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

Chrysler Corporation
1995 Chrysler Cirrus
4-door sedan
NHTSA Number: CS0306
TRC Test Number: 950125

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



February 10, 1995

Final Report

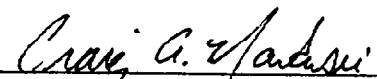
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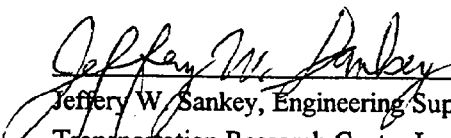
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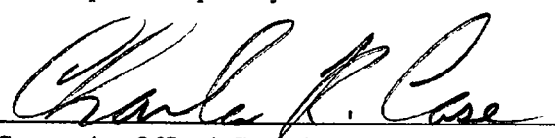
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16. Abstract A 30 mph flat frontal barrier impact test was conducted on a 1995 Chrysler Cirrus 4-door sedan, NHTSA No. CS0306, at Transportation Research Center Inc. on January 25, 1995. This test was conducted to determine compliance with Federal 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 11.4 inches. The ambient temperature was 74° F. The driver's Head Injury Criteria (HIC) was 466. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 54.8 g. The driver's left and right femur maximum axial forces were 1506 pounds and 1569 pounds, respectively. The passenger's HIC was 141. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47.7 g. The passenger's left and right femur maximum axial forces were 1510 pounds and 1494 pounds, respectively.			
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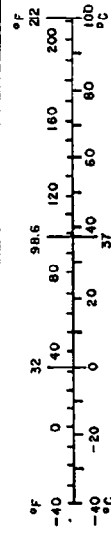
METRIC CONVERSION FACTORS

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				
teaspoon	teaspoons	5	milliliters	ml
fl oz	fluid ounces	16	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

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
km	kilometers	1.1	yards	yd
		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	ac
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	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	36	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



*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.35, SO Catalog No. C13.10286.

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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 1995 Chrysler Cirrus 4-door sedan, NHTSA No. CS0306, 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 January 25, 1995

The test vehicle, a 1995 Chrysler Cirrus 4-door sedan, NHTSA No. CS0306, 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 3575 pounds. The vehicle's impact speed was 29.3 mph. The vehicle's maximum static crush was 11.4 inches.

The driver's HIC was 466. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 54.8 g. The driver's left and right femur maximum compressive forces were 1506 pounds and 1569 pounds, respectively.

The right front passenger's HIC was 141. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47.7 g. The right front passenger's left and right femur maximum compressive forces were 1510 pounds and 1494 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 top X-axis accelerometer, ENGXG1, lost data between 16 and 20 milliseconds as a result of the accelerometer's cable being pinched by the vehicle's crush upon impact.

Table 1 Crash Test Summary

NHTSA number:	CS0306
Test type:	Frontal barrier impact
Test date:	01/25/95
Test time:	1456
Ambient temperature at impact area:	74° F
Vehicle year/make/ model/body style:	1995/Chrysler/Cirrus/4-door sedan
Vehicle test weight:	3575 lb
Impact angle ¹ :	0°
Impact velocity ² :	
Primary:	29.3 mph
Secondary:	29.3 mph
Maximum static crush:	11.4 inches
Average rebound:	19.3 in
Number of cameras:	
Real-time:	2
High-speed:	14
Door opening data:	
Left-front:	Easy
Right-front:	Easy
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 #354</u>	<u>Passenger #1173</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 restraint	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: 1995 /Chrysler/Cirrus/4-door sedan

Color: Burgundy

VIN: 1C3EJ56H6SN508707

NHTSA number: CS0306

Engine data:

Placement: Transverse/lateral

Cylinders: 6

Displacement: 2.5 liters

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

Final drive: X fwd, rwd, 4wd

Date vehicle received: 11/22/94

Odometer reading: 139

Dealer's name
and address: Hunter's Chrysler
215 West Emmitt Street
Waverly, OH 45690

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by: Chrysler Corporation

Date of manufacture: 10/94

VIN: 1C3EJ56H6SN508707

GVWR: 4112 lb

GAWR: Front: 2305 lb

Rear: 1882 lb

Table 2 Test Vehicle Information, Cont'd.

Size of tires on vehicle: P195/65R15

Spare tire: Temporary

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P195/65R15

Recommended cold tire pressure:

Front: 30 psi

Rear: 30 psi

Designated seating capacity:

Front 2

Rear 3

Total 5

Vehicle capacity weight: 865 lbs.

Test vehicle attitudes:

Delivered attitude: LF: 28.0 in. RF: 28.2 in LR: 28.4 in RR: 28.5 in

Fully loaded attitude: LF: 27.3 in RF: 27.4 in LR: 27.0 in RR: 27.3 in

Pre-test attitude: LF: 27.4 in RF: 27.6 in LR: 26.6 in RR: 27.0 in

Table 2 Test Vehicle Information, Cont'd.

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

Right front	989	lb	Right rear	560	lb
Left front	1029	lb	Left rear	574	lb
Total front weight	2018	lb	(64.0% of total vehicle weight)		
Total rear weight	1134	lb	(36.0% of total vehicle weight)		
Total delivered weight	3152	lb			

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3152 lb)

VCW¹ = Vehicle Capacity Weight (865 lb)

DSC = Designated Seating Capacity (5)

RCLW = VCW - 150 (DSC) = 865 - 150(5) = 115 lb

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

Target test weight = 3152 + 115 + 328 = 3595 lb

Weight of test vehicle with required dummies and 95 lb of cargo weight:

Right front	1047	lb	Right rear	704	lb
Left front	1107	lb	Left rear	717	lb
Total front weight	2154	lb	(60.2% of total vehicle weight)		
Total rear weight	1421	lb	(39.8% of total vehicle weight)		
Total test weight	3575	lb	(0.6% under target test weight)		

Weight of ballast secured in vehicle cargo area: 0 lb

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 42.8 in

Vehicle Wheelbase: 107.8 in

¹ From vehicle's tire load label.

Table 3 Post-Impact Data

Test number: 950125
NHTSA number: CS0306
Test date: 01/25/95
Test time: 1456
Test type: Frontal barrier impact
Impact angle: 0°
Ambient temperature
at impact area: 74° F
Temperature in
occupant compartment: 67° 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:

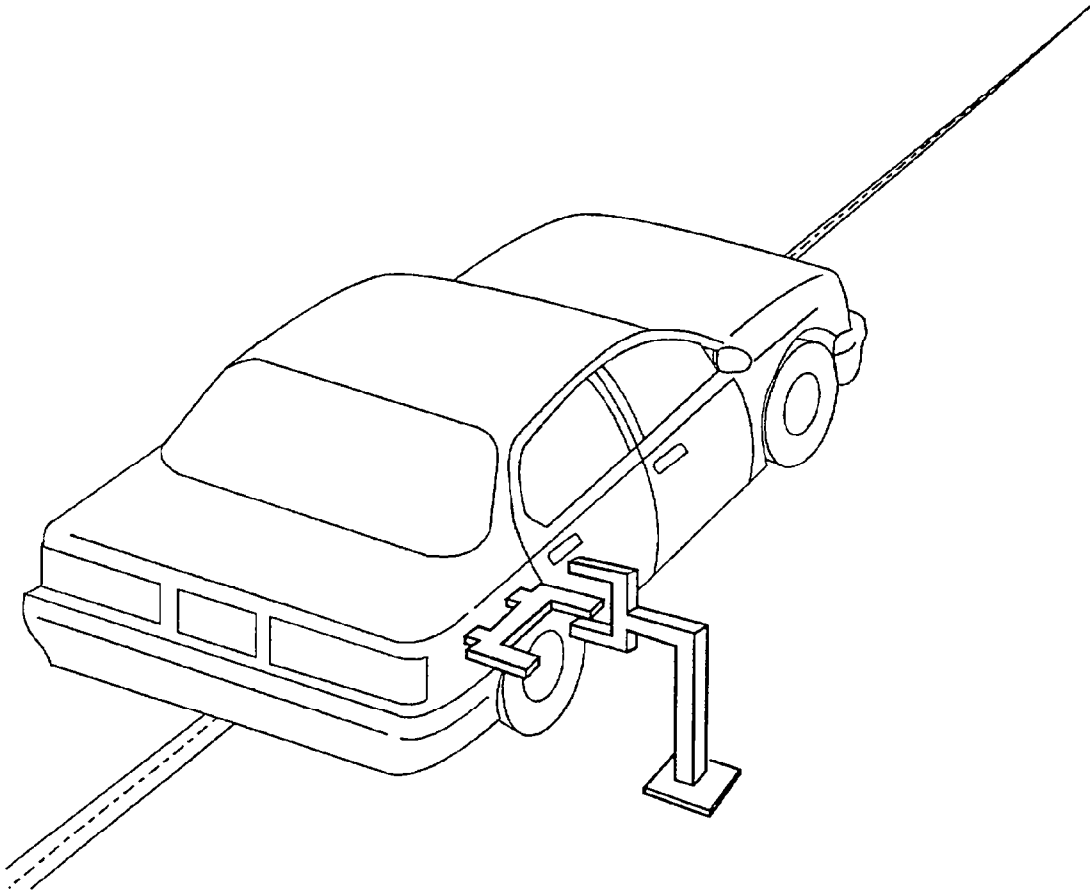
Pre-test:	L:	176.0 in	C:	186.4 in	R:	176.7 in
Post-test:	L:	170.0 in	C:	175.0 in	R:	171.8 in
Total crush:	L:	6.0 in	C:	11.4 in	R:	4.9 in
Average crush:		7.4 in				

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test:	L:	20.8 in	C:	19.0 in	R:	18.1 in
Average rebound:		19.3 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: CS0306
Test date: 01/25/95
Vehicle year/make/
model/body style: 1995/Chrysler/Cirrus/4-door sedan
Vehicle size category: Mid-size
VIN: 1C3EJ56H6SN508707
Build date: 10/94
Test weight: 3575 lb
Vehicle wheelbase: 107.8 in
Maximum width: 71.9 in
Front overhang: 38.3 in

Collision Deformation

Classification (CDC) Code: 12FDEW2

Crush depth measurements: C1: 6.0 in
C2: 9.3 in
C3: 11.0 in
C4: 10.3 in
C5: 7.2 in
C6: 4.9 in

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 60.0 in

Table 4 Post-test Airbag Data

NHTSA number: CS0306
Test date: 01/25/95
Technician: Markusic
Vehicle year/make/
model/body style: 1995/Chrysler/Cirrus/4-door sedan

A. Number of airbag vent holes:

Driver: 1
Passenger: 0

B. Size of airbag vent holes:

Driver: 1.0 in dia
Passenger: NA

C. Total airbag vent area:

Driver: 0.8 in²
Passenger: NA

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

Driver:	Length	NA
	Width	NA
	Diameter	26.0 in
Passenger:	Length:	27.0 in
	Width:	22.0 in
	Diameter:	NA

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

E. Is the airbag tethered?

Driver: Yes

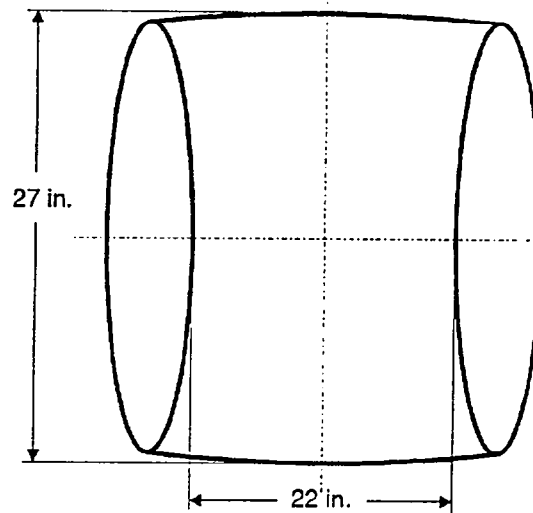
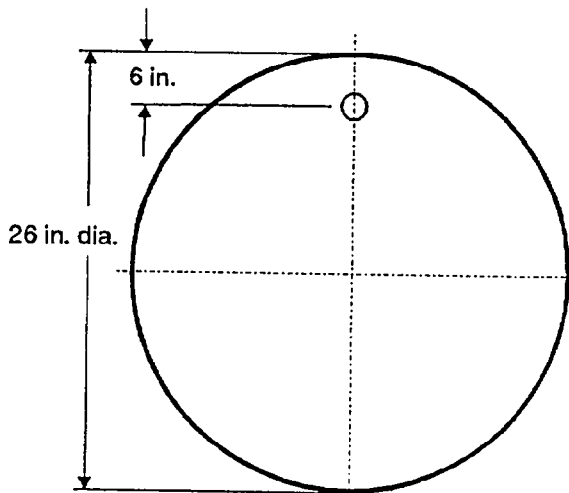
If yes, record length of tether: 9.0 inches

Passenger: Yes

If yes, record length of tether: 14.2 in

Driver's airbag:

Passenger's airbag



F. Airbag and gas generator part numbers and manufacturers' names.

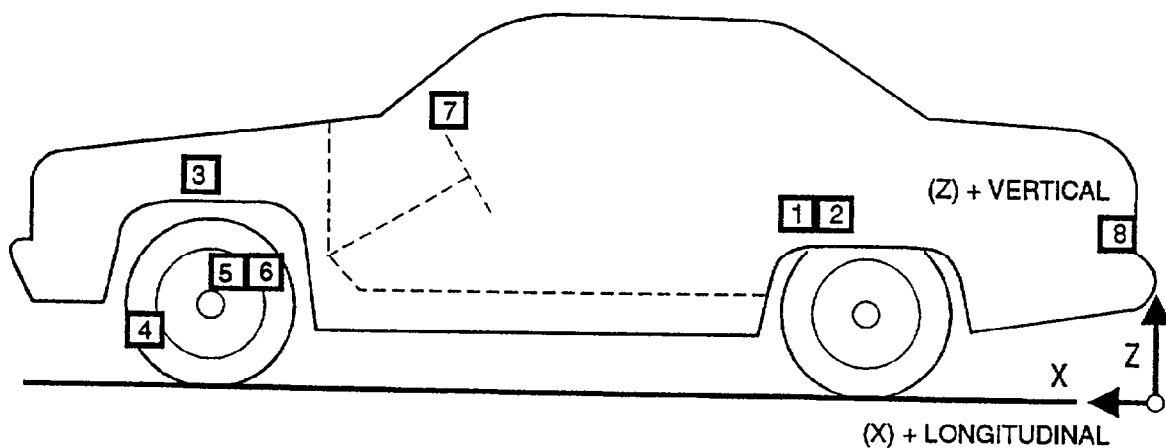
Driver: Airbag: Mfr.: NA; Part No.: TR7DT2B3420140, P04600179

Gen: Mfr.: NA; Part no.: NA

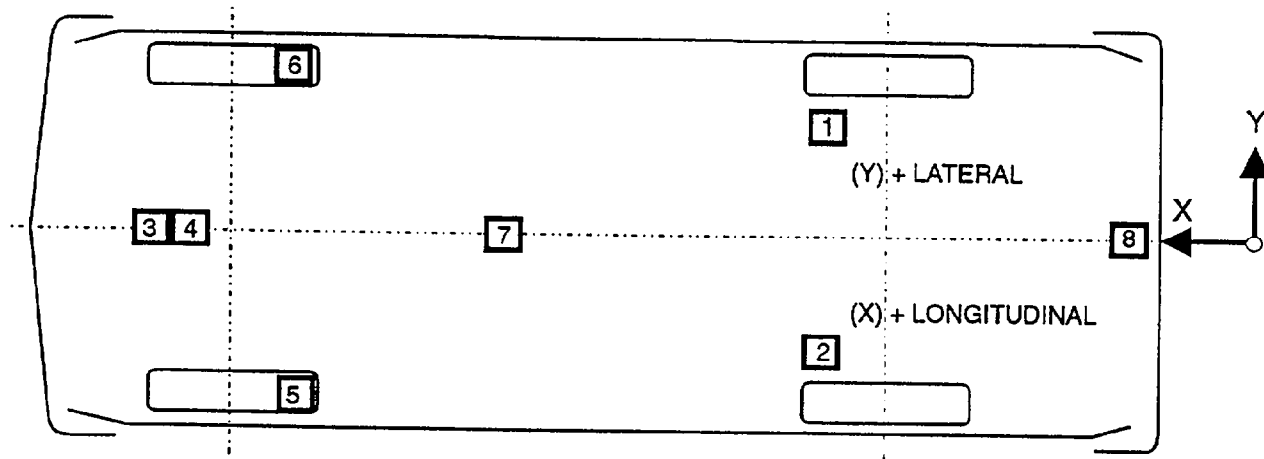
Passenger: Airbag: Mfr.: NA; Part No.: TCOPT284401038, 04595382

Gen: Mfr.: NA; Part no.: NA

Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 5 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: CS0306						POSITIVE	Negative
No. LOCATION	X	Y	Z	DIRECTION		DIRECTION	
1 LEFT REAR SEAT	PRE 72.5 in	25.0 in	13.0 in				
CROSSMEMBER	POST 72.4 in	25.0 in	13.9 in				
LONGITUDINAL				2.8 g @ 128.7 ms	43.9 g @ 42.0 ms		
2 RIGHT REAR SEAT	PRE 72.6 in	-25.0 in	13.0 in				
CROSSMEMBER	POST 72.6 in	-25.0 in	13.8 in				
LONGITUDINAL				2.9 g @ 127.5 ms	42.7 g @ 42.3 ms		
3 ENGINE TOP	PRE 165.2 in	-3.5 in	28.9 in				
	POST 161.8 in	-5.3 in	33.9 in				
LONGITUDINAL ¹				---	---	---	---
4 ENGINE BOTTOM	PRE 157.5 in	-9.2 in	6.3 in				
	POST 149.1 in	-9.1 in	6.7 in				
LONGITUDINAL				19.8 g @ 44.2 ms	129.5 g @ 30.3 ms		
5 RIGHT BRAKE CALIPER	PRE 154.2 in	-27.6 in	13.8 in				
	POST 150.9 in	-25.8 in	13.4 in				
LONGITUDINAL				52.4 g @ 69.4 ms	77.2 g @ 54.8 ms		
6 LEFT BRAKE CALIPER	PRE 154.1 in	27.6 in	13.6 in				
	POST 151.1 in	25.8 in	13.6 in				
LONGITUDINAL				59.8 g @ 61.8 ms	127.6 g @ 47.4 ms		
7 INSTRUMENT PANEL	PRE 130.2 in	0.0 in	35.0 in				
CENTER	POST 132.9 in	0.0 in	36.3 in				
LONGITUDINAL				96.7 g @ 35.6 ms	94.8 g @ 31.0 ms		
8 VEHICLE REAR CENTER	PRE 10.0 in	0.0 in	19.2 in				
	POST 9.9 in	0.0 in	18.6 in				
VERTICAL				18.4 g @ 44.6 ms	10.0 g @ 30.0 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	-64.1 g	-11.3 g	-29.0 g	69.2 g	-58.9 g	-4.8 g	14.5 g
Passenger	-45.6 g	18.7 g	33.3 g	51.5 g	-48.8 g	7.1 g	-22.4 g

<u>Maximum Femur Compressive Force</u>		
	<u>Left Femur</u>	<u>Right Femur</u>
Driver	1506 lbf	1569 lbf
Passenger	1510 lbf	1494 lbf

<u>Head Injury Criteria¹</u>			
	<u>HIC</u>	<u>Time t₁</u>	<u>Time t₂</u>
Driver	466	56.7 ms	90.6 ms
Passenger	141	52.3 ms	88.3 ms

<u>Chest Maximum Resultant Acceleration²</u>			
	<u>Accelerometer</u>	<u>Time t₁</u>	<u>Time t₂</u>
Driver	54.8 g	70.2 ms	73.2 ms
Passenger	47.7 g	68.8 ms	72.2 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 and slightly to the right into the seat back with the dummy's head contacting the head restraint. The 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 rearward and then forward into the airbag. The right front passenger dummy was restrained by the airbag. The right front passenger dummy came to rest in the right front passenger's seat leaning forward and slightly to the left.

Table 7 FMVSS 208 Seat Belt Comfort and Convenience Test Summary

Front Outboard Designated Seating Positions

NHTSA number: CS0306

Vehicle model year/make/model/body style: 1995/Chrysler/Cirrus/4-door sedan

Date of comfort/convenience check: 01/25/95

Technician performing check: Markusic

GVWR: 4112 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. - 7.4.2, 7.4.3, 7.4.4, 7.4.5, and 7.4.6.

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: CS0306

Vehicle model year/make/model/body style: 1995/Chrysler/Cirrus/4-door sedan

Date of comfort/convenience check: 01/25/95

Technician performing check: Markusic

GVWR: 4112 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 0.2 pounds.

Latchplate Access (S7.4.4):

The seat belt latchplates, are in their normal stowed position, 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: CS0306

Vehicle model year/make/model/body style: 1995/Chrysler/Cirrus/4-door sedan

Date of comfort/convenience check: 01/25/95

Technician performing check: Markusic

GVWR: 4112 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.

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 vehicle does not contain a center arm rest.

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 6 s.

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 6 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 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.

Have system checked if airbag readiness light does not come on or flickers during the first 6 to 8 seconds when ignition is first turned on, if the light remains on or flickers after the 6 to 8 second interval, or if the light flickers or comes on while driving.

Appropriate instructions concerning maintenance and/or replacement of this system were provided in the owner's manual on page 32.

A description of the functional operation of the system was provided in the owner's manual on pages 28-29.

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 28-29 and 32.

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 located on the upper left side 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 28.

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.

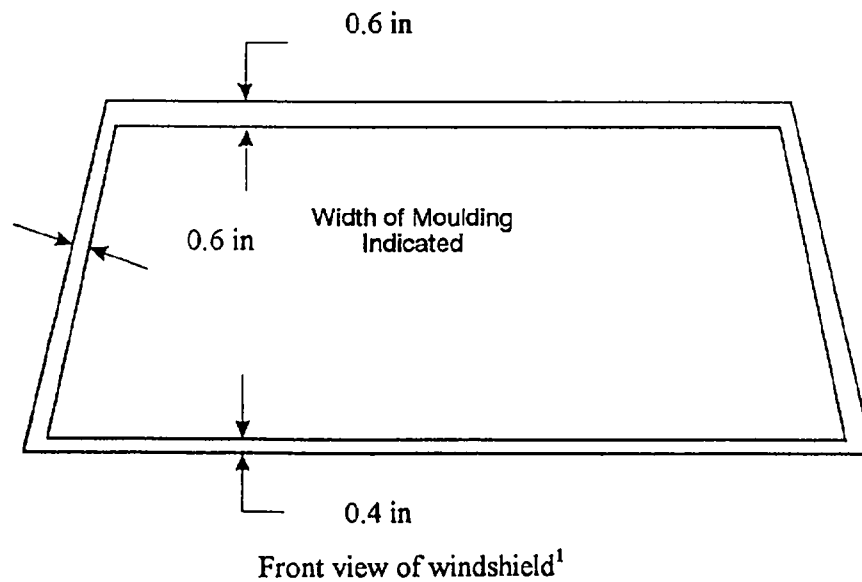
Clips or brackets used to retain windshield: None

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	87.4 in	87.4 in	100.0
Left side	87.4 in	87.4 in	100.0
Total	174.8 in	174.8 in	100.0

Pre-test windshield mounting material temperature: 67° F



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:

A: 48.5 in

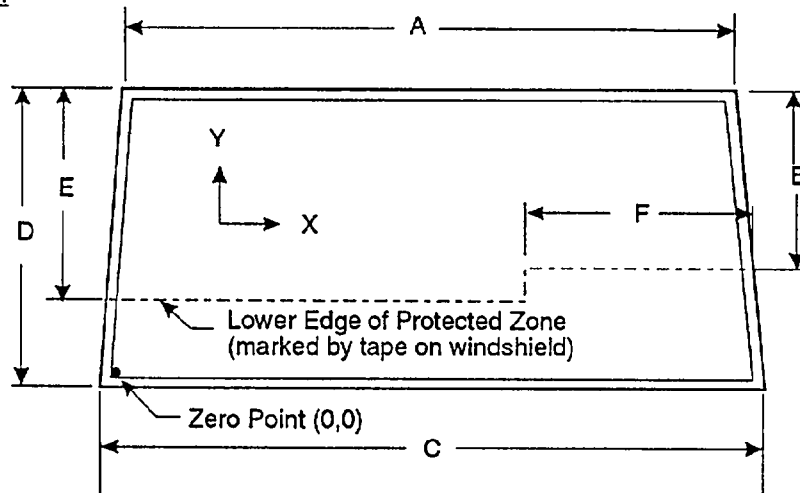
B: 17.4 in

C: 68.0 in

D: 31.0 in

E: 22.5 in

F: 26.0 in



FRONT VIEW

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:	1995/Chrysler/Cirrus/4-door sedan
NHTSA number:	CS0306
Fuel system capacity:	16.0 gal (from owner's manual)
Usable capacity:	16.0 gal (furnished by COTR)
Test volume range:	14.7 gal to 15.0 gal (92-94% of usable)
Actual test volume:	14.9 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 does 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. Fuel lines ran along the right side to the front.

Table 10 FMVSS 301 Post-Impact Test Data

NHTSA number: CS0306
Test date: 01/25/95
Vehicle year/make/
model/body style: 1995/Chrysler/Cirrus/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:

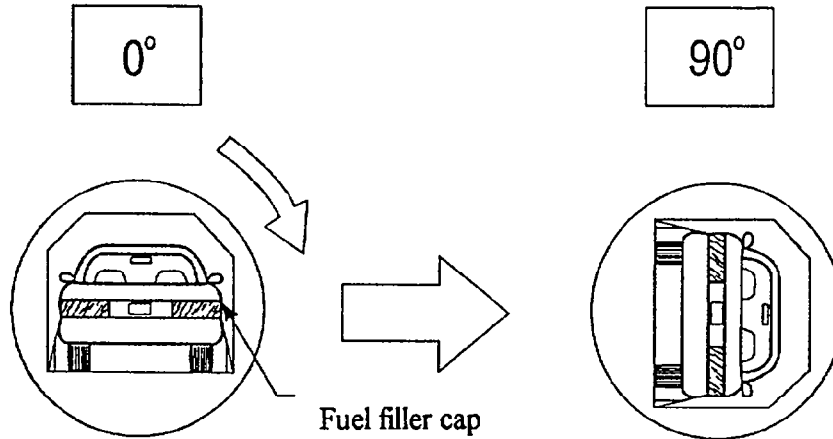
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 oz	1 oz
2. 5-Minute period after vehicle motion ceases	0 oz	5 oz
3. Next 25 minutes after 5-minute period	0 oz	1 oz/1 min

Fuel system fluid spillage location(s): None

Figure 6 FMVSS 301 Static Rollover Test Data

NHTSA number: CS0306

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	

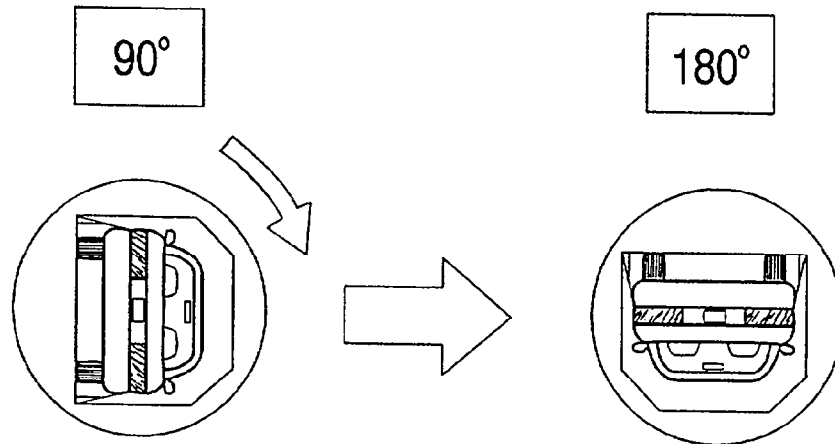
Fuel system fluid spillage measurements:

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

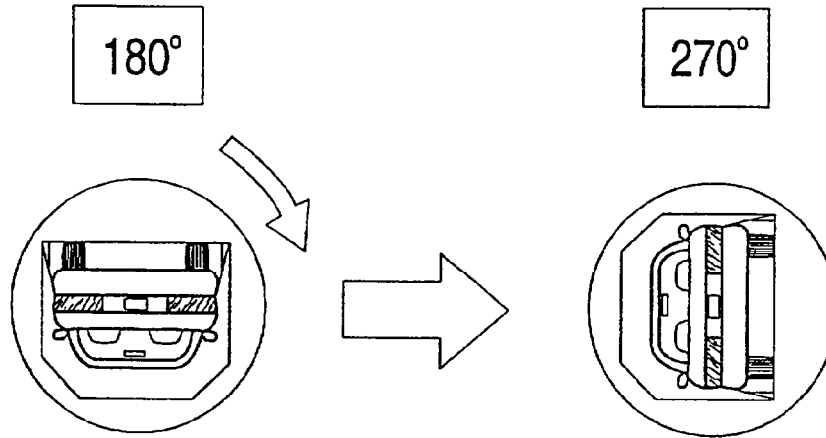
Fuel system fluid spillage measurements:

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		

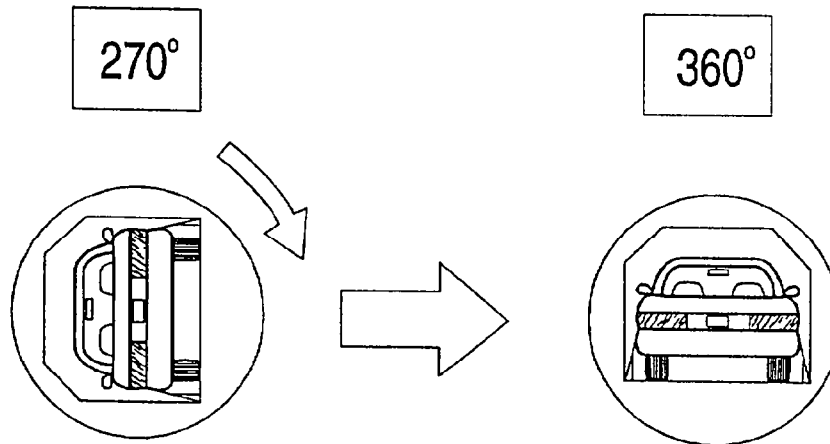
Fuel system fluid spillage measurements:

	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

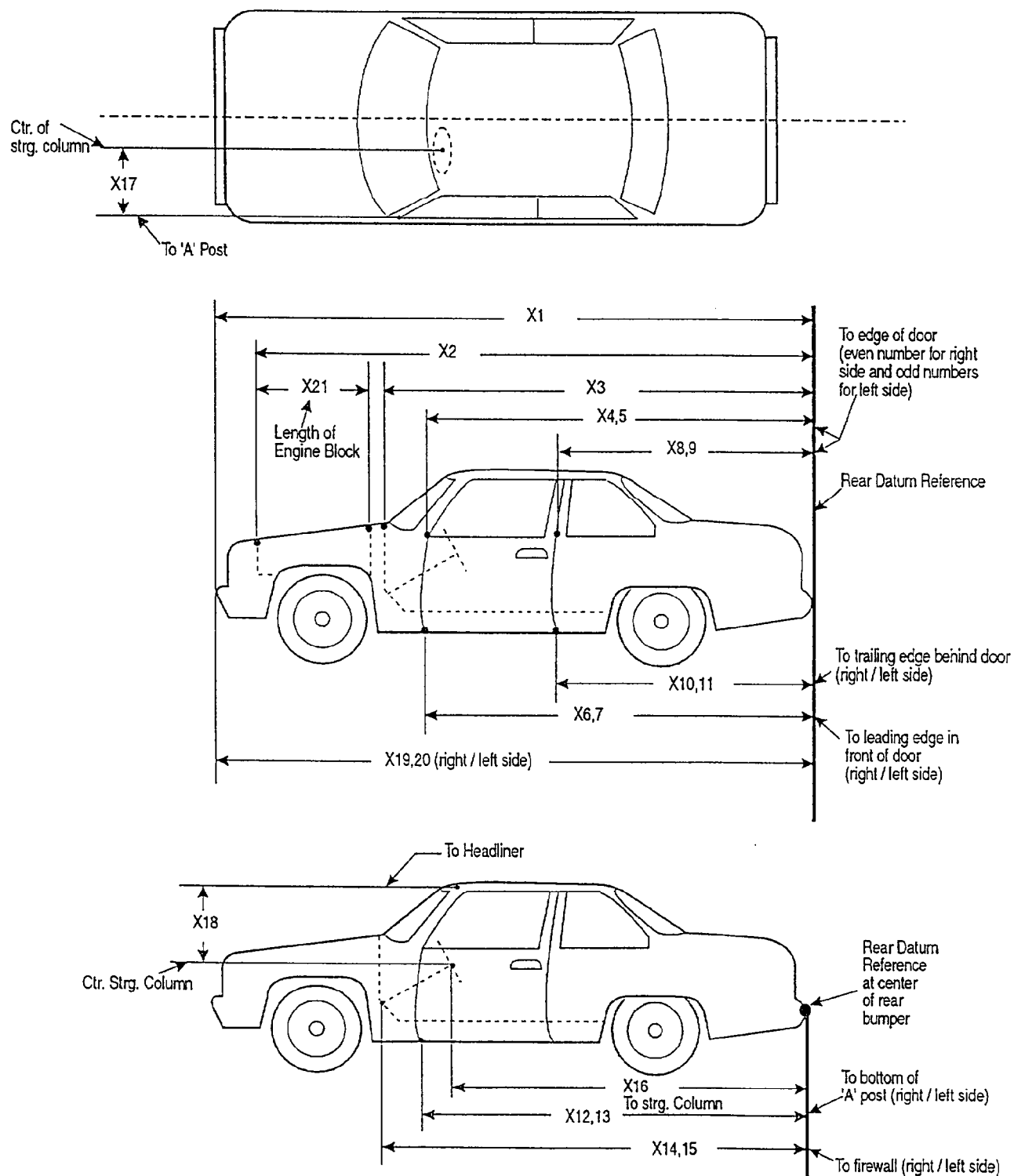


Table 11 Impacted Vehicle Measurements

Vehicle year/make/model/body style: 1995/Chrysler/Cirrus/4-door sedan Test number: 950125

No.	Type of Measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	186.4 in	175.0 in	11.4 in
X2	Rear surface of vehicle to front of engine block	166.2 in	163.0 in	3.2 in
X3	Rear surface of vehicle to firewall	142.7 in	146.8 in	-4.1 in
X4	Rear surface of vehicle to upper leading edge of right door	131.2 in	132.4 in	-1.2 in
X5	Rear surface of vehicle to upper leading edge of left door	131.2 in	131.9 in	-0.7 in
X6	Rear surface of vehicle to lower leading edge of right door	129.8 in	129.2 in	0.6 in
X7	Rear surface of vehicle to lower leading edge of left door	130.0 in	129.5 in	0.5 in
X8	Rear surface of vehicle to upper trailing edge of right door	86.0 in	86.8 in	-0.8 in
X9	Rear surface of vehicle to upper trailing edge of left door	86.3 in	86.6 in	-0.3 in
X10	Rear surface of vehicle to lower trailing edge of right door	86.0 in	85.4 in	0.6 in
X11	Rear surface of vehicle to lower trailing edge of left door	86.2 in	85.6 in	0.6 in
X12	Rear surface of vehicle to bottom of "A" post on right side	128.9 in	128.3 in	0.6 in
X13	Rear surface of vehicle to bottom of "A" post on left side	129.0 in	129.4 in	-0.4 in
X14	Rear surface of vehicle to firewall - right side	156.2 in	156.5 in	-0.3 in
X15	Rear surface of vehicle to firewall - left side	155.3 in	156.6 in	-1.3 in
X16	Rear surface of vehicle to steering wheel center	111.2 in	115.3 in	-4.1 in
X17	Center of steering column to "A" post	11.5 in	13.5 in	-2.0 in
X18	Center of steering column to headliner	14.8 in	14.8 in	0.0 in
X19	Rear surface of vehicle to right side of front bumper	176.7 in	171.8 in	4.9 in
X20	Rear surface of vehicle to left side of front bumper	176.0 in	170.0 in	6.0 in
X21	Length of engine block	18.2 in	18.2 in	0.0 in

Figure 8 Vehicle Target Locations

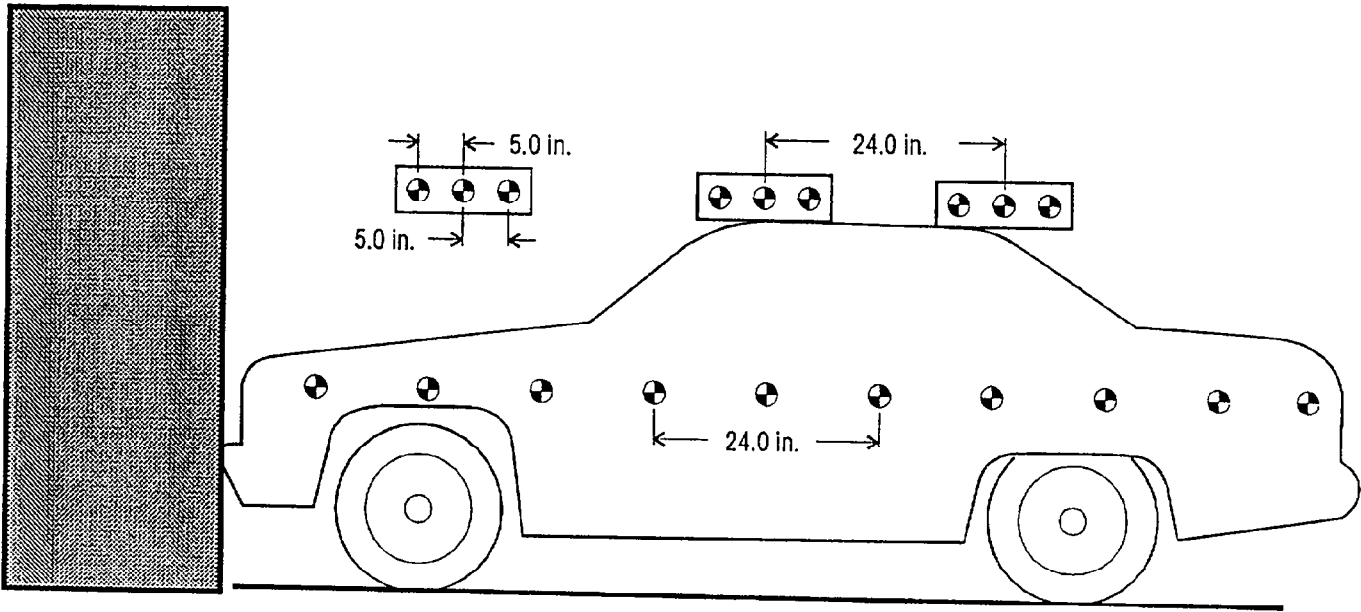


Figure 9 Dummy Measurement Locations for Front Seat Occupants

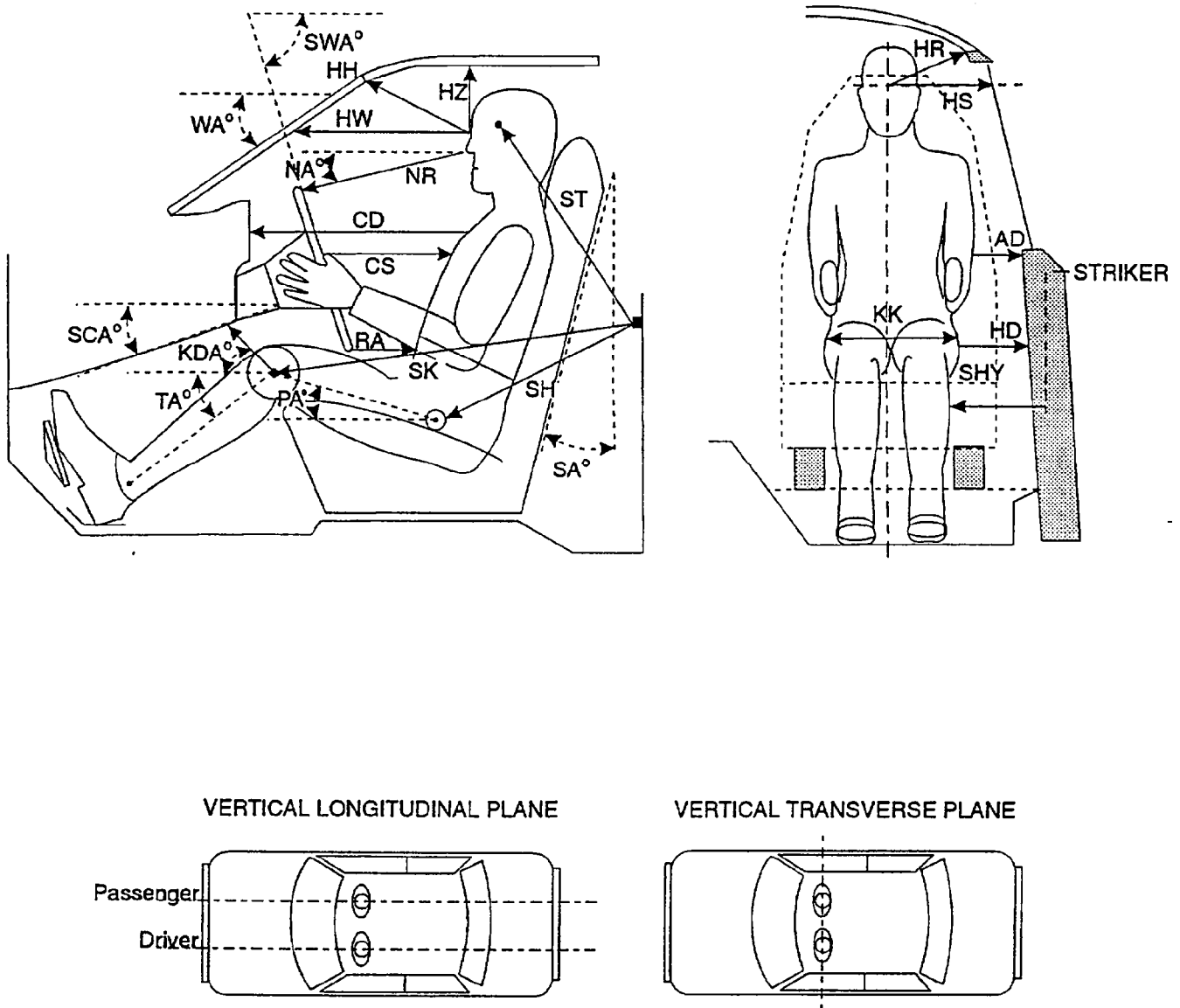


Table 12 Dummy Measurement Data for Front Seat Occupants

<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #354)</u>	<u>Passenger (Serial #1173)</u>
WA	Windshield angle	24°	24°
SWA	Steering wheel angle	66°	NA
SCA	Steering column angle	26°	NA
SA	Seat back angle	9°	9°
HZ	Head to roof	3.8 in	3.0 in
HH	Head to header	11.5 in	10.5 in
HW	Head to windshield	18.7 in	13.8 in
HR	Head to side header	8.1 in	7.3 in
NR	Nose to rim	15.3 in	NA
NA	Nose to rim angle	19°	NA
CD	Chest to dash	20.0 in	19.5 in
CS	Steering wheel to chest	12.9 in	NA
RA	Rim to abdomen	7.0 in	NA
KDL	Left knee to dash	3.1 in	2.8 in
KDR	Right knee to dash	3.6 in	2.4 in
KDA	Outboard knee to dash angle	38°	30°
PA	Pelvic angle	18°	19°
TA	Tibial angle	39°	42°
KK	Knee to knee	10.1 in	8.0 in
ST ¹	Striker to head	22.3 in	22.6 in
	Striker to head angle	-82°	-98°
SK ¹	Striker to knee	23.8 in	25.3 in
	Striker to knee angle	-2°	4°
SH ¹	Striker to H-point	9.7 in	10.1 in
	Striker to H-point angle	22°	14°
SHY	Striker to H-point (Y dir.)	9.8 in	10.2 in
HS	Head to side window	13.2 in	12.3 in
HD	H-point to door	6.1 in	7.4 in
AD	Arm to door	4.6 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

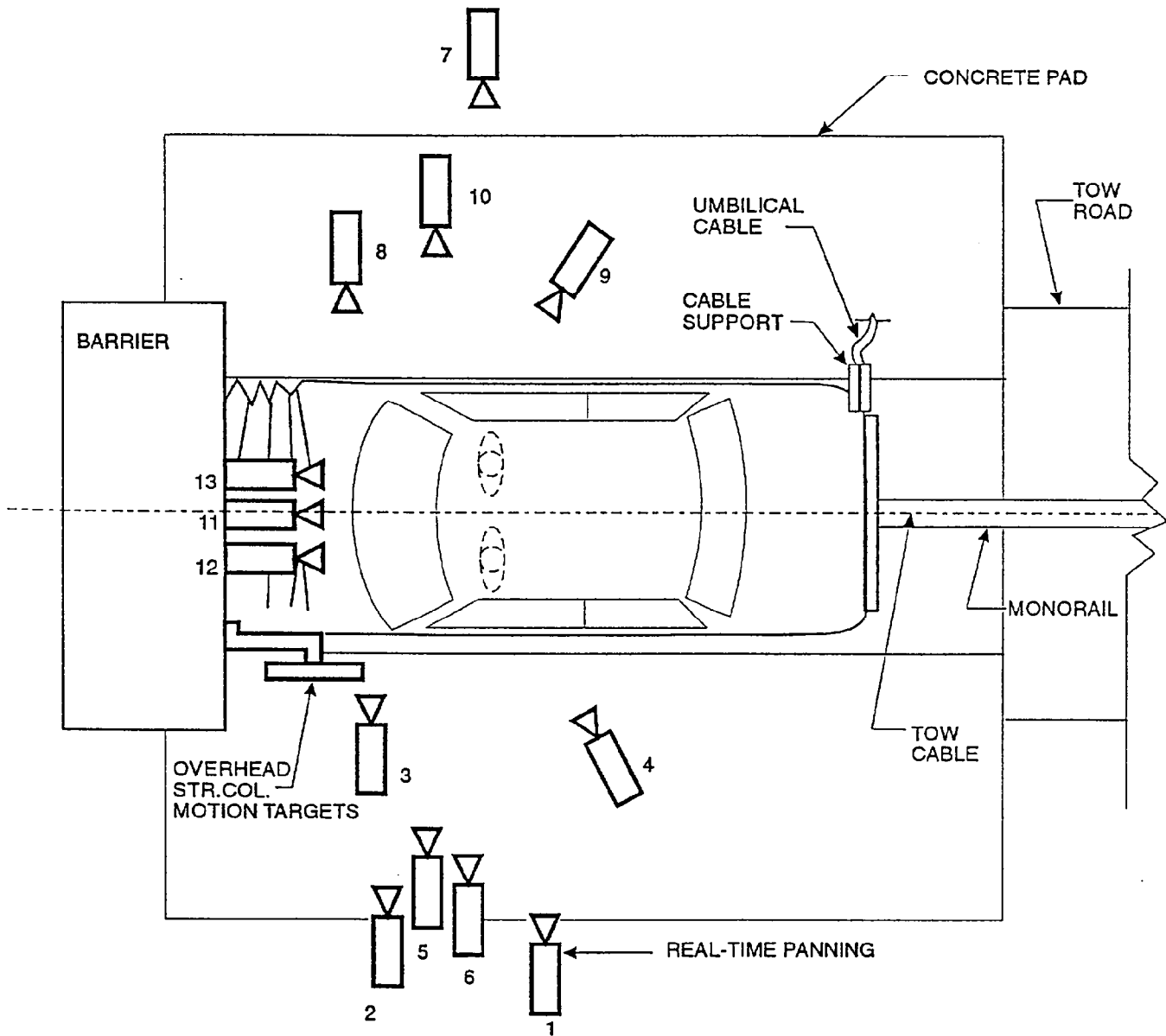


Figure 10 Camera Positions, Cont'd.

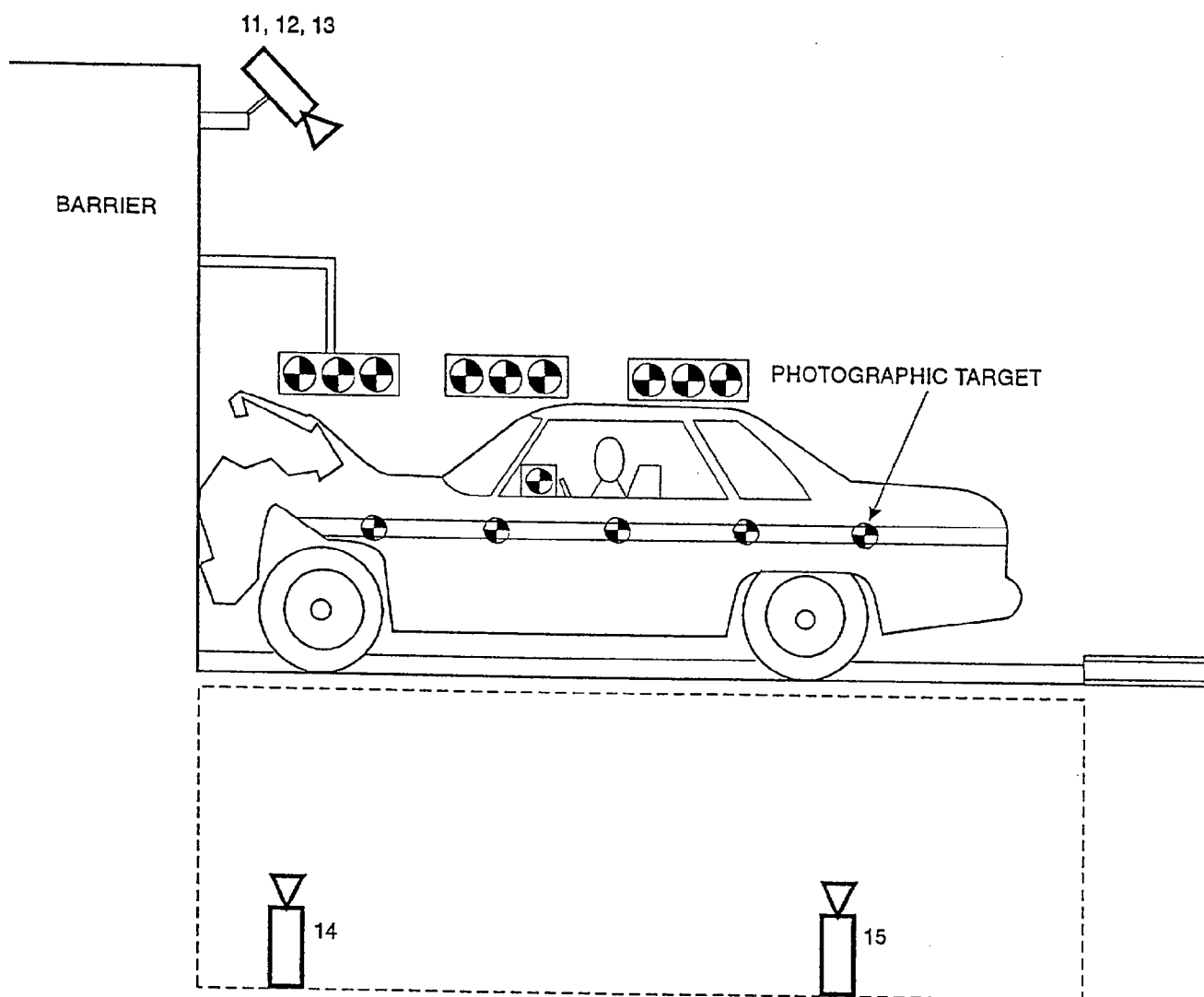


Table 13 Motion Picture Camera Locations

Vehicle year/make/model/body style: 1995/Chrysler/Cirrus/4-door sedan

Test number: 950125

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°	302.0 in	25 mm	983 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°	88.0 in	25 mm	1002 frames/s
5	Steering column motion	-84.0 in	286.0 in	103.0 in	-14°	NA	25 mm	1018 frames/s
6	Steering column motion	-84.0 in	286.0 in	75.1 in	-9°	NA	25 mm	1005 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	998 frames/s
9	Passenger kinematics	-152.1 in	-116.0 in	87.0 in	-26°	82.0 in	25 mm	992 frames/s
10	Passenger kinematics	-38.8 in	-293.0 in	45.3 in	-4°	226.0 in	25 mm	985 frames/s
11	Windshield front view	-6.0 in	0.0 in	88.0 in	-40°	NA	13 mm	995 frames/s
12	Driver - front view	-6.8 in	14.5 in	93.0 in	-50°	NA	17 mm	950 frames/s
13	Passenger - front view	-4.5 in	-13.8 in	93.0 in	-50°	NA	17 mm	1000 frames/s
14	Left ground level	-130.0 in	128.0 in	2.0 in	0°	NA	13 mm	1000 frames/s
15	Right ground level	-130.0 in	-128.0 in	2.0 in	0°	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

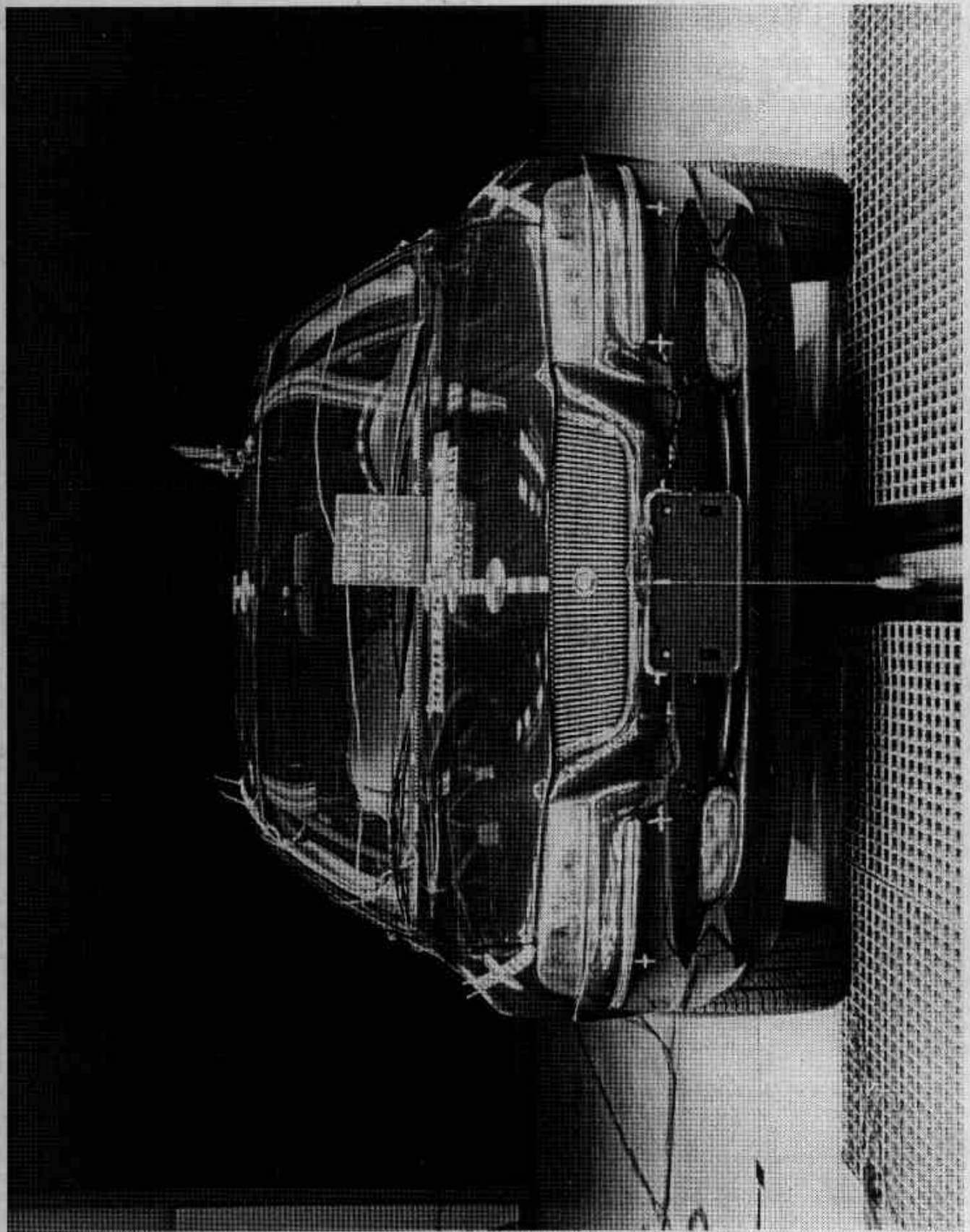


Figure A-1. Pre-Test Front View
A-2

950125

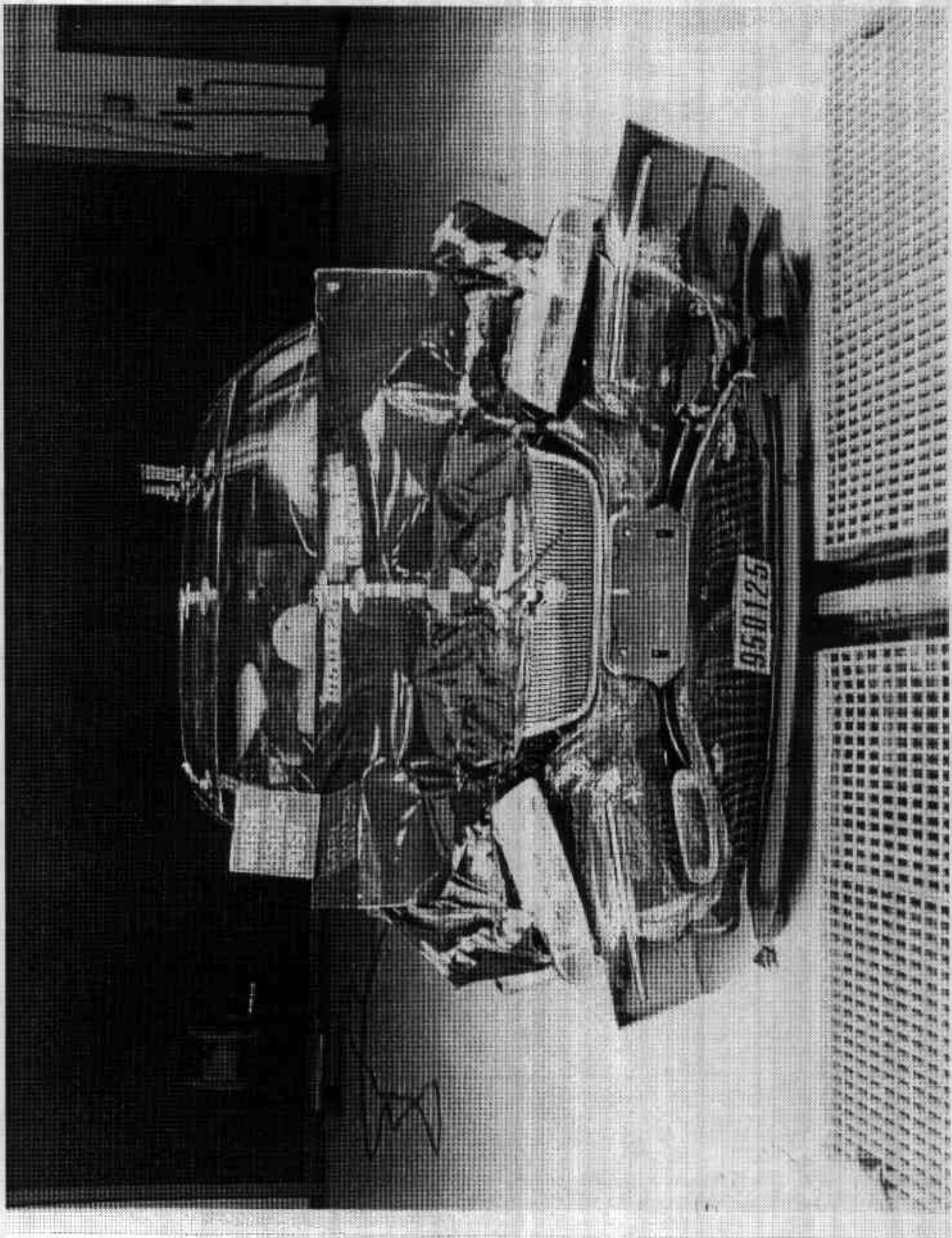


Figure A-2. Post-Test Front View
A-3

950125

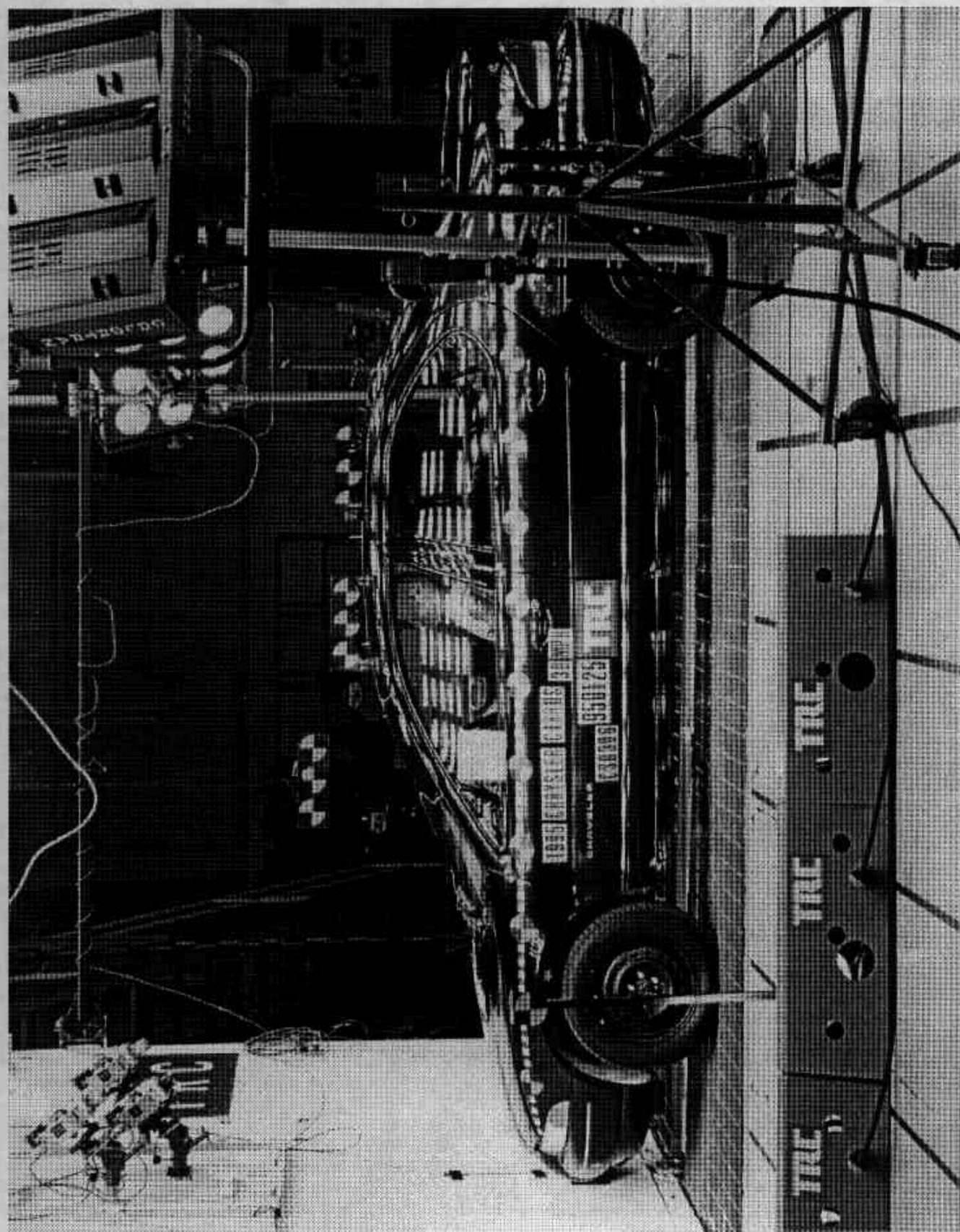


Figure A-3. Pre-Test Left Side View
A-4

950125

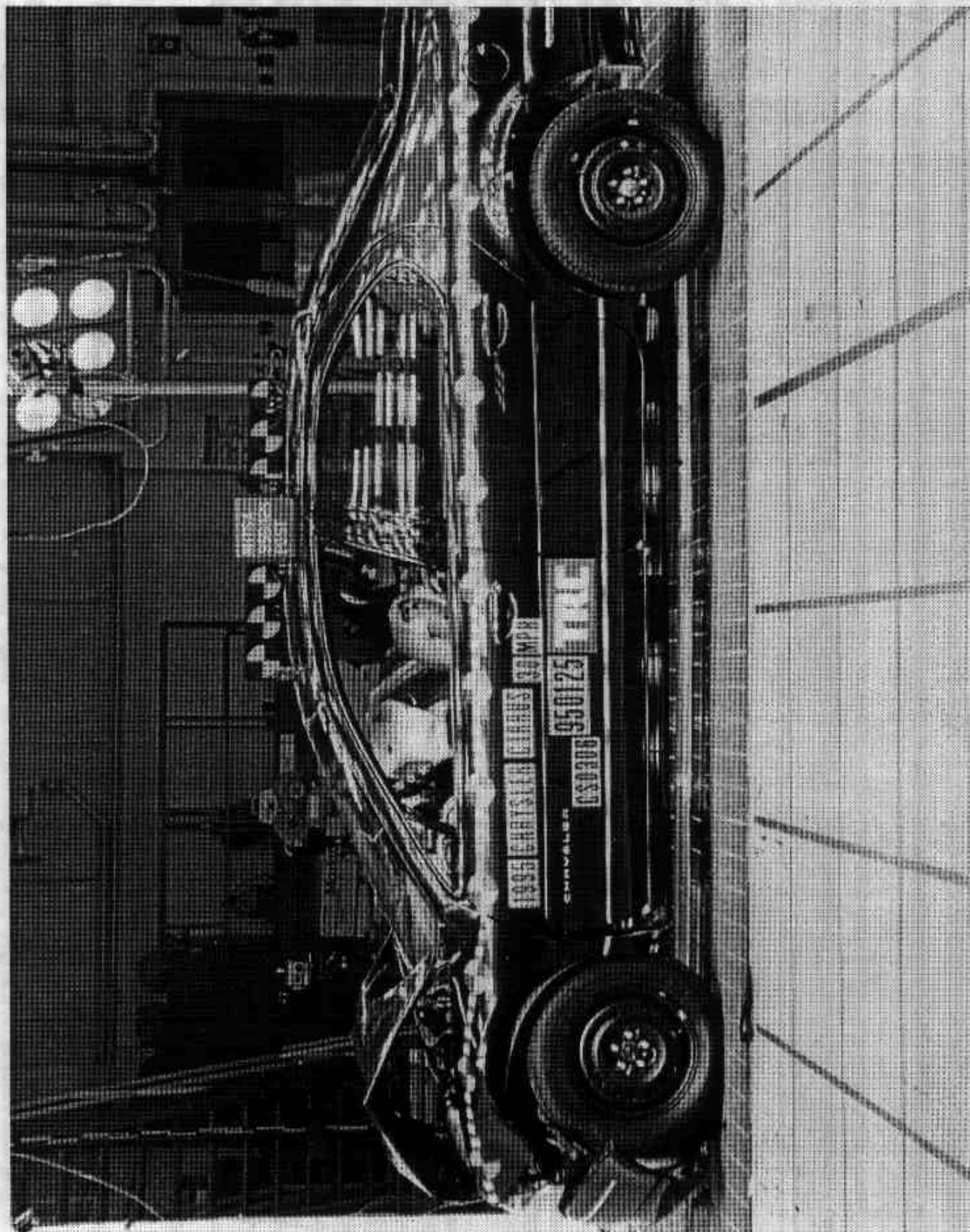


Figure A-4. Post-Test Left Side View
A-5

950125

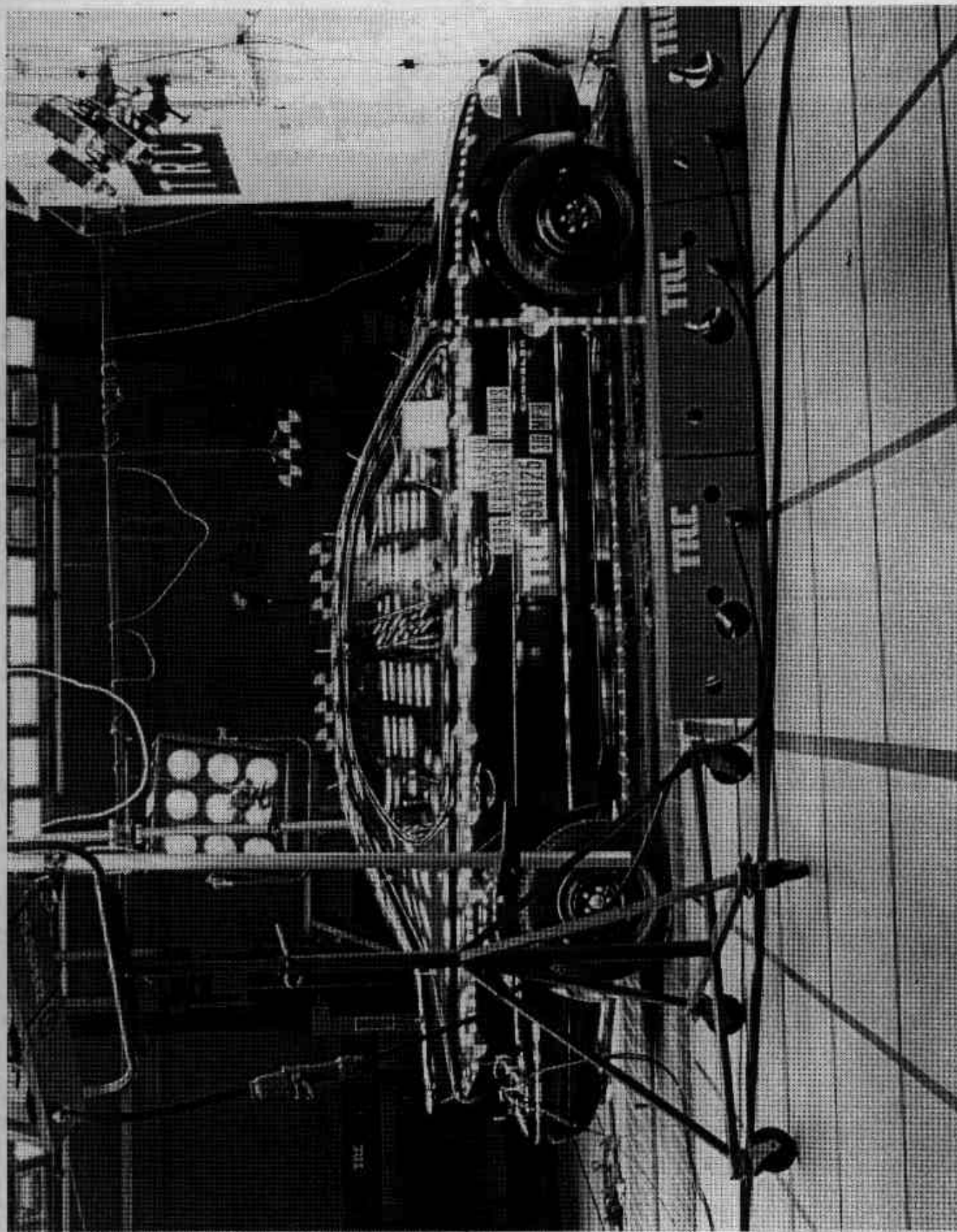


Figure A-5. Pre-Test Right Side View
A-6

950125

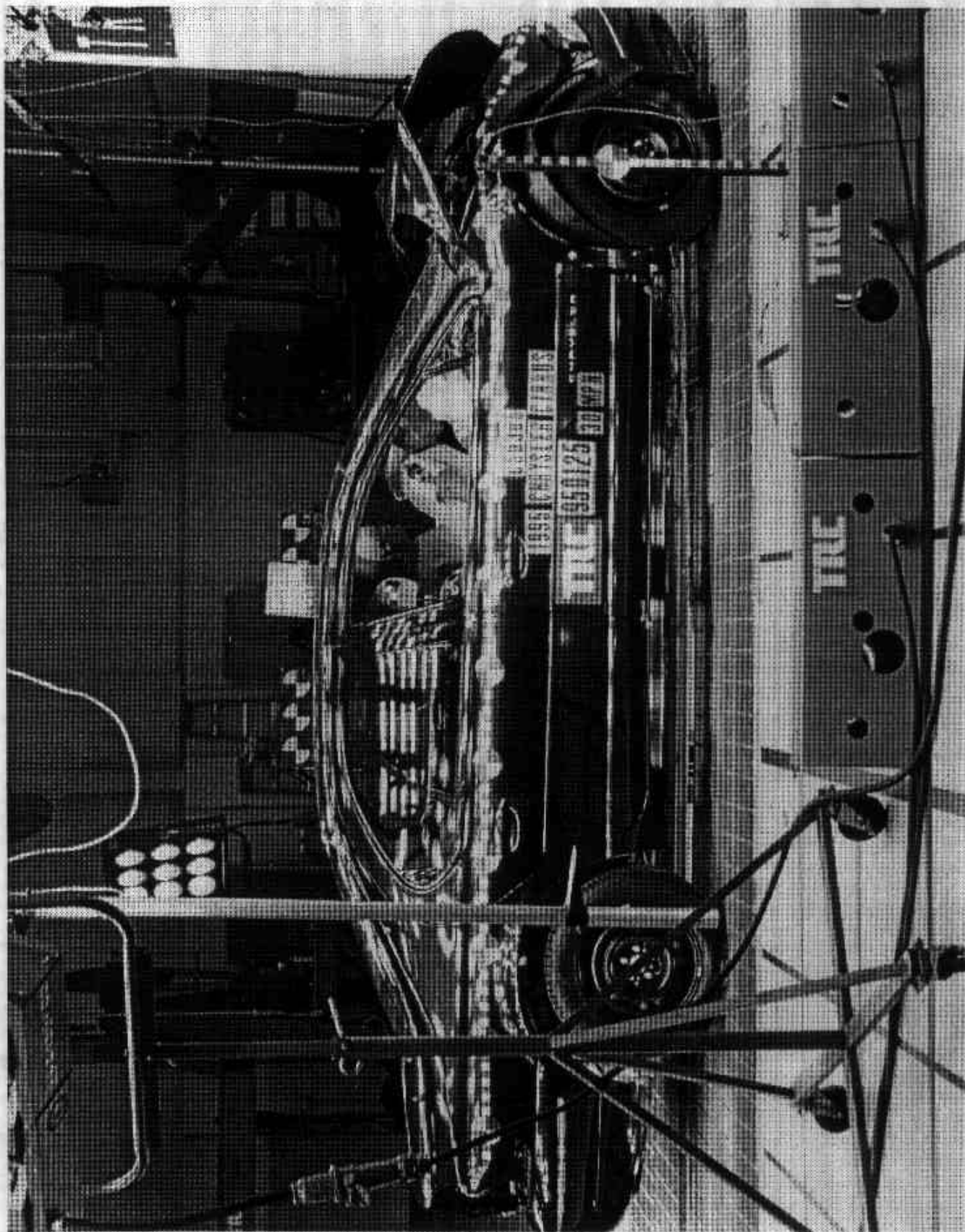


Figure A-6. Post-Test Right Side View
A-7

950125



Figure A-7. Pre-Test Front Underbody View
A-8

950125

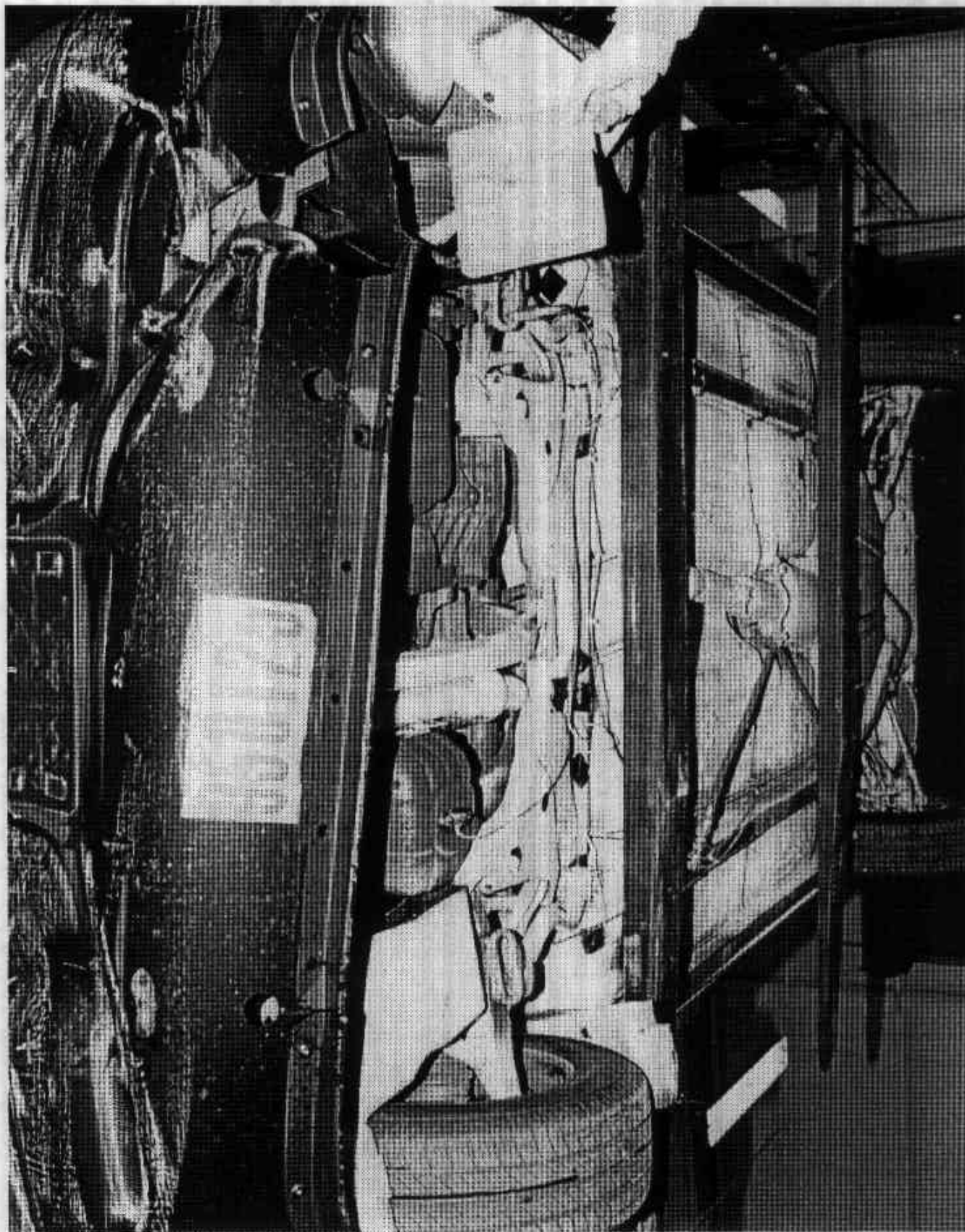


Figure A-8. Post-Test Front Underbody View
A-9

950125

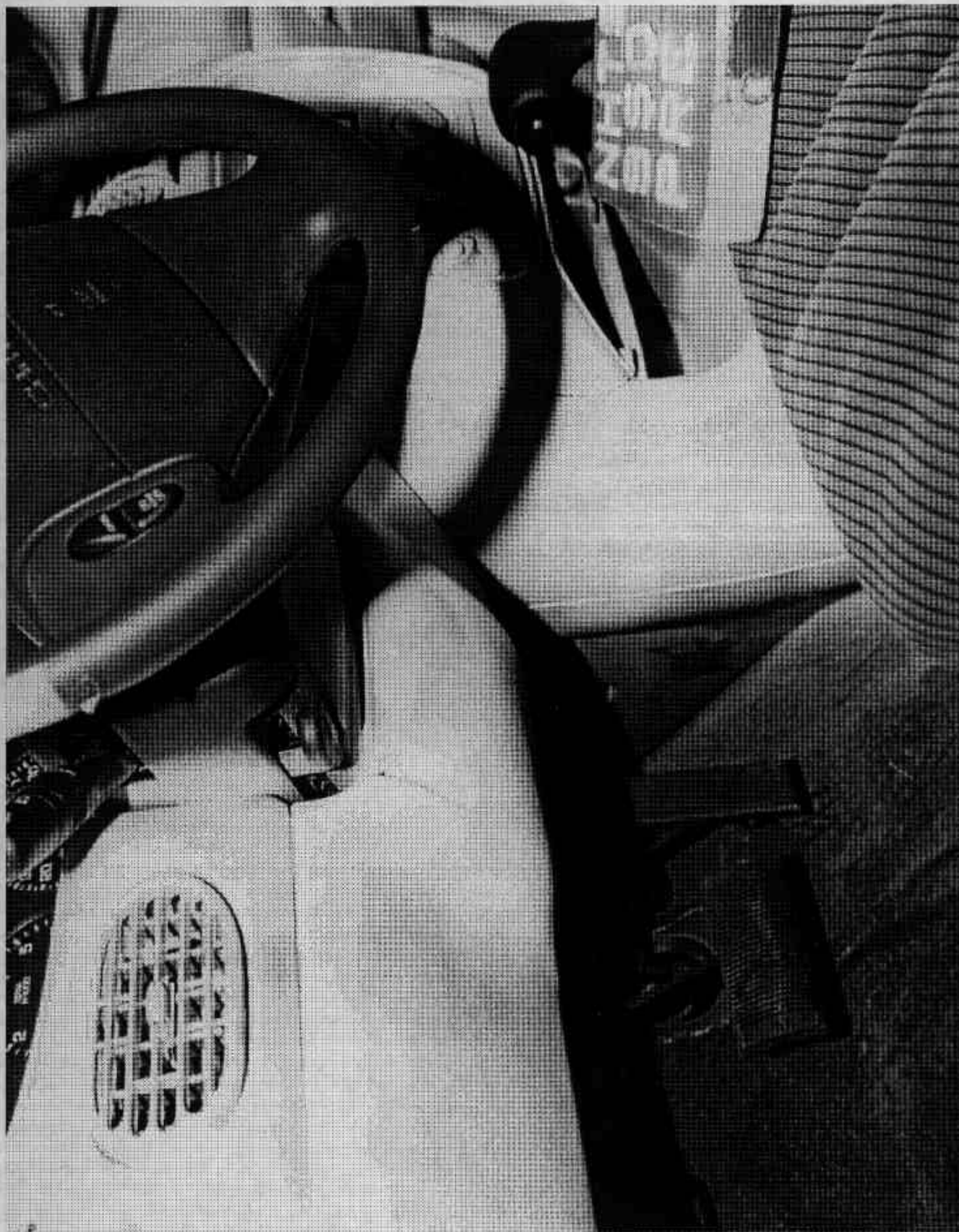


Figure A-9. Pre-Test Driver's Knee Bolster View
A-10

950125

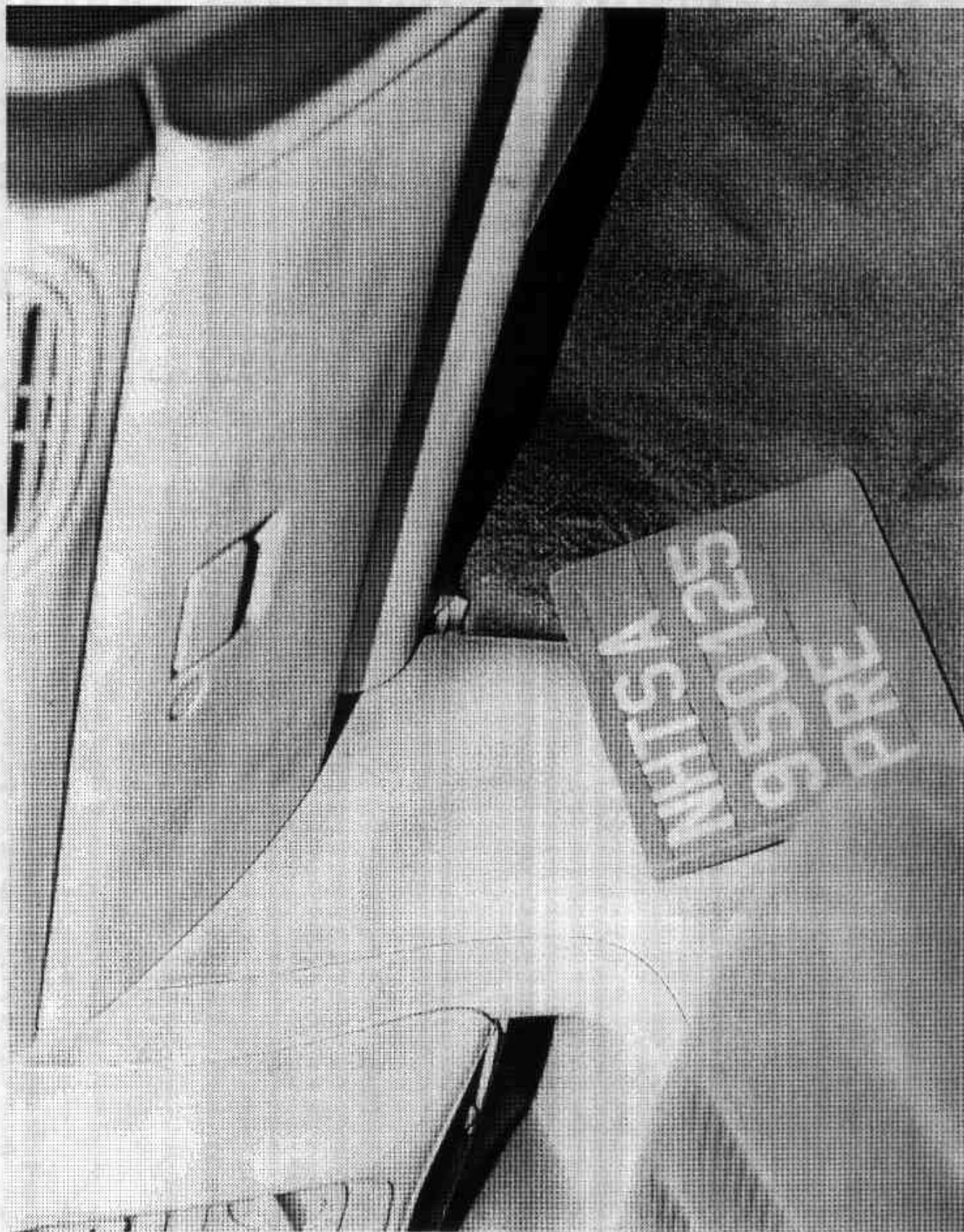


Figure A-10. Pre-Test Passenger's Knee Bolster View
A-11

950125



Figure A-11. Pre-Test Steering Column at Firewall View - Interior
A-12

950125



Figure A-12. Post-Test Steering Column at Firewall View - Interior

A-13

950125

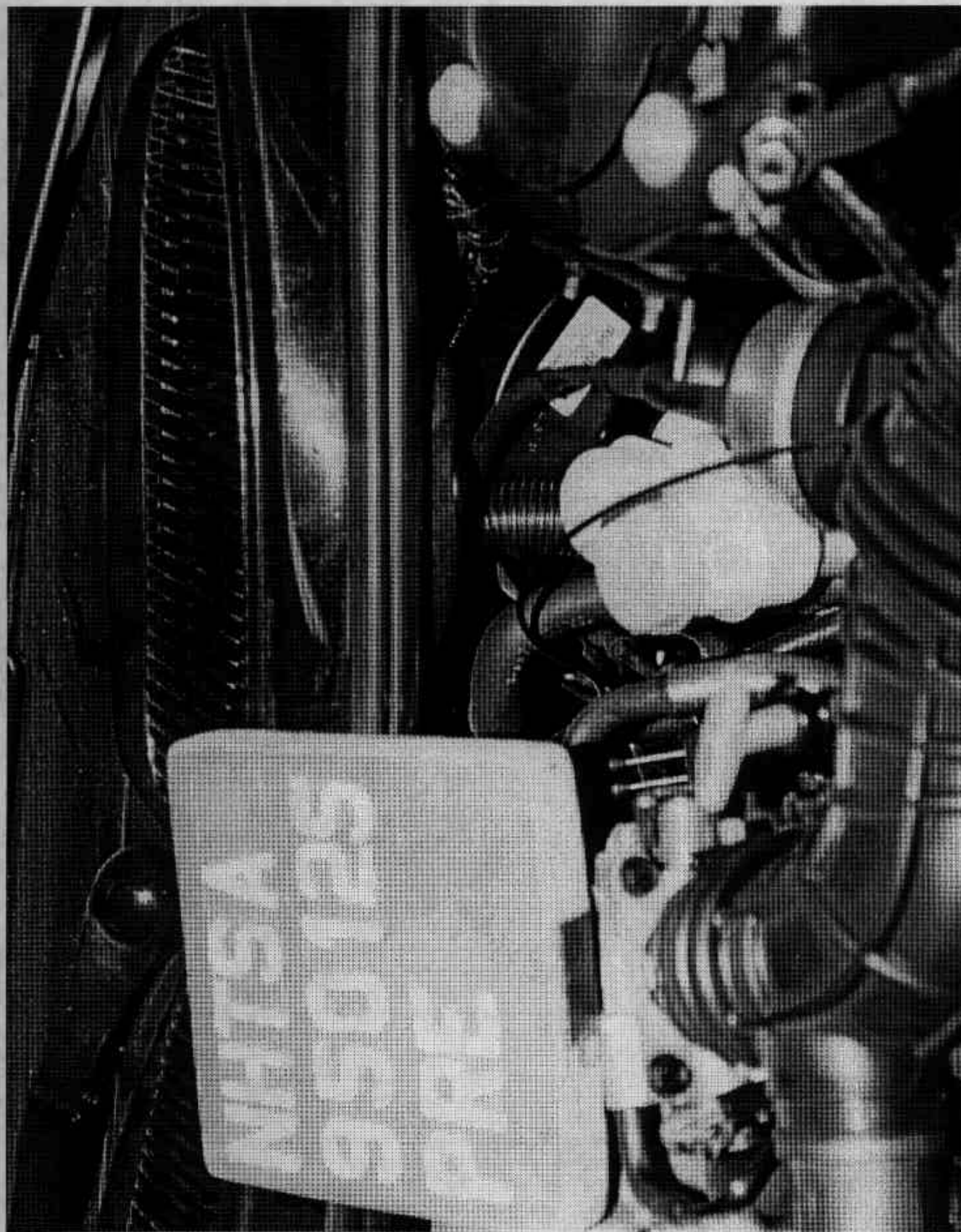


Figure A-13. Pre-Test Steering Column at Firewall View - Exterior
A-14

950125

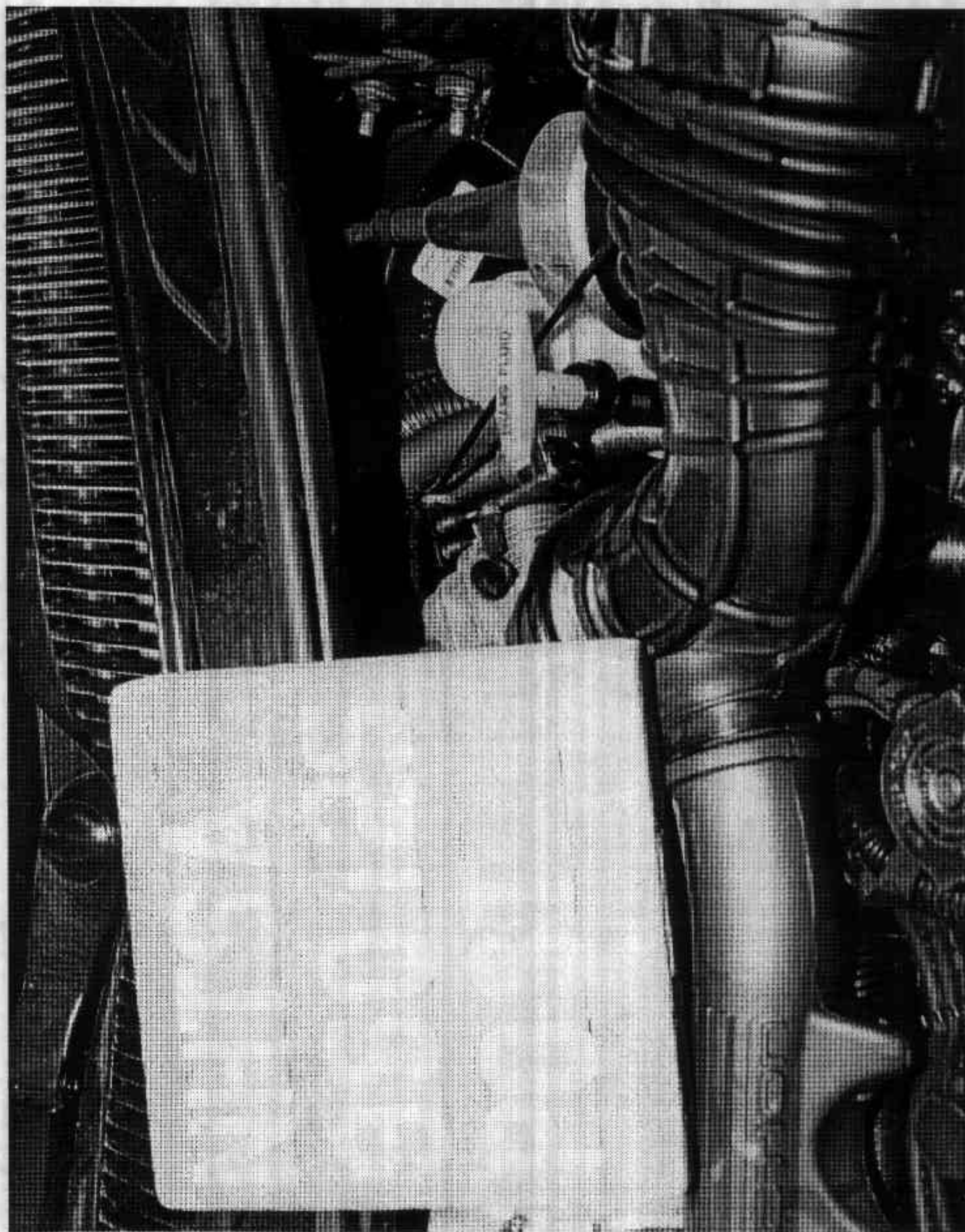


Figure A-14. Post-Test Steering Column at Firewall View - Exterior
A-15

950125

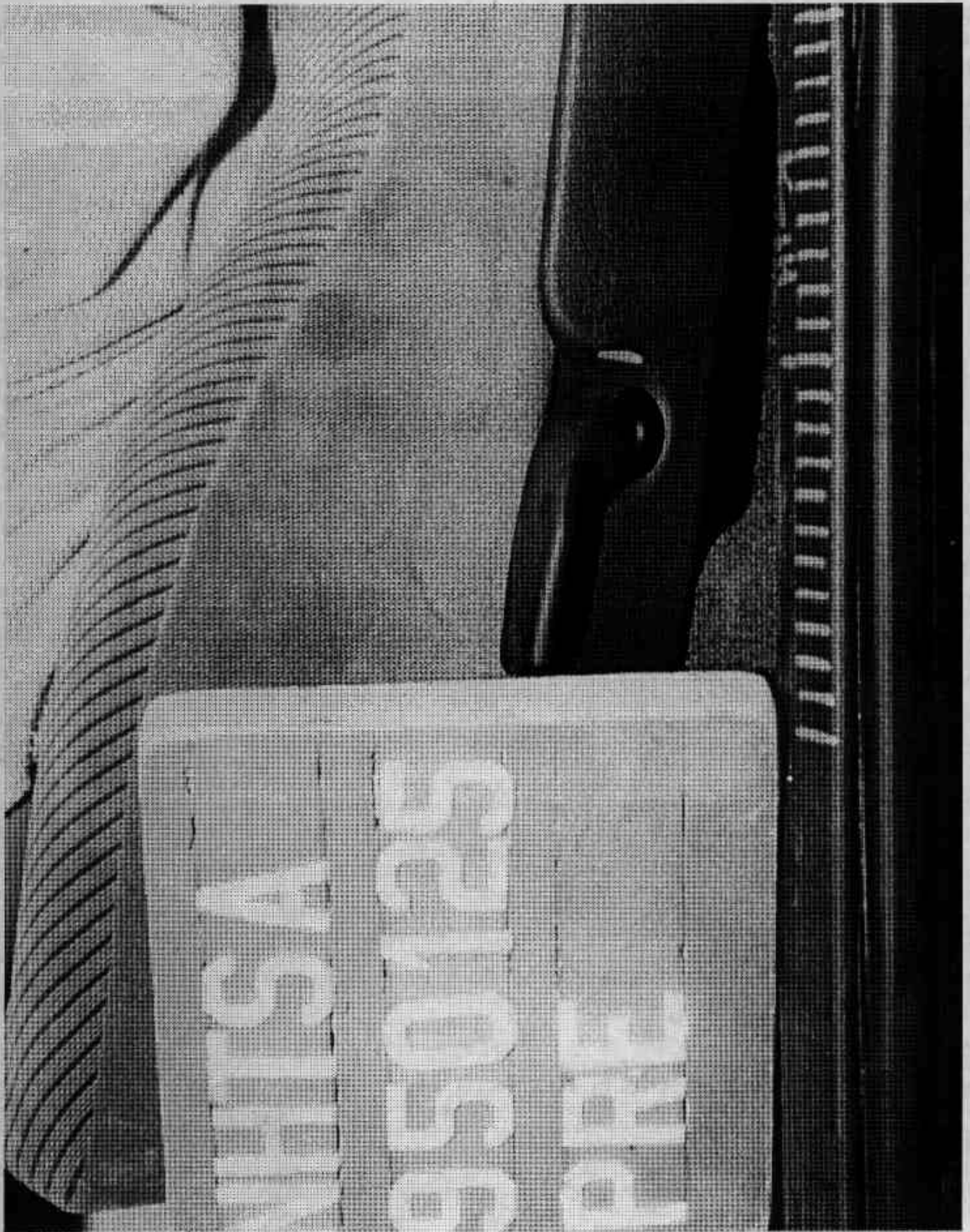


Figure A-15. Pre-Test Driver's Seat Position View
A-16

950125

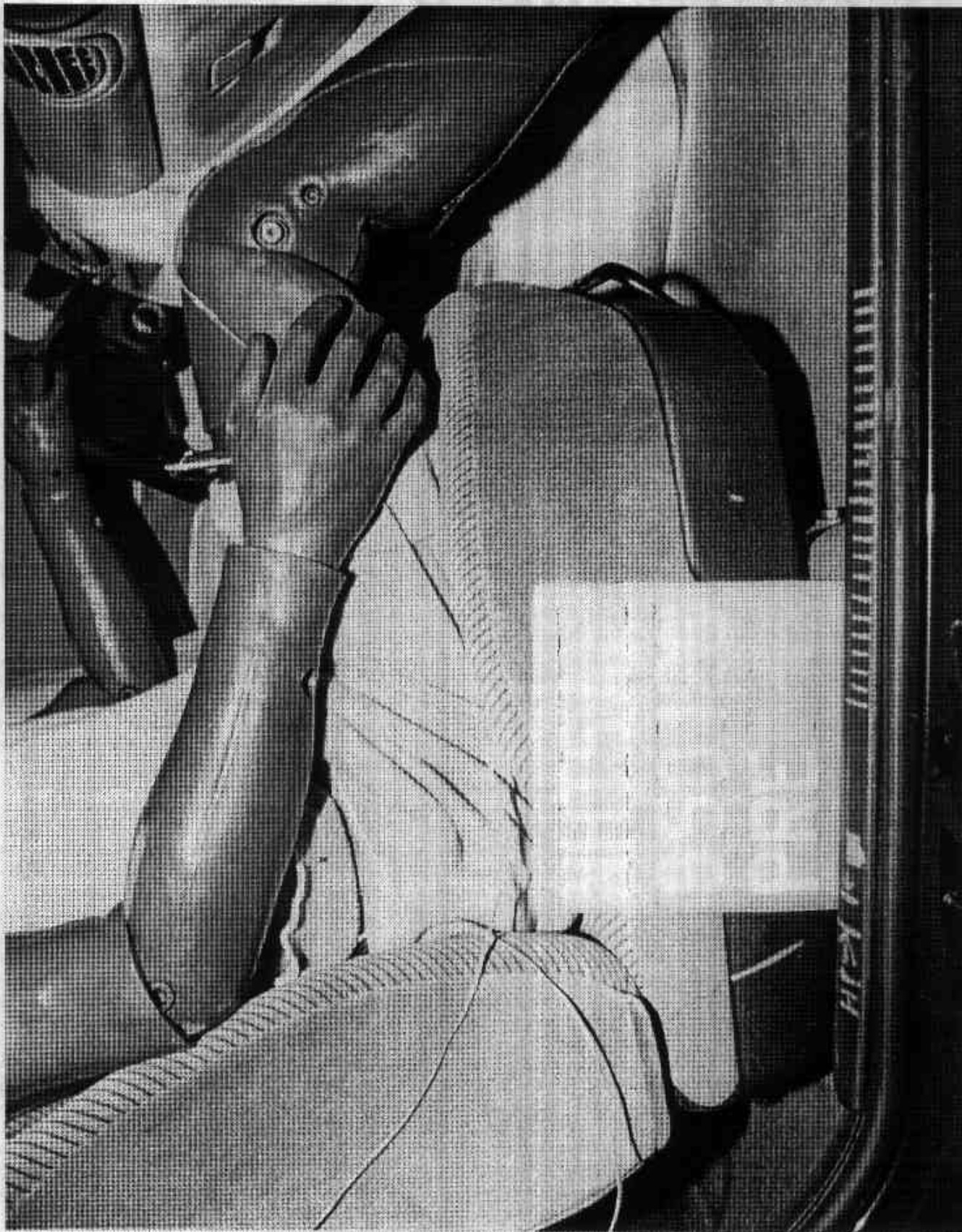


Figure A-16. Pre-Test Passenger's Seat Position View
A-17

950125

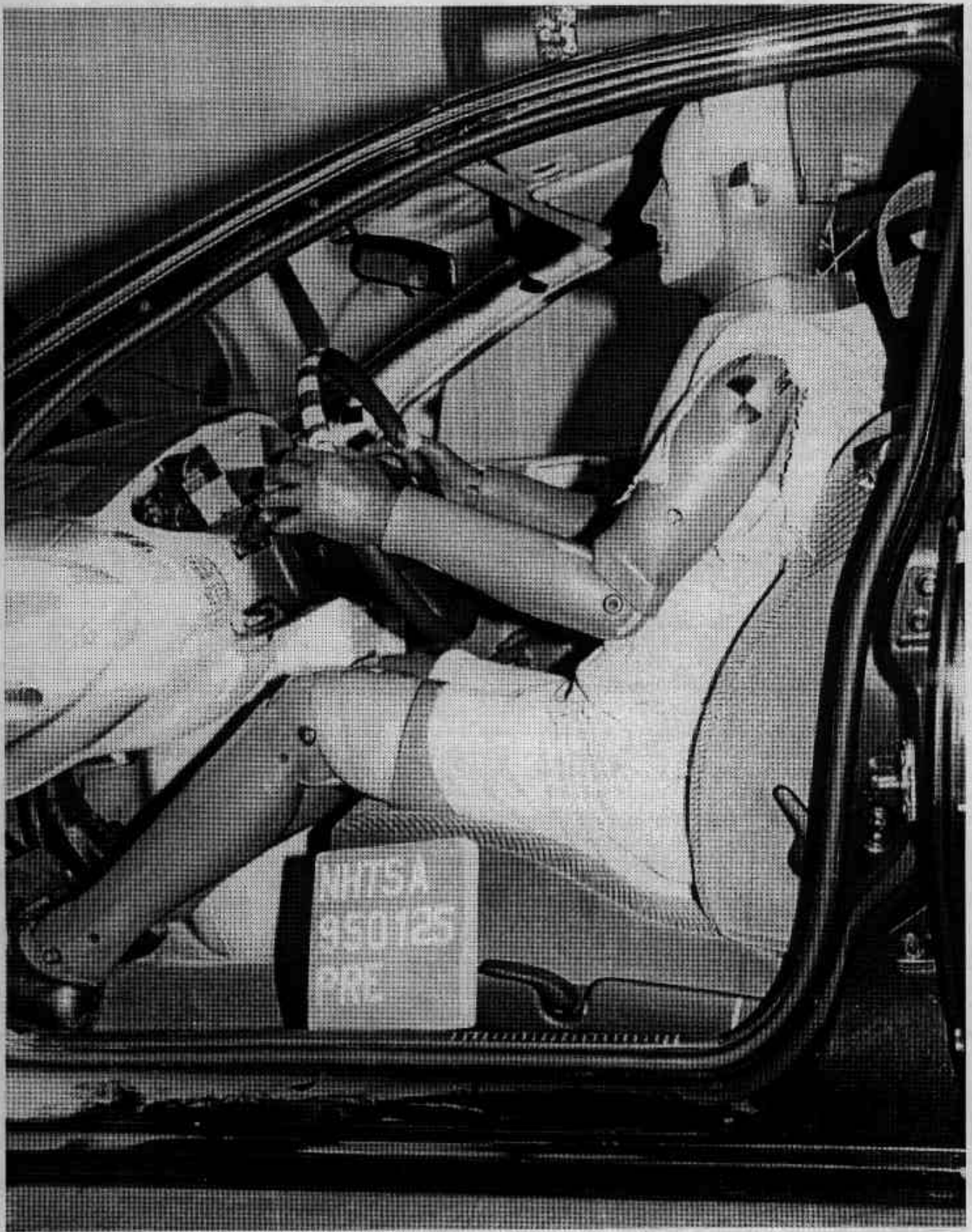


Figure A-17. Pre-Test Driver Dummy & Vehicle Interior View
A-18

950125



Figure A-18. Post-Test Driver Dummy & Vehicle Interior View
A-19

950125



Figure A-19. Pre-Test Passenger Dummy & Vehicle Interior View
A-20

950125



Figure A-20. Post-Test Passenger Dummy & Vehicle Interior View
A-21

950125

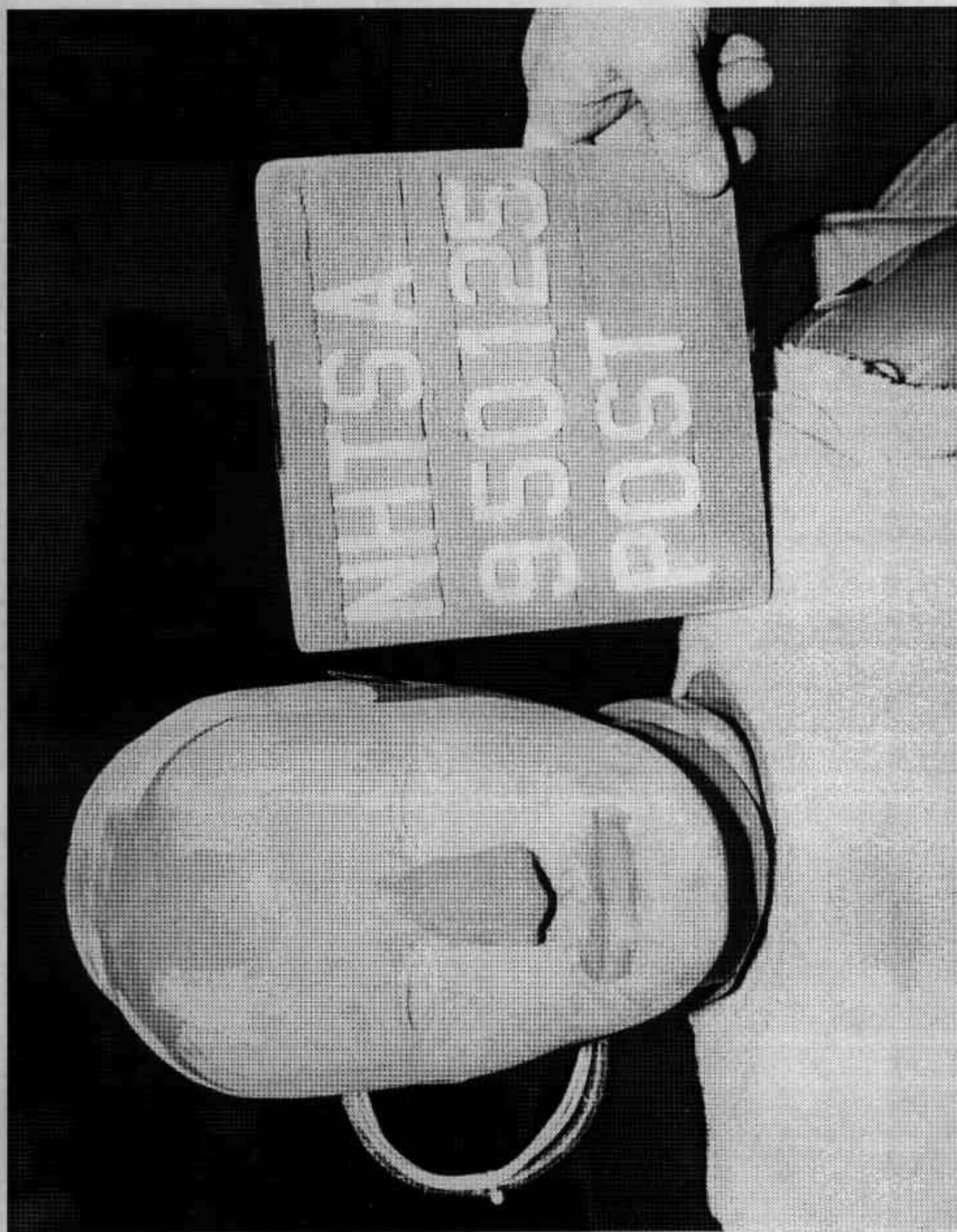


Figure A-21. Post-Test Driver Dummy Head Contact - View 1
A-22

950125



Figure A-22. Post-Test Driver Dummy Head Contact - View 2
A-23

950125



Figure A-23. Post-Test Driver Dummy Head Contact - View 3
A-24

950125



Figure A-24. Post-Test Driver Dummy Knee Contact - View 1

A-25

950125

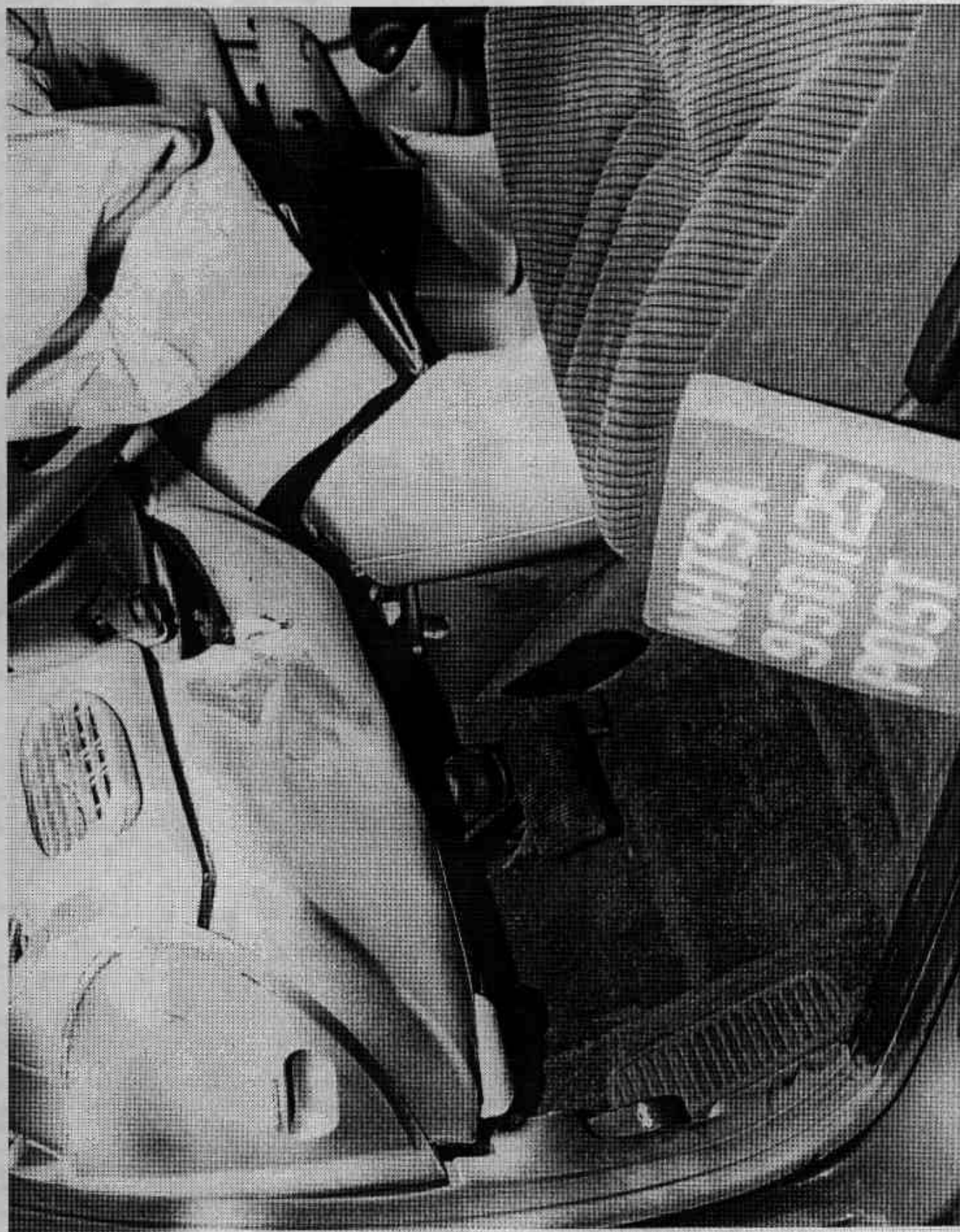


Figure A-25. Post-Test Driver Dummy Knee Contact - View 2
A-26

950125



Figure A-26. Post-Test Driver Dummy Knee Contact - View 3
A-27

950125

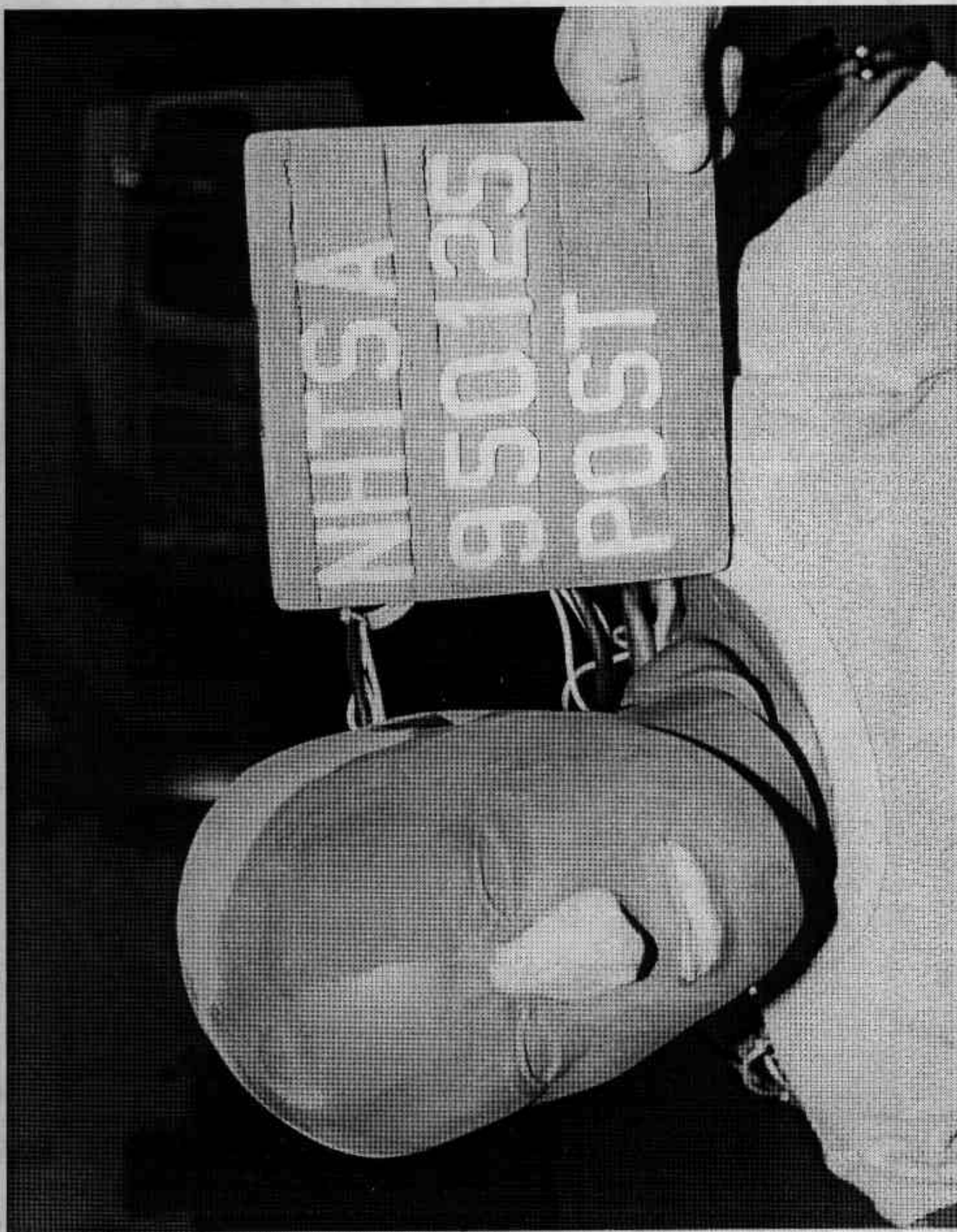


Figure A-27. Post-Test Passenger Dummy Head Contact - View 1
A-28

950125

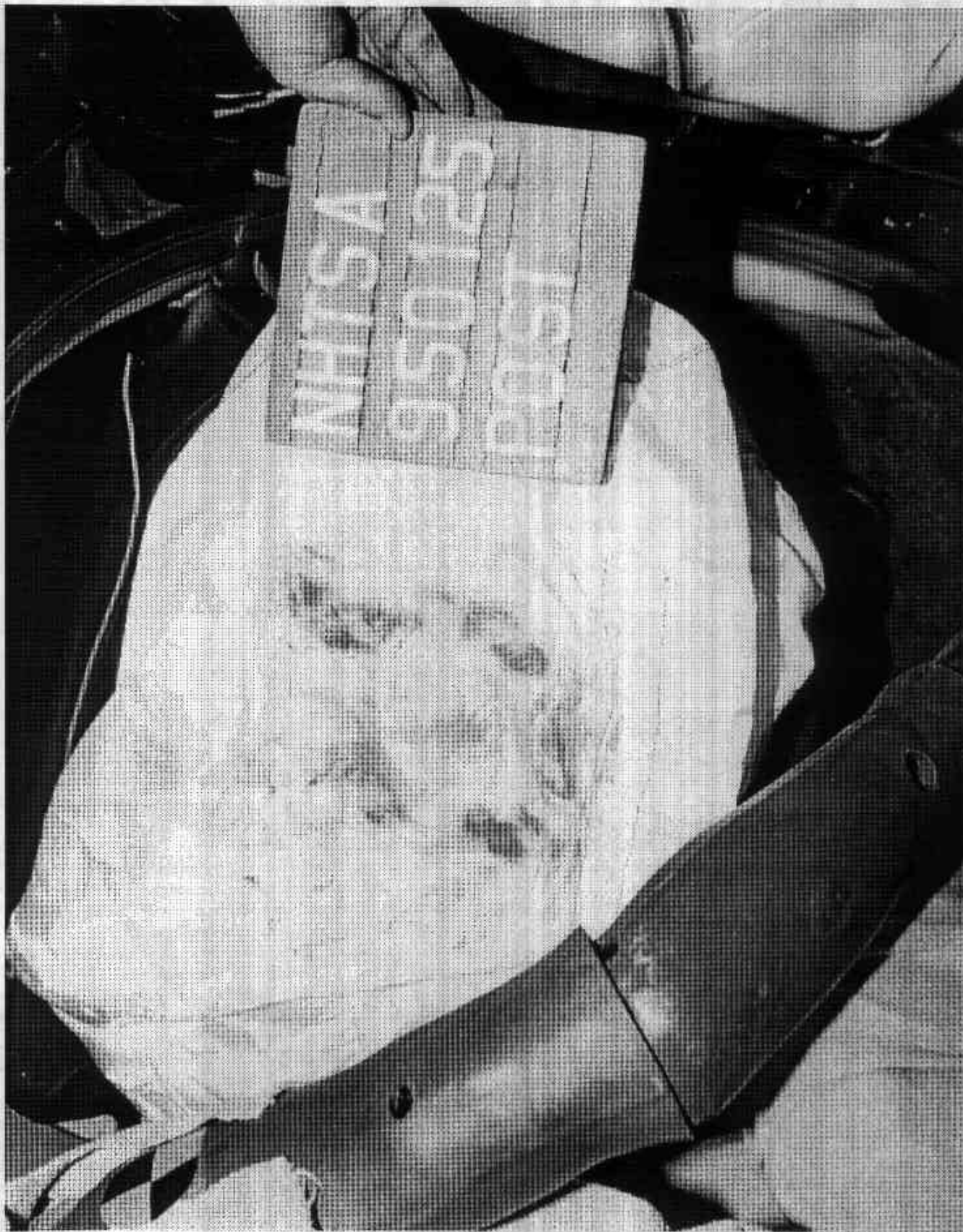


Figure A-28. Post-Test Passenger Dummy Head Contact - View 2
A-29

950125



Figure A-29. Post-Test Passenger Dummy Head Contact - View 3
A-30

950125

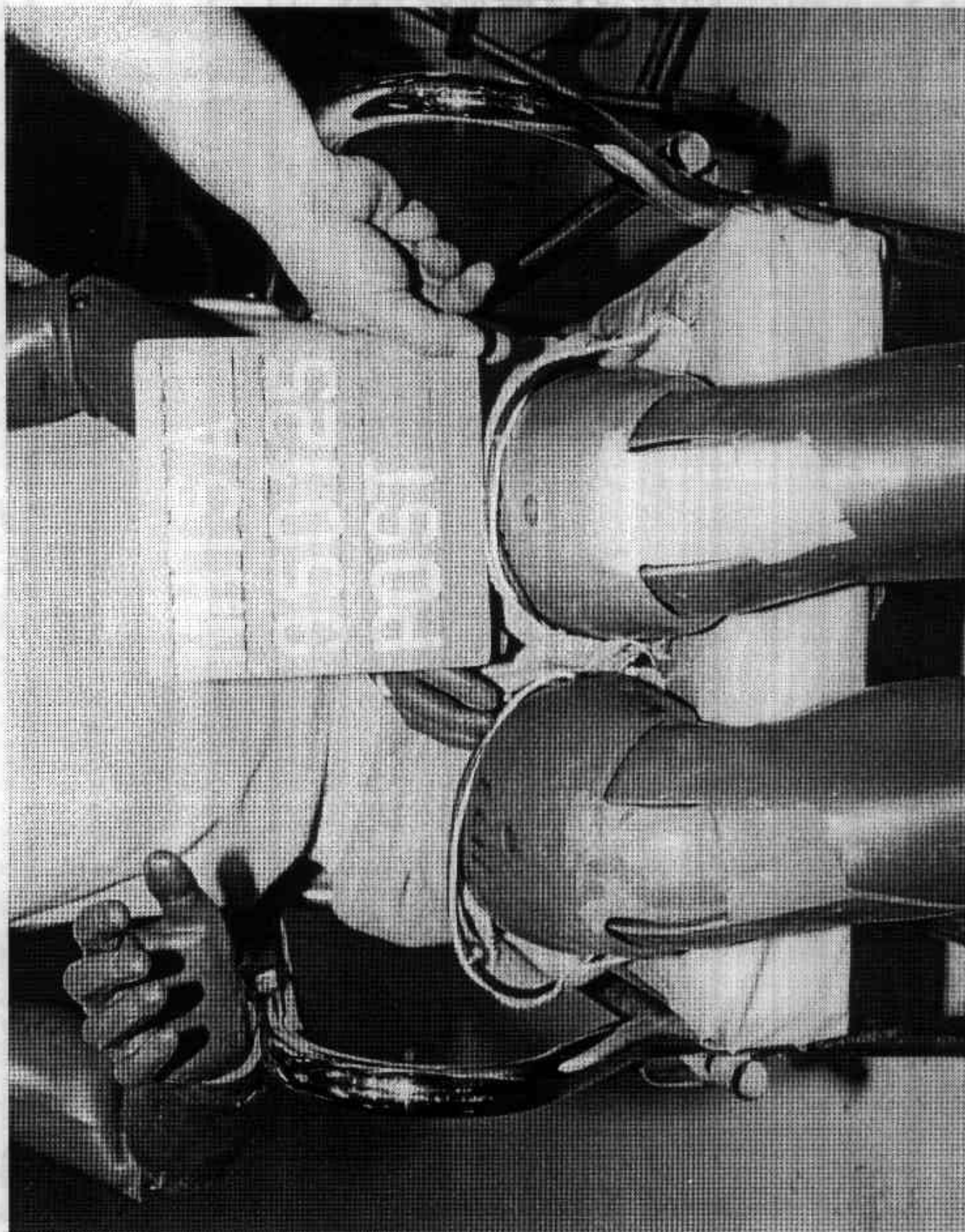


Figure A-30. Post-Test Passenger Dummy Knee Contact - View 1
A-31

950125

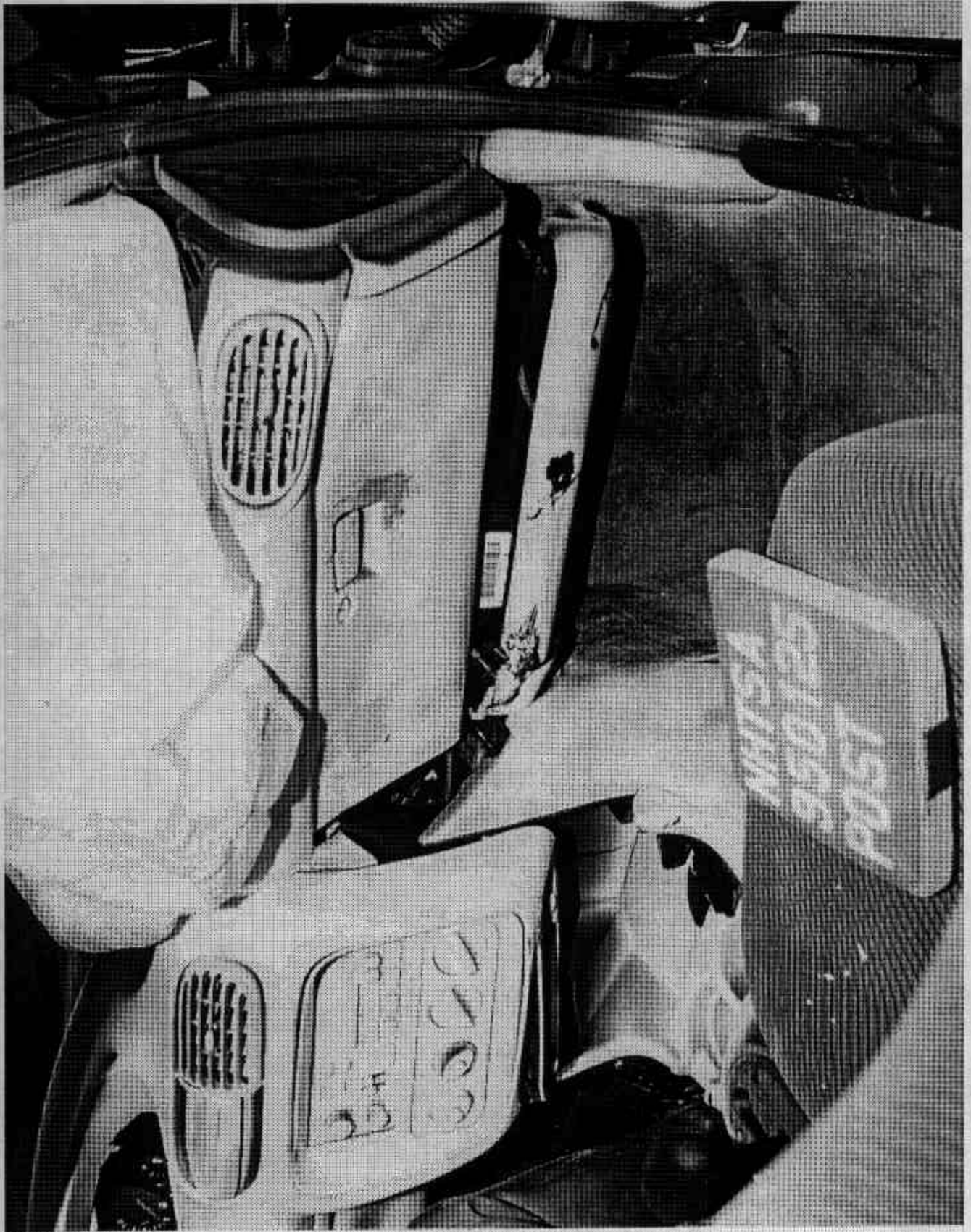


Figure A-31. Post-Test Passenger Dummy Knee Contact - View 2
A-32

950125

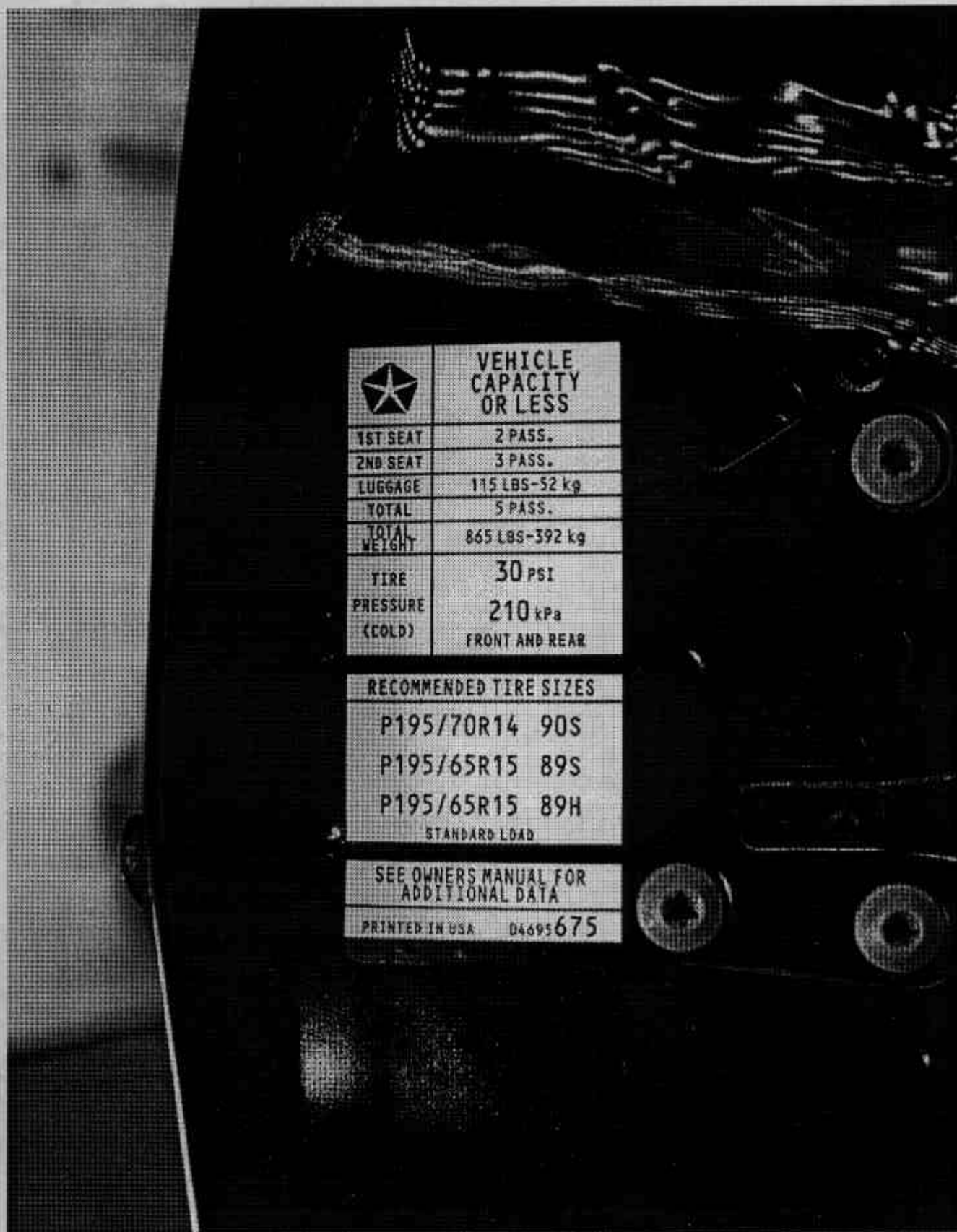


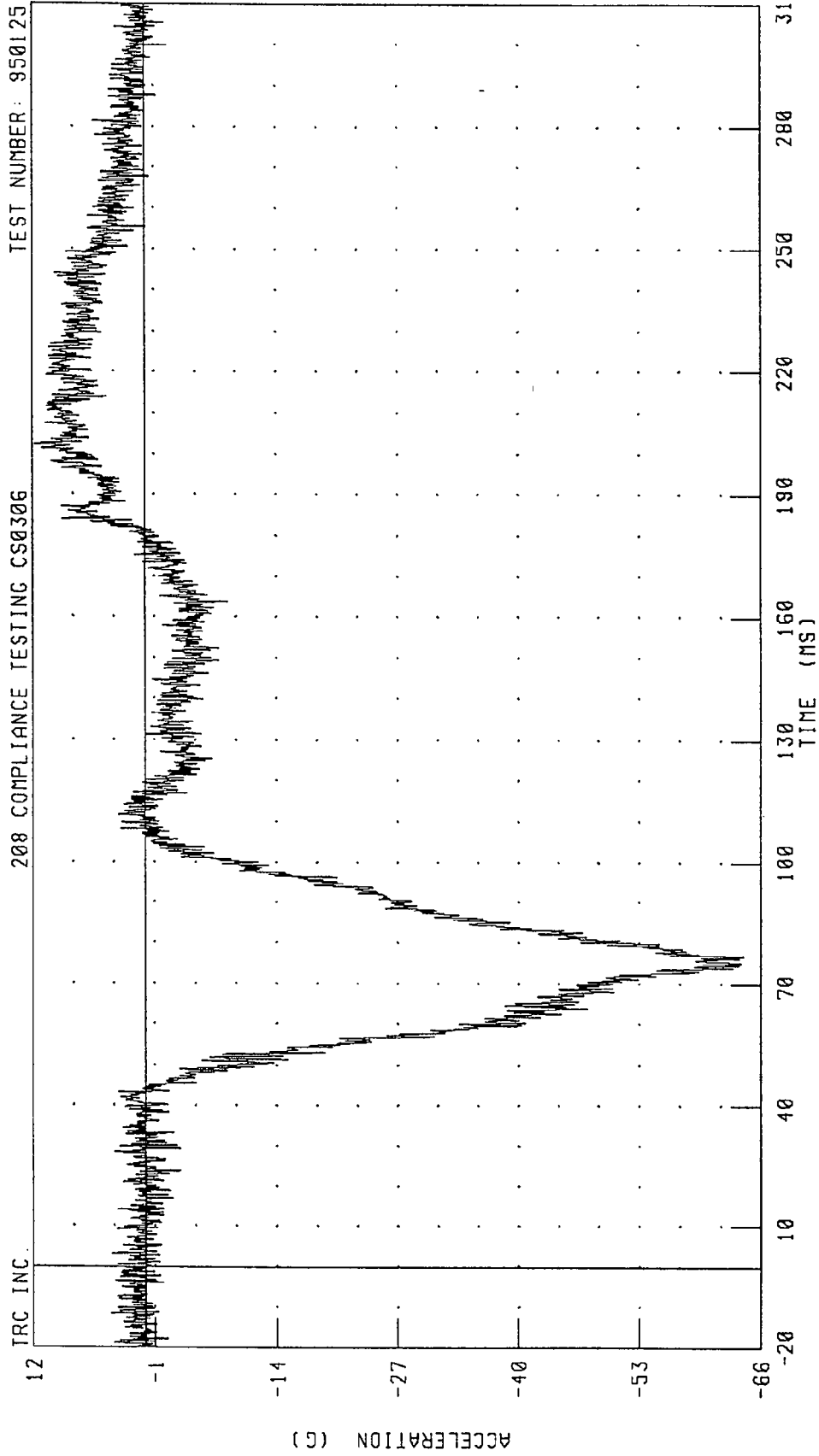
Figure A-33. Pre-test Recommended Tire Pressure Label

Appendix B

Data Plots

1995 CHRYSLER CIRRRUS INTO FLAT FRONTAL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125

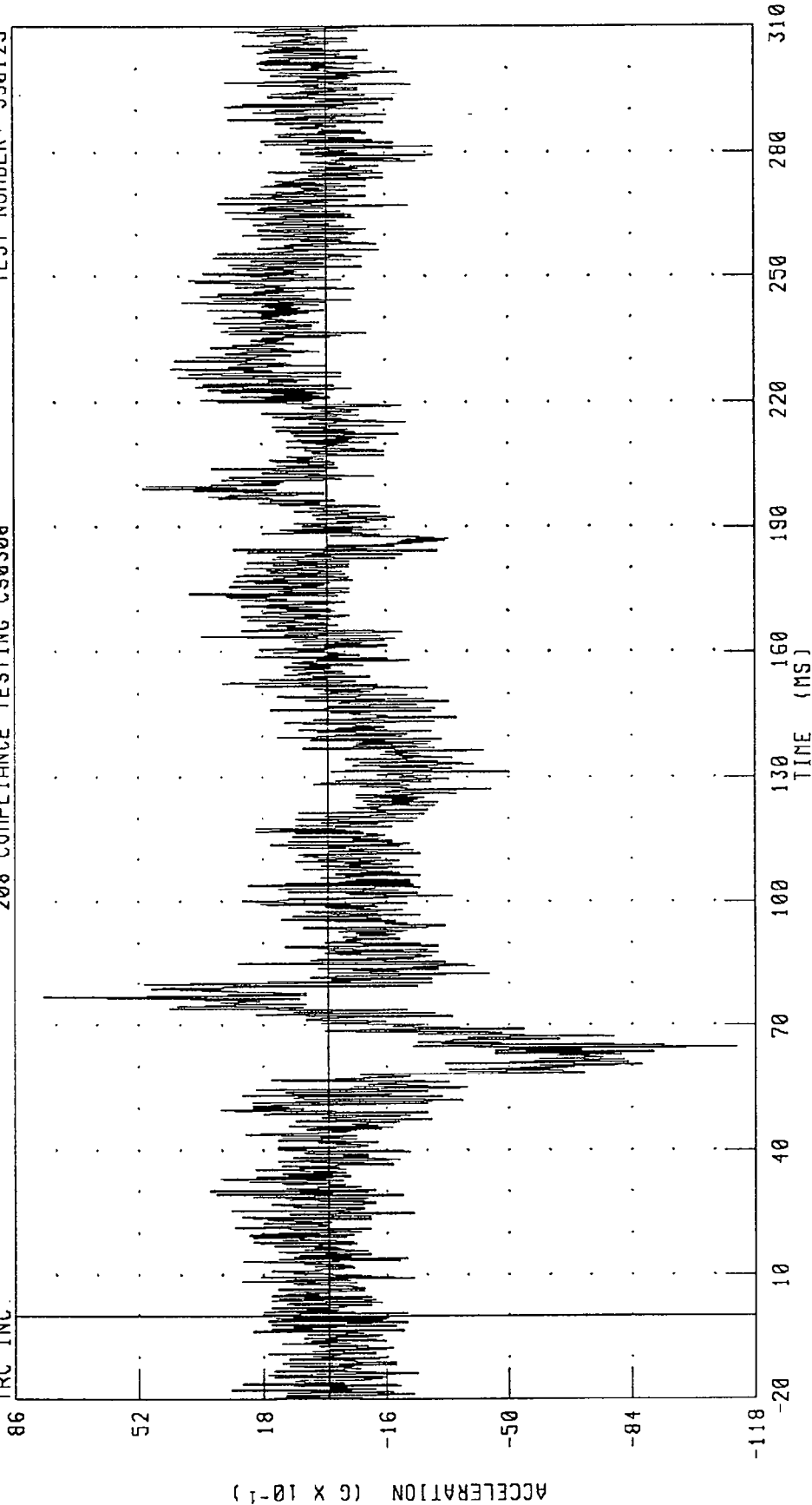


CHANNEL: HEDXG1 FILTER: CH. CLASS 1000
PEAK DATA: 11.59 G @ 202.32 MS; -64.13 G @ 76.80 MS

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION
 208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125

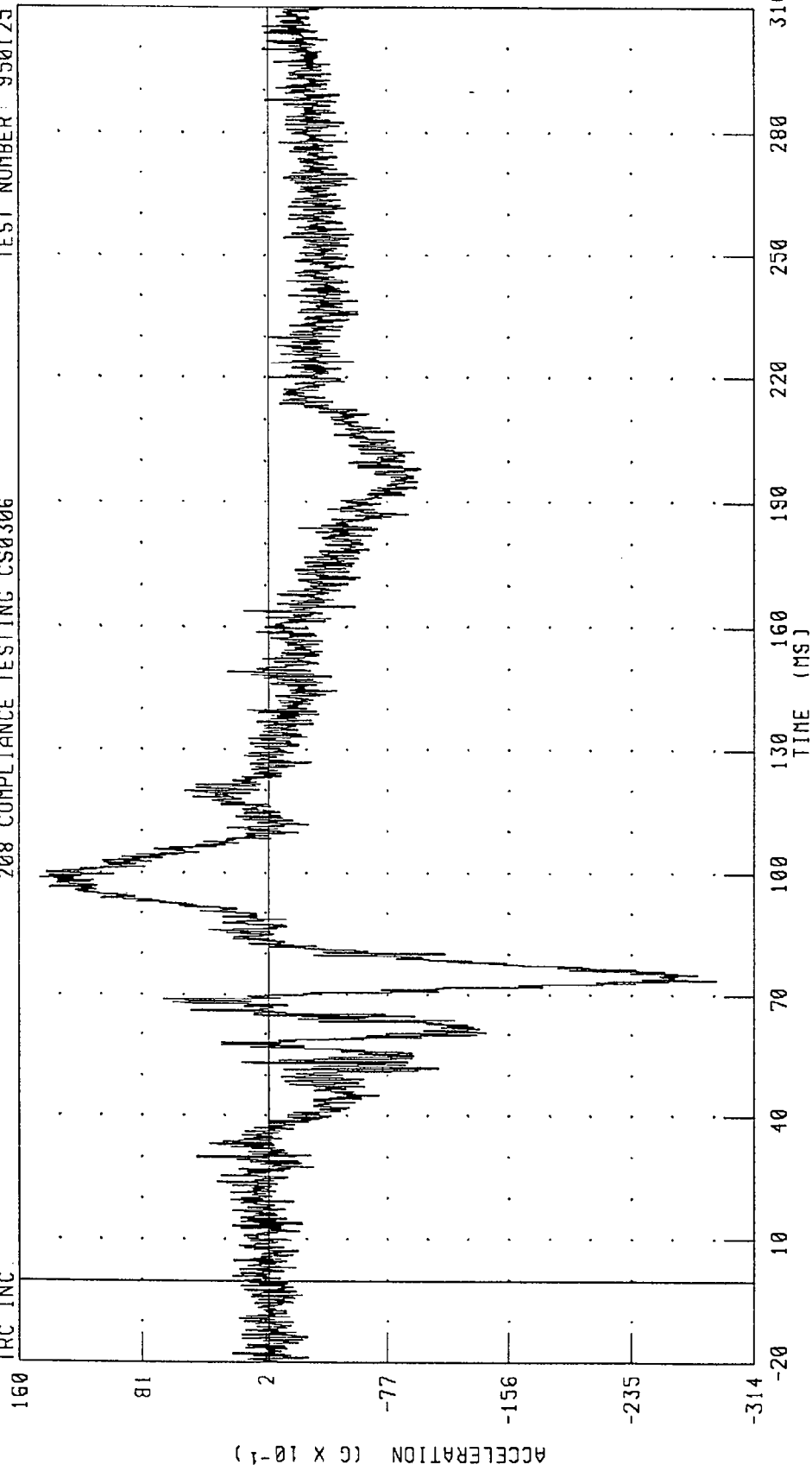
TRC INC.



1995 CHRYSLER CIRBUS INTO FLAT FRONTAL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125

TRC INC.

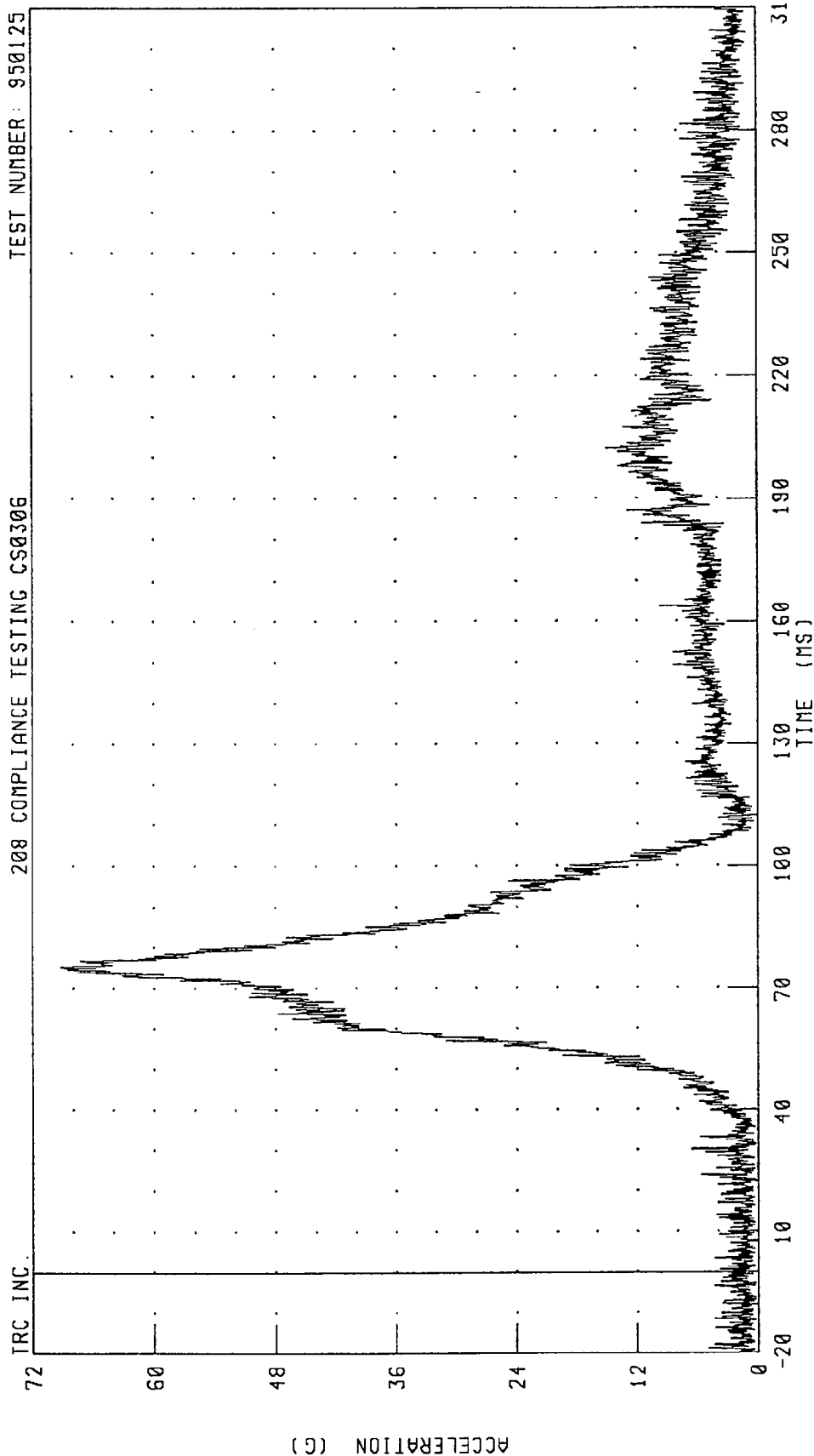


PEAK DATA: 14.62 G @ 98.72 MS; -28.97 G @ 73.84 MS

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

1995 CHRYSLER CIRBUS INTO FLAT FRONTAL BARRIER
 DRIVER HEAD RESULTANT ACCELERATION
 208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125



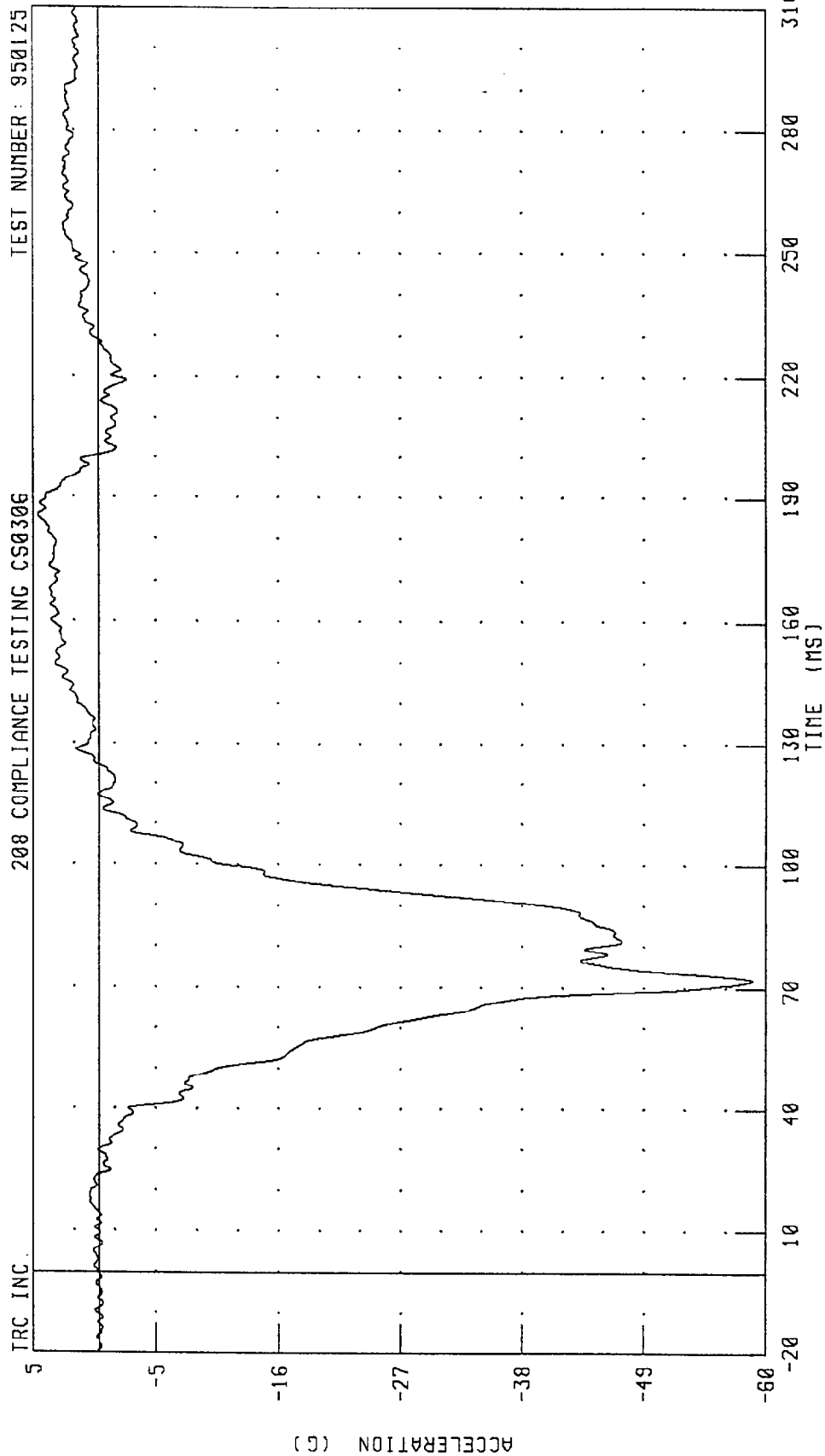
CHANNEL: HEDRC1 FILTER: CH. CLASS 1000

PEAK DATA: 69.18 G @ 75.36 MS; 0.10 G @ 7.60 MS

1995 CHRYSLER CIRrus INTO FLAT FRONTAL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125

TRC INC.

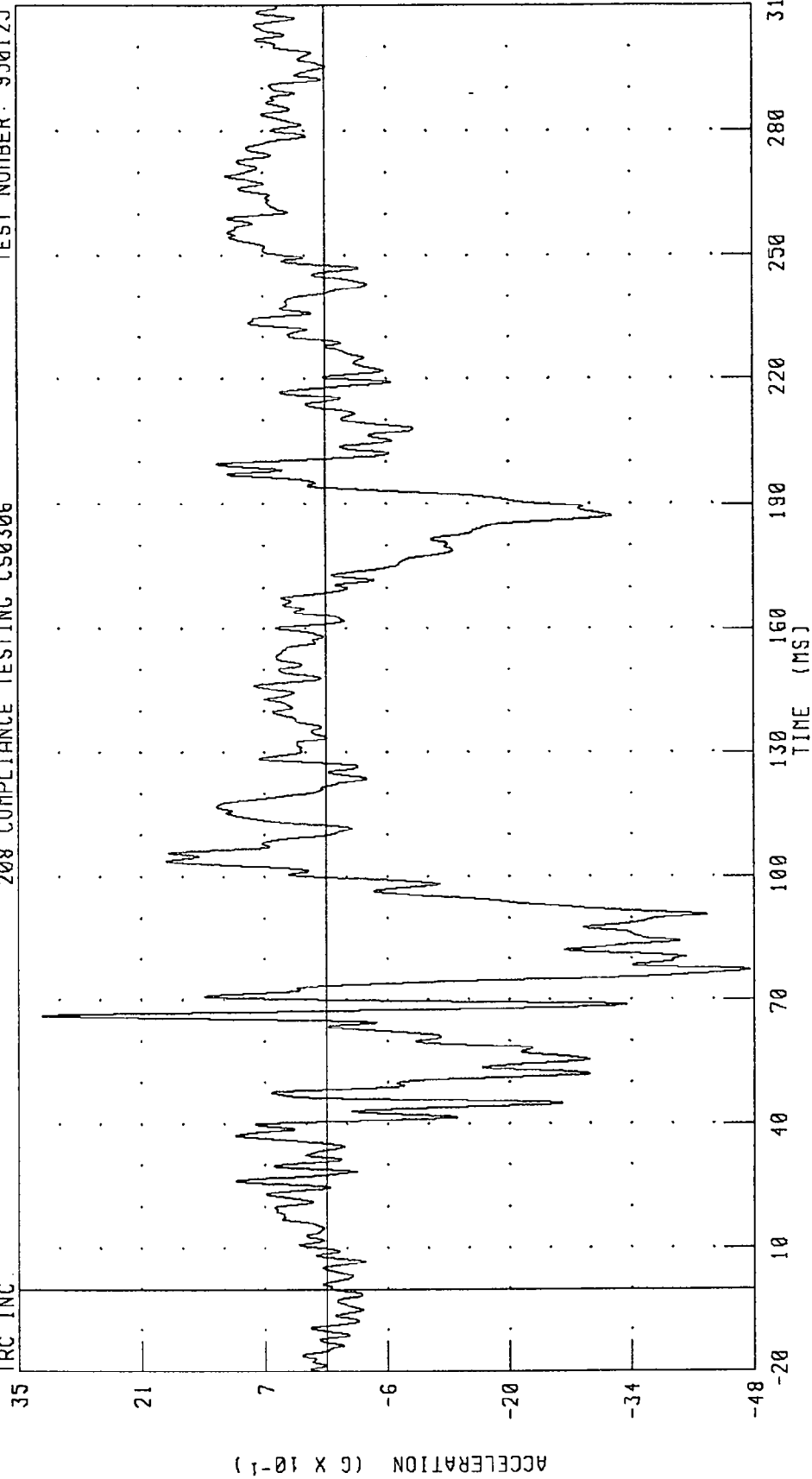


CHANNEL: CSTXG1 FILTER: CH. CLASS 180

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125

IRC INC.

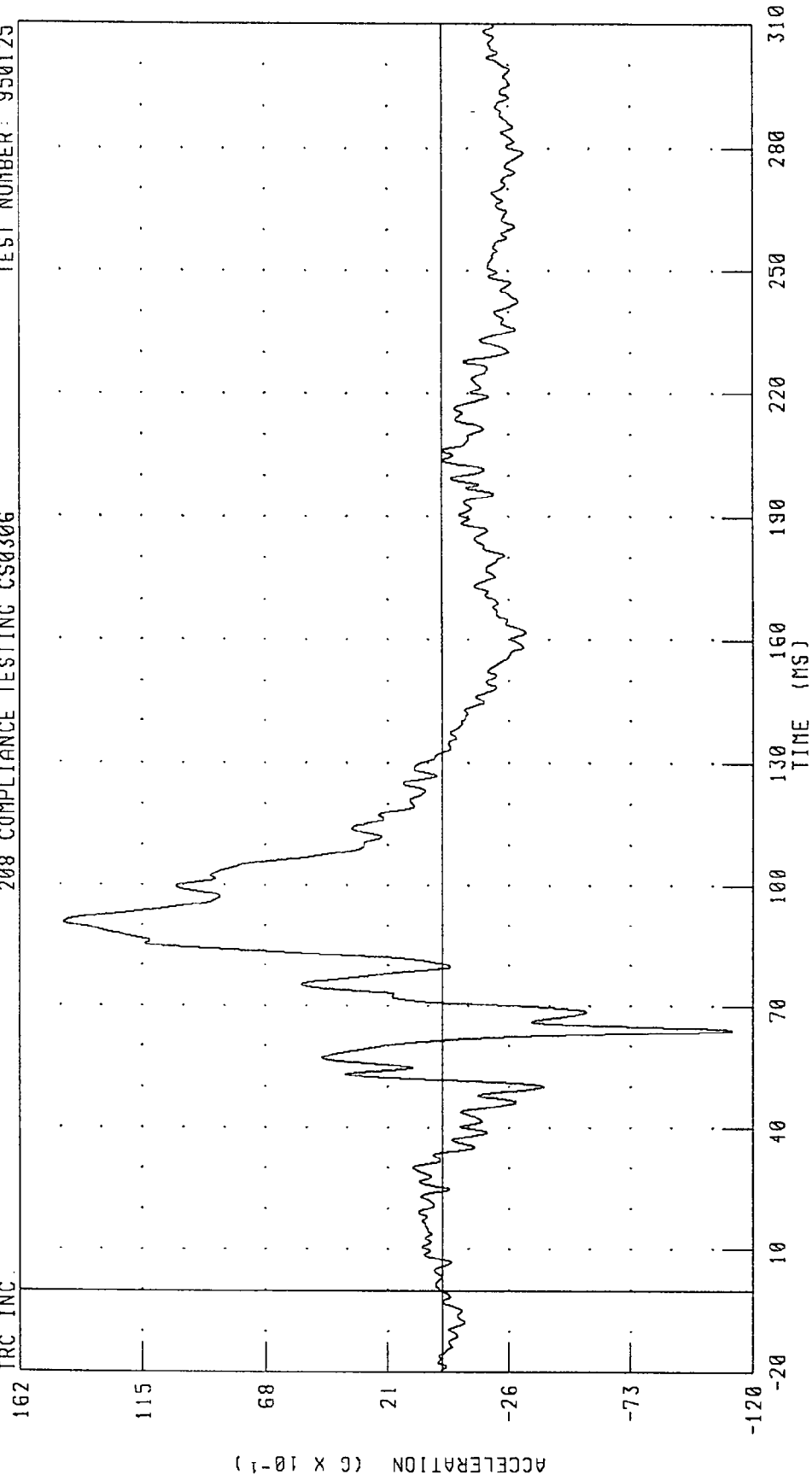


CHANNEL: CSTYG1 FILTER: CH. CLASS 180

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION
 208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125

TRC INC.



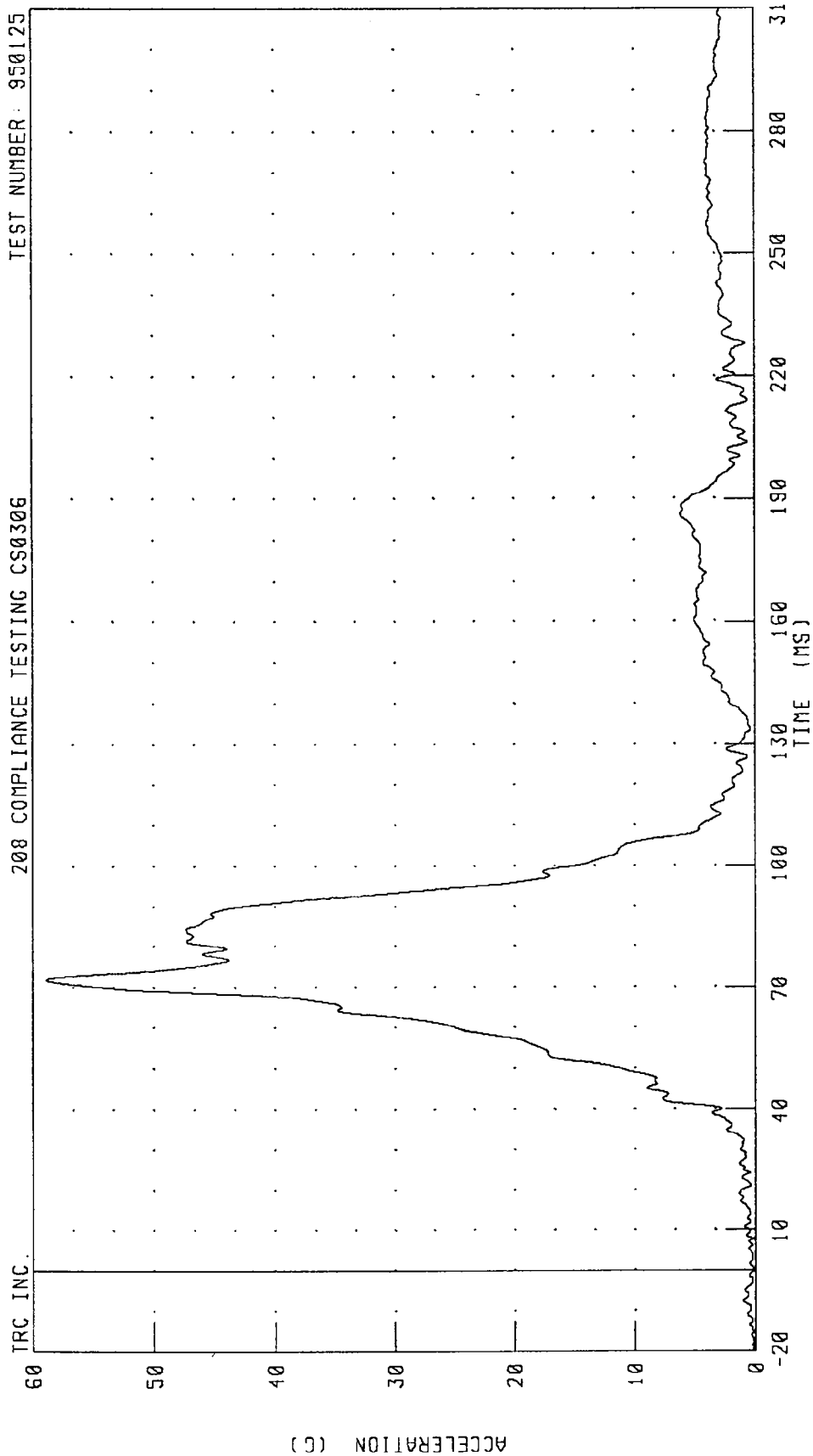
PEAK DATA: 14.52 G @ 90.80 MS, -11.20 G @ 64.00 MS

CHANNEL: CSTZG1 FILTER: CH. CLASS 180

1995 CHRYSLER CIRRUSS INTO FLAT FRONTAL BARRIER
DRIVER CHEST RESULTANT ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

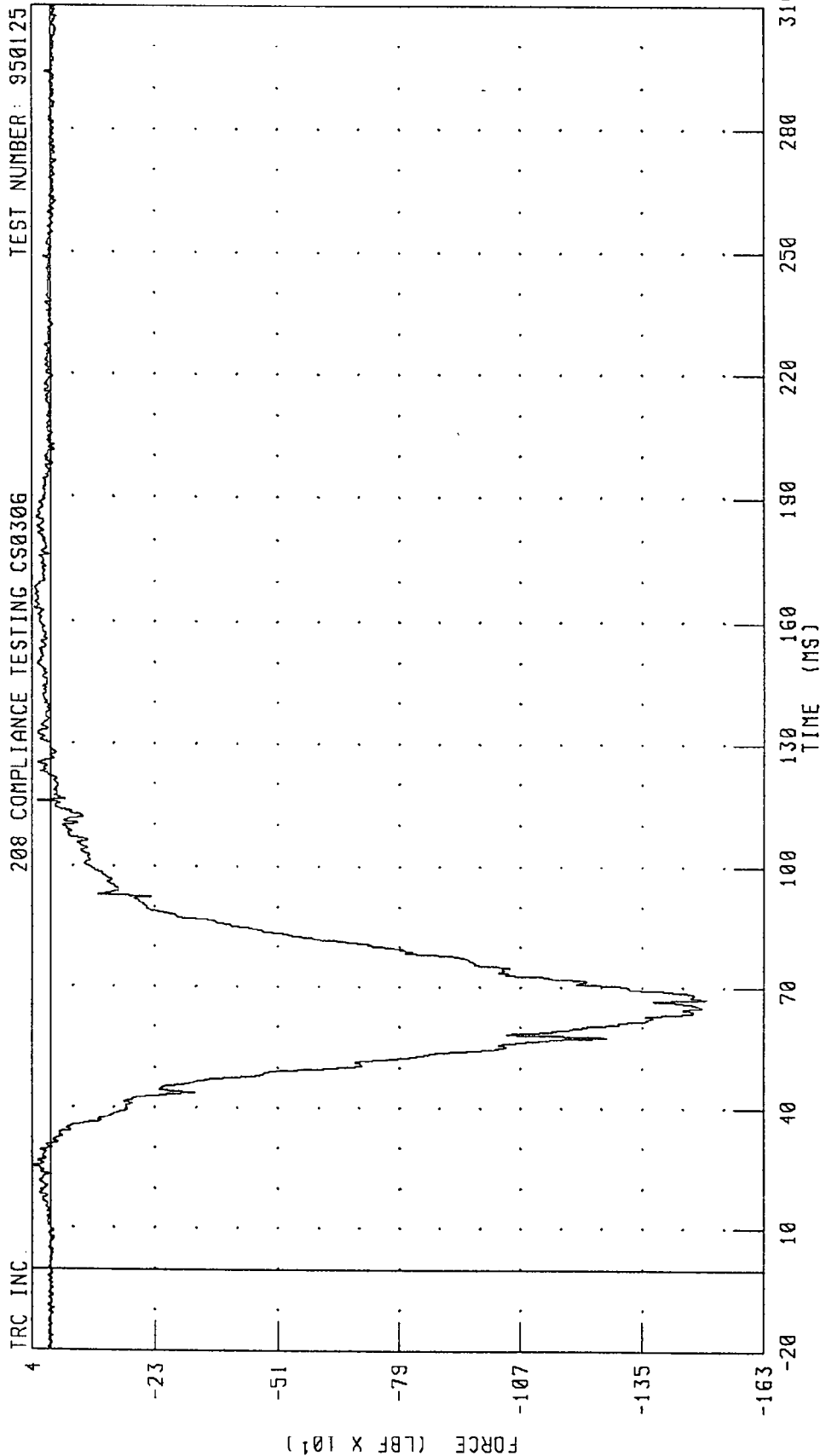
PEAK DATA: 58.88 G @ 71.92 MS; 0.05 G @ -20 00 MS

1995 CHRYSLER CIRBUS INTO FLAT FRONTAL BARRIER

DRIVER LEFT FEMUR FORCE

208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125



PEAK DATA: 39.68 LBF @ 25.44 MS; -1505.91 LBF @ 67.12 MS

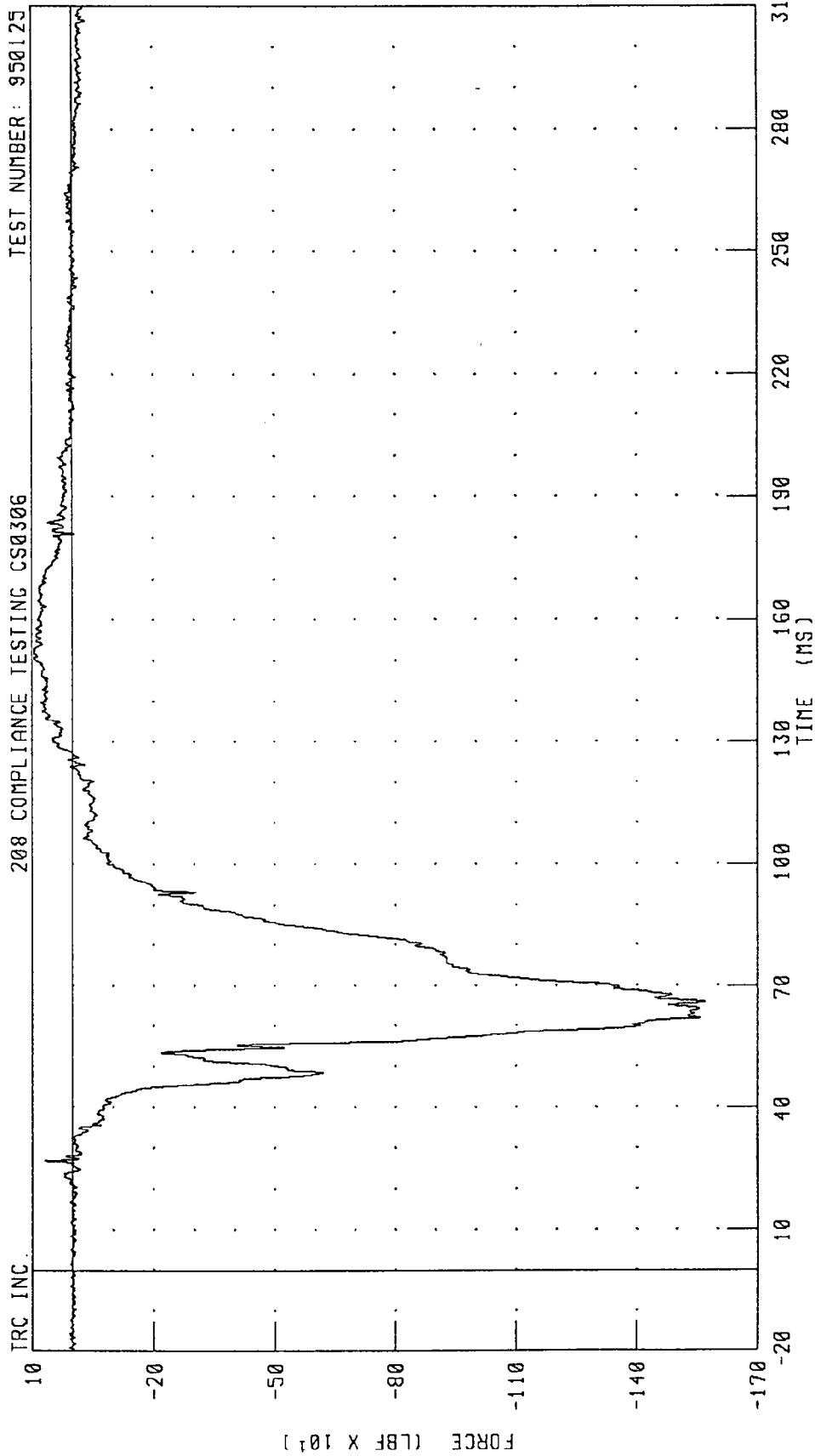
CHANNEL: LFMF1 FILTER: CH. CLASS 600

1995 CHRYSLER CIRRUUS INTO FLAT FRONTAL BARRIER

DRIVER RIGHT FEMUR FORCE

208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125



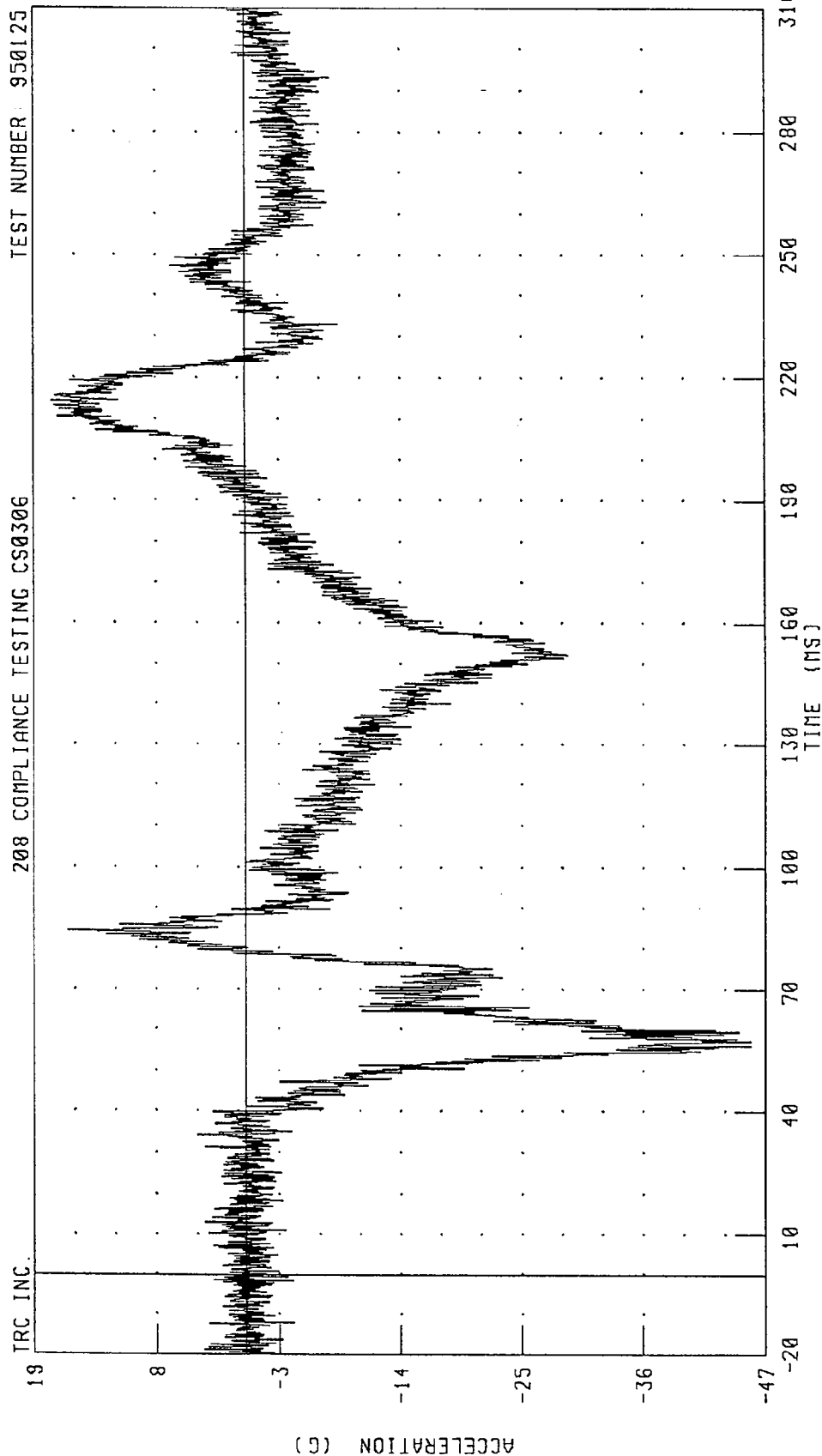
PEAK DATA: 95.04 LBF @ 150.64 MS; -1569.05 LBF @ 66.00 MS

CHANNEL: RFMF1 FILTER: CH. CLASS 600

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306



PEAK DATA: 17.36 G @ 214.16 MS; -45.63 G @ 56.00 MS

CHANNEL: HDXG2 FILTER: CH. CLASS 1000

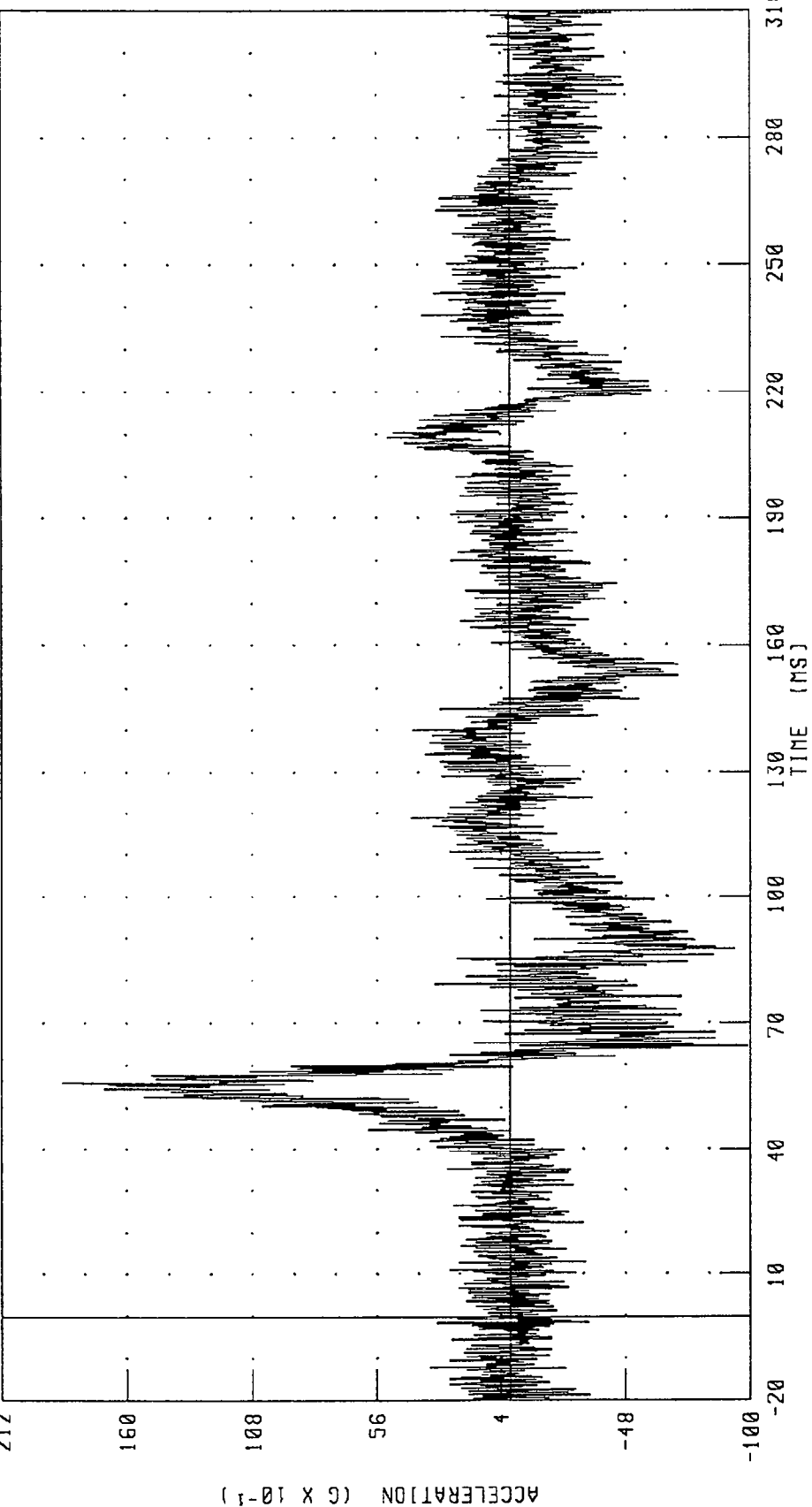
1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

TRC INC.

212



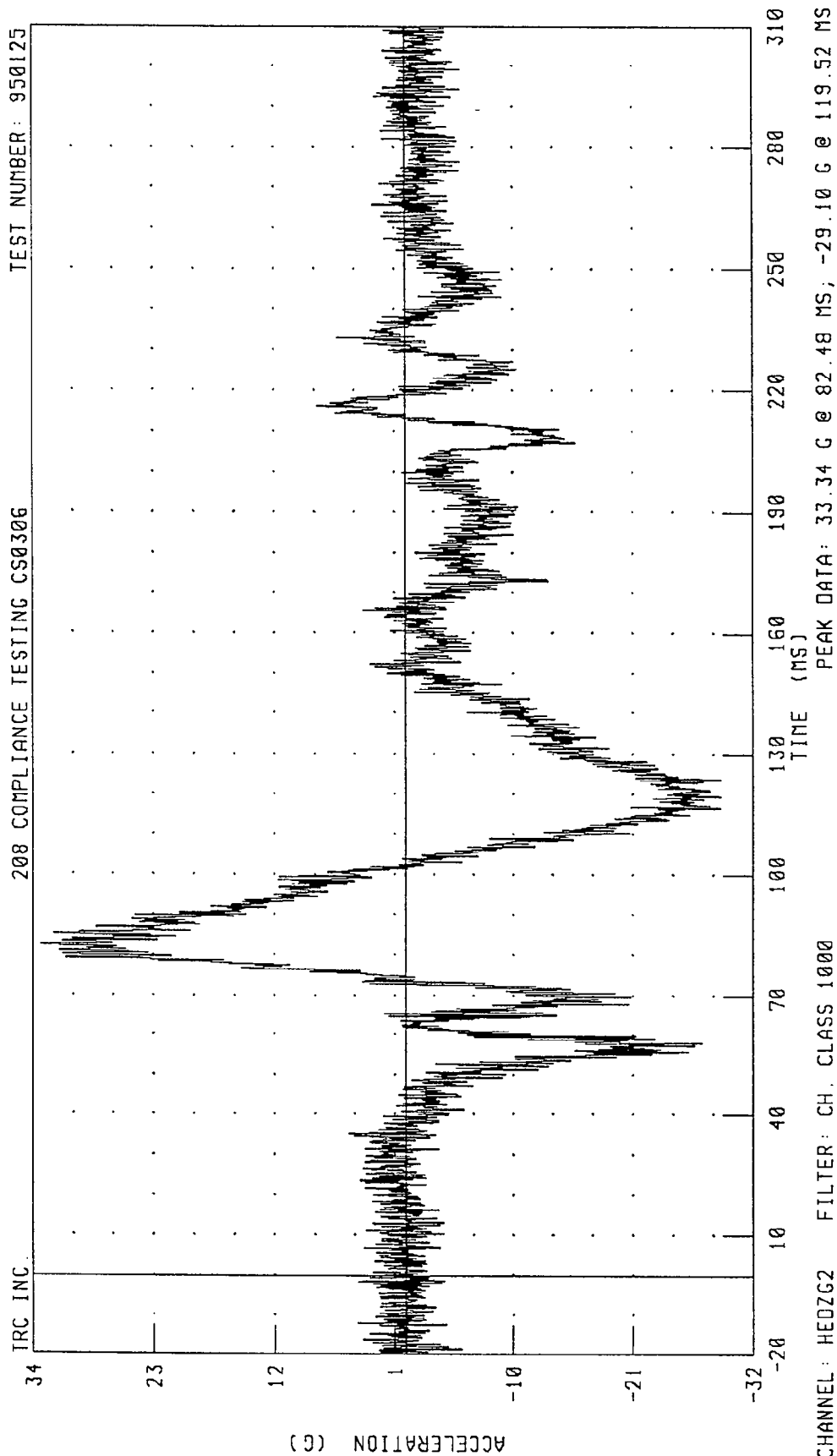
PEAK DATA: 18.66 G @ 55.92 MS; -9.85 G @ 64.48 MS

CHANNEL: HEDY62 FILTER: CH. CLASS 1000

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306



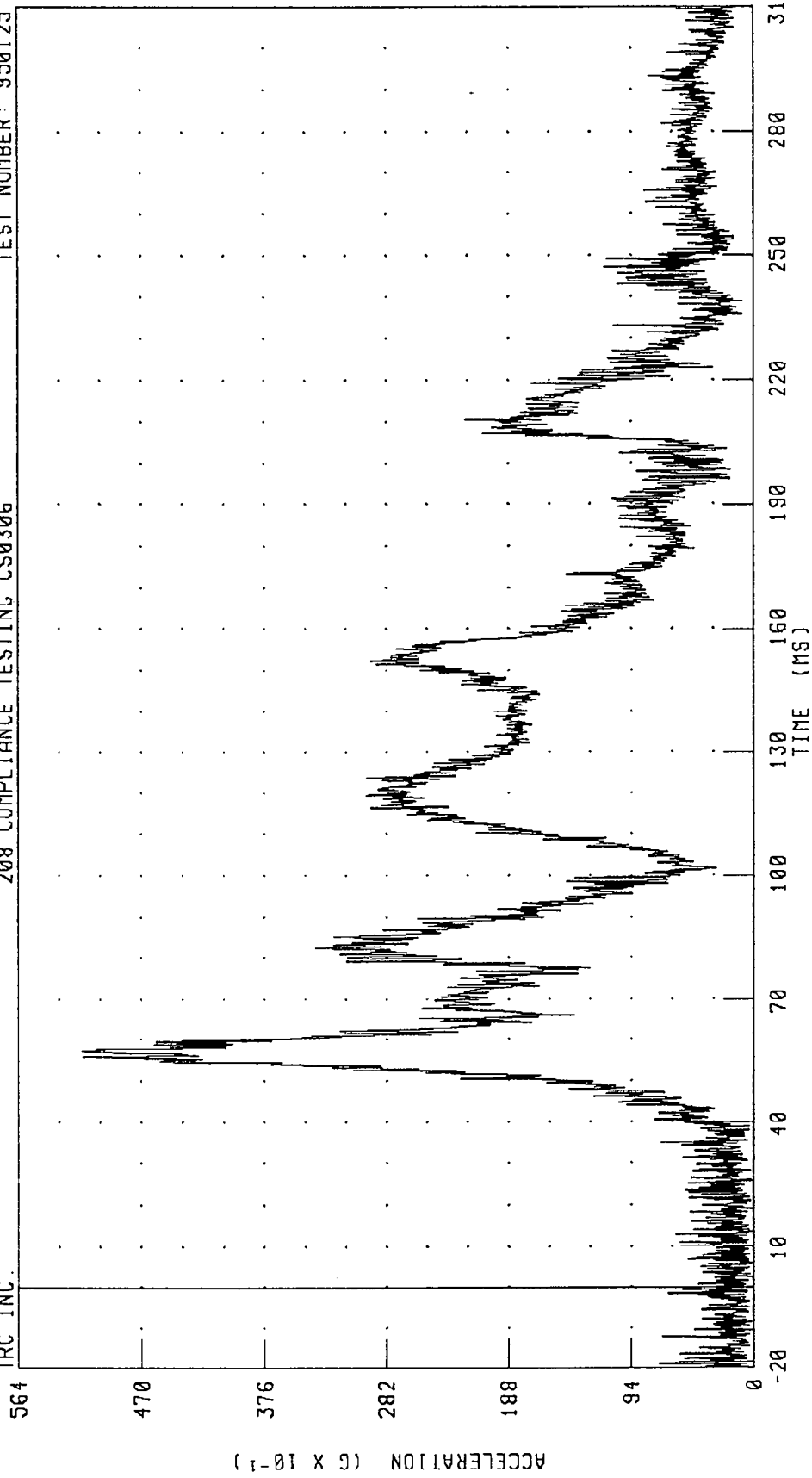
CHANNEL: HEADZG2 FILTER: CH. CLASS 1000

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

TRC INC.



PEAK DATA: 51.52 G @ 57.20 MS; 0.08 G @ 19.12 MS

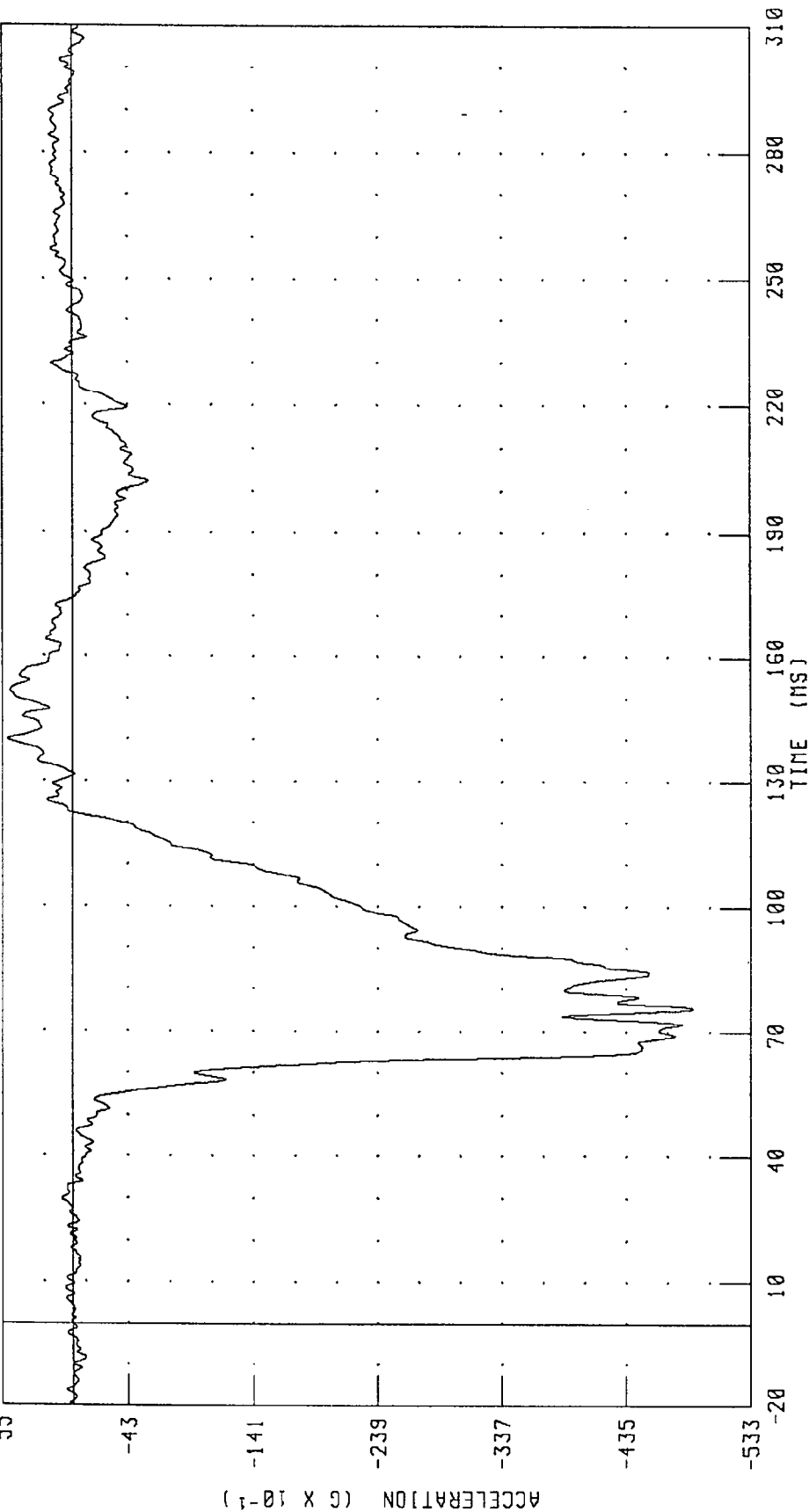
CHANNEL: HEDRC2 FILTER: CH. CLASS 1000

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

TRC INC.



CHANNEL: CSTXG2 FILTER: CH. CLASS 180

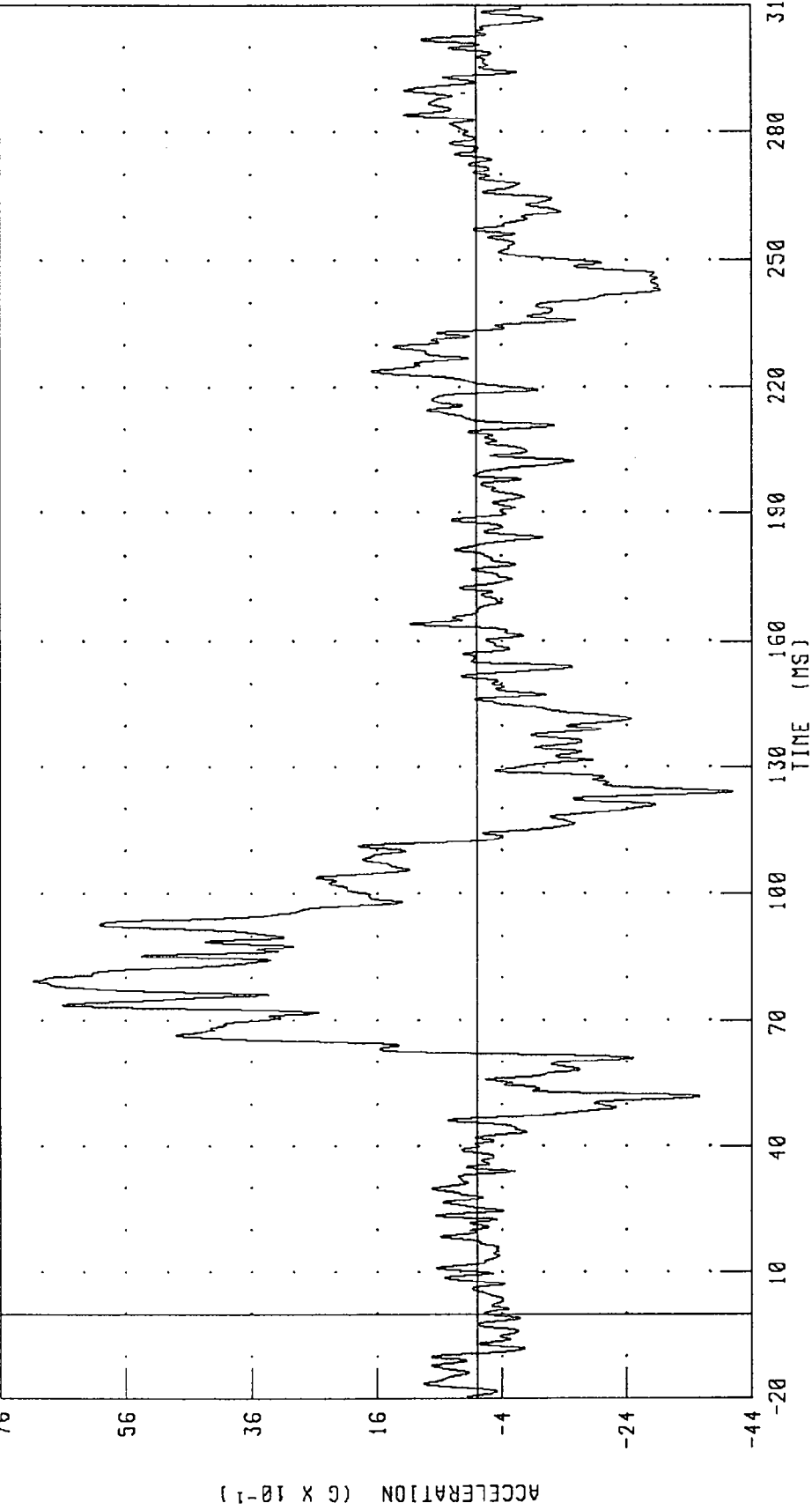
PEAK DATA: 5.05 G @ 139.92 MS, -48.78 G @ 75.60 MS

1995 CHRYSLER CIRBUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

TRC INC.

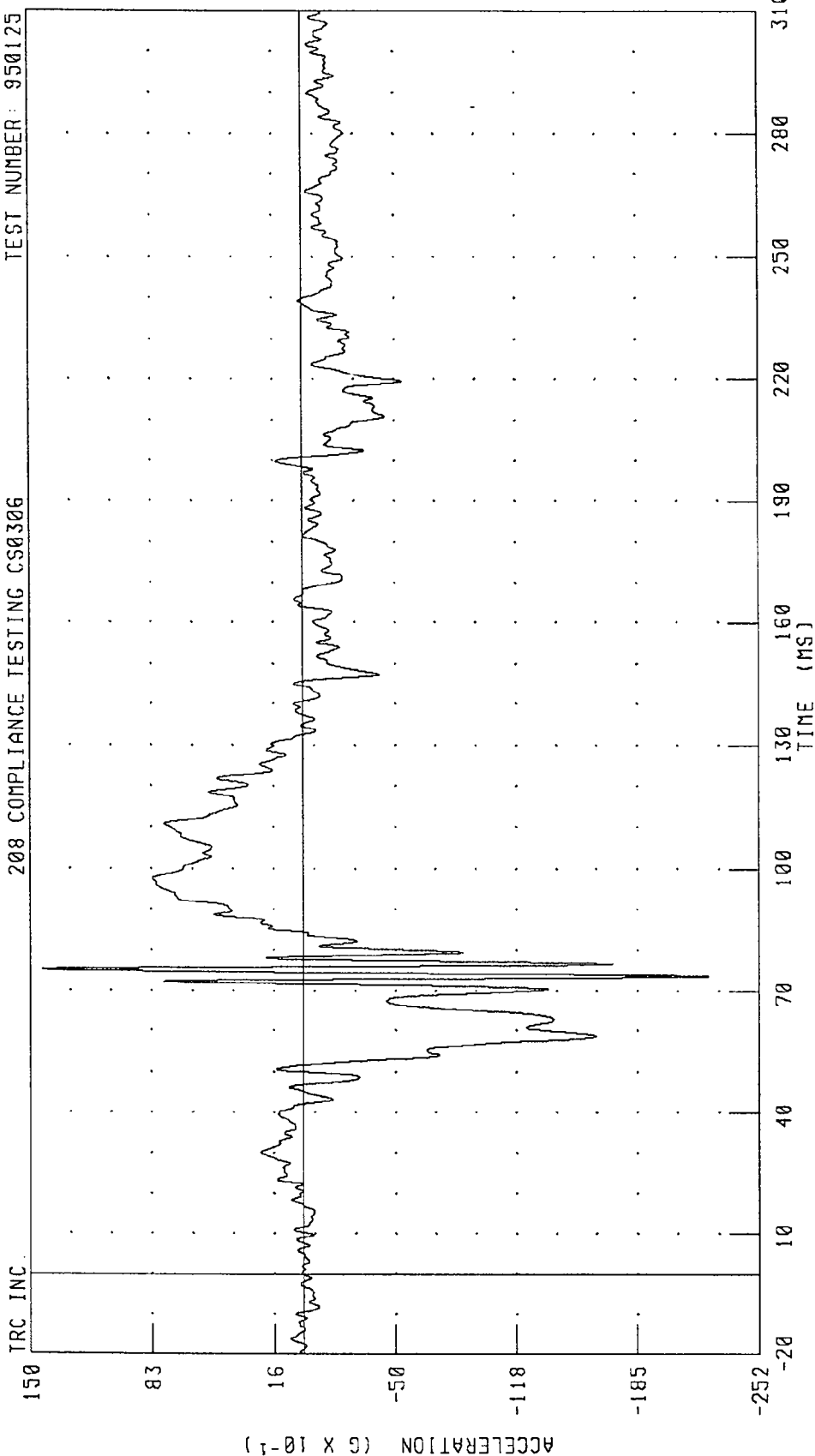


CHANNEL: CSTYC2 FILTER: CH. CLASS 180

PEAK DATA: 7.07 G @ 79.20 MS, -4.08 G @ 124.00 MS

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION
 208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125



PEAK DATA: 14.32 G @ 75.28 MS; -22.42 G @ 73.68 MS

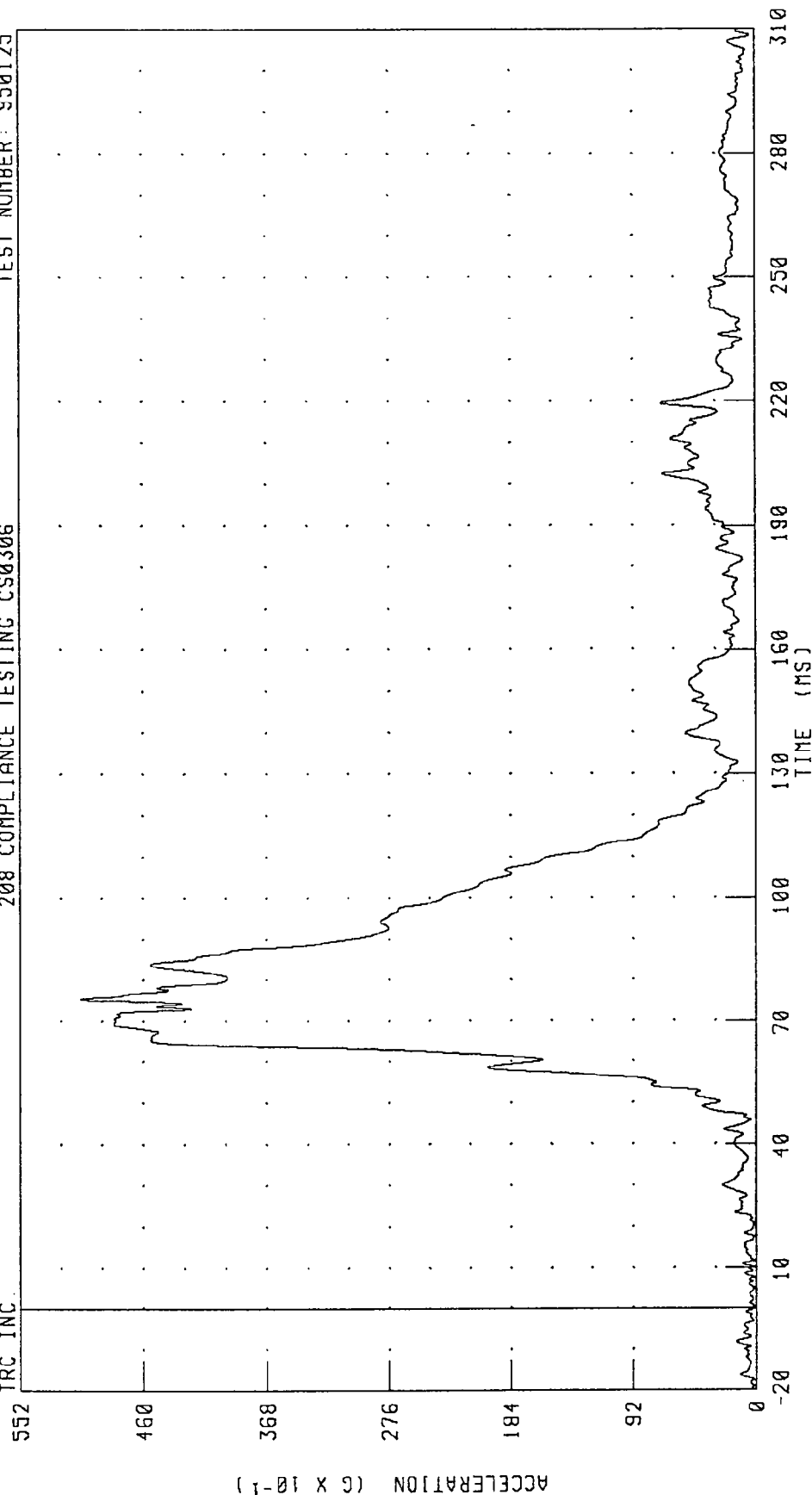
CHANNEL: CSTZG2 FILTER: CH. CLASS 180

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

TRC INC.



CHANNEL: CSTRG2 FILTER: CH. CLASS 180

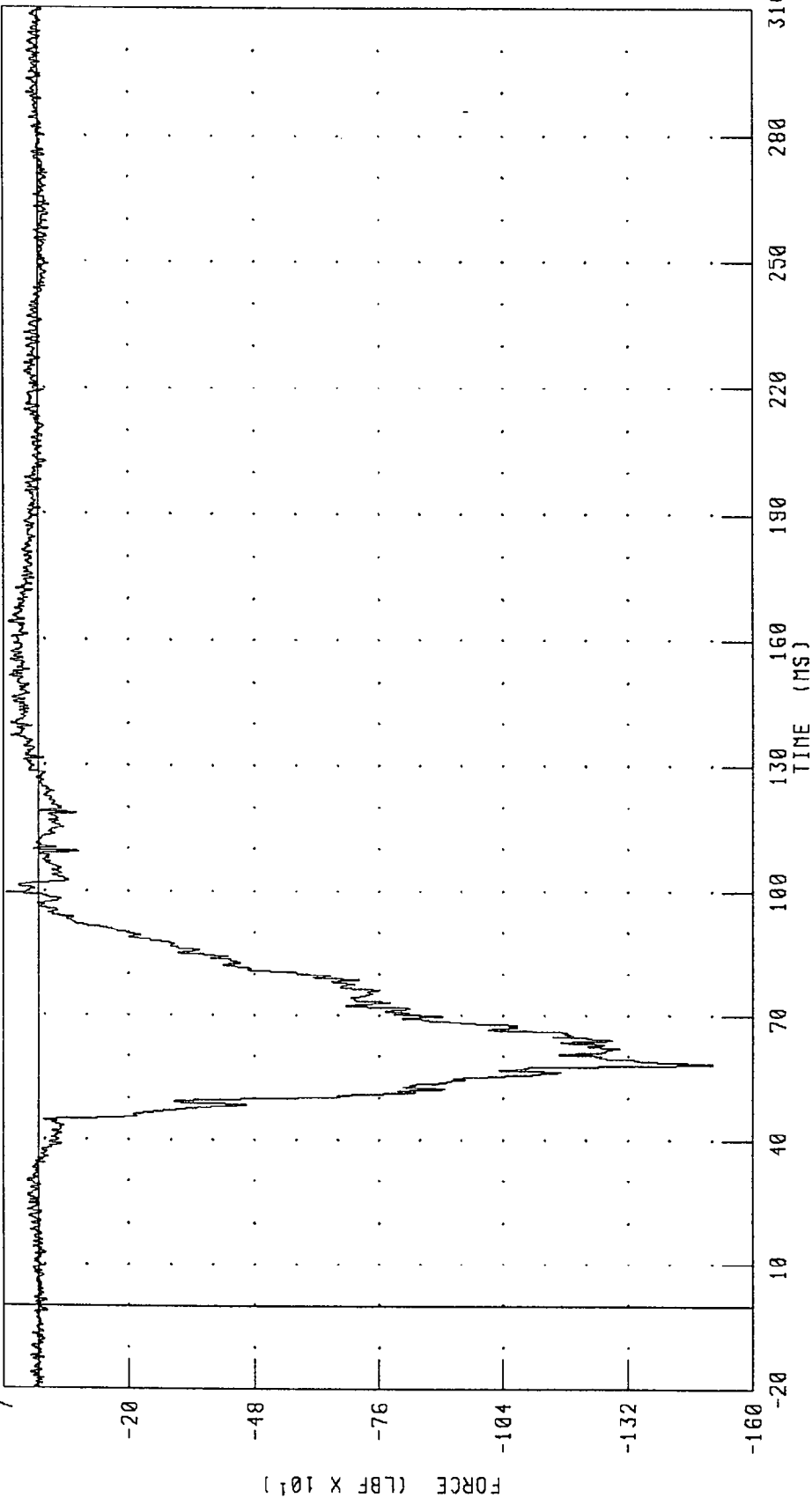
PEAK DATA: 50.67 G @ 75.36 MS; 0.08 G @ -20.00 MS

1995 CHRYSLER CIRBUS INTO FLAT FRONTAL BARRIER
 RIGHT FRONT PASSENGER LEFT FEMUR FORCE

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

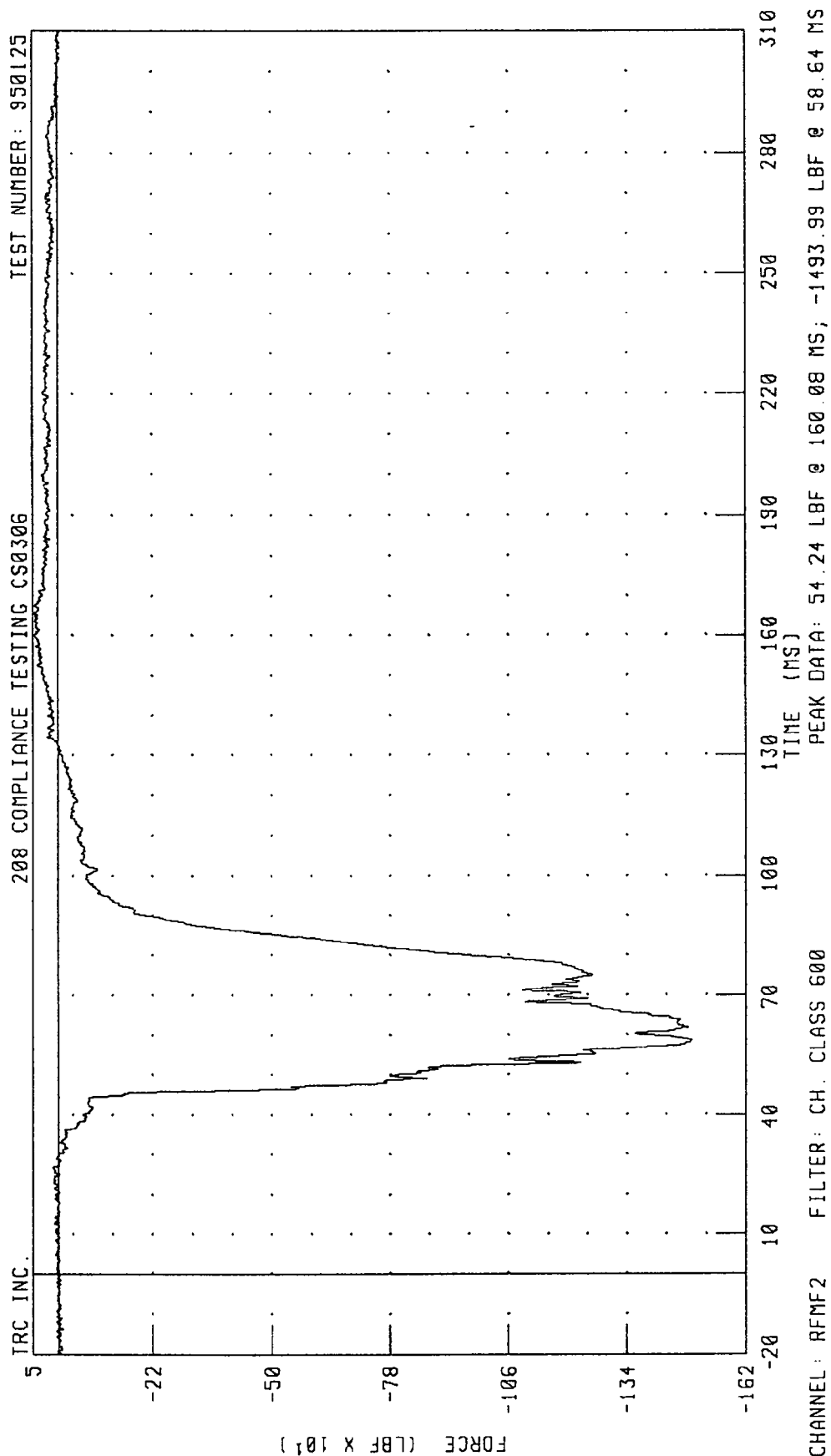
TRC INC.



CHANNEL: LFMF2 FILTER: CH. CLASS 600

PEAK DATA: 72.12 LBF @ 99.52 MS; -1509.58 LBF @ 58.16 MS

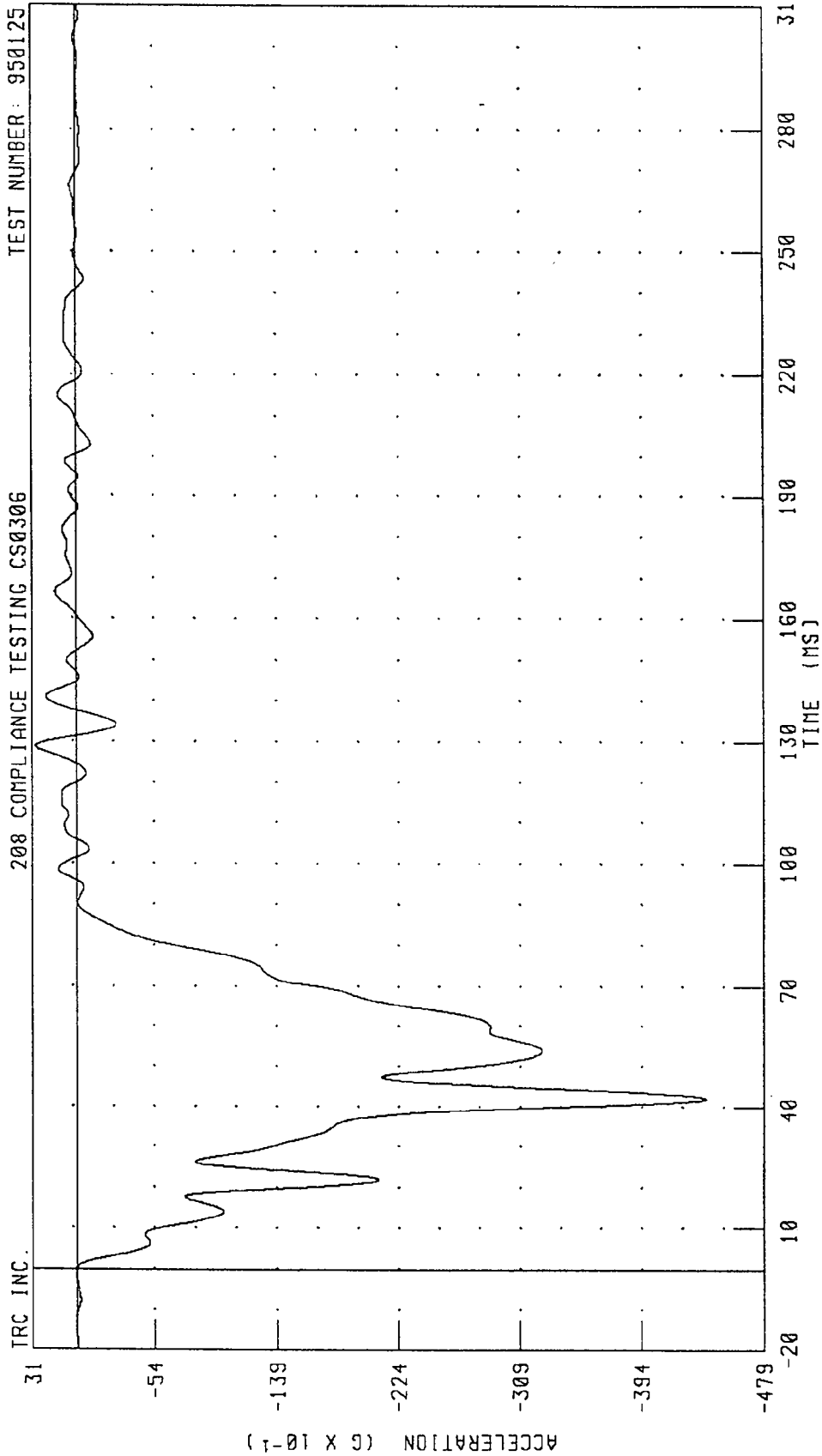
1995 CHRYSLER CIRBUS INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE



1995 CHRYSLER CIRrus INTO FLAT FRONTAL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

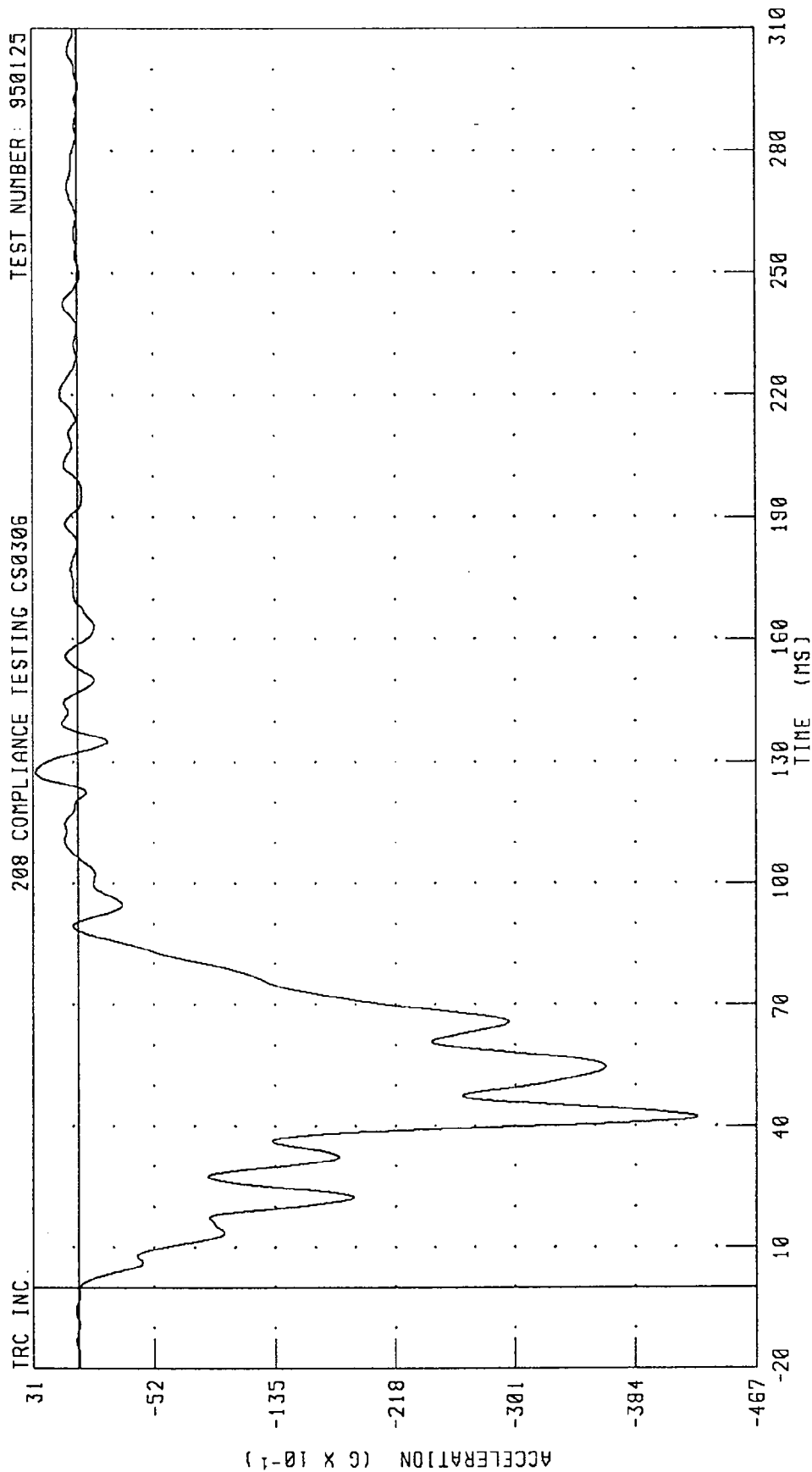


CHANNEL: TLRXG1 FILTER: CH. CLASS 60

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION

208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125

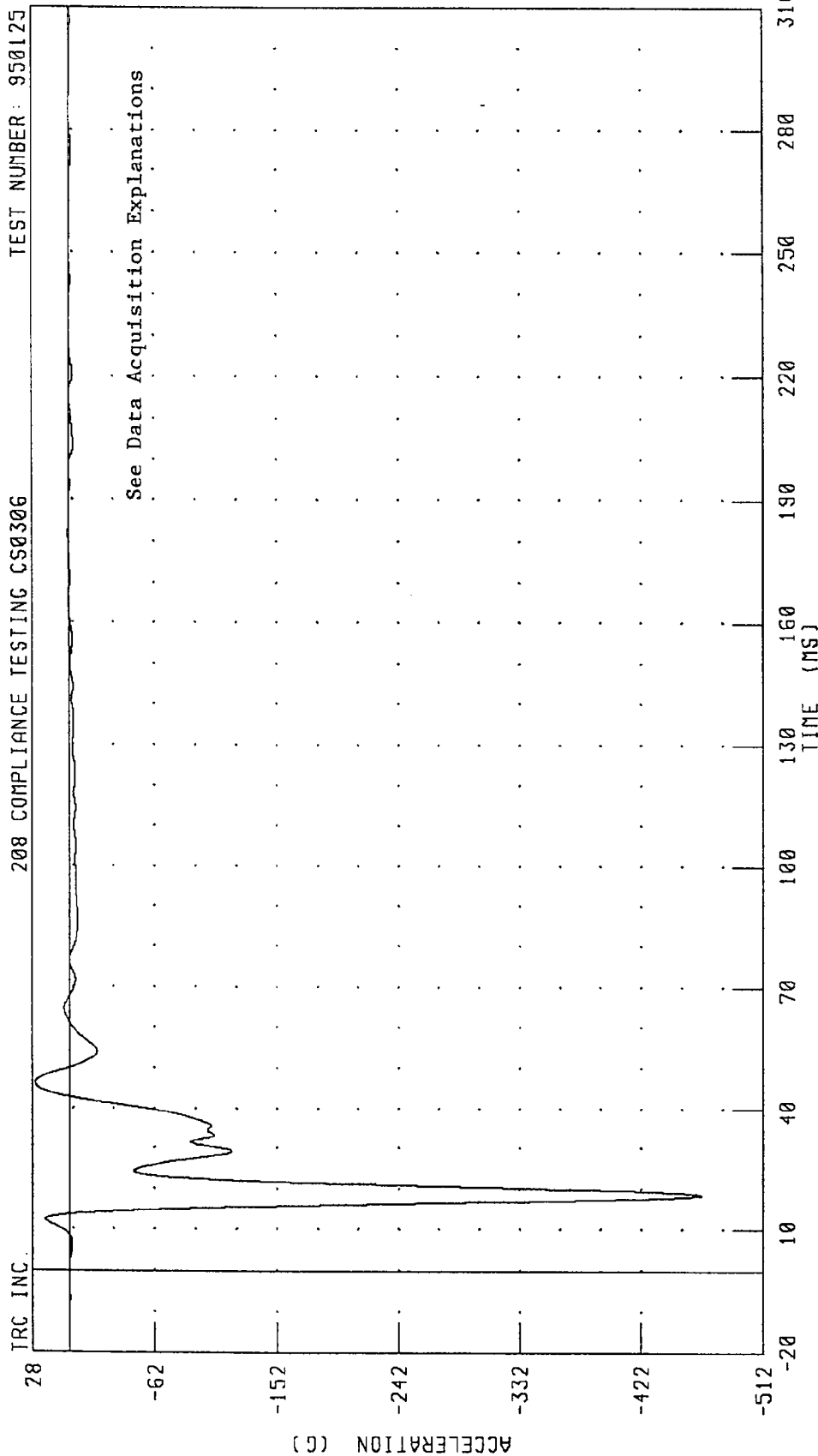


CHANNEL: TRRXG1 FILTER: CH. CLASS 60

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
ENGINE UPPER BLOCK X-AXIS ACCELERATION

TEST NUMBER: 950125

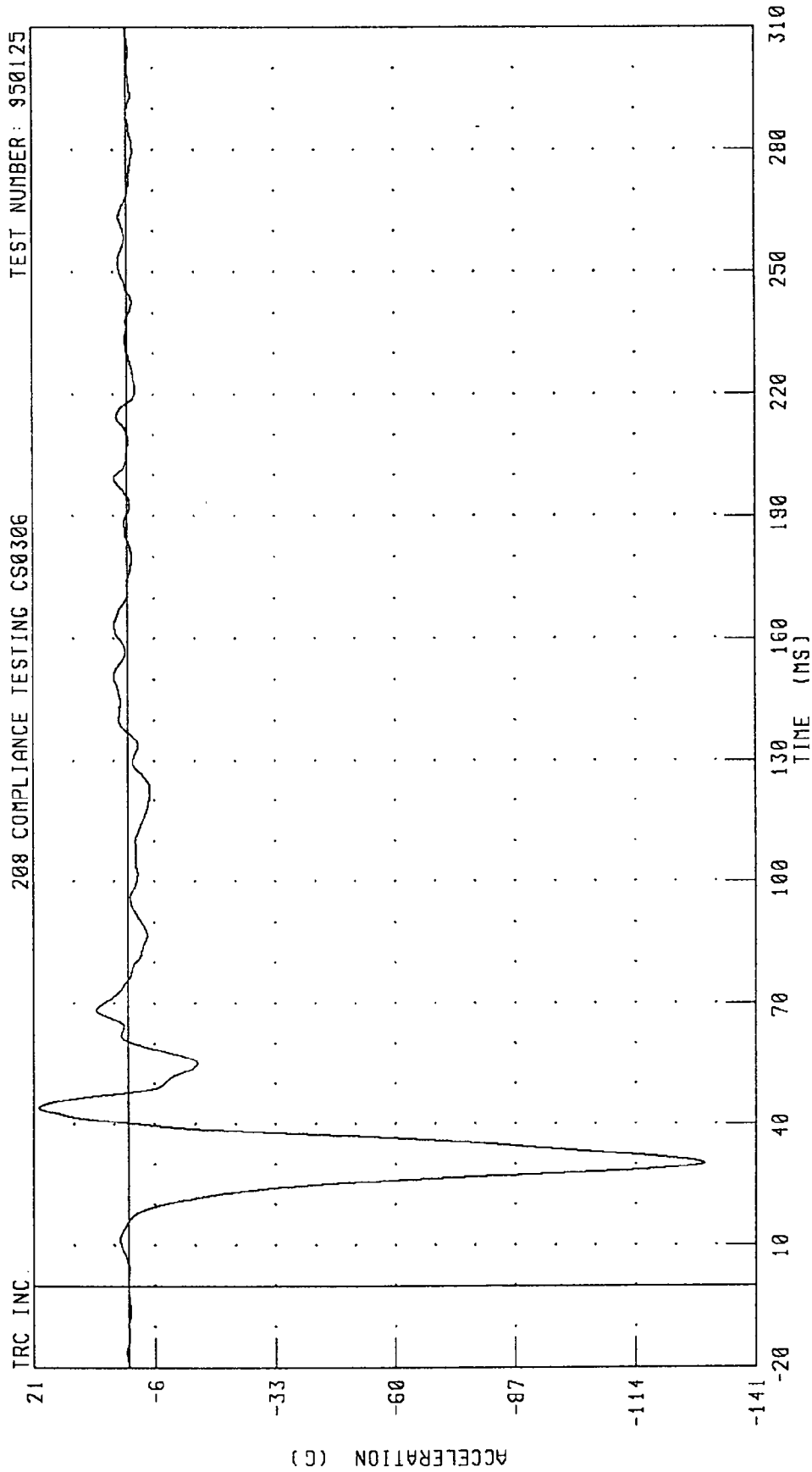
208 COMPLIANCE TESTING CS0306



CHANNEL: ENGXC1 FILTER: CH. CLASS 60

PEAK DATA: 25.70 G @ 46.40 MS; -465.79 G @ 18.56 MS

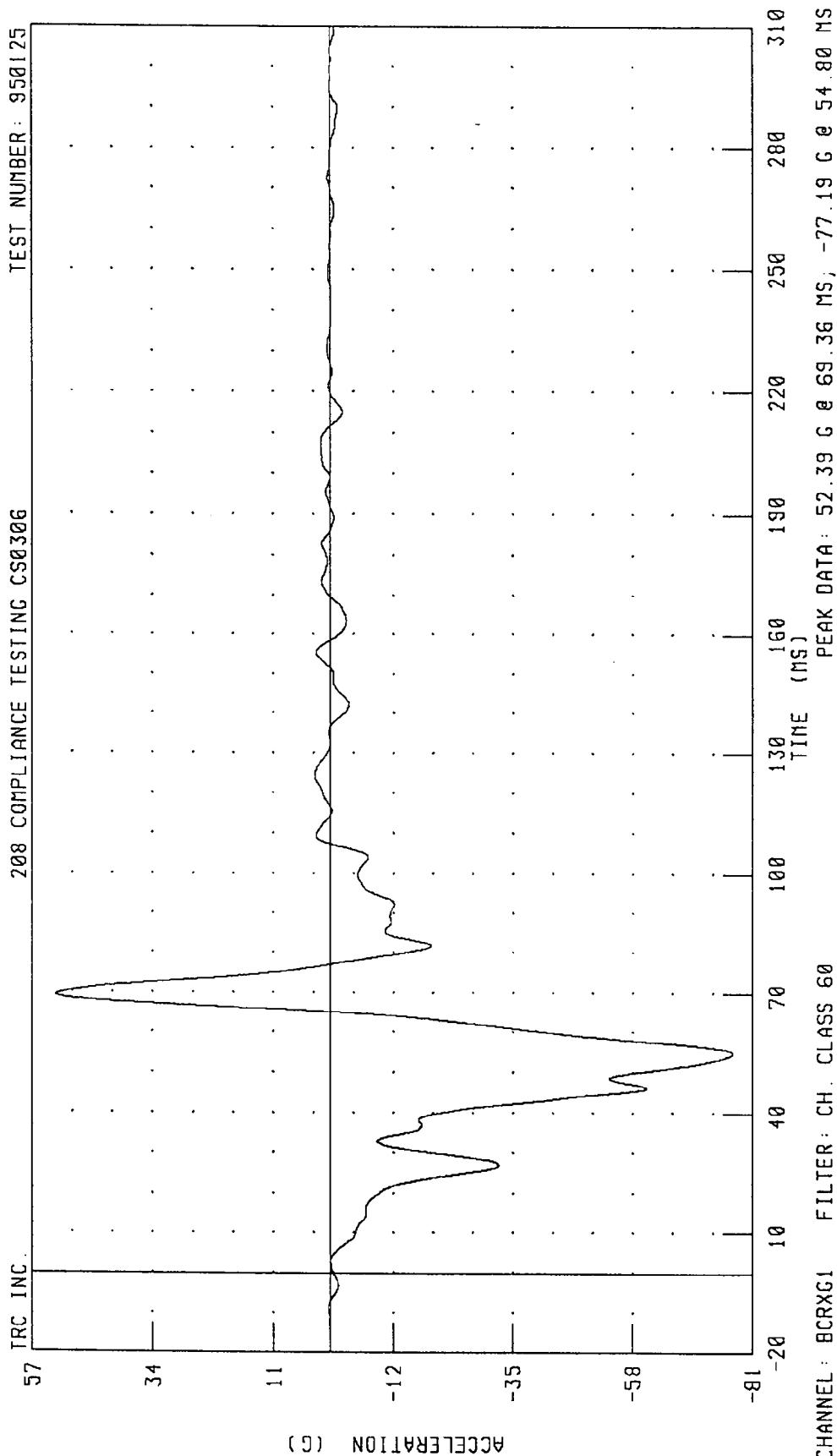
1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
ENGINE BOTTOM BLOCK X-AXIS ACCELERATION
208 COMPLIANCE TESTING CS0306



CHANNEL: ENGXC2 FILTER: CH. CLASS 60

1995 CHRYSLER CIRrus INTO FLAT FRONTAL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION

208 COMPLIANCE TESTING CS0306 TEST NUMBER: 950125



1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

TRC INC.

65

31

-3

-37

-71

-105

-139

ACCELERATION (G)

TIME (MS)

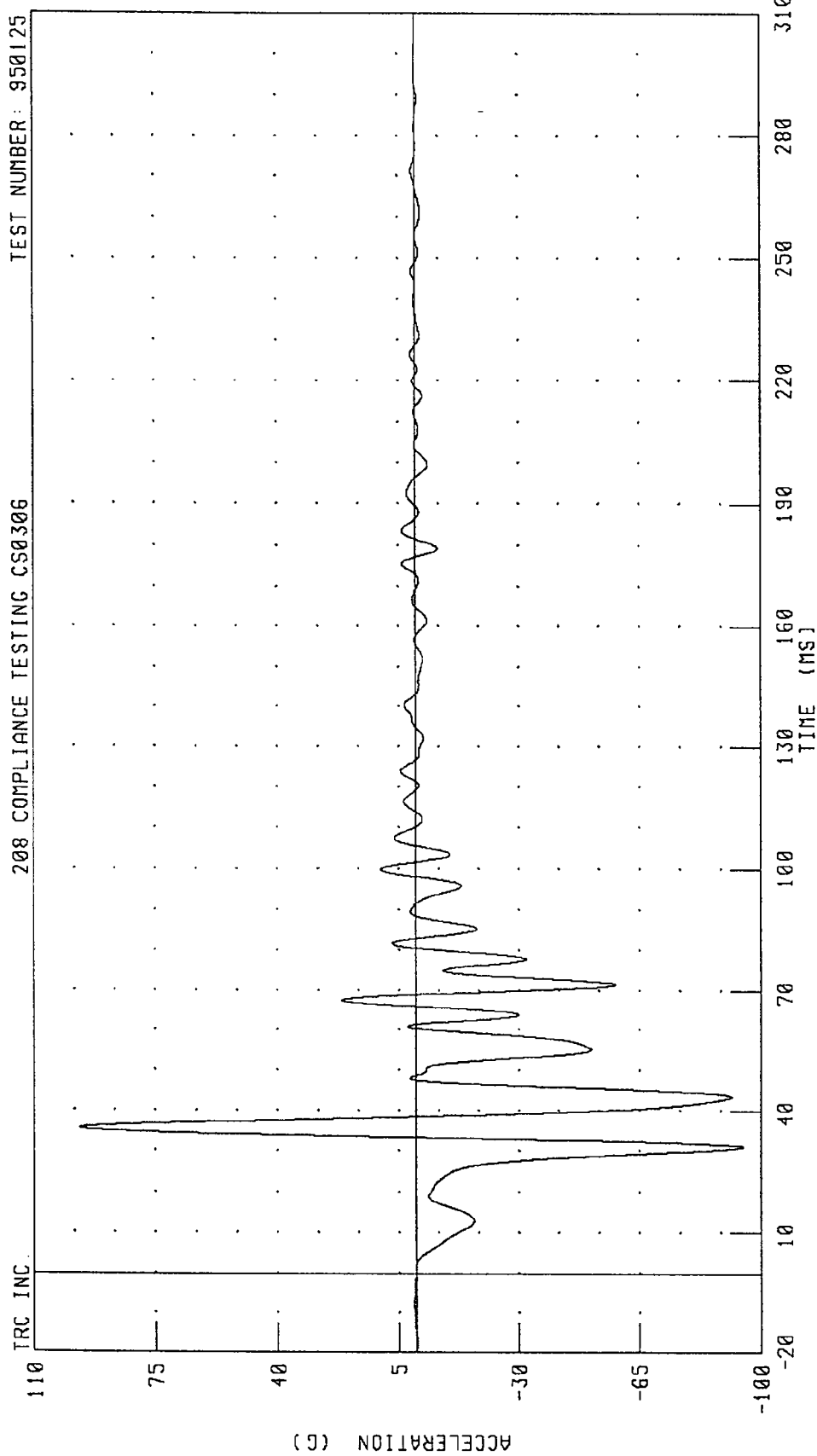
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310

CHANNEL: BCLXG1 FILTER: CH CLASS 60

PEAK DATA: 59.78 G @ 61.76 MS; -127.65 G @ 47.36 MS

1995 CHRYSLER CIRrus INTO FLAT FRONTAL BARRIER
 DASH PANEL CENTER X-AXIS ACCELERATION
 208 COMPLIANCE TESTING CS0306

TEST NUMBER: 950125



PEAK DATA: 96.68 G @ 35.60 MS; -94.84 G @ 31.04 MS

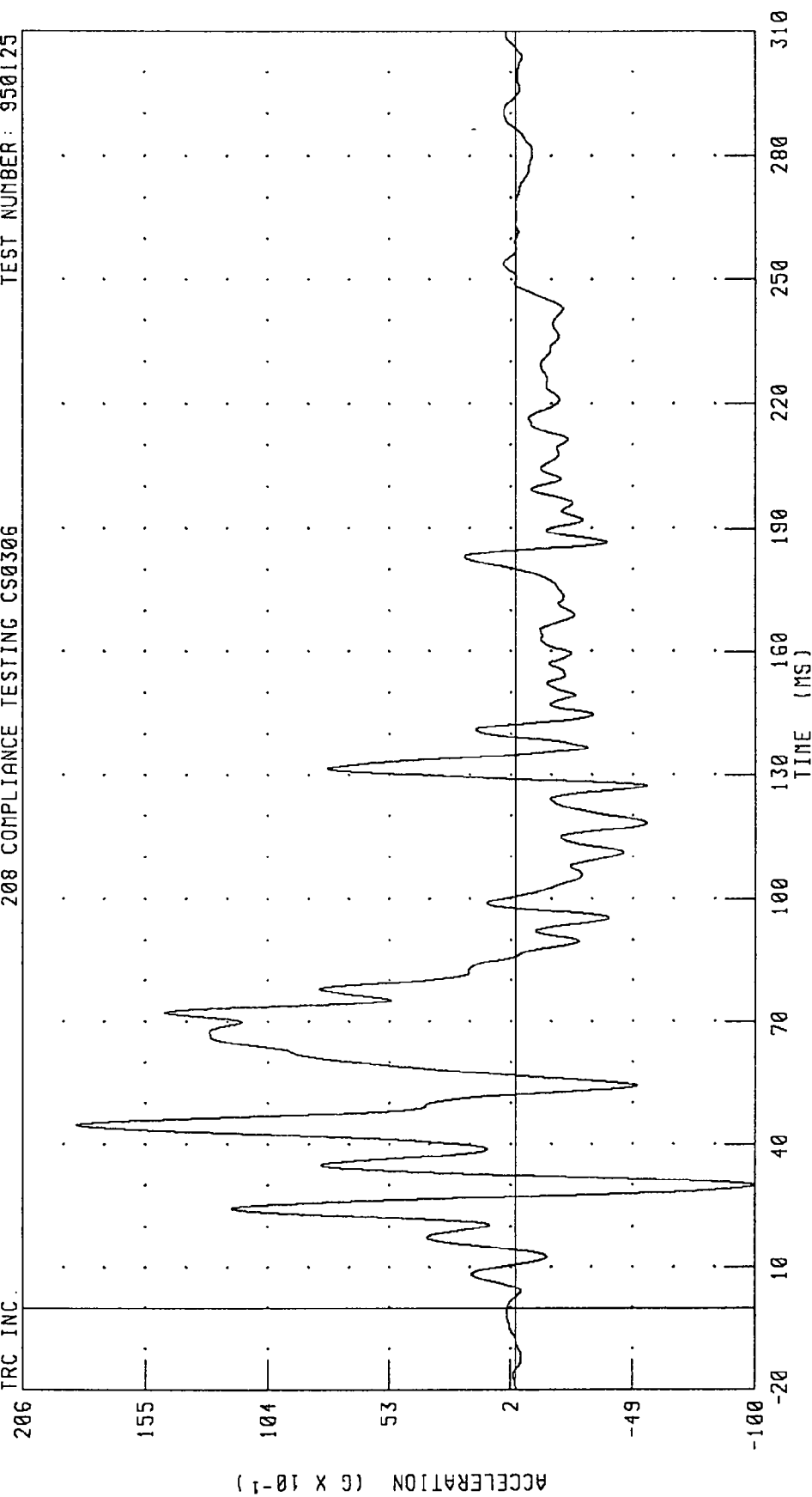
CHANNEL: DPCXG1 FILTER: CH. CLASS 60

1995 CHRYSLER CIRRUS INTO FLAT FRONTAL BARRIER
VEHICLE REAR CENTER Z-AXIS ACCELERATION

TEST NUMBER: 950125

208 COMPLIANCE TESTING CS0306

TRC INC.



CHANNEL: TFC7G1 FILTER: CH. CLASS 60

PEAK DATA: 18.37 G @ 44.64 MS; -9.97 G @ 30.00 MS

Appendix C

Manufacturer's Vehicle Information

Craig



Dale E Dawkins
Director - Vehicle Compliance and
Safety Affairs

1.4 1.9" out

January 10, 1995

Mr. Robert F. Hellmuth, Director
Office of Vehicle Safety Compliance
National Highway Traffic Safety Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Mr. Hellmuth:

Reference: NEF-31CCa IR 1511; FMVSS 208 -- 1995 CHRYSLER CIRRUS

For clarification and accuracy purposes, the attached Form No. 1 is revised (seat back angle) from that provided as part of Attachment 5 of our September 2, 1994 response to the referenced inquiry.

Chrysler is certifying all 1995 Chrysler Cirrus and Dodge Stratus models for FMVSS 208 at the 18 degree seat back angle, and any compliance verification testing conducted by NHTSA should be performed at the same angle.

If you have any questions concerning the information provided, please contact Leo Moses of my staff at (810) 512-8556.

Sincerely,

D. E. Dawkins

Attachment

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1995 Chrysler CirrusVehicle Model & Body Style: 4 Door

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.

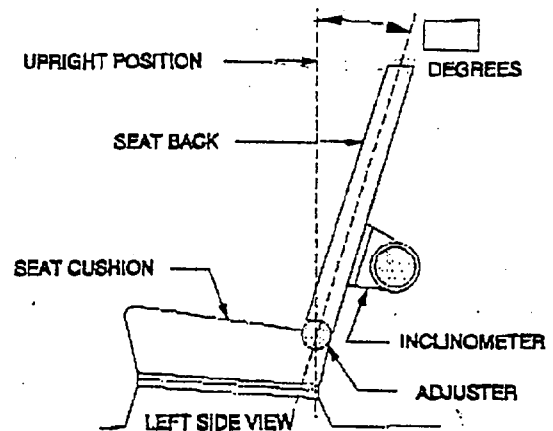
Seat back angle for driver's seat = 18.0 degrees.

Measurement Instructions:

1) Adjust head restraint to the full-up position. 2) Using the head restraint post as a reference, recline the seatback an additional 4 degrees from the most erect position.

Seat back angle for passenger's seat = 18.0 degrees.

Measurement Instructions:

Same as above

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, provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat:

1) For seats equipped with height adjusters (driver-side only), adjust the seat to its lowest position. 2) Position the seat (manual or power, driver and passenger) 110 mm forward of its rear-most position.

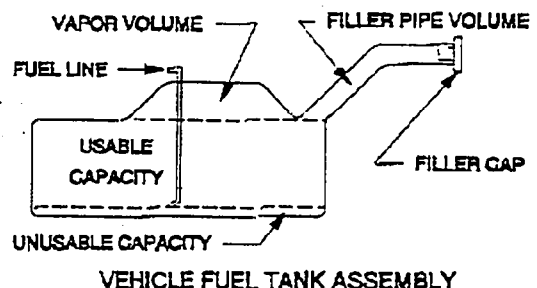
Positioning of the passenger's seat (if applicable):

Same as above

3. FUEL TANK CAPACITY DATA - -

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 16 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.
- C. Capacity used when certification testing to requirements of FMVSS 301 = 15.2 gallons.

Operational Instructions:

3.2 Amount of Stoddard solvent added to vehicle for certification test = 15.2 gallons3.3 Is vehicle equipped with electric fuel pump? ☒ YES ☐ NOIf YES, does pump normally operate when vehicle's electrical system is activated? ☒ YES ☐ NO

FUEL PUMP WILL RUN IN EITHER THE "IGNITION START" OR "IGNITION RUN" KEY POSITIONS.
NOTE: PUMP STOPS IF ENGINE DOES NOT RUN FOR ONE SECOND.

TEST VEHICLE INFORMATION

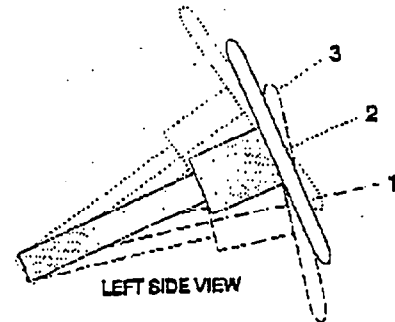
4. STEERING COLUMN ADJUSTMENTS - -

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:

Tilt adjustable steering columns are provided as standard equipment on all models of the 1995 Chrysler Cirrus. For testing, measure the total steering tilt mechanism travel (6.5 degrees) and adjust the column to the middle position. To verify correct placement the final adjusted angle relative to the front door lower sill should measure 24 degrees.



LEFT SIDE VIEW
STEERING COLUMN ASSEMBLY



Dale E Dawkins
Director - Vehicle Compliance and
Safety Affairs

September 2, 1994

Mr. Robert F. Hellmuth, Director
Office of Vehicle Safety Compliance
National Highway Traffic Safety Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Mr. Hellmuth:

Reference: NEF-31CCa IR 1511; FMVSS 208 -- 1995 CHRYSLER CIRRUS

The following is provided in response to your July 15, 1994 information request.

Q1. 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.

A1. The air bag automatic restraint system provided at the driver and passenger seating positions was installed to meet the requirements of S4.1.2.1(c)(2).

Q2. 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 frontal/angular barrier impact test required by S4.1.2.1.

A2. As indicated in our response to Question #1, the automatic restraint system provided at the driver and passenger seating positions was installed to meet the requirements of S4.1.2.1.(c)(2).

Mr. Robert H. Hellmuth
NEF-31CCa; IR 1511
September 2, 1994
Page 2 of 7

Q3. 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., 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).

A3. All pertinent test reports are summarized and included in Attachment 1. Based on previous test history, compliance for belted angular impact performance was based on engineering judgement.

Q4. 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.

A4. As indicated in our response to Question #3, the manual 3-point driver and passenger safety belt was installed in order to meet the requirements of S4.1.2.1(c)(2).

Q5. 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.

A5. A pressure vessel is not used to inflate the air bags on the subject vehicles.

Q6. 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.

A6. An explosive device is used to inflate the driver and passenger air bags. Information demonstrating that these devices meet all requirements of S9.2 is provided in Attachments 2 and 3 respectively.

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The vehicle has a foot rest for the driver and can be equipped with a split front bench seat. The driver dummy was located so that the midsagittal plane was centered on the steering wheel rim. 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.

Q10. 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.

A10. See Attachment 5.

Q11. If the vehicle is equipped with adjustable seat belt anchorages, provide the manufacturer's nominal design position for a 50th percentile adult male occupant.

A11. Adjustable turning loops are standard on each B-pillar, with 5 positions. The nominal design position for a 50th percentile adult male is located at the top upper most position.

Q12. 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. 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**

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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 deploy and 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.

A12. See Attachment 1 for all certification test information. See Attachment 6 for marked data traces regarding questions 12.1, 12.2, 12.4, 12.5, and 12.6. For question 12.3, steering column stroke will typically start at approximately 40 milliseconds after barrier contact and will typically end at approximately 60 milliseconds after barrier contact. In response to question 12.7, there were no unexpected events in the tests.

Q13. 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?

A13. If vehicle components must be removed to obtain the proper test weight, the following priority order should be utilized:

Trunk carpeting, spare tire and jack, rear fascia, rear bumper beam, decklid, rear window (backlight), rear seat, rear seat belt systems, C-pillar trim, carpet (aft of B-pillar), headliner (aft of B-pillar), rear door trim panels, rear door glass, rear door hardware (lock/latch/window mechanisms). Removal of any components other than mentioned above may compromise test results.

Q14. 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.

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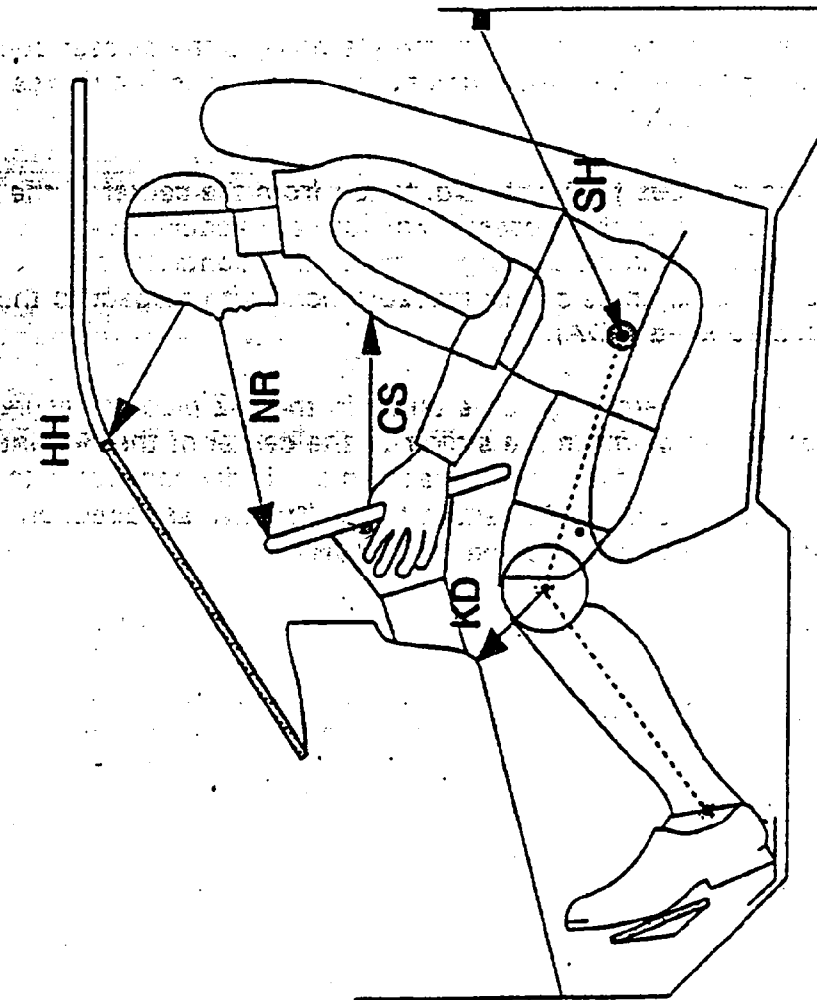
ATTACHMENT #4

RESPONSE TO QUESTION #9

SUMMARY OF DUMMY

PLACEMENT MEASUREMENTS

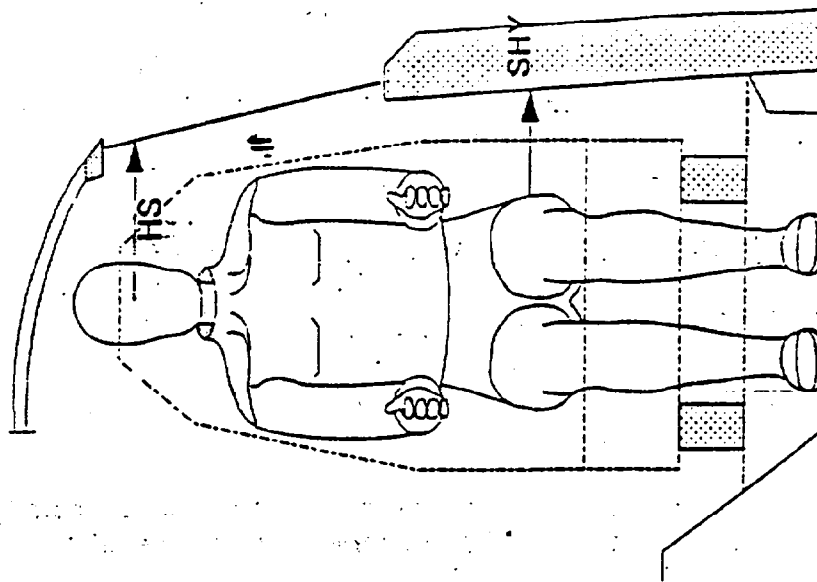
DUMMY MEASUREMENTS FOR FRONT SEAT PASSENGERS



HH = Head to Header = N/A
 NR = Nose to Rim = 18.3"
 CS = Steering Wheel to Chest = 12.7"
 KD/KDR = Knee to Dash = 4.0"
 SH = Striker H-Point = N/A

(* Note this value differs from the OVSC dimension, OVSC measures from the kneeblocker to knee pivot point, Chrysler measures from kneeblocker to knee exterior)

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Shy = Striker to H-Point (Y-dir.) = N/A
 HS = Head to Side Window = N/A

Per FMVSS section S10.1, Dummy located by placing the test dummy's torso against the seat back and its upper legs against the seat cushion to the extent permitted by placement of the test dummy's feet in accordance with the appropriate paragraph of S10. Center the test dummy on the seat cushion of the bucket seat and set its midsagittal plane so that it is vertical and parallel to the centerline of the seat cushion.

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ATTACHMENT #5

RESPONSE TO QUESTION #10

SELECTED VEHICLE DATA

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1995 Chrysler CirrusVehicle Model & Body Style: 4 Door

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.

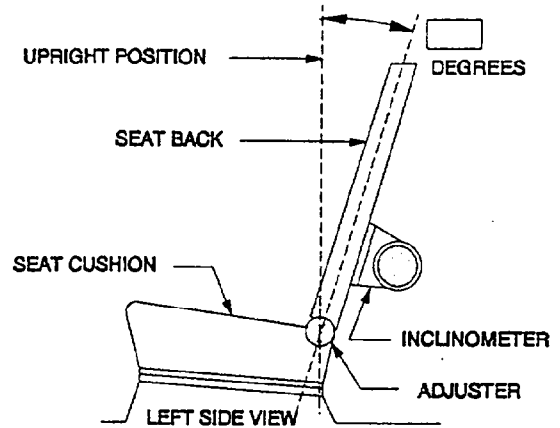
Seat back angle for driver's seat = 10.0 degrees.

Measurement Instructions:

1) For power or manual seats equipped with height adjusters, adjust the seat to its lowest position. 2) For seats that are manual or power adjust seat to the rearward most position. 3) Position seat (manual or power) 110 mm forward from the rearmost position. 4) Adjust head restraint to the full up position. 5) Move recliner to the full forward position. 6) Recline seatback 10 degrees from the full forward position.

Seat back angle for passenger's seat = degrees.

Measurement Instructions:

Same as above

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, provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat:

See above

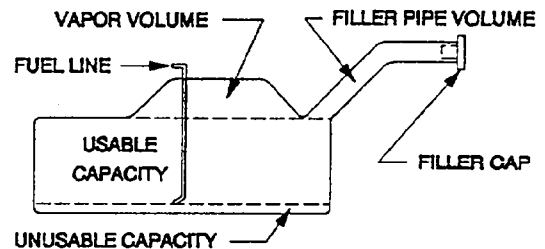
Positioning of the passenger's seat (if applicable):

See above

3. FUEL TANK CAPACITY DATA - -

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 16 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.
- C. Capacity used when certification testing to requirements of FMVSS 301 = 15.2 gallons.

Operational Instructions:



VEHICLE FUEL TANK ASSEMBLY

- 3.2 Amount of Stoddard solvent added to vehicle for certification test = 15.2 gallons

- 3.3 Is vehicle equipped with electric fuel pump? x YES NO
If YES, does pump normally operate when vehicle's electrical system is activated? x YES NO

FUEL PUMP WILL RUN IN EITHER THE "IGNITION START" OR "IGNITION RUN" KEY POSITIONS.
NOTE: PUMP STOPS IF ENGINE DOES NOT RUN FOR ONE SECOND.

TEST VEHICLE INFORMATION

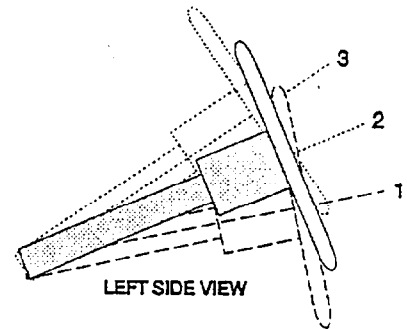
4. STEERING COLUMN ADJUSTMENTS - -

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:

Tilt adjustable steering columns are provided as standard equipment on all models of the 1995 Chrysler Cirrus. For testing, measure the total steering tilt mechanism travel (6.5 degrees) and adjust the column to the middle position. To verify correct placement the final adjusted angle relative to the front door lower sill should measure 24 degrees.



LEFT SIDE VIEW
STEERING COLUMN ASSEMBLY