

V2314

REPORT NO. 208-MGA-96-001
212-MGA-96-001
301-MGA-96-001

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

MITSUBISHI MOTORS CORPORATION
1996 MITSUBISHI MIRAGE 2 DOOR COUPE
NHTSA NO. CT5601

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: October 23, 1995

Report Date: November 8, 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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NHTSA, Office of Vehicle Safety Compliance

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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 1996 Mitsubishi Mirage 2 Door Coupe, NHTSA No. CT5601, 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. A fixed flat barrier with a 3/4 inch plywood face was impacted by the vehicle.

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

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces. Each Part 572 E dummy's instrumentation also included a chest potentiometer to measure longitudinal deflection, and the driver dummy was instrumented with lower leg load cells to measure tibia forces and moments.

The thirty-six (36) data channels were multiplexed and recorded on four IBM PC compatible computers with Metrabyte DAS-16F A/D converter boards. The data was digitally sampled at 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 October 23, 1995.

The test vehicle, a 1996 Mitsubishi Mirage, NHTSA No. CT5601, appeared to comply with the performance requirements of FMVSS 208, 212, 219 (partial), and 301 in the flat frontal barrier impact mode, except for paragraph 6.2.3 of FMVSS 208. The Head Injury Criteria (HIC) calculations were less than 1000, the driver chest resultant accelerations did not exceed 60 g's, but the passenger chest resultant was greater than 60 g's for more than 3 msec. The compressive forces transmitted through the upper legs did not exceed 2,250 pounds as measured by Part 572 E dummies seated in the front outboard designated seating positions. For each Part 572 E dummy, the chest deflection did not exceed 3.0 inches. The vehicle's restraint system met the applicable comfort and convenience requirements. The windshield periphery retention on each side of the vehicle centerline was greater than 50 percent. There was no penetration into any portion of the windshield. No fluid spilled from the vehicle's fuel system following the impact or during the static rollover test.

The test vehicle was equipped with an airbag and a Type 2 seat belt in the front outboard designated seating positions. Both dummies were restrained only by the airbag during the test. The vehicle's test weight was 2597 pounds. The vehicle's impact speed was 29.6 mph. The vehicle's maximum static crush was 14.0 inches.

The driver's HIC was 215. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 55 g's. The driver's chest maximum deflection was 2.2 inches. The driver's left and right femur maximum compressive forces were 1124 pounds and 1214 pounds, respectively.

The right front passenger's HIC was 567. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 62 g's. The right front passenger's chest maximum deflection was 0.7 inches. The right front passenger's left and right femur maximum compressive forces were 1519 pounds and 1542 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.

TEST NOTES

- 1) Due to apparent non-compliance, the FMVSS 301 static rollover test on the 1996 Mitsubishi Mirage was not conducted.

TABLE 1 CRASH TEST SUMMARY

Vehicle Yr/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Test Type: Frontal Barrier Impact

Test Date: 10/23/95 Time: 2:52 p.m. Temp: 71°F

Vehicle Test Weight: 2597 lbs. Vehicle/Barrier Impact Angle: 0°

Impact Velocity: 29.6 mph Maximum Static Crush: 14.0 inches

Vehicle Rebound: 18.8 inches

Dummies:	Driver	Passenger
Dummy Type	<u>Part 572E</u>	<u>Part 572E</u>
Serial Number	<u>312</u>	<u>340</u>
Restraint System	<u>Airbag</u>	<u>Airbag</u>
No. of Data Channels	<u>20</u>	<u>10</u>

Number of Cameras: 1 Real Time
14 High Speed

Door Opening Data: Left Front: Yes Left Rear: Not Applicable
Right Front: Yes Right Rear: Not Applicable

Front Seat(s) Data:	Driver	Passenger
Seat Track Failure	<u>0 in.</u>	<u>0.1 in.</u>
Seat Back Failure	<u>None</u>	<u>None</u>

Visible Dummy Contact Points:	Driver	Passenger
Head	<u>Airbag, Back of Head to Headrest</u>	<u>Airbag, Back of Head to Headrest</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Left Knee	<u>Dash and Steering Wheel</u>	<u>Dash</u>
Right Knee	<u>Dash and Steering Wheel</u>	<u>Dash</u>

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Yr/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

NHTSA No: CT5601 VIN: JA3AA11A7TU002774 Body Color: Silver

Engine: 4 Cylinders; C.I.D.; 1.5 liters; CC

 Gas; Diesel; Turbocharged

 Longitudinal; X Transverse

Transmission: 3 Speed; Manual; X Automatic; Overdrive

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

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

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

Date Received: 09/15/95; Odometer Reading: 113 miles

Dealer's Name/Address: Max Madsen Mitsubishi
2424 Ogden Avenue
Downers Grove, IL 60515

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Mitsubishi Motor Corporation

Date of Manufacture: 6/95; VIN: JA3AA11A7TU002774

GVWR: 3197 lbs; GAWR Front: 1830 lbs. GAWR Rear: 1742 lbs.

DATA FROM TIRE PLACARD:

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

Recommended Tire Size: P155/80R13

Recommended Cold Tire Pressure: Front 31 psi; Rear 31 psi

Tires on Vehicle: P155/80R13; Manufacturer: Uniroyal

Type of Spare Tire: Toyota 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 Power

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

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

UDW:

Right Front = 675 lbs

Right Rear = 420 lbs

Left Front = 701 lbs

Left Rear = 399 lbs

TOTAL FRONT WEIGHT = 1376 lbs (62.7% of Total Vehicle Weight)

TOTAL REAR WEIGHT = 819 lbs (37.3% of Total Vehicle Weight)

TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 2195 lbs

CALCULATION FOR TARGET TEST WEIGHT:

UDW (Unloaded Delivered Weight) = 2195 lbs

VCW (Vehicle Capacity Weight) = 827 lbs

DSC (Designated Seating Capacity) = 5

RCLW*(Rated Cargo/Luggage Weight) = VCW - 150 (DSC) = 827 - 150 (5) = 77 lbs

Target Test Weight = UDW + RCLW + (2 Dummies x Dummy Weight)

Target Test Weight = 2195 + 77 + 344 = 2616 lbs

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO WEIGHT:

Right Front = 771 lbs

Right Rear = 500 lbs

Left Front = 805 lbs

Left Rear = 521 lbs

TOTAL FRONT WEIGHT = 1576 lbs (60.7% of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1021 lbs (39.3% of Total Vehicle Weight)

TOTAL TEST WEIGHT = 2597 lbs

Weight of ballast secured in vehicle = 0 lbs

Vehicle components removed to meet target weight: Spare tire, trunk lid, rear speaker,

rear bumper and cover, rear seatbelts, rear seats, rear cargo area interior

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 25.4 LF 25.5 RR 24.9 LR 24.6

Fully Loaded Attitude: RF 24.7 LF 24.7 RR 23.5 LR 23.5

Test Attitude: RF 25.0 LF 24.7 RR 24.1 LR 23.7

Wheel Base: 96.3 in; C.G. = 37.9 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: 10/23/95 Time: 2:52 p.m. Temperature: 71° F
Vehicle NHTSA No.: CT5601 VIN: JA3AA11A7TU002774

BARRIER IMPACT VELOCITY

Required Impact Velocity Range: 28.9 to 29.9 mph
Impact Velocity: Primary = 29.6 mph; Secondary = 29.6 mph
Distance From Front Bumper to Barrier Face When
Entering Speed Trap: 51.4 inches
Exiting Speed Trap: 12.0 inches

VEHICLE STATIC CRUSH AND REBOUND (inches):

Vehicle Length:	Pre-test	= R	<u>166.0</u>	C _L	<u>172.0</u>	L	<u>166.4</u>
	Post-test	= R	<u>155.3</u>	C _L	<u>157.5</u>	L	<u>153.6</u>
	Crush	= R	<u>10.7</u>	C _L	<u>14.5</u>	L	<u>12.8</u>
	Average	=	<u>12.7</u>				

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

R 22.0 in C_L 18.8 in L 22.3 in

TABLE 4 ACCIDENT INVESTIGATION DIVISION DATA

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Veh. NHTSA No.: CT5601;

VIN: JA3AA11A7TU002774

Build Date: 6/95;

Test Date: 10/23/95

Veh. Size Category: Subcompact;

Test Weight: 2597 lbs

Veh. Wheelbase: 96.3 in;

Front Overhang: 35.4 in;

Overall Width: 66.3 in

ACCELEROMETER DATA:

Location: As per measurements on page 2-11

Calibration Procedure: As per MGA Calibration Procedure

Linearity: >99.9%; Integration Algorithm: Trapezoidal

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

Impact Mode: Frontal Barrier

Crush Depth C1 = 12.8 inches

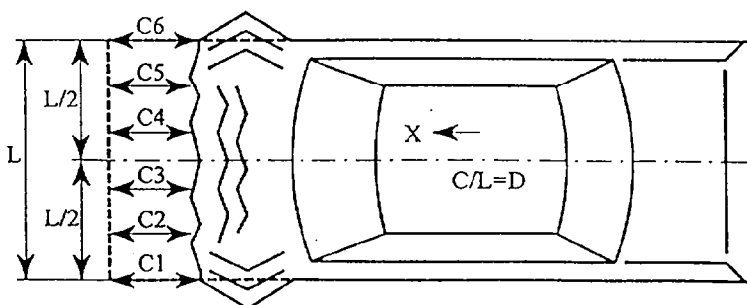
Dimensions: C2 = 13.4 inches

C3 = 14.0 inches

C4 = 13.2 inches

C5 = 12.3 inches

C6 = 10.7 inches



Midpoint of D = Vehicle Longitudinal Centerline
Damage: -

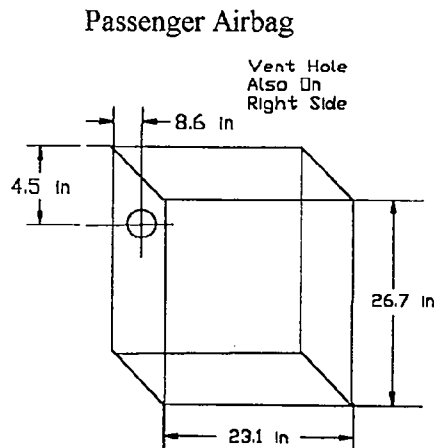
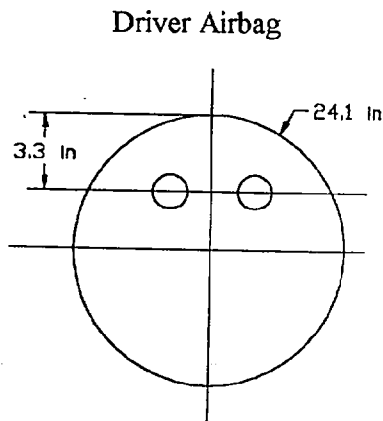
Length of Damaged Region: L = 50.6 inches

TABLE 5 POST TEST AIRBAG DATA

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

NHTSA No: CT5601; Test Date: 10/23/95; Technician: Nikki Walter

- A. No of Vent Holes: Driver 2; Passenger 2
- B. Size of Vent Holes: Driver 1.4 in. dia.; Passenger 2.6 in. dia.
- C. Total Vent Area: Driver 1.5 in²; Passenger 5.3 in²
- D. Deflated Airbag Length and Width Dimensions or, if Round, Diameter
 Driver; Length N/A; Width N/A; Diameter 24.1 in
 Passenger; Length 26.7; Width 23.1; Diameter N/A
- E. Is the Airbag Tethered?
 Driver; Yes; X No; If yes, record length of tether N/A in
 Passenger; Yes; X No; If yes, record length of tether N/A in



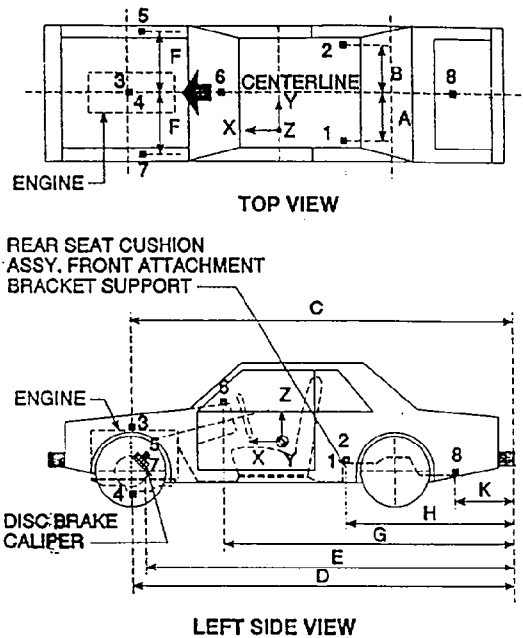
- F. Part Numbers and Manufacture Name of Airbag and Gas Generator
- Driver; Mfr *; Airbag TBD504210916; Gen *
- Passenger; Mfr *; Airbag 042632; Gen *

* Not Available

TABLE 6 VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601; Test Date: 10/23/95



ACCELEROMETER LOCATION (inches)		
	PRE-TEST	POST-TEST
A	15.4	15.3
B	15.0	15.0
C	137.2	130.9
D	142.6	137.1
E	141.3	140.8
F	25.4	24.6
G	117.4	116.8
H	68.5	68.5
K	9.3	9.3

ACCELEROMETER DATA SUMMARY					
No.	DESCRIPTION	MAXIMUM (g's)	TIME (msec)	MINIMUM (g's)	TIME (msec)
1	Left Rear Seat Crossmember	1.8	119	-37.4	52
2	Right Rear Seat Crossmember	3.7	84	-39.7	41
3	Top of Engine Block	53.1	46	-112.6	34
4	Bottom of Engine	43.3	44	-118.2	31
5	Right Disc Brake Caliper	48.9	63	-112.4	44
6	Instrument Panel	51.1	37	-43.3	59
7	Left Disc Brake Caliper	35.4	68	-94.6	51
8	Trunk	23.0	27	-16.0	59

TABLE 7 REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

Contract Number: DTNH22-93-D-21089

From: MGA Research Corporation To: Mr. Charles Case, COTR
5000 Warren Road Office of Vehicle Safety Compliance
Burlington, WI 53105

The following vehicle has been subjected to testing for FMVSS 208. The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. The vehicle was again inspected after the above test had been conducted, and all changes were noted below. The final condition of the vehicle was also noted in detail.

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Body Color: Silver

VIN: JA3AA11A7TU002774 Cost: \$13,182.00

Odometer: Arrival Date: 09/15/95 Reading: 112 miles

Completion Date: 10/23/95 Reading: 113 miles

Engine: 4 Cylinders; 1.5 Liters; X Gas; Diesel

Transmission: 3 Speed; Manual; X Automatic

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

Tire Size: P155/80R13; Manufacturer: Uniroyal

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>Disc</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	<u>No</u>	T-Top	<u>No</u>		Rear <u>Bench</u>
Clock	<u>No</u>	Tilt Steering Wheel	<u>No</u>		
Roof Rack	<u>No</u>	Other Options:	<u>None</u>	No. of Seats	<u>Five</u>

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

Explanation:

Items removed to allow installation of data acquisition system and meet target test weight.

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: 1996/Mitsubishi/Mirage/2 Door Coupe

Veh. NHTSA No.: CT5601 Test Date: 10/23/95

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #312	PASSENGER DUMMY #340
Head Channel X	-37.6	-60.3
Head Channel Y	-8.1	-14.4
Head Channel Z	15.1	31.2
HEAD RESULTANT	40.5	68.9
Chest Channel X	-54.9	-60.4
Chest Channel Y	9.0	4.2
Chest Channel Z	12.6	23.6
CHEST RESULTANT	56.4	63.9

HEAD INJURY CRITERIA (HIC)
VALUES:

HIC	215.0	567.4
t_1 = (msec)	65.5	63.0
t_2 = (msec)	101.5	91.2

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

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

CLIP	54.9	61.9
t^1 = (msec)	72.6	76.9
t^2 = (msec)	75.7	80.0
CHEST DEFLECTION (in)	2.2	0.7

TABLE 8 FMVSS 208 OCCUPANT INJURY CRITERIA (CONTINUED)

Veh. Yr./Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Veh. NHTSA No.: CT5601 Test Date: 10/23/95

MAX. COMPRESSIVE FEMUR FORCES: (lbs)	DRIVER DUMMY #312	PASSENGER DUMMY #340
Left Side	1123.9	1519.4
Right Side	1213.9	1541.9

TIBIA FORCES: (LBS)	DRIVER DUMMY #312
Left Lower Tibia Force X	-151.4
Left Lower Tibia Force Z	261.6
Right Lower Tibia Force X	-381.1
Right Lower Tibia Force Z	1212.7

TIBIA MOMENTS: (IN/LBS)	
Left Lower Tibia Moment Y	-2170.1
Left Upper Tibia Moment X	-322.2
Left Upper Tibia Moment Y	-945.9
Right Lower Tibia Moment Y	-4096.9
Right Upper Tibia Moment X	-579.8
Right Upper Tibia Moment Y	-1436.6

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

RIGHT FRONT PASSENGER DUMMY

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

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

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

NHTSA No.: CT5601; Date of Comfort/Convenience Check: 10/20/95

Technician Performing Check: Nicole Walter

GVWR: 3197 lbs

Automatic seat belts installed in any vehicle, other than a walk-in van-type vehicle which has a gross vehicle weight rating of 10,000 pounds or less, and is manufactured on or after September 1, 1986, shall meet the requirements for convenience hooks, webbing tension relieving devices, and belt contact force.

Manual seat belts installed for compliance with this standard in front outboard designated seating positions of any vehicle, other than a walk-in van-type vehicle which has a gross vehicle rating of 10,000 pounds or less, and is manufactured on or after September 1, 1989, shall meet the requirements for belt contact force, plate access, retraction and seat belt guides, and hardware.

VEHICLE EQUIPMENT:

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

CONVENIENCE HOOKS (S7.4.1):

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

WEBBING TENSION-RELIEVING DEVICE (S7.4.2)

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

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

BELT CONTACT FORCE (S7.4.3)

The belt contact force on the chest of the test dummy was 0.1 pounds.

LATCHPLATE ACCESS (S7.4.4)

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

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

RETRACTION (S7.4.5):

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

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

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

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

The seat was not removable.

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

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

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

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

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

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

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

TABLE 11 FMVSS 208 EQUIPMENT DATA

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Date of Check: 10/20/95

Technician Performing Check: Nicole Walter

GVWR: 3197 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 for 7 seconds.

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 was 0 seconds and the reminder light operation was 7 seconds.

Note: The audible warning should not operate.

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

FMVSS 208 LABELING AND DRIVER'S MANUAL DATA

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

The airbag system is required to be inspected ten (10) years after the build date or if front end of vehicle is damaged.

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

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

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

A description of the functional operation of the system was provided in the owner's manual on page 31.

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

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 30-34, 40 and 142.

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 right side of the instrument cluster.

The readiness indicator was clearly visible to the driver.

A list of the elements in the occupant restraint system, being monitored by the readiness indicator, was provided in the owner's manual on page 40.

FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTS

All rear outboard seating positions had Type 2 seat belts.

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

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601

Test Date: 10/23/95

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

Rubber trim with glue retention

CLIPS OR BRACKETS USED TO RETAIN WINDSHIELD: None

FMVSS 212 REQUIREMENTS:

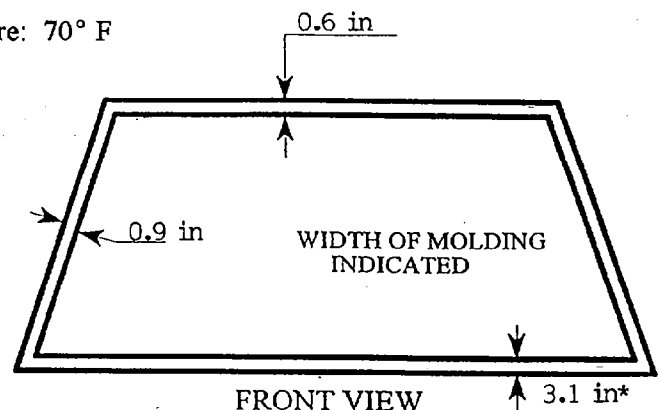
The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY (inches)		PERCENT RETENTION
	PRE-TEST	POST-TEST	
RIGHT SIDE	64.4	64.4	100%
LEFT SIDE	64.4	64.4	100%
TOTAL	128.8	128.8	100%

Pre-Test Windshield Mounting Material Temperature: 70° F

* Lower Trim Extends to Firewall



FAILURE DETAILS: None

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

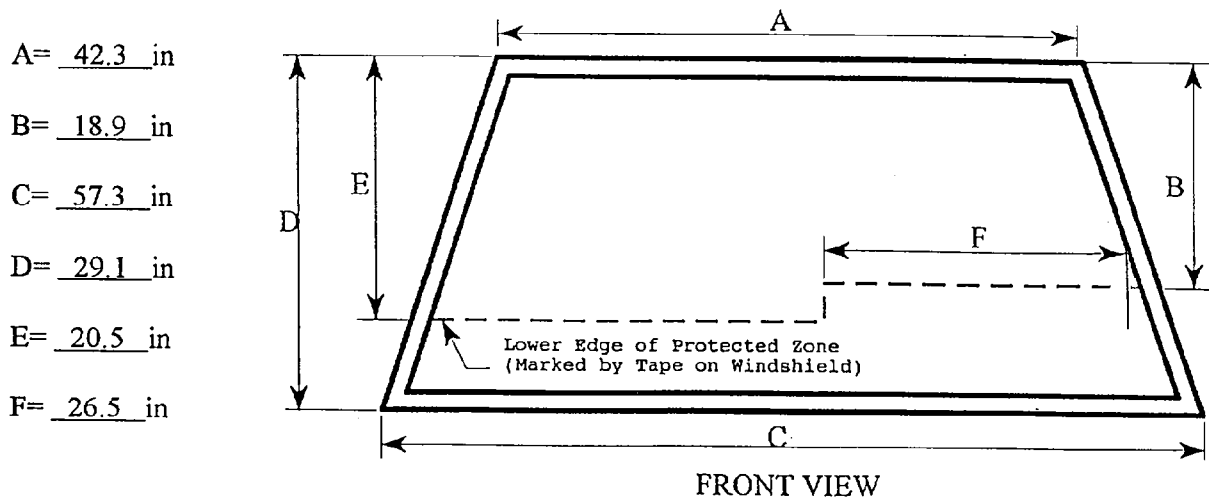
Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Test Date: 10/23/95

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: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Test Date: 10/23/95

Fuel System Capacity from Owner's Manual = 13.2 gallons

Usable Capacity Figure Furnished by COTR = 13.2 gallons

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

= 12.1 to 12.4 gallons

Actual Test Volume = 12.3 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"?

 Yes; X 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: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Test Date: 10/23/95

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 572E 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

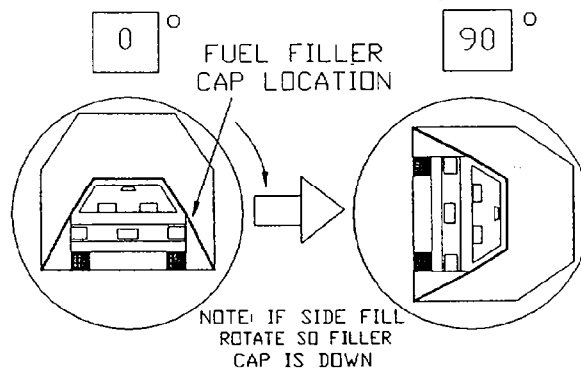
FUEL SPILLAGE LOCATION(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Test Date: 10/23/95

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

FMVSS 301 Position Hold Time = * minutes * seconds

TOTAL TIME = * minutes * seconds

Next Whole Minute Interval = * minutes

FUEL SPILLAGE MEASUREMENT:

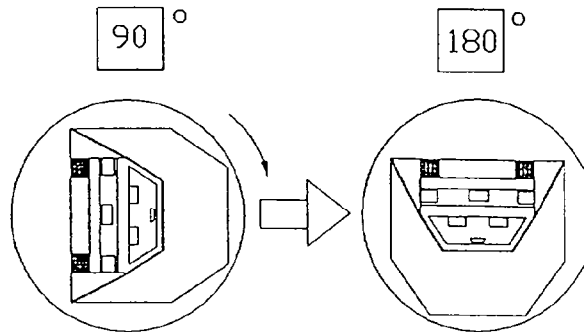
0° TO 90° ROTATION (FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	*	5 oz
2. Sixth Minute From Onset of Rotation	*	1 oz
3. Seventh Minute From Onset of Rotation	*	1 oz
4. Eighth Minute if Required	*	1 oz

FUEL SPILLAGE LOCATIONS(S):

* Data Not Available (See TEST NOTES on page 2-4)

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 = ____ minutes ____ seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = ____ minutes ____ seconds

TOTAL TIME = ____ minutes ____ seconds

Next Whole Minute Interval = ____ minutes

FUEL SPILLAGE MEASUREMENT:

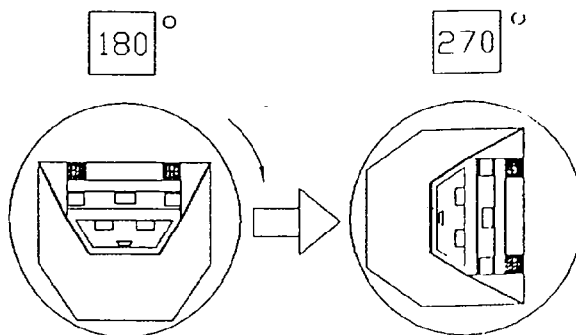
0° TO 90° ROTATION (FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	*	5 oz
2. Sixth Minute From Onset of Rotation	*	1 oz
3. Seventh Minute From Onset of Rotation	*	1 oz
4. Eighth Minute if Required	*	1 oz

FUEL SPILLAGE LOCATIONS(S):

* Data Not Available (See TEST NOTES on page 2-4)

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 = * minutes * seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = * minutes * seconds

TOTAL TIME = * minutes * seconds

Next Whole Minute Interval = * minutes

FUEL SPILLAGE MEASUREMENT:

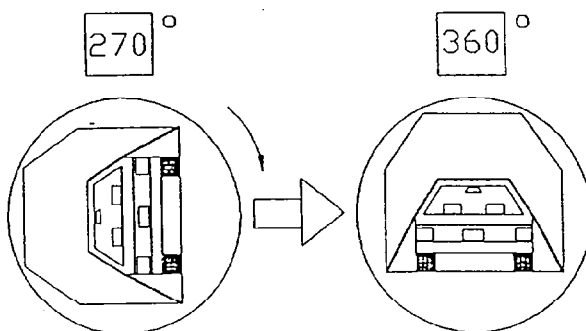
0° TO 90° ROTATION (FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	*	5 oz
2. Sixth Minute From Onset of Rotation	*	1 oz
3. Seventh Minute From Onset of Rotation	*	1 oz
4. Eighth Minute if Required	*	1 oz

FUEL SPILLAGE LOCATIONS(S):

* Data Not Available (See TEST NOTES on page 2-4)

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = ____ * ____ minutes ____ * ____ seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = ____ * ____ minutes ____ * ____ seconds

TOTAL TIME = ____ * ____ minutes ____ * ____ seconds

Next Whole Minute Interval = ____ * ____ minutes

FUEL SPILLAGE MEASUREMENT:

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

FUEL SPILLAGE LOCATIONS(S):

* Data Not Available (See TEST NOTES on page 2-4)

SECTION 4
OCCUPANT, VEHICLE, AND CAMERA INFORMATION

TABLE 17 SEAT AND STEERING COLUMN POSITIONING DATA

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Test Date: 10/23/95

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = 23.0°

The seat back was positioned in the 3rd notch rearward of the forward most position which is defined as the 1st position. The seat back angle was measured on the seat back frame with the inclinometer.

Passenger Seat: Seat Back Angle = 22.8°

The seat back was positioned in the 3rd notch rearward of the forward most position which is defined as the 1st position. The seat back angle was measured on the seat back frame with the inclinometer.

SEAT FORE AND AFT POSITIONS:

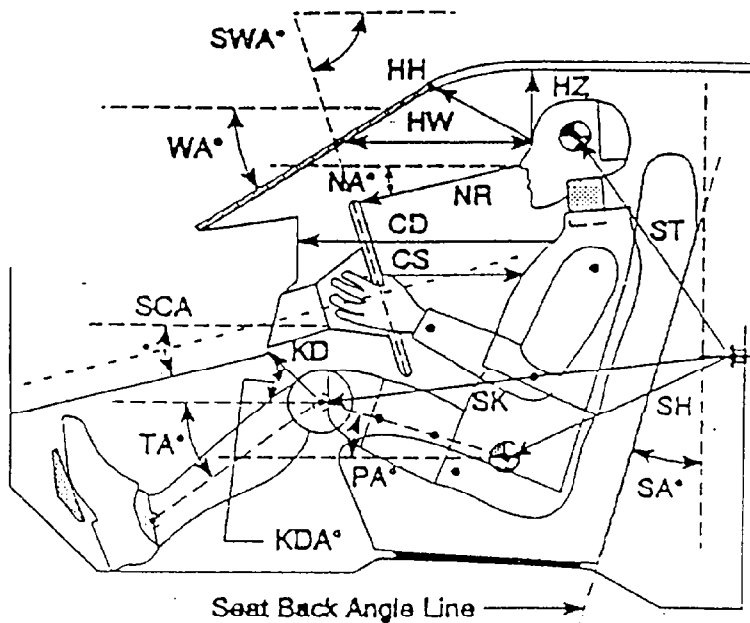
Driver Seat: The seat track had a total position movement of 25 notches and was positioned 13 notches forward from the rearmost position with the rearmost as 1st position.

Passenger Seat: The seat track had a total position movement of 25 notches and was positioned 13 notches forward from the rearmost position with the rearmost as 1st position.

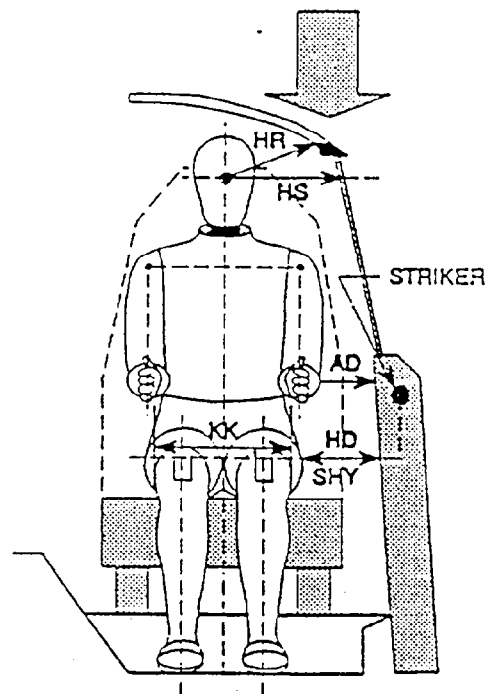
STEERING COLUMN ADJUSTMENTS:

The steering column was not adjustable.

FIGURE 1 DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS



- AD - Arm to Door
- HD - H-Point to Door
- HR - Head to Side Header
- HS - Head to Side Window
- KK - Knee to Knee
- SHY - Striker to H-Point (Y-Direction)



- CD - Chest to Dash
- CS - Steering Wheel to Chest
- HH - Head to Header
- HW - Head to Windshield
- HZ - Head to Roof
- KDA - Knee to Dash Angle
- KDL - Left Knee to Dash
- KDR - Right Knee to Dash
- NA - Nose to Rim Angle
- NR - Nose to Rim
- PA - Pelvic Angle
- RA - Rim to Abdomen
- SA - Seat Back Angle
- SCA - Steering Column Angle
- SH - Striker to H-Point
- SK - Striker to Knee
- ST - Striker to Head
- SWA - Steering Wheel Angle
- TA - Tibial Angle
- WA - Windshield Angle

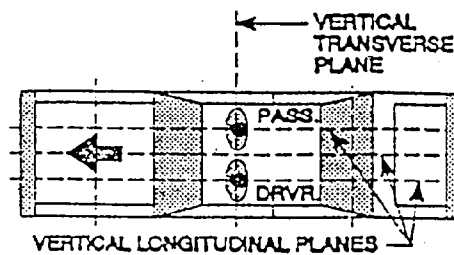


TABLE 18 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

Vehicle Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 Test Date: 10/23/95

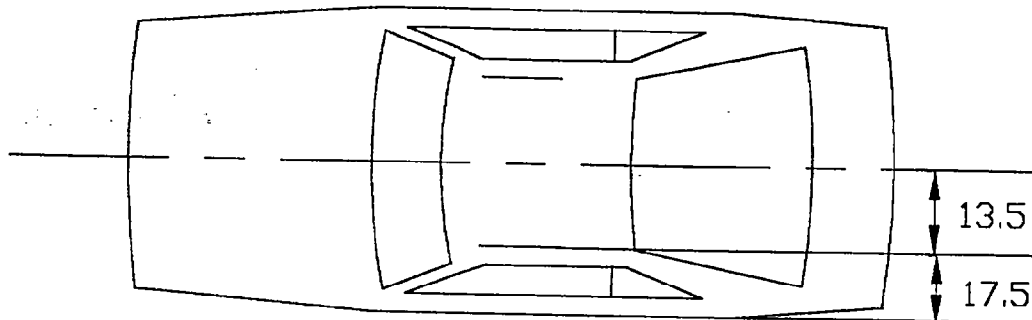
	DRIVER (Serial #312)	PASSENGER (Serial #340)
WA°	28.8°	N/A
SWA°	24.3°	N/A
SCA°	N/R	N/A
SA°	23.0°	22.8°
HZ	6.4 in	6.5 in
HH	13.4 in	12.0 in
HW	21.9 in	21.3 in
HR	8.3 in	8.3 in
NR	15.8 in Angle (NA) 9.4°	N/A
CD	21.4 in	21.6 in
CS	13.2 in	N/A
RA	8.1 in	N/A
KDL	6.9 in Angle (KDA) 17°	6.6 in
KDR	6.9 in	7.0 in Angle (KDA) 23.8°
PA°	22.5°	23.2°
TA°	43.3°	37.3°
KK	14.2 in	9.7 in
ST*	21.1 in Angle 64.0°	22.0 in Angle 60.6°
SK*	29.8 in Angle -1.5°	30.8 in Angle -4.4°
SH*	16.9 in Angle -17.2°	16.9 in Angle -14.2°
SHY	10.0 in	9.6 in
HS	12.4 in	12.1 in
HD	5.2 in	5.3 in
AD	4.7 in	4.6 in

N/A = Not Applicable

N/R = Not Recorded

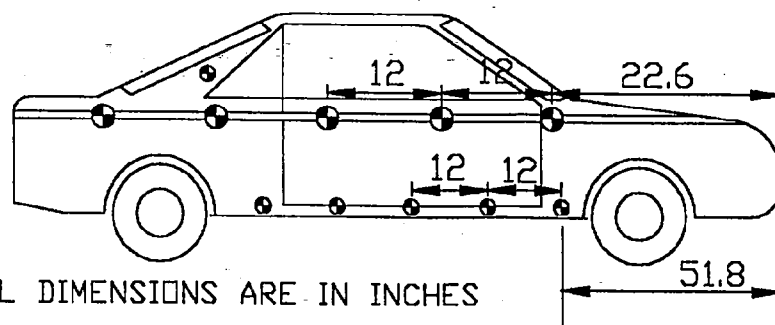
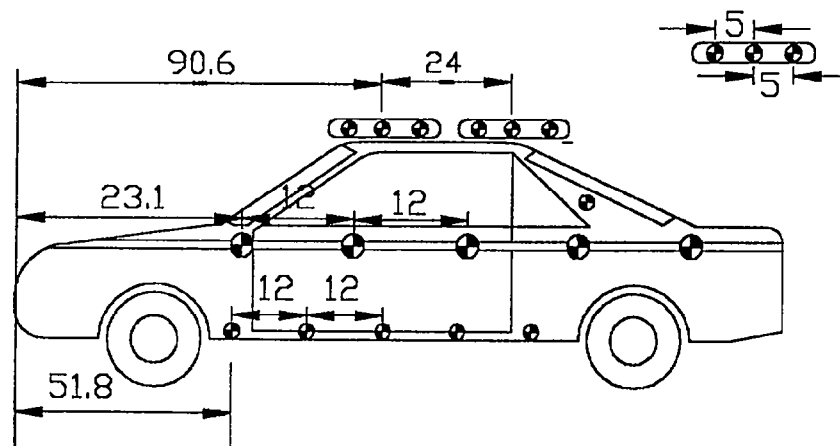
* Angles taken from horizontal

FIGURE 2 VEHICLE TARGET LOCATIONS



Steering Column Target

X = 64.9 from front of vehicle
 Y = 13.5 from centerline
 Z = 36.3 from floor of building



ALL DIMENSIONS ARE IN INCHES

FIGURE 3 CAMERA POSITIONS

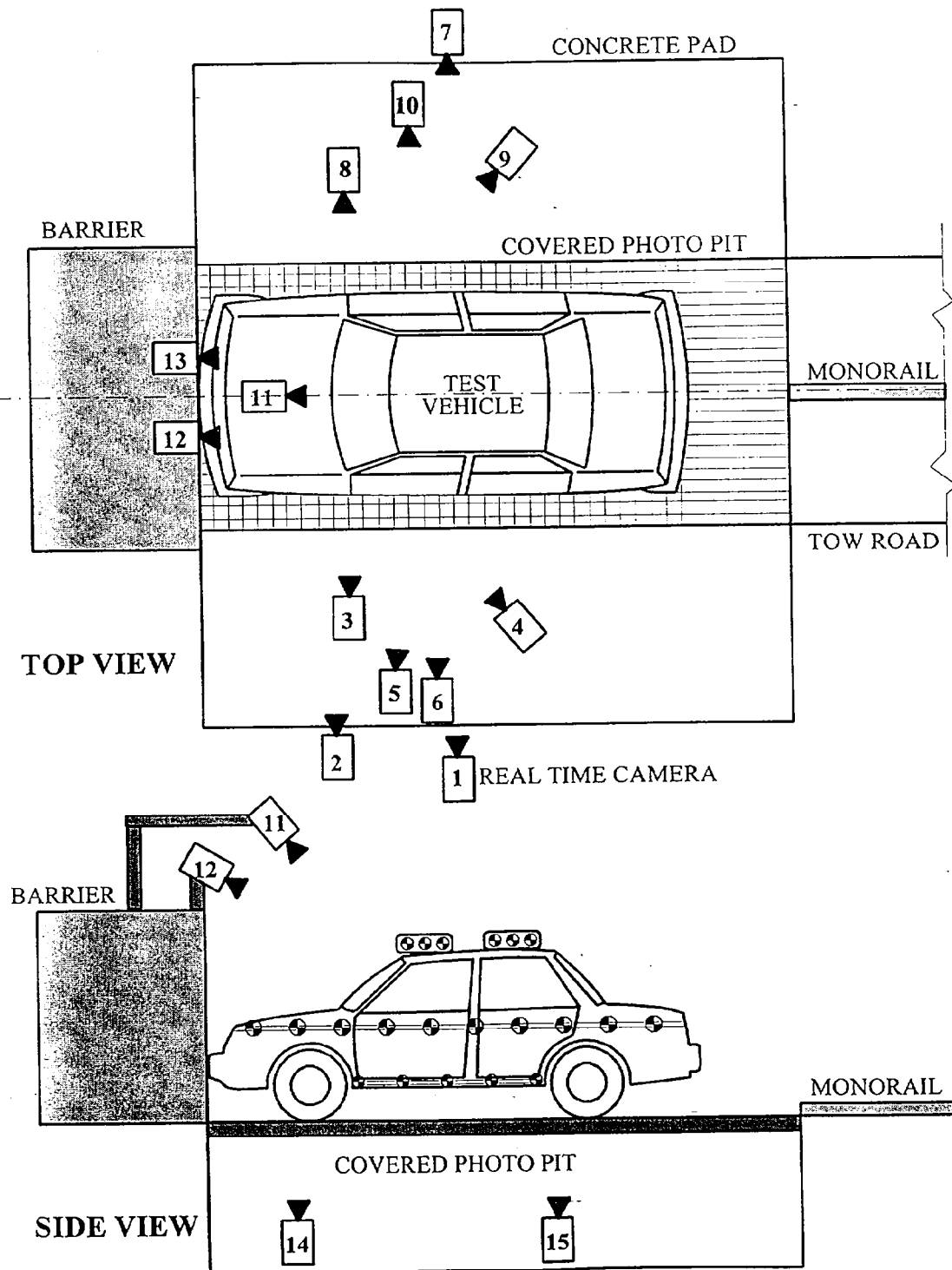


TABLE 19 CAMERA LOCATIONS

Veh. Year/Make/Model/Body Style: 1996/Mitsubishi/Mirage/2 Door Coupe

Vehicle NHTSA No.: CT5601 ; Test Date: 10/23/95

	VIEW	CAMERA POSITIONS (inches)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Left Side View						10	24
2	Left Front	48.0	337.4	43.7	90°	321.3	25	1020
3	Driver Close-up	59.1	357.1	49.6	90°	340.9	50	1010
4	Driver Angle Motion	213.6	236.2	79.1			50	922
5	Steering Column Top	88.8	294.5	61.4	90°	278.3	25	847
6	Steering Column Bottom	88.6	294.9	40.6	90°	278.7	25	1010
7	Right Overall	108.3	-330.1	45.3	90°	316.9	13	1163
8	Right Close-up	58.3	-339.8	44.5	90°	323.6	50	1015
9	Right Angle	214.6	-236.2	79.5			50	1333
10	Right Passenger	47.2	-324.4	44.9	90°	308.3	25	1198
11	Top Overall	97.6	0	208.7			8	962
12	Top Driver	-10.0	13.4	102.4			13	N/R
13	Top Passenger	-8.5	-15.0	108.3			13	1000
14	Pit Front	49.0	0	-125.4			13	1020
15	Pit Rear View	119.5	0	-125.0			13	1020

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

N/R = Not Recorded

FIGURE 4 DRIVER DUMMY TEMPERATURE

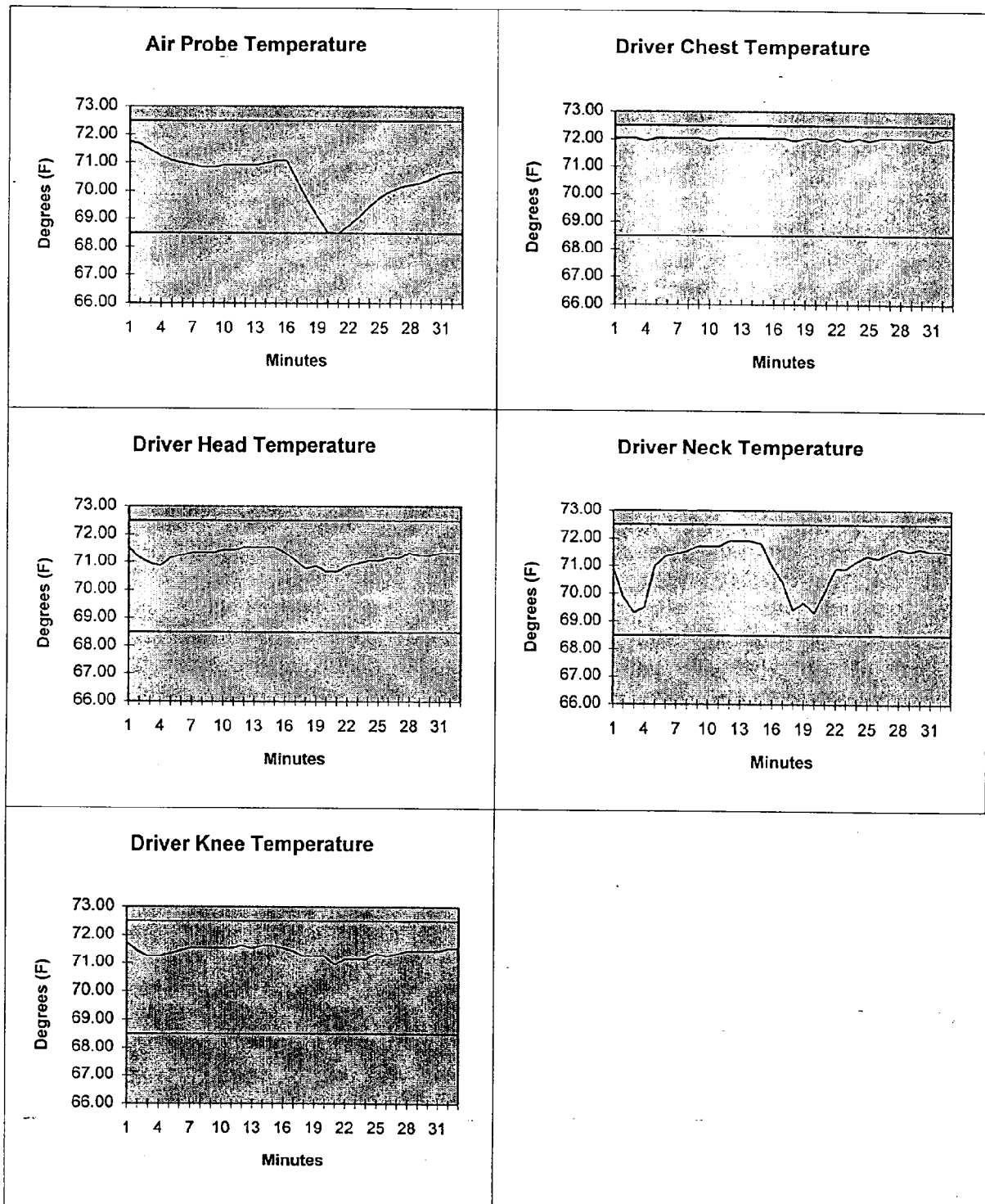


FIGURE 5 PASSENGER DUMMY TEMPERATURE

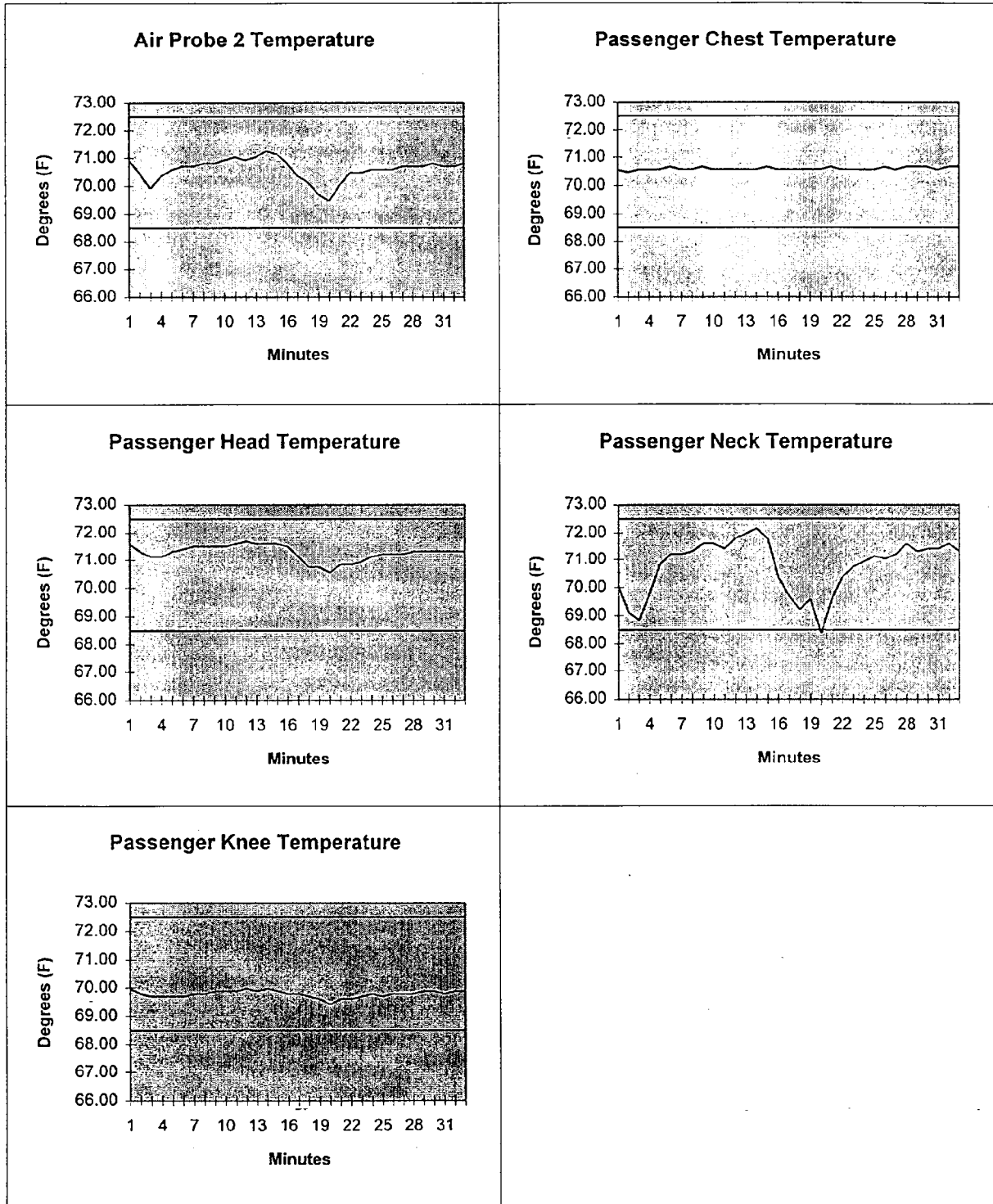
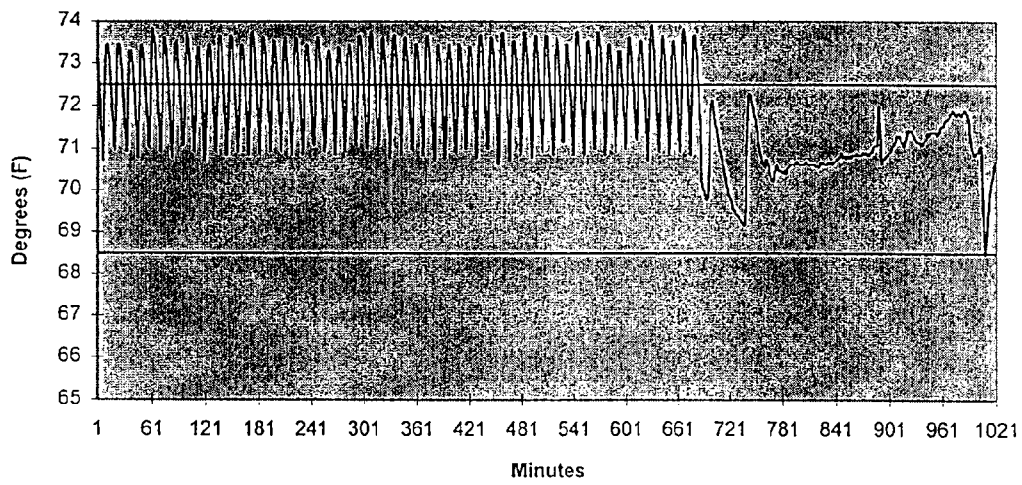


FIGURE 6 AIR PROBE TEMPERATURE

Air Probe 16 hr Temperature Trace



APPENDIX A
PHOTOGRAPHS

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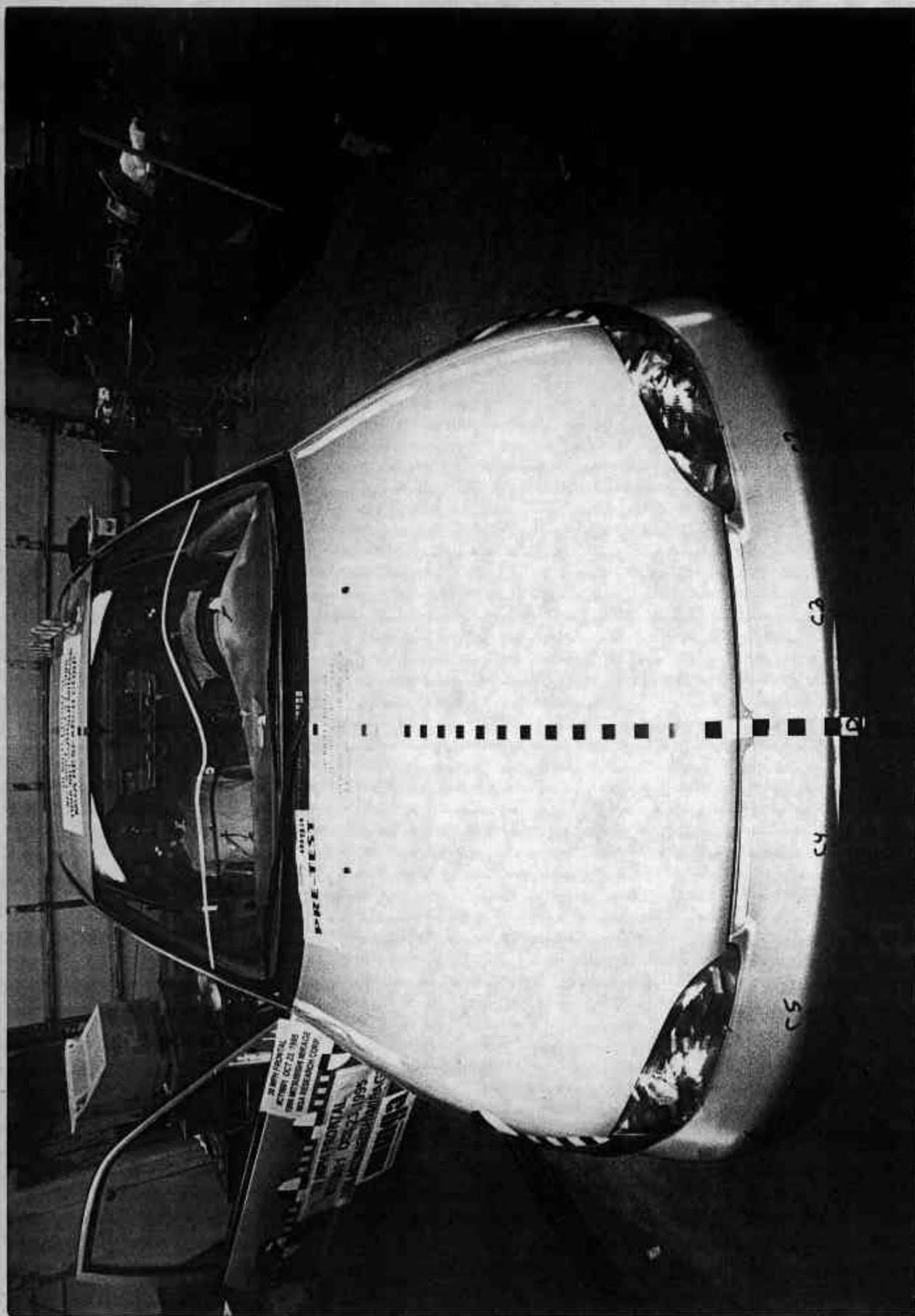


Photo No. A-1 - Pre-Test Front View

A-1



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

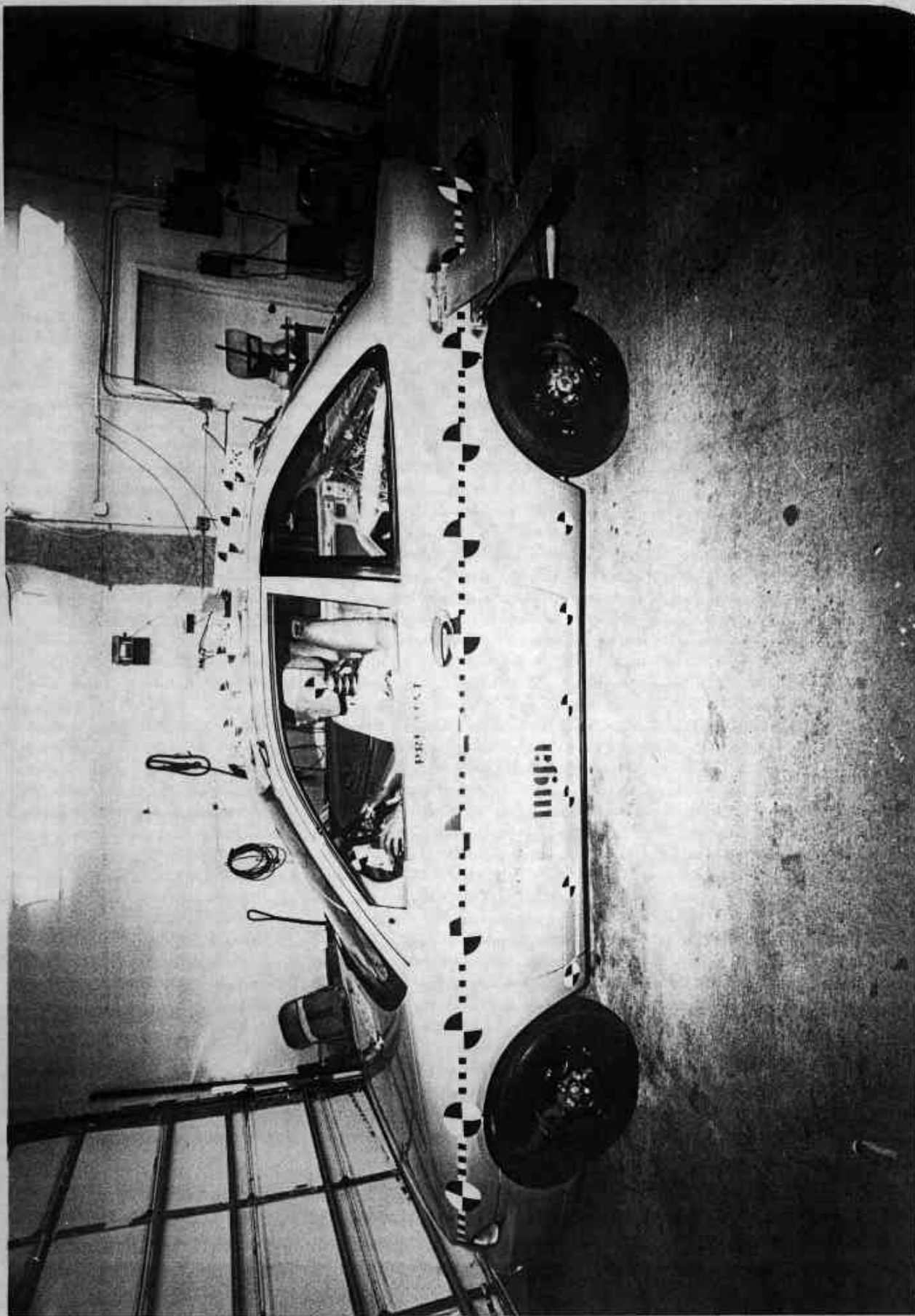


Photo No. A-3 - Pre-Test Left Side View

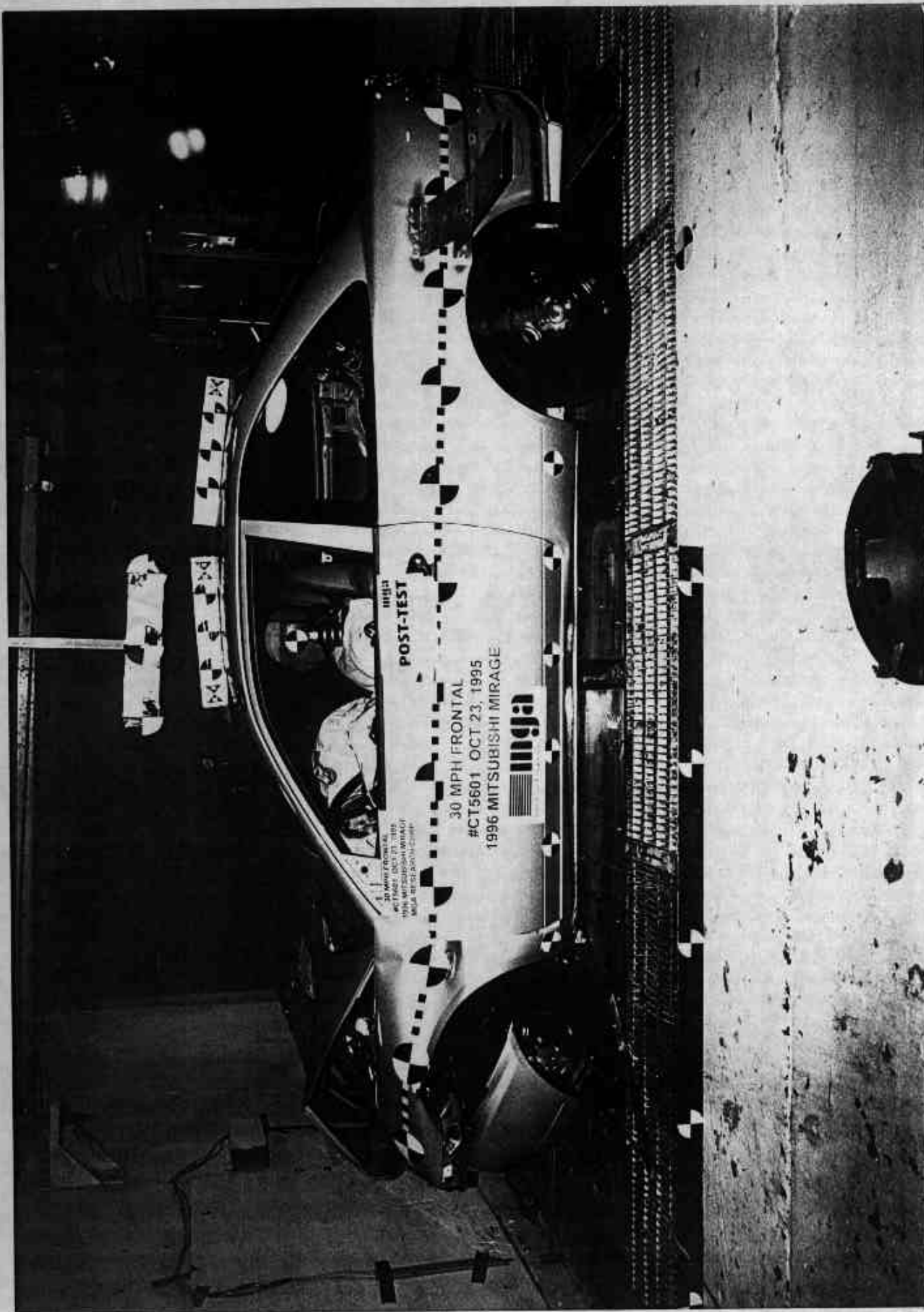


Photo No. A-4 - Post-Test Left Side View

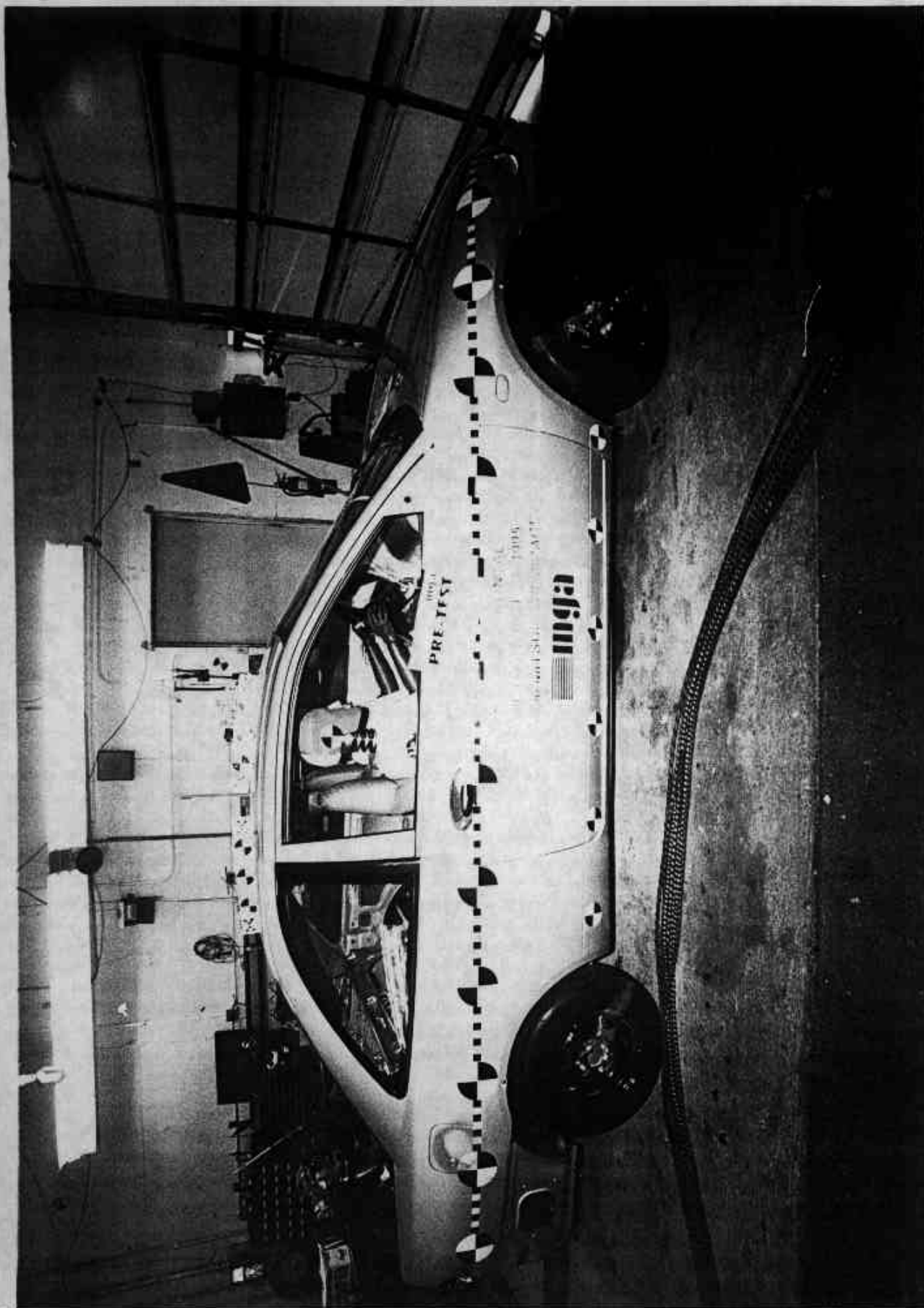


Photo No. A-5 - Pre-Test Right Side View

A-5

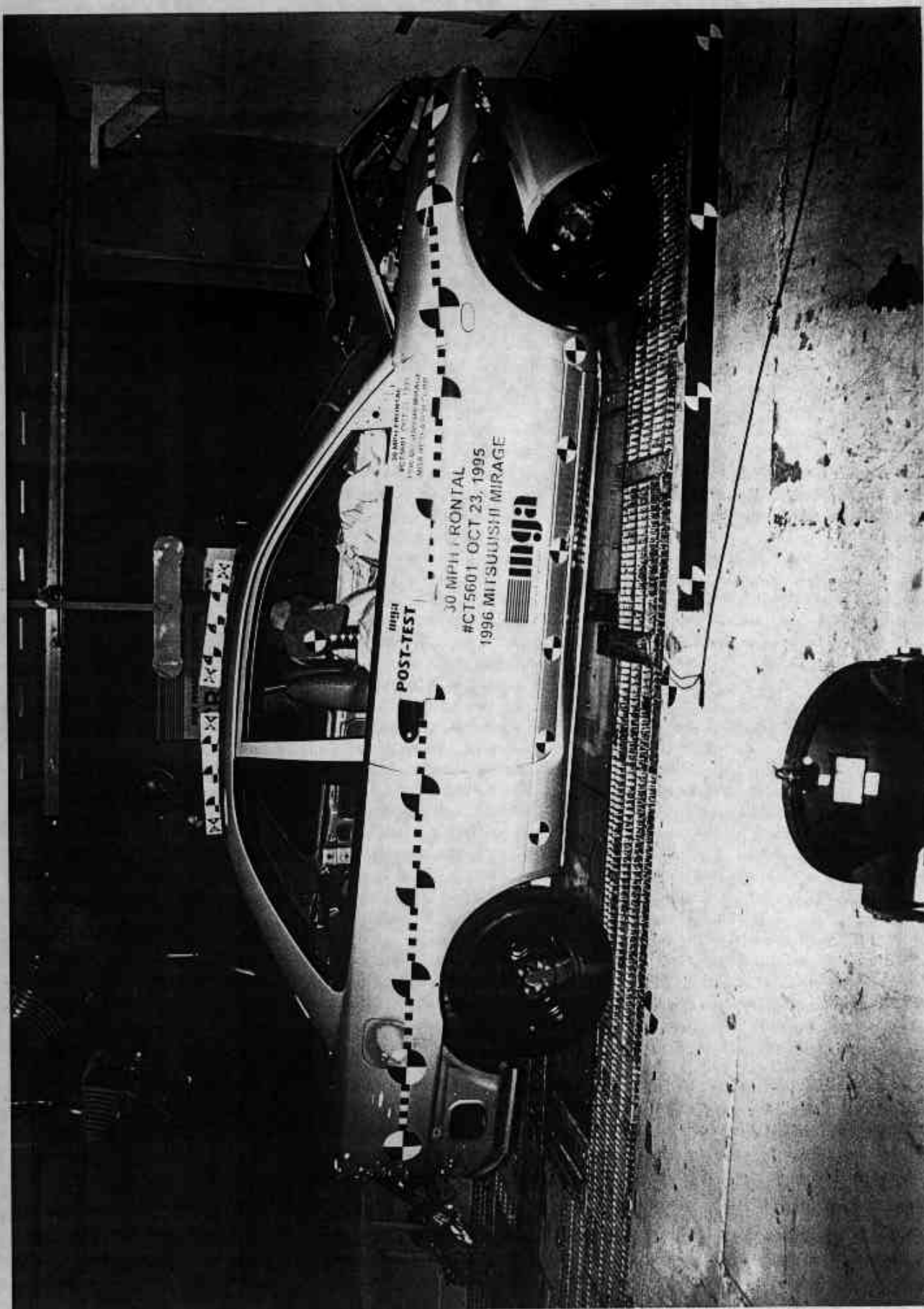


Photo No. A-6 - Post-Test Right Side View

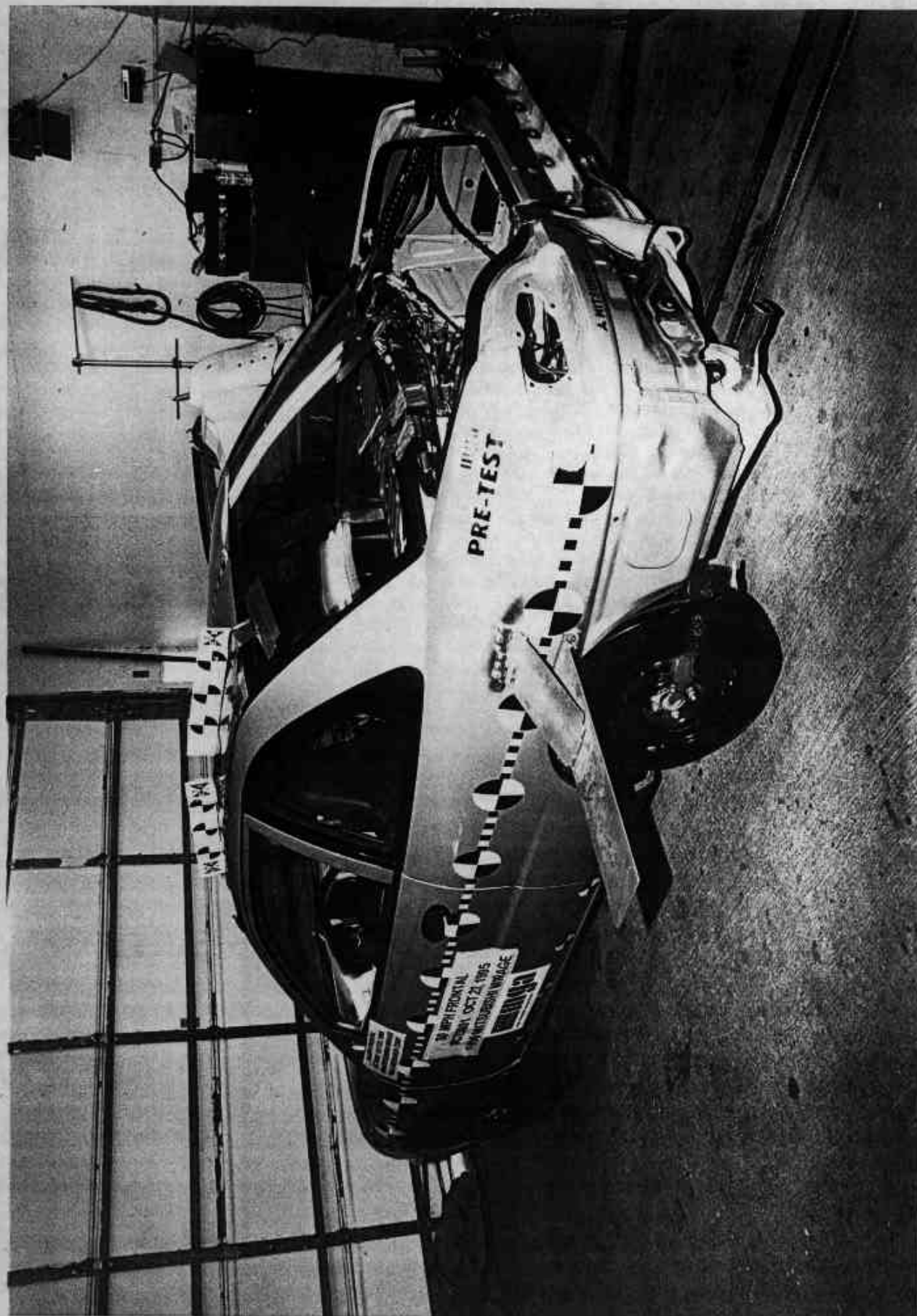


Photo No. A-7 - Pre-Test 3/4 Left Rear View

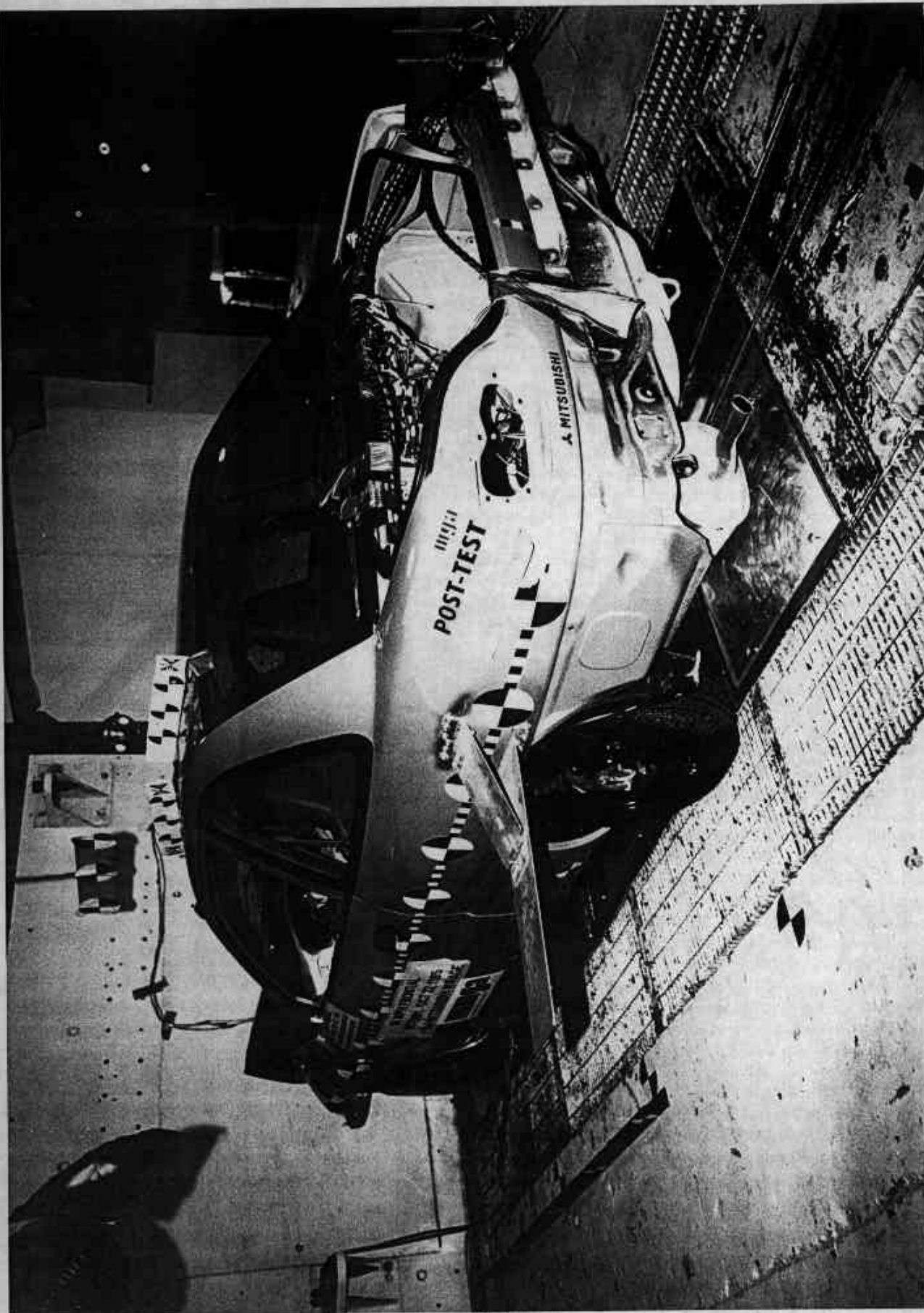


Photo No. A-8 - Post-Test 3/4 Left Rear View



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

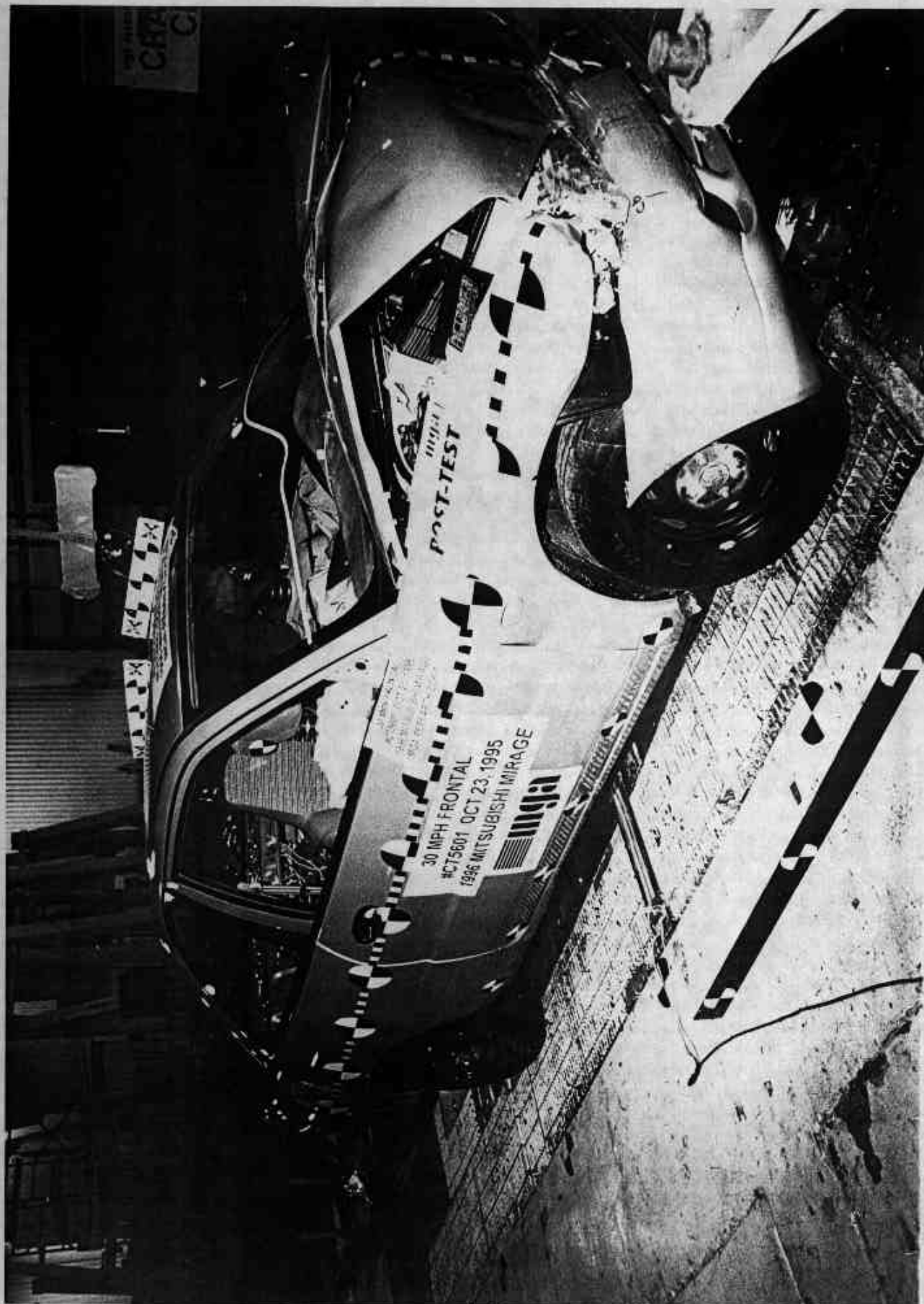


Photo No. A-10 - Post-Test 3/4 Right Front View

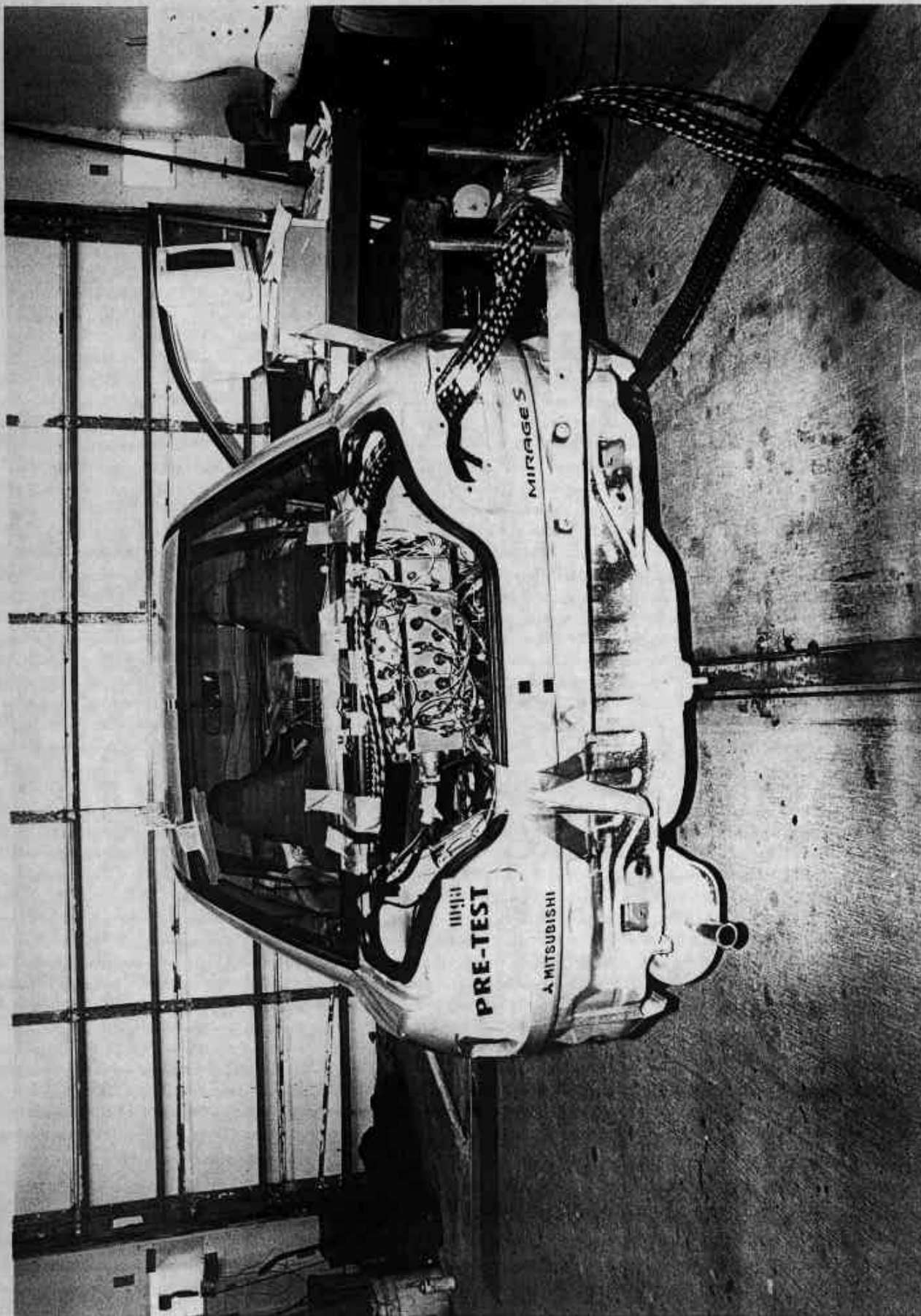


Photo No. A-11 - Pre-Test Rear View

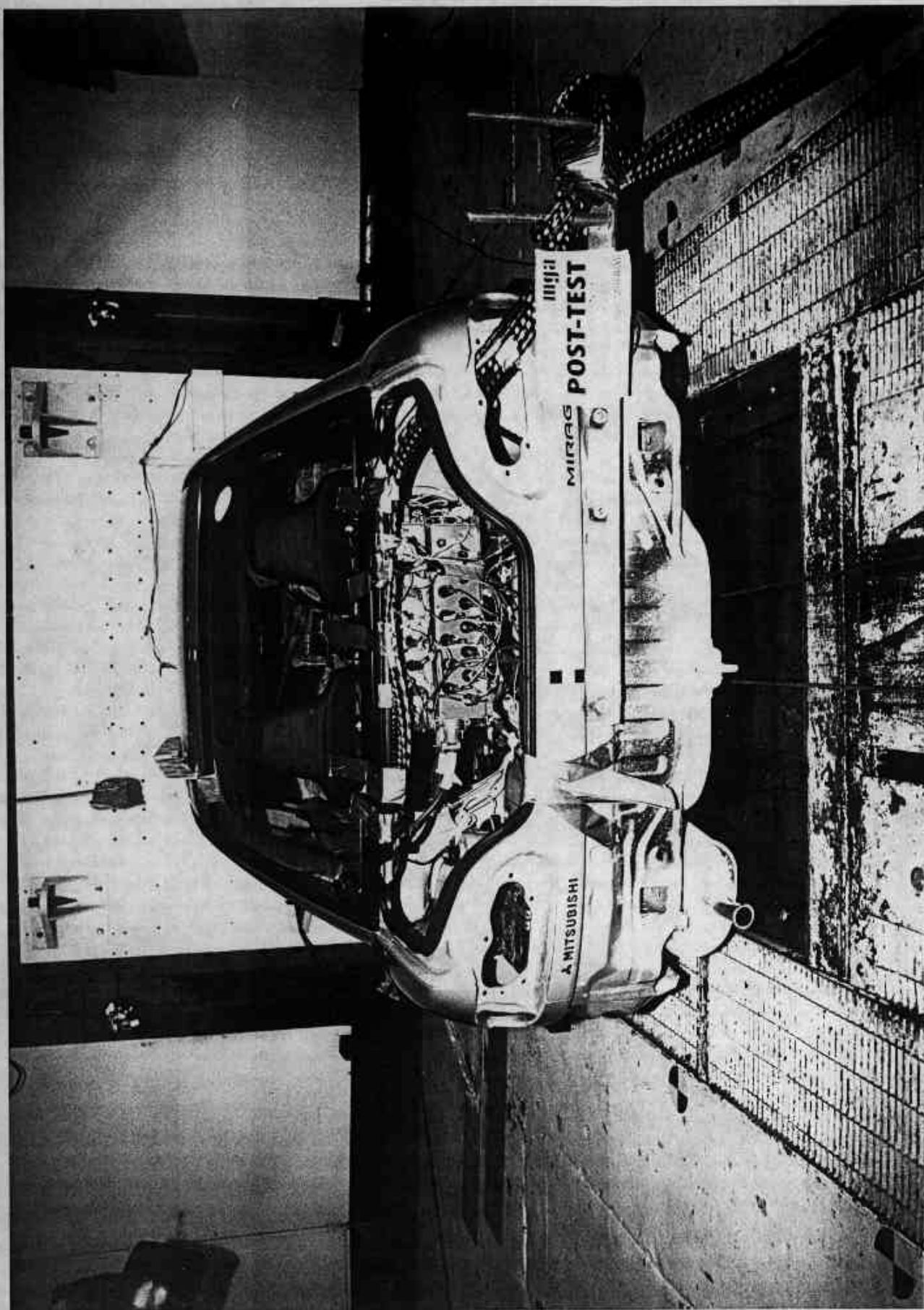


Photo No. A-12 - Post-Test Rear View

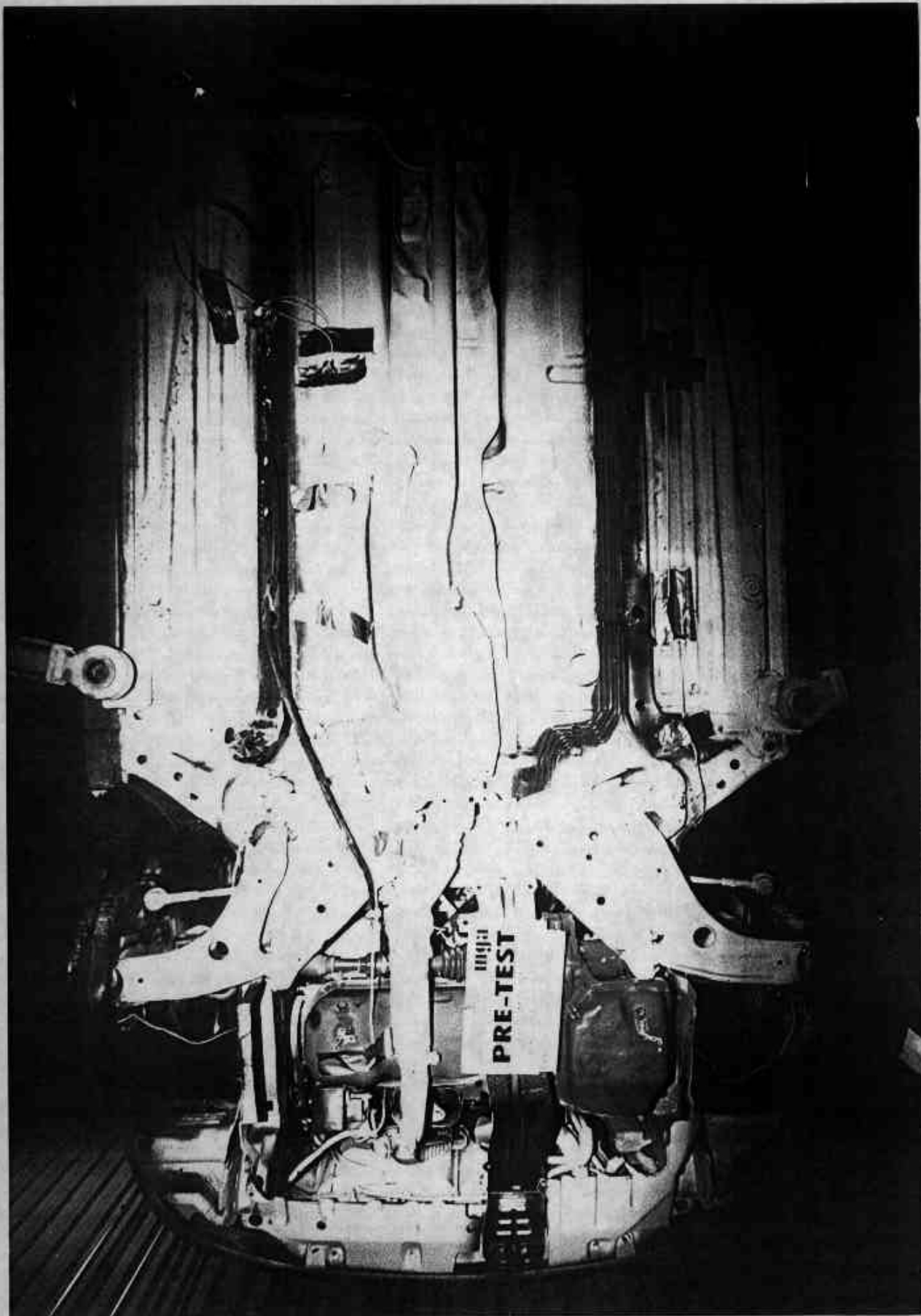


Photo No. A-13- Pre-Test Front Underbody View

A-13

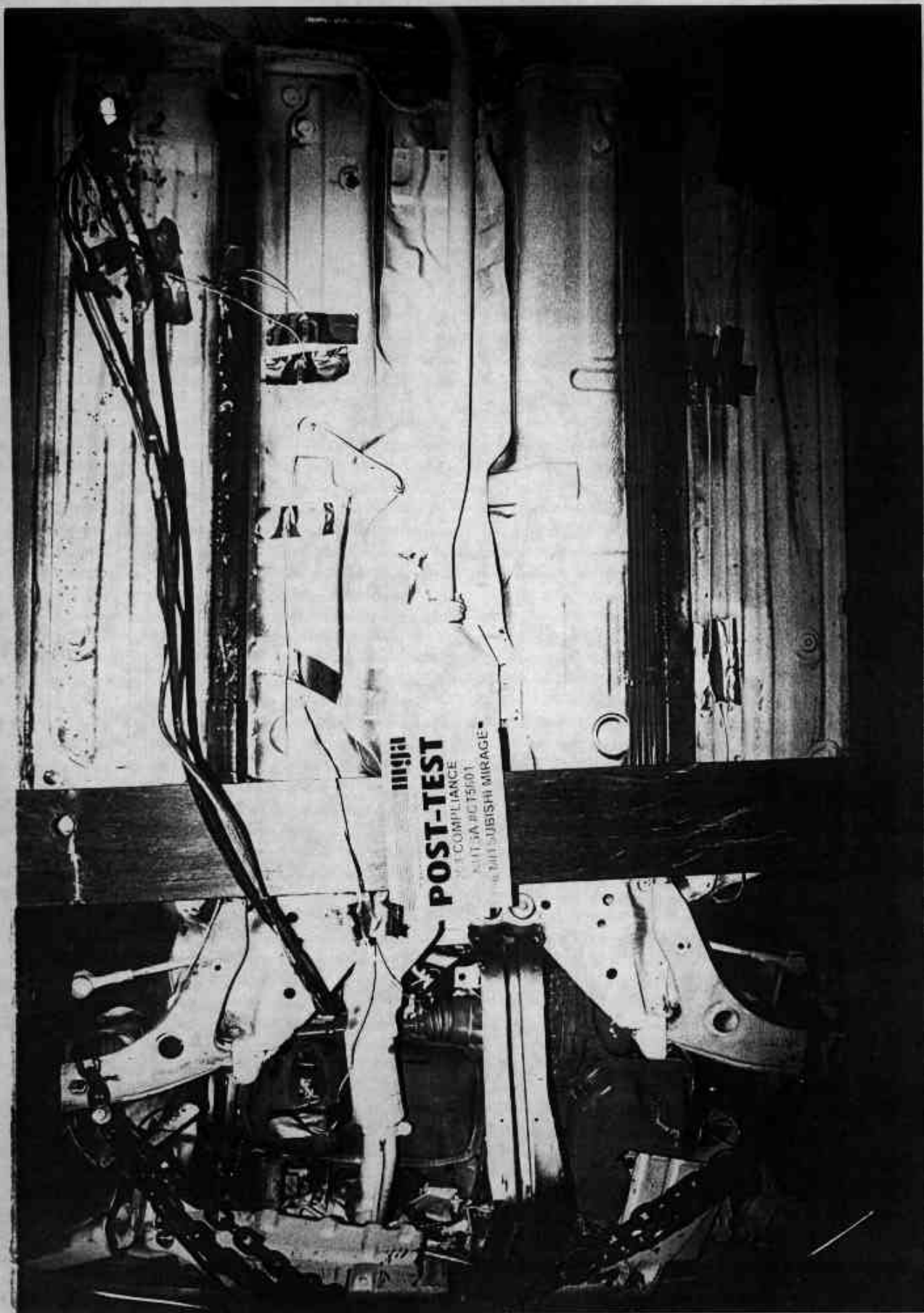


Photo No. A-14 - Post-Test Front Underbody View

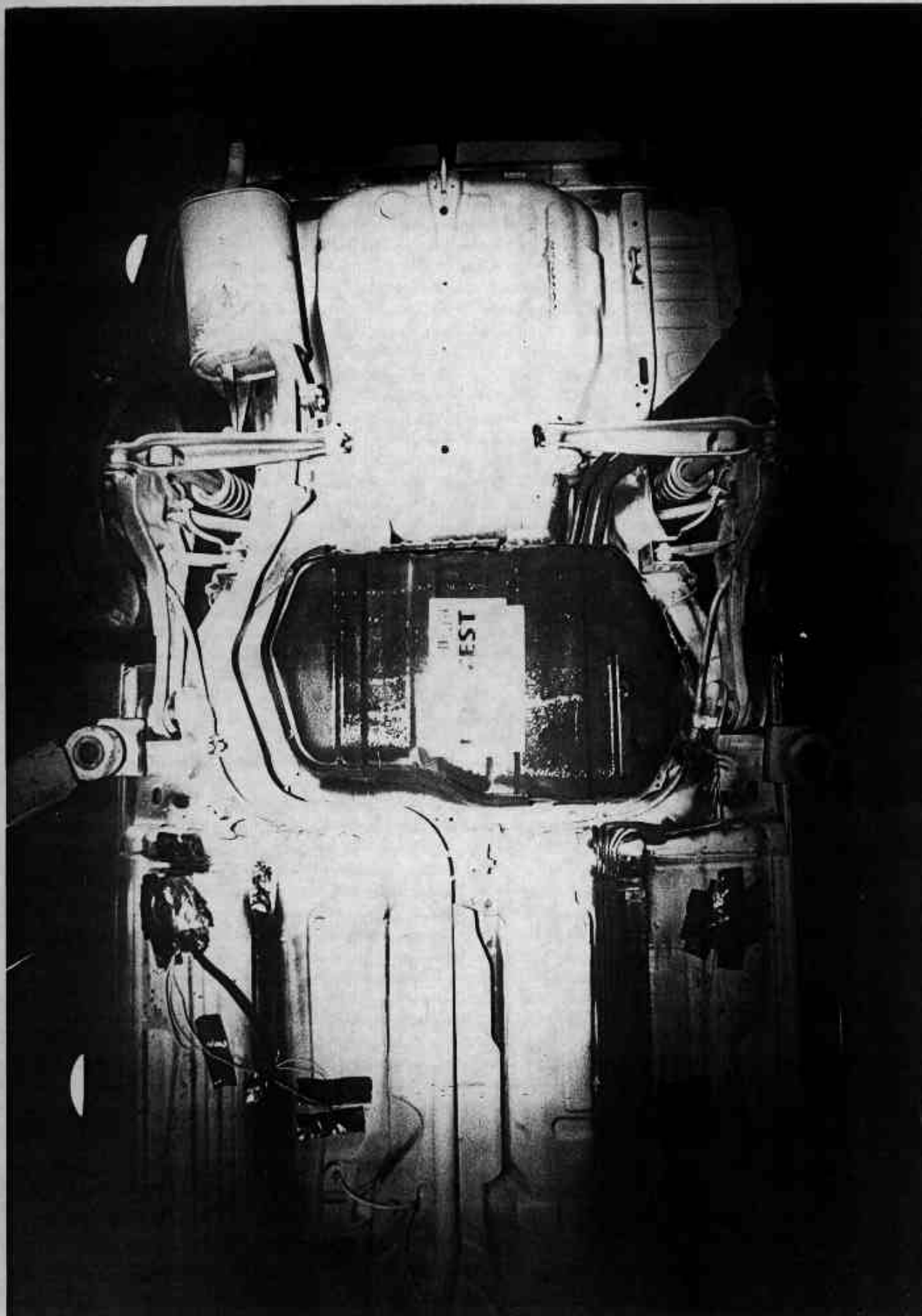


Photo No. A-15 - Pre-Test Rear Underbody View

A-15

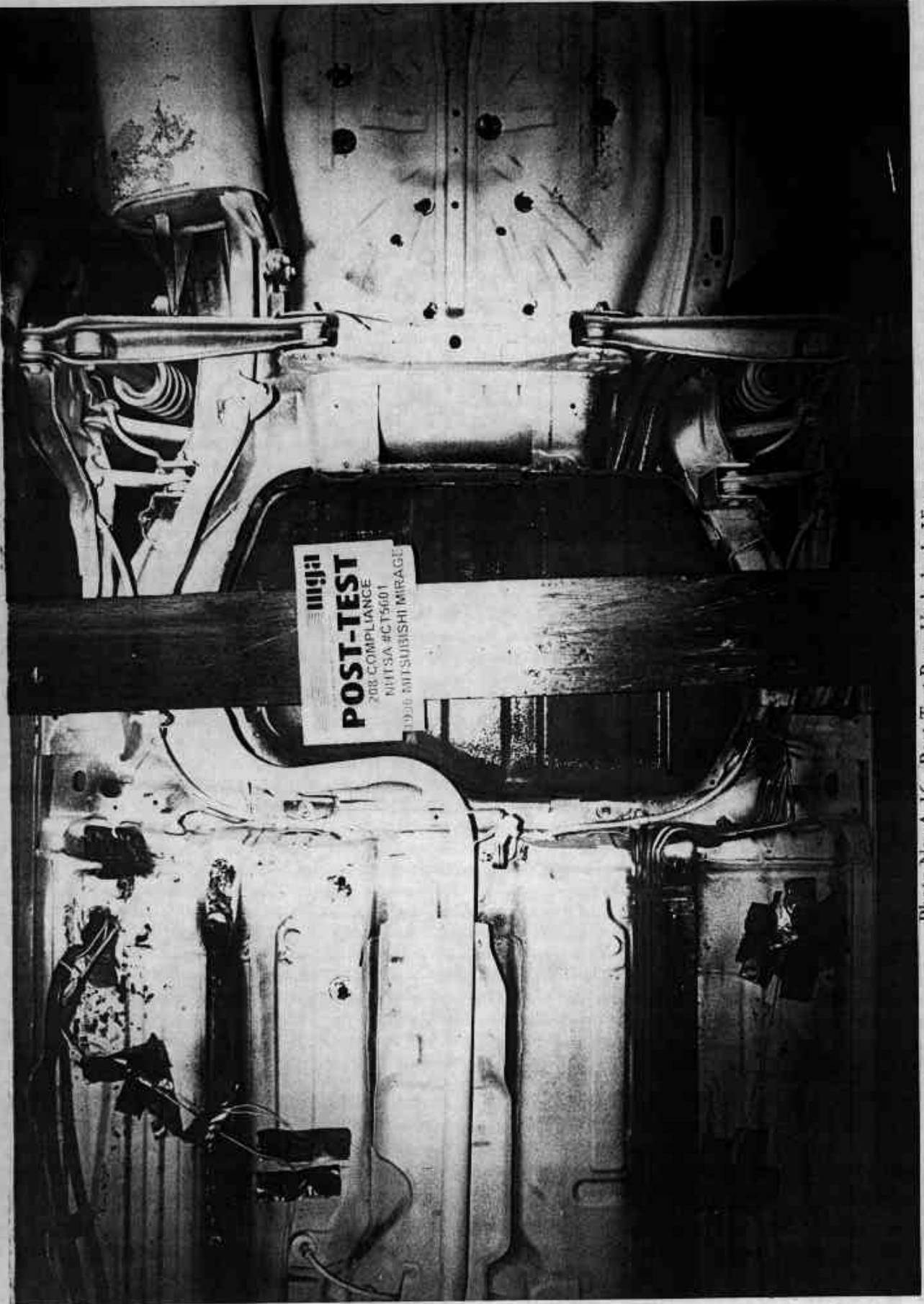
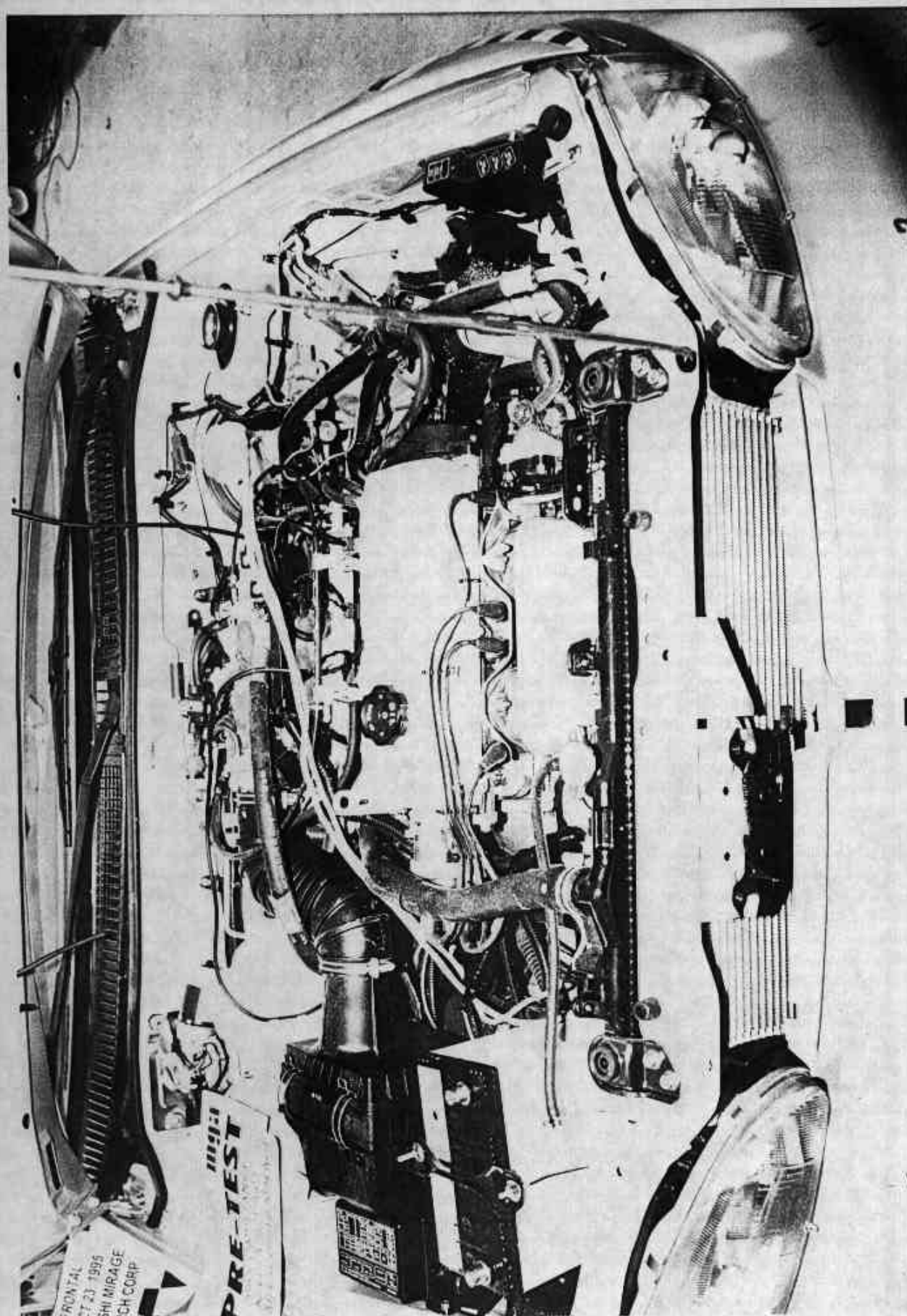


Photo No. A-16 - Post-Test Rear Underbody View



A-17

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

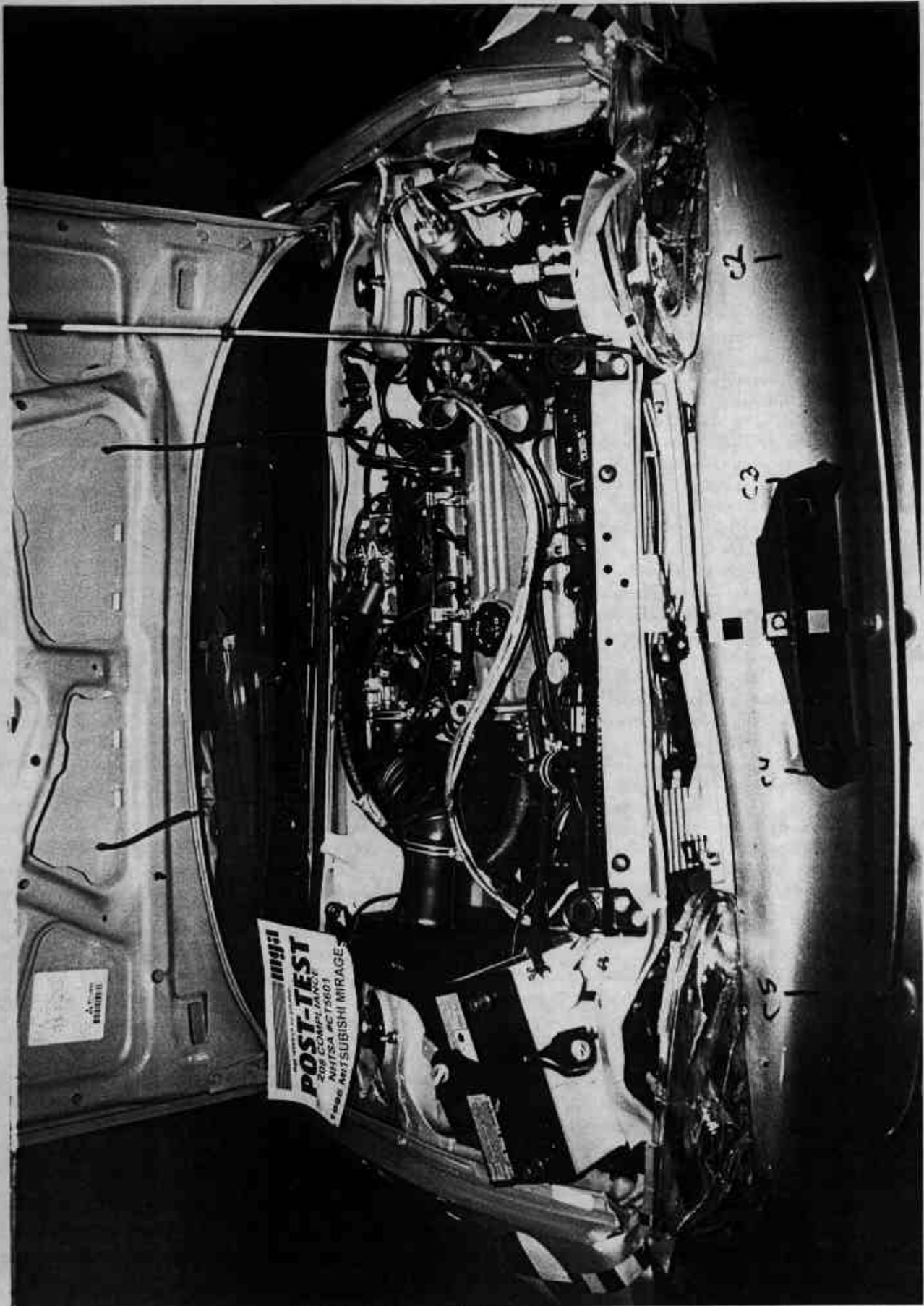
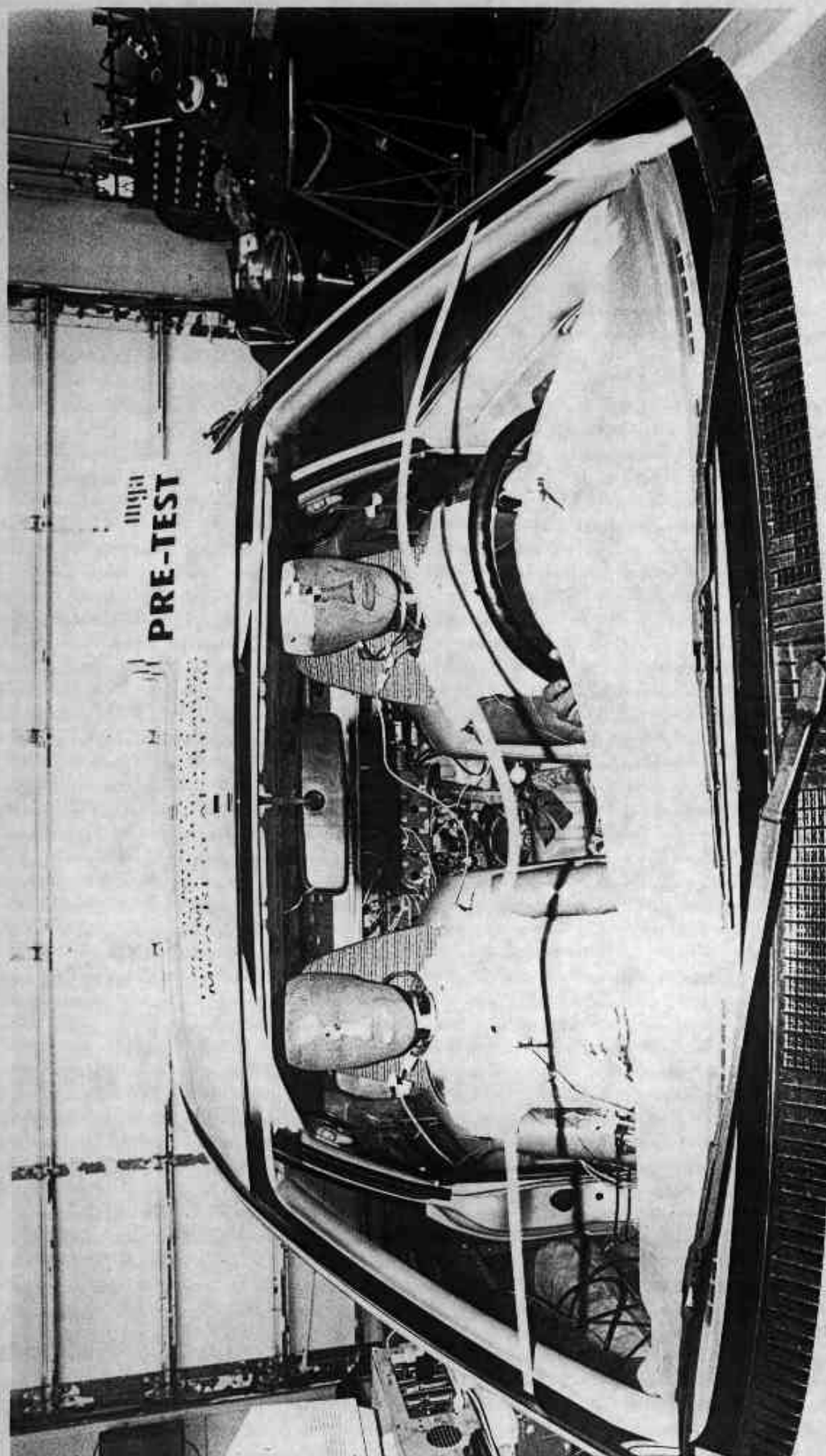


Photo No. A-18 - Post-Test Engine Compartment View

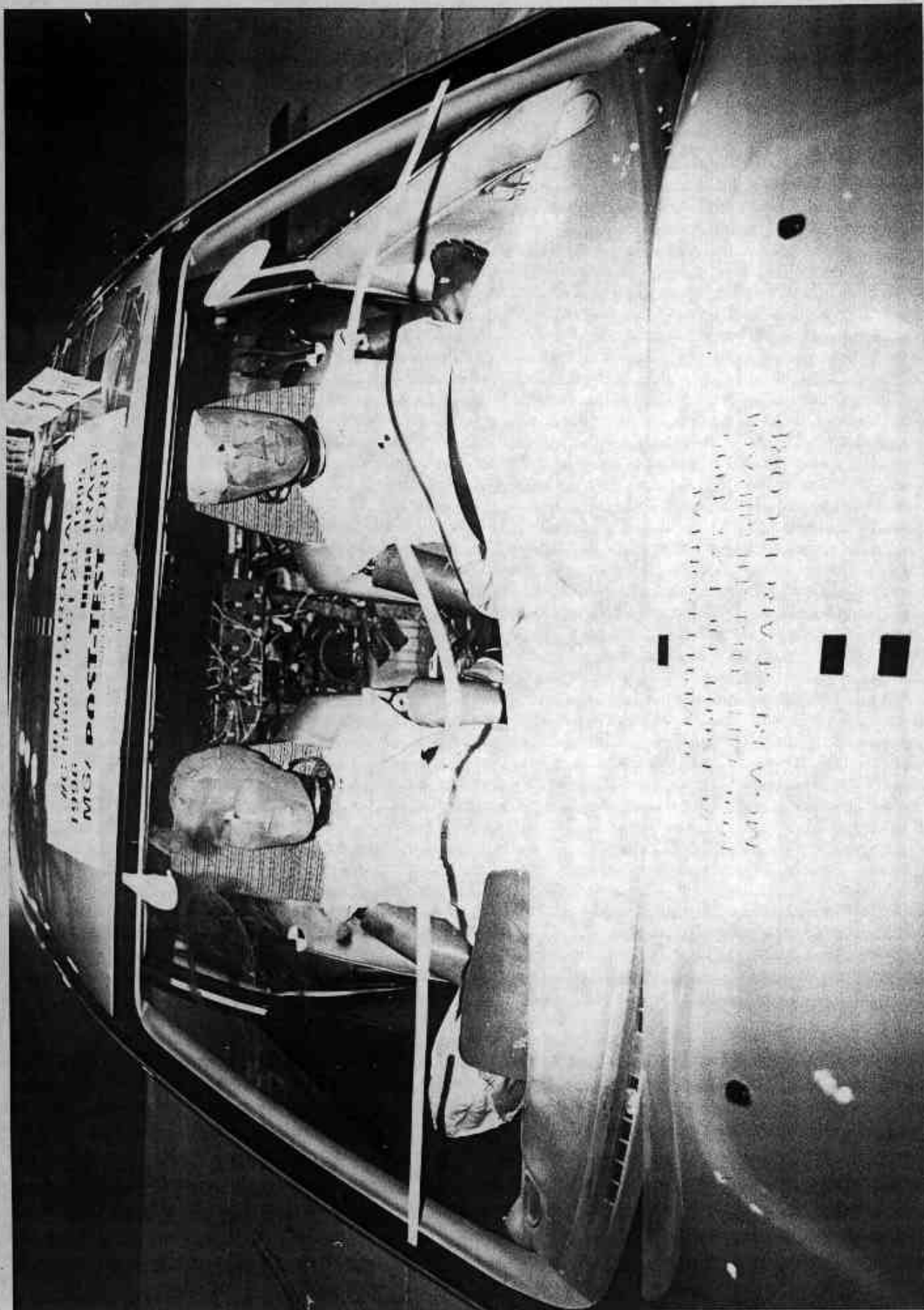


Photo No. A-19 - Pre-Test Fuel Filler Cap View



30 MPH 11 RONTAI
#CT15601 OCT 23, 1995
1996 MITSUBISHI MIRAGE
MGA RESEARCH CORP.

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



A-21

Photo No. A-21 - Post-Test Windshield View

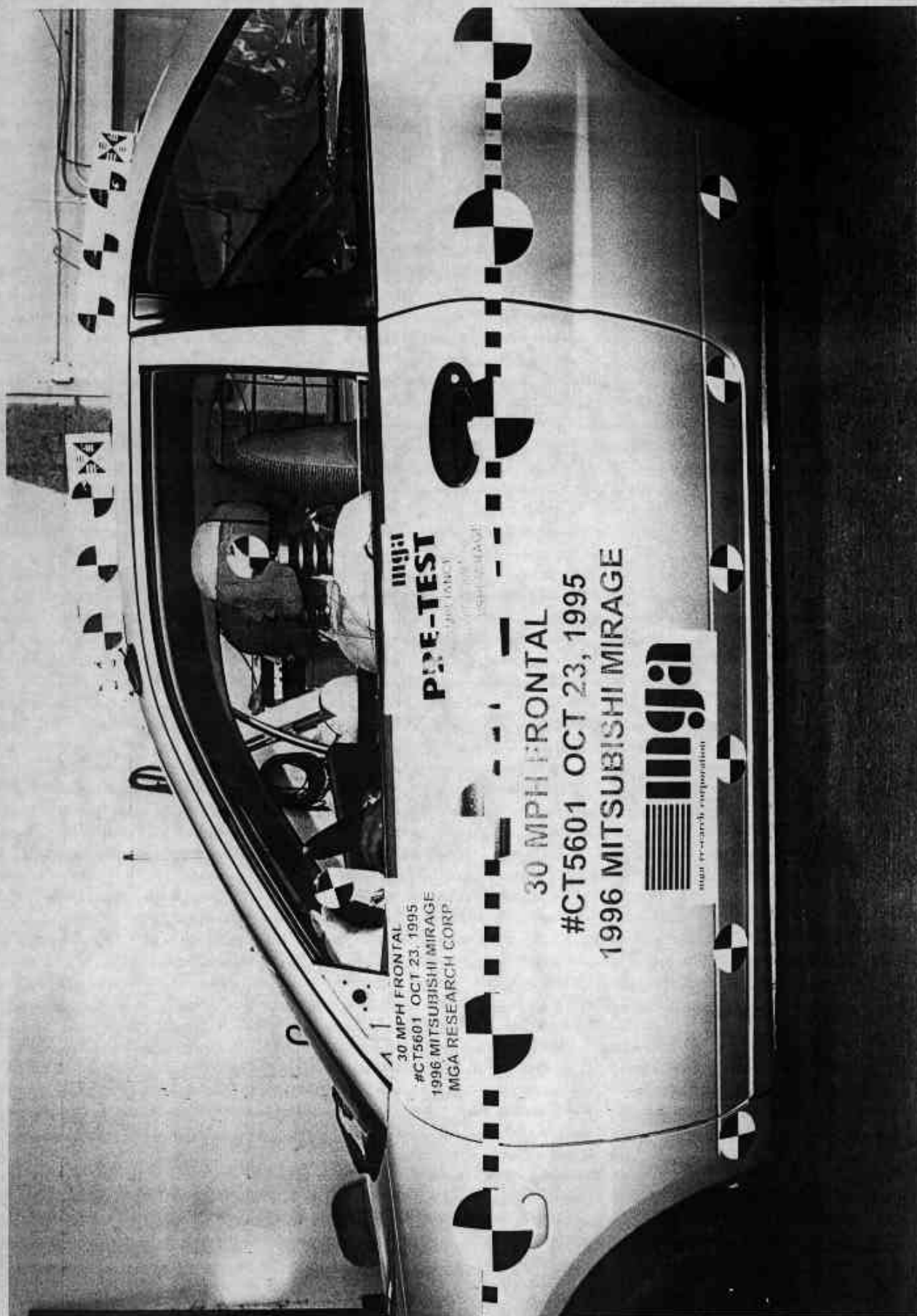


Photo No. A-22 - Pre-Test Driver Dummy Position View



POST-TEST

30 MPH FRONTAL

#CT5601 OCT 23, 1995
1996 MITSUBISHI MIRAGE
MGA RESEARCH CORP.

#CT5601 OCT 23, 1995
1996 MITSUBISHI MIRAGE



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

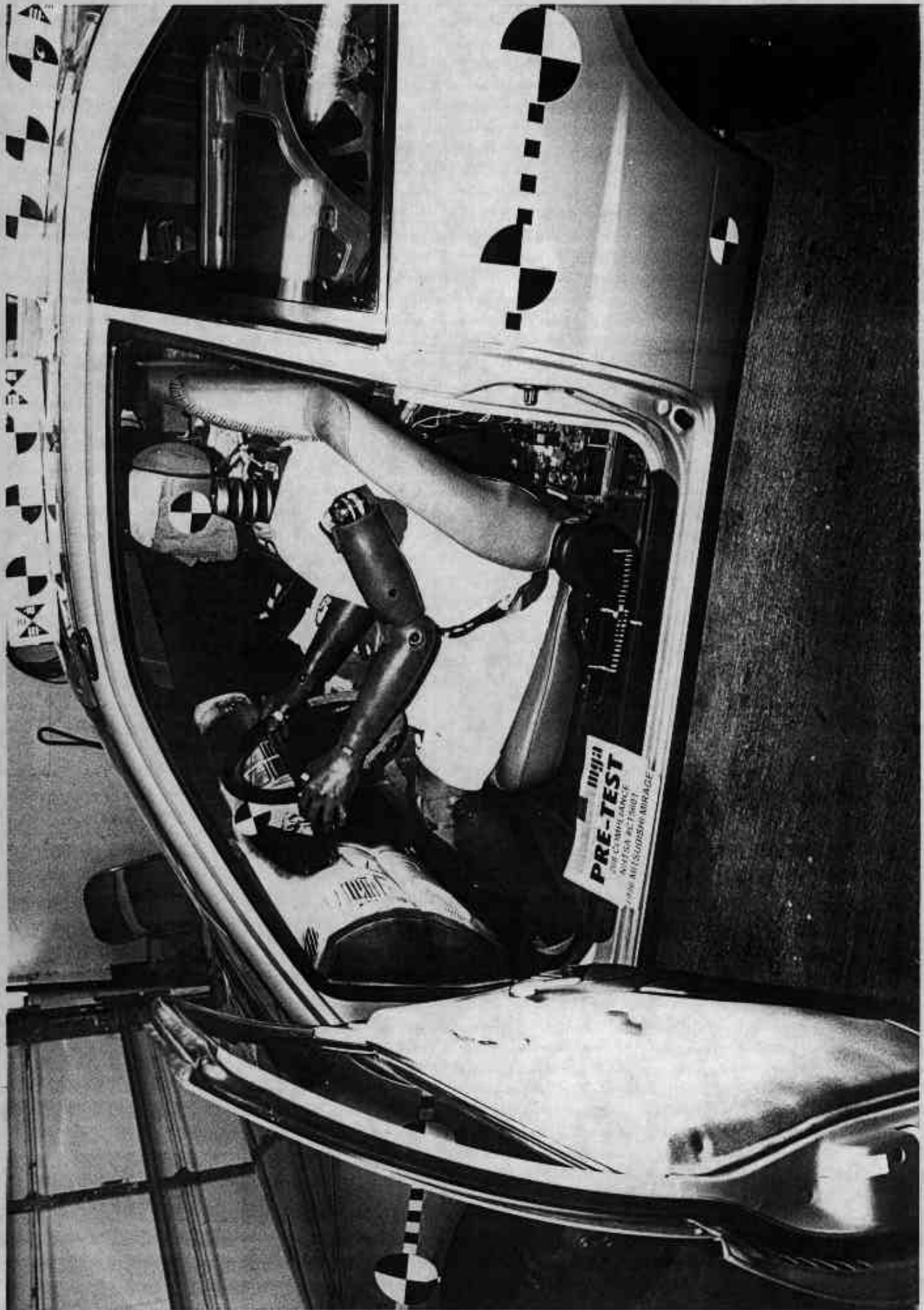


Photo No. A-24 - Pre-Test Driver Dummy Position View (Door Open)

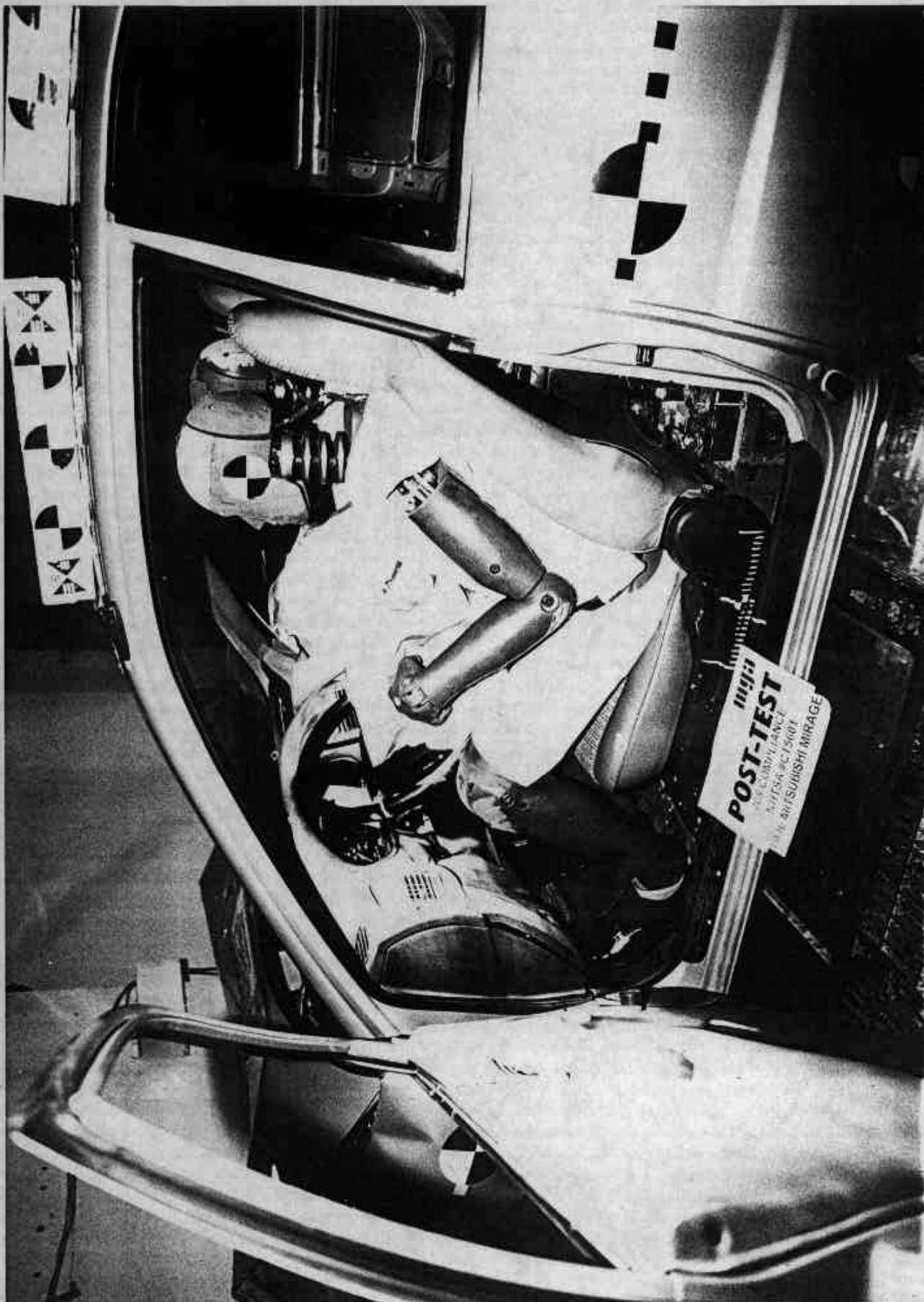


Photo No. A-25 - Post-Test Driver Dummy Position View (Door Open)

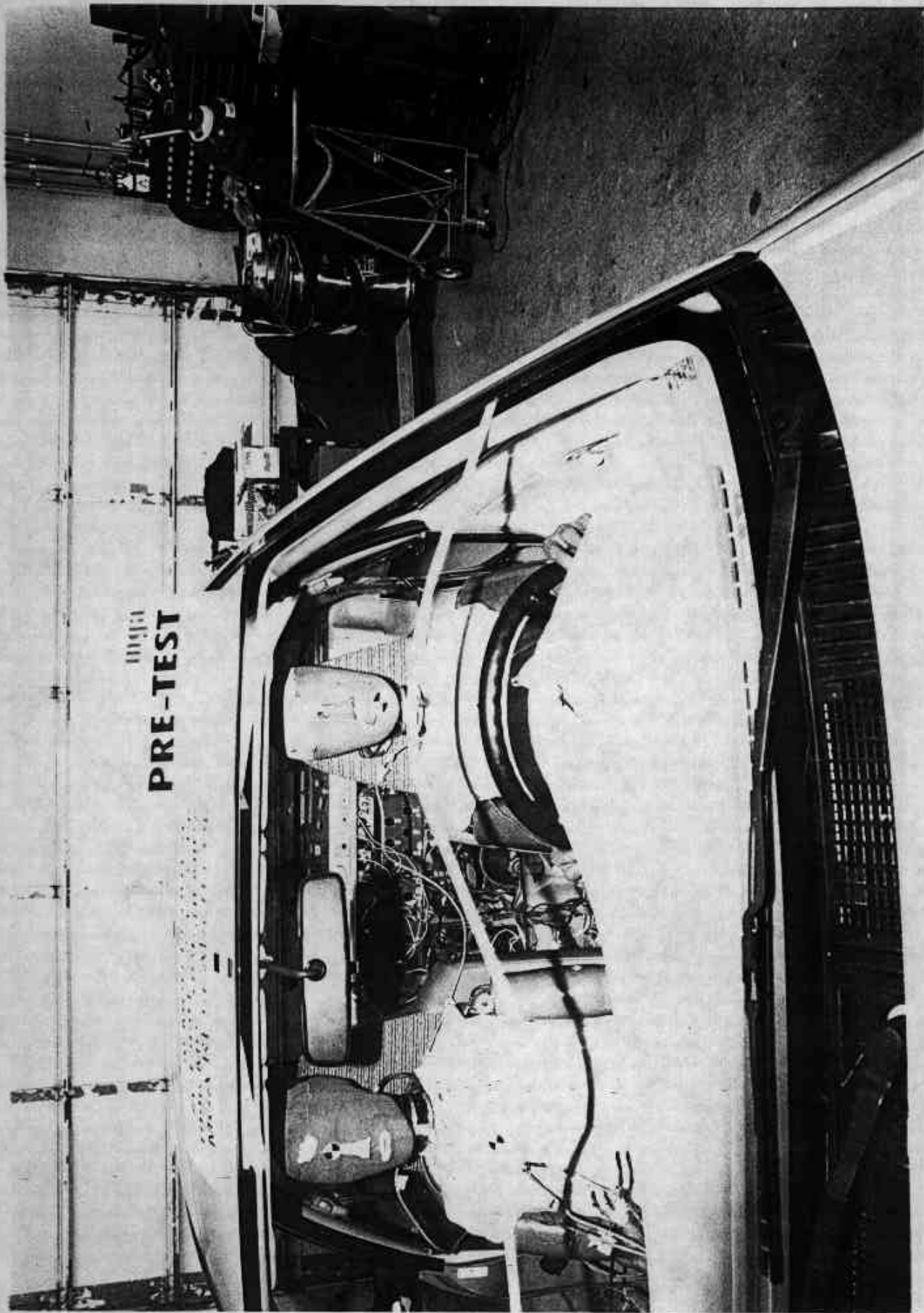


Photo No. A-26 - Pre-Test Driver Windshield View

A-26

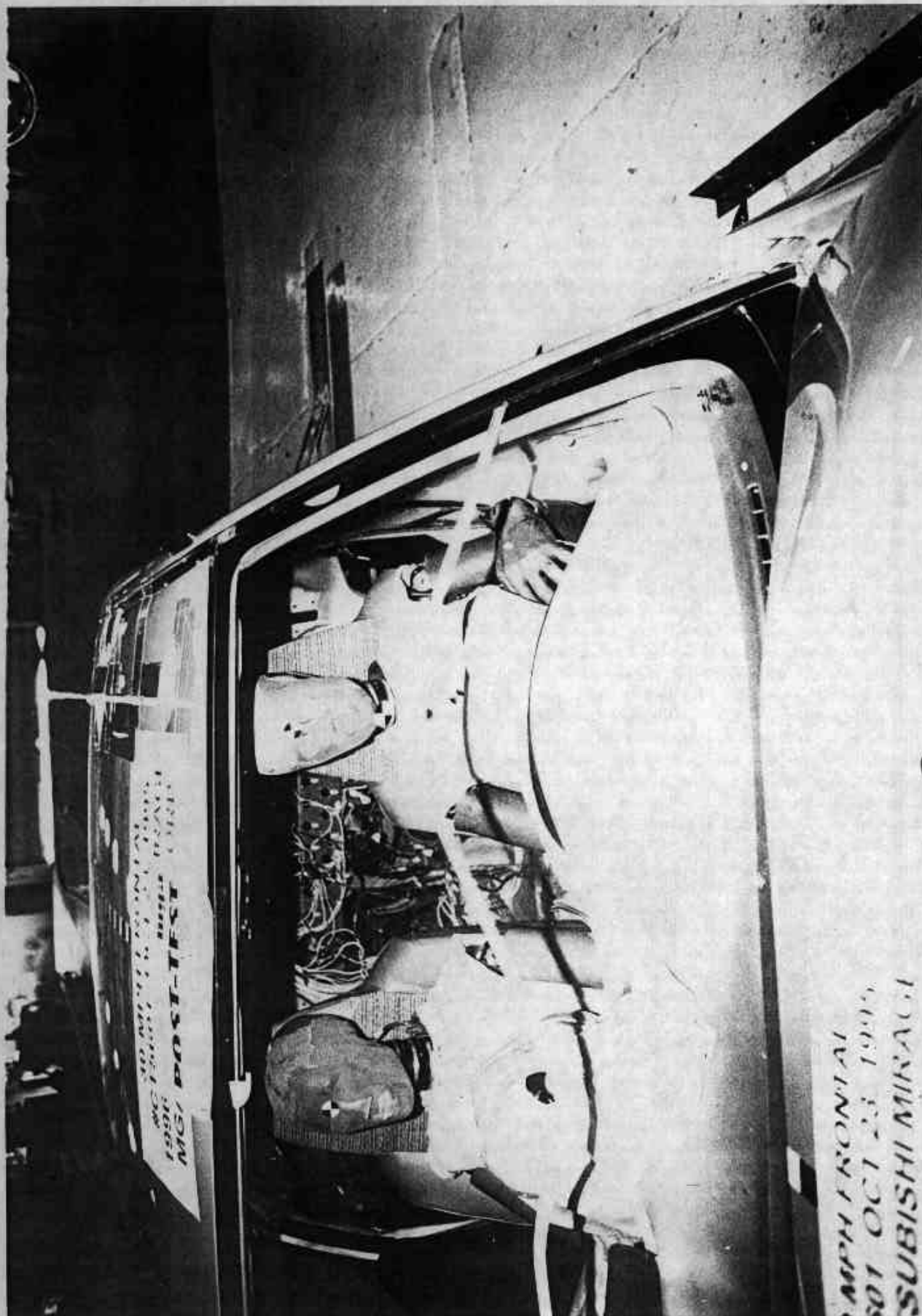


Photo No. A-27 - Post-Test Driver Windshield View

A-27

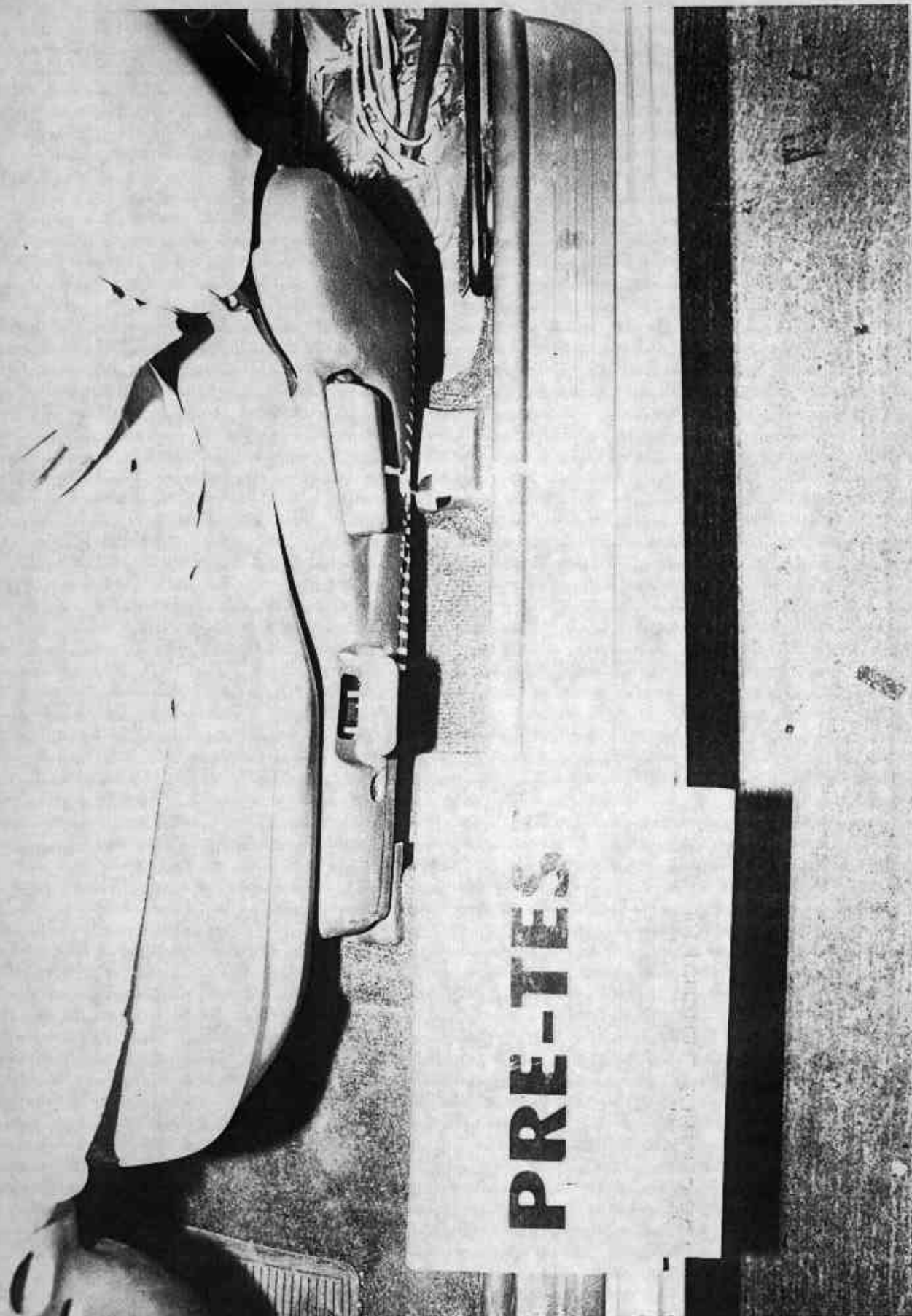


Photo No. A-28 - Pre-Test Driver Seat Position View

A-28



Photo No. A-29 - Post-Test Driver Seat Position View

A-30



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

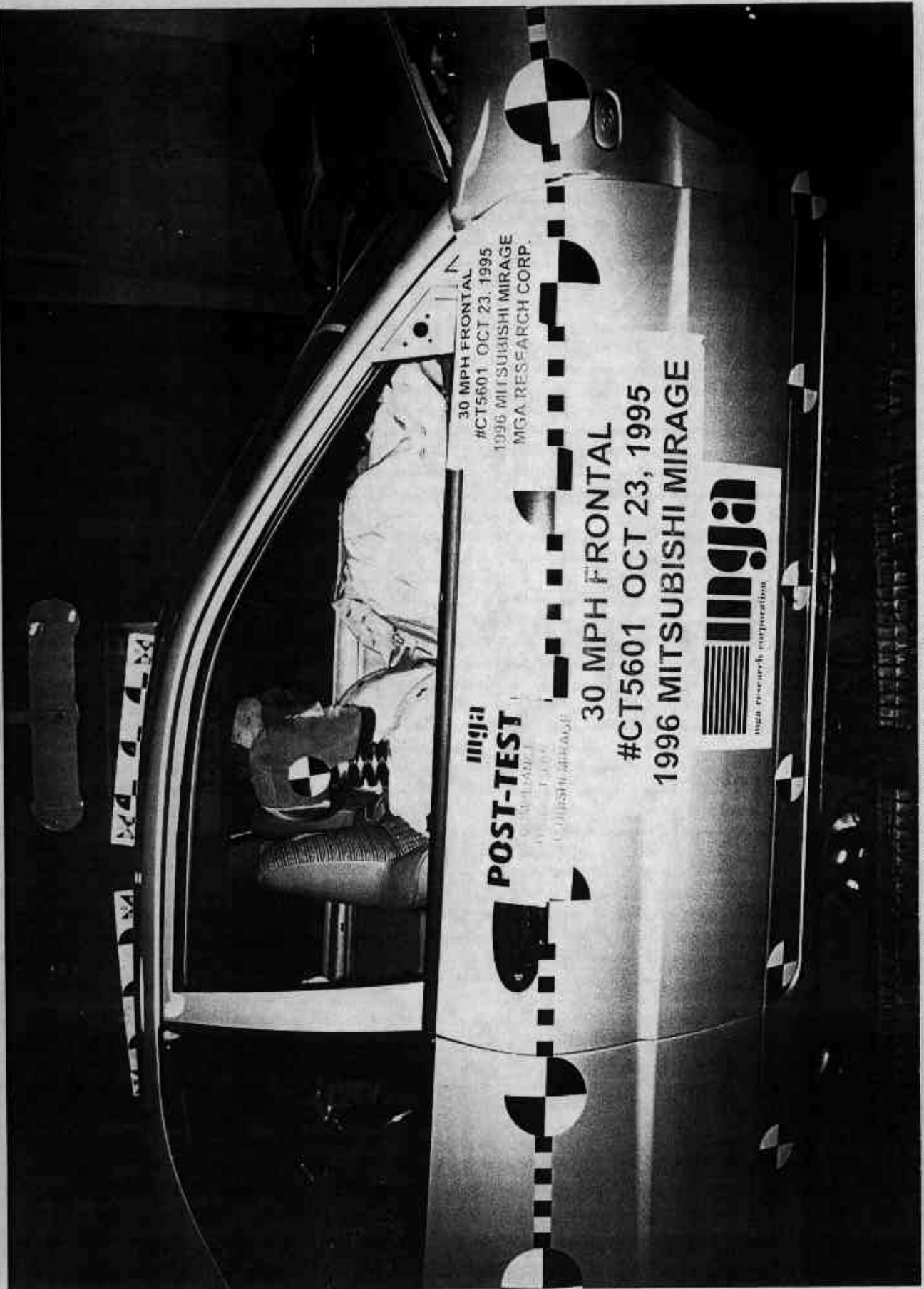


Photo No. A-31 - Post-Test Passenger Dummy Position View

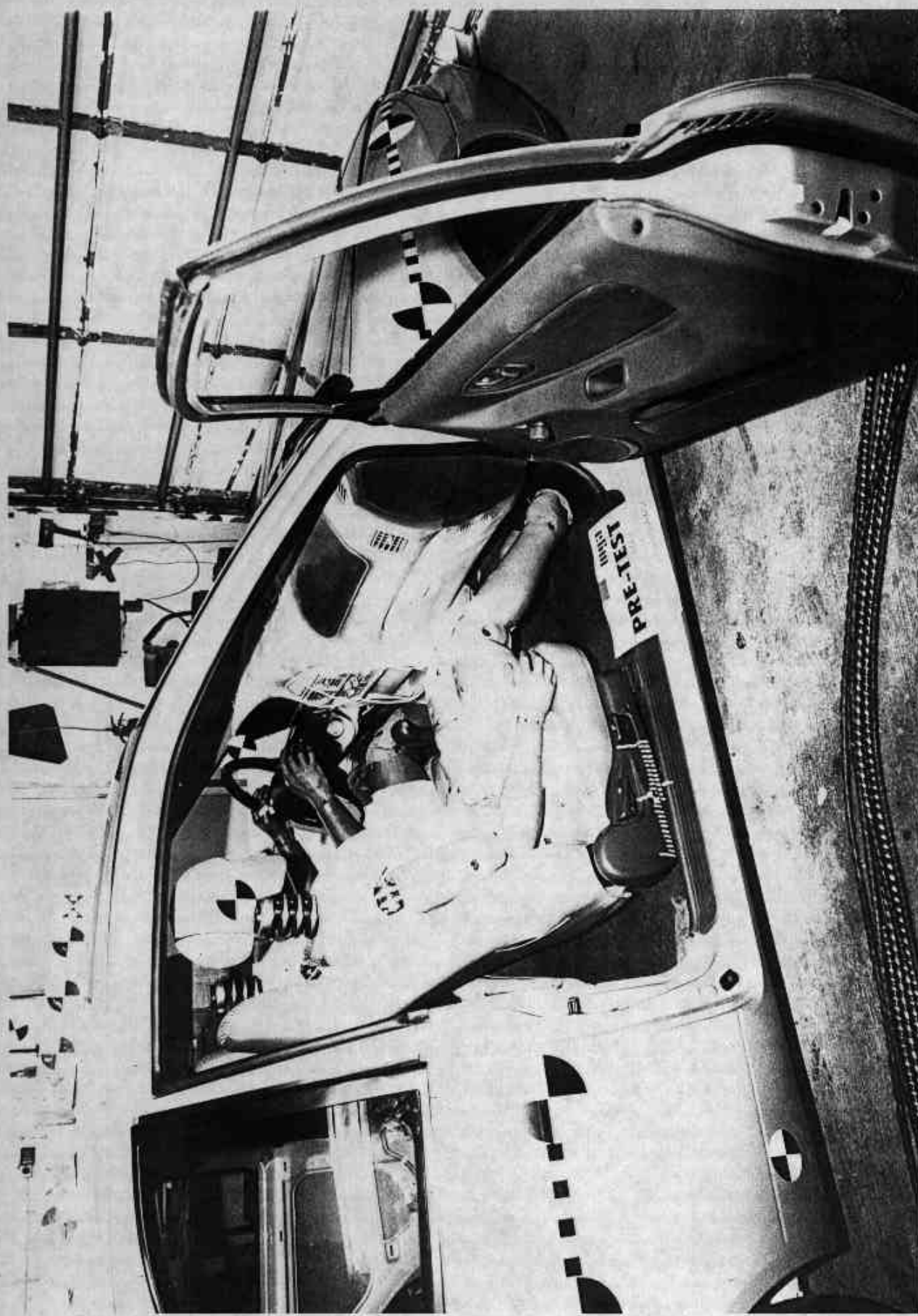
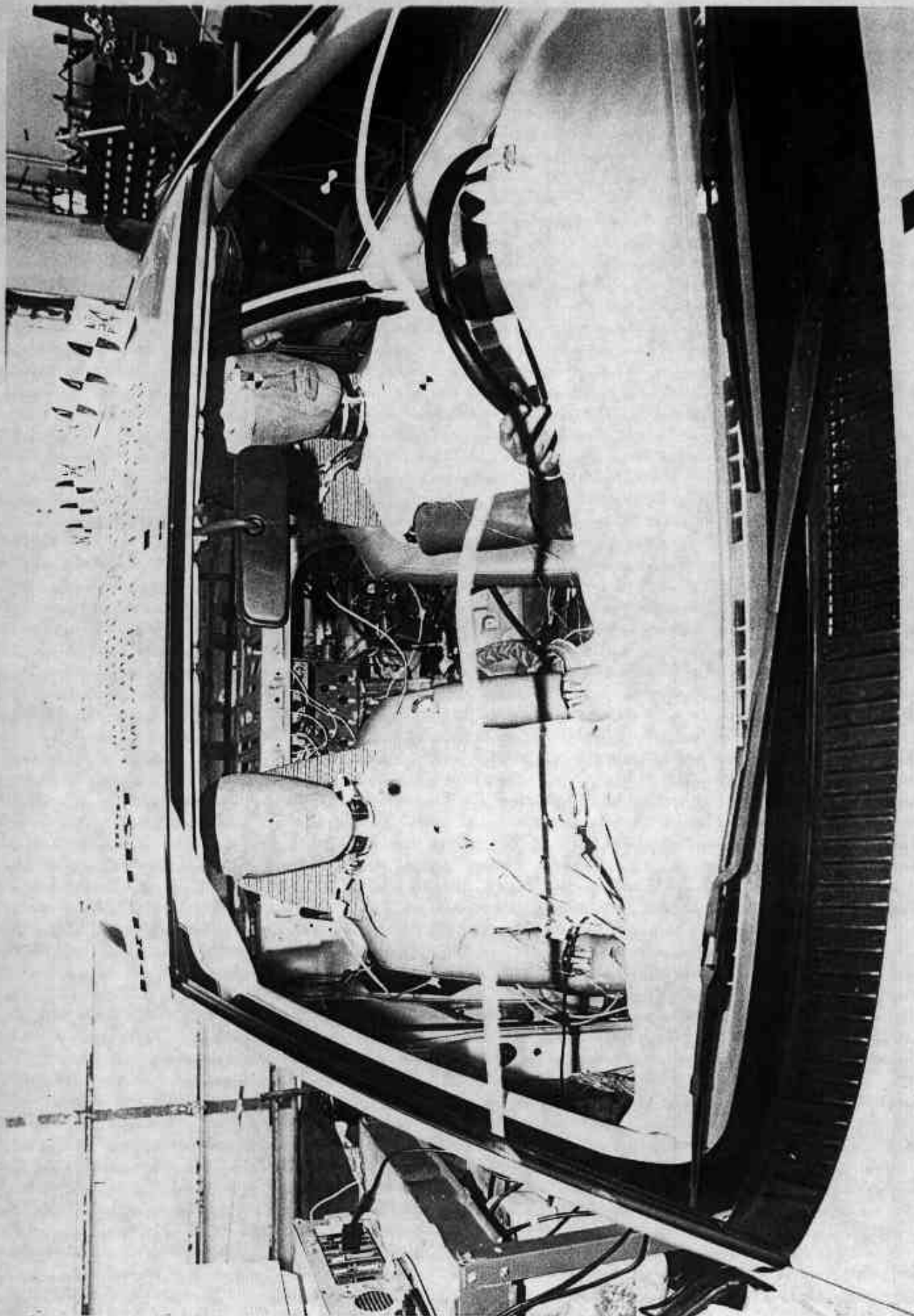


Photo No. A-32 - Pre-Test Passenger Dummy Position View (Door Open)



Photo No. A-33 - Post-Test Passenger Dummy Position View (Door Open)

A-33



A-34

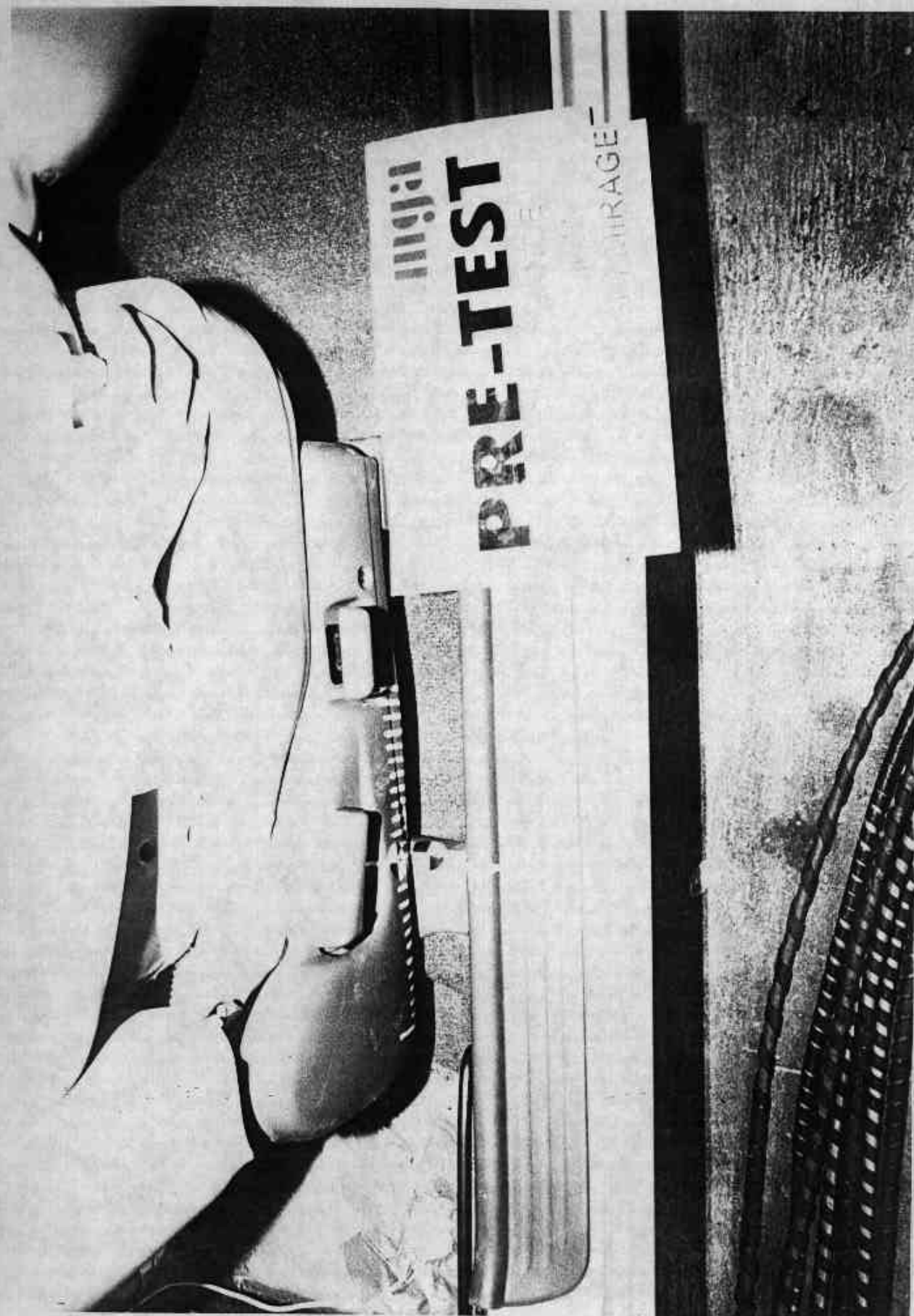
Photo No. A-34 - Pre-Test Passenger Windshield View



30 MPH FROM
HC-15601 OCT
1996 MITSUBISHI
MCA RESEA

6

Photo No. A-35 - Post-Test Passenger Windshield View



A-36

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



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



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



Photo No. A-39 - Post-Test Driver Dummy Knee Bolster View



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



Photo No. A-41 - Post-Test Passenger Dummy Knee Bolster View



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



Photo No. A-43 - Driver Dummy Head Contact View - Headrest



Photo No. A-44 - Driver Dummy Knee Contact View

A-44



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



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



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

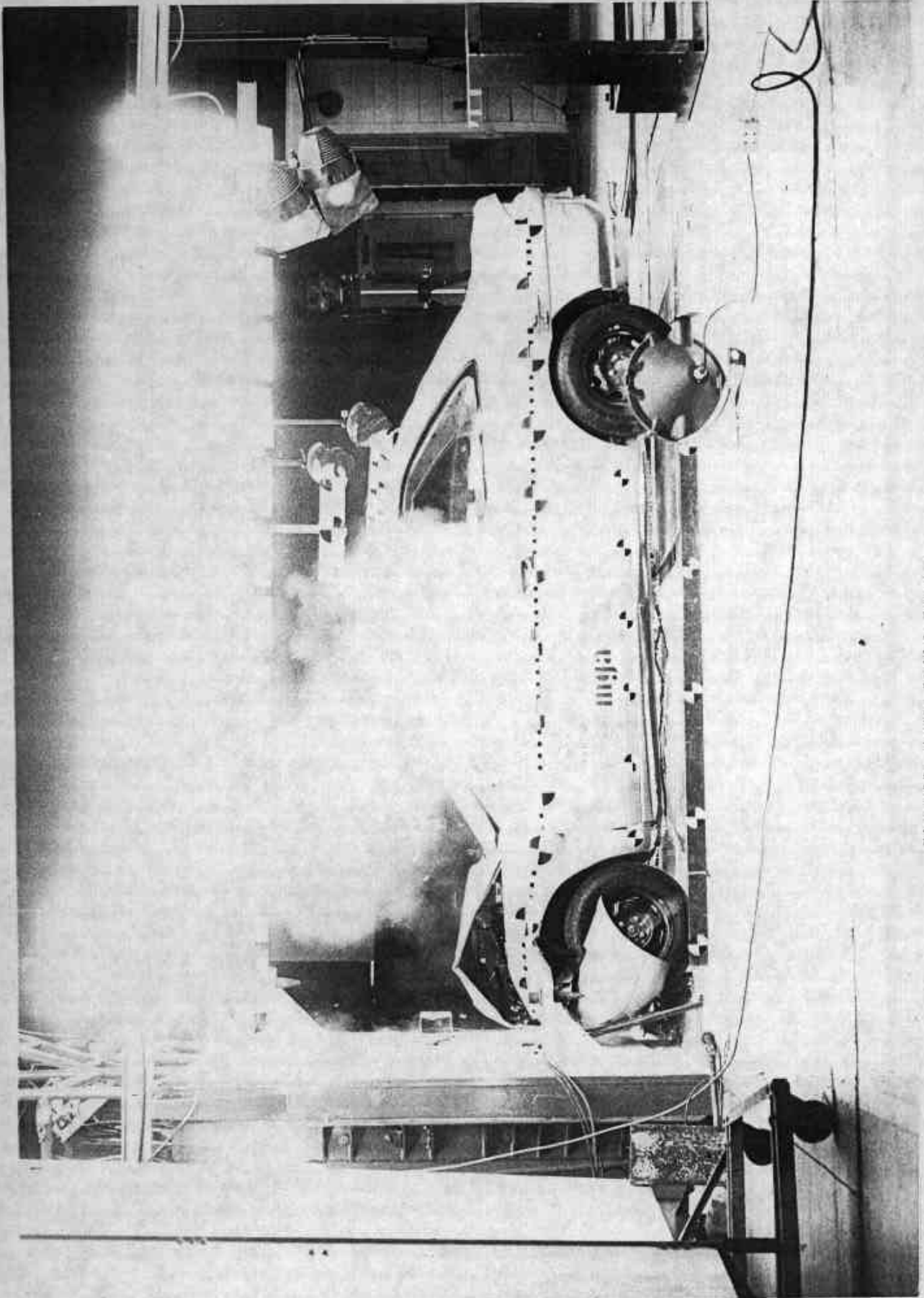


Photo No. A-48 - Vehicle Impact

A-48

MFD. BY MITSUBISHI MOTORS CORPORATION, JAPAN
GWR 3197LBS/ 1450KG JUN 1995
GWR FR 1830LBS/ 830KG GAWR RR 1742LBS/ 790KG
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND
THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.



JA3AA11A7TU002774

VEHICLE TYPE: PASSENGER CAR

MJ900148

Photo No. A-49 - Vehicle Certification Label

**TIRE INFLATION PRESSURE
(CHECK WITH TIRE COOL)**

STANDARD INFLATION PRESSURE
FOR ALL LOAD.

1ST SEAT : 2 PASSENGERS
2ND SEAT : 3 PASSENGERS
TOTAL : 5 PASSENGERS
LUGGAGE : 5 PASSENGERS
TOTAL WEIGHT : 35kg (77lbs)
TOTAL WEIGHT : 375kg (827lbs)

TIRE SIZE	FRONT&REAR
P155/80R13	31 PSI (210kPa)
TEMPORARY TIRE SIZE	
T105/70D14	
60PSI (420kPa)	
MR103098 A	

Photo No. A-50 - Tire Placard



Photo No. A-51 - Post-Test Passenger Seat Deformation View



Photo No. A-52 - Post-Test Passenger Seat Deformation View

APPENDIX B
DATA PLOTS

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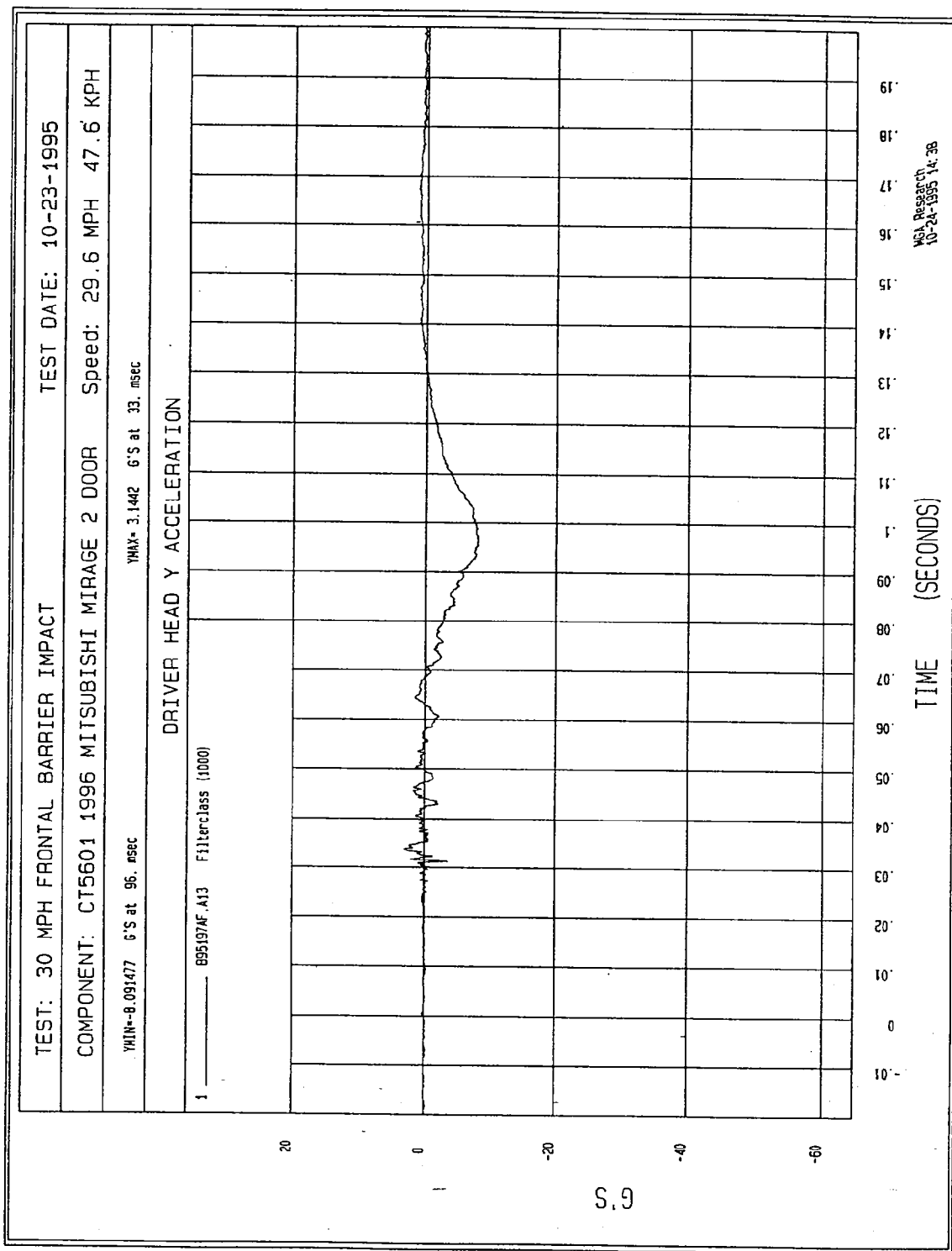


Figure B-2 - Driver Head Y Acceleration vs. Time

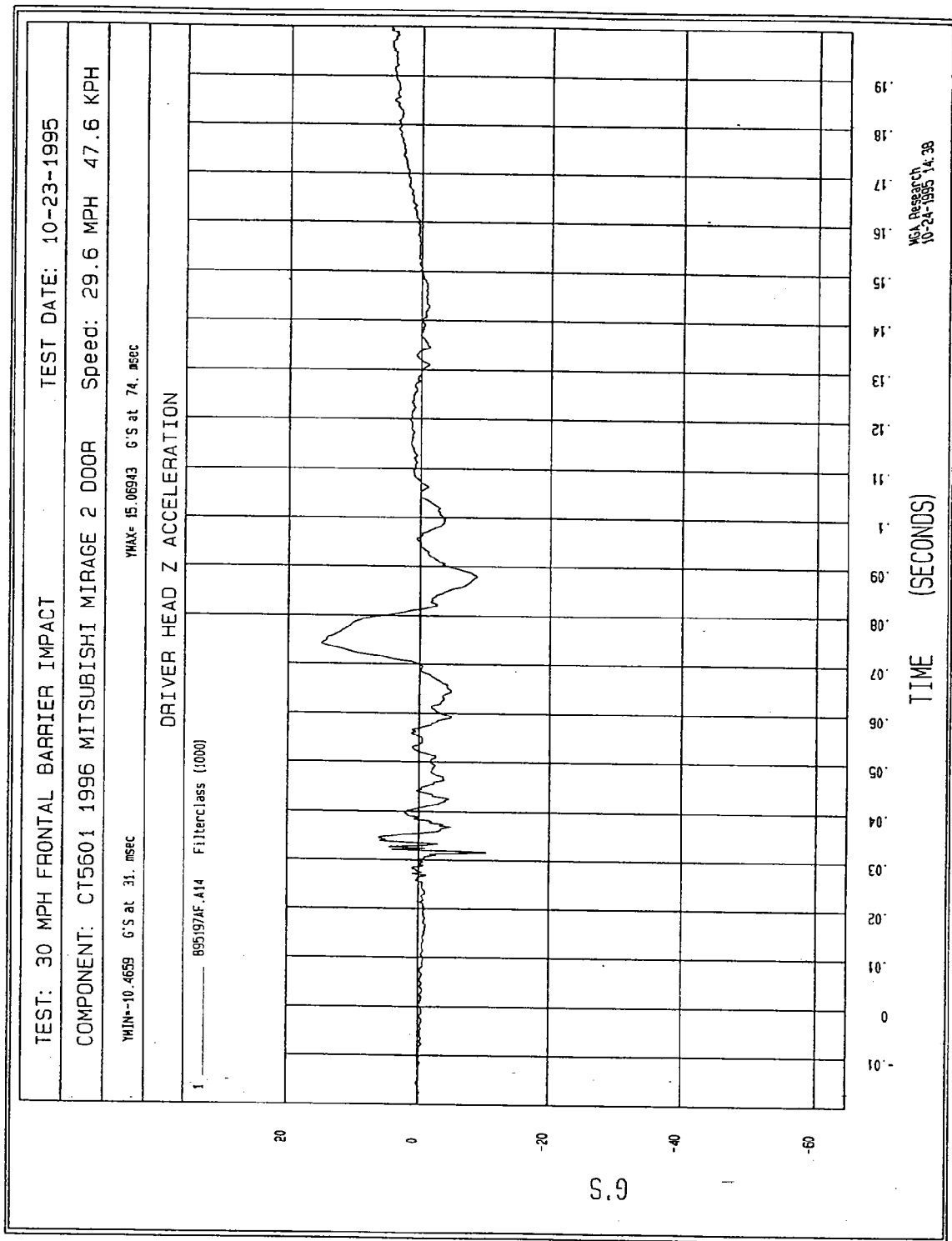


Figure B-3 - Driver Head Z Acceleration vs. Time

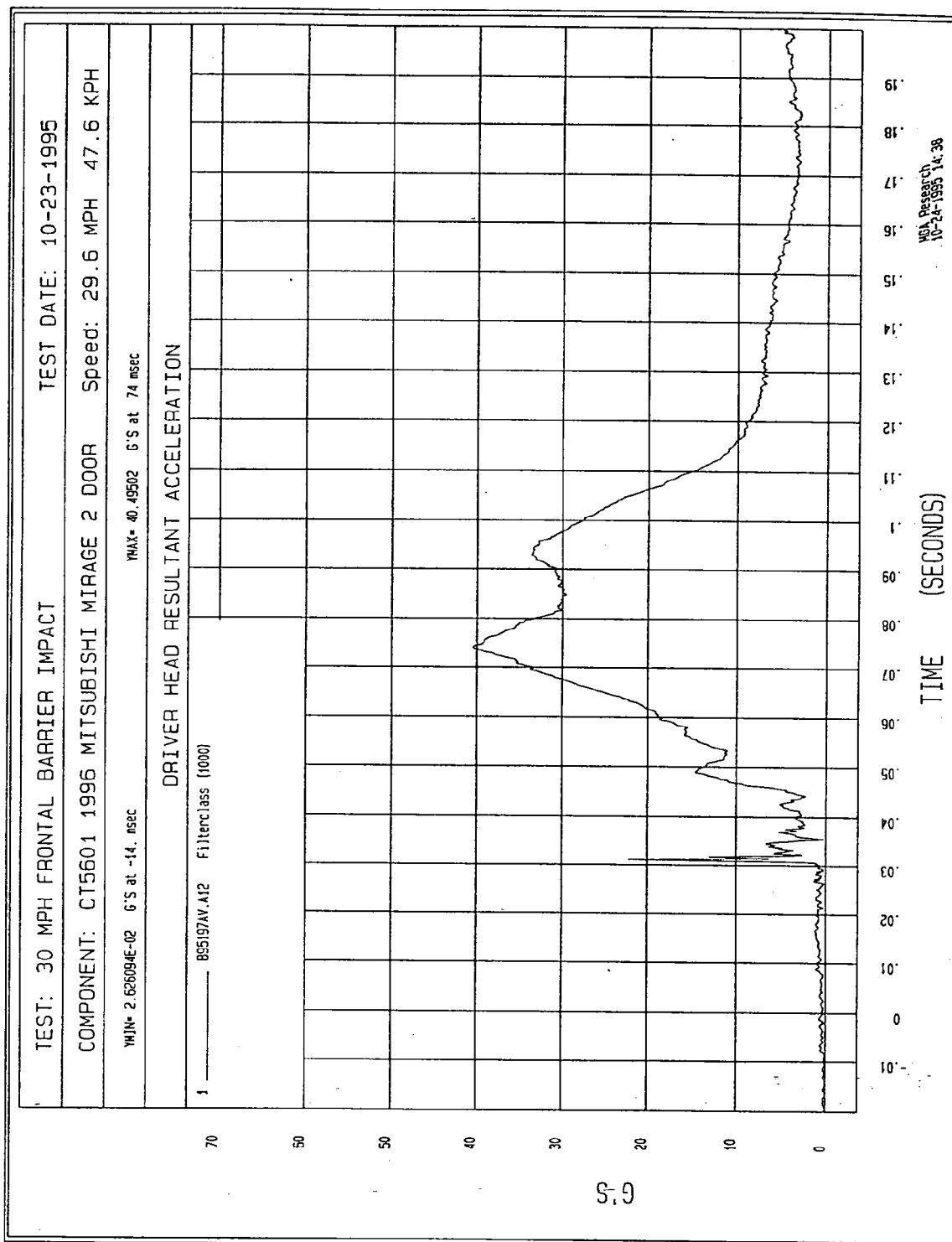


Figure B-4 - Driver Head Resultant Acceleration vs. Time

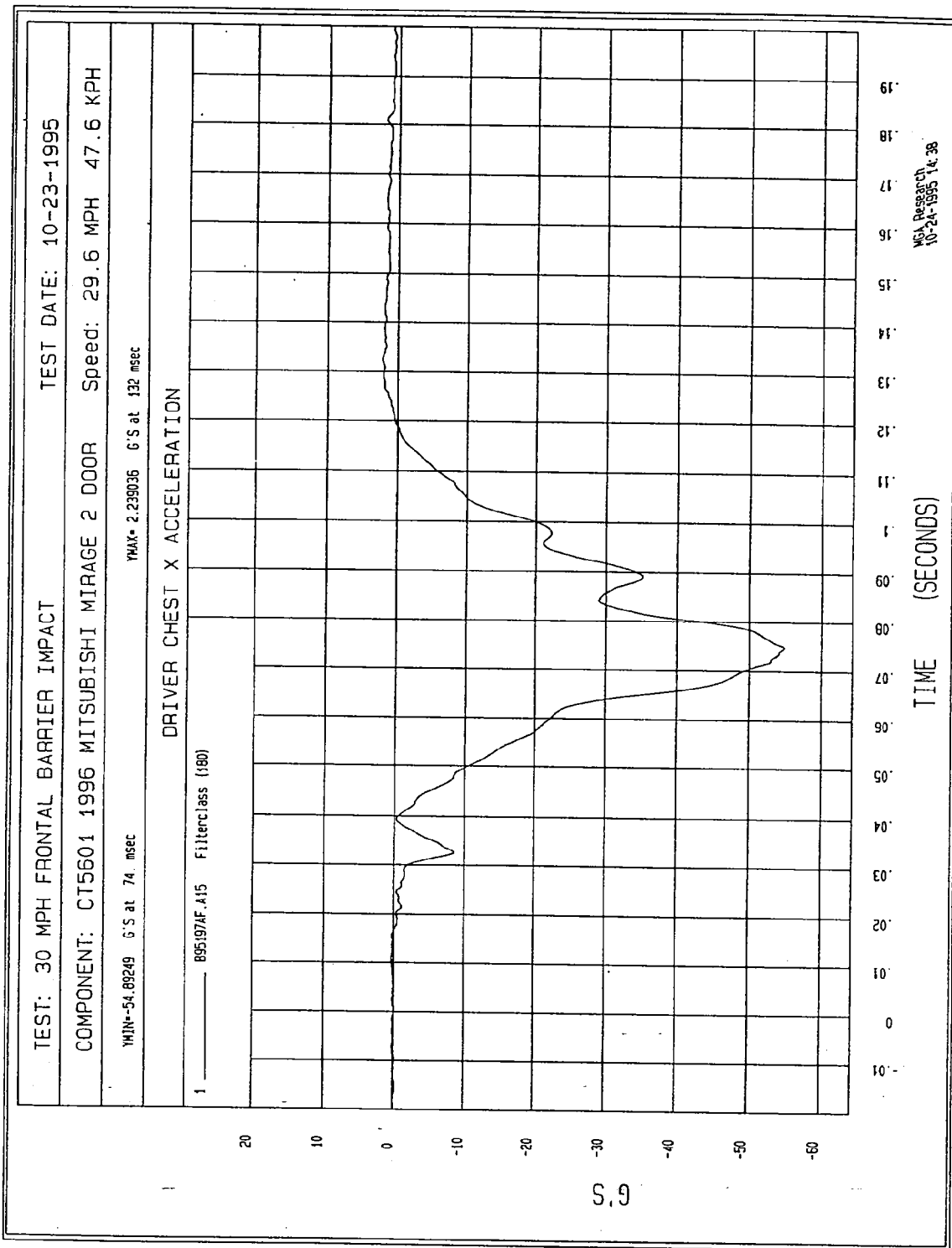


Figure B-5 - Driver Chest X Acceleration vs. Time

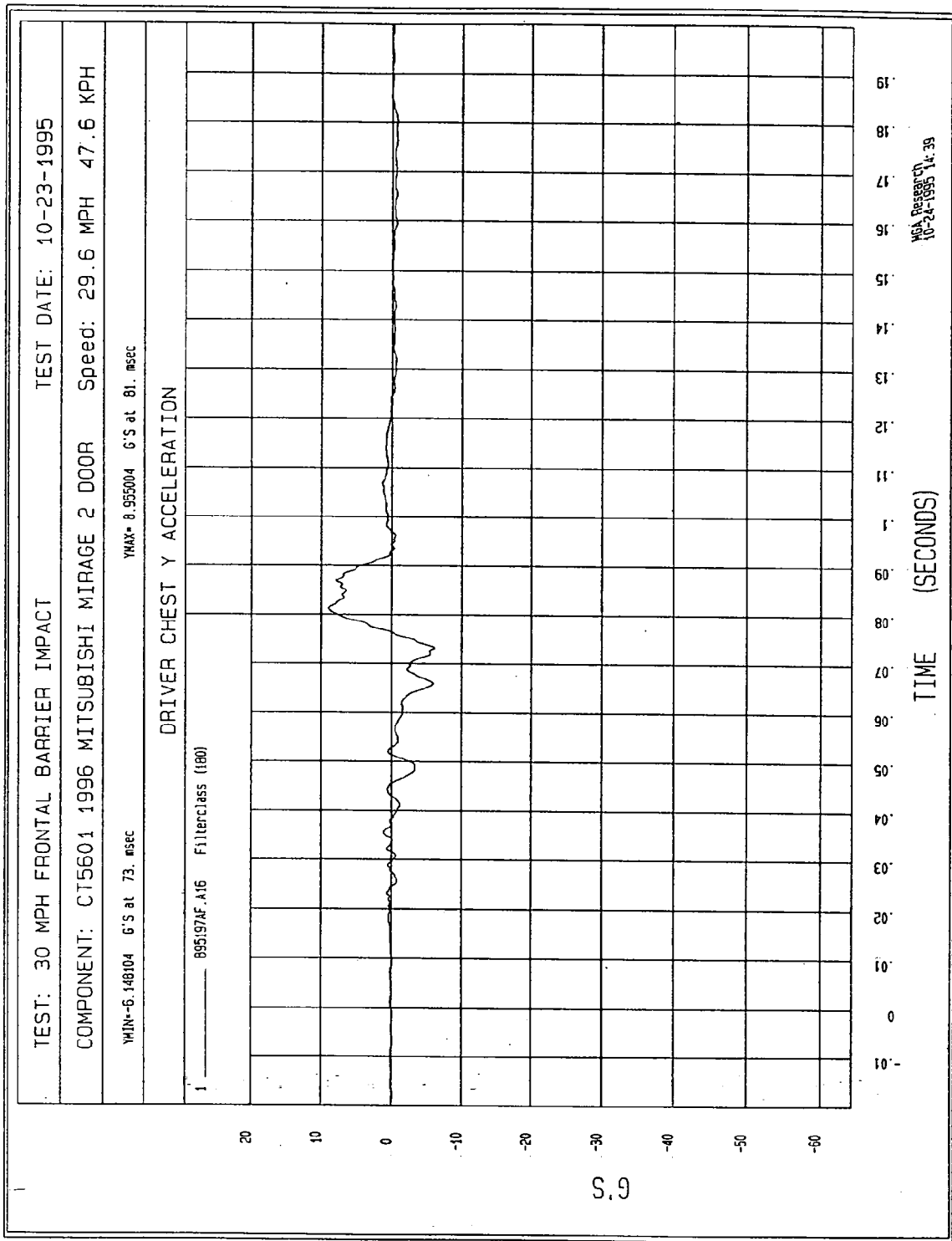


Figure B-6 - Driver Chest Y Acceleration vs. Time

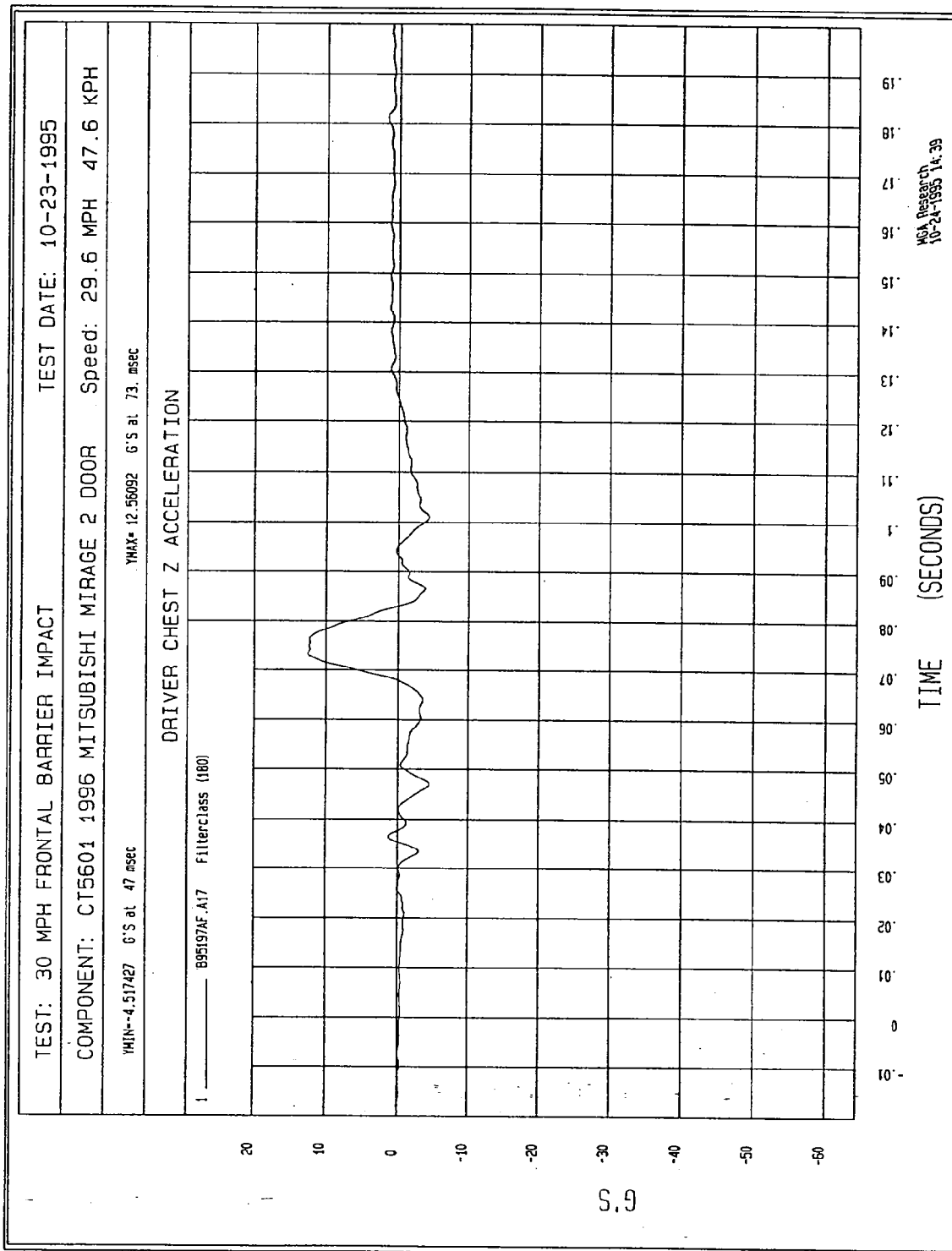


Figure B-7 - Driver Chest Z Acceleration vs. Time

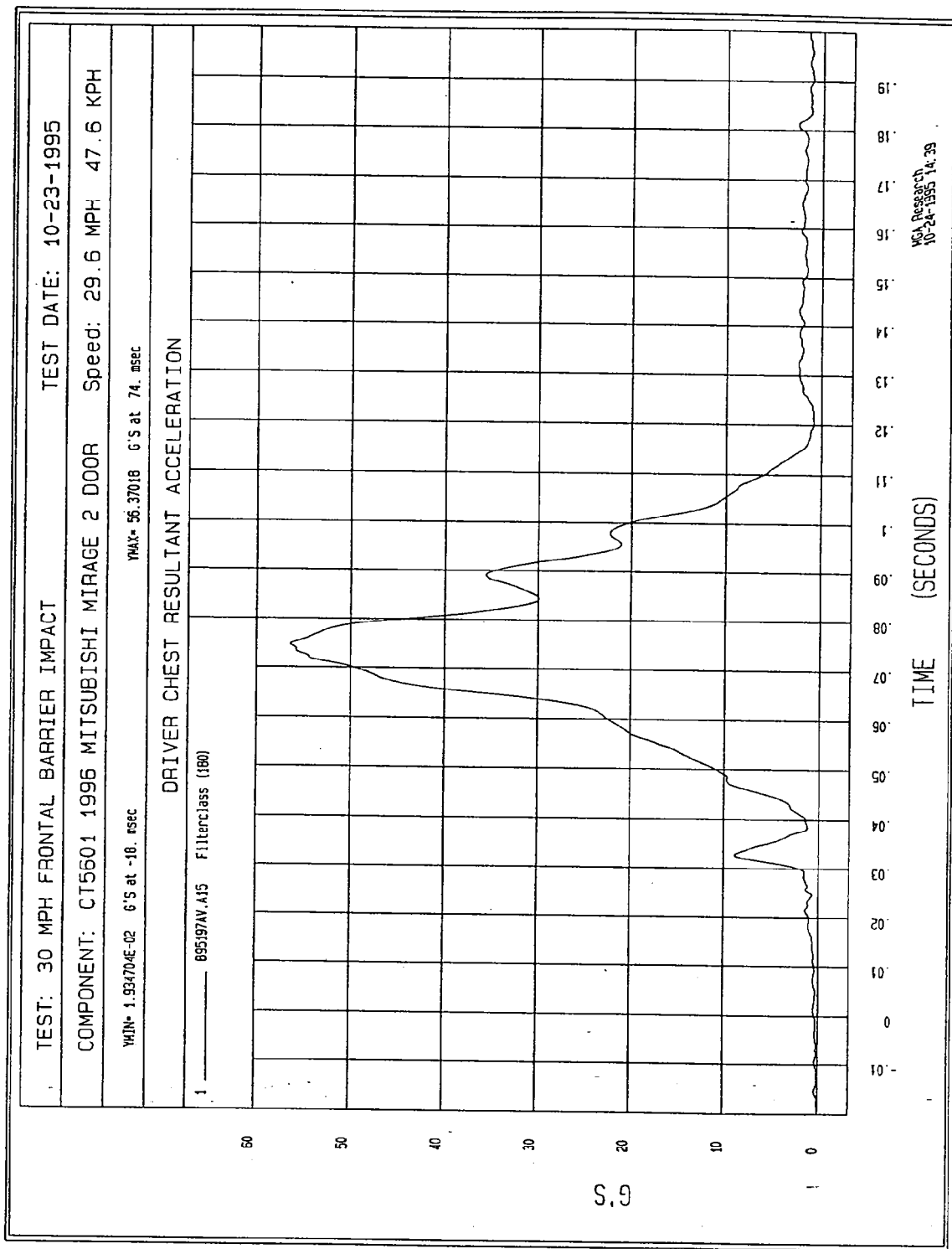


Figure B-8 - Driver Chest Resultant Acceleration vs. Time

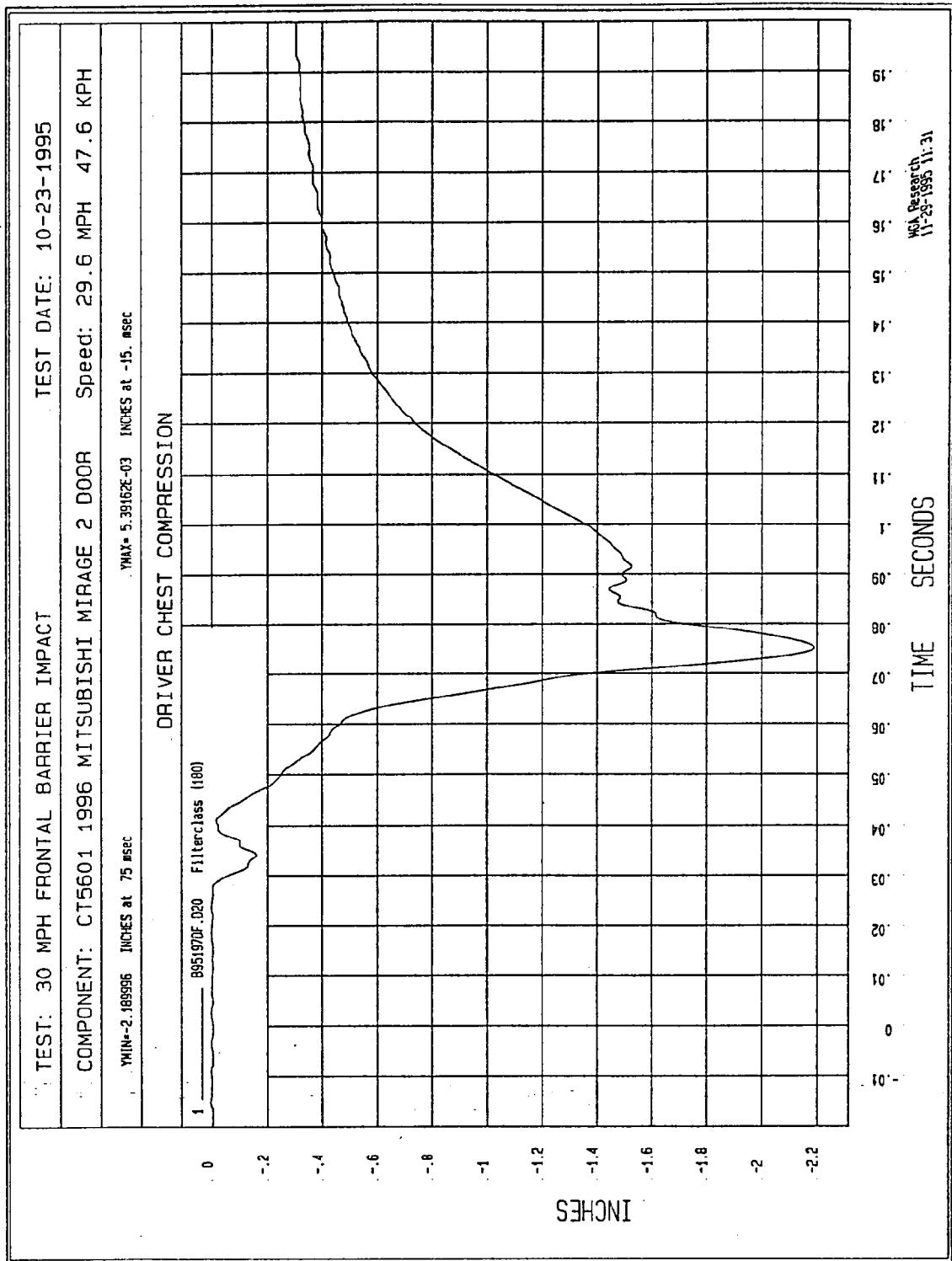


Figure B-9 - Driver Chest Compression vs. Time

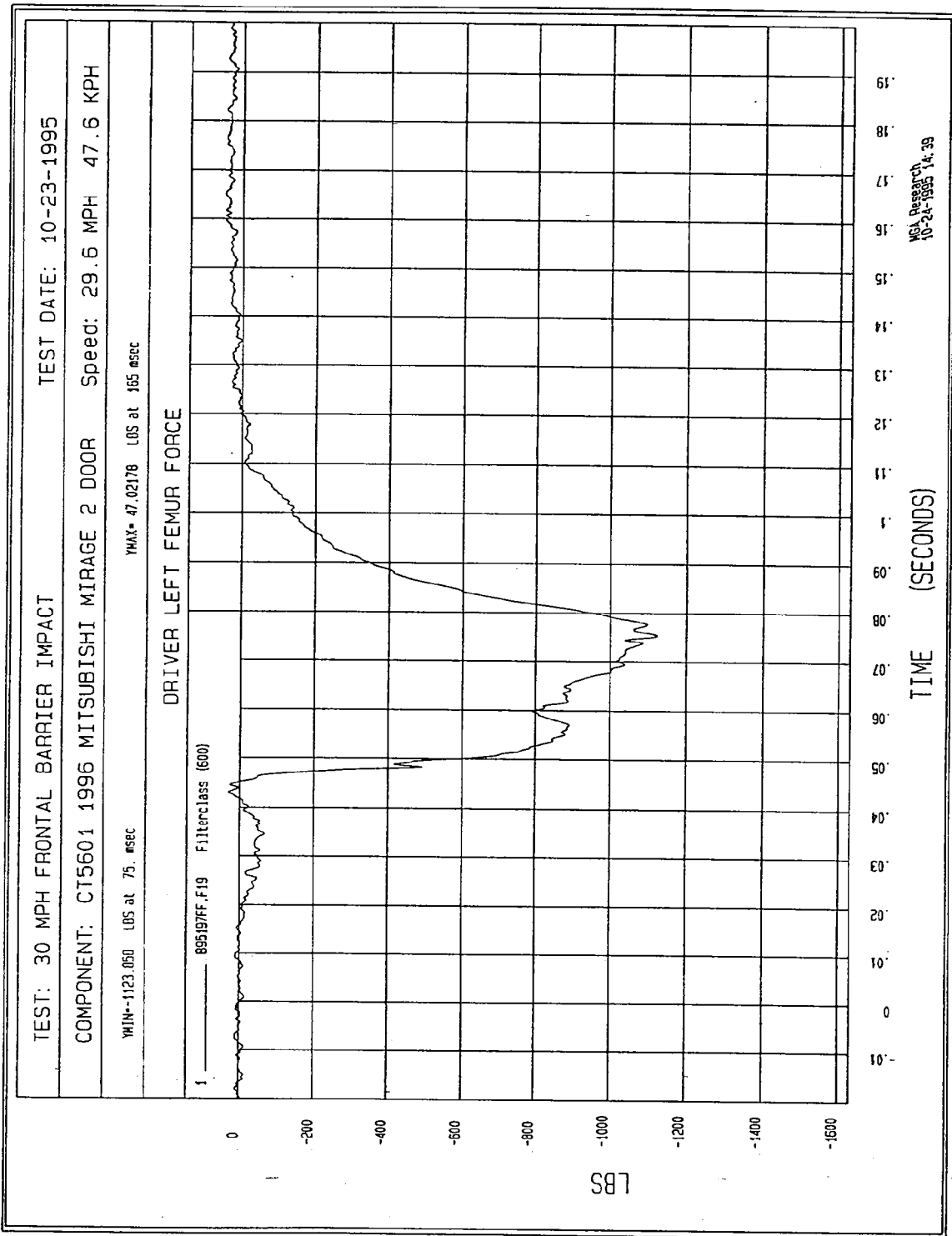


Figure B-10 - Driver Left Femur Force vs. Time

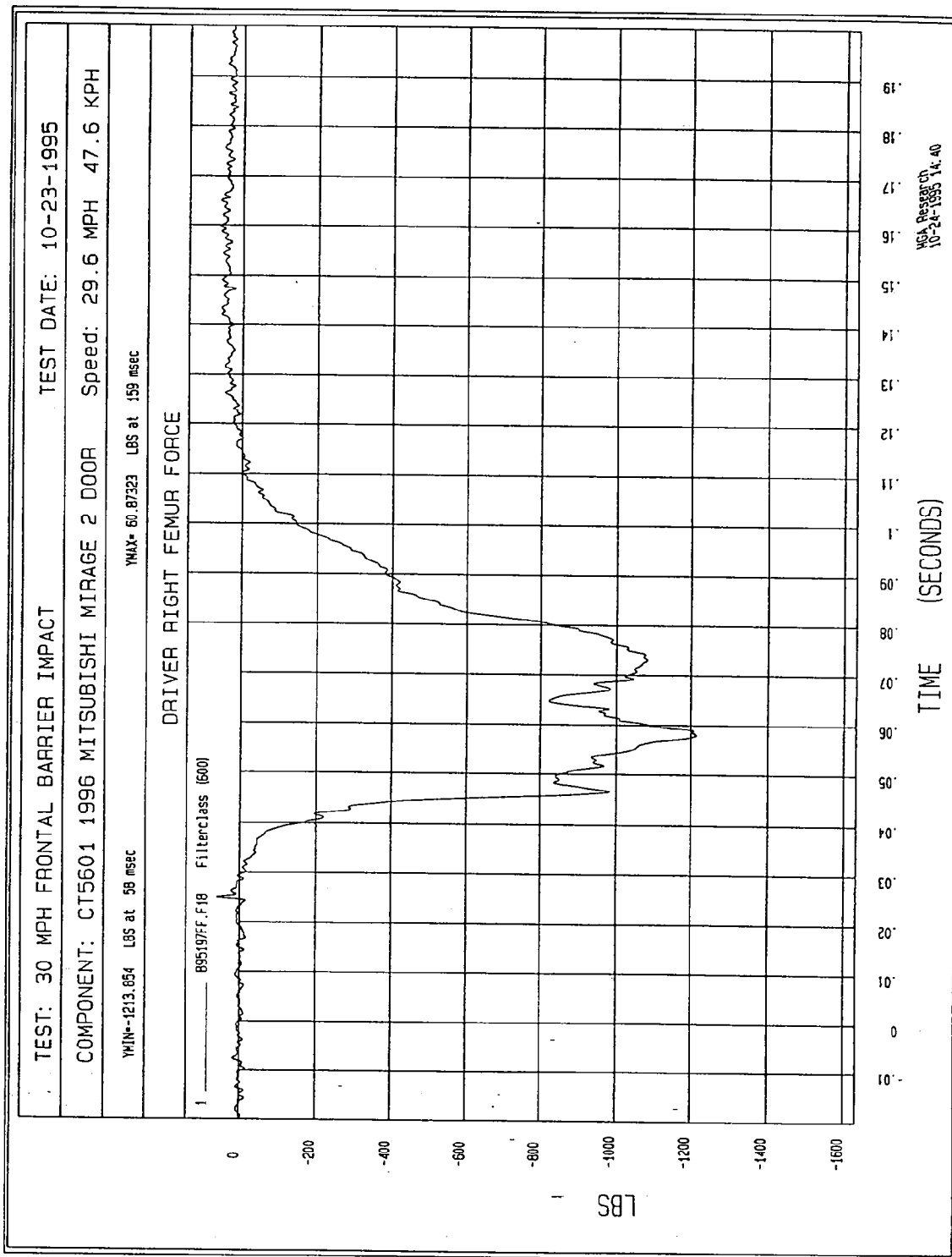


Figure B-11 - Driver Right Femur Force vs. Time

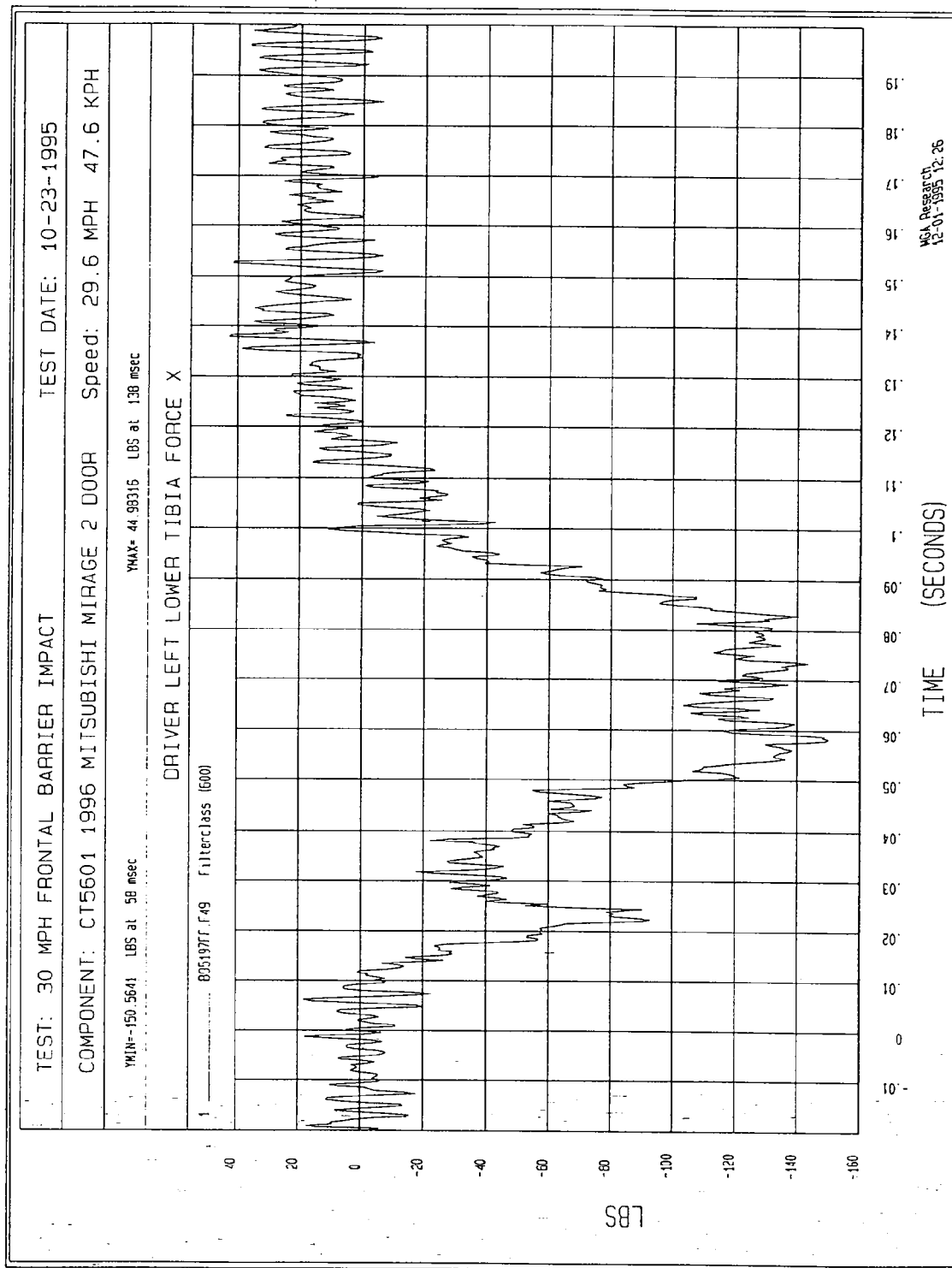


Figure B-12 - Driver Left Lower Tibia Force X vs. Time

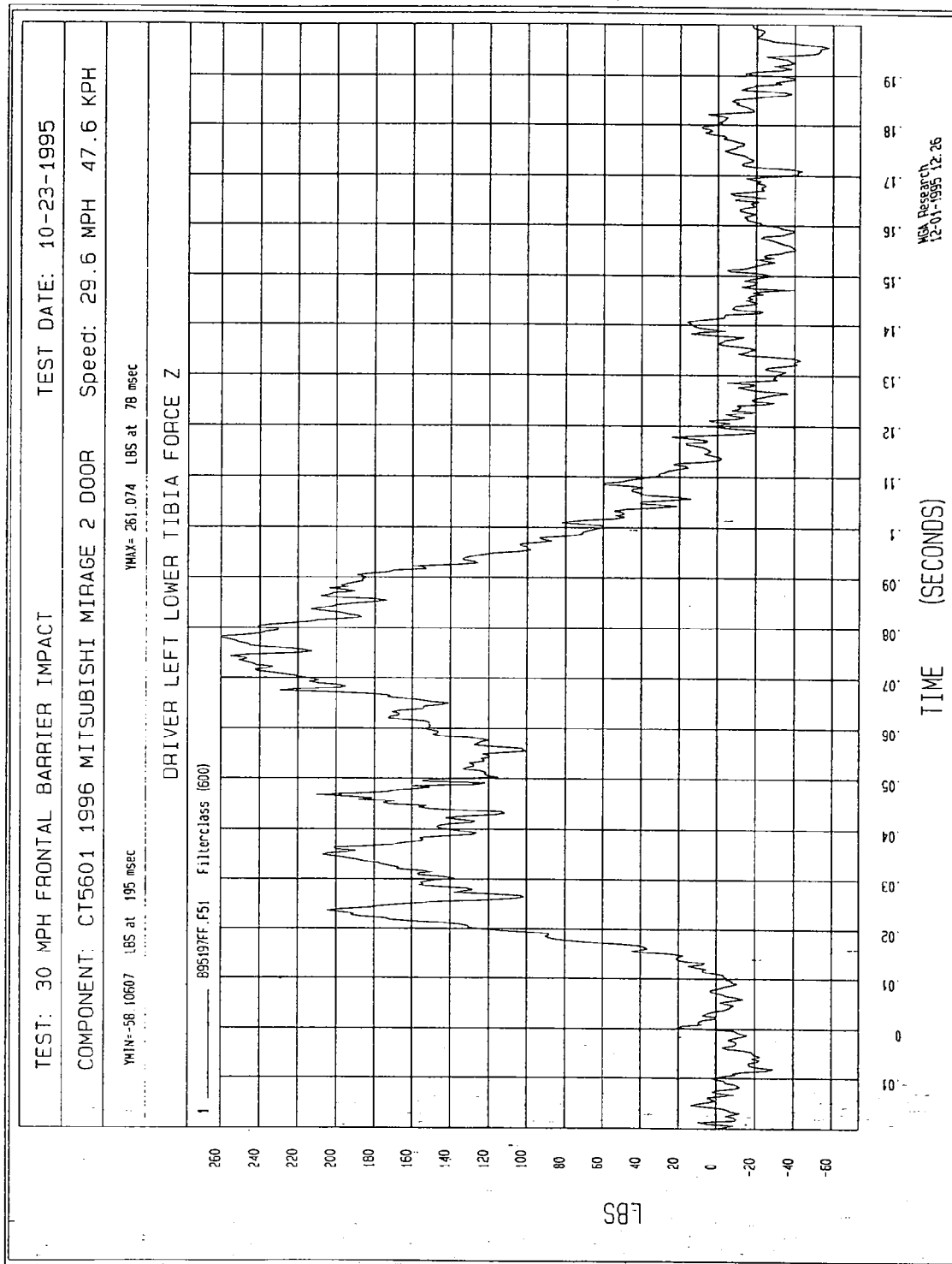


Figure B-13 - Driver Left Lower Tibia Force Z vs. Time

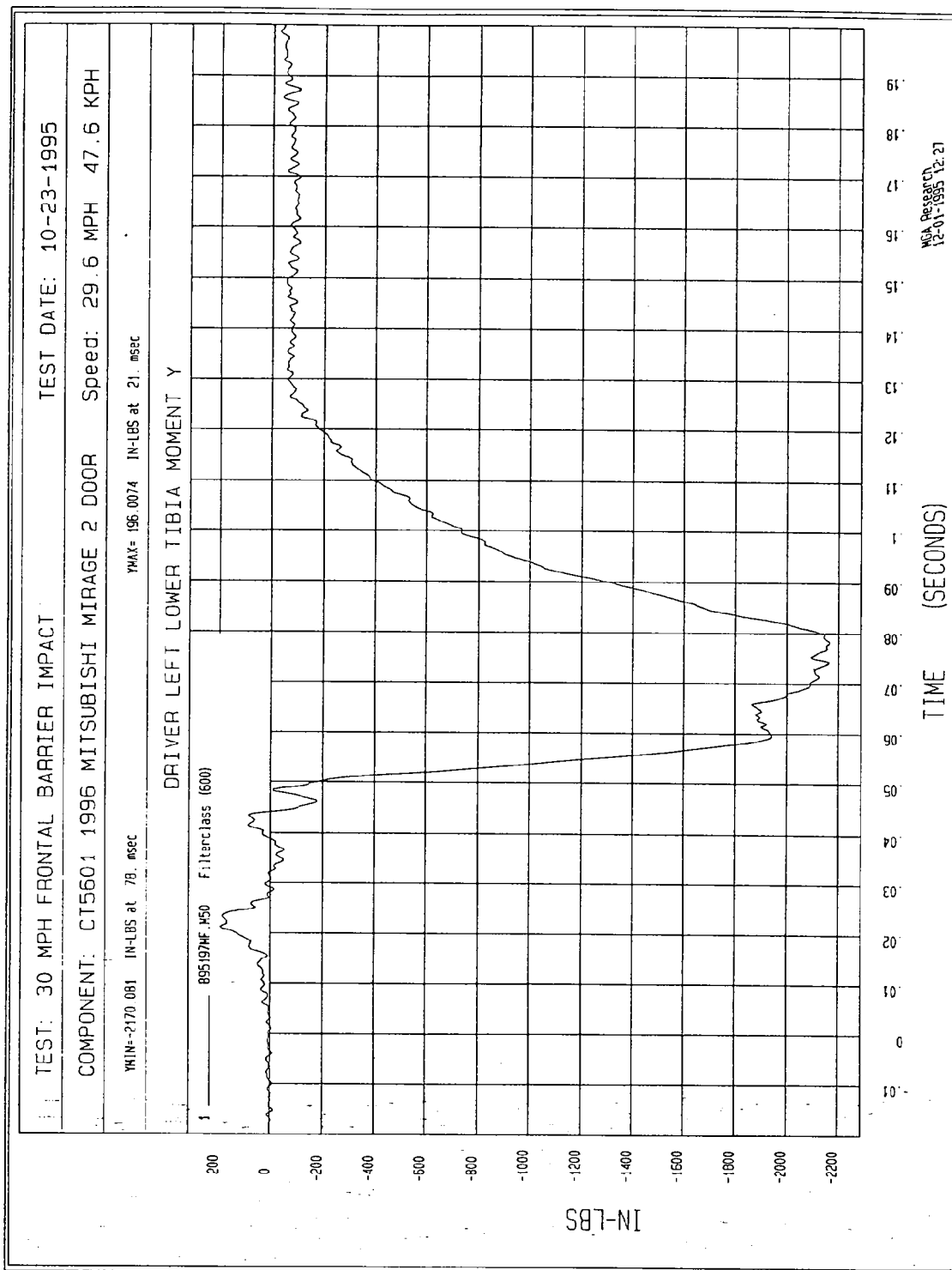


Figure B-14 - Driver Left Lower Tibia Moment Y vs. Time

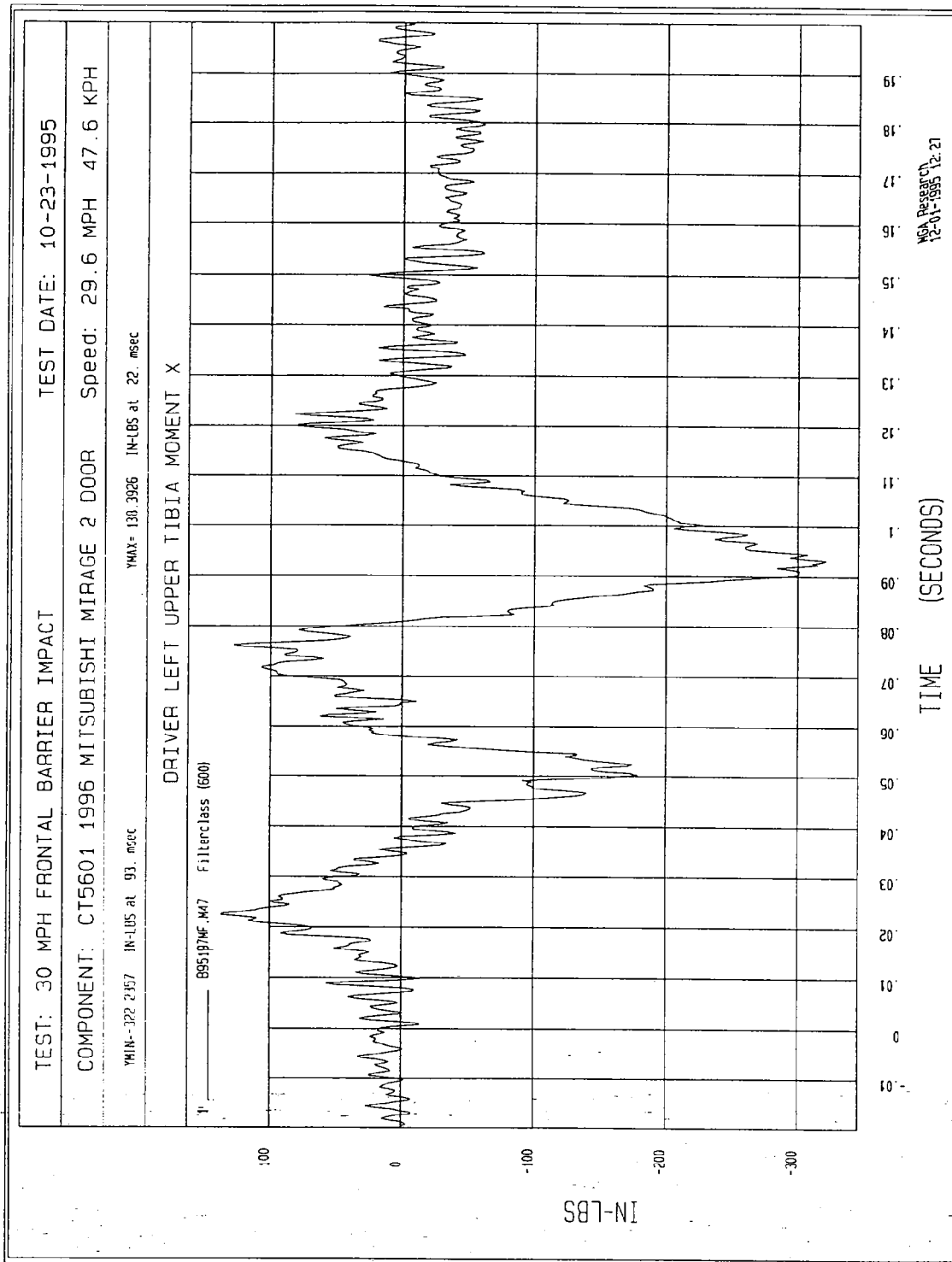


Figure B-15 - Driver Left Upper Tibia Moment X vs. Time

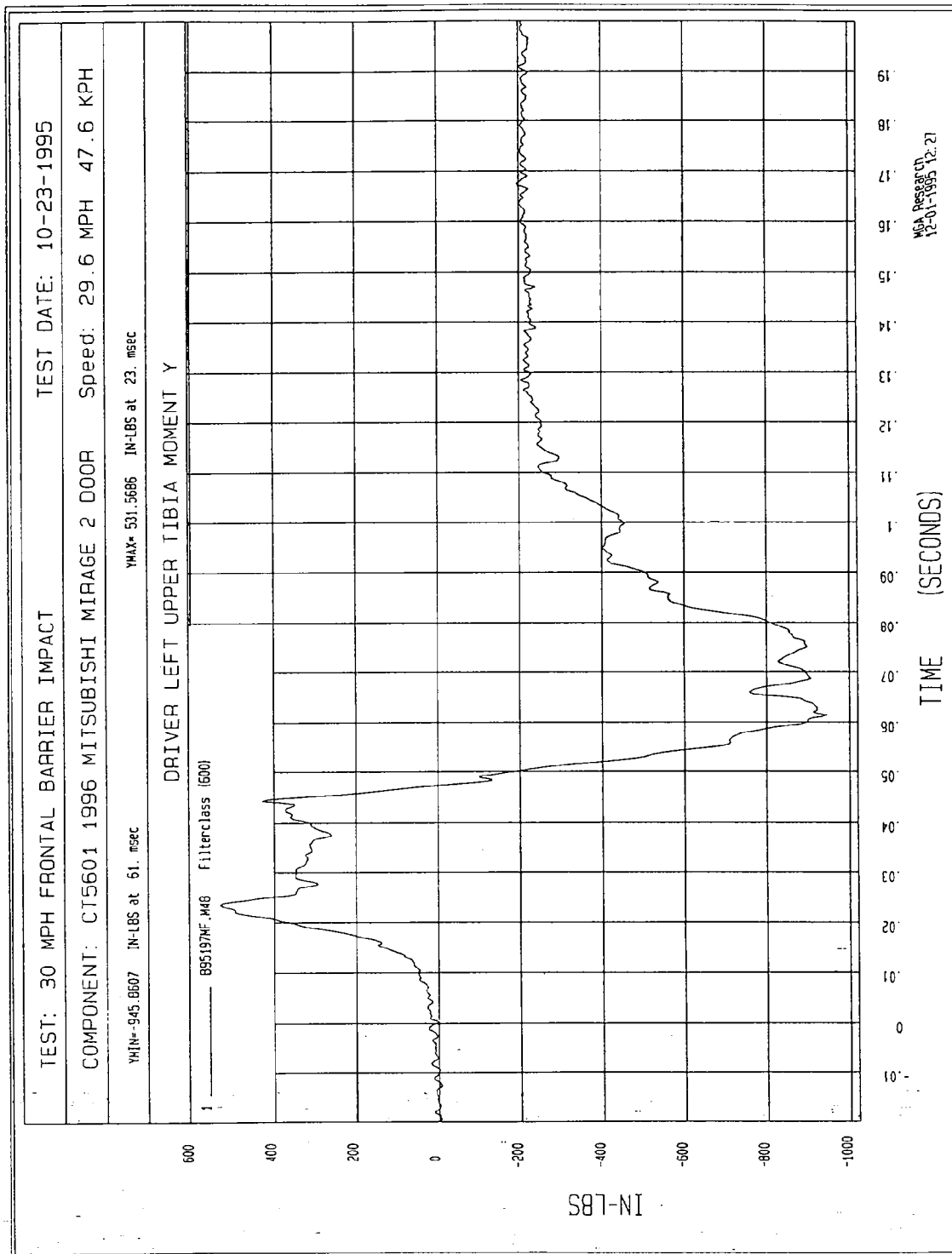


Figure B-16 - Driver Left Upper Tibia Moment Y vs. Time

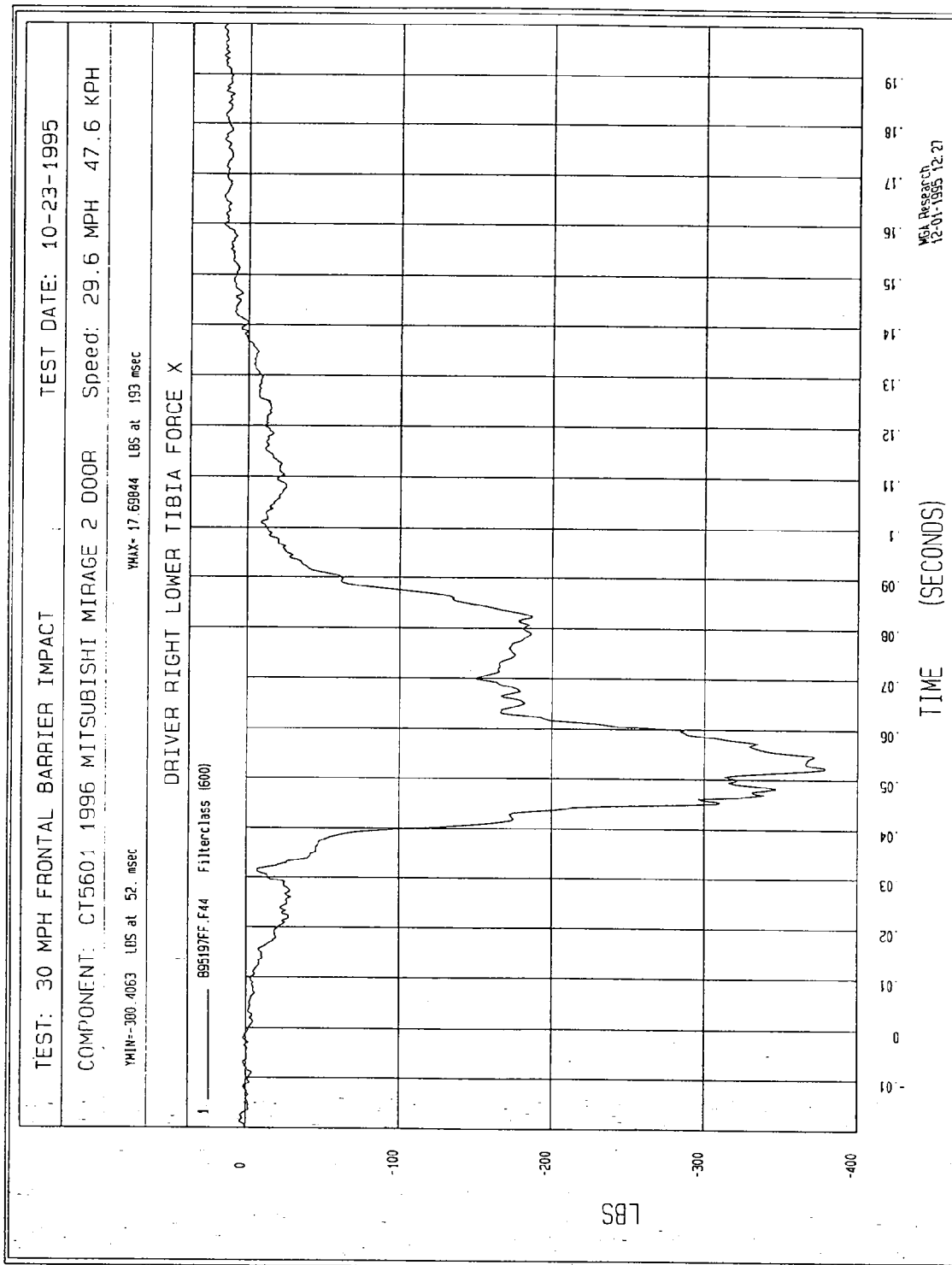


Figure B-17 - Driver Right Lower Tibia Force X vs. Time

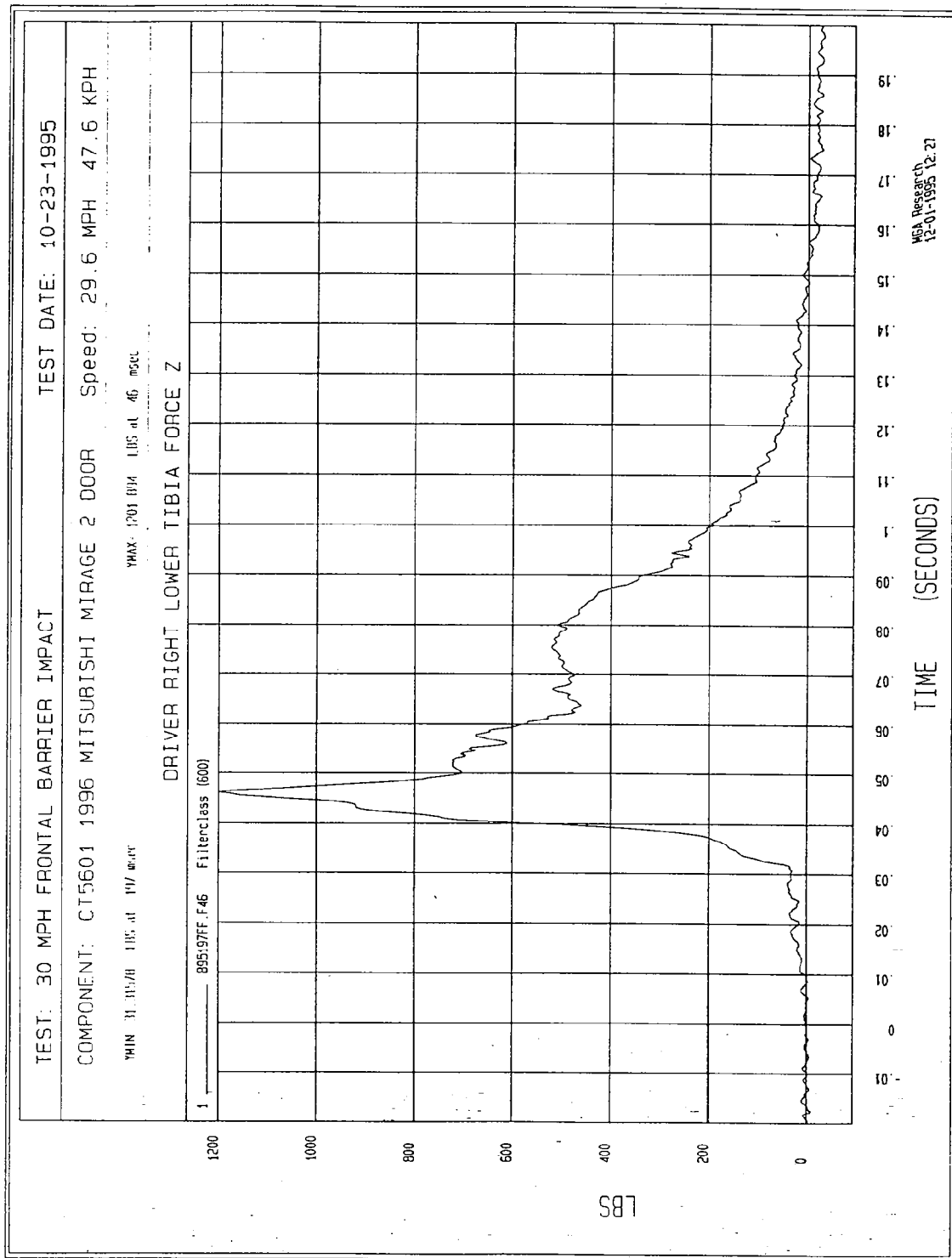


Figure B-18 - Driver Right Lower Tibia Force Z vs. Time

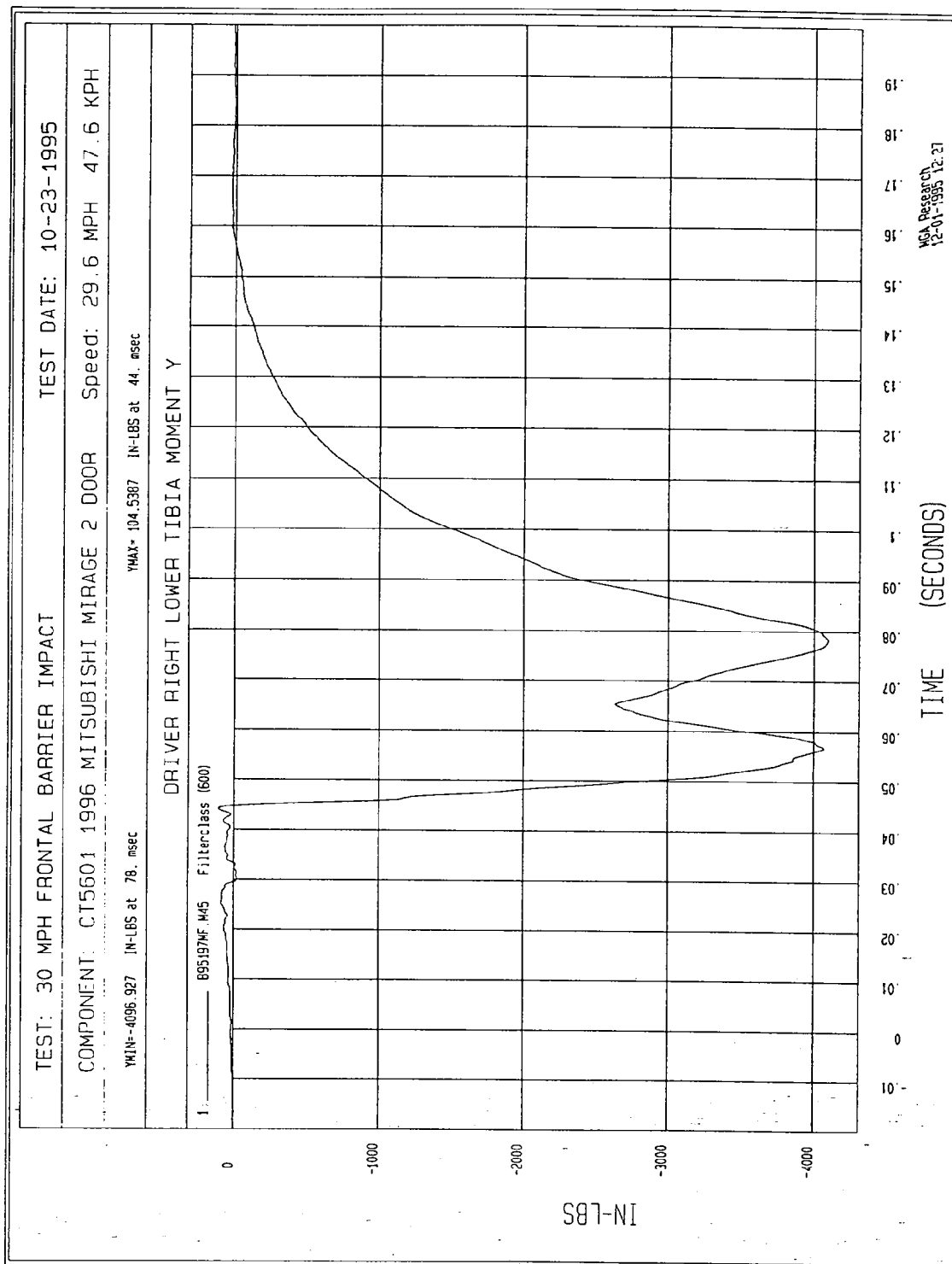


Figure B-19 - Driver Right Lower Tibia Moment Y vs. Time

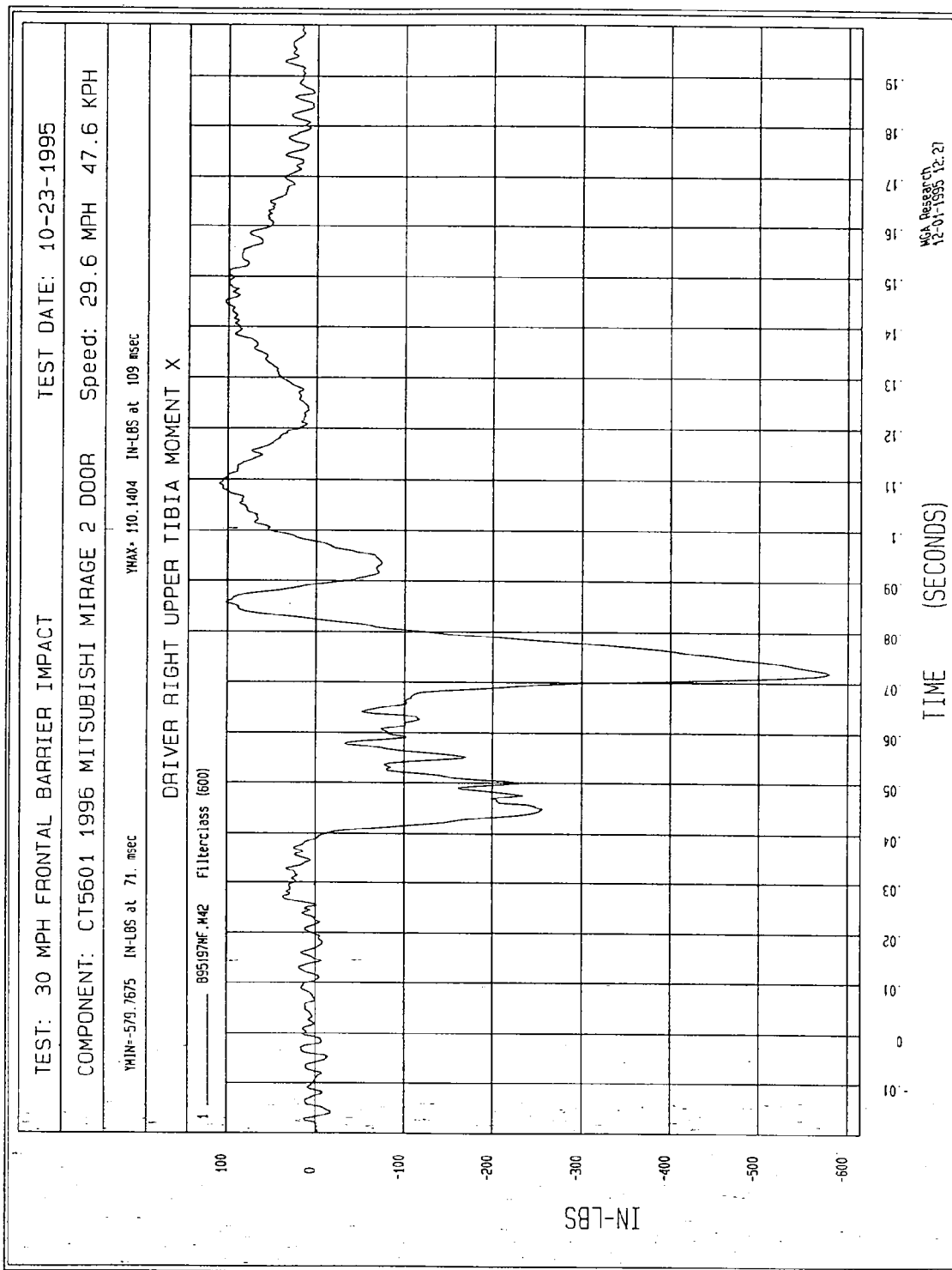


Figure B-20 - Driver Right Upper Tibia Moment X vs. Time

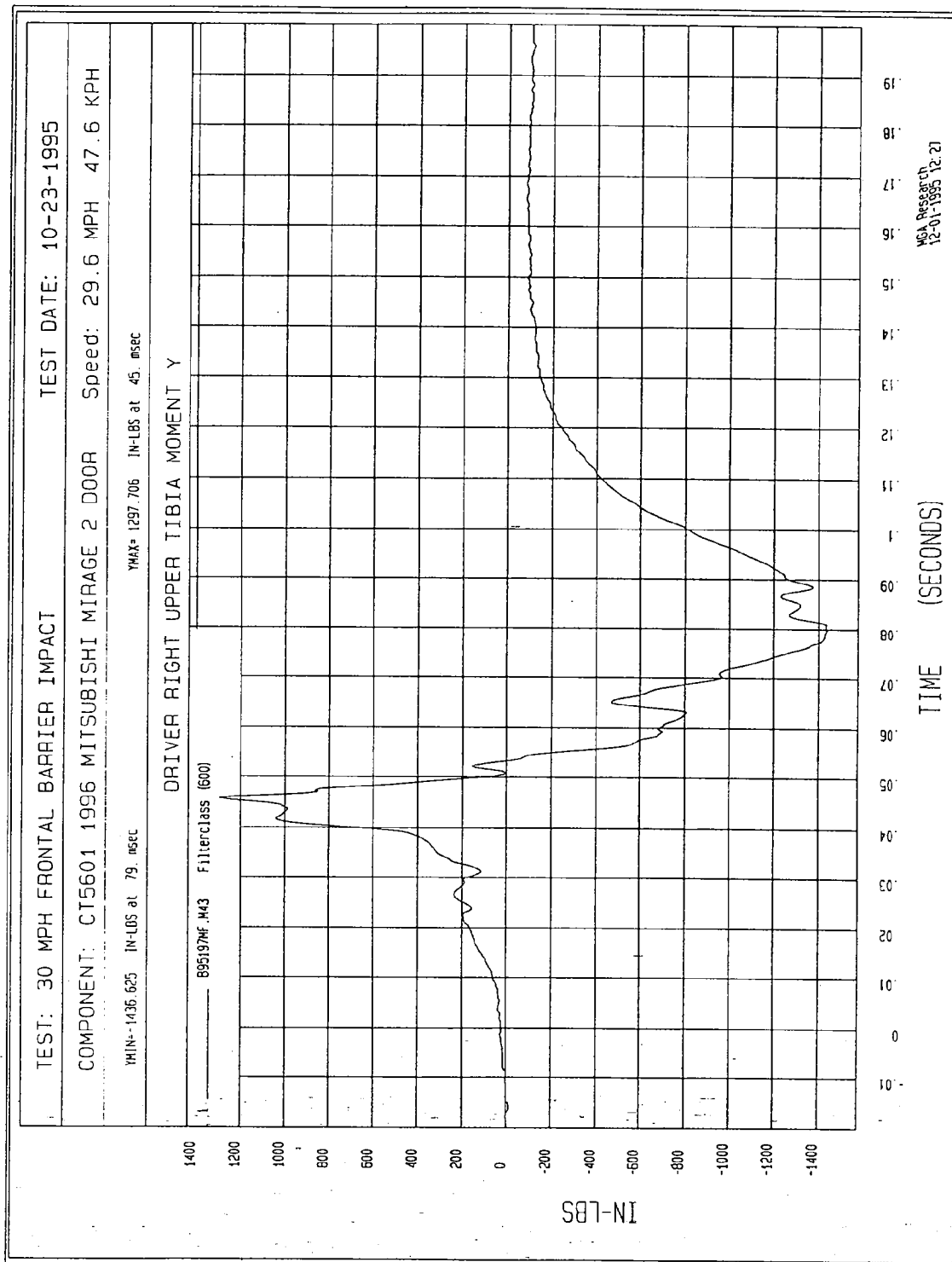


Figure B-21 - Driver Right Upper Tibia Moment Y vs. Time

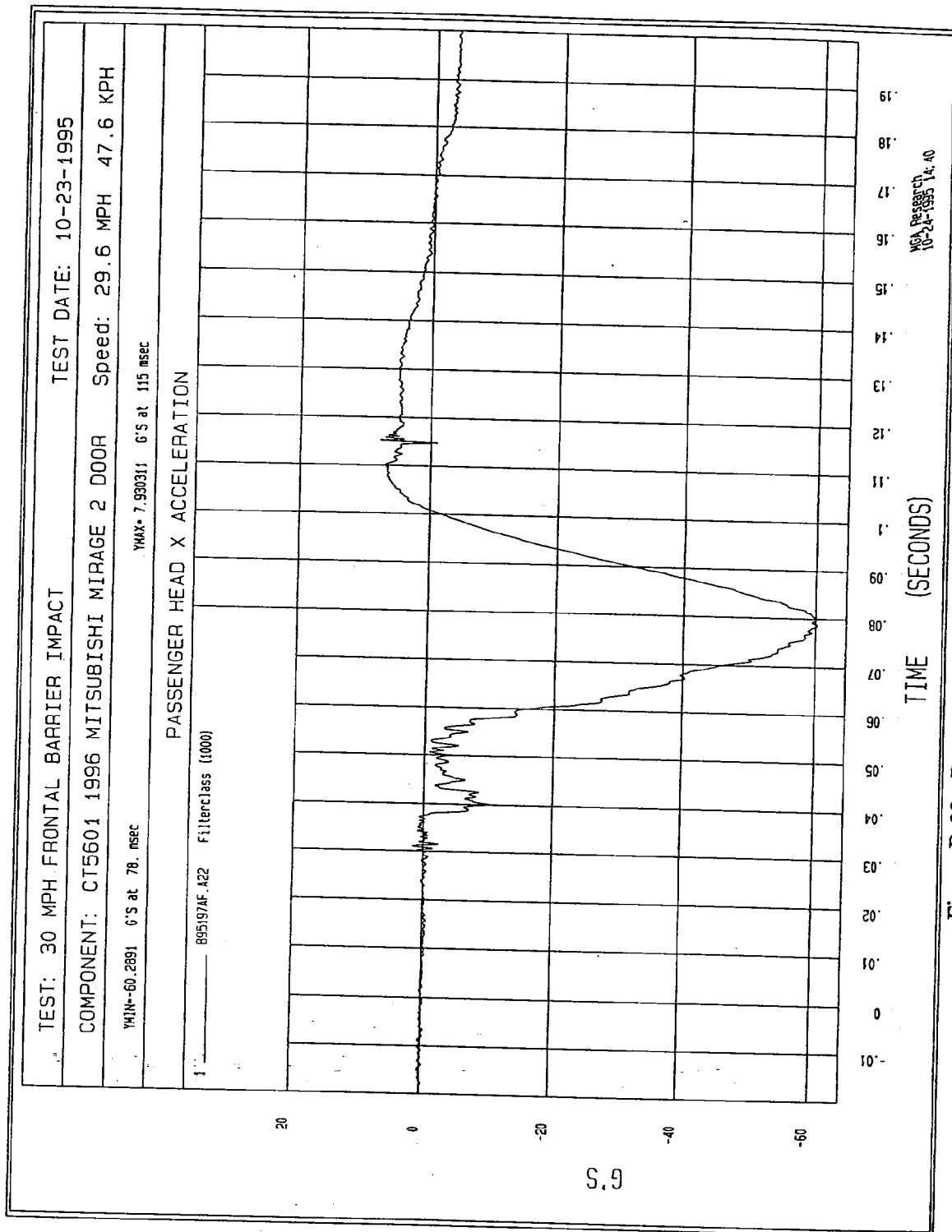


Figure B-22 - Passenger Head X Acceleration vs. Time

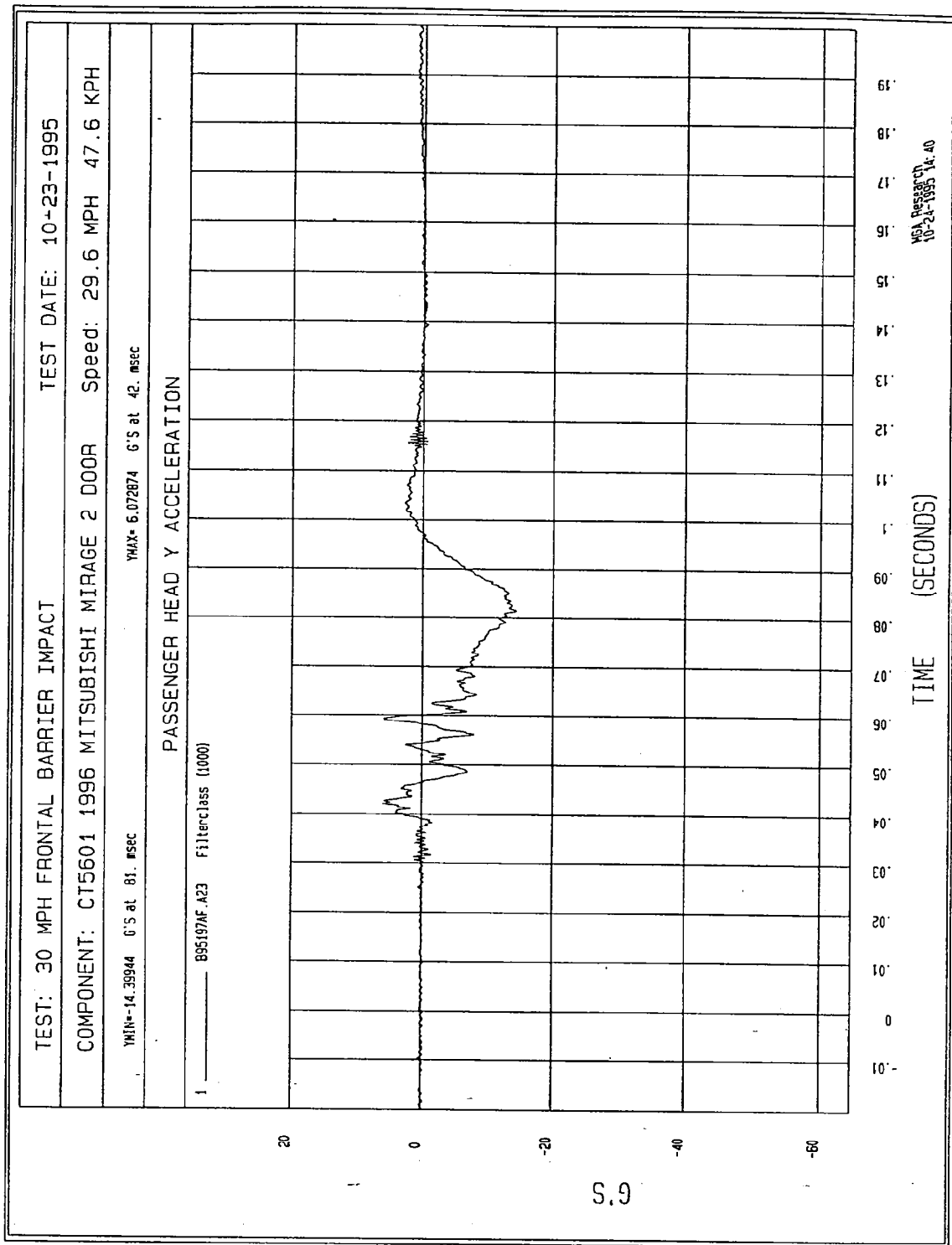


Figure B-23 - Passenger Head Y Acceleration vs. Time

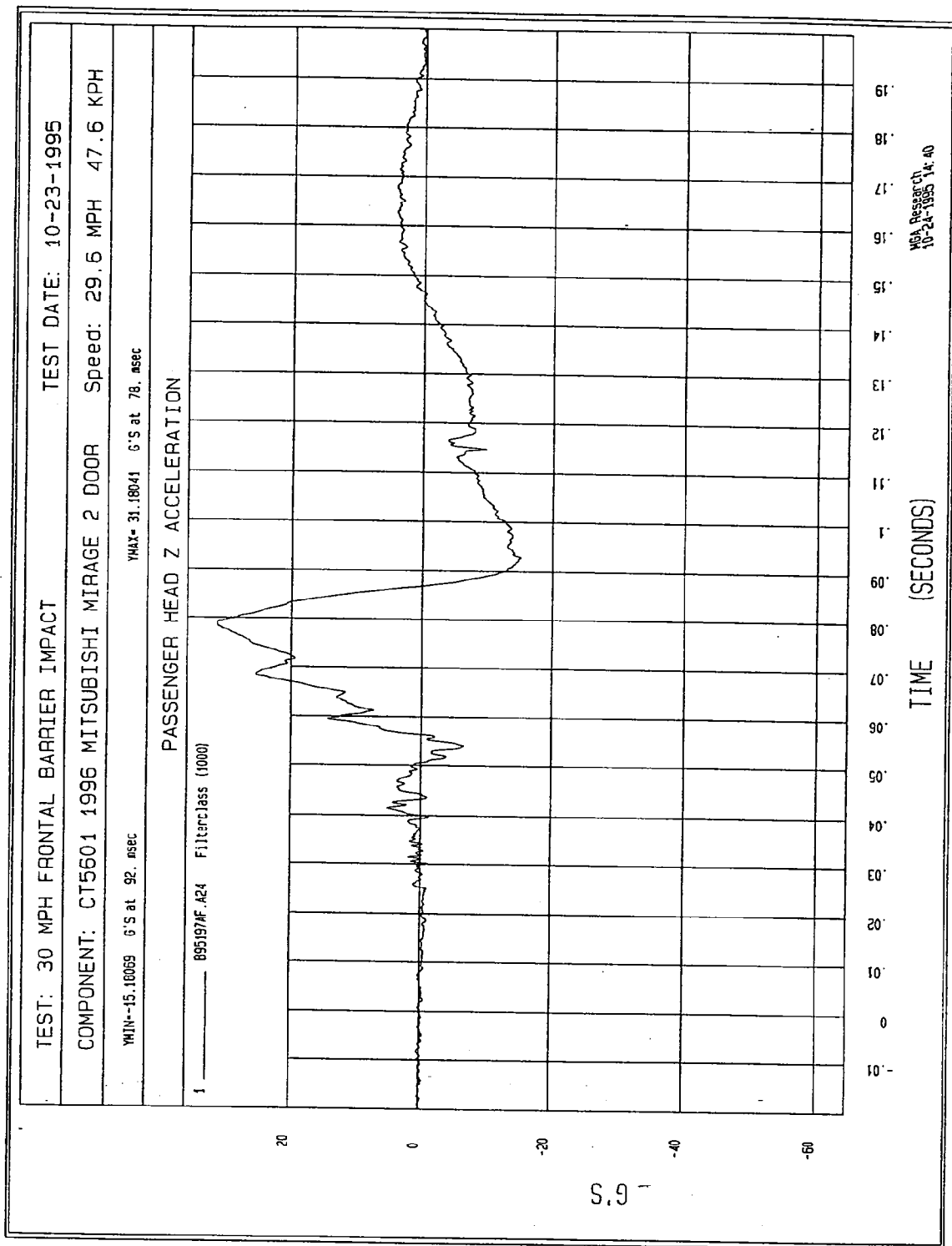


Figure B-24 - Passenger Head Z Acceleration vs. Time

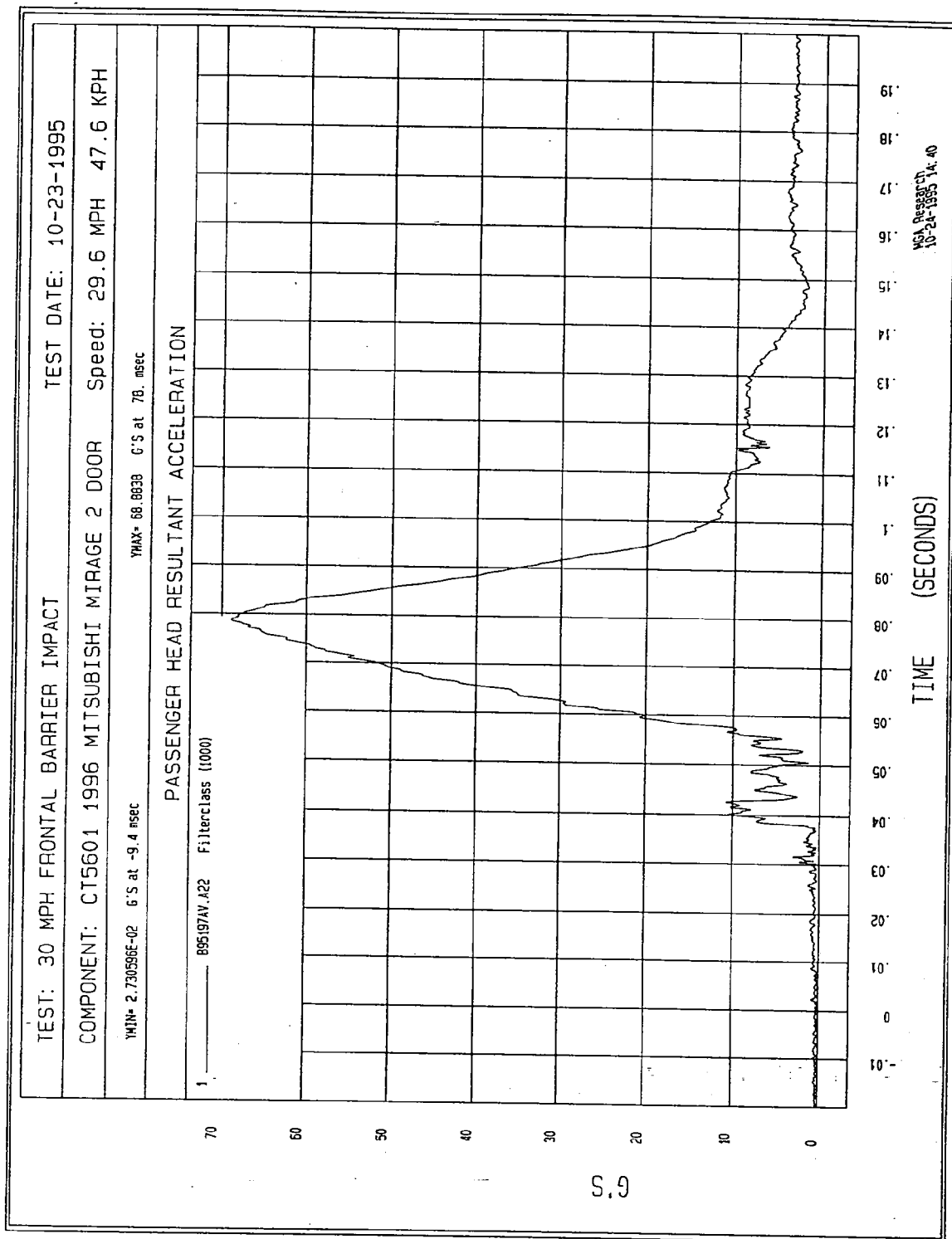


Figure B-25 - Passenger Head Resultant Acceleration vs. Time

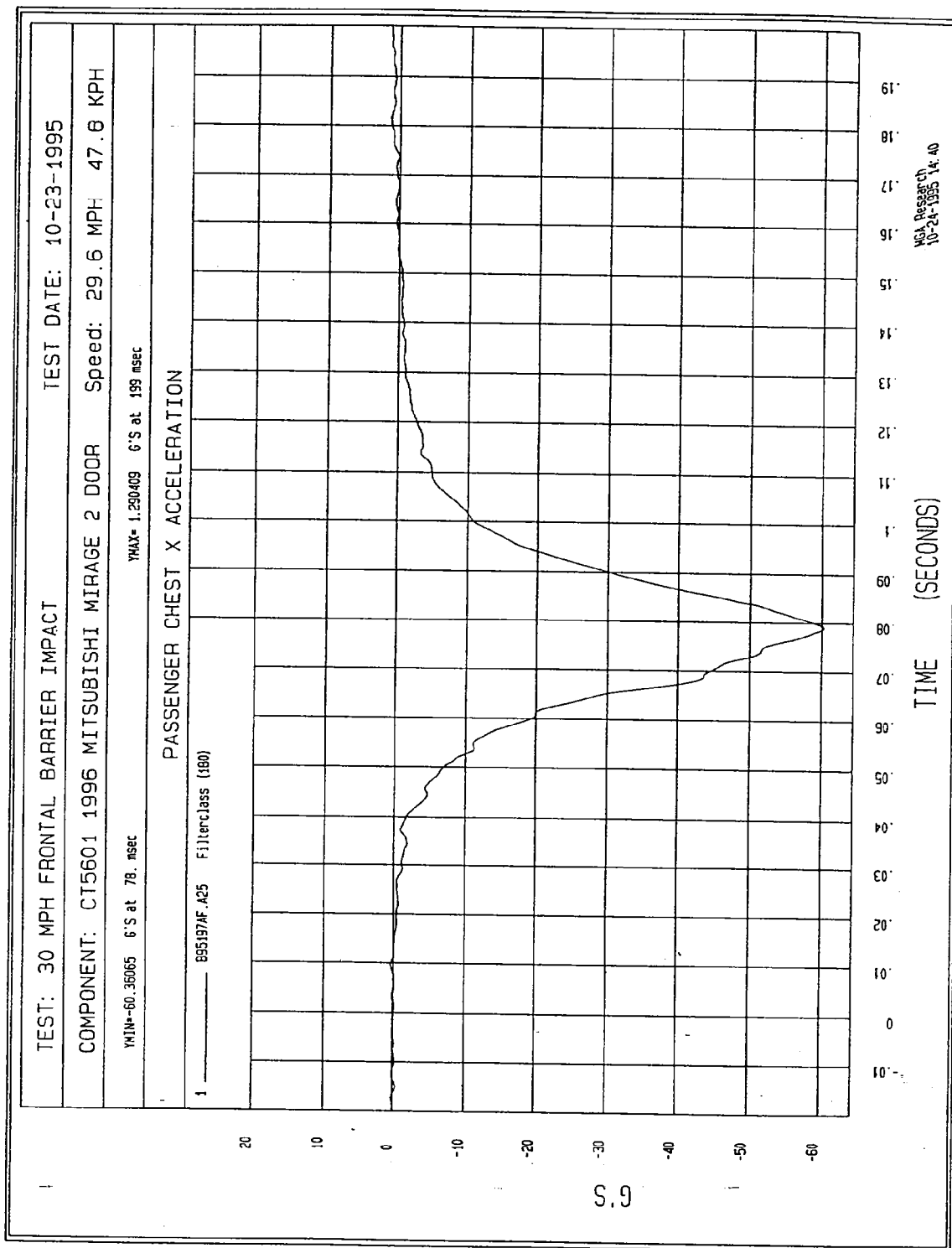


Figure B-26 - Passenger Chest X Acceleration vs. Time

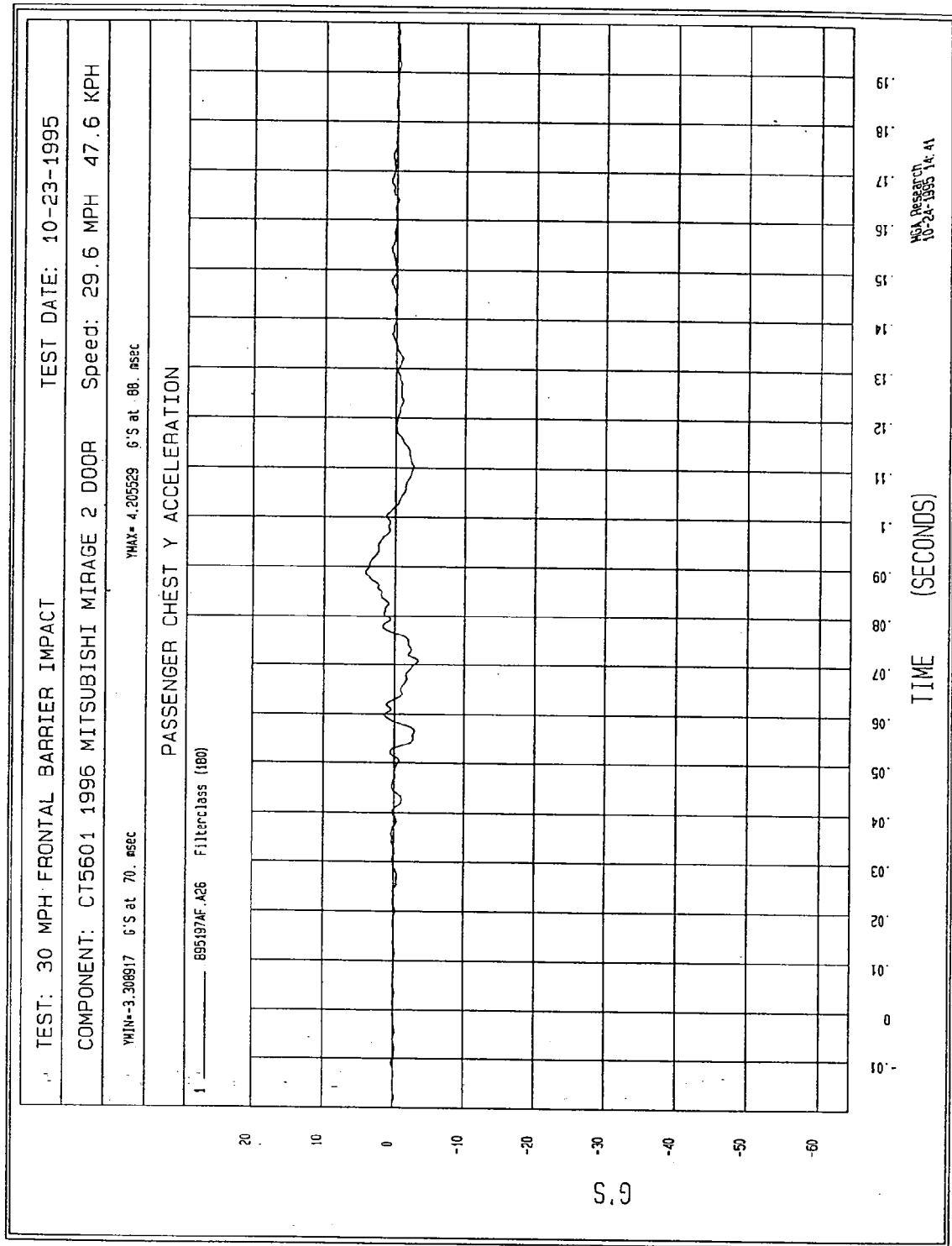


Figure B-27 - Passenger Chest Y Acceleration vs. Time

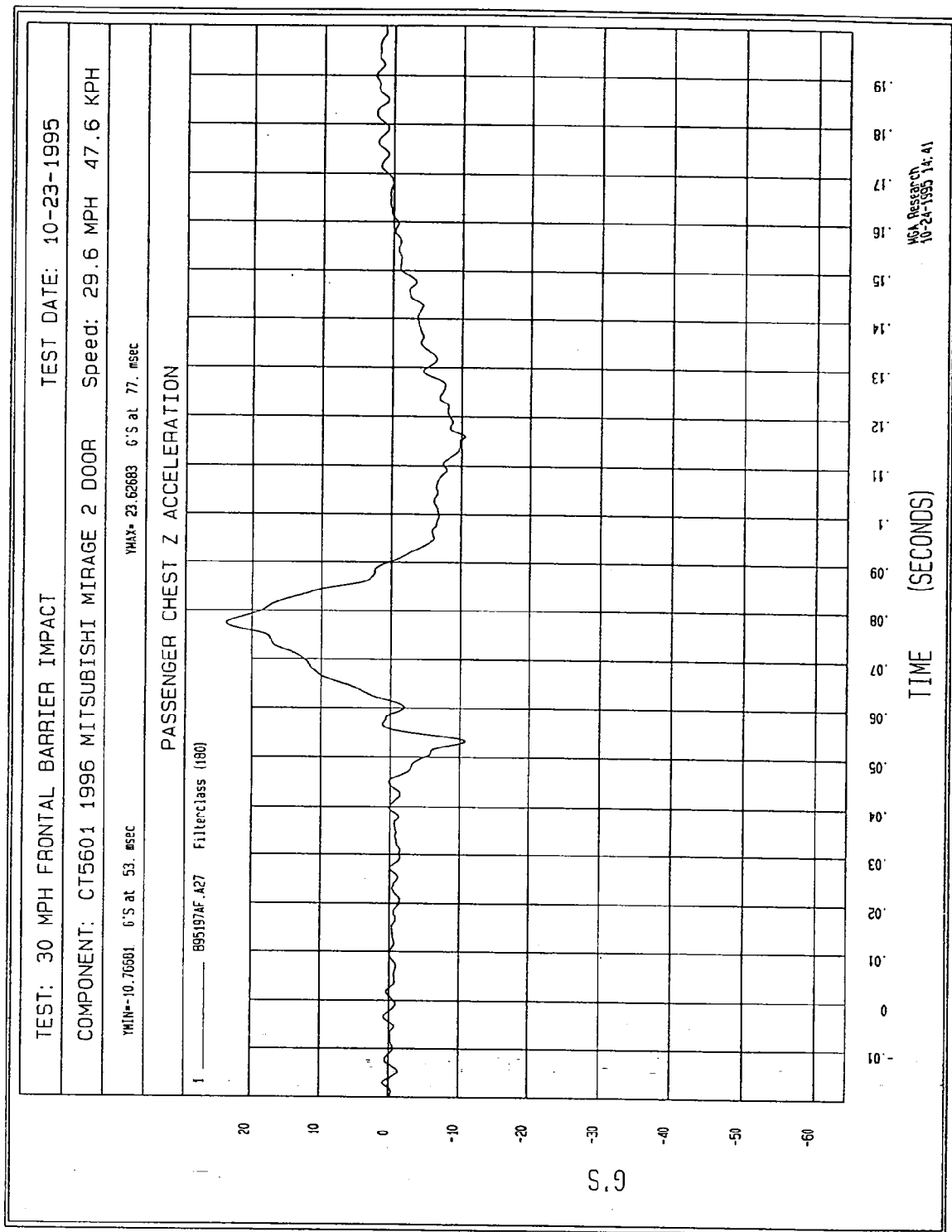


Figure B-28 - Passenger Chest Z Acceleration vs. Time

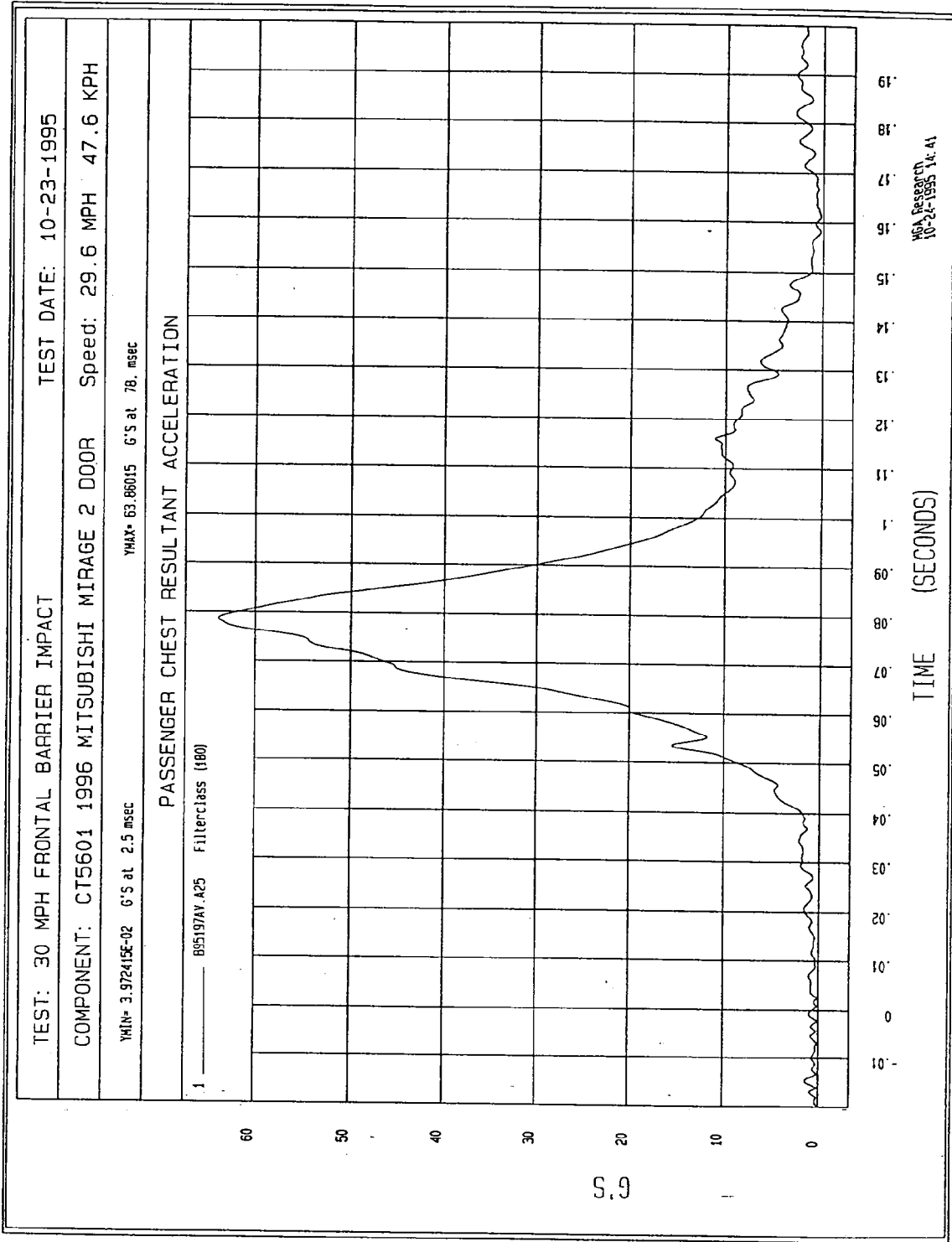


Figure B-29 - Passenger Chest Resultant Acceleration vs. Time

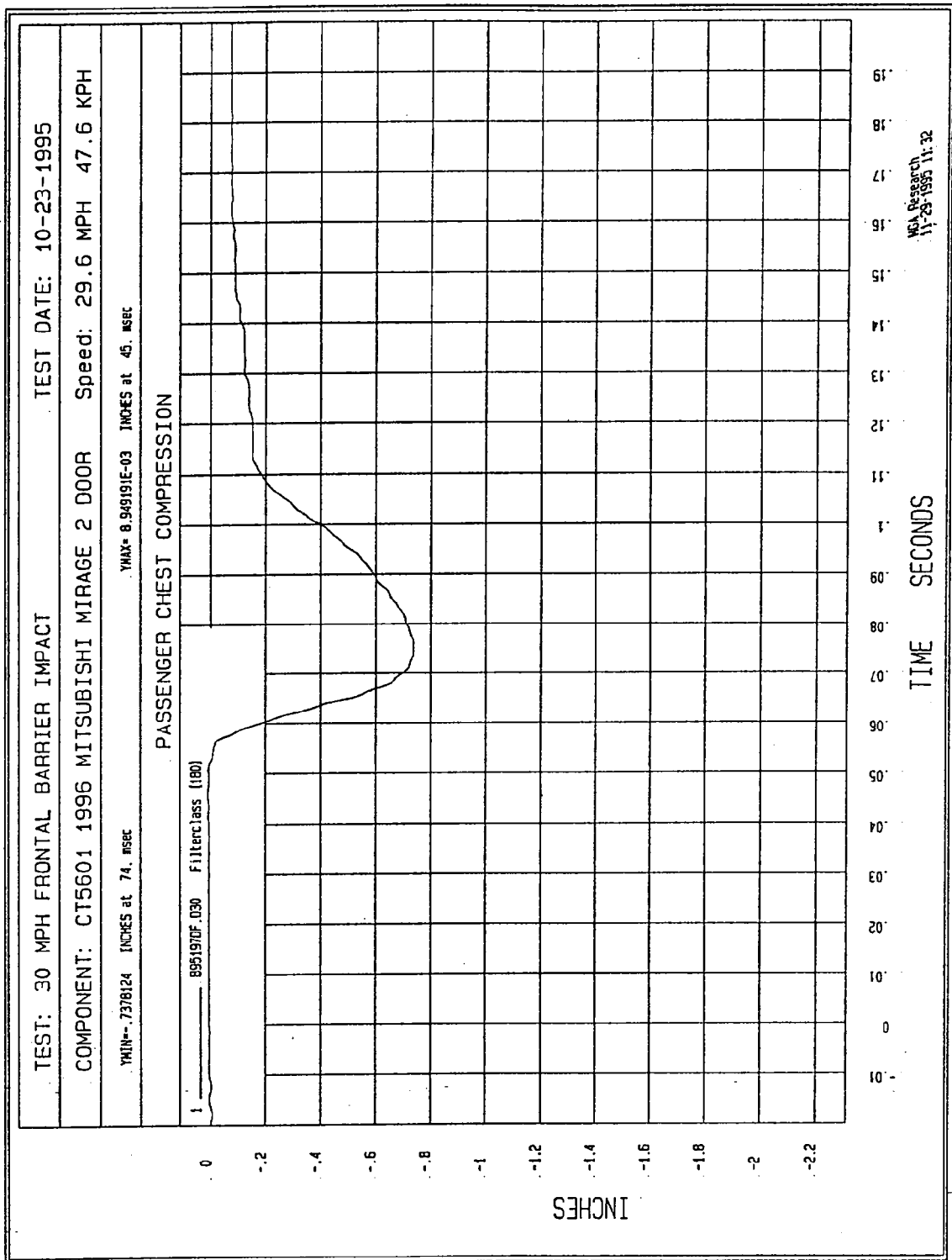


Figure B-30 - Passenger Chest Compression vs. Time

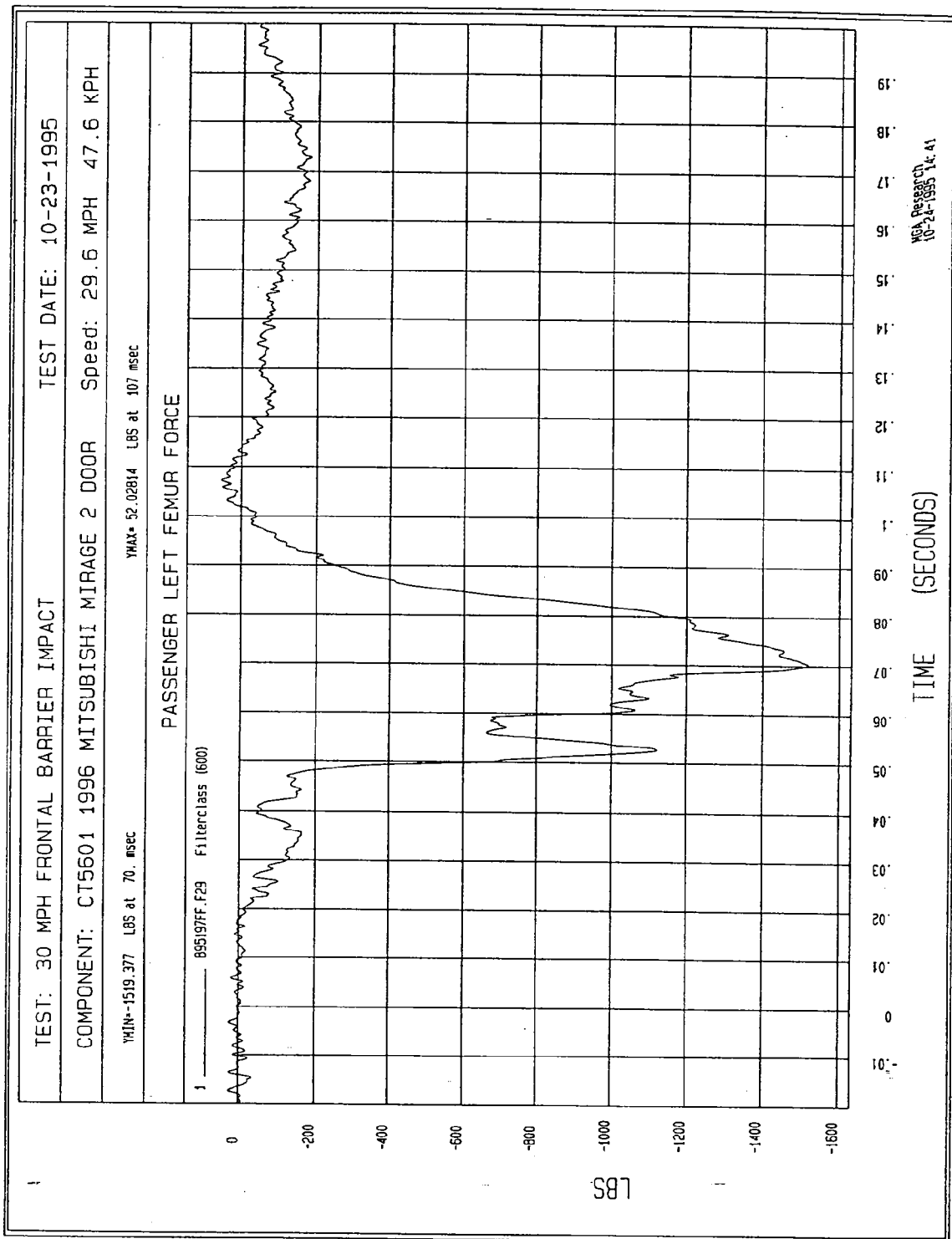


Figure B-31 - Passenger Left Femur Force vs. Time

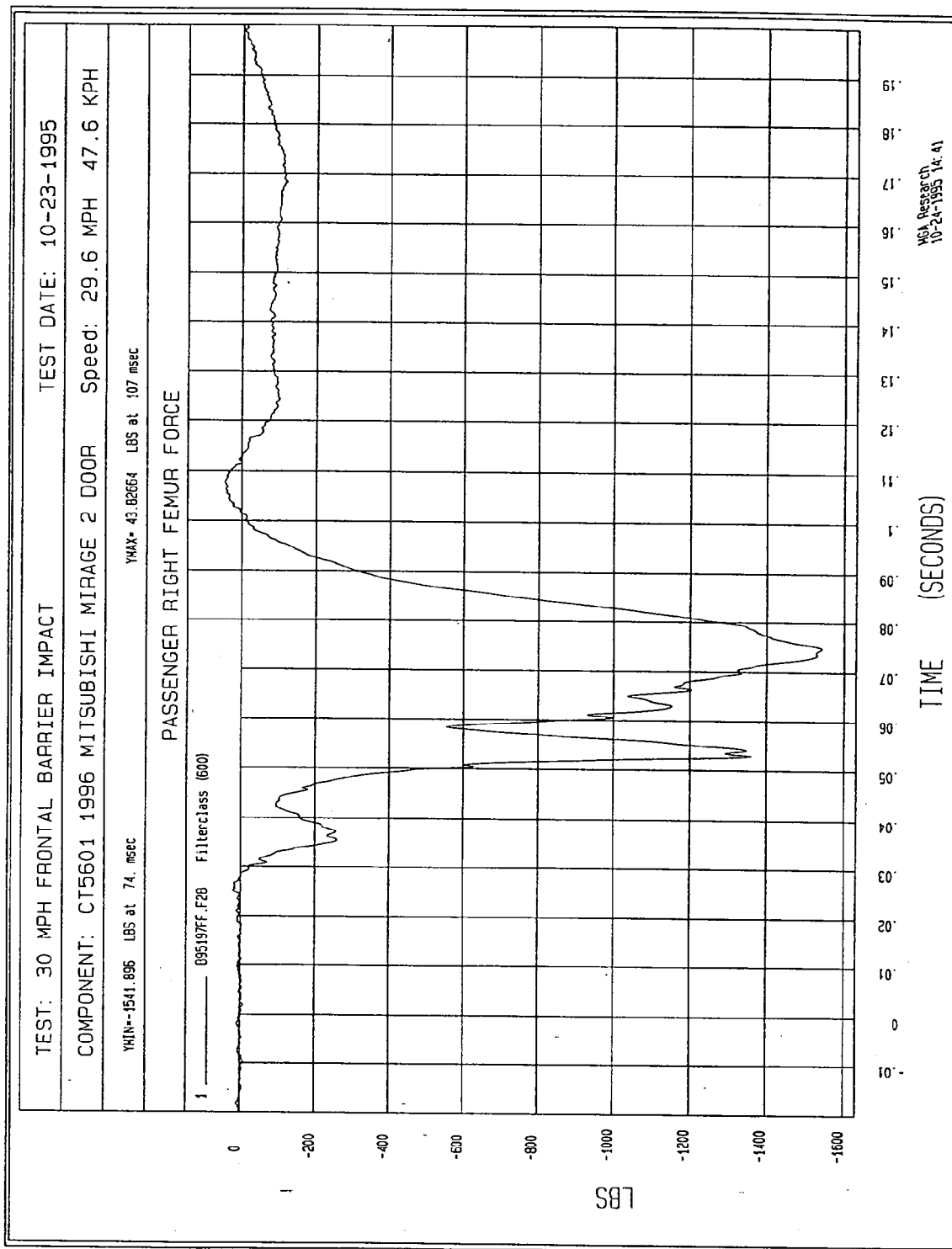


Figure B-32 - Passenger Right Femur Force vs. Time

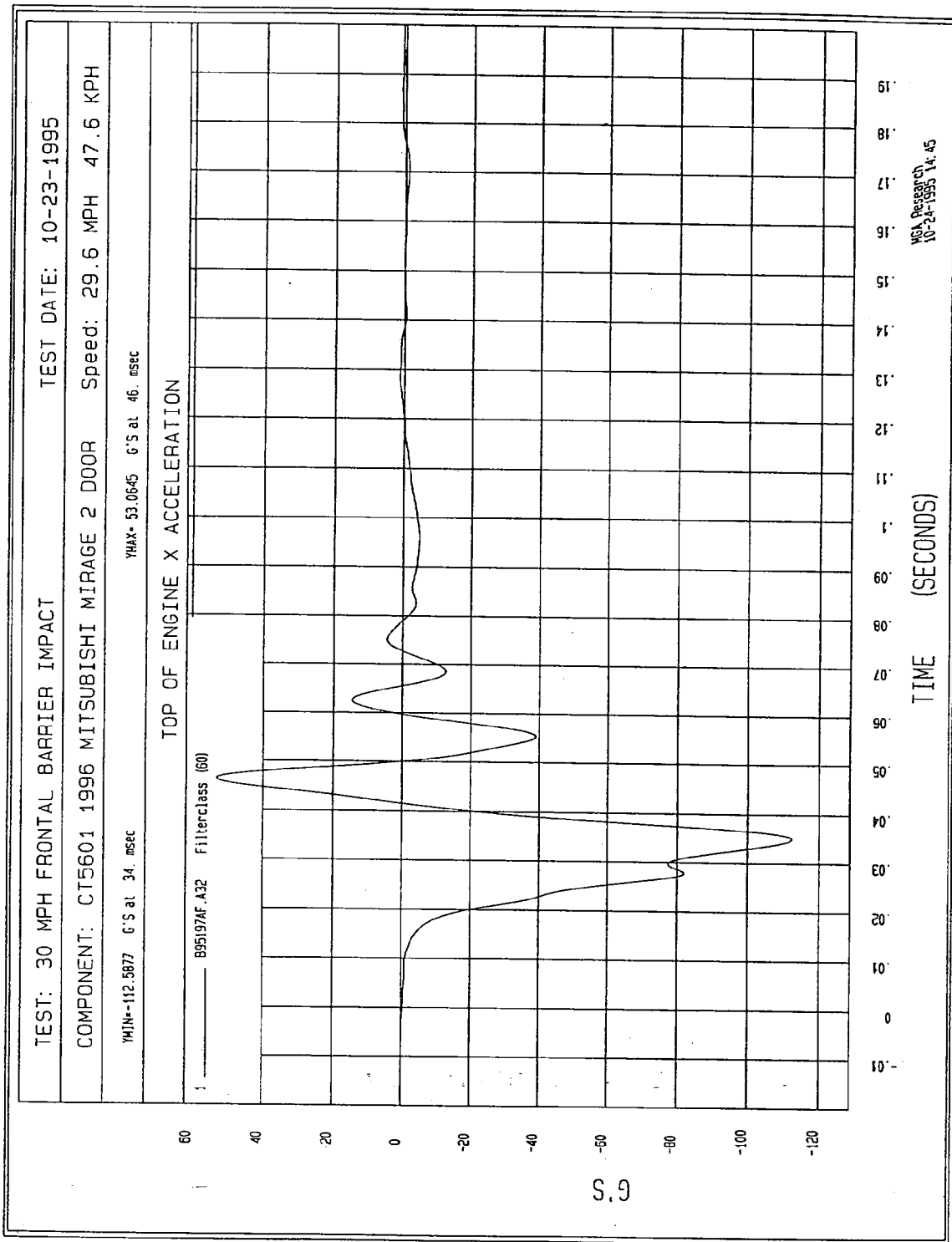


Figure B-33 - Top of Engine X Acceleration vs. Time

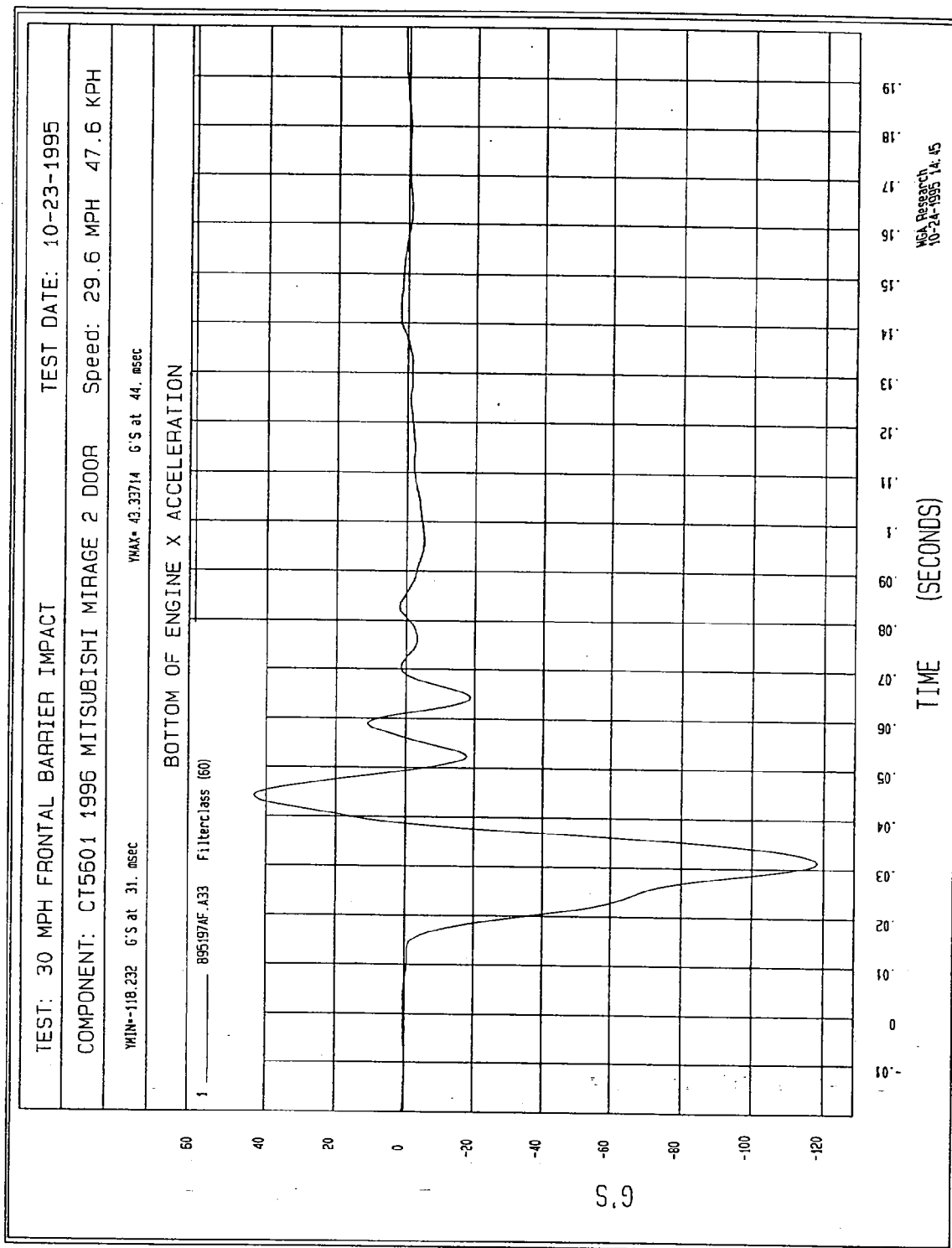


Figure B-34 - Bottom of Engine X Acceleration vs. Time

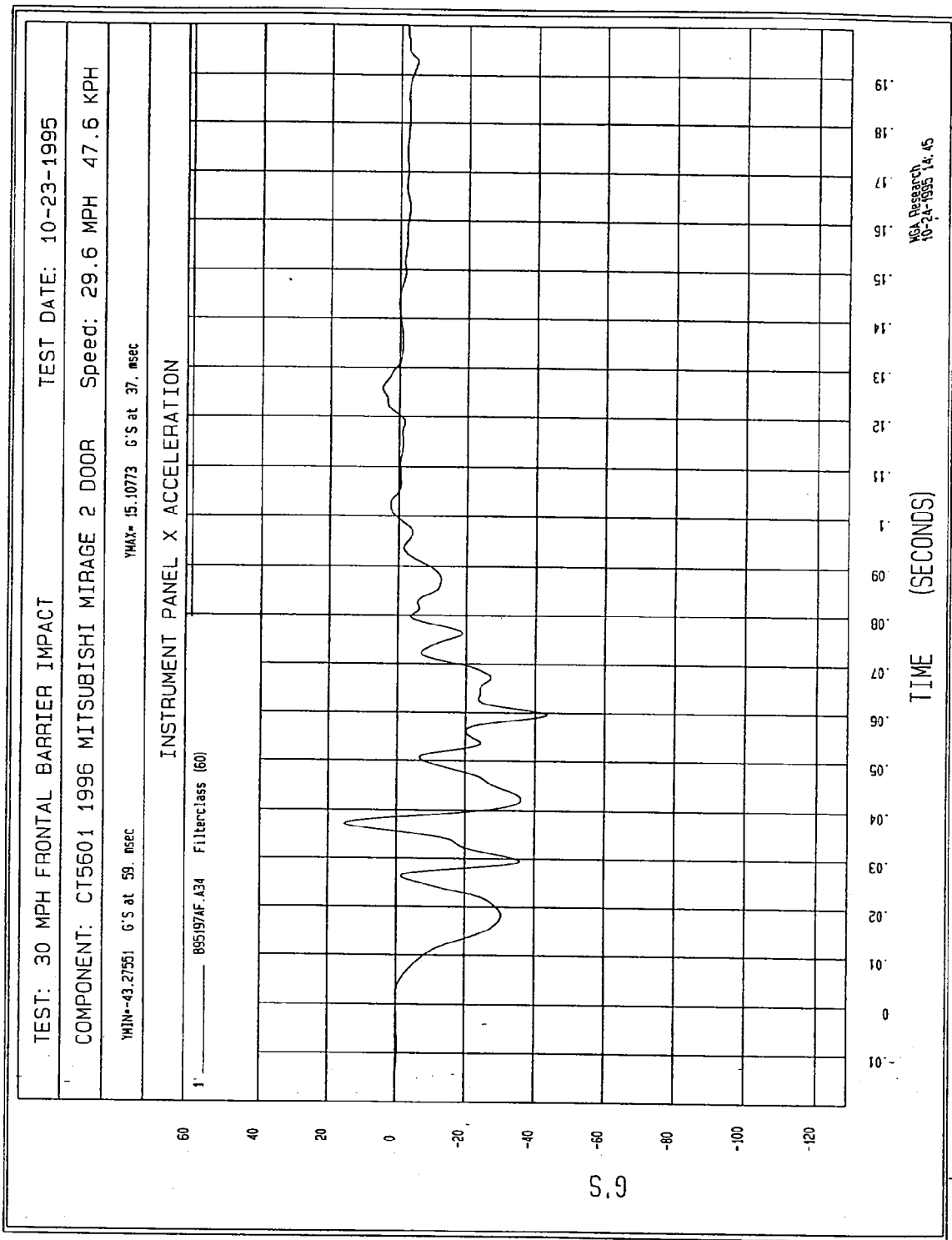


Figure B-35 - Instrument Panel X Acceleration vs. Time

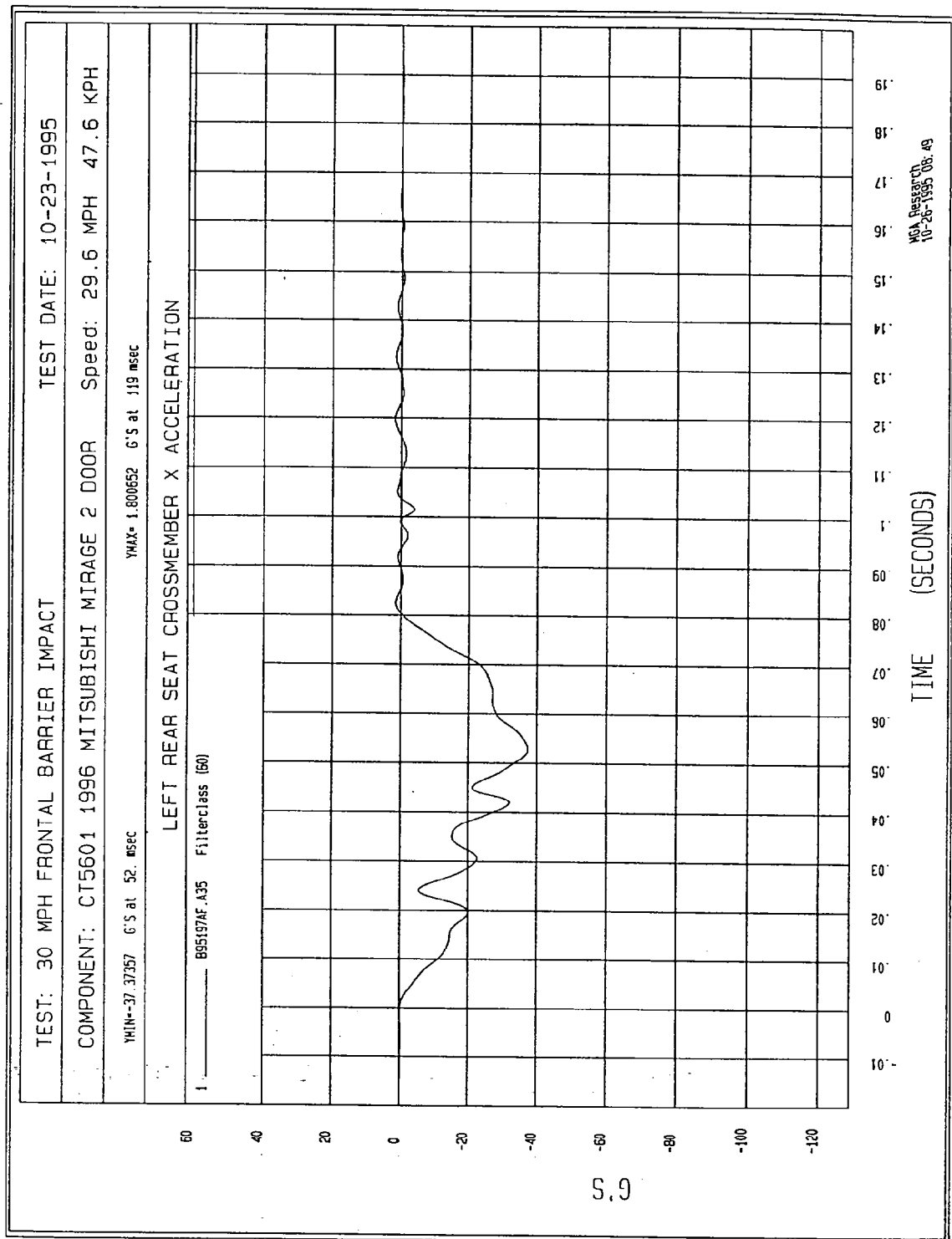


Figure B-36 - Left Rear Seat Crossmember X Acceleration vs. Time

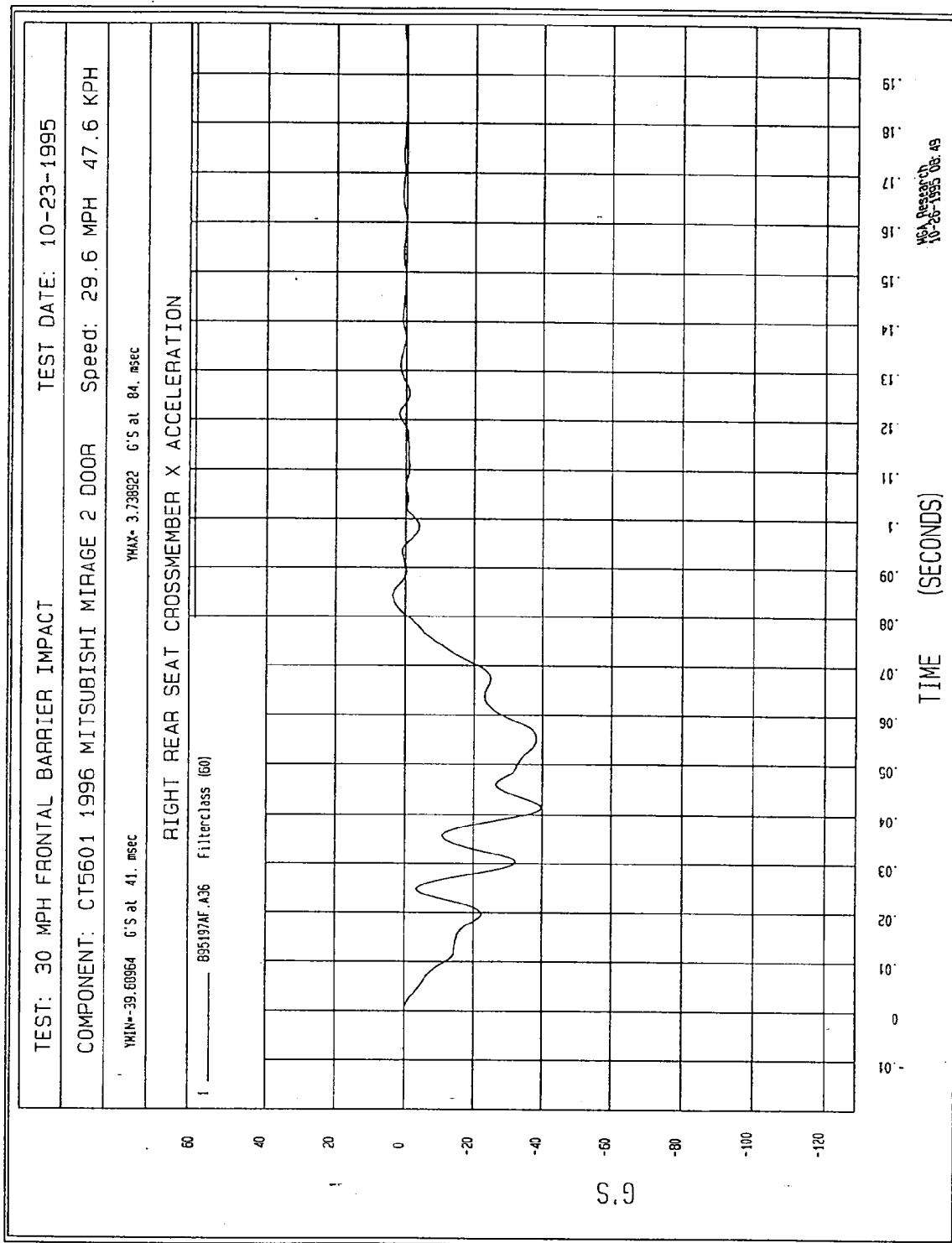


Figure B-37 - Right Rear Seat Crossmember X Acceleration vs. Time

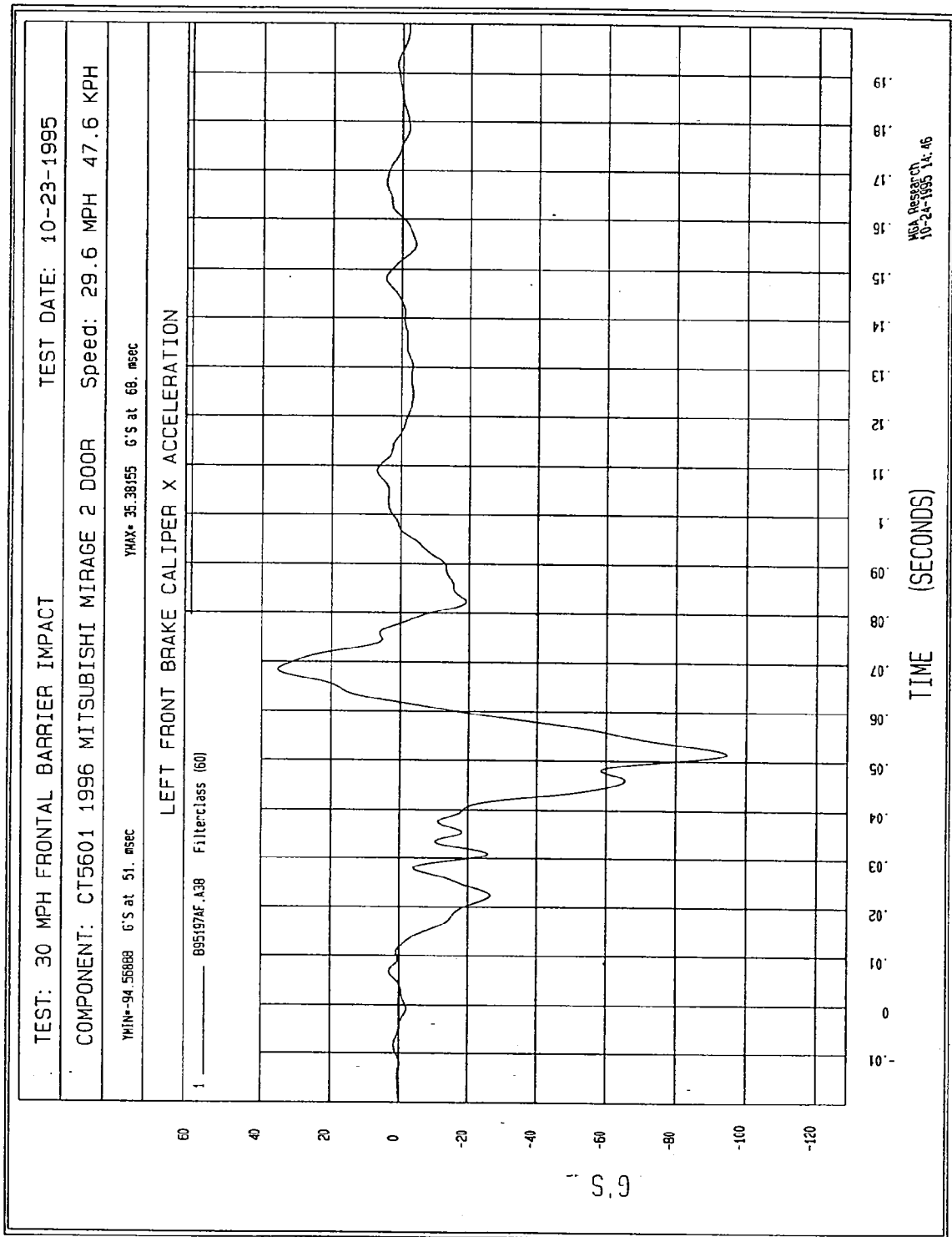


Figure B-38 - Left Front Brake Caliper X Acceleration vs. Time

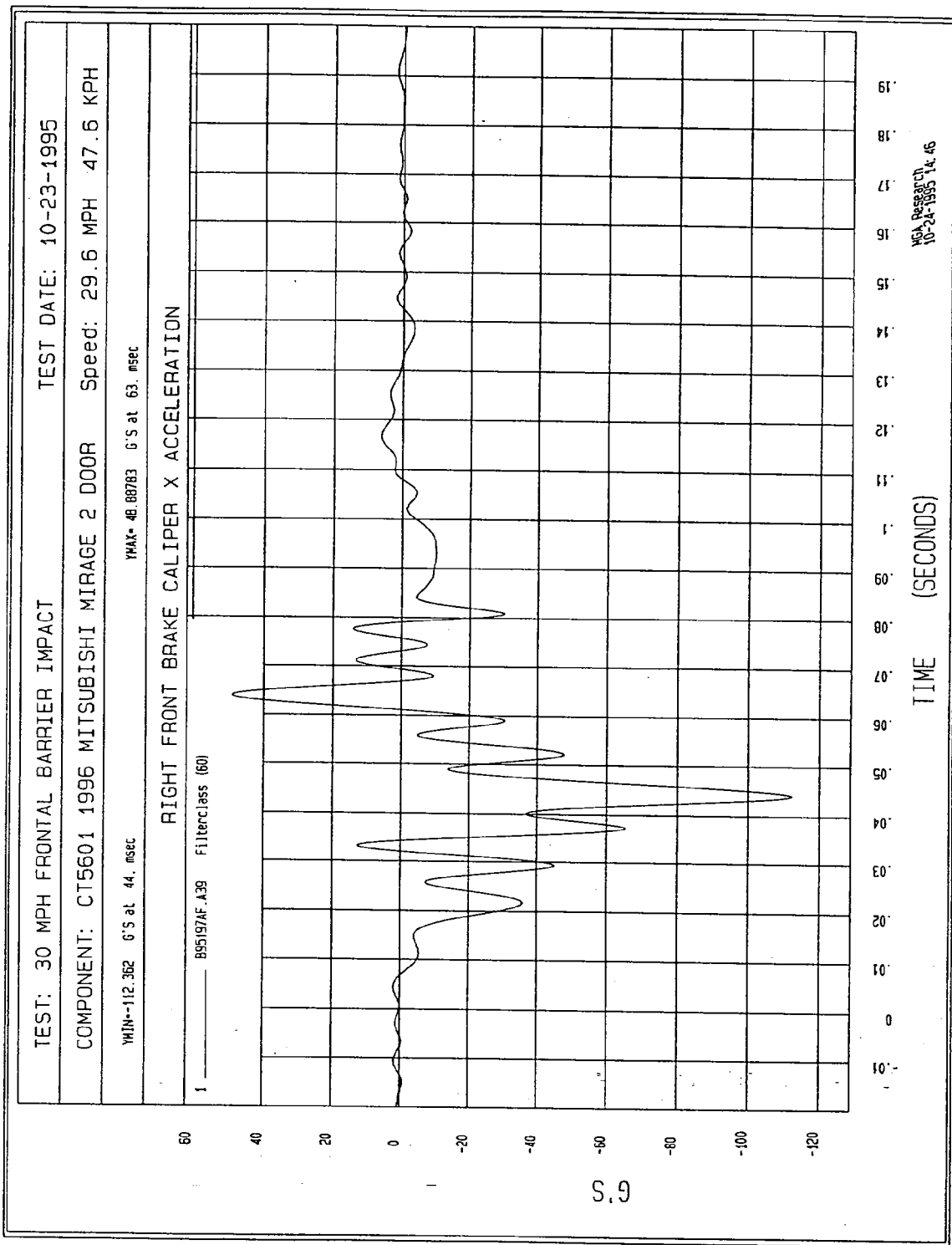


Figure B-39 - Right Front Brake Caliper X Acceleration vs. Time

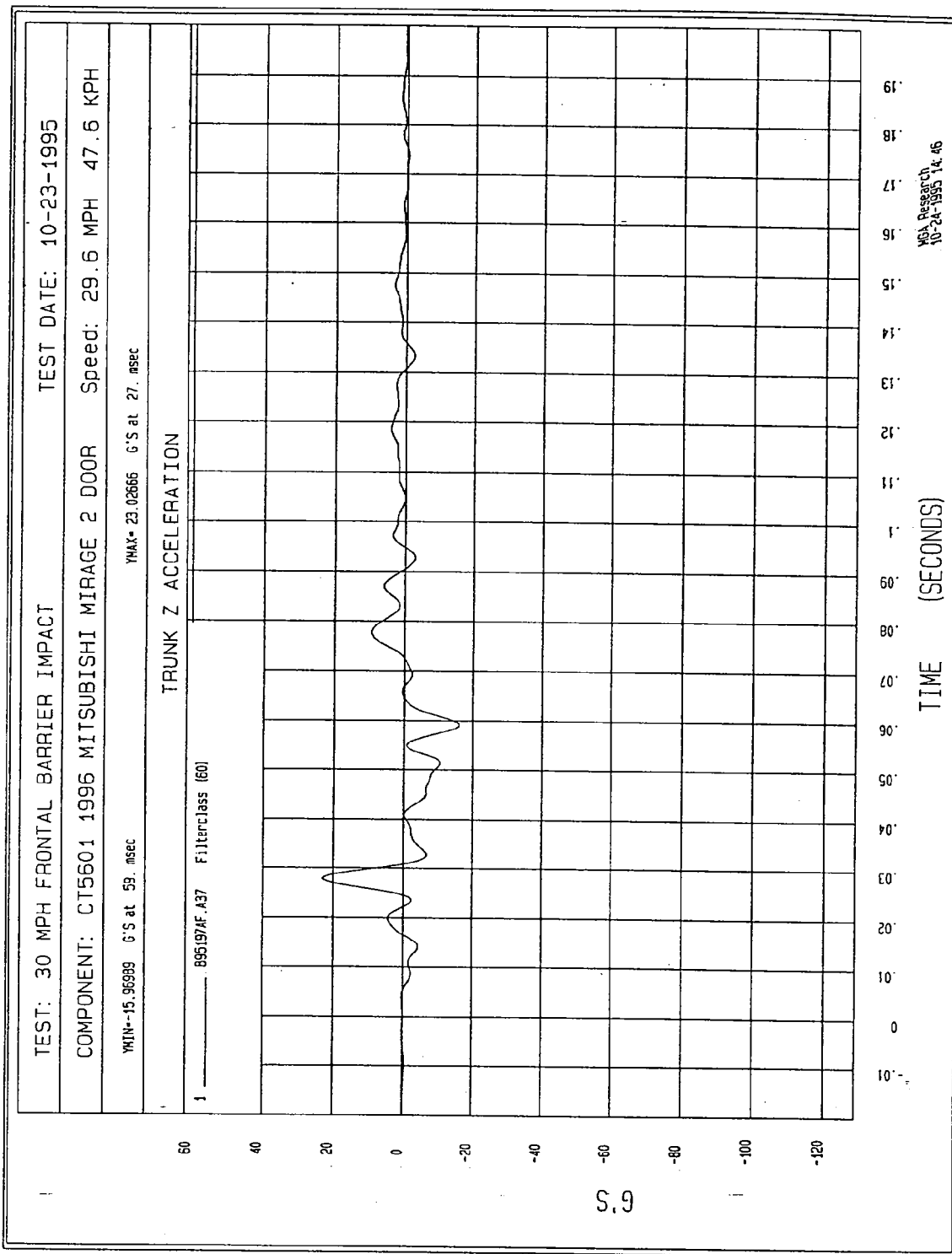


Figure B-40 - Trunk Floor Z Acceleration vs. Time

APPENDIX C
MANUFACTURER'S VEHICLE INFORMATION

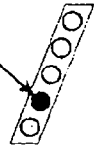
MMC ANSWERS ABOUT OVSC QUESTIONS FOR '95 MITSUBISHI MIRAGE FMVSS 208 COMPLIANCE TEST

OVSC Question		MMC Answer																										
1	• Which does MMC air bag automatic restraint system meet the requirements of S4.1.2.1(c)(1) or S4.1.2.1(c)(2) ?	• Our system meets the requirement of S4.1.2.1(c)(2).																										
2	• If the automatic restraint system meets the requirement of S4.1.2.1(c)(1)----?	N.A (not applicable)																										
3	• If a manual 3-point safety belt is provided for the Dr. & Ps. automatic restraint system in order to meet S4.1.2.1(c)(2), provide a copy of MMC certification test reports.	• We provide a copy of our certification test reports shown below. <table border="1"><thead><tr><th>Test Configuration</th><th>Seat Belt Condition</th><th>2dr.</th><th>4dr.</th></tr></thead><tbody><tr><td rowspan="2">0 deg. Frontal</td><td>Fastened</td><td>#3</td><td>×</td></tr><tr><td>Unfastened</td><td>#3</td><td>×</td></tr><tr><td rowspan="2">30 deg. Left Angular</td><td>Fastened</td><td>#1</td><td>#1</td></tr><tr><td>Unfastened</td><td>×</td><td>#2</td></tr><tr><td rowspan="2">30 deg. Right Angular</td><td>Fastened</td><td>#3</td><td>×</td></tr><tr><td>Unfastened</td><td>×</td><td>#2</td></tr></tbody></table> Test Report No. XH941029. (XH941079) Attachment No. 1 × : Test was conducted #1 : Covered by unfastened condition #2 : Test was considered to be covered with the 2dr. data. #3 : Test was considered to be covered with the 4dr. data.		Test Configuration	Seat Belt Condition	2dr.	4dr.	0 deg. Frontal	Fastened	#3	×	Unfastened	#3	×	30 deg. Left Angular	Fastened	#1	#1	Unfastened	×	#2	30 deg. Right Angular	Fastened	#3	×	Unfastened	×	#2
Test Configuration	Seat Belt Condition	2dr.	4dr.																									
0 deg. Frontal	Fastened	#3	×																									
	Unfastened	#3	×																									
30 deg. Left Angular	Fastened	#1	#1																									
	Unfastened	×	#2																									
30 deg. Right Angular	Fastened	#3	×																									
	Unfastened	×	#2																									
4	• If the manual safety belt provided at the Dr. & Ps. seating positions was not installed to meet S4.1.2.1(c)(2). ----.	N.A																										

MMC ANSWERS ABOUT OVSC QUESTIONS FOR '95 MITSUBISHI MIRAGE FMVSS 208
COMPLIANCE TEST (Cont'd)

	OVSC Question	MMC Answer
5	• If a pressure vessel is used to inflate the air bag, provide a copy of test reports or engineering analysis.	• Not used.
6	• If an explosive device is used to inflate the air bag, provide a copy of test reports or engineering analysis to demonstrate that it meets S9.2.	• The explosive device (inflator) of our air bag system meets all the requirements of S9.2. • It is certified by the letter of Morton International Inc. and Takata Corporation. • See Enclosure 1 of Test Report No. XH941-029.
7	• For any safety belt system, whether or not it is equipped with a tension-relieving device?	• Not equipped.
8	• Whether the movable windows and vents were opened or closed for the certification tests?	• The movable windows and vents were positioned to full open condition on our test.
9	• Which test dummy was used in each seat for each of MMC certification tests? • Submit dummy placement measurements including diagrams or photographs. • Whether the vehicle has a foot rest for the driver? • If the vehicle can be equipped with a split front bench seat, ---.	• Part 572(E)(Hybrid-III) dummy was used in each front seat for the certification tests. • See Attachment No. 2-1, 2-2. • All models have a foot rest for driver. • Not equipped.

MMC ANSWERS ABOUT OVSC QUESTIONS FOR '95 MITSUBISHI MIRAGE FMVSS 208
COMPLIANCE TEST (Cont'd)

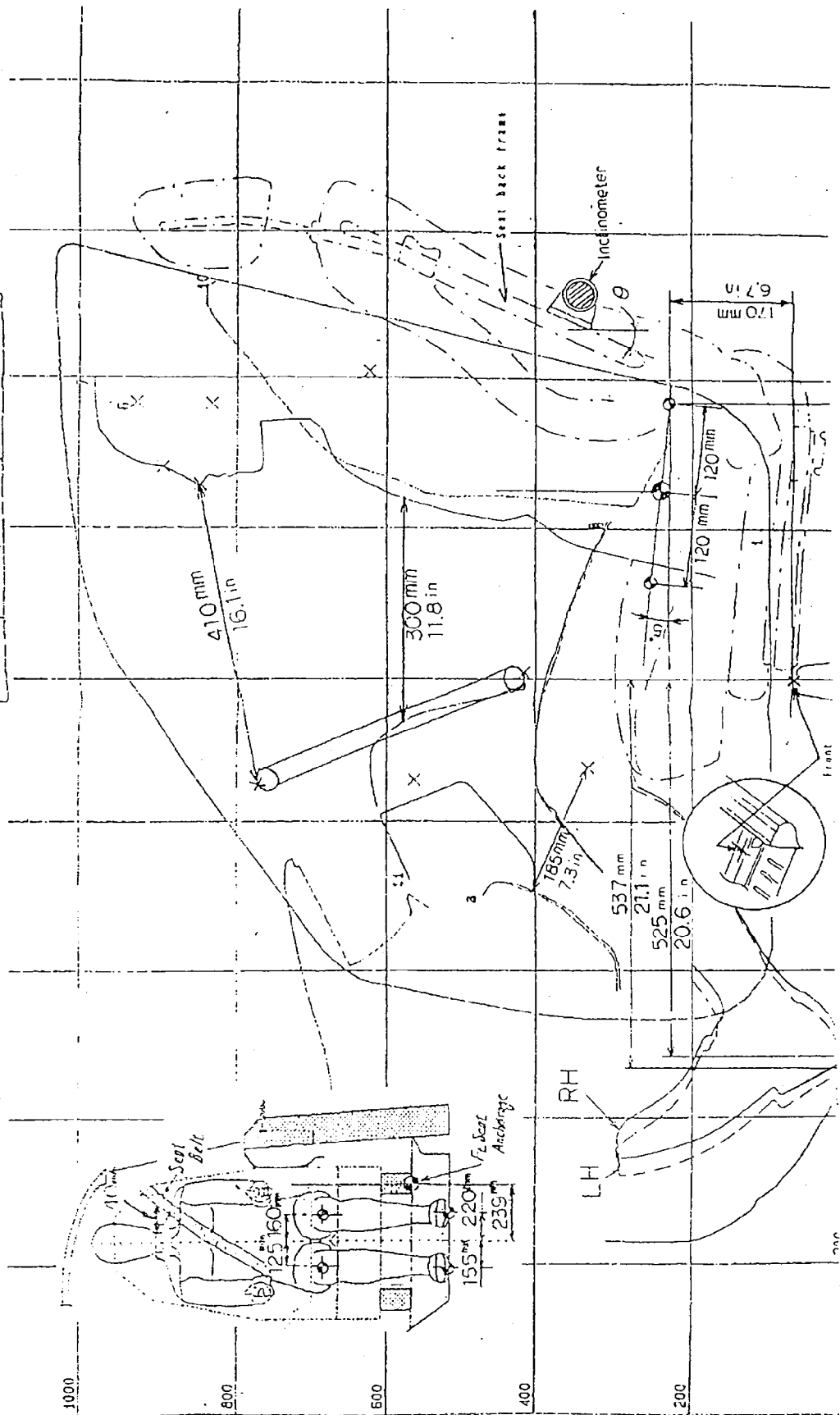
OVSC	Question	MMC Answer
10	• Provide the seat positioning steering column positioning, and fuel tank data.	• See Attachment No. 3-1, 3-2.
11	• If the vehicle is equipped with adjustable seat belt anchorages, provide MMC nominal design position for AM50%ile.	• <u>4th position</u> from the top anchorage. 
12	• Provide the impact speed, vehicle test weight and resulting injury criteria recorded for all certification tests conducted to meet S4.1.2.1. • In addition, include each dummy's head and chest acceleration versus time plots and femur load versus time plots for the full frontal barrier impact tests.	• These informations are shown in the Table-3 of test report(XH941029) ; Attachment No. 1. • See Attachment No. 4.
13	• When vehicle components must be removed to obtain the proper test weight, what components and what priority order does MMC recommend for removal?	Removal component are : • Spare tire • Rear combination lamp • Cargo floor carpet • Rear seat cushion and there is no priority.
14	• Provide FMVSS No. 204 data and conditions.	• The information except the steering energy absorption mechanism are shown in the test report (XH931075) ; Attachment No. 5. • See Attachment No. 6 for steering energy absorption mechanism and Attachment No. 7 for steering displacement vs time prot.
15	• If the vehicle have built-in child restraints either as standard equipment or optional equipment.	• Not equipped.

ATTACHMENT-2

INFORMATIONS
FOR
DUMMY AND SEAT POSITIONING

Seat cushion, Seat back
and
Dummy positioning
for
Driver's side

Item	Value	Note
Seat back angle (θ)	22°	Measured point see figure
Seat travel	Total	140mm
	Fore	120mm
	Aft	120mm
		Seat slide pitch : 10mm



ATTACHMENT-3

TEST VEHICLE INFORMATION
(SEAT, STEERING COLUMN AND FUEL TANK CAPACITY)

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1995, MITSUBISHI MOTORS CORPORATION
 Vehicle Model & Body Style: MITSUBISHI MIRAGE

1. NOMINAL DESIGN RIDING POSITION --

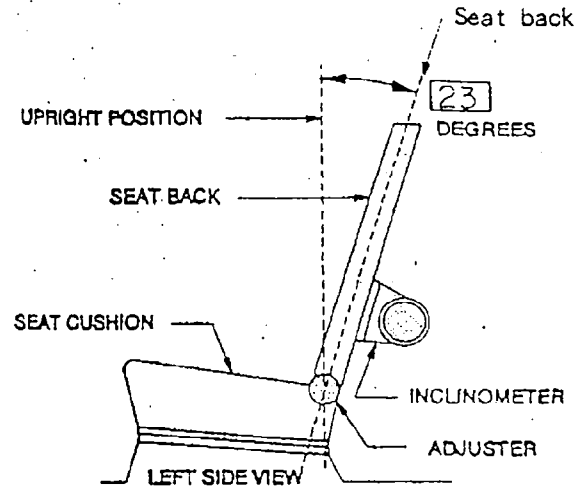
For adjustable driver and passenger seat backs.
 Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?).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

Seat back angle for driver's seat = 23 degrees.
 Measurement Instructions:

Adjust the seat back to be 23° with inclinometer on the side frame pipe.
 or, locate the seat back to the 3rd step from 1st. locking position which is defined as 1st. step.

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

Same as driver's 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:

The mid point is 13th locking position from rearmost point which is defined as 1st. position.

The pitch to be locked is 0.39 inches(10mm).

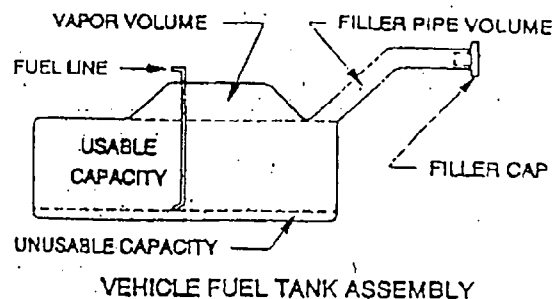
Positioning of the passenger's seat (if applicable):

Same as driver's seat

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3. FUEL TANK CAPACITY DATA - -

- 3.1: A. "Usable Capacity" of standard equipment fuel tank = 13.2 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = gallons.
- C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 12.5 gallons.



Operational Instructions:

No remarks.

- 3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 12.5 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.

The fuel pump pumps the fuel at the engine operating condition only.

4. STEERING COLUMN ADJUSTMENTS - -

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:

The steering column can be locked at any position from 21.5° to 25.5°.

(Only the column with tilt)

