V2437

REPORT NO. 208-MGA-96-007
212-MGA-96-007
301-MGA-96-007

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

FORD MOTOR COMPANY
1997 Ford F150
NHTSA NO. CV0200

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105

Test Date: April 29, 1996

Report Date: May 15, 1996

Final Report

Prepared For:

U.S DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAIL CODE: NSA-30
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WASHINGTON, D.C 20590

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APPROVED BY: Nikki Walter DATE: May 20th, 1996
Nikki Walter
MGA Research Corporation

APPROVED BY: John J. Fleck DATE: 5/20/96
John Fleck
MGA Research Corporation

FINAL REPORT ACCEPTED BY:
Charles R. Case
Contracting Officer's Technical Representative (COTR)
NHTSA, Office of Vehicle Safety Compliance

11/21/96
Date of Report Acceptance

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15. Supplementary Notes

16. Abstract

Compliance tests were conducted on the subject 1997 Ford F150 4 x 2 Pickup in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-09 on April 29, 1996 for the determination of FMVSS 208 compliance. Test failures identified were as follows:

NONE

17. Key Words	18. Distribution Statement
Frontal Impact 30 mph Vehicle Safety Compliance Testing FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219 (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"	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 MGA Research Corporation (MGA) under Contract No. DTNH22-93-D-21089. The purpose of this test was to determine whether the subject vehicle, a 1997 Ford F150 4 x 2 Pickup, NHTSA No. CV0200, 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 in. thick plywood face was impacted by the vehicle.

The test vehicle contained two Part 572 E 50th percentile adult male anthropomorphic test devices (ATDs) in the front outboard seating positions. The dummies were positioned 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. Their instrumentation also included a chest potentiometer to measure longitudinal deflection and lower leg load cells to measure tibia forces and moments.

The forty-six (46) data channels were multiplexed and recorded on five 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 April 29, 1996.

The test vehicle, a 1997 Ford F150 4 x 2 Pickup, NHTSA No. CV0200, 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 the ATDs seated in the front outboard designated seating positions. The Part 572 E dummy's 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 any portion of the static rollover.

The test vehicle was equipped with an airbag and a Type 2 seat belt in the front outboard designated seating positions. The driver and passenger dummies were restrained only by the airbag. The vehicle's test weight was 4709 pounds. The vehicle's impact speed was 29.3 mph. The vehicle's maximum static crush was 21.5 inches.

The driver's HIC was 340. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.3 g's. The driver's chest maximum deflection was 1.2 inches. The driver's left and right femur maximum compressive forces were 1548 pounds and 1824 pounds, respectively.

The right front passenger's HIC was 231. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 45.4 g's. The passenger's chest maximum deflection was -0.5 inches. The right front passenger's left and right femur maximum compressive forces were 1699 pounds and 1460 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 or during the static rollover test.

TEST NOTES

1. All pre-test and post-test photos have the incorrect NHTSA number. The signs in the photos read CU0200, but the actual NHTSA number is CV0200.

TABLE 1 CRASH TEST SUMMARY

Vehicle Yr/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Type: Frontal Barrier Impact

Test Date: 4/29/96 Time: 3:44 p.m. Temp: 70°F

Vehicle Test Weight: 4709 lbs. Vehicle/Barrier Impact Angle: 0°

Impact Velocity: 29.3 mph Maximum Static Crush: 21.5 inches

Vehicle Rebound: 9.7 inches

Dummies:	Driver	Passenger
Dummy Type	Part 572E	Part 572E
Serial Number	340	312
Restraint System	Airbag	Airbag
No. of Data Channels	19	19

Number of Cameras: 1 Real Time

14 High Speed

Door Opening Data: Left Front: Opened Left Rear: Not Applicable

Right Front: Opened Right Rear: Not Applicable

Front Seat(s) Data:	Driver	Passenger
Seat Track Failure	0 in.	0 in.
Seat Back Failure	None	None

Visible Dummy Contact Points:	Driver	Passenger
Head	Airbag, Visor, Windshield	Airbag, Visor, Windshield
Chest	Airbag, Steering Wheel	Airbag
Left Knee	Dash	Dash
Right Knee	Dash	Dash

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Yr/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

NHTSA No: CV0200 VIN: 1FTDF1720VKA25537 Body Color: Green

Engine: 6 Cylinders; __C.I.D.; 4.2 liters; __CC

X Gas; __Diesel; __Turbocharged

X Longitudinal; __Transverse

Transmission: 5 Speed; X Manual; __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-skid Brakes; __Cruise Control

Date Received: 4/18/96 ; Odometer Reading: 106 miles

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

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Ford Motor Company

Date of Manufacture: 2/96 ; VIN: 1FTDF1720VKA25537

GVWR: 5550 lbs; GAWR Front: 2800 lbs. GAWR Rear: 2900 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with maximum capacity vehicle load: Front 44 psi Rear 44 psi

Recommended Tire Size: P235/70R16 SL

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

Tires on Vehicle: P235/70R16; Manufacturer: General

Type of Spare Tire: Standard

Number of Occupants: 3 Front; __Rear; __3rd Seat; 3 TOTAL

Type of Front Seats: __Bucket; X 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 = 1162 lbs Right Rear = 846 lbs

Left Front = 1193 lbs Left Rear = 874 lbs

TOTAL FRONT WEIGHT = 2355 lbs (57.8 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1720 lbs (42.2 % of Total Vehicle Weight)

TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 4075 lbs

CALCULATION FOR TARGET TEST WEIGHT:

UDW (Unloaded Delivered Weight) = 4075 lbs

VCW (Vehicle Capacity Weight) = 1475 lbs

DSC (Designated Seating Capacity) = 3

RCLW*(Rated Cargo/Luggage Weight) = VCW - 150 (DSC) = 1475 - 150 (3) = 1025 lbs

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

Target Test Weight = 4075 + 300 + 344 = 4719 lbs

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO WEIGHT:

Right Front = 1248 lbs Right Rear = 1103 lbs

Left Front = 1264 lbs Left Rear = 1094 lbs

TOTAL FRONT WEIGHT = 2512 lbs (53.3 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 2197 lbs (46.7 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 4709 lbs

Weight of ballast secured in vehicle = 178 lbs

Vehicle components removed to meet target weight: Left side mirror and spare tire

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude:	RF 33.9	LF 33.6	RR 35.9	LR 35.1
Fully Loaded Attitude:	RF 33.4	LF 33.2	RR 34.6	LR 33.8
Test Attitude:	RF 33.6	LF 33.3	RR 34.6	LR 33.9

Wheel Base: 138.6 in; C.G. = 64.7 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 or 300 pounds, whichever is less.

TABLE 3 POST-IMPACT DATA

Type of Test: Frontal Barrier Impact Impact Angle: 0°

Test Date: 4/29/96 Time: 3:44 p.m. Temperature: 70° F

Vehicle NHTSA No.: CV0200 VIN: 1FTDF1720VKA25537

BARRIER IMPACT VELOCITY

Required Impact Velocity Range: 28.9 to 29.9 mph

Impact Velocity: Primary = 29.29 mph; Secondary = 29.39 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 216.9	C_L 225.0	L 216.9
	Post-test	= R 203.5	C_L 203.5	L 200.8
	Crush	= R 13.4	C_L 21.5	L 16.1
	Average	= 17.0		

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

R 10.4 in C_L 9.7 in L 10.4 in

TABLE 4 ACCIDENT INVESTIGATION DIVISION DATA

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Veh. NHTSA No.: CV0200 ; VIN: 1FTDF1720VKA25537

Build Date: 2/96 ; Test Date: 4/29/96

Veh. Size Category: Standard Pickup; Test Weight: 4709 lbs

Veh. Wheelbase: 138.6 in ; Front Overhang: 39.0 in ;

Overall Width: 76.4 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 Dimensions:

C1 = 16.1 inches

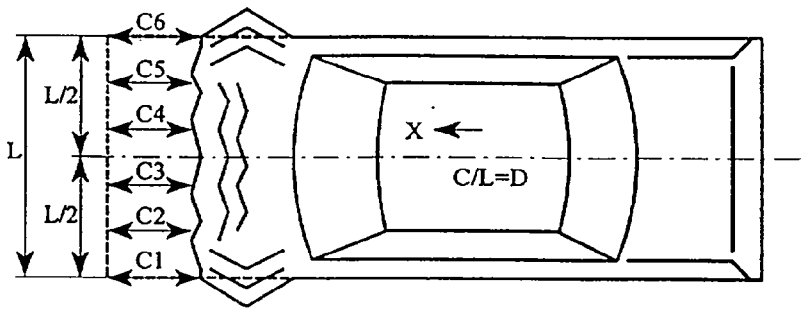
C2 = 16.5 inches

C3 = 18.9 inches

C4 = 19.6 inches

C5 = 16.2 inches

C6 = 13.4 inches



Midpoint of Damage: D = Vehicle Longitudinal Centerline

Length of Damaged Region: L = 64.8 inches

TABLE 5 POST TEST AIRBAG DATA

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

NHTSA No: CV0200 ; Test Date: 4/29/96 ; Technician: Nikki Walter

A. No of Vent Holes: Driver 0 ; Passenger 2

B. Size of Vent Holes: Driver N/A; Passenger 1.6 in. dia.

C. Total Vent Area: Driver N/A; Passenger 4.0 in^2

D. Deflated Airbag Length and Width Dimensions or, if Round, Diameter

Driver; Length N/A ; Width N/A ; Diameter 25.8 in

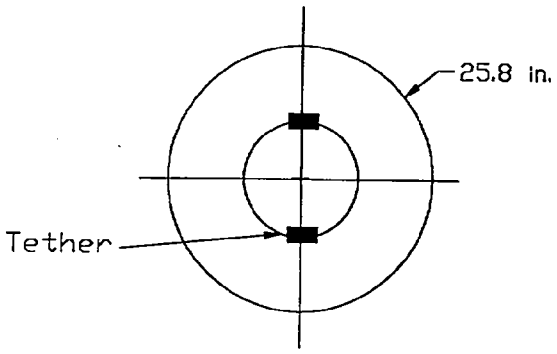
Passenger; Length 31.5 ; Width 42.0 ; Diameter N/A

E. Is the Airbag Tethered?

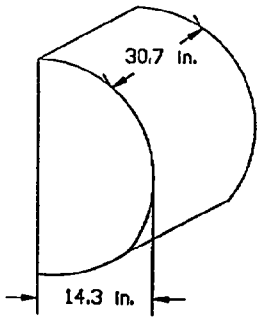
Driver; X Yes; (4) __ No; If yes, record length of tether 12.3 in

Passenger; __ Yes; X No; If yes, record length of tether N/A in

Driver Airbag



Passenger Airbag



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

Driver; Mfr *; Airbag 278564C ; Gen T1GK008J10692

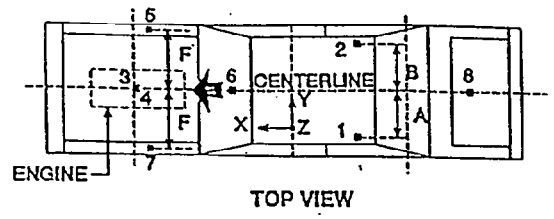
Passenger; Mfr *; Airbag Not Available ; Gen 2003274A

* Not Available

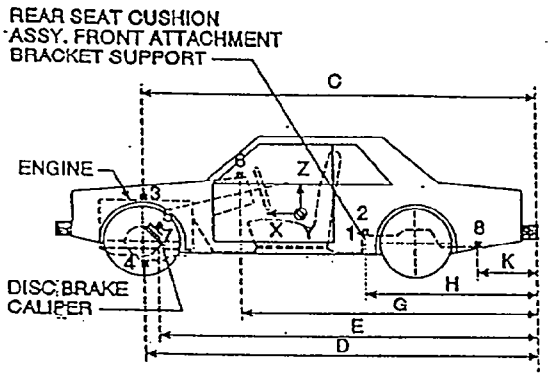
TABLE 6 VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 ; Test Date: 4/29/96



TOP VIEW



LEFT SIDE VIEW

ACCELEROMETER LOCATION (inches)		
	PRE-TEST	POST-TEST
A	27.8	27.8
B	27.8	27.8
C	195.8	185.1
D	176.6	176.2
E	181.5	178.8
F	27.7	28.0
G	154.3	154.7
H	109.1	109.1
K	7.3	7.3

ACCELEROMETER DATA SUMMARY					
No.	DESCRIPTION	MAXIMUM (g's)	TIME (msec)	MINIMUM (g's)	TIME (msec)
1	Left Rear Seat Crossmember	1.4	165	-39.1	28
2	Right Rear Seat Crossmember	2.6	165	-38.8	27
3	Top of Engine Block	11.0	74	-49.0	56
4	Bottom of Engine	2.1	146	-33.2	49
5	Right Disc Brake Caliper	94.8	21	-148.6	50
6	Instrument Panel	46.4	83	-84.0	72
7	Left Disc Brake Caliper	75.1	21	-113.3	28
8	Trunk	19.0	39	-24.8	34

TABLE 7 REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

Contract Number: DTNH22-93-D-21089

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

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

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

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup
Vehicle NHTSA No.: CV0200 Body Color: Green
VIN: 1FTDF1720VKA25537 Cost: $16,568.00
Odometer: Arrival Date: 4/18/96 Reading: 99 miles
Completion Date: 4/29/96 Reading: 106 miles
Engine: 6 Cylinders; 4.2 Liters; X Gas; . _ Diesel
Transmission: 5 Speed; X Manual; _ Automatic
Final Drive: _ Front Wheel; X Rear Wheel; _ Four Wheel
Tire Size: P235/70R16 SL; Manufacturer: General

Air Conditioner	No	Console	No	Brakes	Power
Tinted Glass	Yes	Tachometer	No	Front	Disc
Power Steering	Yes	Cruise Control	No	Rear	Disc
Power Windows	No	Rear Window Def.	No	Front Seats	Bench
Power Door Locks	No	Sun/Moon Roof	No	Seat Type	
Radio	Yes	T-Top	No	Front	Manual
Clock	Yes	Tilt Steering Wheel	No	Rear	Not Applicable
Roof Rack	No	Other Options:	None	No. of Seats	Three

Equipment that is no longer on the vehicle as noted above: Spare tire and left side mirror

Explanation:
Items removed to allow installation of data acquisition system.

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

SECTION 3

SUMMARY OF RESULTS FOR FMVSS 208

212, 219 (PARTIAL), AND 301

TABLE 8 FMVSS 208 OCCUPANT INJURY CRITERIA

Veh. Yr./Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Veh. NHTSA No.: CV0200 Test Date: 4/29/96

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #340	PASSENGER DUMMY #312
Head Channel X	-68.5	-47.7
Head Channel Y	23.6	-19.4
Head Channel Z	29.1	27.7
HEAD RESULTANT	73.9	56.6
Chest Channel X	-46.2	-44.5
Chest Channel Y	8.8	4.7
Chest Channel Z	20.3	22.3
CHEST RESULTANT	49.6	46.9

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	340.3	230.7
t_1 = (msec)	75.6	73.0
t_2 = (msec)	103.8	104.2

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

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

CLIP	49.3	45.4
t^1 = (msec)	83.4	87.6
t^2 = (msec)	86.5	90.7
CHEST DEFLECTION (in)	1.2	-0.5

TABLE 8 FMVSS 208 OCCUPANT INJURY CRITERIA (CONTINUED)

Veh. Yr./Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Veh. NHTSA No.: CV0200 Test Date: 4/29/96

MAX. COMPRESSIVE FEMUR FORCES: (lbs)	DRIVER DUMMY #340	PASSENGER DUMMY #312
Left Side	1548	1699
Right Side	1824	1460

TIBIA FORCES: (LBS)	DRIVER DUMMY #340	PASSENGER DUMMY #312
Left Lower Tibia Force X	-243	-178
Left Lower Tibia Force Z	-492	-362
Right Lower Tibia Force X	-272	217
Right Lower Tibia Force Z	-1040	-662

TIBIA MOMENTS: (IN/LBS)

Left Lower Tibia Moment Y	-688	-428
Left Upper Tibia Moment X	381	389
Left Upper Tibia Moment Y	-1596	-988
Right Lower Tibia Moment Y	1478	1464
Right Upper Tibia Moment X	392	-652
Right Upper Tibia Moment Y	1205	1221

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 contacting the windshield and 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 sunvisor. 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 contacting the windshield and 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 sunvisor. 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: 1997/Ford/F150/4 x 2 Pickup

NHTSA No.: CV0200 ; Date of Comfort/Convenience Check: 4/29/96

Technician Performing Check: Nikki Walter

GVWR: 5550 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 0.5 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 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: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Date of Check: 4/29/96

Technician Performing Check: Nikki Walter

GVWR: 5550 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 60 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 and the reminder light operation was 0 second.

Note: The audible warning should not operate.

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

FMVSS 208 LABELING AND DRIVER'S MANUAL DATA

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

The airbag system is required to be replaced after deployment.

Appropriate instructions concerning maintenance and/or replacement of this system were provided in the owner's manual on page 46.

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 48.

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 46-58.

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 lower left corner of 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 10.

FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTS

There were no rear ouboard seating positions.

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

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Date: 4/29/96

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:
Rubber trim with glue retention

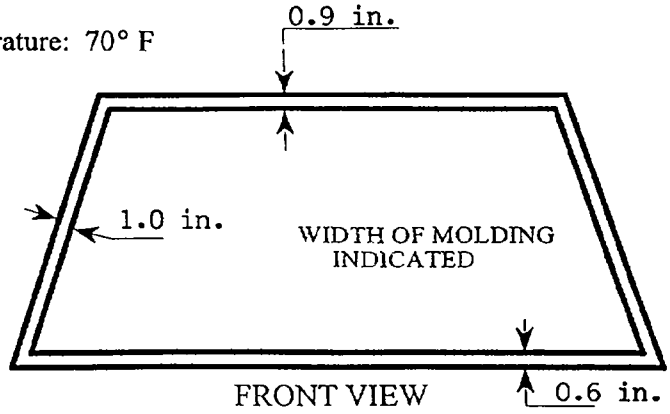
CLIPS OR BRACKETS USED TO RETAIN WINDSHIELD: None

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)		
	PRE-TEST	POST-TEST	PERCENT RETENTION
RIGHT SIDE	89.0	89.0	100%
LEFT SIDE	89.0	89.0	100%
TOTAL	178.0	178.0	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: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Date: 4/29/96

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 ½" distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection onto the outer surface of the windshield of this line.

WINDSHIELD MEASUREMENTS:

A= 53.8 in

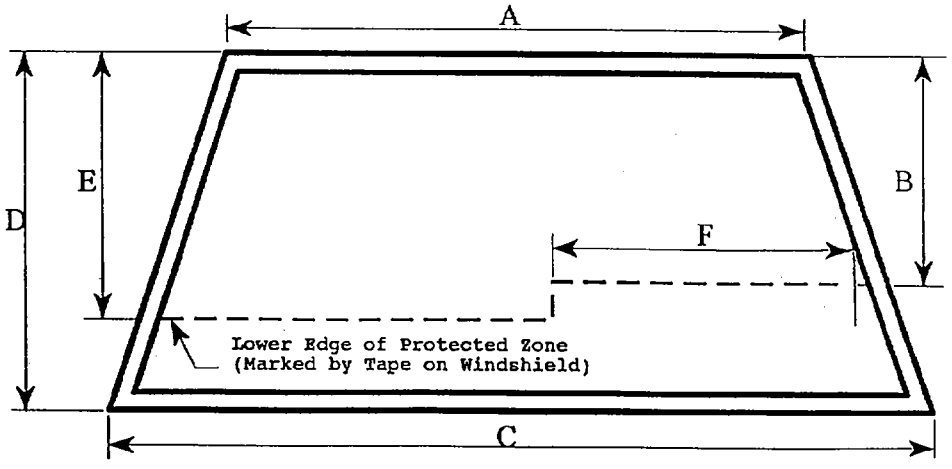
B= 16.9 in

C= 68.0 in

D= 28.1 in

E= 20.7 in

F= 29.9 in



FRONT VIEW

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

None

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

None

TABLE 14 FUEL SYSTEM DATA

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Date: 4/29/96

Fuel System Capacity from Owner's Manual = 30.0 gallons

Usable Capacity Figure Furnished by COTR = 30.0 gallons

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

= 27.6 to 28.2 gallons

Actual Test Volume = 27.9 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.

* See Appendix C, page C-10

TABLE 15 FMVSS 301 POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Date: 4/29/96

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:

_X_ 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

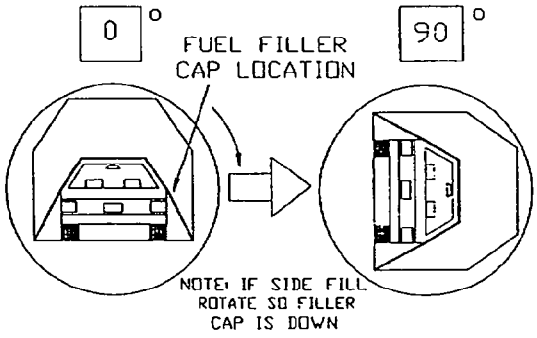
FUEL SPILLAGE LOCATION(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Date: 4/29/96

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 42 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 42 seconds

Next Whole Minute Interval = 8 minutes

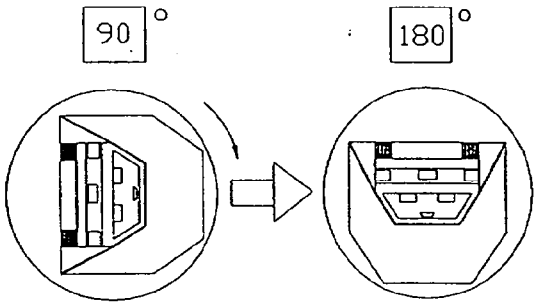
FUEL SPILLAGE MEASUREMENT:

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	0 oz.	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 29 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 29 seconds

Next Whole Minute Interval = 8 minutes

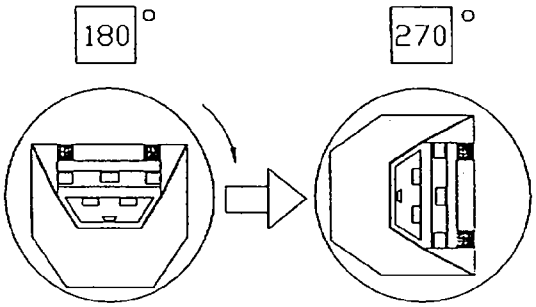
FUEL SPILLAGE MEASUREMENT:

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	0 oz.	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 19 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 19 seconds

Next Whole Minute Interval = 8 minutes

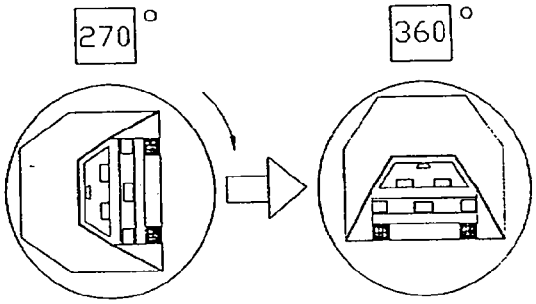
FUEL SPILLAGE MEASUREMENT:

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	0 oz.	1 oz

FUEL SPILLAGE LOCATIONS(S): None

TABLE 16 FMVSS 301 STATIC ROLLOVER TEST DATA

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 44 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 44 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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	0 oz.	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: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Date: 4/29/96

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = 21.3°

The seat back angle was measured on the center of the seatback frame.

Passenger Seat: Seat Back Angle = 21.0°

The seat back angle was measured on the center of the seatback frame.

SEAT FORE AND AFT POSITIONS:

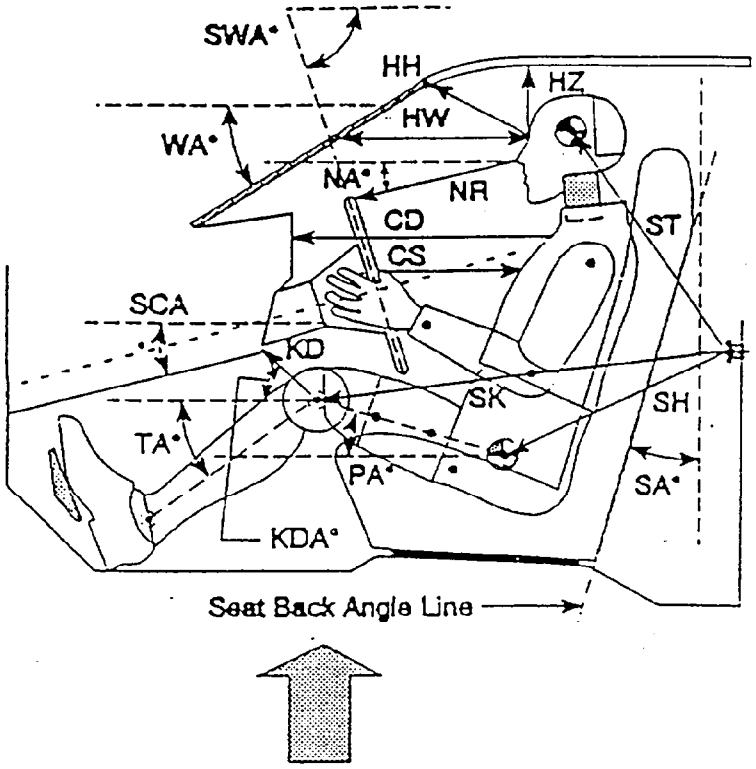
Driver Seat: The seat track had a total position movement of 19 notches and was positioned 10 notches rearward from the foremost position with the forwardmost locking position as one.

Passenger Seat: The seat track had a total position movement of 19 notches and was positioned 10 notches rearward from the foremost position with the forwardmost locking position as one.

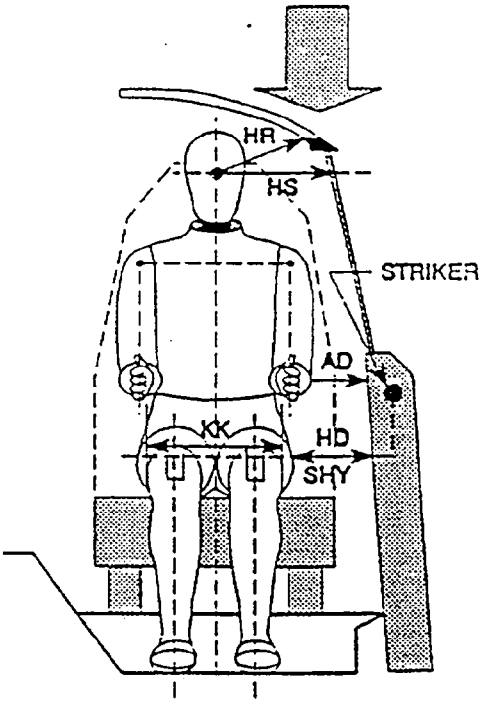
STEERING COLUMN ADJUSTMENTS:

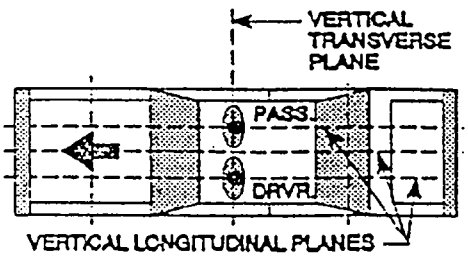
The steering column was not adjustable. The angle of the steering column was 21.8 °.

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

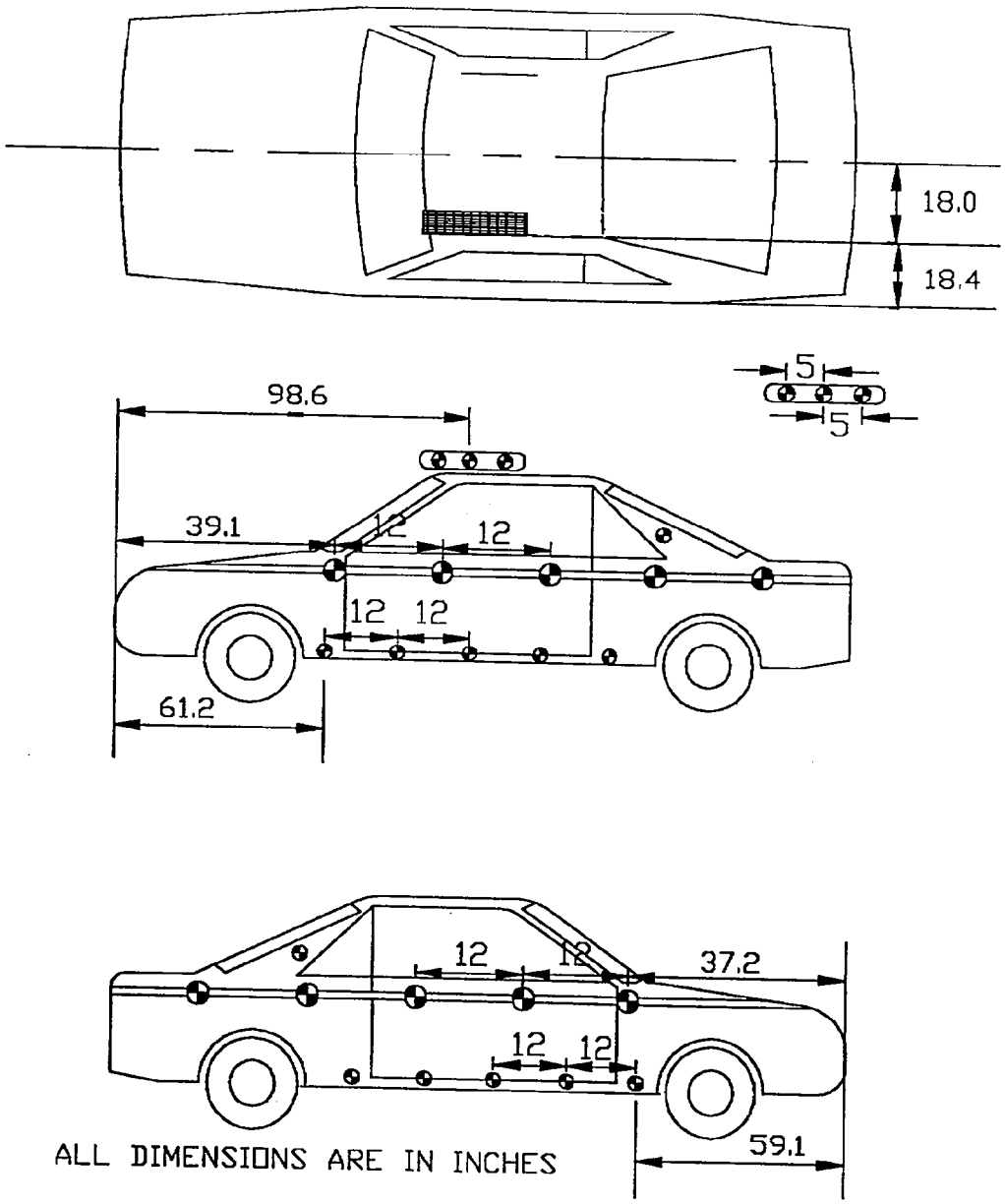
Vehicle Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 Test Date: 4/29/96

	DRIVER (Serial #340)	PASSENGER (Serial #312)
WA°	33.7°	33.7°
SWA°	21.1°	N/A
SCA°	22.2°	N/A
SA°	21.3°	21.0°
HZ	9.9	9.5
HH	15.8	16.7
HW	24.9	25.1
HR	11.4	11.0
NR	15.6 Angle (NA) Not Recorded	N/A
CD	23.0	23.3
CS	13.2	N/A
RA	8.9	N/A
KDL	6.2	8.0
KDR	6.6	7.7
PA°	21.0°	20.6°
TA°	50.0°	49.4°
KK	12.6	11.1
ST*	26.3 Angle 66.6°	26.0 Angle 67.3°
SK*	30.1 Angle 2.5°	30.4 Angle -0.3°
SH*	14.6 Angle -5.1°	14.6 Angle -6.5°
SHY	11.1	10.4
HS	13.7	14.5
HD	6.9	6.9
AD	4.9	5.8

* Angles taken from horizontal

FIGURE 2 VEHICLE TARGET LOCATIONS



Steering Column Target

X = 153.5 from rear
Y = 17.4 from centerline
Z = 52.1 from ground

FIGURE 3 CAMERA POSITIONS

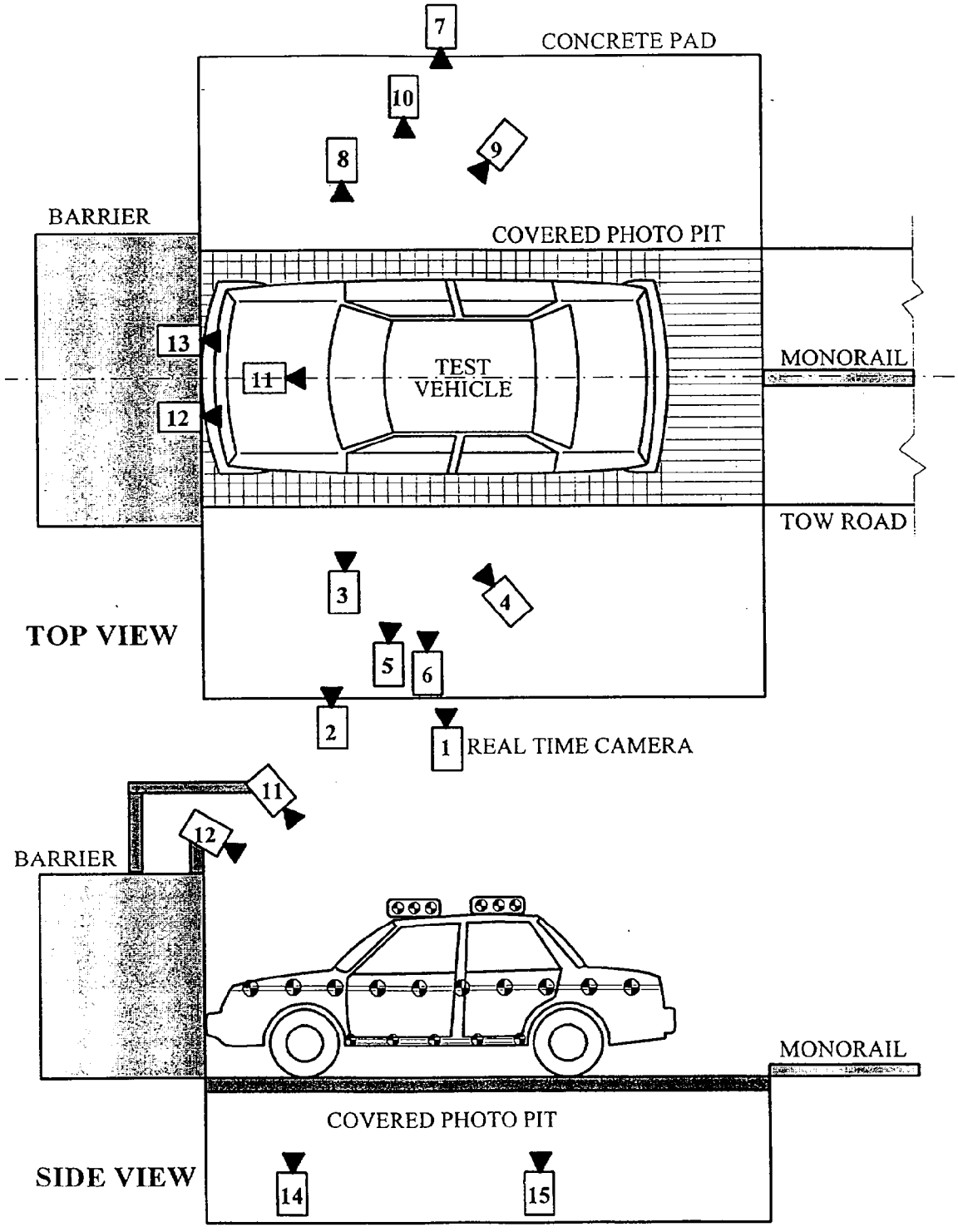


TABLE 19 CAMERA LOCATIONS

Veh. Year/Make/Model/Body Style: 1997/Ford/F150/4 x 2 Pickup

Vehicle NHTSA No.: CV0200 ; Test Date: 4/29/96

	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 Half	-33.5	-335.8	-63.8	90	-356.9	25	1020
3	Driver Close-up	-48.8	-373.6	-61.6	90	-394.7	25	1031
4	Driver Angle	-48.0	-372.8	-40.4			25	943
5	Steering Column Top	-54.7	-326.4	-64.0	90	-347.4	50	1031
6	Steering Column Bottom	-206.7	-239.4	-79.7	90	-260.4	50	1149
7	Right Overall	-108.7	396.9	-66.5	90	375.8	13	1053
8	Passenger Close-up	-42.1	365.7	-65.4	90	344.7	25	1064
9	Passenger Angle	-55.5	438.1	-65.2			50	1176
10	Right FrontHalf	-207.1	226.0	-80.1	90	204.9	75	909
11	Top Overall	-104.7	0	-204.7			8	943
12	Top Driver	-10.6	-18.1	-68.3			13	943
13	Top Passenger	-9.4	19.3	-68.5			13	939
14	Pit Front	-48.0	0	125.0			13	893
15	Pit Rear	-116.1	0	125.0			13	1031

* +X = Film plane rearward of barrier

+Y = Film plane to left of monorail centerline

+Z = Film plane to above ground level

FIGURE 4 DRIVER DUMMY TEMPERATURE

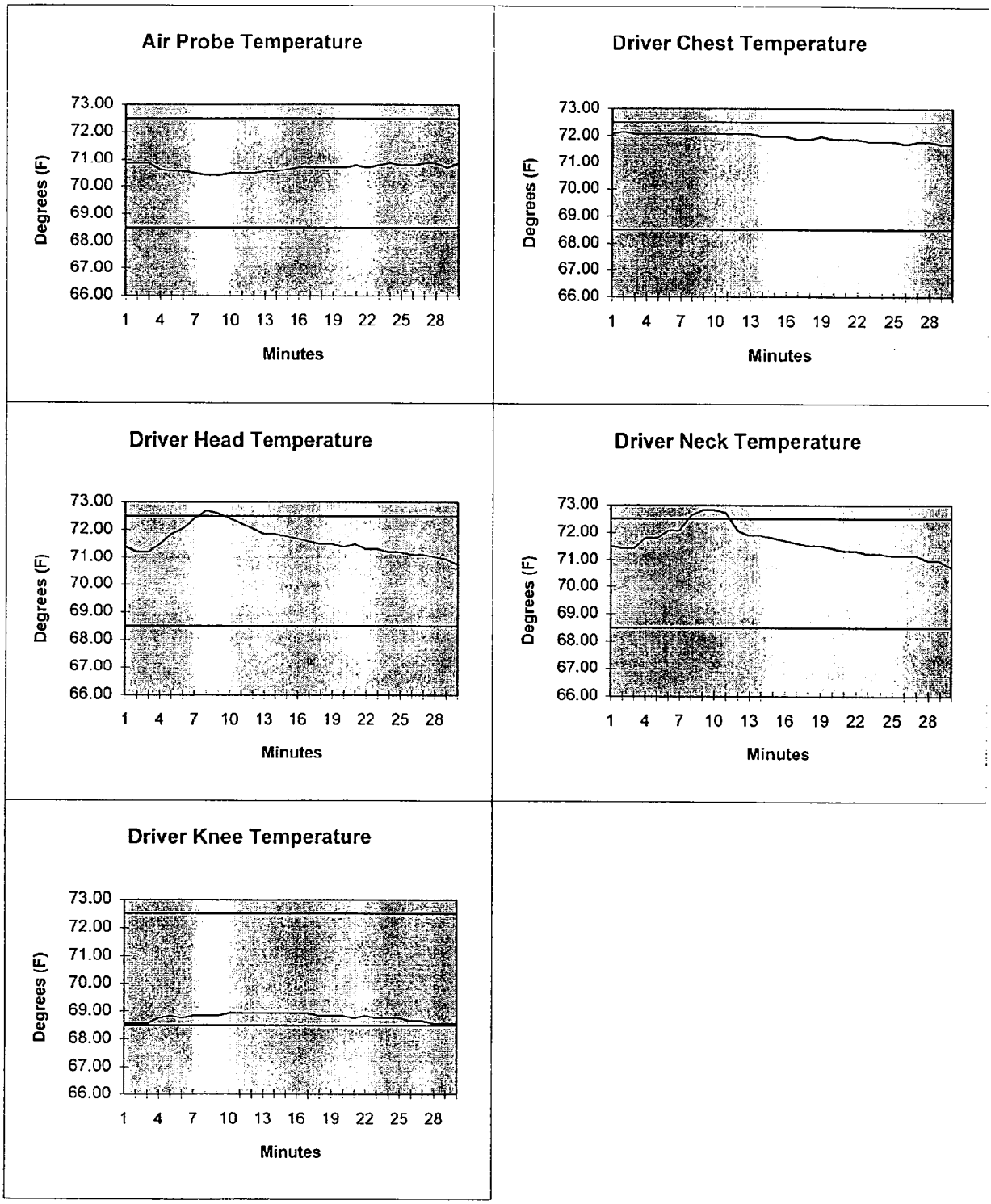


FIGURE 5 PASSENGER DUMMY TEMPERATURE

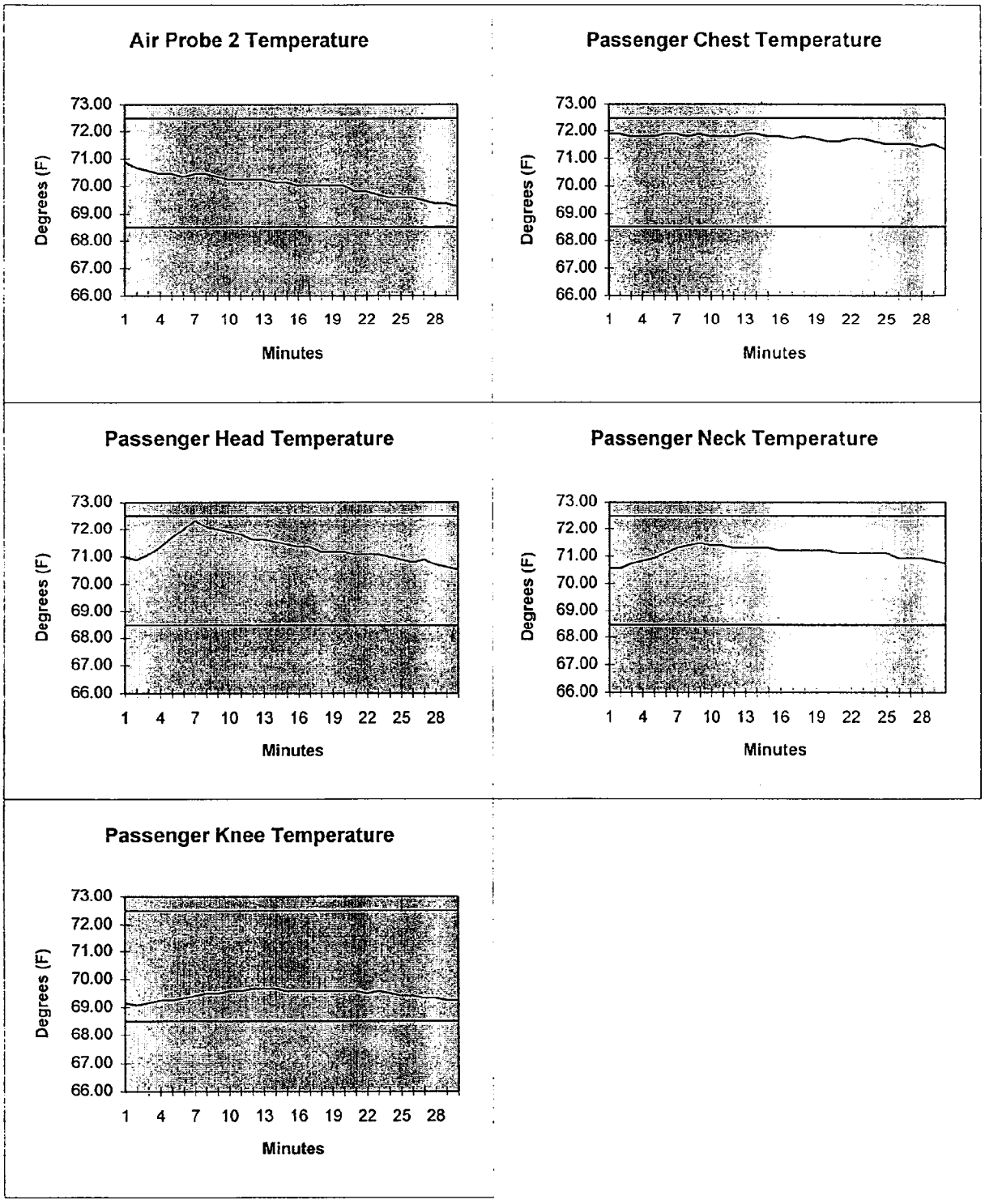
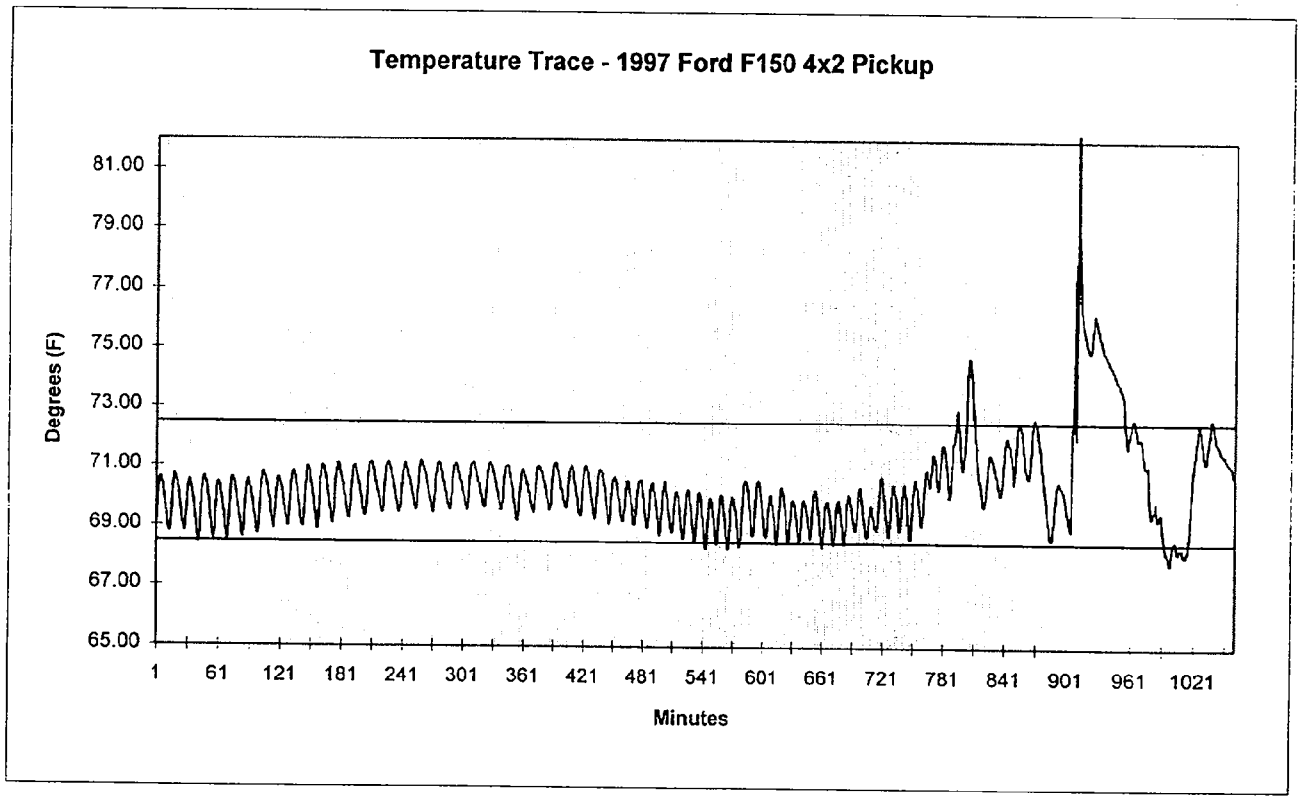


FIGURE 6 AIR PROBE TEMPERATURE



Note: Spike in data at approximately 900 minutes is due to the thermocouple being touched so it may be attached to the dummy. It does not depict the room temperature at this time.

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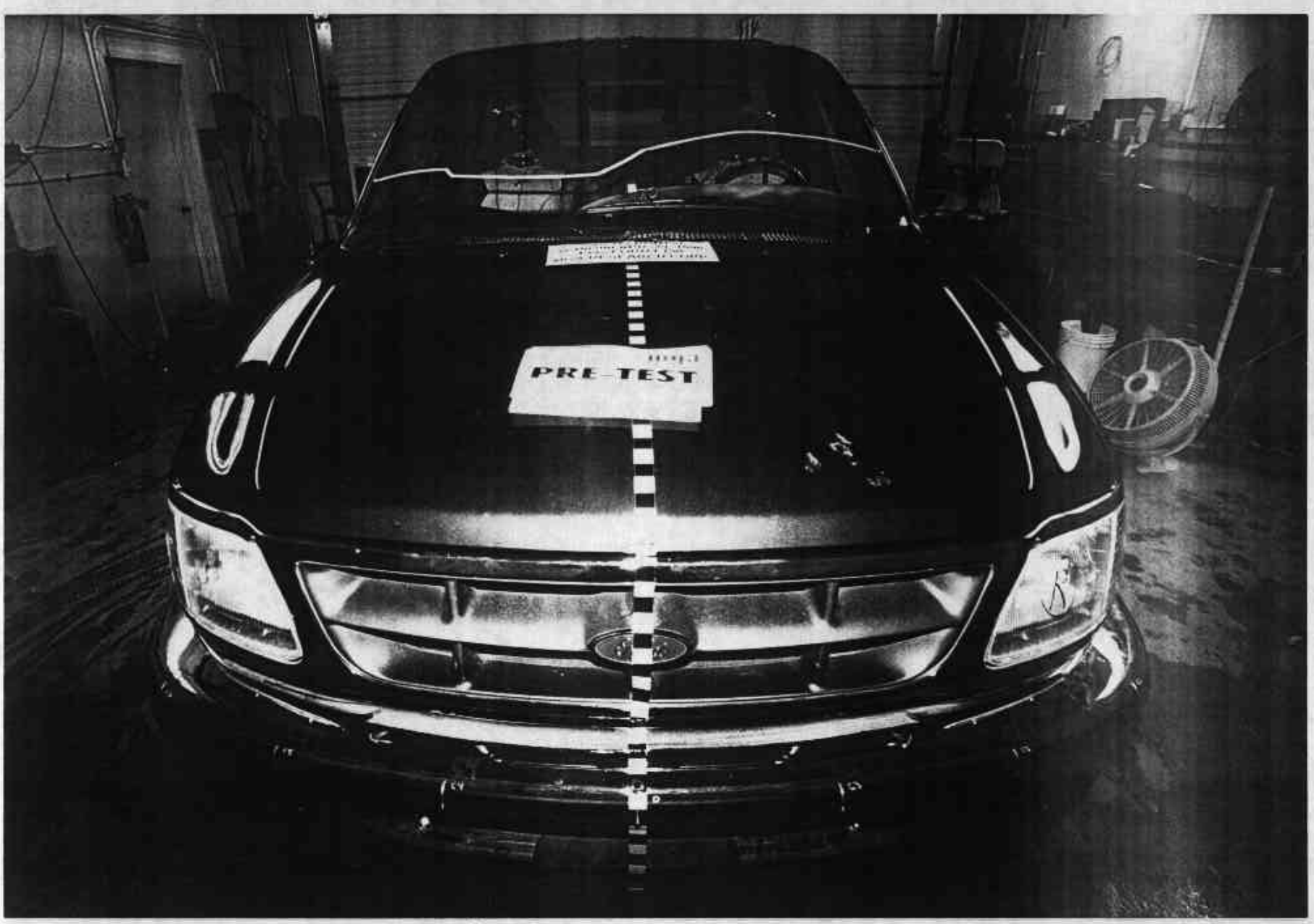


A-1

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

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

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

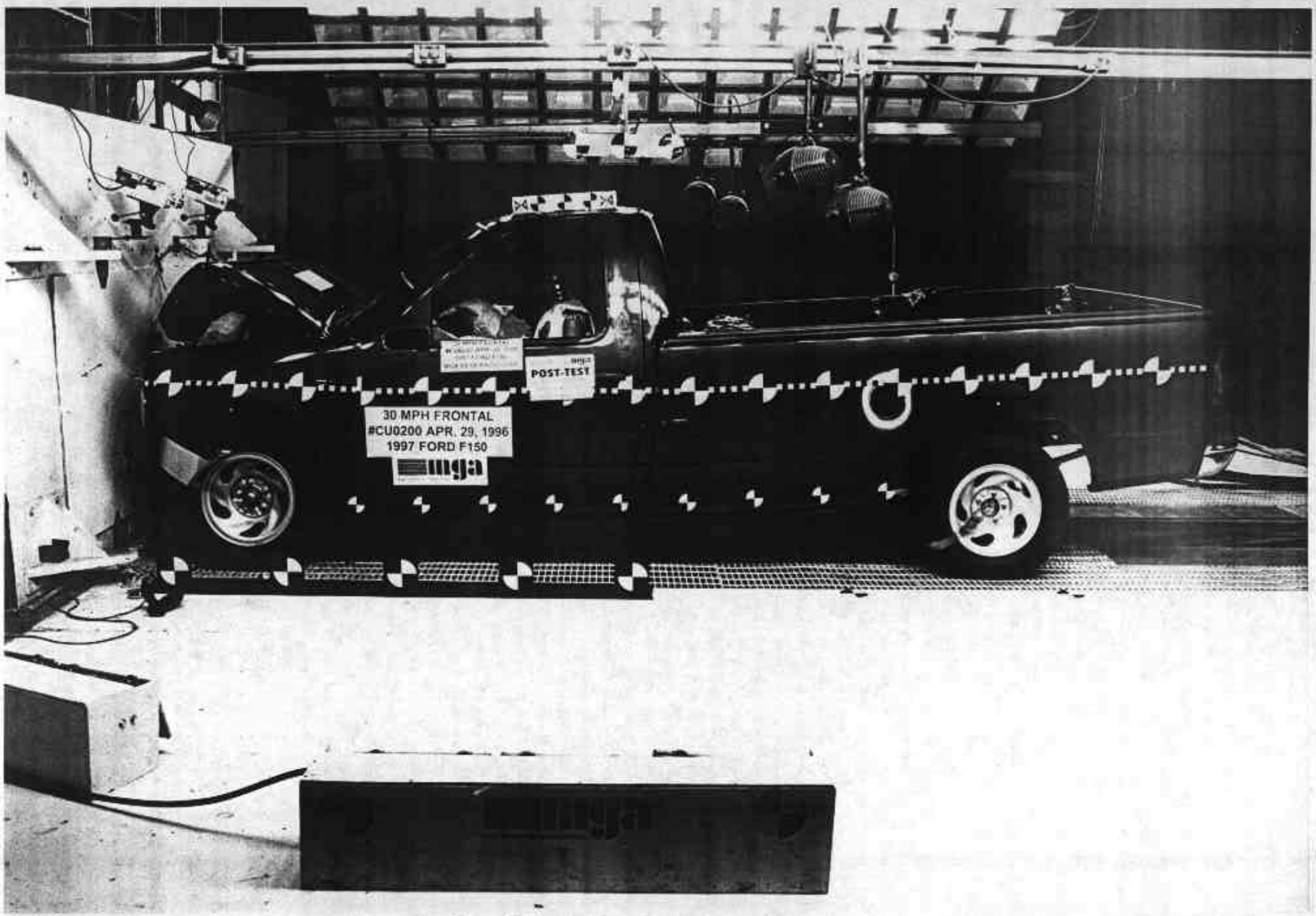


Photo No. A-4 - Post-Test Left Side View

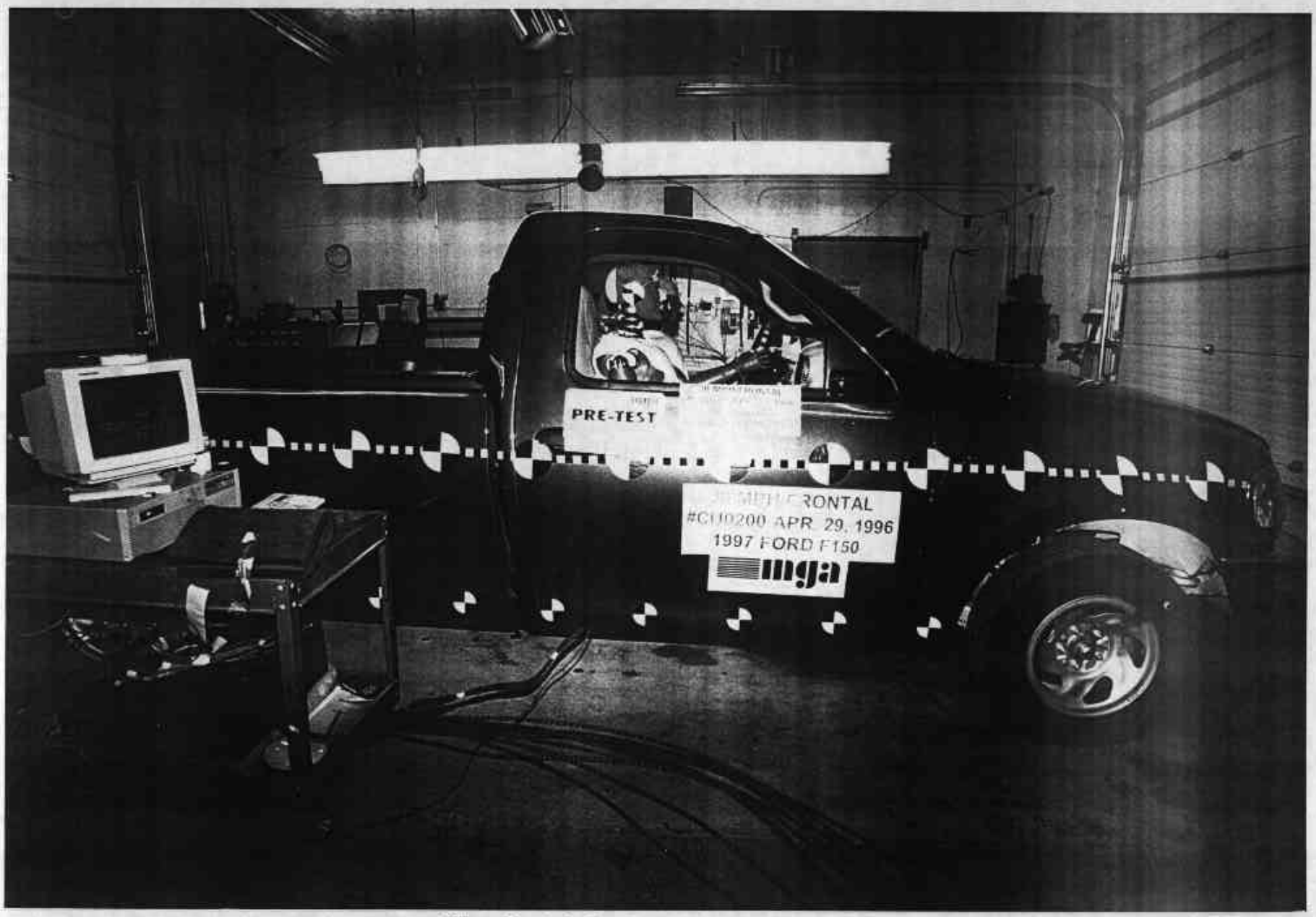
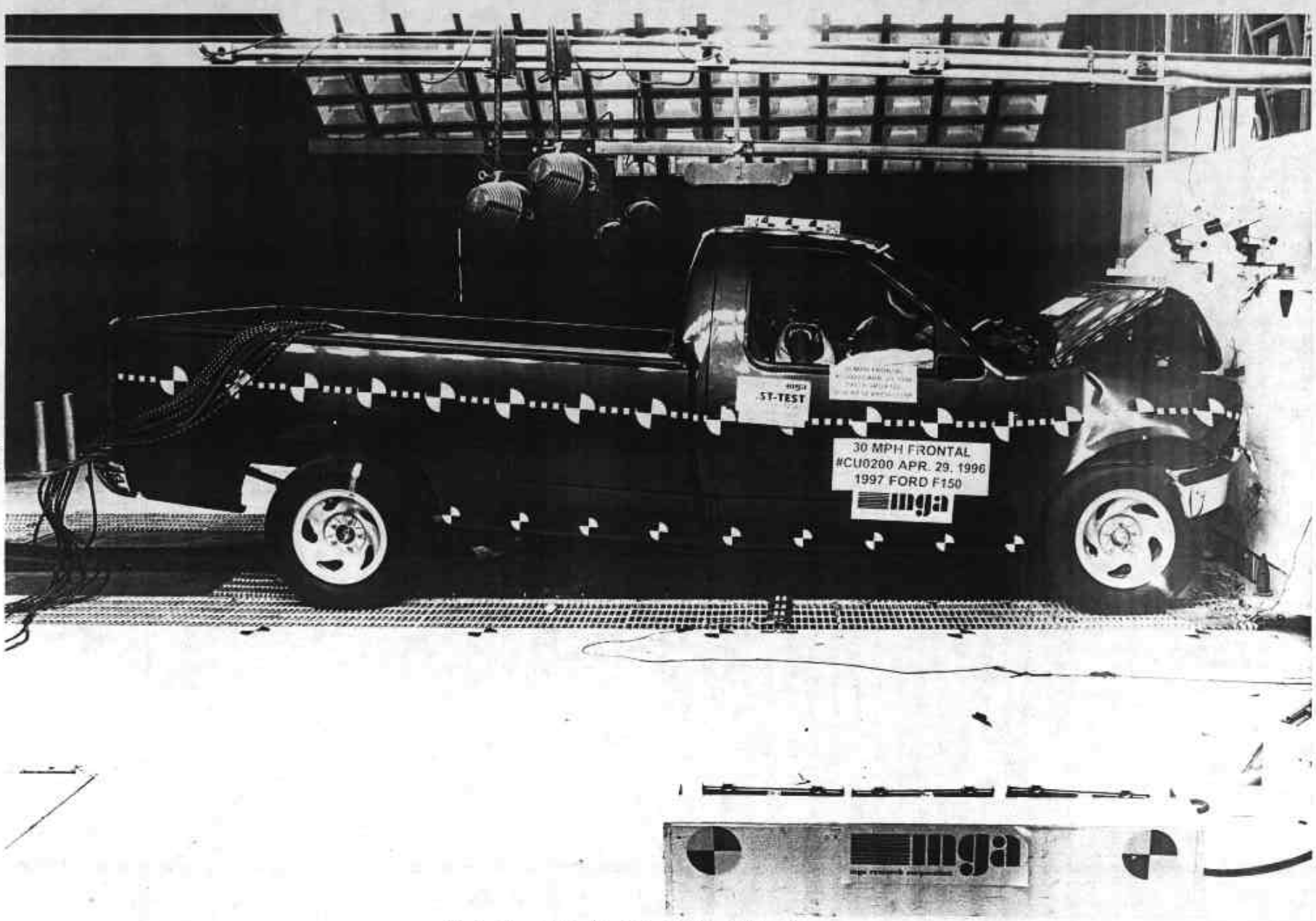


Photo No. A-5 - Pre-Test Right Side View



A-6

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

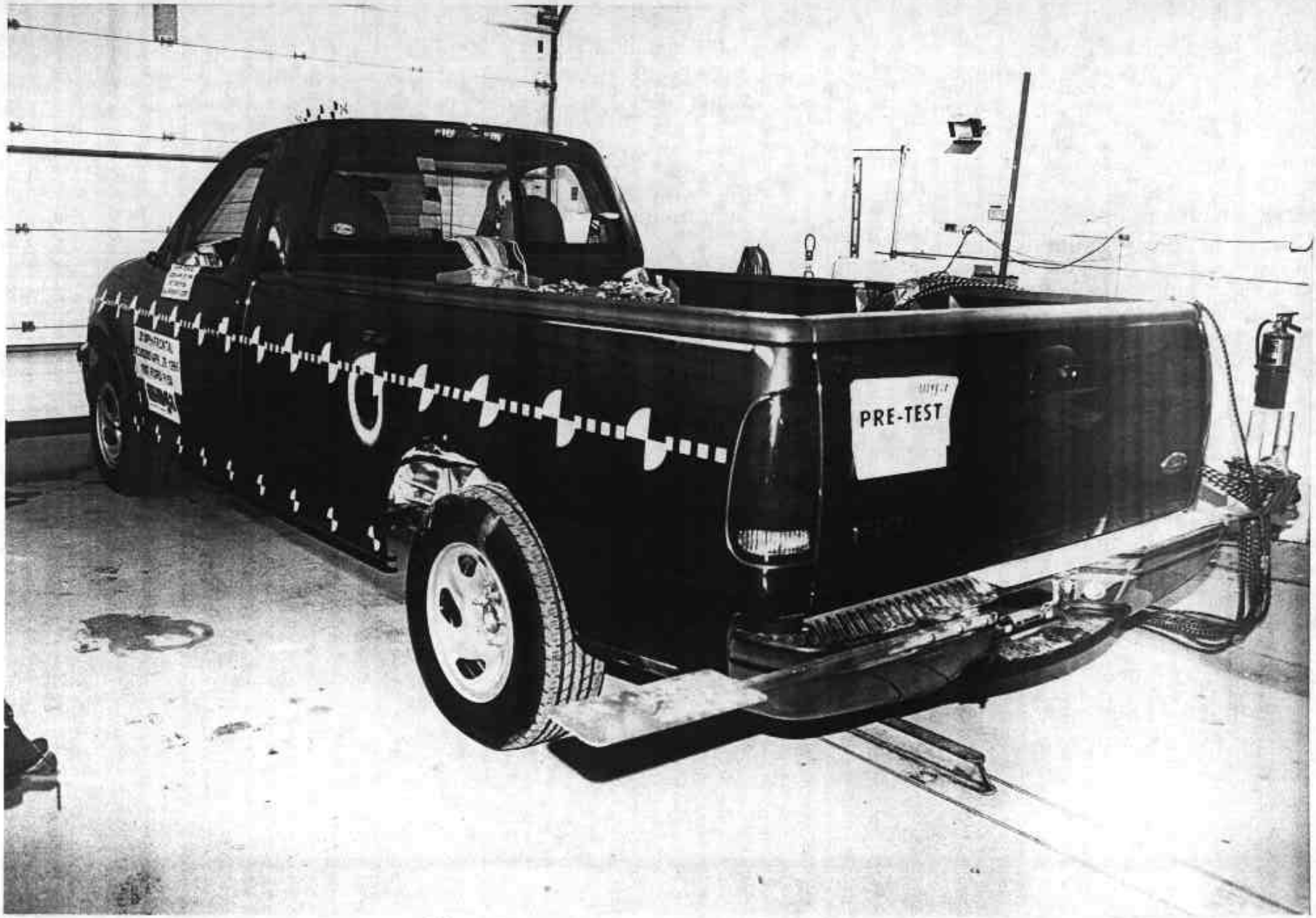


Photo No. A-7 - Pre-Test 3/4 Left Rear View

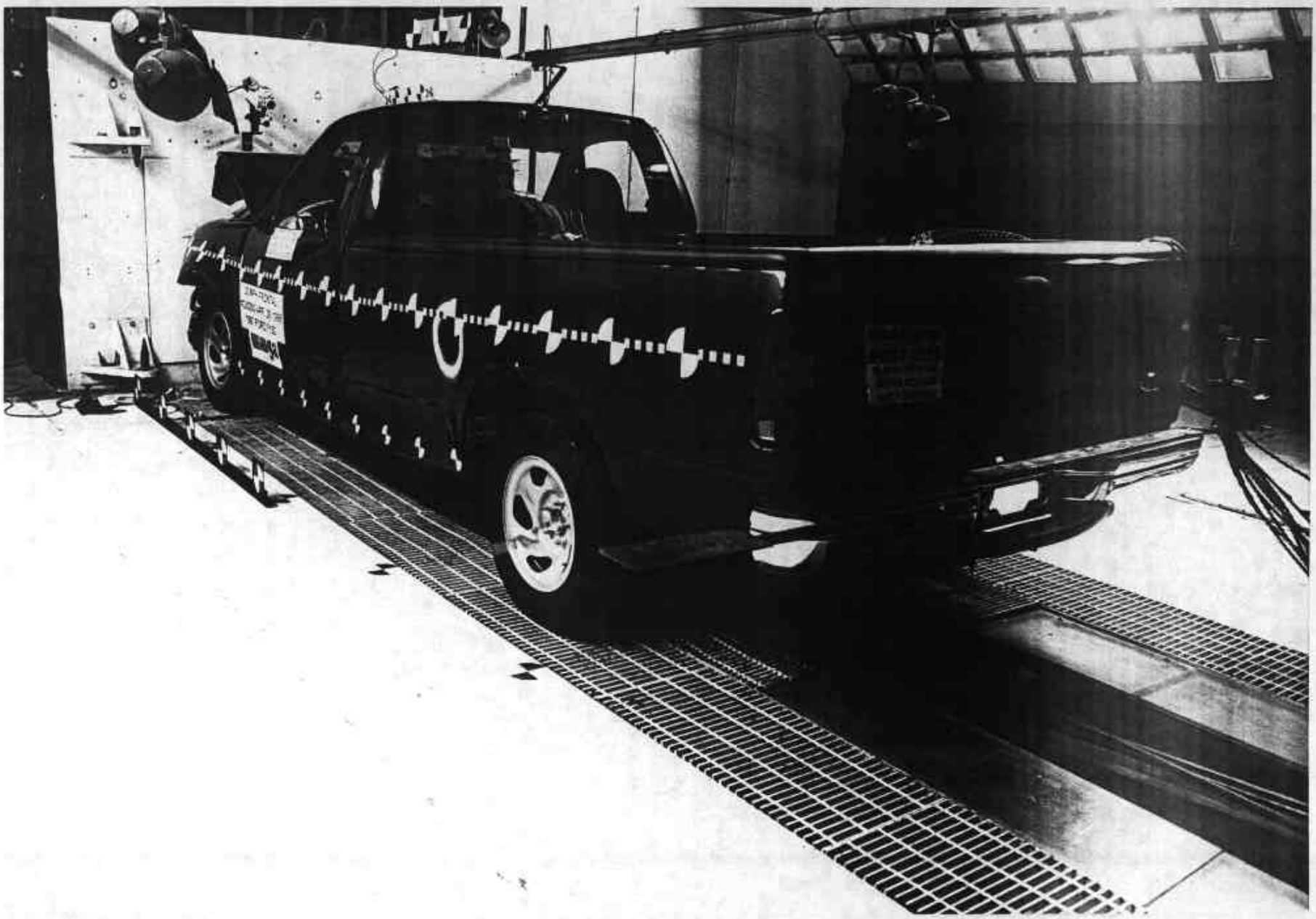


Photo No. A-8 - Post-Test 3/4 Left Rear View

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

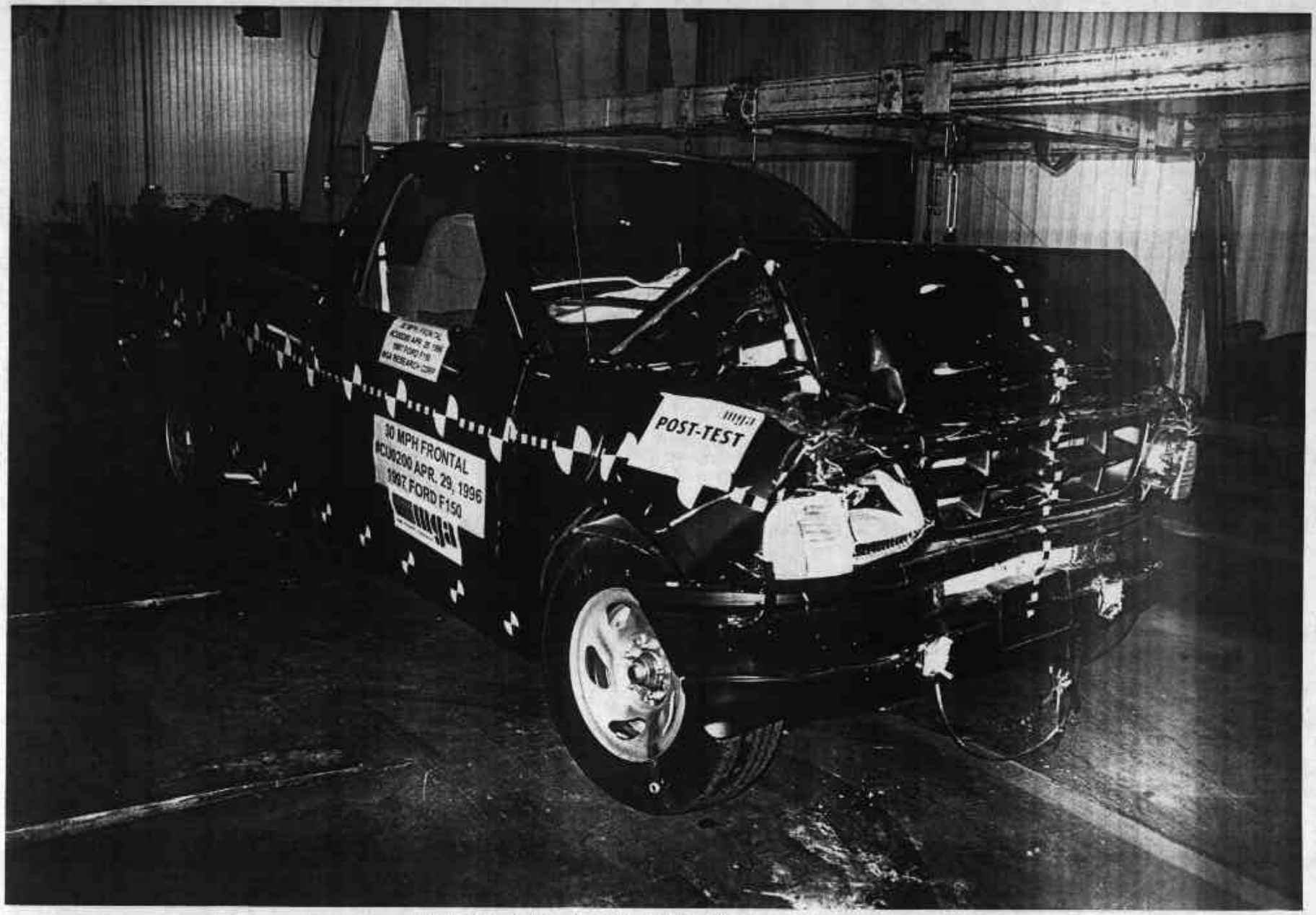
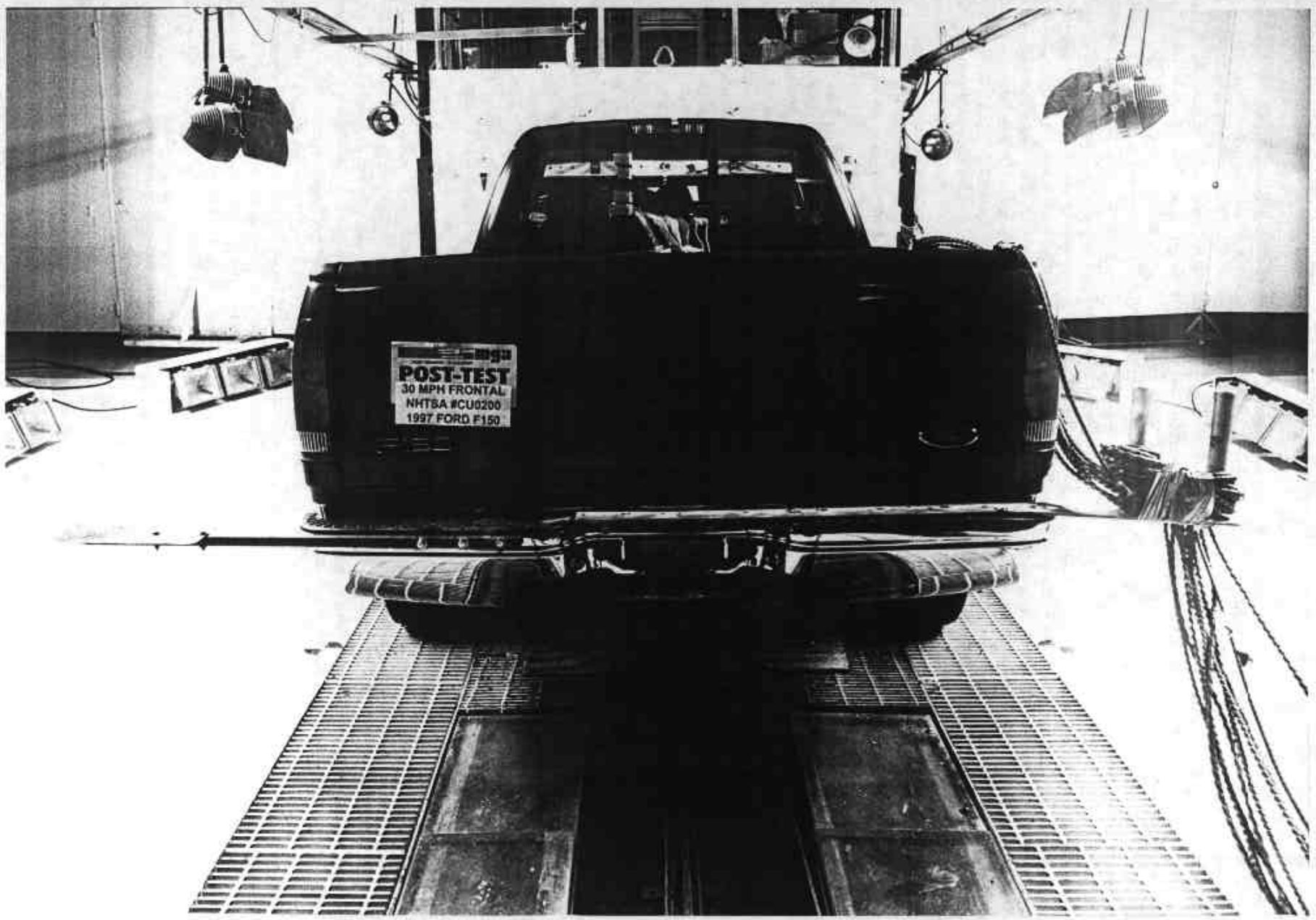


Photo No. A-10 - Post-Test 3/4 Right Front View

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



A-12

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

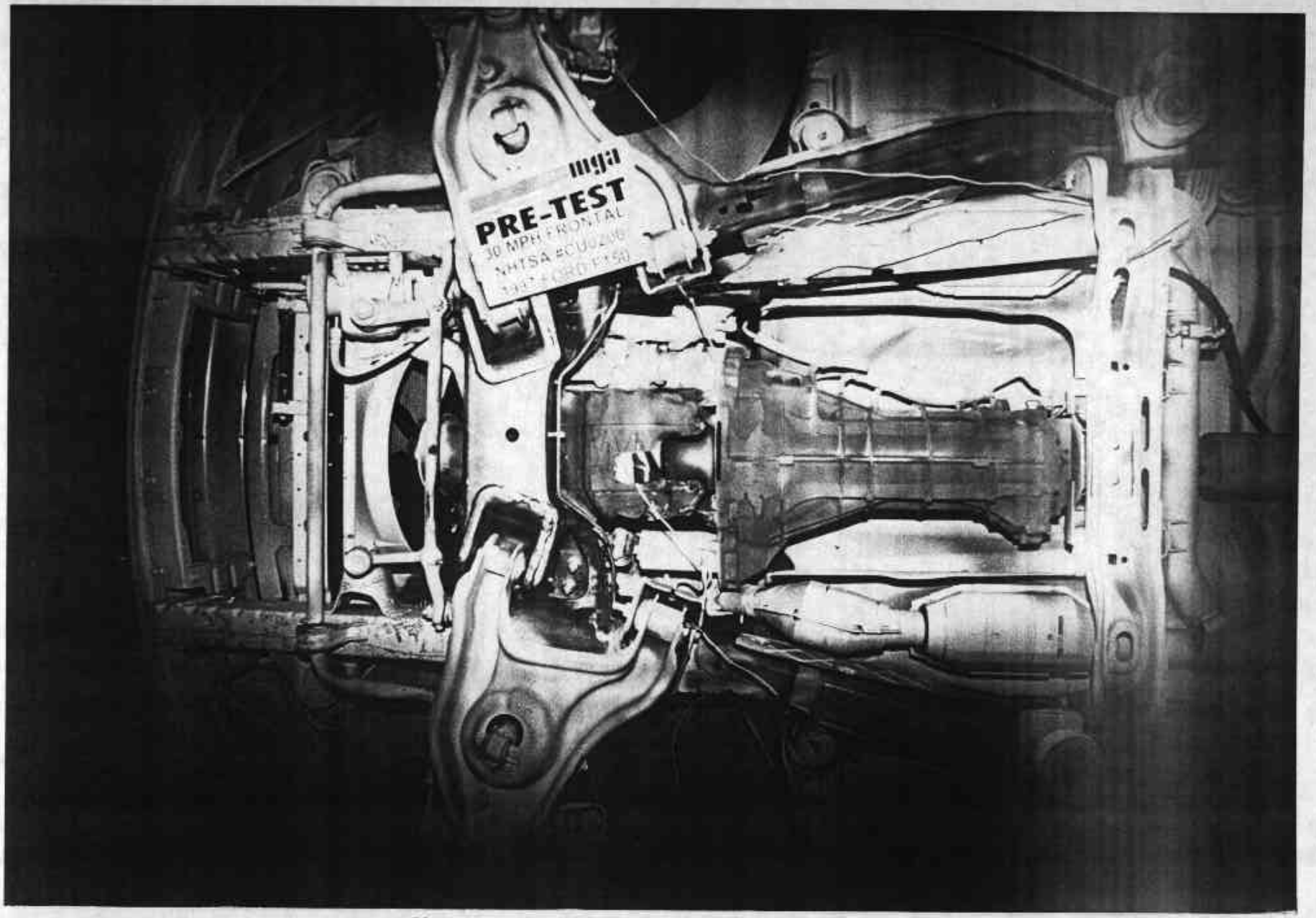


Photo No. A-13- Pre-Test Front Underbody View

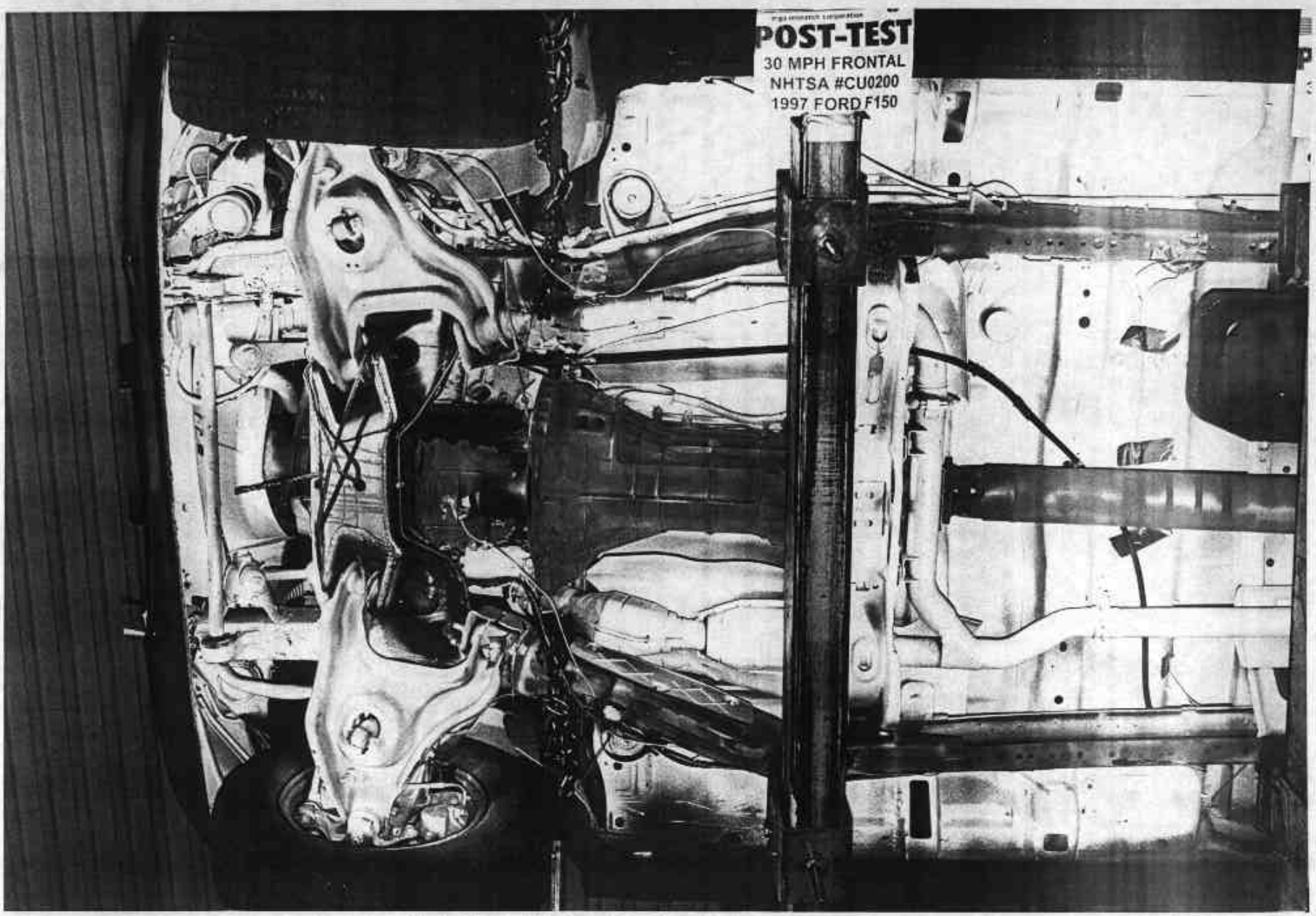


Photo No. A-14 - Post-Test Front Underbody View

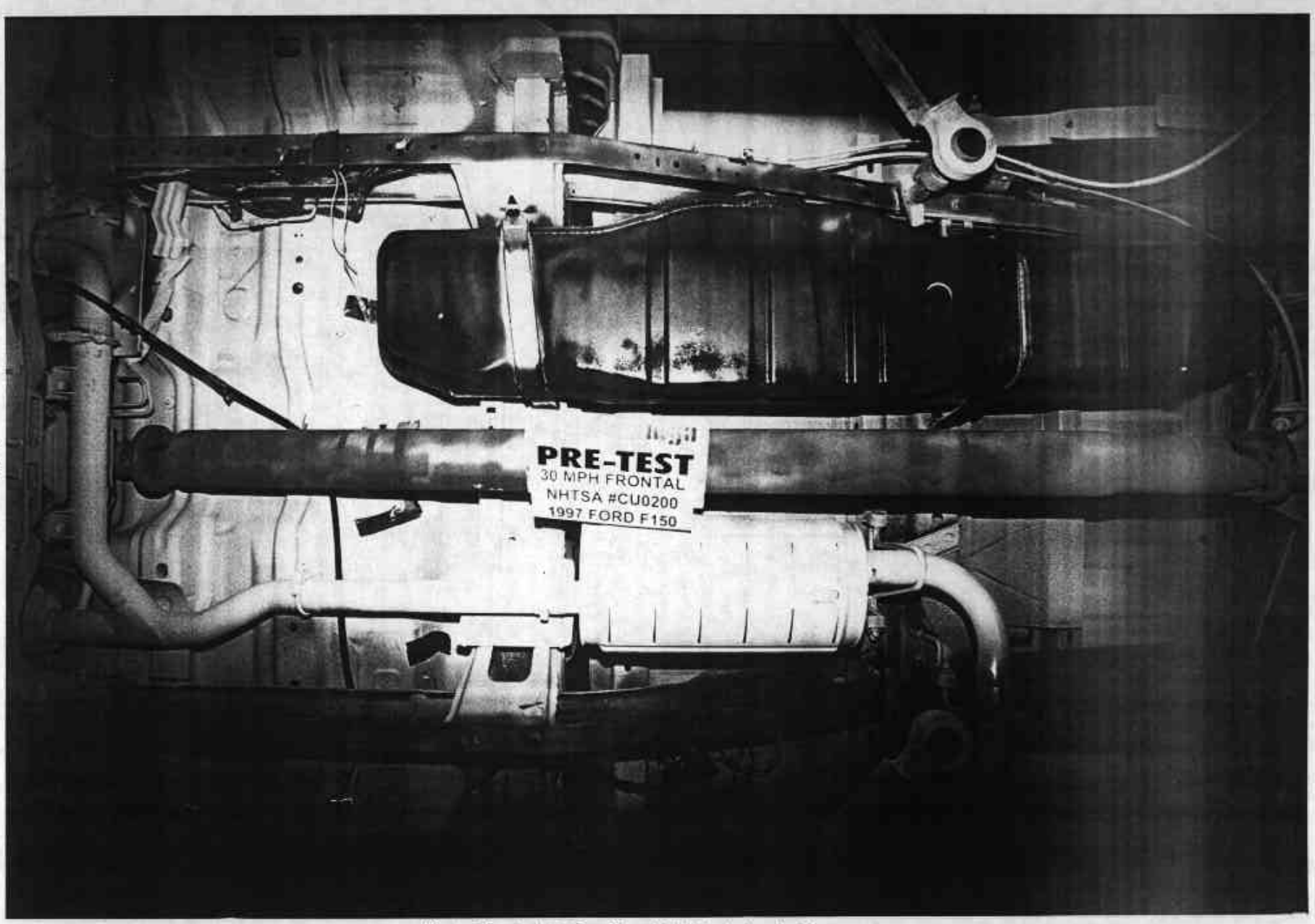
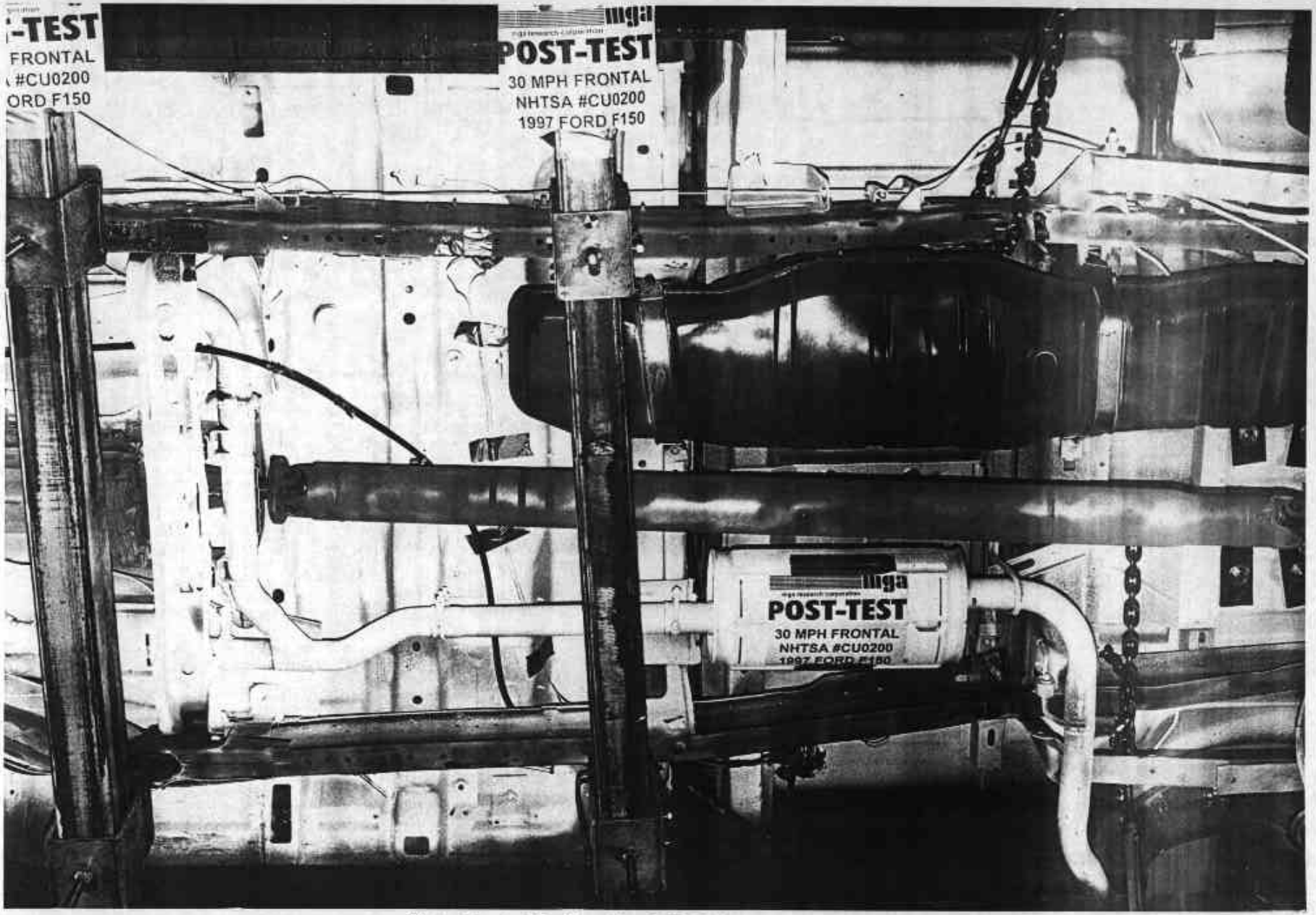


Photo No. A-15- Pre-Test Mid Underbody View



A-16

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

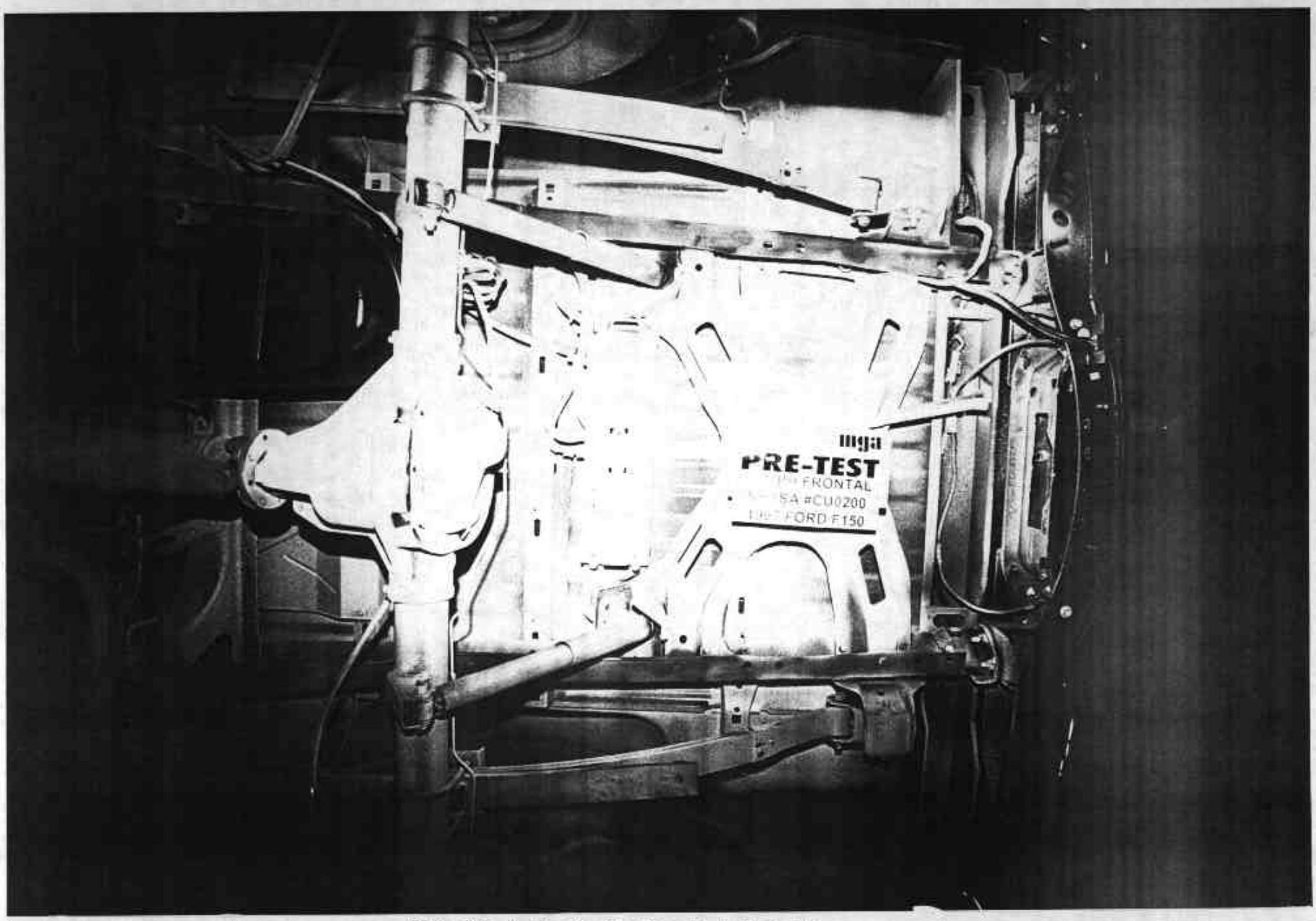


Photo No. A-17 - Pre-Test Rear Underbody View

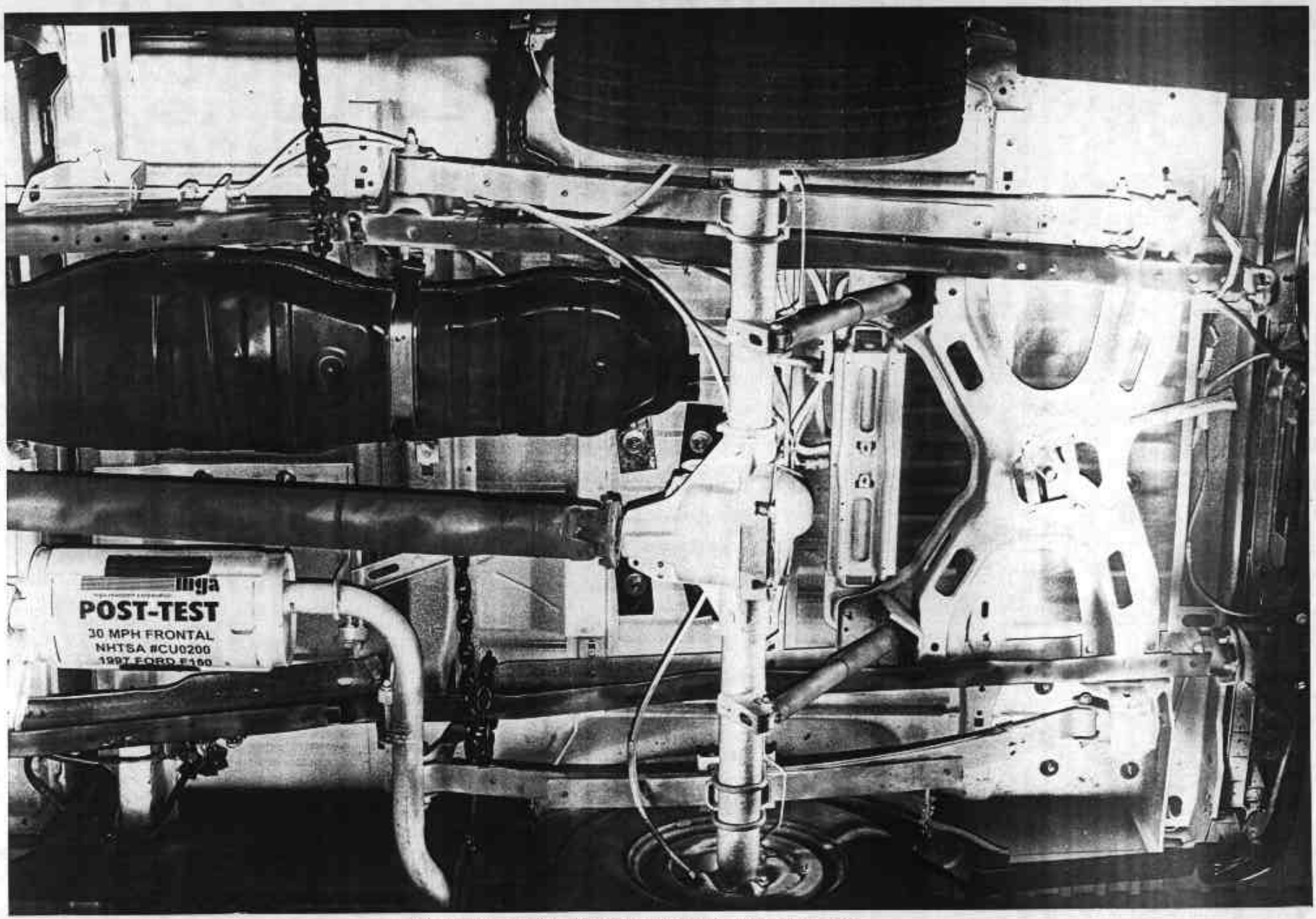


Photo No. A-18 - Post-Test Rear Underbody View

Photo No. A-19 - Pre-Test Engine Compartment View

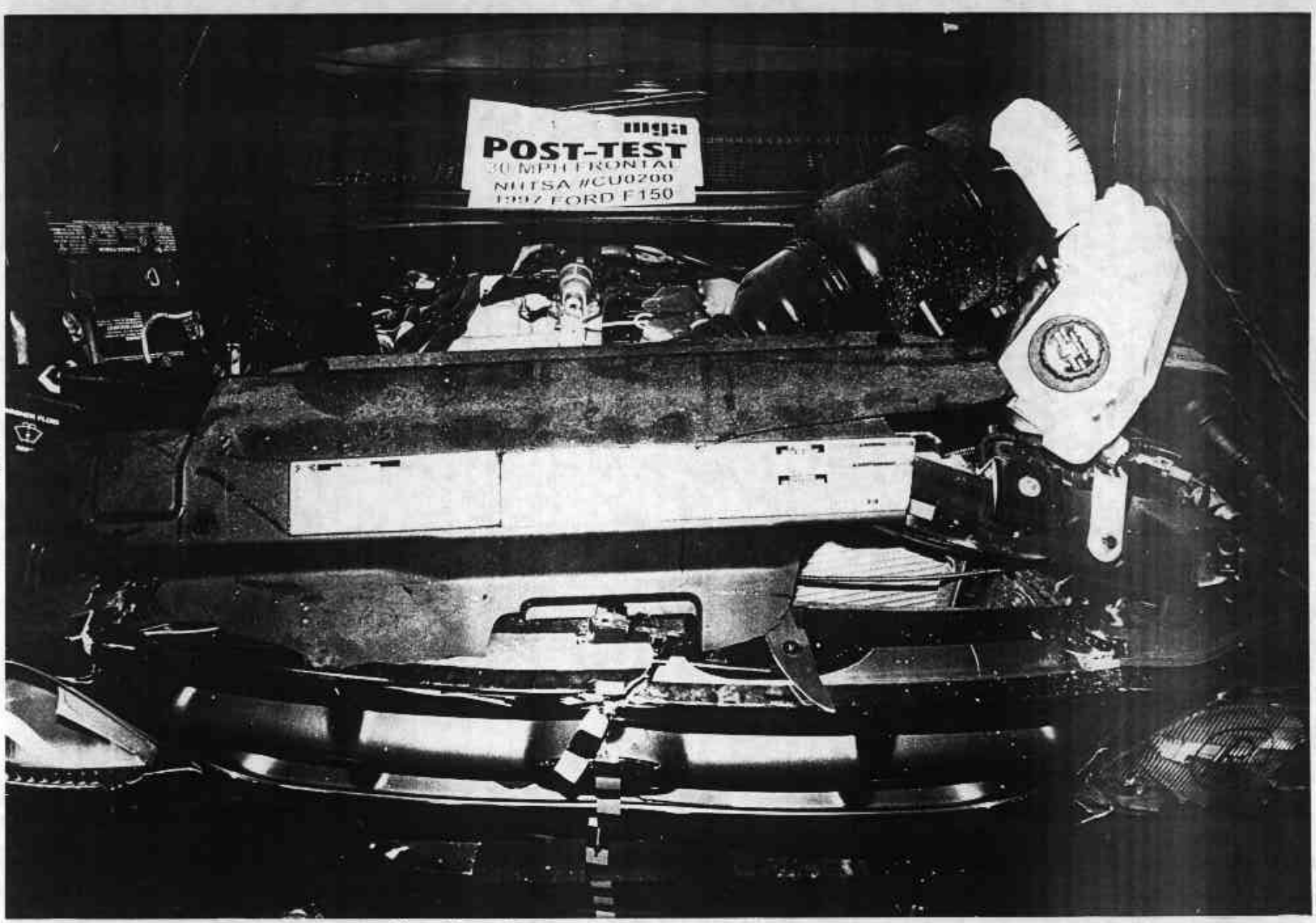


Photo No. A-20 - Post-Test Engine Compartment View

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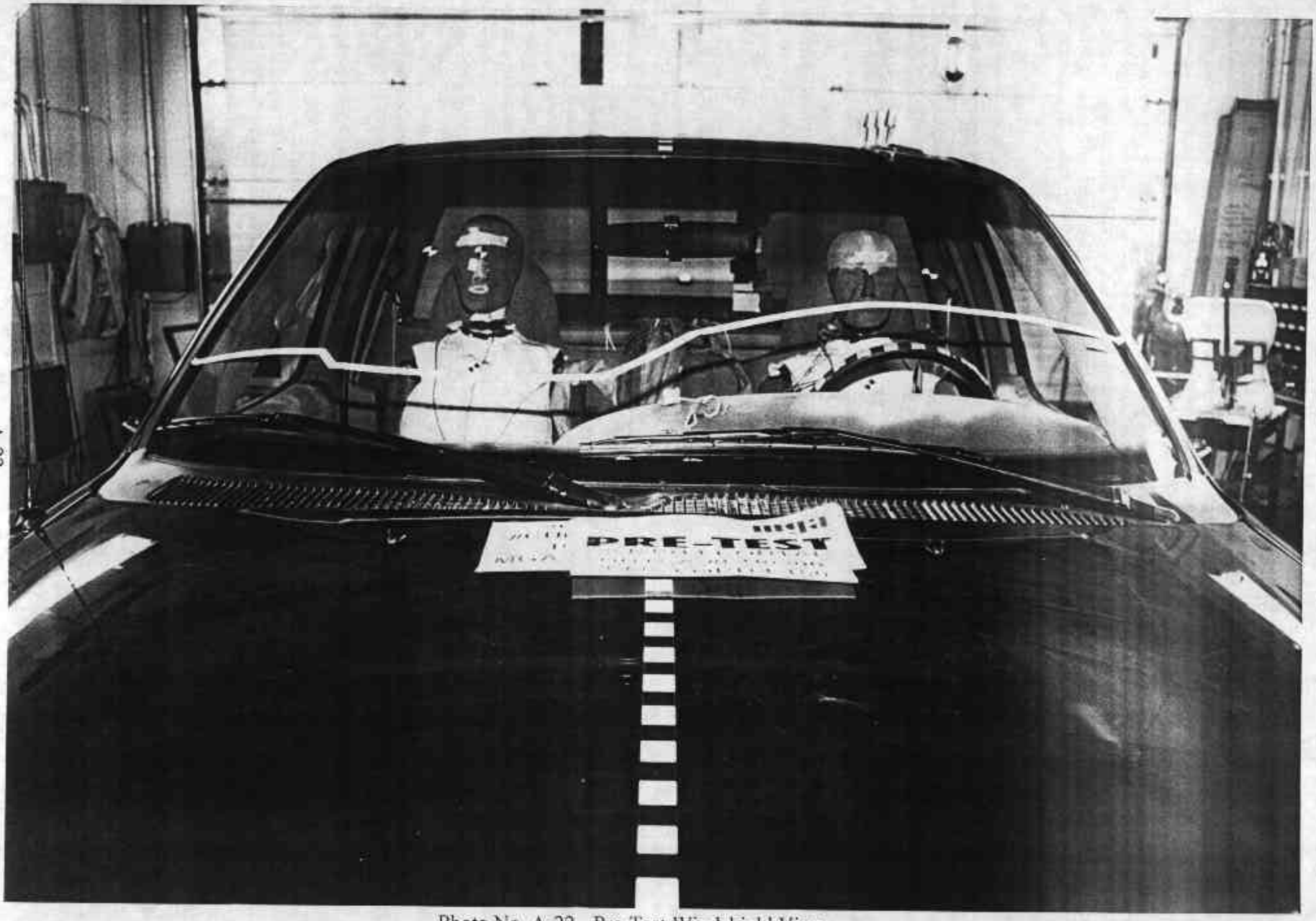
Photo No. A-21 - Pre-Test Fuel Filler Cap View



A-22

Photo No. A-22 - Pre-Test Windshield View

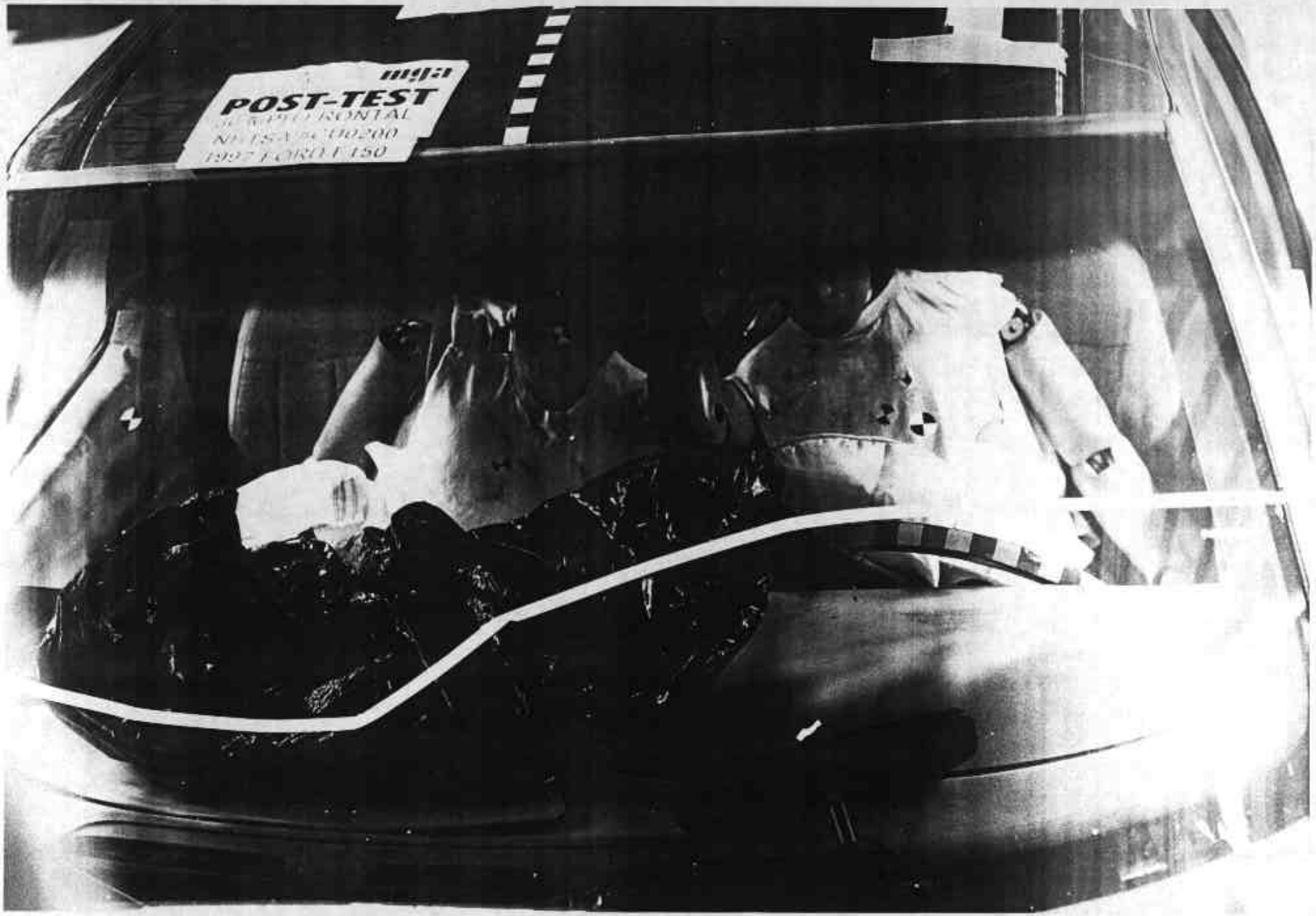


Photo No. A-23 - Post-Test Windshield View

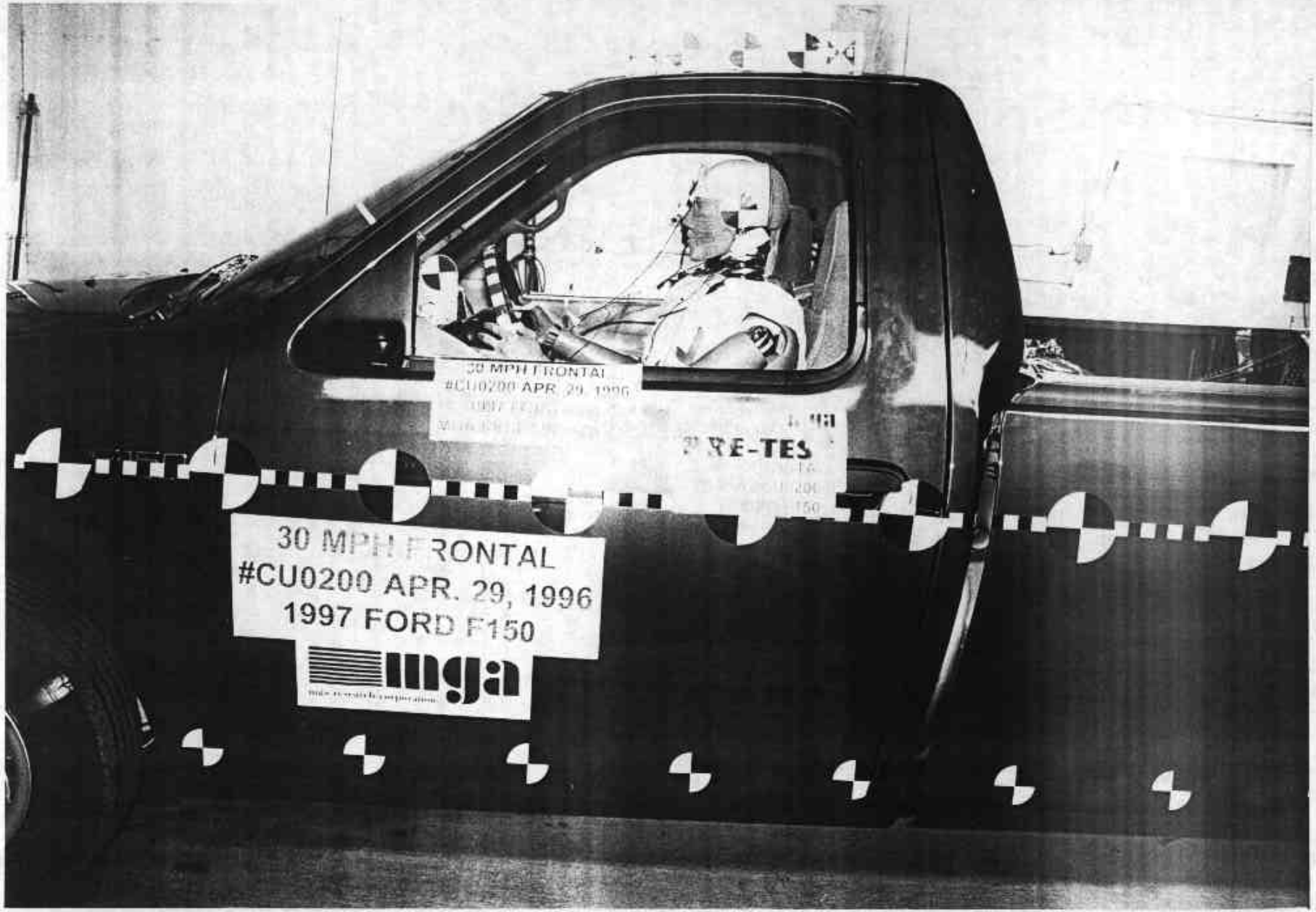


Photo No. A-24 - Pre-Test Driver Dummy Position View

Photo No. A-25 - Post-Test Driver Dummy Position View

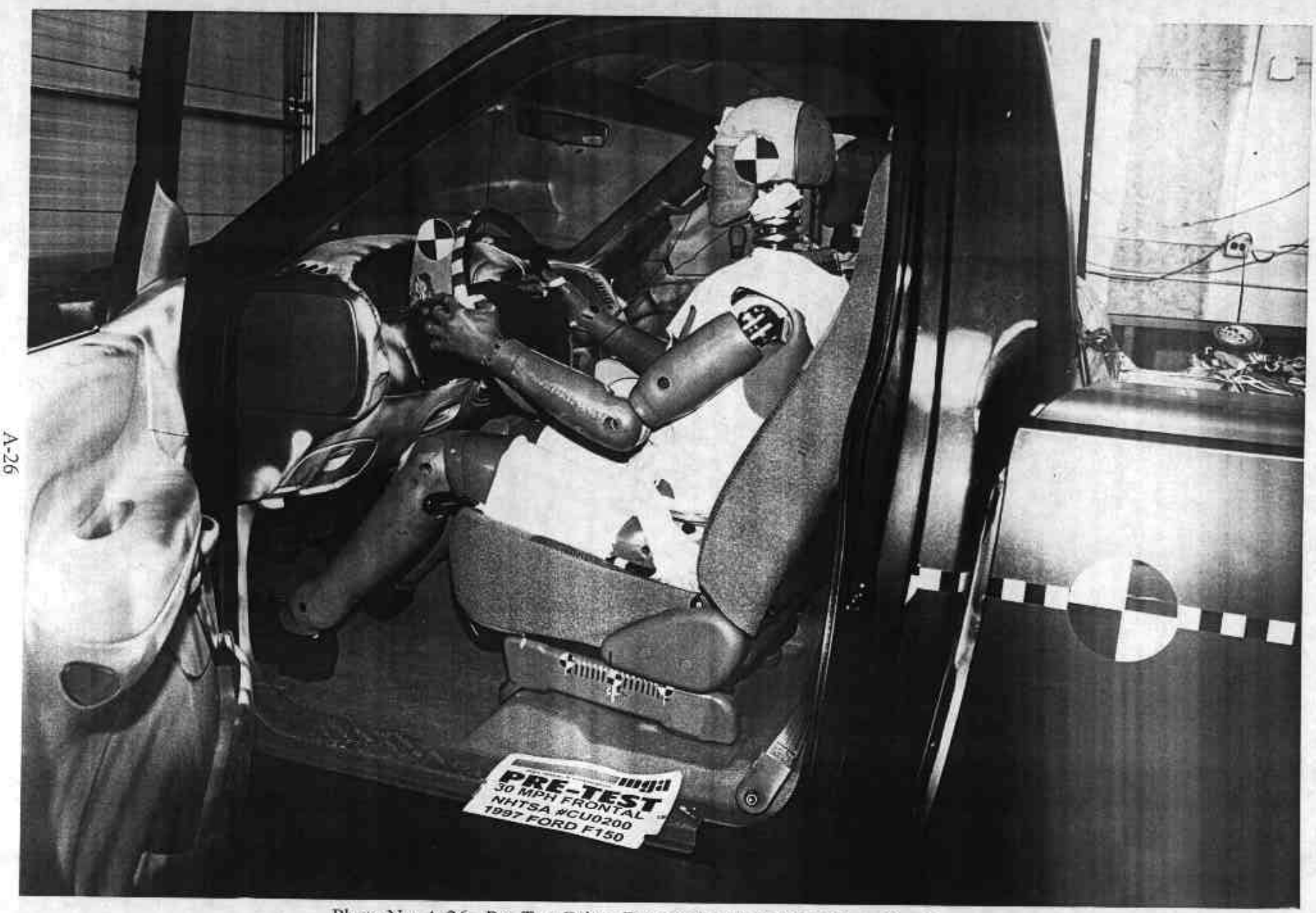


Photo No. A-26 - Pre-Test Driver Dummy Position View (Door Open)

A-27

Photo No. A-27 - Post-Test Driver Dummy Position View (Door Open)

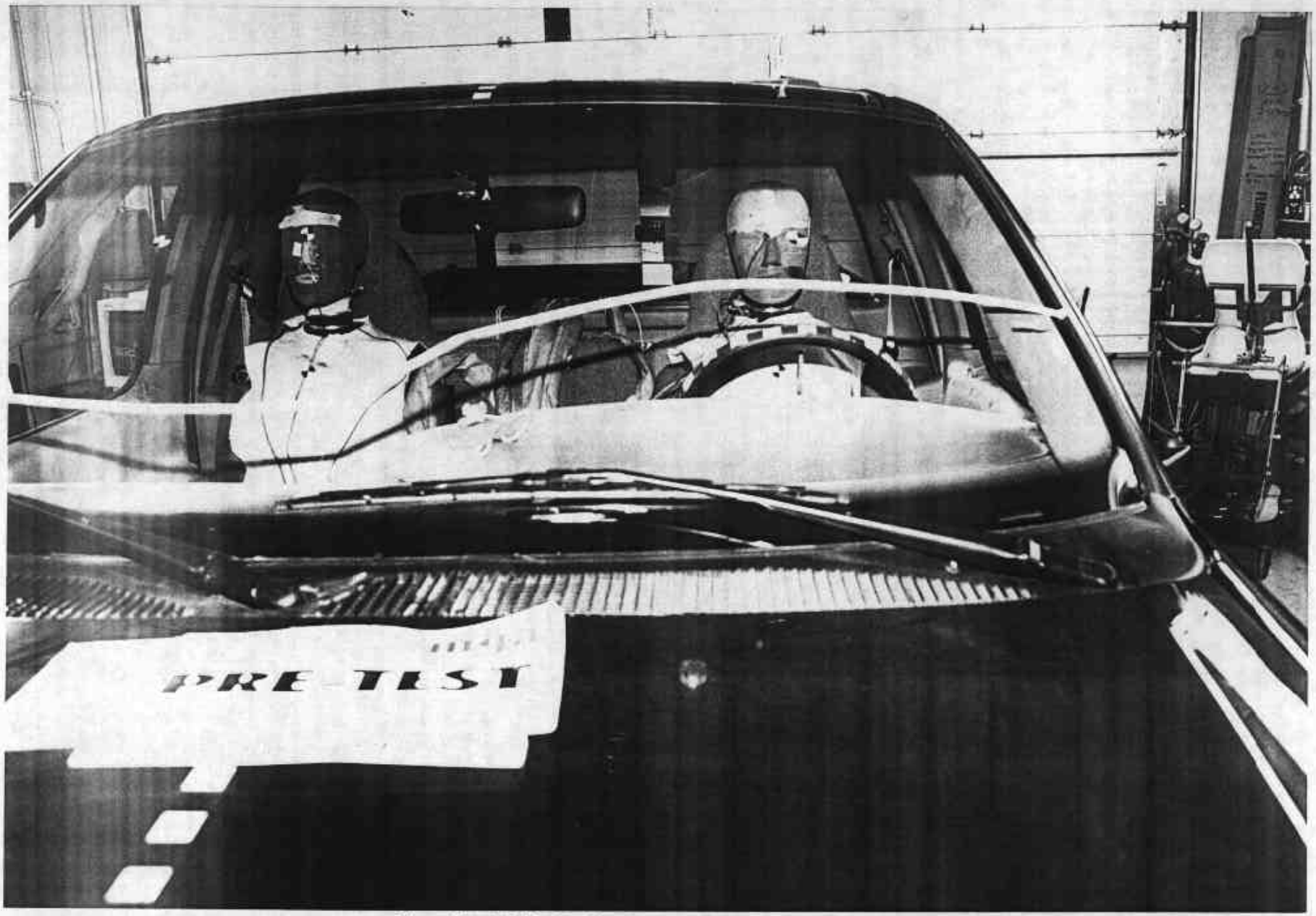


Photo No. A-28 - Pre-Test Driver Windshield View

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

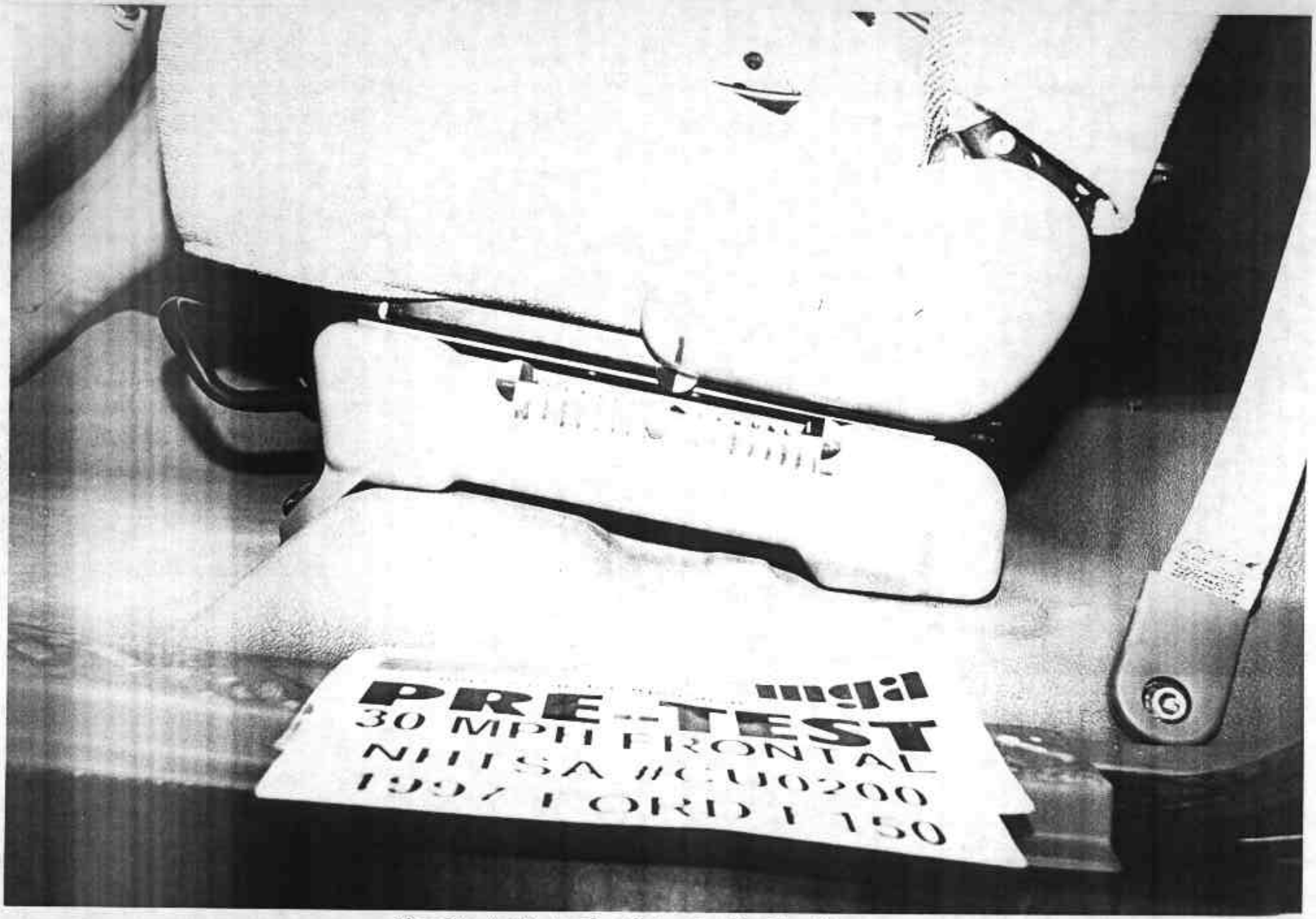


Photo No. A-30 - Pre-Test Driver Seat Position View

Photo No. A-31 - Post-Test Driver Seat Position View

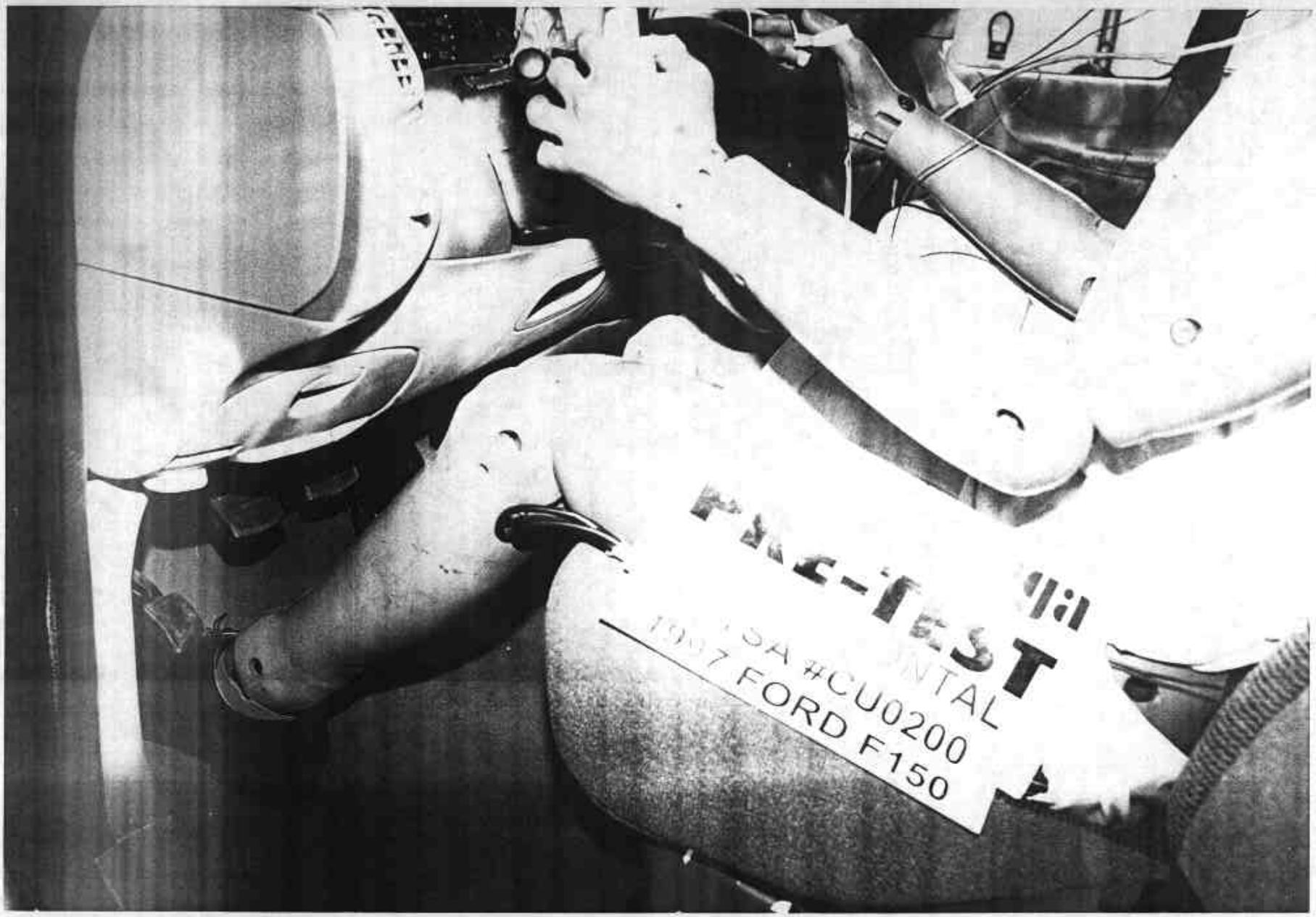


Photo No. A-32 - Pre-Test Driver Knee Bolster View

Photo No. A-33 - Post-Test Driver Knee Bolster View

Photo No. A-34 - Post-Test Driver Airbag View

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

Photo No. A-36 - Post-Test Driver Head Contact View

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

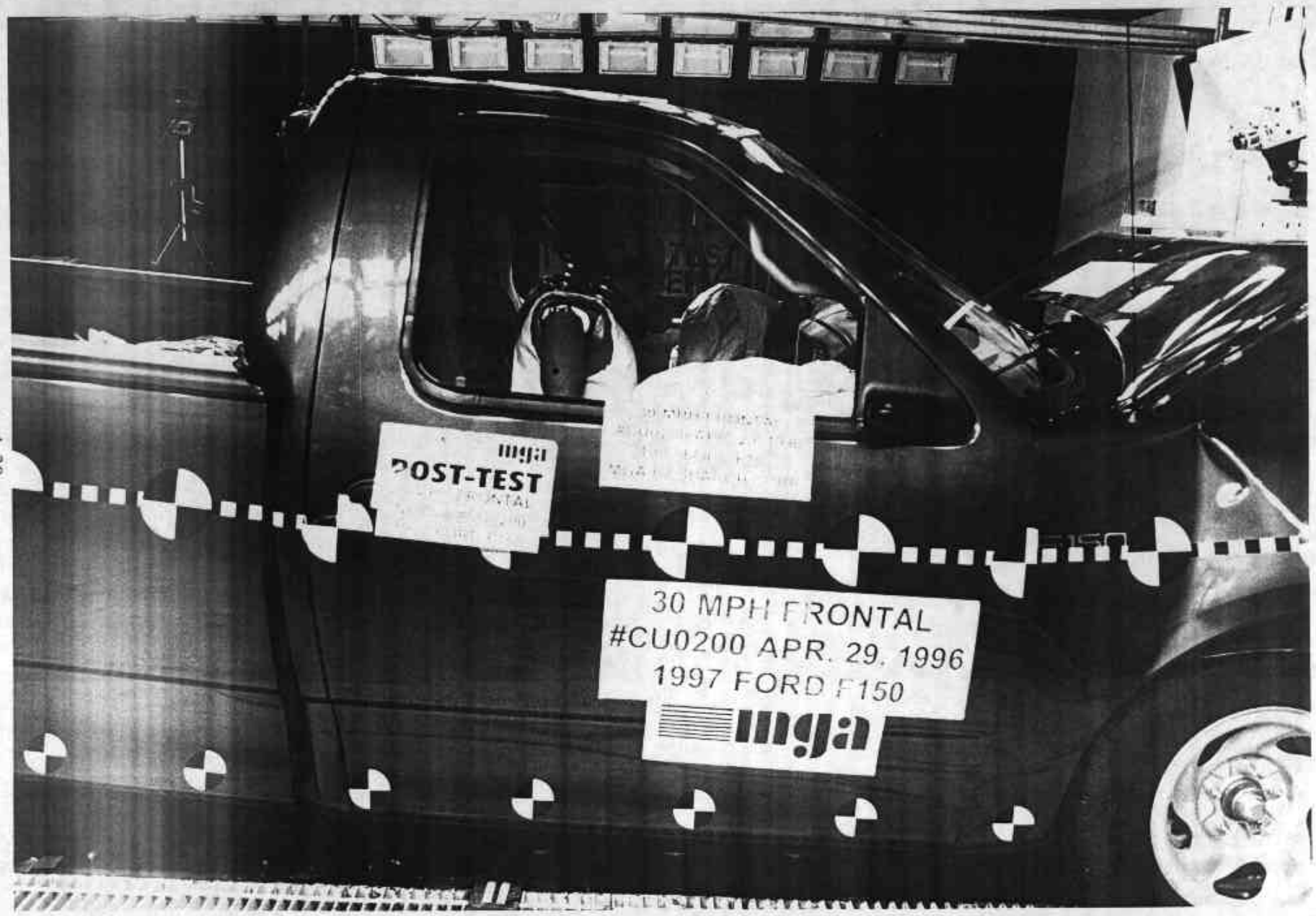


Photo No. A-38 - Post-Test Passenger Dummy Position View

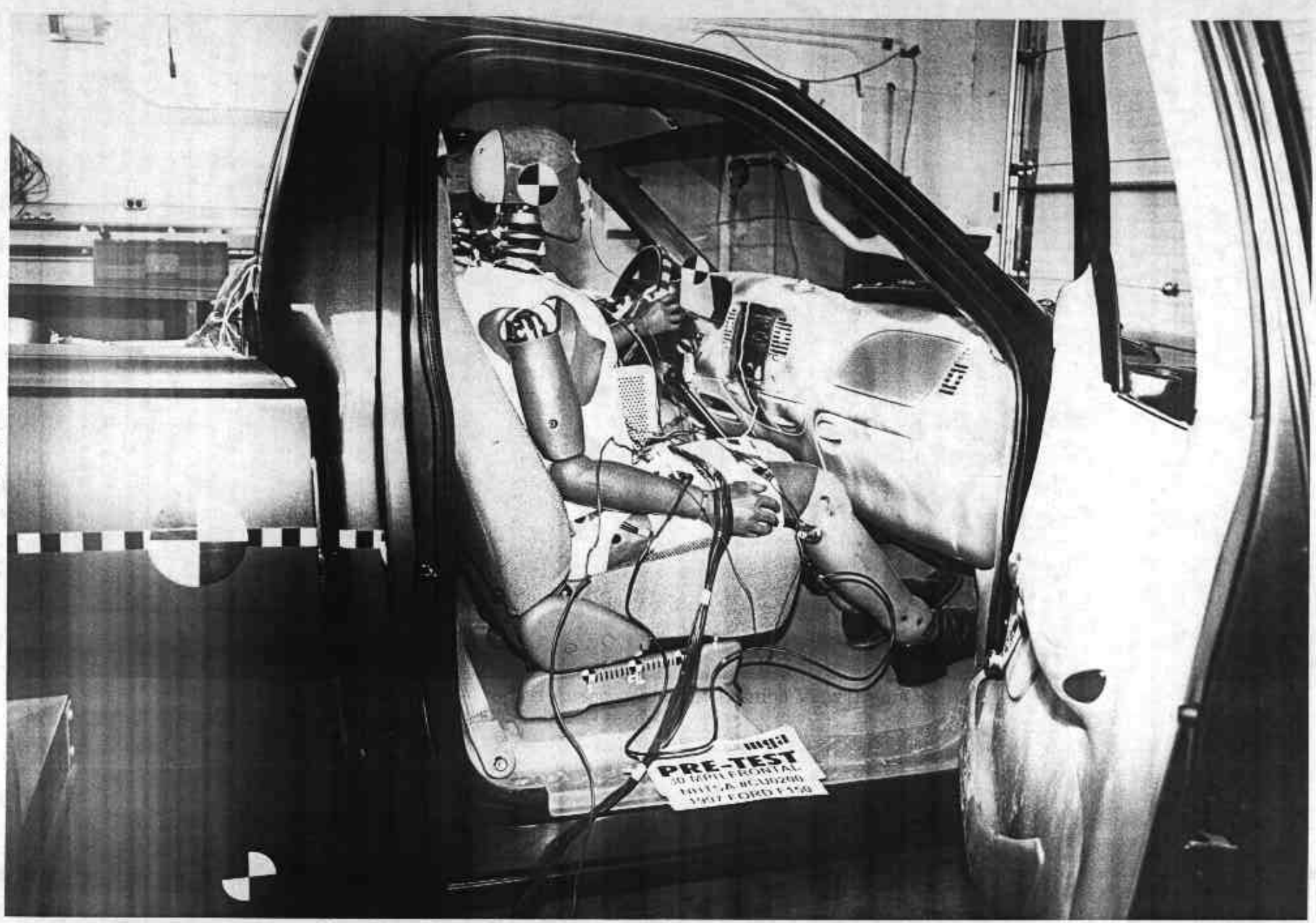


Photo No. A-39 - Pre-Test Passenger Dummy Position View (Door Open)

Photo No. A-40 - Post-Test Passenger Dummy Position View (Door Open)

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

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

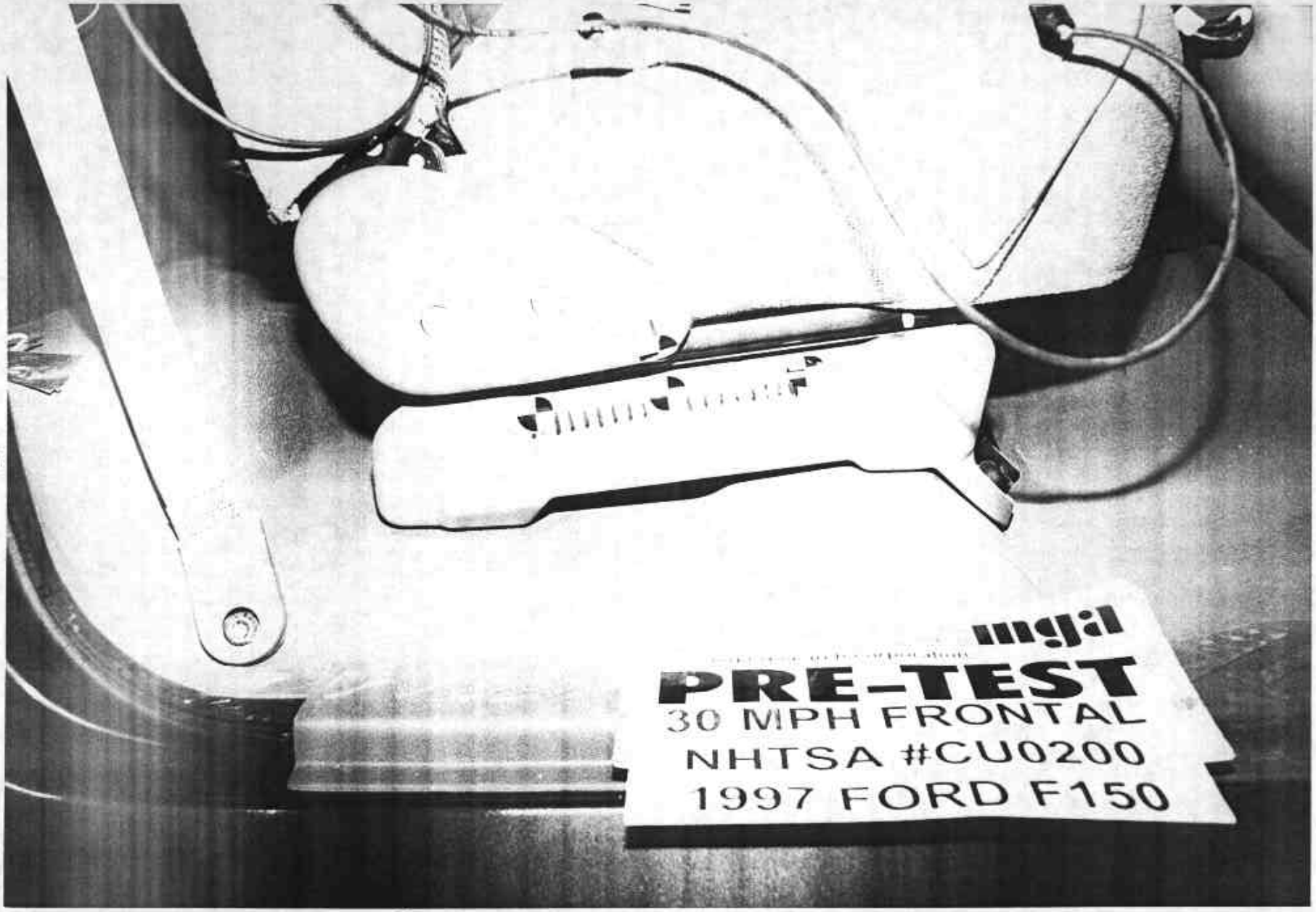


Photo No. A-43 - Pre-Test Passenger Seat Position View

A-44

Photo No. A-44 - Post-Test Passenger Seat Position View

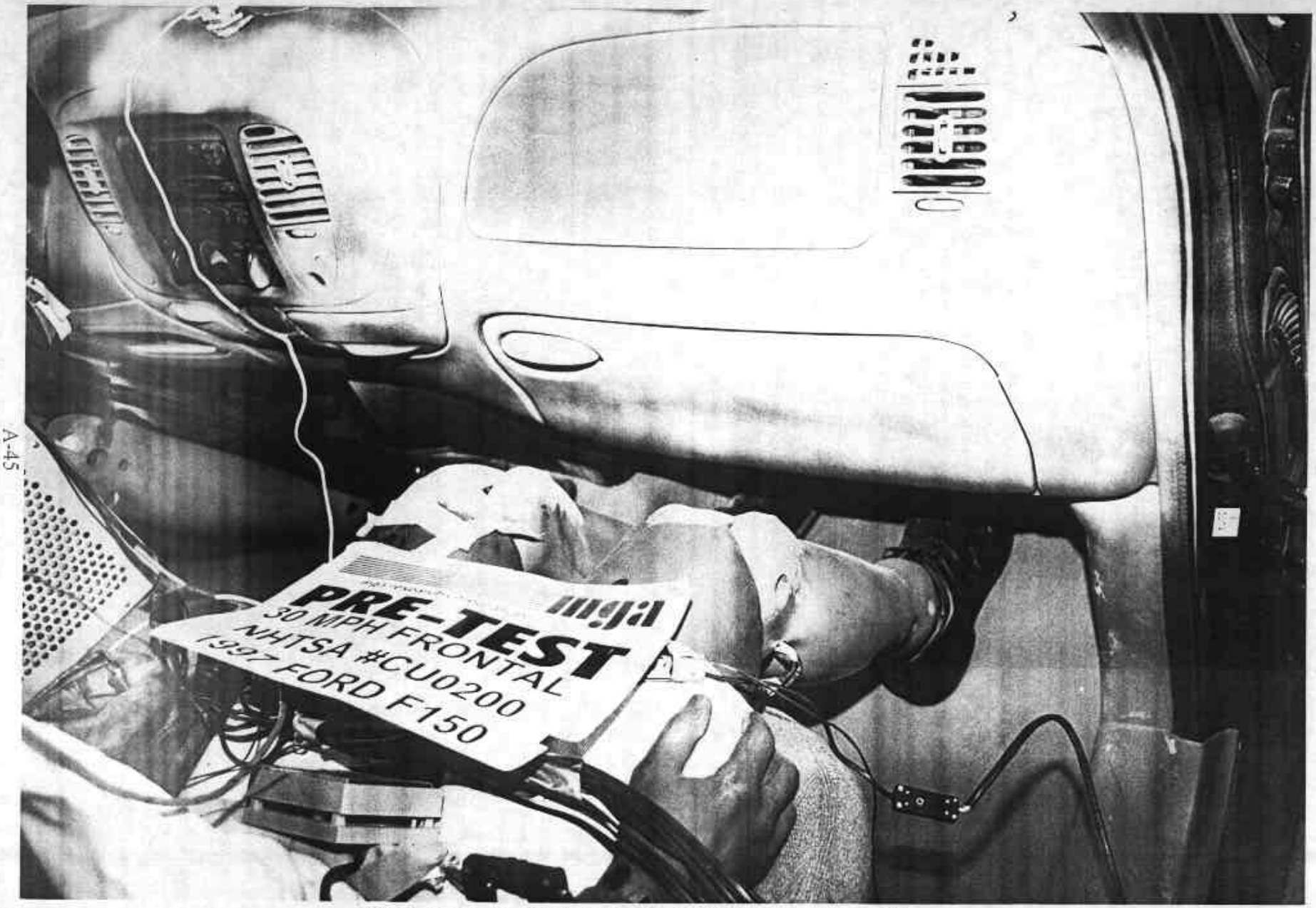
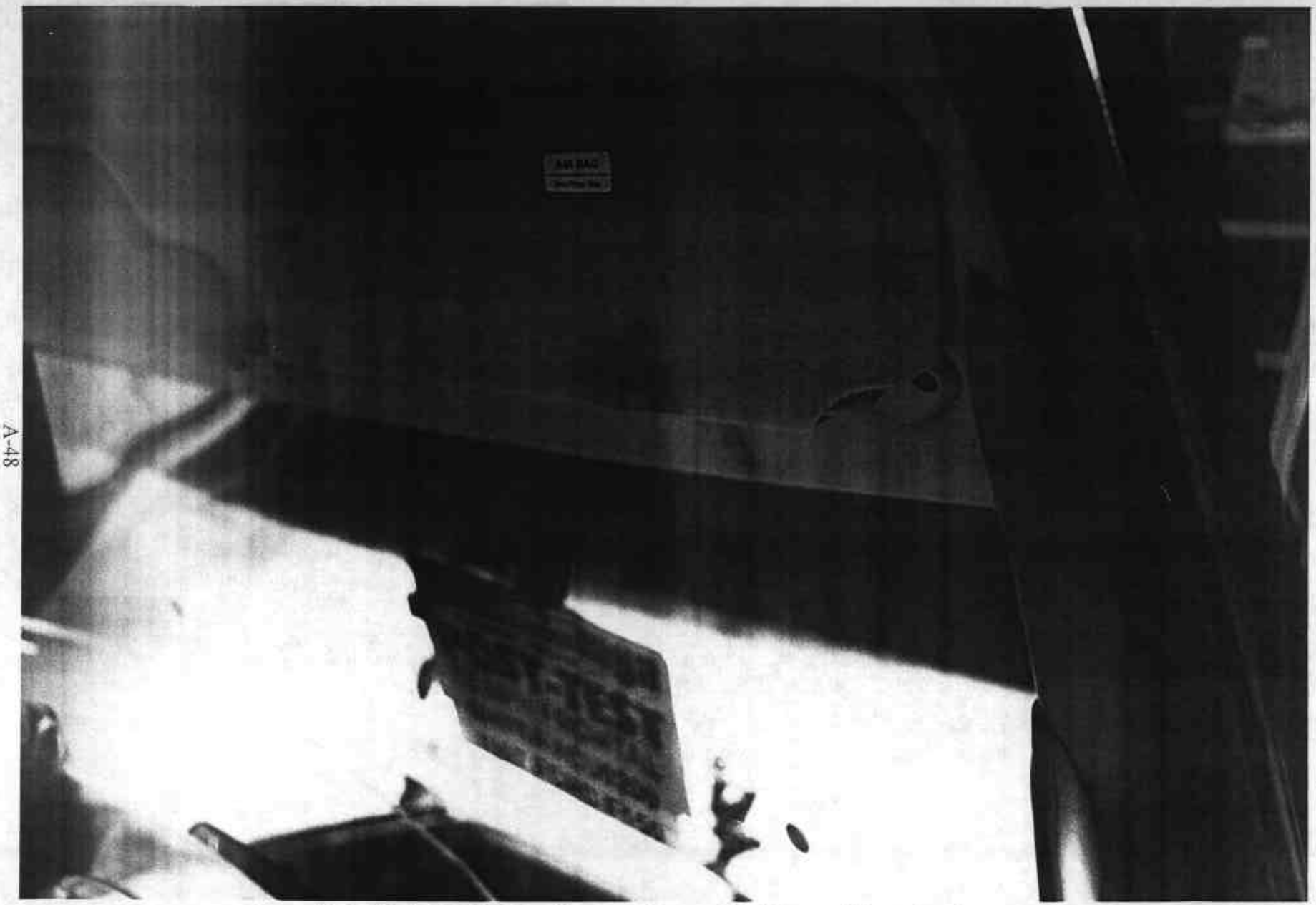


Photo No. A-45 - Pre-Test Passenger Dummy Knee Bolster View

Photo No. A-46 - Post-Test Passenger Dummy Knee Bolster View

Photo No. A-47 - Post-Test Passenger Dummy Airbag View



A-48

Photo No. A-48 - Post-Test Passenger Dummy Head Contact View - Sunvisor

Photo No. A-49 - Post-Test Passenger Dummy Head Contact View - Windshield

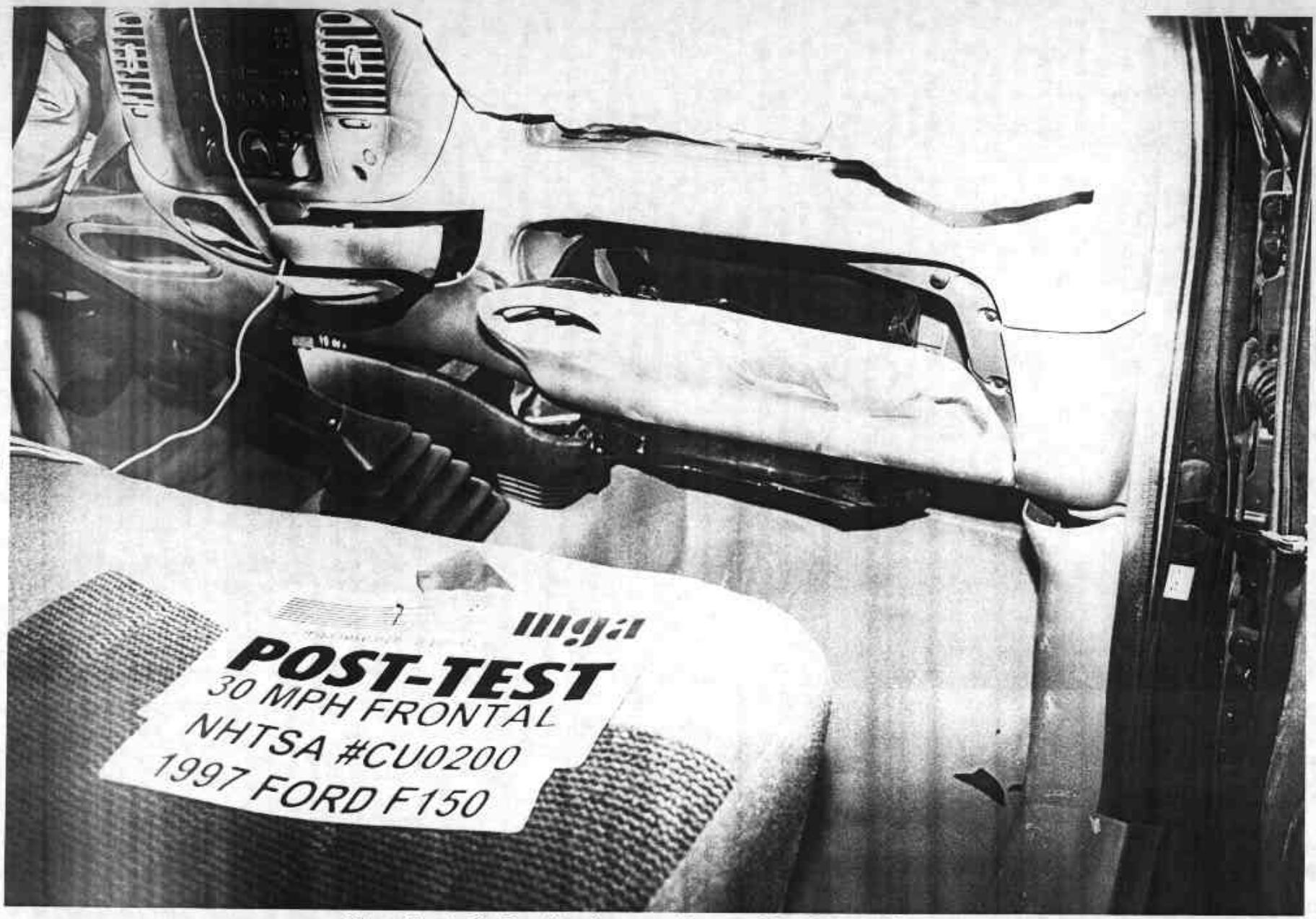


Photo No. A-50 - Post-Test Passenger Dummy Knee Contact View

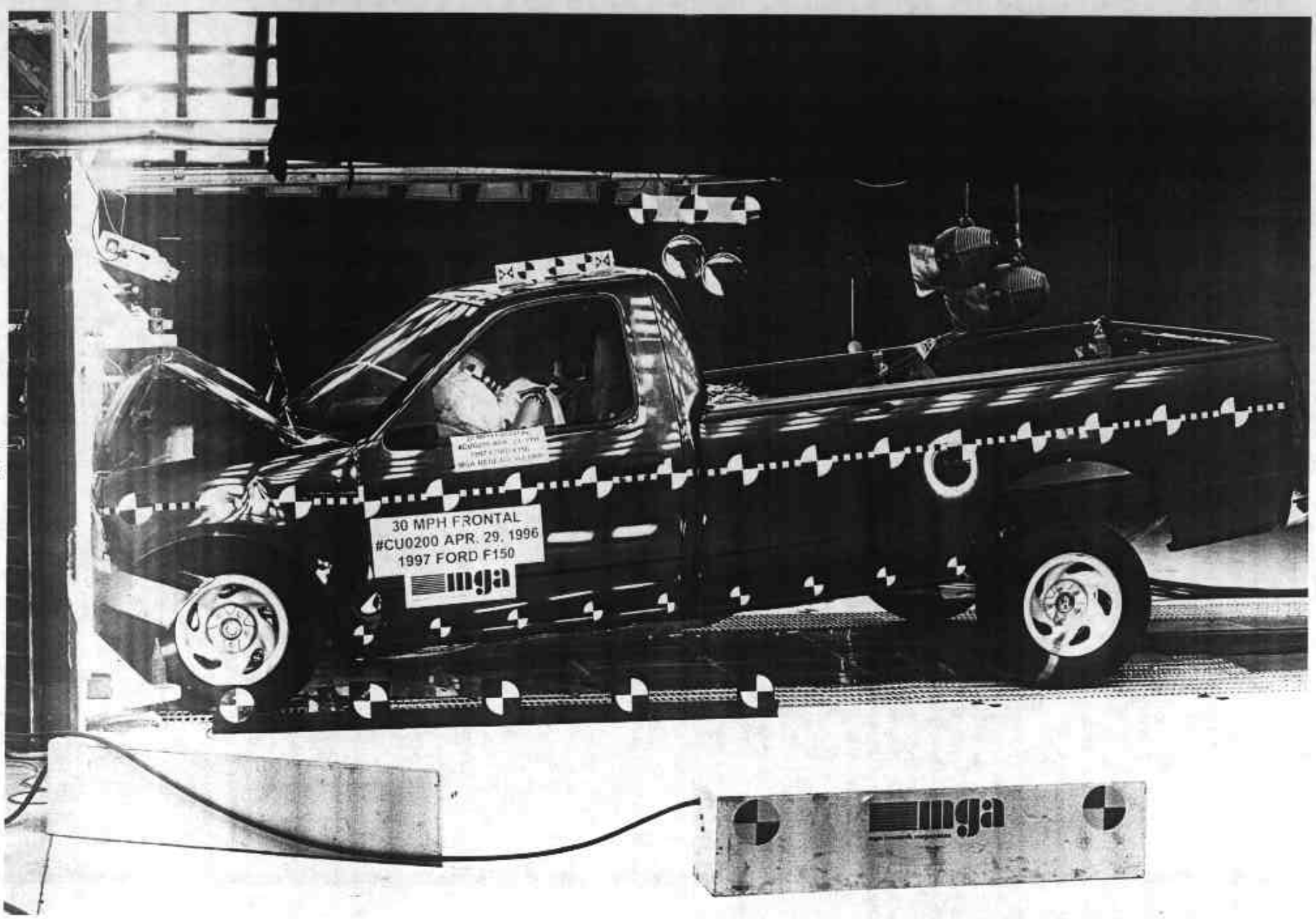


Photo No. A-51 - Vehicle Impact

A-52

Photo No. A-52 - Vehicle Certification Label and Tire Placard

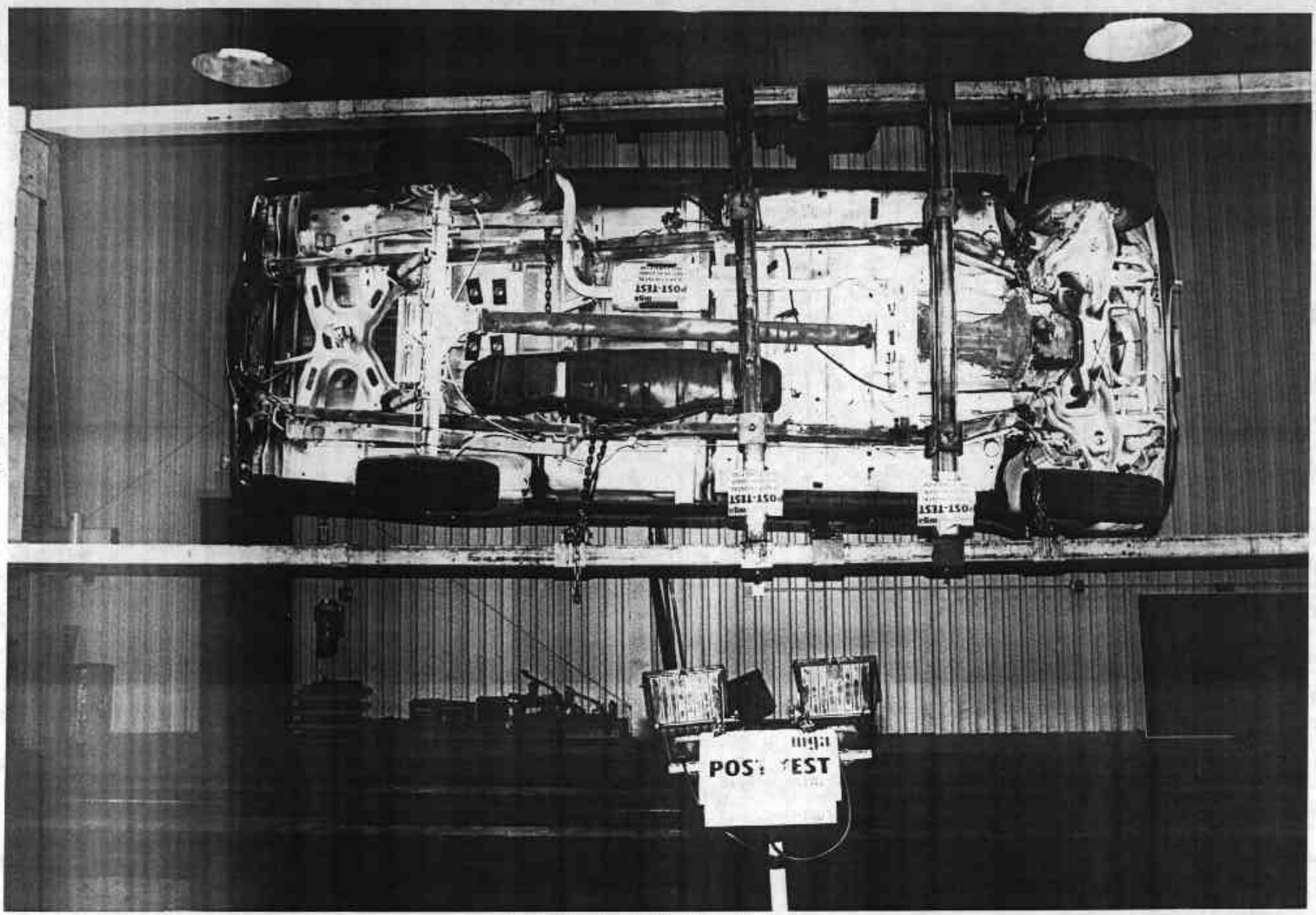


Photo No. A-53 - Rollover 90°

Photo No. A-54 - Rollover 180°

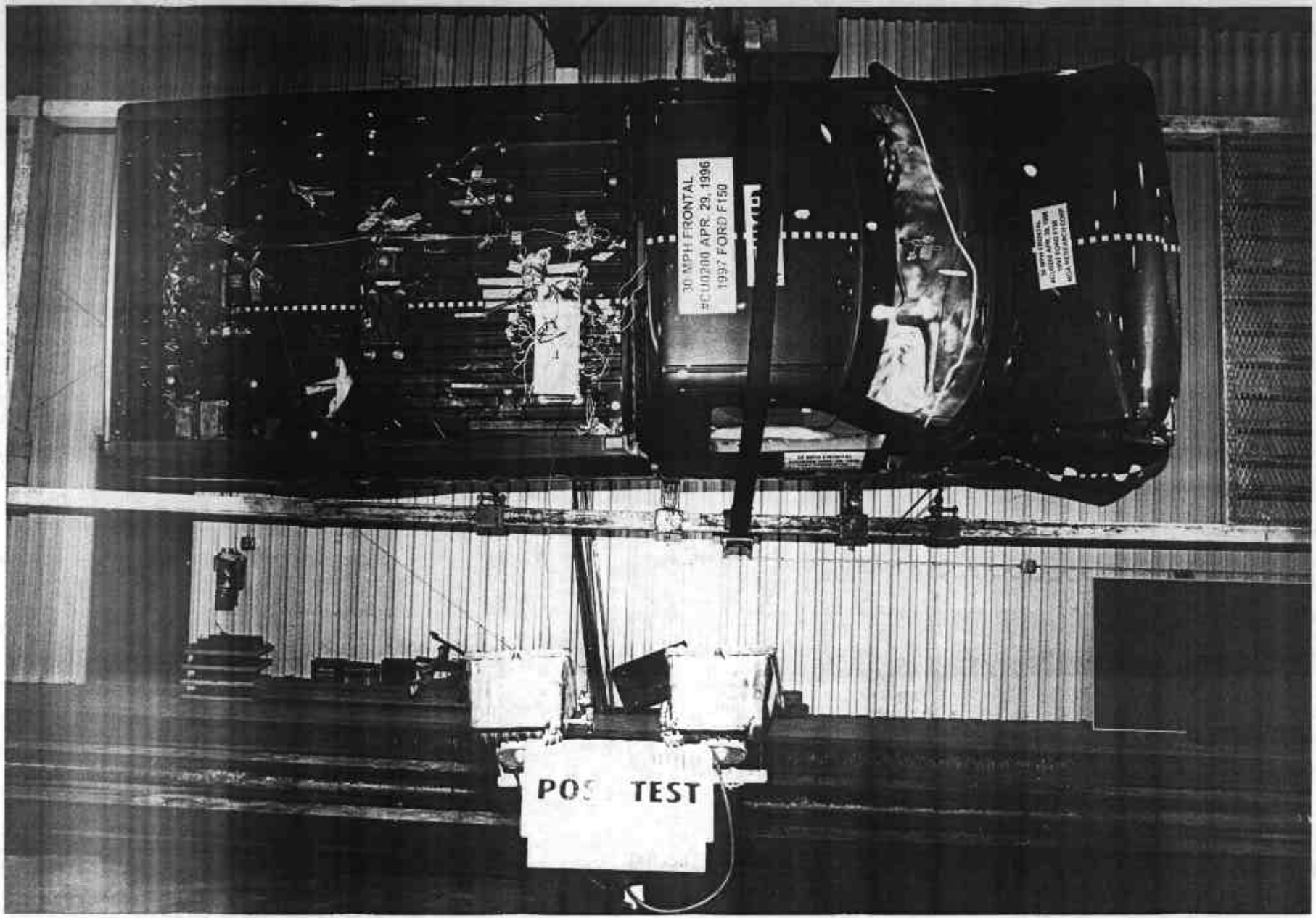
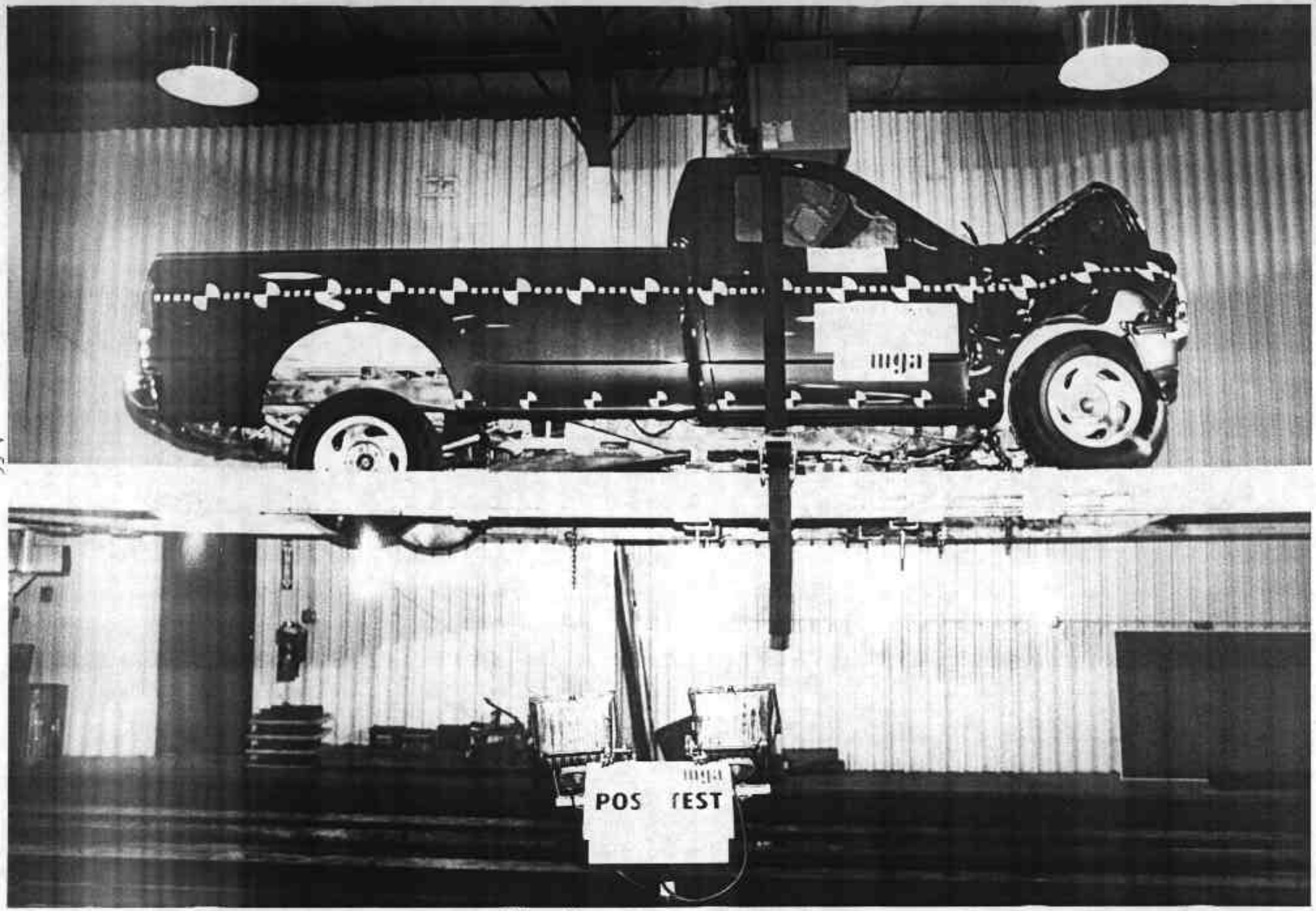


Photo No. A-55 - Rollover 270°



A-56

Photo No. A-56 - Rollover 360°

APPENDIX B

DATA PLOTS

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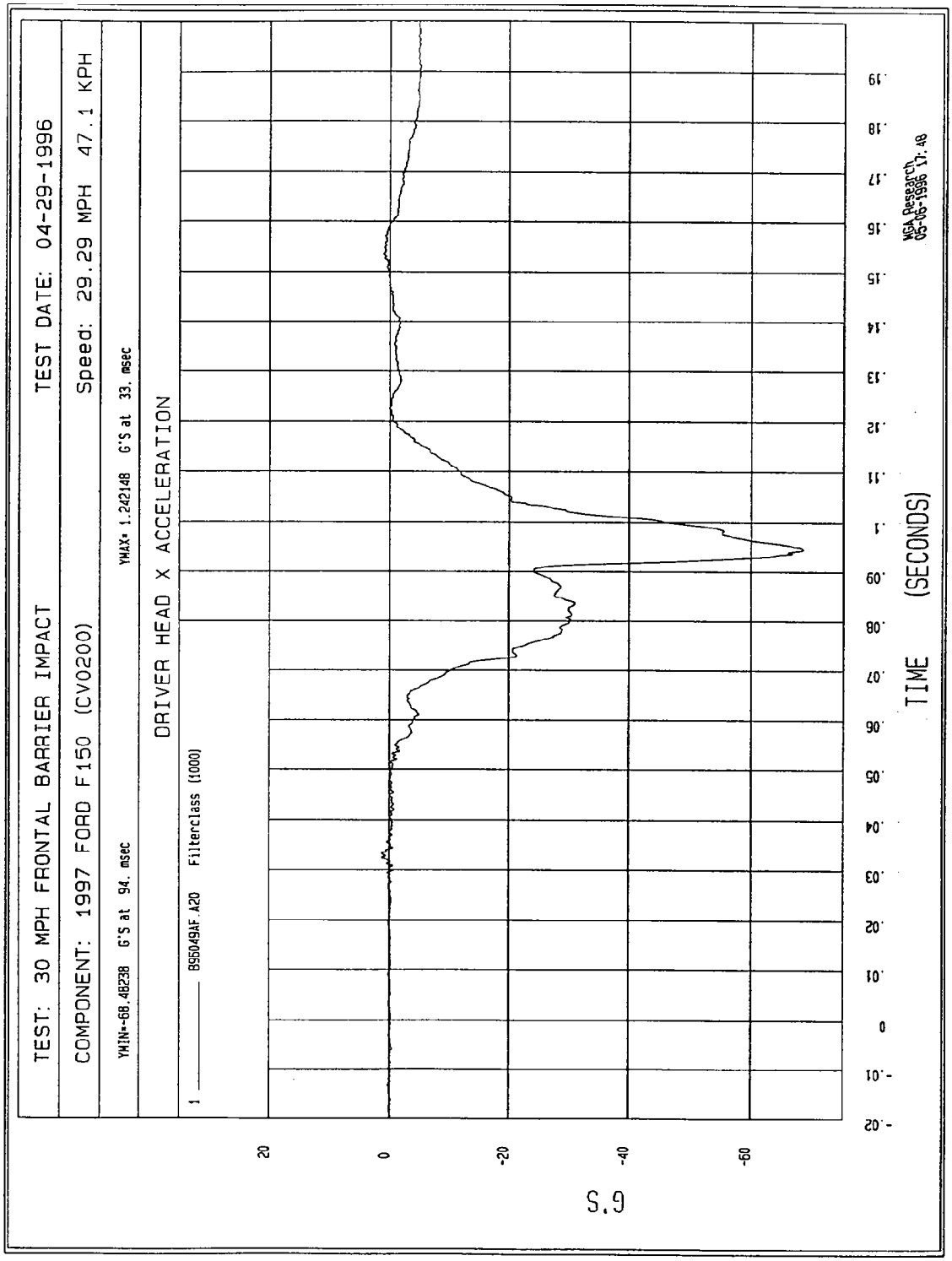
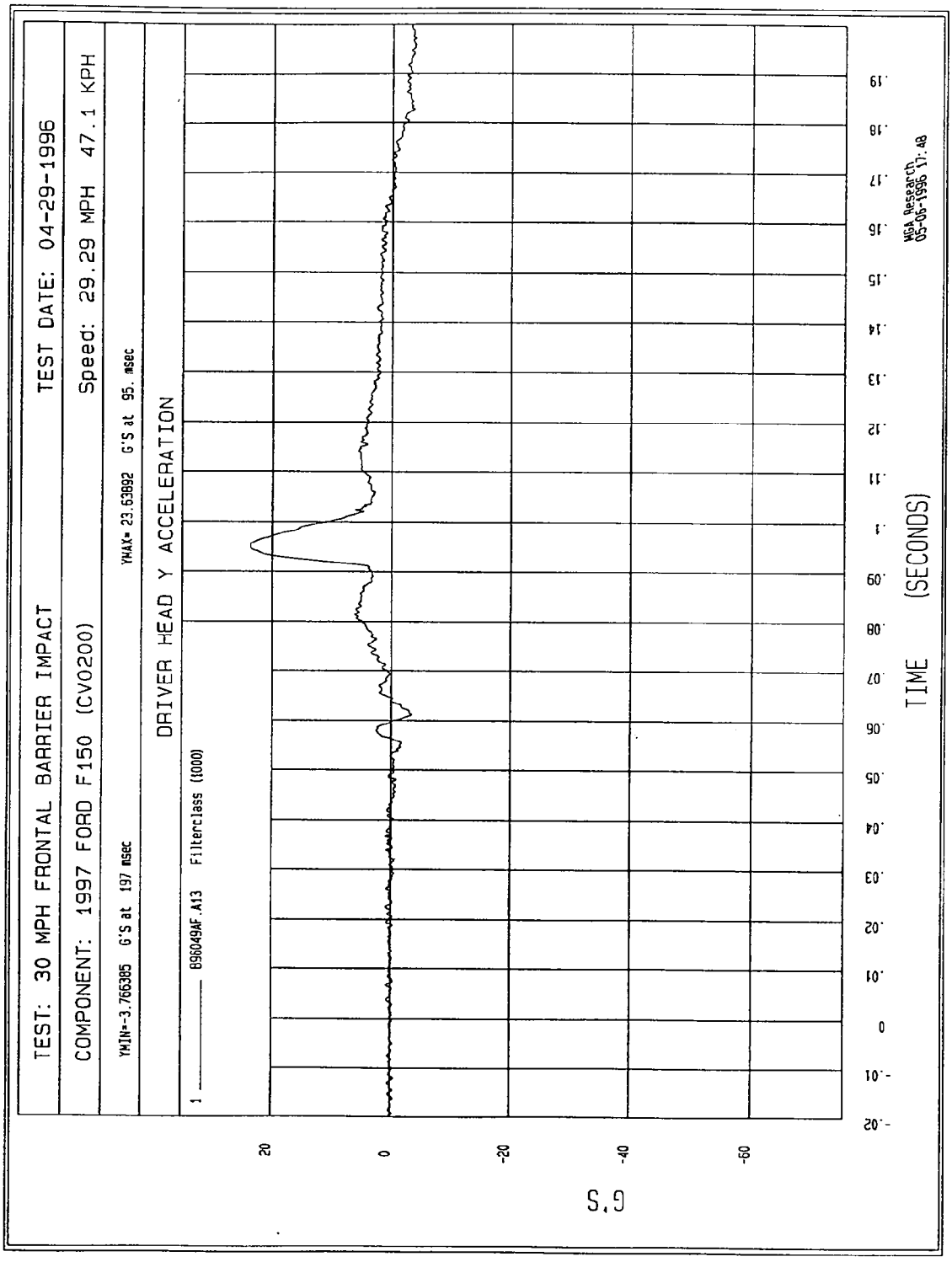
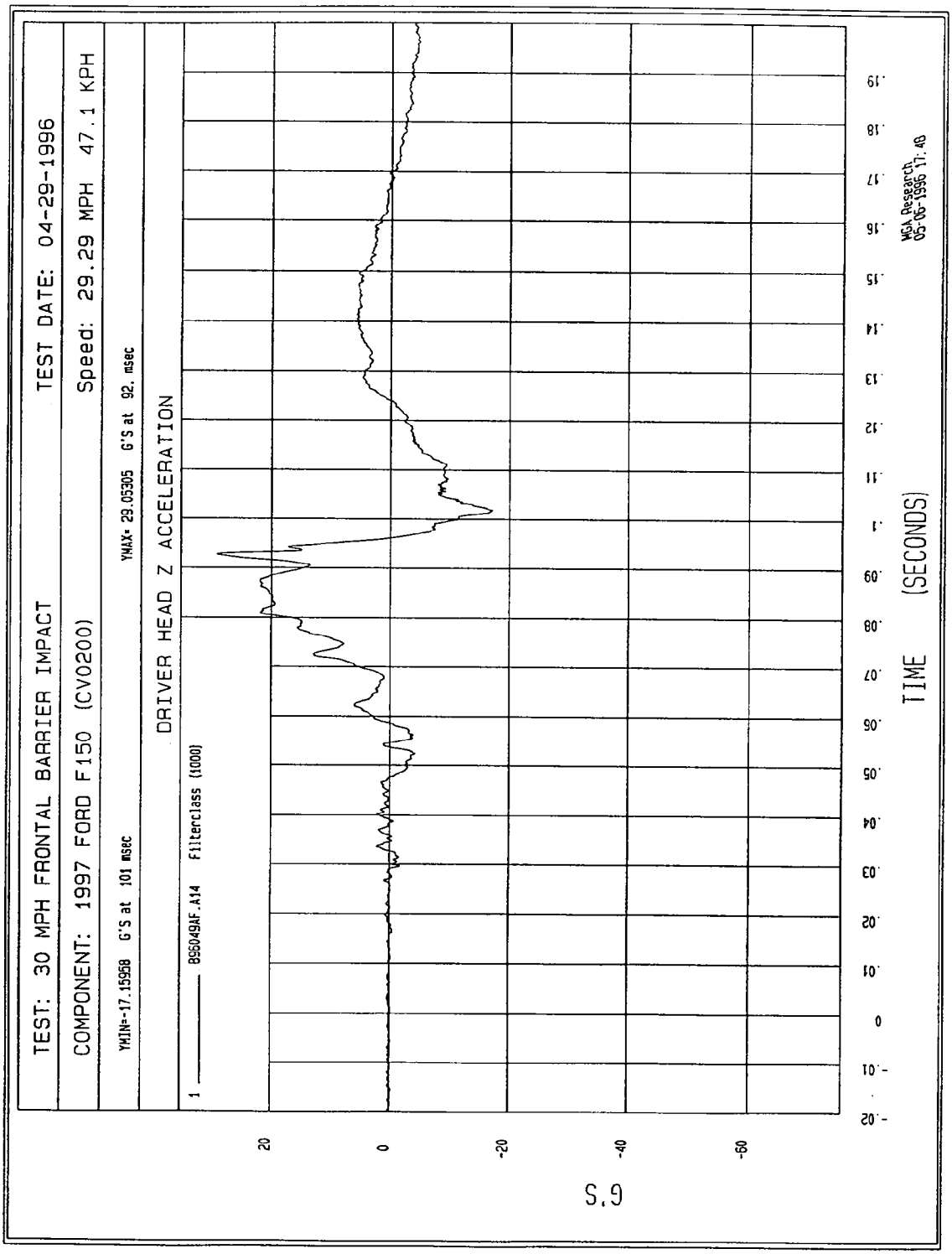
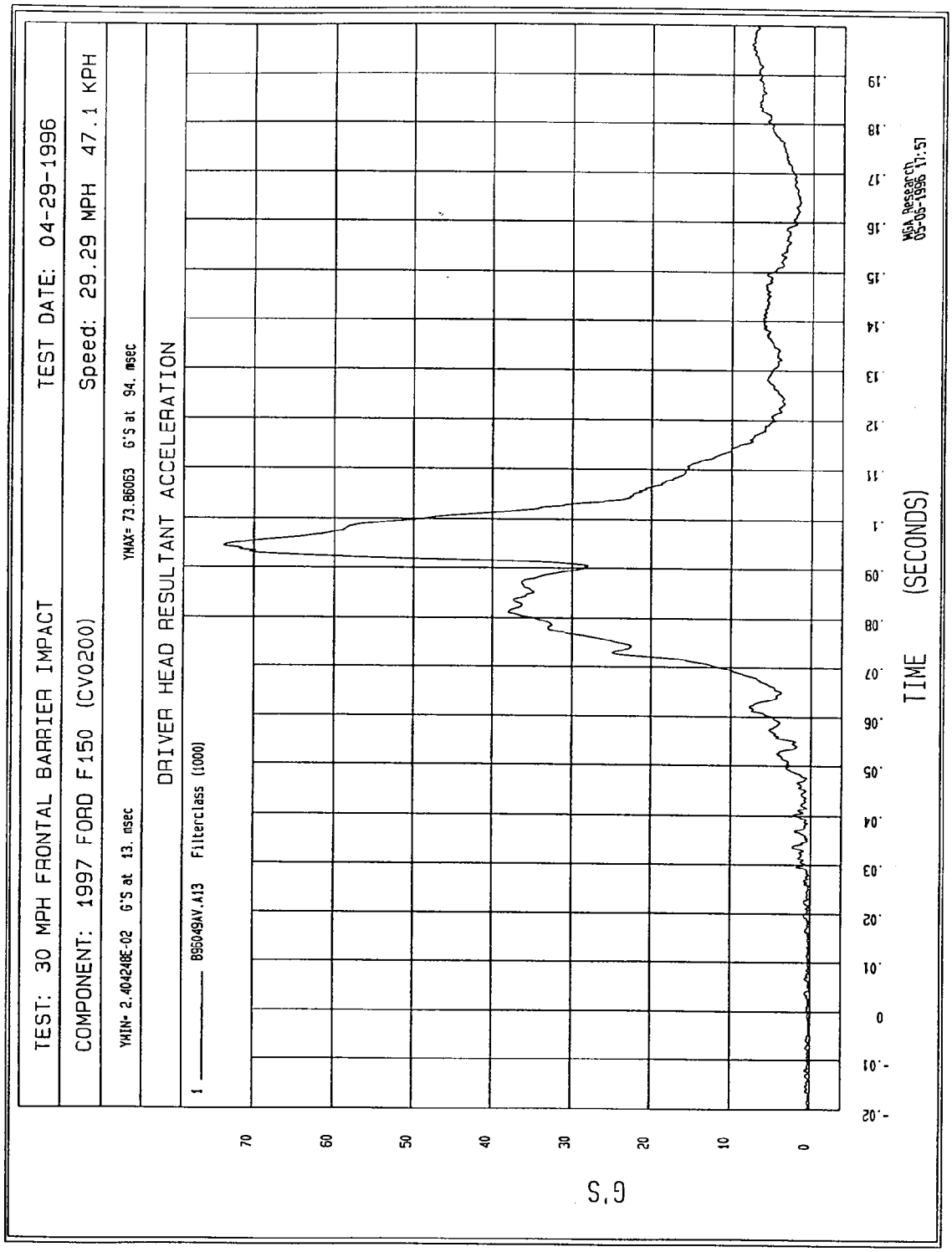
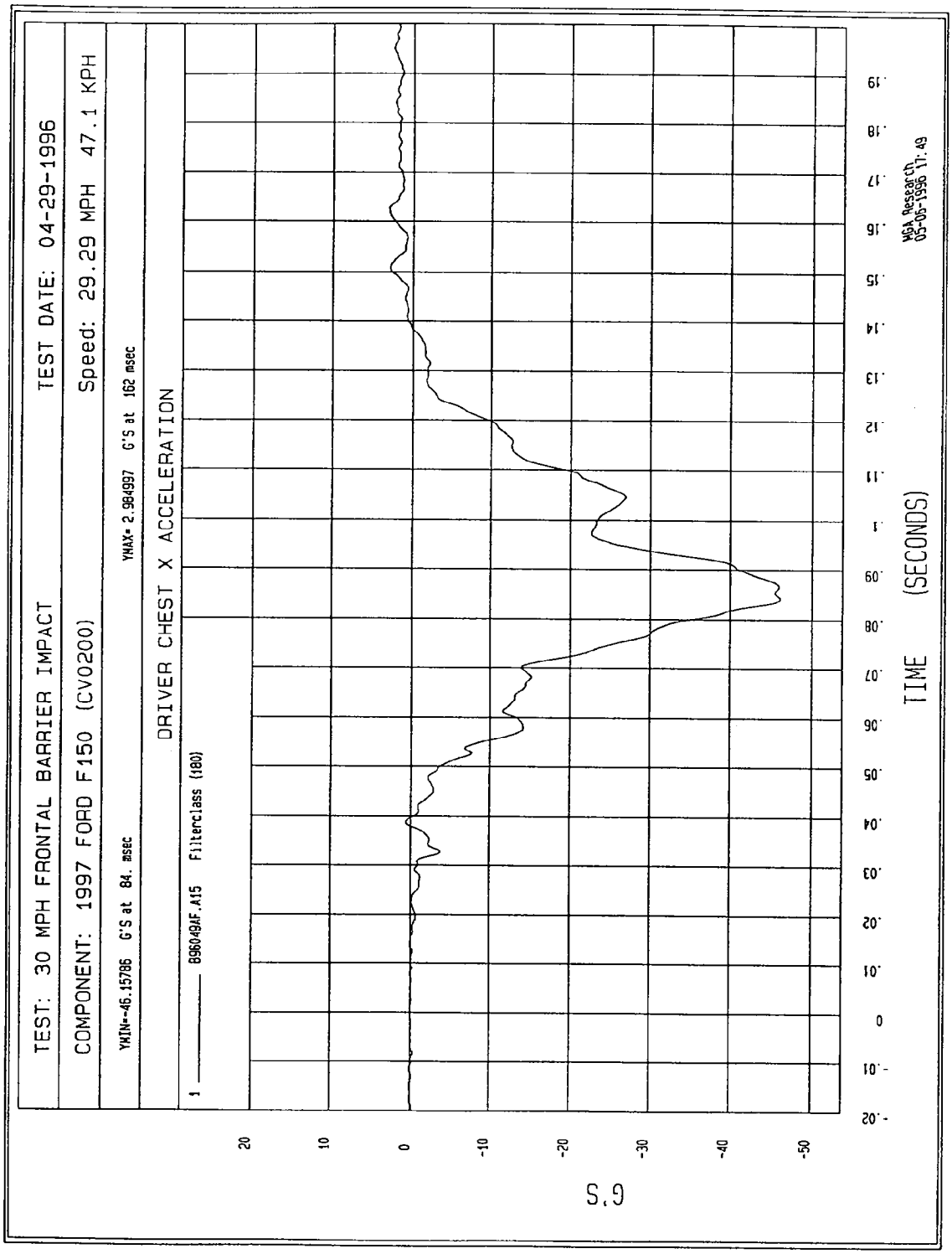
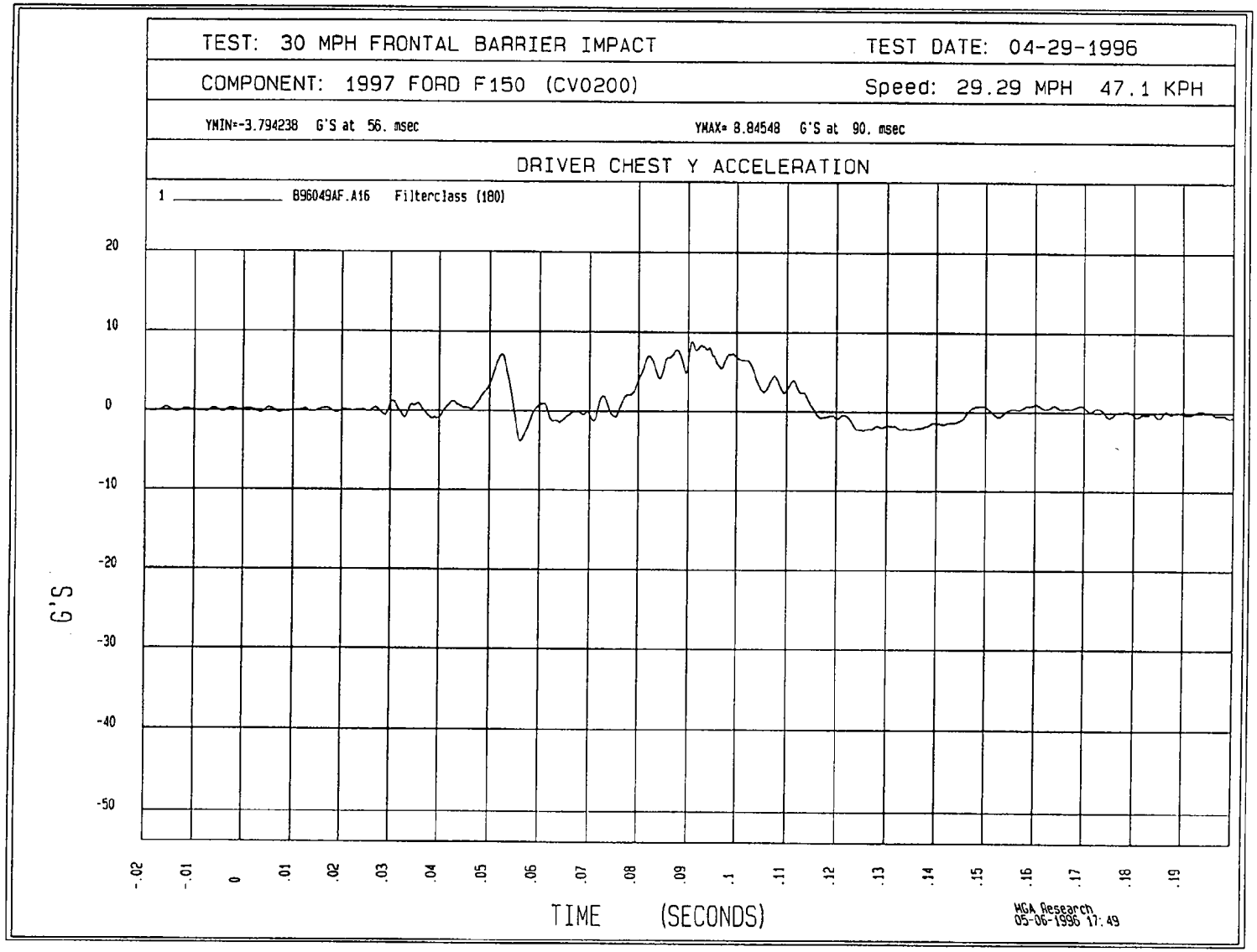

TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-68.48238 G'S at 94. msec
YMAX= 1.242148 G'S at 33. msec
DRIVER HEAD X ACCELERATION
1 B95049AF.A20 Filterclass (1000)
20
0
-20
-40
-60
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 17:48


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-3.766385 G'S at 197 msec
YMAX= 23.63892 G'S at 95. msec
DRIVER HEAD Y ACCELERATION
1 _____ 896049AF.A13 Filterclass (1000)
20
0
-20
-40
-60
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 17:48


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-17.15958 G'S at 101 msec
YMAX= 29.05305 G'S at 92. msec
DRIVER HEAD Z ACCELERATION
1 B95049AF.A14 Filterclass (1000)
20
0
-20
-40
-60
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 17:48


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN= 2.404248E-02 G'S at 13. msec
YMAX= 73.86063 G'S at 94. msec
DRIVER HEAD RESULTANT ACCELERATION
1 B95049AV.A13 Filterclass (1000)
70
60
50
40
30
20
10
0
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 11:51


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-46.15786 G'S at 84. msec
YMAX= 2.984997 G'S at 162 msec
DRIVER CHEST X ACCELERATION
1 _____ B960049AF.A15 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 11:49


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-3.794238 G'S at 56. msec
YMAX= 8.84548 G'S at 90. msec
DRIVER CHEST Y ACCELERATION
1 B96049AF.A16 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
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.18
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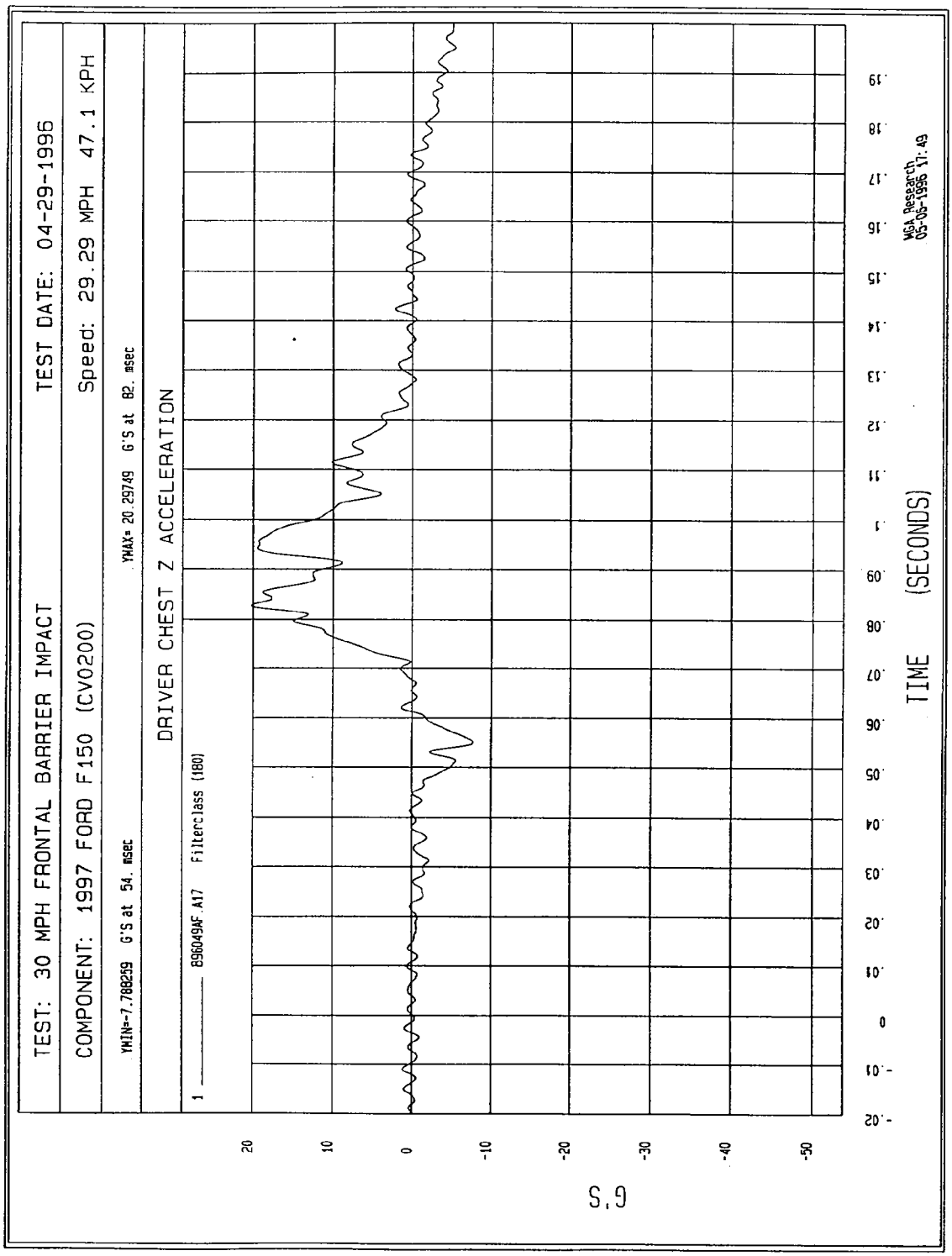
TIME (SECONDS)
MGA Research
05-06-1996 17:49


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-7.788259 G'S at 54. msec
YMAX= 20.29749 G'S at 82. msec
DRIVER CHEST Z ACCELERATION
1 _____ 8960049F.A17 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
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1
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14
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17
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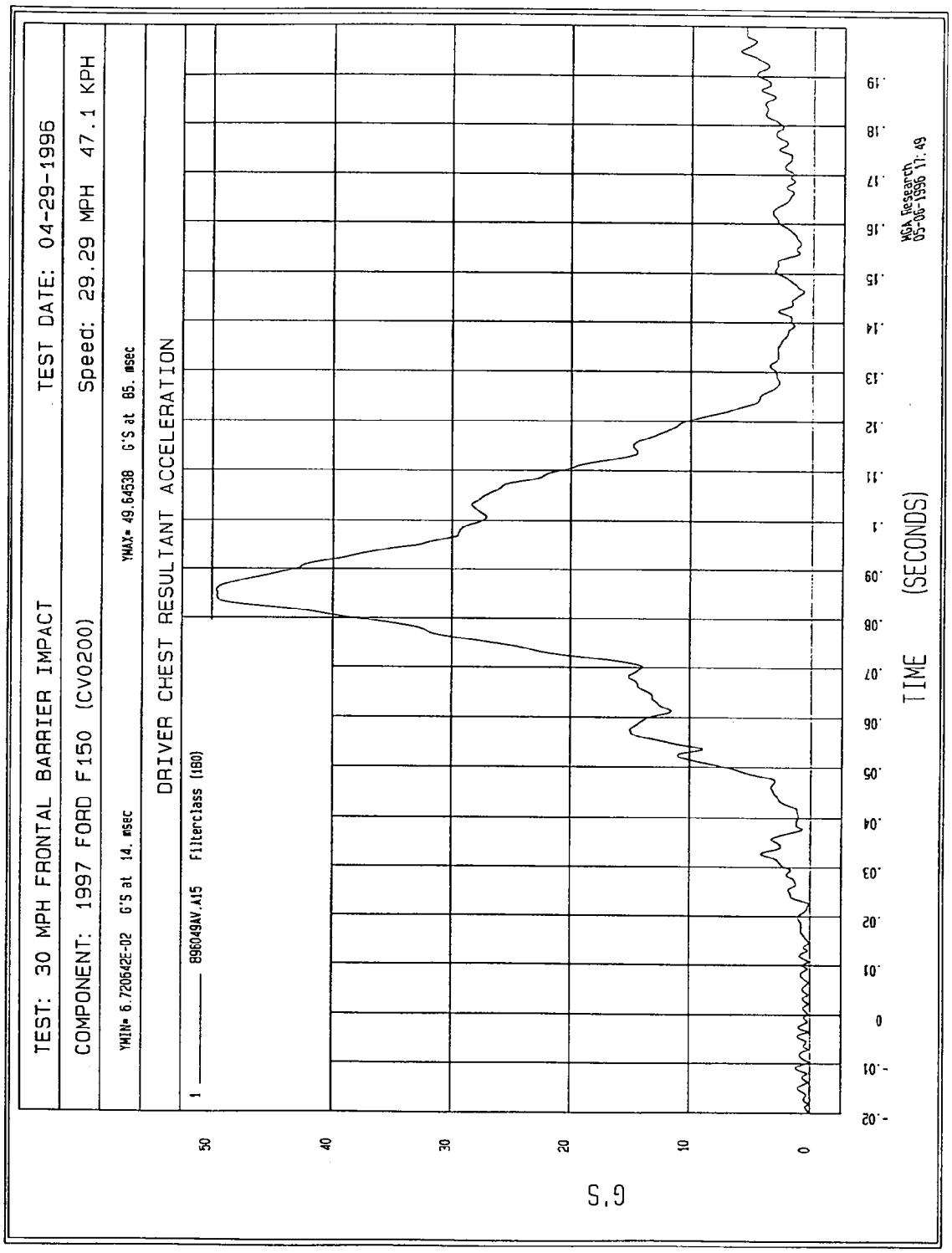
MGA Research
05-06-1996 17:49


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN= 6.720642E-02 G'S at 14. msec
YMAX= 49.64538 G'S at 85. msec
DRIVER CHEST RESULTANT ACCELERATION
1 896049AV.A15 Filterclass (180)
50
40
30
20
10
0
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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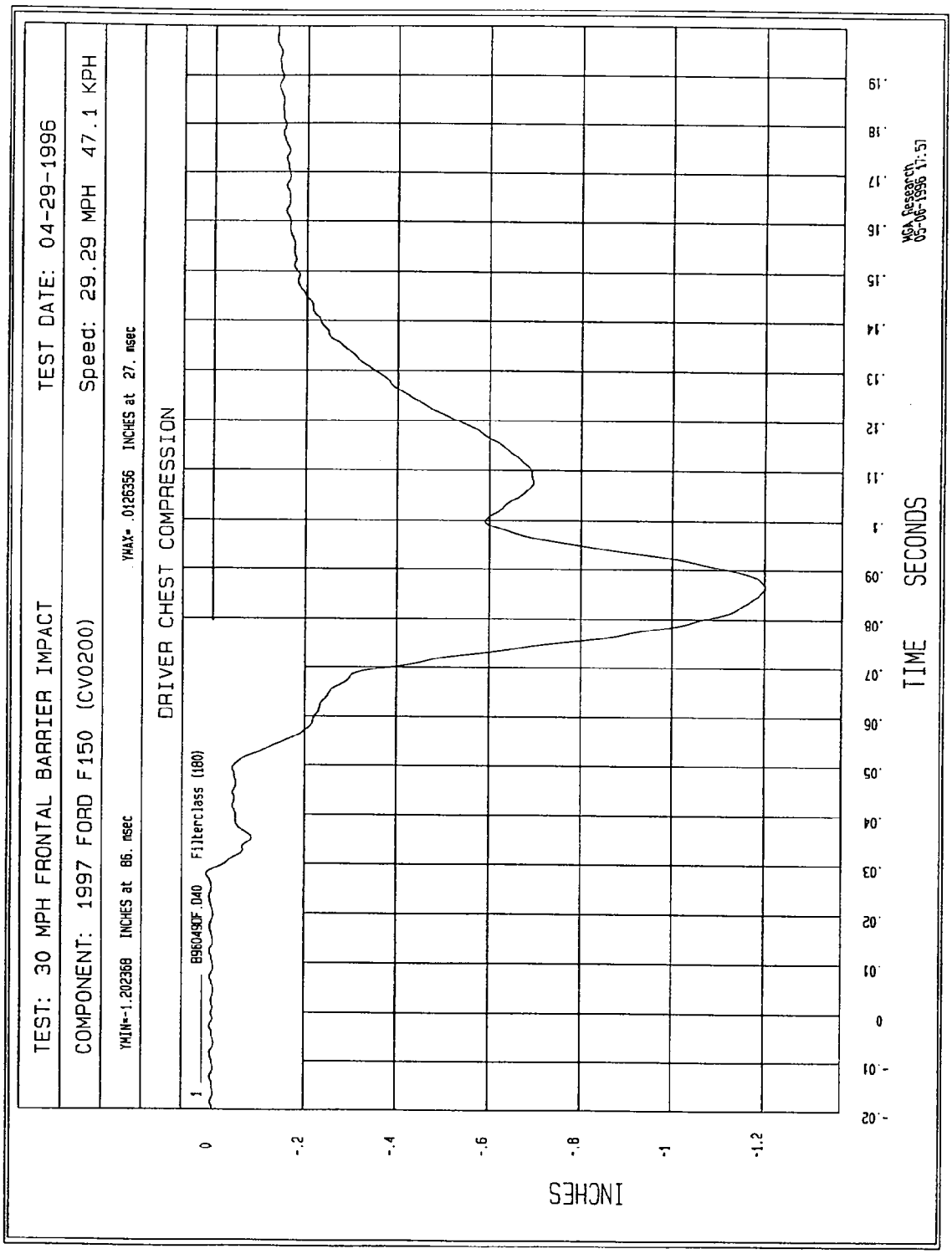
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 11:49
G's


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-1.202368 INCHES at 86. msec
YMAX= .0126356 INCHES at 27. msec
DRIVER CHEST COMPRESSION
1 B960490F.040 Filterclass (180)
INCHES
0
-.2
-.4
-.6
-.8
-1
-1.2
TIME SECONDS
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
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.11
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.13
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.16
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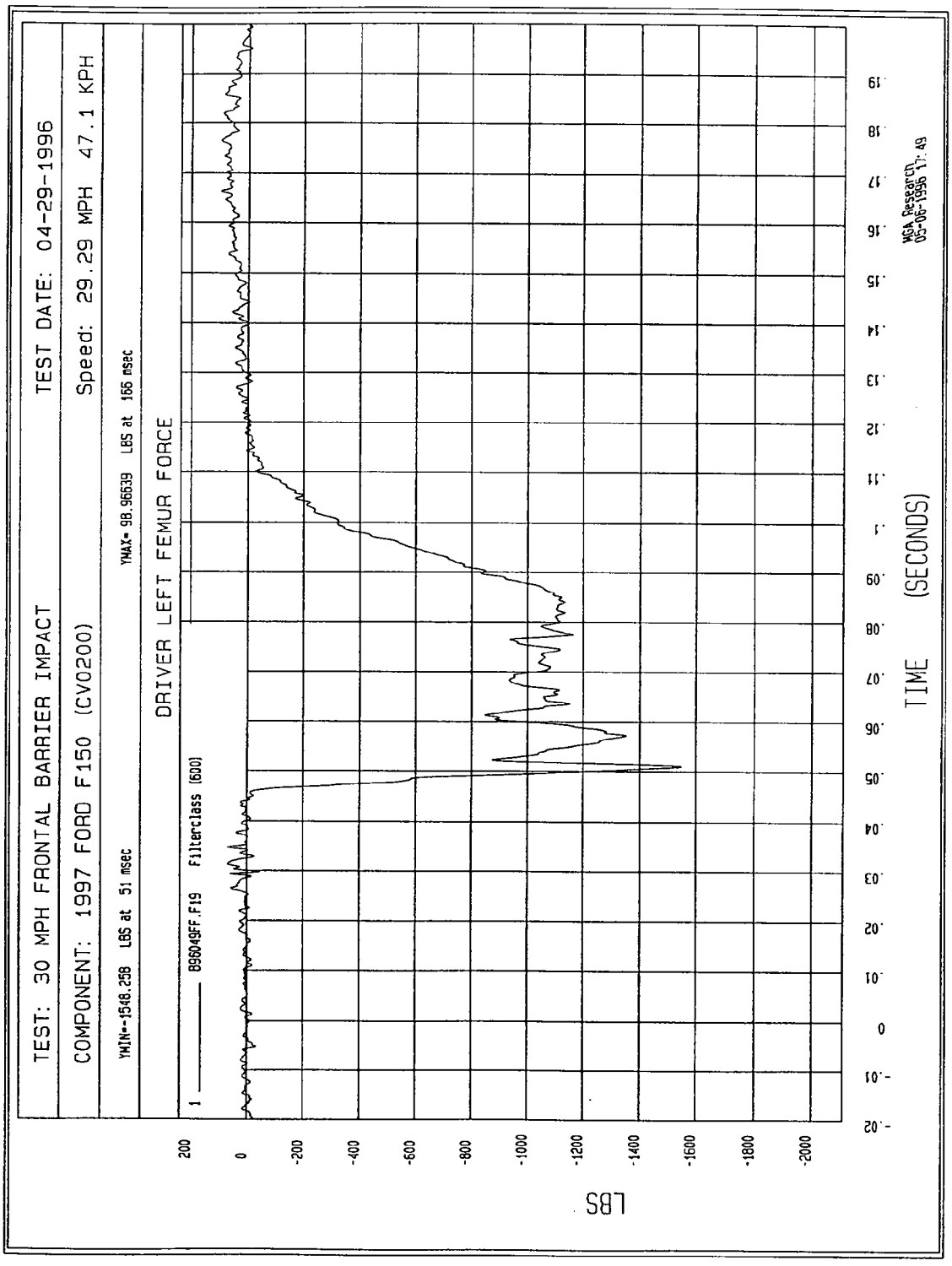
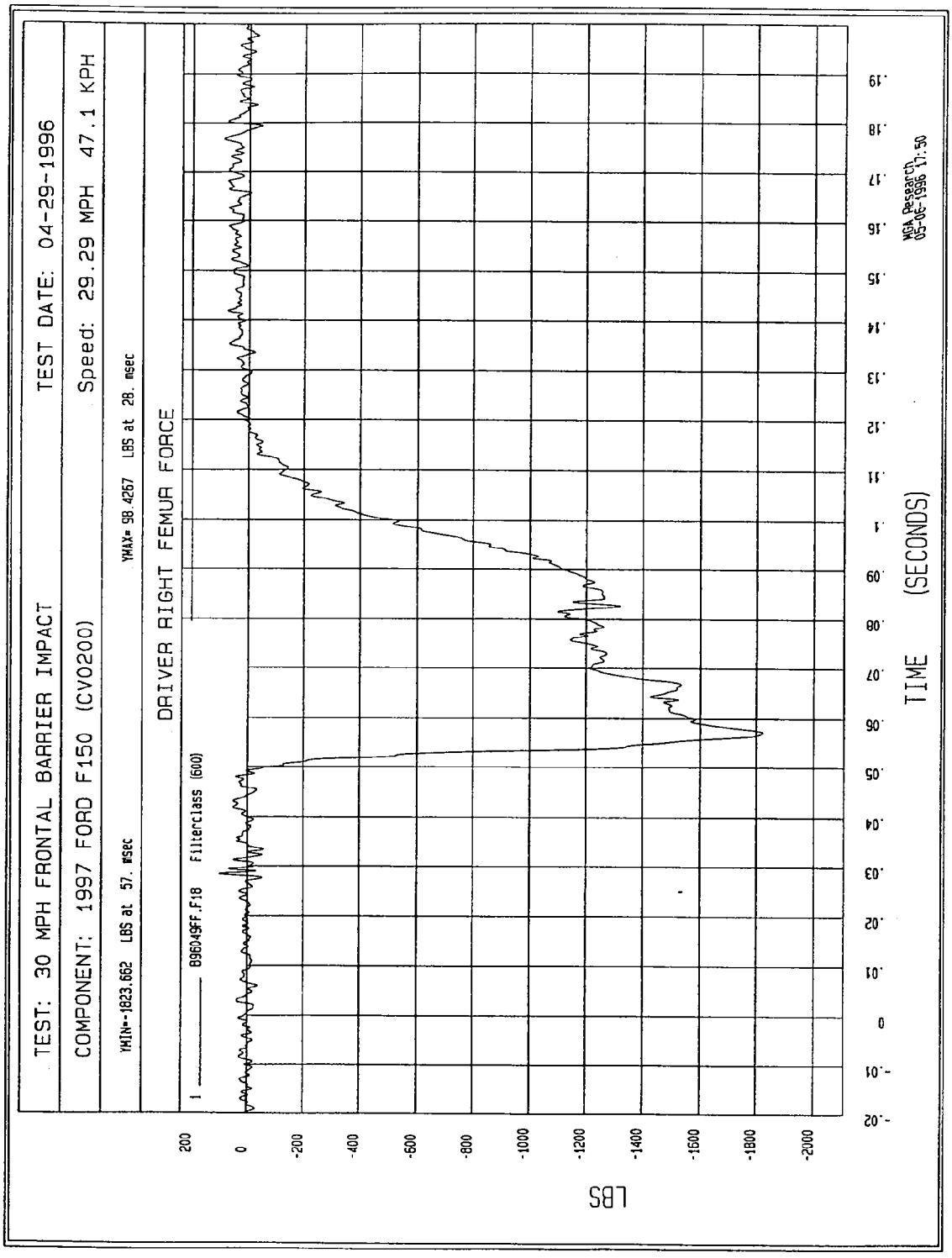
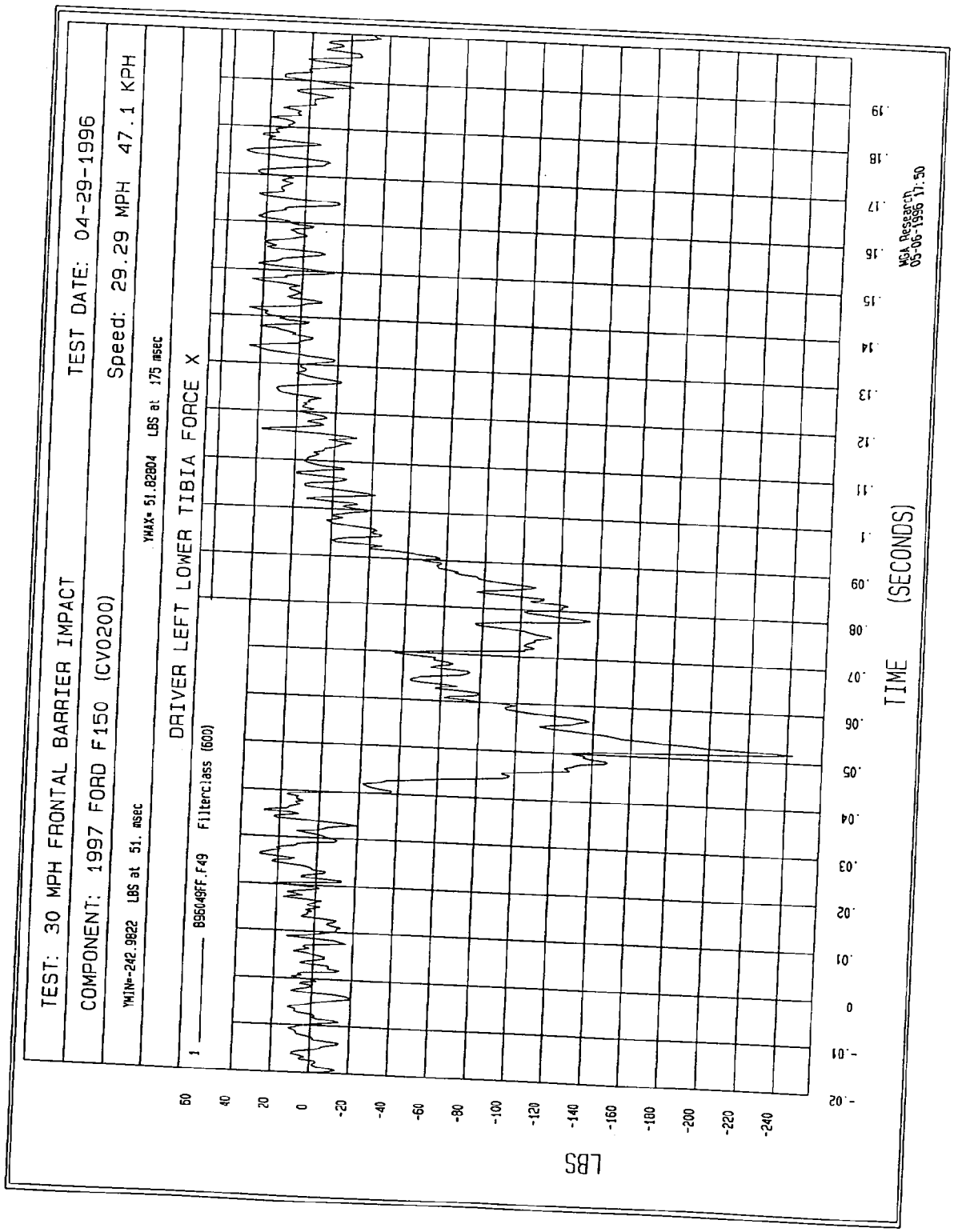
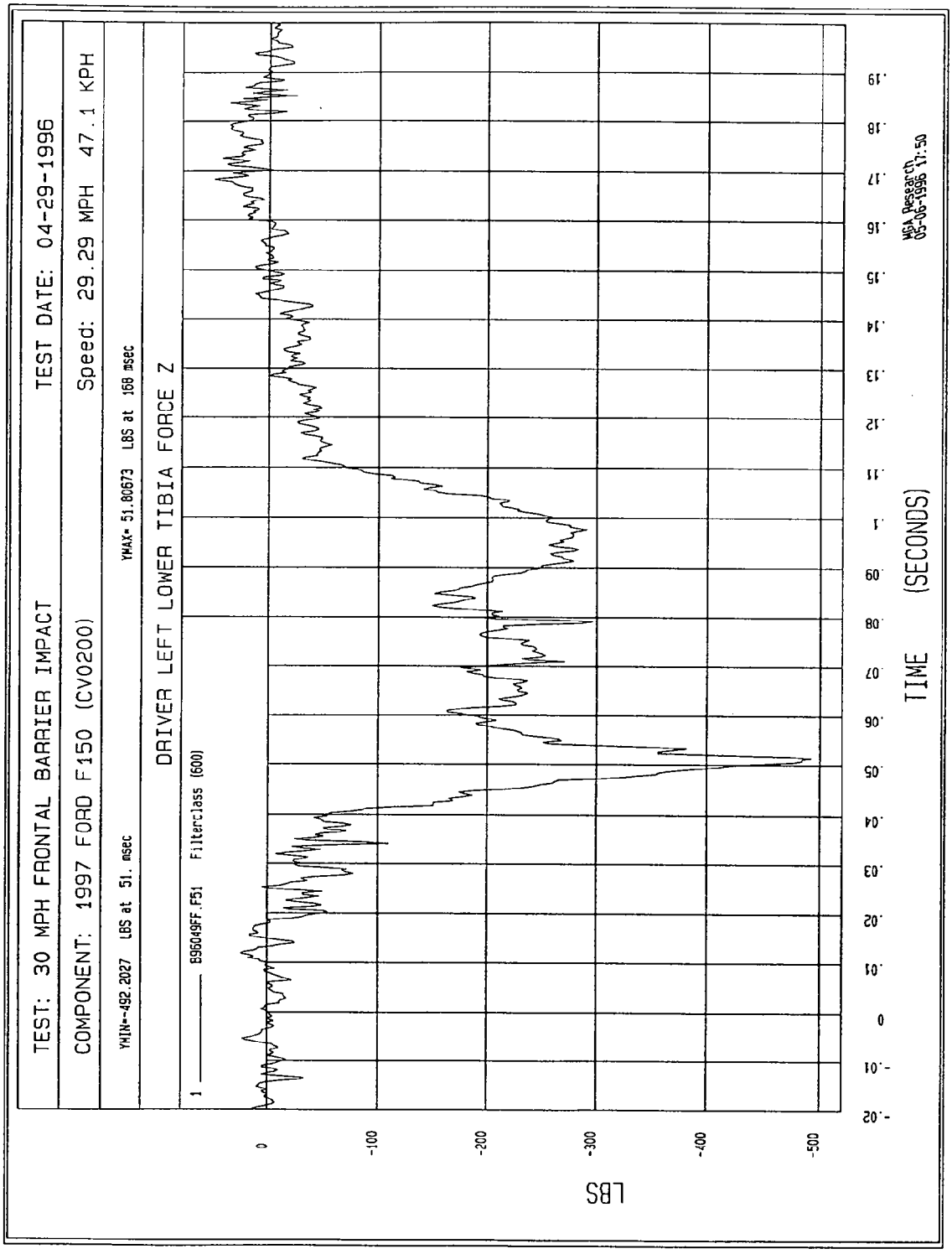
.19
MGA Research
05-06-1996 17:51


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-1548.268 LBS at 51 msec
YMAX= 98.96639 LBS at 166 msec
DRIVER LEFT FEMUR FORCE
1 B96049FF.F19 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 11:49


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-1823.662 LBS at 57. msec
YMAX= 98.4257 LBS at 28. msec
DRIVER RIGHT FEMUR FORCE
1 B96049FF.F18 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 17:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-242.9822 LBS at 51. msec
YMAX= 51.82804 LBS at 175 msec
DRIVER LEFT LOWER TIBIA FORCE X
1 B96049FF.F49 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 11:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-492.2027 LBS at 51. msec
YMAX= 51.80673 LBS at 168 msec
DRIVER LEFT LOWER TIBIA FORCE Z
1 B96049FF.F51 Filterclass (600)
LBS
0
-100
-200
-300
-400
-500
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
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.11
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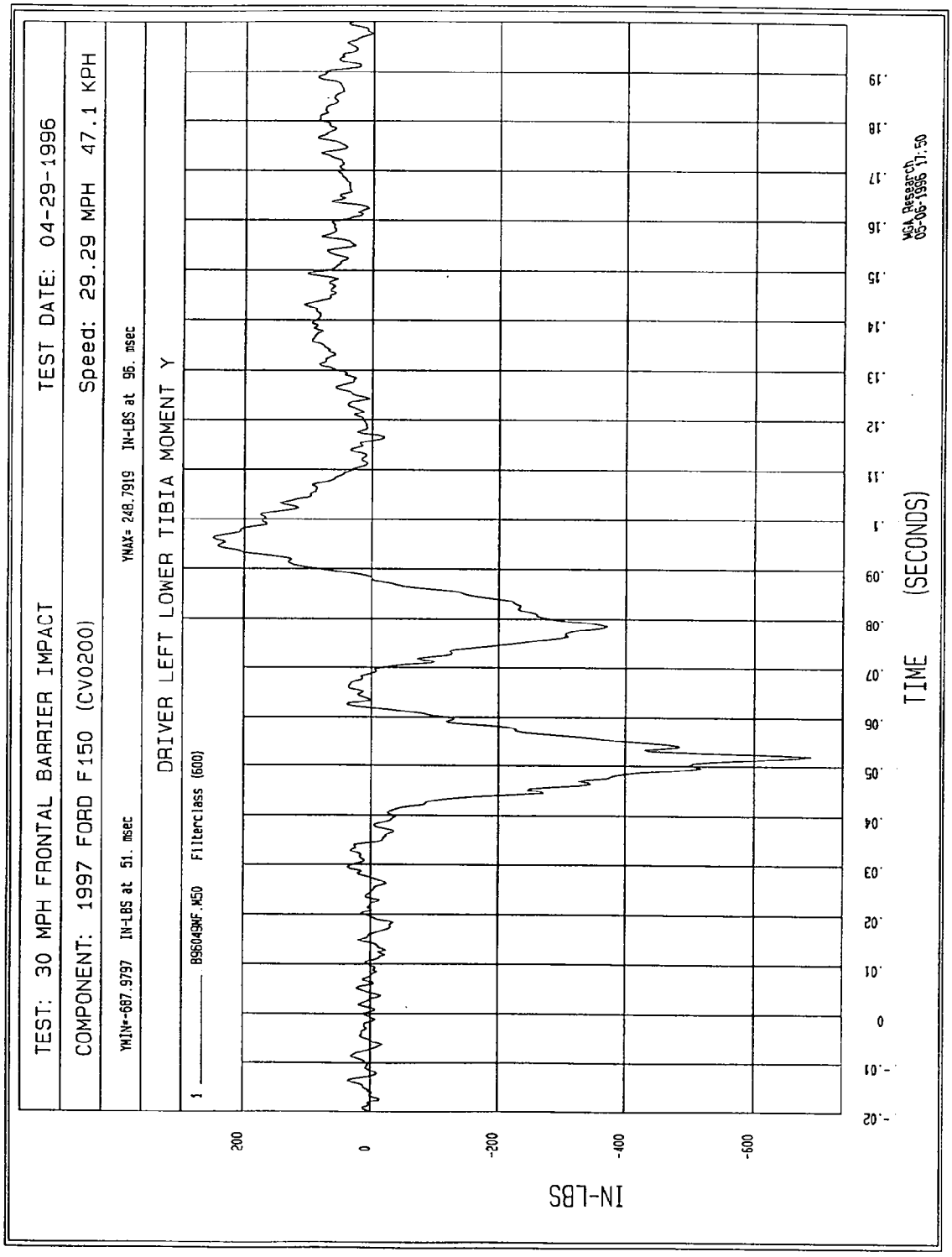
MGA Research
05-06-1996 17:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-687.9797 IN-LBS at 51. msec
YMAX= 248.7919 IN-LBS at 95. msec
DRIVER LEFT LOWER TIBIA MOMENT Y
1 B96049NF.M50 Filterclass (600)
200
0
-200
-400
-600
IN-LBS
-.02
-.01
0
.01
.02
.03
.04
.05
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.07
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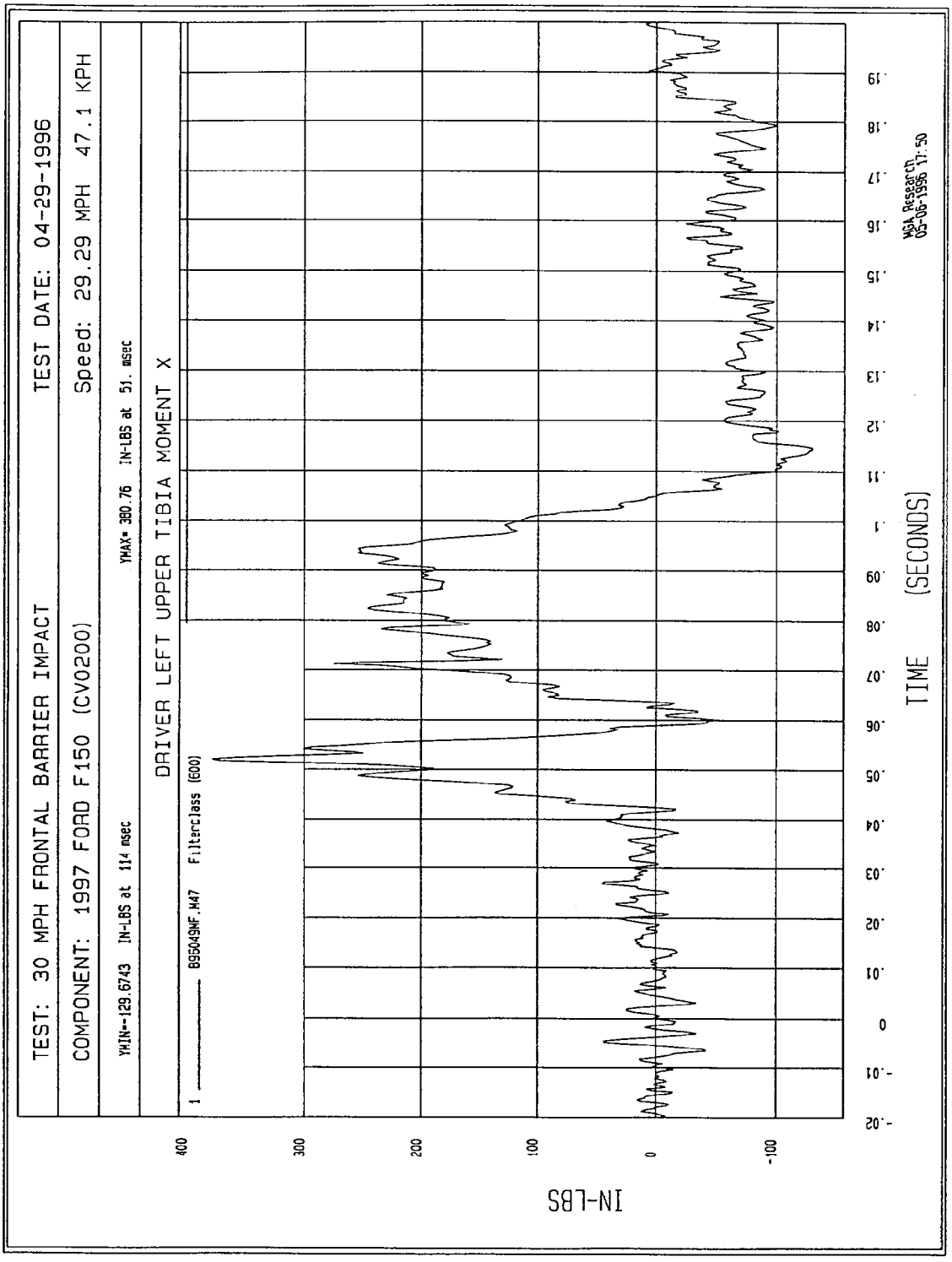
TIME (SECONDS)
MGA Research
05-06-1996 17:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-129.6743 IN-LBS at 114 msec
YMAX= 380.76 IN-LBS at 51. msec
DRIVER LEFT UPPER TIBIA MOMENT X
1 ——— 895049NF.M47 Filterclass (600)
IN-LBS
400
300
200
100
0
-100
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
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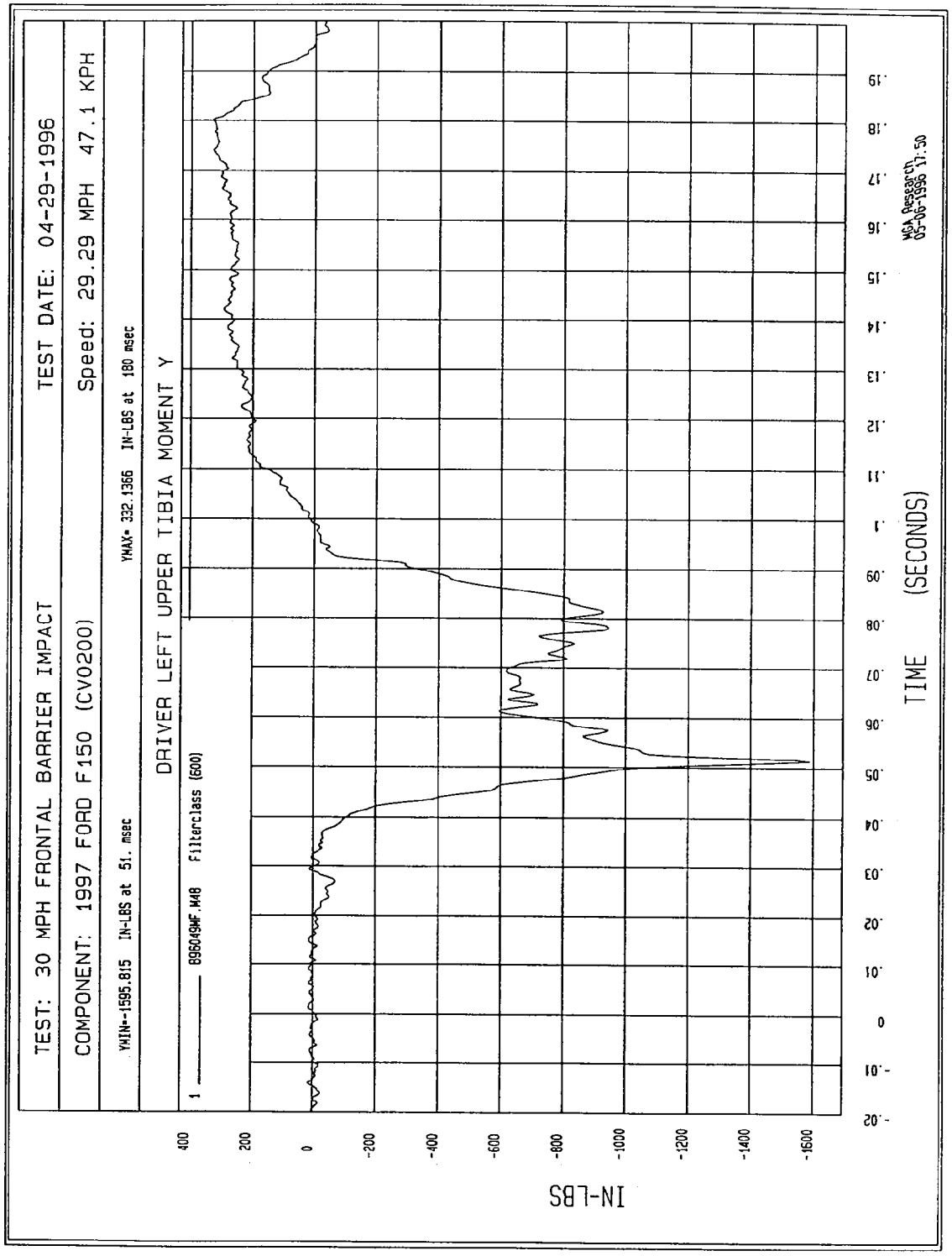
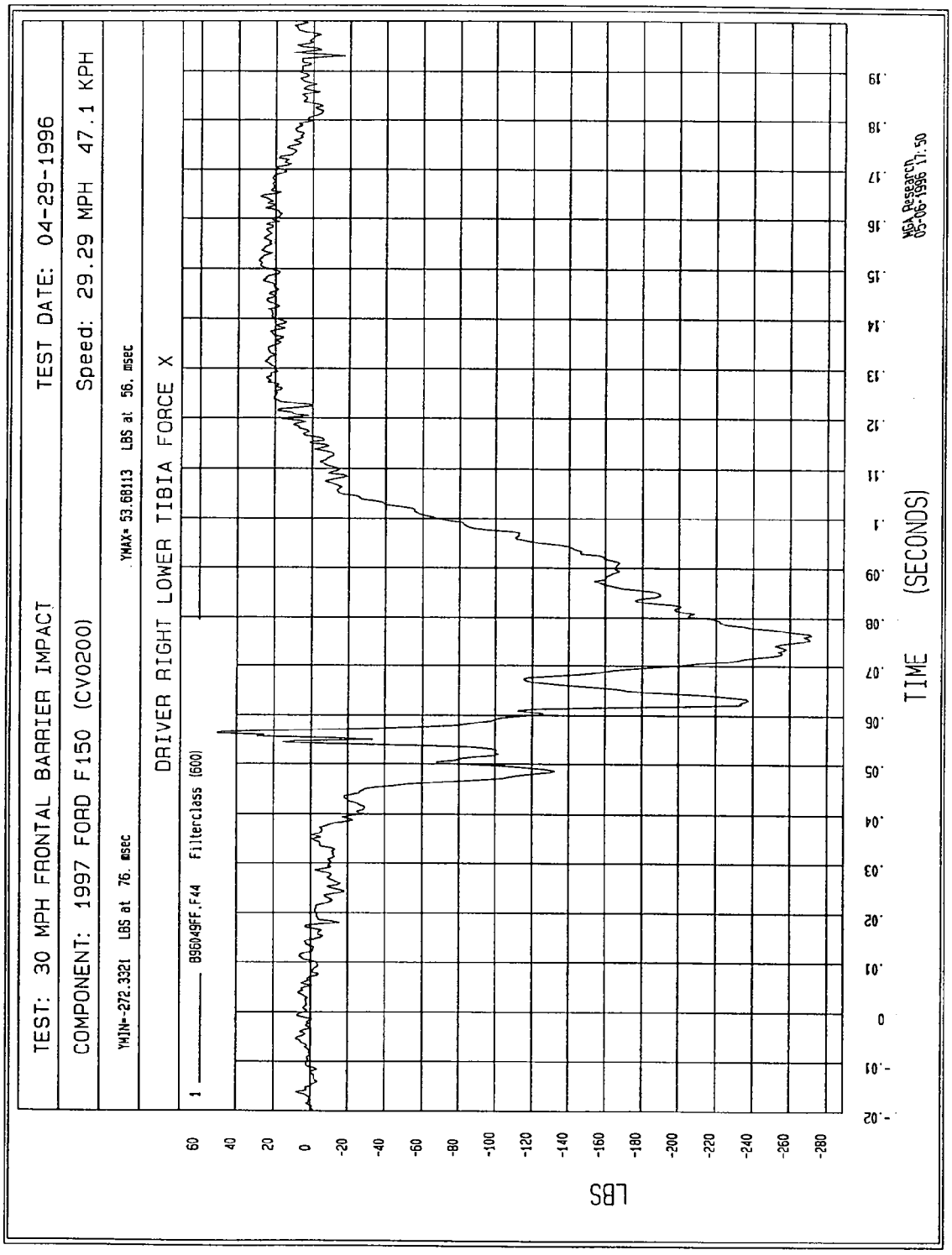
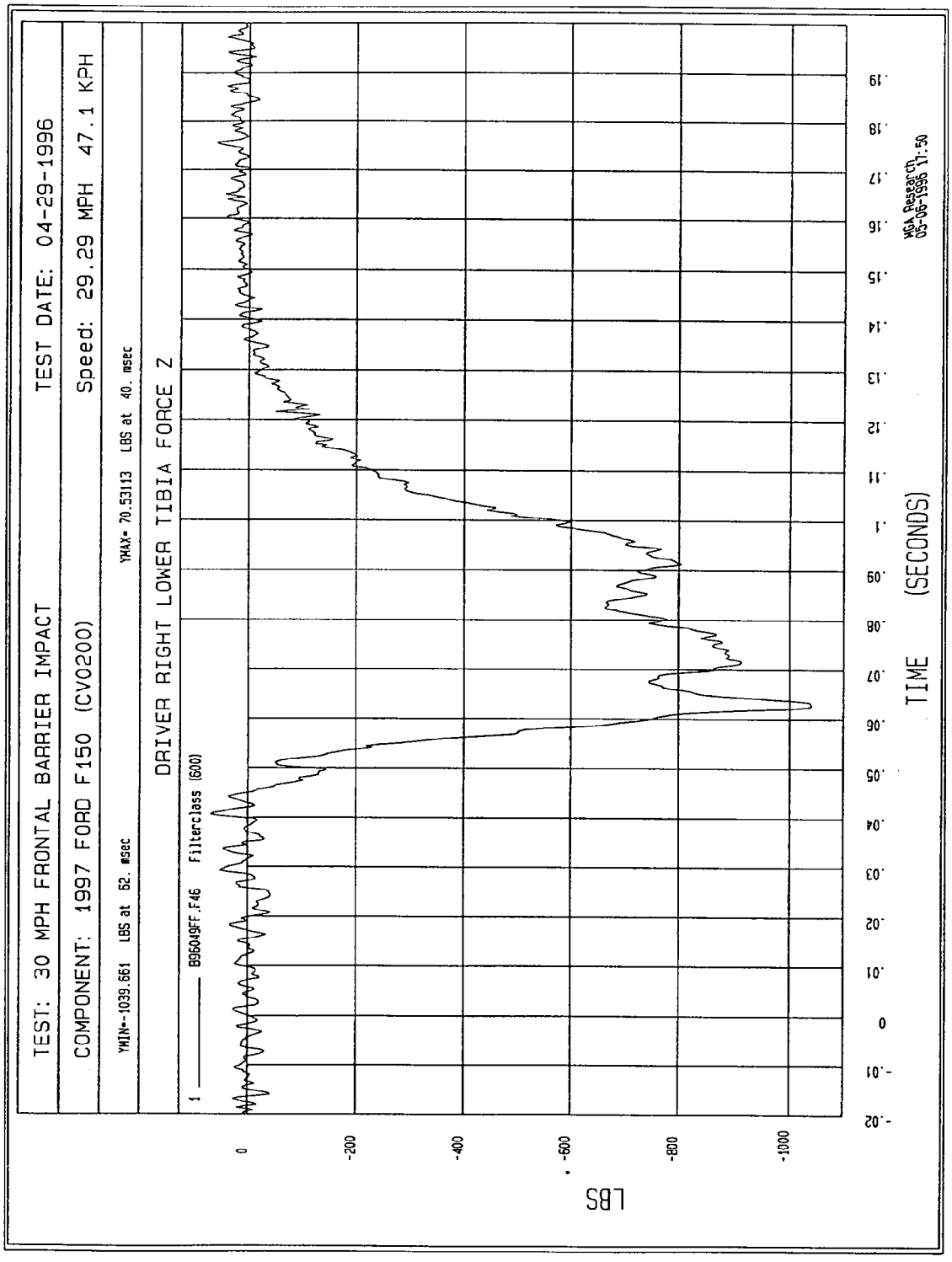
MGA Research
05-06-1996 17:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-1595.815 IN-LBS at 51. msec
YMAX= 332.1366 IN-LBS at 180 msec
DRIVER LEFT UPPER TIBIA MOMENT Y
1 _____ 8960049MF.M48 Filterclass (600)
IN-LBS
400
200
0
-200
-400
-600
-800
-1000
-1200
-1400
-1600
TIME (SECONDS)
MGA Research
05-06-1996 11:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-272.3321 LBS at 76. msec
YMAX= 53.68113 LBS at 56. msec
DRIVER RIGHT LOWER TIBIA FORCE X
1 B96049FF.F44 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 11:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-1039.661 LBS at 82. msec
YMAX= 70.53113 LBS at 40. msec
DRIVER RIGHT LOWER TIBIA FORCE Z
1 B9604SFF.F46 Filterclass (600)
LBS
0
-200
-400
-600
-800
-1000
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
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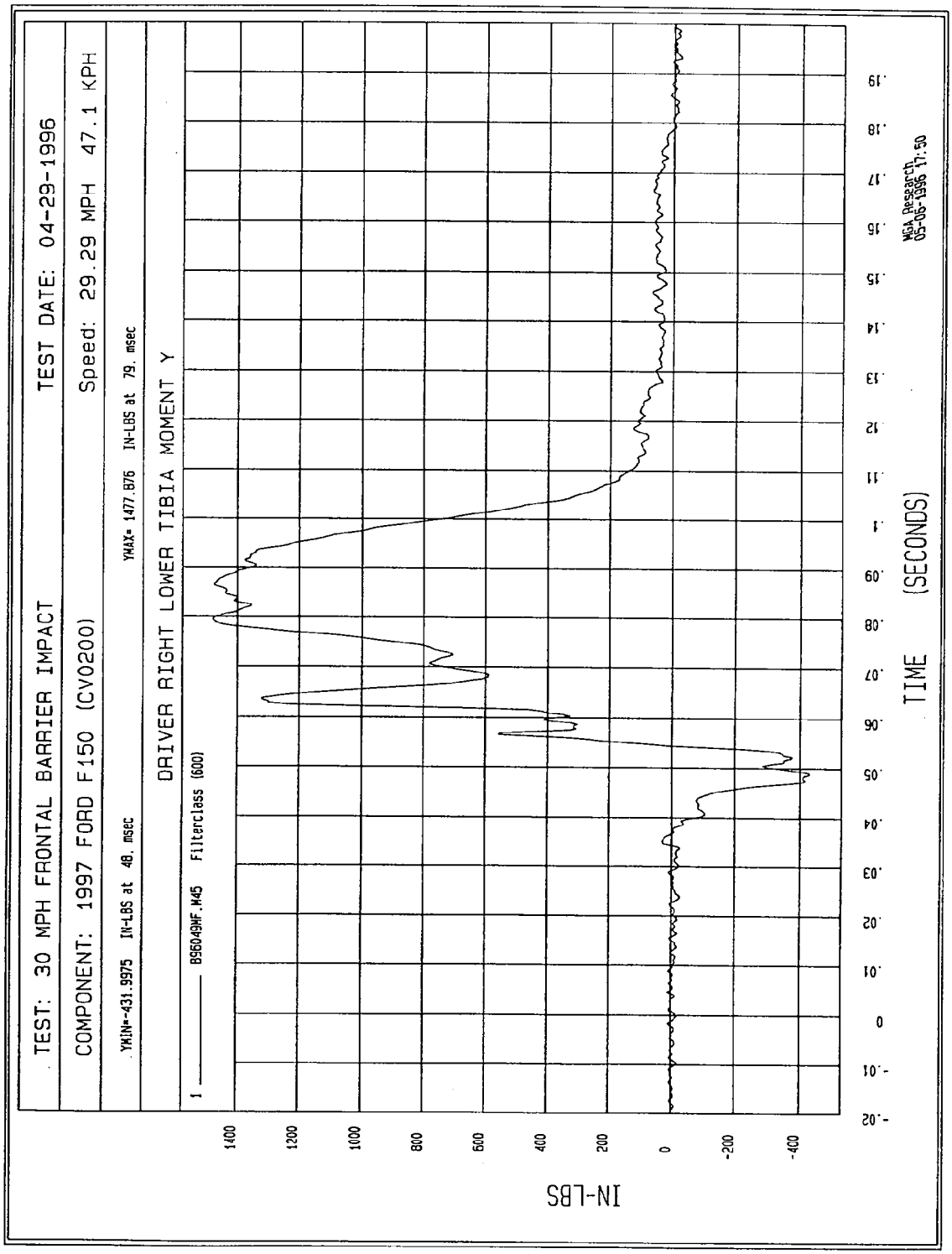
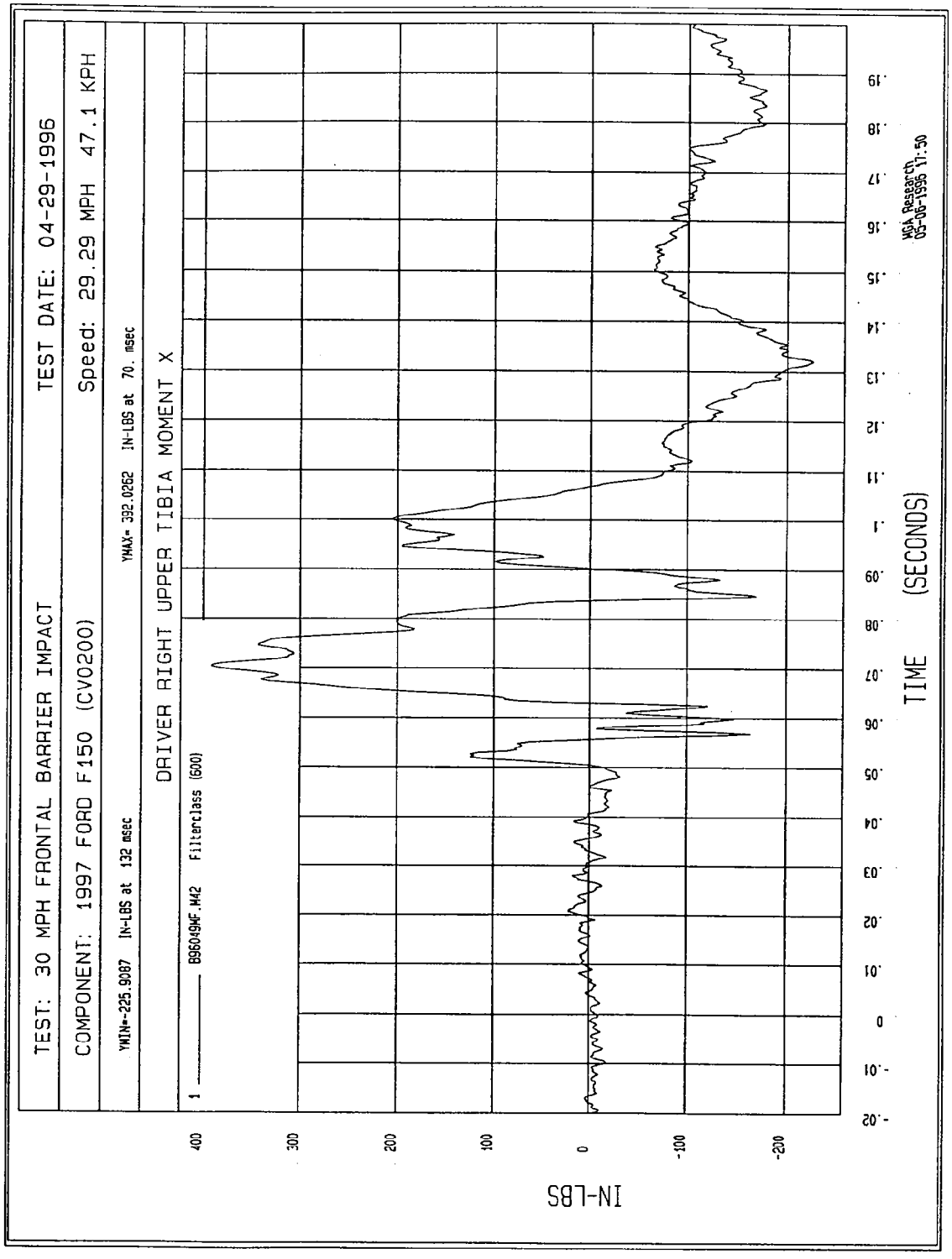
MGA Research
05-06-1996 11:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-431.9975 IN-LBS at 48. msec
YMAX= 1477.876 IN-LBS at 79. msec
DRIVER RIGHT LOWER TIBIA MOMENT Y
1 ——— 896049HF.M45 Filterclass (600)
IN-LBS
1400
1200
1000
800
600
400
200
0
-200
-400
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
MGA Research
05-06-1996 17:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-225.9087 IN-LBS at 132 msec
YMAX= 392.0262 IN-LBS at 70. msec
DRIVER RIGHT UPPER TIBIA MOMENT X
1 B96049MF.M42 Filterclass (600)
IN-LBS
400
300
200
100
0
-100
-200
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
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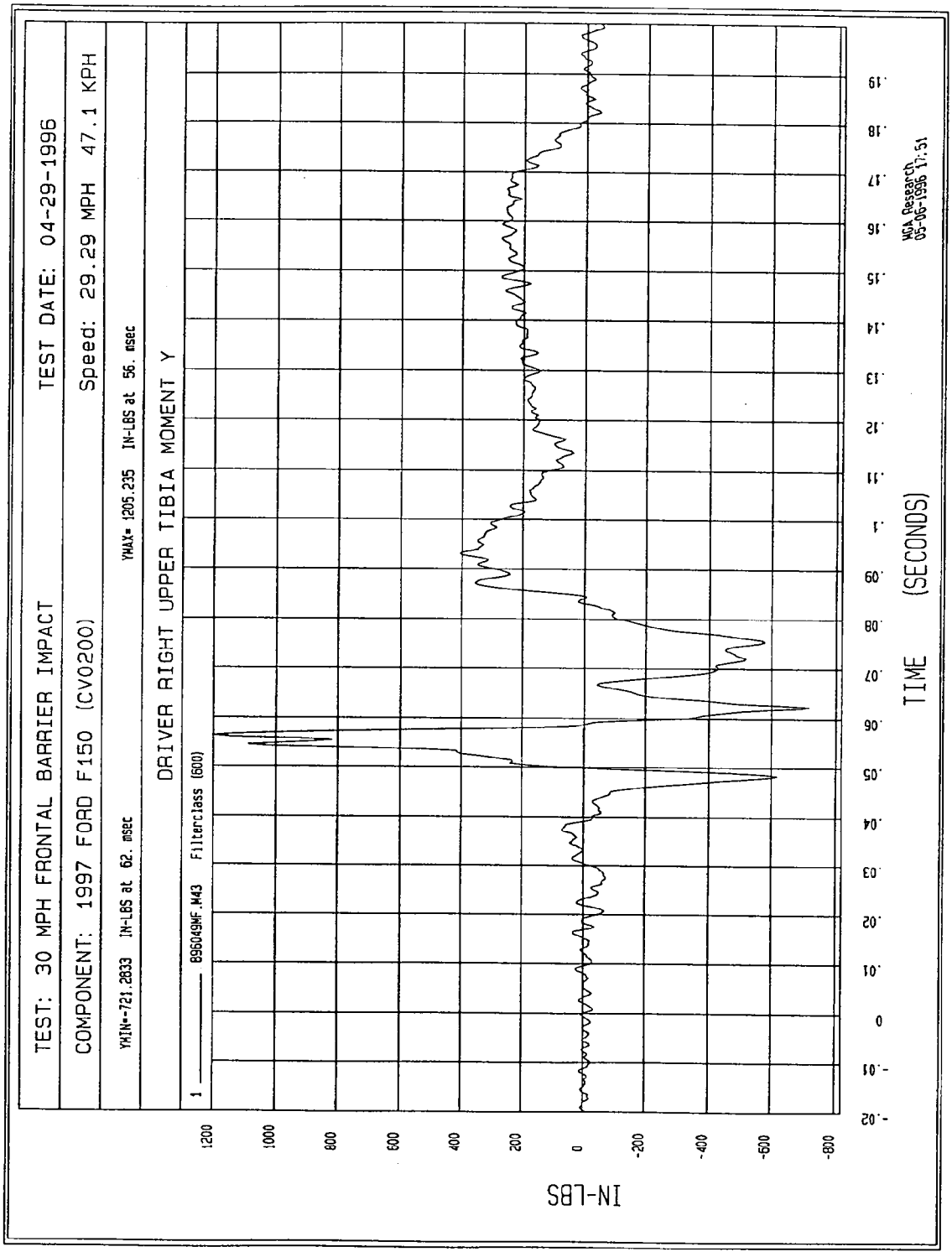
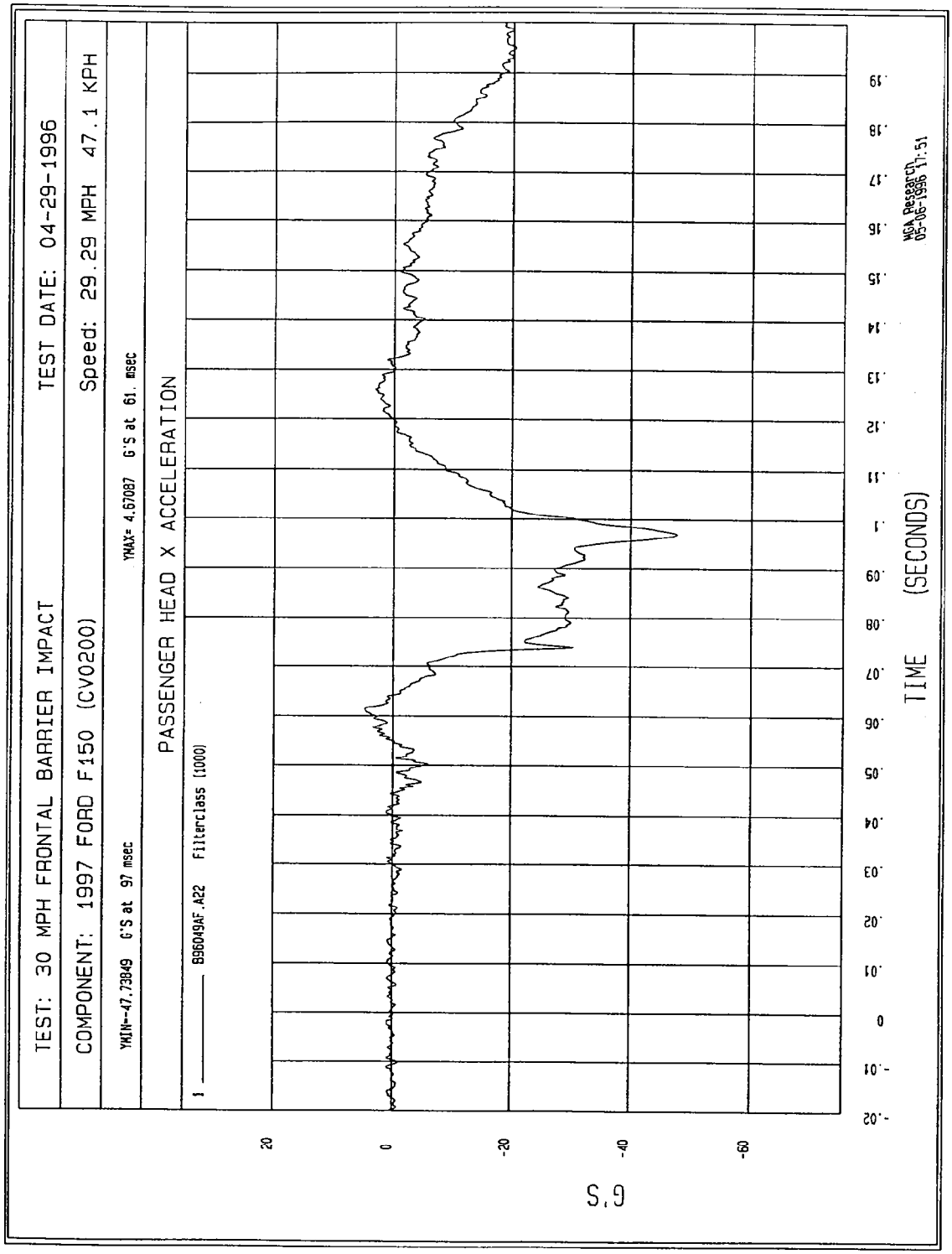
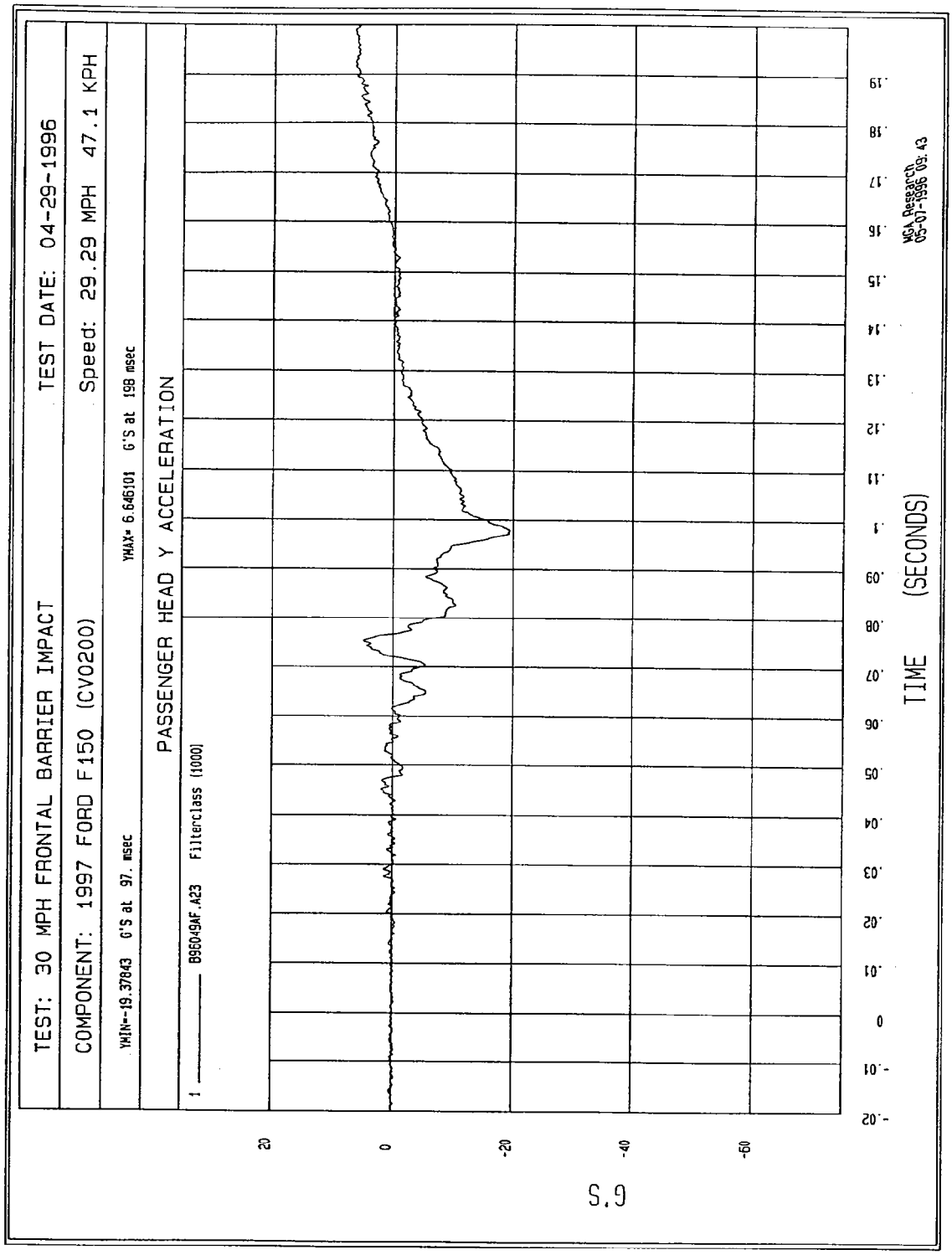
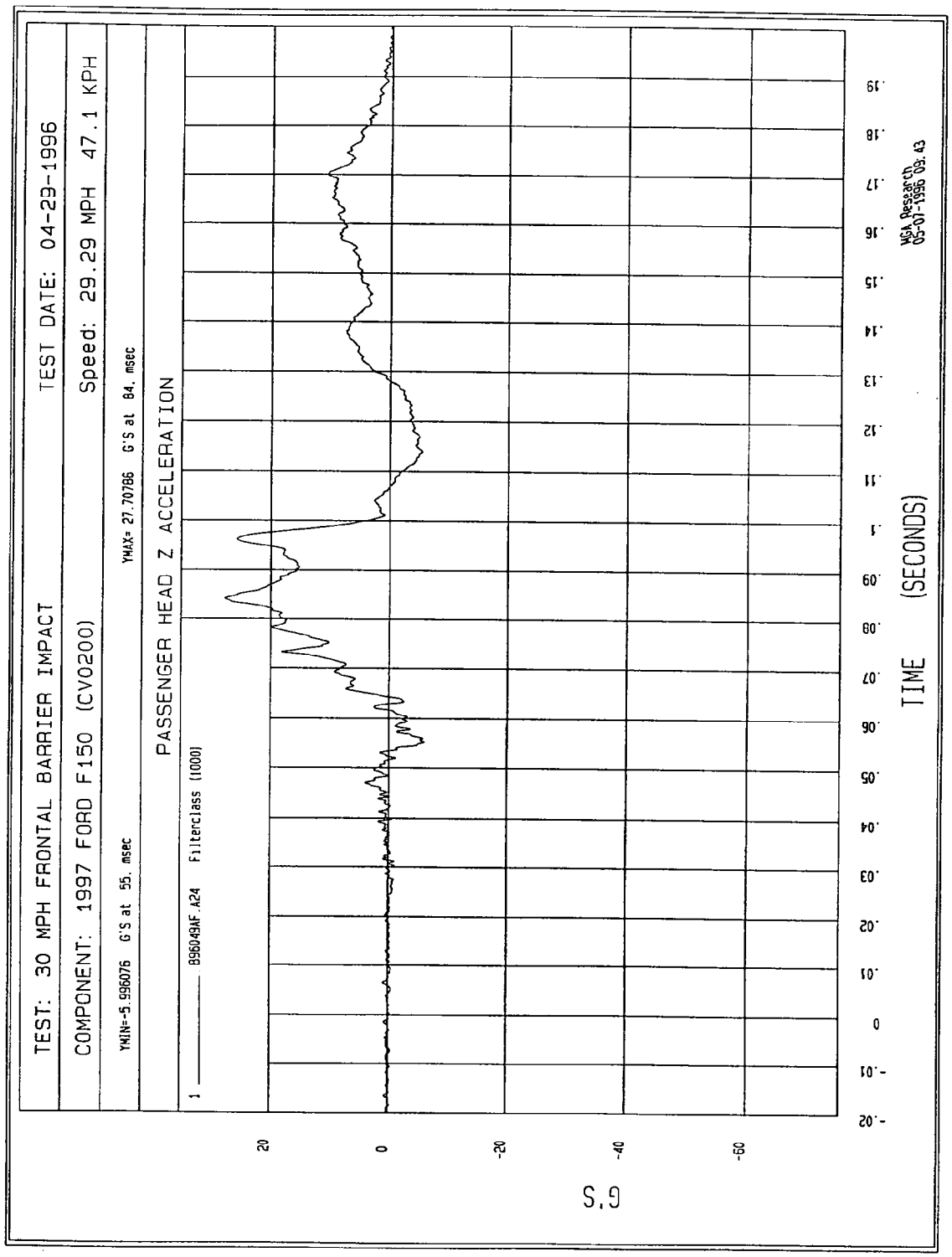
.18
.19
MGA Research
05-06-1996 11:50


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-721.2833 IN-LBS at 62. msec
YMAX= 1205.235 IN-LBS at 56. msec
DRIVER RIGHT UPPER TIBIA MOMENT Y
1 896049NF.M43 Filterclass (600)
1200
1000
800
600
400
200
0
-200
-400
-600
-800
IN-LBS
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 17:51


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-47.73849 G'S at 97 msec
YMAX= 4.67087 G'S at 61. msec
PASSENGER HEAD X ACCELERATION
1 B96049AF.A22 Filterclass (1000)
20
0
-20
-40
-60
G's
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 11:51


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-19.37843 G'S at 97. msec
YMAX= 6.646101 G'S at 198 msec
PASSENGER HEAD Y ACCELERATION
1 B9604AF.A23 Filterclass (1000)
20
0
-20
-40
-60
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-07-1996 09:43


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-5.996076 G'S at 55. msec
YMAX= 27.70786 G'S at 84. msec
PASSENGER HEAD Z ACCELERATION
1 _____ 896049AF.A24 Filterclass (1000)
20
0
-20
-40
-60
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
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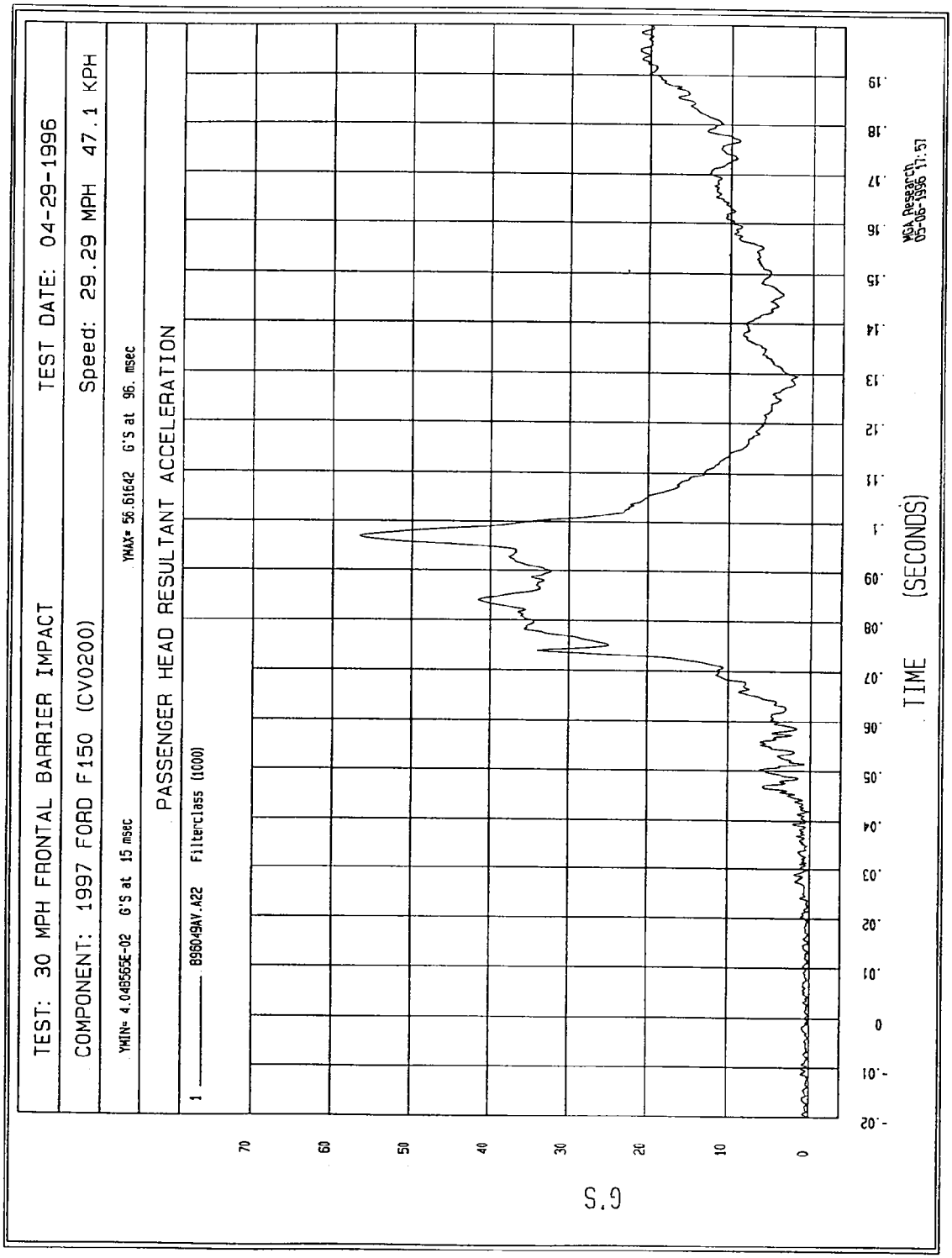
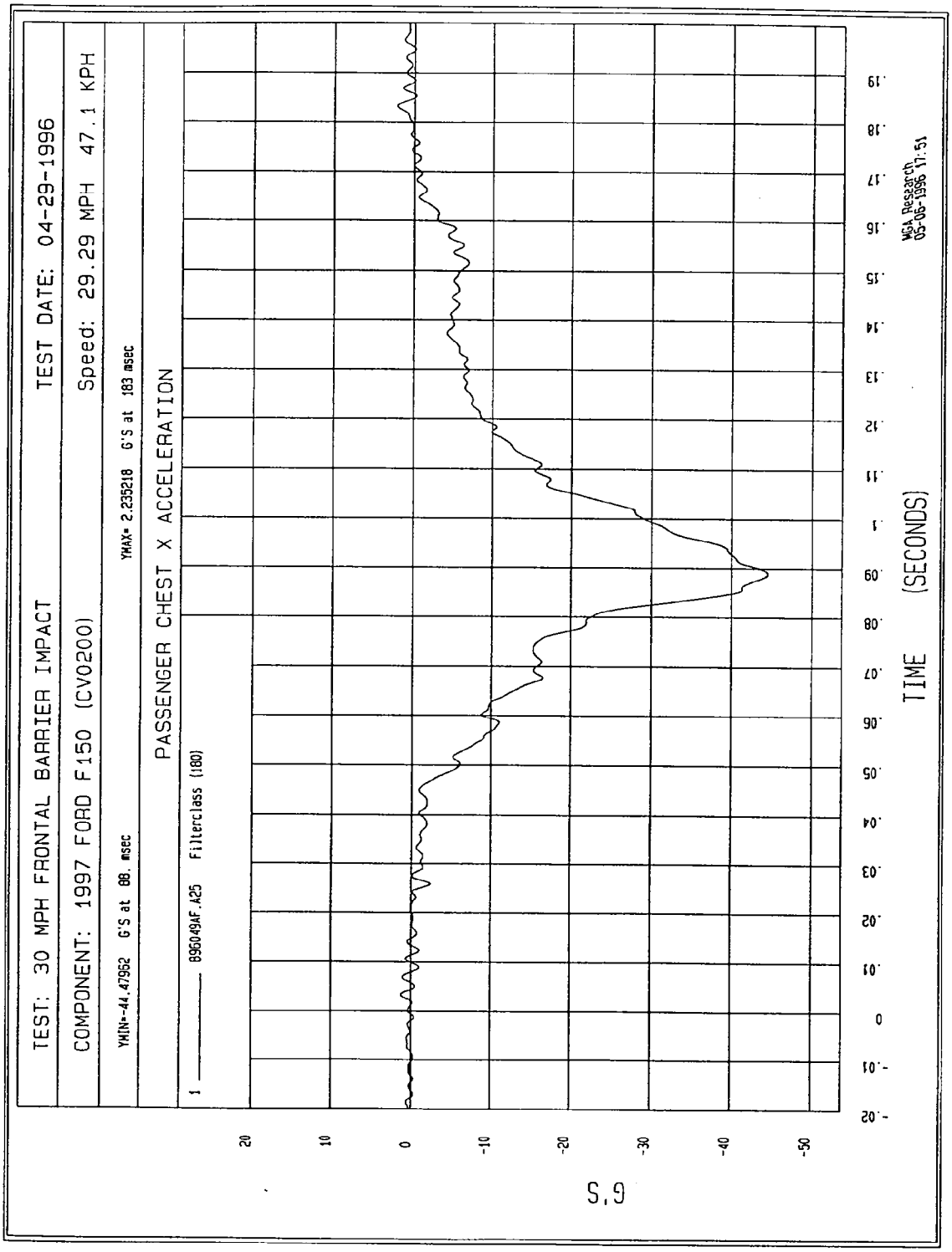
.18
.19
TIME (SECONDS)
MGA Research
05-01-1996 09:43


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN= 4.048565E-02 G'S at 15 msec
YMAX= 56.61642 G'S at 96. msec
PASSENGER HEAD RESULTANT ACCELERATION
1 B96049AY.A22 Filterclass (1000)
70
60
50
40
30
20
10
0
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 11:51


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-44.47962 G'S at 88. msec
YMAX= 2.235218 G'S at 183 msec
PASSENGER CHEST X ACCELERATION
1 ——— 896049AF.A25 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
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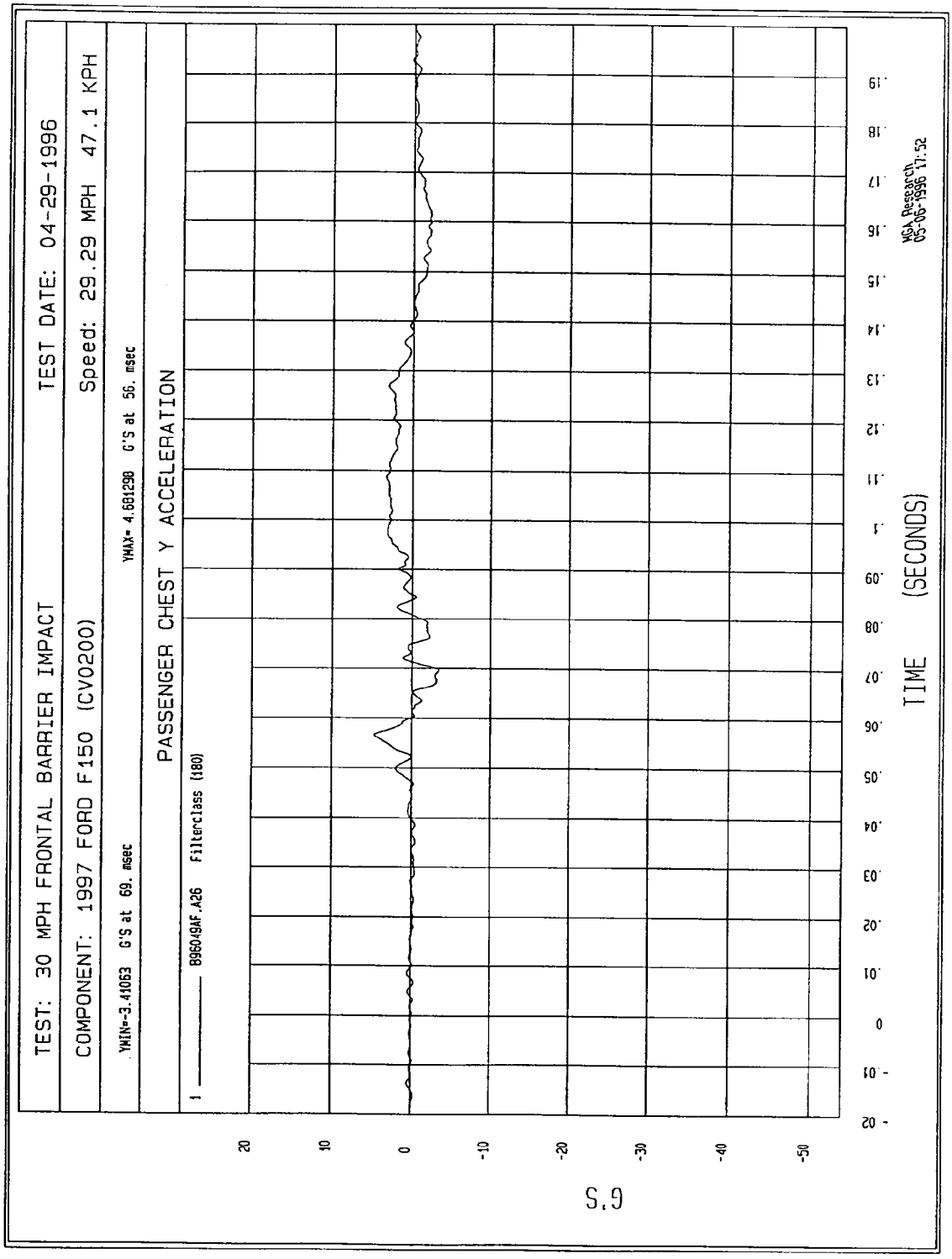
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 17:51


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-3.41063 G'S at 69. msec
YMAX= 4.681298 G'S at 56. msec
PASSENGER CHEST Y ACCELERATION
1 B9604SAF.A26 FilterClass (180)
20
10
0
-10
-20
-30
-40
-50
G'S
-02
-01
0
.01
.02
.03
.04
.05
.06
.07
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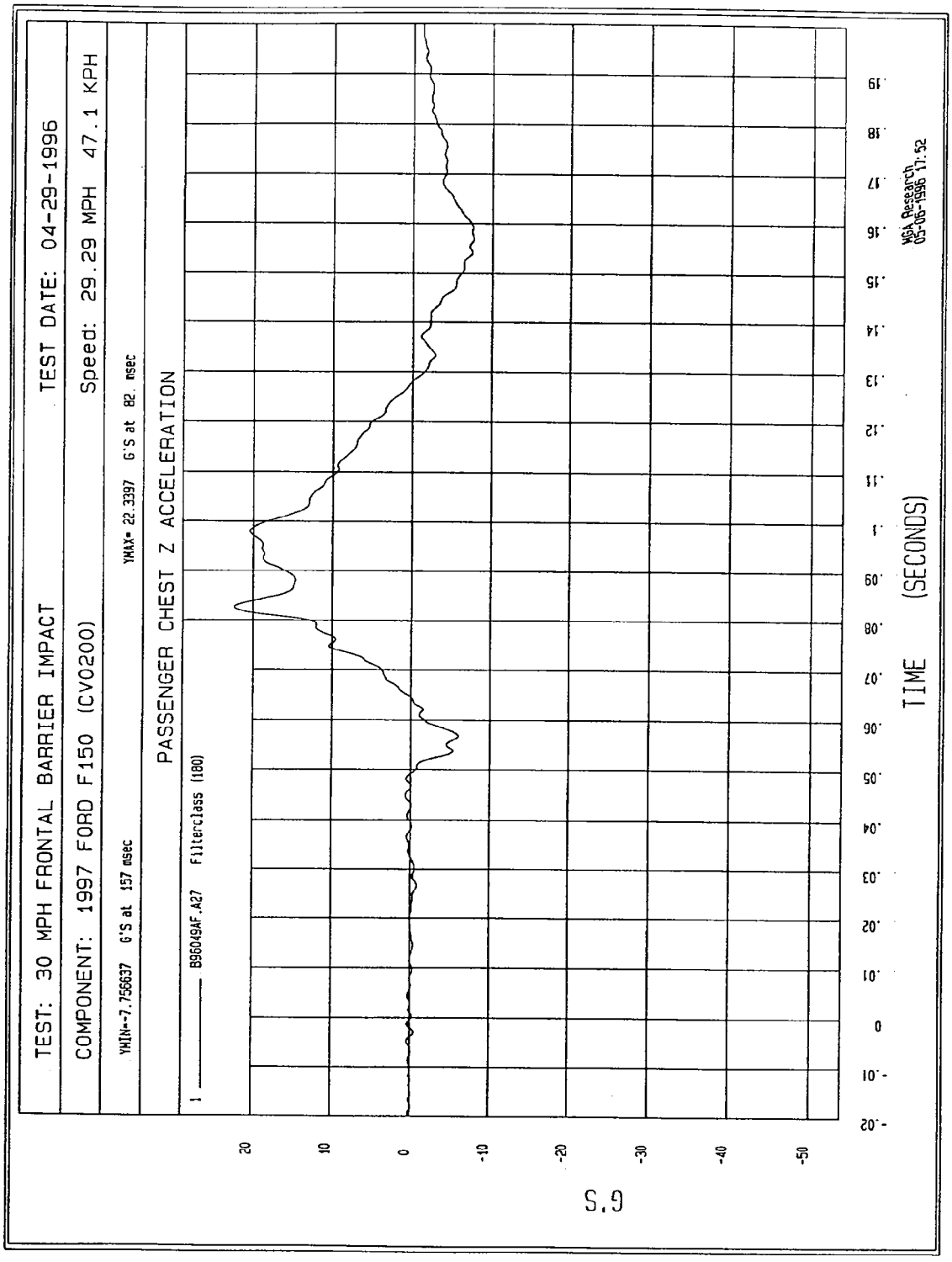
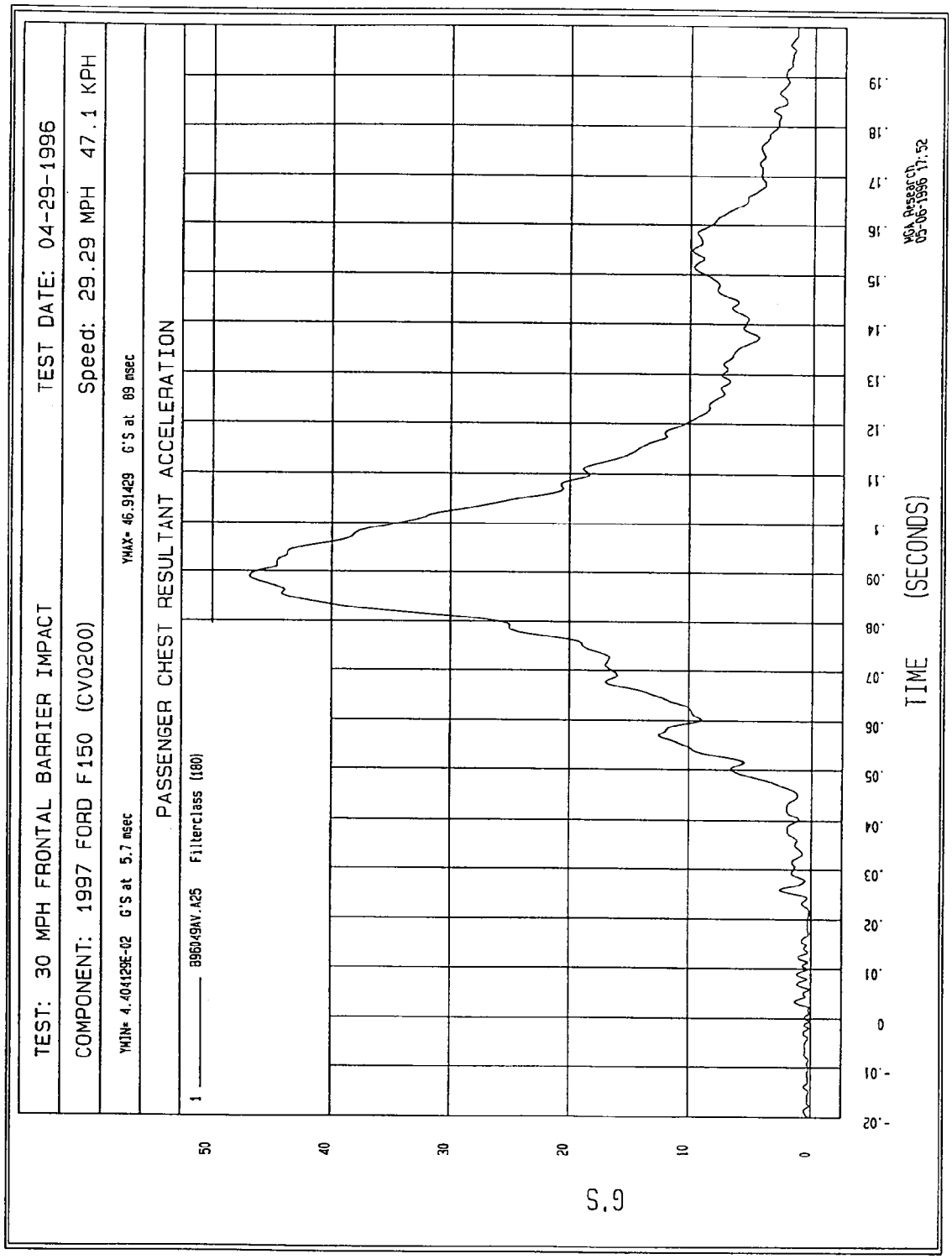
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 17:52


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-7.756637 G'S at 157 msec
YMAX= 22.3397 G'S at 82. msec
PASSENGER CHEST Z ACCELERATION
1 B96049AF.A27 Filterclass (180)
20
10
0
-10
-20
-30
-40
-50
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 17:52


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN= 4.404129E-02 G'S at 5.7 msec
YMAX= 46.91429 G'S at 89 msec
PASSENGER CHEST RESULTANT ACCELERATION
1 B96049AV.A25 Filterclass (180)
50
40
30
20
10
0
-10
-20
.00
.01
.02
.03
.04
.05
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.08
.09
.1
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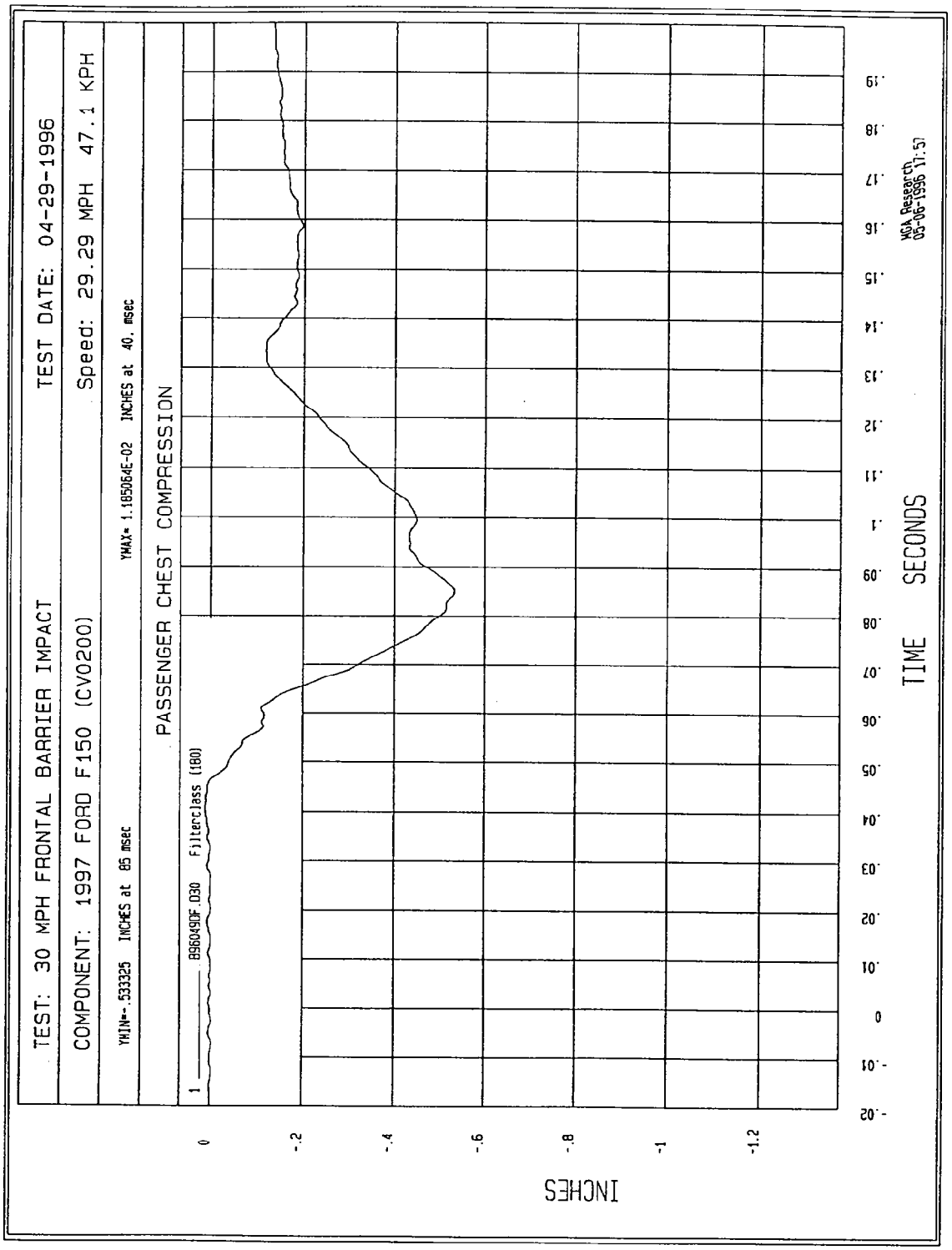
TIME (SECONDS)
MGA Research
05-06-1996 17:52
5.9


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-.533325 INCHES at 85 msec
YMAX= 1.185064E-02 INCHES at 40. msec
PASSENGER CHEST COMPRESSION
1 B960490F.030 Filterclass (180)
INCHES
0
-.2
-.4
-.6
-.8
-1
-1.2
TIME SECONDS
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
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.18
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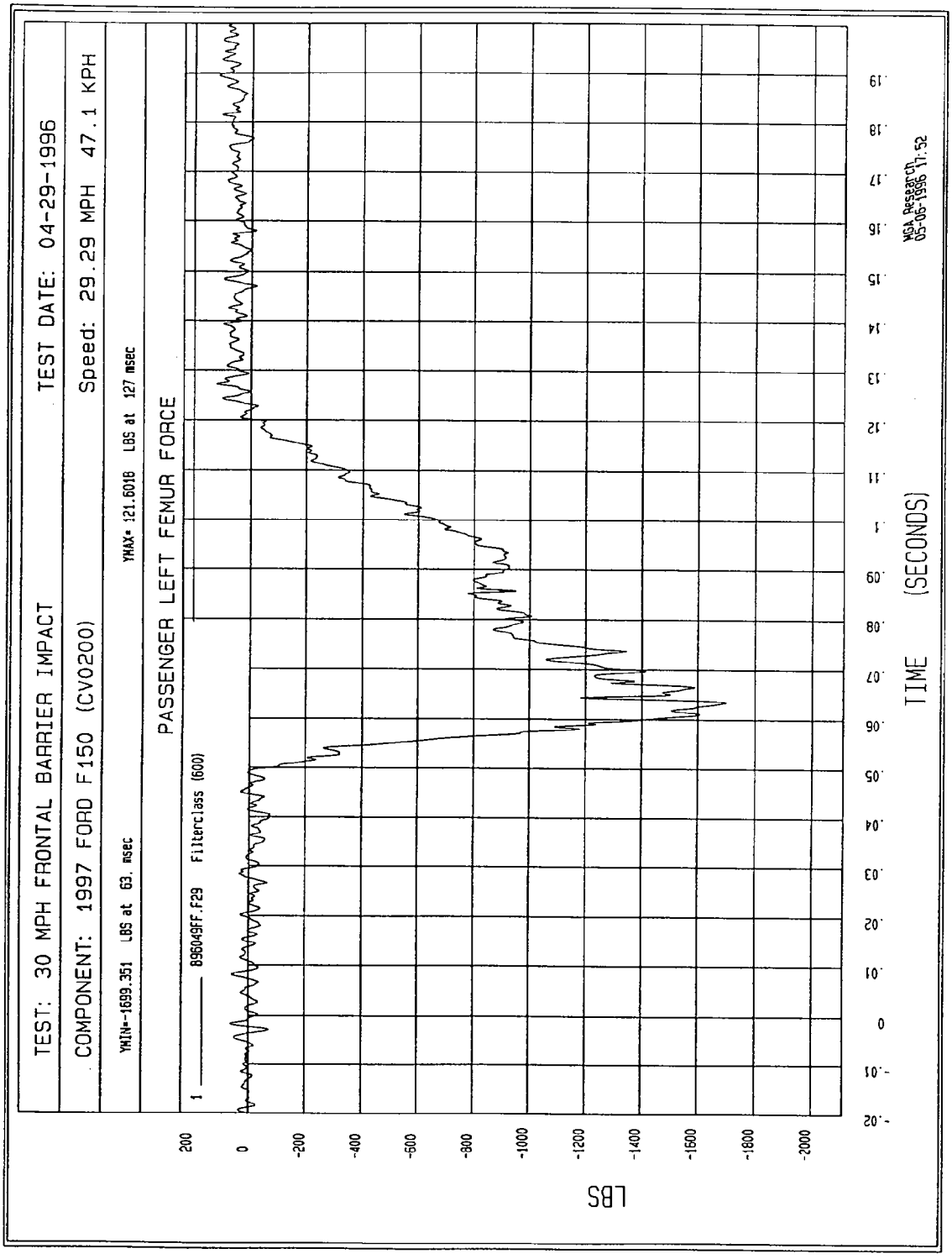
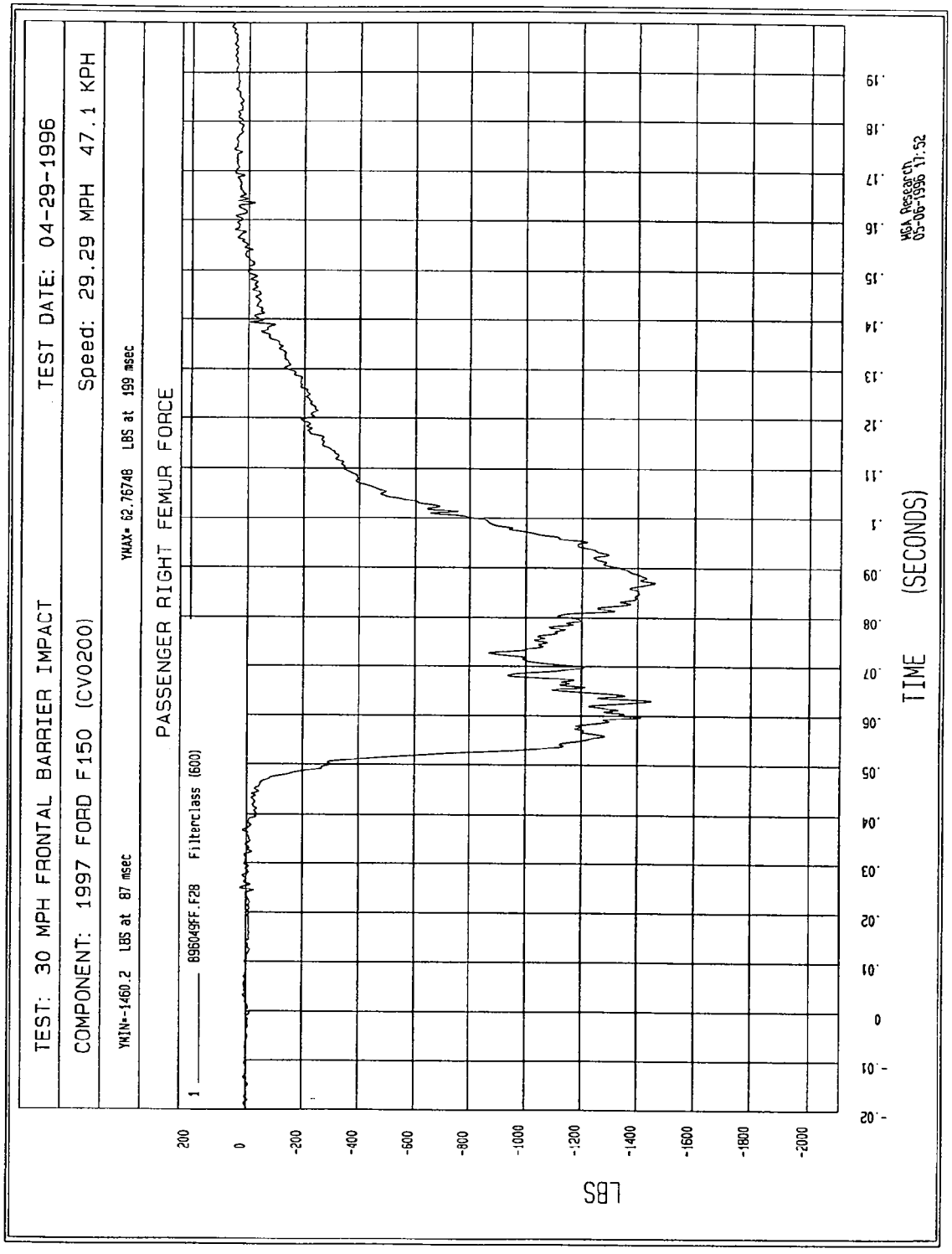
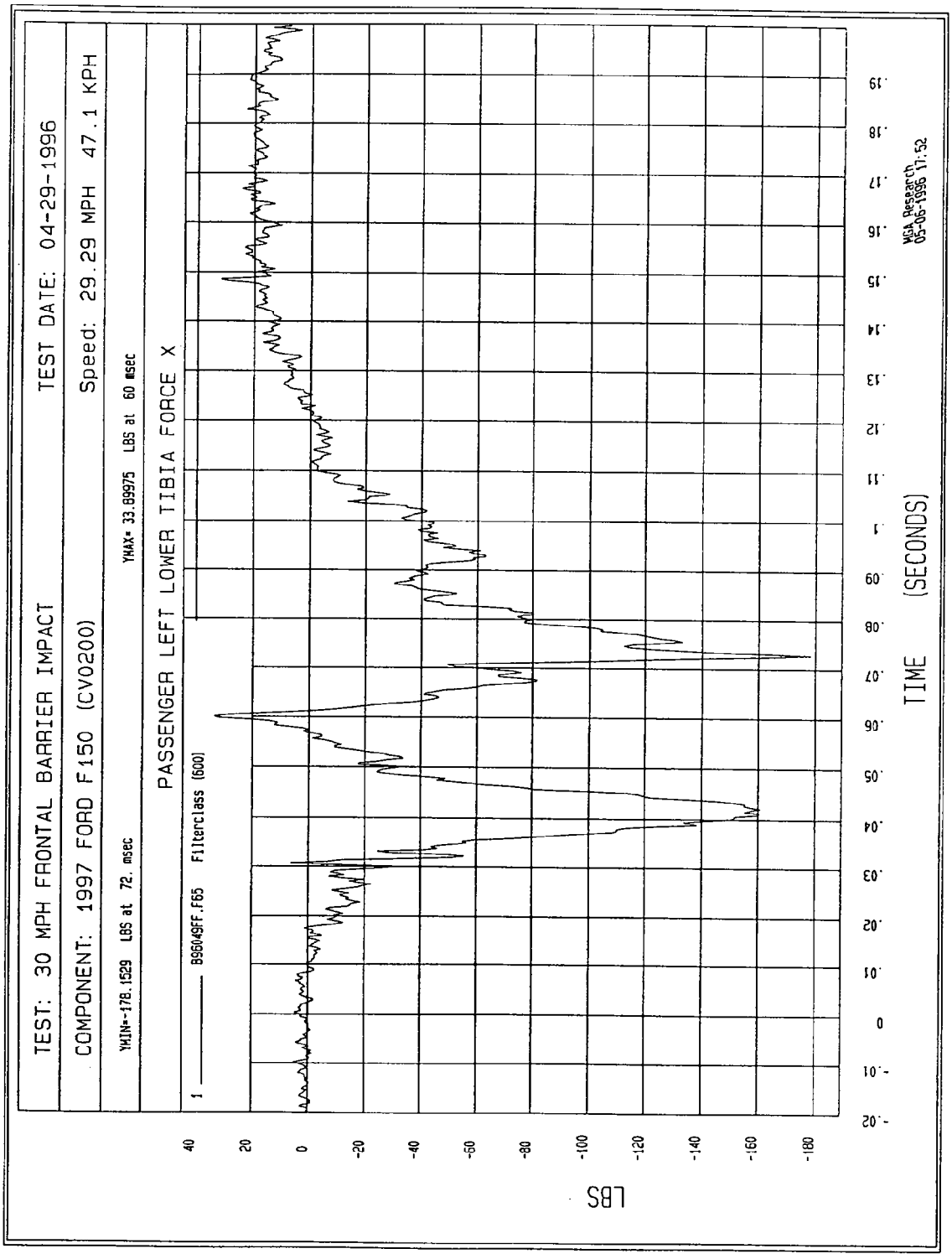
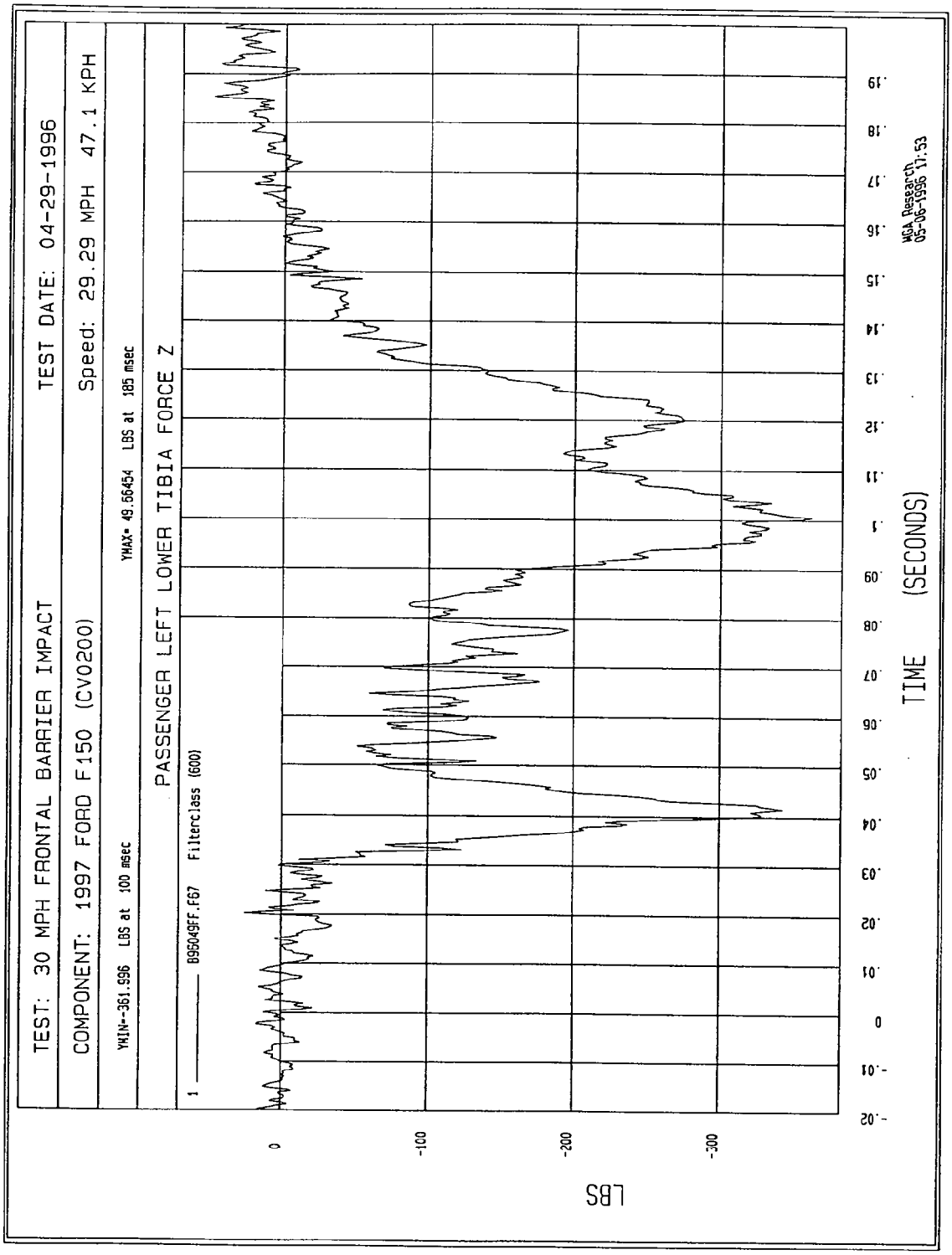
MGA Research
05-06-1996 11:57


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-1699.351 LBS at 63. msec
YMAX= 121.6018 LBS at 127 msec
PASSENGER LEFT FEMUR FORCE
1 896049FF.F29 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 11:52


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-1460.2 LBS at 87 msec
YMAX= 62.76748 LBS at 199 msec
PASSENGER RIGHT FEMUR FORCE
1 _____ 896049FF.F28 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 11:52


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-178.1529 LBS at 72. msec
YMAX= 33.89975 LBS at 60 msec
PASSENGER LEFT LOWER TIBIA FORCE X
1 B9604FF.F65 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 17:52


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-361.696 LBS at 100 msec
YMAX= 49.66454 LBS at 185 msec
PASSENGER LEFT LOWER TIBIA FORCE Z
1 ——— 0950495F.F67 Filterclass (600)
LBS
0
-100
-200
-300
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
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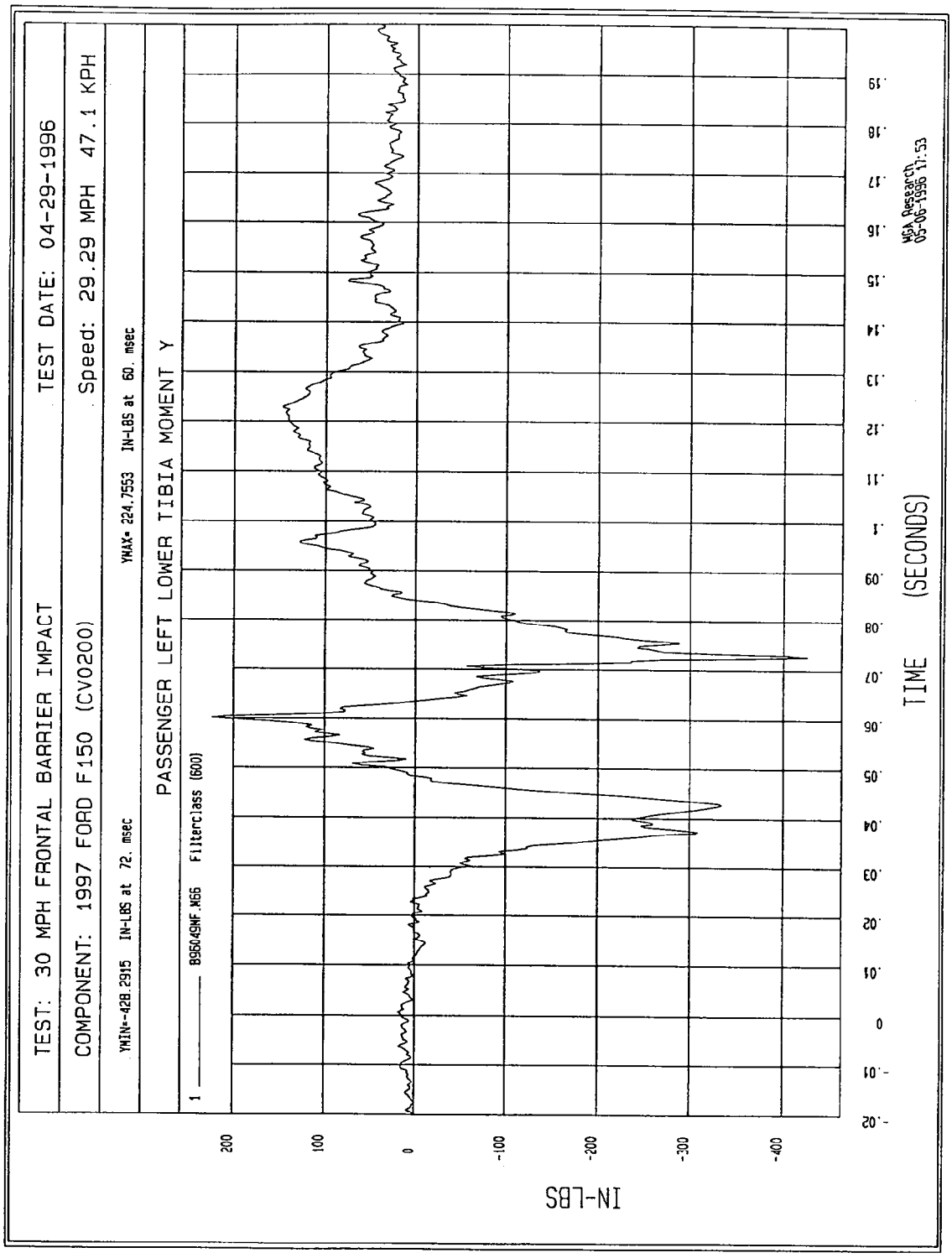
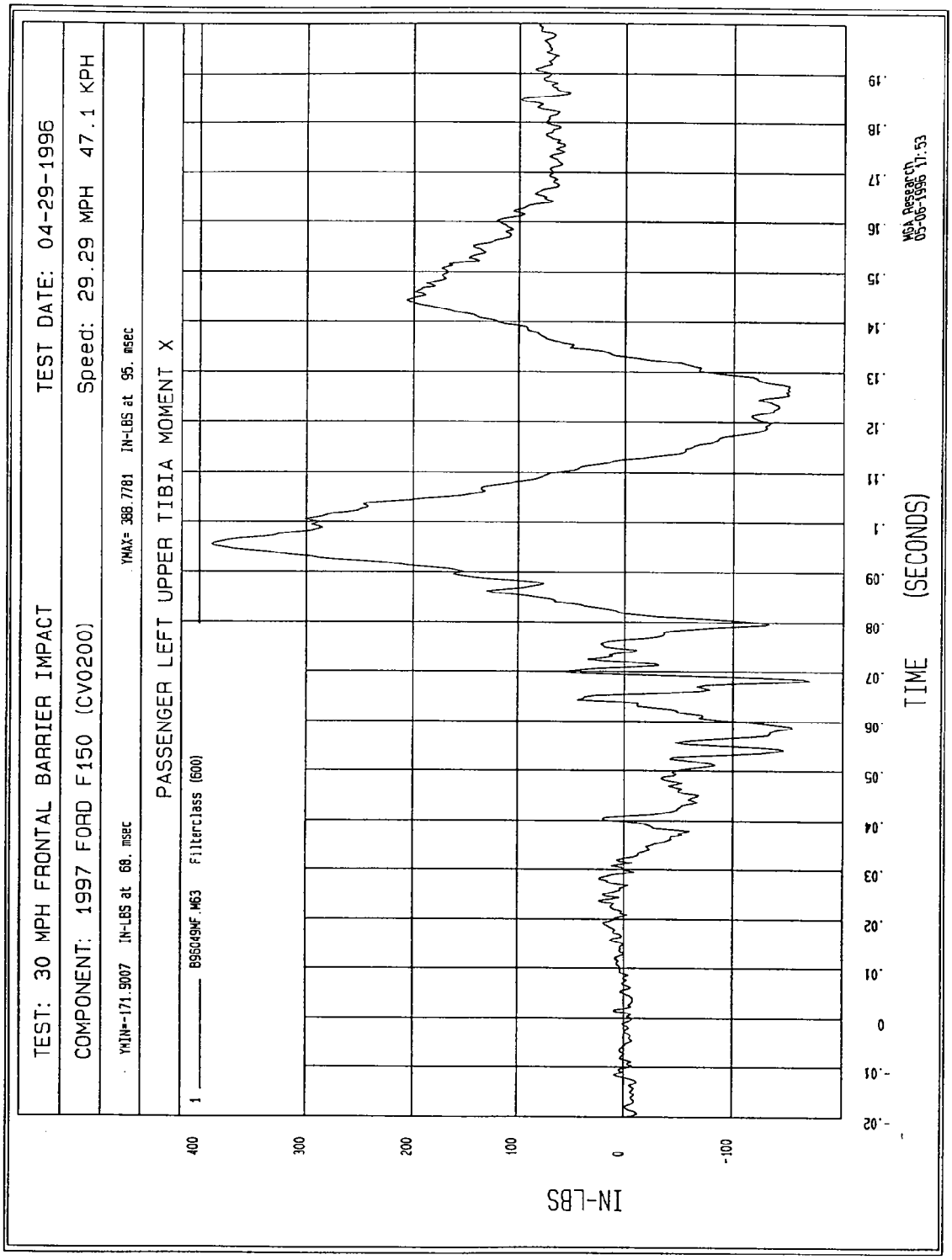
MGA Research
05-06-1996 17:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-428.2915 IN-LBS at 72. msec
YMAX= 224.7553 IN-LBS at 60. msec
PASSENGER LEFT LOWER TIBIA MOMENT Y
1 B95049MF.MGS Filterclass (600)
IN-LBS
TIME (SECONDS)
MGA Research
05-06-1996 11:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-171.9007 IN-LBS at 68. msec
YMAX= 388.7781 IN-LBS at 95. msec
PASSENGER LEFT UPPER TIBIA MOMENT X
1 B95049NF.M63 Filterclass (600)
IN-LBS
400
300
200
100
0
-100
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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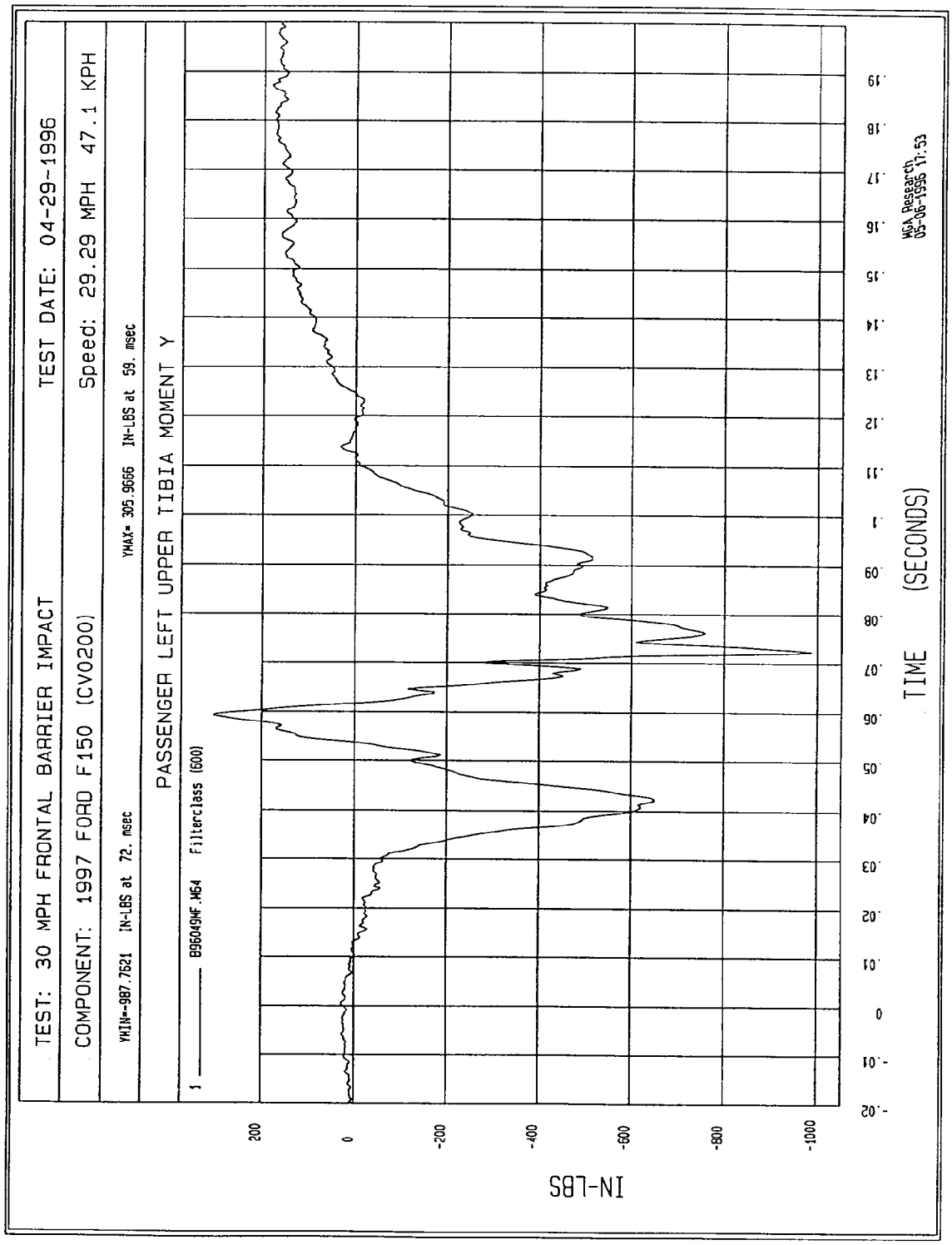
MGA Research
05-06-1996 17:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-987.7621 IN-LBS at 72. msec
YMAX= 305.9666 IN-LBS at 59. msec
PASSENGER LEFT UPPER TIBIA MOMENT Y
1 B96049NF.MG4 Filterclass (600)
IN-LBS
200
0
-200
-400
-600
-800
-1000
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
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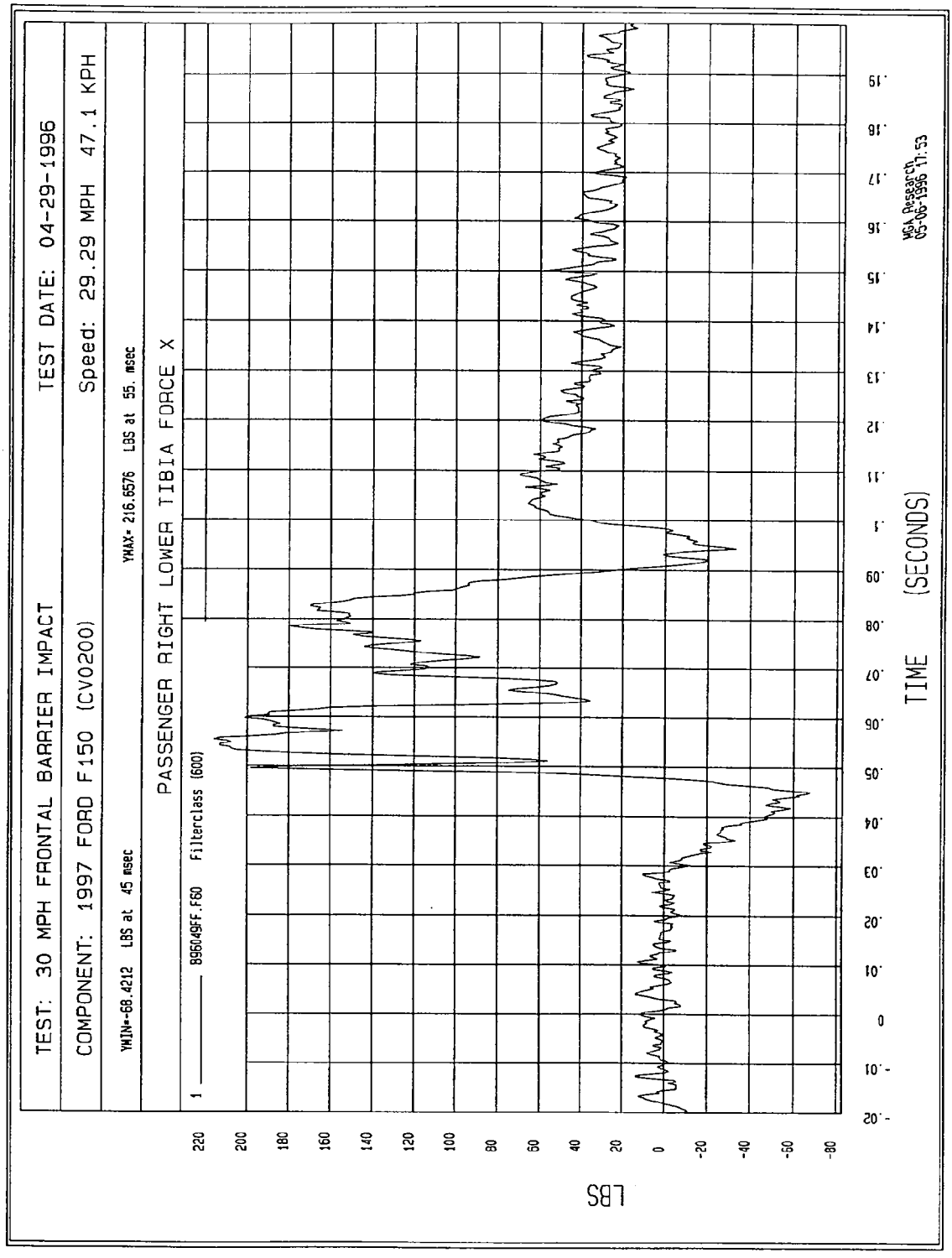
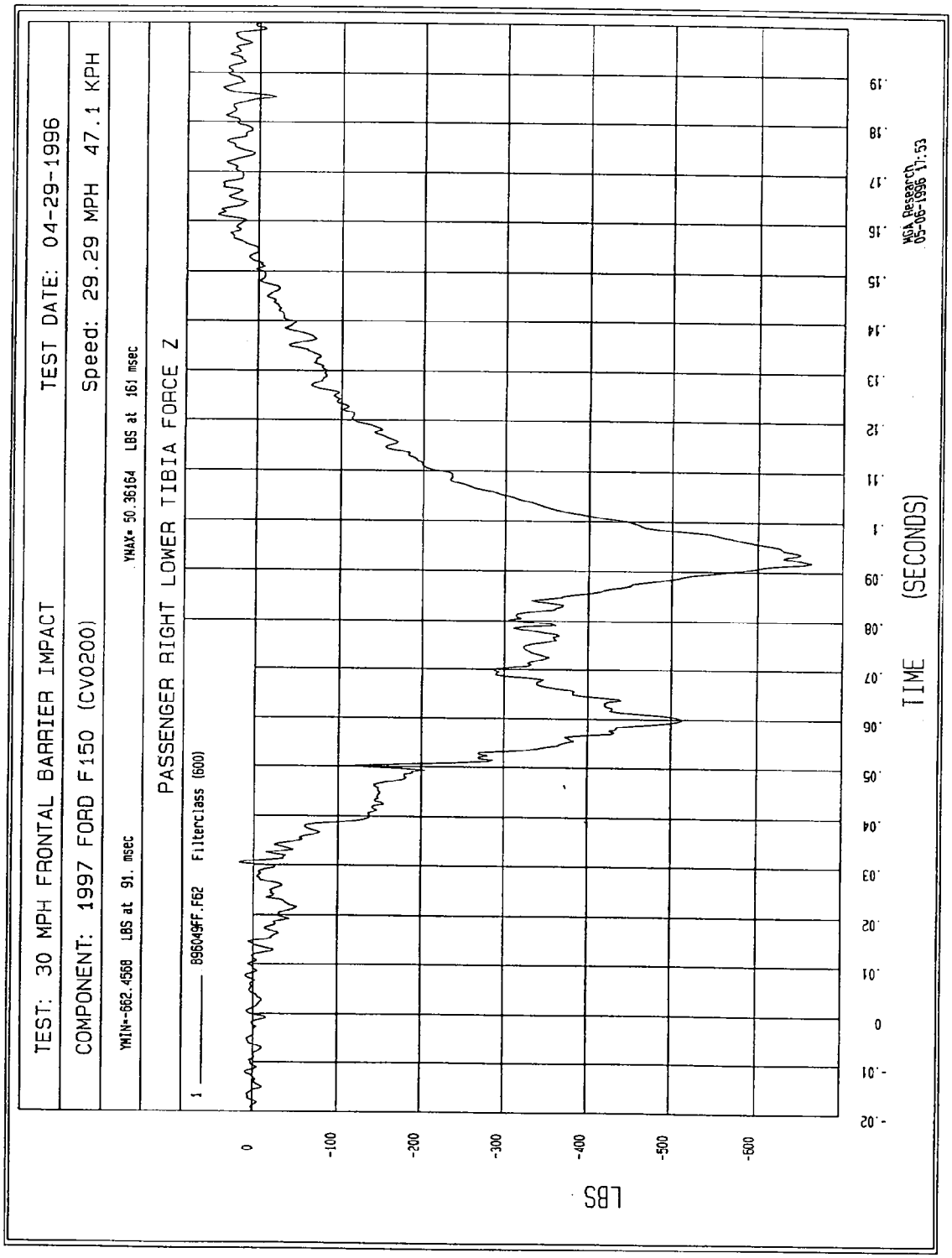
.19
TIME (SECONDS)
MGA Research
05-06-1996 11:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-68.4212 LBS at 45 msec
YMAX= 216.6576 LBS at 55. msec
PASSENGER RIGHT LOWER TIBIA FORCE X
1 B95049FF.F60 Filterclass (600)
LBS
TIME (SECONDS)
MGA Research
05-06-1996 17:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-662.4568 LBS at 91. msec
YMAX= 50.36164 LBS at 161 msec
PASSENGER RIGHT LOWER TIBIA FORCE Z
1 _____ 896049FF.F62 Filterclass (600)
LBS
0
-100
-200
-300
-400
-500
-600
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
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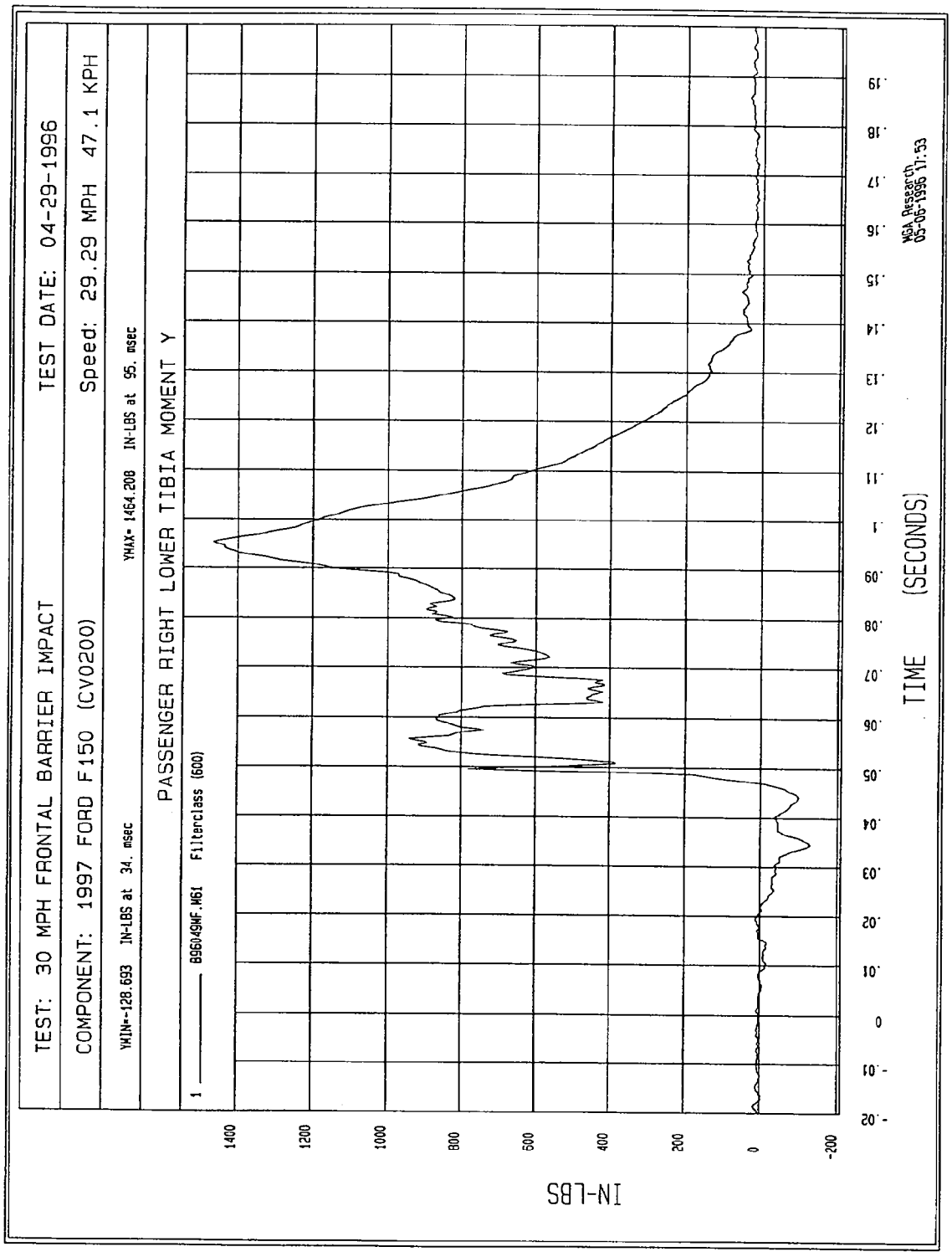
MGA Research
05-06-1996 17:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-128.693 IN-LBS at 34. msec
YMAX= 1464.208 IN-LBS at 95. msec
PASSENGER RIGHT LOWER TIBIA MOMENT Y
1 B9604SMF.M61 Filterclass (600)
IN-LBS
1400
1200
1000
800
600
400
200
0
-200
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
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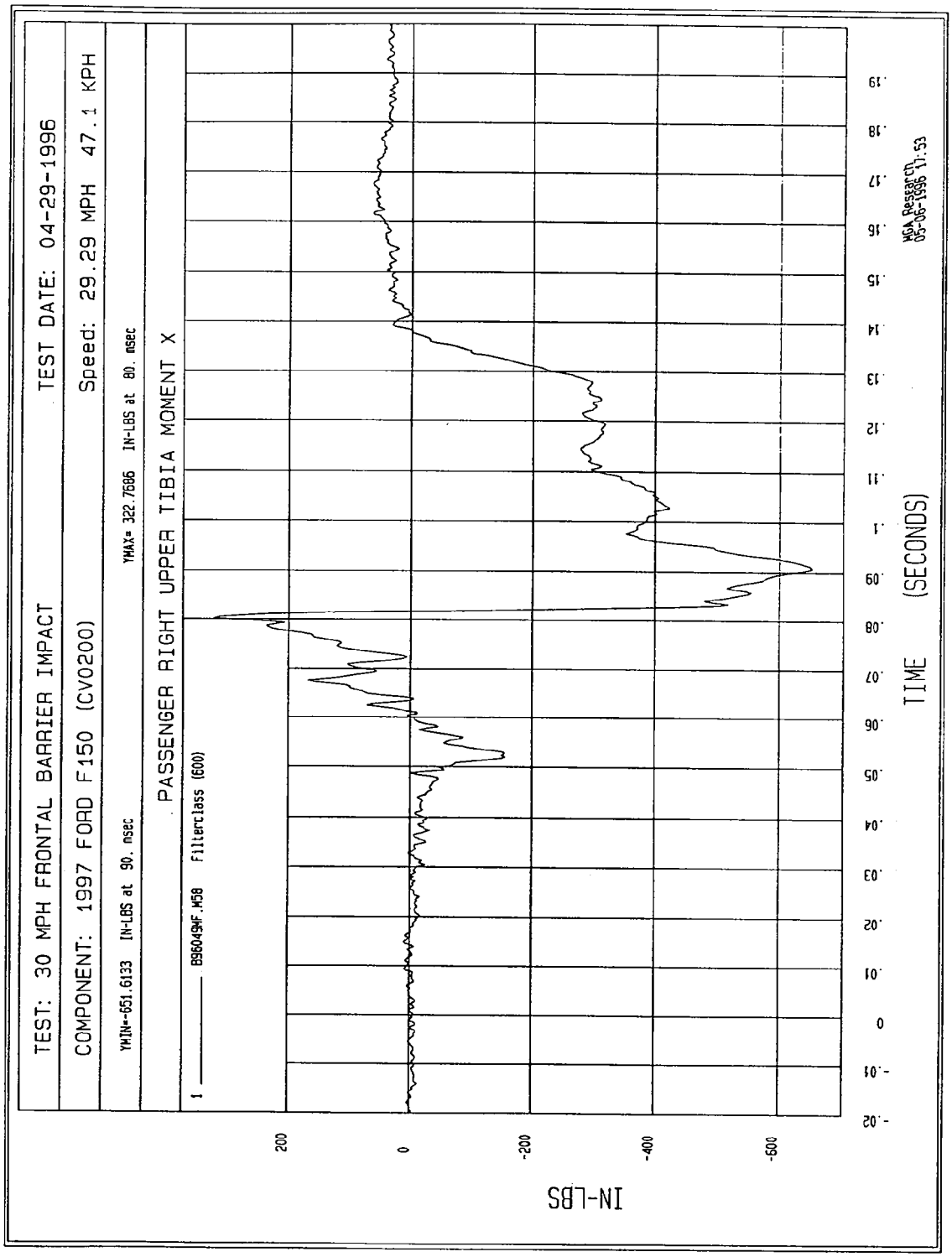
.19
MGA Research
05-06-1996 17:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-651.6133 IN-LBS at 90. msec
YMAX= 322.7686 IN-LBS at 80. msec
PASSENGER RIGHT UPPER TIBIA MOMENT X
1 B96049NF.M58 Filterclass (600)
IN-LBS
200
0
-200
-400
-600
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
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.16
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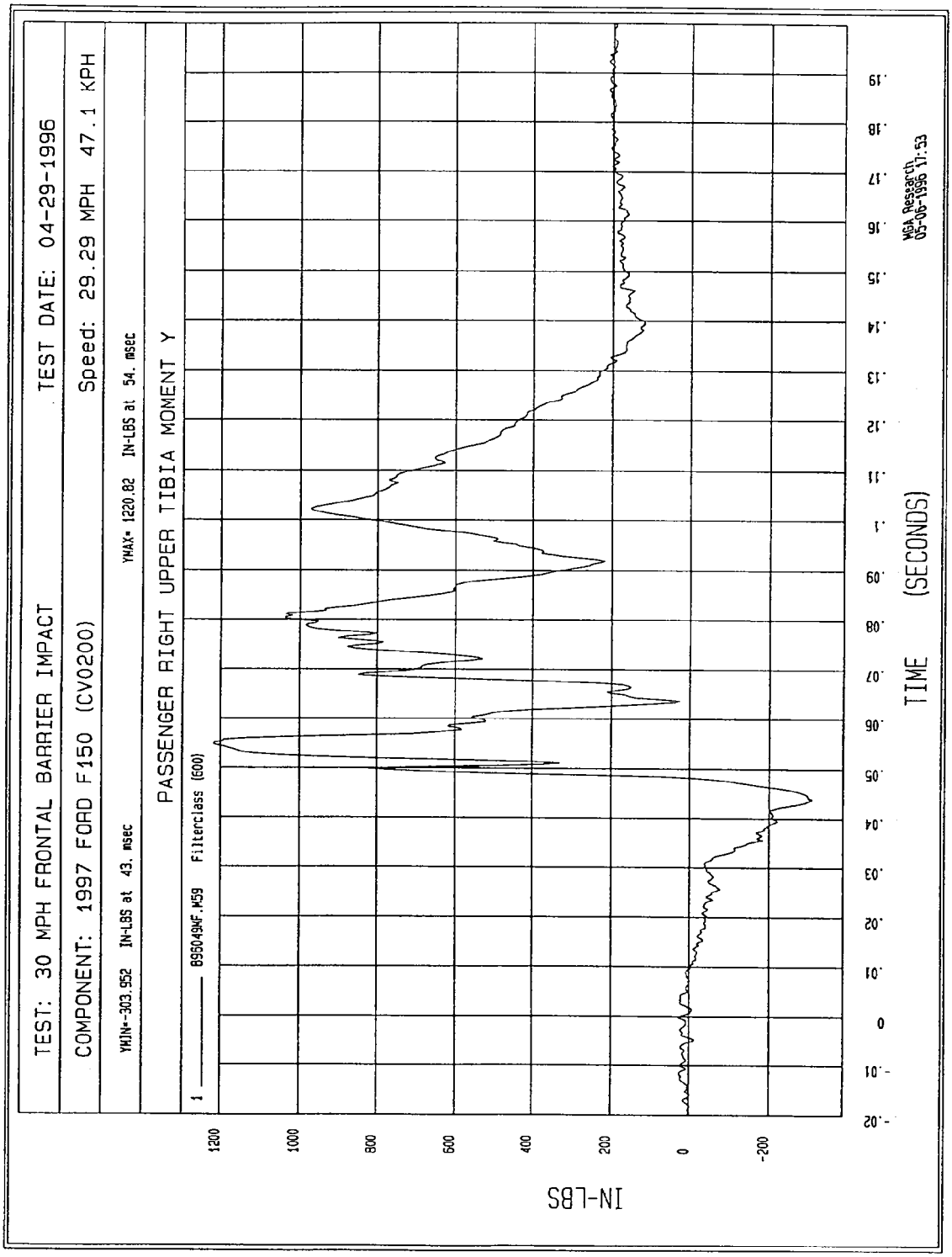
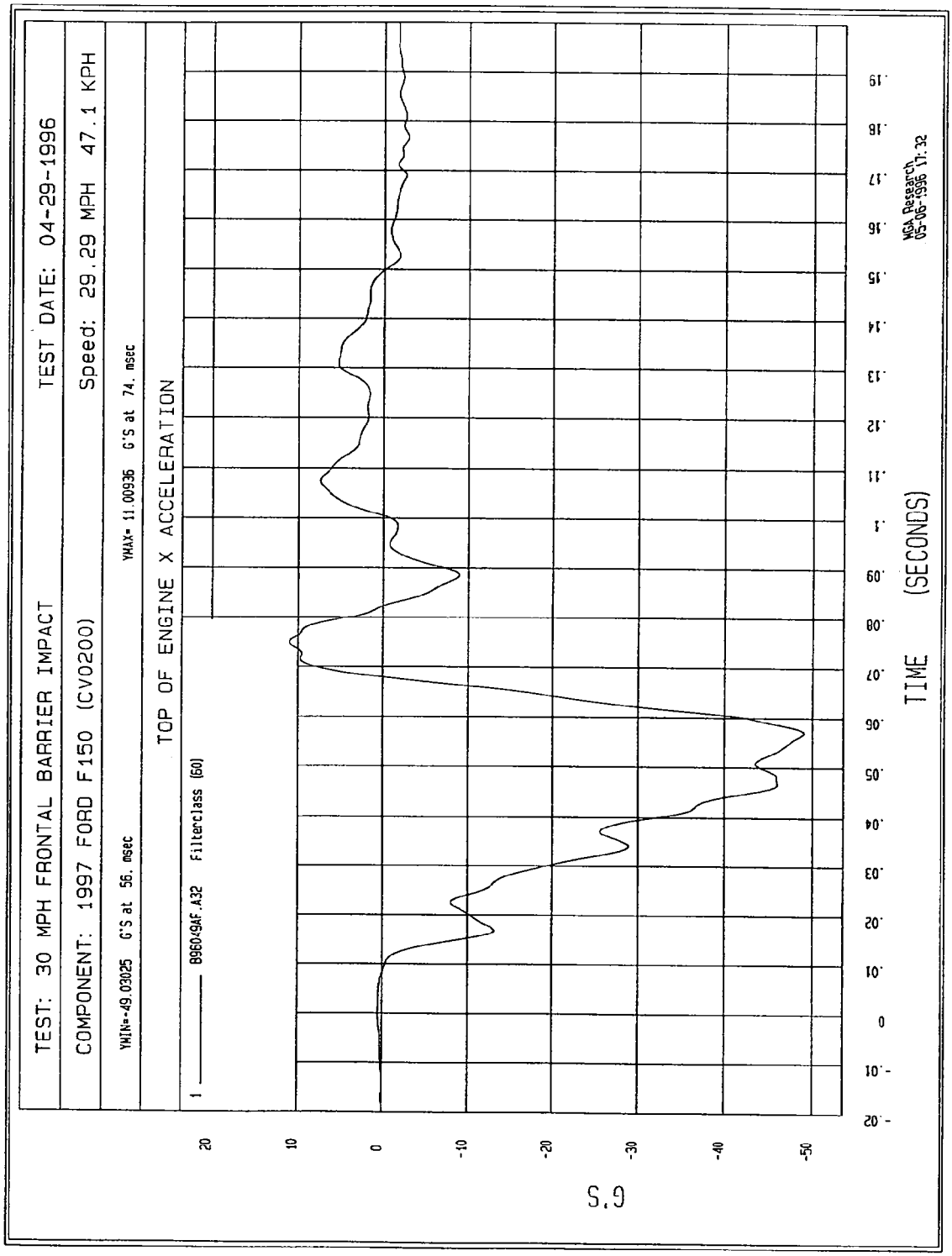
.19
MGA Research
05-06-1996 11:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-303.952 IN-LBS at 43. msec
YMAX= 1220.82 IN-LBS at 54. msec
PASSENGER RIGHT UPPER TIBIA MOMENT Y
1 B95049NF.M59 Filterclass (600)
IN-LBS
1200
1000
800
600
400
200
0
-200
TIME (SECONDS)
MGA Research
05-06-1996 17:53


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-49.03025 G'S at 56. msec
YMAX= 11.00936 G'S at 74. msec
TOP OF ENGINE X ACCELERATION
1 B960-9AF.A32 Filterclass (60)
20
10
0
-10
-20
-30
-40
-50
G'S
TIME (SECONDS)
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
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.16
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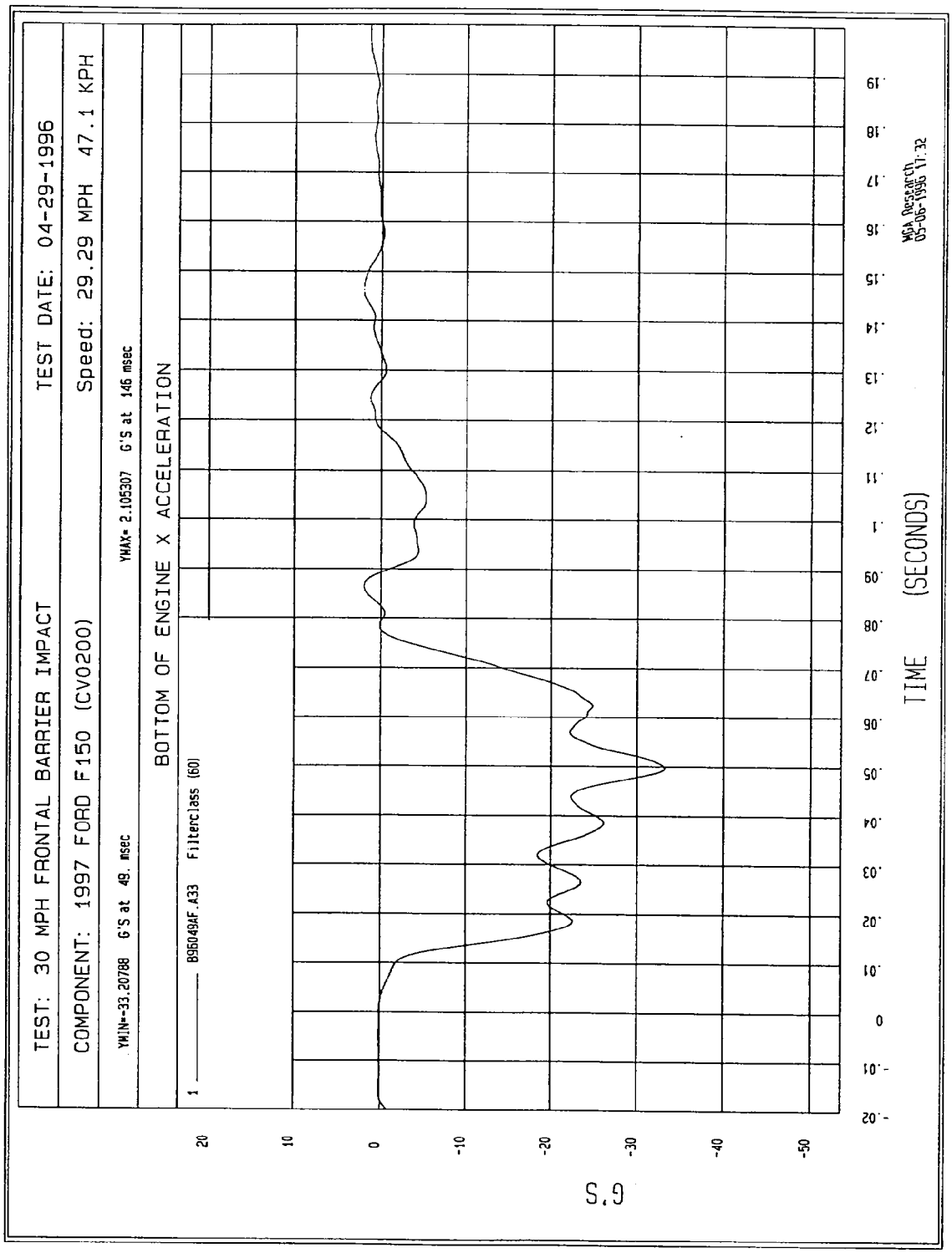
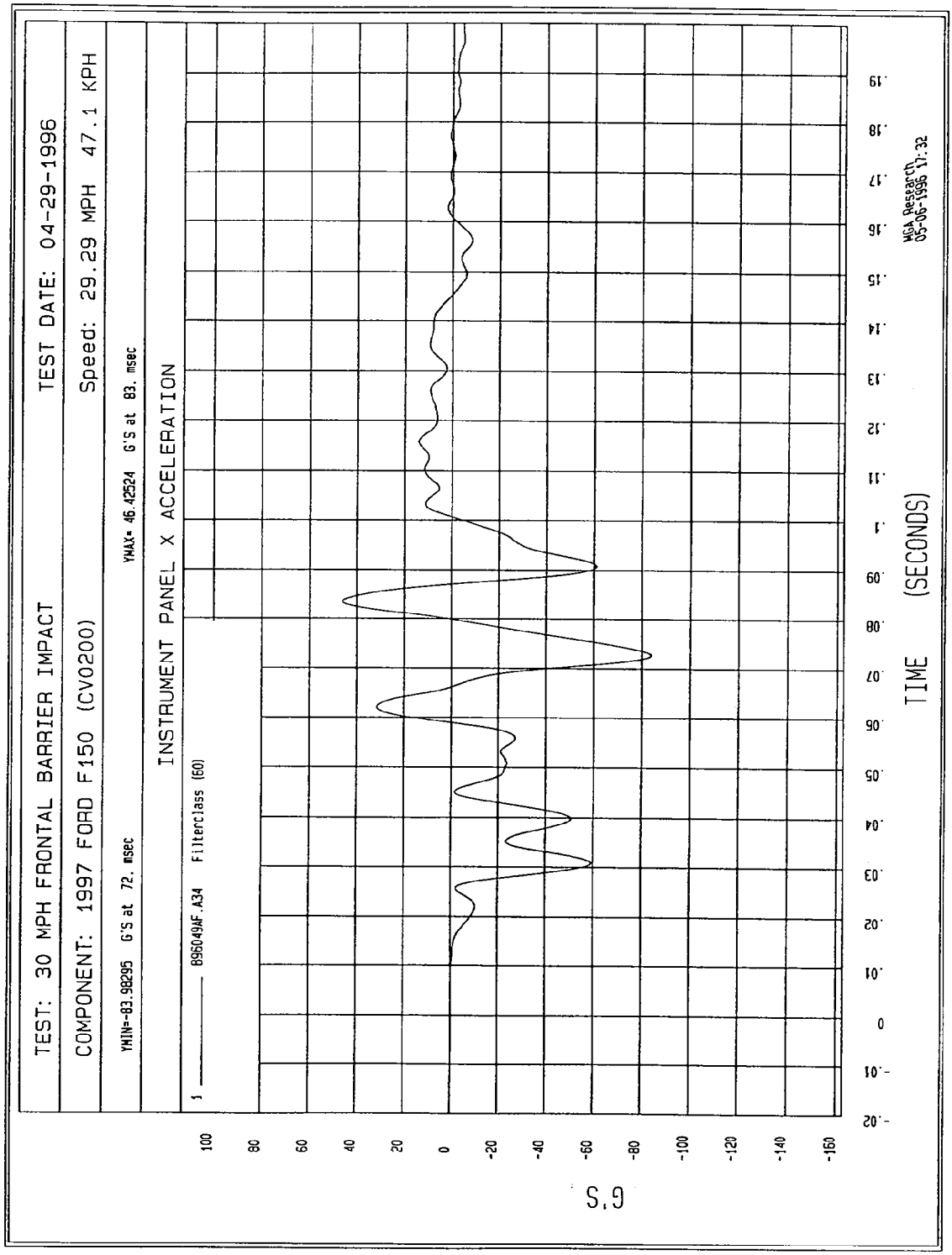
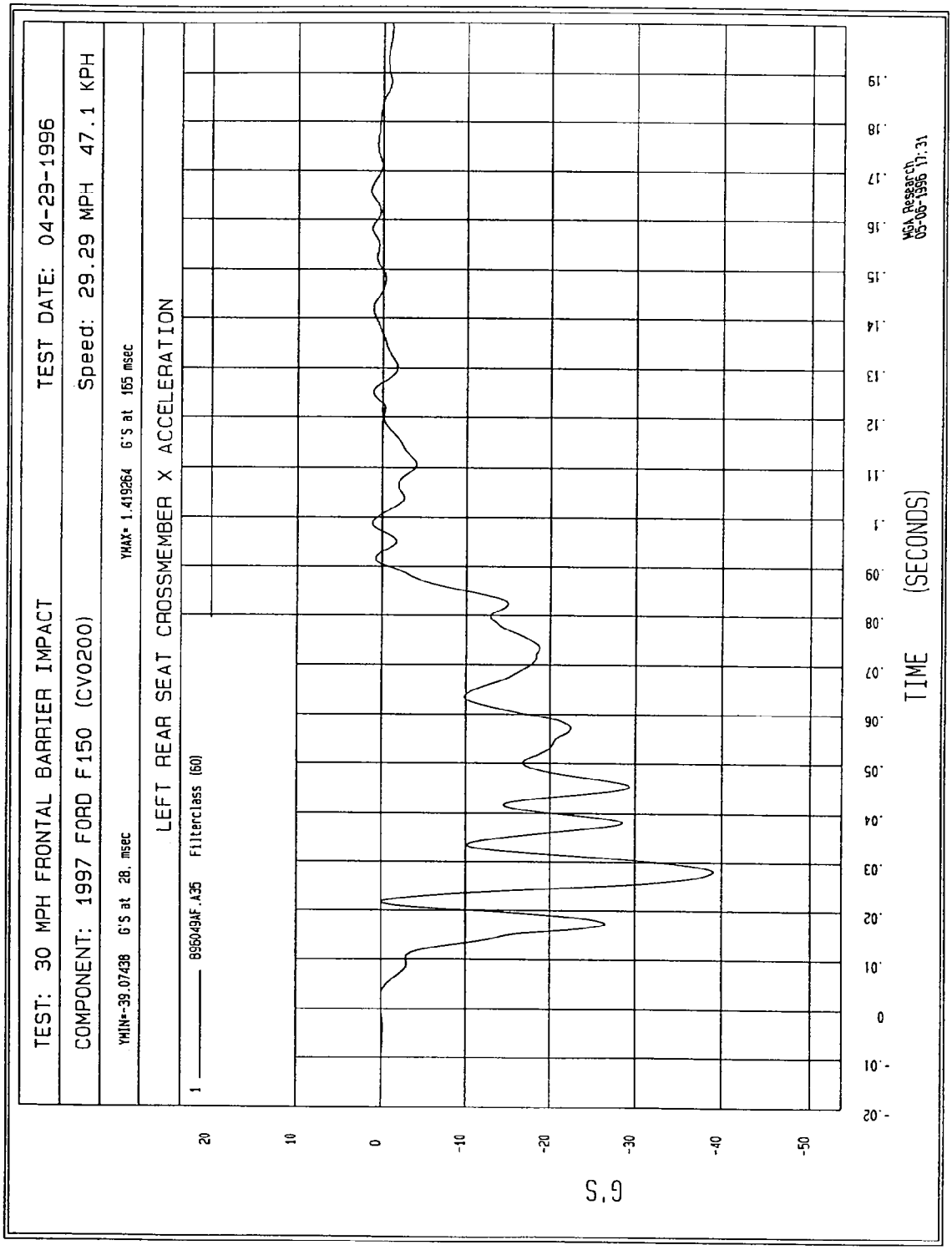
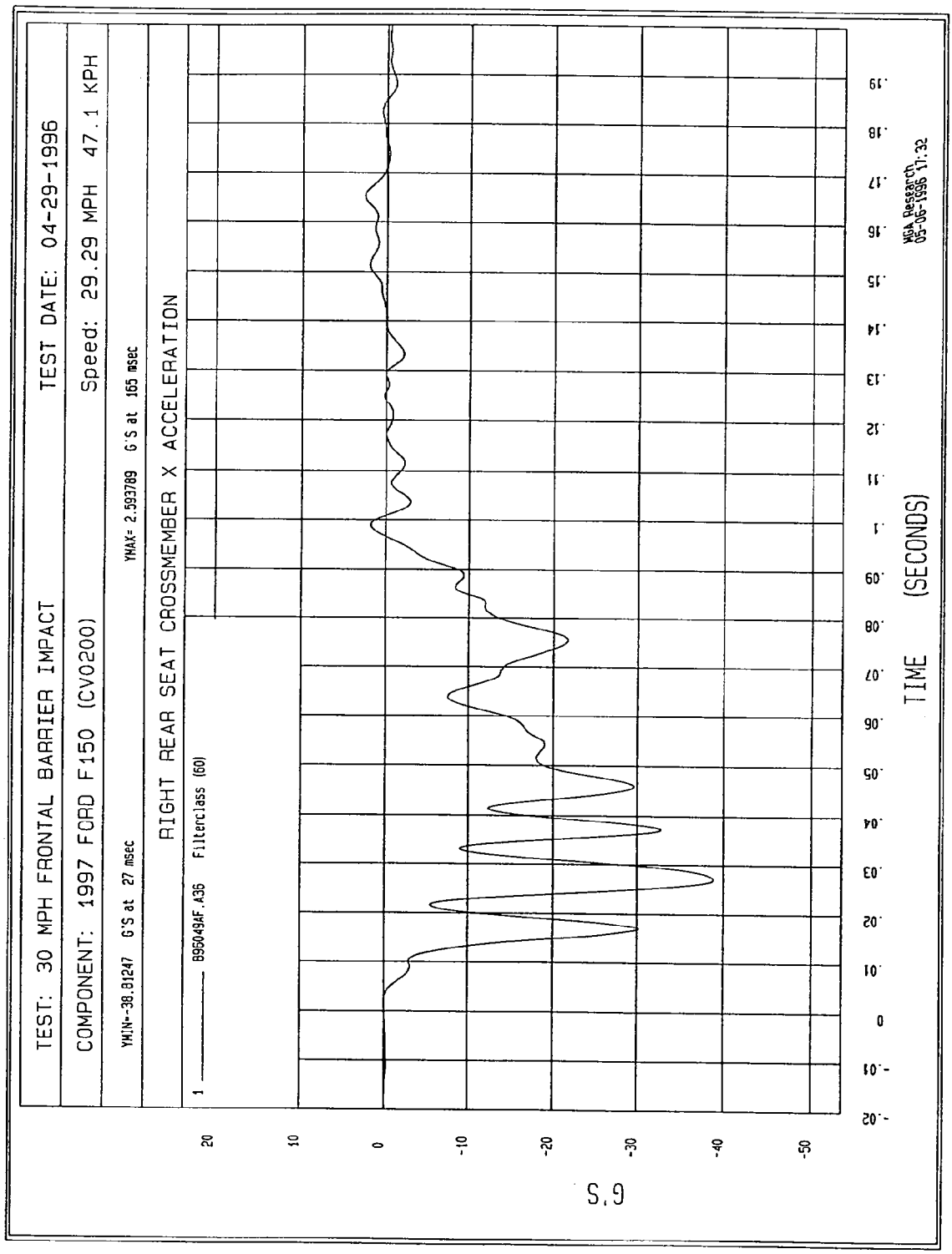
.18
.19
MGA Research
05-06-1996 17:32


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-33.20788 G'S at 49. msec
YMAX= 2.105307 G'S at 146 msec
BOTTOM OF ENGINE X ACCELERATION
1 B96049AF.A33 Filterclass (60)
20
10
0
-10
-20
-30
-40
-50
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 17:32


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-83.98295 G'S at 72. msec
YMAX= 46.42524 G'S at 83. msec
INSTRUMENT PANEL X ACCELERATION
1 896049AF.A34 Filterclass (60)
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 17:32


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-39.07438 G'S at 28. msec
YMAX= 1.419264 G'S at 165 msec
LEFT REAR SEAT CROSSMEMBER X ACCELERATION
1 ——— 896049AF.A35 Filterclass (60)
20
10
0
-10
-20
-30
-40
-50
G'S
.19
.18
.17
.16
.15
.14
.13
.12
.11
.1
.09
.08
.07
.06
.05
.04
.03
.02
.01
0
-.01
-.02
TIME (SECONDS)
MGA Research
05-06-1996 17:31


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-38.81247 G'S at 27 msec
YMAX= 2.593789 G'S at 165 msec
RIGHT REAR SEAT CROSSMEMBER X ACCELERATION
1 ——— 8950A9AF.A36 Filterclass (60)
20
10
0
-10
-20
-30
-40
-50
G'S
.02
.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
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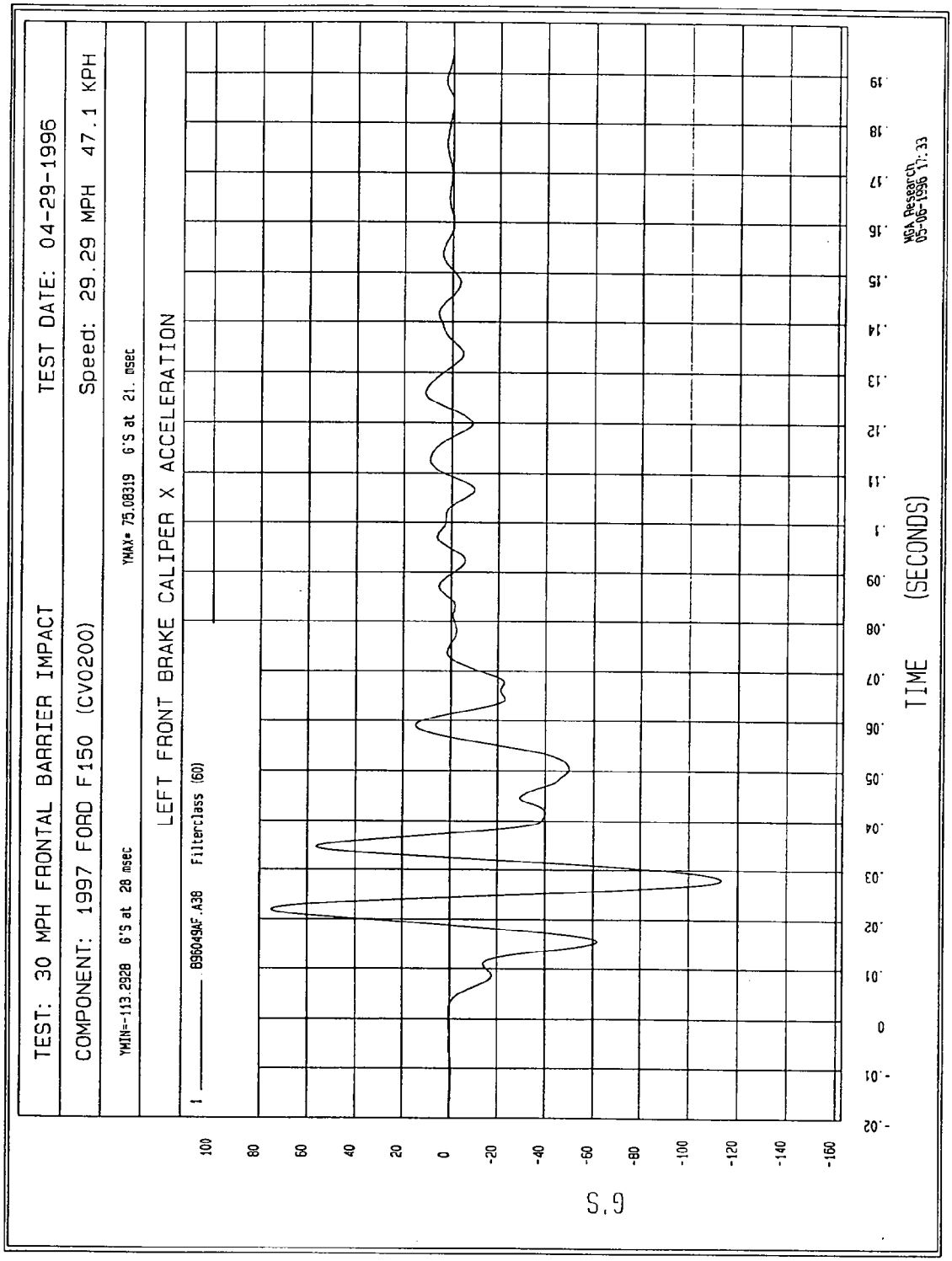
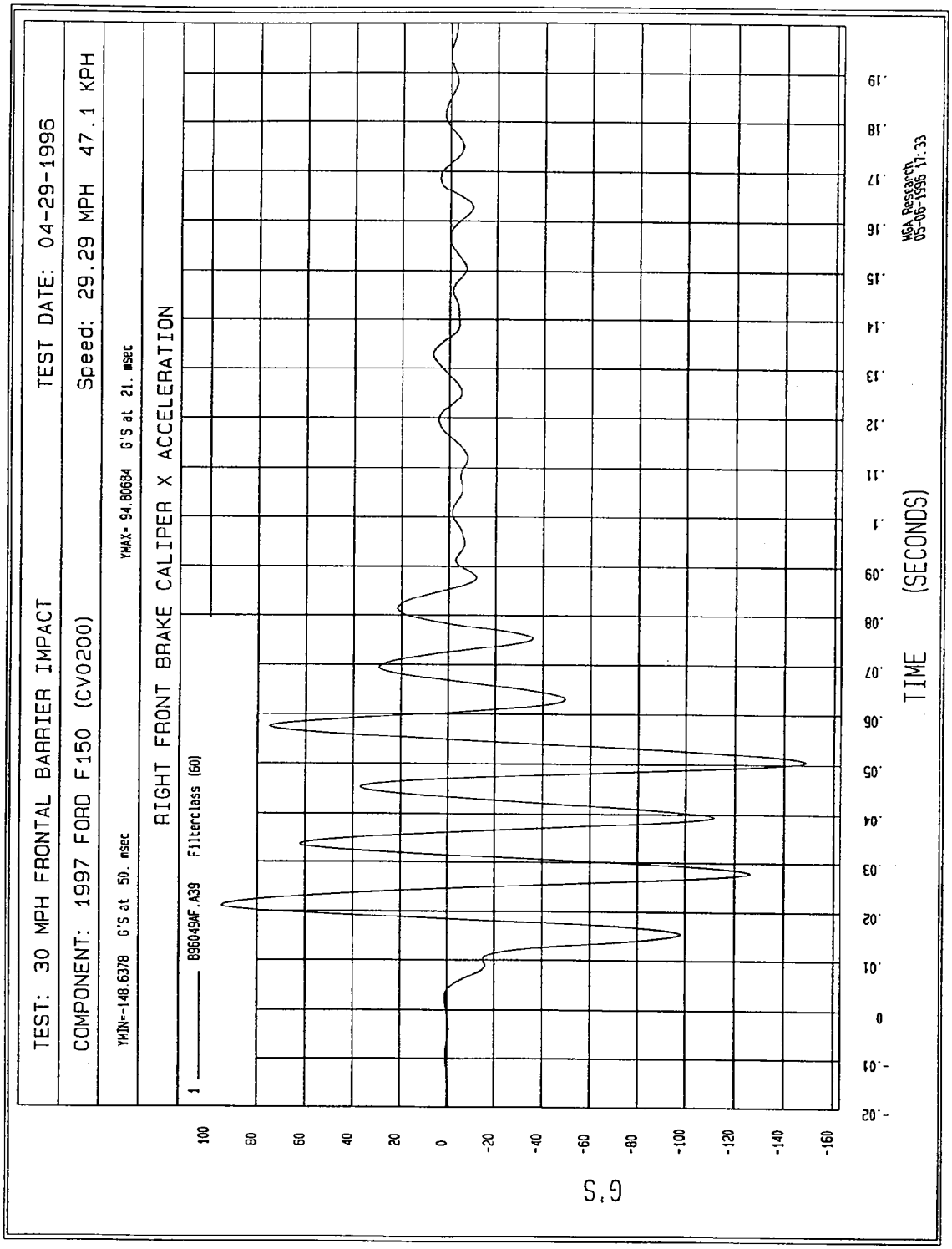
.13
.14
.15
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 11:32


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-113.2928 6'S at 28 msec
YMAX= 75.08319 6'S at 21. msec
LEFT FRONT BRAKE CALIPER X ACCELERATION
1 ——— 0960049AF.A38 Filterclass (60)
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-02
-01
0
01
02
03
04
05
06
07
08
09
1
11
12
13
14
15
16
17
18
19
TIME (SECONDS)
MGA Research
05-06-1996 11:33
6'S


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-148.6378 G'S at 50. msec
YMAX= 94.80684 G'S at 21. msec
RIGHT FRONT BRAKE CALIPER X ACCELERATION
1 ——— 0960494F.A39 Filterclass (60)
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
G'S
-.02
-.01
0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.11
.12
.13
.14
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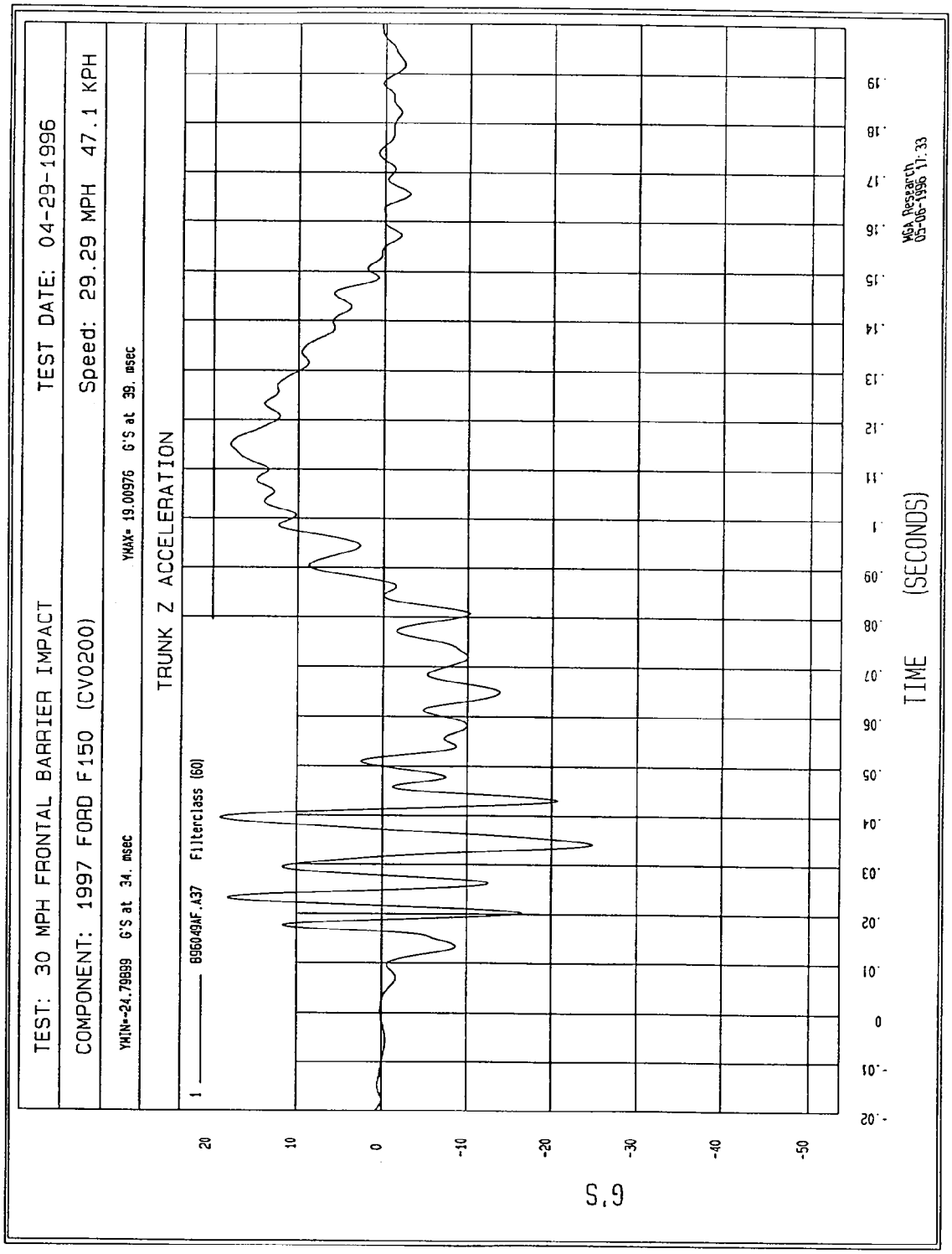
.16
.17
.18
.19
TIME (SECONDS)
MGA Research
05-06-1996 11:33


TEST: 30 MPH FRONTAL BARRIER IMPACT
TEST DATE: 04-29-1996
COMPONENT: 1997 FORD F150 (CV0200)
Speed: 29.29 MPH 47.1 KPH
YMIN=-24.79899 G'S at 34. msec
YMAX= 19.00976 G'S at 39. msec
TRUNK Z ACCELERATION
1 896049AF.A37 Filterclass (60)
G'S
TIME (SECONDS)
MGA Research
05-06-1996 11:33

APPENDIX C

MANUFACTURER'S VEHICLE INFORMATION

Robert H. Munson
Executive Director
Automotive Safety and Engineering Standards
Environmental and Safety
Engineering — FAO

Ford Motor Company
330 Town Center Drive
Dearborn, Michigan 48126

September 20, 1995

Mr. Harry Thompson
Chief, Vehicle Division
Office of Vehicle Safety Compliance
National Highway Traffic Safety
Administration
400 Seventh Street, S. W.
Washington, D.C. 20590

Dear Mr. Thompson:

Reference: NEF-31CCa/IR 1625

This is in response to your letter of August 3, 1995, requesting information relative to possible FMVSS 208 testing by OVSC of the 1997 model year Ford F-Series Truck equipped with a driver and passenger air bag restraint system. Because you have asked for information pertaining to the 1997 model year, and not the 1996 model year, we understand that you are seeking this information for the new 1997 PN-96 -- the F-150 replacement. Accordingly, we are providing information only for the F-1 50 and not the 1997 F-250 and F-350, which will not be available until the fall of 1996. Introduction of the new 1997 F-Series (PN-96) is planned for January 25, 1996. The reports and documentation used in response to these requests refer to the 1996 model year F-Series (PN-96). Originally, it was anticipated that the vehicle would be introduced as a 1996 model year vehicle.

Ford's responses to your several requests for information are given below. For your convenience, each request is listed followed by Ford's response.

Request No. 1

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

If the air bag restraints were installed to meet the requirements of S4.1.2.1(c)(1), please provide a copy of the certification test reports for each of the test configurations required by that section of the standard (i.e., moving barrier lateral impact and dynamic rollover) and a copy of the certification test reports for the frontal/angular barrier impact test required by S4.1.2.1.

If the manual 3-point safety belts are provided with the driver's and passenger's air bag restraint in order to meet the requirements of S4.1.2.1(c)(2), please provide certification test reports for each

of the test configurations required by that section of the standard (i.e., frontal/angular barrier impact test of the automatic restraint system with the manual safety belt unfastened and frontal/angular barrier impact test of the automatic restraint system with the manual safety belt fastened)."

Response

The manual three-point safety belts provided with the driver's and passenger's air bag restraint systems in the 1997 model year F-Series (PN-96) were installed to meet the requirements of S4.1.2.1(c)(2) of FMVSS 208. Attachments I and II contain copies of those portions of the final test reports for Crash Tests 9762 and 9772 , 90 degree front fixed barrier impact tests with the manual safety belts unfastened, relevant to S4.1.2.1(c)(2) for the F-Series 4x2 and 4x4 models, respectively. Attachments III and IV contain copies of those portions of the final test reports for Crash Tests 9703 and 9720, 90 degree front fixed barrier impact tests with the manual safety belts fastened, relevant to S4.1.2.1(c)(2) for the F-Series 4x2 and 4x4 models, respectively. Ford relied on the results of these tests as a basis for certifying compliance of 1997 F-Series (PN-96) vehicles equipped with driver's and passenger's air bag restraint systems with S4.1.2.1.

Request No. 2

"If the air bag restraints at the driver's and passenger's seating positions were not installed to meet the requirements of S4.1.2.1, please inform OVSC whether the 3-point manual belts provided in the front out[board] seating positions were installed to meet the requirements of S.4.1.2.3 as reference by S.4.2.2.

If the manual belts provided at the front outboard seating positions were installed in accordance with S4.1.2.3, please provide a copy of your certification test reports for the requirements specified (frontal crash test requirements of S5.1) in S4.6 of the standard."

Response

As stated above, the manual safety belts provided at the driver's and passenger's seating positions of the 1997 F-Series were installed to meet the requirements of the S4.1.2.1 of FMVSS No. 208.

Request No. 3

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

Response

The 1997 F-Series does not use a pressure vessel to inflate the driver and passenger air bags.

Request No. 4

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

Response

Attachment V contains the engineering analyses and the related TRW test reports demonstrating compliance to S9.2 of FMVSS No. 208 for the driver and passenger air bag restraint systems for the F-Series.

Request No.5

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

Response

Tension-relieving devices are not used in 1997 F-Series manual safety belt systems.

Request No. 6

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

Response

Frontal crash tests upon which Ford relies as a basis for certification of 1997 F-Series vehicles were conducted with all moveable windows and vents fully open for 90 degree perpendicular frontal impacts and in the fully closed position for all 30 degree front angular impacts.

Request No. 7

> "FMVSS No. 208, S5.1, provides a manufacturer with the option of using either a Part 572(B) or Part 572(E) test dummy. Please inform OVSC which test dummy was used in each seat for each certification test. Submit dummy placement measurements, including diagrams or photographs which show exactly where measurements were taken. Enclosed is a diagram of some of OVSC's dummy measurements. Where possible, use the dimension shown in the diagram to provide the individual dummy placement measurements.
>
> State whether the vehicle has a foot rest for the driver.
>
> If the vehicle can be equipped with a split front bench seat, state whether the driver dummy was located so that the midsagittal plane was centered on the steering wheel rim or the center of the seat cushion. Also, state whether the passenger dummy was located so that the midsagittal plane was centered the same distance from the longitudinal centerline of the vehicle as the driver dummy or in the center of the seat cushion."

Response

Part 572(E) (Hybrid III) test dummies were used at both front outboard designated seating positions of the test vehicles in those front barrier crash tests on which Ford relies as a basis for certification of 1997 F-Series vehicles to FMVSS No. 208. Attachment VI contains dummy placement measurements applicable to the 1997 F-Series.

The 1997 F-Series does have a foot rest for the driver .

The driver dummy was located so that the midsagittal plane was centered on the steering wheel hub nut for the full bench and 60/40 split bench seat configurations. The passenger dummy was located so that the midsagittal plane was centered the same distance from the longitudinal centerline of the vehicle as the driver dummy. For vehicles equipped with captain chairs, the driver and passenger dummies were positioned so that the midsagittal plane was centered on the centerline of the seat cushion.

Request No. 8

> "Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form. "

Response

Attachment VII contains the NHTSA form enclosed with your letter completed with the requested seat positioning, steering column positioning, and fuel tank data applicable to FMVSS No. 208 front barrier impact testing of the 1997 F-series.

Request No. 9

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

Response

The 1997 F-Series Truck is equipped with adjustable seat belt anchorages. The nominal design position of the D-ring for the 50th percentile adult male occupant is in the mid position.

Request No. 10

> " Provide the speed at impact, vehicle test weight, and resulting injury criteria (i.e., HIC, chest acceleration, chest compression for the Part 572(E) dummy and femur loads) recorded for all certification tests conducted to meet the requirements of S4.1.2.1 or S.4.1.2.3.
> 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."

Response

The spreadsheet contained in Attachment VIII includes the speed at impact, vehicle test weight, and injury criteria values recorded in compliance tests of the 1997 F-Series to the requirements of FMVSS No. 208, S4.1.2.1. Attachment IX contains resultant head and chest acceleration versus time plots and femur loads versus time plots for each dummy for Crash Tests 9768, 9754, 9758, and 9749. These plots together with the plots from Crash Tests 9762, 9772, 9703 and 9720 which were provided in response to Request No. 1, represent all the full front barrier (90 degree) impact tests that were used as a basis to certify the 1997 F-Series to FMVSS No. 208

Request No. 11

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

Response

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

- ◊ Liftgate
- ◊ Rear bumper
- ◊ Rear seats (Super Cab only)
- ◊ Spare Tire
- ◊ Rear Glass
- ◊ Side Glass

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

Request No. 12

> "Please provide FMVSS No. 204, "Steering Control Rearward Displacement" certification data. Include a copy of the test report and any engineering analysis forming the basis of the certification. The report should document the vehicle test weight, impact velocity, and the horizontal and vertical displacements of the steering control. Pre and post test photographs are also requested.
>
> Discuss the test procedure detailing the vehicle preparation and the measurement technique used to determine the steering control rearward displacement.
> Provide a diagram of the steering control system and describe how the components of the steering control system work to provide energy management in a frontal impact."

Response

No separate F-Series (PN-96) crash test was performed with the primary intent of measuring steering column intrusion. Compliance with FMVSS 204 is based on Engineering Judgment utilizing measurements obtained from linear displacement transducers, along with post crash examinations of the steering columns and reviews of all high speed film segments focused on the steering columns.

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

Request No. 13

> "Inform OVSC if these vehicles have built-in child restraints either as standard equipment or optional equipment. If they do, identify the type of restraint (i.e., 5-point harness, T-shield, or other), and provide a copy of the certification test reports and any engineering analysis forming the basis for certification to FMVSS No. 213, 'Child Restraint Systems'."

Response

Built-in child restraints are not available on the 1997 F-Series vehicles.

We believe the information and test reports contained herein are otherwise fully responsive to your request. If you have any questions, please call Mr. R. A. Nevi on (313) 594-7688.

Very truly yours,

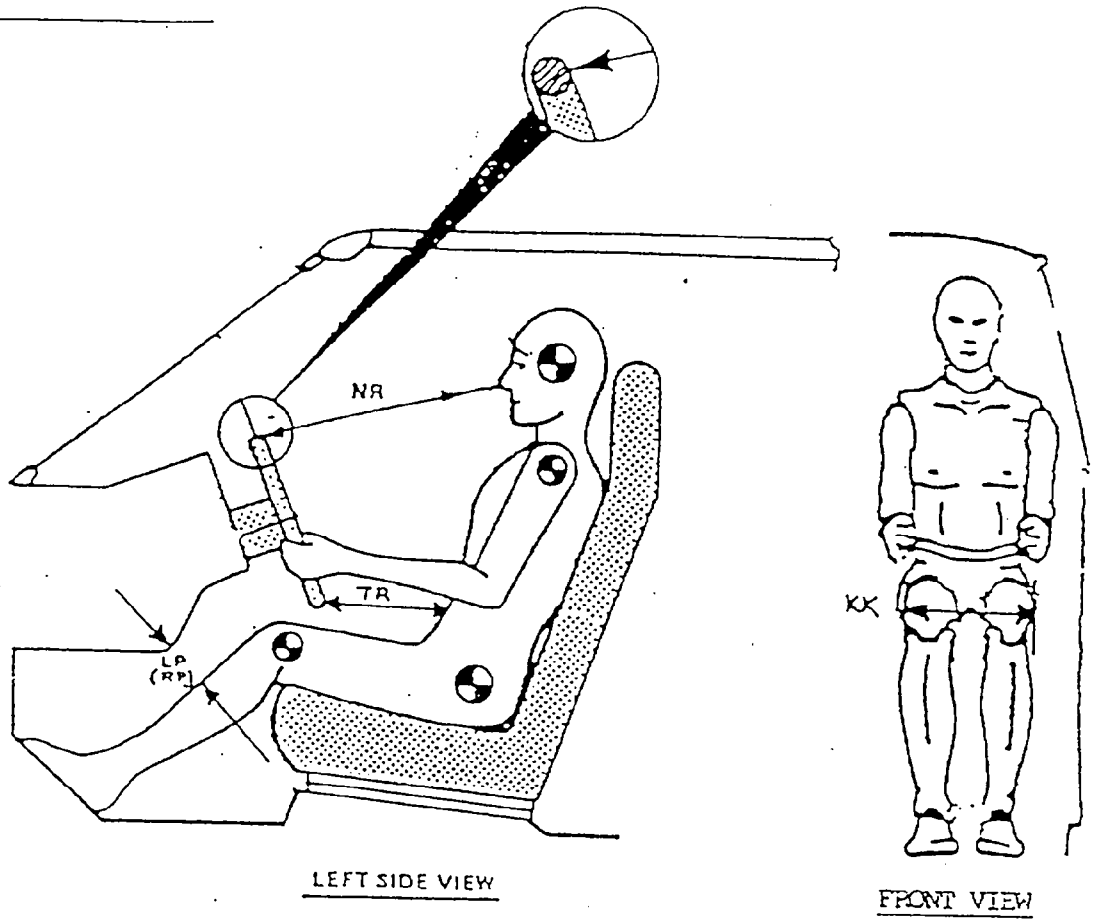
R. H. Munson

Attachments

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS

VEHICLE 1996¼ PN96 (F-150)

IR# 1625



LEFT SIDE VIEW

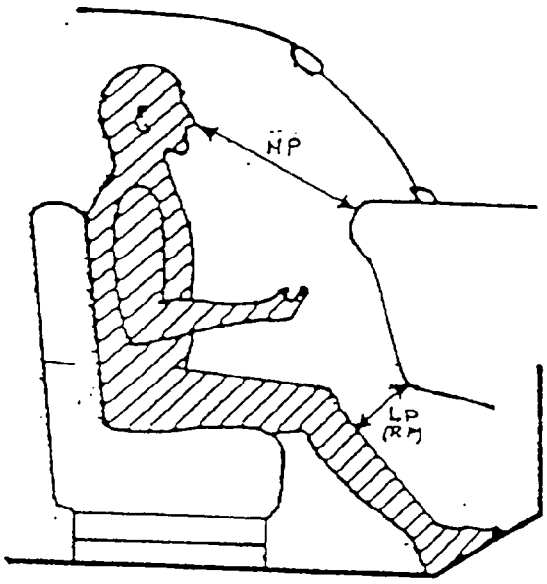
FRONT VIEW

		MEASUREMENTS (All distances in inches)	
		TARGET	RANGE
NR	Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	16.5	17.8 - 15.0
TR	Horizontal distance from bottom rear surface of steering wheel rim to dummy's torso	8.7	9.2 - 7.3
LP	Perpendicular distance from dummy's left lower leg surface to closest point on instrument panel surface	3.7	4.4 - 2.6
RP	Perpendicular distance from dummy's right lower leg surface to closest point on instrument panel surface	3.8	4.7 - 1.8
KK	Distance between outside surfaces of dummy's legs measured at the knee bolts	9.7	10.9 - 8.4

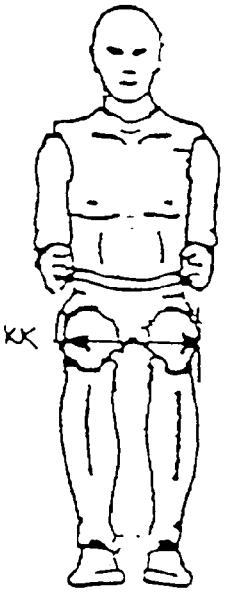
PASSENGER DUMMY PLACEMENT REFERENCE DIMENSIONS

VEHICLE 1996/4 PN96 (F-150)

IR# 1625



RIGHT SIDE VIEW

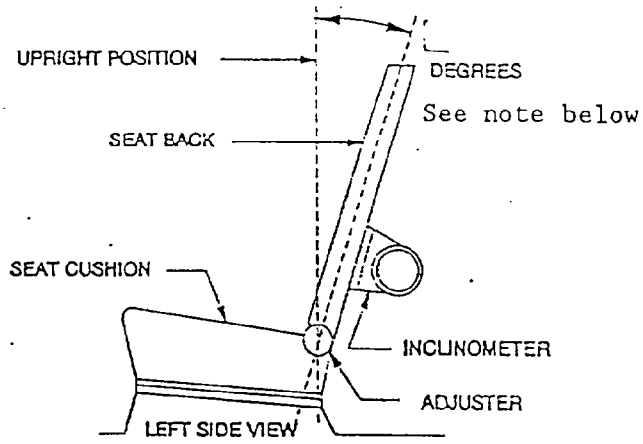


FRONT VIEW

		MEASUREMENTS (All distances in inches)	
		TARGET	RANGE
NP	Distance from tip of dummy's nose to closest point on surface of instrument panel	26.6	27.5-25.4
LP	Perpendicular distance from dummy's left lower leg surface to closest point on instrument panel surface	5.0	5.7-4.0
RP	Perpendicular distance from dummy's right lower leg surface to closest point on instrument panel surface	5.0	5.5-3.7
KK	Distance between outside surfaces of dummy's legs measured at the knee bolts	N/A	N/A

Vehicle Model Year & Make: 1997 Ford
Vehicle Model & Body Style: F-Series Truck (PN-96)

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" of "1"?). Indicate if the seat back angle is measured with the dummy in the seat.



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

See detailed note below.

See attached sheet.

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

Same as for 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:

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

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

Same method as for driver's seat.

Note

Rev. 7/11/94

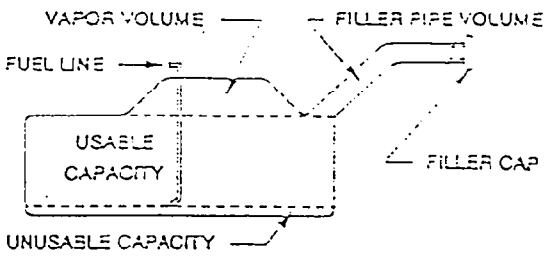
The Ford procedure uses an inclinometer attached to a small fixture which contacts the back of the seat back frame at a specified location (13 inches up from pivot on outboard edge) using pins which penetrate the seat pads and trim. Using this procedure and the angle data provided, the seat back can be adjusted to assure that it is in the design riding position with a test dummy positioned in the seat.

3. FUEL TANK CAPACITY DATA - -

3.1 A. "Usable Capacity" of standard equipment fuel tank = ** gallons. (See Chart Below)

B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.

C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 24.5/30.5 gallons.



VEHICLE FUEL TANK ASSEMBLY

**

Tank Capacity	Cab/Box Type	Drive
24.5 Gallon Tank -	Regular Cab/Short	4X4
25.0 Gallon Tank -	Regular Cab/Short	4X2
-	Super Cab/Short	4X2
-	Super Cab/Short	4X4
30.0 Gallon Tank -	Regular Cab/Long	4X2
-	Regular Cab/Long	4X4
-	Super Cab/Long	4X2
-	Super Cab/Long	4X4

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 23.275/28.975 gallons

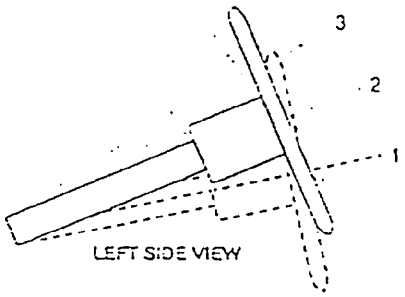
3.3 Is vehicle equipped with electric fuel pump? X YES ___ NO

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

See note below.

4. STEERING COLUMN ADJUSTMENTS - -

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



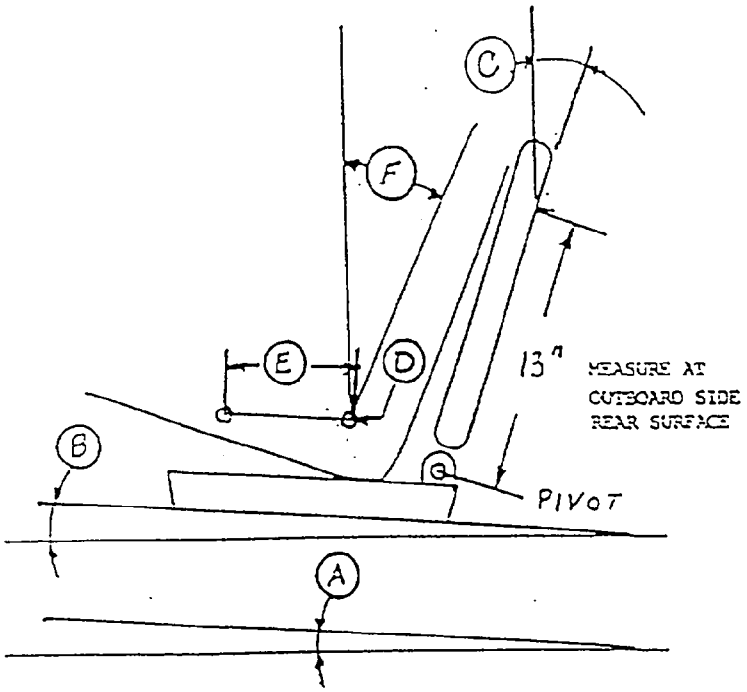
STEERING COLUMN ASSEMBLY

Operational Instructions:

Adjustable steering columns are positioned in the center detent for FMVSS No. 208 testing.

NOTE: Electric Fuel Pump Operation

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



A - SILL ANGLE

B - DESIGN CUSHION FRAME ANGLE

C - DESIGN SEAT BACK FRAME ANGLE

D - REARMOST 'H' POINT

E - TRACK TRAVEL

F - MANIKIN BACK ANGLE

PN-96 REGULAR CAB			
BENCH/SPLIT BENCH			
A	SILL ANGLE	0	DEG
B	DESIGN CUSHION FRAME ANGLE	6.12	DEG
C	DESIGN SEAT BACK FRAME ANGLE	21.4	DEG
D	REARMOST 'H' POINT	3123	MM +/- 15
E	TRACK TRAVEL	180	MM
F	MANIKIN BACK ANGLE	21	DEG +/- 2

PN-96 REGULAR CAB			
BUCKET SEAT HIGH BACK/LOW BACK			
A	SILL ANGLE	0	DEG
B	DESIGN CUSHION FRAME ANGLE	6.12	DEG
C	DESIGN SEAT BACK FRAME ANGLE	21.4	DEG
D	REARMOST 'H' POINT	3123	MM +/- 15
E	TRACK TRAVEL	180	MM
F	MANIKIN BACK ANGLE	21	DEG +/- 2

PN-96 SUPER CAB			
BENCH/SPLIT BENCH			
A	SILL ANGLE	0	DEG
B	DESIGN CUSHION FRAME ANGLE	6.12	DEG
C	DESIGN SEAT BACK FRAME ANGLE	21.4	DEG
D	REARMOST 'H' POINT	3123.1	MM +/- 15
E	TRACK TRAVEL	180	MM
F	MANIKIN BACK ANGLE	21	DEG +/- 2

PN-96 SUPER CAB			
BUCKET SEAT HIGH BACK/LOW BACK			
A	SILL ANGLE	0	DEG
B	DESIGN CUSHION FRAME ANGLE	6.12	DEG
C	DESIGN SEAT BACK FRAME ANGLE	21.4	DEG
D	REARMOST 'H' POINT	3123.1	MM +/- 15
E	TRACK TRAVEL	180	MM
F	MANIKIN BACK ANGLE	21	DEG +/- 2