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212-TRC-96-004
301-TRC-96-004

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

Hyundai Motor Company
1996 Hyundai Accent
3-door hatchback
NHTSA Number: CT0502
TRC Test Number: 960112

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



January 30, 1996

Final Report

Prepared For:
U.S. Department of Transportation
National Highway Traffic Safety Administration
Office of Vehicle Safety Compliance (NEF-30)
400 Seventh Street, S.W., Room No. 6115
Washington, DC 20590

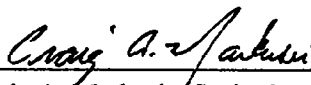
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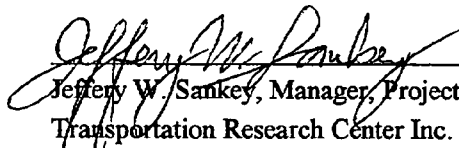
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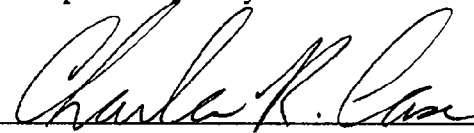
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16. Abstract A 30 mph flat frontal barrier impact test was conducted on a 1996 Hyundai Accent 3-door hatchback, NHTSA No. CT0502, at Transportation Research Center Inc. on January 12, 1996. This test was conducted to determine compliance with Federal 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 29.6 mph. The vehicle's maximum static crush was 11.6 inches. The ambient temperature was 70° F. The driver's Head Injury Criteria (HIC) was 346. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 50.6 g. The driver's chest deflection was 1.6 inches. The driver's left and right femur maximum axial forces were 1256 pounds and 1763 pounds, respectively. The passenger's HIC was 182. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 40.6 g. The passenger's chest deflection was 0.6 inches. The passenger's left and right femur maximum axial forces were 1149 pounds and 1557 pounds, respectively.			
17. Key Words Frontal Impact 30 mph Vehicle Safety Compliance Testing: FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Retention" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"		18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division Nassif Building, Room 5108 400 Seventh Street, S.W. Washington, DC 20590	
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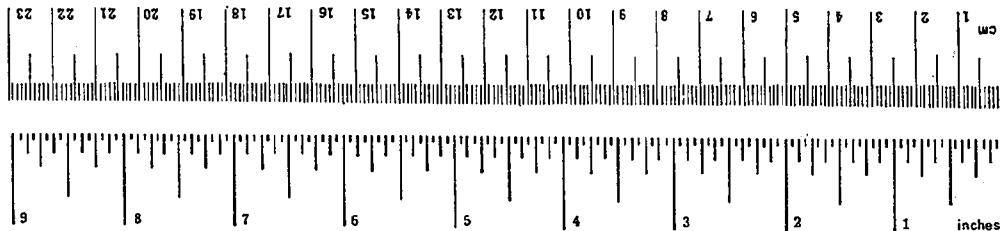
METRIC CONVERSION FACTORS

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				
ts	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
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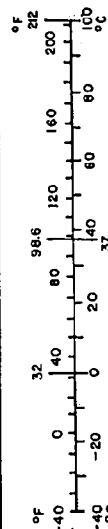


Approximate Conversions from Metric Measures

When You Know	Multiply by	To Find	Symbol
LENGTH			
millimeters	0.04	inches	in
centimeters	0.4	inches	in
meters	3.3	feet	ft
kilometers	1.1	yards	yd
	0.6	miles	mi
AREA			
square centimeters	0.16	square inches	in ²
square meters	1.2	square yards	yd ²
square kilometers	0.4	square miles	mi ²
hectares (10,000 m ²)	2.5	acres	
MASS (weight)			
grams	0.035	ounces	oz
kilograms	2.2	pounds	lb
tonnes (1000 kg)	1.1	short tons	
VOLUME			
milliliters	0.03	fluid ounces	fl oz
liters	2.1	pints	pt
	1.06	quarts	qt
	0.26	gallons	gal
cubic meters	35	cubic feet	ft ³
	1.3	cubic yards	yd ³

TEMPERATURE (exact)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F
----	---------------------	-------------------	------------------------	----



* 1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10.286.

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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 1996 Hyundai Accent 3-door hatchback, NHTSA No. CT0502, 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 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.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, chest deflection potentiometers, and with left and right femur load cells to measure axial forces. The driver dummy was instrumented with upper and lower tibia load cells to measure forces and moments.

The thirty-six (36) 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 January 12, 1996.

The test vehicle, a 1996 Hyundai Accent 3-door hatchback, NHTSA No. CT0502, 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, the chest deflections did not exceed 3.0 inches, and the compressive forces transmitted through the upper legs did not exceed 2,250 pounds as measured by Part 572 E 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 position. The vehicle's test weight was 2579 pounds. The vehicle's impact speed was 29.6 mph. The vehicle's maximum static crush was 11.6 inches.

The driver's HIC was 346. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 50.6 g. The driver's chest deflection was 1.6 inches. The driver's left and right femur maximum compressive forces were 1256 pounds and 1763 pounds, respectively.

The right front passenger's HIC was 182. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 40.6 g. The passenger's chest deflection was 0.6 inch. The right front passenger's left and right femur maximum compressive forces were 1149 pounds and 1557 pounds, respectively.

There was no loss of windshield periphery retention and 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, ENGXG1, exceeded the data channel's full scale limit at 35 milliseconds.

The vehicle's rear center Z-axis accelerometer, RDKZG1, did not return to zero following the impact event.

Table 1 Crash Test Summary

NHTSA number:	CT0502
Test type:	Frontal barrier impact
Test date:	01/12/96
Test time:	1541
Ambient temperature at impact area:	70° F
Vehicle year/make/ model/body style:	1996/Hyundai/Accent/3-door hatchback
Vehicle test weight:	2579 lb
Impact angle ¹ :	0°
Impact velocity ² :	
Primary:	29.6 mph
Secondary:	29.6 mph
Maximum static crush:	11.6 in
Average rebound:	46.9 in
Number of cameras:	
Real-time:	2
High-speed:	14
Door opening data:	
Left-front:	Easy
Right-front:	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 #230</u>	<u>Passenger #314</u>
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag	Airbag
Number of data channels:	19	9
Front seat data:		
Seat track failure:	None	None
Seat back failure:	None	None
Visible dummy contact points:		
Head:	Airbag and head restraint	Airbag and head restraint
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: 1996/Hyundai/Accent/3-door hatchback

Color: Red

VIN: KMHVD14N4TU096097

NHTSA number: CT0502

Engine data:

Placement: Transverse/Lateral

Cylinders: 4

Displacement: 1.5 liters

Transmission data: 5 speed, X manual, __automatic, __overdrive

Final drive: X fwd, __rwd, __4wd

Date vehicle received: 11/09/95

Odometer reading: 69

Dealer's name
and address: Hatfield Hyundai, Inc.
1400 Automall Drive
Columbus, OH 43228

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by: Hyundai Motor Company

Date of manufacture: 08/95

VIN: KMHVD14N4TU096097

GVWR: 3164 lb

GAWR: Front: 1742 lb

Rear: 1610 lb

Table 2 Test Vehicle Information, Cont'd.

Size of tires on vehicle: P155/80R13
Spare tire: Space saver
Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P155/80R13

Recommended cold tire pressure:

Front: 32 psi

Rear: 32 psi

Designated Seating Capacity:

Front 2

Rear 3

Total 5

Vehicle Capacity Weight: 850 lbs.

Test vehicle attitudes:

Delivered attitude: LF: 25.3 in. RF: 25.6 in LR: 24.4 in RR: 24.5 in

Fully loaded attitude: LF: 24.4 in RF: 24.8 in LR: 23.4 in RR: 23.6 in

Pre-test attitude: LF: 24.7 in RF: 25.1 in LR: 23.2 in RR: 23.2 in

Table 2 Test Vehicle Information, Cont'd.

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

Right front	646	lb	Right rear	415	lb
Left front	660	lb	Left rear	437	lb
Total front weight	1306	lb	(60.5% of total vehicle weight)		
Total rear weight	852	lb	(39.5% of total vehicle weight)		
Total delivered weight	2158	lb			

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (2158 lb)

VCW¹ = Vehicle Capacity Weight = 850 lb

DSC = Designated Seating Capacity (5)

RCLW = VCW - 150 (DSC) = 100

Target test weight = UDW + RCLW¹ + (Number of Hybrid III dummies x 167 lb per dummy)

Target test weight = 2158 + 100 + 334 = 2592 lb

Weight of test vehicle with required dummies and 87 lb of cargo weight:

Right front	715	lb	Right rear	559	lb
Left front	734	lb	Left rear	571	lb
Total front weight	1449	lb	(56.2% of total vehicle weight)		
Total rear weight	1130	lb	(43.8% of total vehicle weight)		
Total test weight	2579	lb	(0.5% under target test weight)		

Weight of ballast secured in vehicle cargo area: None

Components removed to meet target test weight: Rear seat and spare tire

CG rearward of front wheel centerline: 41.3 in

Vehicle Wheelbase: 94.2 in

¹ From vehicle's tire load label.

Table 3 Post-Impact Data

Test number: 960112
NHTSA number: CT0502
Test date: 01/12/96
Test time: 1541
Test type: Frontal barrier impact
Impact angle: 0°
Ambient temperature
at impact area: 66° F
Temperature in
occupant compartment: 70° F
Impact velocity:
Primary: 29.6 mph
Secondary: 29.6 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:

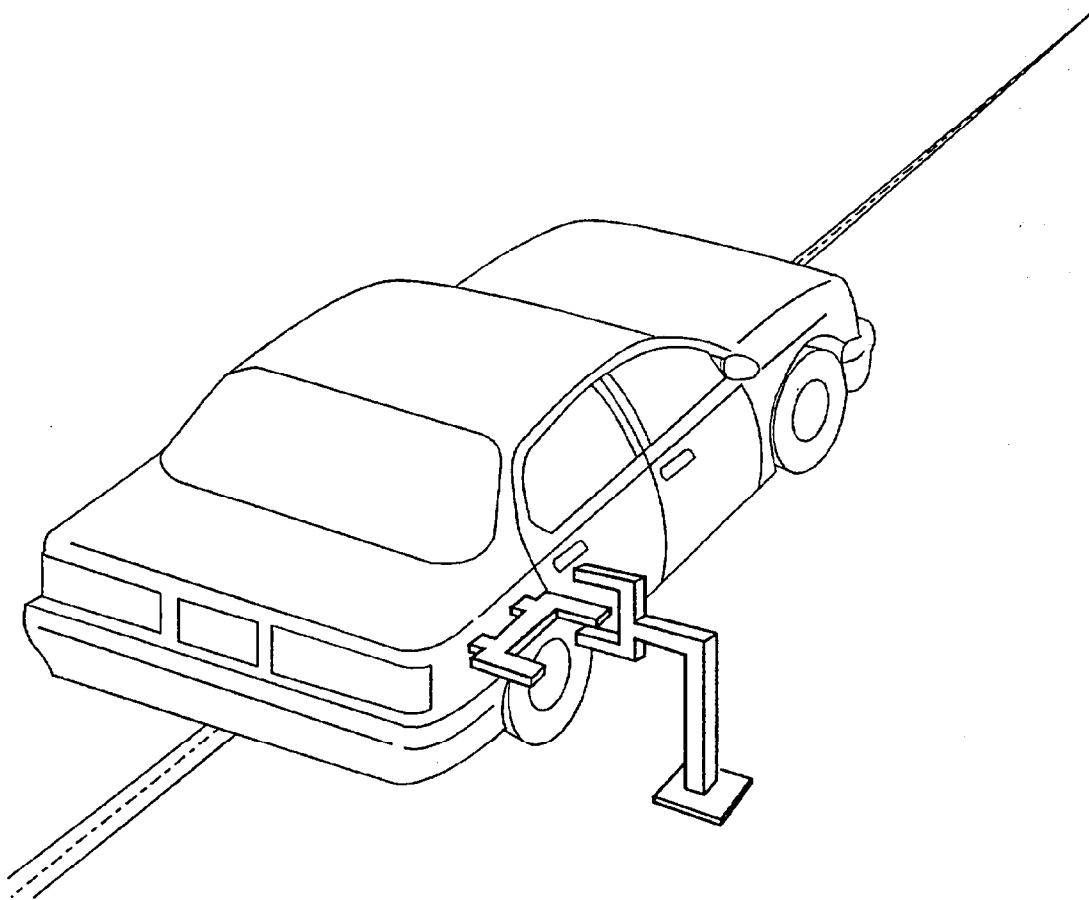
Pre-test:	L:	150.6 in	C:	158.4 in	R:	151.3 in
Post-test:	L:	140.8 in	C:	147.2 in	R:	140.2 in
Total crush:	L:	9.8 in	C:	11.2 in	R:	11.1 in
Average crush:		10.7 in				

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test:	L:	47.6 in	C:	46.2 in	R:	46.9 in
Average rebound:		46.9 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: CT0502
 Test date: 01/12/96
 Vehicle year/make/
 model/body style: 1996/Hyundai/Accent/3-door hatchback
 Vehicle size category: Subcompact
 VIN: KMHVD14N4TU096097
 Build date: 08/95
 Test weight: 2579 lb
 Vehicle wheelbase: 94.2 in
 Maximum width: 63.1 in
 Front overhang: 31.9 in

Collision Deformation

Classification (CDC) Code: 12FDEW2

Crush depth measurements:	C1:	9.8 in
	C2:	11.1 in
	C3:	11.1 in
	C4:	11.2 in
	C5:	11.6 in
	C6:	11.1 in

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 60.0 in

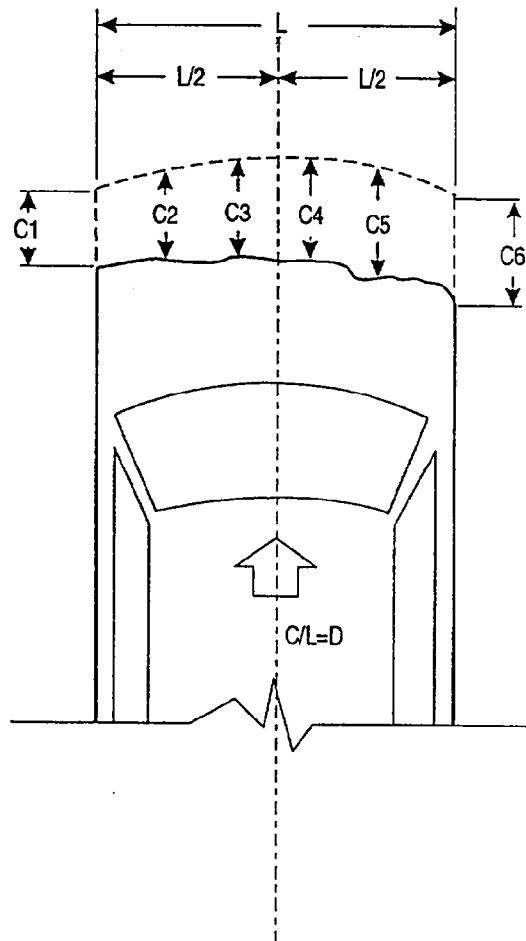


Table 4 Post-test Airbag Data

NHTSA number: CT0502
Test date: 01/12/96
Technician: Markusic
Vehicle year/make/
model/body style: 1996/Hyundai/Accent/3-door hatchback

A. Number of airbag vent holes:

Driver: 2
Passenger: 2

B. Size of airbag vent holes:

Driver: 1.0 in dia.
Passenger: 2.4 in dia.

C. Total airbag vent area:

Driver: 1.6 in²
Passenger: 9.0 in²

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

Driver:	Length	NA
	Width	NA
	Diameter	24.0 in
Passenger:	Length:	31.0 in
	Width:	32.0 in
	Diameter:	NA

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

E. Is the airbag tethered?

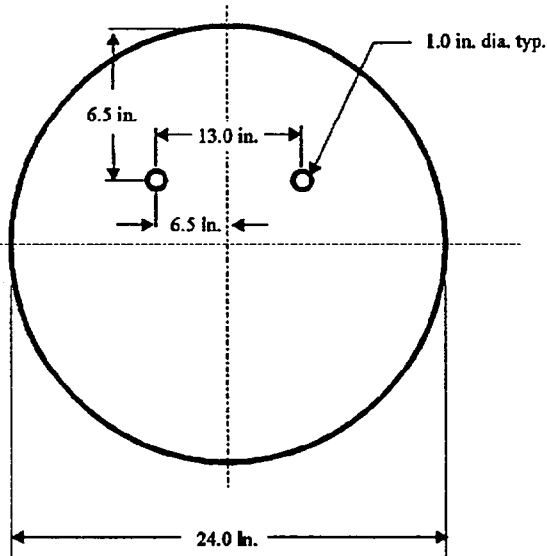
Driver: Yes

If yes, record length of tether: 2 tethers, 7 inches each

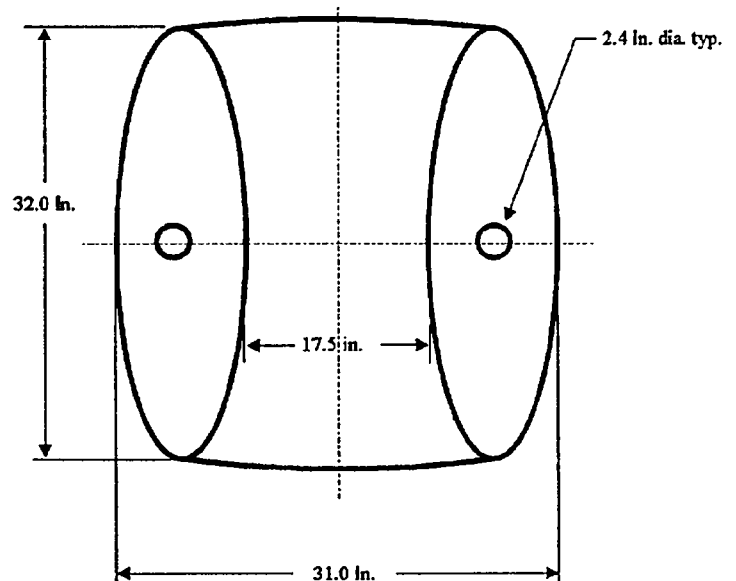
Passenger: Yes

If yes, record length of tether: 1 tether, 20 inches

Driver's airbag:



Passenger's airbag:



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

Driver: Manufacturer: Morton International

Airbag: PE5259700-01

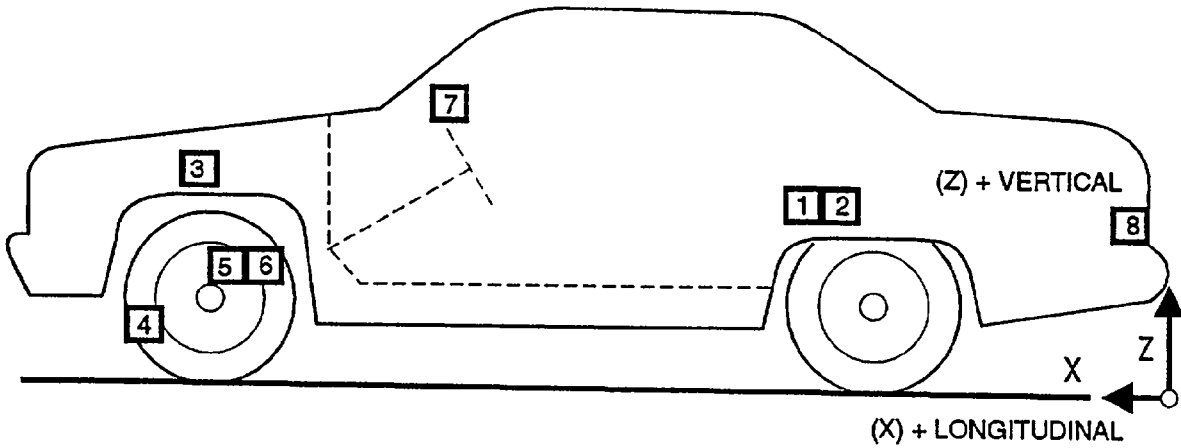
Inflator: 1X3F5K3UDMM

Passenger: Manufacturer: Allied Signal

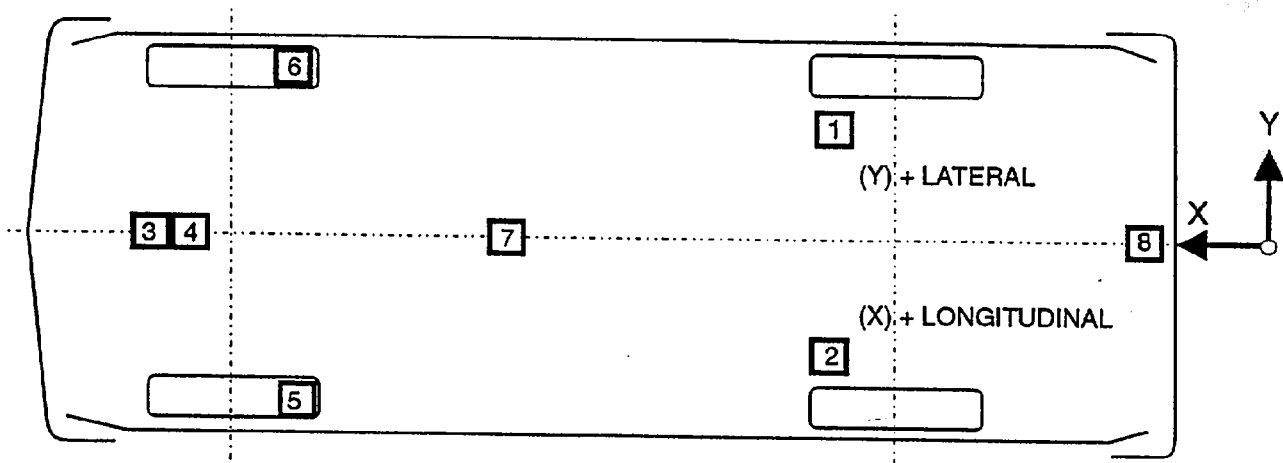
Airbag: TBA521336963

Inflator: HCPS5082420067

Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 5 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 960112	X			Y			Z			POSITIVE DIRECTION	NEGATIVE DIRECTION
No. LOCATION											
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE	58.2 in	14.3 in	15.5 in							
	POST	58.3 in	14.3 in	15.9 in					2.8 g @ 85.5 ms	34.6 g @ 35.1 ms	
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE	58.6 in	-14.3 in	15.5 in							
	POST	58.6 in	-14.3 in	17.1 in					3.5 g @ 84.9 ms	33.0 g @ 31.9 ms	
3 ENGINE TOP LONGITUDINAL	PRE	135.0 in	0.0 in	28.6 in							
	POST	130.1 in	-0.3 in	25.9 in					38.5 g @ 39.2 ms	110.8 g @ 30.1 ms	
4 ENGINE BOTTOM LONGITUDINAL ¹	PRE	134.5 in	-10.1 in	8.9 in							
	POST	125.4 in	-10.1 in	8.4 in					52.2 g @ 33.2 ms	154.0 g @ 24.2 ms	
5 RIGHT BRAKE CALIPER LONGITUDINAL	PRE	133.4 in	-24.5 in	10.2 in							
	POST	128.8 in	-24.5 in	10.4 in					18.3 g @ 63.6 ms	67.6 g @ 47.2 ms	
6 LEFT BRAKE CALIPER LONGITUDINAL	PRE	133.4 in	25.5 in	10.2 in							
	POST	129.2 in	24.5 in	10.4 in					24.9 g @ 61.8 ms	73.8 g @ 50.4 ms	
7 INSTRUMENT PANEL CENTER LONGITUDINAL	PRE	109.5 in	0.0 in	35.7 in							
	POST	108.2 in	0.0 in	38.9 in					14.8 g @ 43.0 ms	48.0 g @ 24.1 ms	
8 VEHICLE REAR CENTER VERTICAL ¹	PRE	4.2 in	0.0 in	18.0 in							
	POST	4.2 in	0.0 in	19.7 in					7.1 g @ 52.6 ms	17.2 g @ 25.3 ms	

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

¹See DATA ACQUISITION EXPLANATIONS

Section 3.0

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

Table 6 Dummy Injury Criteria

	<u>Maximum Acceleration</u>						
	<u>Head</u>				<u>Chest</u>		
	X	Y	Z	R	X	Y	Z
Driver	-54.0 g	-4.0 g	-19.4 g	54.7 g	-51.8 g	-5.3 g	16.4 g
Passenger	-30.0 g	24.2 g	-28.9 g	46.8 g	-37.1 g	5.0 g	-20.4 g

<u>Maximum Femur Compressive Force</u>		
	<u>Left Femur</u>	<u>Right Femur</u>
Driver	1256 lbf	1763 lbf
Passenger	1149 lbf	1557 lbf

<u>Head Injury Criteria¹</u>			
	<u>HIC</u>	<u>Time t₁</u>	<u>Time t₂</u>
Driver	346	70.08 ms	94.40 ms
Passenger	182	69.60 ms	99.84 ms

<u>Chest Maximum Resultant Acceleration²</u>			
	<u>Acceleration</u>	<u>Time t₁</u>	<u>Time t₂</u>
Driver	50.6 g	76.3 ms	79.3 ms
Passenger	40.6 g	78.8 ms	81.8 ms

<u>Maximum Chest Deflection</u>	
Driver	1.6 in
Passenger	0.6 in

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 impacted the airbag rotating slightly forward. The dummy's chest impacted the airbag. The dummy's head and chest were restrained by the airbag. The dummy rebounded rearward into the seat back as the dummy's head rotated slightly rearward contacting the head restraint. The driver dummy came to rest seated 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 slightly forward. The dummy's head and chest were restrained by the passenger's airbag. The dummy's head rotated slightly rearward as the dummy rebounded into the seat back. The dummy came to rest seated in the right front passenger's seat.

Table 7 FMVSS 208 Seat Belt Comfort and Convenience Test Summary

Front Outboard Designated Seating Positions

NHTSA number: CT0502

Vehicle model year/make/model/body style: 1996/Hyundai/Accent/3-door hatchback

Date of comfort/convenience check: 01/12/96

Technician performing check: Markusic

GVWR: 3164 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 was 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: CT0502

Vehicle model year/make/model/body style: 1996/Hyundai/Accent/3-door hatchback

Date of comfort/convenience check: 01/12/96

Technician performing check: Markusic

GVWR: 3164 lb

Webbing Tension-Relieving Device (S7.4.2):

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

Belt Contact Force (S7.4.3):

The belt contact force on the chest of the test dummy is 0.3 pound.

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: CT0502

Vehicle model year/make/model/body style: 1996/Hyundai/Accent/3-door hatchback

Date of comfort/convenience check: 01/12/96

Technician performing check: Markusic

GVWR: 3164 lb

Seat Belt Guides and Hardware (S7.4.6):

The seat cushion is not removable.

The seat back does not serve a function other than seating.

The seat is not removable.

The seat is movable but the space formerly occupied by the seat cannot be used for a secondary function.

Note: If the seat or seat cushion is removable or if the seat is movable so the space formerly occupied by the seat can be used for a secondary function, the seat belt guides and hardware requirements do not apply.

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

The restraint system does not include webbing guides.

The seat belt receptacles were accessible without moving the center 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 unbelt in stowed position and ignition switch placed in the "start/on" position, the duration of the reminder light is 6 s. The audible warning signal operates continuously

With an occupant in the driver's position and the unbelt 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 6 s.

NOTE: the audible warning should not operate.

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 labels which describe the manufacturer's maintenance or replacement schedule for the crash-deployed occupant protection system were located on the driver's and passenger's sun visors.

The manufacturer's recommended regular airbag maintenance is to have the airbag system inspected every ten years.

Appropriate instructions concerning maintenance and/or replacement of this system were provided in the owner's manual on page 1-18.

A description of the functional operation of the system was provided in the owner's manual on pages 1-16 and 1-17.

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 1-16 and 1-19

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 a light stating "SRS" located on the lower center portion 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 pages 1-17.

FMVSS 208 Rear Outboard Seating Position Seat Belts

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.:

Plastic trim around outer perimeter and adhesive around inner perimeter.

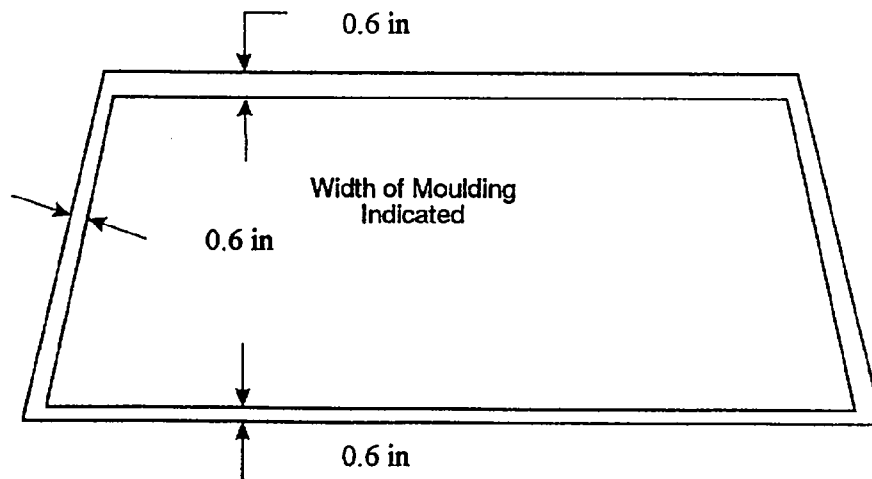
Clips or brackets used to retain windshield: None

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	77.5 in	77.5 in	100.0
Left side	77.5 in	77.5 in	100.0
Total	155.0 in	155.0 in	100.0

Pre-test windshield mounting material temperature: 66° F



Front view of windshield¹

Loss of windshield retention lengths: None

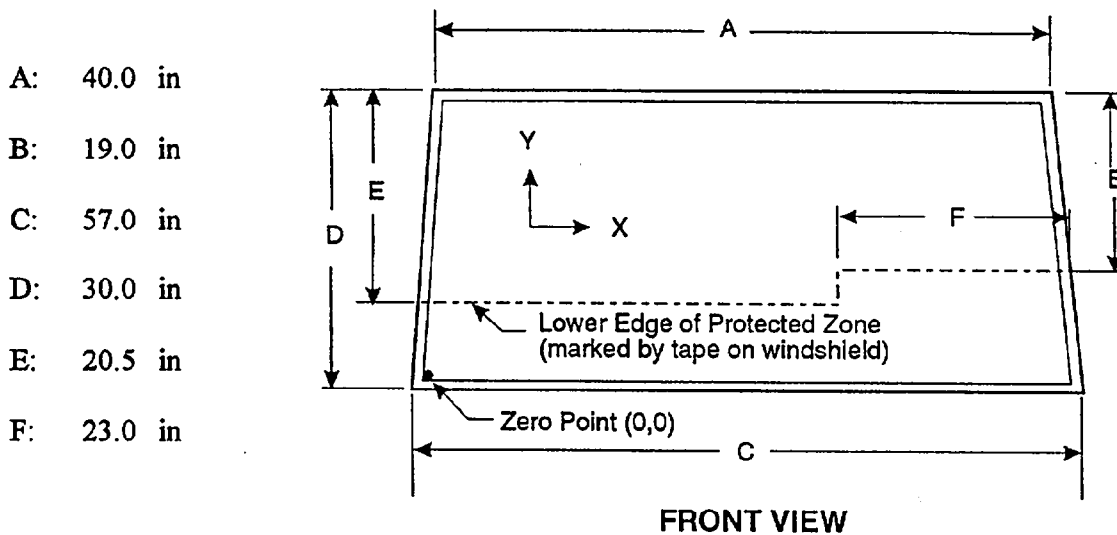
¹ Indicate areas of loss of retention, if any, on windshield diagram.

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:	1996/Hyundai/Accent/3-door hatchback
NHTSA number:	CT0502
Fuel system capacity:	11.9 gal (from owner's manual)
Usable capacity:	11.9 gal (furnished by COTR)
Test volume range:	10.9 gal to 11.2 gal (92-94% of usable)
Actual test volume:	11.1 gal (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

The electric fuel pump did not operate with ignition switch "on" and the engine not operating.

Details of fuel system:

The fuel tank was located in front of the rear axle. The fuel filler neck was 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: CT0502
Test date: 01/12/96
Vehicle year/make/
model/body style: 1996/Hyundai/Accent/3-door hatchback

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:

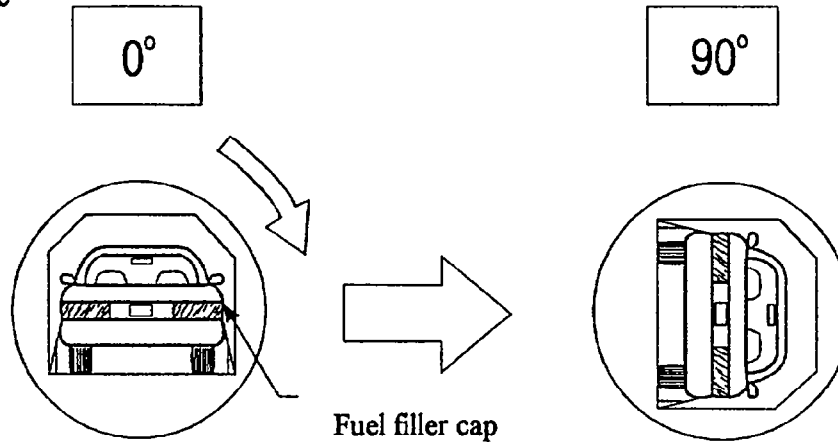
	Test Results	Maximum Allowable
1. From impact until vehicle motion ceases	0 oz	1 oz
2. 5-Minute period after vehicle motion ceases	0 oz	5 oz
3. Next 25 minutes after 5-minute period	0 oz	1 oz/1 min

Fuel system fluid spillage location(s): None

Figure 6 FMVSS 301 Static Rollover Test Data

NHTSA number: CT0502

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	

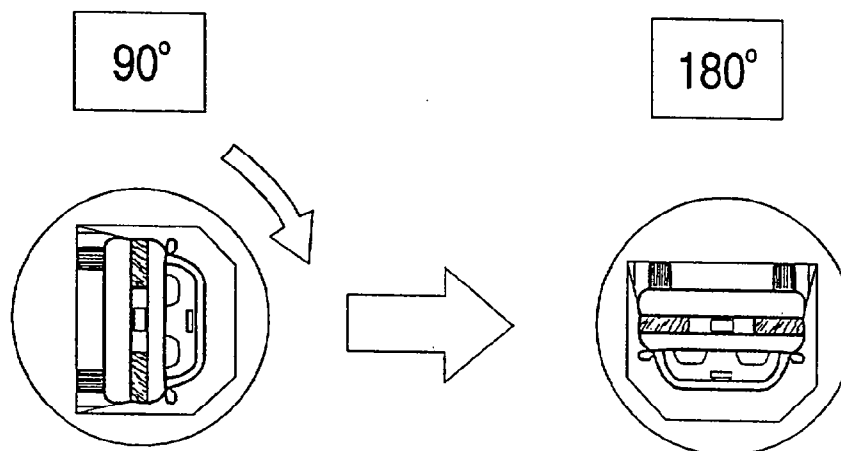
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>0° to 90° rotation (fuel filler cap down)</u>		
1. First five 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		

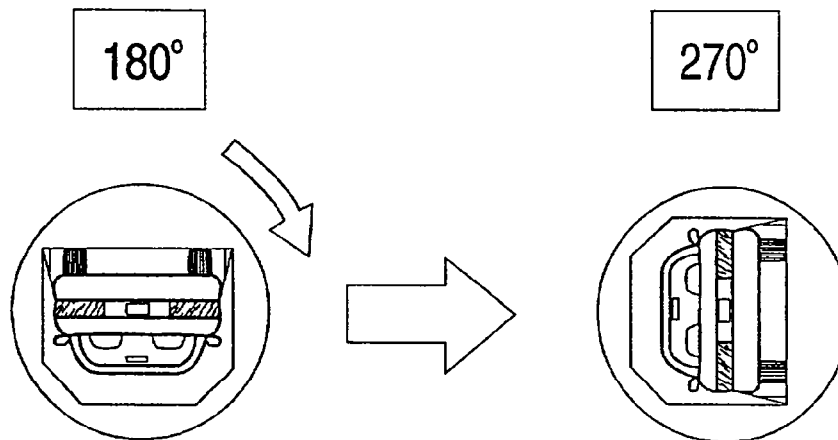
Fuel system fluid spillage measurements:

<u>90° to 180° rotation</u>		Test Results	Maximum Allowable
1.	First five 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		

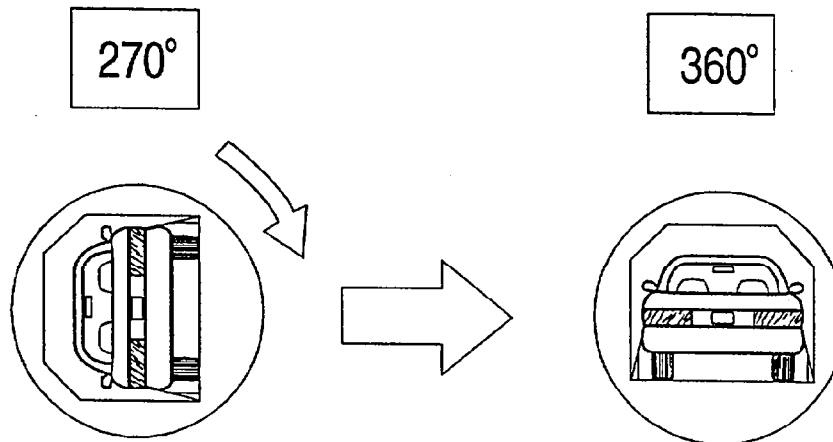
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>180 to 270° rotation</u>		
1. First five 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 five 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

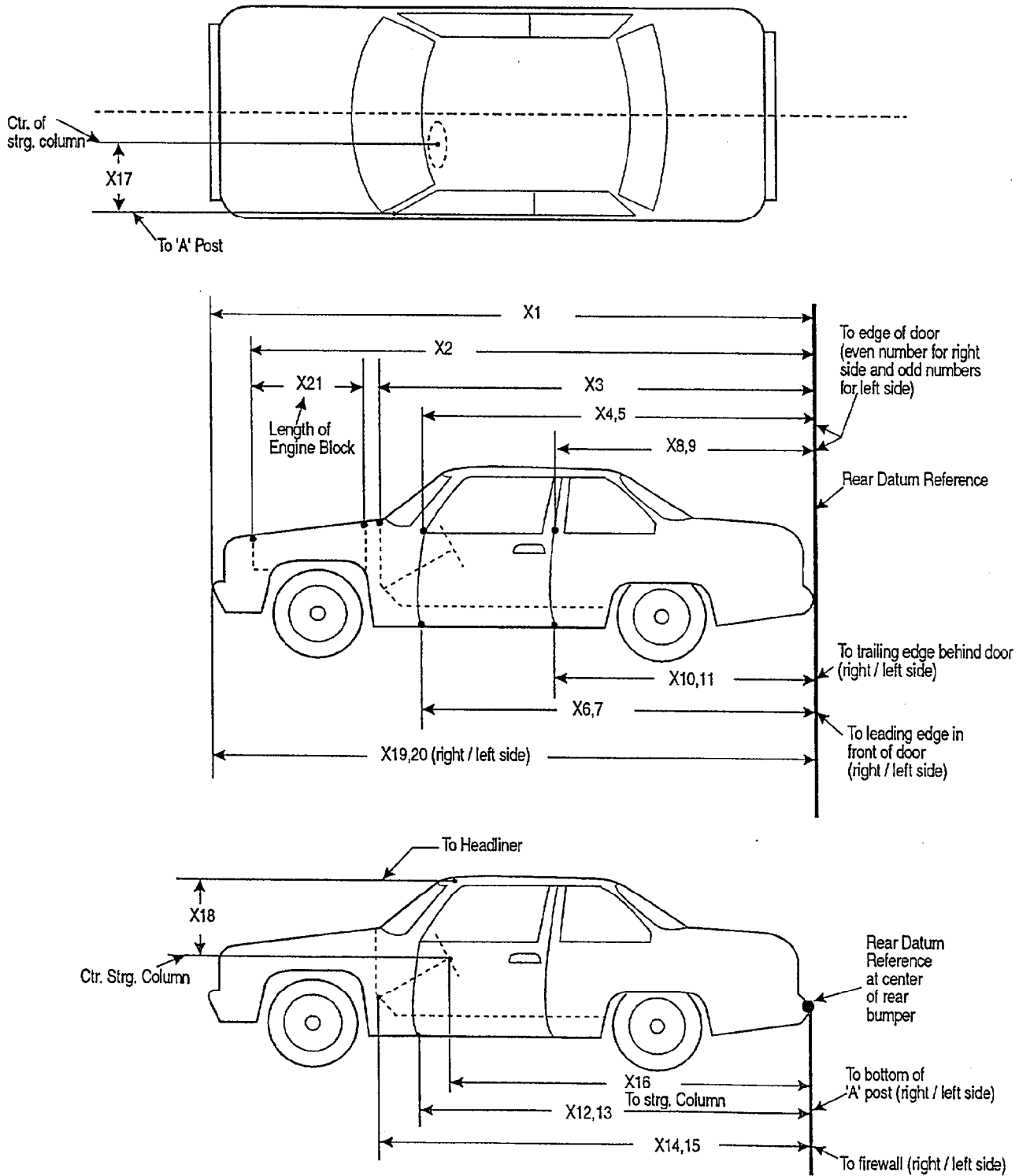


Table 11 Impacted Vehicle Measurements

Vehicle year/make/model/body style: 1996/Hyundai/Accent/3-door hatchback

Test Number: 960112

No.	Type of measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	158.4 in	147.2 in	11.2 in
X2	Rear surface of vehicle to front of engine block	139.0 in	134.0 in	5.0 in
X3	Rear surface of vehicle to firewall	120.2 in	119.5 in	0.7 in
X4	Rear surface of vehicle to upper leading edge of right door	107.1 in	106.9 in	0.2 in
X5	Rear surface of vehicle to upper leading edge of left door	107.1 in	106.7 in	0.4 in
X6	Rear surface of vehicle to lower leading edge of right door	108.2 in	108.2 in	0.0 in
X7	Rear surface of vehicle to lower leading edge of left door	108.1 in	108.1 in	0.0 in
X8	Rear surface of vehicle to upper trailing edge of right door	60.9 in	60.6 in	0.3 in
X9	Rear surface of vehicle to upper trailing edge of left door	60.8 in	60.3 in	0.5 in
X10	Rear surface of vehicle to lower trailing edge of right door	62.1 in	62.1 in	0.0 in
X11	Rear surface of vehicle to lower trailing edge of left door	62.0 in	62.0 in	0.0 in
X12	Rear surface of vehicle to bottom of "A" post on right side	106.9 in	106.1 in	0.8 in
X13	Rear surface of vehicle to bottom of "A" post on left side	106.5 in	105.7 in	0.8 in
X14	Rear surface of vehicle to firewall - right side	114.8 in	118.8 in	-4.0 in
X15	Rear surface of vehicle to firewall - left side	119.6 in	119.6 in	0.0 in
X16	Rear surface of vehicle to steering wheel center	91.8 in	92.1 in	-0.3 in
X17	Center of steering column to "A" post	12.0 in	12.2 in	-0.2 in
X18	Center of steering column to headliner	16.7 in	16.9 in	-0.2 in
X19	Rear surface of vehicle to right side of front bumper	151.3 in	140.2 in	11.1 in
X20	Rear surface of vehicle to left side of front bumper	150.6 in	140.8 in	9.8 in
X21	Length of engine block	16.7 in	16.7 in	0.0 in

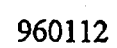
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Figure 9 Dummy Measurement Locations for Front Seat Occupants

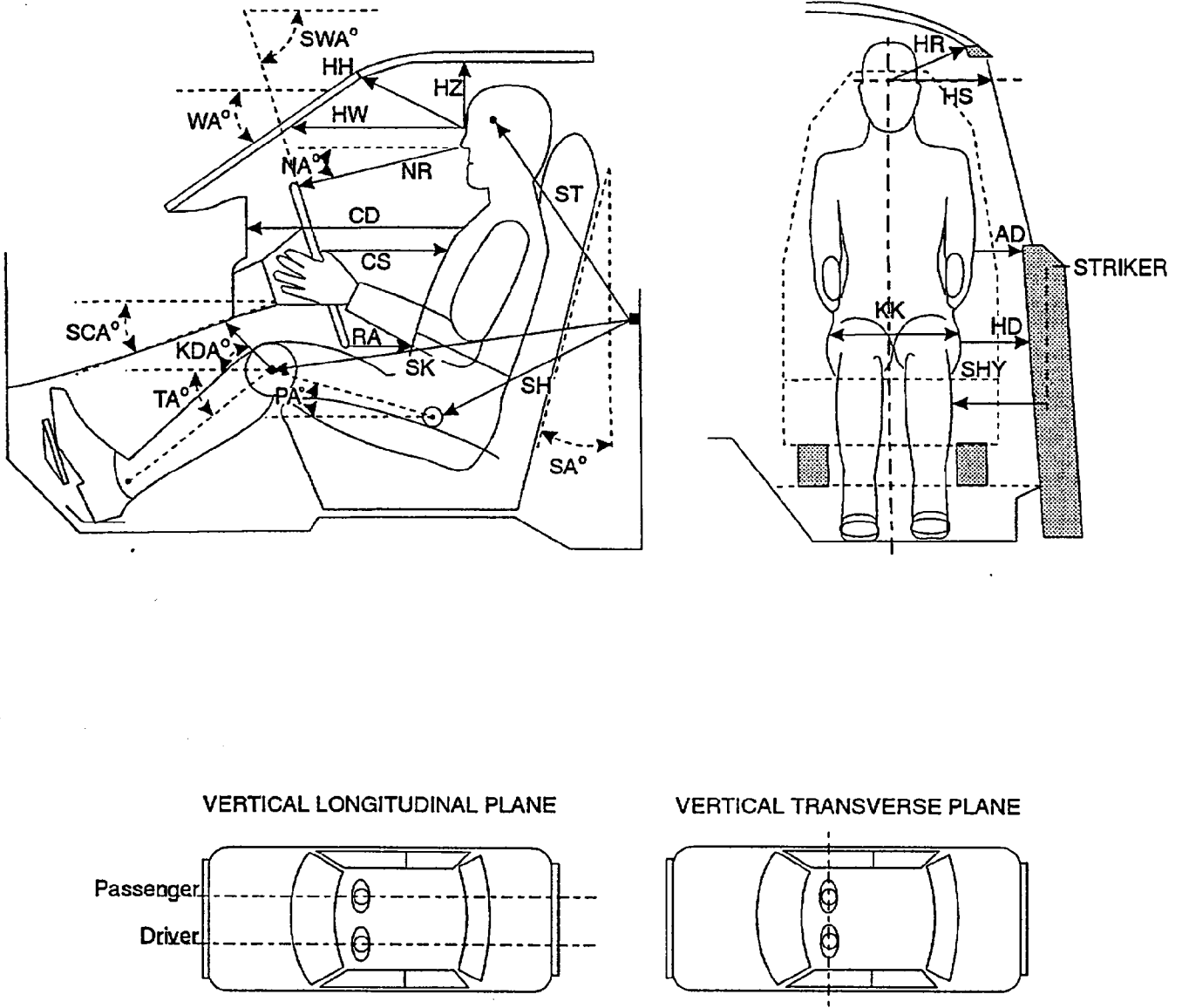


Table 12 Dummy Measurement Data for Front Seat Occupants

Designation	Type of Measurement	Driver (Serial 230)	Passenger (Serial #314)
WA	Windshield angle	30°	NA
SWA	Steering wheel angle	66°	NA
SCA	Steering column angle	25°	NA
SA	Seat back angle	20°	20°
HZ	Head to roof	6.1 in	6.0 in
HH	Head to header	13.3 in	12.9 in
HW	Head to windshield	19.9 in	20.5 in
HR	Head to side header	7.5 in	8.0 in
NR	Nose to rim	17.7 in	NA
NA	Nose to rim angle	11°	NA
CD	Chest to dash	22.1 in	24.1 in
CS	Steering wheel to chest	14.4 in	NA
RA	Rim to abdomen	9.1 in	NA
KDL	Left knee to dash	9.0 in	8.1 in
KDR	Right knee to dash	8.2 in	8.3 in
KDA	Outboard knee to dash angle	27°	21°
PA	Pelvic angle	22°	24°
TA	Tibial angle	36°	32°
KK	Knee to knee	12.7 in	10.9 in
ST ¹	Striker to head	27.3 in	21.4 in
	Striker to head angle	-60°	-63°
SK ¹	Striker to knee	30.6 in	31.5 in
	Striker to knee angle	1°	10°
SH ¹	Striker to H-point	17.3 in	17.4 in
	Striker to H-point angle	23°	20°
SHY	Striker to H-point (Y dir.)	8.7 in	8.5 in
HS	Head to side window	11.5 in	11.7 in
HD	H-point to door	6.4 in	5.7 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.

Figure 10 Camera Positions

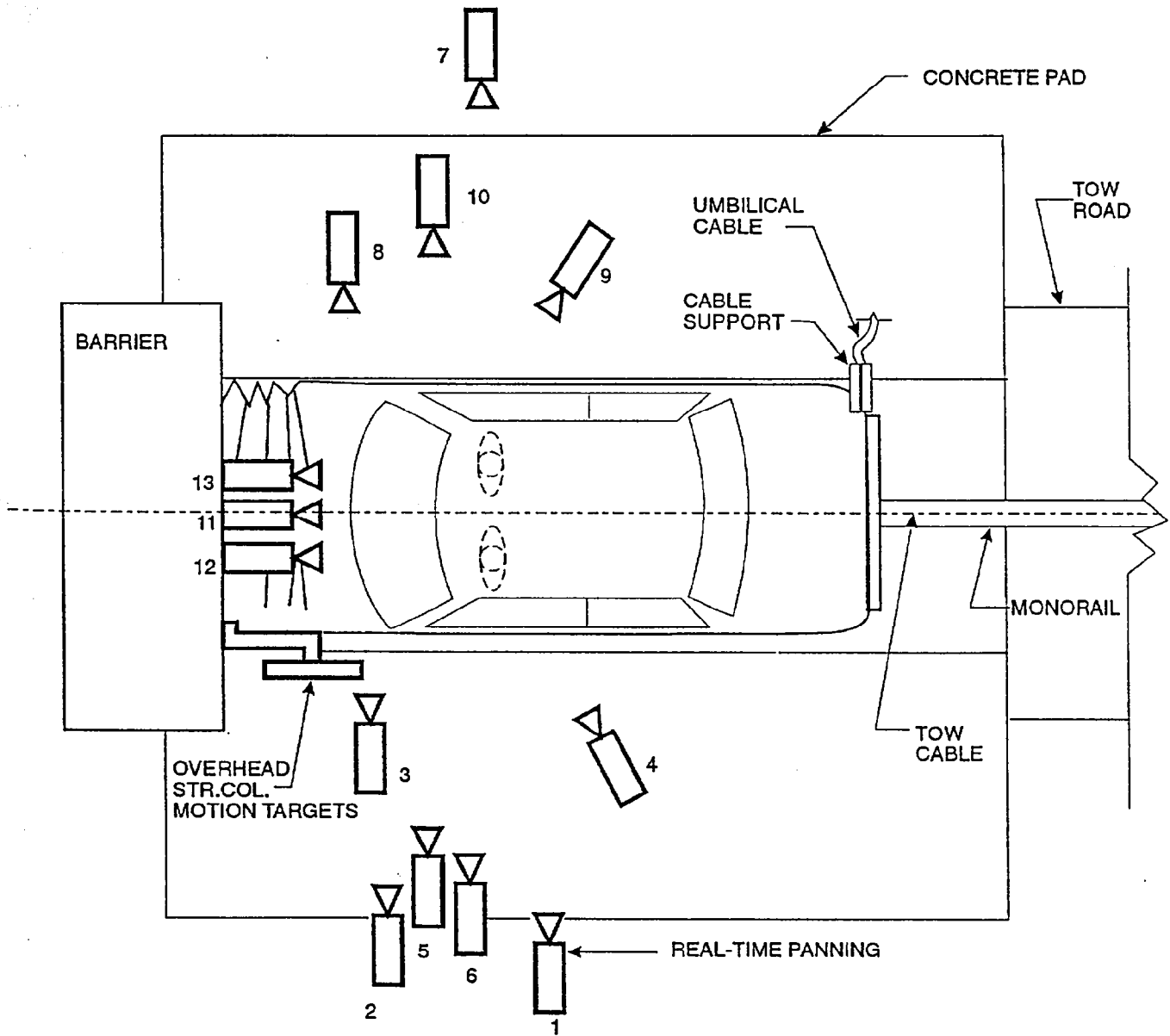


Figure 10 Camera Positions, Cont'd.

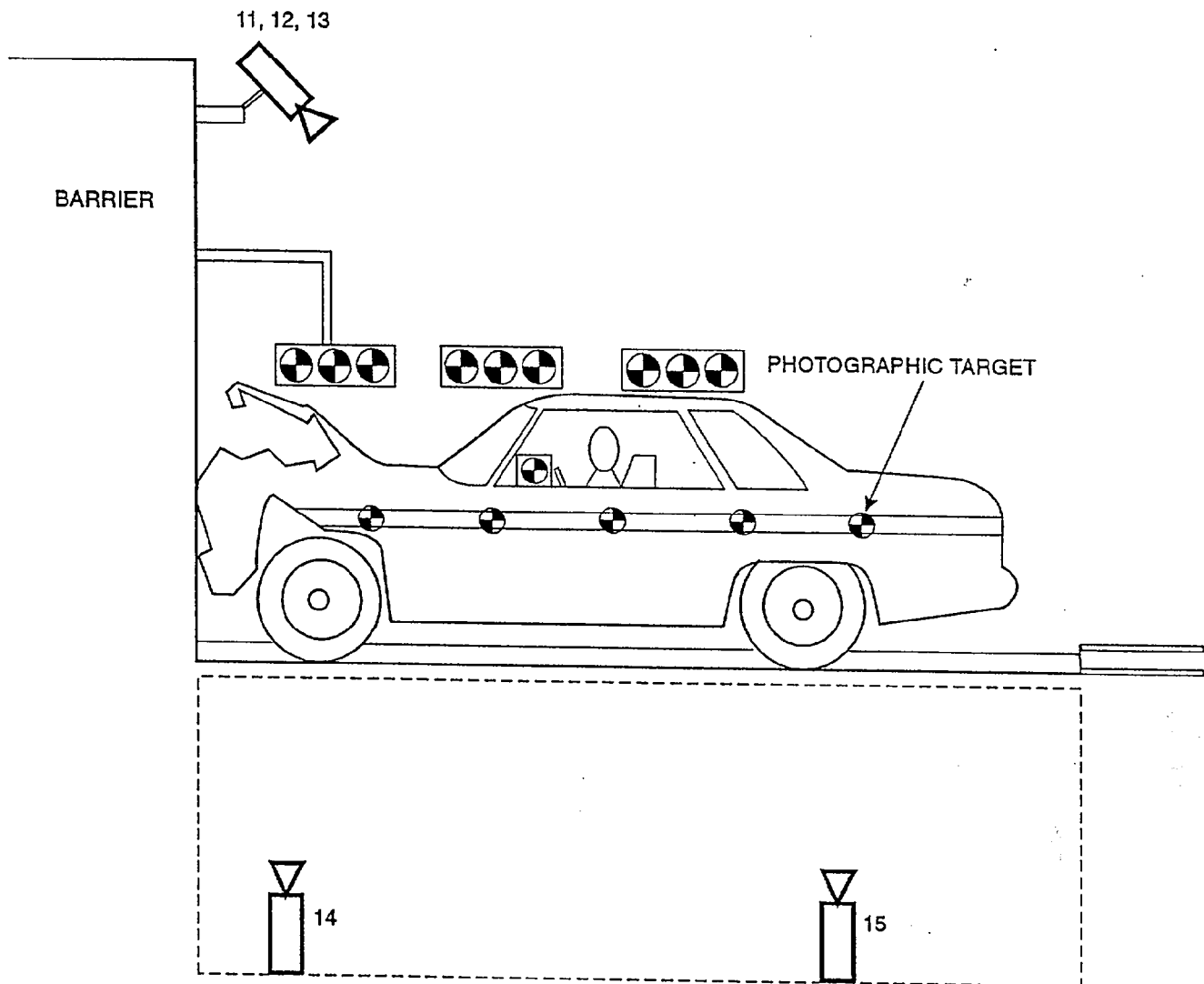


Table 13 Motion Picture Camera Locations

Vehicle year/make/model/body style: 1996/Hyundai/Accent/3-door hatchback

Test number: 960112

Camera Number	View	Camera Positions ¹			Camera Angle ²	Film Plane to Head Target	Camera Lens	Film Speed
		X	Y	Z				
1	Real-time panning	-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°	247.0 in	25 mm	1002 frames/s
3	Left windshield intrusion	-53.0 in	309.4 in	42.3 in	0°	NA	50 mm	1008 frames/s
4	Driver kinematics	-157.3 in	116.0 in	87.0 in	-27°	106.0 in	25 mm	1000 frames/s
5	Steering column motion	-79.0 in	286.0 in	103.0 in	-14°	NA	25 mm	1000 frames/s
6	Steering column motion	-79.0 in	286.0 in	75.1 in	-9°	NA	25 mm	1008 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	1000 frames/s
9	Passenger kinematics	-152.1 in	-116.0 in	87.0 in	-26°	95.0 in	25 mm	980 frames/s
10	Passenger kinematics	-38.8 in	-293.0 in	45.3 in	-4°	217.0 in	25 mm	992 frames/s
11	Windshield front view	-6.0 in	0.0 in	88.0 in	-40°	NA	13 mm	1000 frames/s
12	Driver - front view	-6.8 in	14.5 in	93.0 in	-50°	NA	17 mm	1005 frames/s
13	Passenger - front view	-4.5 in	-13.8 in	93.0 in	-50°	NA	17 mm	1008 frames/s
14	Pit - front position	-50.5 in	0.0 in	-92.4 in	90°	NA	13 mm	985 frames/s
15	Pit - rear position	-99.3 in	0.0 in	-99.0 in	90°	NA	13 mm	990 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

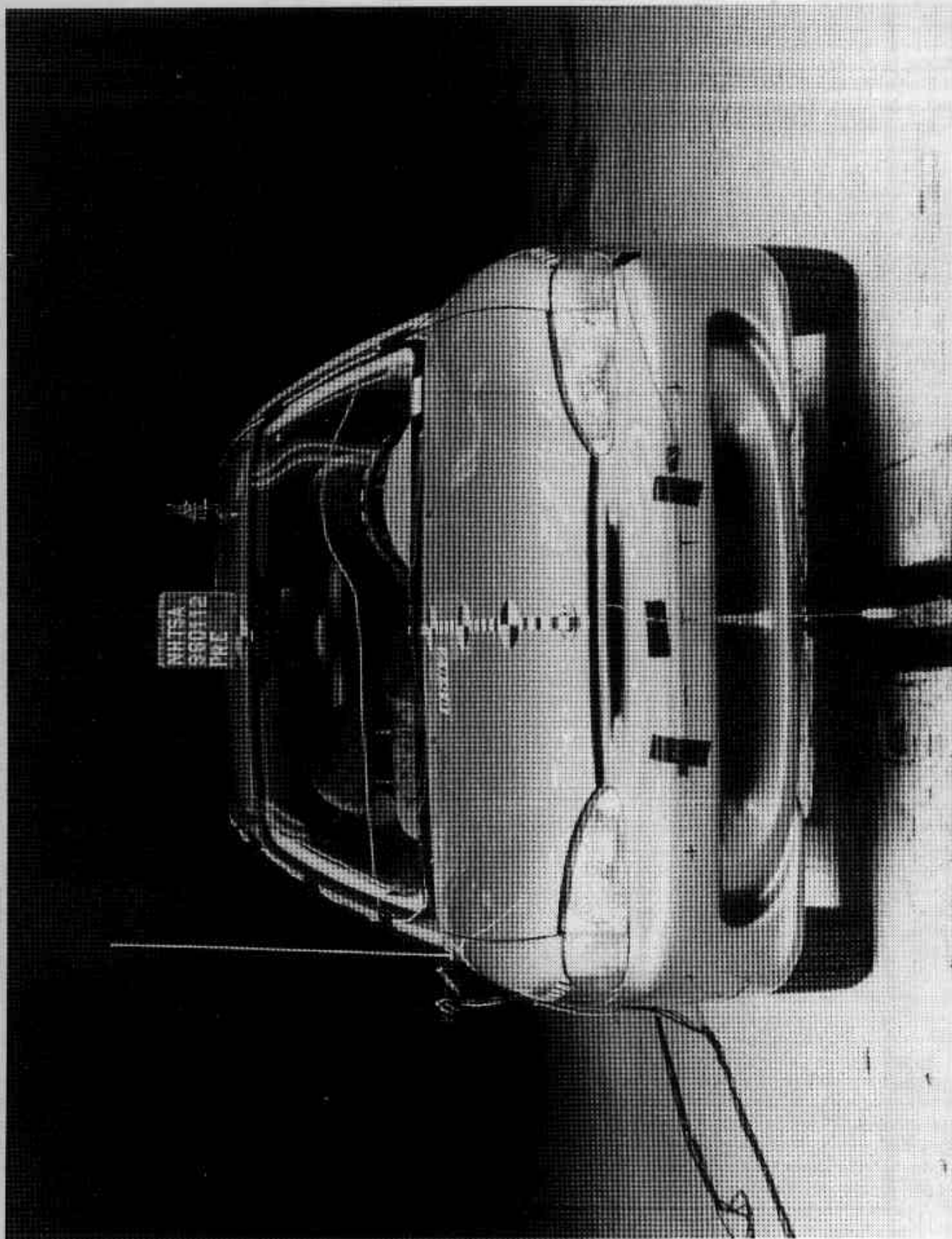


Figure A-1. Pre-Test Front View

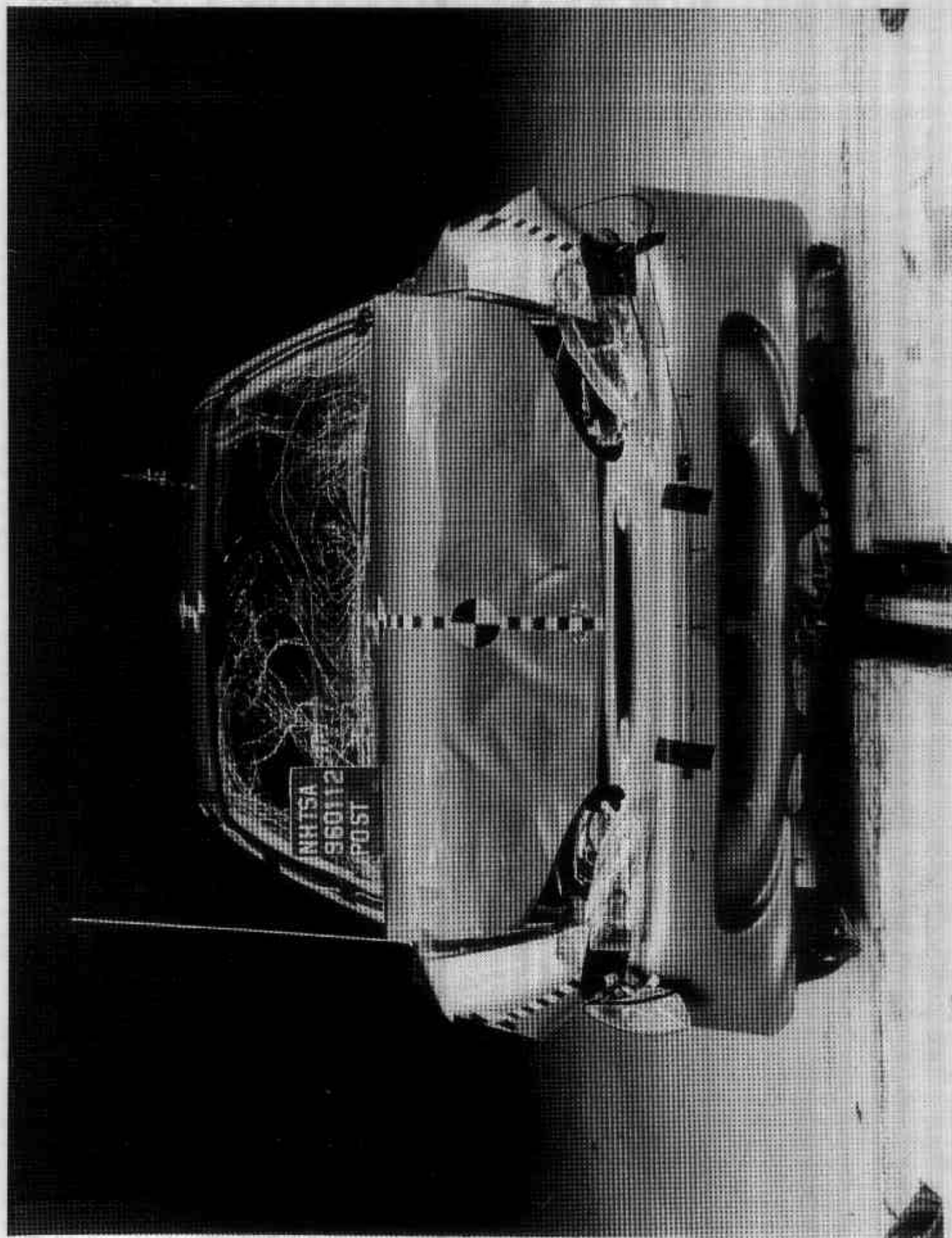


Figure A-2. Post-Test Front View

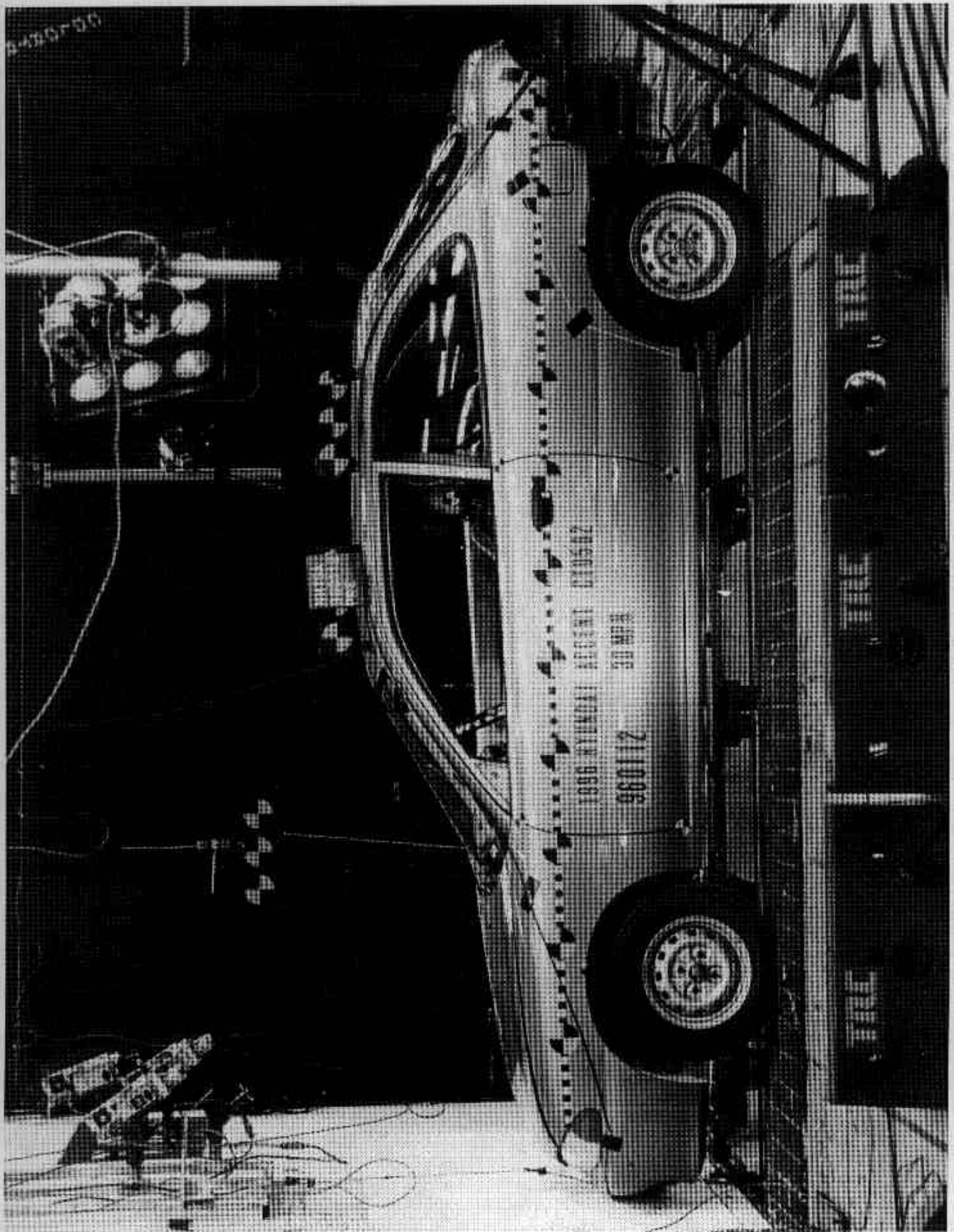


Figure A-3. Pre-Test Left Side View



Figure A-4. Post-Test Left Side View

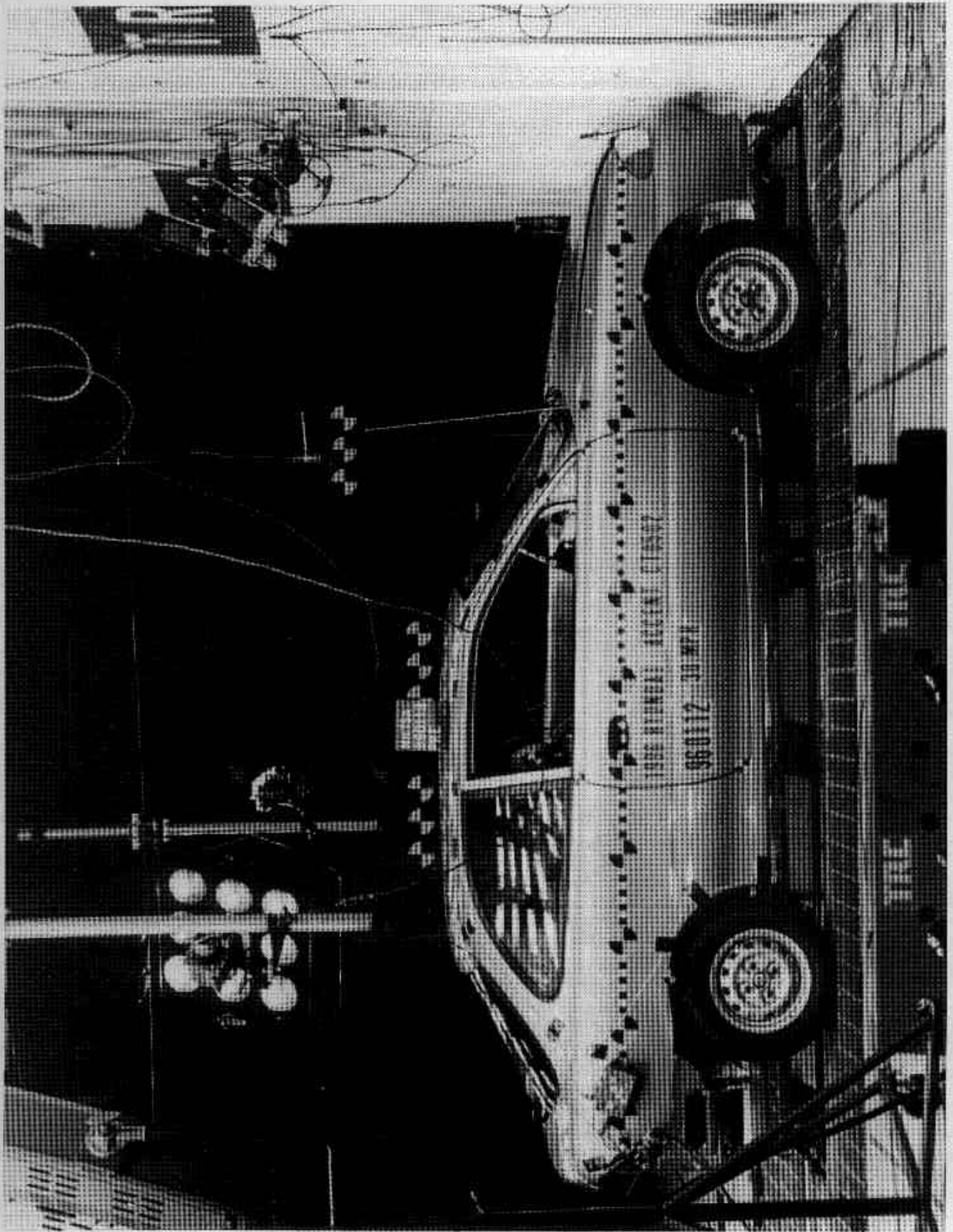


Figure A-5. Pre-Test Right Side View

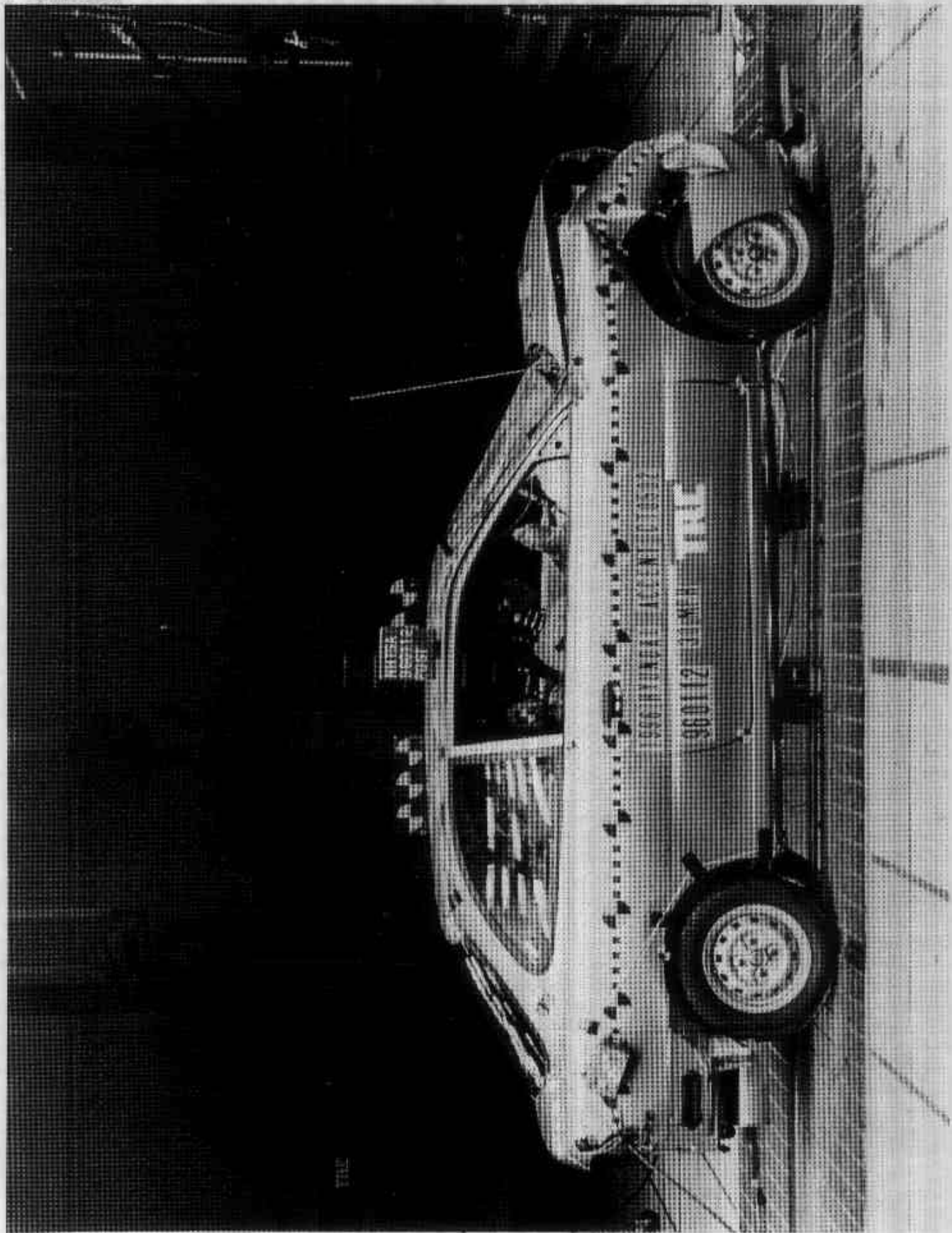


Figure A-6. Post-Test Right Side View

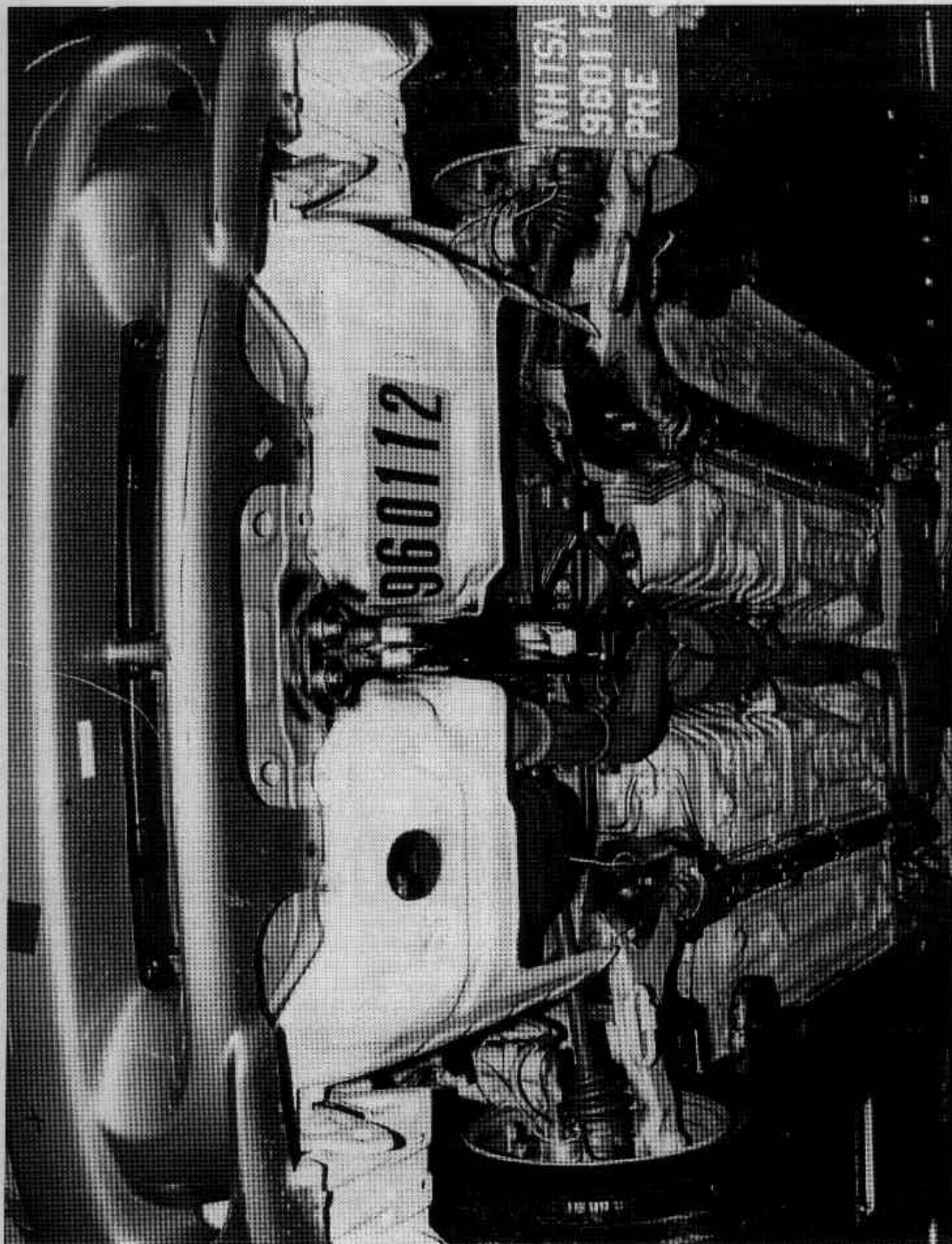


Figure A-7. Pre-Test Front Underbody View

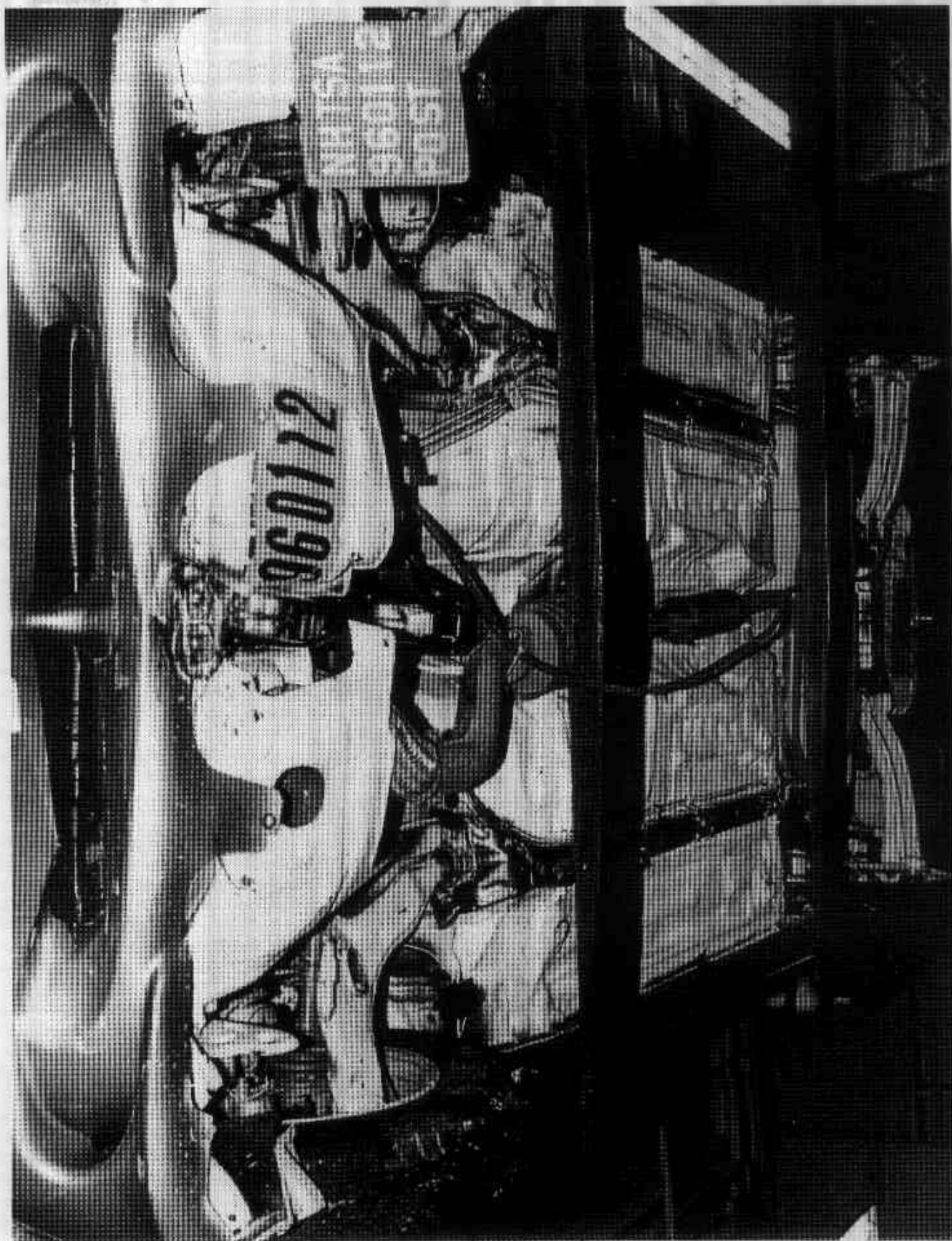


Figure A-8. Post-Test Front Underbody View

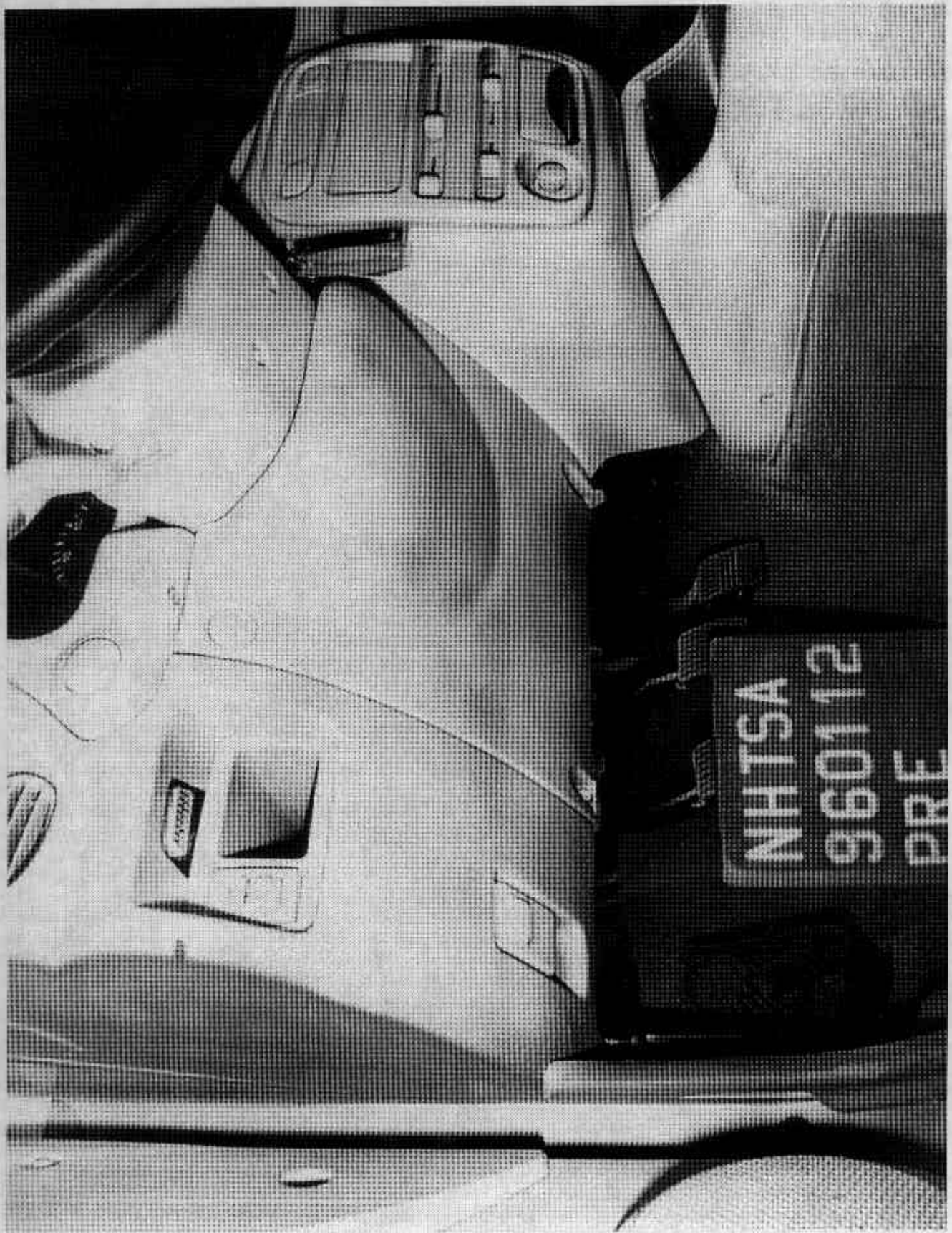


Figure A-9. Pre-Test Driver's Knee Bolster View

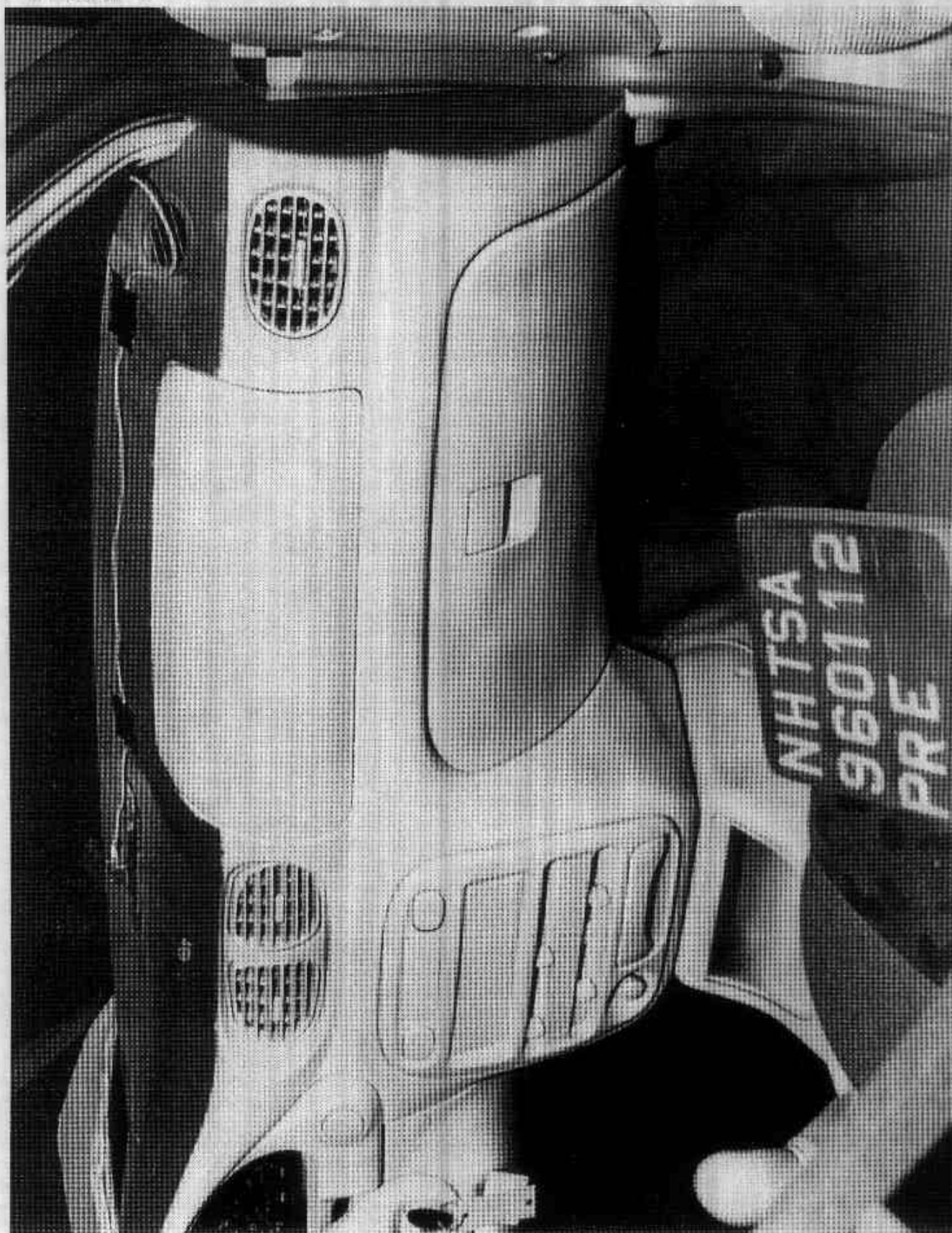


Figure A-10. Pre-Test Passenger's Knee Bolster View.



Figure A-11. Pre-Test Driver's Seat Location View

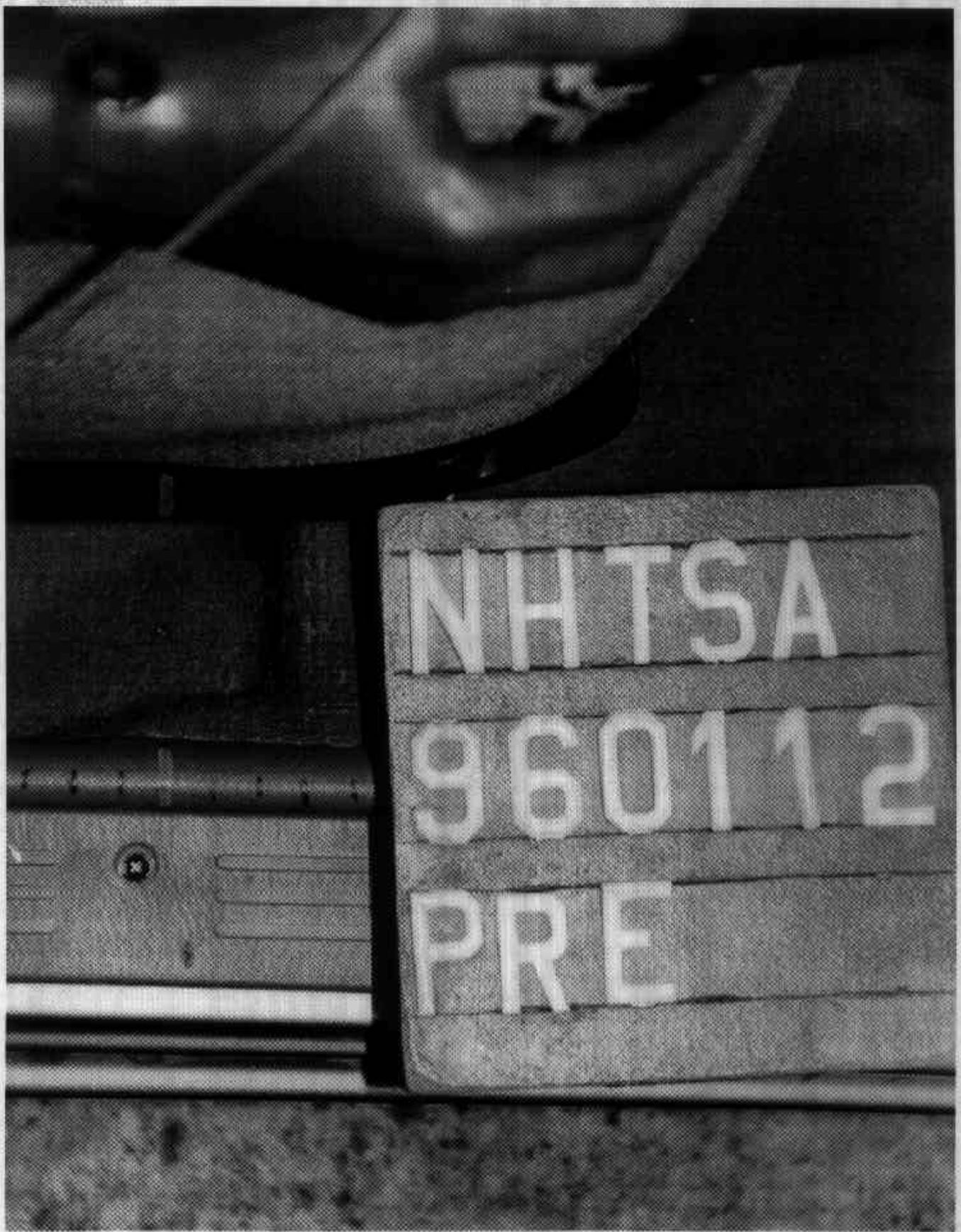


Figure A-12. Pre-Test Passenger's Seat Location View

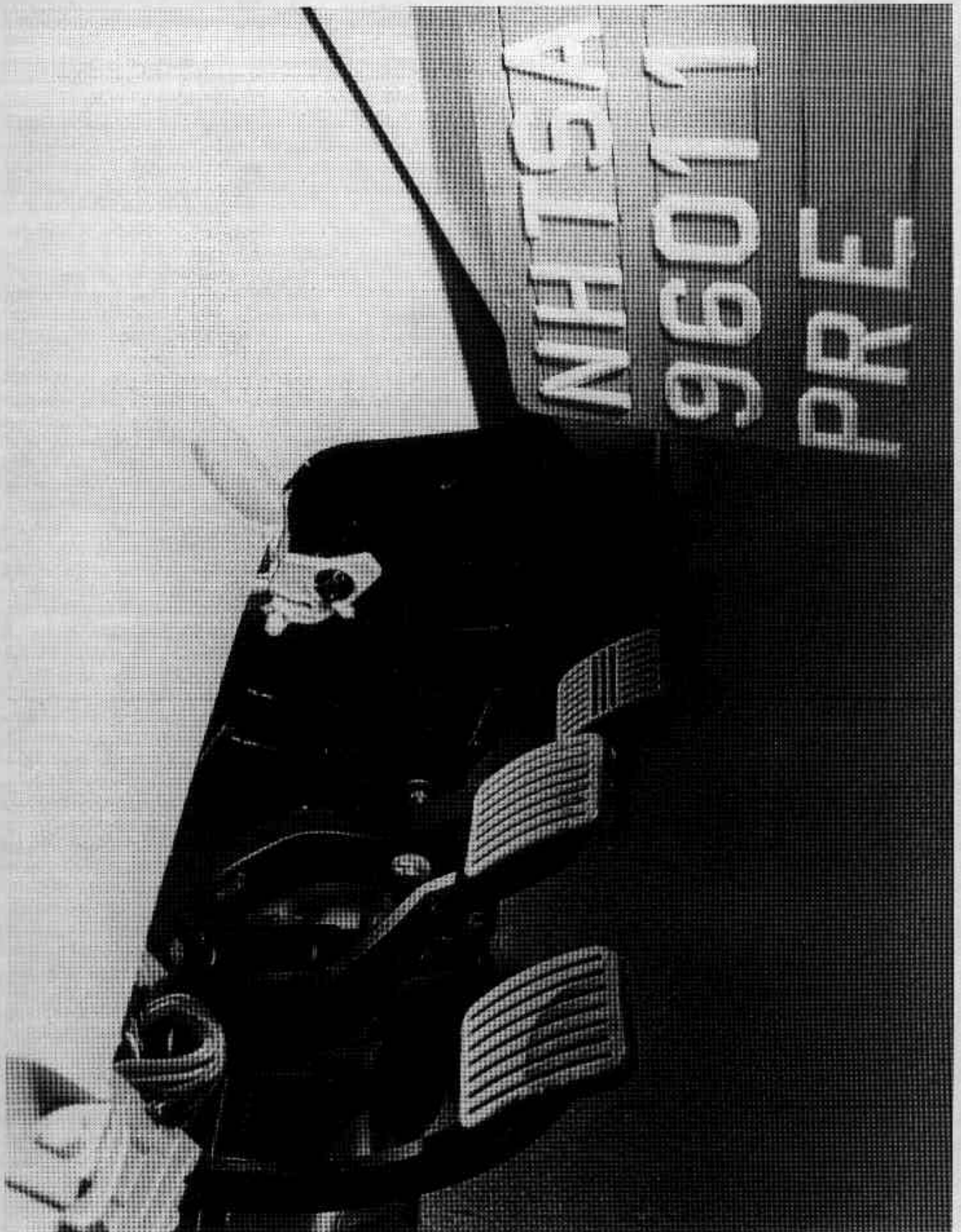


Figure A-13. Pre-Test Steering Column at Firewall View - Interior

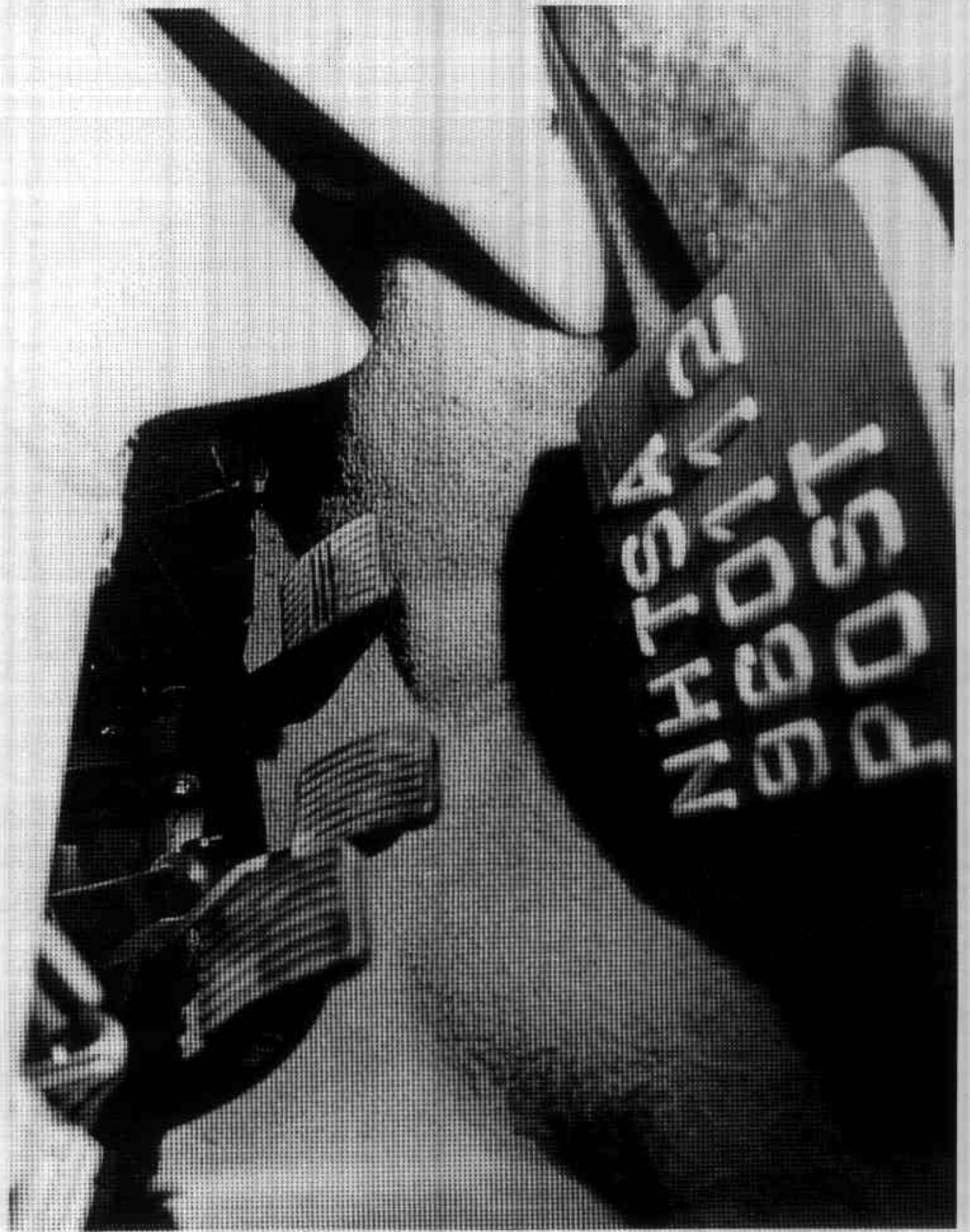


Figure A-14. Post-Test Steering Column at Firewall View - Interior

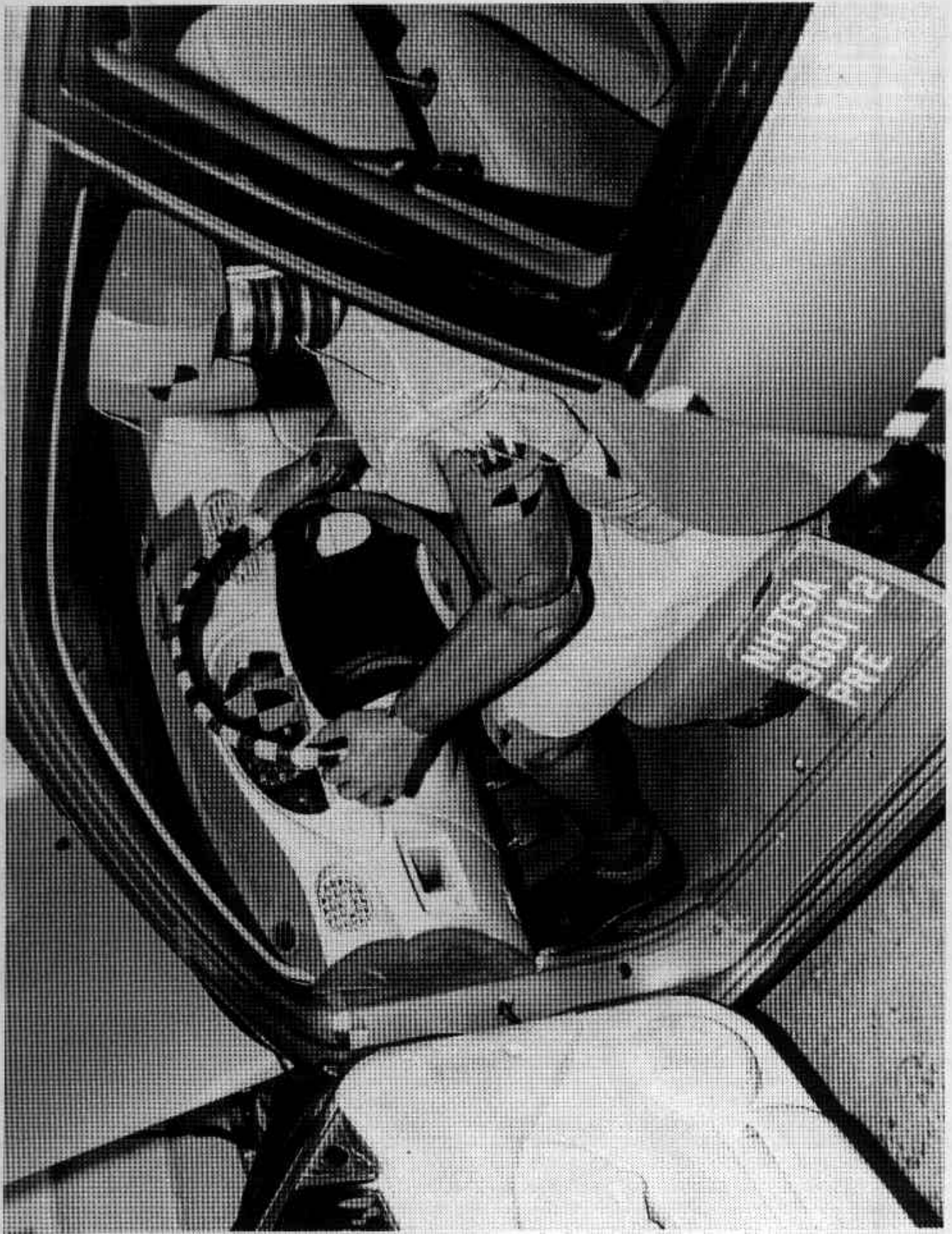


Figure A-15. Pre-Test Driver Dummy & Vehicle Interior - View I

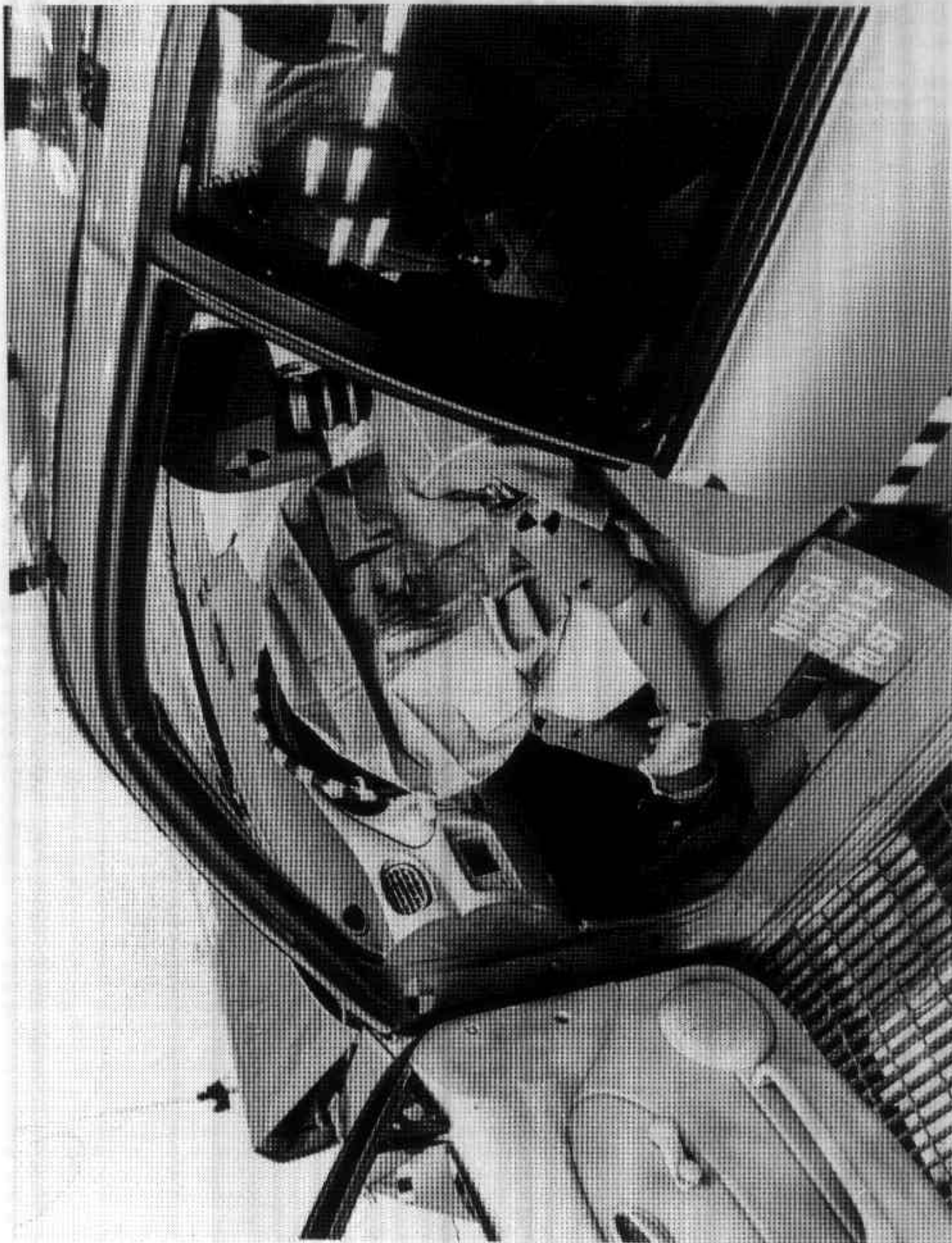


Figure A-16. Post-Test Driver Dummy & Vehicle Interior - View 1

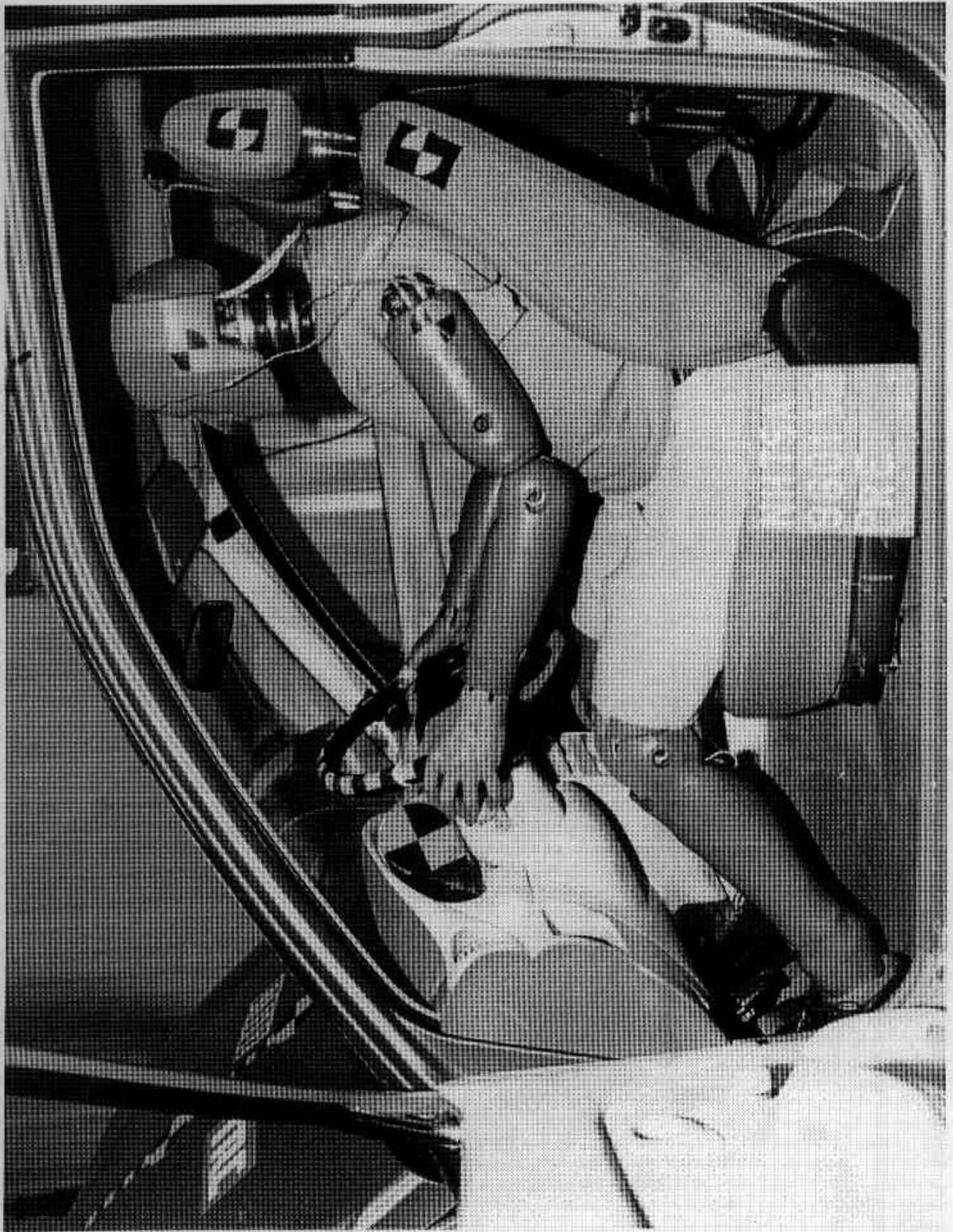


Figure A-17. Pre-Test Driver Dummy & Vehicle Interior - View 2



Figure A-18. Post-Test Driver Dummy & Vehicle Interior - View 2

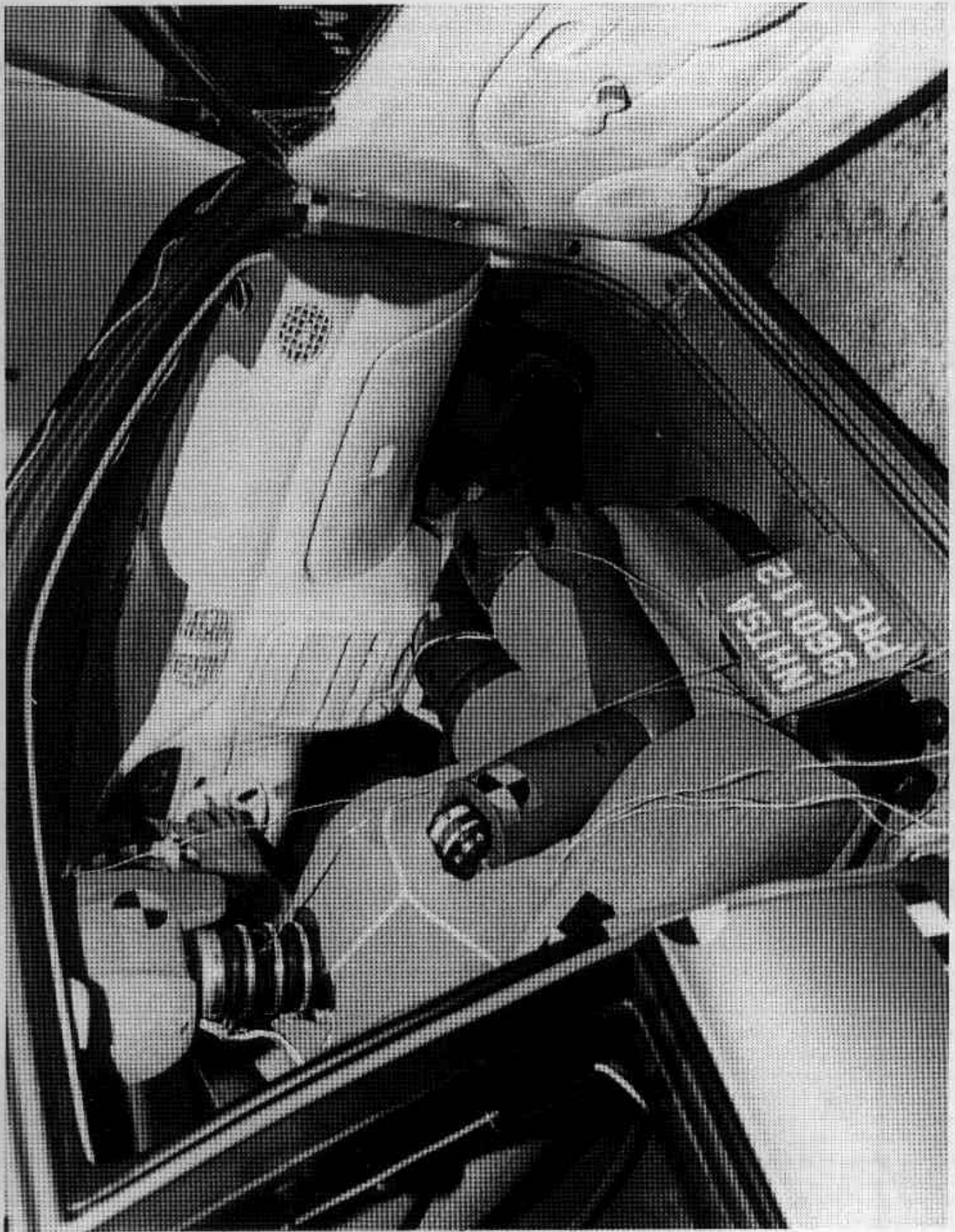


Figure A-19. Pre-Test Passenger Dummy & Vehicle Interior - View 1



Figure A-20. Post-Test Passenger Dummy & Vehicle Interior - View 1

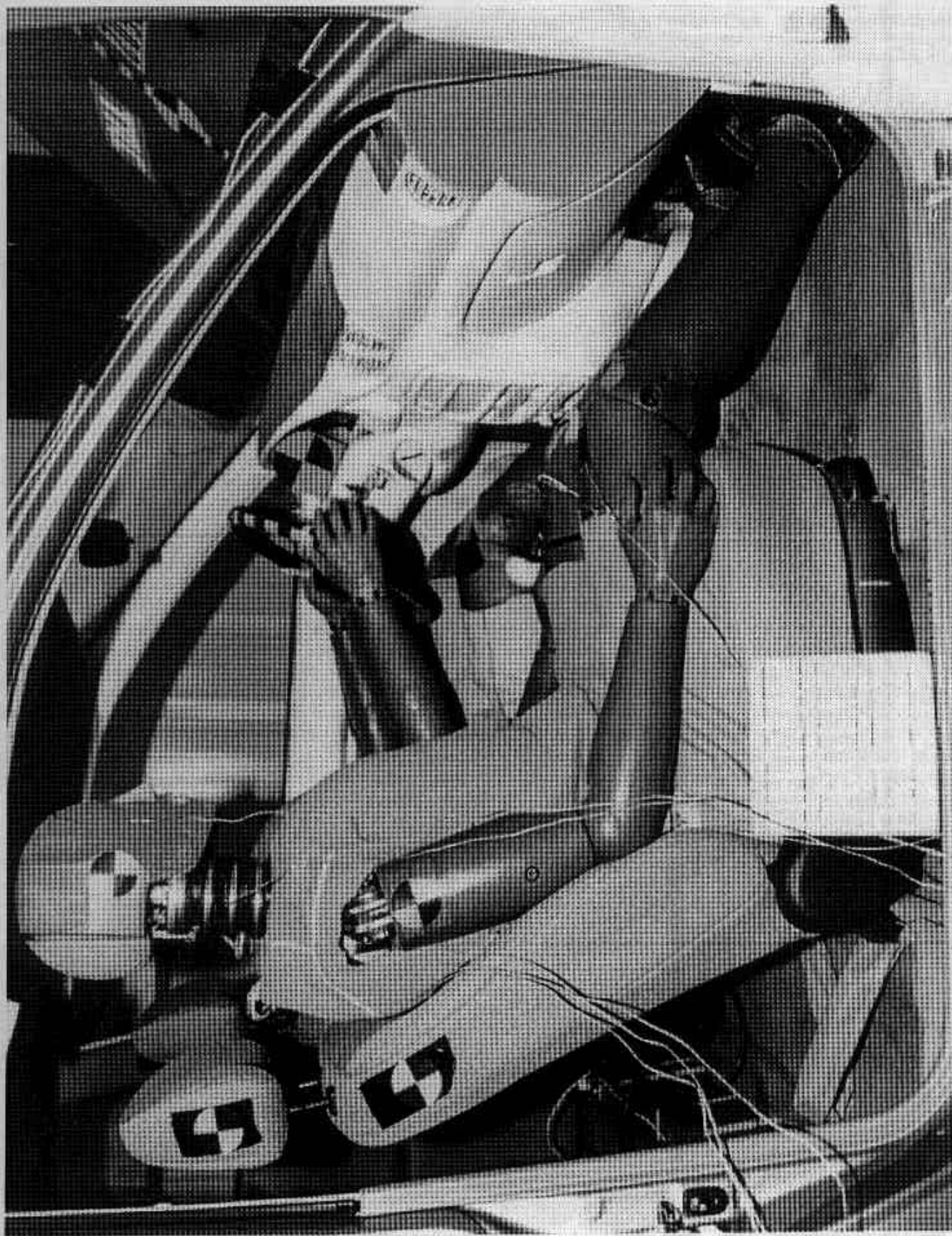


Figure A-21. Pre-Test Passenger Dummy & Vehicle Interior - View 2

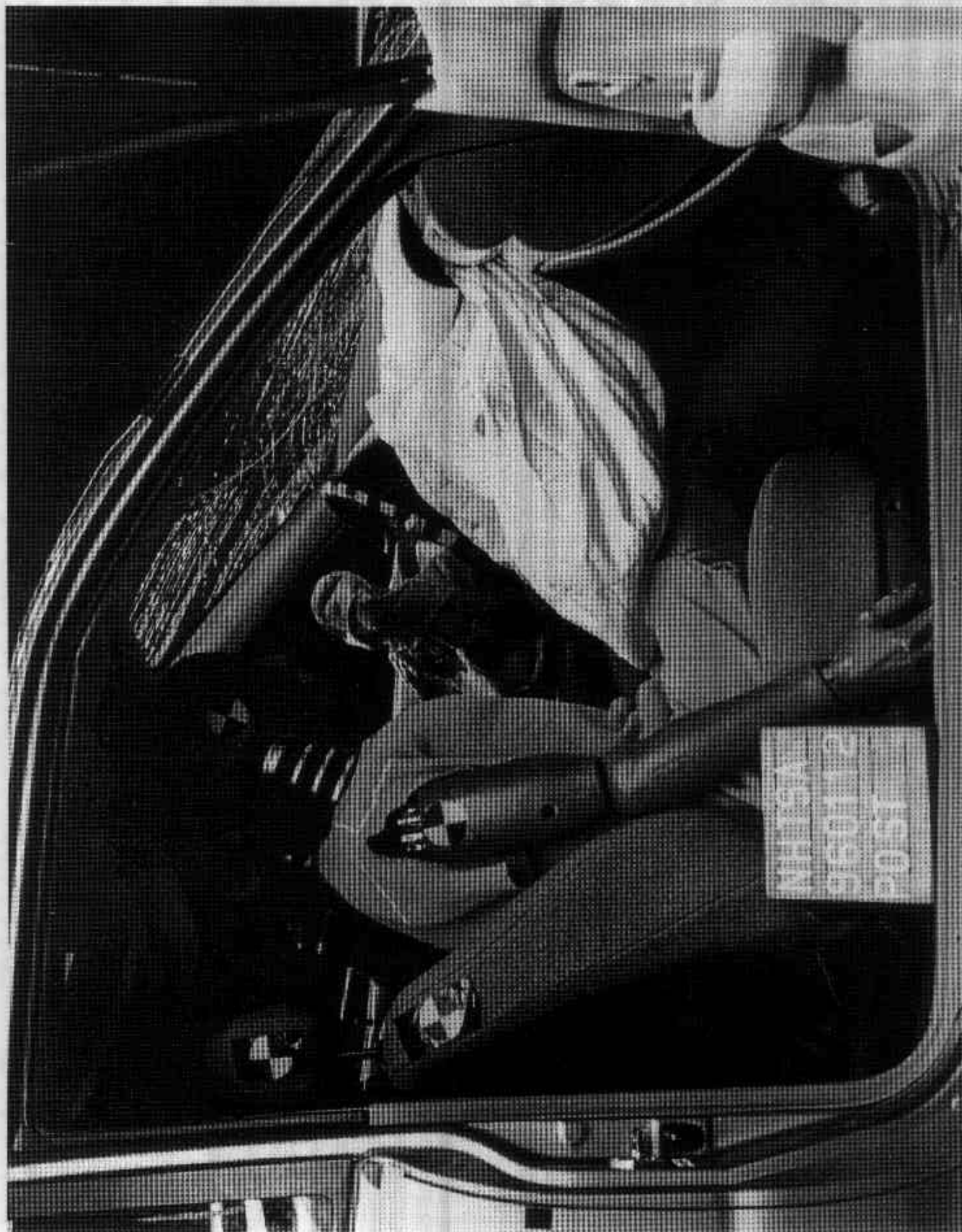


Figure A-22. Post-Test Passenger Dummy & Vehicle Interior - View 2

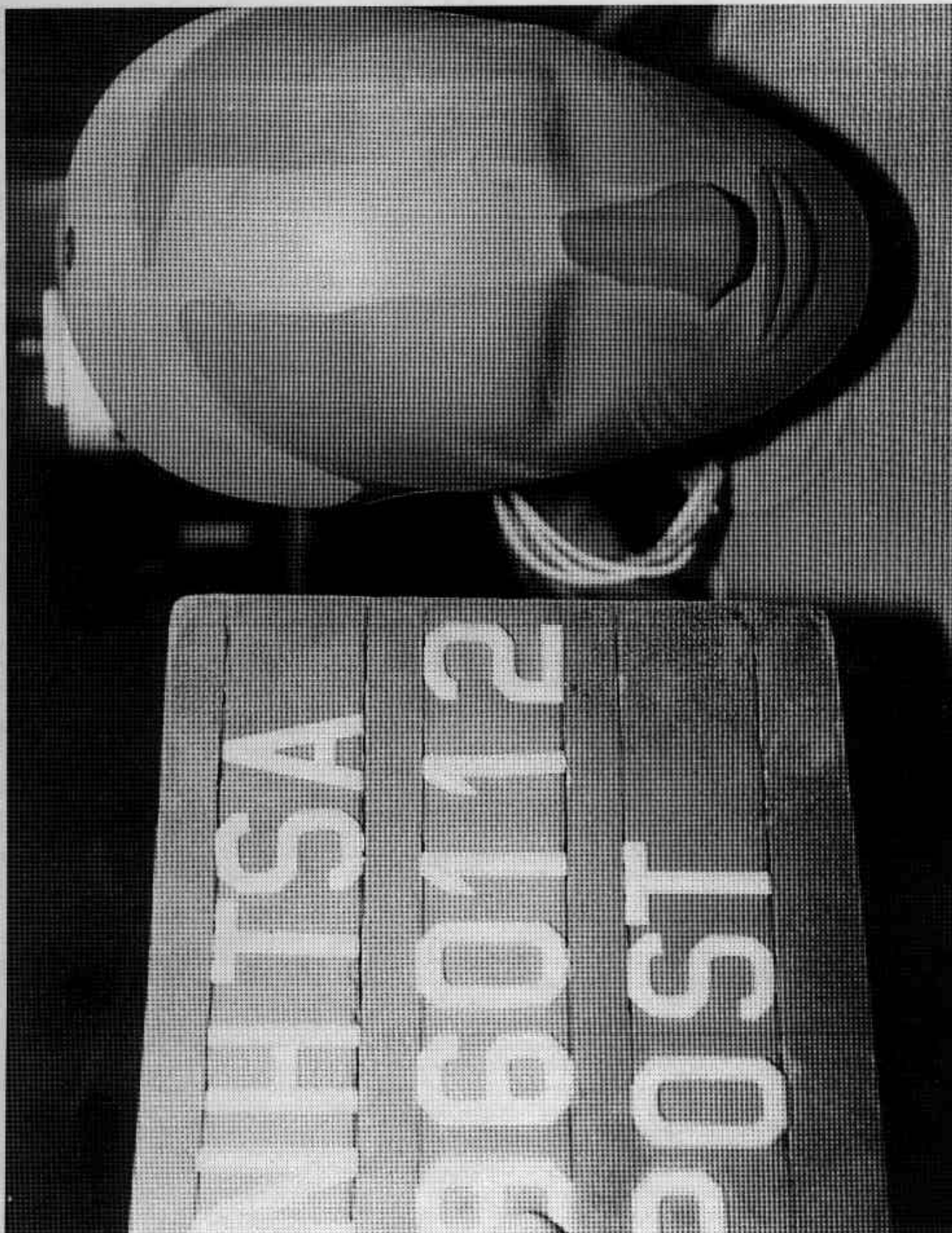


Figure A-23. Post-Test Driver Dummy Head Contact - View 1

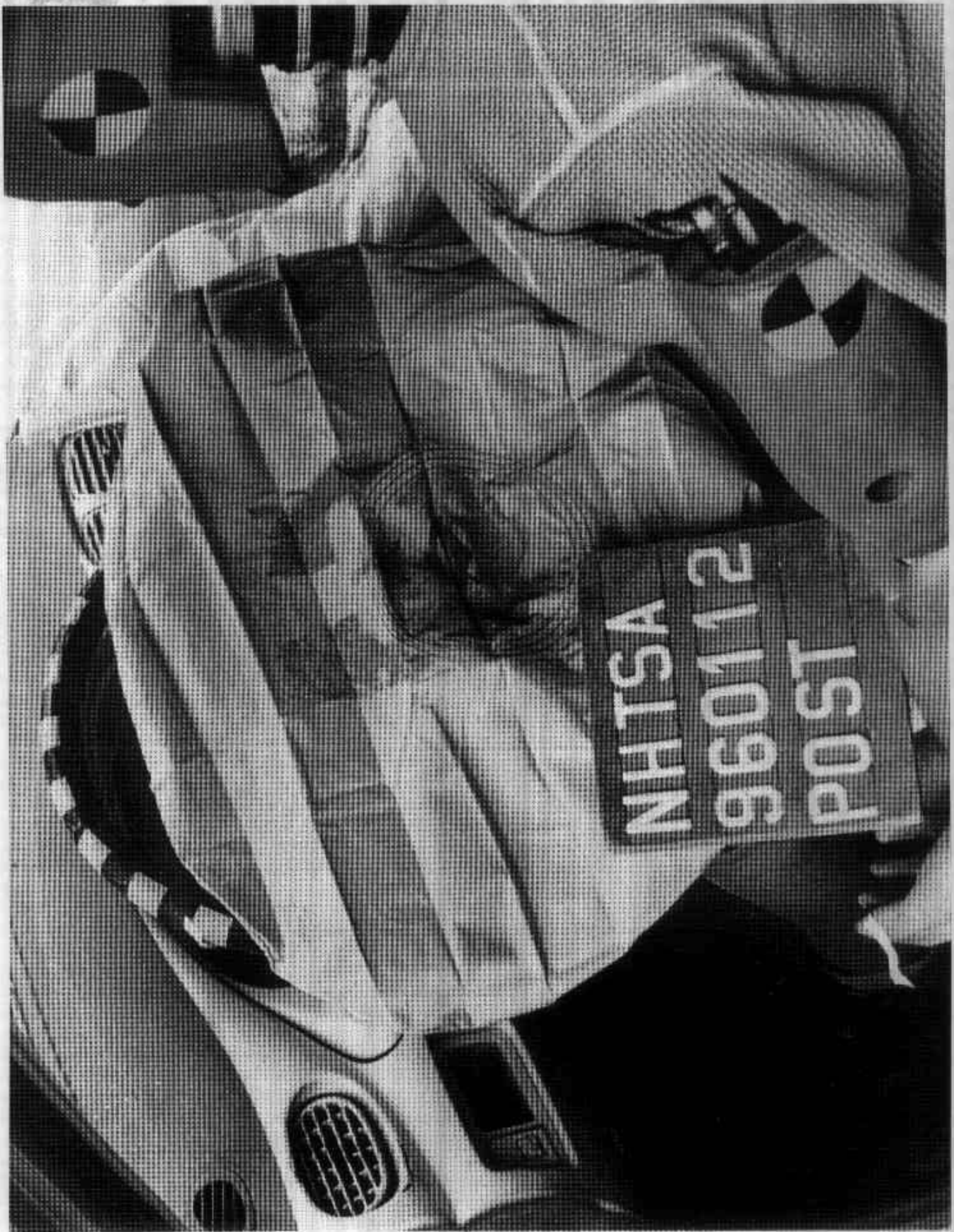


Figure A-24. Post-Test Driver Dummy Head Contact - View 2

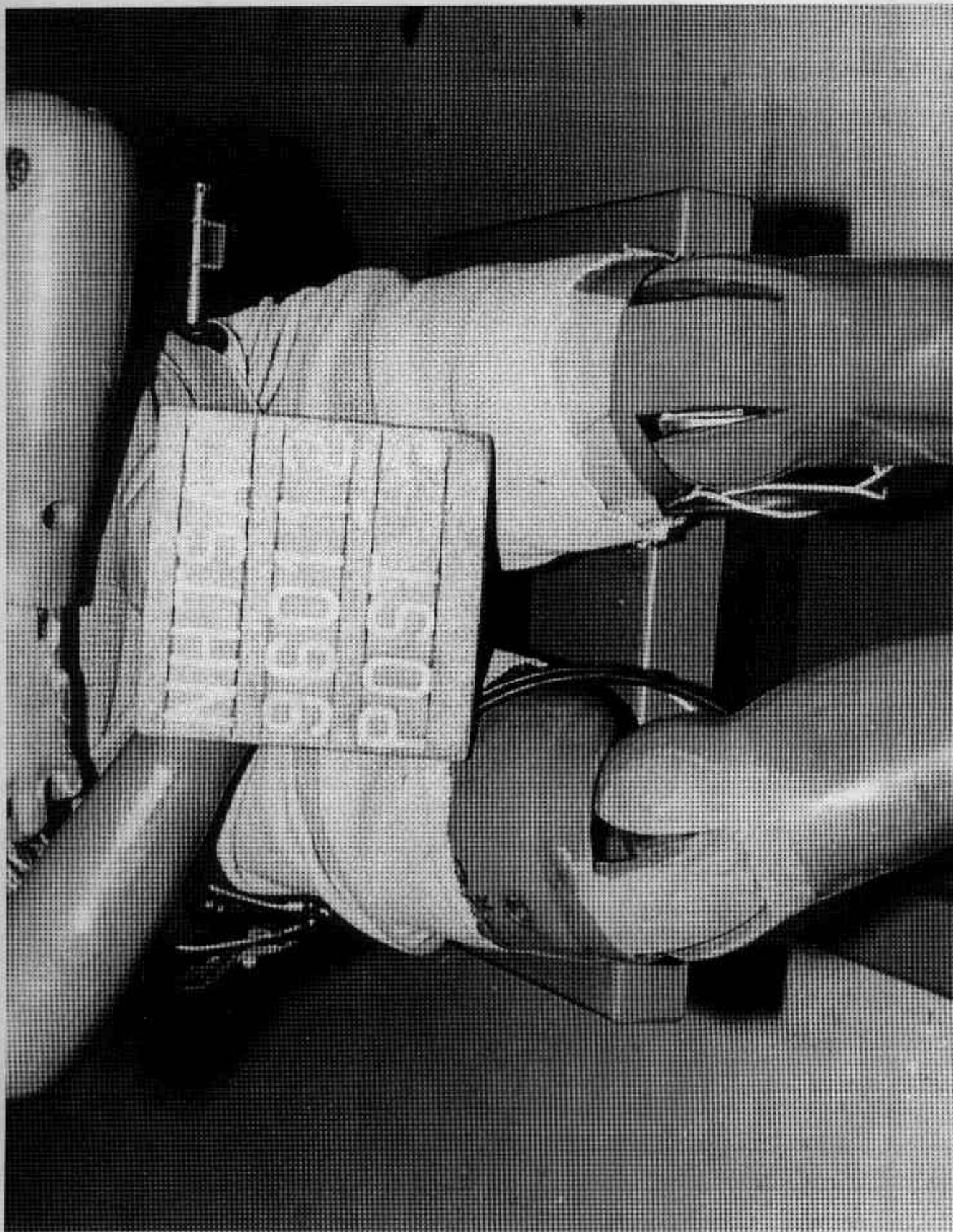


Figure A-25. Post-Test Driver Dummy Knee Contact - View 1

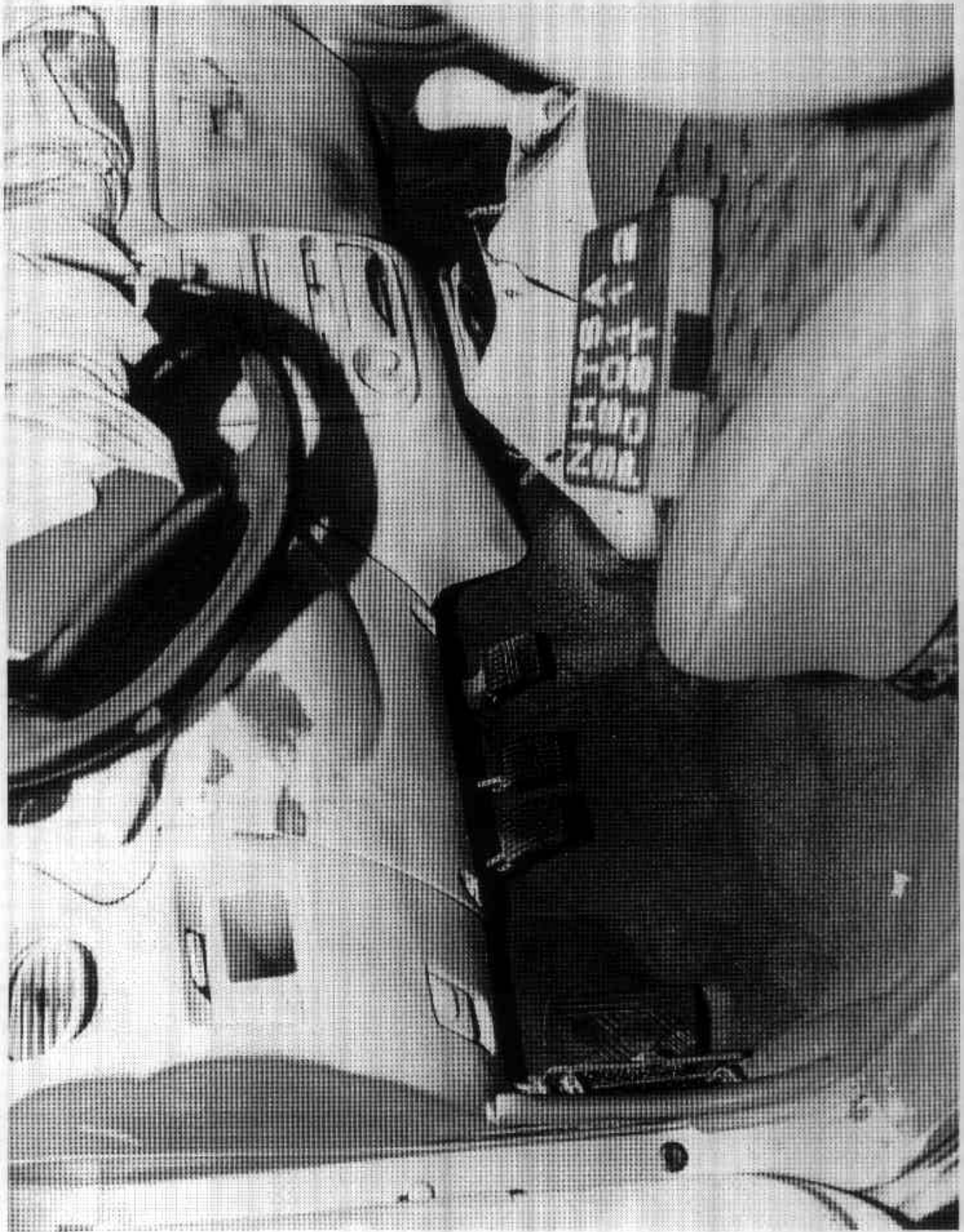


Figure A-26. Post-Test Driver Dummy Knee Contact - View 2

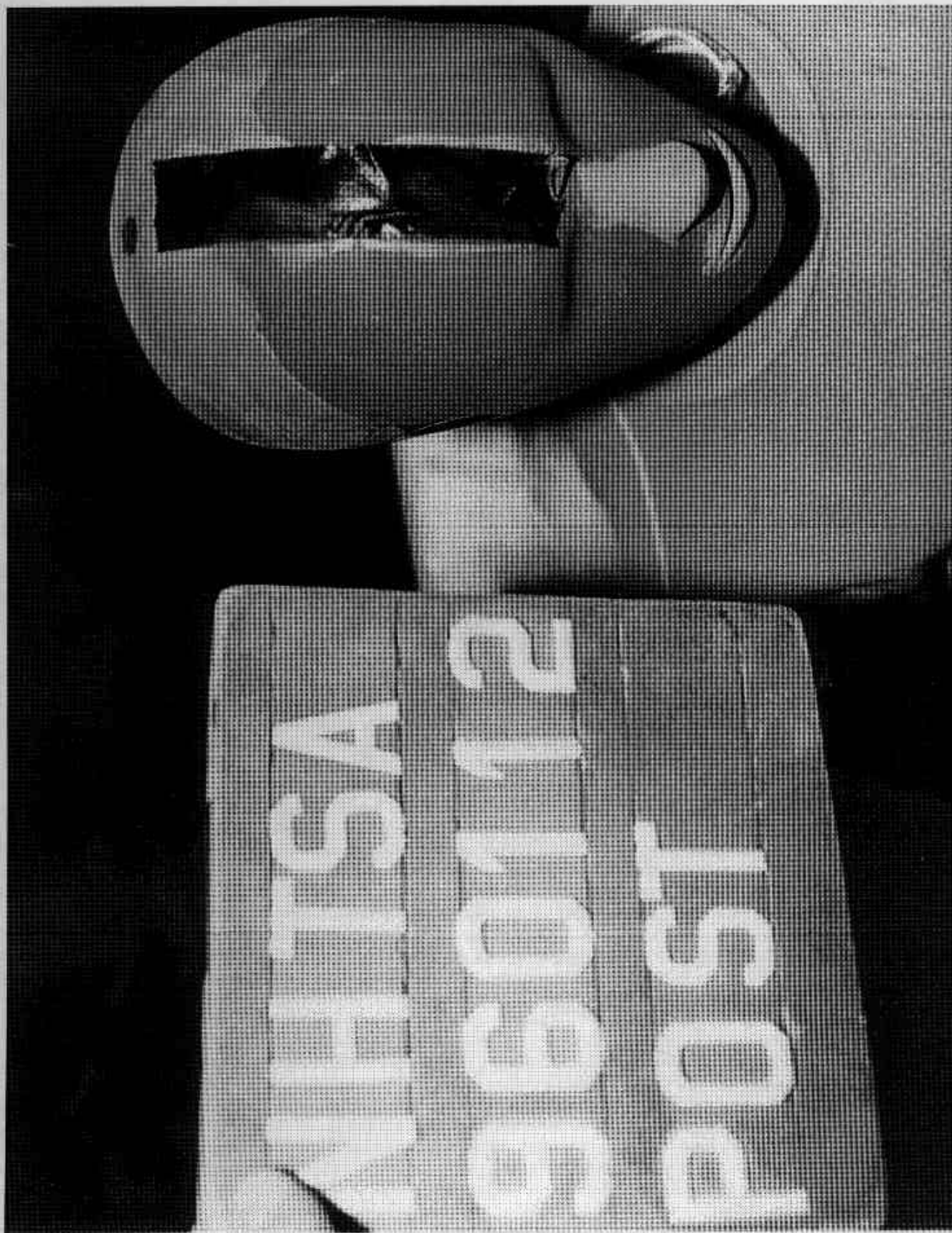


Figure A-27. Post-Test Passenger Dummy Head Contact - View 1



Figure A-28. Post-Test Passenger Dummy Head Contact - View 2



Figure A-29. Post-Test Passenger Dummy Knee Contact - View 1



Figure A-30. Post-Test Passenger Dummy Knee Contact - View 2

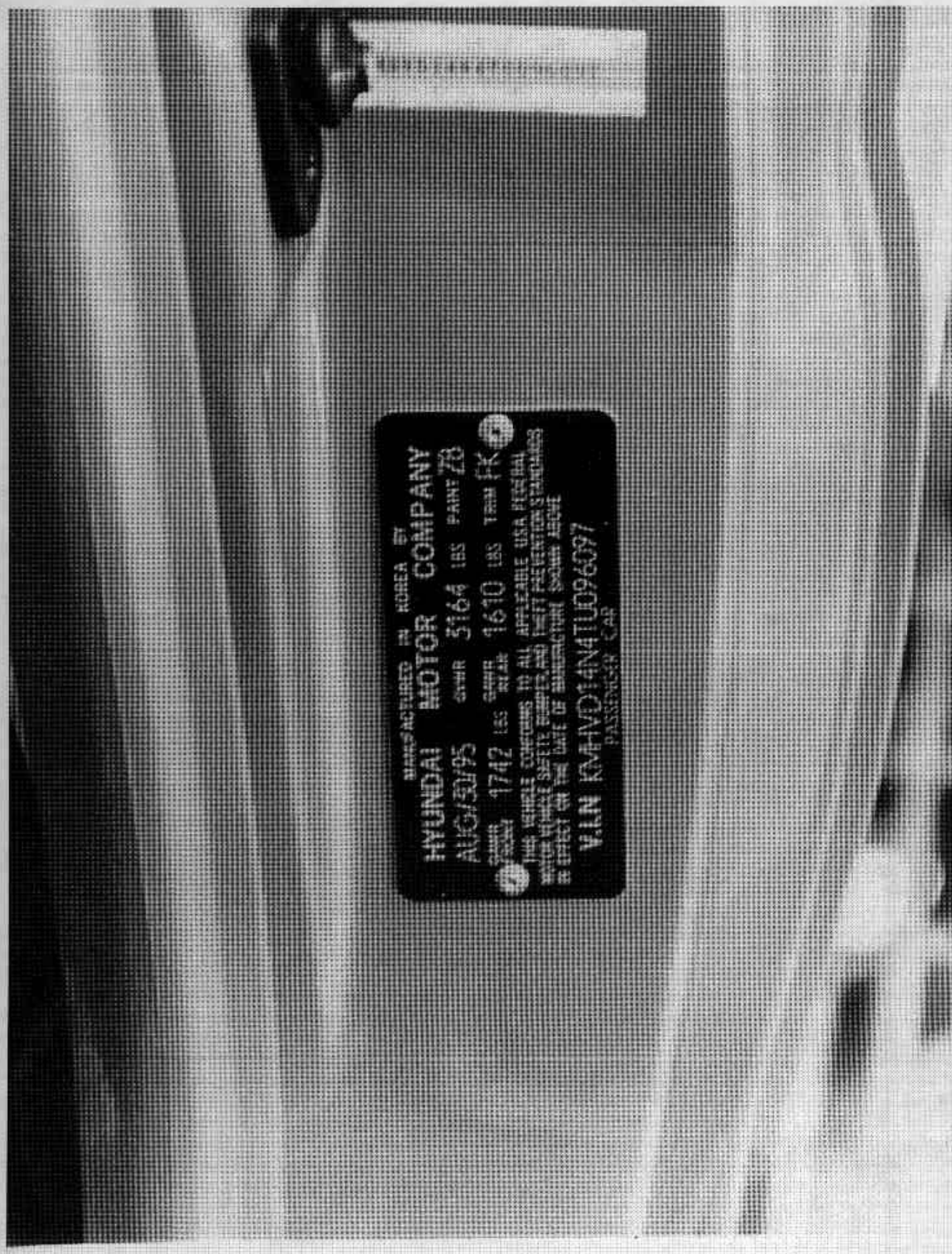


Figure A-31. Pre-Test Vehicle Certification Label View

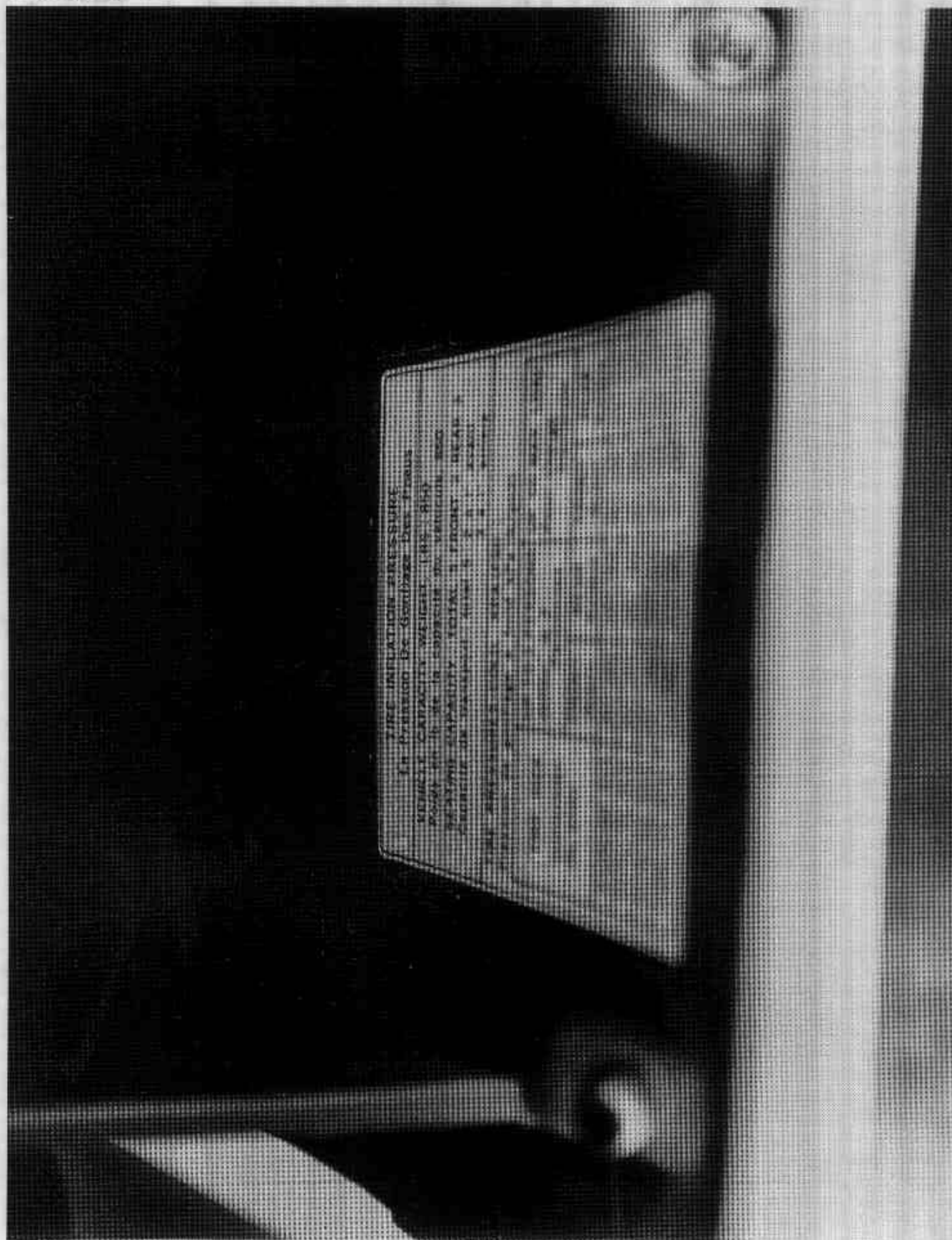


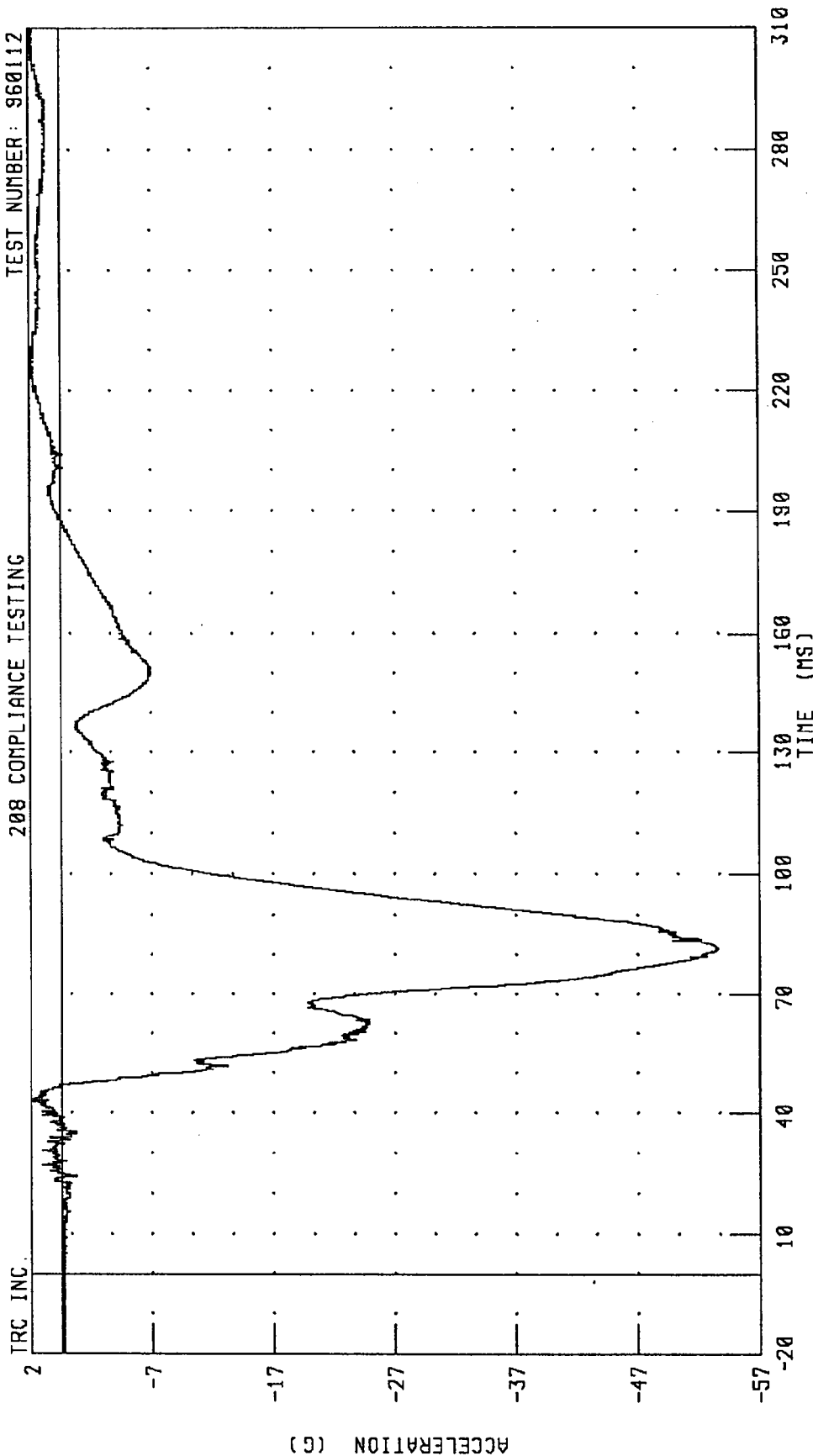
Figure A-32. Pre-Test Vehicle Recommended Tire Pressure Label View

Appendix B

Data Plots

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
208 COMPLIANCE TESTING

TEST NUMBER: 960112



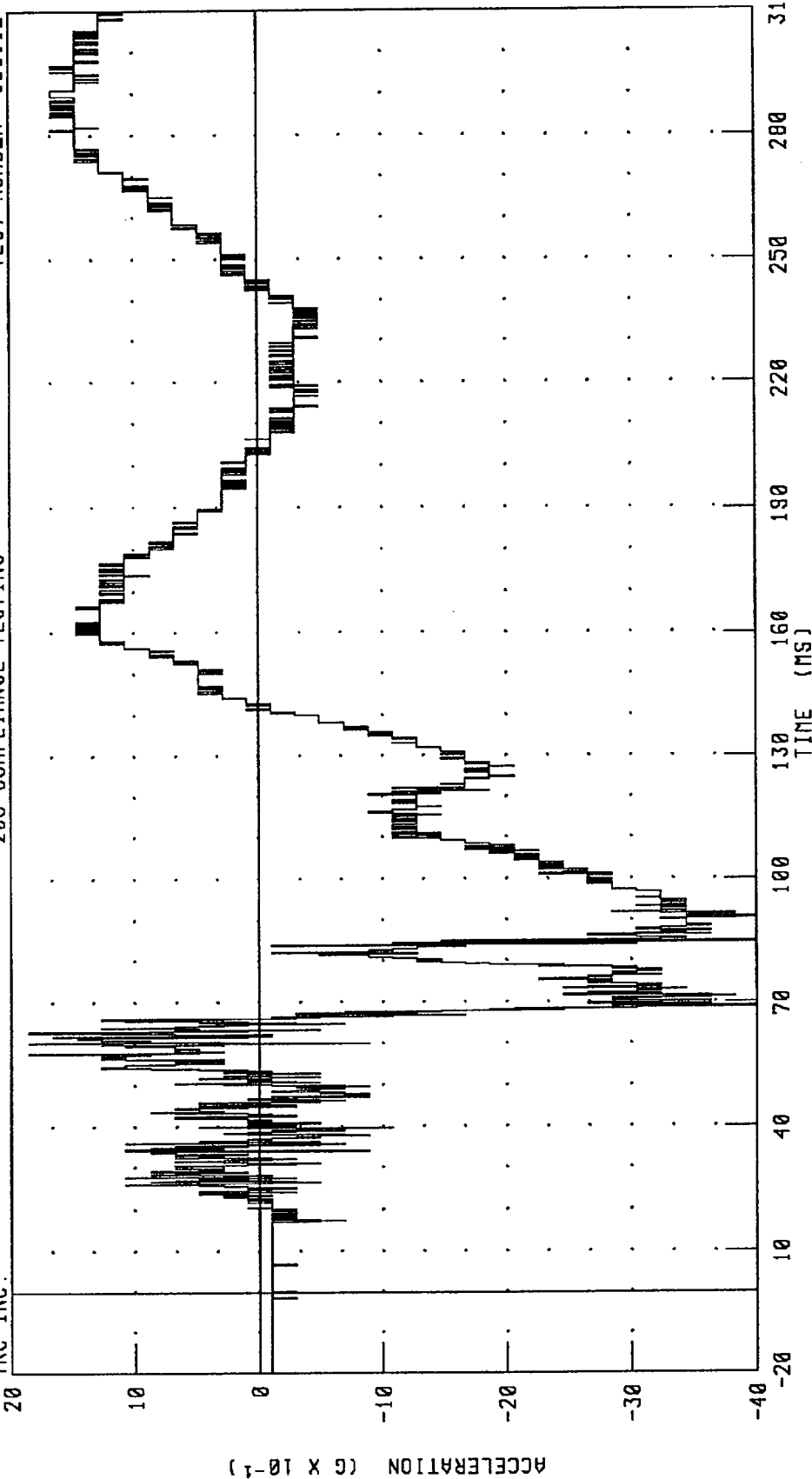
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 2.40 G @ 310.00 MS; -54.00 G @ 81.36 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION
 208 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.

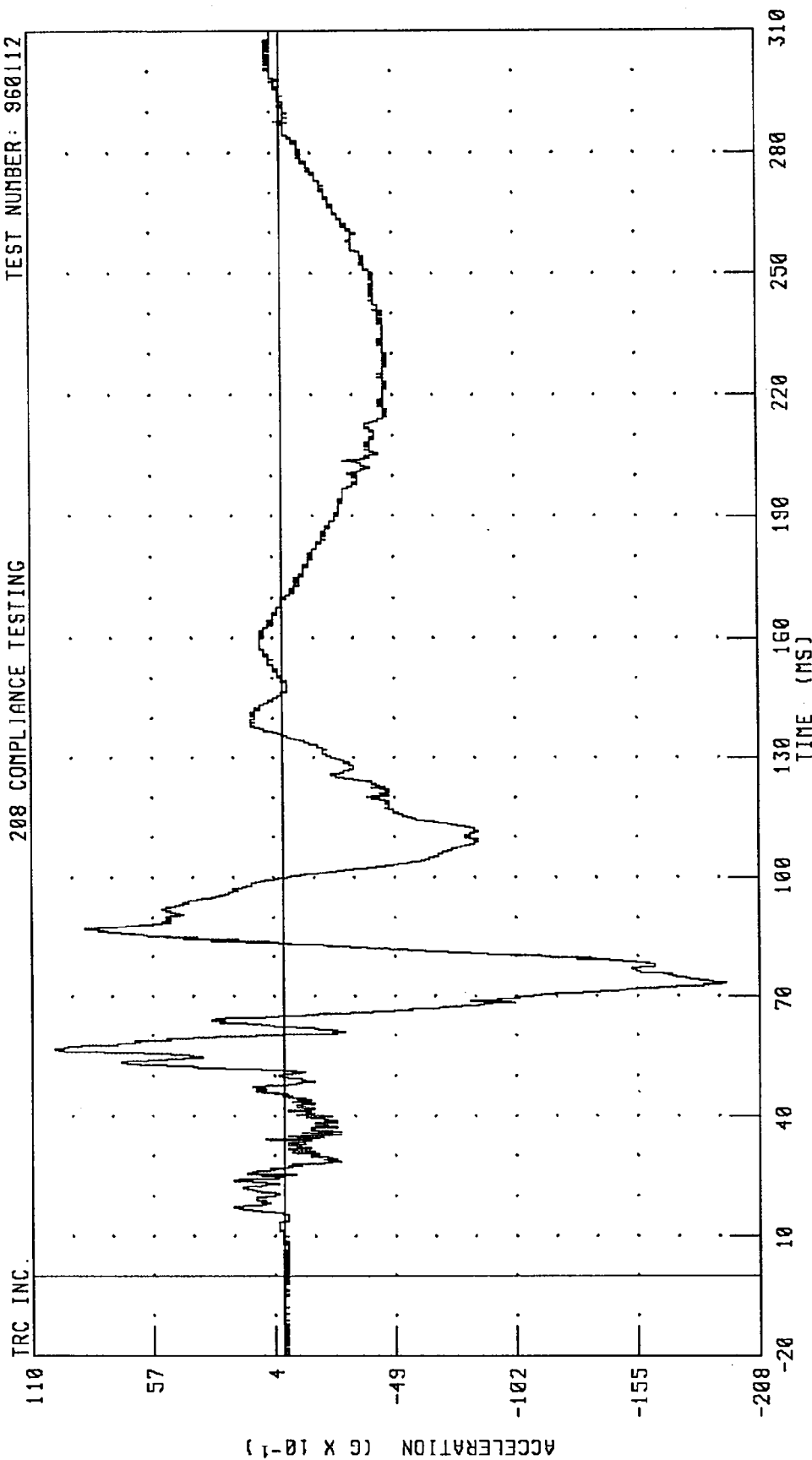


PEAK DATA: 1.85 G @ 57.68 MS; -4.02 G @ 68.80 MS

CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 208 COMPLIANCE TESTING

TEST NUMBER: 960112



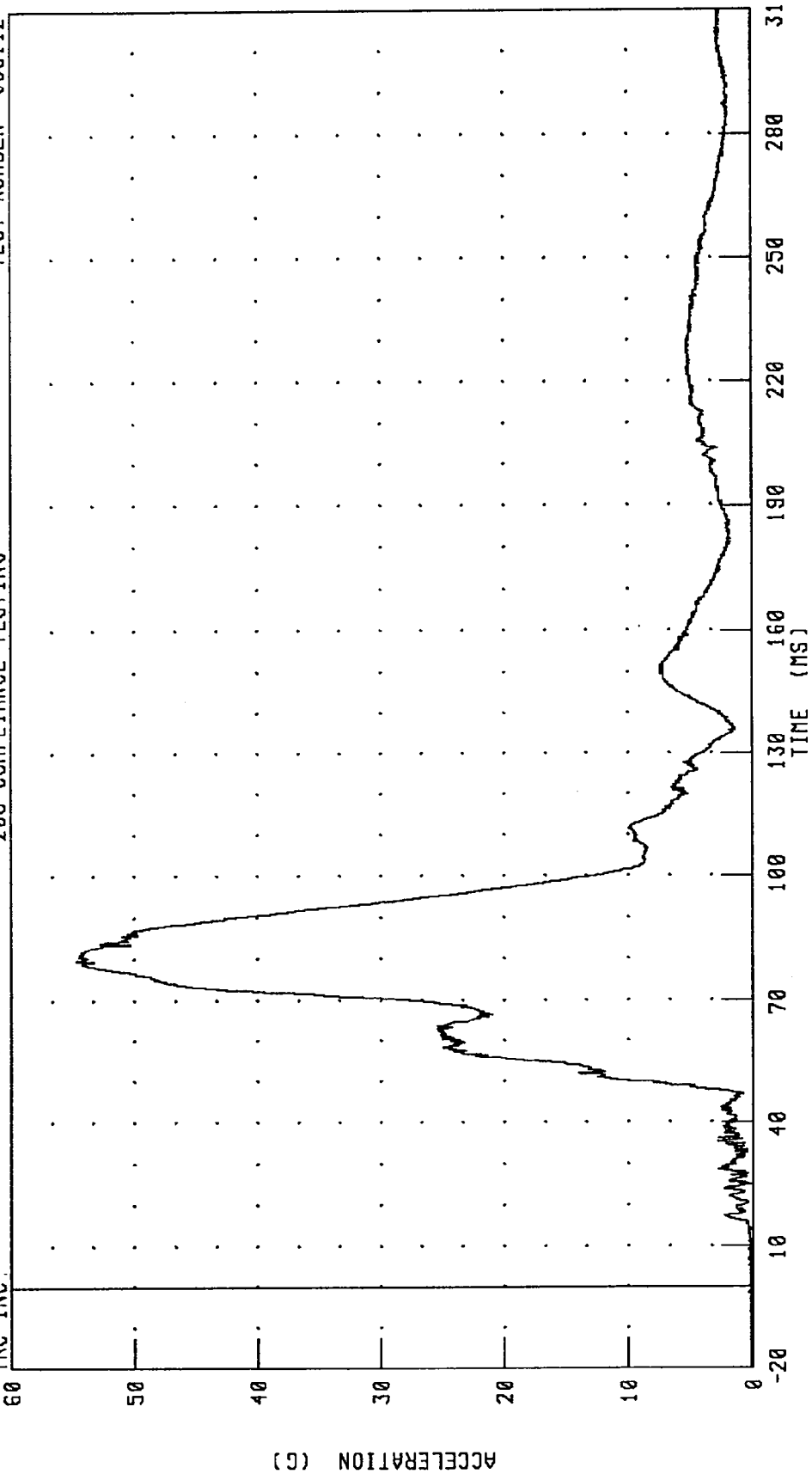
PEAK DATA: 10.01 G @ 56.48 MS; -19.36 G @ 73.20 MS

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
208 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.

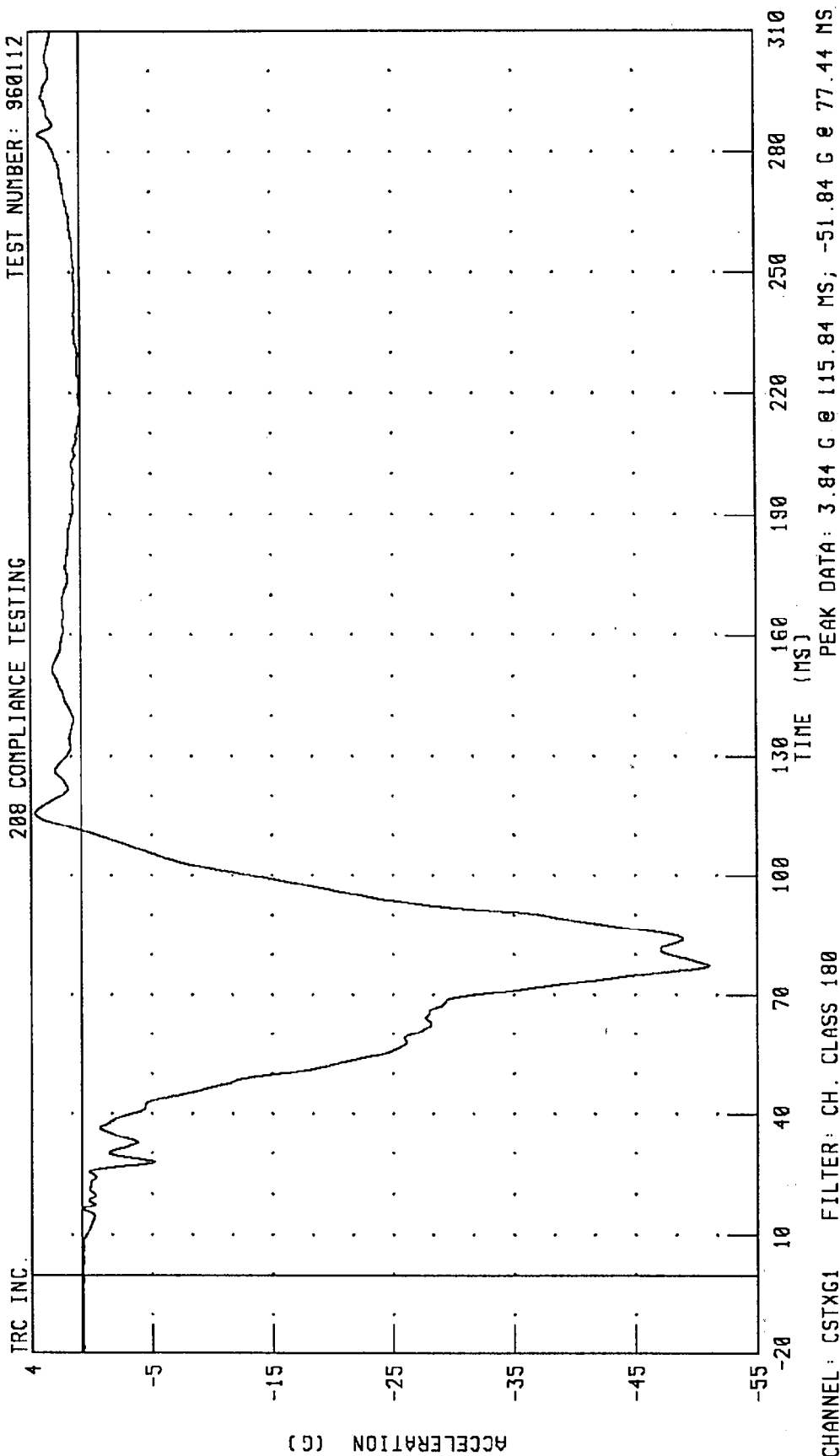


CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 54.73 G @ 79.76 MS; 0.12 G @ -19.76 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION
 208 COMPLIANCE TESTING

TEST NUMBER: 960112

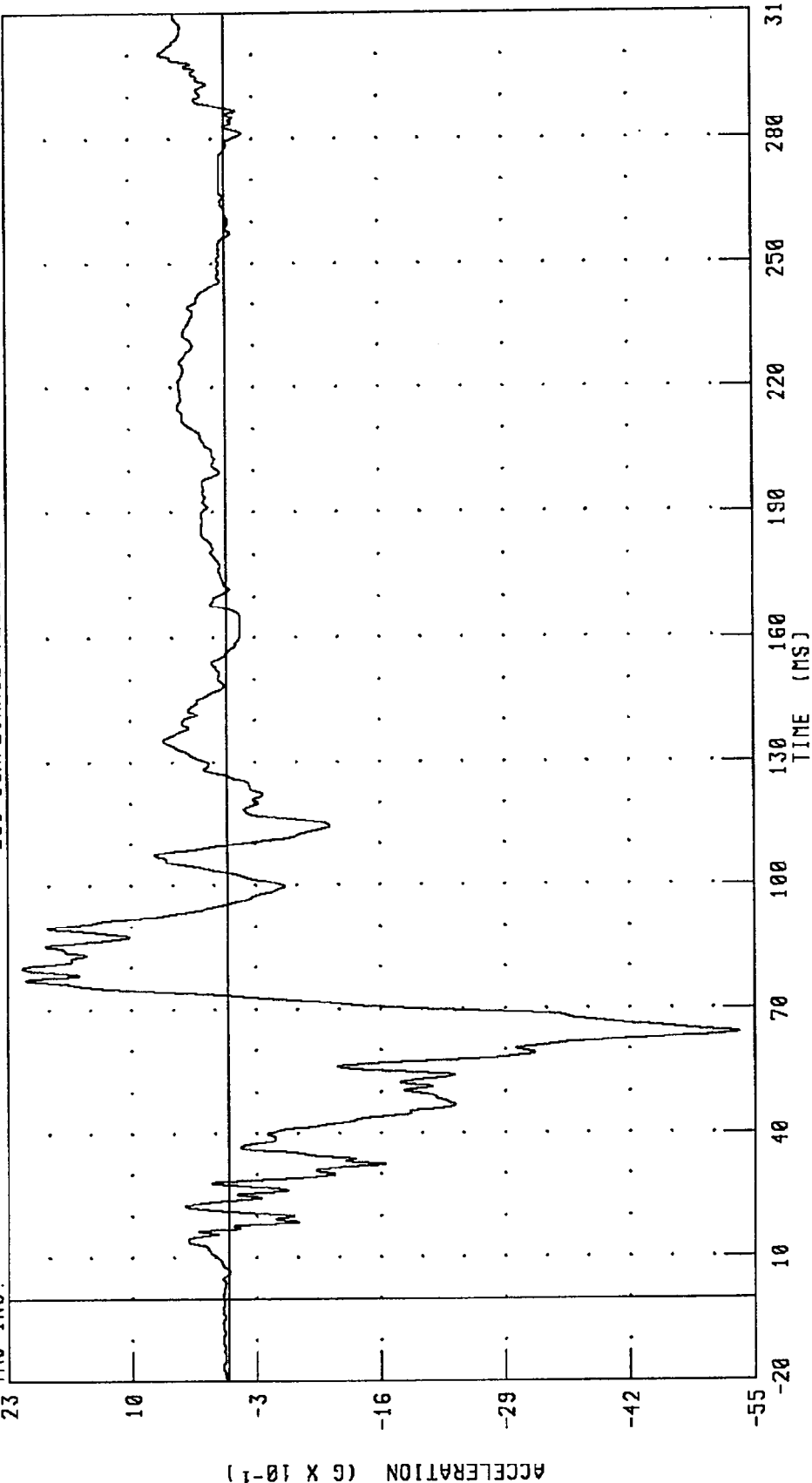


CHANNEL: CSTXG1 FILTER: CH. CLASS 180

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION
 208 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.

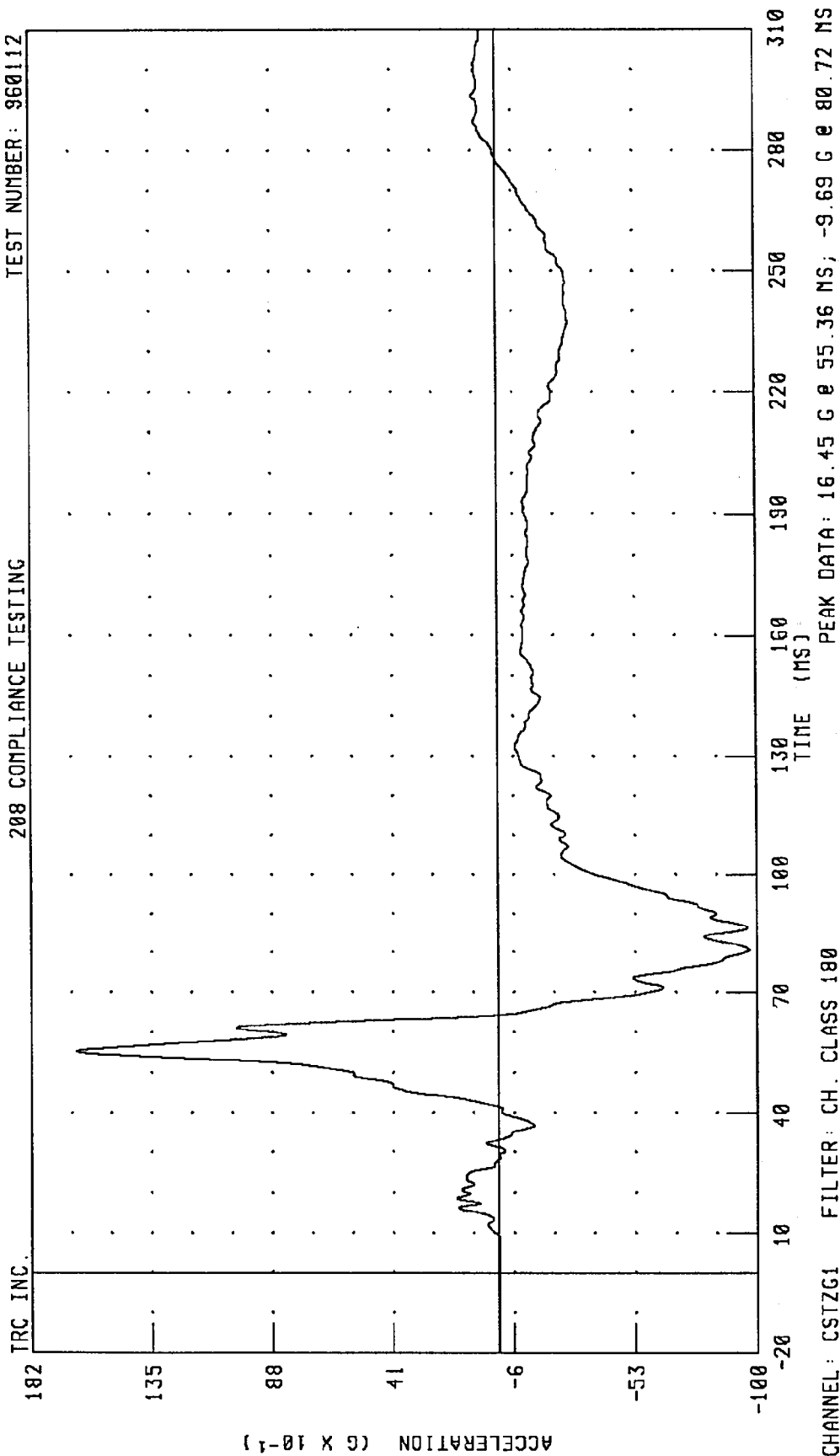


CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 2.15 G @ 80.08 MS; -5.34 G @ 64.16 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION
 208 COMPLIANCE TESTING

TEST NUMBER: 960112

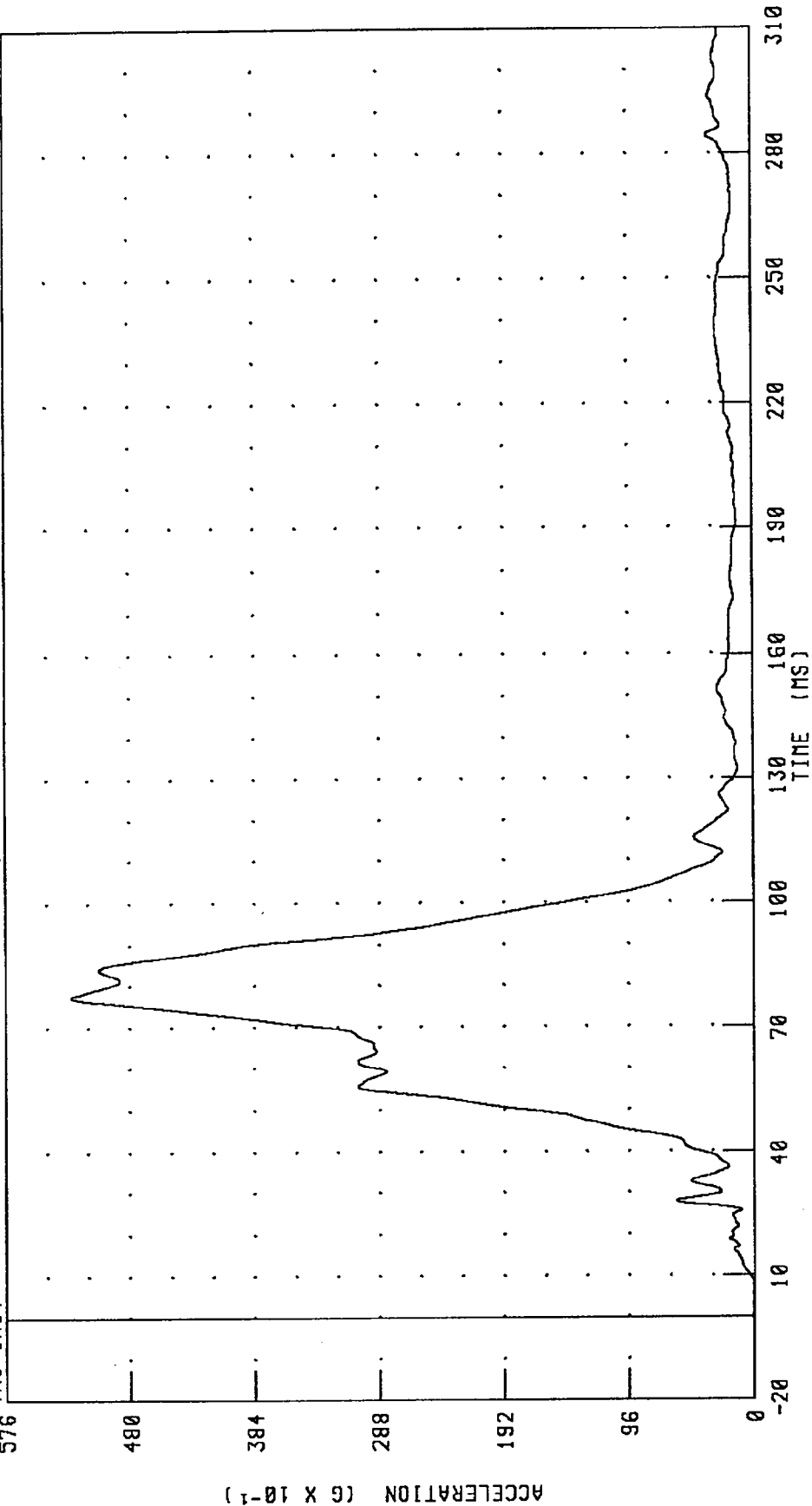


1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER CHEST RESULTANT ACCELERATION

200 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.

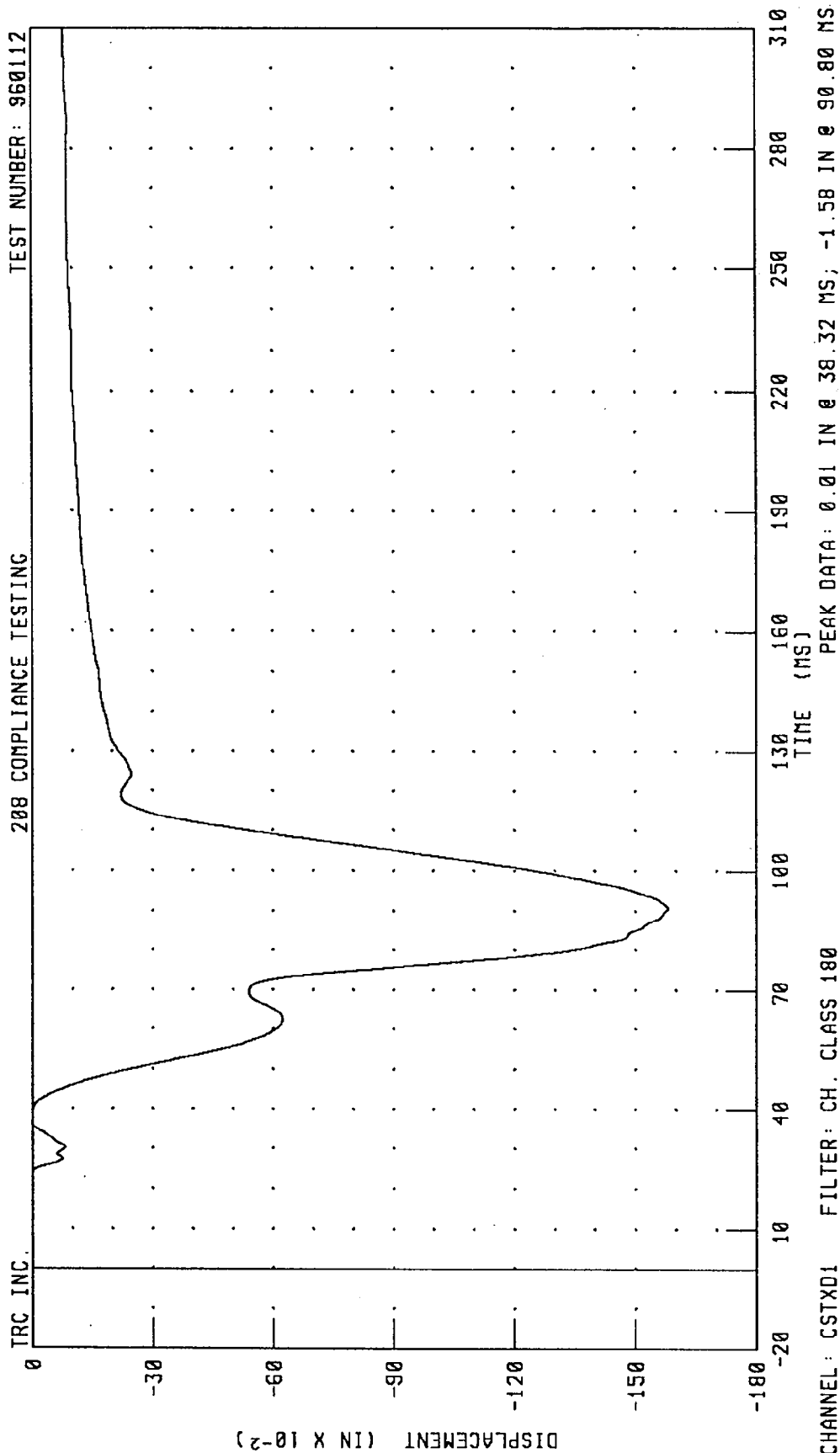


CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 52.57 G @ 77.44 MS; 0.01 G @ -20.00 MS

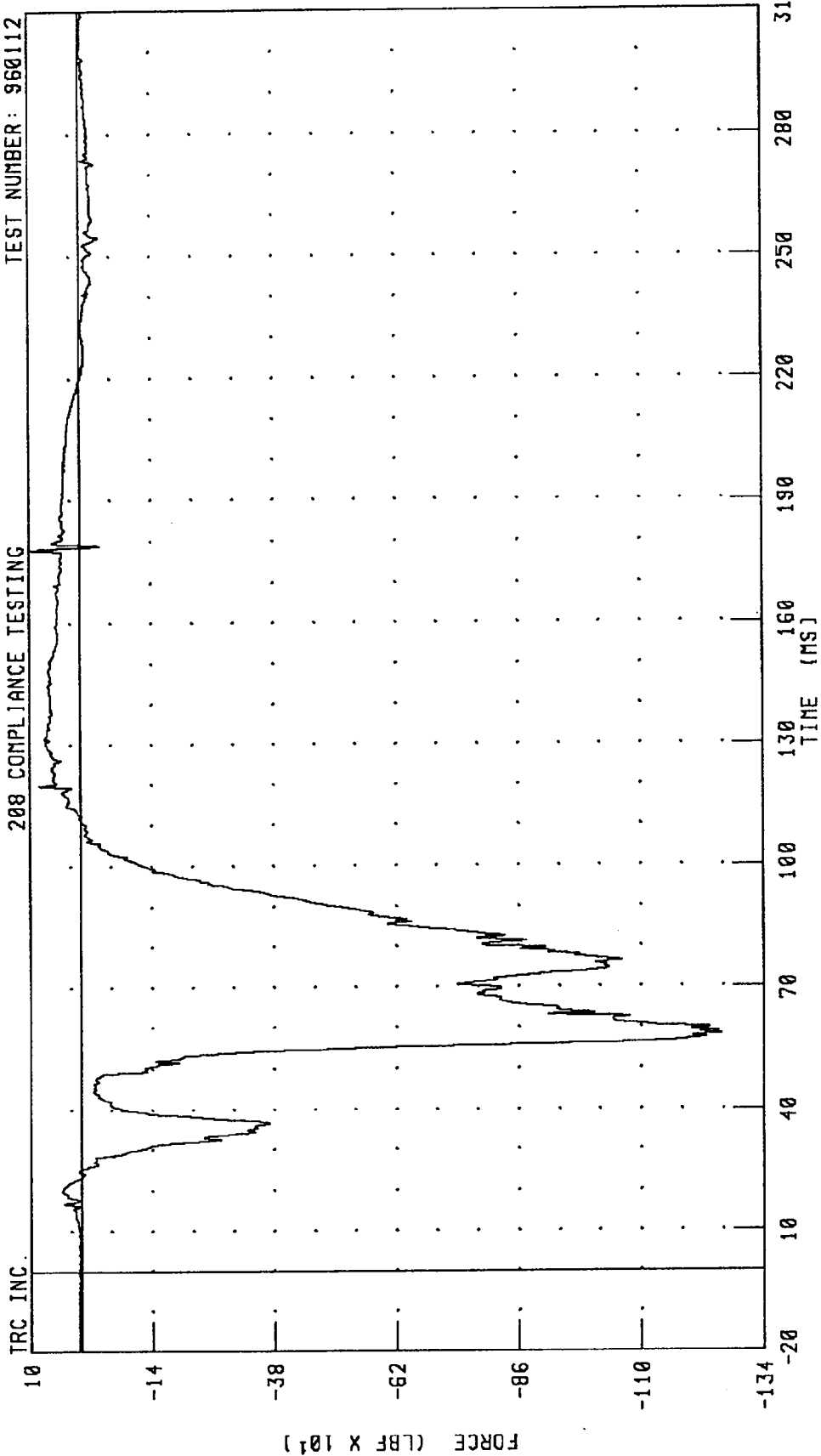
1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER CHEST DEFLECTION
 208 COMPLIANCE TESTING

TEST NUMBER: 960112



1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER LEFT FEMUR FORCE
 208 COMPLIANCE TESTING

TEST NUMBER: 960112



PEAK DATA: 98.89 LBF @ 178.08 MS; -1255.73 LBF @ 58.16 MS

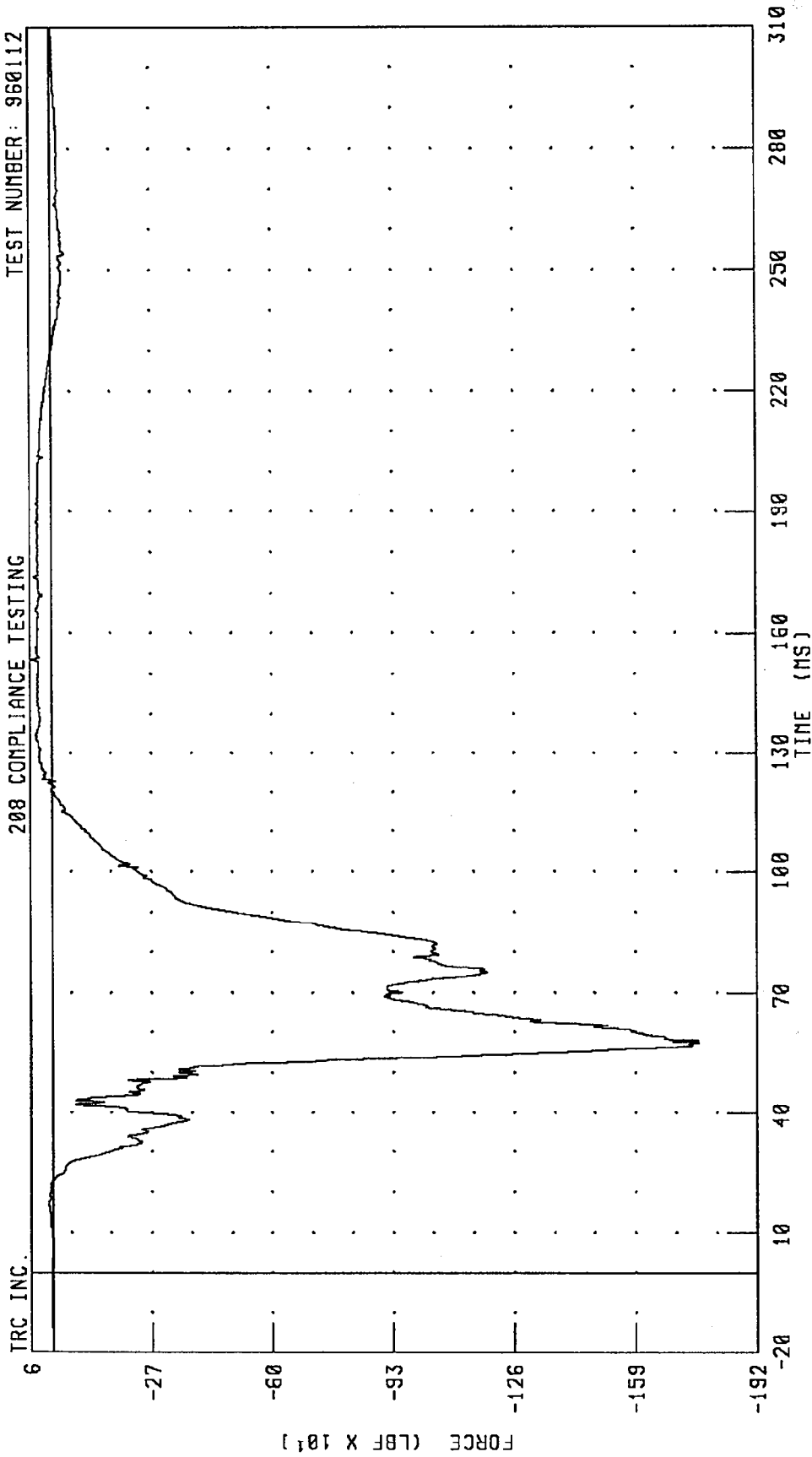
CHANNEL: LFMF1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER

DRIVER RIGHT FEMUR FORCE

208 COMPLIANCE TESTING

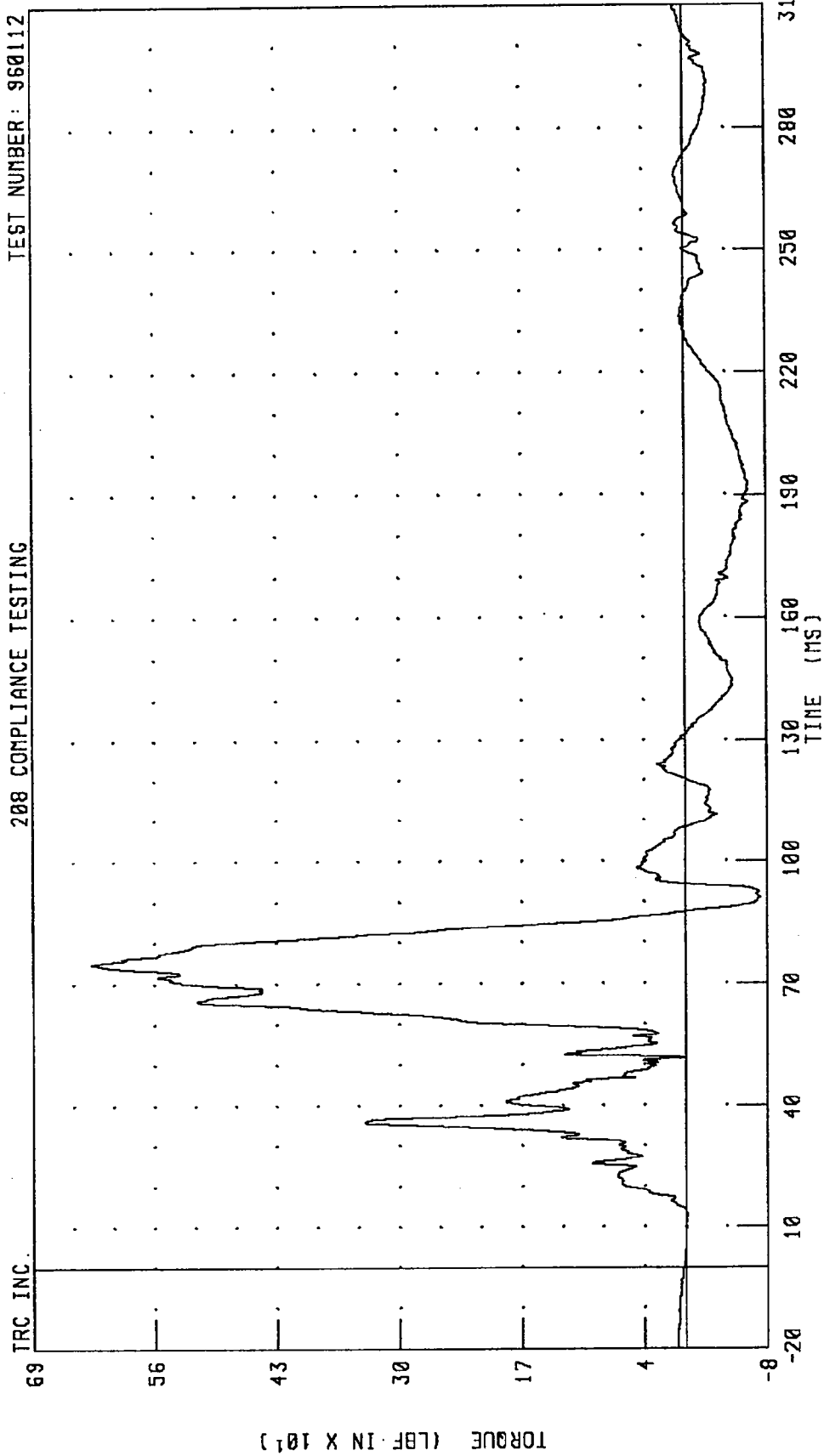
TEST NUMBER: 960112



1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X-AXIS

TEST NUMBER: 960112

208 COMPLIANCE TESTING

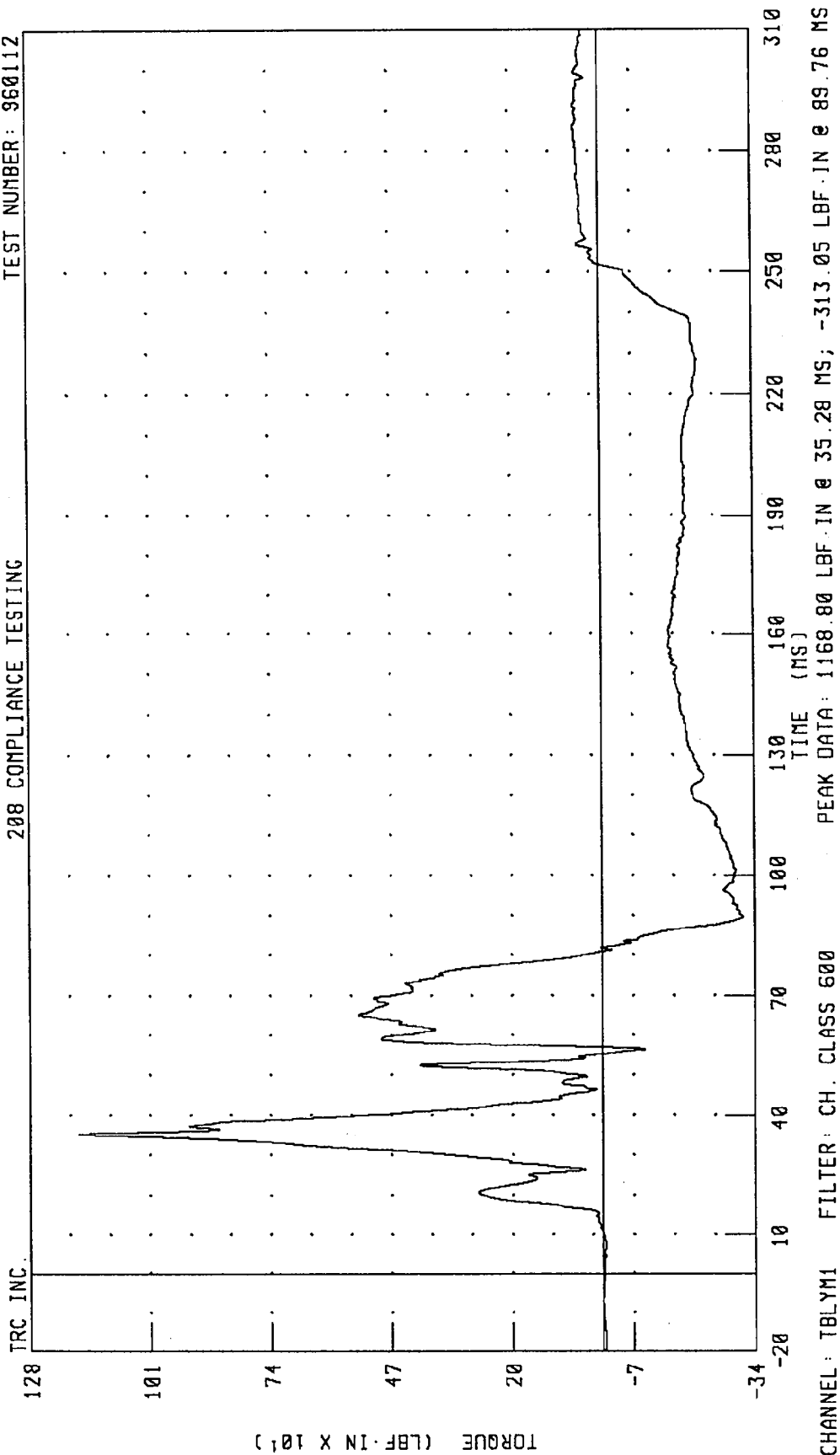


PEAK DATA: 631.52 LBF-IN @ 74.96 MS; -78.83 LBF-IN @ 90.88 MS

CHANNEL: TBLXM1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y-AXIS
 208 COMPLIANCE TESTING

TEST NUMBER: 960112



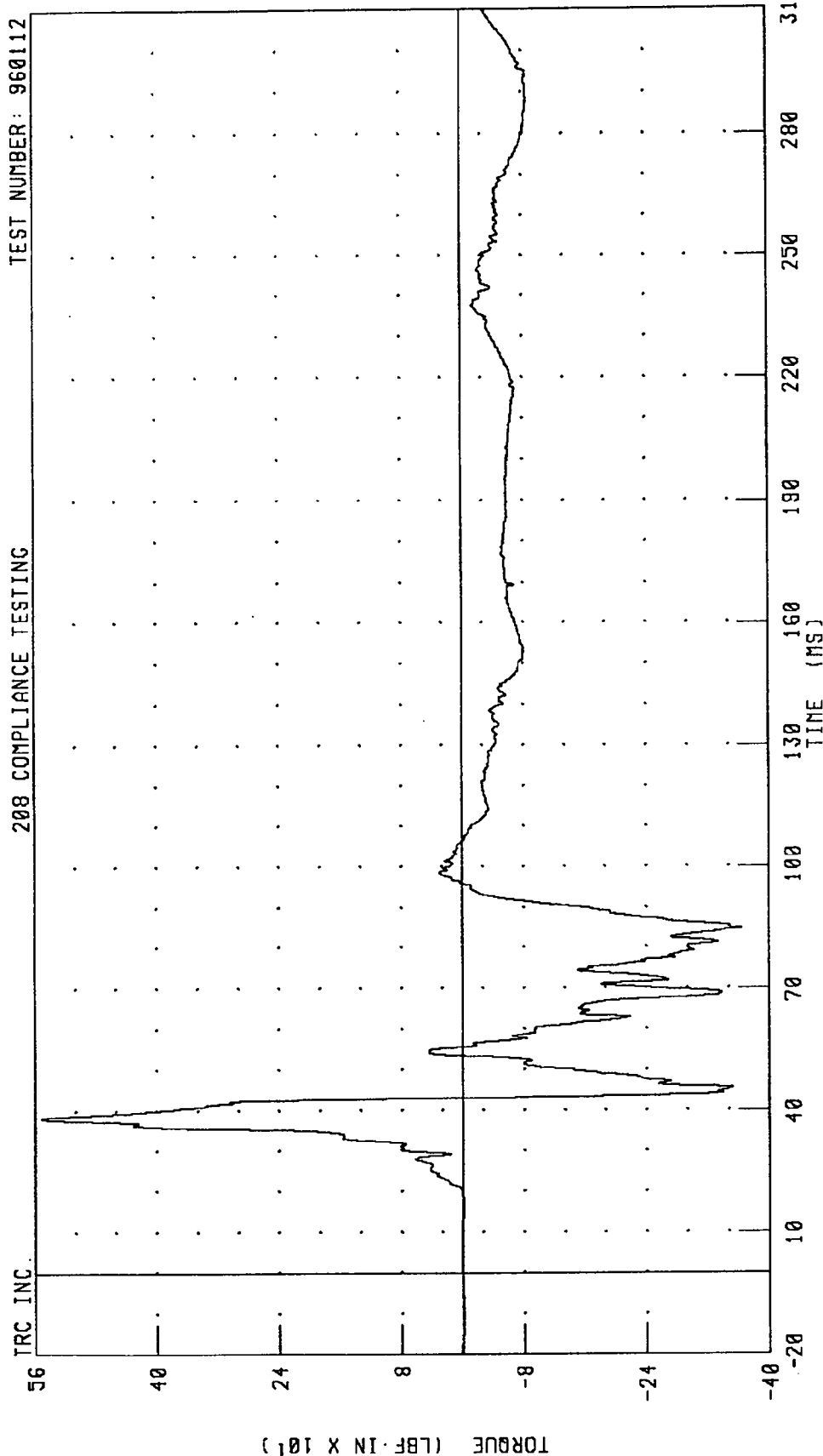
CHANNEL: TBLYM1 FILTER: CH. CLASS 600

PEAK DATA: 1168.80 LBF-IN @ 35.28 MS; -313.05 LBF-IN @ 89.76 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X-AXIS

TEST NUMBER: 960112

208 COMPLIANCE TESTING



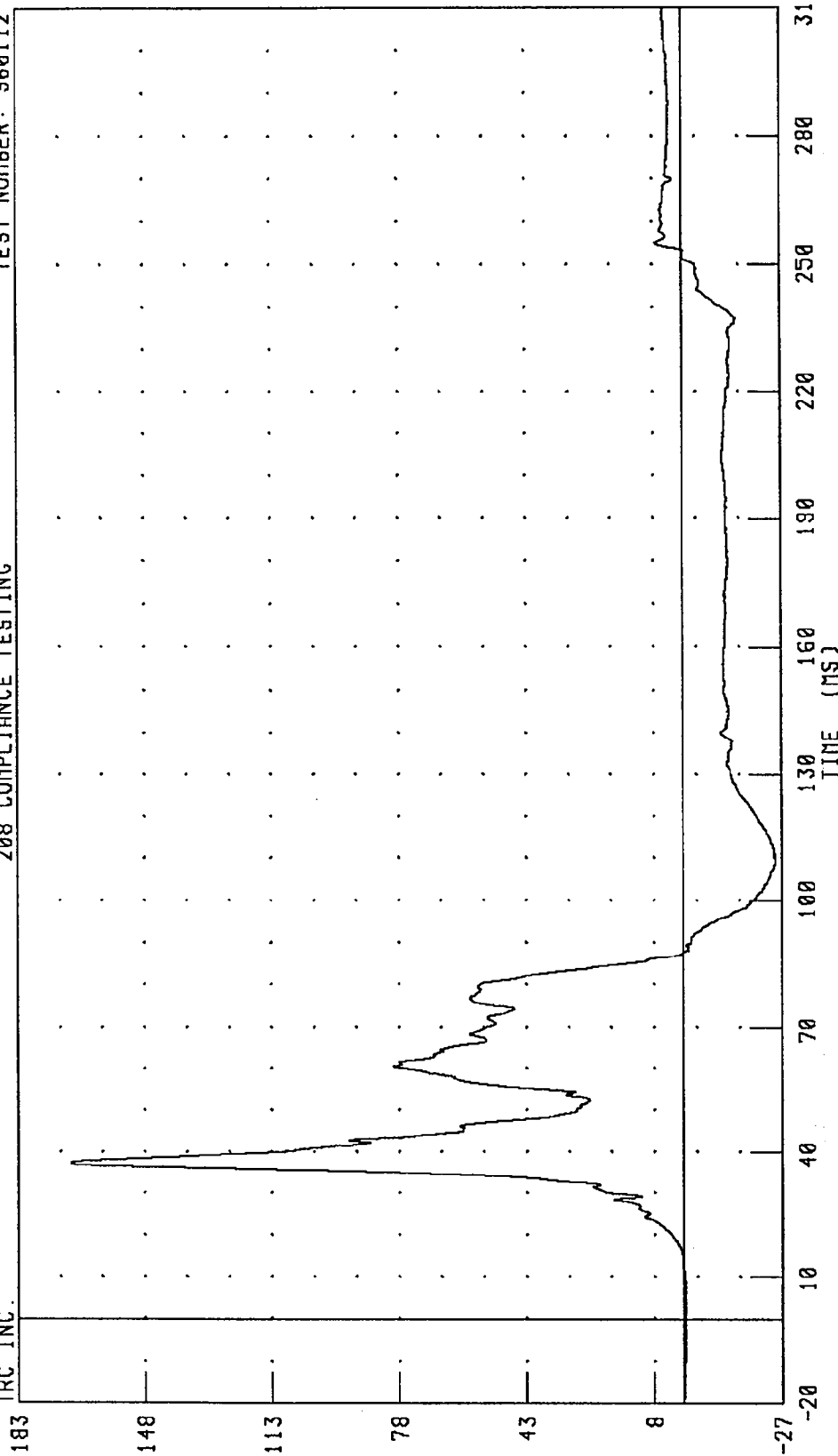
PEAK DATA: 551.57 LBF-IN @ 38.32 MS; -363.77 LBF-IN @ 84.80 MS

CHANNEL: TBRXM1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y-AXIS
 208 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.

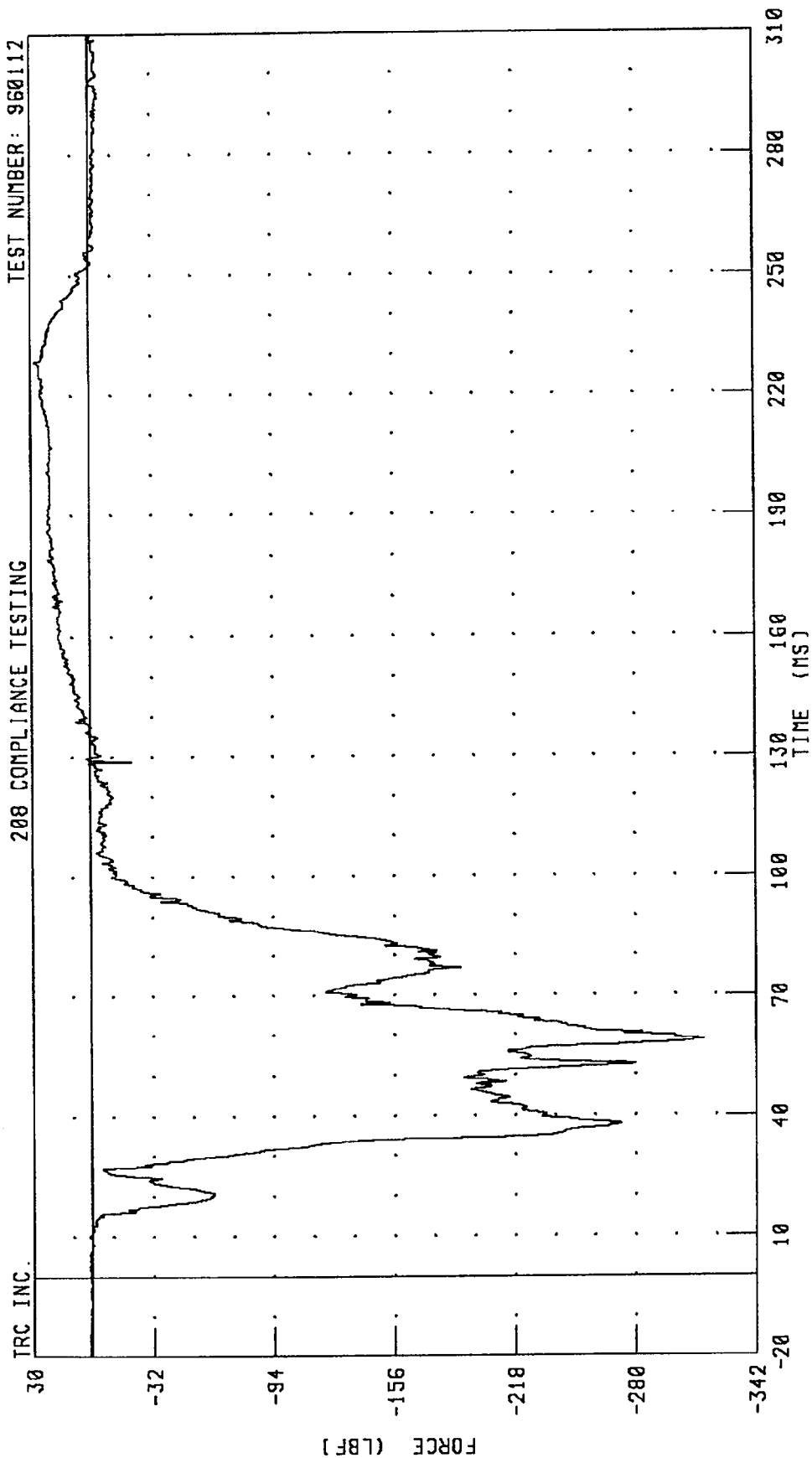


PEAK DATA: 1683.62 LBF-IN @ 37.28 MS; -251.24 LBF-IN @ 109.68 MS

CHANNEL: TBRYM1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER LEFT LOWER TIBIA X-AXIS FORCE

208 COMPLIANCE TESTING TEST NUMBER: 960112



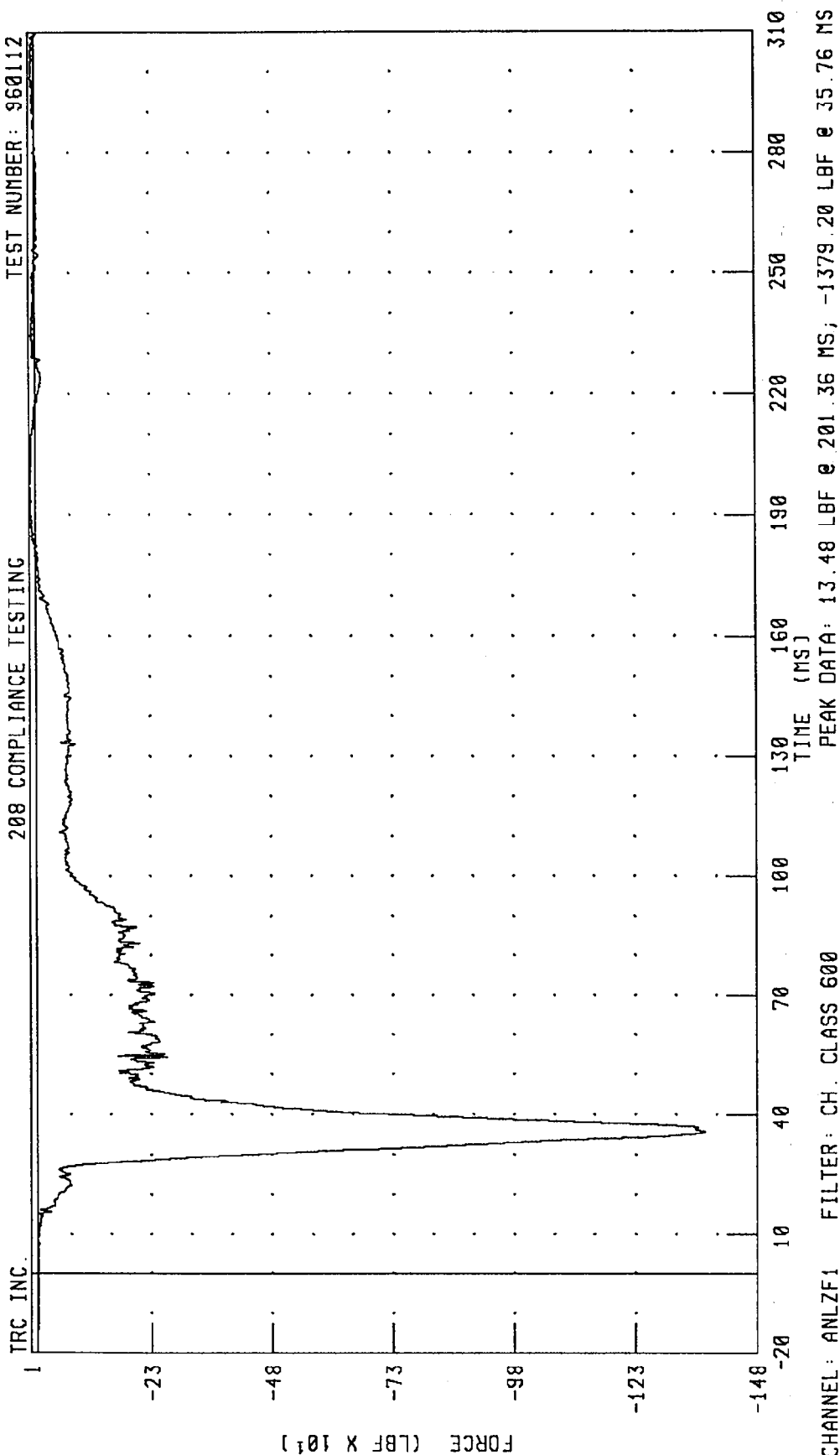
PEAK DATA: 27.92 LBF @ 228.40 MS; -315.11 LBF @ 58.80 MS

CHANNEL: ANLXF1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

208 COMPLIANCE TESTING

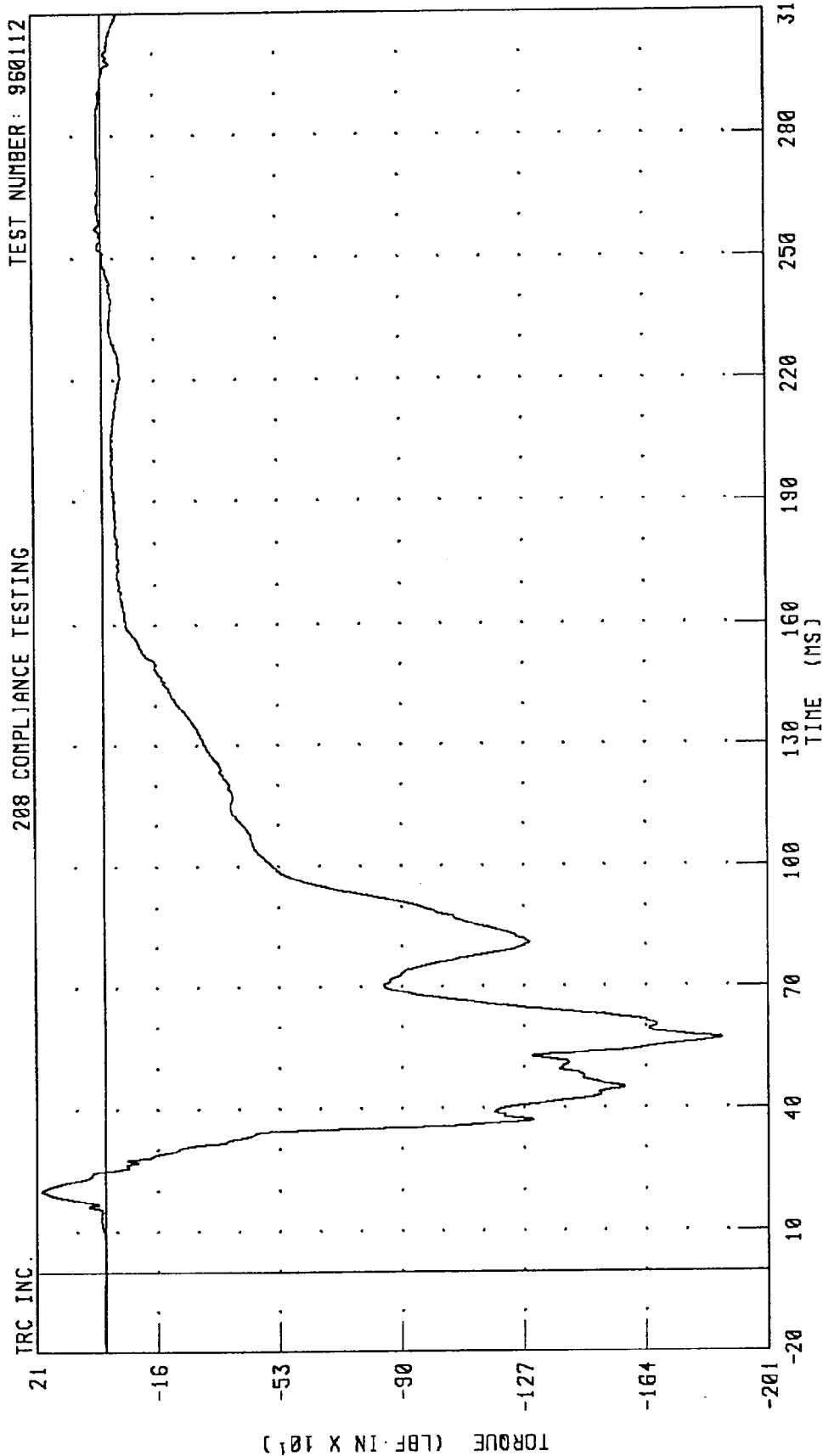
TEST NUMBER: 960112



1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y-AXIS

TEST NUMBER: 960112

208 COMPLIANCE TESTING

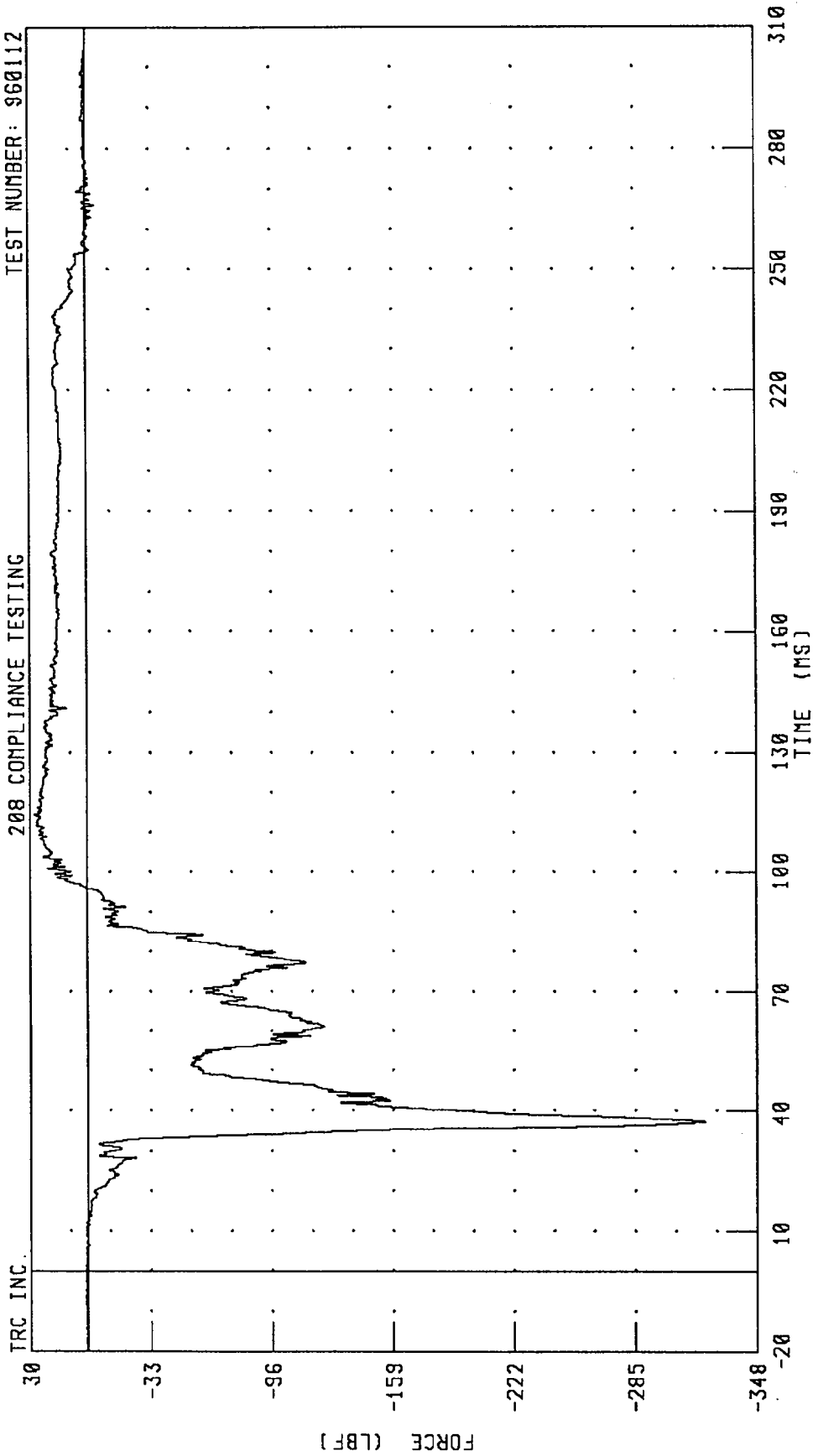


PEAK DATA: 191.99 LBF-IN @ 20.08 MS; -1870.08 LBF-IN @ 57.04 MS

CHANNEL: ANLYM1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER RIGHT LOWER TIBIA X-AXIS FORCE
 208 COMPLIANCE TESTING

TEST NUMBER: 960112



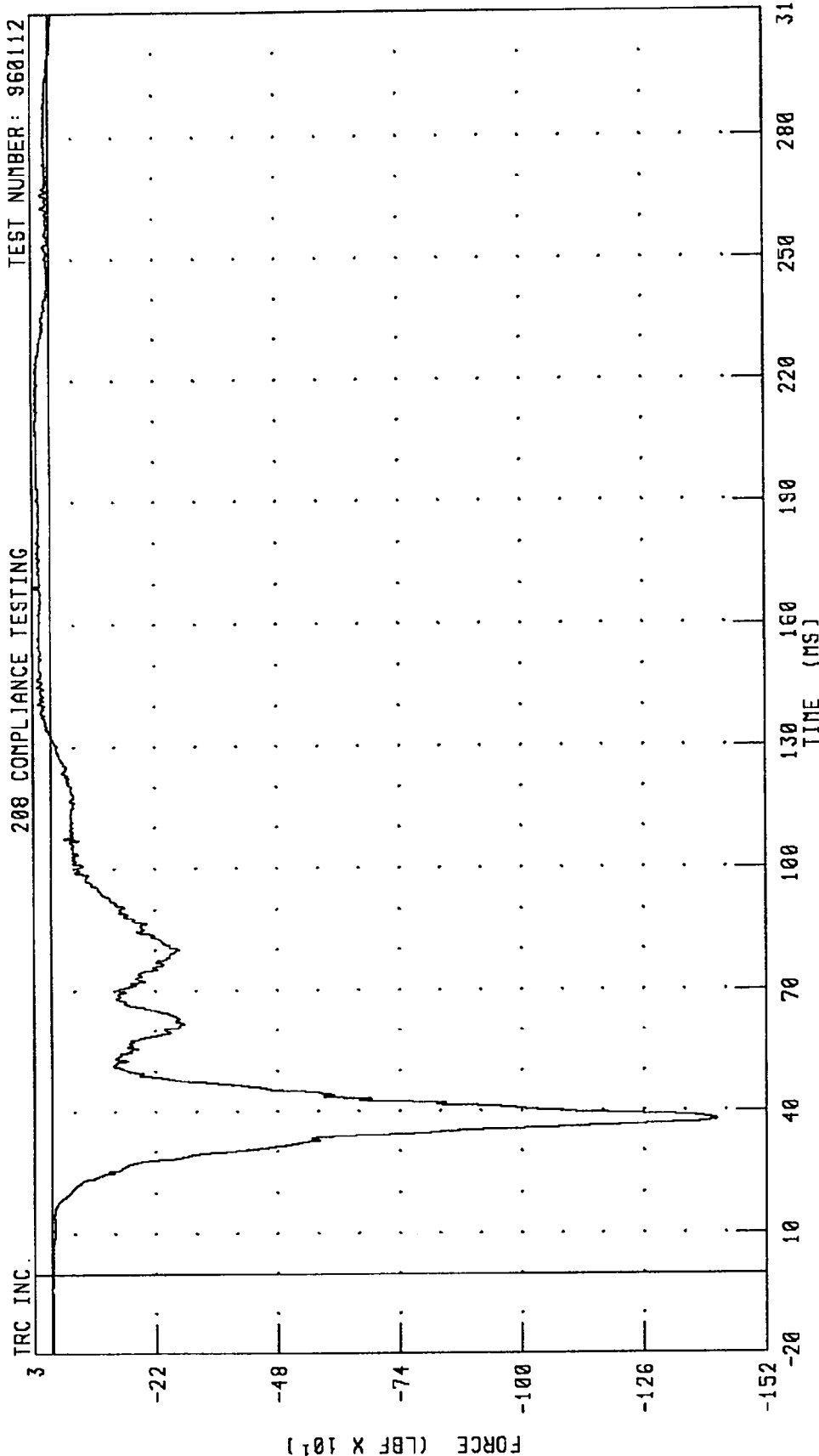
PEAK DATA: 27.30 LBF @ 114.56 MS; -320.89 LBF @ 37.28 MS

CHANNEL: ANRXF1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE

TEST NUMBER: 960112

200 COMPLIANCE TESTING



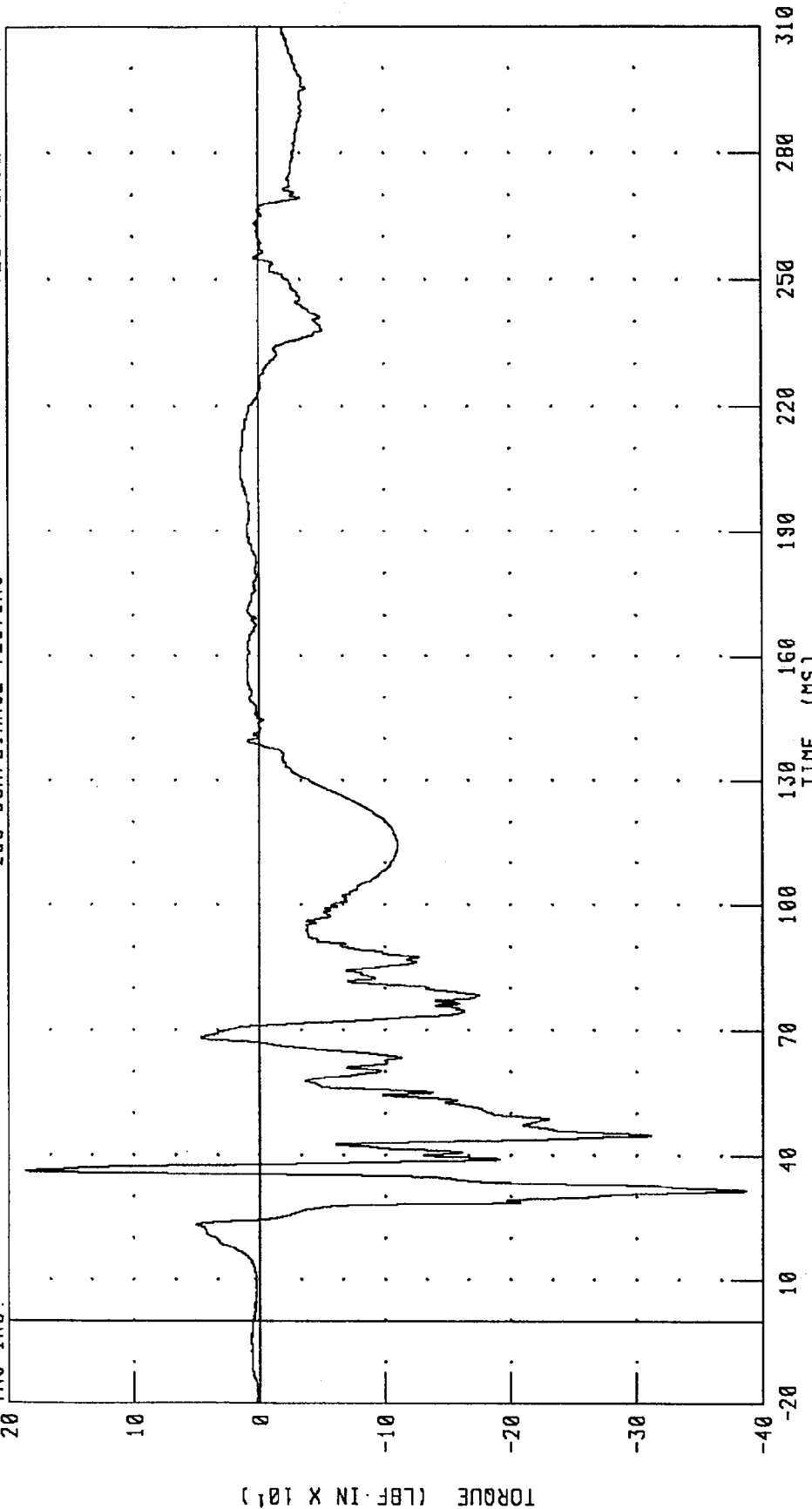
CHANNEL: ANRZF1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y-AXIS

TEST NUMBER: 960112

208 COMPLIANCE TESTING

TRC INC.



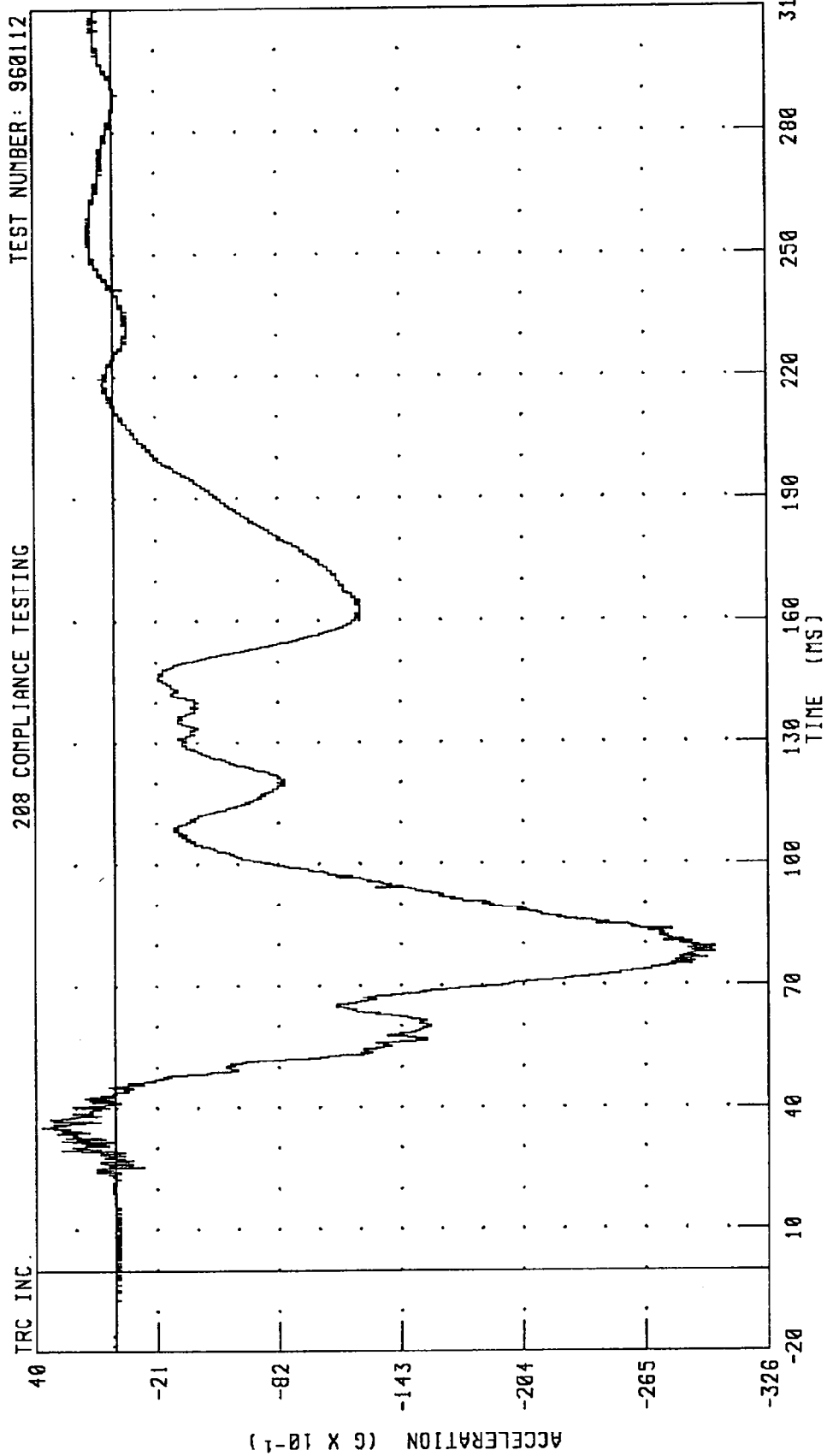
PEAK DATA: 186.17 LBF-IN @ 36.40 MS; -387.32 LBF-IN @ 31.60 MS

CHANNEL: ANRYM1 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING



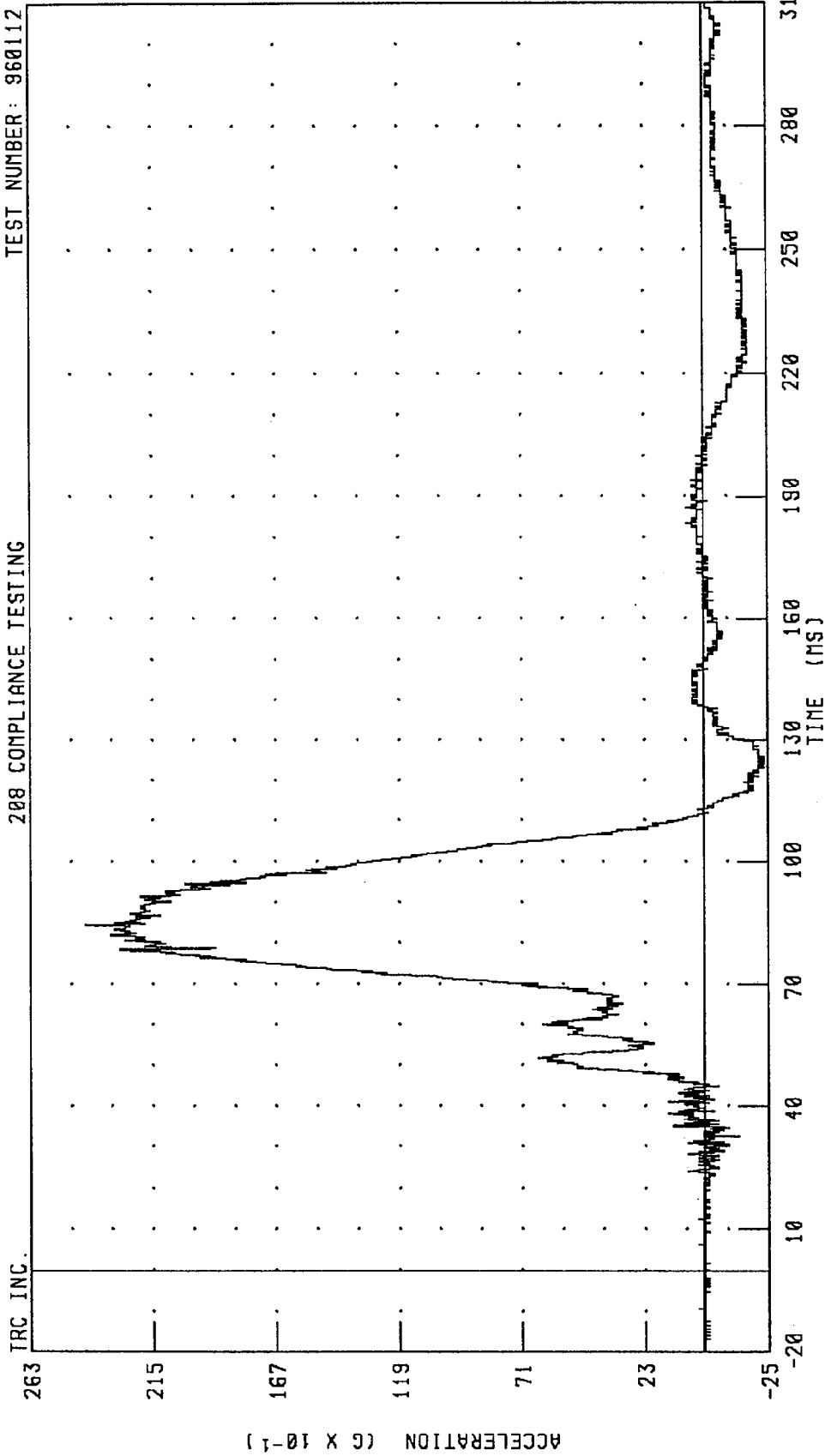
CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

PEAK DATA: 3.68 G @ 35.12 MS; -29.97 G @ 78.00 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING



CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

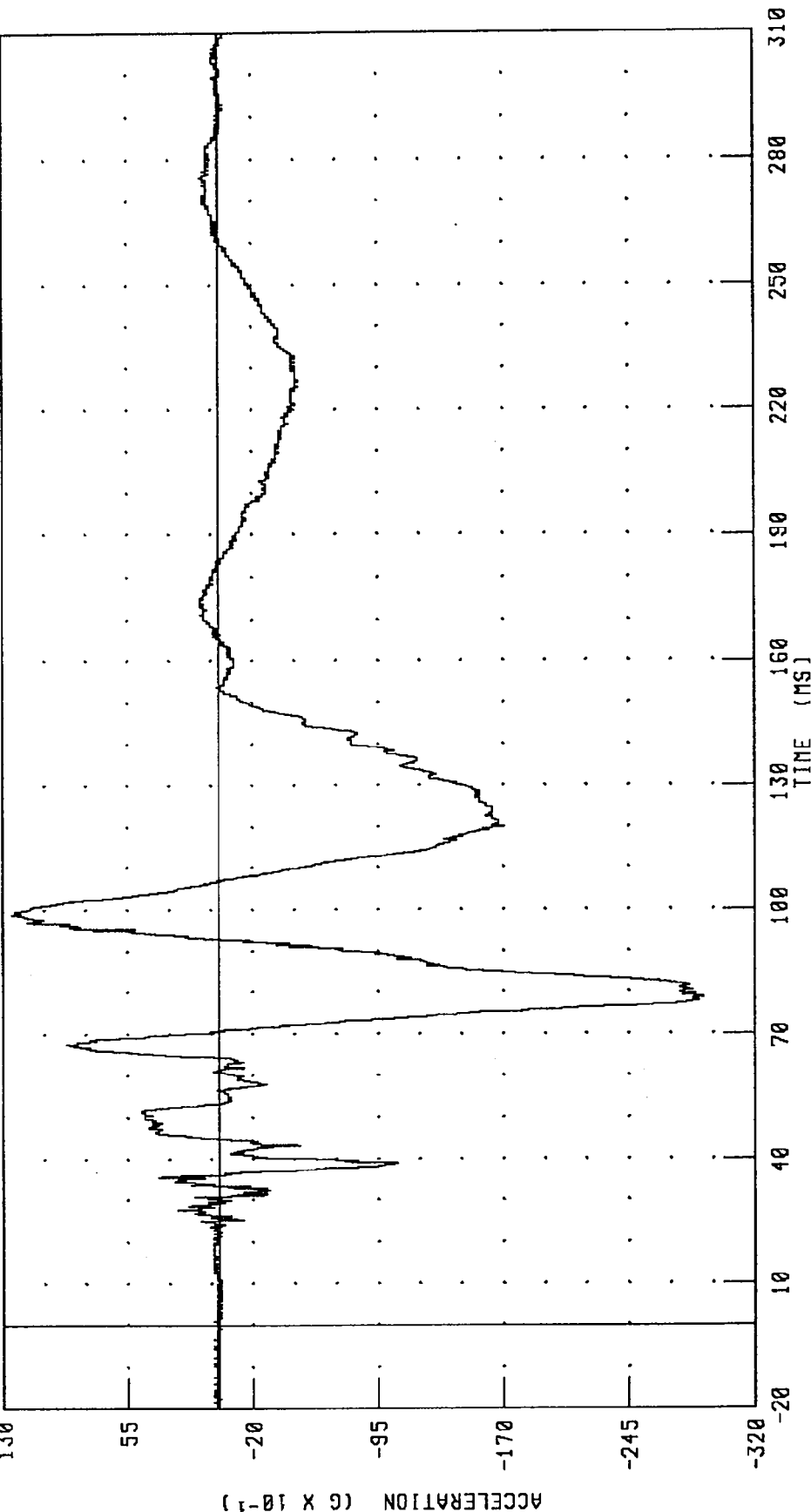
PEAK DATA: 24.15 G @ 84.40 MS; -2.31 G @ 123.12 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

TRC INC.



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 12.48 G @ 98.96 MS; -28.90 G @ 78.72 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION
208 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.

510

425

340

255

170

85

0

ACCELERATION (G X 10⁻¹)

-20

10

40

70

100

130

160

190

220

250

280

310

TIME (MS)

CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

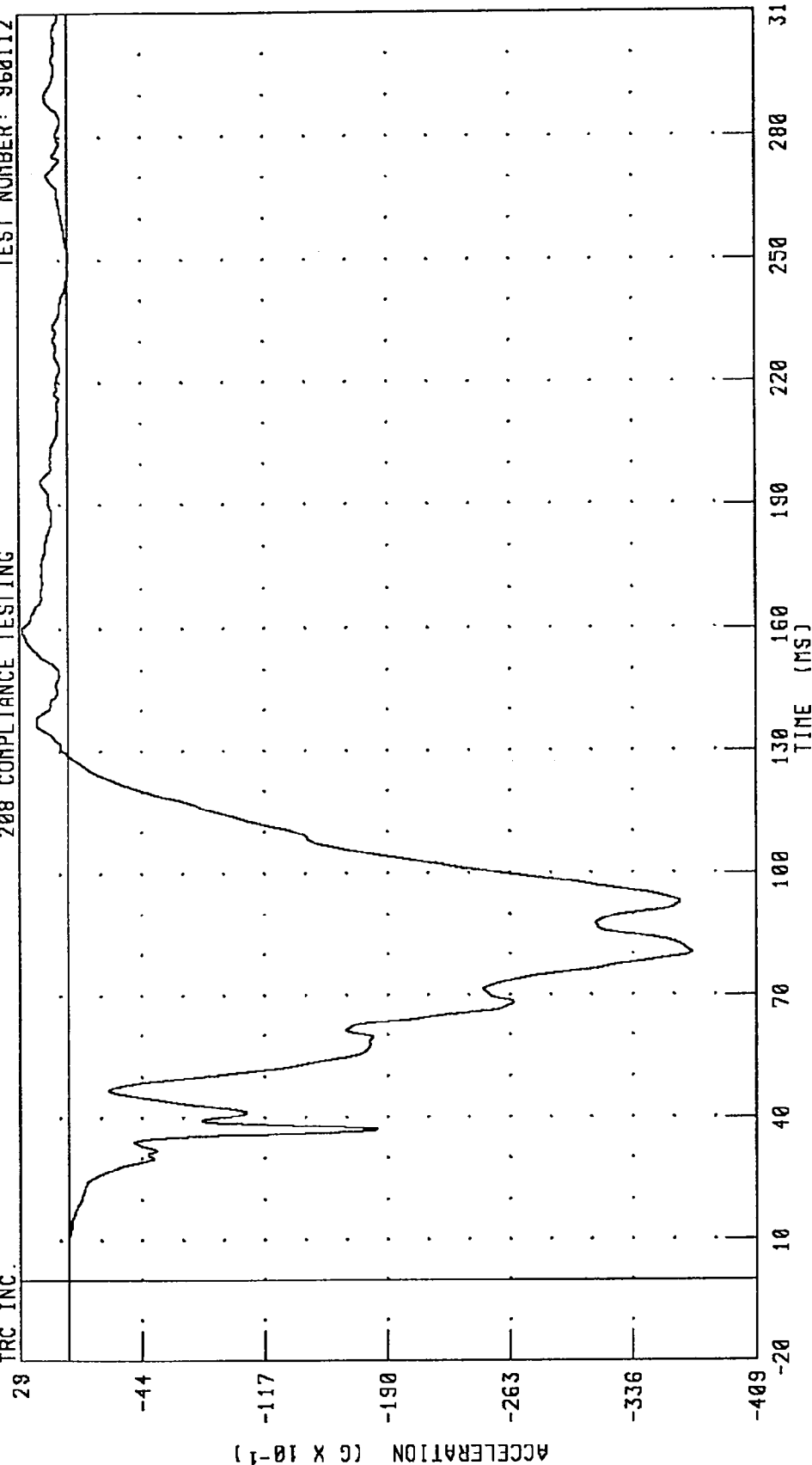
PEAK DATA: 46.81 G @ 78.56 MS; 0.10 G @ -17.44 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

TRC INC.

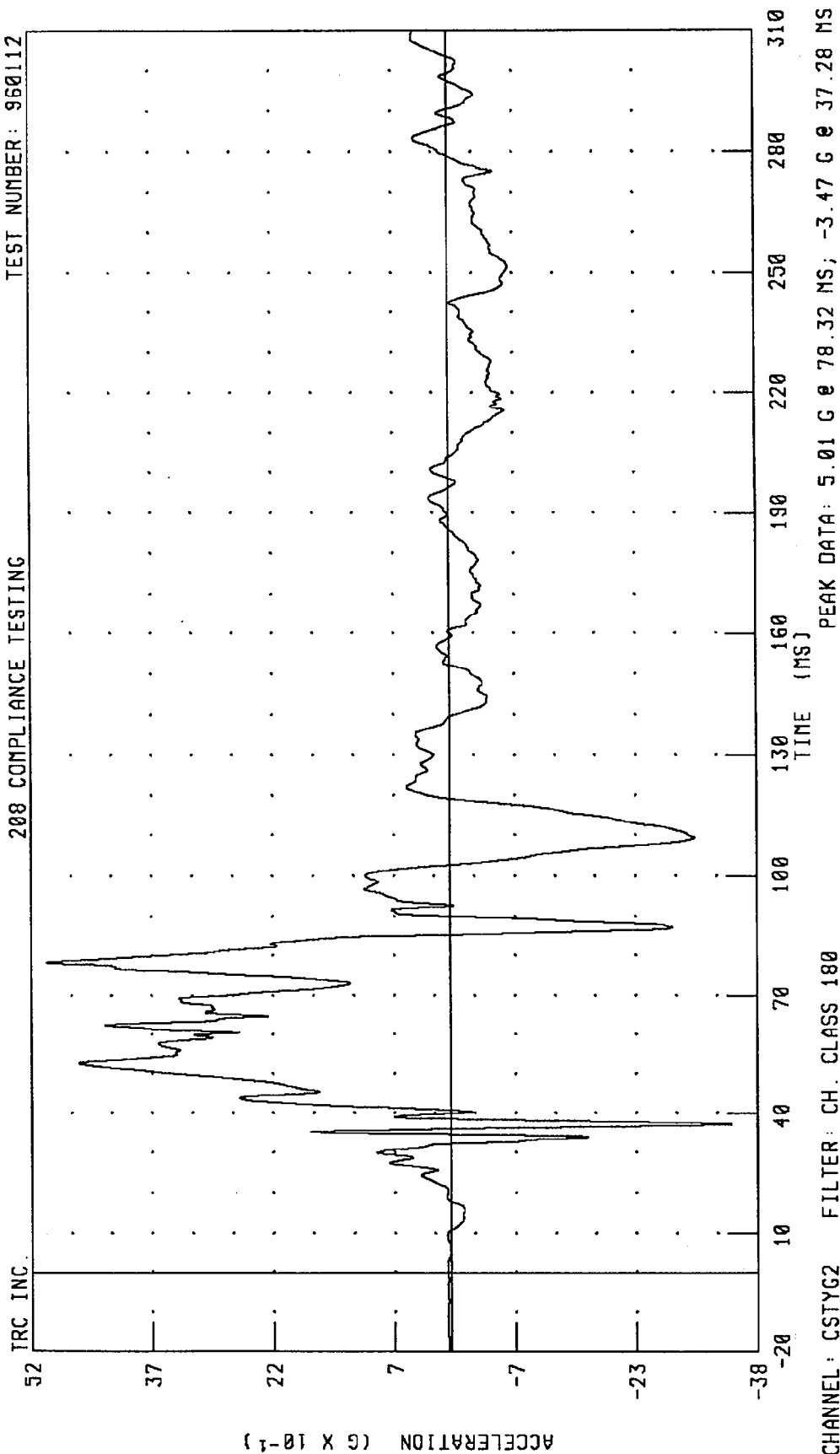


PEAK DATA: 2.73 G @ 159.84 MS; -37.10 G @ 80.40 MS

CHANNEL: CSTXG2 FILTER: CH. CLASS 180

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION
 200 COMPLIANCE TESTING

TEST NUMBER: 960112



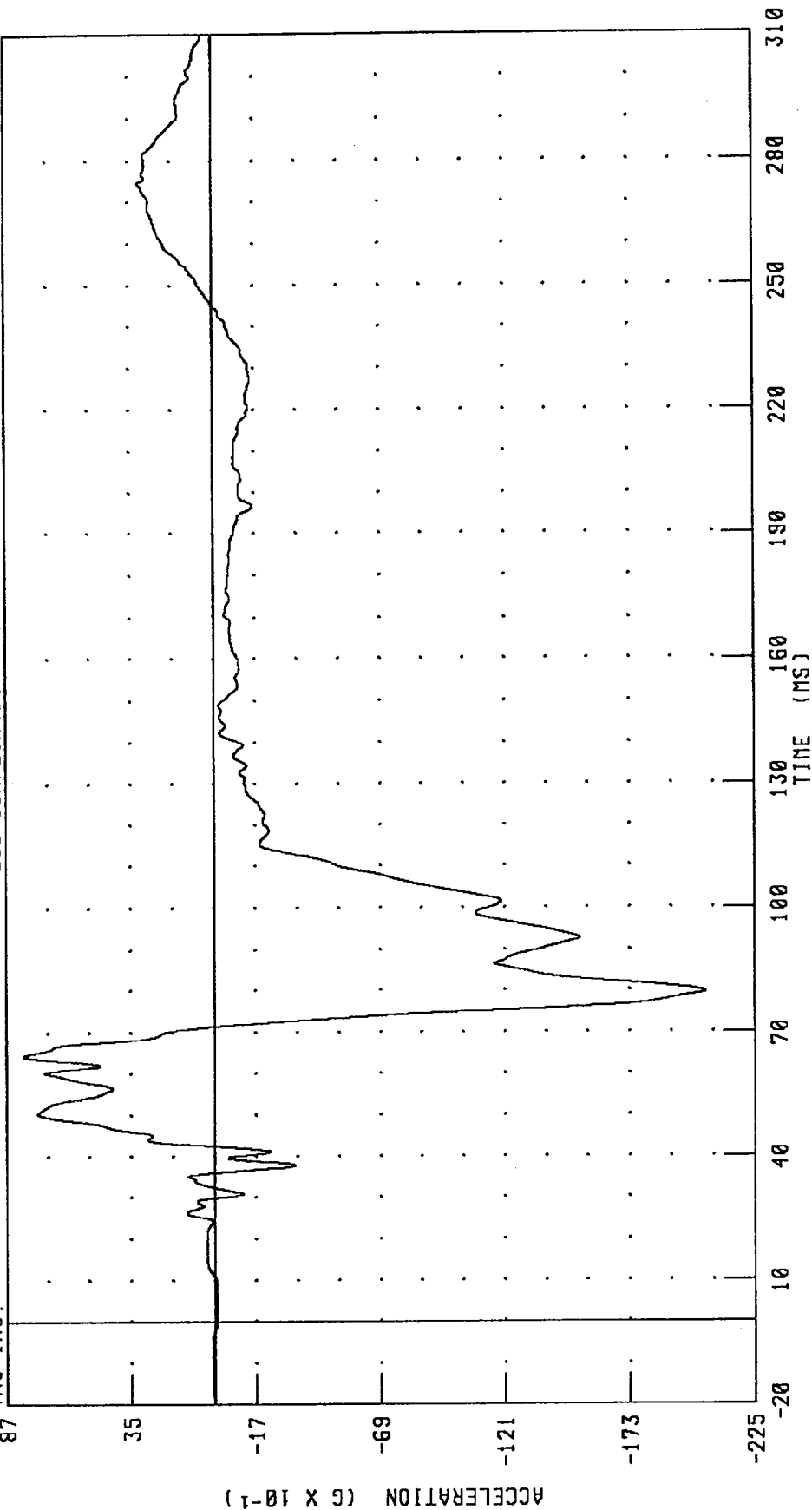
CHANNEL: CSTYG2 FILTER: CH. CLASS 180

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION

200 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.



CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 8.00 G @ 64.64 MS; -20.45 G @ 79.60 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

TRC INC.

462

385

308

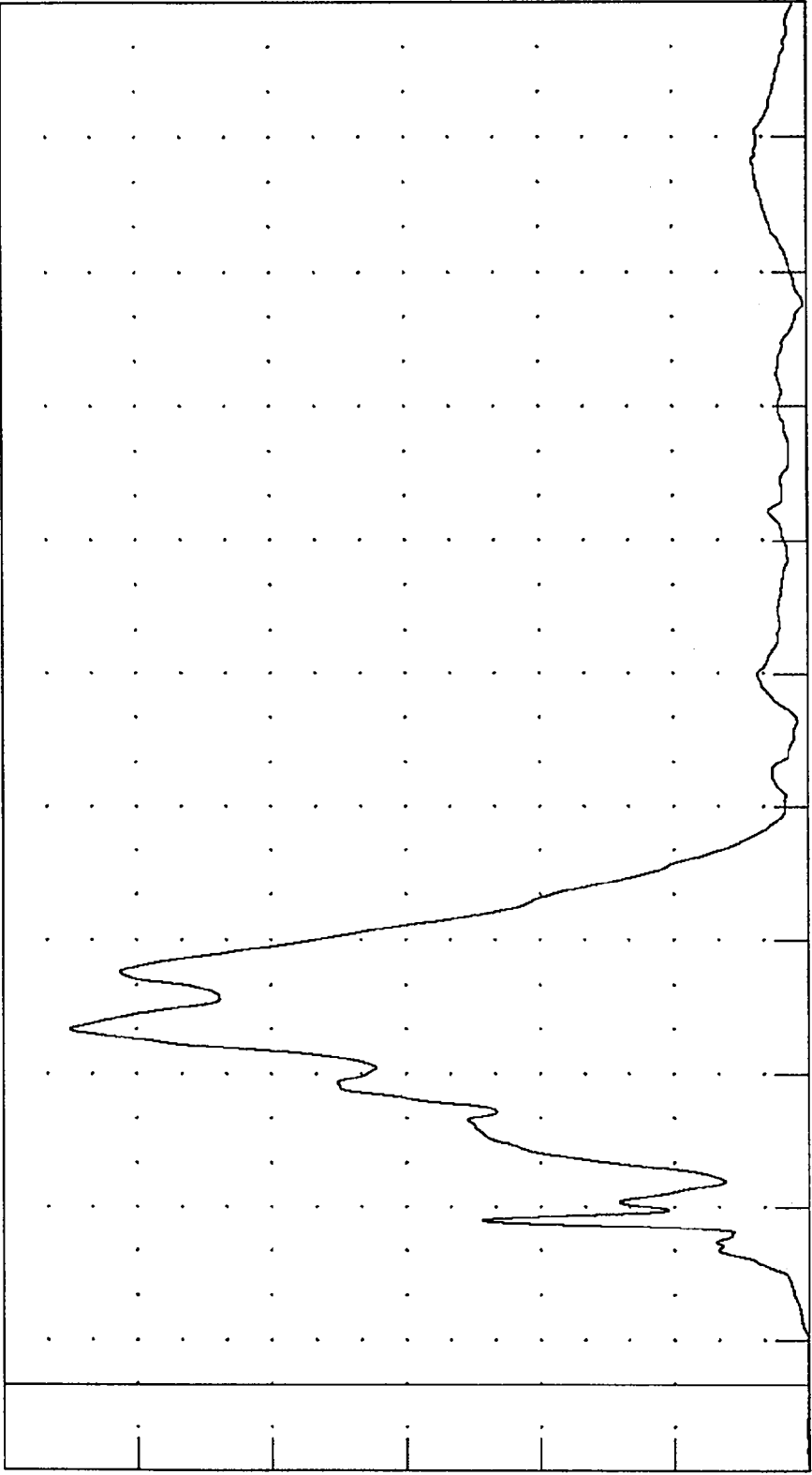
231

154

77

0

ACCELERATION ($G \times 10^{-1}$)



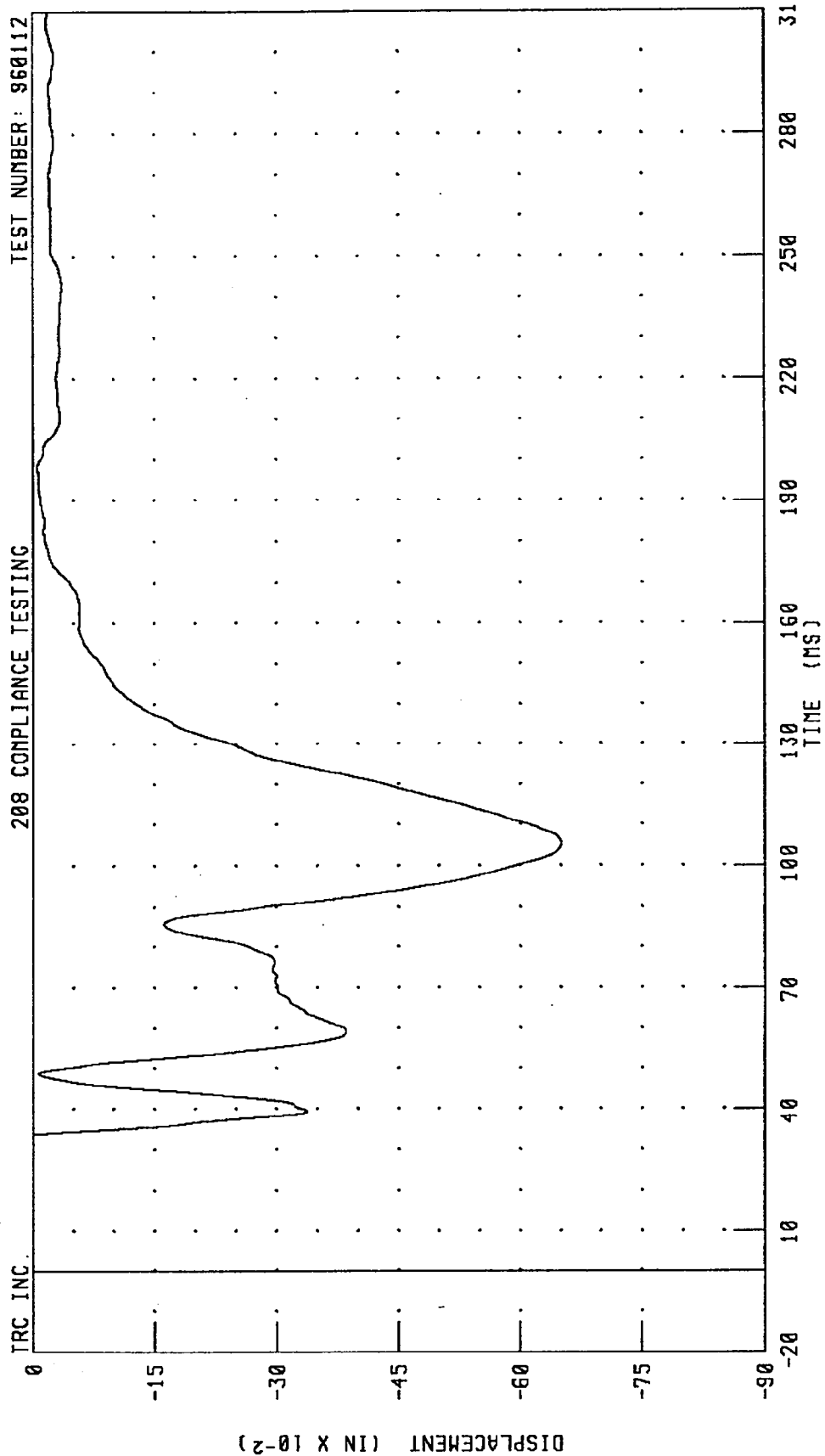
PEAK DATA: 42.34 G @ 80.08 MS; 0.00 G @ -20.00 MS

CHANNEL: CSTRG2 FILTER: CH. CLASS 180

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST DEFLECTION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

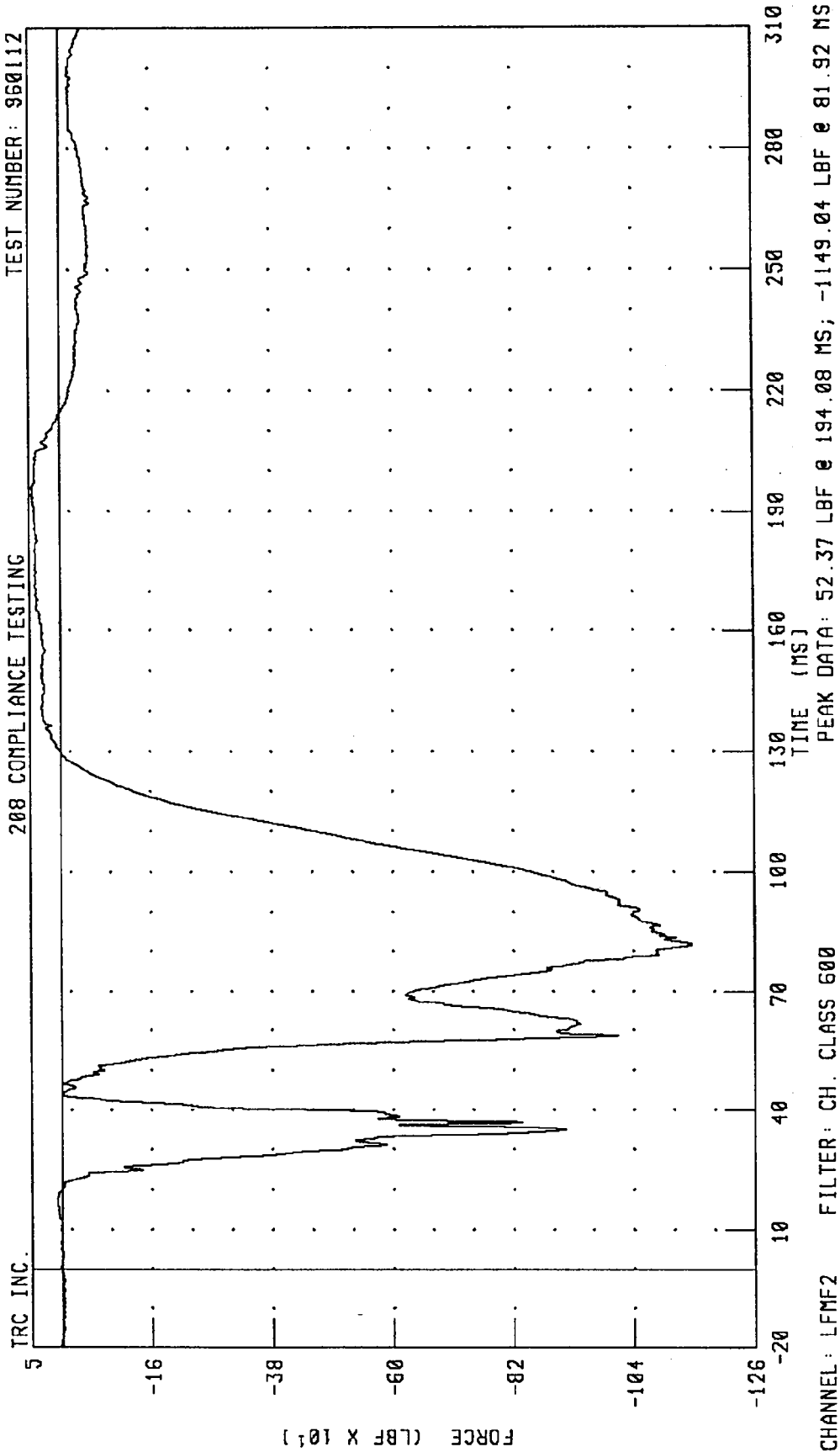


PEAK DATA: 0.02 IN @ 33.20 MS; -0.65 IN @ 105.44 MS

CHANNEL: CSTXD2 FILTER: CH. CLASS 180

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER LEFT FEMUR FORCE
 208 COMPLIANCE TESTING

TEST NUMBER: 960112

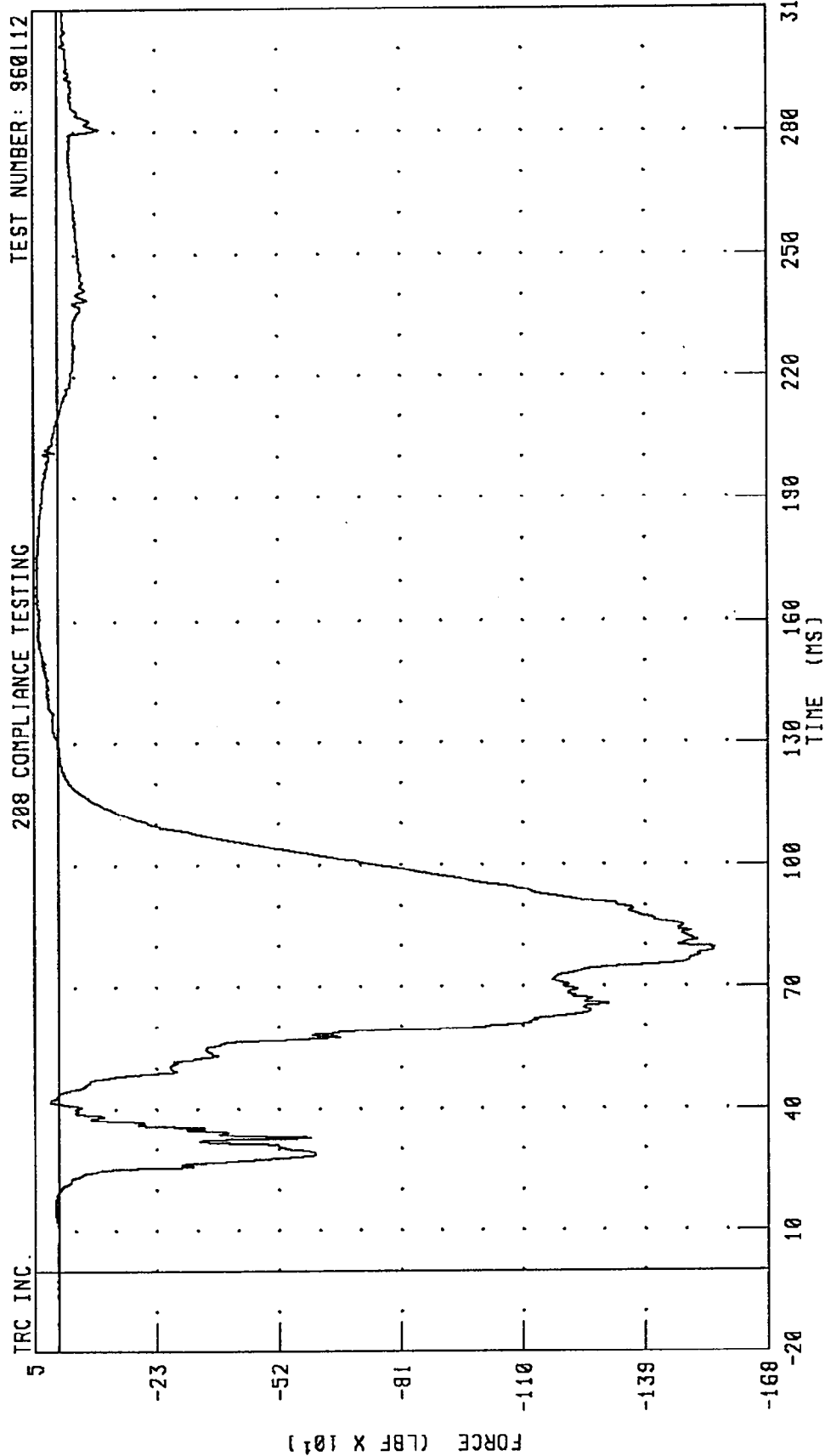


CHANNEL: LFMF2 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE

TEST NUMBER: 960112

208 COMPLIANCE TESTING



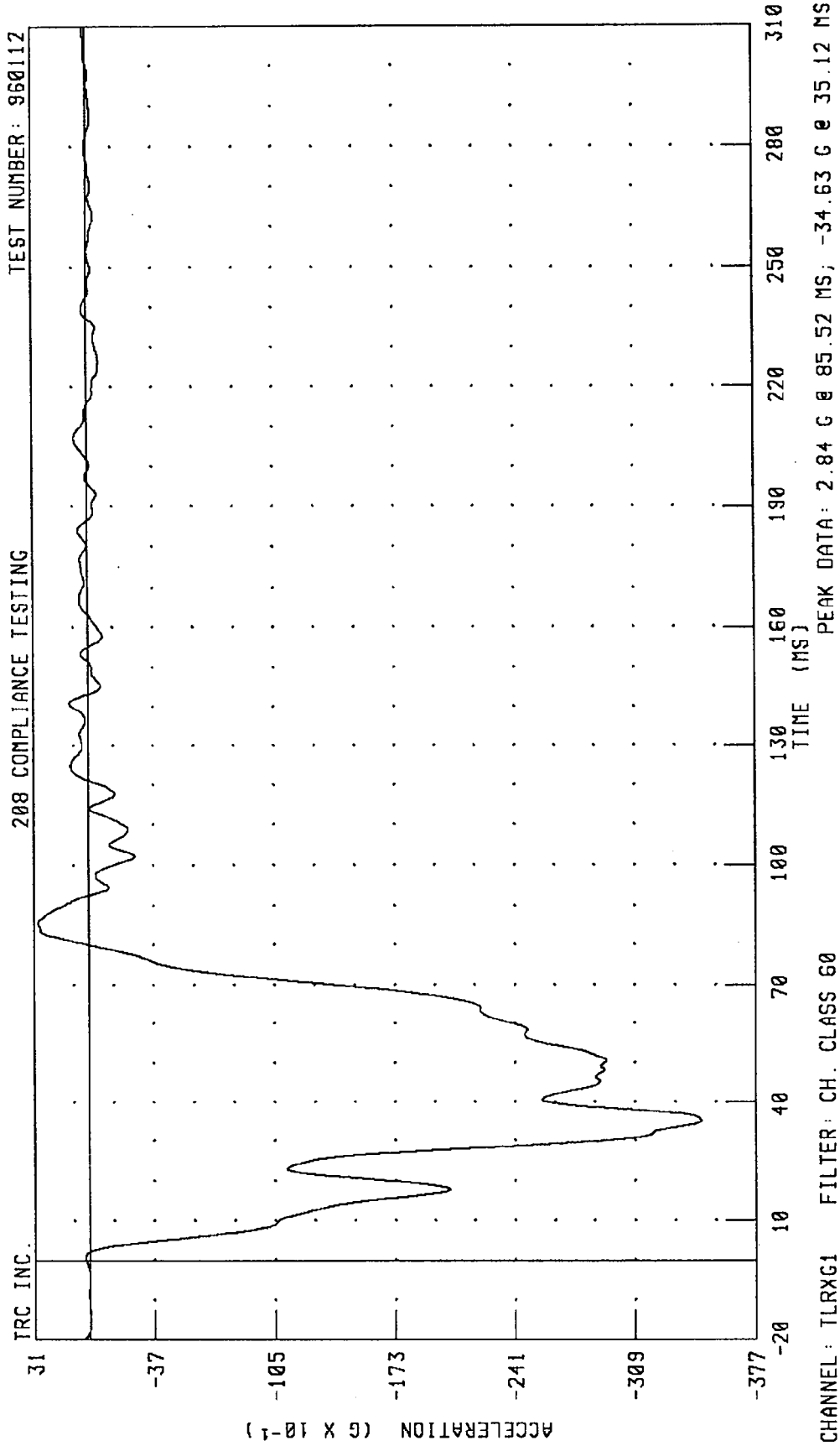
PEAK DATA: 51.33 LBF @ 167.04 MS; -1557.09 LBF @ 79.60 MS

CHANNEL: RFMF2 FILTER: CH. CLASS 600

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

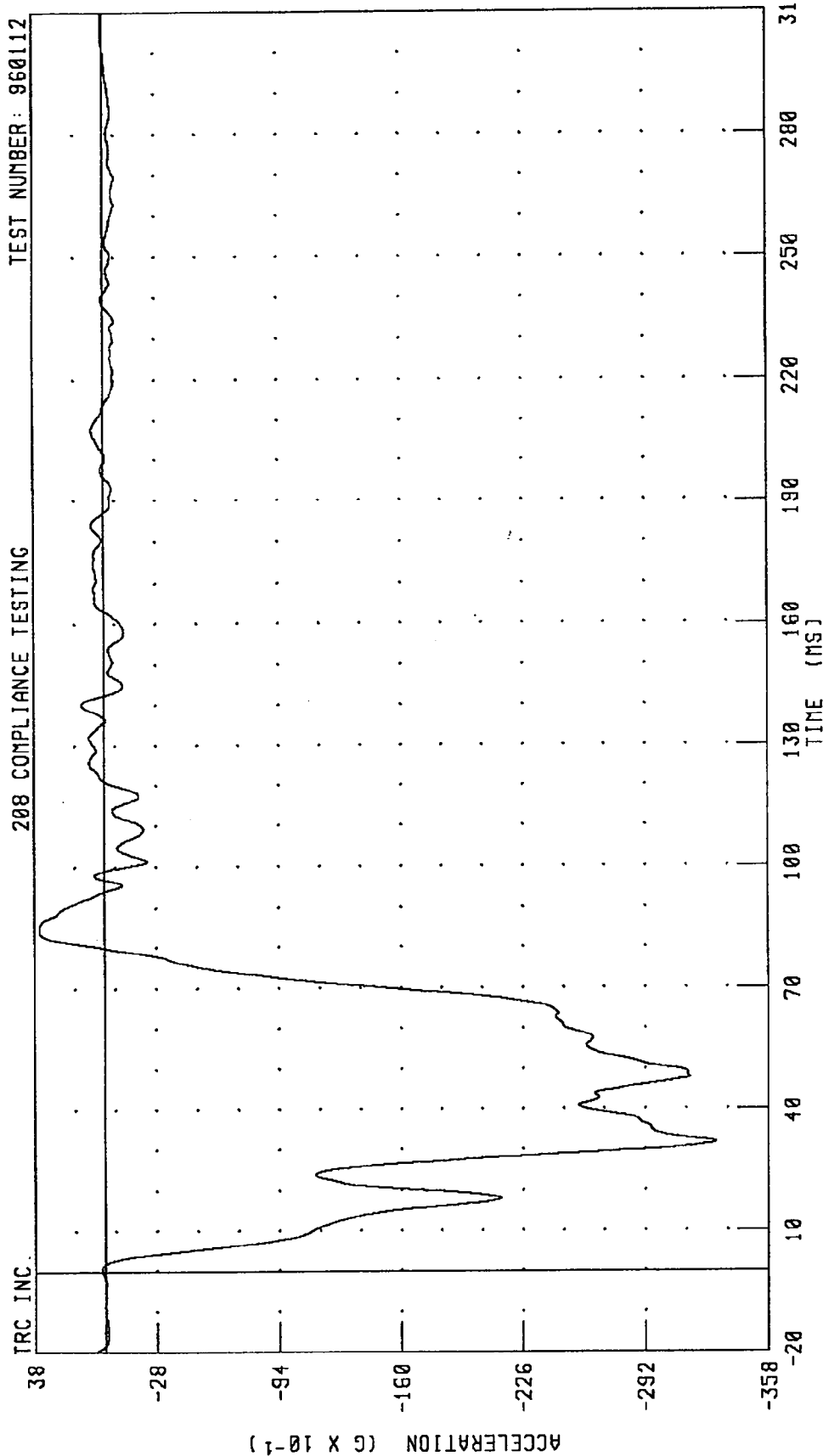


CHANNEL: TLRXG1 FILTER: CH. CLASS 60

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 960112

200 COMPLIANCE TESTING



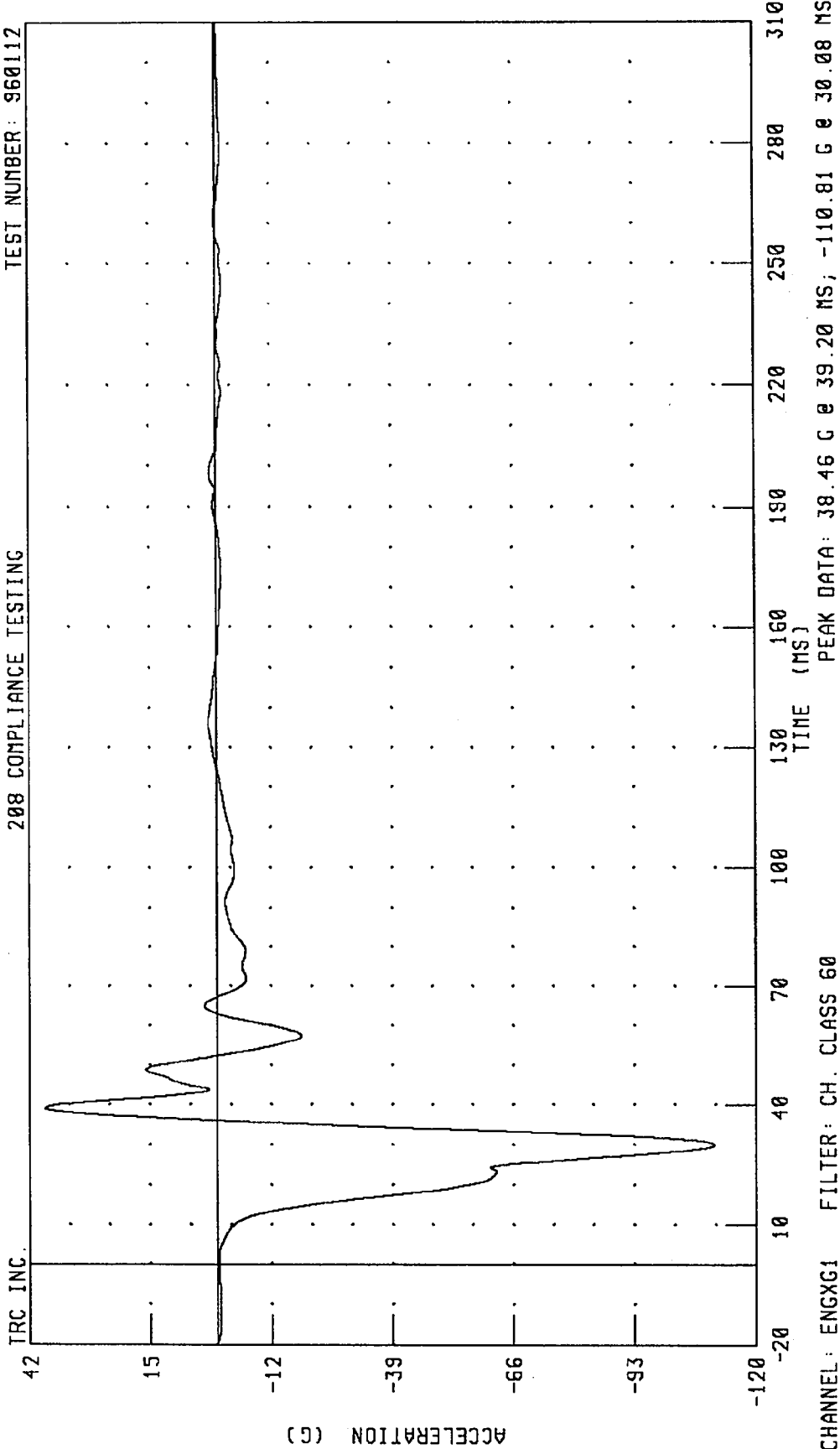
CHANNEL: TRRXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.53 G @ 84.88 MS; -32.97 G @ 31.92 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
ENGINE UPPER BLOCK X-AXIS ACCELERATION
208 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.



CHANNEL: ENGXC1 FILTER: CH. CLASS 60

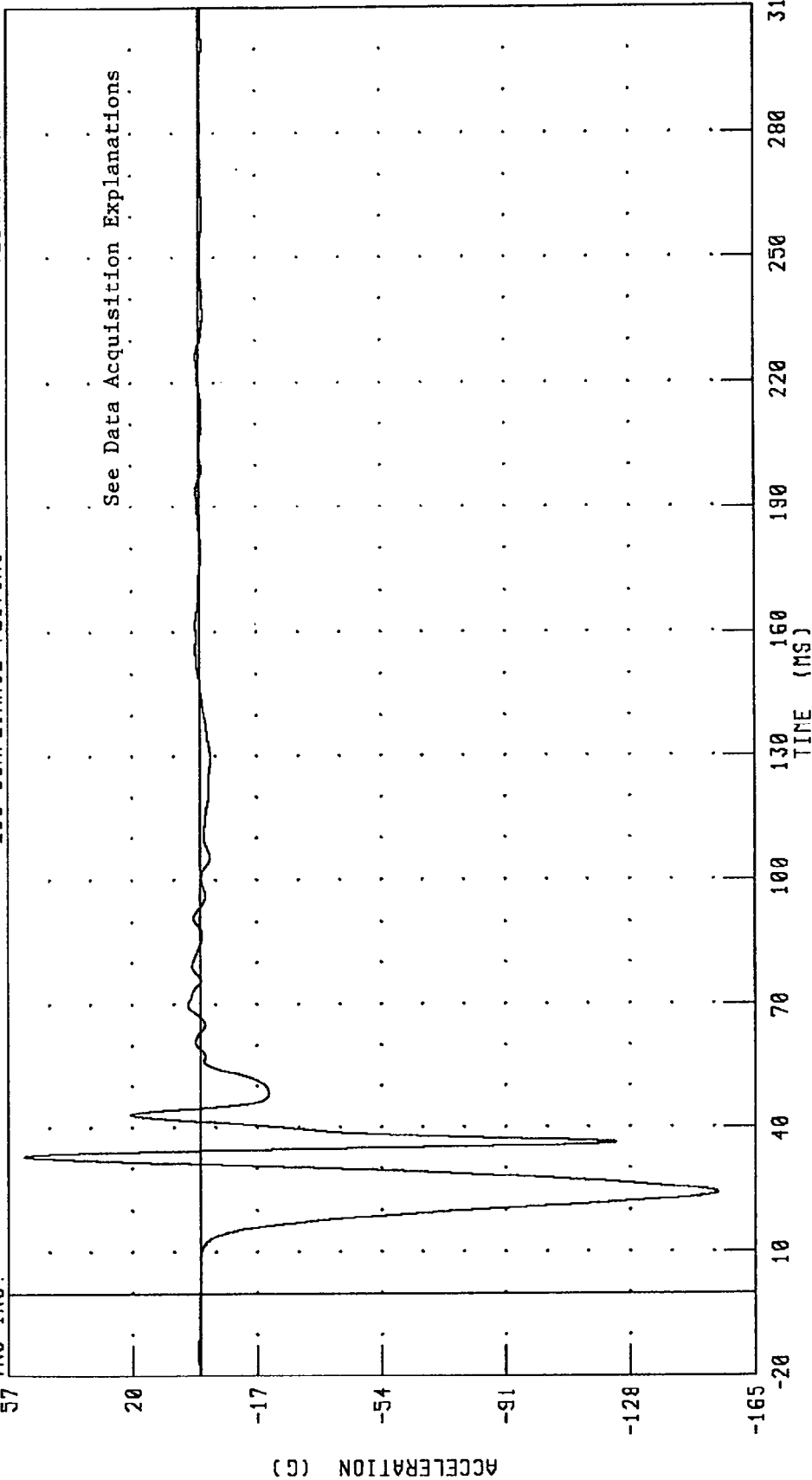
1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
ENGINE BOTTOM BLOCK X-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

TRC INC.

See Data Acquisition Explanations



CHANNEL: ENGXC2 FILTER: CH. CLASS 60

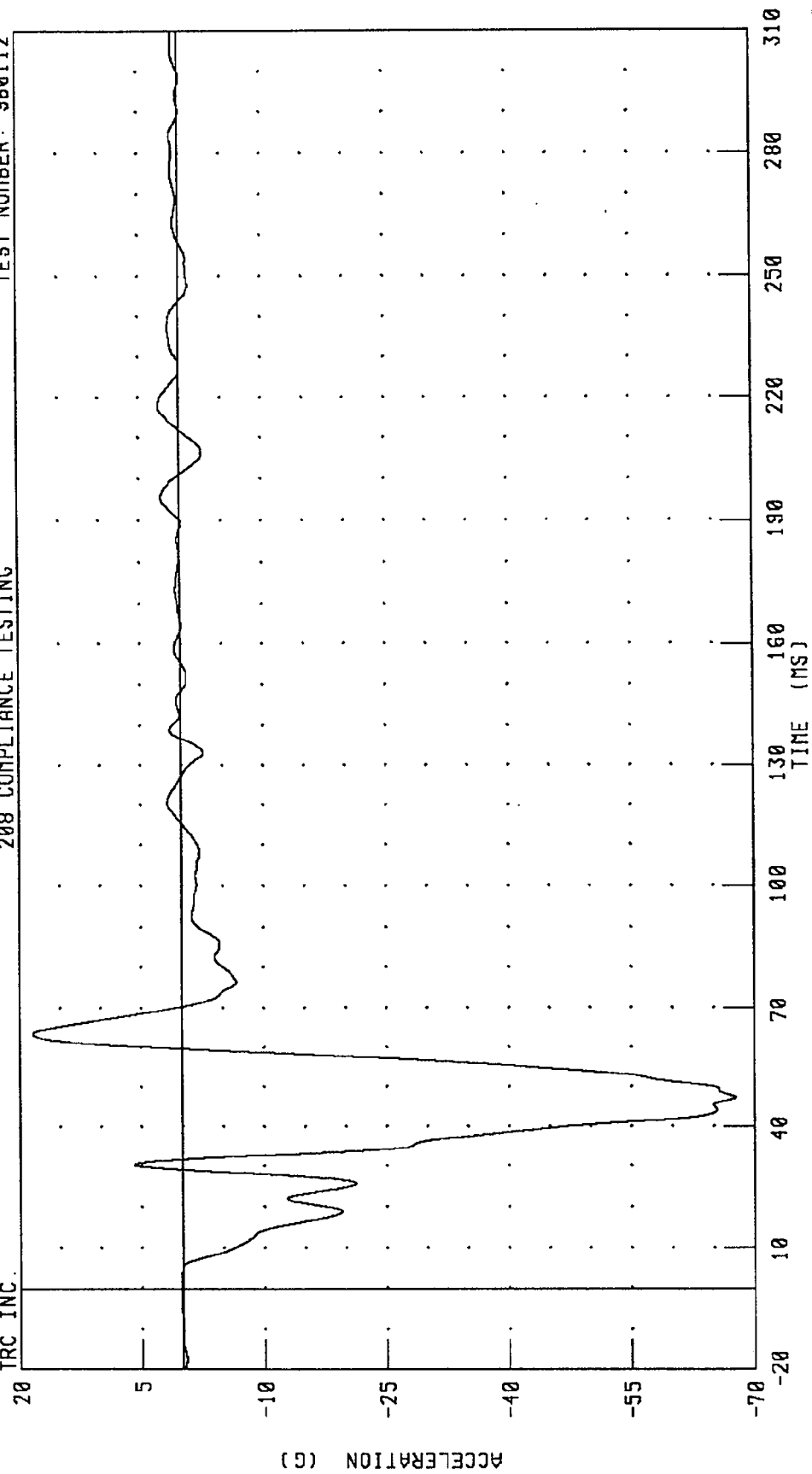
PEAK DATA: 52.24 G @ 33.20 MS; -153.95 G @ 24.16 MS

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

TRC INC.

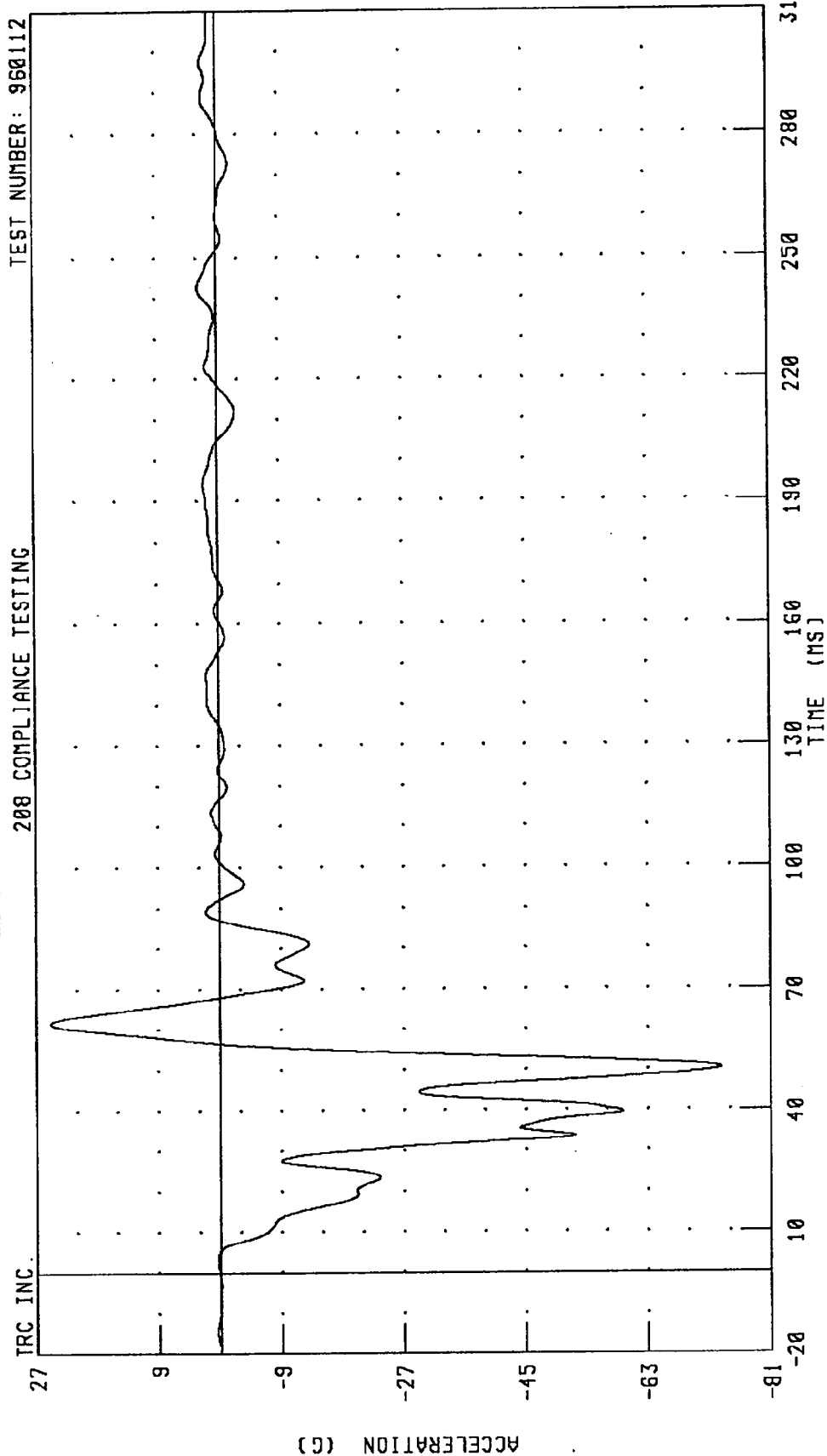


CHANNEL: BCRXG1 FILTER: CH. CLASS 60

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 960112

200 COMPLIANCE TESTING

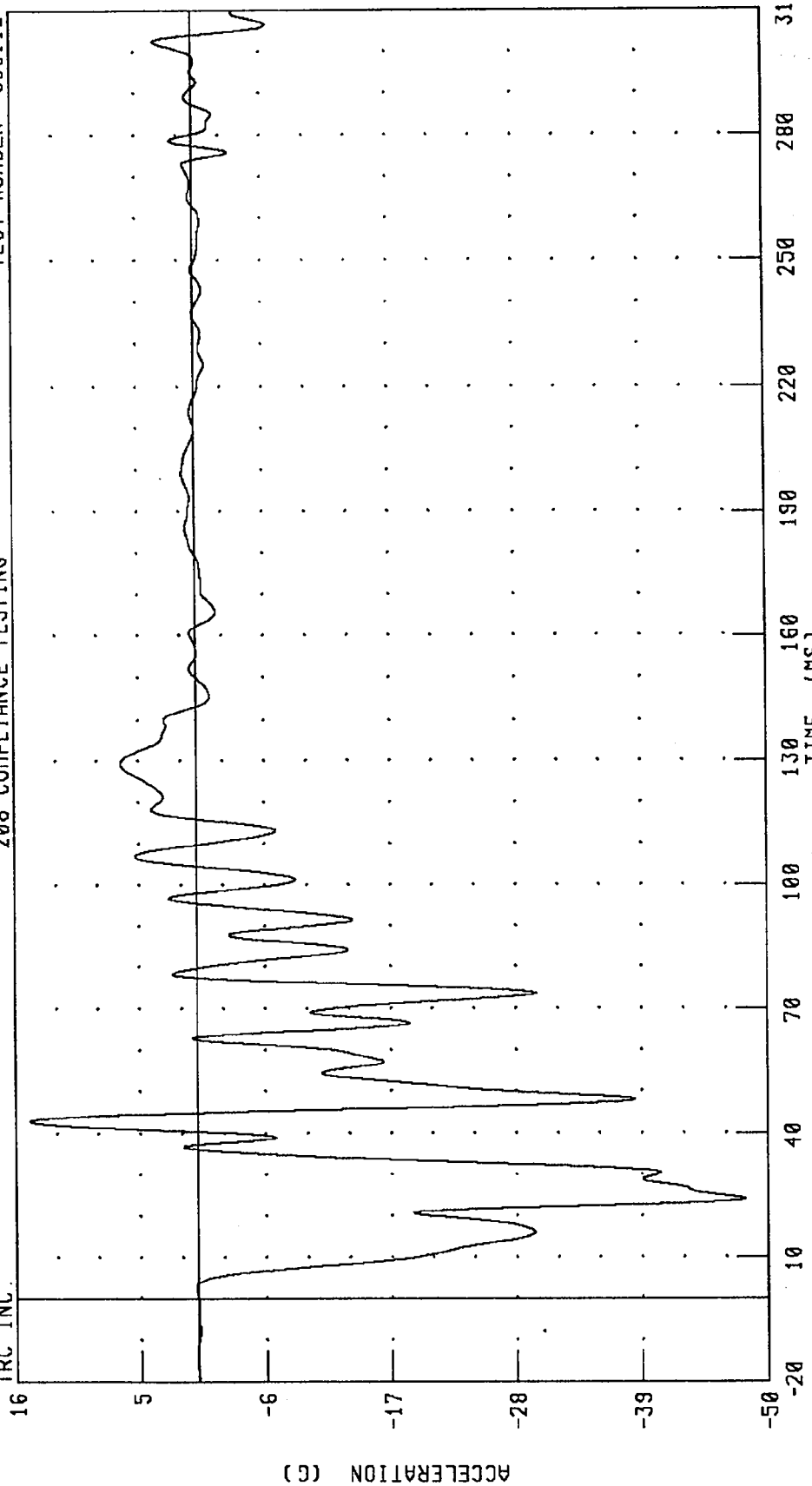


CHANNEL: BCLXG1 FILTER: CH. CLASS 60

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
DASH PANEL CENTER X-AXIS ACCELERATION
208 COMPLIANCE TESTING

TEST NUMBER: 960112

TRC INC.



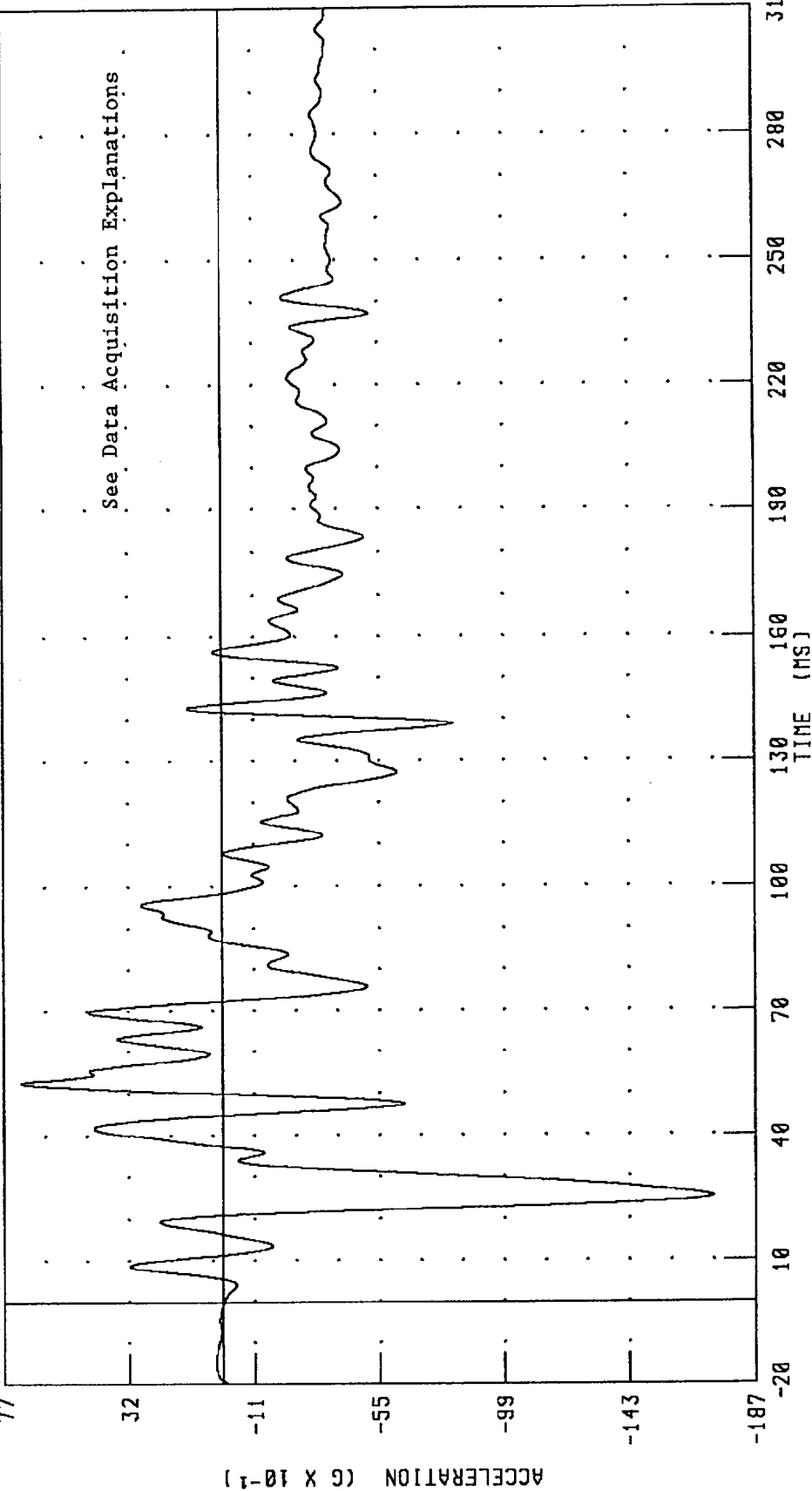
CHANNEL: DPCXG1 FILTER: CH. CLASS 60

1996 HYUNDAI ACCENT INTO FLAT FRONTAL BARRIER
VEHICLE REAR CENTER Z-AXIS ACCELERATION

TEST NUMBER: 960112

208 COMPLIANCE TESTING

TRC INC.



PEAK DATA: 7.08 G @ 52.56 MS; -17.21 G @ 25.28 MS

CHANNEL: TFCZG1 FILTER: CH. CLASS 60

Appendix C

Manufacturer's Vehicle Information



U.S. Department
of Transportation
National Highway
Traffic Safety
Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

CERTIFIED MAIL

JUL 31 1997

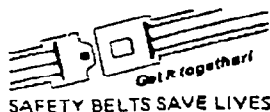
Mr. K. H. Choi
President
Hyundai America Technical Center, Inc.
5075 Venture Drive
Ann Arbor, MI 48108

NSA-31CCa
IR 1639

Dear Mr. Choi:

The Office of Vehicle Safety Compliance (OVSC) will conduct compliance tests to the requirements of Federal Motor Vehicle Safety Standard (FMVSS) No. 208, "Occupant Crash Protection." The 1996 Hyundai Accent (all models) equipped with a driver and passenger air bag restraint system has potentially been selected for crash testing. The following information is requested:

1. Please inform OVSC whether the air bag automatic restraint systems provided at the driver's and passenger's seating positions in your vehicle are certified to meet the requirements of S4.1.2.1(c)(1) or S4.1.2.1(c)(2) for FMVSS No. 208.
2. If the automatic restraint systems 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 frontal/angular barrier-impact test required by S4.1.2.1.
3. If a manual 3-point safety belt is provided with the driver'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., frontal/angular barrier impact test of the automatic restraint system with the manual safety belt unfastened and frontal/angular barrier impact test of the automatic restraint system with the manual safety belt fastened).
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



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(800) 424-9393
Wash. D.C. Area (202) 366-0123

with the automatic restraint system does not affect the ability of the vehicle to meet the requirements of FMVSS No. 208.

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.
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.
7. State, for any 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.
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.
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.

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

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.

10. Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form. If more than one front seating configuration, steering column or fuel tank are available on this vehicle, provide separate information for each.
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.

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.

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.

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?
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.

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

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.

15. Inform OVSC if these vehicles have built-in child restraints either as standard equipment or optional equipment. If they do, identify the type of restraint (i.e., 5-point harness, T-shield, or other), and provide a copy of the certification test reports and any engineering analysis forming the basis for certification to FMVSS No. 213, "Child Restraint Systems."

Your written response in the English language referencing "NSA-31CCa/IR 1639" must be sent to me within 20 working days after you receive this letter. If you need additional time to complete your response, please call Mr. Charles Case on (202) 366-5319 at least 5 days prior to the due date. You must also submit the request in writing via mail or FAX to (202) 366-3081. You will be notified whether your request has been granted and for how long.

Confidential business information must be sent in a separate enclosure marked confidential. A copy of that material must be sent under separate cover to the agency's Chief Counsel/NCC-01. If you have any questions concerning confidential information, call Ms. Heidi Coleman on (202) 366-1834.

We appreciate your cooperation. If you have any questions concerning this information request, please call Mr. Charles Case.

Sincerely,



Harry Thompson
Chief, Vehicle Division
Office of Vehicle Safety Compliance

2 Enclosures

HYUNDAI AMERICA TECHNICAL CENTER, INC.

Response to Question 1

S4.1.2.1(C)(2)

Response to Question 2

N/A

Response to Question 3

Please see the Attachment #1

Accent(2DR/4DR), Sonata test report is provided as follow

- FMVSS 208 :
 - Front Impact : A/Bag , A/Bag+S/Belt
 - 30° Oblique(Driver Side) : A/Bag , A/Bag+S/Belt
 - 30° Oblique(Passenger Side) : A/Bag , A/Bag+S/Belt

- NCAP

- FMVSS 204

Response to Question 4

N/A

Response to Question 5

Please see the Attachment #2

Response to Question 6

Please see the Attachment #3

Response to Question 7

N/A

Response to Question 8

Front : Fully Opened, Rear : Fully Closed

Response to Question 9

9-1 : Part 572 Subpart E Dummy(Hybrid III)

9-2 : Dummy placement measurements, Diagram, Dimension, etc
Please see the Attachment #4

9-3 : Vehicle(Accent/Sonata) have a foot rest

9-4 : Vehicle can not be equipped with a split front bench seat.

Response to Question 10

Seat positioning, Steering column positioning, Fuel tank data : please see the Attachment #5

Response to Question 11

Please see the Attachment #6

Response to Question 12

12-1 : The speed at impact, vehicle test weight, test result : please see the Attachment #7

12-1 : Dummy's head and chest acceleration versus time plots, Femur load versus time plots : be included the test report

Response to Question 13

13-1: Jack, Jack Stand, Rear seat ass'y, Spare Tire

13-2: removed the parts which was not affected by test result.

Response to Question 14

14-1:

-Accent(4DR), Sonata Test Report is provided

-All of related test information is included in the test report.

14-2: Diagram of the steering column system : please see the Attachment #8

14-3: Describe how the components of the steering control system work to provide energy management in a frontal impact : please see the Attachment #9

HYUNDAI AMERICA TECHNICAL CENTER, INC.

Response to Question 15

N/A

Others

Test vehicle information : please see the Attachment #5

ATTACHMENT #4.

DUMMY MEASUREMENTS FOR
FRONT SEAT PASSENGERS(-)

MEASUREMENT ITEM	96MY ACCENT(3 DOOR)	96MY ACCENT(4 DOOR)	96MY SONATA
HH	13.1	12.9	13.4
NR	17.5	17.4	18.2
KDL	6.2	6.6	5.4
KDR	4.0	5.9	5.6
CS	12.7	12.7	13.5
SH	17.6	8.2	10.9
SHY	9.0	8.8	
HS(**)	11.9	12.1	13.5

[UNIT : INCHES]

NOTE) * : AVERAGE DATA FOR FMVSS 208 COMPLIANCE TESTS.

** : AMENDED DATA BASED ON HMC COMPLIANCE TEST REPORTS DUE TO THE
DIFFERENCE OF DUMMY MEASUREMENTS POINT BETWEEN HMC AND NHTSA.

ATTACHMENT #5.

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1996 MODEL YEAR, HYUNDAI
 Vehicle Model & Body Style: ACCENT 4 DOOR SEDAN, 3 DOOR HATCHBACK

1. NOMINAL DESIGN RIDING POSITION --

For adjustable driver and passenger seat backs.

Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat:

Seat back angle for driver's seat = 17 degrees.

Measurement Instructions:

Seat back angle is measured along the rear edge of

the metal seat back shell on seat centerline as attached

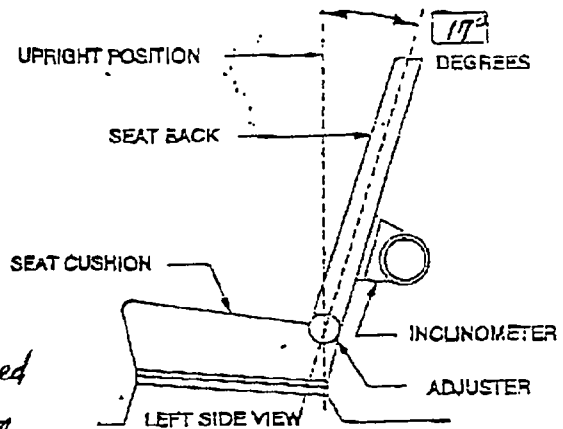
sketch 1. Adjust seat back to 9th latch position from

the initial lock position. Seat back angle is measured with the dummy in the seat.

Seat back angle for passenger's seat = 17 degrees.

Measurement Instructions:

Same as driver seat.



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:

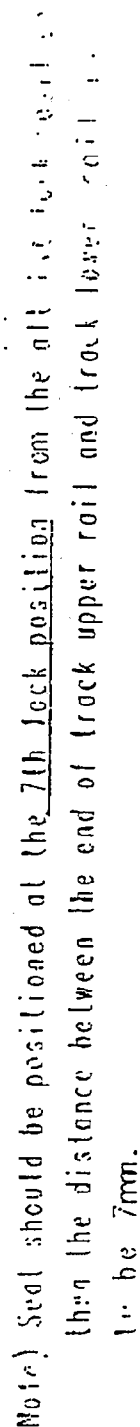
See attached sketch 2 and 3.

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

Same as driver seat.

Rev. 7/11/94

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841.

[illegible]

HYUNDAI MOTOR COMPANY

CHECKER	TITLE

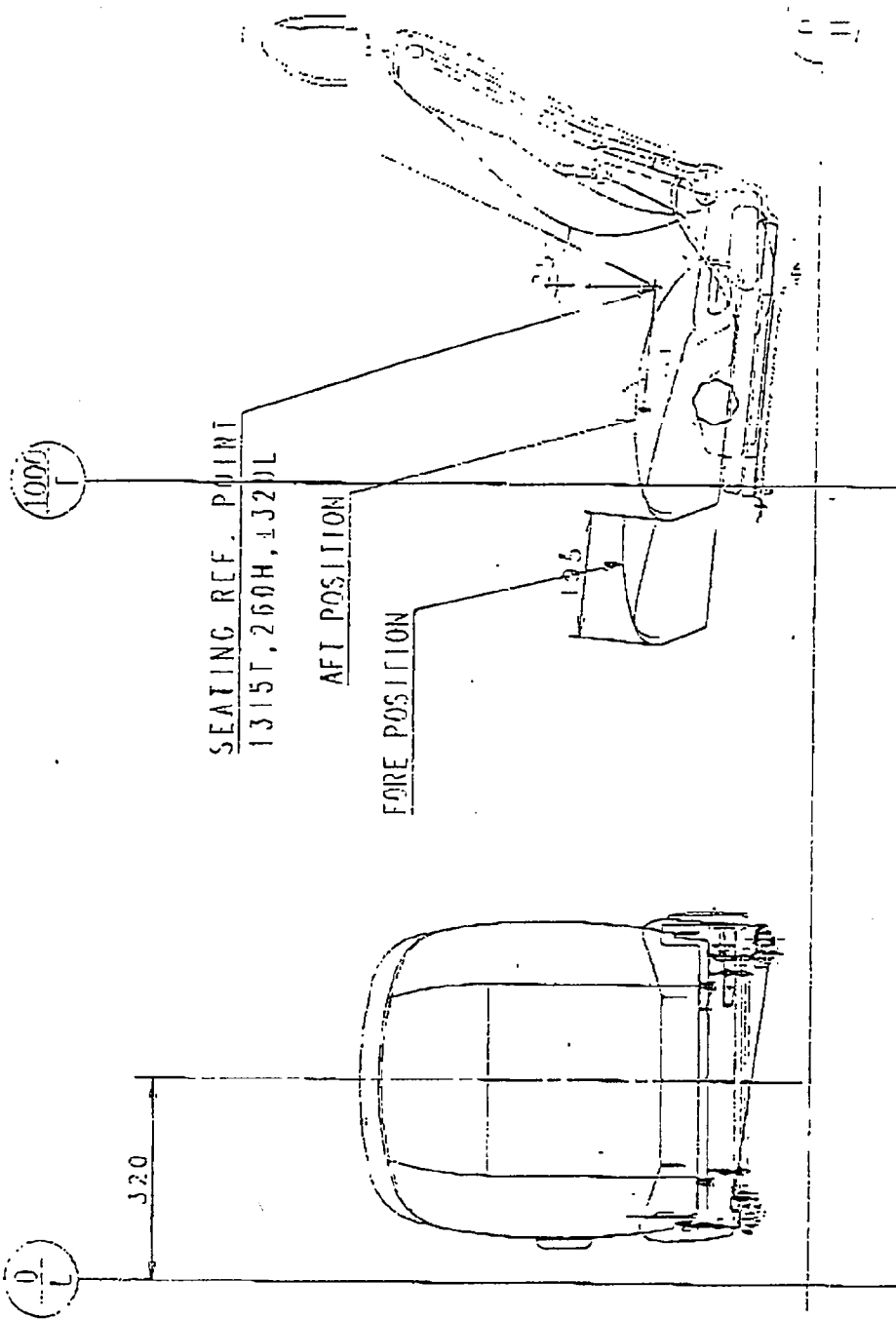
DATE 4/17/72 SEAT ADJUSTMENT POSITION IN THE CENTER OF
FORE AND AFT TRAVEL

DRG NUMBER:

96MY ACCENT

FMVSS 208

SKETCH #3



HONDA MOTOR COMPANY

CHECKED	TITLE	ERG. NUMBER
DATE	MEASUREMENT POSITION OF SEATING REF.	96MY ACCENT
		FMVSS 208

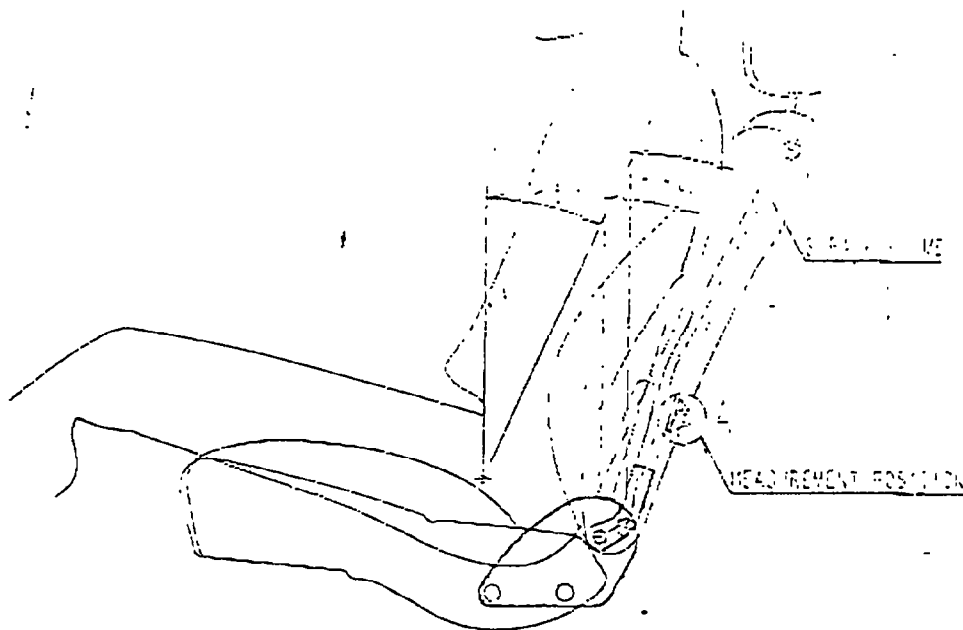
DATE	REVISIONS	DR	CK	NO	DATE	REVISIONS

ATTACHMENT #7.

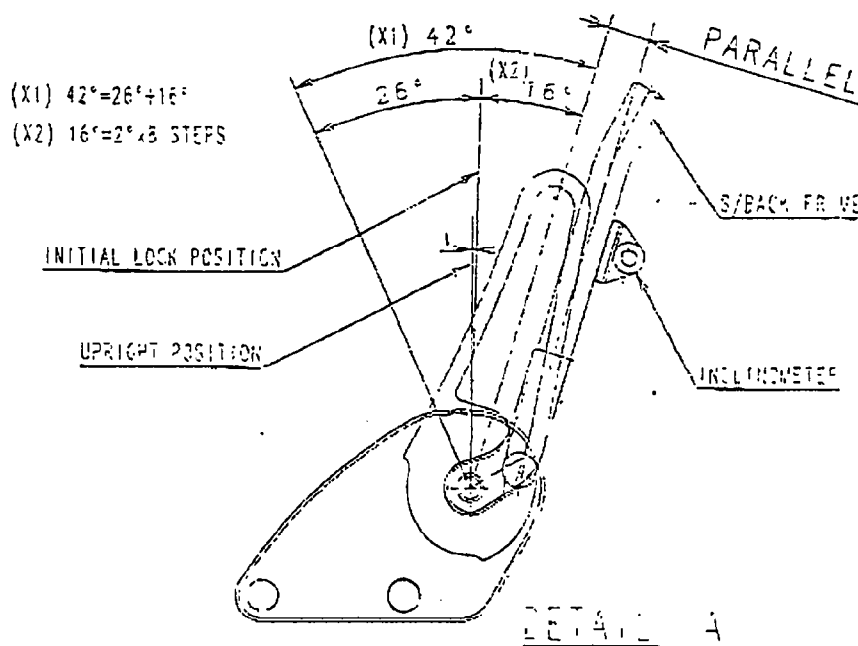
FMVSS COMPLIANCE TEST RESULTS (ACCENT 3 DOOR)

ITEM	KINDS OF TESTS	RESTRAINT	REPORT NO.	IMPACT SPEED (MPH)	VEHICLE TEST WEIGHT (LBS)		INJURY CRITERIA				CHEST COMP. (IN)	
					FRONT	REAR	HIC		CHEST (g)		FEMUR LOAD (LBS)	
							DR.	PASS.	DR.	PASS.	DR. (L/R)	PASS. (L/R)
FMVSS 208	FRONTAL IMPACT	A/BAG+S/BELT	LSAX3-94218	30.4	1634.8	1120.2	408.2	254.3	51.5	46.3	884.7 / 381.2	997.6 / 816.8
					1625.2	1132.8	443.5	285.8	44.9	45.9	1332.9 / 1109.6	1158.5 / 1733.3
		A/BAG ONLY	LSAX3-94212	30.2	1631.0	1127.0	289.6	256.7	44.1	38.0	-315.7 / 1687.9	861.4 / -250.7
					1627.9	1130.3	189.2	290.5	36.4	27.8	1129.9 / 1401.9	1347.5 / 779.1
NCAP	30° OBLIQUE IMPACT (PASSENGER SIDE)	A/BAG+S/BELT	LSAX3-94215	30.1	1636.1	1121.9	147.7	187.7	42.7	43.3	1124.1 / 497.6	588.8 / 1035.7
					1640.3	1147.8	114.3	766.7	45.6	39.2	1736.8 / 1484.6	956.3 / 1271.2
		A/BAG ONLY	LSAX3-94199	30.2	1629.4	1128.6	988.1	433.5	54.1	59.8	580.9 / 758.6	844.4 / 884.9
					1629.4	1128.6	988.1	433.5	54.1	59.8	580.9 / 758.6	844.4 / 884.9

SKETCH #1



Note) Seat back cover should be torn for attaching the inclinometer correctly on measurement position.



HYUNDAI MOTOR COMPANY

CHECKER'S TITLE

DATE

MEASUREMENT POSITION OF S/BACK ANGLE

SEGS NUMBER

96MY ACCENT
 FMVSS 208