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212-TRC-94-009
301-TRC-94-009

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

Mazda Motor Corporation

1994 Mazda 929

4-door sedan

NHTSA Number: CR5401

TRC Test Number: 940210

Transportation Research Center Inc.

10820 State Route 347

East Liberty, Ohio 43319



February 28, 1994

Final Report

Prepared For:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Office of Vehicle Safety Compliance (NEF-31)
400 Seventh Street, S.W., Room No. 6115
Washington, DC 20590

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16. Abstract A 30 mph flat frontal barrier impact test was conducted on a 1994 Mazda 929 4-door sedan, NHTSA No. CR5401, at Transportation Research Center Inc. on February 10, 1994. This test was conducted to determine compliance with Federal Motor Vehicle Safety Standards: FMVSS 208, "Occupant Crash Protection"; 212, "Windshield Mounting"; 219 (partial), "Windshield Zone Intrusion"; and 301 "Fuel System Integrity." The barrier impact velocity was 29.3 mph. The vehicle's maximum static crush was 15.3 inches. The ambient temperature was 69° F. The driver's head injury criteria (HIC) was 327. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 51.6 g. The driver's left and right femur maximum axial forces were 1400 pounds and 1349 pounds, respectively. The passenger's HIC was 209. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 35.8 g. The passenger's left and right femur maximum axial forces were 1613 pounds and 1513 pounds, respectively. The vehicle appears to comply with the applicable requirements of FMVSS 208, 212, 219 (partial), and 301.					
17. Key Words Frontal Impact 30 mph Vehicle Safety Compliance Testing: FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219 (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"				18. Distribution Statement Available from: NHTSA Technical Reference Division Room 5108, (NAD-52) 400 Seventh Street, S.W. Washington, DC 20590 Attn: Mr. Robert Hornickle	
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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	meters	m
yd	yards	0.9	kilometers	km
mi	miles	1.6		
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	0.96	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.75	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

* 1 in = 2.54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 296, 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
in	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

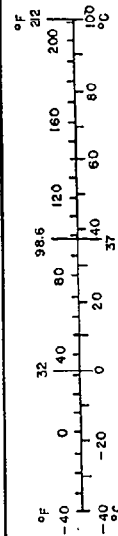


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Section 1.0

Purpose and Test Procedure

Purpose

This 30 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) under Contract No. DTNH22-93-D-01089. The purpose of this test was to determine if the subject vehicle, a 1994 Mazda 929 4-door sedan, NHTSA No. CR5401, meets the performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; 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-208-09. Data was obtained relative to FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; 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 28.9 to 29.9 mph. The vehicle impacted a flat frontal barrier.

The test vehicle contained two (2) Part 572 B 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.

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

The twenty-four (24) data channels were multiplexed and recorded on a 14-track tape drive. The data was 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. The vehicle, occupant, and camera measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the manufacturer's vehicle information.

Section 2.0

Frontal Barrier Impact Test Summary

Test Results Summary

This flat frontal barrier test was conducted at TRC on February 10, 1994.

The test vehicle, a 1994 Mazda 929 4-door sedan, NHTSA No. CR5401, appeared to comply with the performance requirements of FMVSS 208, 212, 219 (partial), and 301 in the flat frontal barrier impact mode. The Head Injury Criteria (HIC) calculations were less than 1000, the chest resultant accelerations did not exceed 60 g's, and the compressive forces transmitted through the upper legs did not exceed 2,250 pounds as measured by Part 572 B dummies seated in the front outboard designated seating positions. The vehicle's restraint system met the applicable comfort and convenience requirements. 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 or during the static rollover test.

The test vehicle was equipped with airbags at the driver's and right front passenger's seating positions. The vehicle's test weight was 4036 pounds. The vehicle's impact speed was 29.3 mph. The vehicle's maximum static crush was 15.3 inches.

The driver's HIC was 327. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 51.6 g. The driver's left and right femur maximum compressive forces were 1400 pounds and 1349 pounds, respectively.

The right front passenger's HIC was 209. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 35.8 g. The right front passenger's left and right femur maximum compressive forces were 1613 pounds and 1513 pounds, respectively.

There was no loss of windshield periphery retention.

There was no penetration through the windshield.

Following the impact, no fluid spilled from the vehicle's fuel system prior to the static rollover test or during any portion of the static rollover test.

Data Acquisition Explanations

The engine bottom X-axis accelerometer, ENGXG2, lost data at 37 milliseconds as a result of the accelerometer cable being cut by the vehicle's crush on impact.

Table 1 Crash Test Summary

NHTSA number:	CR5401
Test type:	Frontal barrier impact
Test date:	02/10/94
Test time:	1426
Ambient temperature at impact area:	69° F
Vehicle year/make/ model/body style:	1994/Mazda/929/4-door sedan
Vehicle test weight:	4036 lb
Impact angle ¹ :	0°
Impact velocity ² :	
Primary:	29.3 mph
Secondary:	29.3 mph
Maximum static crush:	15.3 in
Average rebound:	25.0 in
Number of cameras:	
Real-time:	2
High-speed:	14
Door opening data:	
Left front/rear:	Easy/Easy
Right front/rear:	Easy/Easy

¹ With respect to tow track centerline.

² Speed trap measurement ($\pm .05$ mph accuracy)

Table 1 Crash Test Summary, Cont'd.

Dummies:	<u>Driver #354</u>	<u>Passenger #353</u>
Type:	Part 572 B	Part 572 B
Location:	Left front	Right front
Restraint:	Airbag	Airbag
Number of data channels:	8	8
Front seat data:		
Seat track failure:	None	None
Seat back failure:	None	None
Visible dummy contact points:		
Head:	Airbag, sun visor, & head rest	Airbag & sun visor
Chest:	Airbag	Airbag
Abdomen:	None	None
Left knee:	Instrument panel	Instrument panel
Right knee:	Instrument panel	Instrument panel

Table 2 Test Vehicle Information

Vehicle year/make/
model/body style: 1994/Mazda/929/4-door sedan

Color: Black

VIN: JM1HD4619R0301491

NHTSA number: CR5401

Engine data:

Placement: Longitudinal/inline

Cylinders: 6

Displacement: 3.0 liters

Transmission data: 4 speed, ___ manual, X automatic, ___ overdrive

Final drive: ___ fwd, X rwd, ___ 4wd

Date vehicle received: 02/01/94

Odometer reading: 412

Dealer's name
and address: Ricart Mazda
4255 N. Hamilton Rd.
Columbus, OH 43230

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	Yes	Tilting steering wheel	No
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	Yes
Power door locks	Yes	Other	Sunroof

Certification data from vehicle's label:

Vehicle manufactured by: Mazda Motor Corporation

Date of manufacture: 07/93

VIN: JM1HD4619R0301491

GVWR: 4497 lb

GAWR: Front: 2202 lb

Rear: 2372 lb

Table 2 Vehicle Information, Cont'd.

Size of tires on vehicle: P205/65R15

Tire pressure with maximum
capacity vehicle load:

Front: 35 psi

Rear: 35 psi

Spare tire: Space saver

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P205/65R15

Recommended cold tire pressure:

Front: 28 psi

Rear: 28 psi

Designated seating capacity:

Front: 2

Rear: 3

Total: 5

Vehicle capacity weight: 850 lbs.

Test vehicle attitudes:

Delivered attitude: LF: 27.7 in. RF: 27.7 in LR: 27.5 in RR: 27.6 in

Fully loaded attitude: LF: 27.1 in RF: 27.1 in LR: 26.2 in RR: 26.2 in

Pre-test attitude: LF: 27.4 in RF: 27.2 in LR: 26.5 in RR: 26.5 in

Table 2 Test Vehicle Information, Cont'd.

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

Right front	964	lb	Right rear	840	lb
Left front	977	lb	Left rear	846	lb
Total front weight	1941	lb	(53.5% of total vehicle weight)		
Total rear weight	1686	lb	(46.5% of total vehicle weight)		
Total delivered weight	3627	lb			

Calculation of test vehicle's target test weight:

RCLW¹ = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3627 lb)

VCW = Vehicle Capacity Weight (850 lb)

DSC = Designated Seating Capacity (5)

RCLW¹ = VCW - 150 (DSC) = 850 - 150(5) = 100

Target test weight = UDW + RCLW¹ + (Number of Hybrid II dummies
x 164 lb per dummy)

Target test weight = 3627 + 100 + 328 = 4055 lb

Weight of test vehicle with required dummies and 81 lb of cargo weight:

Right front	1044	lb	Right rear	993	lb
Left front	1030	lb	Left rear	969	lb
Total front weight	2074	lb	(51.4% of total vehicle weight)		
Total rear weight	1962	lb	(48.6% of total vehicle weight)		
Total test weight	4036	lb	(0.5% under target test weight)		

Weight of ballast secured in vehicle cargo area: 60 lb

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 54.2 in

Vehicle Wheelbase: 111.5 in

¹ Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 300 pounds, whichever is less.

Table 3 Post-Impact Data

Test number: 940210
NHTSA number: CR5401
Test date: 02/10/94
Test time: 1426
Test type: Frontal barrier impact
Impact angle: 0°
Ambient temperature
at impact area: 69° F
Temperature in
occupant compartment: 75° F
Impact velocity:
Primary: 29.3 mph
Secondary: 29.3 mph
Specified range: 28.9 to 29.9 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:

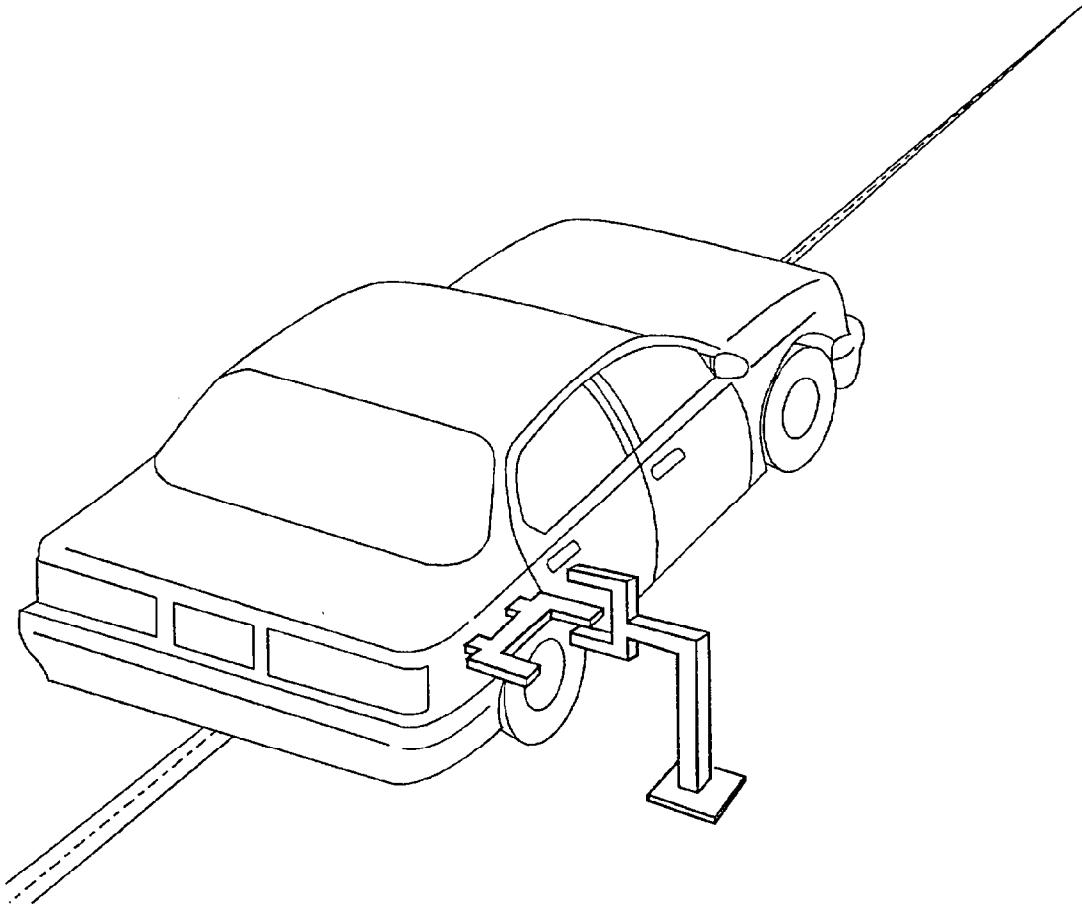
Pre-test:	L:	186.6 in	C:	193.0 in	R:	187.0 in
Post-test:	L:	173.8 in	C:	177.8 in	R:	176.4 in
Total crush:	L:	12.8 in	C:	15.2 in	R:	10.6 in
Average crush:		12.9 in				

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test:	L:	26.8 in	C:	22.8 in	R:	25.3 in
Average rebound:		25.0 in				

Figure 1 Impact Velocity Measurement System



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

The vanes have a one-foot spacing.

Figure 2 Accident Investigation Division Data for 30 mph Frontal Barrier Impact

NHTSA number: CR5401
 Test date: 02/10/94
 Vehicle year/make/
 model/body style: 1994/Mazda/929/4-door sedan
 Vehicle size category: Mid-size
 VIN: JM1HD4619R0301491
 Build date: 07/93
 Test weight: 4036 lb
 Vehicle wheelbase: 111.5 in
 Maximum width: 70.5 in
 Front overhang: 34.2 in

Collision Deformation

Classification (CDC) Code: 12FDEW2

Crush depth
 measurements:

C1:	12.8 in
C2:	14.3 in
C3:	15.3 in
C4:	14.3 in
C5:	12.8 in
C6:	10.6 in

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged
 region:

L:	57.5 in
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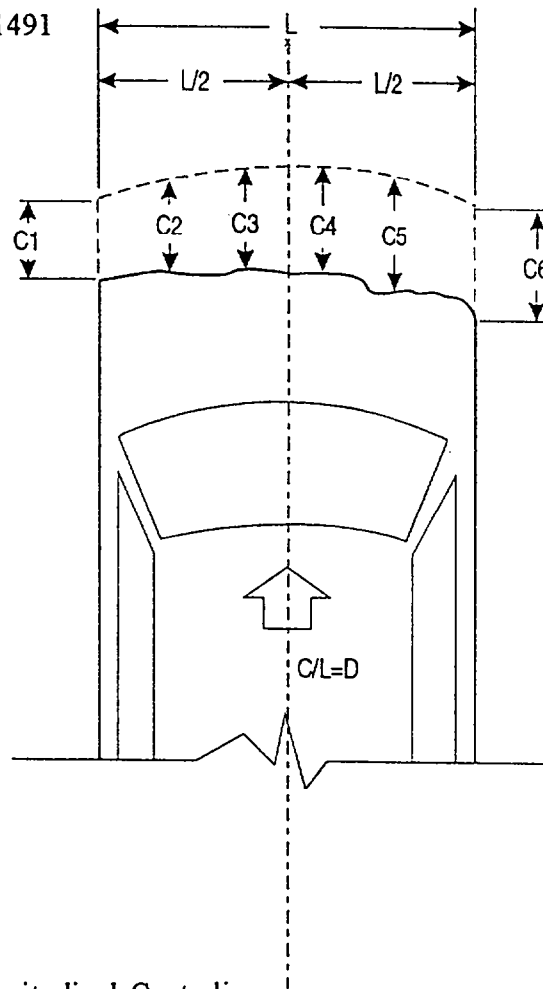


Table 4 Post-test Airbag Data

NHTSA number: CR5401
Test date: 02/10/94
Technician: Markusic
Vehicle year/make/
model/body style: 1994/Mazda/929/4-door sedan

A. Number of airbag vent holes:

Driver: 2
Passenger: 2

B. Size of airbag vent holes:

Driver: 1.2 in dia
Passenger: 1.8 in dia

C. Total airbag vent area:

Driver: 2.3 in²
Passenger: 5.1 in²

D. Deflated airbag length and width dimensions or, if round, diameter

Driver:	Length	NA
	Width	NA
	Diameter	26.3
Passenger:	Length:	35.5
	Width:	40.8
	Diameter:	NA

Table 4 Post-test Airbag Data, Cont'd.

E. Is the airbag tethered?

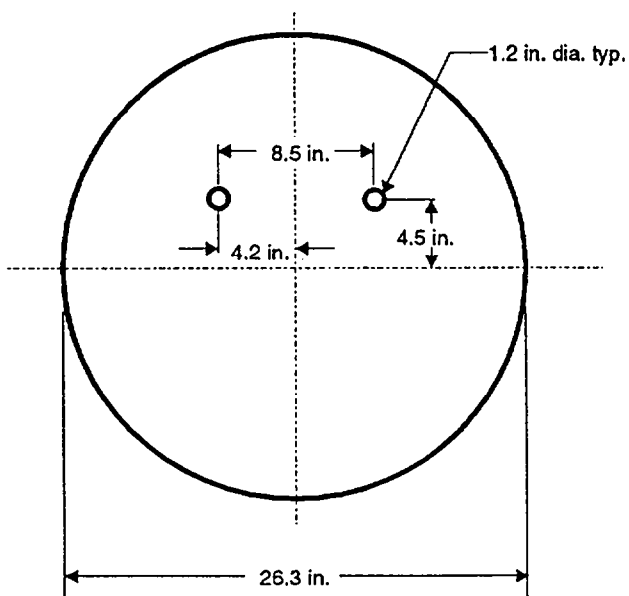
Driver: No

If yes, record length of tether: NA

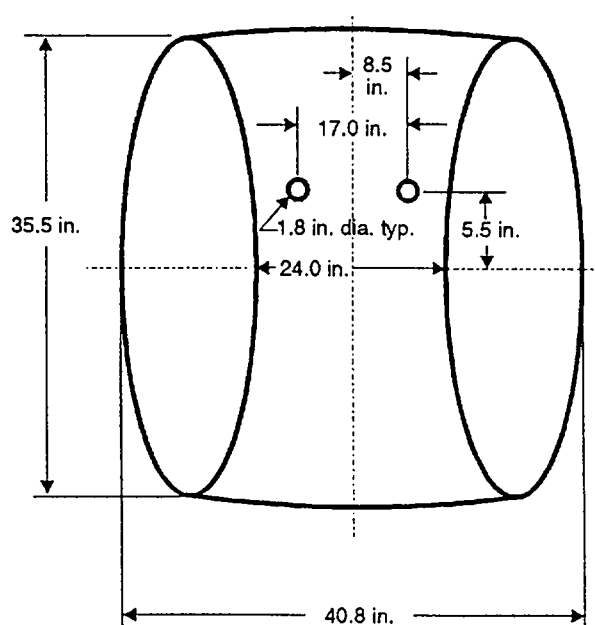
Passenger: No

If yes, record length of tether: NA

Driver's airbag:



Passenger's airbag:

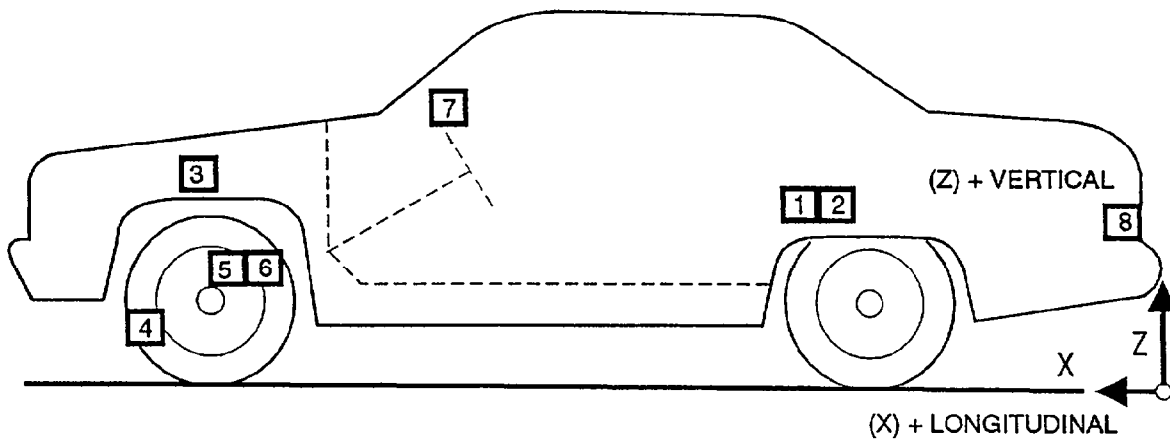


F. Airbag and gas generator part numbers and manufacturer's names.

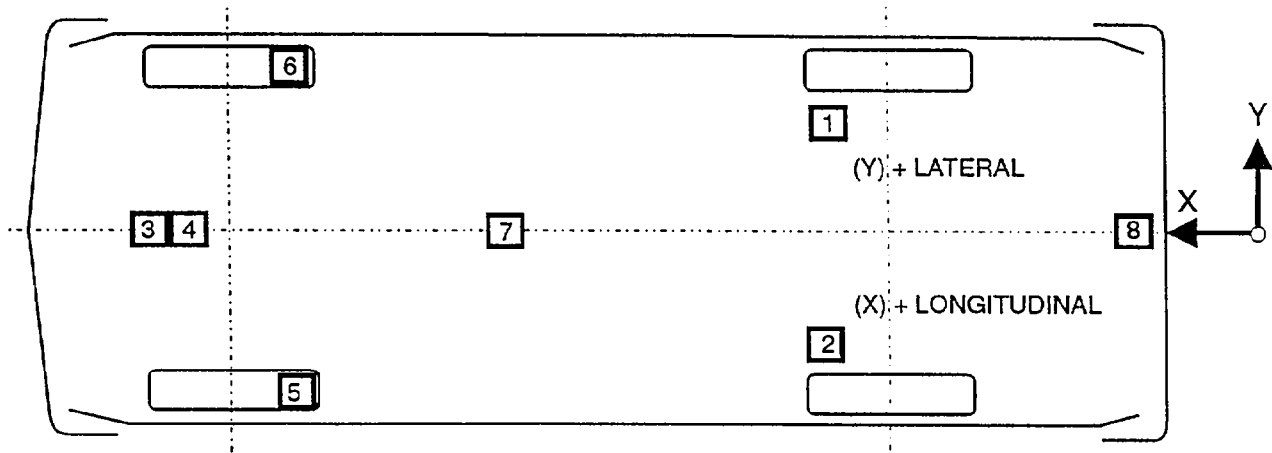
Driver: TRW, Airbag: CU5-93D004-#1, Gen: A10301028070

Passenger: TRW, Airbag: VSSI HG30-57-K50-C, Gen: 303171B203071

Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 5 Vehicle Accelerometer Locations and Data Summary

No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE 78.8 in	20.6 in	12.7 in		
	POST 78.3 in	20.8 in	14.2 in	2.0 g @ 122.2 ms	31.9 g @ 18.6 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE 79.0 in	-20.5 in	13.1 in		
	POST 79.0 in	-20.8 in	13.5 in	2.4 g @ 22.9 ms	37.6 g @ 18.6 ms
3 ENGINE TOP LONGITUDINAL	PRE 156.1 in	4.6 in	33.0 in		
	POST 154.5 in	5.2 in	34.2 in	26.4 g @ 60.4 ms	93.3 g @ 43.4 ms
4 ENGINE BOTTOM LONGITUDINAL ¹	PRE 162.0 in	5.2 in	9.0 in		
	POST 161.5 in	6.2 in	10.2 in	--- g @ --- ms	--- g @ --- ms
5 RIGHT BRAKE CALIPER LONGITUDINAL	PRE 156.0 in	-26.2 in	13.4 in		
	POST 152.4 in	-27.4 in	15.6 in	29.4 g @ 52.4 ms	78.7 g @ 40.6 ms
6 LEFT BRAKE CALIPER LONGITUDINAL	PRE 155.8 in	26.8 in	13.5 in		
	POST 152.2 in	27.4 in	14.8 in	31.8 g @ 56.6 ms	67.2 g @ 39.3 ms
7 INSTRUMENT PANEL CENTER LONGITUDINAL	PRE 133.0 in	0.0 in	37.4 in		
	POST 133.1 in	-0.5 in	37.5 in	4.4 g @ 132.6 ms	52.8 g @ 64.8 ms
8 VEHICLE REAR CENTER VERTICAL	PRE 8.2 in	-1.5 in	18.0 in		
	POST 8.2 in	-1.5 in	20.5 in	12.9 g @ 12.3 ms	7.1 g @ 31.0 ms

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

¹ See DATA ACQUISITION EXPLANATIONS

Report of Vehicle Condition at the Completion of Testing

Contract number: DTNH22-93-D-01089

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

To: Mr. Charles Case, COTR
Office of Vehicle Safety Compliance

The following vehicle has been subjected to testing for FMVSS 208. The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager/NAD-30, with a carbon copy to the responsible testing office. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

NHTSA number: CR5401
Vehicle year/make/
model/body style: 1994/Mazda/929/4-door sedan
Body color: Black
VIN: JM1HD4619R0301491
Odometer (arrival): 412 Date: 02/01/94
Odometer (completion): 417 Date: 02/10/94
Cost: \$27,925.00

Air conditioner	Yes	Console	Yes	Brakes	Power
Tinted glass	Yes	Tachometer	Yes	Front	Disc ABS
Power steering	Yes	Speed control	Yes	Rear	Disc ABS
Power windows	Yes	Rear window def.	Yes	Front seats	Elec. adjustable
Power door locks	Yes	Sun/moon roof	Yes	Seat type	Front-Bucket
Radio	Yes	T-top	No		Rear-Bench
Clock	Yes	Tilt steering wheel	No	Number of seats	5
Roof rack	No	Other options:	Passenger's power seat		

Report of Vehicle Condition at the Completion of Testing, Cont'd.

Engine data:

Cylinders: 6
Displacement: 3.0 liters
Transmission: Automatic
Final drive: RWD
Tire size: P205/65R15
Gasoline type: Unleaded

Equipment that is no longer on the vehicle as noted above:

rear seat
spare tire
trunk trim

Explanation:

Items removed to allow installation of data acquisition system.

VEHICLE CONDITION: Vehicle was subjected to a 30 mph crash test. There is severe structural damage. Various interior and exterior portions of the vehicle have been painted and have had holes drilled to facilitate attachment of instrumentation. Various trim and body parts have been removed including the rear seats. Stoddard solvent replaced the fuel in the fuel system and engine. THE VEHICLE IS FOR SALVAGE ONLY AND IS NOT TO BE REPAIRED FOR HIGHWAY USE.

Section 3.0

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

Table 6 Dummy Injury Criteria

Maximum Acceleration

	Head				Chest		
	X	Y	Z	R	X	Y	Z
Driver	-49.0 g	-10.0 g	-21.7 g	49.9 g	-53.6 g	-4.1 g	11.4 g
Passenger	-34.6 g	28.3 g	-26.5 g	42.4 g	-36.4 g	7.0 g	-9.6 g

Maximum Femur Compressive Force

	Left femur	Right femur
Driver	1400 lbf	1349 lbf
Passenger	1613 lbf	1513 lbf

Head Injury Criteria¹

	HIC	Time t ₁	Time t ₂
Driver	327	69.4 ms	104.8 ms
Passenger	209	61.3 ms	94.5 ms

Chest Maximum Resultant Acceleration²

	Accelerometer	Time t ₁	Time t ₂
Driver	51.6 g	87.7 ms	90.7 ms
Passenger	35.8 g	73.4 ms	76.4 ms

¹ As defined in FMVSS No. 208

² Defined as equal to or exceeding 0.003 sec. duration

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag. The driver dummy was restrained by the airbag. The dummy rebounded rearward into the seat back as the dummy's head contacted the driver's sun visor and then rotated rearward contacting the head restraint. The driver dummy came to rest in the driver's seat.

Right Front Passenger Dummy

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag with the dummy's head rotating downward and slightly to the left. The right front passenger dummy was restrained by the airbag. The dummy rebounded rearward and slightly upward into the seat back as the dummy's head rotated rearward contacting the passenger's sun visor and header. The right front passenger dummy came to rest in the right front passenger's seat, leaning to the left.

Table 7 FMVSS 208 Seat Belt Comfort and Convenience Test Summary
Front Outboard Designated Seating Positions

NHTSA number: CR5401

Vehicle model year/make/model/body style: 1994/Mazda/929/4-door sedan

Date of comfort/convenience check: 02/03/94

Technician performing check: Markusic

GVWR: 4497 lb

Automatic seat belts installed in any vehicle, other than a walk-in van-type vehicle which has a gross vehicle weight rating of 10,000 pounds or less, and is manufactured on or after September 1, 1986, shall meet the requirements for convenience hooks, webbing tension-relieving devices, and belt contact force.

Manual seat belts installed for compliance with this standard in front outboard designated seating positions of any vehicle, other than a walk-in van-type vehicle which has a gross vehicle rating of 10,000 pounds or less, and is manufactured after September 1, 1989, shall meet the requirements for belt contact force, plate access, retraction and seat belt guides, and hardware.

Vehicle Equipment:

The vehicle's front outboard seating positions were equipped with manual Type 2 seat belts which must comply with the dynamic test requirements of S5.1; requirements for webbing tension-relieving devices (S7.4.2), belt contact force (S7.4.3), latchplate access (S7.4.4), retraction (S7.4.5), and seat belt guides and hardware (S7.4.6) apply.

Convenience Hooks (S7.4.1):

Not applicable, the vehicle is not equipped with automatic seat belts.

Table 7 FMVSS 208 Seat Belt Comfort and Convenience Test Summary

Front Outboard Designated Seating Positions, Cont'd.

NHTSA number: CR5401

Vehicle model year/make/model/body style: 1994/Mazda/929/4-door sedan

Date of comfort/convenience check: 02/03/94

Technician performing check: Markusic

GVWR: 4497 lb

Webbing Tension-Relieving Device (S7.4.2):

The front outboard position seat belt assemblies do not have webbing tension-relieving devices.

Belt Contact Force (S7.4.3):

The belt contact force on chest of the test dummy is 0.2 pounds.

Latchplate Access (S7.4.4):

The seat belt latchplates, in their normal stowed position, are within the reach envelope.

The clearance test block moves unhindered to the latchplate or buckle.

Retraction (S7.4.5):

The seat belt automatically retracts when the seat belt latchplate is released.

The stowed seat belt webbing and hardware are not pinched when the door is closed.

Table 7 FMVSS 208 Seat Belt Comfort and Convenience Test Summary

Front Outboard Designated Seating Positions, Cont'd.

NHTSA number: CR5401

Vehicle model year/make/model/body style: 1994/Mazda/929/4-door sedan

Date of comfort/convenience check: 02/03/94

Technician performing check: Markusic

GVWR: 4497 lb

Seat Belt Guides and Hardware (S7.4.6):

The seat cushion is not removable so the seat back serves a function other than seating.

The seat is not removable.

The seat is not movable so the space formerly occupied by the seat can be used for a secondary function.

Note: If any of the above answers are "yes", the seat belt guides and hardware requirements do not apply.

Table 7 FMVSS 208 Seat Belt Comfort and Convenience Test Summary
Front Outboard Designated Seating Positions, Cont'd.

NHTSA number: CR5401

Vehicle model year/make/model/body style: 1994/Mazda/929/4-door sedan

Date of comfort/convenience check: 02/03/94

Technician performing check: Markusic

GVWR: 4497 lb

Seat Belt Guides and Hardware (S7.4.6), Cont'd.:

The webbing is not designed to pass through the seat cushion or between the cushion and seat back.

The restraint system does not provide guides.

The inboard receptacle end of the outboard seating position's seat belt is accessible with the center arm rest in any position to which it can be adjusted without moving the arm rest for access.

Table 8 FMVSS 208 Equipment Data

FMVSS 208 Seat Belt Warning System Data

With an occupant in the driver's position and the lap belt/unibelt in stowed position and ignition switch placed in the "start/on" position the duration of audible warning signal is 6 s and the reminder light operates continuously.

With an occupant in the driver's position and the lap belt/unibelt in use and the ignition switch placed in the "start/on" position the duration of audible warning signal is 0 s and the duration of the reminder light operation is 0 s.

NOTE: the audible warning should not operate.

The wording of the visual seat belt warning is the symbol from Table 2 of FMVSS 101.

Table 8 FMVSS 208 Equipment Data, Cont'd.

FMVSS 208 Labeling and Driver's Manual Data

The label which describes manufacturer's maintenance or replacement schedule for the crash-deployed occupant protection system was located on the driver's sun visor.

The airbag system does not require maintenance unless the "Airbag" lamp does not light when key is turned on, flashes, stays lit, or groups of five beeps are heard.

Appropriate instructions concerning maintenance and/or replacement of this system were provided in the owner's manual on page 2-38.

A description of the functional operation of the system was provided in the owner's manual on pages 2-34 to 2-36.

A reference to the instructions and description of the system was included on the label.

An owner's manual was provided.

The owner's manual contained appropriate information concerning maintenance and/or replacement and a description of the functional operation of the systems on pages 2-34 to 2-38.

Table 8 FMVSS 208 Equipment Data, Cont'd.

FMVSS 208 Readiness Indicator Data

The vehicle contained a crash-deployed occupant protection system which was not totally mechanical. The readiness indicator was located on the right edge of the instrument cluster.

The readiness indicator was clearly visible to the driver.

A list of the elements in the occupant restraint system, being monitored by the readiness indicator was provided in the owner's manual on page 2-35.

All rear outboard seating positions had Type 2 seat belts.

Figure 4 FMVSS 212 Test Data

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

Metal and plastic trim around outer perimeter and adhesive around inner perimeter.

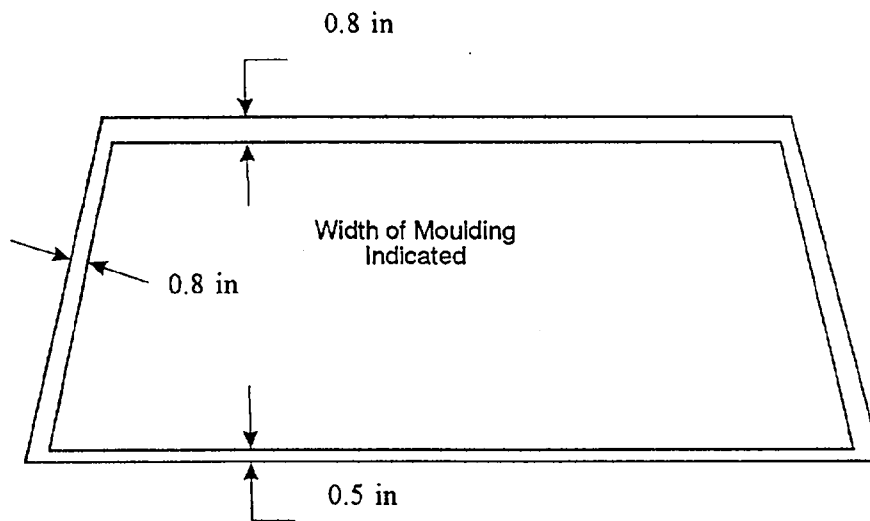
Clips or brackets used to retain windshield: None

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 automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

Windshield periphery measurements:

	Pre-test	Post-test	Percent Retention
Right side	83.0 in	83.0 in	100
Left side	83.0 in	83.0 in	100
Total	166.0 in	166.0 in	100

Pre-test windshield mounting material temperature: 75° F



Front view of windshield¹

Loss of windshield retention lengths: None

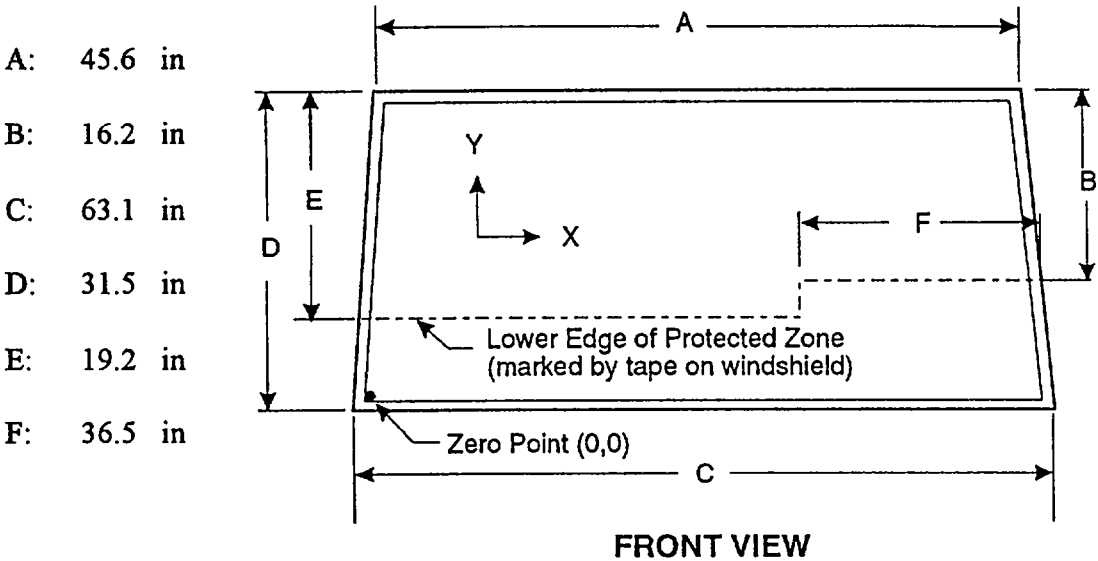
¹ Indicate areas of loss of retention, if any, on windshield diagram.

Figure 5 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:



Method of adhering protected zone template to windshield:

NA

Areas of windshield template penetration greater than 0.25 in:

NA

Coordinates

X	Y
1.	
2.	
3.	

Areas of windshield penetration, below the protected zone, through the inner surface of the windshield:

None

- 1.
- 2.
- 3.

Table 9 Fuel System Data

Vehicle year/make/ model/body style:	1994/Mazda/929/4-door sedan
NHTSA number:	CR5401
Fuel system capacity:	18.5 gal (from owner's manual)
Usable capacity:	18.0 gal (furnished by COTR)
Test volume range:	16.6 gal to 16.9 gal (92-94% of usable)
Actual test volume:	16.7 gal (with entire fuel system filled)
Test fluid type:	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistokes
Test fluid color:	purple
Type of fuel pump:	electric

Does electric fuel pump operate with ignition switch "on" and the engine not operating? No

Details of fuel system:

The fuel tank is located over the rear axle. The fuel filler neck is located on the left side.

The fuel lines run along the left side to the front.

Table 10 FMVSS 301 Post-Impact Test Data

NHTSA number: CR5401
Test date: 02/10/94
Vehicle year/make/
model/body style: 1994/Mazda/929/4-door sedan

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.

Test vehicle impact type:

- ☒ Frontal (30 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:

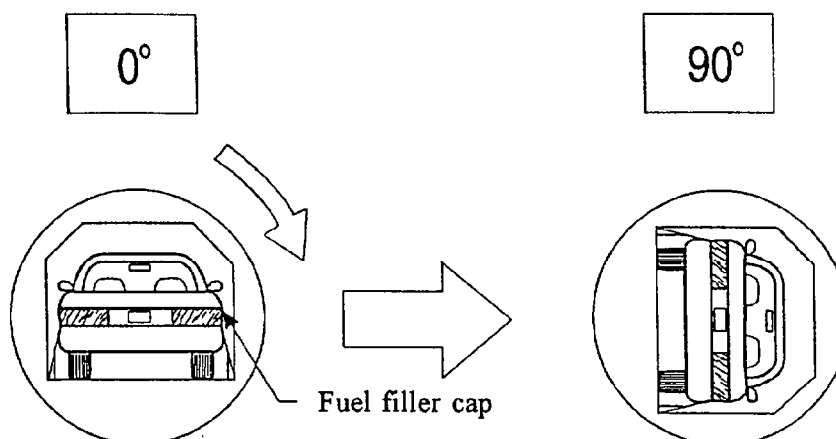
	Test Results	Maximum Allowable
1. From impact until vehicle motion ceases	0 oz	1 oz
2. 5-Minute period after vehicle motion ceases	0 oz	5 oz
3. Next 25 minutes after 5-minute period	0 oz	1 oz/1 min

Fuel system fluid spillage location(s): None

Figure 6 FMVSS 301 Static Rollover Test Data

NHTSA number: CR5401

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

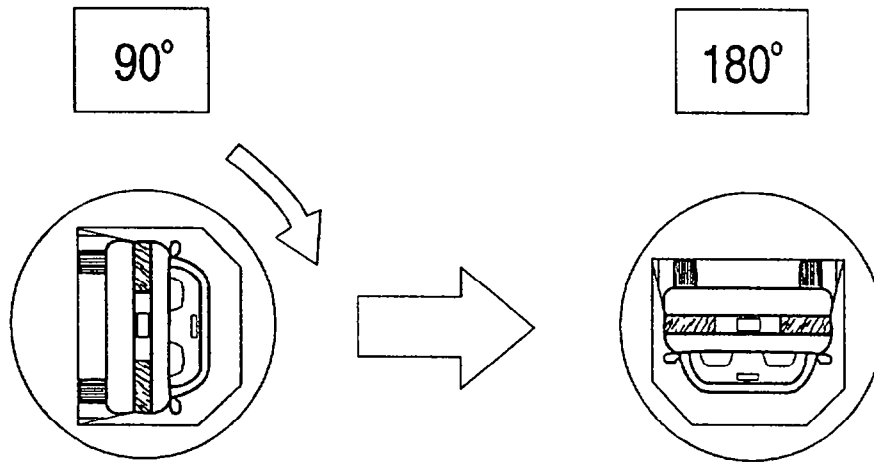
Fuel system fluid spillage measurements:

0° to 90° rotation (fuel filler cap down)	Test Results	Maximum Allowable
1. First 5 minutes from onset of rotation	0 oz	5 oz
2. Sixth minute from onset of rotation	0 oz	1 oz
3. Seventh minute from onset of rotation	0 oz	1 oz

Fuel system fluid spillage location(s): None

Figure 6 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

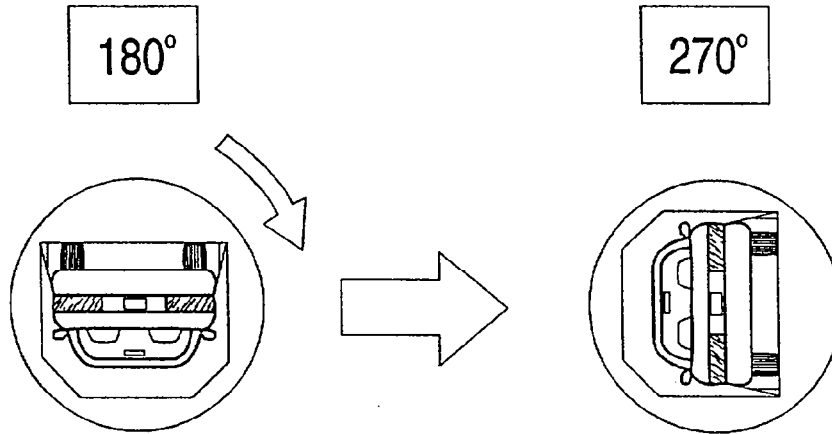
Fuel system fluid spillage measurements:

90° to 180° rotation	Test Results	Maximum Allowable
1. First 5 minutes from onset of rotation	0 oz	5 oz
2. Sixth minute from onset of rotation	0 oz	1 oz
3. Seventh minute from onset of rotation	0 oz	1 oz

Fuel system fluid spillage location(s): None

Figure 6 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

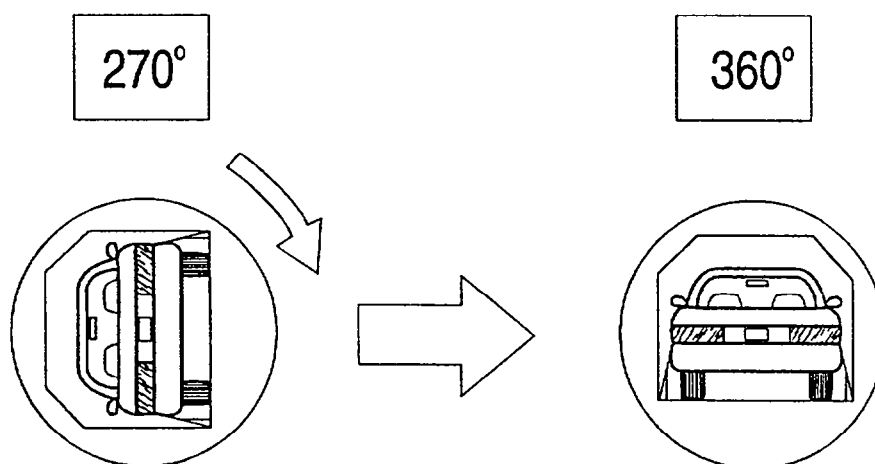
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>180 to 270° rotation</u>		
1. First 5 minutes from onset of rotation	0 oz	5 oz
2. Sixth minute from onset of rotation	0 oz	1 oz
3. Seventh minute from onset of rotation	0 oz	1 oz

Fuel system fluid spillage location(s): None

Figure 6 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:

<u>270° to 360° rotation</u>	<u>Test Results</u>	<u>Maximum Allowable</u>
1. First 5 minutes from onset of rotation	0 oz	5 oz
2. Sixth minute from onset of rotation	0 oz	1 oz
3. Seventh minute from onset of rotation	0 oz	1 oz

Fuel system fluid spillage location(s): None

Section 4.0

Vehicle, Occupant, and Camera Measurements

Figure 7 Pre-test and Post-test Measurement Points

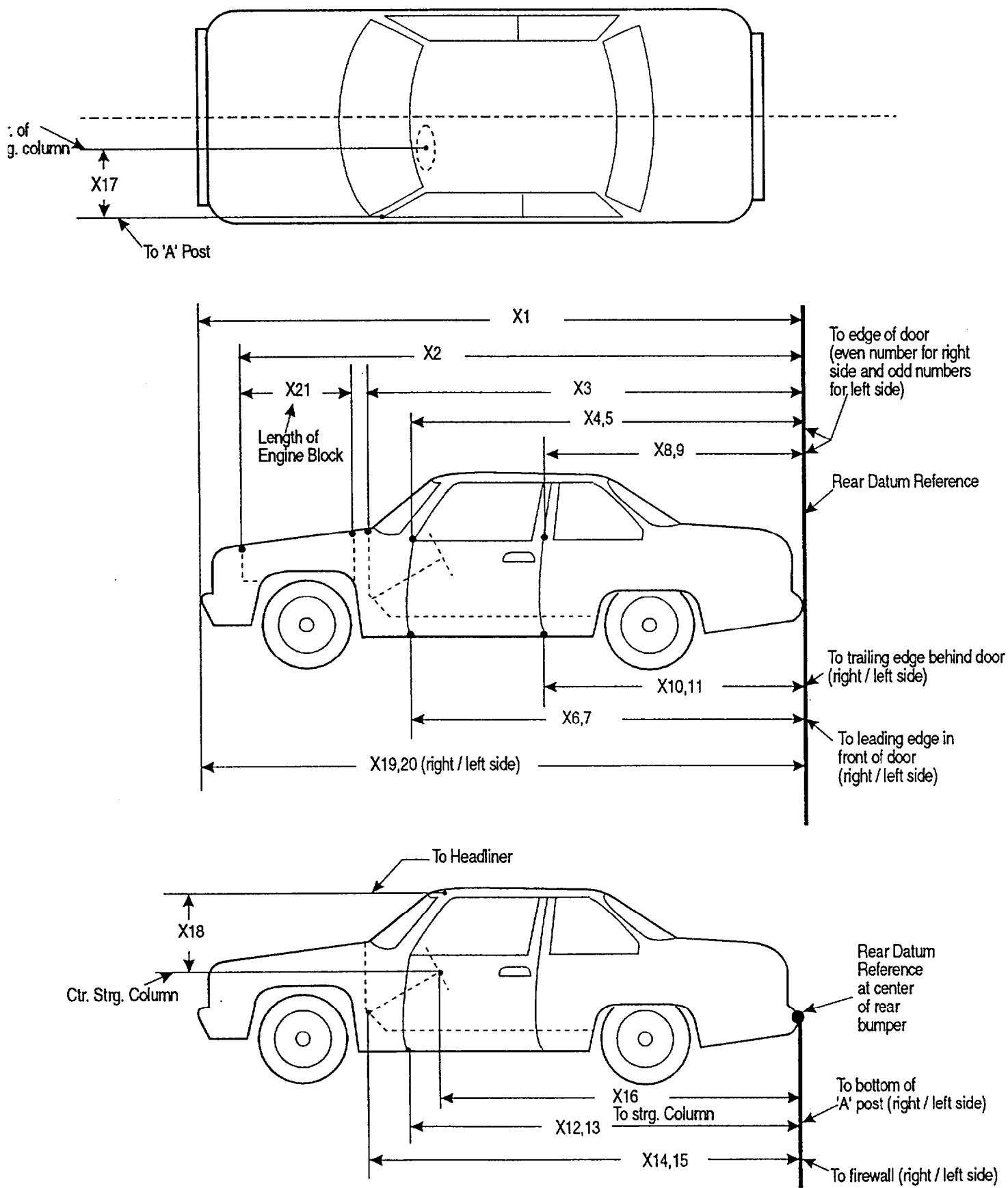


Table 11 Impacted Vehicle Measurements

Vehicle year/make/model/body style: 1994/Mazda/929/4-door sedan

Test number: 940210

No.	Type of Measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	193.0 in	177.8 in	15.2 in
X2	Rear surface of vehicle to front of engine block	166.4 in	165.8 in	0.6 in
X3	Rear surface of vehicle to firewall	148.1 in	148.2 in	-0.1 in
X4	Rear surface of vehicle to upper leading edge of right door	131.8 in	132.1 in	-0.3 in
X5	Rear surface of vehicle to upper leading edge of left door	130.5 in	131.9 in	-1.4 in
X6	Rear surface of vehicle to lower leading edge of right door	132.3 in	132.6 in	-0.3 in
X7	Rear surface of vehicle to lower leading edge of left door	132.1 in	132.2 in	-0.1 in
X8	Rear surface of vehicle to upper trailing edge of right door	93.6 in	94.0 in	-0.4 in
X9	Rear surface of vehicle to upper trailing edge of left door	93.4 in	94.8 in	-0.4 in
X10	Rear surface of vehicle to lower trailing edge of right door	93.6 in	94.0 in	-0.4 in
X11	Rear surface of vehicle to lower trailing edge of left door	93.4 in	93.5 in	-0.1 in
X12	Rear surface of vehicle to bottom of "A" post on right side	133.0 in	133.0 in	0.0 in
X13	Rear surface of vehicle to bottom of "A" post on left side	132.9 in	132.8 in	0.1 in
X14	Rear surface of vehicle to firewall - right side	145.8 in	146.0 in	-0.2 in
X15	Rear surface of vehicle to firewall - left side	146.1 in	145.0 in	1.1 in
X16	Rear surface of vehicle to steering wheel center	113.8 in	118.0 in	-4.2 in
X17	Center of steering column to "A" post	11.5 in	10.2 in	1.3 in
X18	Center of steering column to headliner	16.5 in	16.4 in	0.1 in
X19	Rear surface of vehicle to right side of front bumper	187.0 in	176.4 in	10.6 in
X20	Rear surface of vehicle to left side of front bumper	186.6 in	173.8 in	12.8 in
X21	Length of engine block	15.0 in	15.0 in	0.0 in

Figure 8 Vehicle Target Locations

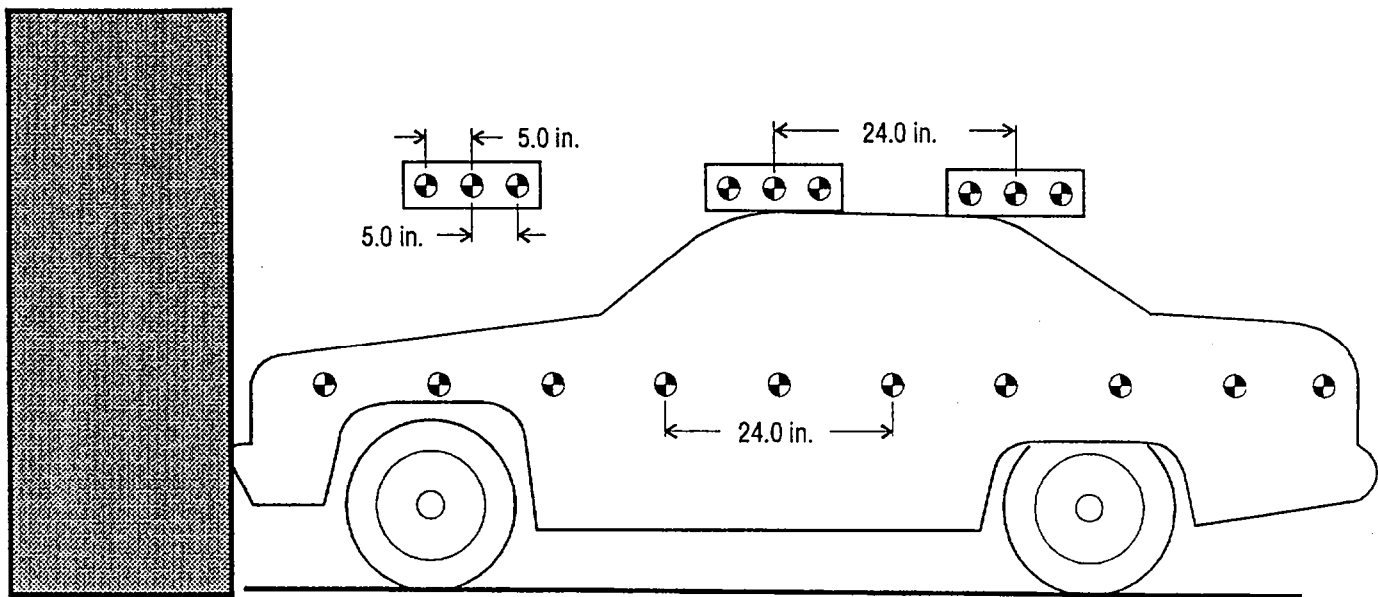


Figure 9 Dummy Measurement Locations for Front Seat Occupants

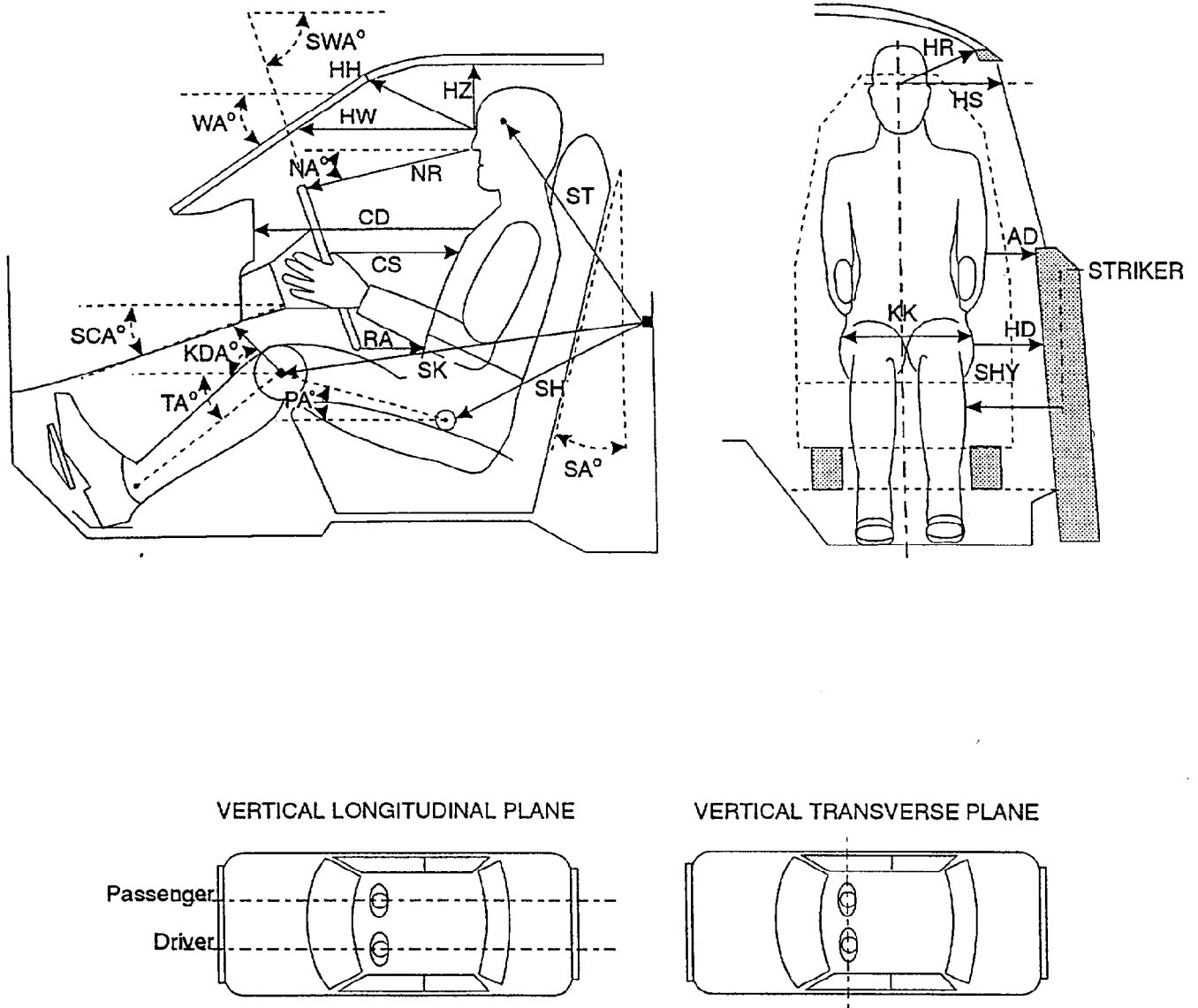


Table 12 Dummy Measurement Data for Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #354)	Passenger (Serial #353)
WA	Windshield angle	29°	NA
SWA	Steering wheel angle	67°	NA
SCA	Steering column angle	26°	NA
SA	Seat back angle	24°	24°
HZ	Head to roof	4.4 in	4.6 in
HH	Head to header	15.5 in	14.4 in
HW	Head to windshield	21.7 in	21.8 in
HR	Head to side header	7.4 in	6.4 in
NR	Nose to rim	19.4 in	NA
NA	Nose to rim angle	14°	NA
CD	Chest to dash	23.1 in	24.5 in
CS	Steering wheel to chest	15.5 in	NA
RA	Rim to abdomen	7.8 in	NA
KDL	Left knee to dash	8.7 in	7.5 in
KDR	Right knee to dash	8.4 in	7.5 in
KDA	Outboard knee to dash angle	23°	32°
PA	Pelvic angle	16°	15°
TA	Tibial angle	35°	34°
KK	Knee to knee	13.1 in	11.8 in
ST ¹	Striker to head	20.5 in	21.4 in
	Striker to head angle	-90°	-90°
SK ¹	Striker to knee	22.7 in	23.6 in
	Striker to knee angle	-2°	2°
SH ¹	Striker to H-point	9.0 in	8.9 in
	Striker to H-point angle	33°	23°
SHY	Striker to H-point (Y dir.)	10.0 in	9.8 in
HS	Head to side window	10.0 in	10.2 in
HD	H-point to door	5.9 in	5.5 in
AD	Arm to door	3.8 in	4.4 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.

Figure 10 Camera Positions

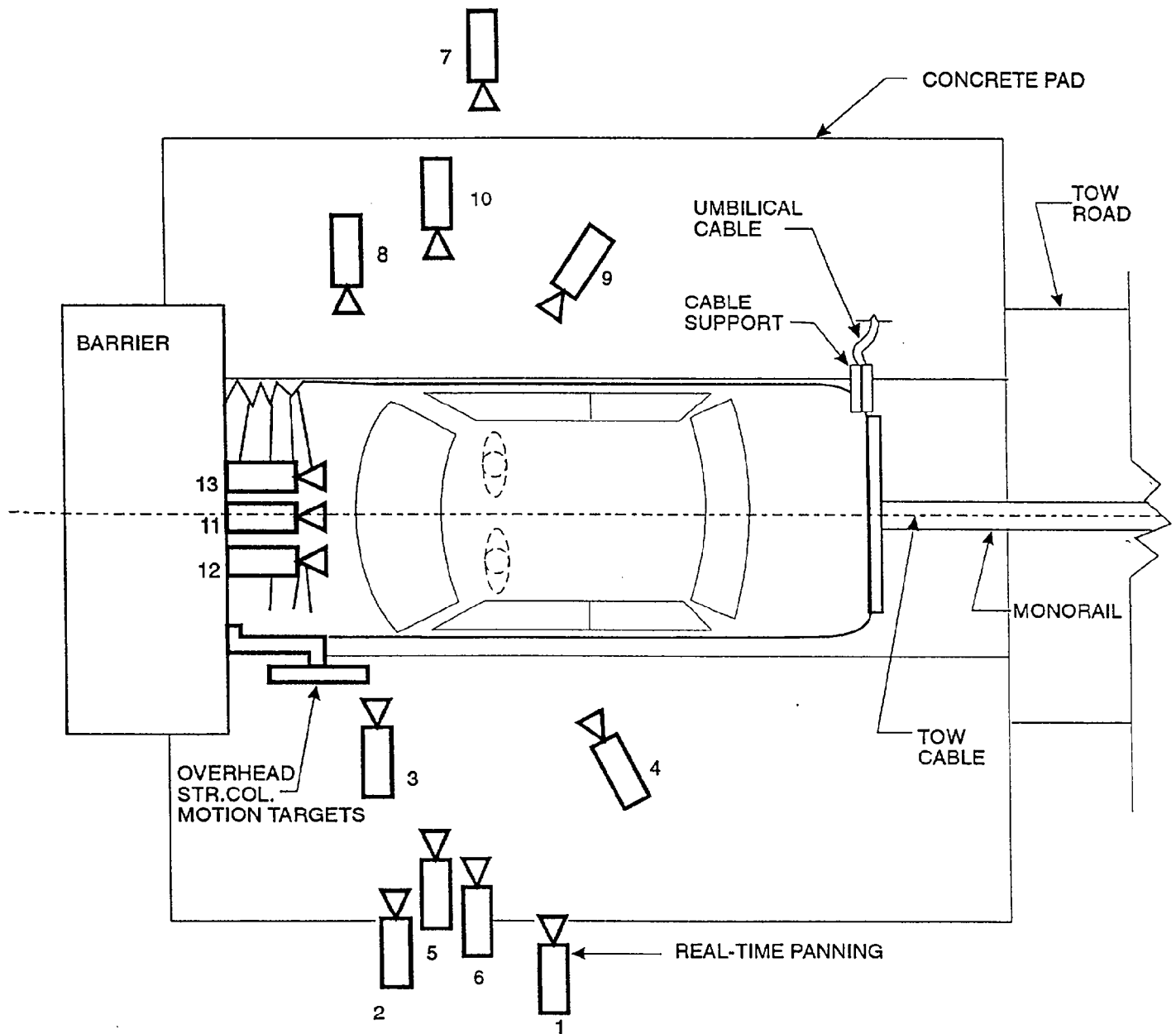


Figure 10 Camera Positions, Cont'd.

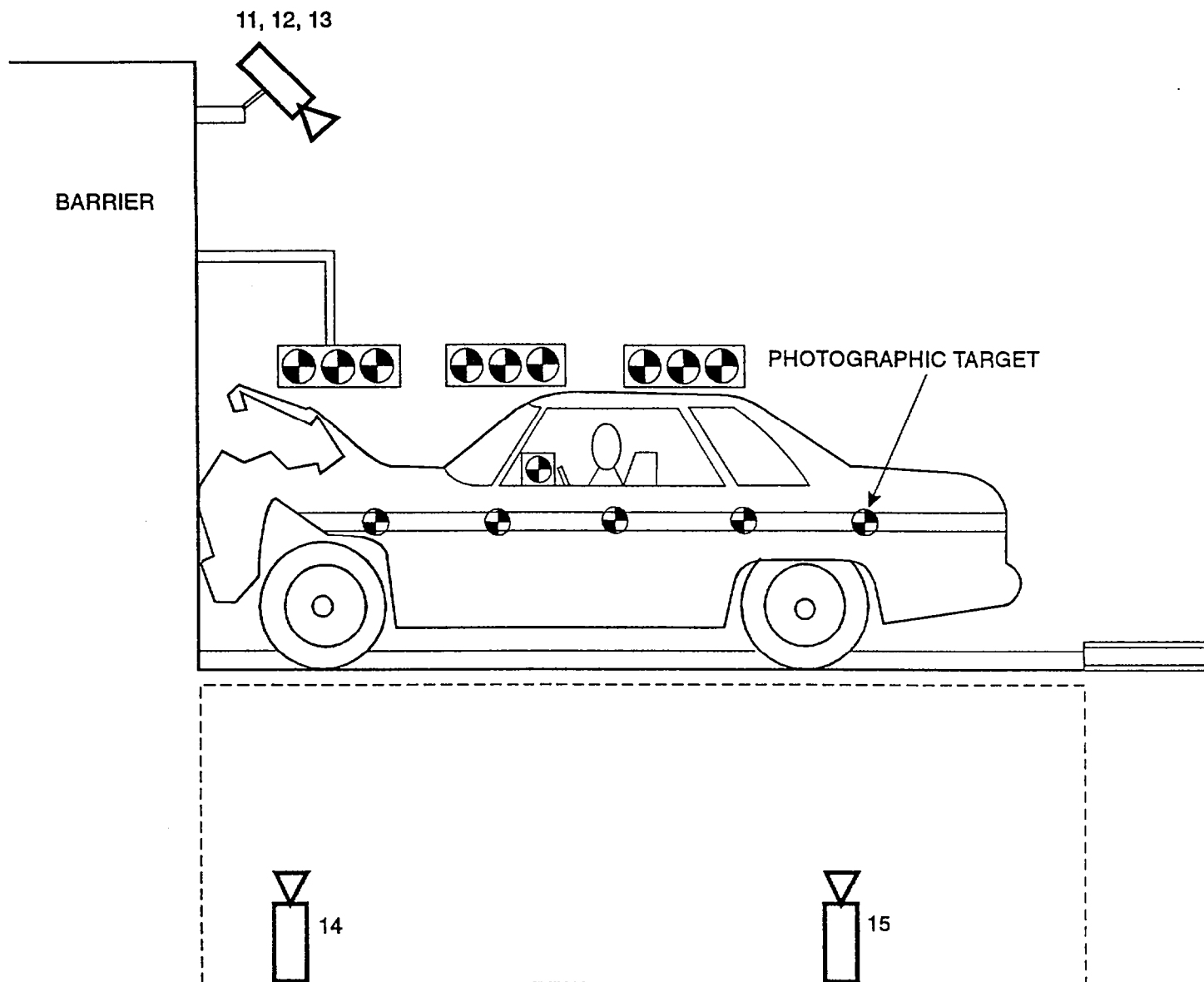


Table 13 Motion Picture Camera Locations

Vehicle year/make/model/body style: 1994/Mazda/929/4-door sedan

Test number: 940210

Camera Number	View	X	Y	Z	Camera Angle ²	Film Plane to Head Target	Camera Lens	Film Speed
1	Real-time panning	-142.0 in	504.0 in	61.0 in	NA	NA	16 mm	24 frames/s
2	Left vehicle crush	-41.5 in	295.0 in	44.0 in	-4°	242 in	25 mm	995 frames/s
3	Left windshield intrusion	-53.0 in	309.4 in	42.3 in	0°	NA	50 mm	1010 frames/s
4	Driver kinematics	-157.3 in	116.0 in	87.0 in	-27°	105 in	25 mm	995 frames/s
5	Steering column motion	-90.0 in	286.0 in	103.0 in	-14°	NA	25 mm	1000 frames/s
6	Steering column motion	-90.0 in	286.0 in	75.1 in	-9°	NA	25 mm	995 frames/s
7	Right overall	-81.3 in	-266.4 in	37.1 in	-2°	NA	13 mm	1000 frames/s
8	Right windshield intrusion	-38.1 in	-306.1 in	44.0 in	0°	NA	50 mm	990 frames/s
9	Passenger kinematics	-152.1 in	-116.0 in	87.0 in	-26°	92 in	25 mm	988 frames/s
10	Passenger kinematics	-38.8 in	-293.0 in	45.3 in	-4°	236 in	25 mm	985 frames/s
11	Windshield front view	-6.0 in	0.0 in	85.0 in	-40°	NA	13 mm	1015 frames/s
12	Driver - front view	-6.8 in	14.5 in	93.0 in	-50°	NA	17 mm	975 frames/s
13	Passenger - front view	-4.5 in	-13.8 in	93.0 in	-50°	NA	17 mm	1000 frames/s
14	Pit - front position	-50.5 in	0.0 in	-92.4 in	90°	NA	13 mm	995 frames/s
15	Pit - rear position	-99.3 in	0.0 in	-99.0 in	90°	NA	13 mm	1000 frames/s
16	Real-time documentation	NA	NA	NA	NA	NA	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

Appendix A

Photographs

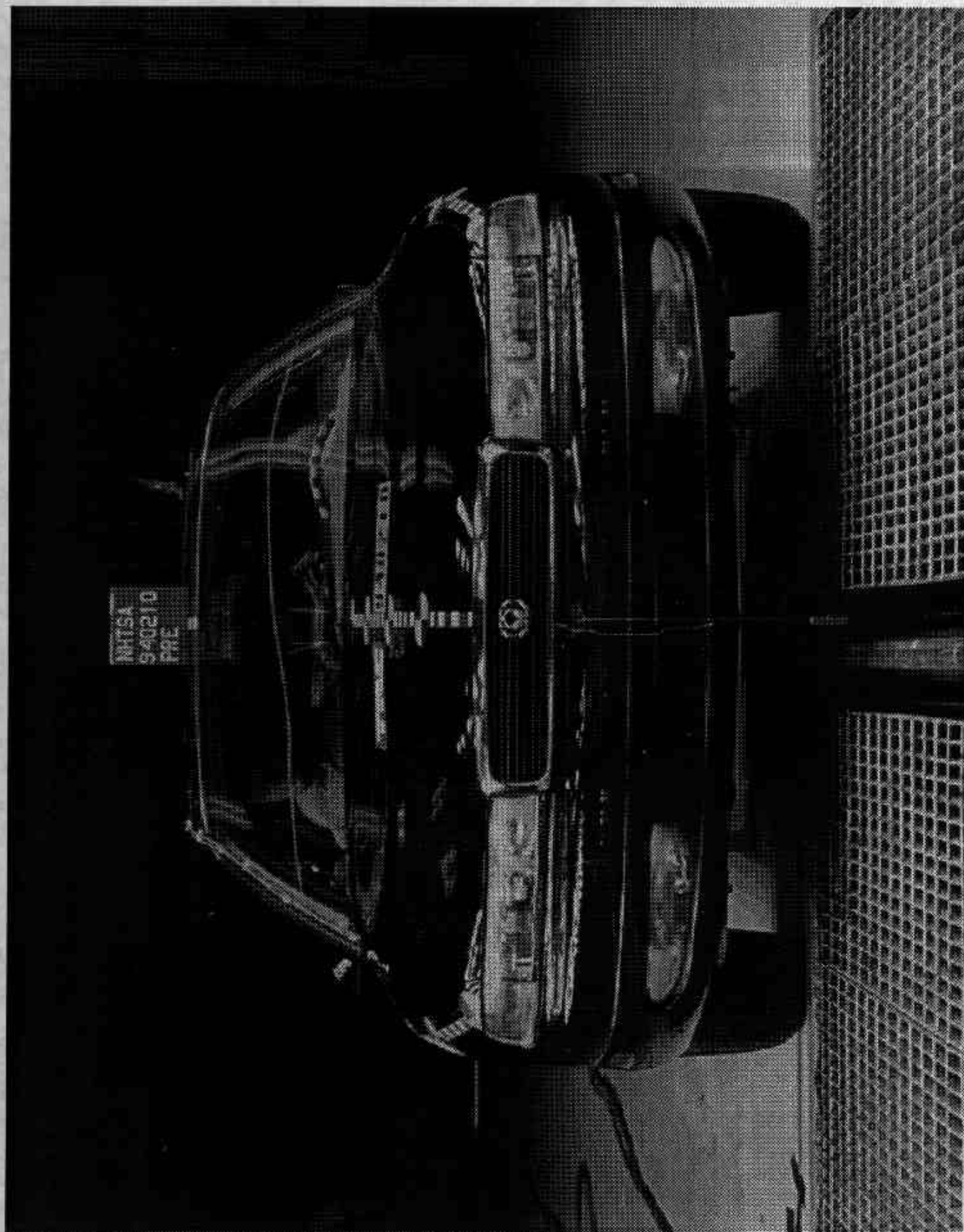


Figure A-1. PRE-TEST FRONT VIEW

A-2

940210

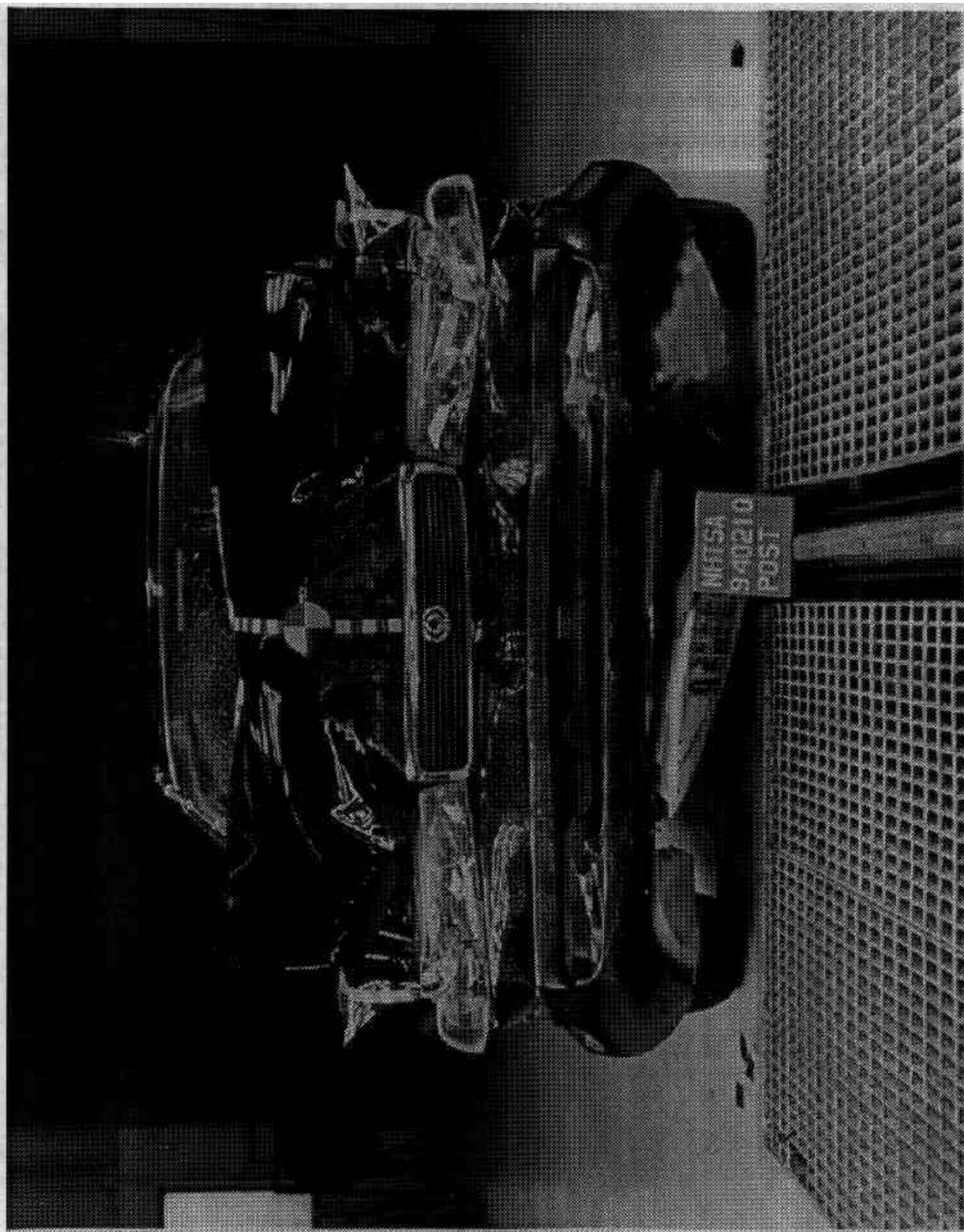


Figure A-2. POST-TEST FRONT VIEW

A-3

940210

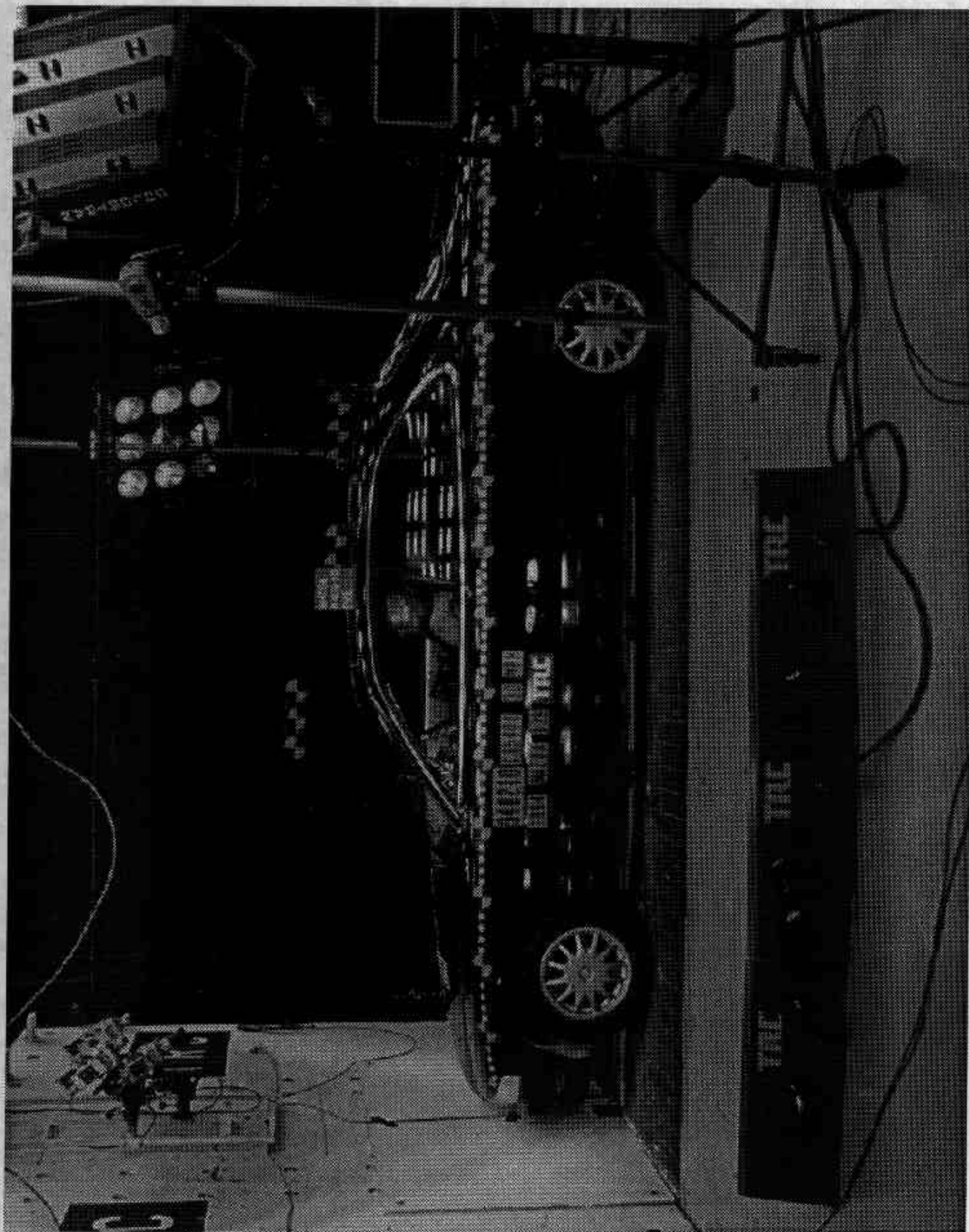


Figure A-3. PRE-TEST LEFT SIDE VIEW
A-4

940210

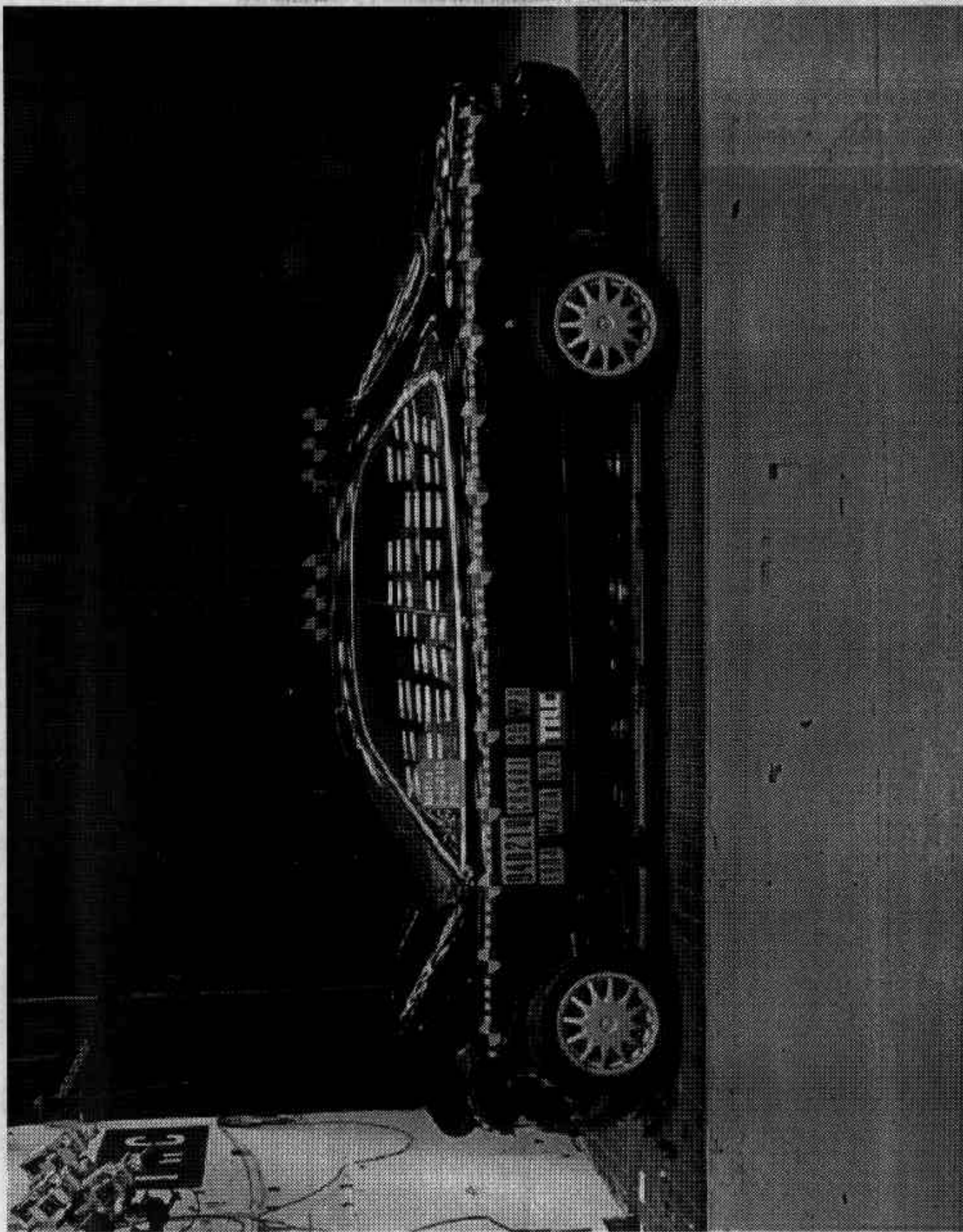


Figure A-4. POST-TEST LEFT SIDE VIEW
A-5

940210

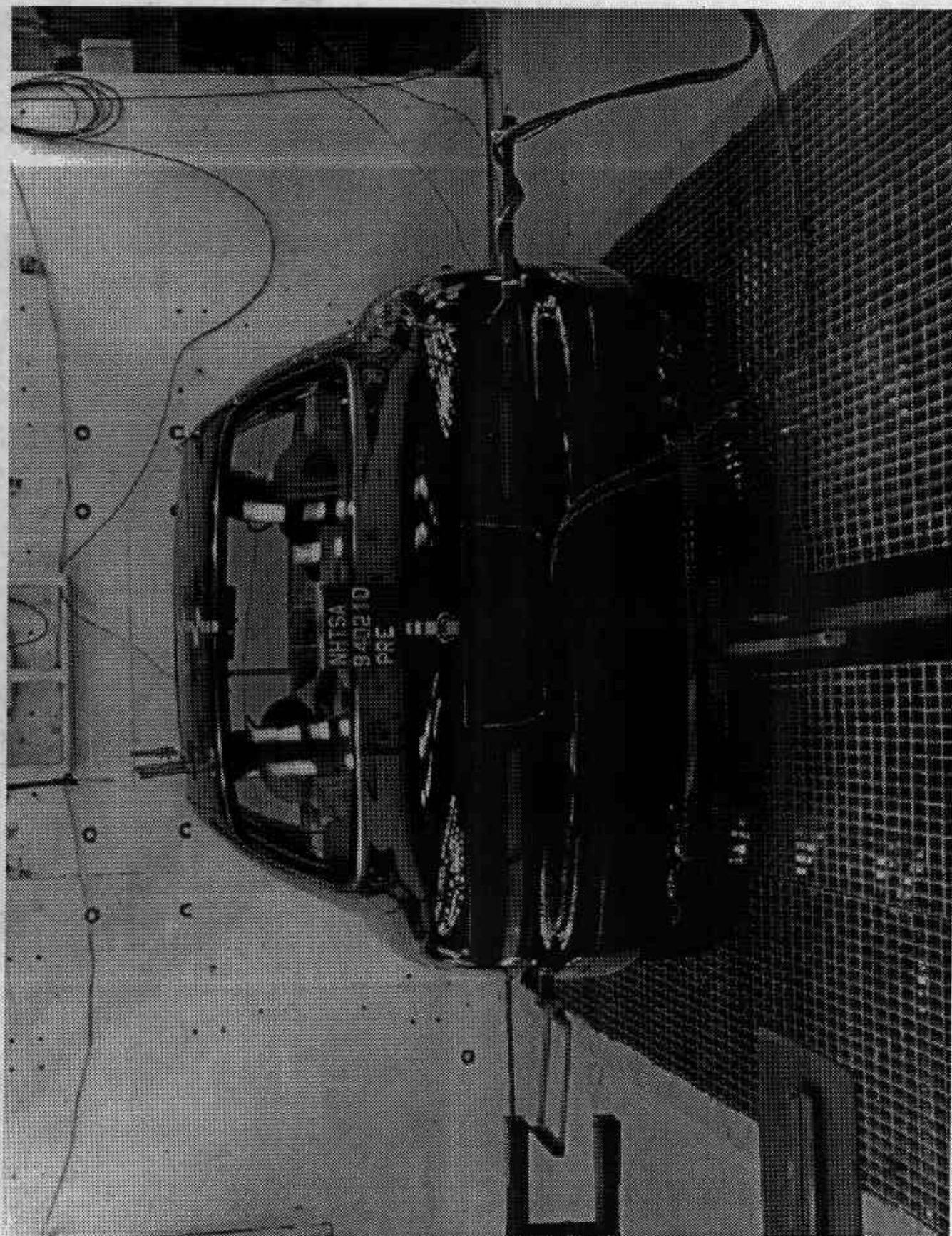


Figure A-5. PRE-TEST REAR VIEW

A-6

940210

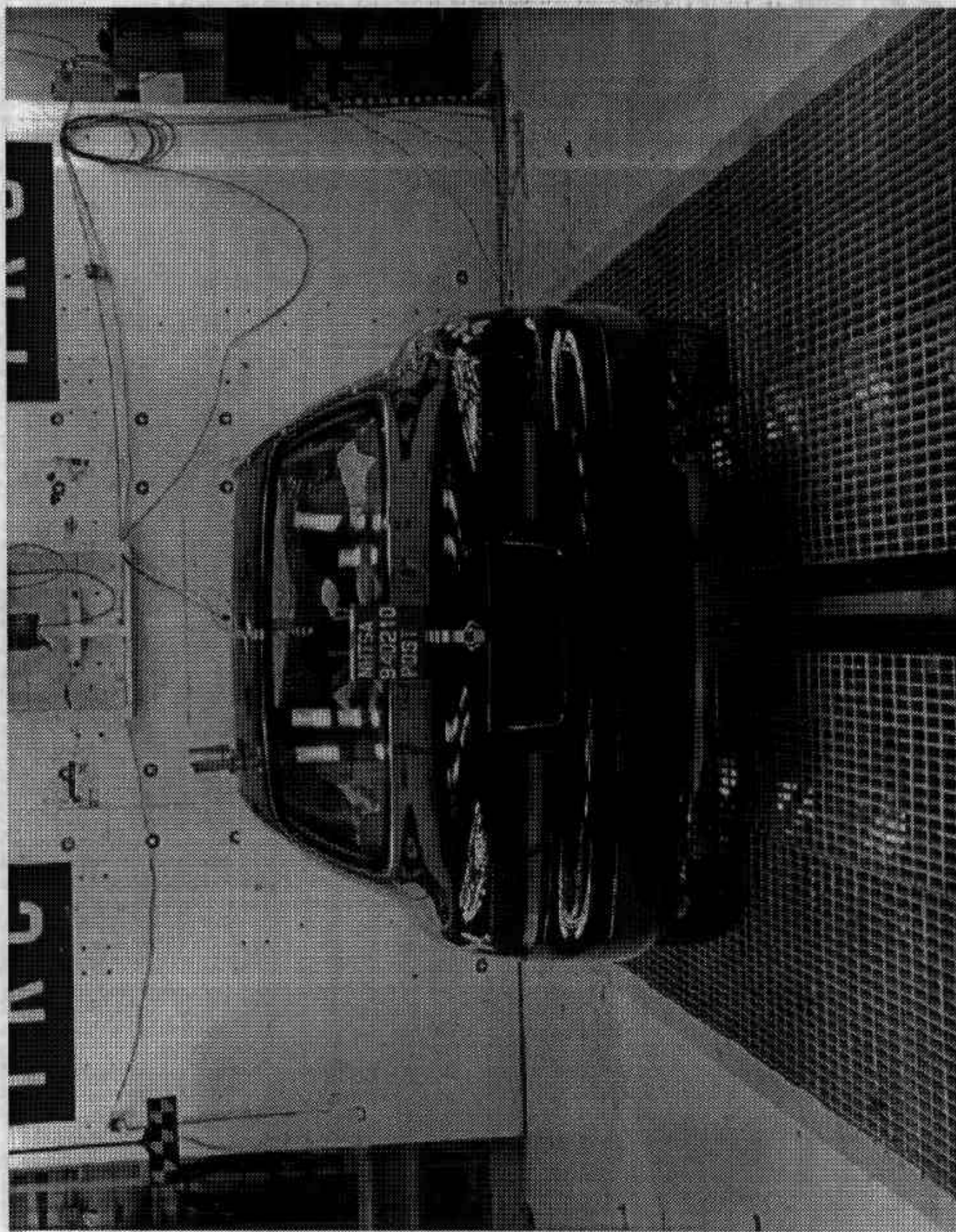


Figure A-6. POST-TEST REAR VIEW
A-7

940210

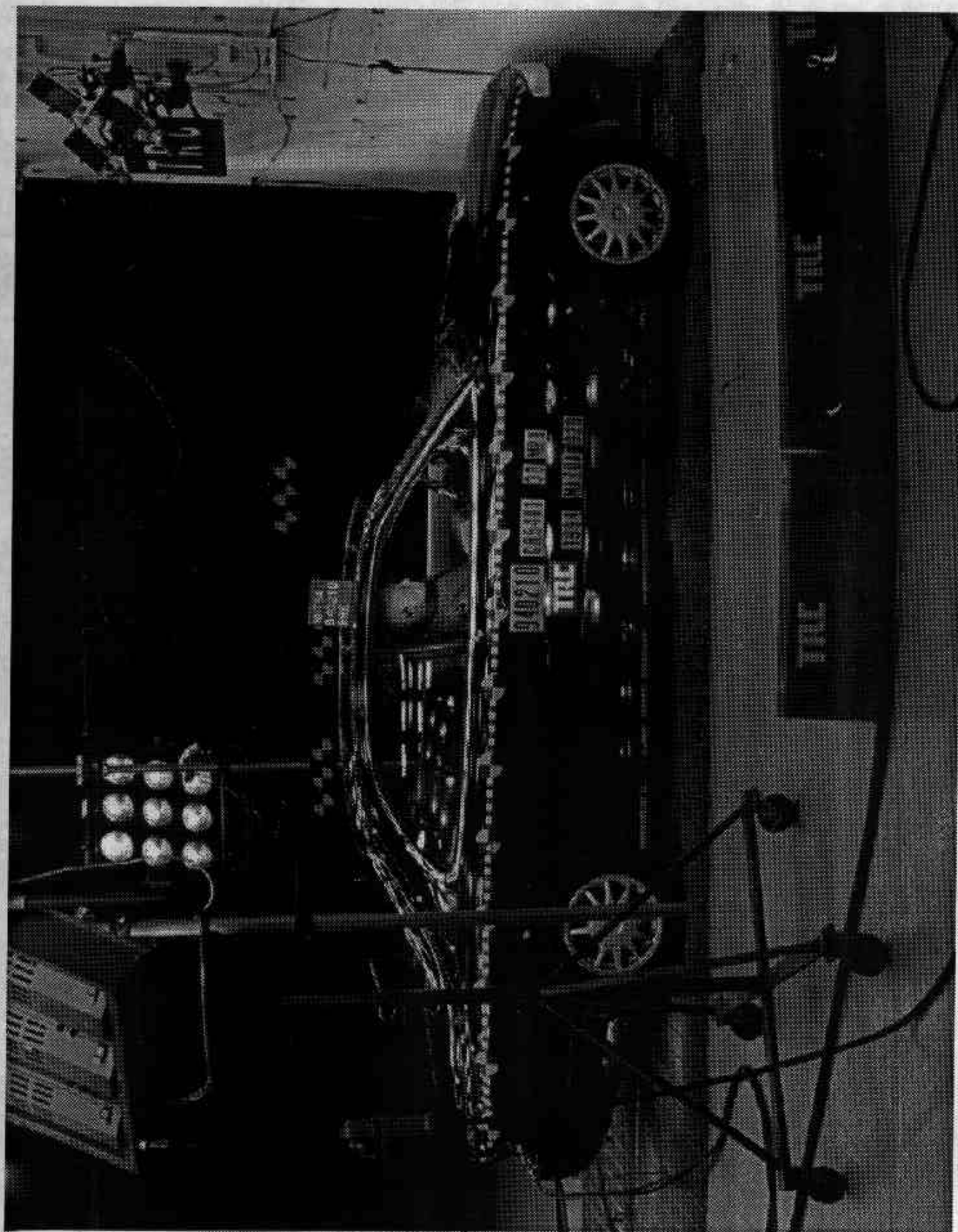


Figure A-7. PRE-TEST RIGHT SIDE VIEW

A-8

940210

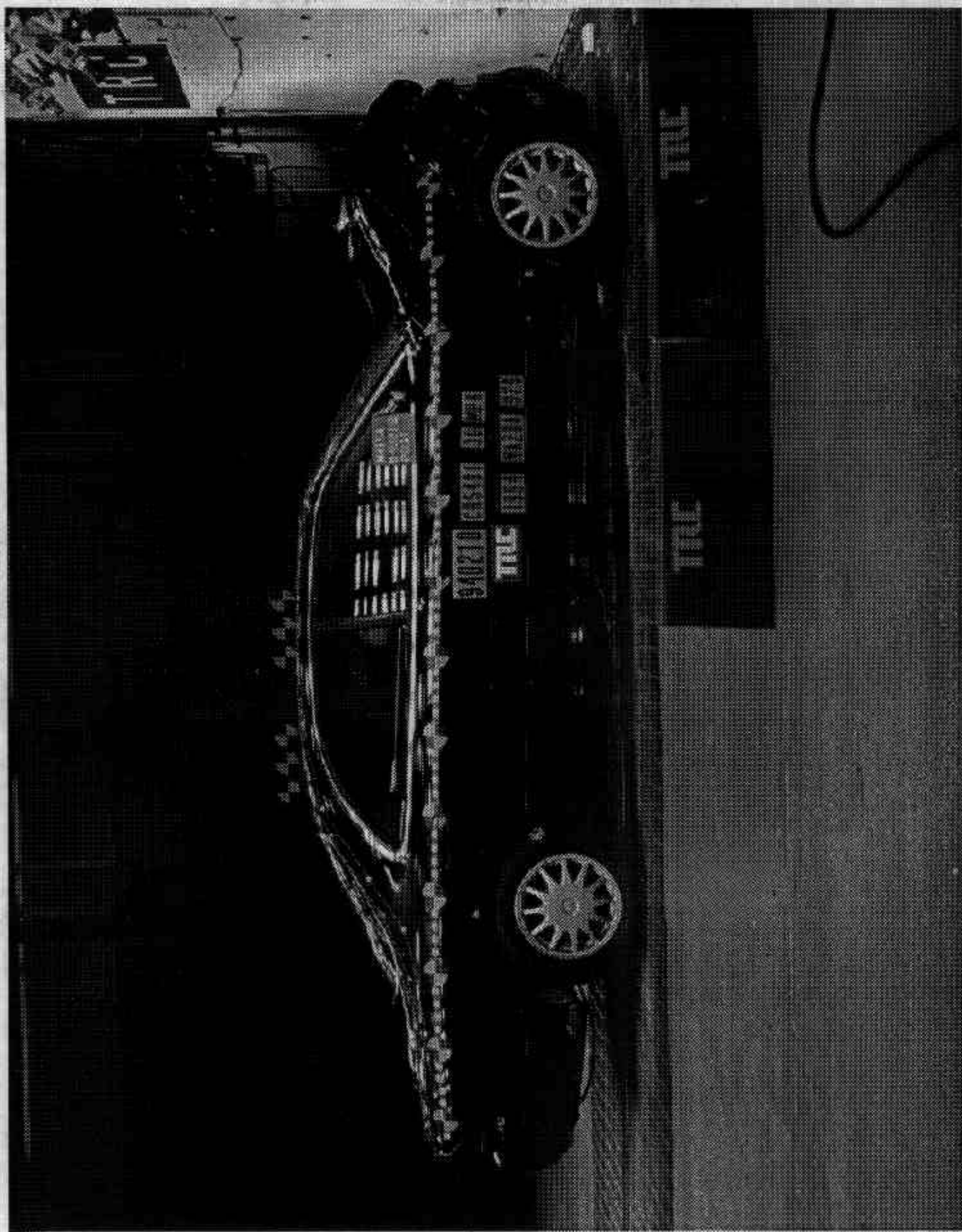


Figure A-8. POST-TEST RIGHT SIDE VIEW
A-9

940210

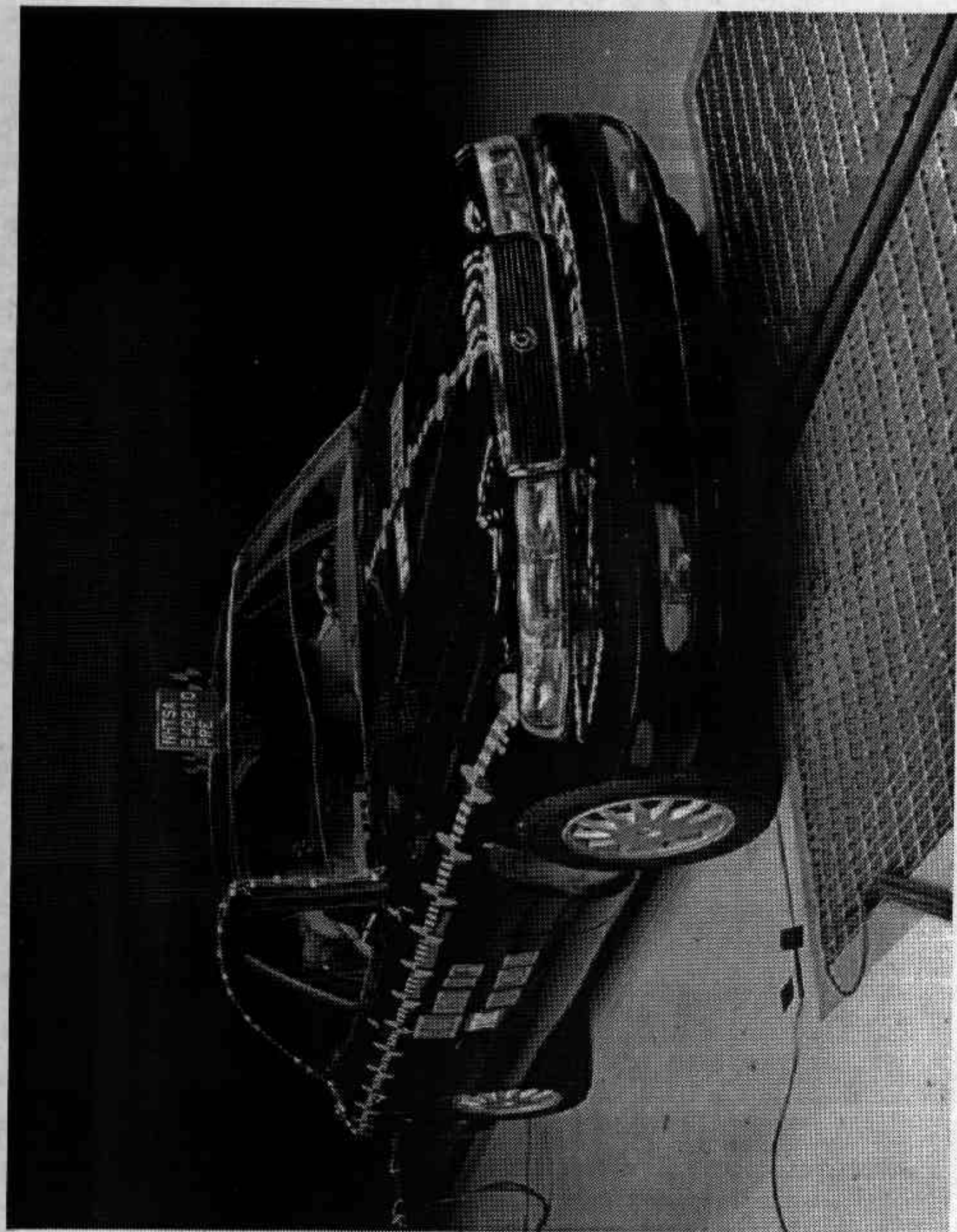


Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
A-10

940210

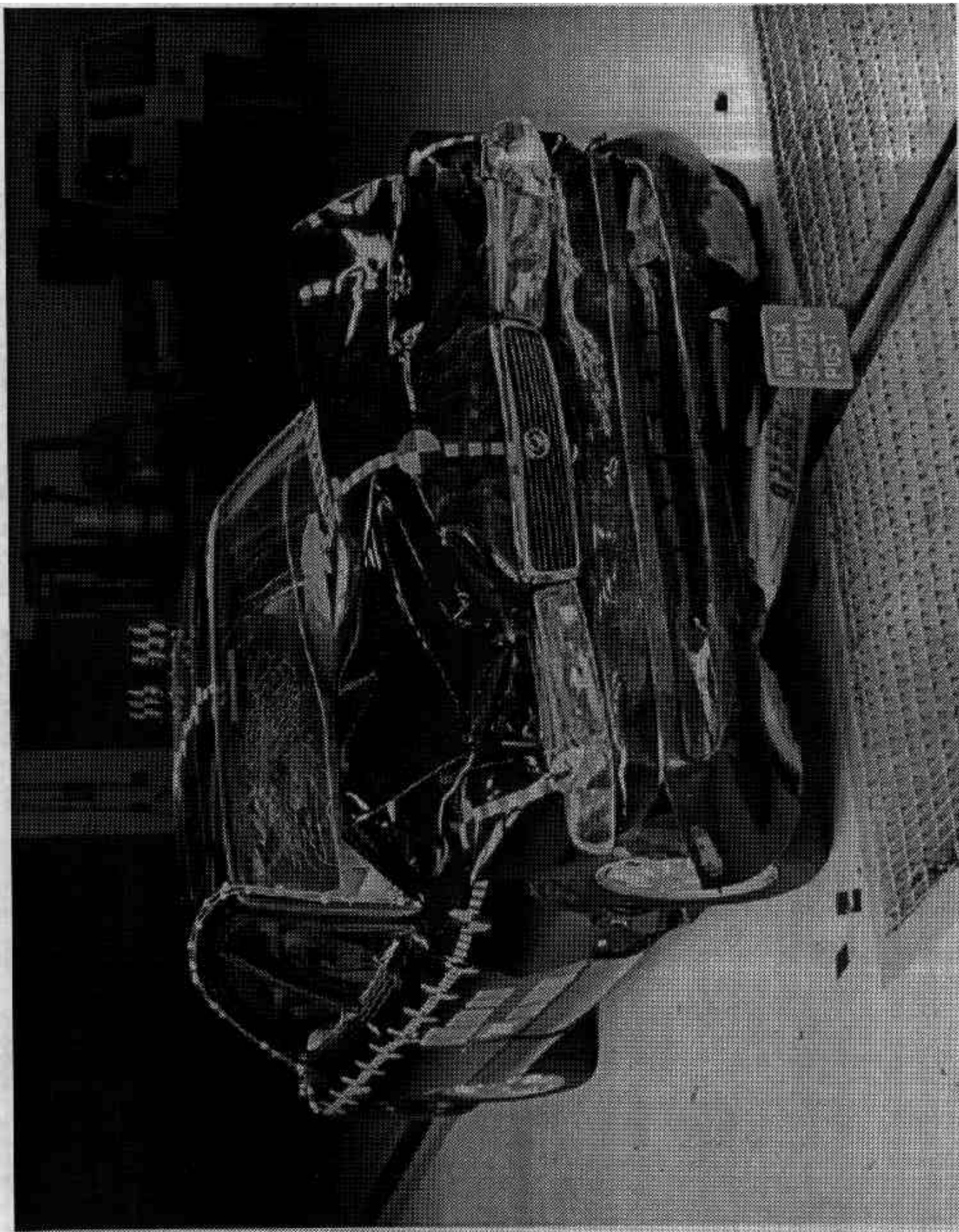


Figure A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-11

940210

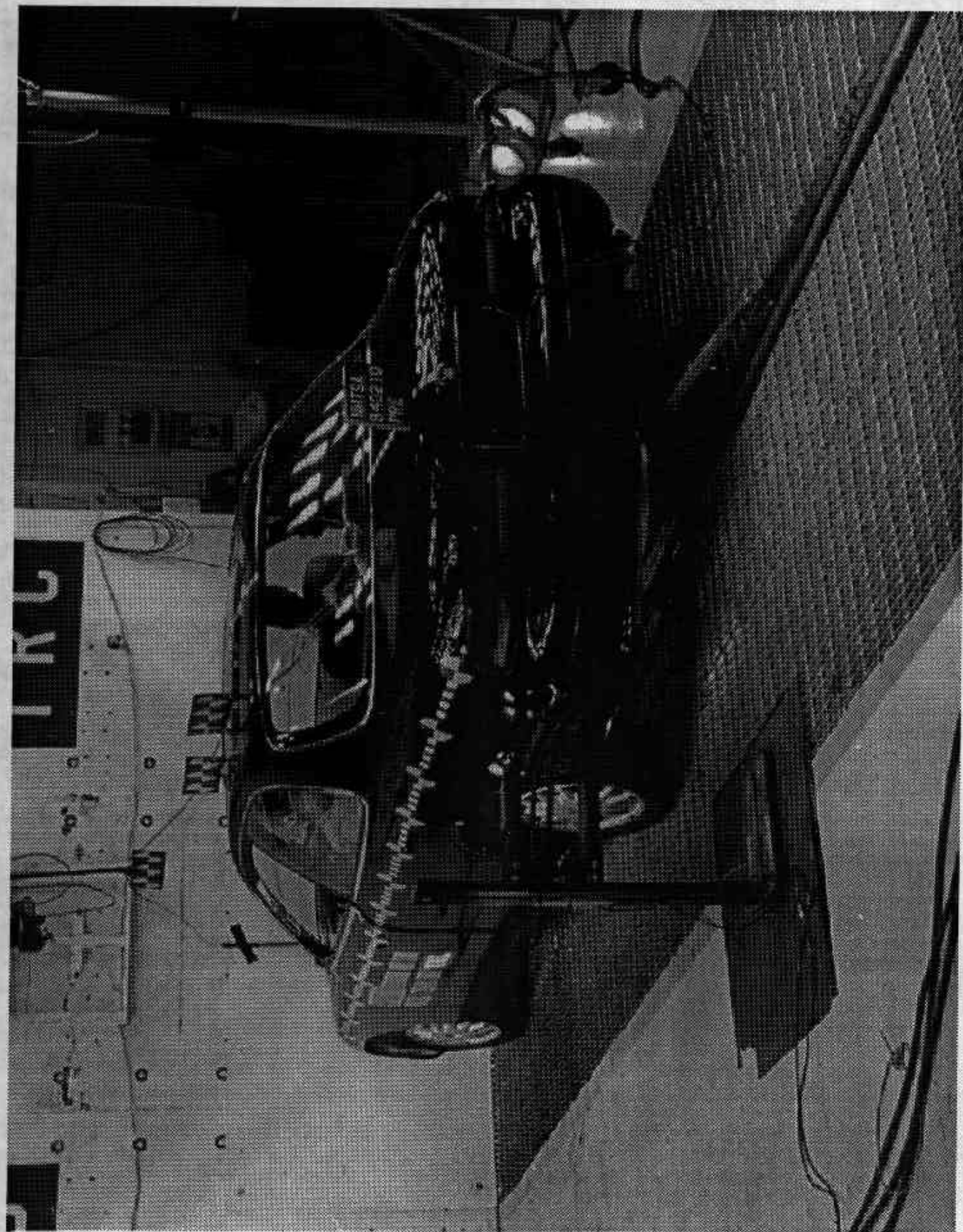


Figure A-11. PRE-TEST LEFT REAR THREE-QUARTER VIEW
A-12

940210

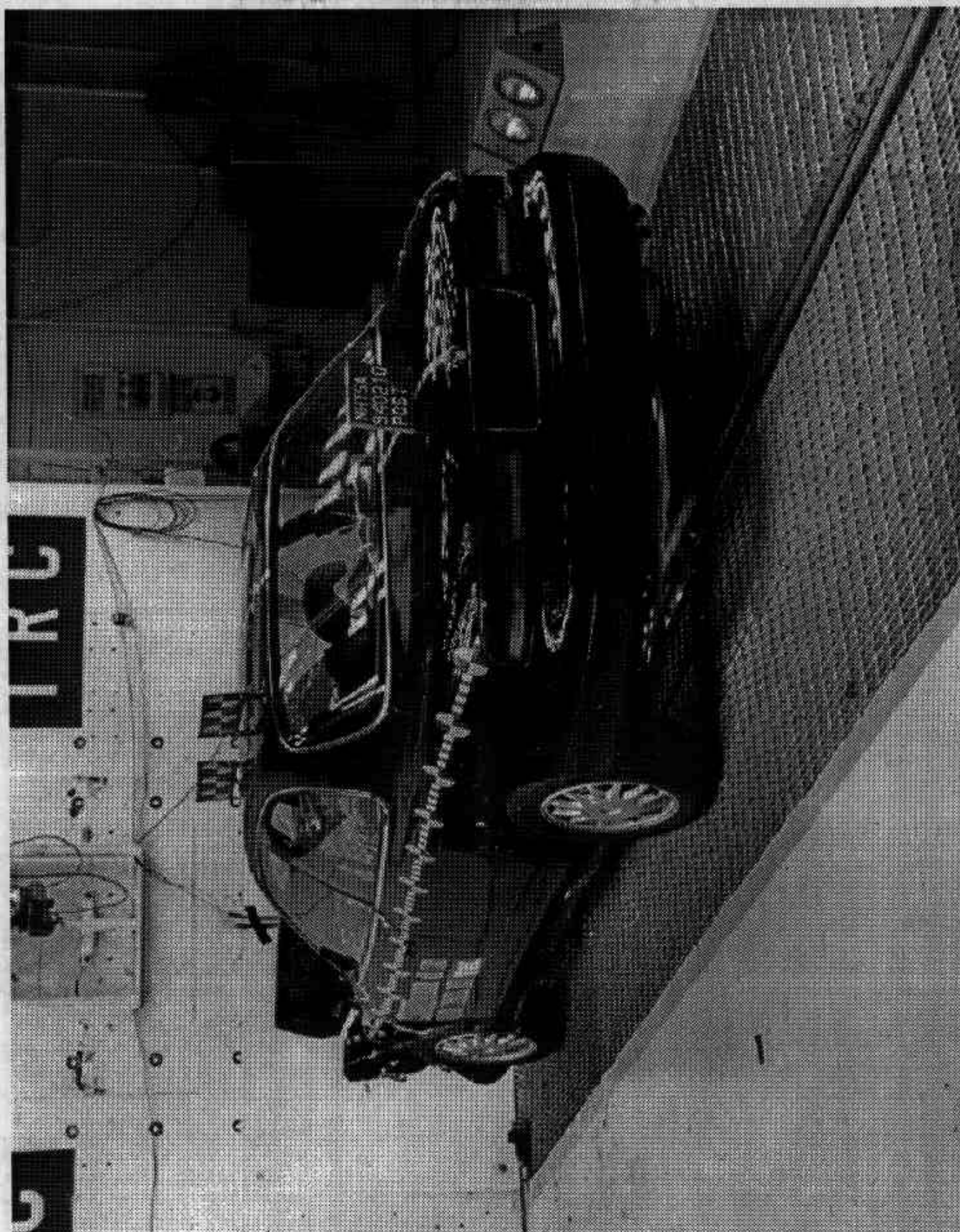


Figure A-12. POST-TEST LEFT REAR THREE-QUARTER VIEW

A-13

940210

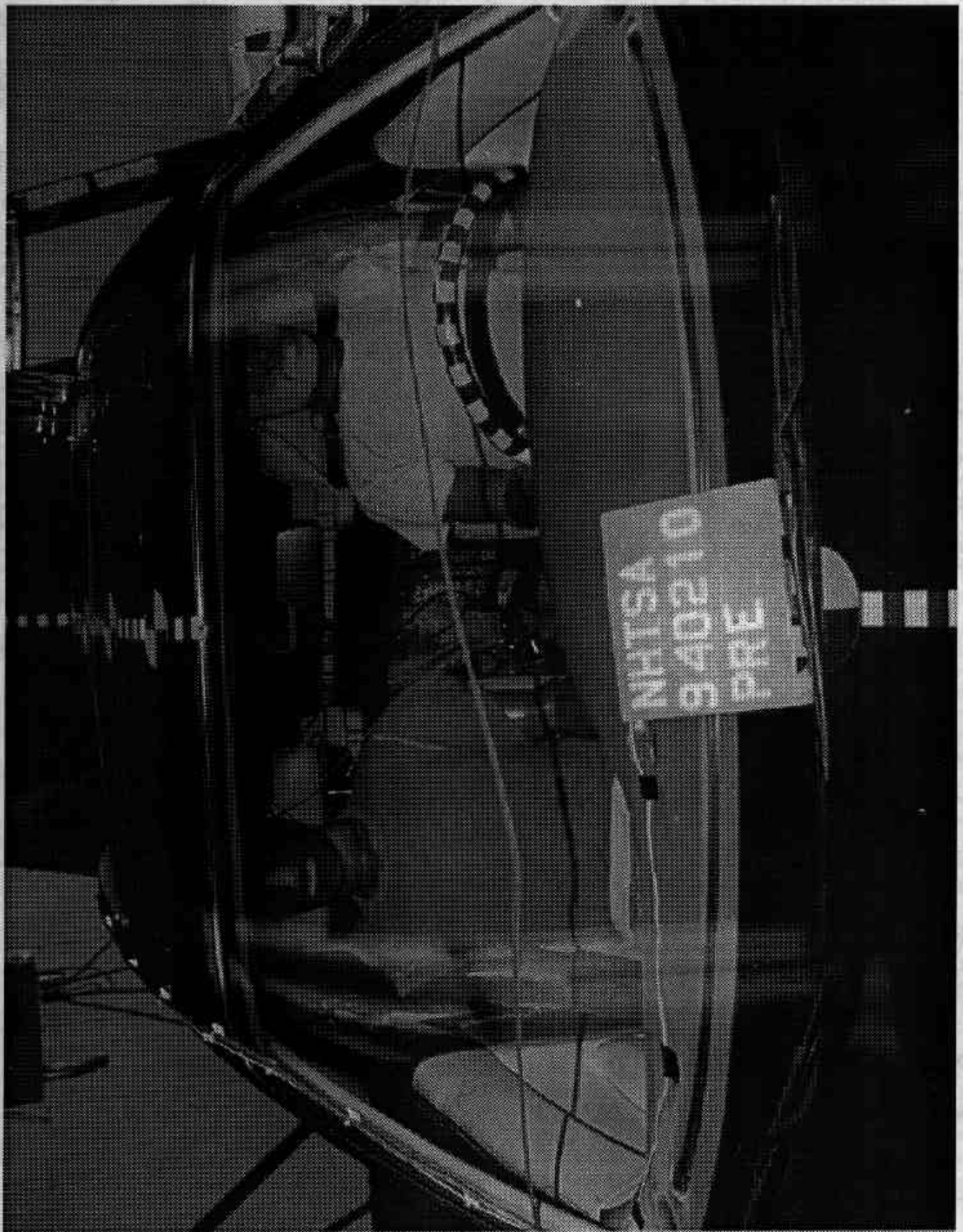


Figure A-13. PRE-TEST WINDSHIELD VIEW
A-14

940210



Figure A-14. POST-TEST WINDSHIELD VIEW
A-15

940210

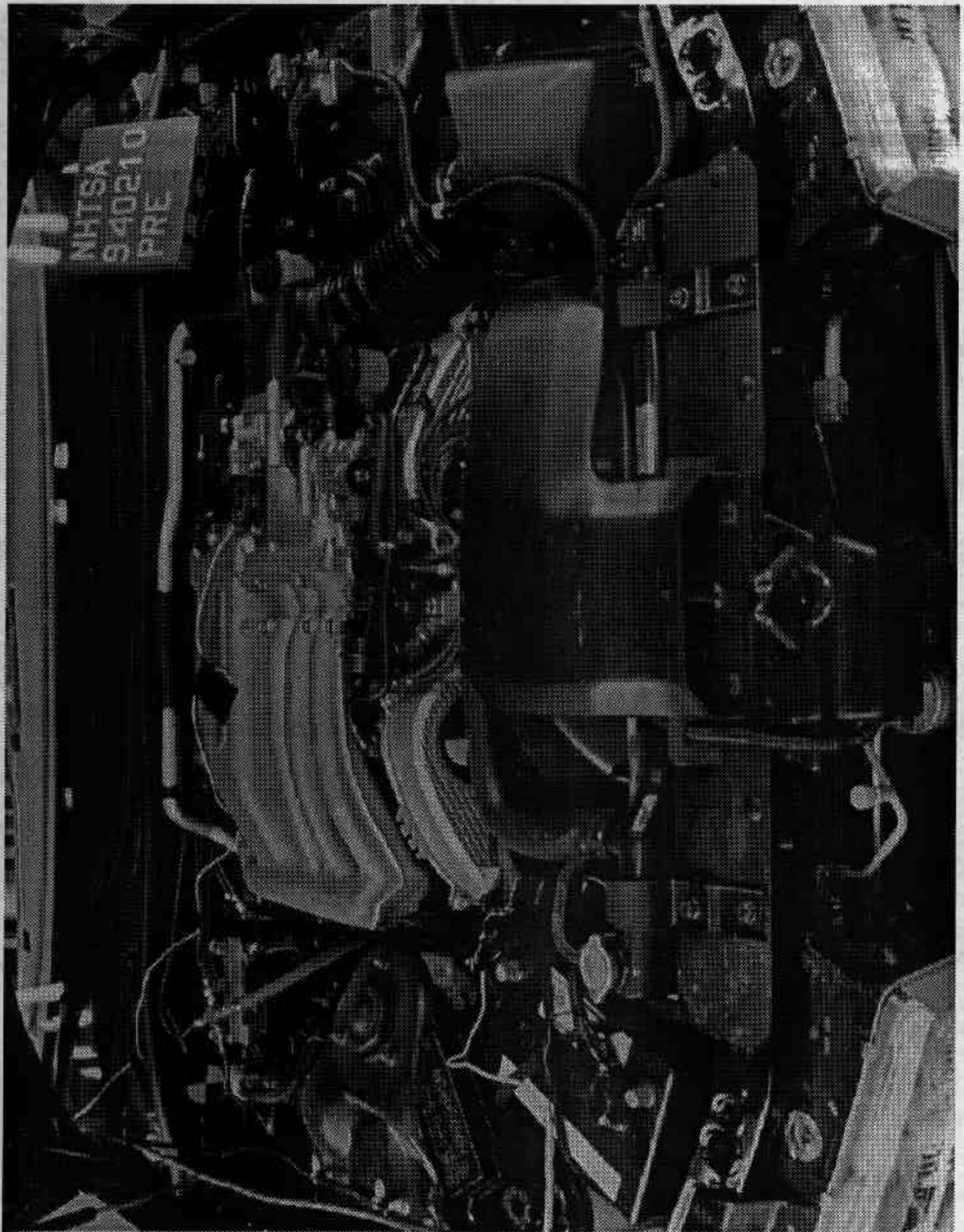


Figure A-15. PRE-TEST ENGINE COMPARTMENT VIEW

A-16

940210

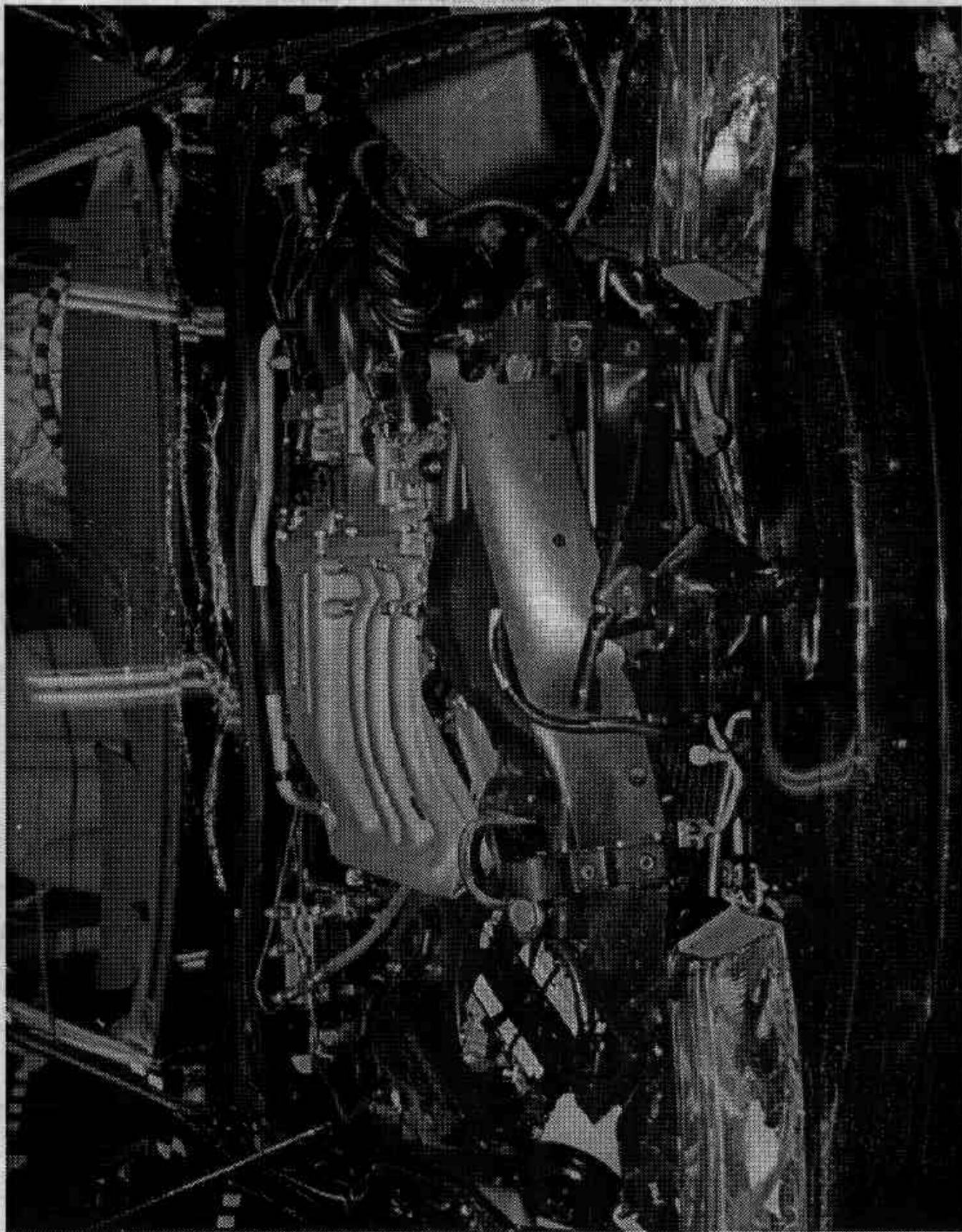


Figure A-16. POST-TEST ENGINE COMPARTMENT VIEW

A-17

940210



Figure A-17. PRE-TEST FUEL FILLER CAP VIEW

A-18

940210

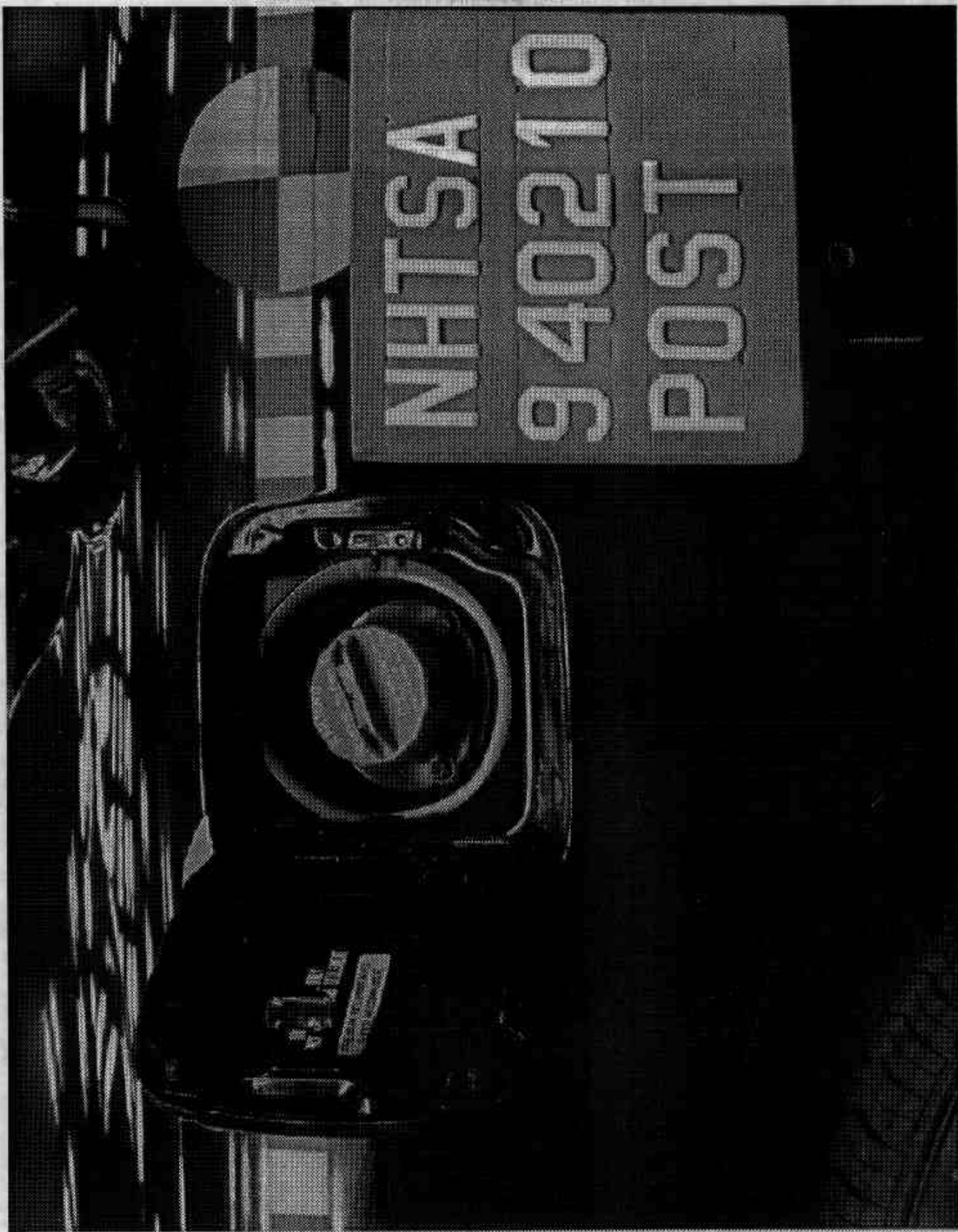


Figure A-18. POST-TEST FUEL FILLER CAP VIEW
A-19

940210



Figure A-19. PRE-TEST FUEL FILLER NECK VIEW
A-20

940210



Figure A-20. POST-TEST FUEL FILLER NECK VIEW

A-21

940210

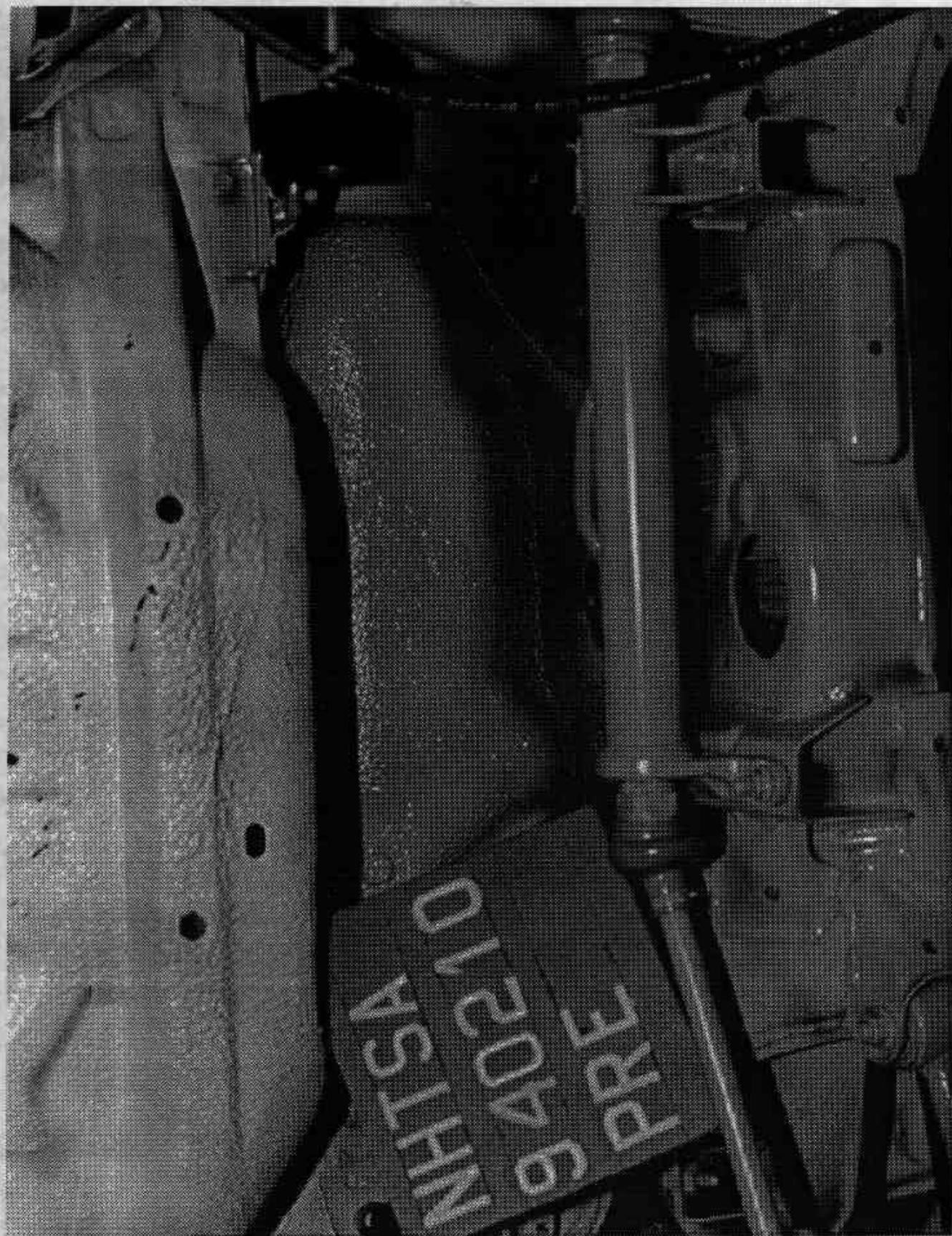


Figure A-21. PRE-TEST FUEL TANK VIEW
A-22

940210

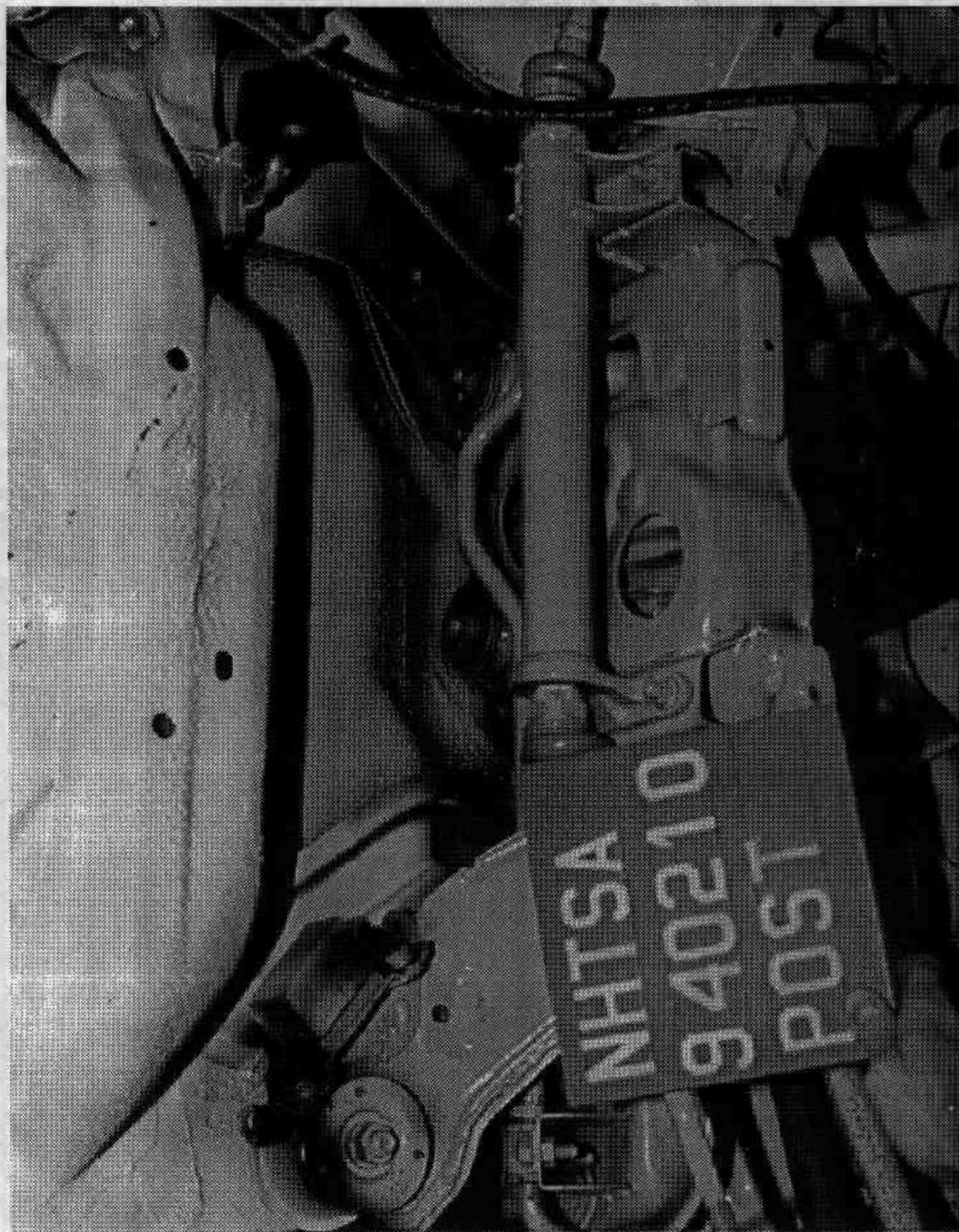


Figure A-22. POST-TEST FUEL TANK VIEW

A-23

940210

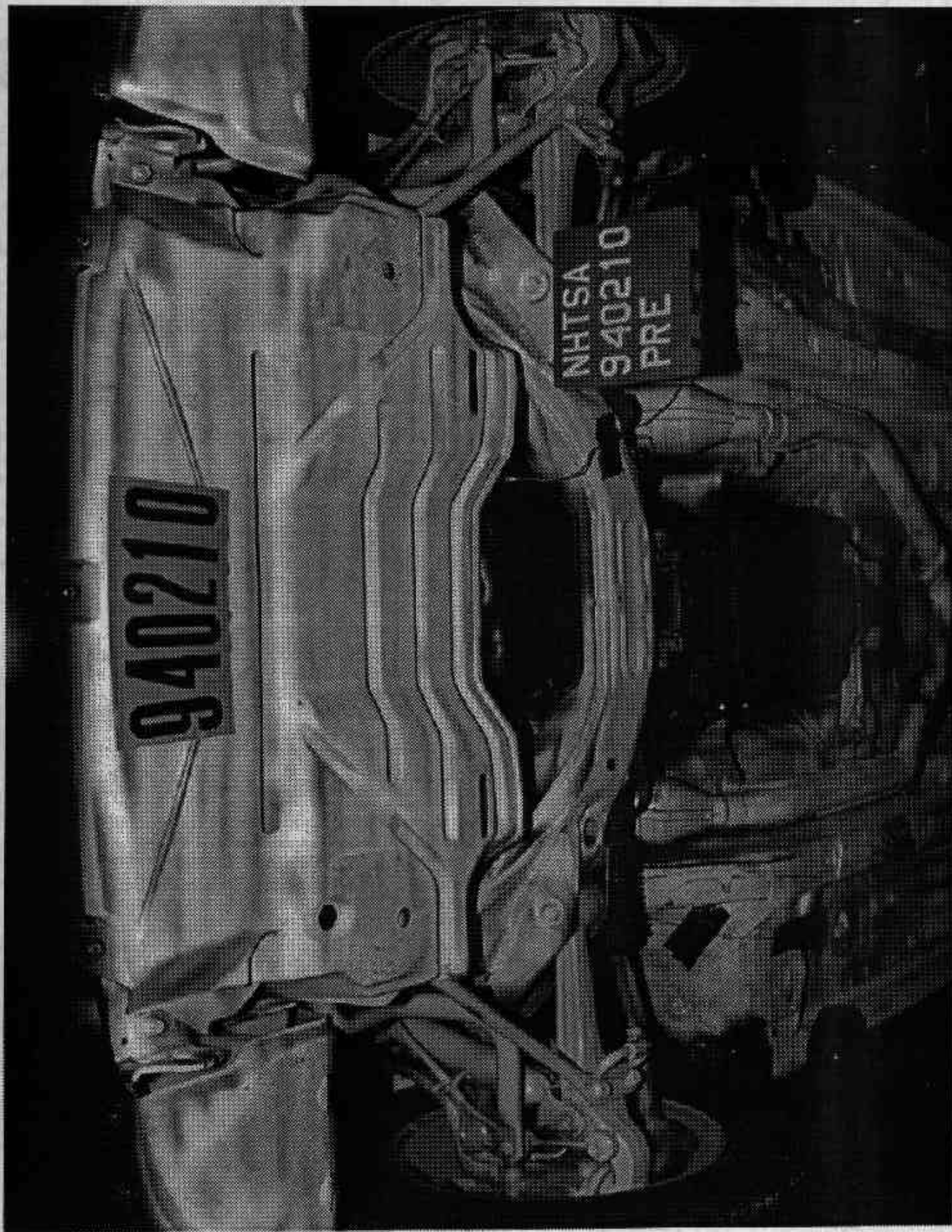


Figure A-23. PRE-TEST FRONT UNDERBODY VIEW
A-24

940210

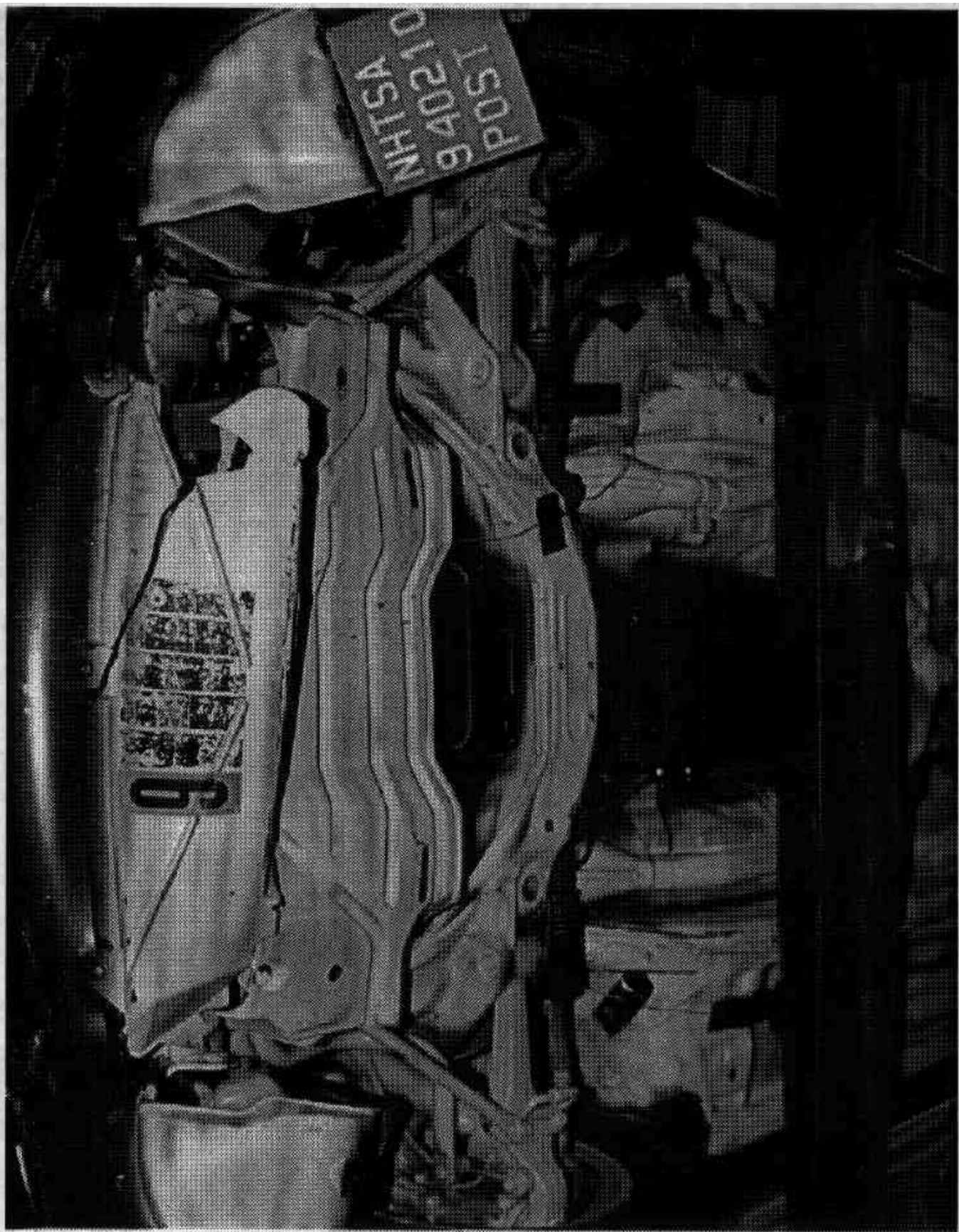


Figure A-24. POST-TEST FRONT UNDERBODY VIEW

A-25

940210

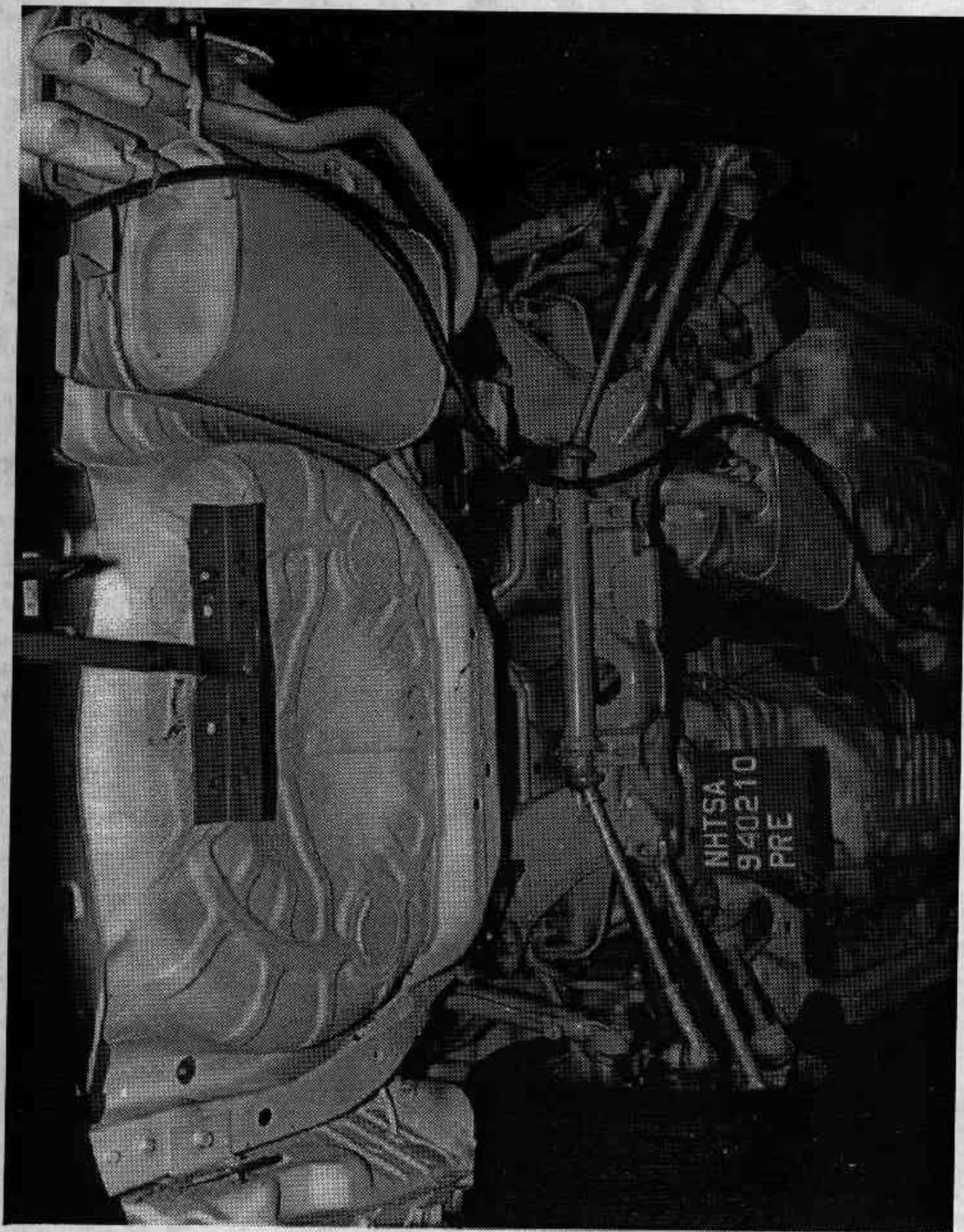


Figure A-25. PRE-TEST REAR UNDERBODY VIEW

A-26

940210

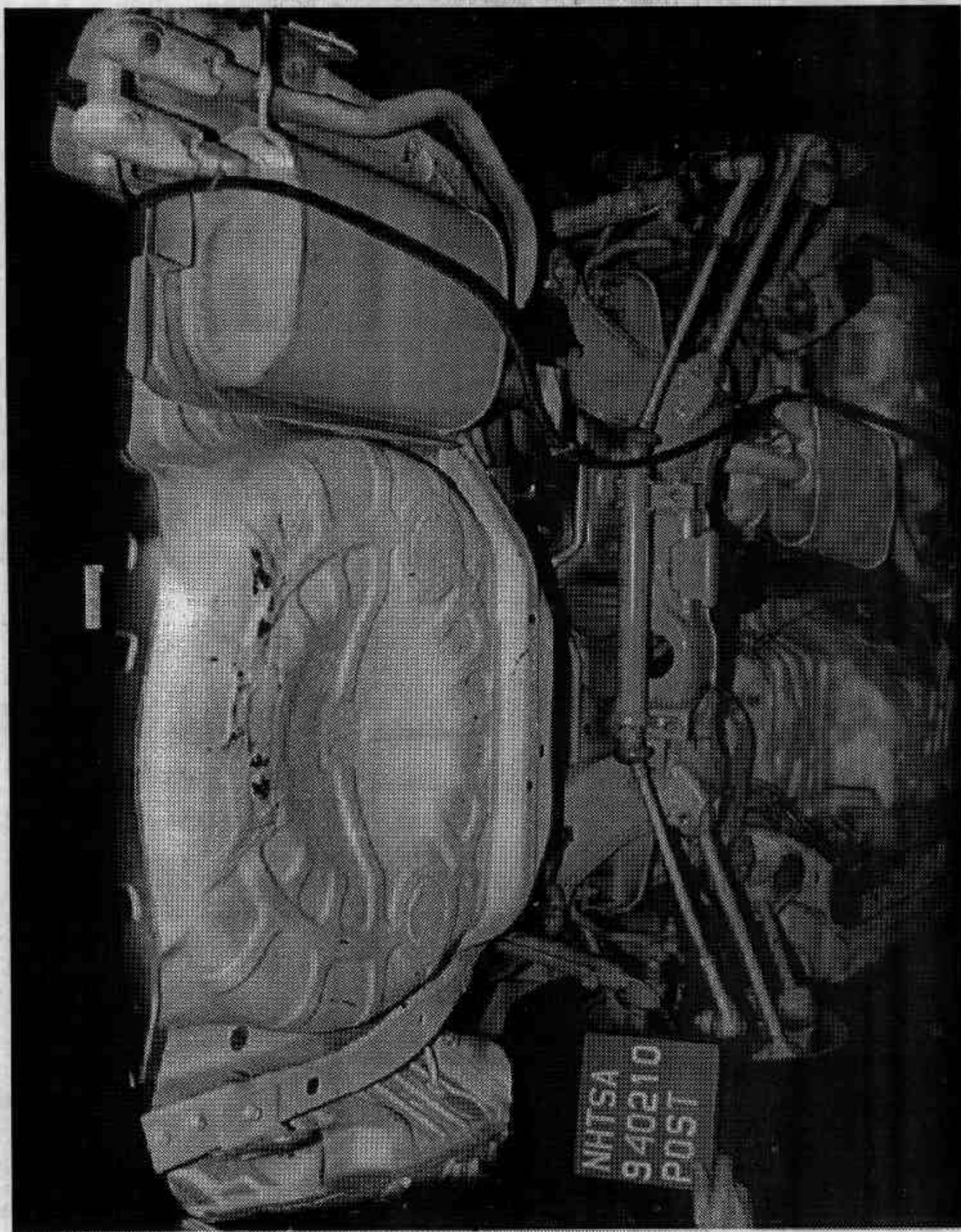


Figure A-26. POST-TEST REAR UNDERBODY VIEW
A-27

940210



Figure A-27. PRE-TEST DRIVER'S KNEE BOLSTER VIEW
A-28

940210

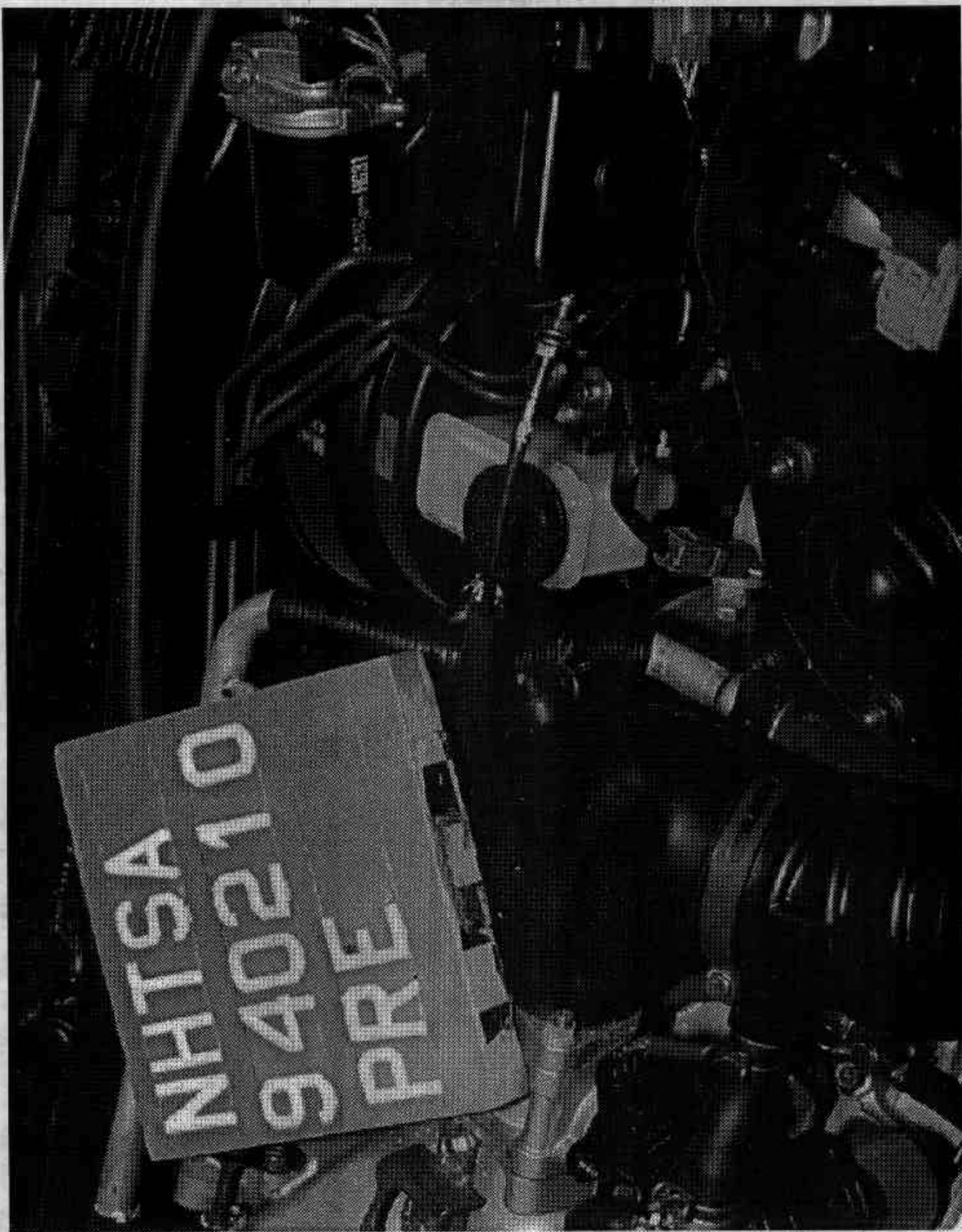


Figure A-28. PRE-TEST STEERING COLUMN AT FIREWALL VIEW

A-29

940210

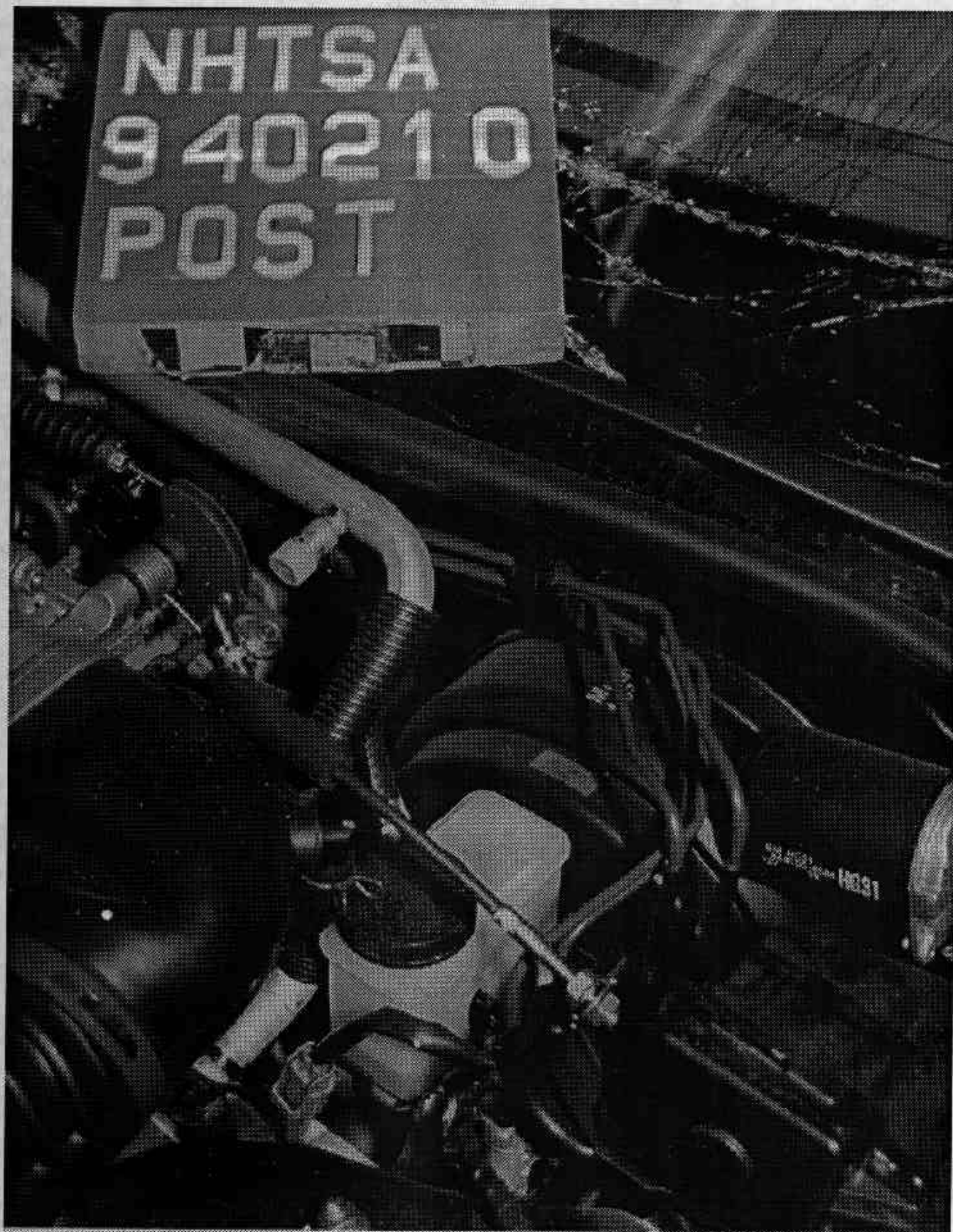


Figure A-29. POST-TEST STEERING COLUMN AT FIREWALL VIEW

A-30

940210



Figure A-30. PRE-TEST STEERING COLUMN AT FIREWALL VIEW - INTERIOR
A-31 940210



Figure A-31. POST-TEST STEERING COLUMN AT FIREWALL VIEW - INTERIOR

A-32

940210

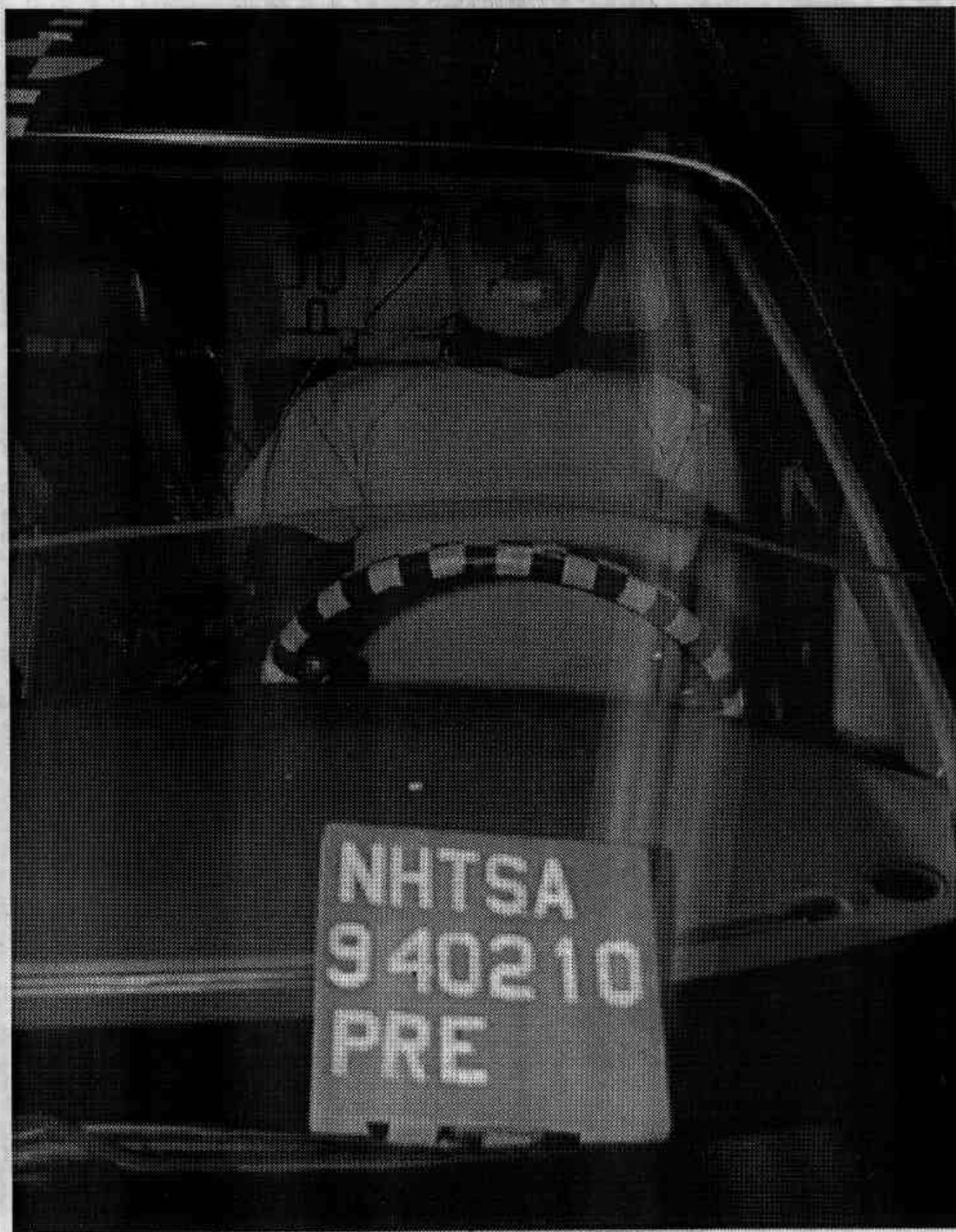


Figure A-32. PRE-TEST DRIVER DUMMY POSITION - VIEW 1

A-33

940210

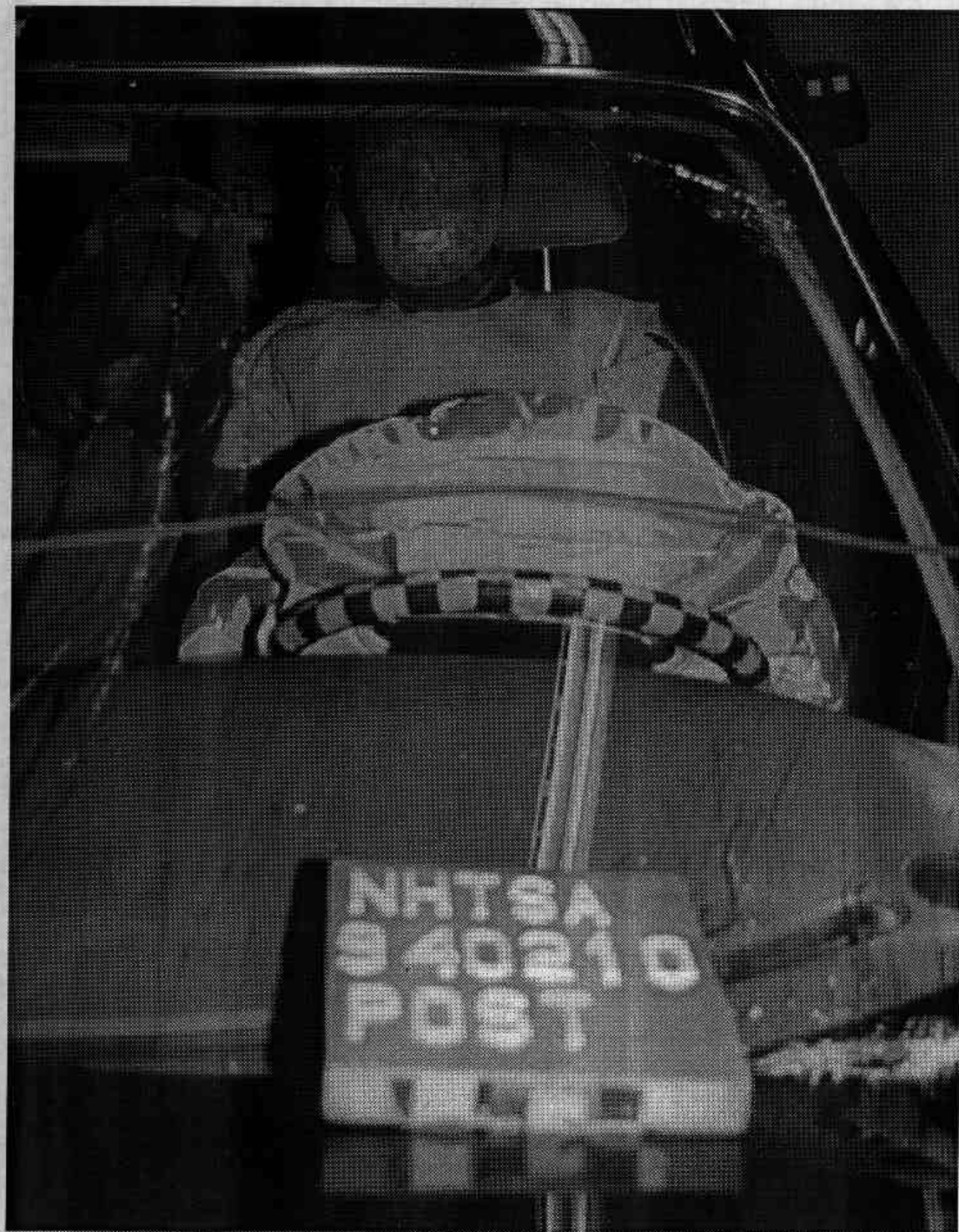


Figure A-33. POST-TEST DRIVER DUMMY POSITION - VIEW 1

A-34

940210



Figure A-34. PRE-TEST DRIVER DUMMY POSITION - VIEW 2

A-35

940210

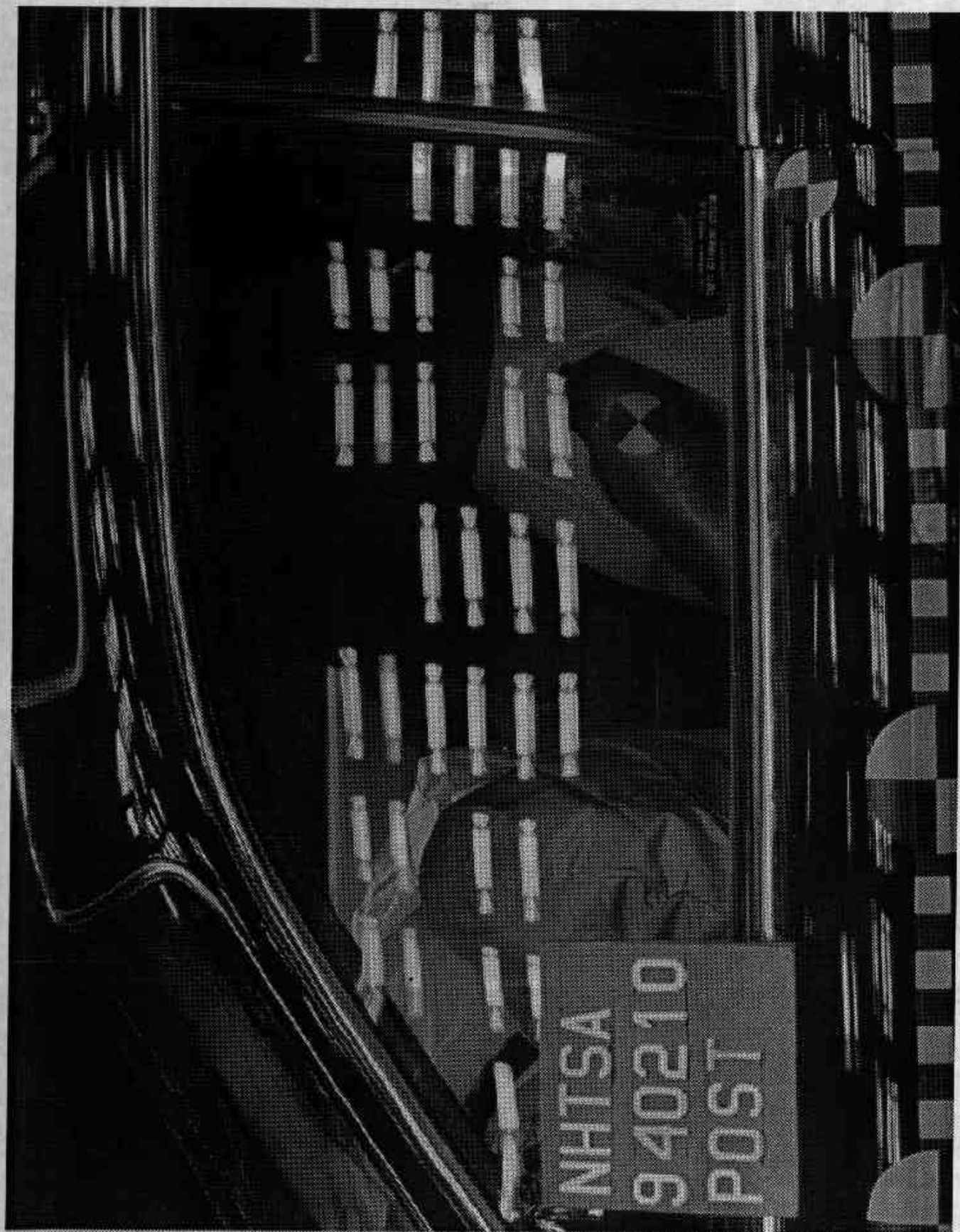


Figure A-35. POST-TEST DRIVER DUMMY POSITION - VIEW 2

A-36

940210

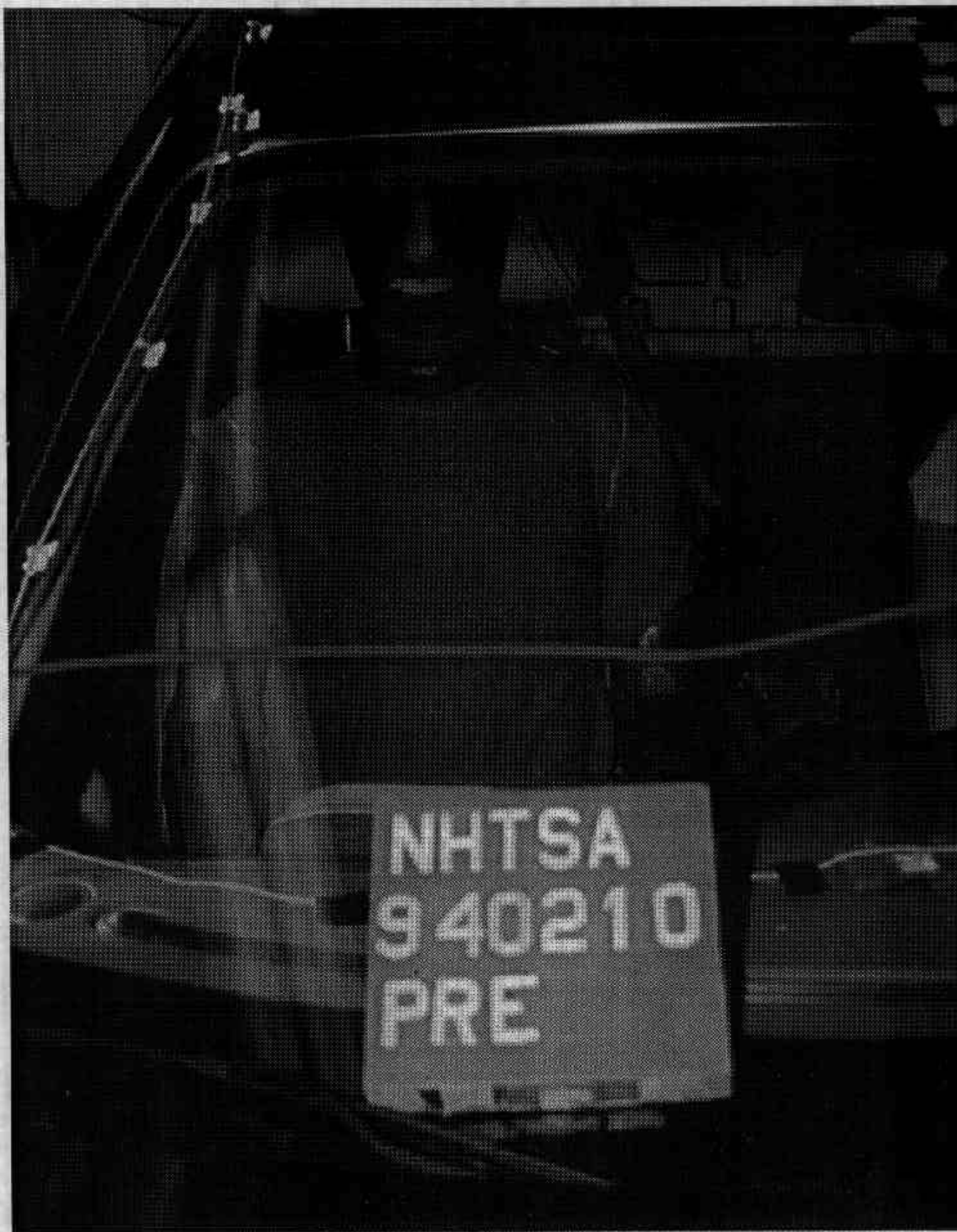


Figure A-36. PRE-TEST PASSENGER DUMMY POSITION - VIEW 1

A-37

940210

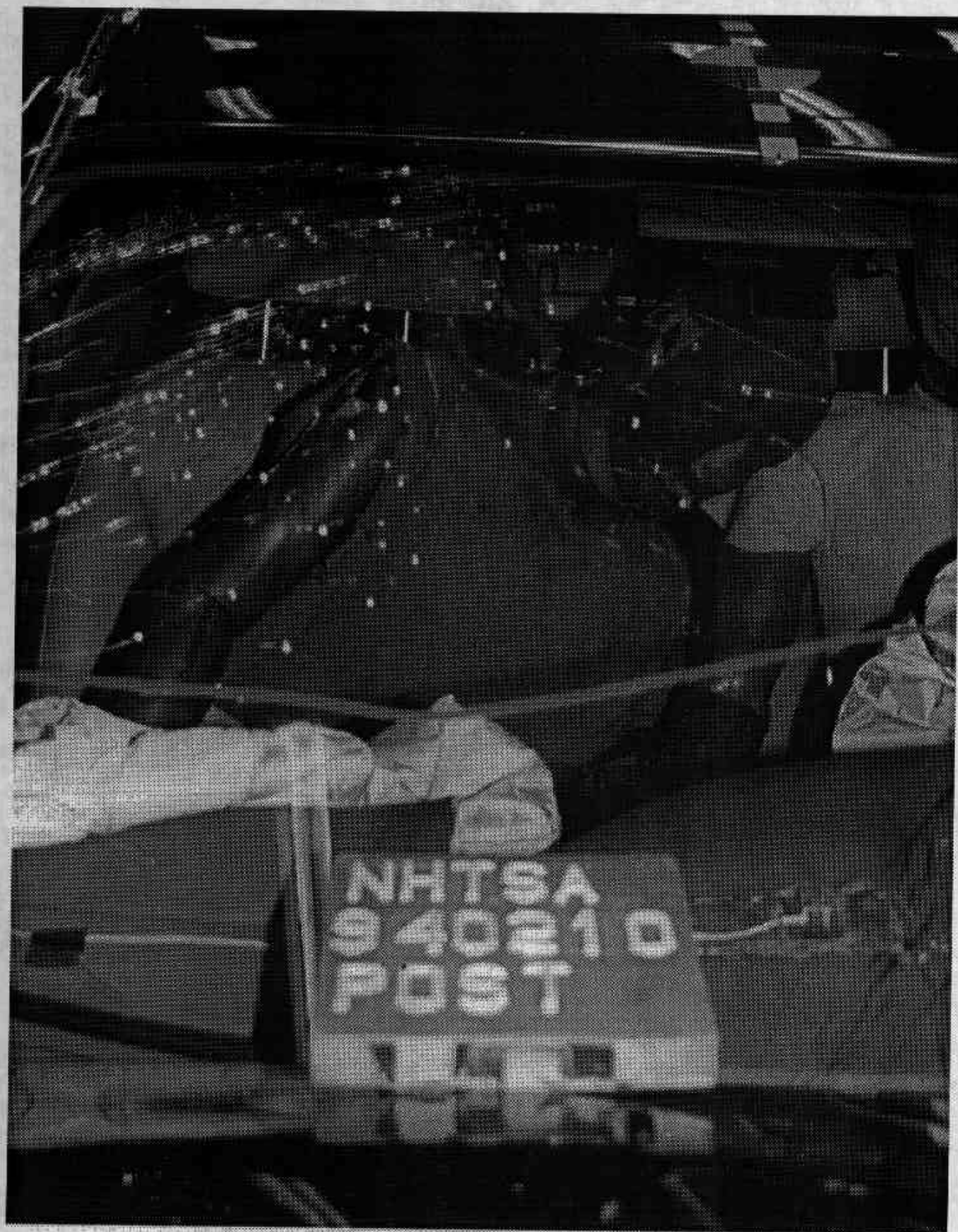


Figure A-37. POST-TEST PASSENGER DUMMY POSITION - VIEW 1

A-38

940210



Figure A-38. PRE-TEST PASSENGER DUMMY POSITION - VIEW 2

A-39

940210



Figure A-39. POST-TEST PASSENGER DUMMY POSITION - VIEW 2

A-40

940210

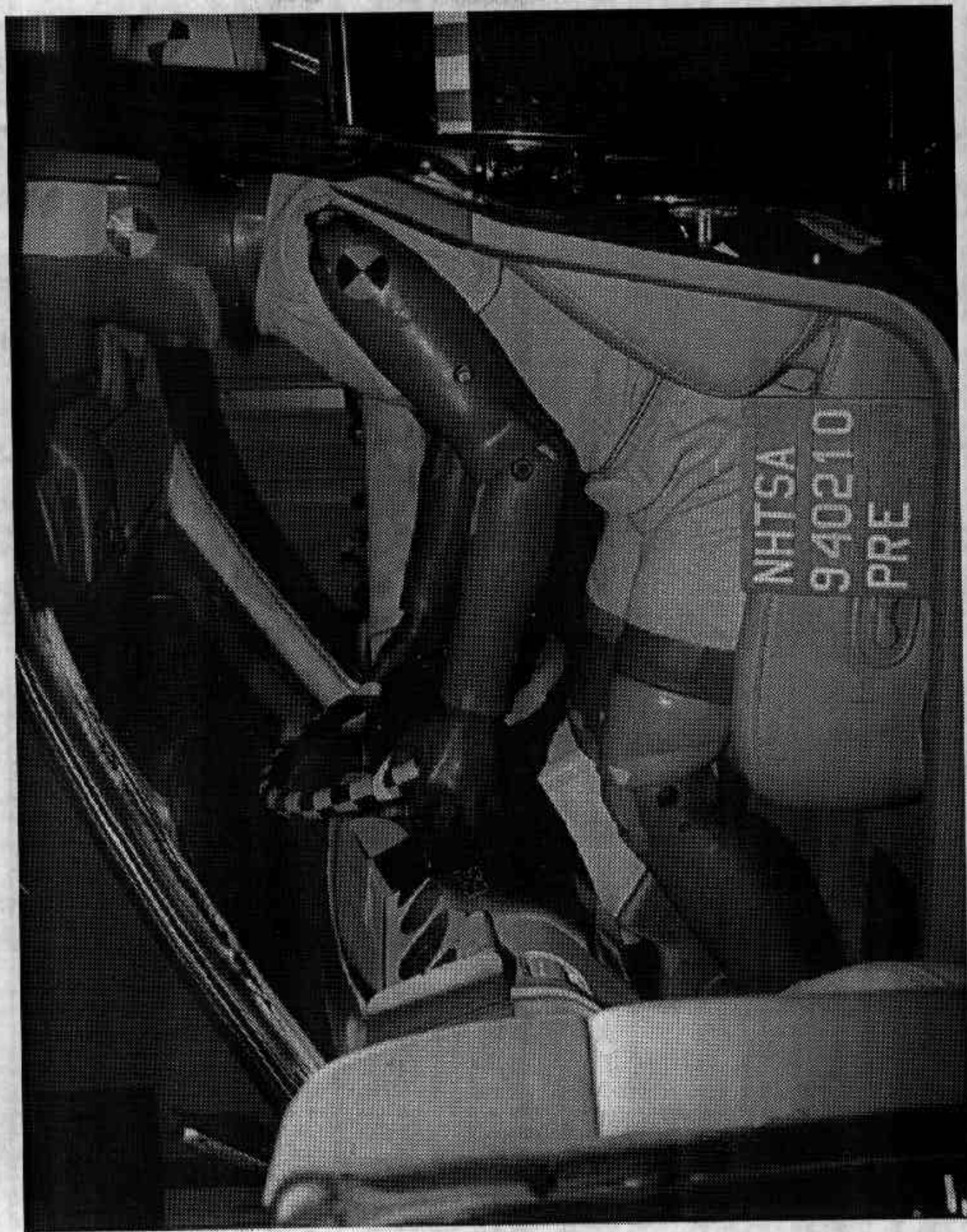


Figure A-40. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1
A-41 940210

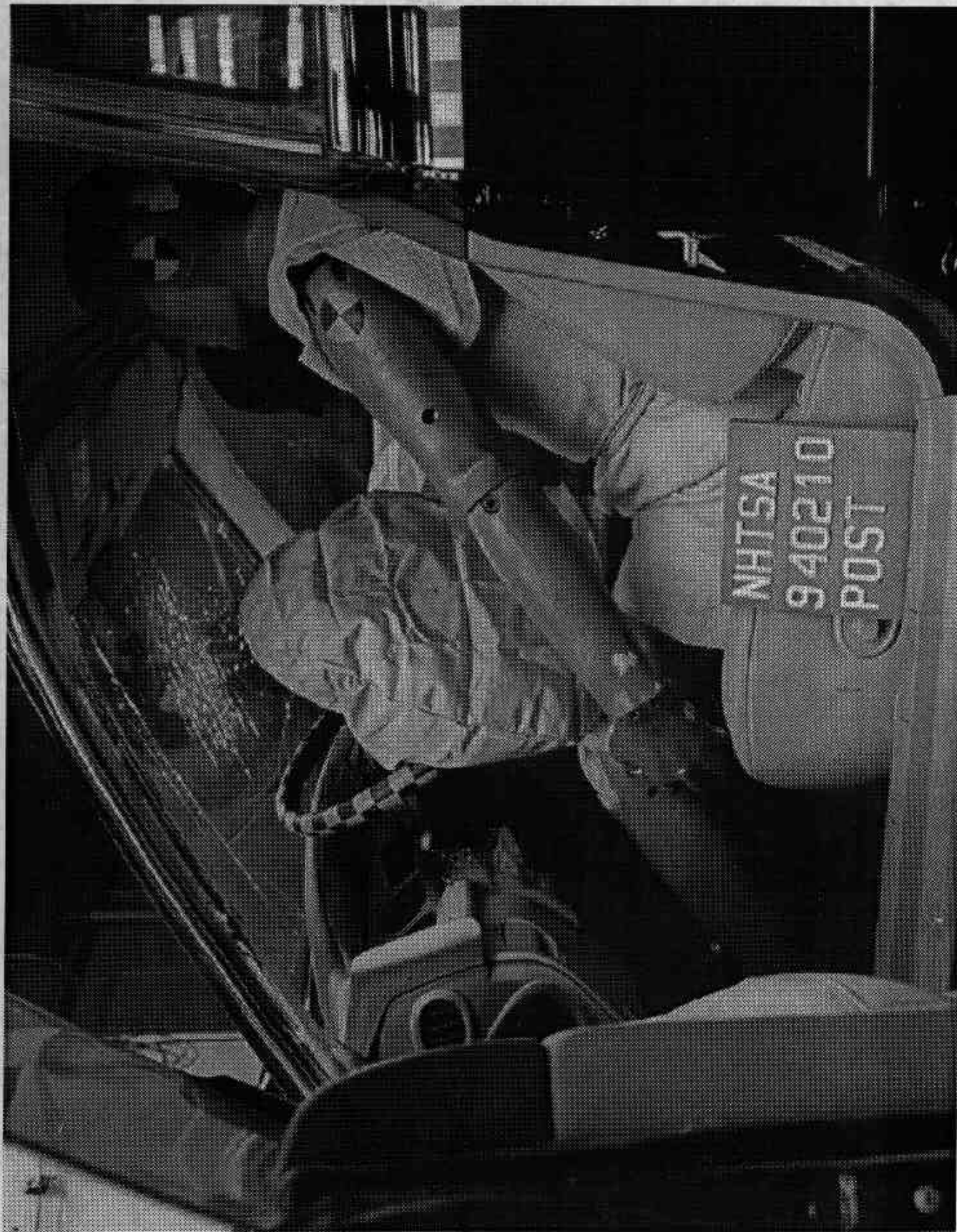


Figure A-41. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

A-42

940210

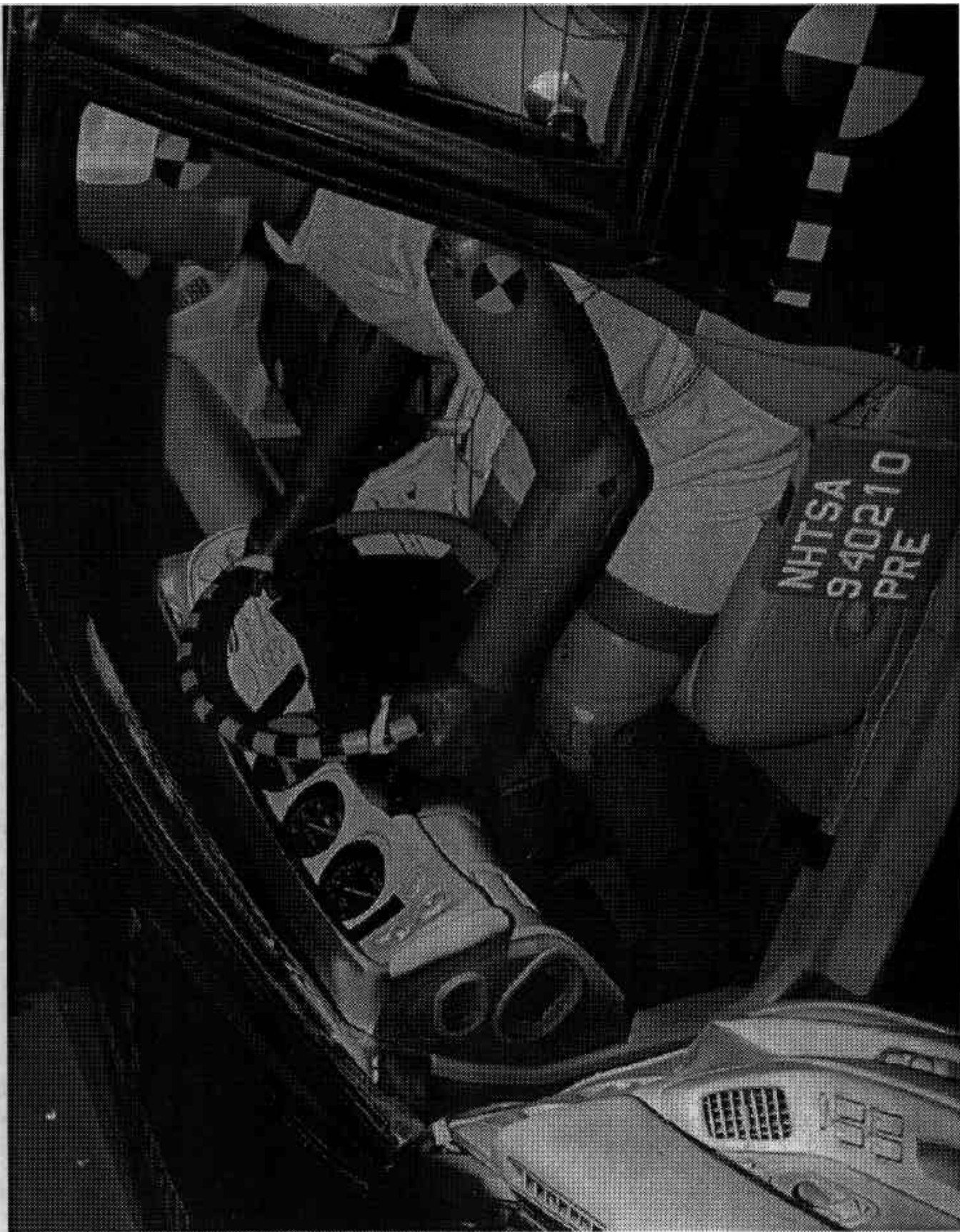


Figure A-42. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

A-43

940210



Figure A-43. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

A-44

940210

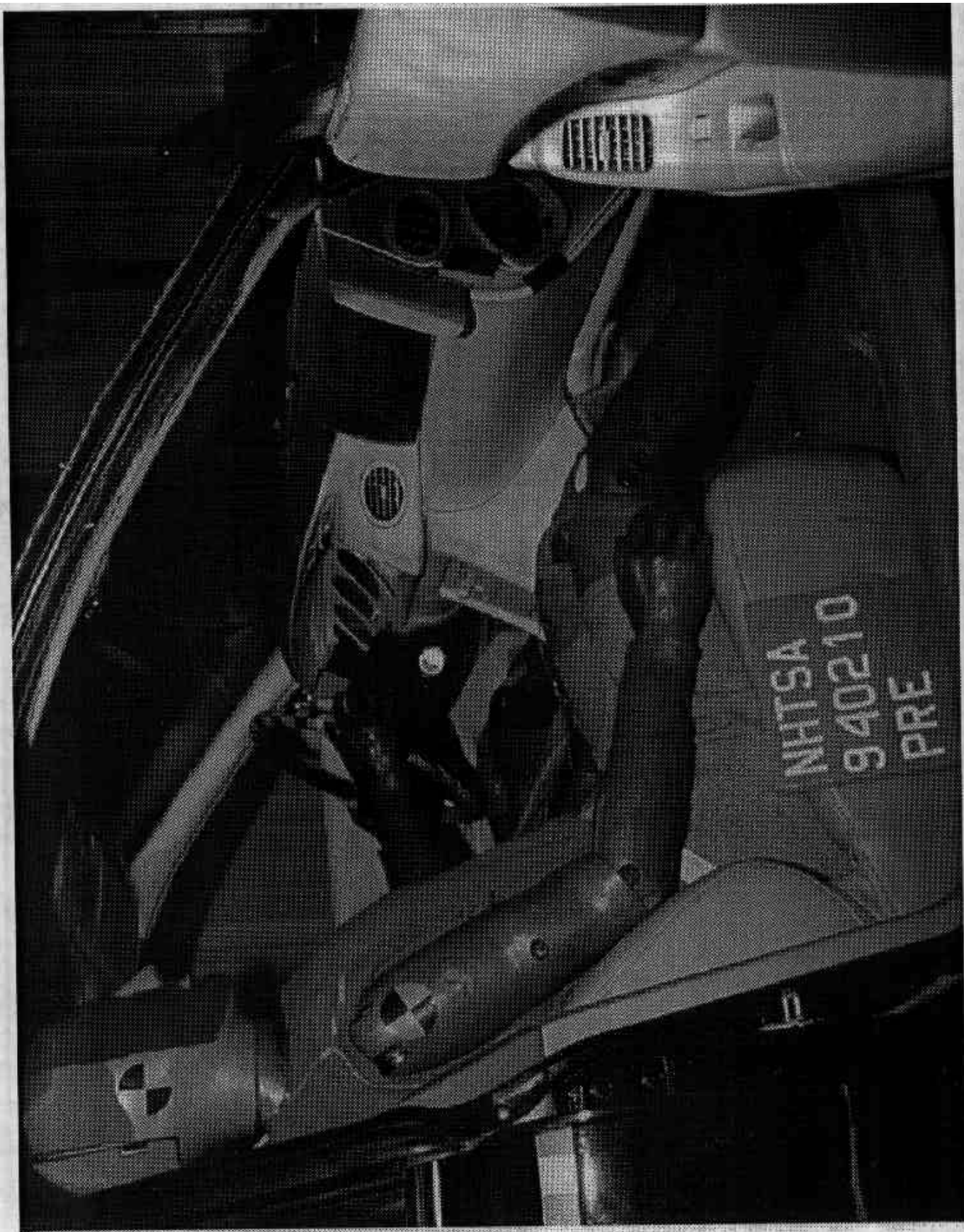


Figure A-44. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

A-45

940210

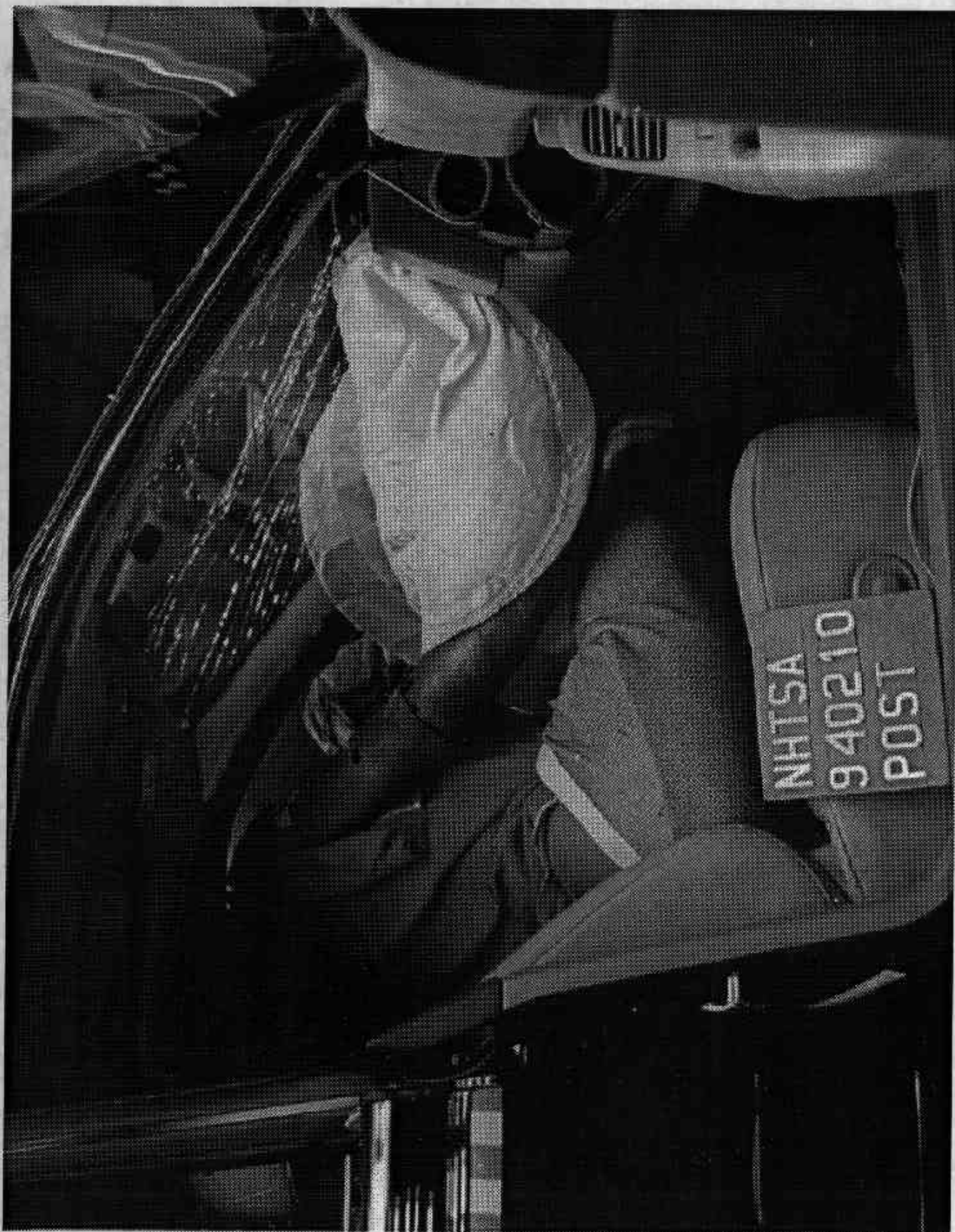


Figure A-45. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

A-46

940210



Figure A-46. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

A-47

940210



Figure A-47. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

A-48

940210

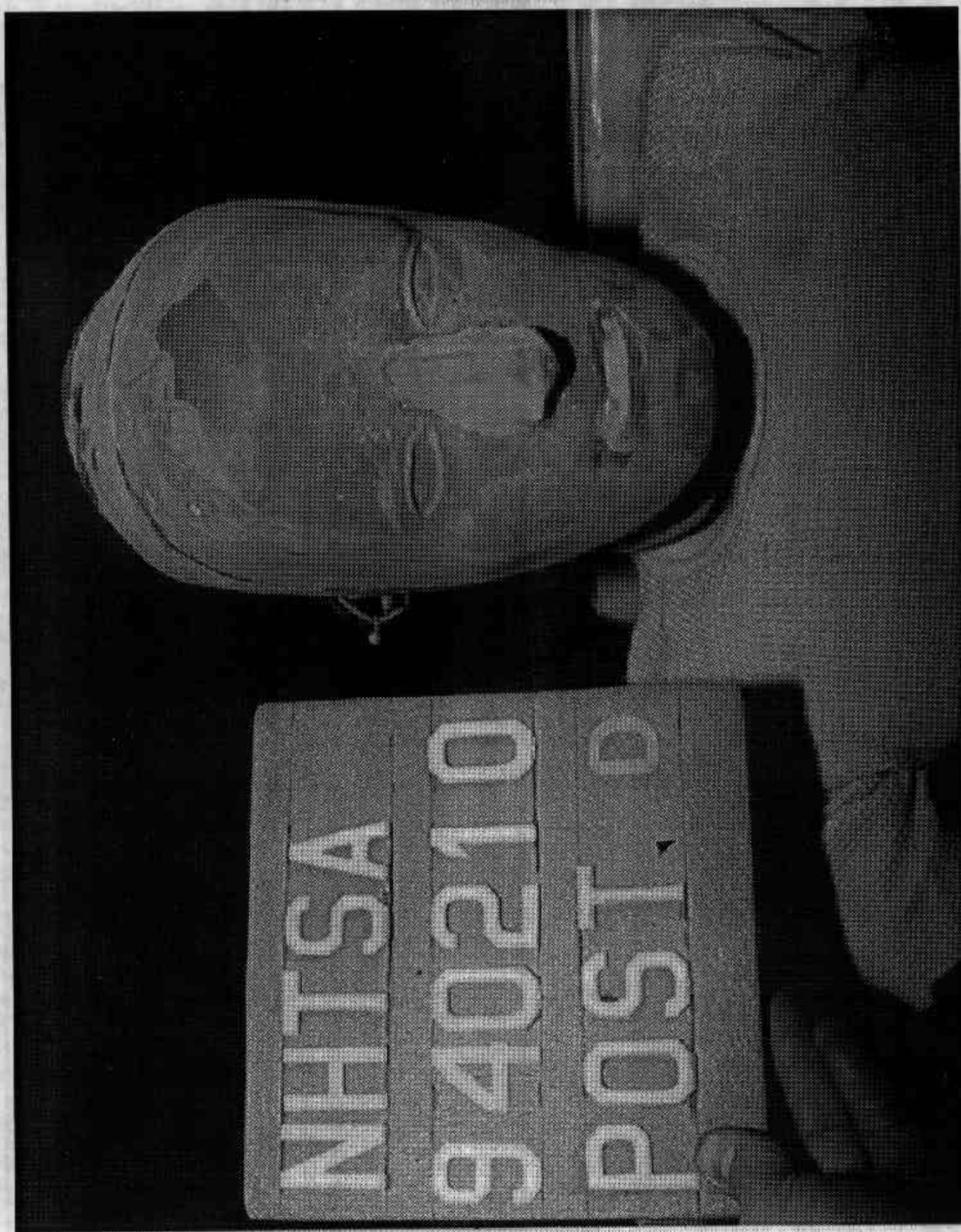


Figure A-48. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1

A-49

940210

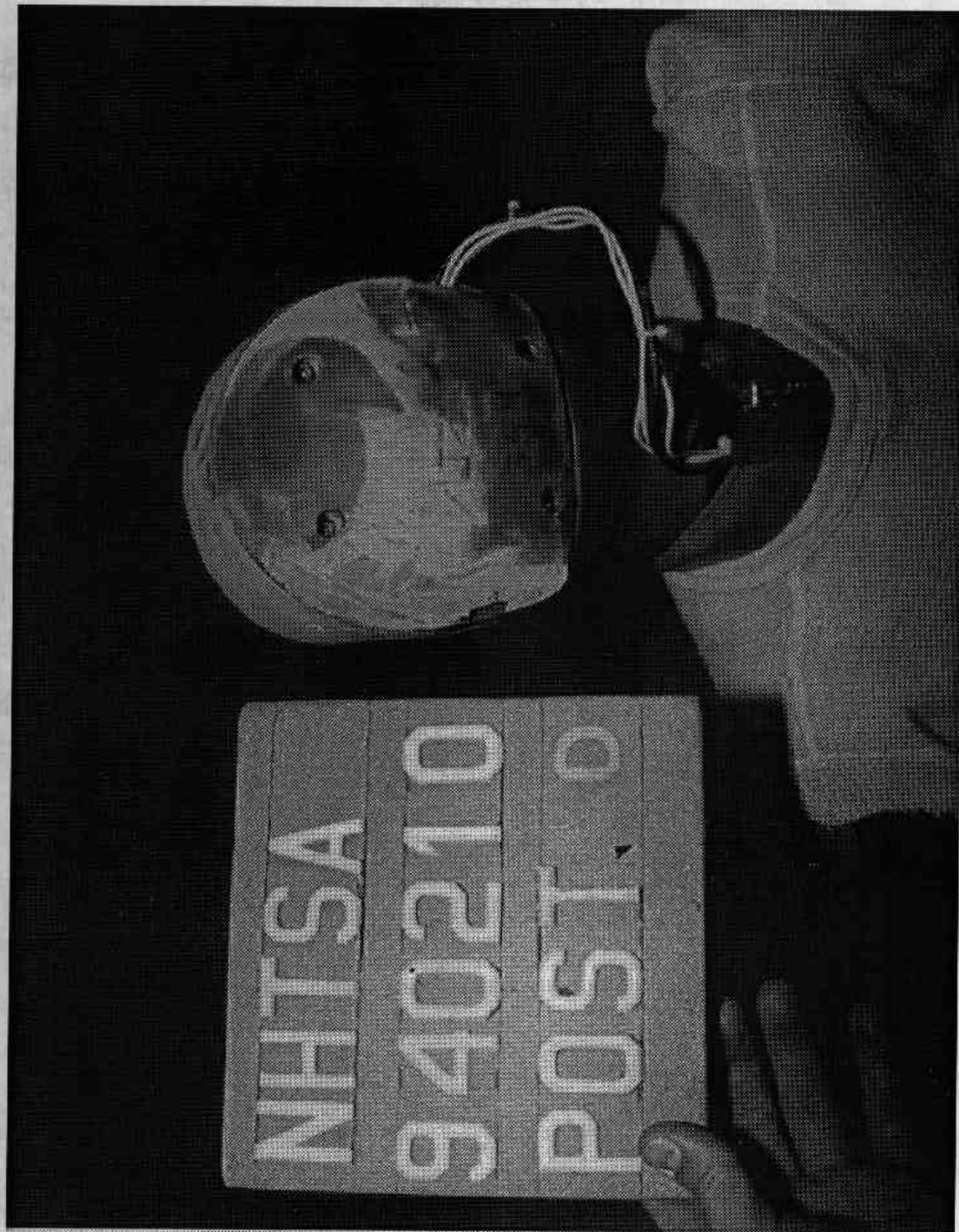


Figure A-49. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 2

A-50

940210



Figure A-50. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 3
A-51 940210

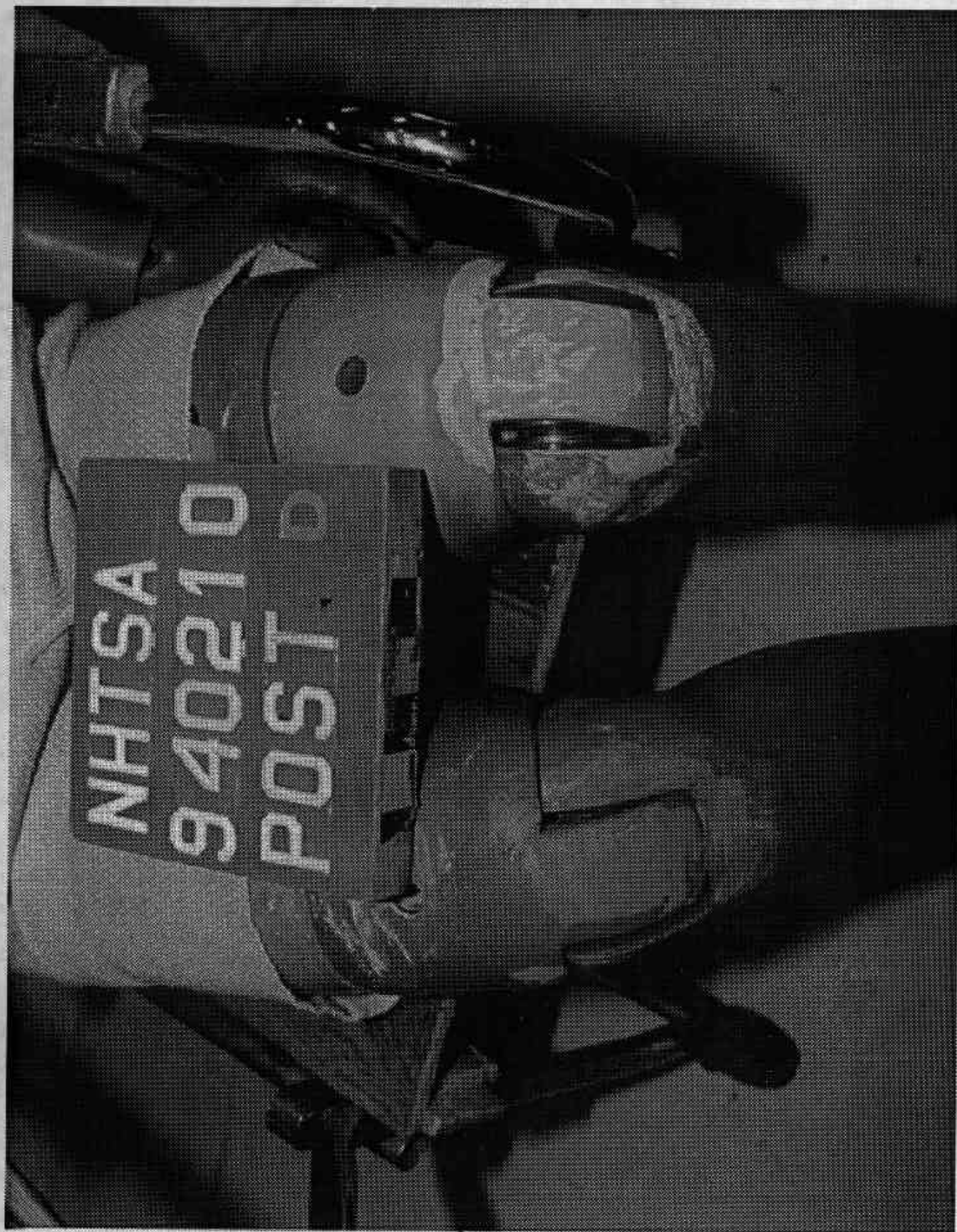


Figure A-51. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1

A-52

940210



Figure A-52. POST-TEST DRIVER DUMMY KNEE CONTACT- VIEW 2

A-53

940210

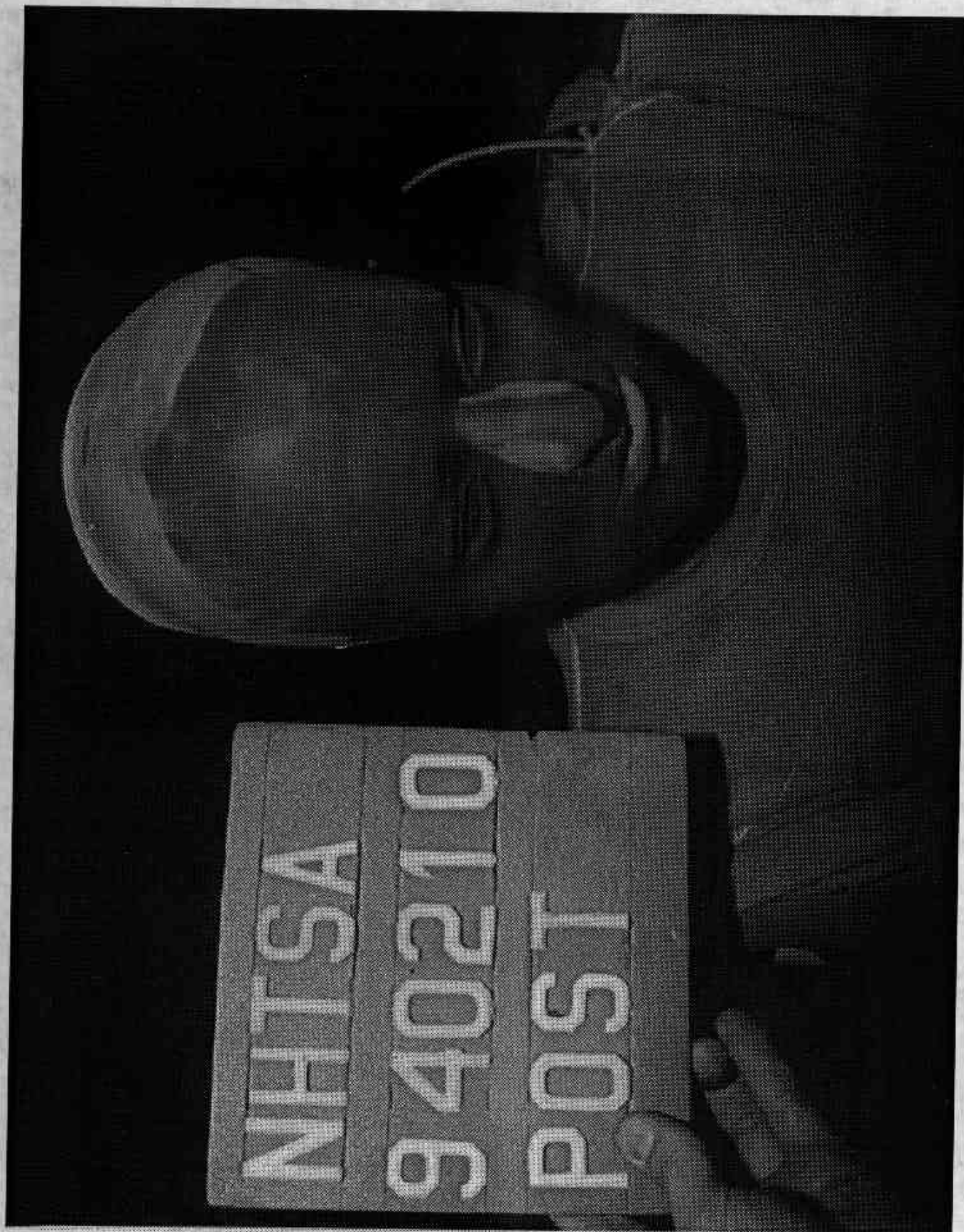


Figure A-53. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 1

A-54

940210

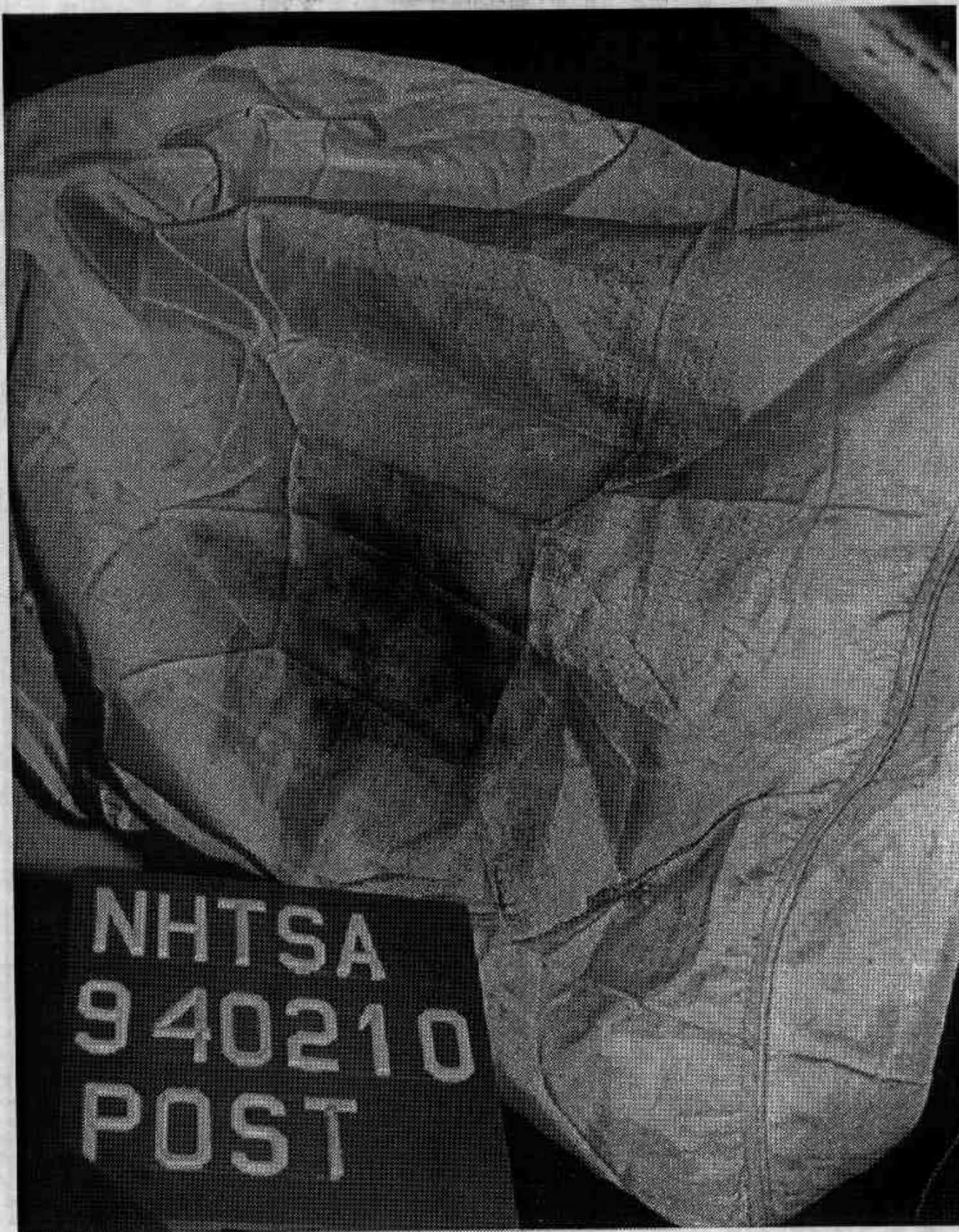


Figure A-54. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 2
A-55 940210

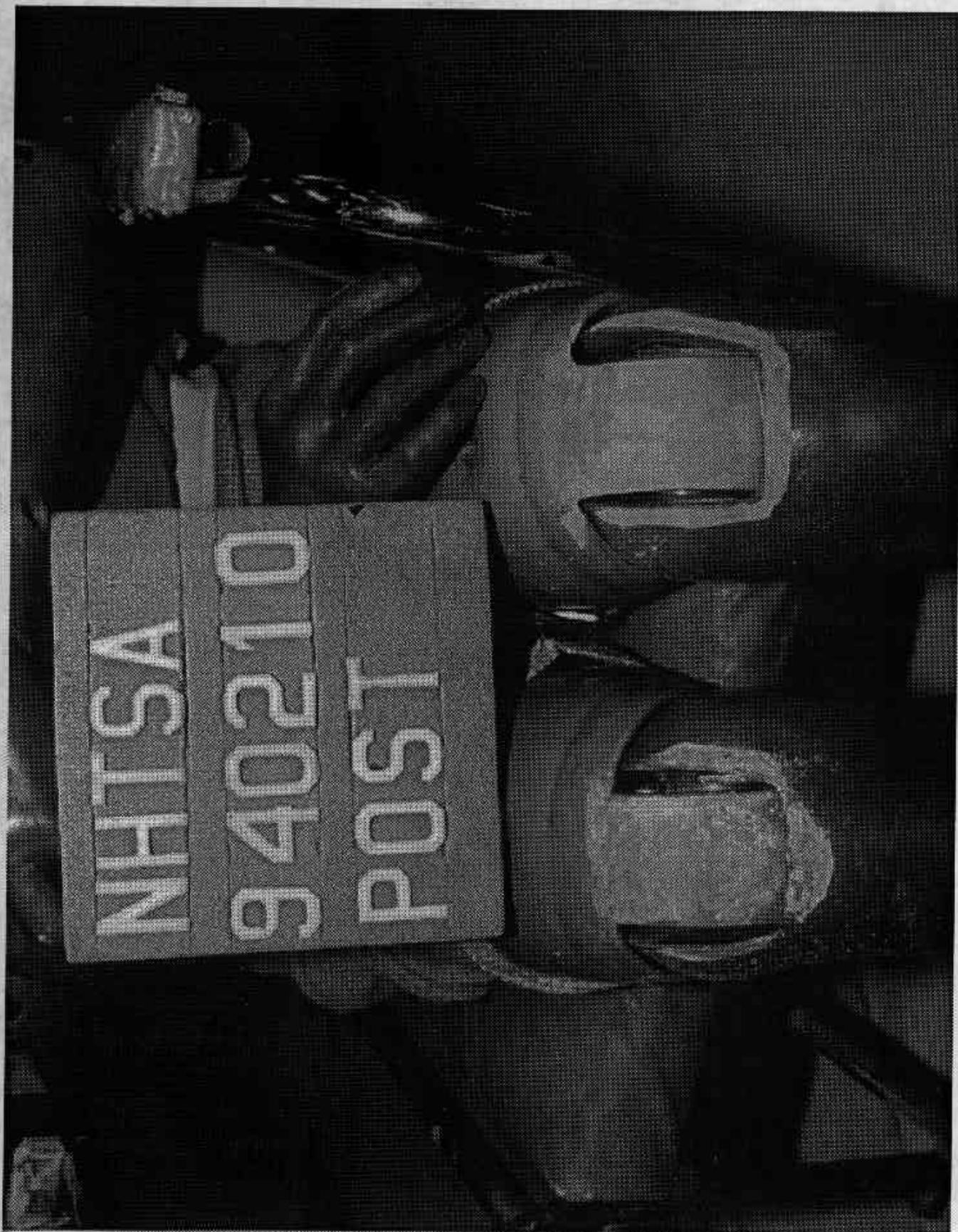


Figure A-55. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1

A-56

940210



Figure A-56. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2
A-57 940210

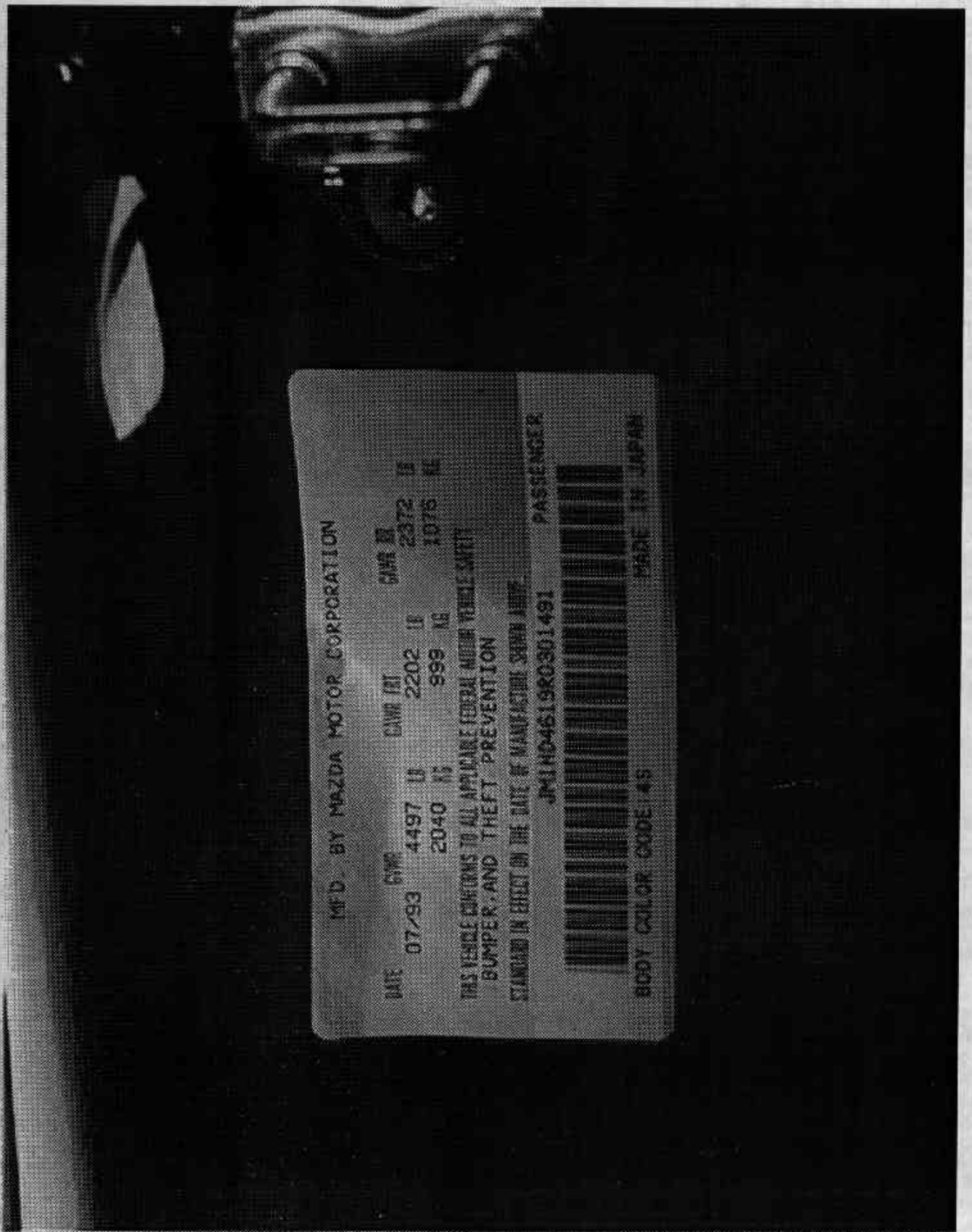
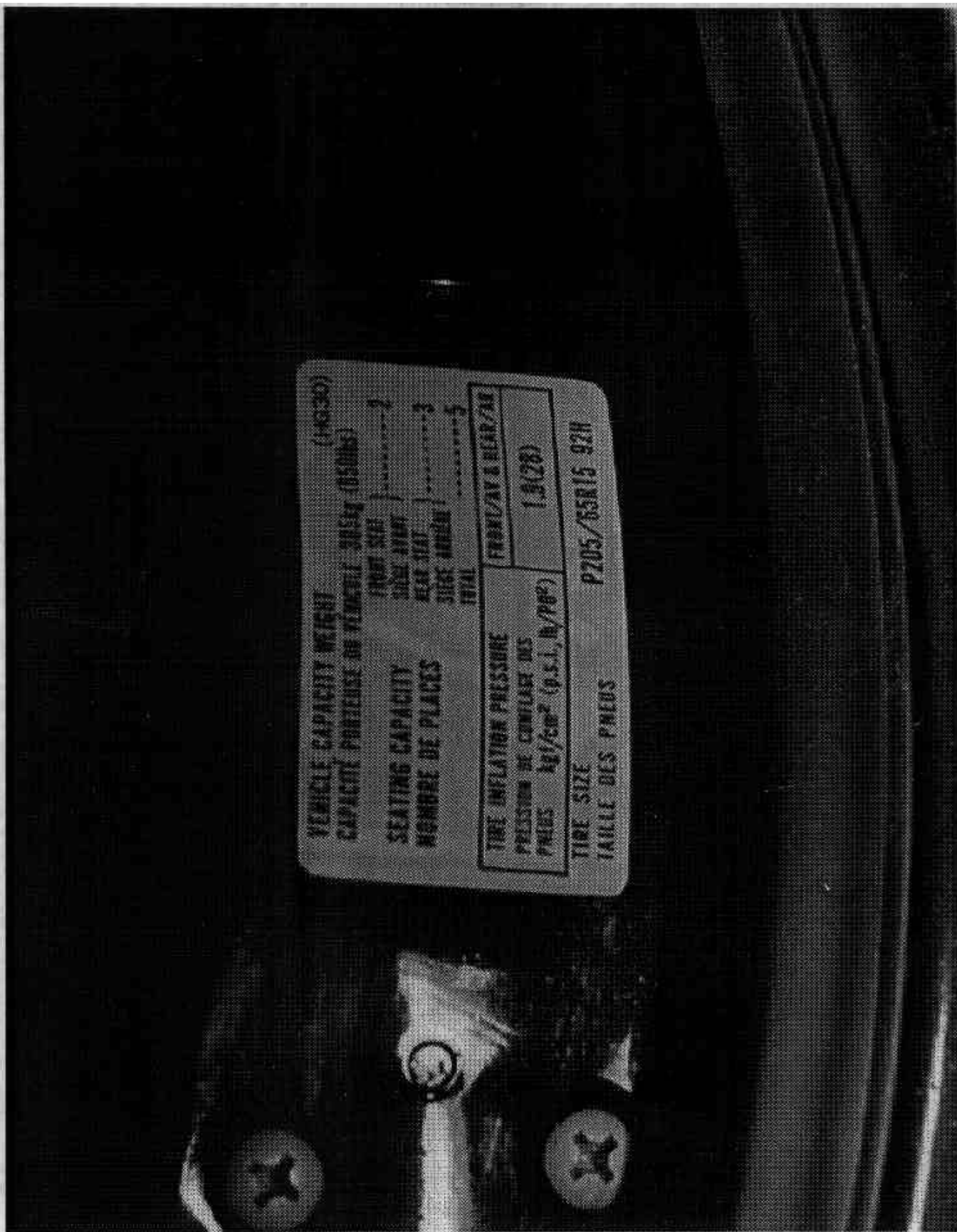


Figure A-57. PRE-TEST VEHICLE CERTIFICATION LABEL VIEW



VEHICLE CAPACITY WEIGHT (14000)	
CAPACITÉ PONDÉRALE DU VÉHICULE 305kg (680lbs)	
SEATING CAPACITY NOMBRE DE PLACES	
FRONT SEAT	2
REAR SEAT	3
TOTAL	5
TIRE INFLATION PRESSURE PRESSION DE GONFLAGE DES PNEUS	
kg/cm ² (p.s.i./bar)	1.8 (28)
TIRE SIZE TAILLE DES PNEUS	
P205/65R15 92H	

Figure A-58. PRE-TEST RECOMMENDED TIRE PRESSURE LABEL VIEW



Figure A-59. POST-TEST VEHICLE ON STATIC ROLLOVER MACHINE VIEW
A-60 940210

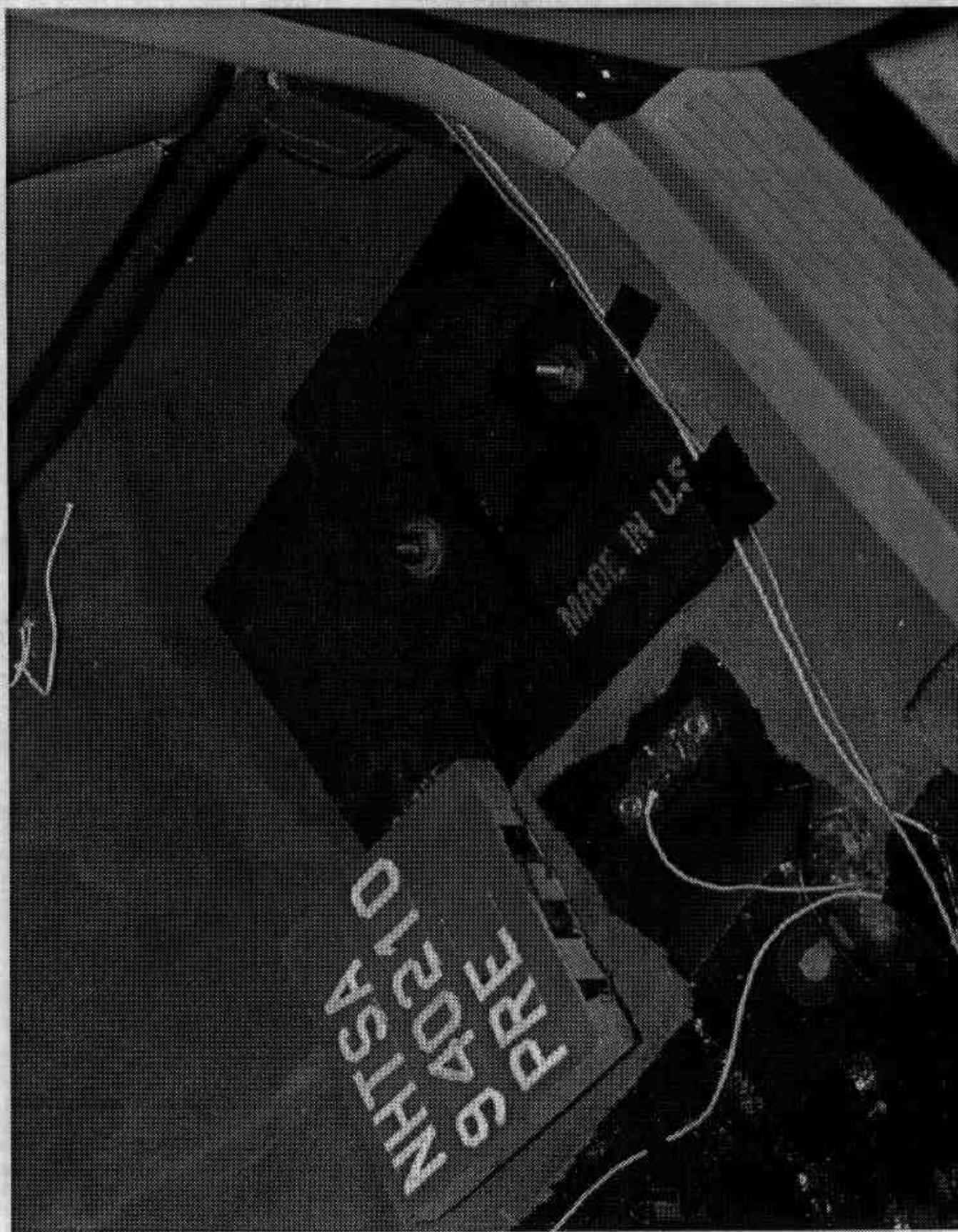


Figure A-60. PRE-TEST BALLAST LOCATION VIEW
A-61

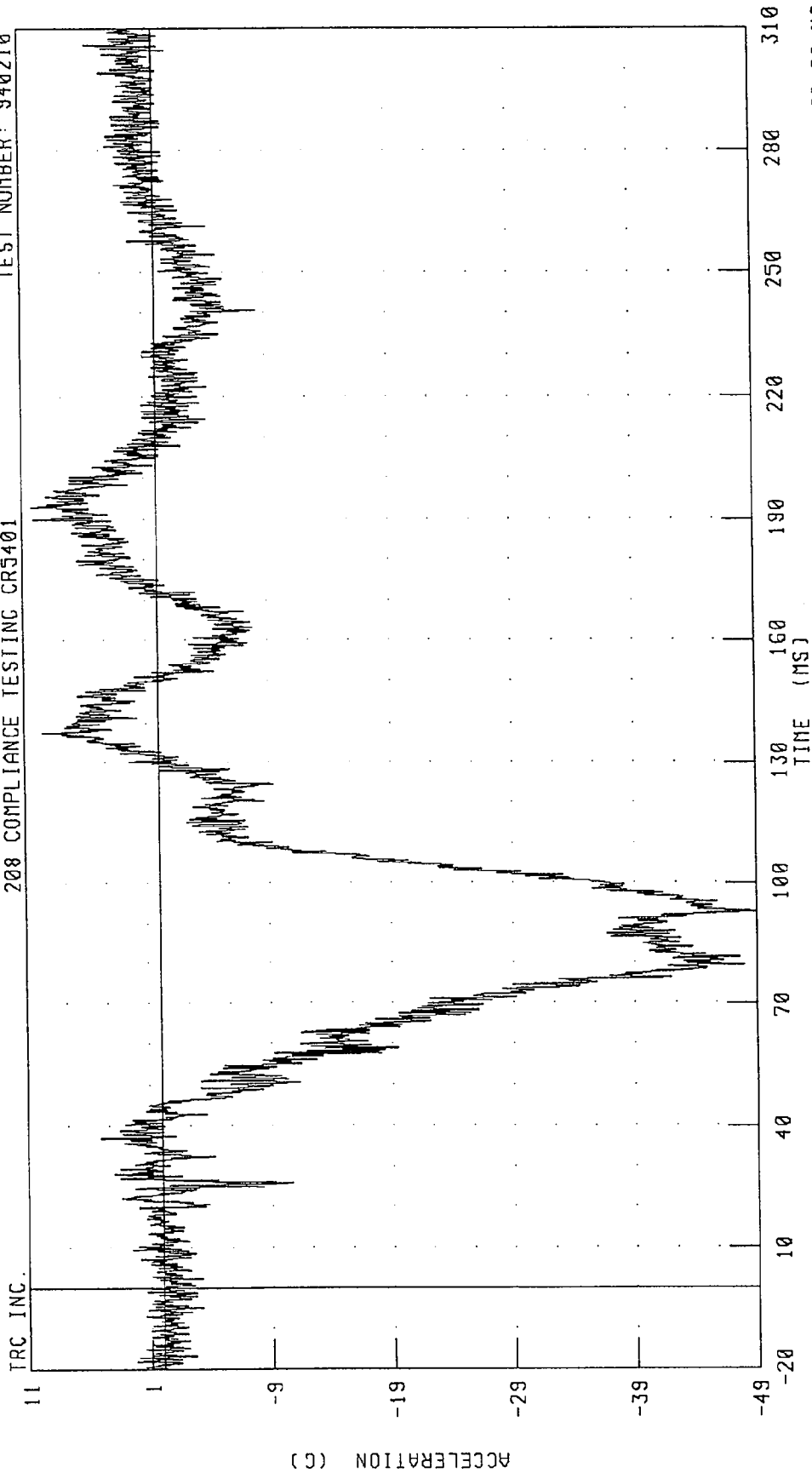
940210

Appendix B

Data Plots

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER HEAD X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

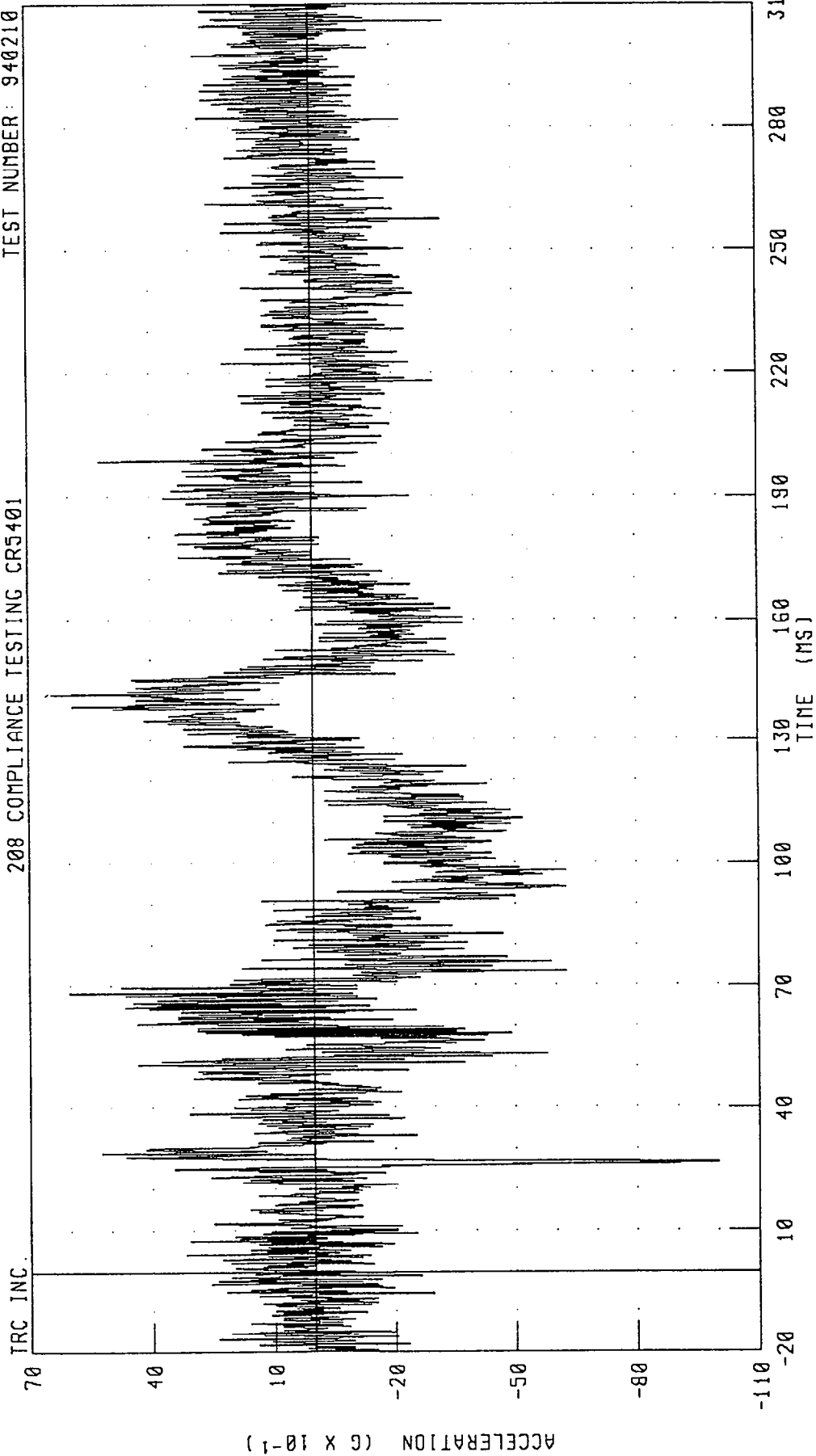
TEST NUMBER: 940210



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

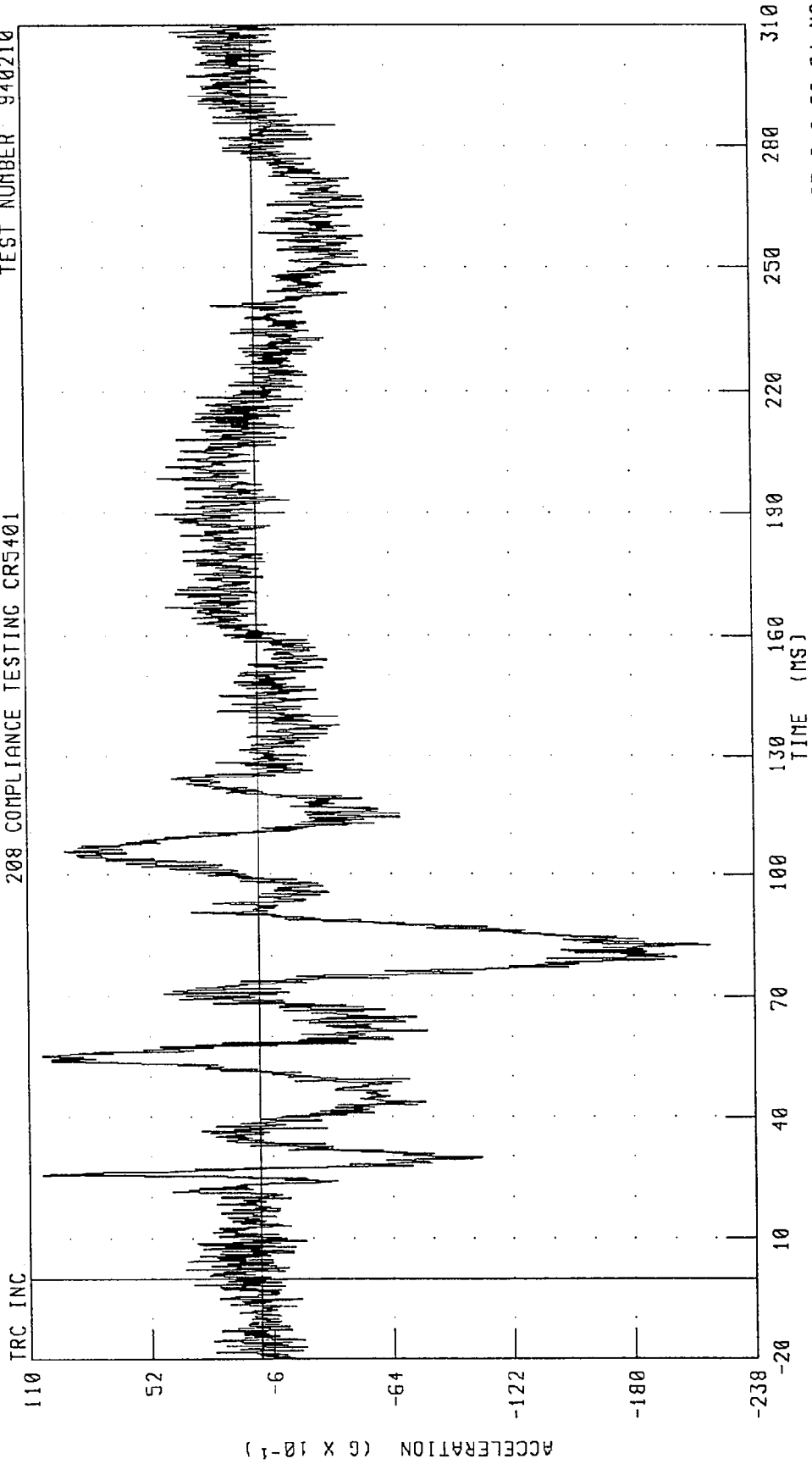


CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 6.42 G @ 141.36 MS; -10.01 G @ 26.64 MS

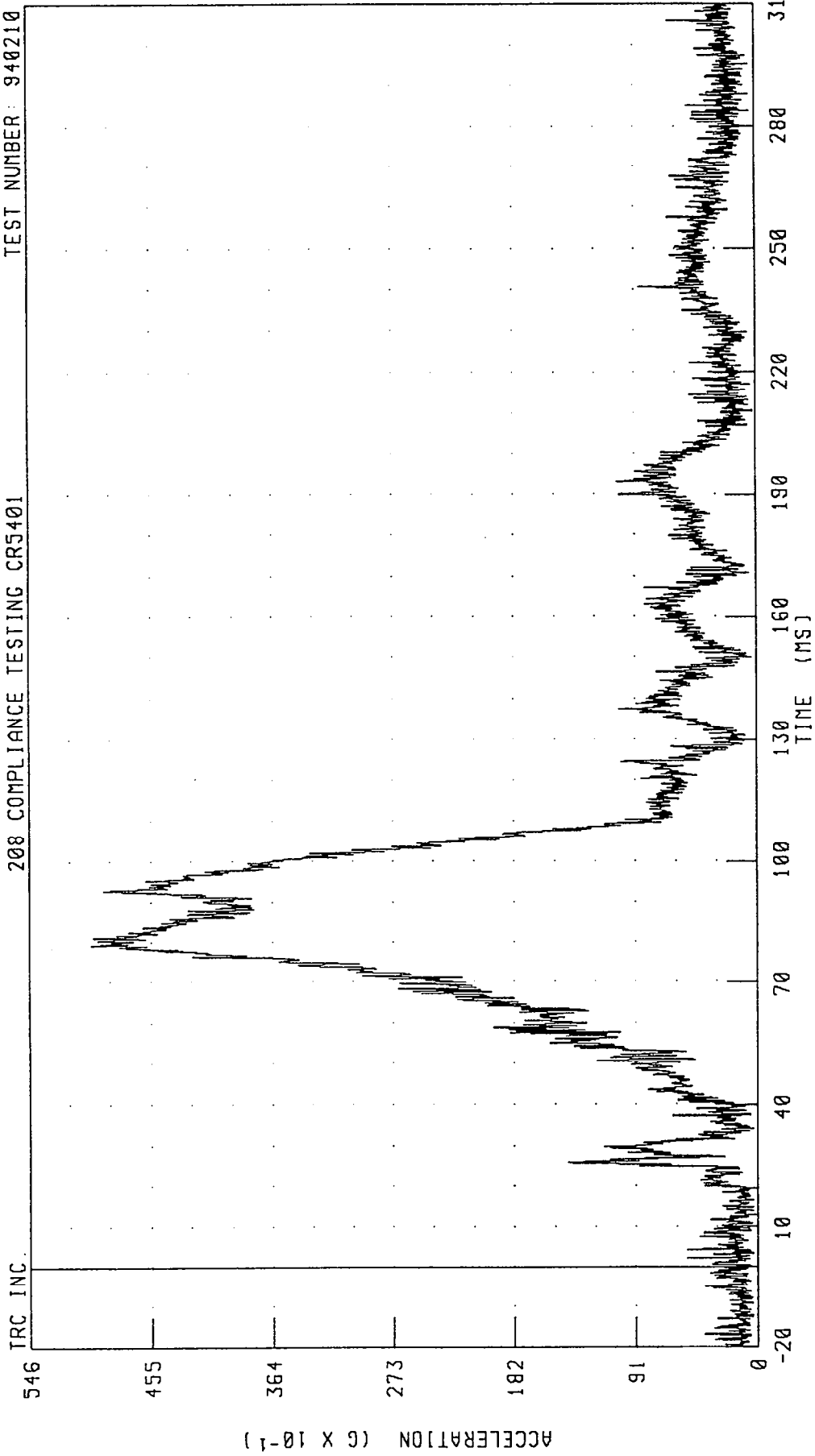
1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER 940210



1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER HEAD RESULTANT ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

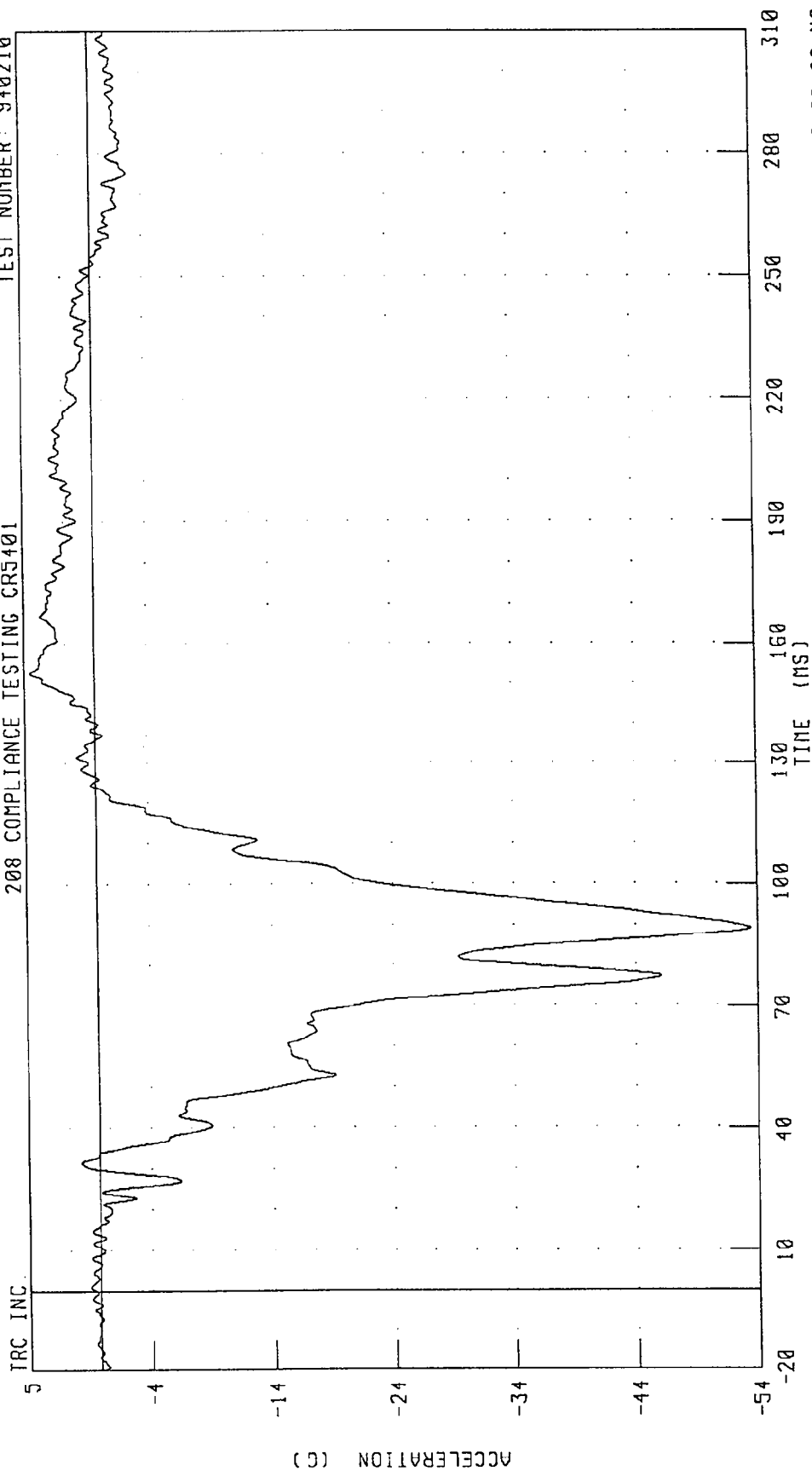


PEAK DATA: 49.92 G @ 79.36 MS; 0.18 G @ 12.80 MS

CHANNEL: HEADG1 FILTER: CH. CLASS 1000

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210



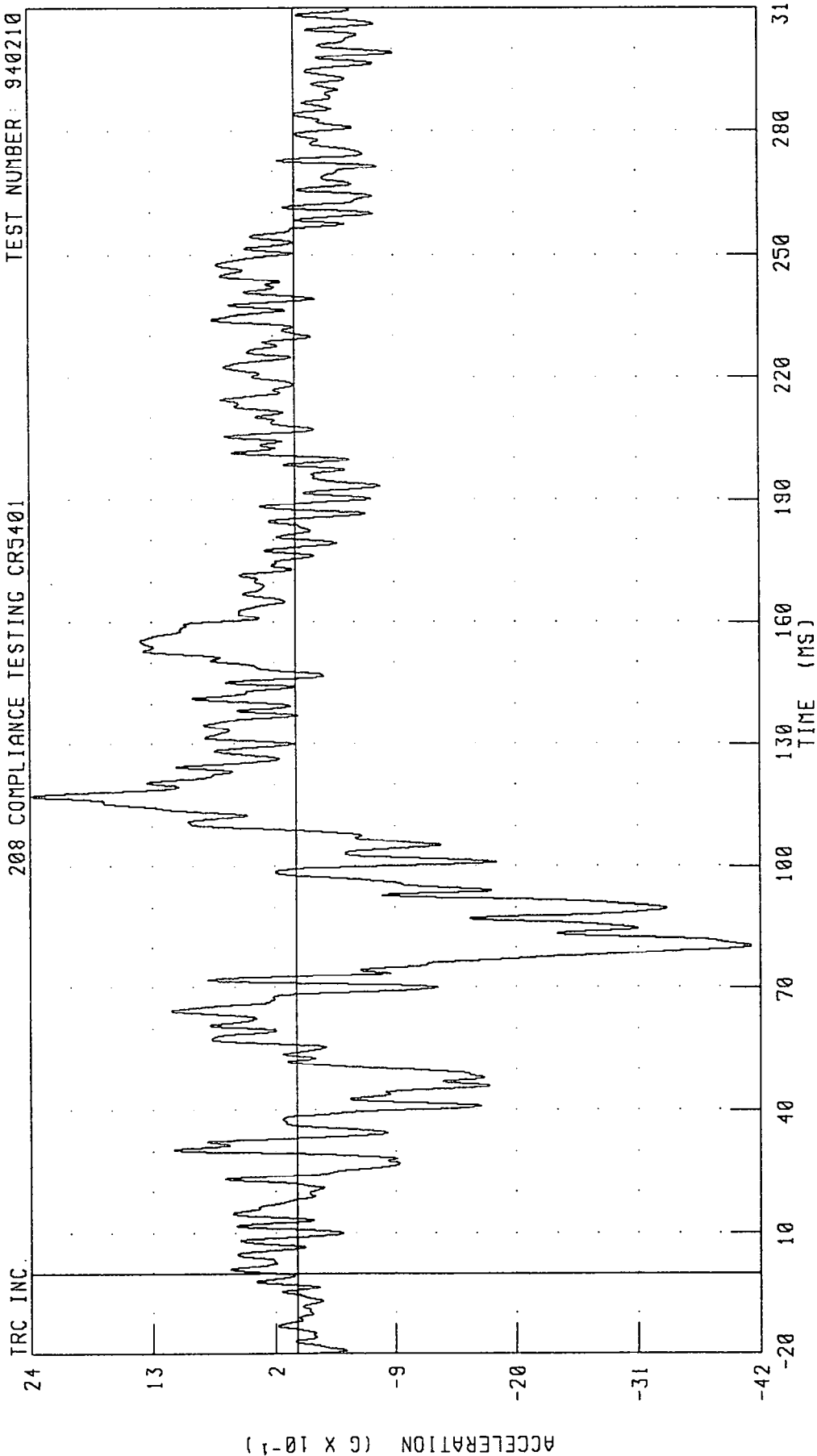
CHANNEL: CSTXG1 FILTER: CH. CLASS 180

PEAK DATA: 5.29 G @ 152.80 MS; -53.64 G @ 88.96 MS

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION

208 COMPLIANCE TESTING CR5401

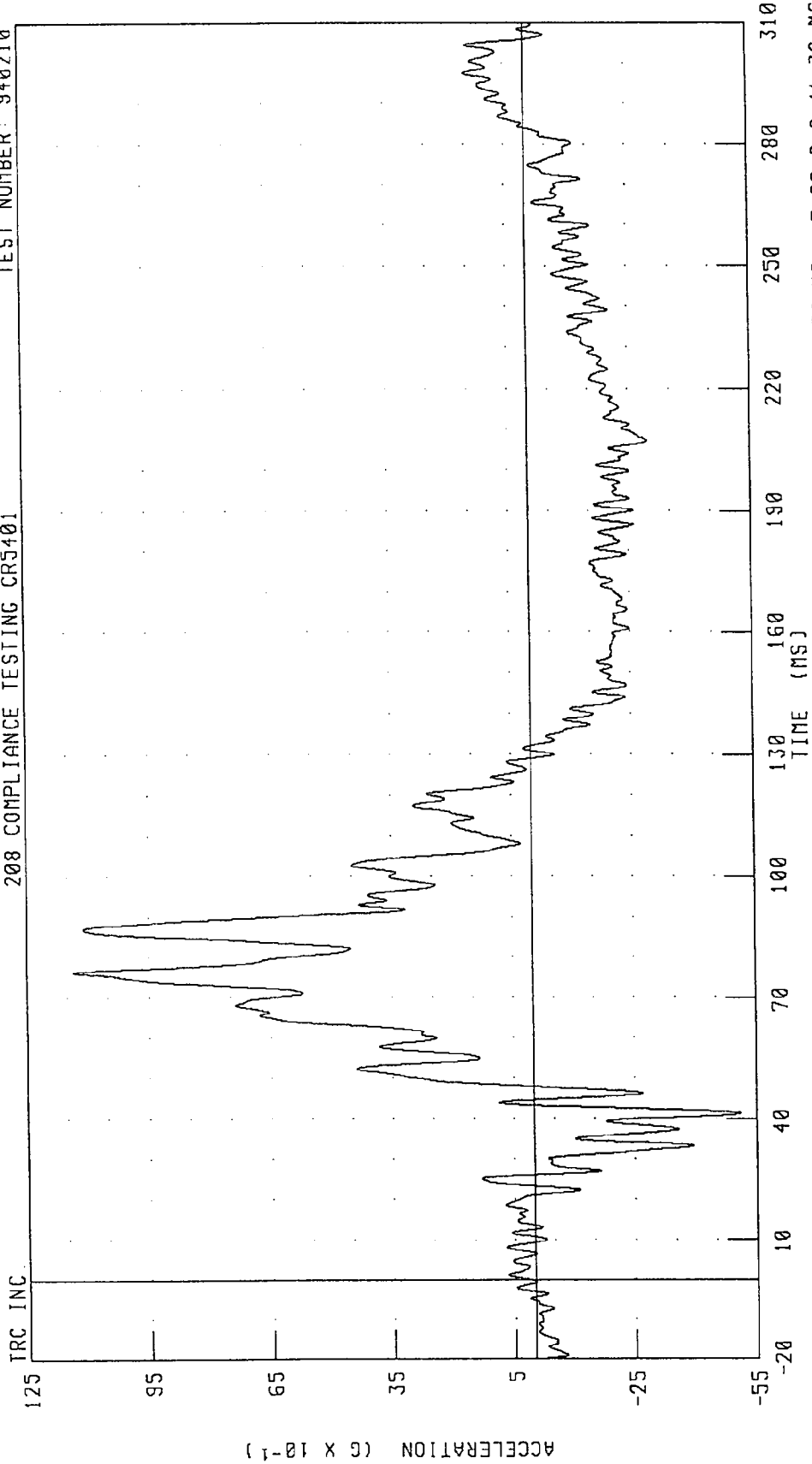
TEST NUMBER: 940210



CHANNEL: CSTYG1 FILTER: CH. CLASS 180

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION
208 COMPLIANCE TESTING CR5401

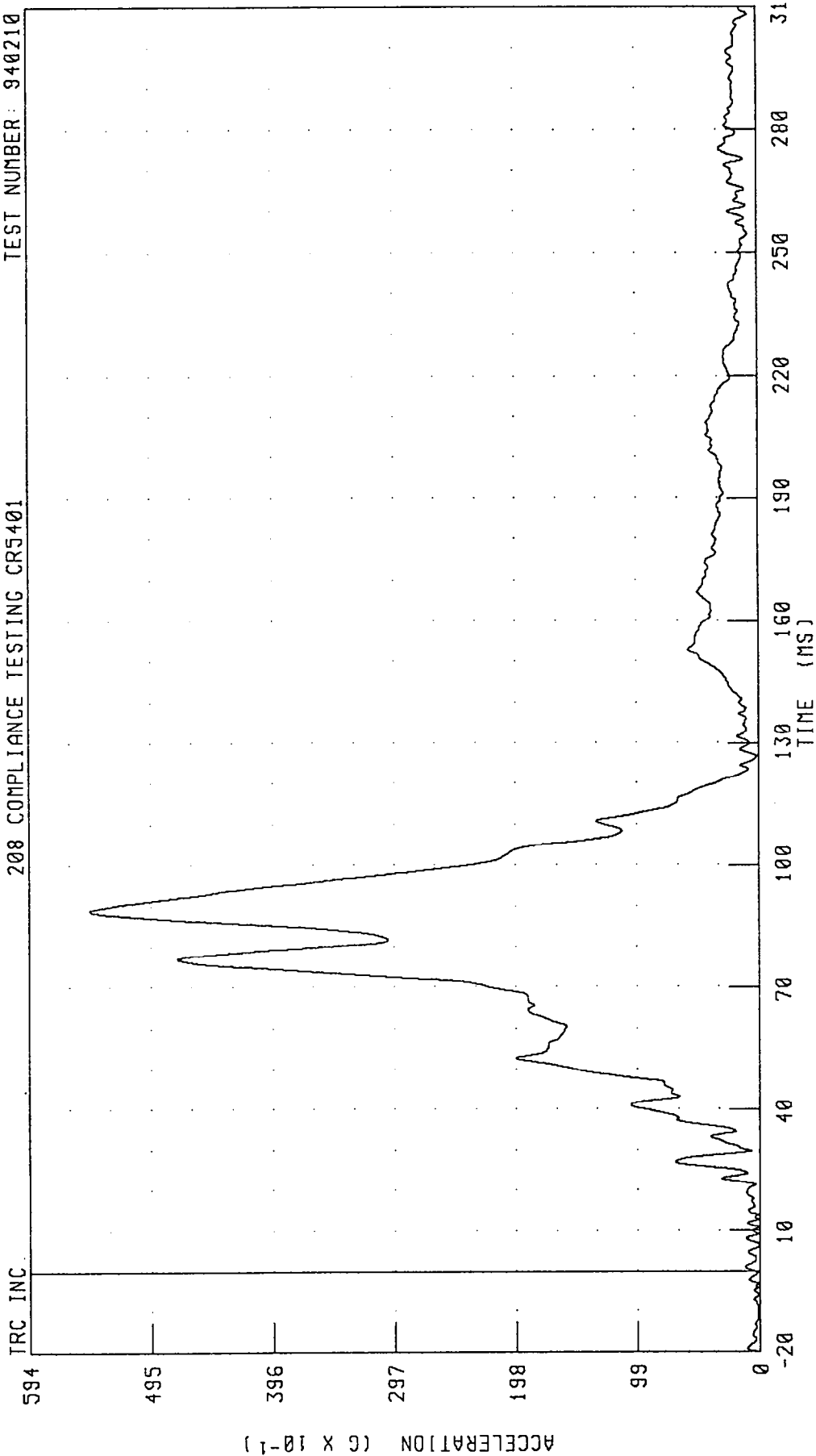
TEST NUMBER: 940210



CHANNEL: CSTZG1 FILTER: CH. CLASS 180

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER CHEST RESULTANT ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

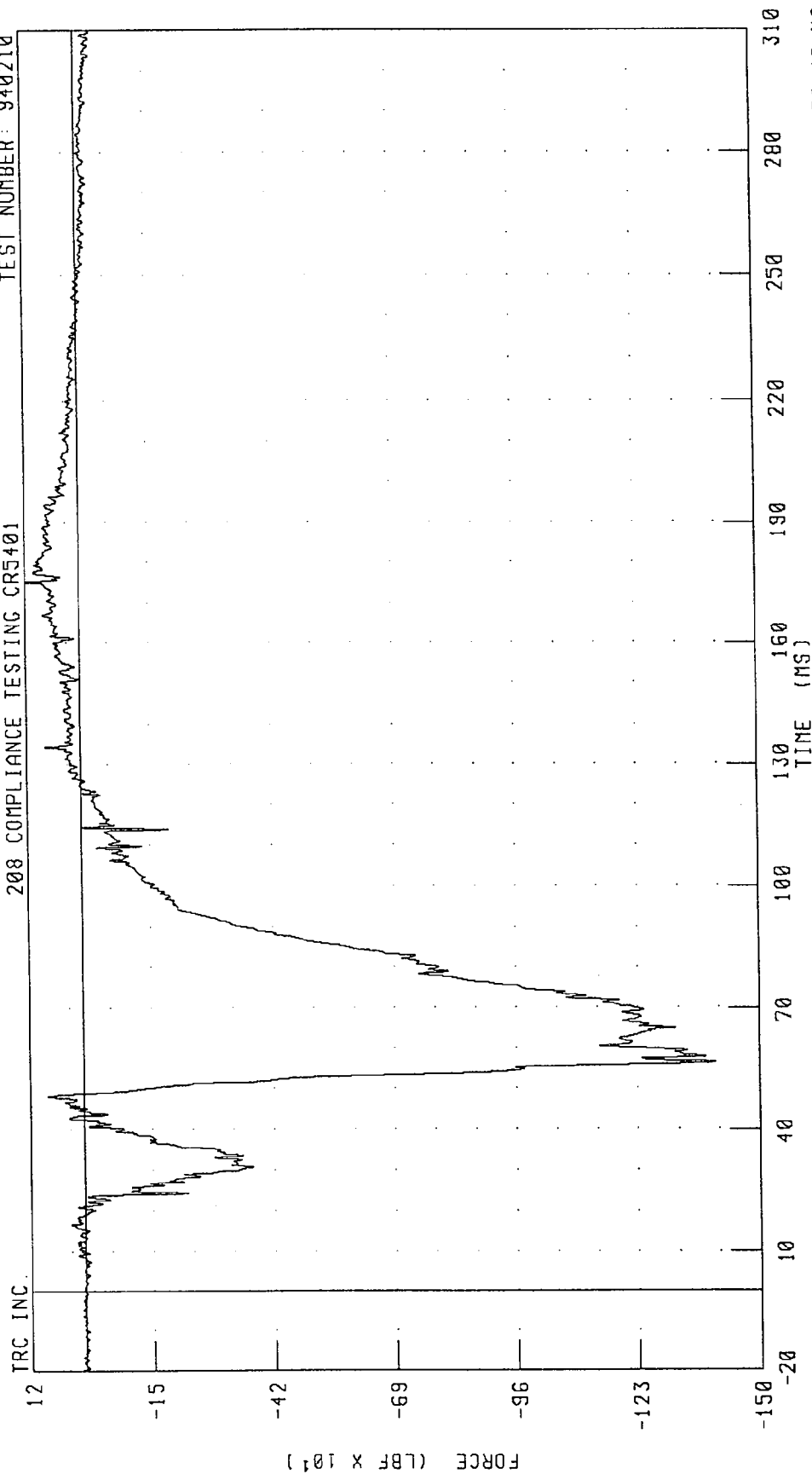


PEAK DATA: 54.47 G @ 88.96 MS; 0.05 G @ 6.08 MS

CHANNEL: CSTRG1 FILTER: CH. CLASS 180

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER LEFT FEMUR FORCE
 208 COMPLIANCE TESTING CR5401

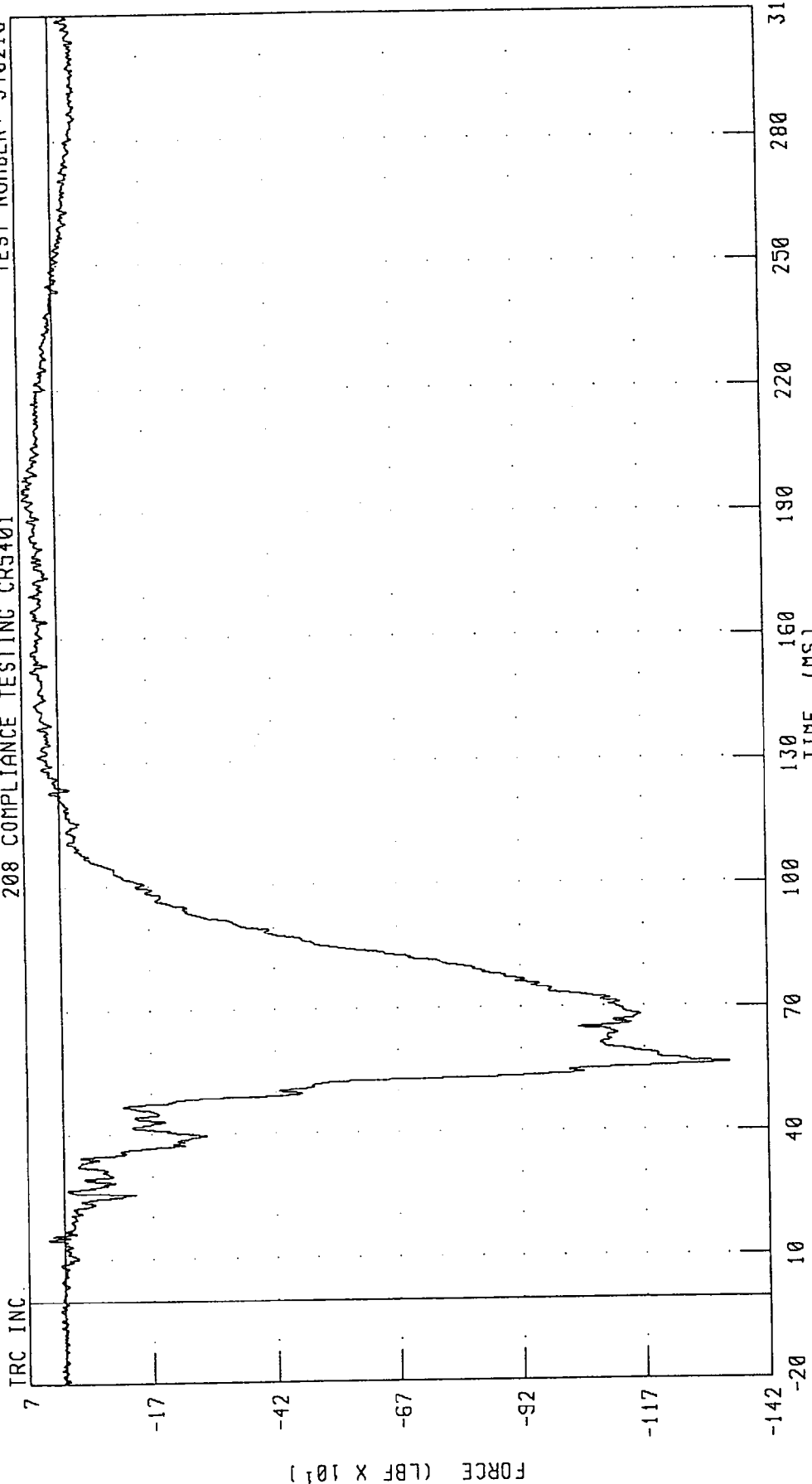
TEST NUMBER: 940210



CHANNEL: LFMF1 FILTER: CH. CLASS 600

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 DRIVER RIGHT FEMUR FORCE
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

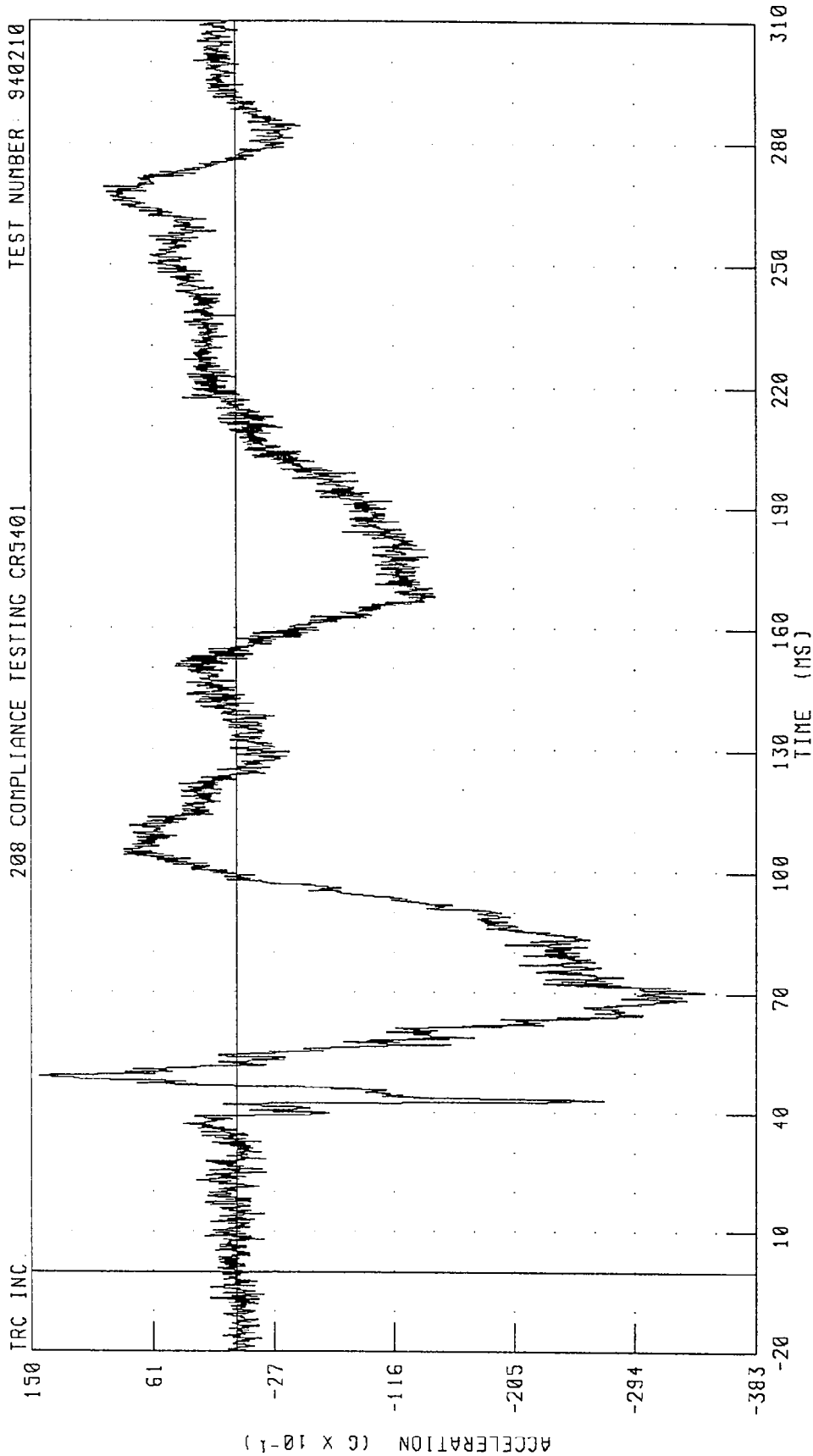


PEAK DATA: 65.46 LBF @ 196.16 MS; -1349.31 LBF @ 56.40 MS

CHANNEL: RFMFI FILTER: CH. CLASS 600

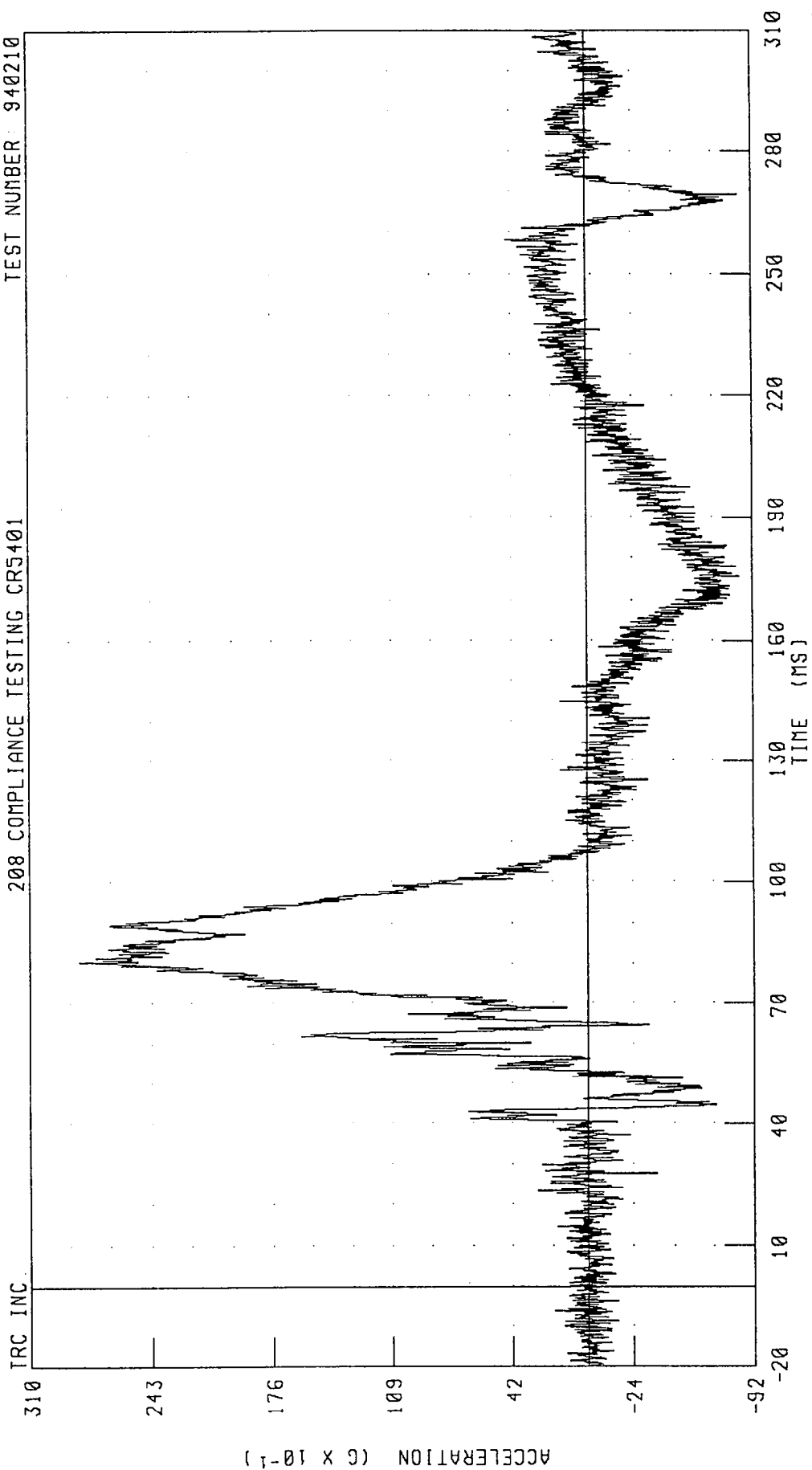
1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210



1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

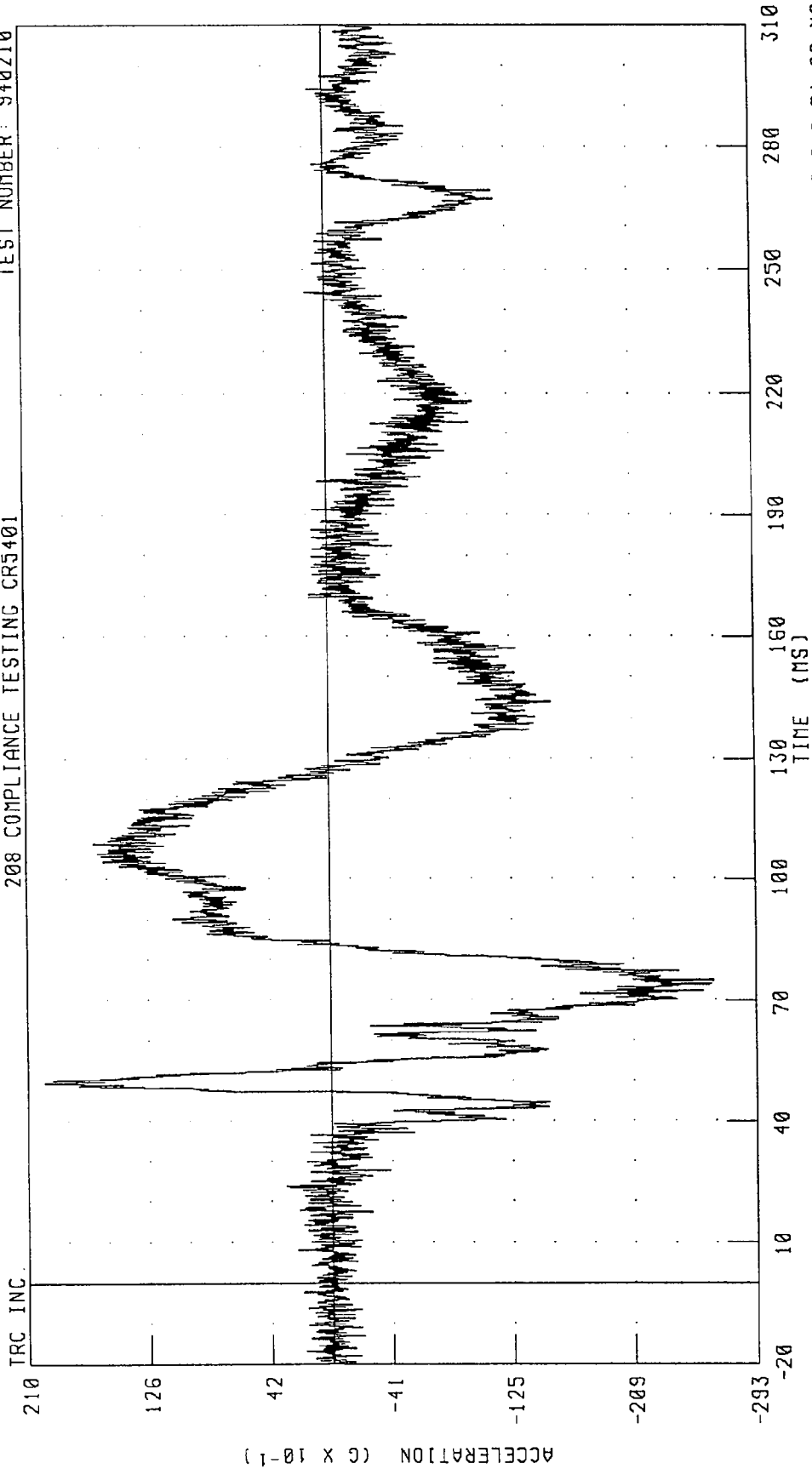


CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 940210

208 COMPLIANCE TESTING CR5401

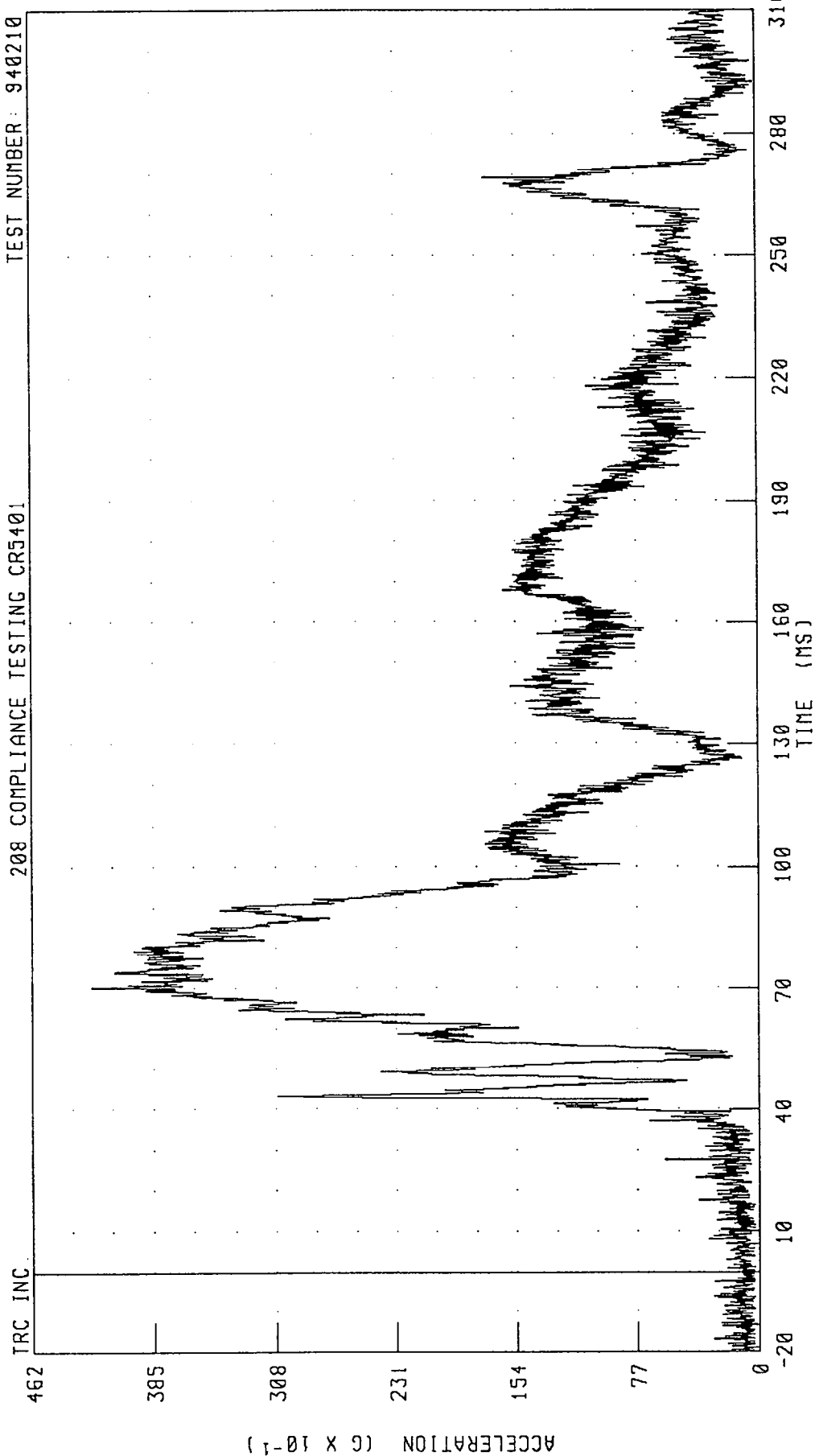


CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 19.85 G @ 49.60 MS; -26.49 G @ 74.88 MS

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

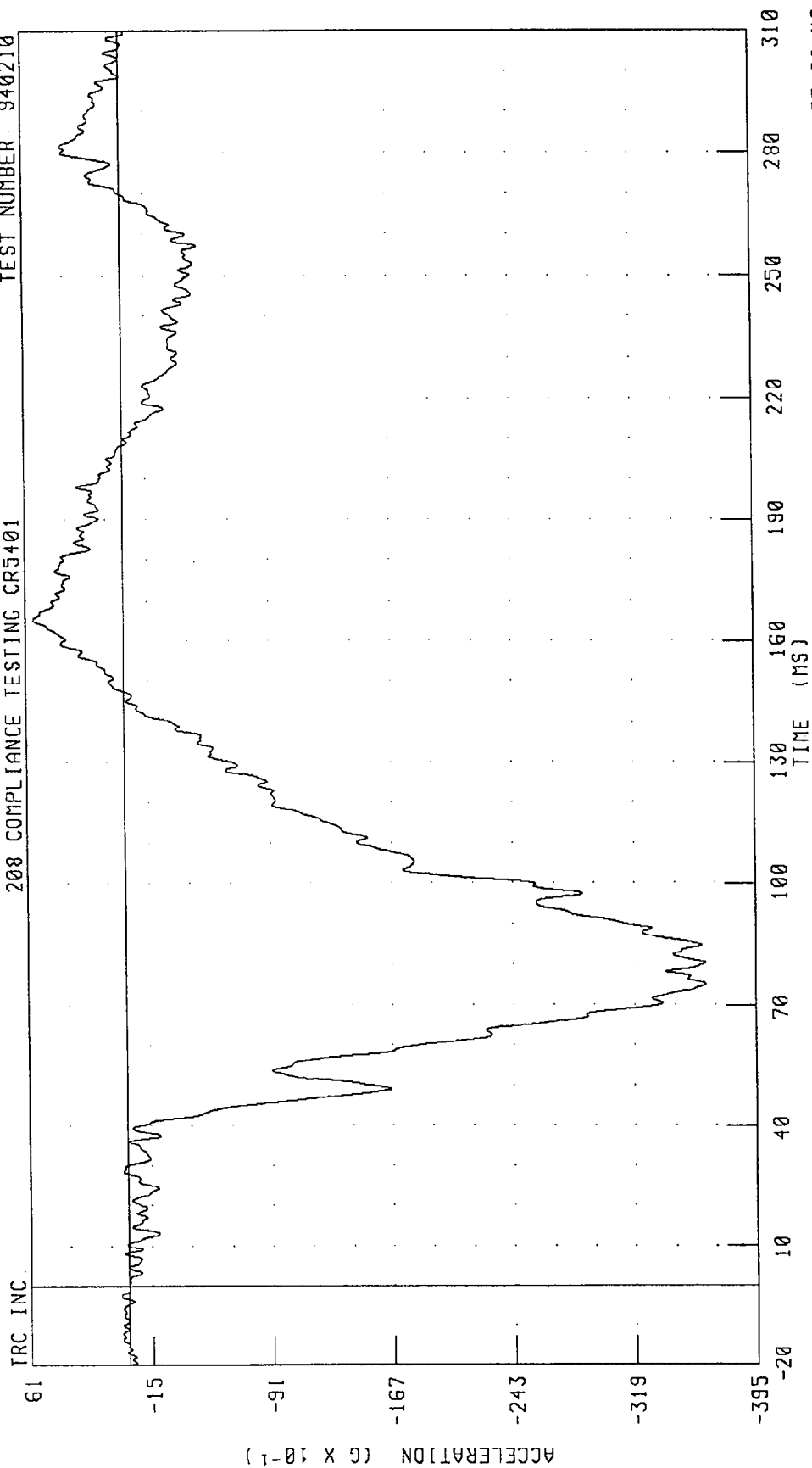


PEAK DATA: 42.43 G @ 70.32 MS; 0.14 G @ 292.56 MS

CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER 940210

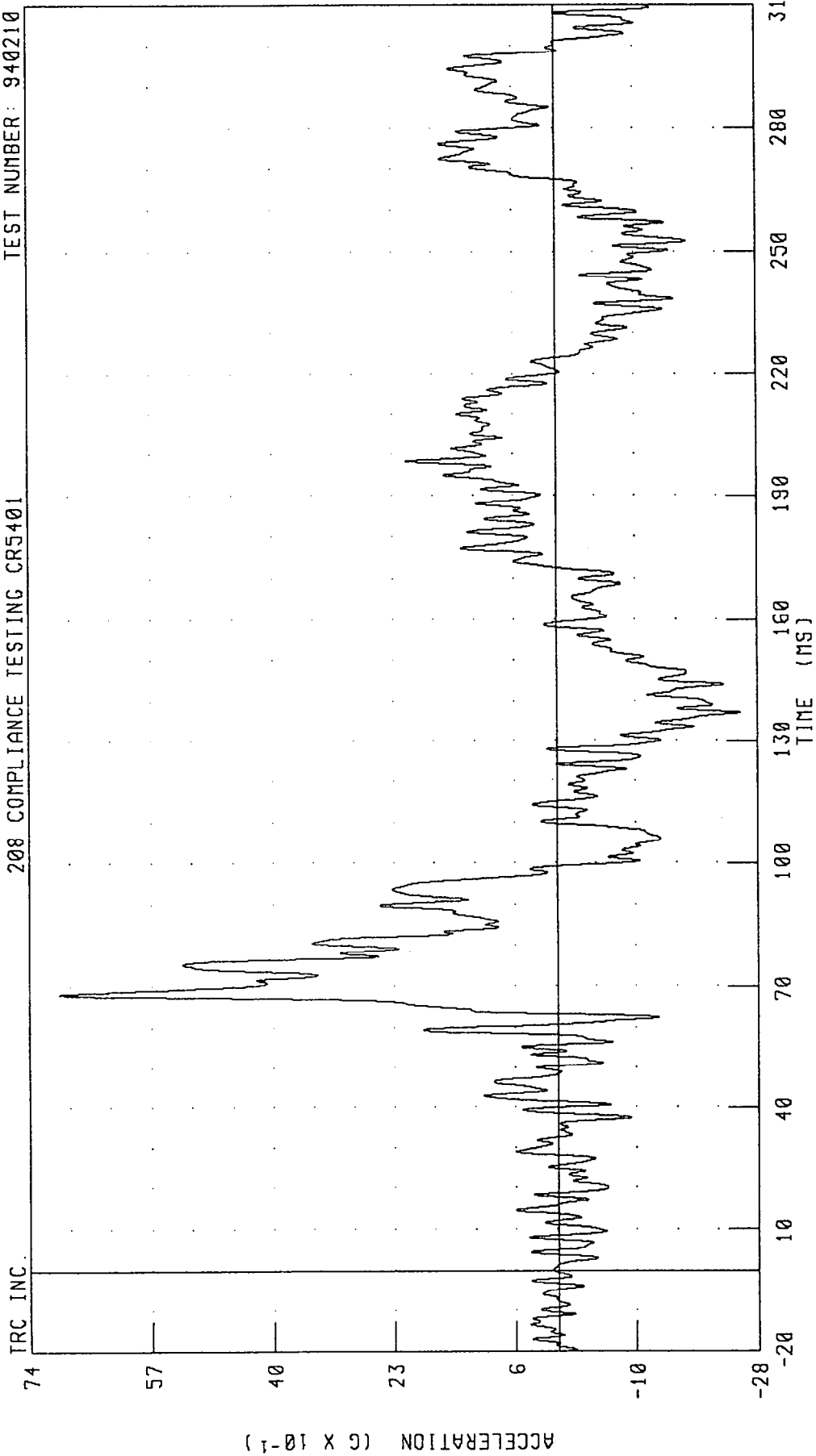


PEAK DATA: 5.61 G @ 165.44 MS; -36.38 G @ 75.20 MS

CHANNEL: CSTXC2 FILTER: CH. CLASS 180

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION
208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

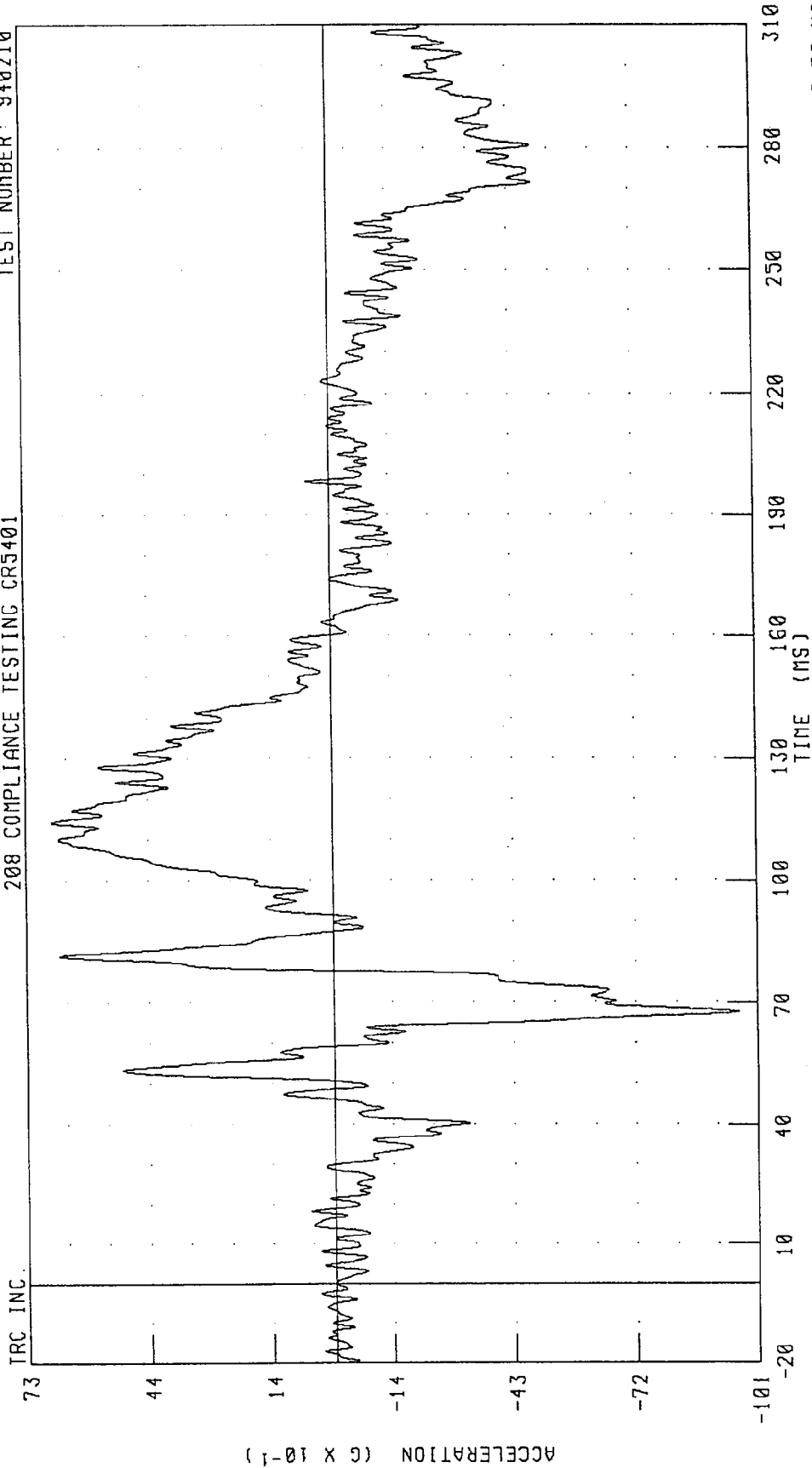


PEAK DATA: 6.99 G @ 68.24 MS; -2.56 G @ 137.04 MS

CHANNEL: CSTYG2 FILTER: CH. CLASS 180

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

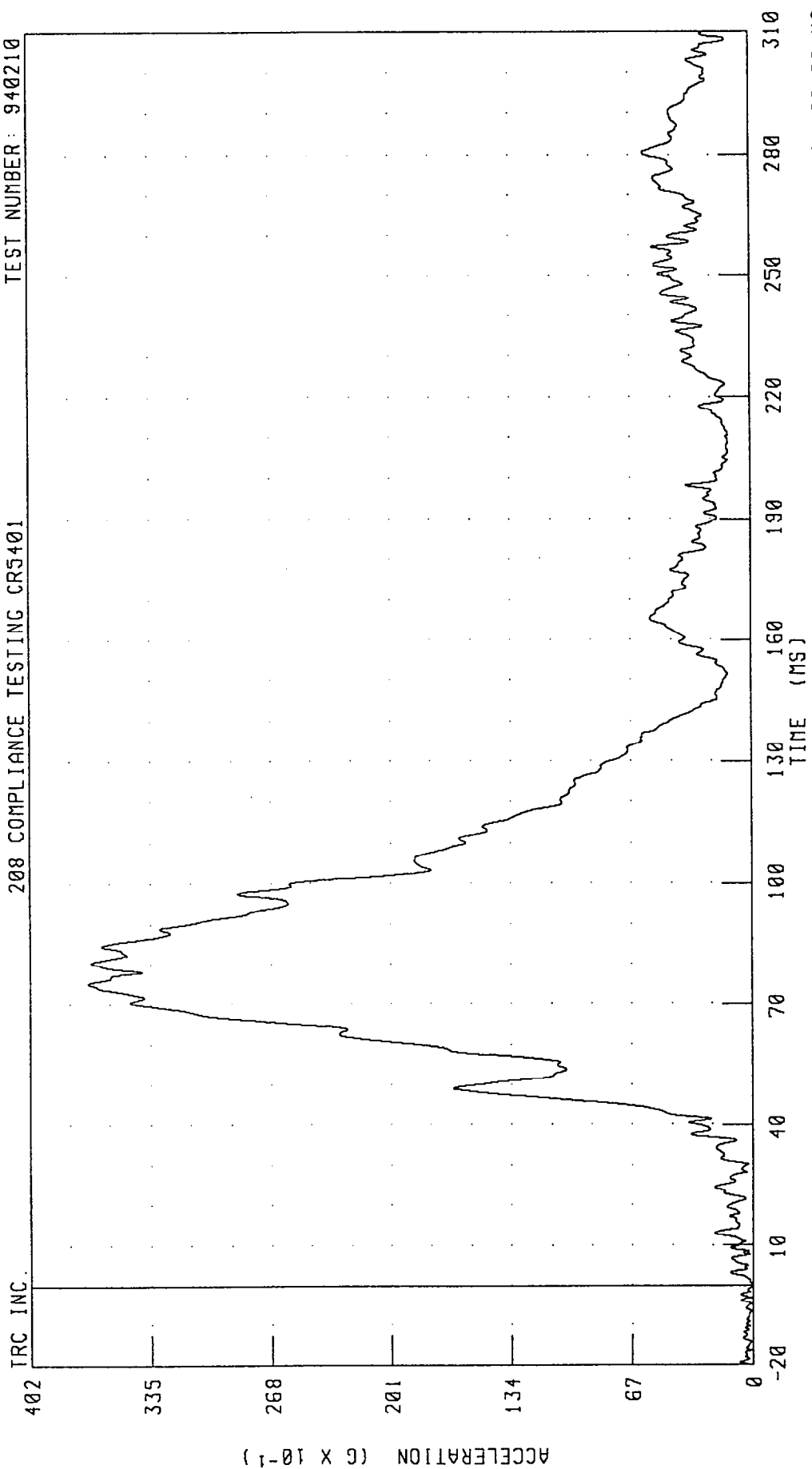


CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 6.68 G @ 114.40 MS; -9.64 G @ 67.76 MS

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

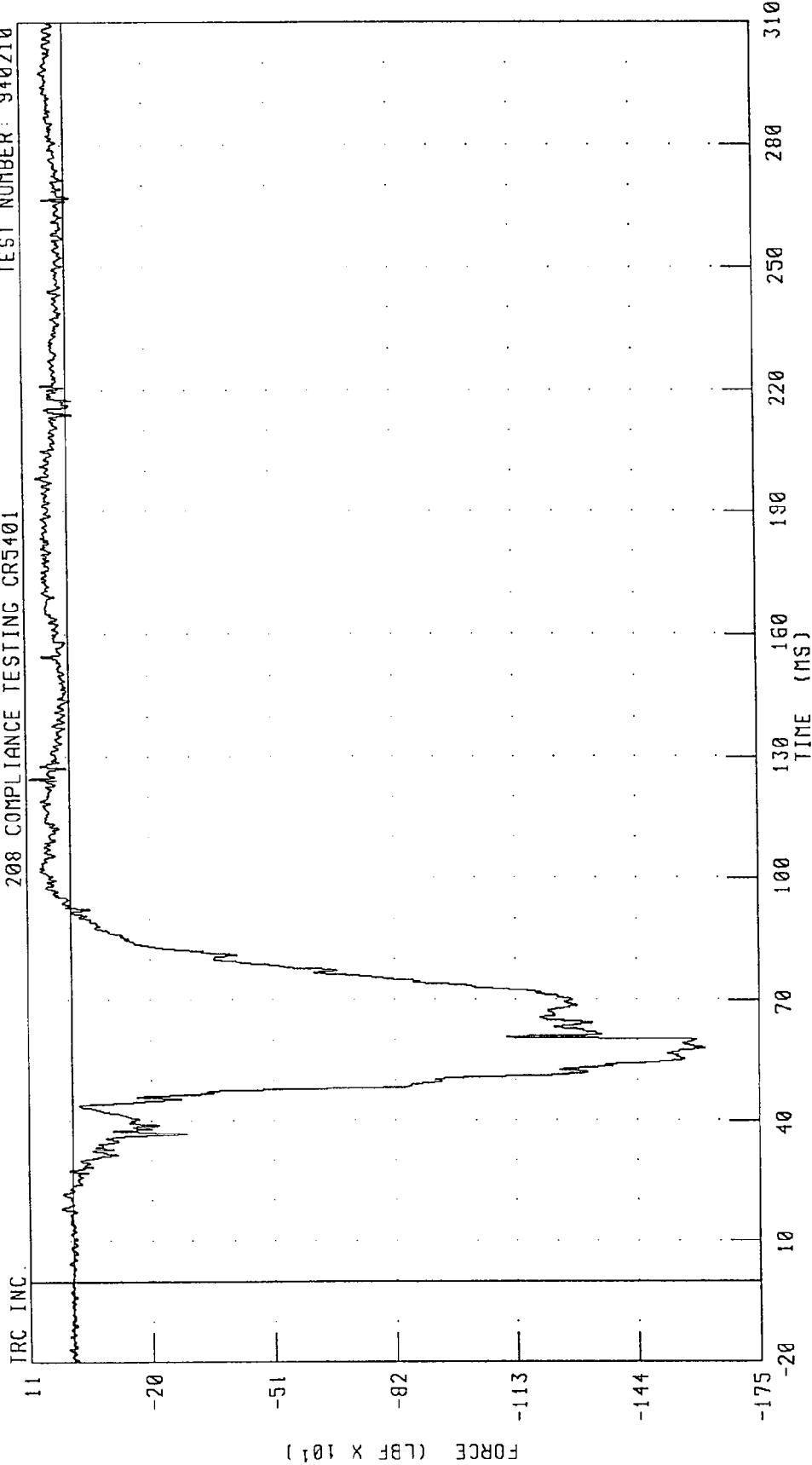


PEAK DATA: 36.98 G @ 75.12 MS; 0.03 G @ -20.00 MS

CHANNEL: CSTRG2 FILTER: CH. CLASS 180

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER LEFT FEMUR FORCE
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

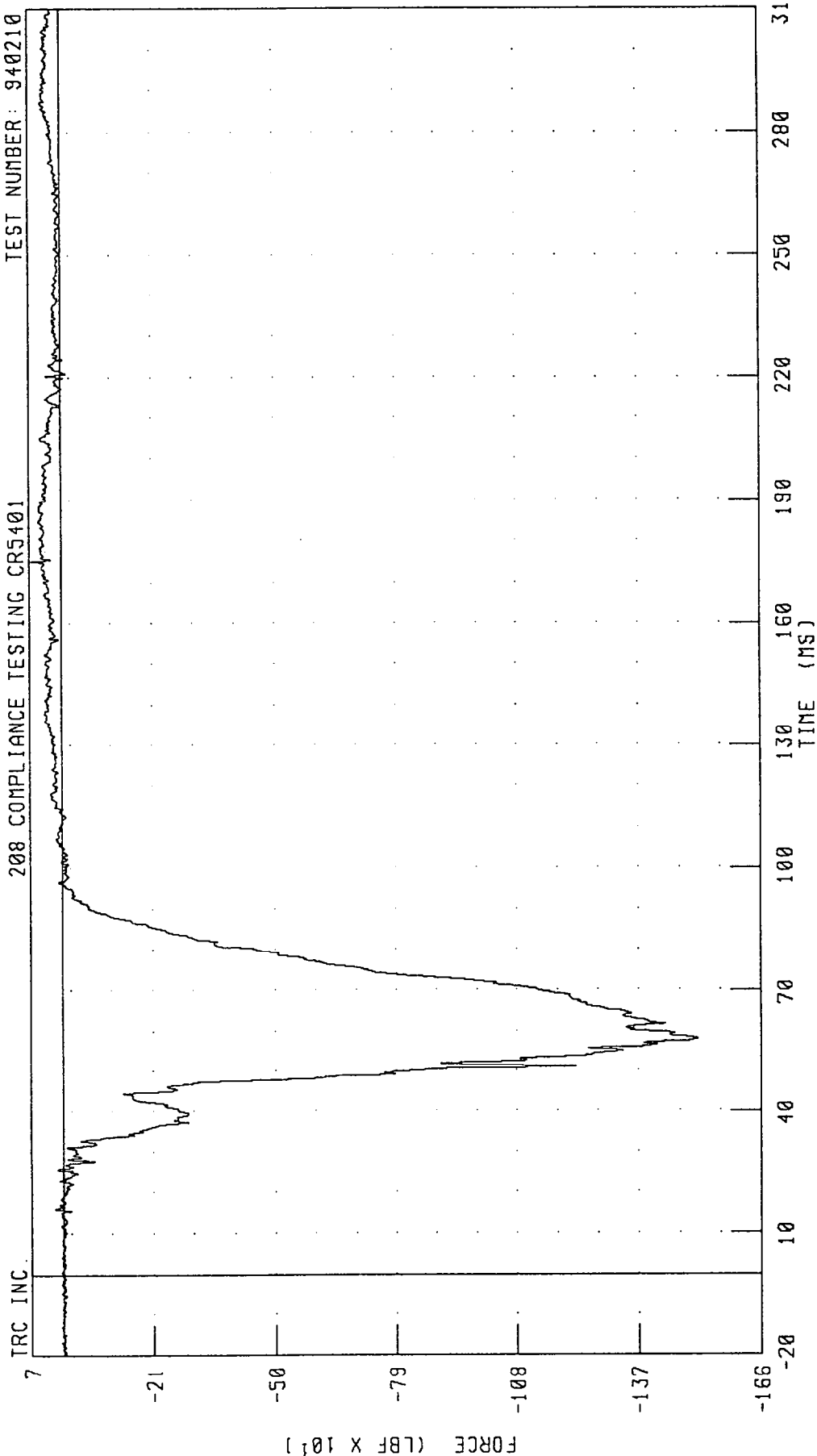


PEAK DATA: 102.49 LBF @ 124.64 MS; -1612.59 LBF @ 58.00 MS

CHANNEL: LFMF2 FILTER: CH. CLASS 600

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER RIGHT FEMUR FORCE
 208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

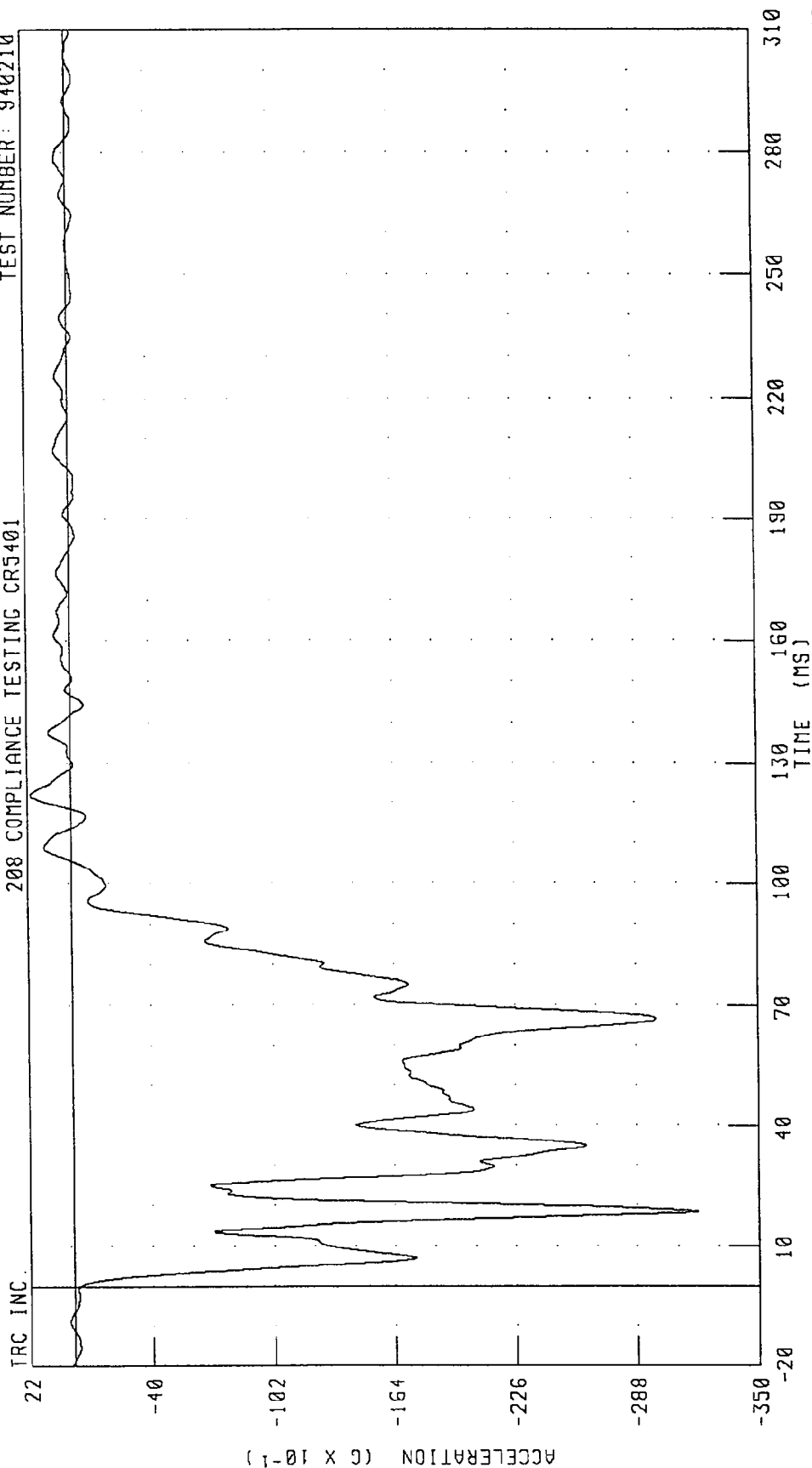


PEAK DATA: 70.65 LBF @ 175.20 MS; -1512.68 LBF @ 58.24 MS

CHANNEL: RFMF2 FILTER: CH. CLASS 600

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 LEFT REAR SEAT X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

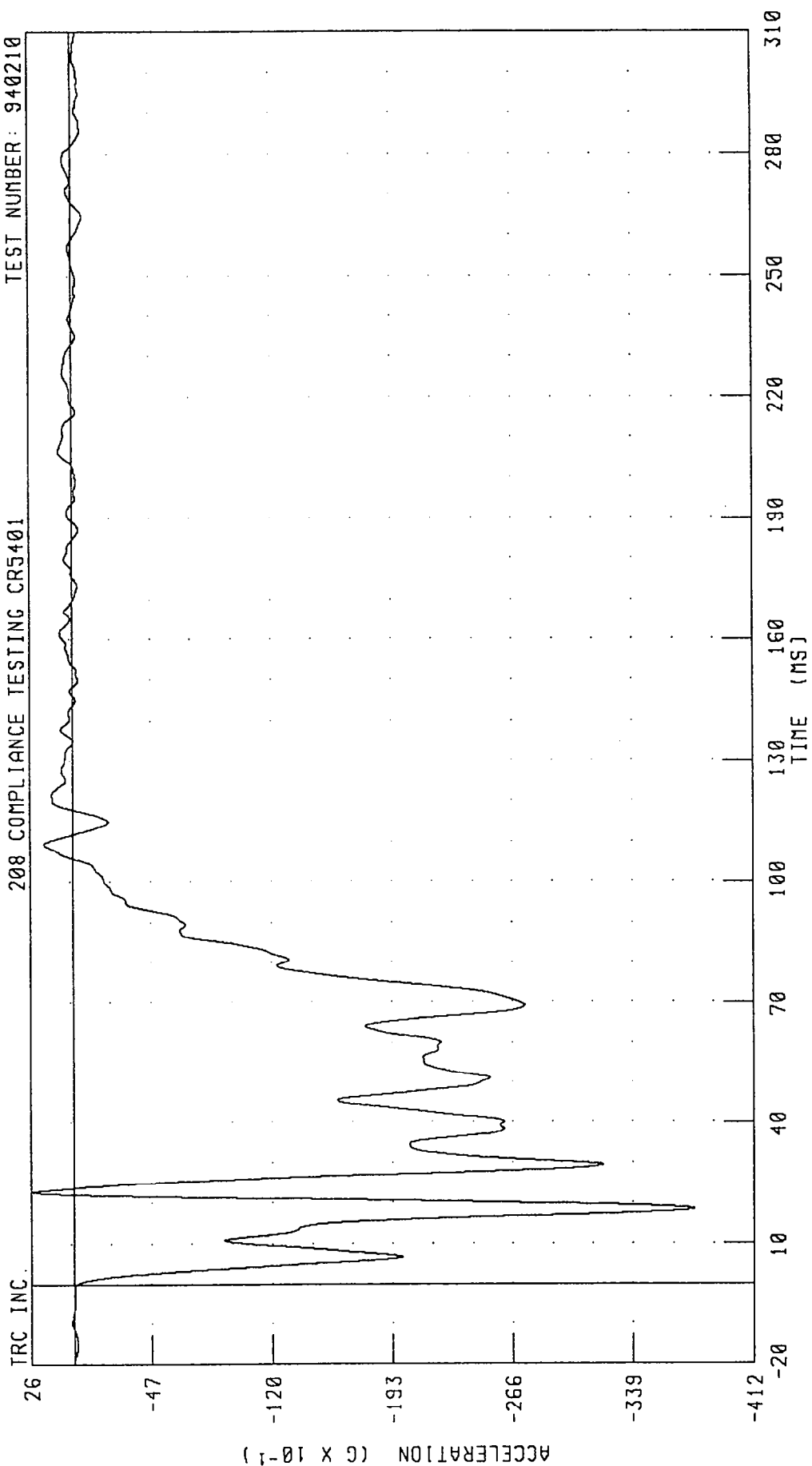
TEST NUMBER: 940210



CHANNEL: TLRXC1 FILTER: CH. CLASS 60

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
 RIGHT REAR SEAT X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CR5401

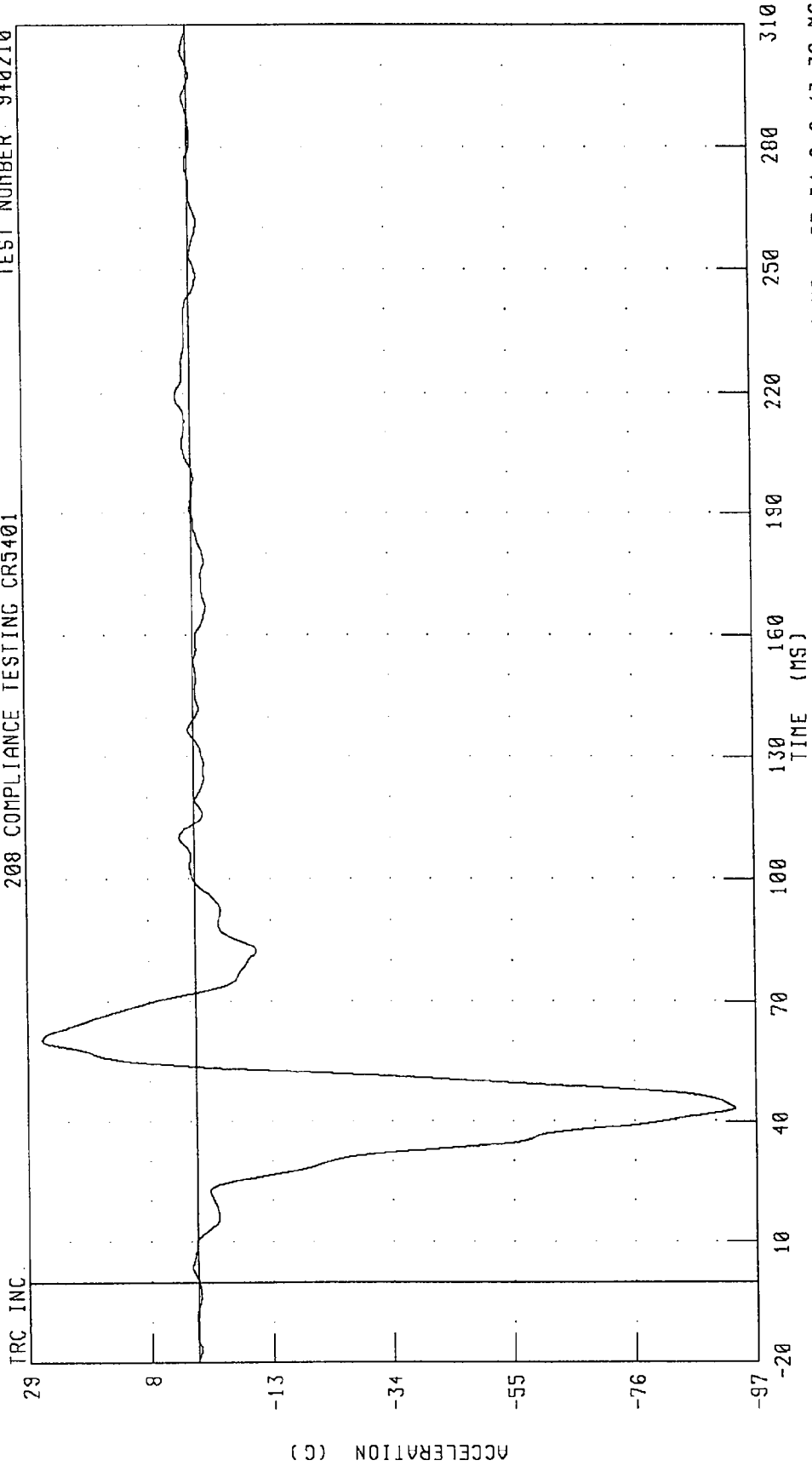
TEST NUMBER: 940210



CHANNEL: TRRXG1 FILTER: CH. CLASS 60 PEAK DATA: 2.43 G @ 22.88 MS; -37.62 G @ 18.56 MS

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
ENGINE UPPER BLOCK X-AXIS ACCELERATION
200 COMPLIANCE TESTING CR5401

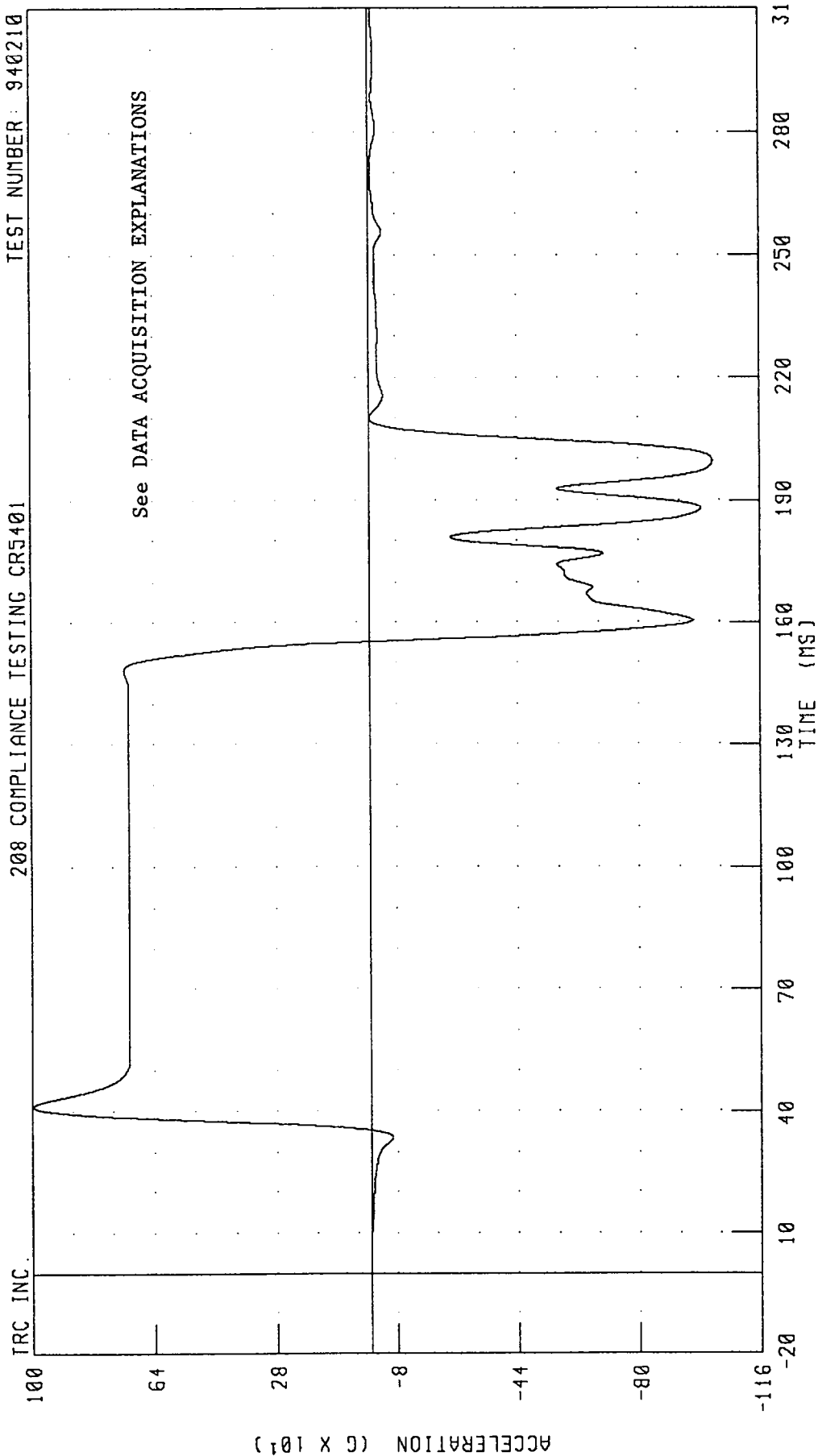
TEST NUMBER 940210



CHANNEL: ENXC1 FILTER: CH. CLASS 60

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
ENGINE BOTTOM BLOCK X-AXIS ACCELERATION
208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

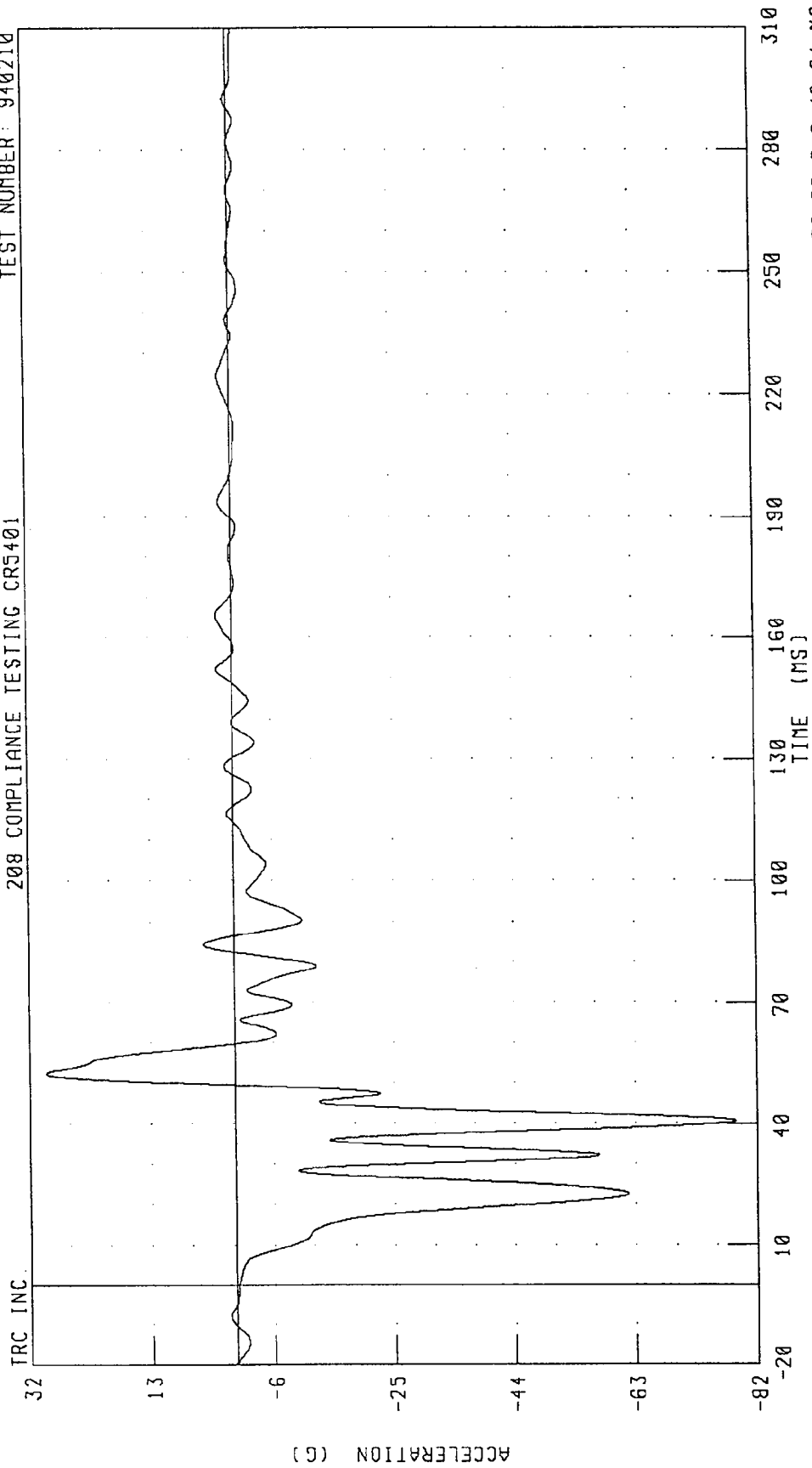


PEAK DATA: 995.62 G @ 41.28 MS; -1020.05 G @ 199.68 MS

CHANNEL: ENGXC2 FILTER: CH. CLASS 60

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

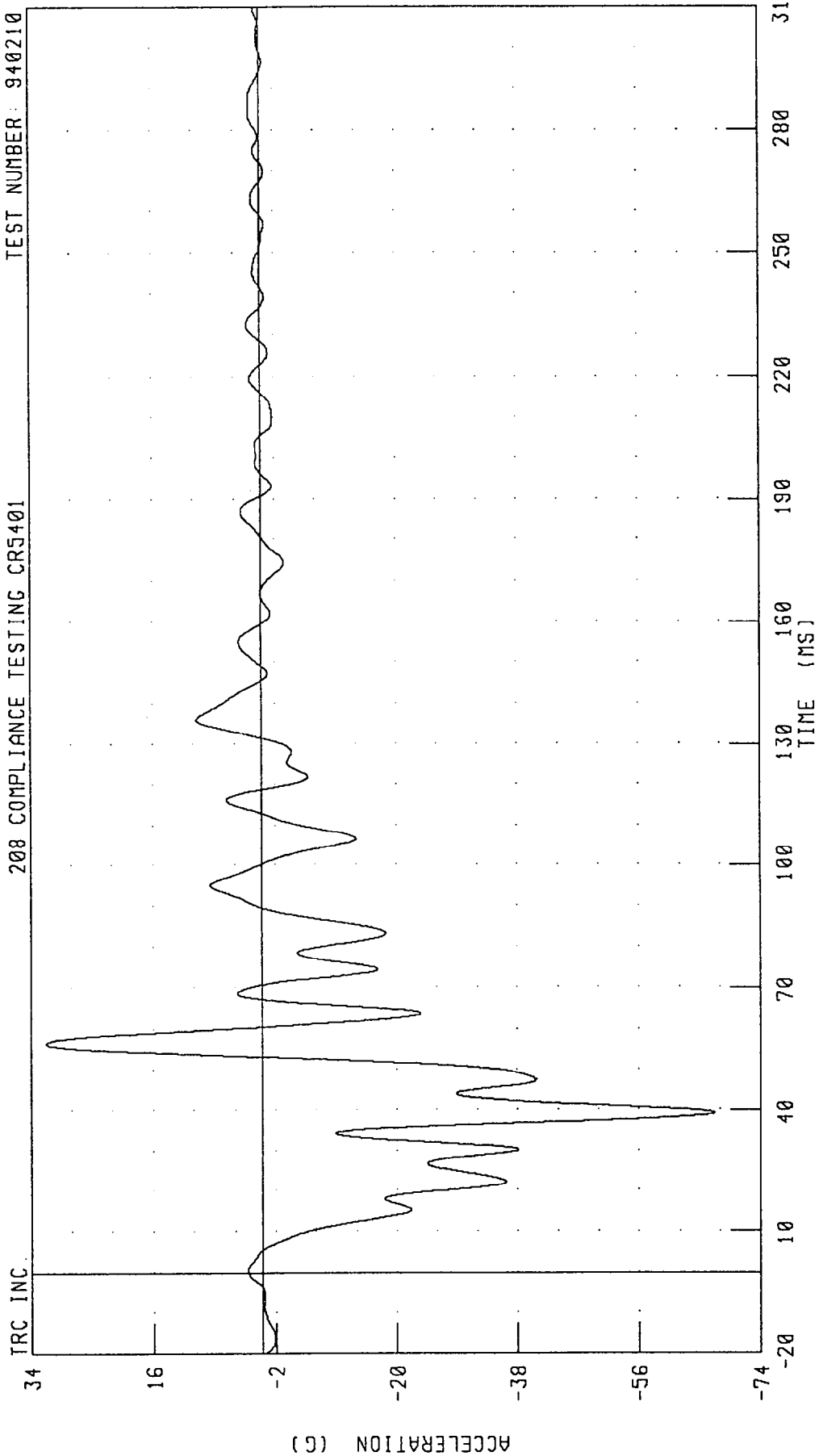


CHANNEL: BCRXG1 FILTER: CH. CLASS 60

PEAK DATA: 29.39 G @ 52.40 MS; -78.68 G @ 40.64 MS

1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210

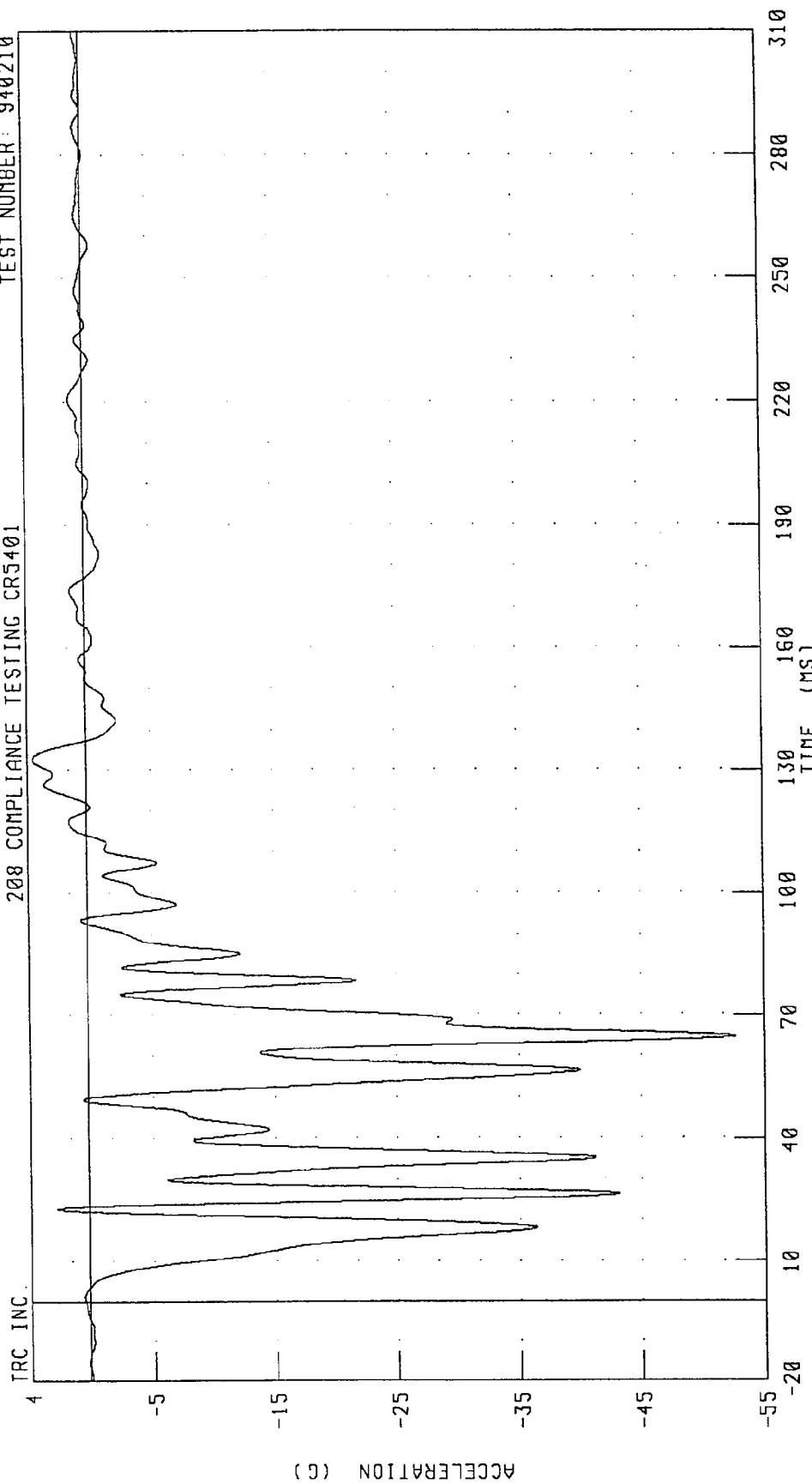


CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 31.79 G @ 56.56 MS; -67.19 G @ 39.28 MS

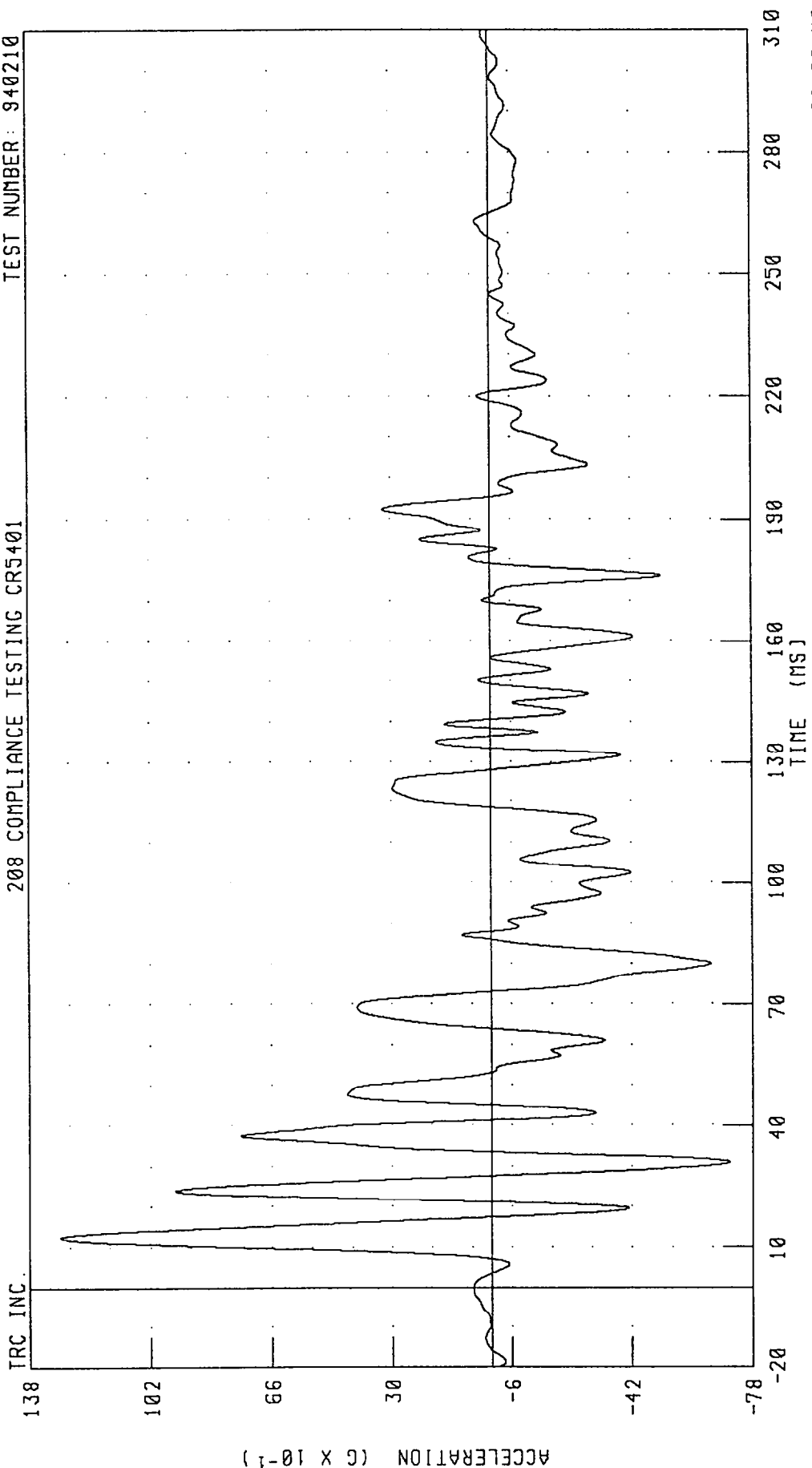
1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
DASH PANEL CENTER X-AXIS ACCELERATION
208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210



1994 MAZDA 929 INTO FLAT FRONTAL BARRIER
VEHICLE REAR CENTER Z-AXIS ACCELERATION
208 COMPLIANCE TESTING CR5401

TEST NUMBER: 940210



PEAK DATA: 12.87 G @ 12.32 MS; -7.11 G @ 30.96 MS

CHANNEL: RDKZG1 FILTER: CH. CLASS 60

Appendix C

Manufacturer's Vehicle Information

NEF-31CCa/IR 1304
INFORMATION REQUEST ON 1994 Mazda 929

1. *Please inform OVSC whether the air bag automatic restraint system provided at the driver's and passenger's seating positions in your vehicle is certified to meet the requirements of S4.1.2.1 (c)(1) or S4.1.2.1 (c)(2) for FMVSS No. 208.*

The air bag automatic restraint system provided at the driver's and passenger's seating positions in 1994MY Mazda 929 is certified to meet the requirements of S4.1.2.1 (c)(2).

2. *If the automatic restraint system provided at the driver's and passenger's seating positions in the subject vehicle was installed to meet the requirements of S4.1.2.1 (c)(1), please provide a copy of the certification test reports for each of the test configurations required by that section of the standard (i.e., moving barrier lateral impact and dynamic rollover) and a copy of the certification reports for the frontallangular barrier impact test required by S4.1.2.1.*

Not applicable.

3. *If a manual 3-point safety belt is provided with the driver's and passenger's automatic restraint system in order to meet the requirements of S4.1.2.1 (c)(2), please provide a copy of the certification test reports for each of the test configurations required by that section of the standard (i.e., frontallangular barrier impact test of the automatic restraint system with the manual safety belt unfastened and frontallangular barrier impact test of the automatic restraint system with the manual safety belt fastened).*

Please see Attachment 01.

4. *If the manual safety belt provided at the driver's and passenger's seating positions was not installed to meet the requirements of S4.1.2.1 (c)(2), please provide a copy of a crash test report or engineering analysis showing that the use of the manual safety belt with the automatic restraint system does not affect the ability of the vehicle to meet the requirements of FMVSS No. 208.*

Not applicable.

5. *If the vehicle uses a pressure vessel to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.1.*

Not applicable.

6. *If the vehicle uses an explosive device to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.2.*

Please see Attachment 02.

NEF-31CCa/IR 1304

7. *State, for any automatic safety belt system in this vehicle, whether or not it is equipped with a tension-relieving device. Provide a copy of the information furnished in accordance with S7.4.2, if the tension-relieving device is used.*

Any automatic safety belt system in this vehicle is not equipped with a tension-relieving device.

8. *FMVSS No. 208, S8.1.5 allows the manufacturer the option of having movable vehicle windows and vents placed in the closed position. State whether the vehicle's movable windows and vents were opened or closed for the certification tests.*

Please see Attachment 01.

9. *FMVSS No. 208, S5.1 provides a manufacturer with the option of using either a Part 572(B) or Part 572(E) test dummy. Please inform OVSC which test dummy was used in each seat for each certification test. Submit dummy placement measurements, including diagrams or photographs which show exactly where measurements were taken. Enclosed is a diagram of some of OVSC's dummy measurements. Where possible, use the dimension shown in the diagram to provide the individual dummy placement measurements.*

A Part 572 (B) test dummy (Hybrid II) was used for the certification test of this vehicle. Regarding the dummy placement measurements, please see Attachment 03.

State whether the vehicle has a foot rest for the driver.

This vehicle does not have a foot rest.

If the vehicle can be equipped with a split front bench seat, state whether the driver dummy was located so that the midsagittal plane was centered on the steering wheel rim or the center of the seat cushion. Also, state whether the passenger dummy was located so that the midsagittal plane was centered the same distance from the longitudinal centerline of the vehicle as the driver dummy or in the center of the seat cushion.

Not applicable.

10. *Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form.*

Please see Attachment 04.

11. *If the vehicle is equipped with adjustable seat belt anchorages, provide the manufacturer's nominal design position for a 50th percentile adult male occupant.*

Not applicable.

12. *provide the speed at impact, vehicle test weight, and resulting injury criteria (i.e., HIC, chest acceleration, chest compression for the Part 572(E) dummy and femur loads) recorded for all certification tests conducted to meet the requirements of S4.1.2.1.*

Please see Attachment 01.

In addition, include each dummy's head and chest acceleration versus time plots and femur load versus time plots for the full frontal barrier impact tests. Mark these plots to indicate when the following and any other significant events occur:

- 12.1 *Driver and passenger knee contact with the knee bolster*
- 12.2 *Collapse of the driver and passenger knee bolsters*
- 12.3 *Steering column stroke (when it starts and when it ends)*
- 12.4 *Driver: Contact of the head with the air bag, steering wheel, hub, windshield, header and any other contact points*
Passenger: Contact of the head with the air bag, instrument panel, windshield, header and any other contact points
- 12.5 *Contact of the driver's torso with the air bag, steering wheel and hub*
- 12.6 *Time during event when each air bag starts to deployed when it is fully deployed*
- 12.7 *Mark on the plots any unexpected events, like steering wheel fracture, windshield contact, windshield header contact, that affected the normal loading characteristics.*

Please see Attachment 05.

13. *When vehicle components must be removed to obtain the proper test weight, what components do you recommend for removal and in what priority order do you recommend removal?*

Mazda doesn't have any recommendation in this regard.

14. *Please provide FMVSS No 204, "Steering Control Rearward Displacement" certification data. Include a copy of the test report and any engineering analysis forming the basis of the certification. The report should document the vehicle test weight, impact velocity, and the horizontal and vertical displacements of the steering control. Pre and post test photographs are also requested.*

Please see Attachment 06.

Discuss the test procedure detailing the vehicle preparation and the measurement technique used to determine the steering control rearward displacement.

Mazda basically conducts the test according to the test procedure "TP-204" issued by DOT, except that steering displacement is determined by taking a picture by high speed camera and analyzing its film. In order to make film analysis easy, steering bar is attached to the top end of steering shaft (refer to Figure 1) and air bag module is removed throughout the test.

Provide a diagram of the steering control system and describe how the components of the steering control system work to provide energy management in a frontal impact.

Please see Attachment 07.

1994 MY MAZDA 929

Attachment 01 (3/6)

MVSS208 S5.1; OCCUPANT CRASH PROTECTION REQUIREMENT:

Impact a vehicle traveling longitudinally forward at any speed, up to and including 30mph, into a fixed barrier. And the test dummy placed at each front outboard designated seating position shall meet the injury criteria.

TEST MODE

TARGET IMPACT SPEED	30 MPH
IMPACT DIRECTION	FRONTAL

VEHICLE INFORMATION

TEST VEHICLE NO.	1341		
MODEL YEAR	1994 MY		
BODY TYPE	4 DOOR SEDAN		
ENGINE TYPE	JED		
TRANSMISSION TYPE	4AT		
TEST WEIGHT	4086 LB.		
SEATING CAPACITY	FRONT : 2		REAR : 3
EQUIPMENT	DRIVER SIDE AIR BAG	YES	
	PASSENGER SIDE AIR BAG	YES	
	POWER STEERING	YES	
	AIR CONDITIONING SYSTEM	YES	
	ABS	YES	

TEST CONDITION

	DRIVER SIDE	PASSENGER SIDE
DUMMY TYPE	HYBRID II	HYBRID II
RESTRAINT TYPE	AIR BAG ONLY	AIR BAG ONLY
SEAT BACK ANGLE	24 degrees	24 degrees
WINDOW POSITION	CLOSE	CLOSE

TEST RESULT

	REQUIREMENT	DRIVER SIDE	PASSENGER SIDE	JUDGEMENT
HIC	≤ 1000	227	100	PASS
CHEST G	$\leq 60(G)$	43	31	PASS
CHEST DEFLECTION	≤ 3 inches			
FEMUR LOADS (L/R)	≤ 2250 lbs	1077 / 1417	1598 / 1605	PASS
DUMMY CONTAINMENT	Within vehicle	YES	YES	PASS

1994 MY MAZDA 929

Attachment 01 (4/6)

MVSS208 S5.1; OCCUPANT CRASH PROTECTION REQUIREMENT:

Impact a vehicle traveling longitudinally forward at any speed, up to and including 30mph, into a fixed barrier. And the test dummy placed at each front outboard designated seating position shall meet the injury criteria.

TEST MODE

TARGET IMPACT SPEED	30 MPH
IMPACT DIRECTION	FRONTAL

VEHICLE INFORMATION

TEST VEHICLE NO.	1525
MODEL YEAR	1994 MY
BODY TYPE	4 DOOR SEDAN
ENGINE TYPE	JED
TRANSMISSION TYPE	4AT
TEST WEIGHT	4022 LBS
SEATING CAPACITY	FRONT : 2 REAR : 3
EQUIPMENT	DRIVER SIDE AIR BAG YES
	PASSENGER SIDE AIR BAG YES
	POWER STEERING YES
	AIR CONDITIONING SYSTEM YES
	ABS YES

TEST CONDITION

	DRIVER SIDE	PASSENGER SIDE
DUMMY TYPE	HYBRID II	HYBRID II
RESTRAINT TYPE	AIR BAG ONLY	AIR BAG ONLY
SEAT BACK ANGLE	24 degrees	24 degrees
WINDOW POSITION	CLOSE	CLOSE

TEST RESULT

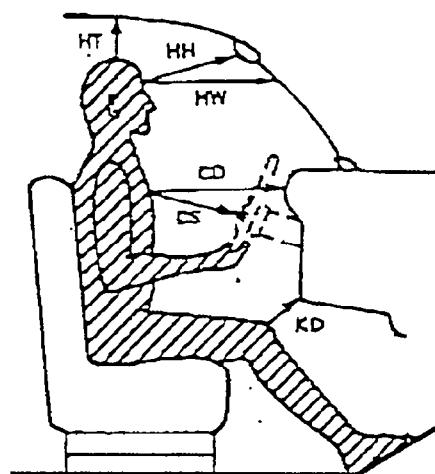
	REQUIREMENT	DRIVER SIDE	PASSENGER SIDE	JUDGEMENT
HIC	≤ 1000	175	168	PASS
CHEST G	$\leq 60(G)$	42	36	PASS
CHEST DEFLECTION	≤ 3 inches			
FEMUR LOADS (L/R)	≤ 2250 lbs	1073 / 1333	1501 / 1609	PASS
DUMMY CONTAINMENT	Within vehicle	YES	YES	PASS

1994 MY MAZDA 929

Attachment 03 (1/3)

Pre-Test
OCCUPANT CLEARANCE DIMENSIONS

	DRIVER	PASSENGER
HH	14.6 in.	14.6 in.
HW	19.7 in.	19.7 in.
CD	23.6 in.	27.6 in.
CS	15.7 in.	
KDL	6.3 in.	6.3 in.
LDR	6.3 in.	6.3 in.
SA	24 degrees	24 degrees
TA	N/D	N/D
HT	2.5 in.	2.7 in.



HH : Head to Windshield Header

HW : Head to Windshield

CD : Chest to Dash

CS : Chest to Steering Wheel

KD (L/R) : Knee to Dash (Left/Right)

SA : Seat Back Angle

TA : Torso Angle

HA : Head Target to "A" Pillar

HR : Head to Side Roof

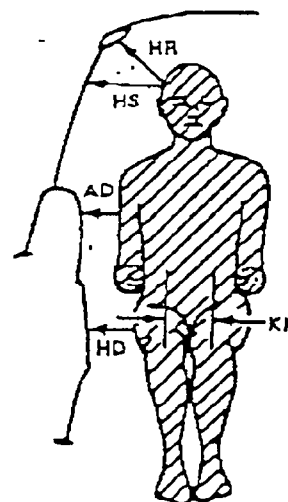
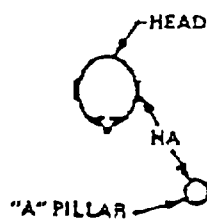
HS : Head to Side Window

AD : Arm to Door

HD : Hip to Door

KK : Knee to Knee (Center)

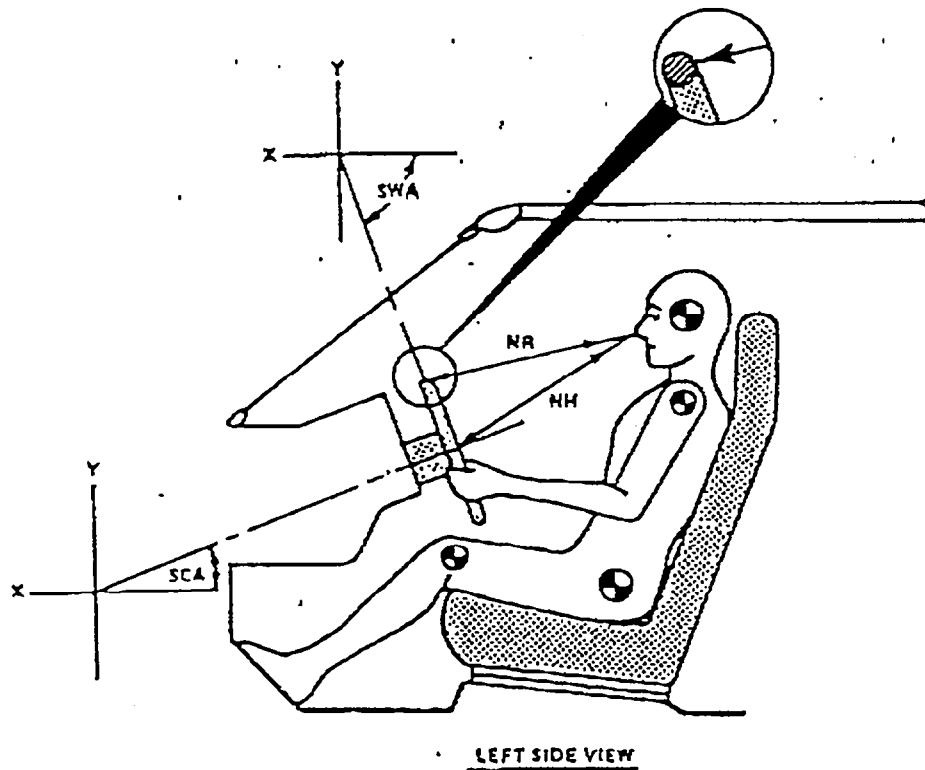
HT : Head Top to Roof



	DRIVER	PASSENGER
HR	5.9 in.	5.5 in.
HS	8.4 in.	8.5 in.
AD	4.1 in.	4.4 in.
HD	6.0 in.	5.8 in.
KK	10.8 in.	7.4 in.
HA	20.9 in.	20.9 in.

N/D : No data

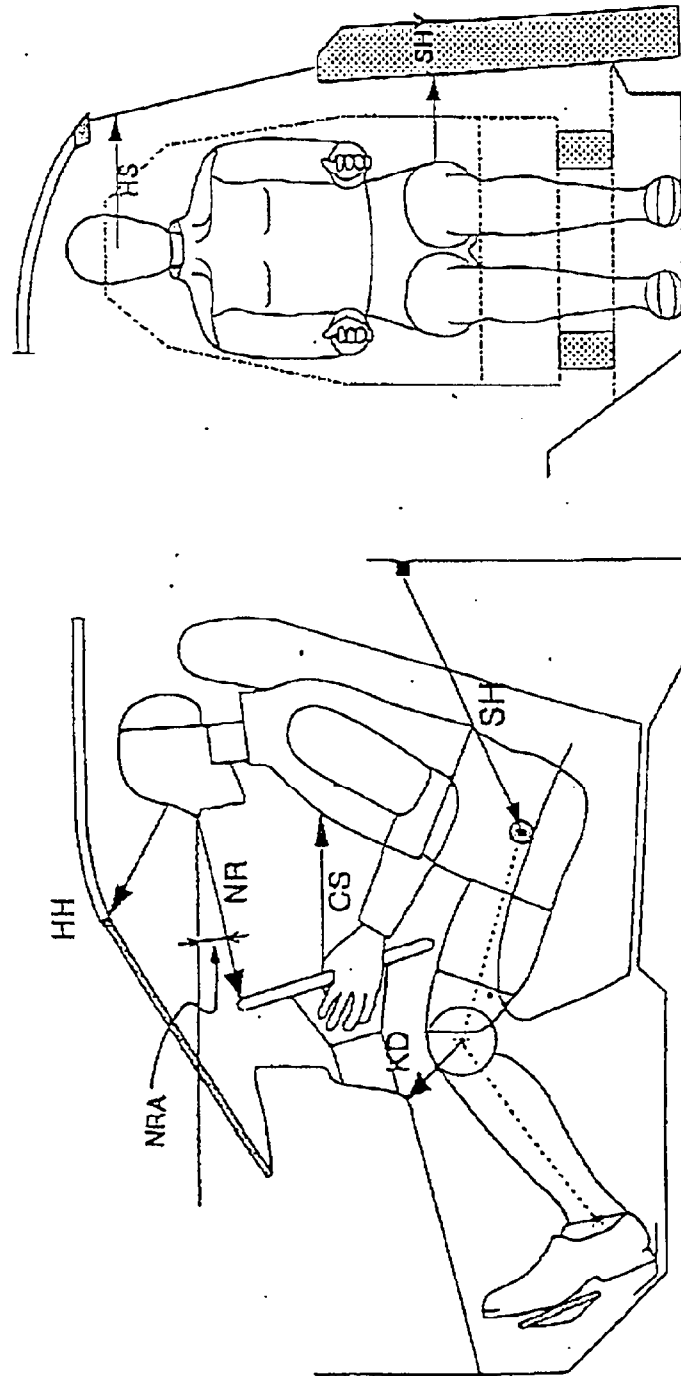
Pre-Test

DRIVER DUMMY TO STEERING COLUMN / WHEEL ASSY. REFERENCE DIMENSIONS

		MEASUREMENTS	
NR	Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	19.3	Inches
NH	Distance from tip of dummy's nose to center of steering column hub	19.1	Inches
SCA	Angle of steering column relative to the horizontal X axis	23.5	Degrees
SWA	Angle of steering wheel relative to the horizontal X axis	66.5	Degrees

1994 MY MAZDA 929

DUMMY MEASUREMENTS FOR FRONT SEAT PASSENGERS



C-9

Attachment 03 (3/3)

	Driver	Passenger
SH : Striker to H-Point (Y Dir.)	5.9 in.	6.1 in.
HS : Head to Side Window	11.7 in.	11.2 in.

N/D : No data

	Driver	Passenger
HH : Head to Head	14.6 in.	14.6 in.
NR : Nose to Rim	19.3 in.	
CS : Steering Wheel to Chest	15.7 in.	
KD (L/R) : Knee to Dash	6.3 / 6.3 in.	6.3 / 6.3 in.
SH : Striker to H-Point	12.2 in.	12.3 in.
NRA	15 degrees	

TEST VEHICLE INFORMATION

Attachment 04 (1/2)

Vehicle Model Year & Make : 1994 MY / Mazda Motor Corporation

Vehicle Model & Body Style : 929 / 4 Door sedan

1. NOMINAL DESIGN RIDING POSITION

For adjustable driver and passenger seat backs.
Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detents if applicable. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?).

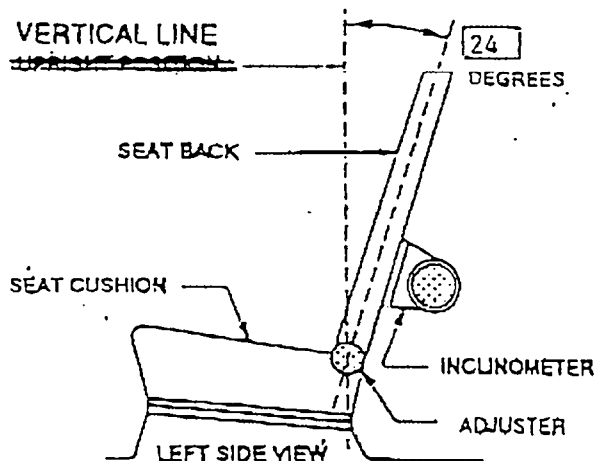
Seat back angle for driver's seat = 24 degrees.

Measurement Instructions:

Seat back angle is measured along rear edge of outer seat back frame. Adjust the seat back to the 5th latch from the first detent "0".

Seat back angle for passenger's seat = 24 degrees.

Same as driver side.



2. SEAT FORE & AFT POSITIONS

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

Positioning of the driver's seat:

Adjust the seat slider to 115 mm position from the most forward position.

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

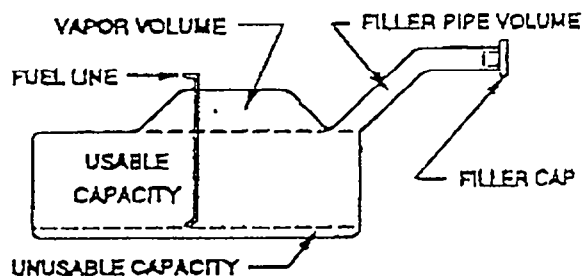
Same as driver side.

3. FUEL TANK CAPACITY DATA

3.1 A. "Usable Capacity" of standard equipment fuel tank = 18.02 gallons.

B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.

C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 18.02 gallons.



3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 17.6 gallons.

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

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

Activate the starter or the engine.

TEST VEHICLE INFORMATION

Attachment 04 (2/2)

Vehicle Model Year & Make : 1994 MY / Mazda Motor Corporation
Vehicle Model & Body Style : 929 / 4 Door sedan

4. STEERING COLUMN ADJUSTMENTS

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions.

If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:

Not applicable.

