

V2241

REPORT NO.: 208-MGA-95-005
212-MGA-95-005
301-MGA-95-005

VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY

FORD MOTOR COMPANY
1995 Ford Escort 3 Door LX
NHTSA NO. CS0205

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: December 15, 1994

Report Date: January 10, 1995

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAIL CODE: NEF-30
400 SEVENTH STREET, SW ROOM 6115
WASHINGTON, D.C. 20590

*Rec'd
7/16/96*

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

PREPARED BY:

Gary Strassburg DATE: 2-2-95
Gary Strassburg
MGA Research Corporation

APPROVED BY:

John Fleck DATE: 2-2-95
John Fleck
MGA Research Corporation

FINAL REPORT ACCEPTED BY:

Charles R. Case DATE: 5/17/96
Contracting Officer's Technical Representative (COTR)
NHTSA, Office of Vehicle Safety Compliance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 208-MGA-95-005 212-MGA-95-005 301-MGA-95-005		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report for FMVSS 208 Compliance Testing of a 1995 Ford Escort 3 Door Sedan NHTSA NO. CS0205				5. Report Date January 10, 1995	
				6. Performing Organization Code MGA	
7. Author(s) Gary Strassburg				8. Performing Organization Report No. MGA-DOT-208-05	
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-93-D-21089	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (Mail Code: NEF-30) 400 Seventh St., S.W., Room 6115 Washington, D.C. 20590				13. Type of Report and Period Covered Final Report December 1994 - January 1995	
				14. Sponsoring Agency Code NEF-30	
15. Supplementary Notes					
16. Abstract Compliance tests were conducted on the subject 1995 Ford Escort 3 Door Sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-208-09 on December 15, 1994 for the determination of FMVSS 208 compliance. Test failures identified were as follows: None					
17. Key Words Frontal Impact 30 mph Vehicle Safety Compliance Testing: FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219 (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"				18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division, Room 5108 (NAD-52), 400 Seventh Street, S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 Attn: Robert Hornickie	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 142	
				22. Price	

TABLE OF CONTENTS

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1	Purpose and Test Procedure	1-1
2	Summary of Frontal Barrier Impact Test	2-1
3	Summary of Results for FMVSS 208, 212, 219 (Partial), & 301	3-1
4	Occupant, Vehicle, and Camera Information	4-1
APPENDIX A	Photographs	
APPENDIX B	Data Plots	
APPENDIX C	Manufacturer's Vehicle Information	

LIST OF TABLES

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1	Crash Test Summary	2-3
2	General Test and Vehicle Parameter Data	2-4
3	Post Impact Data	2-5
4	Accident Investigation Division Data	2-7
5	Post Test Airbag Data	2-8
6	Vehicle Accelerometer Location and Data Summary	2-9
7	Report of Vehicle Condition at the Completion of Testing	2-10
8	FMVSS 208 Occupant Injury Criteria	3-2
9	Dummy Kinematic Summary	3-3
10	FMVSS 208 Seat Belt Comfort and Convenience Test Summary	3-4
11	FMVSS 208 Equipment Data	3-7
12	FMVSS 212 "Windshield Mounting" Data Summary	3-9
13	FMVSS 219 "Windshield Zone Intrusion" Data Summary	3-10
14	Fuel System Data	3-11
15	FMVSS 301 Post Impact Test Data	3-12
16	FMVSS 301 Static Rollover Test Data	3-13
17	Seat and Steering Column Positioning Data	4-2
18	Dummy Measurement Data for Front Seat Occupants	4-4
19	Camera Locations	4-8

LIST OF FIGURES

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1	Dummy Measurement Locations for Front Seat Occupants	4-3
2	Seat Belt Positioning Data	4-5
3	Vehicle Target Locations	4-6
4	Camera Positions	4-7

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 Ford Escort 3 Door LX Sedan, NHTSA No. CS0205, 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 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.

The twenty-four (24) data channels were multiplexed and recorded on three IBM PC compatible computers with Metrobyte 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 December 15, 1994.

The test vehicle, a 1995 Ford Escort, NHTSA No. CS0205, 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 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 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 1 seat belt system with passive shoulder belts in the front outboard designated seating positions. Both dummies were restrained by the shoulder belt and the airbag during the test. The vehicle's test weight was 2805 pounds. The vehicle's impact speed was 29.7 mph. The vehicle's maximum static crush was 13.8 inches.

The driver's HIC was 469.6. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 42.6 g's. The driver's left and right femur maximum compressive forces were 1508 pounds and 903 pounds, respectively.

The right front passenger's HIC was 350.4. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 42.2 g's. The right front passenger's left and right femur maximum compressive forces were 1135 pounds and 1317 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.

TABLE 1 CRASH TEST SUMMARY

Vehicle Yr/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Type: Frontal Barrier Impact

Test Date: 12/15/94 Time: 14:55 Temp: 68°F

Vehicle Test Weight: 2805 lbs. Vehicle/Barrier Impact Angle: 0°

Impact Velocity: 29.7 mph Maximum Static Crush: 13.8 inches

Vehicle Rebound: 34.5 inches

Dummies:	Driver	Passenger
Dummy Type	<u>Part 572</u>	<u>Part 572</u>
Serial Number	<u>465</u>	<u>466</u>
Restraint System	<u>Type 1 Belt System</u> <u>with Shoulder Belt</u> <u>and Airbag</u>	<u>Type 1 Belt System</u> <u>with Shoulder Belt</u> <u>and Airbag</u>
No. of Data Channels	<u>24</u>	<u>24</u>

Number of Cameras: 1 Real Time
14 High Speed

Door Opening Data: Left Front: Easy; Right Front: Easy

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

Visible Dummy Contact Points:	Driver	Passenger
Head	<u>Airbag & Headrest</u>	<u>Airbag & Headrest</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Left Knee	<u>Instrument Panel</u>	<u>Instrument Panel</u>
Right Knee	<u>Instrument Panel</u>	<u>Instrument Panel</u>

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Yr/Make/Model/Body Style: 1995/Ford/Escort/3 Door

NHTSA No: CS0205 VIN: 1FASP11J7SW162523 Body Color: Iris

Engine: 4 Cylinders; C.I.D.; 1.9 liters; CC

X Gas; Diesel; Turbocharged

 Longitudinal X Transverse

Transmission: 5 Speed; X Manual; Automatic; Overdrive

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

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

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

Date Received: 11/18/94; Odometer Reading: 52 miles

Dealer's Name/Address: Jack Safro Ford Inc.
1000 E. Summit Avenue
Oconomowoc, WI 53066

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Ford Motor Company

Date of Manufacture: 10/94; VIN: 1FASP11J7SW162523

GVWR: 3457 lbs; GAWR Front: 1865 lbs. GAWR Rear: 1664 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with maximum capacity vehicle load: Front 32 psi; Rear 32 psi

Recommended Tire Size: 175/65R14

Recommended Cold Tire Pressure: Front 32 psi; Rear 32 psi

Tires on Vehicle: 175/65R14; Manufacturer: Goodyear

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; X Lever; Rot. Knob

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

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

Right Front = 756 lbs Right Rear = 453 lbs
Left Front = 749 lbs Left Rear = 451 lbs
TOTAL FRONT WEIGHT = 1505 lbs (62.5% of Total Vehicle Weight)
TOTAL REAR WEIGHT = 904 lbs (37.5% of Total Vehicle Weight)
TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 2409 lbs

CALCULATION FOR TARGET TEST WEIGHT:

UDW (Unloaded Delivered Weight) = 2409 lbs
VCW (Vehicle Capacity Weight) = 830 lbs
DSC (Designated Seating Capacity) = 5
RCLW*(Rated Cargo/Luggage Weight) = VCW - 150 (DSC) = 830 - 150 (5) = 80 lbs
Target Test Weight = UDW + RCLW + (2 Dummies x Dummy Weight)
Target Test Weight = 2409 + 80 + 328 = 2817 lbs

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO WEIGHT:

Right Front = 836 lbs Right Rear = 586 lbs
Left Front = 811 lbs Left Rear = 572 lbs
TOTAL FRONT WEIGHT = 1647 lbs (58.7% of Total Vehicle Weight)
TOTAL REAR WEIGHT = 1158 lbs (41.3% of Total Vehicle Weight)
TOTAL TEST WEIGHT = 2805 lbs
Weight of ballast secured in vehicle = 0 lbs
Vehicle components removed to meet target weight: Rear Seat and Rear Interior Trim, Spare Tire, Jack, Trunk Carpet and Trim, Rear Tail Lights and Muffler

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 25.7 LF 25.6 RR 25.1 LR 25.0
Fully Loaded Attitude: RF 25.0 LF 25.1 RR 23.9 LR 23.8
Test Attitude: RF 25.1 LF 25.3 RR 23.8 LR 23.6
Wheel Base: 98.25 in; C.G. = 40.6 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: 12/15/94 Time: 14:55 Temperature: 68° F

Vehicle NHTSA No.: CS0205 VIN: 1FASP11J7SW162523

BARRIER IMPACT VELOCITY

Required Impact Velocity Range: 28.9 to 29.9 mph

Impact Velocity: Primary = 29.67 mph; Secondary = 29.70 mph

Distance From Front Bumper to Barrier Face When

Entering Speed Trap: 52 inches

Exiting Speed Trap: 8 inches

VEHICLE STATIC CRUSH AND REBOUND (inches):

Vehicle Length: Pre-test = R 164.6 C_L 170.5 L 164.5

Post-test = R 153.9 C_L 156.8 L 153.7

Crush = R 10.7 C_L 13.7 L 10.8

Average = 11.7

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

R 36.8 in C_L 31.0 in L 35.7 in

TABLE 4 ACCIDENT INVESTIGATION DIVISION DATA

Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Veh. NHTSA No.: CS0205;

VIN: 1FASP11J7SW162523

Build Date: 10/94;

Test Date: 12/15/94

Veh. Size Category: Mid;

Test Weight: 2805 lbs

Veh. Wheelbase: 98.3 in;

Front Overhang: 34.4 in;

Overall Width: 66.9 in

ACCELEROMETER DATA:

Location: As per measurements on pages 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 = 10.6 inches

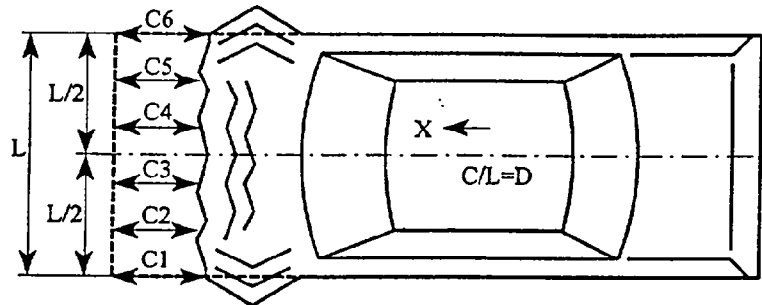
Dimensions: C2 = 13.7 inches

C3 = 13.7 inches

C4 = 13.7 inches

C5 = 13.8 inches

C6 = 10.7 inches



Midpoint of Damage: D = Vehicle Longitudinal Centerline

Length of Damaged Region: L = 58.1 inches

TABLE 5 POST TEST AIRBAG DATA

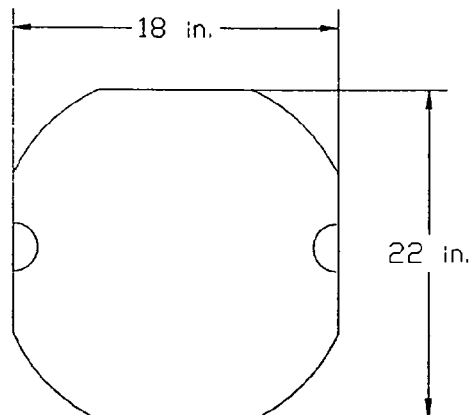
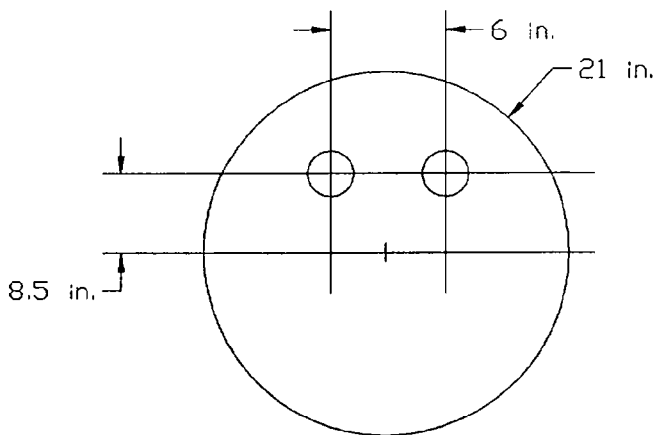
Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

NHTSA No: CS0205; Test Date: 12/15/94; Technician: Gary Strassburg

- A. No of Vent Holes: Driver 2; Passenger 2
- B. Size of Vent Holes: Driver 1.75 in. dia.; Passenger 2.5 in. dia.
- C. Total Vent Area: Driver 3.5 in²; Passenger 9.8 in²
- D. Deflated Airbag Length and Width Dimensions or, if Round, Diameter
 Driver; Length ; Width ; Diameter 21 in
 Passenger; Length 22"; Width 18"; Diameter
- E. Is the Airbag Tethered?
 Driver; X Yes; No; If yes, record length of tether 11 in
 Passenger; Yes; X No; If yes, record length of tether in

Driver Airbag

Passenger Airbag



There were four (4) tethers in driver airbag. One end of each tether was attached to the front face center of the airbag and the other end to the rear bracket (by gas generator).

- F. Part Numbers and Manufacture Name of Airbag and Gas Generator

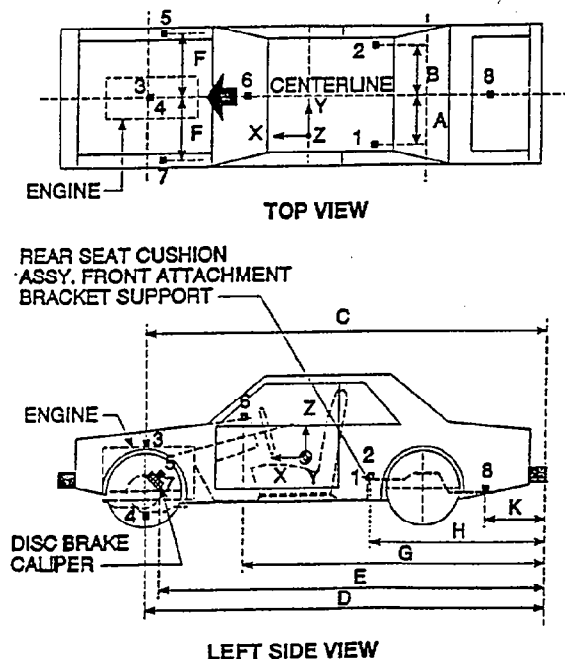
Driver; Mfr TRW; Airbag F5CB58043B13AAJABO; T1P0255H105061200754A

Passenger; Mfr TRW; Airbag F5CB58044A74AKYCDA; N42792484

TABLE 6 VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205; Test Date: 12/15/94



ACCELEROMETER LOCATION (inches)		
	PRE-TEST	POST-TEST
A	22.6	22.6
B	22.6	22.6
C	145.9	136.5
D	141.4	136.9
E	140.0	137.0
F	24.0	24.4
G	112.2	112.5
H	65.0	64.9
K	36.7	37.0

ACCELEROMETER DATA SUMMARY (Filtered at 100 hertz cutoff)					
No.	DESCRIPTION	MAXIMUM (g's)	TIME (msec)	MINIMUM (g's)	TIME (msec)
1	Left Rear Seat Crossmember	1.9	124	-27.8	42
2	Right Rear Seat Crossmember	1.5	122	-30.8	46
3	Top of Engine Block	98.2	42	-152.8	34
4	Bottom of Engine	59.3	37	-110.3	27
5	Right Disc Brake Caliper	54.6	53	-148.9	37
6	Instrument Panel	5.1	22	-75.7	47
7	Left Disc Brake Caliper	21.3	66	-76.6	41
8	Trunk	3.3	53	-14.1	63

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. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrail Property Manager/NAD-30, with a carbon copy of the responsible testing office. The vehicle is again inspected and all changes are noted below. The final condition of the vehicle is also noted in detail.

Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Body Color: Iris

VIN: 1FASP11J7SW162523 Cost: \$11,275.00

Odometer: Arrival Date: 11/18/94 Reading: 52.0 miles

Completion Date: 12/15/94 Reading: 52.6 miles

Engine: 4 Cylinders; 1.9 Liters; X Gas; Diesel

Transmission: 5 Speed; X Manual; Automatic

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

Tire Size: P195/65R14; Manufacturer: Goodyear

Air Conditioner	<u>Yes</u>	Console	<u>Yes</u>	Brakes	<u>Power</u>
Tinted Glass	<u>Yes</u>	Tachometer	<u>No</u>	Front	<u>Disc</u>
Power Steering	<u>Yes</u>	Cruise Control	<u>No</u>	Rear	<u>Drum</u>
Power Windows	<u>No</u>	Rear Window Def.	<u>Yes</u>	Front Seats	<u>Manual</u>
Power Door Locks	<u>No</u>	Sun/Moon Roof	<u>No</u>	Seat Type	Front <u>Bucket</u>
Radio:AM/FM Tape	<u>Yes</u>	T-Top	<u>No</u>		Rear <u>Bench</u>
Clock	<u>Yes</u>	Tilt Steering Wheel	<u>No</u>		
Roof Rack	<u>No</u>	Other Options:	<u>No</u>	No. of Seats	<u>3</u>

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

Rear Seat

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/Ford/Escort/3 Door

Veh. NHTSA No.: CS0205 Test Date: 12/15/94

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #465	PASSENGER DUMMY #466
Head Channel X	-48.0	-51.8
Head Channel Y	6.3	-12.5
Head Channel Z	45.6	38.5
HEAD RESULTANT	55.4	62.5
Chest Channel X	-43.3	-45.6
Chest Channel Y	-6.5	11.5
Chest Channel Z	-23.3	34.8
CHEST RESULTANT	43.6	46.0

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	469.6	350.4
$t_1 =$ (msec)	54.3	53.7
$t_2 =$ (msec)	90.3	89.7

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

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

CLIP	42.6	42.2
$t^1 =$ (msec)	55.9	53.6
$t^2 =$ (msec)	58.9	56.6

MAX. COMPRESSIVE FEMUR FORCES: (lbs)

Left Side	-1507.8	-1134.7
Right Side	-903.0	-1317.4

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 and the shoulder belt. 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 instrument panel. 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 and the shoulder belt. 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/Ford/Escort/3 Door

NHTSA No.: CS0205; Date of Comfort/Convenience Check: 12/13/95

Technician Performing Check: Homyoung Kim

GVWR: 2805 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 Type 1 seat belts with passive shoulder belts which must comply with the dynamic test requirements of S5.1; requirements for convenience hooks (S7.4.1), 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):

The webbing is automatically released when the automatic belt system is operational and remains in the released mode as long as the ignition switch is moved to the on position and the drivetrain is engaged.

WEBBING TENSION-RELIEVING DEVICE (S7.4.2)

The seat belt assembly in 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 0.2 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 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 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/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Date of Check: 12/13/94

Technician Performing Check: Homyoung Kim

GVWR: 2805 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 6.0 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 remainder 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 on the driver and passenger sunvisors.

The airbag system is required to be inspected after any collision.

Appropriate instructions concerning maintenance and/or replacement of this system were provided in the owner's manual on page 33.

A description of the functional operation of the system was provided in the owner's manual on page 34.

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

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 29 through 109.

FMVSS 208 READINESS INDICATOR DATA

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

The readiness indicator was clearly visible to the driver.

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

Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Date: 12/15/94

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

Rubber molding with glue retention

CLIPS OR BRACKETS USED TO RETAIN WINDSHIELD: None

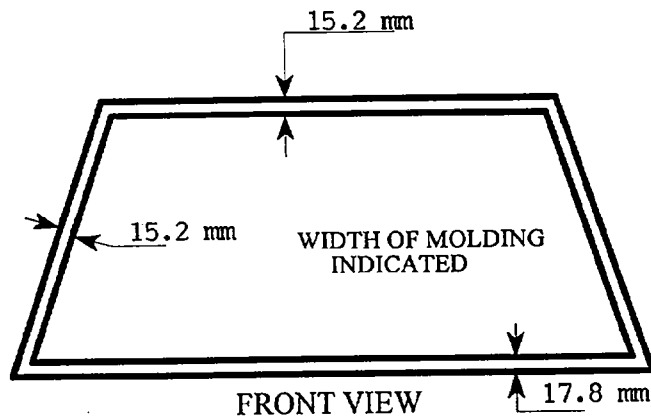
FMVSS 212 REQUIREMENTS:

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	77.1	77.1	100%
LEFT SIDE	77.1	77.1	100%
TOTAL	154.2	154.2	100%

Pre-Test Windshield Mounting Material Temperature: 70 ° F



FAILURE DETAILS: None

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

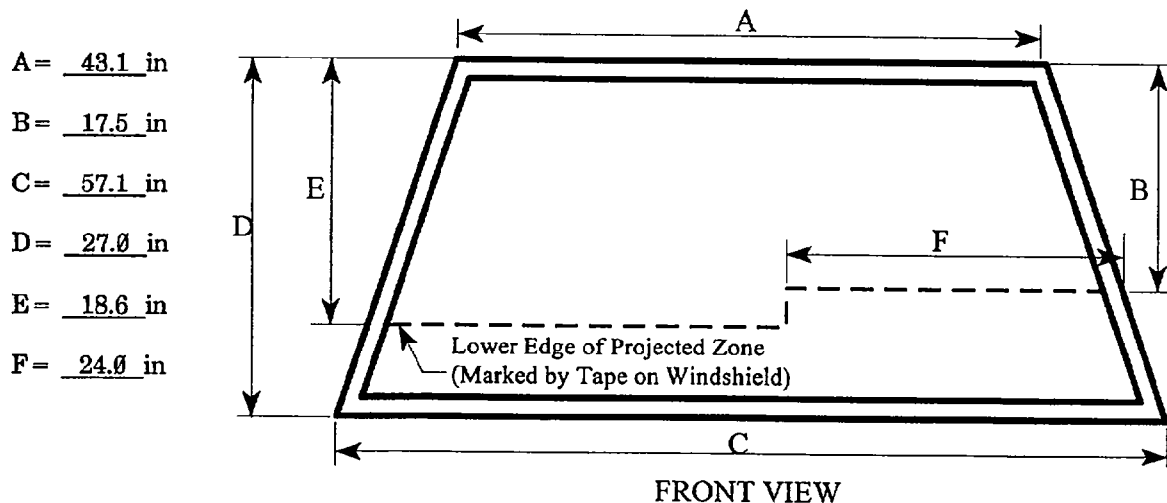
Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Date: 12/15/94

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:



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/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Date: 12/15/94

Fuel System Capacity from Owner's Manual = 11.9 gallons

Usable Capacity Figure Furnished by COTR = 11.5 gallons

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

= 10.6 to 10.8 gallons

Actual Test Volume = 10.75 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:

The fuel tank was located in front of the rear axle. The fuel filler pipe
was located on the left side. The fuel lines ran along the left side to
the front.

TABLE 15 FMVSS 301 POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Date: 12/15/94

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

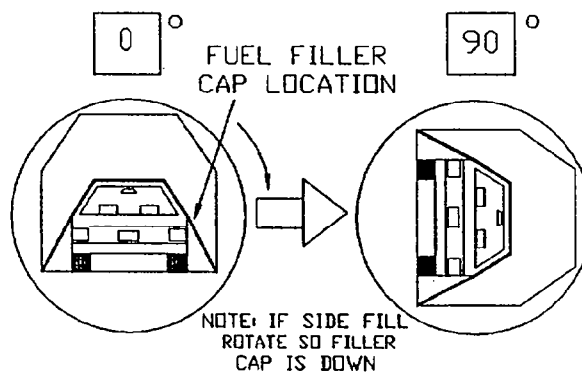
FUEL SPILLAGE LOCATION(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Date: 12/15/94

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 49 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 49 seconds

Next Whole Minute Interval = 8 minutes

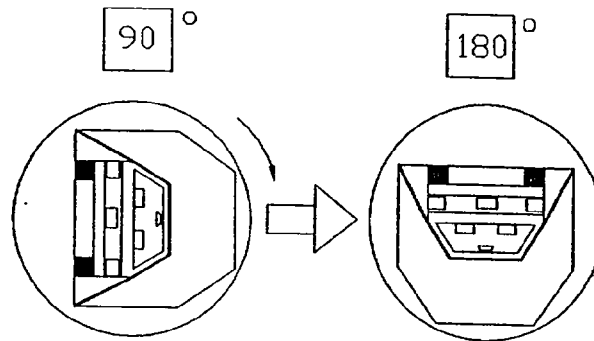
FUEL SPILLAGE MEASUREMENT:

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

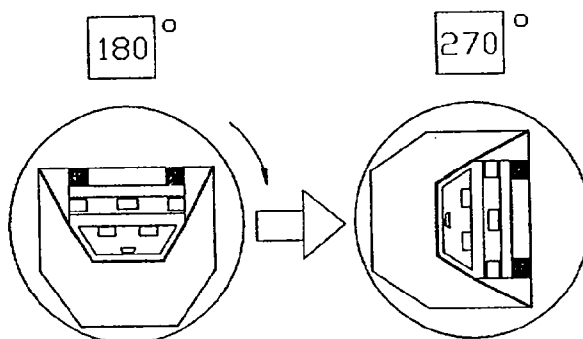
FUEL SPILLAGE MEASUREMENT:

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 15 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 15 seconds

Next Whole Minute Interval = 8 minutes

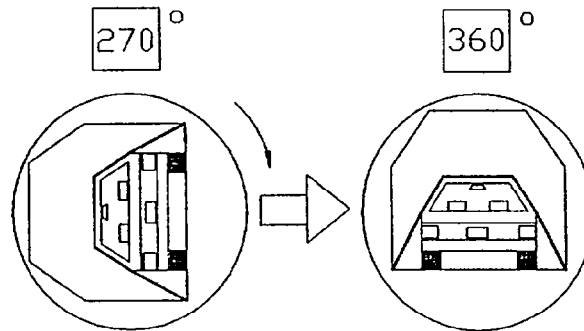
FUEL SPILLAGE MEASUREMENT:

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 (Cont'd)

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 40 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 40 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/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Date: 12/15/94

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = 15°

The seat back angle was adjustable and was positioned at the 7th notch in accordance with the seat back set procedure in the manufacturer's information. 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 23 detents and was positioned at the 12th notch rearward from the foremost position which was counted as the first notch.

Passenger Seat: Same as driver's seat.

STEERING COLUMN ADJUSTMENTS:

The steering column was non-adjustable. The angle of the steering column was 23.5°.

FIGURE 1 DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS

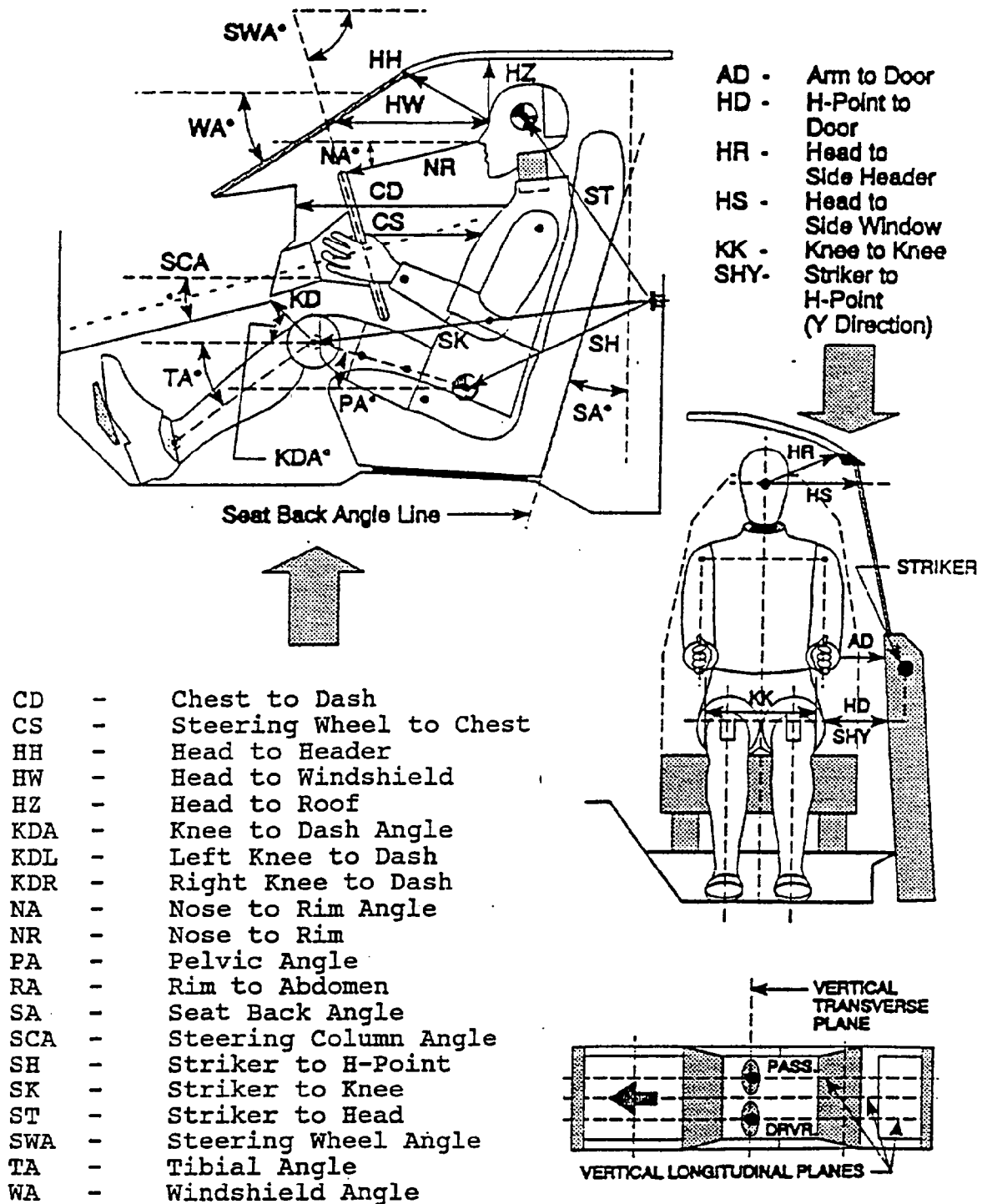


TABLE 18 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

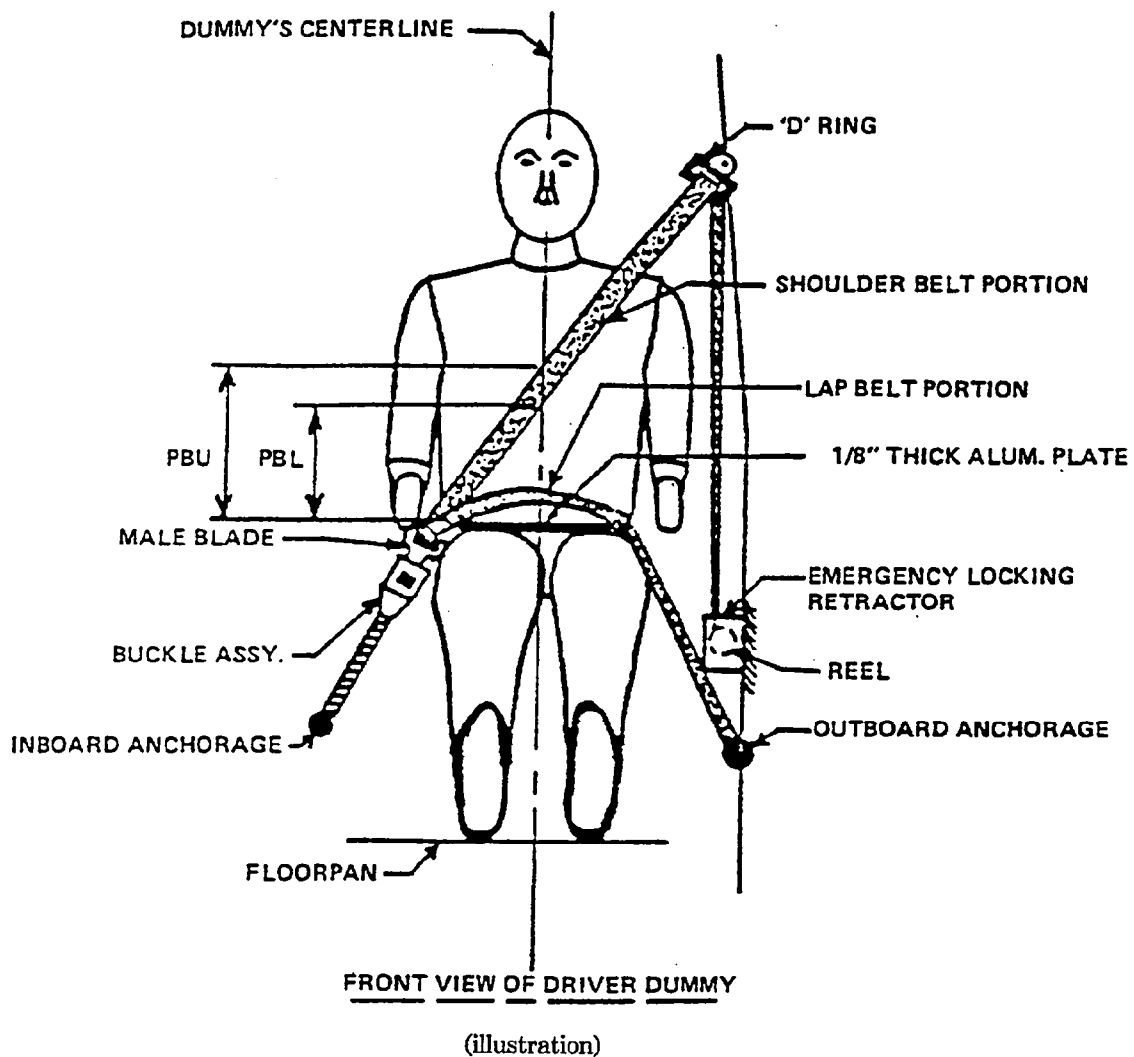
Vehicle Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205 Test Date: 12/15/94

	DRIVER (Serial #465)	PASSENGER (Serial #466)
WA°	31.8°	
SWA°	23.5°	N/A
SCA°	Not Recorded	N/A
SA°	15.0°	15.0°
HZ	5.8 in	5.3 in
HH	13.1 in	12.4 in
HW	17.9 in	16.9 in
HR	8.9 in	7.8 in
NR	15.1 in Angle (NA) 16.2°	N/A
CD	19.8 in	23.8 in
CS	11.9 in	N/A
RA	6.4 in	N/A
KDL	7.2 in Angle (KDA) 26.3°	7.0 in
KDR	6.3 in	6.5 in Angle (KDA) 20°
PA°	Not Recorded	Not Recorded
TA°	45°	41.4°
KK	13.8 in	11.8 in
ST	24.8 in Angle 61.4°	25.0 in Angle 59.1°
SK	32.3 in Angle -1.4°	33.3 in Angle -2.8°
SH	18.2 in Angle -13.9°	19.2 in Angle -15.4°
SHY	10.3 in	9.5 in
HS	11.3 in	9.6 in
HD	6.8 in	6.8 in
AD	3.9 in	4.5 in

N/A = Not Applicable

FIGURE 2 SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
<u>TBI</u> -- Vertical centerline of 50% dummy to intersection of upper torso belt to lap belt	NO LAP BELT	NO LAP BELT
<u>PBU</u> -- Top surface of aluminum plate to belt lower edge (mm)	400	425
<u>PBL</u> -- Bottom surface of aluminum plate to belt lower edge (mm)	324	349

FIGURE 3 VEHICLE TARGET LOCATIONS

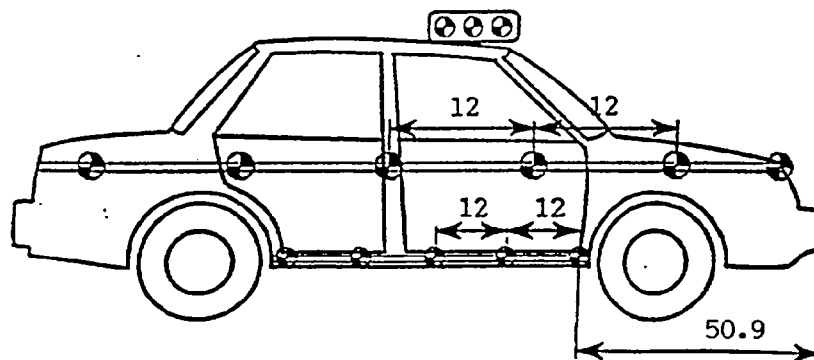
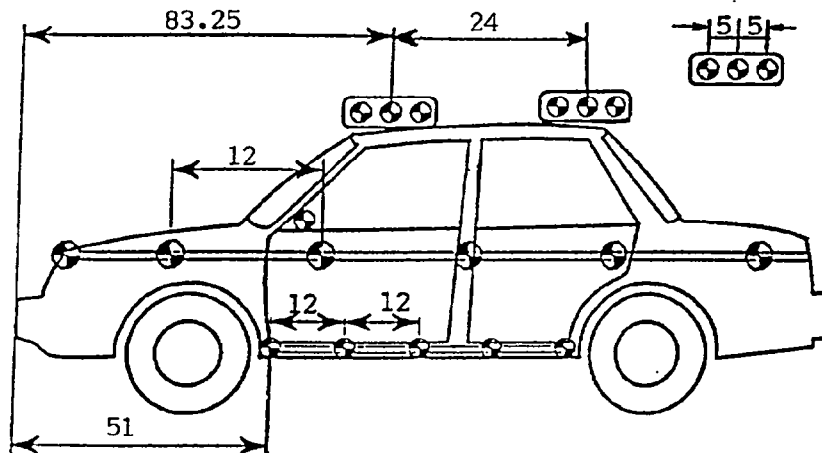
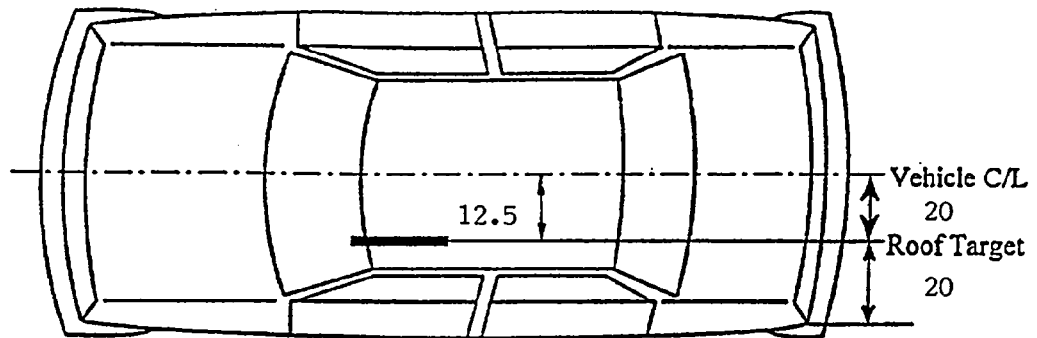


FIGURE 4 CAMERA POSITIONS

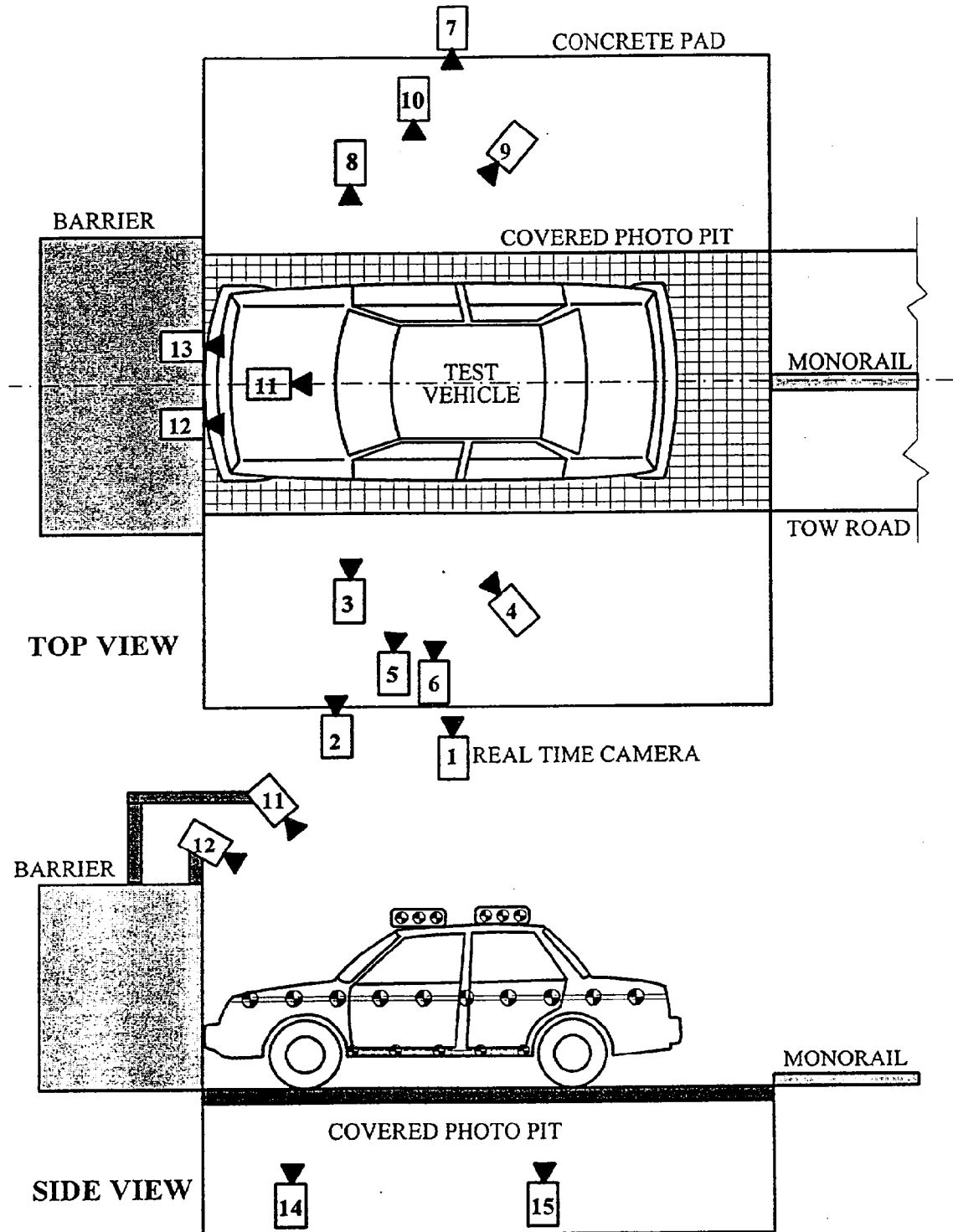


TABLE 19 CAMERA LOCATIONS

Veh. Year/Make/Model/Body Style: 1995/Ford/Escort/3 Door

Vehicle NHTSA No.: CS0205; Test Date: 12/15/94

	VIEW	CAMERA POSITIONS (inches)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Left Side View				90°		10	24
2	Left Vehicle Crush	38.2	308.3	43.7	90°	7430	25	1081
3	Left Windshield Intrusion	55.1	257.9	43.3	90°	6150	50	962
4	Left Driver Kinematics	166.9	190.2	77.2	50°		35	1176
5	Left Steering Column Motion	71.7	275.6	61.4	90°	6600	25	1000
6	Left Steering Column Motion	71.7	275.6	40.6	90°	6600	25	980
7	Right Overall View	88.2	-294.9	41.1	90°	7090	13	1053
8	Right Vehicle Crush	58.3	-261.8	43.3	90°	6250	50	926
9	Right Passenger Kinematics	172.0	-206.3	80.3	50°		35	885
10	Right Windshield Intrusion	45.7	-298.9	44.1	90°	7190	25	1015
11	Front View Windshield	13.8	0	172.2			13	1176
12	Front View Driver	-13.0	15.0	94.9			13	980
13	Front View Passenger	-12.2	-16.1	95.7			13	1075
14	Pit Camera Engine View	47.2	0	-123.4			13	1015
15	Pit Camera Fuel Tank View	96.1	0	-122.6			13	952

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

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

<u>Description</u>	<u>Page No.</u>
Photo No. A-1 - Pre-Test Front View	A-1
Photo No. A-2 - Post-Test Front View	A-2
Photo No. A-3 - Pre-Test Left Side View	A-3
Photo No. A-4 - Post-Test Left Side View	A-4
Photo No. A-5 - Pre-Test Left 3/4 Rear View	A-5
Photo No. A-6 - Post-Test Left 3/4 Rear View	A-6
Photo No. A-7 - Pre-Test Right Side View	A-7
Photo No. A-8 - Post-Test Right Side View	A-8
Photo No. A-9 - Pre-Test Right 3/4 Front View	A-9
Photo No. A-10 - Post-Test Right 3/4 Front View	A-10
Photo No. A-11 - Pre-Test Rear View	A-11
Photo No. A-12 - Post-Test Rear View	A-12
Photo No. A-13 - Pre-Test Engine Compartment View	A-13
Photo No. A-14 - Post-Test Engine Compartment View	A-14
Photo No. A-15 - Pre-Test Fuel Filler Cap View	A-15
Photo No. A-16 - Post-Test Fuel Filler Cap View	A-16
Photo No. A-17 - Pre-Test Front Underbody View	A-17
Photo No. A-18 - Post-Test Front Underbody View	A-18
Photo No. A-19 - Pre-Test Rear Underbody View	A-19
Photo No. A-20 - Post-Test Rear Underbody View	A-20
Photo No. A-21 - Pre-Test Front Windshield View	A-21
Photo No. A-22 - Post-Test Front Windshield View	A-22
Photo No. A-23 - Pre-Test Driver Dummy Position View	A-23
Photo No. A-24 - Post-Test Driver Dummy Position View	A-24
Photo No. A-25 - Pre-Test Driver Dummy Position View (Door Open)	A-25
Photo No. A-26 - Post-Test Driver Dummy Position View (Door Open)	A-26
Photo No. A-27 - Pre-Test Driver Seat Position View	A-27
Photo No. A-28 - Post-Test Driver Seat Position View	A-28
Photo No. A-29 - Pre-Test Driver Windshield View	A-29
Photo No. A-30 - Post-Test Driver Windshield View	A-30
Photo No. A-31 - Pre-Test Driver Dummy Knee Bolster View	A-31
Photo No. A-32 - Post-Test Driver Dummy Knee Bolster View	A-32
Photo No. A-33 - Post-Test Driver Head Contact View (Airbag)	A-33

TABLE OF PHOTOGRAPHS (Continued)

<u>Description</u>	<u>Page No.</u>
Photo No. A-34 - Post-Test Driver Knee Contact View	A-34
Photo No. A-35 - Pre-Test Passenger Dummy Position View	A-35
Photo No. A-36 - Post-Test Passenger Dummy Position View	A-36
Photo No. A-37 - Pre-Test Passenger Dummy Position View (Door Open)	A-37
Photo No. A-38 - Post-Test Passenger Dummy Position View (Door Open)	A-38
Photo No. A-39 - Pre-Test Passenger Seat Position View	A-39
Photo No. A-40 - Post-Test Passenger Seat Position View	A-40
Photo No. A-41 - Pre-Test Passenger Windshield View	A-41
Photo No. A-42 - Post-Test Passenger Windshield View	A-42
Photo No. A-43 - Pre-Test Passenger Dummy Knee Bolster View	A-43
Photo No. A-44 - Post-Test Passenger Dummy Knee Bolster View	A-44
Photo No. A-45 - Post-Test Passenger Head Contact View (Airbag)	A-45
Photo No. A-46 - Post-Test Passenger Knee Contact View	A-46
Photo No. A-47 - Pre-Test Steering Column at Firewall View (Interior)	A-47
Photo No. A-48 - Post-Test Steering Column at Firewall View (Interior)	A-48
Photo No. A-49 - Vehicle Rollover - 90°	A-49
Photo No. A-50 - Vehicle Rollover - 180°	A-50
Photo No. A-51 - Vehicle Rollover - 270°	A-51
Photo No. A-52 - Vehicle Rollover - 360°	A-52
Photo No. A-53 - Vehicle Certification Label	A-53
Photo No. A-54 - Vehicle Tire Placard	A-54

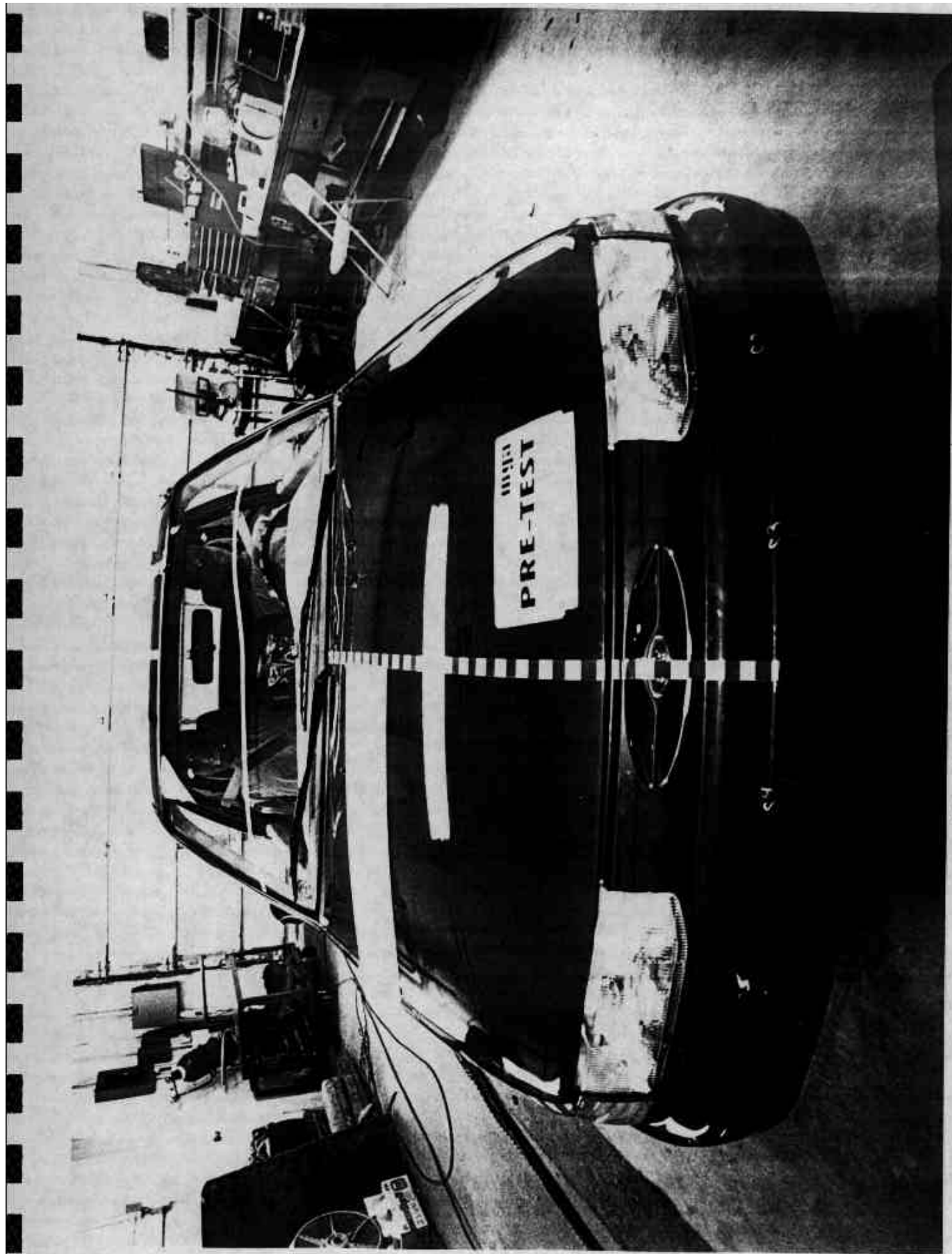


Photo No. A-1 - Pre-Test Front View

A-1

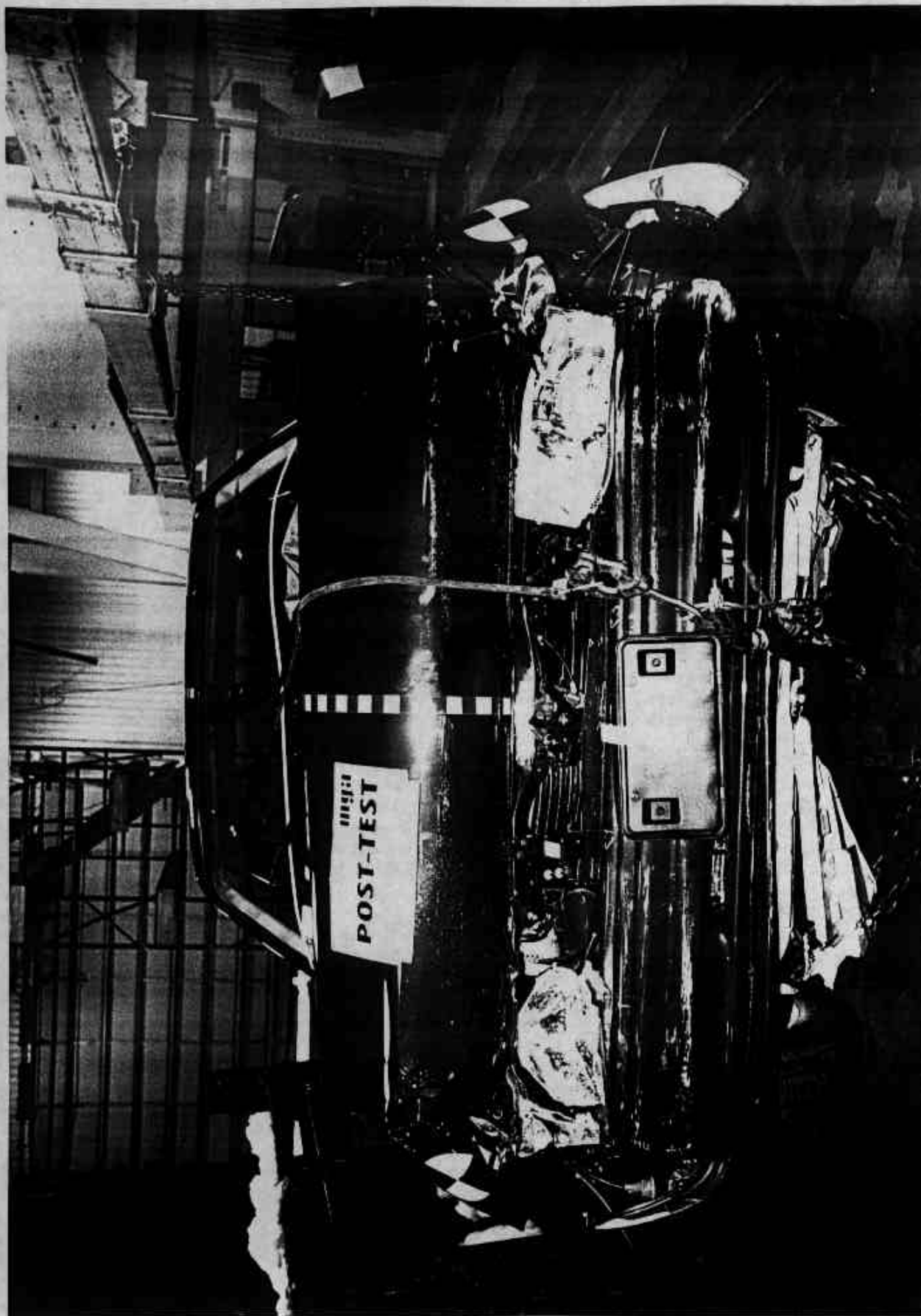


Photo No. A-2 - Post-Test Front View

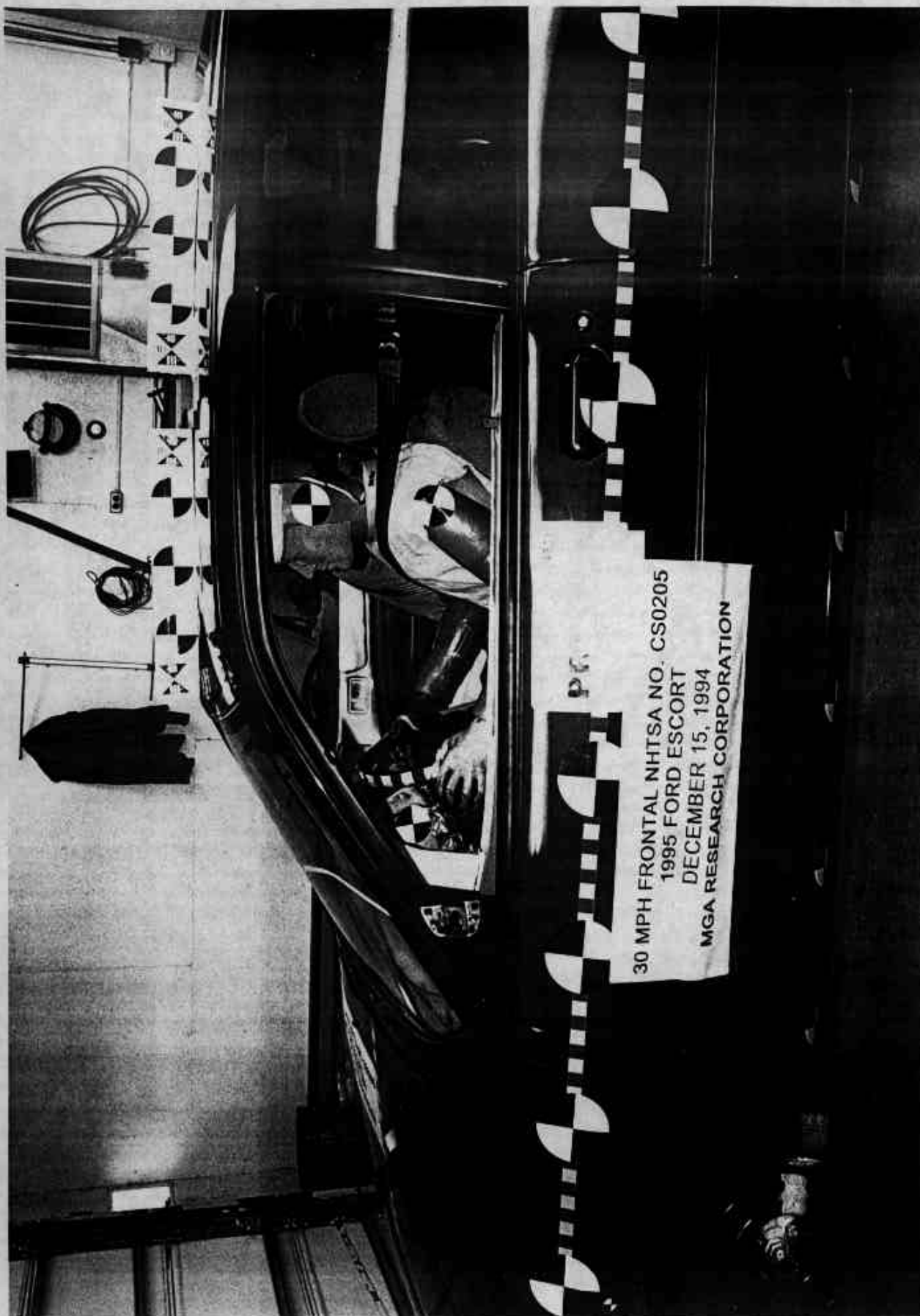


Photo No. A-3 - Pre-Test Left Side View

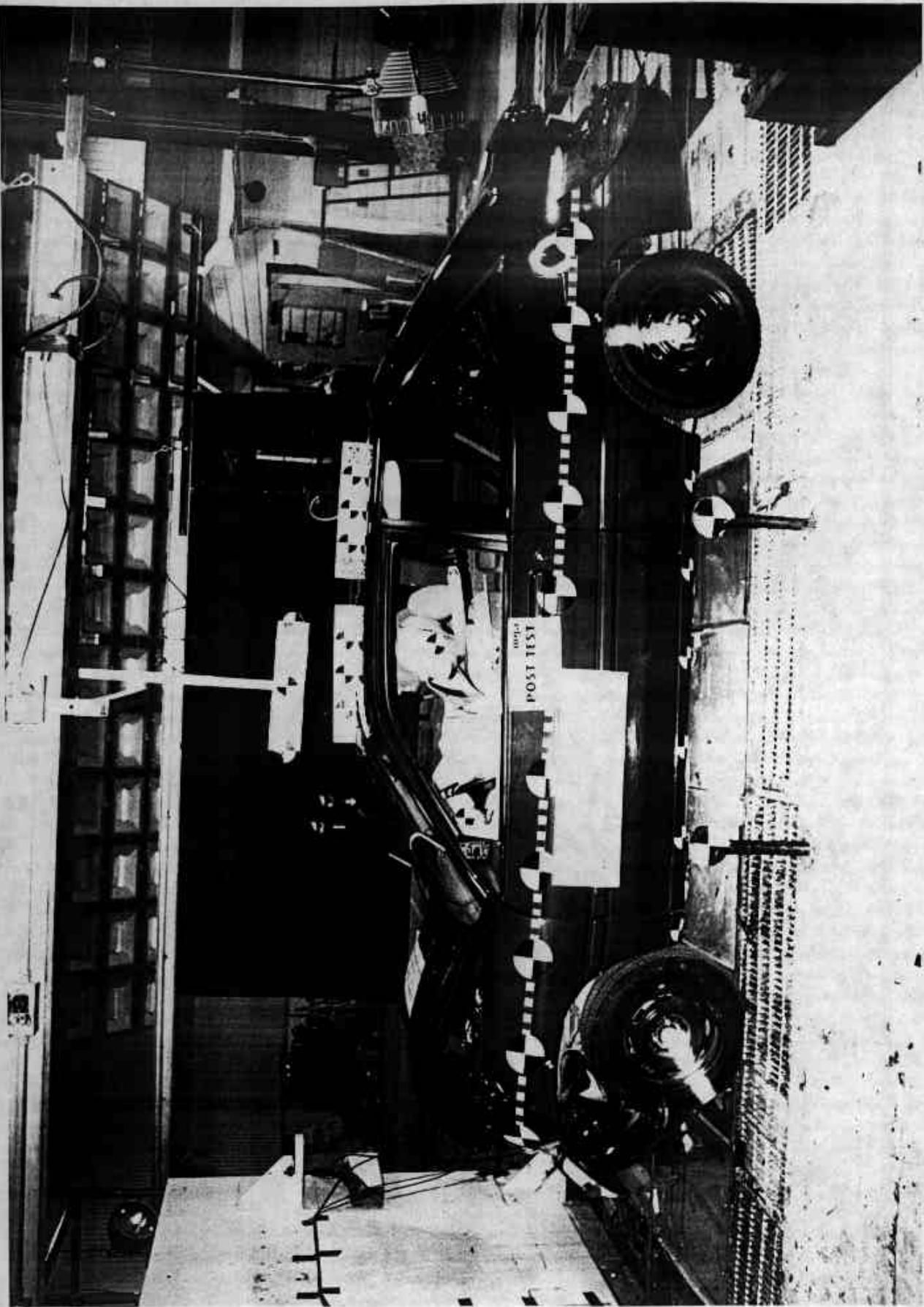


Photo No. A-4 - Post-Test Left Side View

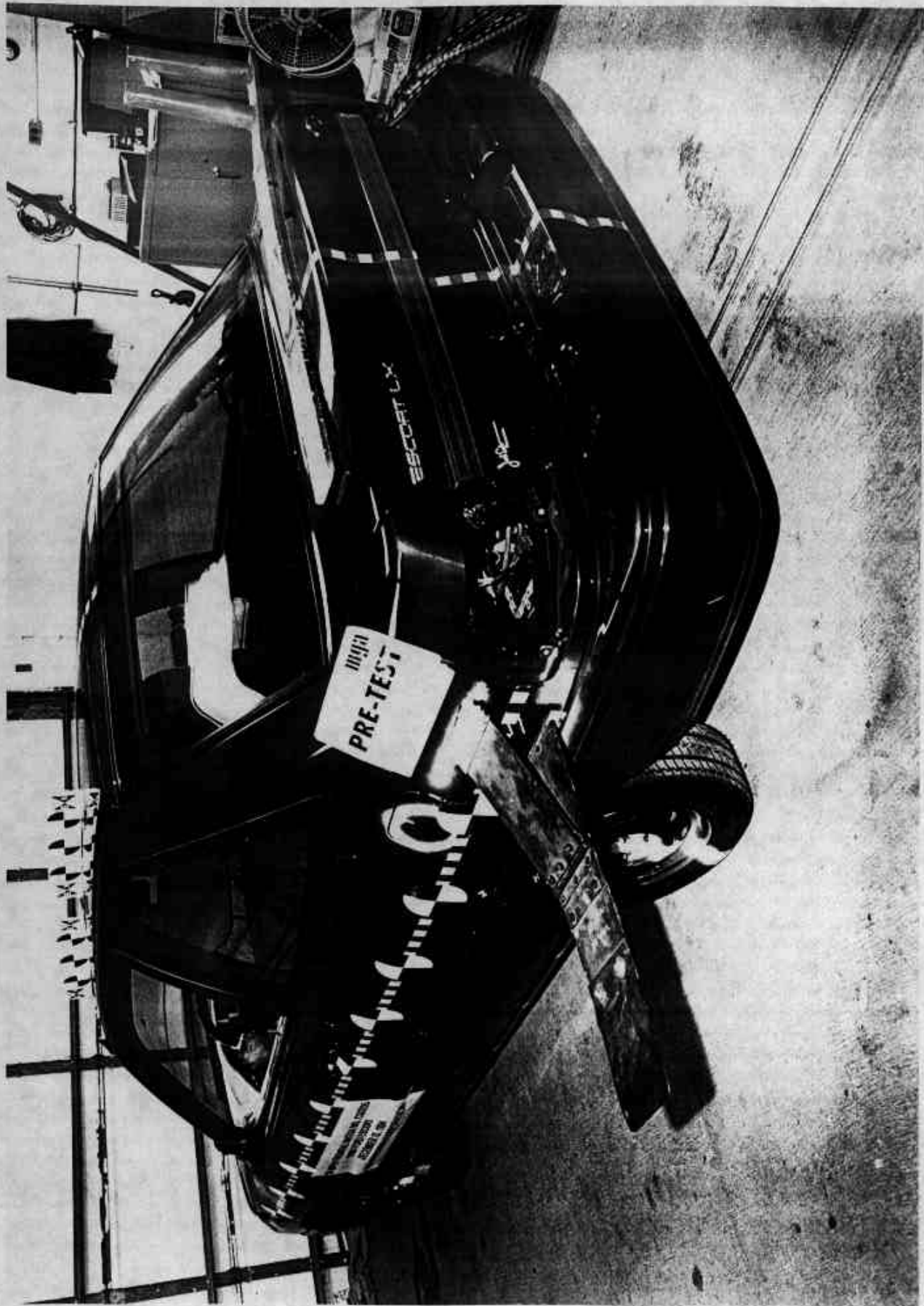


Photo No. A-5 - Pre-Test Left 3/4 Rear View

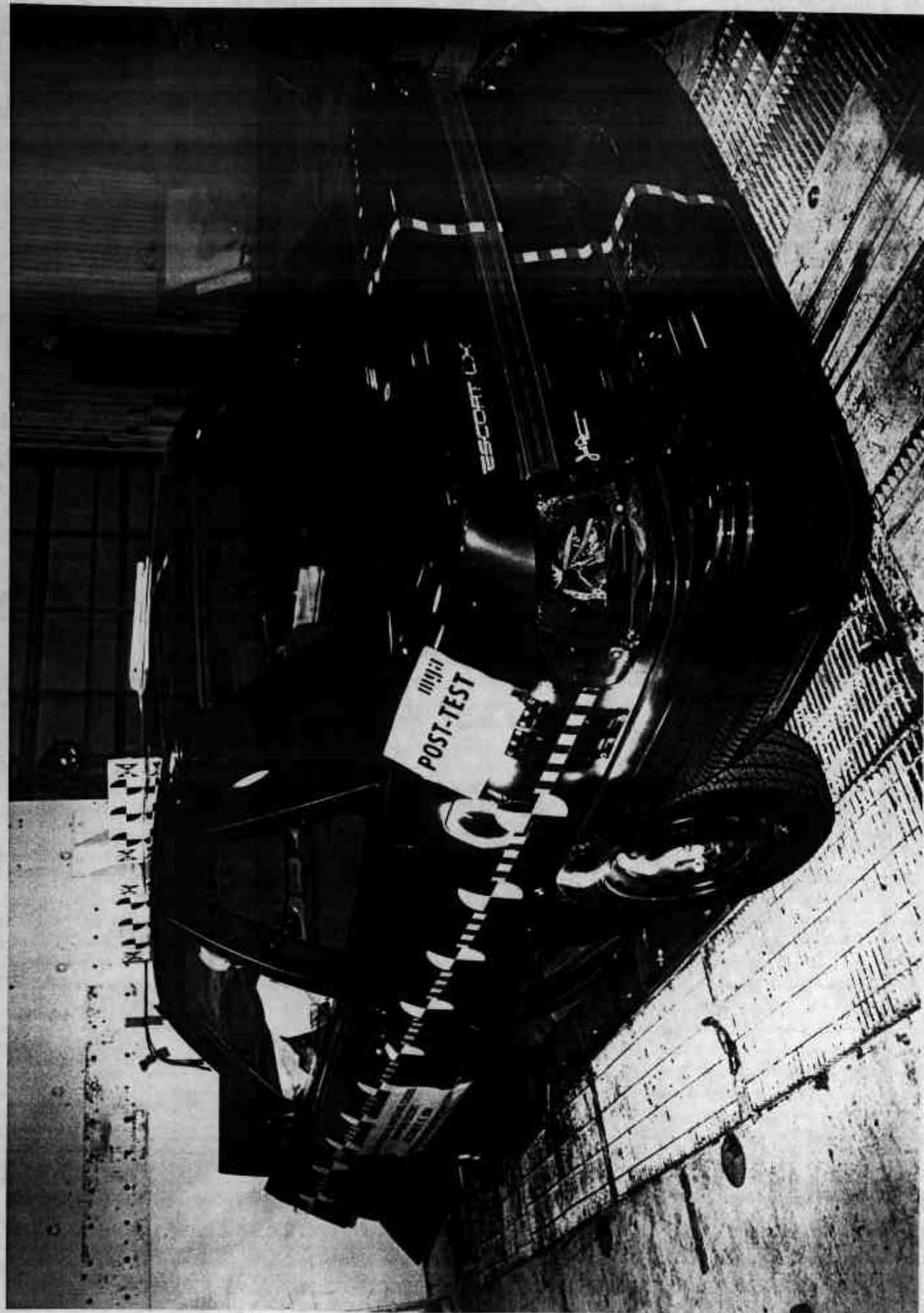


Photo No. A-6 - Post-Test Left 3/4 Rear View

A-6



Photo No. A-7 - Pre-Test Right Side View

A-7

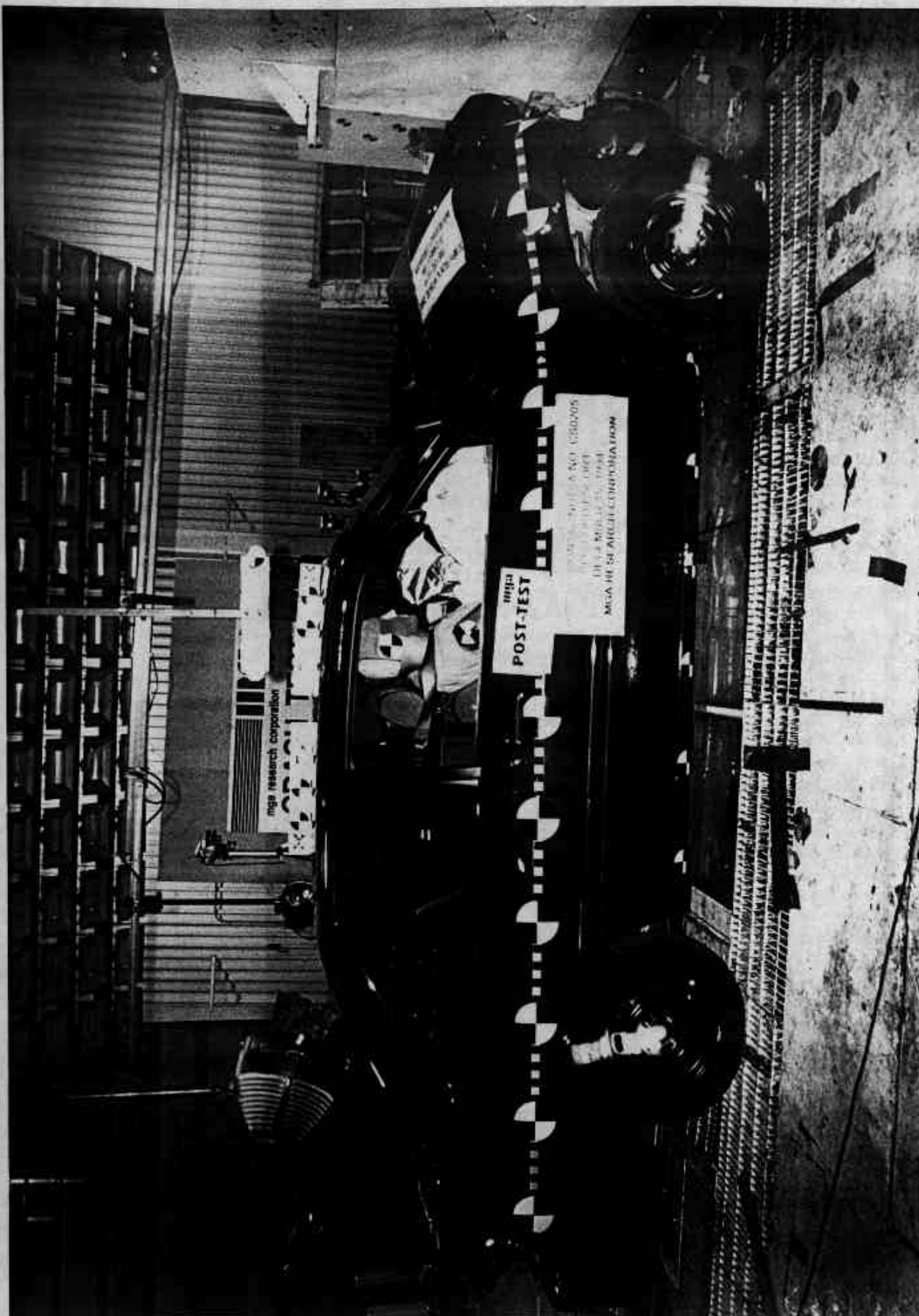
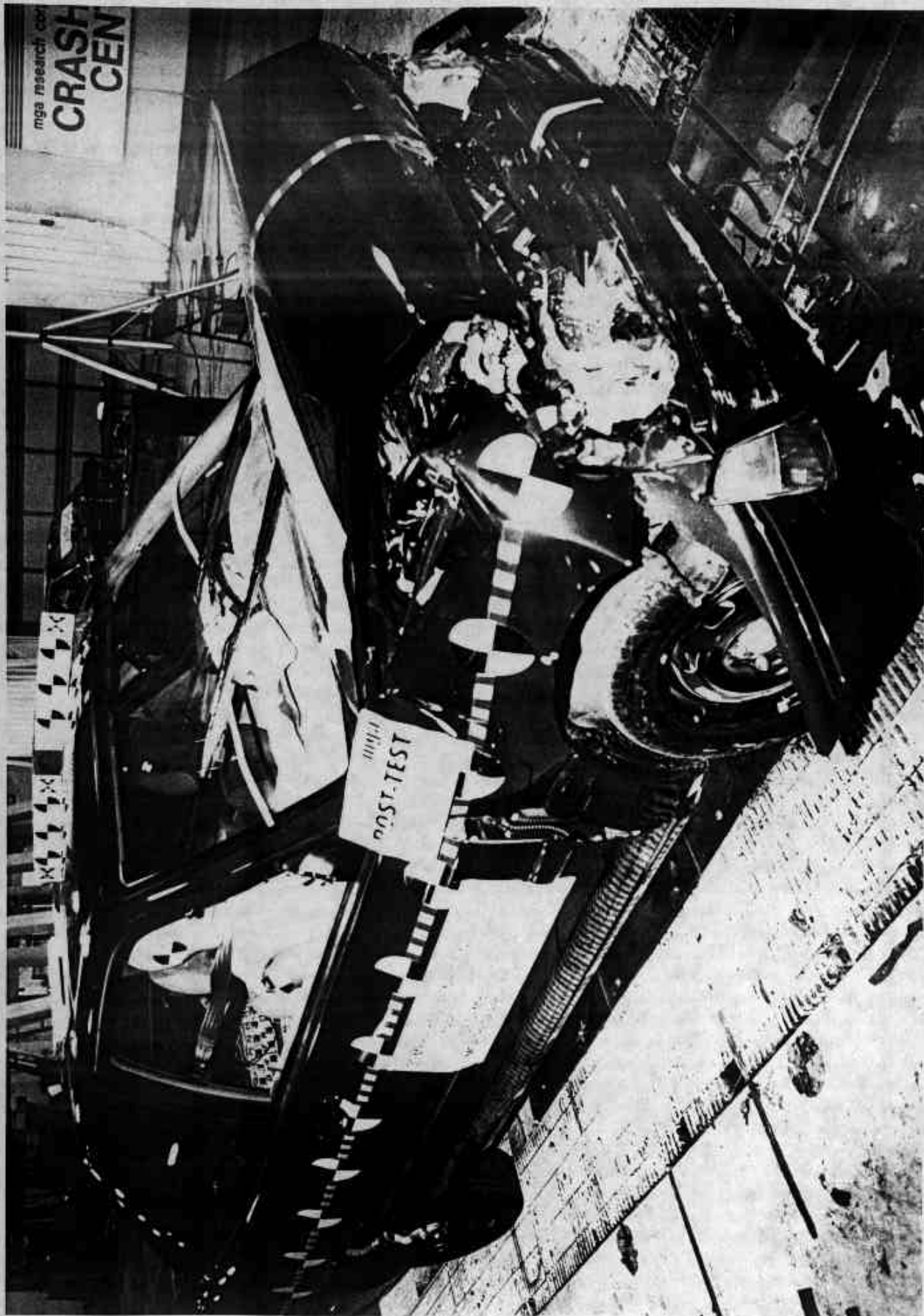


Photo No. A-8 - Post-Test Right Side View



Photo No. A-9 - Pre-Test Right 3/4 Front View



A-10

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

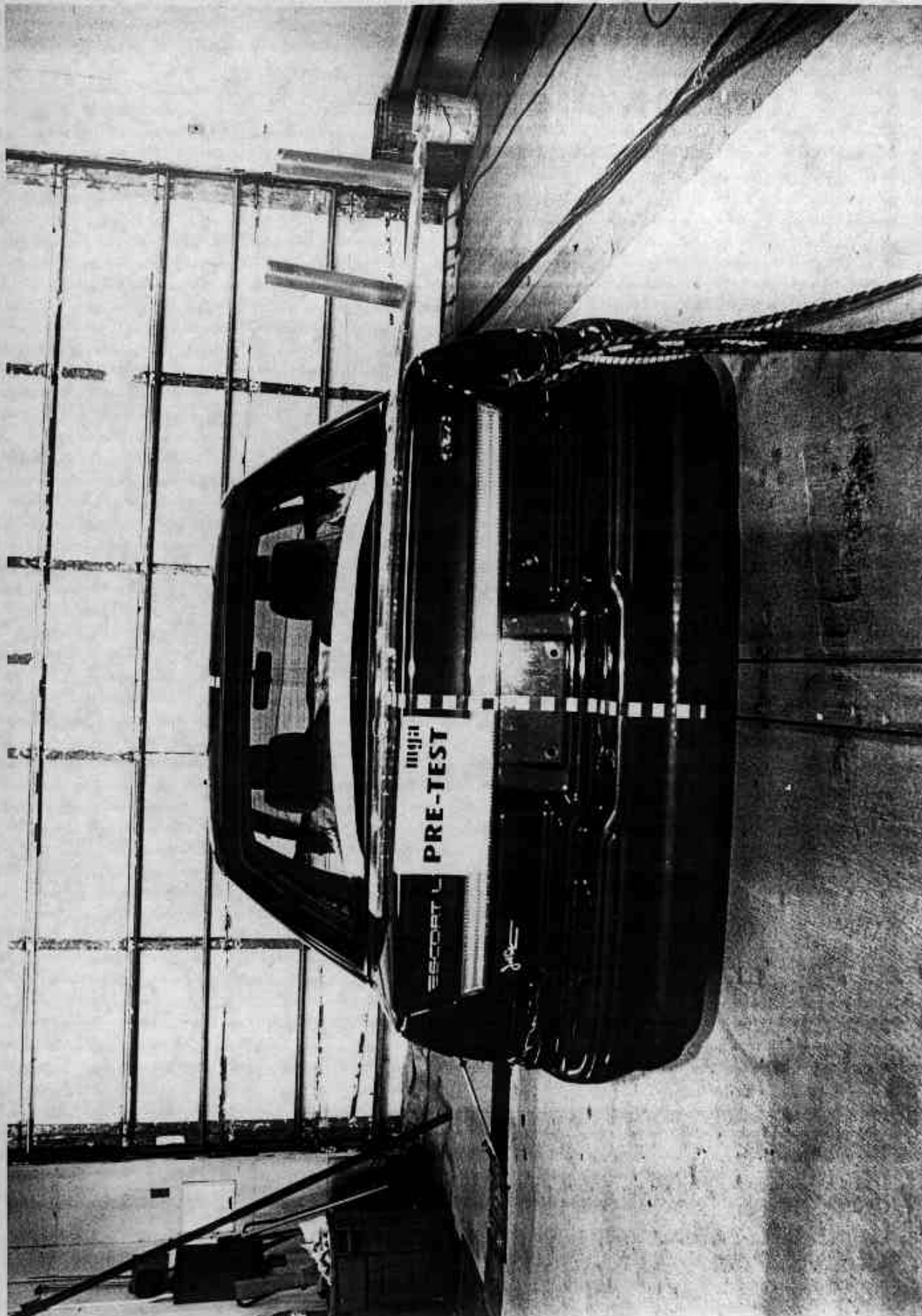


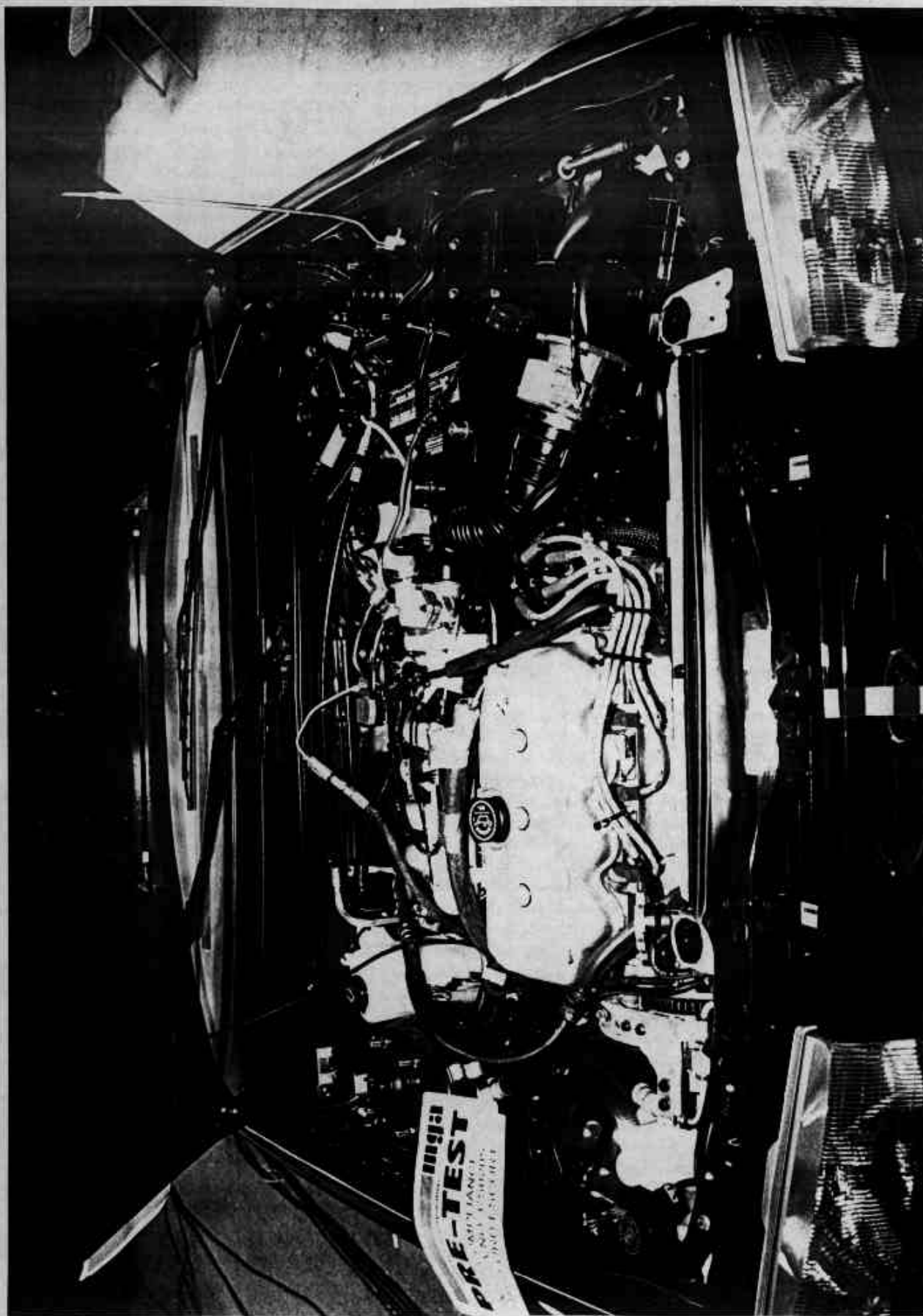
Photo No. A-11 - Pre-Test Rear View

A-11



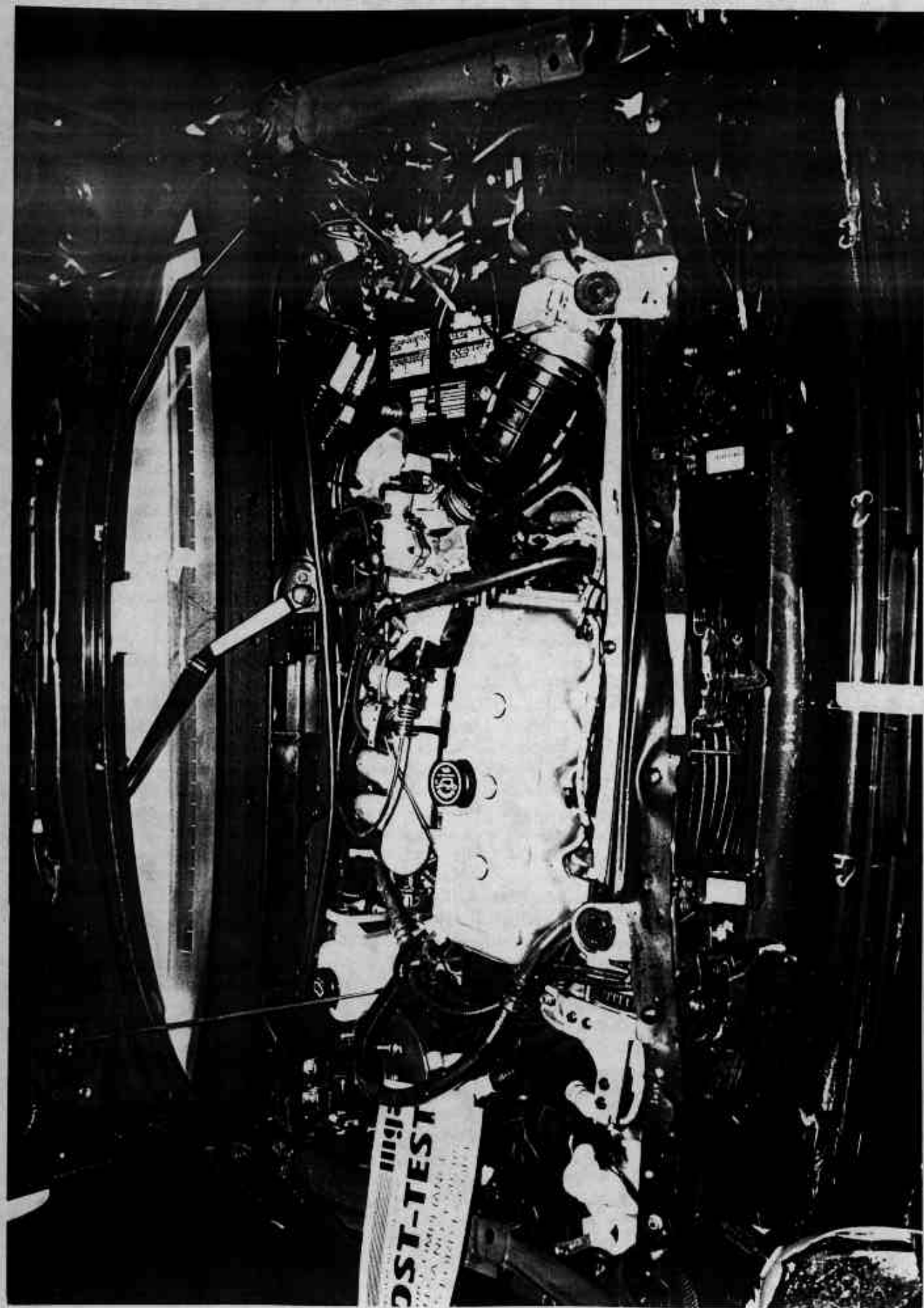
Photo No. A-12 - Post-Test Rear View

A-12



A-13

Photo No. A-13 - Pre-Test Engine Compartment View



A-14

Photo No. A-14 - Post-Test Engine Compartment View

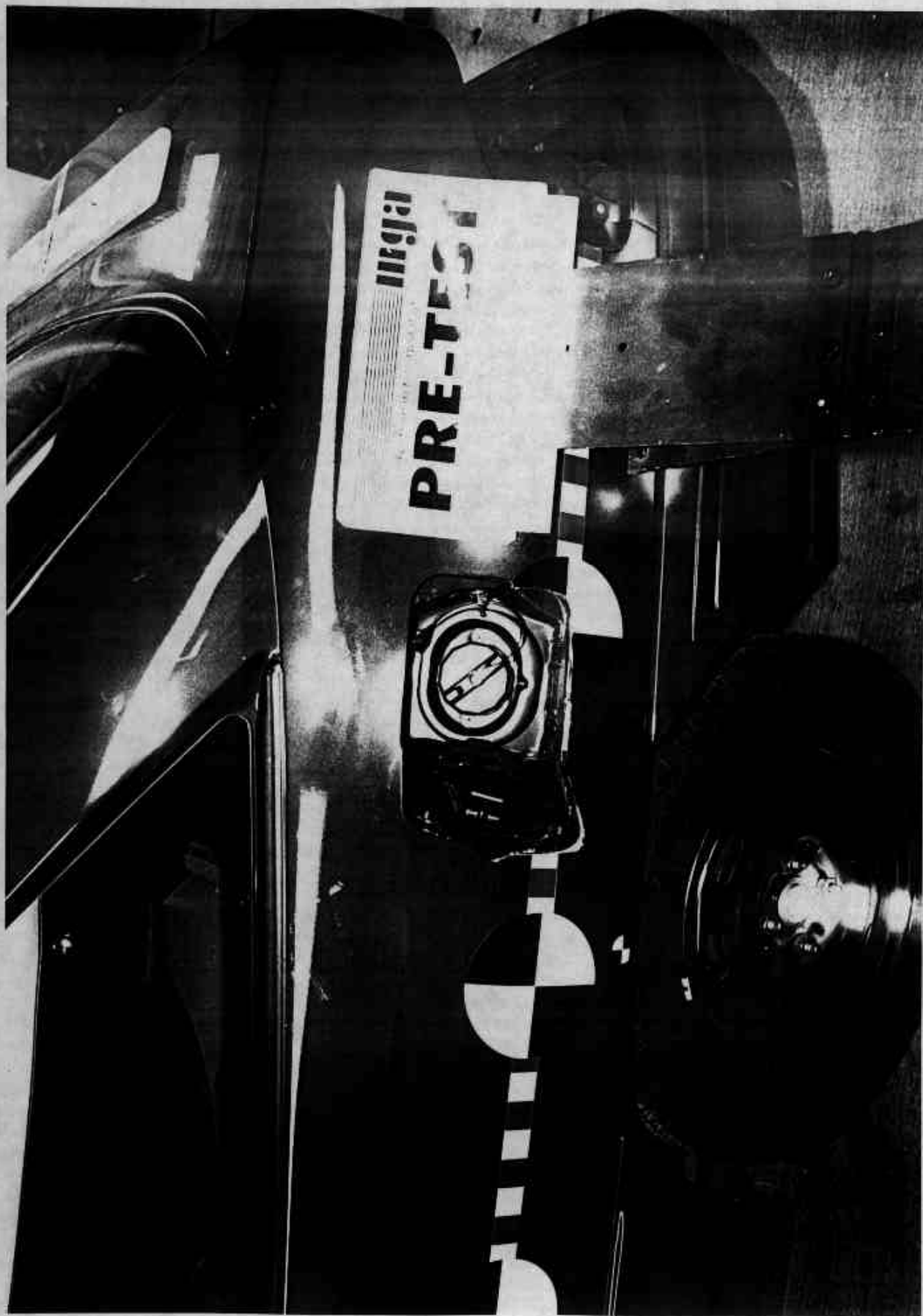


Photo No. A-15 - Pre-Test Fuel Filler Cap View

A-15



Photo No. A-16 - Post-Test Fuel Filler Cap View

A-16



Photo No. A-17 - Pre-Test Front Underbody View

A-17

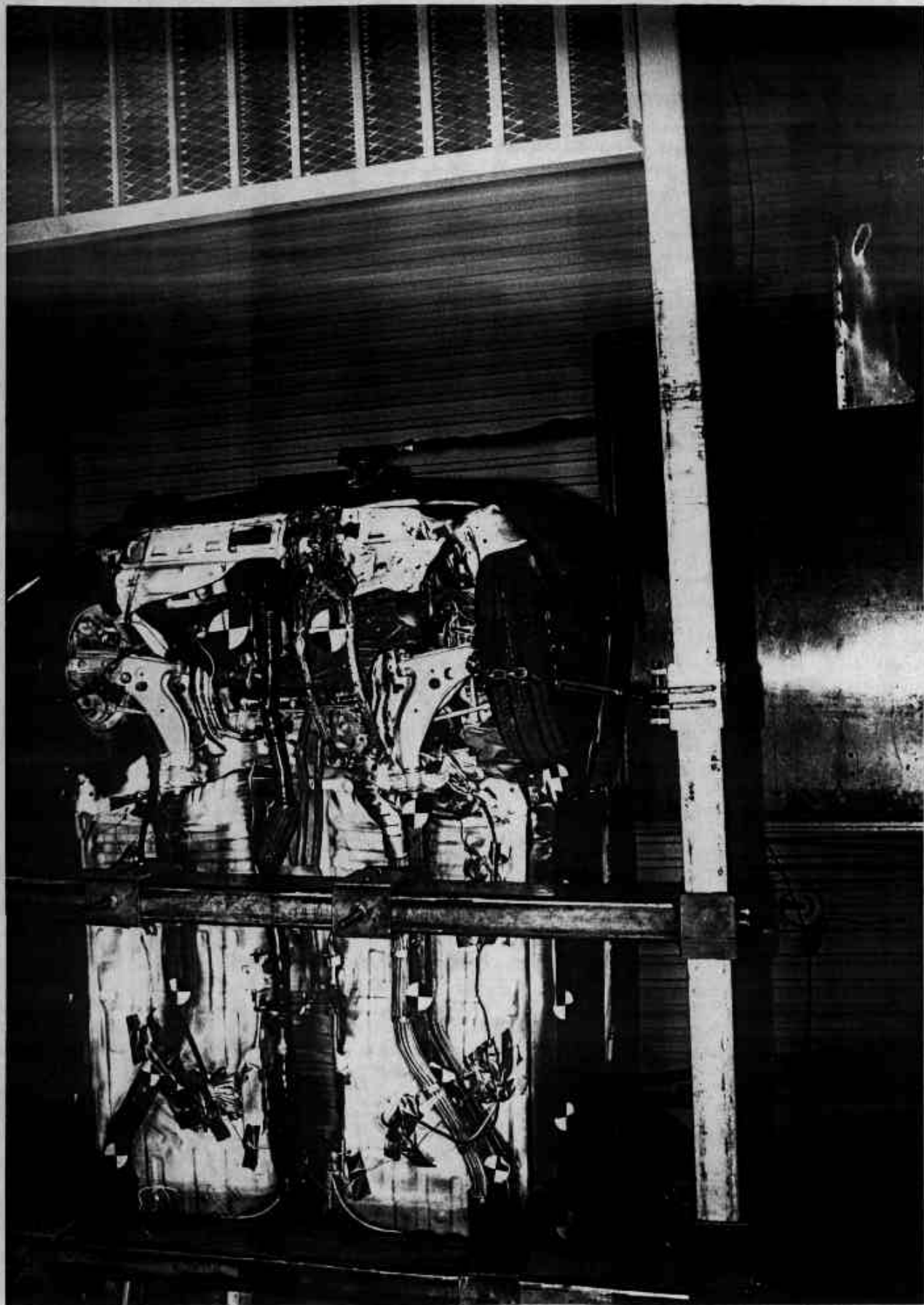


Photo No. A-18 - Post-Test Front Underbody View

A-18

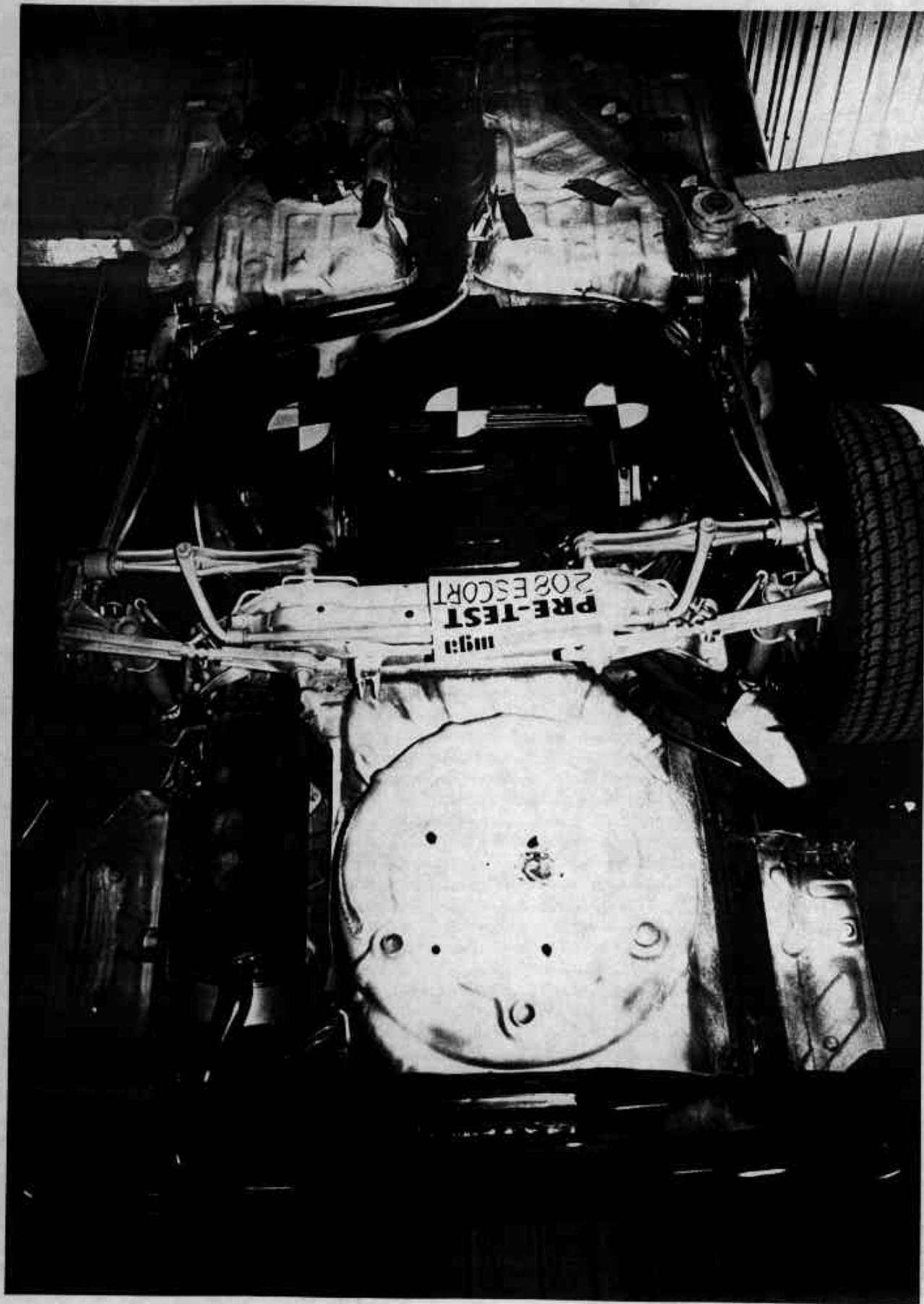
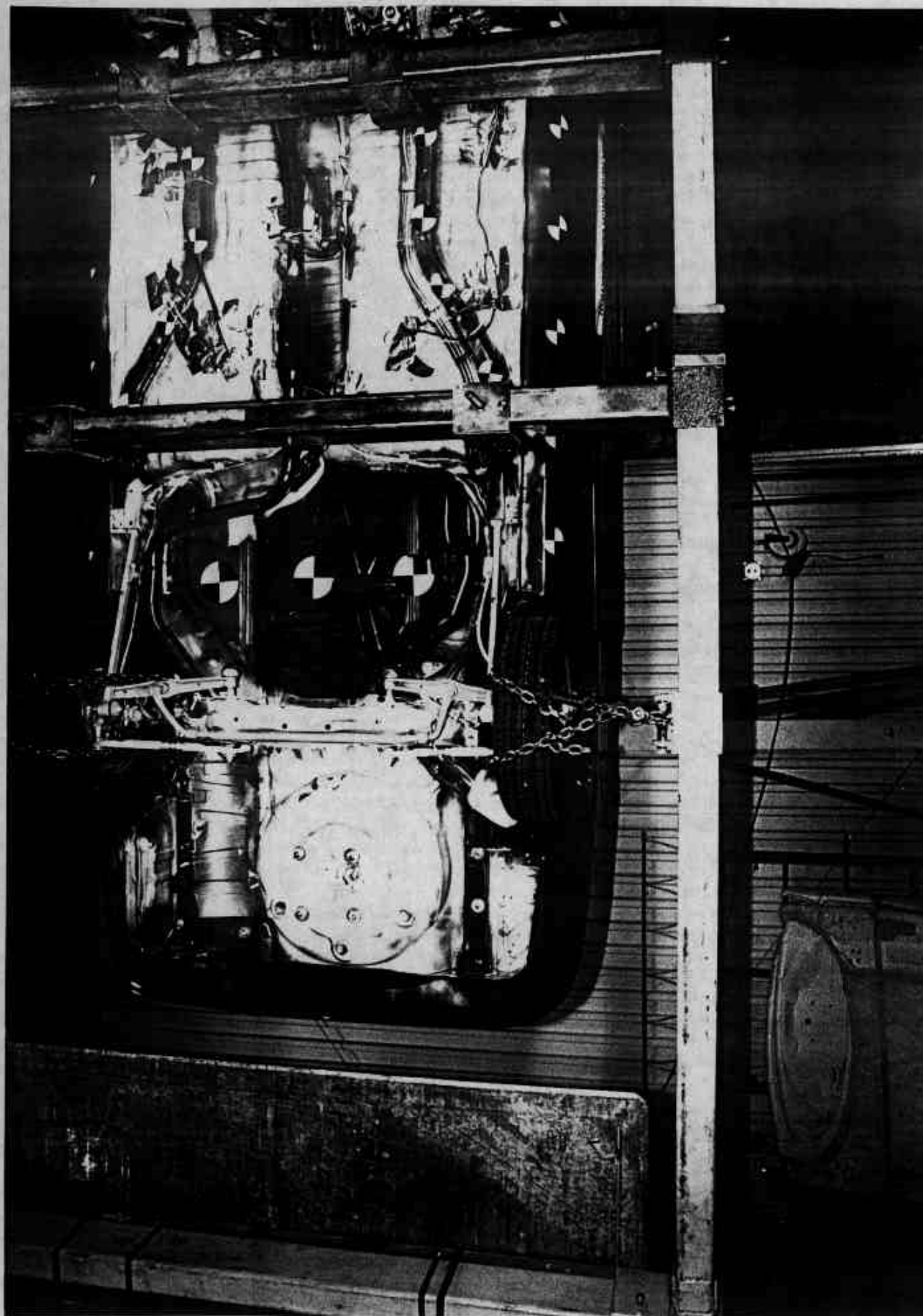


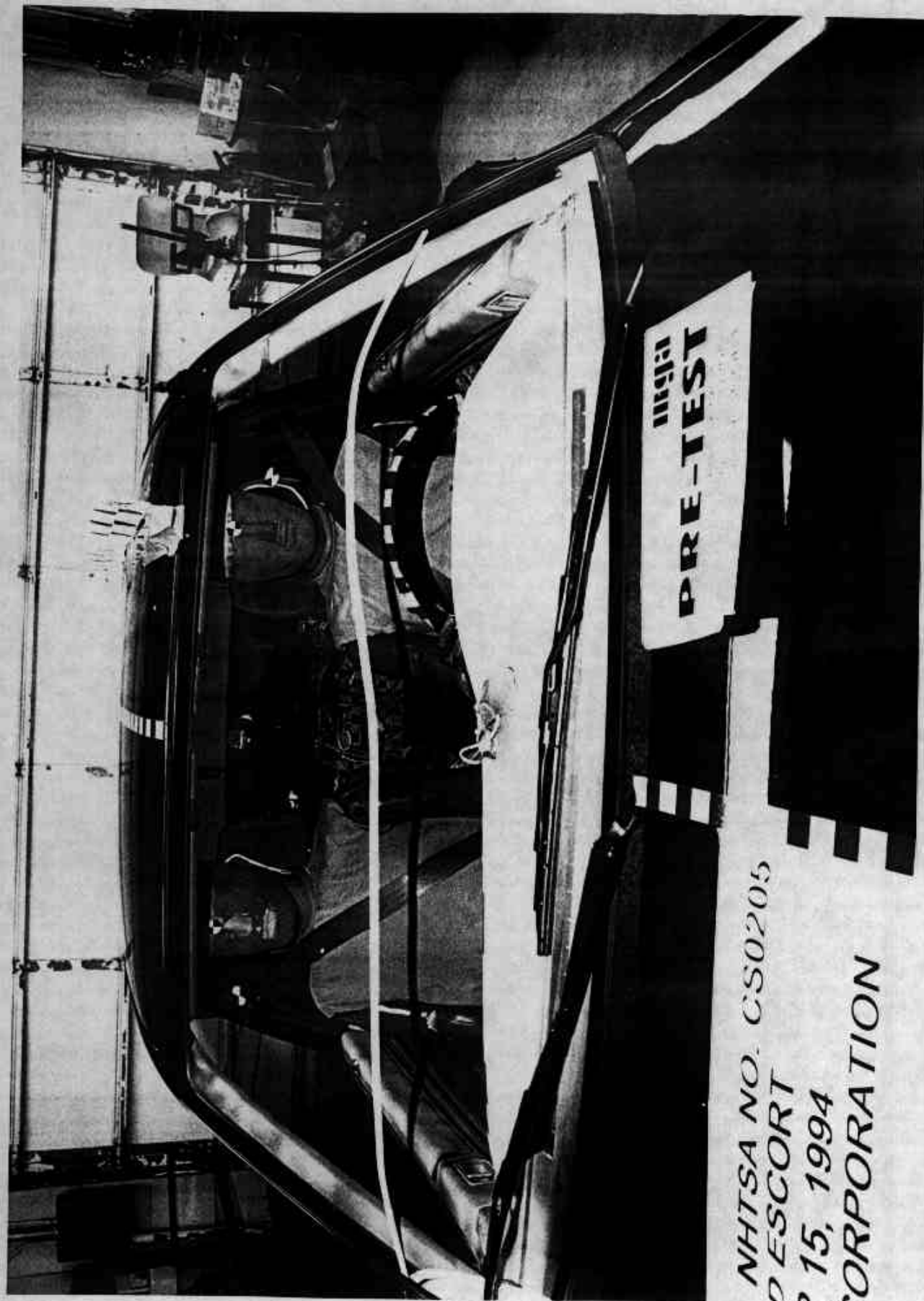
Photo No. A-19 - Pre-Test Rear Underbody View

A-19



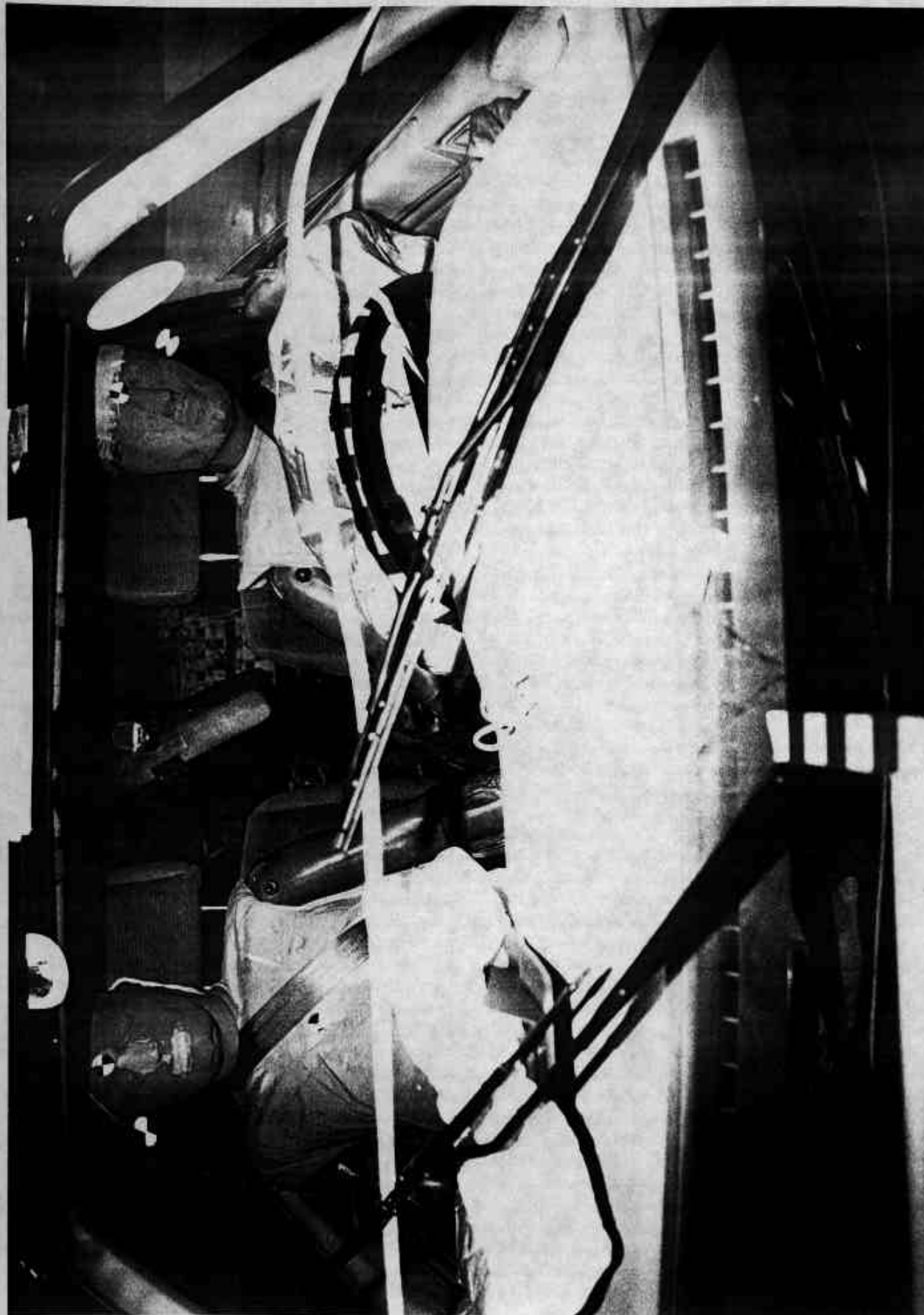
A-20

Photo No. A-20 - Post-Test Rear Underbody View



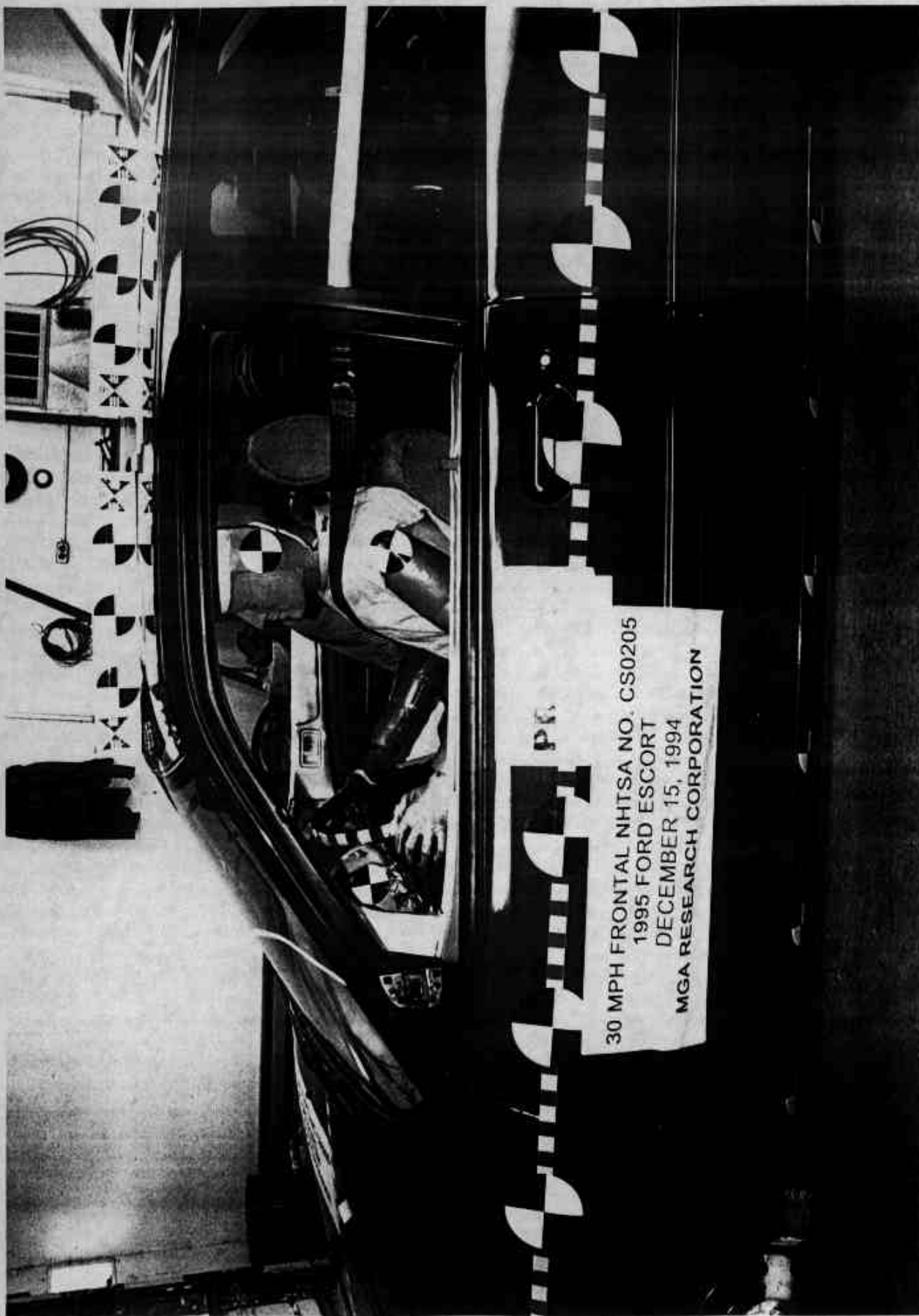
A-21

Photo No. A-21 - Pre-Test Front Windshield View



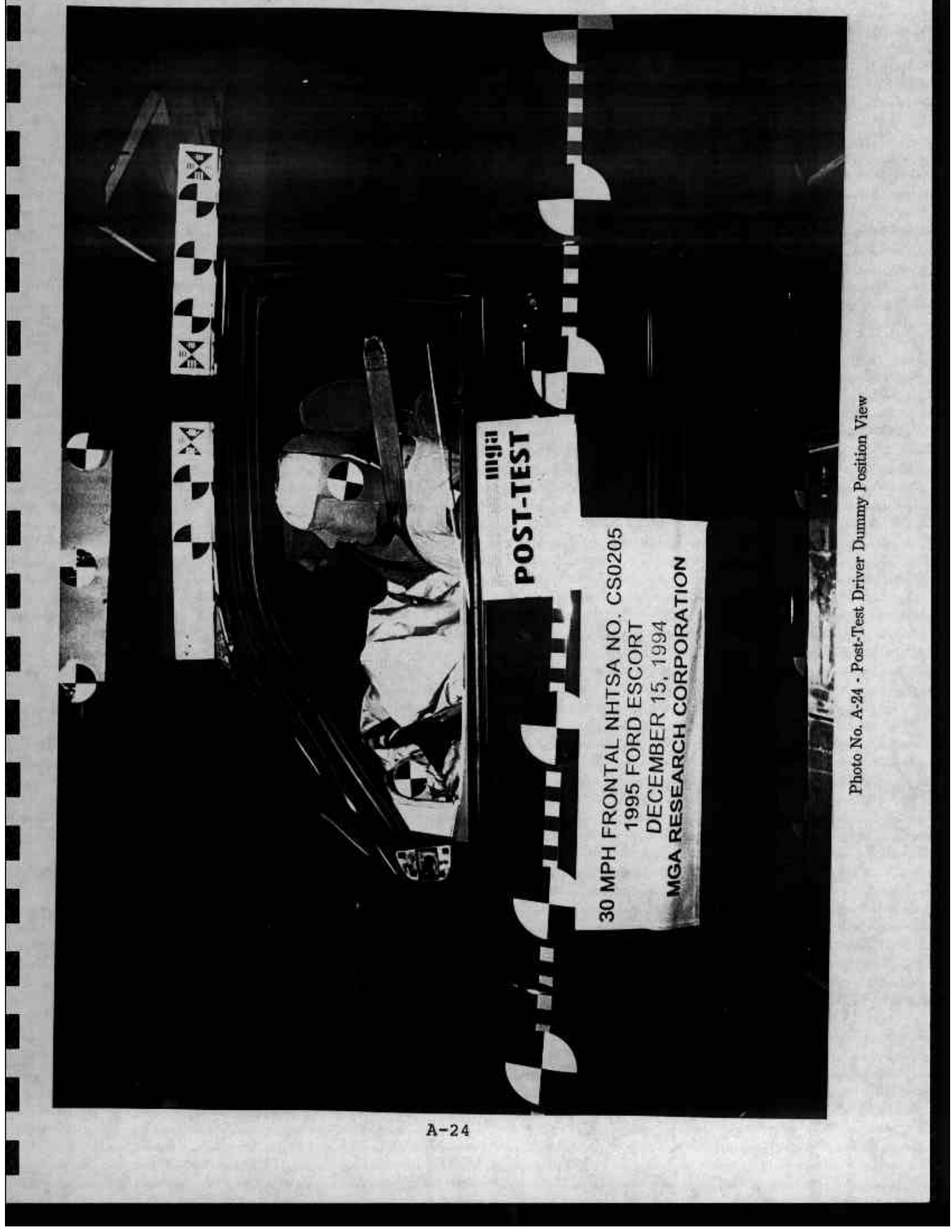
A-22

Photo No. A-22 - Post-Test Front Windshield View



A-23

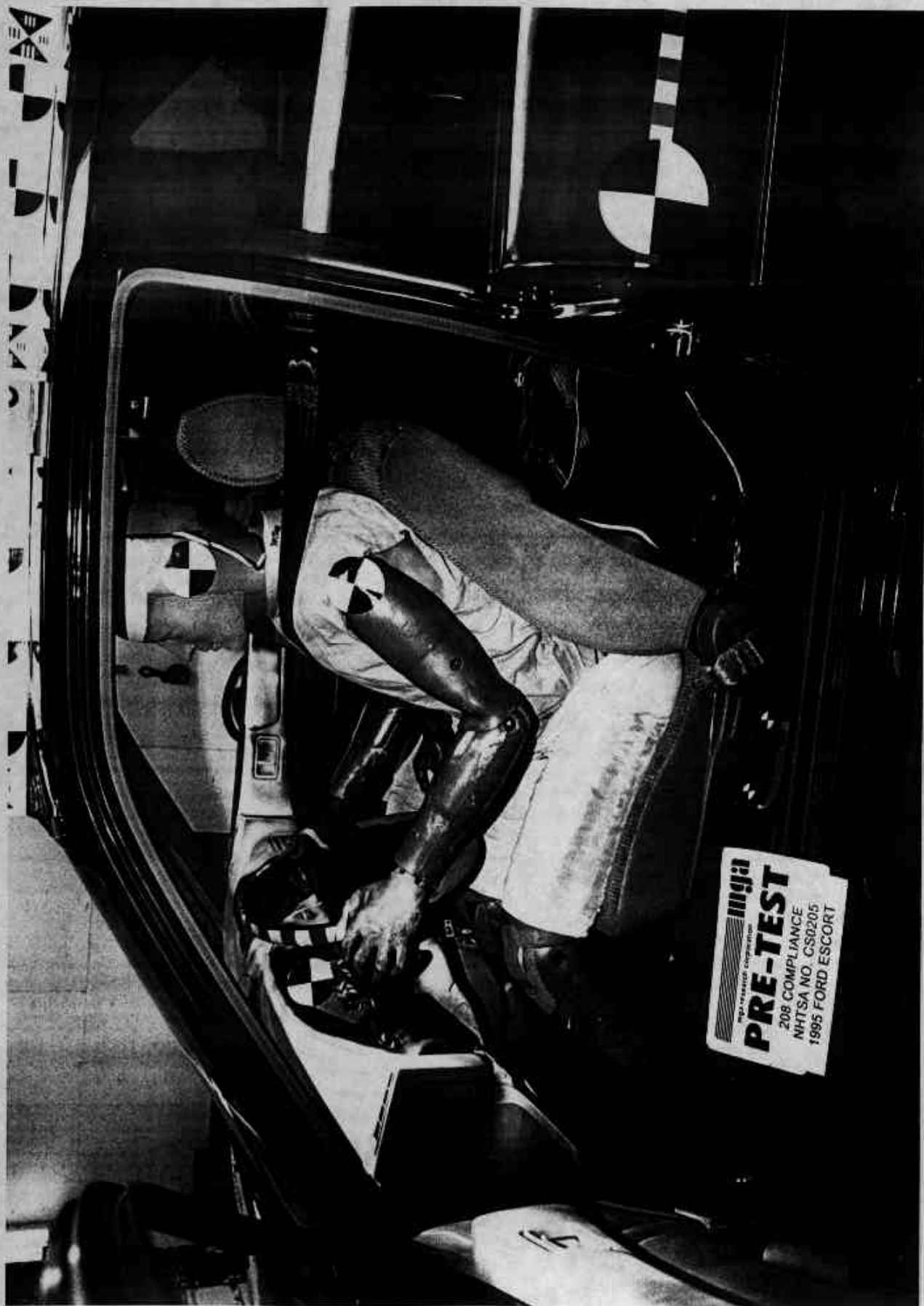
Photo No. A-23 - Pre-Test Driver Dummy Position View



POST-TEST

30 MPH FRONTAL NHTSA NO. CS0205
1995 FORD ESCORT
DECEMBER 15, 1994
MGA RESEARCH CORPORATION

Photo No. A-24 - Post-Test Driver Dummy Position View



A-25

Photo No. A-25 - Pre-Test Driver Dummy Position View (Door Open)



Photo No. A-26 - Post-Test Driver Dummy Position View (Door Open)

A-26



A-27

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



A-28

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



Photo No. A-29 - Pre-Test Driver Windshield View



Photo No. A-30 - Post-Test Driver Windshield View

A-30



Photo No. A-31 - Pre-Test Driver Dummy Knee Bolster View

A-31



Photo No. A-32 - Post-Test Driver Dummy Knee Bolster View

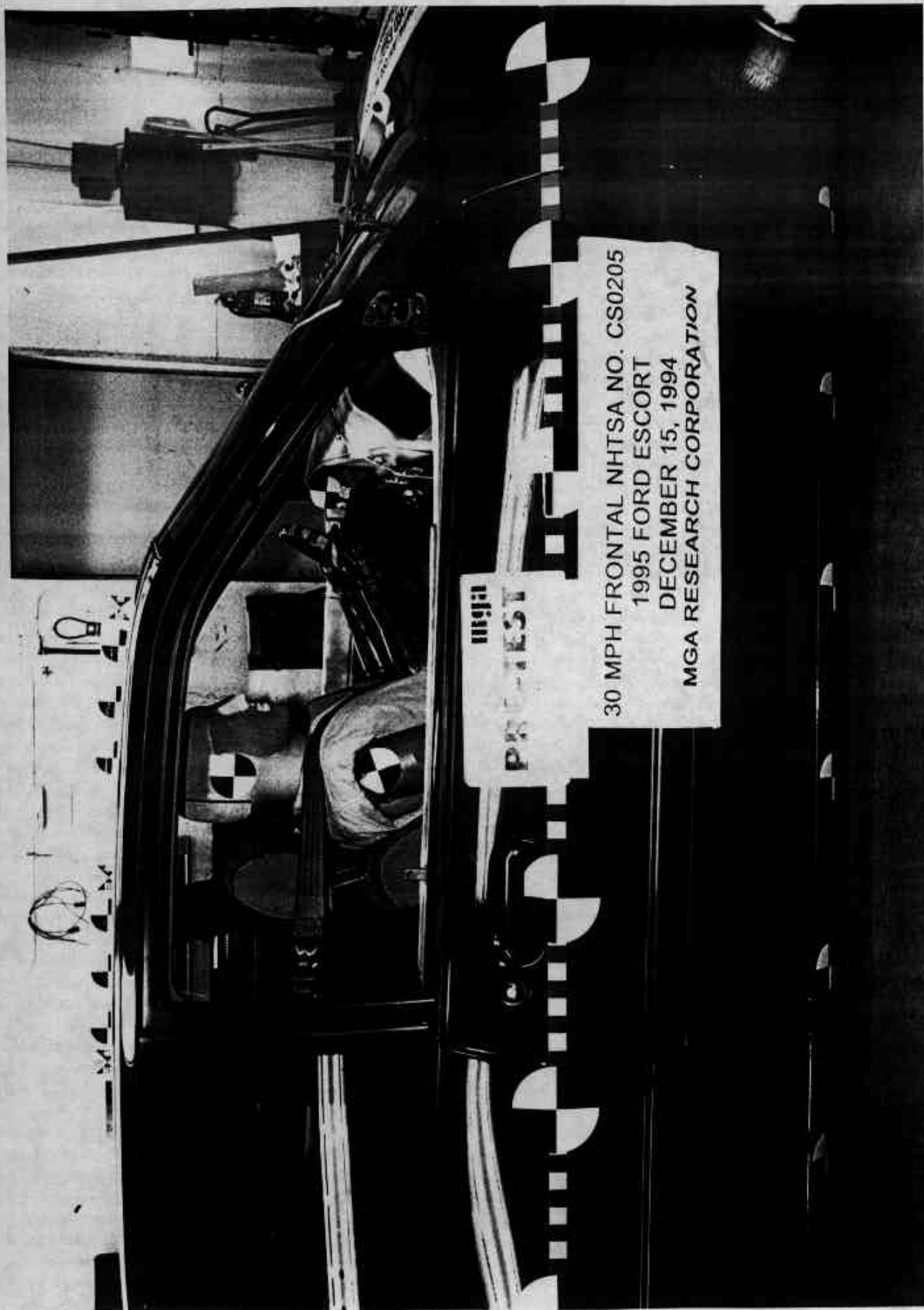


Photo No. A-33 - Post-Test Driver Head Contact View (Airbag)

A-33



Photo No. A-34 - Post-Test Driver Knee Contact View



A-35

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



A-36

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



Photo No. A-37 - Pre-Test Passenger Dummy Position View (Door Open)



Photo No. A-38 - Post-Test Passenger Dummy Position View (Door Open)



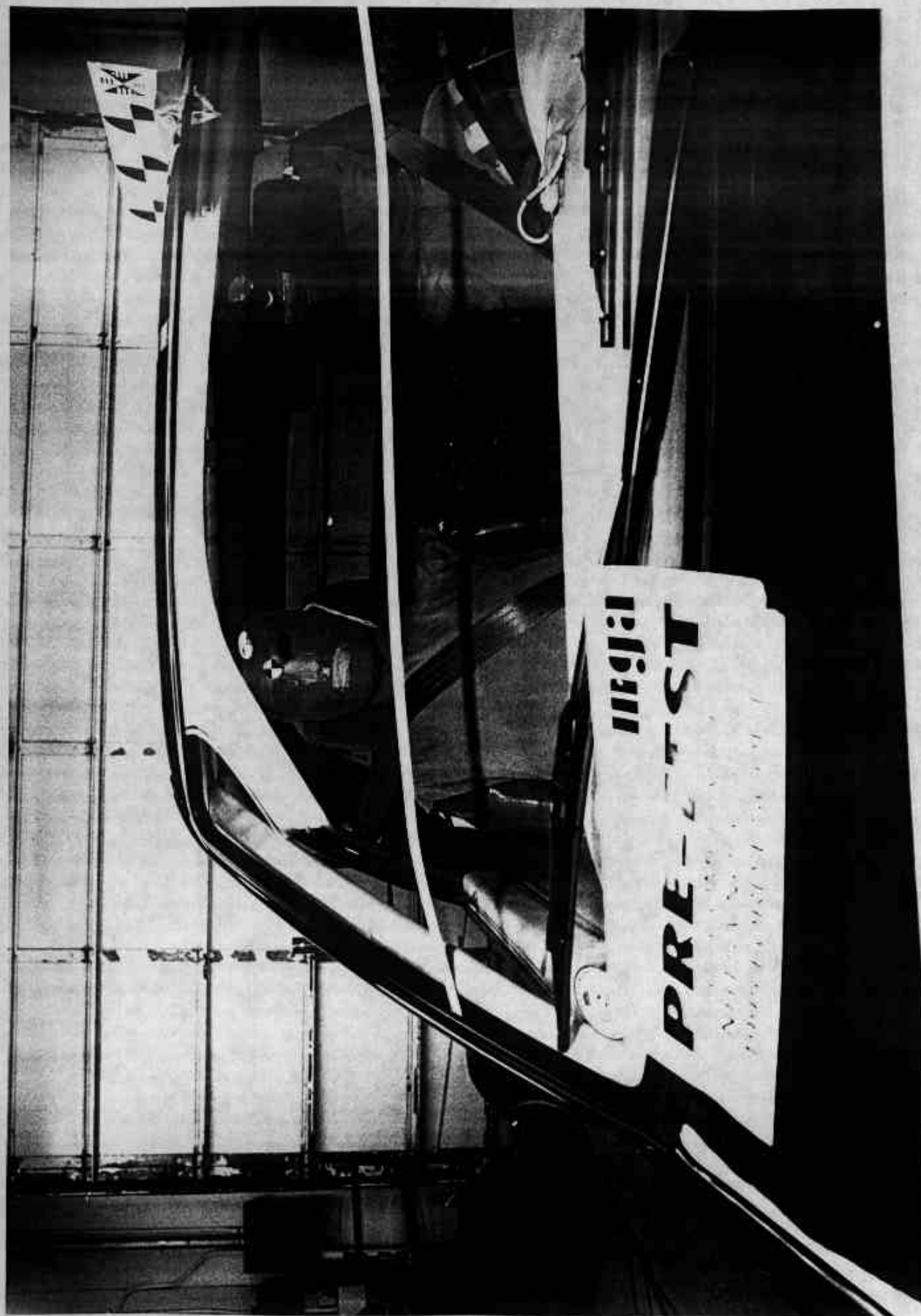
A-39

Photo No. A-39 - Pre-Test Passenger Seat Position View



A-40

Photo No. A-40 - Post-Test Passenger Seat Position View



A-41

Photo No. A-41 - Pre-Test Passenger Windshield View

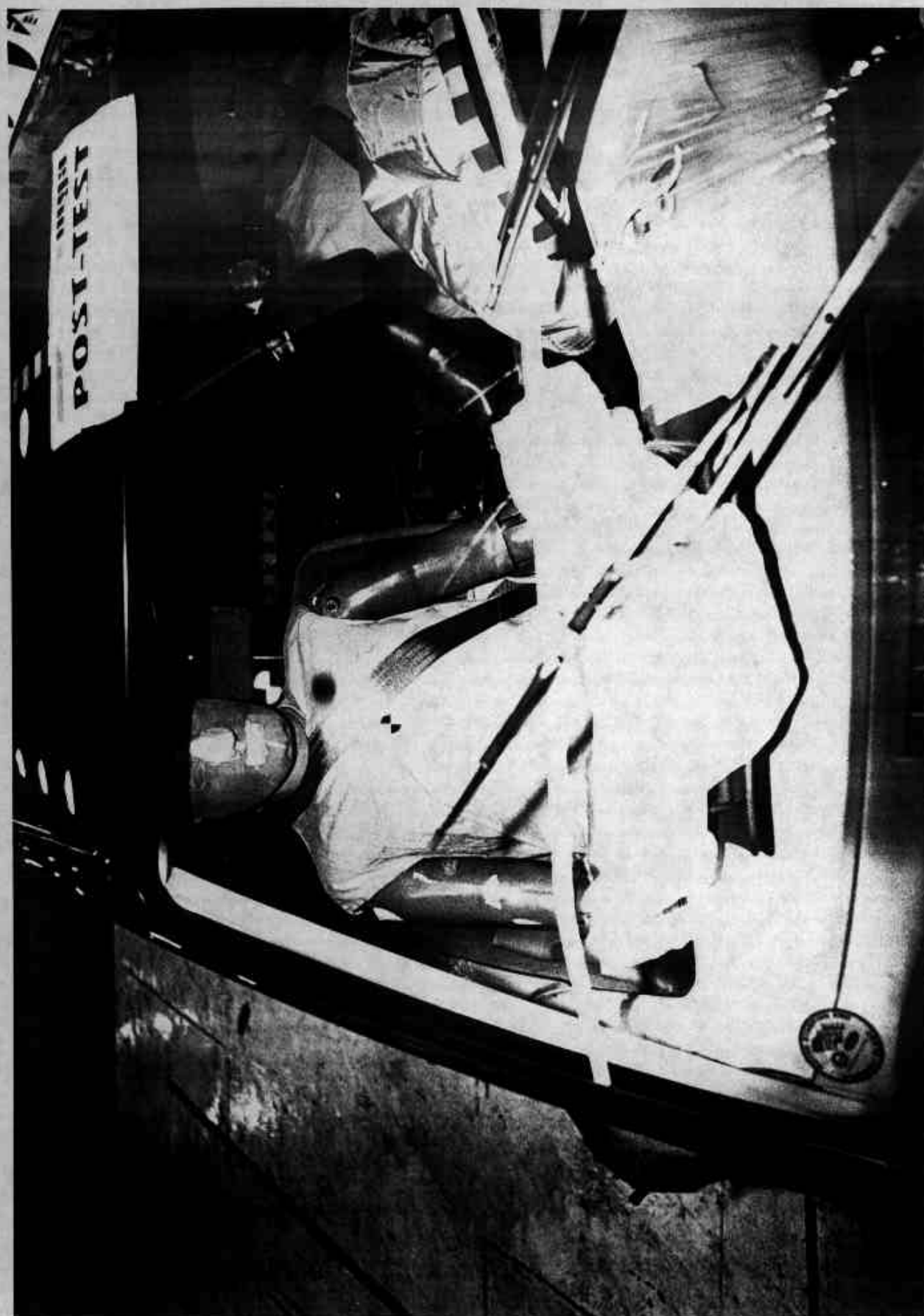


Photo No. A-42 - Post-Test Passenger Windshield View

A-42



A-43

Photo No. A-43 - Pre-Test Passenger Dummy Knee Bolster View



Photo No. A-44 - Post-Test Passenger Dummy Knee Bolster View



Photo No. A-45 - Post-Test Passenger Head Contact View (Airbag)



A-46

Photo No. A-46 - Post-Test Passenger Knee Contact View

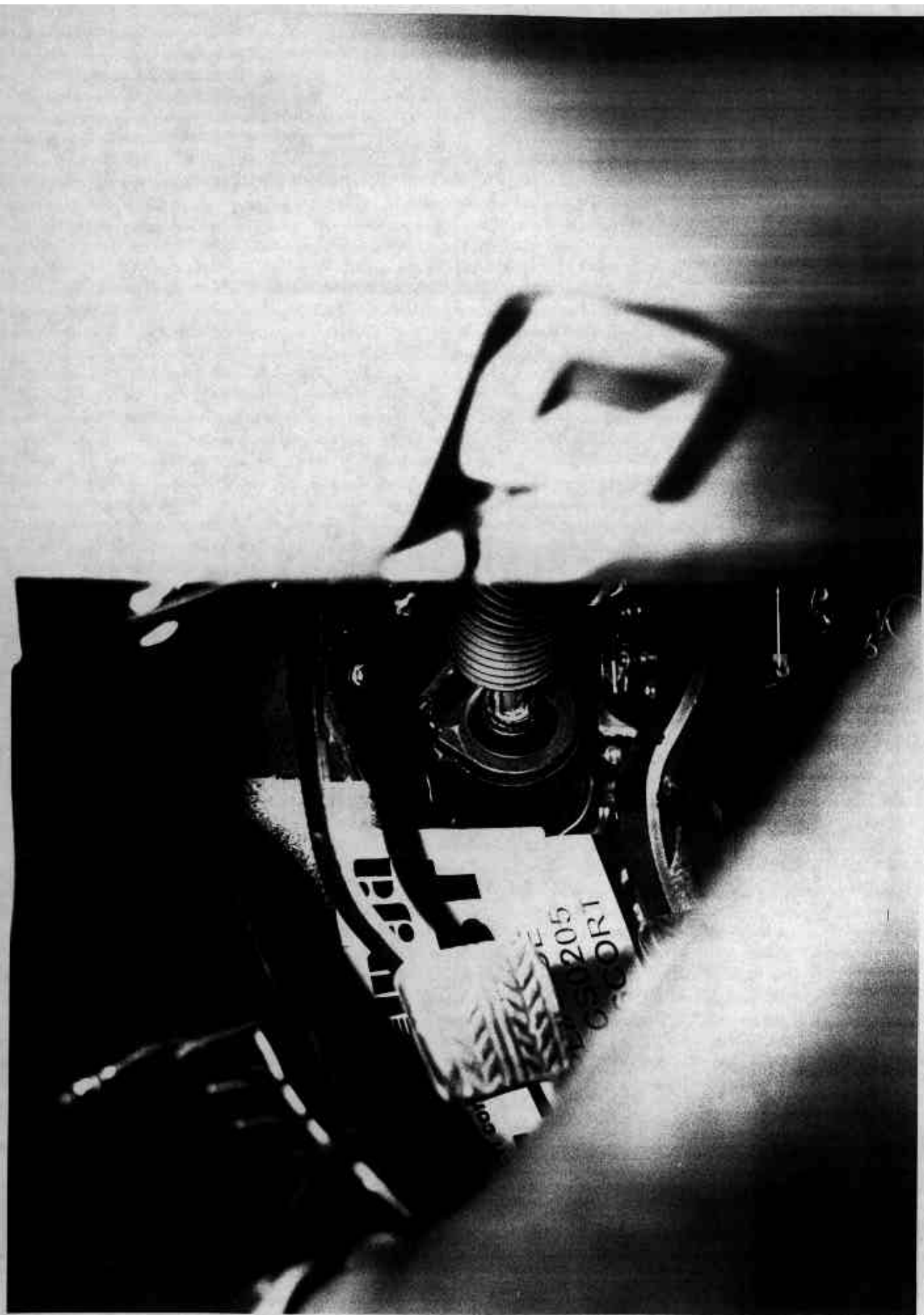


Photo No. A-47 - Pre-Test Steering Column at Firewall View (Interior)

A-47

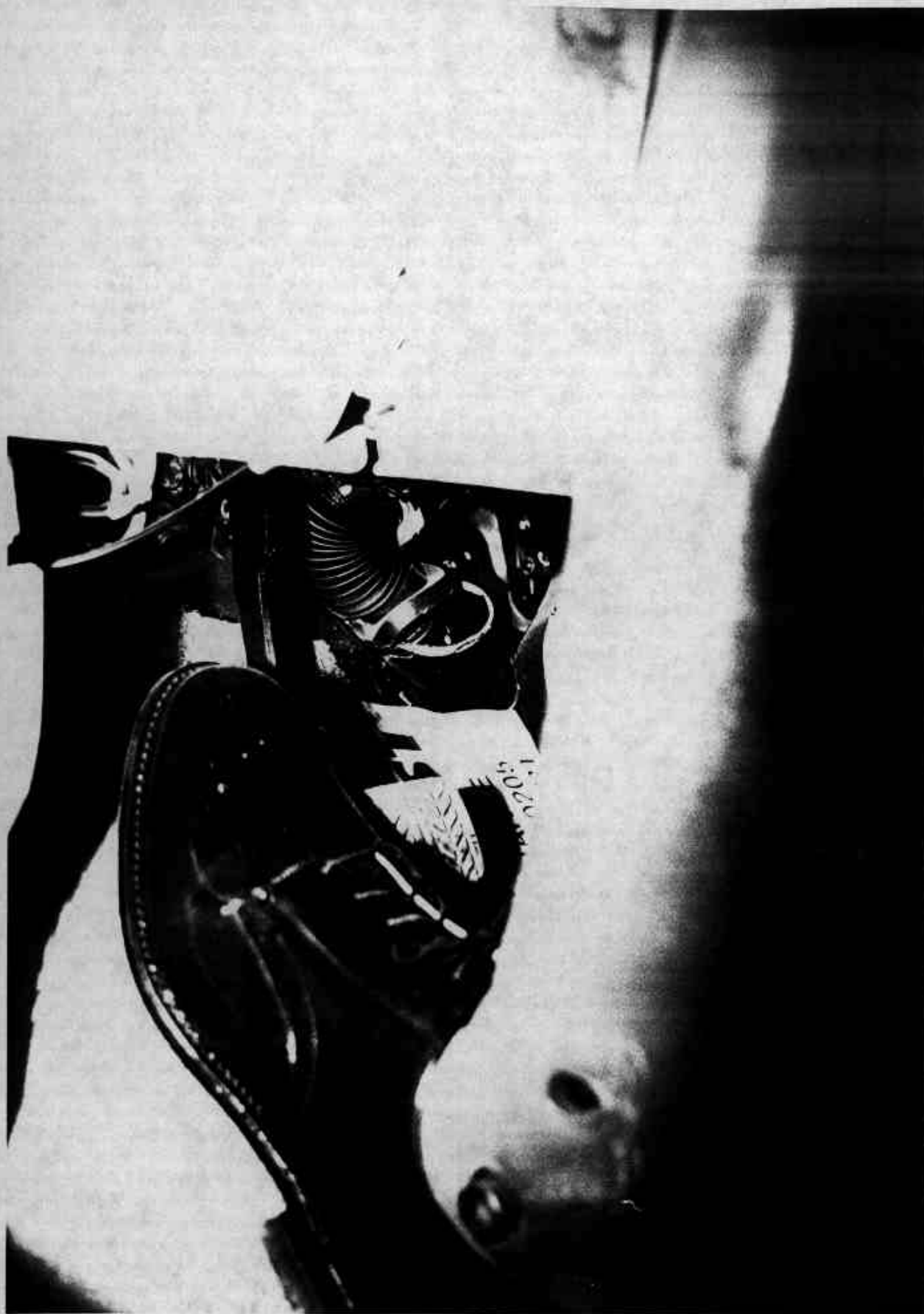


Photo No. A-48 - Post-Test Steering Column at Firewall View (Interior)

A-48

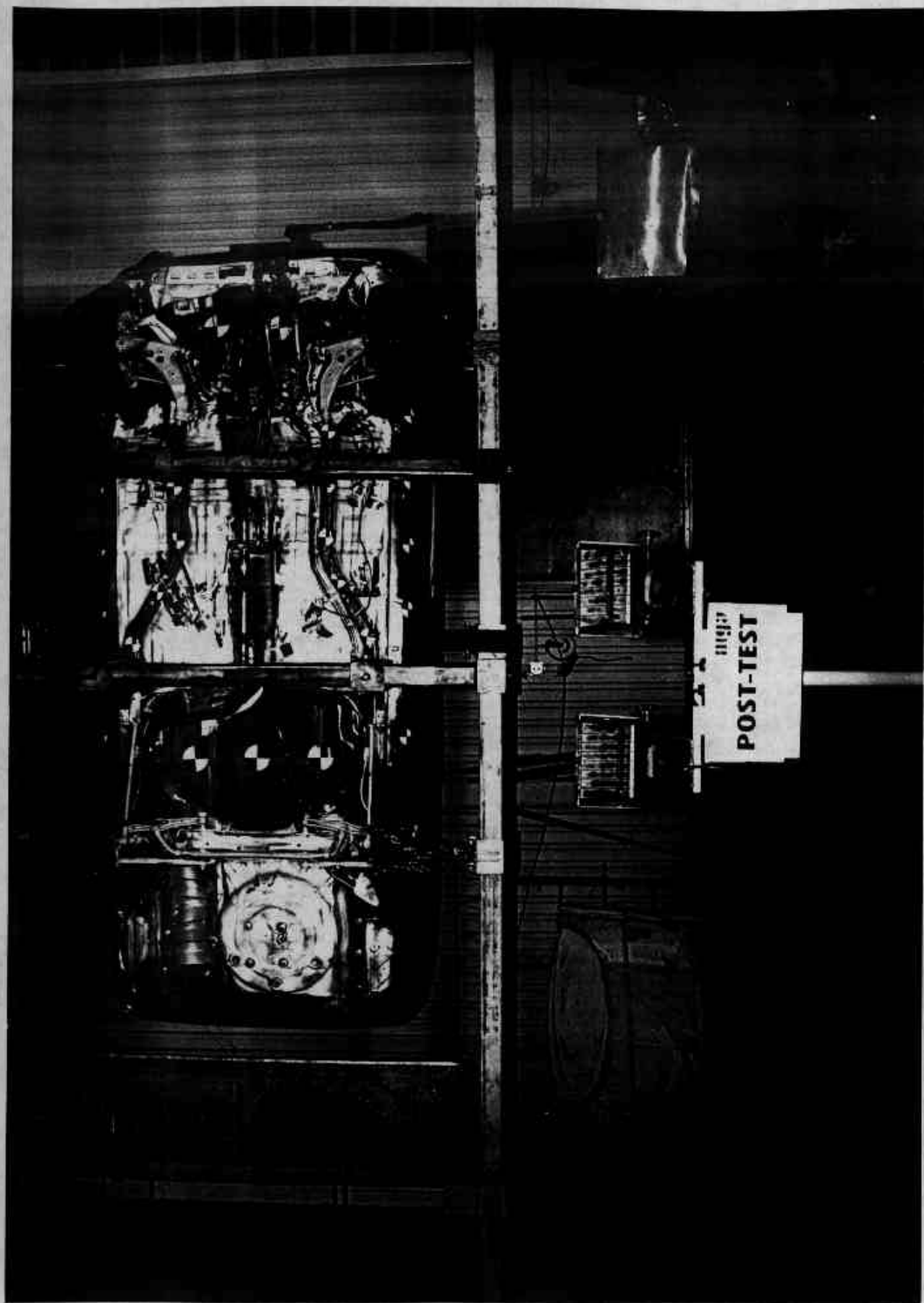


Photo No. A-49 - Vehicle Rollover - 90°

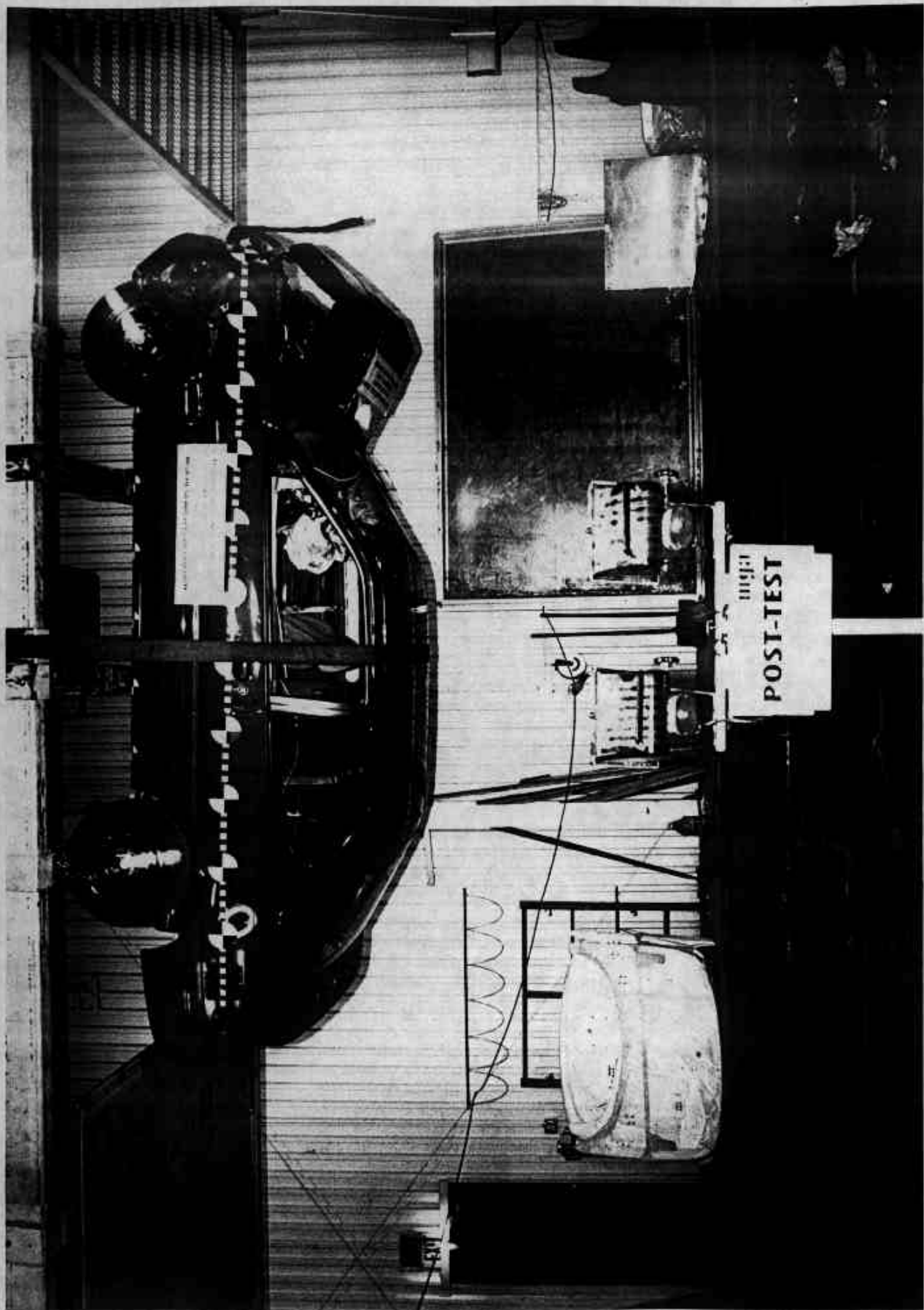


Photo No. A-50 - Vehicle Rollover - 180°

A-50

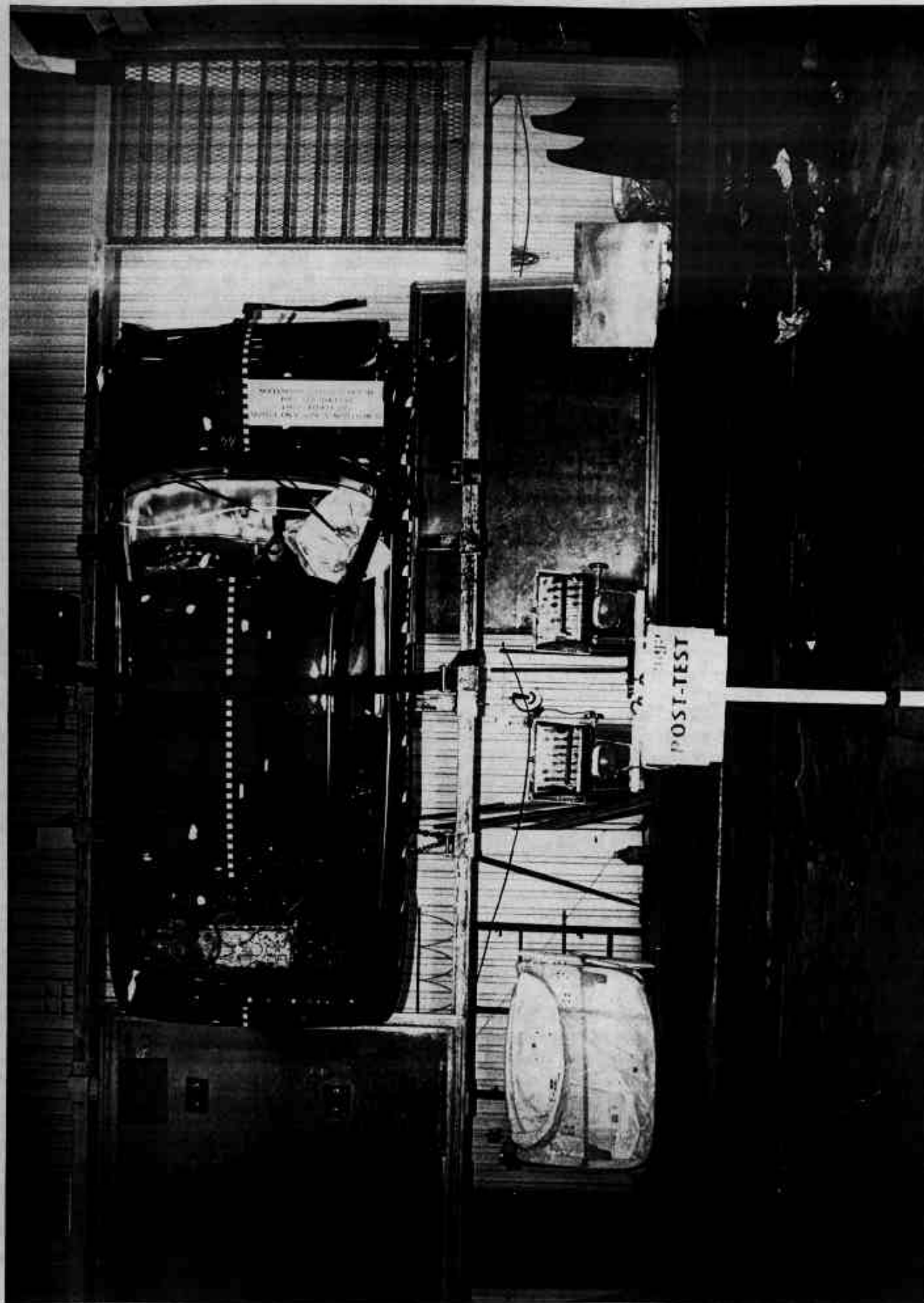
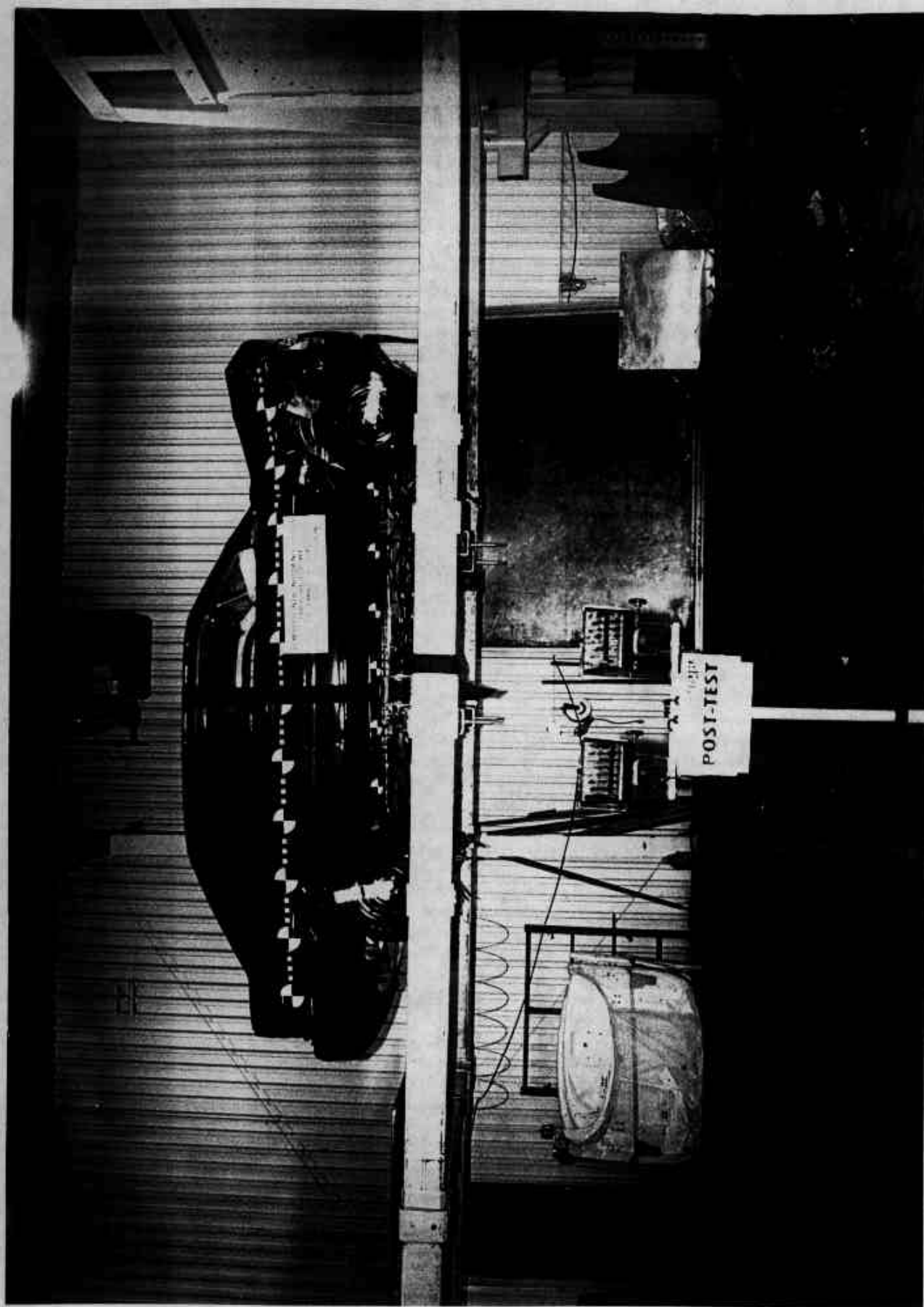


Photo No. A-51 - Vehicle Rollover - 279°

A-51



A-52

Photo No. A-52 - Vehicle Rollover - 360°

[illegible]

Photo No. A-54 - Vehicle Tire Placard

APPENDIX B
DATA PLOTS

TABLE OF DATA PLOTS

<u>Description</u>	<u>Filter Class</u>	<u>Page No.</u>
Figure B-1 - Driver Head X Acceleration vs. Time	1000	B-1
Figure B-2 - Driver Head Y Acceleration vs. Time	1000	B-2
Figure B-3 - Driver Head Z Acceleration vs. Time	1000	B-3
Figure B-4 - Driver Head Resultant Acceleration vs. Time	1000	B-4
Figure B-5 - Driver Chest X Acceleration vs. Time	180	B-5
Figure B-6 - Driver Chest Y Acceleration vs. Time	180	B-6
Figure B-7 - Driver Chest Z Acceleration vs. Time	180	B-7
Figure B-8 - Driver Chest Resultant Acceleration vs. Time	180	B-8
Figure B-9 - Driver Left Femur Force vs. Time	600	B-9
Figure B-10 - Driver Right Femur Force vs. Time	600	B-10
Figure B-11 - Passenger Head X Acceleration vs. Time	1000	B-11
Figure B-12 - Passenger Head Y Acceleration vs. Time	1000	B-12
Figure B-13 - Passenger Head Z Acceleration vs. Time	1000	B-13
Figure B-14 - Passenger Head Resultant Acceleration vs. Time	1000	B-14
Figure B-15 - Passenger Chest X Acceleration vs. Time	180	B-15
Figure B-16 - Passenger Chest Y Acceleration vs. Time	180	B-16
Figure B-17 - Passenger Chest Z Acceleration vs. Time	180	B-17
Figure B-18 - Passenger Chest Resultant Acceleration vs. Time	180	B-18
Figure B-19 - Passenger Left Femur Force vs. Time	600	B-19
Figure B-20 - Passenger Right Femur Force vs. Time	600	B-20
Figure B-21 - Top of Engine Block X Acceleration vs. Time	60	B-21
Figure B-22 - Bottom of Engine Block X Acceleration vs. Time	60	B-22
Figure B-23 - Instrument Panel X Acceleration vs. Time	60	B-23
Figure B-24 - Left Rear Seat Crossmember X Acceleration vs. Time	60	B-24
Figure B-25 - Right Rear Seat Crossmember X Acceleration vs. Time	60	B-25
Figure B-26 - Left Brake Caliper X Acceleration vs. Time	60	B-26
Figure B-27 - Right Brake Caliper X Acceleration vs. Time	60	B-27
Figure B-28 - Trunk Floor Z Acceleration vs. Time	60	B-28

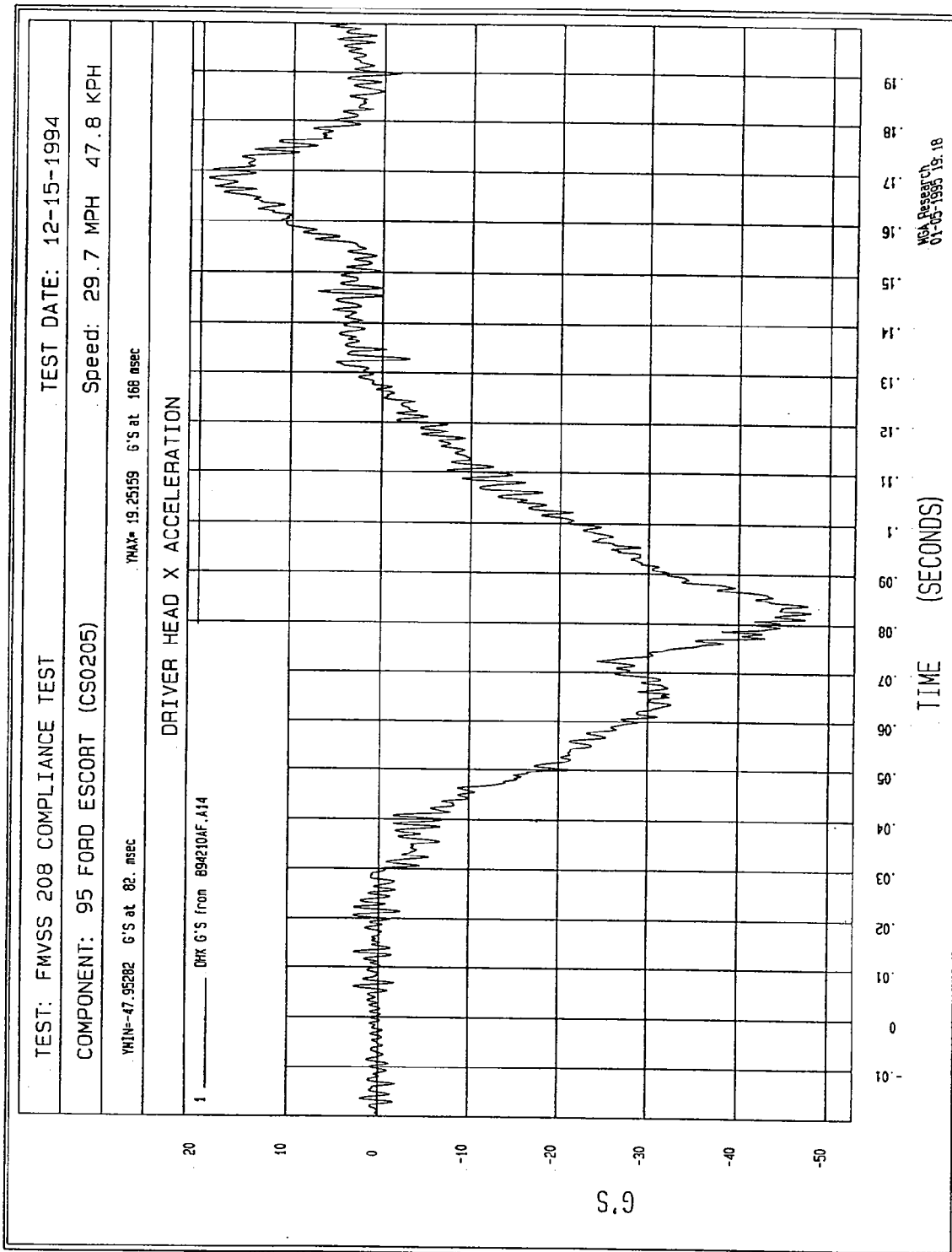


Figure B-1 - Driver Head X Acceleration vs. Time

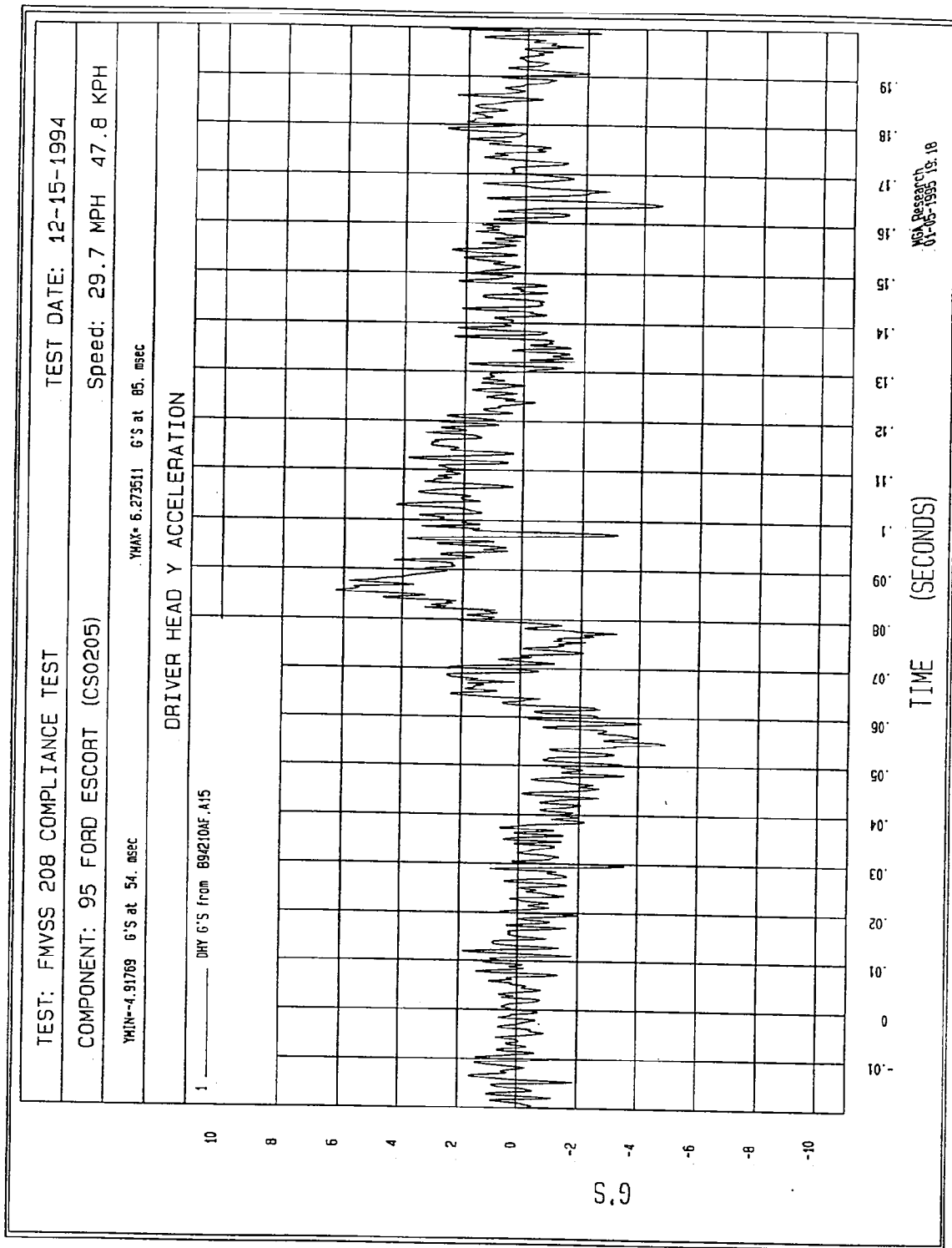


Figure B-2 - Driver Head Y Acceleration vs. Time

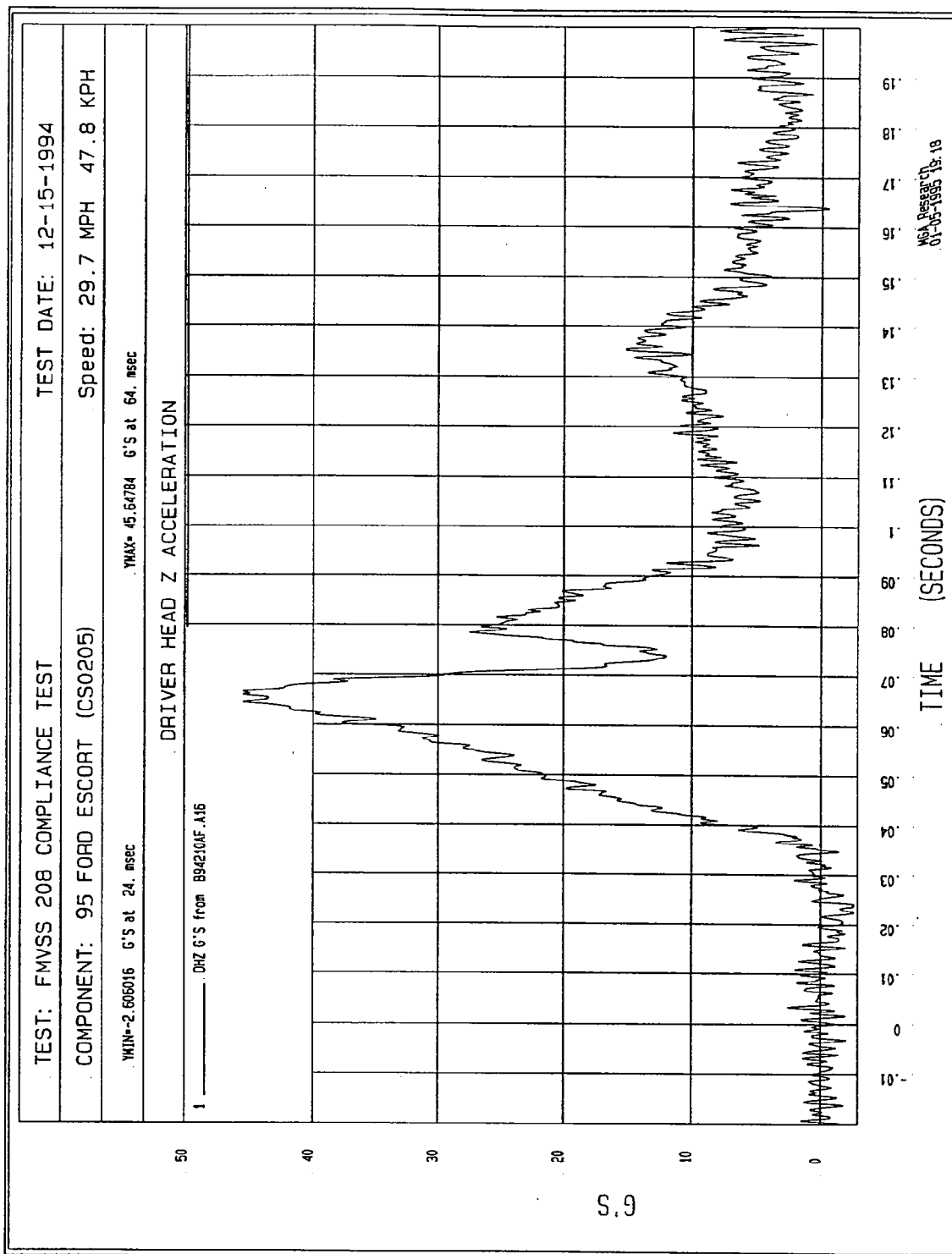


Figure B-3 - Driver Head Z Acceleration vs. Time

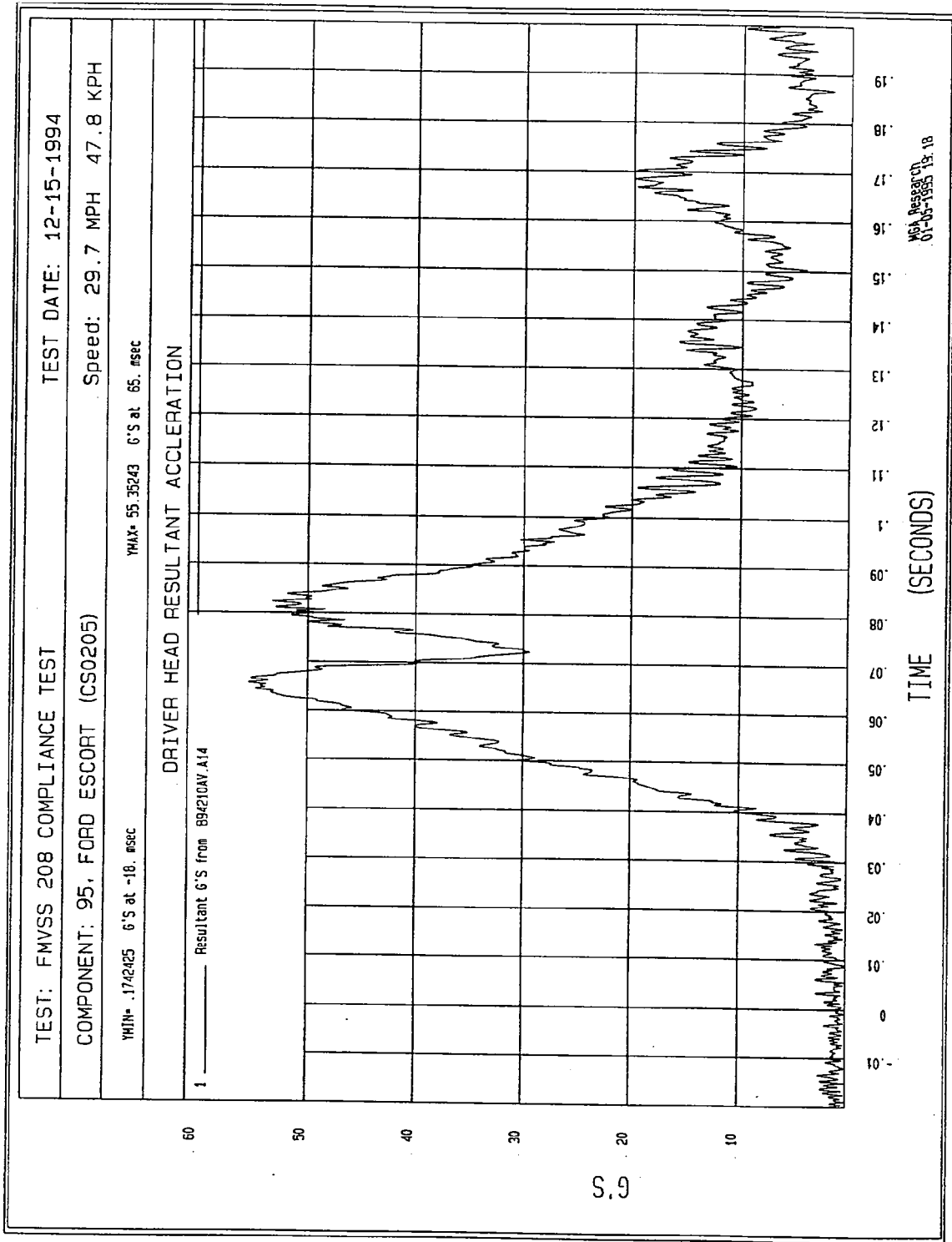


Figure B-4 - Driver Head Resultant Acceleration vs. Time

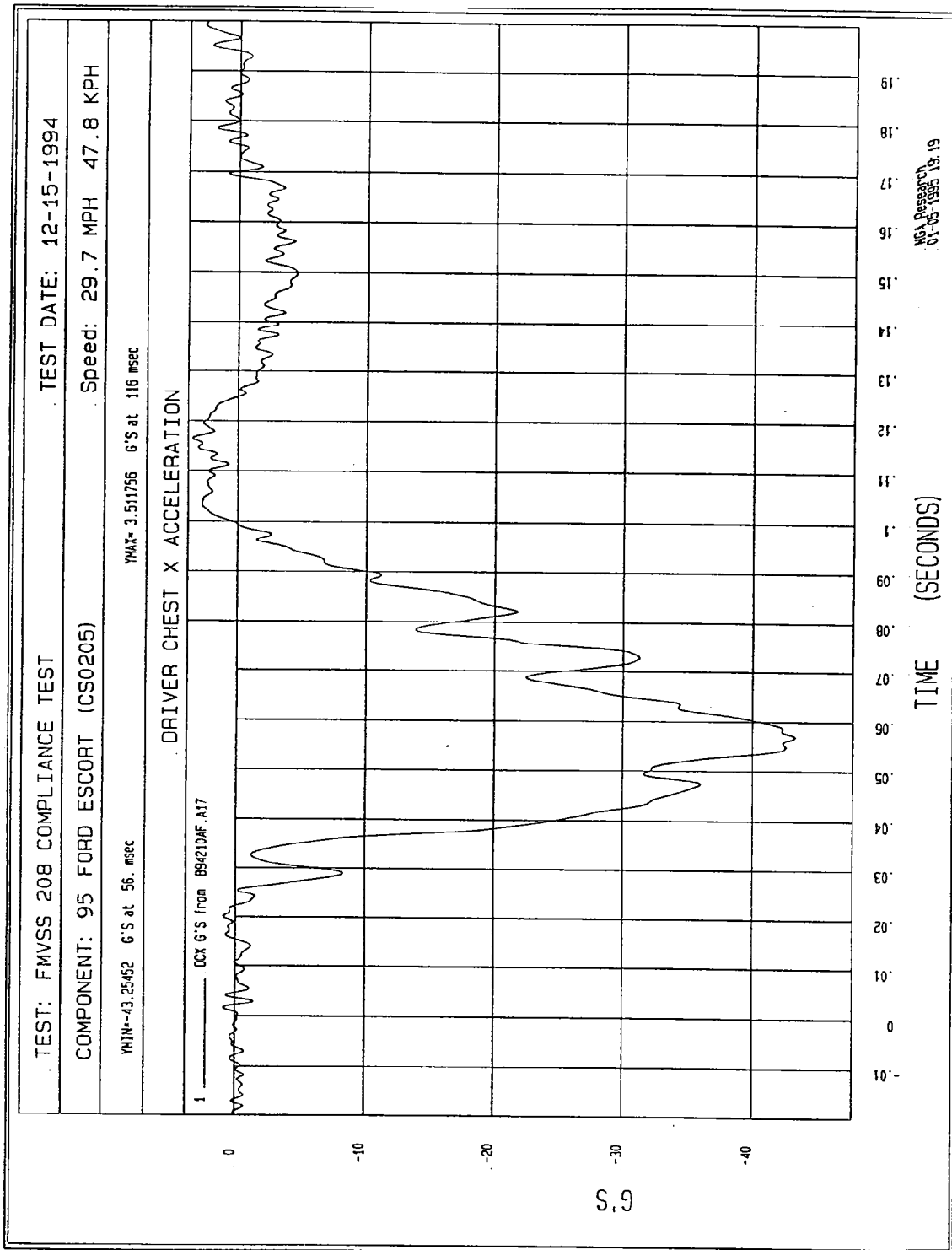


Figure B-5 - Driver Chest X Acceleration vs. Time

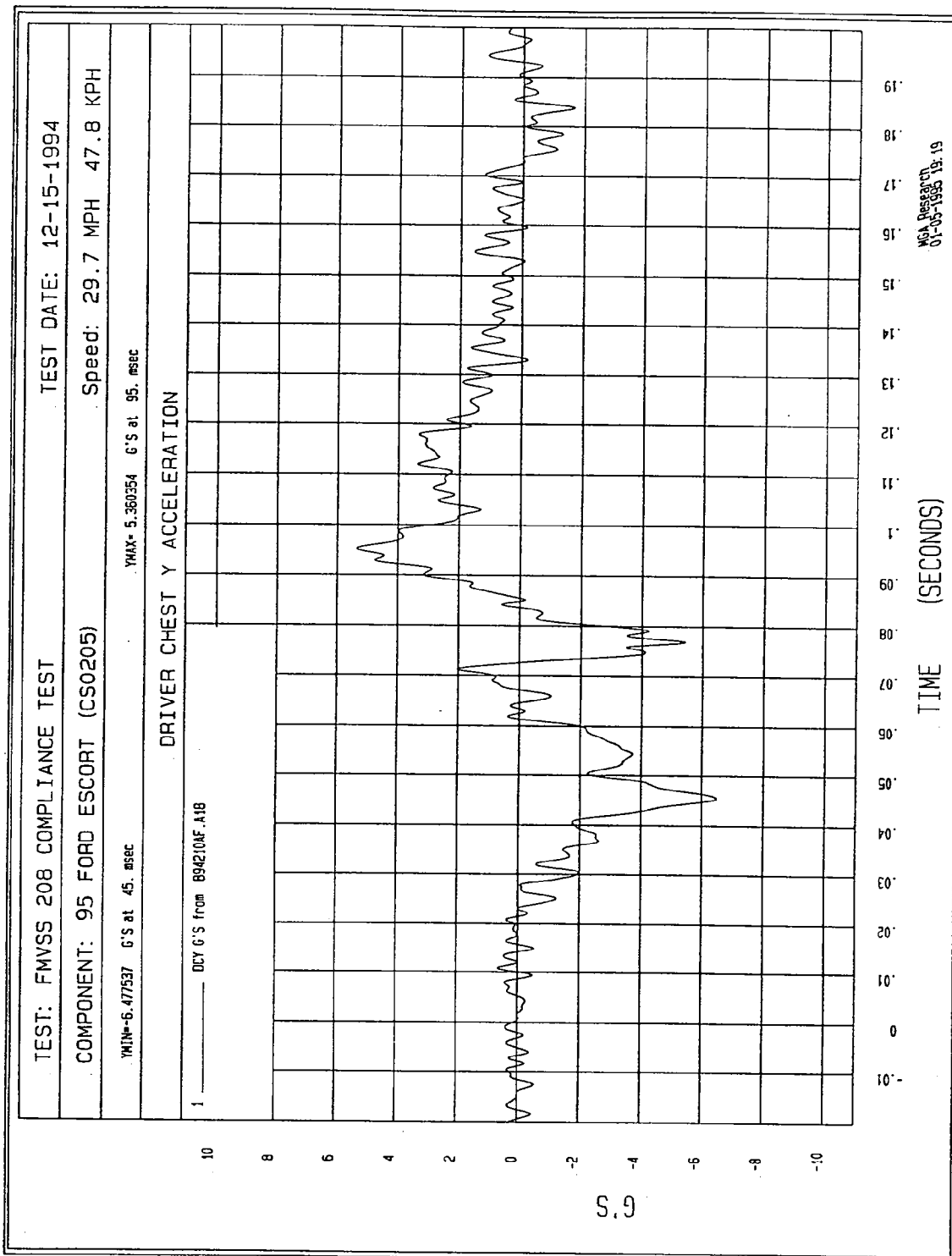


Figure B-6 - Driver Chest Y Acceleration vs. Time

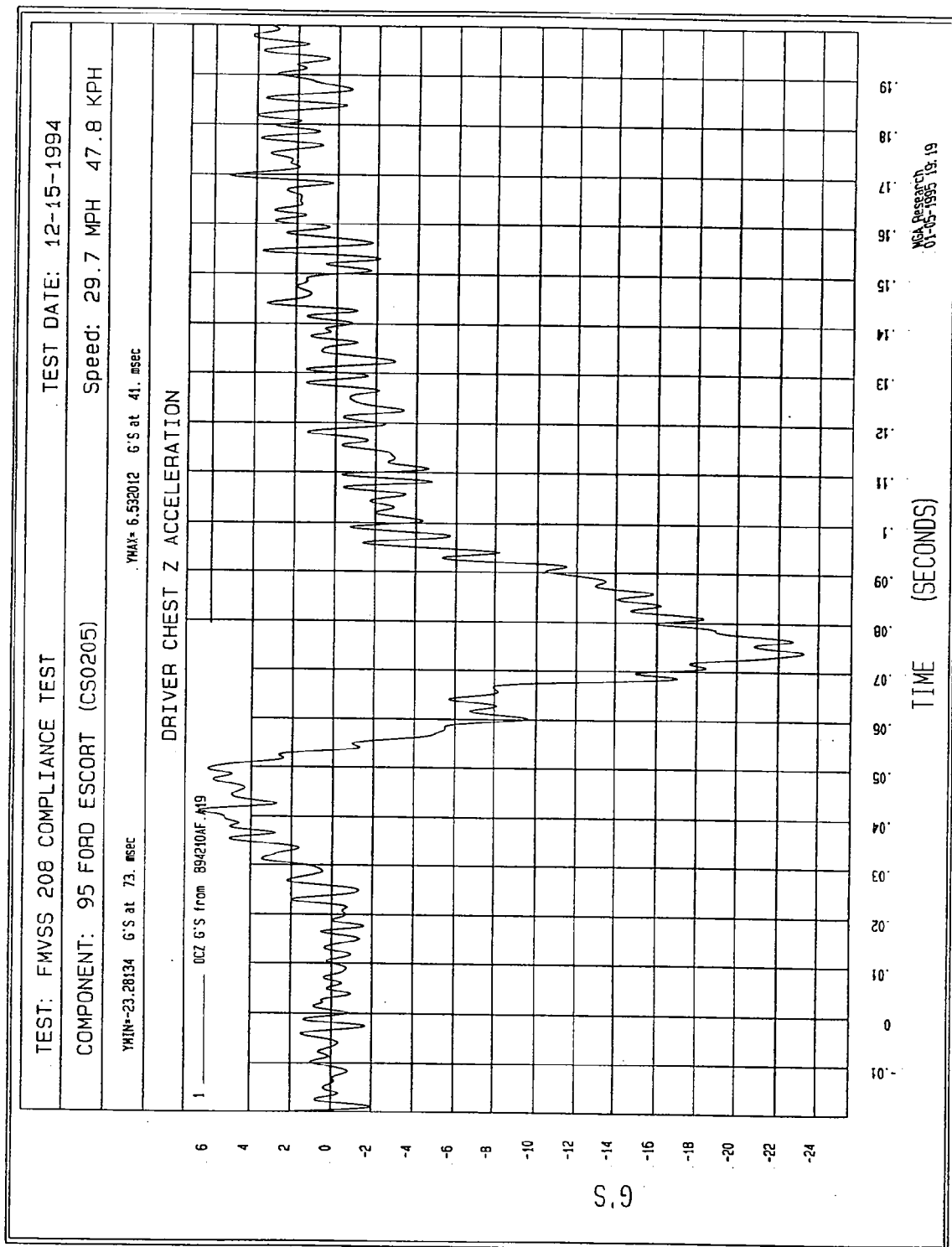


Figure B-7 - Driver Chest Z Acceleration vs. Time

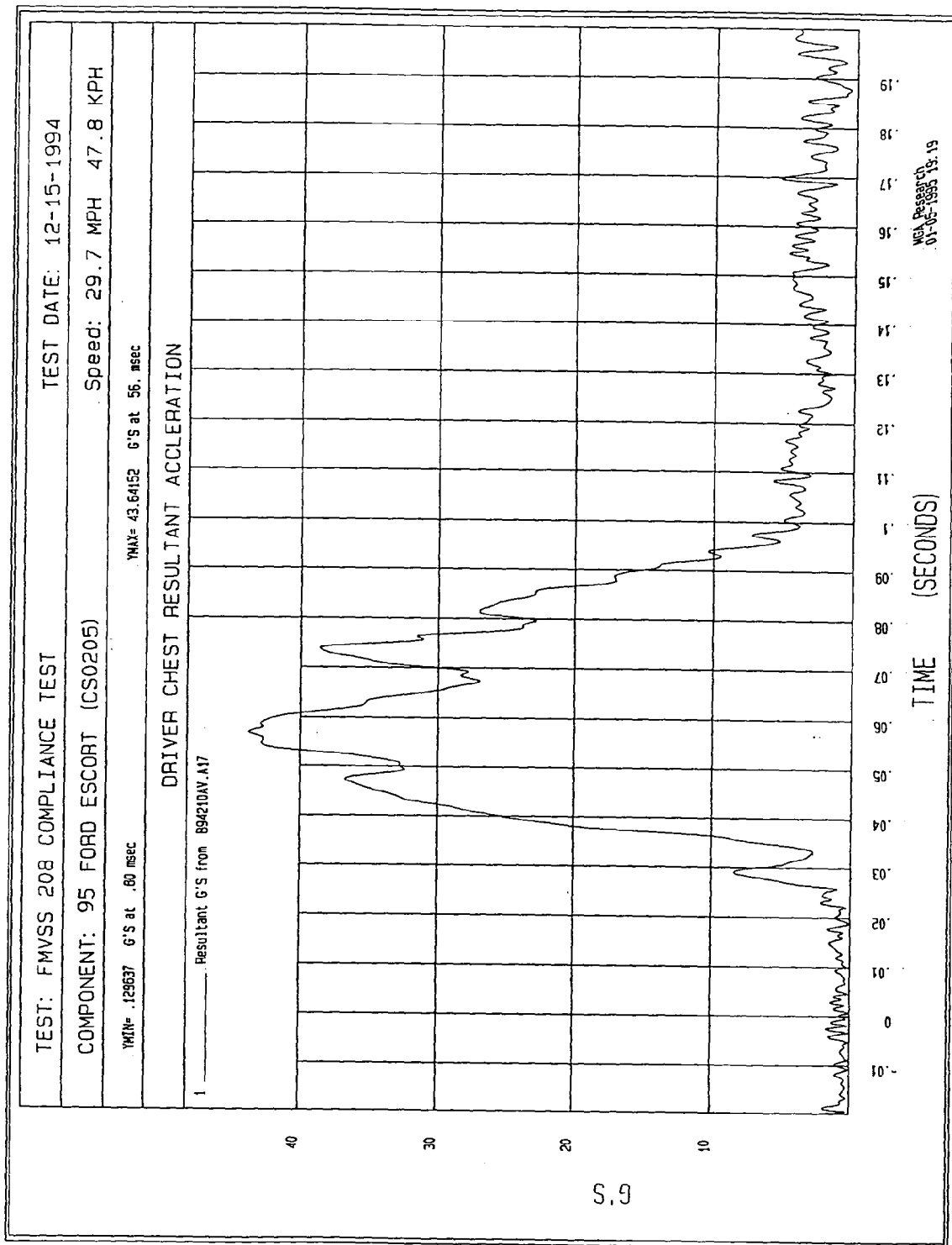


Figure B-8 - Driver Chest Resultant Acceleration vs. Time

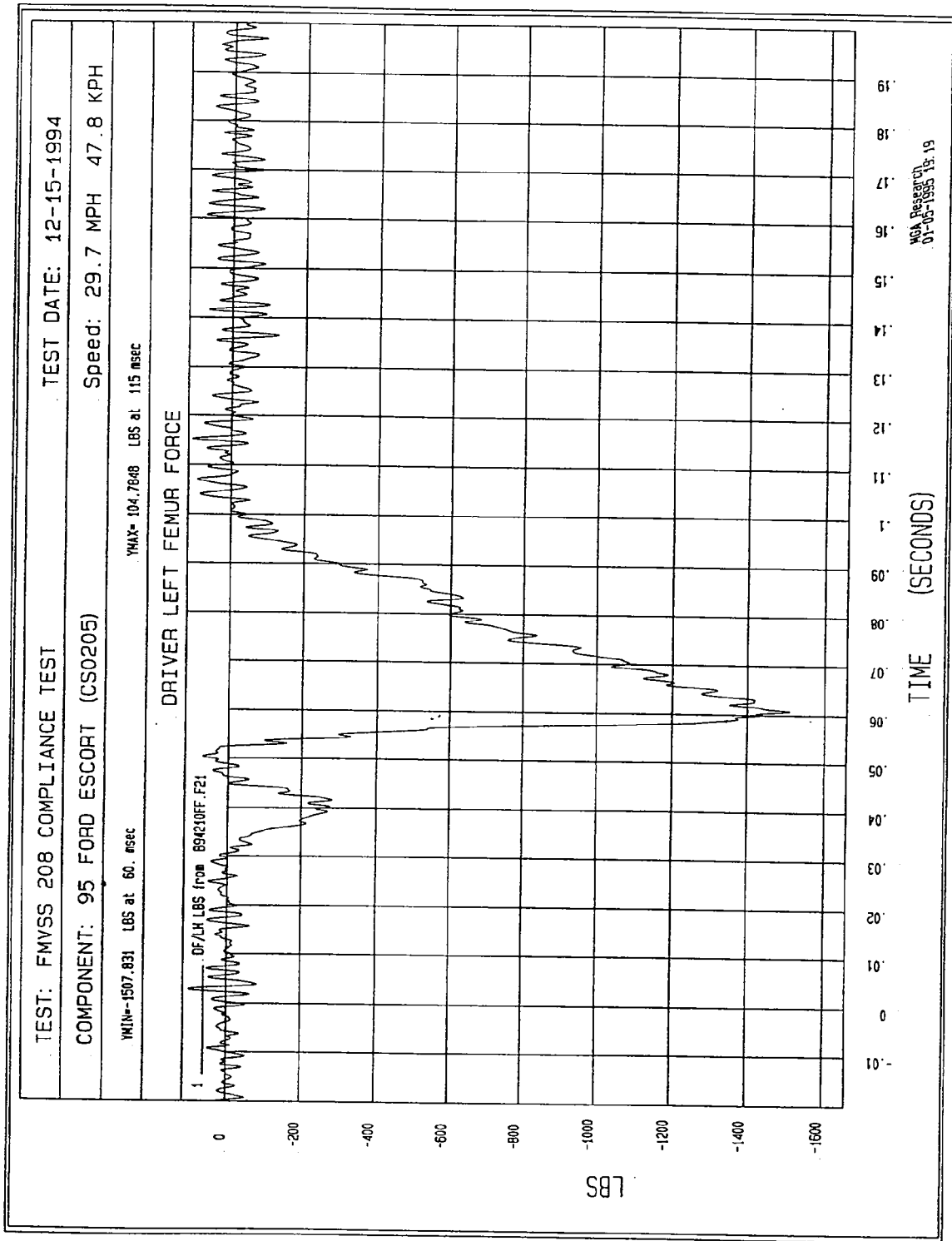


Figure B-9 - Driver Left Femur Force vs. Time

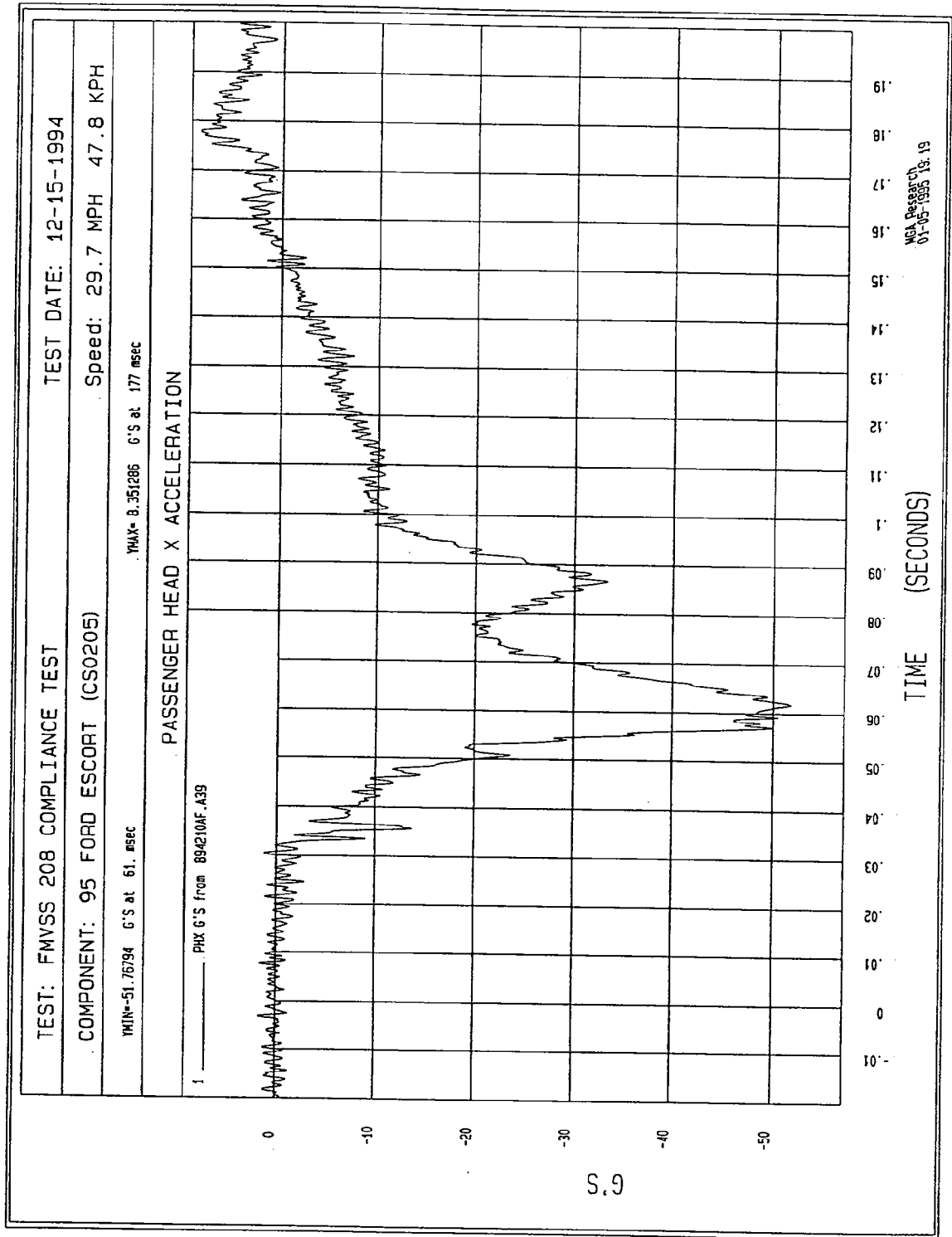


Figure B-11 - Passenger Head X Acceleration vs. Time

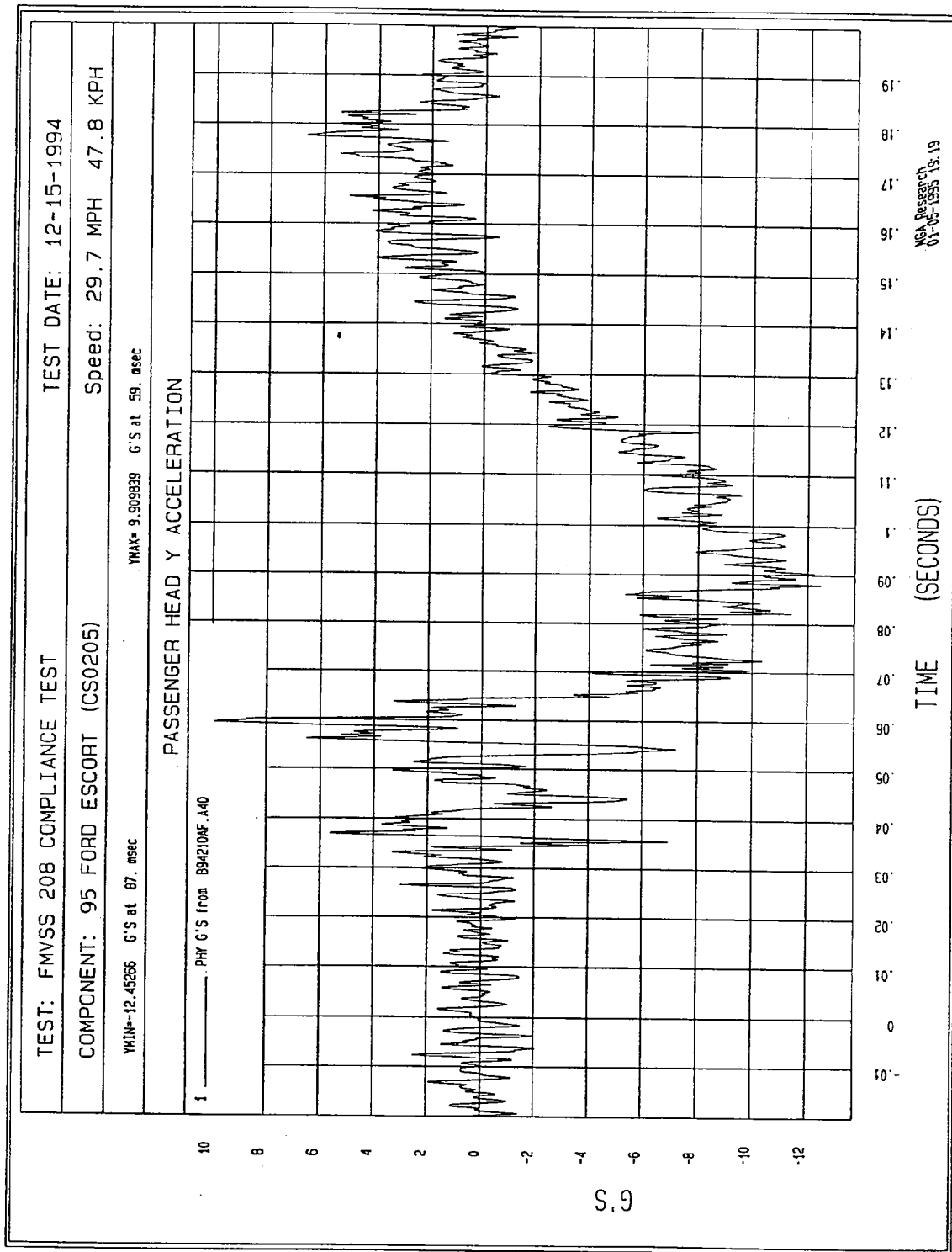


Figure B-12 - Passenger Head Y Acceleration vs. Time

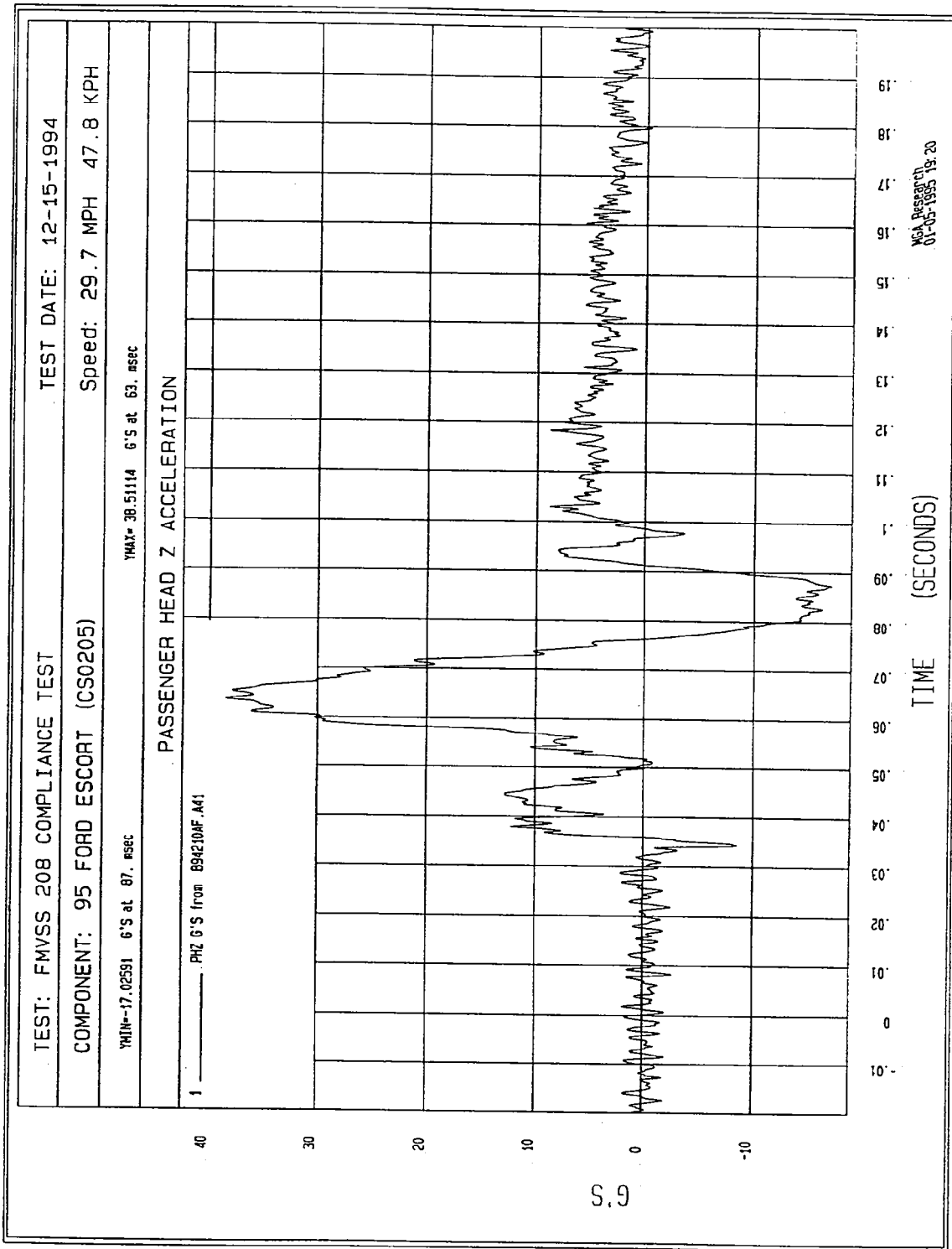


Figure B-13 - Passenger Head Z Acceleration vs. Time

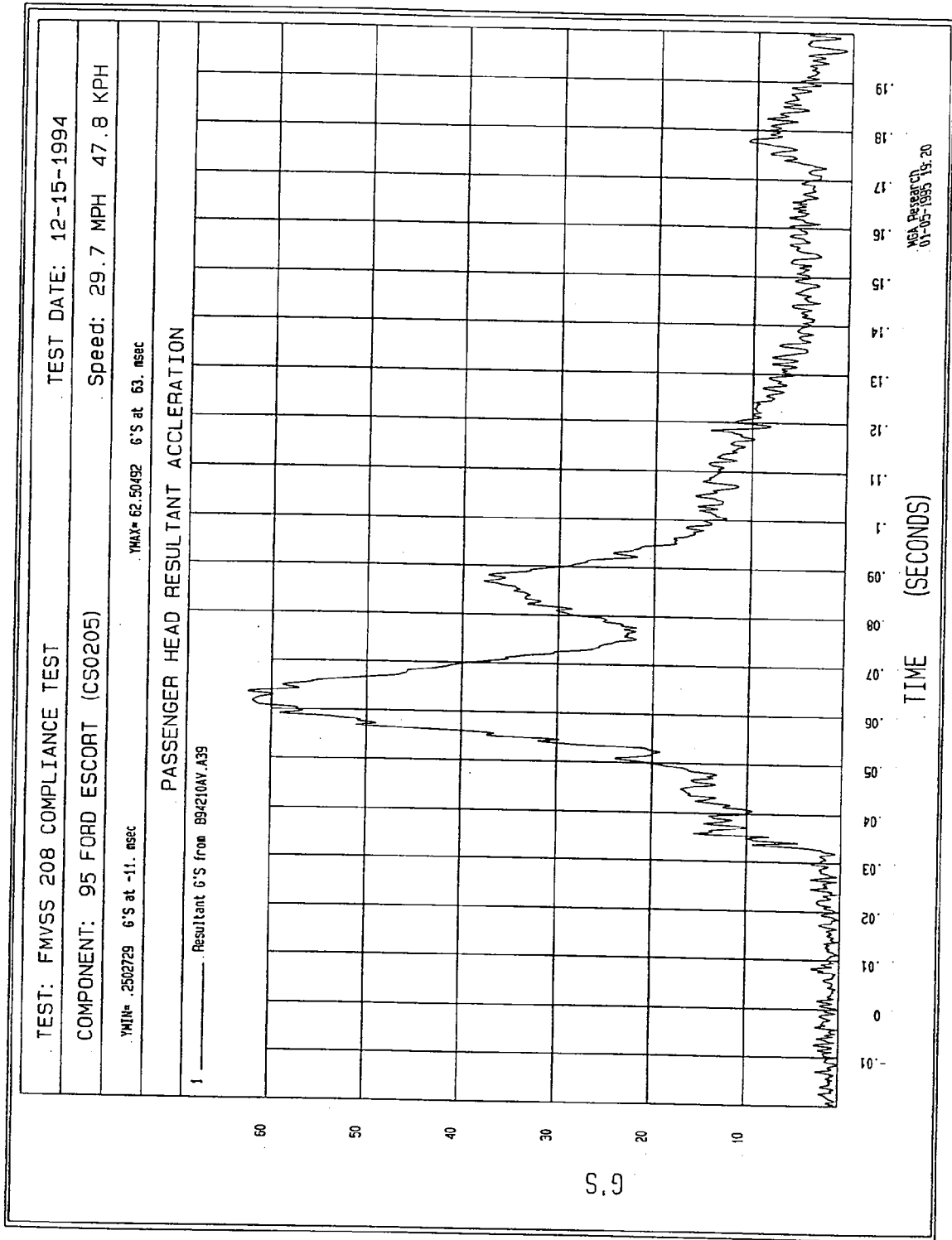


Figure B-14 - Passenger Head Resultant Acceleration vs. Time

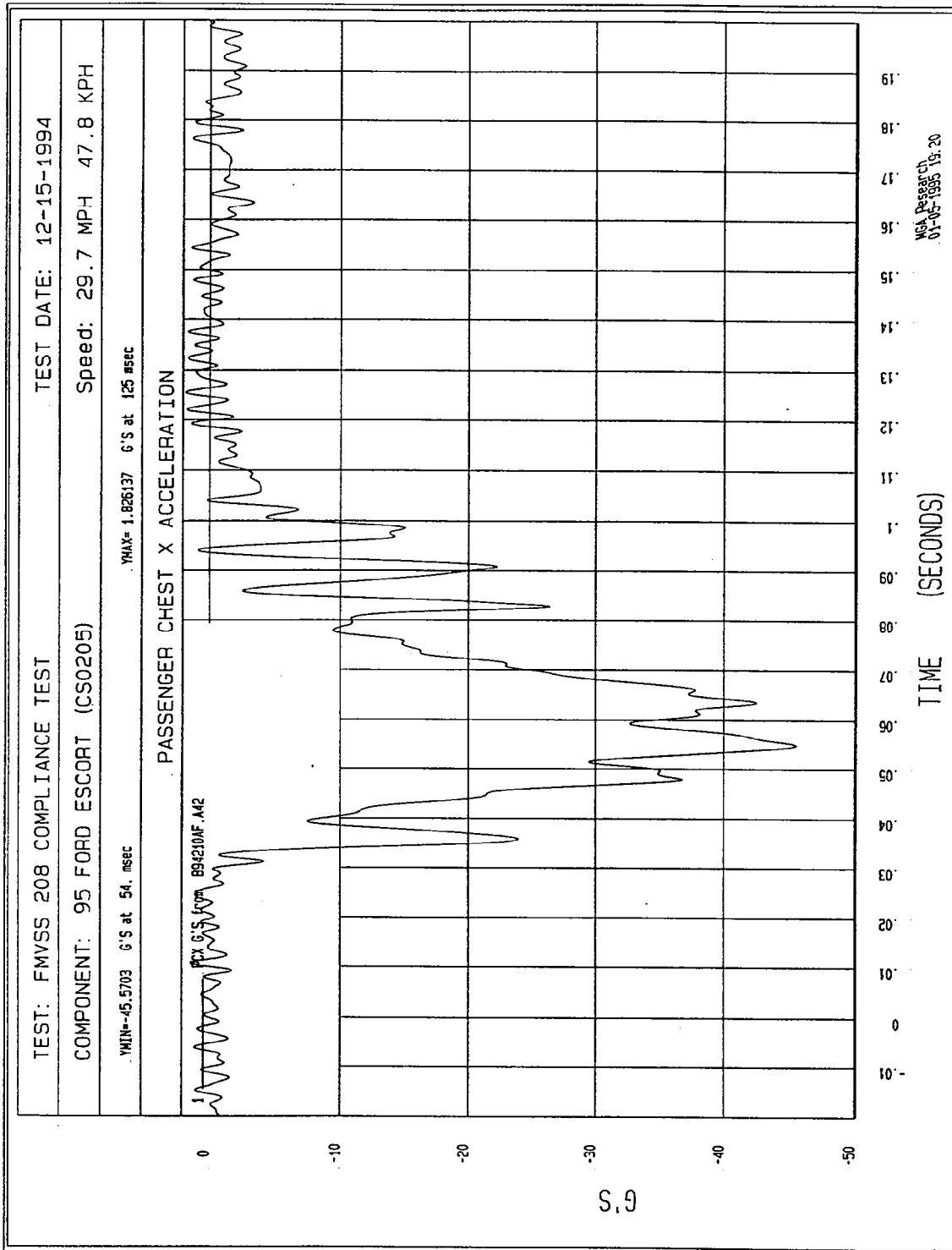


Figure B-15 - Passenger Chest X Acceleration vs. Time

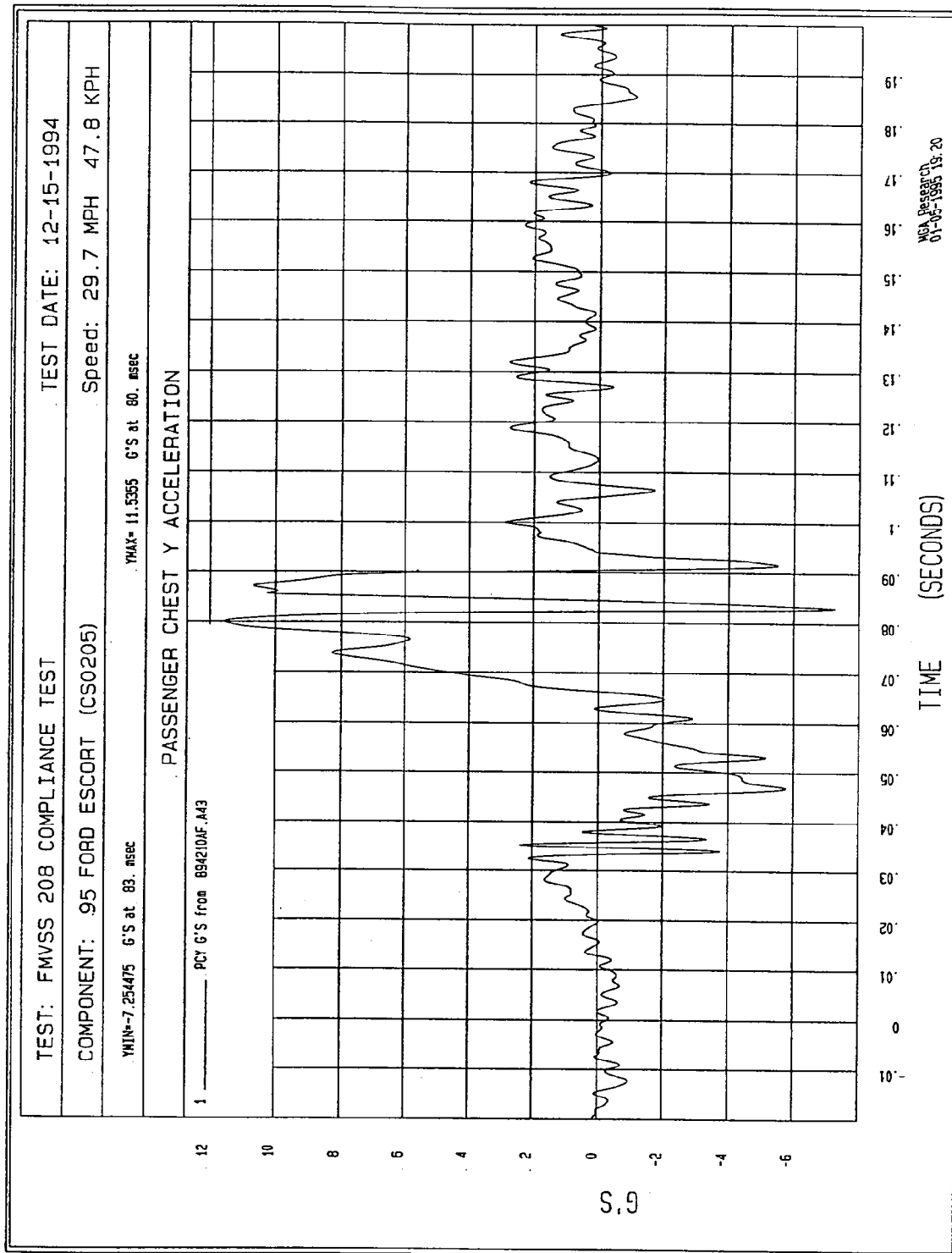


Figure B-16 - Passenger Chest Y Acceleration vs. Time

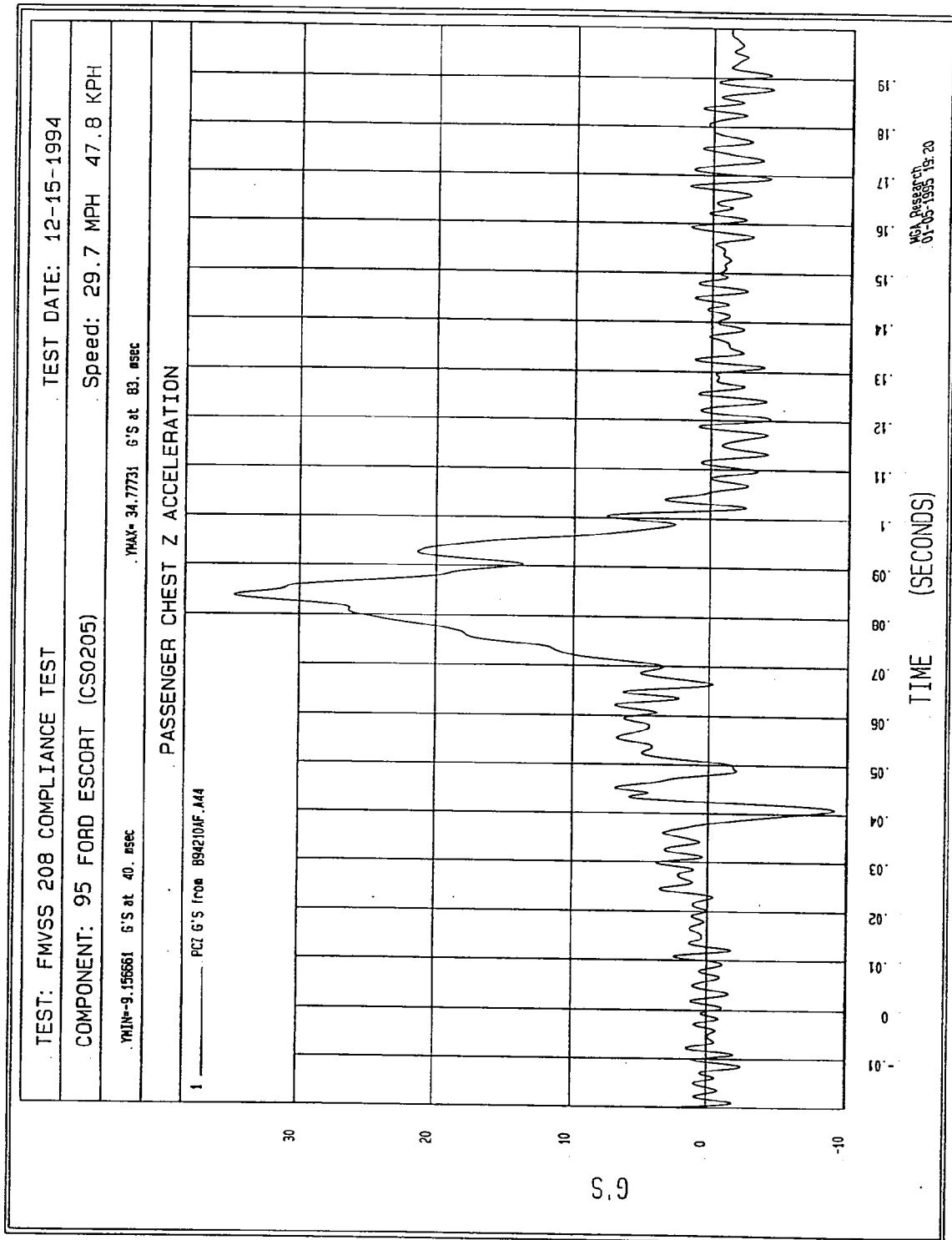


Figure B-17 - Passenger Chest Z Acceleration vs. Time

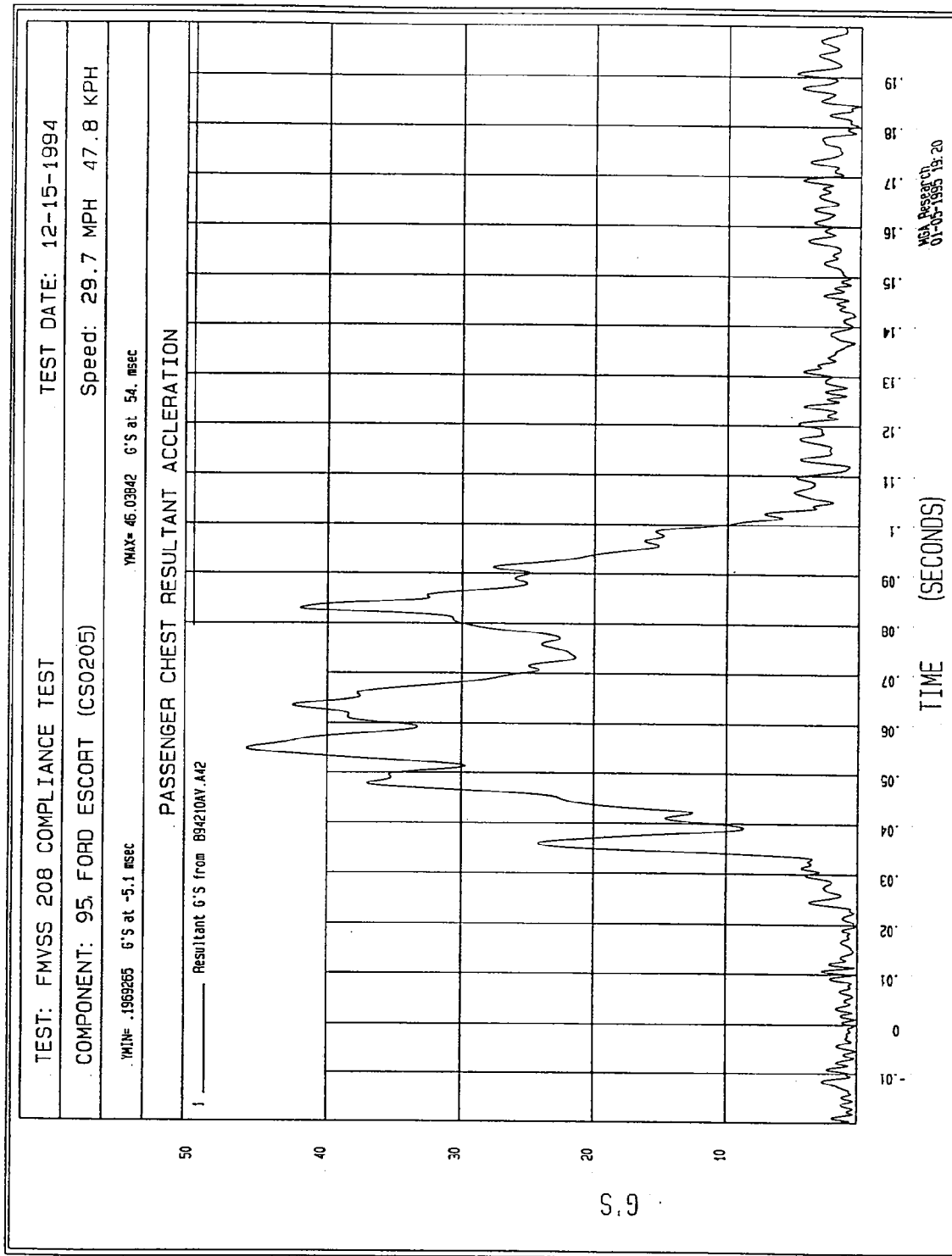


Figure B-18 - Passenger Chest Resultant Acceleration vs. Time

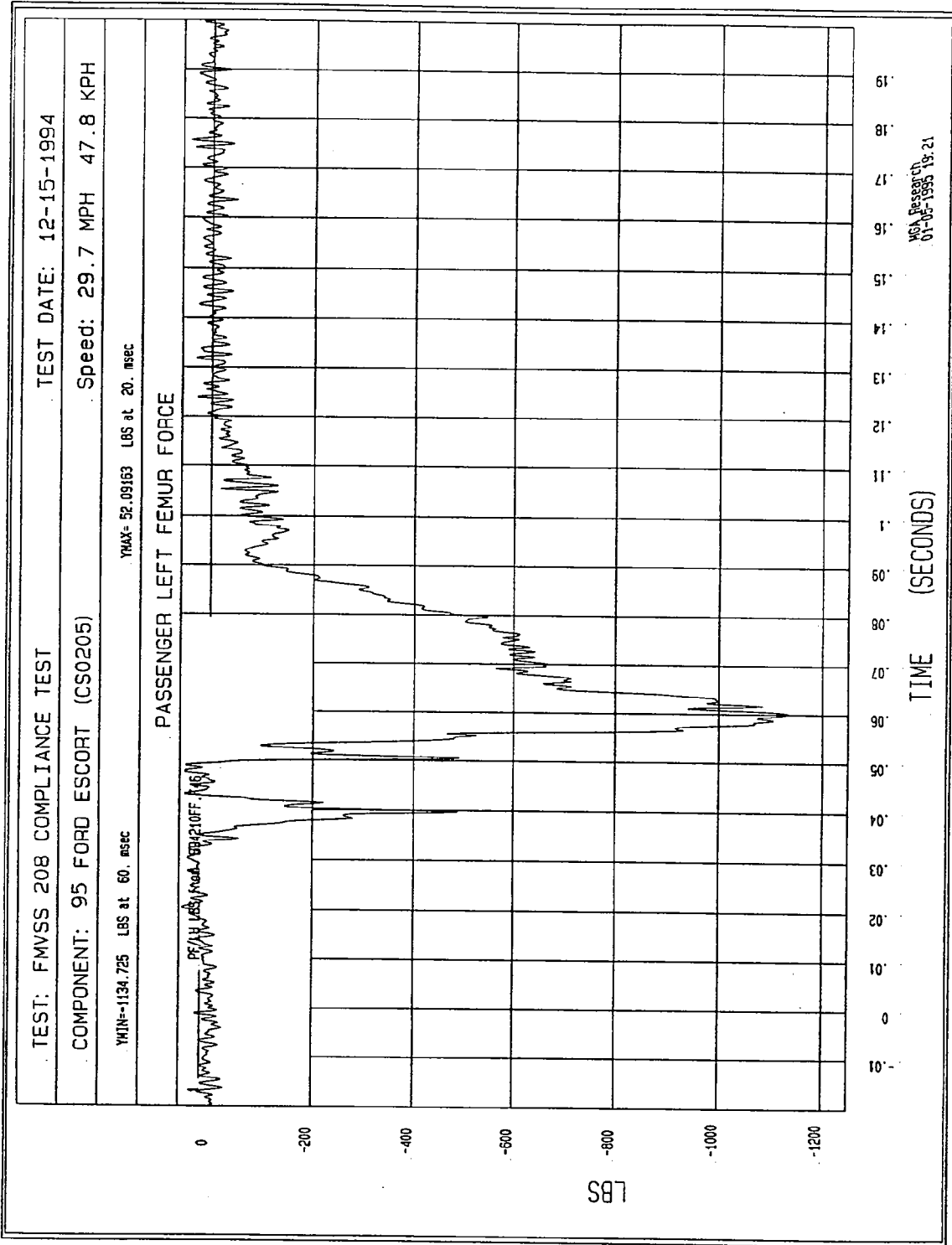


Figure B-19 - Passenger Left Femur Force vs. Time

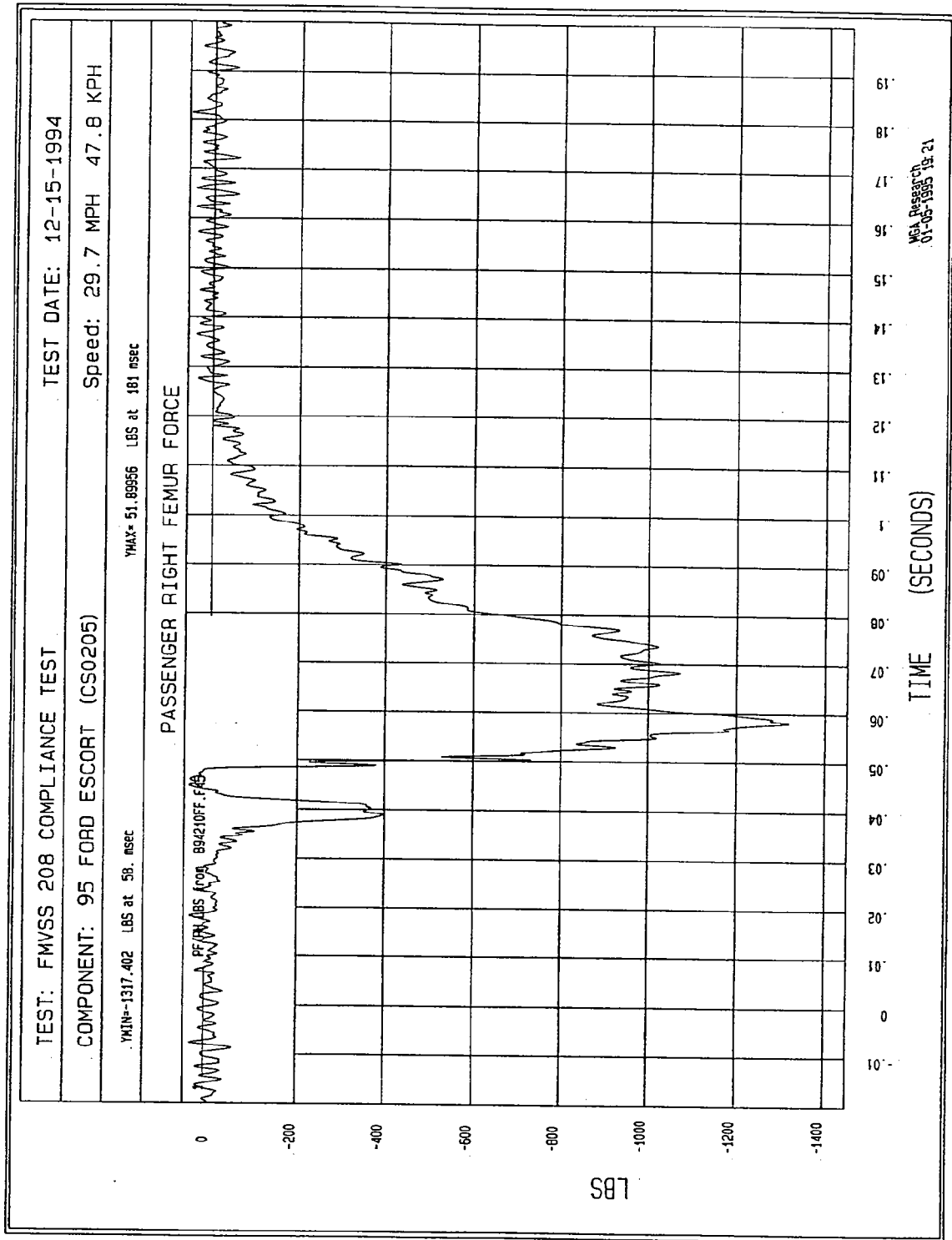


Figure B-20 - Passenger Right Femur Force vs. Time

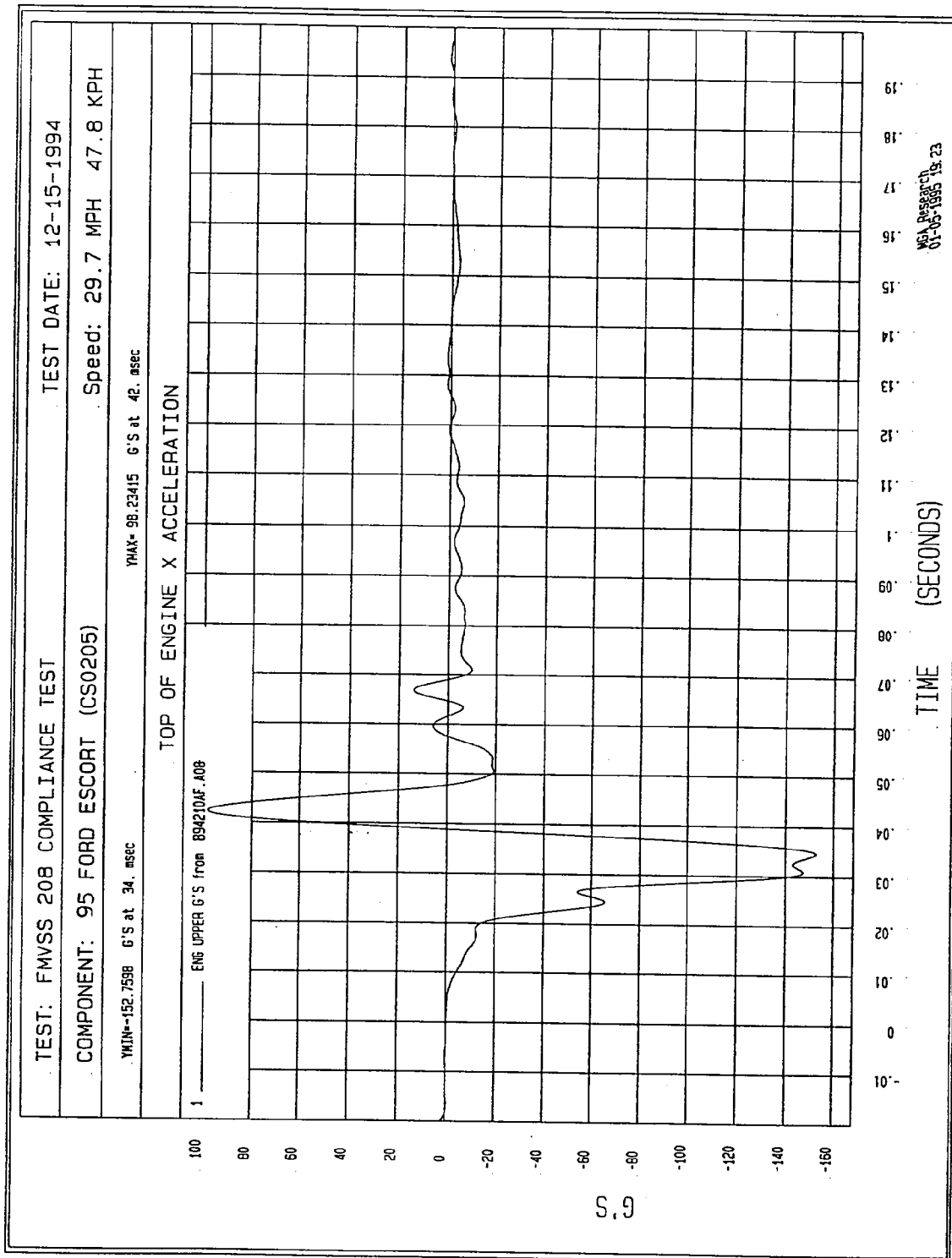


Figure B-21 - Top of Engine Block X Acceleration vs. Time

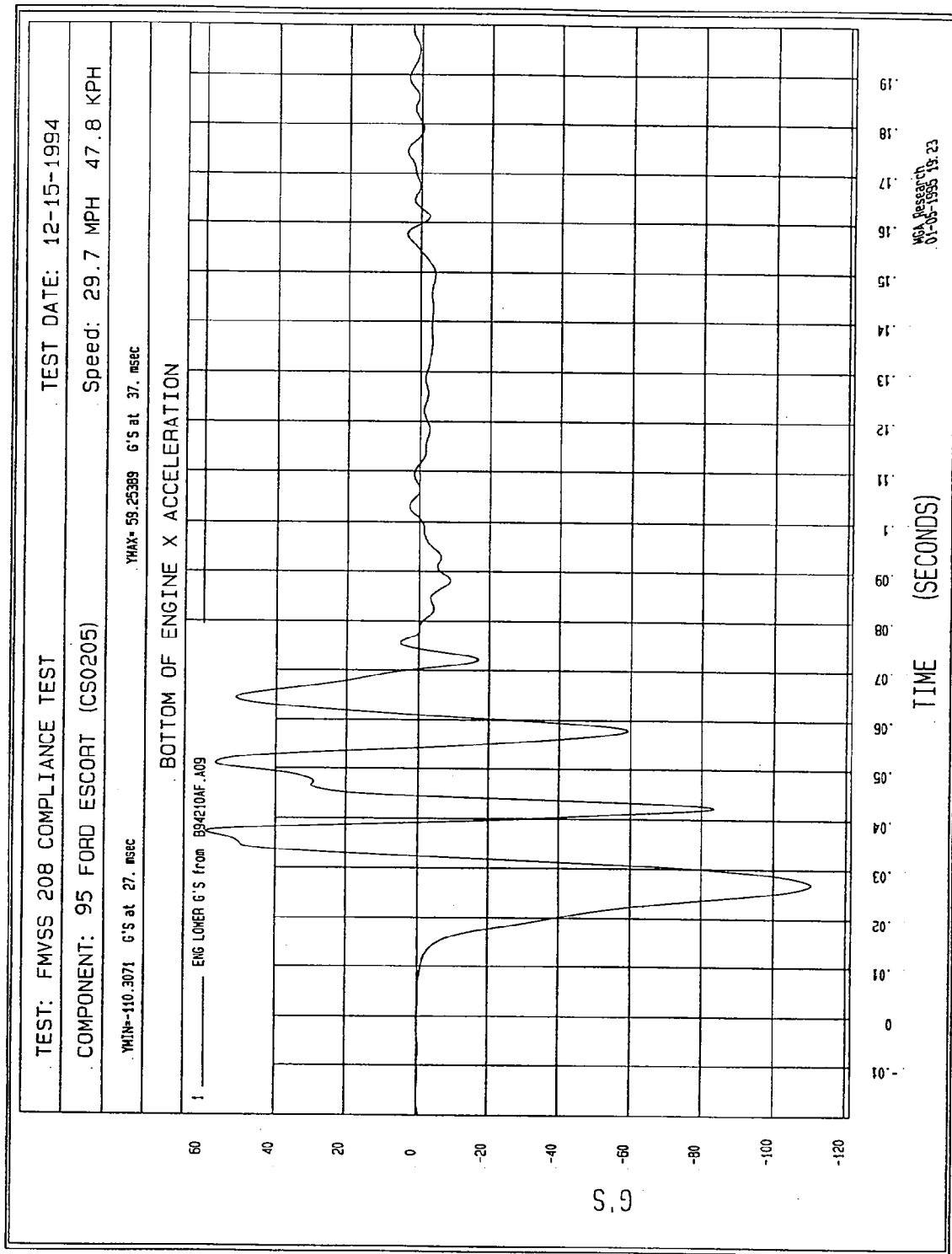


Figure B-22 - Bottom of Engine Block X Acceleration vs. Time

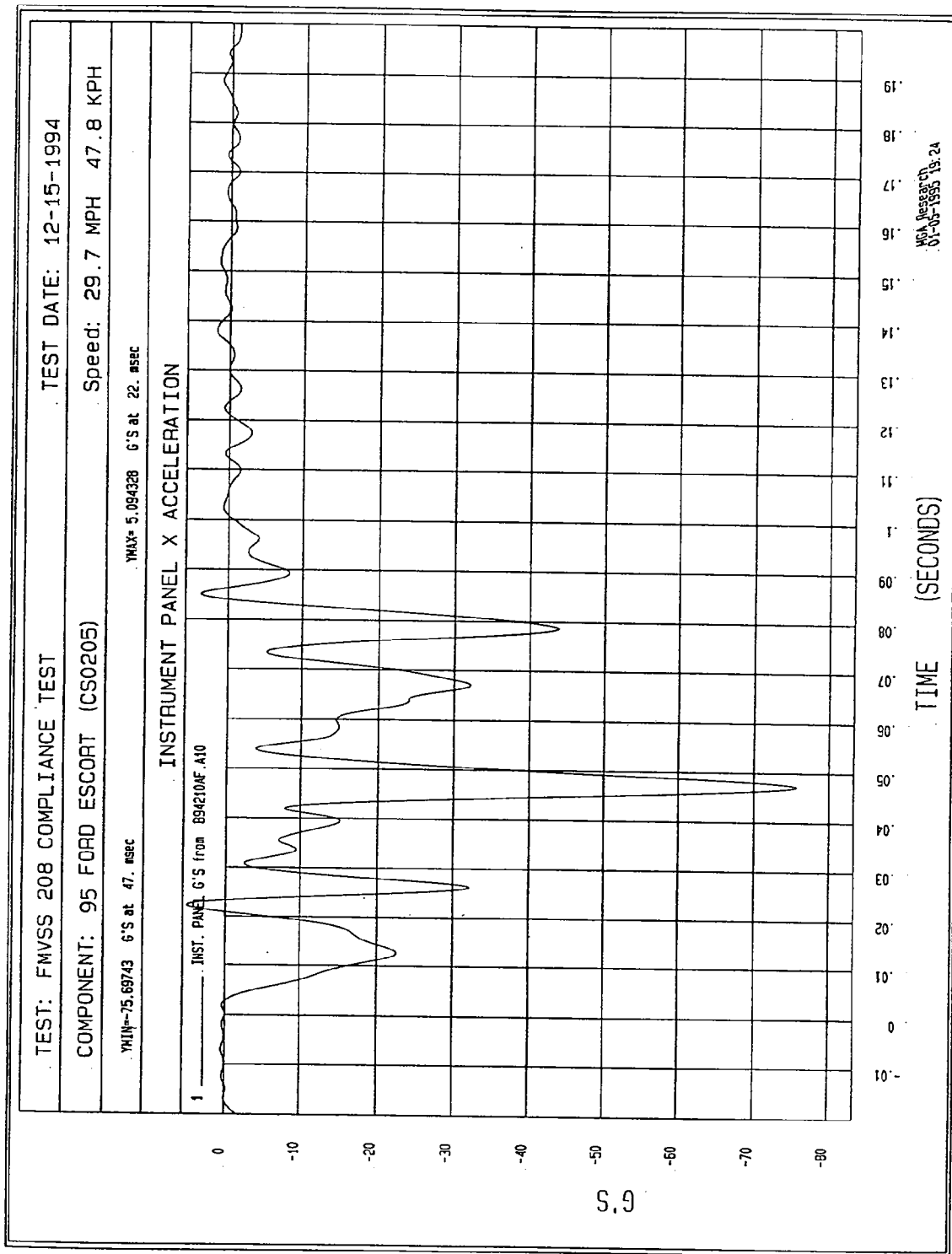


Figure B-23 - Instrument Panel X Acceleration vs. Time

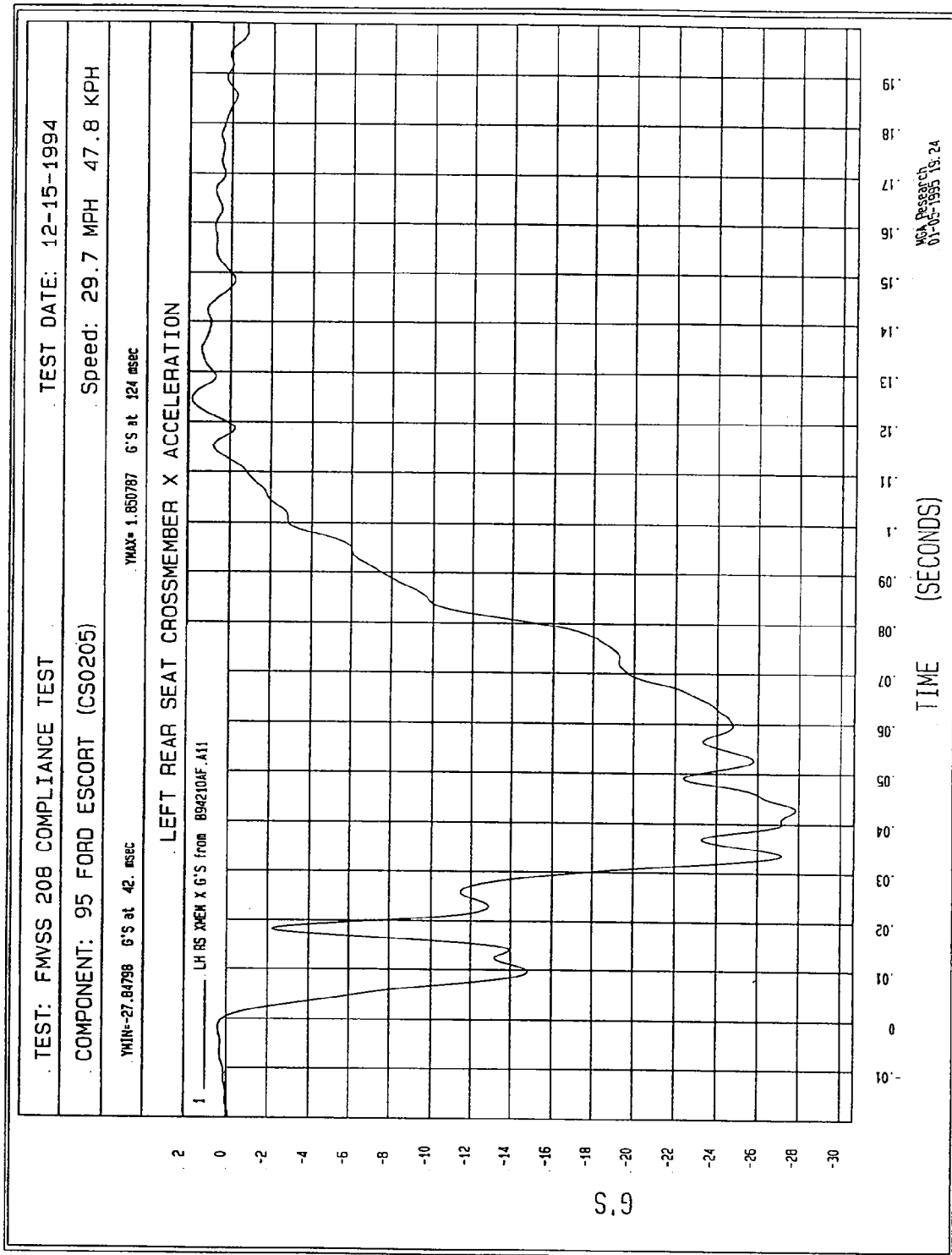


Figure B-24 - Left Rear Seat Crossmember X Acceleration vs. Time

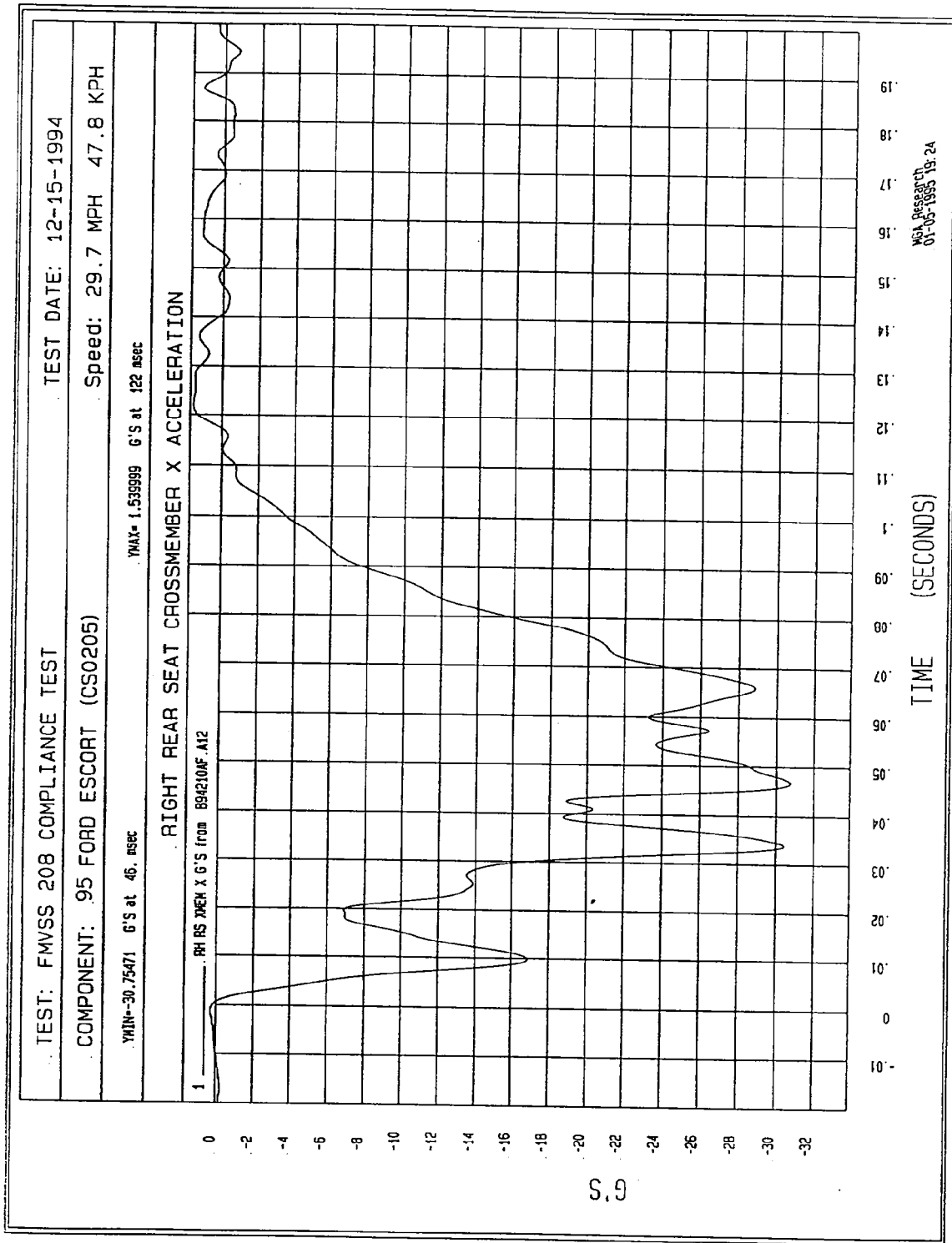


Figure B-25 - Right Rear Seat Crossmember X Acceleration vs. Time

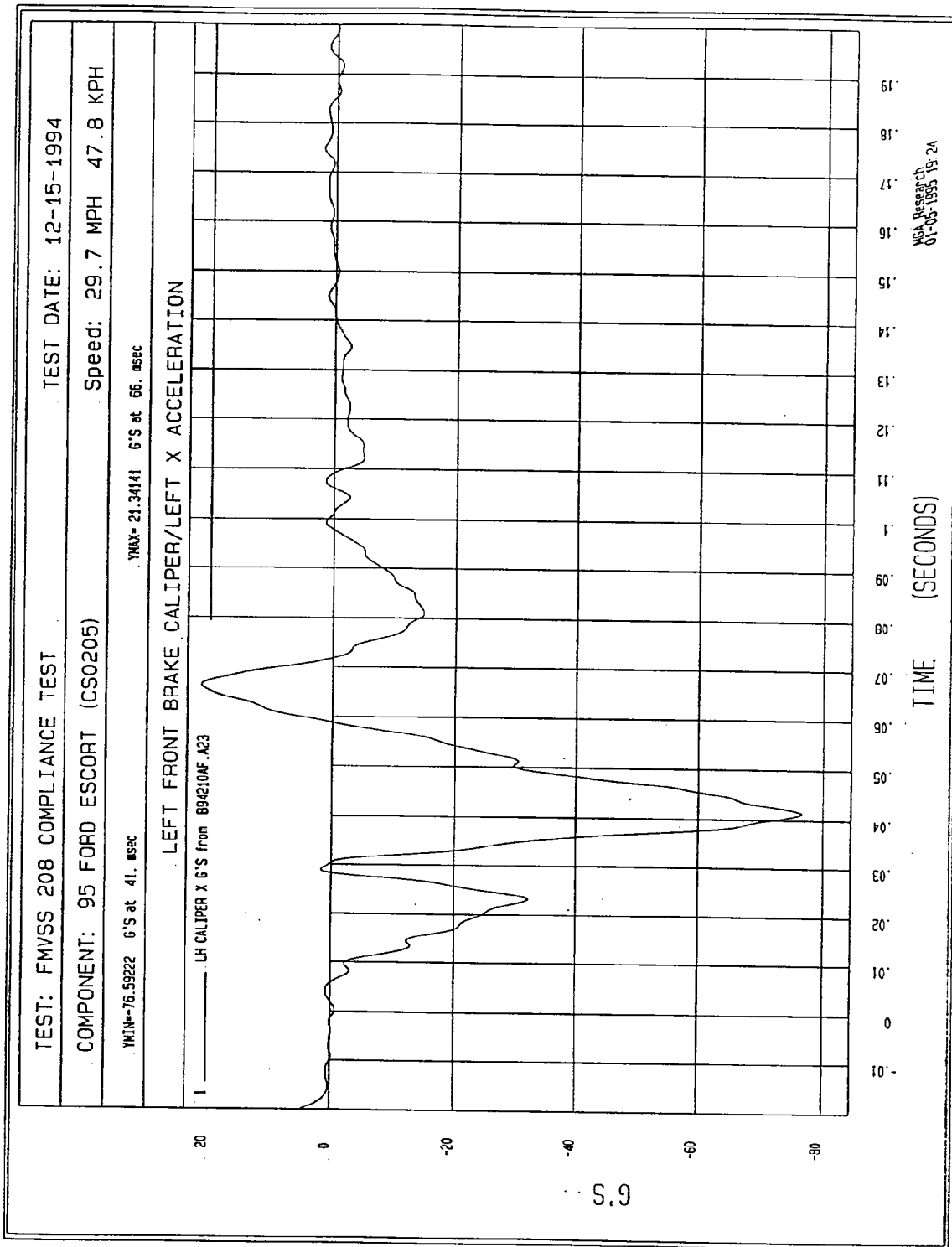


Figure B-26 - Left Brake Caliper X Acceleration vs. Time

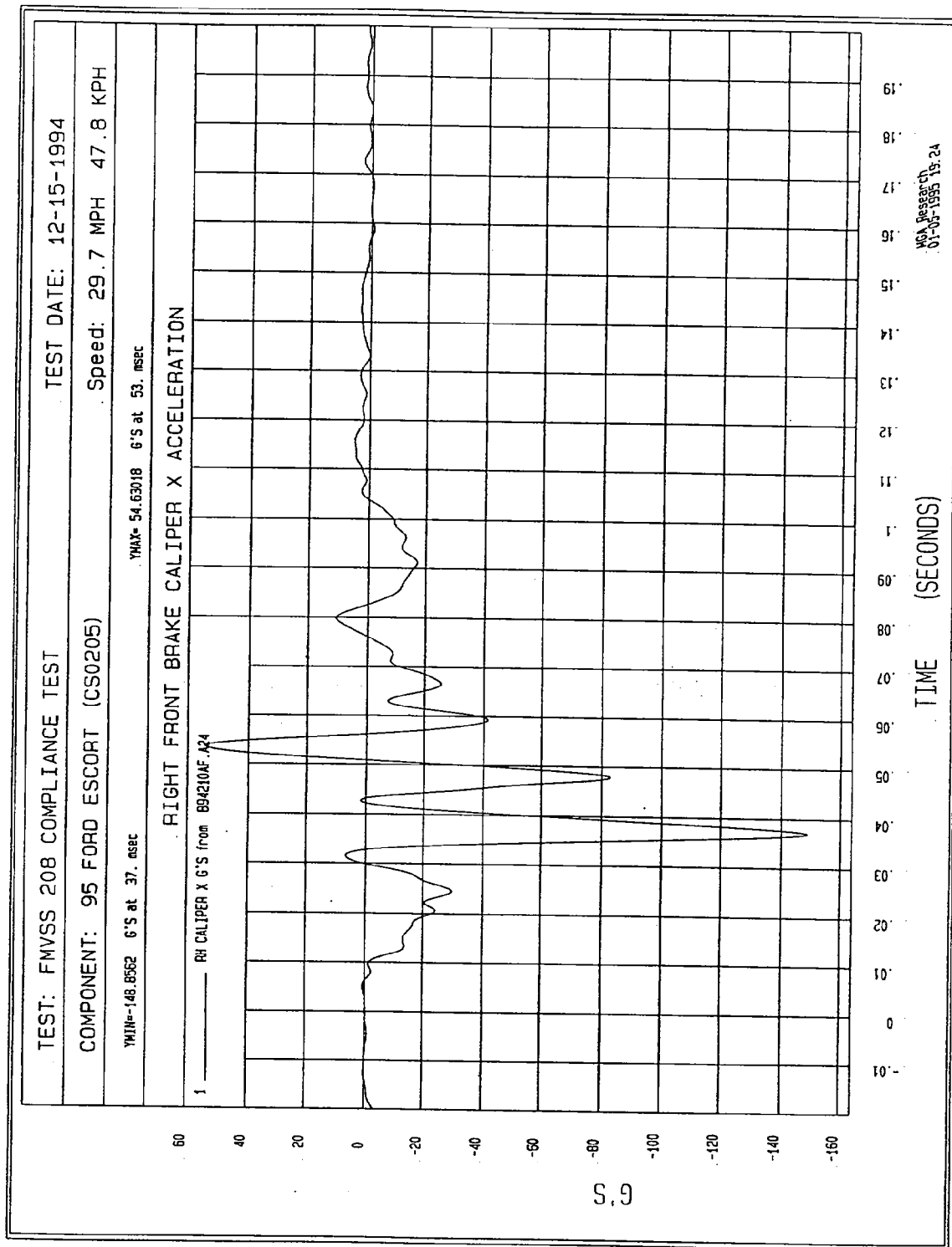


Figure B-27 - Right Brake Caliper X Acceleration vs. Time

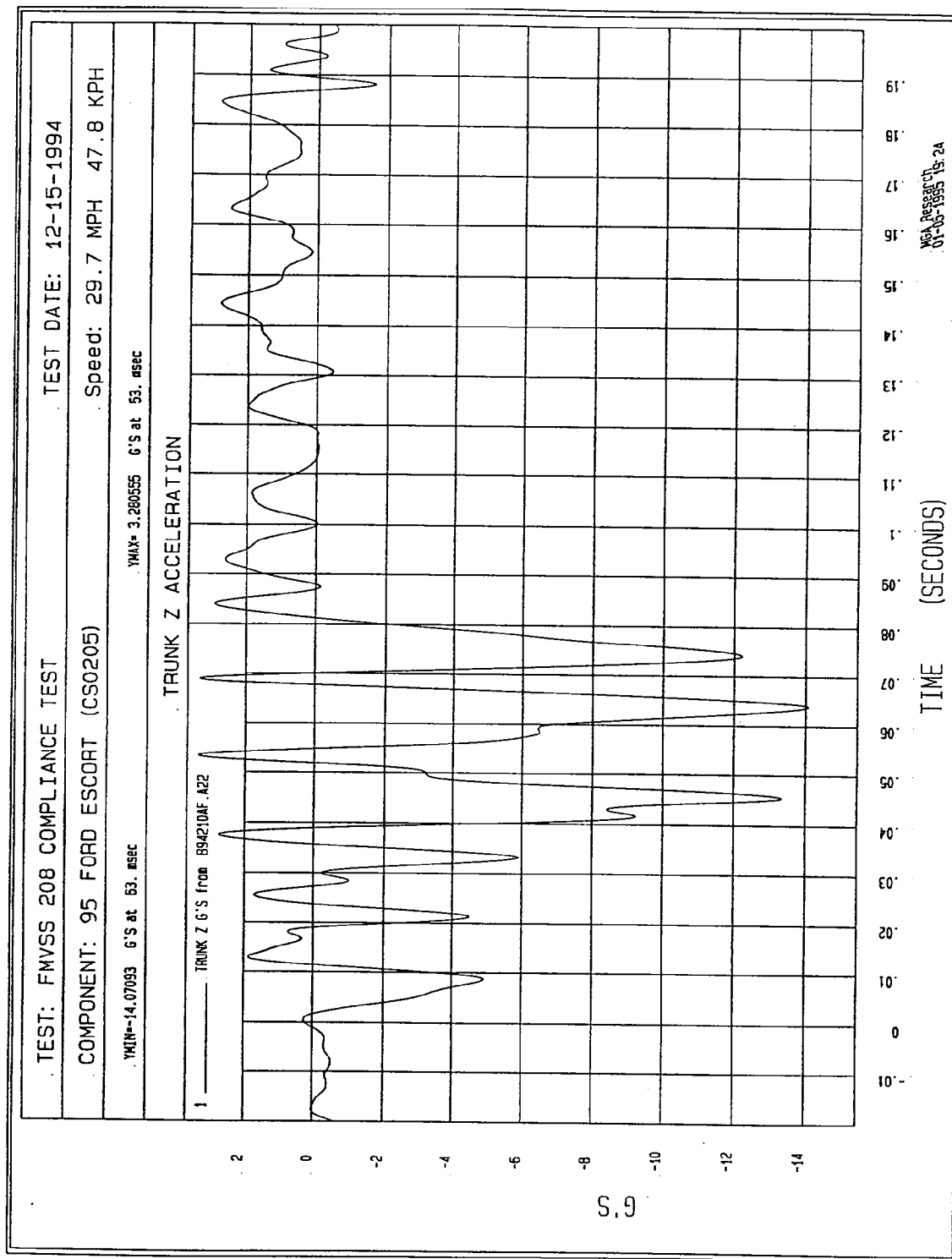


Figure B-28 - Trunk Floor Z Acceleration vs. Time

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

September 1, 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 1519

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 Ford Escort (all models). Ford's responses to your requests for information are set out below.

Request No. 1

"Please inform OVSC whether the automatic restraint system provided at each front outboard seating position in your vehicle was installed to meet the requirements of S4.1.2.1-(c) (1) or S4.1.2.1(c) (2) for FMVSS No. 208."

Answer

The motorized shoulder belt passive restraint systems and the supplemental air bag restraint systems provided at the driver's and right front passenger's seating positions on all models of the 1995 Escort were installed to meet the requirements of S4.1.2.1(c) (2) of FMVSS No. 208.

Request No. 2

"If the automatic restraint provided at each front outboard designated seating position in your vehicle was installed to meet the requirements of S4.1.2.1(c)(1), please provide a copy of your 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.(a)"

Answer

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

Request No. 3

"If you provided a manual lap safety belt for the automatic restraint system installed at each front outboard designated seating position to meet the requirements of S4.1.2.1(c)(2), please provide a copy of your 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 one frontal/angular barrier impact test of the automatic restraint system with the manual safety belt fastened)."

Answer

The manual lap safety belt provided with the automatic restraint systems at the driver's and passenger's seating positions in all models of the 1995 Escort were provided to meet the requirements of S4.1.2.1(c)(2) of FMVSS No. 208. Attachments I, II, III, and IV contain portions of the final test reports relevant to the requirements of S4.1.2.1(c)(2) for Ford Crash Tests 9039, 9040, 9352, and 9356, 90 degree front fixed barrier impact tests of 1995 model year Escort vehicles. Crash Tests 9039 and 9356 were tests with the manual lap belt fastened for the driver and passenger, respectively, and Crash Tests 9040 and 9352 were tests with the manual lap belt unfastened for the driver and passenger, respectively. Ford relied on the results of these tests as a basis for certifying compliance of all models of the 1995 Escort vehicles with S4.1.2.1.

Request No. 4

"If the manual lap safety belt provided at each front outboard designated seating position was not installed to meet the requirements of S4.1.2.1(c)(2), but instead was provided voluntarily, please provide a copy of the vehicle crash test report or engineering analysis showing that the use of the manual lap safety belt with the automatic restraint system does not destroy the ability of the automatic restraint to meet the injury criteria of FMVSS No. 208."

Answer

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

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 Escort driver and passenger supplemental air bag restraint systems do not use pressure vessels.

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 V contains the engineering analysis and the test data from TRW Vehicle Safety Systems, Inc., demonstrating compliance to S9.2 of FMVSS 208 of the passenger air bag restraint module assembly for all models of the 1995 model year Escort. The driver air bag restraint module assembly of the 1995 model year Escort is a carry over design from the 1994 model year Escort which in turn is common with the 1994 model year Thunderbird/Cougar, except that its inflator has less gas generant and a lower output rating than the Thunderbird/Cougar. Based on the

September 1, 1994

lower output of the Escort inflator, and the engineering analysis and test data from TRW demonstrating compliance to S9.2 of FMVSS 208 for the higher output inflator on the 1994 model year Thunderbird/Cougar air bag system, the 1995 Escort driver air bag system was judged as being compliant with S9.2. The TRW analysis and data for the 1994 Thunderbird/Cougar is contained in Attachment VI.

Request No. 7

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

Answer

The 1995 Escort safety belt systems do not use a tension-relieving device.

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 Escort 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(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

September 1, 1994

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(B) (Hybrid II) 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 Escort vehicles to FMVSS No. 208. Attachment VII contains dummy placement measurements applicable to the 1995 Escort.

1995 Escort vehicles do have a footrest for the driver only.

1995 Escort vehicles are not available with a split front bench seat.

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 VIII 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 frontal barrier impact testing of all models of the 1995 Escort.

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 Escort vehicles are not equipped with adjustable seat belt anchorages.

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 loads 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 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 the 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 IX includes the speed at impact, vehicle test weight, and injury criteria values recorded in compliance tests of 1995 Escort vehicles to the requirements of FMVSS 208, S4.1.2.1. Resultant head and chest acceleration versus time plots and femur loads versus time plots for the driver and passenger dummies for Crash Tests 9039 and 9040, and for the passenger dummy for Crash Tests 9356 and 9352 are included in the crash test reports being provided in response to Request No. 3. These plots, together with the passenger dummy plots from Crash Tests 8634 and 9344 which are included in Attachment X, represent all the full frontal barrier (90 degree) impact tests that were used as a basis for certification of all models of the 1995 Escort to FMVSS No. 208, S4.1.2.1. Note that

September 1, 1994

the dummy chest acceleration data for Crash Test 9344 contained an unexplained 43 g spike at approximately 44 milliseconds; however, this did not affect the CUMDUR calculation.

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 its 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?"

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
- Luggage compartment trim and contents
- Rear bumper

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

Request No. 14

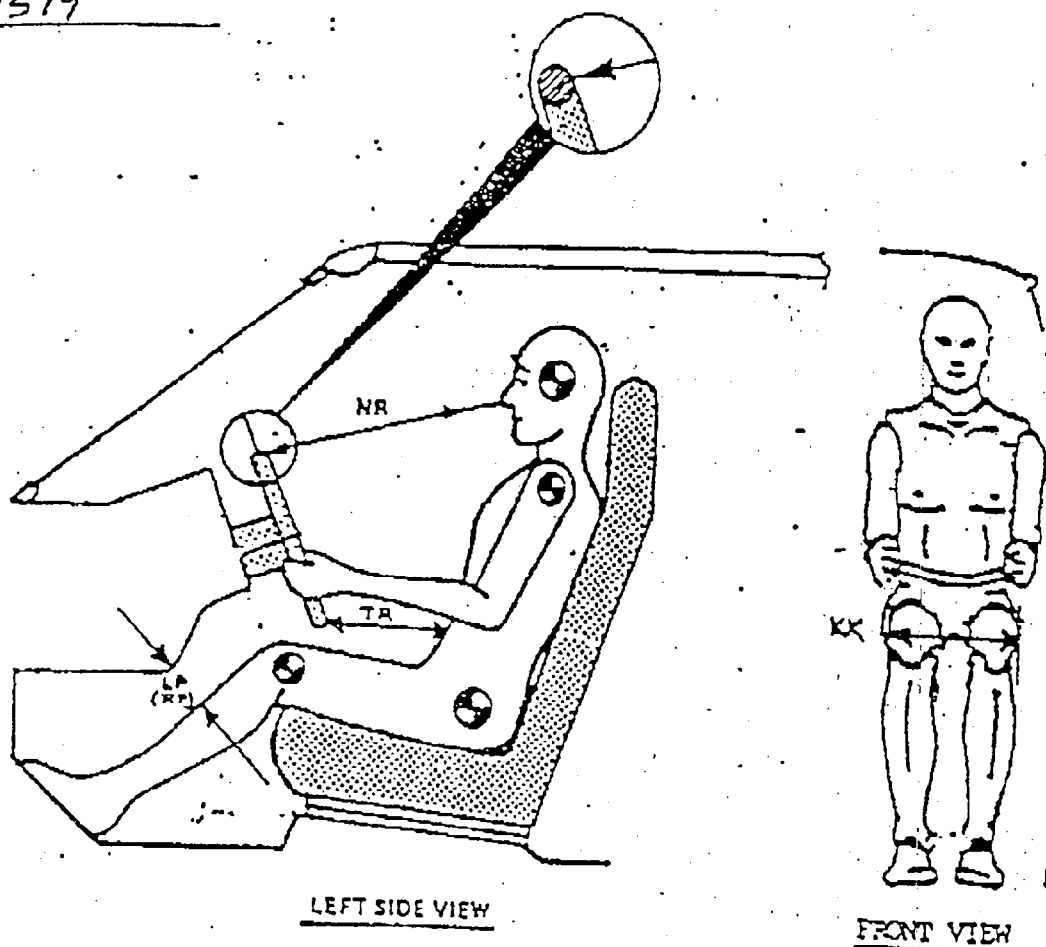
"Please provide FMVSS No. 204, "Steering Control Rearward Displacement" certification data. Include a copy of the test report and any engineering analysis forming the basis of the certification. The report should document the vehicle test weight, impact velocity, and the horizontal and vertical displacements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

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS

VEHICLE ESCORT/TRACE2

IR# 1519

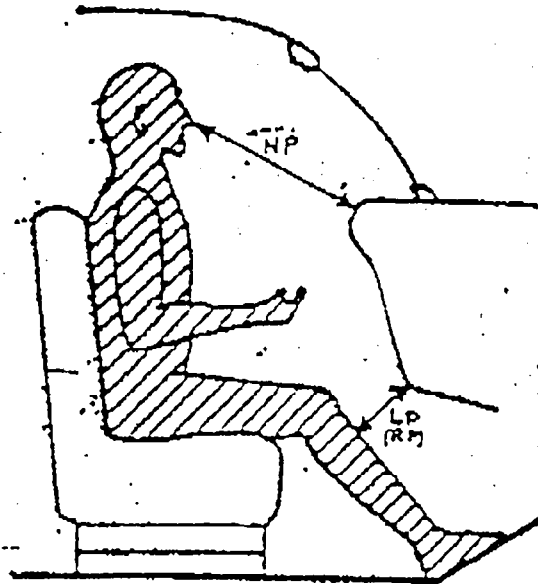


		MEASUREMENTS (All distances in inches)	
		TARGET	RANGE
NR	Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	16.1	15.2-17.3
TR	Horizontal distance from bottom rear surface of steering wheel rim to dummy's torso	6.6	6.0-7.2
LP	Perpendicular distance from dummy's left lower leg surface to closest point on instrument panel surface	5.0	4.4-6.1
RP	Perpendicular distance from dummy's right lower leg surface to closest point on instrument panel surface	5.5	4.7-6.4
XX	Distance between outside surfaces of dummy's legs measured at the knee bolts	14.8	14.0-15.5

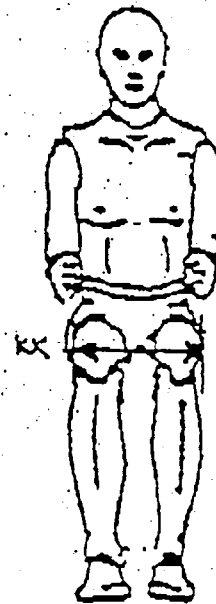
PASSENGER DUMMY PLACEMENT REFERENCE DIMENSIONS

VEHICLE ESCORT/TRACER

IR# 1519



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	24.6	23.2-25.9
LP	Perpendicular distance from dummy's left lower leg surface to closest point on instrument panel surface	5.3	4.6-6.1
RP	Perpendicular distance from dummy's right lower leg surface to closest point on instrument panel surface	5.2	4.4-6.4
XX	Distance between outside surfaces of dummy's legs measured at the knee bolts	12.0	11.7-12.4

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1995 ESCORT
 Vehicle Model & Body Style: (ALL MODELS)

1. NOMINAL DESIGN RIDING POSITION --

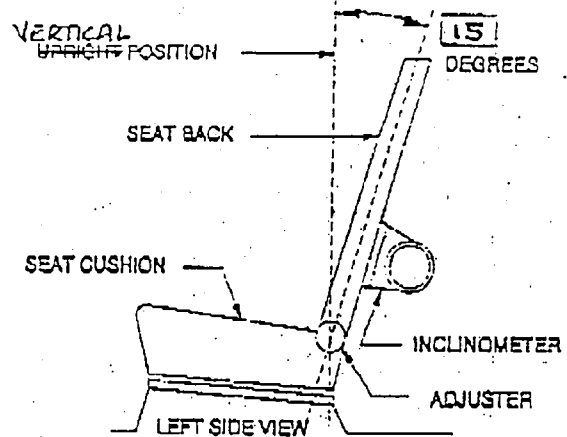
For adjustable driver and passenger seat backs.
 Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?).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

Seat back angle for driver's seat = 15 degrees.
 Measurement Instructions:

MEASURE ALONG REAR EDGE OF SEAT
BACK FRAME WITH DUMMY IN SEAT.

Seat back angle for passenger's seat = 15 degrees.
 Measurement Instructions:

SAME AS DRIVER SEAT.



2. SEAT FORE & AFT POSITIONS --

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

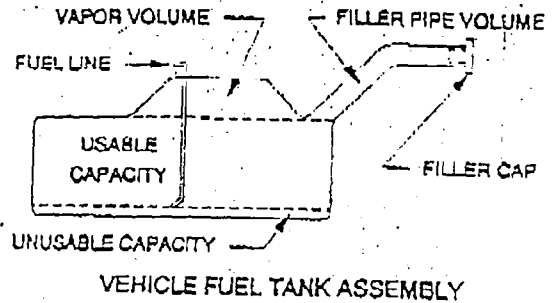
Positioning of the driver's seat:

ADJUST SEAT SLIDER TO THE 12TH LATCH POSITION FROM THE
FORWARD MOST LATCH POSITION.

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

SAME AS DRIVER SEAT.

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 9/ 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 = 95% of 9/ gallons.



Operational Instructions:

- 3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = FMVSS 208 6/ gallons
- 3.3 Is vehicle equipped with electric fuel pump? ☒ YES ☐ NO
If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

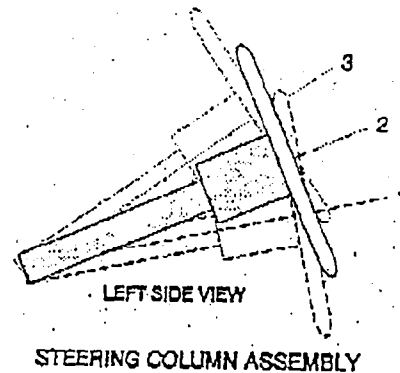
WHEN ENGINE IS RUNNING; PUMP IS DEACTIVATED BY SHUT-OFF SWITCH AT IMPACT.

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:

ADJUST TILT COLUMN TO MID-POINT OF FULL UP/DOWN RANGE.



- a/ 1.9L ENGINE - 11.5 GALLONS
1.8L ENGINE - 12.8 GALLONS

- b/ DURING THE PERIOD OF FORD CERTIFICATION TESTING OF THE 1995 MY ESCORT, FUEL TANK "USABLE CAPACITY" CHANGES WERE BEING INVESTIGATED AND THEREFORE, FORD'S TESTS REFLECT DIFFERENT "USABLE CAPACITY" VALUE. SOME OF FORD'S TESTS WERE CONDUCTED AT 95% OF THE IDENTIFIED USABLE CAPACITY; OTHERS WERE CONDUCTED WITH AN EMPTY TANK TO ACHIEVE A TARGET WEIGHT DISTRIBUTION. A TEST OF CURRENT PRODUCTION 1995 ESCORT WOULD BE CONDUCTED WITH THE TANK FILLED TO 95% OF USABLE CAPACITIES SHOWN IN a/.