the dummy's chest. Then measure from this point to the closest point on the dashboard either between the upper part of the steering wheel between the hub and the rim, or measure to the dashboard placing the tape measure above the rim, whichever is a shorter measurement See diagram

RA Steering Wheel Rim to Abdomen, taken from the bottommost point of the steering wheel rim horizontally rearward to the dummy. Use a level

NR Nose to Rim, taken from the tip of the dummy's nose to the closest point on the top of the steering wheel rim Also indicate the angle this line makes with respect to the horizontal (NA)

* Measurement used in Data Tape Reference Guide

*[1] KDL,
KDR Left and Right Knees to Dashboard, taken from the center of the knee pivot bolt's outer surface to the closest point forward acquired by swinging the tape measure in continually larger arcs until it contacts the dashboard. Also reference the angle of this measurement with respect to the horizontal for the outboard knee (KDA). See diagram

SH,
SK,
ST Striker to Hip, Knee, and Head, these measurements are to be taken in the X-Z plane measured from the forward most center point on the striker to the center of the H-point, outer knee bolt, and head target. When taking this measurement a firm device that can be rigidly connected to the striker should be used Use a level The angles of these measurements with respect to the horizontal should also be recorded The measurement in the Y (transverse) direction from the striker to the H-point should also be taken (SHY). See diagram

The following measurements are to be made within a vertical transverse plane.

HS Head to Side Window, taken from the point where the dummy's nose meets his forehead (between his eyes) to the outside of the side window In order to make this measurement, roll the window down to the exact height which allows a level measurement. Use a level. See diagram.

* AD Arm to Door, taken from the outer surface of the elbow pivot bolt on a Hybrid II dummy to the first point it hits on the door. In the case of a Hybrid III dummy, measure from the bolt on the outer biceps When a SID is used make the measurement from the center of the bottom of the arm segment where it meets the dummy's torso

* HD H-point to Door, taken from the H-point on the dummy to the closest point on the door. Use a level.

* HR Head to Side Header, measure the shortest distance from the point where the dummy's nose meets his forehead (between his eyes) to the side edge of the header just above the window frame, directly adjacent to the dummy

* Measurement used in Data Tape Reference Guide
[1] Only outboard measurement is referenced in Data Tape Reference Guide

SHY Striker to H-point, taken from a rod rigidly connected to the forward most center point on the striker to the H-point Use a level. See diagram

KK Knee to Knee, for Hybrid II dummies measure the distance between knee pivot bolt head outer surfaces For Hybrid III dummies measure the distance between the outboard knee clevis flange surfaces (This measurement may not be exactly transverse.)

Angles

SA Seat Back Angle, find this angle using the instructions provided by the manufacturer If the manufacturer doesn't provide clear instructions contact the COTR.

PA Pelvis or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and taking this angle with respect to the horizontal Measure the angle of the line connecting the H-point hole and the outer knee pivot bolt hole on a Hybrid II dummy with respect to the horizontal, to find the femur angle

SWA Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.

SCA Steering Column Angle, measured with respect to the horizontal by placing an inclinometer on the center of the underside of the steering column.

NA Measure the angle made when taking the measurement NR with respect to the horizontal

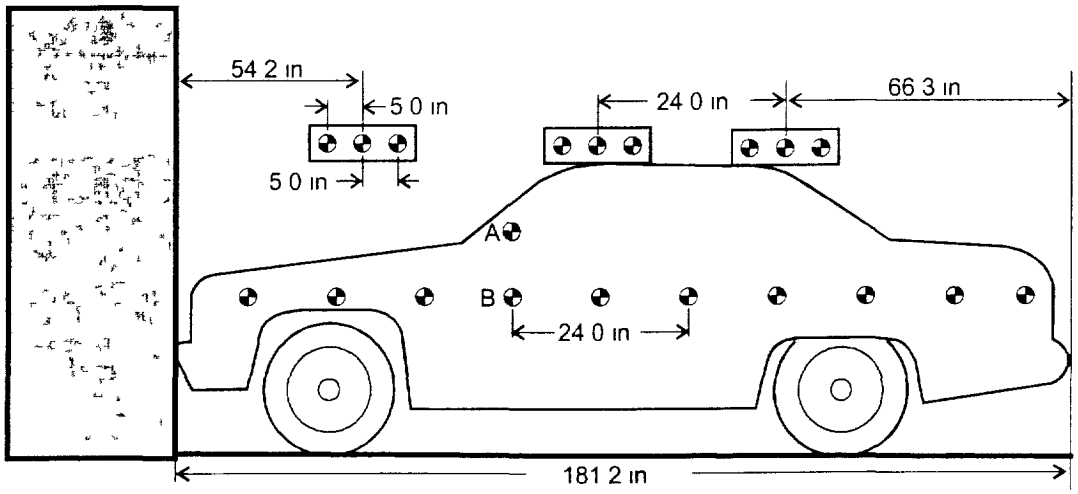
KDA Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal Only get this angle for the outboard knee See diagram.

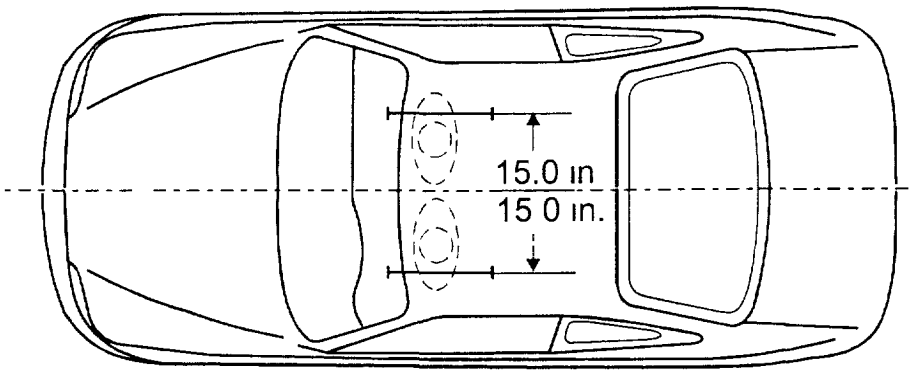
WA Windshield Angle, place an inclinometer along the transverse center of the windshield exterior (measurement is made with respect to horizontal)

TA Tibia Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal

* Measurement used in Data Tape Reference Guide

Figure 5 Vehicle Target Locations





Lateral distance from steering column target (A) to target line on door (B) = 18 9 in

Figure 6 Camera Positions

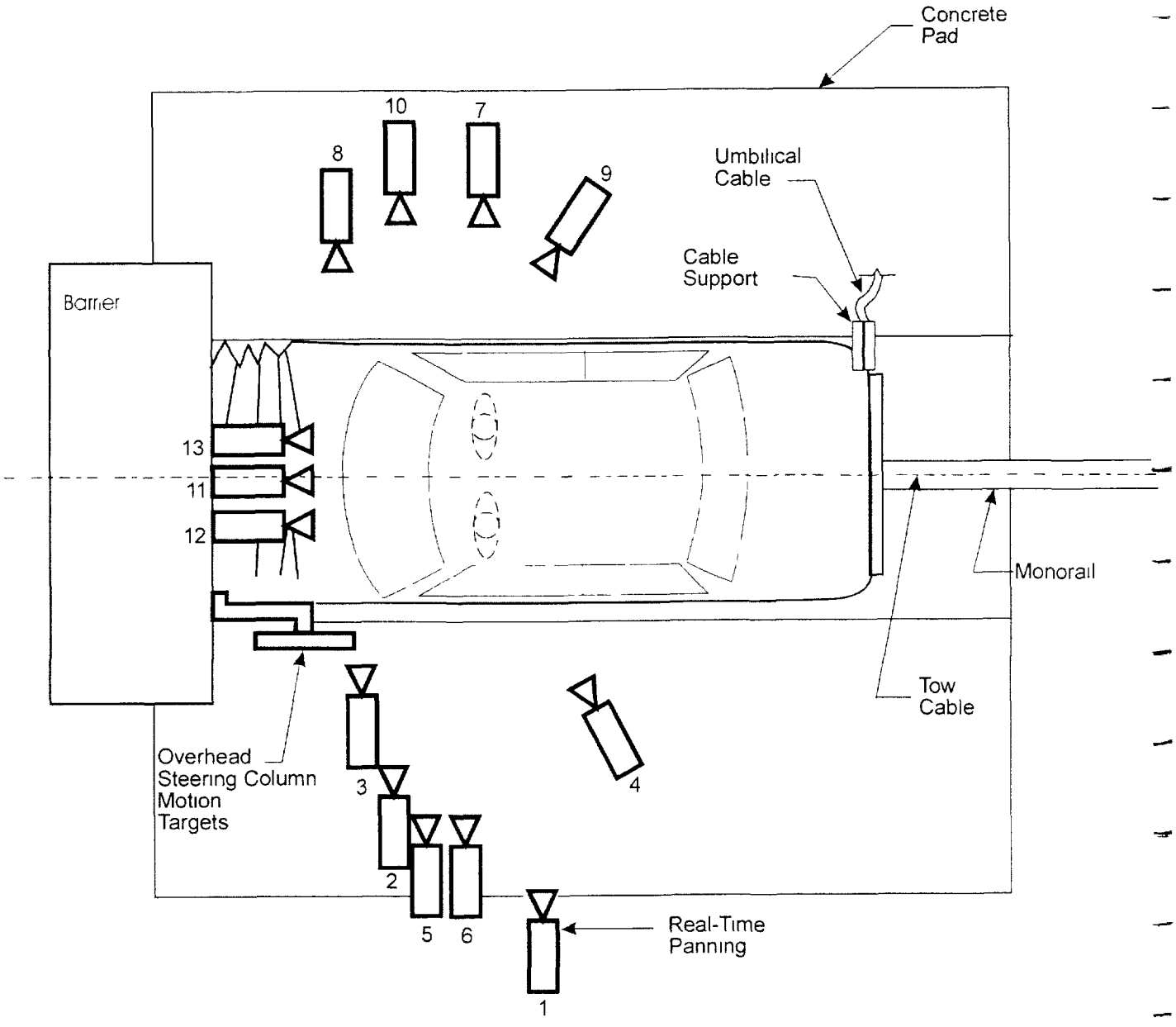


Figure 6 Camera Positions, Cont'd

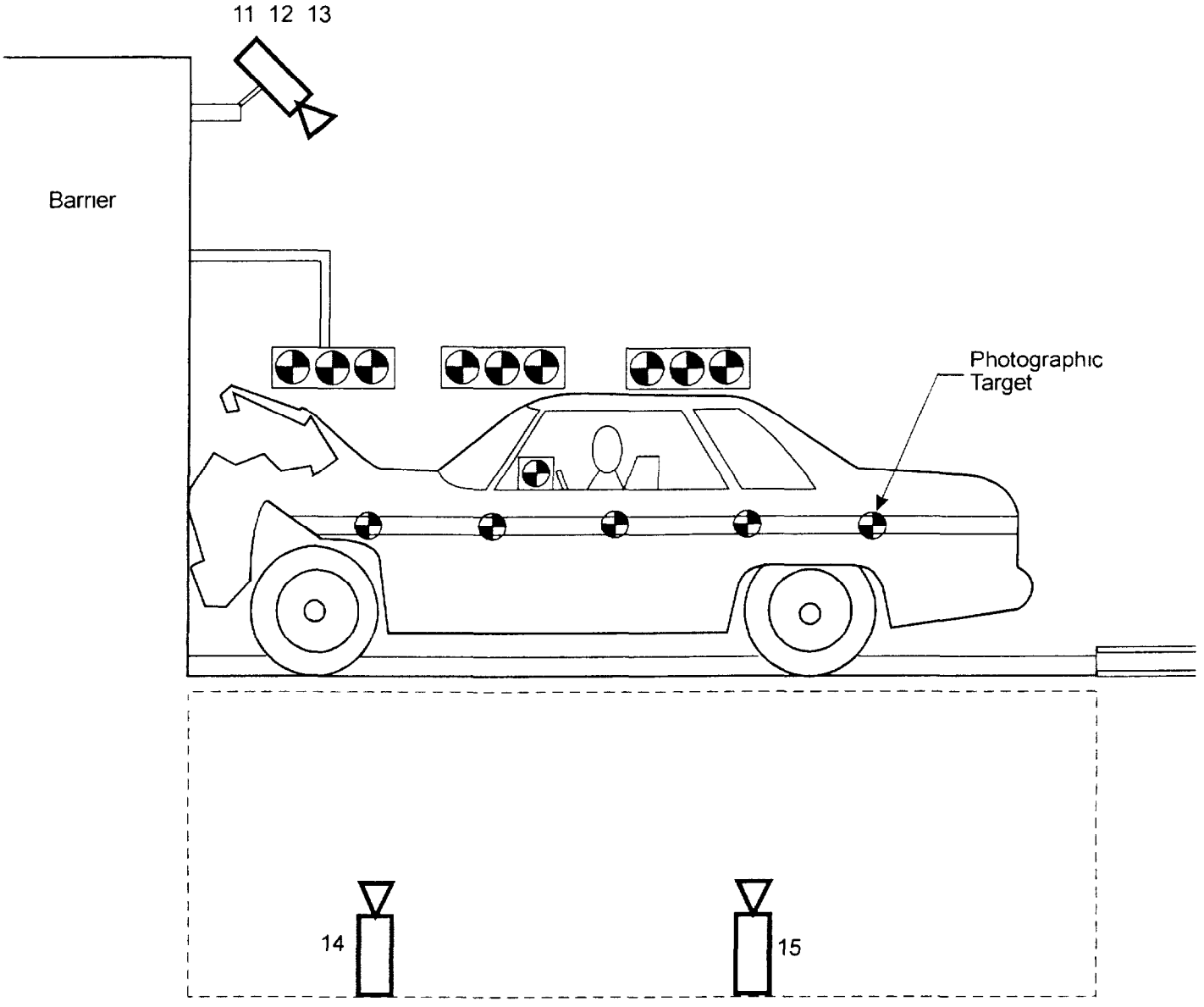


Table 7 Motion Picture Camera Locations

Vehicle year/make/model/body style: 2002/Saturn/VUE/4-door/MPV Test number: 020329

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	N/A	N/A	N/A	N/A	N/A	16 mm	24 frames/s
2	Left vehicle crush	-39 in.	330 in.	54 in.	3.9°	313 in	25 mm	997 frames/s
3	Left windshield intrusion	-27 in.	288 in.	54 in.	3.2°	281 in.	25 mm	815 frames/s
4	Driver over shoulder	-154 in.	96 in.	87 in.	-20.6°	100 in.	25 mm	1010 frames/s
5	Steering column motion-upper	-65 in.	360 in.	96 in.	0.7°	341 in.	35 mm	1015 frames/s
6	Steering column motion-lower	-65 in.	360 in.	64 in.	0.9°	341 in.	35 mm	1000 frames/s
7	Right overall	-111 in.	-288 in.	49 in	1.5°	312 in.	13 mm	1025 frames/s
8	Right windshield intrusion	-48 in.	-240 in.	52 in.	0.6°	226 in	25 mm	1010 frames/s
9	Passenger over shoulder	-159 in.	-84 in.	82 in.	-13.1°	102 in.	25 mm	1015 frames/s
10	Passenger kinematics	-71 in.	-288 in	62 in.	3.2°	275 in	25 mm	985 frames/s
11	Windshield front view	-20 in.	0 in.	103 in.	-60.0°	N/A	8.5 mm	1010 frames/s
12	Driver - front view	-20 in.	14 in.	103 in.	-52.2°	94 in.	17 mm	1005 frames/s
13	Passenger - front view	-20 in.	-14 in.	103 in.	-52.2°	94 in.	17 mm	1015 frames/s
14	Pit - front view of crush	-37 in.	0 in.	-108 in.	-90.0°	N/A	17 mm	1005 frames/s
15	Pit - rear view of crush	-78 in.	0 in.	-107 in.	-90.0°	N/A	13 mm	1005 frames/s
16	Real-time documentation	N/A	N/A	N/A	N/A	N/A	12-120 mm	24 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

Table 8 FMVSS 208 Occupant Injury Data

Vehicle: 2002/Saturn/VUE/4-door MPV NHTSA No : C20108 Date: 03/29/02

Maximum Acceleration Values: (g's) [1]	Driver Dummy #230	Passenger Dummy #314
Head Channel X	-22.2	-35.7
Head Channel Y	-5.9	-9.5
Head Channel Z	20.5	25.1
HEAD RESULTANT	27.0	36.1
Chest Channel X	-36.0	-35.4
Chest Channel Y	-4.8	-4.1
Chest Channel Z	-8.4	13.7
CHEST RESULTANT	36 4	36.9

15 ms Head Injury Criteria (HIC) Values:

HIC	48	104
t_1 = (ms)	94.72	103.28
t_2 = (ms)	109.76	118.32

[The maximum time interval from t_1 to t_2 is 15 milliseconds.]

Chest Injury Criteria (Clip) Values: (g's)

CLIP	35.8	35.7
t^1 = (ms)	93.606	96.566
t^2 = (ms)	93.051	96.011
Chest Deflection (in)	1.3	0.3

[1] Sign Convention per SAEJ211, March 1995.

Table 8 FMVSS 208 Occupant Injury Data, Cont'd.

Vehicle: 2002/Saturn/VUE/4-door MPV NHTSA No : C20108 Date: 03/29/02

Max Compressive Femur Forces (lbs):	Driver Dummy #230	Passenger Dummy #314
Left Side (lbs)	1318	1256
Right Side (lbs)	1000	1287

Neck Injury Criteria (axial force and NIJ's):	Driver Dummy #230	Passenger Dummy #314
Peak Axial Tension (N)	892	1629
Peak Axial Compression (N)	429	340
NTE (tension-extension)	0 07	0.30
NTF (tension-flexion)	0 24	0 17
NCE (compression-extension)	0 09	0 08
NCF (compression-flexion)	0 15	0 07

Figure 7 FMVSS 212 Test Data

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

Adhesive and plastic trim around perimeter.

Clips or brackets used to retain windshield: None

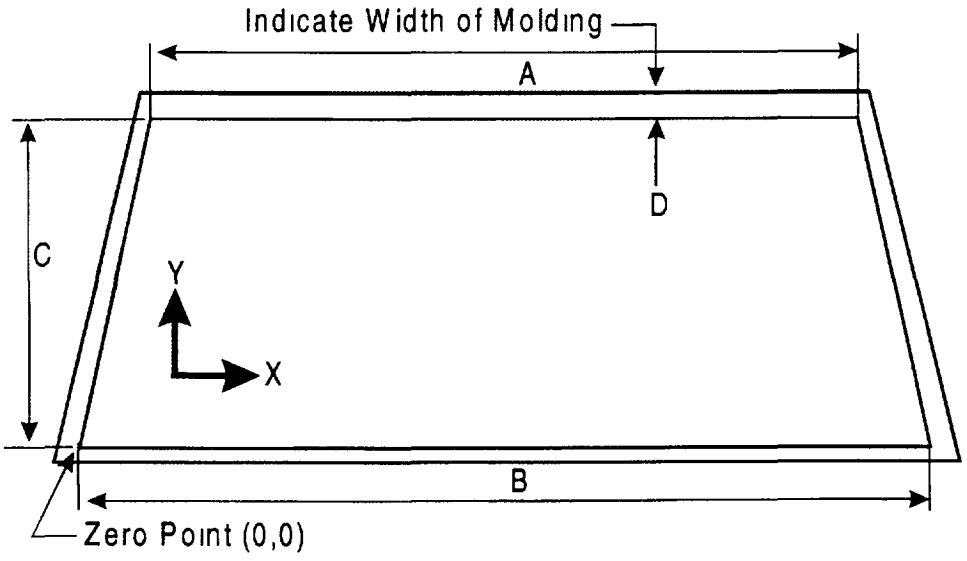
FMVSS 212 requirements: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles not equipped with occupant passive restraints, and 50% for each side of the windshield for vehicles which are equipped with occupant passive restraints.

Windshield periphery measurements:

	Pre-test	Post-test	Percent Retention
Right side	87.6 in.	87.6 in	100.0 %
Left side	87.6 in.	87.6 in.	100.0 %
Total	175.2 in.	175.2 in.	100 0 %

Pre-test windshield mounting material temperature: N/A

A = 47.2 in.
B = 58.3 in.
C = 33.5 in.
D = 0 8 in.



Front view of windshield[1]

Loss of windshield retention lengths: None

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

Figure 8 FMVSS 219 Test Data

Protected zone lower edge requirement:

The lower edge of the protected zone is determined by placing a 6.5-inch diameter rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 0.5 inch from the locus line The lower edge of the protected zone is the longitudinal projection onto the outer surface of the windshield of this line.

Windshield measurements

A = 47.2 in

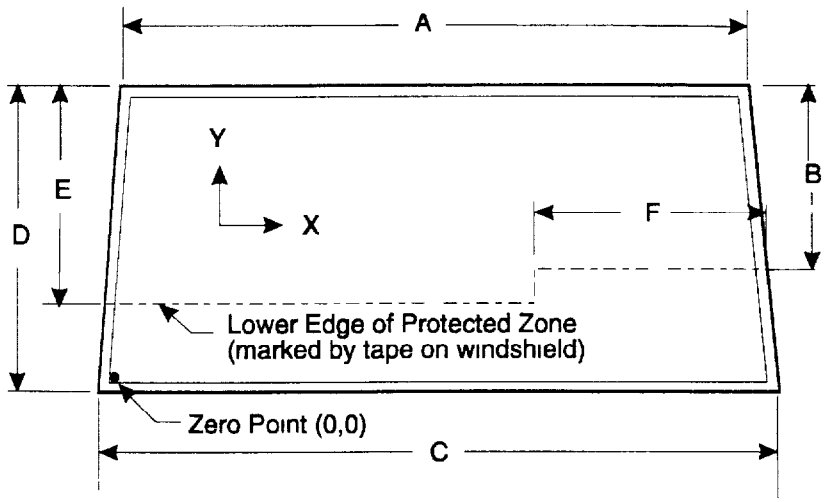
B = 25 0 in

C = 58.3 in

D = 33.5 in

E = 24.4 in

F = 17 7 in



FRONT VIEW

Method of adhering protected zone template to windshield: N/A

Areas of windshield template penetration greater than 0 25 in: N/A

	Coordinates X	Y
1.	N/A	N/A
2		
3.		

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

	Coordinates X	Y
1.	N/A	N/A
2.		
3.		

Table 9 Fuel System Data

Vehicle year/make/ model/body style:	2002/Saturn/VUE/4-door/MPV
NHTSA number:	C20108
Fuel system capacity:	15.7 gallons (from owner's manual)
Usable capacity:	15.6 gallons (furnished by COTR)
Test volume range:	14.4 gallons to 14.7 gallons (92-94% of usable)
Actual test volume:	14 7 gallons (with entire fuel system filled)
Test fluid type·	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0 99 centistoke
Test fluid color:	Purple
Type of fuel pump:	Electric
Did the electric fuel pump operate with ignition switch "on" and the engine not operating?	Yes
Details of fuel system:	The tank is located in front of the rear axle. The neck runs out of the tank to the right rear, behind the wheel well. The cap is on the end of the neck above the rear wheel well. Fuel lines run inside the left frame.

Table 10 FMVSS 301 Post-Impact Test Data

Vehicle NHTSA number: C20108

Test date: 03/29/02

Vehicle year/make/
model/body style: 2002/Saturn/VUE/4-door/MPV

Test requirements:

Test vehicle fuel tank filled to 92 to 94% of manufacturer's usable capacity and with electric fuel pump operating (if it will operate without engine operation) Part 572 test dummies located at each front designated seating position.

Type of impact:

_X_ Frontal (25 mph)

___ Oblique (30 mph) with __° barrier face first contacting (driver's/passenger's) side

___ Rear moving barrier (30 mph)

___ Lateral moving barrier (20 mph)

Fuel system fluid spillage measurements:

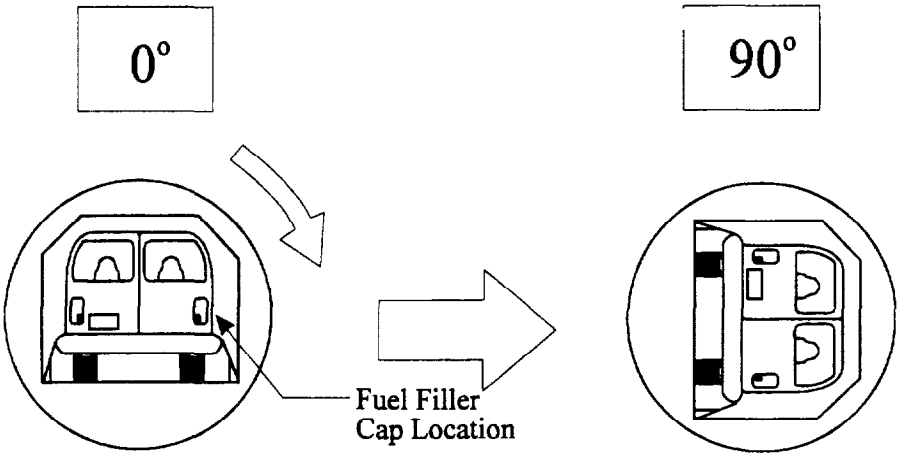
		Test Results	Maximum Allowable
1	From impact until vehicle motion ceases	0 g	28 g
2	5-minute period after vehicle motion ceases	0 g	142 g
3	Next 25 minutes after 5-minute period	0 g	28 g/1 min

Fuel system fluid spillage location(s): No

Figure 9 FMVSS 301 Static Rollover Test Data

NHTSA number: C20108

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2	minutes,	0 seconds
FMVSS 301 position hold time	=	5	minutes,	0 seconds
Total	=	7	minutes,	0 seconds
Next whole minute interval	=	7	minutes	

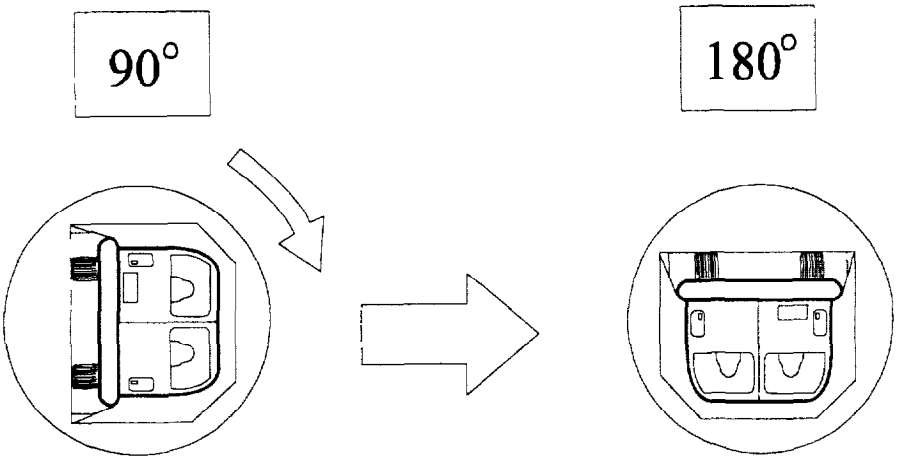
Fuel system fluid spillage measurements:

0° to 90° rotation (fuel filler cap down)	Test Results	Maximum Allowable
1 First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 9 FMVSS 301 Static Rollover Test Data, Cont'd

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2	minutes, 0 seconds
FMVSS 301 position hold time	=	5	minutes, 0 seconds
Total	=	7	minutes, 0 seconds
Next whole minute interval	=	14	minutes

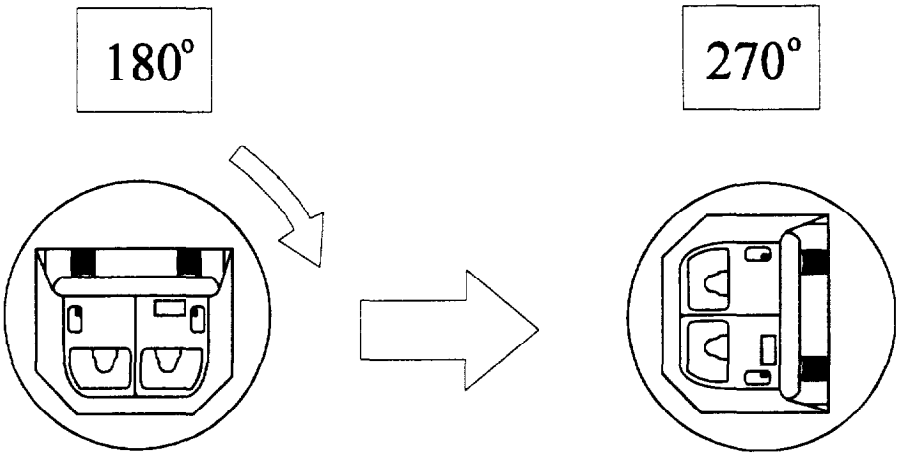
Fuel system fluid spillage measurements:

90° to 180° rotation	Test Results	Maximum Allowable
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3 Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 9 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2	minutes,	0 seconds
FMVSS 301 position hold time	=	5	minutes,	0 seconds
Total	=	7	minutes,	0 seconds
Next whole minute interval	=	21	minutes	

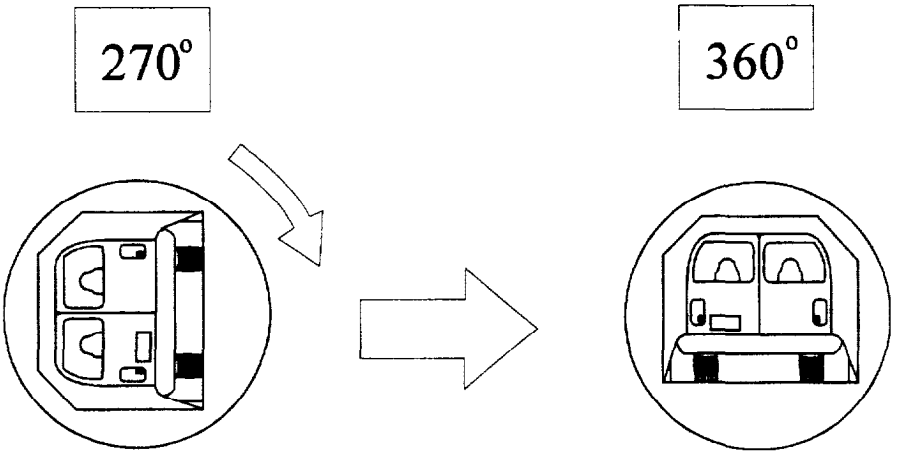
Fuel system fluid spillage measurements:

180 to 270° rotation	Test Results	Maximum Allowable
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3 Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 9 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2 minutes,	0 seconds
FMVSS 301 position hold time	=	5 minutes,	0 seconds
Total	=	7 minutes,	0 seconds
Next whole minute interval	=	28 minutes	

Fuel system fluid spillage measurements:

270° to 360° rotation	Test Results	Maximum Allowable
1. First five minutes from onset of rotation	0 g	142 g
2 Sixth minute from onset of rotation	0 g	28 g
3 Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Table 11 FMVSS 208 Seat Belt Warning System Check

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

Complete the following to determine which seat belt warning system option (S7.3(a)(1) or S7 3(a)(2)) is used. (Manufacturers may use either option.)

A. With occupant in driver's position and lap belt in stowed position and ignition switch placed in "Start/On" position:

A.1 S7.3(a)(1)
Time duration of audible warning signal = 6 seconds
(4 to 8 seconds)

Time duration of reminder light operation = 75 seconds
(no less than 60 seconds)

A.2 S7.3(a)(2)
Time duration of audible warning signal = seconds
(4 to 8 seconds) (see 49 USCS @ 30124)

Time duration of reminder light operation = seconds
(4 to 8 seconds)

B. With occupant in driver's position and lap belt in use and the ignition switch placed in "Start/On" position:

B.1 S7.3(a)(1)
Time duration of audible warning signal = 0 seconds
(audible warning should not operate)

Time duration of reminder light operation = 0 seconds
(reminder light does not operate)

B.2 S7.3(a)(2)
Time duration of audible warning signal = seconds
(audible warning should not operate)

Time duration of reminder light operation = seconds
(4 to 8 seconds)

C. Note wording of visual warning:
Fasten Seat Belt
Fasten Belt
Symbol 101 ☒

Table 12 FMVSS 208 Readiness Indicator

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No : C20108 Technician: Steve Bell Date: 03/20/2002

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement (11/8/94 legal interpretation)

Is the system totally mechanical? ☐ Yes; ☒ No

Describe the location of the readiness indicator: Left corner of instrument panel

Is the readiness indicator clearly visible to the driver? ☒ Yes; ☐ No

Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided? ☒ Yes; ☐ No

Table 13 FMVSS 208 Air Bag Labels

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

1. Air Bag Maintenance Label and Owner's Manual Instructions:

1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?

☐ Yes (Go to 1.2)

☒ No (Go to 2)

1.2 Does the Vehicle have a maintenance or replacement label?

☐ Yes-Pass ☐ **No-Fail**

1.3 Does the label contain one of the following? ☐ Yes-Pass ☐ **No-Fail**

☐ Schedule on label specifies month and year

☐ Schedule on label specifies vehicle mileage

☐ Schedule on label specifies interval measured from date on certification label

1.4 Is the label permanently affixed within the passenger compartment?

☐ Yes-Pass ☐ **No-Fail**

1.5 Is the label lettered in English?

☐ Yes-Pass ☐ **No-Fail**

1.6 Is the label in block capitals and numerals?

☐ Yes-Pass ☐ **No-Fail**

1.7 Are the letters and numerals at least 3/32 inch high?

☐ Yes-Pass ☐ **No-Fail**

1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement?

☐ Yes-Pass ☐ **No-Fail**

2. Does the owner's manual: (S4.5.1 (f))

2.1 Include a description of the vehicle's air bag system in an easily understandable format?

☒ Yes ☐ **No-Fail**

2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating positions?

☒ Yes ☐ **No-Fail**

Table 13 FMVSS 208 Air Bag Labels, Cont'd

2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions? ☒ Yes ☐ **No-Fail**

2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash? ☒ Yes ☐ **No-Fail**

2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to insure maximum safety protection for those occupants? ☒ Yes ☐ **No-Fail**

2.6 Explain that no objects should be place over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate? ☒ Yes ☐ **No-Fail**

3 Does the Vehicle:

3.1 Provide an automatic means to ensure that the air bag does not deploy when a child seat or child with a total mass of 30 kg or less is present on the front outboard seat? ☐ Yes ☒ No

3.2 Incorporate sensors, other than or in addition to weight sensors, which automatically prevent the passenger air bag from deploying in situations in which it might have an adverse effect on infants in rear-facing child seat, and unbelted or improperly belted children? ☐ Yes ☒ No

3.3 Have a passenger air bag designed to deploy in a manner that does not create a risk of serious injury to infants in rear-facing child seats, and unbelted or improperly belted children? ☐ Yes ☒ No

If yes to 3.1, or 3.2, or 3.3, the vehicle is not required to have a Sun Visor Warning Label (S4.5.1(b)), an air bag alert label (S4.5.1(c)) or a label on the dash (S4.5.1(e)) and **this check sheet is complete. (S4.5.1) If no to 3.1, 3.2, and 3.3, go to 4.**

Table 13 FMVSS 208 Air Bag Labels, Cont'd.

4. Sun Visor Warning Label

4 1 Is the label permanently affixed (may be permanent marking or molding) to either side of the sun visor at each front outboard seating position with an air bag?

Driver side ☒ Yes-Pass ☐ **No-Fail**

Passenger side ☒ Yes-Pass ☐ **No-Fail**

4.2 Does the label conform in content **(vehicles without back seats may omit the statement: "The BACK SEAT is the SAFEST place for children.")** (S4.5 1(b)(2)(v)) to the label shown in either Figure 6a or 6b as appropriate at each front outboard seating position with an air bag? (S4.5.1(b)(2))

4 2.1 Dual air bags

Driver side ☒ Yes-Pass ☐ **No-Fail**

Passenger side ☒ Yes-Pass ☐ **No-Fail**

4.2.2 Vehicles with driver air bag ONLY - either 4.2.1 or 4.2.2 is applicable, not both. (S4.5.1(b)(2)(iv))

4.2.2.1 Does the label conform on content to the label shown in either Figure 6a or 6b as appropriate?

☒ N/A

Driver side ☐ Yes-Pass ☐ **No-Fail**

4.2.2.2 Does the label conform in content to the label shown in Figure 6a where the label can be modified to omit the pictogram and the message may read:

DEATH or SERIOUS INJURY can occur.

. Sit as far back as possible from the air bag.

. ALWAYS use SEAT BELTS and CHILD RESTRAINTS.

. The BACK SEAT is the SAFEST place for children

☒ N/A

Driver side ☐ Yes-Pass ☐ **No-Fail**

Table 13 FMVSS 208 Air Bag Labels, Cont'd

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

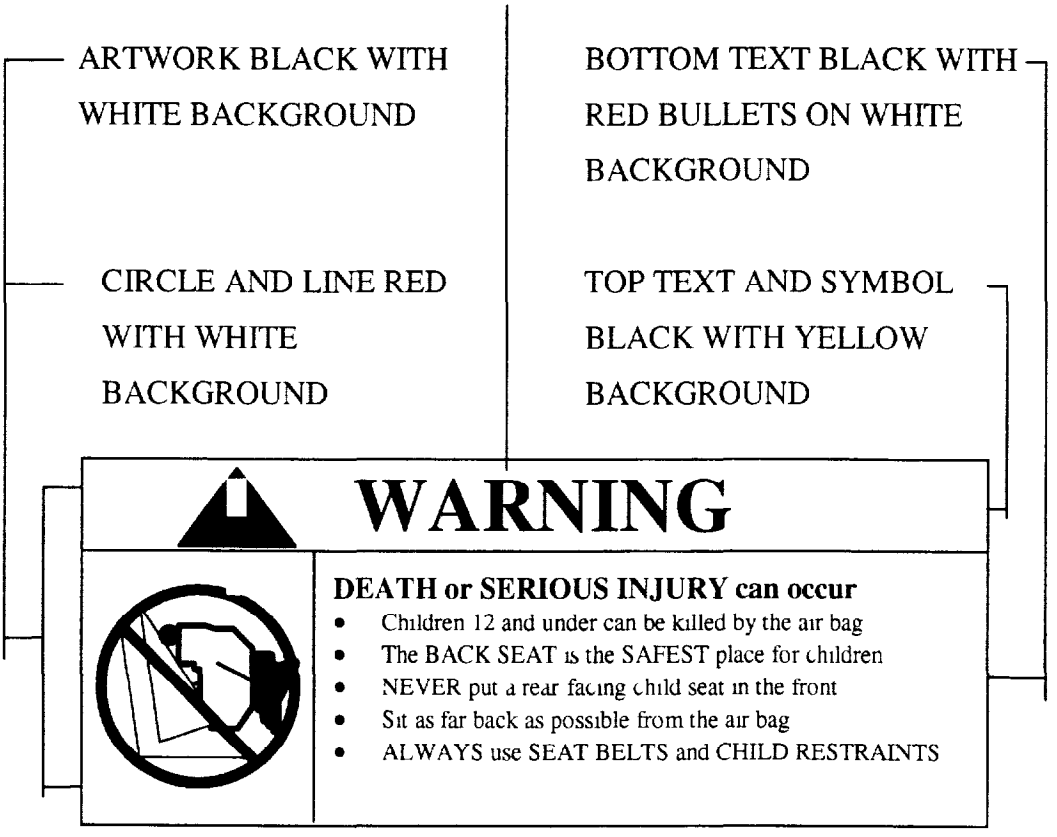


Figure 6a
(S4 5 1(b)(2))

Table 13 FMVSS 208 Air Bag Labels, Cont'd.

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

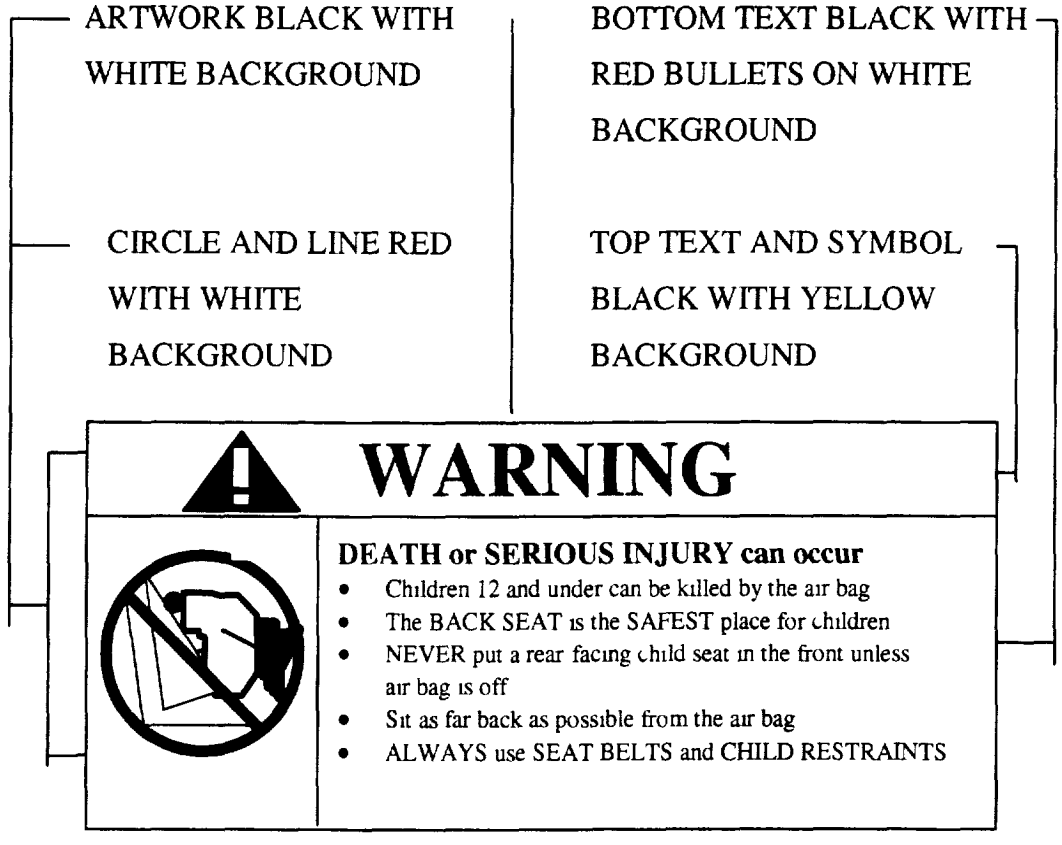


Figure 6b
(S4 5 1(b)(2))

4.3 Is the driver side label heading area yellow with the word "warning" and the alert symbol in black? (S4 5.1.(b)(2)(i))

	Driver side	☒ Yes-Pass	☐ **No-Fail**
	Passenger side	☒ Yes-Pass	☐ **No-Fail**

4.4 Is the message white with black text? (S4.5.1 (b)(2)(ii))

	Driver side	☒ Yes-Pass	☐ **No-Fail**
Passenger side	☐ No air bag	☒ Yes-Pass	☐ **No-Fail**

4.5 Is the message area at least 30 cm^2? (S4.5.1(b)(2)(ii))

Actual message area, driver side **40.5** cm^2

Actual message area, passenger side **40.5** cm^2

	Driver side	☒ Yes-Pass	☐ **No-Fail**
Passenger side	☐ No air bag	☒ Yes-Pass	☐ **No-Fail**

Table 13 FMVSS 208 Air Bag Labels, Cont'd.

4.6 Is the pictogram black with a red circle and slash on a white background? (S4 5.1(b)(2)(iii)) & (S4.5.1(b)(2)(iv))

For vehicles with driver side air bag ONLY ☐ N/A

Driver side		☒ Yes-Pass	☐ **No-Fail**
Passenger side	☐ No air bag	☒ Yes-Pass	☐ **No-Fail**

4.7 Is the pictogram at least 30 mm in diameter? (S4 5 1(b)(2)(iii))
Actual diameter, driver side **30** mm
Actual diameter, passenger side **30** mm

For vehicles with driver side air bag ONLY ☐ N/A

Driver side		☒ Yes-Pass	☐ **No-Fail**
Passenger side	☐ No air bag	☒ Yes-Pass	☐ **No-Fail**

4.8 Is the same side of the sun visor to which the sun visor label is affixed free of other information with the exception of an air bag maintenance label? (S4 5.1(b)(3)) and/or a rollover warning label specified in 49CFR Part 575 (S575 105)?

Driver side		☒ Yes-Pass	☐ **No-Fail**
Passenger side	☐ No air bag	☒ Yes-Pass	☐ **No-Fail**

4.9 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label or the utility vehicle label?

Driver side		☒ Yes-Pass	☐ **No-Fail**
Passenger side	☐ No air bag	☒ Yes-Pass	☐ **No-Fail**

5 Air Bag Alert Label

5.1 Is the Sun Visor Warning Label visible when the sun visor is in the stowed position?

Driver	☒ Yes	☐ No
Passenger	☒ Yes	☐ No

If yes, go to 6

5.2 Does the label conform in content to the label shown in Figure 6c? (S4.5 1(c)(2)) ☐ Yes-Pass ☐ **No-Fail**

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION

Circle and Line Red with White Background

Artwork Black with White Background

Text Yellow with Black Background

Figure 6c
(S4 5 1(c)(2))

Table 13 FMVSS 208 Air Bag Labels, Cont'd.

5.3 Is the message area black with yellow text? (S4.5.1(c)(2)(i))

☐ Yes-Pass ☐ **No-Fail**

5.4 Is the message area at least 20 cm^2? (S4.5.1(c)(2)(i))

Actual message area **N/A** cm^2 ☐ Yes-Pass ☐ **No-Fail**

5.5 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2)(ii))

For vehicles with driver side air bag ONLY ☒ N/A

☐ Yes-Pass ☐ **No-Fail**

5.6 Is the pictogram at least 20 mm in diameter? (S4.5 1(c)(2)(ii))

Actual diameter is **N/A** mm

For vehicles with driver side air bag ONLY ☒ N/A

☐ Yes-Pass ☐ **No-Fail**

6. Label On the Dash

6.1 Does the vehicle have a passenger air bag?

☒ Yes ☐ No

If no, this checklist is complete.

6.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e))

☒ Yes-Pass ☐ **No-Fail**

6.3 Does the label conform in content (**vehicles without back seats may omit the statement: "The back seat is the safest place for children 12 and under."**) (S4 5.1(e)(iii)) to the label shown in Figure 7? (S4.5.1(e))

☒ Yes-Pass ☐ **No-Fail**

Figure 7
(S4 5 1(e))

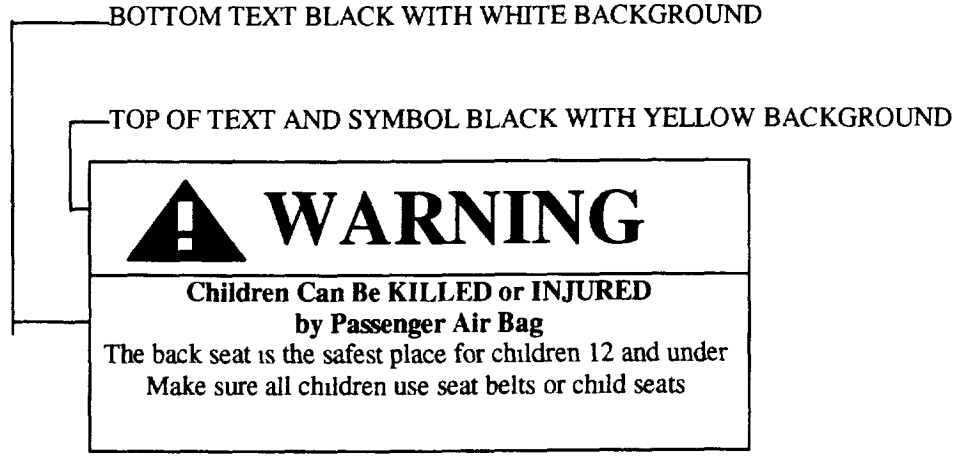


Table 13 FMVSS 208 Air Bag Labels, Cont'd

6 4	Is the heading area yellow with the word "warning" and the alert symbol in black? (S4.5 1(e)(i))	☒ Yes-Pass	☐ **No-Fail**
6.5	Is the message white with black text? (S4 5.1(e)(ii))	☒ Yes-Pass	☐ **No-Fail**
6.6	Is the message area at least 30 cm^2? (S4 5.1(e)(ii)) Actual message area **31.5** cm^2	☒ Yes-Pass	☐ **No-Fail**

Table 14 FMVSS 208 Rear Outboard Seating Position Seat Belts

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Michael S. Postle Date: 03/29/02

Do all rear outboard seating positions have type 2 seat belts?

☒ Yes; ☐ No; ☐ N/A (No Back Seat)

If No, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a type 2 belt was not installed.

N/A

Table 15 FMVSS 208 Lap Belt Lockability

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7 1 1 5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic retractors (S7.1 1 5(c))

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Right Front

☒1. Record test seat position: Mid
(S7.1.1 5(c)(1)) (Any position is acceptable)

☒2. Buckle the seat belt (S7.1 1.5(c)(1))

☒3 Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1 1.5(c)(1))

☒4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (S7.1.1.5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7 1.1 5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?

If yes, go to 6.1. If no, go to 7. ☐ Yes ☒ No

6 1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b)) ☐ Yes-Pass ☐ **No-Fail**

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Right Front

☒7. Locate a reference point A on the seat belt buckle (S7.1.1 5(c)(2))

☒8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

☒9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system (S7 1.1 5(c)(2))

☒10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7 1.1 5(c)(2)) Measured distance between A and B **64.6** inches.

☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

☒12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5 Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle **10** degrees. (Spec. 5~15 degrees)

☒13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B **18.9** inches.

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No · C20108 Technician· Steve Bell Date: 03/20/2002

Designated Seating Position: Right Front

☒14 Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds Measure and record the distance between points A and B along the longitudinal centerline of the webbing (S7.1 1.5(c)(5))

Record onset rate **25** lbs/sec (spec 10 ~50 lb/sec)

The measured distance between A and B is **19.5** inches (S7.1.1.5(c)(6))

☒15 Subtract the measurement in 13 from the measurement in 14 Is the difference 2 inches or less? (S7.1.1 5 (c)(7))

14-13= **0.6** inches ☒ Yes-Pass ☐ **No-Fail**

☒16. Subtract the measurement in 14 from the measurement in 10 Is the difference 3 inches or more? (S7.1 1 5(c)(8))

10-14= **45.1** inches. ☒ Yes-Pass ☐ **No-Fail**

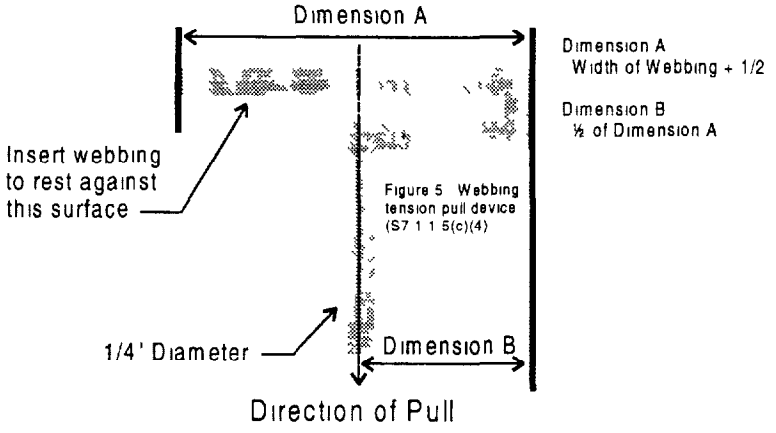


Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Right Rear

☒1 Record test seat position: Fixed (S7.1.1.5(c)(1)) (Any position is acceptable)

☒2. Buckle the seat belt. (S7.1 1.5(c)(1))

☒3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))

☒4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (S7.1.1.5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1 5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?

If yes, go to 6.1. If no, go to 7. ☐ Yes ☒ No

6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b)) ☐ Yes-Pass ☐ **No-Fail**

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No : C20108 Technician. Steve Bell Date: 03/20/2002

Designated Seating Position: Right Rear

☒7. Locate a reference point A on the seat belt buckle. (S7 1 1 5(c)(2))

☒8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly (S7 1 1 5(c)(2))

☒9 Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1 1.5(c)(2))

☒10 Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly (S7 1 1 5(c)(2)) Measured distance between A and B **55.9** inches.

☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing (S7 1 1 5(c)(3))

☒12 To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5 Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7 1 1 5(c)(4)) Measured force application angle **10** degrees (Spec. 5~15 degrees)

☒13 Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied (S7 1 1 5(c)(4)) Measured distance between A and B **28.0** inches

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Right Rear

☒14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7 1.1.5(c)(5))

Record onset rate **25** lbs/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is **28.1** inches (S7 1.1.5(c)(6))

☒15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5 (c)(7))

14-13= **0.1** inches ☒ Yes-Pass ☐ **No-Fail**

☒16. Subtract the measurement in 14 from the measurement in 10 Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14= **27.8** inches. ☒ Yes-Pass ☐ **No-Fail**

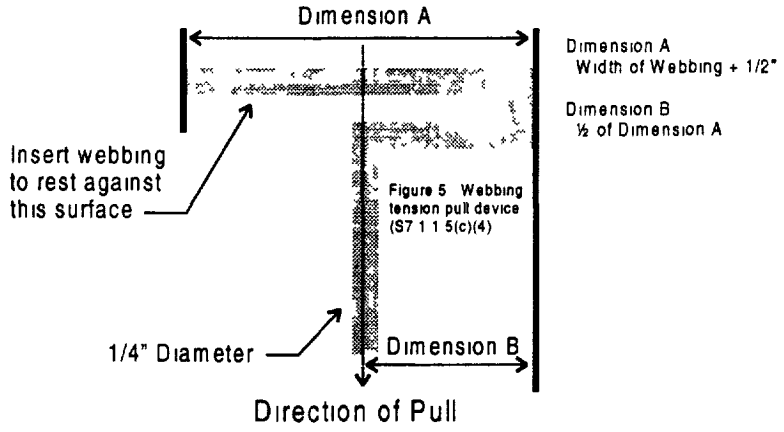


Figure 5 Webbing tension pull device (S7 1 1 5(c)(4)

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1 1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic retractors. (S7 1.1 5(c))

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No : C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Center Rear

☒1 Record test seat position: Fixed (S7 1 1 5(c)(1)) (Any position is acceptable)

☒2 Buckle the seat belt (S7 1.1 5(c)(1))

☒3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature (S7 1 1.5(c)(1))

☒4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (S7.1 1 5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒5 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1 1.5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒6 Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?

If yes, go to 6.1. If no, go to 7. ☐ Yes ☒ No

6 1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7 1 1 5(b)) ☐ Yes-Pass ☐ **No-Fail**

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Center Rear

☒7. Locate a reference point A on the seat belt buckle (S7.1.1.5(c)(2))

☒8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1 1.5(c)(2))

☒9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))

☒10 Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7 1.1 5(c)(2)) Measured distance between A and B **52.0** inches.

☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

☒12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle **10** degrees. (Spec. 5~15 degrees)

☒13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B **18.3** inches.

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No : C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Center Rear

☒14 Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing (S7 1 1 5(c)(5))

Record onset rate **25** lbs/sec (spec 10 ~50 lb/sec)

The measured distance between A and B is **18.6** inches (S7 1 1.5(c)(6))

☒15 Subtract the measurement in 13 from the measurement in 14 Is the difference 2 inches or less? (S7.1 1.5 (c)(7))

14-13= **0.3** inches ☒ Yes-Pass ☐ **No-Fail**

☒16 Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1 5(c)(8))

10-14= **33.4** inches. ☒ Yes-Pass ☐ **No-Fail**

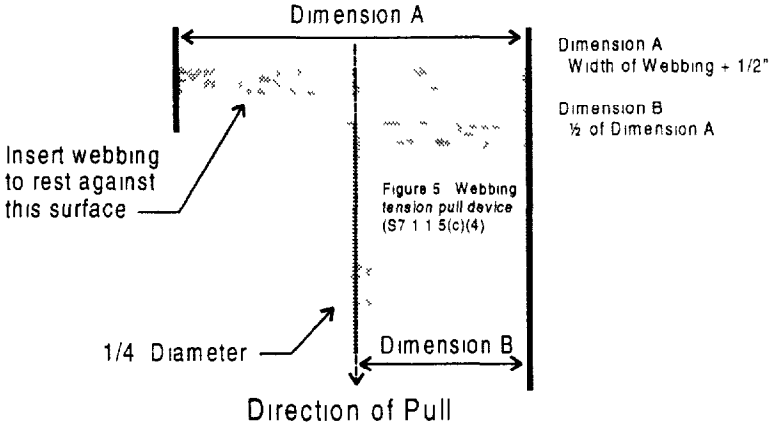


Figure 5 Webbing tension pull device (S7 1 1 5(c)(4)

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Left Rear

☒1. Record test seat position: Fixed (S7.1.1.5(c)(1)) (Any position is acceptable.)

☒2. Buckle the seat belt. (S7 1.1.5(c)(1))

☒3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))

☒4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle? (S7.1.1.5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒5 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☒ Yes-Pass ☐ **No-Fail**

☒6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?

If yes, go to 6.1. If no, go to 7. ☐ Yes ☒ No

6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1 1.5(b)) ☐ Yes-Pass ☐ **No-Fail**

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No · C20108 Technician: Steve Bell Date· 03/20/2002

Designated Seating Position· Left Rear

☒7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

☒8 Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly (S7 1.1.5(c)(2))

☒9 Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system (S7 1 1 5(c)(2))

☒10 Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7 1 1.5(c)(2)) Measured distance between A and B **55.9** inches.

☒11 Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing (S7 1.1 5(c)(3))

☒12 To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7 1 1.5(c)(4)) Measured force application angle **10** degrees (Spec. 5~15 degrees)

☒13 Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied (S7.1.1 5(c)(4)) Measured distance between A and B **28.0** inches.

Table 15 FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV

NHTSA No.: C20108 Technician: Steve Bell Date: 03/20/2002

Designated Seating Position: Left Rear

☒14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1 1.5(c)(5))

Record onset rate **25** lbs/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is **28.1** inches (S7.1 1.5(c)(6))

☒15 Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5 (c)(7))

14-13= **0.1** inches ☒Yes-Pass ☐**No-Fail**

☒16. Subtract the measurement in 14 from the measurement in 10 Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14= **27.8** inches. ☒Yes-Pass ☐**No-Fail**

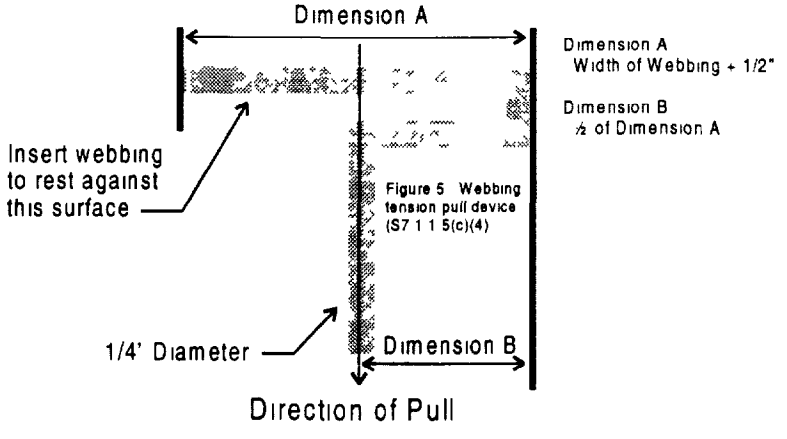


Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Left Front
Date of Comfort and Convenience Check: 03/21/2002
Technician Performing Check: Steve Bell
GVWR: 4364 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1 Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2 Adjustable seats are in the adjustment position midway between the forward most and rearmost positions If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8 1.2)

☒ Check
☐ N/A

3 If separately adjustable in a vertical direction, the seats are at the lowest position

☒ Check
☐ N/A

4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☒ Check
☐ N/A

5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant This information will be furnished by the COTR

☒ Check
☐ N/A

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8 1.3)

☐ Check
☒ N/A

8 Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0 7 pounds Contact force is **0.6** pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ **greater than 0.7 pounds - FAIL***

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Right Front
Date of Comfort and Convenience Check: 03/21/2002
Technician Performing Check: Steve Bell
GVWR: 4364 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt.

1 Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2 Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8 1 2)

☒ Check
☐ N/A

3 If separately adjustable in a vertical direction, the seats are at the lowest position.

☐ Check
☒ N/A

4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☒ Check
☐ N/A

5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant This information will be furnished by the COTR.

☒ Check
☐ N/A

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1 3)

☐ Check
☒ N/A

8 Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is **0.6** pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ **greater than 0.7 pounds - FAIL***

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd
Belt Contact Force (S7 4.3)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Right Rear
Date of Comfort and Convenience Check: 03/21/2002
Technician Performing Check: Steve Bell
GVWR: 4364 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

1 Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8 1 2)

☐ Check
☒ N/A

3 If separately adjustable in a vertical direction, the seats are at the lowest position

☐ Check
☒ N/A

4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer

☒ Check
☐ N/A

5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant This information will be furnished by the COTR

☐ Check
☒ N/A

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8 1.3)

☐ Check
☒ N/A

8 Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.

☒ Check

9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest Contact the COTR if the contact force exceeds 0.7 pounds Contact force is **0.6** pounds

☒ 0.0 to 0.7 pounds - Pass
☐ **greater than 0.7 pounds - FAIL***

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.· C20108
Vehicle Model Year/Make/Model/Body Style· 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested· Center Rear
Date of Comfort and Convenience Check· 03/21/2002
Technician Performing Check: Steve Bell
GVWR· 4364 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

1 Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2 Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8.1 2)

☐ Check
☒ N/A

3 If separately adjustable in a vertical direction, the seats are at the lowest position

☐ Check
☒ N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer

☒ Check
☐ N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant This information will be furnished by the COTR

☐ Check
☒ N/A

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☐ Check
☒ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position (S8.1.3)

☐ Check
☒ N/A

8 Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure

☒ Check

9. Fasten the seat belt latch Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is **0.6** pounds

☒ 0.0 to 0.7 pounds - Pass
☐ **greater than 0.7 pounds - FAIL***

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No : C20108
Vehicle Model Year/Make/Model/Body Style· 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Left Rear
Date of Comfort and Convenience Check: 03/21/2002
Technician Performing Check· Steve Bell
GVWR· 4364 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

1 Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8 1.2)

☐ Check
☒ N/A

3 If separately adjustable in a vertical direction, the seats are at the lowest position.

☐ Check
☒ N/A

4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer

☒ Check
☐ N/A

5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant This information will be furnished by the COTR

☐ Check
☒ N/A

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1 3)

☐ Check
☒ N/A

8 Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds Contact force is **0.6** pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ **greater than 0.7 pounds - FAIL***

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd
Latchplate Access (S7.4.4)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Left Front
Date of Comfort and Convenience Check: 03/20/2002
Technician Performing Check: Steve Bell
GVWR: 4364 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

1 Position the seat in its forward most adjustment position ☒ Check

2. Position the test dummy using the procedures in Appendix B of the Laboratory Test Procedure (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position) ☒ Check

3 Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant ☒ Check

4 Attach the inboard and outboard reach string following the instructions on Figure 1C of the Laboratory Test Procedure ☒ Check

5 Place the latch plate in the stowed position. ☒ Check

6 Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms Is the latchplate within the reach envelope?

☒ Yes-Pass; ☐ **No-Fail**

7 Using the clearance test block, specified in Figure 2C of the Laboratory Test Procedure, determine if there is sufficient clearance between the vehicle seat and the side of vehicle to allow the test block to move unhindered to the latchplate or buckle.

☒ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Latchplate Access (S7.4.4)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Right Front
Date of Comfort and Convenience Check: 03/20/2002
Technician Performing Check: Steve Bell
GVWR: 4364 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

1 Position the seat in its forward most adjustment position ☒ Check

2. Position the test dummy using the procedures in Appendix B of the Laboratory Test Procedure (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position) ☒ Check

3. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant. ☒ Check

4. Attach the inboard and outboard reach string following the instructions on Figure 1C of the Laboratory Test Procedure. ☒ Check

5. Place the latch plate in the stowed position ☒ Check

6. Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. Is the latchplate within the reach envelope?

☒ Yes-Pass; ☐ **No-Fail**

7. Using the clearance test block, specified in Figure 2C of the Laboratory Test Procedure, determine if there is sufficient clearance between the vehicle seat and the side of vehicle to allow the test block to move unhindered to the latchplate or buckle

☒ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Retraction (S7.4.5)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Left Front
Date of Comfort and Convenience Check: 03/20/2002
Technician Performing Check: Steve Bell
GVWR 4364 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

1. Is the vehicle a passenger car or walk-in van-type vehicle? ☐ Yes ☒ No

   If yes, go to seat belt guides and hardware

2 Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8 1 2) ☒ Check

3 If separately adjustable in a vertical direction, the seats are at the lowest position ☒ Check

4. Place any adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer ☒ Check

5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant This information will be furnished by the COTR ☒ Check

6. Place each adjustable head restraint in its highest adjustment position. ☒ Check

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Retraction (S7.4.5)

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3) ☒ Check

8. Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B of the Laboratory Test Procedure. ☒ Check

9 Restrain the dummies using the belt systems for the position being tested ☒ Check

10. Stow outboard armrests that are capable of being stowed ☒ Check

11. Check the statement that applies to this test vehicle:

(A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latchplate is released ☒ Pass

(B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latchplate is released. ☒ Pass

(C) Neither A or B apply ☐ **Fail**

12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

☒ Yes-Pass; ☐ **No-Fail**

13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated? ☒ N/A

☐ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd
Retraction (S7 4.5)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Right Front
Date of Comfort and Convenience Check: 03/20/2002
Technician Performing Check: Steve Bell
GVWR 4364 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Is the vehicle a passenger car or walk-in van-type vehicle? ☐ Yes ☒ No

   If yes, go to seat belt guides and hardware.

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8 1.2) ☒ Check

3 If separately adjustable in a vertical direction, the seats are at the lowest position ☒ Check

4. Place any adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer. ☒ Check

5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR. ☒ Check

6 Place each adjustable head restraint in its highest adjustment position. ☒ Check

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Retraction (S7.4.5)

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1 3) ☒ Check

8 Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B. ☒ Check

9 Restrain the dummies using the belt systems for the position being tested. ☒ Check

10. Stow outboard armrests that are capable of being stowed. ☒ Check

11 Check the statement that applies to this test vehicle·

(A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latchplate is released ☒ Pass

(B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latchplate is released ☒ Pass

(C) Neither A or B apply. ☐ **Fail**

12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

☒ Yes-Pass; ☐ **No-Fail**

13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

☒ N/A

☐ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd
Seat Belt Guides And Hardware (S7 4 6)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Left Front
Date of Comfort and Convenience Check: 03/21/2002
Technician Performing Check: Steve Bell
GVWR: 4364 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

A Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7 4 6 1(b))

B Seats which are removable

C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function

If the seats in this vehicle are different than the criteria above, determine the following:

1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
   ☒ Yes: go to 2.
   ☐ No: this form is complete.

2 Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
   ☒ Yes-Pass; ☐ **No-Fail**

3. Are the remaining two seat belt parts accessible under normal conditions?
   ☒ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

   (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.

   ☒ Check

   (B) The seat is moved to any position to which it is designed to be adjusted.

   ☒ Check

   (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☒ Check

   ☒ Yes-Pass; ☐ **No-Fail**

5. Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)? ☒ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No · C20108
Vehicle Model Year/Make/Model/Body Style· 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Right Front
Date of Comfort and Convenience Check· 03/21/2002
Technician Performing Check· Steve Bell
GVWR· 4364 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

The requirements for accessibility **DO NOT APPLY** to·

A Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4 6 1(b))

B Seats which are removable.

C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, determine the following:

1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?

☒ Yes· go to 2
☐ No: this form is complete

2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?

☒ Yes-Pass; ☐ **No-Fail**

3. Are the remaining two seat belt parts accessible under normal conditions?

☒ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

   (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.

   ☒ Check

   (B) The seat is moved to any position to which it is designed to be adjusted.

   ☒ Check

   (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☒ Check

   ☒ Yes-Pass; ☐ **No-Fail**

5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)? ☒ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: C20108
Vehicle Model Year/Make/Model/Body Style: 2002/Saturn/VUE/4-door/MPV
Designated Seating Position Tested: Right Rear, Center Rear, Left Rear: Not Applicable due to item C below
Date of Comfort and Convenience Check: 03/21/2002
Technician Performing Check: Steve Bell
GVWR: 4364 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars Complete a form for each applicable seat belt

The requirements for accessibility **DO NOT APPLY** to:

A Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4 6.1(b))

B Seats which are removable

C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, determine the following:

1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?

☐ Yes: go to 2
☐ No: this form is complete

2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing stay on top of or above the seat cushion under normal conditions (i e , conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?

☐ Yes-Pass; ☐ **No-Fail**

3. Are the remaining two seat belt parts accessible under normal conditions?

☐ Yes-Pass; ☐ **No-Fail**

Table 16 FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

   (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched

   ☐ Check

   (B) The seat is moved to any position to which it is designed to be adjusted.

   ☐ Check

   (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position.

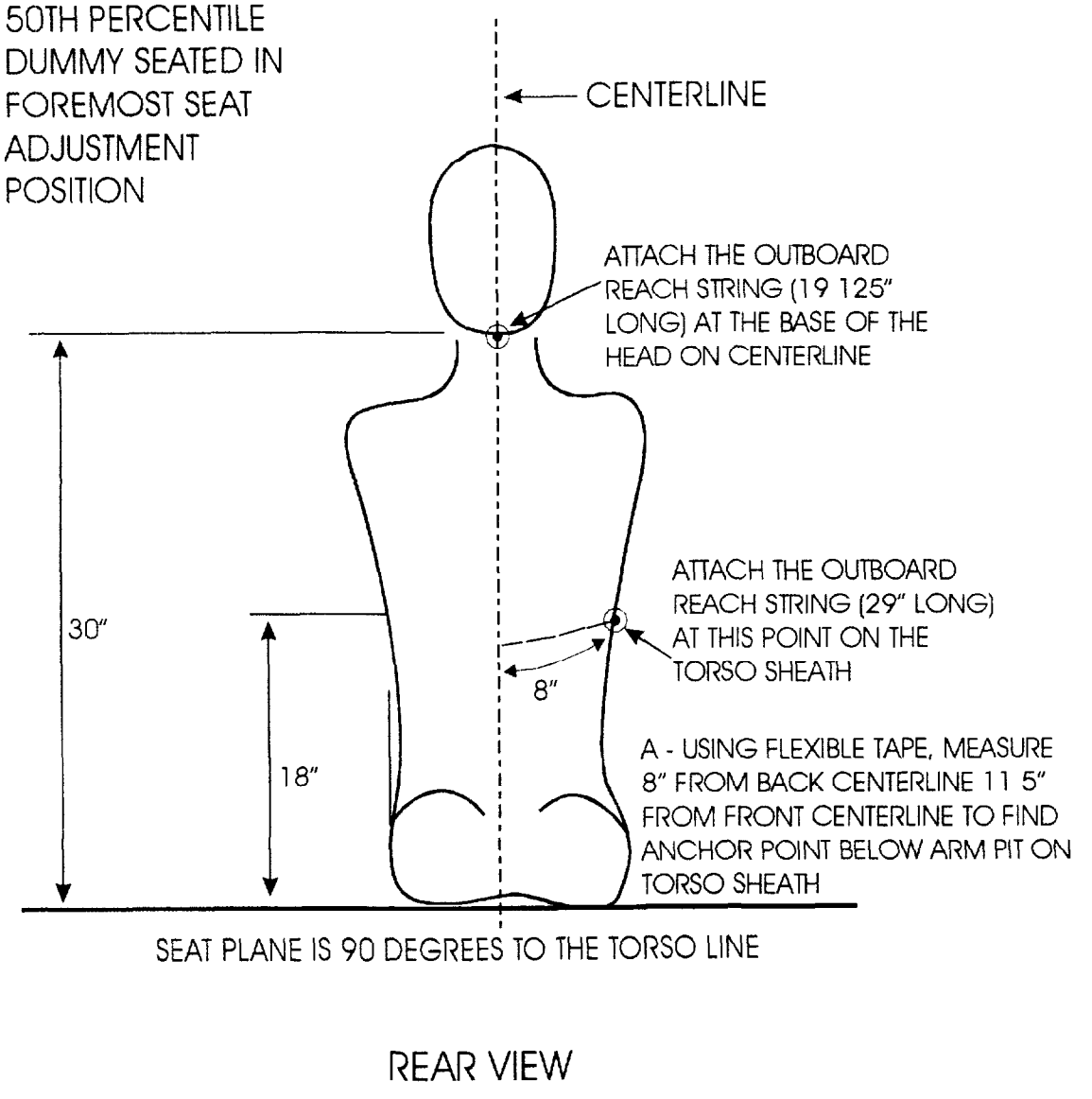
   ☐ Check

   ☐ Yes-Pass; ☐ **No-Fail**

5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)? ☐ Yes-Pass; ☐ **No-Fail**

LOCATION OF ANCHORING POINTS FOR LATCHPLATE REACH LIMITING CHAINS OR STRINGS TO TEST FOR LATCHPLATE ACCESSIBILITY

PART 572E DUMMY



REAR VIEW

Figure 10 Laboratory Test Procedure Figure 1C

USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

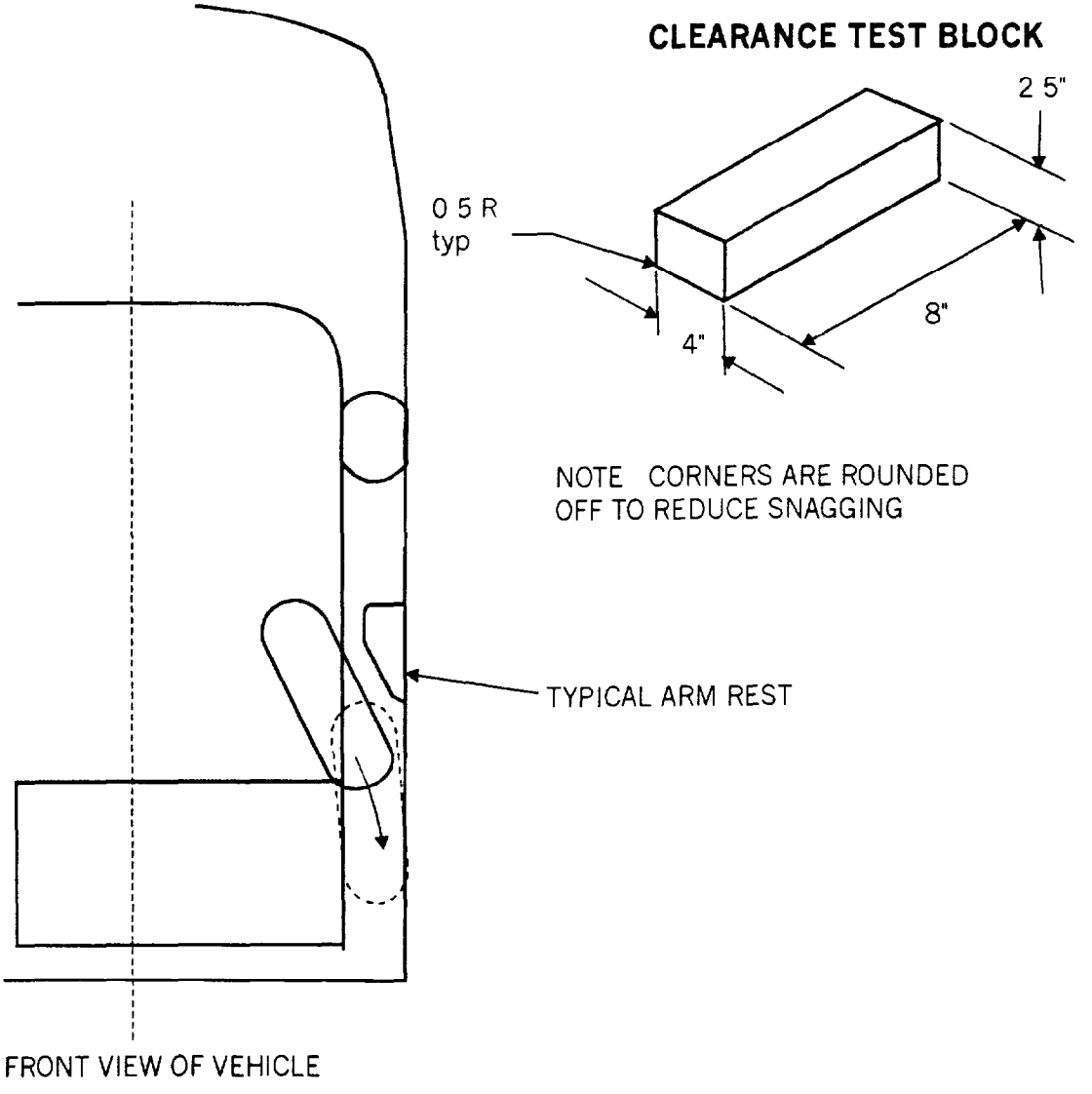


Figure 11 Laboratory Test Procedure Figure 2C

Appendix A

Photographs

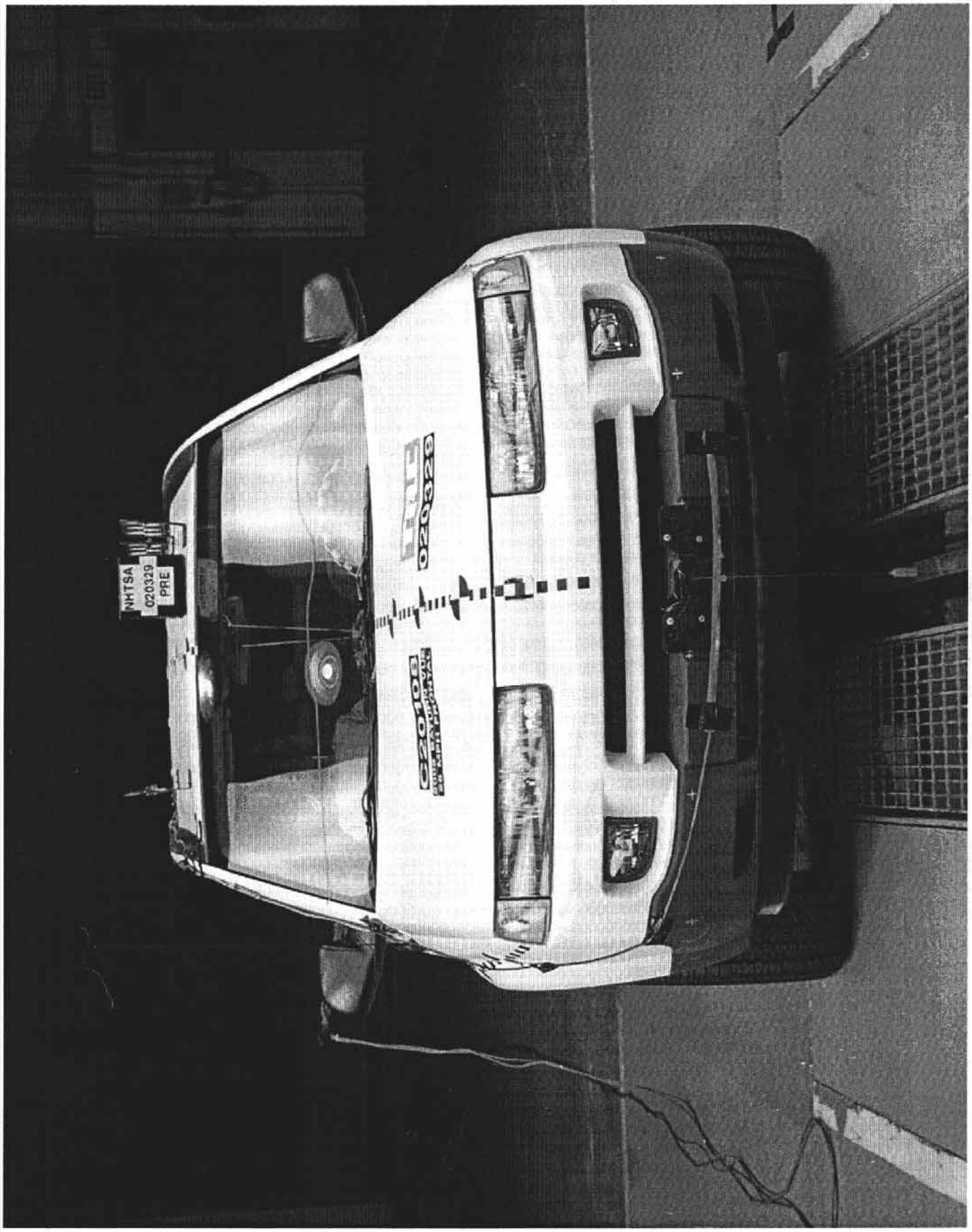


Figure A-1. Pre-Test Front View

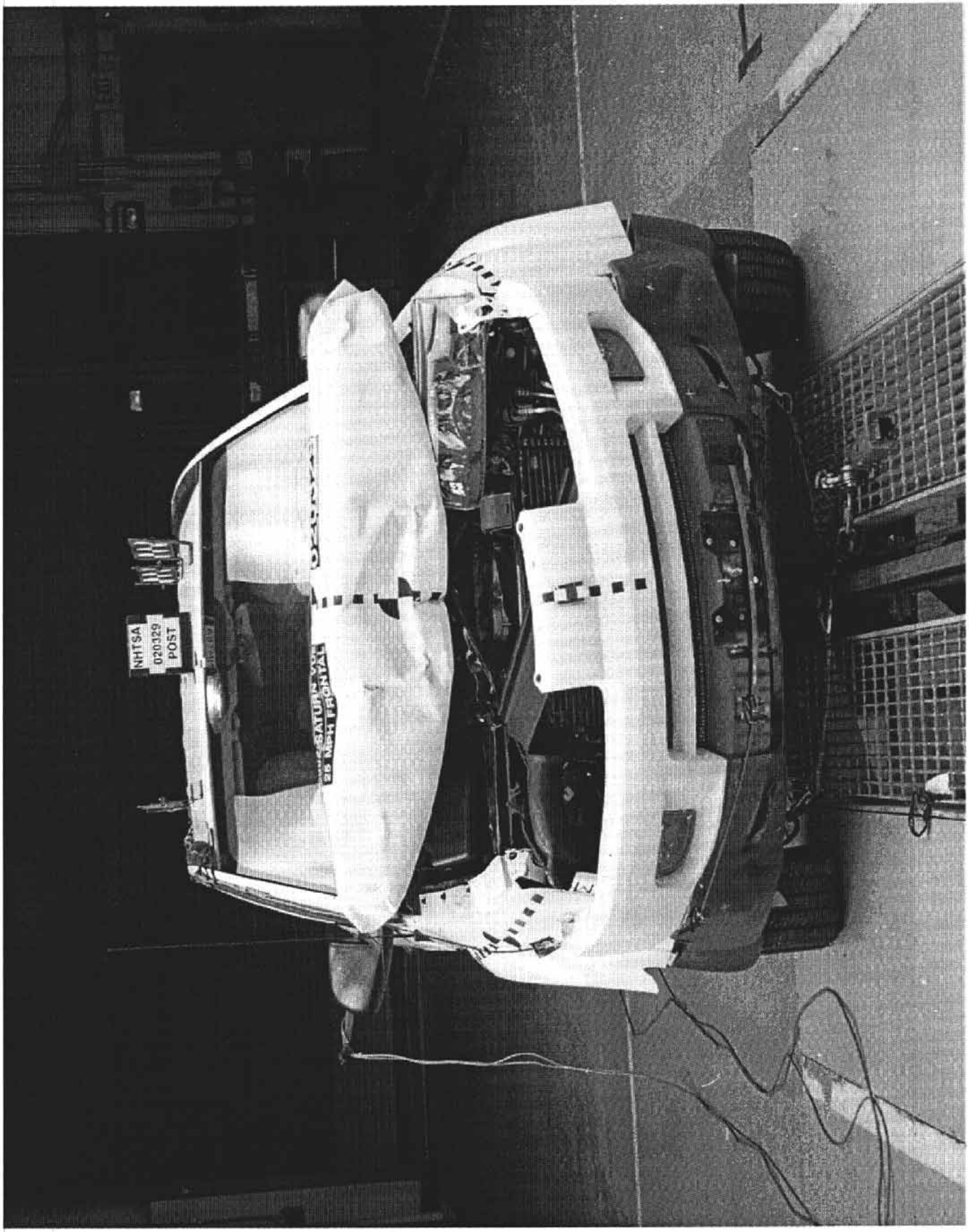


Figure A-2. Post-Test Front View

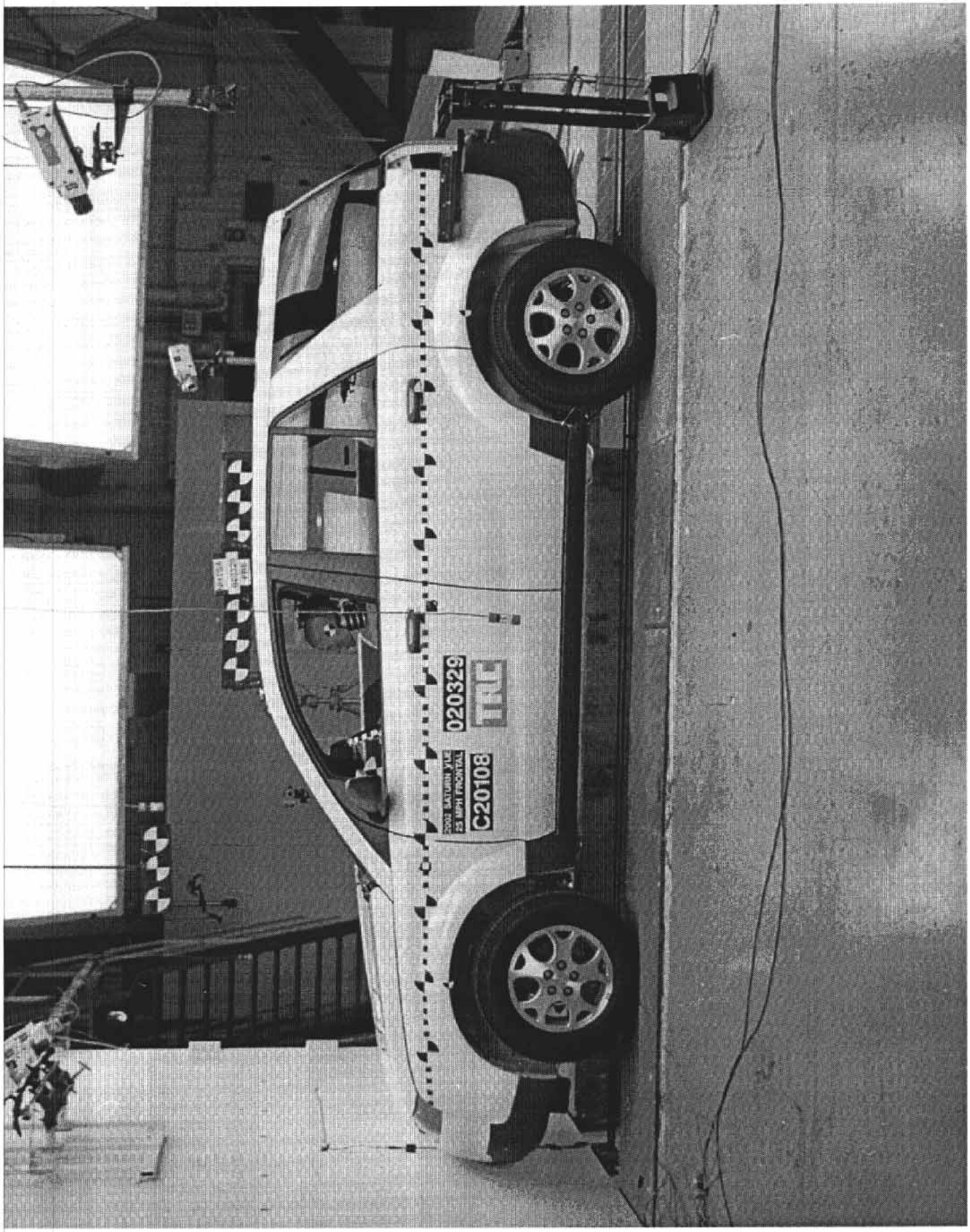


Figure A-3. Pre-Test Left Side View

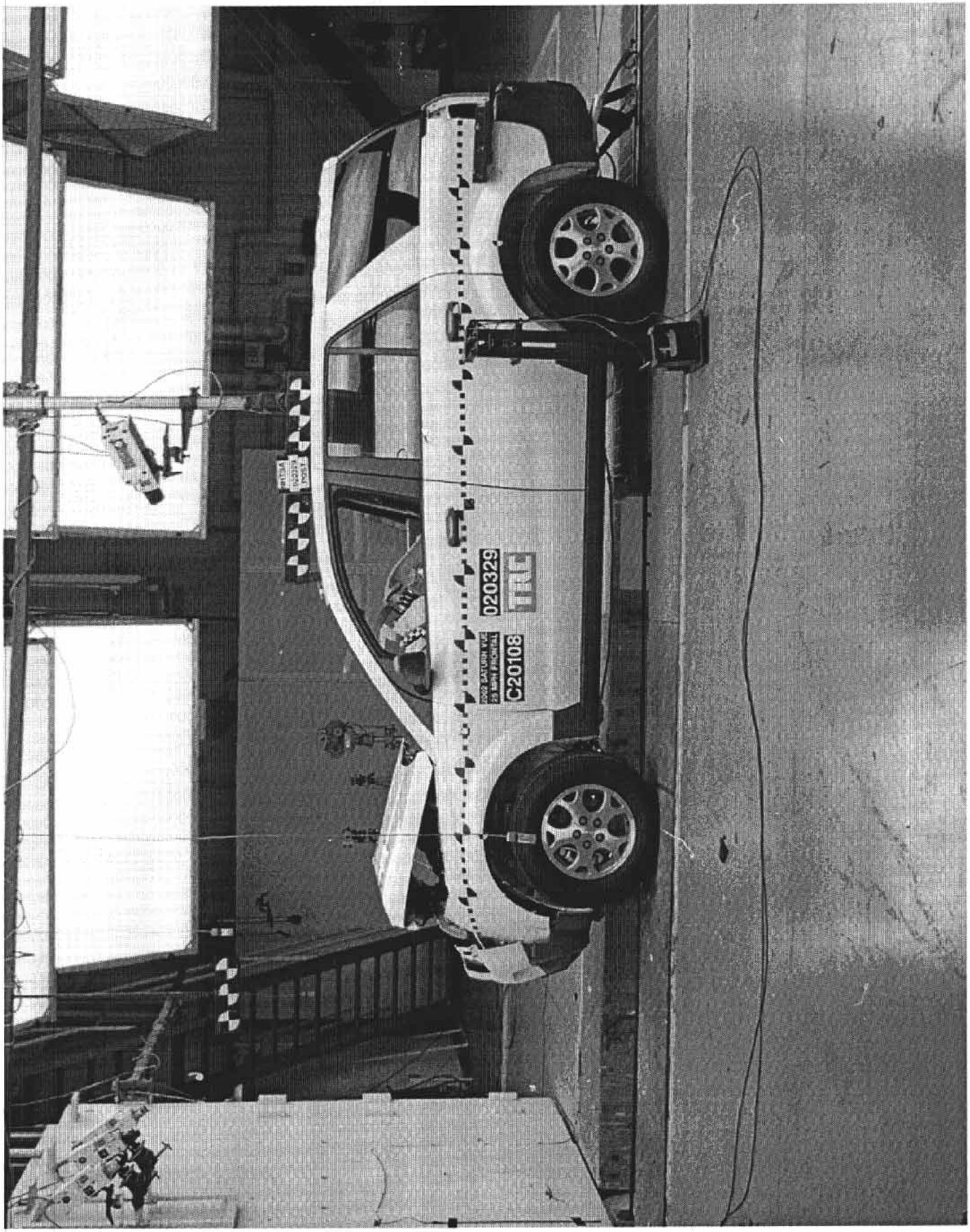


Figure A-4. Post-Test Left Side View

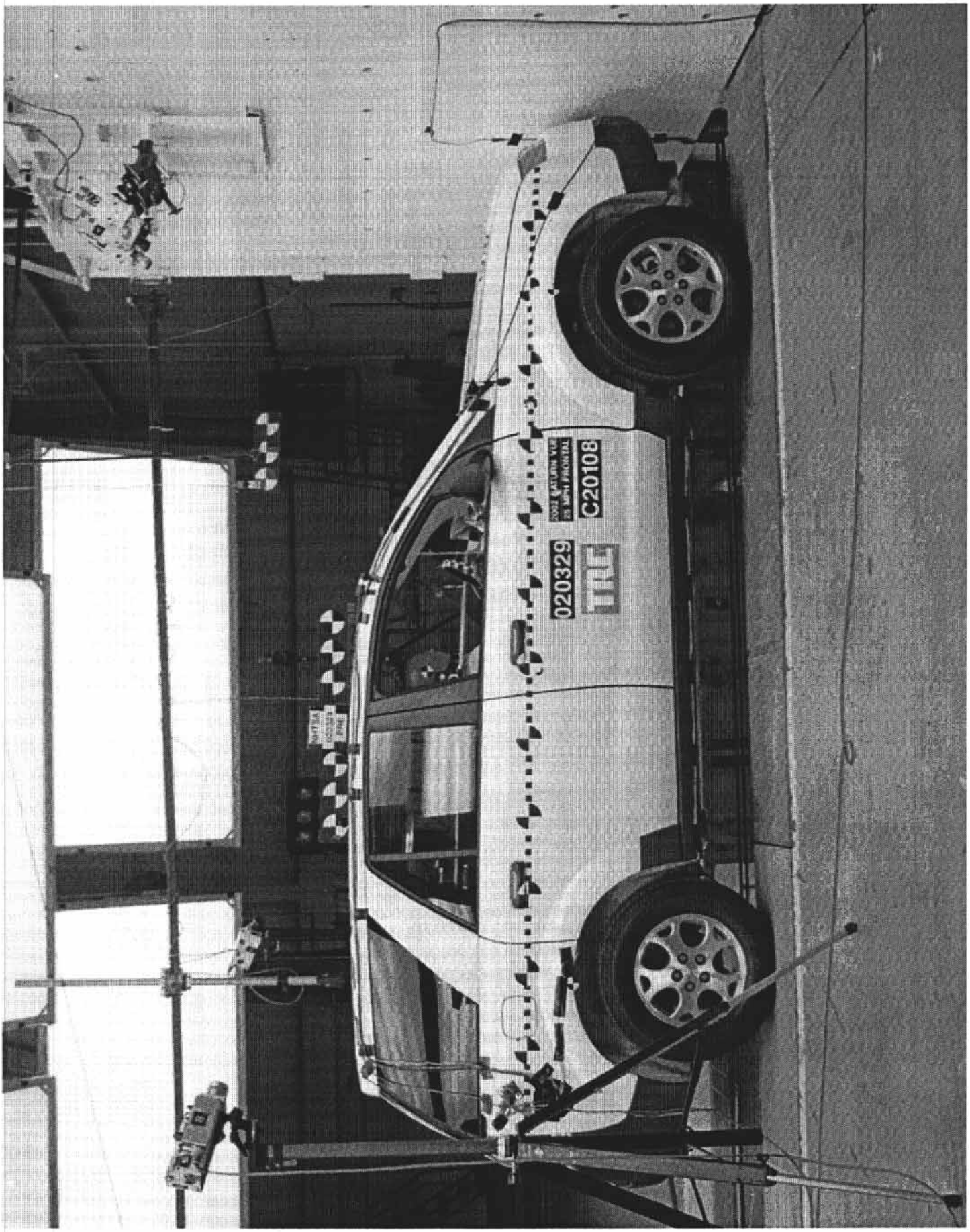


Figure A-5. Pre-Test Right Side View

Figure A-6. Post-Test Right Side View

Figure A-7. Pre-Test Right Front Three-Quarter View

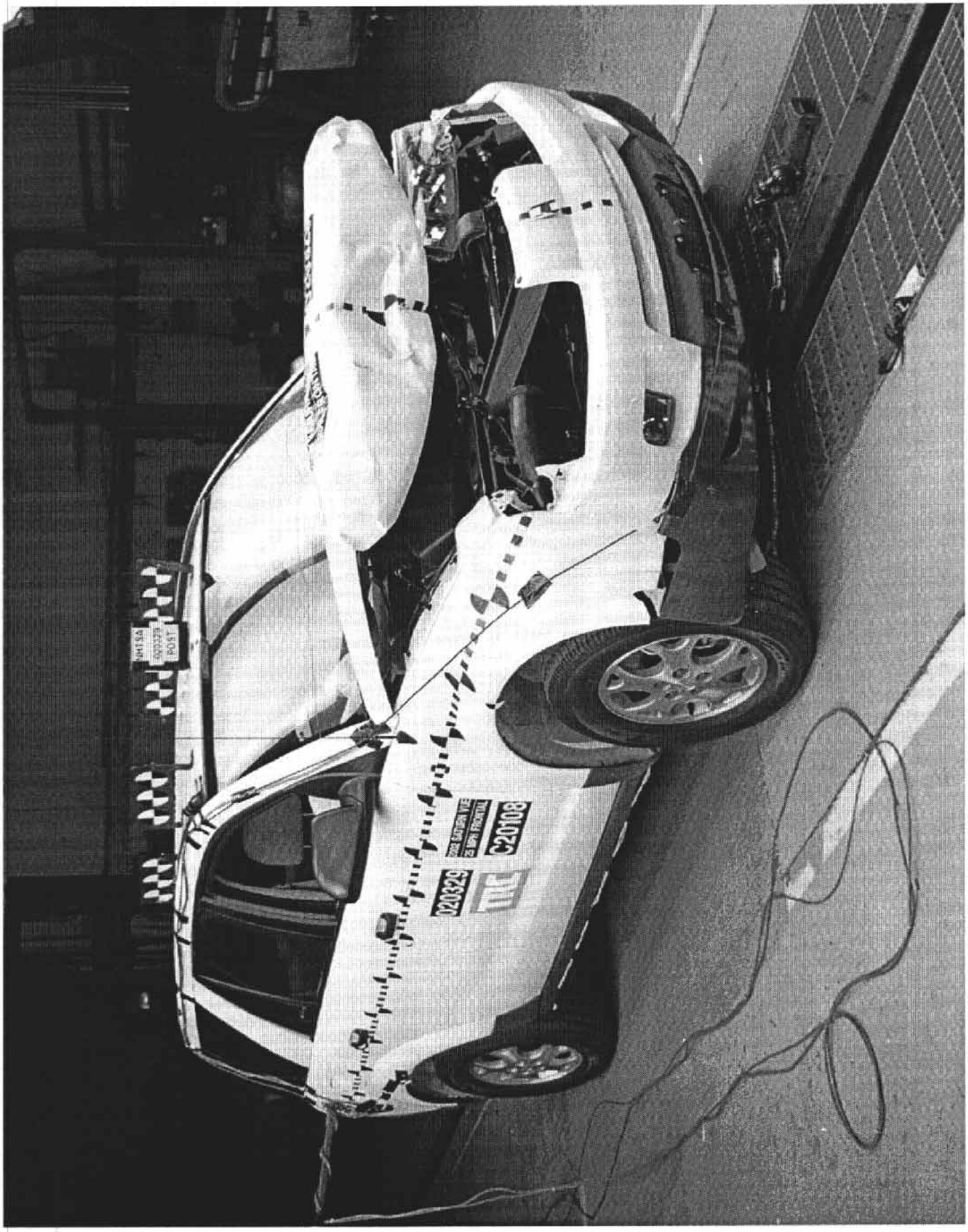


Figure A-8. Post-Test Right Front Three-Quarter View

Figure A-9. Pre-Test Left Rear Three-Quarter View

Figure A-10. Post-Test Left Rear Three-Quarter View

Figure A-11. Pre-Test Windshield View

Figure A-12. Post-Test Windshield View

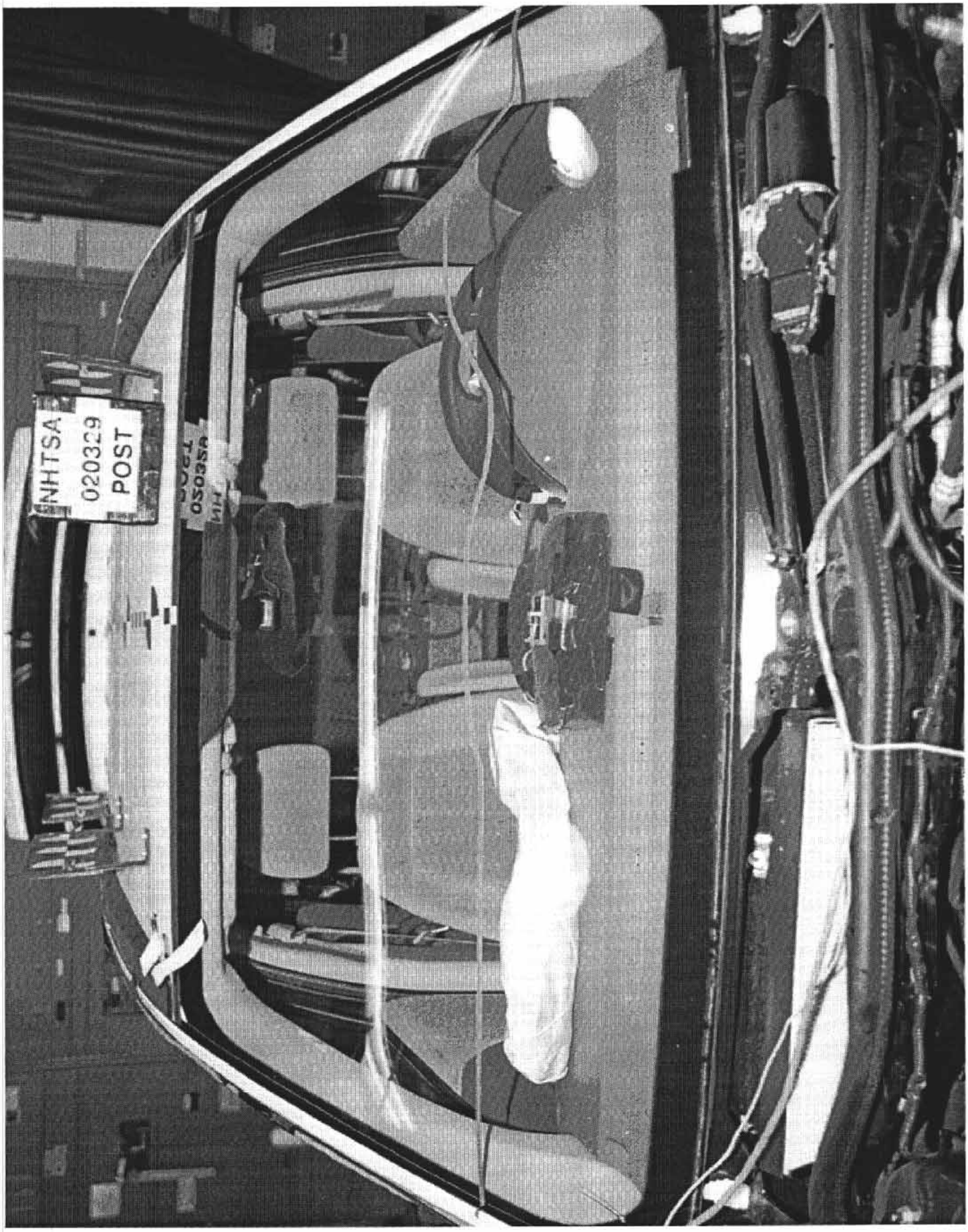


Figure A-13. Post-Test Windshield View with Cowl Removed

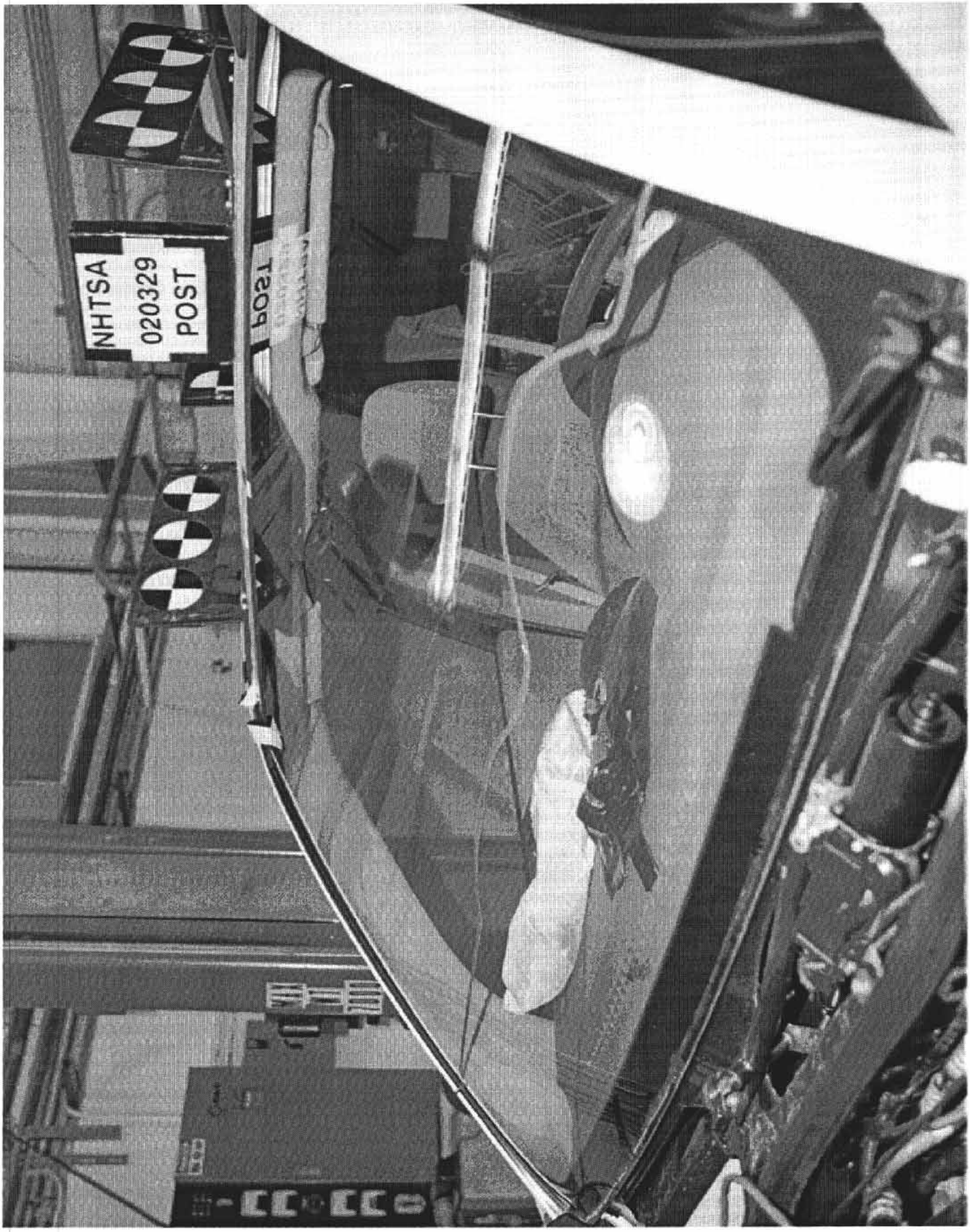


Figure A-14. Post-Test Left Windshield View with Cowl Removed

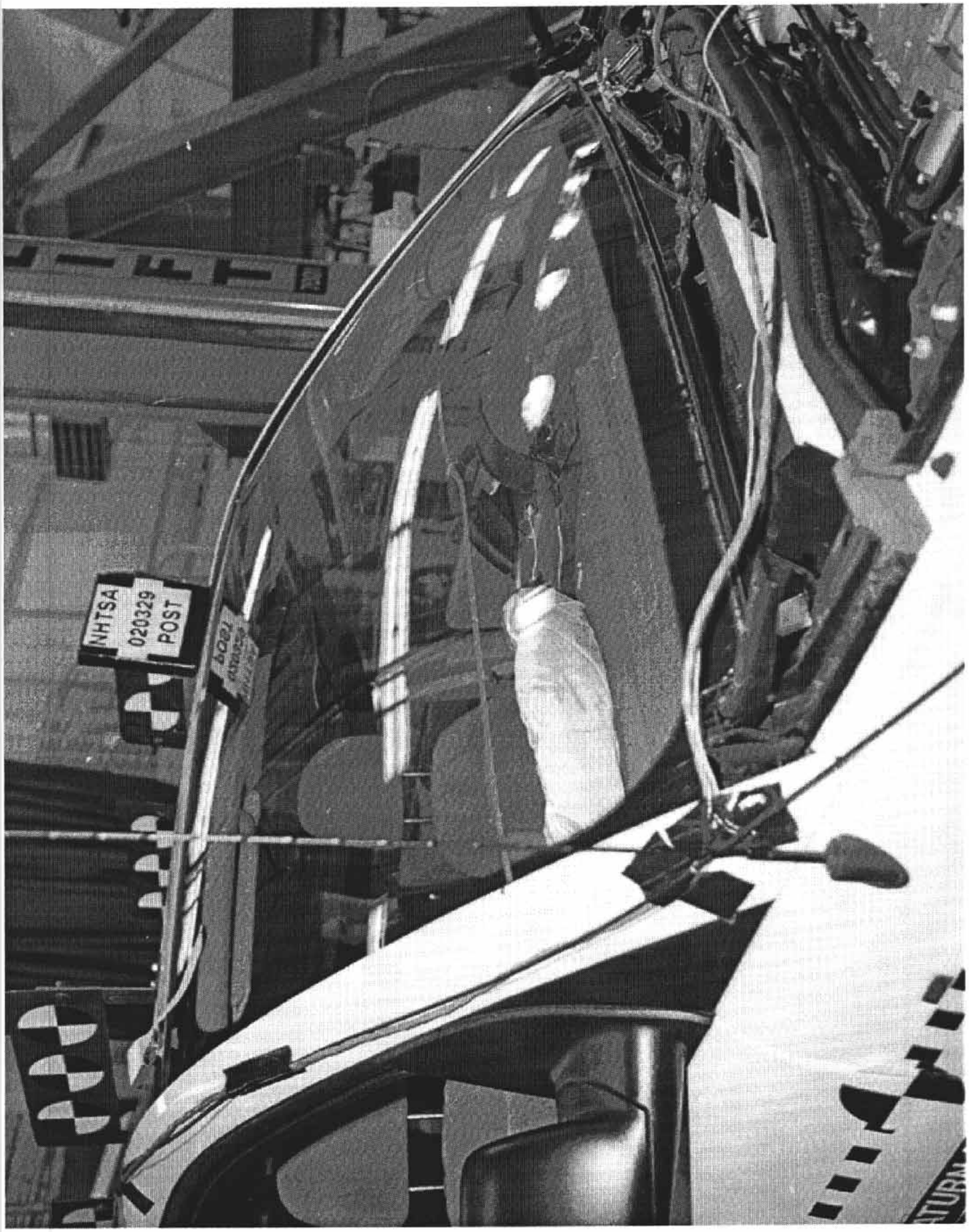


Figure A-15. Post-Test Right Windshield View with Cowl Removed

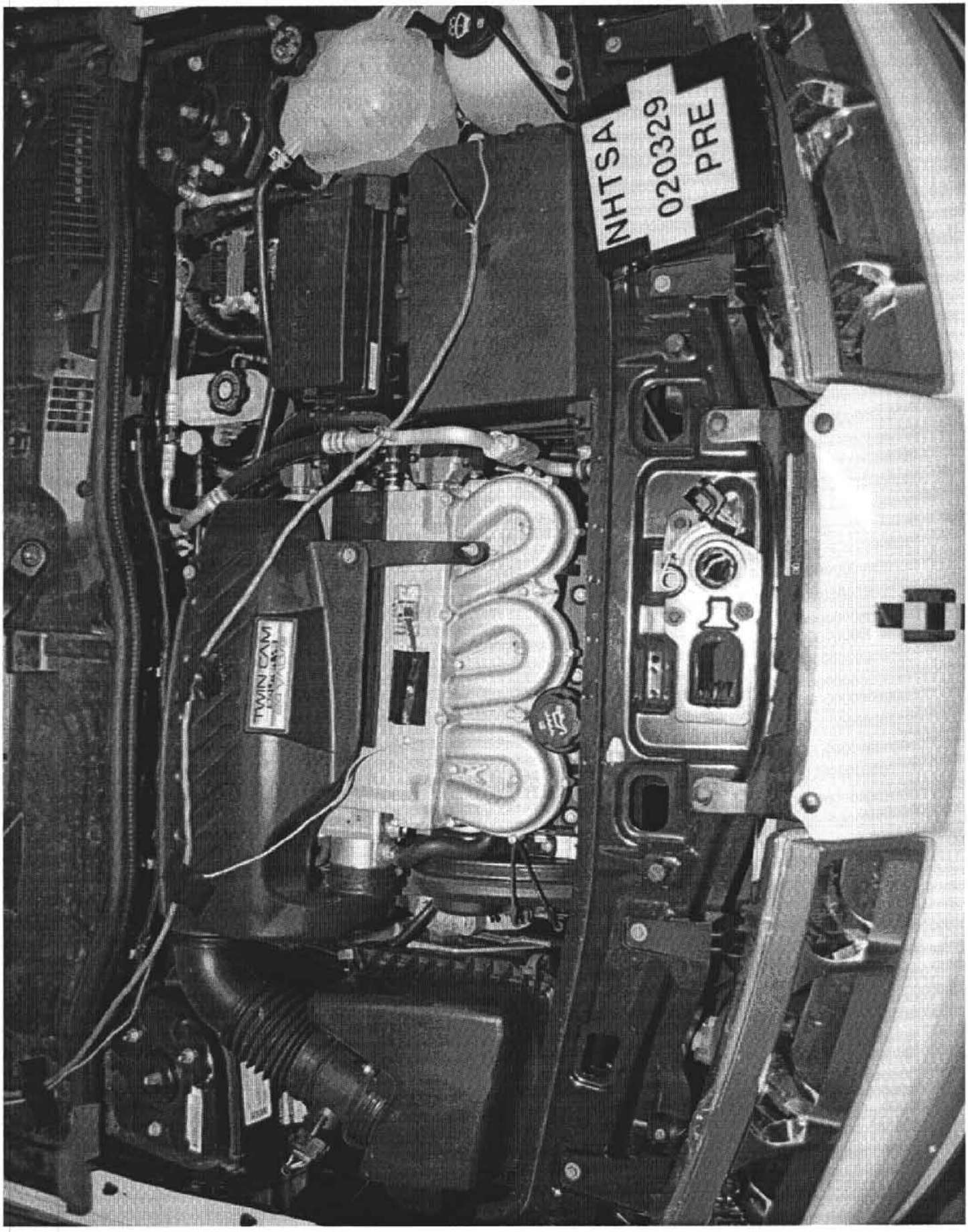


Figure A-16. Pre-Test Engine Compartment View

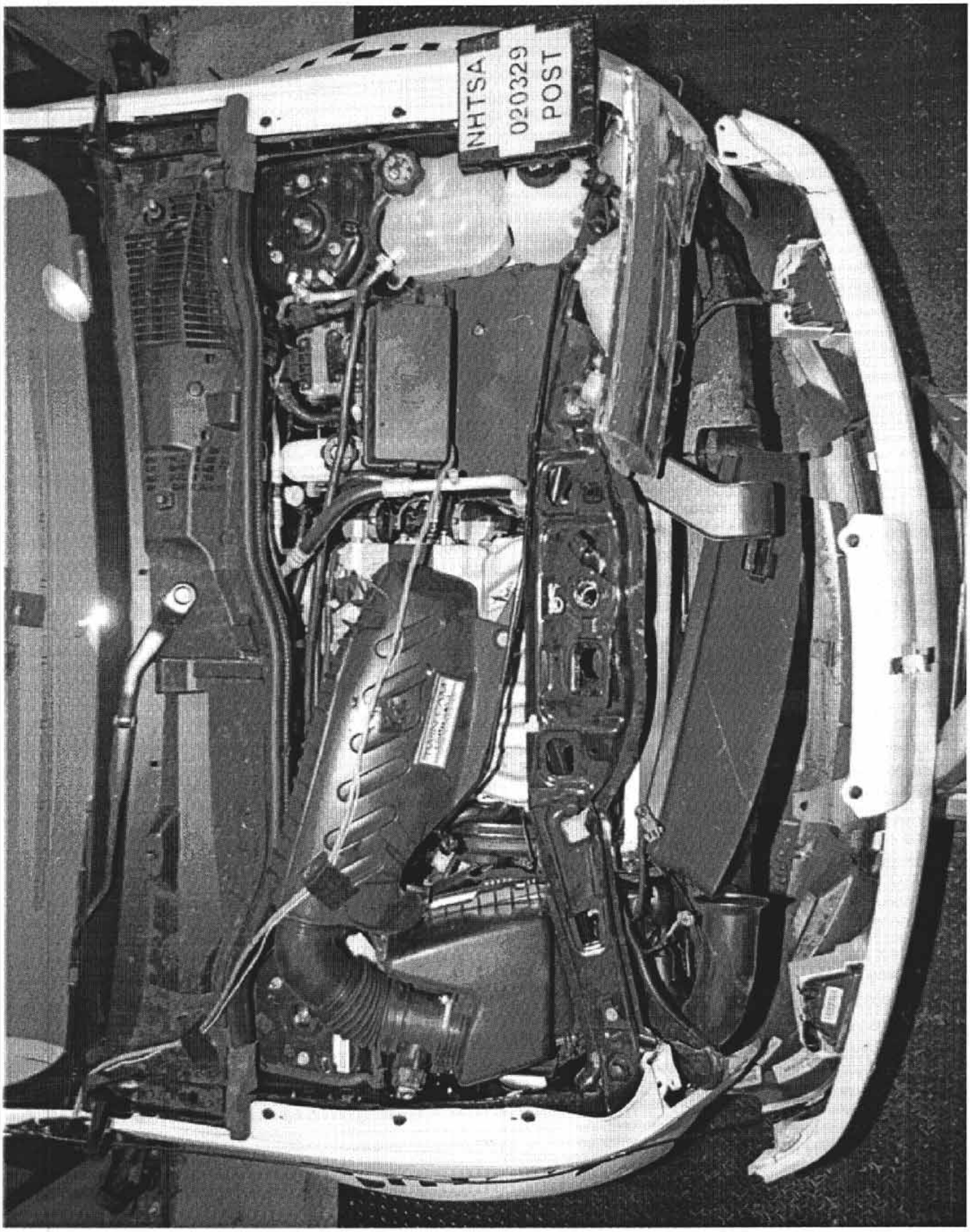


Figure A-17. Post-Test Engine Compartment View

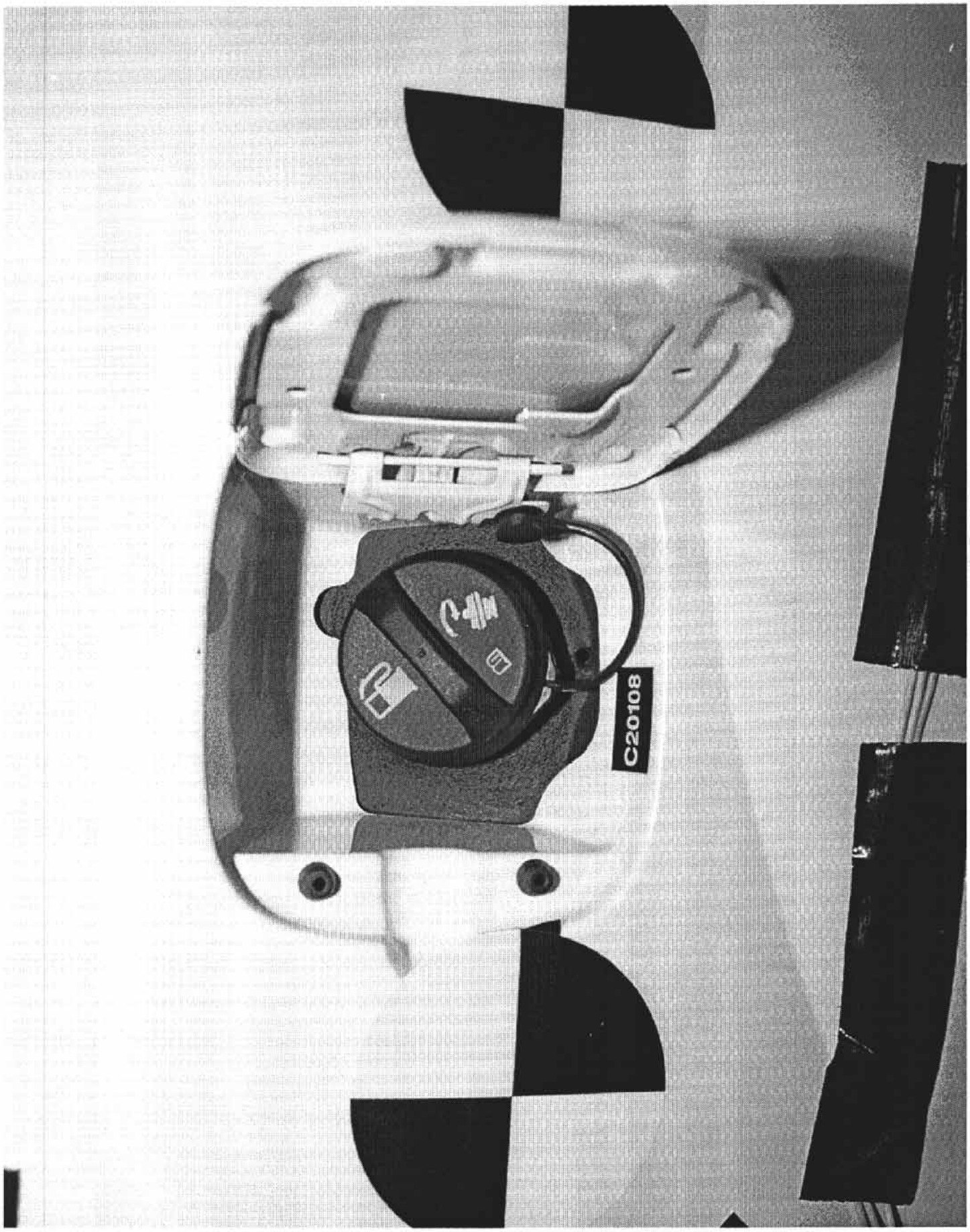


Figure A-18. Pre-Test Fuel Filler Cap View

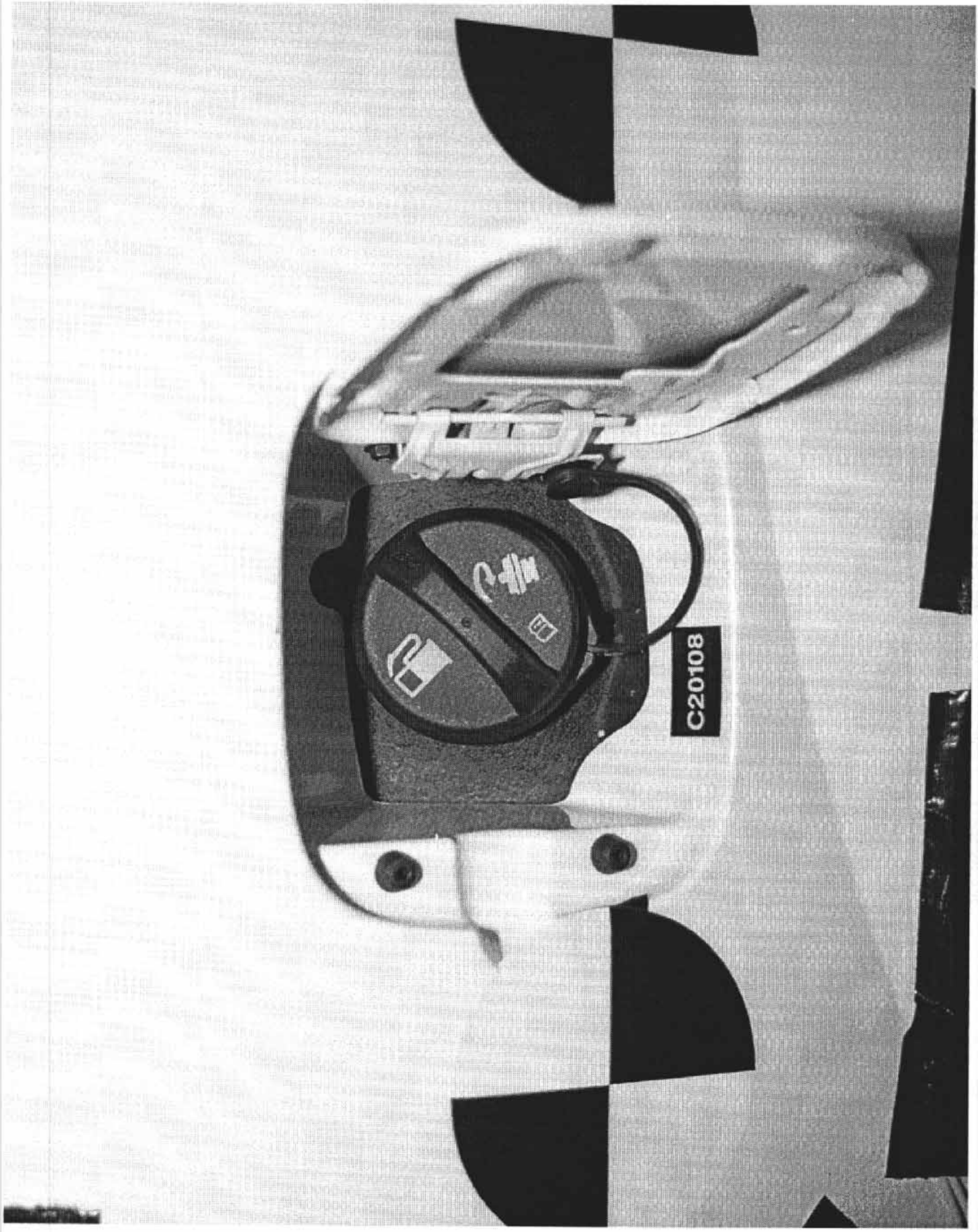


Figure A-19. Post-Test Fuel Filler Cap View

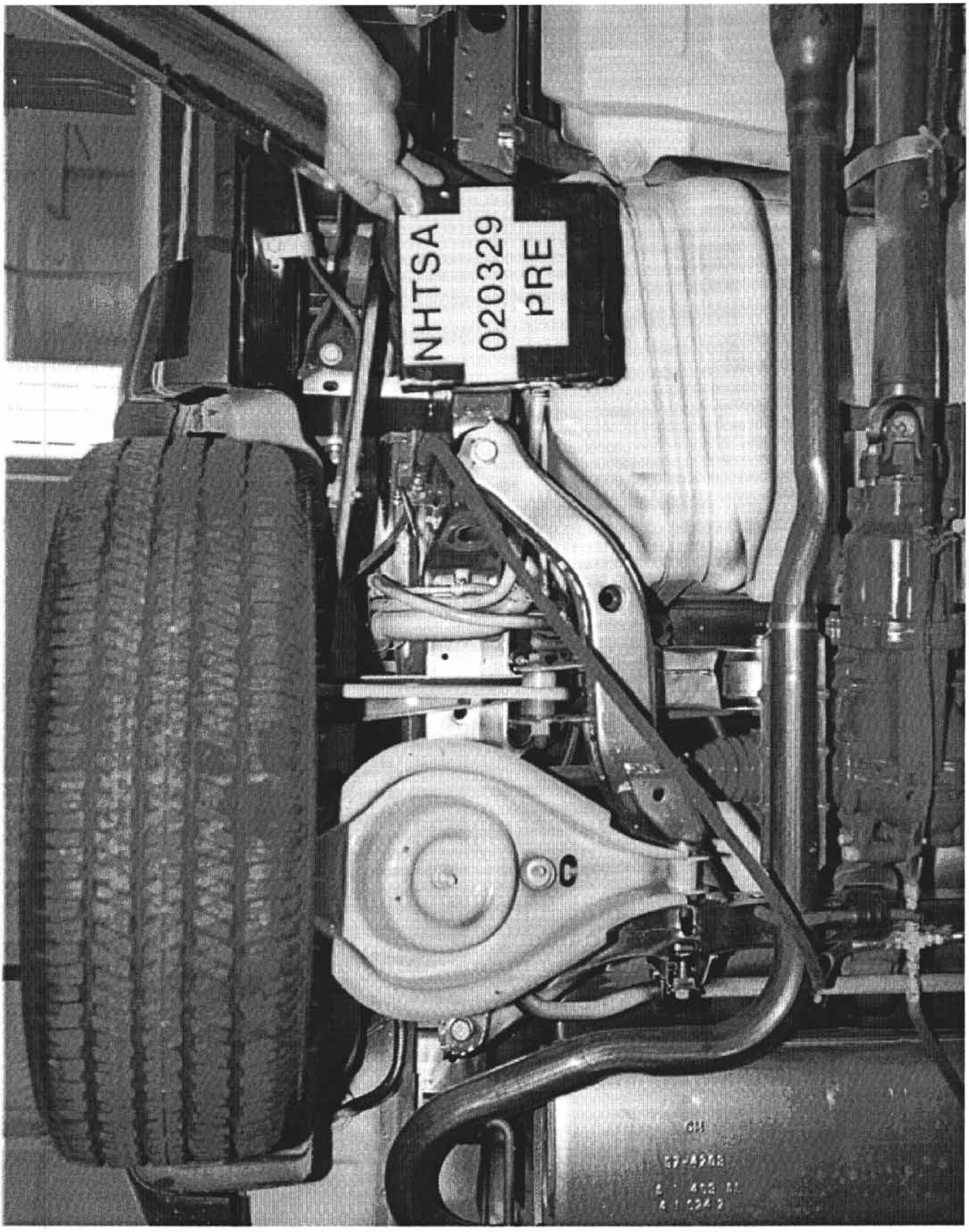


Figure A-20. Pre-Test Fuel Filler Neck View

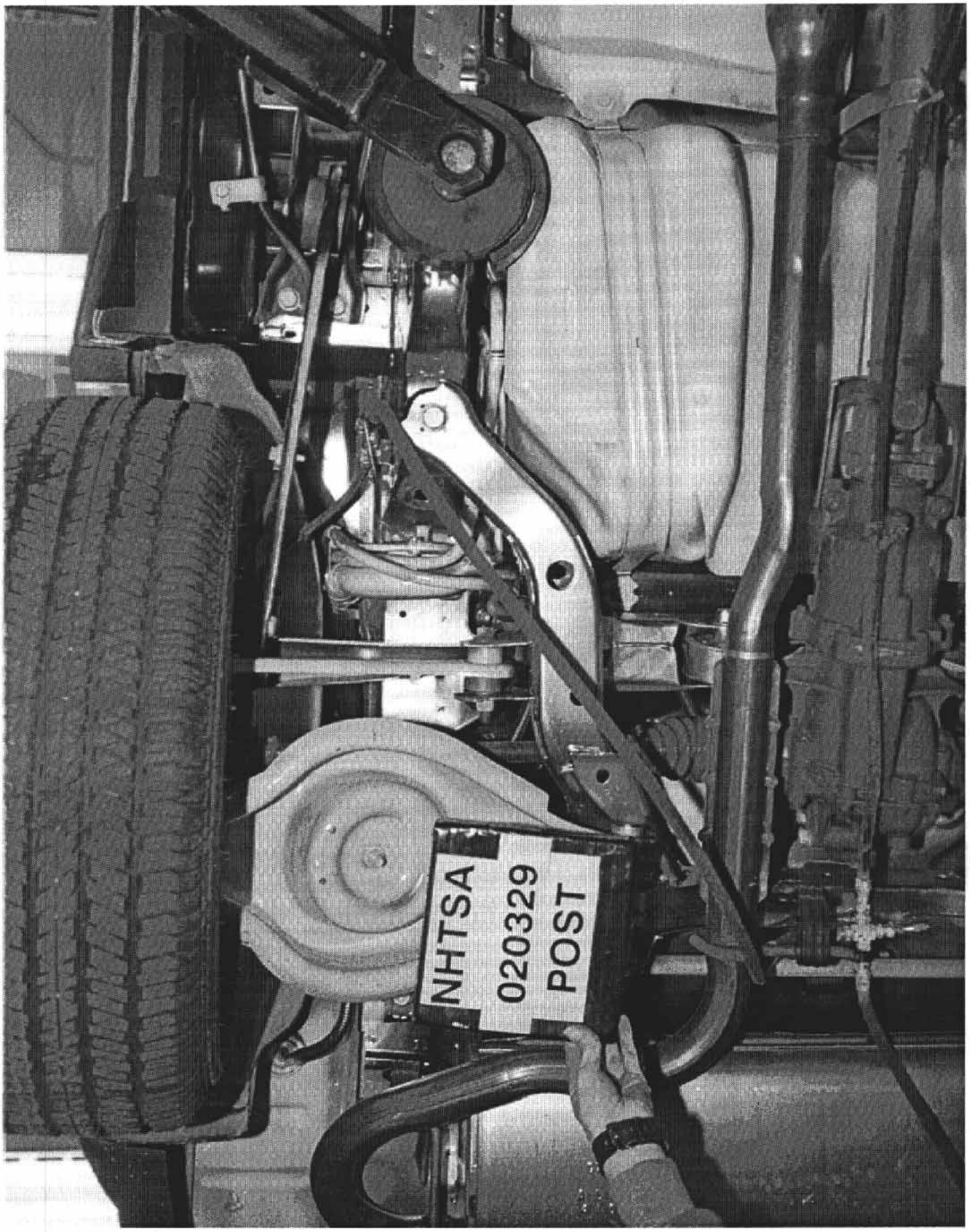


Figure A-21. Post-Test Fuel Filler Neck View

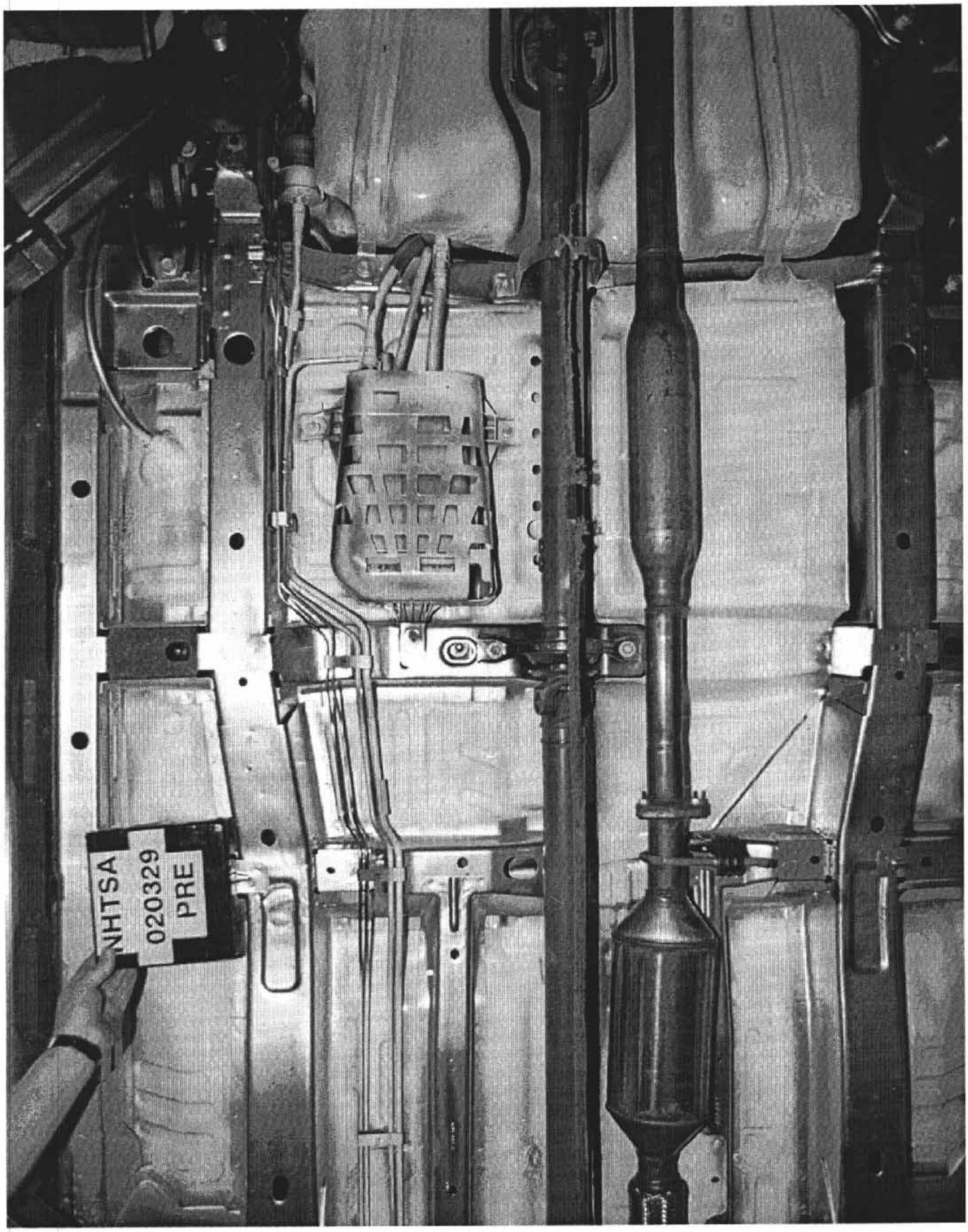


Figure A-22. Pre-Test Fuel Lines View

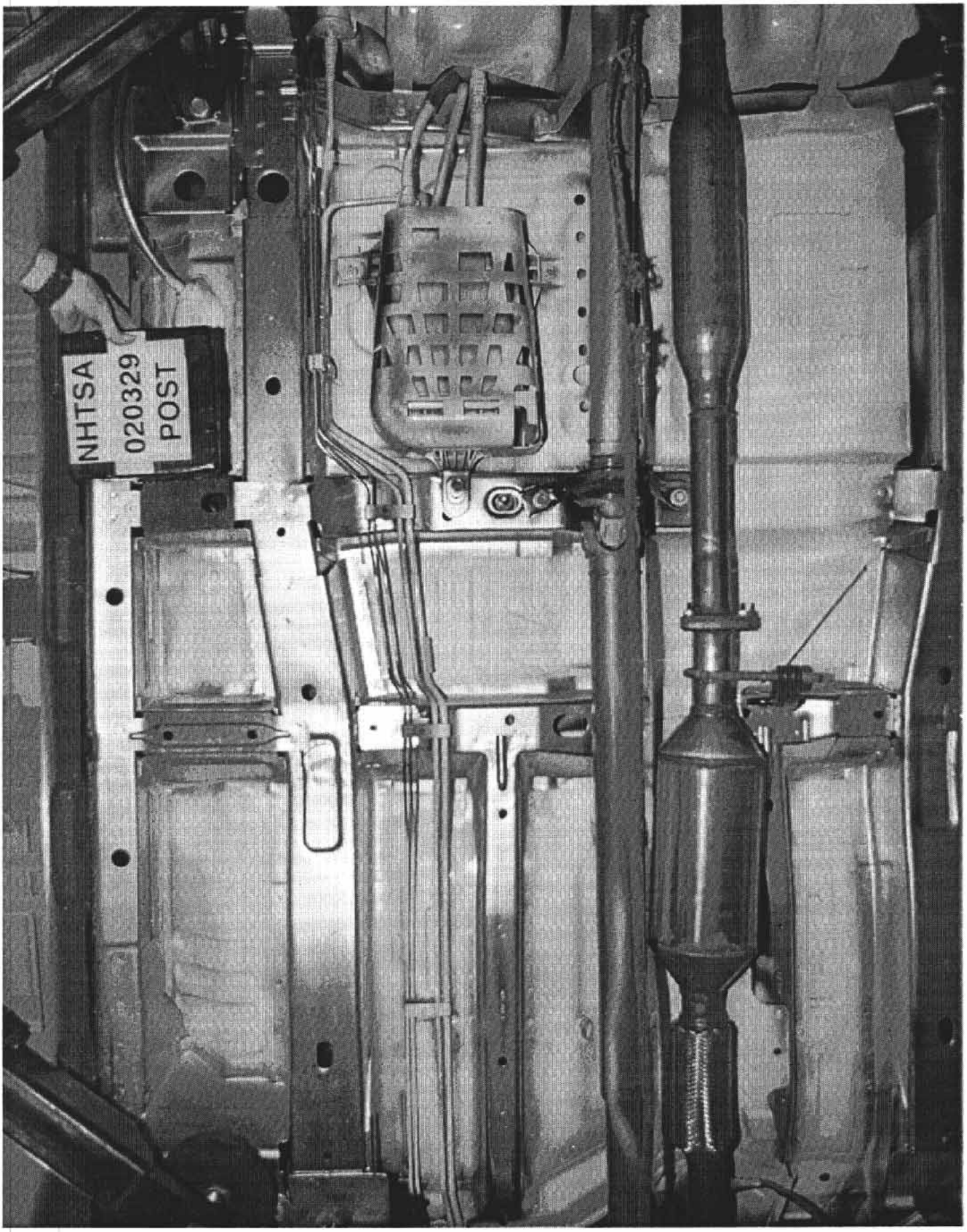


Figure A-23. Post-Test Fuel Lines View

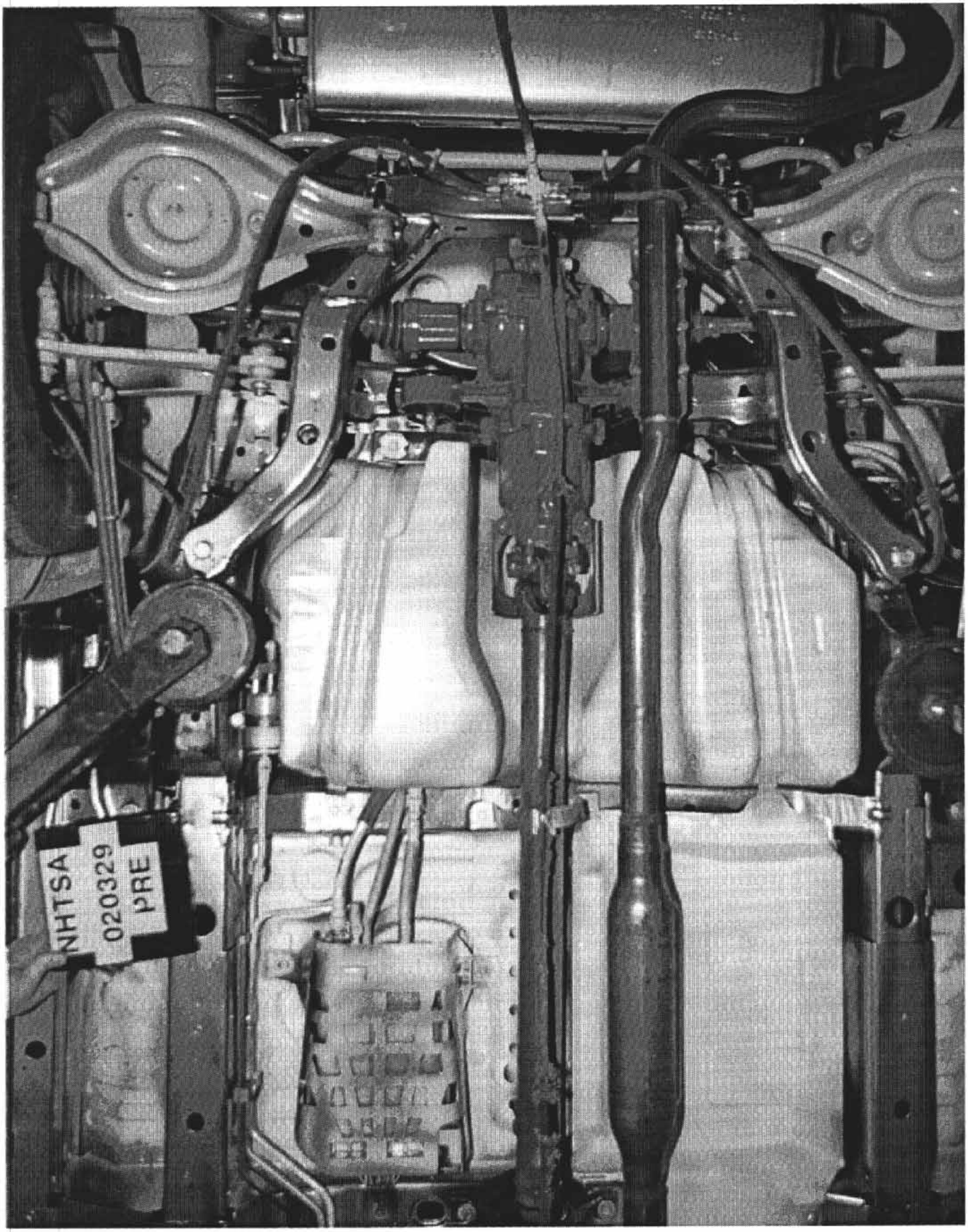


Figure A-24. Pre-Test Fuel Tank View

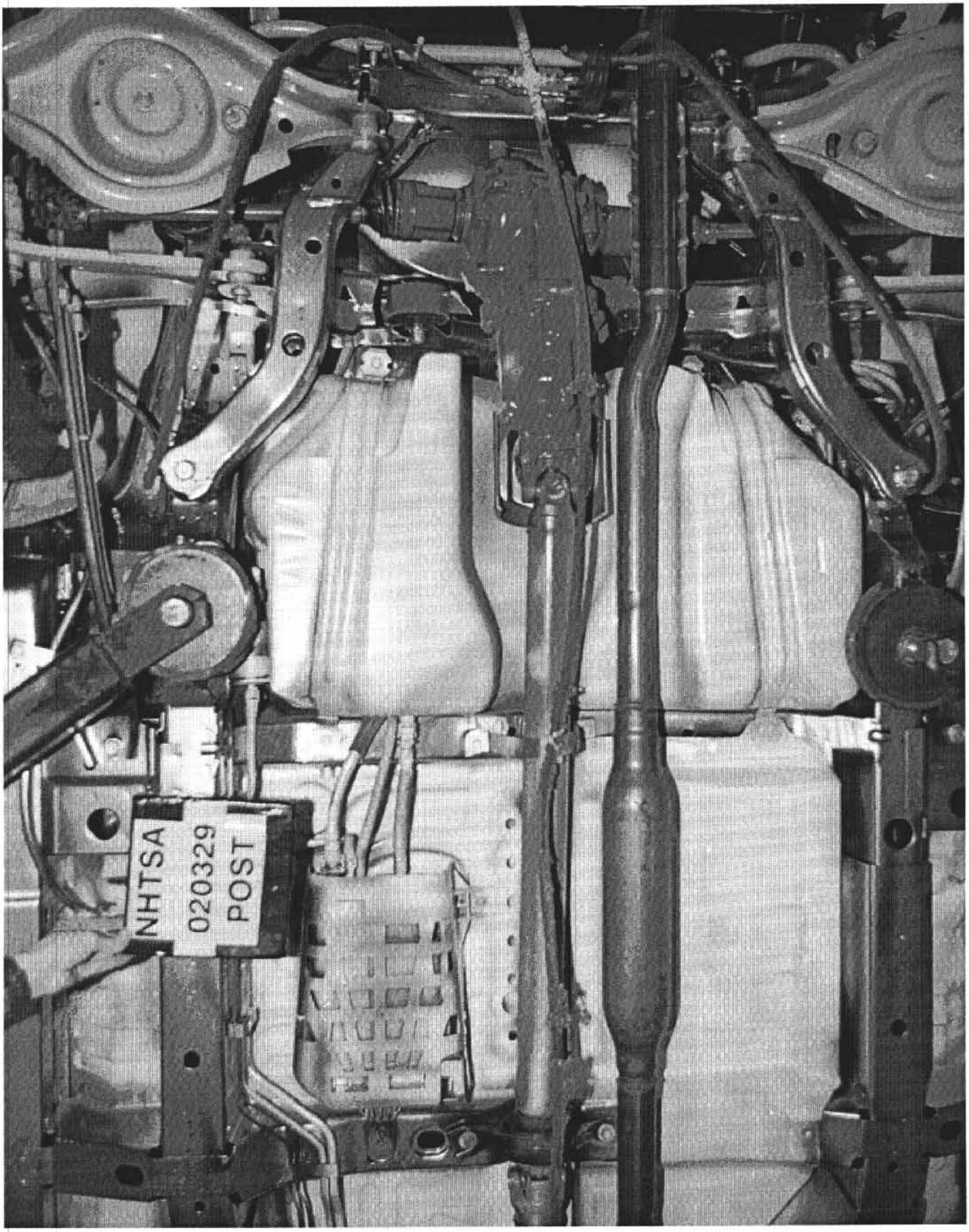


Figure A-25. Post-Test Fuel Tank View

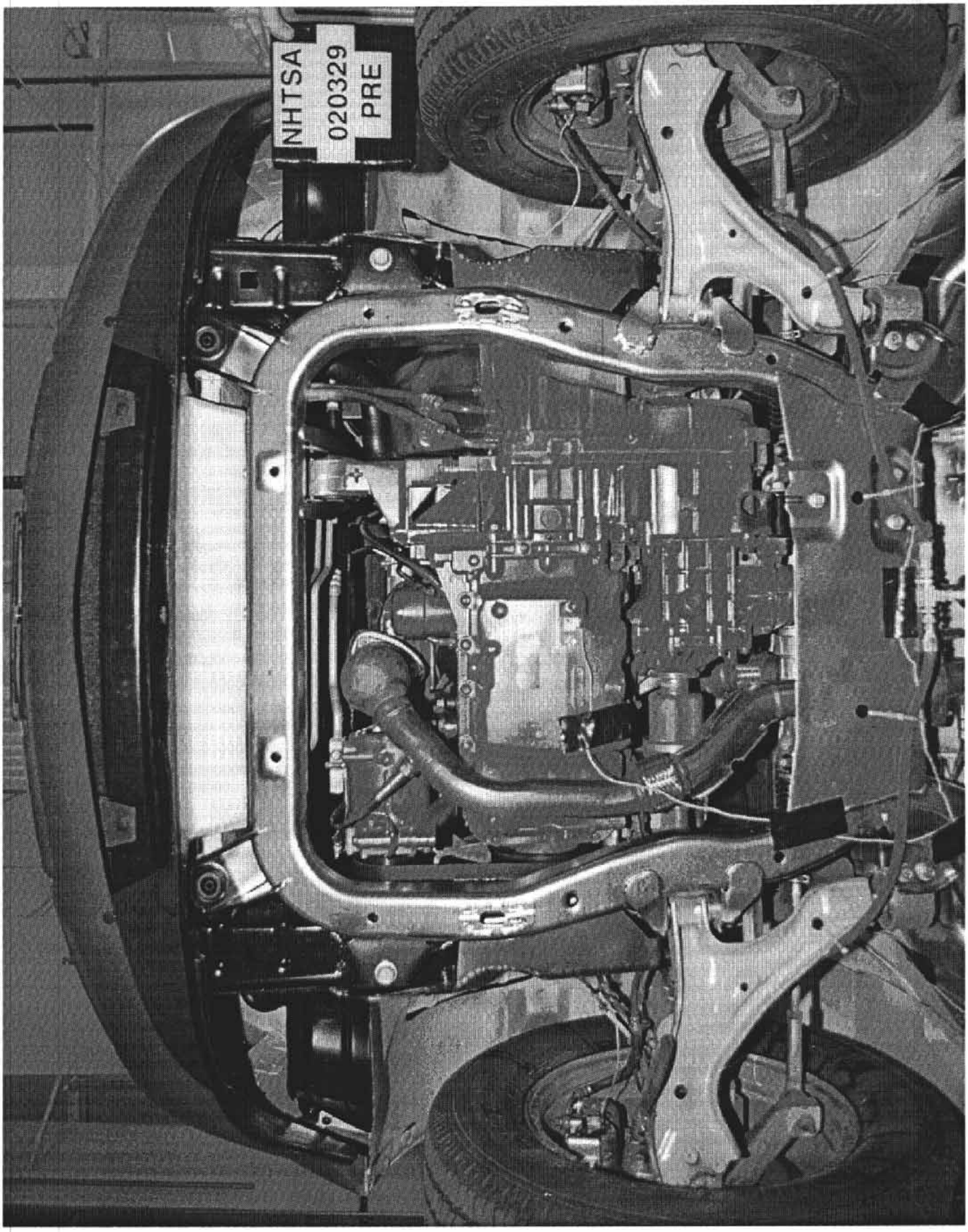


Figure A-26. Pre-Test Front Underbody View

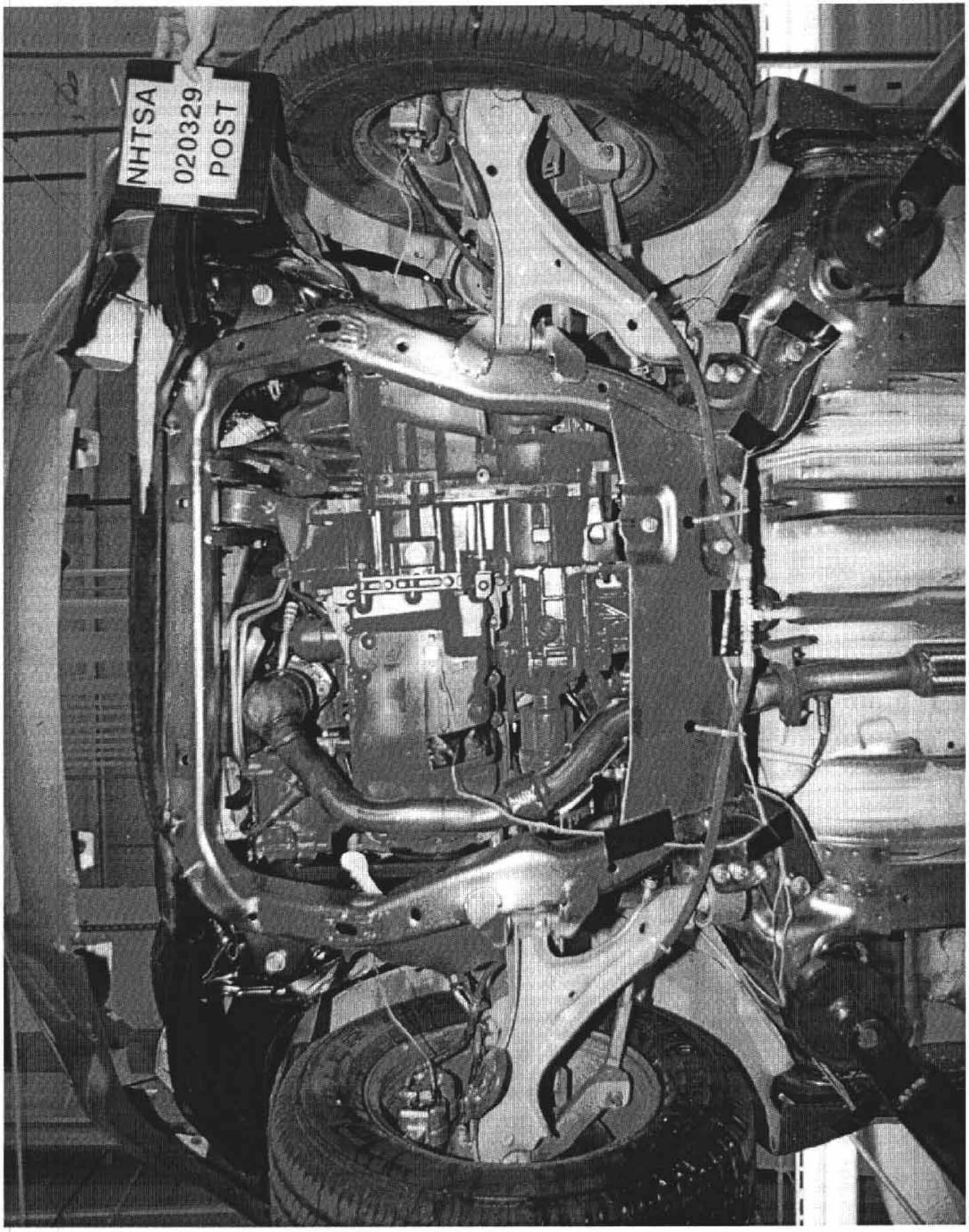


Figure A-27. Post-Test Front Underbody View

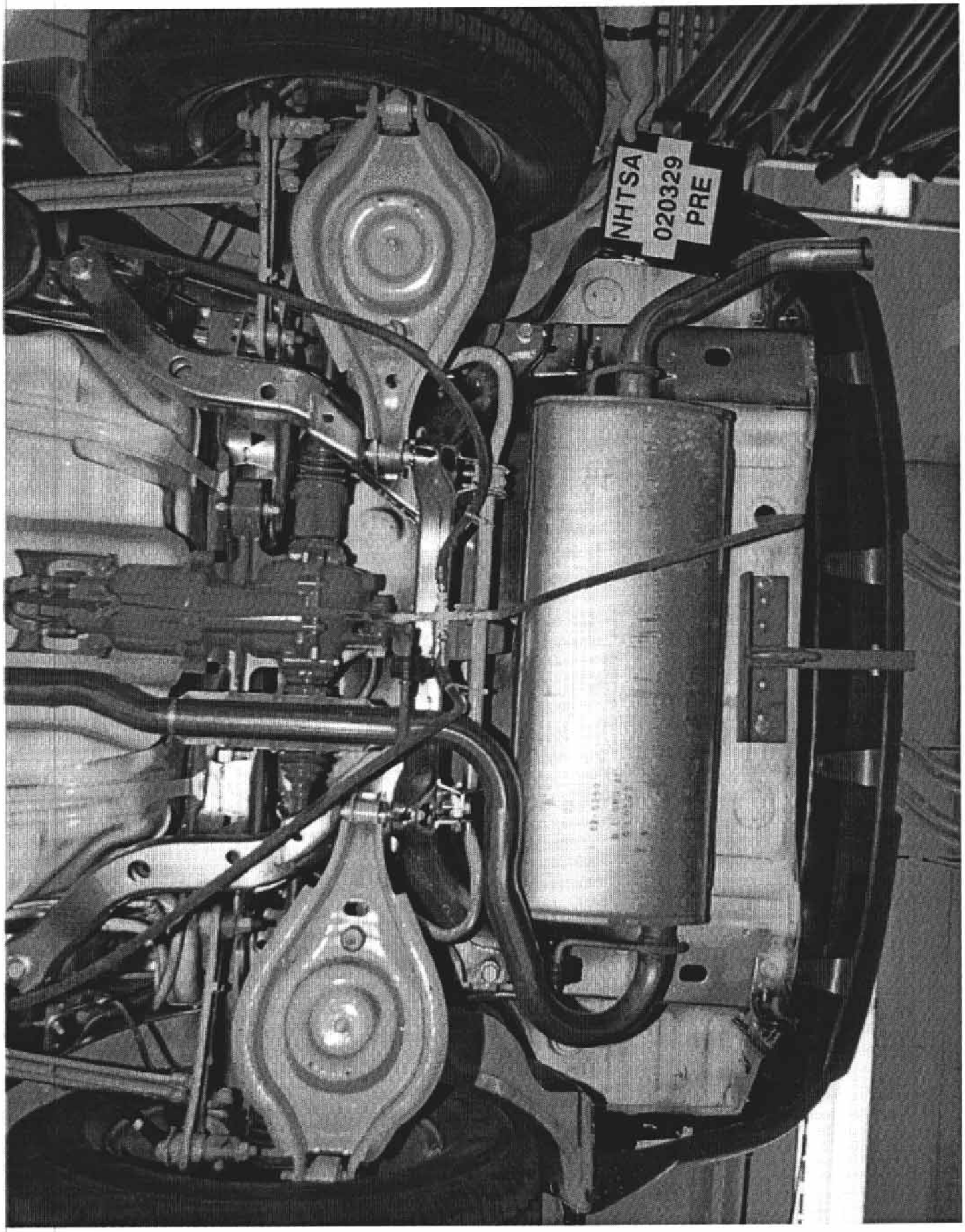


Figure A-28. Pre-Test Rear Underbody View

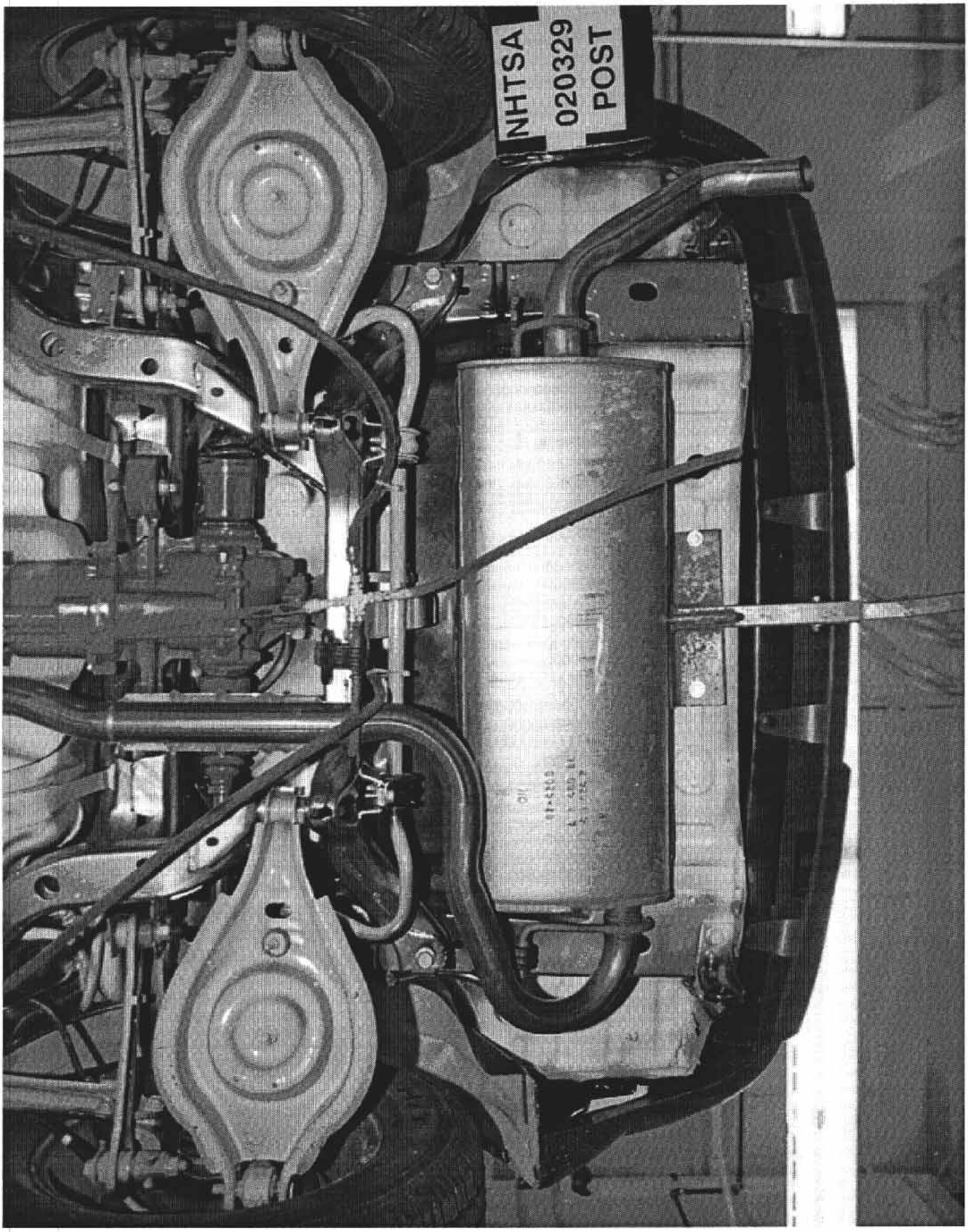


Figure A-29. Post-Test Rear Underbody View

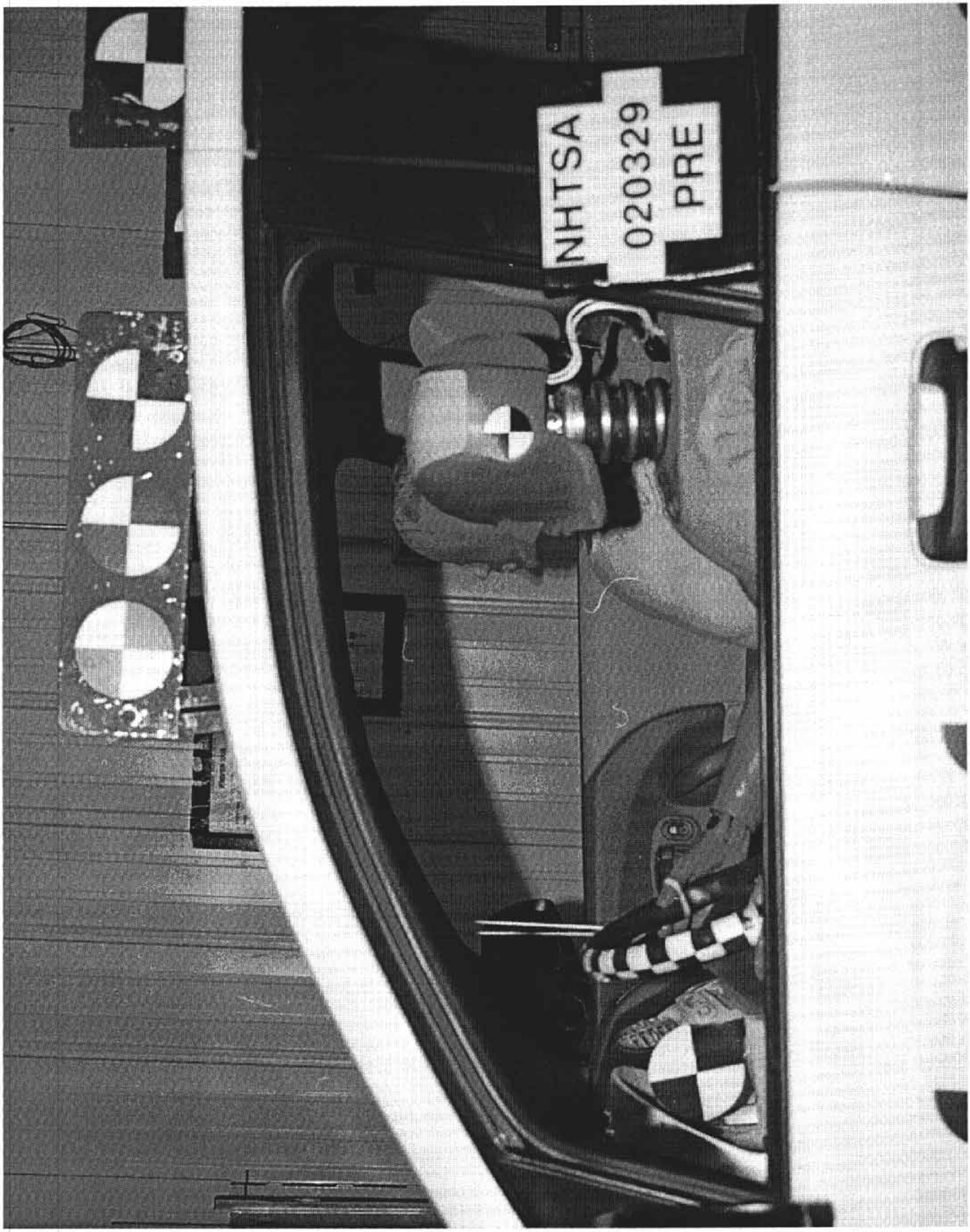


Figure A-30. Pre-Test Driver Dummy Position View

Figure A-31. Post-Test Driver Dummy Position View

Figure A-32. Pre-Test Driver Dummy Front View

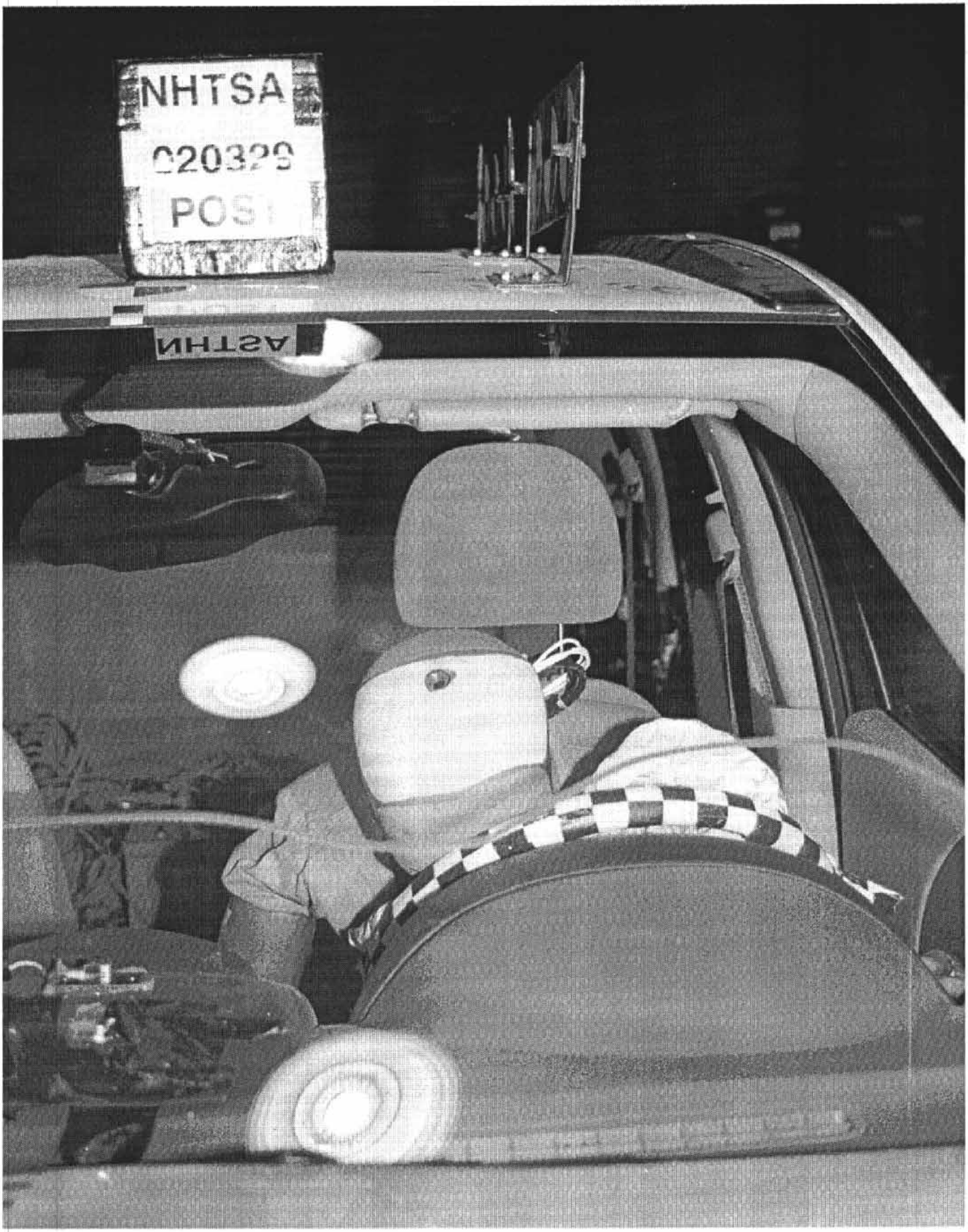


Figure A-33. Post-Test Driver Dummy Front View

Figure A-34. Pre-Test Driver Dummy & Vehicle Interior - View 1

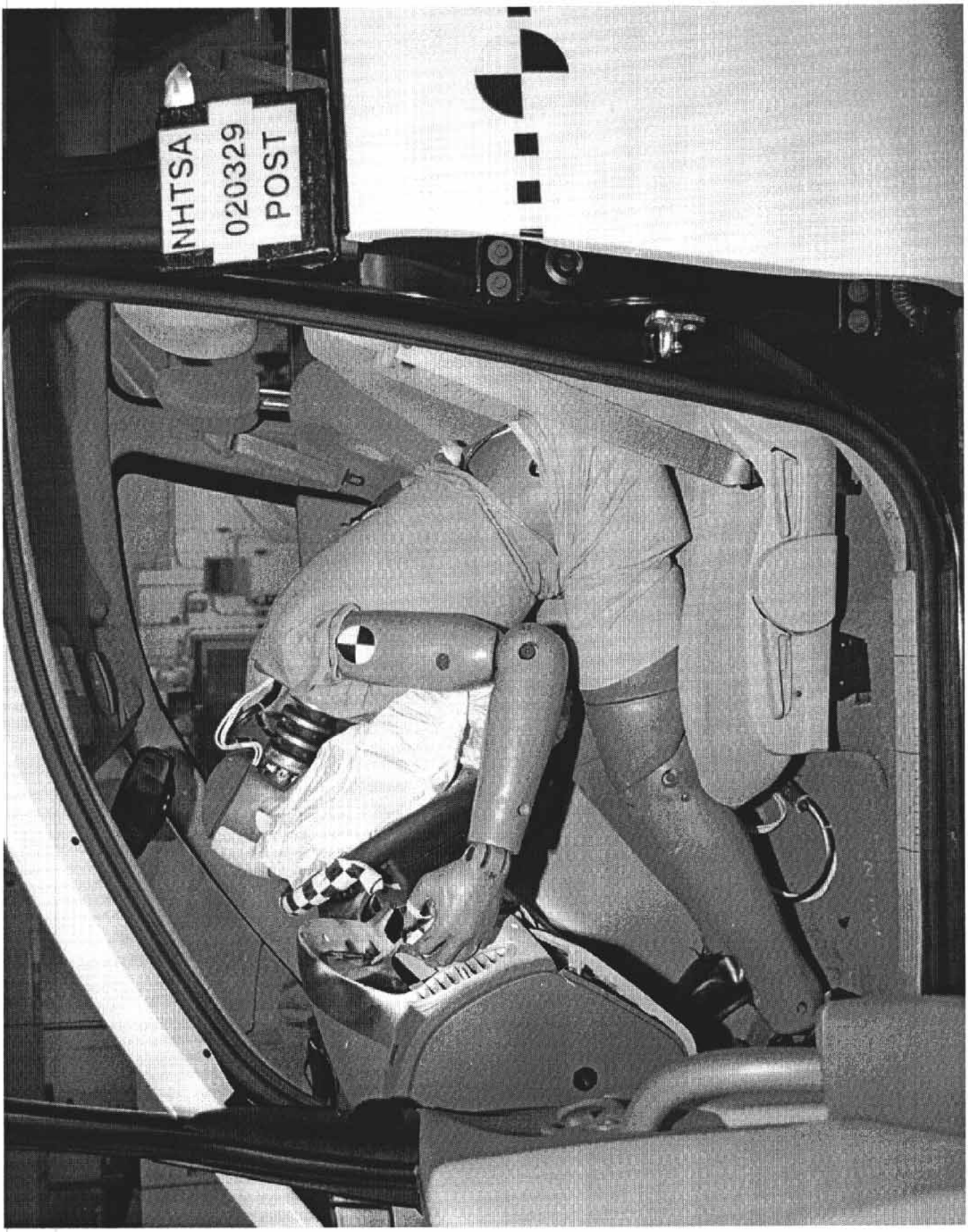


Figure A-35. Post-Test Driver Dummy & Vehicle Interior - View 1

Figure A-36. Pre-Test Driver Dummy & Vehicle Interior - View 2

Figure A-37. Post-Test Driver Dummy & Vehicle Interior - View 2

Figure A-38. Pre-Test Driver Dummy Seat Track Position View

Figure A-39. Post-Test Driver Dummy Seat Track Position View

Figure A-40. Pre-Test Passenger Dummy Position View

Figure A-41. Post-Test Passenger Dummy Position View

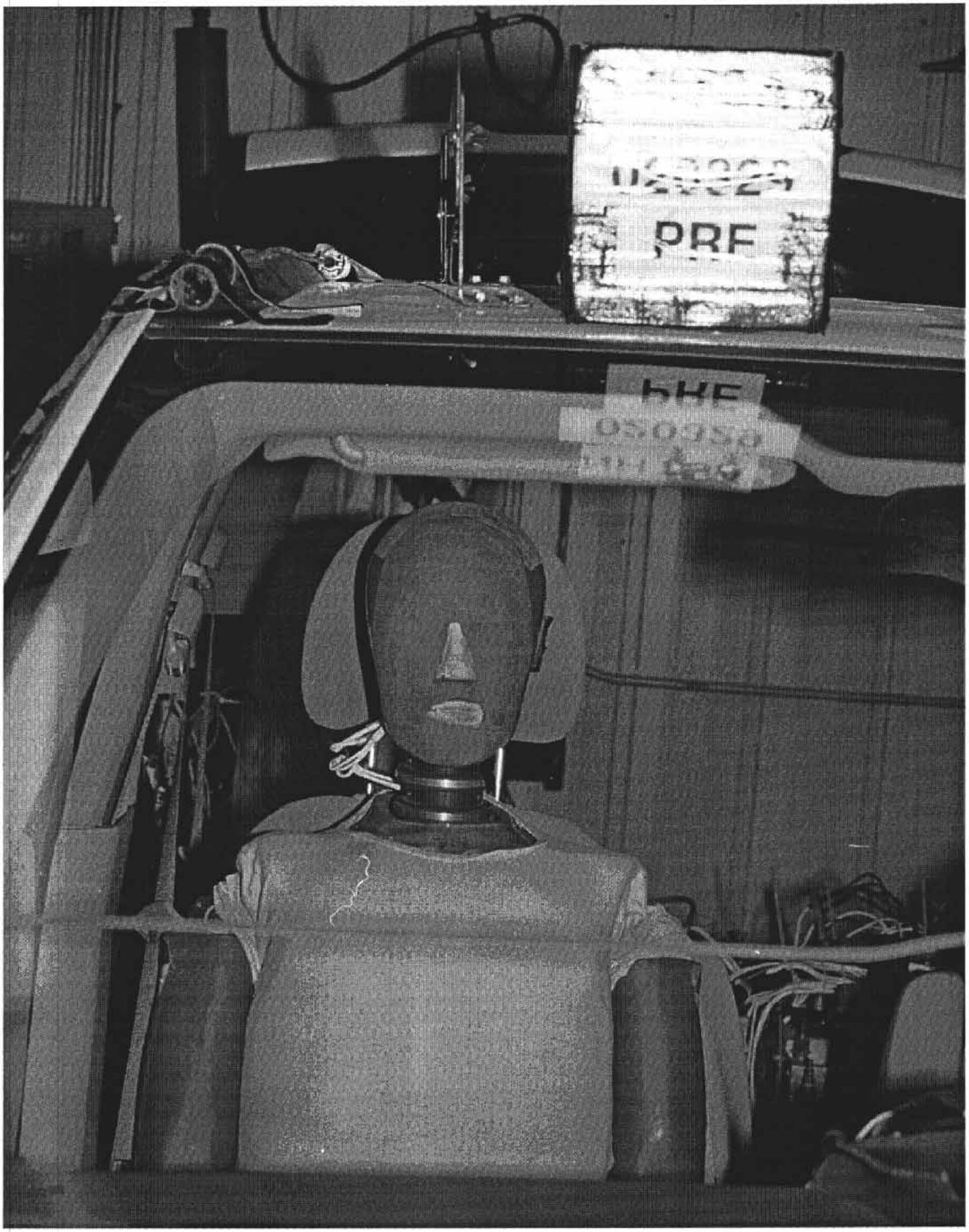


Figure A-42. Pre-Test Passenger Dummy Front View

Figure A-43. Post-Test Passenger Dummy Front View

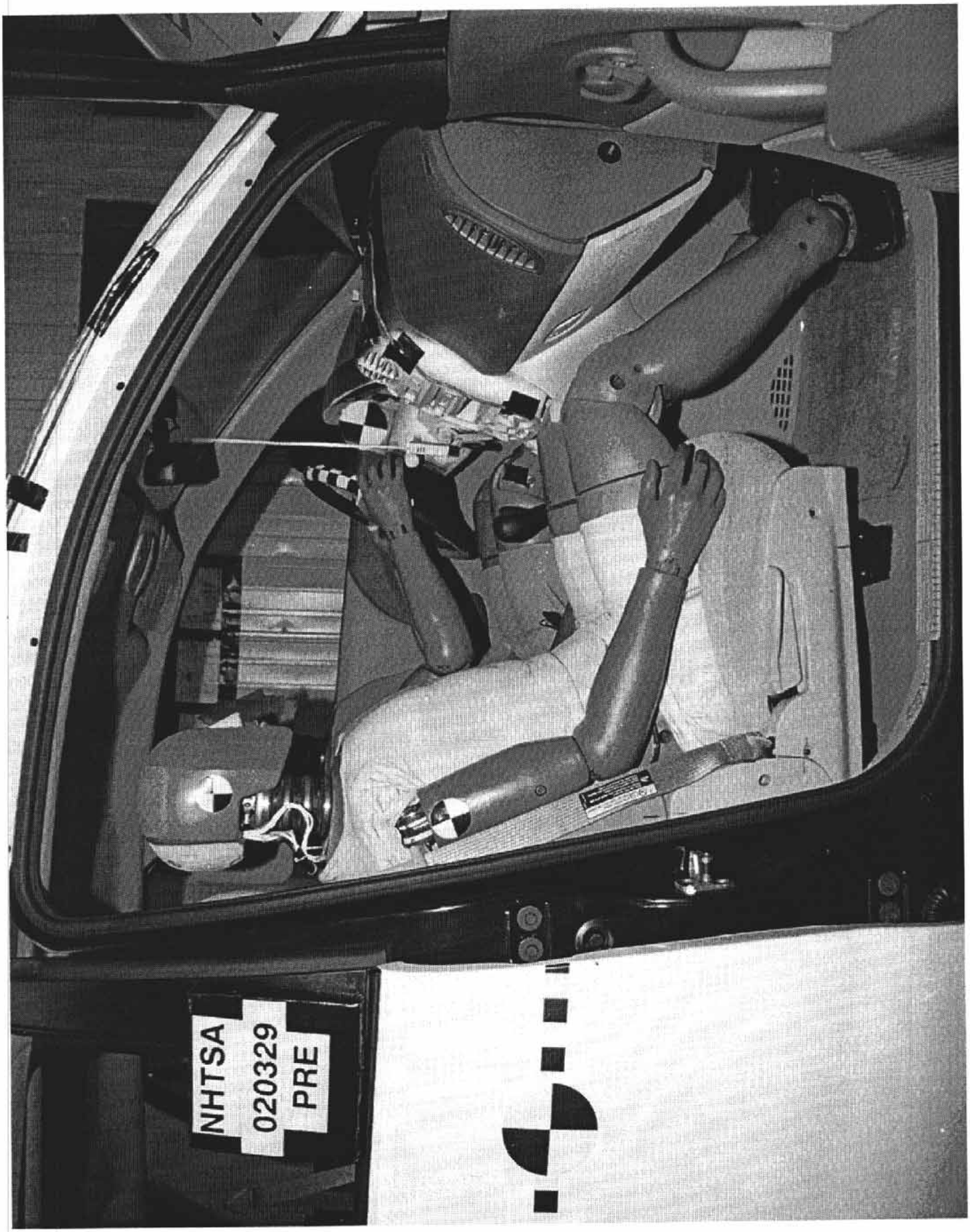


Figure A-44. Pre-Test Passenger Dummy & Vehicle Interior - View 1

Figure A-45. Post-Test Passenger Dummy & Vehicle Interior - View 1

Figure A-46. Pre-Test Passenger Dummy & Vehicle Interior - View 2

Figure A-47. Post-Test Passenger Dummy & Vehicle Interior - View 2

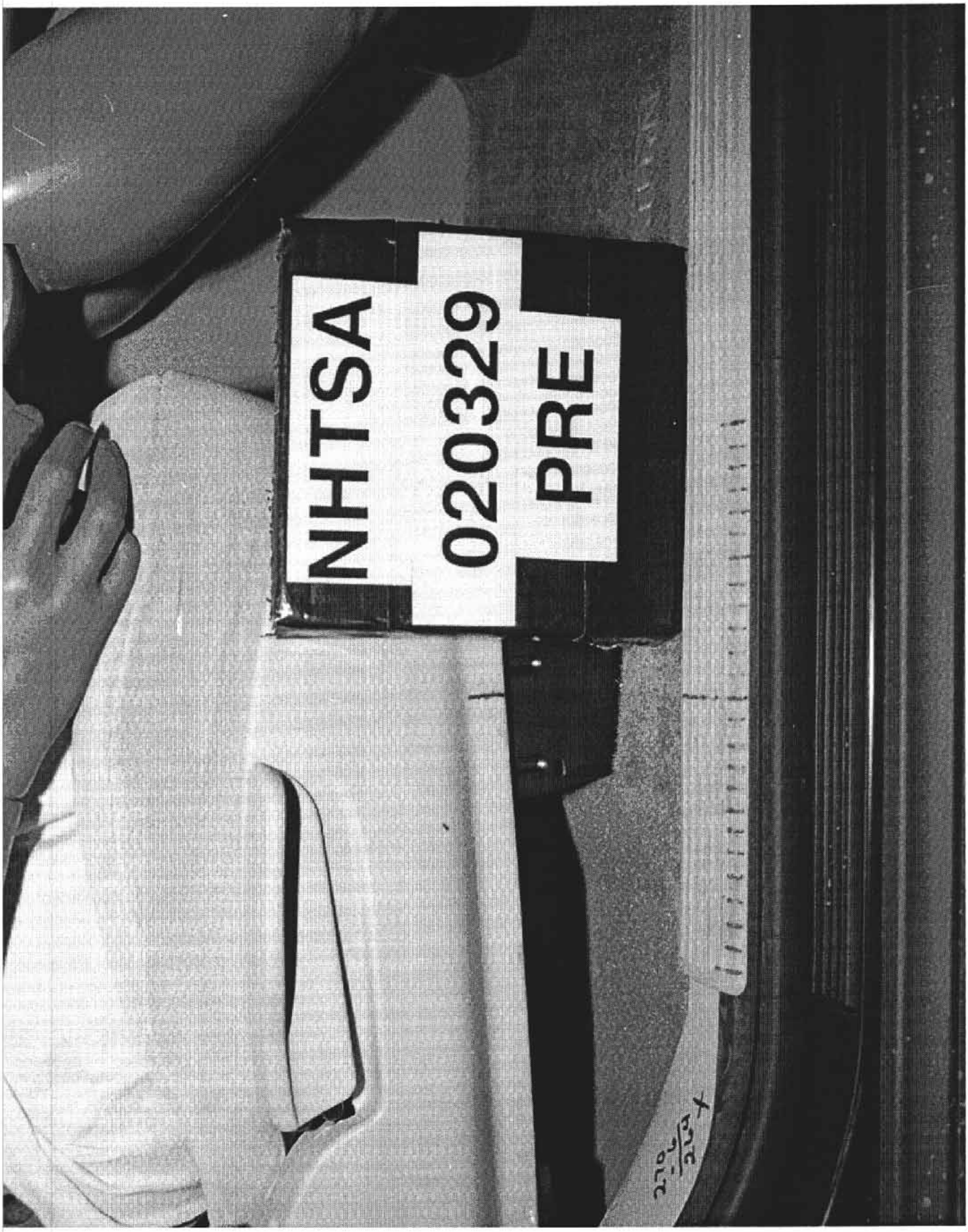


Figure A-48. Pre-Test Passenger Dummy Seat Track Position View

Figure A-49. Post-Test Passenger Dummy Seat Track Position View

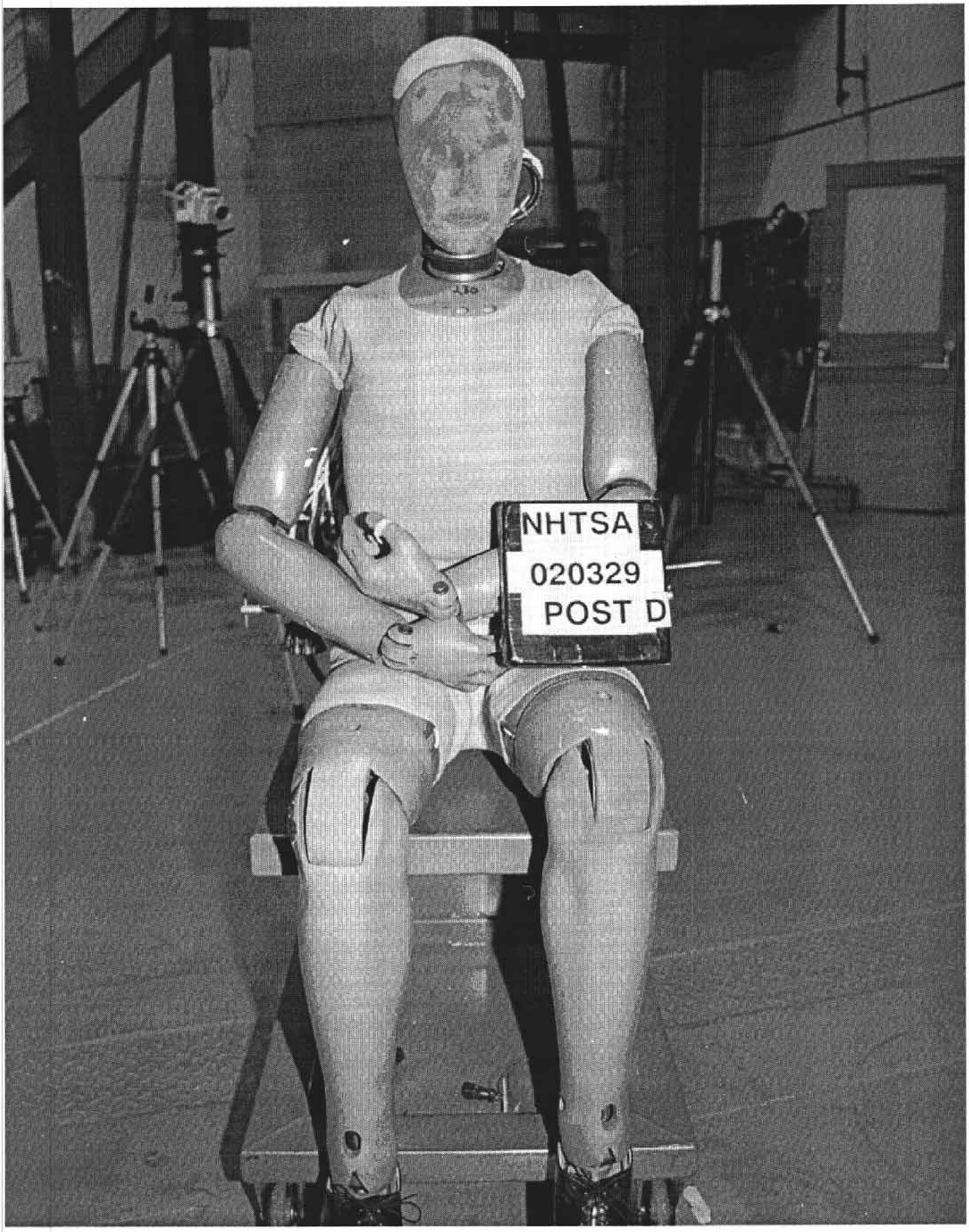


Figure A-50. Post-Test Driver Dummy View

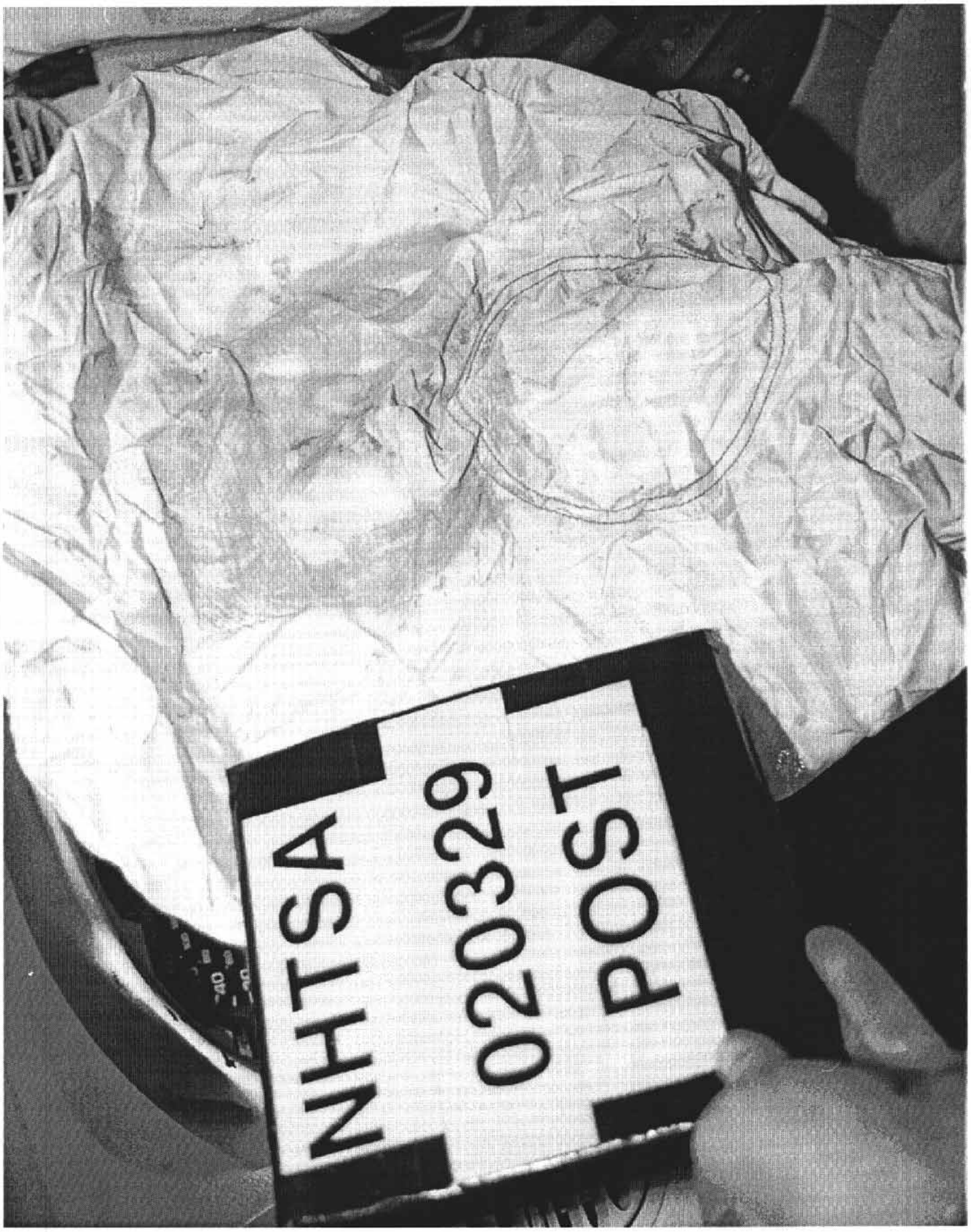


Figure A-51. Post-Test Driver Dummy Head Contact - View 1

Figure A-52. Pre-Test Driver Dummy Knee Bolster View

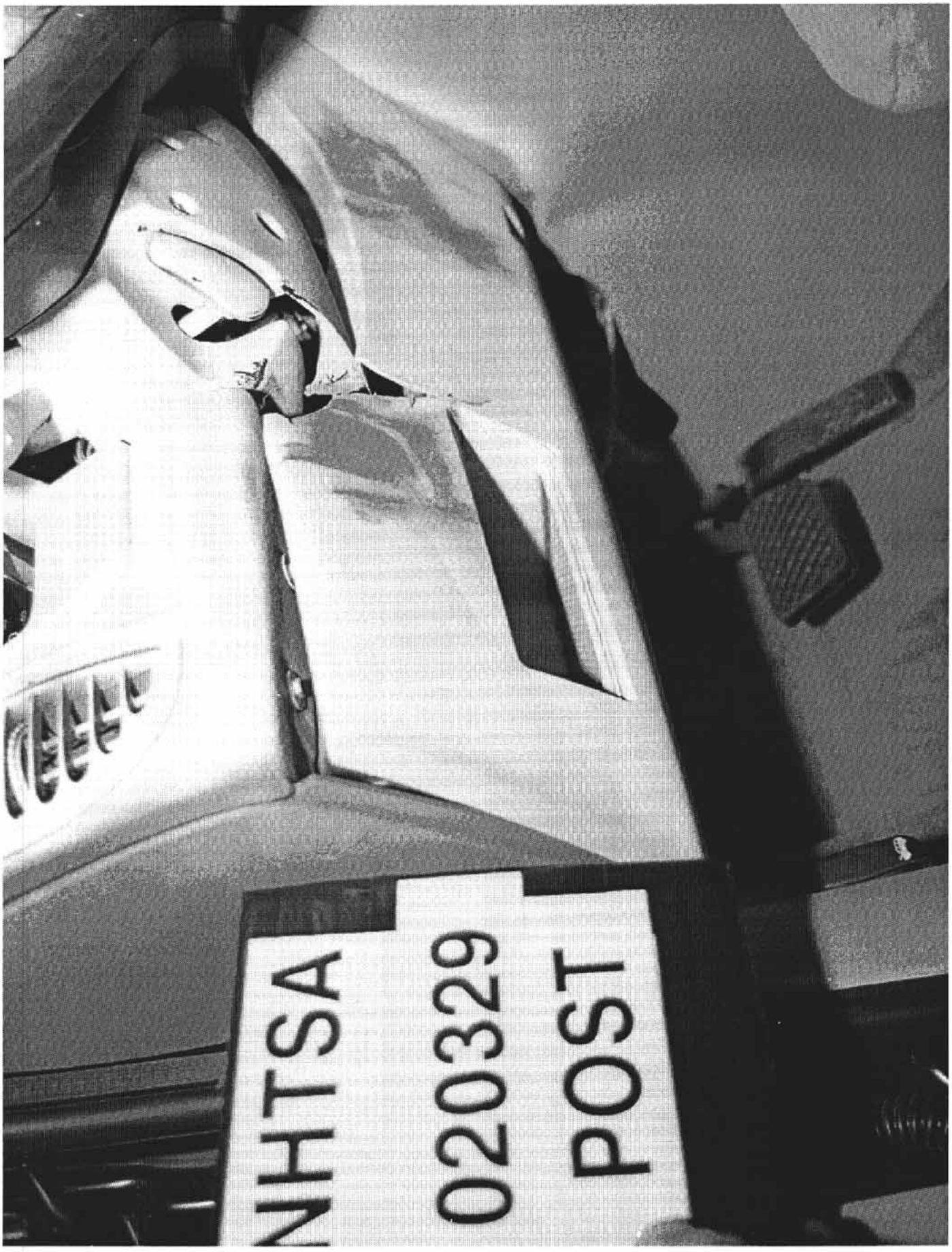


Figure A-53. Post-Test Driver Dummy Knee Contact View

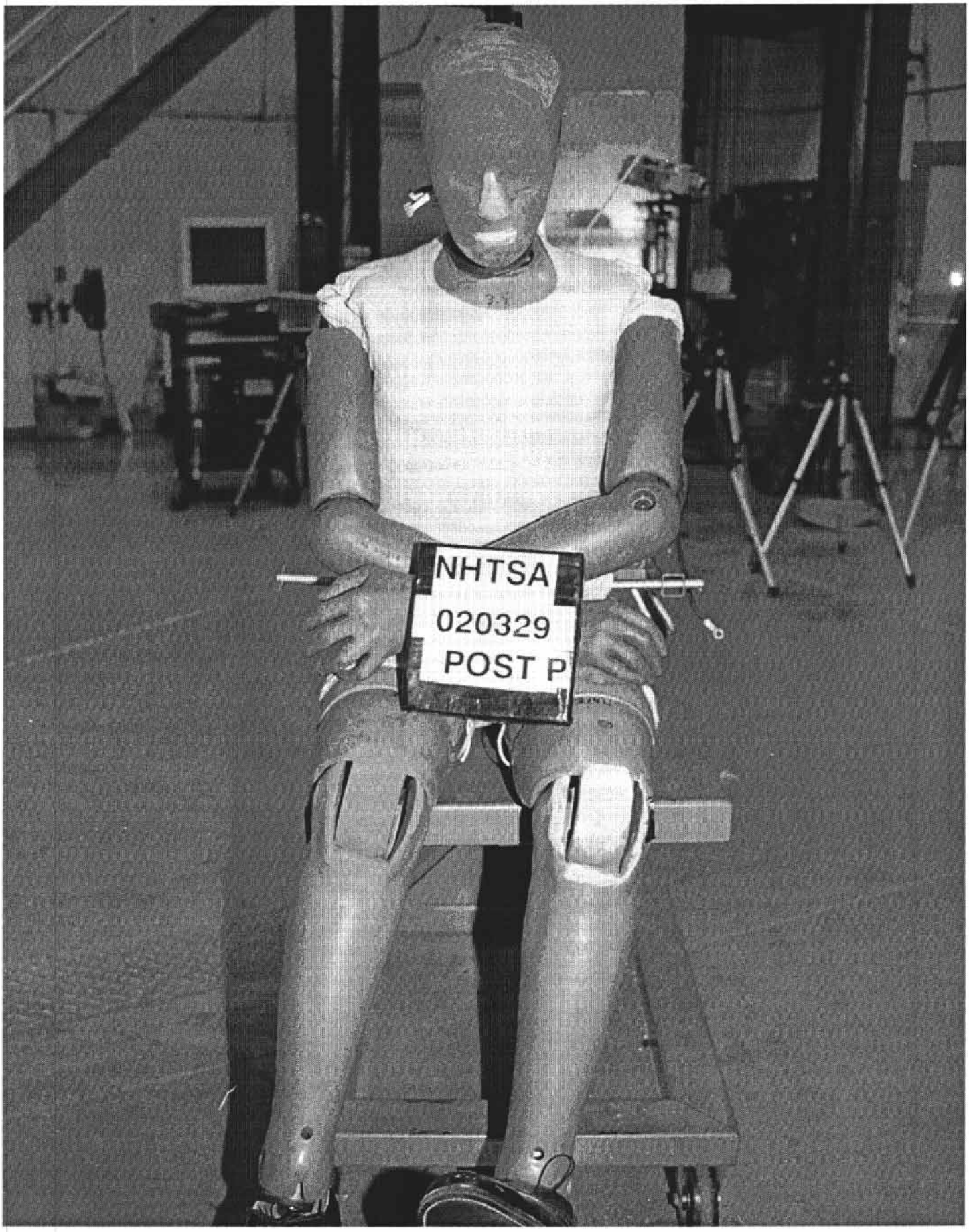


Figure A-54. Post-Test Passenger Dummy View

Figure A-55. Post-Test Passenger Dummy Head Contact View

Figure A-56. Pre-Test Passenger Dummy Knee Bolster View

Figure A-57. Post-Test Passenger Dummy Knee Contact View

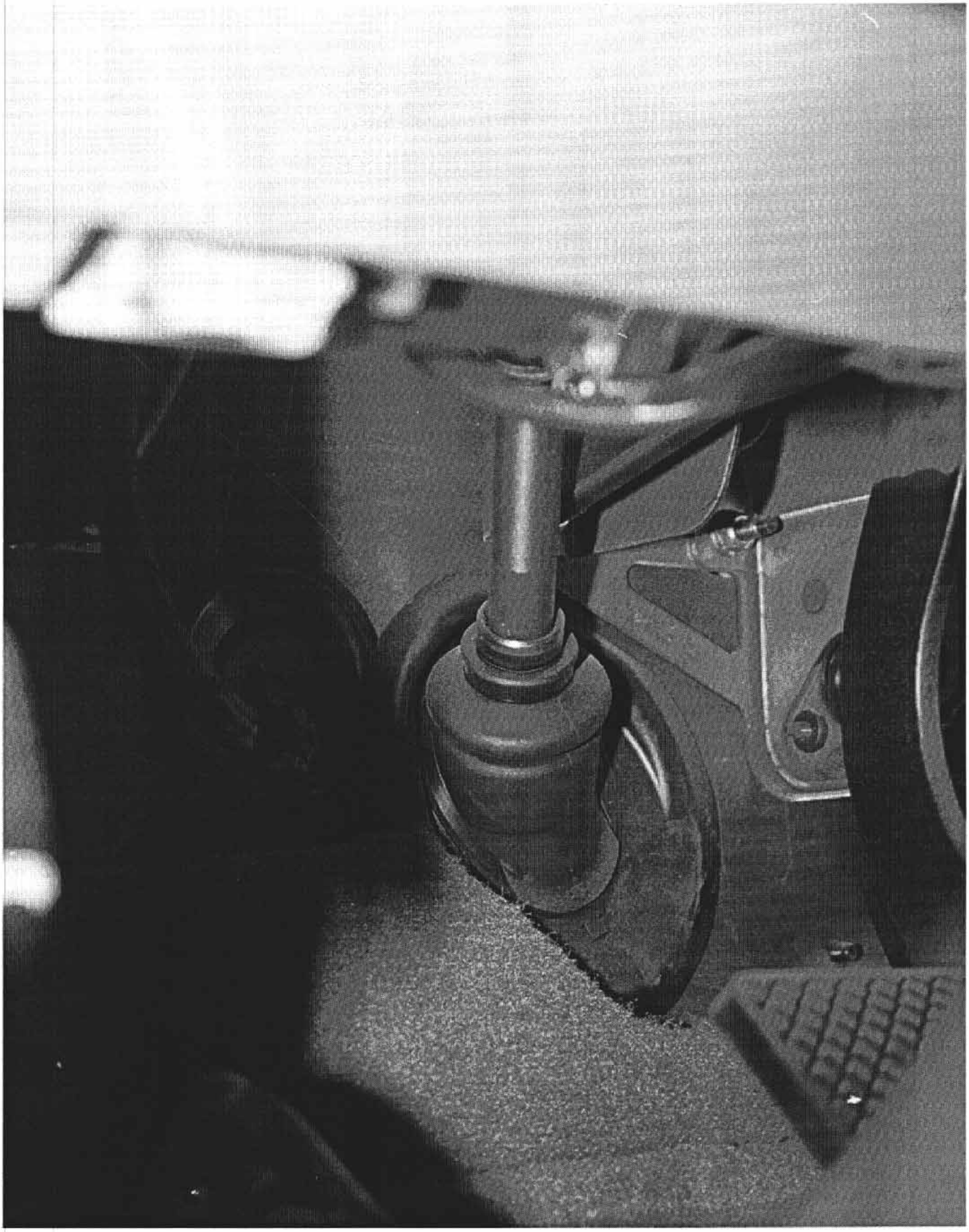


Figure A-58. Pre-Test Steering Column and Firewall - Interior View

Figure A-59. Post-Test Steering Column and Firewall - Interior View

Figure A-60. Pre-Test Vehicle Certification and Recommended Tire Pressure Label View

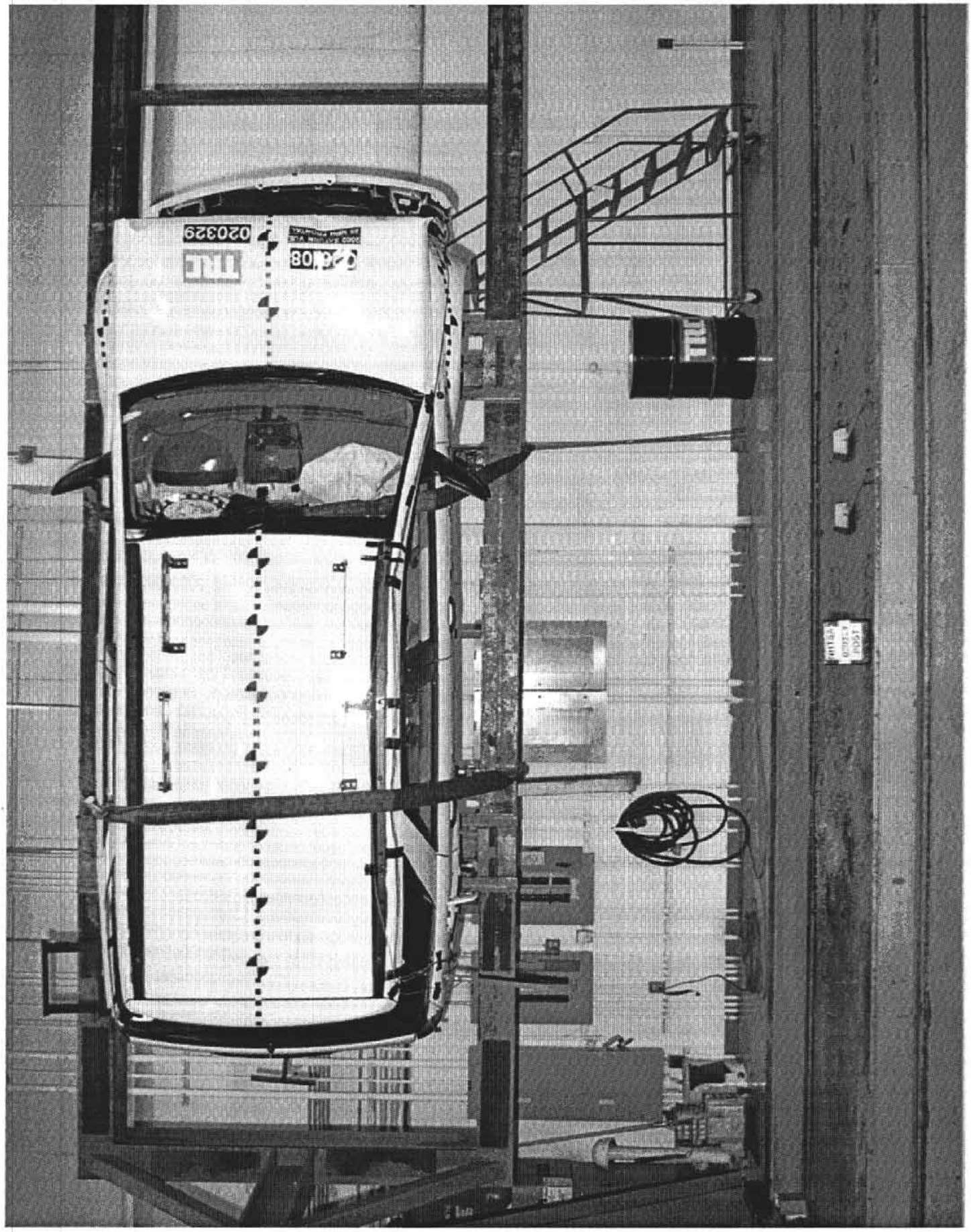
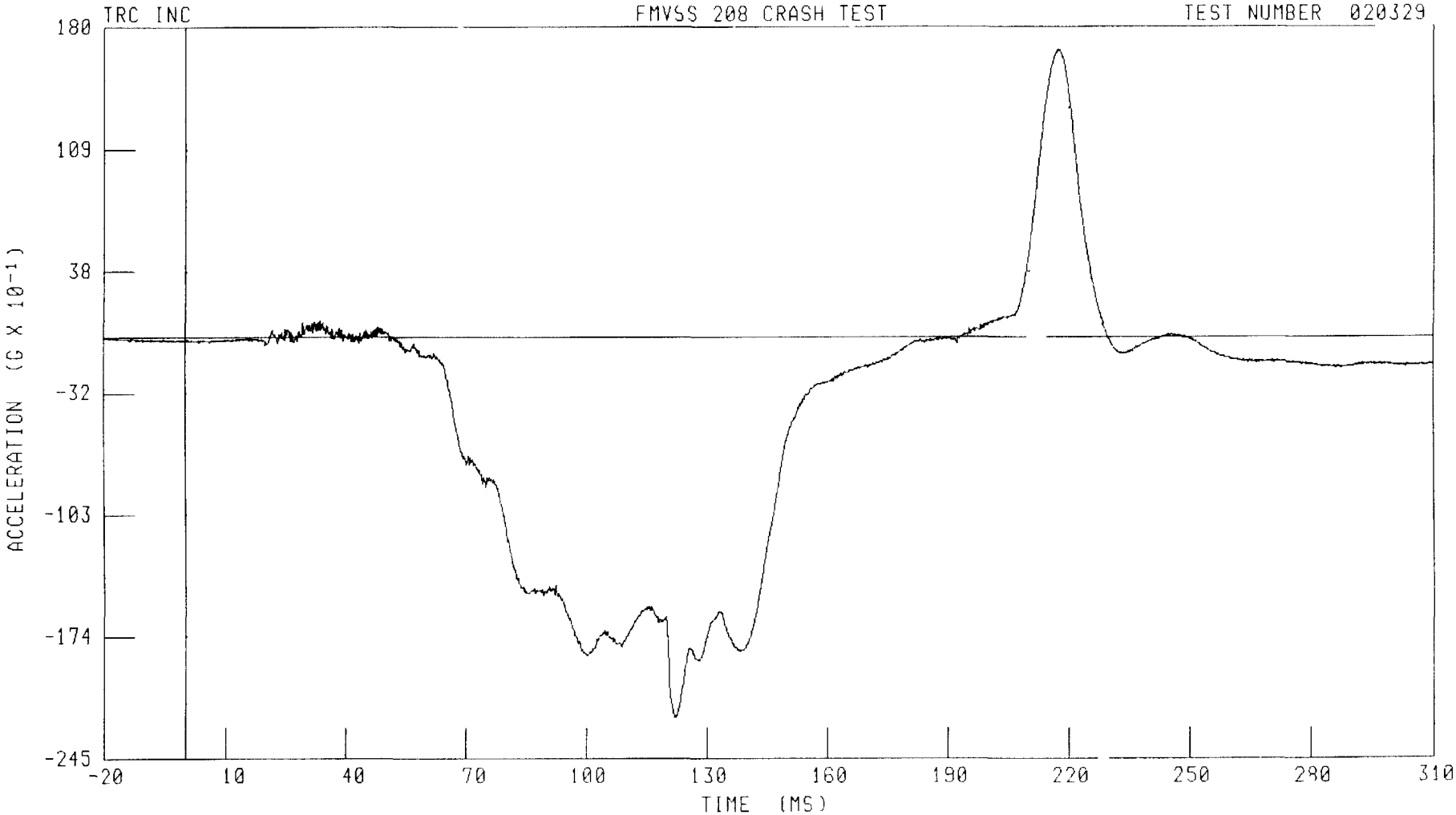


Figure A-61. Post-Test Vehicle on Static Rollover Device View

Appendix B

Data Plots

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER HEAD X-AXIS ACCELERATION

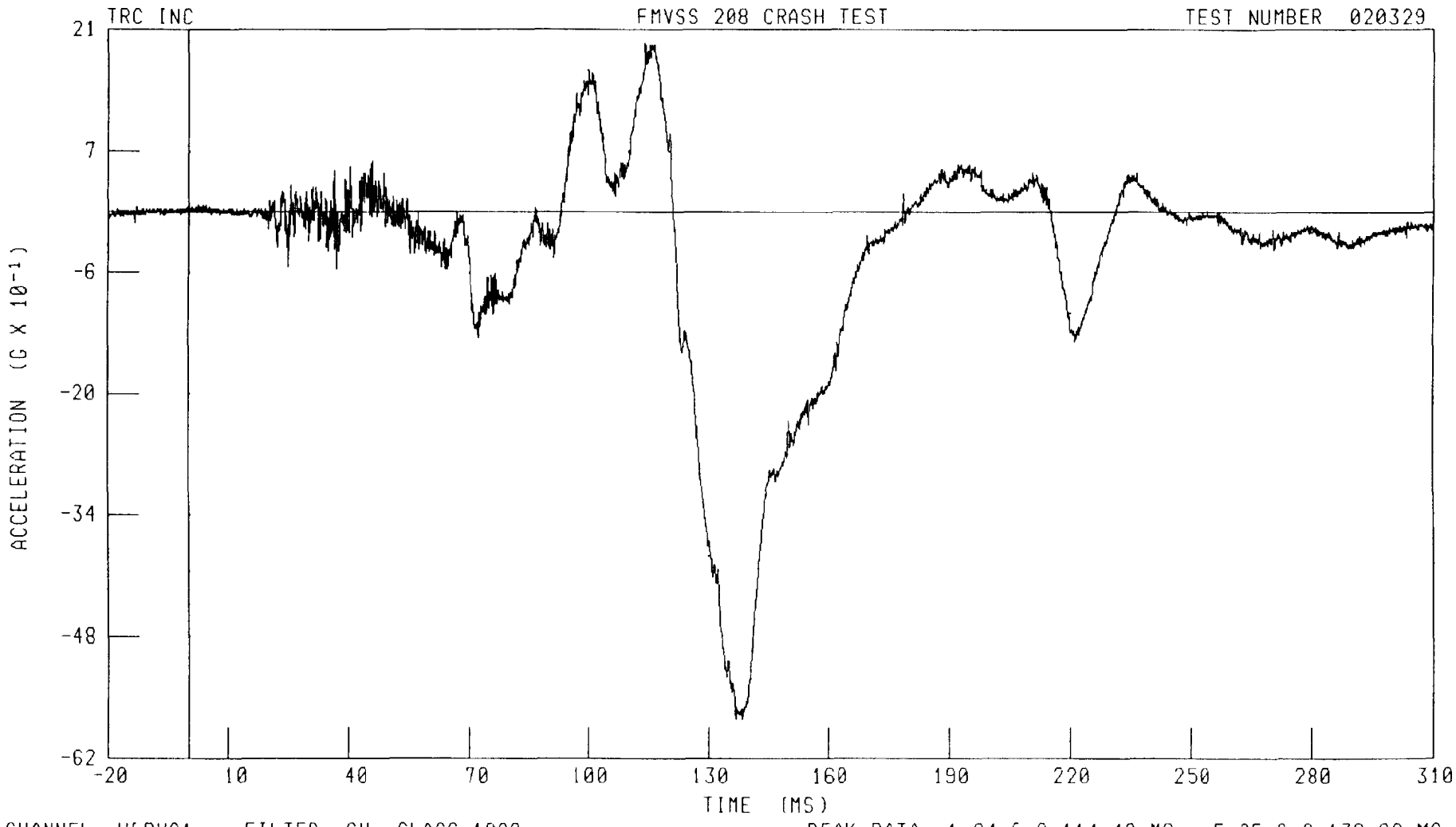


CHANNEL HEDXG1 FILTER CH, CLASS 1000 PEAK DATA 16 68 G @ 217 36 MS, -22 18 G @ 122 00 MS

B-2

020329

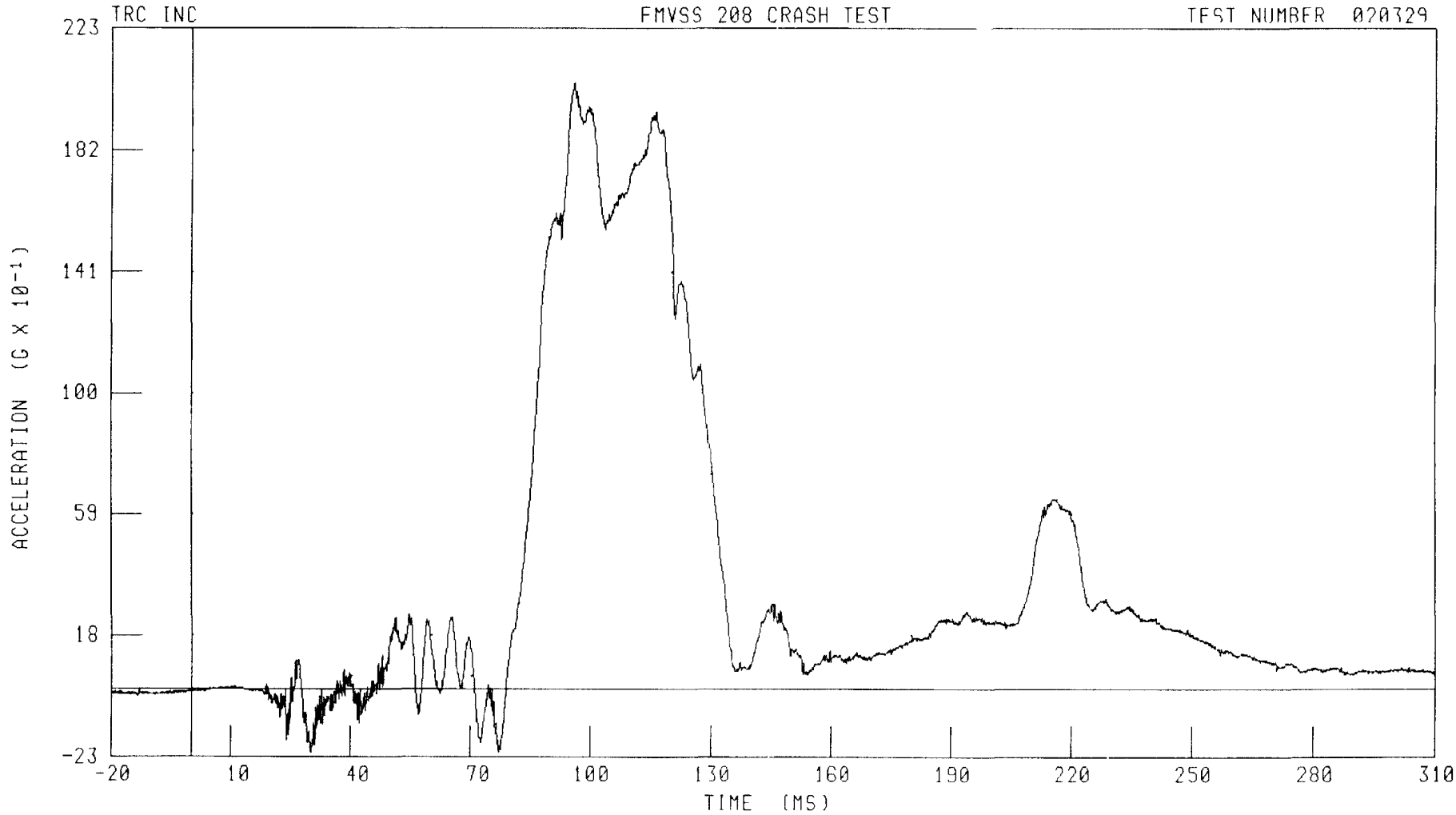
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER HEAD Y-AXIS ACCELERATION



CHANNEL HEDYG1 FILTER CH CLASS 1000 PEAK DATA 1 94 G @ 114 40 MS, -5 85 G @ 136 88 MS

020329

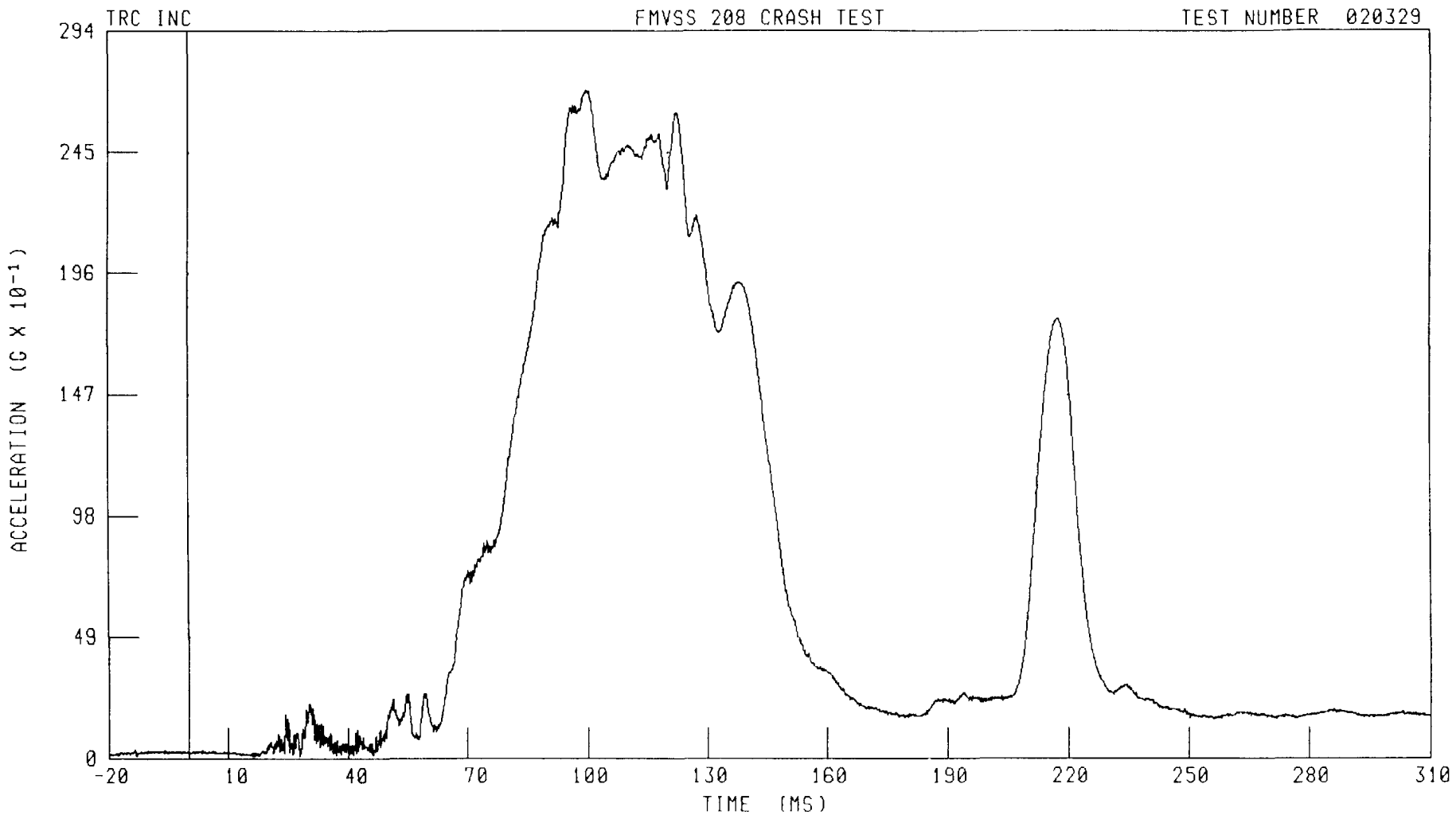
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER HEAD Z-AXIS ACCELERATION



CHANNEL HEDZG1 FILTER CH CLASS 1000 PEAK DATA 20 48 G @ 95 92 MS, -2 15 G @ 30 16 MS

020329

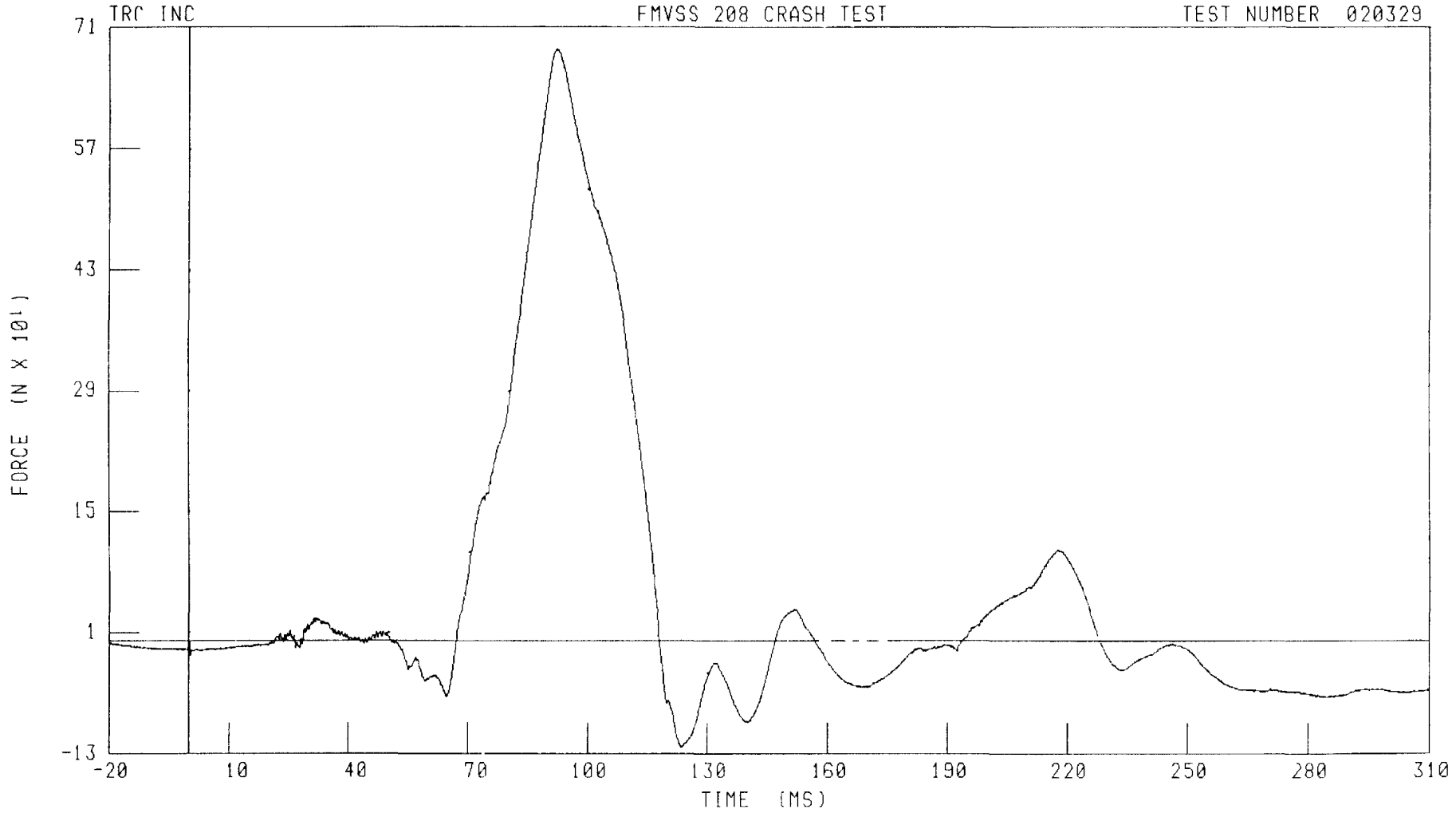
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER HEAD RESULTANT ACCELERATION



CHANNEL HEDRG1 FILTER CH CLASS 1000 PEAK DATA 27 00 G @ 99 76 MS, 0 09 G @ 16 48 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NECK X-AXIS SHEAR FORCE

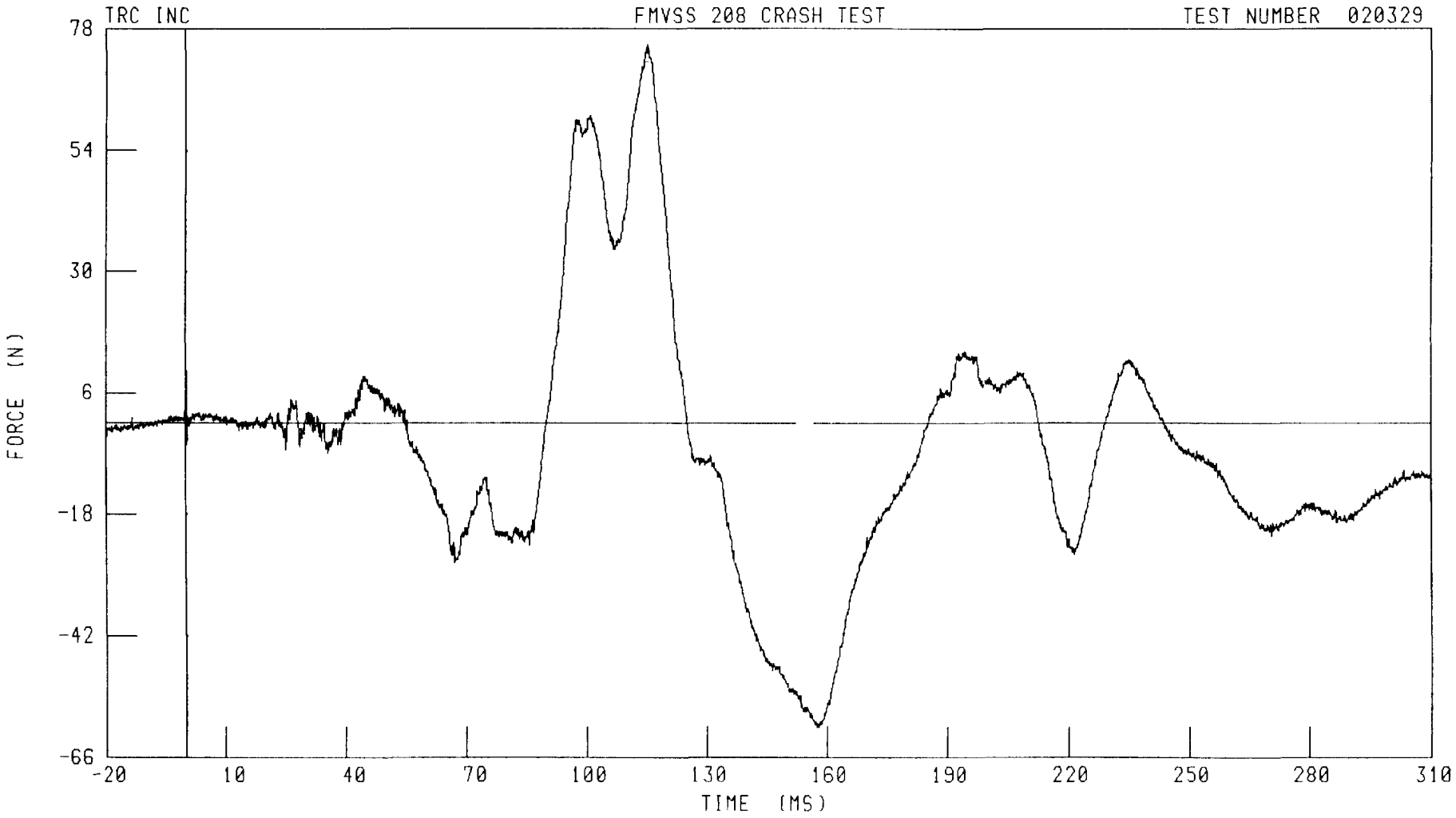


CHANNEL NEK*F1 FILTER CH CLASS 1000 PEAK DATA 685 16 N @ 92 16 MS -122 86 N @ 123 60 MS

8-6

020329

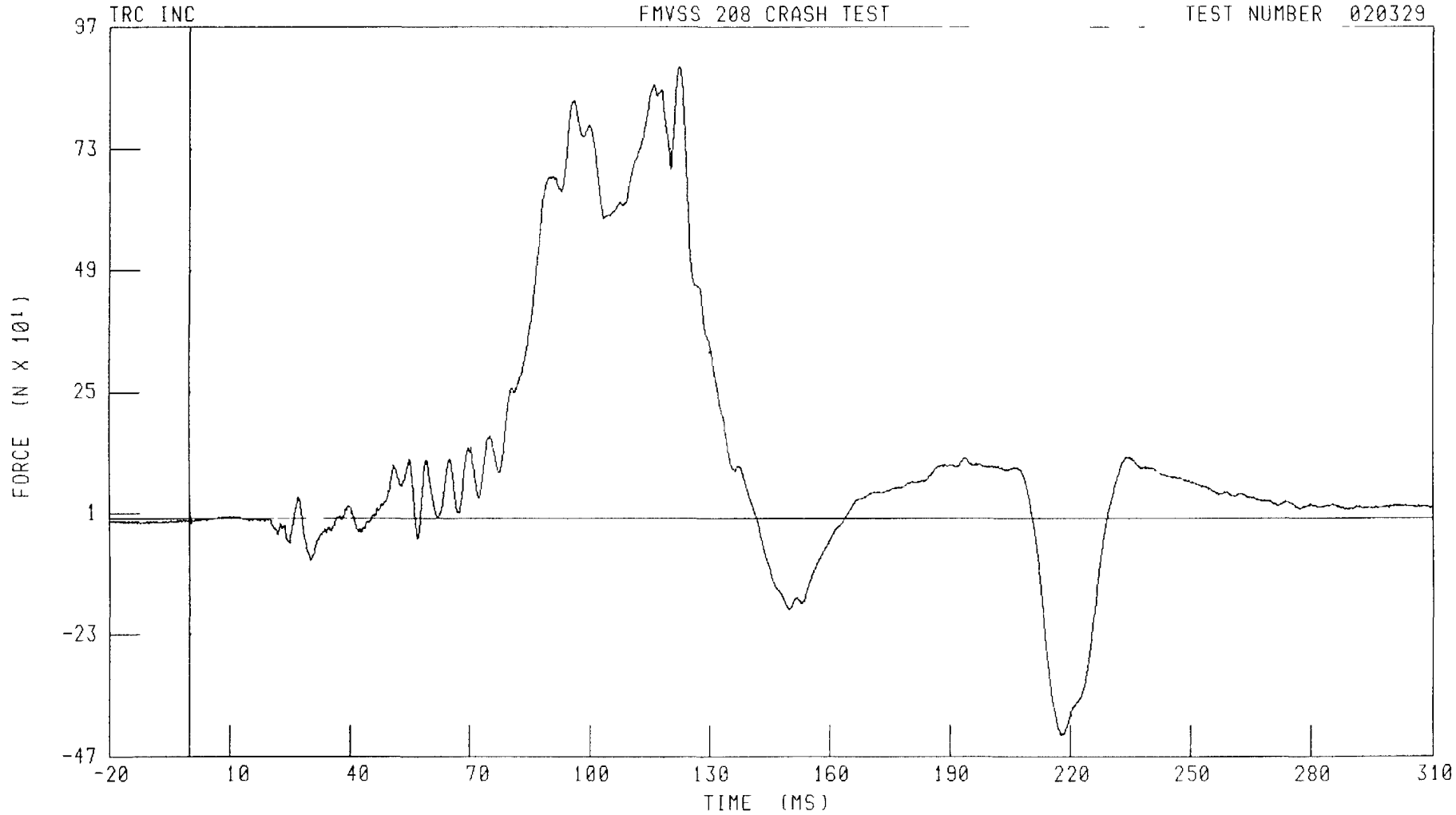
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NECK Y-AXIS SHEAR FORCE



CHANNEL NEKYF1 FILTER CH CLASS 1000
PEAK DATA 75 07 N @ 115 60 MS, -60 09 N @ 157 52 MS

020329

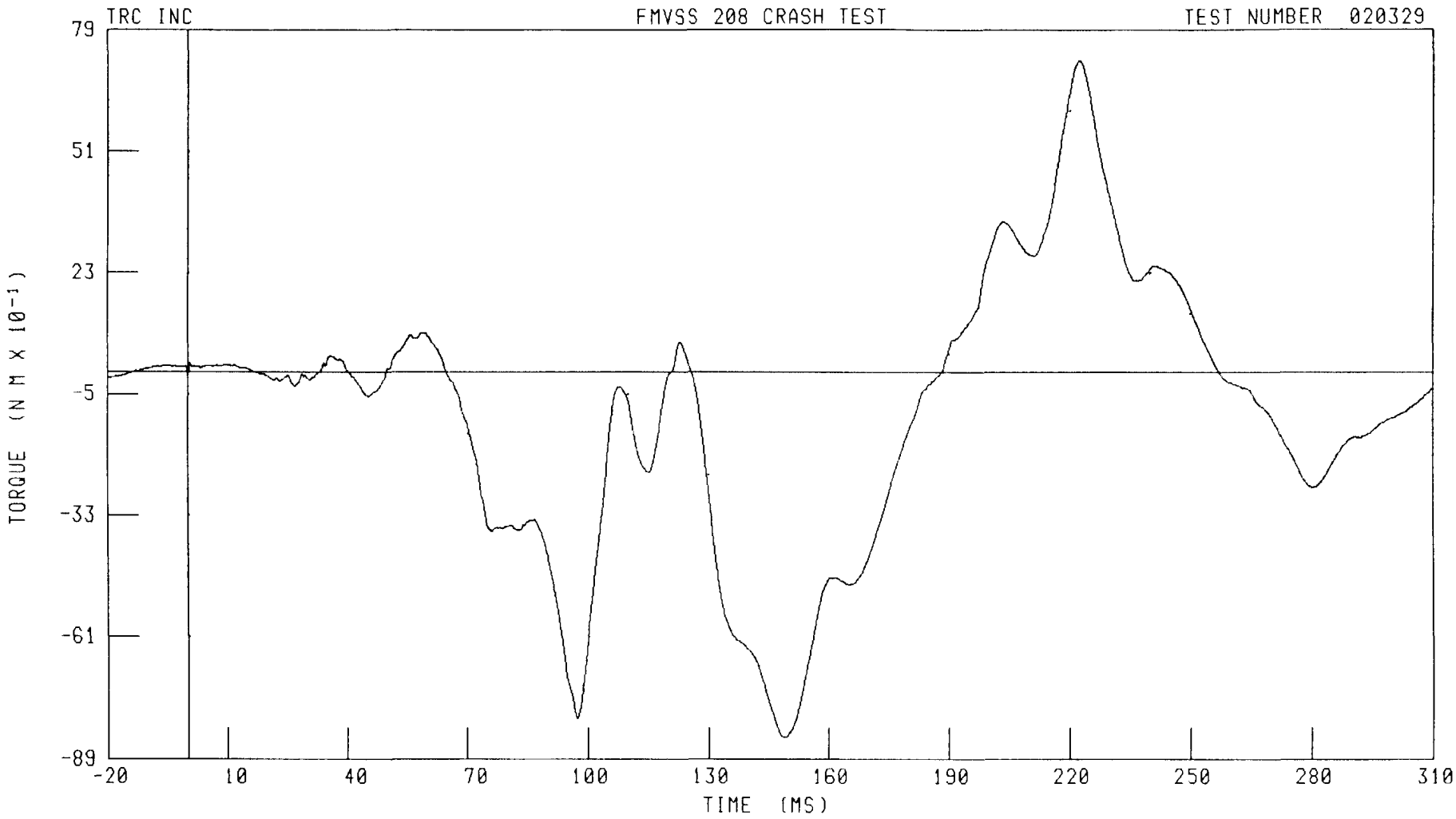
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NECK Z-AXIS AXIAL FORCE



CHANNEL NEKZF1 FILTER CH CLASS 1000 PEAK DATA 892 21 N @ 122 64 MS, -428 97 N @ 217 68 MS

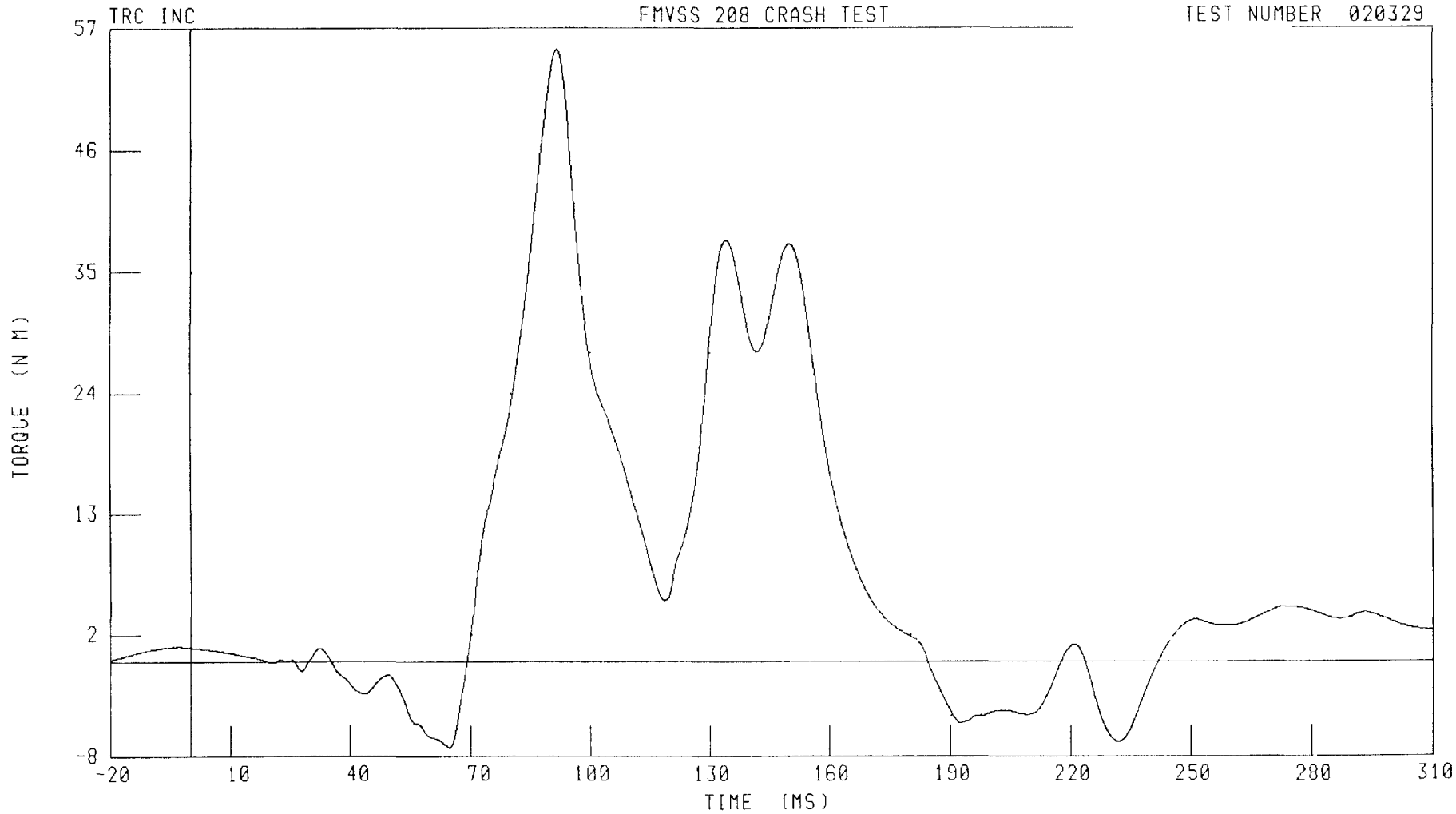
020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NECK MOMENT ABOUT X AXIS



CHANNEL NEKXM1 FILTER CH CLASS 600 PEAK DATA 7 20 N M @ 222 48 MS, -8 41 N M @ 149 04 MS

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NECK MOMENT ABOUT Y AXIS



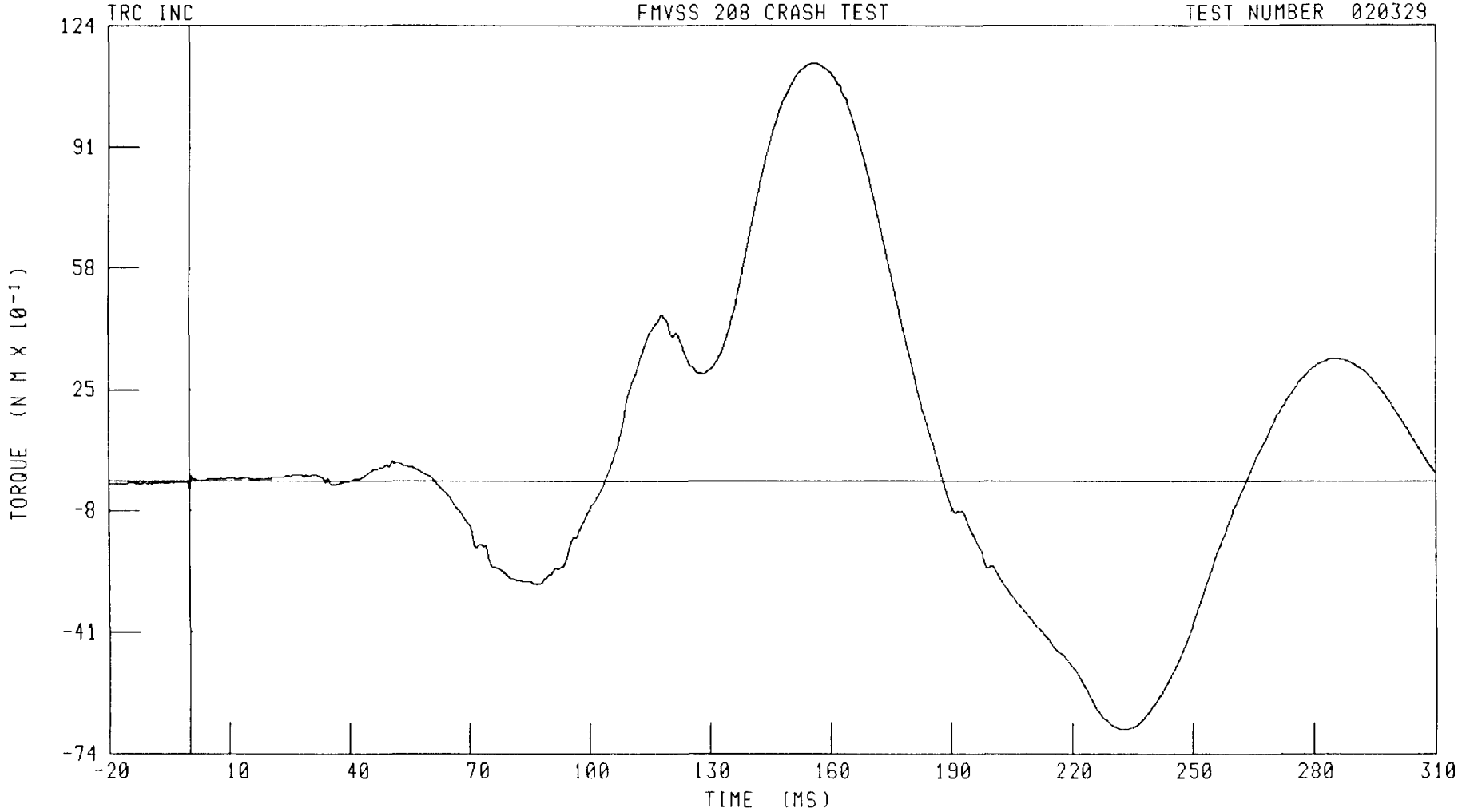
CHANNEL NEKYM1 FILTER CH CLASS 600 PEAK DATA 55 52 N M @ 91 60 MS, -7 84 N M @ 64 64 MS

B-10

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NECK MOMENT ABOUT Z AXIS

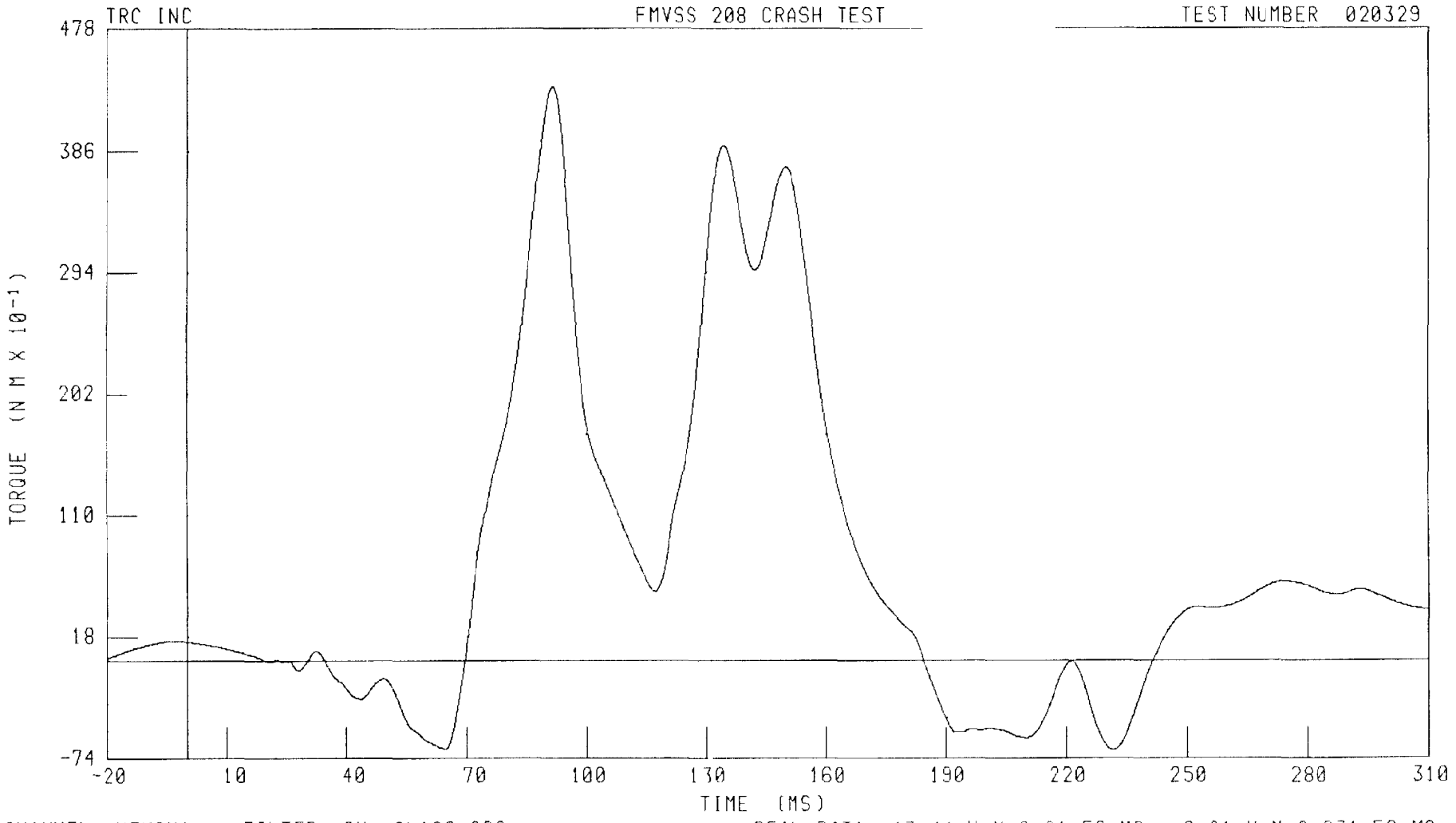
TRC INC FMVSS 208 CRASH TEST TEST NUMBER 020329



CHANNEL NEKZM1 FILTER CH CLASS 600 PEAK DATA 11 38 N M @ 155 76 MS, -6 74 N M @ 232 24 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NECK MOMENT OCCIPITAL CONDYLE ABOUT Y AXIS

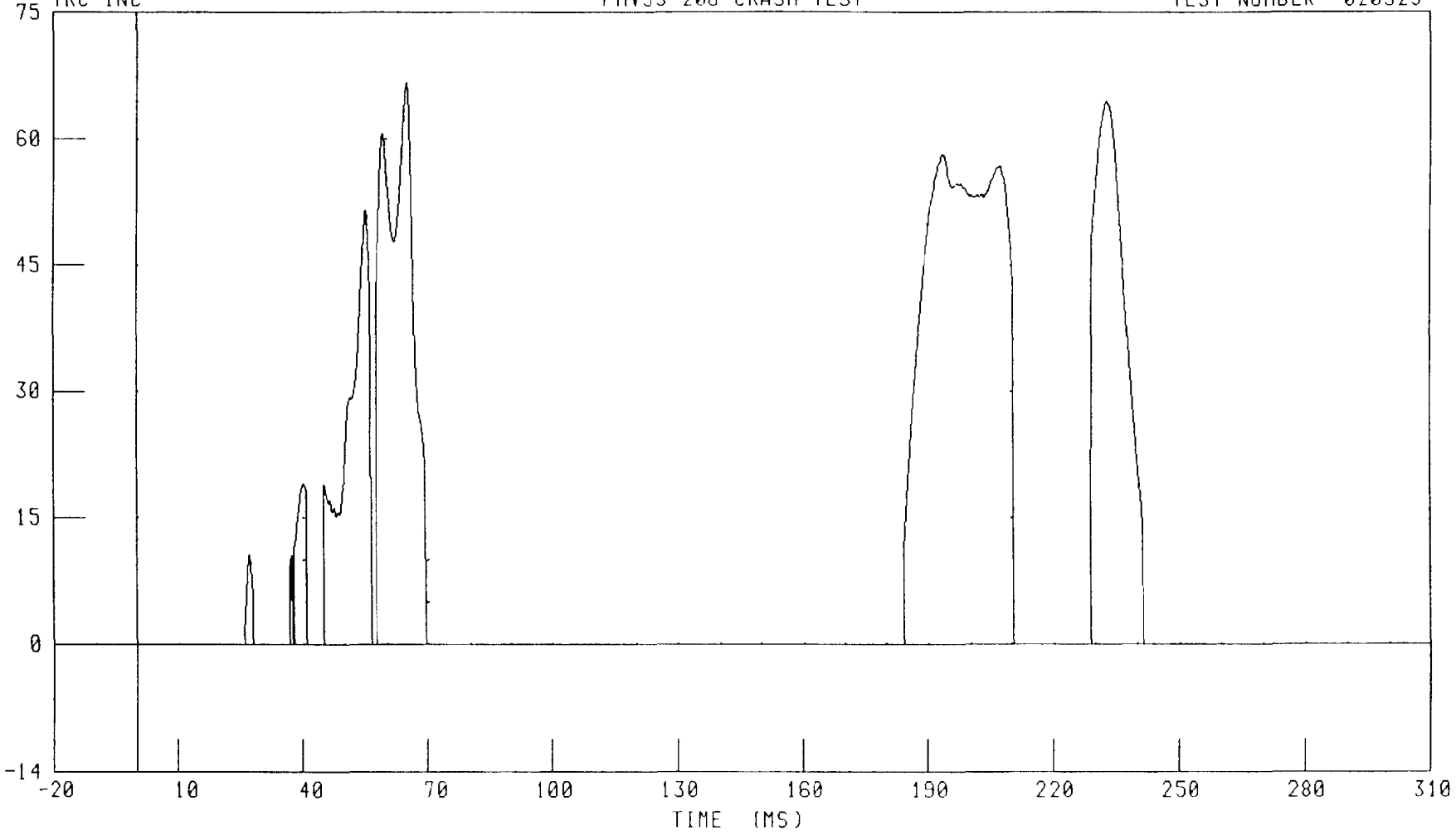


CHANNEL NEKOM1 FILTER CH CLASS 600 PEAK DATA 43 44 N M @ 91 52 MS 6 81 N M @ 231 52 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NIJ TENSION/EXTENSION

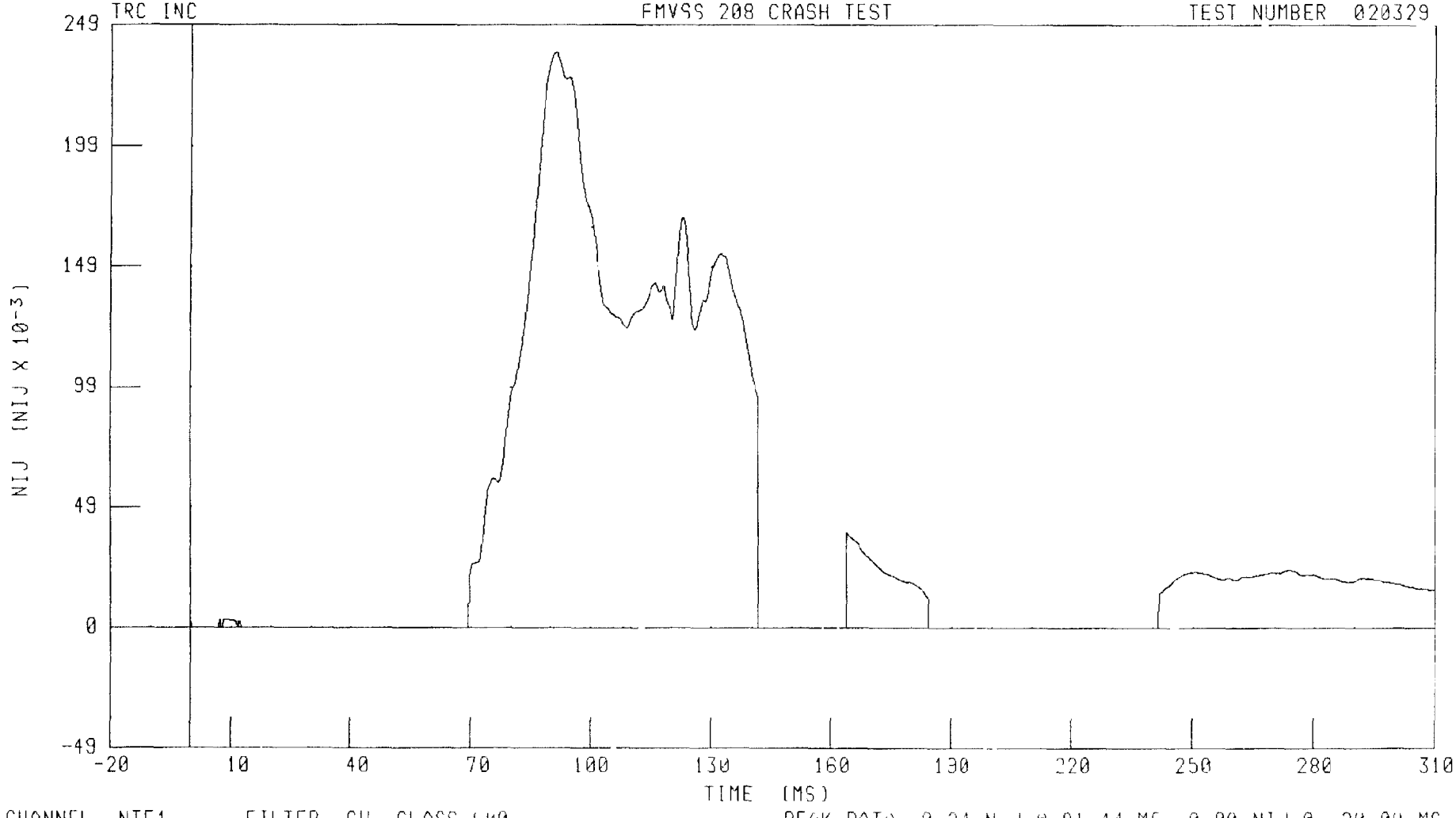
TRC INC FMVSS 208 CRASH TEST TEST NUMBER 020329



CHANNEL NTE1 FILTER CH CLASS 600 PEAK DATA 0 07 NIJ 0 64 96 MS, 0 00 NIJ 0 -20 00 MS

020329

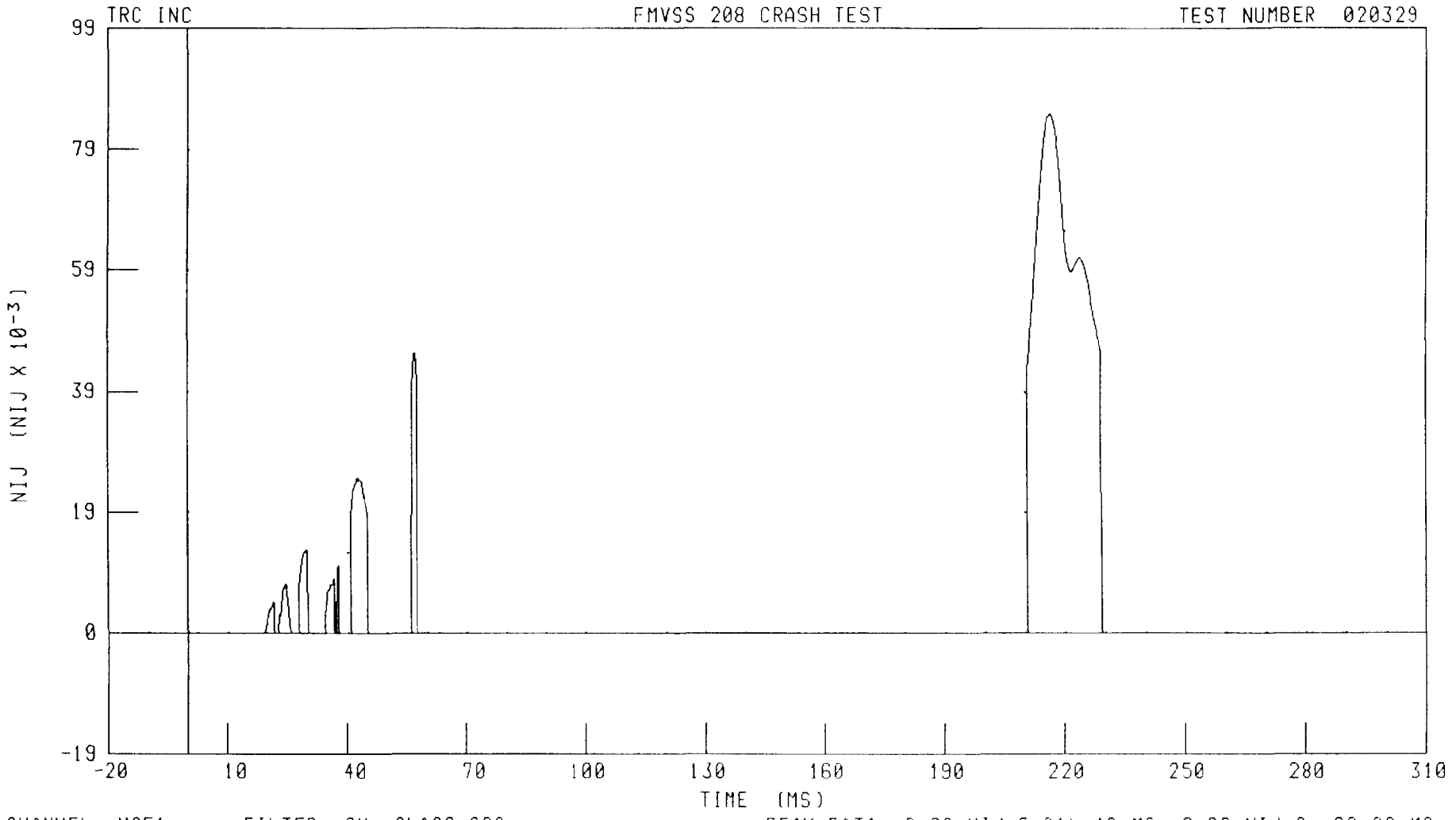
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NIJ TENSION/FLEXION



CHANNEL NTF1 FILTER CH CLASS 600 PEAK DATA 0 24 NIJ @ 91 44 MS, 0 00 NIJ @ -20 00 MS

020329

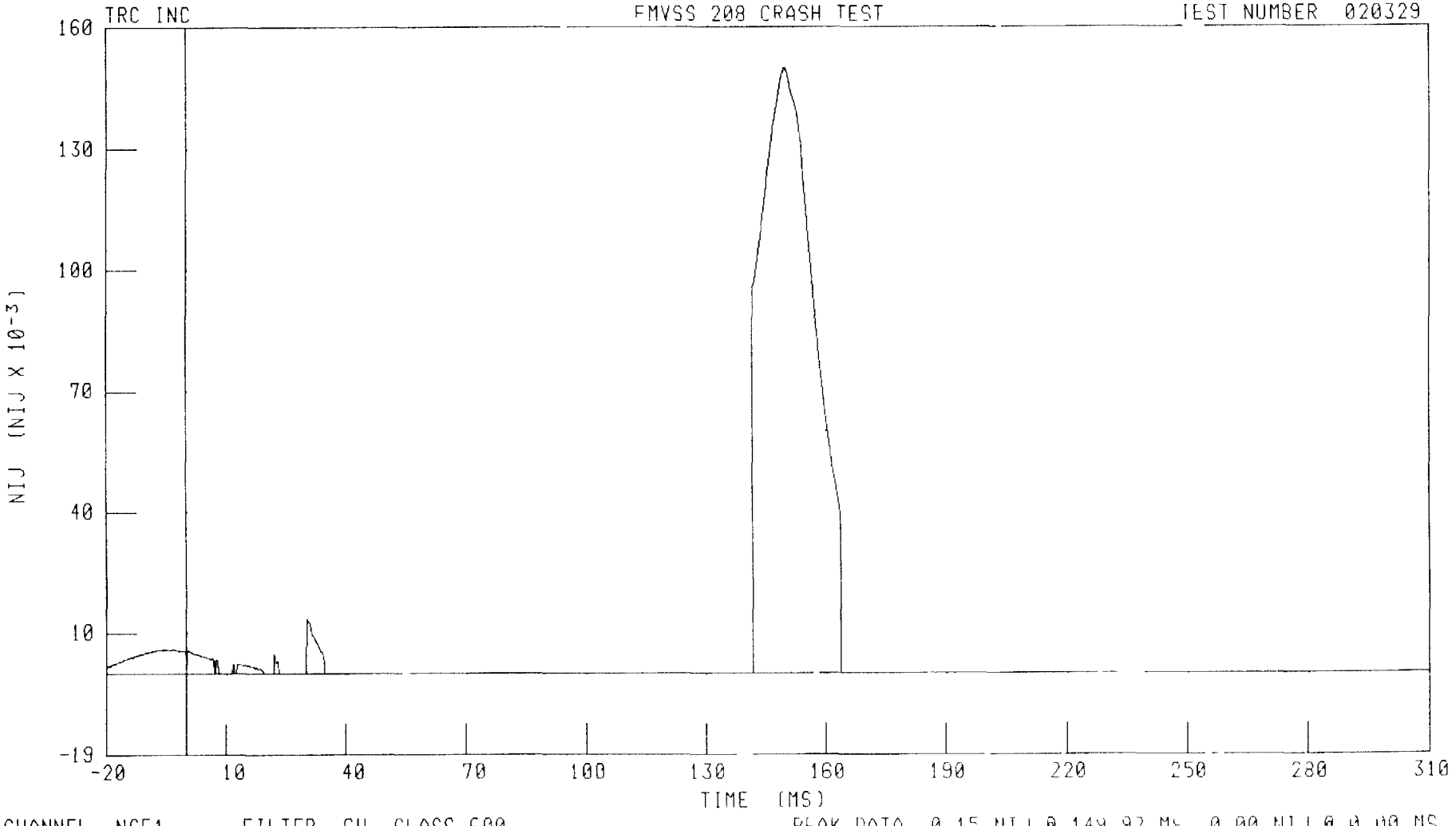
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NIJ COMPRESSION/EXTENSION



CHANNEL NCE1 FILTER CH CLASS 600 PEAK DATA 0 09 NIJ @ 216 48 MS 0 00 NIJ @ -20 00 MS

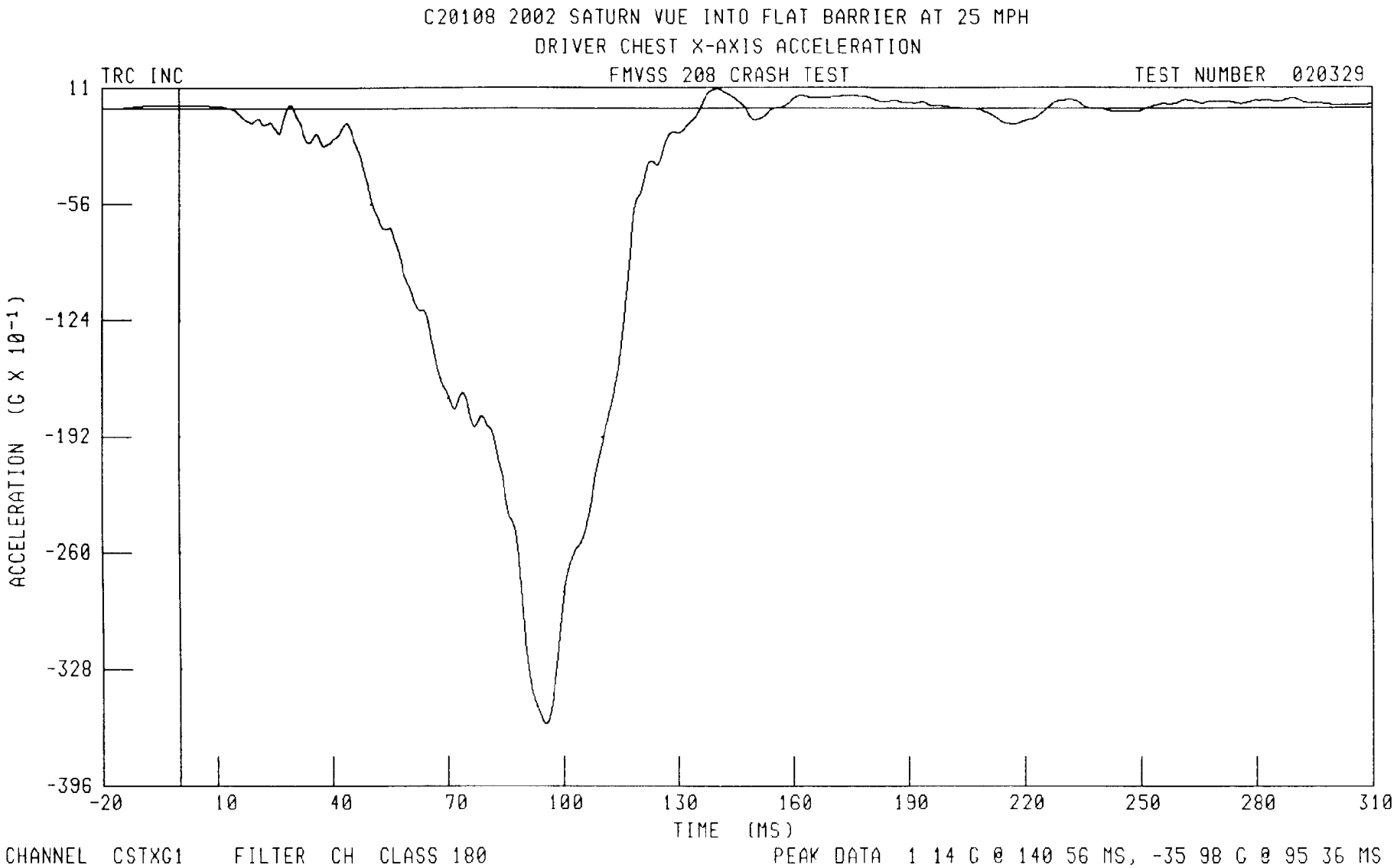
020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER NIJ COMPRESSION/FLEXION



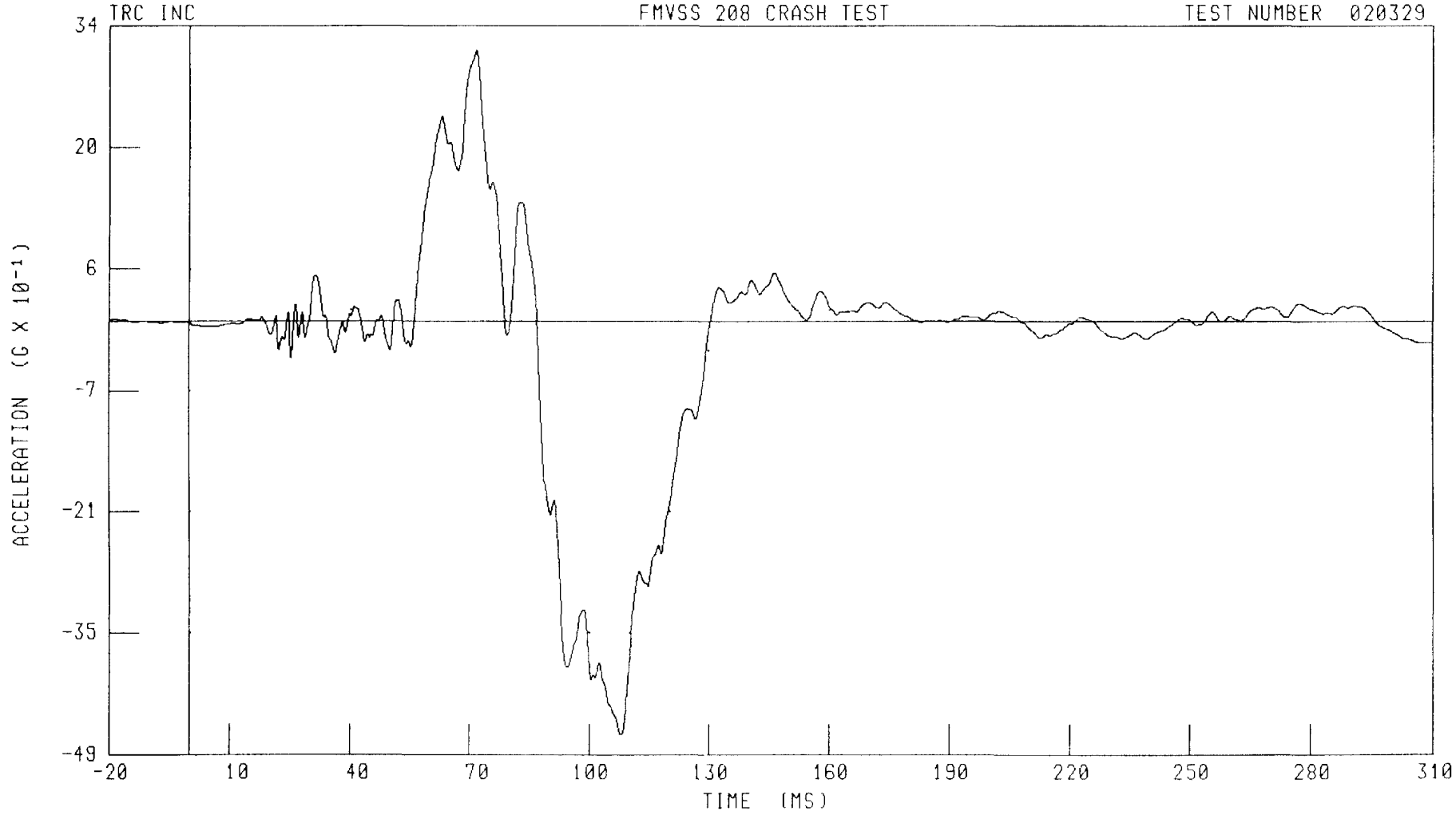
CHANNEL NCF1 FILTER CH CLASS 600 PEAK DATA 0 15 NIJ @ 149 92 MS, 0 00 NIJ @ 0 00 MS

020329


C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER CHEST X-AXIS ACCELERATION
TRC INC
FMVSS 208 CRASH TEST
TEST NUMBER 020329
11
-56
-124
-192
-260
-328
-396
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL CSTXG1 FILTER CH CLASS 180
PEAK DATA 1 14 G @ 140 56 MS, -35 98 G @ 95 36 MS

020329

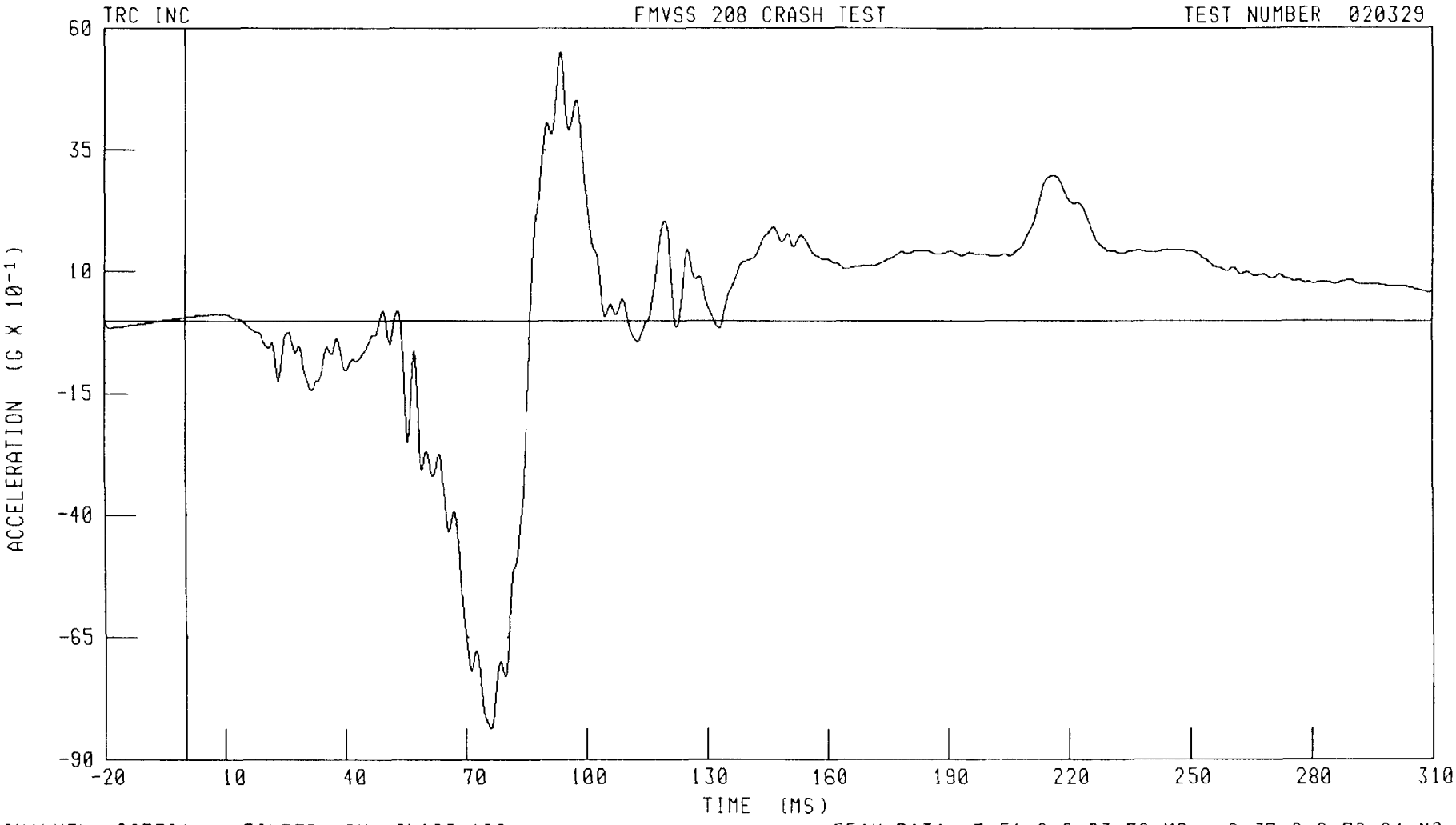
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER CHEST Y-AXIS ACCELERATION



CHANNEL CSTYG1 FILTER CH CLASS 180 PEAK DATA 3 11 G @ 71 68 MS, -4 77 G @ 108 08 MS

020329

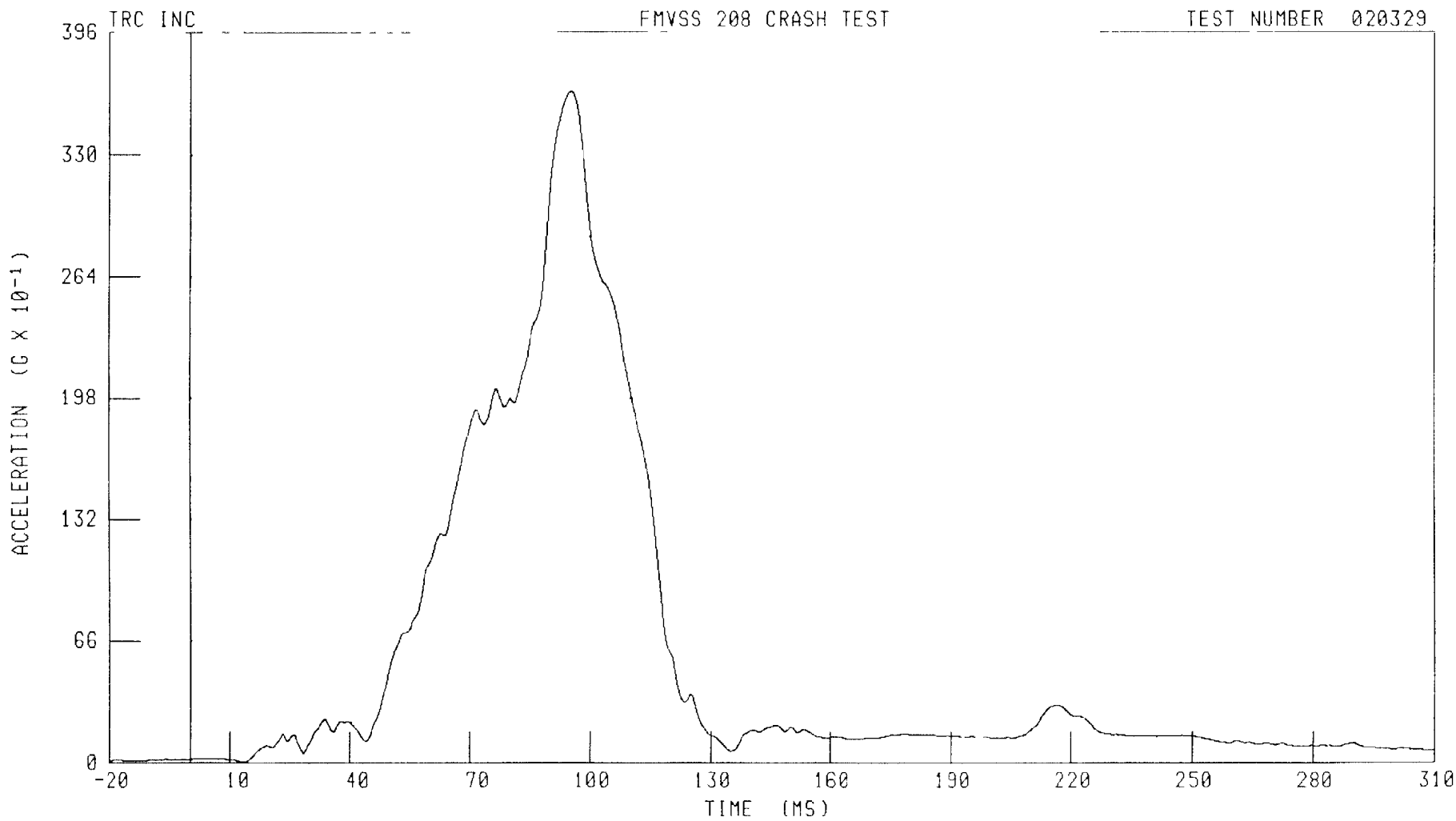
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER CHEST Z-AXIS ACCELERATION



CHANNEL CSTZG1 FILTER CH CLASS 180 PEAK DATA 5 51 G @ 93 76 MS, -8 37 G @ 76 24 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER CHEST RESULTANT ACCELERATION

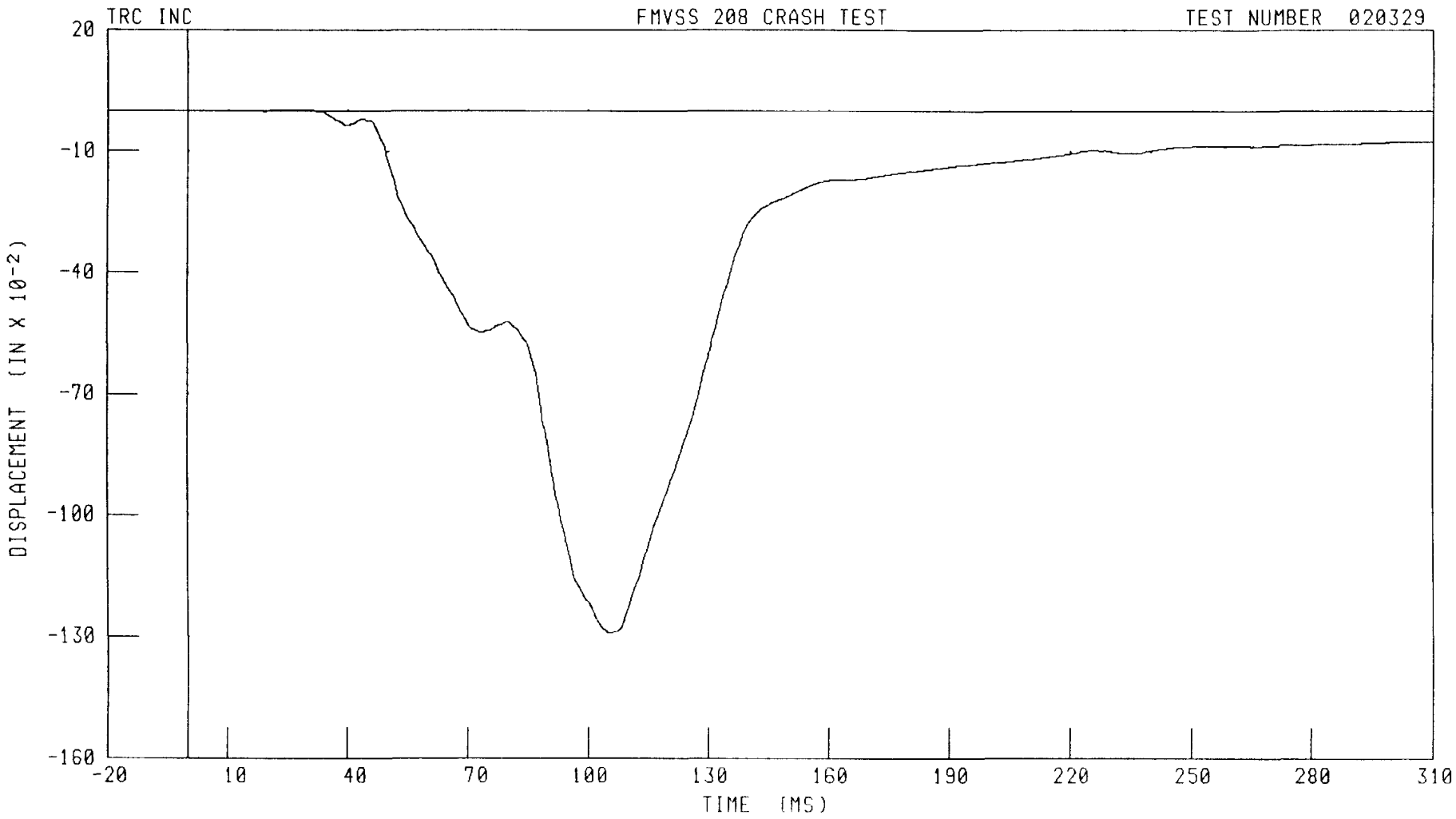


CHANNEL CSTRG1 FILTER CH CLASS 180 PEAK DATA 36 42 G @ 95 20 MS, 0 01 G @ -20 00 MS

B-20

020329

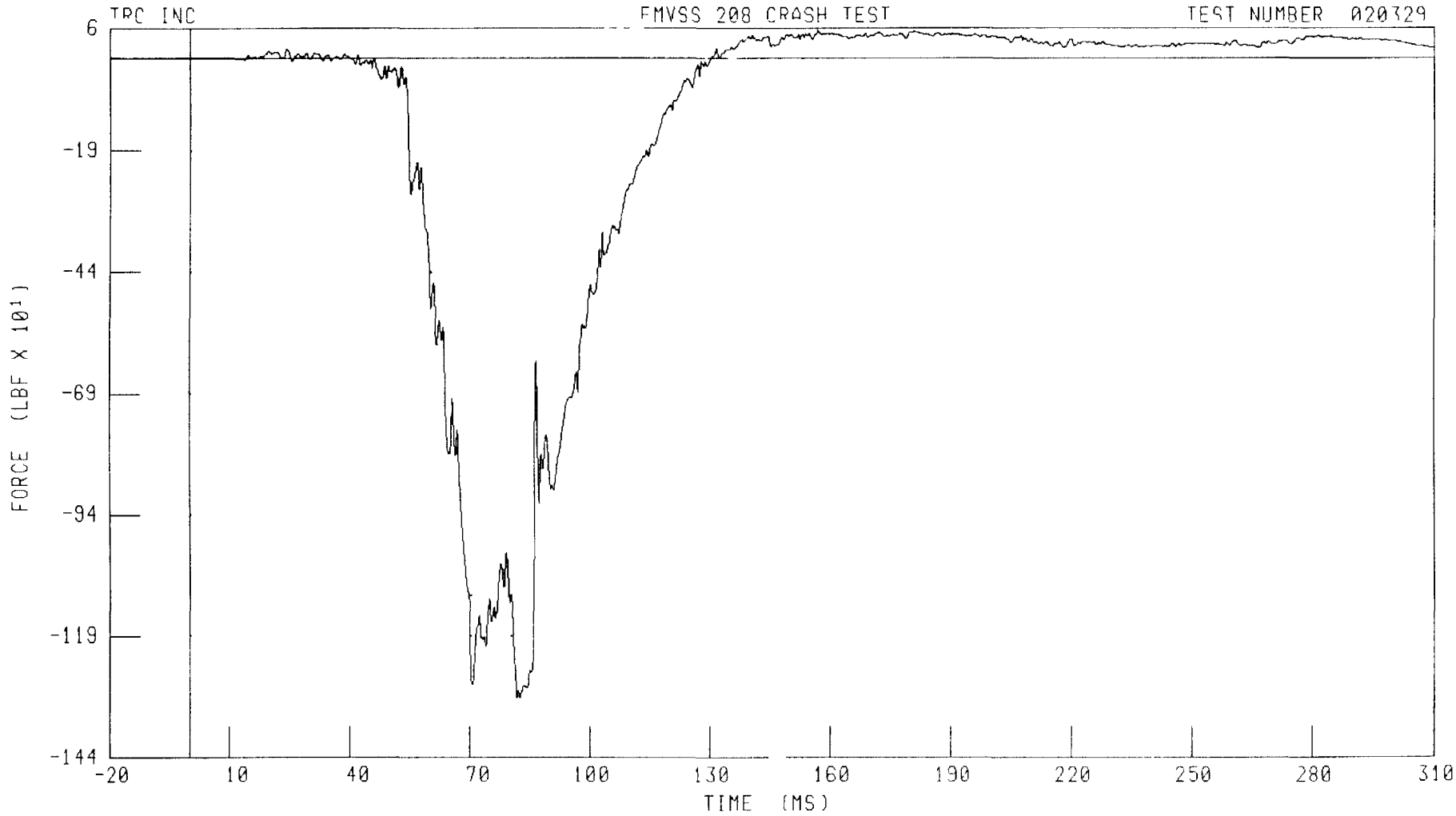
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER CHEST DEFLECTION



CHANNEL CSTXD1 FILTER CH CLASS 600 PEAK DATA 0 00 IN @ 25 92 MS, -1 29 IN @ 105 52 MS

020329

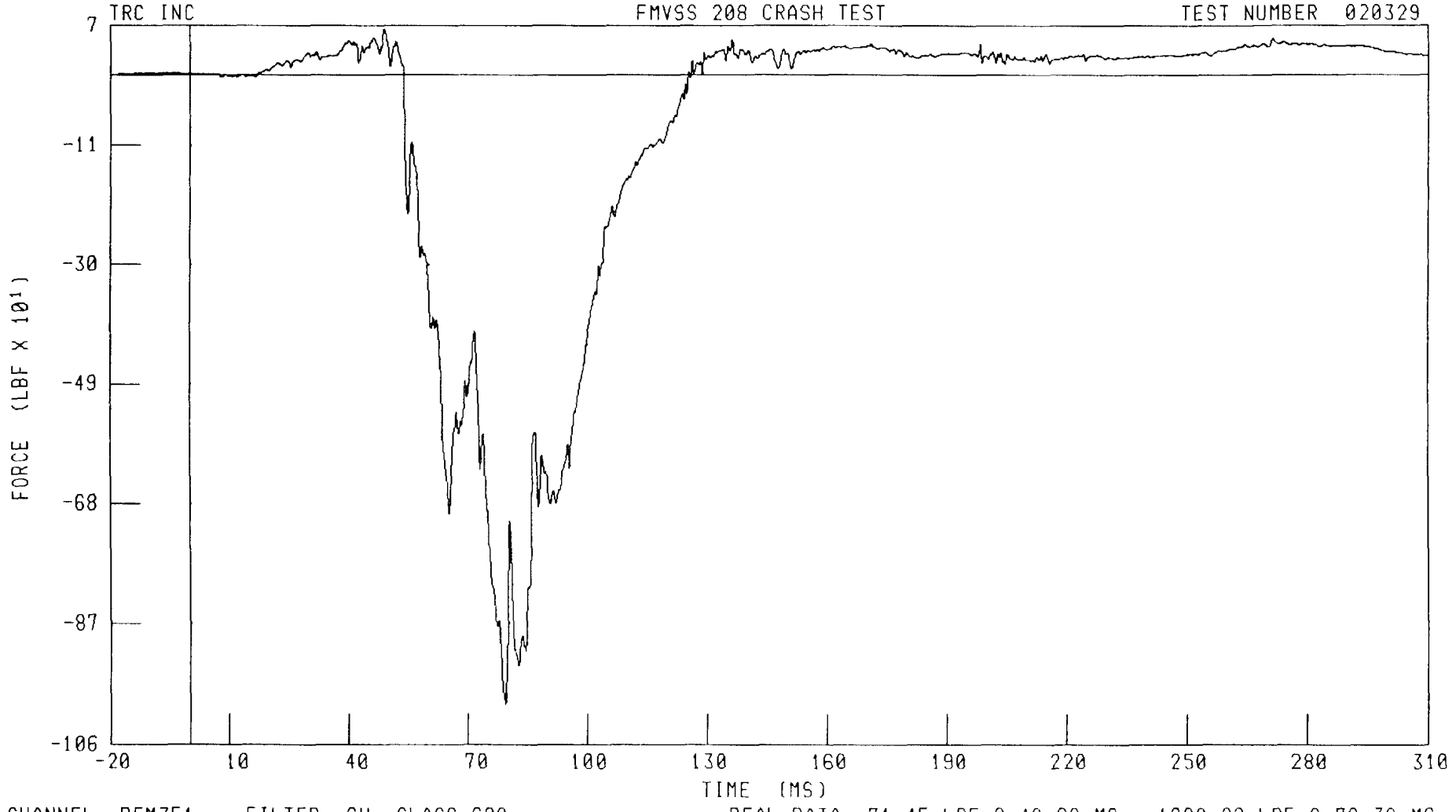
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER LEFT FEMUR FORCE



CHANNEL LFMZF1 FILTER CH CLASS 600 PEAK DATA 55 40 LBF @ 157 12 MS, -1318 26 LBF @ 81 68 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
DRIVER RIGHT FEMUR FORCE

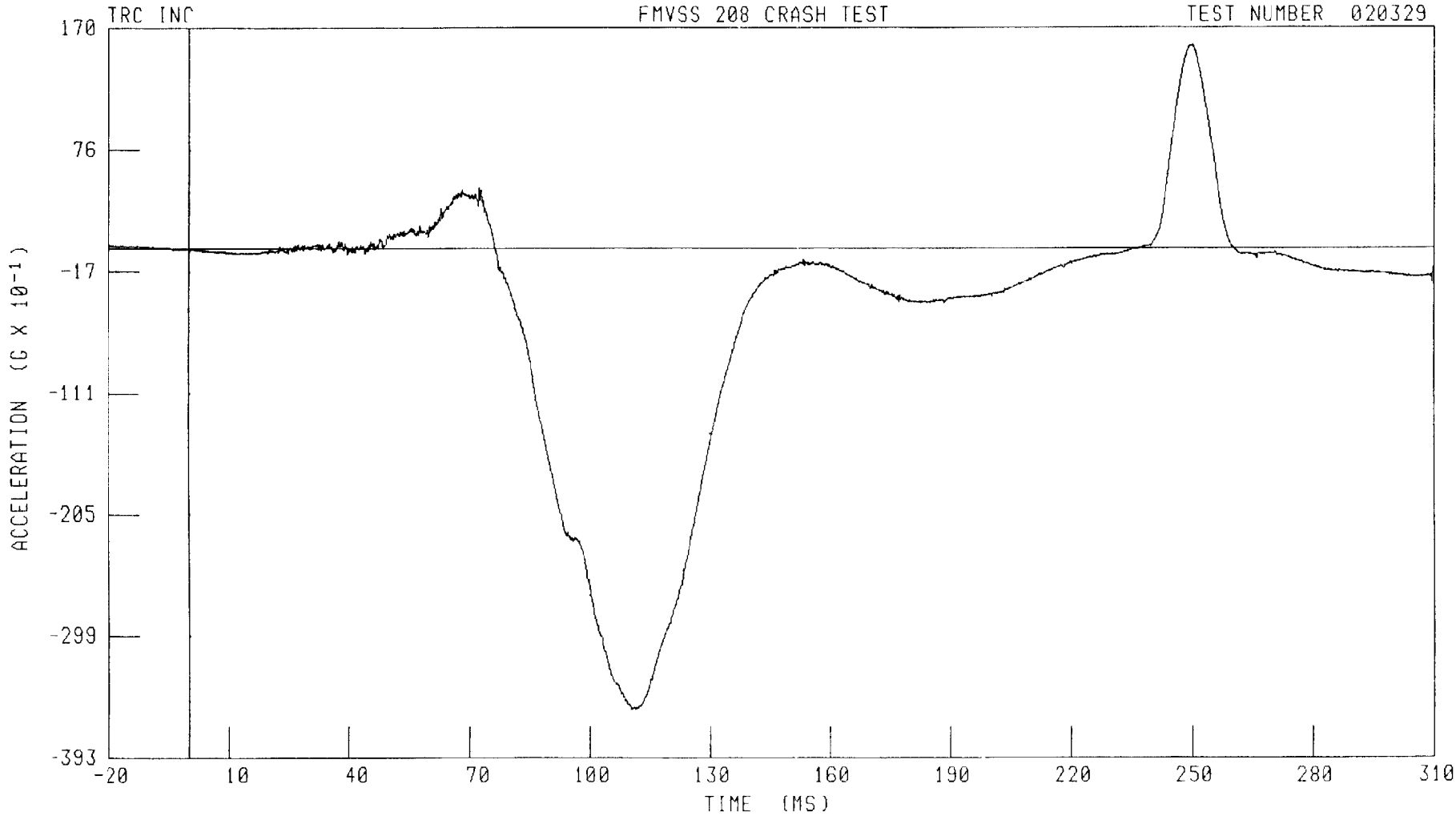


CHANNEL RFMZF1 FILTER CH CLASS 600

PEAk DATA 71 45 LBF @ 48 88 MS, -1000 22 LBF @ 79 36 MS

020329

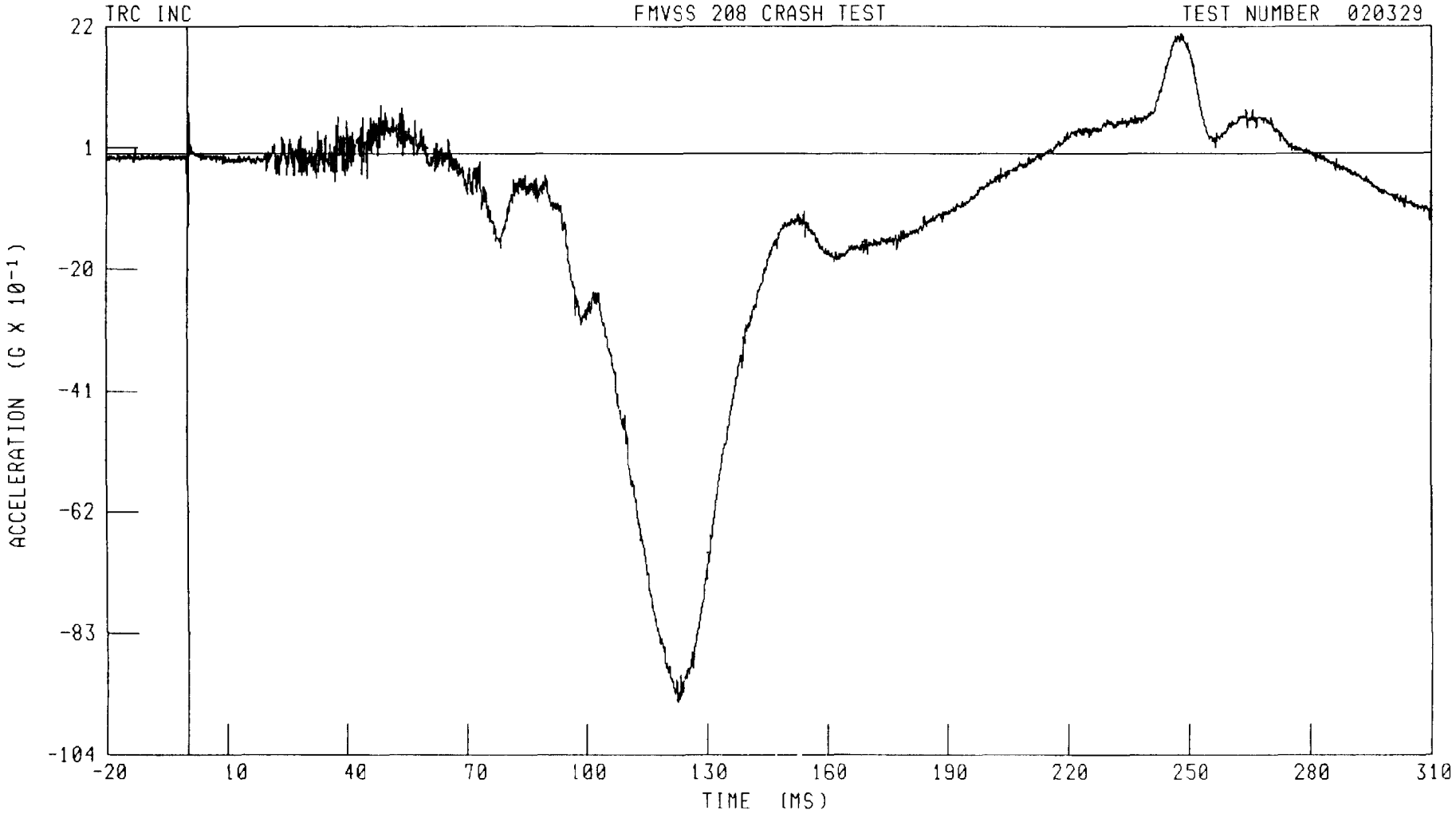
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION



CHANNEL HEDXG2 FILTER CH CLASS 1000 PEAK DATA 15 67 G @ 250 00 MS, -35 68 G @ 111 20 MS

020329

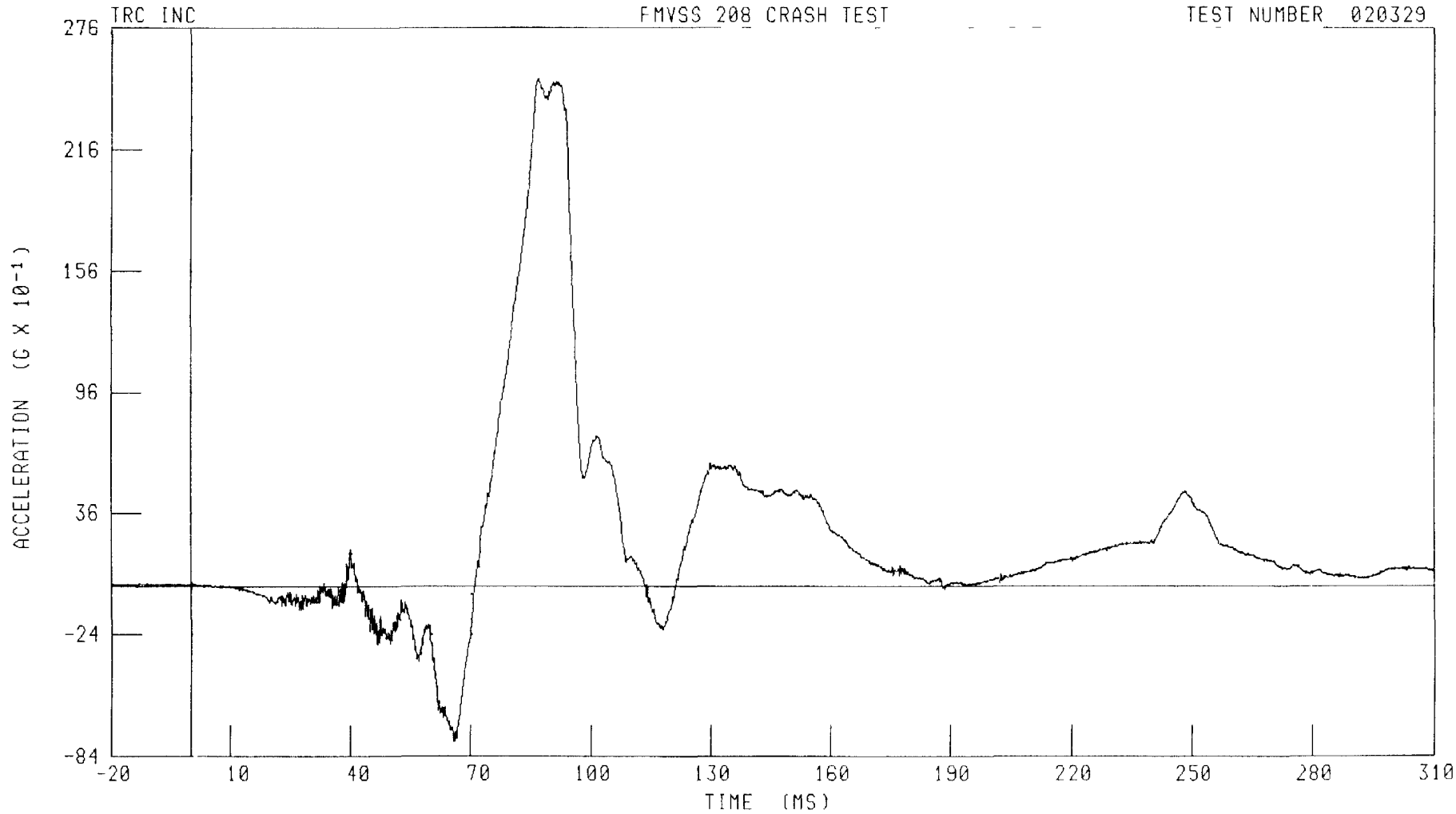
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION



CHANNEL HEDYC2 FILTER CH CLASS 1000 PEAK DATA 2 09 G @ 248 24 MS, -9 49 G @ 122 64 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

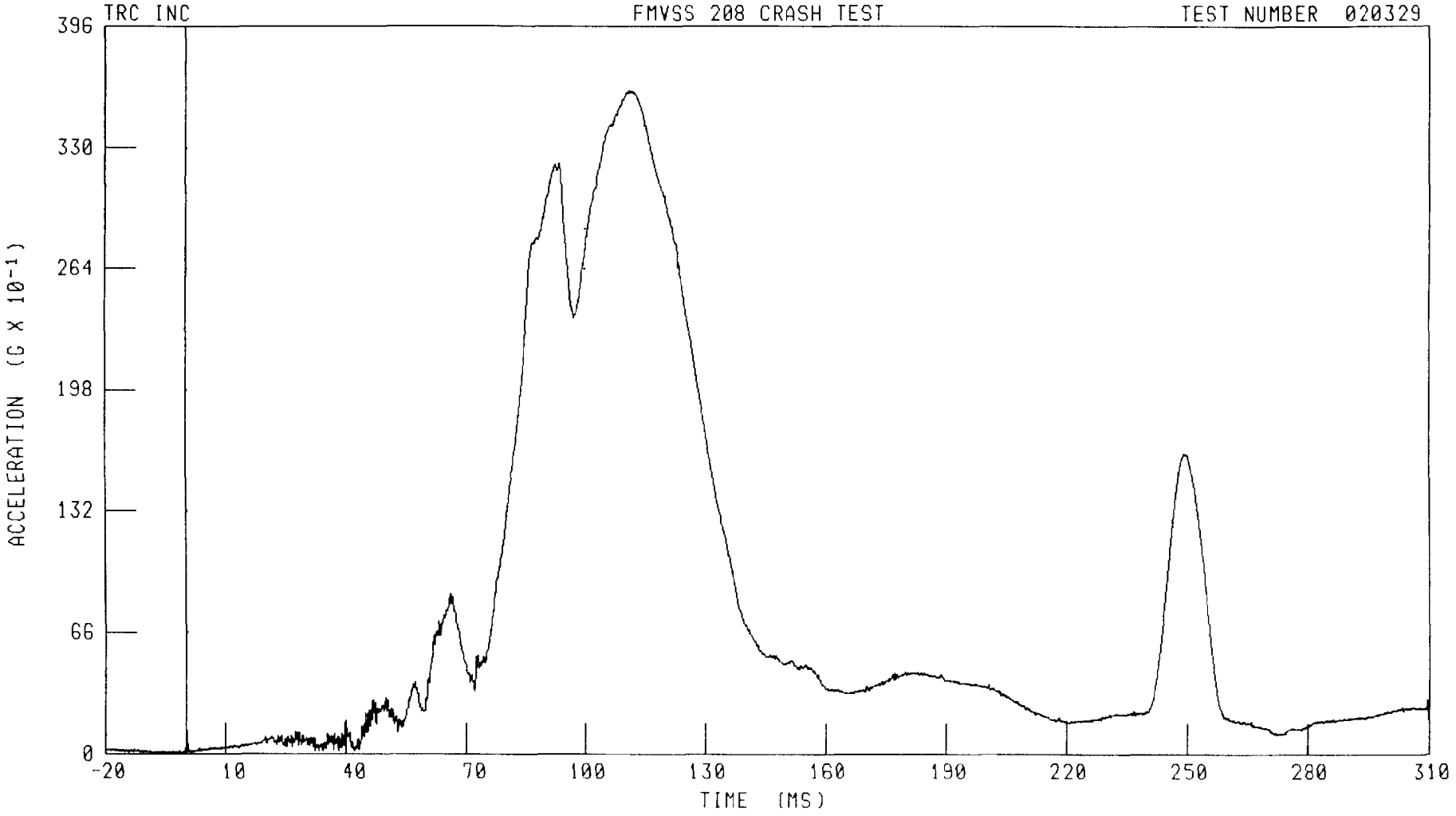


CHANNEL HEDZG2 FILTER CH CLASS 1000 PEAK DATA 25 13 G @ 86 80 MS -/ 70 G @ 66 00 MS

B-26

020329

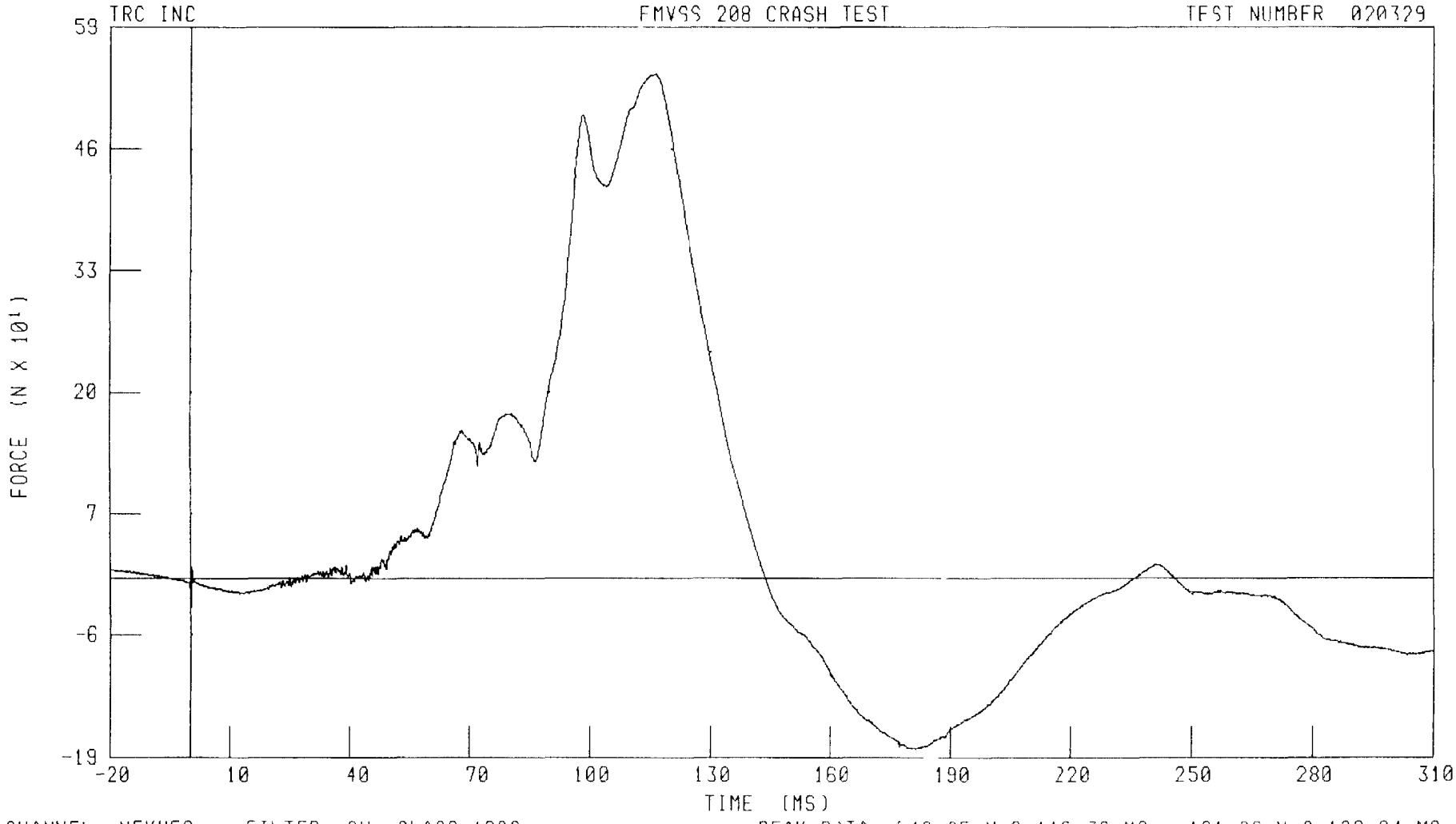
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION



CHANNEL HEDRC2 FILTER CH CLASS 1000 PEAK DATA 36 14 G @ 111 28 MS, 0 04 G @ -1 04 MS

020329

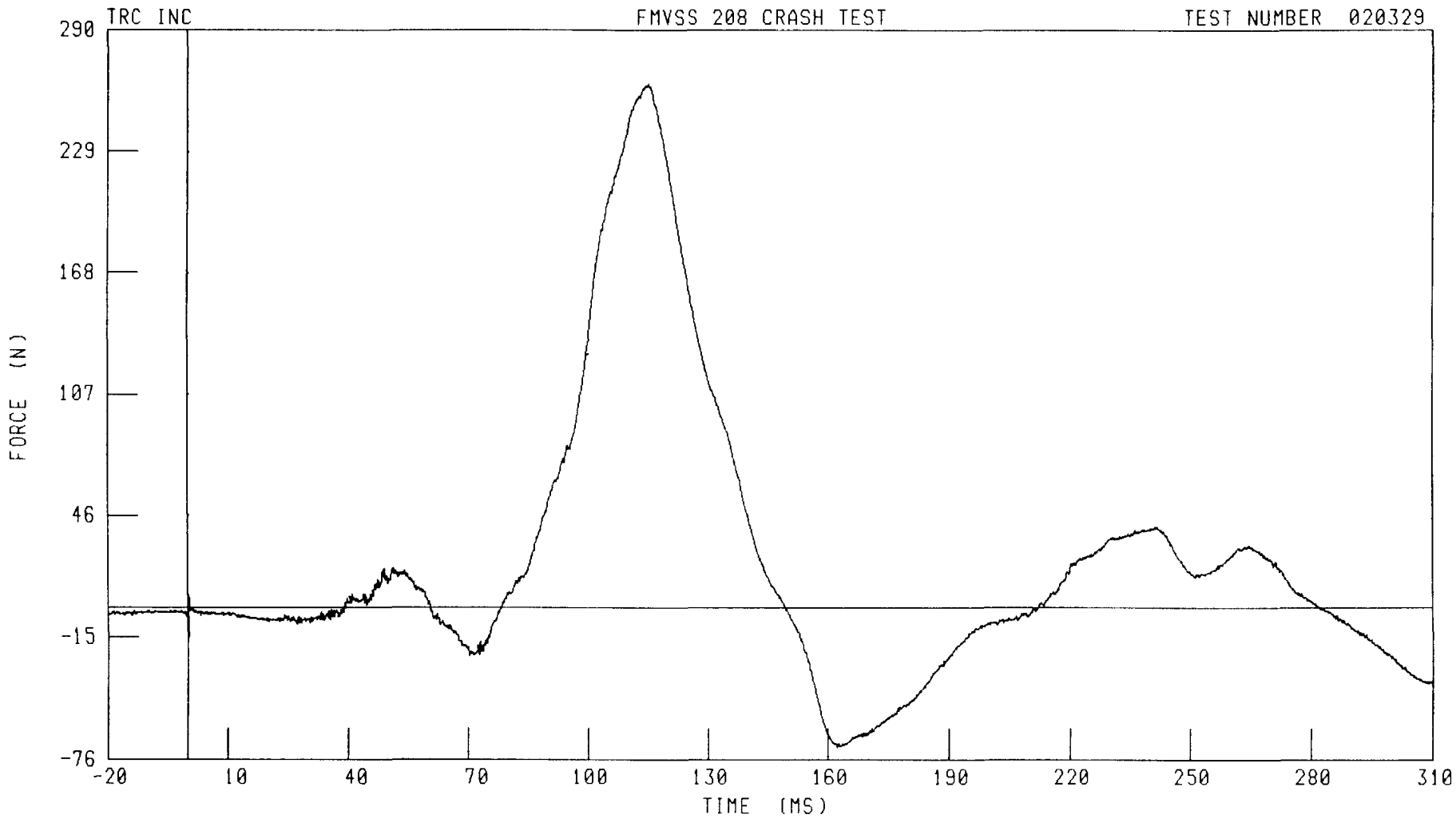
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE



CHANNEL NEKXF2 FILTER CH CLASS 1000 PEAK DATA 540 65 N @ 116 32 MS, -181 00 N @ 180 64 MS

020329

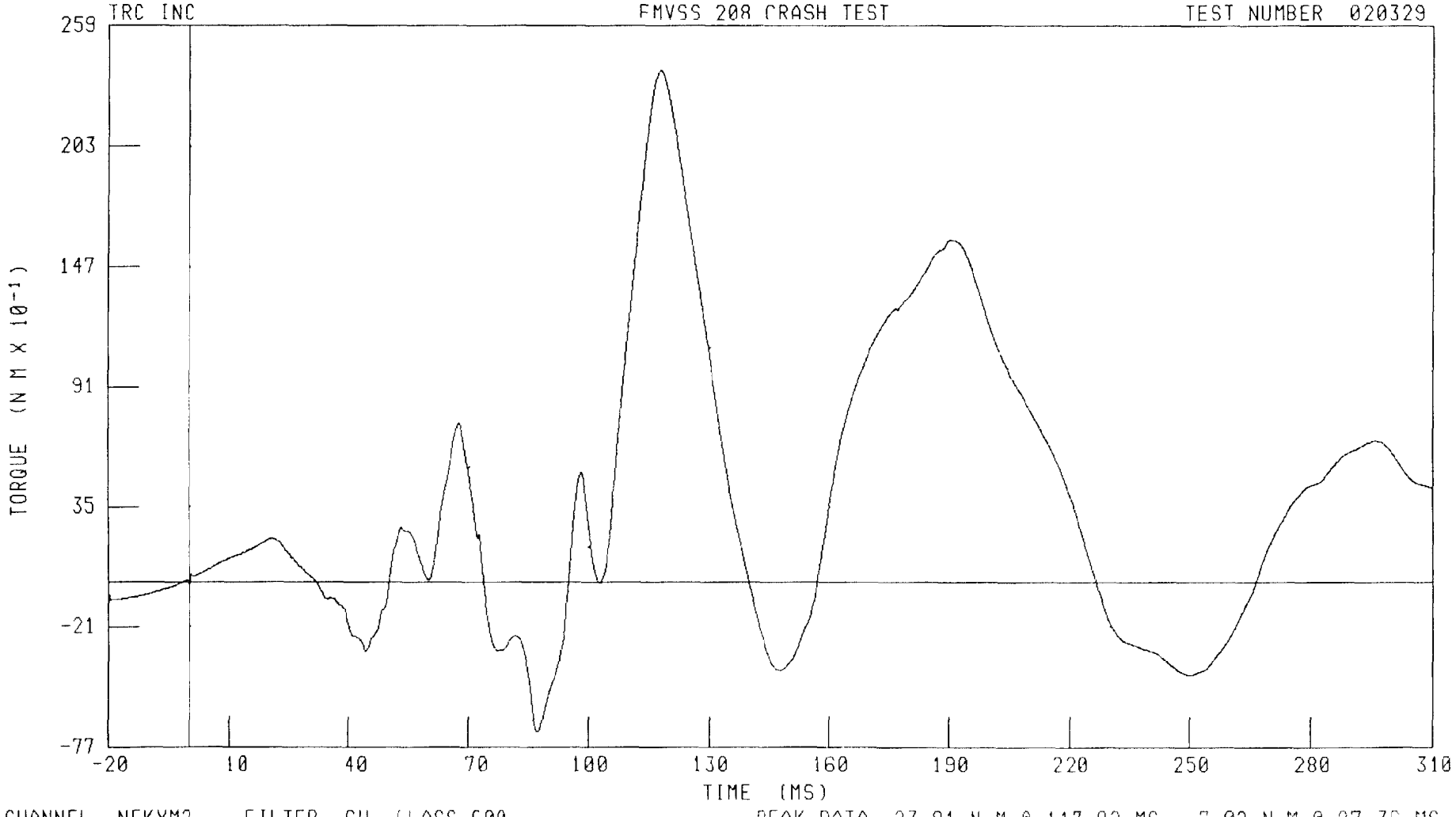
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE



CHANNEL NEKYF2 FILTER CH CLASS 1000 PEAK DATA 263 01 N @ 115 28 MS, -69 77 N @ 162 40 MS

020329

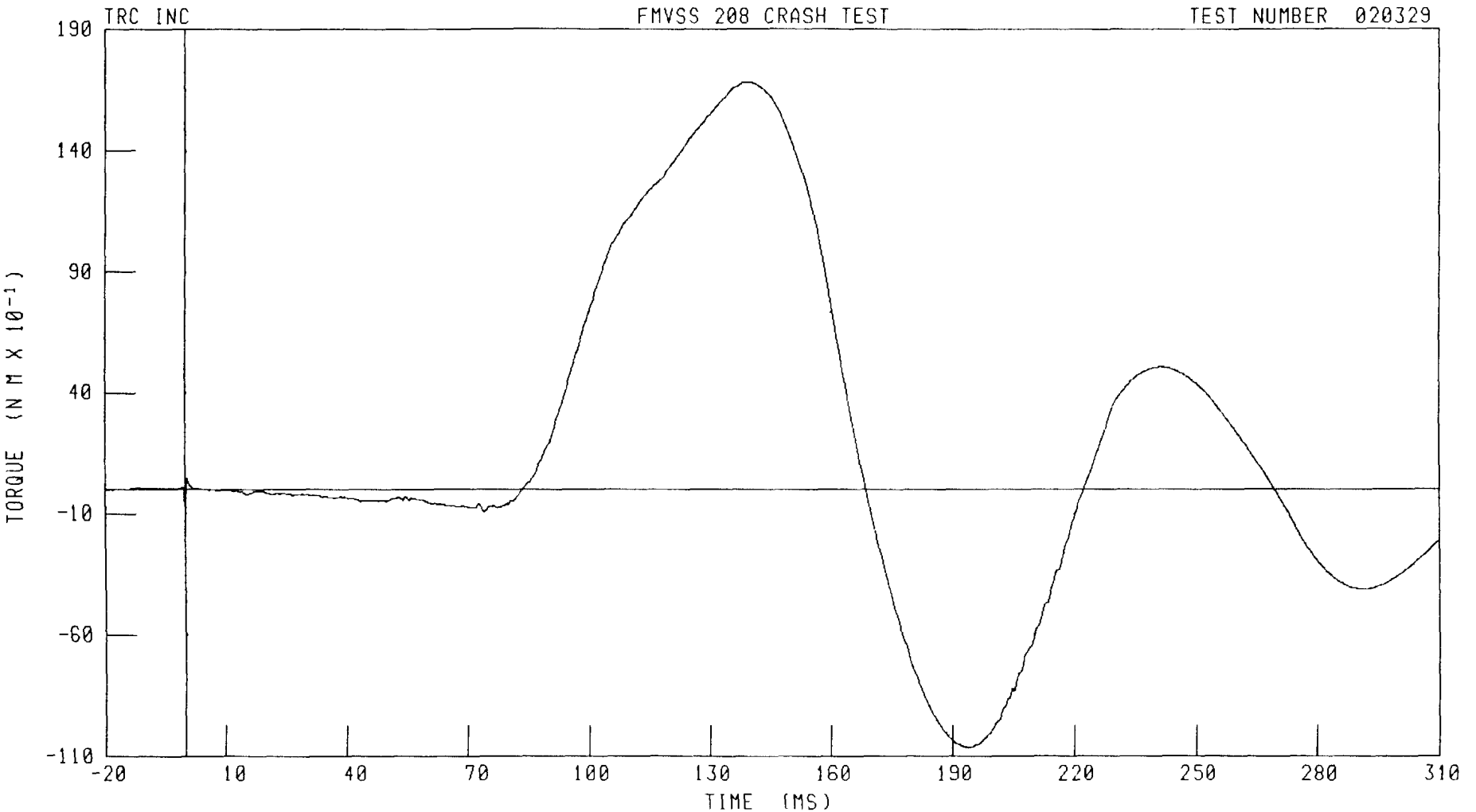
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS



CHANNEL NEKYM2 FILTER CH CLASS 600 PEAK DATA 23 81 N M @ 117 92 MS, -7 02 N M @ 87 36 MS

020329

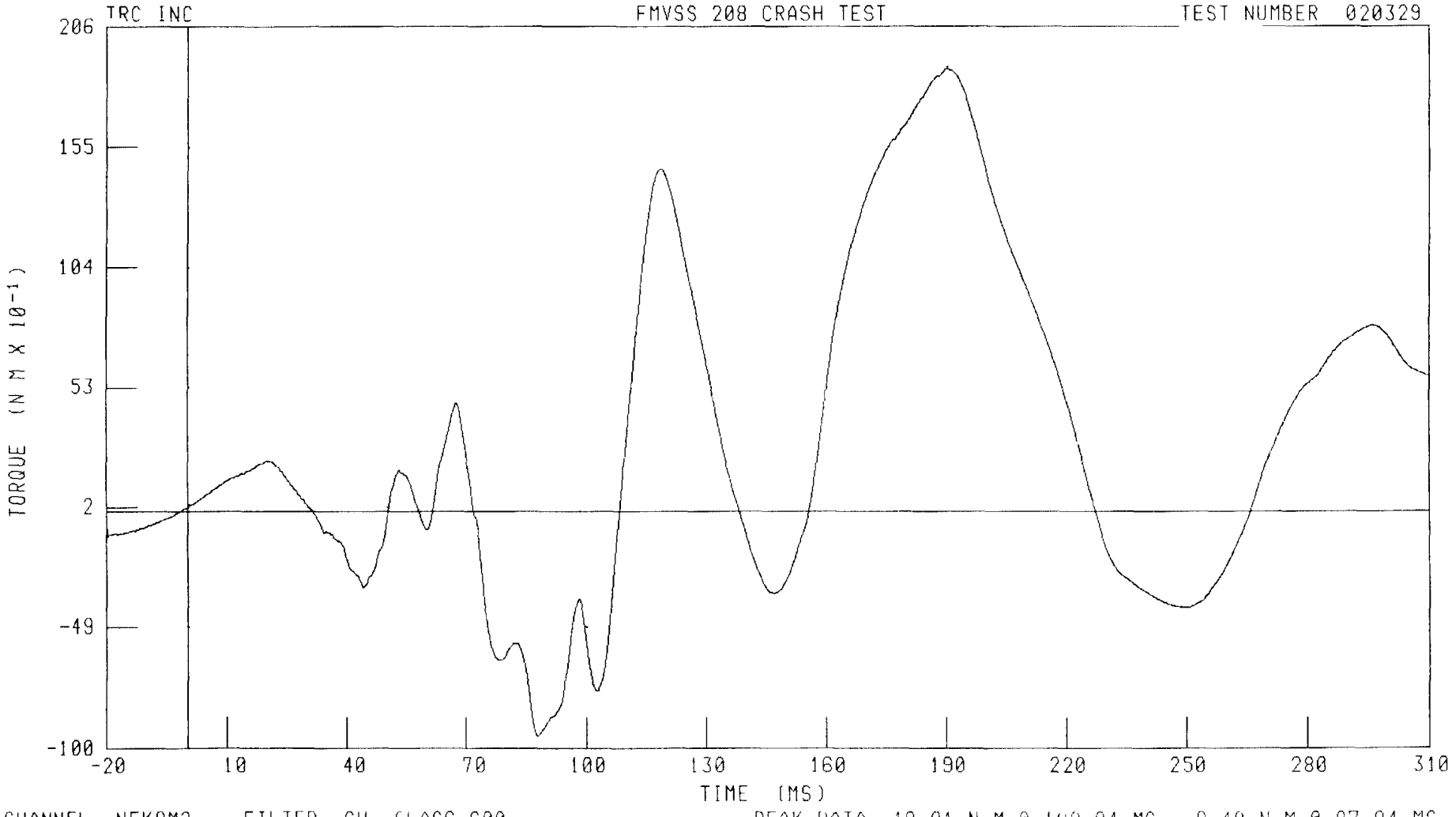
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS



CHANNEL NEKZM2 FILTER CH CLASS 600 PEAK DATA 16 82 N M @ 139 20 MS, -10 65 N M @ 194 08 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK MOMENT OCCIPITAL CONDYLE ABOUT Y AXIS

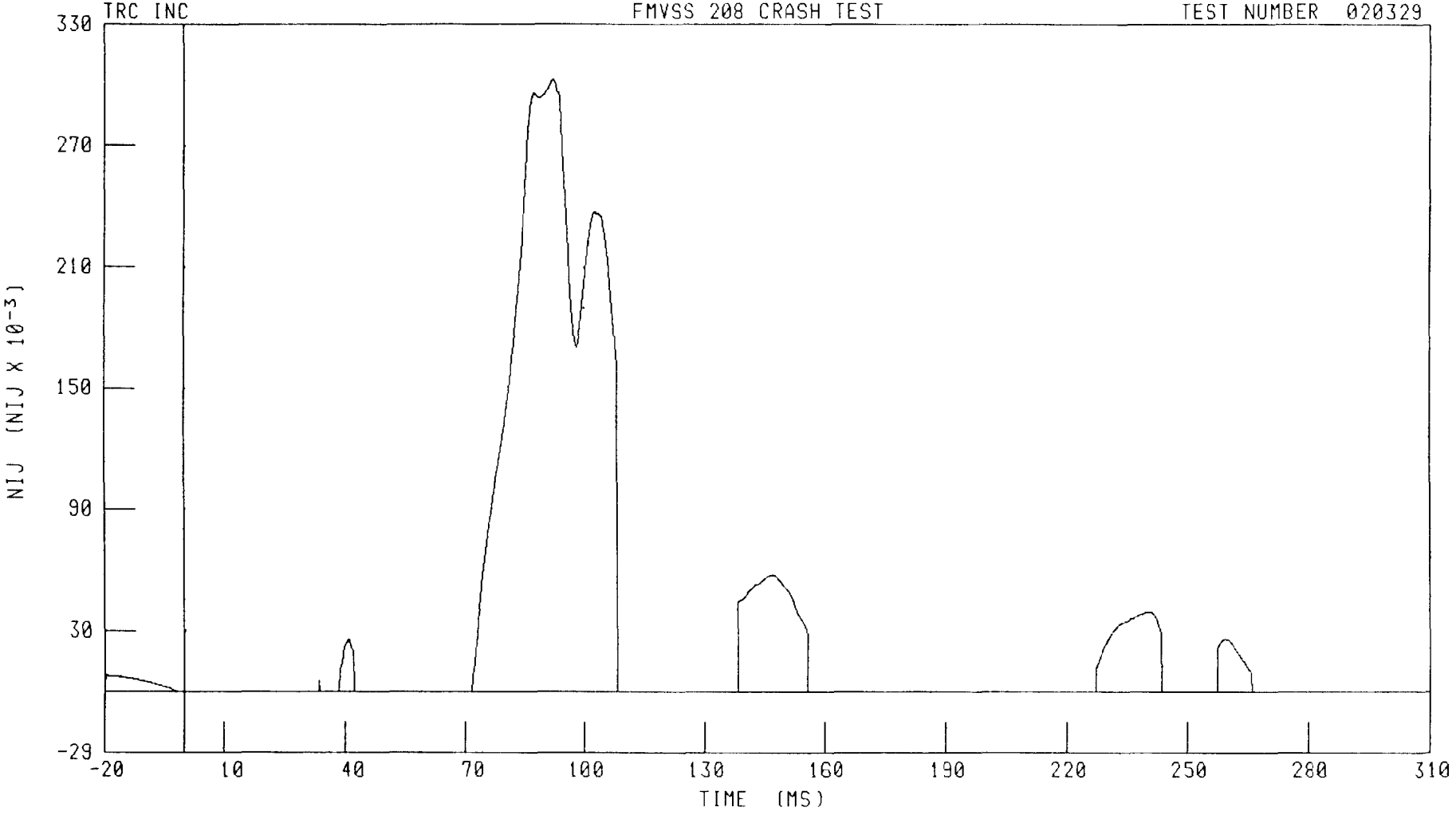


CHANNEL NEKOM2 FILTER CH CLASS 600 PEAK DATA 18 81 N M @ 189 84 MS, -9 48 N M @ 87 84 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NIJ TENSION/EXTENSION

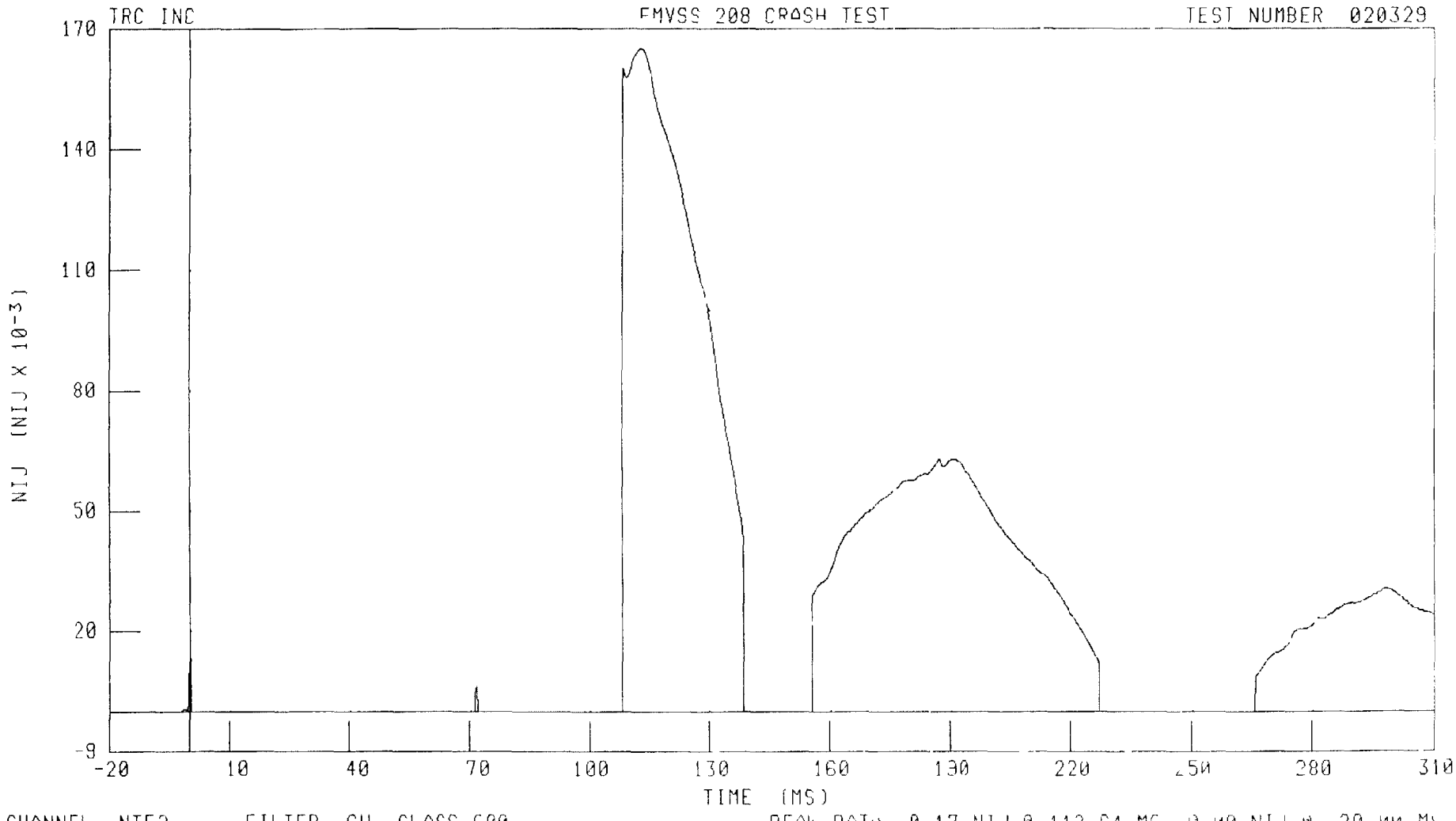
TRC INC FMVSS 208 CRASH TEST TEST NUMBER 020329



CHANNEL NTE2 FILTER CH CLASS 600 PEAK DATA 0 30 NIJ @ 92 32 MS, 0 00 NIJ @ -1 84 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NIJ TENSION/FLEXION

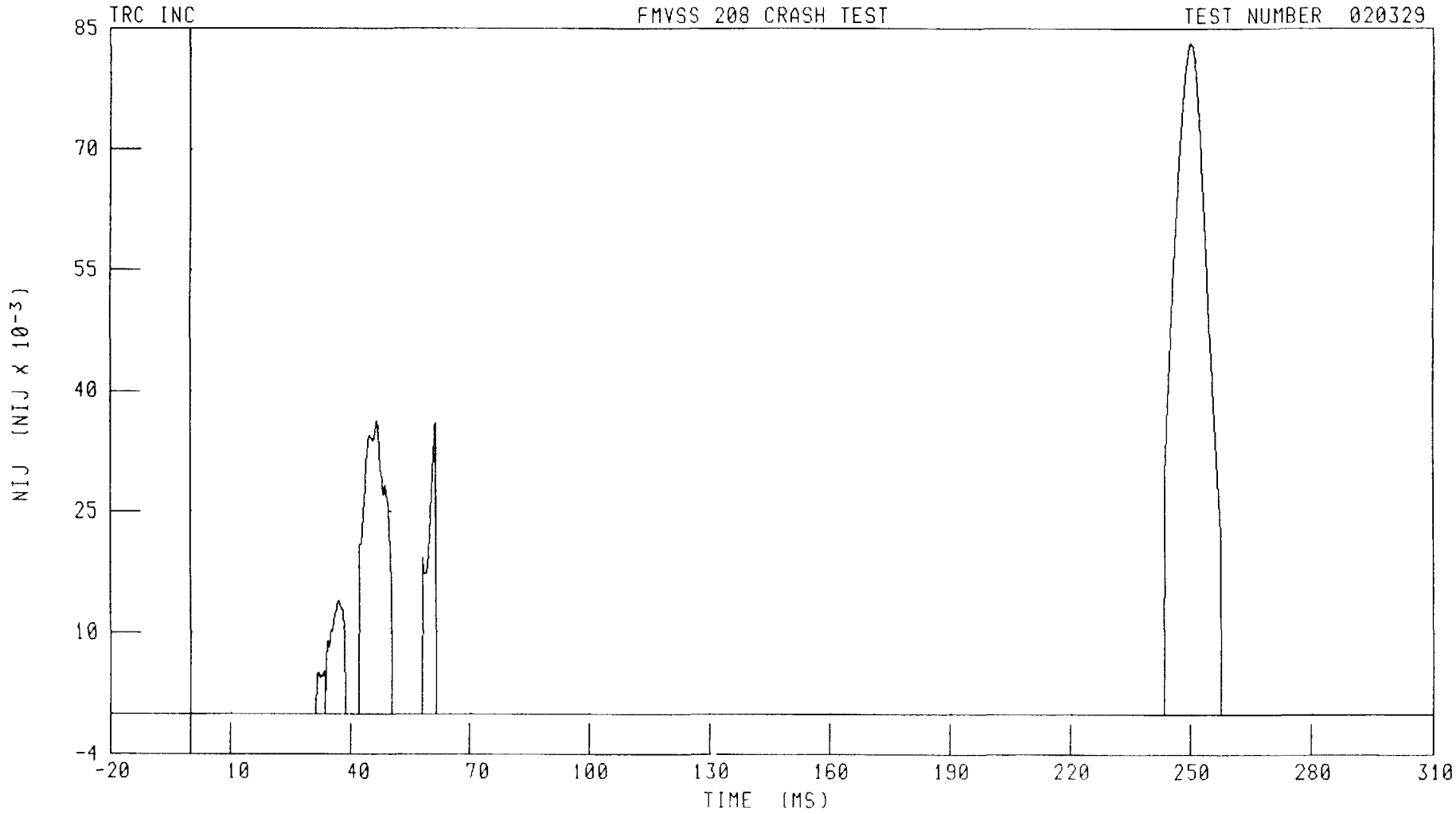


CHANNEL NTF2 FILTER CH CLASS 600 PEAK DATA 0.17 NIJ @ 112.84 MS, 0.00 NIJ @ -20.00 MS

8-36

020329

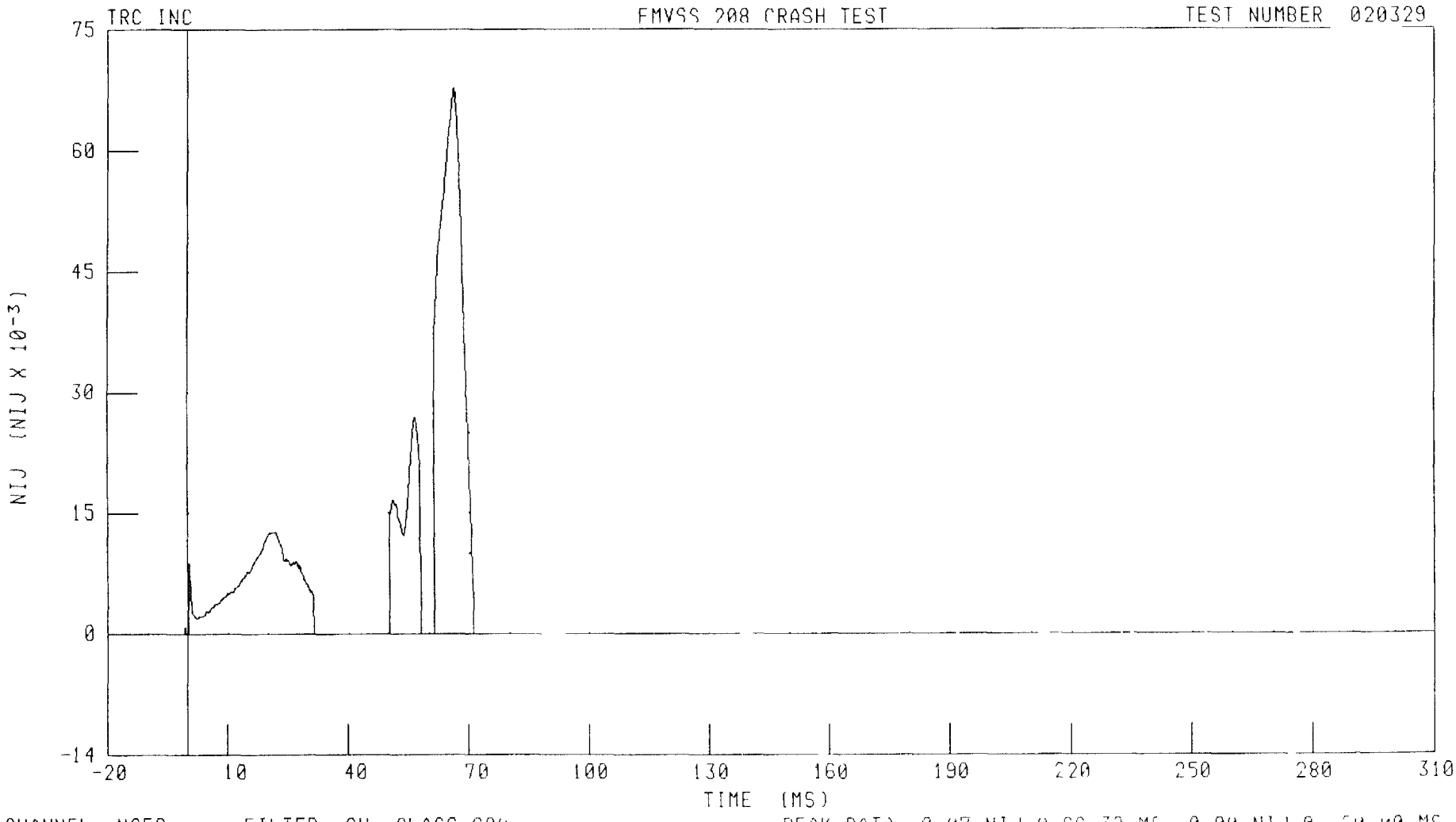
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NIJ COMPRESSION/EXTENSION



CHANNEL NCE2 FILTER CH CLASS 600 PEAK DATA 0 08 NIJ @ 250 32 MS, 0 00 NIJ @ -20 00 MS

020329

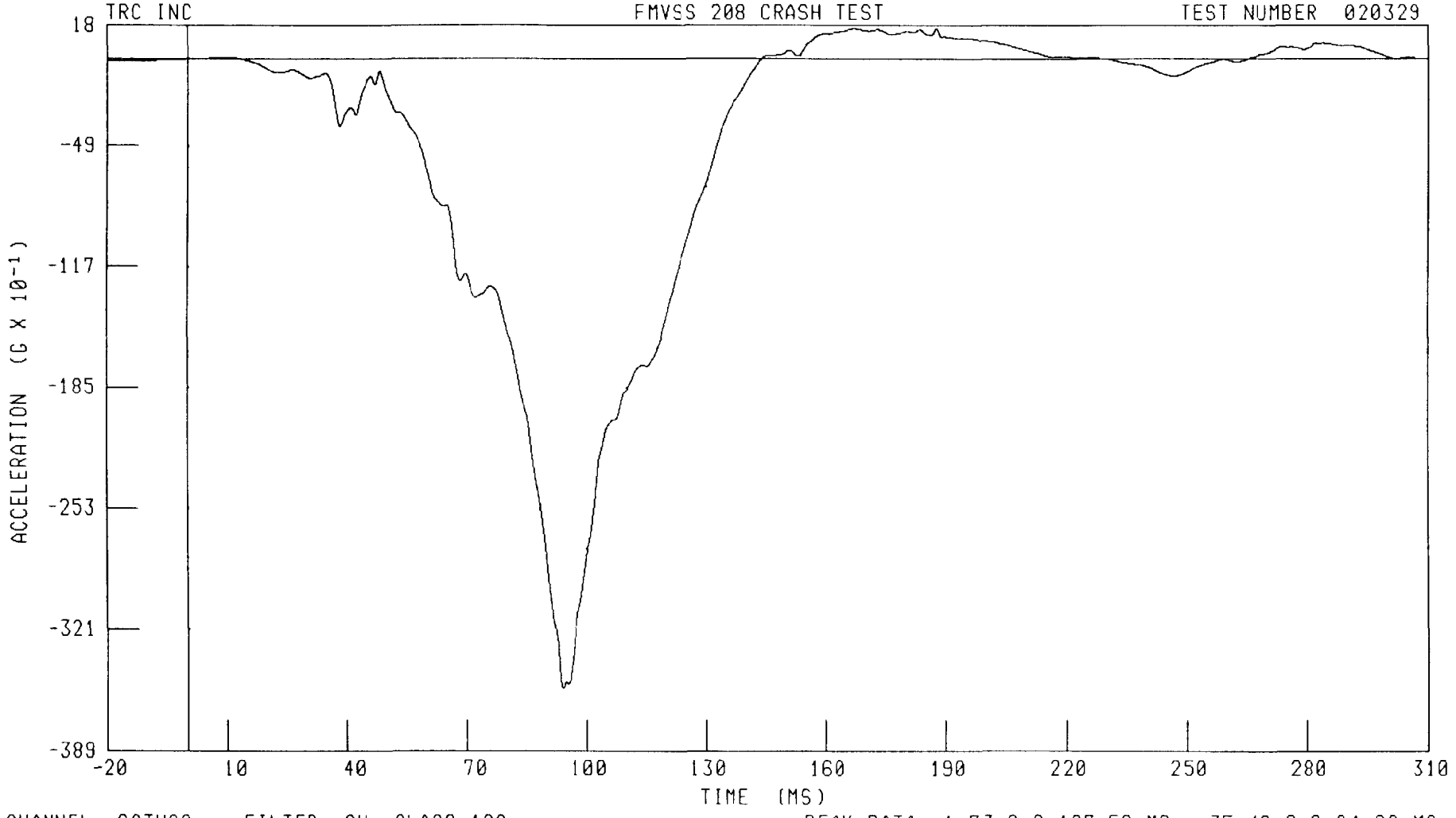
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NIJ COMPRESSION/FLEXION



CHANNEL NCF2 FILTER CH CLASS 600 PEAK DATA 0 07 NIJ @ 66 32 MS, 0 00 NIJ @ -20 00 MS

020329

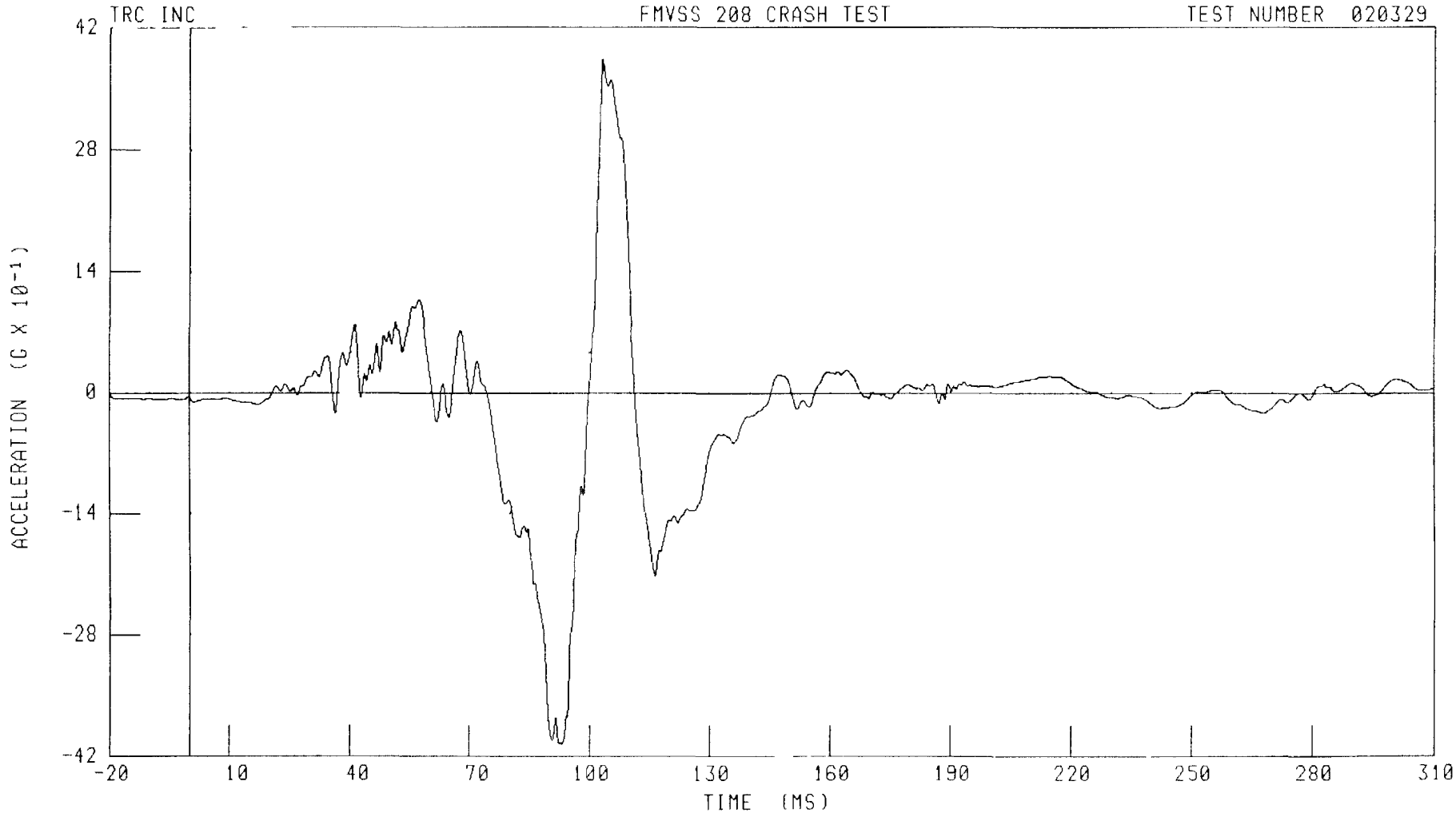
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION



CHANNEL CSTXG2 FILTER CH CLASS 180 PEAK DATA 1 73 G @ 167 52 MS, -35 40 G @ 94 08 MS

020329

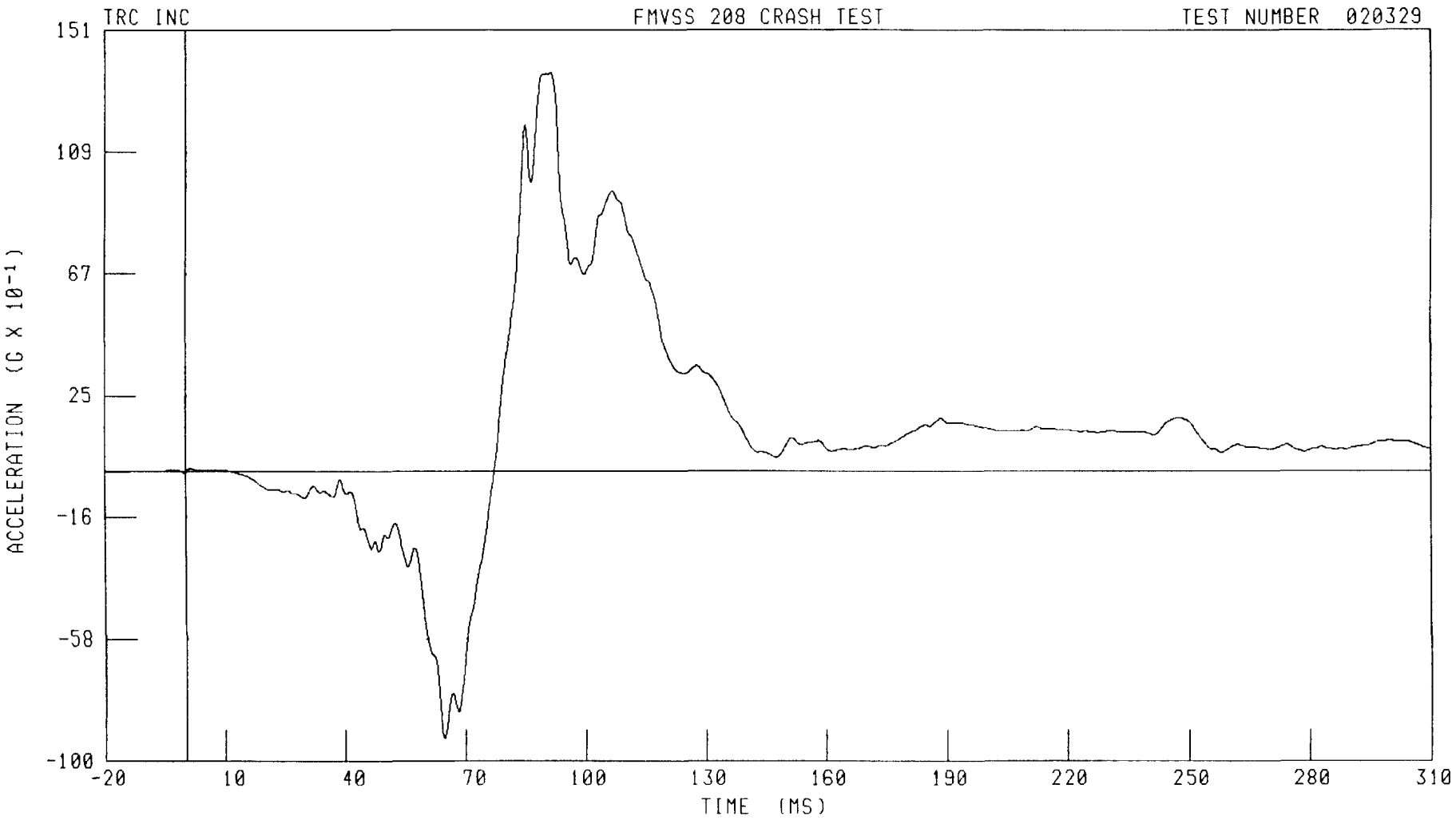
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION



CHANNEL CSTYG2 FILTER CH CLASS 180 PEAK DATA 3 84 G @ 103 36 MS, -4 06 G @ 93 12 MS

020329

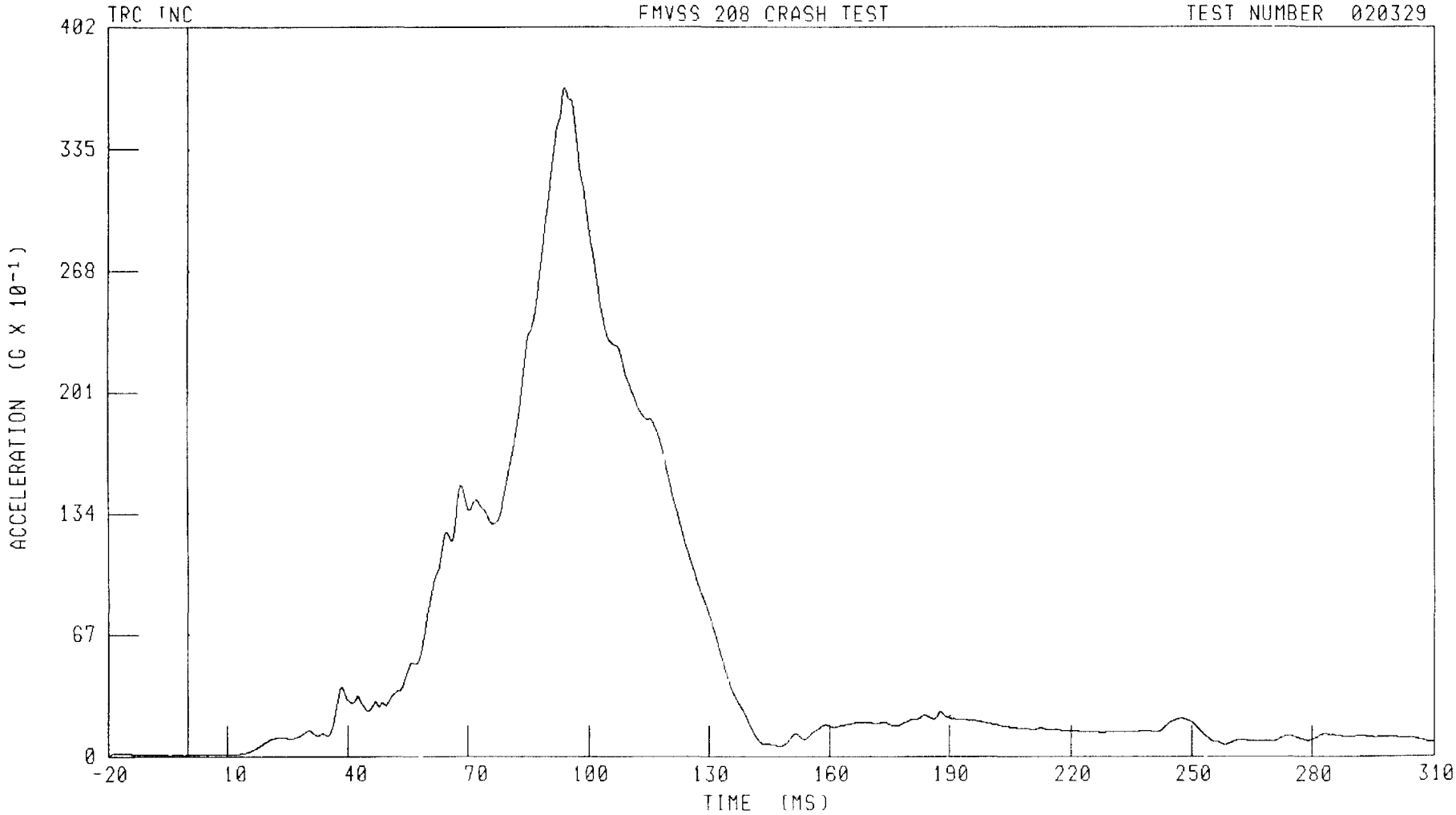
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION



CHANNEL CSTZG2 FILTER CH CLASS 180 PEAK DATA 13 75 G @ 91 52 MS, -9 22 G @ 64 56 MS

020329

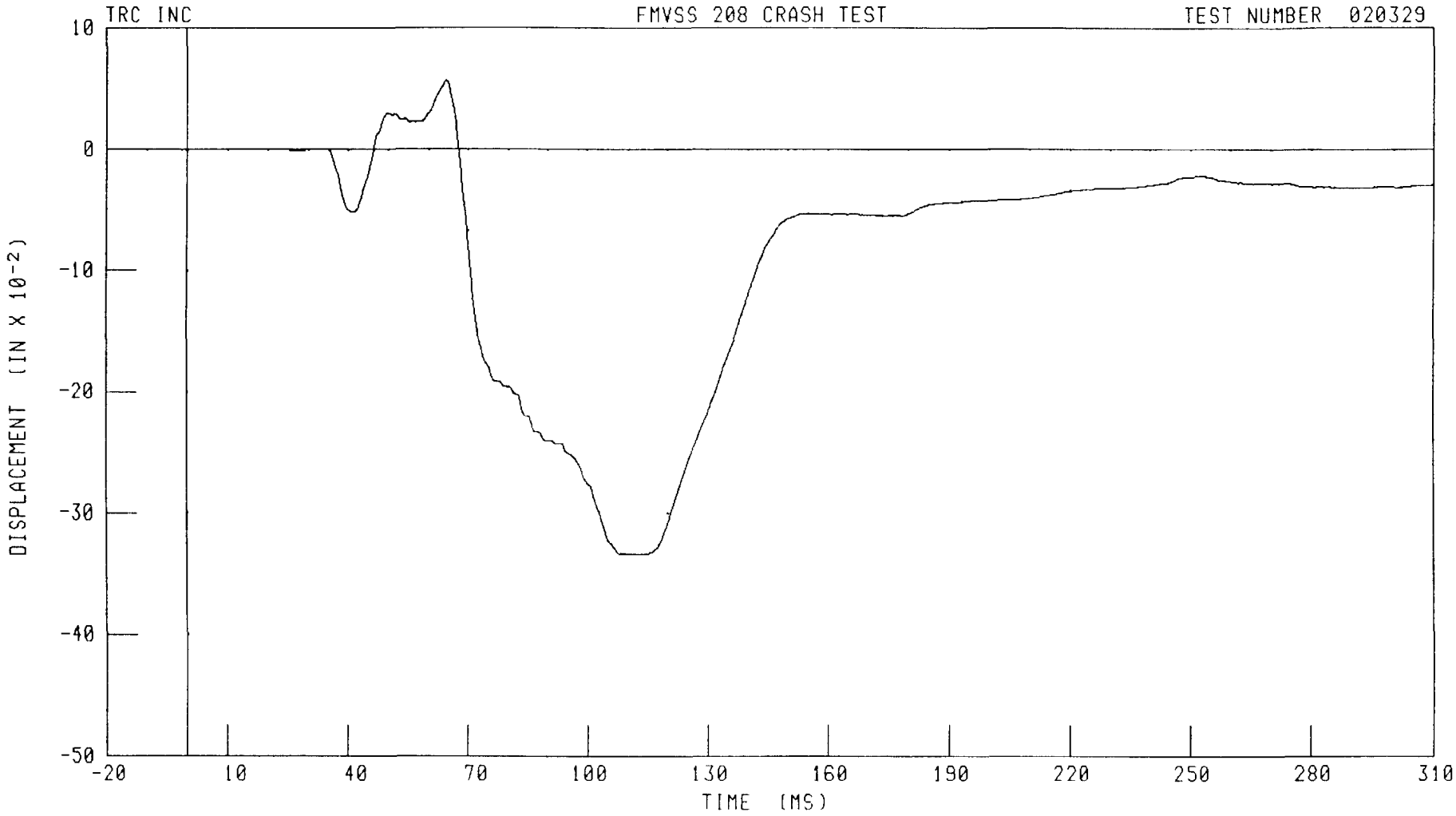
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION



CHANNEL CSTRG2 FILTER CH CLASS 180 PEAK DATA 36 85 G @ 93 84 MS, 0 01 G @ -20 00 MS

020329

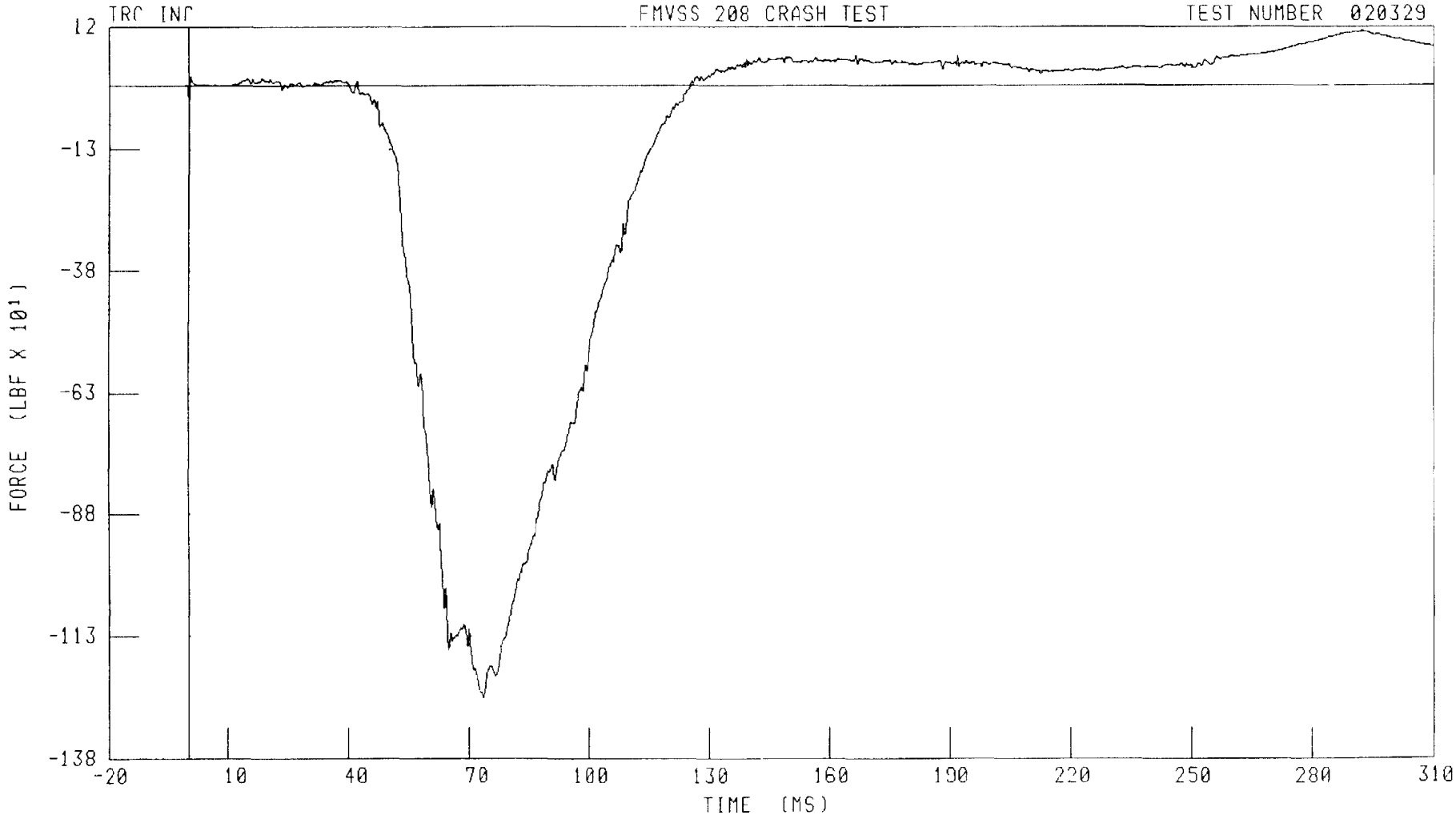
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST DEFLECTION



CHANNEL CSTXD2 FILTER CH CLASS 600 PEAK DATA 0 06 IN @ 64 64 MS, -0 33 IN @ 110 40 MS

020329

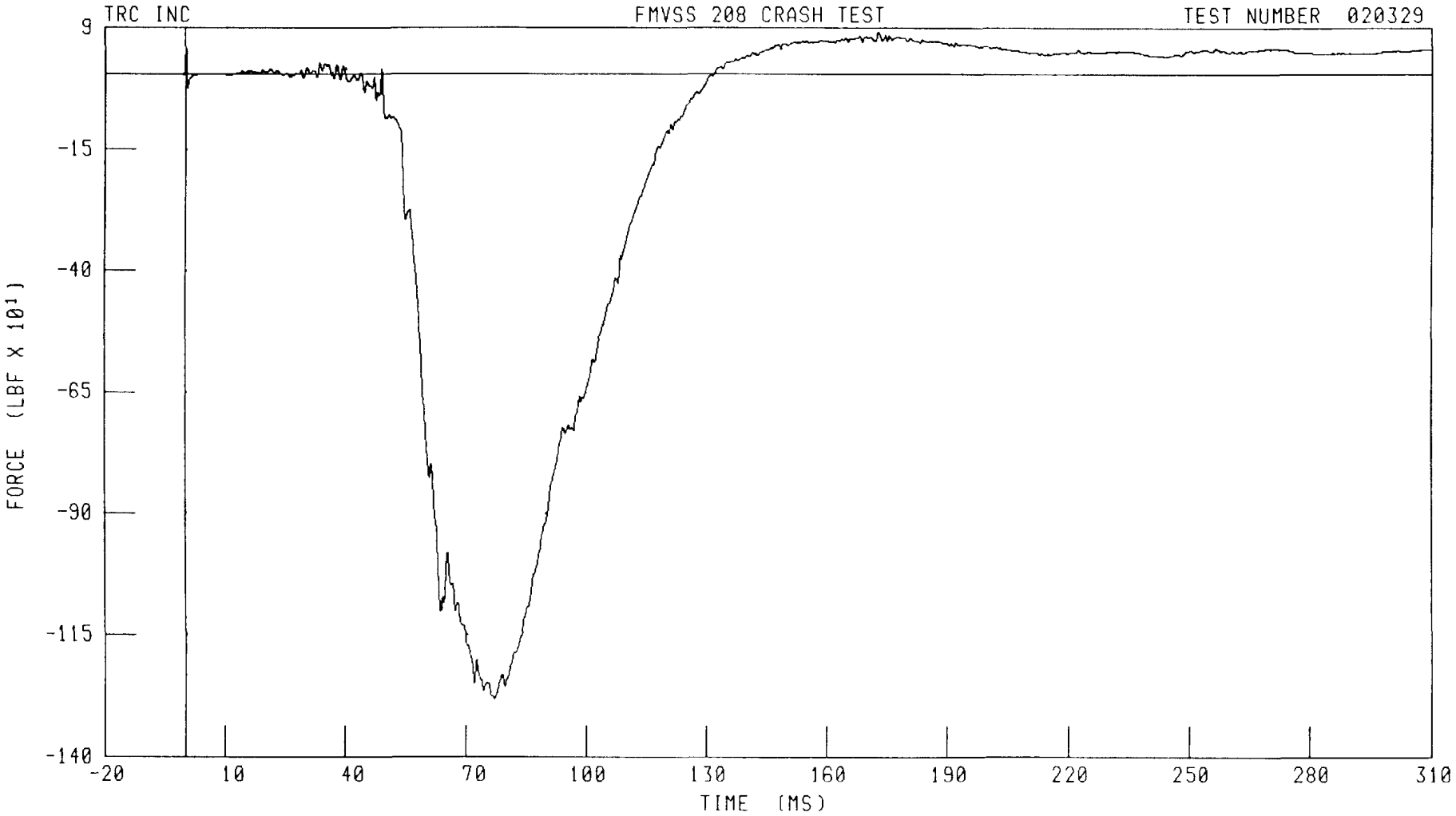
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER LEFT FEMUR FORCE



CHANNEL LFMZF2 FILTER CH CLASS 600
PEAK DATA 111.25 LBF @ 292.40 MS, -1256.32 LBF @ 73.52 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE

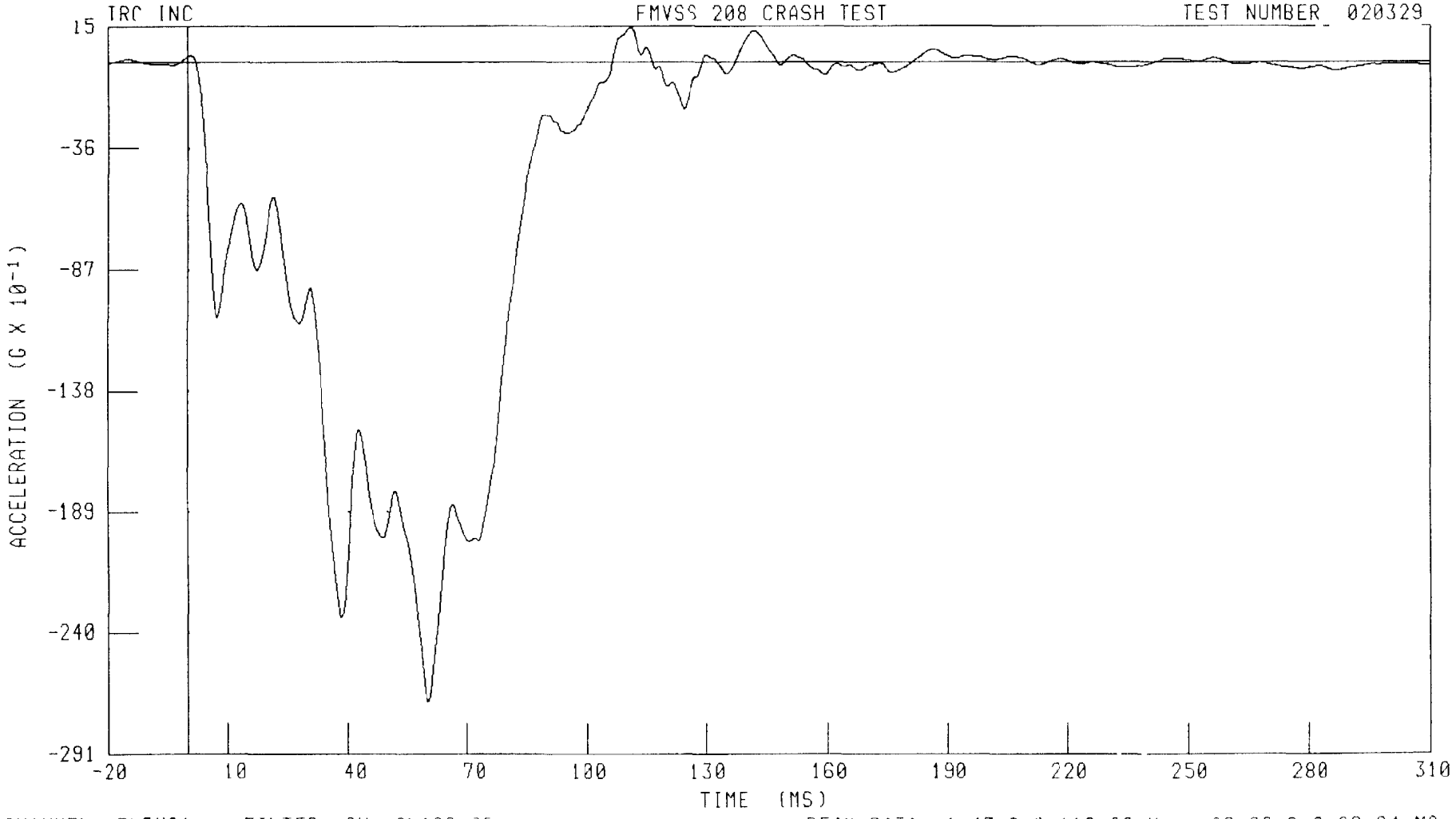


CHANNEL RFMZF2 FILTER CH CLASS 600

PEAK DATA 86 68 LBF @ 173 28 MS, -1287 09 LBF @ 77 04 MS

020329

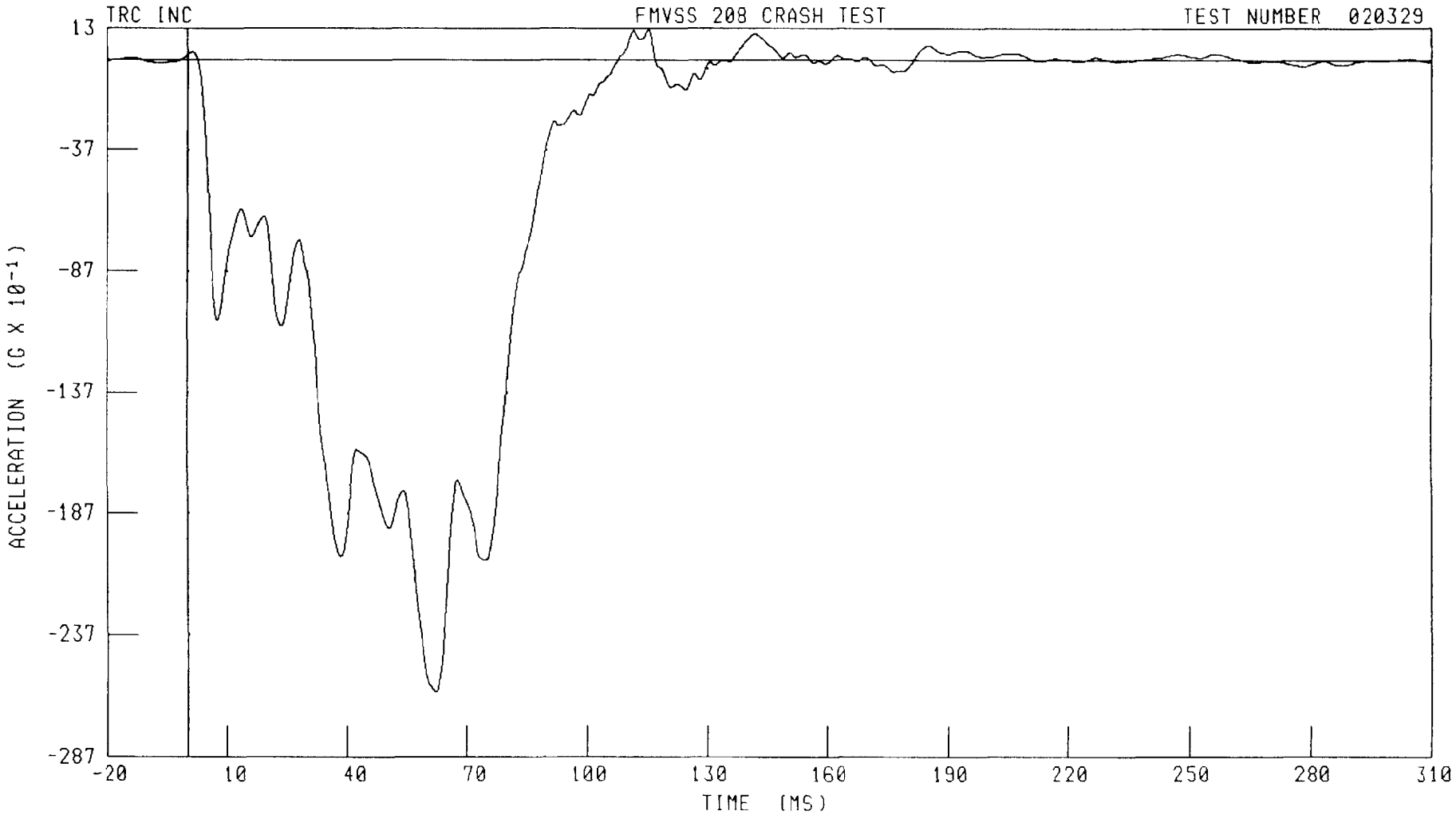
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
LEFT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION



CHANNEL TLRXG1 FILTER CH CLASS 60 PEAK DATA 1 45 G @ 110 96 MS, -26 89 G @ 60 24 MS

020329

C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

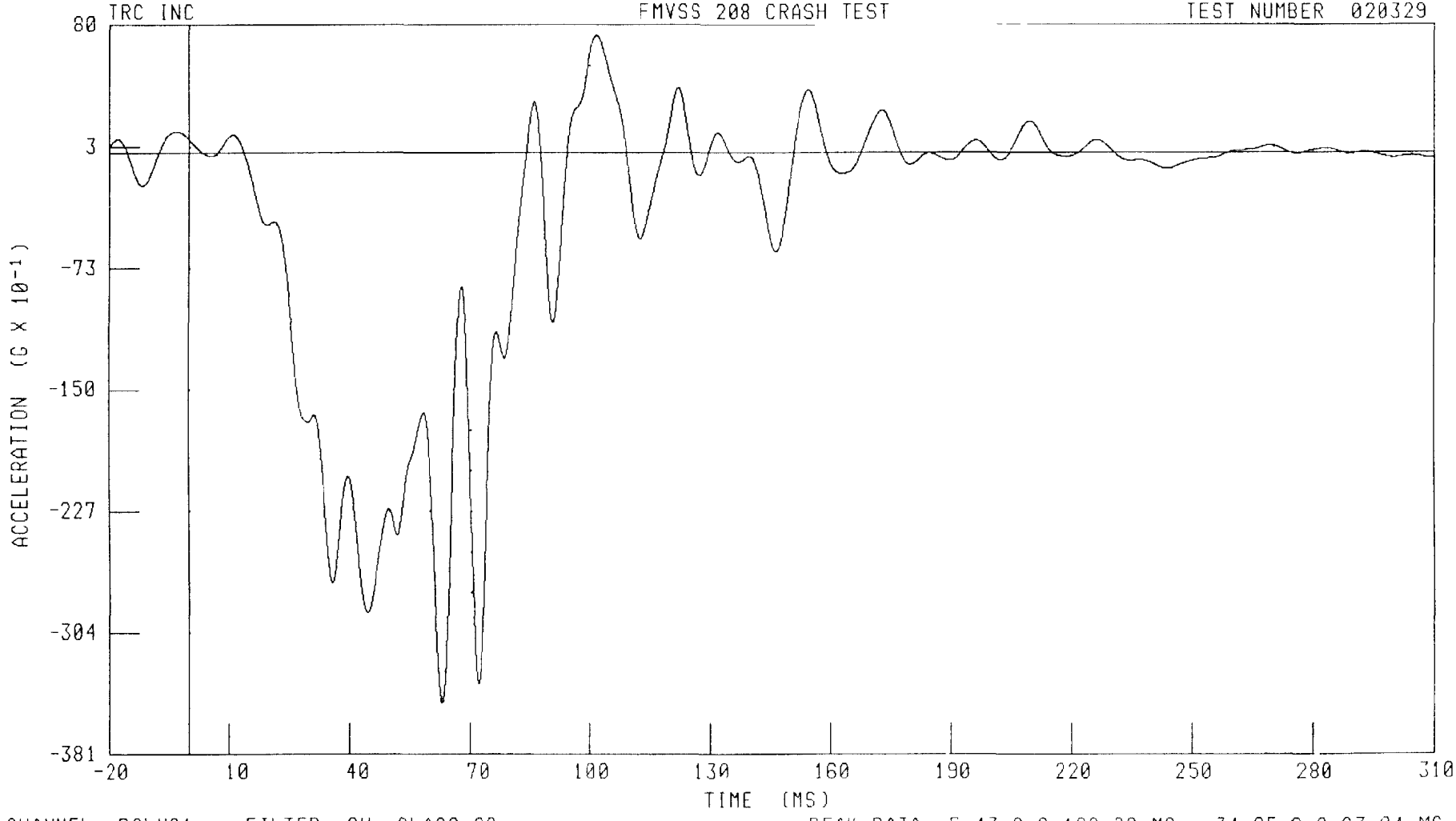


CHANNEL TRRXG1 FILTER CH CLASS 60

PEAK DATA 1 25 G @ 115 52 MS, -26 06 G @ 62 24 MS

020329

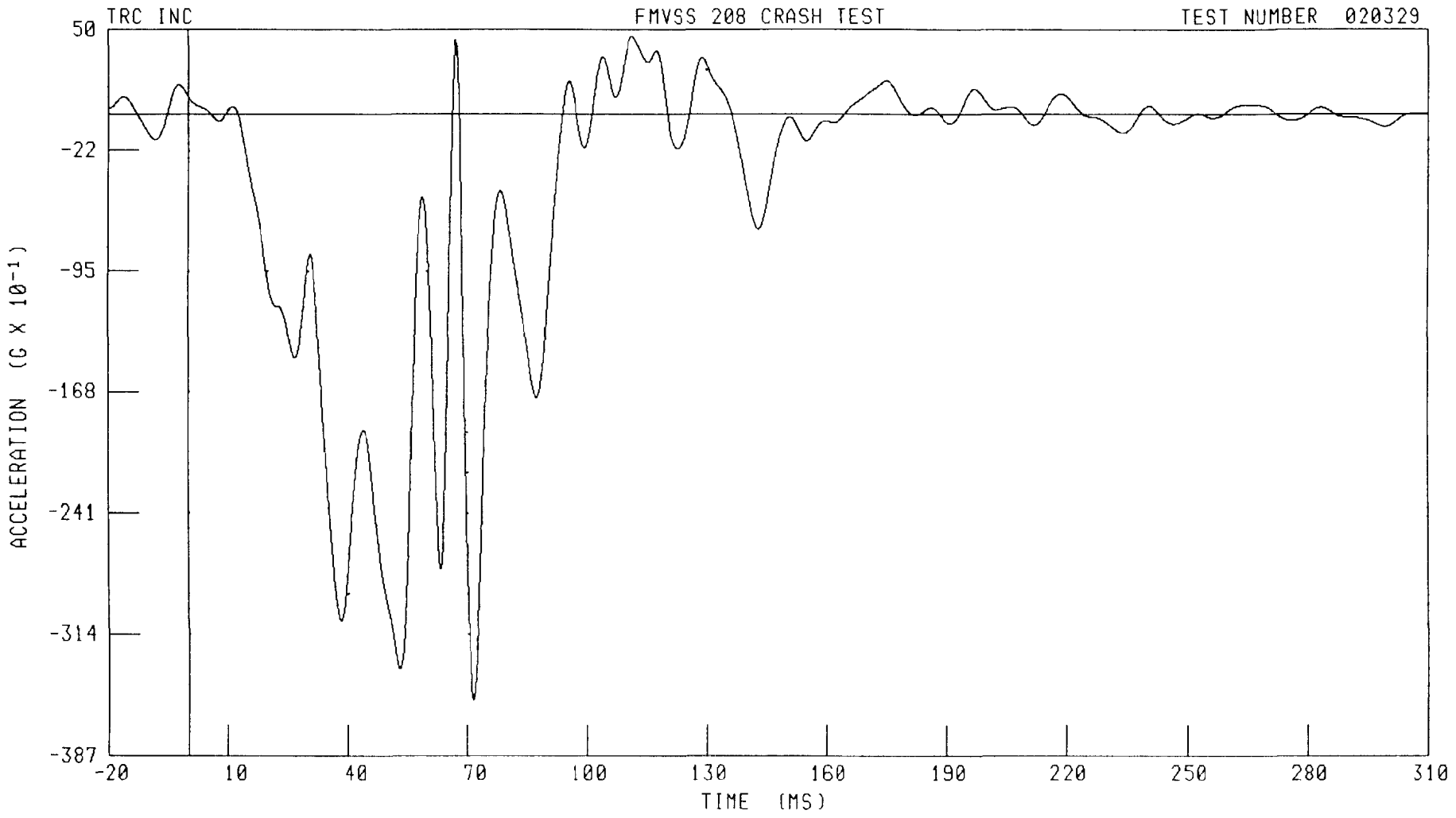
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
LEFT FRONT BRAKE CALIPER X-AXIS ACCELERATION



CHANNEL BCLXG1 FILTER CH CLASS 60 PEAK DATA 7 43 G @ 102 00 MS, -34 85 G @ 63 04 MS

020329

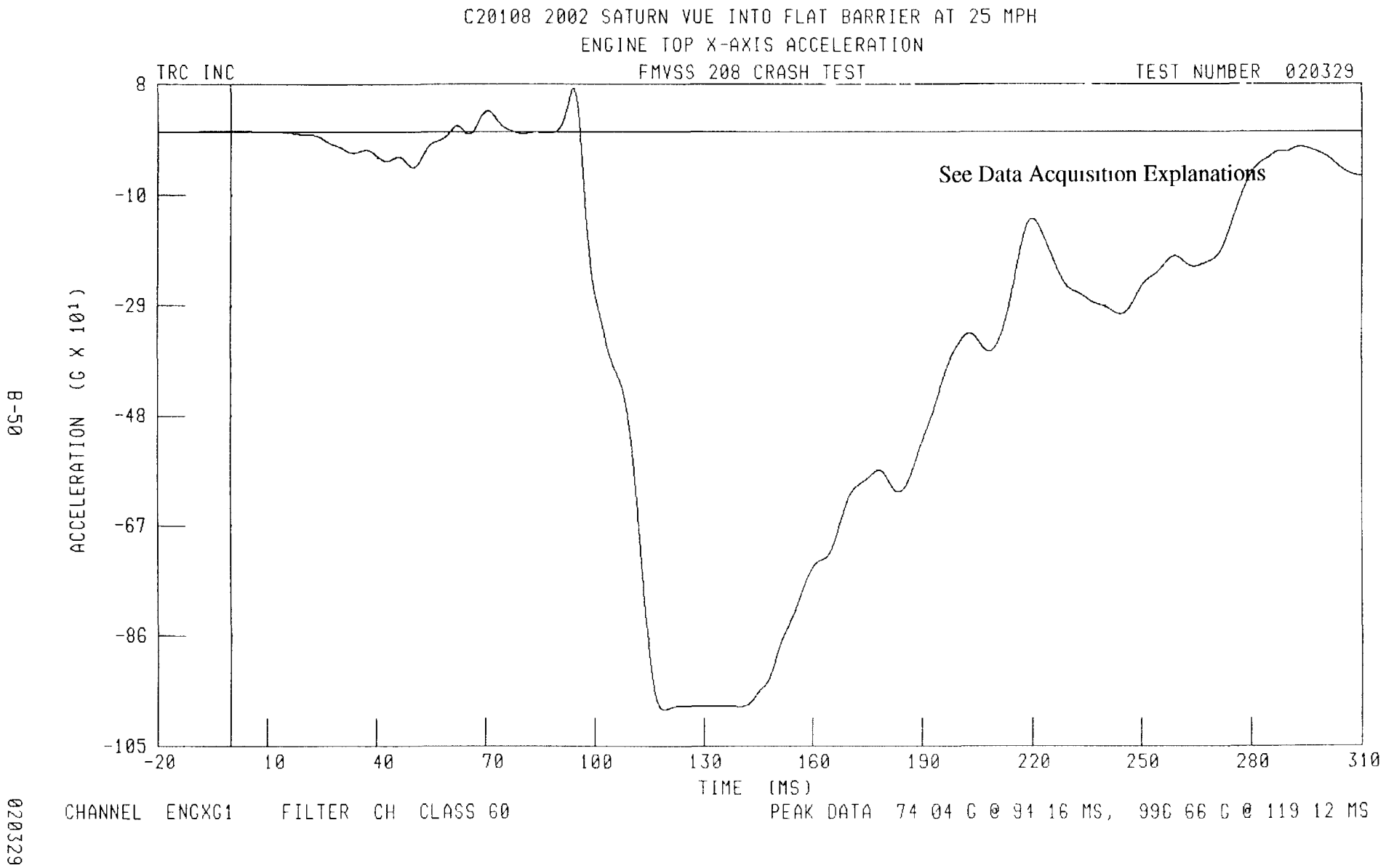
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
RIGHT FRONT BRAKE CALIPER X-AXIS ACCELERATION



CHANNEL BCRXG1 FILTER CH CLASS 60

PEAK DATA 4 70 G @ 111 52 MS, -35 35 G @ 71 68 MS

020329


C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
ENGINE TOP X-AXIS ACCELERATION
TRC INC
FMVSS 208 CRASH TEST
TEST NUMBER 020329
See Data Acquisition Explanations
ACCELERATION (G X 10¹)
8
-10
-29
-48
-67
-86
-105
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL ENGXG1 FILTER CH CLASS 60
PEAK DATA 74 04 G @ 91 16 MS, 990 66 G @ 119 12 MS

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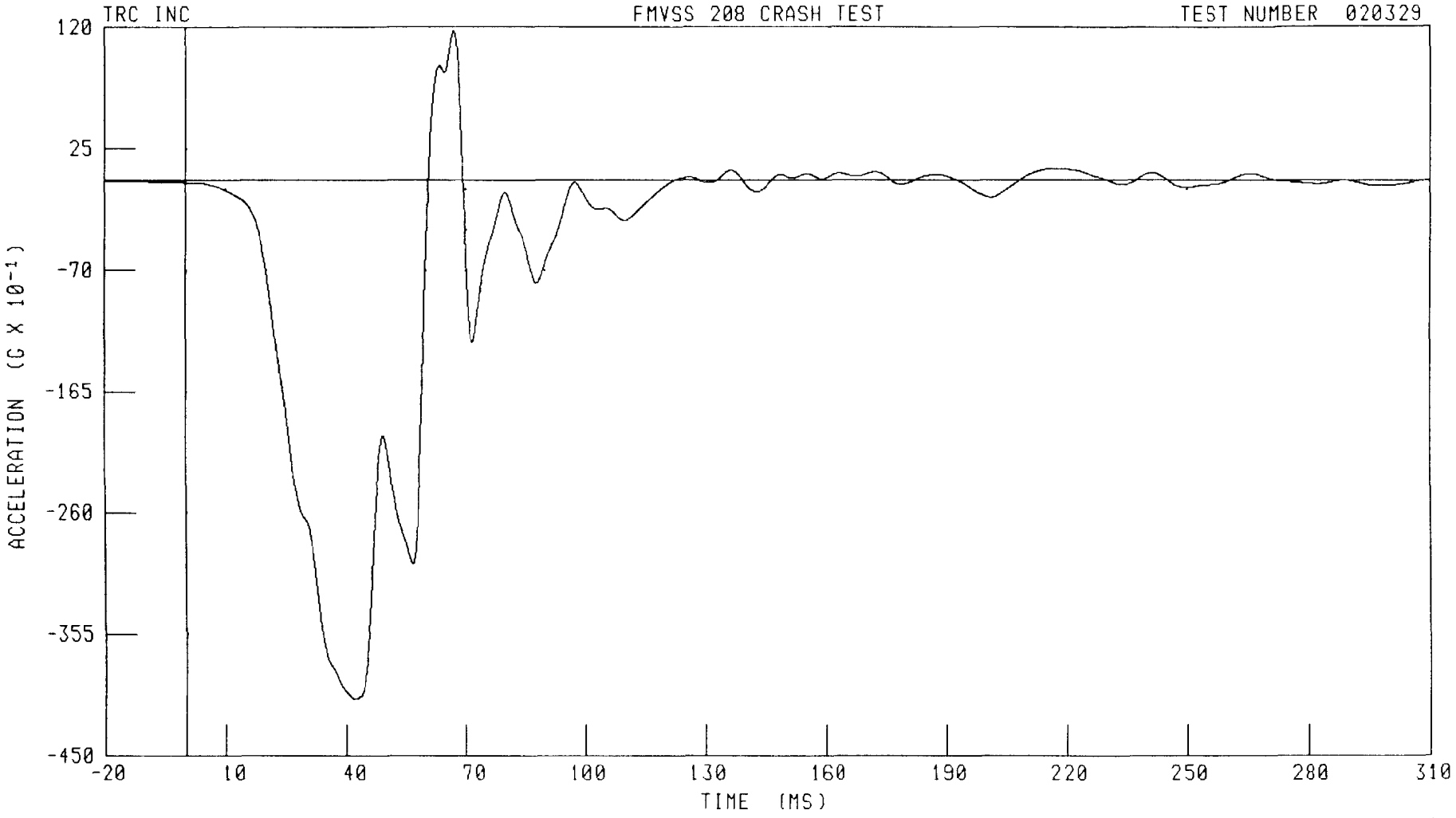
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
ENGINE BOTTOM X-AXIS ACCELERATION



CHANNEL ENCXG2 FILTER CH CLASS 60 PEAK DATA 11 69 G @ 67 28 MS, -40 61 G @ 42 00 MS

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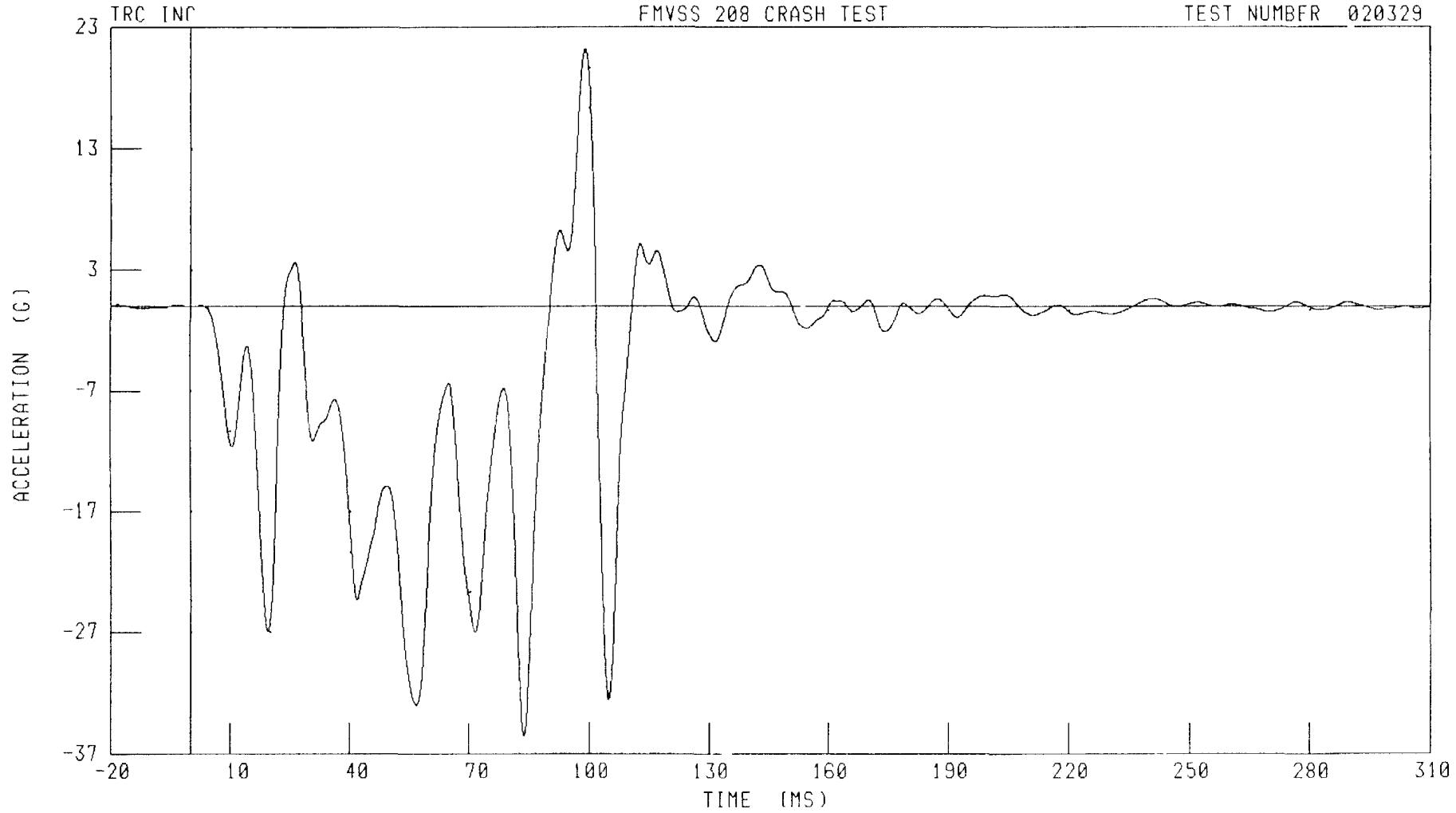
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
INSTRUMENT PANEL CENTERLINE X-AXIS ACCELERATION



CHANNEL DPCXG1 FILTER CH CLASS 60 PEAK DATA 21 23 G @ 99 12 MS, -35 54 G @ 83 76 MS

B-52

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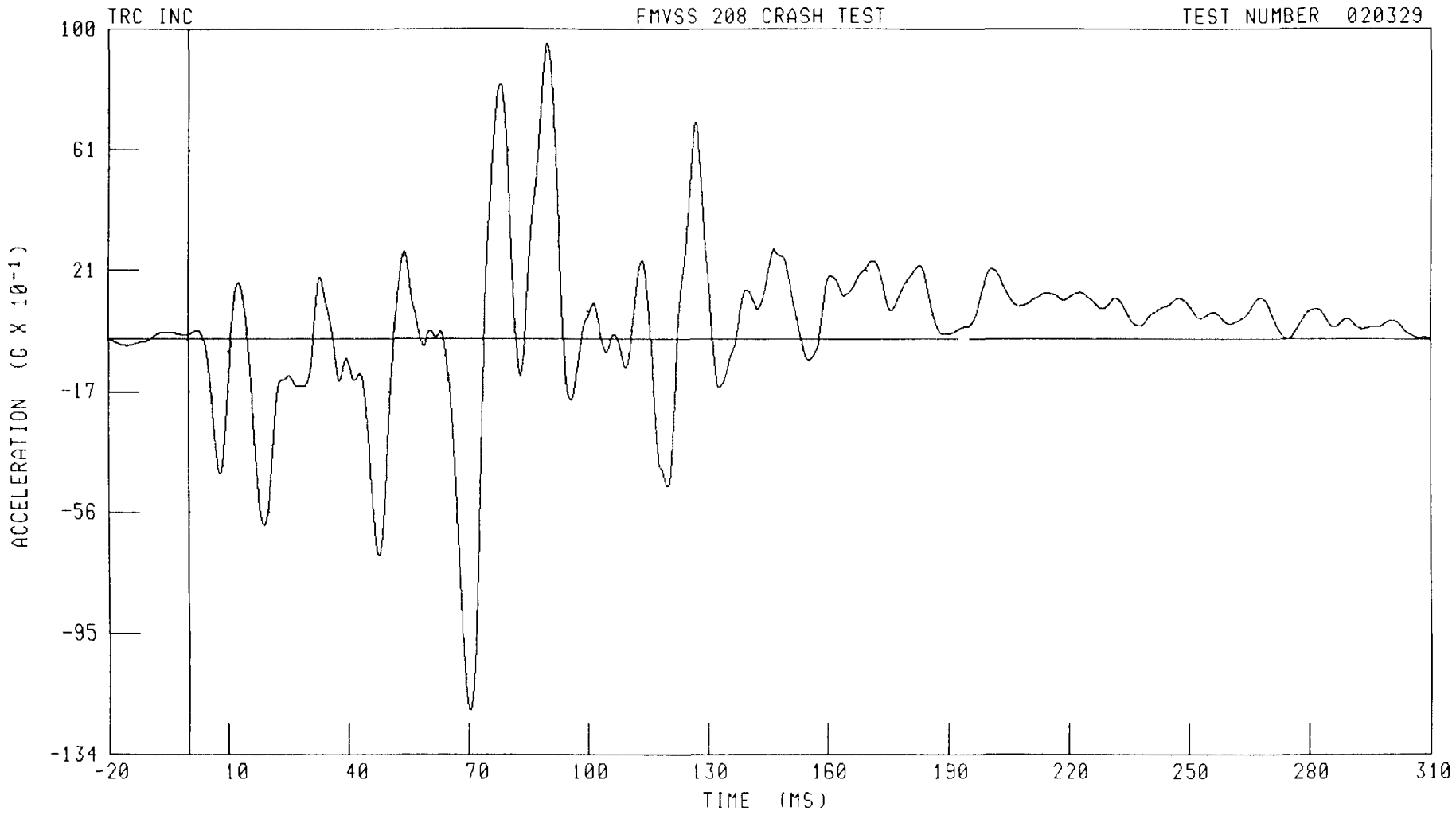
C20108 2002 SATURN VUE INTO FLAT BARRIER AT 25 MPH
REAR TRUNK CENTERLINE Z-AXIS ACCELERATION



CHANNEL TFCZG1 FILTER CH CLASS 60 PEAK DATA 9 56 G @ 90 16 MS, -11 98 G @ 70 24 MS

020329

Appendix C

Manufacturer's Vehicle Information

Seats and Restraint Systems

Here you'll find information about the seats in your Saturn and how to use your safety belts properly You can also learn about some things you should *not* do with air bags and safety belts

SEATS AND SEAT CONTROLS

This section tells you about the seats — how to adjust them and also about reclining front and rear seatbacks and head restraints

Manual Seat

⚠ CAUTION

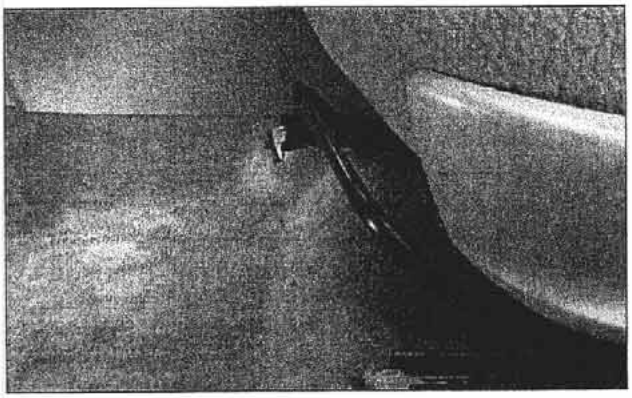
You can lose control of the vehicle if you try to adjust a manual driver's seat while the vehicle is moving. The sudden movement could startle and confuse you, or make you push a pedal when you don't want to. Adjust the driver's seat only when the vehicle is not moving.

Reclining Front Seatbacks

To adjust the seatback on a manual seat, lift the lever located on the rear left side of the seat cushion and move the seatback to where you want it. Then release the lever to lock the seatback in place.

But don't have the seatback reclined if your vehicle is moving.

Manual Front Passenger Seats



Lift the bar under the front of the seat to unlock it. Slide the seat forward or rearward to where you want it and release the bar. Then try to move the seat with your body to make sure the seat is locked in place.

Driver's Seat Height Adjuster

The driver's seat height adjuster is located on the left side of the seat cushion.

To raise the seat, ratchet the lever upward until the seat is at the desired height. To lower the seat, ratchet the lever downward until the seat is at the desired height.

8

⚠ CAUTION

Sitting in a reclined position when your vehicle is in motion can be dangerous. Even if you buckle up, your safety belts can't do their job when you're reclined like this.

⚠ CAUTION (Continued)

The shoulder belt can't do its job because it won't be against your body. Instead, it will be in front of you. In a crash you could go into it, receiving neck or other injuries.

The lap belt can't do its job either. In a crash the belt could go up over your abdomen. The belt forces would be there, not at your pelvic bones. This could cause serious internal injuries.

For proper protection when the vehicle is in motion, have the seatback upright. Then sit well back in the seat and wear your safety belt properly.

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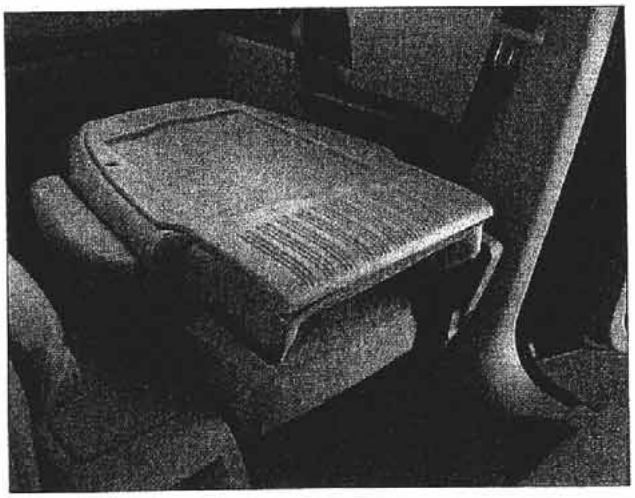
Fold-Flat Front Passenger SeatBack

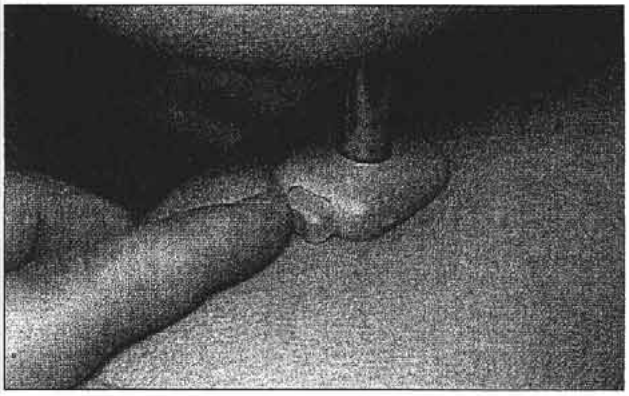
Your Saturn is equipped with a fold-flat front passenger seat back.

To fold the seatback down flat, lift the bar under the front seat to unlock it. Slide the seat to the rear-most position, then release the bar.

Lift the recliner lever, located on the outside of the seat, and fold the seat forward until the seatback disengages. Continue to fold the seat forward until it locks in the folded position.



Head Restraints



Your Saturn vehicle has adjustable head restraints on the front seats. To slide the head restraint up or down, depress the head restraint button located between the bottom of the head restraint and the top of the seat.

Slide an adjustable head restraint up or down so that the top of the restraint is closest to the top of your head. This position reduces the chance of a neck injury in a crash.

The rear seat head restraints in your vehicle are adjustable. They work the same as the front seat head restraints.

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Reclining or Folding the Rear Seatbacks

The seatbacks on each section of the split bench seat can be reclined or folded forward.

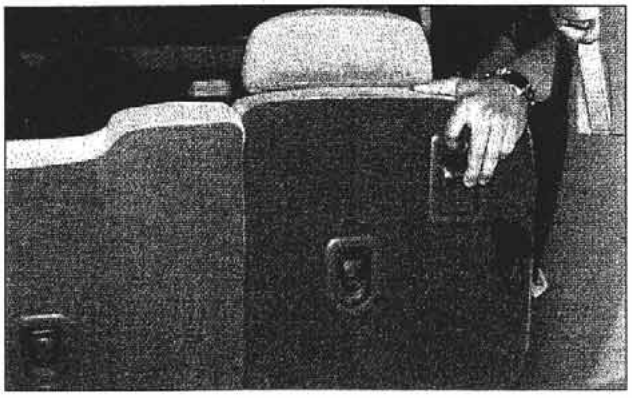
You can recline either the left or right side of the seatback separately, or have both seatbacks recline together.

To recline the rear seatbacks, lift the lever on the back corner of the seatbacks.

Your Saturn is also equipped with split fold-down rear seatbacks. This feature is designed to increase the cargo area of your Saturn.

You can fold either the left or right side of the seatback. Just make sure the front seat is not reclined. If it is, the rear seatback won't fold down all the way. In addition, ensure the rear center shoulder belt is unlatched from the lap belt before folding the left (driver's side) seatback.

You will not be able to raise the seatback to the upright position unless you unlatch the rear center seat shoulder belt from the lap belt before you lower the left (driver's side) seatback.



To fold either the left or right side of the seatback, lift the lever on the back corner of the seatback. Next, move the seatback to the folded position.

⚠ CAUTION

If the seatback isn't locked, it could move forward in a sudden stop or crash. That could cause injury to the person sitting there. Always press rearward on the seatback to be sure it is locked.

The rear seatback will lock in the lowered position. To raise the seatback, lift the recliner lever while pulling up on the seatback. Push and pull on the seatback to check that it is locked in the upright position.

SAFETY BELTS: THEY'RE FOR EVERYONE

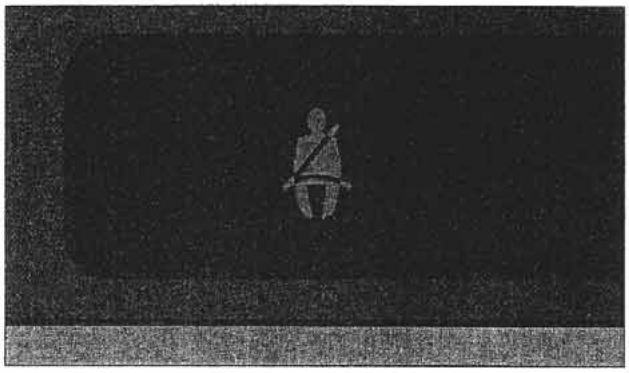
This section of the handbook tells you how to use safety belts properly. It also tells you some things you should not do with safety belts. And it explains the air bag system.

⚠ CAUTION

Don't let anyone ride where he or she can't wear a safety belt properly. If you are in a crash and you're not wearing a safety belt, your injuries can be much worse. You can hit things inside the vehicle or be ejected from it. You can be seriously injured or killed. In the same crash, you might not be if you are buckled up. Always fasten your safety belt, and check that your passengers' belts are fastened properly too.

⚠ CAUTION

It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.



Your vehicle has a light that comes on as a reminder to buckle up. (See "Safety Belt Reminder Light" in the Index.)

In most states and Canadian provinces, the law says to wear safety belts. Here's why: *They work.*

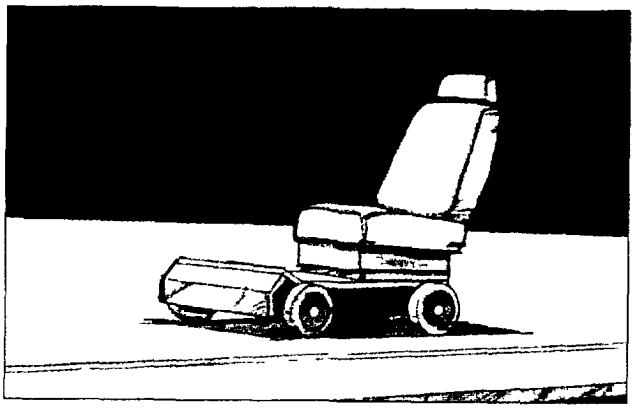
You never know if you'll be in a crash. If you do have a crash, you don't know if it will be a bad one.

A few crashes are mild, and some crashes can be so serious that even buckled up a person wouldn't survive. But most crashes are in between. In many of them, people who buckle up can survive and sometimes walk away. Without belts, they could have been badly hurt or killed.

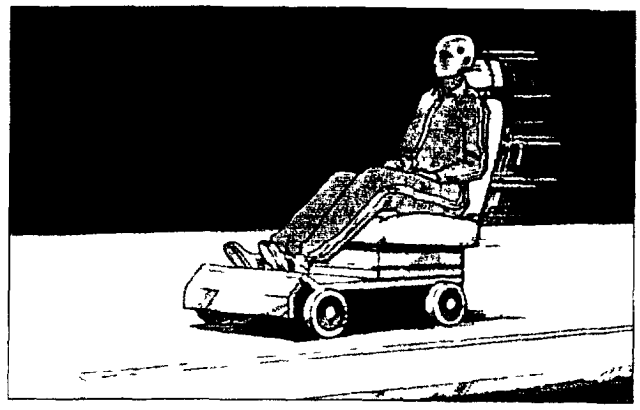
After more than 30 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter . . . a lot!

Why Safety Belts Work

When you ride in or on anything, you go as fast as it goes

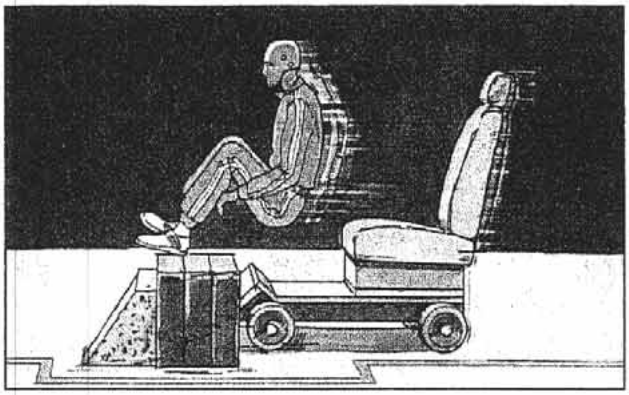


Take the simplest vehicle Suppose it's just a seat on wheels

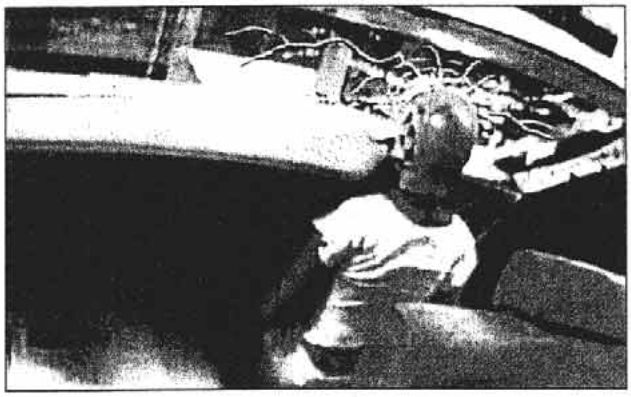


Put someone on it

16

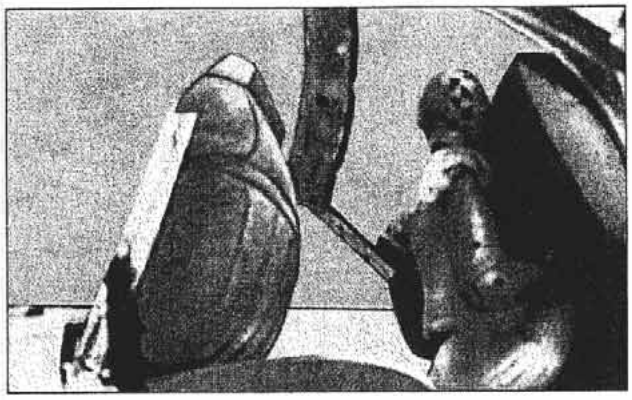


Get it up to speed. Then stop the vehicle. The rider doesn't stop.

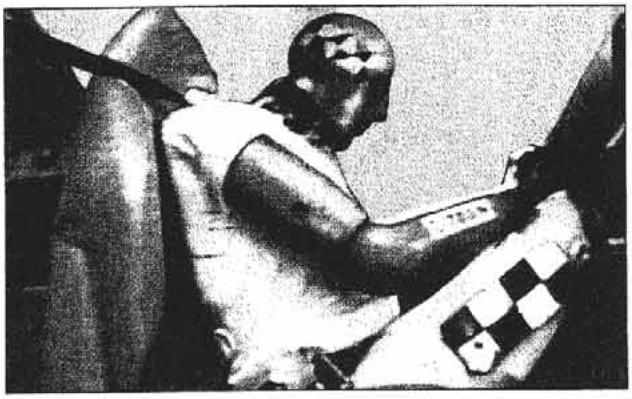


The person keeps going until stopped by something.

In a real vehicle, it could be the windshield . . .



or the instrument panel . . .



or the safety belts!

With safety belts, you slow down as the vehicle does. You get more time to stop. You stop over more distance, and your strongest bones take the forces. That's why safety belts make such good sense.

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Here Are Questions Many People Ask About Safety Belts — and the Answers

Q: Won't I be trapped in the vehicle after an accident if I'm wearing a safety belt?

A: You *could* be — whether you re wearing a safety belt or not But you can unbuckle a safety belt, even if you're upside down And your chance of being conscious during and after an accident, so you *can* unbuckle and get out, is *much* greater if you are belted

Q: If my vehicle has air bags, why should I have to wear safety belts?

A: Air bags are in many vehicles today and will be in most of them in the future But they are supplemental systems only, so they work *with* safety belts — not instead of them Every air bag system ever offered for sale has required the use of safety belts Even if you're in a vehicle that has air bags, you still have to buckle up to get the most protection That's true not only in frontal collisions but especially in side and other collisions

Q: If I'm a good driver, and I never drive far from home, why should I wear safety belts?

A: You may be an excellent driver, but if you're in an accident — even one that isn't your fault — you and your passengers can be hurt Being a good driver doesn't protect you from things beyond your control, such as bad drivers

Most accidents occur within 25 miles (40 km) of home And the greatest number of serious injuries and deaths occur at speeds of less than 40 mph (65 km/h)

Safety belts are for everyone

HOW TO WEAR SAFETY BELTS PROPERLY

Adults

This section is only for people of adult size

Be aware that there are special things to know about safety belts and children And there are different rules for smaller children and babies If a child will be riding in your Saturn, see the section of this handbook called "Children " Follow those rules for everyone's protection

First, you'll want to know which restraint systems your vehicle has We'll start with the driver position

DRIVER POSITION

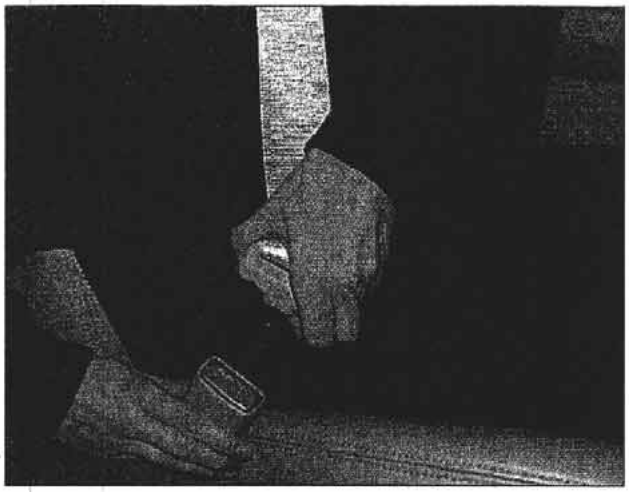
This section describes the driver's restraint system

Lap-Shoulder Belt

The driver has a lap-shoulder belt Here's how to wear it properly

1 Close and lock the door

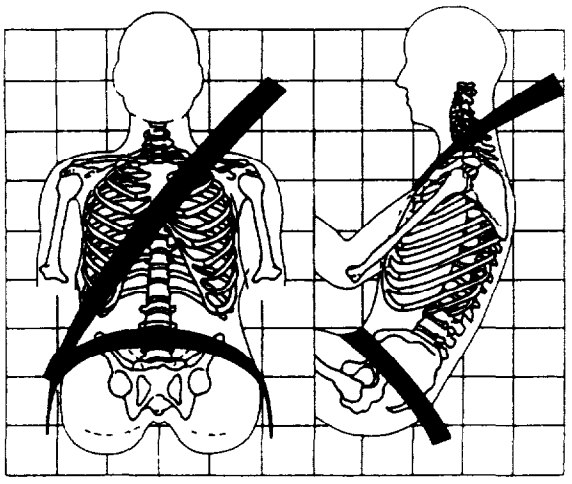
2 Adjust the seat (to see how, see "Seats" in the Index) so you can sit up straight



3. Pick up the latch plate and pull the belt across you. Don't let it get twisted. The shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.
4. Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure.

Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

5. To make the lap part tight, pull down on the buckle end of the belt as you pull up on the shoulder belt.



The lap part of the belt should be worn low and snug on the hips, just touching the thighs In a crash, this applies force to the strong pelvic bones And you'd be less likely to slide under the lap belt If you slid under it, the belt would apply force at your abdomen This could cause serious or even fatal injuries

The shoulder belt should go over the shoulder and across the chest These parts of the body are best able to take belt restraining forces

The safety belt locks if there's a sudden stop or crash, or if you pull the belt very quickly out of the retractor

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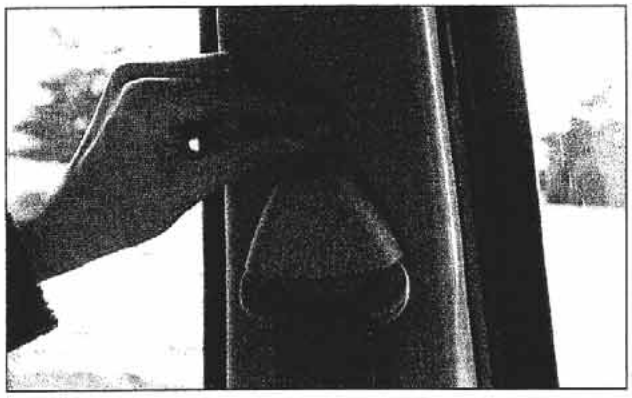
Shoulder Belt Height Adjuster

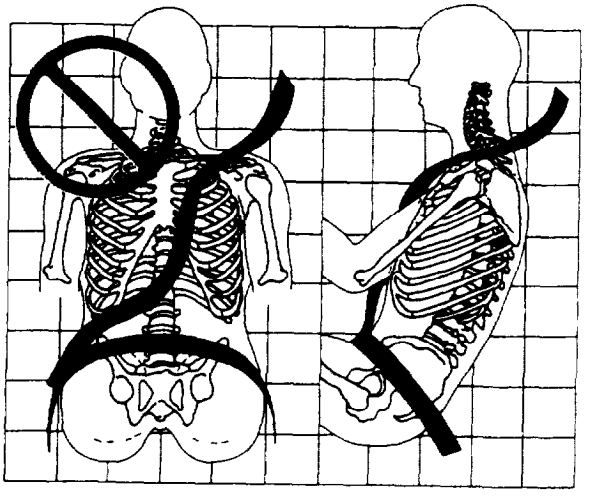
Before you begin to drive, move the shoulder belt height adjuster to the height that is right for you.

To move it up or down, grasp the adjuster knob and move the height adjuster to the desired position. After you move the height adjuster to where you want it, try to move it down without touching the knob to make sure it has locked into position.

Adjust the height so that the shoulder portion of the belt is centered on your shoulder. The belt should be away from your face and neck, but not falling off your shoulder.



Q: What's wrong with this?

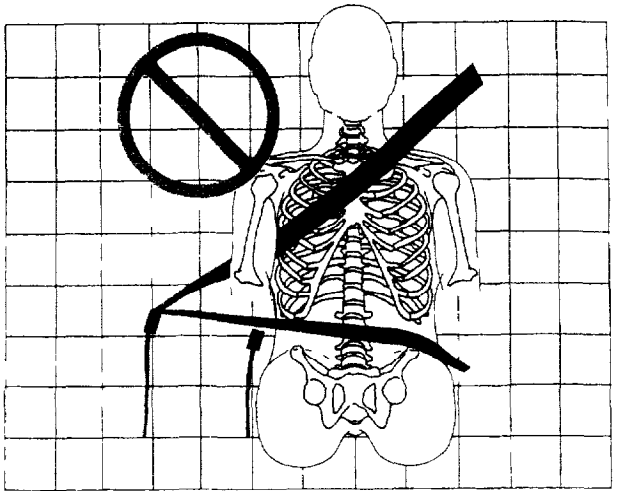


A: The shoulder belt is too loose It won't give nearly as much protection this way

⚠ CAUTION

You can be seriously hurt if your shoulder belt is too loose. In a crash you would move forward too much, which could increase injury. The shoulder belt should fit against your body.

Q: What's wrong with this?

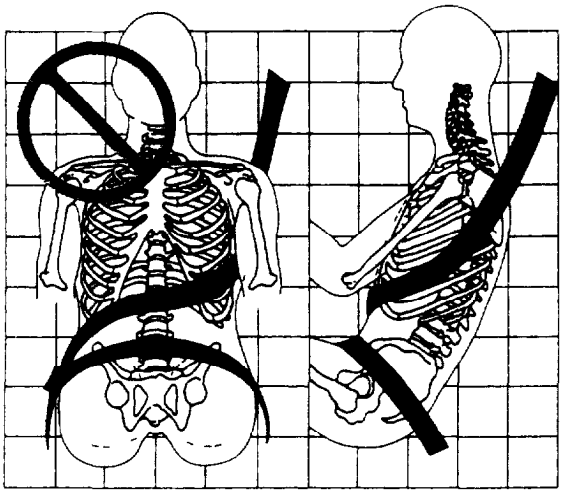


A: The belt is buckled in the wrong place

⚠ CAUTION

You can be seriously injured if your belt is buckled in the wrong place like this. In a crash, the belt would go up over your abdomen. The belt forces would be there, not at the pelvic bones. This could cause serious internal injuries. Always buckle your belt into the buckle nearest you.

Q: What's wrong with this?

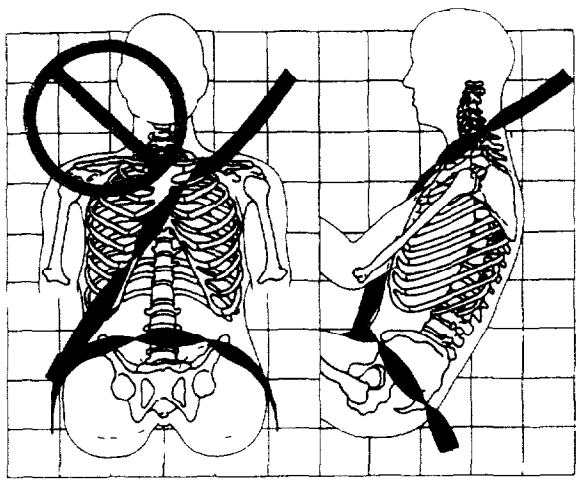


A: The shoulder belt is worn under the arm It should be worn over the shoulder at all times

⚠ CAUTION

You can be seriously injured if you wear the shoulder belt under your arm. In a crash, your body would move too far forward, which would increase the chance of head and neck injury. Also, the belt would apply too much force to the ribs, which aren't as strong as shoulder bones. You could also severely injure internal organs like your liver or spleen.

Q: What's wrong with this?



A: The belt is twisted across the body

⚠ CAUTION

You can be seriously injured by a twisted belt. In a crash, you wouldn't have the full width of the belt to spread impact forces. If a belt is twisted, make it straight so it can work properly, or ask your Saturn retailer to fix it.

To unlatch the safety belt, just push the button on the buckle. The belt should go back out of the way.

Before you close the door, be sure the belt is out of the way. If you slam the door on it, you can damage both the belt and your vehicle.

SAFETY BELT USE DURING PREGNANCY

Safety belts work for everyone, including pregnant women Like all occupants, they are more likely to be seriously injured if they don't wear safety belts

A pregnant woman should wear a lap-shoulder belt, and the lap portion should be worn as low as possible, below the rounding, throughout the pregnancy

The best way to protect the fetus is to protect the mother When a safety belt is worn properly, it's more likely that the fetus won't be hurt in a crash For pregnant women, as for anyone, the key to making safety belts effective is wearing them properly

RIGHT FRONT PASSENGER POSITION

To learn how to wear the right front passenger's safety belt properly, see "Driver Position" earlier in this section The right front passenger's safety belt works the same way as the driver's safety belt — except for one thing

If you ever pull the shoulder portion of the belt out all the way, you will engage the child restraint locking feature If this happens, just let the belt go back all the way and start again

AIR BAG SYSTEMS

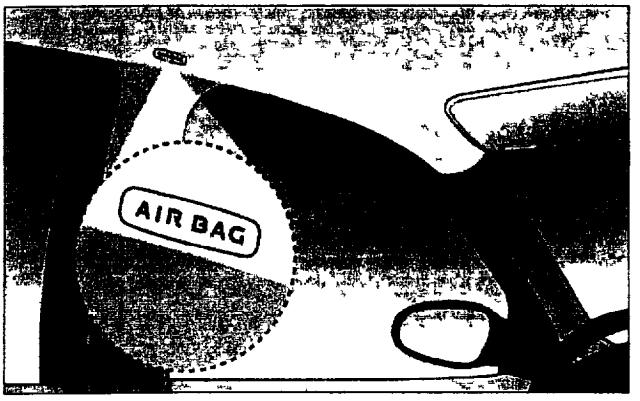
This section explains the frontal and side impact air bag systems

Your vehicle has air bags — a frontal air bag for the driver and another frontal air bag for the right front passenger

Side Impact Air Bags (Option)

Your vehicle may also have side impact air bags — a side impact air bag for the driver and passenger directly behind the driver, and another side impact air bag for the right front passenger and the person seated directly behind that passenger This type of side impact air bag is sometimes called a "roof rail" or "head curtain" air bag

If your vehicle has side impact air bags, it will say "AIR BAG" on the air bag covering on the ceiling near the driver's and right front passenger's window In addition to providing side impact protection for the driver and the right front passenger, the side impact air bags are also designed to help protect occupants in the rear seat outboard positions



Frontal air bags are designed to help reduce the risk of injury from the force of an inflating frontal air bag But these air bags must inflate very quickly to do their job and comply with federal regulations

Here are the most important things to know about the air bag systems

⚠ CAUTION

You can be severely injured or killed in a crash if you aren't wearing your safety belt — even if you have air bags. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. Air bags are "supplemental restraints" to the safety belts. All air bags are designed to work with safety belts, but don't replace them.

Frontal air bags for the driver and right front passenger are designed to work only in moderate to severe crashes where the front of your vehicle hits something.

⚠ CAUTION (Continued)

They are not designed to inflate at all in rollover, rear, side or low-speed frontal crashes. And, for unrestrained occupants, air bags may provide less protection in frontal crashes than more forceful air bags have provided in the past.

Side impact air bags are designed to inflate only in moderate to severe crashes where something hits the side of your vehicle. They are not designed to inflate in frontal, in rollover or in rear crashes. Everyone in your vehicle should wear a safety belt properly — whether or not there's an air bag for that person.

⚠ CAUTION

Both frontal and side impact air bags inflate with great force, faster than the blink of an eye. If you're too close to an inflating air bag, as you would be if you were leaning forward, it could seriously injure you. Safety belts help keep you in position before and during a crash. Always wear your safety belt, even with air bags. The driver should sit as far back as possible while still maintaining control of the vehicle. Occupants should not lean on or sleep against the door.

⚠ CAUTION

Anyone who is up against, or very close to, any air bag when it inflates can be seriously injured or killed. Air bags plus lap-shoulder belts offer the best protection for adults, but not for young children and infants. Neither the vehicle's safety belt system nor its air bag system is designed for them. Young children and infants need the protection that a child restraint system can provide. Always secure children properly in your vehicle. To read how, see the part of this handbook called "Children."

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Air Bag Readiness Light

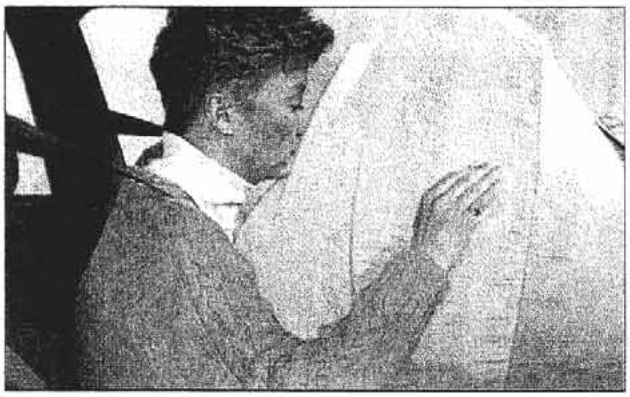
There is an air bag readiness light on the instrument panel, which shows "AIR BAG" and the air bag symbol.

The system checks the air bag electrical system for malfunctions. The light tells you if there is an electrical problem. See "Air Bag Readiness Light" in the Index for more information.

How the Air Bag System Works

Q: Where are the air bags?

A: The driver's frontal air bag is in the middle of the steering wheel.



The right front passenger's frontal air bag is in the instrument panel on the passenger's side.

The side impact air bag for the driver and the person seated directly behind the driver is in the ceiling above the side windows.

The side impact air bag for the right front passenger and the person seated directly behind that passenger is in the ceiling above the side windows.

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⚠ CAUTION

If something is between an occupant and an air bag, the bag might not inflate properly or it might force the object into that person. The path of an inflating air bag must be kept clear. Don't put anything between an occupant and an air bag, and don't attach or put anything on the steering wheel hub or on or near any other air bag covering.

If your vehicle has side impact air bags, never secure anything to the roof of your vehicle by routing a rope or tiedown through any door or window opening. If you do, the path of an inflating side impact air bag will be blocked. The path of an inflating air bag must be kept clear.

Q: When should an air bag inflate?

A: The driver's and right front passenger's frontal air bags are designed to inflate in moderate to severe frontal or near-frontal crashes But they are designed to inflate only if the impact speed is above the system's designed "threshold level " If your vehicle goes straight into a wall that doesn't move or deform the threshold level is about 9 to 15 mph (14 to 24 km/h)

The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range If your vehicle strikes something that will move or deform, such as a parked car, the threshold level will be higher

The driver's and right front passenger's frontal air bags are not designed to inflate in rollovers, side impacts, or rear impacts, because inflation would not help the occupant

The side impact air bags are designed to inflate in moderate to severe side crashes A side impact air bag will inflate if the crash severity is above the system's designed "threshold level " The threshold level can vary with specific vehicle design Side impact air bags are not designed to inflate in frontal or near-frontal impacts, rollovers or rear impacts because inflation would not help the occupant A side impact air bag will only deploy on the side of the vehicle that is struck

In any particular crash, no one can say whether an air bag should have inflated simply because of the damage to a vehicle or because of what the repair costs were For frontal air bags, inflation is determined by the angle of the impact and how quickly the vehicle slows down in frontal and near-frontal impacts For side impact air bags, inflation is determined by the location and severity of the impact

The air bag system is designed to work properly under a wide range of conditions including off-road usage Observe safe driving speeds, especially on rough terrain As always, wear your safety belt
See "Off-Road Driving" in the Index for more tips on off-road driving

Q: What makes an air bag inflate?

A: In an impact of sufficient severity, the air bag sensing system detects that the vehicle is in a crash For both frontal and side impact air bags, the sensing system triggers a release of gas from the inflator, which inflates the air bag The inflator, air bag and related hardware are all part of the air bag modules inside the steering wheel, instrument panel and the ceiling of the vehicle near the side windows

Q: How does an air bag restrain?

A: In moderate to severe frontal or near-frontal collisions, even belted occupants can contact the steering wheel or instrument panel In moderate to severe side collisions even belted occupants can contact the inside of the vehicle The air bag supplements the protection provided by safety belts

Air bags distribute the force of the impact more evenly over the occupant's upper body, stopping the occupant more gradually But the frontal air bags would not help you in many types of collisions, including rollovers, rear impacts, and side impacts, primarily because an occupant's motion is not toward those air bags

Side air bags would not help you in many types of collisions including frontal or near frontal collisions rollovers, and rear impacts, primarily because an occupant's motion is not toward those air bags

Air bags should never be regarded as anything more than a supplement to safety belts, and then only in moderate to severe frontal or near-frontal collisions for the driver's and right front passenger's frontal air bags and only in moderate to severe side collisions for the side impact air bags

Q: What will you see after an air bag inflates?

A: After the air bag inflates, it quickly deflates — so quickly that some people may not even realize the air bag inflated. Some components of the air bag module — the steering wheel hub for the driver's air bag, the instrument panel for the right front passenger's bag, the area along the ceiling of your vehicle near the side windows — will be hot for a short time. The parts of the bag that come into contact with you may be warm, but not too hot to touch. There will be some smoke and dust coming from vents in the deflated air bags. Air bag inflation doesn't prevent the driver from seeing or from being able to steer the vehicle, nor does it stop people from leaving the vehicle.

⚠ CAUTION

When an air bag inflates, there is dust in the air. This dust could cause breathing problems for people with a history of asthma or other breathing trouble. To avoid this, everyone in the vehicle should get out as soon as it is safe to do so. If you have breathing problems but can't get out of the vehicle after an air bag inflates, then get fresh air by opening a window or a door.

In many crashes severe enough to inflate an air bag, windshields are broken by vehicle deformation. Additional windshield breakage may also occur from the right front passenger air bag.

- Air bags are designed to inflate only once. After they inflate, you'll need some new parts for your air bag system. If you don't get them replaced, the air bag system won't be there to help protect you in another crash. A new system will include air bag modules and possibly other parts. The service manual for your vehicle covers the need to replace other parts.
- Your vehicle is equipped with a crash sensing and diagnostic module, which records information about the air bag system. The module records information about the readiness of the system, when the system commands air bag inflation and driver's safety belt usage at deployment or in a near-deployment crash. The module also records speed, engine rpm, brake and throttle data.
- Let only qualified technicians work on your air bag system. Improper service can mean that your air bag system won't work properly. See your Saturn retailer for service.

NOTICE

If you damage the covering for the driver's or the right front passenger's air bag, or the side impact air bag covering on the ceiling near the side windows, the air bag may not work properly. You may have to replace the air bag module in the steering wheel, both the air bag module and the instrument panel for the right front passenger's air bag, or side impact air bag module and side impact air bag covering. Do not open or break the air bag coverings.

Servicing Your Air Bag-Equipped Saturn

Air bags affect how your Saturn should be serviced. There are parts of the air bag system in several places around your vehicle. You don't want the air bag system to inflate while someone is working on your car. Your Saturn retailer and the Saturn Service Manual have information about servicing your vehicle and the air bag systems. To purchase a service manual set, see 'Publications' in the Index.

⚠ CAUTION

For up to one minute after the ignition key is turned off and the battery is disconnected, an air bag can still inflate during improper service. You can be injured if you are close to an air bag when it inflates. Avoid wires wrapped with yellow tape, yellow coverings, or yellow connectors. They are probably part of the air bag systems. Be sure to follow proper service procedures, and make sure the person performing work for you is qualified to do so.

The air bag systems do not need regular maintenance.

Adding Equipment to Your Air Bag-Equipped Vehicle

Q: If I add a luggage carrier or sunroof to the roof of my vehicle, will it keep the side impact air bags from working properly?

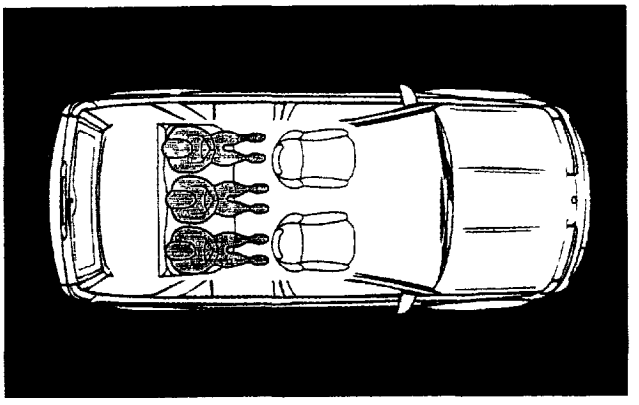
A: As long as the luggage carrier or sunroof is properly installed so that the vehicle's basic structure is not changed, it is not likely to keep the side impact air bags from working properly in a crash.

REAR SEAT PASSENGERS

It's very important for rear seat passengers to buckle up! Accident statistics show that unbelted people in the rear seat are hurt more often in crashes than those who are wearing safety belts

Rear passengers who aren't safety belted can be thrown out of the vehicle in a crash And they can strike others in the vehicle who are wearing safety belts

Rear Seat Passenger Positions



Lap-Shoulder Belt

All three rear seating positions have lap shoulder belts Here s how to wear one properly

1. Pick up the latch plate and pull the belt across you. Don't let it get twisted.

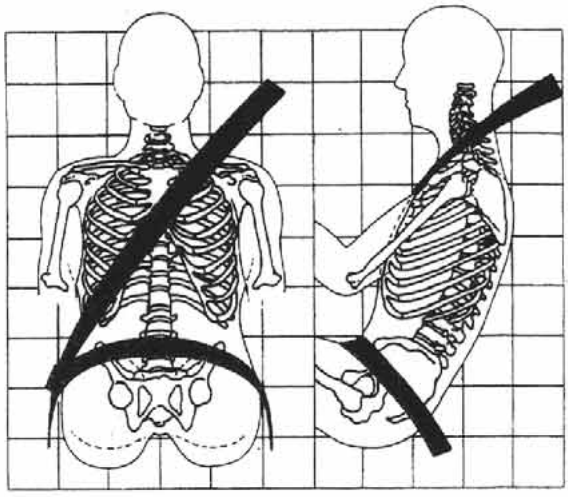
   The shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

2. Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure.

   When the shoulder belt is pulled out all the way, it will lock. If it does, let it go back all the way and start again.

   Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

3. To make the lap part tight, pull down on the buckle end of the belt as you pull up on the shoulder part.



The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones. And you'd be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen.

This could cause serious or even fatal injuries. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces. The safety belt locks if there's a sudden stop or crash, or if you pull the belt very quickly out of the retractor.

⚠ CAUTION

You can be seriously hurt if your shoulder belt is too loose. In a crash you would move forward too much, which could increase injury. The shoulder belt should fit against your body.

4. To unlatch the belt, just push the button on the buckle.

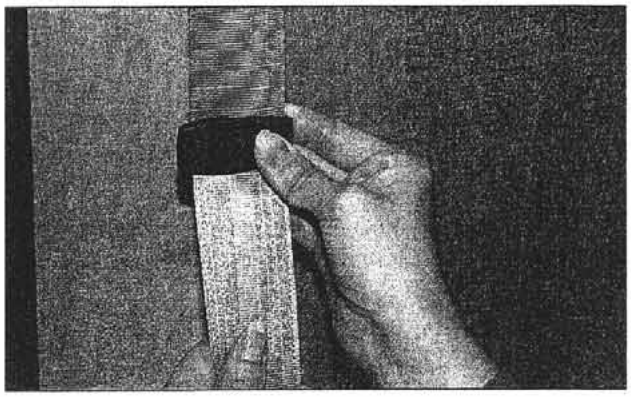
Rear Safety Belt Comfort Guides for Children and Small Adults

Rear shoulder belt comfort guides will provide added safety belt comfort for children who have outgrown booster seats and for small adults. When installed on a shoulder belt, the comfort guide pulls the belt away from the neck and head.

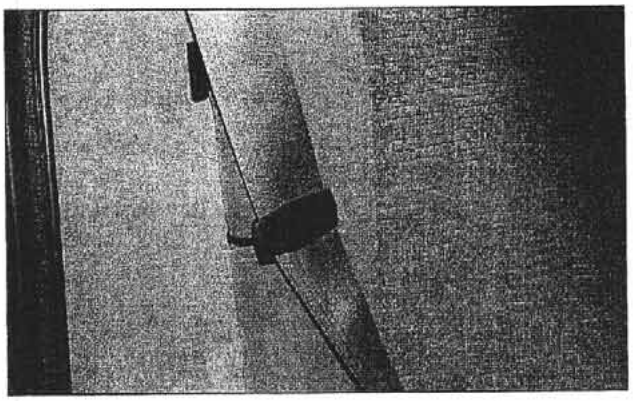
There is one guide for each outside passenger position in the rear seat. To provide added safety belt comfort for children who have outgrown child restraints and for smaller adults, the comfort guides may be installed on the shoulder belts.

Here's how to install a comfort guide and use the safety belt:

1. Pull the elastic cord out from the seatback to remove the guide from its storage clip.



2. Slide the guide under and past the belt. The elastic cord must be under the belt. Then, place the guide over the belt, and insert the two edges of the belt into the slots of the guide.



3. Be sure that the belt is not twisted and it lies flat. The elastic cord must be under the belt and the guide on top.
4. Buckle, position and release the safety belt as described in "Rear Seat Passengers" earlier in this section. Make sure that the shoulder belt crosses the shoulder.

To remove and store the comfort guides, squeeze the belt edges together so that you can take them out from the guides. Slide the guide on the clip. The clip is located on the seatback.

CHILDREN

Everyone in a vehicle needs protection! That includes infants and all children smaller than adult size. Neither the distance traveled nor the age and size of the traveler changes the need, for everyone, to use safety restraints. In fact, the law in every state in the United States and in every Canadian province says children up to some age must be restrained while in a vehicle.

Infants and Young Children

Every time infants and young children ride in vehicles, they should have the protection provided by the appropriate restraints. Young children should not use the vehicle's safety belts, unless there is no other choice.

⚠ CAUTION

⚠ CAUTION (Continued)

People should never hold a baby in their arms while riding in a vehicle. A baby doesn't weigh much — until a crash. During a crash a baby will become so heavy it is not possible to hold it. For example, in a crash at only 25 mph (40 km/h), a 12-pound (5.5 kg) baby will suddenly become a 240-pound (110 kg) force on a person's arms. A baby should be secured in an appropriate restraint.

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> **⚠ CAUTION**
>
> **Children who are up against, or very close to, any air bag when it inflates can be seriously injured or killed. Air bags plus lap-shoulder belts offer outstanding protection for adults and older children, but not for young children and infants. Neither the vehicle's safety belt system nor its air bag system is designed for them. Young children and infants need the protection that a child restraint system can provide.**

Q: What are the different types of add-on child restraints?

A: Add-on child restraints, which are purchased by the vehicle's owner, are available in four basic types Selection of a particular restraint should take into consideration not only the child's weight, height and age but also whether or not the restraint will be compatible with the motor vehicle in which it will be used

For most basic types of child restraints, there are many different models available When purchasing a child restraint, be sure it is designed to be used in a motor vehicle If it is, the restraint will have a label saying that it meets Federal Motor Vehicle Safety Standards

The restraint manufacturer's instructions that come with the restraint state the weight and height limitations for a particular child restraint In addition, there are many kinds of restraints available for children with special needs

⚠ CAUTION

Newborn infants need complete support, including support for the head and neck. This is necessary because a newborn infant's neck is weak and its head weighs so much compared with the rest of its body. In a crash, an infant in a rear-facing seat settles into the restraint, so the crash forces can be distributed across the strongest part of an infant's body, the back and shoulders. Infants always should be secured in appropriate infant restraints.

⚠ CAUTION

The body structure of a young child is quite unlike that of an adult or older child, for whom the safety belts are designed. A young child's hip bones are still so small that the vehicle's regular safety belt may not remain low on the hip bones, as it should. Instead, it may settle up around the child's abdomen. In a crash, the belt would apply force on a body area that is unprotected by bony structure. This alone could cause serious or fatal injuries. Young children always should be secured in appropriate child restraints.

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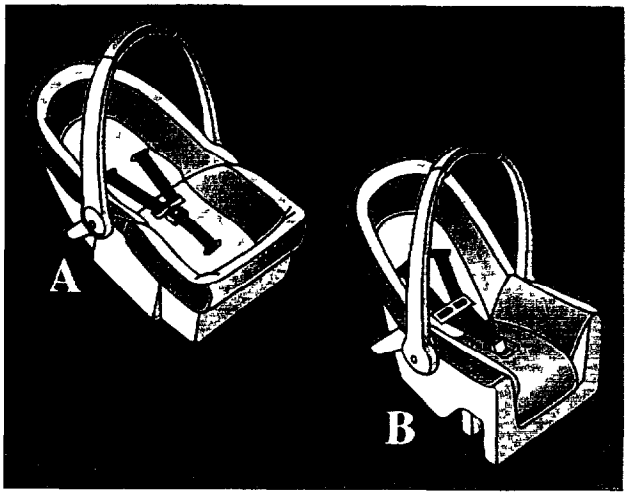
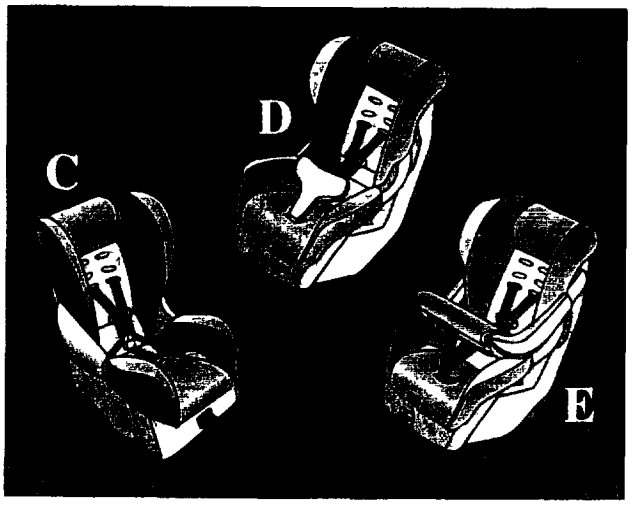


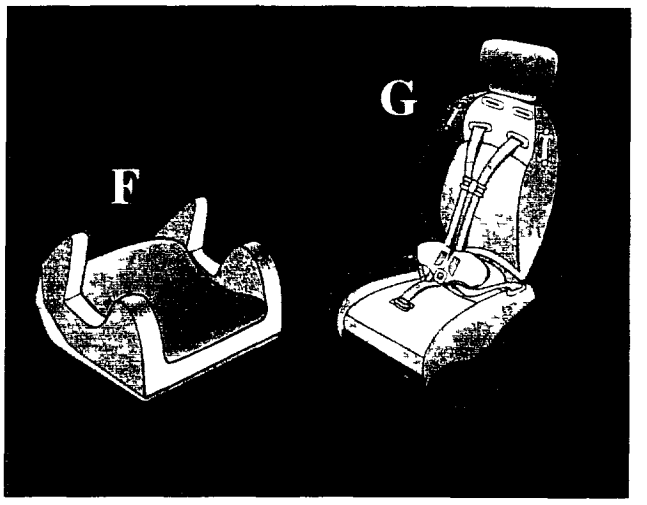
Restraint Systems for Children

An infant car bed (A) is a special bed made for use in a motor vehicle. It is an infant restraint system designed to restrain or position a child on a continuous flat surface. Make sure that the infant's head rests toward the center of the vehicle.

A rear-facing infant seat (B) provides restraint with the seating surface against the back of the infant. The harness system holds the infant in place and in a crash acts to keep the infant positioned in the restraint.



A forward-facing child restraint (C E) provides restraint for the child s body with the harness and also sometimes with surfaces such as T shaped or shelf like shields



A booster seat (F and G) is a child restraint designed to improve the fit of the vehicle s safety belt system Some booster seats have a five point harness A booster seat can also help a child to see out the window

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Q: How do child restraints work?

A: A child restraint system is any device designed for use in a motor vehicle to restrain, seat, or position children A built-in child restraint system is a permanent part of the motor vehicle An add-on child restraint system is a portable one which is purchased by the vehicle's owner

For many years, add-on child restraints have used the adult belt system of the vehicle To help reduce the chance of injury, the child also has to be secured within the restraint The vehicle's belt system secures the add-on child restraint in the vehicle, and the add-on child restraint's harness system holds the child in place within the restraint

One system, the three-point harness, has straps that come down over each of the infant's shoulders and buckle together at the crotch The five-point harness system has two shoulder straps, two hip straps and a crotch strap A shield may take the place of hip straps A T-shaped shield has shoulder straps that are attached to a flat pad which rests low against the child s body A shelf-or armrest-type shield has straps that are attached to a wide shelf-like shield that swings up or to the side

When choosing a child restraint, be sure the child restraint is designed to be used in a vehicle If it is, it will have a label saying that it meets Federal Motor Vehicle Safety Standards

Then follow the instructions for the restraint You may find these instructions on the restraint itself or in a booklet, or both These restraints use the belt system in your vehicle, but the child also has to be secured within the restraint to help reduce the chance of personal injury When securing an add-on child restraint, refer to the instructions that come with the restraint, which may be on the restraint itself or in a booklet, or both, and to this handbook The child restraint instructions are important, so if they are not available, obtain a replacement copy from the manufacturer

Where to Put the Restraint

Accident statistics show that children are safer if they are restrained in the rear seat rather than the front seat Saturn, therefore, recommends that child restraints be secured in the rear seat including an infant riding in a rear-facing infant seat, a child riding in a forward-facing child seat and an older child riding in a booster seat

Never put a rear-facing child restraint in the front passenger seat. Here's why

⚠ CAUTION

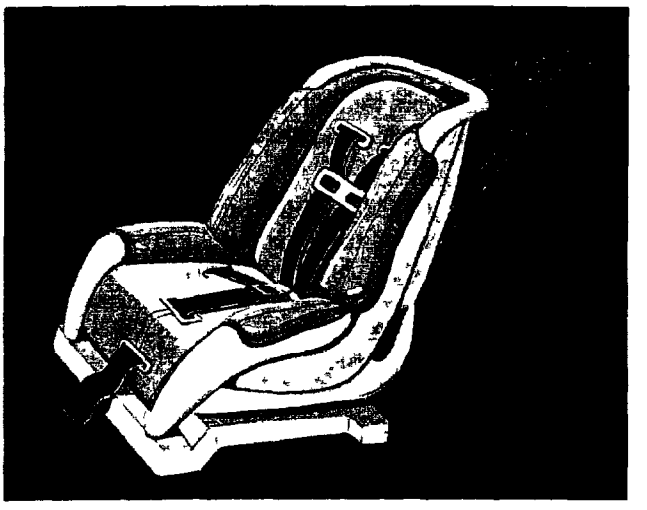
A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. Always secure a rear-facing child restraint in a rear seat.

You may secure a forward-facing child restraint in the right front seat, but before you do, always move the front passenger seat as far back as it will go. It's better to secure the child restraint in a rear seat.

Wherever you install it, be sure to secure the child restraint properly

Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle Be sure to properly secure any child restraint in your vehicle — even when no child is in it

Top Strap



Some child restraints have a top strap, or "top tether" It can help restrain the child restraint during a collision For it to work, a top strap must be properly anchored to the vehicle

If the child restraint does not have a top strap, one can be obtained, in kit form, for many child restraints Ask the child restraint manufacturer whether or not a kit is available

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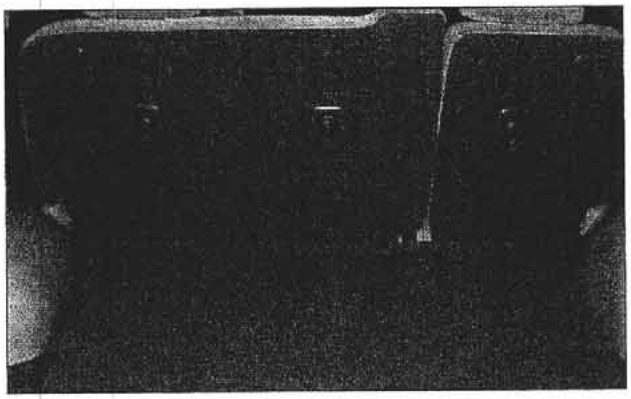
In Canada, the law requires that forward-facing child restraints have a top strap, and that the strap be anchored. In the United States, some child restraints also have a top strap. If your child restraint has a top strap, it should be anchored.

Your vehicle has top strap anchors already installed for the rear seating positions.



You'll find the anchors on the backside of the rear seats. Anchor the top strap to one of the anchor points shown in the illustration. Be sure to use an anchor point located on the same side of the vehicle as the seating position where the child restraint will be placed. If you have an adjustable head restraint, raise the head restraint and route the top strap under it.

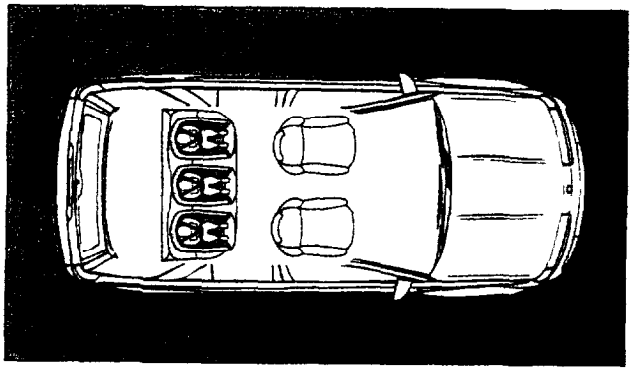
⚠ CAUTION

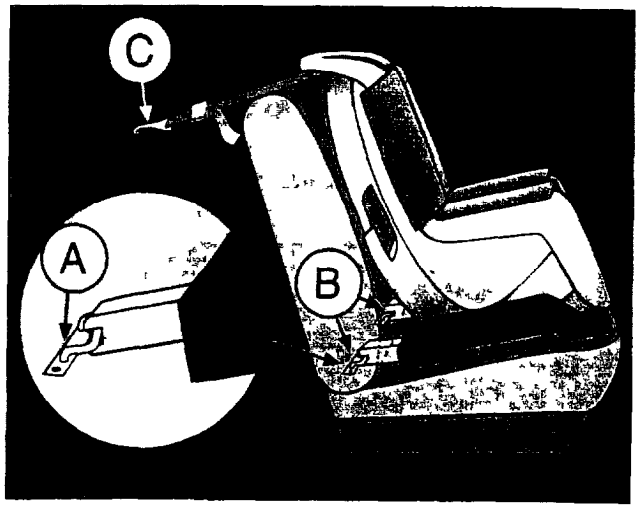
Each top tether bracket is designed to anchor only one child restraint. Attaching more than one child restraint to a single bracket could cause the anchor to come loose or even break during a crash. A child or others could be injured if this happens. To help prevent injury to people and damage to your vehicle, attach only one child restraint per bracket.

Once you have the top strap anchored, you'll be ready to secure the child restraint itself. Tighten the top strap when and as the child restraint manufacturer's instructions say.

Lower Anchorages and Top Tethers for Children (LATCH System)

Your vehicle has the LATCH system You'll find anchors (A) where the seatback meets the seat cushion in all three rear seating positions





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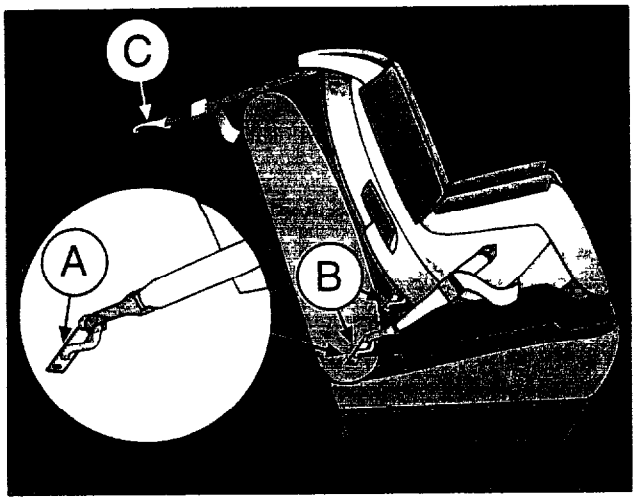
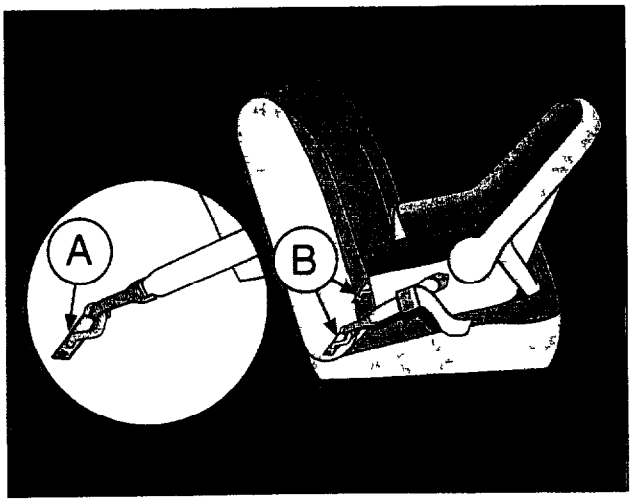


In order to use the system, you need either a forward-facing child restraint that has attaching points (B) at its base and a top tether anchor (C), or a rear-facing child restraint that has attaching points (B), as shown here



With this system, use the LATCH system instead of the vehicle's safety belts to secure a child restraint

> **⚠ CAUTION**
>
> **If a LATCH-type child restraint isn't attached to its anchorage points, the restraint won't be able to protect a child sitting there. In a crash, the child could be seriously injured or killed. Make sure that a LATCH-type child restraint is properly installed using the anchorage points, or use the vehicle's safety belts to secure the restraint. See "Securing a Child Restraint in a Rear Seat Position" in the Index for information on how to secure a child restraint in your vehicle using the vehicle's safety belts.**

Securing a Child Restraint Designed for the LATCH System

1 Find the anchors for the seating position you want to use, where the bottom of the seatback meets the back of the seat cushion

2 Put the child restraint on the seat

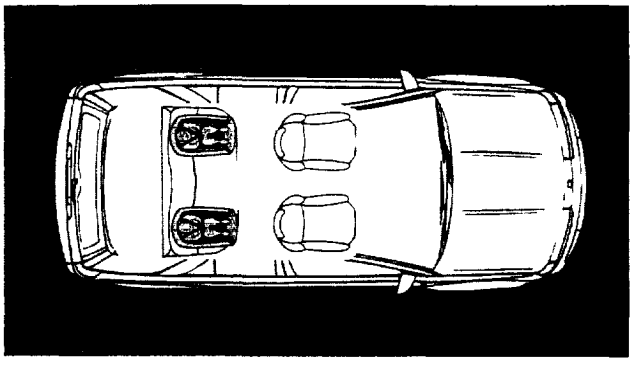
3 Attach the anchor points on the child restraint to the anchors in the vehicle The child restraint instructions will show you how

4 If the child restraint is forward-facing, attach the top strap to the top strap anchor See "Top Strap" in the Index Tighten the top strap according to the child restraint instructions

5 Push and pull the child restraint in different directions to be sure it is secure

To remove the child restraint, simply unhook the top strap from the top tether anchor and then disconnect the anchor points

Securing a Child Restraint in a Rear Outside Seat Position



If your child restraint is equipped with the LATCH system, see "Lower Anchorages and Top Tethers for Children (LATCH)" in the Index

You'll be using the lap-shoulder belt See the earlier part about the top strap if the child restraint has one

Be sure to follow the instructions that came with the child restraint Secure the child in the child restraint when and as the instructions say

1 Put the restraint on the seat

2 Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint The child restraint instructions will show you how If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint

3. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

4. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.

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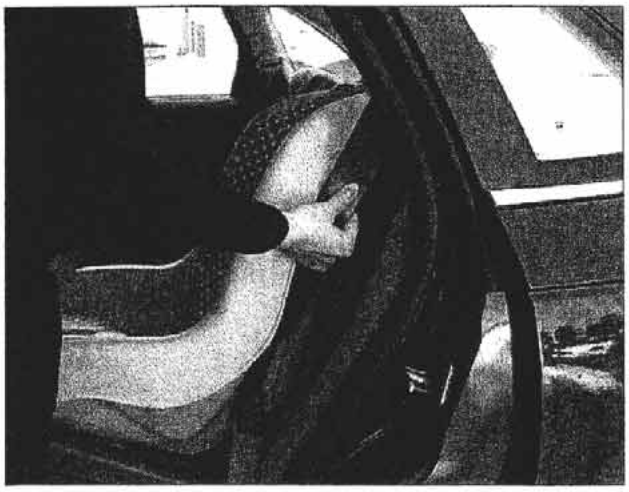
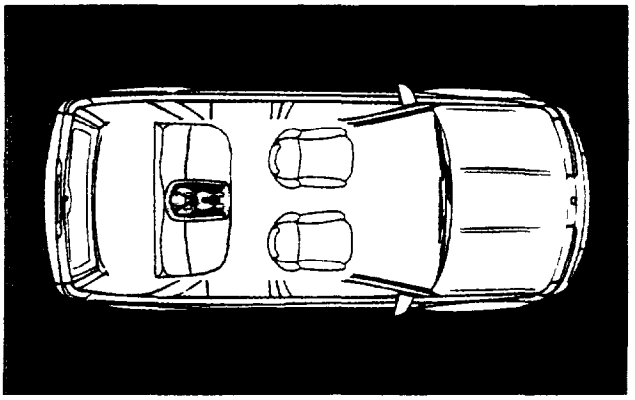


5. To tighten the belt, feed the shoulder belt back into the retractor while you push down on the child restraint. If you're using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt.

6. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Securing a Child Restraint in the Center Rear Seat Position



If your child restraint is equipped with the LATCH system, see "Lower Anchorages and Top Tethers for Children (LATCH)" in the Index

You'll be using the lap-shoulder belt See the earlier part about the top strap if the child restraint has one Be sure to follow the instructions that came with the child restraint Secure the child in the child restraint when and as the instructions say

1 Put the restraint on the seat

2 Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint The child restraint instructions will show you how If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint

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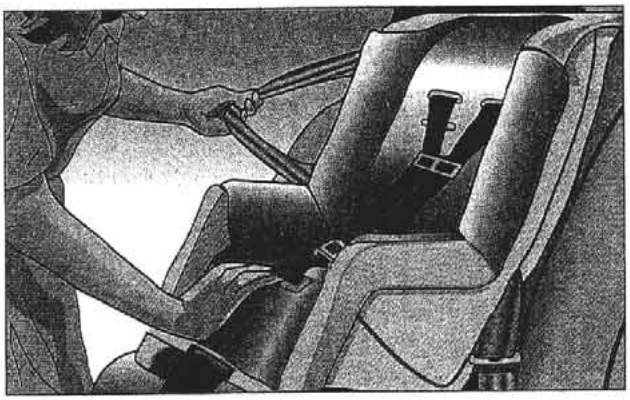
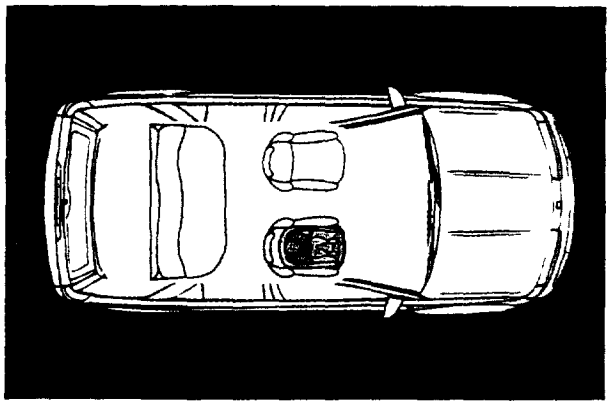
3. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



4. To tighten the belt, pull up on the shoulder belt while you push down on the child restraint. If you're using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt.
5. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, just unbuckle the vehicle's safety belt. When you remove the child restraint, be sure to reconnect the lap and shoulder parts of the belt so they will be ready to work for an adult or larger child passenger.

Securing a Child Restraint in the Right Front Seat Position



Your vehicle has a right front passenger air bag *Never* put a rear-facing child restraint in this seat

Here's why

> **⚠ CAUTION**
>
> **A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. Always secure a rear-facing child restraint in the rear seat.**

Although a rear seat is a safer place, you can secure a forward-facing child restraint in the right front seat

You'll be using the lap-shoulder belt See the earlier part about the top strap if the child restraint has one

Be sure to follow the instructions that came with the child restraint Secure the child in the child restraint when and as the instructions say

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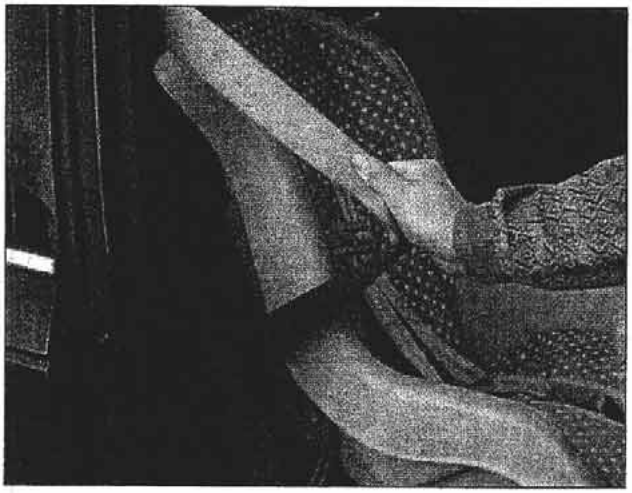
1. Because your vehicle has a right front passenger air bag, always move the seat as far back as it will go before securing a forward-facing child restraint. (See "Seats" in the Index.)
2. Put the restraint on the seat.
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how. If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint

4. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



5. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.

6. To tighten the belt, feed the shoulder belt back into the retractor while you push down on the child restraint.

   You may find it helpful to use your knee to push down on the child restraint as you tighten the belt.

7. Push and pull the child restraint in different directions to be sure it is secure.

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To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way The safety belt will move freely again and be ready to work for an adult or larger child passenger

OLDER CHILDREN

Older children who have outgrown booster seats should wear the vehicle's safety belts If you have the choice, a child should sit next to a window so the child can wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide

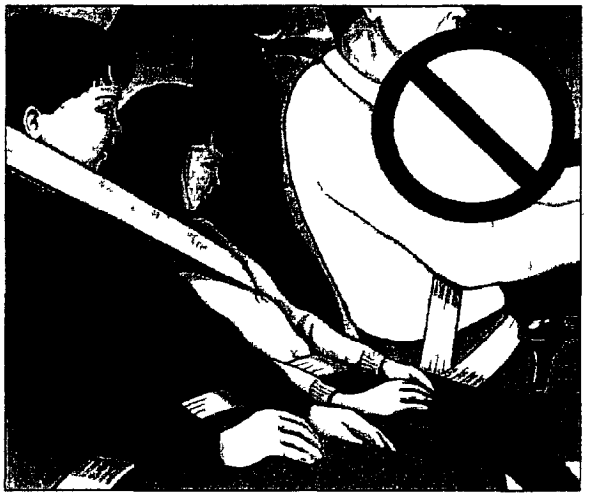
Q: What is the proper way to wear safety belts?

A: If possible, an older child should wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide The shoulder belt should not cross the face or neck The lap belt should fit snugly below the hips, just touching the top of the thighs It should never be worn over the abdomen, which could cause severe or even fatal internal injuries in crash

Accident statistics show that children are safer if they are restrained in the rear seat In a crash, children who are not buckled up can strike other people who are buckled up, or can be thrown out of the vehicle Older children need to use safety belts properly

⚠ CAUTION

Never do this.



⚠ CAUTION (Continued)

Here two children are wearing the same belt. The belt can't properly spread the impact forces. In a crash, the two children can be crushed together and seriously injured. A belt must be used by only one person at a time.

Q: What if a child is wearing a lap-shoulder belt, but the child is so small that the shoulder belt is very close to the child's face or neck?

A: If the child is sitting in a seat next to a window, move the child toward the center of the vehicle If the child is sitting in the center rear seat passenger position, move the child toward the safety belt buckle In either case, be sure that the shoulder belt still is on the child's shoulder, so that in a crash the child's upper body would have the restraint that belts provide

⚠ CAUTION

Never do this.

⚠ CAUTION (Continued)

Here a child is sitting in a seat that has a lap-shoulder belt, but the shoulder part is behind the child. If the child wears the belt in this way, in a crash the child might slide under the belt. The belt's force would then be applied right on the child's abdomen. That could cause serious or fatal injuries.

Wherever the child sits, the lap portion of the belt should be worn low and snug on the hips, just touching the child's thighs. This applies belt force to the child's pelvic bones in a crash.

CHECKING YOUR RESTRAINT SYSTEMS

Now and then, make sure the safety belt reminder light and all your belts, buckles, latch plates, retractors and anchorages are working properly. Look for any other loose or damaged safety belt system parts If you see anything that might keep a safety belt system from doing its job, have it repaired

Torn or frayed belts may not protect you in a crash They can rip apart under impact forces If a belt is torn or frayed, get a new one right away Also, look for any opened or broken air bag covers, and have them repaired or replaced (The air bag system does not need regular maintenance)

REPLACING RESTRAINT SYSTEM PARTS AFTER A CRASH

If you've had a crash, do you need new belts?

After a very minor collision, nothing may be necessary But if the belts were stretched, as they would be if worn during a more severe crash, then you need new belts

If belts are cut or damaged, replace them Collision damage also may mean you will need to have safety belt or seat parts repaired or replaced New parts and repairs may be necessary even if the belt wasn't being used at the time of the collision

Inspect LATCH anchors to ensure they were not broken or bent after a crash If the anchors have been damaged, they must be replaced

If your seat adjuster won't work after a crash, the special part of the safety belt that goes through the seat to the adjuster may need to be replaced

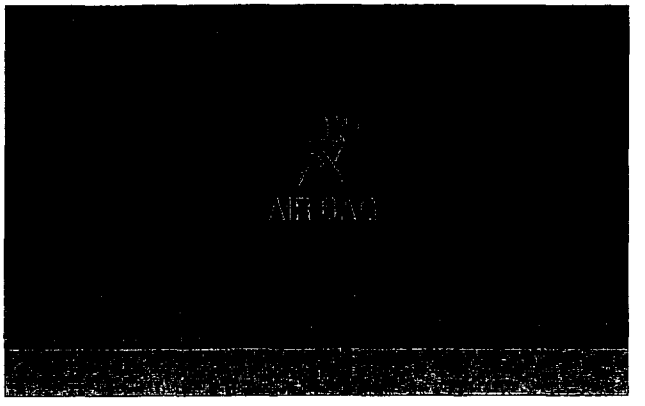
If an air bag inflates, you'll need to replace air bag system parts See the part on the air bag system earlier in this section

Safety Belt Reminder Light

When the key is turned to RUN or START a chime will come on for about 8 seconds to remind people to fasten their safety belts unless the driver's safety belt is already buckled.

The safety belt light will also come on and stay on for about 20 seconds, then it will flash for about 70 seconds. If the driver's belt is already buckled, neither the chime nor the light will come on.

Air Bag Readiness Light



There is an air bag readiness light on the instrument panel which shows AIR BAG and the air bag symbol.

The system checks the air bag's electrical system for malfunctions. The light tells you if there is an electrical problem. The system check includes the air bag sensors, the air bag modules, the wiring, and the crash sensing and diagnostic module. For more information on the air bag system, see Air Bag in the Index.

The air bag readiness light will come on when the ignition key is turned to the "RUN" or "START" position, and it will flash for a few seconds Then the light should go out This means the system is ready If the light doesn't come on when the ignition key is turned to the "RUN" or "START" position, then have it fixed so it will be ready to warn you if there is a problem

⚠ CAUTION

If the air bag readiness light stays on after you start your vehicle, it means the air bag system may not be working properly. The air bags in your vehicle may not inflate in a crash, or they could even inflate without a crash. To help avoid injury to yourself and others, have your vehicle serviced right away if the air bag readiness light stays on after you start your vehicle.

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Appendix D

Miscellaneous Test Information

Channel Report

3/29/2002 4 16 41 AM

Name of Test 020329 **System** MINIDAU **Name of DAU** DAU6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status		Group	Mfg.	Model
6001	EVENT	SYNC6	SYNC6		5 12	V	+	11/21/2002	OK	-1	TRC	Event
6002	AD4H9	HEDXG1	Head X-Axis Accel	Rear	806 8583	g	-	10/4/2001	OK	230n	Endevco	7231C
6003	AD4J7	HEDYG1	Head Y-Axis Accel	Left	788 37152	g	-	10/4/2001	OK	230n	Endevco	7231C
6004	AD4J8	HEDZG1	Head Z-Axis Accel	Up	799 75008	g	-	10/4/2001	OK	230n	Endevco	7231C
6005	1716A-1221-FX	NEKXF1	Neck X-Axis Force	Hd Fd	8908 7889	N	-	10/4/2001	OK	230n	Denton	1716A
6006	1716A-1221-FY	NEKYF1	Neck Y-Axis Force	Hd Lt,	8893 6136	N	+	10/4/2001	OK	230n	Denton	1716A
6007	1716A-1221-FZ	NEKZF1	Neck Z-Axis Force	Hd U	13357 727	N	+	10/4/2001	OK	230n	Denton	1716A
6008	1716A-1221-MX	NEKXM1	Neck X-Axis Moment	Rt Ear	282 12505	N m	-	10/4/2001	OK	230n	Denton	1716A
6009	1716A-1221-MY	NEKYM1	Neck Y-Axis Moment	Chn t	282 44483	N m	+	10/4/2001	OK	230n	Denton	1716A
6010	1716A-1221-MZ	NEKZM1	Neck Z-Axis Moment	Chn t	281 95854	N m	+	10/4/2001	OK	230n	Denton	1716A
6011	ACTR4	CSTXG1	Chest X-Axis Accel	Fwd	399 64095	g	+	10/4/2001	OK	230n	Endevco	7231C
6012	ACTT4	CSTYG1	Chest Y-Axis Accel	Left	400 51316	g	-	10/4/2001	OK	230n	Endevco	7231C
6013	ACTW0	CSTZG1	Chest Z-Axis Accel	Down	399 64095	g	+	10/4/2001	OK	230n	Endevco	7231C
6014	85427-1	CSTXD1	Chest Displacement	Strnm	100 52575	mm	+	10/8/2001	OK	230n	Servo	14CB1-2847
6015	2430T-984	LFMZF1	Left Femur Z-Axis 60	Knee	13332 658	N	+	10/4/2001	OK	230n	GSE	2430T
6016	2430T-985	RFMZF1	Right Femur Z-Axis 28	Knee	13333 990	N	+	10/4/2001	OK	230n	GSF	2430T
6017	APDJ3	HEDXG2	Head X-Axis Accel	Rwd	792 86422	g	-	10/4/2001	OK	314n	Endevco	7231C
6018	AGHP8	HEDYG2	Head Y-Axis Accel	Left	790 48942	g	-	10/4/2001	OK	314n	Endevco	7231C
6019	APD60	HEDZG2	Head Z-Axis Accel	Up	798 65227	g	-	10/4/2001	OK	314n	Endevco	7231C
6020	1716-0534-FX	NEKXF2	Neck X-Axis Force	Hd Fd	8893 1425	N	-	10/4/2001	OK	314n	Denton	1716
6021	1716-0534-FY	NEKYF2	Neck Y-Axis Force	Hd Lt,	8908 9816	N	+	10/4/2001	OK	314n	Denton	1716
6022	1716-0534-FZ	NEKZF2	Neck Z-Axis Force	Hd U	13335 889	N	+	10/4/2001	OK	314n	Denton	1716
6023	1716-0534-MX	NEKXM2	Neck X-Axis Moment	Rt Ear	282 16667	N m	-	10/4/2001	OK	314n	Denton	1716
6024	1716-0534-MY	NEKYM2	Neck Y-Axis Moment	Chn t	282 67839	N m	+	10/4/2001	OK	314n	Denton	1716
6025	1716-0534-MZ	NEKZM2	Neck Z-Axis Moment	Chn t	282 16646	N m	+	10/4/2001	OK	314n	Denton	1716
6026	C13010	CSTXG2	Chest X-Axis Accel	Fwd	403 90016	g	+	10/4/2001	OK	314n	Endevco	7231C
6027	C14563	CSTYG2	Chest Y-Axis Accel	Left	399 29499	g	-	10/4/2001	OK	314n	Endevco	7231C
6028	AD343	CSTZG2	Chest Z-Axis Accel	Down	401 32311	g	+	10/4/2001	OK	314n	Endevco	7231C
6029	14CB1-2847-041	CSTXD2	Chest Displacement	Strnm	99 912030	mm	+	10/10/2001	OK	314n	Servo	14CB1-2847
6030	2430T-962	LFMZF2	Left Femur Z-Axis 91	Knee	13343 424	N	+	10/4/2001	OK	314n	GSE	2430T

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6031	2430T-982	RFMZF2	Right Femur Z-Axis 98	Knee	13351 72	N	+	10/4/2001	OK	314n	GSE	2430T
6032	J39361	TLRXG1	LEFT REAR SEAT X-MEMBE	FWD	401 60643	g	+	10/29/2001	OK	-1	Endevco	7264-2000TZ

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020329

Channel Report

3/29/2002 4 16 41 AM

Name f Test 020329 **System** MINIDAU **Name of DAU** DAU7

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal. Date/Status		Group	Mfg.	Model
7001	J40561	BCLXG1	LEFT FRON1 DISC BRAKE C	FWD	978 93006	g	+	3/25/2002	OK	-1	Endevco	7264-20001Z
7002	J40724	1RRXG1	RIGHT REAR SI-AT X-MEMB	RR	402 87045	g	-	11/7/2001	OK	-1	Endevco	7264-2000TZ
7003	J38609	BCRXG1	RIGHT FRON1 DISC BRAKE	RR	1009 2647	g	-	12/13/2001	OK	-1	Endevco	7264-2000TZ
7004	J39421	ENGXG1	TOP ENGINE BI OCK	FWD	989 94586	g	+	3/14/2002	OK	-1	Fndevco	7264-2000TZ
7005	J38494	ENGXG2	BOTTOM ENGINE BLOCK	RR	1027 6172	g	-	12/19/2001	OK	-1	Endevco	7264-2000TZ
7006	J40727	DPCXG1	INSTURMENT PANEL CENTE	FWD	1010 8189	g	+	3/25/2002	OK	-1	Endevco	7264-2000TZ
7007	J38801	TFCZG1	REAR TRUNK CENTER LINE	UP	401 38604	g	-	11/21/2001	OK	-1	Fndevco	7264-2000TZ

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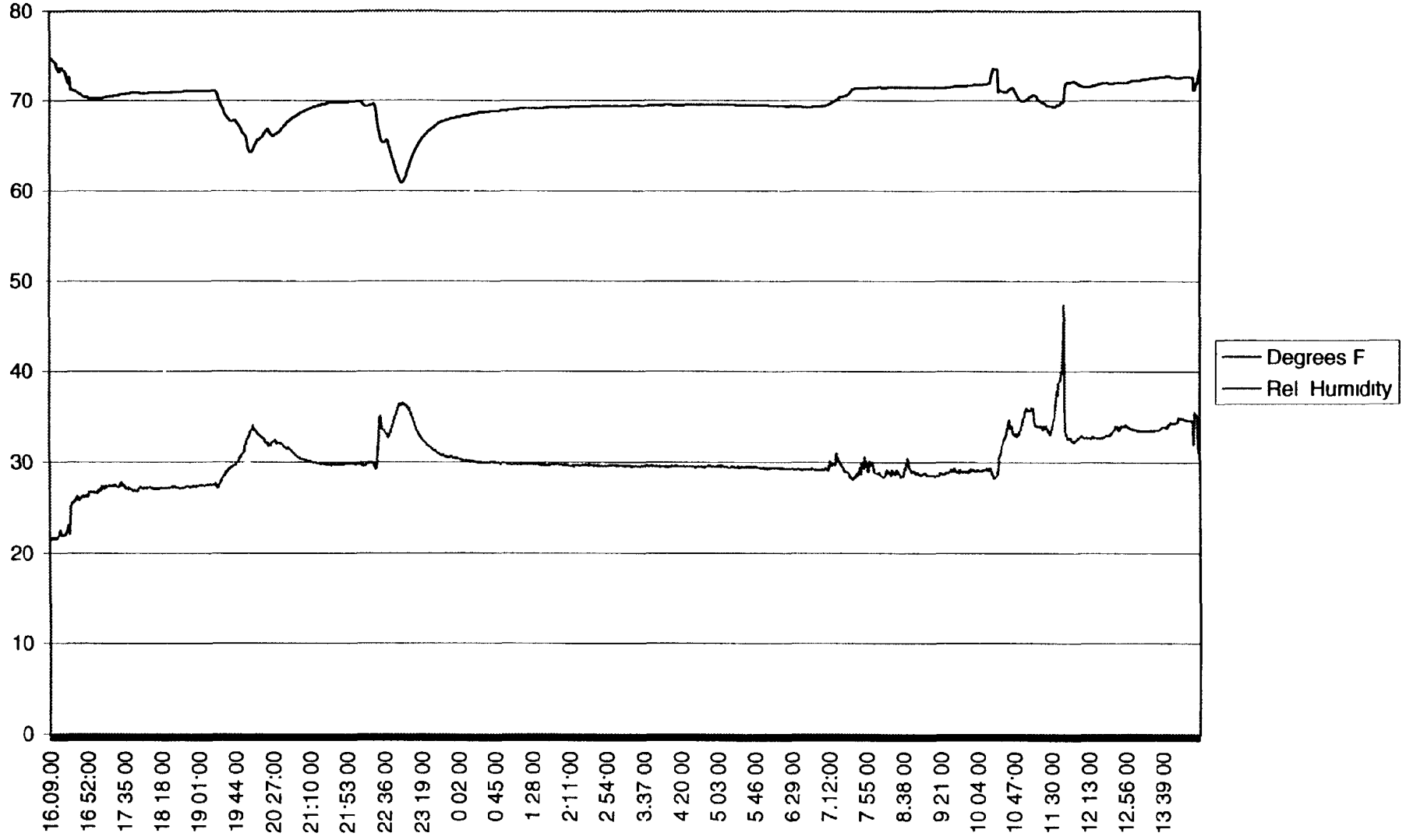
Dummy 230n **Type** HYBRID III 50TH **Description** NHTSA - 230n HYBRID III 50TH CAL DUE 4-3-02 (DKS 10-10-01) J211

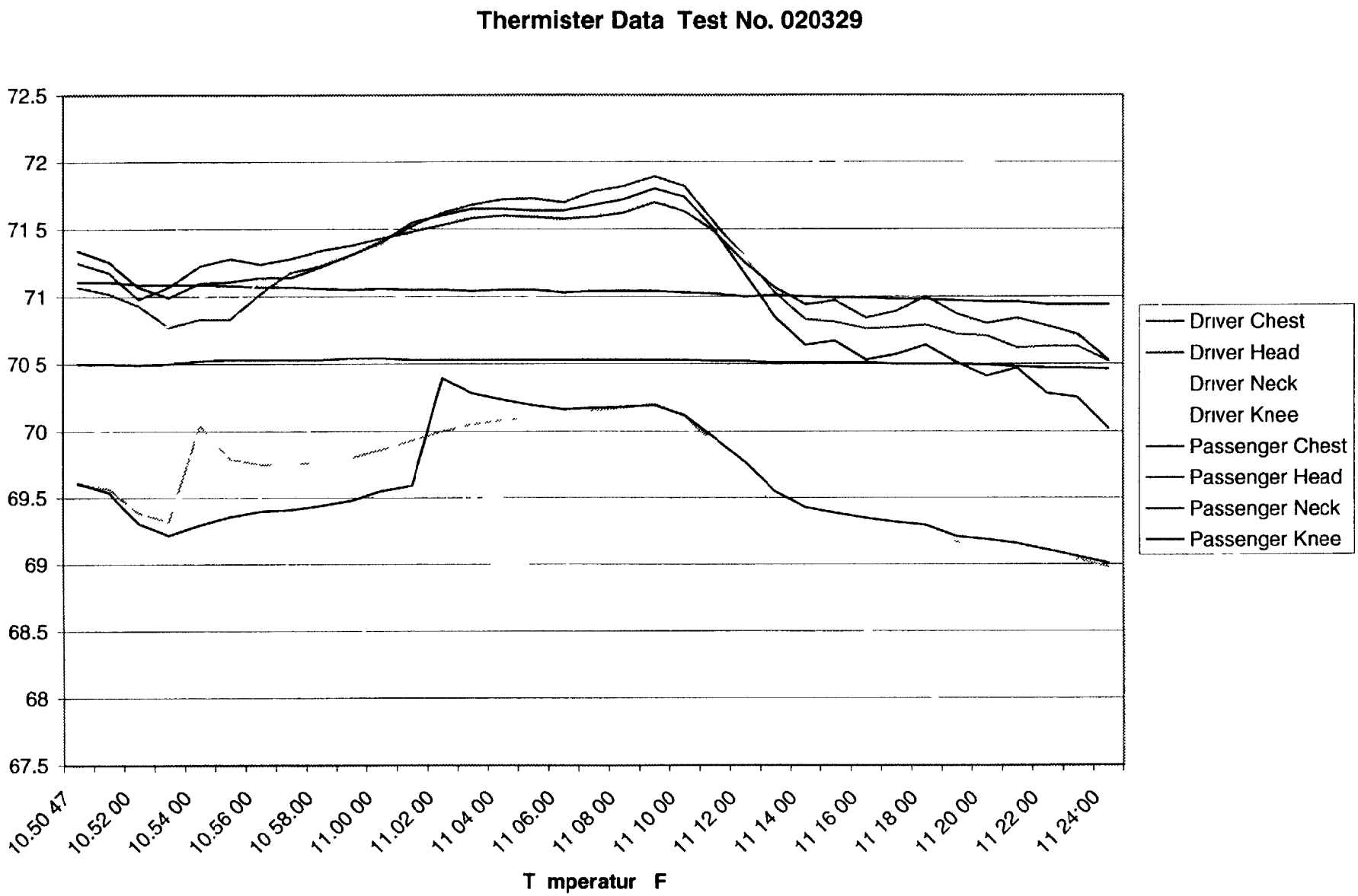
Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U		Fullscale	Caldate	Pos Output	Flip
HFDXG	Head X-Axis Accel	7231C	AD4H9	Endevco	0 01983	g	750	10/4/01	Rear	1
HEDYG	Head Y-Axis Accel	7231C	AD4J7	Endevco	0 01968	g	750	10/4/01	Left	1
HEDZG	Head Z-Axis Accel	7231C	AD4J8	Endevco	0 0194	g	750	10/4/01	Up	1
NEKXF	Neck X-Axis Force	1716A	1716A-1221 FX	Denton	0 000197496	N	8896 4	10/4/01	Hd Fd,Cst Rr	1
NEKYF	Neck Y-Axis Force	1716A	1716A-1221 FY	Denton	0 000191898	N	8896 4	10/4/01	Hd I t,Cst Rt	0
NEKZF	Neck Z-Axis Force	1716A	1716A-1221-FZ	Denton	0 000100078	N	13344 6	10/4/01	Hd Up,Cst Dn	0
NEKXM	Neck X-Axis Moment	1716A	1716A-1221-MX	Denton	0 006151858	N m	282 5	10/4/01	Rt Ear to Rt Shld	1
NEKYM	Neck Y-Axis Moment	1716A	1716A-1221 MY	Denton	0 006042478	N m	282 5	10/4/01	Chn to Strnm	0
NEKZM	Neck Z Axis Moment	1716A	1716A-1221-MZ	Denton	0 008606018	N m	282 5	10/4/01	Chn to Lt Shld	0
CSTXG	Chest X-Axis Accel	7231C	ACTR4	Endevco	0 01971	g	750	10/4/01	Fwd	0
CSTYG	Chest Y-Axis Accel	7231C	ACTT4	Endevco	0 01908	g	750	10/4/01	I eft	1
CSTZG	Chest Z-Axis Accel	7231C	ACTW0	Endevco	0 01971	g	750	10/4/01	Down	0
CSTXD	Chest Displacement	14CB1-2847	85427-1	Servo	1 1445444	mm	100	10/8/01	Strnm Away Frm Spn	0
LFMZF	Left Femur Z-Axis 60	2430T	2430T-984	GSE	0 000071512	N	13344	10/4/01	Knee Fd,Pel Rr	0
RFMZF	Right Femur Z Axis 28	2430T	2430T-985	GSE	0 000069436	N	13344	10/4/01	Knee Fd,Pel Rr	0

Dummy 314n **Type** HYBRID III 50TH **Description** NHTSA - 314n HYBRID III 50TH CAL DUE 4-3-02 (DKS 10-10-01) J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U		Fullscale	Caldate	Pos Output	Flip
HEDXG	Head X-Axis Accel	7231C	APDJ3	Endevco	0 02018	g	750	10/4/01	Rwd	1
HEDYG	Head Y-Axis Accel	7231C	AGHP8	Endevco	0 01905	g	750	10/4/01	Left	1
HEDZG	Head Z-Axis Accel	7231C	APD60	Endevco	0 02068	g	750	10/4/01	Up	1
NEKXF	Neck X-Axis Force	1716	1716-0534-FX	Denton	0 00019255	N	8896 4	10/4/01	Hd Fd,Cst Rr	1
NEKYF	Neck Y-Axis Force	1716	1716-0534-FY	Denton	0 000187199	N	8896 4	10/4/01	Hd Lt,Cst Rt	0
NEKZF	Neck Z-Axis Force	1716	1716-0534-FZ	Denton	0 000087256	N	13344 6	10/4/01	Hd Up,Cst Dn	0
NEKXM	Neck X-Axis Moment	1716	1716-0534-MX	Denton	0 00596885	N m	282 5	10/4/01	Rt Ear to Rt Shld	1
NEKYM	Neck Y-Axis Moment	1716	1716 0534-MY	Denton	0 005899823	N m	282 5	10/4/01	Chn to Strnm	0
NEKZM	Neck Z-Axis Moment	1716	1716-0534 MZ	Denton	0 00832354	N m	282 5	10/4/01	Chn to I t Shld	0
CSTXG	Chest X-Axis Accel	7231C	C13010	Endevco	0 02948	g	750	10/4/01	Fwd	0
CSTYG	Chest Y-Axis Accel	7231C	C14563	Endevco	0 02982	g	750	10/4/01	Left	1
CSTZG	Chest Z-Axis Accel	7231C	AD343	Endevco	0 01933	g	750	10/4/01	Down	0
CSTXD	Chest Displacement	14CB1-2847	14CB1-2847 041	Servo	1 1262655	mm	100	10/10/01	Strnm Away Frm Spn	0
LFMZF	Left Femur Z-Axis 91	2430T	2430T-962	GSE	0 00007002	N	13344 7	10/4/01	Knee Fd,Pel Rr	0
RFMZF	Right Femur Z-Axis 98	2430T	2430T-982	GSE	0 000068477	N	13344 7	10/4/01	Knee Fd,Pel Rr	0

Occupant Compartm nt Temperature Data Test No. 020329

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