REPORT NOS. 208-TRC-94-007

212-TRC-94-007

301-TRC-94-007

VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT CRASH PROTECTION, WINDSHIELD MOUNTING, WINDSHIELD ZONE INTRUSION, AND FUEL SYSTEM INTEGRITY

CHRYSLER CORPORATION

1994 DODGE RAM 1500

PICKUP

NHTSA NO. CR0307

TRC TEST NO. 940112

TRANSPORTATION RESEARCH CENTER INC.

10820 STATE ROUTE 347

EAST LIBERTY, OHIO 43319

JANUARY 28, 1994

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

OFFICE OF VEHICLE SAFETY COMPLIANCE (NEF-31)

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WASHINGTON, DC 20590

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16. Abstract

A 30 mph flat frontal barrier impact test was conducted on a 1994 Dodge Ram 1500 pickup, NHTSA No. CR0307, at Transportation Research Center Inc. on January 12, 1994. This test was conducted to determine compliance with Federal Motor Vehicle Safety Standards: FMVSS 208, "Occupant Crash Protection"; 212, "Windshield Mounting"; 219 (partial), "Windshield Zone Intrusion"; and 301 "Fuel System Integrity." The barrier impact velocity was 29.3 mph. The vehicle's maximum static crush was 22.1 inches. The ambient temperature was 71° F.

The driver's Head Injury Criteria (HIC) was 334. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 52.6 *g*. The driver's chest maximum deflection was 1.7 inches. The driver's left and right femur maximum axial forces were 1585 (See DATA ACQUISITION EXPLANATIONS) pounds and 1200 pounds, respectively.

The passenger's HIC was 279. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 37.2 *g*. The passenger's chest maximum deflection was 1.5 inches (See DATA ACQUISITION EXPLANATIONS). The passenger's left and right femur maximum axial forces were 333 pounds and 194 pounds, respectively.

The vehicle appears to comply with the applicable requirements of FMVSS 208, 212, 219 (partial), and 301

17. Key Words	18. Distribution Statement
Frontal Impact 30 mph Vehicle Safety Compliance Testing: FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219 (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"	Available from: NHTSA Technical Reference Division Room 5108, (NAD-52) 400 Seventh Street, S.W. Washington, DC 20590 Attn: Mr. Robert Hornickle

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METRIC CONVERSION FACTORS

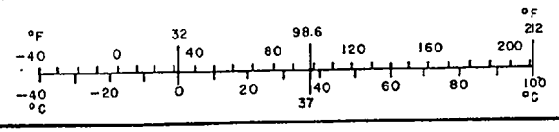
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures. Price $2.25, SD Catalog No. C13.10:286.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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SECTION 1.0

PURPOSE & 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. DTNH22-90-D-22121. The purpose of this test was to determine if the subject vehicle, a 1994 Dodge Ram 1500 pickup, NHTSA No. CR0307, 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-208-08. 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 and Optional Appendix C 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. Each Part 572 E dummy was instrumented with a chest potentiometer to measure longitudinal deflection and neck load cells to measure longitudinal, lateral, and vertical forces and moments.

The thirty-eight (38) 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 12.8 and 12.9 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.

SECTION 2.0

FRONTAL BARRIER IMPACT TEST SUMMARY

TEST RESULTS SUMMARY

This flat frontal barrier test was conducted at TRC on January 12, 1994.

The test vehicle, a 1994 Dodge Ram 1500 pickup, NHTSA No. CR0307, 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 deflection did not exceed 3 inches, and the axial 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 an airbag at the driver's seating position and a three-point manual seat belt at the right front passenger's seating position. The vehicle's test weight was 4992 pounds. The vehicle's impact speed was 29.3 mph. The vehicle's maximum static crush was 22.1 inches.

The driver's HIC was 334. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 52.6 *g*. The driver's chest maximum deflection was 1.7 inches. The driver's left and right femur maximum axial forces were 1585 pounds (See DATA ACQUISITION EXPLANATIONS) and 1200 pounds, respectively.

The right front passenger's HIC was 279. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 37.2 *g*. The passenger's chest maximum deflection was 1.5 inches. The right front passenger's left and right femur maximum axial forces were 333 pounds and 194 pounds, respectively.

There was no loss of windshield periphery retention.

There was no penetration through the windshield.

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

DATA ACQUISITION EXPLANATIONS

The driver's neck Z-axis accelerometer, NEKZF1, was not functioning prior to the test. The data acquisition circuit was checked before the test and again after the test. The cause for the malfuntion could not be found.

The driver's left femur force load cell, LFMF1, lost data from 81 to 263 milliseconds. The data loss appears to be a result of the load cell cable being pinched upon impact.

The right front passenger's chest deflection potentiometer, CSTXD2, recorded a questionable data spike at 79 milliseconds. The data acquisition circuit was checked after the test. The cause for the data spike could not be found.

TABLE 1 CRASH TEST SUMMARY

NHTSA NO.:	CR0307	
TEST TYPE:	Frontal Barrier Impact	
TEST DATE:	01/12/94	
TEST TIME:	1727	
AMBIENT TEMPERATURE AT IMPACT AREA:	71° F	
VEHICLE YEAR/MAKE/ MODEL/BODY STYLE:	1994/Dodge/Ram 1500/pickup	
VEHICLE TEST WEIGHT:	4992 lb	
IMPACT ANGLE[1]:	0°	
IMPACT VELOCITY[2]:		
PRIMARY:	29.3 mph	
SECONDARY:	29.3 mph	
MAXIMUM STATIC CRUSH:	22.1 in	
AVERAGE REBOUND:	26.8 in	
NUMBER OF CAMERAS:		
Real-time:	2	
High-speed:	14	
FRONT DOOR OPENING DATA:		
LEFT:	Easy	
RIGHT:	Easy	
DUMMIES:	Driver #229	Passenger #230
TYPE:	Part 572 E	Part 572 E
LOCATION:	Left front	Right front
RESTRAINT:	Airbag	Three-point unibelt
NUMBER OF DATA CHANNELS:	15	15
FRONT SEAT DATA:		
SEAT TRACK FAILURE:	None	None
SEAT BACK FAILURE:	None	None
VISIBLE DUMMY CONTACT POINTS:		
HEAD:	Airbag	Chest
CHEST:	Airbag and Lower Steering Wheel Rim	None
ABDOMEN:	None	None
LEFT KNEE:	Instrument panel	Instrument panel
RIGHT KNEE:	Instrument panel	Instrument panel

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

TABLE 2 TEST VEHICLE INFORMATION

VEHICLE YEAR/MAKE/ MODEL\BODY STYLE:	1994/Dodge/Ram 1500/pickup
COLOR:	Red
VIN:	3B7HC16Y0RM500490
NHTSA NO.:	CR0307

ENGINE DATA:

PLACEMENT:	__X__ LONGITUDINAL/INLINE _____ TRANSVERSE/LATERAL
CYLINDERS:	8
DISPLACEMENT:	5.2 liters
TRANSMISSION DATA:	_4_ SPEED, ___MANUAL, _X_ AUTOMATIC, ___OVERDRIVE
FINAL DRIVE:	___FWD, _X_ RWD, ___4WD

DATE VEHICLE RECEIVED:	9/28/93
ODOMETER READING:	112
DEALER'S NAME AND ADDRESS:	Erwin Chrysler, Inc. 2245 S. Co. Rd. 25A Troy, OH 45373

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	Rear only
CLOCK	Yes	REAR WINDOW DEFROSTER	No
POWER DOOR LOCKS	Yes	OTHER	None

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY:	Chrysler Corporation
DATE OF MANUFACTURE:	08/93
VIN:	3B7HC16Y0RM500490
GVWR:	6400 lb
GAWR: FRONT:	3300 lb
REAR:	3800 lb

TABLE 2 TEST VEHICLE INFORMATION, CONT'D.

SIZE OF TIRES ON VEHICLE:		P245/75R16
TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD:	FRONT:	35 psi
	REAR:	35 psi
SPARE TIRE:		_____SPACE SAVER __X__STANDARD
TYPE OF SEATS:	FRONT:	Bench
	REAR:	NA

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE:	P225/75R16
RECOMMENDED COLD TIRE PRESSURE:	FRONT: 35 psi; REAR: 41 psi
DESIGNATED SEATING CAPACITY:	NA FRONT NA REAR NA TOTAL
VEHICLE CAPACITY WEIGHT:	NA lb

LOCATION OF LABEL STATING TIRE & CAPACITY DATA:

The label was located on the driver's door.

TEST VEHICLE ATTITUDES:

DELIVERED ATTITUDE:	LF:	35.0 in;	RF:	34.9 in;	LR:	37.2 in;	RR: 37.8 in
FULLY LOADED ATTITUDE:	LF:	34.6 in;	RF:	34.4 in;	LR:	36.2 in;	RR: 36.1 in
PRE-TEST ATTITUDE:	LF:	34.6 in;	RF:	34.5 in;	LR:	36.2 in;	RR: 36.4 in
POST-TEST ATTITUDE:	LF:	33.4 in;	RF:	34.2 in;	LR:	35.4 in;	RR: 35.7 in

TABLE 2 TEST VEHICLE INFORMATION, CONT'D.

WEIGHT OF TEST VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS):

RIGHT FRONT	1237	lb	RIGHT REAR	886	lb
LEFT FRONT	1331	lb	LEFT REAR	922	lb
TOTAL FRONT WEIGHT	2568	lb	(58.7% OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1808	lb	(41.3% OF TOTAL VEHICLE WEIGHT)		
TOTAL DELIVERED WEIGHT	4376	lb			

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW[1] = RATED CARGO AND LUGGAGE WEIGHT

UDW = UNLOADED DELIVERED WEIGHT (4376 lb)

GVWR = GROSS VEHICLE WEIGHT RATING (6400 lb)

VCW = VEHICLE CAPACITY WEIGHT = GVWR - UDW = 6400 - 4376 = 2024 lb

DSC[2] = DESIGNATED SEATING CAPACITY (3)

RCLW[1] = GVWR - UDW - 150 (DSC) = 6400 - 4376 - 150 (3) = 1574 lb

TARGET TEST WEIGHT = UDW + RCLW[1] + (NUMBER OF HYBRID III DUMMIES X 167 lb PER DUMMY)

TARGET TEST WEIGHT = 4376 + 300 + 334 = 5010 lb

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 282 lb OF CARGO WEIGHT:

RIGHT FRONT	1307	lb	RIGHT REAR	1142	lb
LEFT FRONT	1369	lb	LEFT REAR	1174	lb
TOTAL FRONT WEIGHT	2676	lb	(53.6% OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	2316	lb	(46.4% OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	4992	lb	(0.4% UNDER TARGET TEST WEIGHT)		

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 125 lb

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG REARWARD OF FRONT WHEEL CENTERLINE: 54.7 in

WHEELBASE: 118.0 in

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

[2] The designated seating capacity is determined by counting the number of seat belts installed in the vehicle.

TABLE 3 POST-IMPACT DATA

TEST NUMBER:	940112
NHTSA NO.:	CR0307
TEST DATE:	01/12/94
TEST TIME:	1727
TEST TYPE:	Frontal Barrier Impact
IMPACT ANGLE:	0°
AMBIENT TEMPERATURE AT IMPACT AREA:	71° F
TEMPERATURE IN OCCUPANT COMPARTMENT:	70° 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: 15.0 in

EXITING VELOCITY TRAP: 2.0 in

TEST VEHICLE STATIC CRUSH:

OVERALL LENGTH OF TEST VEHICLE:

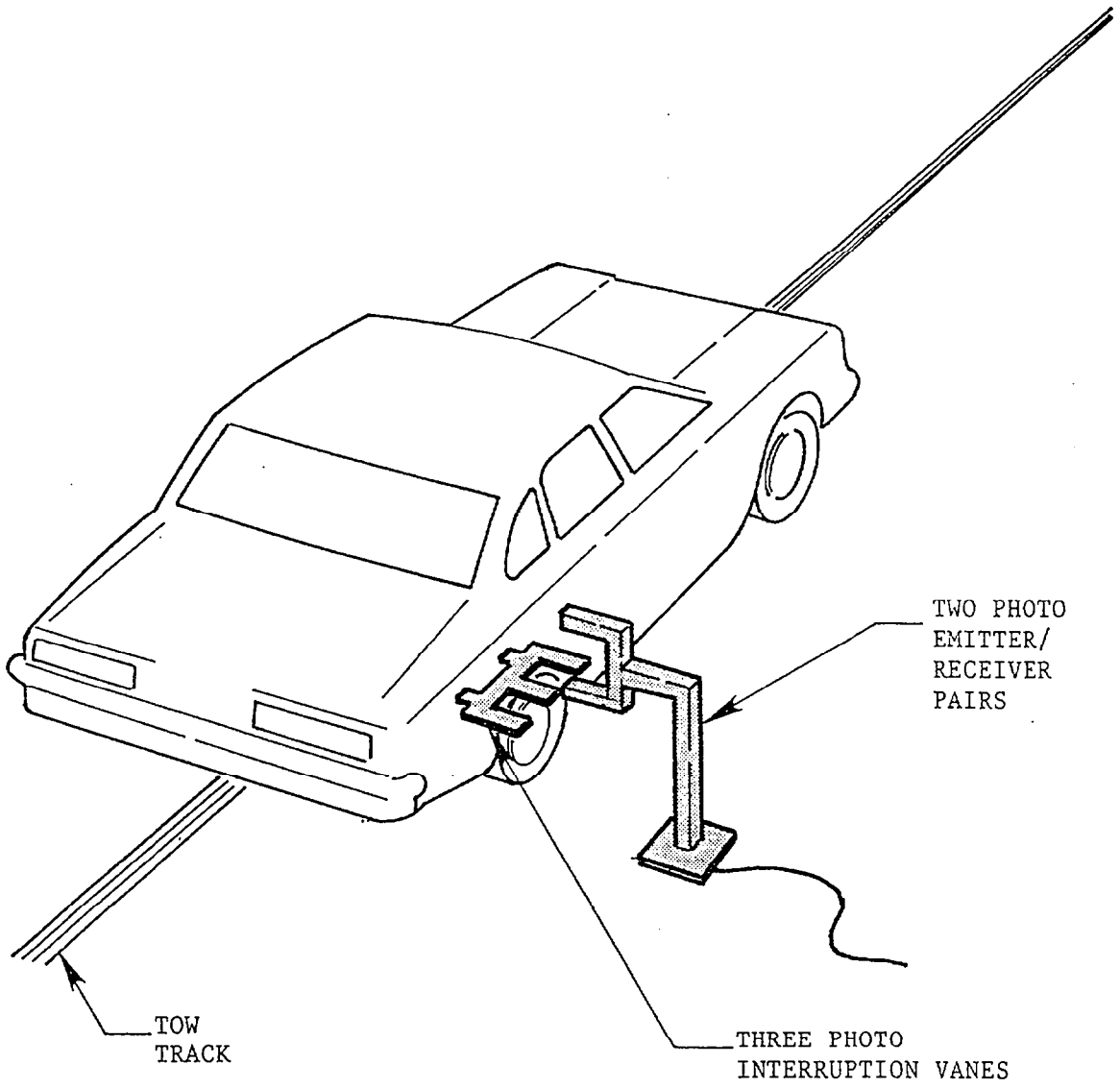
PRE-TEST:	L:	195.2 in;	C:	204.0 in;	R:	195.0 in
POST-TEST:	L:	181.5 in;	C:	181.9 in;	R:	176.2 in
TOTAL CRUSH:	L:	13.7 in;	C:	22.1 in;	R:	18.8 in
AVERAGE CRUSH:		18.2 in				

TEST VEHICLE REBOUND FROM FLAT BARRIER:

DISTANCE FROM TEST VEHICLE TO BARRIER:

	L:	26.1 in;	C:	24.9 in;	R:	29.4 in
	AVG.:	26.8 in				

FIGURE 1 IMPACT VELOCITY MEASUREMENT SYSTEM



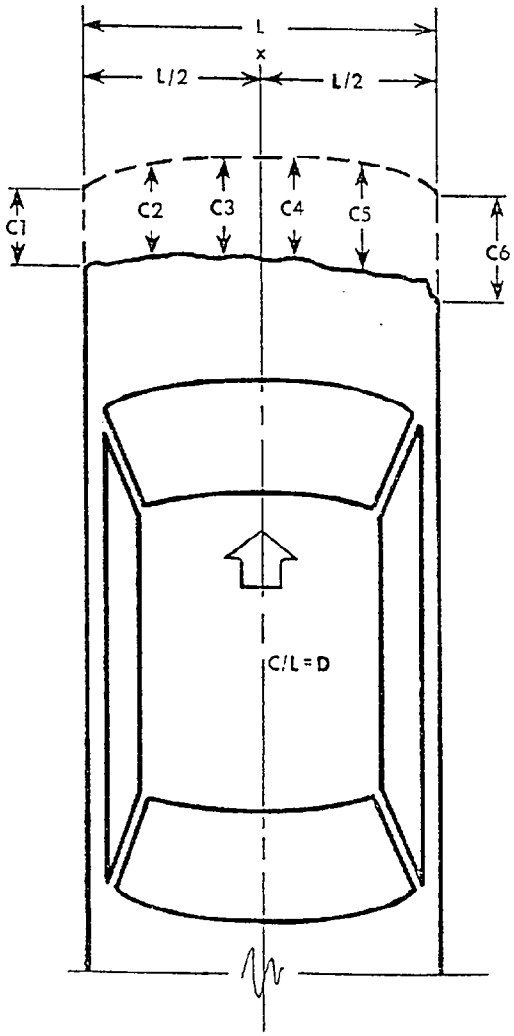
The final vane clears emitter/receiver two inches before impact.

The vanes have one-foot spacing.

FIGURE 2 ACCIDENT INVESTIGATION DIVISION DATA

FOR 30 MPH FRONTAL BARRIER IMPACT

NHTSA NO.:	CR0307
TEST DATE:	01/12/94
VEHICLE YEAR/MAKE/ MODEL/BODY STYLE:	1994/Dodge/Ram 1500/pickup
VEHICLE SIZE CATEGORY:	Standard pickup
VIN:	3B7HC16Y0RM500490
BUILD DATE:	08/93
TEST WEIGHT:	4992 lb
VEHICLE WHEELBASE:	118.0 in
MAXIMUM WIDTH:	79.9 in
FRONT OVERHANG:	38.6 in



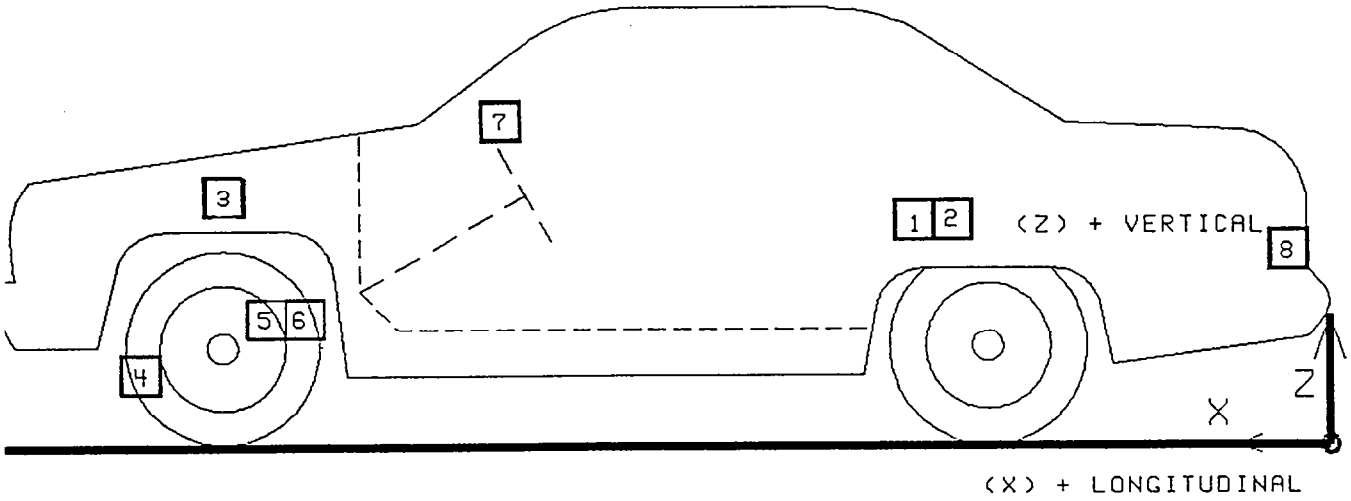
COLLISION DEFORMATION CLASSIFICATION (CDC) CODE: 12FDEW3

CRUSH DEPTH MEASUREMENTS:	C1:	13.7 in
	C2:	17.7 in
	C3:	21.7 in
	C4:	20.9 in
	C5:	20.1 in
	C6:	18.8 in

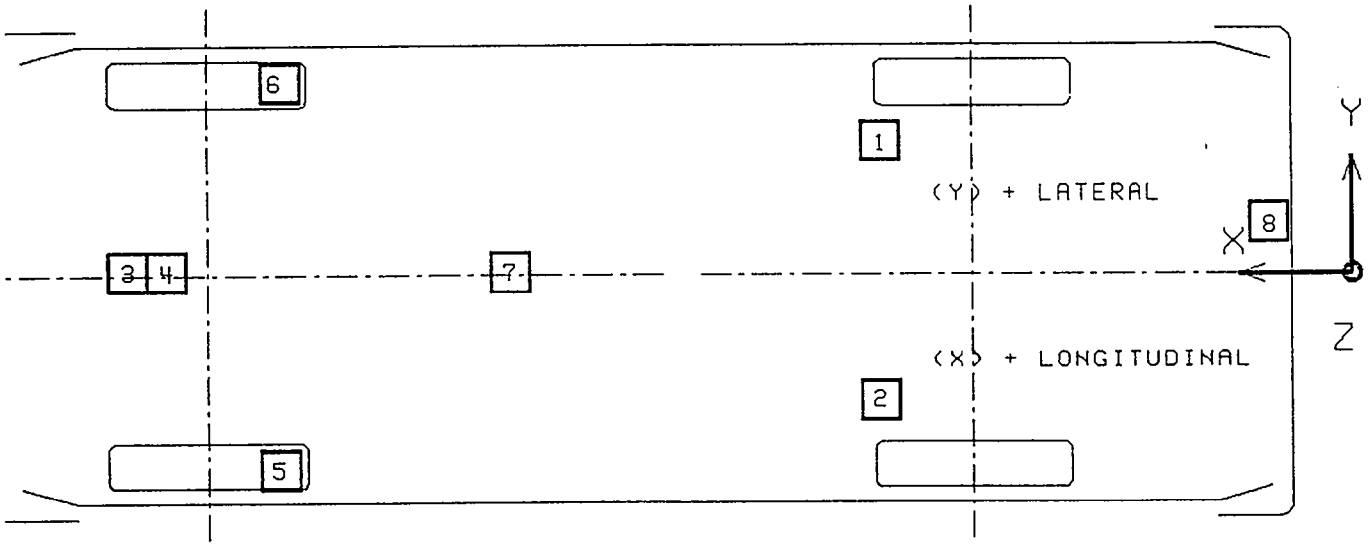
MIDPOINT OF DAMAGE: D: Vehicle Longitudinal Centerline

LENGTH OF DAMAGED REGION: L: 78.0 in

FIGURE 3 VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 4

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 940112

No.	LOCATION		X*	Y*	Z*	POSITIVE DIRECTION MAX G	POSITIVE DIRECTION MSEC	NEGATIVE DIRECTION MAX G	NEGATIVE DIRECTION MSEC
1	LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE	92.3	21.1	25.9				
		POST	91.8	21.1	25.2	4.9	195.0	29.8	59.7
2	RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	PRE	92.3	-21.1	25.1				
		POST	91.8	-21.1	24.9	1.6	217.0	30.0	59.0
3	ENGINE TOP LONGITUDINAL	PRE	163.6	7.2	37.0				
		POST	161.1	8.6	36.2	12.4	63.9	72.2	52.2
4	ENGINE BOTTOM LONGITUDINAL	PRE	157.0	-3.8	16.8				
		POST	157.0	-3.0	15.2	17.6	65.0	70.8	56.2

TABLE 4

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY CONTINUED

TEST NUMBER 940112

No.	LOCATION		X*	Y*	Z*	POSITIVE DIRECTION MAX G	POSITIVE DIRECTION MSEC	NEGATIVE DIRECTION MAX G	NEGATIVE DIRECTION MSEC
5	RIGHT BRAKE CALIPER	PRE	160.5	-28.0	15.4				
		POST	159.5	-27.0	15.4				
	LONGITUDINAL					16.9	80.7	60.4	60.5
6	LEFT BRAKE CALIPER	PRE	160.5	28.0	15.2				
		POST	158.1	28.5	15.0				
	LONGITUDINAL					17.1	26.4	66.8	43.4
7	INSTRUMENT PANEL CENTER	PRE	143.9	0.0	52.6				
		POST	139.5	0.0	51.8				
	LONGITUDINAL					11.1	80.0	34.3	85.8
8	VEHICLE REAR CENTER	PRE	11.8	0.0	30.6				
		POST	11.8	0.0	31.0				
	VERTICAL					12.8	71.4	11.7	135.1

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

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

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT NO.: DTNH22-90-D-22121
FROM: Transportation Research Center Inc.
10820 State Route 347
East Liberty, OH 43319

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

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

NHTSA NO.:	CR0307
VEHICLE YEAR/MAKE/ MODEL/BODY STYLE:	1994/Dodge/Ram 1500/pickup
BODY COLOR:	Red
VIN:	3B7HC16Y0RM500490
ODOMETER (ARRIVAL):	112 DATE: 09/28/93
ODOMETER (COMPLETION):	117 DATE: 01/12/94
COST:	$17745.00

AIR CONDITIONER	Yes	CONSOLE	Yes	BRAKES	POWER
TINTED GLASS	Yes	TACHOMETER	Yes	FRONT	Disc
POWER STEERING	Yes	SPEED CONTROL	Yes	REAR	Drum-ABS
POWER WINDOWS	Yes	REAR WINDOW DEF.	No	FRONT SEATS	Manual
POWER DOOR LOCKS	Yes	SUN/MOON ROOF	No	SEAT TYPE	
RADIO	Yes	T-TOP	No	Front:	Split bench
CLOCK	Yes	TILT STEERING WHEEL	Yes	Rear:	NA
ROOF RACK	No	OTHER OPTIONS:	None	NO. OF SEATS	3

ENGINE:	8 CYLINDERS
LITERS:	5.2
TRANSMISSION:	4-speed automatic
DRIVE TYPE:	Rear-wheel drive
TIRE SIZE:	P245/75R16
GASOLINE TYPE:	Unleaded

EQUIPMENT THAT IS NO LONGER ON THE VEHICLE AS NOTED ABOVE: None

EXPLANATION: NA

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

SECTION 3.0

FMVSS 208, 212, 219 (partial), AND 301 DATA

TABLE 5 DUMMY INJURY CRITERIA

MAXIMUM ACCELERATION

	HEAD				CHEST		
	X	Y	Z	R	X	Y	Z
DRIVER	-47.1 *g*	9.3 *g*	44.9 *g*	47.3 *g*	-52.7 *g*	3.6 *g*	-18.1 *g*
PASSENGER	-33.6 *g*	11.0 *g*	-40.7 *g*	45.9 *g*	-35.2 *g*	-14.4 *g*	-8.0 *g*

MAXIMUM FEMUR COMPRESSIVE FORCE

	LEFT FEMUR	RIGHT FEMUR
DRIVER[1]	1585 lbf	1200 lbf
PASSENGER	333 lbf	194 lbf

HEAD INJURY CRITERIA[2]

	HIC	TIME t_1	TIME t_2
DRIVER	334	83.0 ms	119.0 ms
PASSENGER	279	87.0 ms	123.0 ms

CHEST MAXIMUM RESULTANT ACCELERATION[3]

	ACCEL.	TIME t_1	TIME t_2
DRIVER	52.6 *g*	91.9 ms	95.0 ms
PASSENGER	37.2 *g*	97.1 ms	100.1 ms

MAXIMUM CHEST DEFLECTION

DRIVER	1.7 in
PASSENGER[1]	1.5 in

[1]See DATA ACQUISITION EXPLANATIONS

[2]As defined in FMVSS No. 208

[3]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 rotated rearward and the dummy's chest contacted the lower steering wheel rim as the dummy's head and chest were restrained by the driver's airbag. The dummy's head rotated forward as the dummy rebounded into the seat back. The driver dummy came to rest in the driver's seat.

Right Front Passenger Dummy

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward and contacted the dummy's chest as the dummy was restrained by the three-point unibelt. The dummy's head rotated rearward as the dummy rebounded into the seat back and the dummy's upper torso then rotated toward the right. The right front passenger dummy came to rest in the right front passenger's seat, leaning toward the right, restrained by the three-point unibelt.

TABLE 6 FMVSS 208 COMFORT & CONVENIENCE DATA FOR MANUAL SEAT BELTS

MAKE/MODEL/BODY STYLE: Dodge/Ram 1500/pickup

NHTSA NO.: CR0307

VIN: 3B7HC16Y0RM500490

DATE OF MANUFACTURE: 08/93

WEBBING TENSION-RELIEVING DEVICE:

DO OUTBOARD SEATING POSITION SEAT BELTS HAVE WEBBING TENSION - RELIEVING DEVICES?(check one): __NO__

IF YES:

MAXIMUM SLACK RECOMMENDED IN OWNER'S MANUAL: _____ INCHES

DOES OWNER'S MANUAL WARN THAT INTRODUCING SLACK BEYOND THE AMOUNT SPECIFIED CAN SIGNIFICANTLY REDUCE THE EFFECTIVENESS OF THE SHOULDER BELT? _____ YES _____ NO

IF NO, EXPLAIN:

THE WEBBING TENSION-RELIEVING DEVICE IS CANCELLED WHEN

(check one): _____ The adjacent door is opened.

_____ The latch plate is released from the buckle.

_____ A manual means is activated on a open-body vehicle without doors.

OPEN-BODY VEHICLE (without doors): DOES THE MANUAL-MEANS TO CANCEL THE WEBBING TENSION - RELIEVING DEVICE OPERATE PROPERLY?

_____ YES _____ NO

IF NO, EXPLAIN:

BELT CONTACT FORCE:

BELT CONTACT FORCE ON CHEST OF TEST DUMMY: __0.2__ POUNDS

_____ NOT APPLICABLE, THE VEHICLE'S SEAT BELT SYSTEM INCLUDED A WEBBING TENSION - RELIEVING DEVICE.

TABLE 6 FMVSS 208 COMFORT & CONVENIENCE DATA FOR MANUAL SEAT BELTS, CONT'D.

MAKE/MODEL/BODY STYLE: Dodge/Ram 1500/pickup

NHTSA NO.: CR0307

VIN: 3B7HC16Y0RM500490

DATE OF MANUFACTURE: 08/93

LATCHPLATE ACCESS:

ARE THE SEAT BELT LATCHPLATES, IN THEIR NORMAL STOWED POSITION, WITHIN THE REACH ENVELOPE? __YES__

DOES THE CLEARANCE TEST BLOCK MOVE UNHINDERED TO THE LATCHPLATE OR BUCKLE? __YES__

RETRACTION:

SEAT BELT AUTOMATICALLY RETRACTS WHEN (check one):

_____ The adjacent vehicle door is open and the seat belt latchplate is released.

__X__ The seat belt latchplate is released.

ARE THE STOWED SEAT BELT WEBBING AND HARDWARE PINCHED WHEN THE DOOR IS CLOSED? __NO__

OPEN-BODY VEHICLE (without doors): DOES THE SEAT BELT SYSTEM FULLY RETRACT WHEN THE WEBBING TENSION-RELIEVING DEVICE IS MANUALLY DEACTIVATED? _____ YES _____ NO

TABLE 6 FMVSS 208 COMFORT & CONVENIENCE DATA FOR MANUAL SEAT BELTS, CONT'D.

MAKE/MODEL/BODY STYLE: Dodge/Ram 1500/pickup
NHTSA NO.: CR0307
VIN: 3B7HC16Y0RM500490
DATE OF MANUFACTURE: 08/93

ACCESSIBILITY:

IS THE SEAT CUSHION REMOVABLE SO THE SEAT BACK SERVES A FUNCTION OTHER THAN SEATING? NO

IS THE SEAT REMOVABLE? NO

IS THE SEAT MOVABLE SO THE SPACE FORMERLY OCCUPIED BY THE SEAT CAN BE USED FOR A SECONDARY FUNCTION? NO

NOTE: IF ANY OF THE ABOVE ANSWERS ARE "YES", THE ACCESSIBILITY REQUIREMENTS DO NOT APPLY.

IF WEBBING IS DESIGNED TO PASS THROUGH THE SEAT CUSHION OR BETWEEN THE CUSHION AND SEAT BACK ARE ONE OF THE FOLLOWING PARTS NORMALLY ON TOP OF OR ABOVE THE SEAT CUSHION: LATCHPLATE, BUCKLE, WEBBING?
Not applicable, the webbing is not designed to pass through the seat cushion or between the cushion and seat back.
ARE THE REMAINING TWO PARTS ACCESSIBLE UNDER NORMAL CONDITIONS?
Not applicable, the webbing is not designed to pass through the seat cushion or between the cushion and seat back.

DO THE LATCHPLATE AND BUCKLE PASS THROUGH THE GUIDES PROVIDED AND FALL BEHIND THE SEAT WHEN THE BELT IS COMPLETELY RETRACTED (OR DETACHED IF NOT RETRACTABLE); THE SEAT IS MOVED TO ANY POSITION; AND THE SEAT BACK, IF FOLDABLE, IS FOLDED FORWARD AS FAR AS POSSIBLE AND THEN MOVED BACKWARD INTO POSITION?
Not applicable, the restraint system does not provide guides.

IS THE INBOARD RECEPTACLE END OF THE OUTBOARD SEATING POSITION'S SEAT BELT ACCESSIBLE WITH THE CENTER ARM REST IN ANY POSITION TO WHICH IT CAN BE ADJUSTED WITHOUT MOVING THE ARM REST FOR ACCESS? Yes

TABLE 7 FMVSS 208 SEAT BELT WARNING SYSTEM DATA

WITH OCCUPANT IN DRIVER'S POSITION AND UNIBELT IN STOWED POSITION AND IGNITION SWITCH PLACED IN "START/ON" POSITION:

Duration of audible warning signal = 6 s

Duration of reminder light operation = 6 s

WITH OCCUPANT IN DRIVER'S POSITION AND UNIBELT IN USE AND THE IGNITION SWITCH PLACED IN "START/ON" POSITION:

Duration of audible warning signal = 0 s

(NOTE: audible warning should not operate)

Duration of reminder light operation = 6 s

WORDING OF VISUAL WARNING:

_____ Fasten Seat Belt

_____ Fasten Belt

__X__ Symbol from Table 2 of FMVSS 101

_____ Other: _____

TABLE 8 FMVSS 208 LABELING AND DRIVER'S MANUAL DATA

DESCRIBE LOCATION OF LABEL WHICH DESCRIBES MANUFACTURER'S MAINTENANCE OR REPLACEMENT SCHEDULE FOR CRASH-DEPLOYED OCCUPANT PROTECTION SYSTEM.
The label was located on the inner surface of the glove compartment.

THE MANUFACTURER'S RECOMMENDED SCHEDULE IS TO: (check one)

_____ Replace

_____ Repair

__X__ Other: No maintenance needed unless airbag light does not come on momentarily when ignition is turned on or comes on or flashes while driving.

This system: (check one)

___a. by _____ month, _____ year

___b. by _____ miles

___c. or after a time interval of _____ months or _____ years.

___d. other: _____

WERE APPROPRIATE INSTRUCTIONS CONCERNING MAINTENANCE AND/OR REPLACEMENT OF THIS SYSTEM PROVIDED? YES, owner's manual, page 19, and on label on vehicle

WAS A DESCRIPTION OF THE FUNCTIONAL OPERATION OF THE SYSTEM PROVIDED?
YES, owner's manual, page 17

IS THERE A REFERENCE TO THE INSTRUCTIONS AND DESCRIPTION OF THE SYSTEM ON THE LABEL? YES

WAS AN OWNER'S MANUAL PROVIDED? YES

DID THE OWNER'S MANUAL CONTAIN APPROPRIATE INFORMATION CONCERNING MAINTENANCE AND/OR REPLACEMENT AND A DESCRIPTION OF THE FUNCTIONAL OPERATION OF THE SYSTEMS? YES, pages 17 & 19

TABLE 9 FMVSS 208 READINESS INDICATOR DATA

AN OCCUPANT RESTRAINT SYSTEM THAT DEPLOYS IN THE EVENT OF A CRASH SHALL HAVE A MONITORING SYSTEM WITH A READINESS INDICATOR. A TOTALLY MECHANICAL SYSTEM IS EXEMPT FROM THIS REQUIREMENT.

IS THE SYSTEM TOTALLY MECHANICAL? NO

IF NO:

DESCRIBE THE LOCATION OF THE READINESS INDICATOR:

The readiness indicator was located on the lower left side of the instrument cluster.

IS THE READINESS INDICATOR CLEARLY VISIBLE TO THE DRIVER? YES

IS A LIST OF THE ELEMENTS IN THE OCCUPANT RESTRAINT SYSTEM, BEING MONITORED BY THE READINESS INDICATOR, PROVIDED?

YES, owner's manual, pages 16 & 17

FIGURE 4 FMVSS 212 TEST DATA

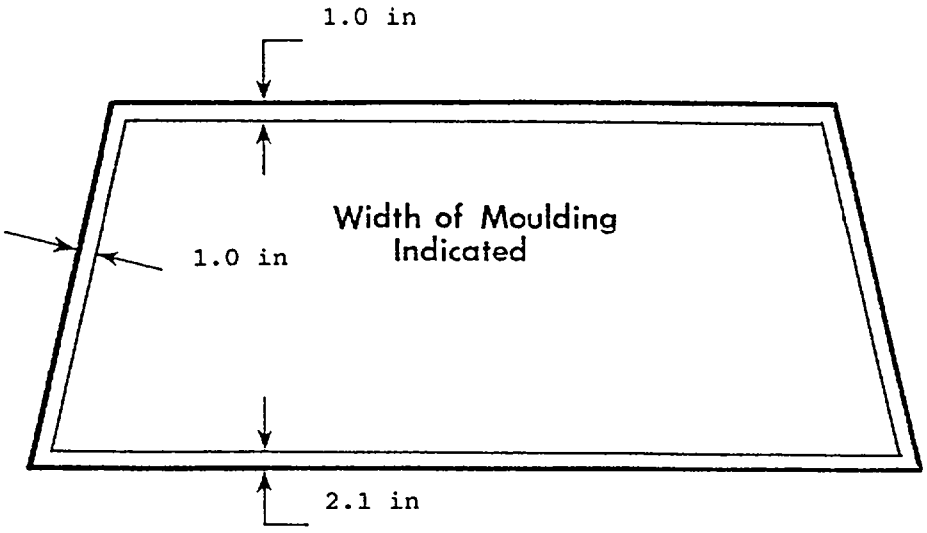
DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:
Plastic trim around outer perimeter, adhesive around inner perimeter.

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	92.8 in	92.8 in	100
LEFT SIDE	92.8 in	92.8 in	100
TOTAL	185.6 in	185.6 in	100

PRE-TEST WINDSHIELD MOUNTING MATERIAL TEMPERATURE: 70° F



FRONT VIEW OF WINDSHIELD[1]

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: 58.6 in

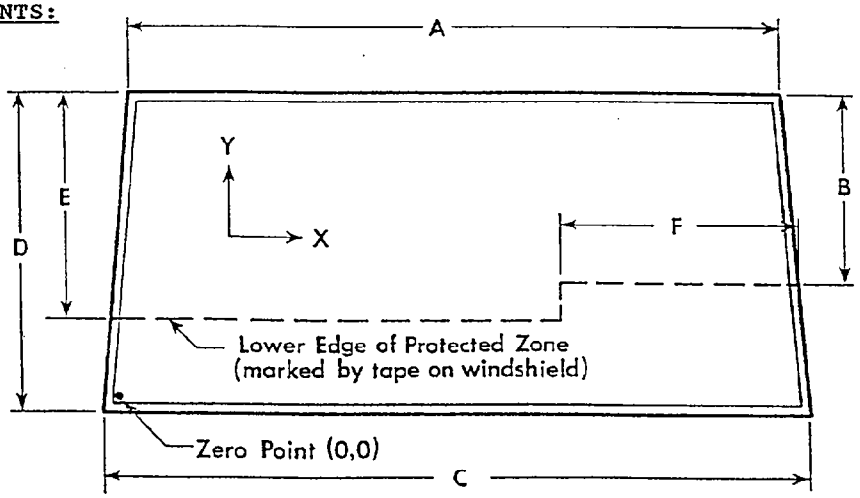
B: 14.1 in

C: 73.2 in

D: 30.6 in

E: 20.5 in

F: 40.5 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 10 FUEL SYSTEM DATA

MAKE/MODEL:	Dodge/Ram 1500
NHTSA NO.:	CR0307
FUEL SYSTEM CAPACITY:	26.0 gal (FROM OWNER'S MANUAL)
USABLE CAPACITY:	26.0 gal (FURNISHED BY COTR)
TEST VOLUME RANGE:	23.9 gal TO 24.4 gal (92-94% OF USABLE)
ACTUAL TEST VOLUME:	24.2 gal (WITH ENTIRE FUEL SYSTEM FILLED)
TEST FLUID TYPE:	STODDARD SOLVENT
SPECIFIC GRAVITY:	0.764
KINEMATIC VISCOSITY:	0.99 centistokes
TEST FLUID COLOR:	PURPLE

DETAILS OF FUEL SYSTEM: The fuel tank is located in front of the rear axle. The fuel filler is on the left side. The fuel lines run along the left frame rail to the front.

ELECTRIC FUEL PUMP: Yes FUEL INJECTION: Yes

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING? No

TABLE 11 FMVSS 301 POST-IMPACT TEST DATA

NHTSA NO.: CR0307

TEST DATE: 01/12/94

VEHICLE YEAR/MAKE/
MODEL/BODY STYLE: 1994/Dodge/Ram 1500/pickup

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:

__X__ FRONTAL (__30__ mph)

_____ OBLIQUE (30 mph) WITH ___° BARRIER FACE
FIRST CONTACTING _____ (DRIVER/PASS.) SIDE.

_____ REAR MOVING BARRIER (30 mph)

_____ LATERAL MOVING BARRIER (20 mph)

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

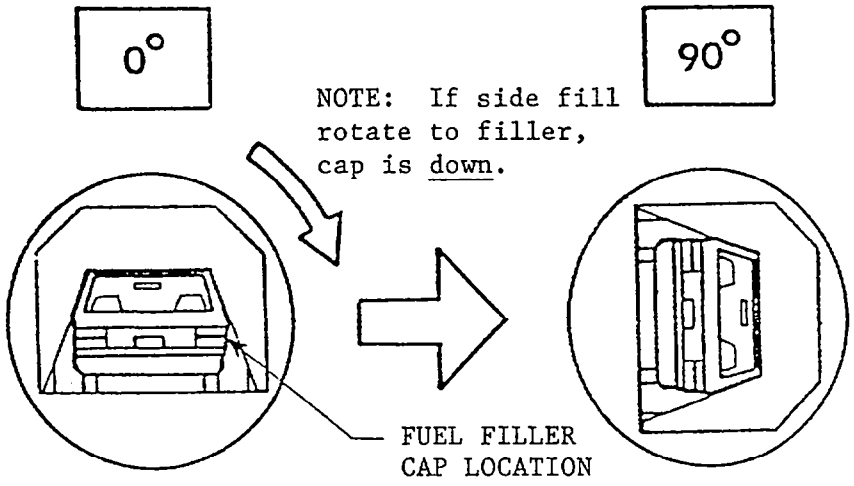
		TEST RESULTS	MAXIMUM ALLOWABLE
1.	FROM IMPACT UNTIL VEHICLE MOTION CEASES	0 oz	1 oz
2.	5-MINUTE PERIOD AFTER VEHICLE MOTION CEASES	0 oz	5 oz
3.	NEXT 25 MINUTES AFTER 5 MINUTE PERIOD	0 oz	1 oz/1 min

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 6 FMVSS 301 STATIC ROLLOVER TEST DATA

NHTSA NO.: CR0307
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

TOTAL - - - - - - - - - = 7 minutes, 00 seconds

NEXT WHOLE MINUTE INTERVAL - - - - = 7 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

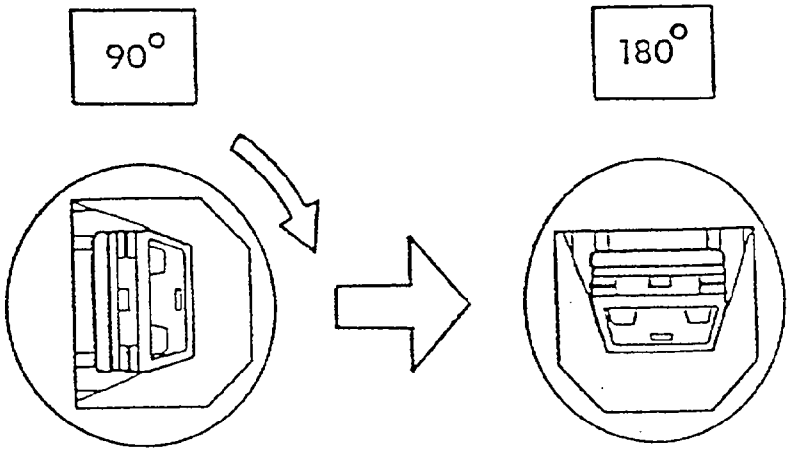
0° TO 90° ROTATION (FUEL FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - - -	0 oz	5 oz
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - - - - -	0 oz	1 oz
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - - - - -	0 oz	1 oz

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 6 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: CR0307
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

TOTAL - - - - - - - - - = 7 minutes, 00 seconds

NEXT WHOLE MINUTE INTERVAL - - - - = 14 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

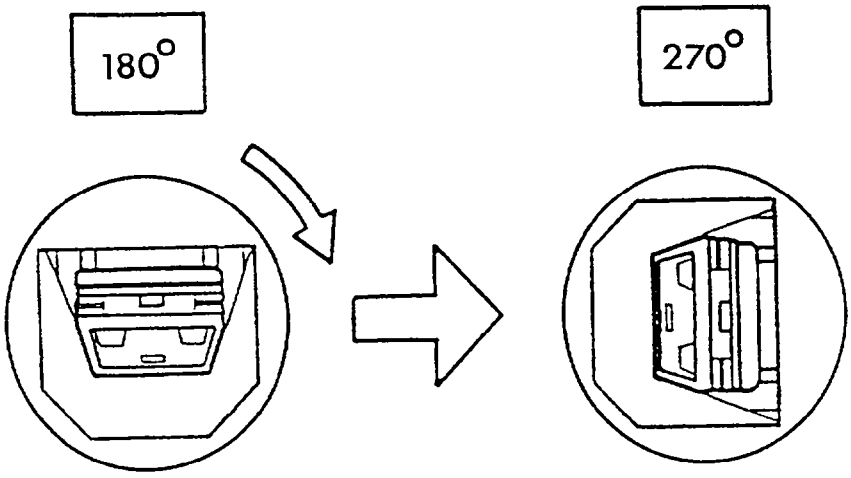
90° TO 180° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - - -	0 oz	5 oz
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - - - - -	0 oz	1 oz
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - - - - -	0 oz	1 oz

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 6 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: CR0307
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

TOTAL - - - - - - - - - = 7 minutes, 00 seconds

NEXT WHOLE MINUTE INTERVAL - - - - = 21 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

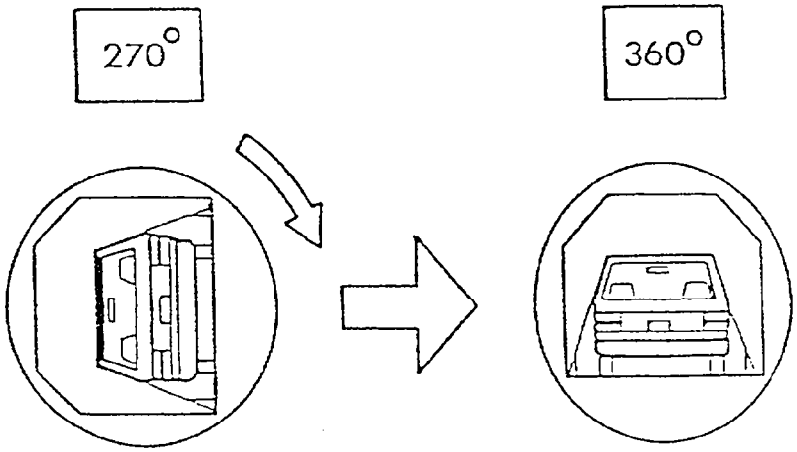
180° TO 270° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - - -	0 oz	5 oz
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - - - - -	0 oz	1 oz
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - - - - -	0 oz	1 oz

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 6 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: CR0307
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQ. FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds

FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds

TOTAL - - - - - - - - - = 7 minutes, 00 seconds

NEXT WHOLE MINUTE INTERVAL - - - - = 28 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

270° TO 360° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - - -	0 oz	5 oz
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - - - - -	0 oz	1 oz
3. 7TH 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

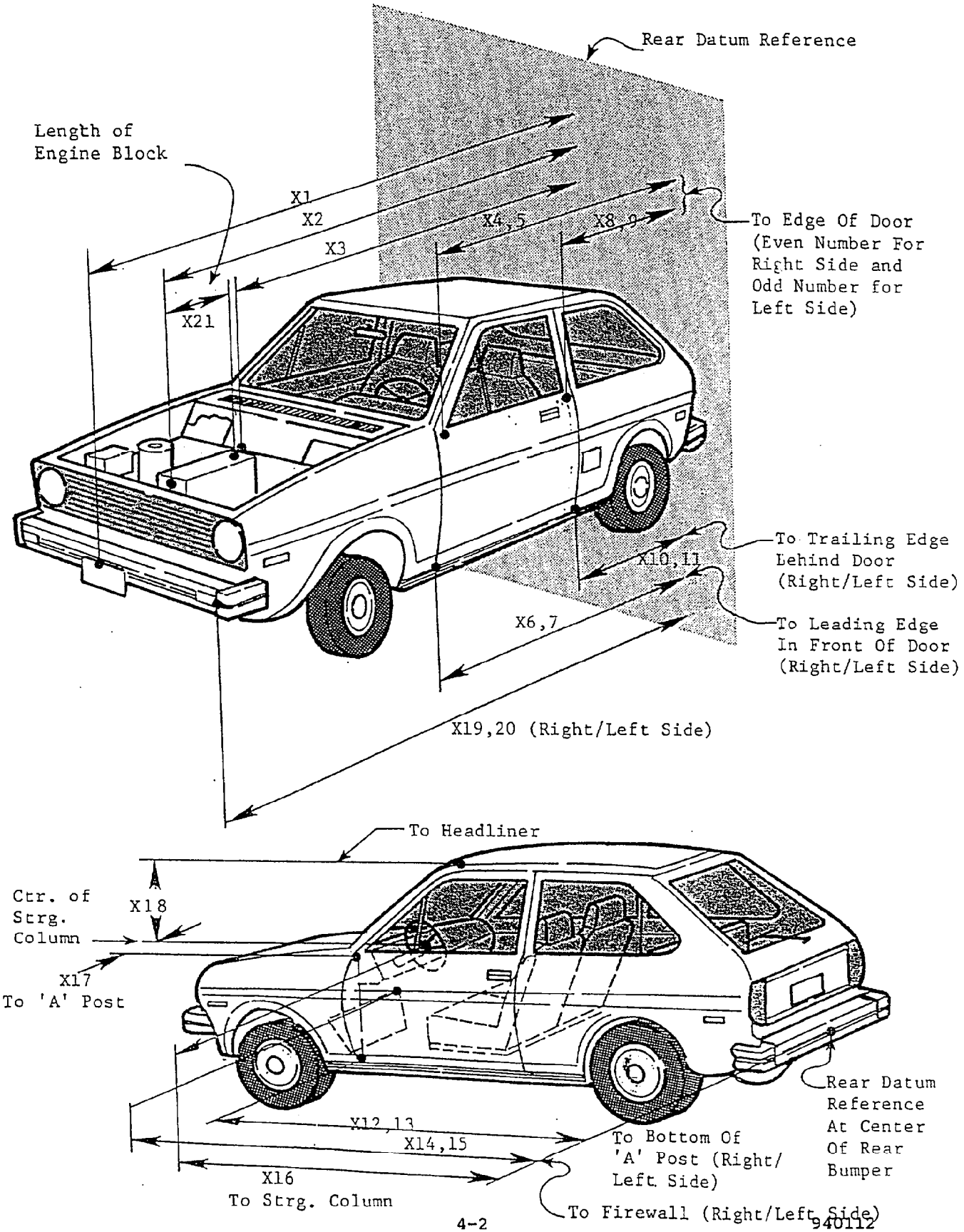
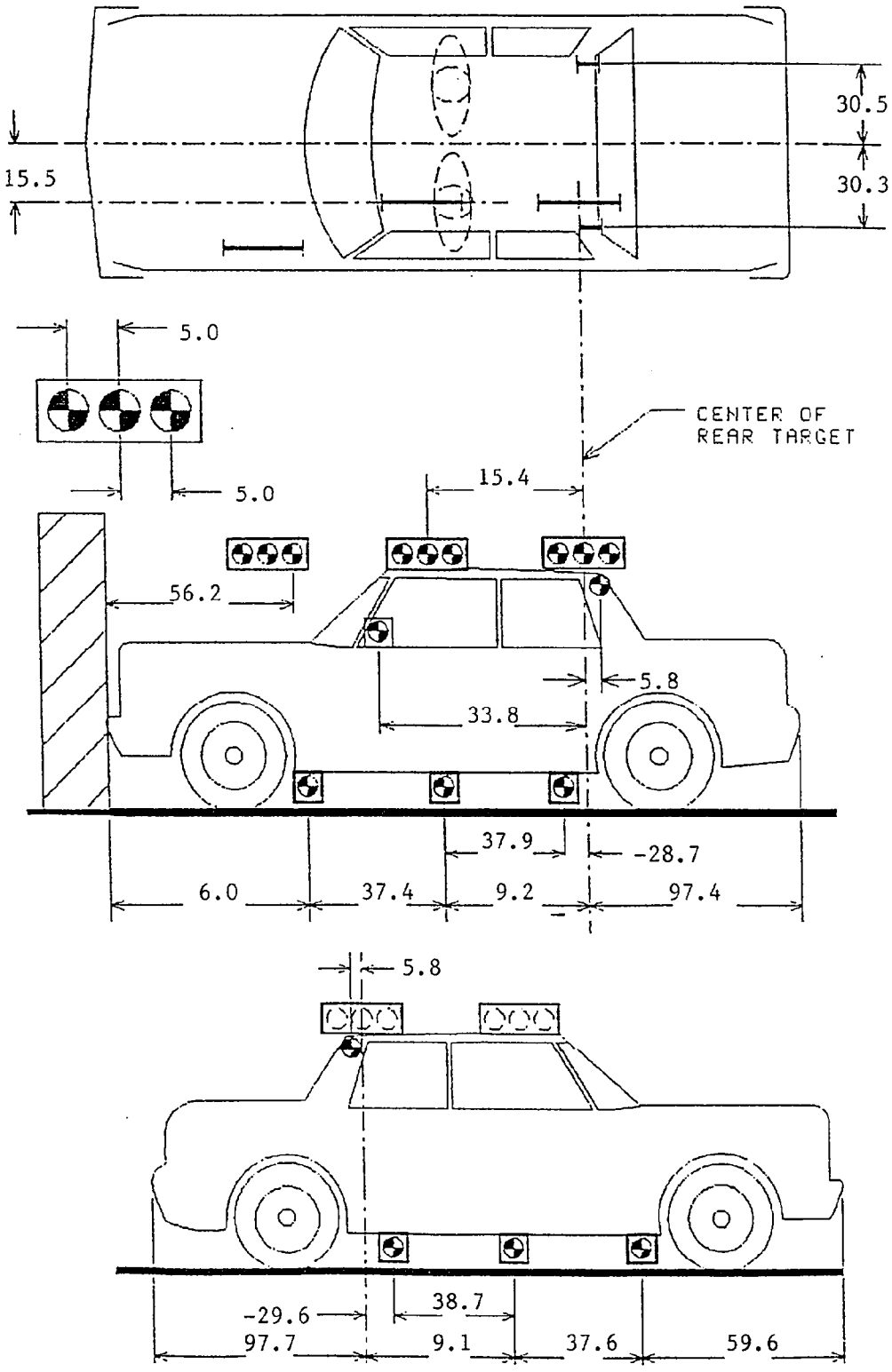


TABLE 12 IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Dodge/Ram 1500 TEST NUMBER: 940112

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFFERENCE
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	204.0 in	181.9 in	22.1 in
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	170.1 in	165.0 in	5.1 in
X3	REAR SURFACE OF VEHICLE TO FIREWALL	163.4 in	159.2 in	4.2 in
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	143.8 in	143.2 in	0.6 in
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	143.6 in	142.6 in	1.0 in
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	143.8 in	143.0 in	0.8 in
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	143.8 in	142.9 in	0.9 in
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	93.9 in	93.4 in	0.5 in
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	93.5 in	92.6 in	0.9 in
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	96.1 in	95.6 in	0.5 in
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	96.0 in	95.8 in	0.2 in
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	141.2 in	140.4 in	0.8 in
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	141.2 in	140.6 in	0.6 in
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	157.1 in	157.9 in	-0.8 in
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	156.2 in	157.5 in	-1.3 in
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	121.4 in	128.4 in	-7.0 in
X17	CENTER OF STEERING COLUMN TO "A" POST	10.4 in	13.0 in	-2.6 in
X18	CENTER OF STEERING COLUMN TO HEADLINER	18.9 in	17.1 in	1.8 in
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	195.0 in	176.2 in	18.8 in
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	195.2 in	181.5 in	13.7 in
X21	LENGTH OF ENGINE BLOCK	19.5 in	19.5 in	0.0 in

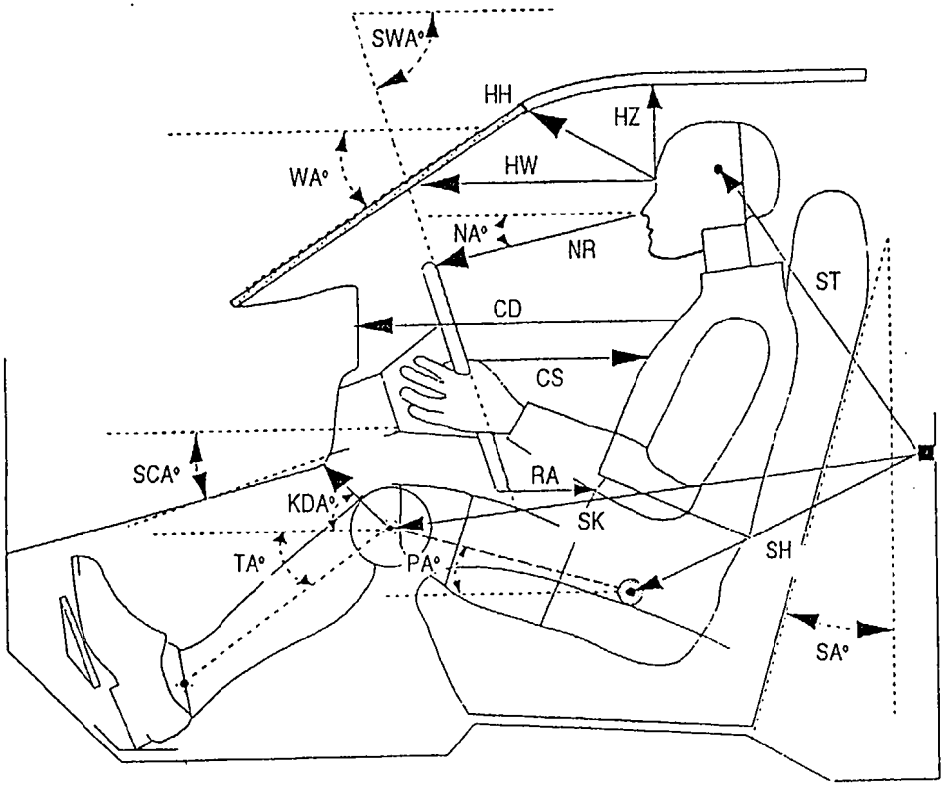
FIGURE 8 VEHICLE TARGET LOCATIONS

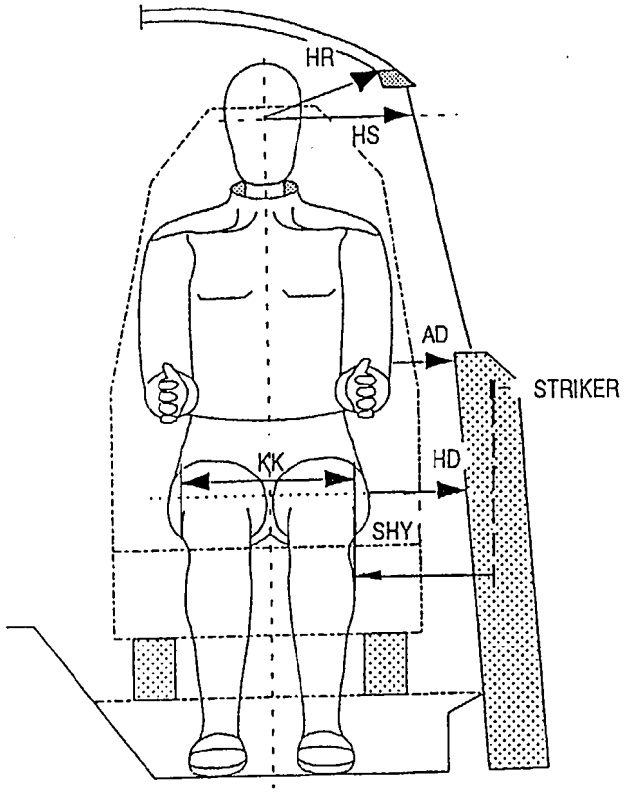


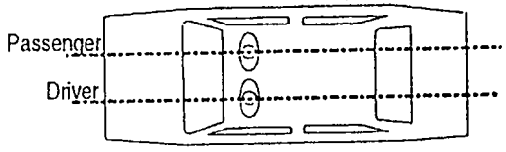
All measurements are in inches.

FIGURE 9

DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS







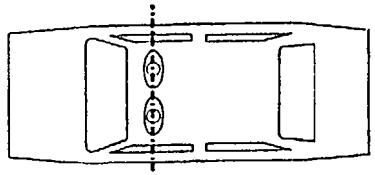
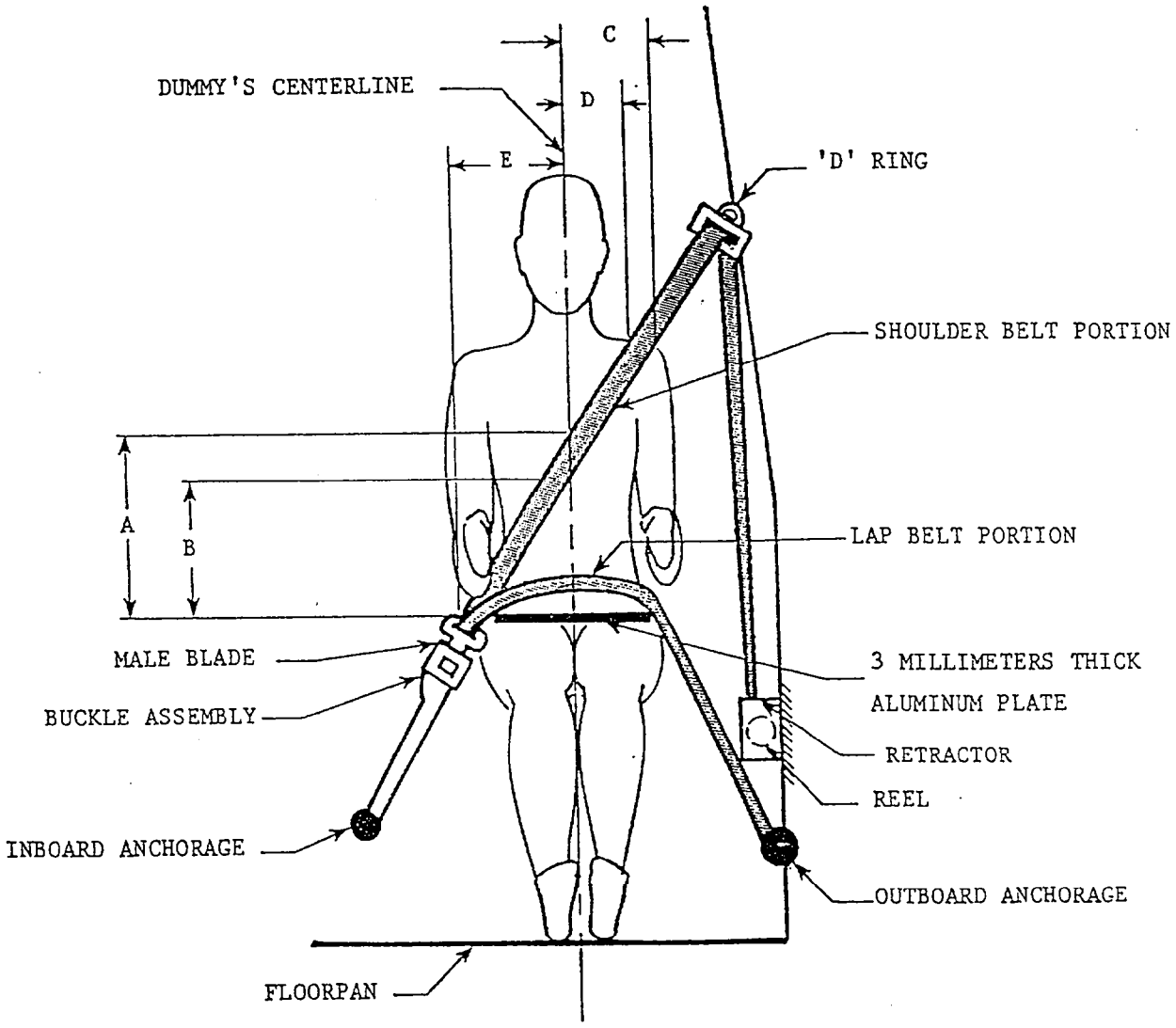


TABLE 13 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

DESIGNATION	TYPE OF MEASUREMENT	DRIVER (SERIAL #229)	PASSENGER (SERIAL #230)
WA	WINDSHIELD ANGLE	37°	37°
SWA	STEERING WHEEL ANGLE	64°	NA
SCA	STEERING COLUMN ANGLE	26°	NA
SA	SEAT BACK ANGLE	19°	19°
HZ	HEAD TO ROOF	8.9 in	8.8 in
HH	HEAD TO HEADER	18.1 in	18.2 in
HW	HEAD TO WINDSHIELD	25.1 in	24.5 in
HR	HEAD TO SIDE HEADER	10.8 in	9.9 in
NR	NOSE TO RIM	16.4 in	NA
NA	NOSE TO RIM ANGLE	14°	NA
CD	CHEST TO DASH	21.8 in	25.8 in
CS	STEERING WHEEL TO CHEST	13.4 in	NA
RA	RIM TO ABDOMEN	7.9 in	NA
KDL	LEFT KNEE TO DASH	6.9 in	9.5 in
KDR	RIGHT KNEE TO DASH	6.7 in	9.0 in
KDA	OUTBOARD KNEE TO DASH ANGLE	26°	37°
PA	PELVIC ANGLE	25°	24°
TA	TIBIAL ANGLE	52°	52°
KK	KNEE TO KNEE	10.6 in	10.8 in
ST	STRIKER TO HEAD	26.6 in	27.1 in
	STRIKER TO HEAD ANGLE	-72°	-73°
SK	STRIKER TO KNEE	30.4 in	30.2 in
	STRIKER TO KNEE ANGLE	-7°	-7°
SH	STRIKER TO H-POINT	14.1 in	14.4 in
	STRIKER TO H-POINT ANGLE	-3°	-5°
SHY	STRIKER TO H-POINT (Y DIR.)	9.2 in	10.5 in
HS	HEAD TO SIDE WINDOW	12.6 in	13.9 in
HD	H-POINT TO DOOR	5.6 in	6.4 in
AD	ARM TO DOOR	4.4 in	5.2 in

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

FIGURE 10 SEAT BELT POSITIONING DATA



		DRIVER	PASSENGER
A	- TOP SURFACE OF ALUM. PLATE TO BELT UPPER EDGE	NA	14.5 in
B	- TOP SURFACE OF ALUM. PLATE TO BELT LOWER EDGE	NA	11.0 in
C	- DUMMY CENTERLINE TO OUTER EDGE OF BELT AT CHEST FLESH TOP	NA	4.5 in
D	- DUMMY CENTERLINE TO INNER EDGE OF BELT AT CHEST FLESH TOP	NA	2.2 in
E	- DUMMY CENTERLINE TO INTERSECTION OF UPPER TORSO BELT AND LAP BELT	NA	11.5 in

FIGURE 11 CAMERA POSITIONS

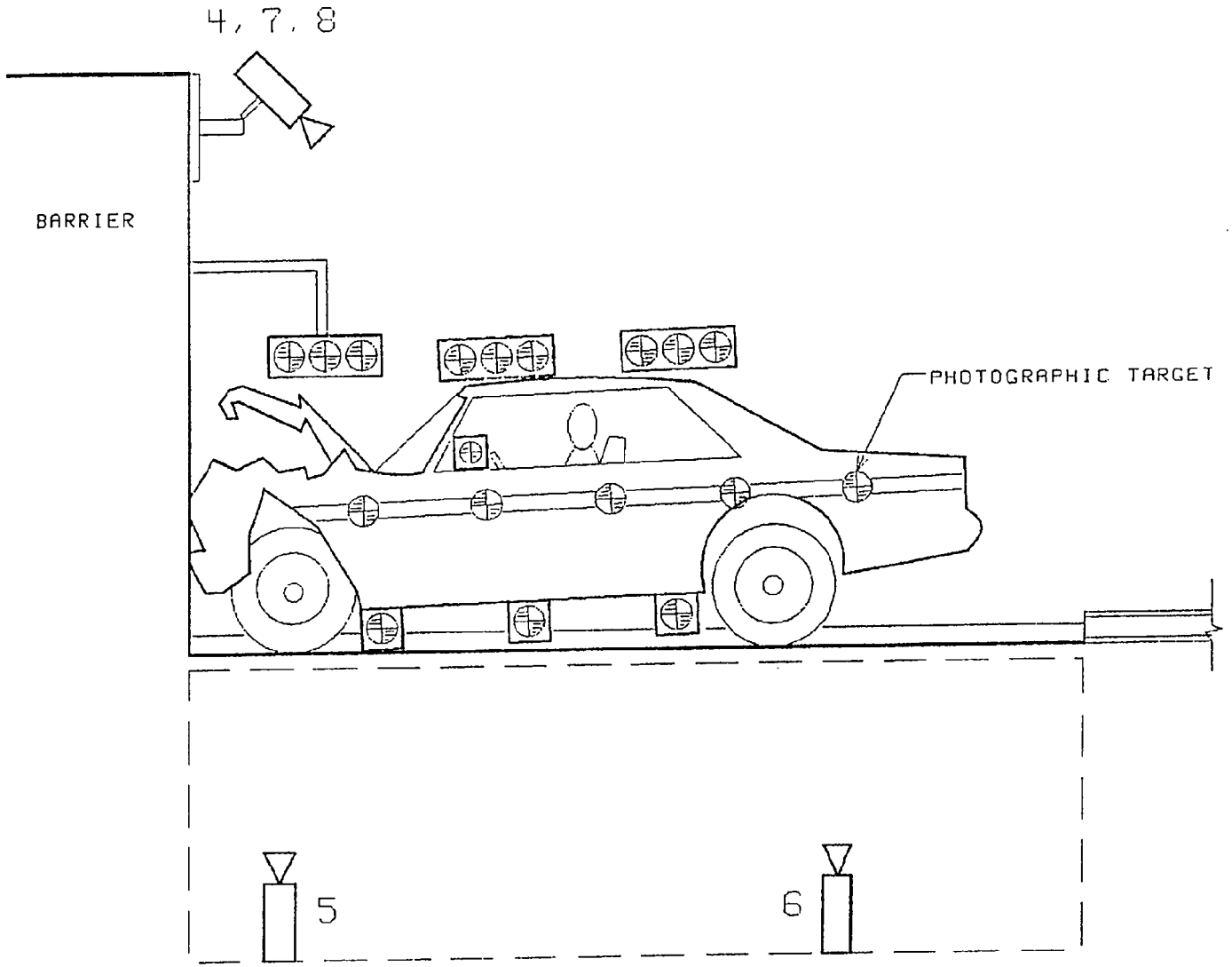


FIGURE 11 CAMERA POSITIONS, CONT'D.

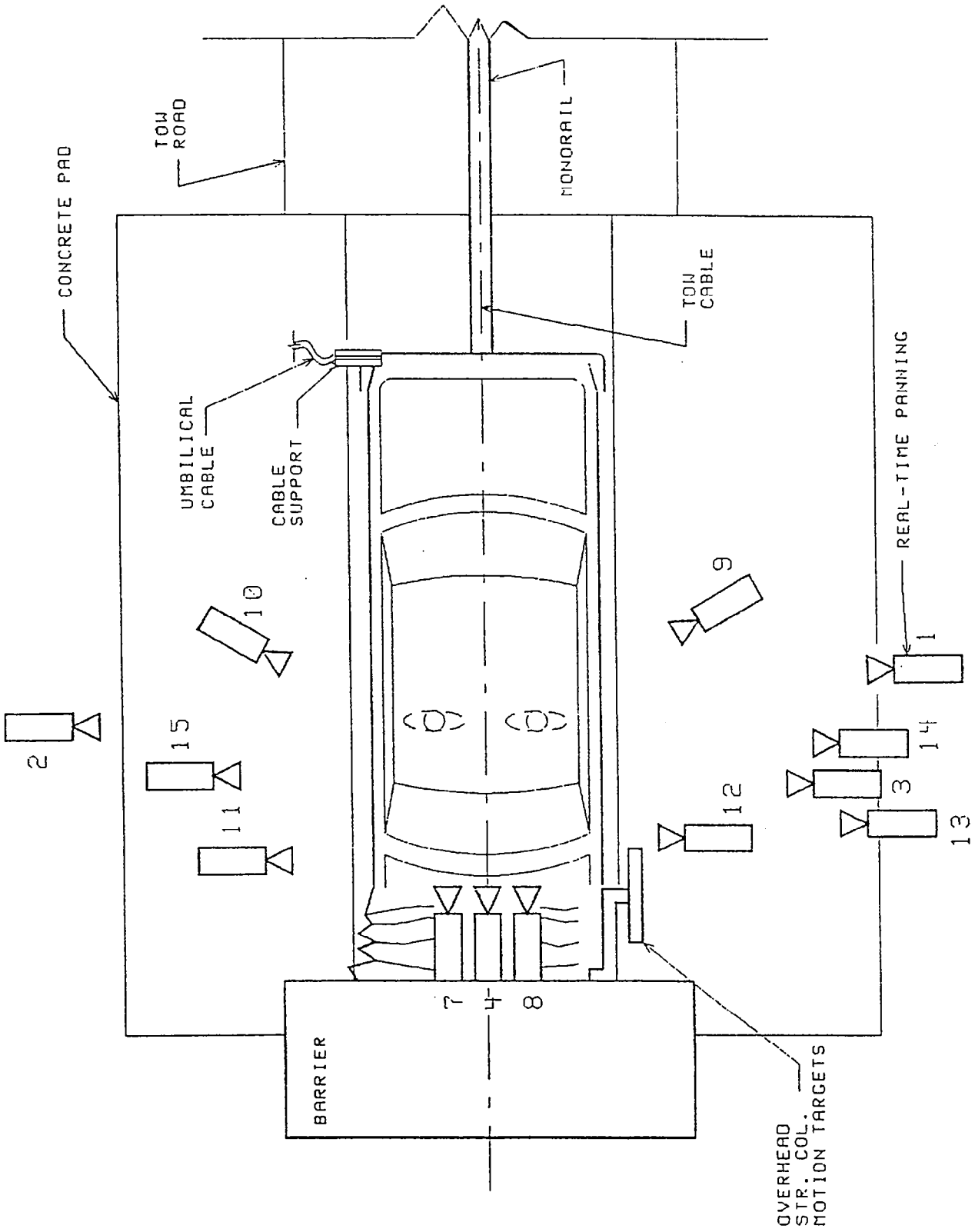


TABLE 14 MOTION PICTURE CAMERA LOCATIONS

TEST NO.: 940112 VEHICLE: 1994 Dodge Ram 1500 pickup

CAMERA NO.	VIEW	CAMERA POSITIONS[1] X	Y	Z	ANGLE[2]	FILM PLANE TO HEAD TARGET	LENS	SPEED
1	Real-time panning	-142.0 in	504.0 in	61.0 in	NA	NA	16 mm	24 frames/s
2	Right overall	-81.3 in	-266.4 in	37.1 in	-2°	NA	13 mm	1025 frames/s
3	Left vehicle crush	-41.5 in	295.0 in	44.0 in	-4°	318.0 in	25 mm	998 frames/s
4	Windshield front view	-6.0 in	0.0 in	85.0 in	-40°	NA	13 mm	973 frames/s
5	Pit - front position	-50.5 in	0.0 in	-92.4 in	90°	NA	13 mm	998 frames/s
6	Pit - rear position	-99.3 in	0.0 in	-99.0 in	90°	NA	13 mm	995 frames/s
7	Passenger - front view	-4.5 in	-13.8 in	93.0 in	-50°	NA	17 mm	1012 frames/s
8	Driver - front view	-6.8 in	14.5 in	93.0 in	-50°	NA	17 mm	1000 frames/s
9	Driver kinematics	-157.3 in	116.0 in	87.0 in	-27°	90.0 in	25 mm	1000 frames/s
10	Passenger kinematics	-152.1 in	-116.0 in	87.0 in	-26°	70.0 in	25 mm	993 frames/s
11	Right windshield intrusion	-38.1 in	-306.1 in	44.0 in	0°	NA	50 mm	998 frames/s
12	Left windshield intrusion	-53.0 in	309.4 in	42.3 in	0°	NA	50 mm	1005 frames/s
13	Steering column motion	-112.0 in	286.0 in	103.0 in	-14°	NA	25 mm	1008 frames/s
14	Steering column motion	-112.0 in	286.0 in	75.1 in	-9°	NA	25 mm	1020 frames/s
15	Passenger kinematics	-38.8 in	-293.0 in	45.3 in	-4°	293.0 in	25 mm	995 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

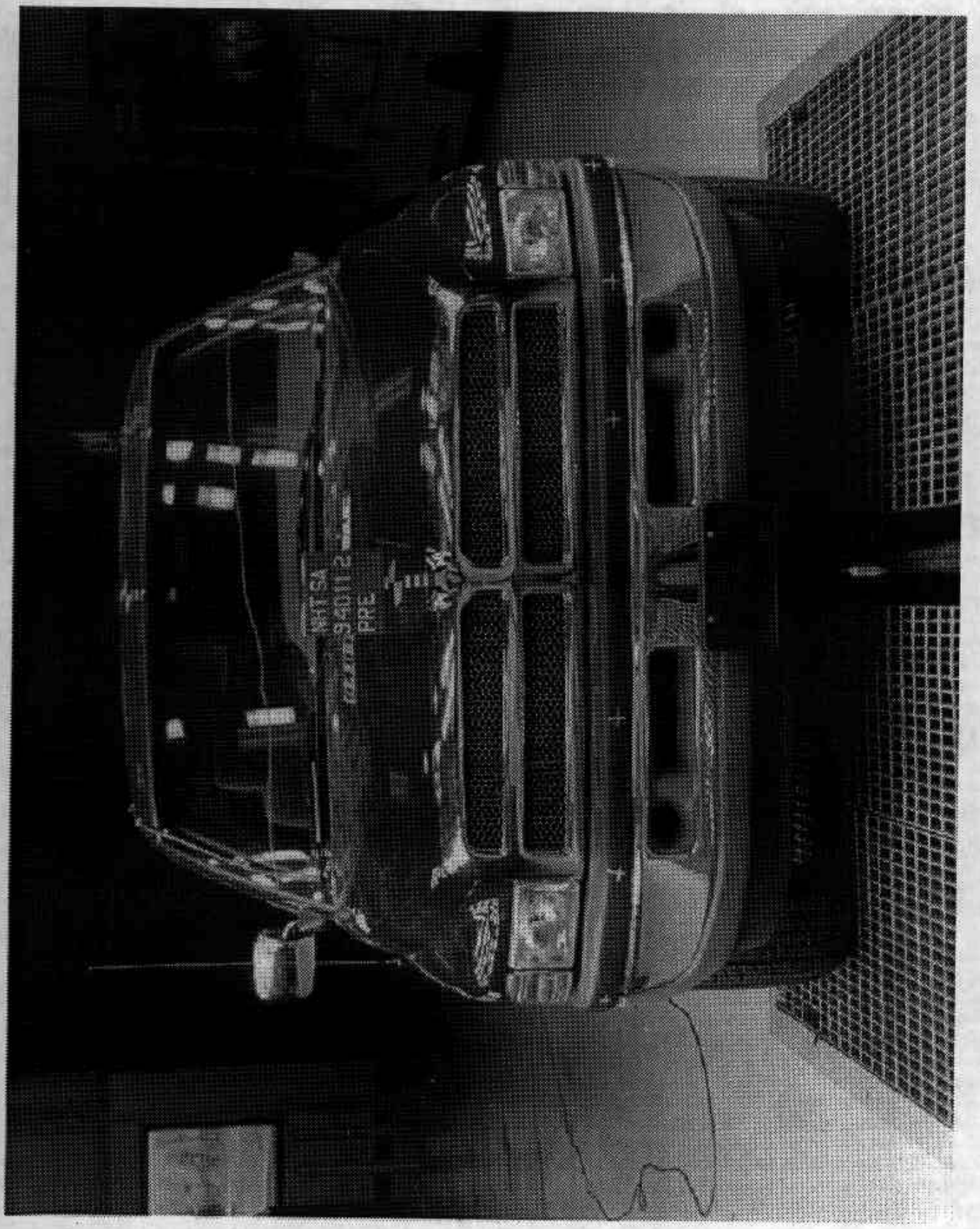


Figure A-1. PRE-TEST FRONT VIEW

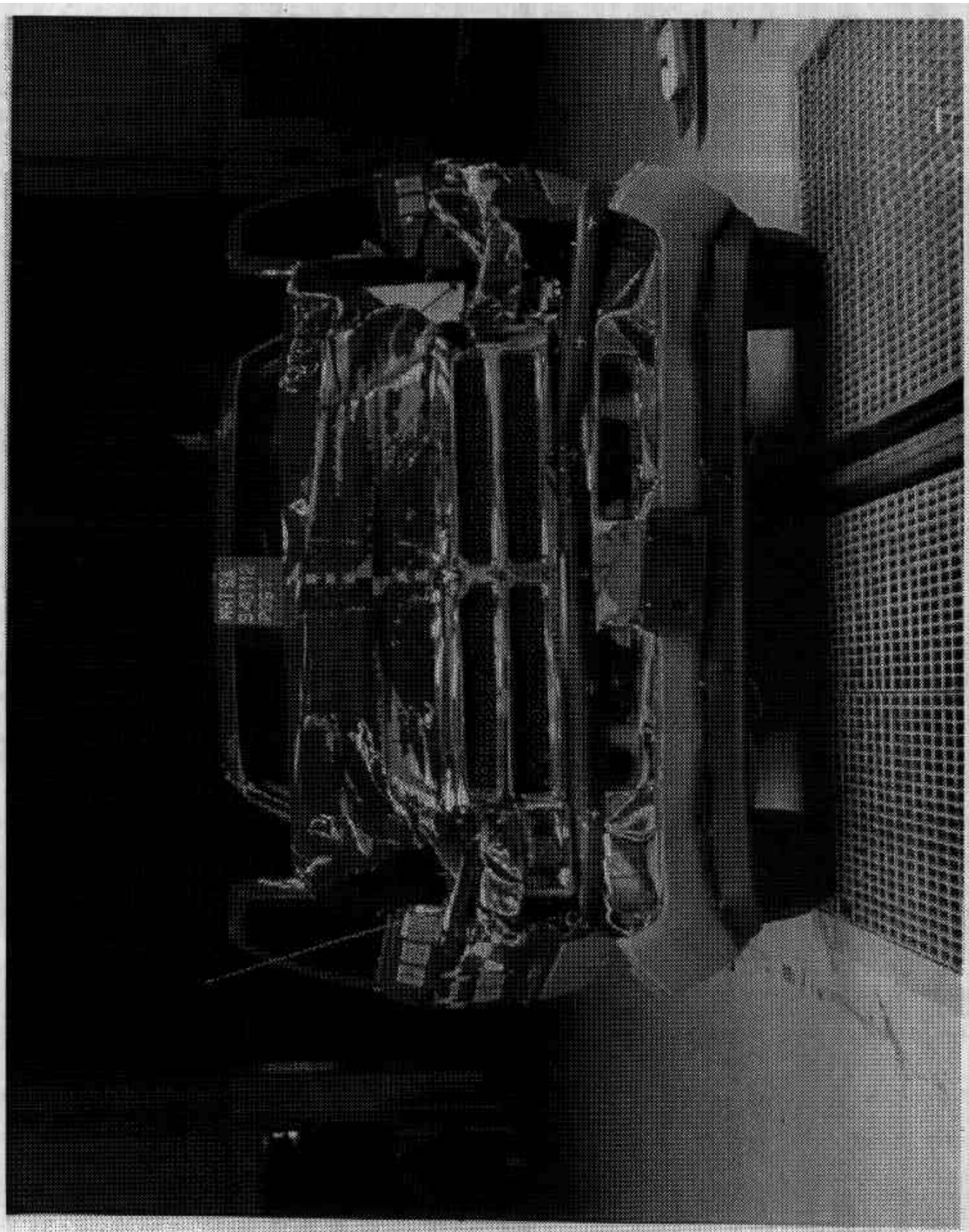


Figure A-2. POST-TEST FRONT VIEW

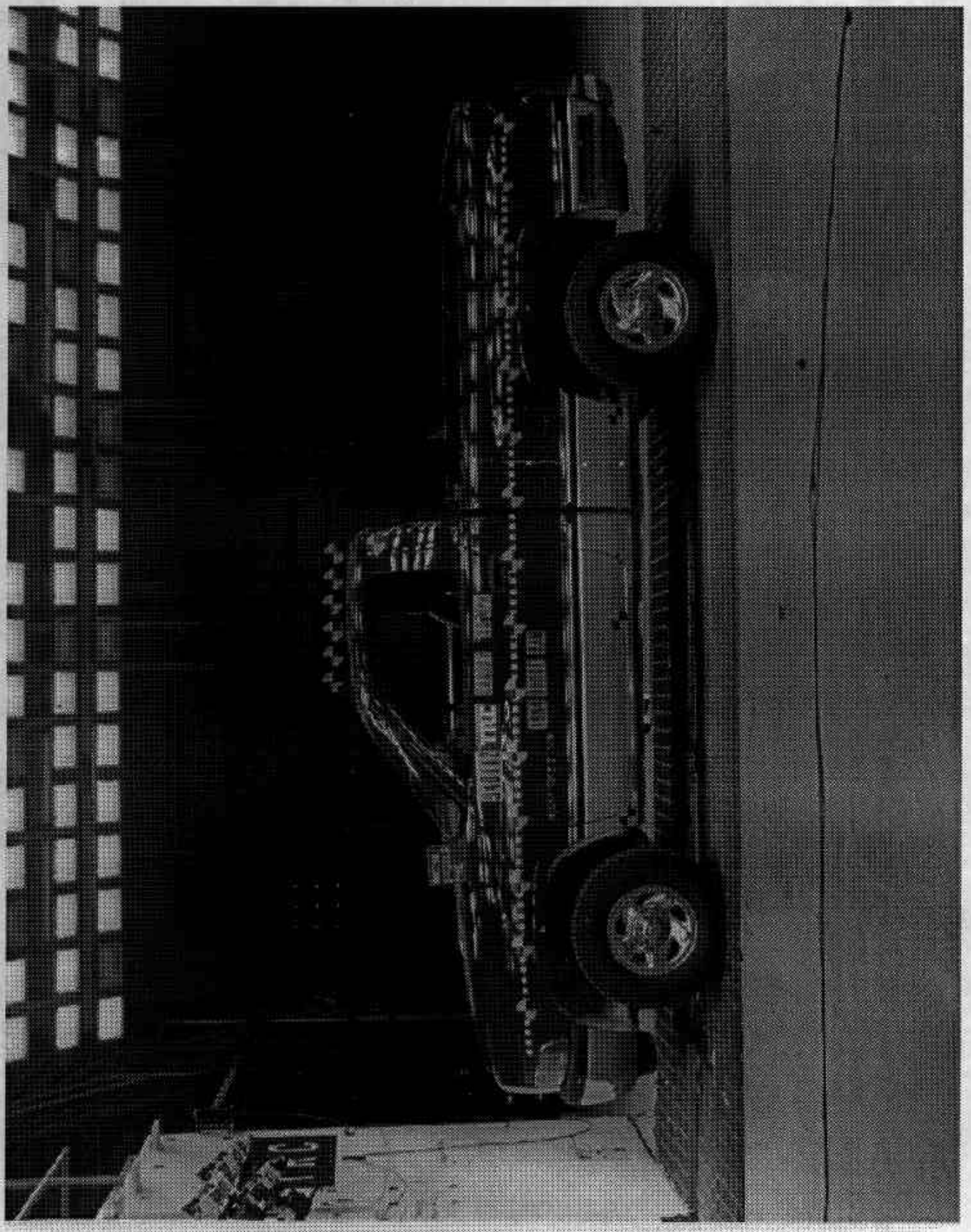


Figure A-3. PRE-TEST LEFT SIDE VIEW

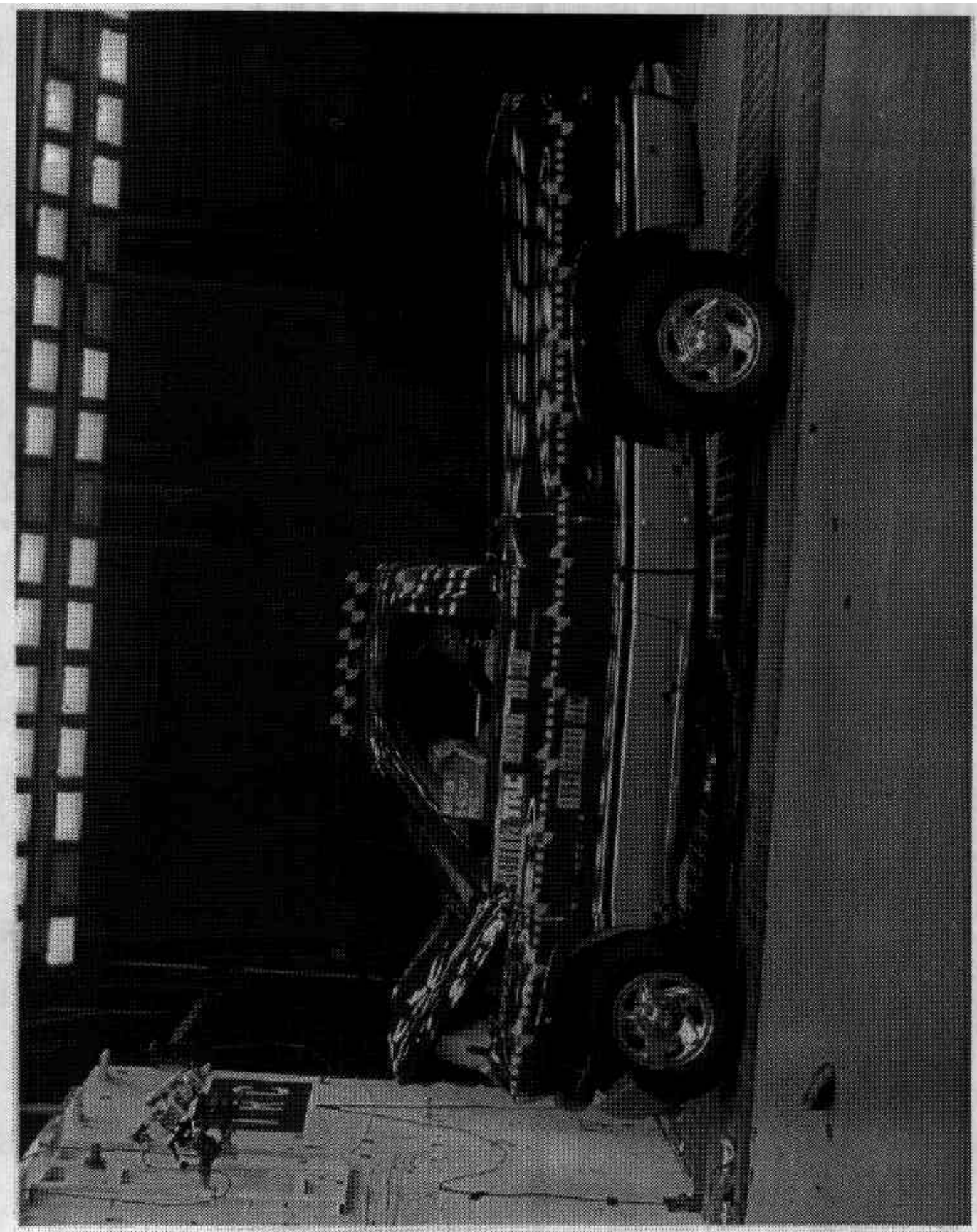


Figure A-4. POST-TEST LEFT SIDE VIEW

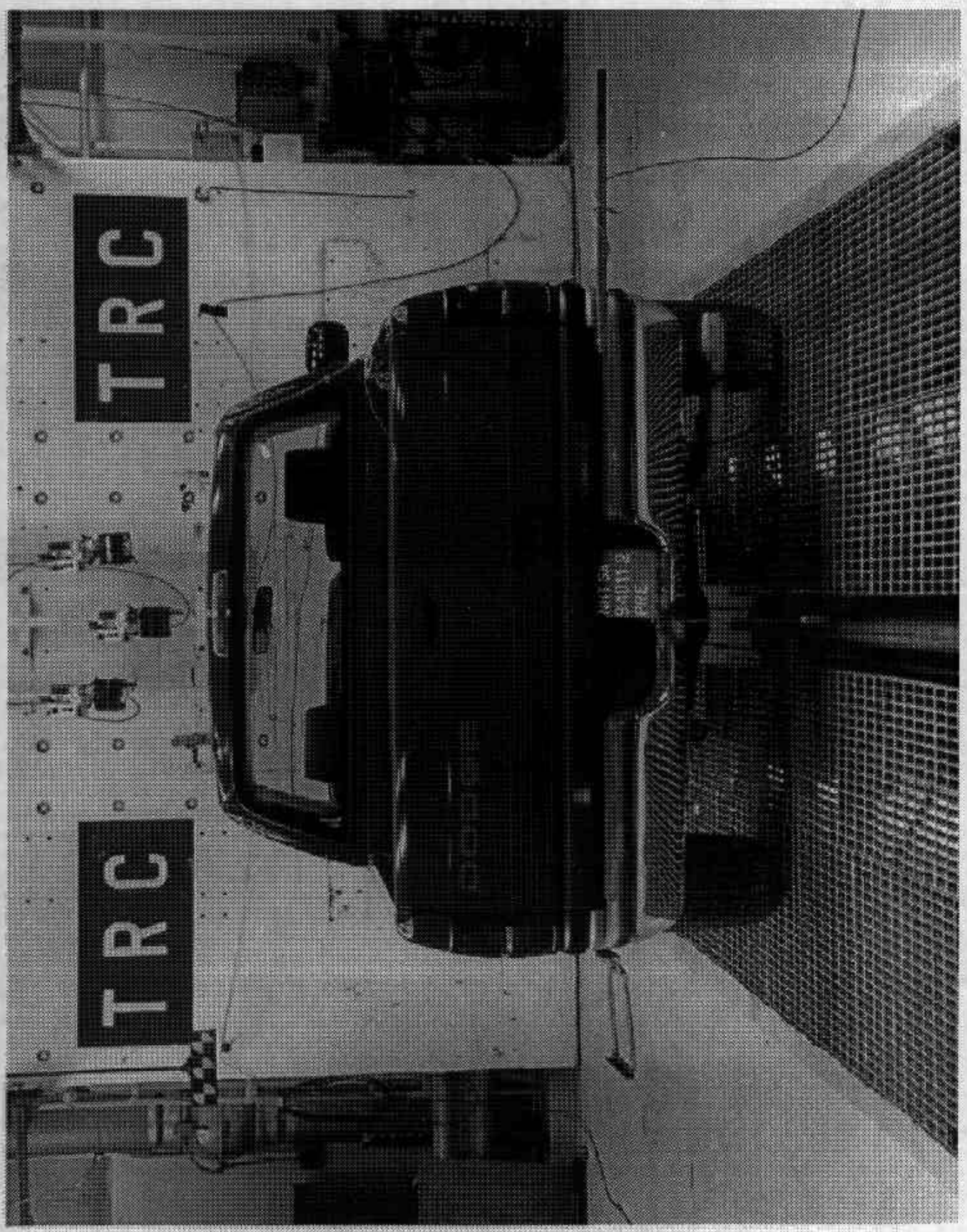


Figure A-5. PRE-TEST REAR VIEW

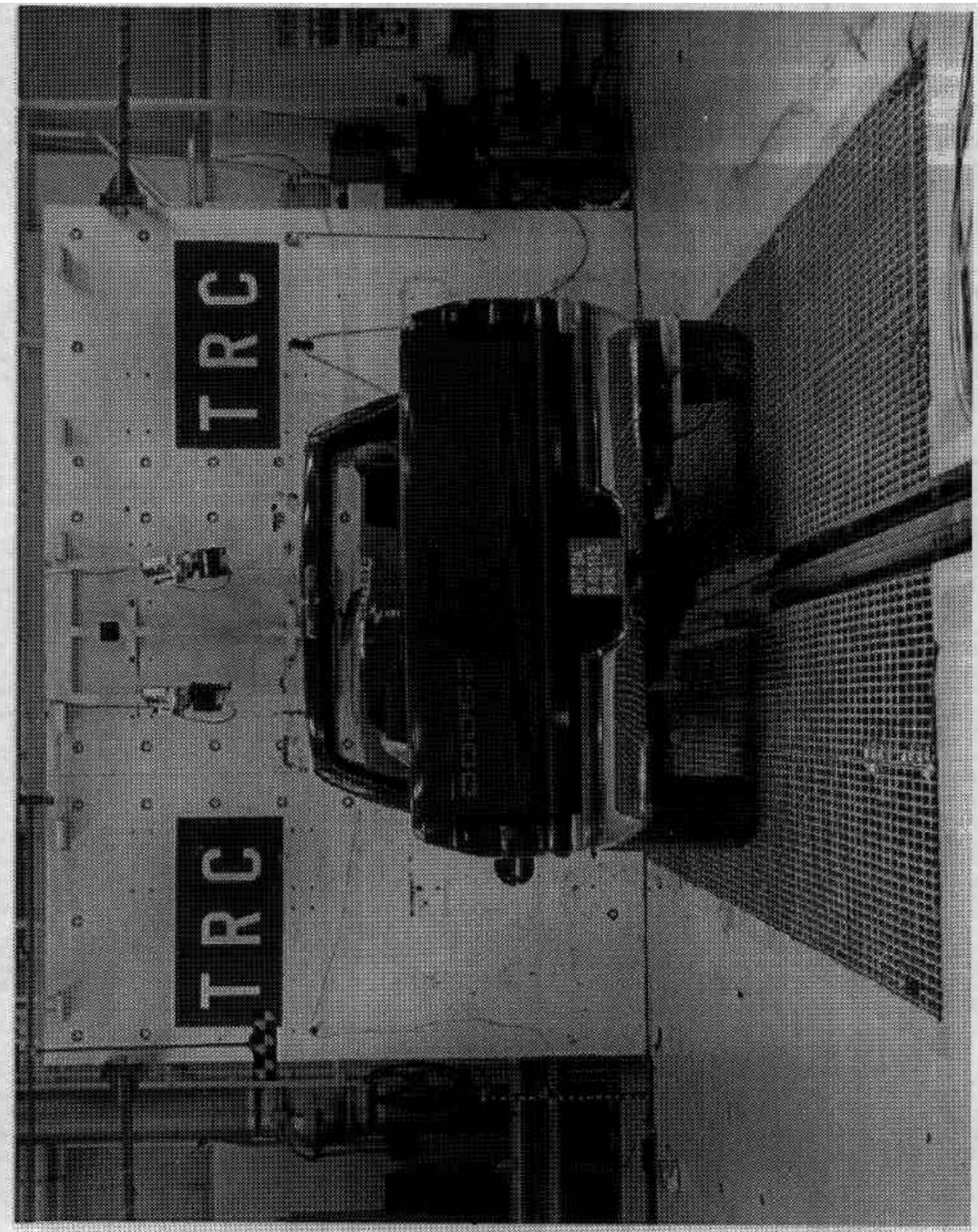


Figure A-6. POST-TEST REAR VIEW

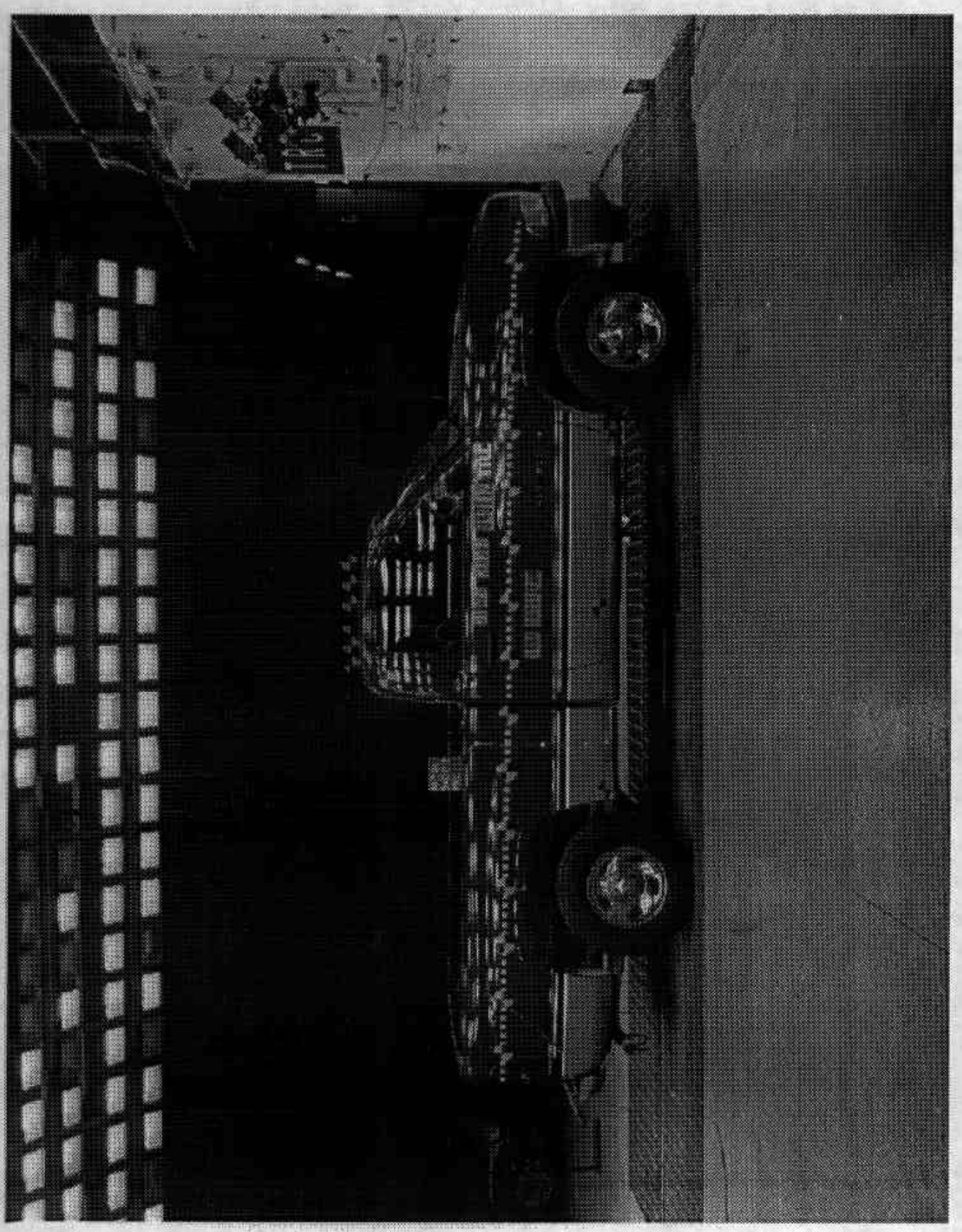


Figure A-7. PRE-TEST RIGHT SIDE VIEW

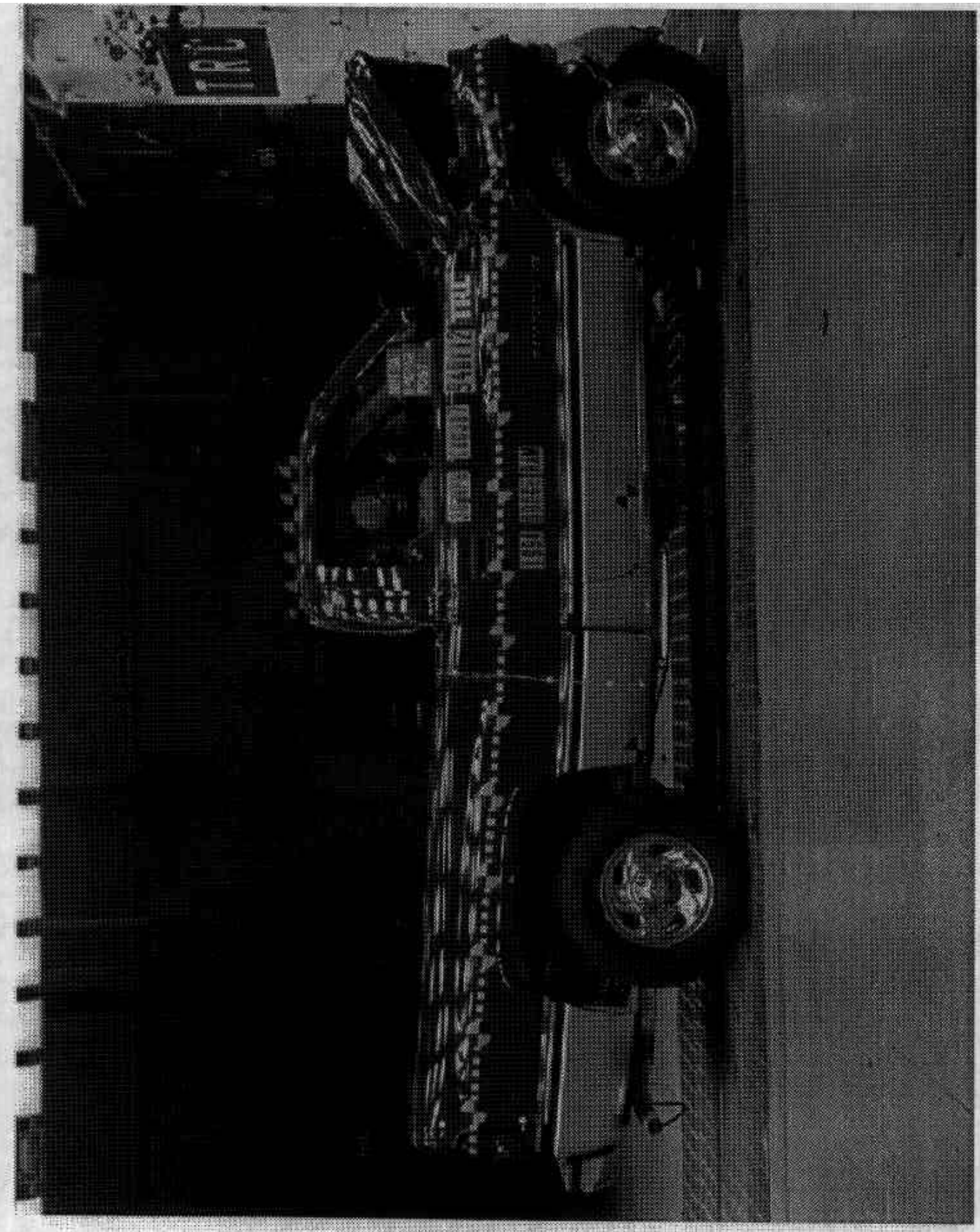


Figure A-8. POST-TEST RIGHT SIDE VIEW

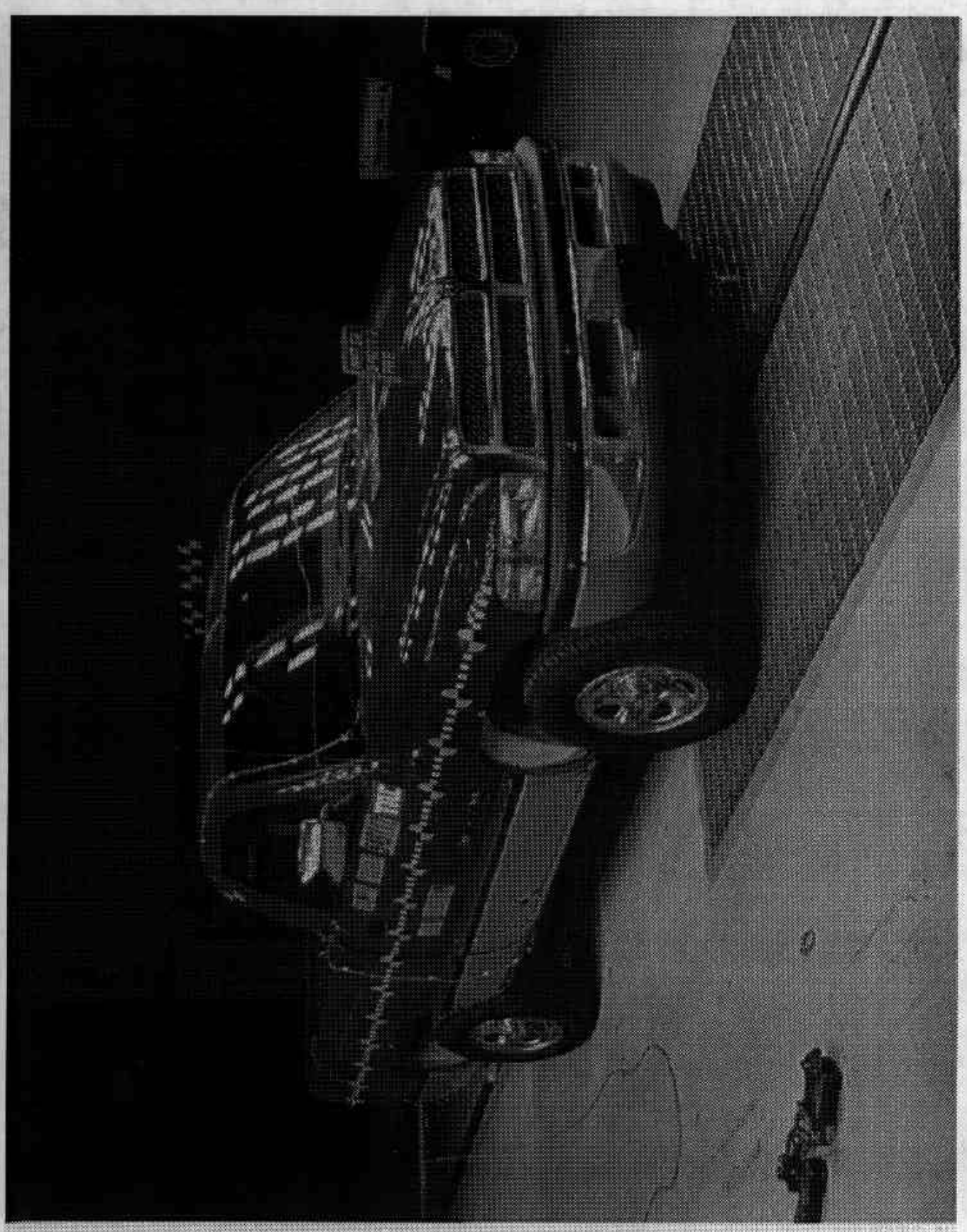


Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

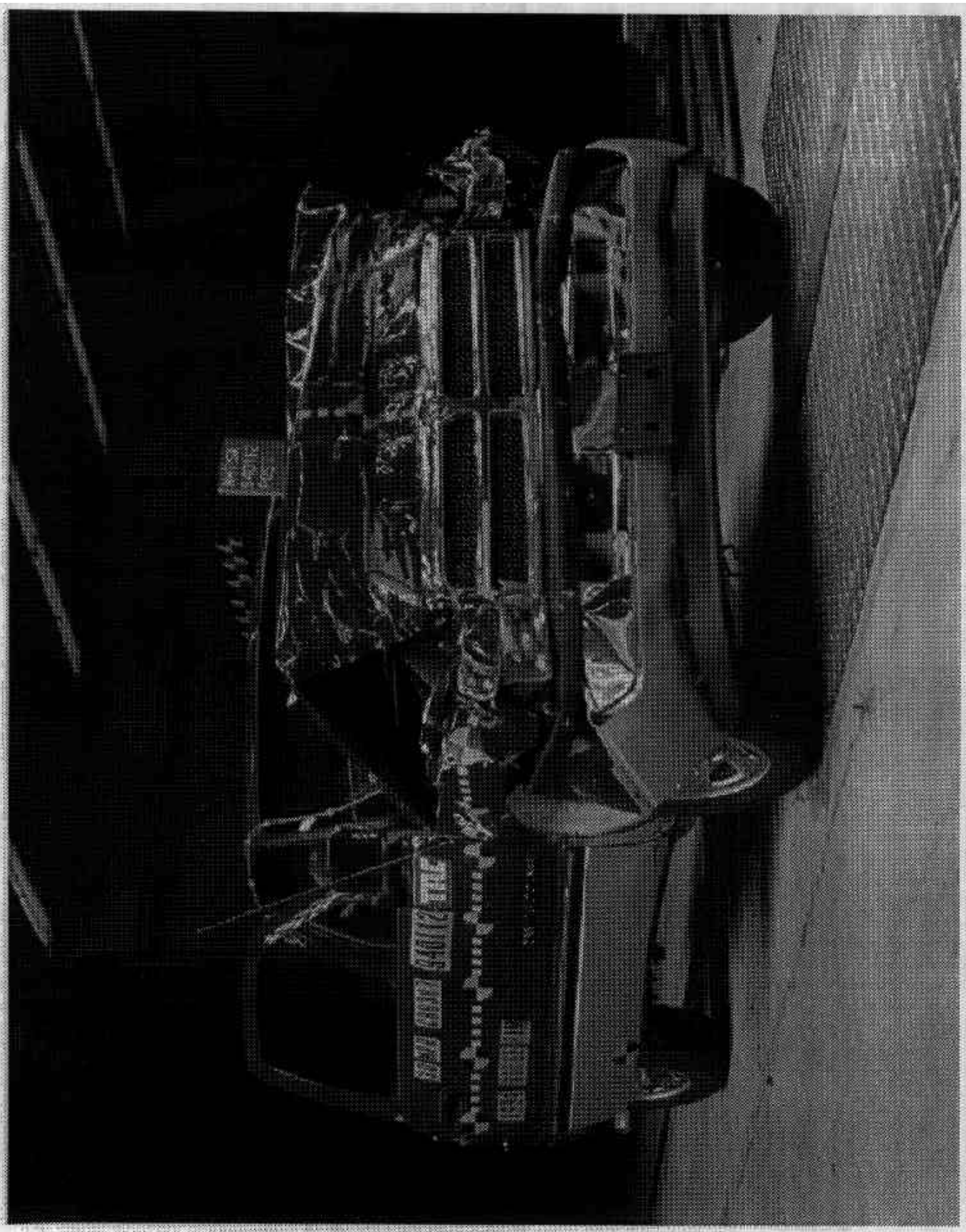


Figure A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

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

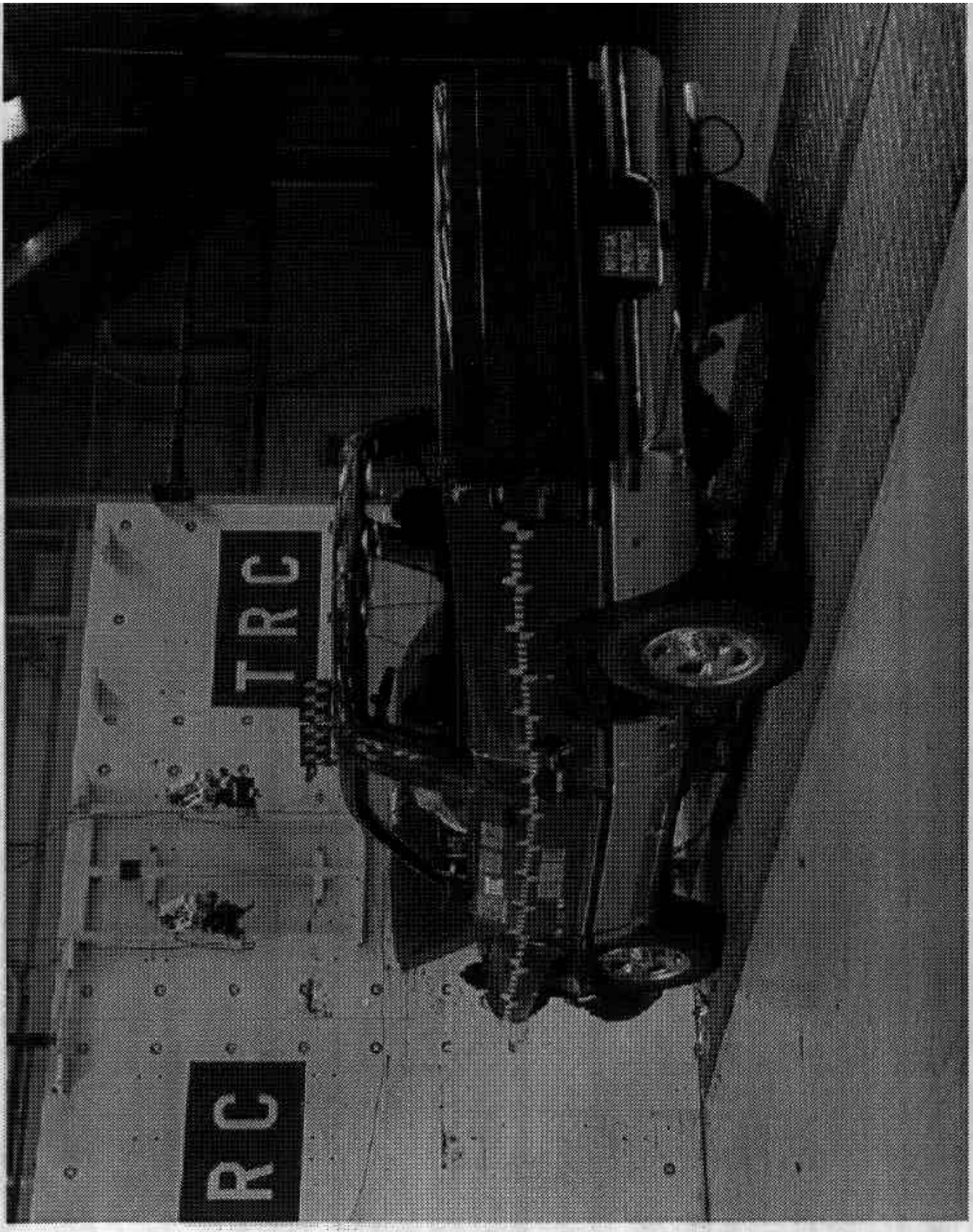


Figure A-12. POST-TEST LEFT REAR THREE-QUARTER VIEW

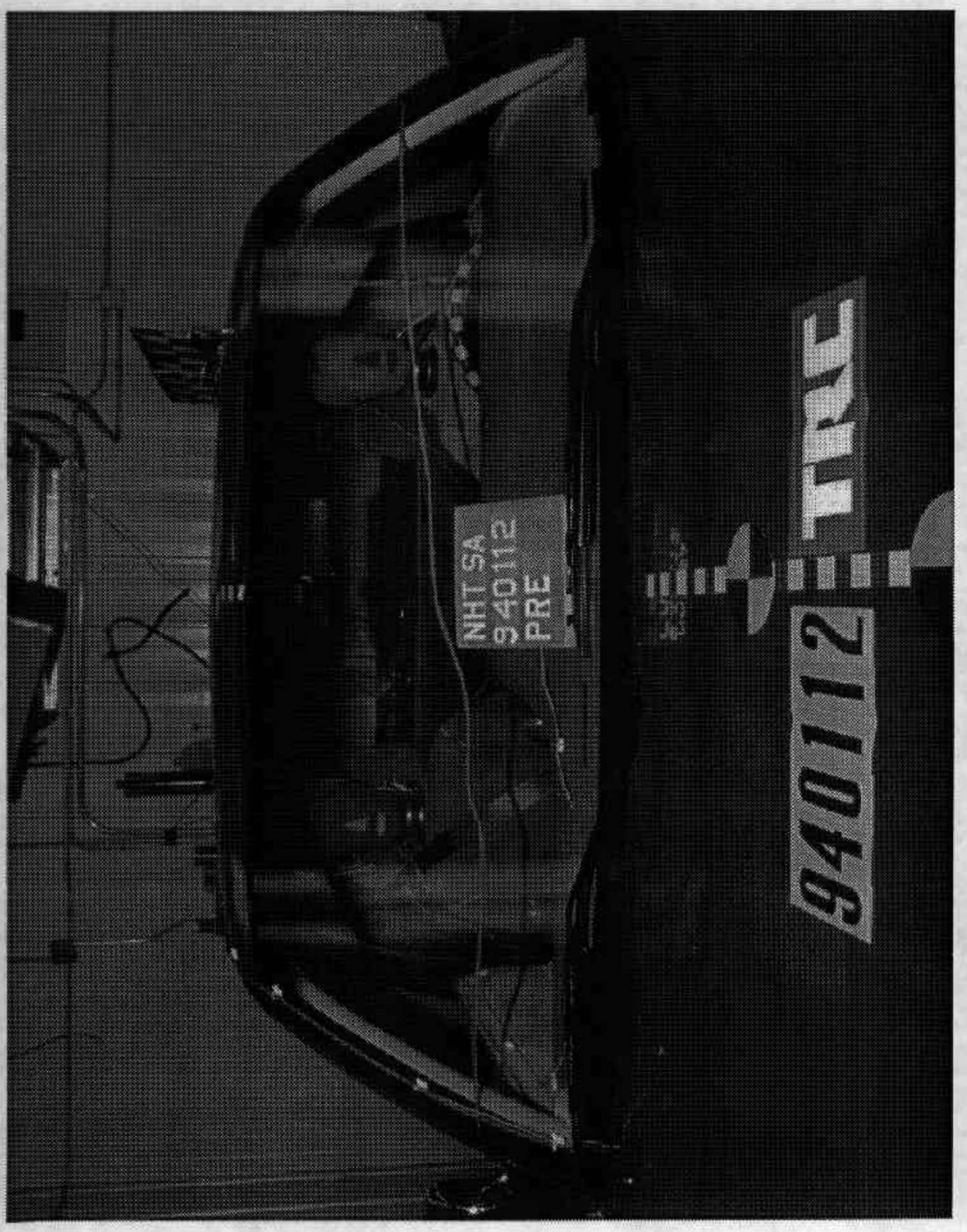


Figure A-13. PRE-TEST WINDSHIELD VIEW

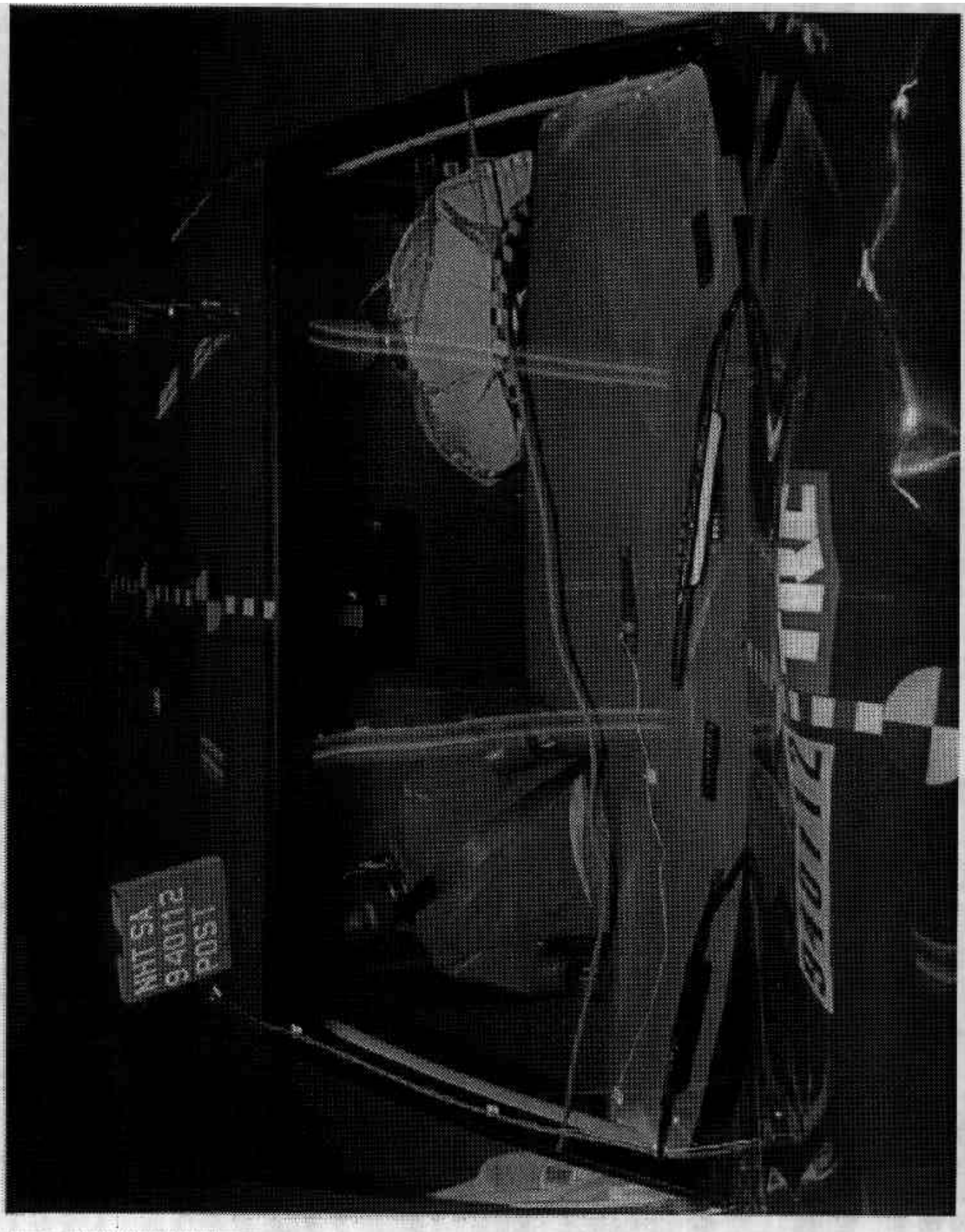


Figure A-14. POST-TEST WINDSHIELD VIEW

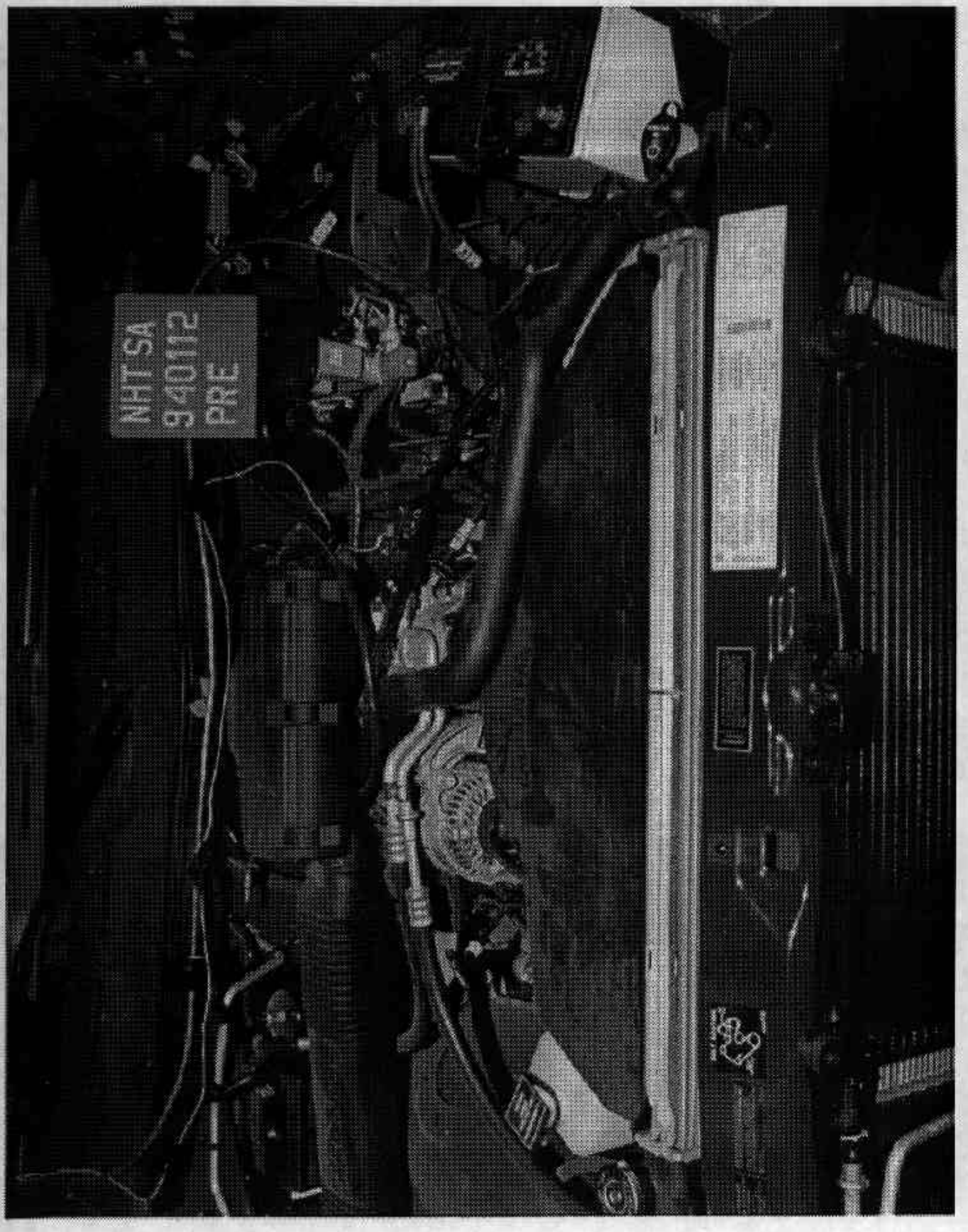


Figure A-15. PRE-TEST ENGINE COMPARTMENT VIEW

Figure A-16. POST-TEST ENGINE COMPARTMENT VIEW

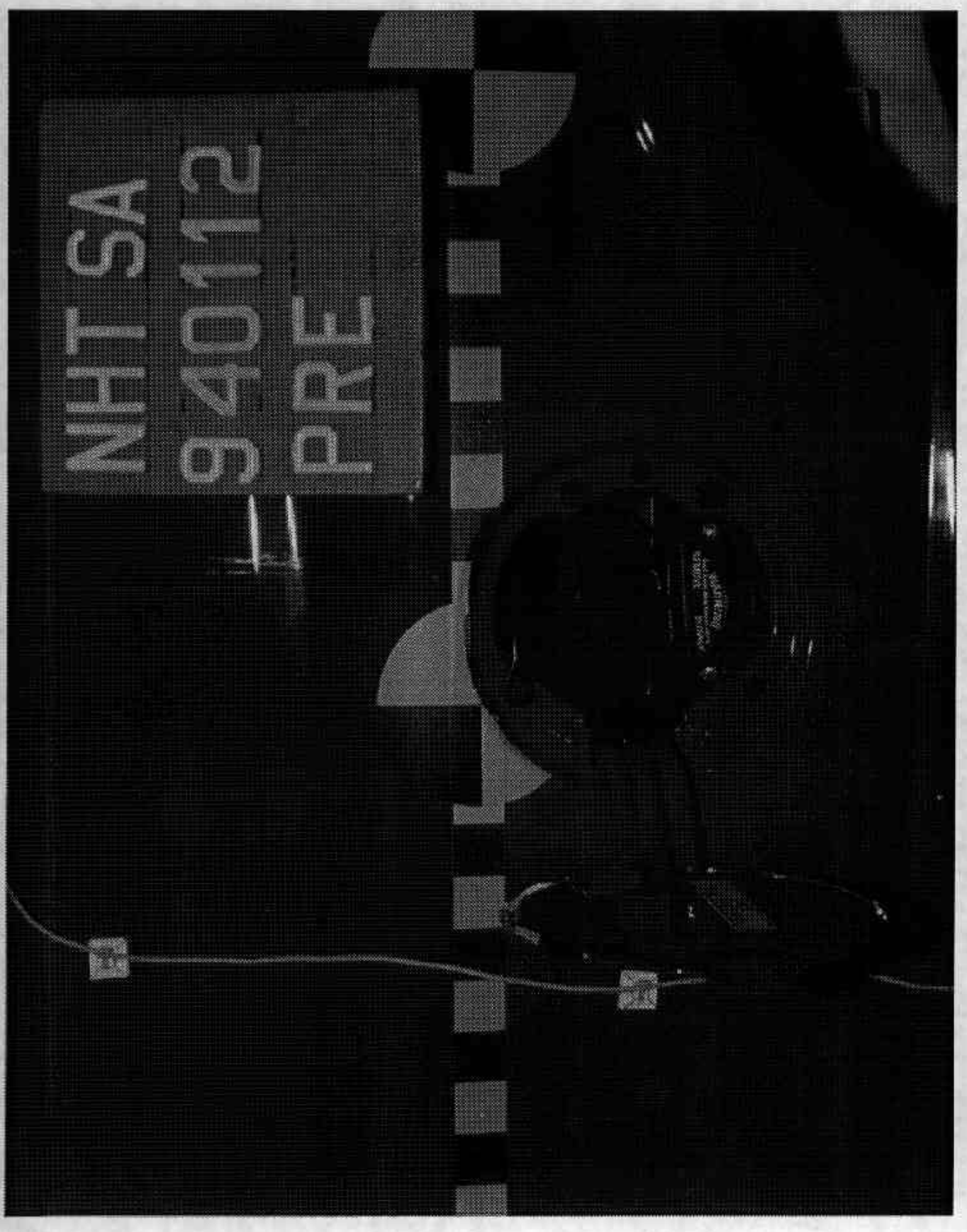


Figure A-17. PRE-TEST FUEL FILLER CAP VIEW

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

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

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

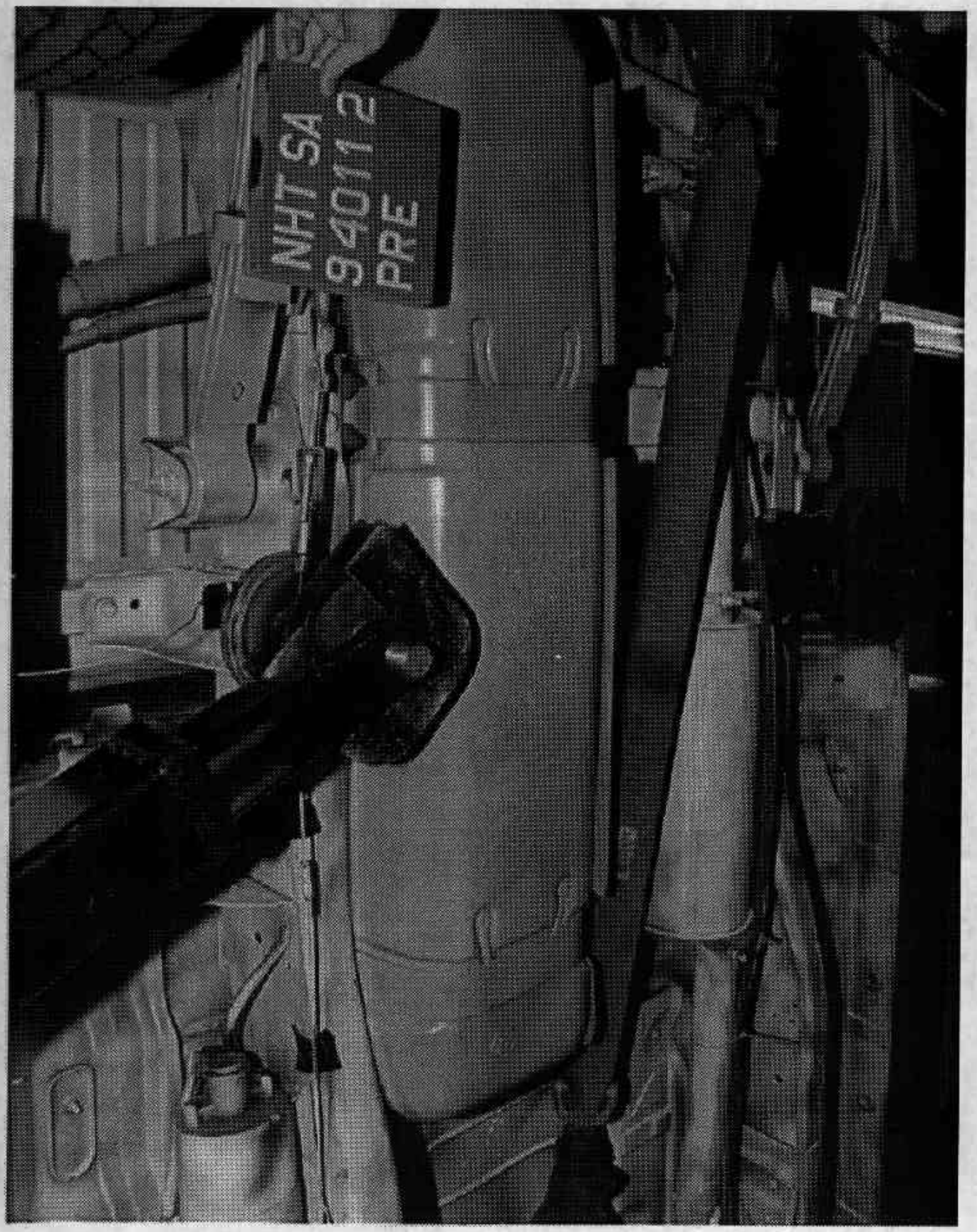


Figure A-21. PRE-TEST FUEL TANK VIEW

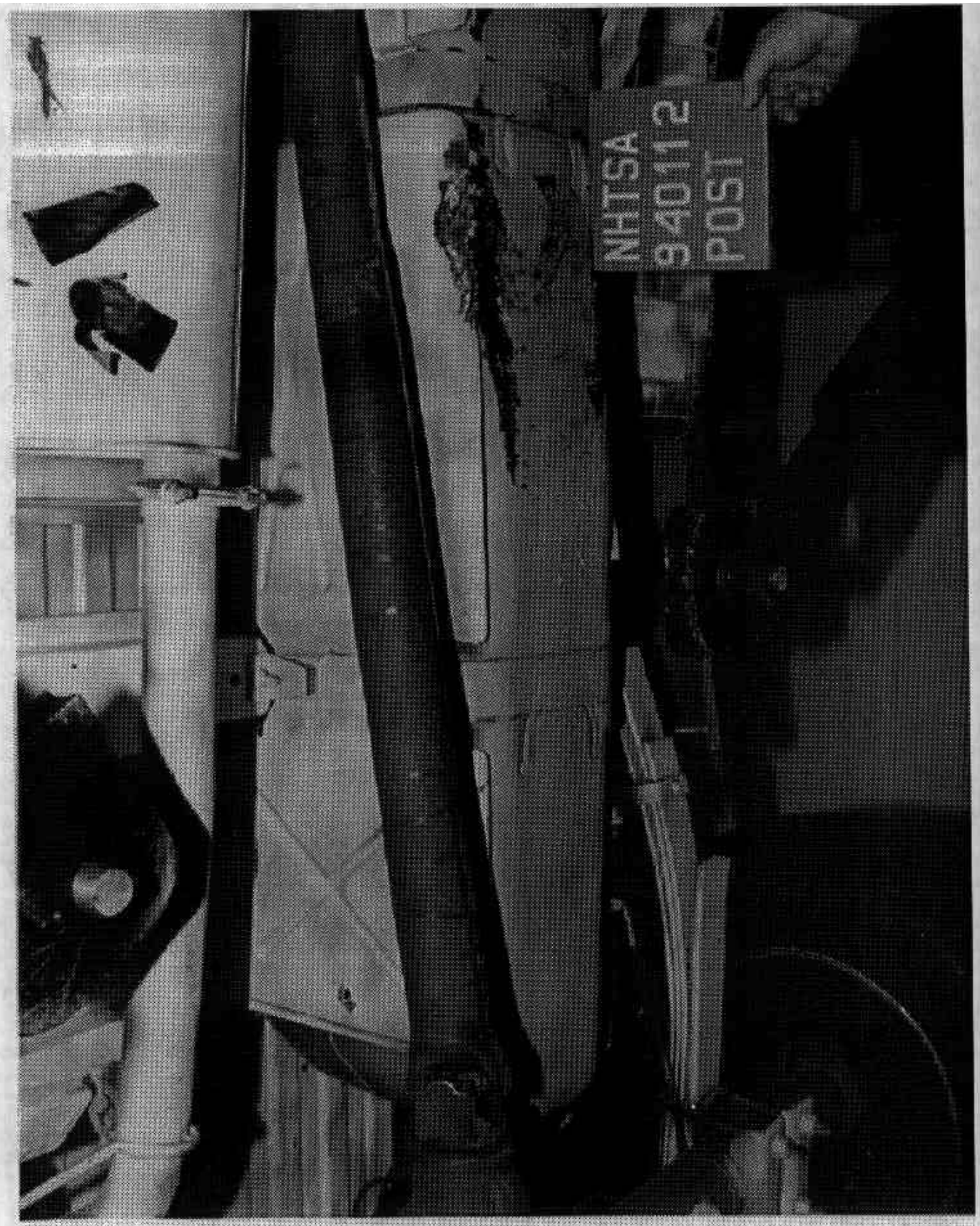


Figure A-22. POST-TEST FUEL TANK VIEW

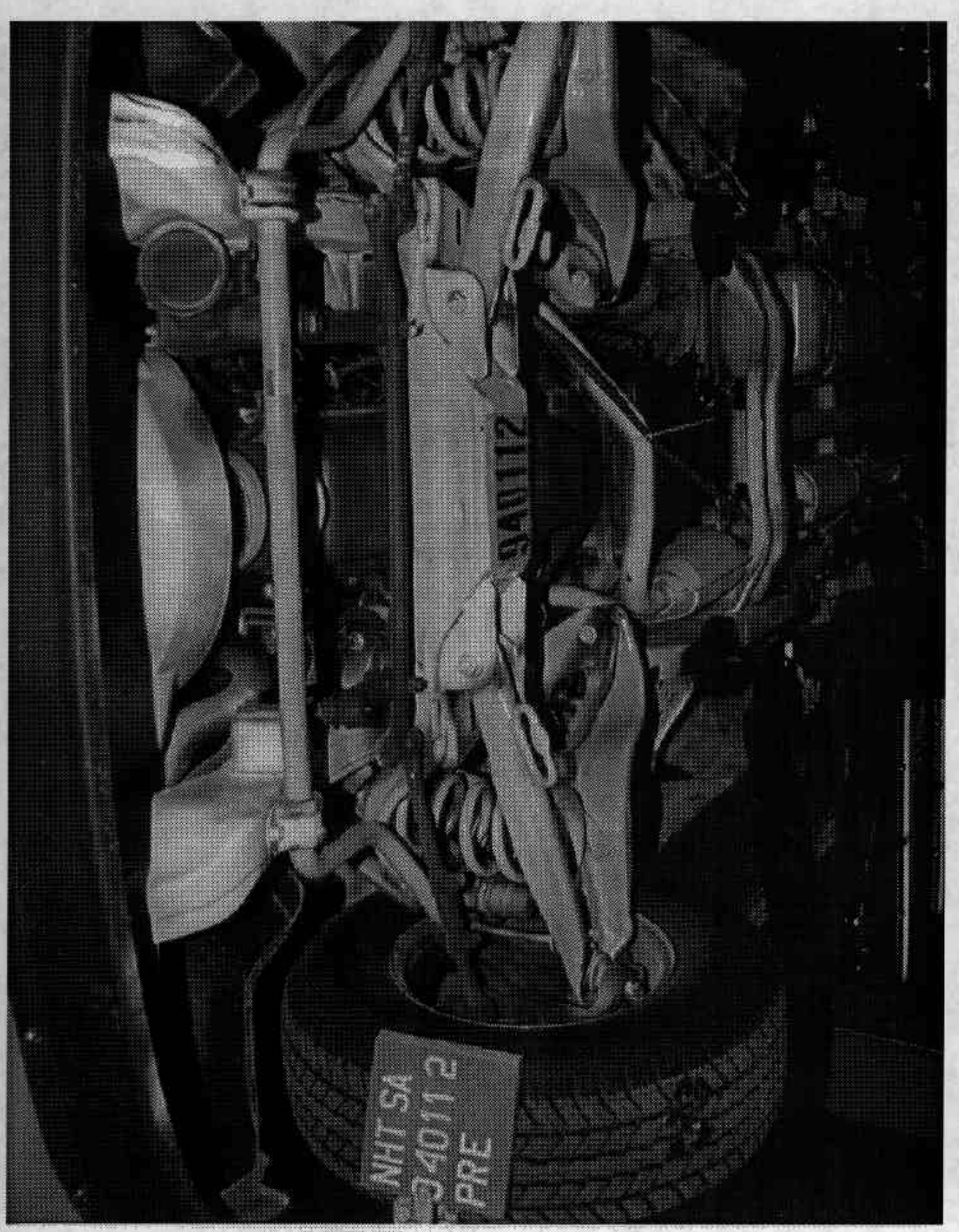


Figure A-23. PRE-TEST FRONT UNDERBODY VIEW

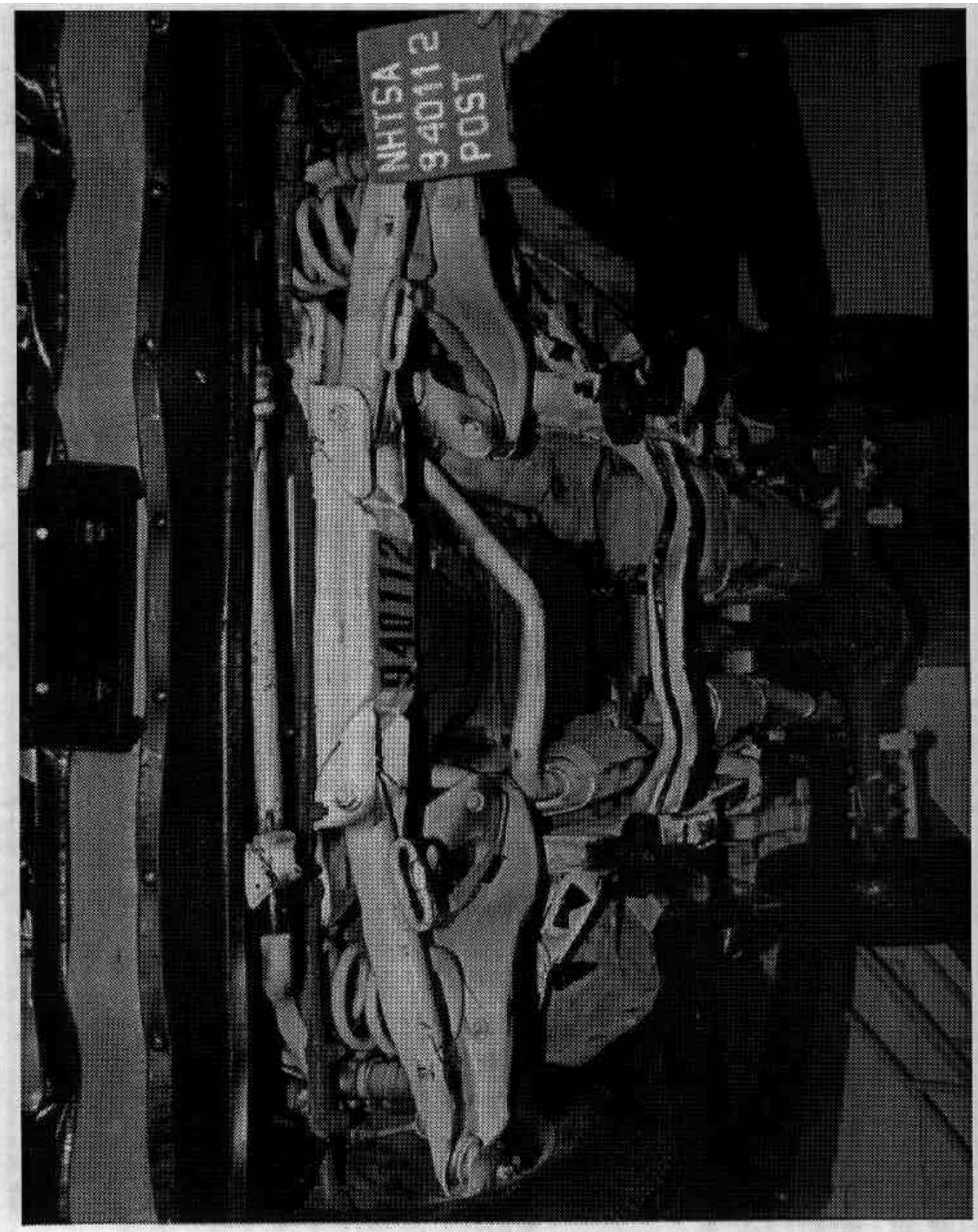


Figure A-24. POST-TEST FRONT UNDERBODY VIEW

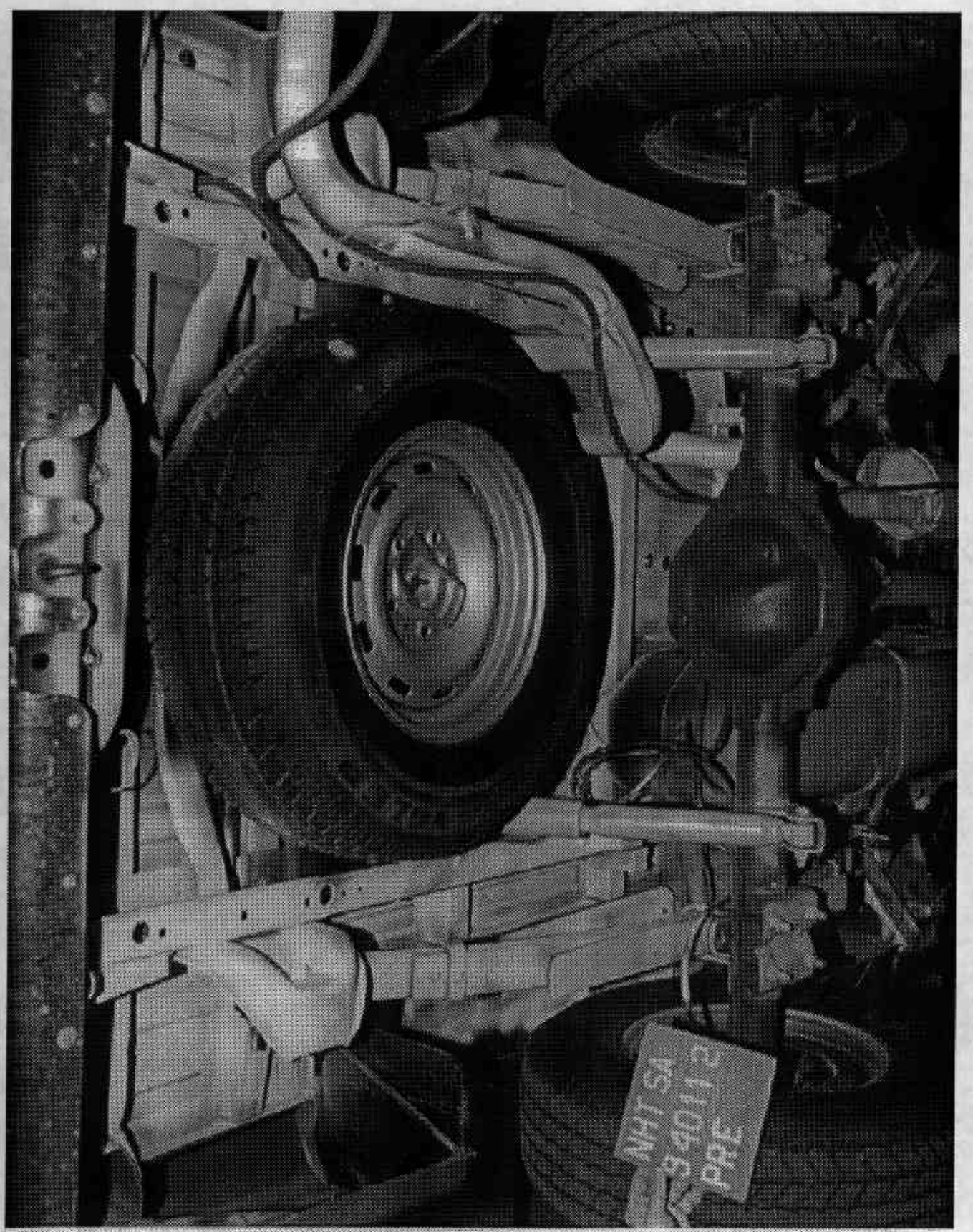


Figure A-25. PRE-TEST REAR UNDERBODY VIEW

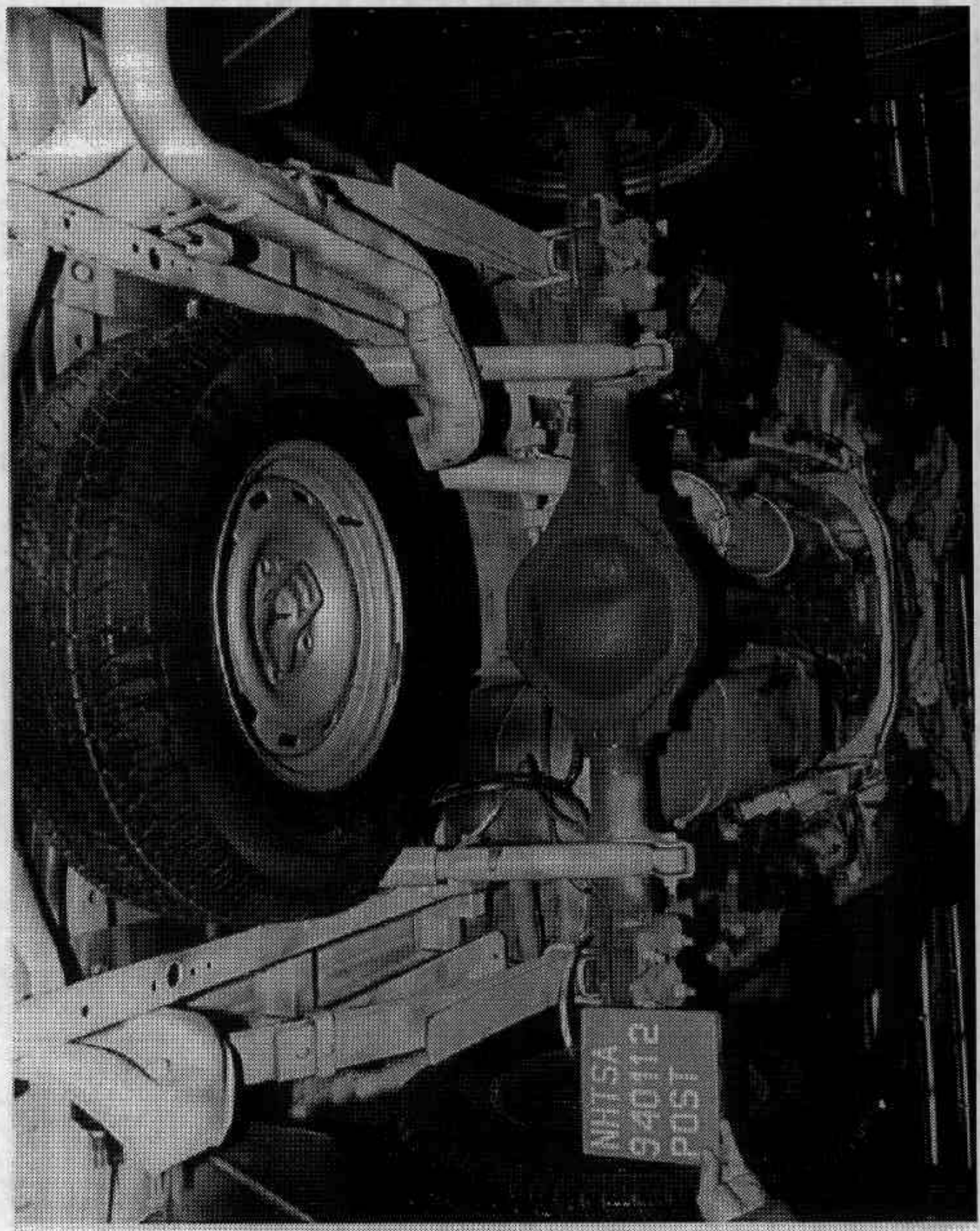


Figure A-26. POST-TEST REAR UNDERBODY VIEW

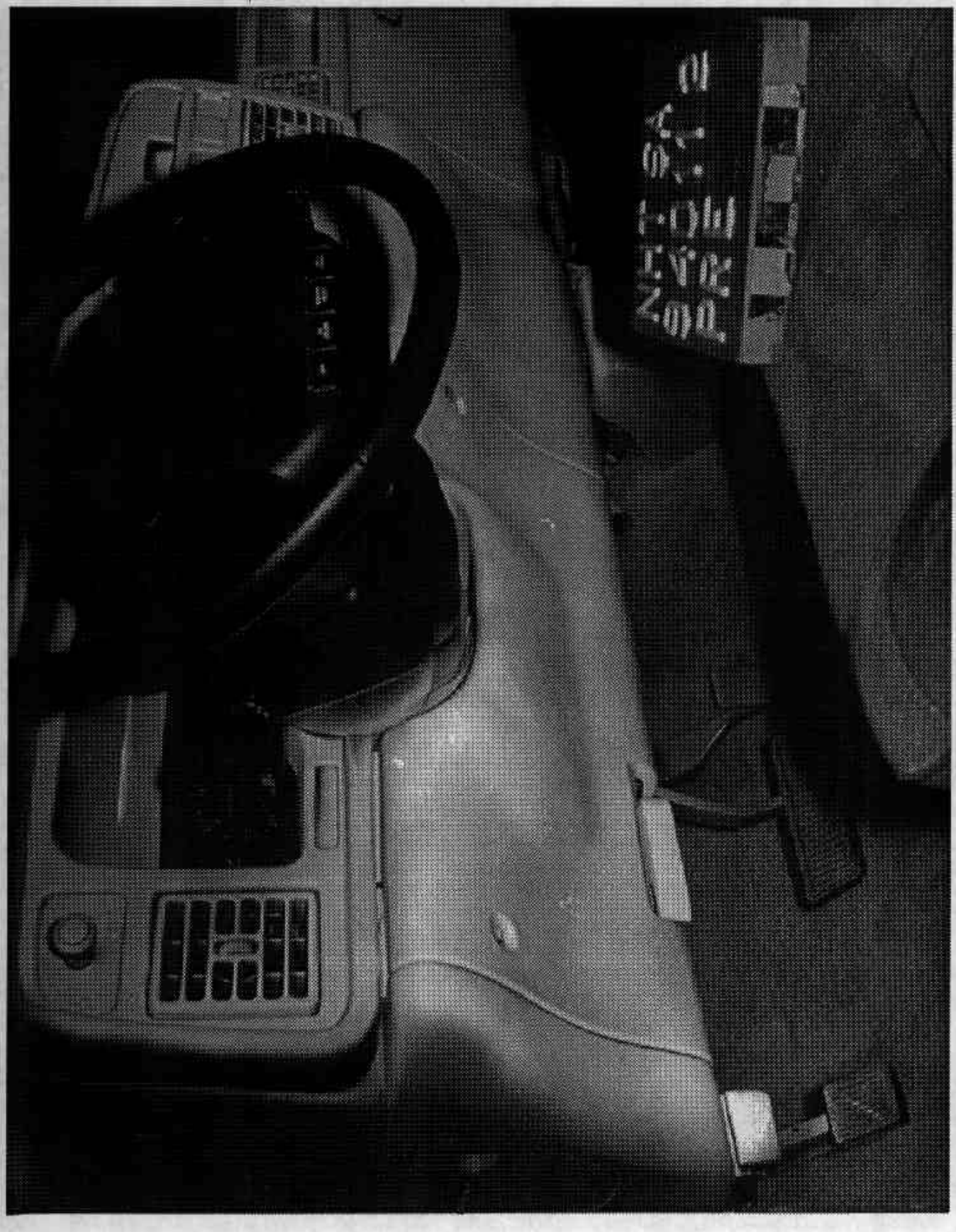


Figure A-27. PRE-TEST DRIVER'S KNEE BOLSTER VIEW

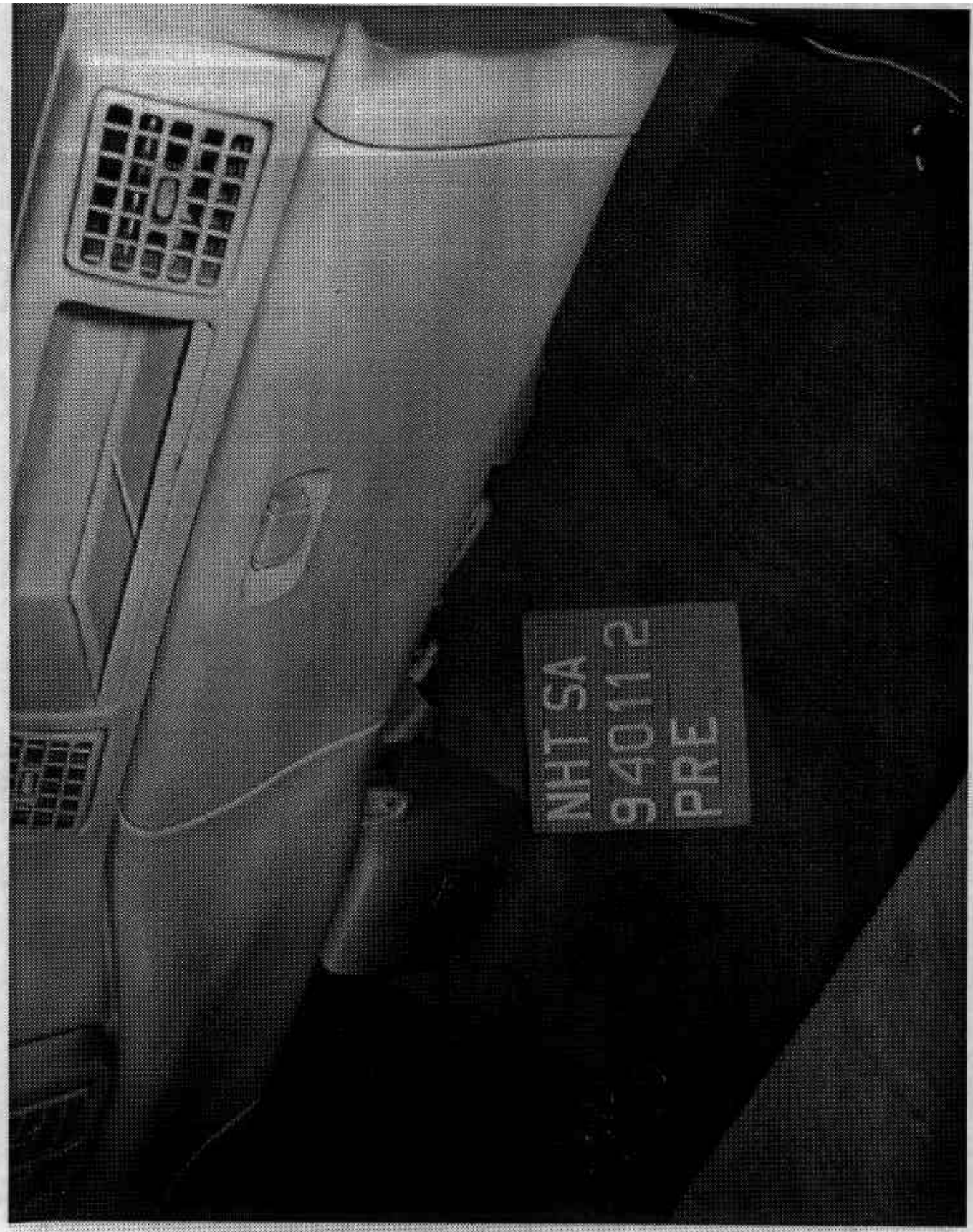


Figure A-28. PRE-TEST PASSENGER'S KNEE BOLSTER VIEW

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

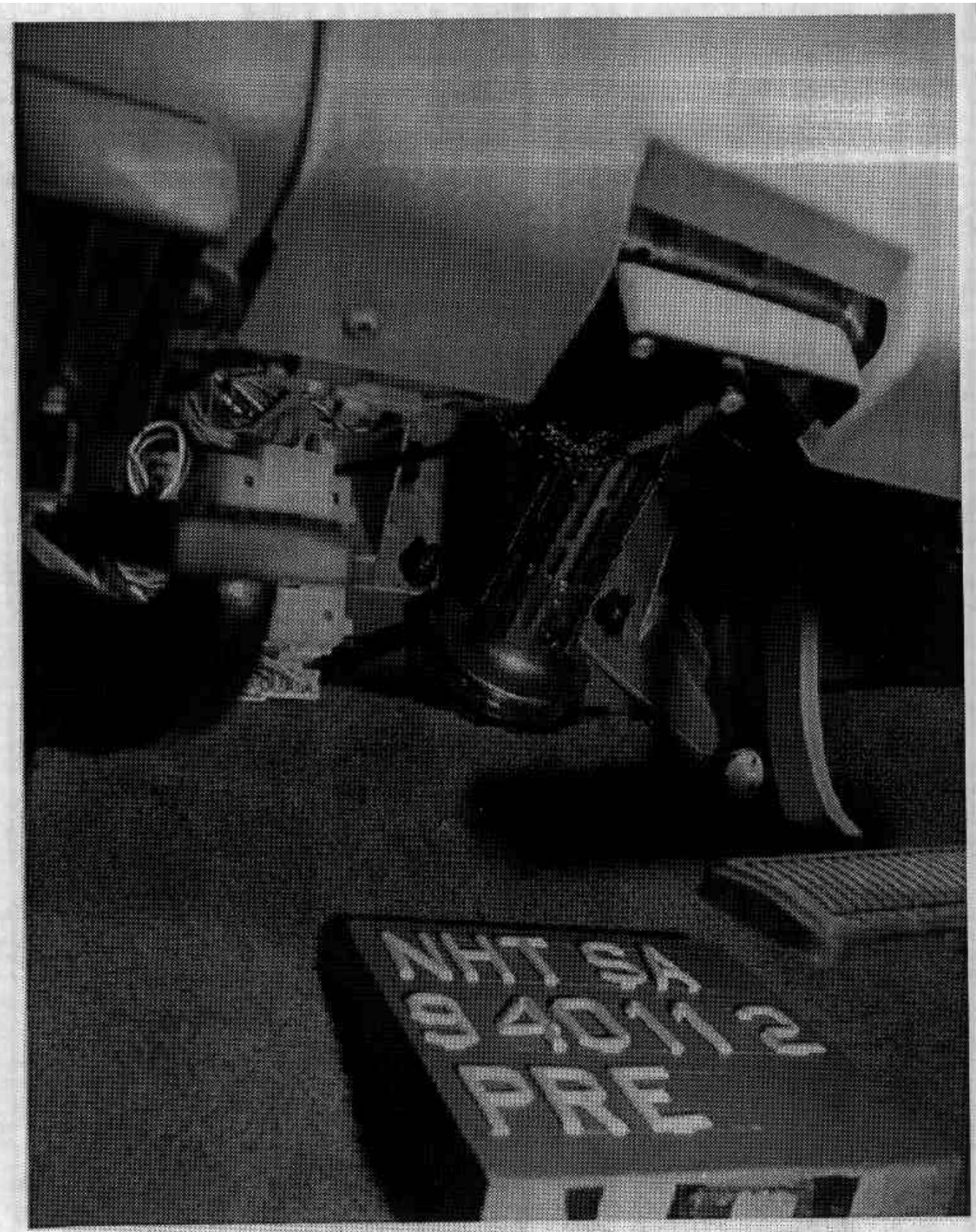


Fig A-30. PRE-TEST STRG. COLUMN AT FIREWALL VIEW - INTERIOR

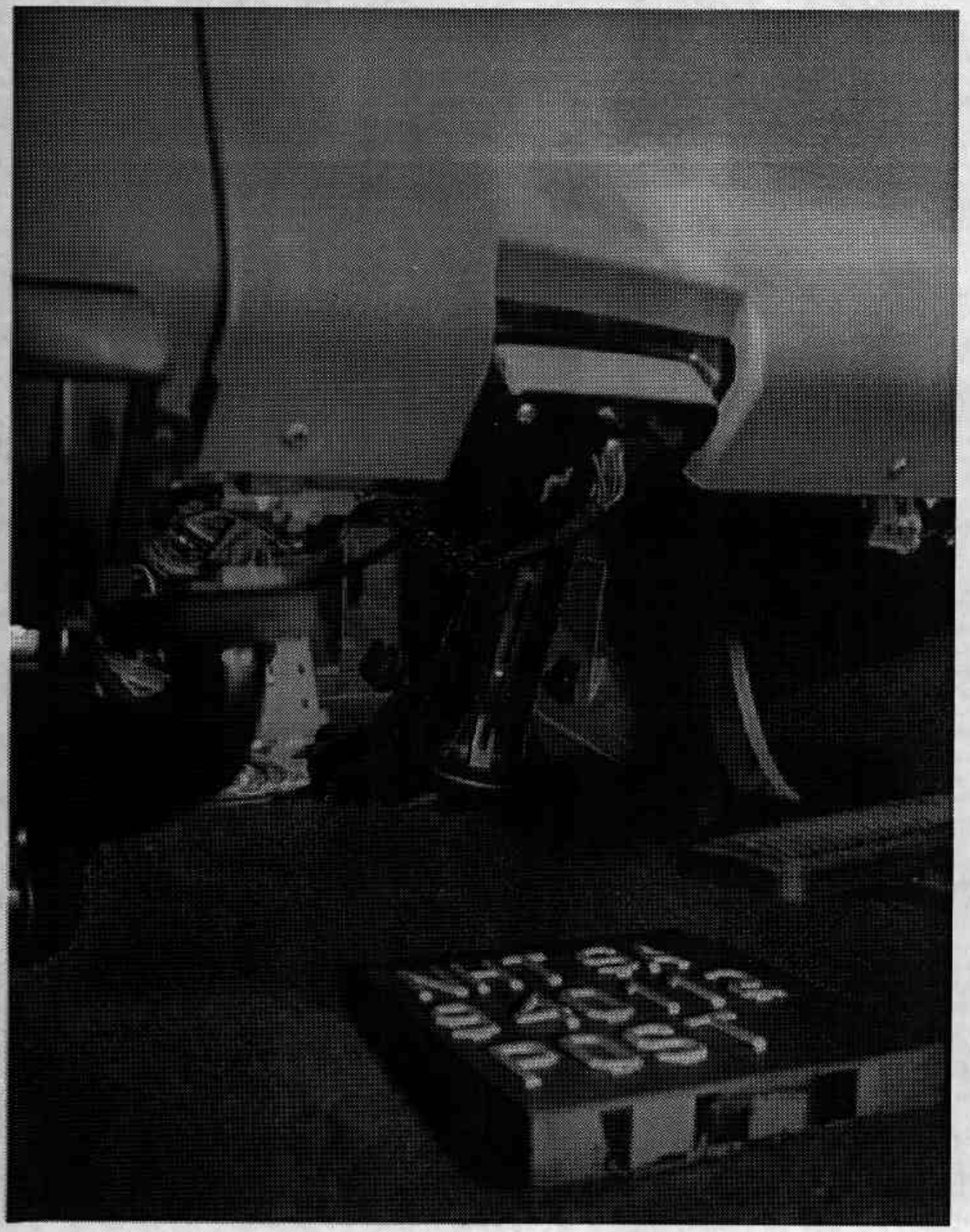


Fig A-31. POST-TEST STRG. COLUMN AT FIREWALL VIEW-INTERIOR

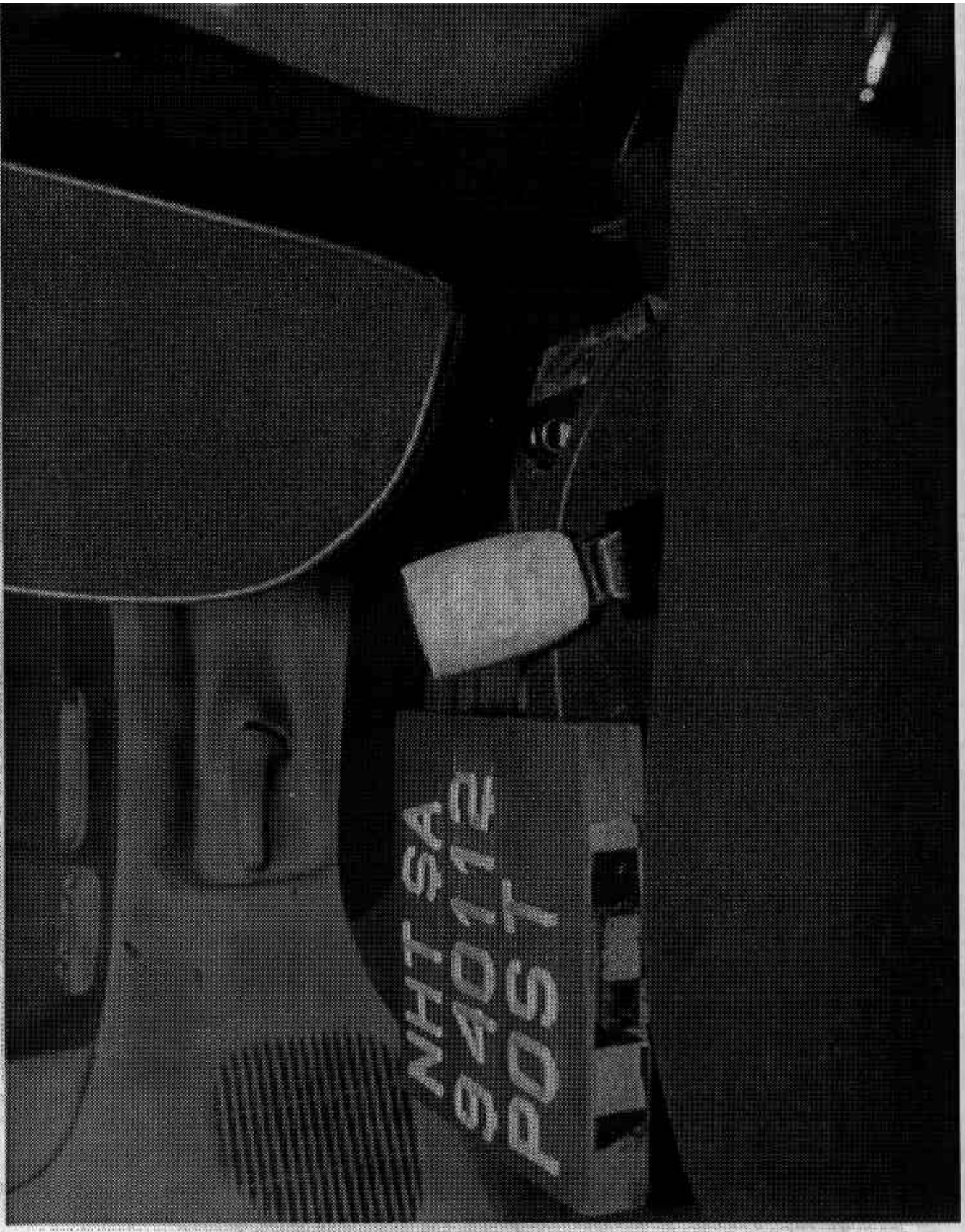


Figure A-32. POST-TEST PASSENGER'S SEAT BELT LATCH VIEW

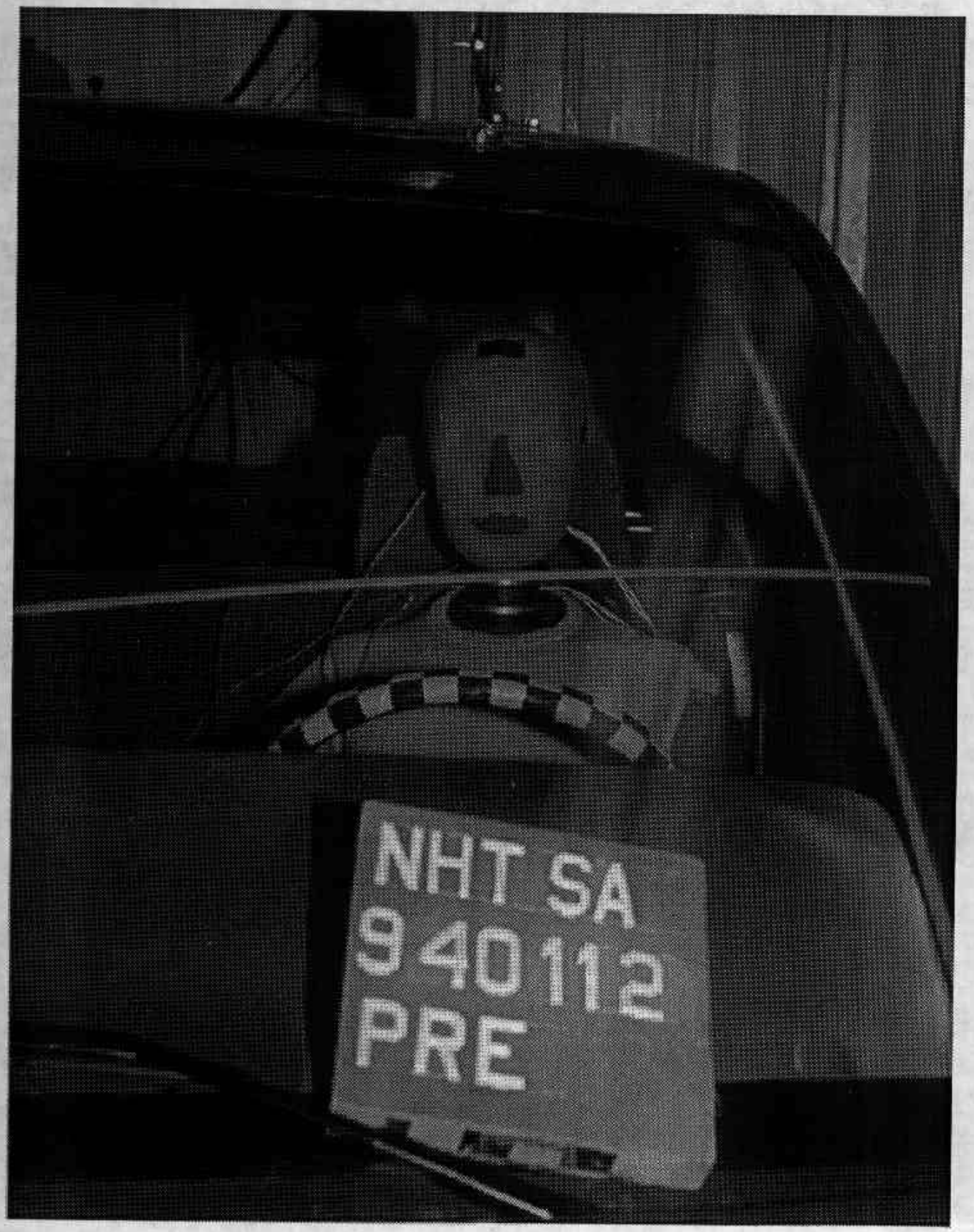


Figure A-33. PRE-TEST DRIVER DUMMY POSITION - VIEW 1

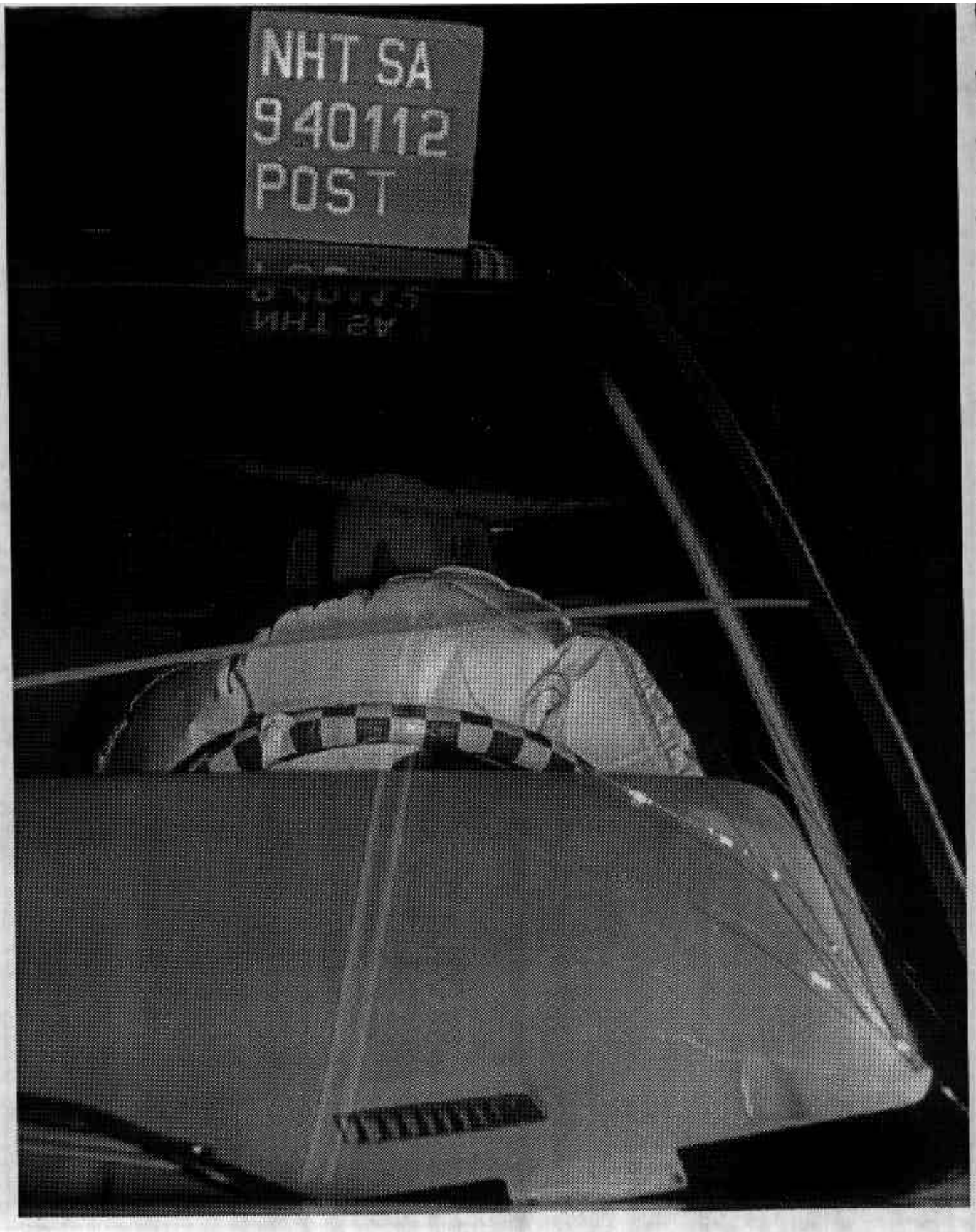


Figure A-34. POST-TEST DRIVER DUMMY POSITION - VIEW 1

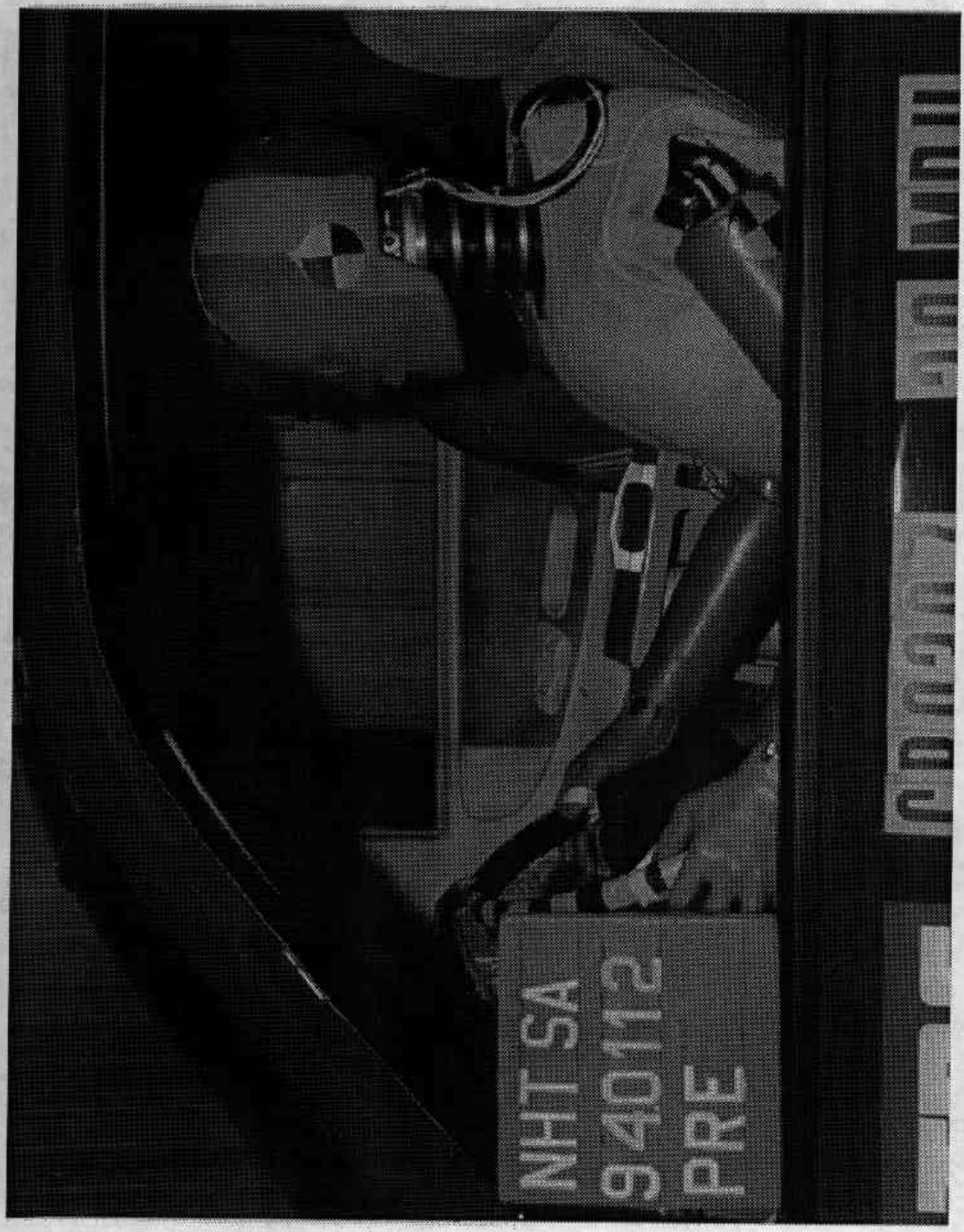


Figure A-35. PRE-TEST DRIVER DUMMY POSITION - VIEW 2

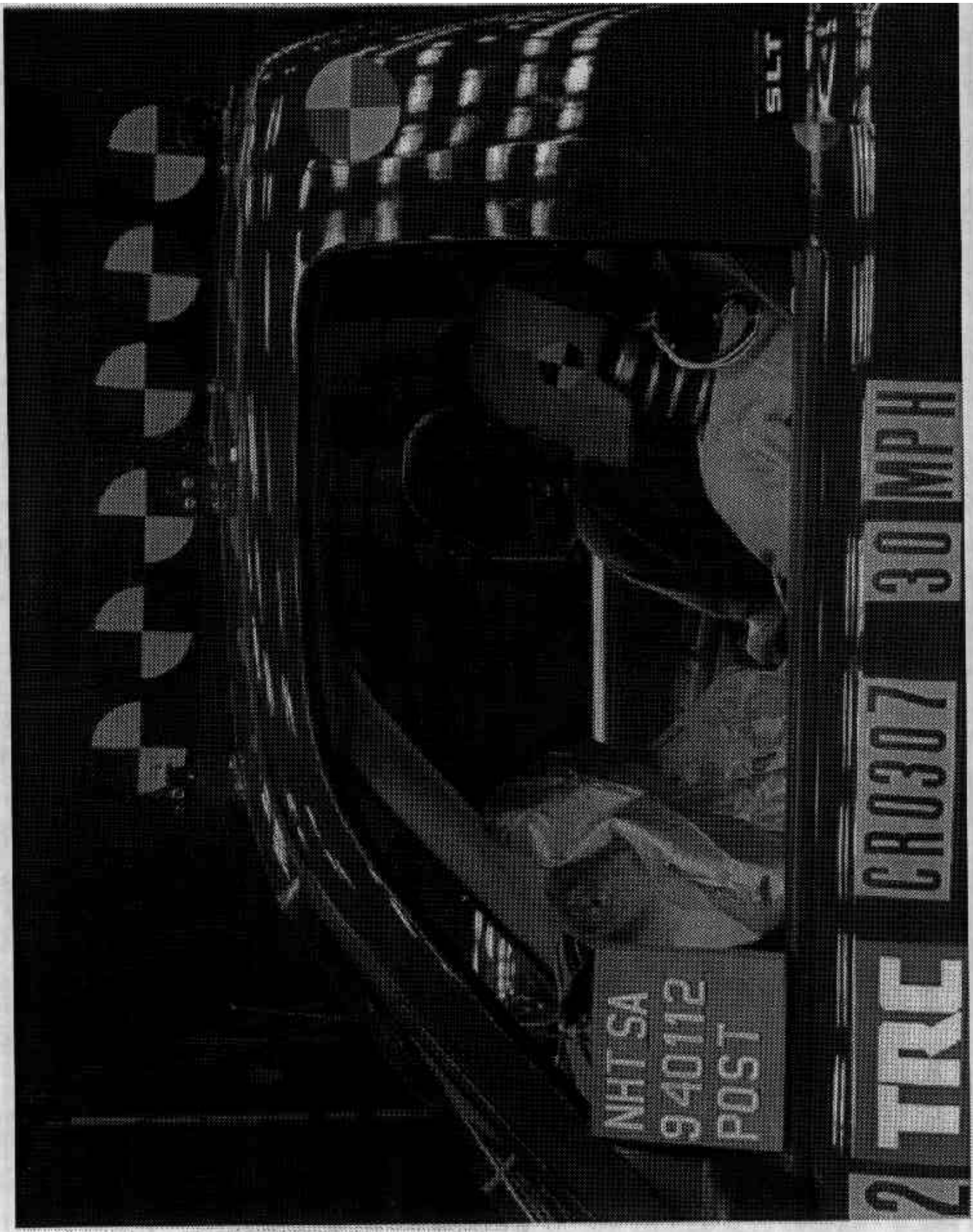


Figure A-36. POST-TEST DRIVER DUMMY POSITION - VIEW 2

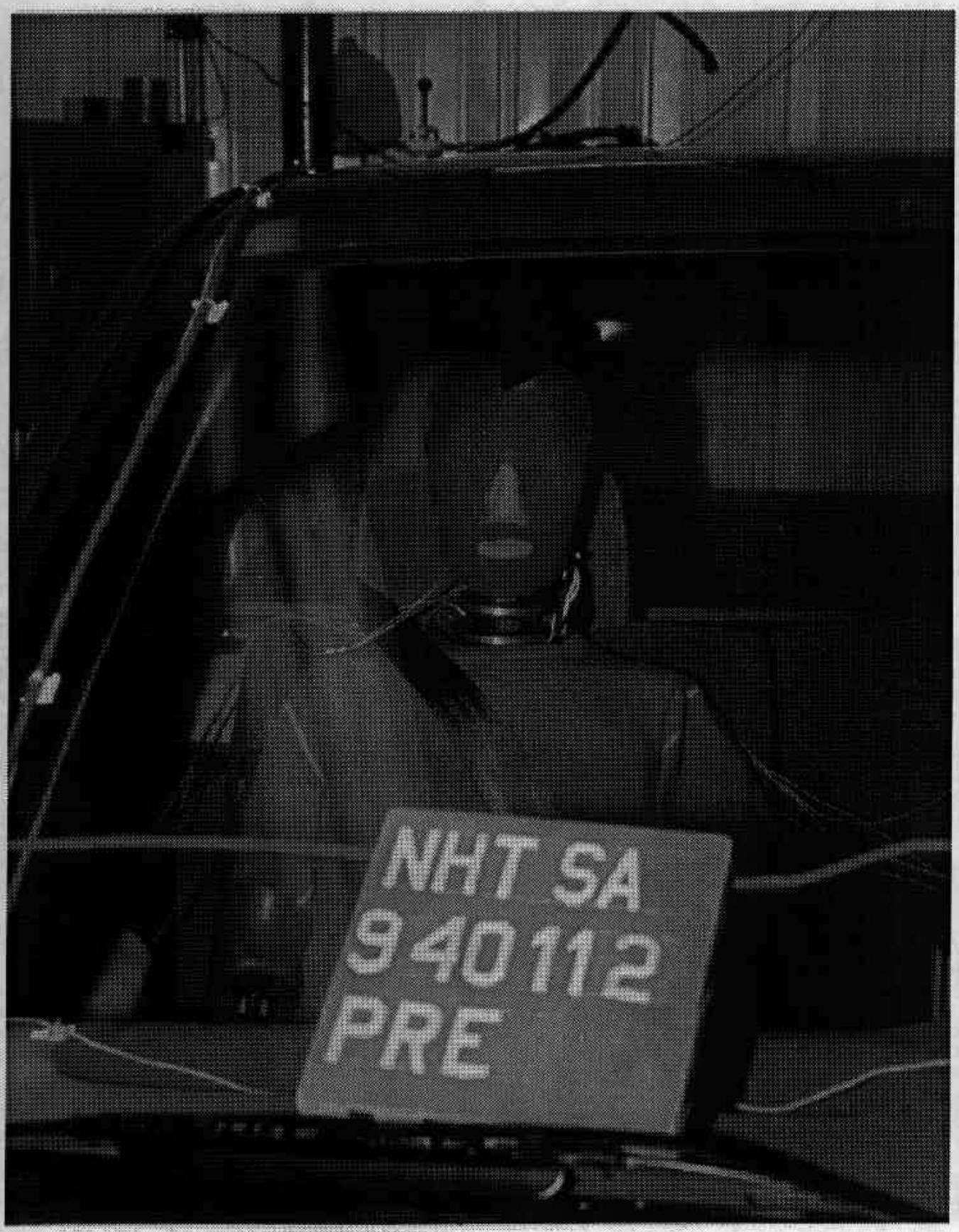


Figure A-37. PRE-TEST PASSENGER DUMMY POSITION - VIEW 1

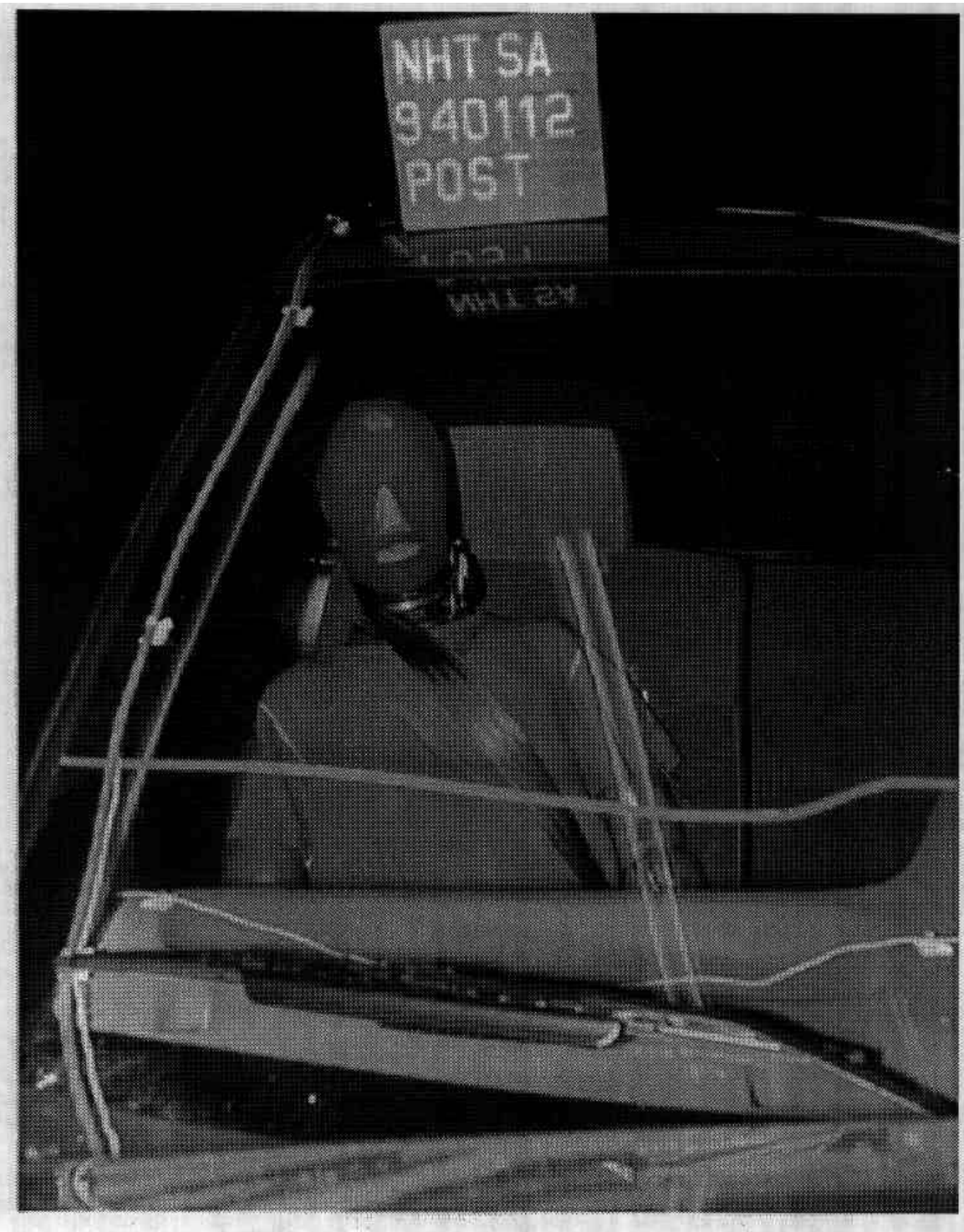


Figure A-38. POST-TEST PASSENGER DUMMY POSITION - VIEW 1

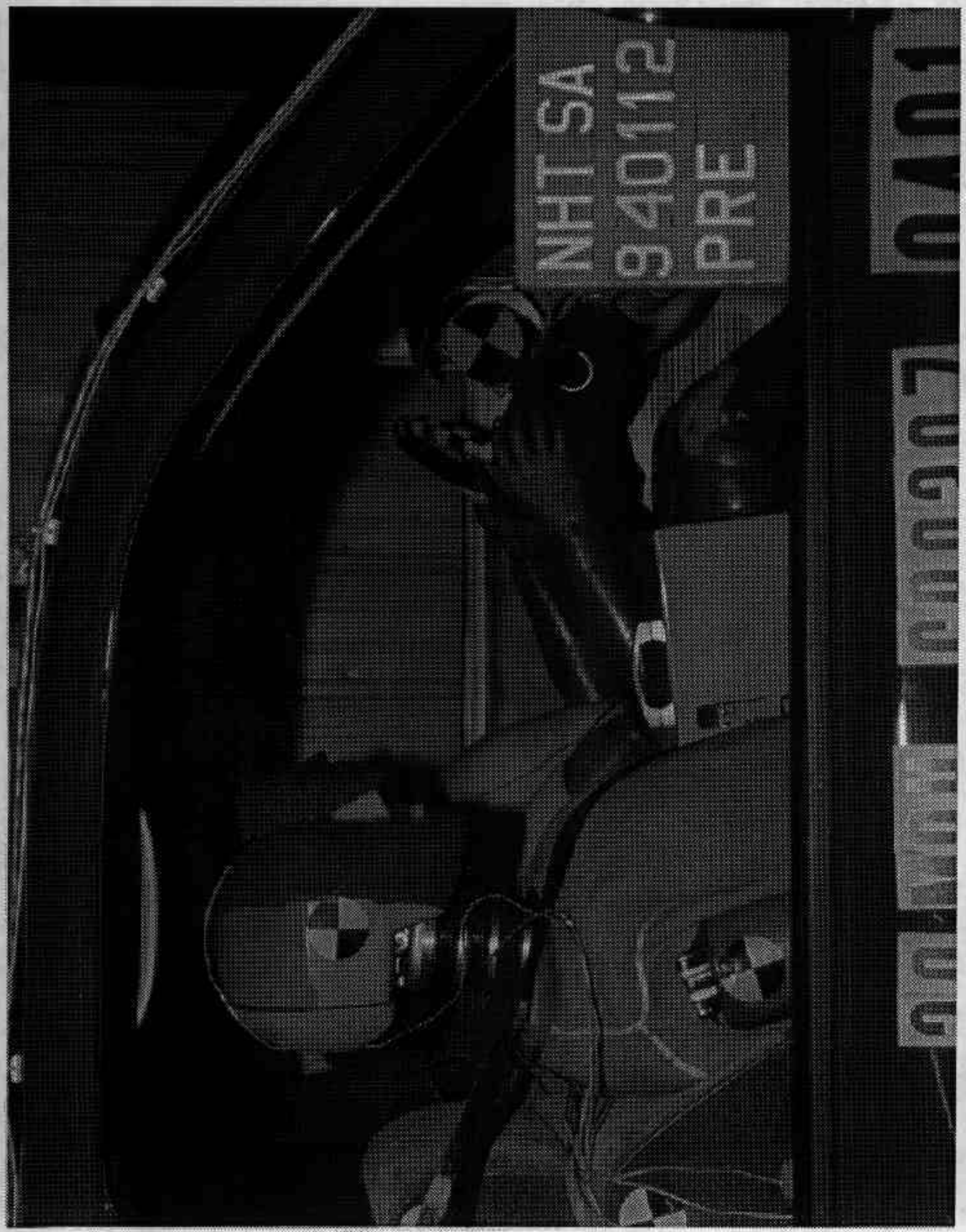


Figure A-39. PRE-TEST PASSENGER DUMMY POSITION - VIEW 2

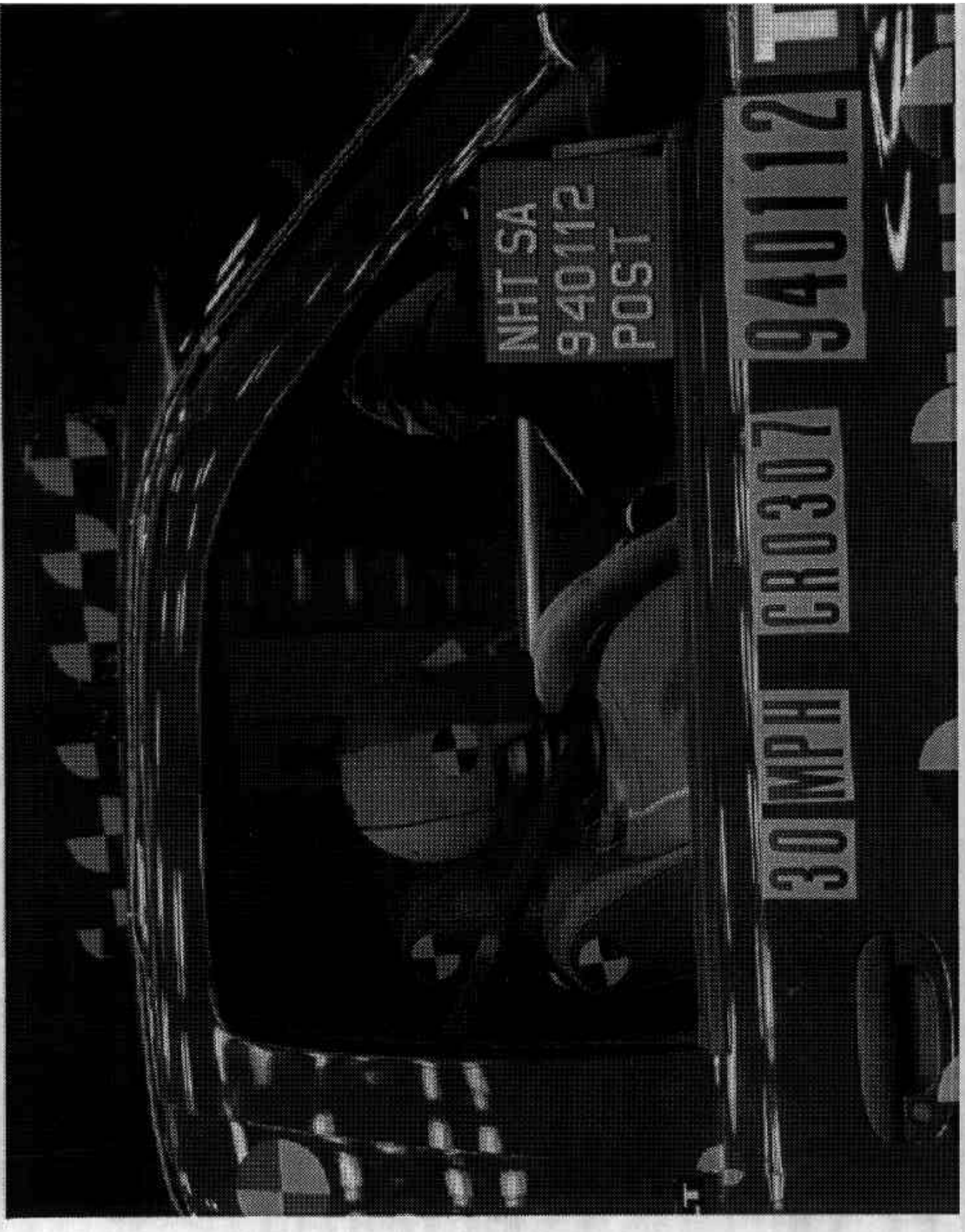


Figure A-40. POST-TEST PASSENGER DUMMY POSITION - VIEW 2

Fig. A-41. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

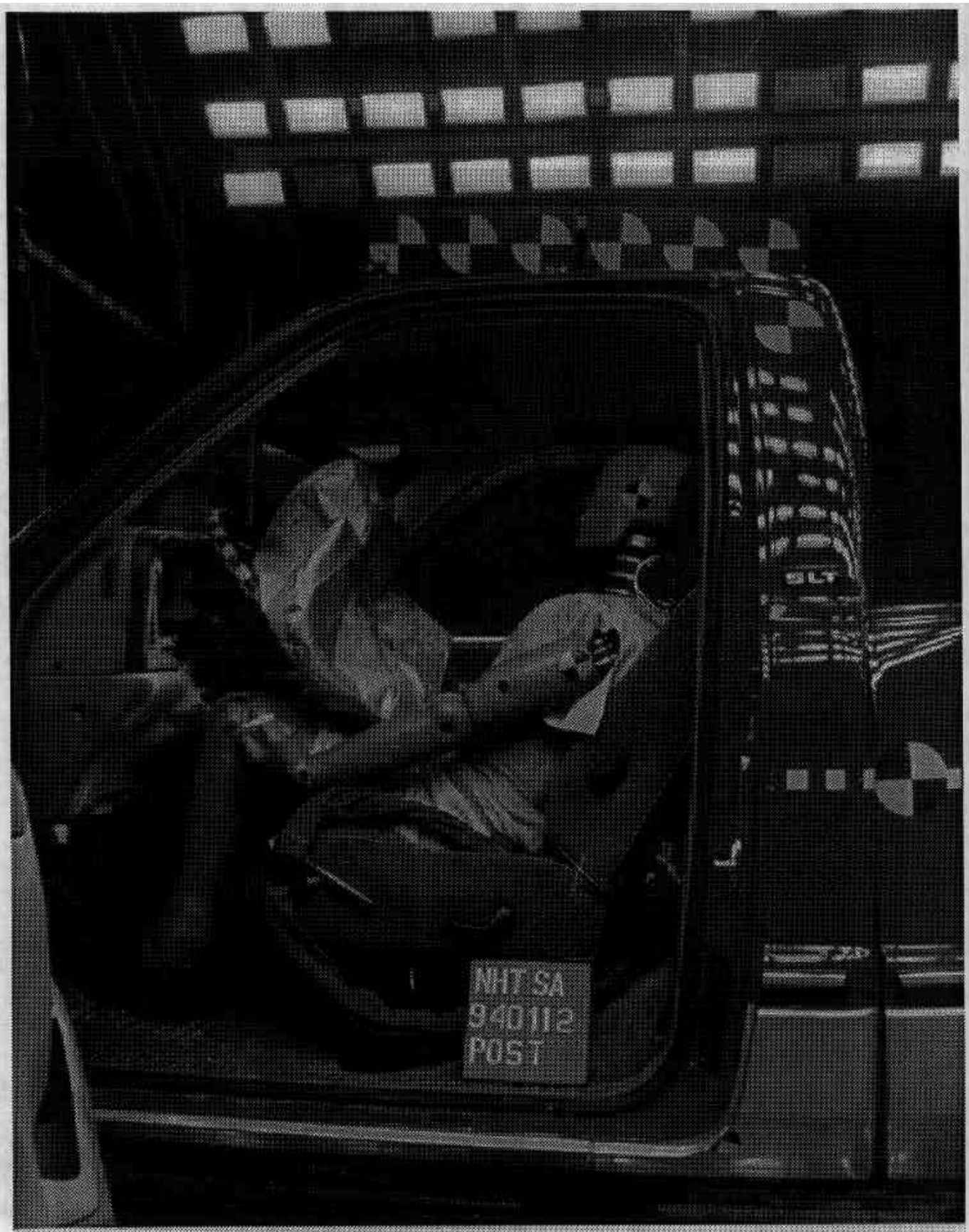


Fig A-42. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

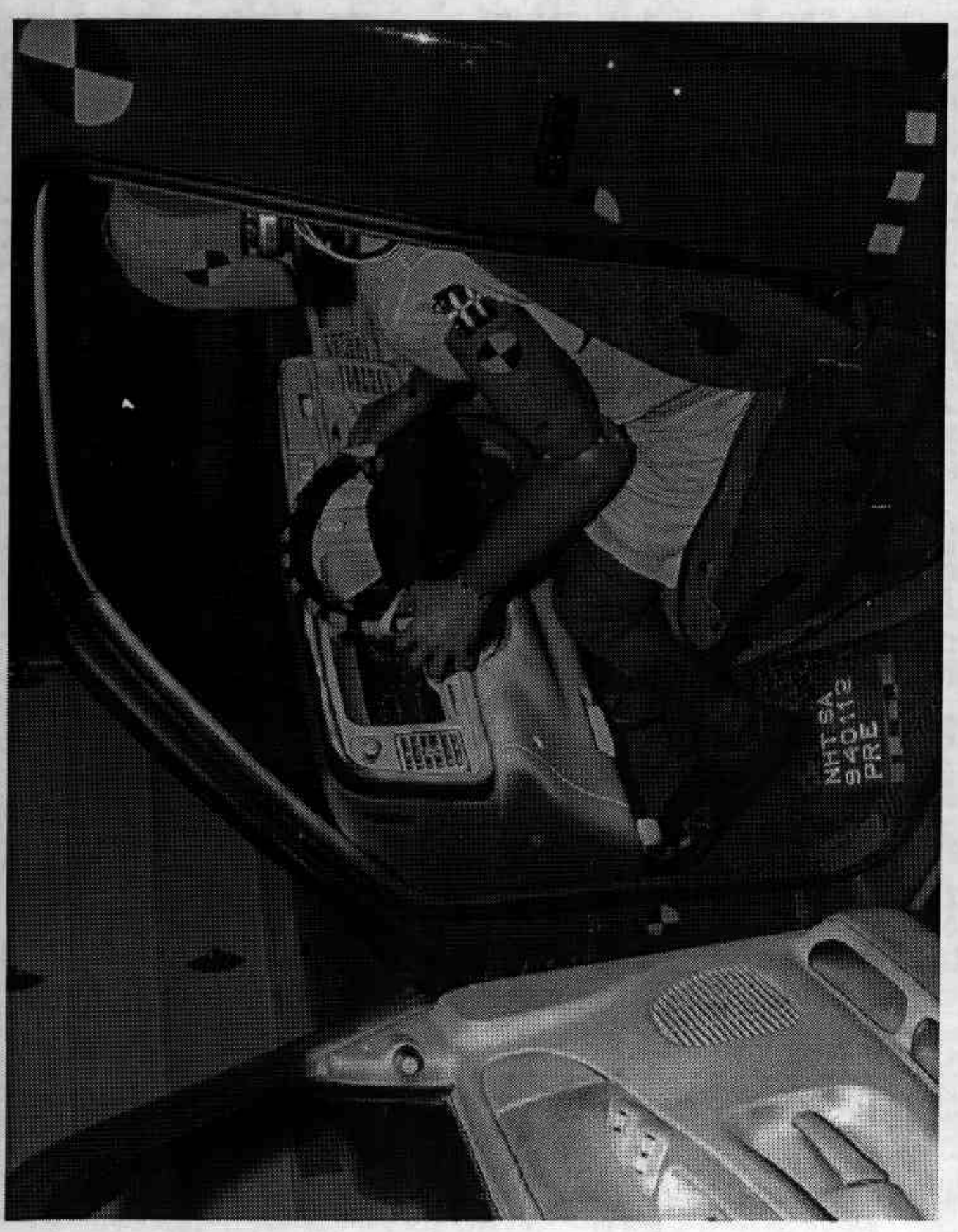


Fig. A-43. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

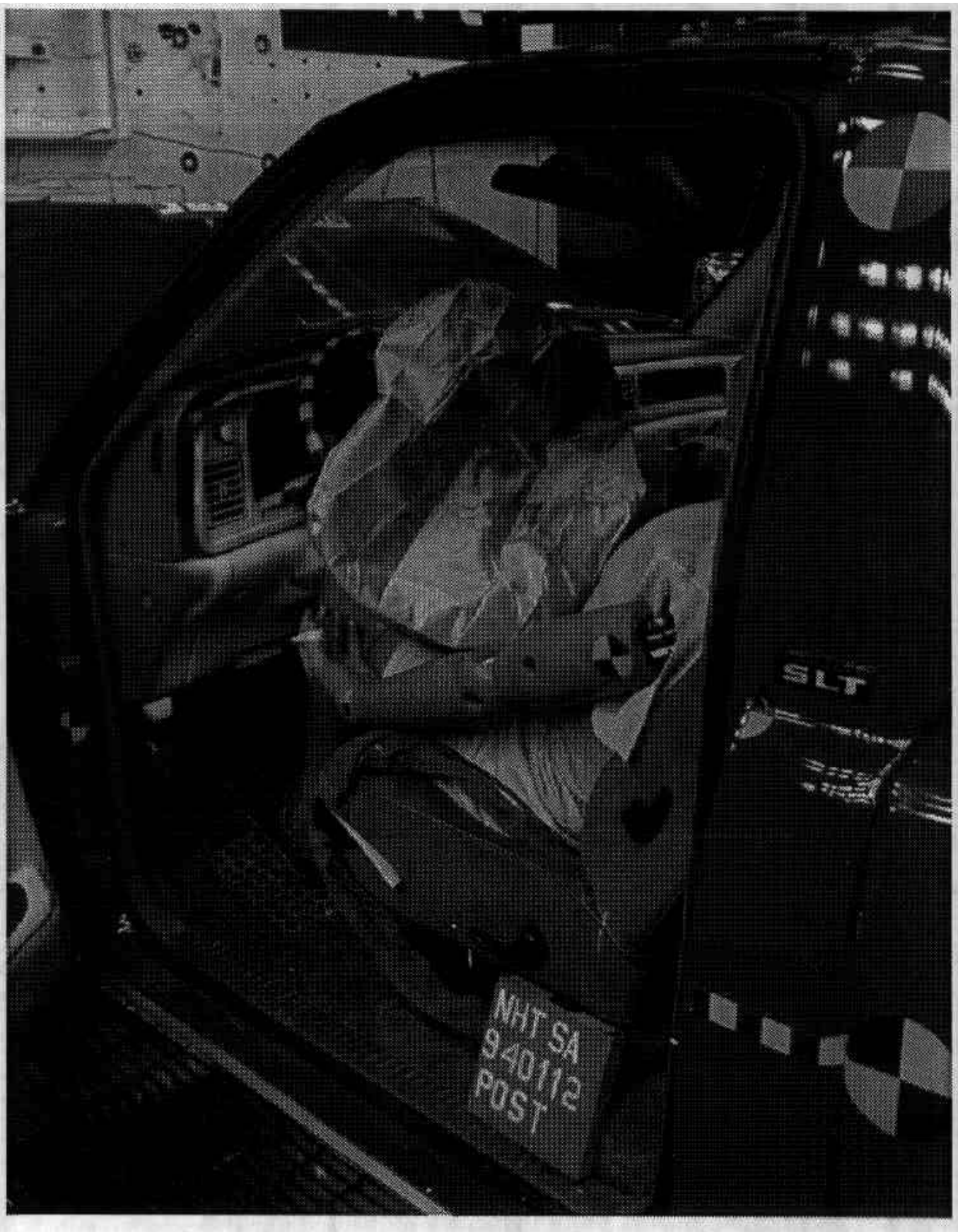


Fig A-44. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

Figure A-45. PRE-TEST PASS. DUMMY & VEHICLE INTERIOR - VIEW 1

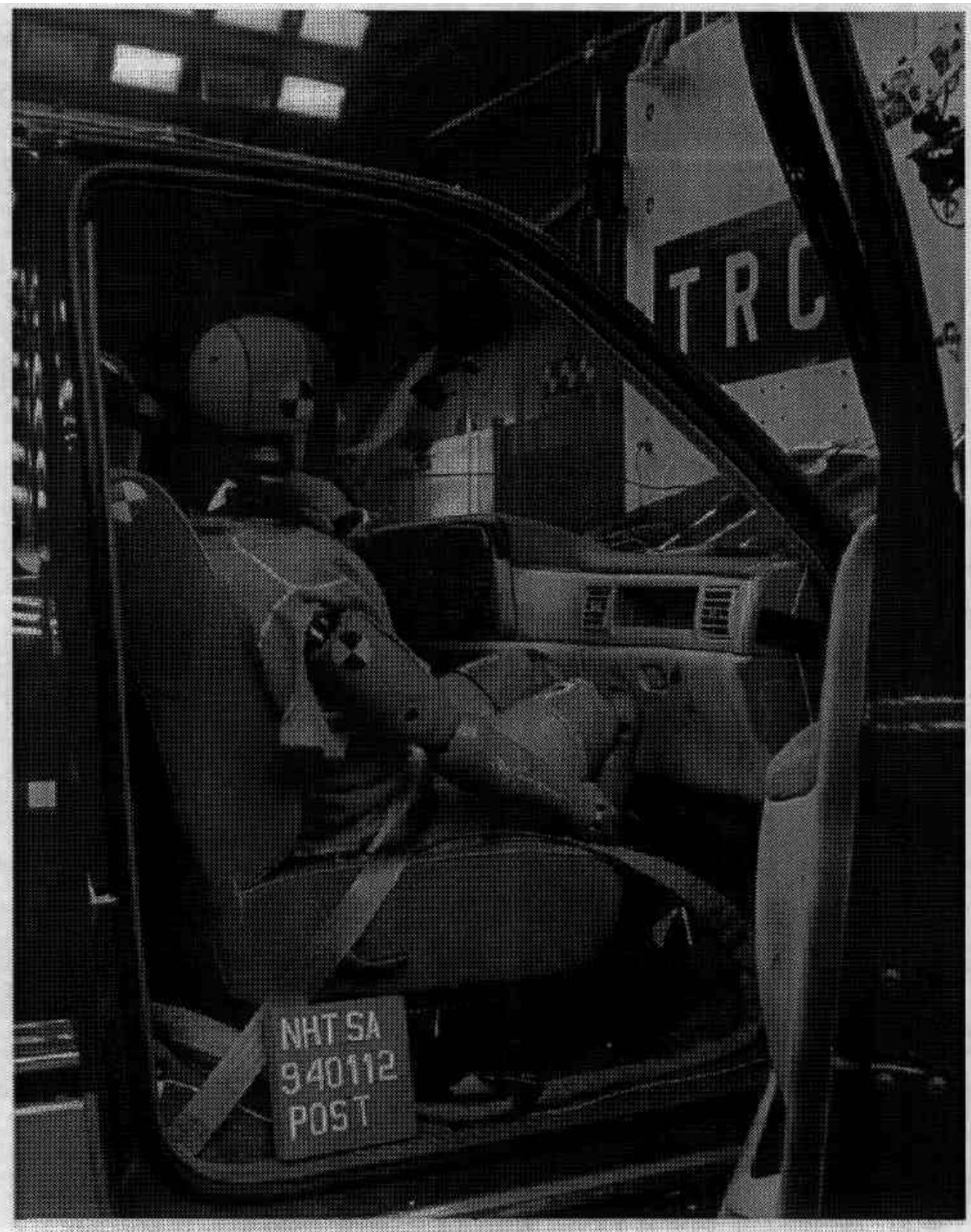


Fig. A-46. POST-TEST PASS. DUMMY & VEHICLE INTERIOR - VIEW 1

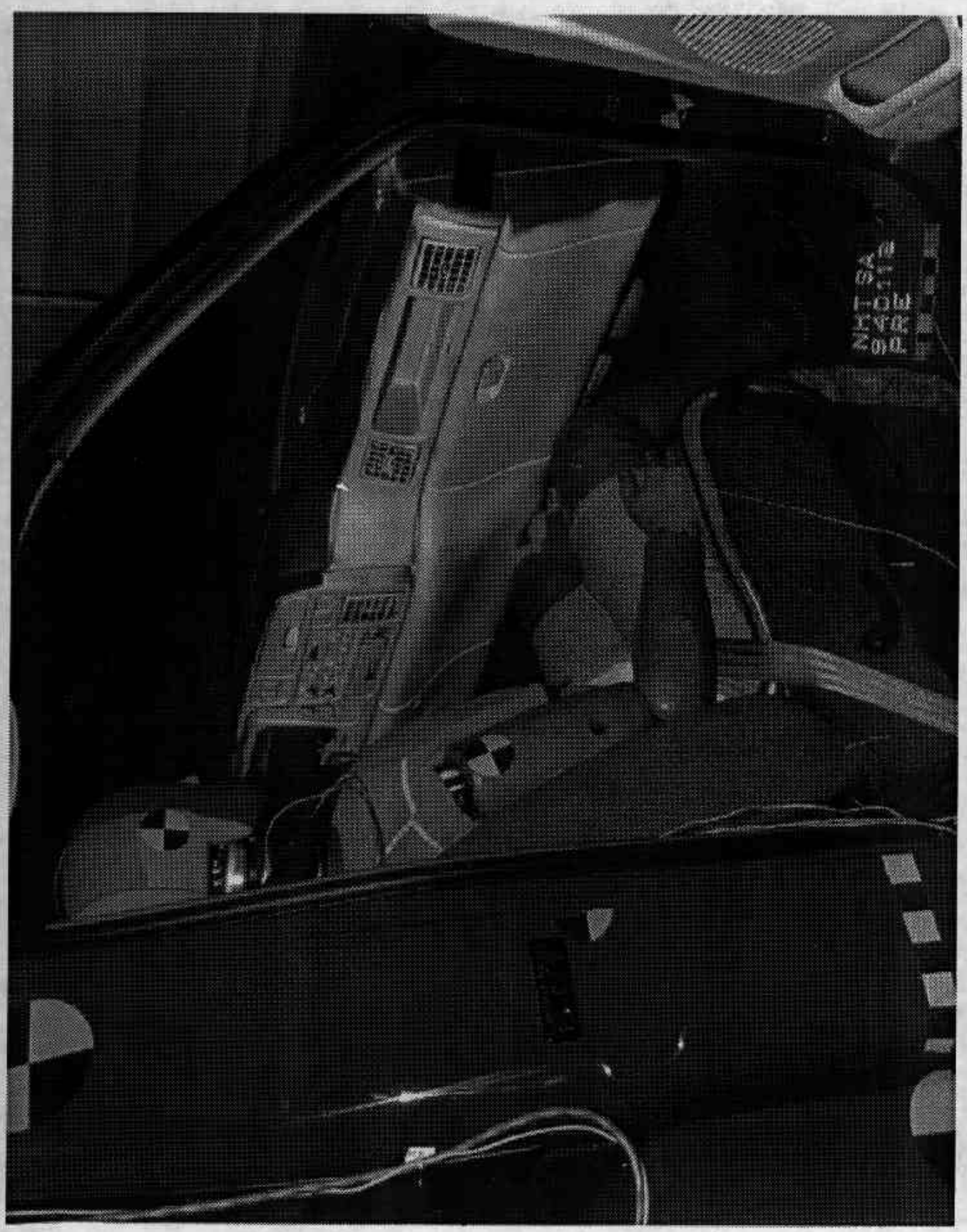


Figure A-47. PRE-TEST PASS. DUMMY & VEHICLE INTERIOR - VIEW 2

Fig. A-48. POST-TEST PASS. DUMMY & VEHICLE INTERIOR - VIEW 2

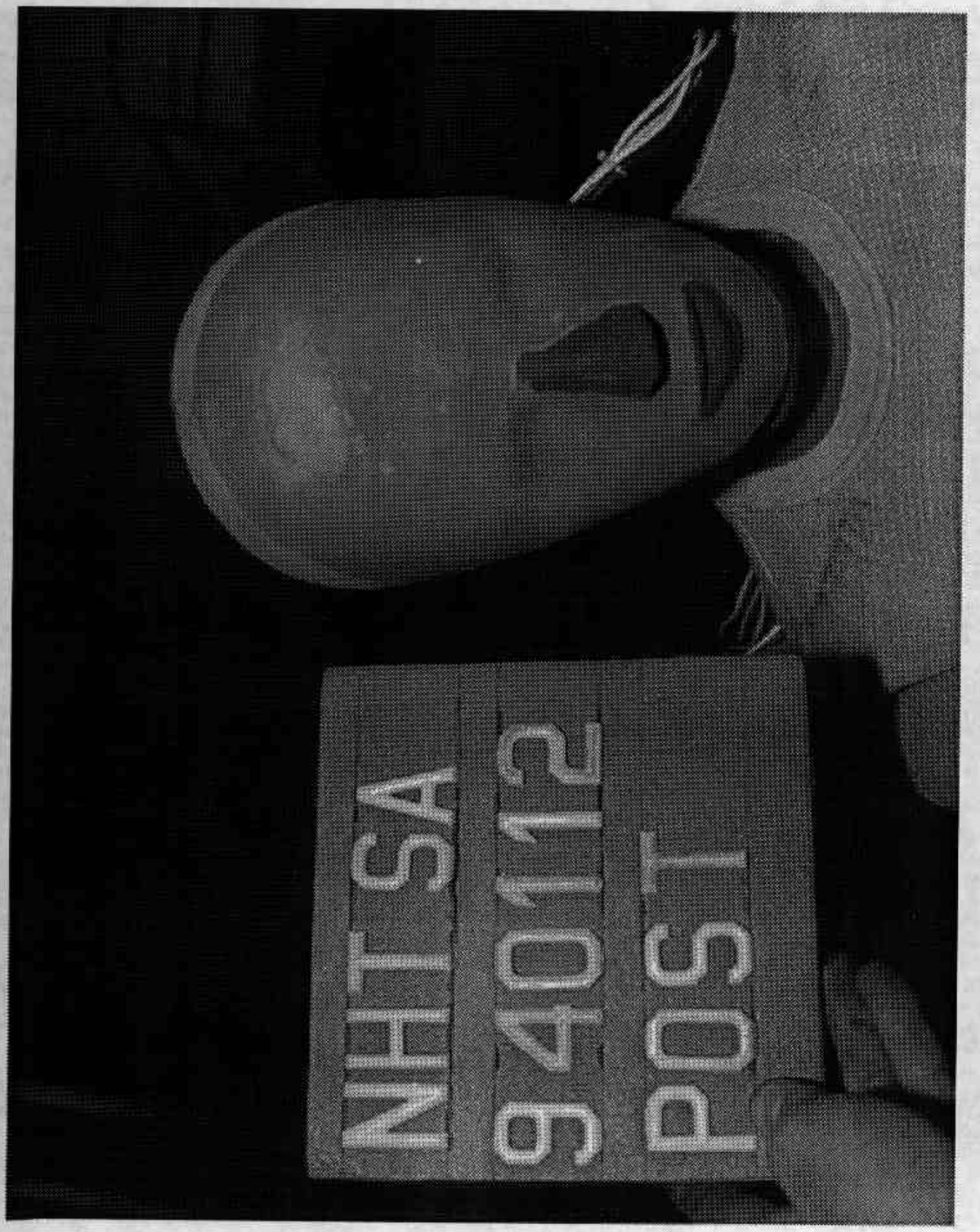


Figure A-49. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1

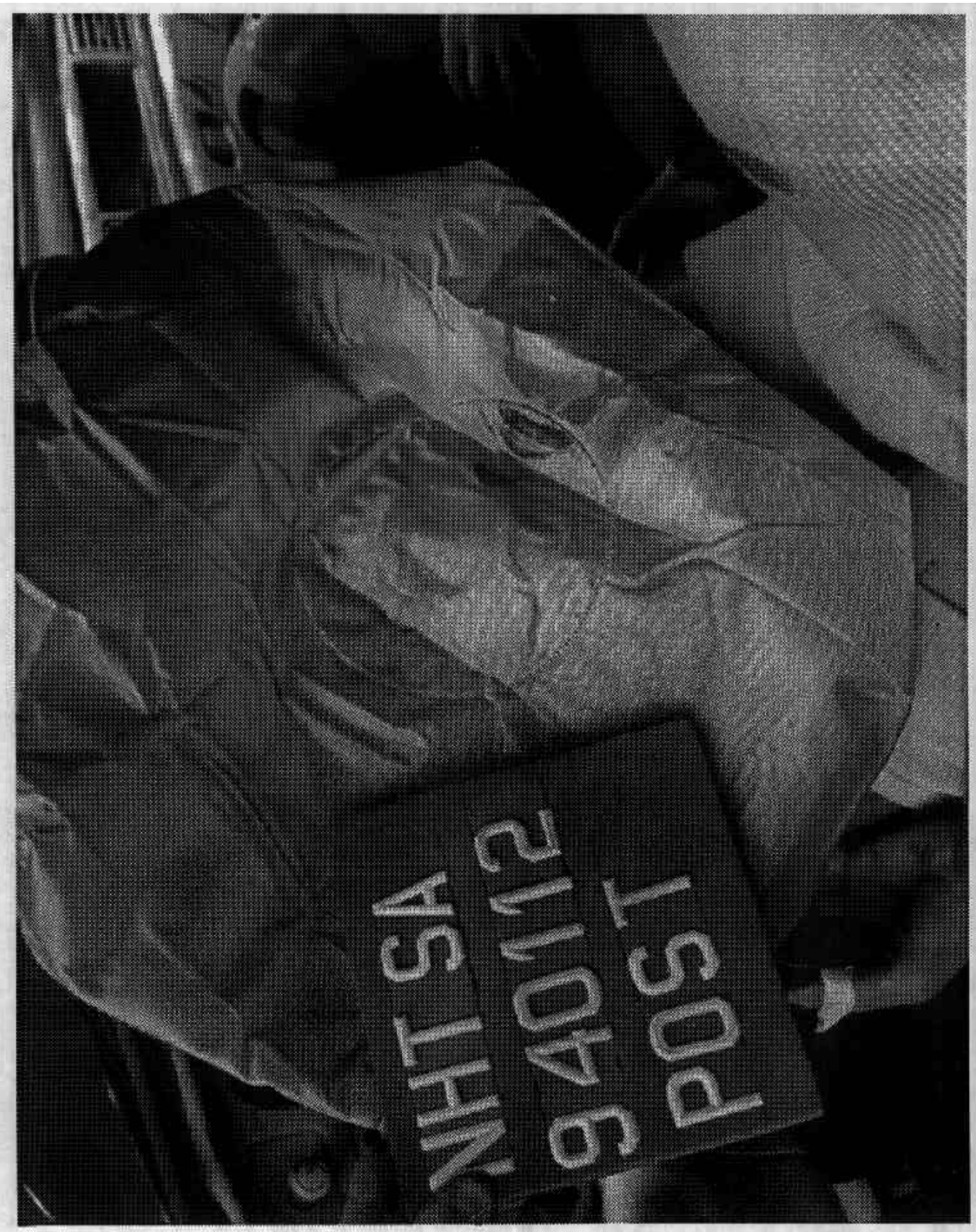


Figure A-50. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 2

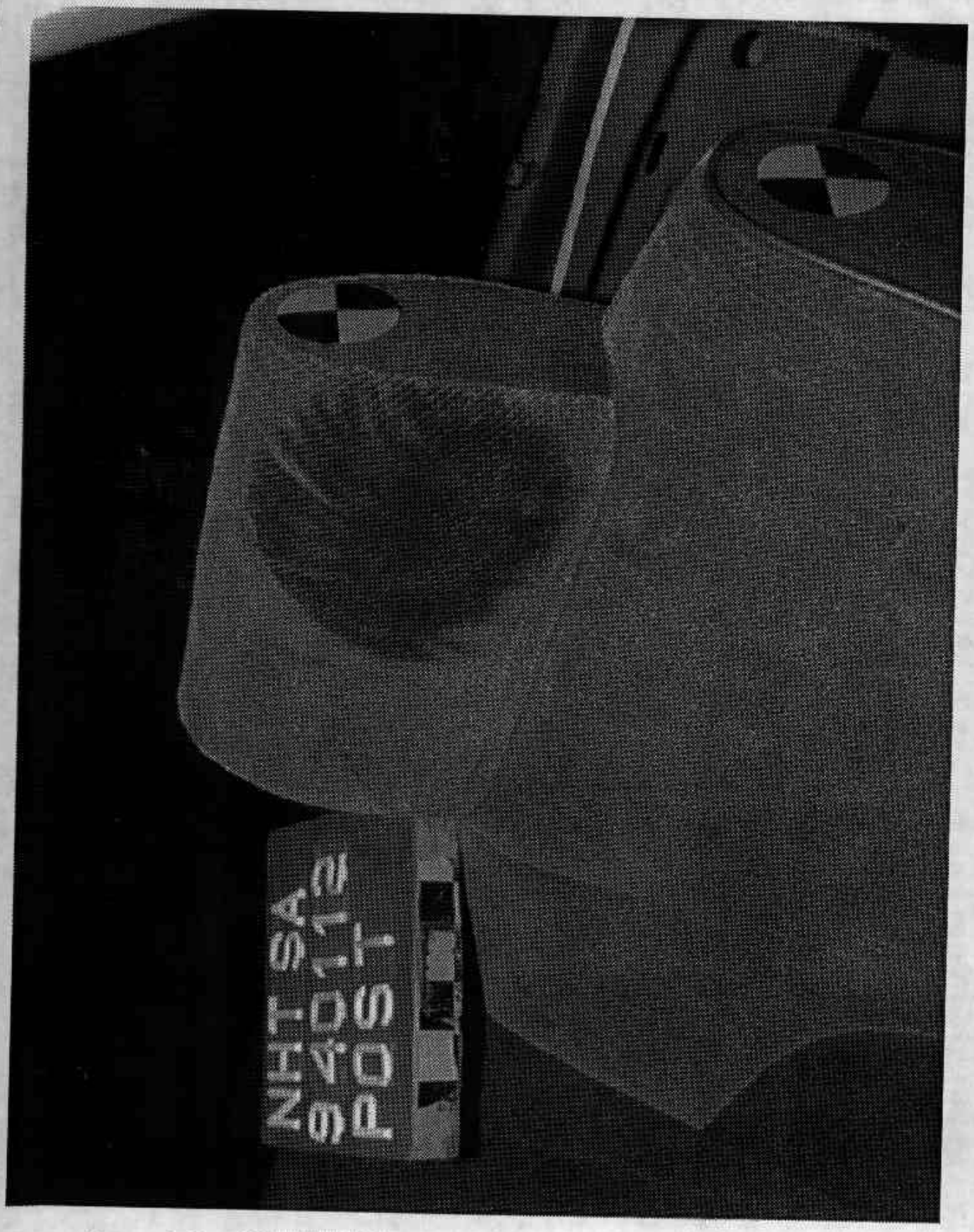


Figure A-51. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 3

Figure A-52. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1

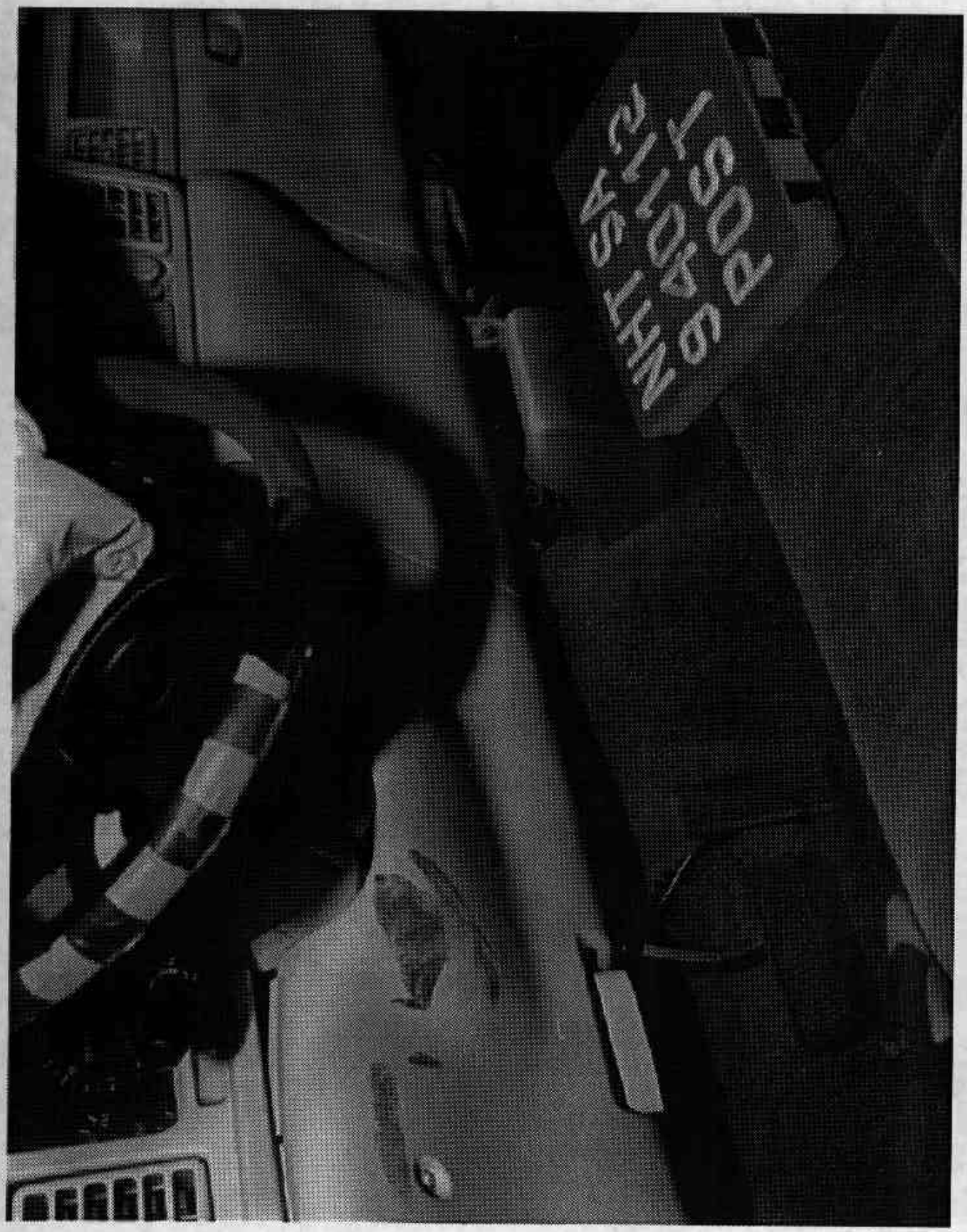


Figure A-53. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2

Figure A-54. POST-TEST PASSENGER DUMMY HEAD CONTACT-VIEW 1

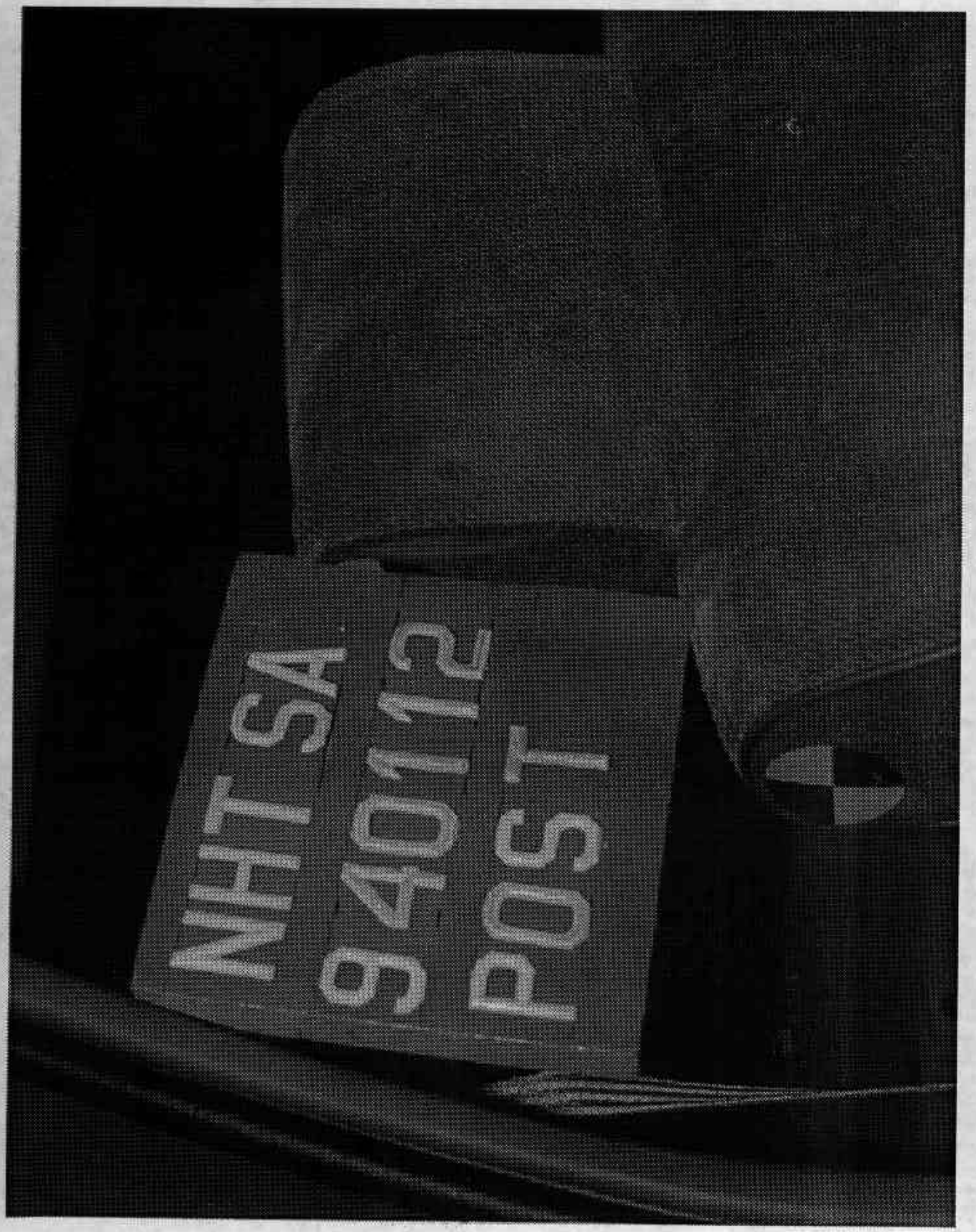


Figure A-55. POST-TEST PASSENGER DUMMY HEAD CONTACT-VIEW 2

Fig. A-56. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1

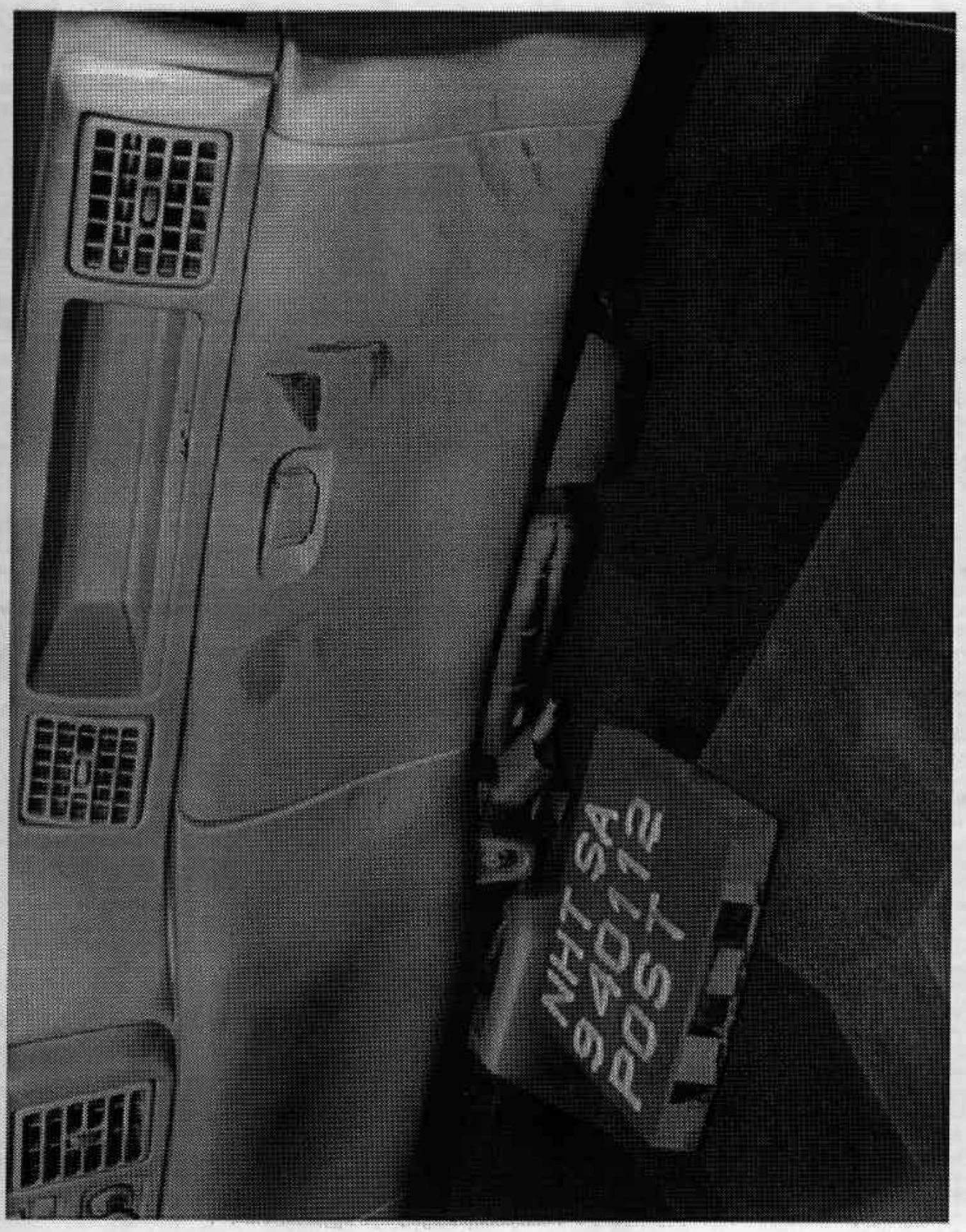


Fig. A-57. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2

Fig. A-58. PRE-TEST VEH. CERTIFICATION & TIRE PRESSURE LABEL

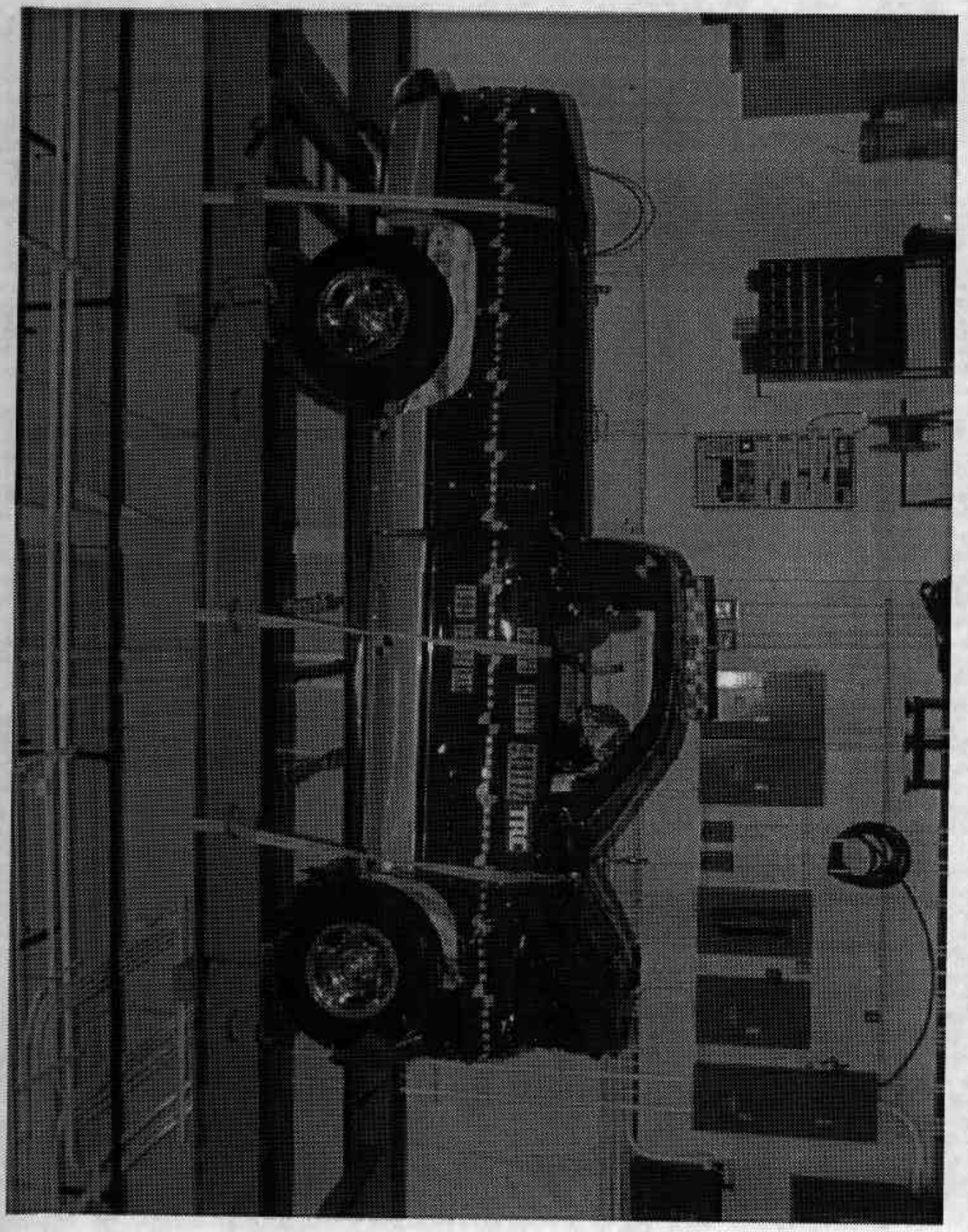


Figure A-59. POST-TEST VEH. ON STATIC ROLLOVER MACHINE VIEW

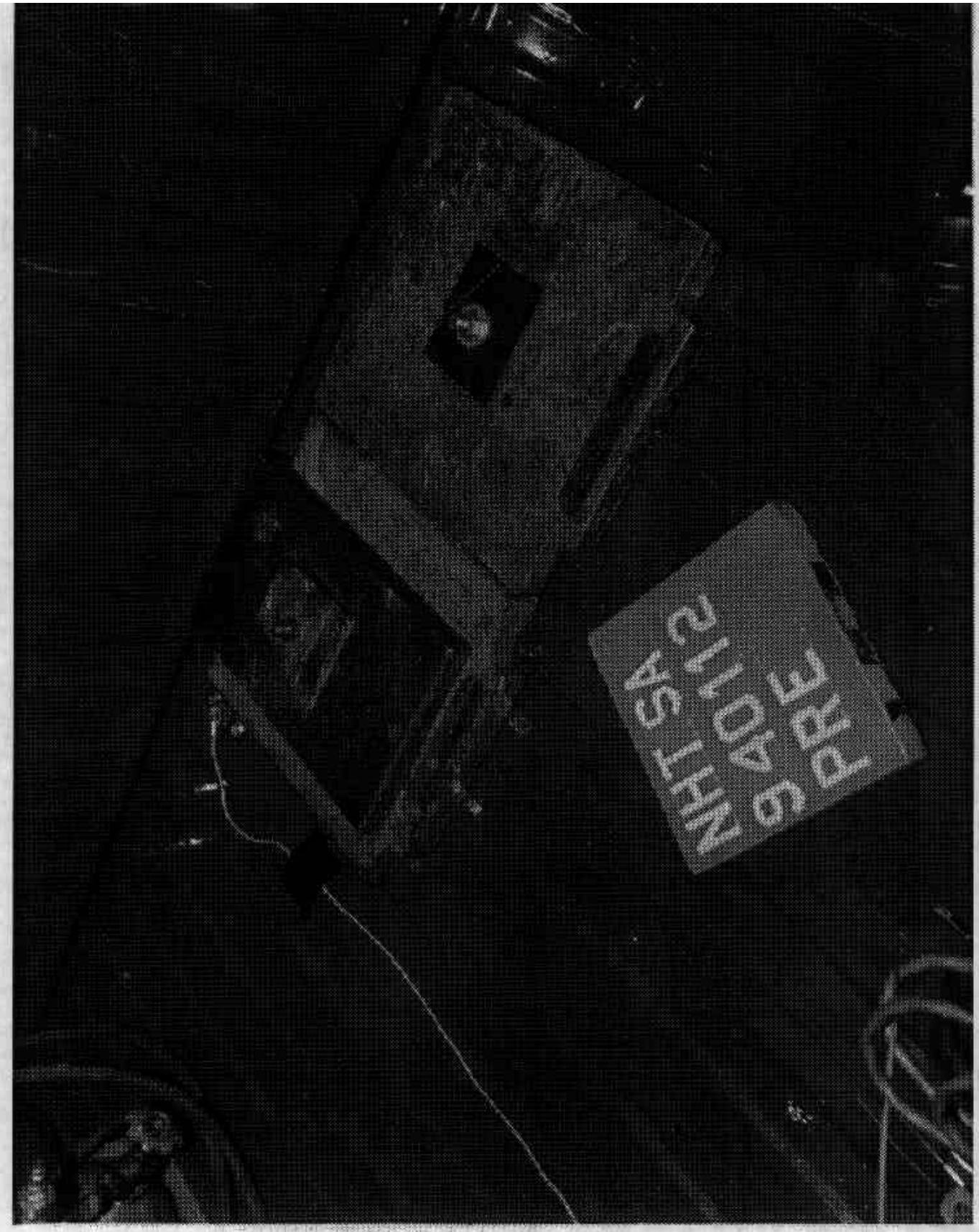
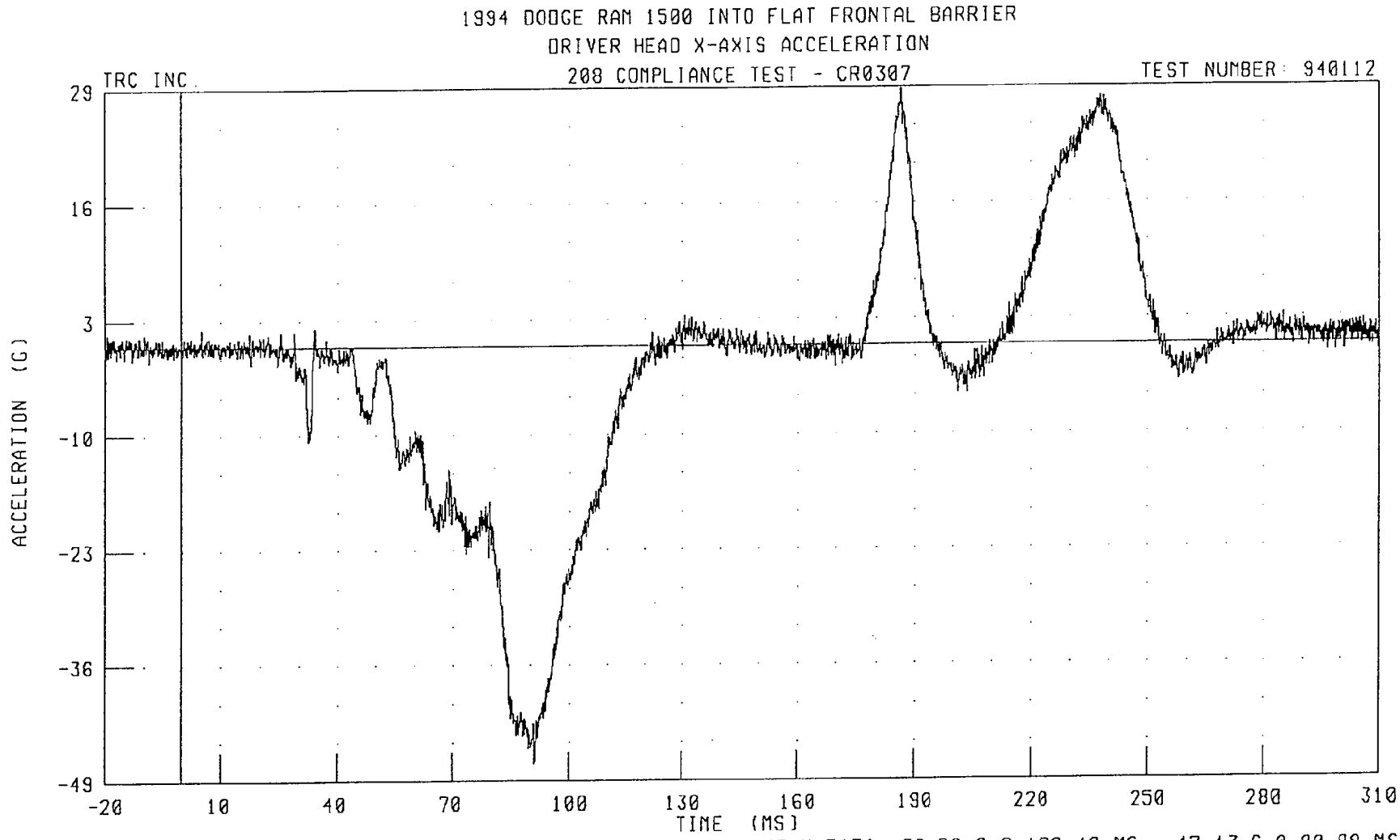
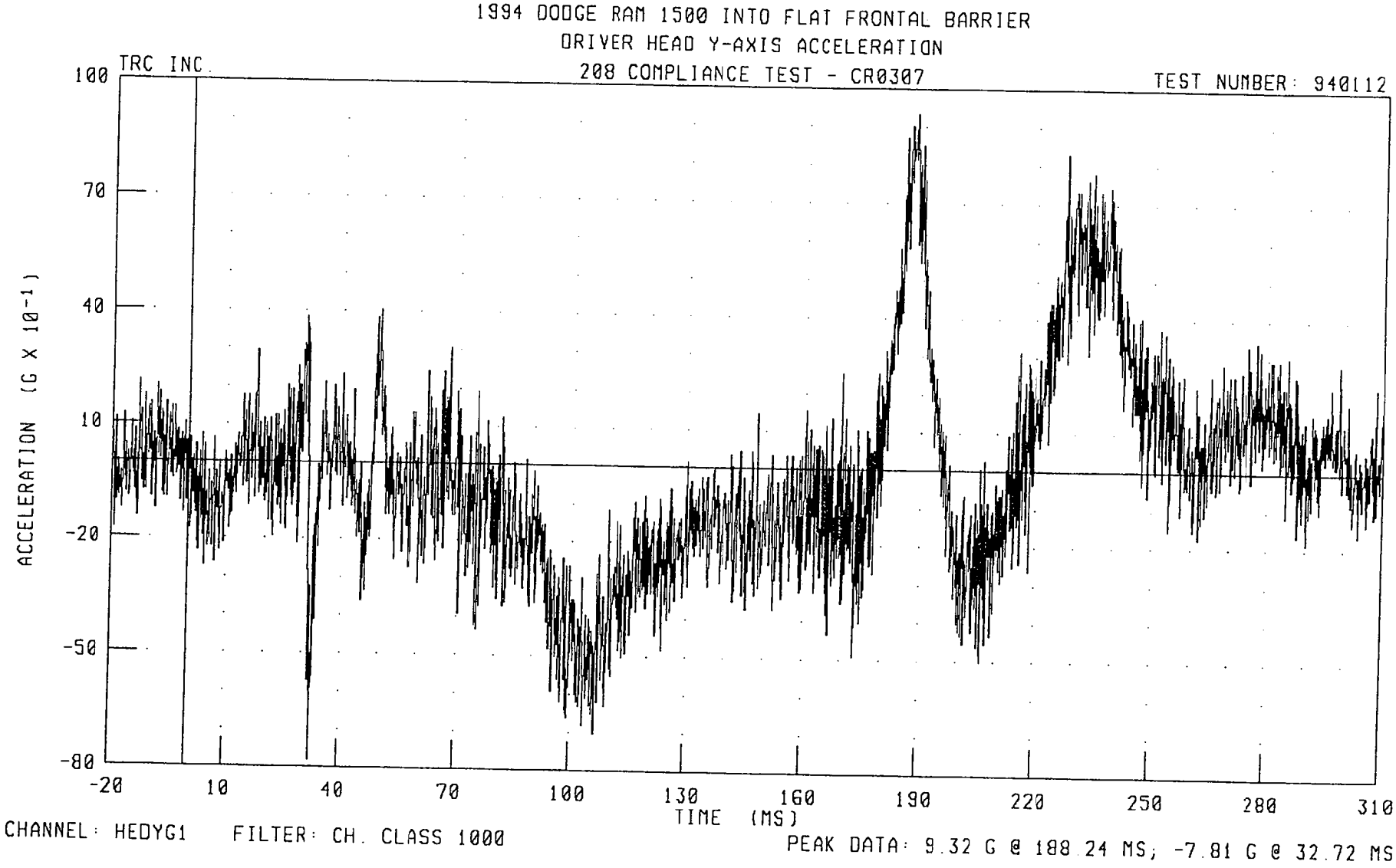


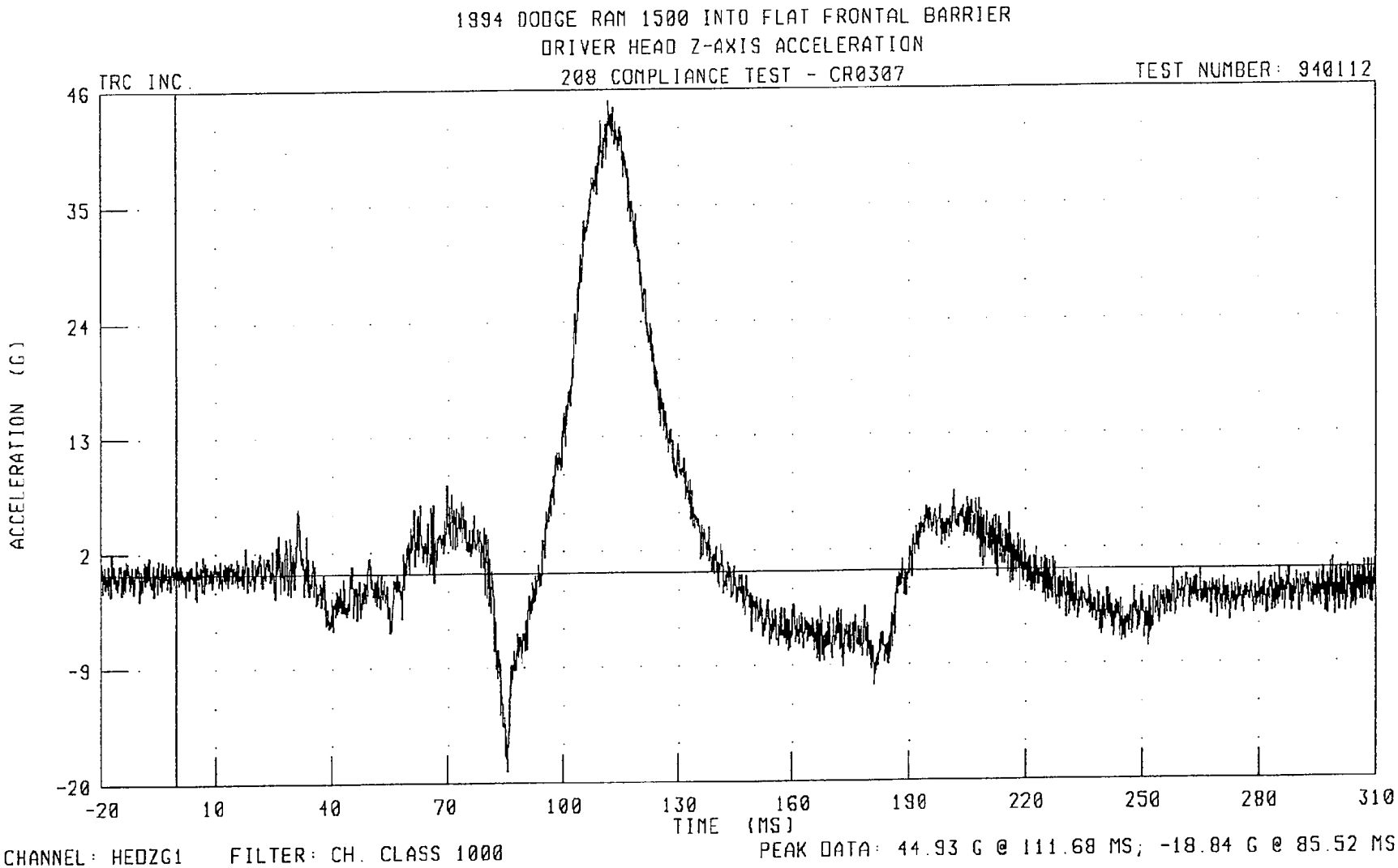
Figure A-60. PRE-TEST BALLAST LOCATION VIEW

APPENDIX B

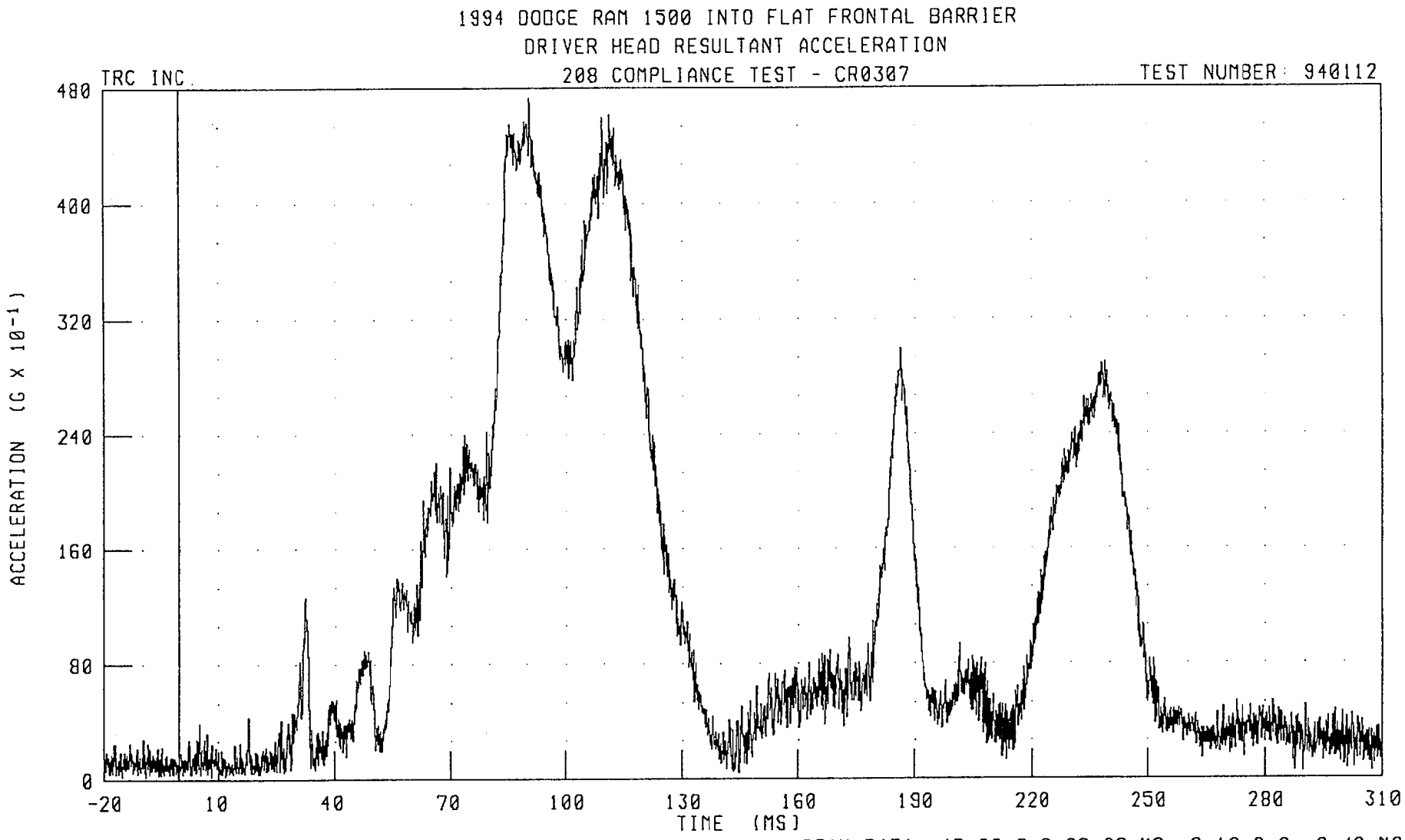
DATA PLOTS


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
29
16
3
-10
-23
-36
-49
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDXG1
FILTER: CH. CLASS 1000
PEAK DATA: 28.79 G @ 186.40 MS; -47.13 G @ 90.88 MS

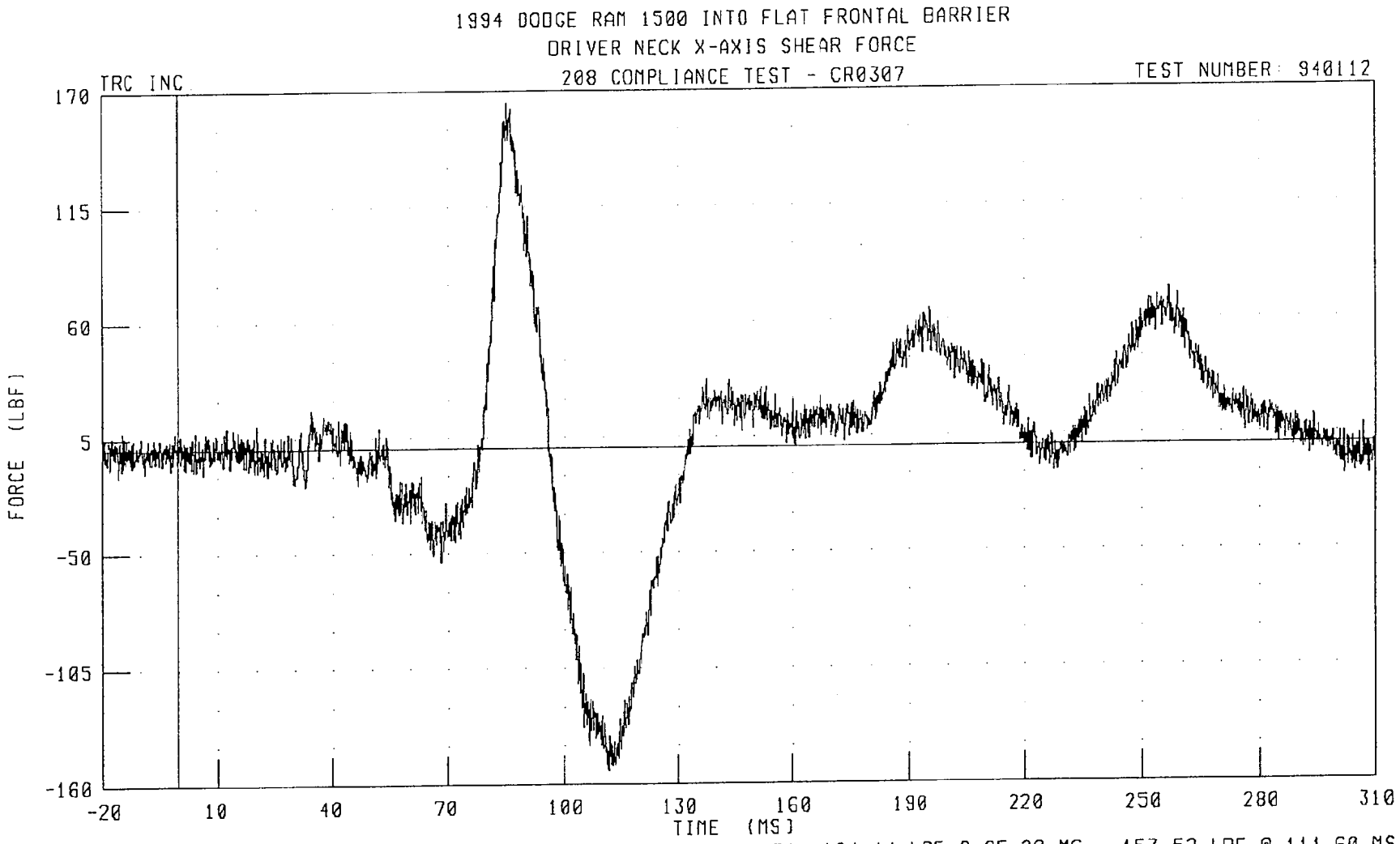

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
ACCELERATION (G X 10-1)
100
70
40
10
-20
-50
-80
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYG1
FILTER: CH. CLASS 1000
PEAK DATA: 9.32 G @ 188.24 MS; -7.81 G @ 32.72 MS


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
ACCELERATION (G)
46
35
24
13
2
-9
-20
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZG1
FILTER: CH. CLASS 1000
PEAK DATA: 44.93 G @ 111.68 MS; -18.84 G @ 85.52 MS

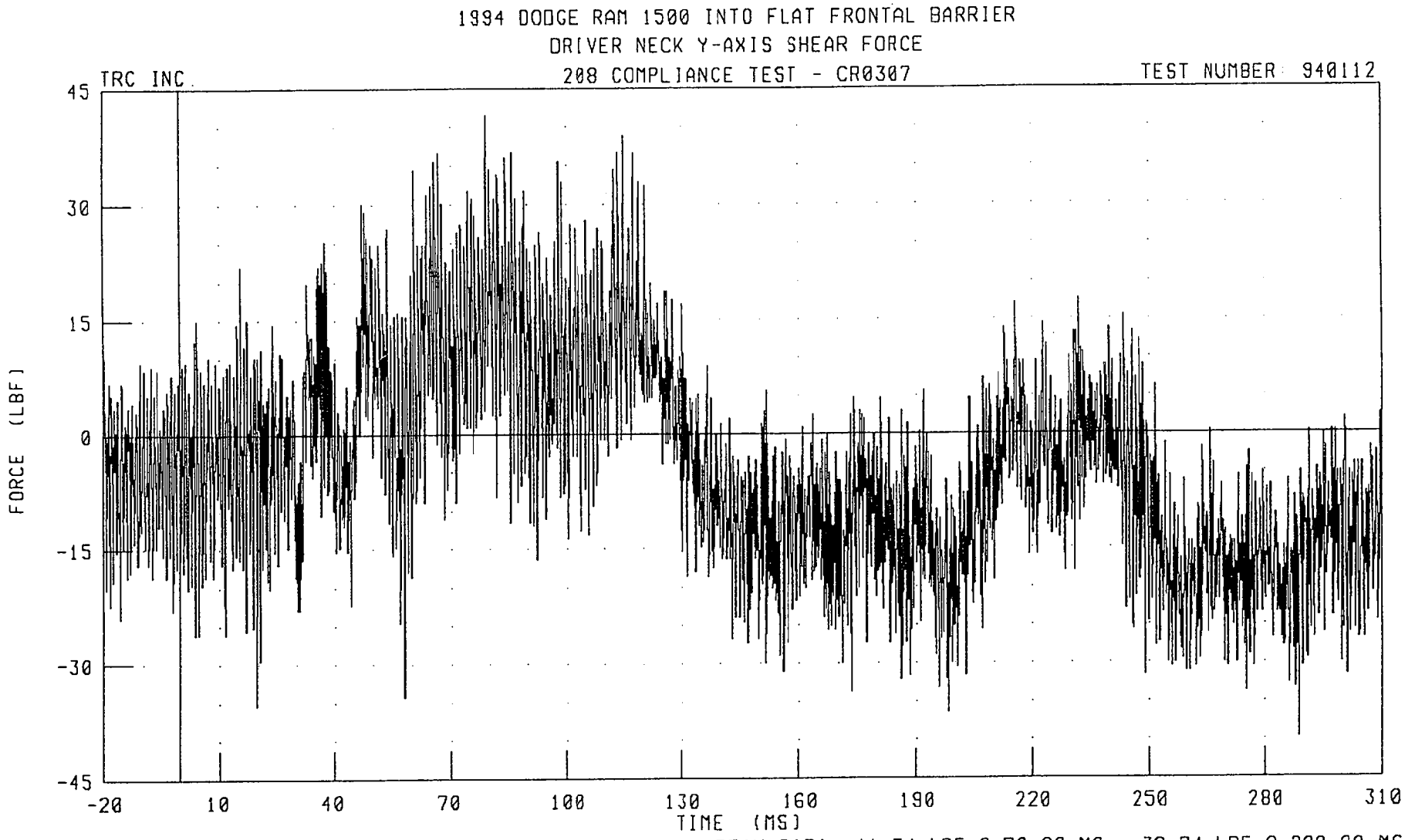
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
ACCELERATION (G X 10-1)
480
400
320
240
160
80
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDRG1
FILTER: CH. CLASS 1000
PEAK DATA: 47.28 G @ 90.88 MS; 0.19 G @ -0.40 MS

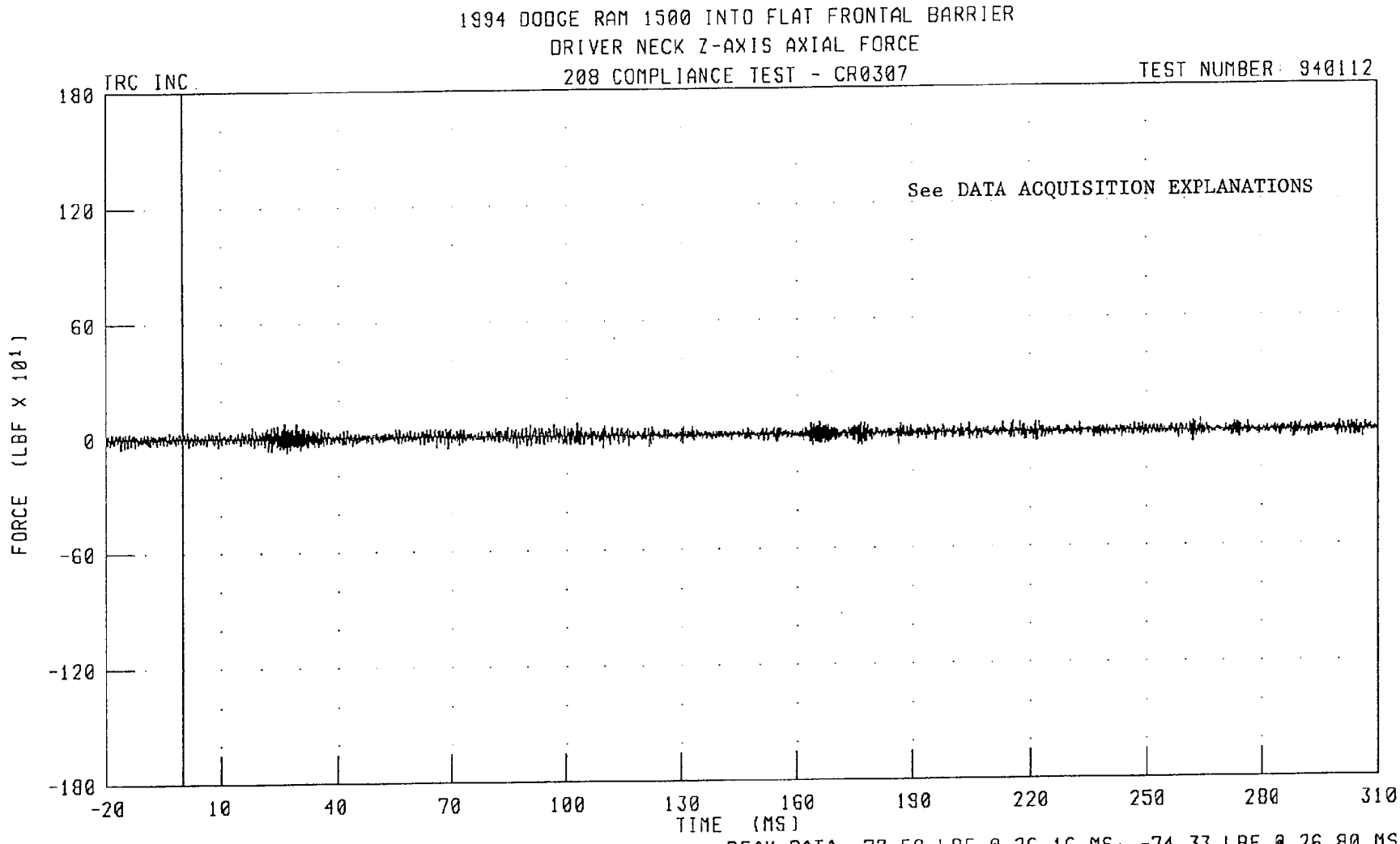
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER NECK X-AXIS SHEAR FORCE
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
170
115
60
5
-50
-105
-160
FORCE (LBF)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKXF1
FILTER: CH. CLASS 1000
PEAK DATA: 164.14 LBF @ 85.20 MS; -153.52 LBF @ 111.60 MS

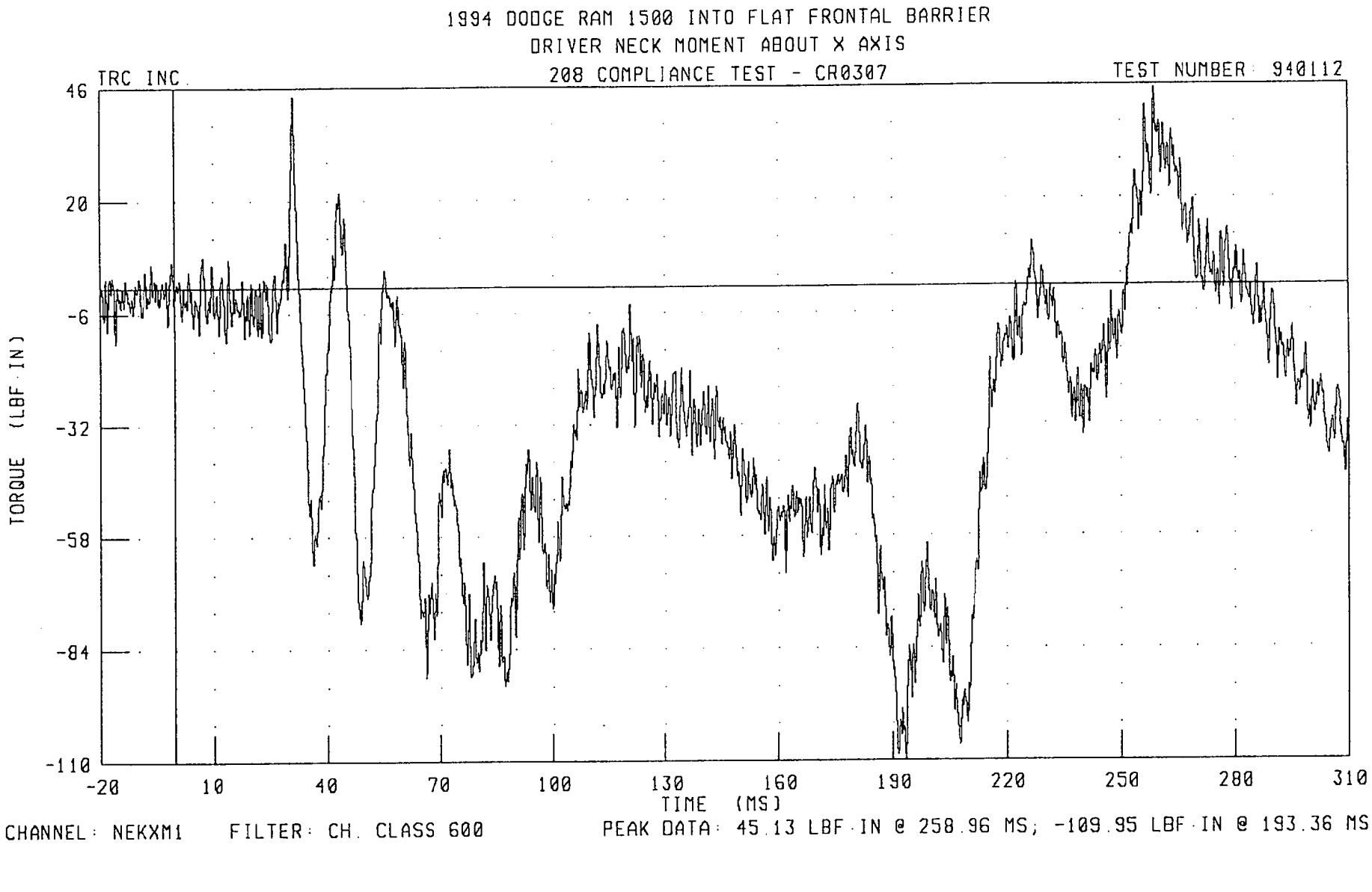
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER NECK Y-AXIS SHEAR FORCE
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
FORCE (LBF)
45
30
15
0
-15
-30
-45
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYF1
FILTER: CH. CLASS 1000
PEAK DATA: 41.54 LBF @ 79.28 MS; -39.74 LBF @ 288.88 MS

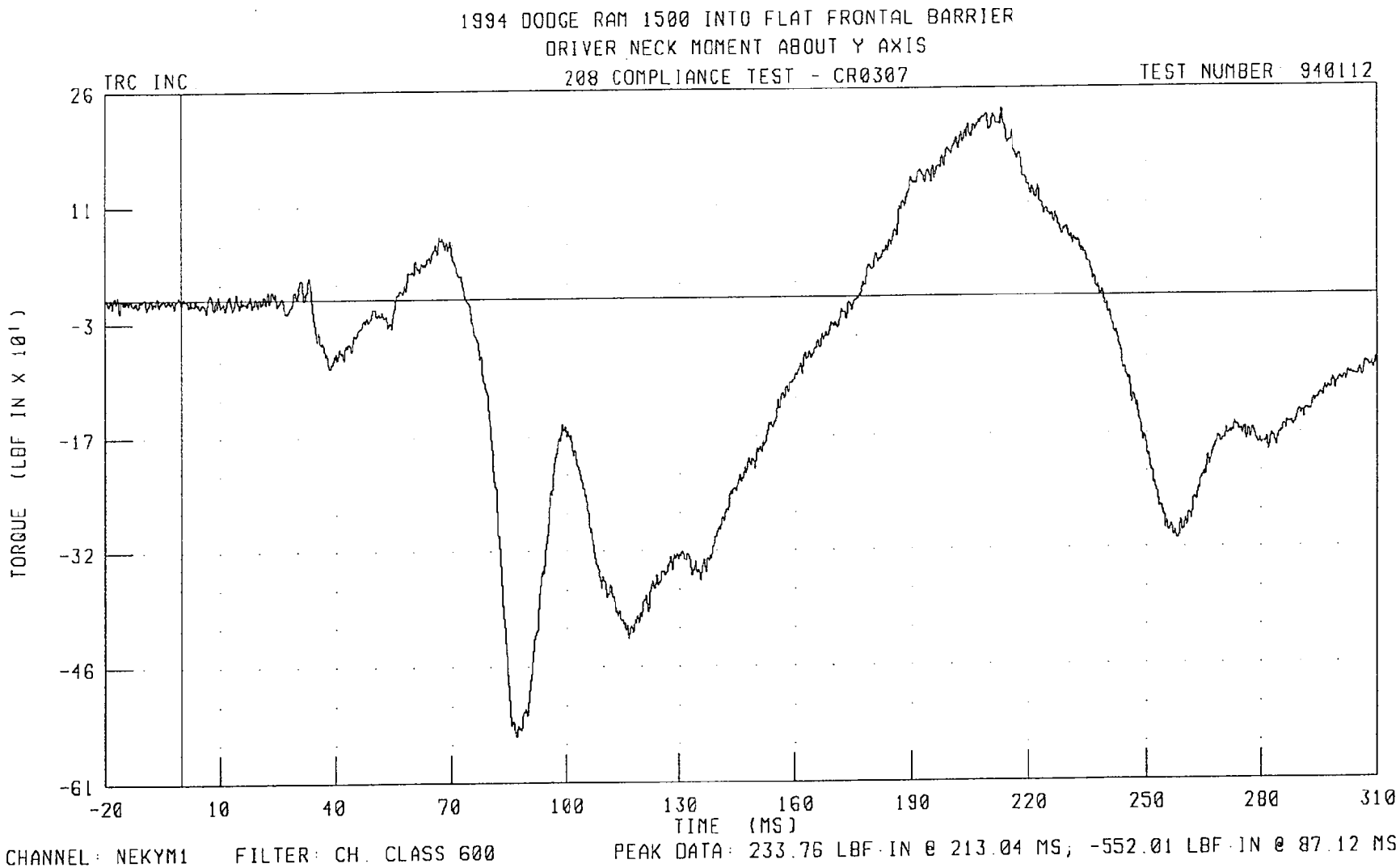
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER NECK Z-AXIS AXIAL FORCE
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
See DATA ACQUISITION EXPLANATIONS
FORCE (LBF X 10¹)
180
120
60
0
-60
-120
-180
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZF1
FILTER: CH, CLASS 1000
PEAK DATA: 77.59 LBF @ 26.16 MS; -74.33 LBF @ 26.80 MS

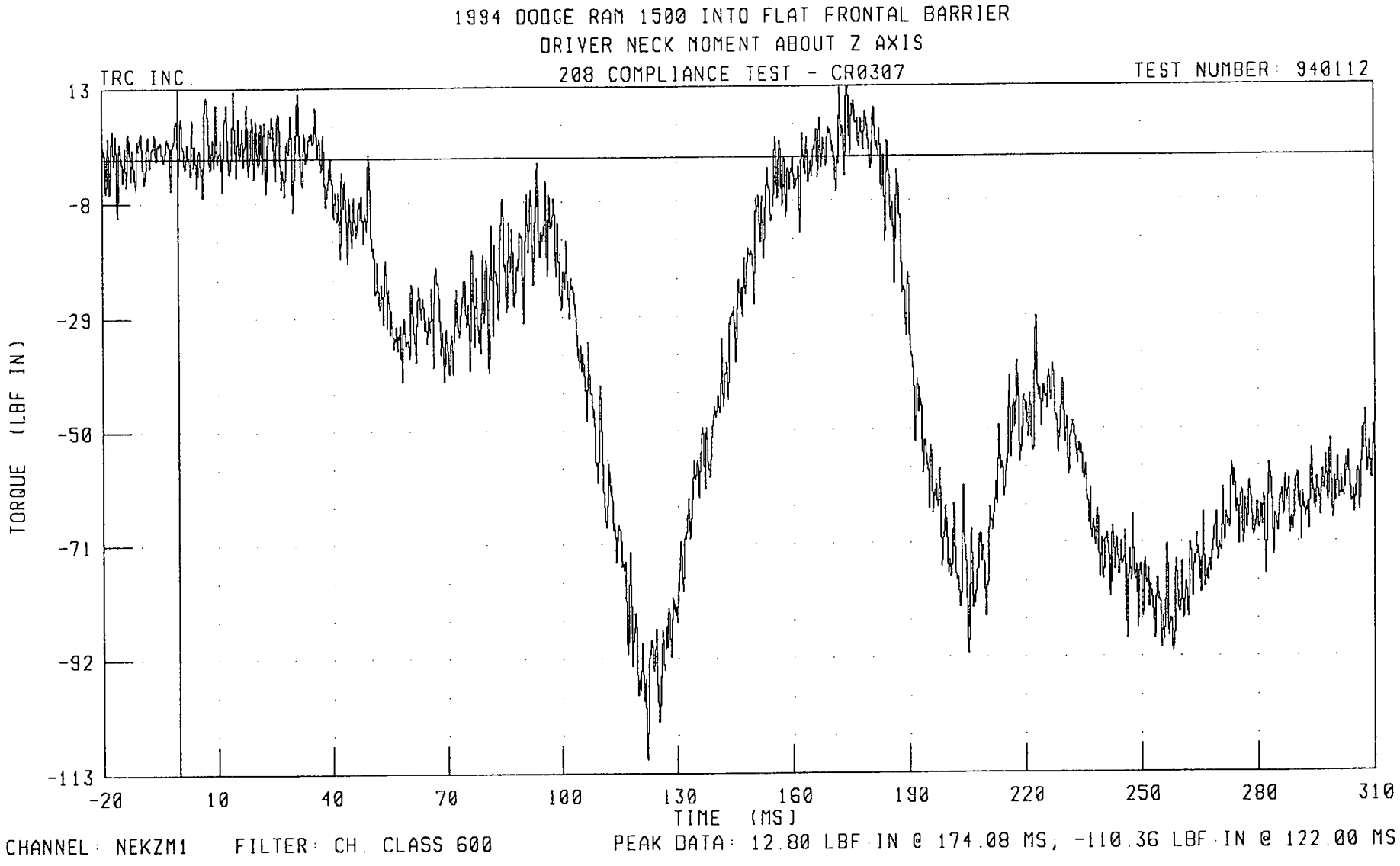
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER NECK MOMENT ABOUT X AXIS
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
46
20
-6
-32
-58
-84
-110
TORQUE (LBF-IN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKXM1
FILTER: CH. CLASS 600
PEAK DATA: 45.13 LBF-IN @ 258.96 MS; -109.95 LBF-IN @ 193.36 MS

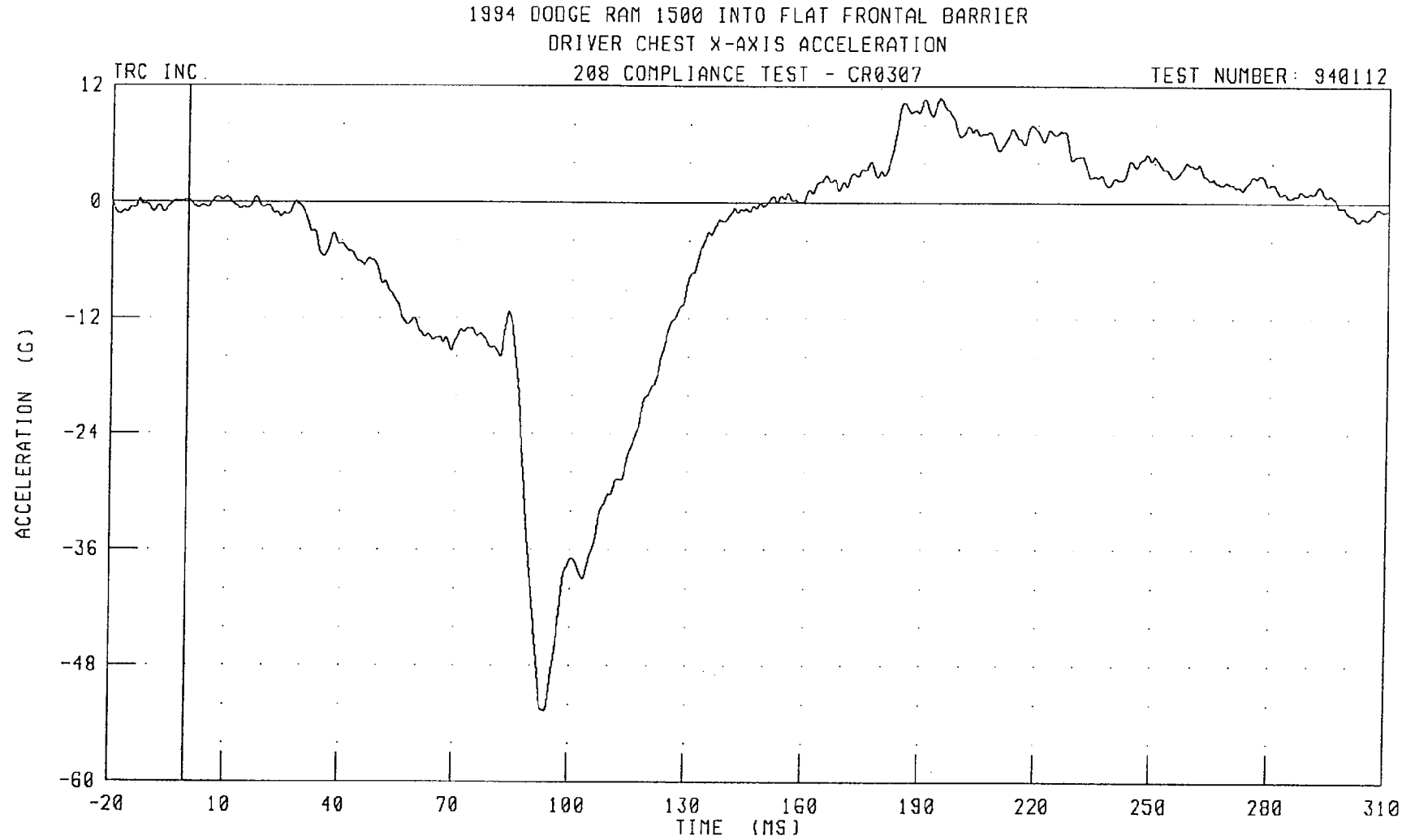
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER NECK MOMENT ABOUT Y AXIS
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER 940112
26
11
-3
-17
-32
-46
-61
TORQUE (LBF IN X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYM1
FILTER: CH. CLASS 600
PEAK DATA: 233.76 LBF-IN @ 213.04 MS; -552.01 LBF-IN @ 87.12 MS

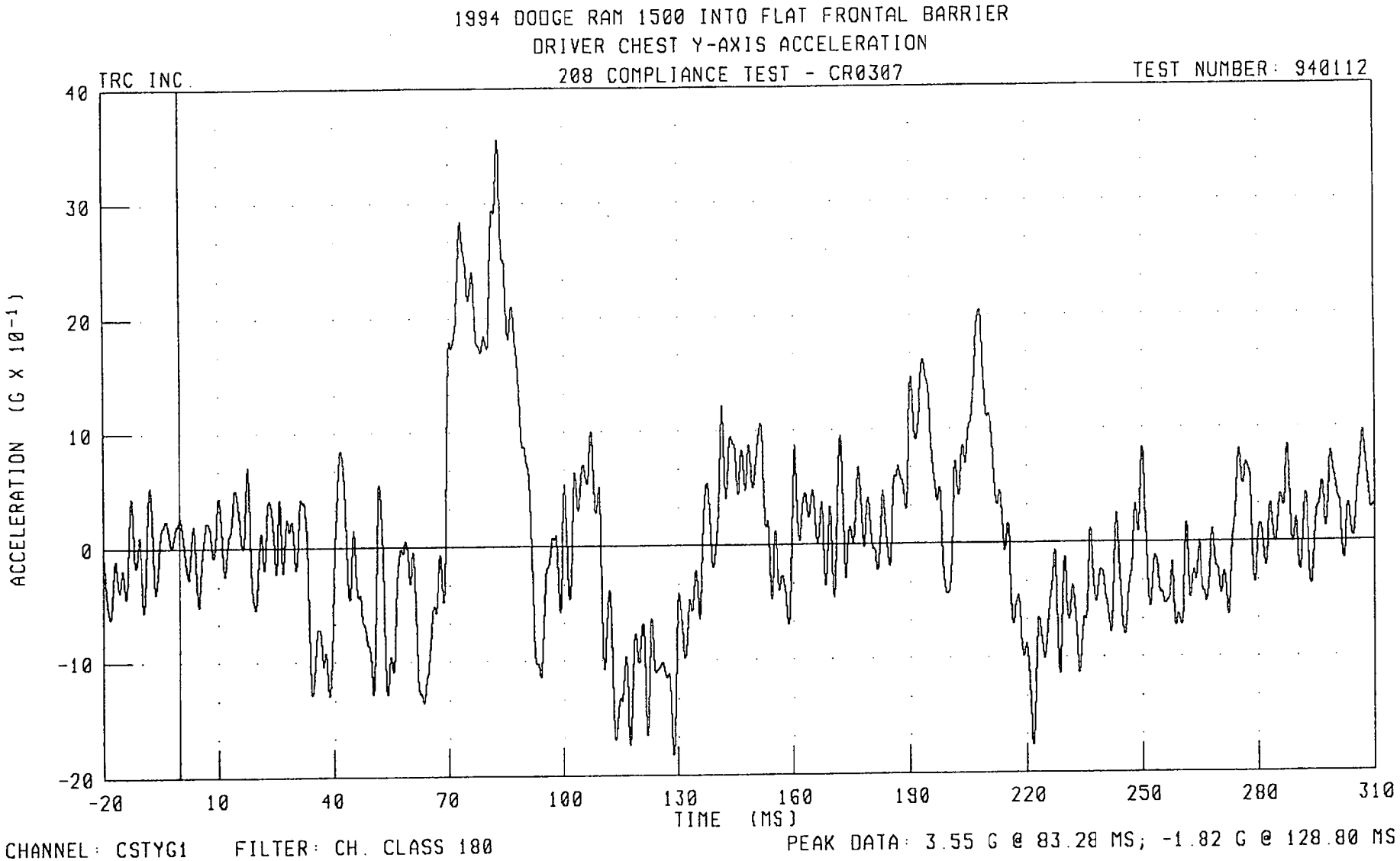
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
13
-8
-29
-50
-71
-92
-113
TORQUE (LBF IN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZM1
FILTER: CH. CLASS 600
PEAK DATA: 12.80 LBF IN @ 174.08 MS, -110.36 LBF IN @ 122.00 MS

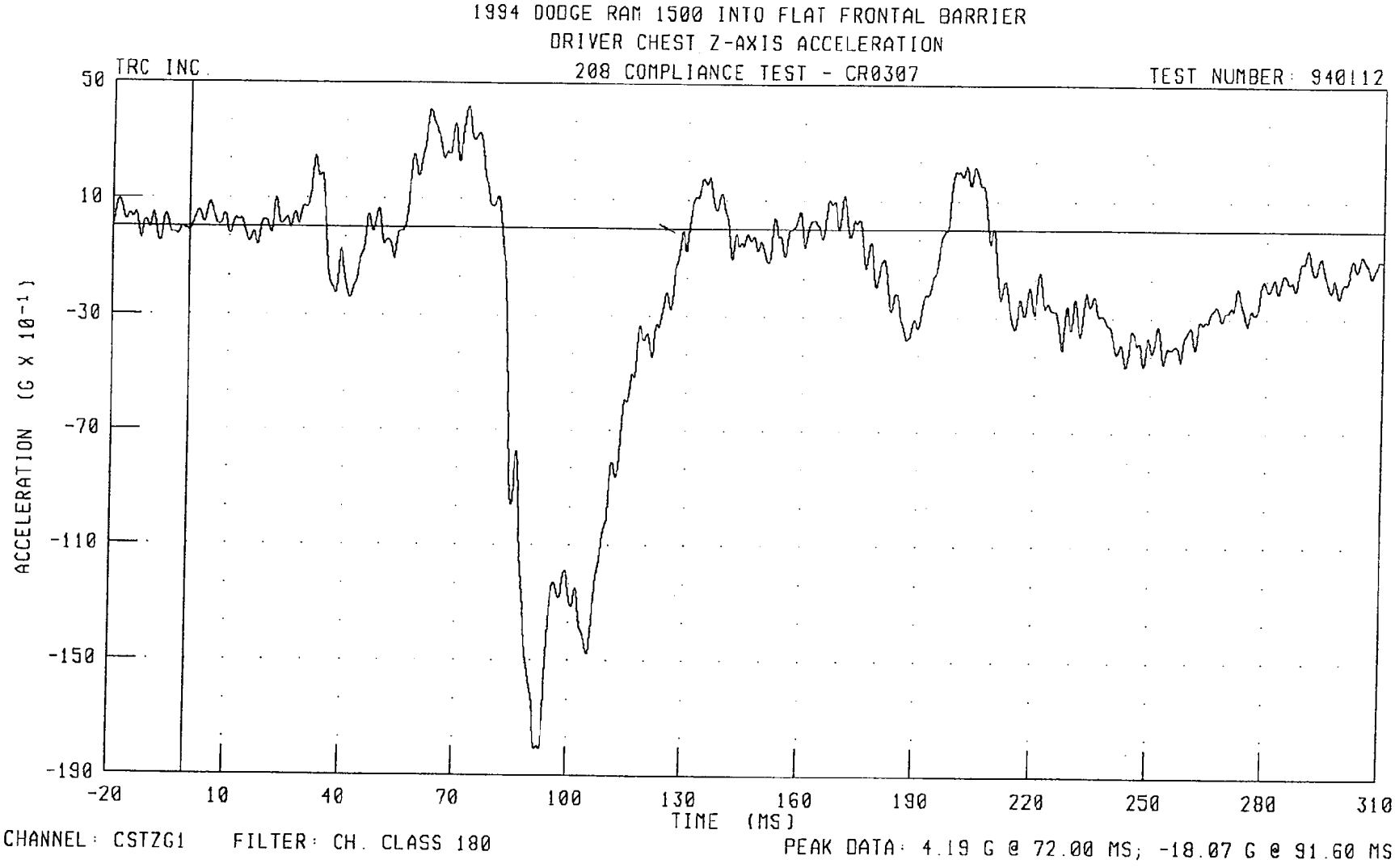
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
TRC INC.
208 COMPLIANCE TEST - CR0307
TEST NUMBER: 940112
12
0
-12
-24
-36
-48
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXG1
FILTER: CH. CLASS 180
PEAK DATA: 10.77 G @ 194.24 MS; -52.66 G @ 94.00 MS

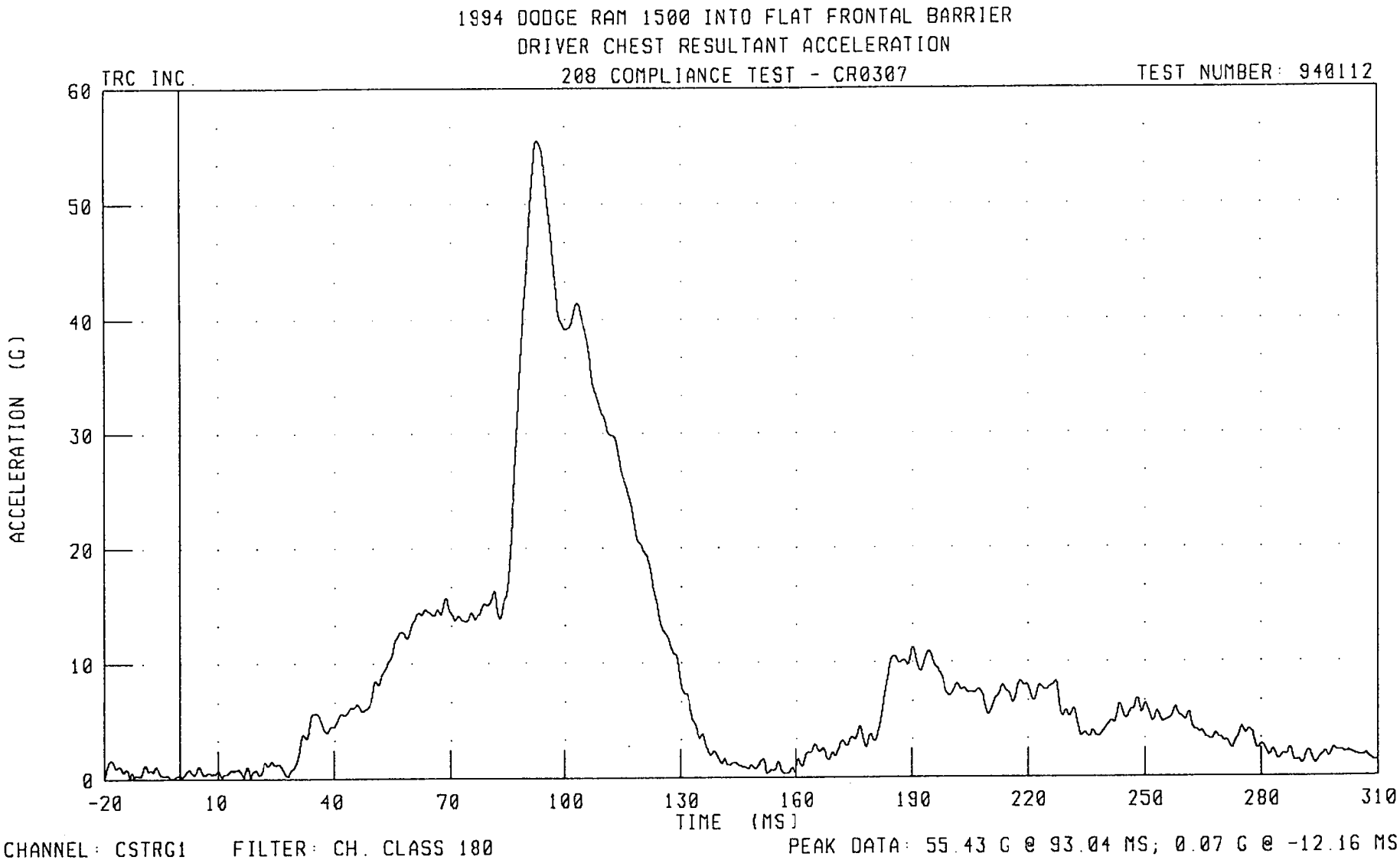
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
ACCELERATION (G X 10-1)
40
30
20
10
0
-10
-20
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTYG1
FILTER: CH. CLASS 180
PEAK DATA: 3.55 G @ 83.28 MS; -1.82 G @ 128.80 MS

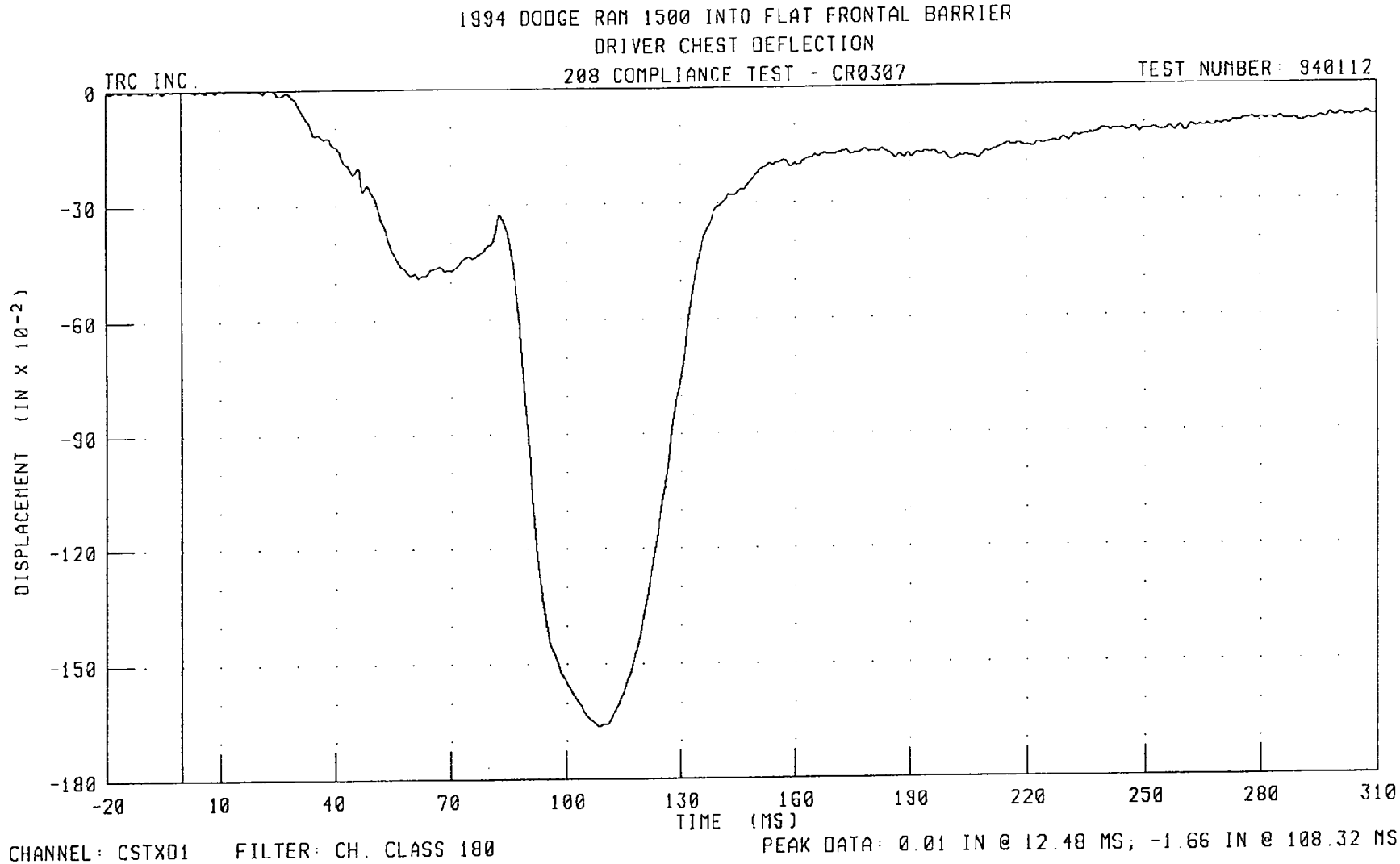
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
50
10
-30
-70
-110
-150
-190
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTZG1
FILTER: CH. CLASS 180
PEAK DATA: 4.19 G @ 72.00 MS; -18.07 G @ 91.60 MS

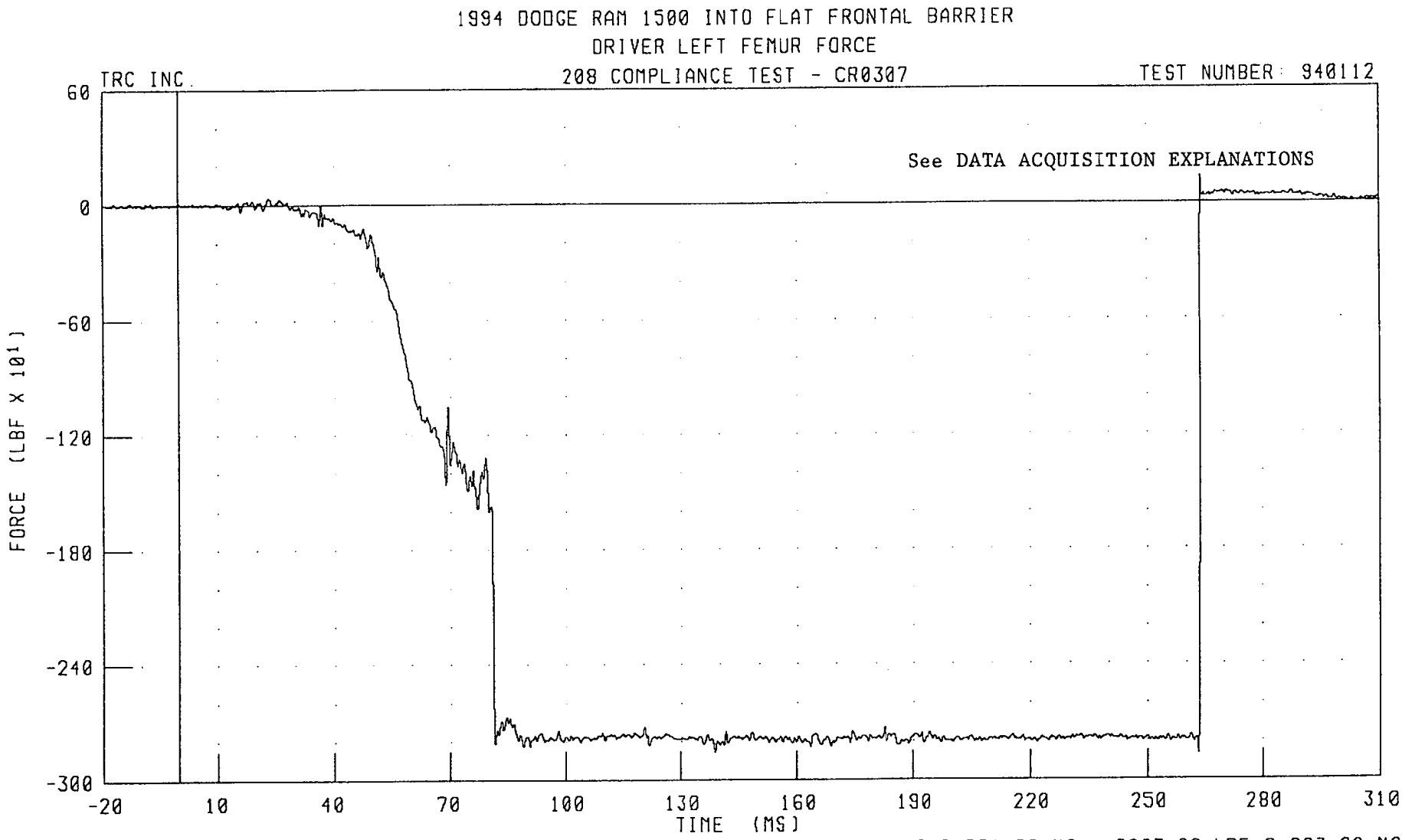
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER CHEST RESULTANT ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
ACCELERATION (G)
60
50
40
30
20
10
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRG1
FILTER: CH. CLASS 180
PEAK DATA: 55.43 G @ 93.04 MS; 0.07 G @ -12.16 MS

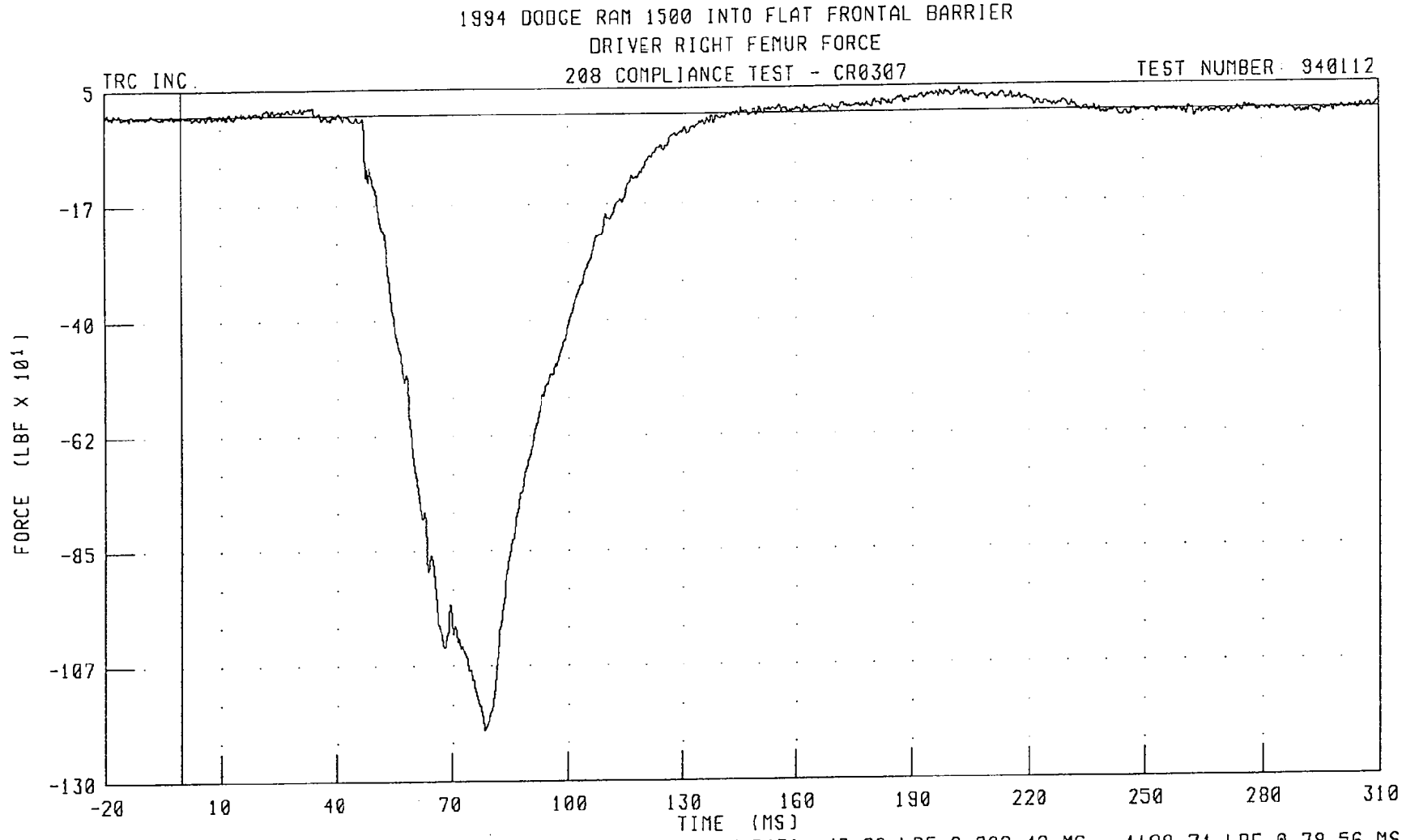
940112

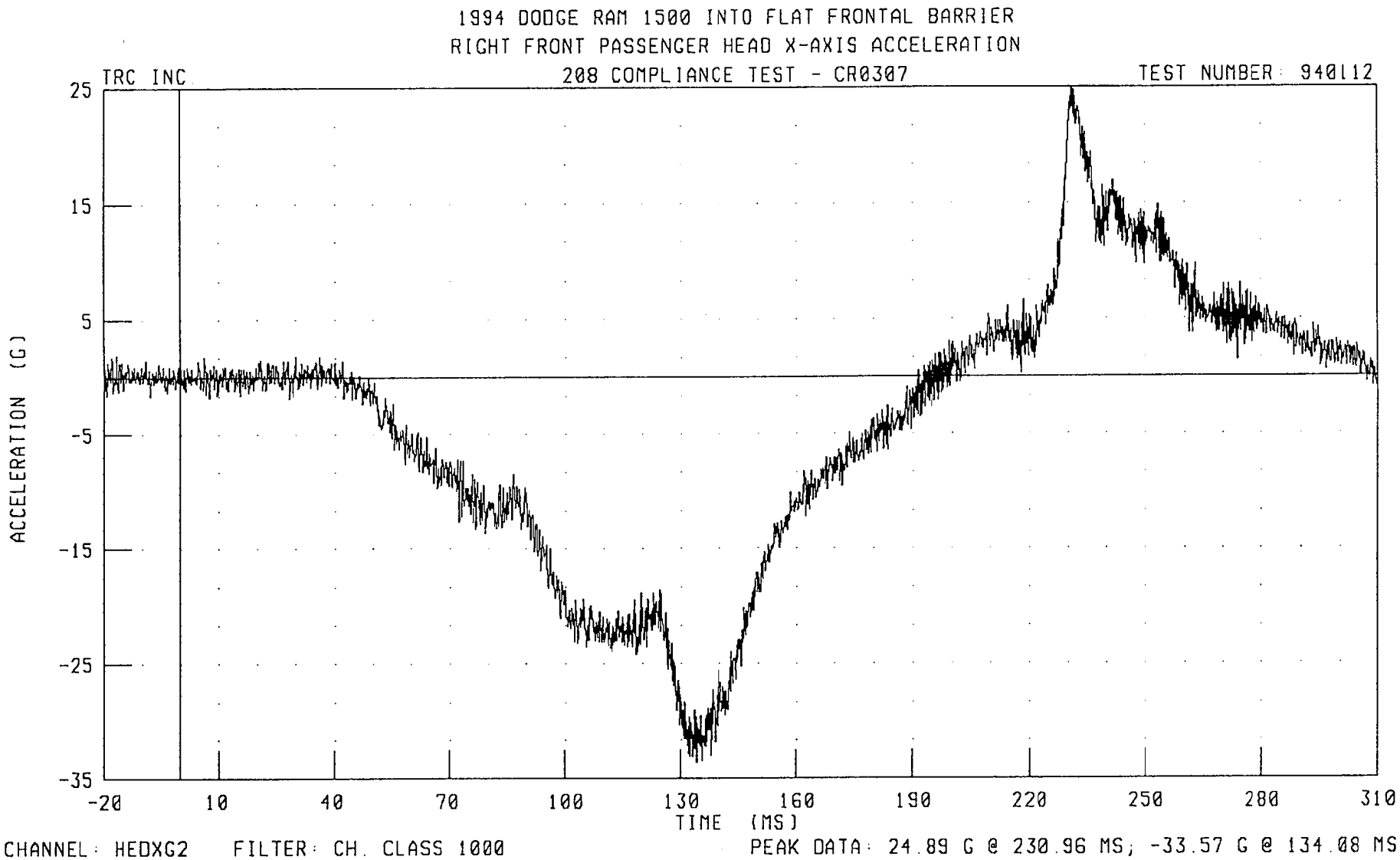

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER CHEST DEFLECTION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
DISPLACEMENT (IN X 10-2)
0
-30
-60
-90
-120
-150
-180
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXD1
FILTER: CH. CLASS 180
PEAK DATA: 0.01 IN @ 12.48 MS; -1.66 IN @ 108.32 MS

940112

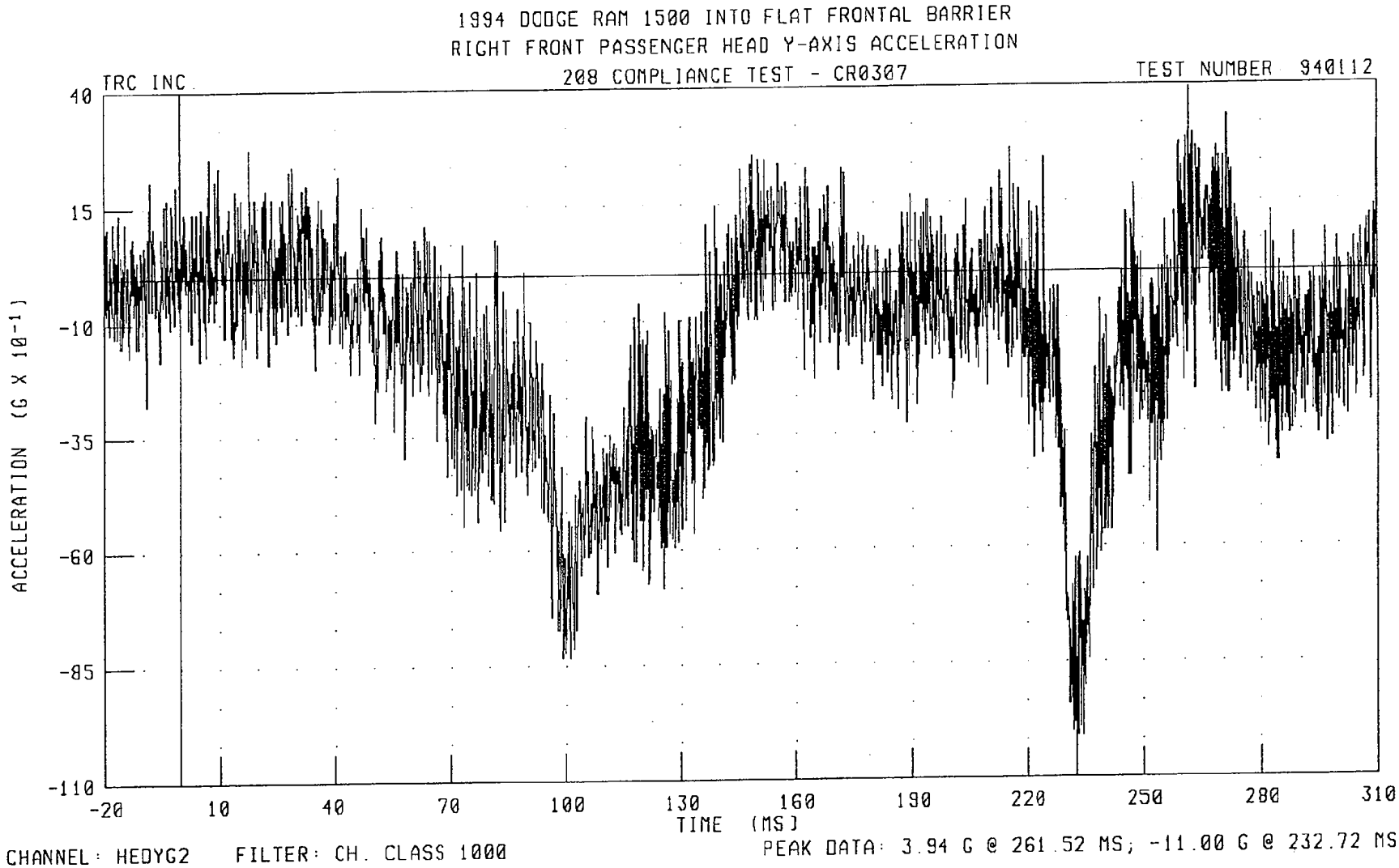

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER LEFT FEMUR FORCE
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
See DATA ACQUISITION EXPLANATIONS
60
0
-60
-120
-180
-240
-300
FORCE (LBF X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFMF1
FILTER: CH. CLASS 600
PEAK DATA: 134.19 LBF @ 264.08 MS; -2863.86 LBF @ 263.20 MS

940112

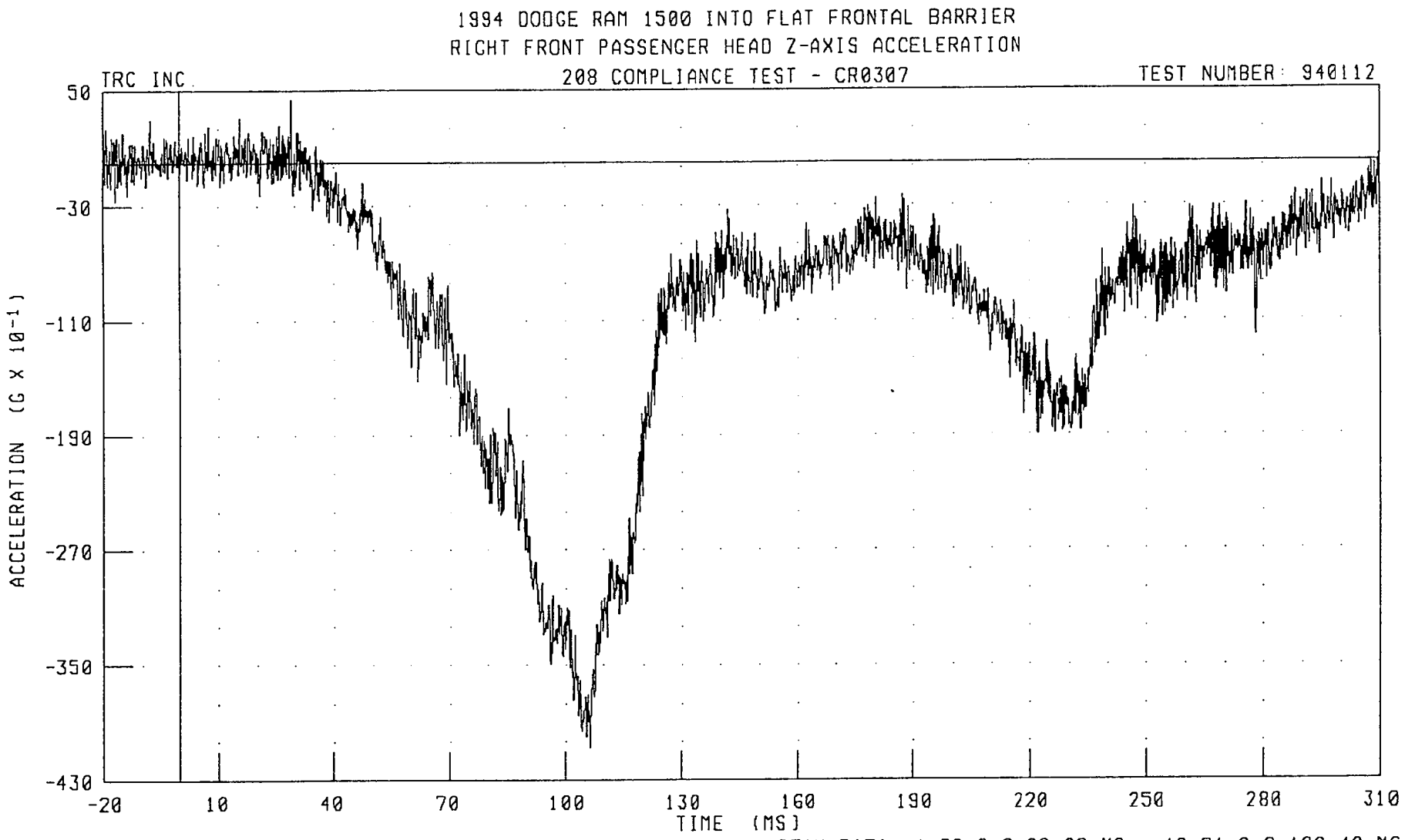

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DRIVER RIGHT FEMUR FORCE
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
FORCE (LBF X 10¹)
5
-17
-40
-62
-85
-107
-130
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMF1
FILTER: CH. CLASS 600
PEAK DATA: 43.60 LBF @ 202.48 MS; -1199.71 LBF @ 78.56 MS


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
ACCELERATION (G)
25
15
5
-5
-15
-25
-35
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDXG2
FILTER: CH. CLASS 1000
PEAK DATA: 24.89 G @ 230.96 MS; -33.57 G @ 134.08 MS

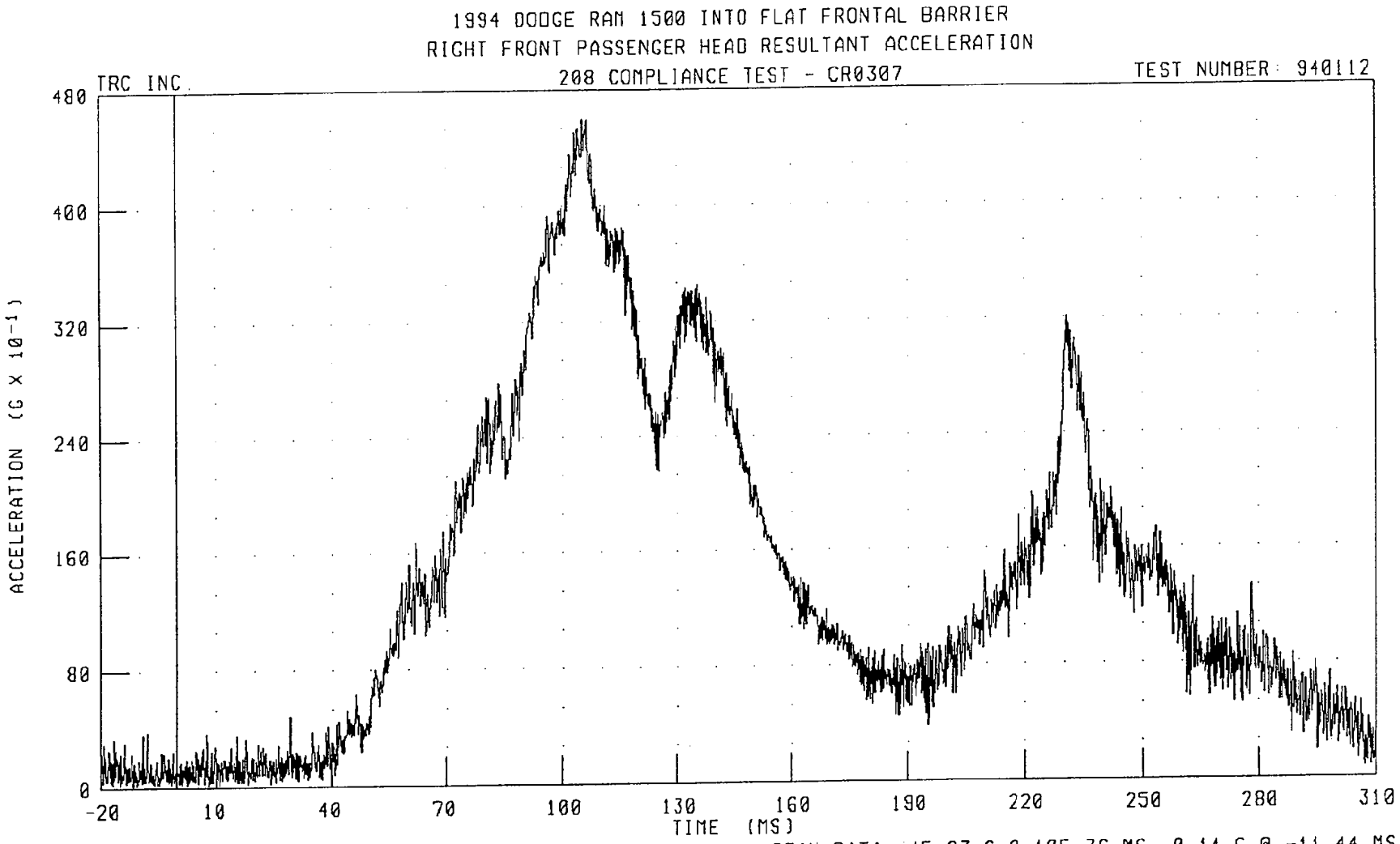
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER 940112
ACCELERATION (G X 10-1)
40
15
-10
-35
-60
-85
-110
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYG2 FILTER: CH. CLASS 1000
PEAK DATA: 3.94 G @ 261.52 MS; -11.00 G @ 232.72 MS

940112

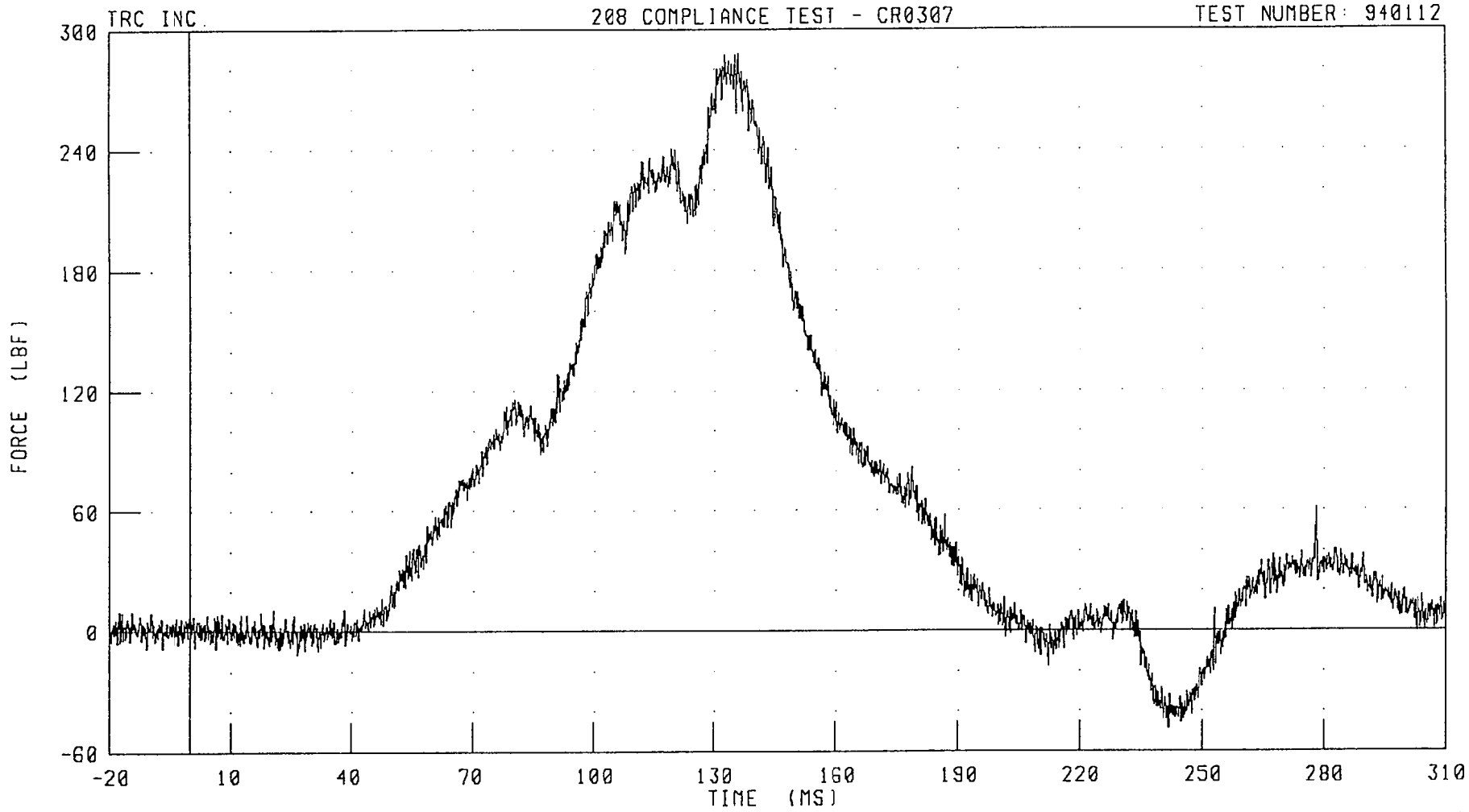

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
ACCELERATION (G X 10-1)
50
-30
-110
-190
-270
-350
-430
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZG2
FILTER: CH. CLASS 1000
PEAK DATA: 4.36 G @ 29.20 MS; -40.71 G @ 106.40 MS

940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
ACCELERATION (G X 10⁻¹)
480
400
320
240
160
80
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDRG2
FILTER: CH. CLASS 1000
PEAK DATA: 45.93 G @ 105.36 MS; 0.14 G @ -11.44 MS

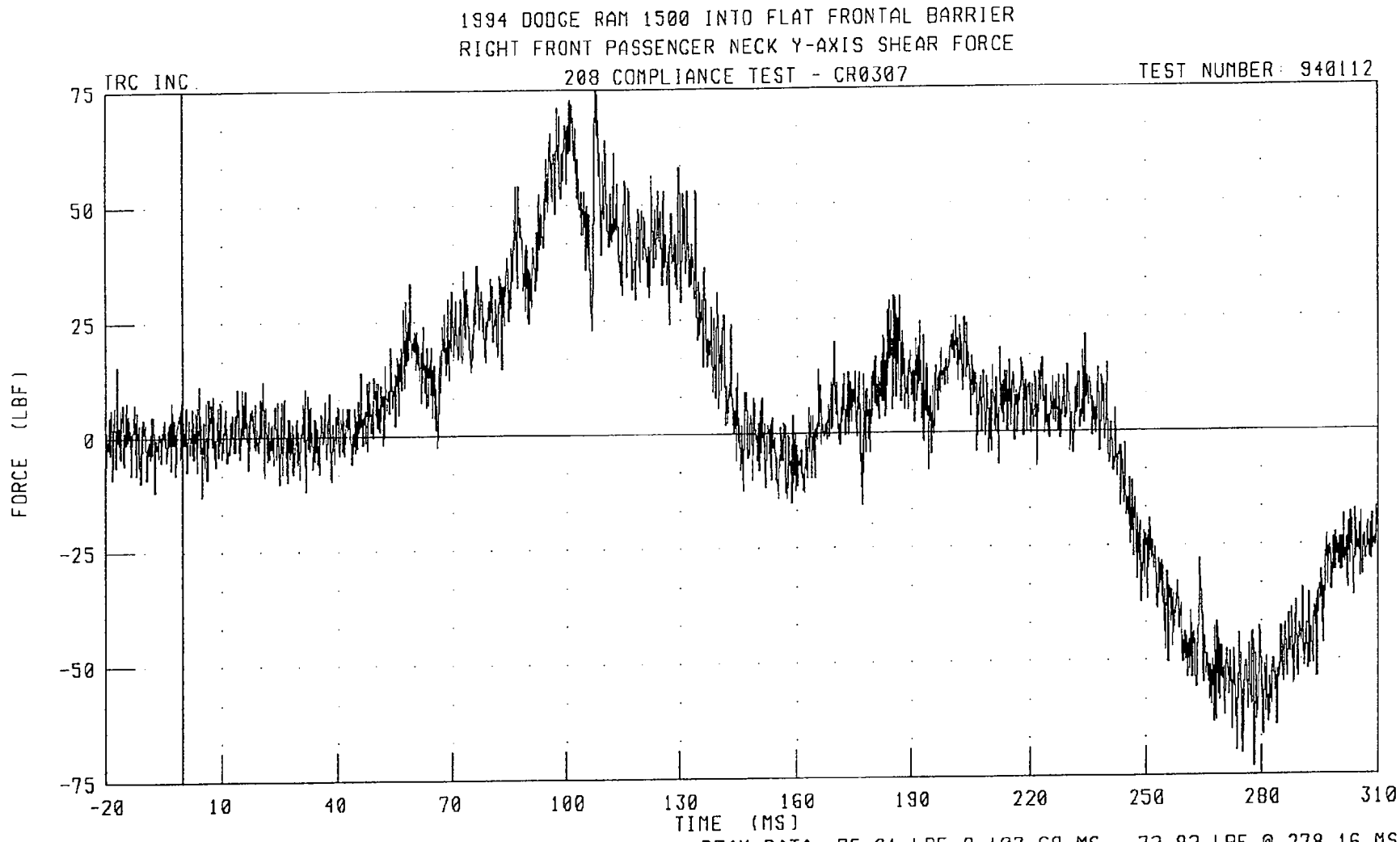
940112

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE
208 COMPLIANCE TEST - CR0307

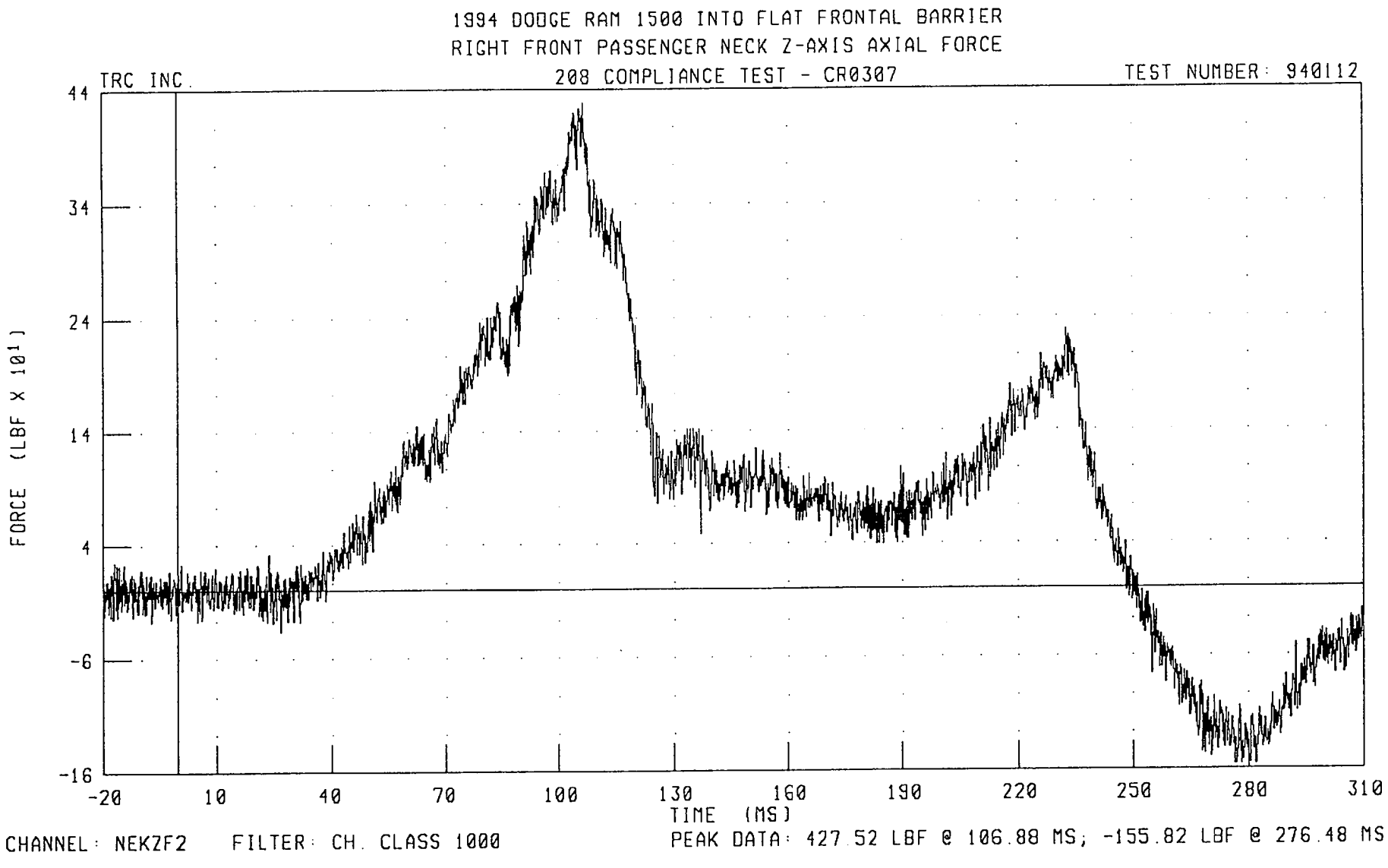


CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 287.78 LBF @ 136.24 MS; -48.85 LBF @ 241.76 MS

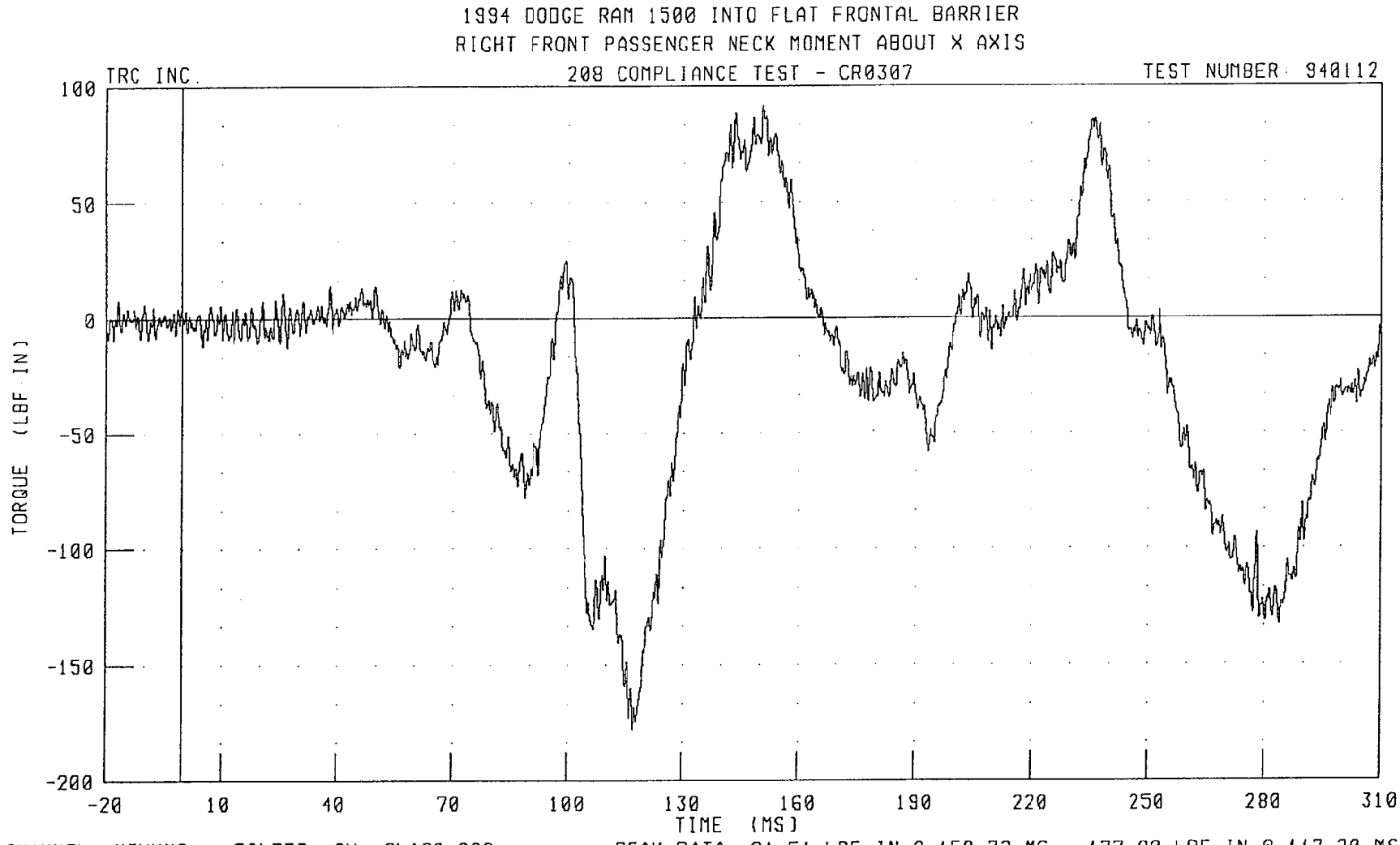
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
75
50
25
0
-25
-50
-75
FORCE (LBF)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYF2
FILTER: CH. CLASS 1000
PEAK DATA: 75.01 LBF @ 107.68 MS; -72.92 LBF @ 278.16 MS

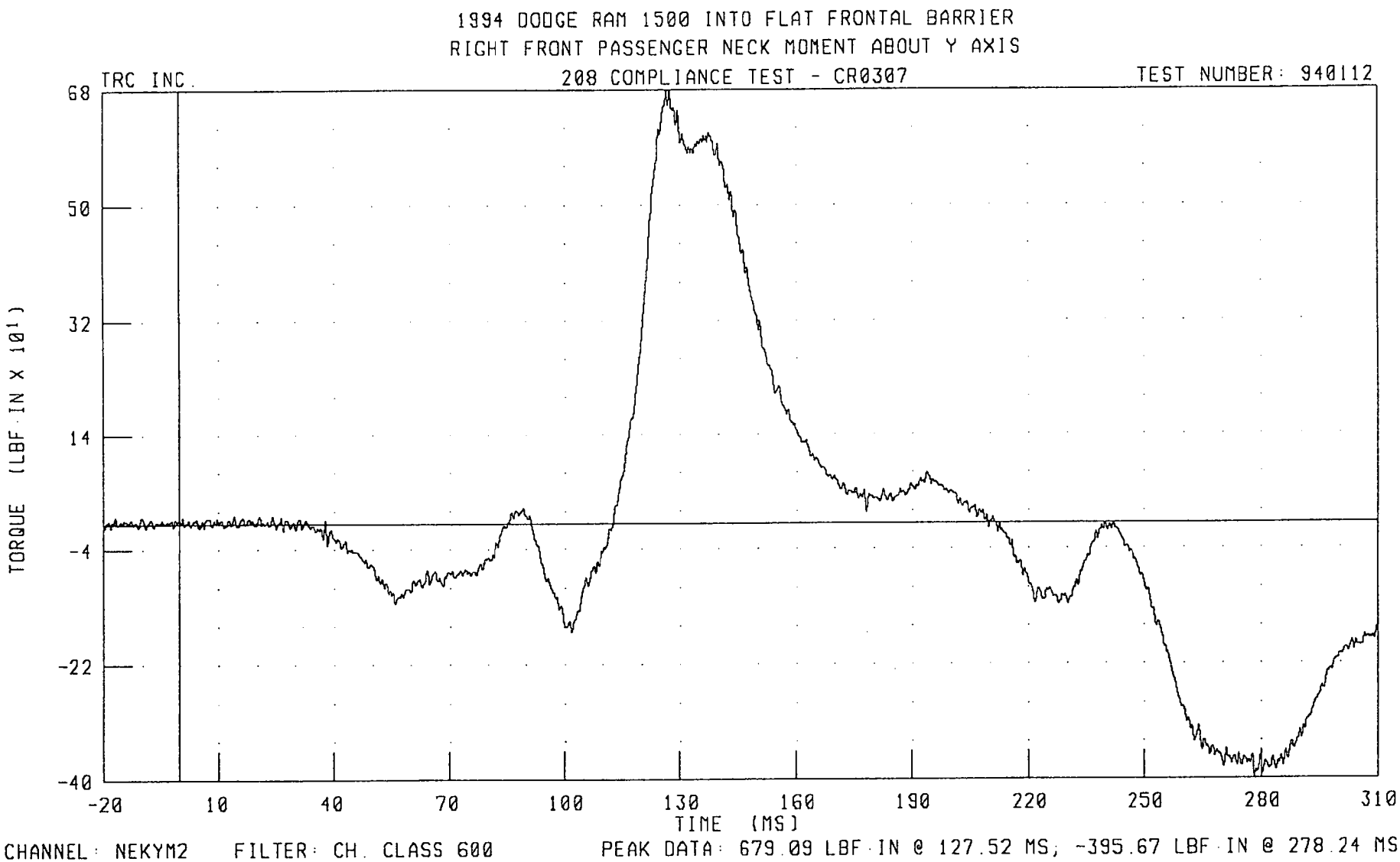
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
FORCE (LBF X 10^1)
44
34
24
14
4
-6
-16
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZF2
FILTER: CH. CLASS 1000
PEAK DATA: 427.52 LBF @ 106.88 MS; -155.82 LBF @ 276.48 MS

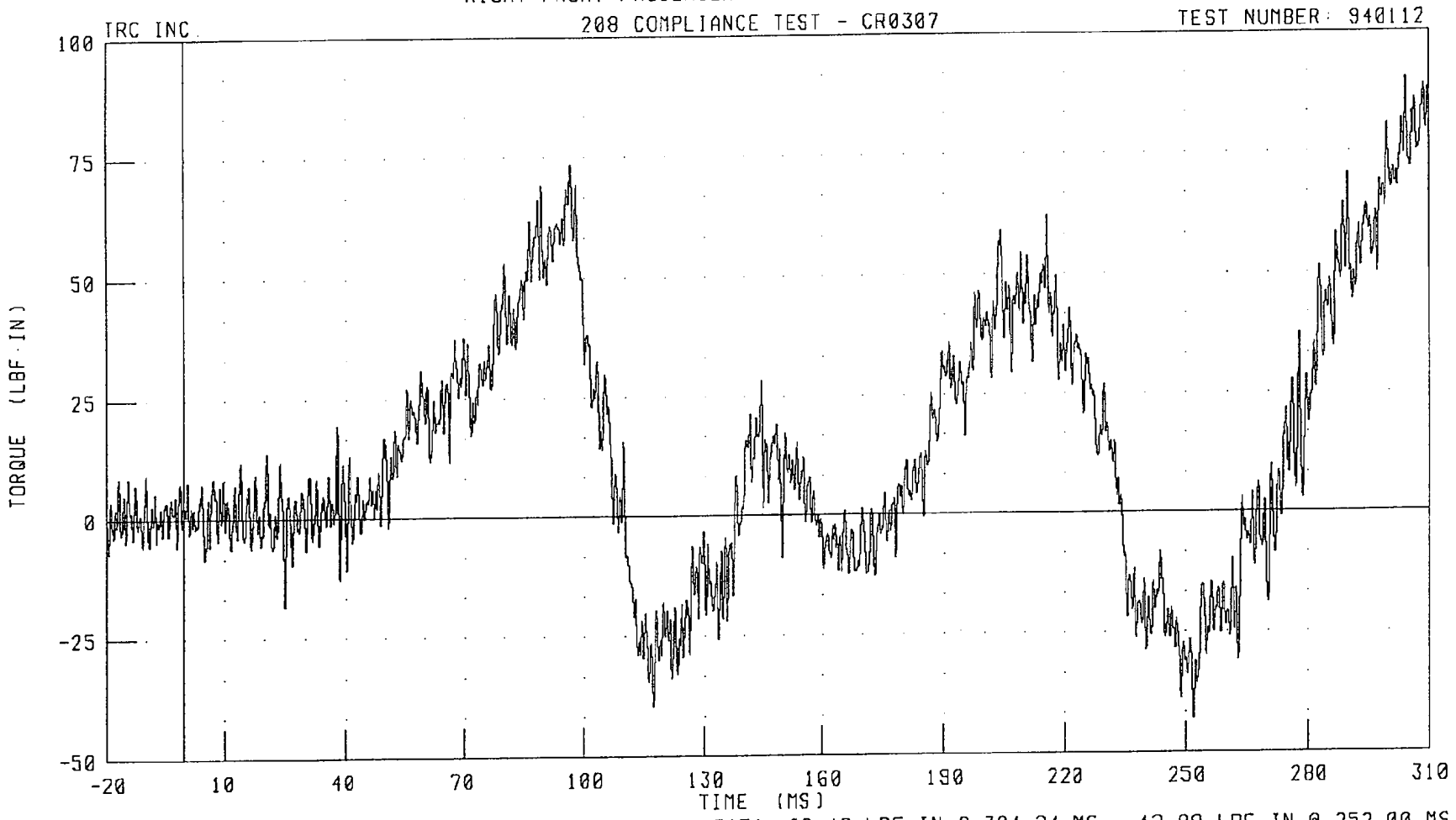
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS
TRC INC.
208 COMPLIANCE TEST - CR0307
TEST NUMBER: 940112
100
50
0
-50
-100
-150
-200
TORQUE (LBF-IN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKXM2
FILTER: CH. CLASS 600
PEAK DATA: 91.51 LBF-IN @ 150.72 MS; -177.90 LBF-IN @ 117.20 MS

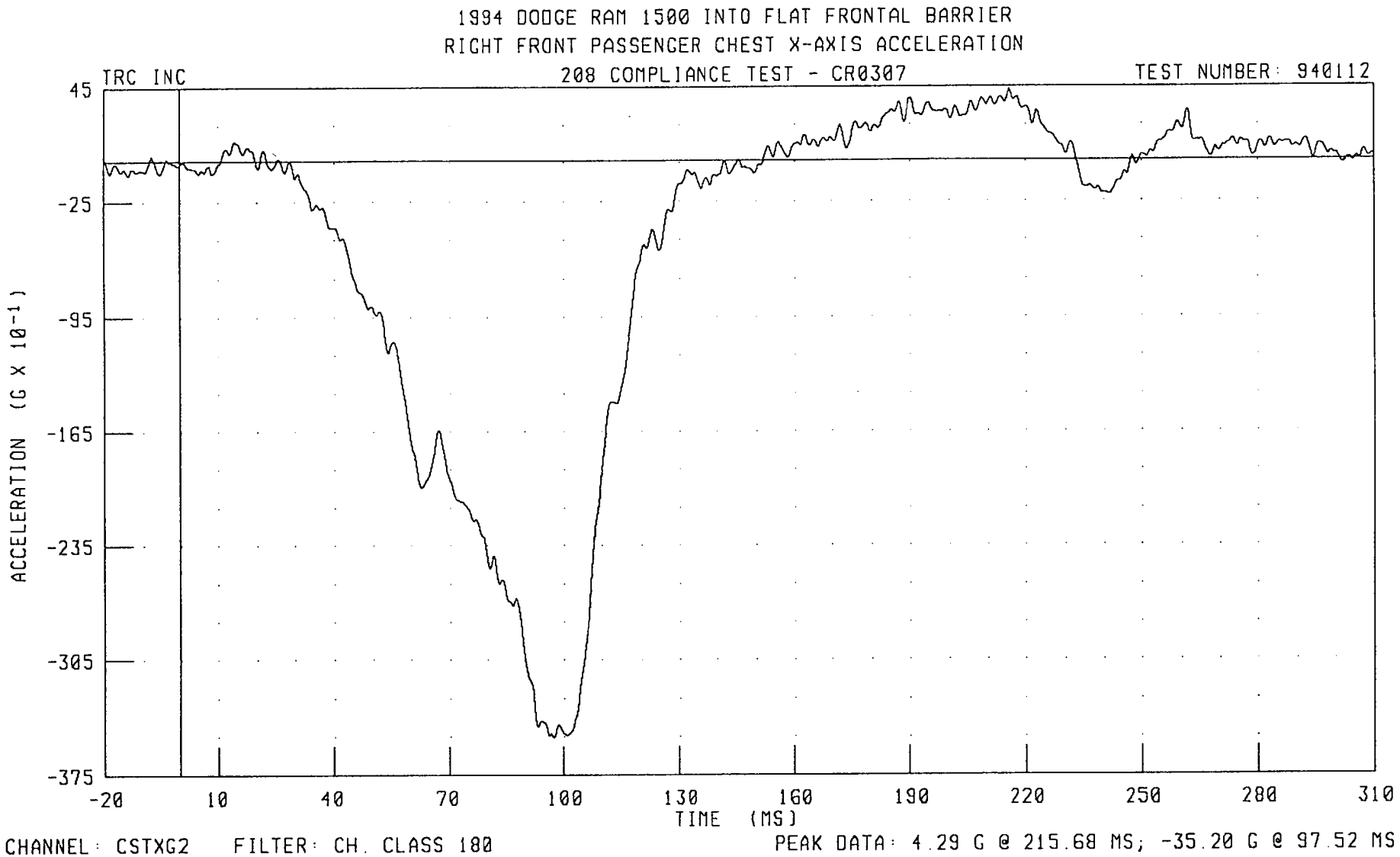
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
TORQUE (LBF-IN X 10¹)
68
50
32
14
-4
-22
-40
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYM2
FILTER: CH. CLASS 600
PEAK DATA: 679.09 LBF-IN @ 127.52 MS; -395.67 LBF-IN @ 278.24 MS

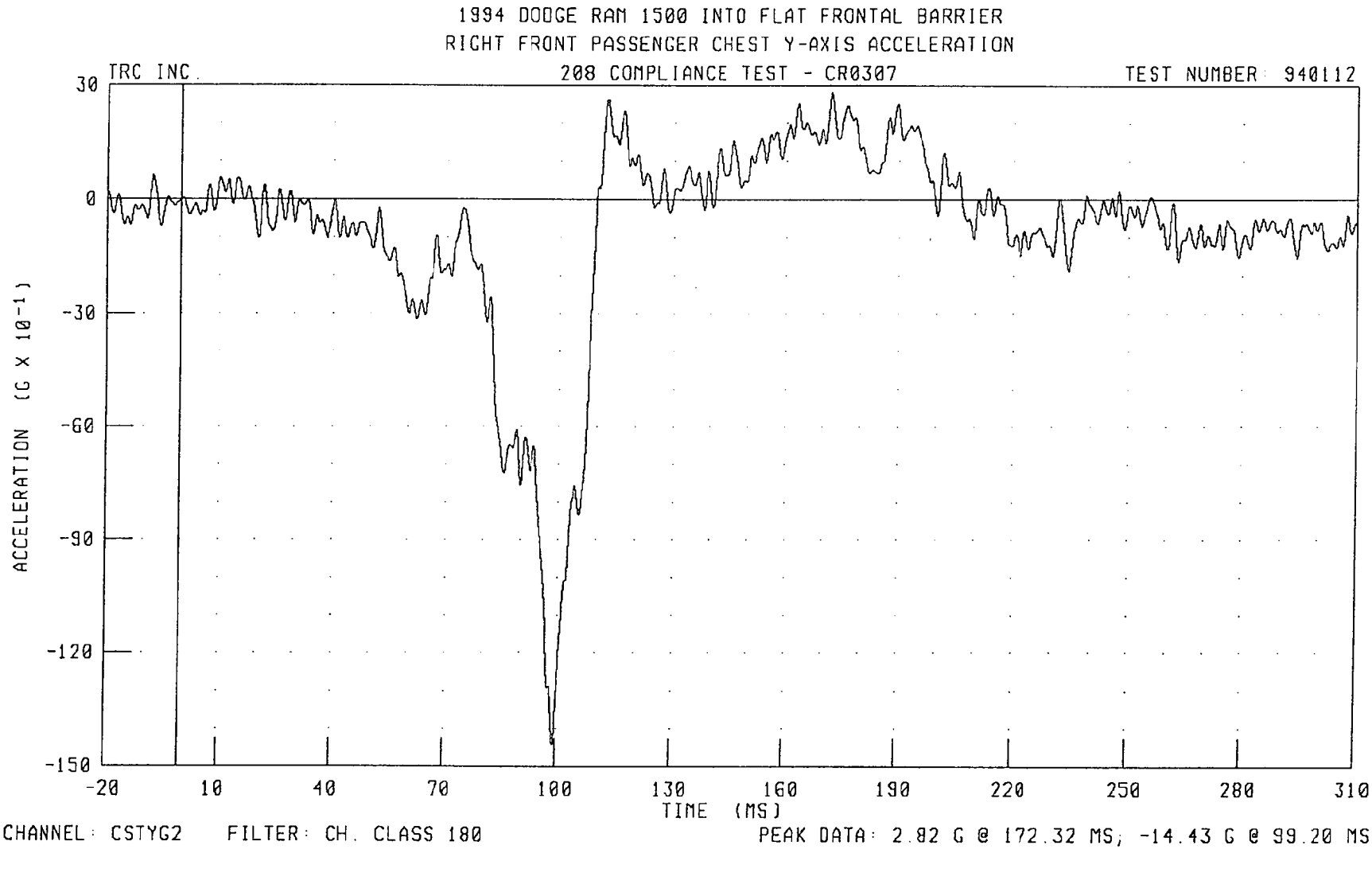
1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS
208 COMPLIANCE TEST - CR0307

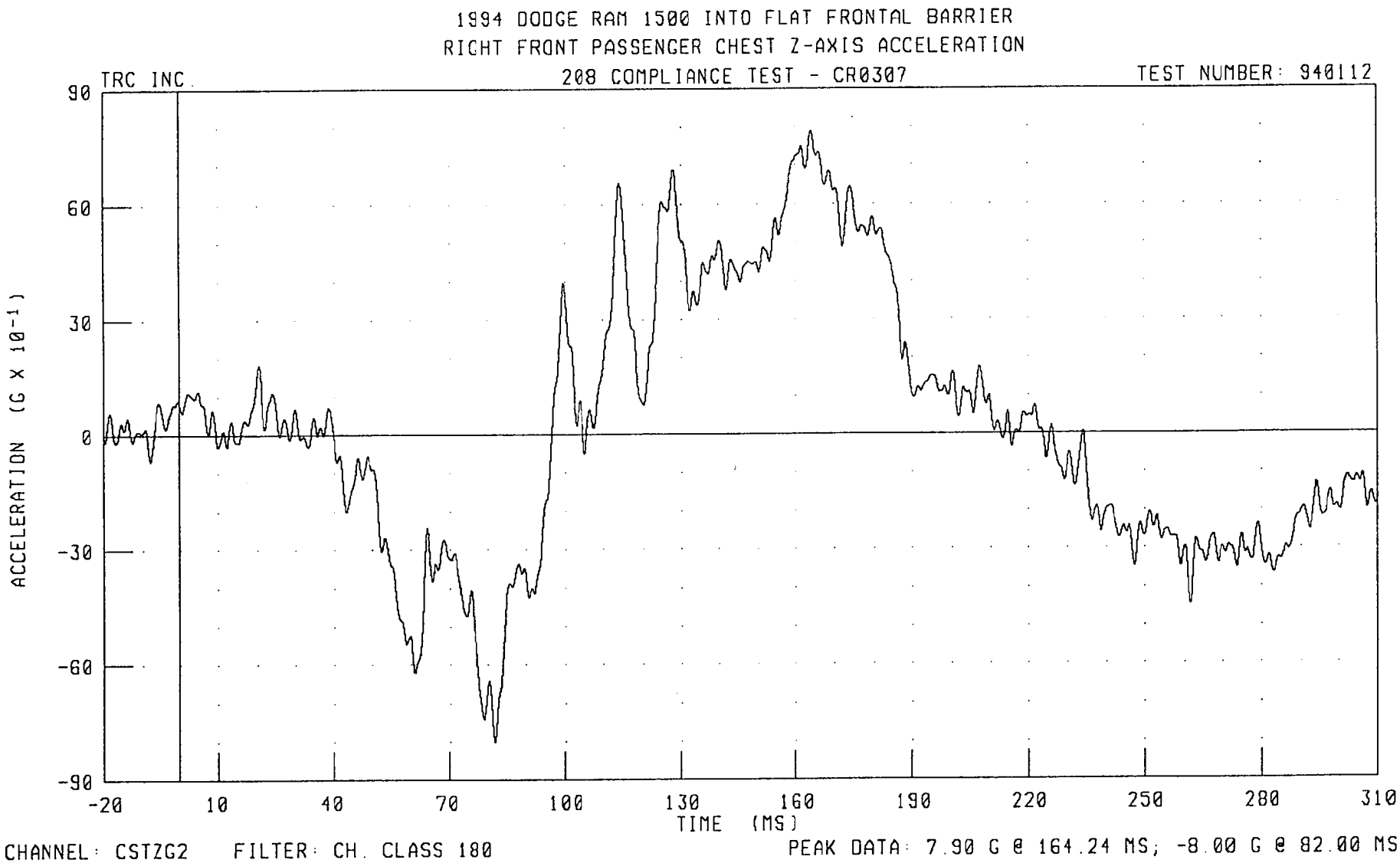


CHANNEL: NEKZM2 FILTER: CH. CLASS 600
PEAK DATA: 90.49 LBF-IN @ 304.24 MS; -42.88 LBF-IN @ 252.00 MS

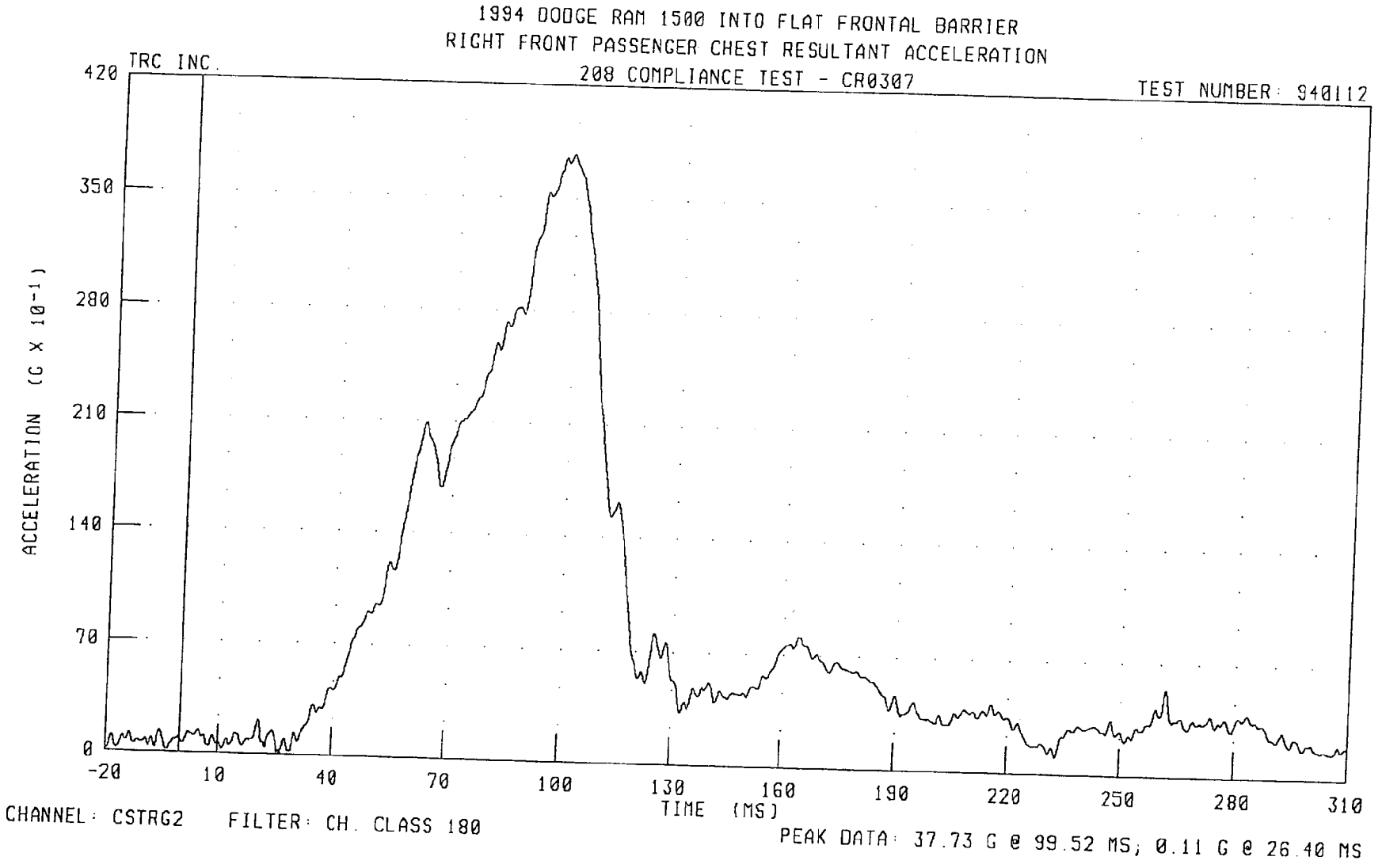

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION
TRC INC
208 COMPLIANCE TEST - CR0307
TEST NUMBER: 940112
45
-25
-95
-165
-235
-305
-375
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXG2
FILTER: CH. CLASS 180
PEAK DATA: 4.29 G @ 215.68 MS; -35.20 G @ 97.52 MS

940112

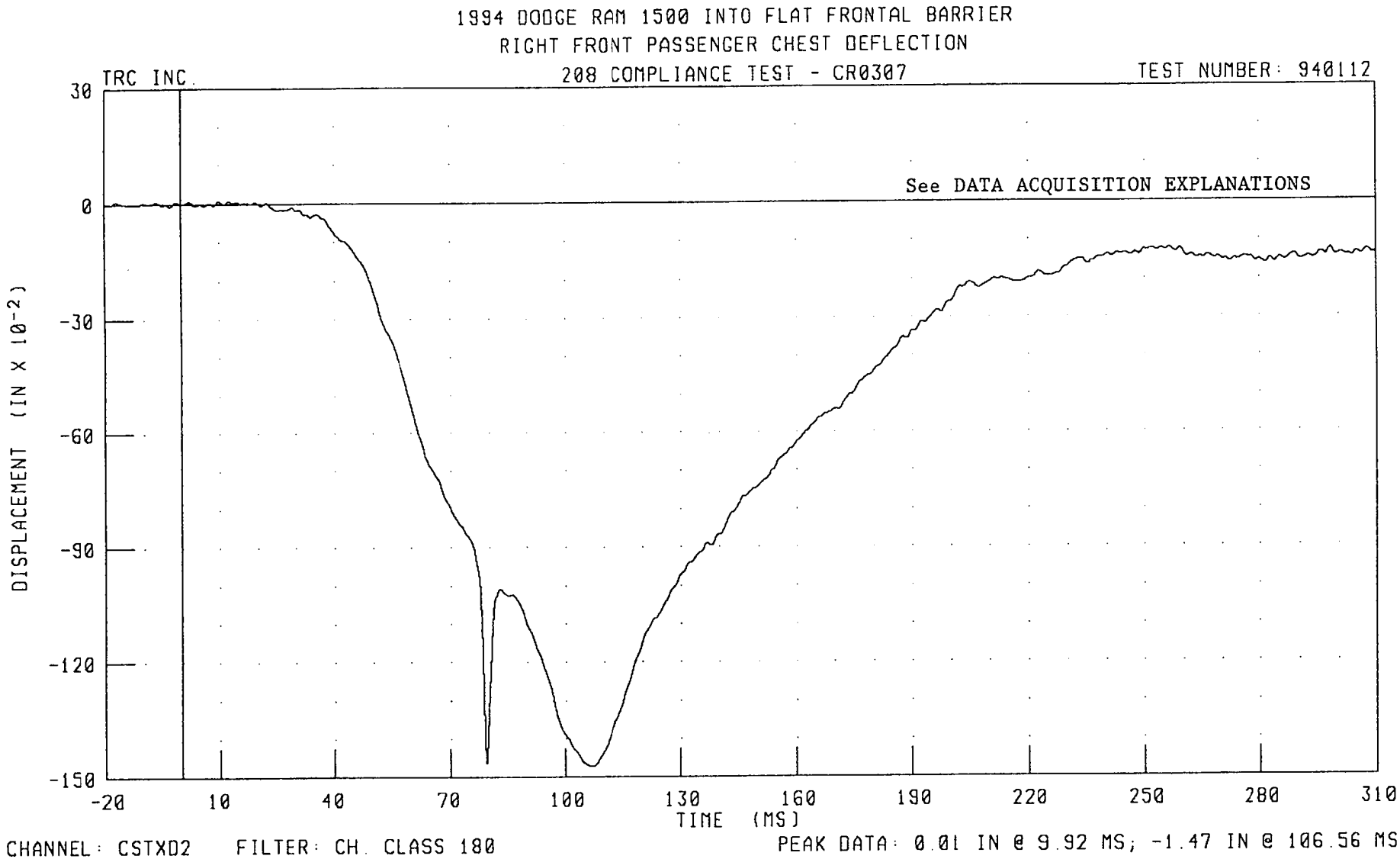

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION
TRC INC.
208 COMPLIANCE TEST - CR0307
TEST NUMBER: 940112
30
0
-30
-60
-90
-120
-150
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTYG2
FILTER: CH. CLASS 180
PEAK DATA: 2.82 G @ 172.32 MS; -14.43 G @ 99.20 MS

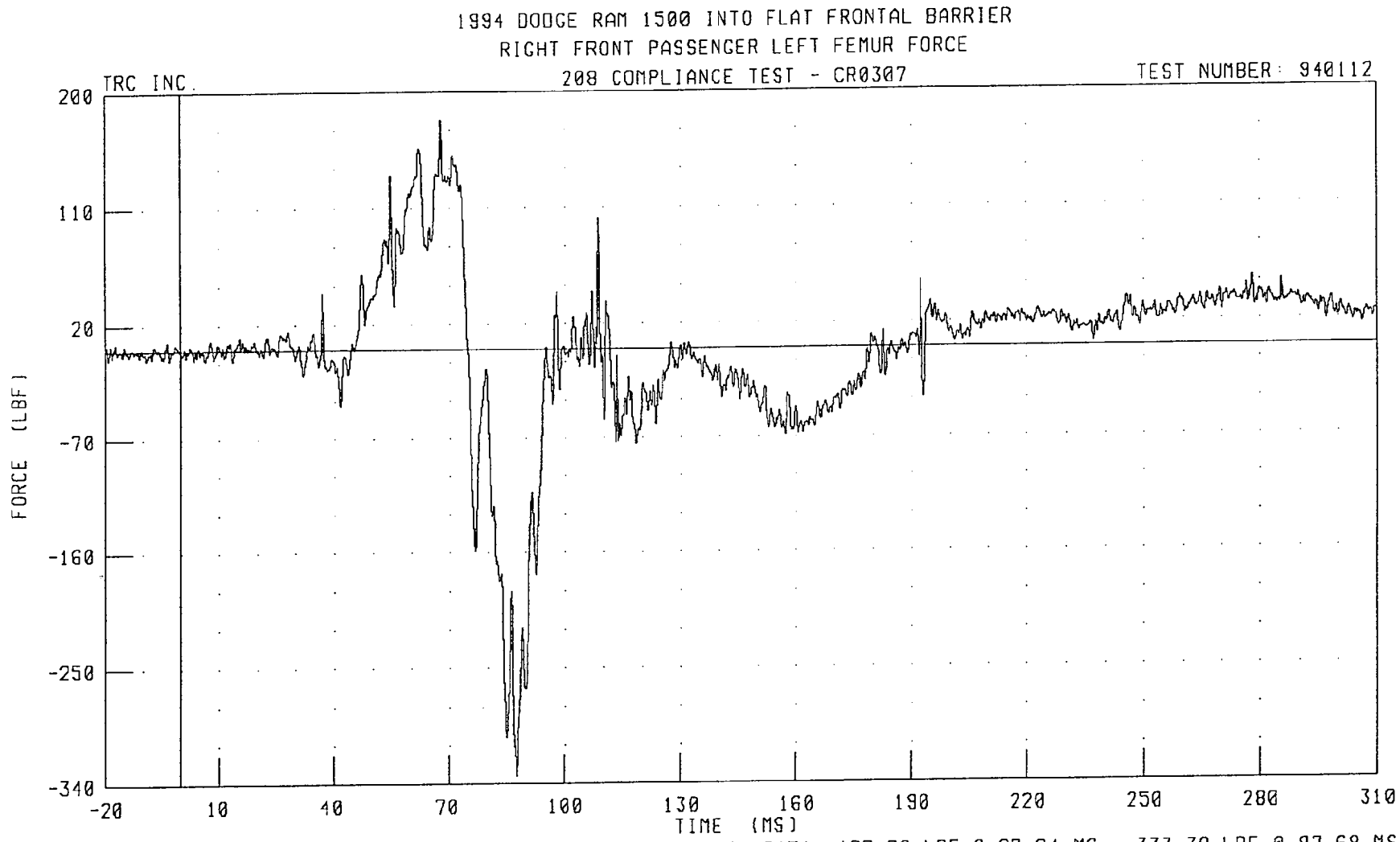

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
ACCELERATION (G X 10-1)
90
60
30
0
-30
-60
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTZG2
FILTER: CH. CLASS 180
PEAK DATA: 7.90 G @ 164.24 MS; -8.00 G @ 82.00 MS

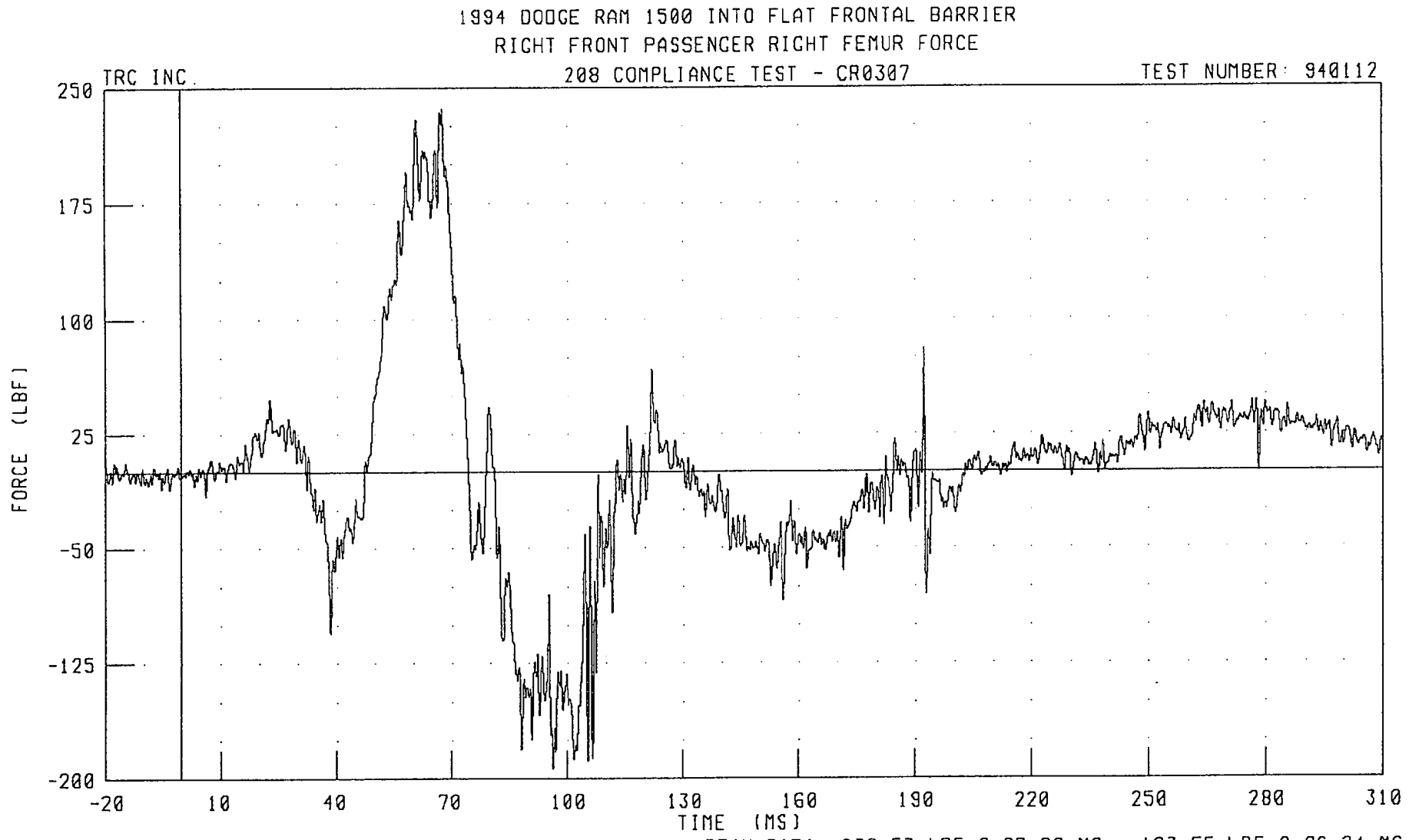
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
ACCELERATION (G X 10-1)
420
350
280
210
140
70
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRG2
FILTER: CH. CLASS 180
PEAK DATA: 37.73 G @ 99.52 MS; 0.11 G @ 26.40 MS

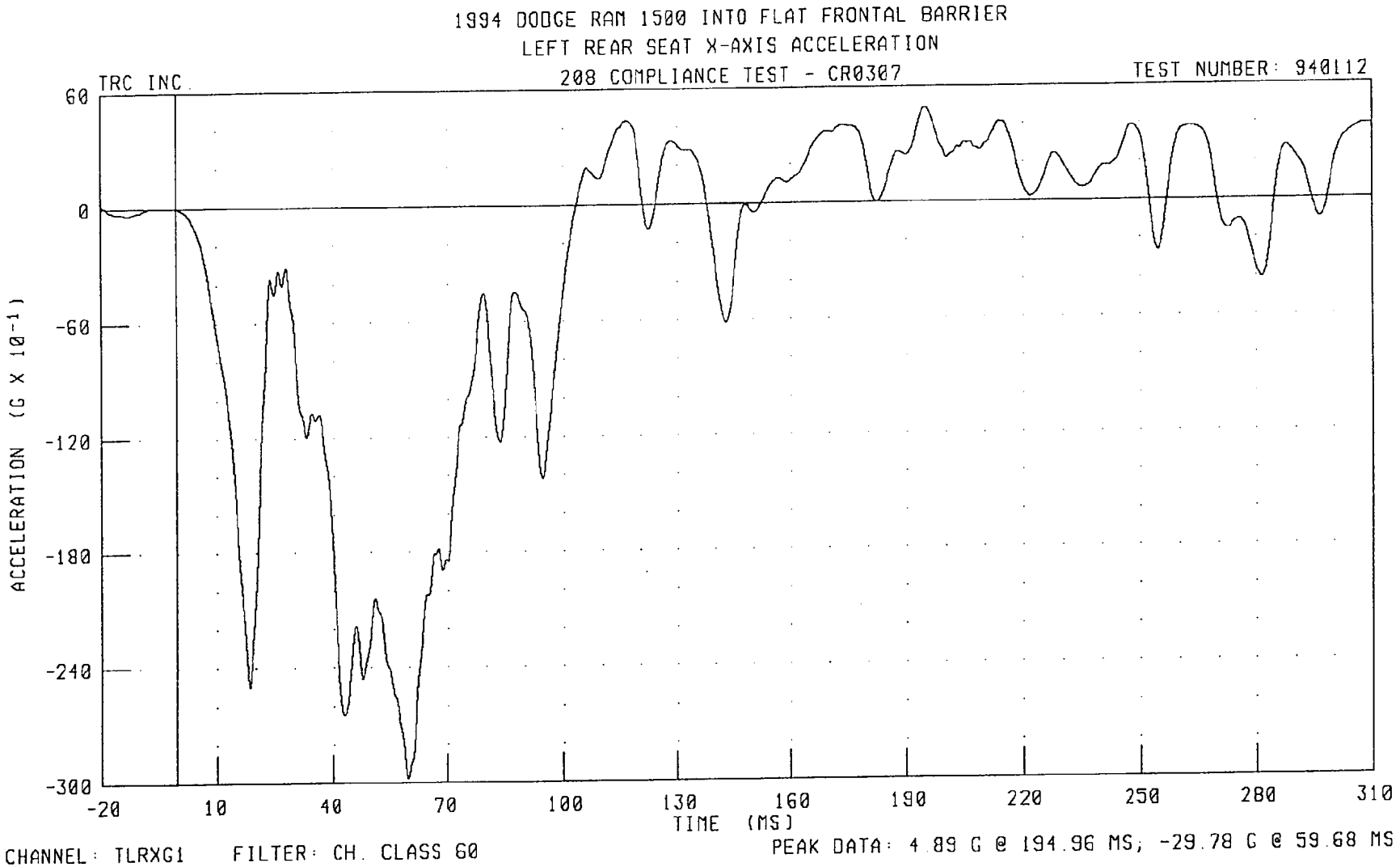
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST DEFLECTION
TRC INC.
208 COMPLIANCE TEST - CR0307
TEST NUMBER: 940112
See DATA ACQUISITION EXPLANATIONS
DISPLACEMENT (IN X 10-2)
30
0
-30
-60
-90
-120
-150
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXD2
FILTER: CH. CLASS 180
PEAK DATA: 0.01 IN @ 9.92 MS; -1.47 IN @ 106.56 MS

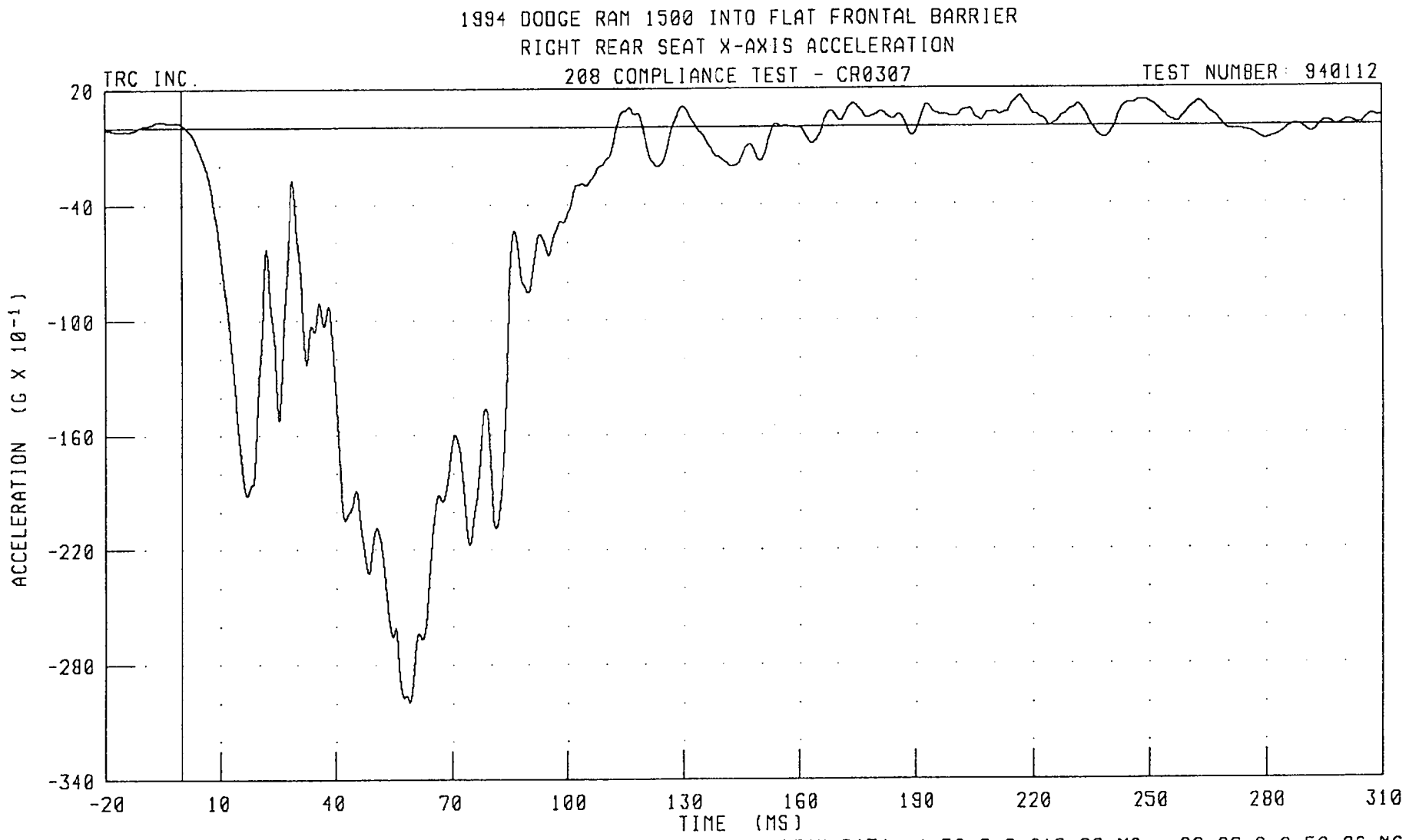

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER LEFT FEMUR FORCE
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
200
110
20
-70
-160
-250
-340
FORCE (LBF)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFMF2
FILTER: CH. CLASS 600
PEAK DATA: 177.78 LBF @ 67.84 MS; -333.38 LBF @ 87.68 MS


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
250
175
100
25
-50
-125
-200
FORCE (LBF)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMF2
FILTER: CH. CLASS 600
PEAK DATA: 236.53 LBF @ 67.68 MS; -193.55 LBF @ 96.24 MS

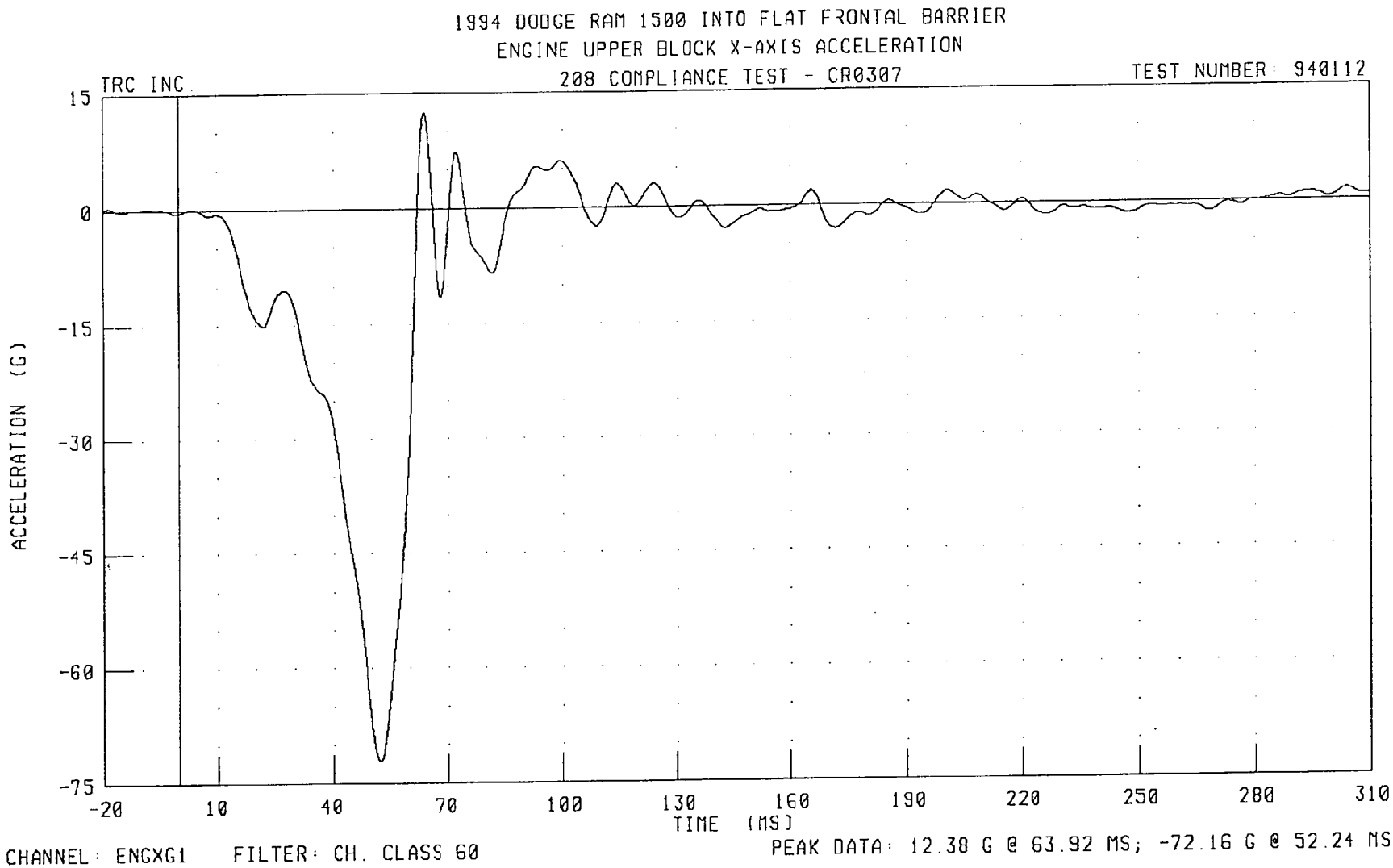
940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
60
0
-60
-120
-180
-240
-300
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TLRXG1
FILTER: CH. CLASS 60
PEAK DATA: 4.89 G @ 194.96 MS; -29.78 G @ 59.68 MS

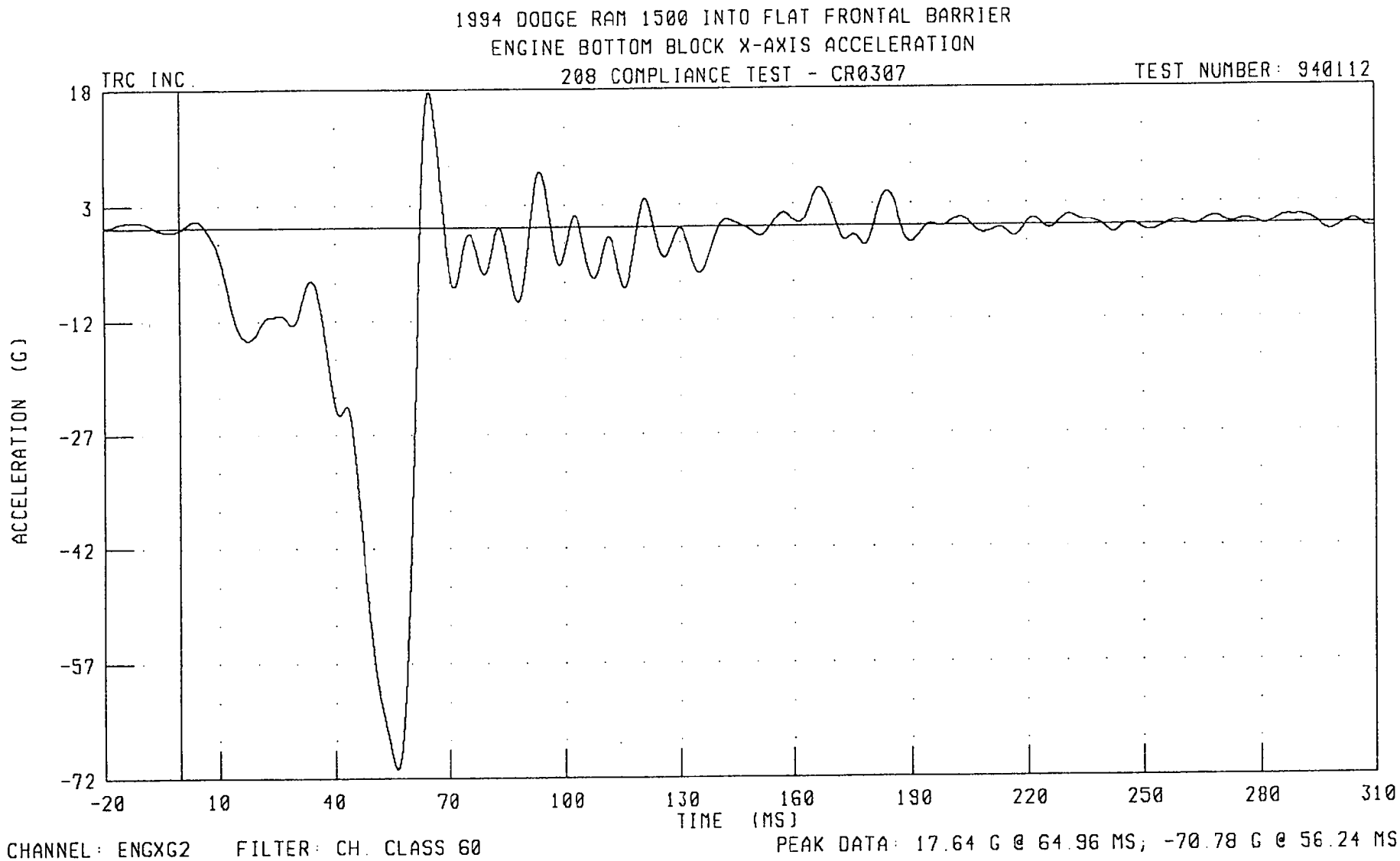
940112

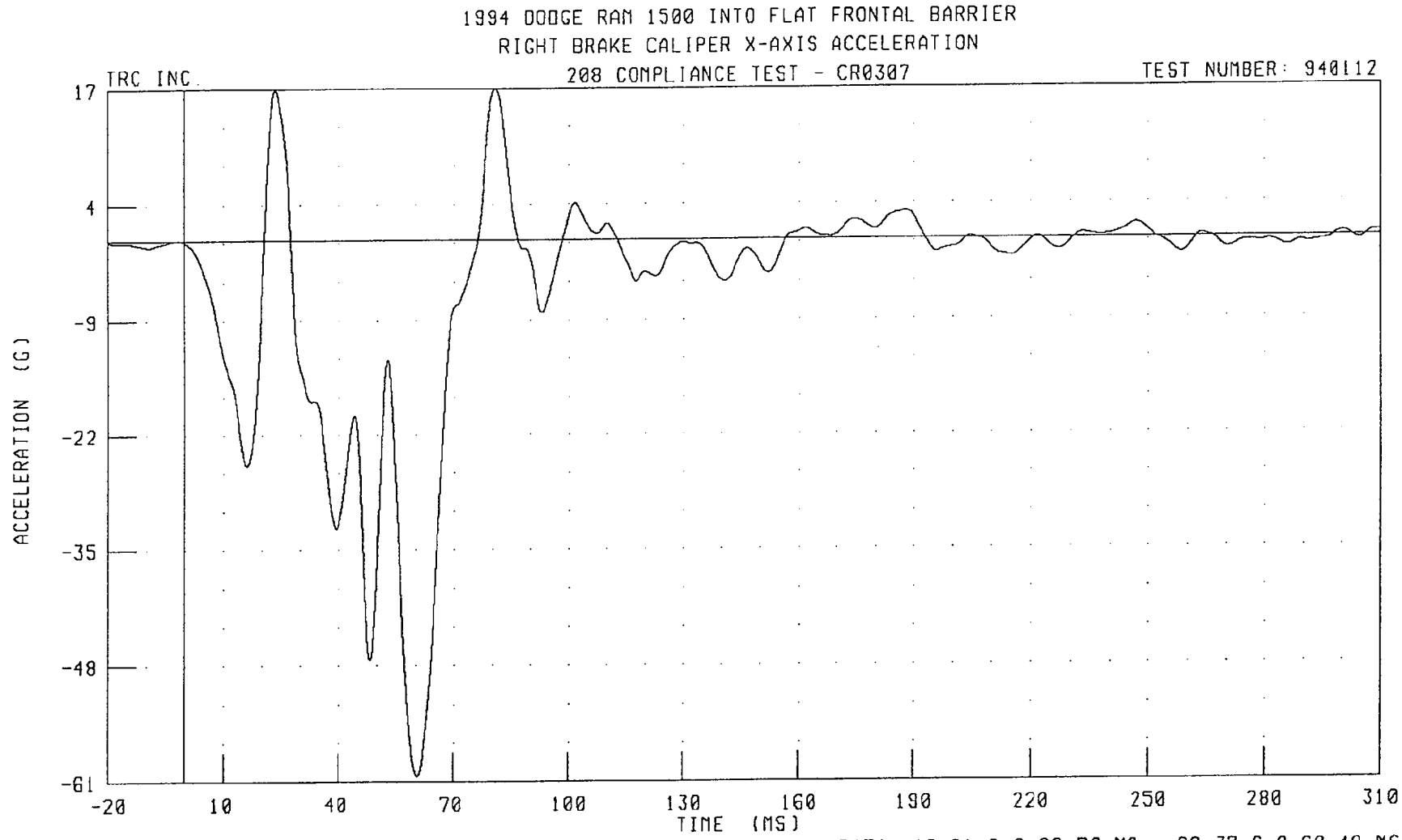

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
20
-40
-100
-160
-220
-280
-340
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TRRXGI
FILTER: CH. CLASS 60
PEAK DATA: 1.58 G @ 216.96 MS; -29.96 G @ 58.96 MS

940112

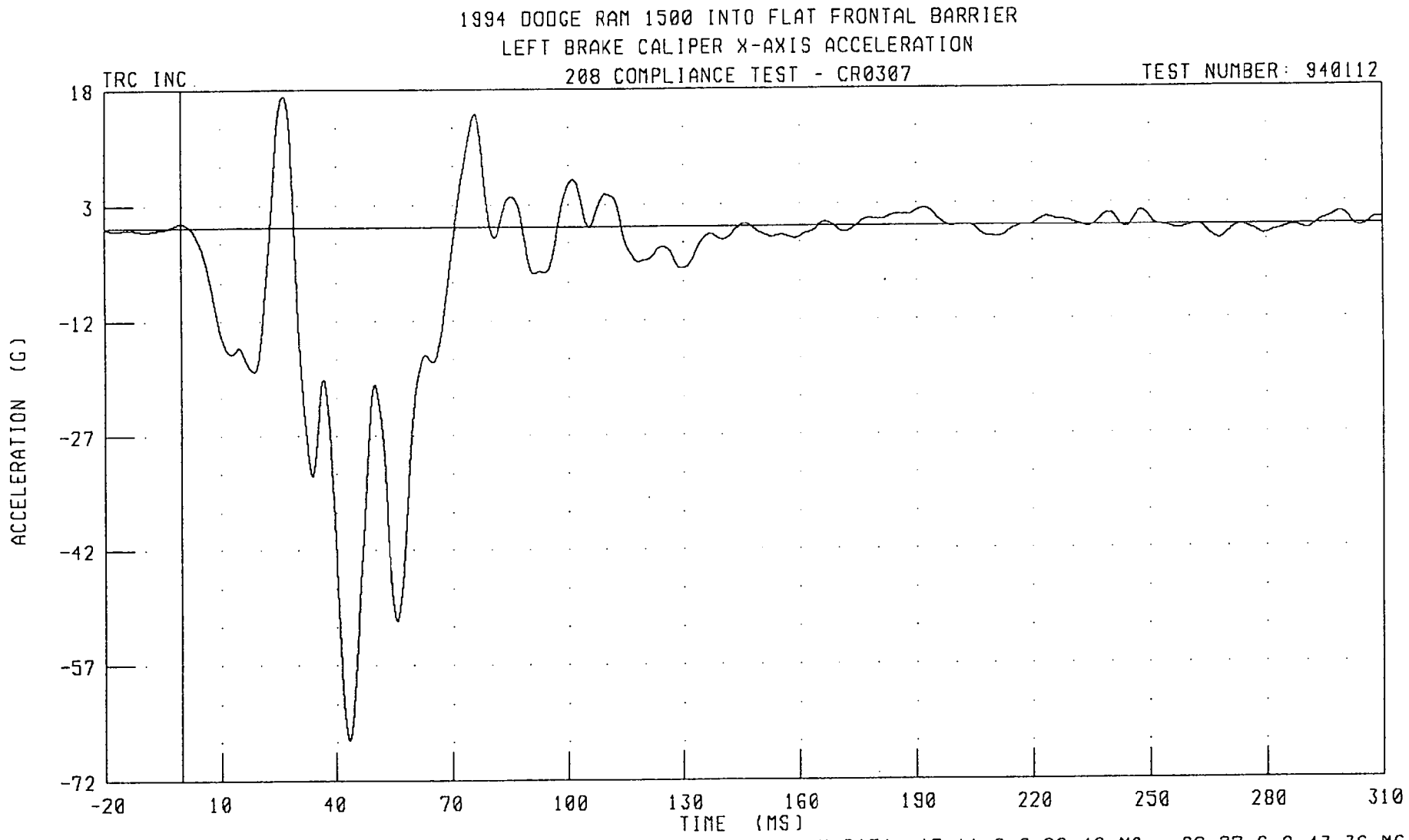

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
ENGINE UPPER BLOCK X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
15
0
-15
-30
-45
-60
-75
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ENGXG1
FILTER: CH. CLASS 60
PEAK DATA: 12.38 G @ 63.92 MS; -72.16 G @ 52.24 MS

940112

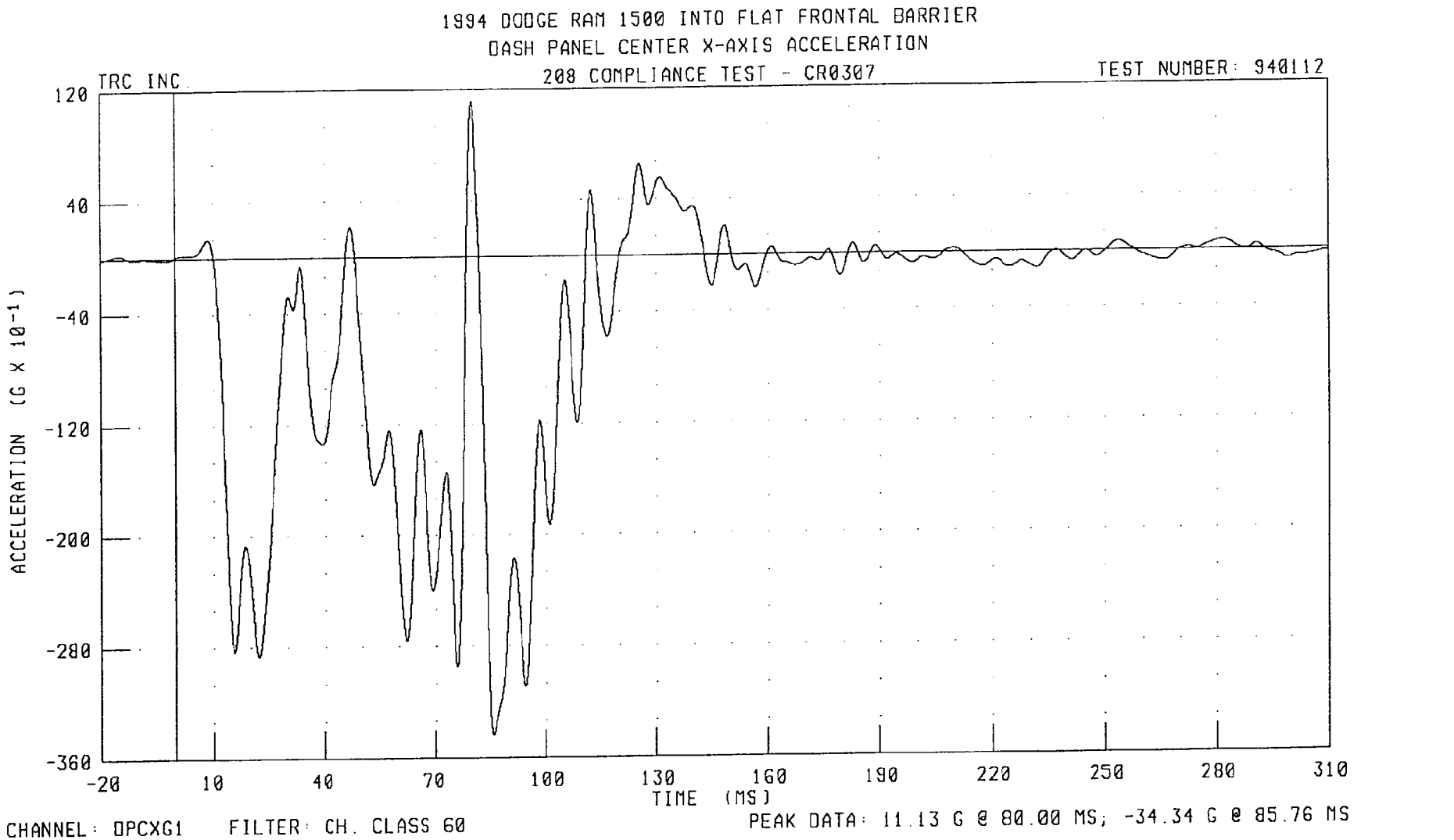

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
ENGINE BOTTOM BLOCK X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
18
3
-12
-27
-42
-57
-72
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ENGXG2
FILTER: CH. CLASS 60
PEAK DATA: 17.64 G @ 64.96 MS; -70.78 G @ 56.24 MS

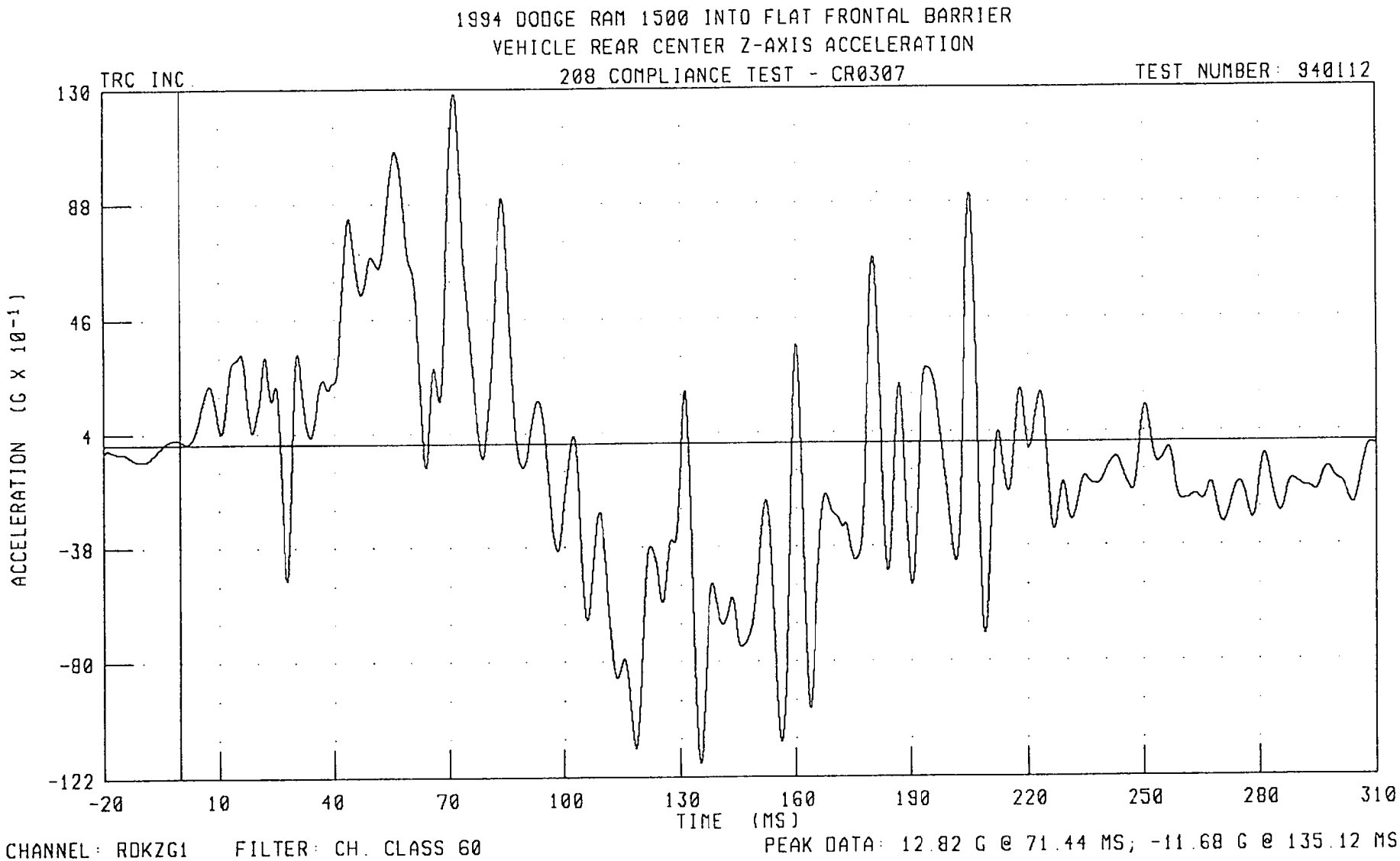

1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC.
TEST NUMBER: 940112
17
4
-9
-22
-35
-48
-61
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BCRXG1
FILTER: CH. CLASS 60
PEAK DATA: 16.91 G @ 80.72 MS, -60.37 G @ 60.48 MS

940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
18
3
-12
-27
-42
-57
-72
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BCLXG1
FILTER: CH. CLASS 60
PEAK DATA: 17.11 G @ 26.40 MS; -66.77 G @ 43.36 MS

940112


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
DASH PANEL CENTER X-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
ACCELERATION (G X 10-1)
120
40
-40
-120
-200
-280
-360
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: 0PCXG1
FILTER: CH. CLASS 60
PEAK DATA: 11.13 G @ 80.00 MS; -34.34 G @ 85.76 MS


1994 DODGE RAM 1500 INTO FLAT FRONTAL BARRIER
VEHICLE REAR CENTER Z-AXIS ACCELERATION
208 COMPLIANCE TEST - CR0307
TRC INC
TEST NUMBER: 940112
130
88
46
4
-38
-80
-122
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ROKZG1
FILTER: CH. CLASS 60
PEAK DATA: 12.82 G @ 71.44 MS; -11.68 G @ 135.12 MS

940112