

V2260

REPORT NO. : 208-MGA-95-009
212-MGA-95-009
301-MGA-95-009

VEHICLE SAFETY COMPLIANCE TESTING

FOR

FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD ZONE INTRUSION
FMVSS 301, FUEL SYSTEM INTEGRITY

FORD MOTOR COMPANY
1995 LINCOLN CONTINENTAL 4 DOOR
NHTSA NO. CS0214

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: March 13, 1995

Report Date: March 29, 1995

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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NHTSA, Office of Vehicle Safety Compliance

DATE: 5/21/96

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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This 30 mph flat frontal barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208, 212, 219 (partial), and 301 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by the MGA Research Corporation (MGA) under Contract No. DTNH22-93-D-21089. The purpose of this test was to determine whether the subject vehicle, a 1995 Lincoln Continental 4 Door Sedan, NHTSA No. CS0214, 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 dated March 15, 1993. 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 fixed flat barrier of which face was covered with a sheet of 3/4 inch thick plywood.

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 procedures specified in 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's instrumentation also included a chest potentiometer to measure longitudinal deflection, and the driver dummy was instrumented with lower leg load cells to measure tibia forces and moments.

The thirty-six (36) data channels were multiplexed and recorded on four IBM PC compatible computers with Metrabyte DAS-16F A/D converter boards. The data was digitally sampled at 8170 samples per second and processed per Section 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 the real-time motion picture camera.

The vehicle and occupant data are summarized in Section 2. The FMVSS 208, 212, 219 (partial) and 301 data are presented in Section 3. The vehicle, occupant, and camera measurements are presented in Section 4. 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
SUMMARY OF FRONTAL BARRIER IMPACT TEST

TEST RESULTS SUMMARY

This flat frontal barrier test was conducted at MGA Research Corporation on March 13, 1995.

The test vehicle, a 1995 Lincoln Continental, NHTSA No. CS0214, 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 E dummies seated in the front outboard designated seating positions. For each Part 572 E dummy, the chest deflection did not exceed 3.0 inches. The vehicle's restraint system met the applicable comfort and convenience requirements. The windshield periphery retention on each side of the vehicle centerline was greater than 50 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 and a Type 2 seat belt in the front outboard designated seating positions. Both dummies were restrained only by the airbag during the test. The vehicle's test weight was 4461 pounds. The vehicle's impact speed was 29.3 mph. The vehicle's maximum static crush was 13.3 inches.

The driver's HIC was 258. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 52 g's. The driver's chest maximum deflection was 1.6 inches. The driver's left and right femur maximum compressive forces were 1312 pounds and 1164 pounds, respectively.

The right front passenger's HIC was 301. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 51 g's. The right front passenger's chest maximum deflection was 0.6 inches. The right front passenger's left and right femur maximum compressive forces were 1219 pounds and 1052 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.

TEST NOTES

- 1) Due to large noise levels on the data channels, the data collected is only partially valid. Prior to 135 msec, there is high noise levels at random times. After approximately 135 msec, there is a constant high noise level so the data is not valid. The noise is not obvious in the filtered data.
- 2) Because of the random noise prior to 135 msec, the spikes in the data for the Driver Head Resultant and Passenger Head Resultant were removed in order to calculate a new HIC. The altered data plots and HIC calculations are attached at the end of Appendix B. These new HIC values appear in Test Results Summary (page 2-2), Table 8 (FMVSS 208 OCCUPANT INJURY CRITERIA) on page 3-2, and in the table below.
- 3) Only the Driver and Passenger Head Resultant data were edited because the noise did not appear as severe on the other channels. This is because the other channels were filtered more so the spikes were less evident.

DRIVER:	ORIGINAL (WITH NOISE)	ALTERED (WITHOUT NOISE)
HIC	257.75	257.69
t ₁ (msec)	69.96	69.84
t ₂ (msec)	105.22	105.83

PASSENGER:	ORIGINAL (WITH NOISE)	ALTERED (WITHOUT NOISE)
HIC	317.91	300.93
t ₁ (msec)	58.70	63.35
t ₂ (msec)	93.46	93.22

TABLE 1 CRASH TEST SUMMARY

Vehicle Yr/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Type: Frontal Barrier Impact

Test Date: 03/13/95 Time: 15:40 Temp: 70°F

Vehicle Test Weight: 4461 lbs. Vehicle/Barrier Impact Angle: 0°

Impact Velocity: 29.3 mph Maximum Static Crush: 13.3 inches

Vehicle Rebound: 57.0 inches

Dummies:	Driver	Passenger
Dummy Type	<u>Part 572E</u>	<u>Part 572E</u>
Serial Number	<u>401</u>	<u>403</u>
Restraint System	<u>Airbag</u>	<u>Airbag</u>
No. of Data Channels	<u>36</u>	<u>36</u>

Number of Cameras: 1 Real Time
14 High Speed

Door Opening Data: Left Front: Yes Left Rear: Yes
Right Front: Yes Right Rear: Yes

Front Seat(s) Data:	Driver	Passenger
Seat Track Failure	<u>0.35 in.</u>	<u>1.18 in.</u>
Seat Back Failure	<u>None</u>	<u>None</u>

Visible Dummy Contact Points:	Driver	Passenger
Head	<u>Airbag, Headrest</u>	<u>Airbag, Headrest, Visor</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Left Knee	<u>Dash</u>	<u>Glove Box</u>
Right Knee	<u>Dash</u>	<u>Glove Box</u>

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Yr/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

NHTSA No: CS0214 VIN: 1LNLM97V7SY638396 Body Color: Green

Engine: 8 Cylinders; C.I.D.; 4.6 liters; CC

X Gas; Diesel; Turbocharged

 Longitudinal; X Transverse

Transmission: 4 Speed; Manual; X Automatic; Overdrive

Final Drive: X Front Wheel; Rear Wheel; Four Wheel

Major Option: X A/C; X P/S; X P/B; X P/wdo; X P/door locks;

X P/seats; X Tilt Wheel; X Anti-skid Brakes; X Cruise Control; Other

Date Received: 02/28/95; Odometer Reading: * miles (Not Recorded)

Dealer's Name/Address: Country Ford Lincoln-Mercury
1234 East Geneva Street
Delavan, WI 53115

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Ford Motor Company

Date of Manufacture: 11/94; VIN: 1LNLM97V7SY638396

GVWR: 5317 lbs; GAWR Front: 2887 lbs. GAWR Rear: 2460 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with maximum capacity vehicle load: Front 30 psi Rear 28 psi

Recommended Tire Size: P225/60R16 97H

Recommended Cold Tire Pressure: Front 30 psi; Rear 28 psi

Tires on Vehicle: P225/60R16 97H; Manufacturer: Michelin

Type of Spare Tire: Space Saver

Number of Occupants: 2 Front; 3 Rear; 3rd Seat; 5 TOTAL

Type of Front Seats: X Bucket; Bench; Split Bench

Type of Front Seat Back: Fixed; X Adj. With; Lever; Rot. Knob X Power

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW:

Right Front = 1233 lbs Right Rear = 743 lbs
Left Front = 1221 lbs Left Rear = 733 lbs
TOTAL FRONT WEIGHT = 2454 lbs (62.4% of Total Vehicle Weight)
TOTAL REAR WEIGHT = 1476 lbs (37.6% of Total Vehicle Weight)
TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 3930 lbs

CALCULATION FOR TARGET TEST WEIGHT:

UDW (Unloaded Delivered Weight) = 3930 lbs
VCW (Vehicle Capacity Weight) = 950 lbs
DSC (Designated Seating Capacity) = 5
RCLW*(Rated Cargo/Luggage Weight) = VCW - 150 (DSC) = 950 - 150 (5) = 200 lbs
Target Test Weight = UDW + RCLW + (2 Dummies x Dummy Weight)
Target Test Weight = 3930 + 200 + 344 = 4474 lbs

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO WEIGHT:

Right Front = 1292 lbs Right Rear = 925 lbs
Left Front = 1333 lbs Left Rear = 911 lbs
TOTAL FRONT WEIGHT = 2625 lbs (58.8% of Total Vehicle Weight)
TOTAL REAR WEIGHT = 1836 lbs (41.2% of Total Vehicle Weight)
TOTAL TEST WEIGHT = 4461 lbs
Weight of ballast secured in vehicle = 75 lbs
Vehicle components removed to meet target weight: None

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 29.6 LF 29.5 RR 30.0 LR 29.2
Fully Loaded Attitude: RF 29.5 LF 29.5 RR 28.5 LR 28.6
Test Attitude: RF 29.3 LF 29.3 RR 29.1 LR 29.3
Wheel Base: 109.3 in; C.G. = 45.0 in rearward of front wheel centerline

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

TABLE 3 POST-IMPACT DATA

Type of Test: Frontal Barrier Impact Impact Angle: 0°
Test Date: 03/13/95 Time: 15:40 Temperature: 70° F
Vehicle NHTSA No.: CS0214 VIN: 1LNLM97V7SY638396

BARRIER IMPACT VELOCITY

Required Impact Velocity Range: 28.9 to 29.9 mph
Impact Velocity: Primary = 29.3 mph; Secondary = 29.4 mph
Distance From Front Bumper to Barrier Face When
Entering Speed Trap: 51.4 inches
Exiting Speed Trap: 12.0 inches

VEHICLE STATIC CRUSH AND REBOUND (inches):

Vehicle Length:	Pre-test	= R	<u>198.3</u>	C _r	<u>205.1</u>	L	<u>198.2</u>
	Post-test	= R	<u>186.5</u>	C _r	<u>193.0</u>	L	<u>185.9</u>
	Crush	= R	<u>11.8</u>	C _r	<u>12.1</u>	L	<u>12.3</u>
	Average	=	<u>12.1</u>				

Distance from front of test vehicle to point of impact (rebound):

R 59.9 in C_r 57.0 in L 62.6 in

TABLE 4 ACCIDENT INVESTIGATION DIVISION DATA

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Veh. NHTSA No.: CS0214 ;

VIN: 1LNLM97V7SY638396

Build Date: 11/94 ;

Test Date: 03/13/95

Veh. Size Category: Large ;

Test Weight: 4461 lbs

Veh. Wheelbase: 109.3 in ;

Front Overhang: 42.5 in ;

Overall Width: 73.9 in

ACCELEROMETER DATA:

Location: As per measurements on page 2-10

Calibration Procedure: As per MGA Calibration Procedure

Linearity: > 99.9% ; Integration Algorithm: Trapezoidal

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

Impact Mode: Frontal Barrier

Crush Depth C1 = 12.3 inches

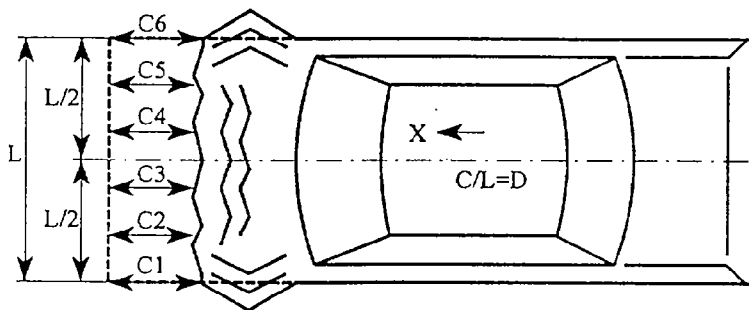
Dimensions: C2 = 13.3 inches

C3 = 13.1 inches

C4 = 13.1 inches

C5 = 12.6 inches

C6 = 11.8 inches



Midpoint of Damage: D = Vehicle Longitudinal Centerline

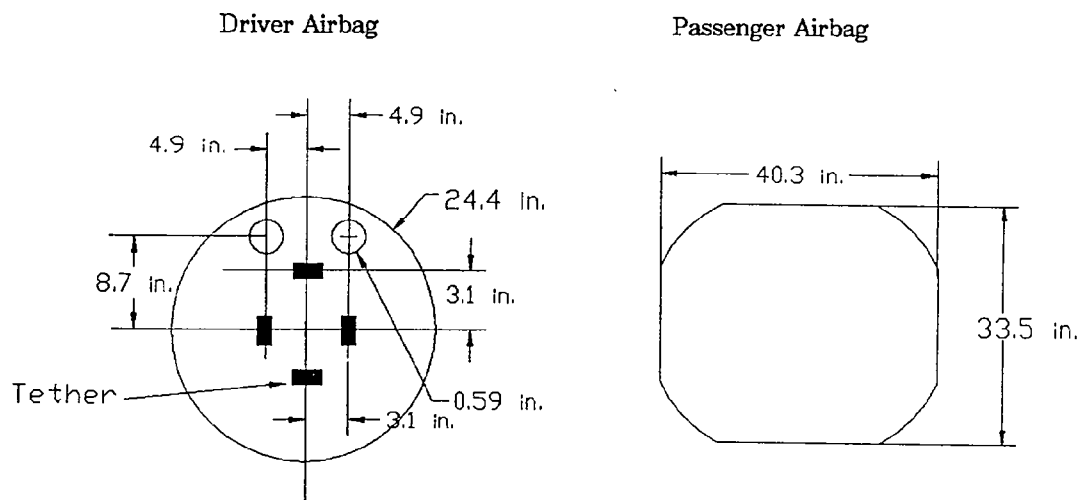
Length of Damaged Region: L = 63.1 inches

TABLE 5 POST TEST AIRBAG DATA

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

NHTSA No: CS0214; Test Date: 03/13/95; Technician: Nicole Walter

- A. No of Vent Holes: Driver 2; Passenger 0
- B. Size of Vent Holes: Driver 0.59 in. dia.; Passenger N/A
- C. Total Vent Area: Driver 0.27 in²; Passenger N/A
- D. Deflated Airbag Length and Width Dimensions or, if Round, Diameter
 Driver; Length ; Width ; Diameter 24.4 in
 Passenger; Length 33.5; Width 40.3; Diameter
- E. Is the Airbag Tethered?
 Driver; X Yes; No; If yes, record length of tether 8.9 in
 Passenger; Yes; X No; If yes, record length of tether in



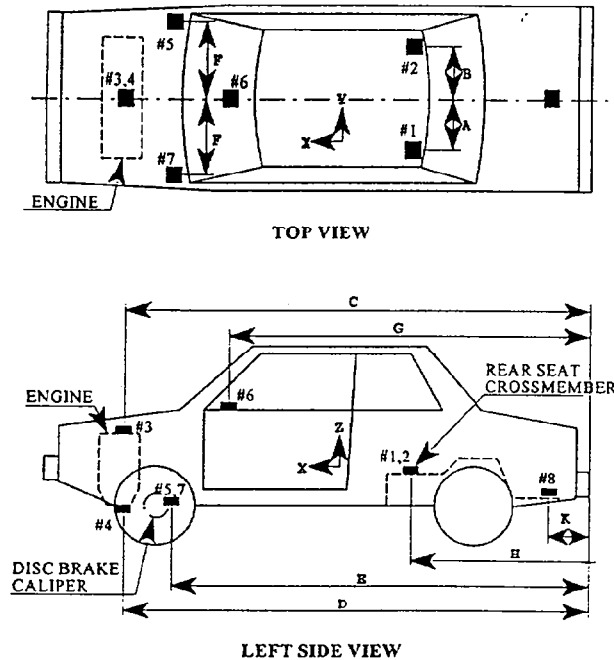
- F. Part Numbers and Manufacture Name of Airbag and Gas Generator
- Driver; Mfr *; Airbag 1PPU304H20003; Gen WBW1250H11052
- Passenger; Mfr *; Airbag T1DA259H10063; Gen 842781015

* Not Available

TABLE 6 VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 ; Test Date: 03/13/95



ACCELEROMETER LOCATION (inches)		
	PRE-TEST	POST-TEST
A	20.6	20.6
B	20.7	20.7
C	164.6	158.1
D	169.0	160.9
E	163.9	158.8
F	28.2	33.5
G	134.8	135.0
H	83.7	83.7
K	10.3	10.3

ACCELEROMETER DATA SUMMARY					
No.	DESCRIPTION	MAXIMUM (g's)	TIME (msec)	MINIMUM (g's)	TIME (msec)
1	Left Rear Seat Crossmember	5.2	123	-29.8	55
2	Right Rear Seat Crossmember	6.8	159	-28.9	55
3	Top of Engine Block	34.9	60	-114.8	41
4	Bottom of Engine	31.5	58	-87.4	39
5	Right Disc Brake Caliper	*	*	*	*
6	Instrument Panel	20.8	38	-58.1	69
7	Left Disc Brake Caliper	19.9	63	-63.8	45
8	Trunk	15.2	119	-12.0	60

* Data is not valid for this channel after 50 msec.

TABLE 7 REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

Contract Number: DTNH22-93-D-21089

From: MGA Research Corporation
5000 Warren Road
Burlington, WI 53105

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. The vehicle was again inspected after the above test had been conducted, and all changes were noted below. The final condition of the vehicle was also noted in detail.

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Body Color: Green

VIN: 1LNLM97V7SY638396 Cost: \$39,043.80

Odometer: Arrival Date: 02/28/94 Reading: * miles (Not Recorded)

Completion Date: 03/13/95 Reading: 93 miles

Engine: 8 Cylinders; 4.6 Liters; X Gas; Diesel

Transmission: 4 Speed; Manual; X Automatic

Final Drive: X Front Wheel; Rear Wheel; Four Wheel

Tire Size: P225/60R16; Manufacturer: Michelin

Air Conditioner	<u>Yes</u>	Console	<u>Yes</u>	Brakes	<u>Power</u>
Tinted Glass	<u>Yes</u>	Tachometer	<u>Yes</u>	Front	<u>ABS</u>
Power Steering	<u>Yes</u>	Cruise Control	<u>Yes</u>	Rear	<u>ABS</u>
Power Windows	<u>Yes</u>	Rear Window Def.	<u>No</u>	Front Seats	<u>Power</u>
Power Door Locks	<u>Yes</u>	Sun/Moon Roof	<u>No</u>	Seat Type	Front <u>Bucket</u>
Radio	<u>Yes</u>	T-Top	<u>No</u>		Rear <u>Bench</u>
Clock	<u>Yes</u>	Tilt Steering Wheel	<u>Yes</u>		
Roof Rack	<u>No</u>	Other Options:	<u>No</u>	No. of Seats	<u>Three</u>

TABLE 7 REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING, (Cont'd)

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

None

Explanation:

Items removed to allow installation of data acquisition system.

Vehicle Condition:

The vehicle was subjected to a 30 mph frontal crash test. There is severe structural damage on the front body. Various interior and exterior portions of the vehicle have been painted and have had holes drilled to facilitate attachment of instrumentation. Various 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
SUMMARY OF RESULTS FOR FMVSS 208
212, 219 (PARTIAL), AND 301

TABLE 8 FMVSS 208 OCCUPANT INJURY CRITERIA

Veh. Yr./Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Veh. NHTSA No.: CS0214 Test Date: 03/13/95

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #401	PASSENGER DUMMY #403
Head Channel X*	-43.0	-53.5
Head Channel Y*	-4.4	-17.3
Head Channel Z*	-16.9	-15.5
HEAD RESULTANT*	43.9	52.1
Chest Channel X	-53.0	-50.2
Chest Channel Y	8.7	-8.4
Chest Channel Z	17.7	17.9
CHEST RESULTANT	55.0	53.4

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	257.7 **	317.9 **
t_1 = (msec)	70.0	58.7
t_2 = (msec)	105.2	93.5

[The maximum time interval from t_1 to t_2 is 36 milliseconds.]

CHEST INJURY CRITERIA (CLIP) VALUES: (g's)

CLIP	51.9	51.2
t^1 = (msec)	86.7	81.8
t^2 = (msec)	89.8	84.9
CHEST DEFLECTION (in)	1.6	0.6

* Maximums were taken prior to 135 msec (before steady noise occurred) and estimated by ignoring noise spikes.

NOTE: Maximums may not represent true values because data has random noise prior to 135 msec (see Test Notes on page 2-3). Some values may include a noise spike.

** See page 2-3 for the adjusted HIC values.

TABLE 8 FMVSS 208 OCCUPANT INJURY CRITERIA (CONTINUED)

Veh. Yr./Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Veh. NHTSA No.: CS0214 Test Date: 03/13/95

MAX. COMPRESSIVE FEMUR FORCES: (lbs)	DRIVER DUMMY #401	PASSENGER DUMMY #403
Left Side	1312	1219
Right Side	1164	1052

TIBIA FORCES: (LBS)	DRIVER DUMMY #401
Left Lower Tibia Force X	-231.2
Left Lower Tibia Force Z	-570.4
Right Lower Tibia Force X	-257.8
Right Lower Tibia Force Z	-853.0

TIBIA MOMENTS: (IN/LBS)	
Left Lower Tibia Moment Y	288.0
Left Upper Tibia Moment X	283.8
Left Upper Tibia Moment Y	919.7
Right Lower Tibia Moment Y	335.8
Right Upper Tibia Moment X	318.3
Right Upper Tibia Moment Y	1075.1

NOTE: Maximums may not represent true values because data has random noise prior to 135 msec (see Test Notes on page 2-3). Some values may include a noise spike.

TABLE 9 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 with the dummy's head rotating rearward. The driver dummy was restrained by the airbag. The dummy rebounded rearward into the seat back with the dummy's head contacting the head restraint. The driver dummy came to rest in the seat.

RIGHT FRONT PASSENGER DUMMY

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the dashboard, and head contacting the sun visor. The dummy's head and chest impacted the airbag with the dummy's head rotating rearward. The right front passenger dummy was restrained by the airbag. The dummy rebounded rearward into the seat back with the dummy's head contacting the head restraint. The right front passenger dummy came to rest in the seat.

TABLE 10 FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY
FRONT OUTBOARD DESIGNATED SEATING POSITIONS

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

NHTSA No.: CS0214; Date of Comfort/Convenience Check: 02/11/95

Technician Performing Check: Nicole Walter

GVWR: 5317 lbs

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 on or after September 1, 1989, shall meet the requirements for belt contact force, plate access, retraction and seat belt guides, and hardware.

VEHICLE EQUIPMENT:

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

CONVENIENCE HOOKS (S7.4.1):

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

WEBBING TENSION-RELIEVING DEVICE (S7.4.2)

The seat belt assembly on the front outboard seating positions did not have webbing tension-relieving devices.

TABLE 10 FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY
FRONT OUTBOARD DESIGNATED SEATING POSITIONS, (Cont'd)

BELT CONTACT FORCE (S7.4.3)

The belt contact force on the chest of the test dummy was 0.4 pounds.

LATCHPLATE ACCESS (S7.4.4)

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

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

RETRACTION (S7.4.5):

The seat belt automatically retracted when the seat belt latchplate was released.

The stowed seat belt webbing and hardware were not pinched when the door was closed.

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

The seat cushion was movable, but the seat back did not serve as a function other than seating.

The seat was not removable.

The seat was not movable so that the space formerly occupied by the seat could be used for a secondary function.

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

TABLE 10 FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY
FRONT OUTBOARD DESIGNATED SEATING POSITIONS, (Cont'd)

SEAT BELT GUIDES AND HARDWARE (S7.4.6)(Cont'd)

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

The remaining two parts (the seat belt latchplate and the buckle) were accessible under normal conditions.

The latchplate and buckle did not pass through the guides provided and fall behind the seat when the belt was completely retracted (or detached if not retractable) and the seat was moved to any position.

TABLE 11 FMVSS 208 EQUIPMENT DATA

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Date of Check: 02/13/95

Technician Performing Check: Nicole Walter

GVWR: 5317 lbs

FMVSS 208 SEAT BELT WARNING SYSTEM DATA

With an occupant in the driver's position and the lap belt/unibelt in stowed position and the ignition switch placed in the "start/on" position, the duration of audible warning signal was 7.0 seconds and the reminder light stayed on.

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 and the reminder light operation were 0 second.

Note: The audible warning should not operate.

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

FMVSS 208 LABELING AND DRIVER'S MANUAL DATA

The labels which describe manufacturer's maintenance or replacement schedule for the crash-deployed occupant protection system were located in the owners manual.

The airbag system is required to be replaced after deployment.

Appropriate instructions concerning maintenance and/or replacement of this system were provided in the owner's manual on page 40.

A description of the functional operation of the system was provided in the owner's manual on page 39.

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

TABLE 11 FMVSS 208 EQUIPMENT DATA, (Cont'd)

FMVSS 208 LABELING AND DRIVER'S MANUAL DATA (Cont'd)

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 39-44.

FMVSS 208 READINESS INDICATOR DATA

The vehicle contained a crash-deployed occupant protection system which was not totally mechanical. The readiness indicator was located inside the tachometer on the instrument panel.

The readiness indicator was clearly visible to the driver.

A list of the elements in the occupant restraint system, being monitored by the readiness indicator, was provided in the owner's manual on pages 76 and 83.

FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTS

All rear outboard seating positions had Type 2 seat belts.

TABLE 12 FMVSS 212, "WINDSHIELD MOUNTING", DATA SUMMARY

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Date: 03/13/95

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

Rubber trim with glue retention

CLIPS OR BRACKETS USED TO RETAIN WINDSHIELD: None

FMVSS 212 REQUIREMENTS:

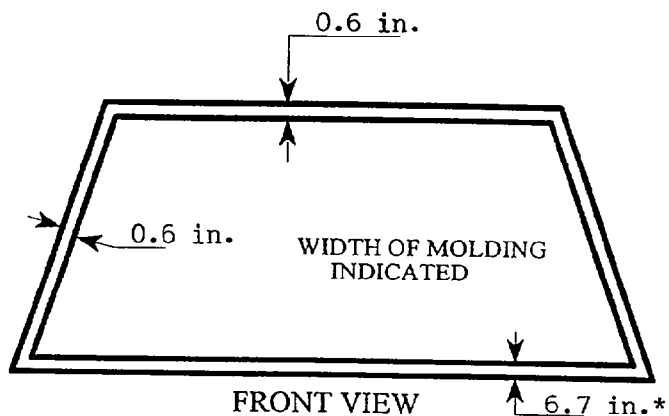
The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY (inches)		PERCENT RETENTION
	PRE-TEST	POST-TEST	
RIGHT SIDE	107.1	107.1	100%
LEFT SIDE	107.1	107.1	100%
TOTAL	214.2	214.2	100%

Pre-Test Windshield Mounting Material Temperature: 70°F

* Lower Trim Extends
To Firewall



FAILURE DETAILS: None

TABLE 13 FMVSS 219, "WINDSHIELD ZONE INTRUSION", DATA SUMMARY

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Date: 03/13/95

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" dia. 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 contacted by the sphere across the width of the instrument panel. From the outermost contact 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 1/2" distant 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= 45.4 in

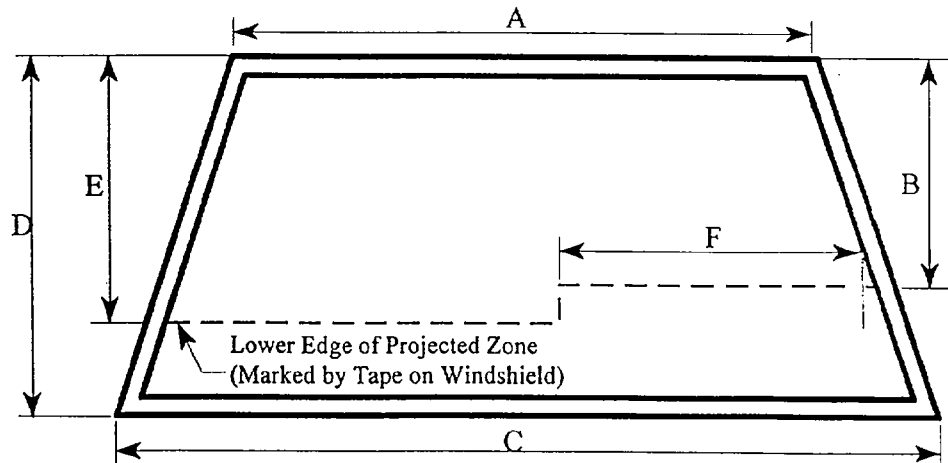
B= 15.0 in

C= 60.3 in

D= 28.7 in

E= 17.0 in

F= 31.5 in



FRONT VIEW

AREAS OF WINDSHIELD TEMPLATE PENETRATION GREATER THAN 1/4 IN:

None

AREAS OF WINDSHIELD PENETRATION, BELOW THE PROTECTED ZONE, THROUGH THE INNER SURFACE OF THE WINDSHIELD:

None

TABLE 14 FUEL SYSTEM DATA

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Date: 03/13/95

Fuel System Capacity from Owner's Manual = 17.8 and 18.4 gallons are listed

Usable Capacity Figure Furnished by COTR = 17.8 gallons

Test Volume Range (92 to 94% of Usable Capacity)

= 16.4 to 16.7 gallons

Actual Test Volume = 17.22 gallons *

Test Fluid Type: Stoddard Solvent; Spec. Grav. = 0.77

Kinematic Viscosity = 1.788 centistokes; Color = Purple

Type of Fuel Pump: X Electric; Mechanical

Does electric pump operate with ignition switch "On" and engine "Off"?

X Yes; No

Details of Fuel System:

Vehicle contained an EFI fuel system.

- * Test volume was incorrectly calculated on the volume of 18.6 gallons listed in the Ford certification test.

TABLE 15 FMVSS 301 POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Date: 03/13/95

TEST REQUIREMENTS:

Test vehicle's 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/passenger) side
☐ Rear Moving Barrier (30 mph)
☐ Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT:

POST IMPACT TEST	TEST RESULTS	MAXIMUM ALLOWABLE
1. From impact until vehicle motion ceases	0 oz	1 oz
2. For 5 minute period after vehicle motion ceases	0 oz	5 oz
3. For next 25 minutes	0 oz	1 oz./1 min

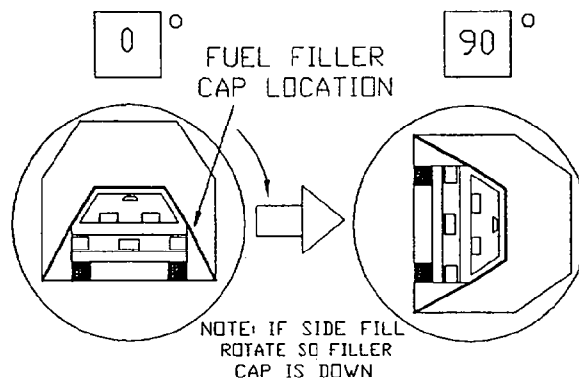
FUEL SPILLAGE LOCATION(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Date: 03/13/95

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 51 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 51 seconds

Next Whole Minute Interval = 8 minutes

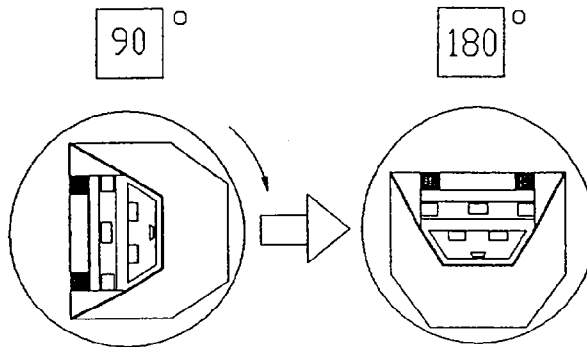
FUEL SPILLAGE MEASUREMENT:

0° TO 90° ROTATION (FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	N/A	1 oz

FUEL SPILLAGE LOCATIONS(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 27 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds
TOTAL TIME = 7 minutes 27 seconds
Next Whole Minute Interval = 8 minutes

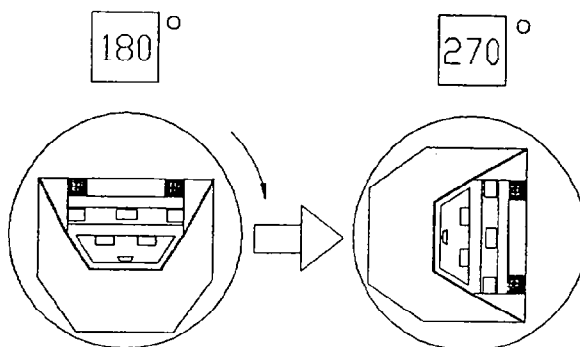
FUEL SPILLAGE MEASUREMENT:

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
4. Eighth Minute if Required	N/A	1 oz

FUEL SPILLAGE LOCATIONS(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 27 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 27 seconds

Next Whole Minute Interval = 8 minutes

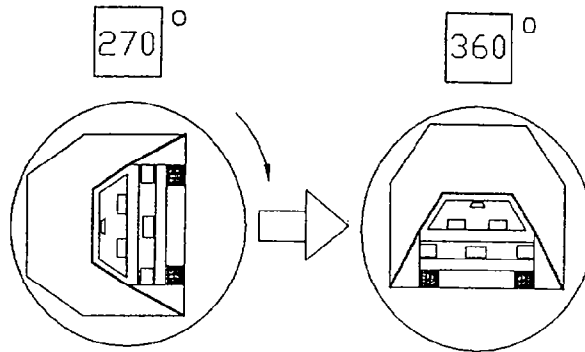
FUEL SPILLAGE MEASUREMENT:

180° TO 270° 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
4. Eighth Minute if Required	N/A	1 oz

FUEL SPILLAGE LOCATIONS(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 44 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 44 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

270° TO 360° 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
4. Eighth Minute if Required	N/A	1 oz

FUEL SPILLAGE LOCATIONS(S): None

SECTION 4
OCCUPANT, VEHICLE, AND CAMERA INFORMATION

TABLE 17 SEAT AND STEERING COLUMN POSITIONING DATA

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Date: 03/13/95

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = 27.5°

The seat back angle was measured on the seat back frame with the inclinometer.

Passenger Seat: Same as driver's seat.

SEAT FORE AND AFT POSITIONS:

Driver Seat: The seat track had a total position movement of 10.0 inches and was positioned 5.0 inches rearward from the foremost position.

Passenger Seat: Same as driver's seat.

STEERING COLUMN ADJUSTMENTS:

The steering column was positioned at the mid-point of its swing. The angle of the steering column was set at the 3rd notch of 5.

FIGURE 1 DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS

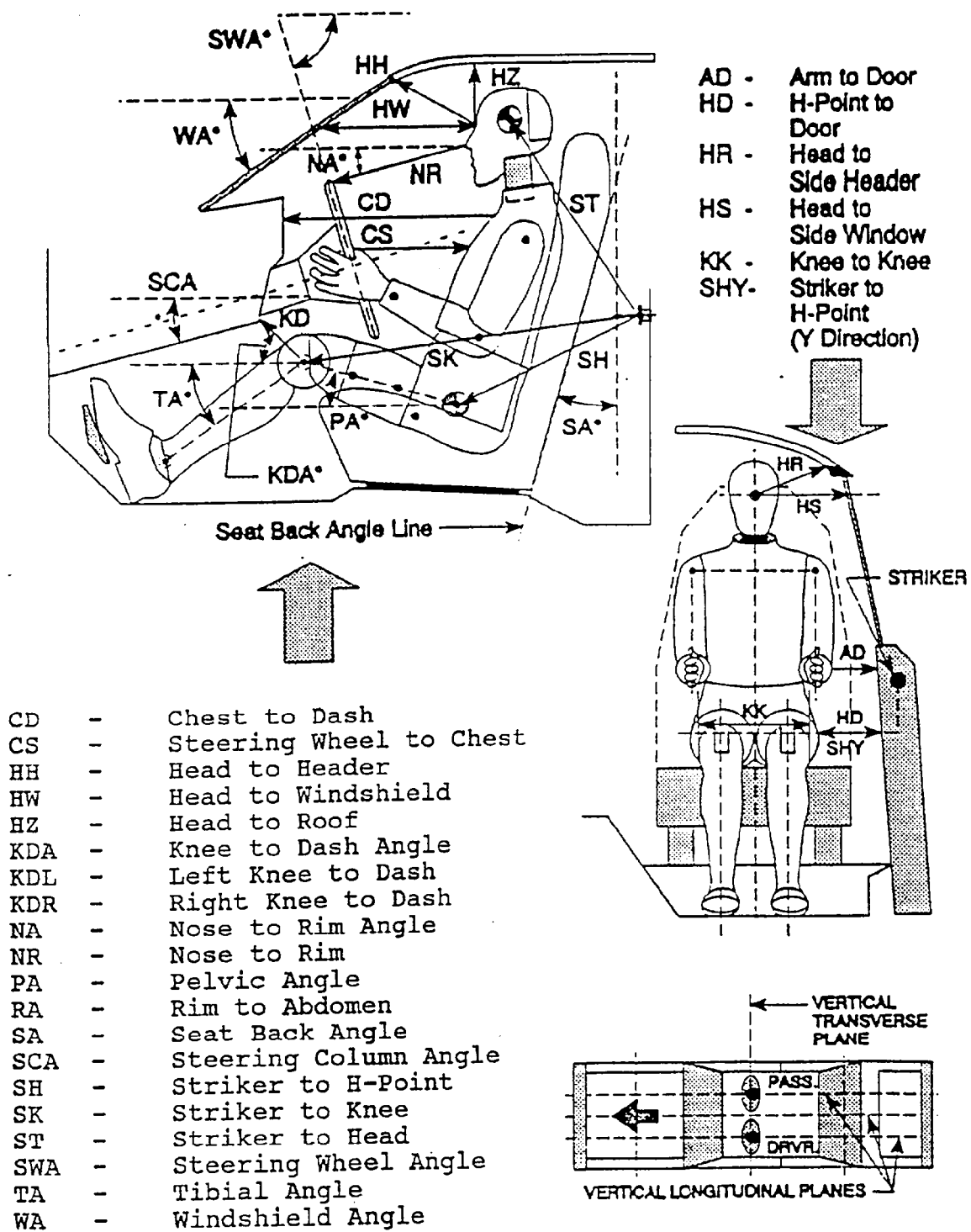


TABLE 18 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

Vehicle Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

Vehicle NHTSA No.: CS0214 Test Date: 03/13/95

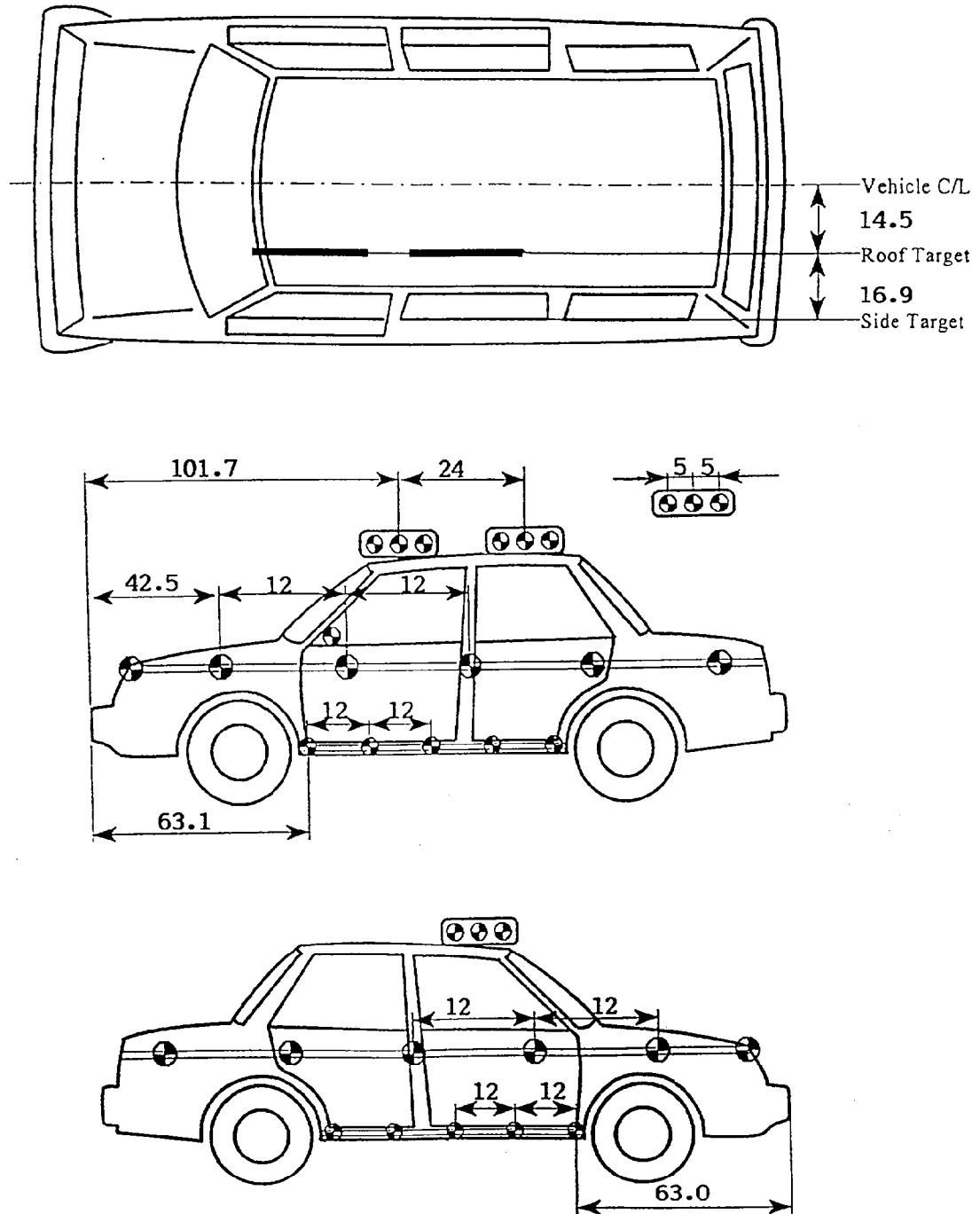
	DRIVER (Serial #401)	PASSENGER (Serial #403)
WA°	31.8°	N/A
SWA°	21.2°	N/A
SCA°	**	N/A
SA°	27.5°	27.5°
HZ	7.5 in	7.2 in
HH	13.2 in	11.9 in
HW	22.9 in	21.9 in
HR	9.9 in	10.6 in
NR	13.7 in Angle (NA) 13.1°	N/A
CD	19.6 in	18.3 in
CS	11.1 in	N/A
RA	6.0 in	N/A
KDL	4.8 in Angle (KDA) 32.6°	4.4 in
KDR	4.7 in	5.3 in Angle (KDA) 35.8°
PA°	23.2°	21.9°
TA°	42.5°	45.6°
KK	12.3 in	9.9 in
ST*	20.9 in Angle 80.4°	21.3 in Angle 74°
SK*	22.8 in Angle 0.7°	23.0 in Angle 1.3°
SH*	9.6 in Angle -32.3°	9.6 in Angle -33°
SHY	10.6 in	10.5 in
HS	13.4 in	13.5 in
HD	6.0 in	5.9 in
AD	4.0 in	4.3 in

N/A = Not Applicable

* Angles taken from horizontal

** The steering column was adjusted at the third notch of 5 total.

FIGURE 2 VEHICLE TARGET LOCATIONS



(Dimensions in Inches)

FIGURE 3 CAMERA POSITIONS

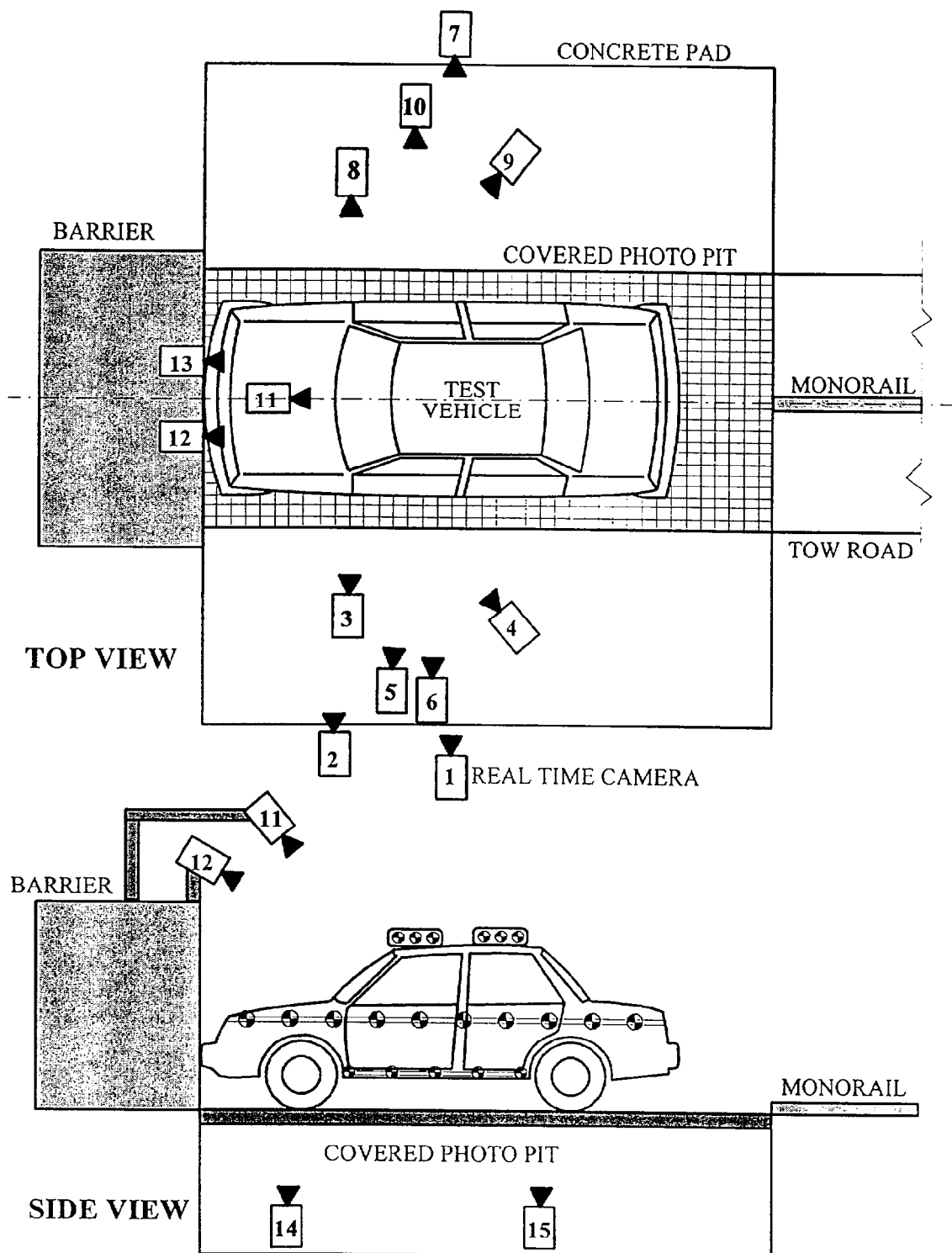


TABLE 19 CAMERA LOCATIONS

Veh. Year/Make/Model/Body Style: 1995/Lincoln/Continental/4 Door Sedan

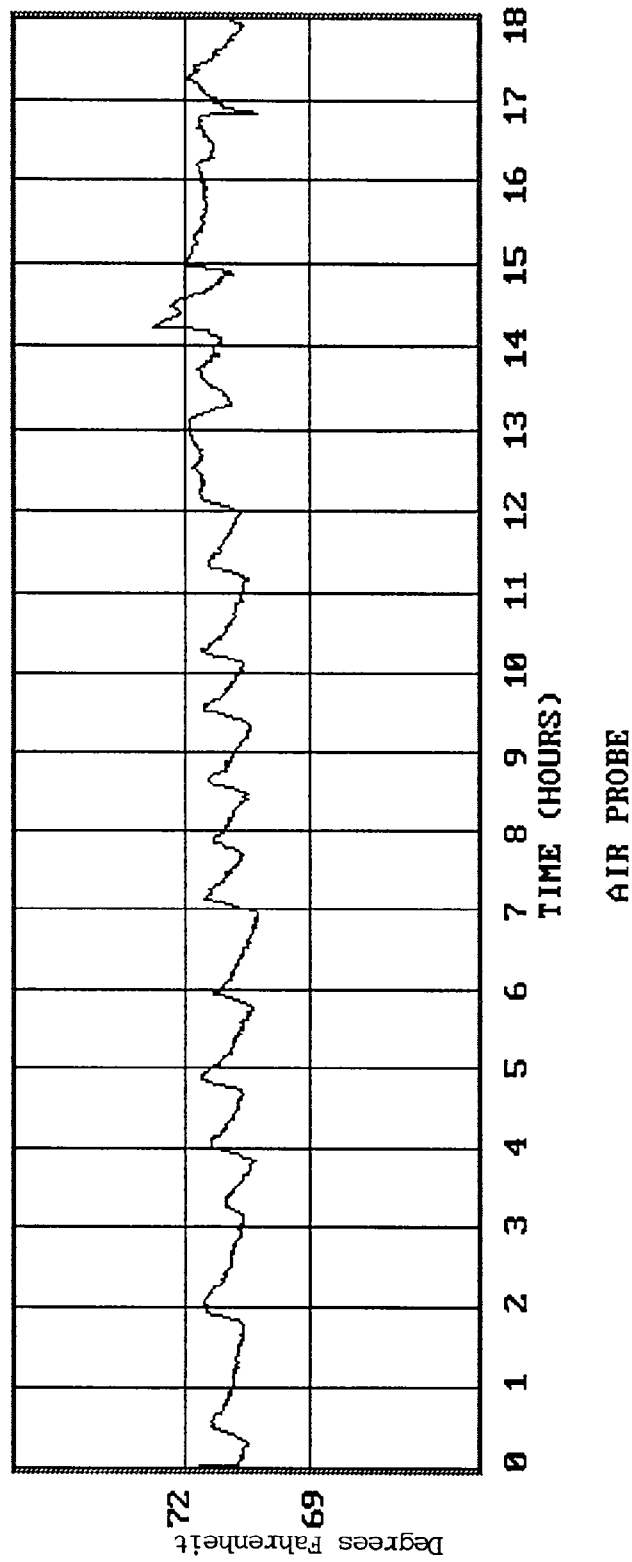
Vehicle NHTSA No.: CS0214 ; Test Date: 03/13/95

	VIEW	CAMERA POSITIONS (inches)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Left Side View						10	24
2	Left Front	47.0	330.3	42.7	90°	7970	25	935
3	Driver Close-up	64.8	286.6	50.4	50°	6860	25	1087
4	Driver Angle Motion	172.6	185.0	85.4	50°		25	943
5	Steering Column Top	81.9	296.9	61.6	90°	7120	50	1010
6	Steering Column Bottom	81.9	297.2	40.6	90°	7130	35	1010
7	Right Overall	110.4	354.7	45.9	90°	8590	13	1124
8	Right Close-up	63.2	292.9	46.9	90°	7020	25	1005
9	Right Angle	164.4	192.1	85.4	50°		50	935
10	Right Passenger	43.1	306.3	42.5	90°	7360	35	976
11	Top Overall	98.4	0	197.2			8	1087
12	Top Driver	-14.0	21.3	90.7			13	775
13	Top Passenger	-17.5	22.8	91.7			13	1070
14	Pit Front	52.6	2.8	124.2			13	1000
15	Pit Rear View	119.5	4.3	122.6			13	1250

- *
 + X = Film plane rearward of barrier
 + Y = Film plane to left of monorail centerline
 + Z = Film plane to above ground level

AIR PROBE TEMPERATURE
TEST DATE: MARCH 13, 1995
FMVSS 208
1995 LINCOLN CONTINENTAL
NHTSA NO.: CS0214

FIGURE 4 TEST DUMMY TEMPERATURE



APPENDIX A
PHOTOGRAPHS

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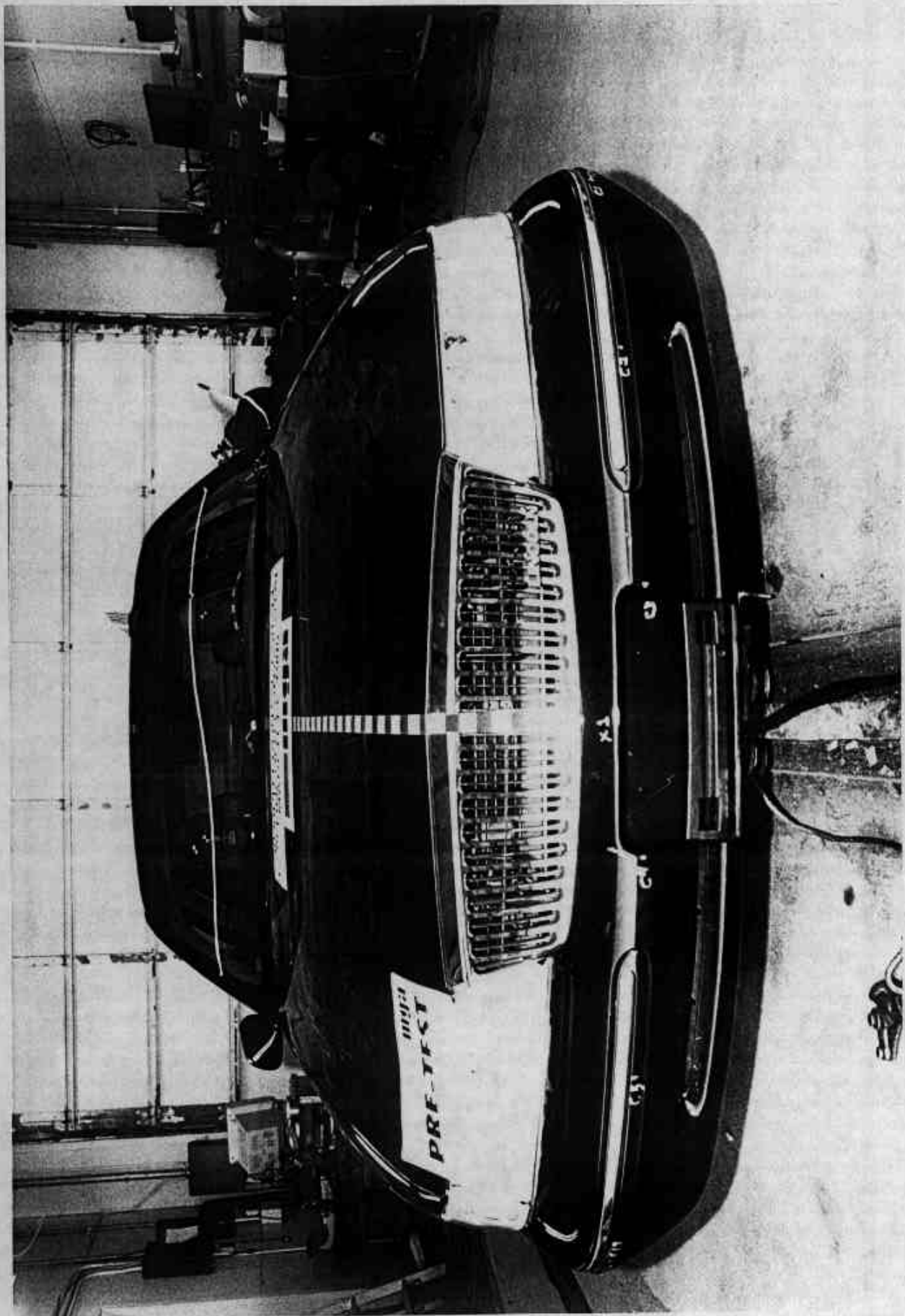


Photo No. A-1 - Pre-Test Front View

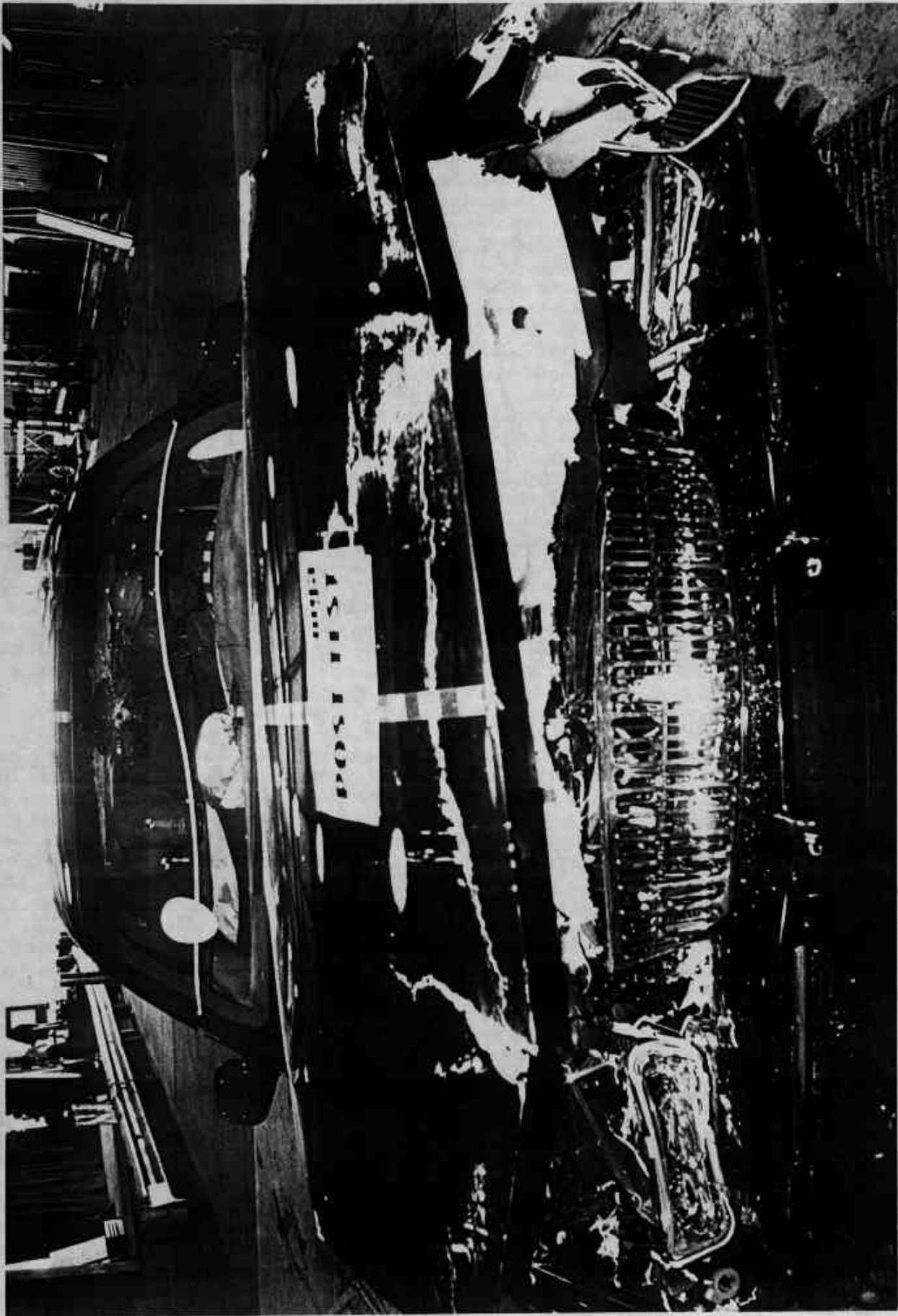


Photo No. A-2 - Post-Test Front View

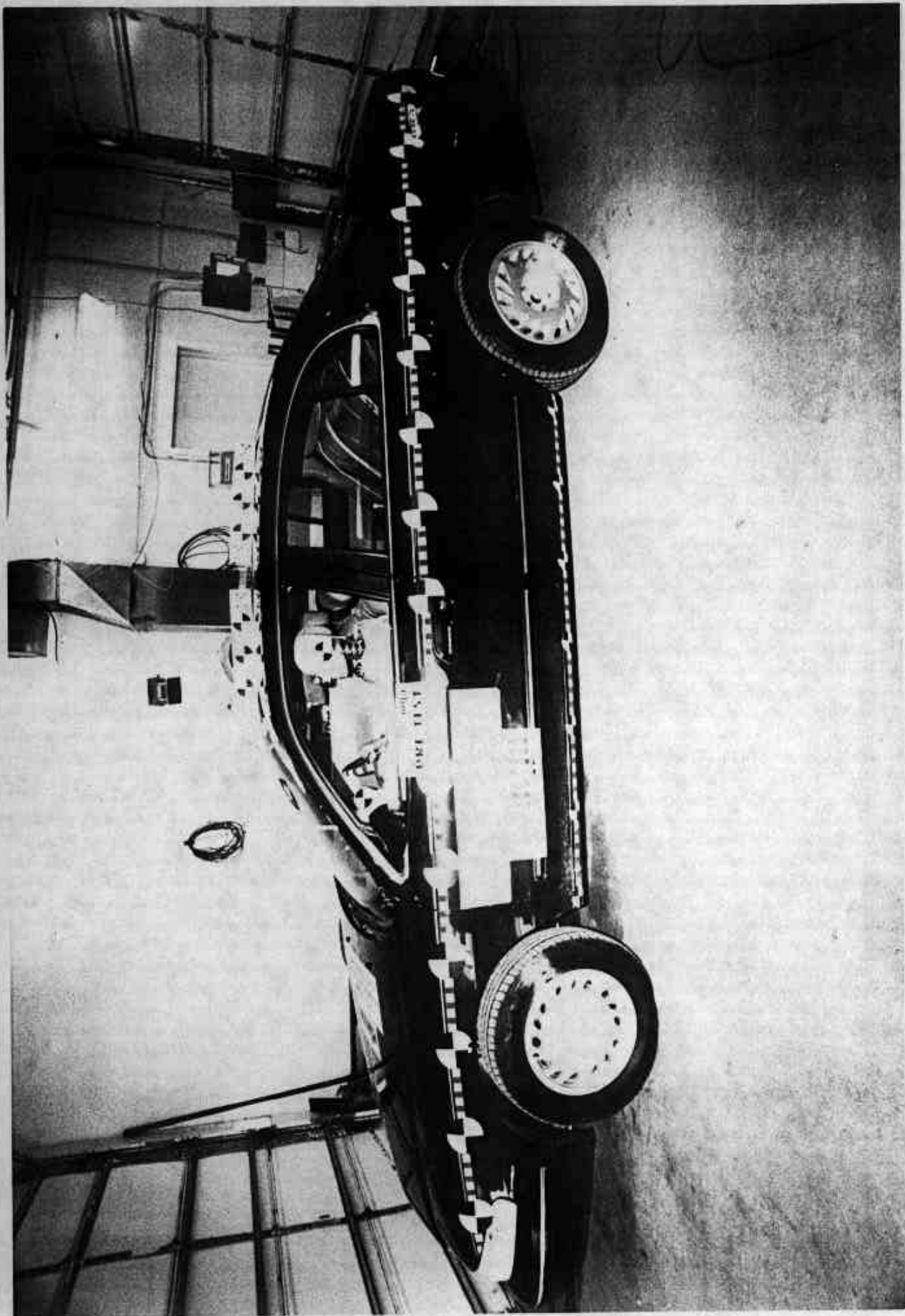


Photo No. A-3 - Pre-Test Left Side View

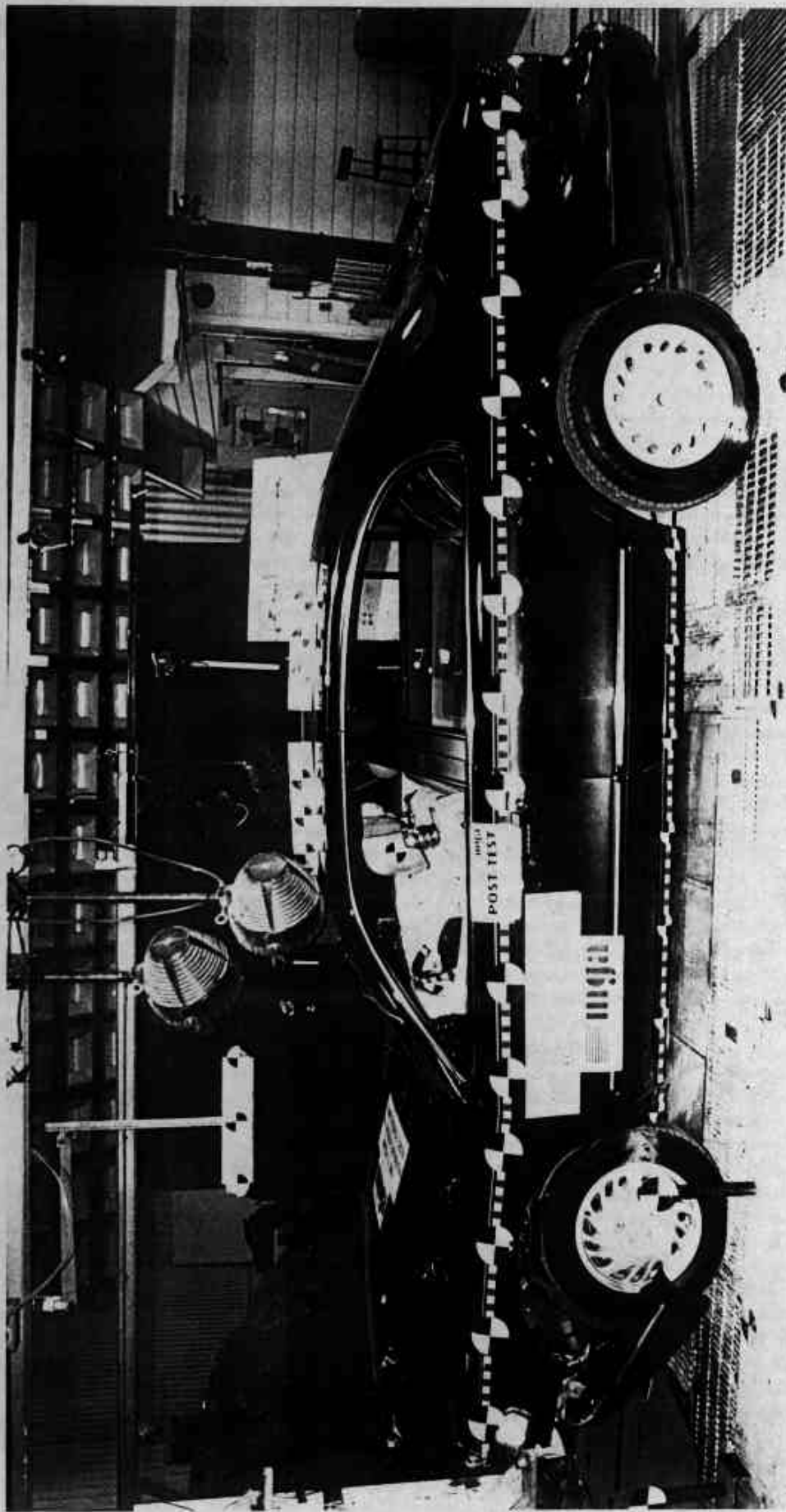


Photo No. A-4 - Post-Test Left Side View

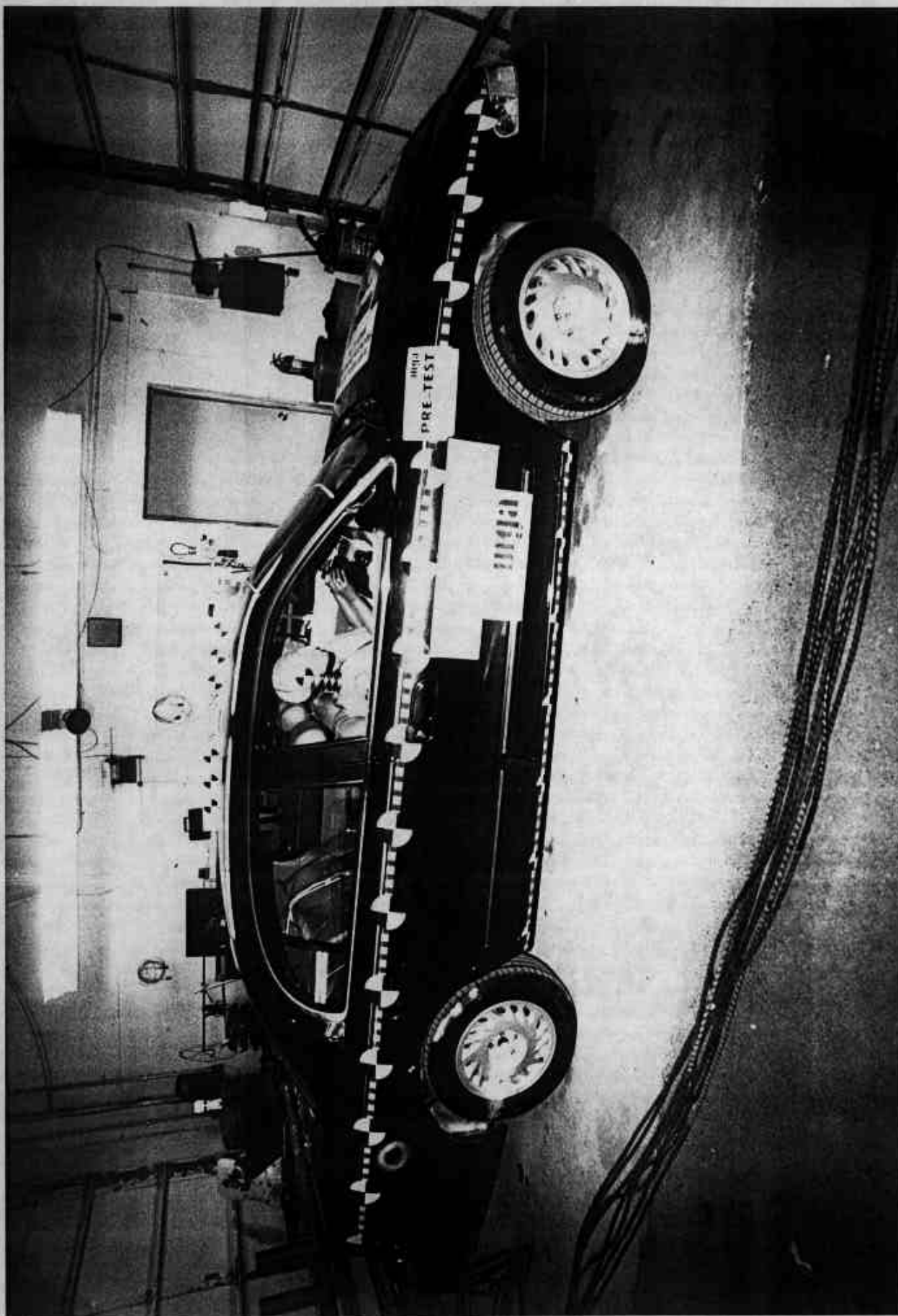


Photo No. A-5 - Pre-Test Right Side View

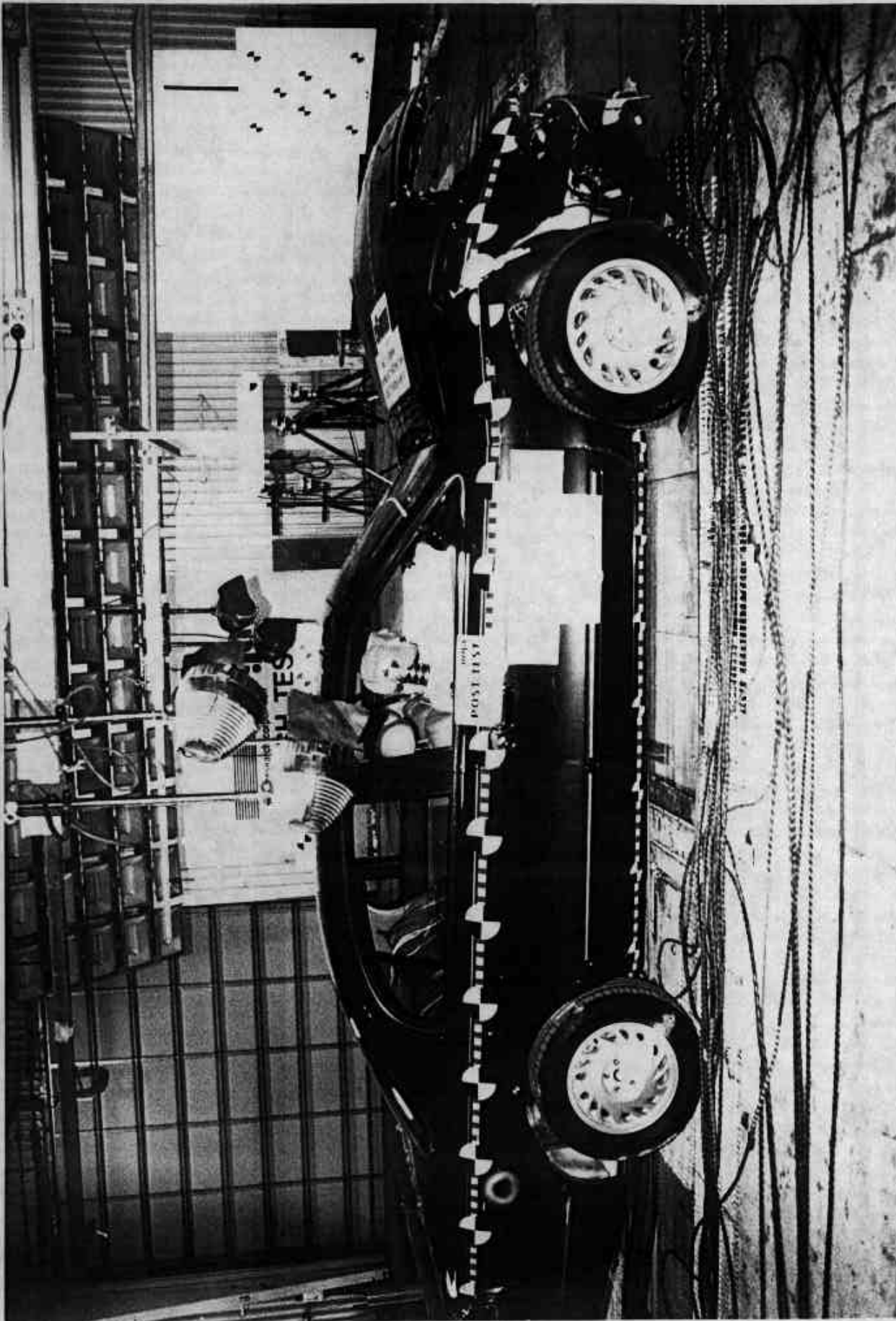


Photo No. A-6 - Post-Test Right Side View

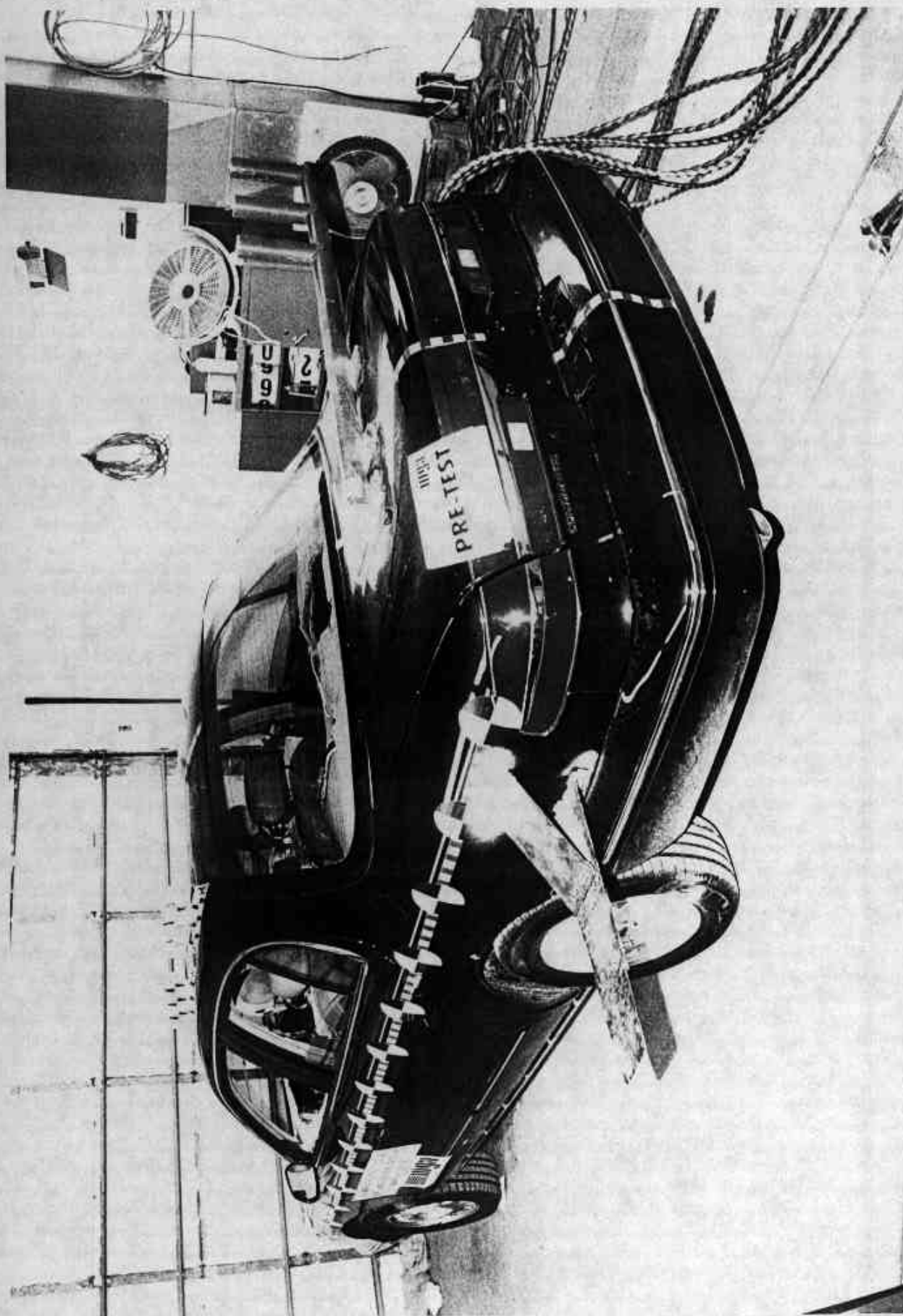


Photo No. A-7 - Pre-Test 3/4 Left Rear View

A-7

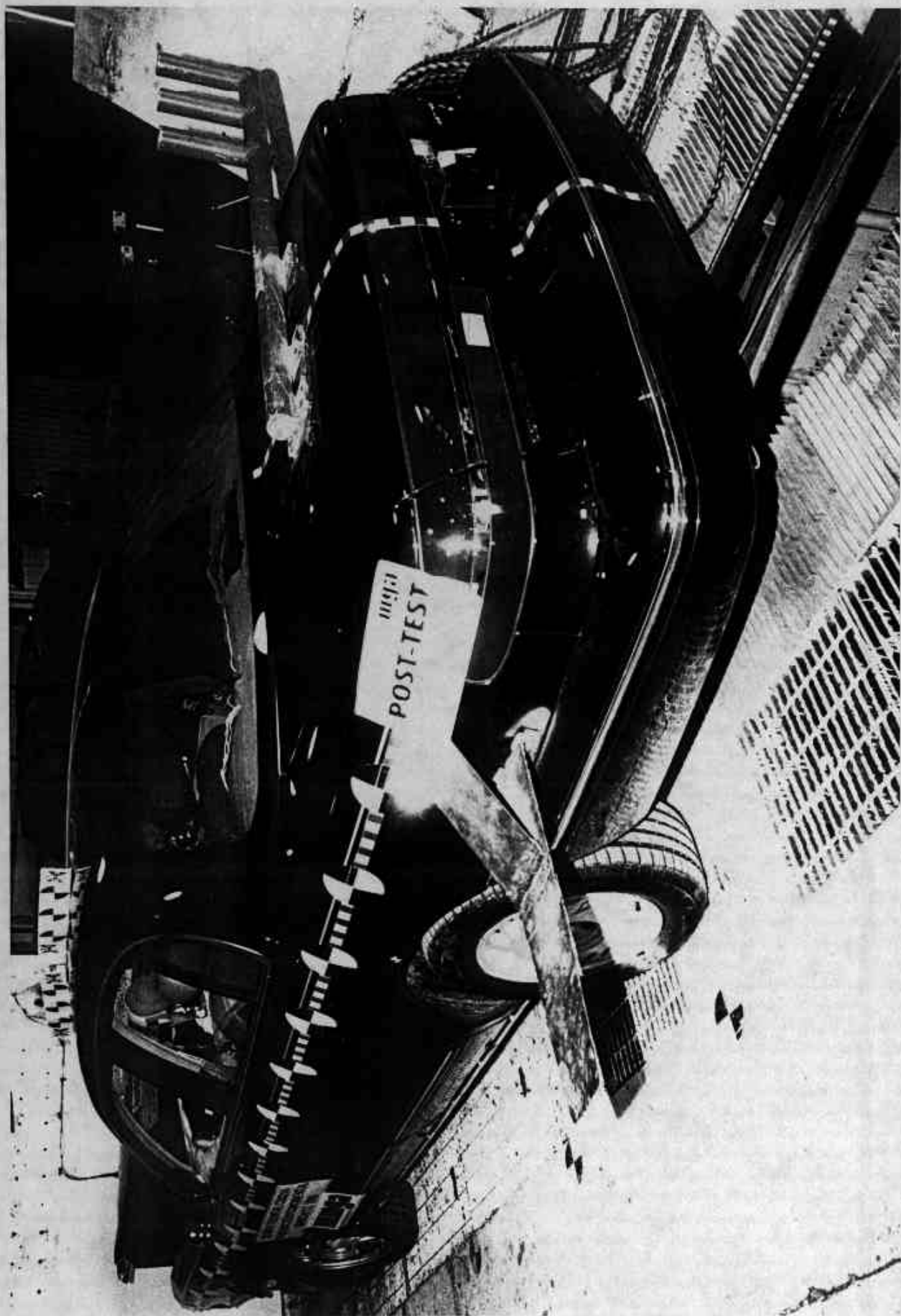


Photo No. A-8 - Post-Test 3/4 Left Rear View



Photo No. A-10 - Post-Test 3/4 Right Front View

A-10

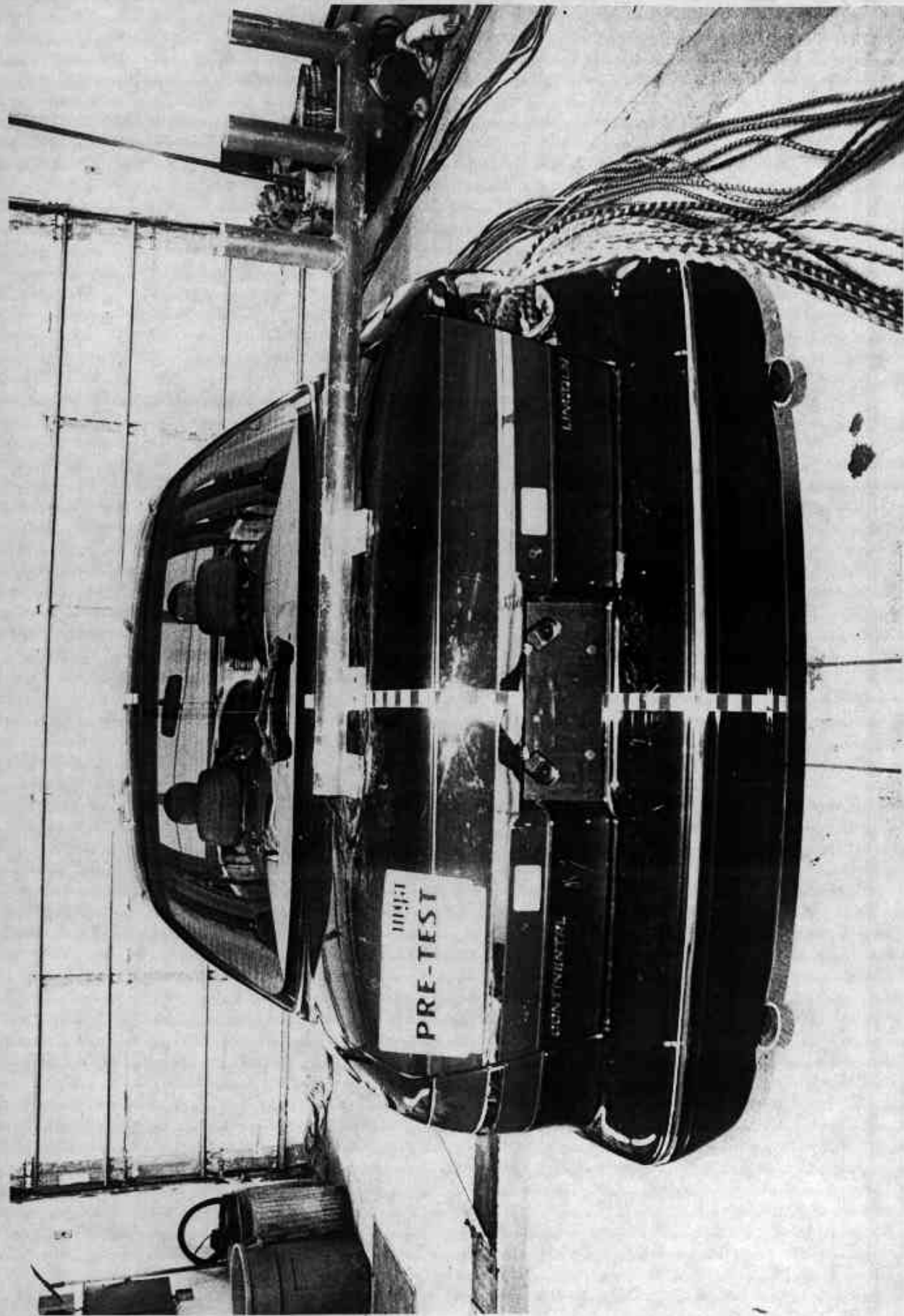


Photo No. A-11 - Pre-Test Rear View

A-11

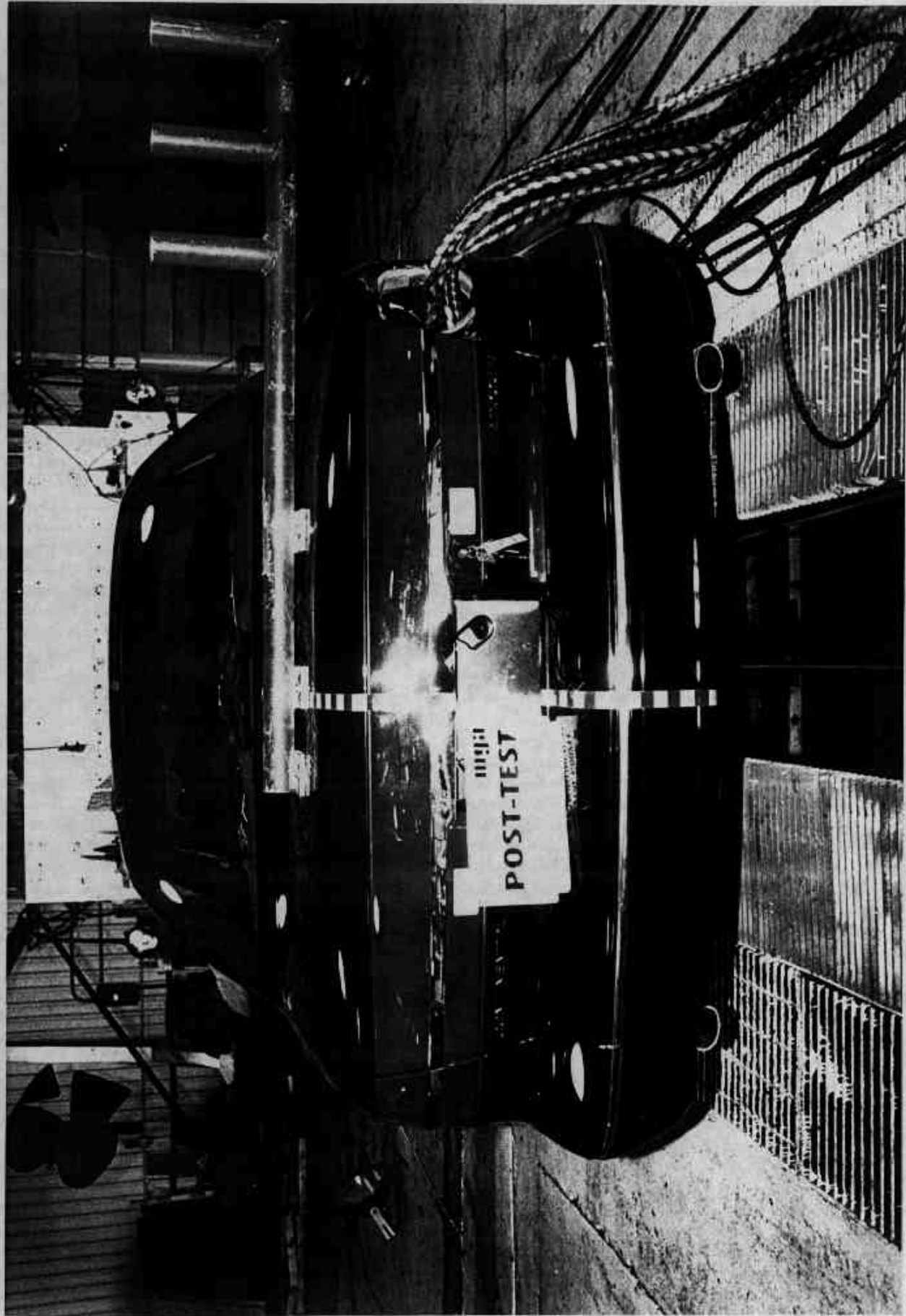


Photo No. A-12 - Post-Test Rear View

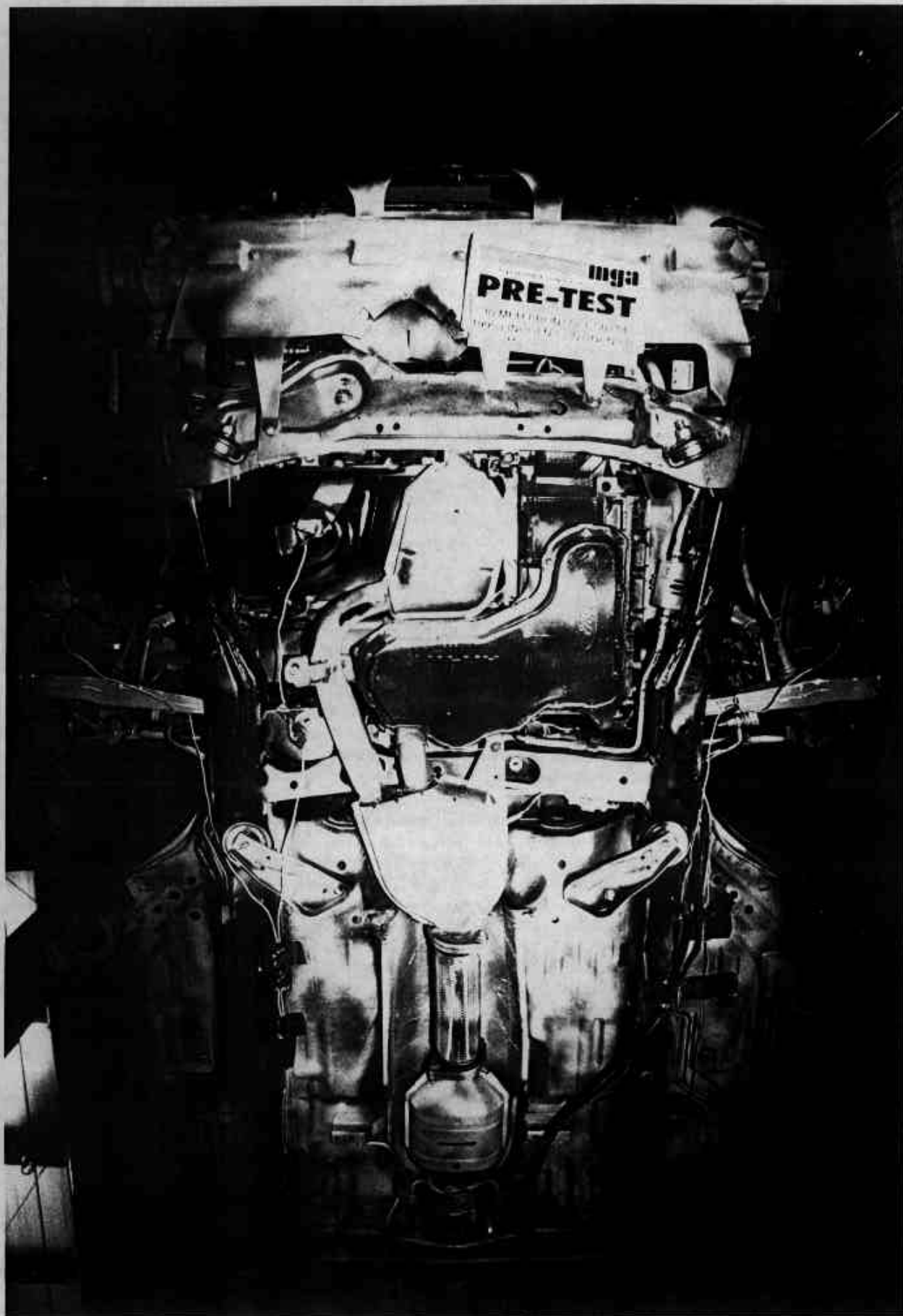


Photo No. A-13 - Pre-Test Front Underbody View

A-13

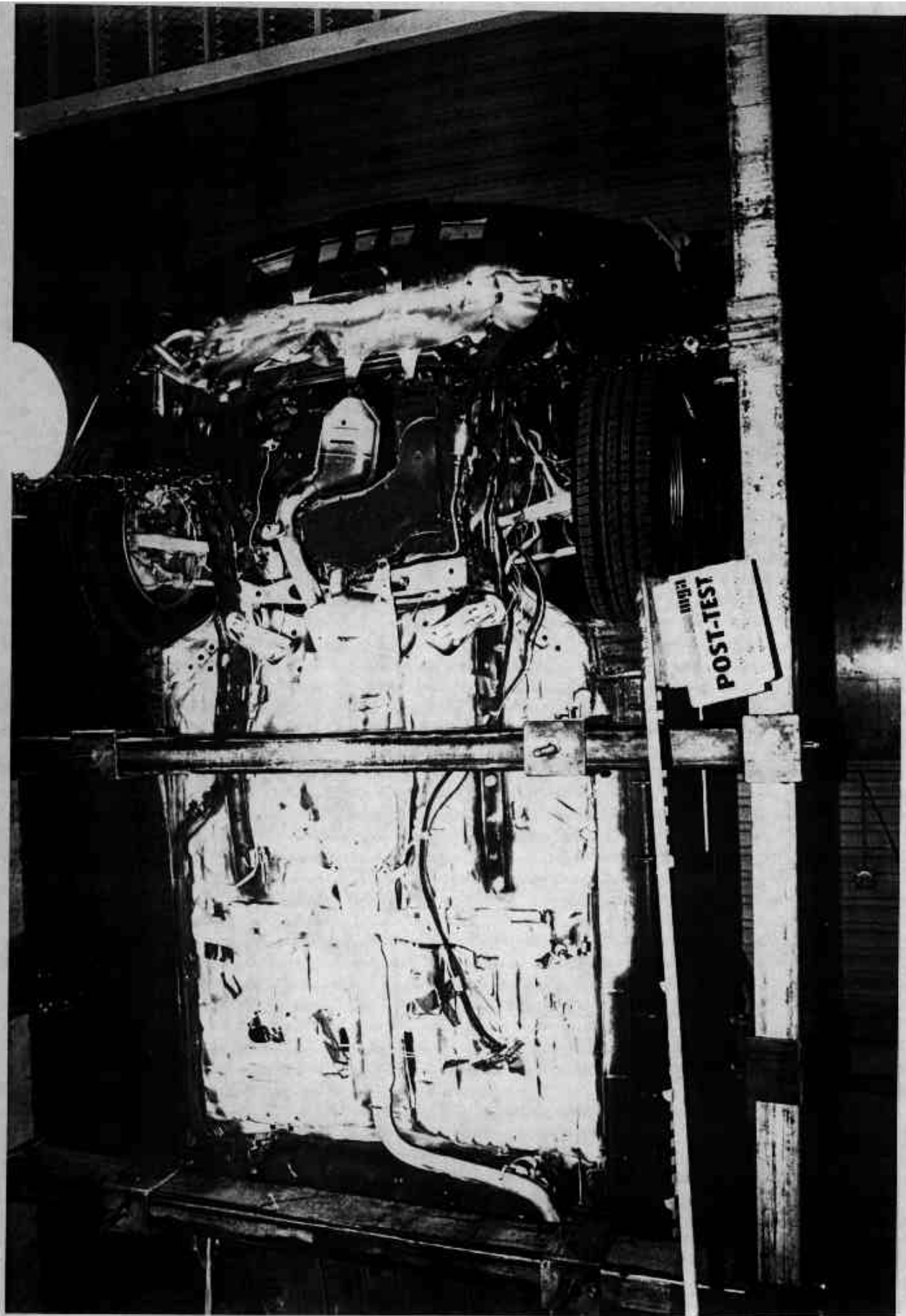


Photo No. A-14 - Post-Test Front Underbody View

A-14

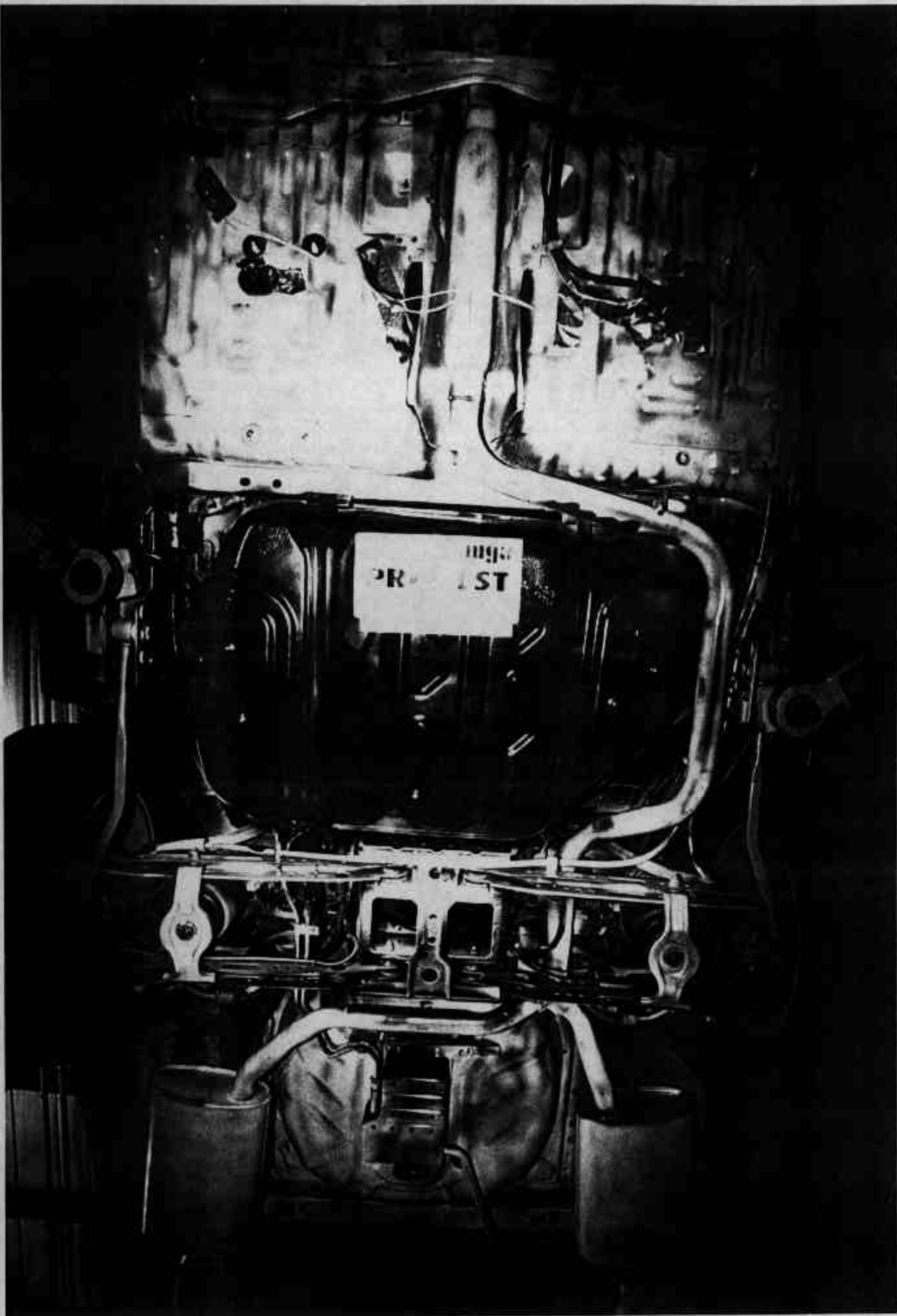
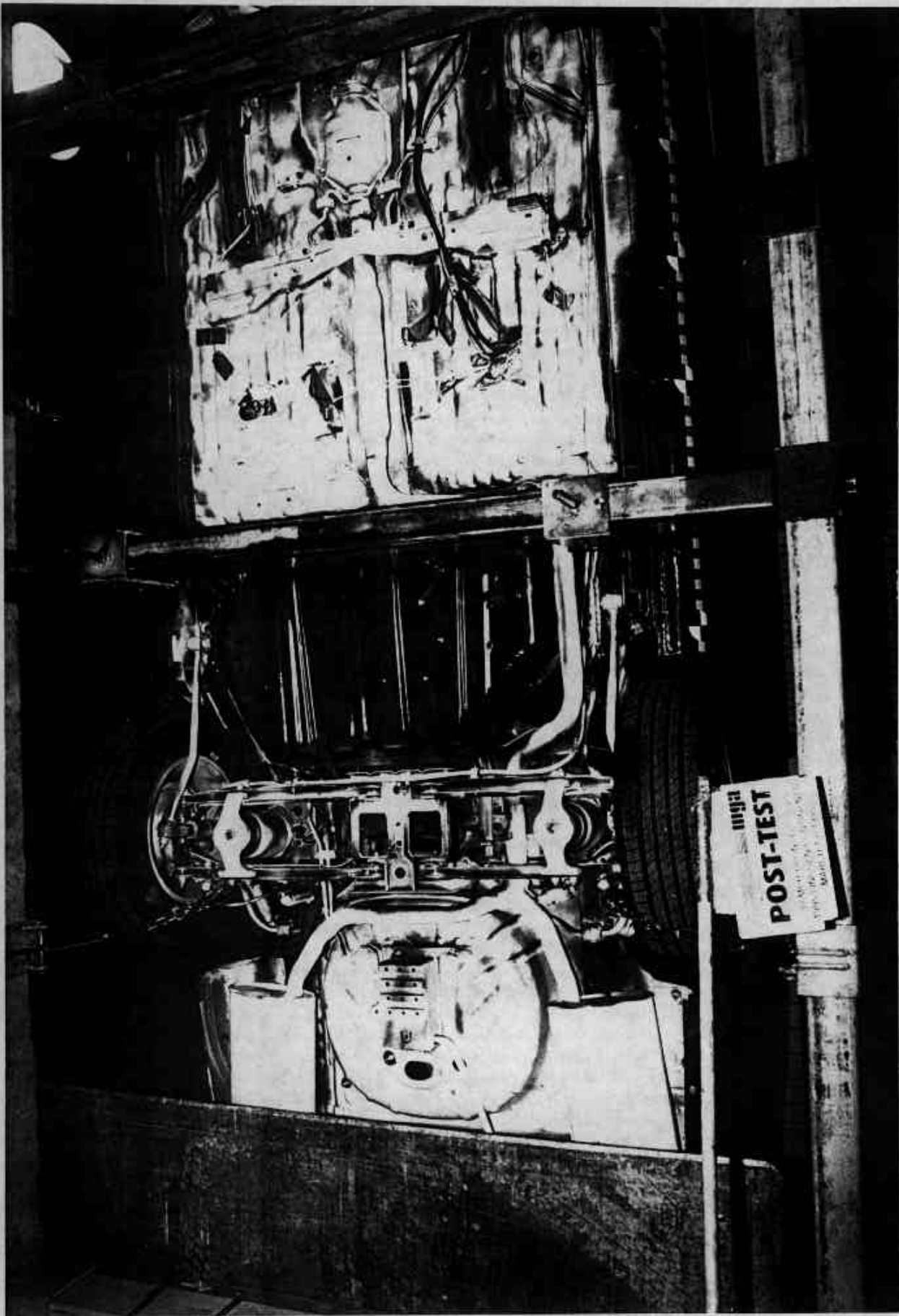


Photo No. A-15 - Pre-Test. Rear Underbody View

A-15



A-16

Photo No. A-16 - Post-Test Rear Underbody View

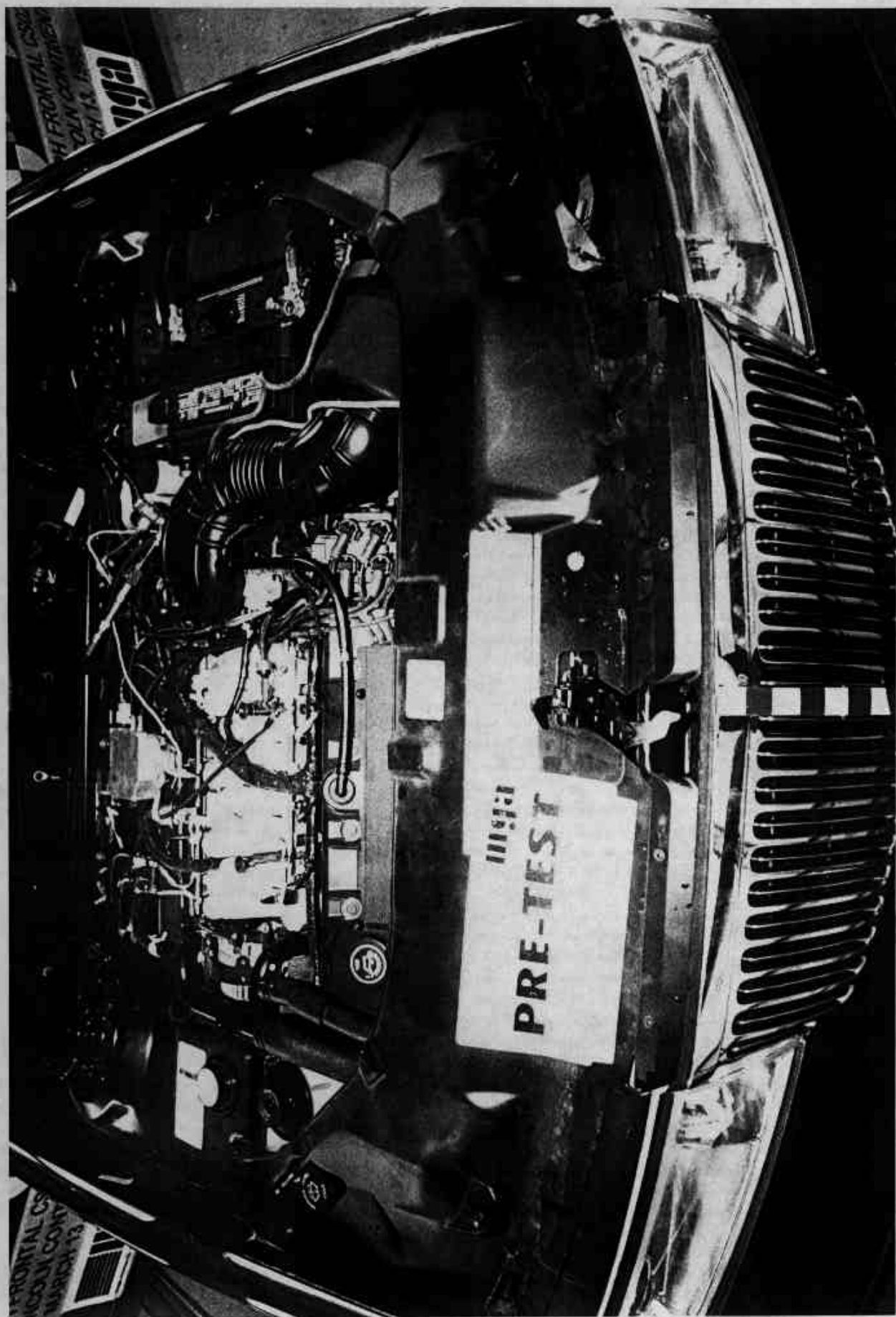


Photo No. A-17 - Pre-Test Engine Compartment View

A-17

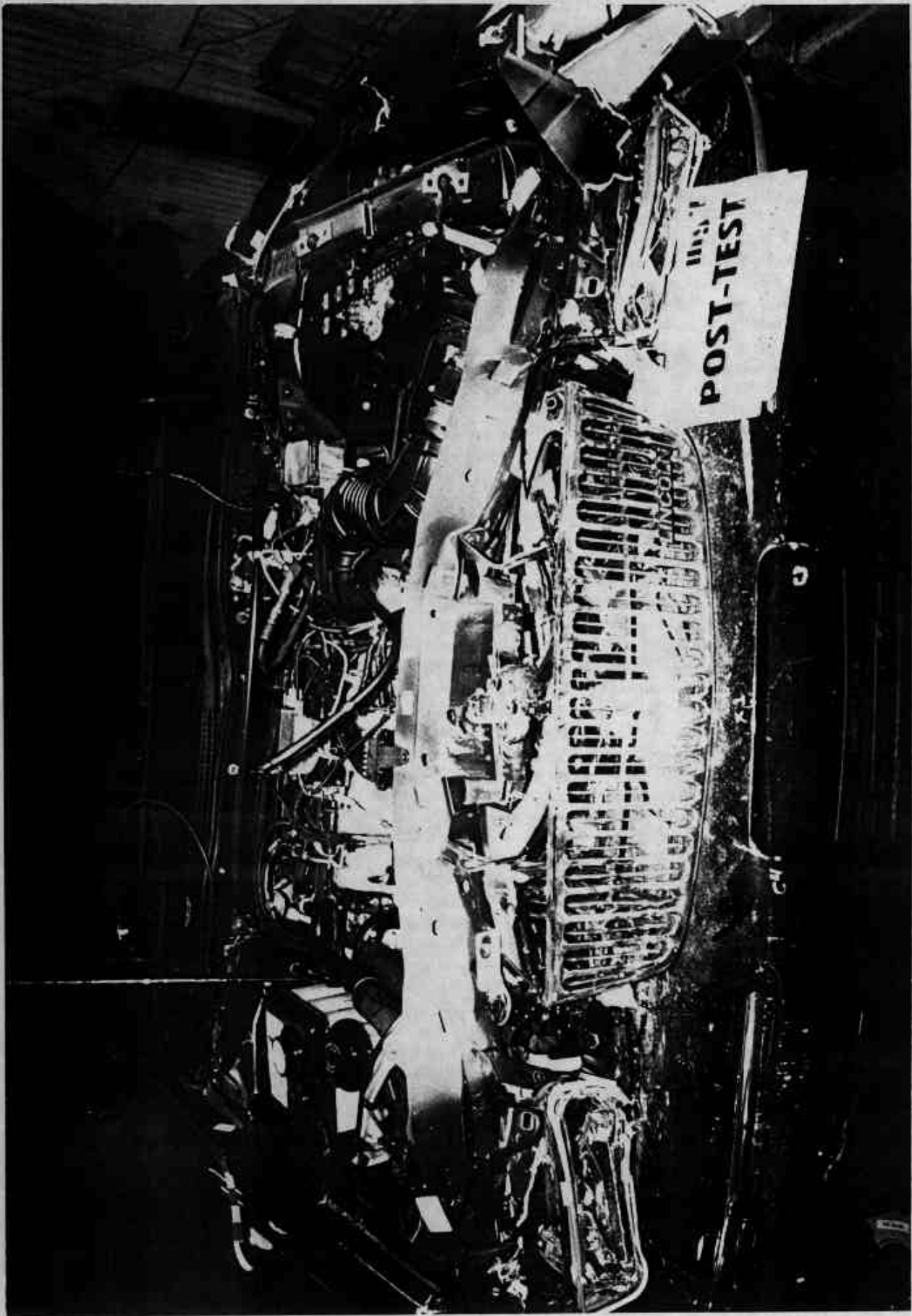
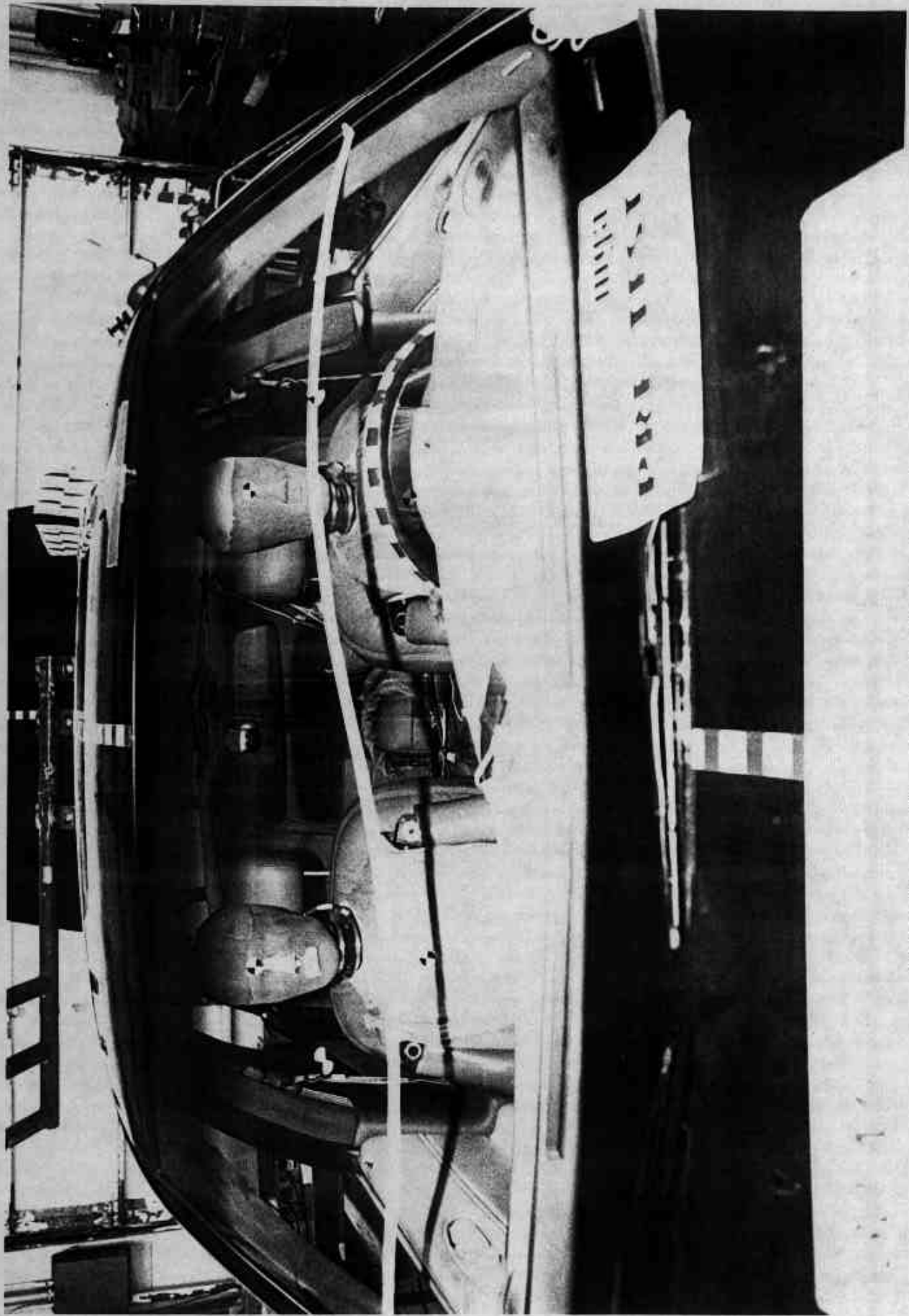


Photo No. A-18 - Post-Test Engine Compartment View

A-18



A-19

Photo No. A-19 - Pre-Test Windshield View

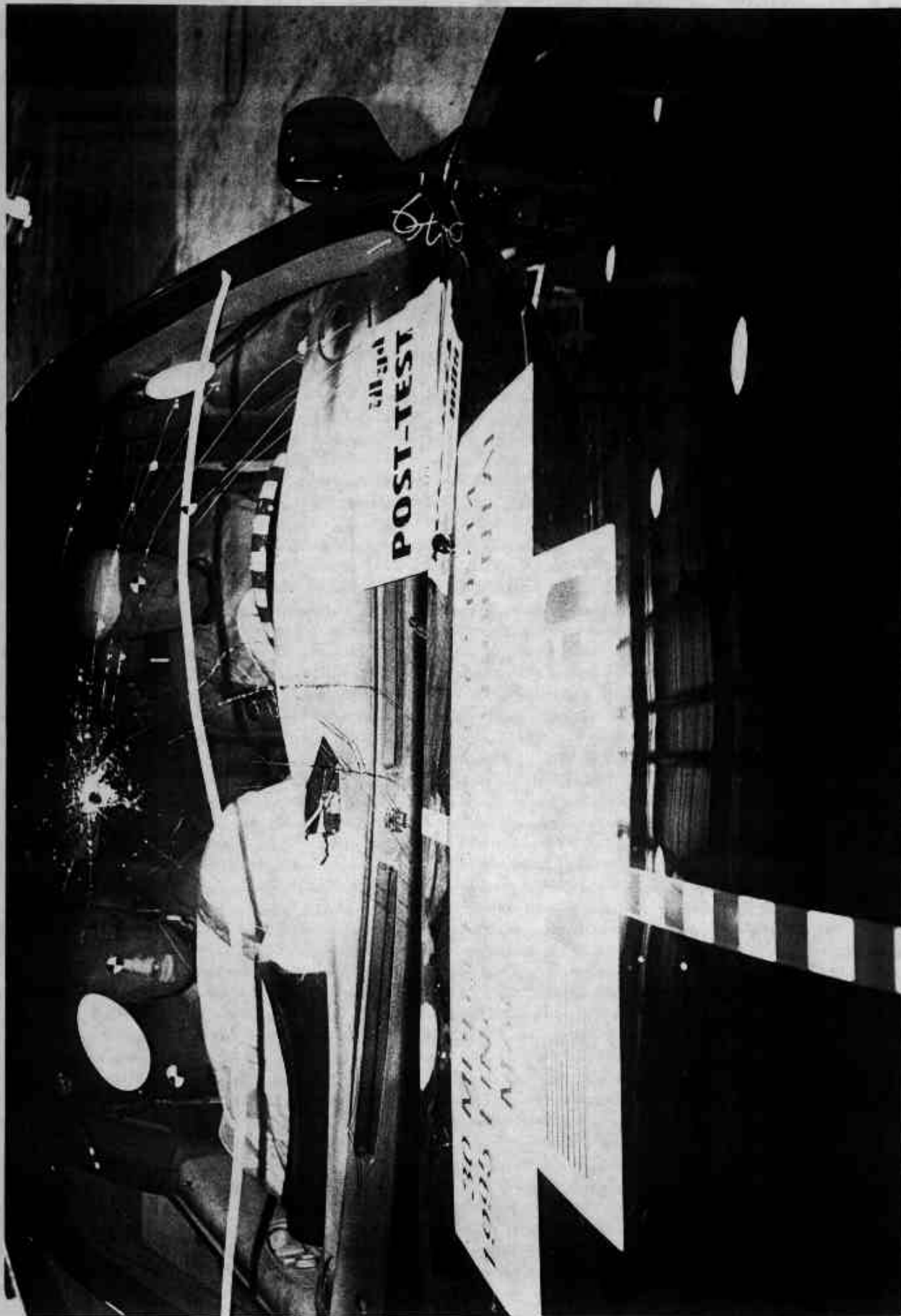
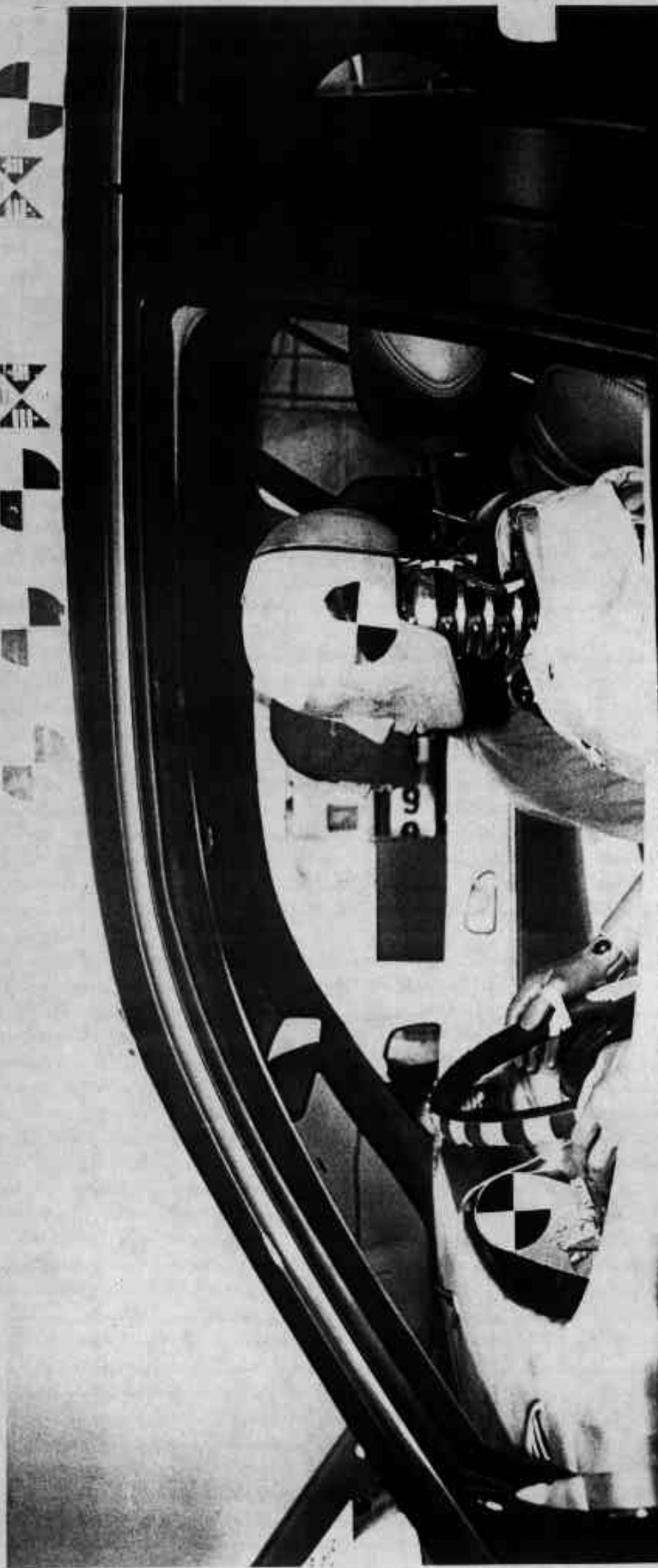


Photo No. A-20 - Post-Test Windshield View

A-20



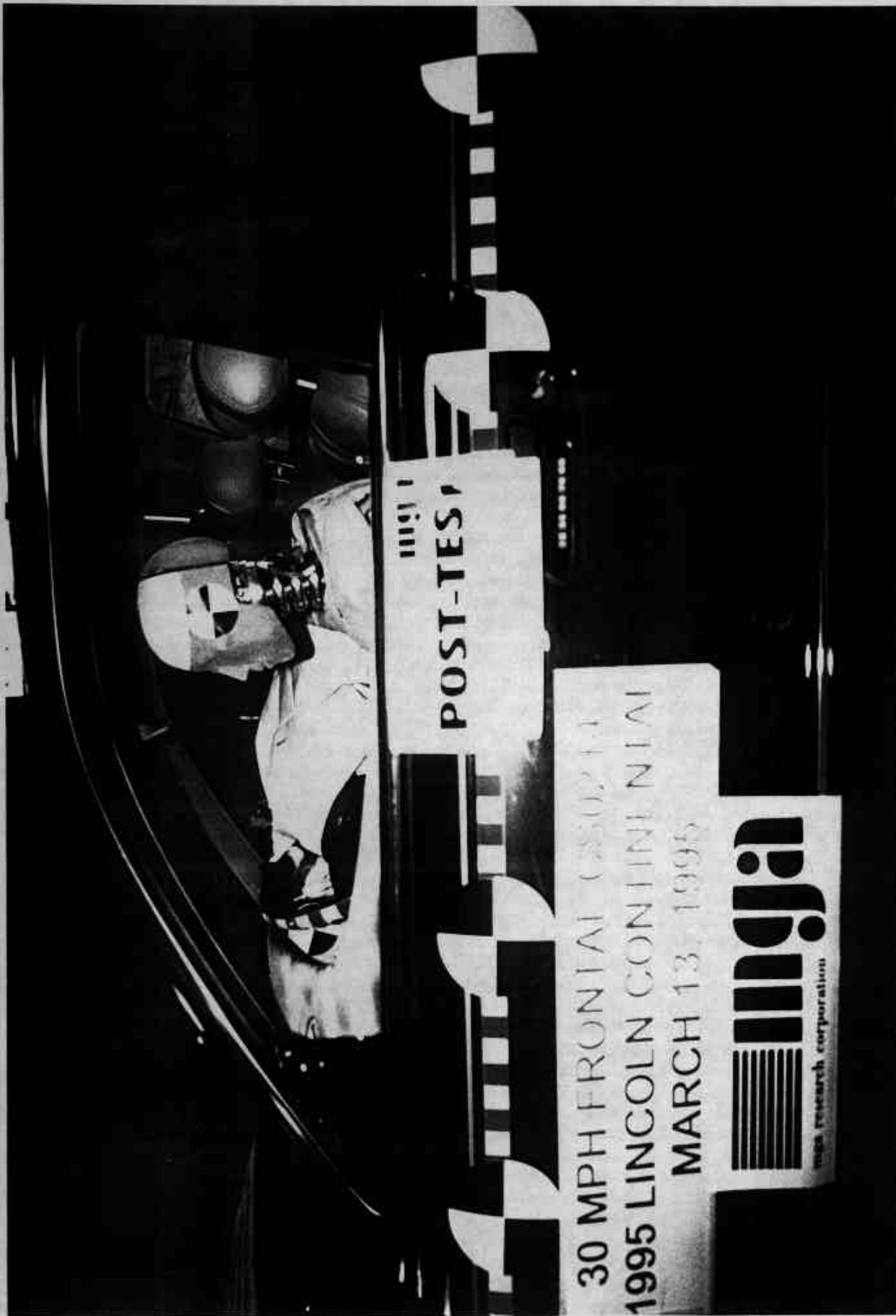
A-21

PRE-TEST

1234567890

RONTAL CS0214

Photo No. A-21 - Pre-Test Driver Dummy Position View



A-22

Photo No. A-22 - Post-Test Driver Dummy Position View

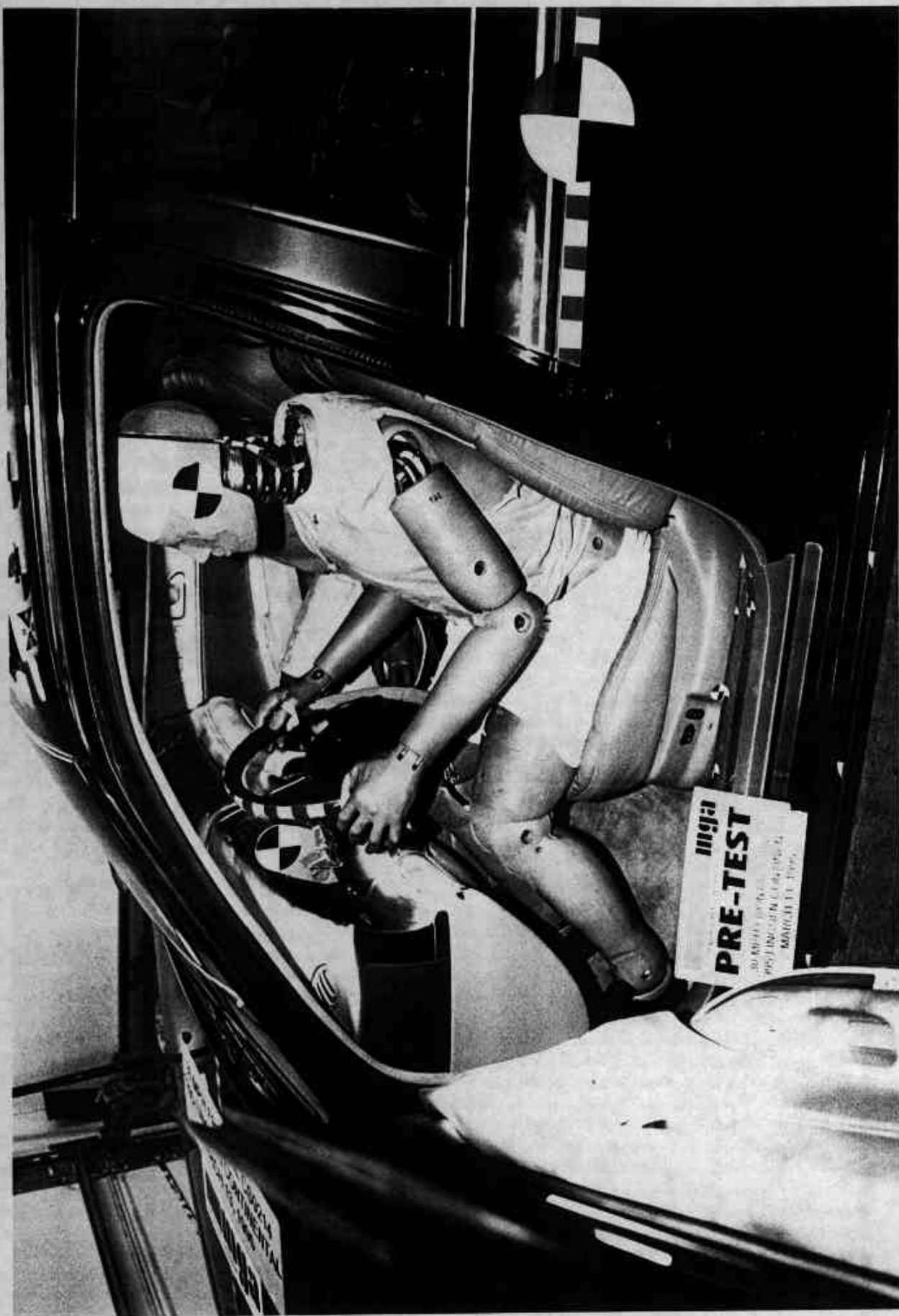


Photo No. A-23 - Pre-Test Driver Dummy Position View (Door Open)

A-23

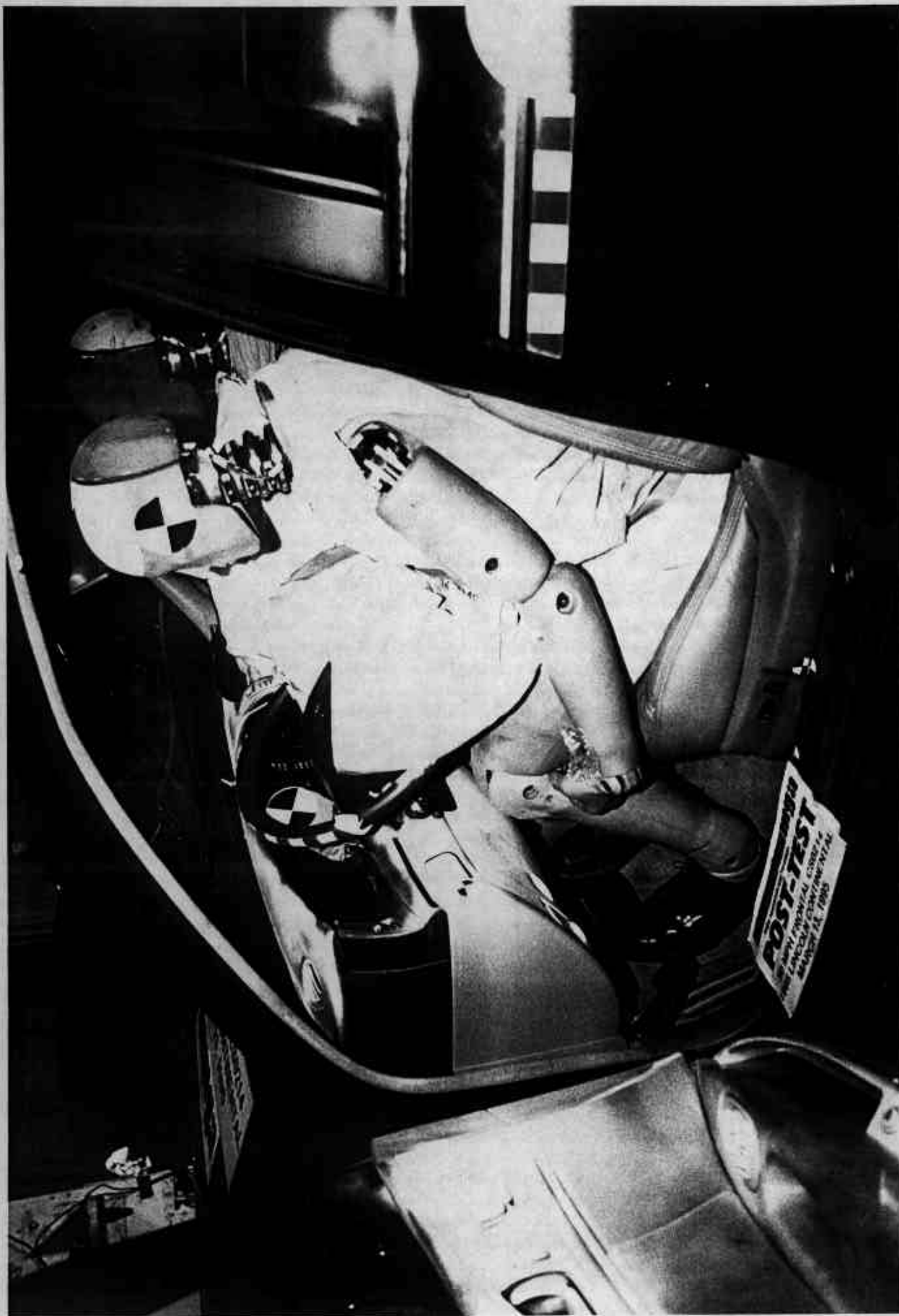


Photo No. A-24 - Post-Test Driver Dummy Position View (Door Open)

A-24

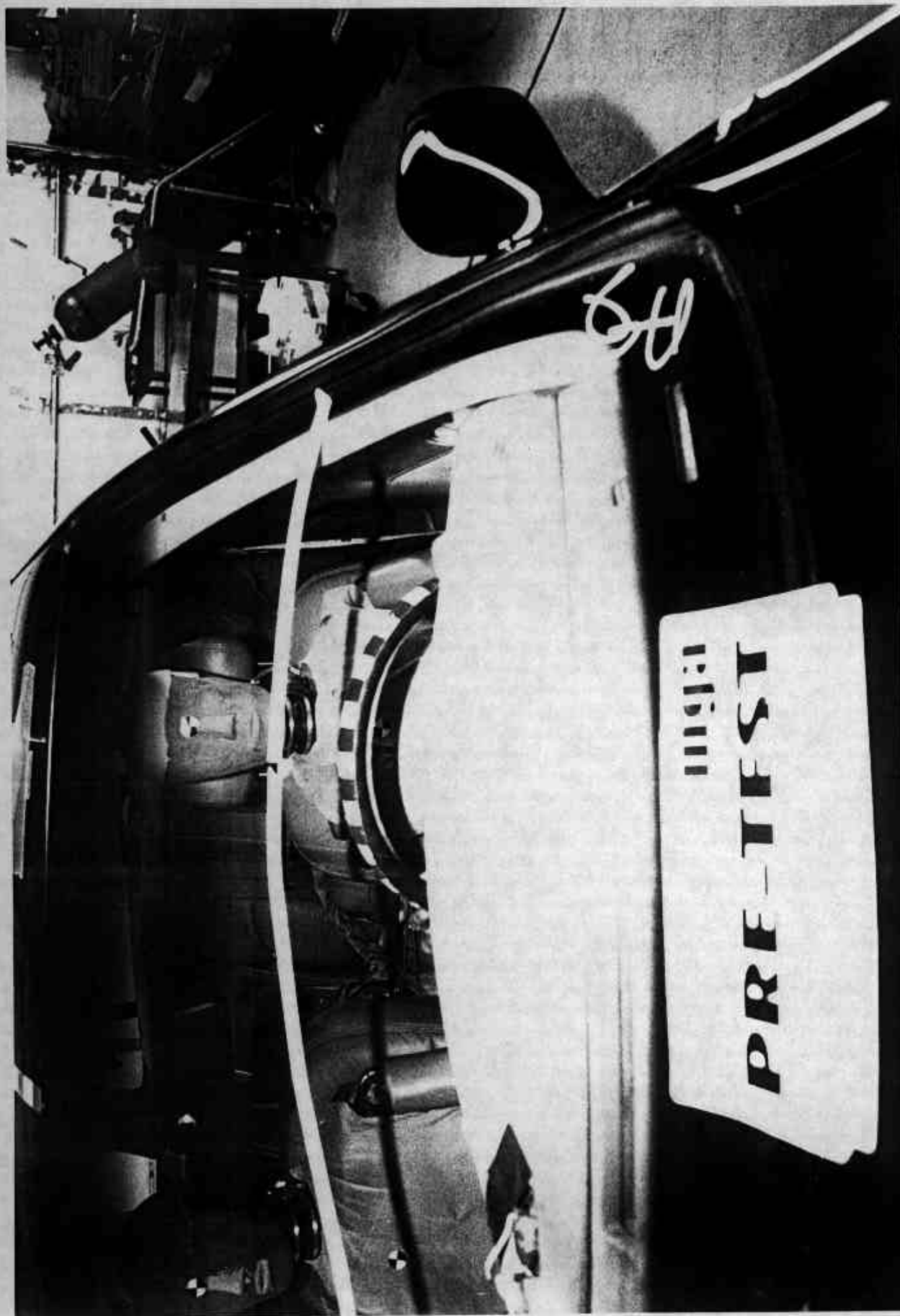


Photo No. A-25 - Pre-Test Driver Windshield View

A-25



Photo No. A-26 - Post-Test Driver Windshield View

A-26



A-27

 **mgá**

mga research corporation

PRE-TES

30 MPH FRONTAL
1995 LINCOLN CONTINENTAL
MARCH 13, 1995

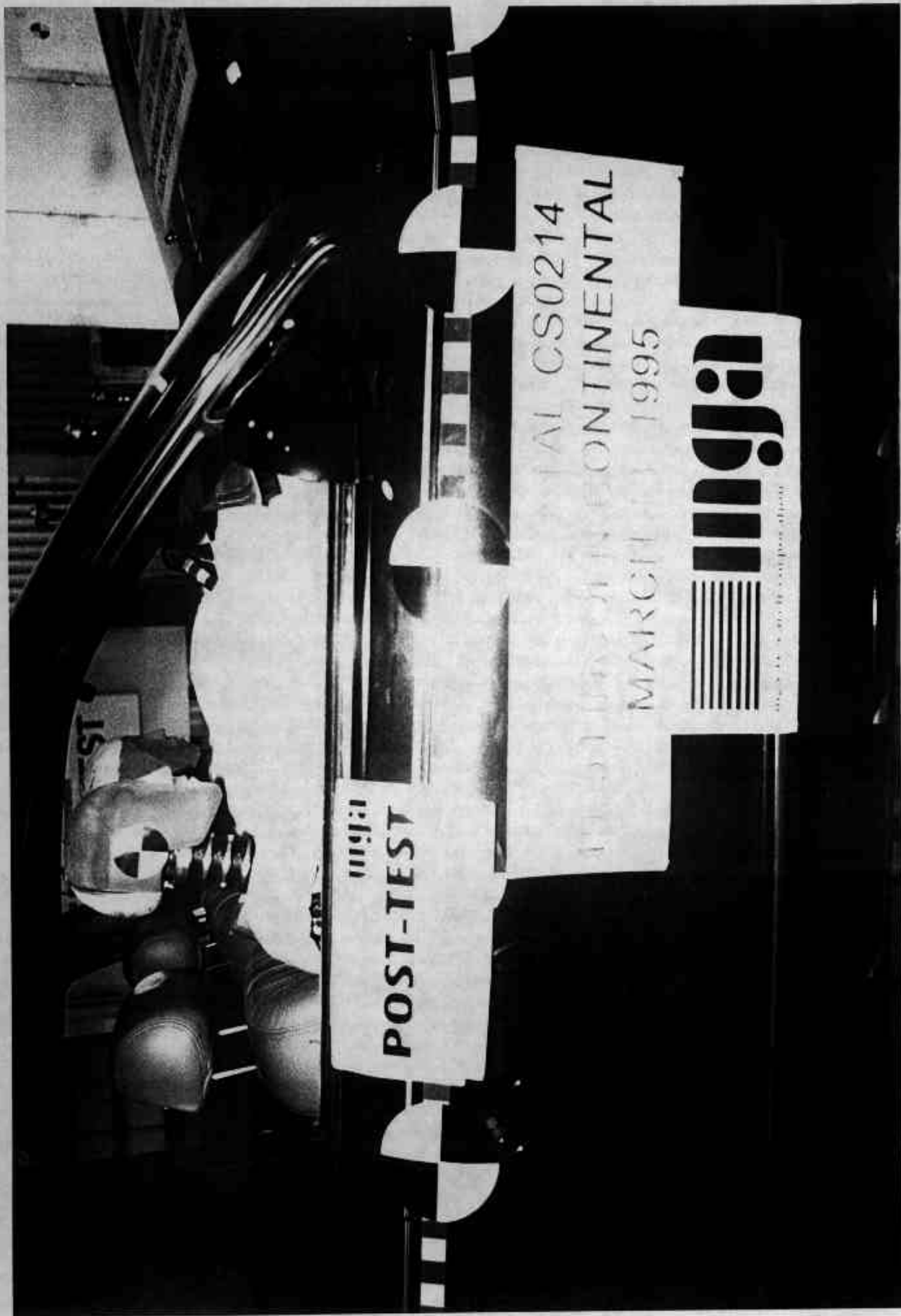
Photo No. A-27 - Pre-Test Driver Seat Position View



Photo No. A-28 - Post-Test Driver Seat Position View



Photo No. A-29 - Pre-Test Passenger Dummy Position View



A-30

Photo No. A-30 - Post-Test Passenger Dummy Position View



Photo No. A-31 - Pre-Test Passenger Dummy Position View (Door Open)

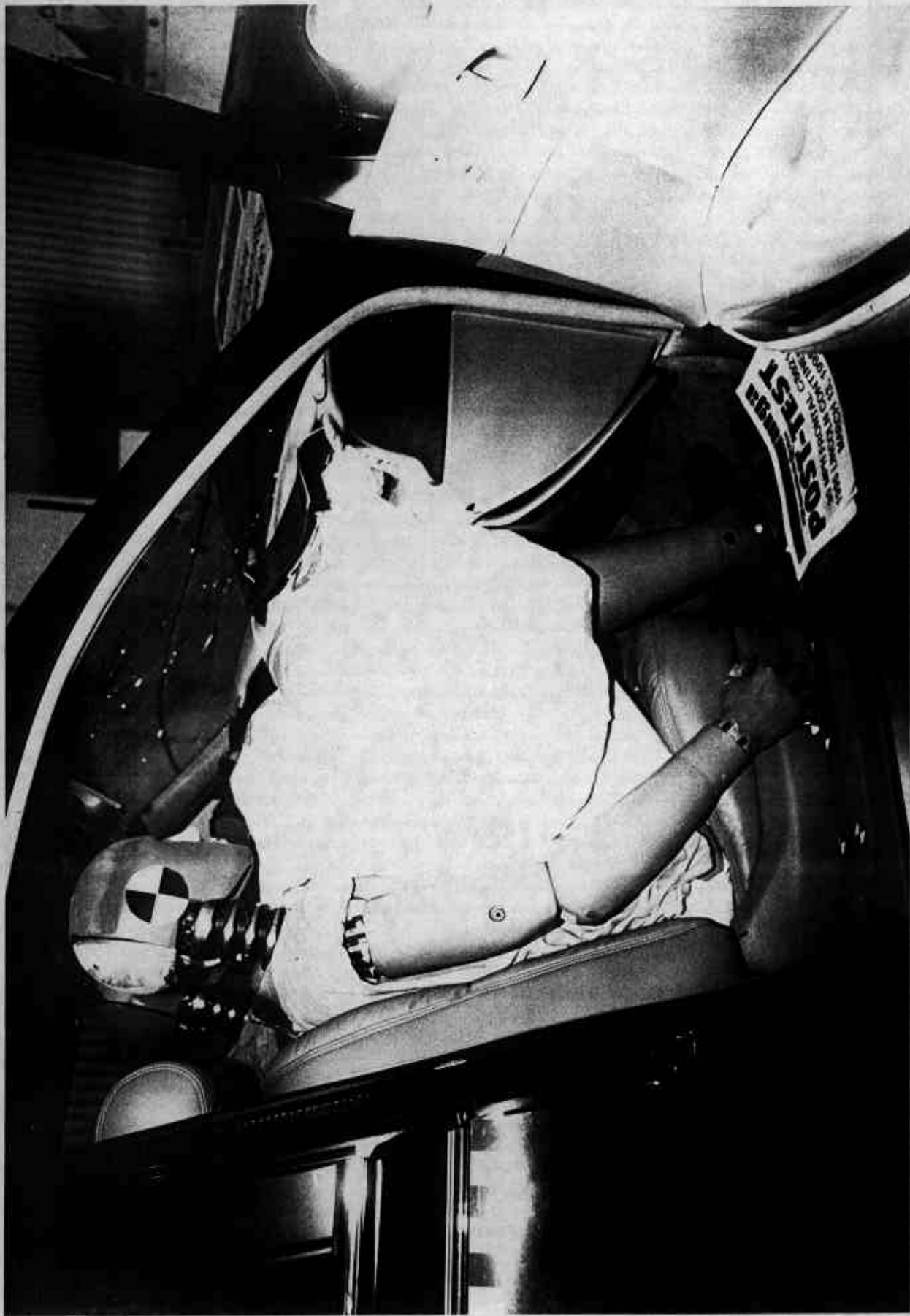


Photo No. A-32 - Post-Test Passenger Dummy Position View (Door Open)

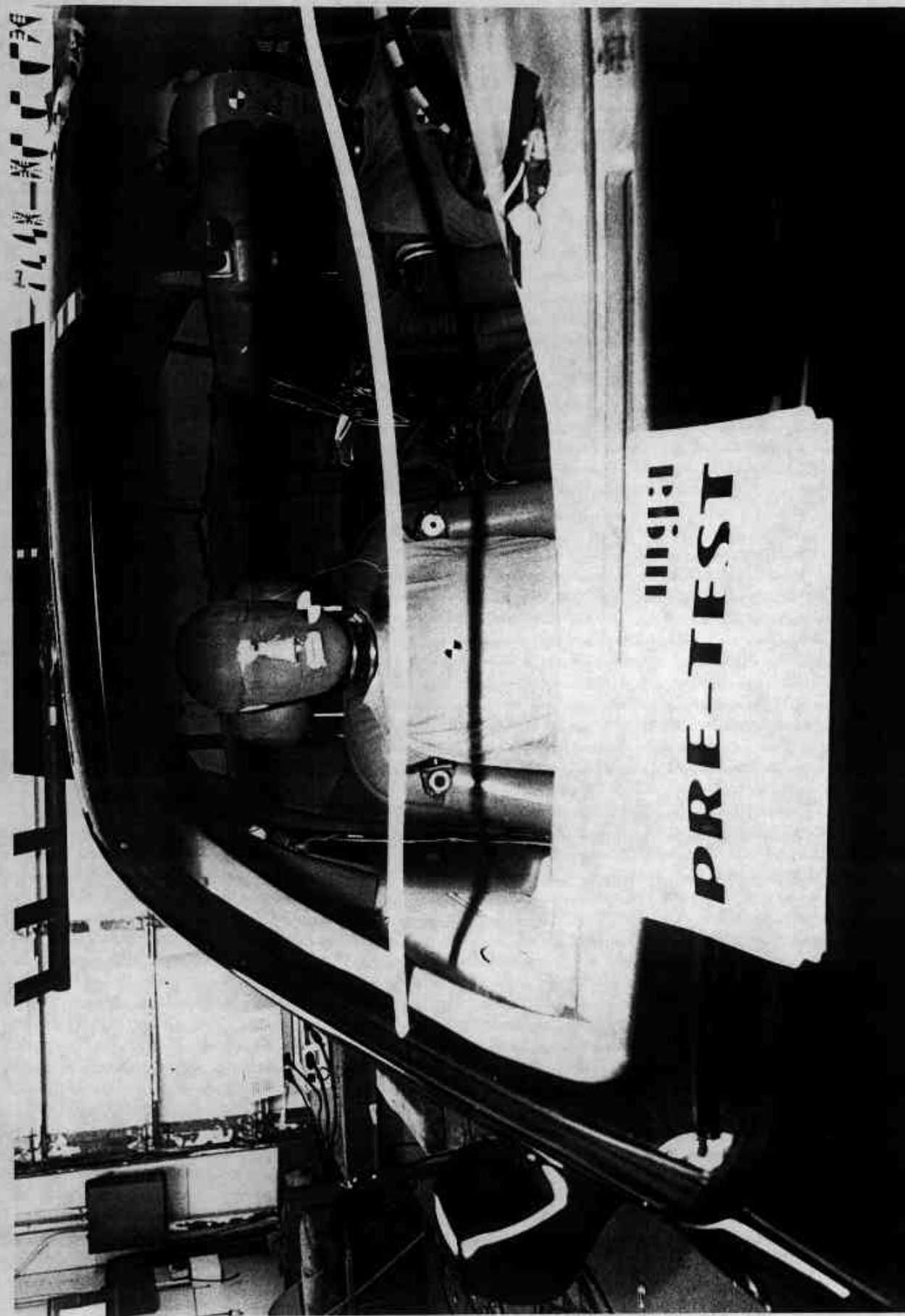


Photo No. A-33 - Pre-Test Passenger Windshield View

A-33

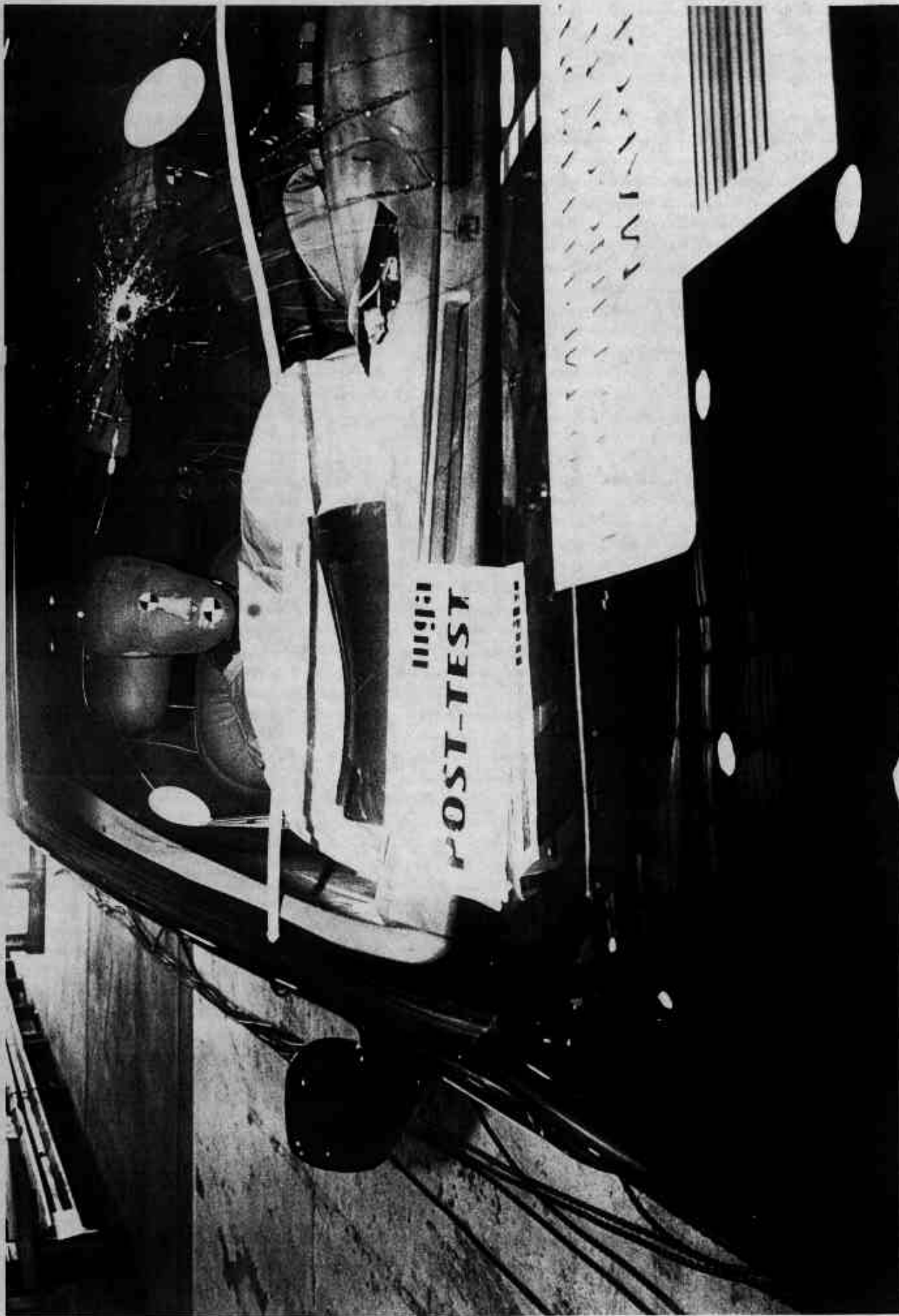


Photo No. A-34 - Post-Test Passenger Windshield View



A-35

Photo No. A-35 - Pre-Test Passenger Seat Position View



A-36

Photo No. A-36 - Post-Test Passenger Seat Position View



Photo No. A-37 - Pre-Test Driver Dummy Knee Bolster View



Photo No. A-38 - Post-Test Driver Dummy Knee Bolster View

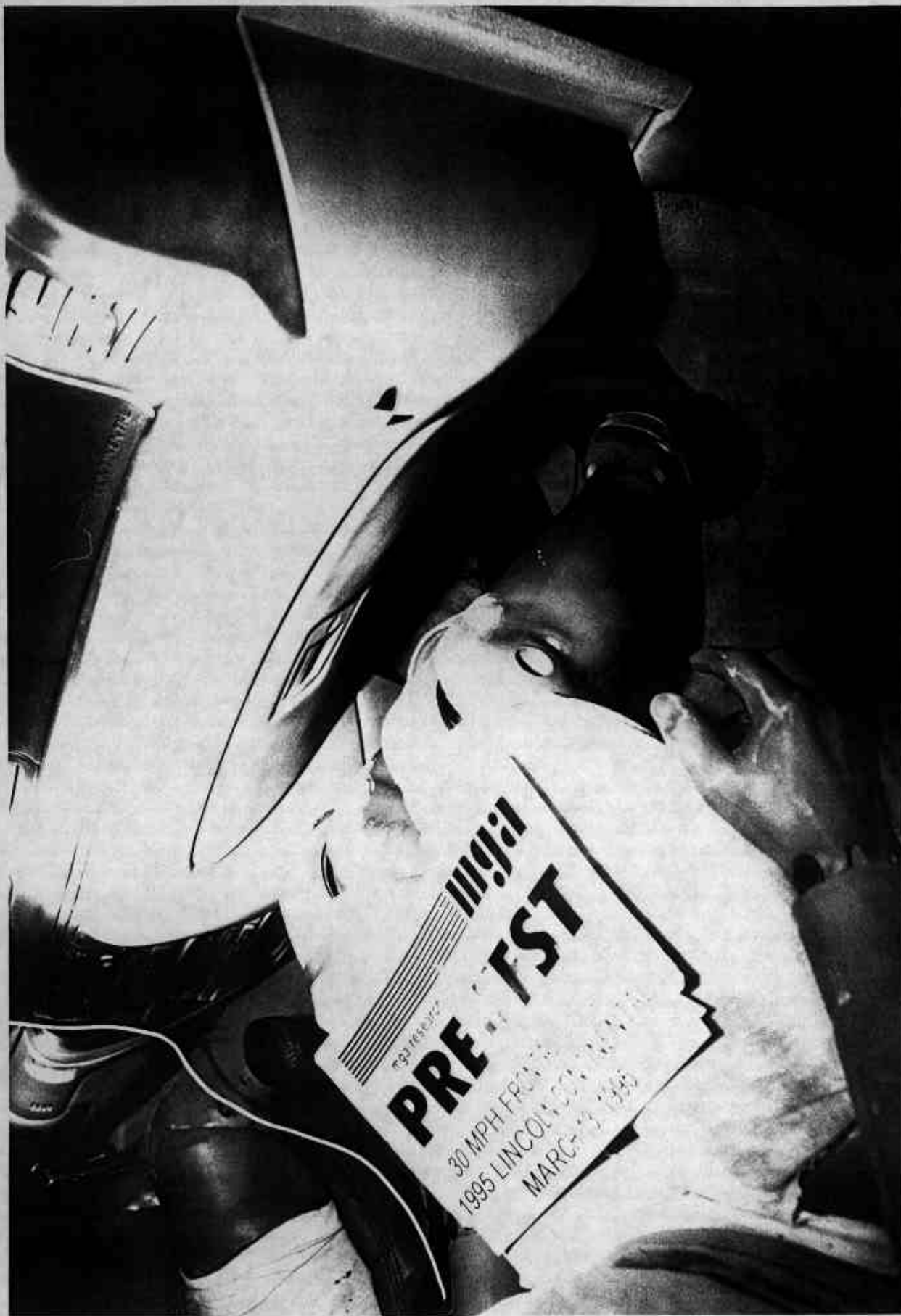


Photo No. A-39 - Pre-Test Passenger Dummy Knee Bolster View



Photo No. A-40 - Post-Test Passenger Dummy Knee Bolster View

A-40

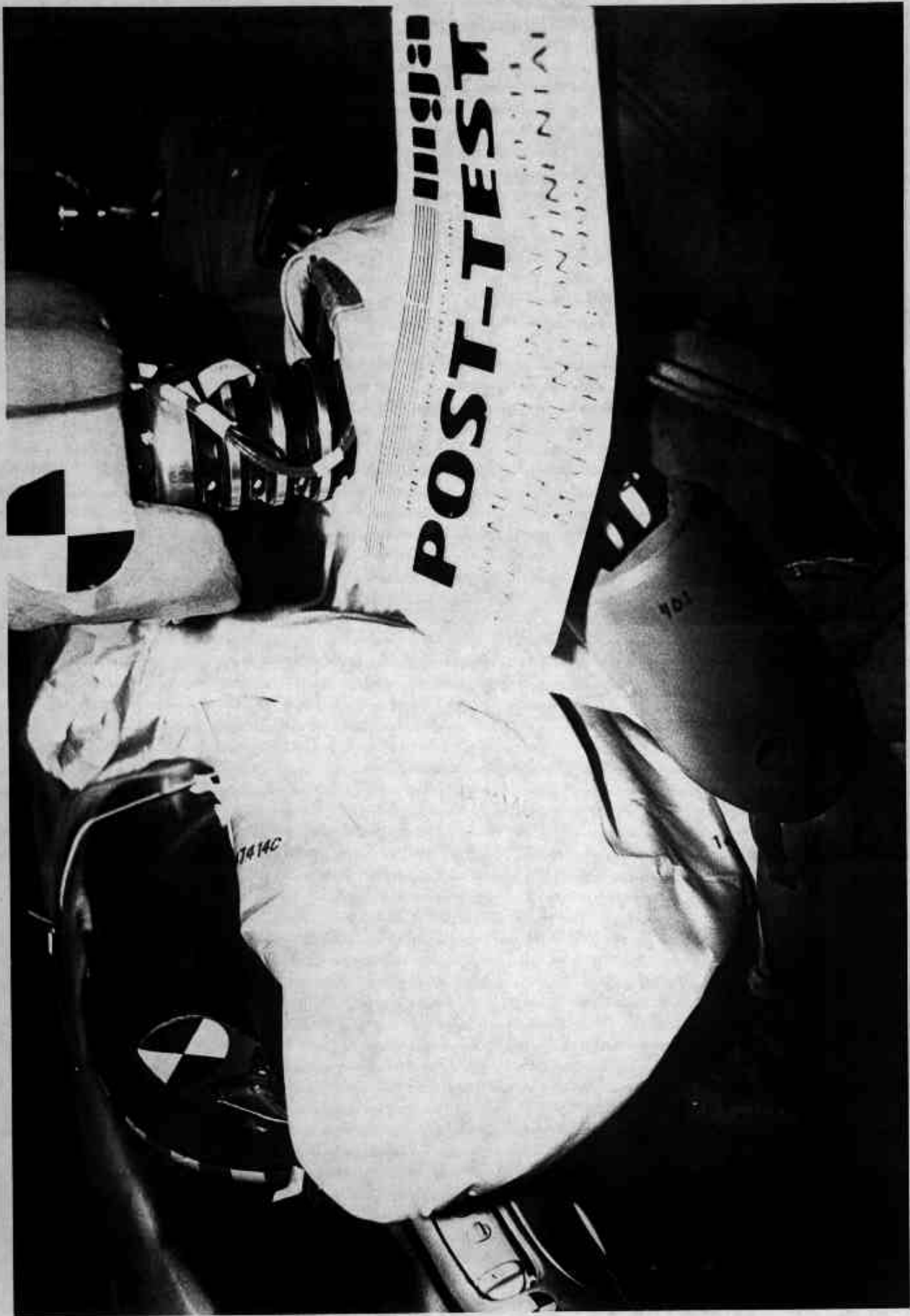


Photo No. A-41 - Driver Dummy Head Contact View - Airbag

A-41

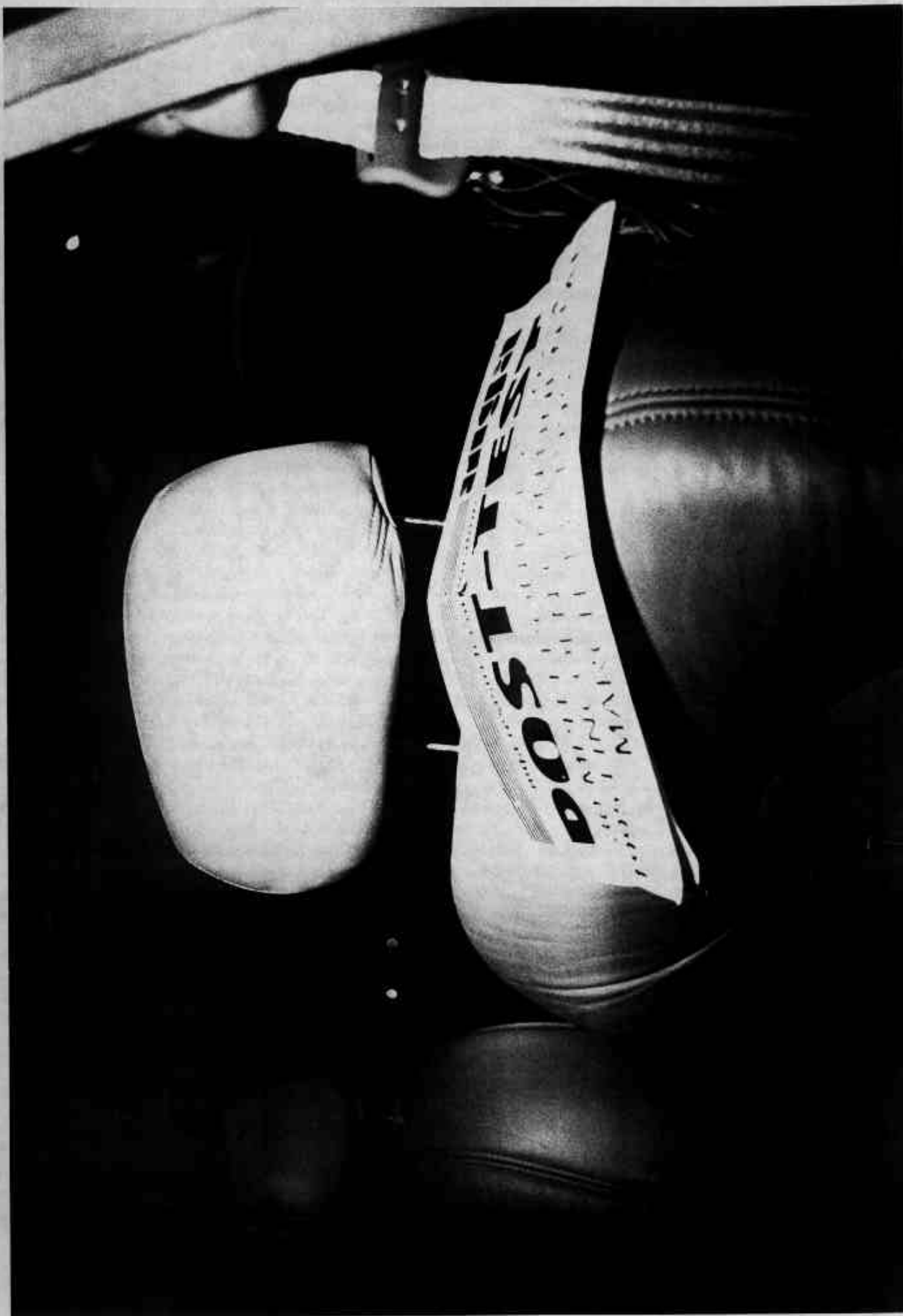


Photo No. A-42 - Driver Dummy Head Contact View - Headrest



Photo No. A-43 - Driver Dummy Knee Contact View

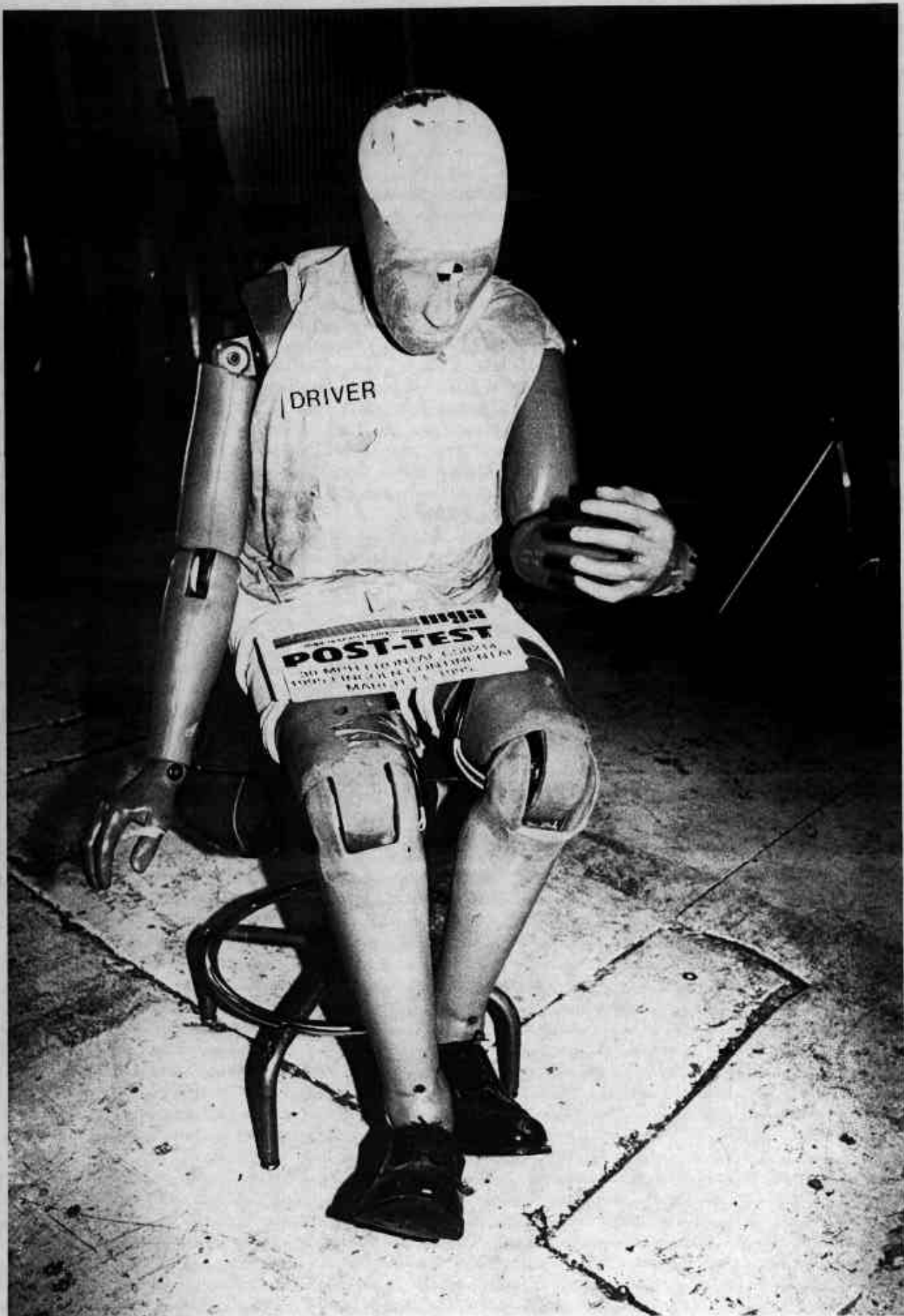


Photo No. A-44 - Post-Test Driver Dummy View

A-44

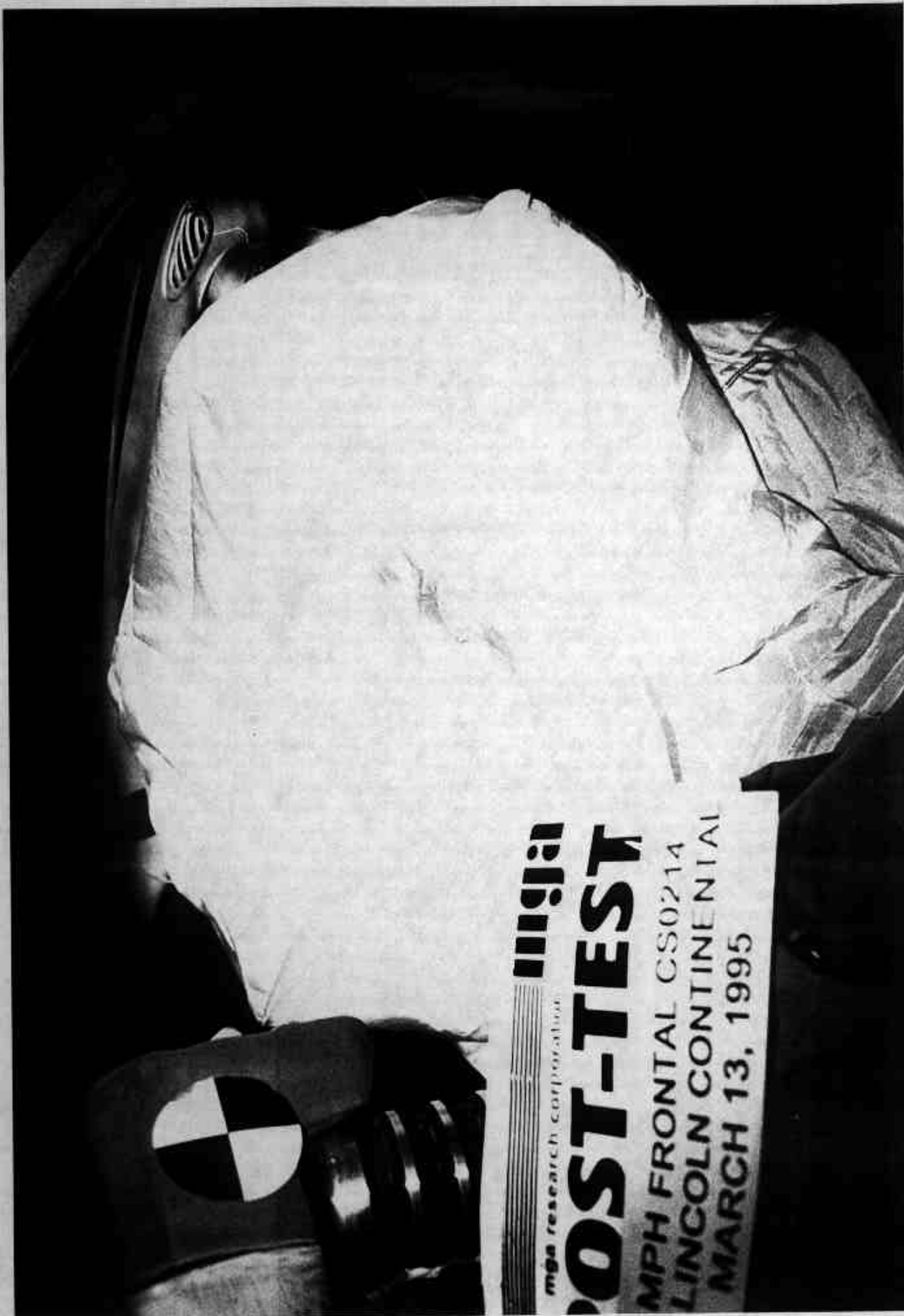


Photo No. A-45 - Passenger Dummy Head Contact View - Airbag

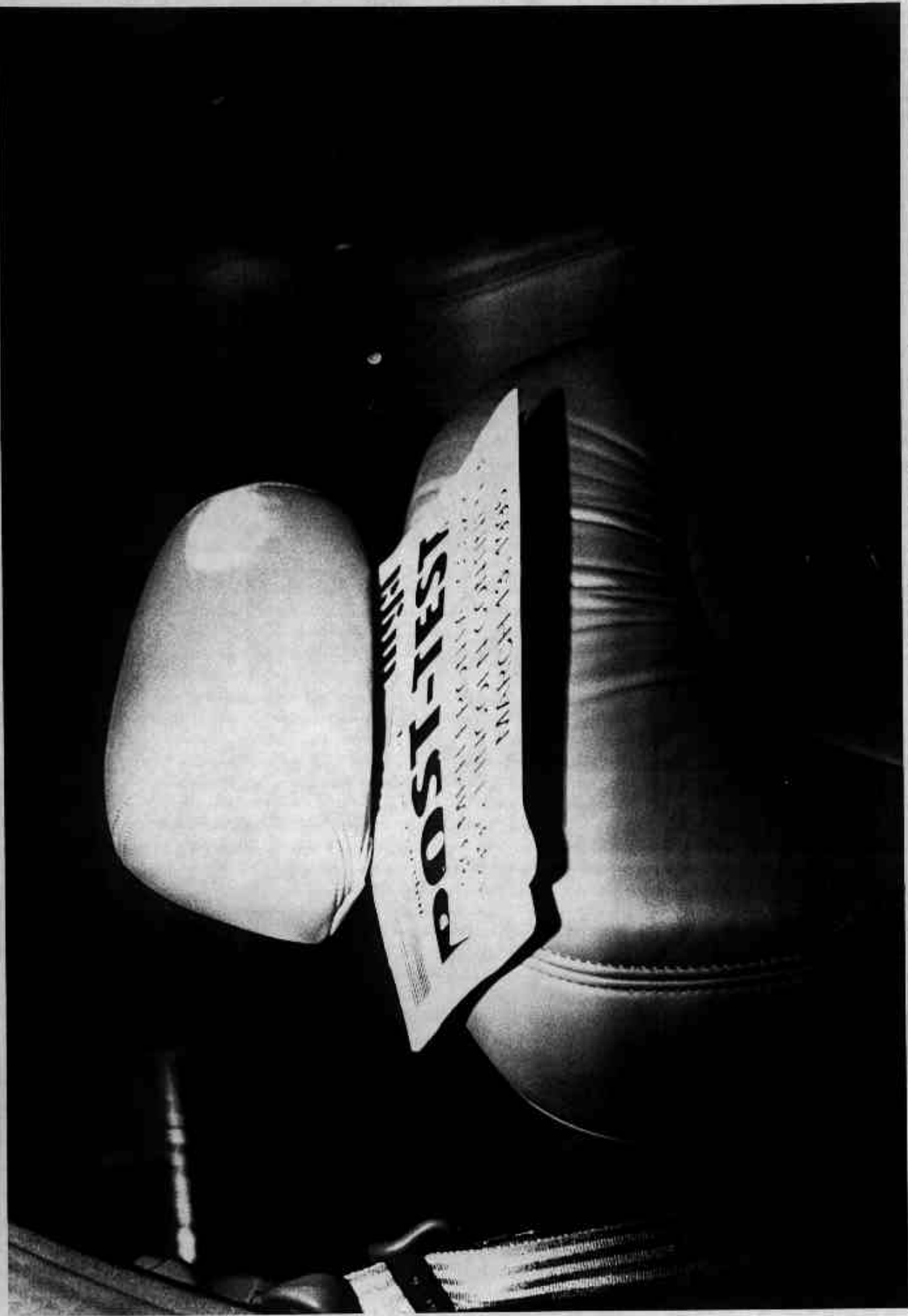


Photo No. A-46 - Passenger Dummy Head Contact View - Headrest



A-47

Photo No. A-47 - Passenger Dummy Knee Contact View



A-48

Photo No. A-48 - Passenger Dummy Knee Contact View

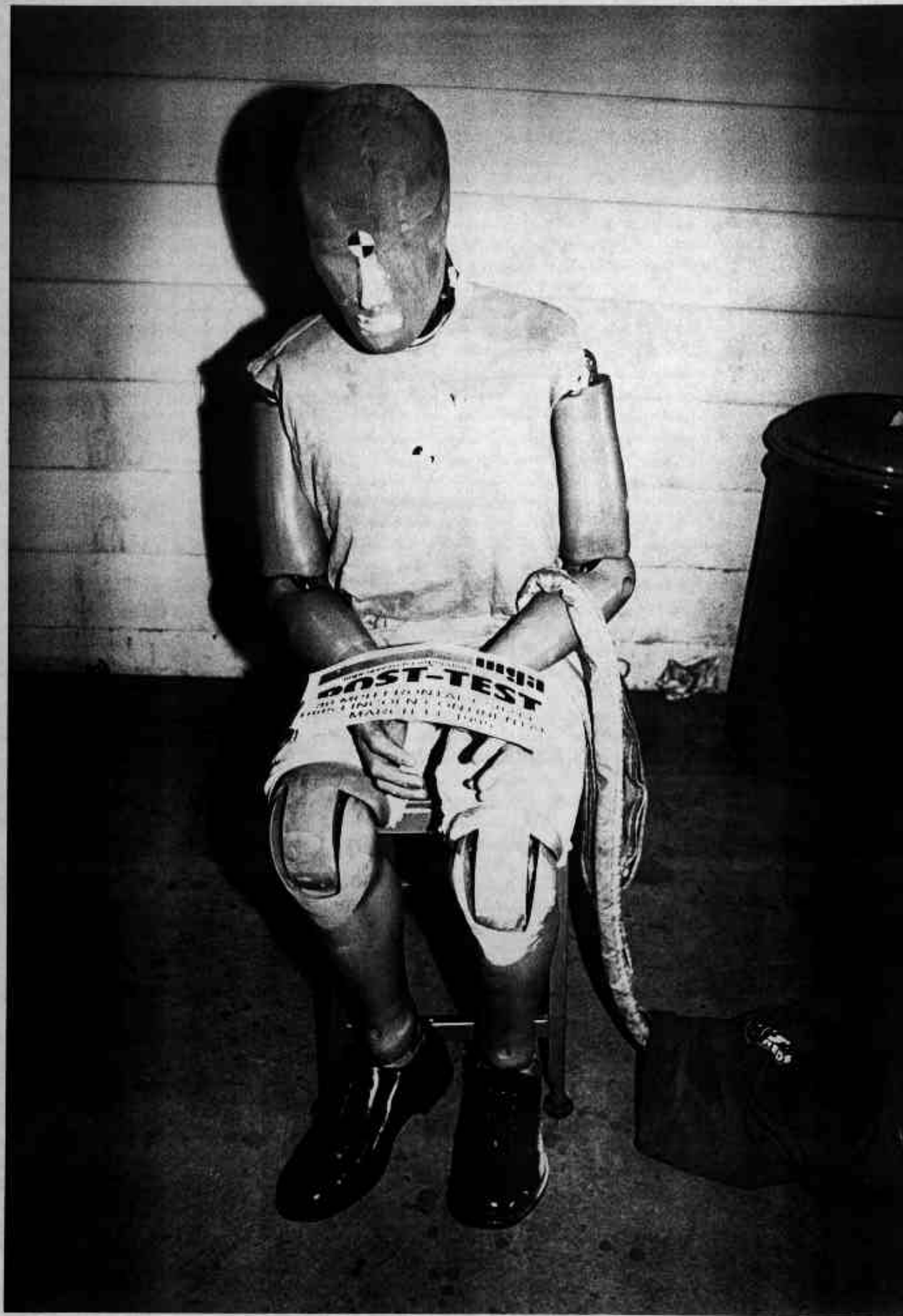
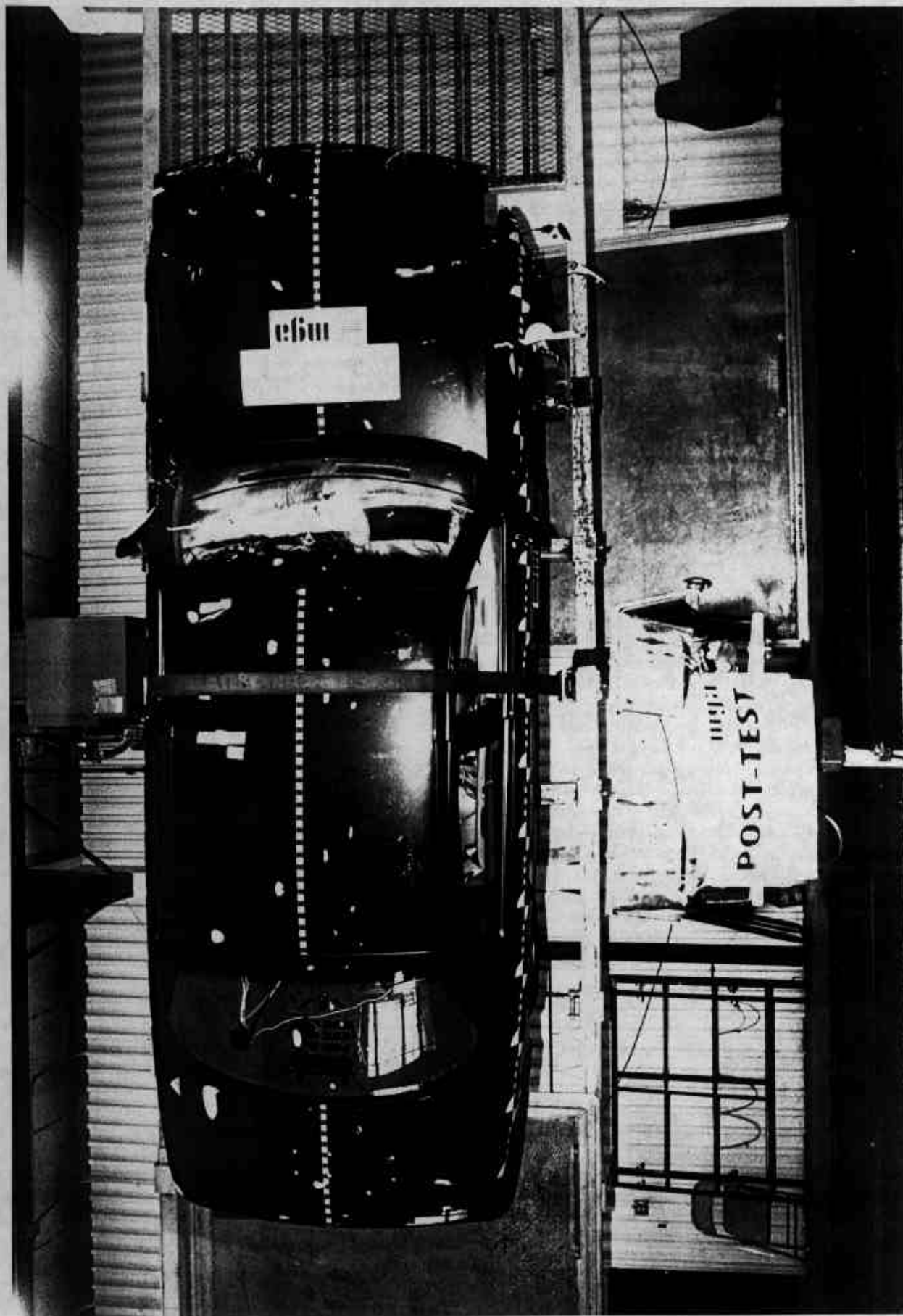


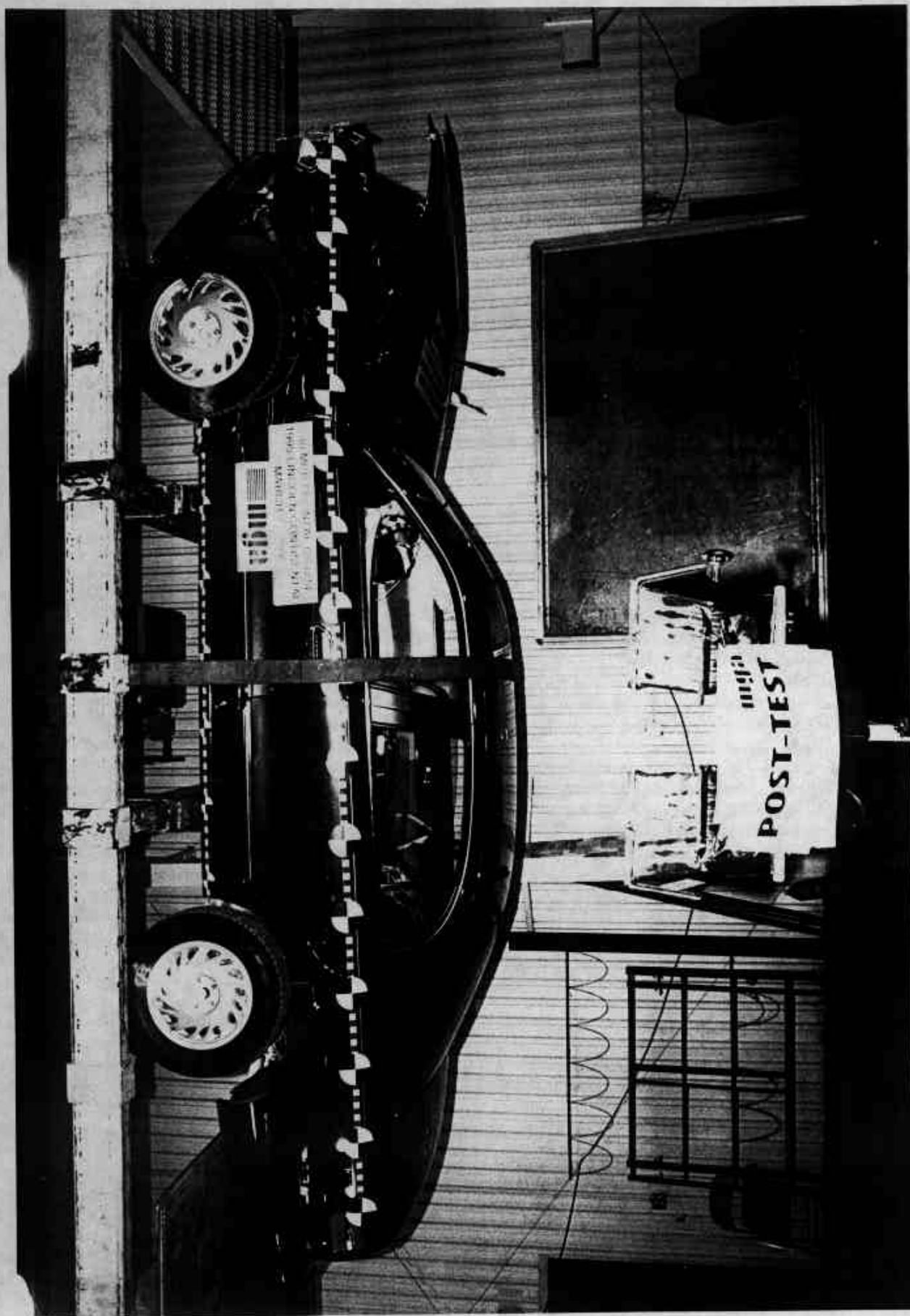
Photo No. A-49 - Post-Test Passenger Dummy View

A-49



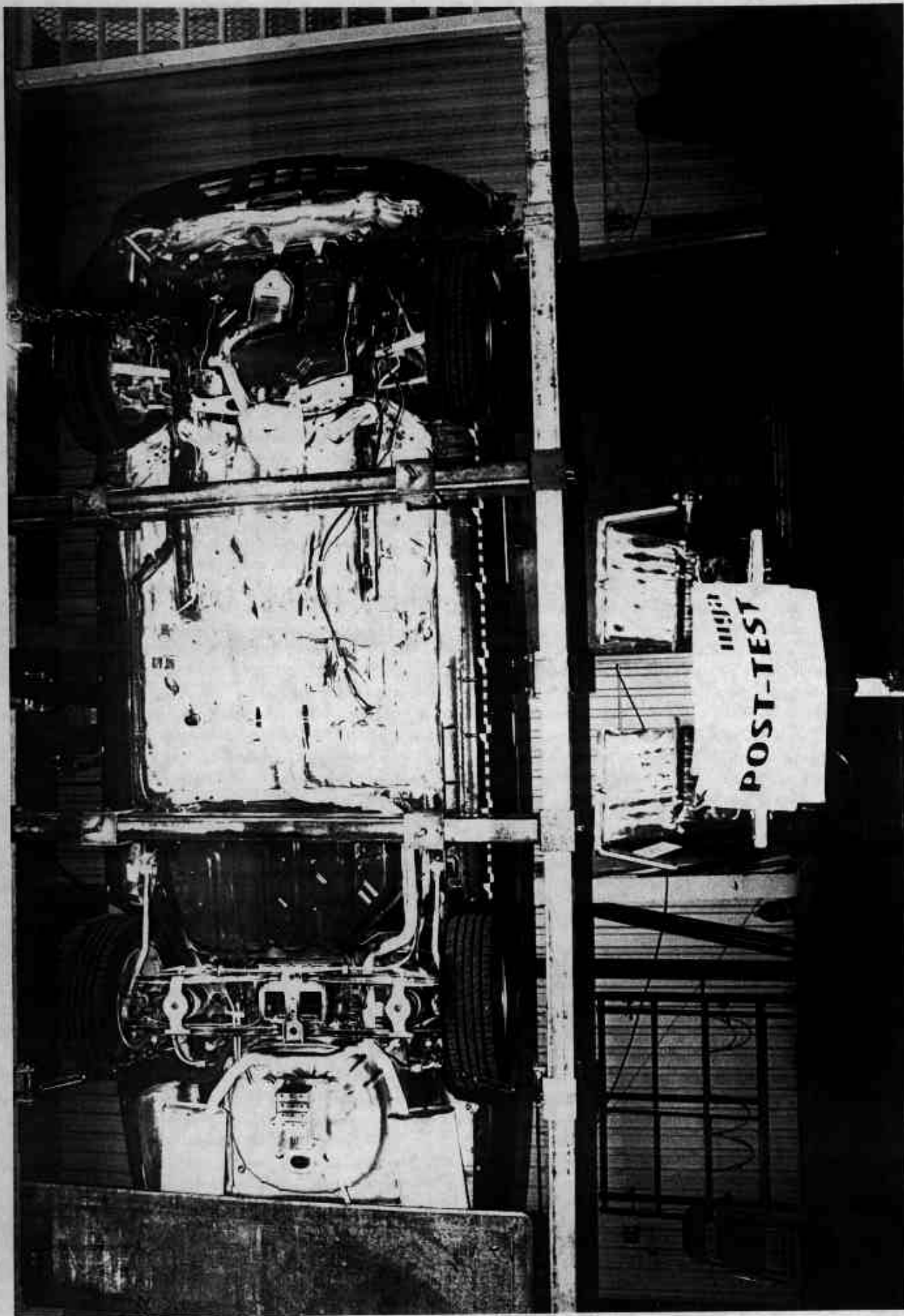
A-50

Photo No. A-50 - Rollover 0° - 90°



A-51

Photo No. A-51 - Rollover 90° - 180°



A-52

Photo No. A-52 - Rollover 180° - 270°

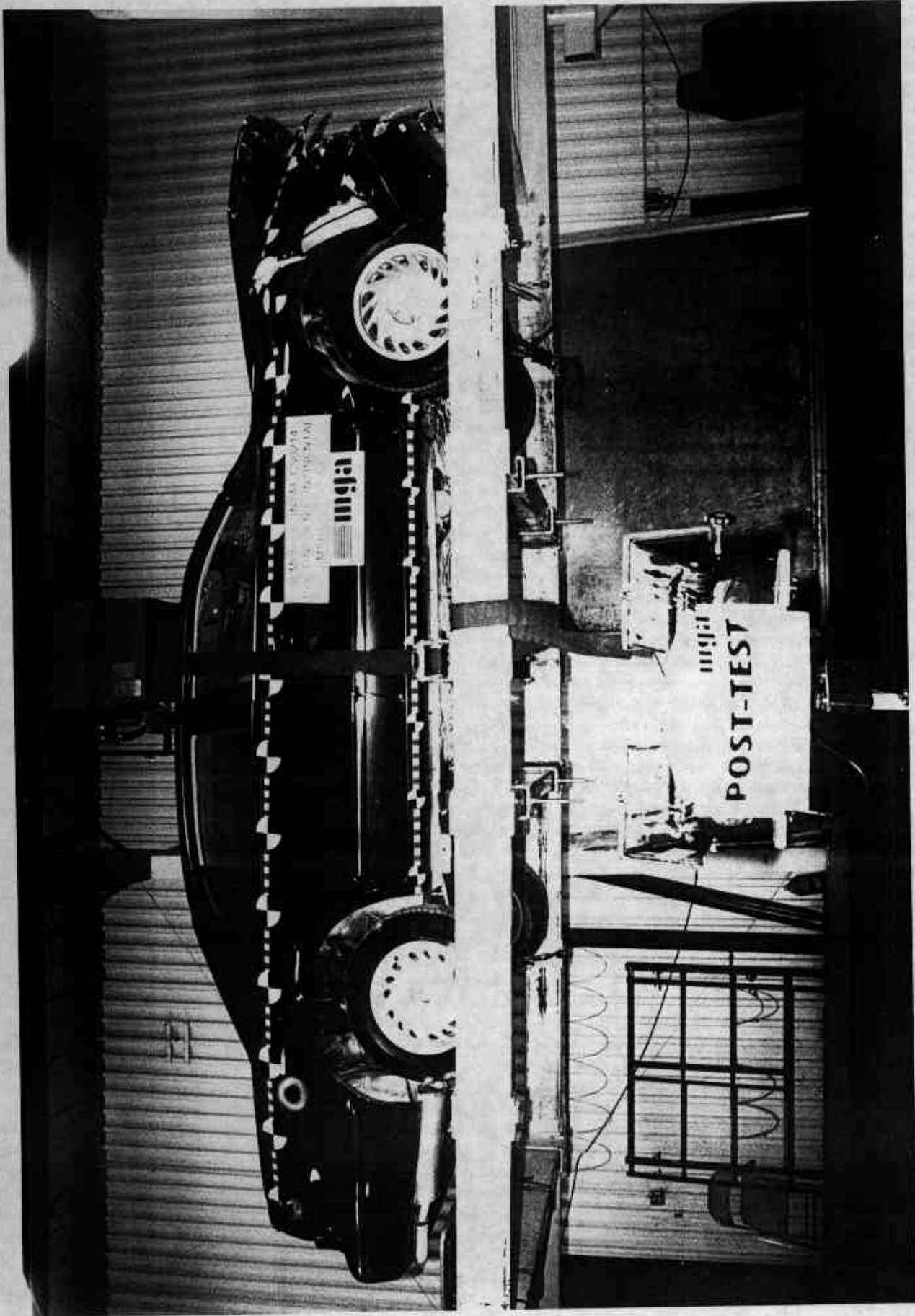
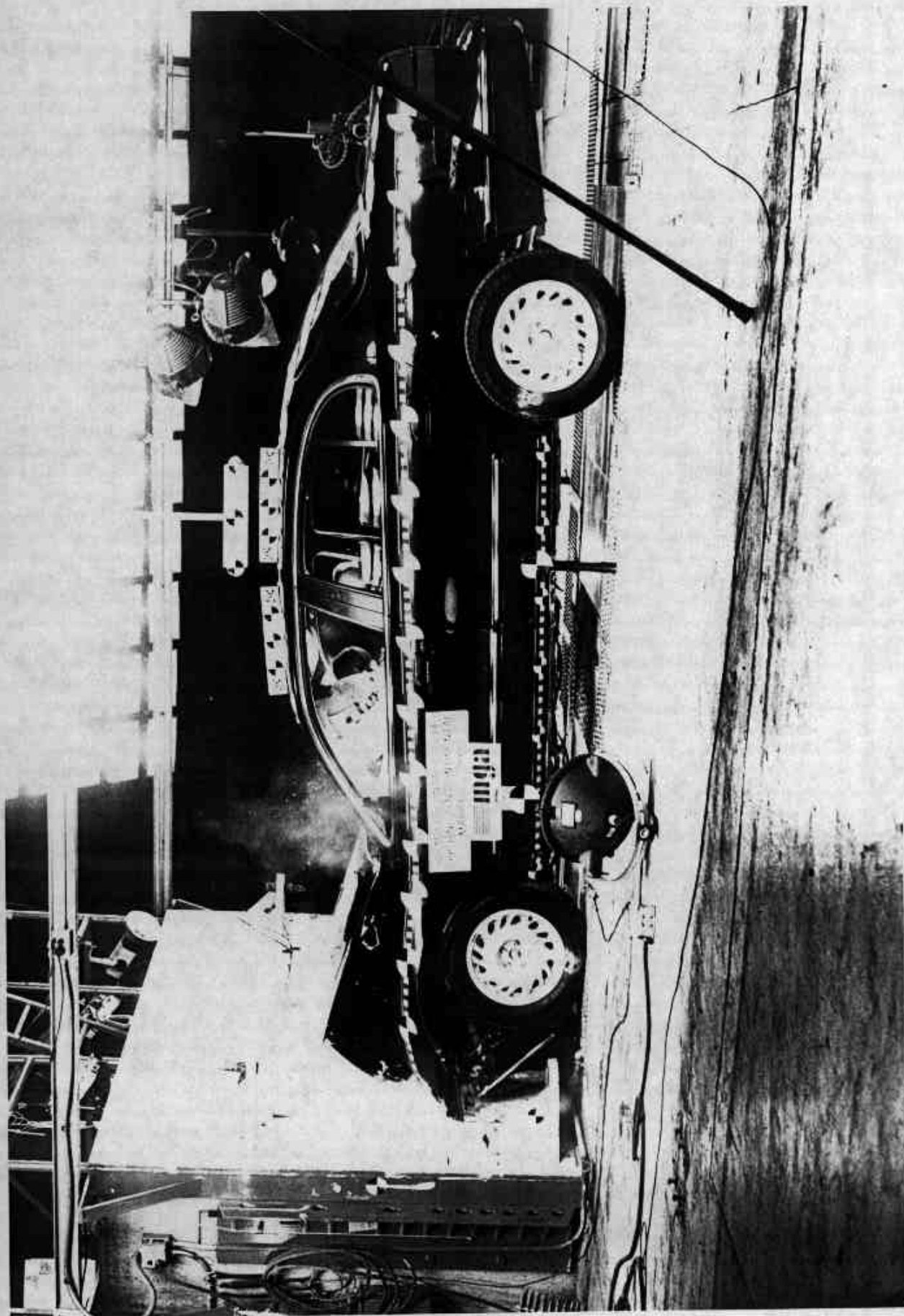


Photo No. A-53 - Rollover 270° - 360°

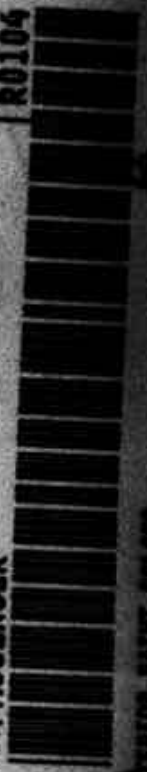


A-54

Photo No. A-54 - Vehicle Impact

MFD. BY FORD MOTOR CO. IN U.S.A.
 DATE: 11/94
 FRONT GAWR: 2887LB 1309KG
 REAR GAWR: 2460LB 1115KG
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
 VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS
 IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
 VIN: 1LNLM97V7SY638396
 TYPE: PASSENGER

F0088
 R0104



PA
 EXTERIOR PAINT COLORS
 BODY IN COLOR. INTERIOR TRIM IS BLACK
 846

Photo No. A-55 - Vehicle Certification Label

CONTINENTAL RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (COLD)
 DIMENSIONS DES PNEUS et PRESSIONS DE GONFLAGE RECOMMANDÉES (À FROID)

TIRE SIZE DIMENSIONS DES PNEUS	LOAD RANGE CHARGE NOMINALE	TIRE PRESSURE		PRESSION DE PNEUS	
		FRONT	REAR	FRONT	REAR
P225/60R15 7H	STD	30 PSI 207 kPa	28 PSI 193 kPa	30 lb / sq 207 kPa	30 lb / sq 207 kPa
P225/60R16 95H MAXV4 ZP	STD	30 PSI 207 kPa	30 PSI 207 kPa	30 lb / sq 207 kPa	30 lb / sq 207 kPa
P225/60R18 97V	STD	32 PSI 220 kPa	30 PSI 207 kPa	32 PSI 220 kPa	30 PSI 207 kPa
T125/80R16 TEMPORAL SPARE PNEU PROVISOIRE	T	40 PSI 415 kPa	40 PSI 415 kPa	40 lb / sq 415 kPa	40 lb / sq 415 kPa
FULL RATED (MAXIMUM LOAD) - OCCUPANTS PLUS LUGGAGE PLEINE CHARGE (MAXIMALE) NOMINALE - OCCUPANTS PLUS BAGAGES					
MODELS MODÈLES	MAXIMUM LOAD CHARGE MAXIMALE	TOTAL OCCUPANTS NOMBRE TOTAL D'OCCUPANTS		DISTRIBUTION	
ALL / TOUS	950 lb. / 431kg 1100 lb. / 499kg	6		FRONT AVANT	REAR ARRIÈRE
		6		3	3

FOR SUSTAINED HIGH SPEED, TRAILER TOWING, RECREATIONAL ACTIVITIES AND TEMPERATURE EXTREMES
 HAUTES VITESSES SOUTENUES, REMORQUAGE, ACTIVITÉS DE LOISIRS ET PÉRIODES DE FROID ET DE CHALEUR

Photo No. A-56 - Tire Placard

APPENDIX B
DATA PLOTS

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Figure B-43 - Comparative Head Injury Criterion (HIC)		B-43

* Data Not Valid After 50 msec.

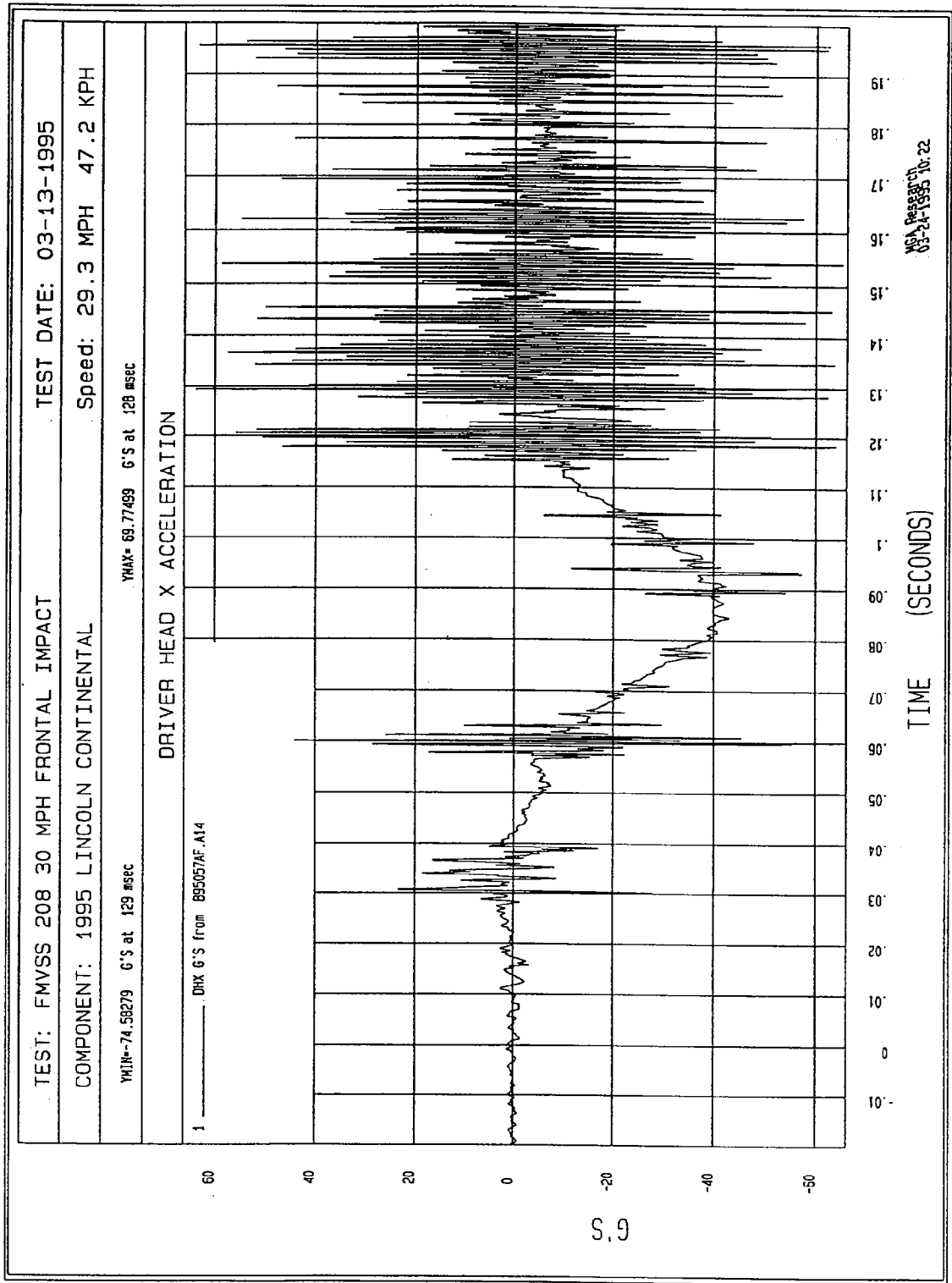


Figure B-1 - Driver Head X Acceleration vs. Time

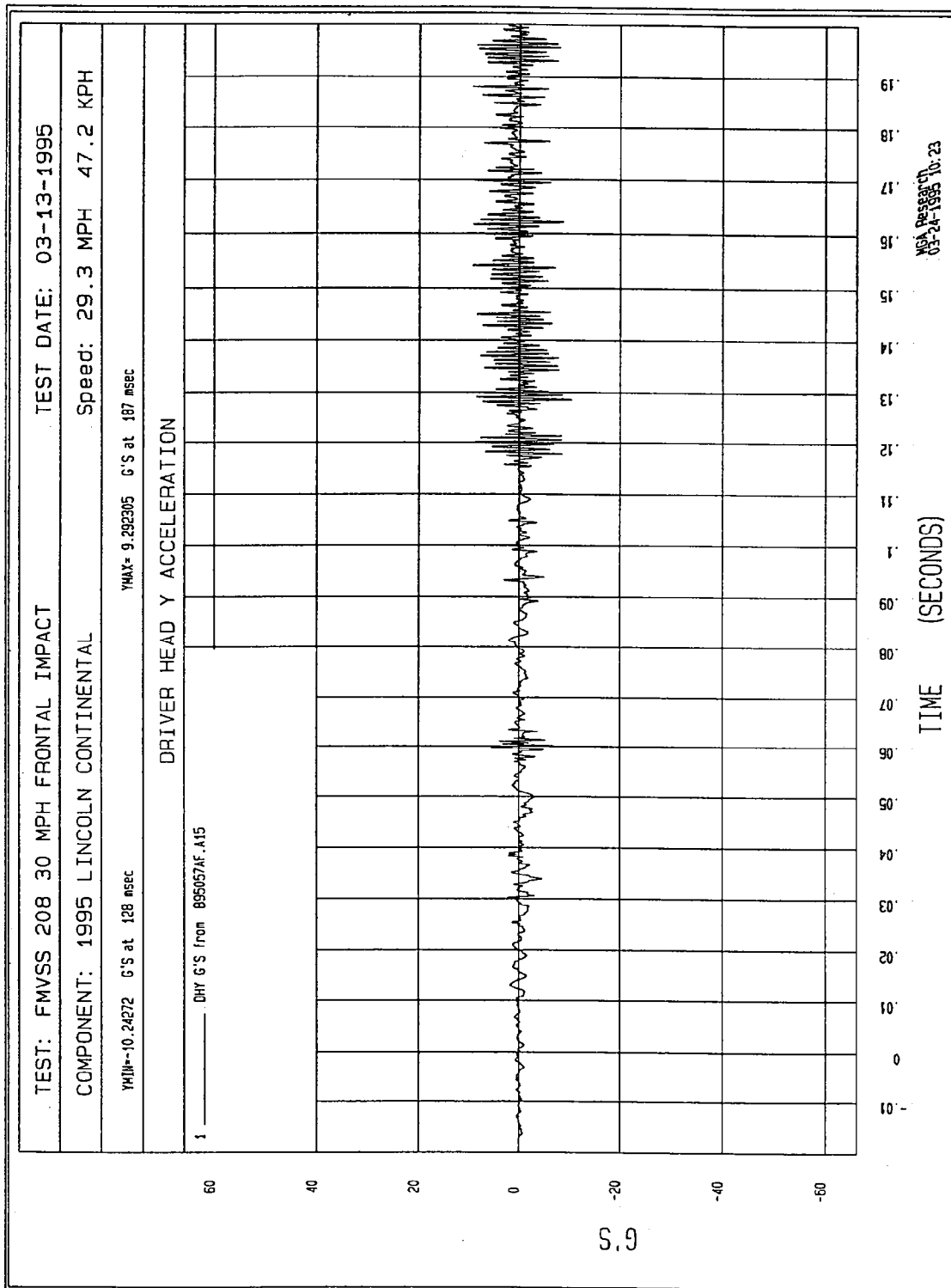


Figure B-2 - Driver Head Y Acceleration vs. Time

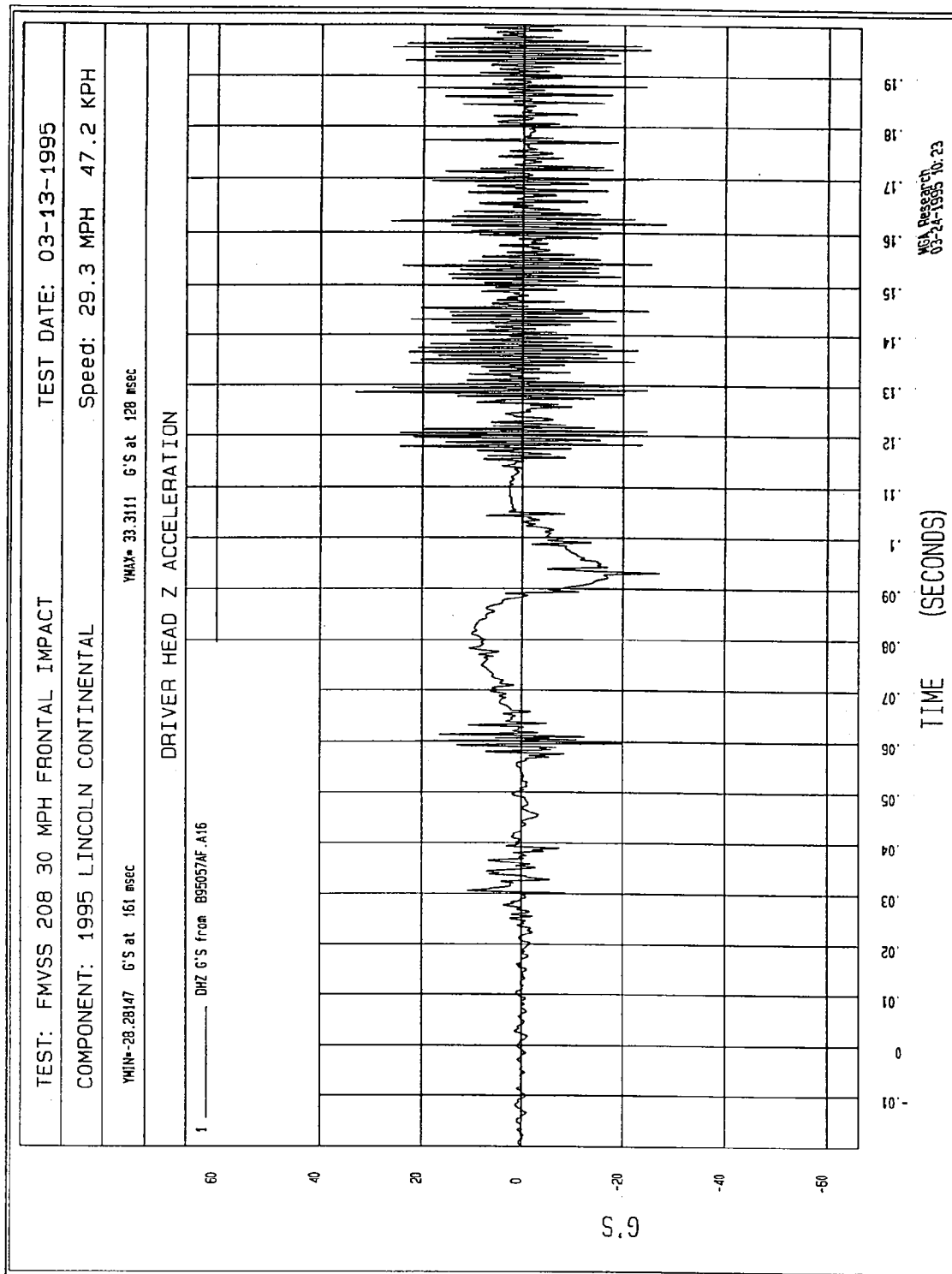


Figure B-3 - Driver Head Z Acceleration vs. Time

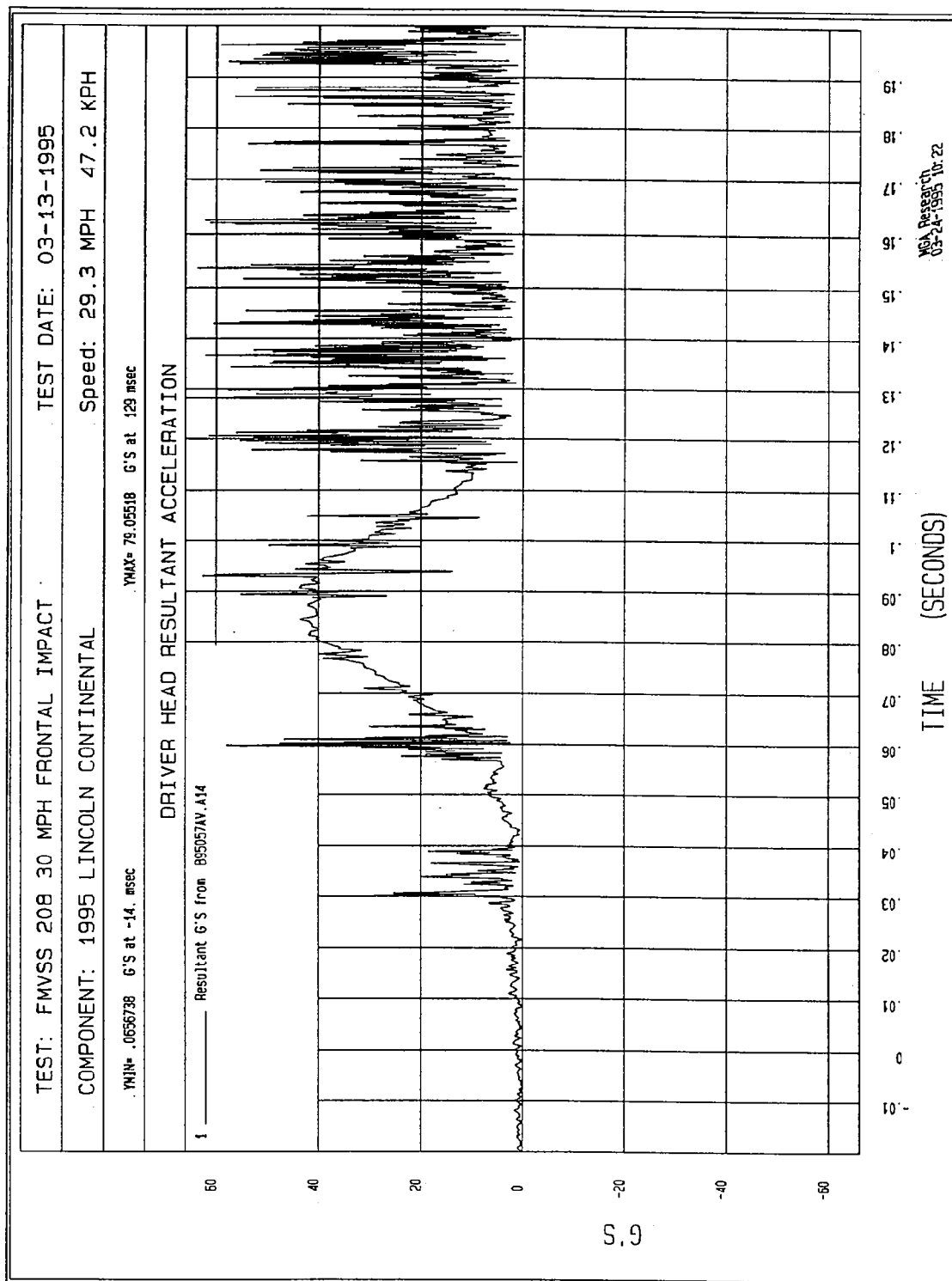


Figure B-4 - Driver Head Resultant Acceleration vs. Time

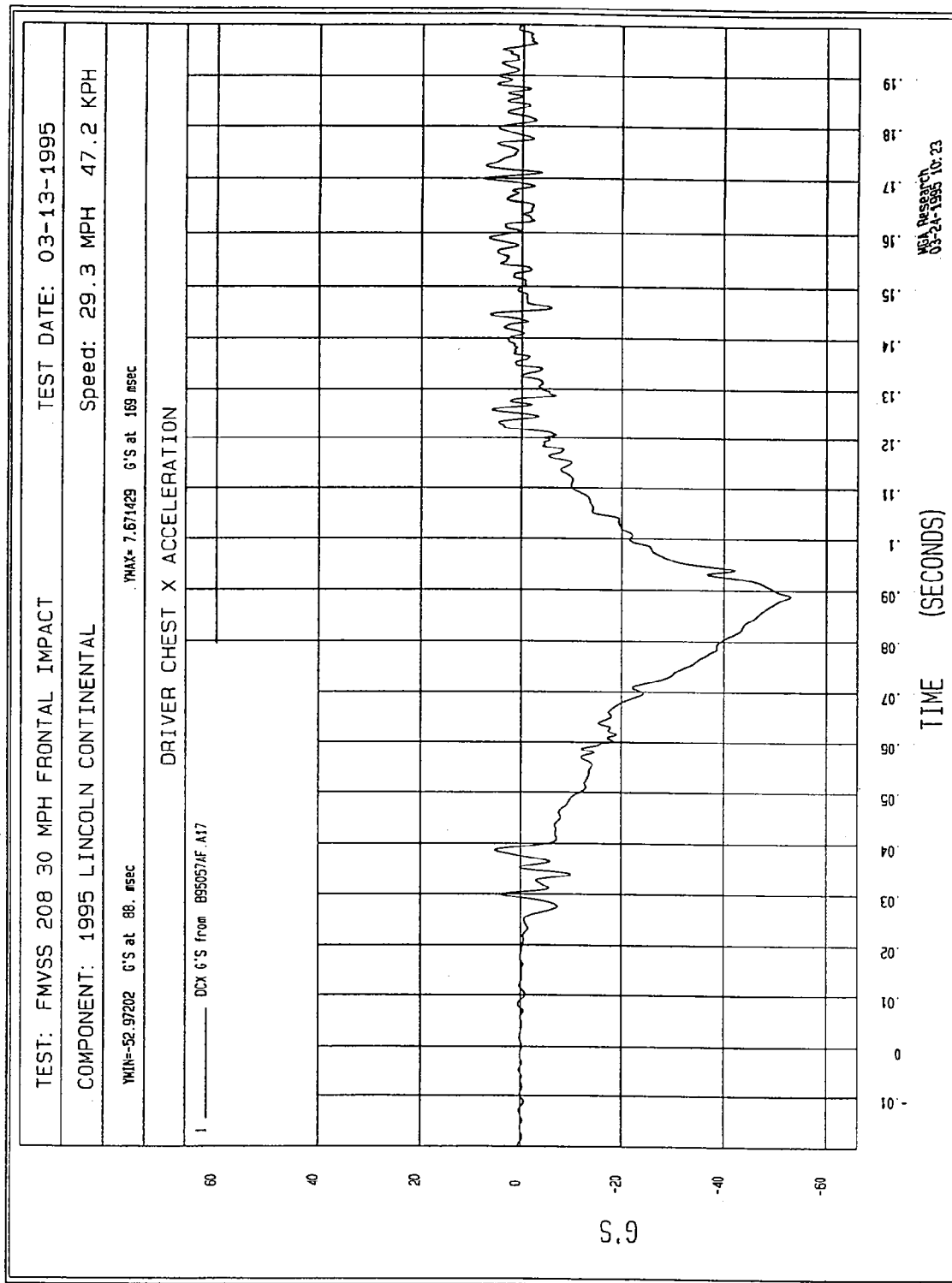


Figure B-5 - Driver Chest X Acceleration vs. Time

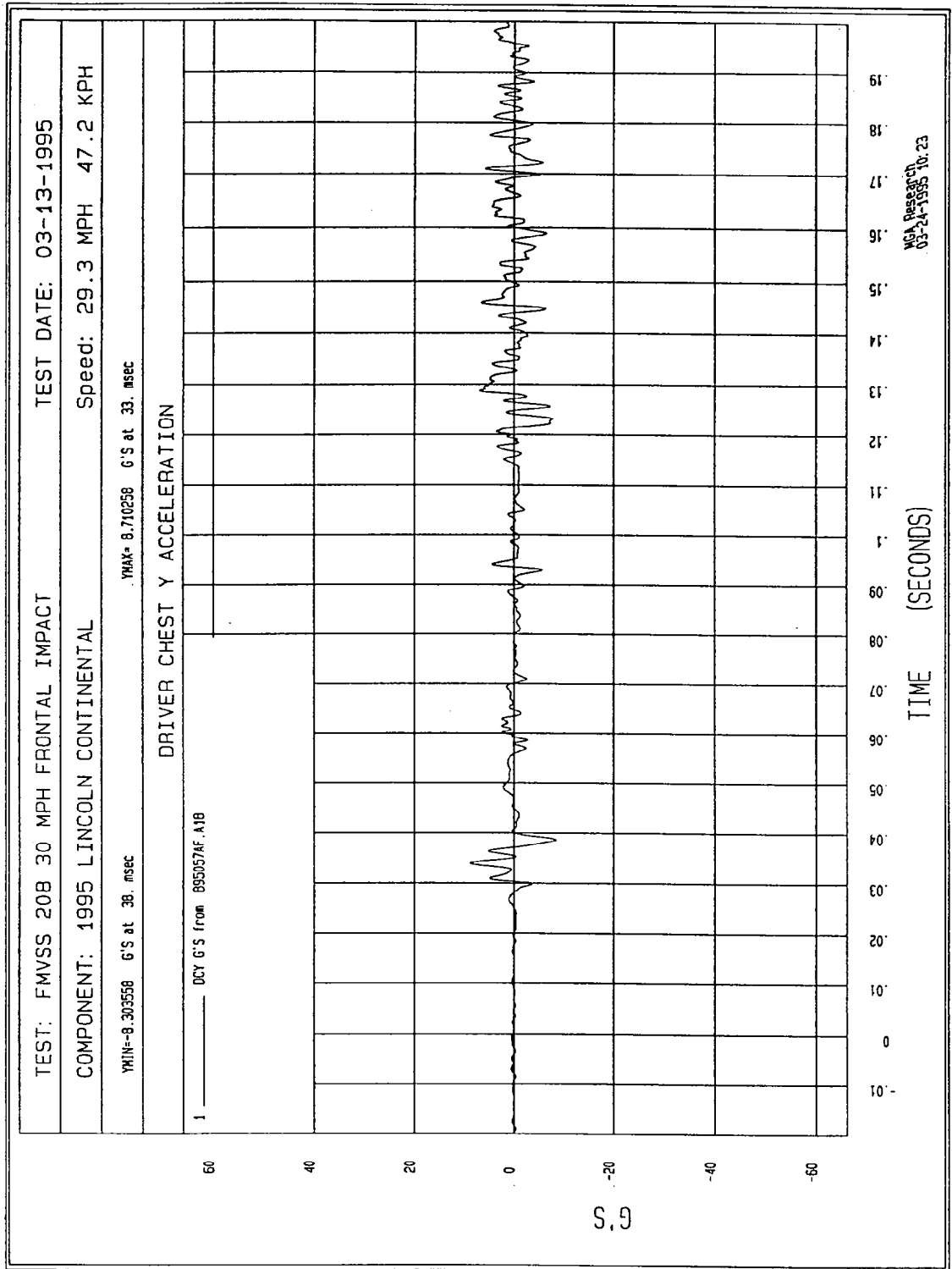


Figure B-6 - Driver Chest Y Acceleration vs. Time

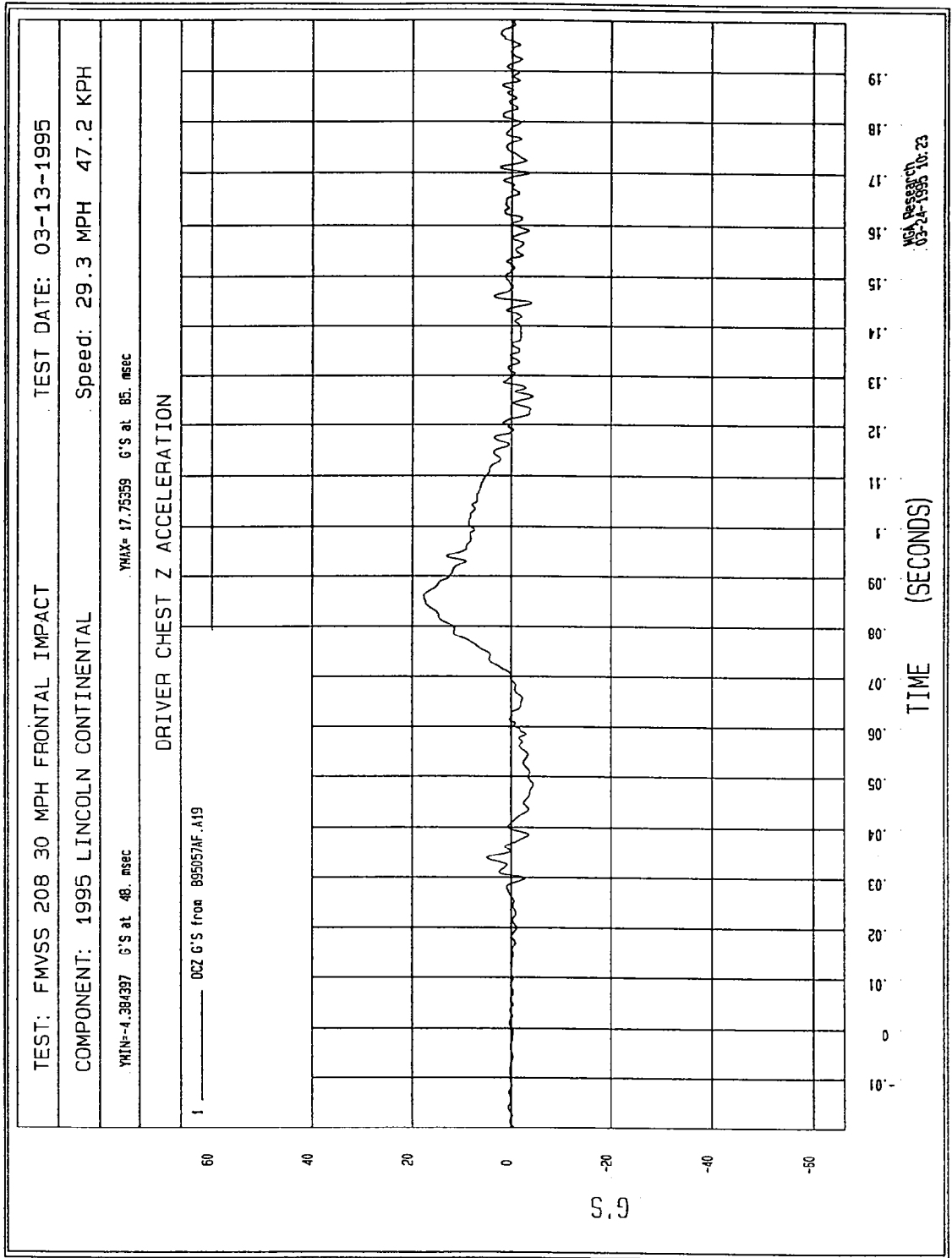


Figure B-7 - Driver Chest Z Acceleration vs. Time

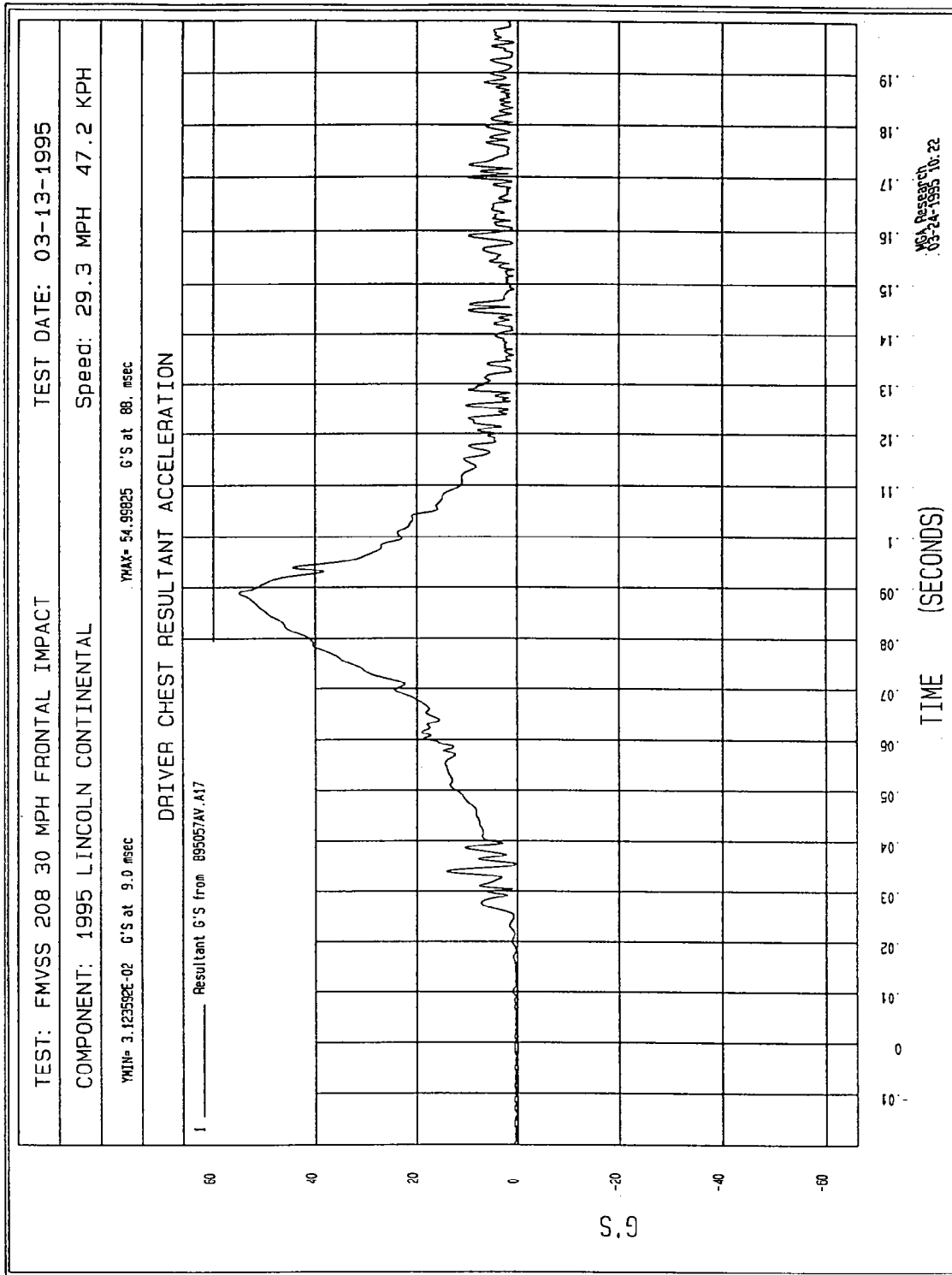


Figure B-8 - Driver Chest Resultant Acceleration vs. Time

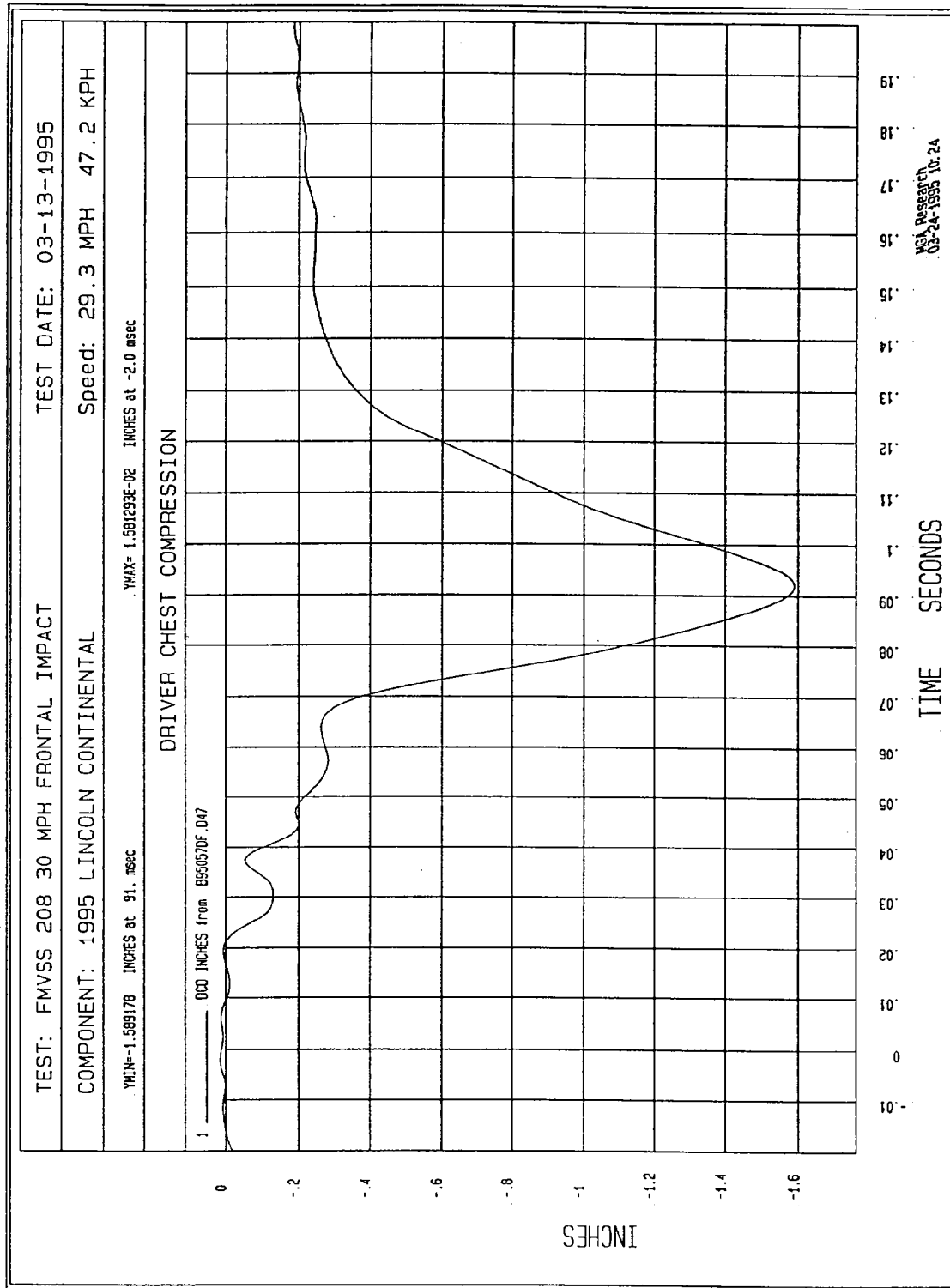


Figure B-9 - Driver Chest Compression vs. Time

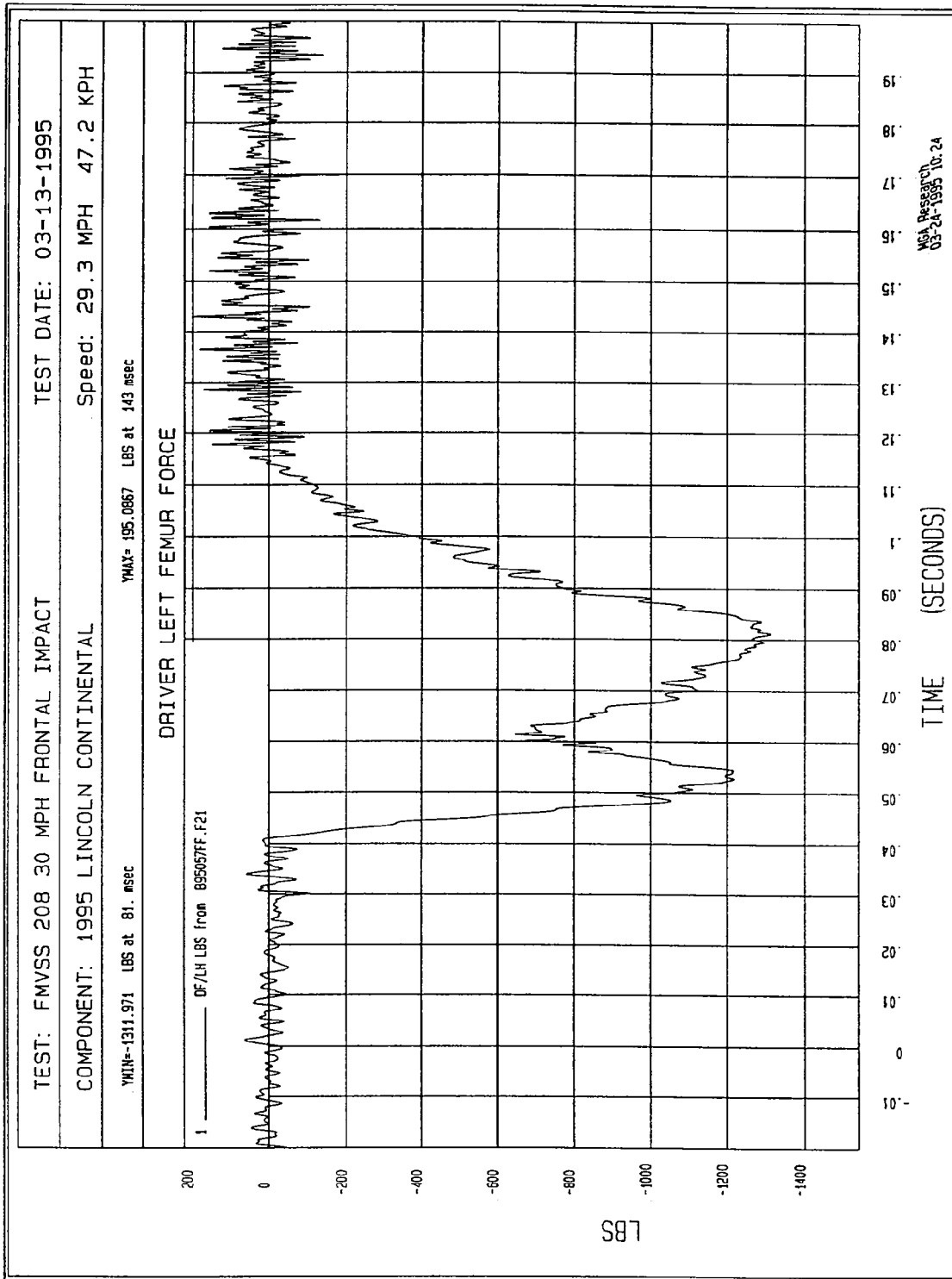


Figure B-10 - Driver Left Femur Force vs. Time

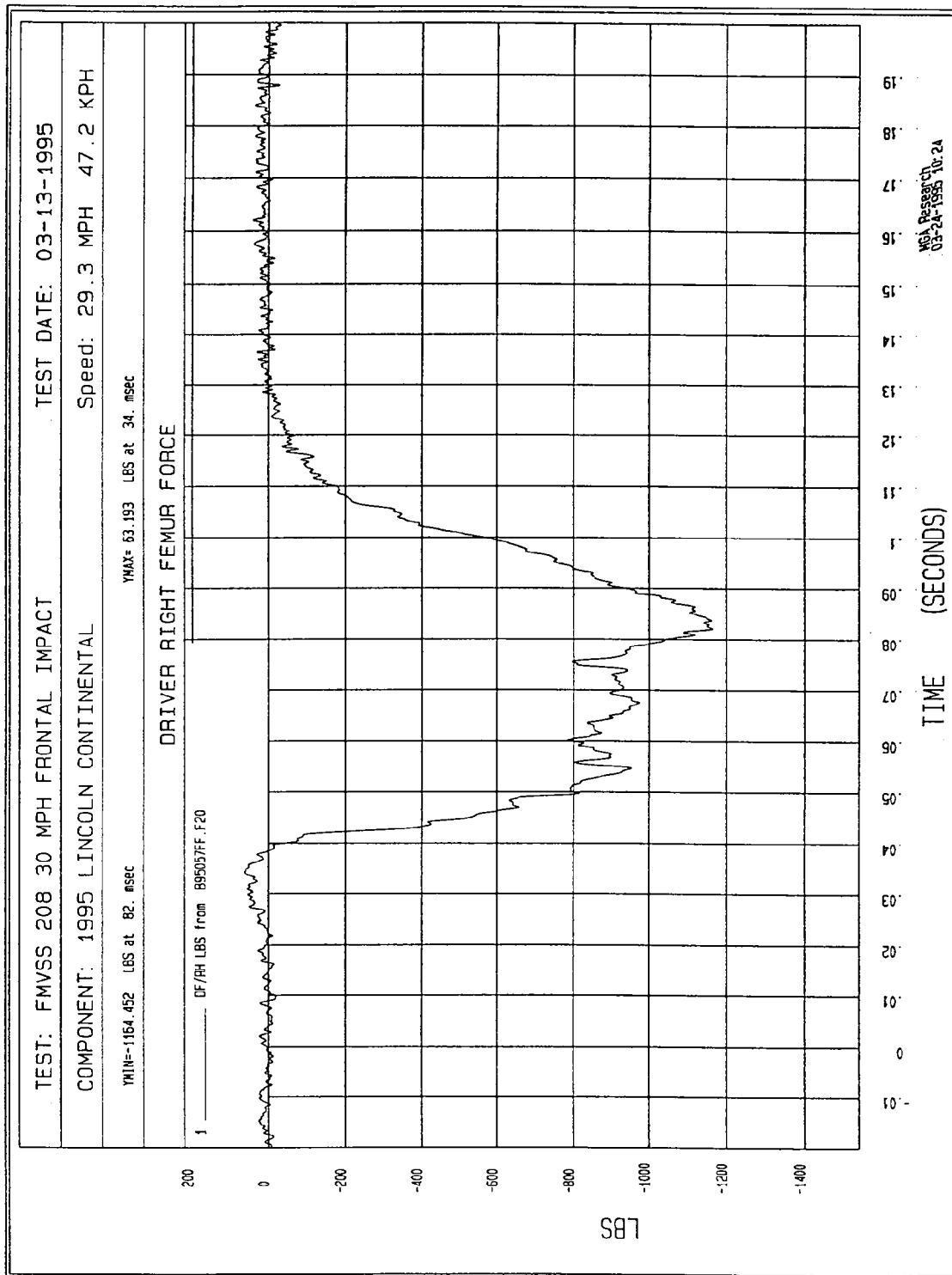


Figure B-11 - Driver Right Femur Force vs. Time

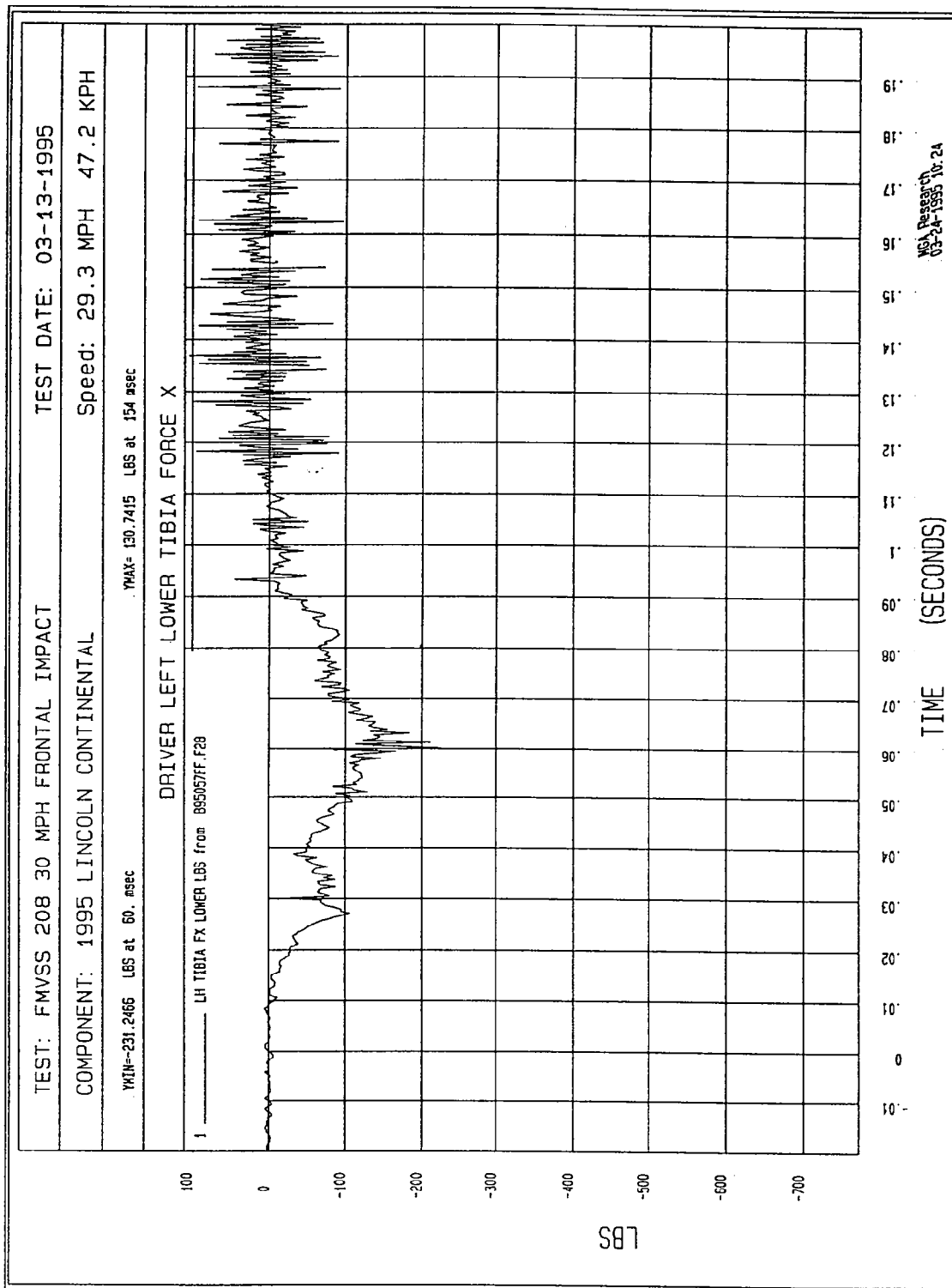


Figure B-12 - Driver Left Lower Tibia Force X vs. Time

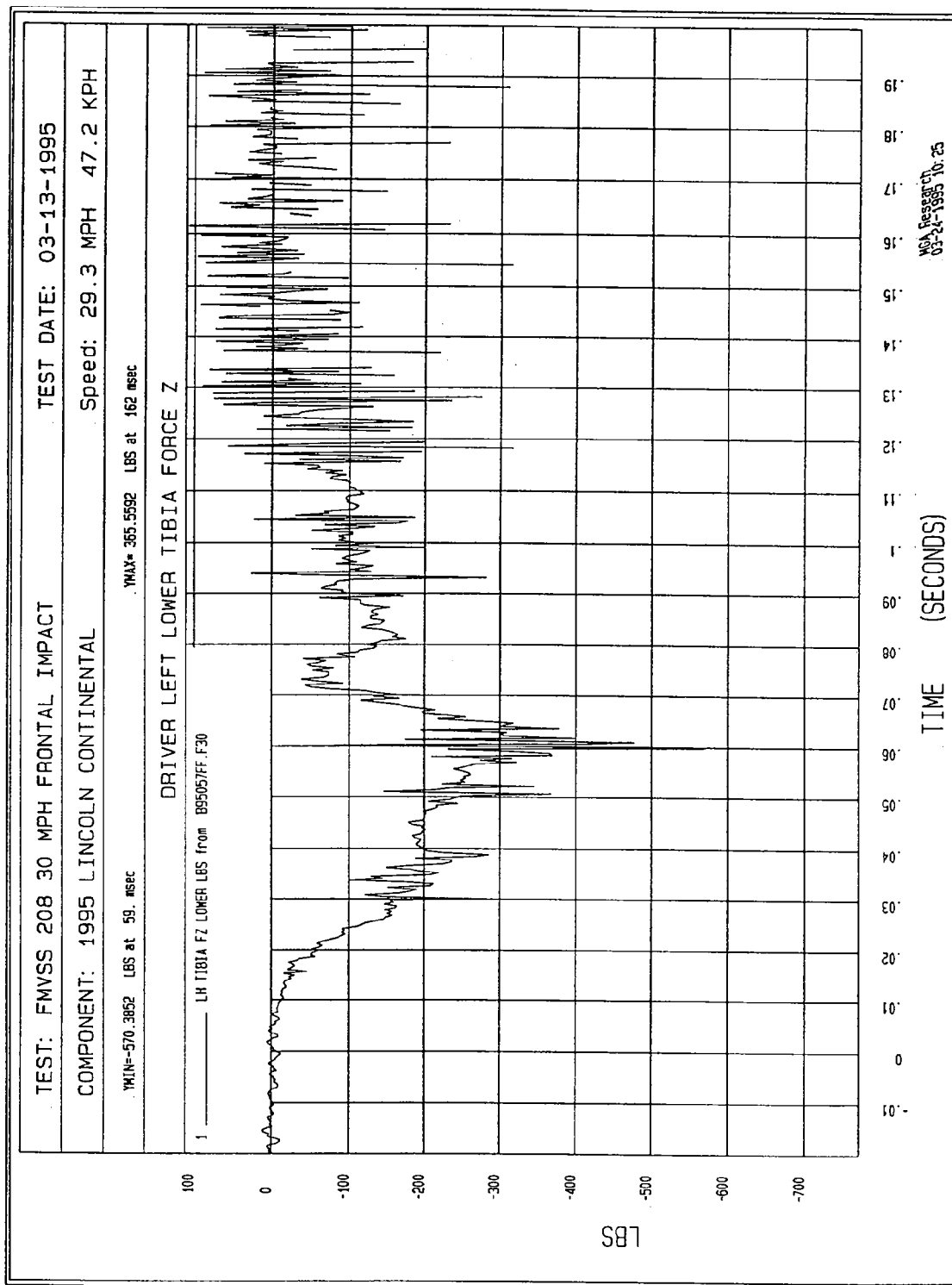


Figure B-13 - Driver Left Lower Tibia Force Z vs. Time

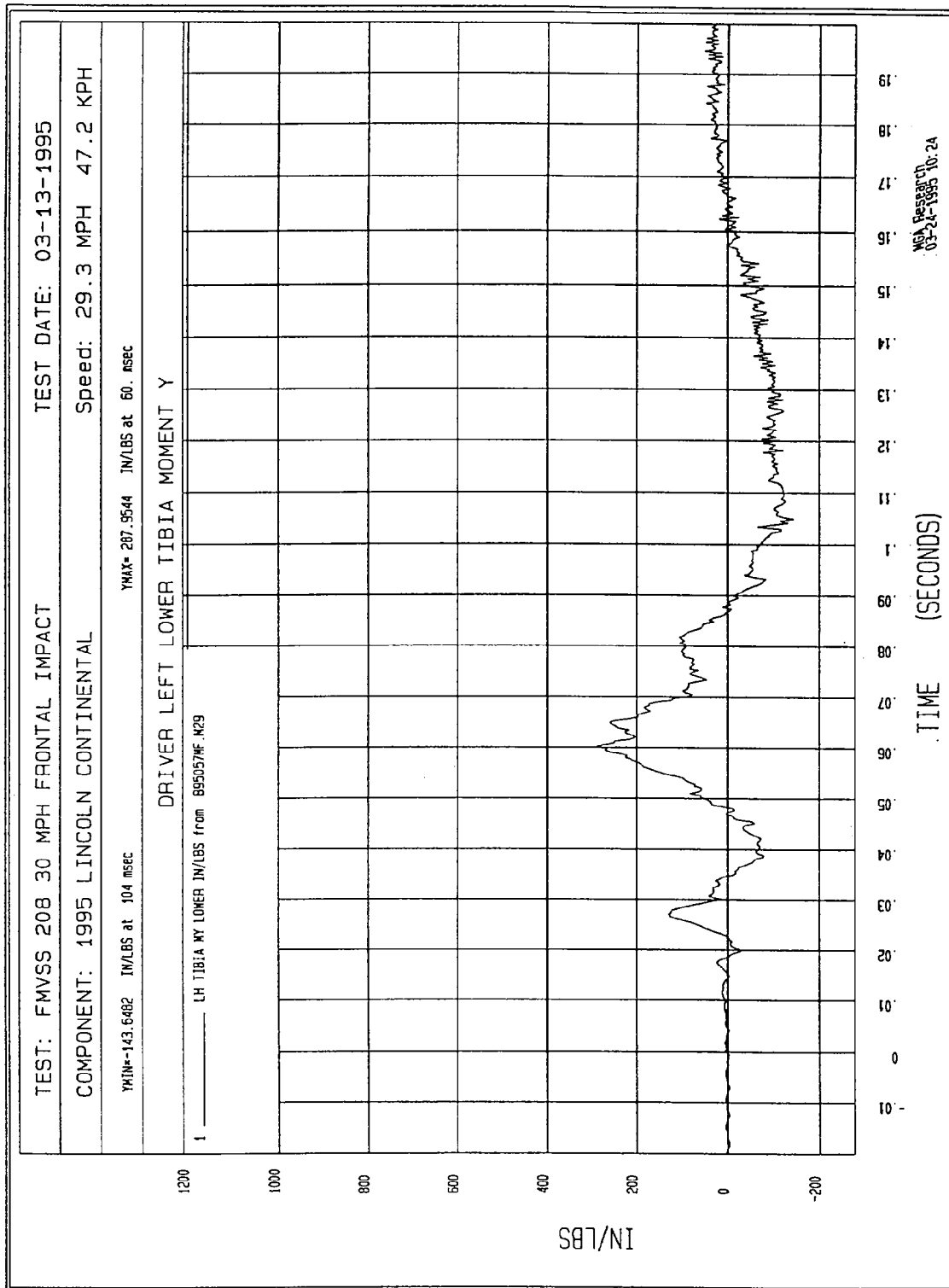


Figure B-14 - Driver Left Lower Tibia Moment Y vs. Time

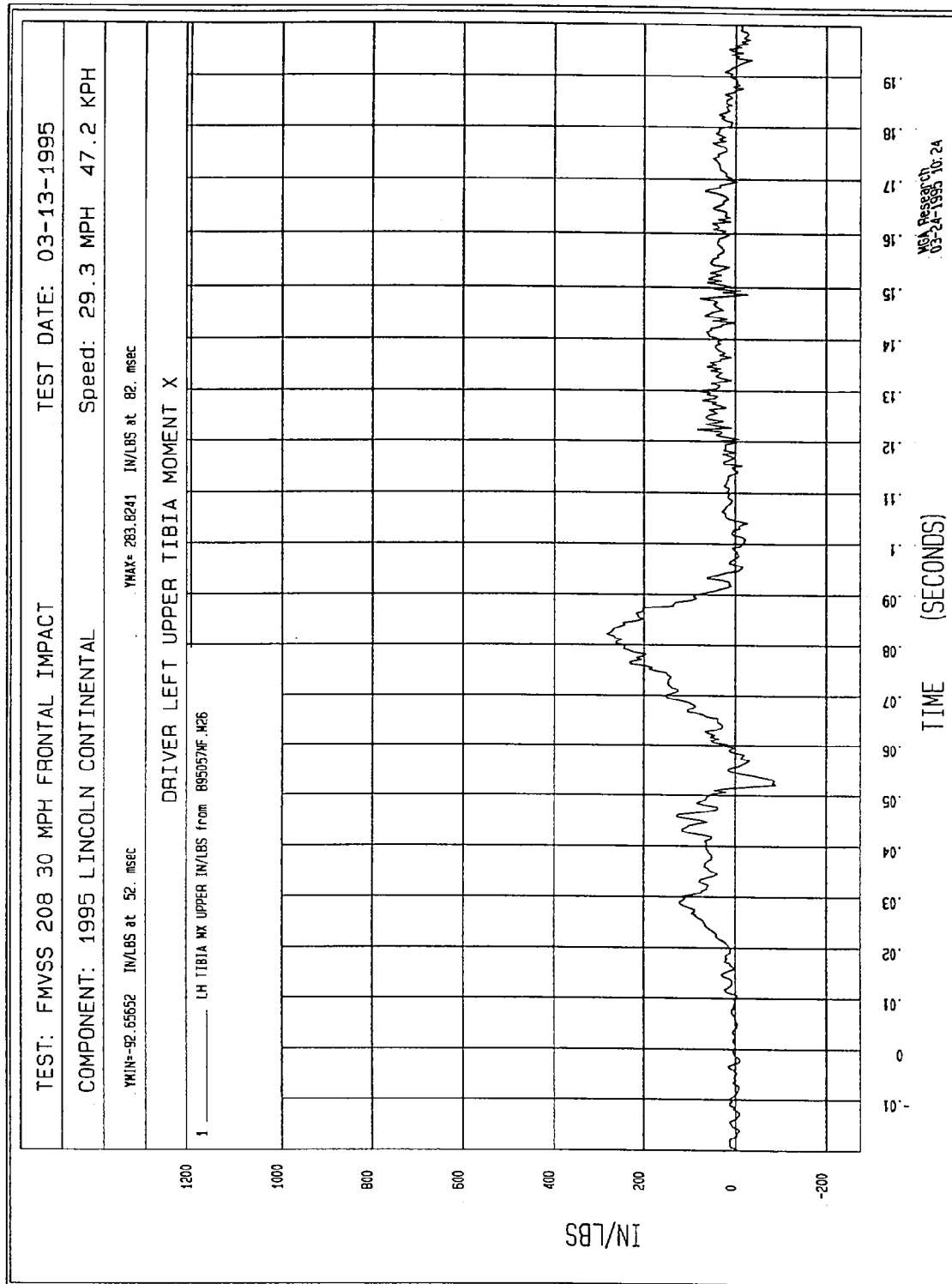


Figure B-15 - Driver Left Upper Tibia Moment X vs. Time

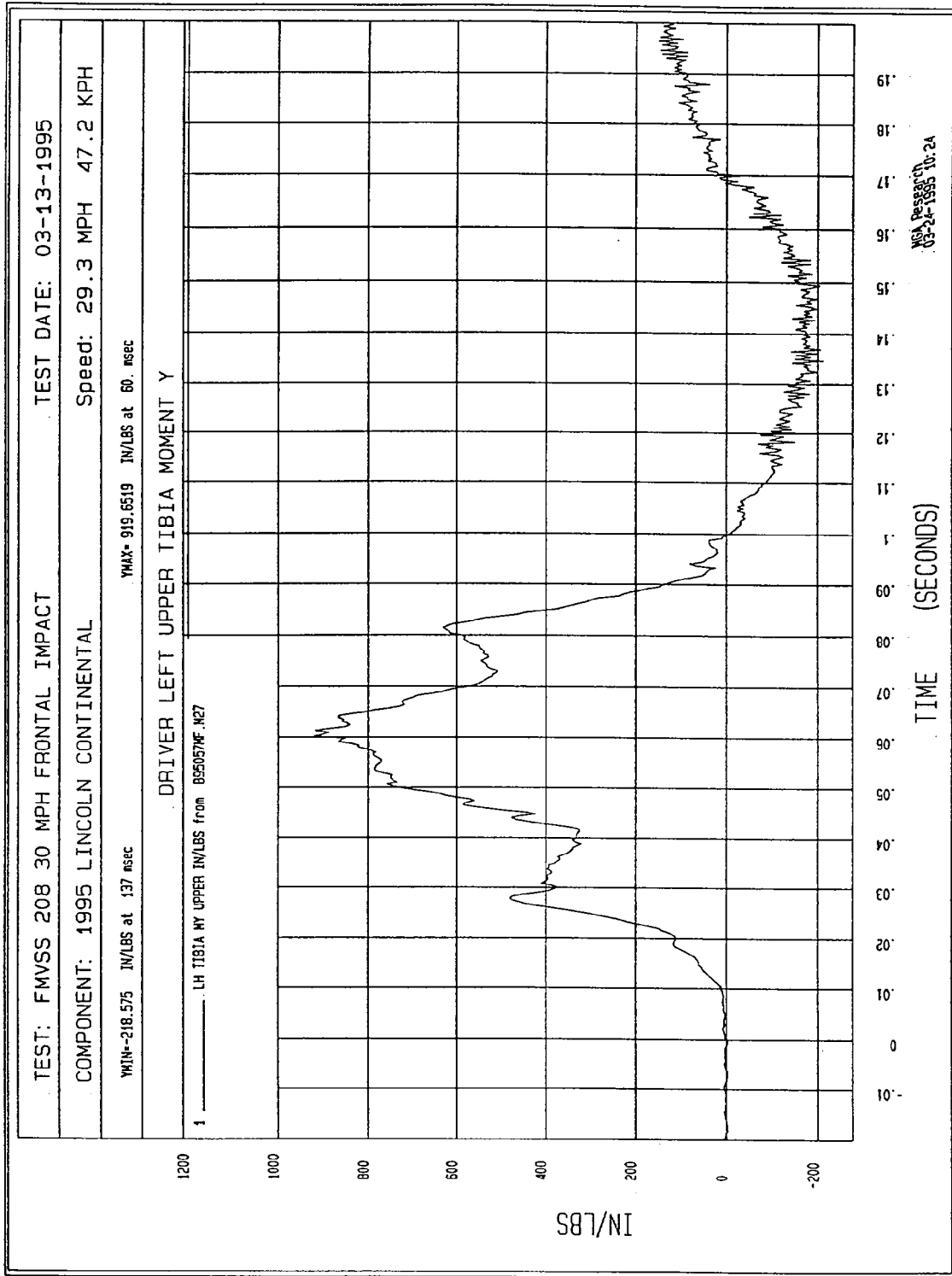


Figure B-16 - Driver Left Upper Tibia Moment Y vs. Time

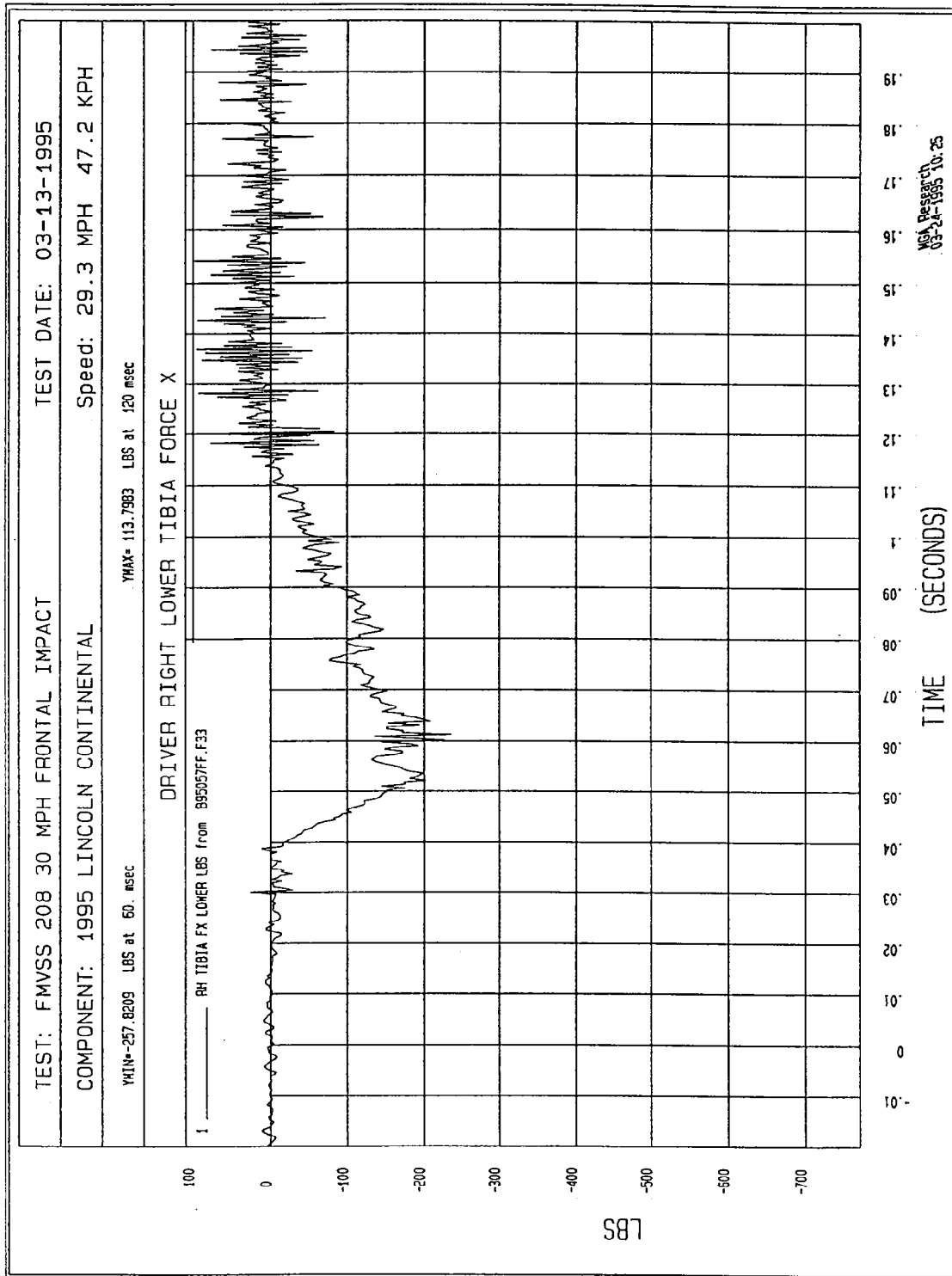


Figure B-17 - Driver Right Lower Tibia Force X vs. Time

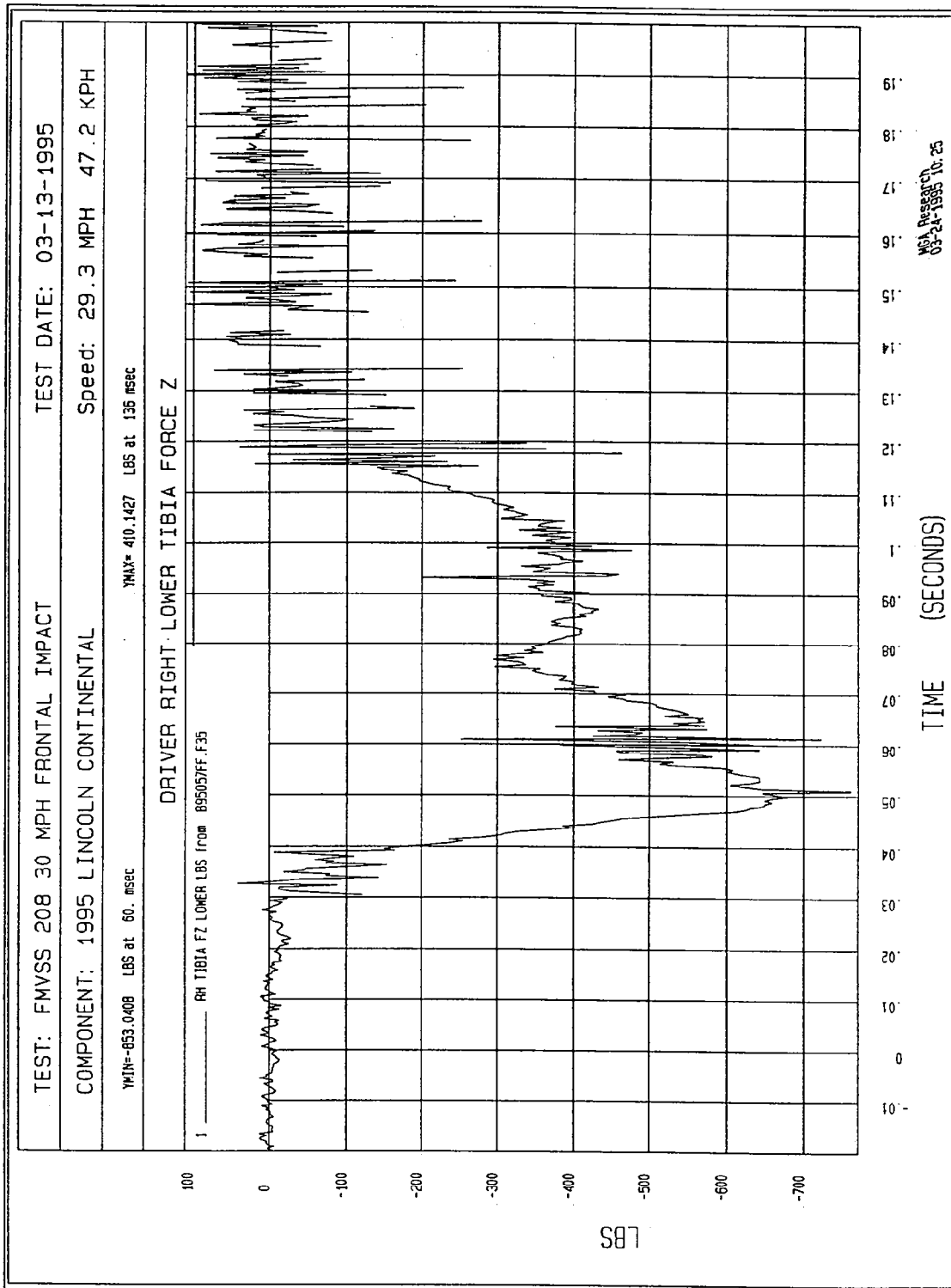


Figure B-18 - Driver Right Lower Tibia Force Z vs. Time

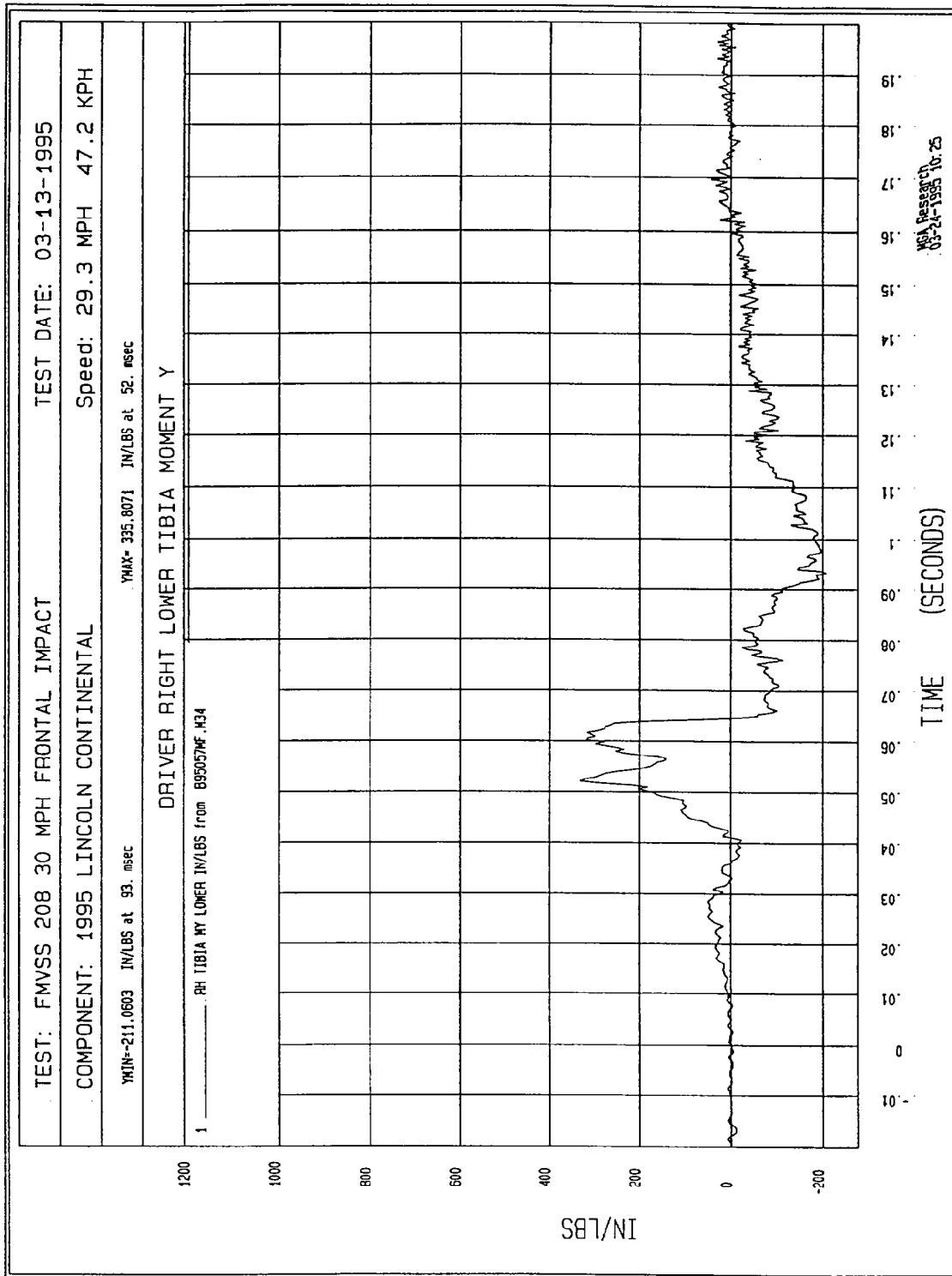


Figure B-19 - Driver Right Lower Tibia Moment Y vs. Time

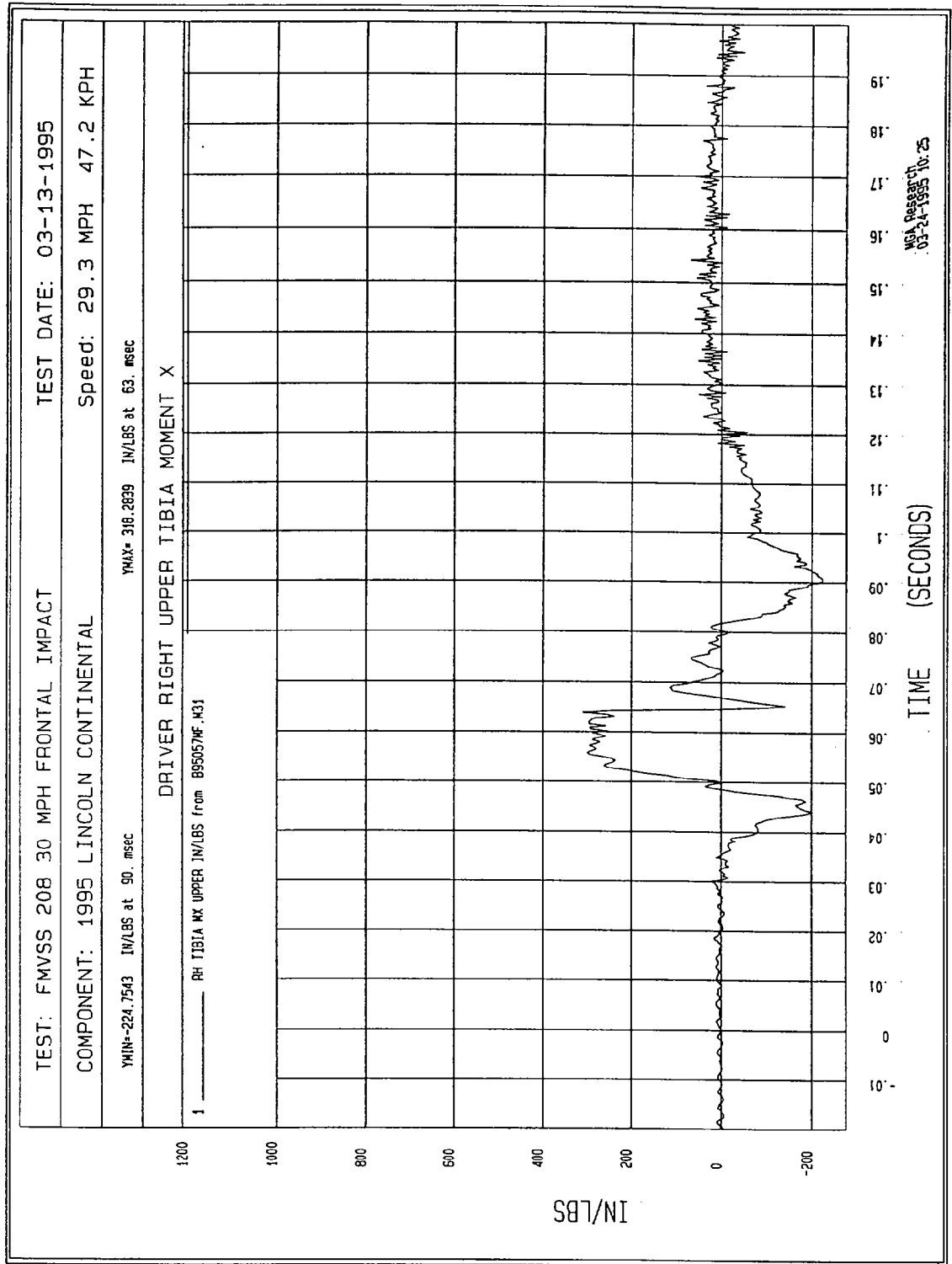


Figure B-20 - Driver Right Upper Tibia Moment X vs. Time

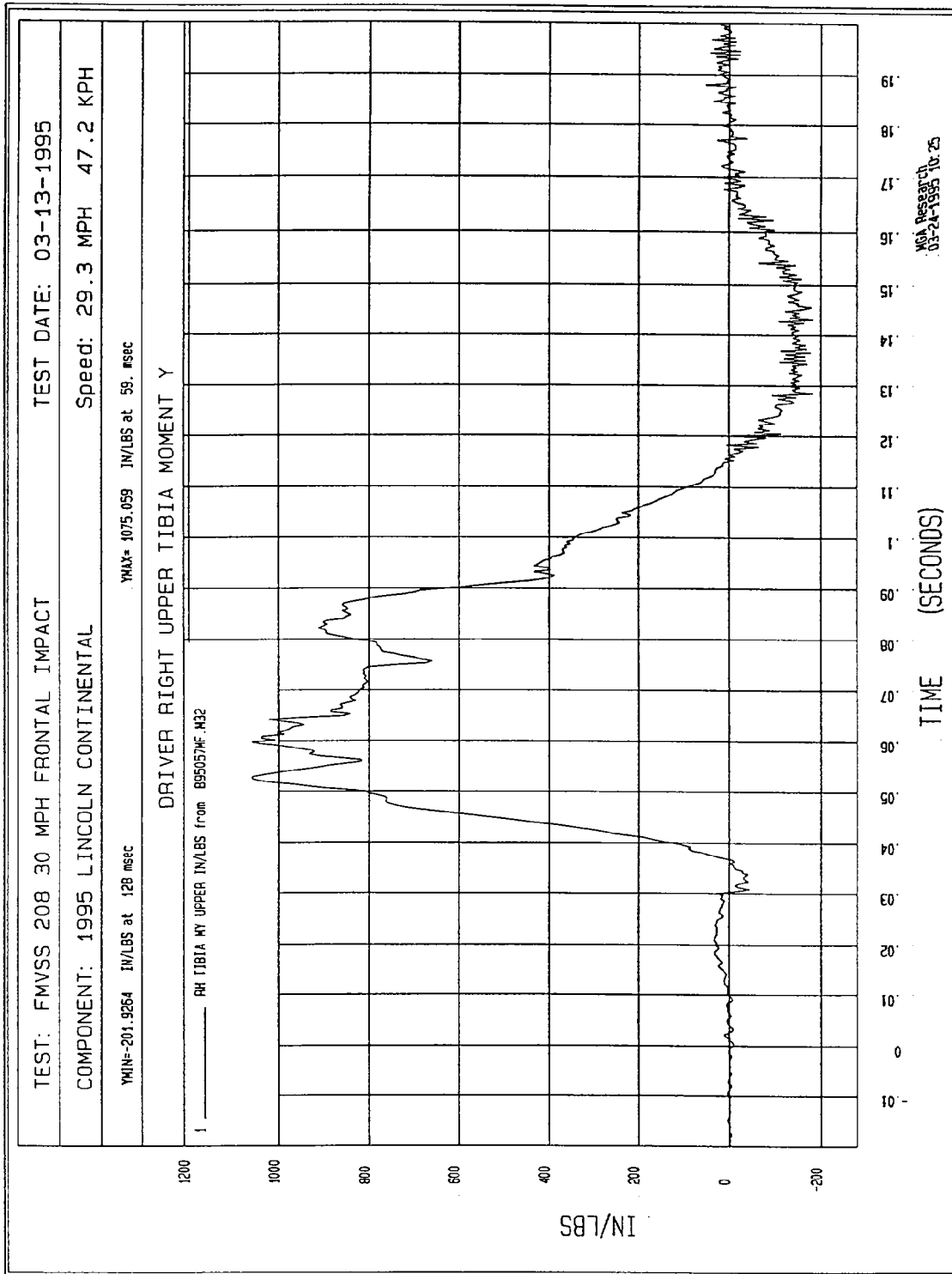


Figure B-21 - Driver Right Upper Tibia Moment Y vs. Time

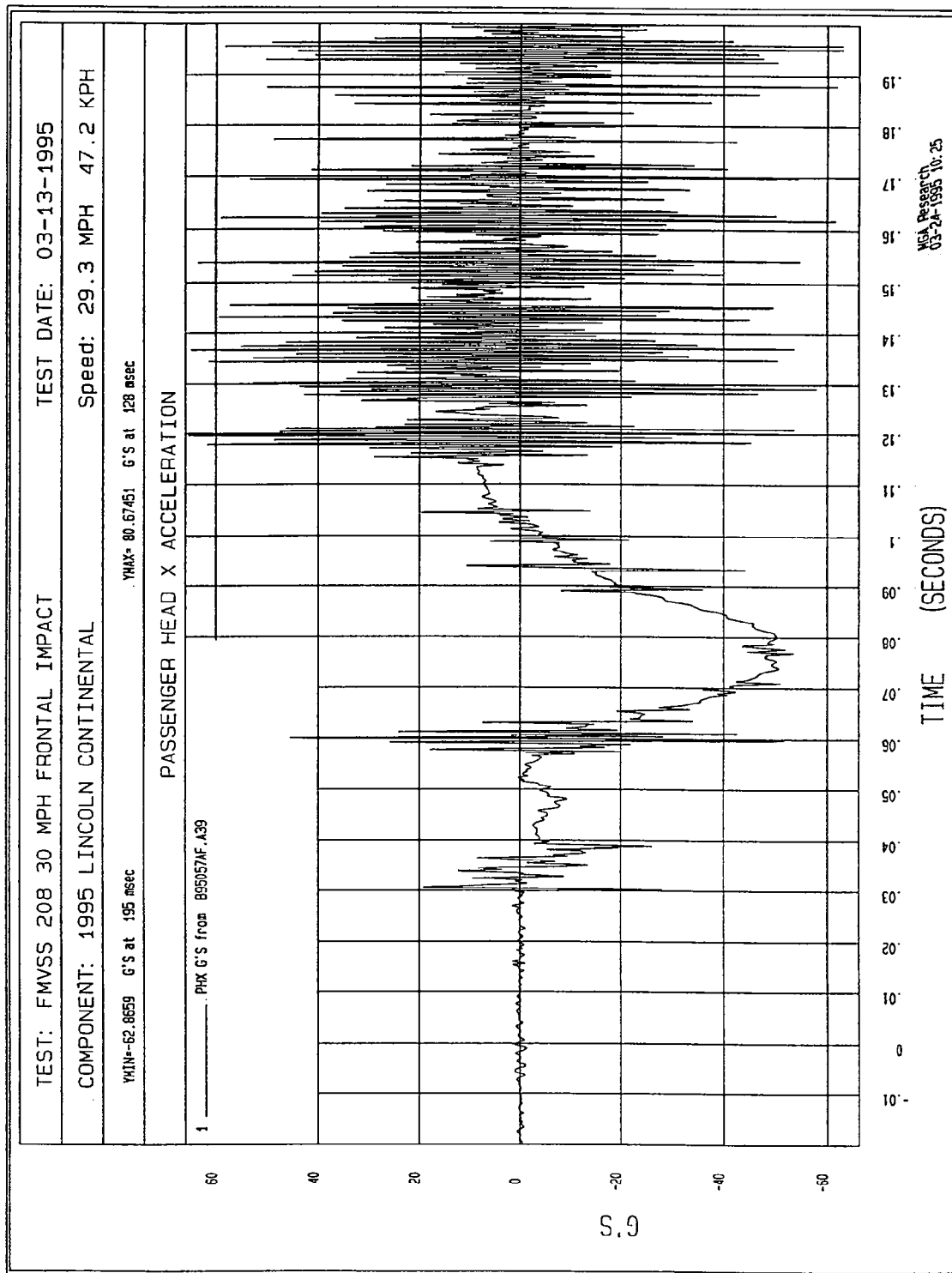


Figure B-22 - Passenger Head X Acceleration vs. Time

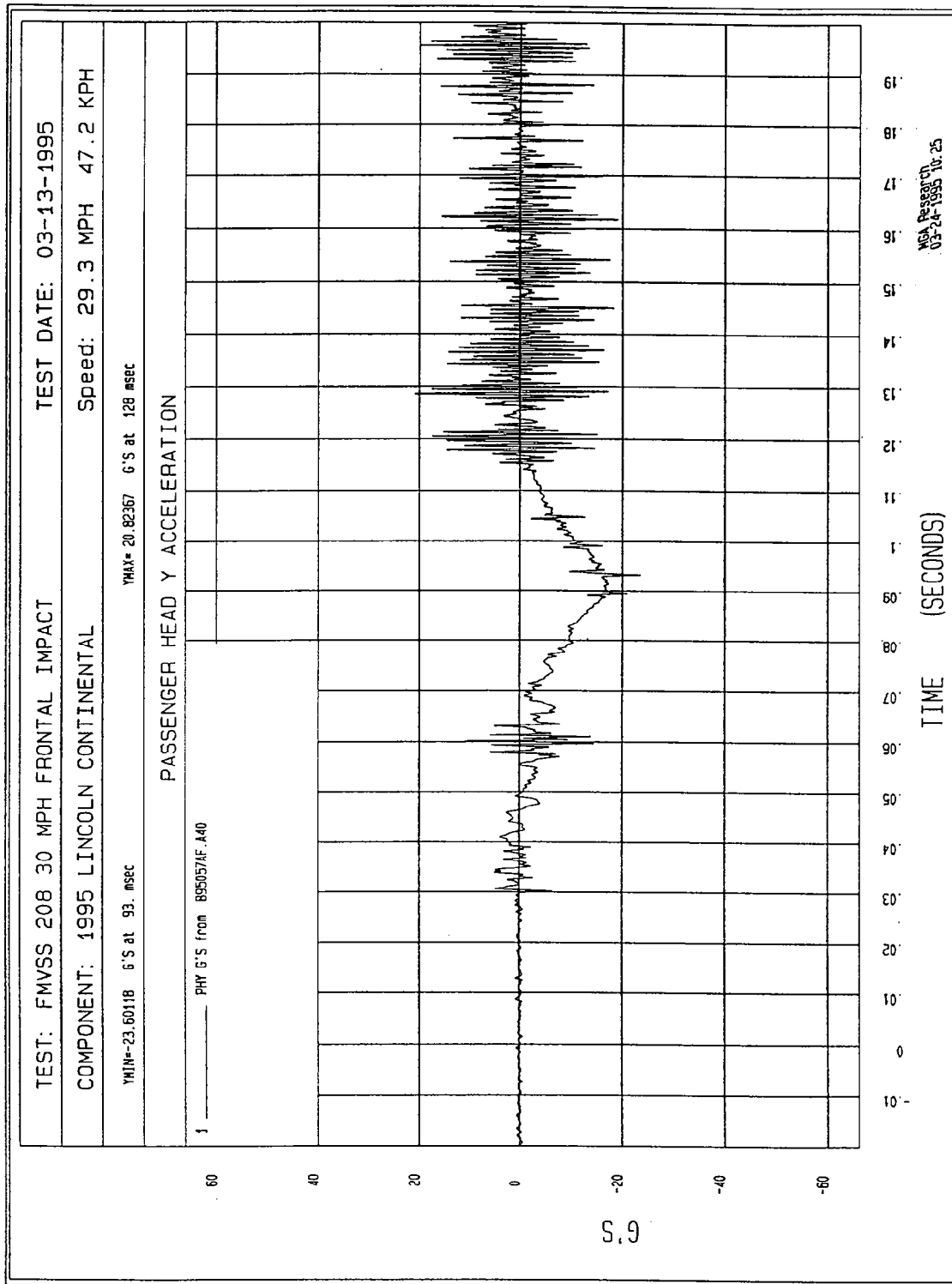


Figure B-23 - Passenger Head Y Acceleration vs. Time

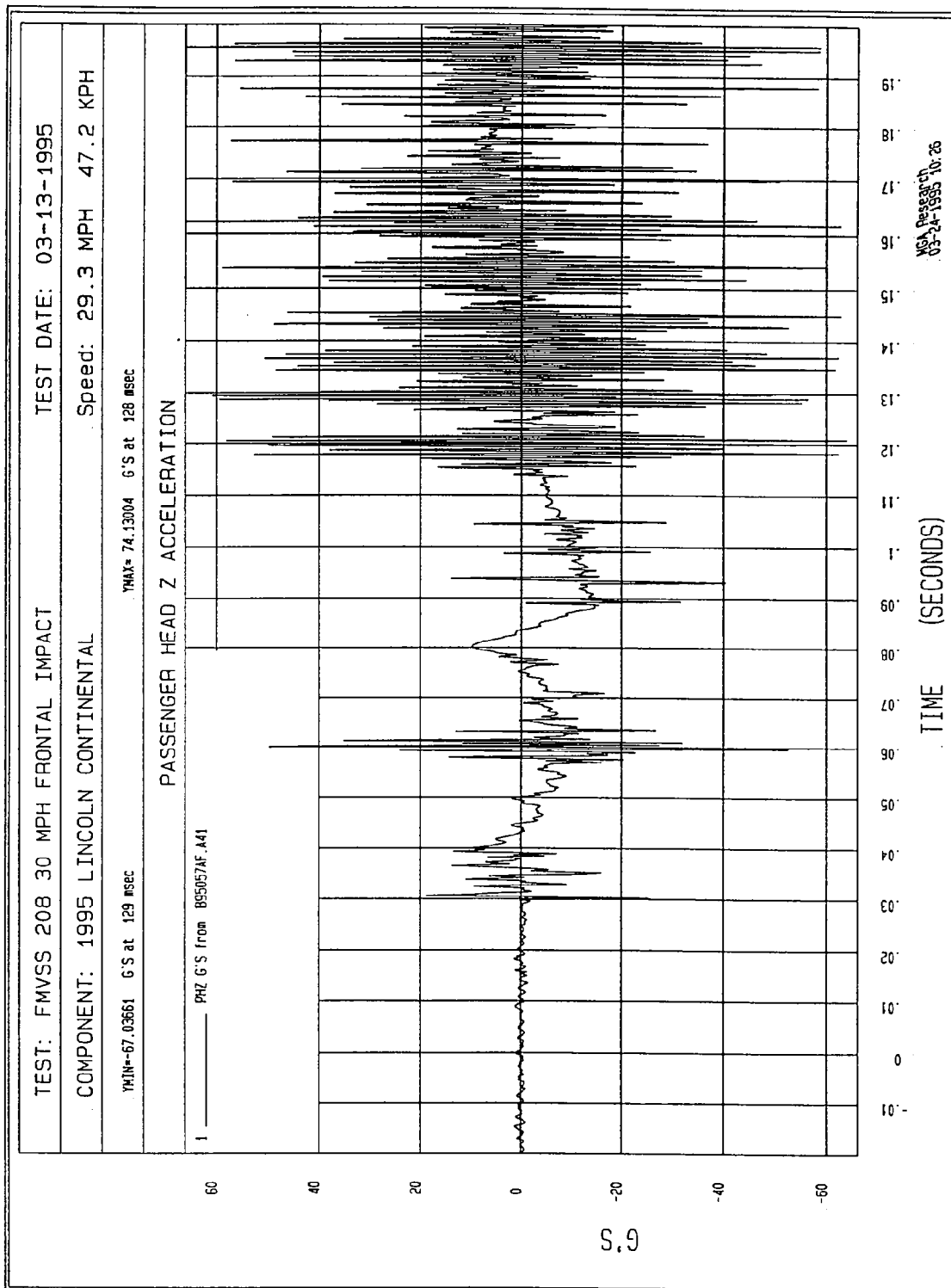


Figure B-24 - Passenger Head Z Acceleration vs. Time

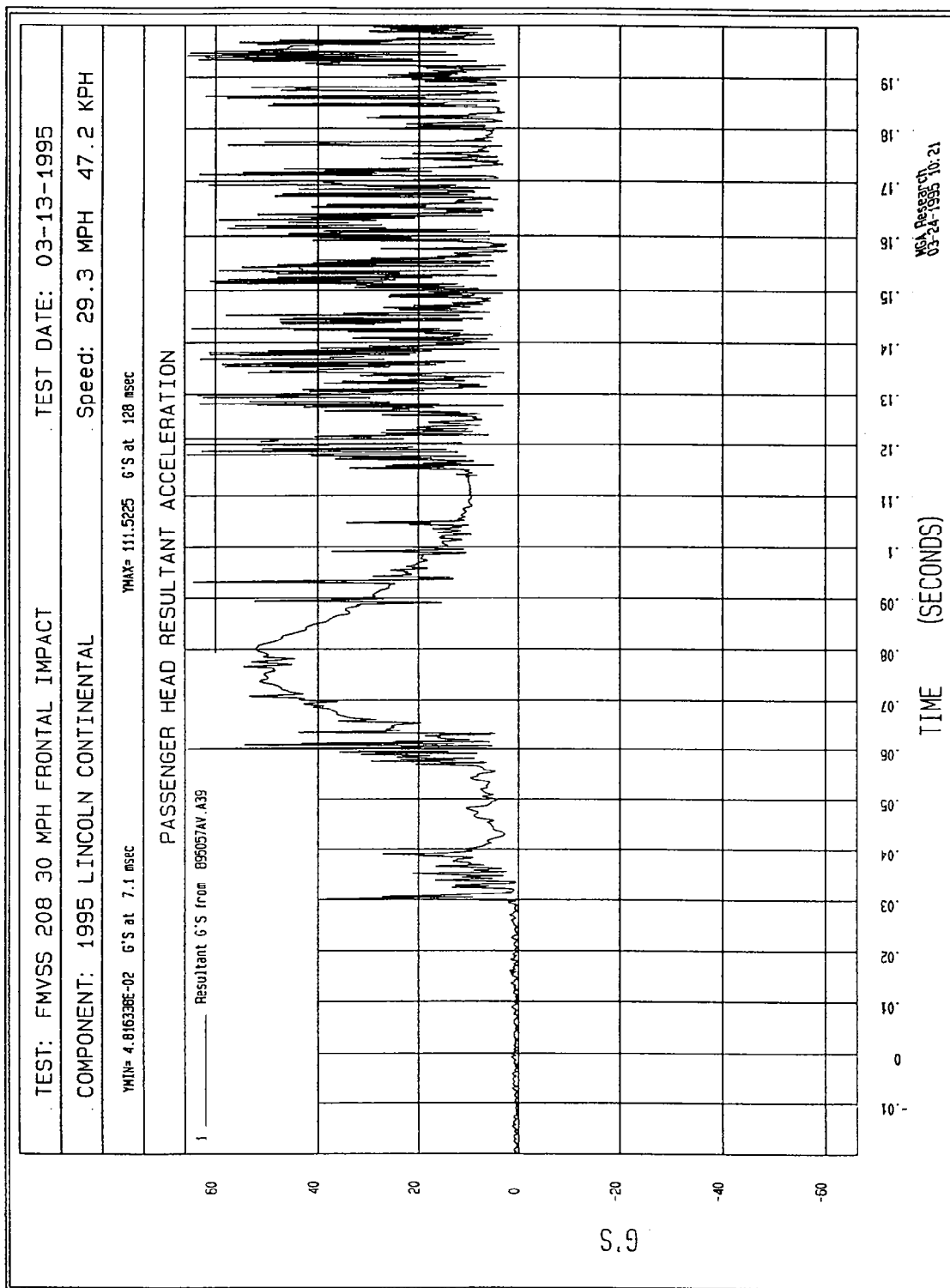


Figure B-25 - Passenger Head Resultant Acceleration vs. Time

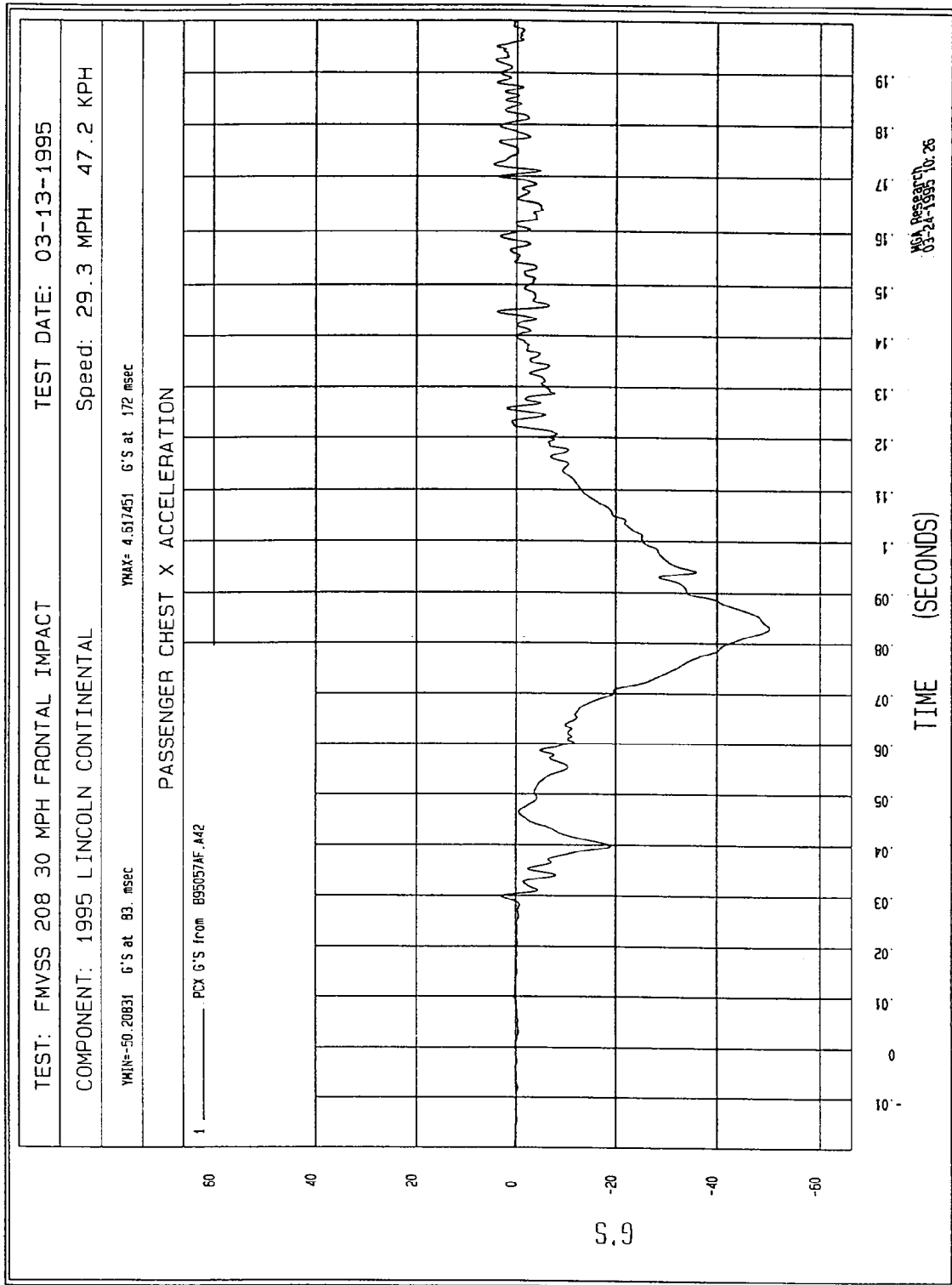


Figure B-26 - Passenger Chest X Acceleration vs. Time

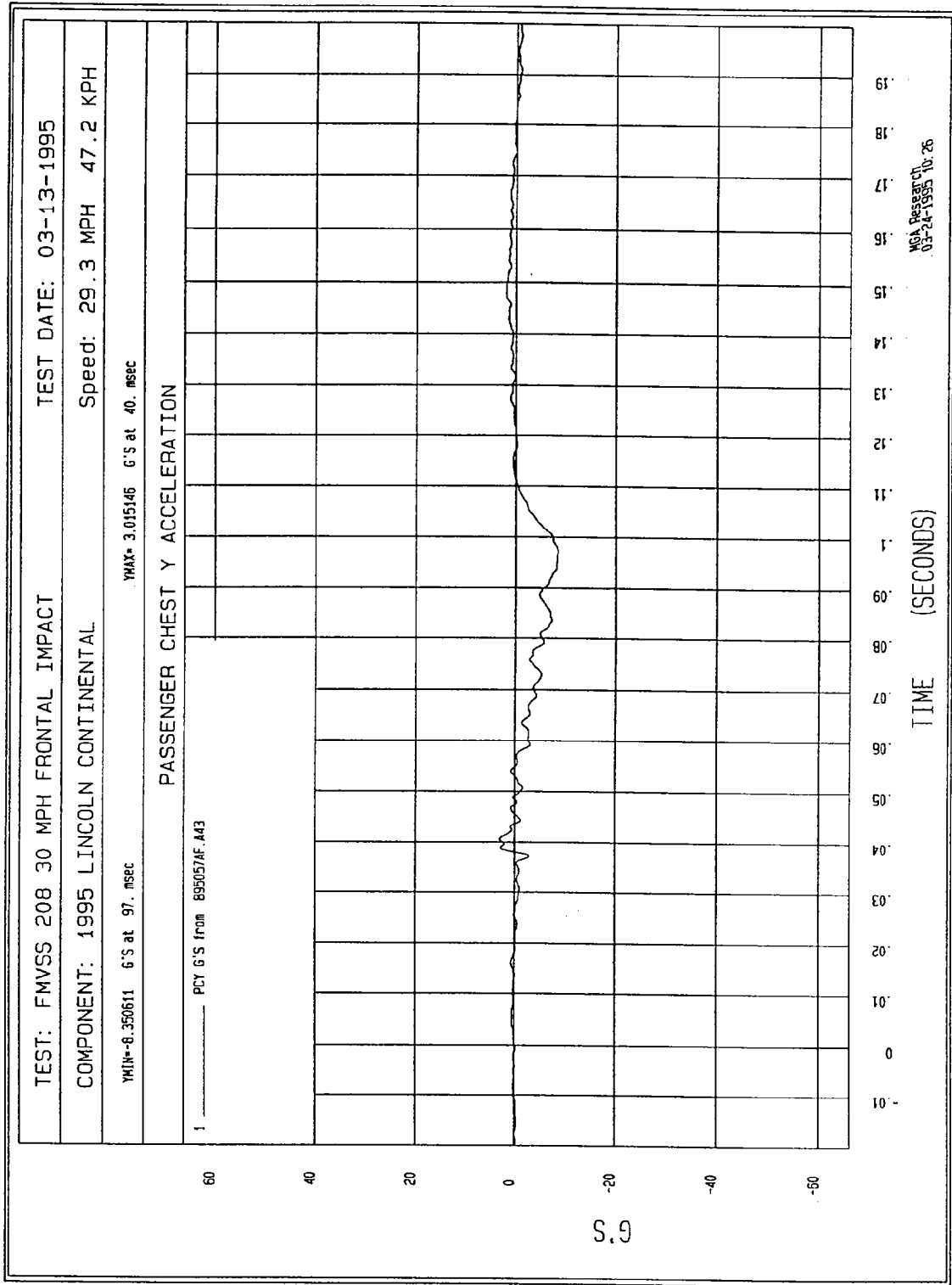


Figure B-27 - Passenger Chest Y Acceleration vs. Time

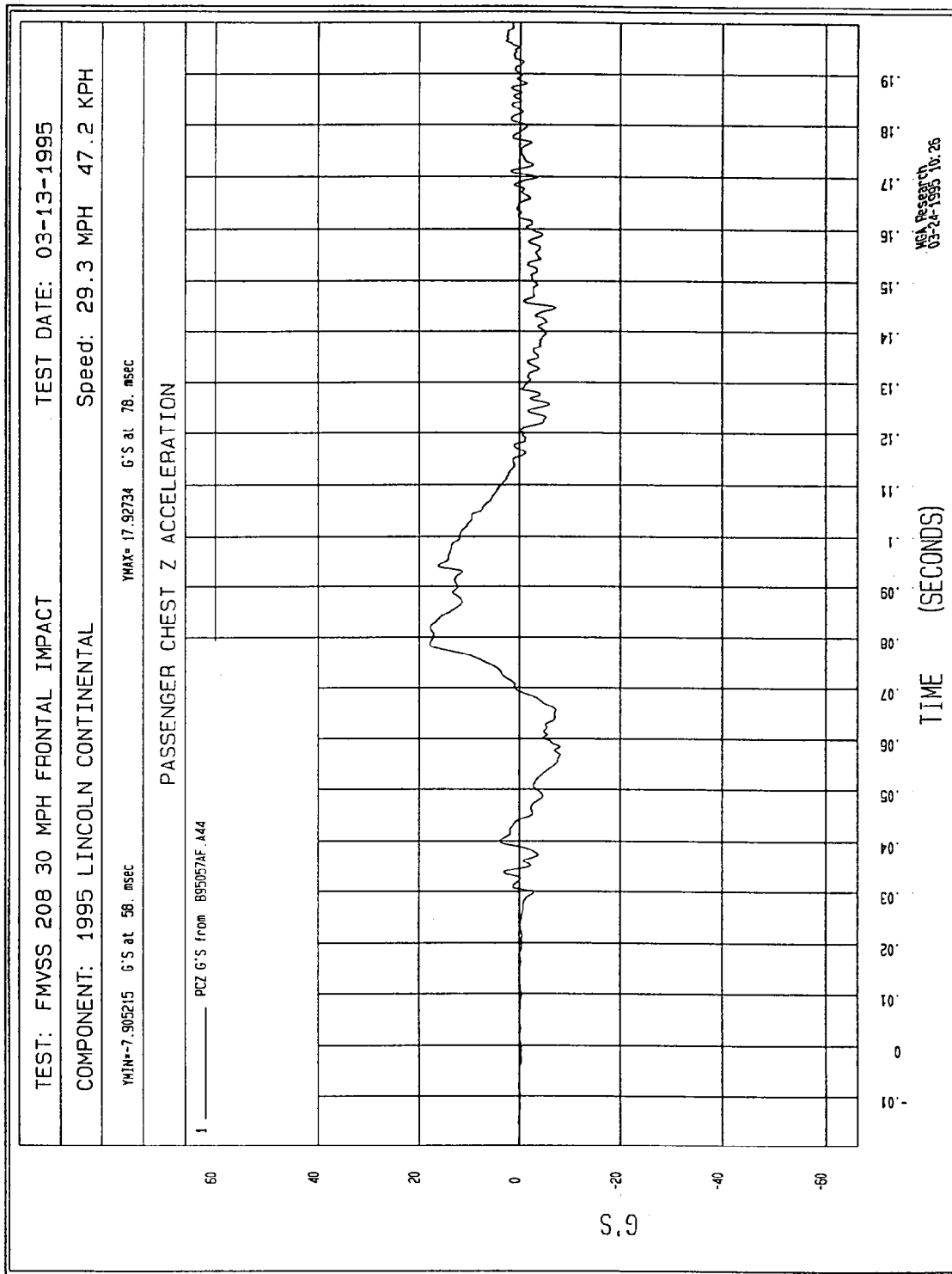


Figure B-28 - Passenger Chest Z Acceleration vs. Time

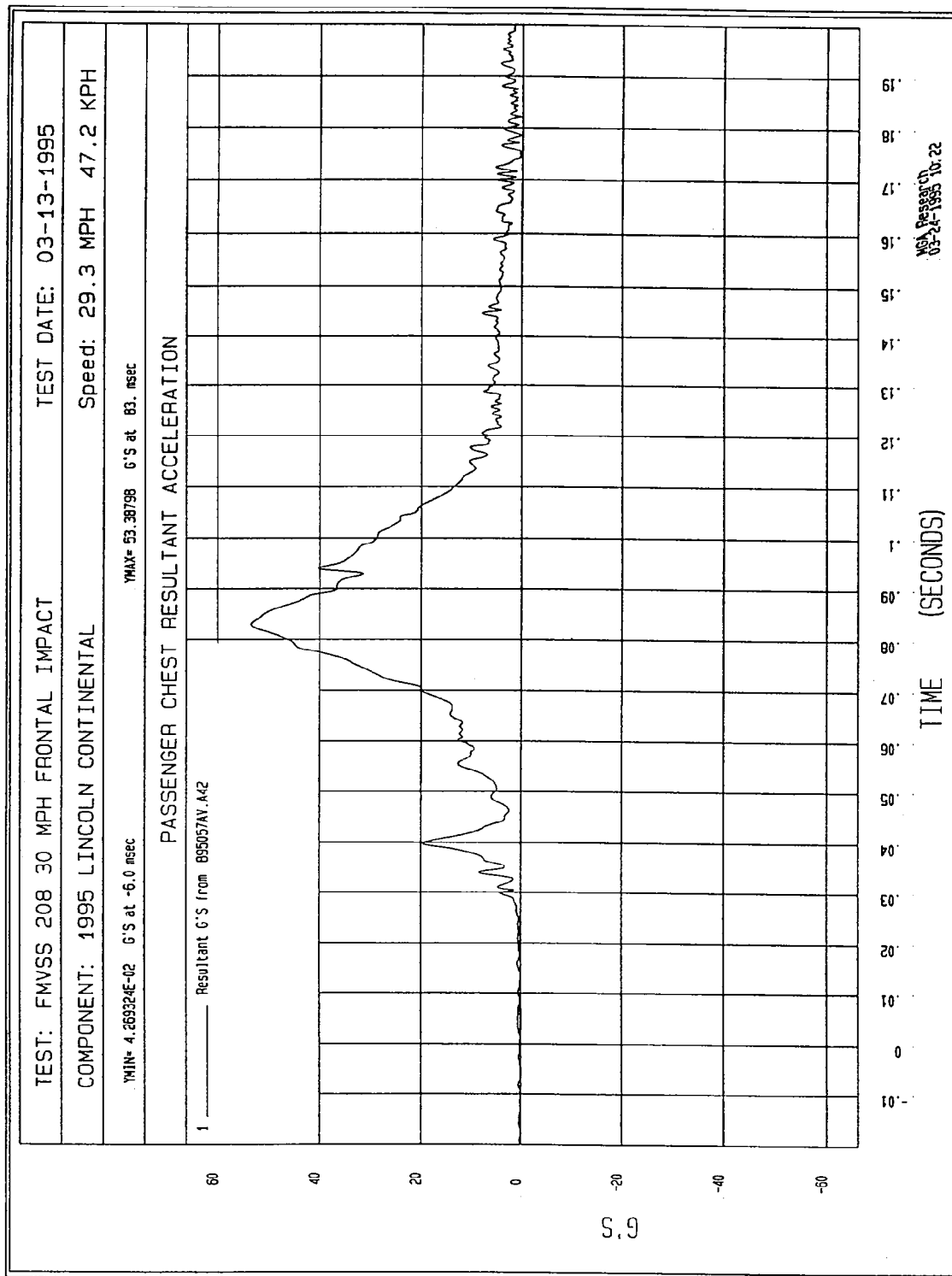


Figure B-29 - Passenger Chest Resultant Acceleration vs. Time

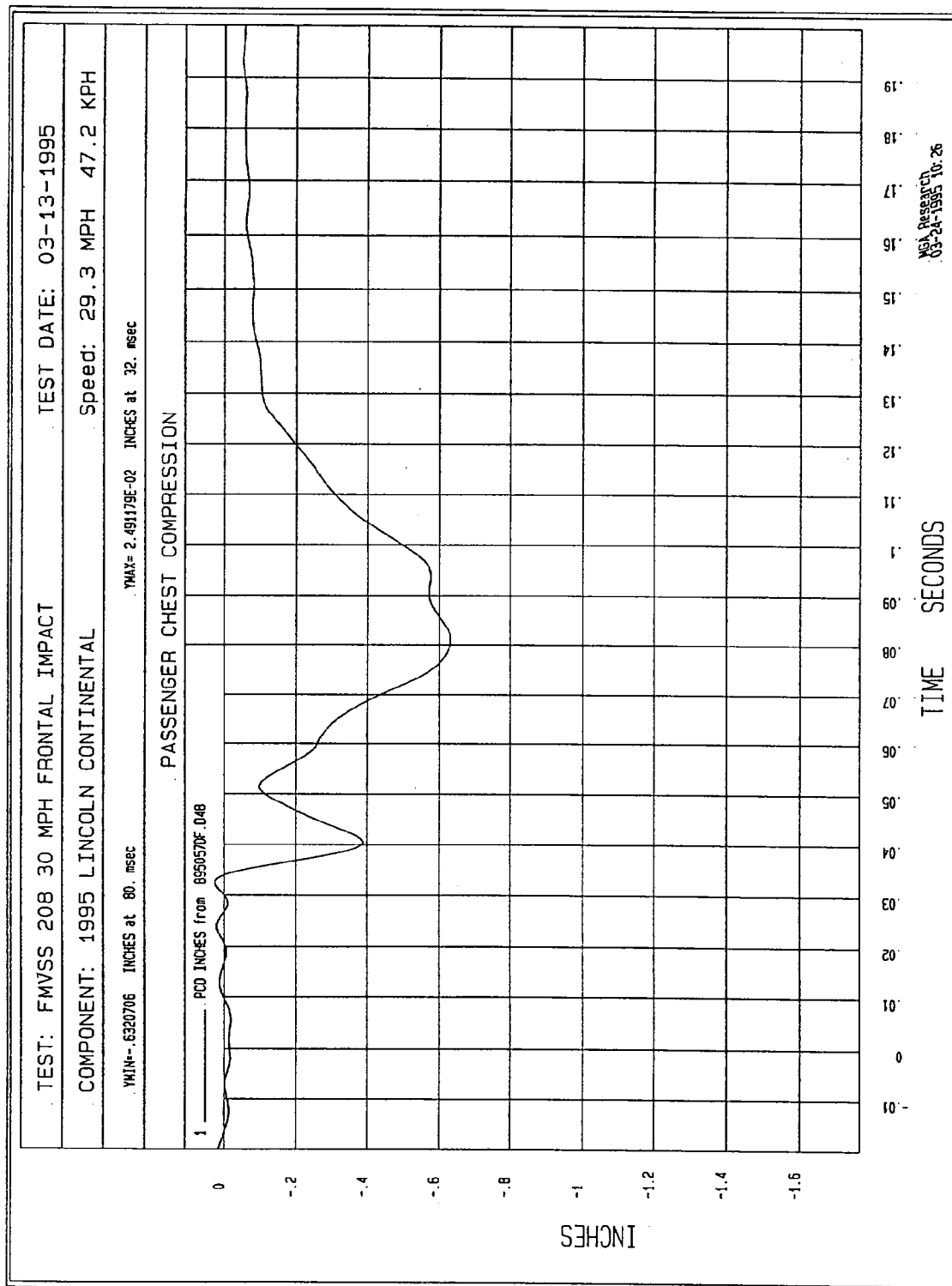


Figure B-30 - Passenger Chest Compression vs. Time

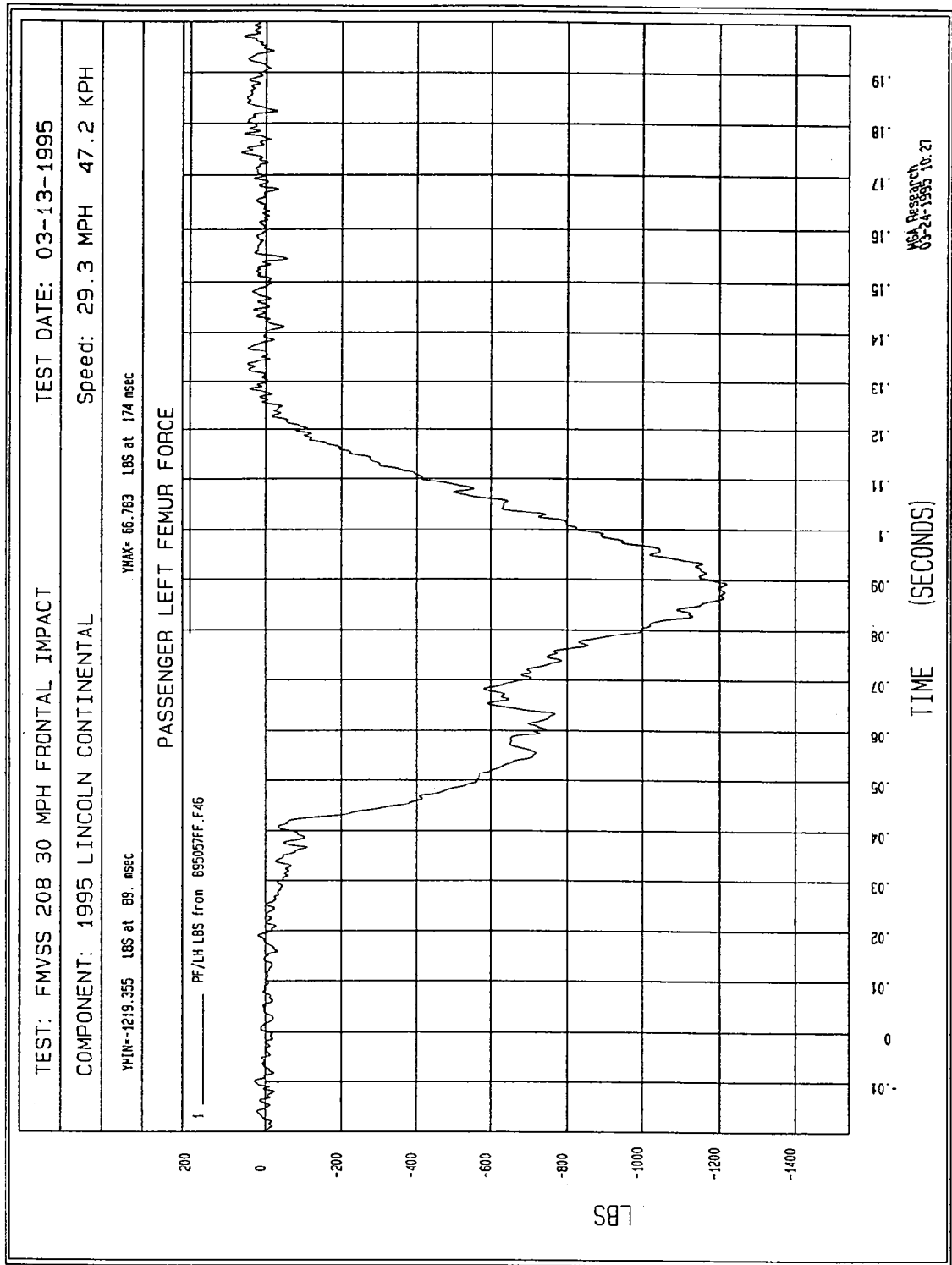


Figure B-31 - Passenger Left Femur Force vs. Time

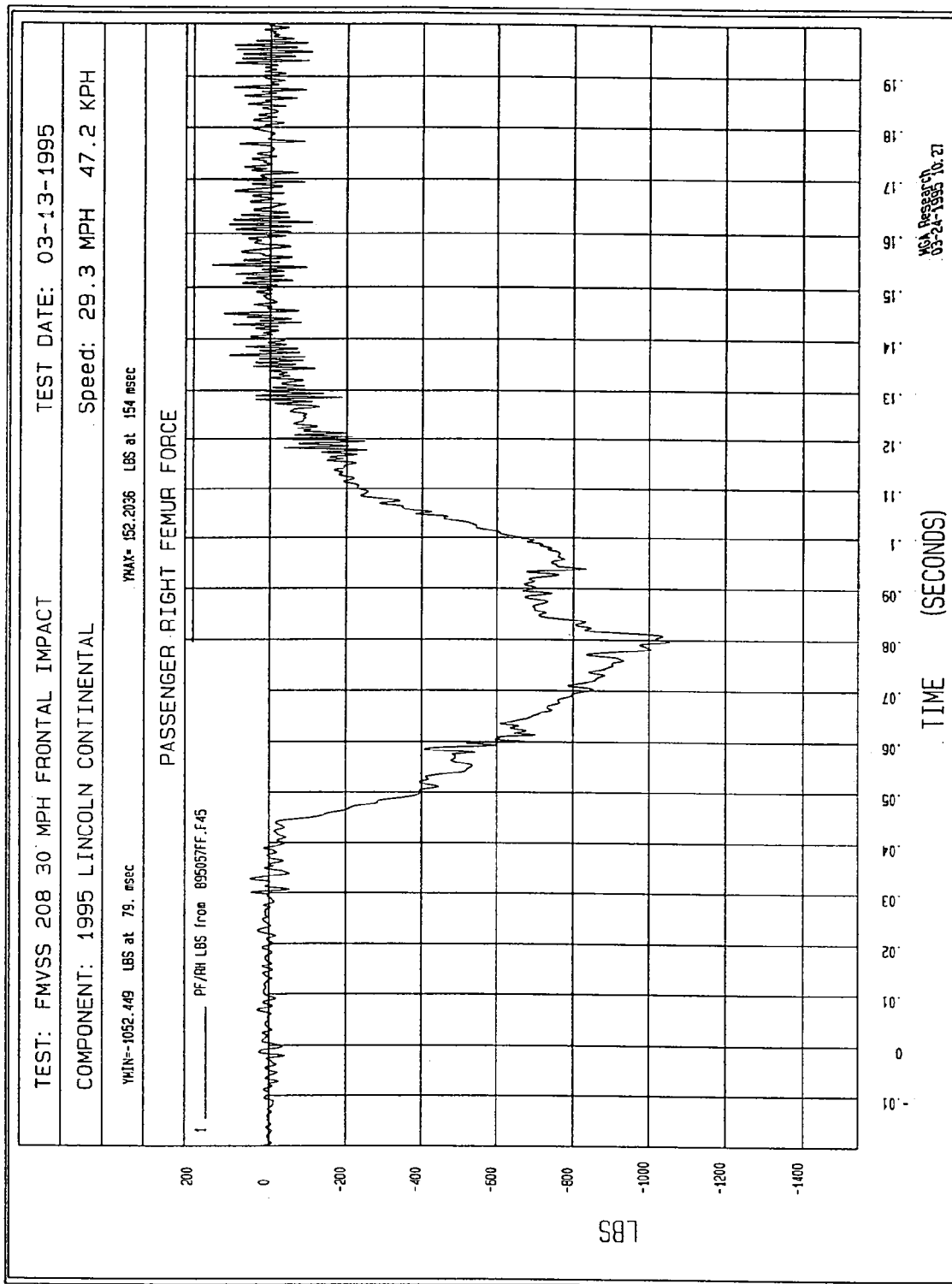


Figure B-32 - Passenger Right Femur Force vs. Time

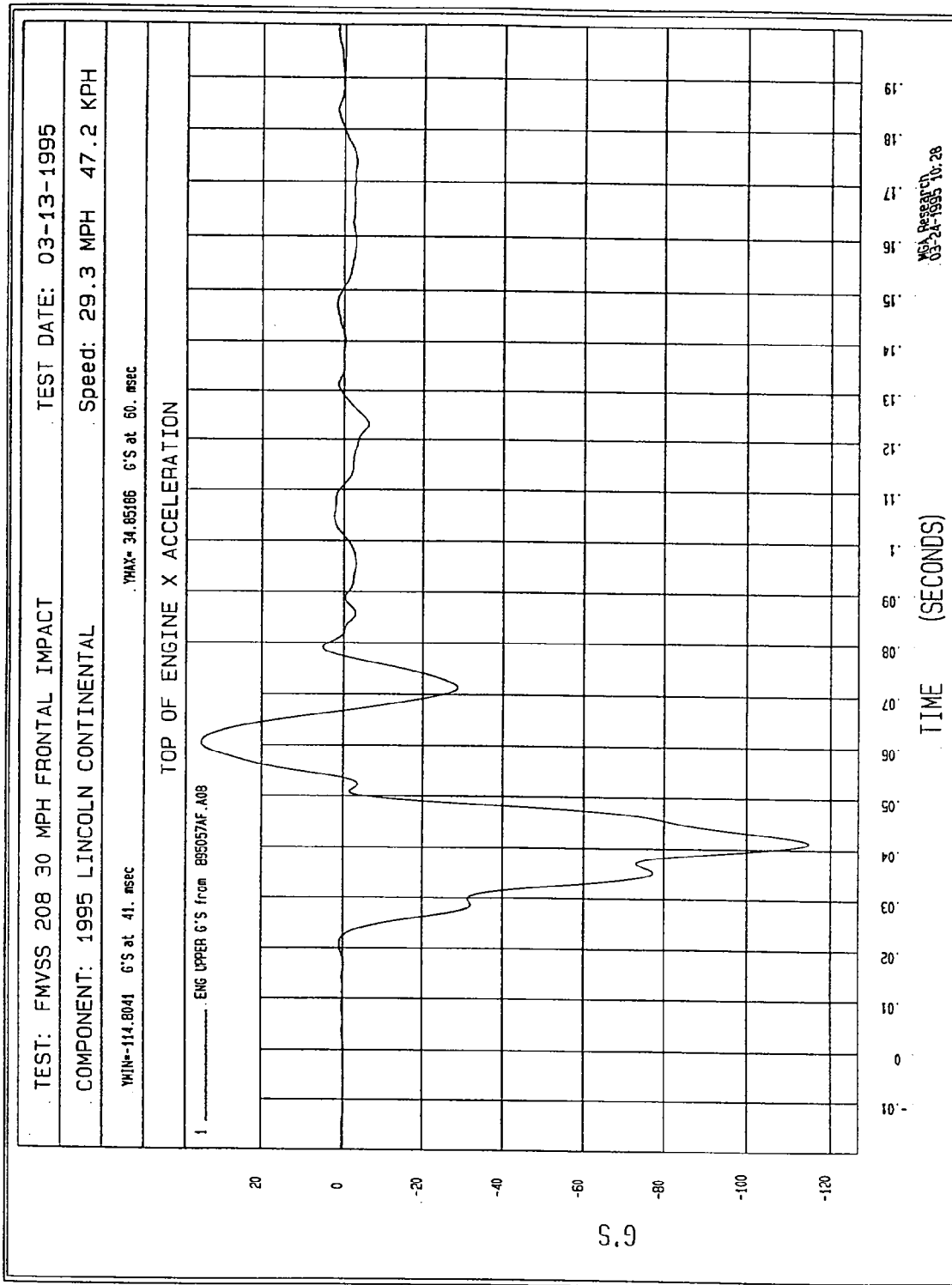


Figure B-33 - Top of Engine X Acceleration vs. Time

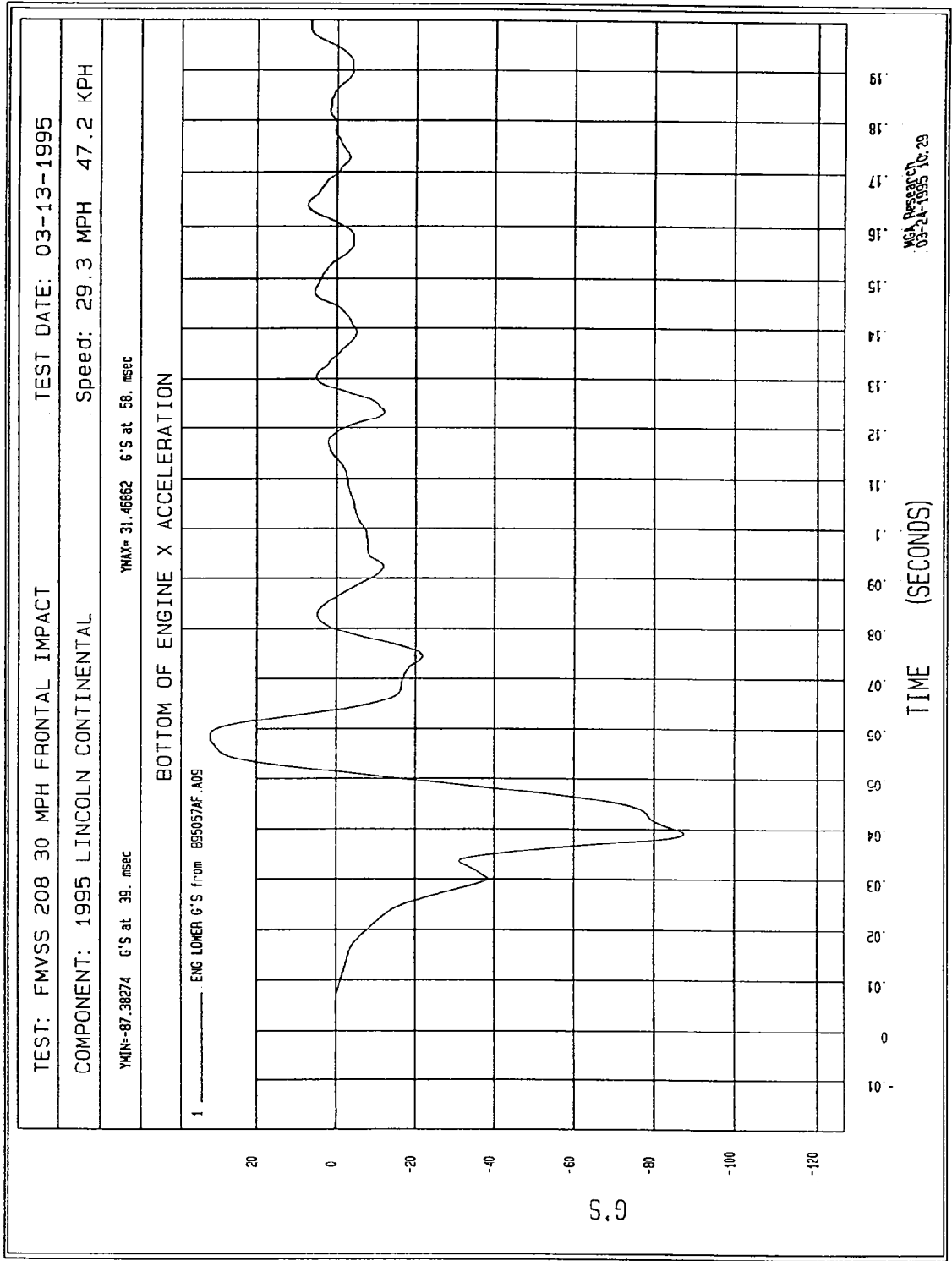


Figure B-34 - Bottom of Engine X Acceleration vs. Time

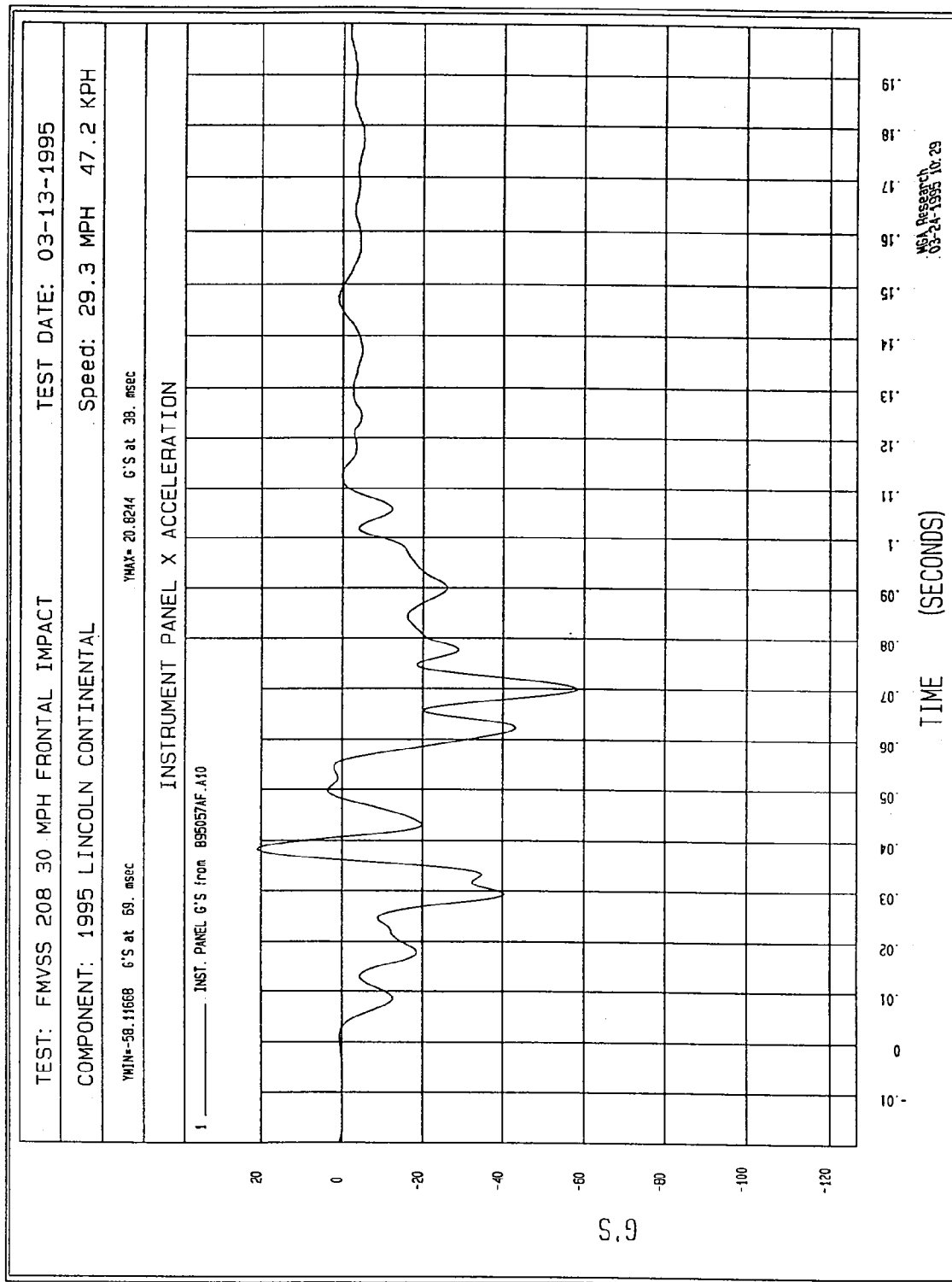


Figure B-35 - Instrument Panel X Acceleration vs. Time

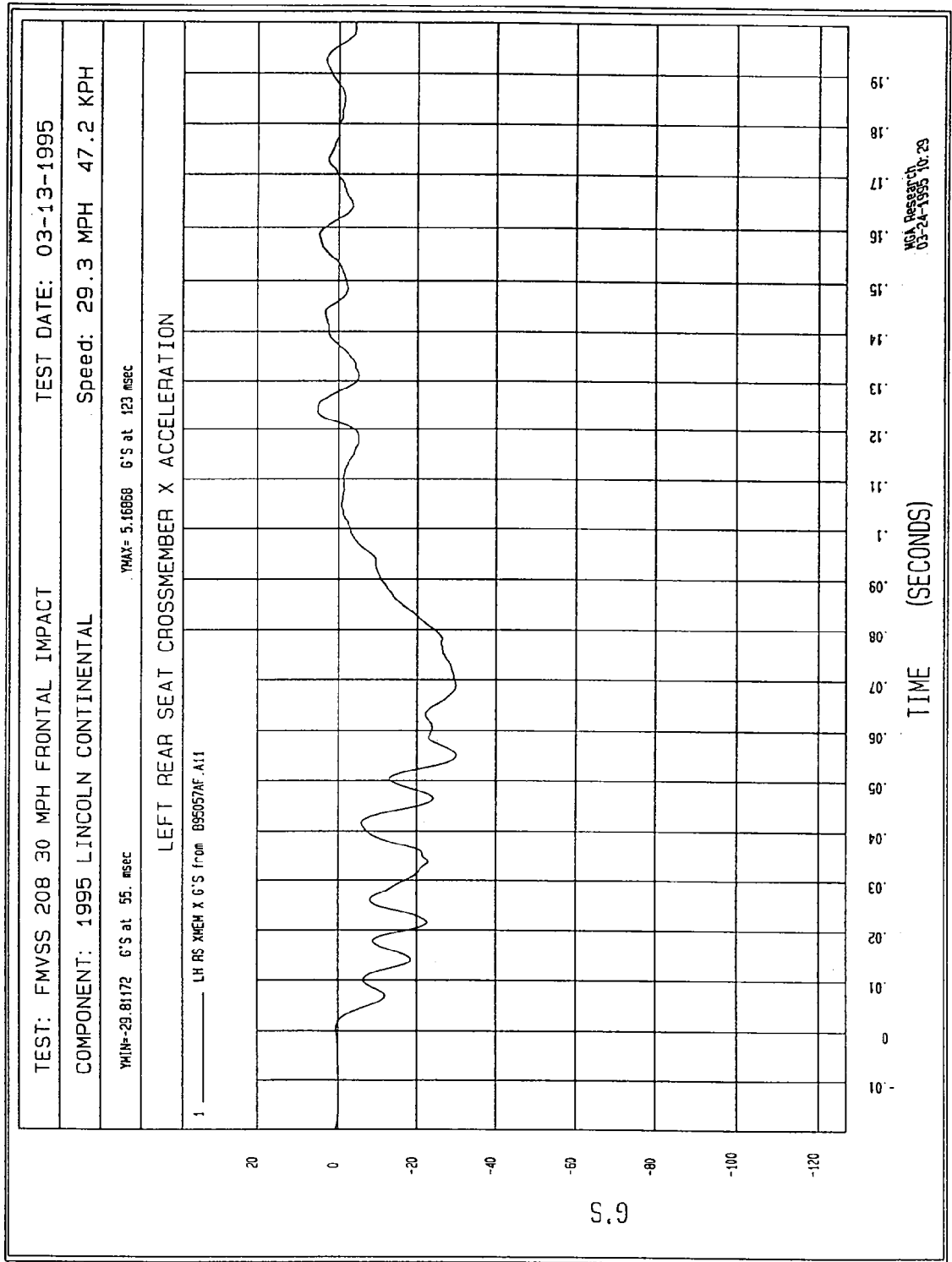


Figure B-36 - Left Rear Seat Crossmember X Acceleration vs. Time

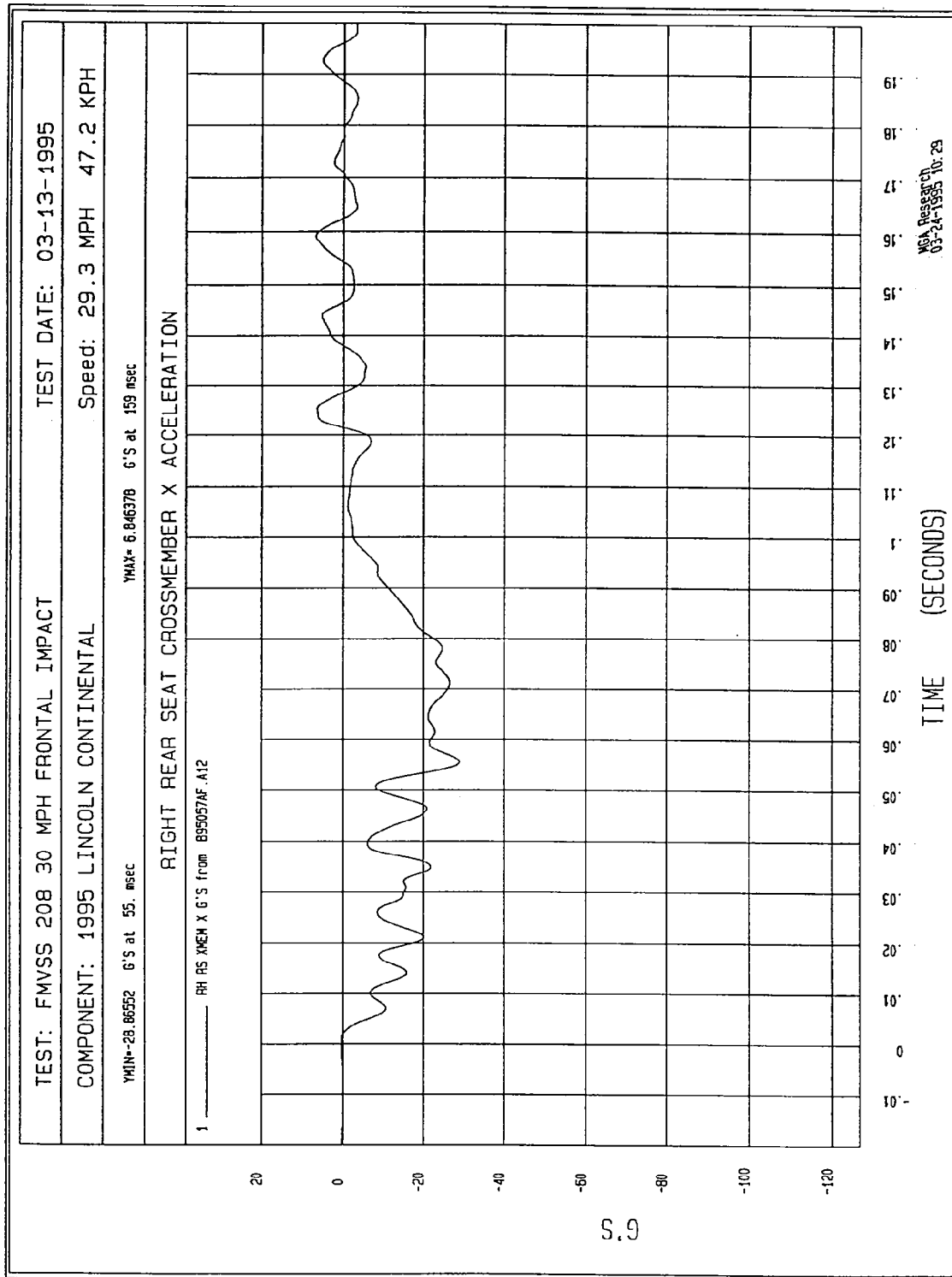


Figure B-37 - Right Rear Seat Crossmember X Acceleration vs. Time

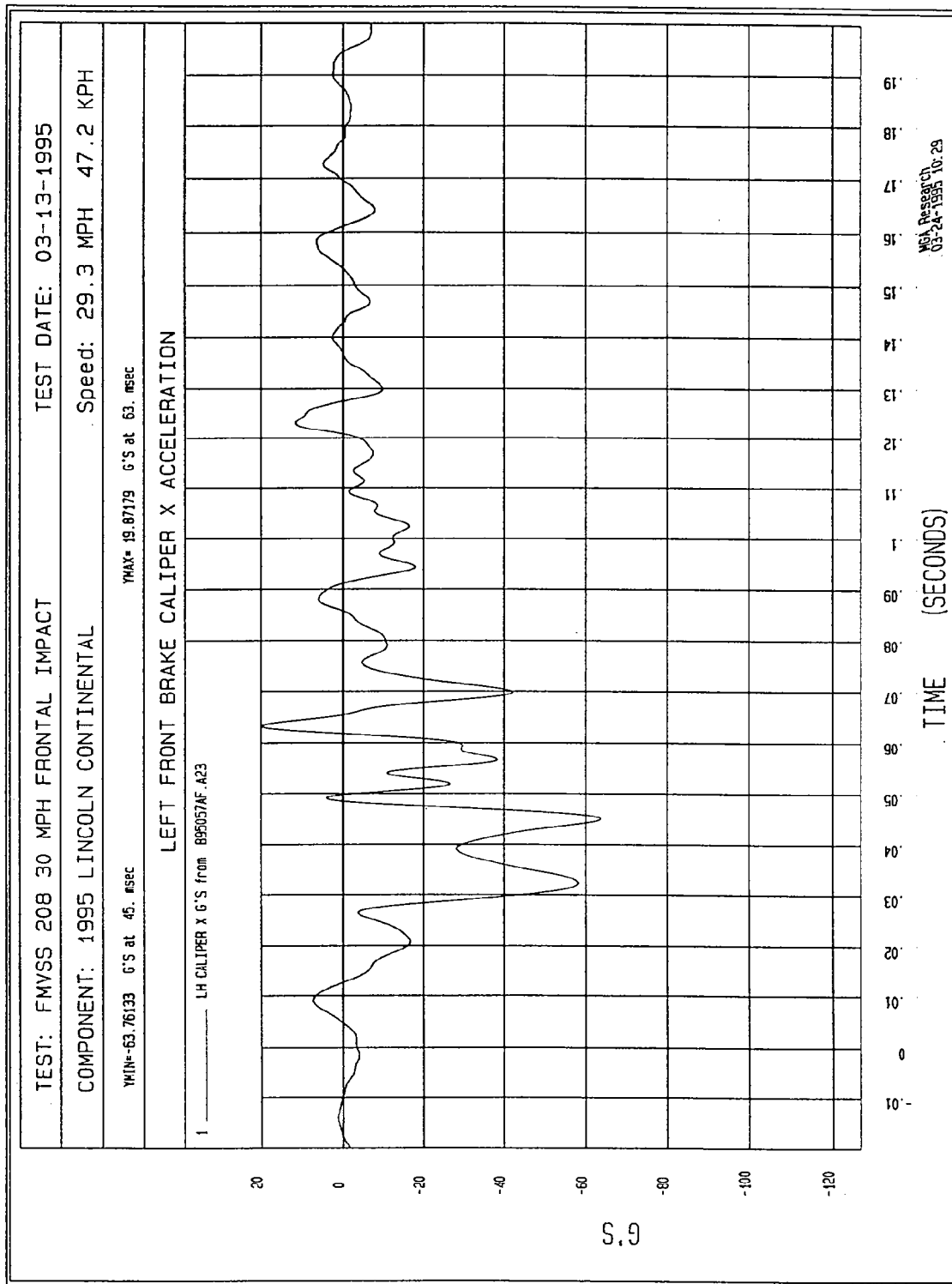


Figure B-38 - Left Brake Caliper X Acceleration vs. Time

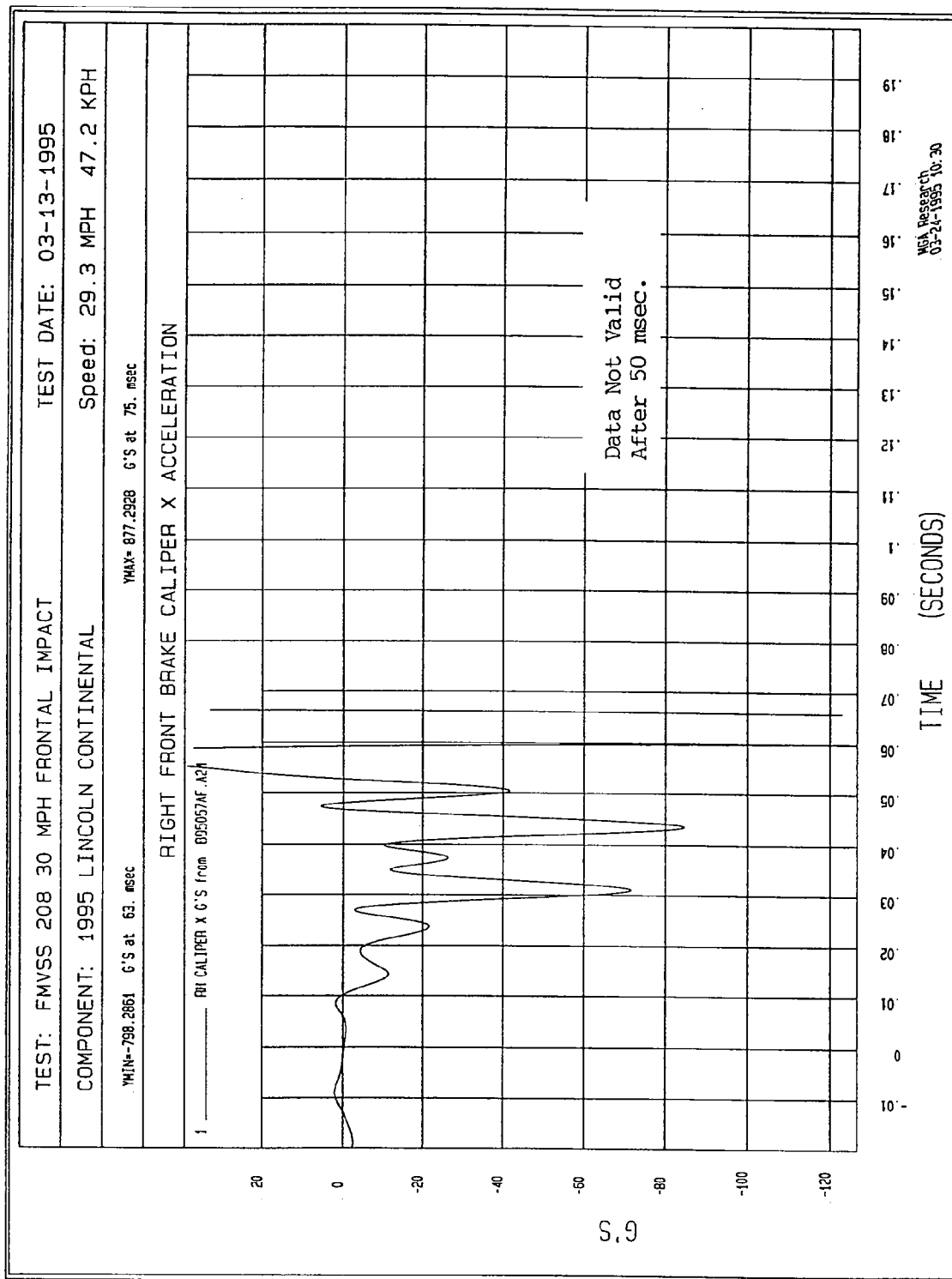


Figure B-39 - Right Brake Caliper X Acceleration vs. Time

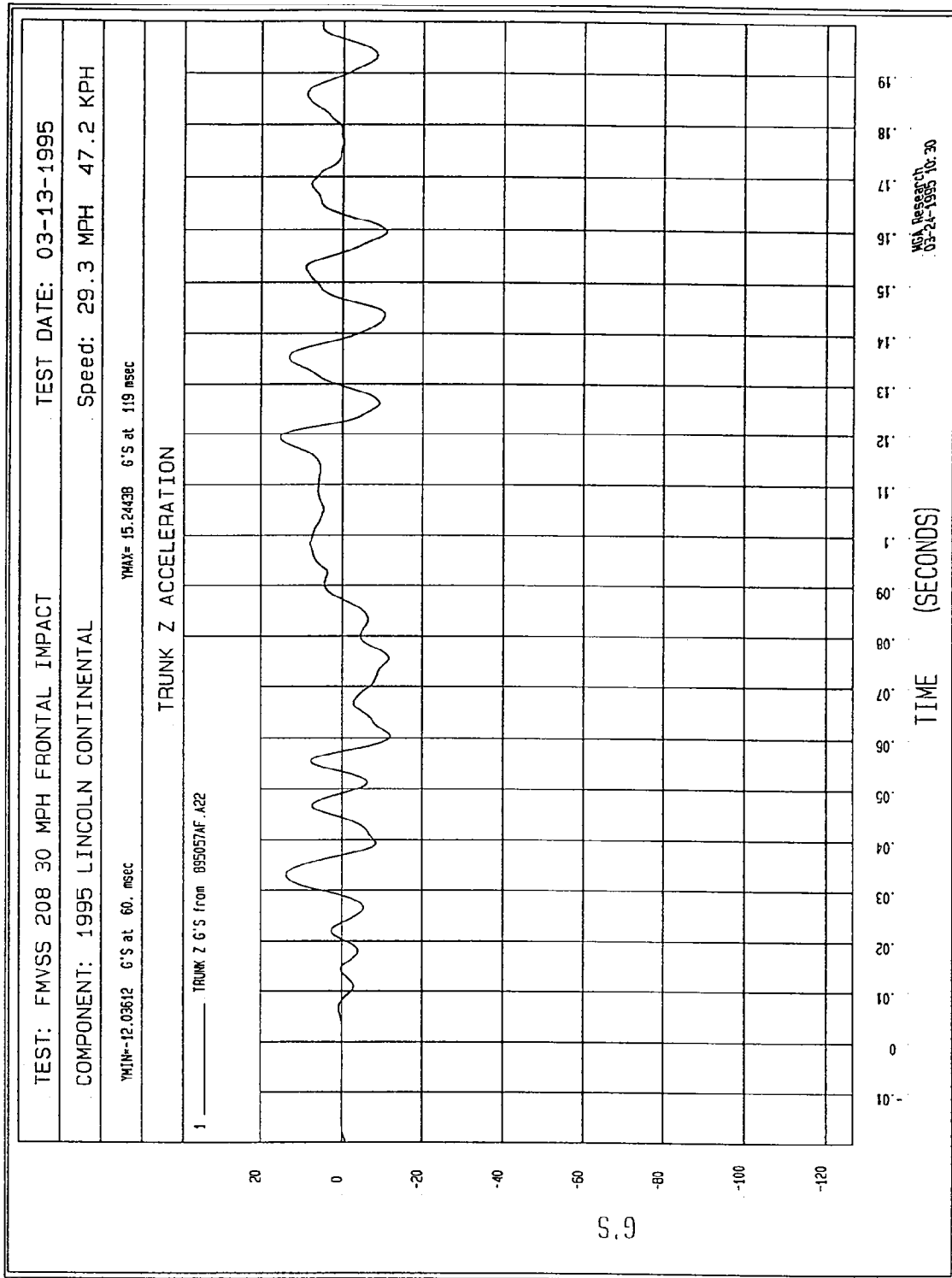


Figure B-40 - Trunk Floor Z Acceleration vs. Time

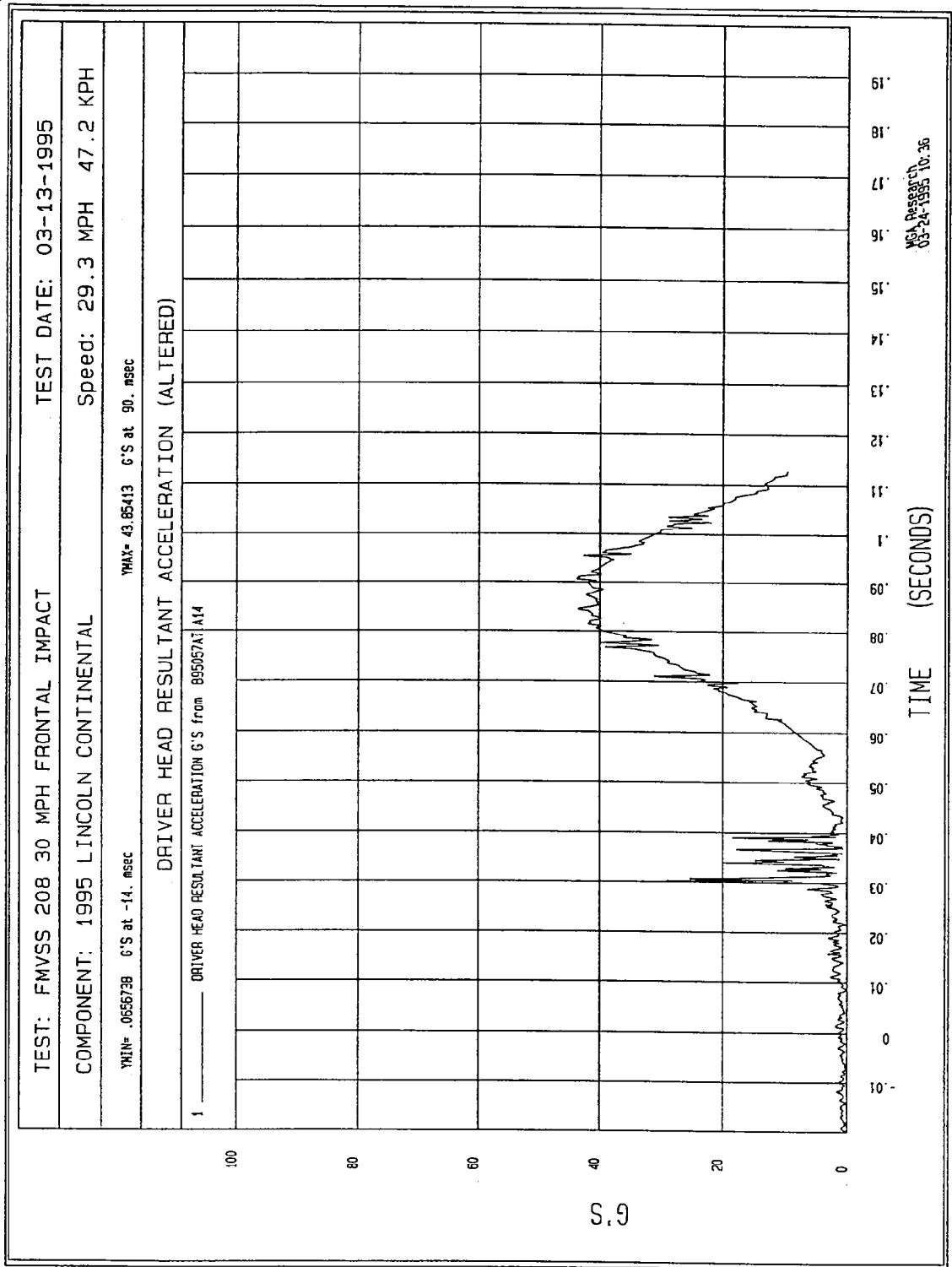


Figure B-41 - Driver Head Resultant Acceleration vs. Time

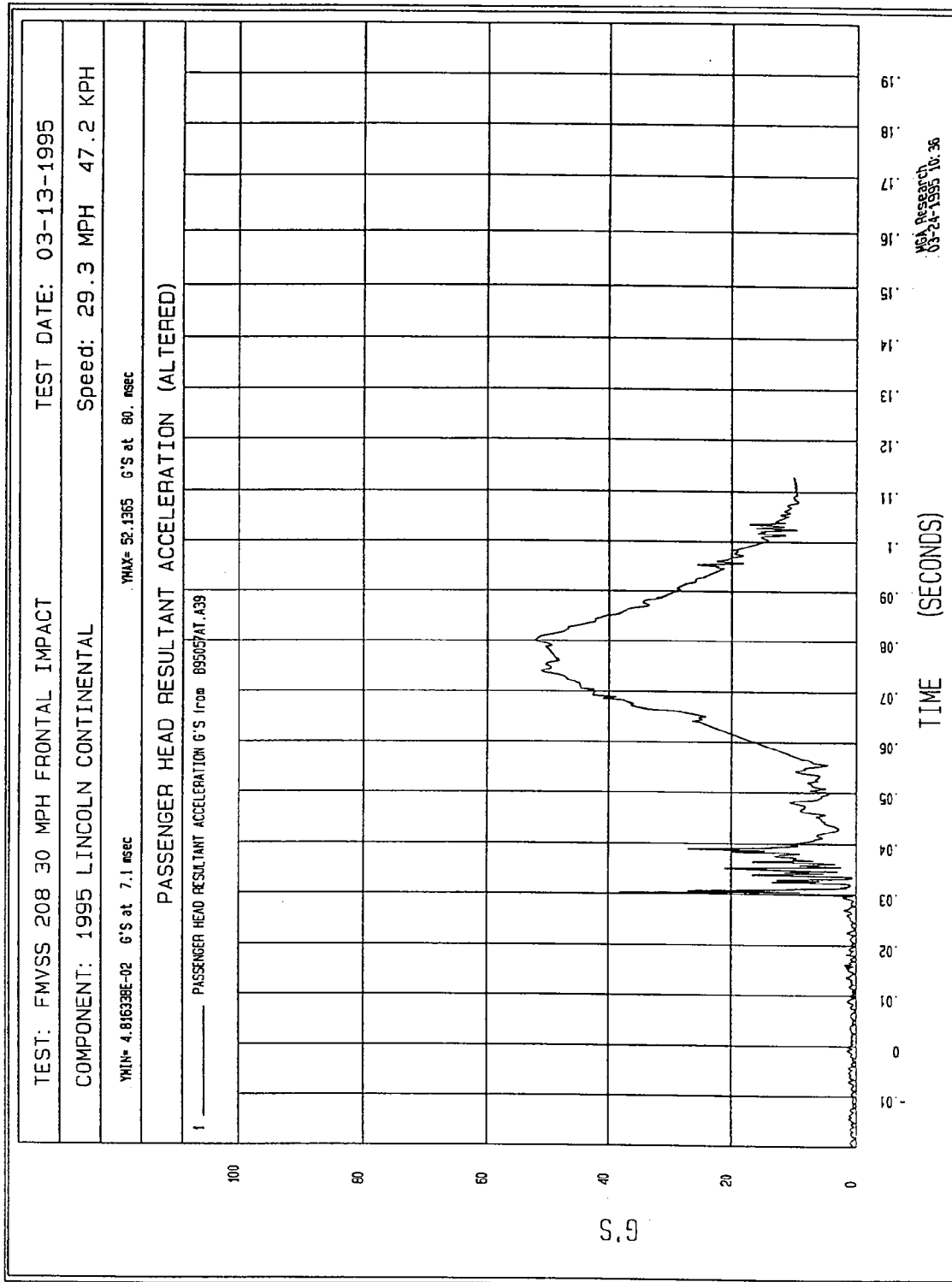


Figure B-42 - Passenger Head Resultant Acceleration vs. Time

DRIVER:		ORIGINAL (WITH NOISE)	ALTERED (WITHOUT NOISE)
HIC		257.75	257.69
t ₁ (msec)		89.96	89.84
t ₂ (msec)		125.22	125.83

PASSENGER:		ORIGINAL (WITH NOISE)	ALTERED (WITHOUT NOISE)
HIC		317.91	300.93
t ₁ (msec)		78.70	83.35
t ₂ (msec)		113.46	113.22

Figure B-43 - Comparative Head Injury Criterion (HIC)

APPENDIX C
MANUFACTURER'S VEHICLE INFORMATION



Robert H. Munson
Executive Director
Automotive Safety and Engineering Standards Office
Environmental and Safety
Engineering Staff

Ford Motor Company
330 Town Center Drive
Dearborn, Michigan 48126

August 25, 1994

Mr. Robert F. Hellmuth
Director
Office of Vehicle Safety Compliance
National Highway Traffic
Safety Administration
400 Seventh Street, S.W.
Washington, DC 20590

Dear Mr. Hellmuth:

Reference: NEF-31CCa; IR 1522

This is in response to your letter of July 15, 1994 requesting information relative to possible FMVSS 208 testing by OVSC of a 1995 model year Lincoln Continental equipped with a driver and passenger air bag restraint system. Ford's responses to your several requests for information are set out below.

Request No. 1

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

Answer

The supplemental air bag automatic restraint systems provided at the driver's and passenger's seating positions of the 1995 Continental were installed to meet the requirements of S4.1.2.1(c)(2) of FMVSS No. 208.

Request No. 2

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

August 25, 1994

Answer

The supplemental automatic restraint systems provided at the driver's and passenger's seating positions were not installed in the 1995 Continental to meet the requirements of S4.1.2.1(c)(1).

Request No. 3

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

Answer

The manual three-point safety belts provided with the supplemental driver's and passenger's air bag restraint systems in the 1995 Continental were installed to meet the requirements of S4.1.2.1(c)(2) of FMVSS No. 208. Attachment I contains a copy of those portions of the final test report for Crash Test 9308, 90 degree front fixed barrier impact test with the manual safety belt unfastened, relevant to S4.1.2.1(c)(2). Attachment II contains a copy of those portions of the final test report for Crash Test 9334, 90 degree front fixed barrier impact tests with the manual safety belt fastened, relevant to S4.1.2.1(c)(2). Ford relied on the results of these tests as a basis for certifying compliance of 1995 Continental vehicles equipped with the supplemental driver's and passenger's air bag restraint systems with S4.1.2.1.

Request No. 4

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

Answer

As noted in our response to Request No. 3, the manual safety belts provided at the driver's and passenger's seating positions of the 1995 Continental were installed to meet the requirements of S4.1.2.1(c)(2) of FMVSS No. 208.

Request No. 5

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

Answer

The 1995 Continental does not use a pressure vessel to inflate the supplemental driver and passenger air bags.

Request No. 6

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

Answer

Attachment III contains the engineering analyses and a TRW test report demonstrating compliance to S9.2 of FMVSS No. 208 for the supplemental driver and passenger air bag restraint system module assemblies for the 1995 Continental.

Request No. 7

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

Answer

Tension-relieving devices are not used in 1995 model Continental manual safety belt systems.

Request No. 8

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

Answer

Frontal crash tests upon which Ford relies as a basis for certification of 1995 Continental vehicles were conducted with all movable windows and vents fully open.

Request No. 9

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

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

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

Answer

Part 572(E) (Hybrid III) test dummies were used at both front outboard designated seating positions of the test vehicles in those front barrier crash tests on which Ford relies as a basis for certification of 1995 Continental vehicles to FMVSS No. 208. Attachment IV contains dummy placement measurements applicable to the 1995 Continental.

The 1995 Continental has a foot rest for the driver.

The 1995 Continental is equipped with a split front bench seat. For this vehicle, both the driver and passenger dummies were positioned so that the midsagittal plane was centered on the seat cushion surface.

Request No. 10

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

Answer

Attachment V contains the NHTSA form enclosed with your letter completed with the requested seat positioning, steering column positioning, and fuel tank data applicable to FMVSS No. 208 front barrier impact testing of the 1995 Continental.

Request No. 11

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

Answer

The 1995 Continental is equipped with adjustable seat belt anchorages. The nominal design position of the D-ring for the 50th percentile adult male occupant is in the mid position.

Request No. 12

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

"In addition, include each dummy's head and chest acceleration versus time plots and femur load versus time plots for the full frontal

barrier impact tests. Mark these plots to indicate when the following and any other significant events occur:

- 12.1 Driver and passenger knee contact with the knee bolster
- 12.2 Collapse of the driver and passenger knee bolsters
- 12.3 Steering column stroke (when it starts and when it ends)
- 12.4 Driver: Contact of the head with the air bag, steering wheel, hub, windshield, header and any other contact points
Passenger: Contact of the head with the air bag, instrument panel, windshield, header and any other contact points
- 12.5 Contact of the driver's torso with the air bag, steering wheel and hub
- 12.6 Time during event when each air bag starts to 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."

Answer

The listing contained in Attachment VI includes the speed at impact, vehicle test weight, and injury criteria values recorded in compliance tests of the 1995 Continental to the requirements FMVSS No. 208, S4.1.2.1. In Crash Test 9209, the vertical channel for the left front (driver) dummy's head was lost. The vertical trace from another test, Crash Test 9075, was judged to be similar to that expected in Crash Test 9209 because the vehicle deceleration pulses were similar, the longitudinal and lateral driver head accelerations were similar, and the vehicle structure, air bag and steering columns were identical. Therefore, the driver HIC reported for Crash Test 9209 is based on the longitudinal and lateral accelerations from Crash 9209 and the vertical acceleration from Crash 9075.

Attachment VII contains resultant head and chest acceleration versus time plots and femur loads versus time plots for each dummy for Crash Tests 9159 and 9209. These plots together with the plots from Crash Tests 9308 and 9334, which were provided in response to Request No. 3, represent all the full front barrier (90 degree) impact tests that were used as a basis to certify the 1995 Continental to FMVSS No. 208.

In response to your request for items 12.1 through 12.7, Ford does not normally record this data in the manner requested as part of our test analysis. In the absence of any known relevance or need related to the stated purpose of your inquiry, we must respectfully decline to undertake the substantial effort required to analyze this data in the manner requested. Should the agency require this information subsequent to it's compliance testing, Ford, of course, will provide all necessary and relevant information.

Request No. 13

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

August 25, 1994

Answer

The following is a suggested list of items that may be removed from the test vehicle for frontal FMVSS No. 208 testing. This list below is in order of removal priority:

- Rear seat
- Spare tire, trunk contents and trim
- Rear bumper

All onboard instrumentation should be included in the vehicle test weight.

Request No. 14

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

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

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

Answer

Compliance to FMVSS No. 204 is based on the static displacement of the steering column in Crash Tests 9159 and 9308 (injury criteria for these tests were provided in the answers to questions 3 & 12) in conjunction with a previous engineering analysis which established the correlation between static and dynamic displacement of the steering column of the 1993 Mark VIII (FN10) and 1994 Thunderbird (MN12) vehicles, which was submitted in Ford's response to IR 1327 concerning the 1994 Mustang (SN95). The correlation coefficient for the 1995 Continental was judged to be the same as for the SN95 because both vehicles utilize similar steering columns and half car beam structures. Attachment VIII contains the supporting document showing the static displacement of the steering column and the predicted rearward dynamic column displacement in a FMVSS No. 204 test for the 1995 Continental.

FMVSS No. 204 does not contain any requirements for the steering control system to "provide energy management". Rather, as the agency is aware, the standard sets a limit on the allowable rearward displacement of the upper end of the column. Ford does not have available any description or diagram describing the vehicle and column characteristics which serve to enable compliance with FMVSS No. 204 and must therefore respectfully decline to submit a description of this operation.

Request No. 15

"Inform OVSC if these vehicles have built-in child restraints as standard equipment or optional equipment. If they do, provide a copy of the certification test reports and any engineering analysis forming

Mr. R. F. Hellmuth

7

August 25, 1994

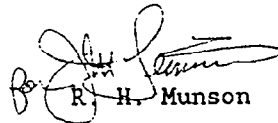
the basis for certification to FMVSS No. 213, "Child Restraint Systems."

Answer

Built-in child restraints are not available for the 1995 model Continental.

If you have any questions concerning this response, please call Mr. R. A. Nevi on (313) 594-7688.

Very truly yours,


R. H. Munson

Attachments



7-7-12
2014

FINAL TEST REPORT

CONFIDENTIAL

Engineering Technology Services Office
Car Product Development

TO:	E. C. Fadler	R. J. Persico	Test Order No.	T-16108
	R. A. Karbowski	G. P. VanGelderren	Work Task W. O. No.	B56
	J. A. Mark	D. Zablocki	Test Date	03-24-94
			Date Reported	5/19/94
			Sheet	1 of 77

SUBJECT: Crash Test 9308 (90° Front Fixed Barrier Impact at 31.1 ± 0.4 mph, 50.0 ± 0.6 km/h) - 1995.25 Lincoln Continental (FN-74) 4-Door Sedan - 1995.25 Certification Program

REQUESTED BY: Vehicle Safety and CAE Technology Department, Body Engineering - J. B. Cicchelli

OBJECT: To provide occupant protection data relative to the front barrier impact test requirements of the current FMVSS No. 208 (U.S. CFR Docket No. 74-14, Notice 83, Canadian Gazette Part II Vol. No. 127, Page 59)

SUMMARY OF
TEST RESULTS: • See Attachment 1 for injury criteria data.

The Test Authorization for this crash indicated that the vehicle is representative of a design level suitable for a certification test. To the best of my knowledge, the crash testing was performed on the same vehicle as identified in the Test Authorization; the results reported herein represent the performance of this specific vehicle, and the testing was performed in accordance with the listed procedures. Any procedure deviations significant to the test objective above are identified in this report.

H. G. Eisenhart
H. G. Eisenhart
Engineering Technologist

C. E. O'Donnell
Concur: C. E. O'Donnell
Section Supervisor
Safety Test Engineering Section

VEHICLE DATA:

Make and Model 1995.25 Lincoln Continental (FN-74) 4-Door Sedan
Model 54FA (Verification Prototype)

ID Numbers 1LNLM98W6SS600233, 516-W-655, JC5404

Power Train 4.6L, EFI, Automatic (AXOD) Transaxle

Fuel Tank(s) Usable Capacity: 18.6 gal. (70.4L)
Test Condition: The "run dry" tank was filled
with red-dyed Stoddard solvent to 95% of its
rated usable capacity.

Front Seat(s) Type: Bucket
Cover: Leather
Tracks/Position: 6-Way Power/Mechanical Mid
and Down
Seat Backs/Position: Adjustable/27.5° Rear
of Vertical
Head Restraints/Position: Adjustable/Up
Lumbar Support/Position: Power/Deflated

Restraint System LF: Steering Wheel Air Bag
RF: Instrument Panel Air Bag

Occupants LF: 50th Percentile Male, Hybrid III,
Instrumented No. 304
RF: 50th Percentile Male, Hybrid III,
Instrumented No. 324

Test Weight Front: 2673 lb (1212 kg)
Rear: 1963 lb (890 kg)
Total: 4636 lb (2103 kg)

The test weight includes:

- the "as received" unloaded vehicle curb weight
- 100% production options (simulated)
- 2 occupant(s) (described above)
- 200 lb (90.7 kg) luggage (simulated)

VEHICLE DATA (Cont'd)

Tires

Front:	P225/60R16	30 psi (207 kPa)
Rear:	P225/60R16	30 psi (207 kPa)
Spare:	Removed	

Bumpers

Front:	Steel
Rear:	Removed

Significant Content or
Accessories:

Air Conditioning, Power Steering, Power Brakes,
Moon Roof, Tilt Steering Wheel

GENERAL TEST COMMENTS:

1. Test Procedure

The test was performed according to the following Corporate test procedure(s):

- . Occupant Crash Protection, ST-25 dated January 15, 1992.
- . Post-Impact Door Opening Evaluation, Proposal P4-103D dated July 25, 1983.

2. Significant Deviations from ST-25

None

3. Instrumentation: The instrumentation equipment set up for this test was completed following approved procedures which require engineering sign-off after each major step. The instrumentation equipment and systems used meet the SAE J211 Oct 88 series of recommended practices (Instrumentation for Impact Tests J211, J211a, or J211b) and were calibrated using secondary standards that are traceable to the National Bureau of Standards.

4. Ballast Added to the Test Vehicle

<u>Amount, lb (kg)</u>	<u>Location</u>
5 (2.3)	In Water Bottle
220 (99.8)	In Engine
50 (22.7)	Floor Behind RF Seat
160 (72.6)	In Luggage Compartment

5. Remarks

Crash movies, pre- and post- crash still photographs of the test vehicle and copies of this report are available only through the Safety Test Engineering Section after permission is obtained from the test requesting department. The negative numbers of the still photographs are CN309019-3585 through -3647.

ATTACHMENT 1

Occupant Injury Data (C/FMVSS 208)

	<u>L. F. Dummy</u>	<u>R. F. Dummy</u>
Head Injury Criteria (HIC)	258	183
Interval t1	72 ms	62 ms
t2	108 ms	98 ms
Chest resultant acceleration level at 3 ms cumulative duration	48 g	46 g
Chest Deflection (Hybrid III)	1.2 in	0.8 in
Peak axial compression load:		
Left femur	1186 lb	1119 lb
Right femur	1262 lb	1104 lb
Dummy contained within the vehicle during the crash	Yes	Yes

The dummy temperature immediately prior to the test, was within the specified test range of 69°F to 72°F.

Time histories of the dummy instrumentation are included in this report.

ATTACHMENT 2

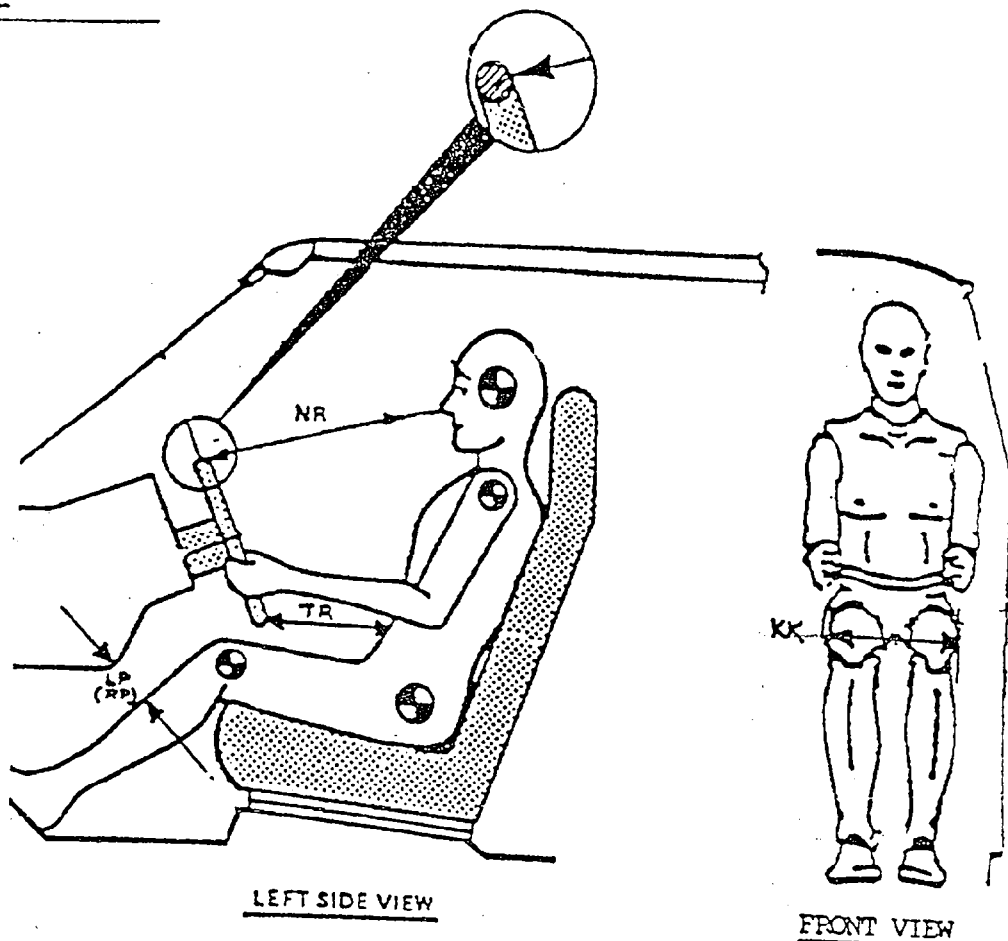
1. Door Openability

All doors could be unlatched and opened manually following impact.

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS

VEHICLE 1995 LINCOLN CONTINENTAL

IR# 1522



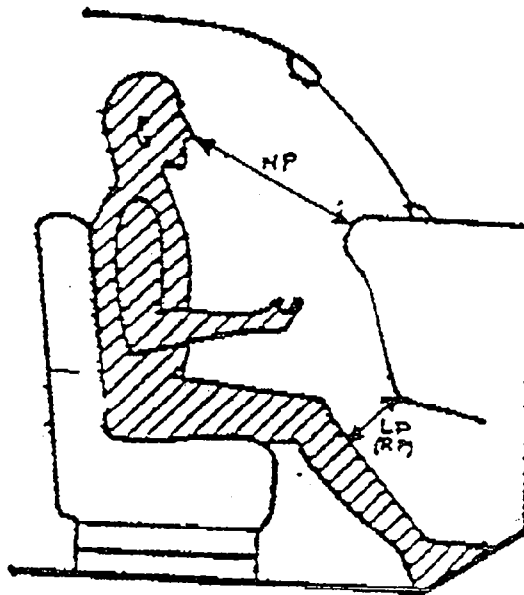
Note: (for both dummies)
 • LP & RP measurements are knee to dash (closest pt)
 • KK measurement is Center to Center of knees

		MEASUREMENTS (All distances in inches)	
		TARGET	RANGE
NR	Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	14.2	13.7 - 14.8
TR	Horizontal distance from bottom rear surface of steering wheel rim to dummy's torso	7.0	6.5 - 7.8
LP	Perpendicular distance from dummy's left lower leg surface to closest point on instrument panel surface	3.0	2.6 - 3.6
RP	Perpendicular distance from dummy's right lower leg surface to closest point on instrument panel surface	3.2	2.4 - 3.8
KK	Distance between outside surfaces of dummy's legs measured at the knee bolts	9.6	9.3 - 9.9

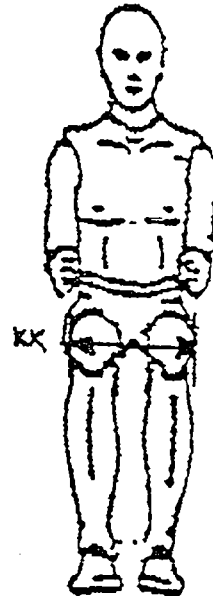
PASSENGER DUMMY PLACEMENT REFERENCE DIMENSIONS

VEHICLE 1995 LINCOLN CONTINENTAL

IR# 1522



RIGHT SIDE VIEW



FRONT VIEW

MEASUREMENTS (All distances in inches)		
	TARGET	RANGE
NP Distance from tip of dummy's nose to closest point on surface of instrument panel	24.0	22.7-24.9
LP Perpendicular distance from dummy's left lower leg surface to closest point on instrument panel surface	3.4	2.3-4.5
RP Perpendicular distance from dummy's right lower leg surface to closest point on instrument panel surface	3.7	3.0-4.4
KK Distance between outside surfaces of dummy's legs measured at the knee bolts	8.0	7.9-8.1

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1995 Lincoln
Vehicle Model & Body Style: Continental 4-Door Sedan

1. NOMINAL DESIGN RIDING POSITION - -

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

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

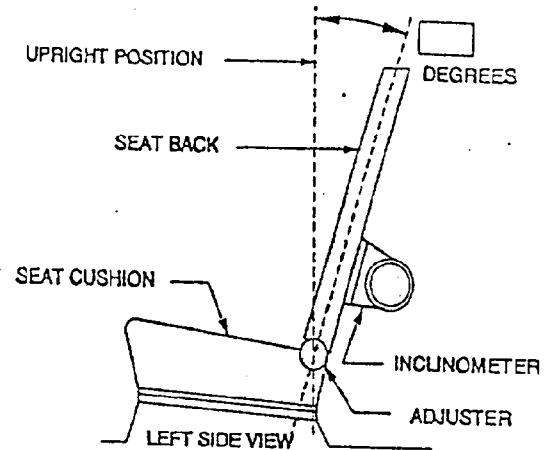
Measurement Instructions:

* See attached sheet

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

Measurement Instructions:

* See attached sheet



2. SEAT FORE & AFT POSITIONS - -

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

Positioning of the driver's seat:

Reference points are chosen on the seat and the seat track, total seat travel is measured, and the seat is then positioned at the center of seat travel.

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

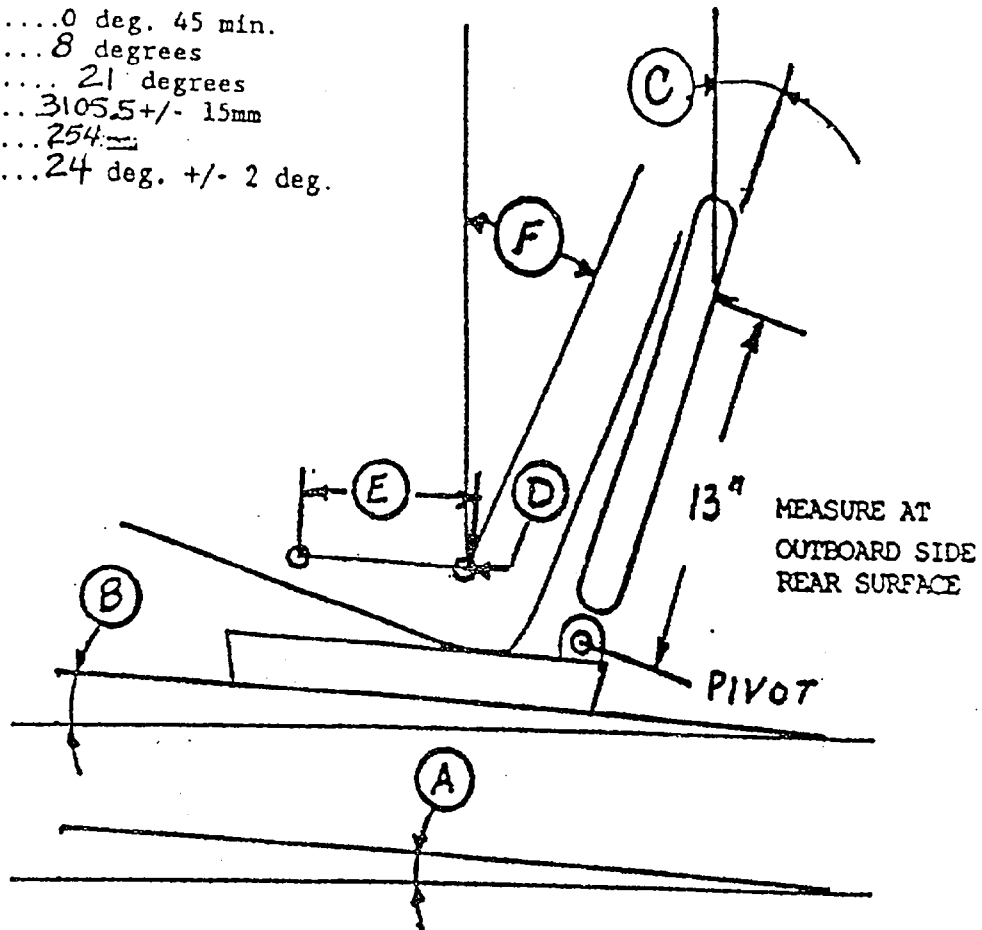
Same method as for driver

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1995 CONTINENTAL

All front seats (bucket and split bench)

- A.....0 deg. 45 min.
- B....8 degrees
- C..... 21 degrees
- D... 3105.5 +/- 15mm
- E....254mm
- F....24 deg. +/- 2 deg.



A - SILL ANGLE

B - DESIGN CUSHION FRAME ANGLE

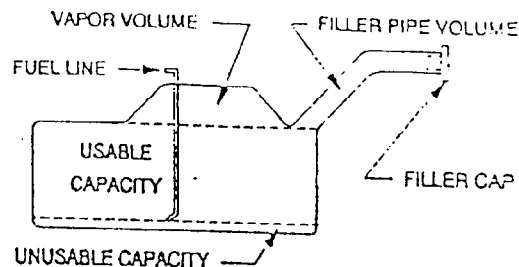
C - DESIGN SEAT BACK FRAME ANGLE

D - REARMOST 'H' POINT

E - TRACK TRAVEL

F - MANIKIN BACK ANGLE

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 17.8 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.
- C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 17.8 gallons.



VEHICLE FUEL TANK ASSEMBLY

Operational Instructions:

- Vehicles tested by Ford were inadvertently tested with excess fuel (as noted in test reports provided in response to question 3)

- 3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 16.9 gallons
- 3.3 Is vehicle equipped with electric fuel pump? X YES NO
If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

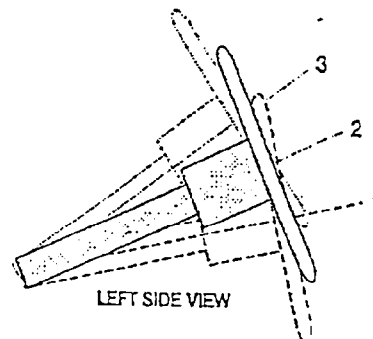
See note below

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:

The steering column if adjustable, is positioned
in the center detent for testing.



STEERING COLUMN ASSEMBLY

Note: ELECTRIC FUEL PUMP OPERATION

The electric fuel pump operates for 2 seconds to pressurize the fuel system following actuation of the ignition. If no attempt has been made to start the engine within 2 seconds following ignition actuation, the fuel pump will shut off. The fuel pump operates continuously while the engine is running. If the engine stalls, the fuel pump is inactivated. Also, if the vehicle sustains an impact (e.g., in an accident) a fuel pump shut-off switch is tripped.

FMVSS No. 208 Frontal Barrier Crash Certification Test Dummy Injury Measurements
1995 Lincoln Continental

Crash Number	9159	9308	9214	9247	9328	9209	9334
Impact Angle (degrees)	0	0	30 L	30 R	30 R	0	0
Belt Fastened (D/P)*	N/N	N/N	N/N	N/N	N/N	Y/Y	Y/Y
Vehicle Weight (lbs)	4621	4636	4622	4617	4632	4576	4572
Speed at Impact (MPH)	31.1	31.1	30.9	31.2	30.9	35.2	35.1
HIC	137 255	258 183	120 152	68 55	76 48	659 367	510 462
Chest G's	49.8 46.7	48 45.5	37 33.3	41.3 28.8	41.5 31.8	44.8 51.8	43.4 47.1
Chest Deflection (inches)	1.4 0.9	1.2 0.8	1.1 0.5	1.0 0.5	0.9 0.5	1.0 1.3	1.2 1.4
Lt. Femur Load (lbs)	1422 981	1186 1119	1047 1396	1653 1151	1486 921	1177 1308	1071 1147
Rt. Femur Load (lbs)	1421 1192	1262 1104	1404 1135	1380 840	1274 899	1423 794	1322 805

* Note: D = driver
P = passenger
Y = yes
N = no