

V 2277

REPORT NO. 208-MGA-95-11
212-MGA-95-11
301-MGA-95-11

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

CHRYSLER CORPORATION
1995 DODGE RAM 2500 VAN
NHTSA NO. CS0314

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: May 16, 1995

Report Date: May 22, 1995

Final Report

Prepared For:

U.S DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE
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15. Supplementary Notes					
16. Abstract Compliance tests were conducted on the subject 1995 Dodge Ram 2500 Van in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-208-09 on May 16, 1995 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 Hornickle	
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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 Dodge Ram 2500 Van, NHTSA No. CS0314, 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, the face of which was covered with a sheet of 3/4 inch thick plywood.

The test vehicle contained two (2) Part 572 B 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendix B of the Laboratory Test Procedure.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces.

The twenty-four (24) data channels were multiplexed and recorded on four IBM PC compatible computers with Metrobyte DAS-16F A/D converter boards. The data was digitally sampled at 10,000 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 May 16, 1995.

The test vehicle, a 1995 Dodge Ram 2500 Van, NHTSA No. CS0314, appeared to comply with the performance requirements of FMVSS 208, 212, 219 (partial), and 301 in the flat frontal barrier impact mode. The Head Injury Criteria (HIC) calculations were less than 1000, the chest resultant accelerations did not exceed 60 g's, and the compressive forces transmitted through the upper legs did not exceed 2,250 pounds as measured by Part 572 B dummies seated in the front outboard designated seating positions. The vehicle's restraint system met the applicable comfort and convenience requirements. The windshield periphery retention 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 Type 2 seat belts in the front outboard designated seating positions and a driver side airbag. The driver dummy was restrained by the seat belt and airbag. The passenger dummy was restrained by the seat belt. The vehicle's test weight was 4773 pounds. The vehicle's impact speed was 29.4 mph. The vehicle's maximum static crush was 8.9 inches.

The driver's HIC was 759. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 46 g's. The driver's left and right femur maximum compressive forces were 1442 pounds and 1414 pounds, respectively.

The right front passenger's HIC was 461. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47 g's. The right front passenger's left and right femur maximum compressive forces were 456 pounds and 511 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

There was no valid data collected for the Top of Engine X Acceleration.

Temperature for Hybrid II dummies was recorded for 16 hours, but 12.5 hours of this data is not available.

TABLE 1 CRASH TEST SUMMARY

Vehicle Yr/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Type: 30 mph Frontal Impact

Test Date: 5/16/95 Time: 15:30 Temp: 70 °F

Vehicle Test Weight: 4773 lbs. Vehicle/Barrier Impact Angle: 0°

Impact Velocity: 29.4 mph Maximum Static Crush: 8.9 inches

Vehicle Rebound: 15.4 inches

Dummies:	Driver	Passenger
Dummy Type	<u>Part 572 B</u>	<u>Part 572 B</u>
Serial Number	<u>465</u>	<u>466</u>
Restraint System	<u>Type II Seat belt</u> <u>and airbag</u>	<u>Type II Seat Belt</u>
No. of Data Channels	<u>8</u>	<u>8</u>

Number of Cameras: 1 Real Time
14 High Speed

Door Opening Data: Left Front: No ; Left Rear: N/A
Right Front: Yes Right Rear: Yes

Front Seat(s) Data:	Driver	Passenger
Seat Track Failure	<u>0.2 in.</u>	<u>0.6 in.</u>
Seat Back Failure	<u>None</u>	<u>None</u>

Visible Dummy Contact Points:	Driver	Passenger
Head	<u>To airbag and back</u> <u>of head to seat</u>	<u>Chin to chest and</u> <u>back of head to seat</u>
Chest	<u>To airbag</u>	<u>No contact</u>
Left Knee	<u>To dash</u>	<u>To left arm and center</u> <u>console</u>
Right Knee	<u>To dash</u>	<u>To dash</u>

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Yr/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

NHTSA No: CS0314 VIN: 2B7HB21Y5SK542273 Body Color: White

Engine: 8 Cylinders; C.I.D.; 5.2 liters; CC

X Gas; Diesel; Turbocharged

X Longitudinal Transverse

Transmission: 3 Speed; Manual; X Automatic; Overdrive

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

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

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

Date Received: 5/11/95; Odometer Reading: 84 miles

Dealer's Name/Address: Dodge City of Milwaukee Inc.
4640 South 27th Street
Milwaukee, WI 53221

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Chrysler Corporation

Date of Manufacture: 1/95; VIN: 2B7HB21Y5SK542273

GVWR: 6010 lbs; GAWR Front: 3300 lbs. GAWR Rear: 3406 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with maximum capacity vehicle load: Front 35 psi; Rear 35 psi

Recommended Tire Size: P225/75R15

Recommended Cold Tire Pressure: Front 35 psi; Rear 35 psi

Tires on Vehicle: P225/75R15; Manufacturer: Goodyear

Type of Spare Tire: Full Size

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

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

Type of Front Seat Back: X Fixed; Adj. With; 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 = 1175 lbs Right Rear = 882 lbs
Left Front = 1221 lbs Left Rear = 882 lbs
TOTAL FRONT WEIGHT = 2396 lbs (57.6% of Total Vehicle Weight)
TOTAL REAR WEIGHT = 1764 lbs (42.4% of Total Vehicle Weight)
TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 4160 lbs

CALCULATION FOR TARGET TEST WEIGHT:

UDW (Unloaded Delivered Weight) = 4160 lbs
VCW (Vehicle Capacity Weight) = 1850 lbs
DSC (Designated Seating Capacity) = 2
RCLW*(Rated Cargo/Luggage Weight) = 300 lbs
Target Test Weight = UDW + RCLW + (2 Dummies x Dummy Weight)
Target Test Weight = 4160 + 300 + 328 = 4788 lbs

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO WEIGHT:

Right Front = 1370 lbs Right Rear = 1019 lbs
Left Front = 1369 lbs Left Rear = 1015 lbs
TOTAL FRONT WEIGHT = 2739 lbs (57.4% of Total Vehicle Weight)
TOTAL REAR WEIGHT = 2034 lbs (42.6% of Total Vehicle Weight)
TOTAL TEST WEIGHT = 4773 lbs
Weight of ballast secured in vehicle = 111 lbs
Vehicle components removed to meet target weight: Spare tire, jack assembly, and right tail light

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 31.3 LF 31.2 RR 32.5 LR 32.0
Fully Loaded Attitude: RF 30.7 LF 30.4 RR 31.4 LR 31.2
Test Attitude: RF 30.7 LF 30.5 RR 31.6 LR 31.6
Wheel Base: 127.0 in; C.G. = 54.1 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: 30 mph Frontal Barrier Impact Impact Angle: 0°
Test Date: 5/16/95 Time: 15:30 Temperature: 70° F
Vehicle NHTSA No.: CS0314 VIN: 2B7HB21Y5SK542273

BARRIER IMPACT VELOCITY

Required Impact Velocity Range: 28.9 to 29.9 mph
Impact Velocity: Primary = 29.44 mph; Secondary = 29.50 mph
Distance From Front Bumper to Barrier Face When
Entering Speed Trap: 51.4 inches
Exiting Speed Trap: 12 inches

VEHICLE STATIC CRUSH AND REBOUND (inches):

Vehicle Length:	Pre-test	= R	<u>190.0</u>	C _L	<u>198.6</u>	L	<u>190.4</u>
	Post-test	= R	<u>184.3</u>	C _L	<u>189.4</u>	L	<u>184.4</u>
	Crush	= R	<u>5.7</u>	C _L	<u>9.2</u>	L	<u>6.0</u>
	Average	=	<u>7.0</u>				

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

R 15.8 in C_L 15.4 in L 17.8 in

TABLE 4 ACCIDENT INVESTIGATION DIVISION DATA

Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Veh. NHTSA No.: CS0314; VIN: 2B7HB21Y5SK542273

Build Date: 1/95; Test Date: 5/16/95

Veh. Size Category: Van; Test Weight: 4773 lbs

Veh. Wheelbase: 127.0 in; Front Overhang: 33.5 in;

Overall Width: 77.6 in

ACCELEROMETER DATA:

Location: As per measurements on pages 2-10

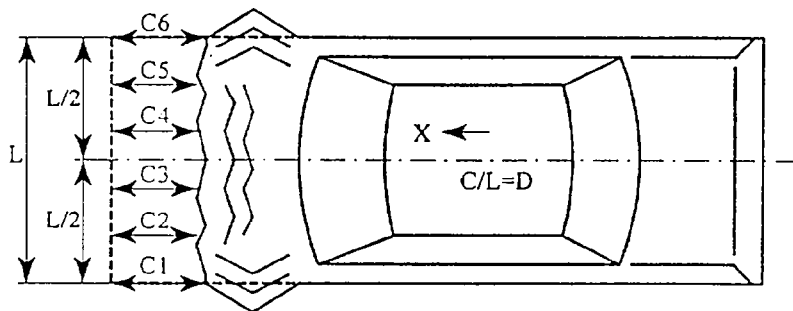
Calibration Procedure: As per MGA Calibration Procedure

Linearity: >99.9%; Integration Algorithm: Trapezoidal

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

Impact Mode: Frontal Barrier

Crush Depth C1 = 6.0 inches
Dimensions: C2 = 6.8 inches
C3 = 8.9 inches
C4 = 8.7 inches
C5 = 6.9 inches
C6 = 5.7 inches



Midpoint of Damage: D = Vehicle Longitudinal Centerline

Length of Damaged Region: L = 73.0 inches

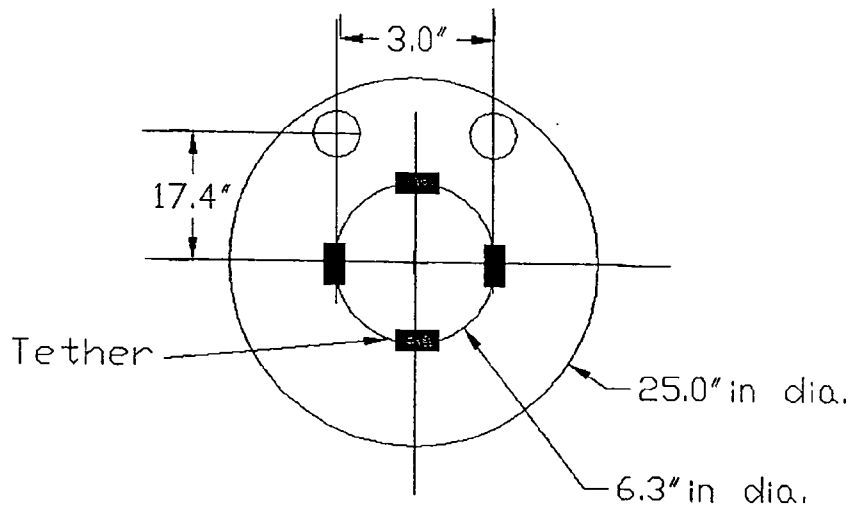
TABLE 5 POST TEST AIRBAG DATA

Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

NHTSA No: CS0314; Test Date: 5/16/95; Technician: Nicole Walter

- A. No of Vent Holes: Driver 2; Passenger N/A
- B. Size of Vent Holes: Driver 1.4 in. dia.; Passenger N/A
- C. Total Vent Area: Driver 3.0 in²; Passenger N/A
- D. Deflated Airbag Length and Width Dimensions or, if Round, Diameter
 Driver; Length ; Width ; Diameter 25.0 in
 Passenger; Length ; Width ; Diameter N/A
- E. Is the Airbag Tethered?
 Driver; X Yes; No; If yes, record length of tether 9.0 in
 Passenger; N/A Yes; No; If yes, record length of tether in

Driver Airbag



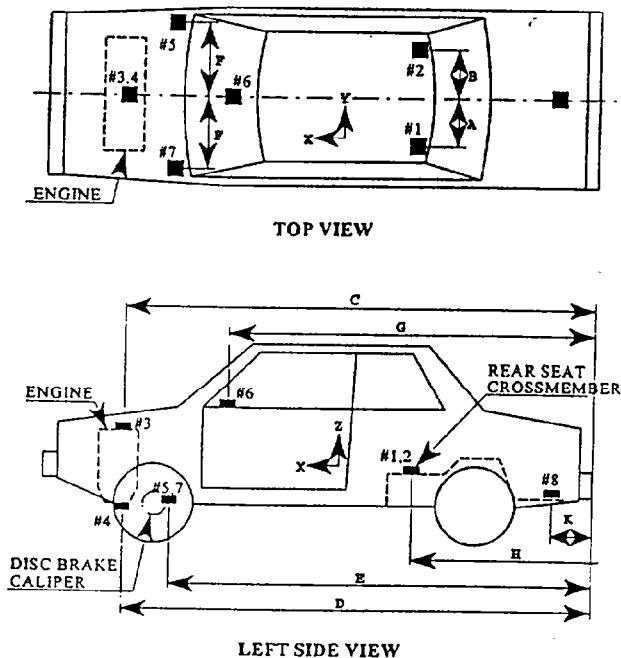
- F. Part Numbers and Manufacture Name of Airbag and Gas Generator
 Driver; Mfr *; Airbag TBW435411097; Gen CBBF1E12DQV
 Passenger; Mfr N/A; Airbag N/A; Gen N/A

* Manufacturer's name could not be found on airbag.

TABLE 6 VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314; Test Date: 5/16/95



ACCELEROMETER LOCATION (inches)		
	PRE-TEST	POST-TEST
A	26.8	26.8
B	26.8	26.8
C	153.1	147.7
D	152.7	155.2
E	155.6	153.4
F	28.2	28.5
G	158.9	158.3
H	118.7	118.8
K	11.5	7.6

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	0.9	99	-43.4	17
2	Right Rear Seat Crossmember	1.6	154	-40.5	17
3	Top of Engine Block	*	*	*	*
4	Bottom of Engine	17.5	86	-74.5	47
5	Right Disc Brake Caliper	69.7	45	-58.3	53
6	Instrument Panel	29.5	89	-78.8	27
7	Left Disc Brake Caliper	70.1	59	-110.7	36
8	Trunk	20.8	44	-21.2	35

* No valid data was collected

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 Industrial 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/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Body Color: White

VIN: 2B7HB21Y5SK542273 Cost: \$18,062.00

Odometer: Arrival Date: 5/11/95 Reading: 84 miles
 Completion Date: 5/16/95 Reading: 88 miles

Engine: 8 Cylinders; 5.2 Liters; X Gas; Diesel

Transmission: 3 Speed; Manual; X Automatic

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

Tire Size: P225/75R15; Manufacturer: Goodyear

Air Conditioner	<u>No</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 (ABS)</u>
Power Windows	<u>No</u>	Rear Window Def.	<u>No</u>	Front Seats	<u>2</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>None</u>
Clock	<u>Yes</u>	Tilt Steering Wheel	<u>No</u>		
Roof Rack	<u>No</u>	Other Options:	<u>35 gallon fuel tank</u>	No. of Seats	<u>2</u>

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

Spare tire, jack assembly, and right tail light

Explanation:

Items removed to allow installation of data acquisition system.

Vehicle Condition:

The vehicle was subjected to a 30 mph frontal barrier 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/Dodge/Ram/2500 Van

Veh. NHTSA No.: CS0314 Test Date: 5/16/95

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #465	PASSENGER DUMMY #466
Head Channel X	-78.2	-36.1
Head Channel Y	5.4	18.8
Head Channel Z	38.8	53.4
HEAD RESULTANT	83.5	55.4
Chest Channel X	-47.6	-45.7
Chest Channel Y	-11.2	19.4
Chest Channel Z	18.4	20.1
CHEST RESULTANT	47.8	49.4

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	759	461
t_1 = (msec)	61.4	58.3
t_2 = (msec)	88.4	94.3

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

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

CLIP	46.1	47.4
t^1 = (msec)	68.5	75.0
t^2 = (msec)	71.6	78.1

MAX. COMPRESSIVE FEMUR FORCES: (lbs)

Left Side	1442	456
Right Side	1414	511

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 seat belt and airbag. The dummy rebounded rearward into the seat back with the dummy's head contacting the seat back. 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 the right knee into the dash board and the left knee to the center console. The dummy's head rotated forward with the dummy's chin impacting its chest. The right front passenger dummy was restrained by the seat belt. The dummy rebounded rearward into the seat back with the dummy's head contacting the seat back. 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/Dodge/Ram/2500 Van
NHTSA No.: CS0314 ; Date of Comfort/Convenience Check: 5/12/95
Technician Performing Check: Nicole Walter
GVWR: 6010 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 2 seat belts with passive shoulder 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 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 0.5 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 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/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Date of Check: 5/12/95

Technician Performing Check: Nicole Walter

GVWR: 6010 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 5.0 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 owner's manual on page 26.

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 26.

A description of the functional operation of the system was provided in the owner's manual on page 23-25.

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 23-26.

FMVSS 208 READINESS INDICATOR DATA

The vehicle contained a crash-deployed occupant protection system which was not totally mechanical. The readiness indicator was located to the left of the radio 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 page 26.

FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTS

Not applicable (this vehicle had no rear seats).

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

Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Date: 5/16/95

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

Rubber molding with glue retention

CLIPS OR BRACKETS USED TO RETAIN WINDSHIELD: None

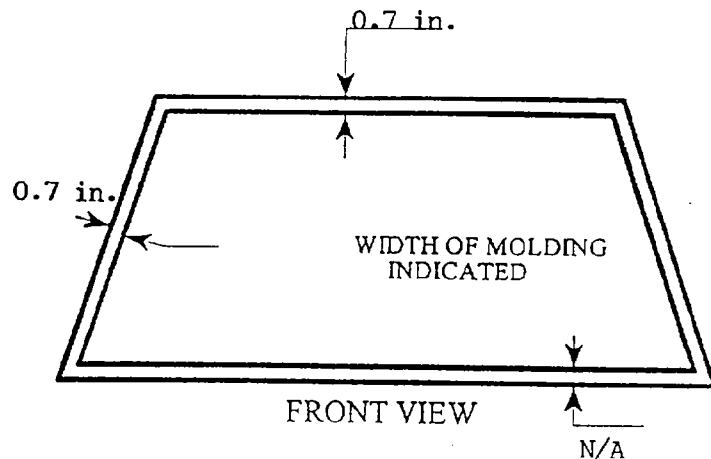
FMVSS 212 REQUIREMENTS:

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	90.2	90.2	100%
LEFT SIDE	90.3	90.3	100%
TOTAL	180.5	180.5	100%

Pre-Test Windshield Mounting Material Temperature: 70°F



FAILURE DETAILS: None

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

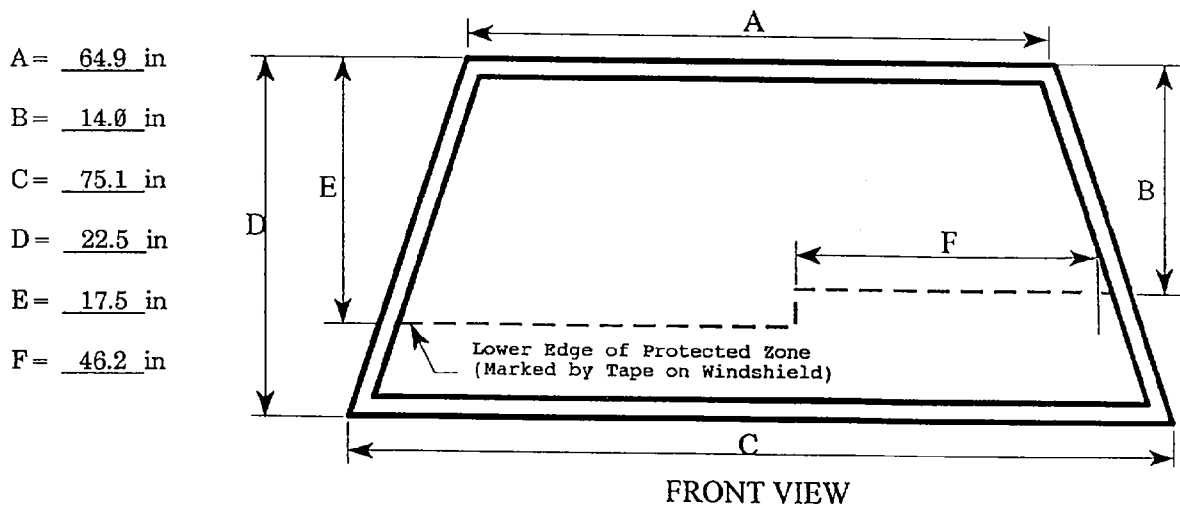
Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Date: 5/16/95

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:



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/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Date: 5/16/95

Fuel System Capacity from Owner's Manual = 35 gallons

Usable Capacity Figure Furnished by COTR = 35 gallons

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

= 32.2 to 32.9 gallons

Actual Test Volume = 32.6 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.

TABLE 15 FMVSS 301 POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Date: 5/16/95

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 B 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

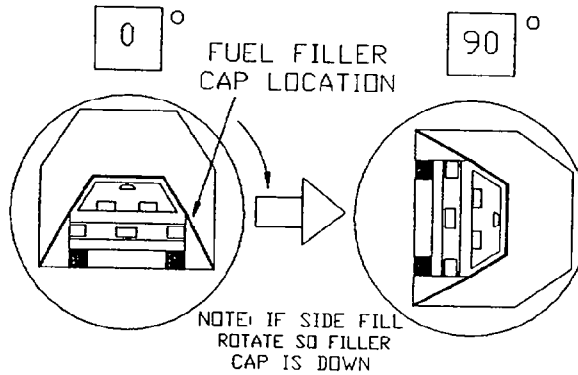
FUEL SPILLAGE LOCATION(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Date: 5/16/95

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 43 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 43 seconds

Next Whole Minute Interval = 8 minutes

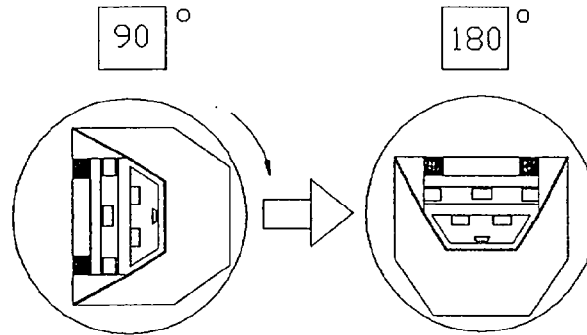
FUEL SPILLAGE MEASUREMENT:

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 30 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 30 seconds

Next Whole Minute Interval = 8 minutes

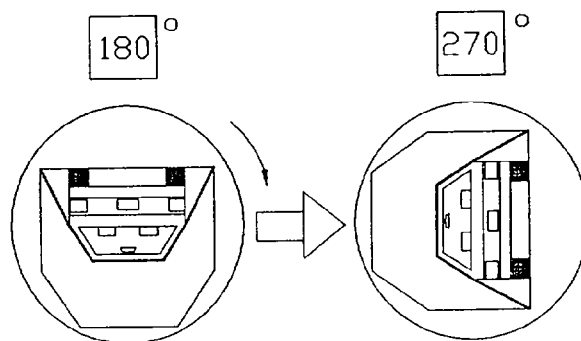
FUEL SPILLAGE MEASUREMENT:

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 11 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 11 seconds

Next Whole Minute Interval = 8 minutes

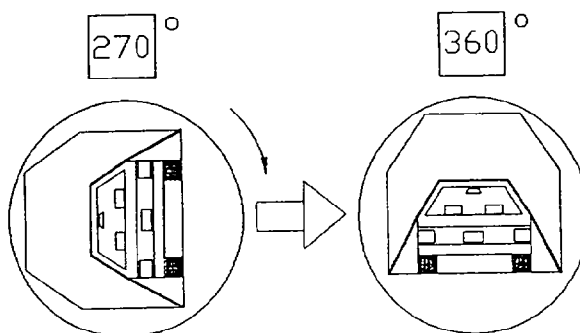
FUEL SPILLAGE MEASUREMENT:

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 43 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 43 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/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Date: 5/16/95

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = *

* The seat back was fixed so the seat back angle was not measured in order to preserve the shape and structure of the seat. (To measure the angle at the seat back frame it would have been required to cut the cushion.

Passenger Seat: Same as driver's seat.

SEAT FORE AND AFT POSITIONS:

Driver Seat: The seat track had a total position movement of 12 notches and was positioned in the 7th notch rearward from the foremost position.

Passenger Seat: Same as driver's seat.

STEERING COLUMN ADJUSTMENTS:

The steering column was not adjustable. It's fixed angle was 39.7°.

FIGURE 1 DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS

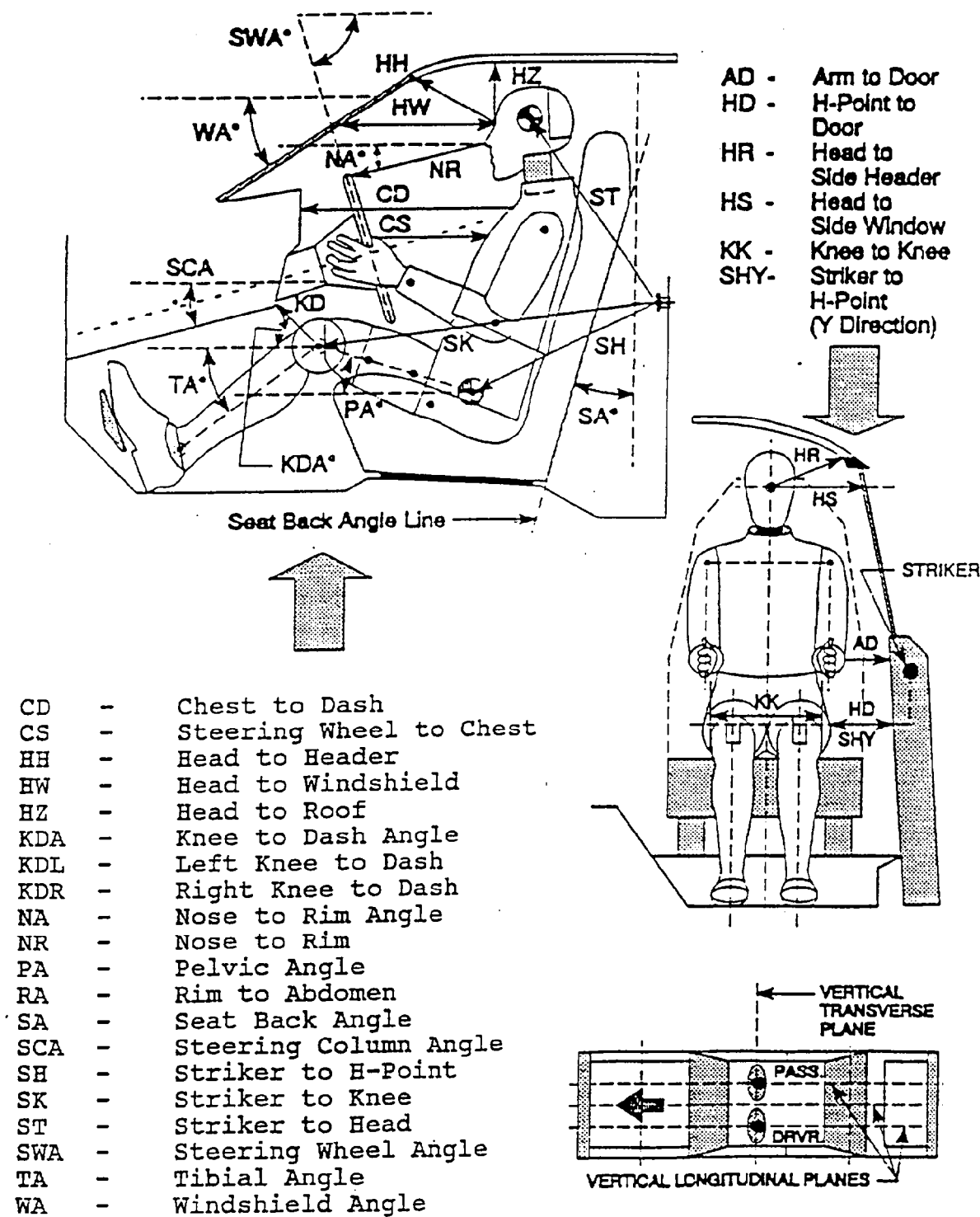


TABLE 18 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

Vehicle Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314 Test Date: 5/16/95

	DRIVER (Serial #465)	PASSENGER (Serial #466)
WA°	48.8°	N/A
SWA°	49.5°	N/A
SCA°	39.7°	N/A
SA°	N/A**	N/A**
HZ	7.9 in	7.6 in
HH	26.4 in	30.7 in
HW	30.1 in	33.7 in
HR	11.8 in	9.7 in
NR	21.3 in Angle (NA) 14.0°	N/A
CD	26.8 in	32.4 in
CS	16.1 in	N/A
RA	9.2 in	N/A
KDL	8.2 in Angle (KDA) 23.7°	14.9 in
KDR	9.4 in	15.8 in Angle (KDA) 9.6°
PA°	N/A	N/A
TA°	42.9°	80.5°
KK	13.7 in	11.9 in
ST*	28.0 in Angle 91.7°	28.6 in Angle 100.3°
SK*	20.2 in Angle 21.6°	16.0 in Angle 21.4°
SH*	4.5 in Angle 8.8°	***
SHY	9.0 in	8.1 in
HS	8.5 in	11.2 in
HD	5.2 in	5.0 in
AD	4.1 in	3.4 in

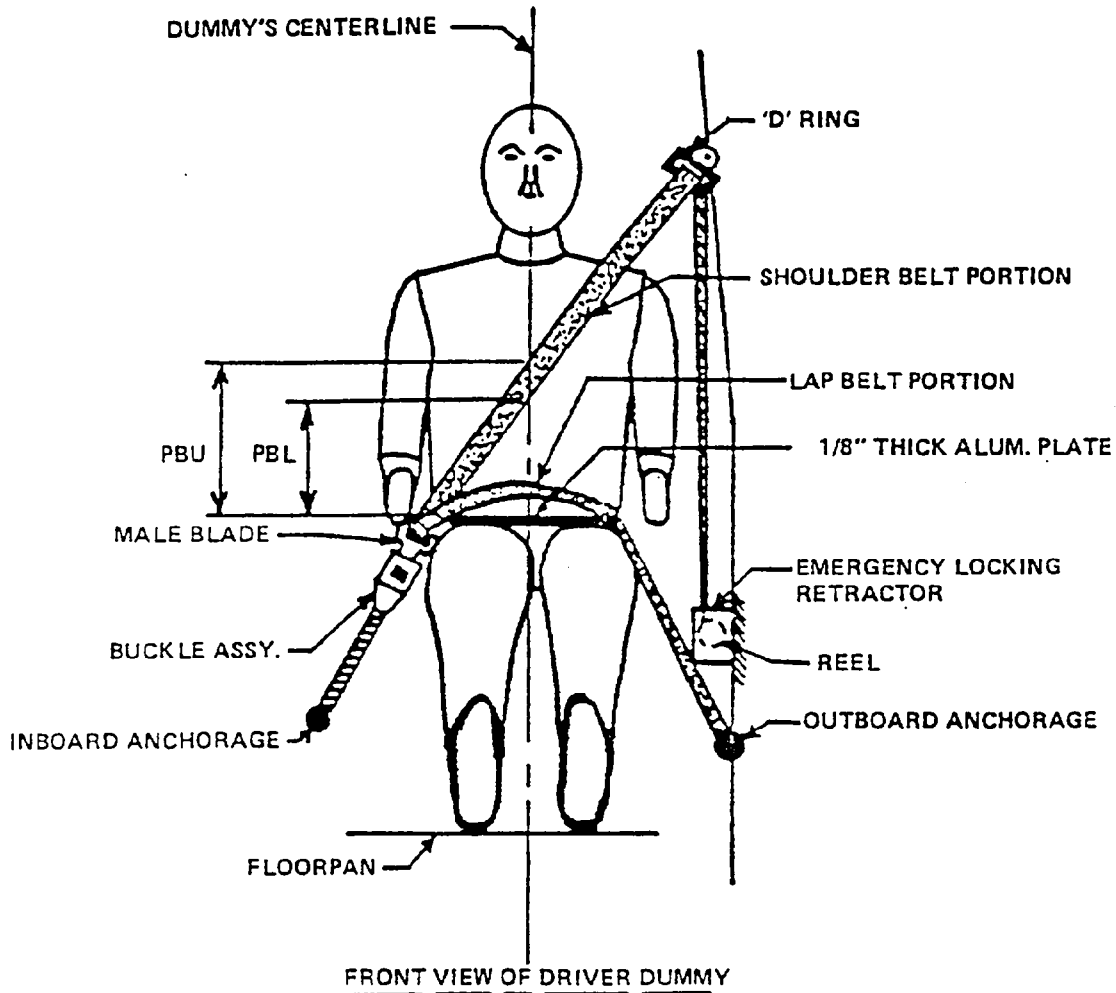
N/A = Not Applicable

* Angles taken from Horizontal

** The seat back was not adjustable

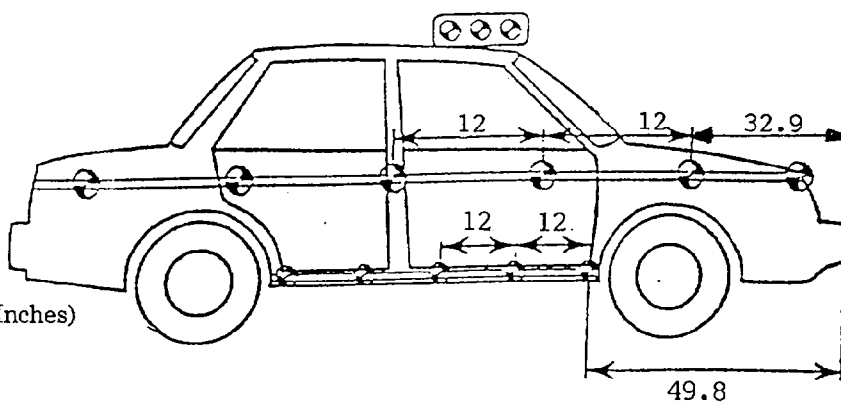
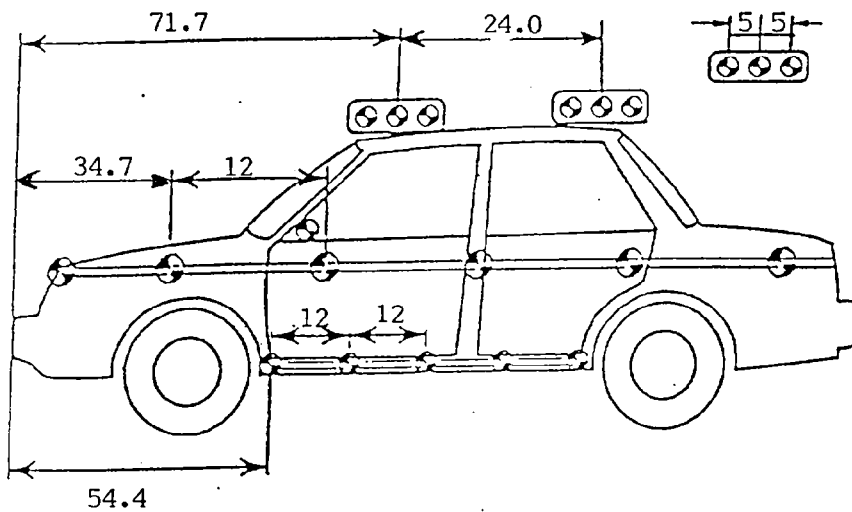
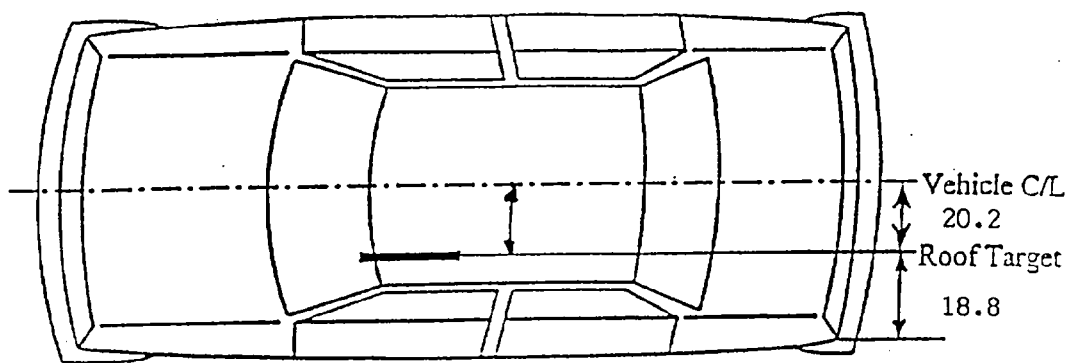
*** Measurement could not be taken because B-Post interfered with line of measurement.

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	12.4	12.2
<u>PBU</u> -- Top surface of aluminum plate to belt lower edge (mm)	13.8	12.4
<u>PBL</u> -- Bottom surface of aluminum plate to belt lower edge (mm)	10.8	9.6

FIGURE 3 VEHICLE TARGET LOCATIONS



(Dimensions in Inches)

FIGURE 4 CAMERA POSITIONS

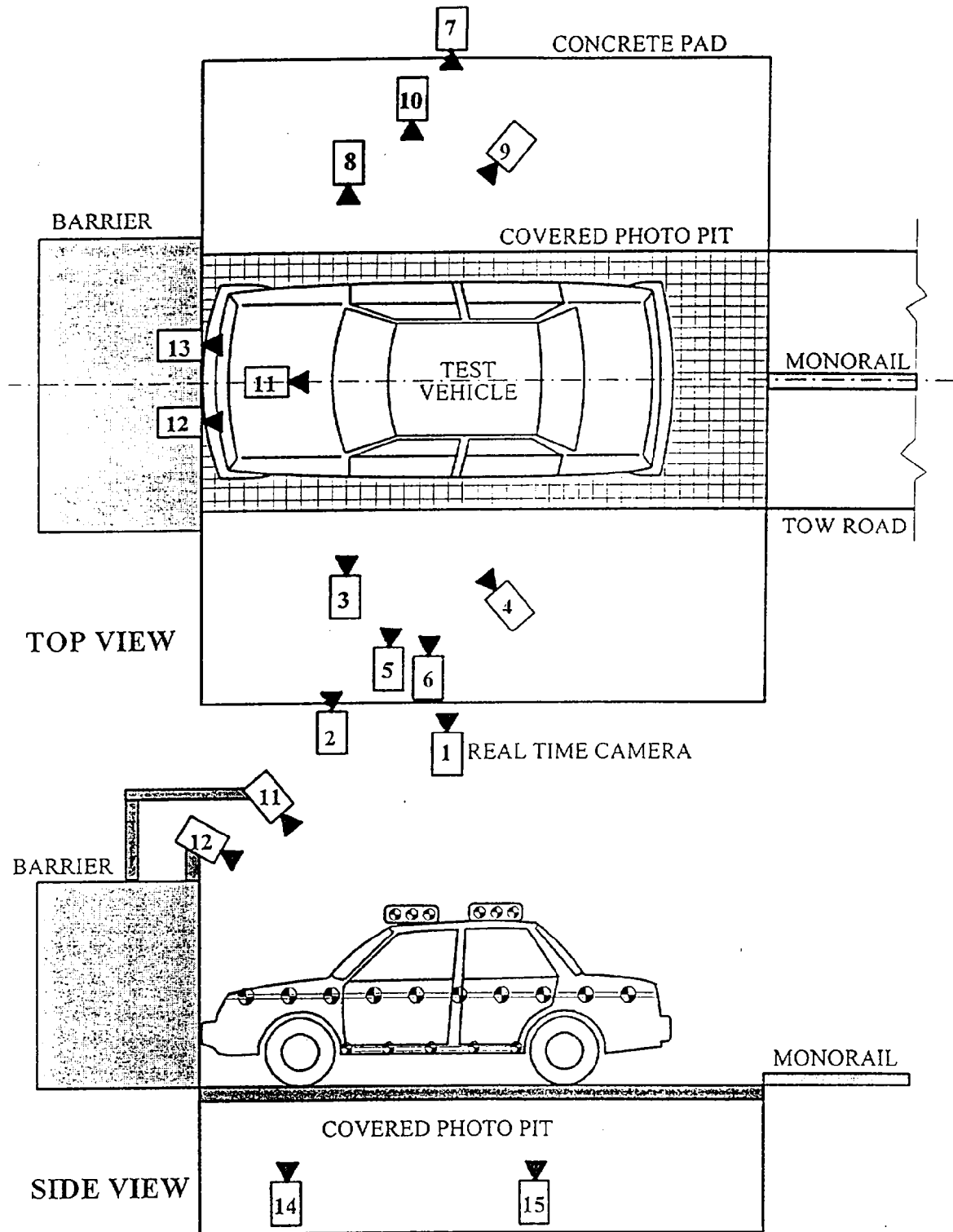


TABLE 19 CAMERA LOCATIONS

Veh. Year/Make/Model/Body Style: 1995/Dodge/Ram/2500 Van

Vehicle NHTSA No.: CS0314; Test Date: 5/16/95

	VIEW	CAMERA POSITIONS (inches)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Left Side View				90°		10	24
2	Left Front	24.0	350.0	54.7	90°	327.2	25	870
3	Steering Column Top	52.8	348.0	61.8	90°	325.2	25	952
4	Driver Angle	126.4	178.0	81.5			35	1000
5	Driver Close-Up	37.8	300.4	58.7	90°	277.6	50	980
6	Steering Column Bottom	52.0	347.6	40.9	90°	324.8	25	855
7	Right Overall View	86.2	-348.0	54.3	90°	325.2	13	1087
8	Right Passenger	29.1	-265.0	55.5	90°	242.1	25	1031
9	Right Angle	247.6	-331.1	85.8			75	NT
10	Right Close-Up	35.8	-294.1	61.0	90°	271.3	50	1031
11	Top Overall	81.9	0	206.7			8	1064
12	Top Driver	-13.4	13.0	98.4			13	930
13	Top Passenger	-15.0	-15.7	98.4			13	1075
14	Pit Front	48.4	0	-84.8			13	1010
15	Pit Rear	114.6	0	-84.4			13	1020

NT = No Timing

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

APPENDIX A
PHOTOGRAPHS

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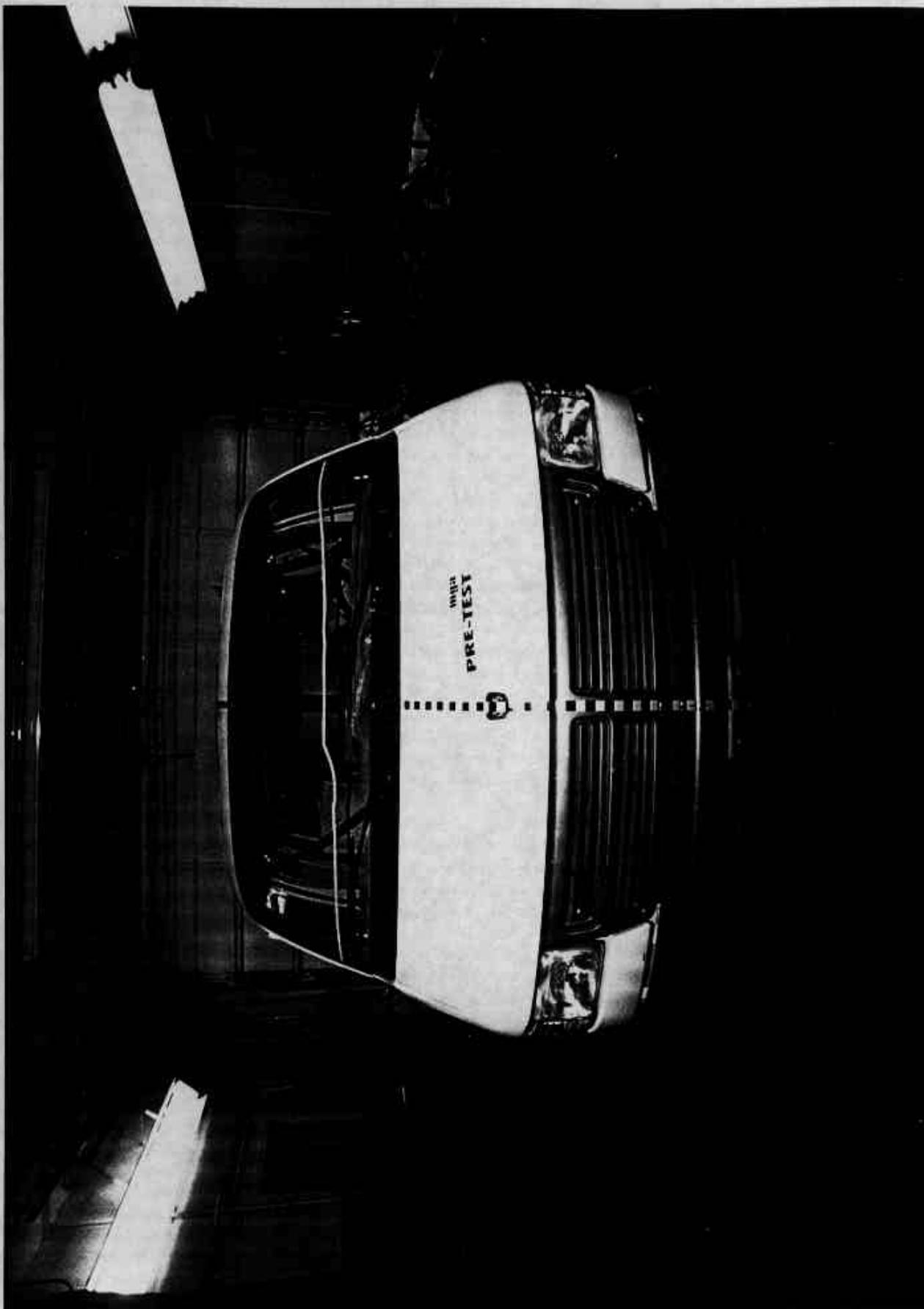


Photo No. A-1 - Pre-Test Front View

A-1

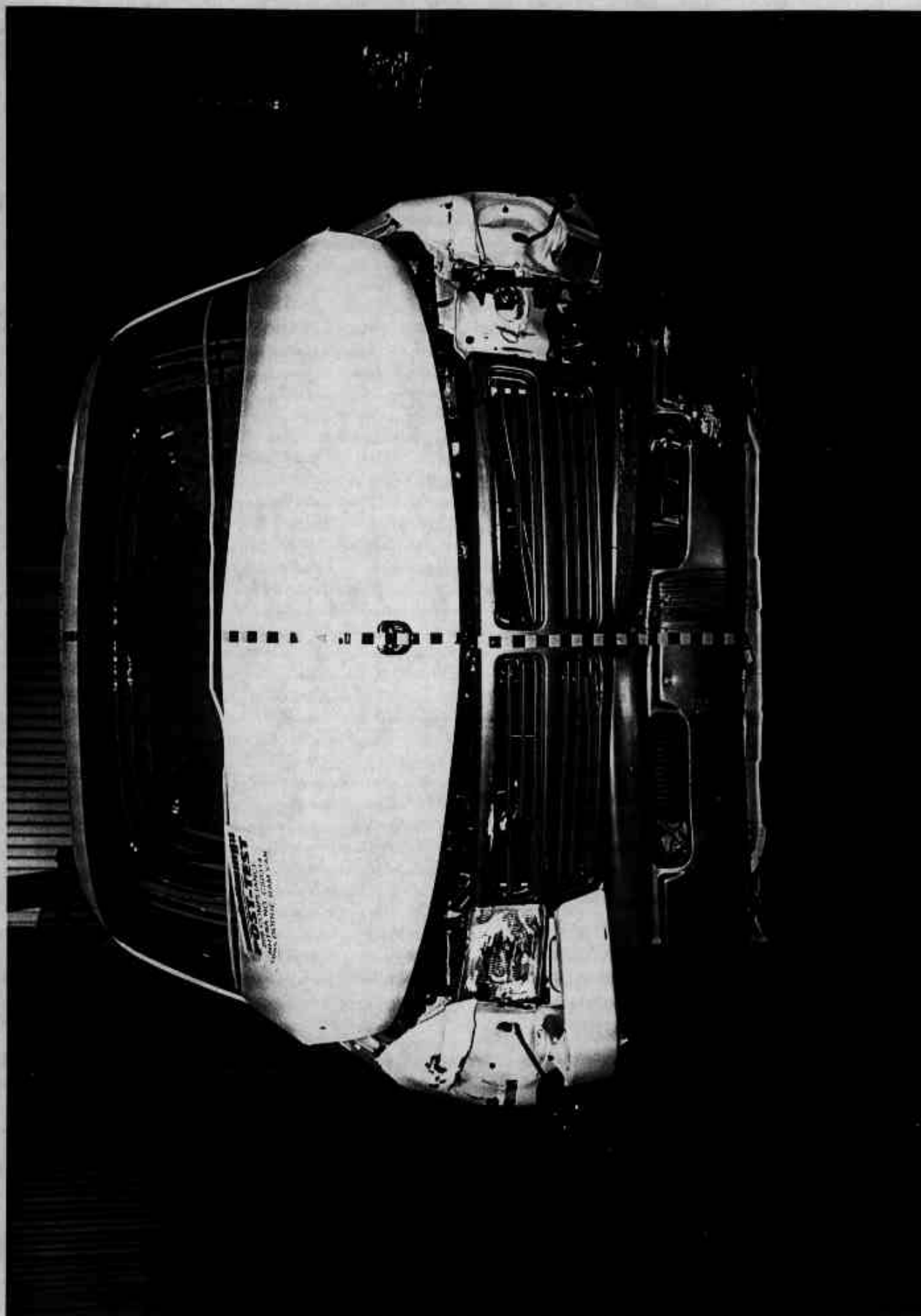


Photo No. A-2 - Post-Test Front View

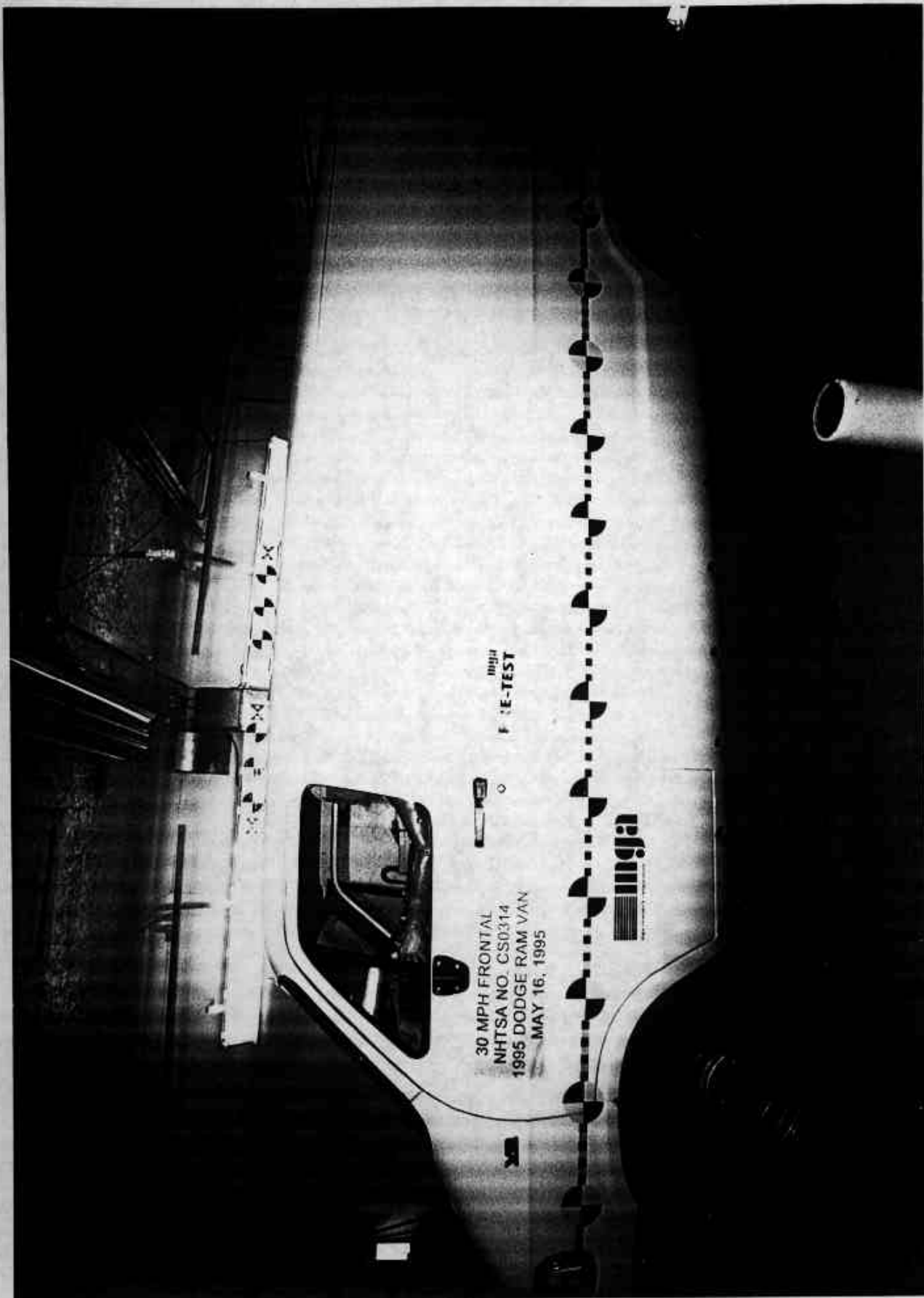


Photo No. A-3 - Pre-Test Left Side View

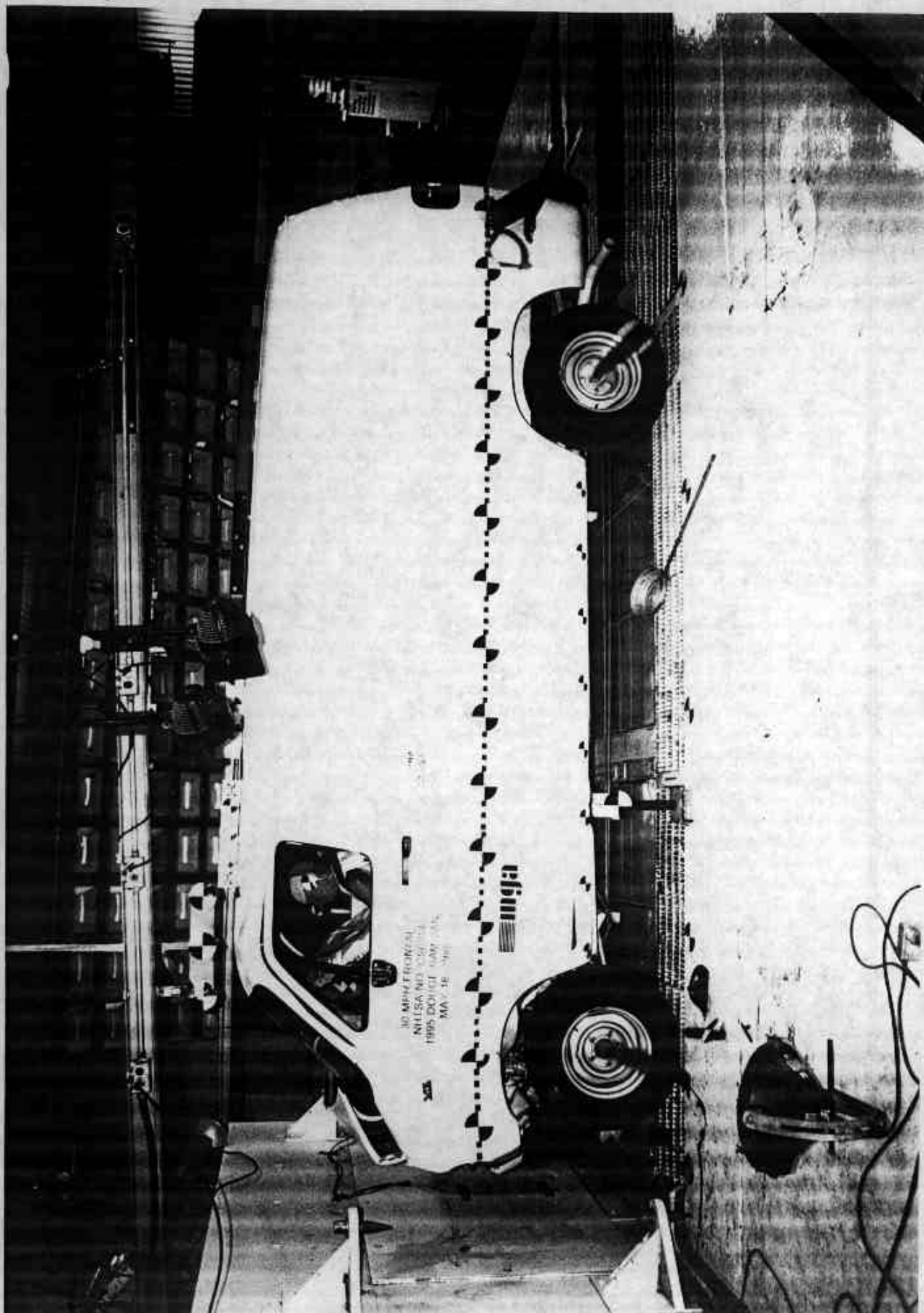
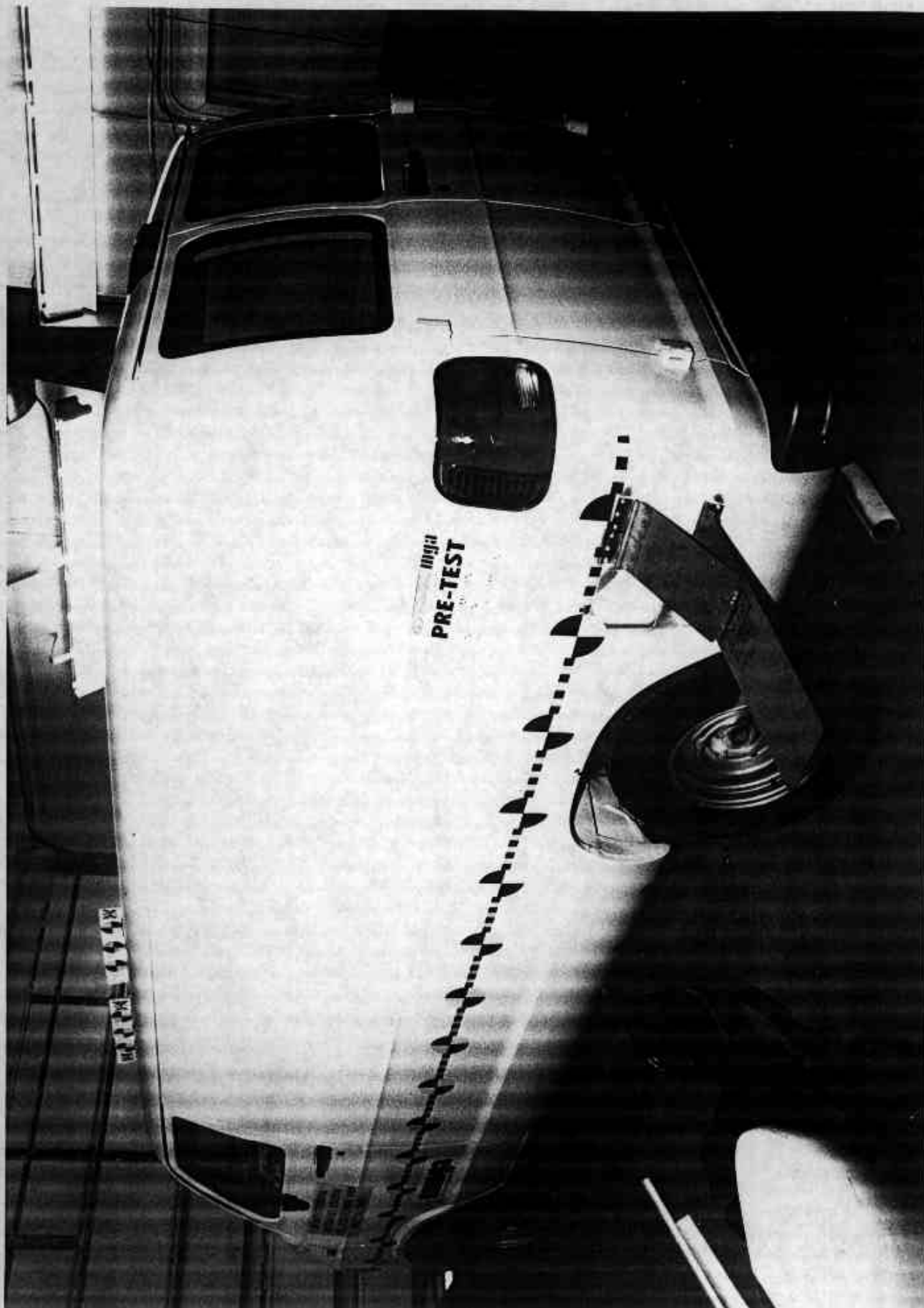


Photo No. A-4 - Post-Test Left Side View



A-5

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

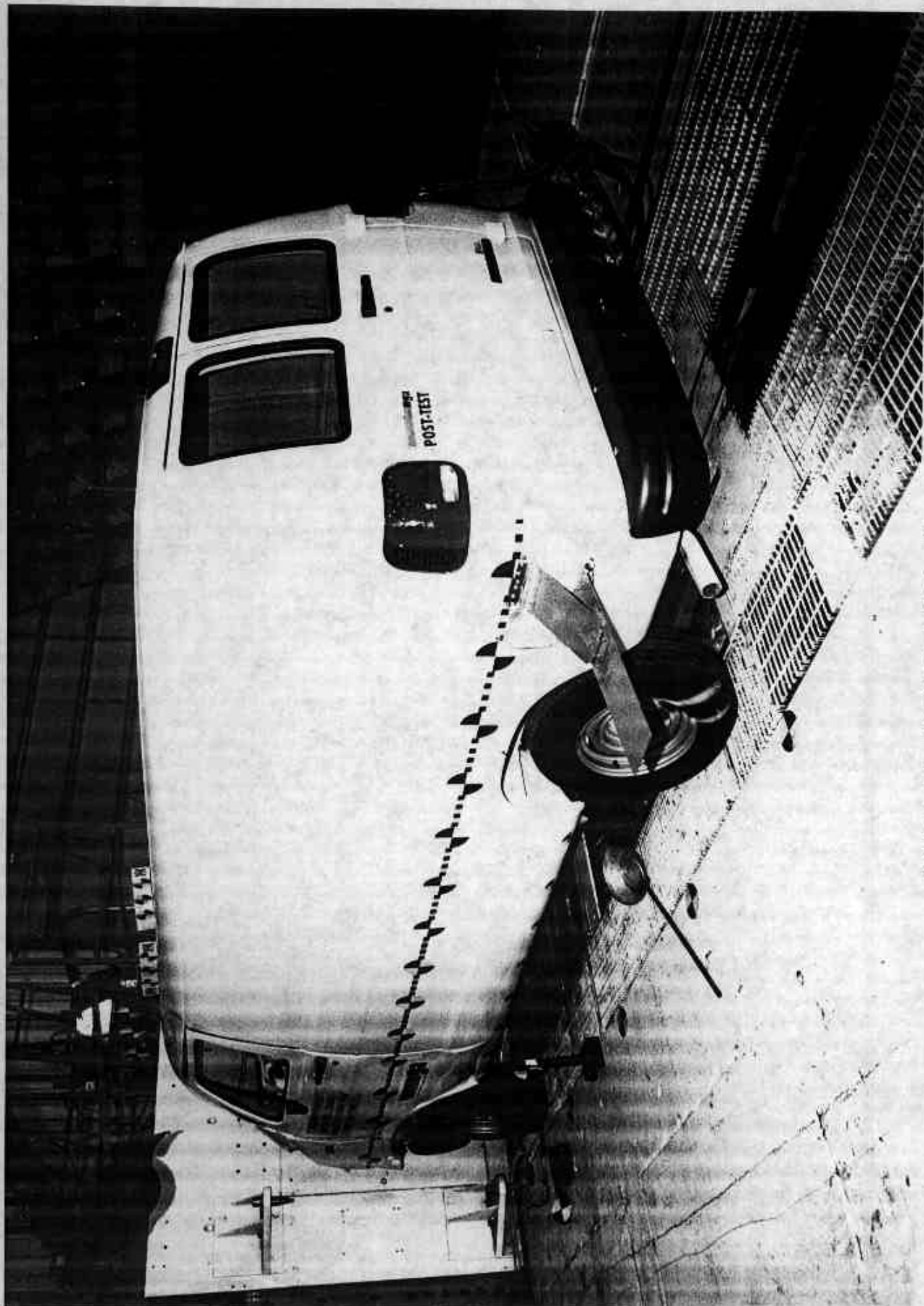
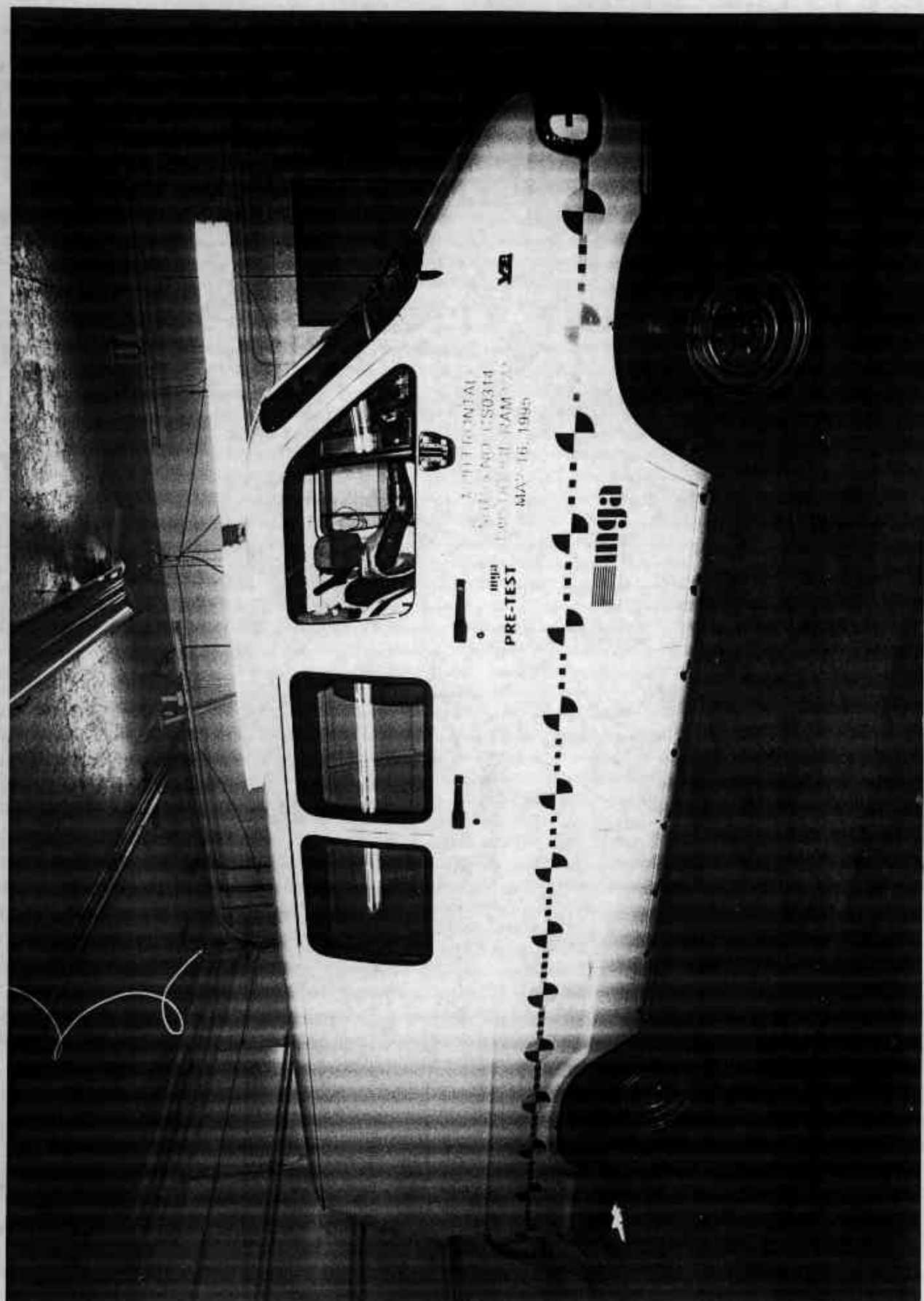


Photo No. A-6 - Post-Test Left 3/4 Rear View

A-6



A-7

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

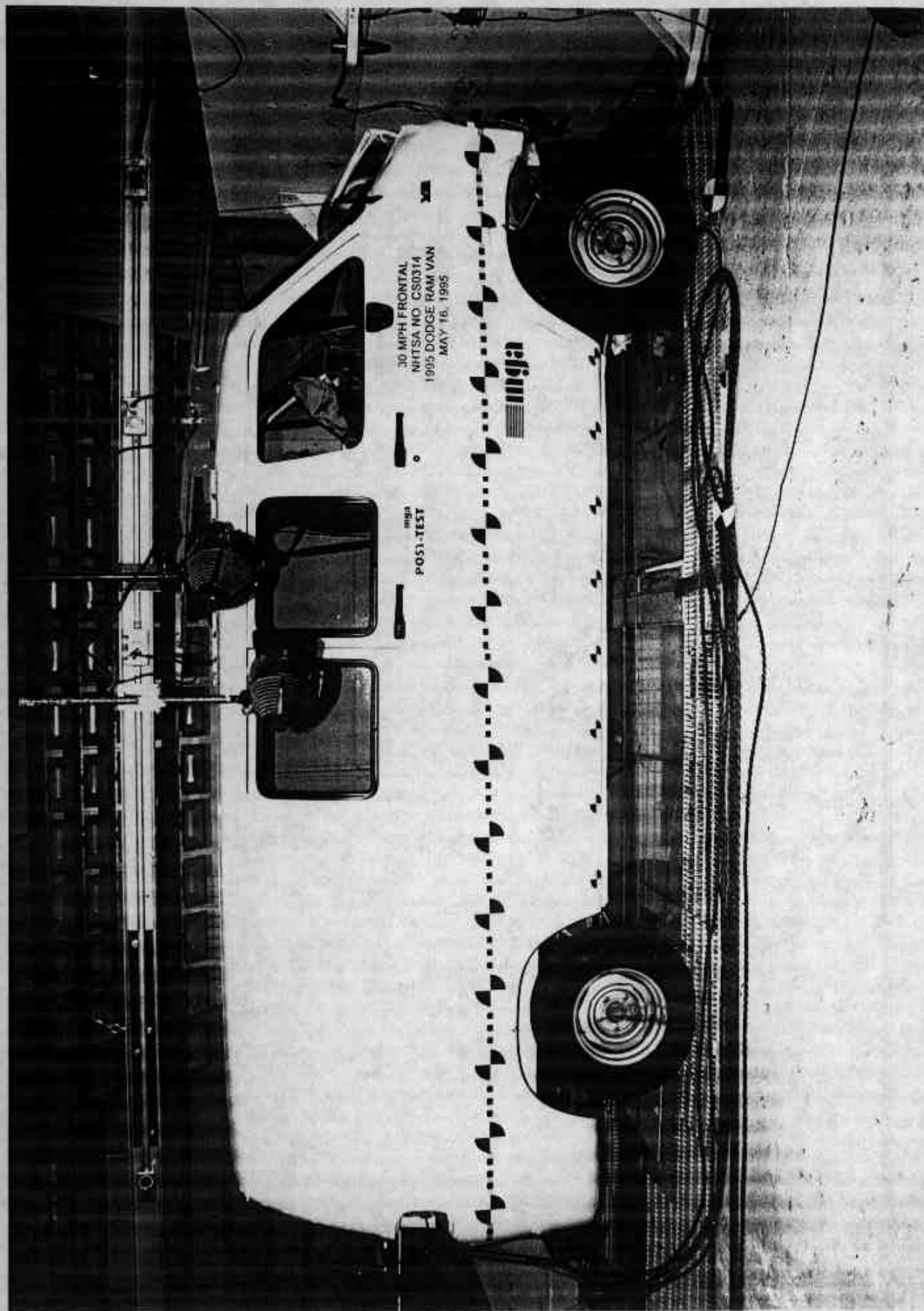


Photo No. A-8 - Post-Test Right Side View



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

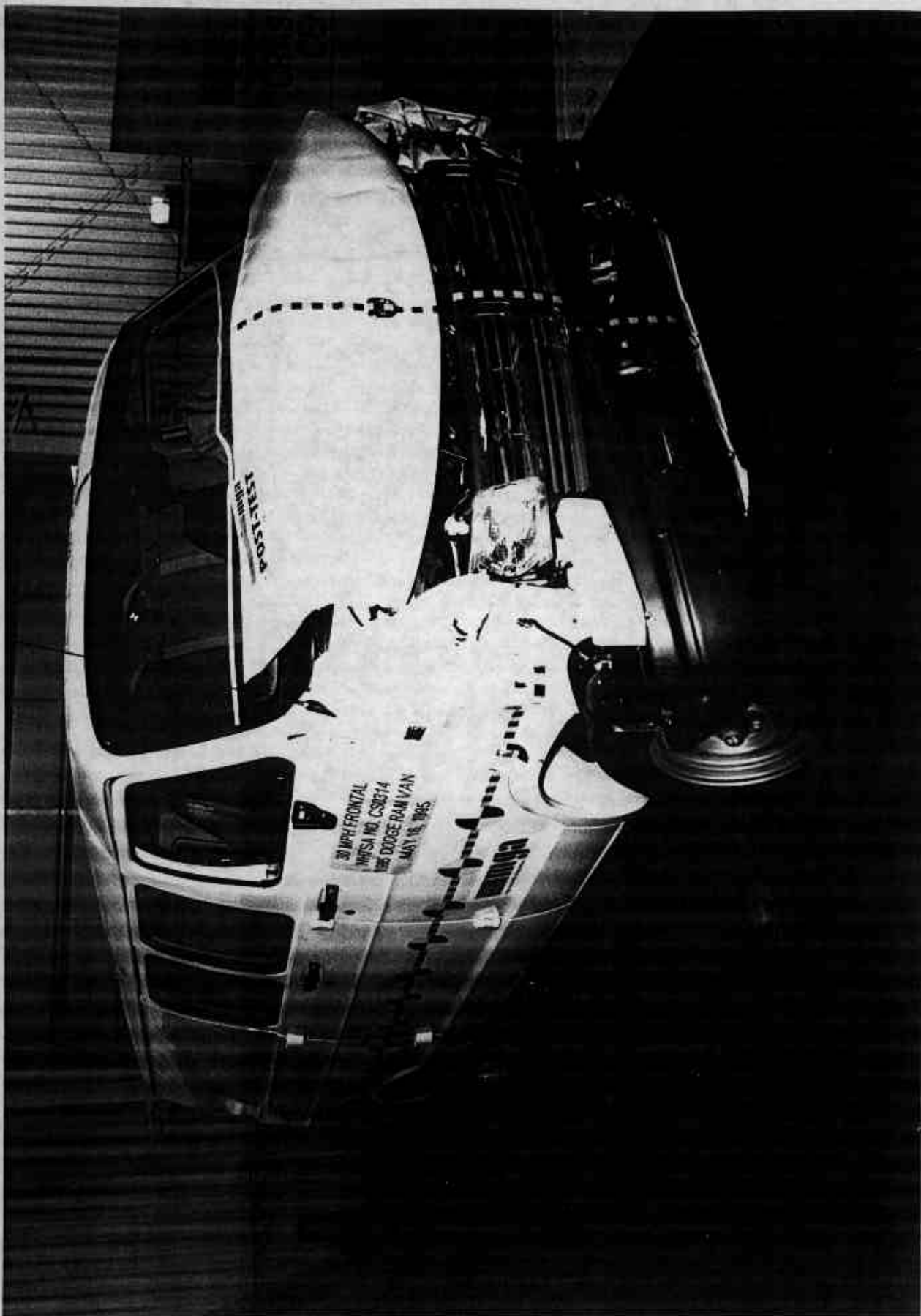


Photo No. A-10 - Post-Test Right 3/4 Front View

A-10



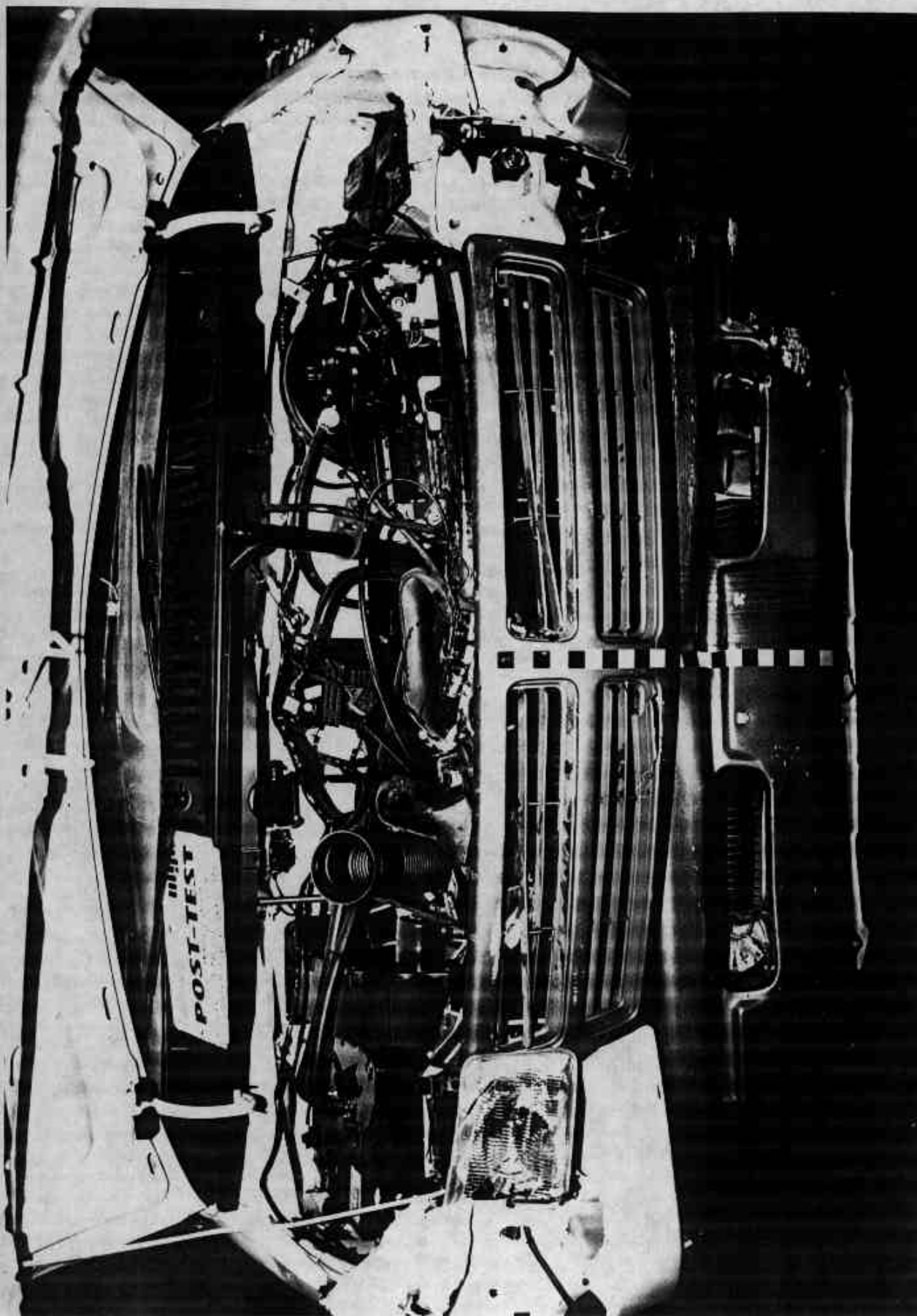
Photo No. A-11 - Pre-Test Rear View

A-11



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

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A-14

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

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PRE-TEST

208 COMPLIANCE
NHTSA NO. CS0314
1995 DODGE RAM VAN

A-15

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

ingra
mfg research corporation

POST-TEST

208 COMPLIANCE

NHTSA NO. CS0314

1995 DODGE RAM VAN

A-16

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

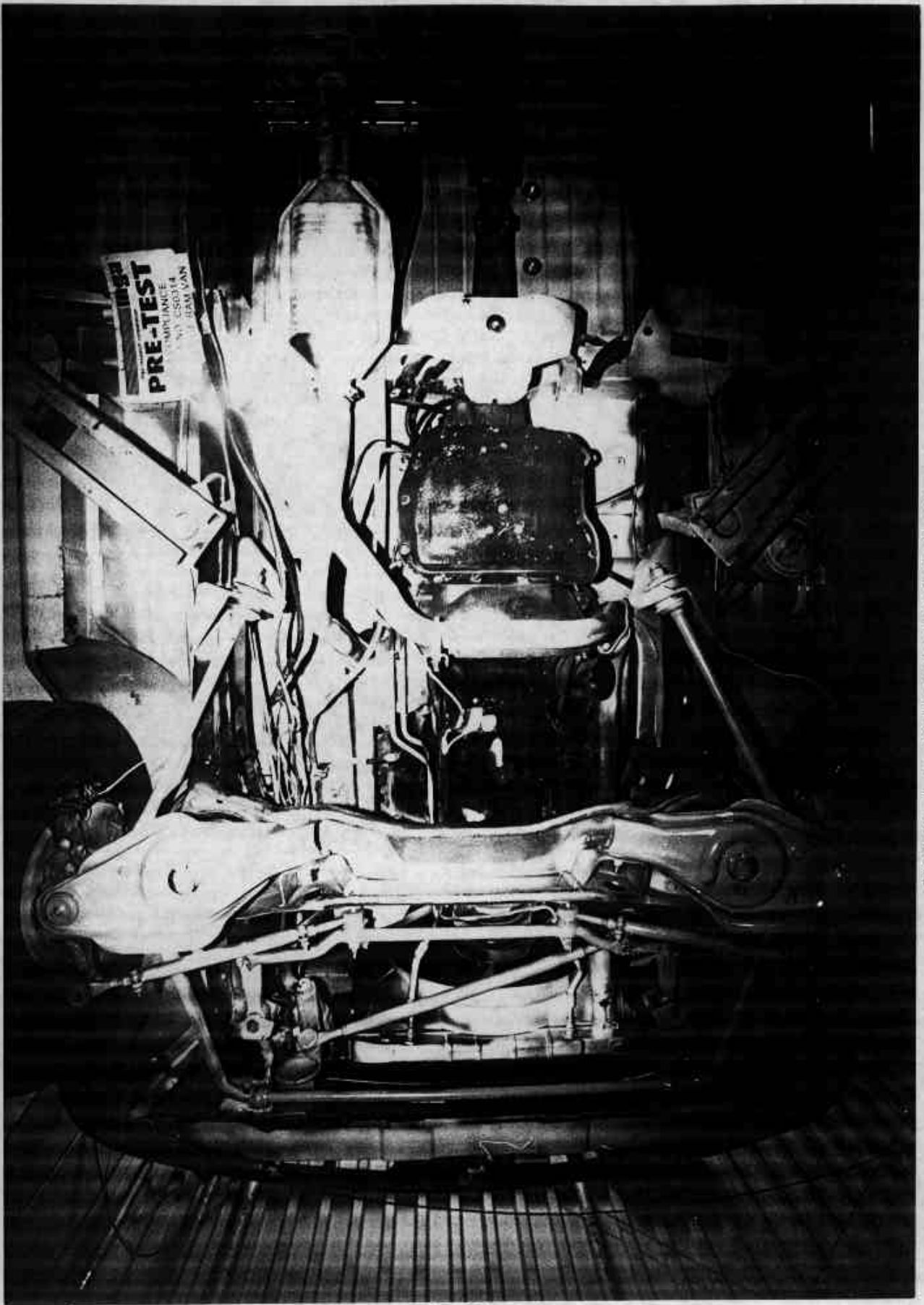


Photo No. A-17 - Pre-Test Front Underbody View

A-17

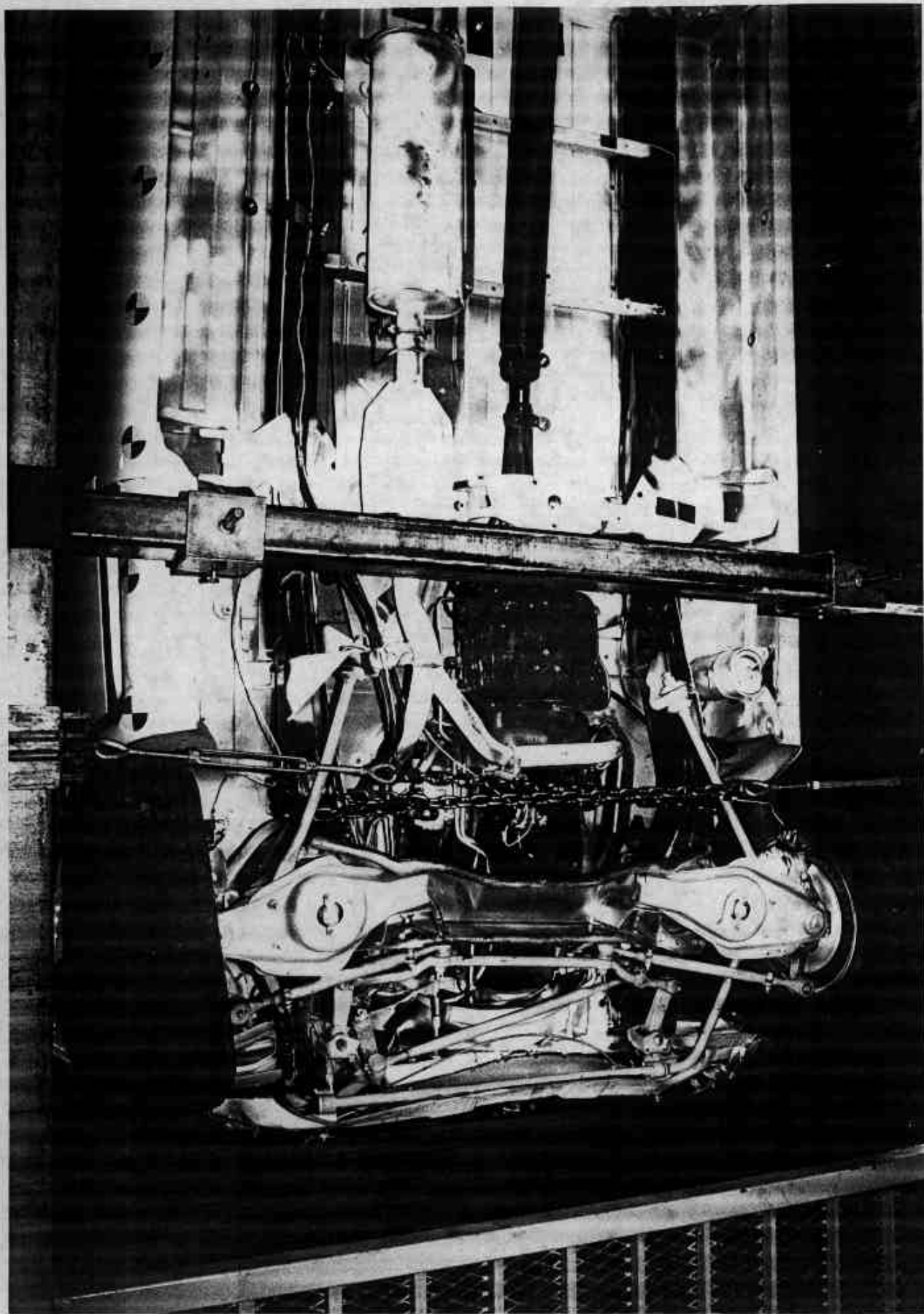


Photo No. A-18 - Post-Test Front Underbody View

A-18

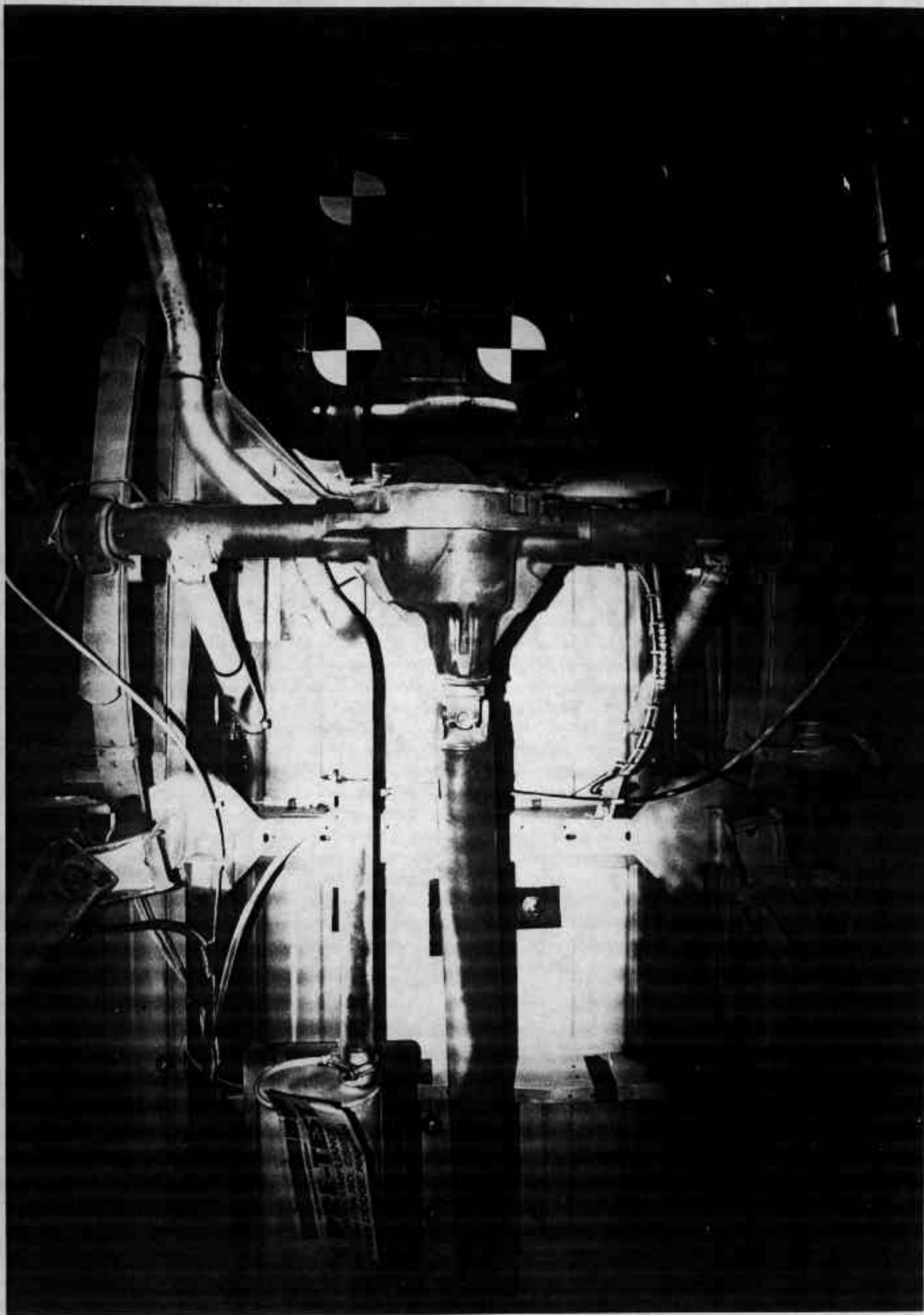


Photo No. A-19 - Pre-Test Rear Underbody View

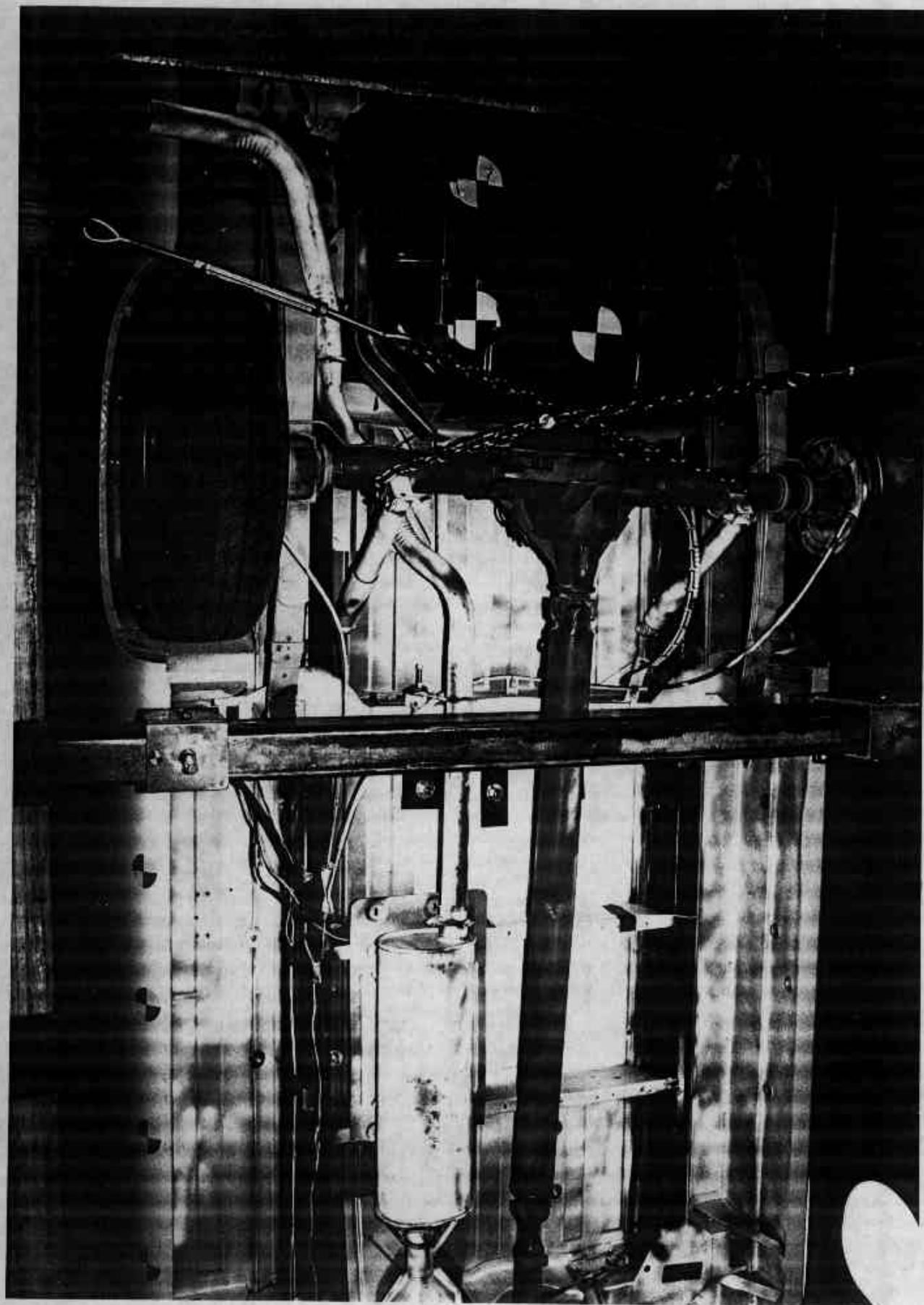
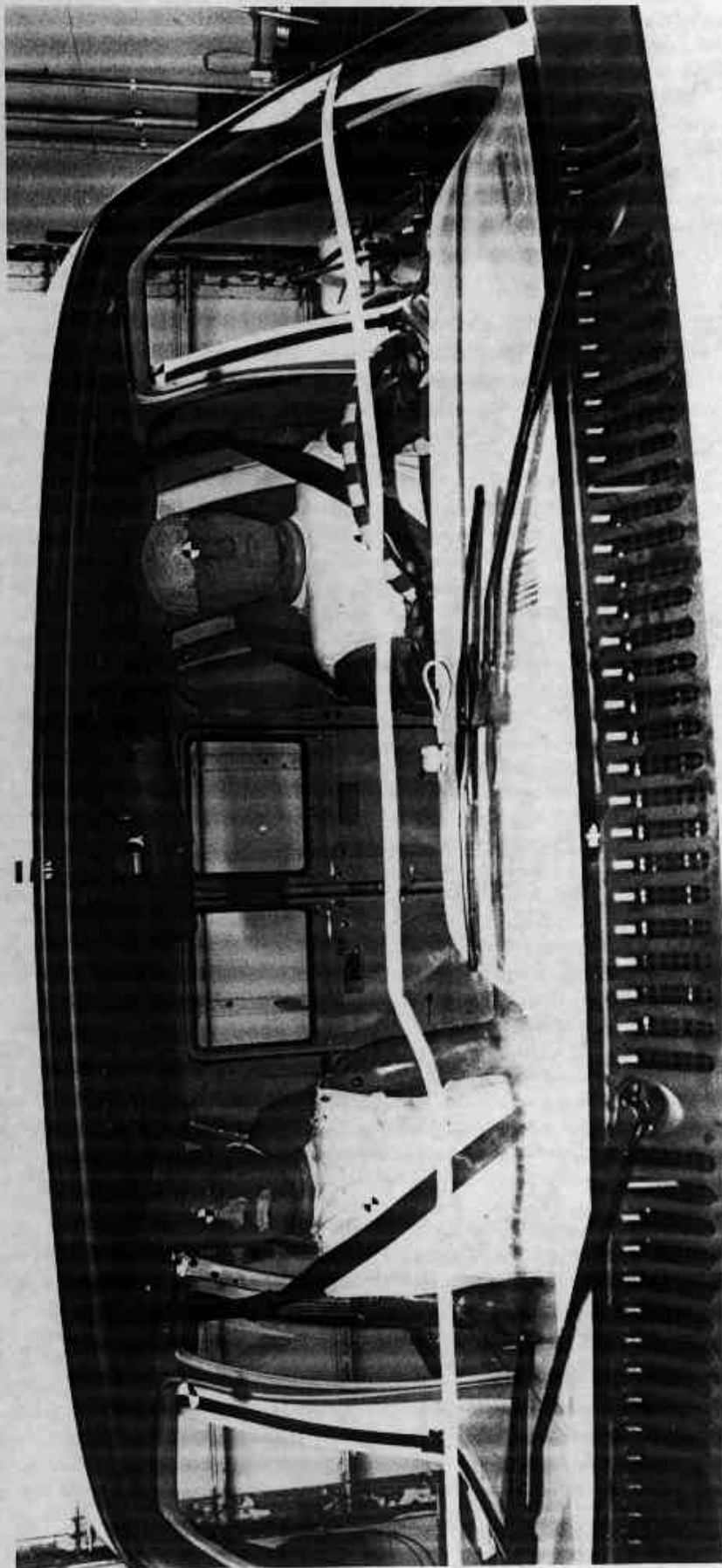


Photo No. A-20 - Post-Test Rear Underbody View

A-20

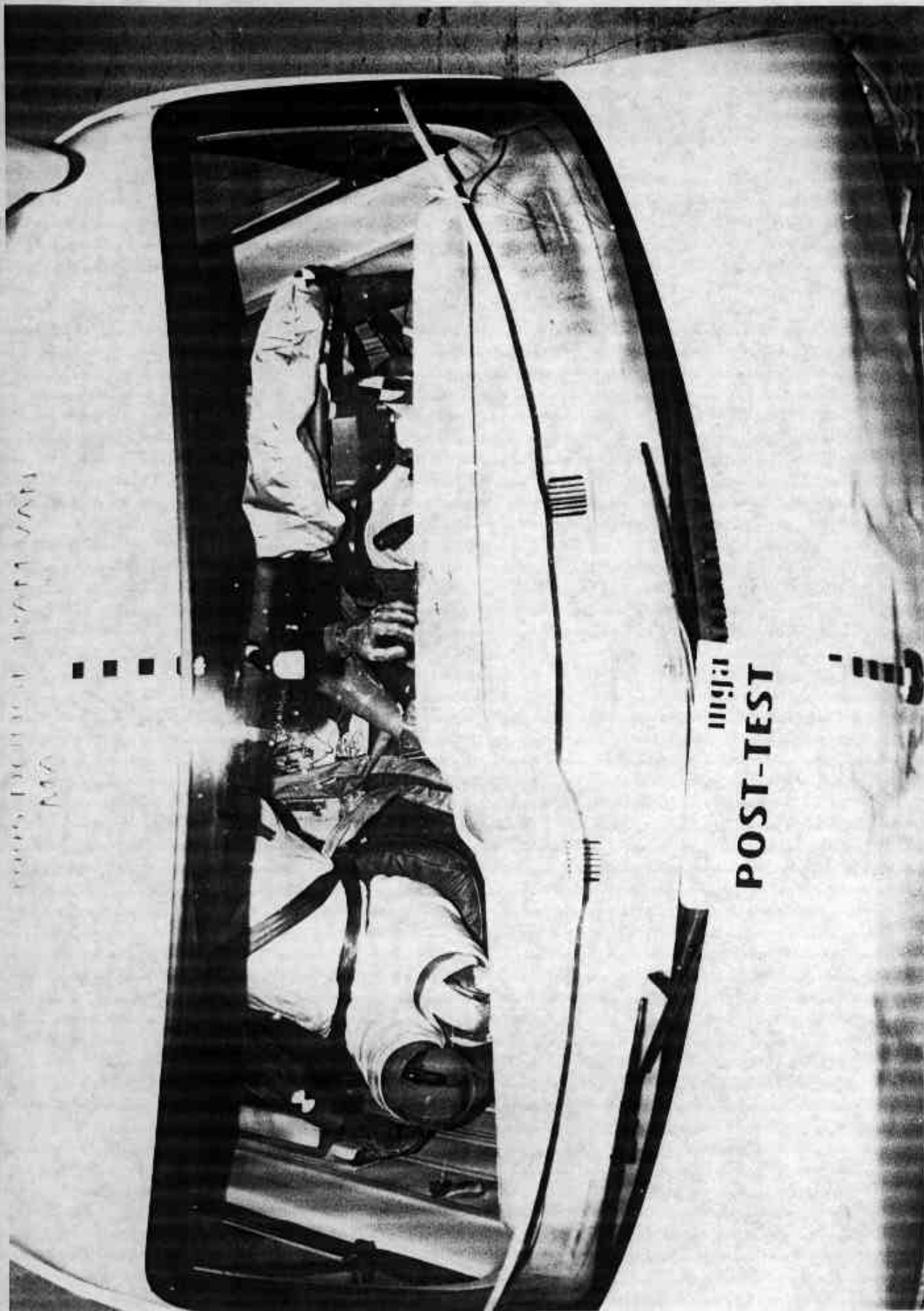


A-21

PRE-TEST



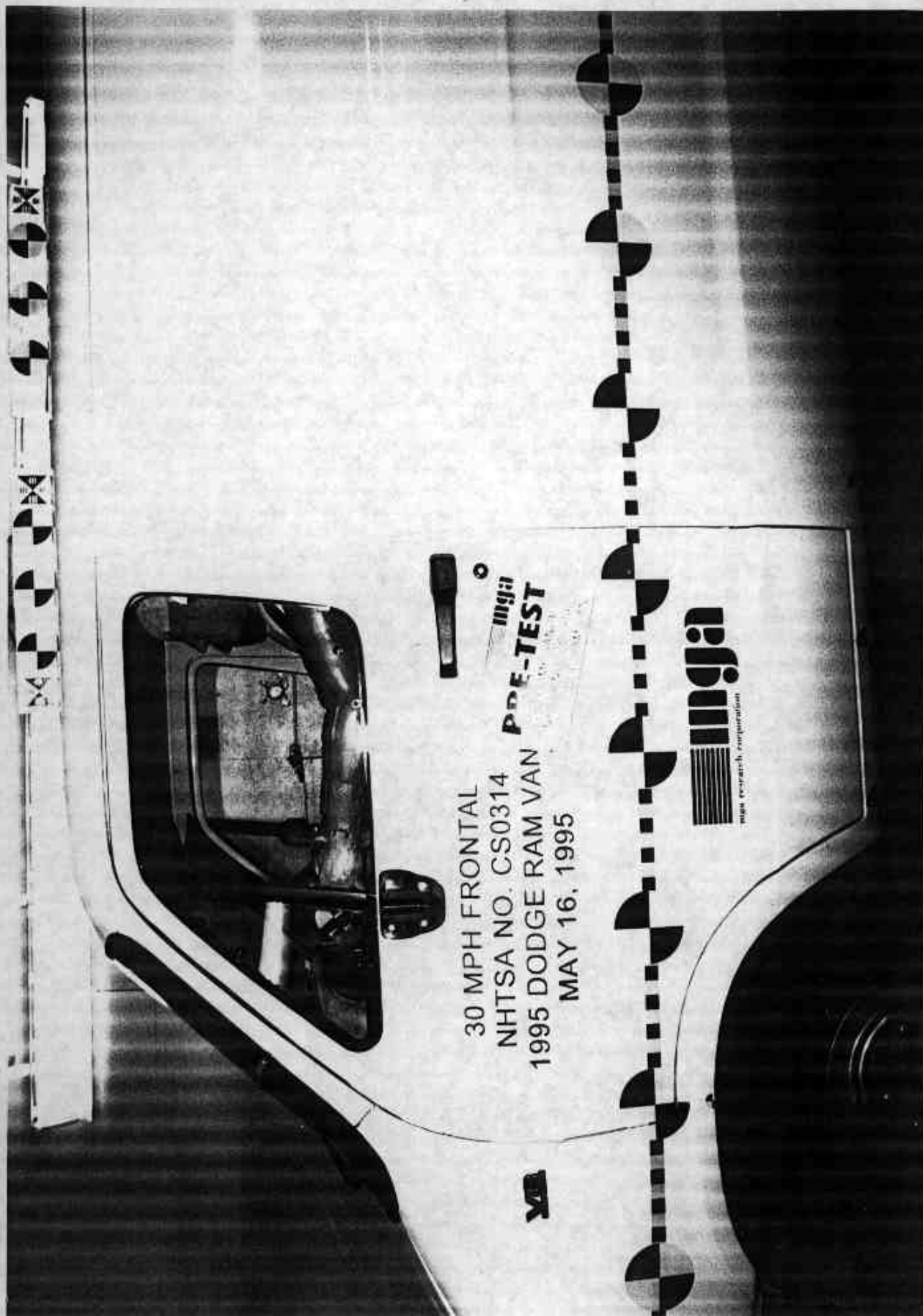
Photo No. A-21 - Pre-Test Front Windshield View



POST-TEST

A-22

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



A-23

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



Fig. 1

POST-TEST

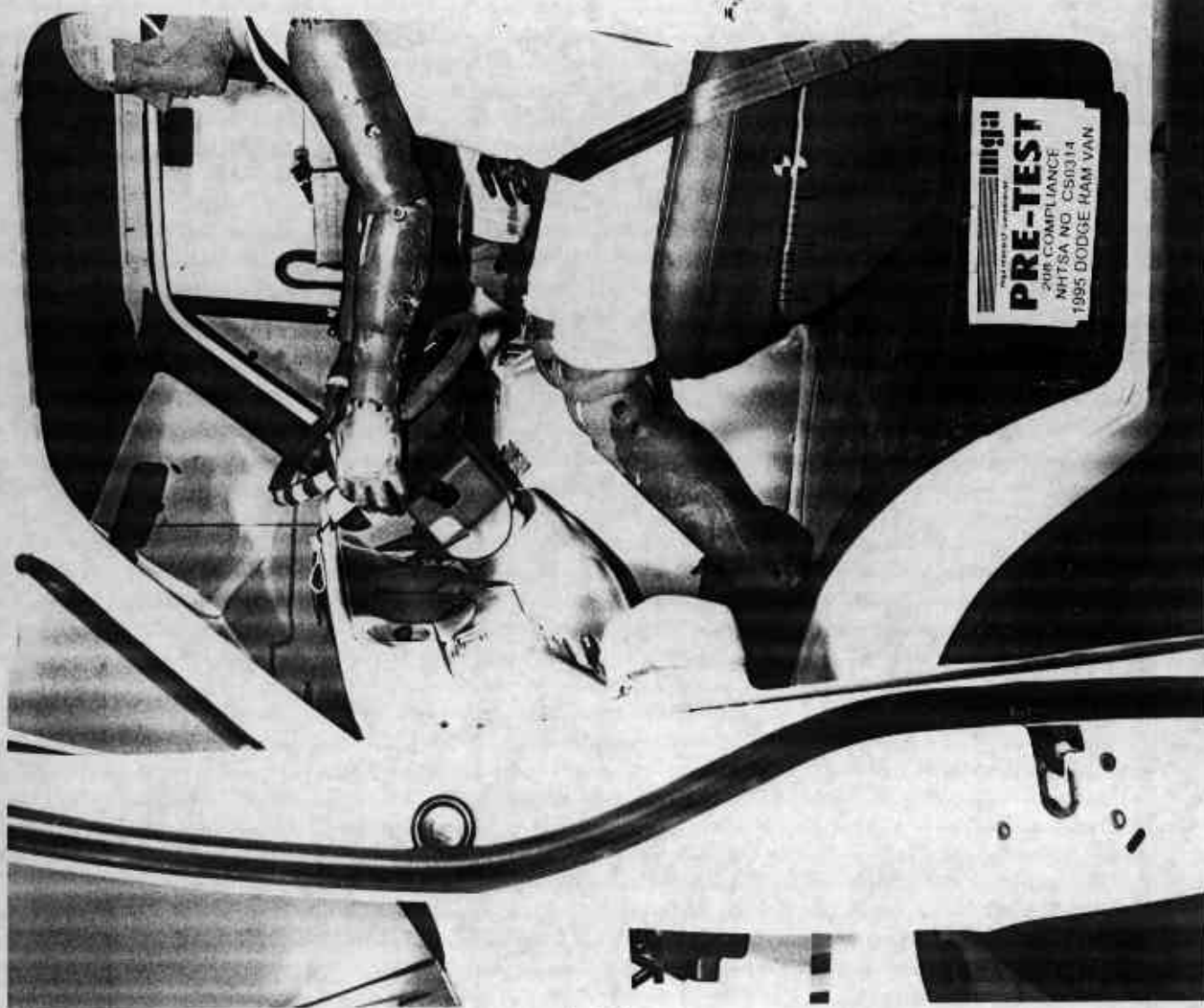
208 COMPLIANCE

NHTSA NO. CS0314

1995 DODGE RAM VAN

NHTSA NO. CS0314

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



A-25

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



A-26

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

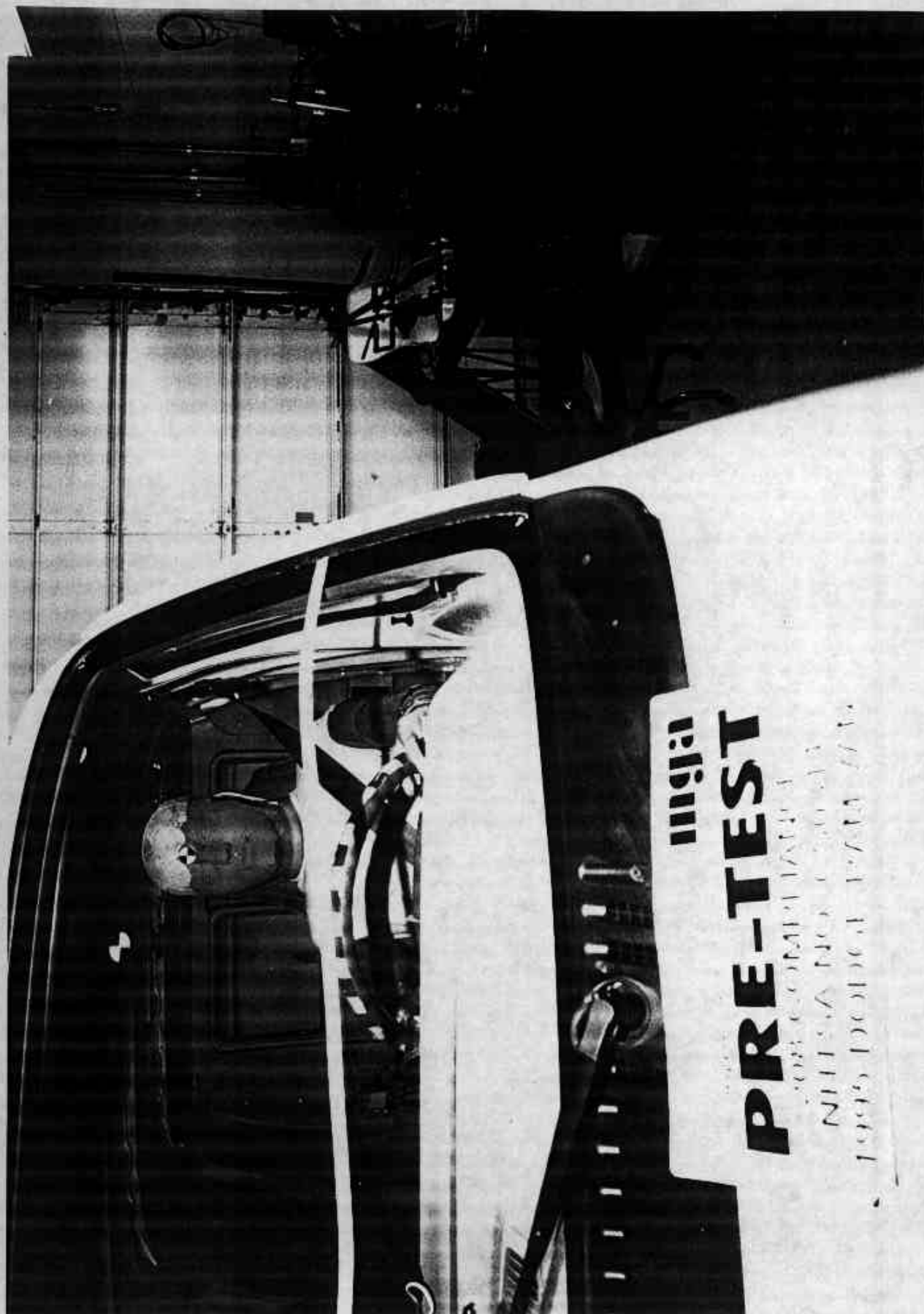


A-27

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



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



A-29

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



POST-TEST

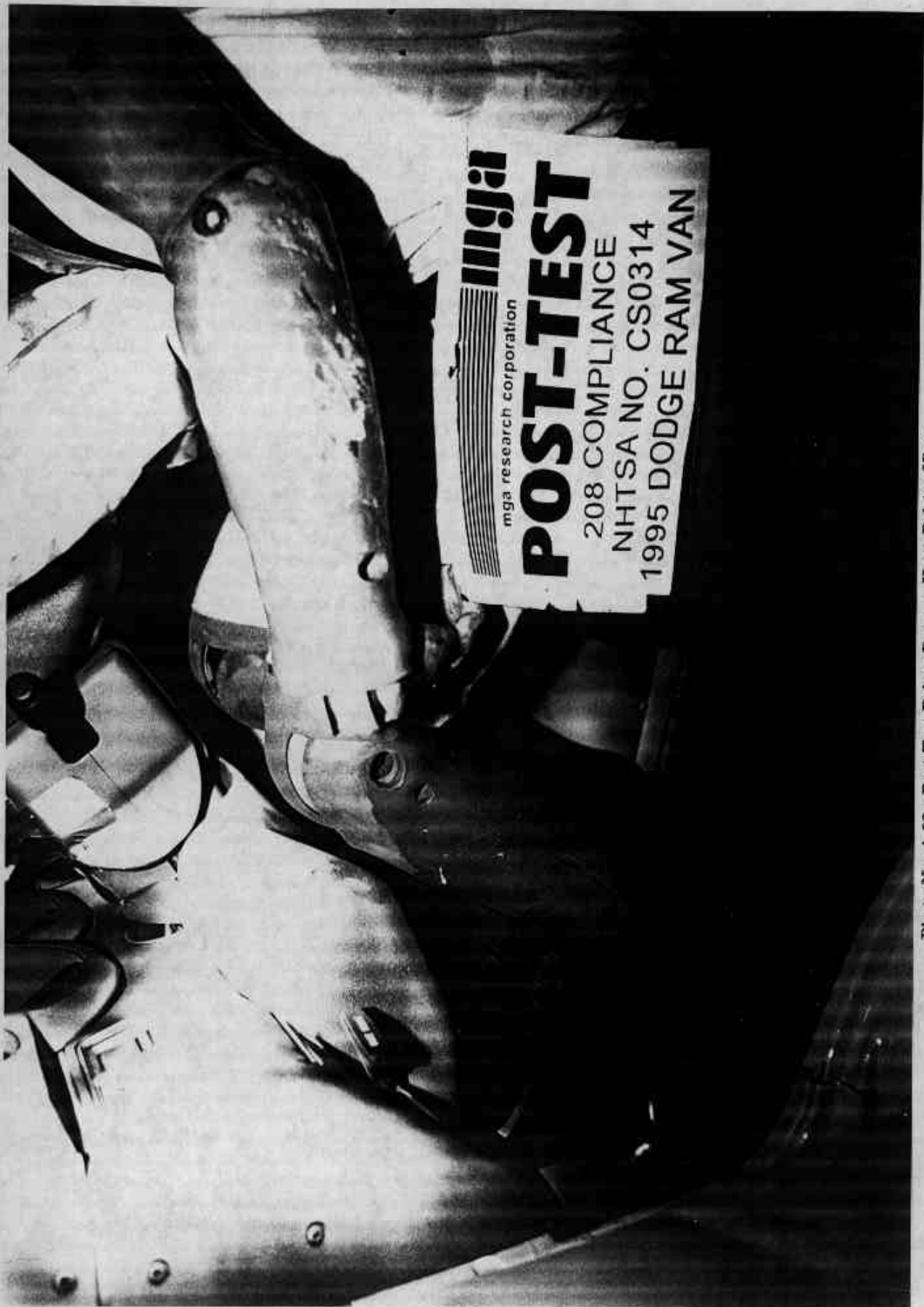
Photo No. A-30 - Post-Test Driver Windshield View

A-30



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

A-31



A-32

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



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



Photo No. A-34 - Post-Test Driver Head Contact View (Headrest)

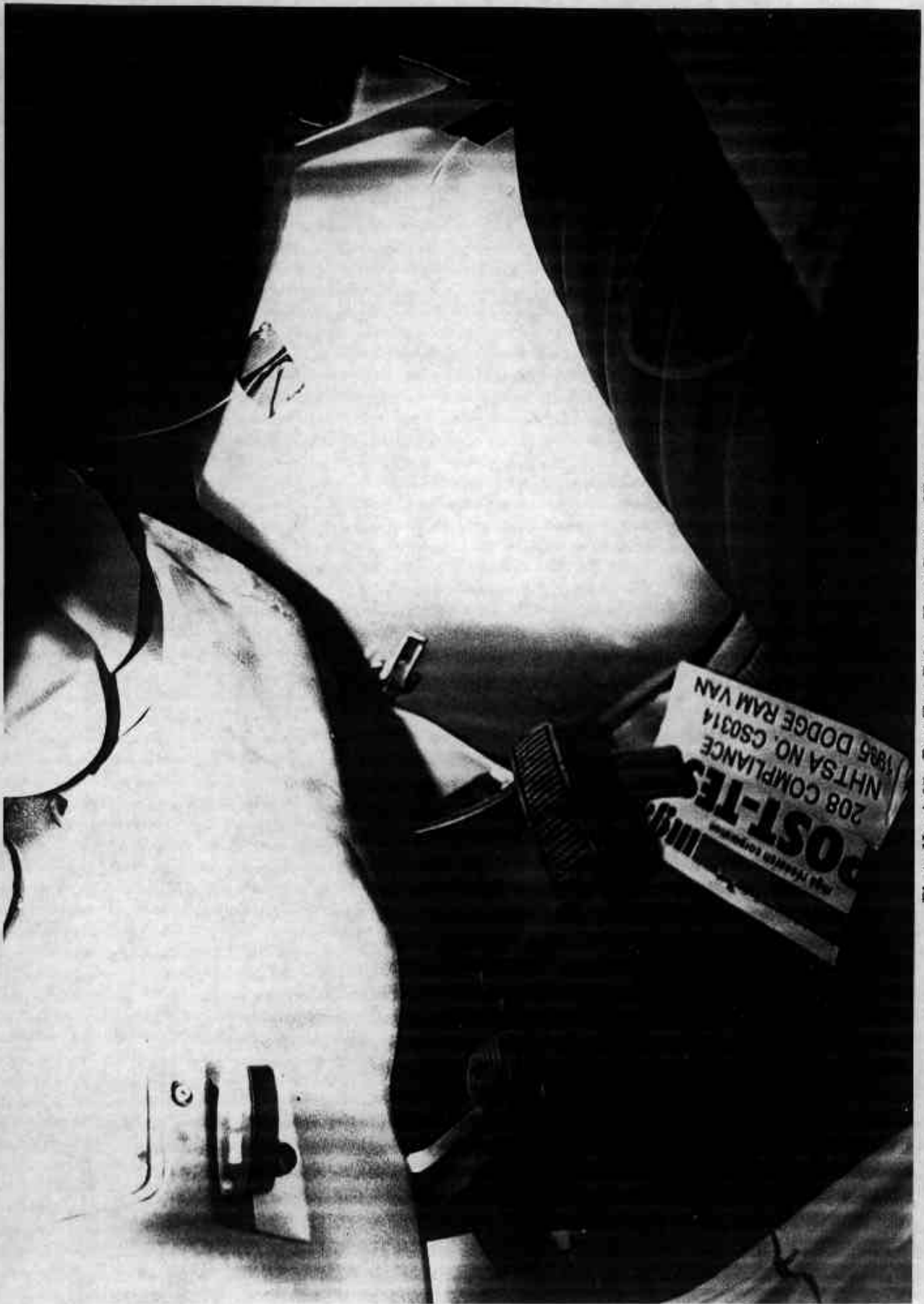
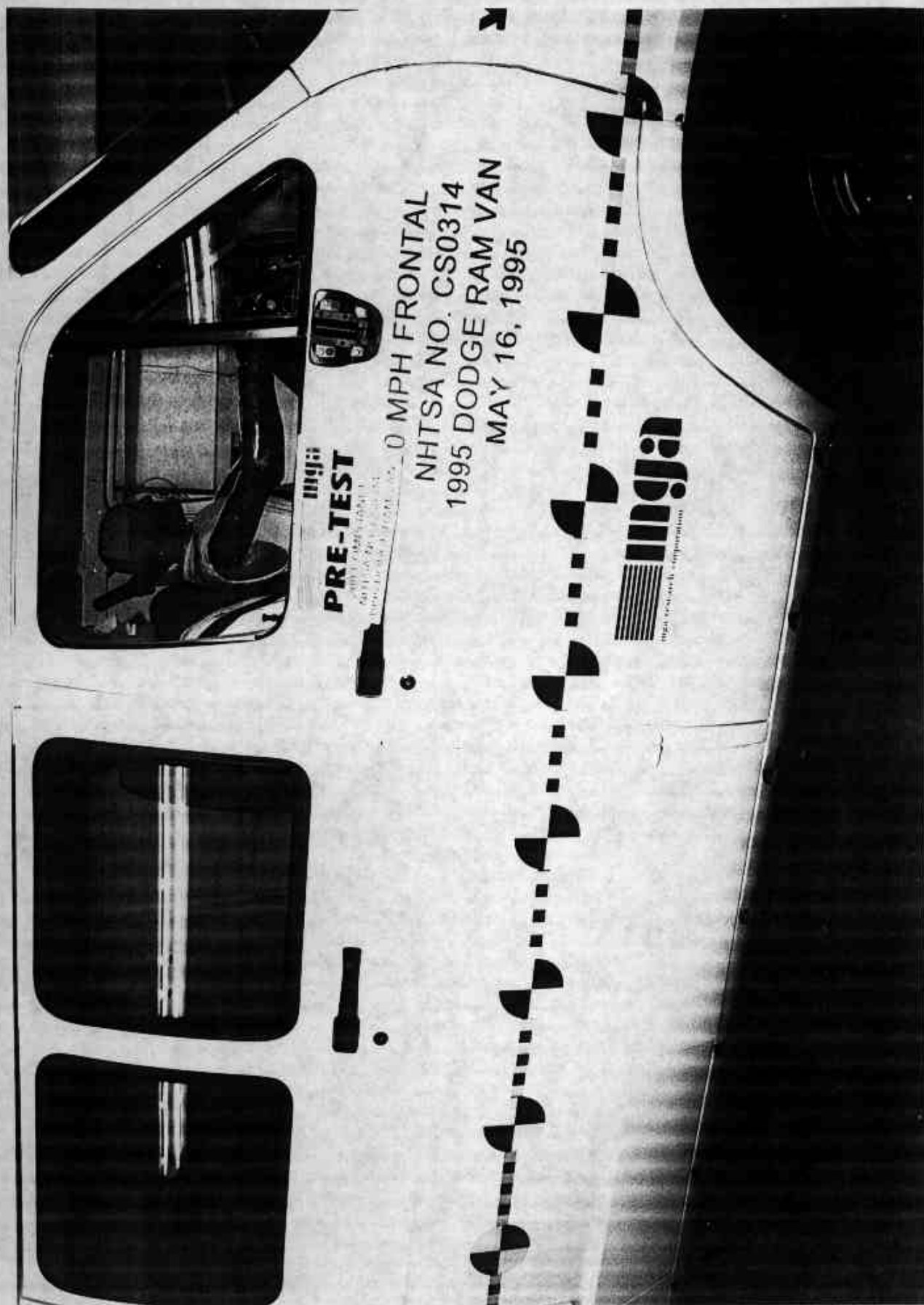


Photo No. A-35 - Post-Test Driver Knee Contact View



A-36

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



POST-TEST

2005 COMPLIANCE

TESTS AND EVALUATION

1995 DODGE RAM VAN



FRONT

Photo No. A-37 - Post-Test Passenger Dummy Position View

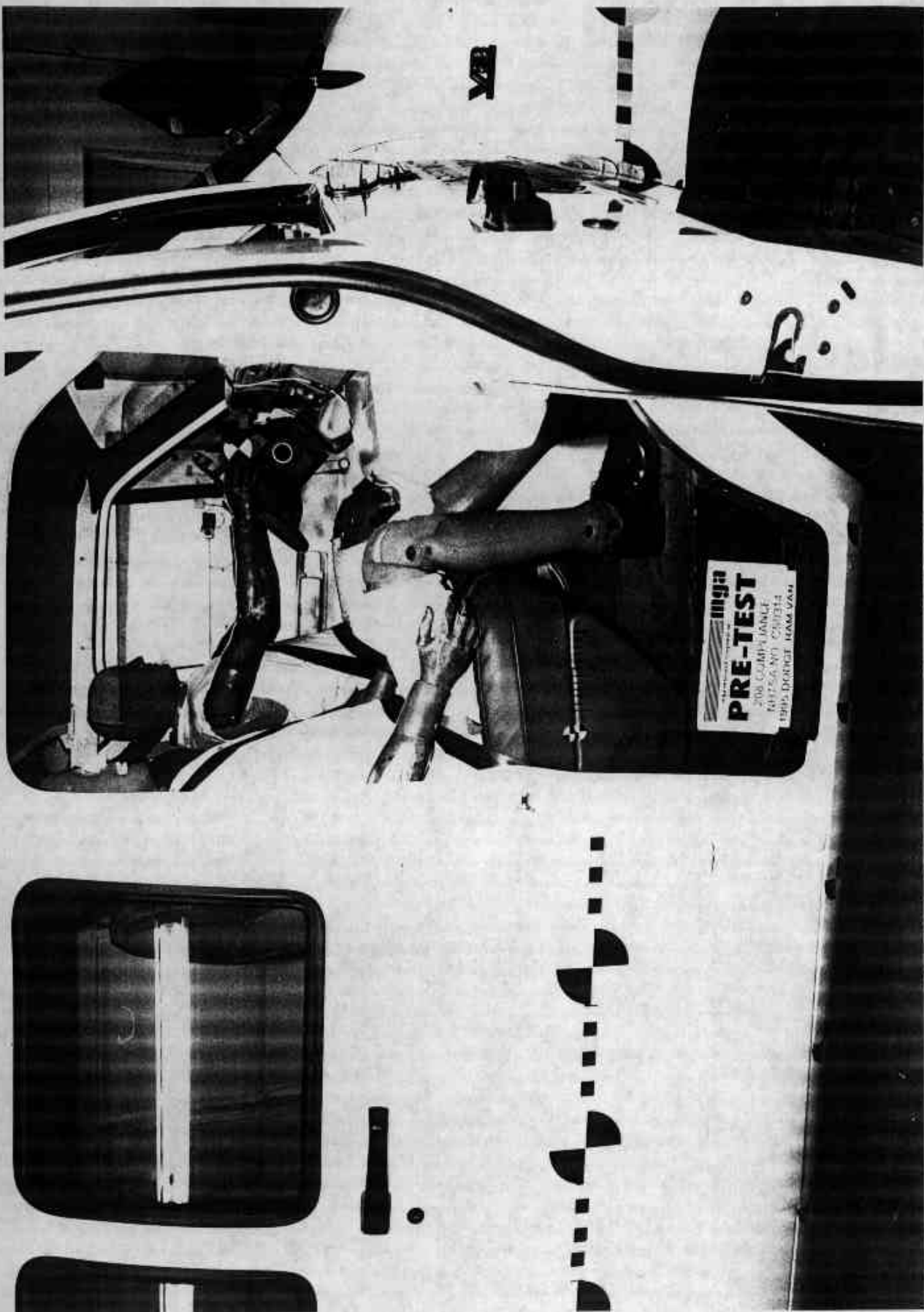
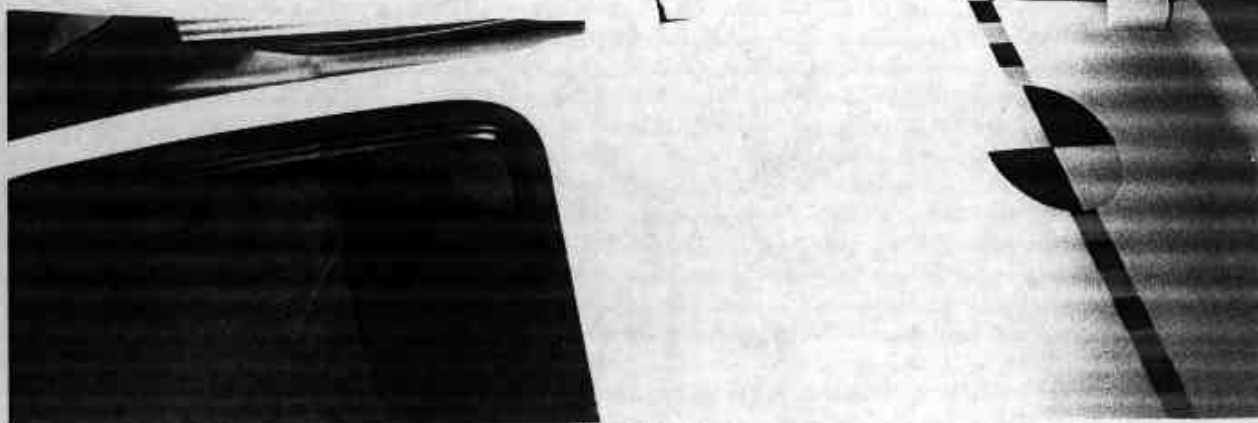


Photo No. A-38 - Pre-Test Passenger Dummy Position View (Door Open)

A-38



Photo No. A-39 - Post-Test Passenger Dummy Position View (Door Open)



A-39



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

A-40

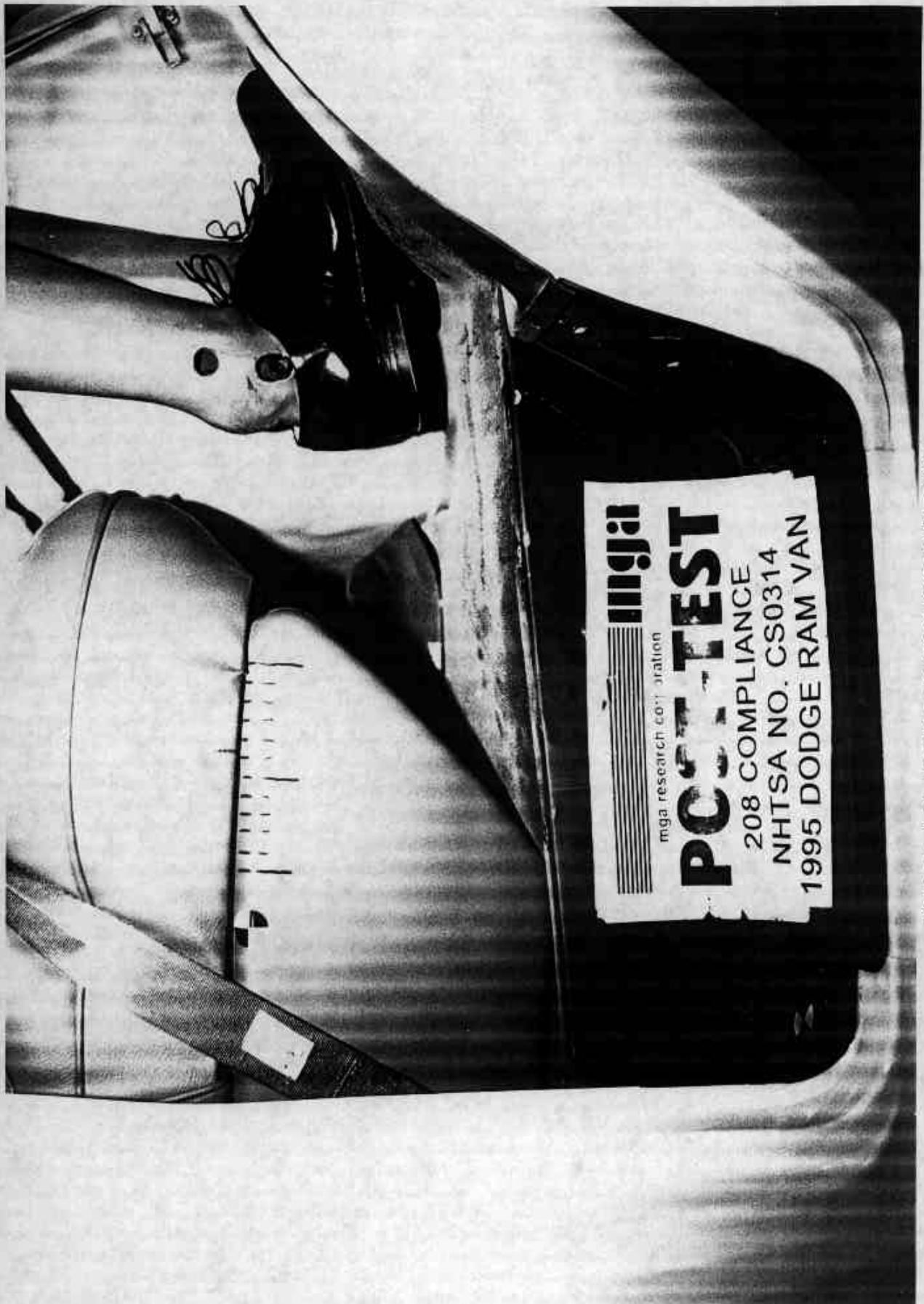
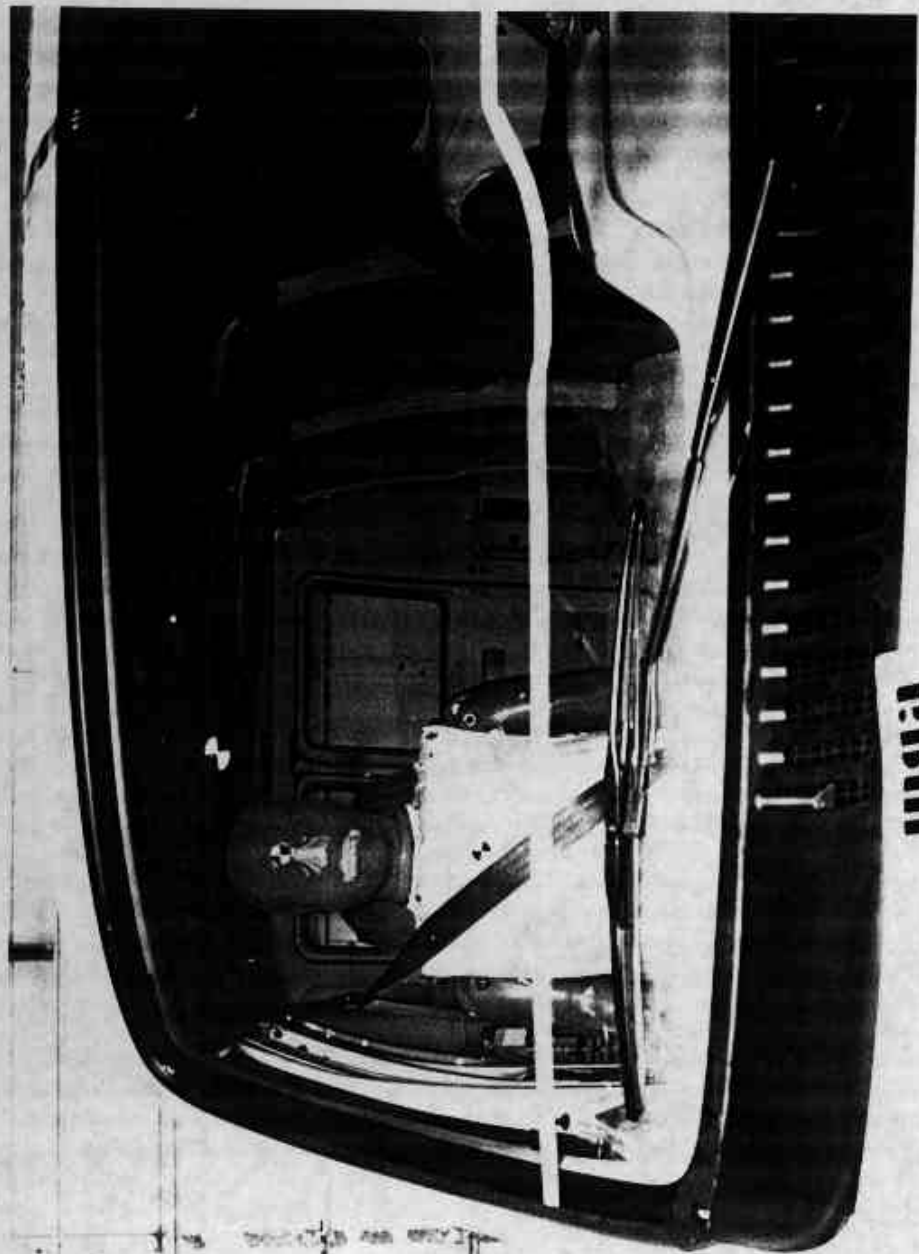


Photo No. A-41 - Post-Test Passenger Seat Position View



PRE-TEST

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

A-42



Photo No. A-43 - Post-Test Passenger Windshield View

A-43



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



Photo No. A-45 - Post-Test Passenger Dummy Knee Bolster View

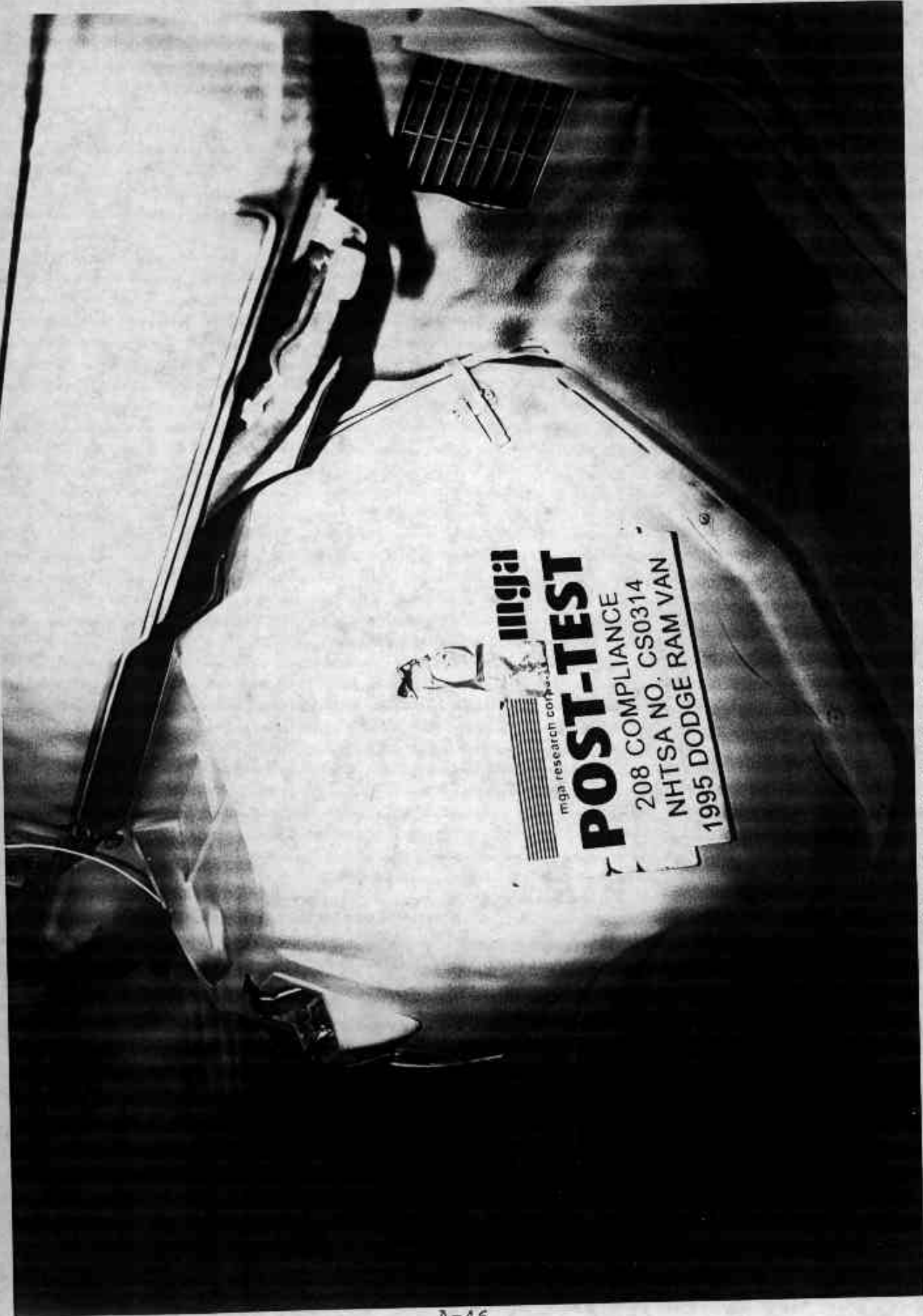


Photo No. A-46 - Post-Test Passenger Knee Contact View



Photo No. A-47 - Post-Test Passenger Head Contact View (Headrest)

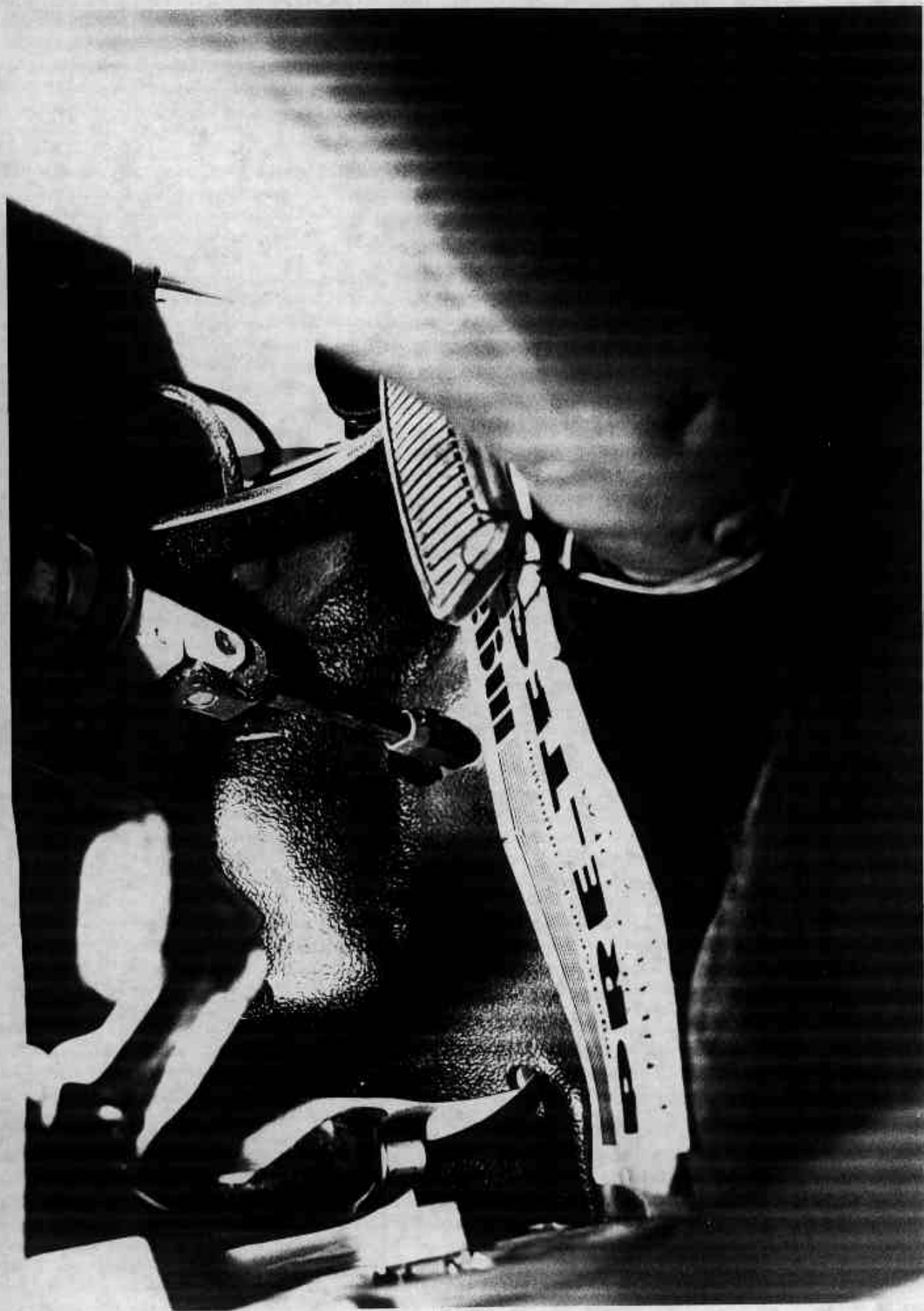


Photo No. A-48 - Pre-Test Steering Column at Firewall View (Interior)

A-48



A-49

Photo No. A-49 - Post-Test Steering Column at Firewall View (Interior)

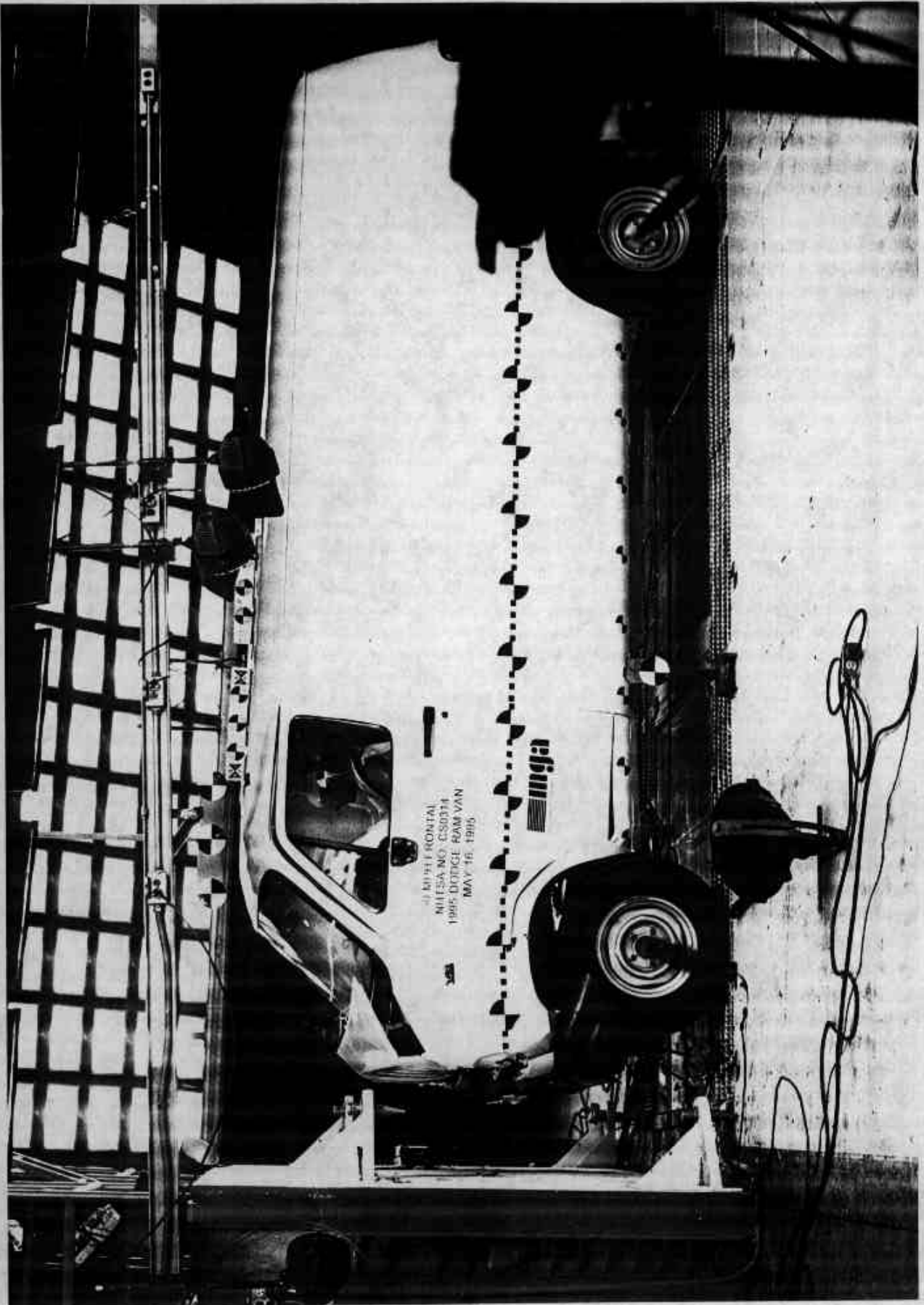


Photo No. A-50 - Vehicle Impact

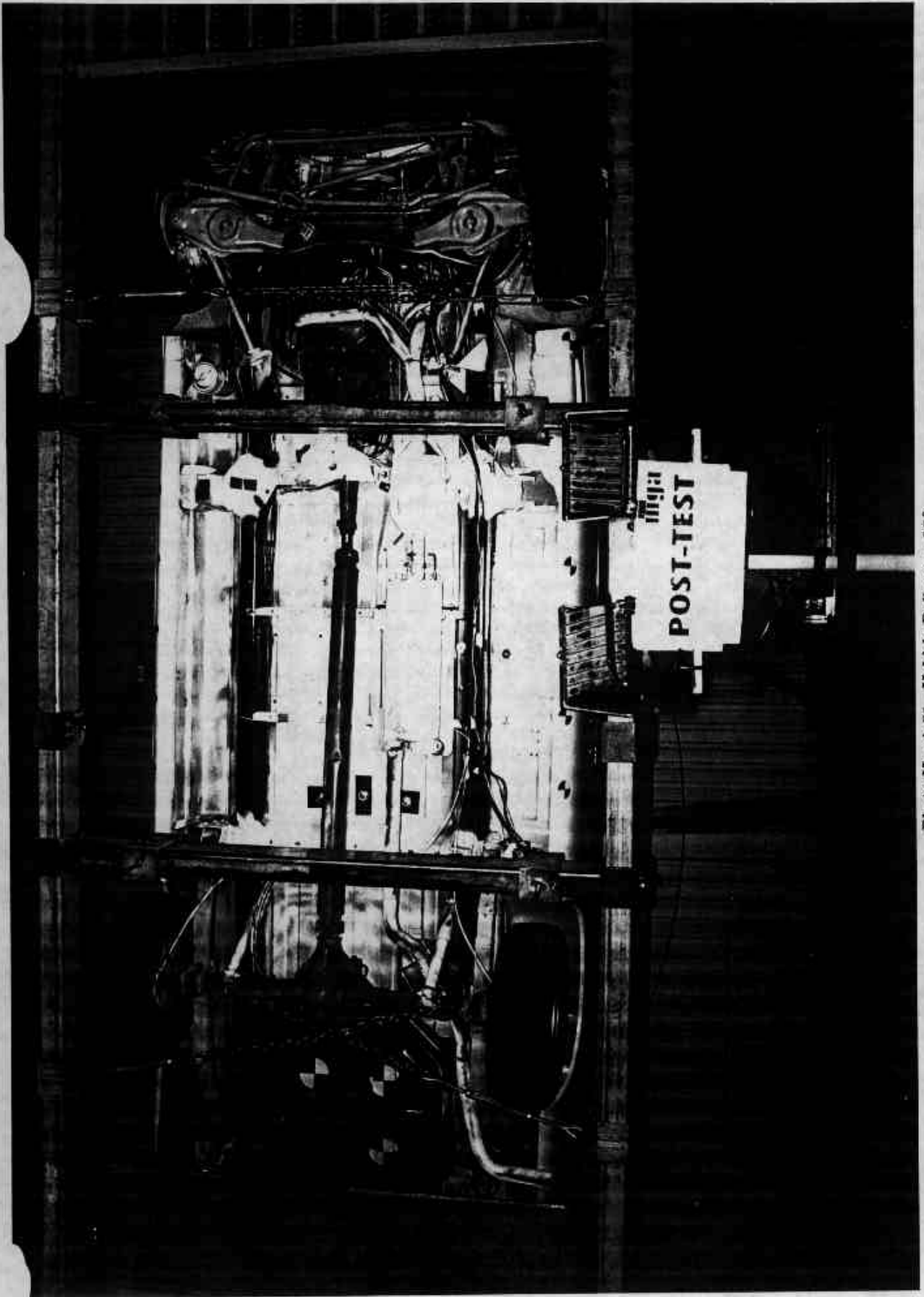


Photo No. A-51 - Vehicle Rollover - 90°

A-51

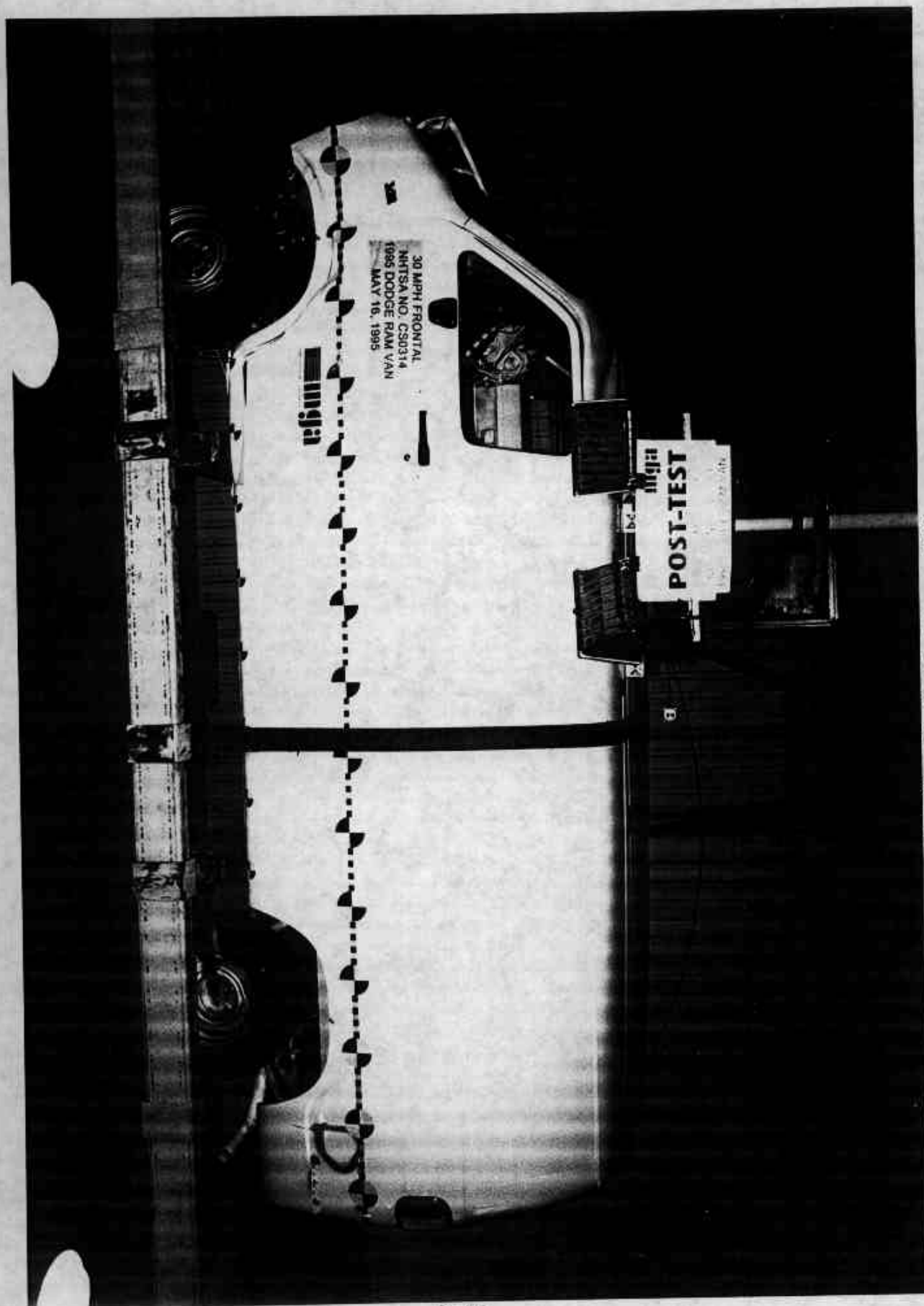


Photo No. A-52 - Vehicle Rollover - 1890

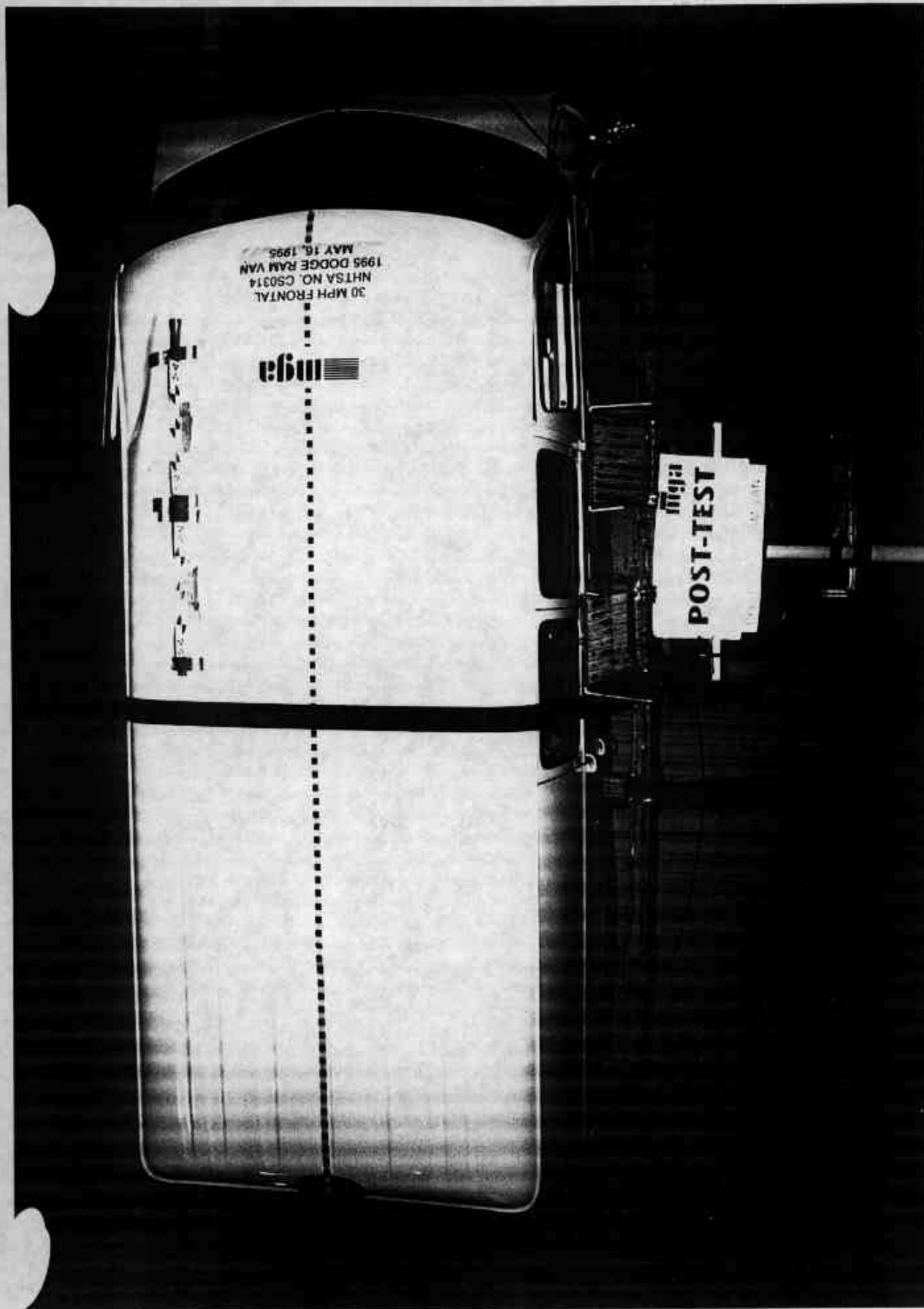


Photo No. A-53 - Vehicle Rollover - 270°

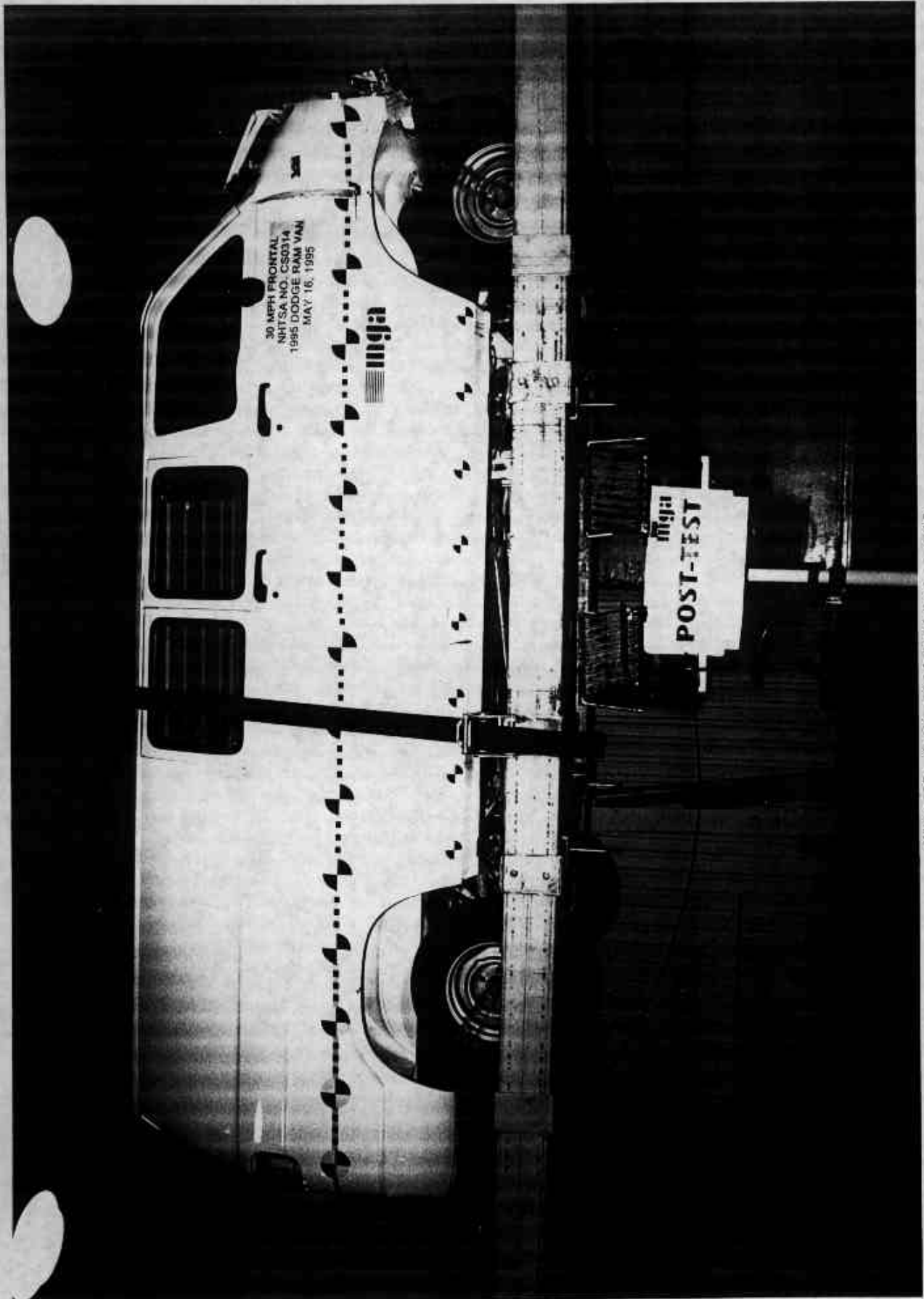


Photo No. A-54 - Vehicle Rollover - 360°

MFD BY CHRYSLER
 CORPORATION
 DATE OF MFR
 1-95
 GROSS WEIGHT
 3300 LB
 1497 KG
 CURB WEIGHT
 3406 LB
 1545 KG
 WITH TIRES
 P225/75R15
 WITH TIRES
 P225/75R15
 GROSS AXLE WEIGHT
 06010 LB
 2727 KG
 RIMS AT
 15 X 6.5
 PSI COLD
 35
 RIMS AT
 15 X 6.5
 PSI COLD
 35

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
 STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: 2B7AB21Y5K542273 TYPE: TRUCK SINGLE X DUAL



COUNTRY OF ORIGIN: CANADA
 MAKE: CHRYSLER
 MODEL: PT CRUISER
 BODY: 2-DOOR
 ENGINE: 1.6L I4
 TRANSMISSION: 5-SPEED MANUAL
 DRIVE: FRONT WHEEL DRIVE
 VIN: 2B7AB21Y5K542273
 GROSS WEIGHT: 3300 LB
 CURB WEIGHT: 3406 LB
 GROSS AXLE WEIGHT: 06010 LB
 RIMS AT: 15 X 6.5
 PSI COLD: 35

Photo No. A-55 - Vehicle Tire Placard

APPENDIX B
DATA PLOTS

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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
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Figure B-8 - Driver Chest Resultant Acceleration vs. Time	180	B-8
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Figure B-12 - Passenger Head Y Acceleration vs. Time	60	B-12
Figure B-13 - Passenger Head Z Acceleration vs. Time	60	B-13
Figure B-14 - Passenger Head Resultant Acceleration vs. Time	60	B-14
Figure B-15 - Passenger Chest X Acceleration vs. Time	60	B-15
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Figure B-21 - Top of Engine X Acceleration vs. Time*	60	B-21
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Figure B-26 - Left Front Brake Caliper X Acceleration vs. Time	60	B-26
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Figure B-28 - Trunk Z Acceleration vs. Time	60	B-28

* No valid data collected

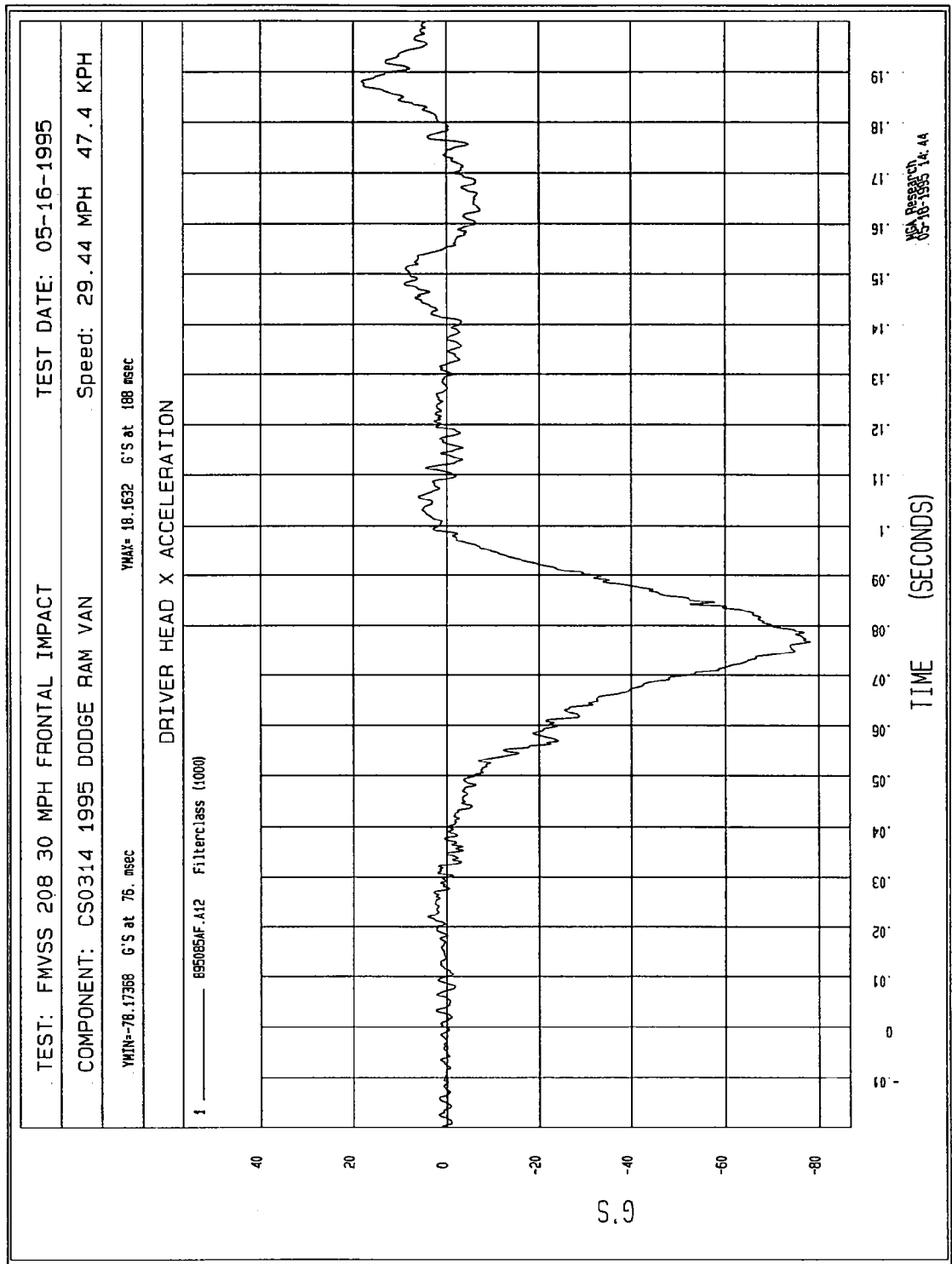


Figure B-1 - Driver Head X Acceleration vs. Time

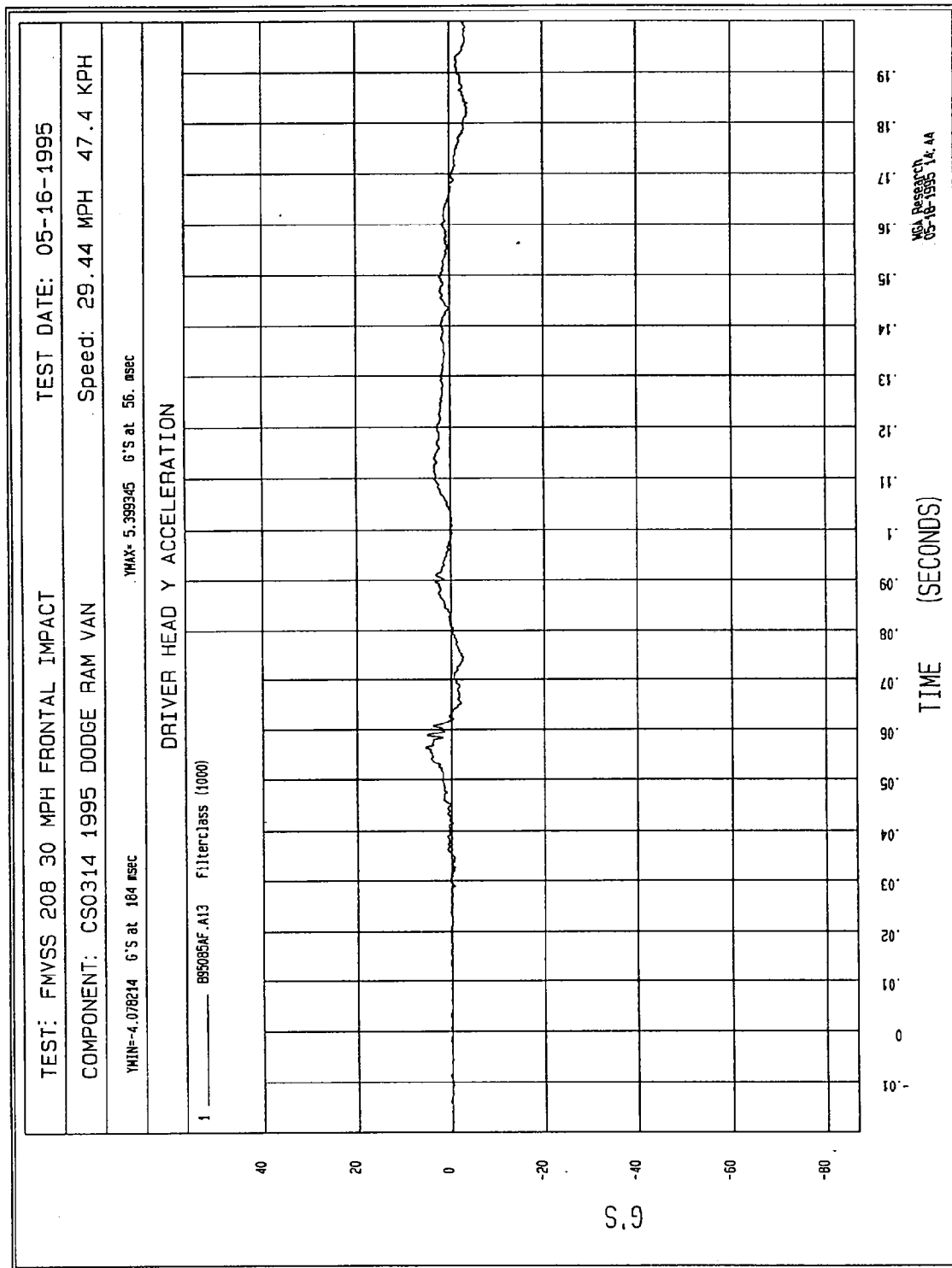


Figure B-2 - Driver Head Y Acceleration vs. Time

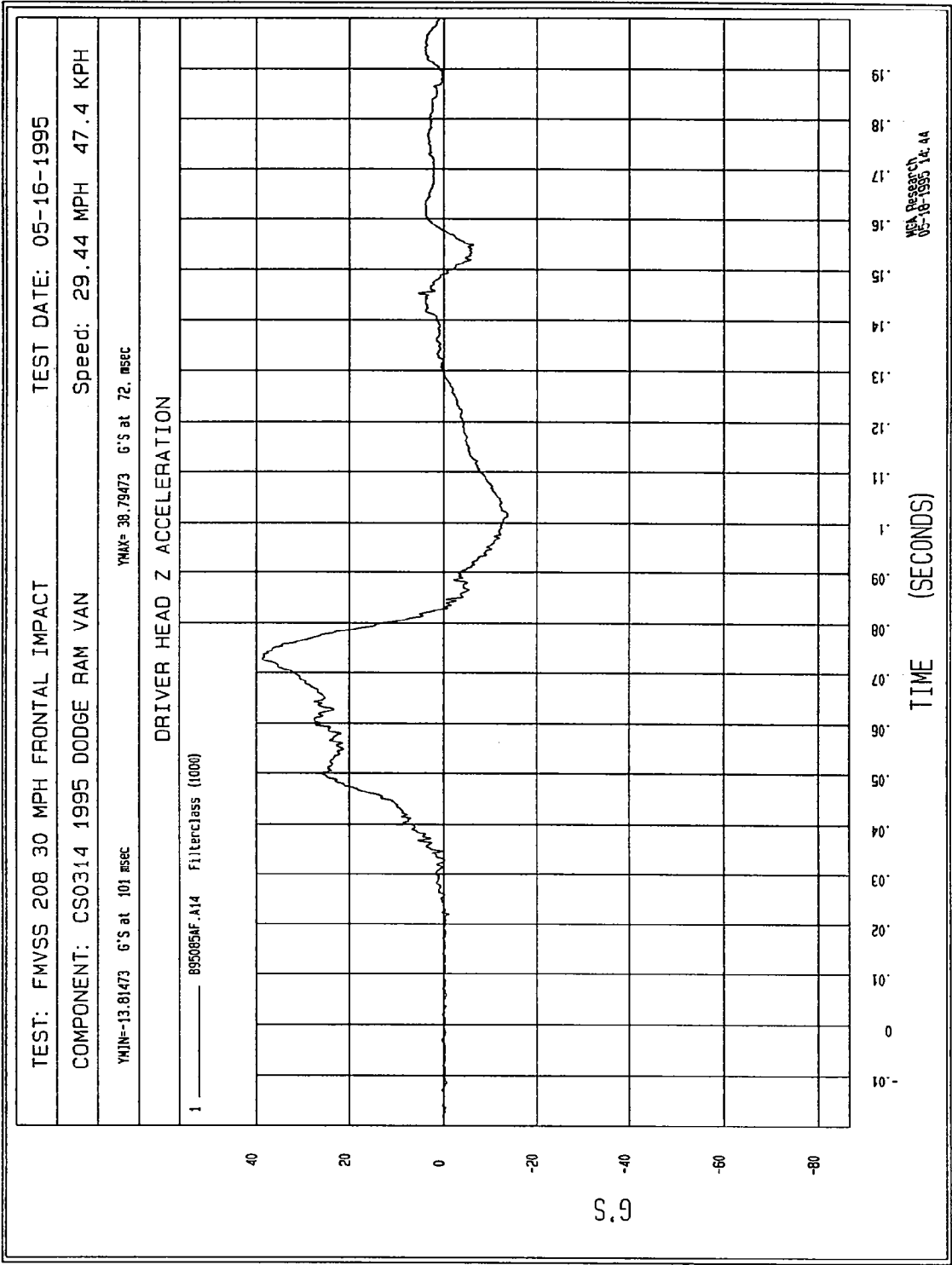


Figure B-3 - Driver Head Z Acceleration vs. Time

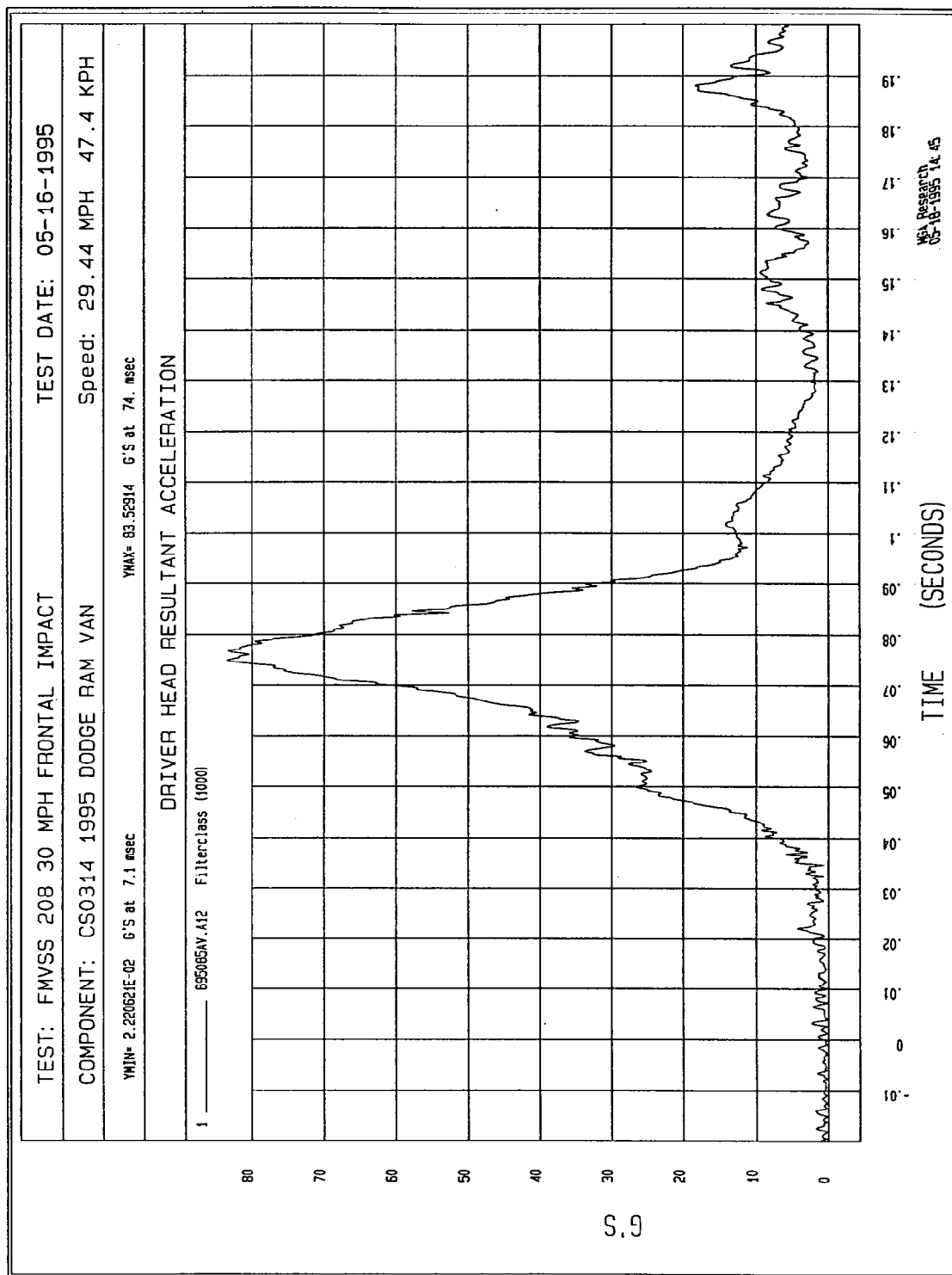


Figure B-4 - Driver Head Resultant Acceleration vs. Time

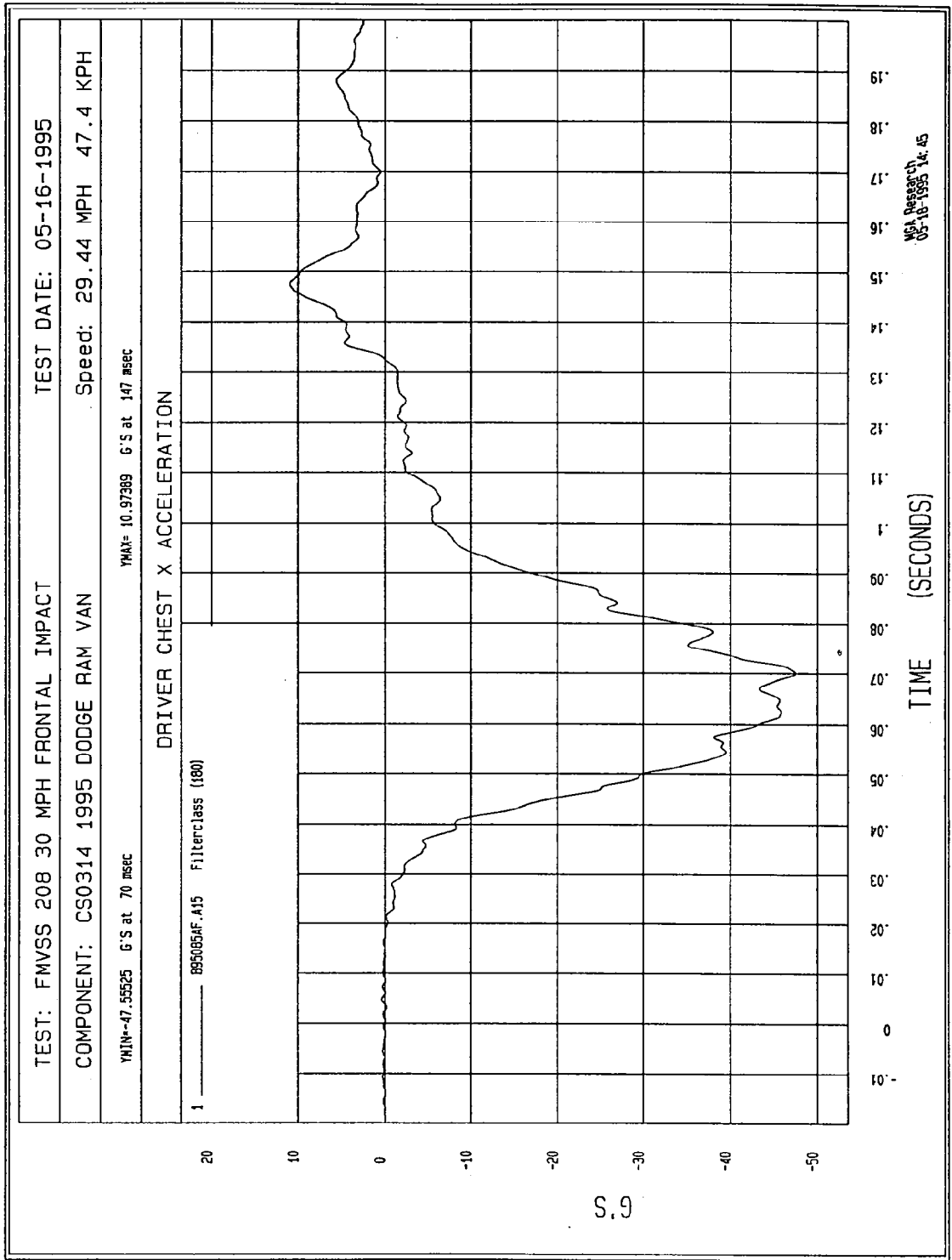


Figure B-5 - Driver Chest X Acceleration vs. Time

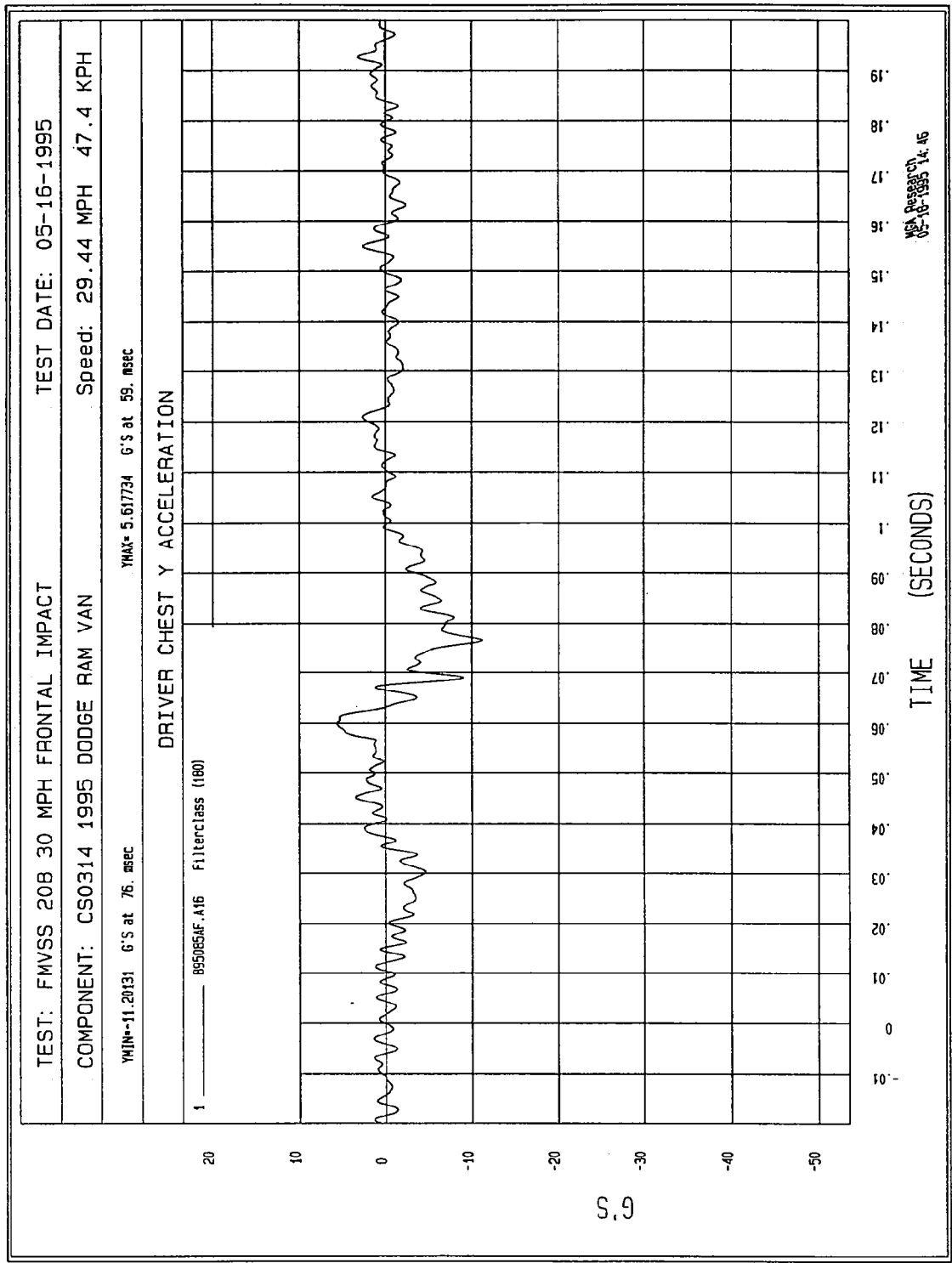


Figure B-6 - Driver Chest Y Acceleration vs. Time

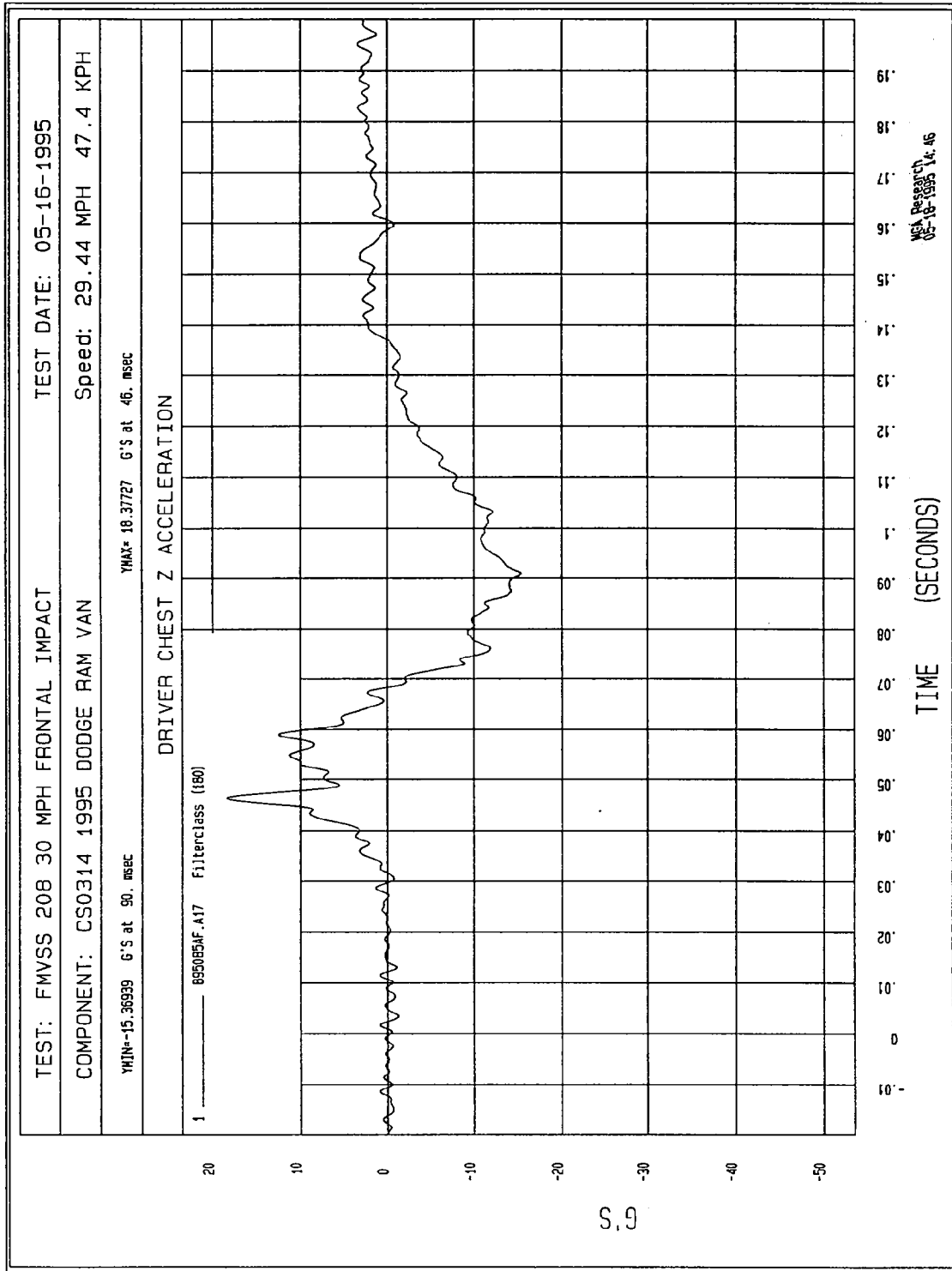


Figure B-7 - Driver Chest Z Acceleration vs. Time

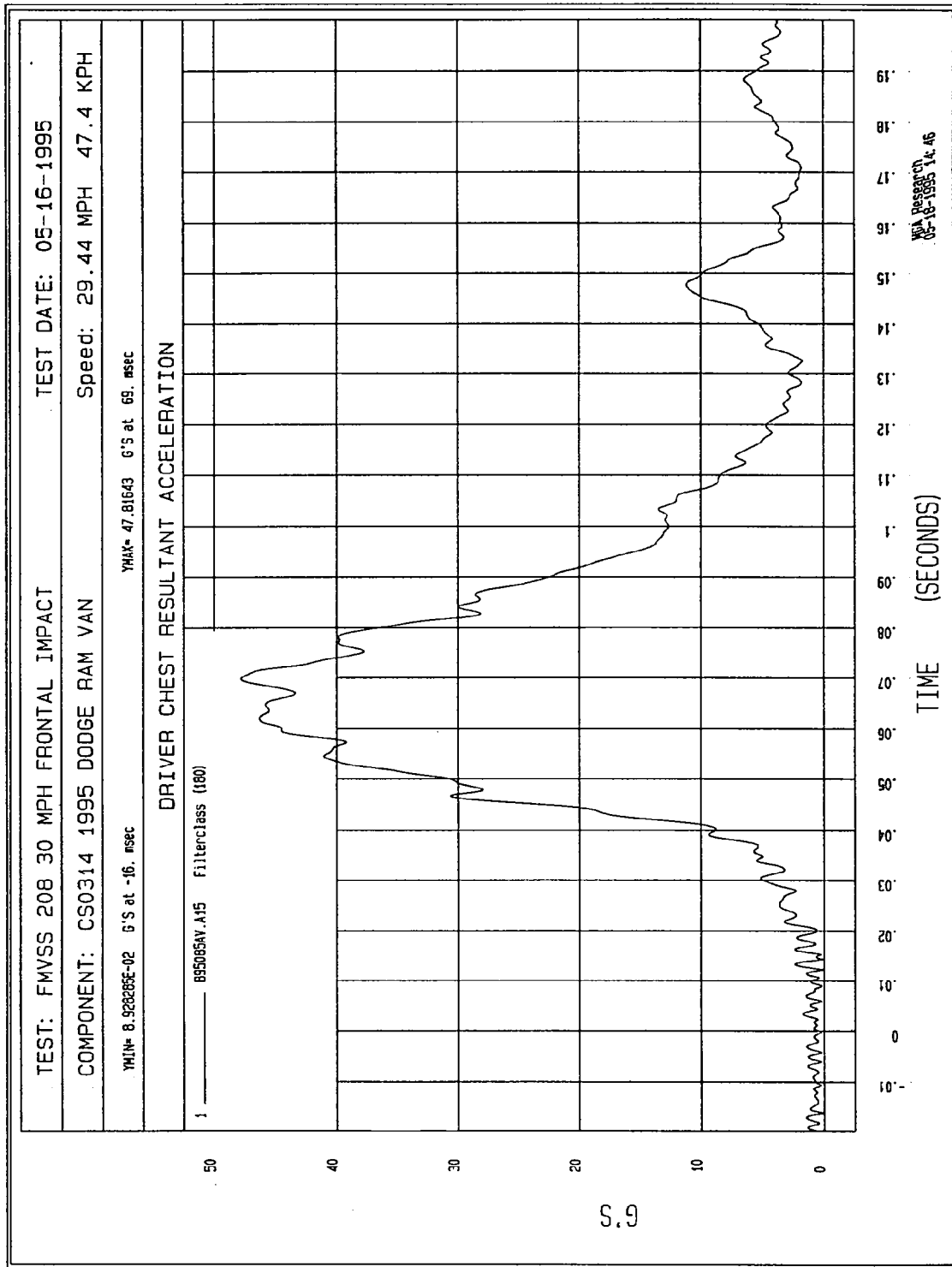


Figure B-8 - Driver Chest Resultant Acceleration vs. Time

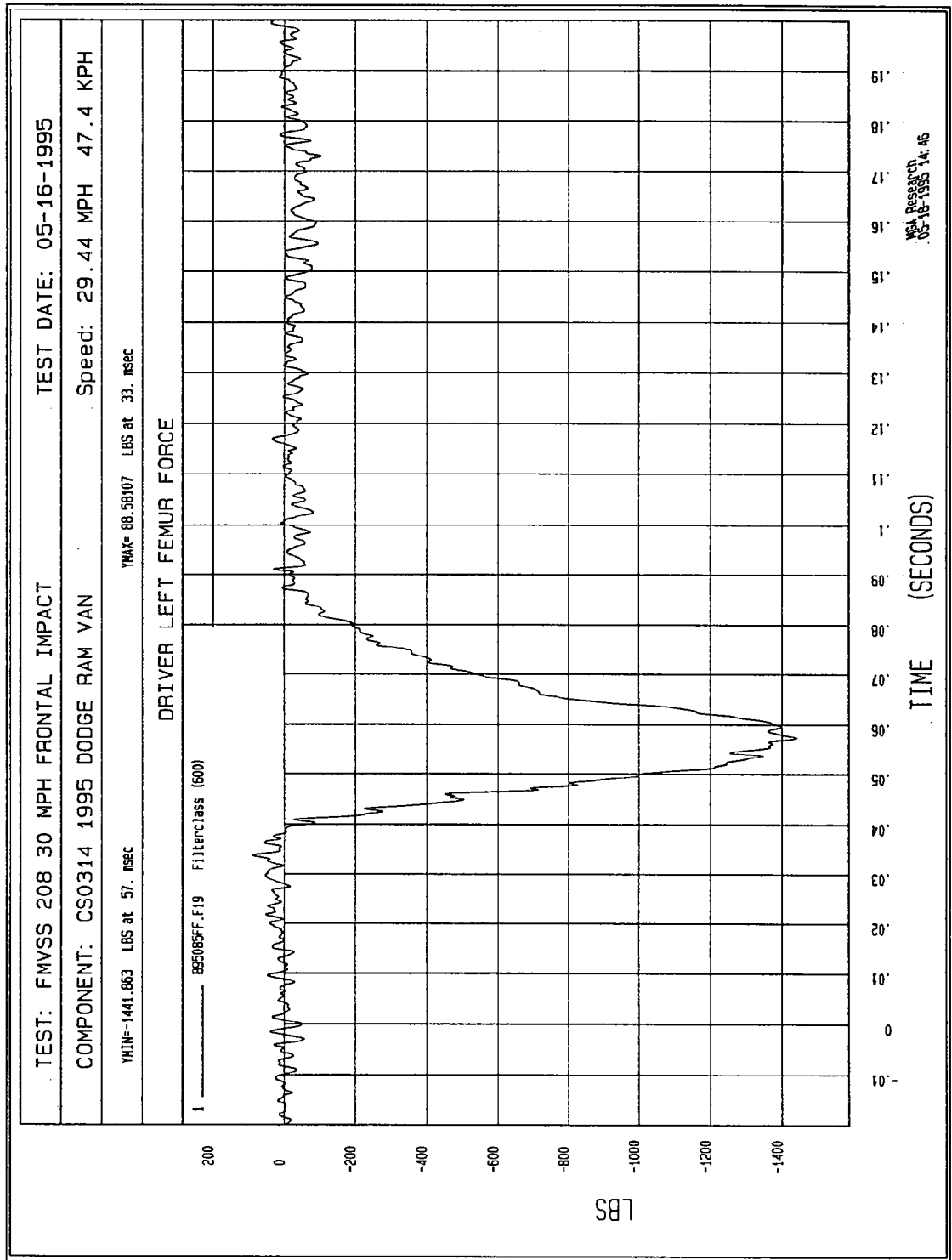


Figure B-9 - Driver Left Femur Force vs. Time

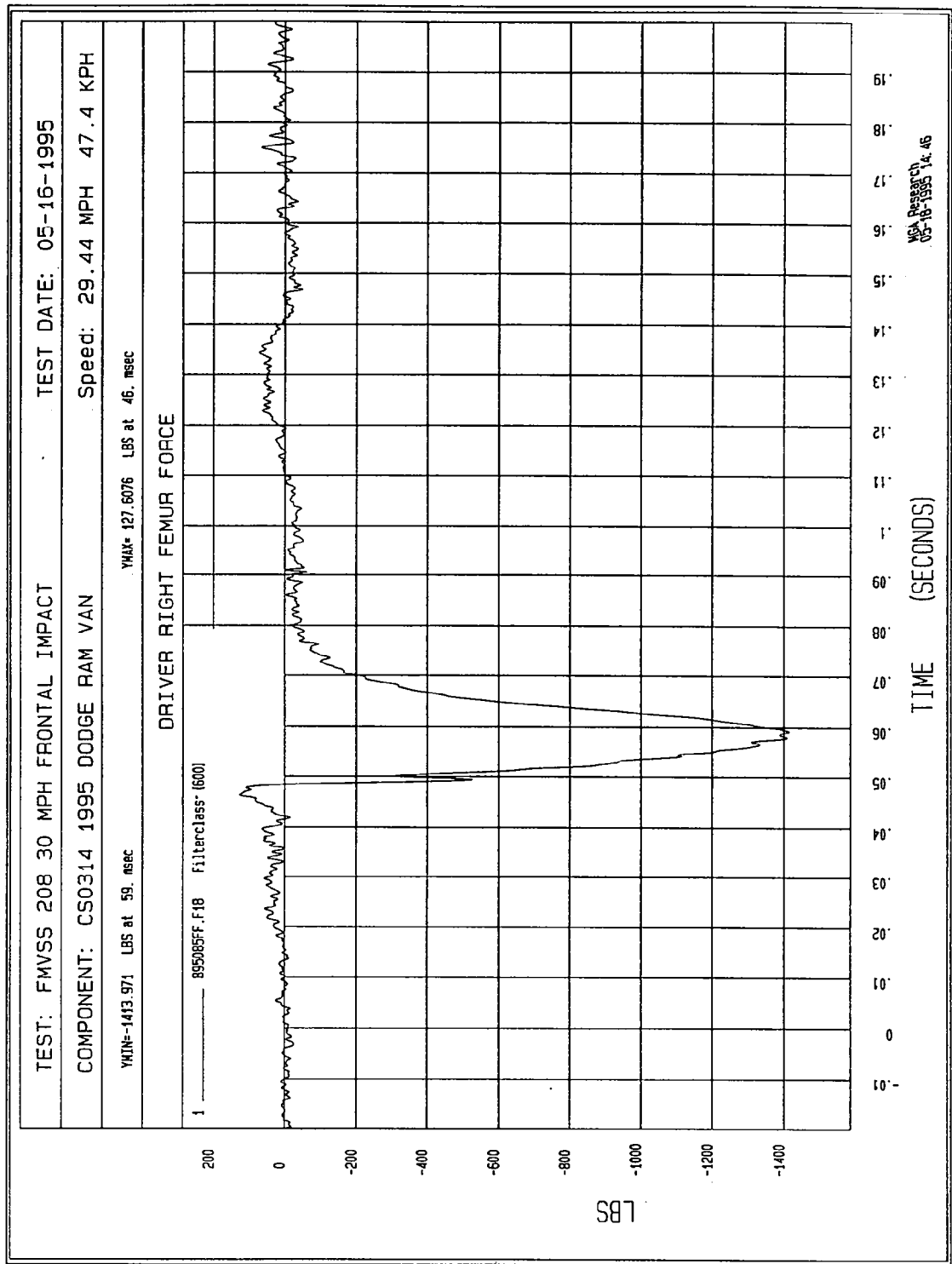


Figure B-10 - Driver Right Femur Force vs. Time

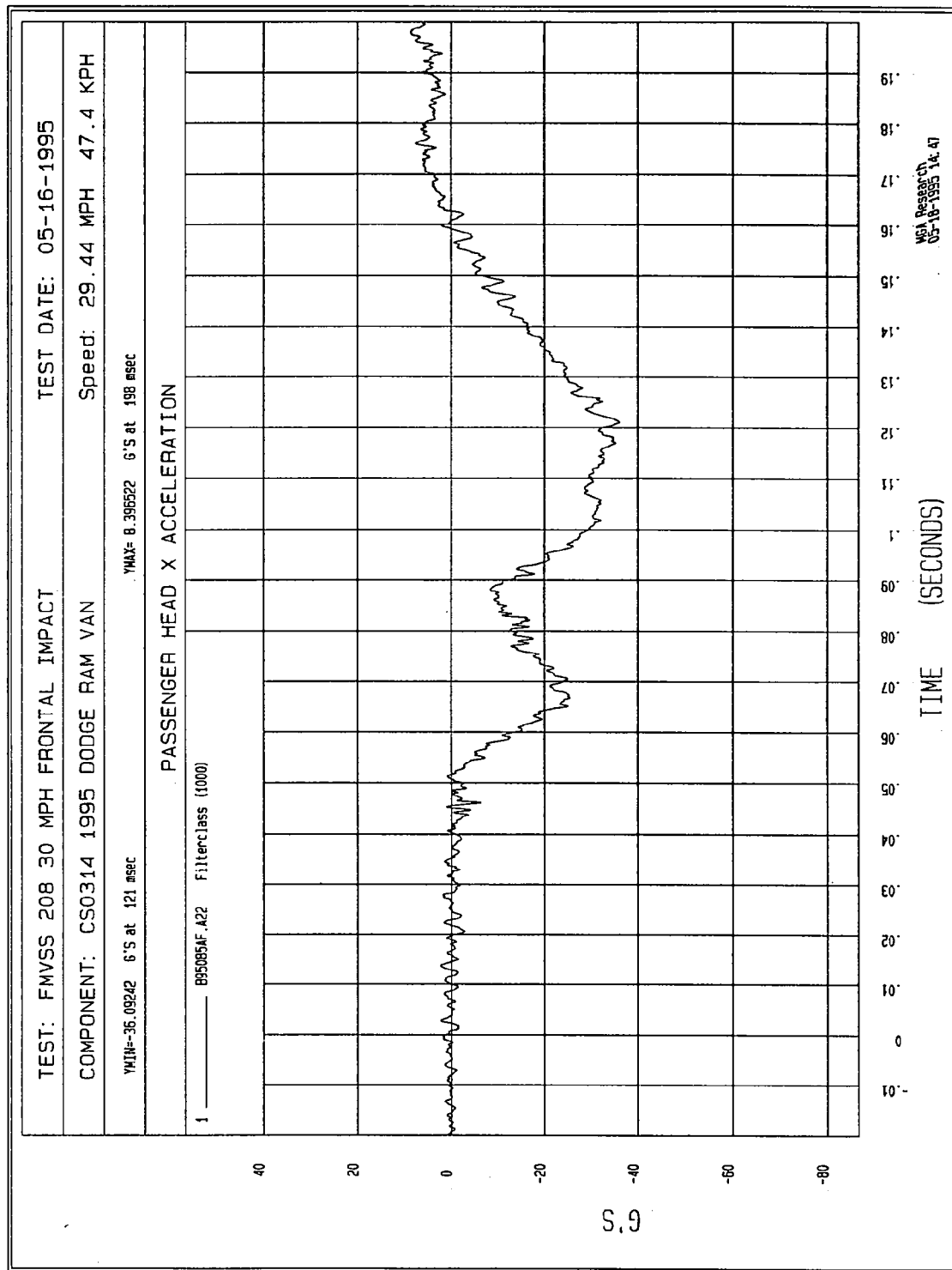


Figure B-11 - Passenger Head X Acceleration vs. Time

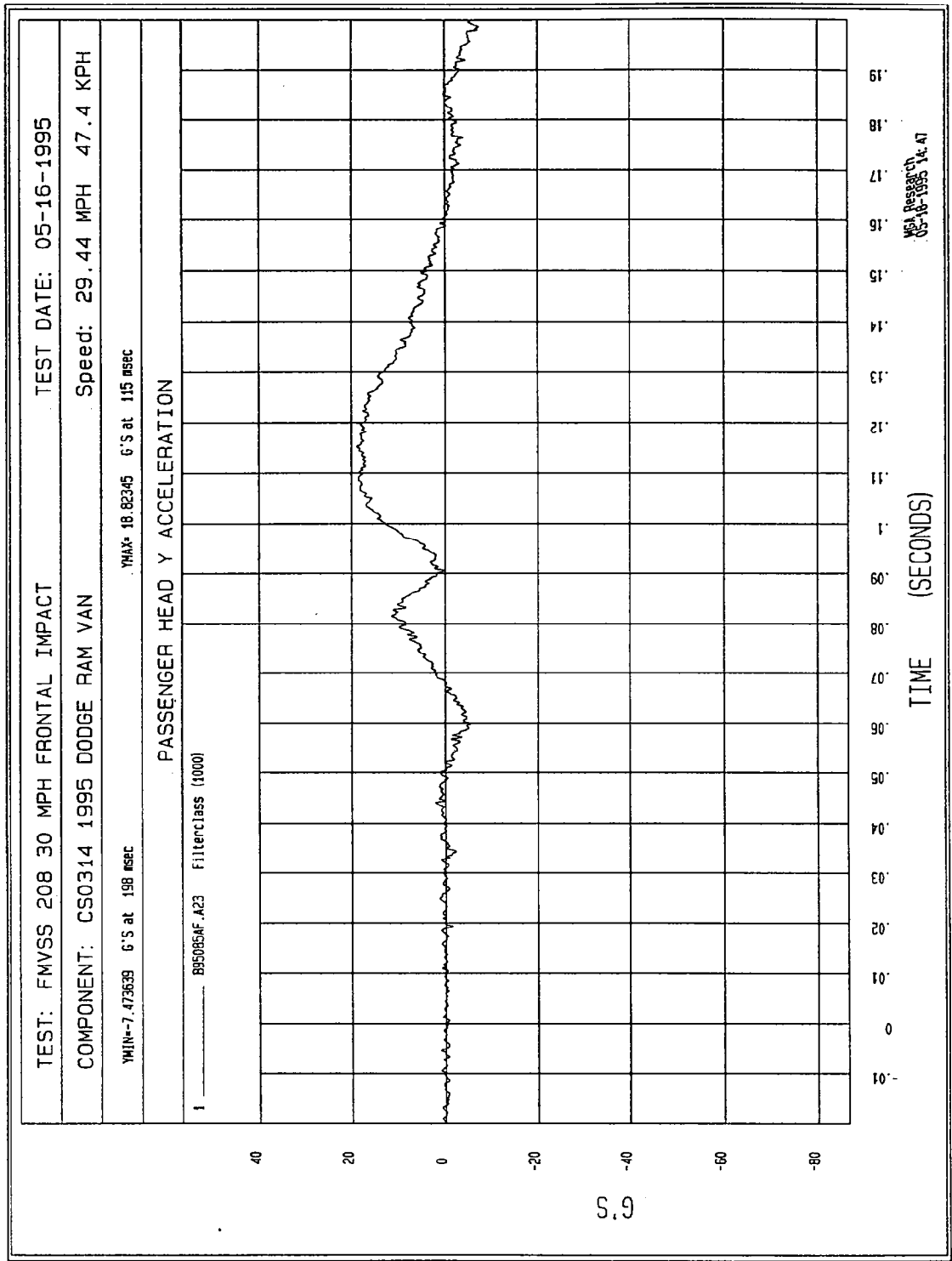


Figure B-12 - Passenger Head Y Acceleration vs. Time

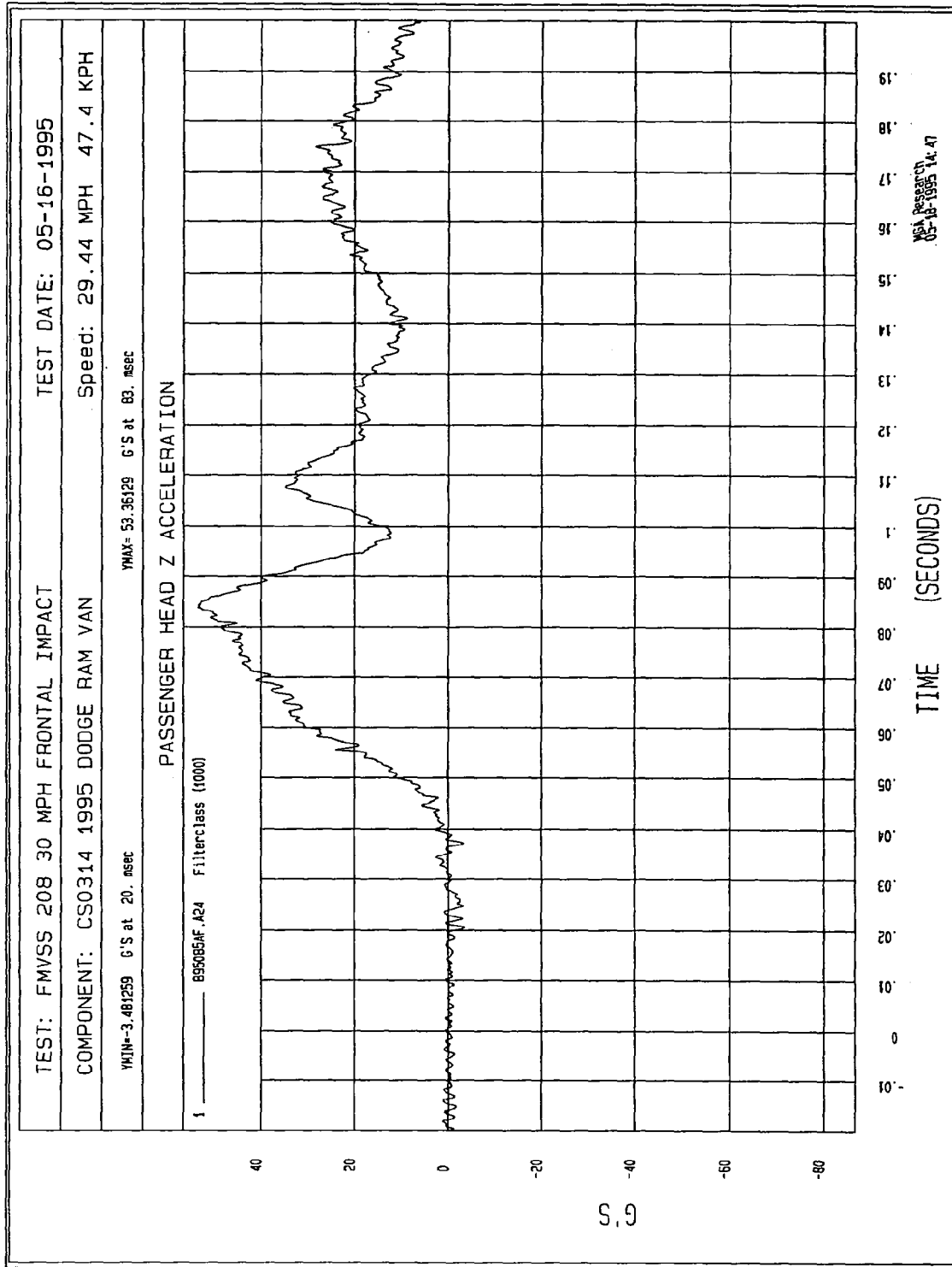


Figure B-13 - Passenger Head Z Acceleration vs. Time

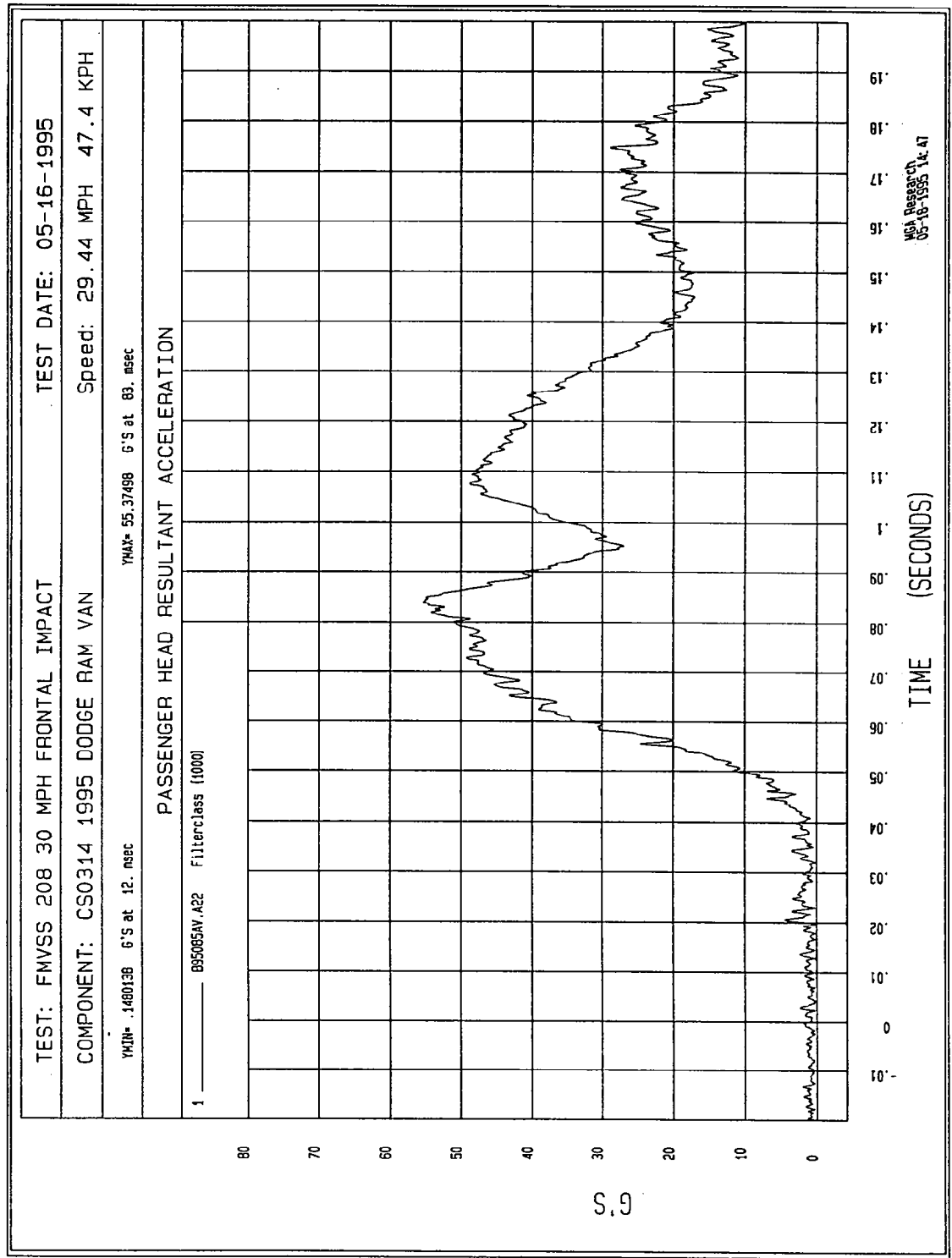


Figure B-14 - Passenger Head Resultant Acceleration vs. Time

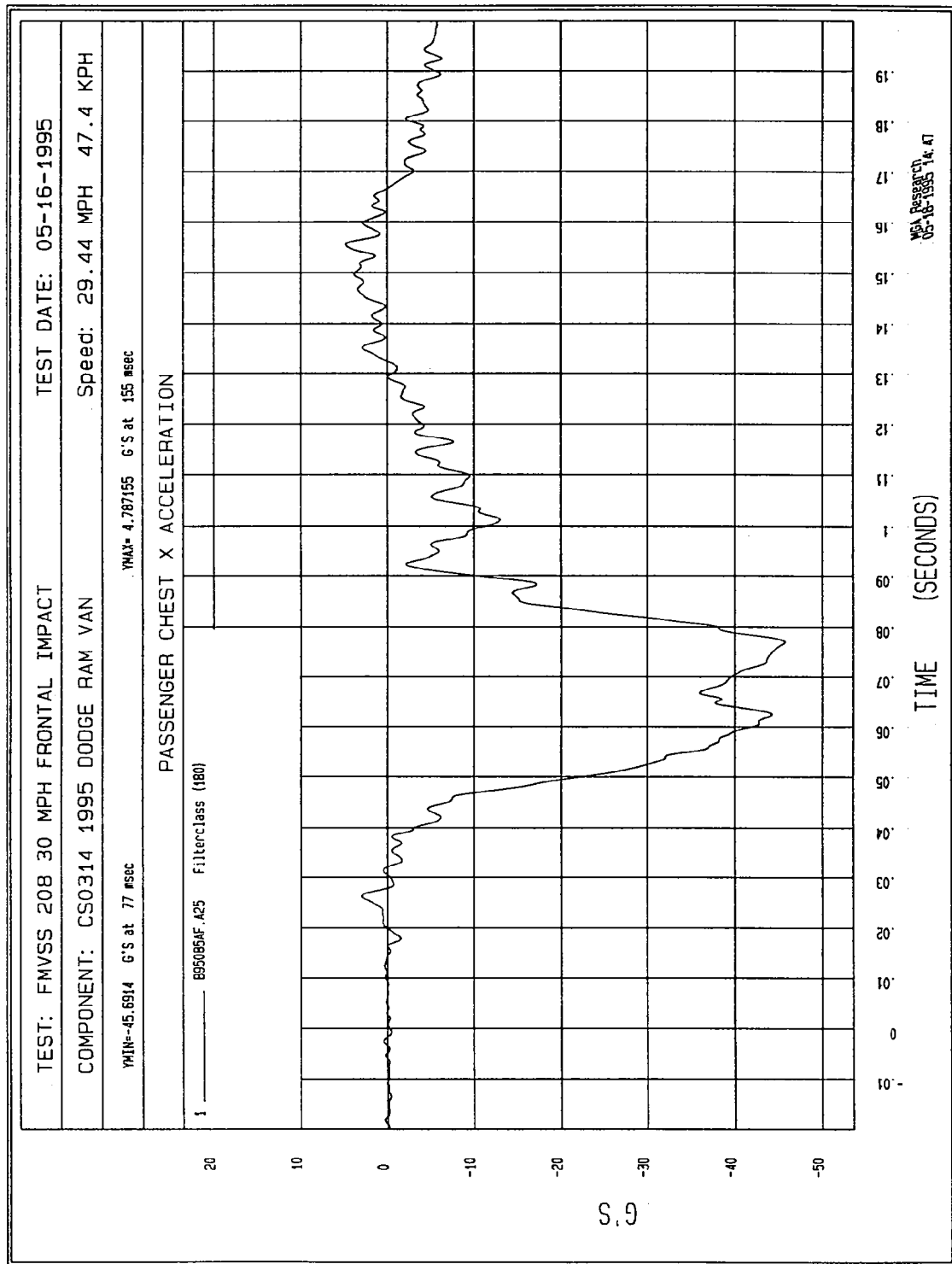


Figure B-15 - Passenger Chest X Acceleration vs. Time

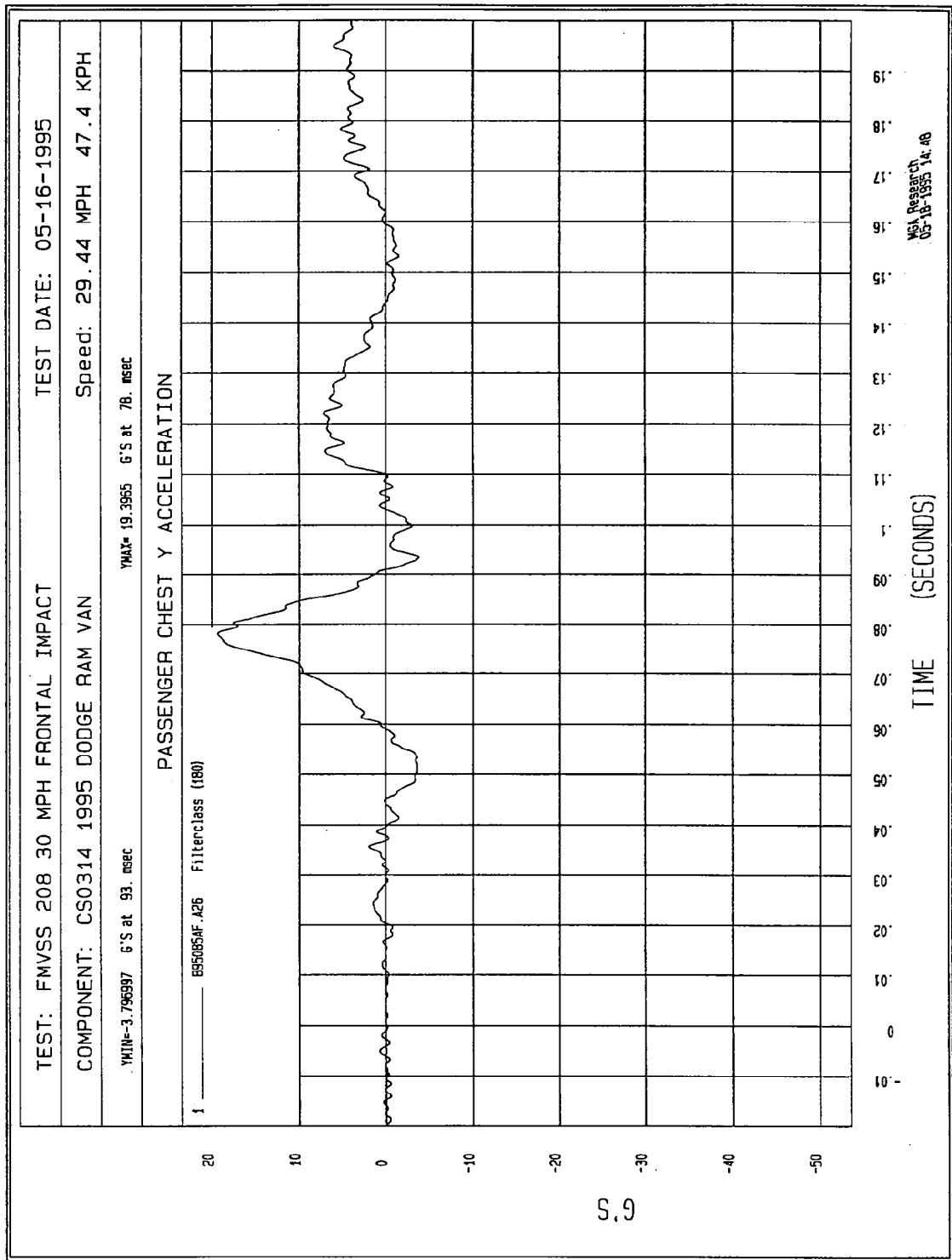


Figure B-16 - Passenger Chest Y Acceleration vs. Time

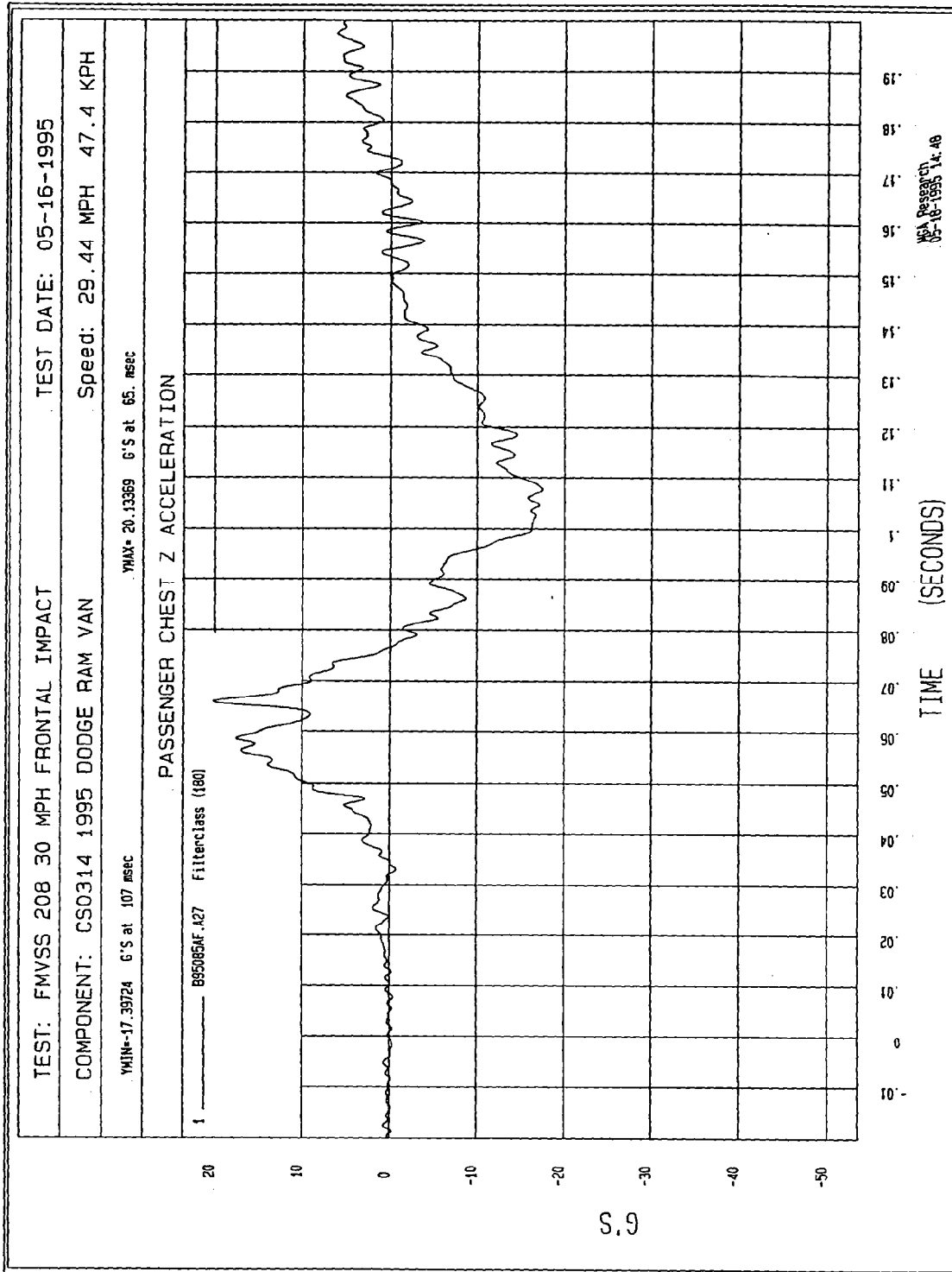


Figure B-17 - Passenger Chest Z Acceleration vs. Time

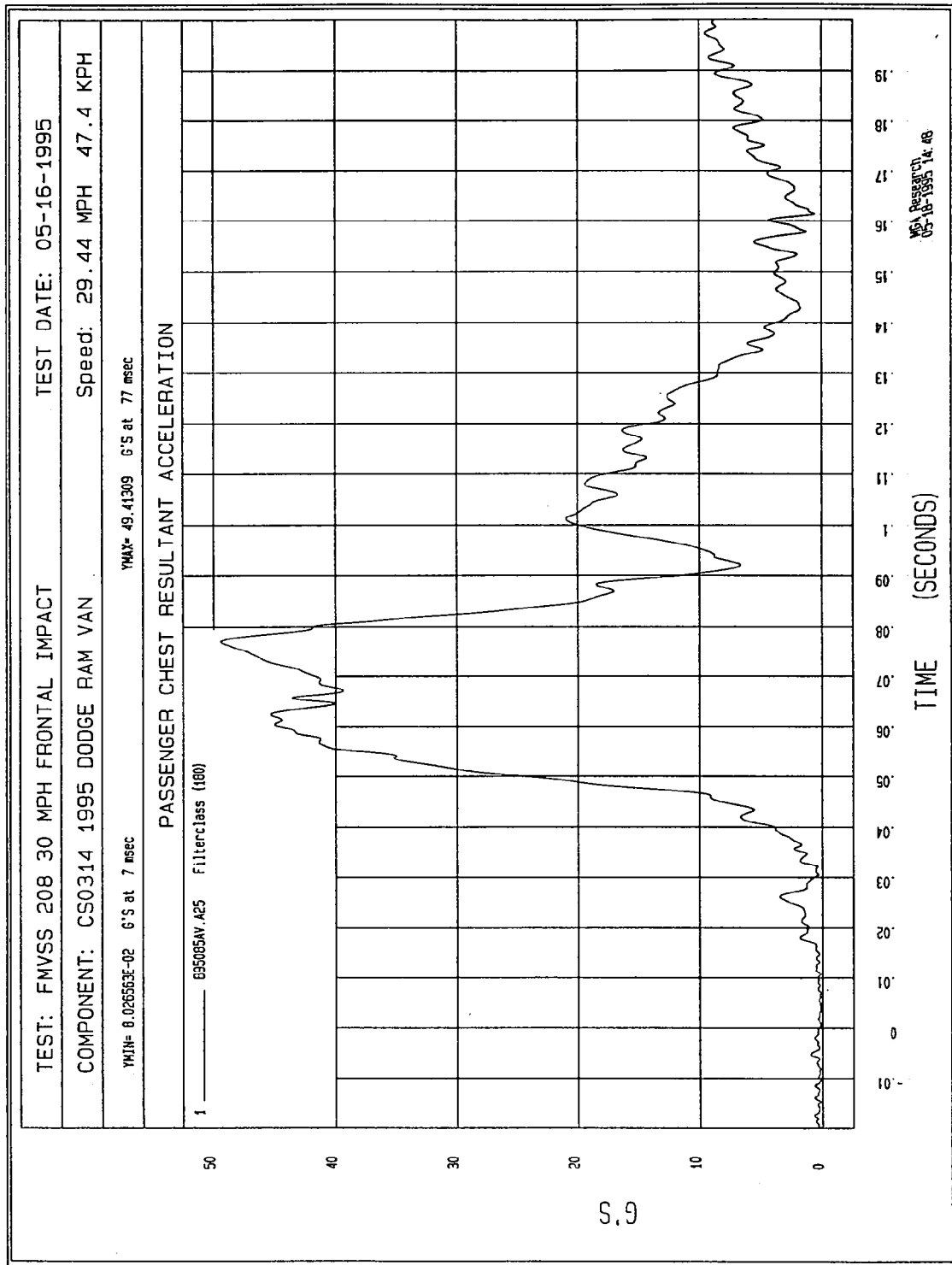


Figure B-18 - Passenger Chest Resultant Acceleration vs. Time

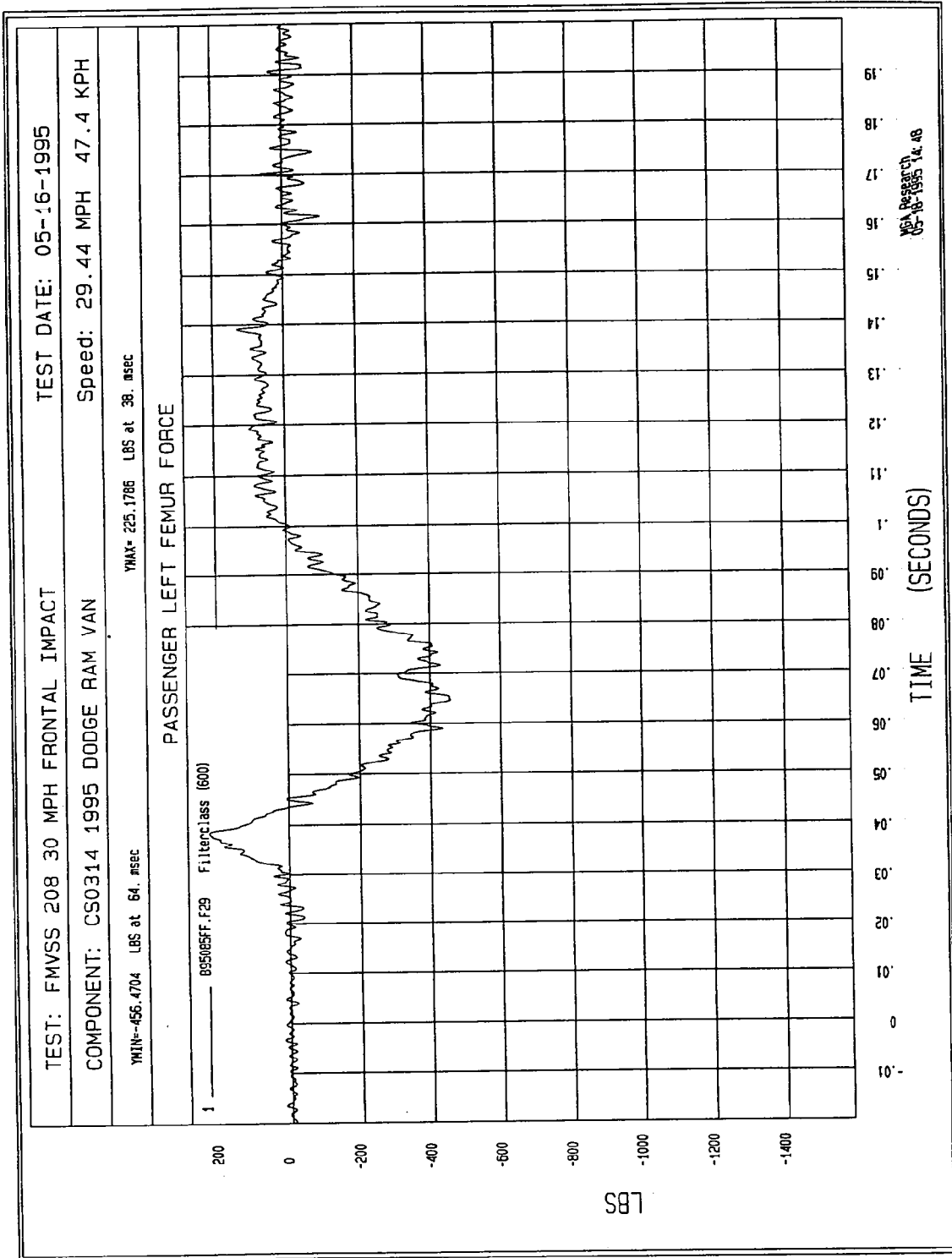


Figure B-19 - Passenger Left Femur Force vs. Time

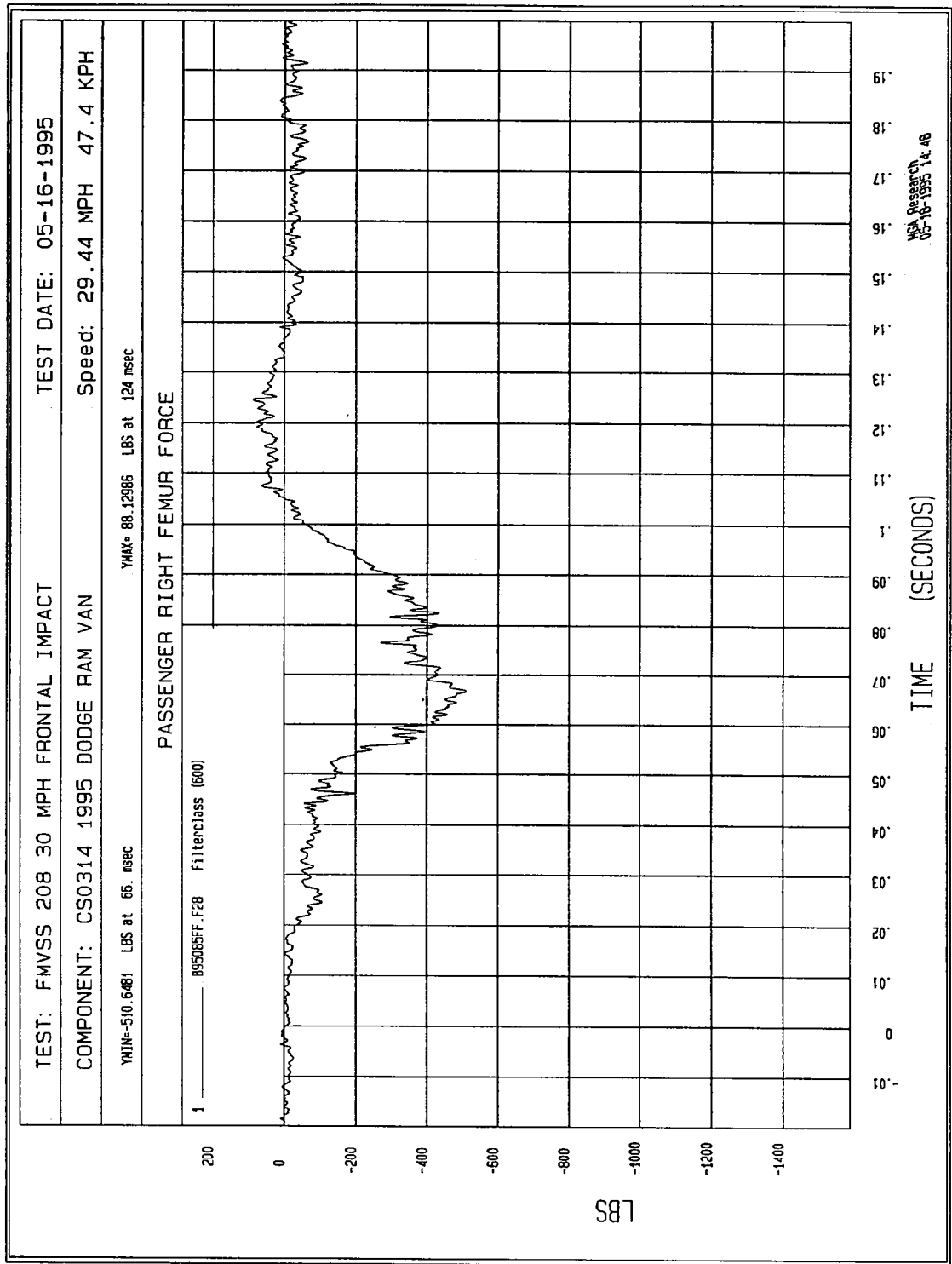


Figure B-20 - Passenger Right Femur Force vs. Time

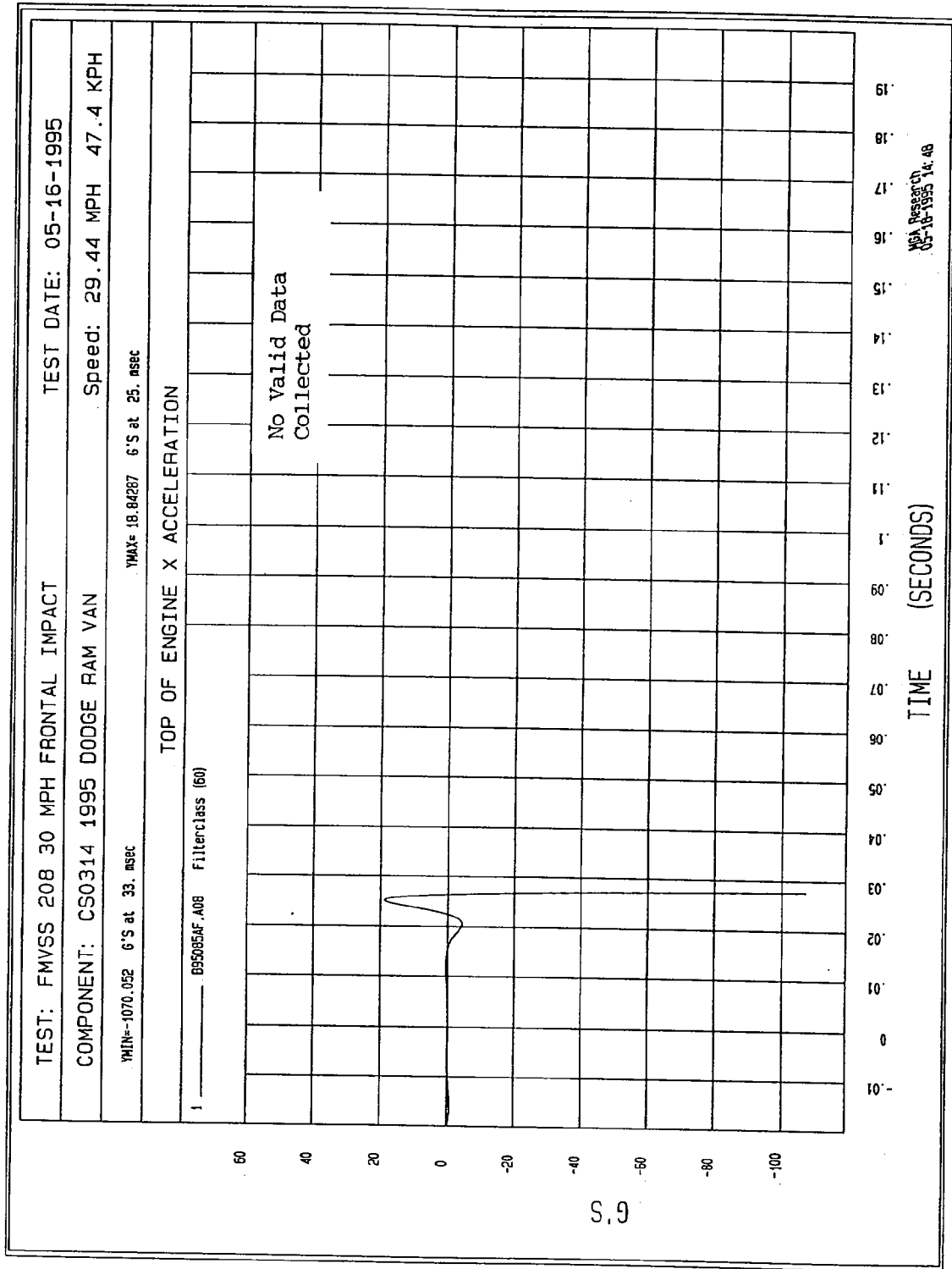


Figure B-21 - Top of Engine X Acceleration vs. Time

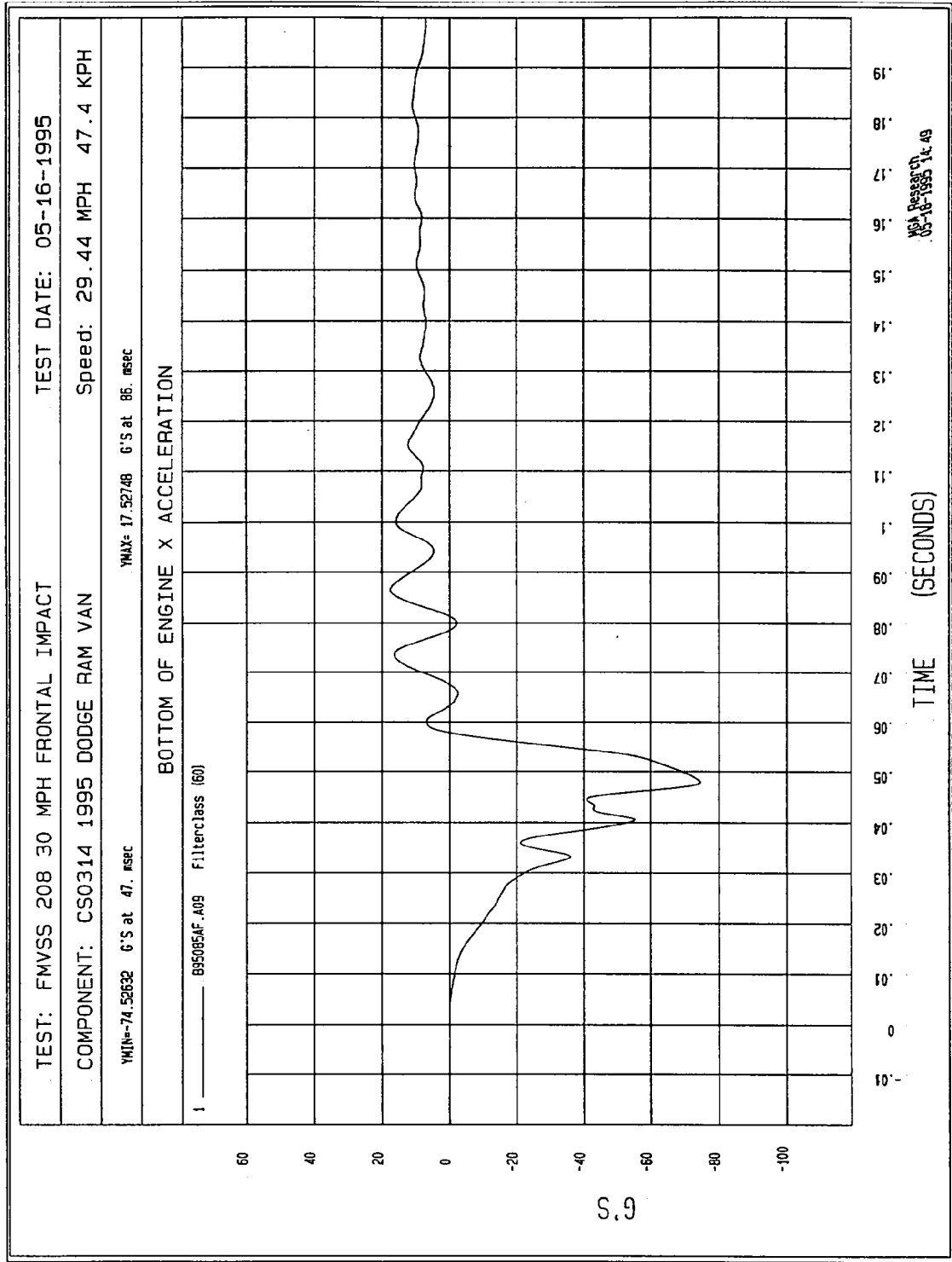


Figure B-22 - Bottom of Engine X Acceleration vs. Time

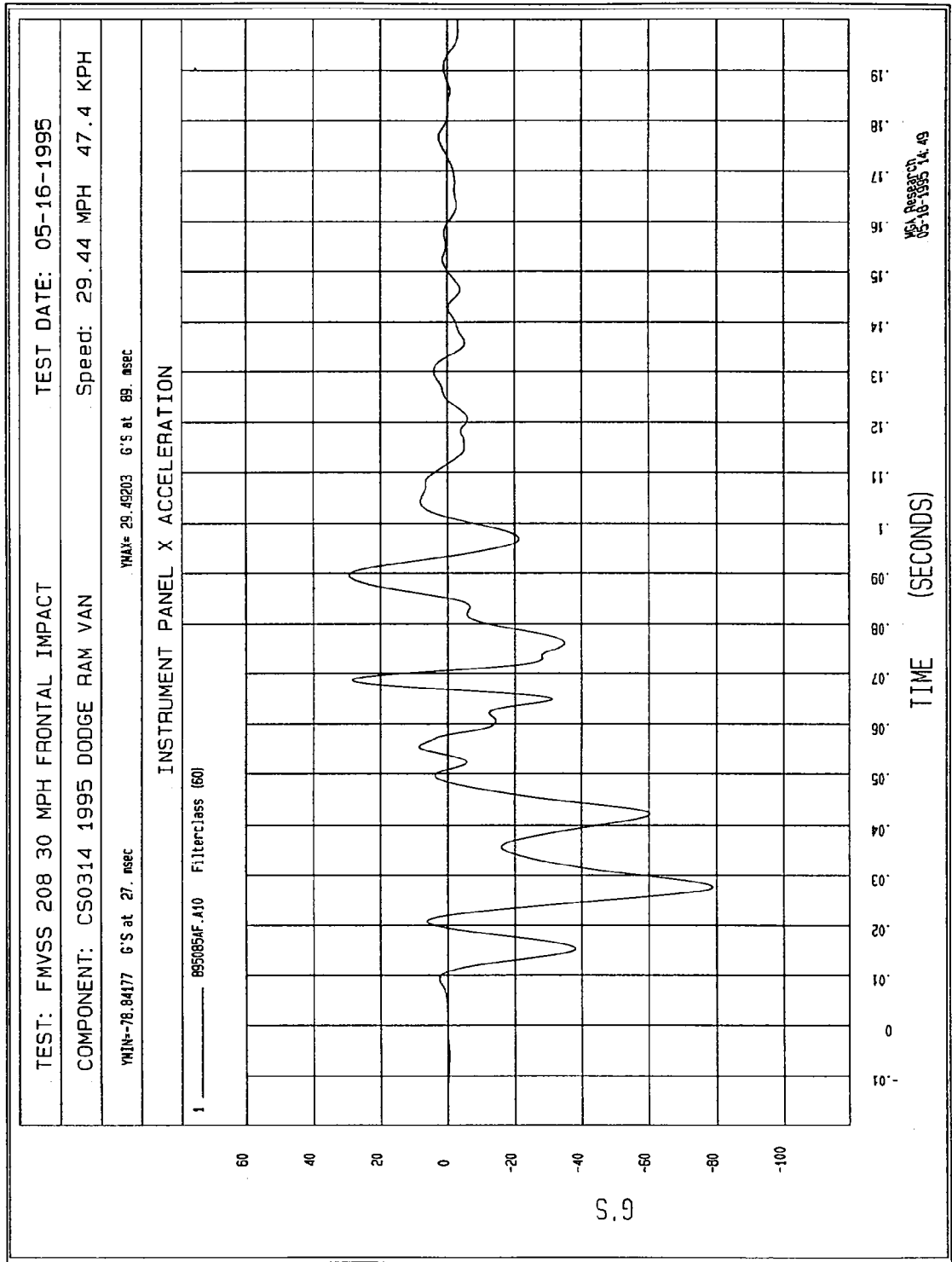


Figure B-23 - Instrument Panel X Acceleration vs. Time

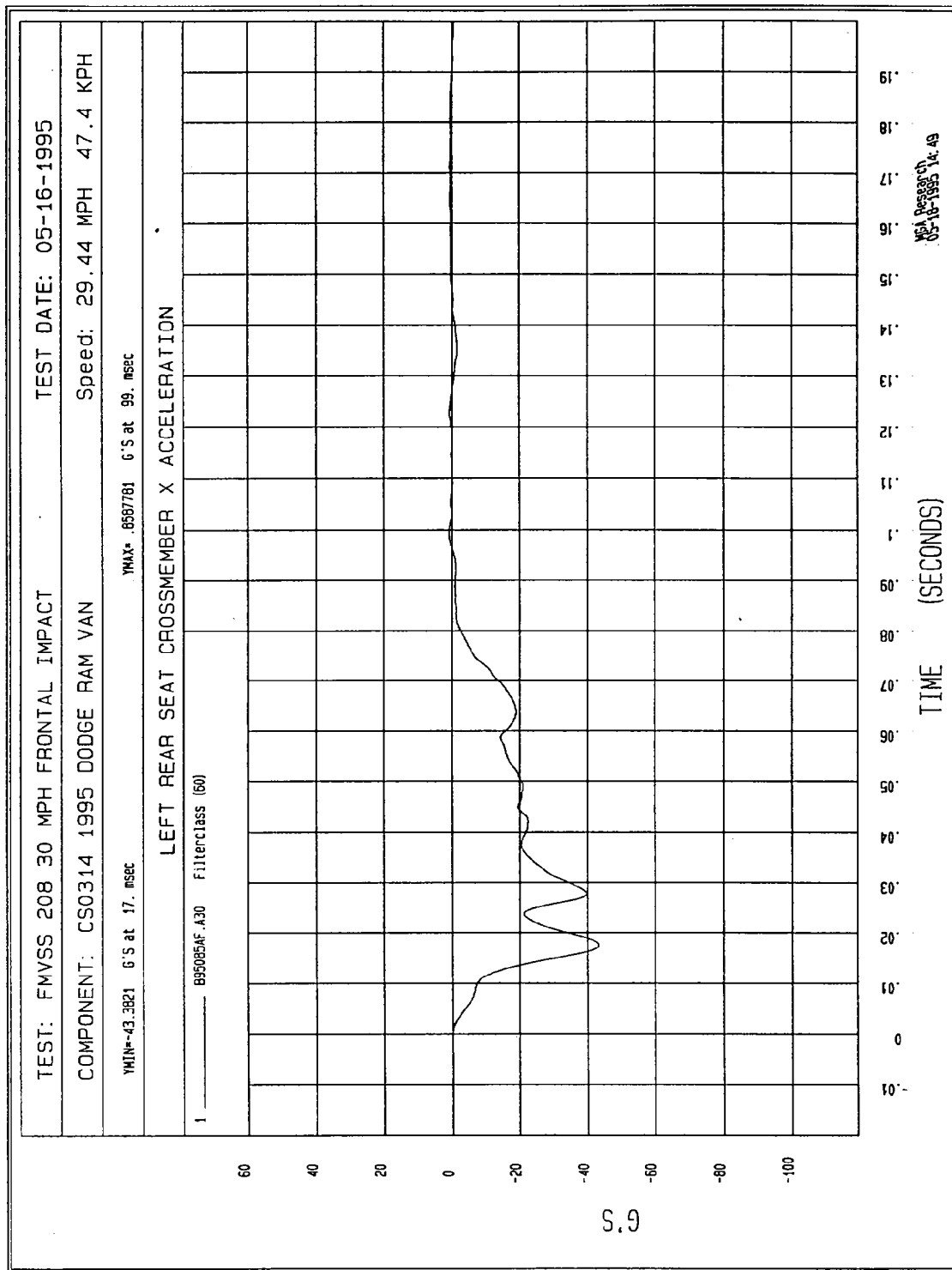


Figure B-24 - Left Rear Seat Crossmember X Acceleration vs. Time

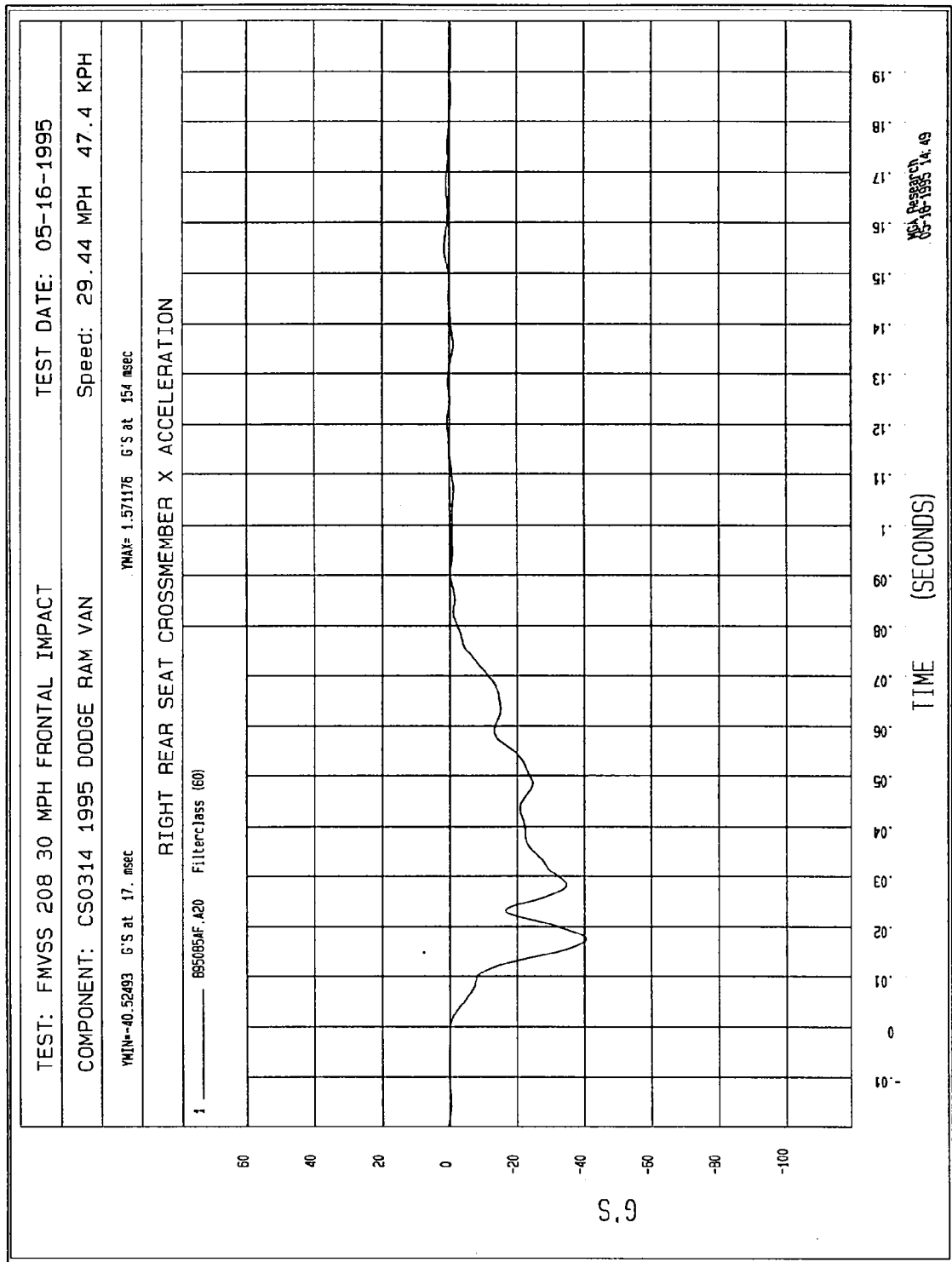


Figure B-25 - Right Rear Seat Crossmember X Acceleration vs. Time

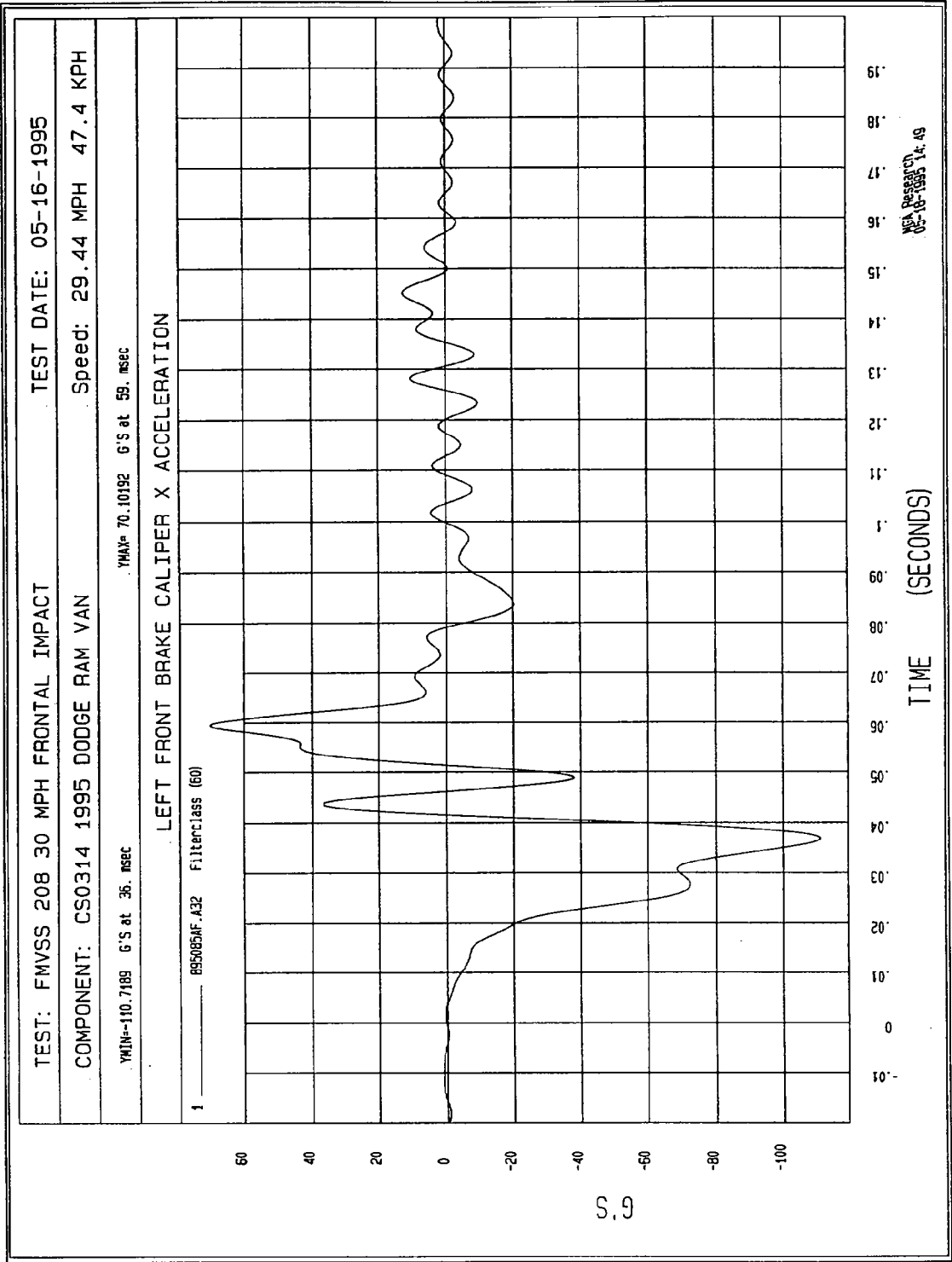


Figure B-26 - Left Front Brake Caliper X Acceleration vs. Time

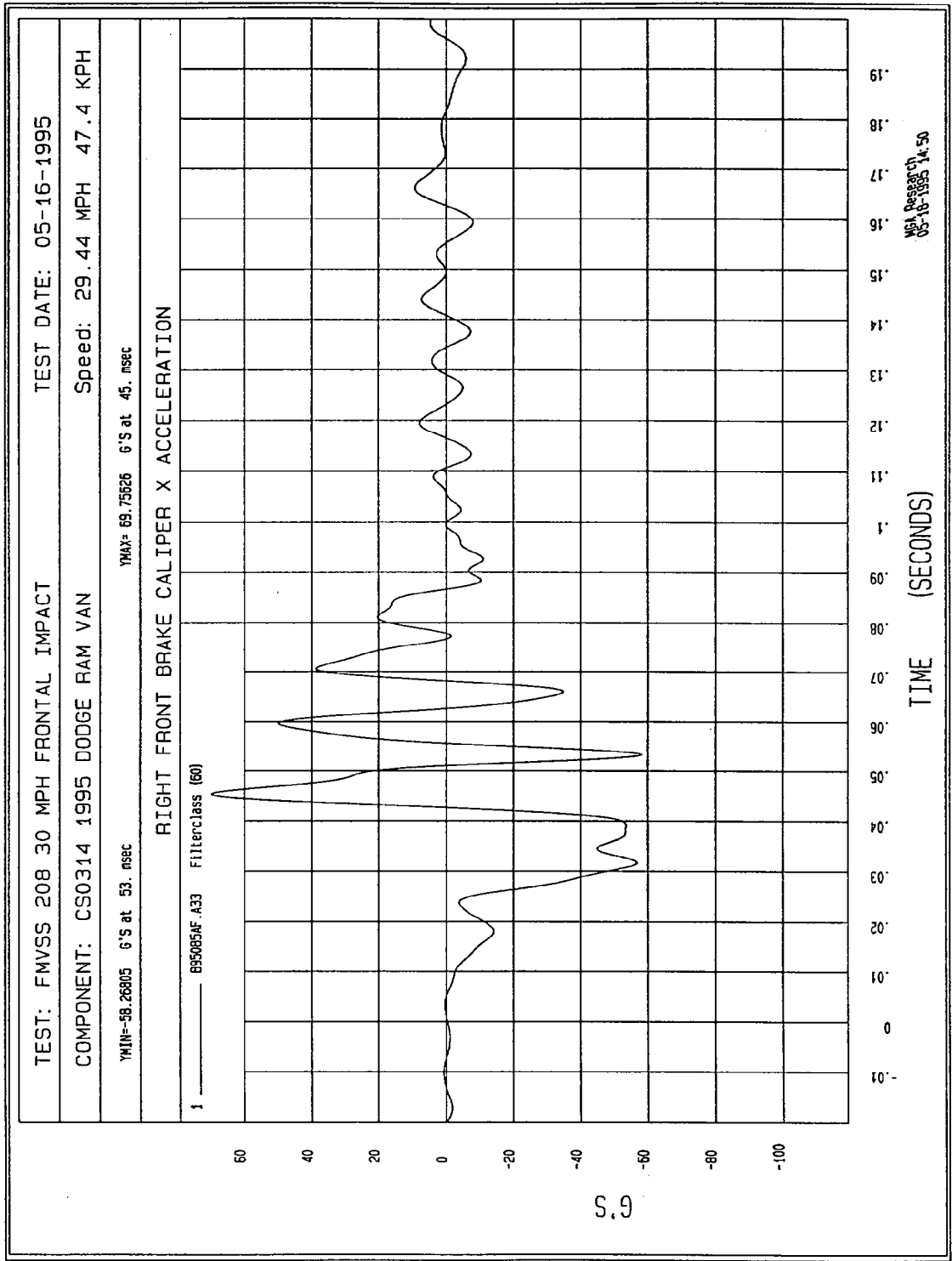


Figure B-27 - Right Front Brake Caliper X Acceleration vs. Time

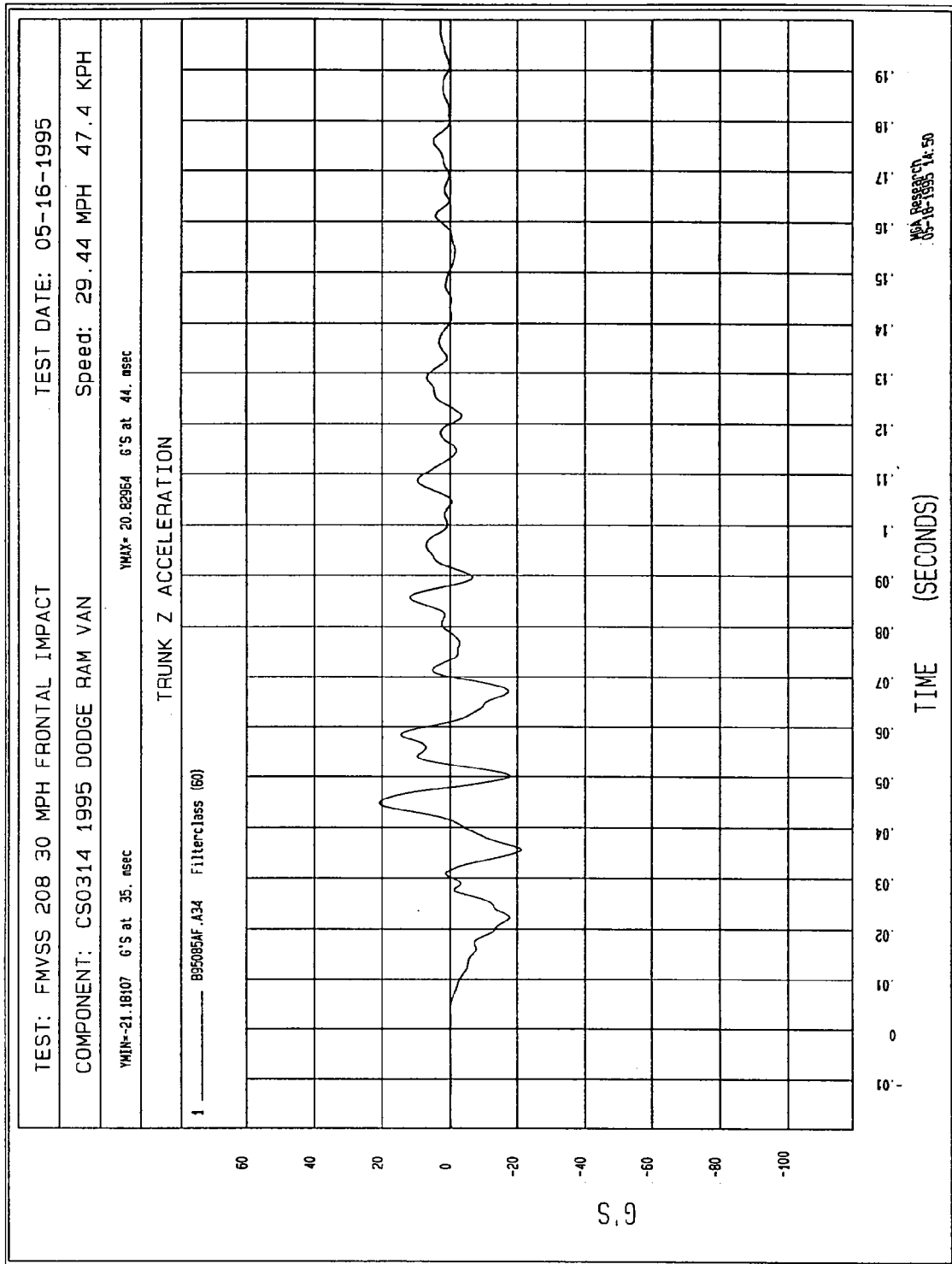


Figure B-28 - Trunk Z Acceleration vs. Time

APPENDIX C
MANUFACTURER'S VEHICLE INFORMATION

FORM NO. 1

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1995 Dodge

Vehicle Model & Body Style: Ram Van (B-2500)

1. NOMINAL DESIGN RIDING POSITION - -

For adjustable driver and passenger seat backs.
Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable.

Seat back angle for driver's seat = 20 degrees.

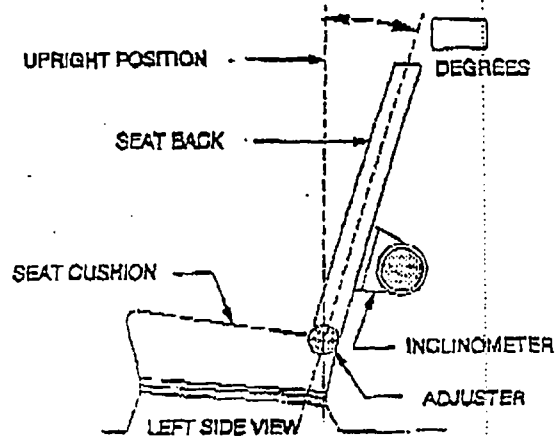
Measurement Instructions:

- 1) Lift the manual recliner handle to allow the seat back to rotate to the fully forward position.
- 2) Lower the manual recliner handle.
- 3) Pull rearward on the seat back until the recliner locks.

Seat back angle for passenger's seat = degrees.

Measurement Instructions:

Same as above



2. SEAT FORE & AFT POSITIONS - -

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat:

Take seat to full forward position, then move seat rearward to the seventh (7th) locked position.

The first notch (locked position) is "1".

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

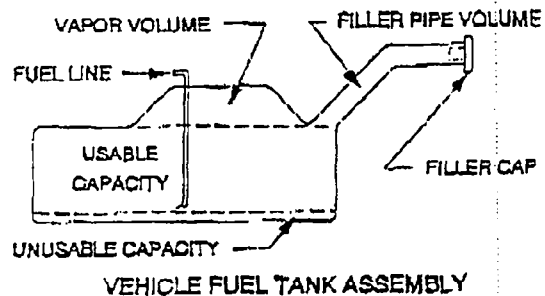
Same as above.

3. FUEL TANK CAPACITY DATA - -

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = N/A gallons
- B. "Usable Capacity" of optional equipment fuel tank = 35 gallons.
- C. Capacity used when certification testing to requirements of FMVSS 301 = 33.2 gallons.

Operational Instructions:

None



FORM NO. 1 Continued

TEST VEHICLE INFORMATION

Amount of Stoddard solvent added to vehicle for certification test = 33.2 gallons

Is vehicle equipped with electric fuel pump? x YES NO

If YES, does pump normally operate when vehicle's electrical system is activated? x YES NO

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

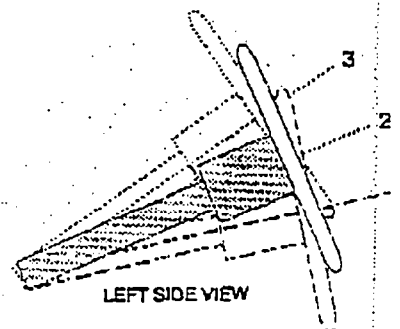
STEERING COLUMN ADJUSTMENTS - -

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:

Not applicable



LEFT SIDE VIEW

STEERING COLUMN ASSEMBLY