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**REPORT NO. 208-MGA-2003-004**

**SAFETY COMPLIANCE SLED TESTING FOR FMVSS 208**  
**OCCUPANT CRASH PROTECTION**

Ford Motor Company  
2003 Ford Focus 3 Door Hatchback  
NHTSA NO. C30207

MGA RESEARCH CORPORATION  
5000 WARREN ROAD  
BURLINGTON, WI 53105



Test Date: April 29, 2003

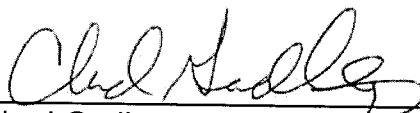
Report Date: May 6, 2003

**FINAL REPORT**

Prepared For:  
**U.S. DEPARTMENT OF TRANSPORTATION**  
**NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION**  
**ENFORCEMENT**  
**OFFICE OF VEHICLE SAFETY COMPLIANCE**  
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DATE: 5/08/03

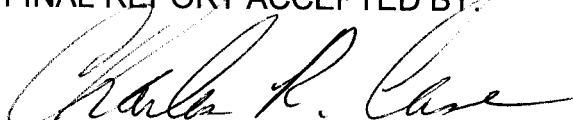
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8/4/03  
Date of Report Acceptance

# TECHNICAL REPORT STANDARD TITLE PAGE

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         |                                                                                                                                                                                                                  |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. Report No.<br>208-MGA-2003-004                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2. Government Accession No.                             | 3. Recipient's Catalog No.                                                                                                                                                                                       |           |
| 4. Title and Subtitle<br><br>Final Report for FMVSS 208 Compliance Sled Testing of a 2003 Ford Focus 3 Door Hatchback<br>NHTSA No. C30207                                                                                                                                                                                                                                                                                                                                            |                                                         | 5. Report Date<br>May 6, 2003                                                                                                                                                                                    |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         | 6. Performing Organization Code<br>MGA                                                                                                                                                                           |           |
| 7. Author(s)<br>Chad Gadberry                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                         | 8. Performing Organization Report No.<br>MGA-DOT-208-004                                                                                                                                                         |           |
| 9. Performing Organization Name and Address<br>MGA Research Corporation<br>5000 Warren Road<br>Burlington, WI 53105                                                                                                                                                                                                                                                                                                                                                                  |                                                         | 10. Work Unit No.                                                                                                                                                                                                |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         | 11. Contract or Grant No.<br>DTNH22-98-D-11055                                                                                                                                                                   |           |
| 12. Sponsoring Agency Name and Address<br><br>U.S. Department of Transportation<br>National Highway Traffic Safety Administration<br>Enforcement, Office of Vehicle Safety Compliance<br>400 Seventh St., S.W., Room 6115<br>Washington, D.C. 20590                                                                                                                                                                                                                                  |                                                         | 13. Type of Report and Period Covered<br>Final Report<br>April 29, 2003 - May 6, 2003                                                                                                                            |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         | 14. Sponsoring Agency Code<br><br>NVS-221                                                                                                                                                                        |           |
| 15. Supplementary Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                                                                                                                                                                                                                  |           |
| 16. Abstract<br><br>A compliance test (sled test) was conducted on the subject 2003 Ford Focus 3 Door Hatchback in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208S-01 for the determination of FMVSS 208 compliance. Test failures identified were as follows:<br><br>The airbag warning label was not located on the dashboard or steering wheel hub. The label was instead located on the gear shift lever. (S4.5.1(e)(1)) |                                                         |                                                                                                                                                                                                                  |           |
| 17. Key Words<br><br>Compliance Testing<br>Safety Engineering<br>FMVSS 208S<br>Sled Test                                                                                                                                                                                                                                                                                                                                                                                             |                                                         | 18. Distribution Statement<br><br>Copies of this report are available from: NHTSA Technical Reference Division, Room 5108, (NAD-40) 400 Seventh Street, S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 |           |
| 19. Security Classif.<br>(of this report)<br>Unclassified                                                                                                                                                                                                                                                                                                                                                                                                                            | 20. Security Classif.<br>(of this page)<br>Unclassified | 21. No. of Pages<br>165                                                                                                                                                                                          | 22. Price |

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## Purpose

This FMVSS 208 compliance sled test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-98-D-11055. The purpose of this test was to determine if the subject vehicle, a 2003 Ford Focus 3 Door Hatchback, NHTSA No. C30207, meets the performance requirements of FMVSS 208, "Occupant Crash Protection," in the impact simulation sled test mode.

## Test Procedure

This test was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-208S-01 dated January 15, 1998. Data was obtained relative to FMVSS 208, "Occupant Crash Protection," performance.

The test vehicle was instrumented with four (4) accelerometers to measure longitudinal axis accelerations.

The test vehicle contained two (2) Part 572 E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard seating positions according to the dummy placement procedures specified in Appendix B of the Laboratory Test Procedure. The dummies were not restrained by seat belts.

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

The thirty-nine (39) data channels were digitally sampled at 10,000 samples per second and processed per Sections 11.7 through 11.9 of the Laboratory Test Procedure.

The crash event was recorded by six (6) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

### Test Results Summary

This FMVSS 208 compliance sled test was conducted at MGA Research Corporation on April 29, 2003.

The test vehicle, a 2003 Ford Focus 3 Door Hatchback, NHTSA No. C30207, appeared to comply with the performance requirements of FMVSS 208 in the impact simulation sled test mode as measured by Hybrid III 50th percentile male dummies.

|                    | FMVSS 208 Max. Allowable Injury Assessment Values | Driver (Serial #312) | Passenger (Serial #340) |
|--------------------|---------------------------------------------------|----------------------|-------------------------|
| HIC                | 1000                                              | 261                  | 174                     |
| Chest g            | 60 g                                              | 35.6 g               | 33.3 g                  |
| Chest displacement | 3 in.                                             | 0.4 in.              | 0.3 in.                 |
| Left Femur         | 2250 lb                                           | 1218 lb              | 1055 lb                 |
| Right Femur        | 2250 lb                                           | 1127 lb              | 1312 lb                 |
| Neck Extension     | 57 Nm                                             | 14.2 Nm              | 17.2 Nm                 |
| Neck Flexion       | 190 Nm                                            | 20.5 Nm              | 37.6 Nm                 |
| Neck Tension       | 3300 N                                            | 1464 N               | 852 N                   |
| Neck Compression   | 4000 N                                            | 1107 N               | 993 N                   |
| Neck Shear         | 3100 N                                            | 1041 N               | 843 N                   |

The vehicle also appears to meet the other FMVSS 208 requirements for which it was tested, except for the airbag warning label, which was located on the gear shift lever rather than the dashboard or steering wheel hub. These results are shown in the data sheets that are included in this report.

The test vehicle was equipped with air bags at the driver and passenger seating positions. The dummies were not restrained by seat belts. The sled carriage was accelerated to 17.7 g with an integrated velocity change of 29.6 mph. After filtering the acceleration signal to Channel Class 60, the airbag system's first stages were triggered 21.0 milliseconds after 0.5 g acceleration, and the driver and passenger second stages were triggered at 31.1 and 41.2 milliseconds, respectively.

INCLUDE DISCUSSION OF LOST CHANNELS OR OTHER TEST ISSUES.

- No valid data was collected on the Left Rear Crossmember X Acceleration channel.
- No valid data was collected on the Right Rear Crossmember X Acceleration channel after approximately 79 milliseconds.

## Sled Test Summary

Vehicle NHTSA No.: C30207 Test Mode: FMVSS 208 SLED TEST

Vehicle Yr/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Test Date: April 29, 2003

Time: 1:20 p.m.

Temp: 72°F

Vehicle Test Weight: 3045 lbs.

### **DUMMY INFO.**

|                   | <b>DRIVER</b>         | <b>PASSENGER</b>      |
|-------------------|-----------------------|-----------------------|
| Dummy Type        | <u>Part 572E</u>      | <u>Part 572E</u>      |
| Serial Number     | <u>312</u>            | <u>340</u>            |
| Restraint System  | <u>Frontal airbag</u> | <u>Frontal airbag</u> |
| No. Data Channels | <u>15</u>             | <u>15</u>             |

Number of Cameras: 1 Real Time  
6 High Speed

Door Opening Data: Yes Left Front  
Yes Right Front

### **FRONT SEAT(S) DATA**

|                      | <b>DRIVER</b>            | <b>PASSENGER</b>        |
|----------------------|--------------------------|-------------------------|
| Seat Track Failure - | <u>0.0</u> inches shift; | <u>0.0</u> inches shift |
| Seat Back Failure -  | <u>No</u>                | <u>No</u>               |

### **VISIBLE DUMMY CONTACT POINTS:**

|            | <b>DRIVER</b>                            | <b>PASSENGER</b>        |
|------------|------------------------------------------|-------------------------|
| Head       | <u>Airbag/windshield</u>                 | <u>Airbag/sun visor</u> |
| Chest      | <u>Airbag</u>                            | <u>Airbag</u>           |
| Left Knee  | <u>Knee bolster/instrument<br/>panel</u> | <u>Glove box</u>        |
| Right Knee | <u>Knee bolster/instrument<br/>panel</u> | <u>Glove box</u>        |

General Test And Vehicle Parameter Data

Vehicle Yr/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Vehicle NHTSA No.: C30207 VIN: 3FAFP313X3R123332 Color: Black

Engine Data:

No. Cylinders: 4; CID:       ; Liters: 2.0; CCs:         
Placement: Longitudinal/Inline:       ; Transverse/Lateral: X

Transmission Data:

Speeds: 5; Manual: X; Automatic:       ; Overdrive: X

Final Drive:

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

Major Options:

A/C: X; Pwr. Strg.: X; Pwr. Brakes: X; Pwr. Windows:         
Pwr. Dr. Locks:       ; Other: Rear defogger

Date Received: 3/26/03; Odometer Reading: 59 miles

Selling Dealer: Geneva Lakes Ford, Inc., P.O. Box 177, W2542 Hwy. 120, Lake Geneva,  
WI 53147

REMARKS: None

General Test And Vehicle Parameter Data (Cont.)

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Ford Motor Company

Date of Manufacture: 11/02; VIN: 3FAFP313X3R123332

GVWR: 3665 lbs; GAWR Front: 1975 lbs.

GAWR Rear: 1690 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 32 psi REAR: 32 psi

Recommended Tire Size: P195/60R15 87T

Recommended Cold Tire Pressure:

FRONT: 32 psi REAR: 32 psi

Size of Tires on Test Vehicle: P195/60R15 87T

Type of Spare Tire: T125/80R15; Space Saver: X; Standard:       

Vehicle Capacity Data:

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

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

REMARKS: None

VEHICLE CAPACITY WEIGHT (VCW) = 827 lbs.

No. Of Occupants x 150 lbs = 750 lbs.

Rated Cargo/Luggage Weight (RCWL) = 77 lbs. (Difference)

General Test And Vehicle Parameter Data (Cont.)

WEIGHT OF TEST VEHICLE AS RECEIVED AT LABORATORY: (with maximum fluids)

|                                           |                  |                  |                  |
|-------------------------------------------|------------------|------------------|------------------|
| Right Front =                             | <u>800</u> lbs.  | Right Rear =     | <u>507</u> lbs.  |
| Left Front =                              | <u>819</u> lbs.  | Left Rear =      | <u>498</u> lbs.  |
| TOTAL FRONT =                             | <u>1619</u> lbs. | TOTAL REAR =     | <u>1005</u> lbs. |
| % Total Weight =                          | <u>61.7</u> %    | % Total Weight = | <u>38.3</u> %    |
| TOTAL DELIVERED WEIGHT = <u>2624</u> lbs. |                  |                  |                  |

WEIGHT OF FULLY LOADED TEST VEHICLE WITH TWO DUMMIES (344 LB) AND 77 POUNDS OF CARGO WEIGHT:

|                                 |                  |                  |                  |
|---------------------------------|------------------|------------------|------------------|
| Right Front =                   | <u>888</u> lbs.  | Right Rear =     | <u>628</u> lbs.  |
| Left Front =                    | <u>901</u> lbs.  | Left Rear =      | <u>628</u> lbs.  |
| TOTAL FRONT =                   | <u>1789</u> lbs. | TOTAL REAR =     | <u>1256</u> lbs. |
| % Total Weight =                | <u>58.8</u> %    | % Total Weight = | <u>41.2</u> %    |
| TOTAL WEIGHT = <u>3045</u> lbs. |                  |                  |                  |

TEST VEHICLE ATTITUDE: (all measurements in degrees)

|                               |                       |
|-------------------------------|-----------------------|
| AS DELIVERED DOOR SILL ANGLE: | <u>0.2° nose down</u> |
| AS TESTED DOOR SILL ANGLE:    | <u>0.2° nose down</u> |
| FULLY LOADED DOOR SILL ANGLE: | <u>0.2° nose up</u>   |

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 13.2 gallons  
Usable Capacity Figure Furnished by COTR = 13.2 gallons

REMARKS: None

## Post-Impact Data

Test number: HT03042901  
NHTSA number: C30207  
Test date: April 29, 2003  
Test time: 1:20 p.m.  
Test type: FMVSS 208 Compliance Sled Test  
Impact angle: 0°  
Ambient Temperature  
at Impact Area: 72°F  
Temperature in  
Occupant Compartment: 72°F

### Impact Velocity:

Integrated velocity from the integration of the entire sled acceleration: 29.6 mph  
Specified integrated velocity range: 28 to 30 mph

### Sled Carriage Acceleration:

Acceleration: 17.7 g  
Specified Acceleration Range: 16.0 - 18.2 g

### Sled Carriage Acceleration Duration:

Time from T-0 (-0.5 g) to 0.0 g: 123.0 msec  
Specified Acceleration Duration: 120.0 to 130.0 msec

The sled acceleration corridor was achieved.

## Seat and Steering Column Positioning Data

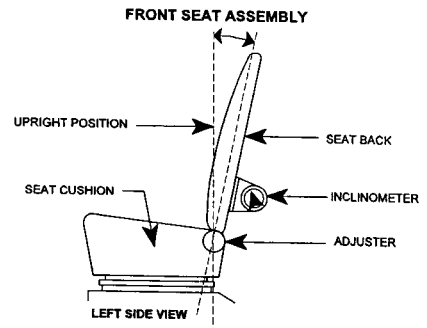
Vehicle Yr/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Vehicle NHTSA No.: C30207 Test Date: April 29, 2003

### NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle =  $24^{\circ}$

Passenger Seat: Seat Back Angle =  $24^{\circ}$



### SEAT FORE AND AFT POSITIONS:

Driver Seat: The seat track had a total position movement of 17 notches and was positioned 8 notches rearward from the foremost position with the forward most locking position as zero.

Passenger Seat: The seat track had a total position movement of 17 notches and was positioned 8 notches rearward from the foremost position with the forward most locking position as zero.

### STEERING COLUMN ADJUSTMENTS:

The steering column was not adjustable.

# Dummy Positioning Measurement Table

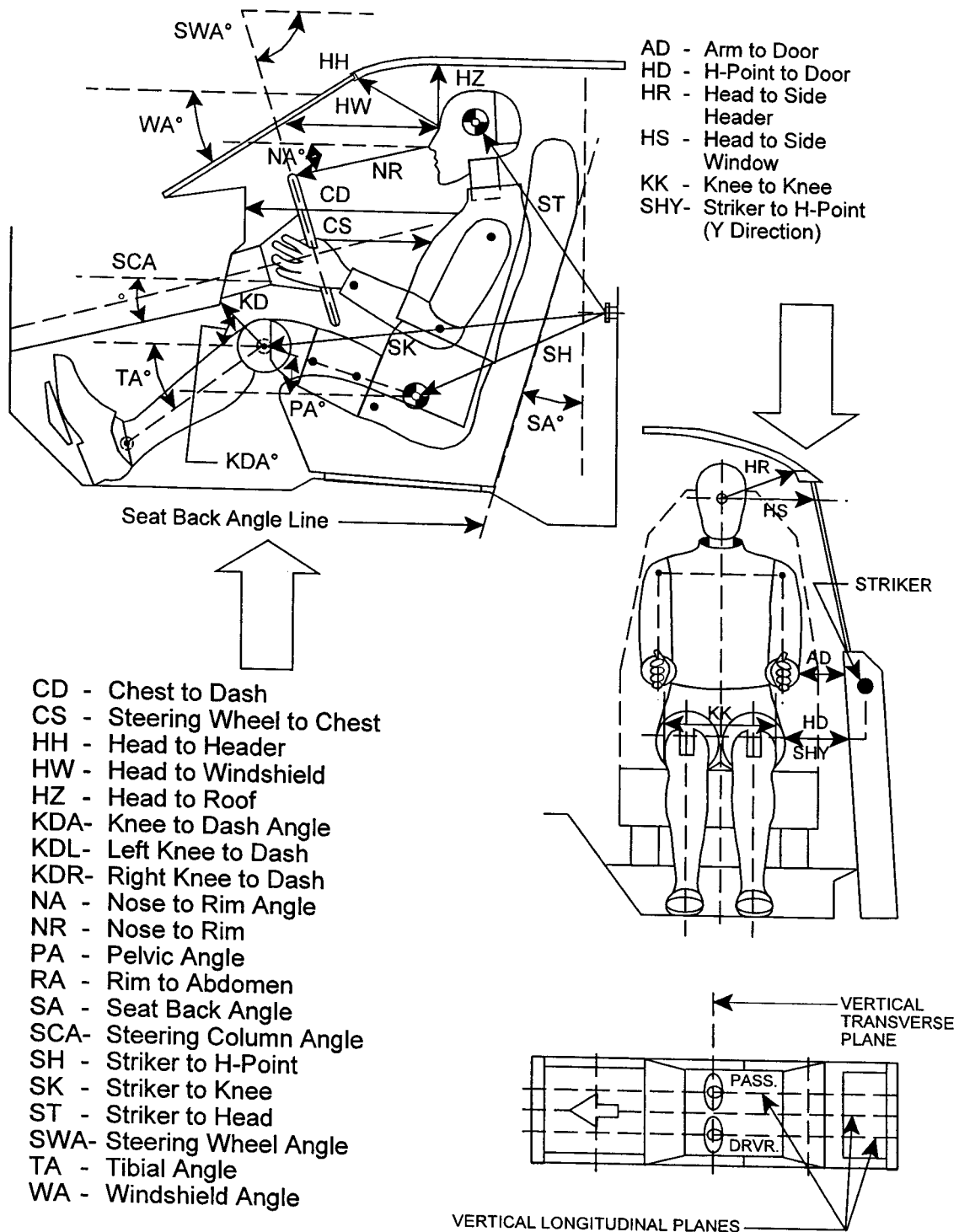
Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Vehicle NHTSA No.: C30207      Test Date: April 29, 2003

|      | DRIVER (Serial #312)   | PASSENGER (Serial #340) |
|------|------------------------|-------------------------|
| WA°  | 28.4°                  |                         |
| SWA° | 67.4°                  |                         |
| SCA° | 23.4°                  |                         |
| SA°  | 24°                    | 24°                     |
| HZ   | 7.4                    | 6.5                     |
| HH   | 13.5                   | 13.6                    |
| HW   | 24.0                   | 23.1                    |
| HR   | 8.1                    | 7.0                     |
| NR   | 16.9 Angle (NA°) 12.6° |                         |
| CD   | 21.4                   | 20.9                    |
| CS   | 13.1                   |                         |
| RA   | 8.9                    |                         |
| KDL  | 7.3 Angle (KDA°) 0.0°  | 6.9                     |
| KDR  | 7.6                    | 7.7 Angle (KDA°) 0.0°   |
| PA°  | 23.4°                  | 24.3°                   |
| TA°  | 44.0°                  | 44.4°                   |
| KK   | 13.3                   | 10.6                    |
| ST   | 24.1 Angle 32.6°       | 23.8 Angle 27.5°        |
| SK   | 32.2 Angle 91.0°       | 33.3 Angle 91.9°        |
| SH   | 18.3 Angle 106.1°      | 17.7 Angle 104.2°       |
| SHY  | 9.5                    | 9.8                     |
| HS   | 12.0                   | 11.5                    |
| HD   | 4.0                    | 4.2                     |
| AD   | 4.0                    | 4.0                     |

## Dummy Positioning Measurement Locations

### DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



## Description of Dummy Measurements

When a level is to be used, it is to ensure that the line containing the two points described is either parallel or perpendicular to the ground. If a measurement to be made is less than 10 inches ignore the directions to use a level and approximate a level measurement. Also, when a measurement is to be taken to or from the center of a bolt on the dummy, take the measurement from the center of the bolt hole if the bolt is recessed.

**The following measurements are to be made within a vertical longitudinal plane.**

- \* HH Head to Header, taken from the point where the dummy's nose meets his forehead (between his eyes) to the furthest point forward on the header.
- \* HW Head to Windshield, taken from the point where the dummy's nose meets his forehead (between his eyes) to a point on the windshield. Use a level.
- HZ Head to Roof, taken from the point where the dummy's nose meets his forehead (between his eyes) to the point on the roof directly above it. Use a level.
- \* CS Steering Wheel to Chest, taken from the center of the steering wheel hub to the dummy's chest. Use a level.
- \* CD Chest to Dash, place a tape measure on the tip of the dummy's chin and rotate five inches of it downward toward the dummy to the point of contact on the transverse center of the dummy's chest. Then measure from this point to the closest point on the dashboard either between the upper part of the steering wheel between the hub and the rim, or measure to the dashboard placing the tape measure above the rim, whichever is a shorter measurement. See photograph.
- RA Steering Wheel Rim to Abdomen, taken from the bottommost point of the steering wheel rim horizontally rearward to the dummy. Use a level.
- NR Nose to Rim, taken from the tip of the dummy's nose to the closest point on the top of the steering wheel rim. Also indicate the angle this line makes with respect to the horizontal (NA).
- \*<sup>1</sup> KDL, KDR Left and Right Knees to Dashboard, taken from the center of the knee pivot bolt's outer surface to the closest point forward acquired by swinging the tape measure in continually larger arcs until it contacts the dashboard. Also reference the angle of this measurement with respect to the horizontal for the outboard knee (KDA). See photograph.

\* Measurement used in Data Tape Reference Guide

<sup>1</sup> Only outboard measurement is referenced in Data Tape Reference Guide

## Description of Dummy Measurements (Cont.)

SH, SK, ST Striker to Hip, Knee, and Head, these measurements are to be taken in the X-Z plane measured from the forward most center point on the striker to the center of the H-point, outer knee bolt, and head target. When taking this measurement a firm device that can be rigidly connected to the striker should be used. Use a level. The angles of these measurements with respect to the horizontal should also be recorded. The measurement in the Y (transverse) direction from the striker to the H-point should also be taken (SHY). See photograph.

**The following measurements are to be made within a vertical transverse plane.**

- |      |                                                                                                                                                                                                                                                                                                                                         |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HS   | Head to Side Window, taken from the point where the dummy's nose meets his forehead (between his eyes) to the outside of the side window. In order to make this measurement, roll the window down to the exact height which allows a level measurement. Use a level. See photograph.                                                    |
| * AD | Arm to Door, taken from the outer surface of the elbow pivot bolt on a Hybrid II dummy to the first point it hits on the door. In the case of a Hybrid III dummy, measure from the bolt on the outer biceps. When a SID is used make the measurement from the center of the bottom of the arm segment where it meets the dummy's torso. |
| * HD | H-point to Door, taken from the H-point on the dummy to the closest point on the door. Use a level.                                                                                                                                                                                                                                     |
| * HR | Head to Side Header, measure the shortest distance from the point where the dummy's nose meets his forehead (between his eyes) to the side edge of the header just above the window frame, directly adjacent to the dummy.                                                                                                              |
| SHY  | Striker to H-point, taken from a rod rigidly connected to the forward most center point on the striker to the H-point. Use a level. See photograph.                                                                                                                                                                                     |
| KK   | Knee to Knee, for Hybrid II dummies measure the distance between knee pivot bolt head outer surfaces. For Hybrid III dummies measure the distance between the outboard knee clevis flange surfaces. (This measurement may not be exactly transverse)                                                                                    |

\* Measurement used in Data Tape Reference Guide

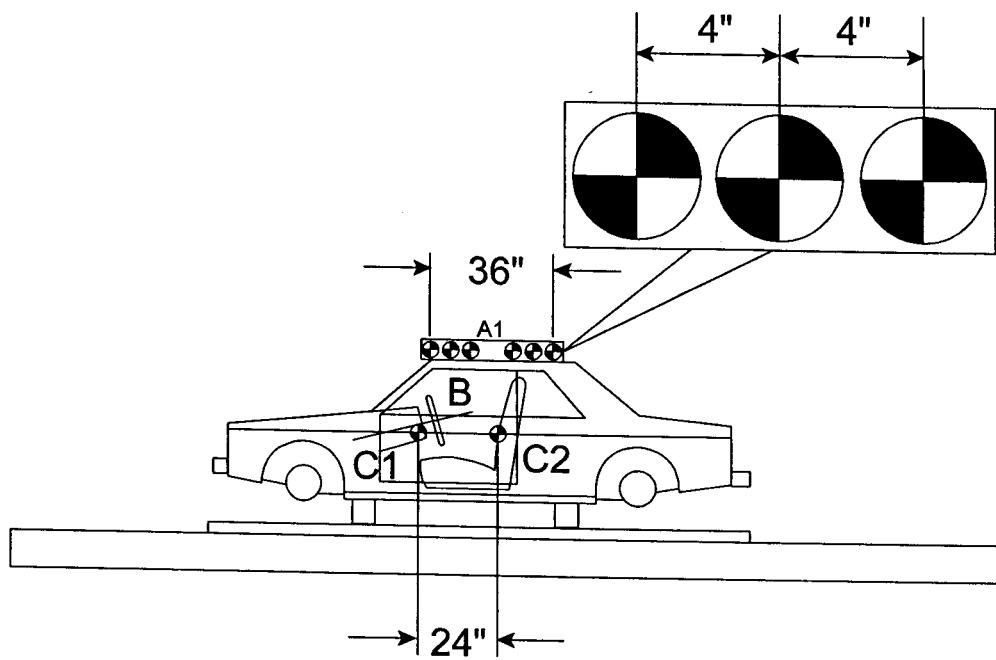
## Description of Dummy Measurements (Cont.)

### **Angles**

|     |                                                                                                                                                                                                                                                                                                                                                                      |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SA  | Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide clear instructions contact the COTR.                                                                                                                                                                                                       |
| PA  | Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and taking this angle with respect to the horizontal. Measure the angle of the line connecting the H-point hole and the outer knee pivot bolt hole on a Hybrid II dummy with respect to the horizontal, to find the femur angle. |
| SWA | Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.                                                                                                                                                            |
| SCA | Steering Column Angle, measured with respect to the horizontal by placing an inclinometer on the center of the underside of the steering column.                                                                                                                                                                                                                     |
| NA  | Measure the angle made when taking the measurement NR with respect to the horizontal.                                                                                                                                                                                                                                                                                |
| KDA | Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal. Only get this angle for the outboard knee. See photograph.                                                                                                                                                                                                         |
| WA  | Windshield Angle, place an inclinometer along the transverse center of the windshield exterior (measurement is made with respect to horizontal).                                                                                                                                                                                                                     |
| TA  | Tibial Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.                                                                                                                                                                                 |

## Vehicle Targeting Measurements

### REFERENCE PHOTO TARGETS

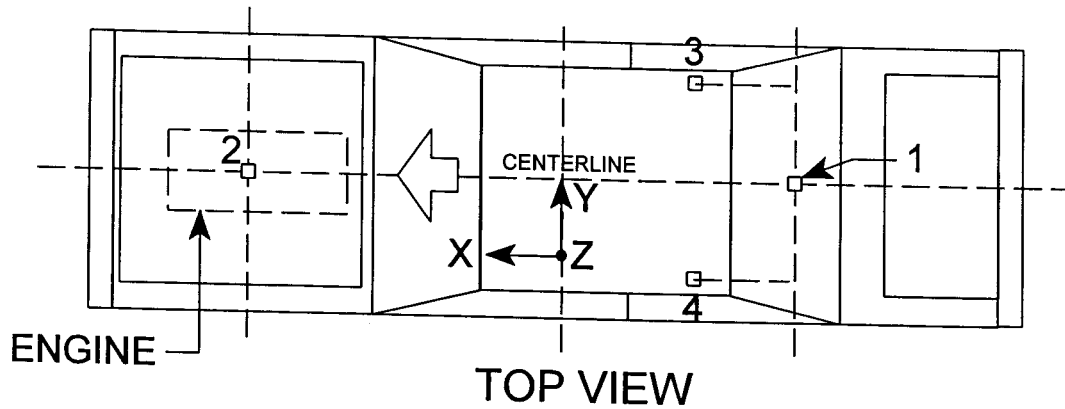


LEFT SIDE VIEW

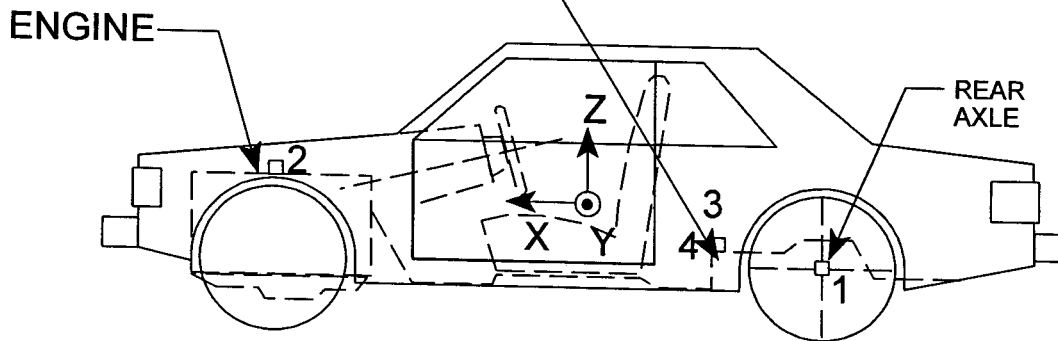
## Vehicle Accelerometer Placement and Data Summary

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Vehicle NHTSA No.: C30207      Test Date: April 29, 2003



REAR SEAT CUSHION  
ASSY. FRONT ATTACHMENT  
BRACKET SUPPORT



LEFT SIDE VIEW

Vehicle Accelerometer Location Measurements and Data Summary

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

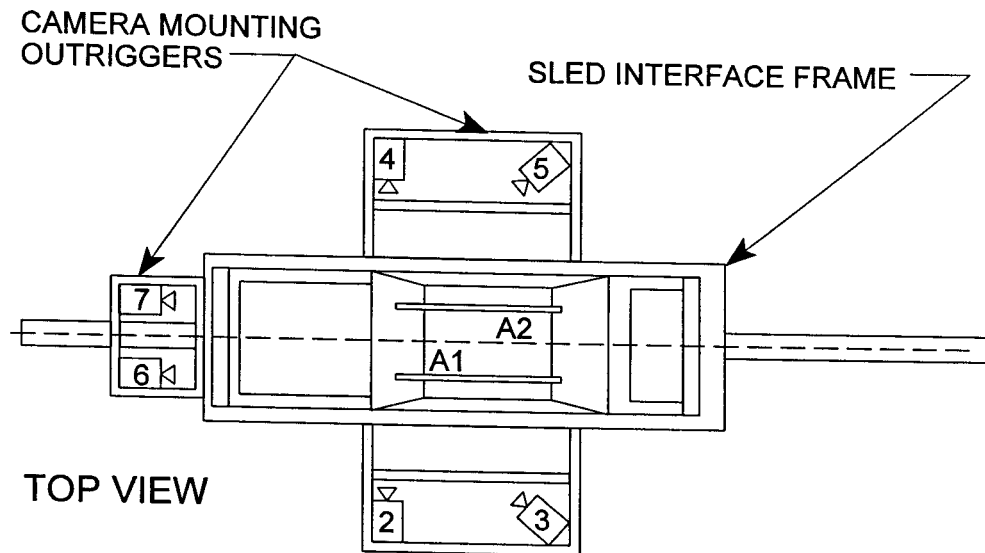
Vehicle NHTSA No.: C30207      Test Date: April 29, 2003

| No. | Location                                | X (in) | Y (in) | Positive Direction |             | Negative Direction |             |
|-----|-----------------------------------------|--------|--------|--------------------|-------------|--------------------|-------------|
|     |                                         |        |        | Value              | Time (msec) | Value              | Time (msec) |
|     | Sled Primary Longitudinal               | 67.0   | 0      | 17.7 g             | 59          | -1.5 g             | 127         |
|     | Sled Redundant Longitudinal             | 67.0   | 4.0    | 17.9 g             | 59          | -1.3 g             | 127         |
|     | Sled Velocity<br>Measured Integrated    | 67.0   | 0      | 29.6 mph           | 123         | --                 | --          |
| 1   | Rear Axle Longitudinal                  | 24.0   | 0      | 18.1 g             | 60          | -2.0 g             | 128         |
| 2   | Top Engine Longitudinal                 | 143.0  | 0      | 20.2 g             | 45          | -2.2 g             | 173         |
| 3   | Right Rear Seat Member<br>Longitudinal* | 63.0   | 15.0   | 18.9 g             | 50          | 0.3 g              | 0           |
| 4   | Left Rear Seat Member<br>Longitudinal   | 63.0   | 15.0   | **                 | **          | **                 | **          |

\* - No valid data collected after approximately 79 msec.

\*\* - No valid data collected

## Camera Positions



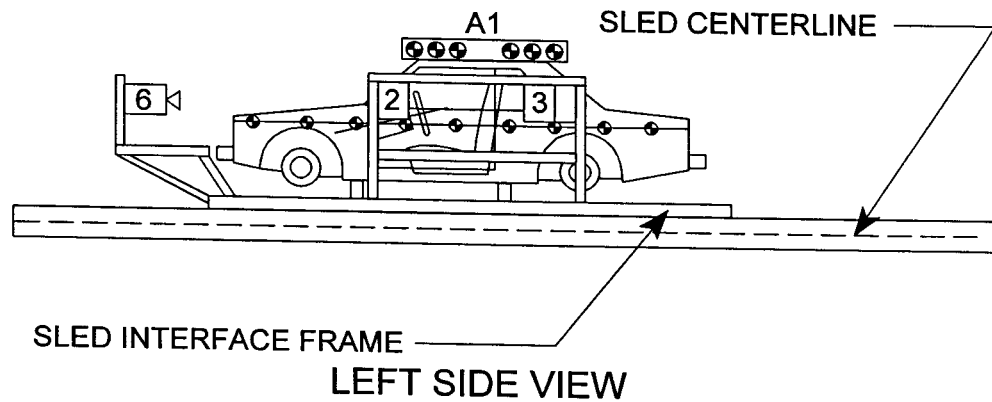
### CAMERA FRAME RATES:

#1 = 24 fps

All Others = 1,000 fps



REAL TIME CAMERA



### Camera Location Measurements

| Camera No. | VIEW                         | Camera Positions (inches)* |      |      | Angle (deg) | Film Plane To Head Target | Lens (mm) | Speed (fps) |
|------------|------------------------------|----------------------------|------|------|-------------|---------------------------|-----------|-------------|
|            |                              | X                          | Y    | Z    |             |                           |           |             |
| 1          | Real-Time (Pre and Post)     |                            |      |      |             |                           | 10        | 24          |
| 2          | Onboard Driver               | 70.6                       | 88.6 | 38.4 | 90          | 72.4                      | 13        | 1010        |
| 3          | Onboard Driver Angle         | 150.9                      | 91.1 | 47.8 |             |                           | 13        | 952         |
| 4          | Onboard Passenger            | 71.8                       | 89.6 | 38.5 | 90          | 71.1                      | 13        | 1000        |
| 5          | Onboard Passenger Angle      | 146.7                      | 88.5 | 47.9 |             |                           | 13        | 1020        |
| 6          | Onboard Windshield Driver    | 18.3                       | 14.1 | 42.9 |             |                           | 13        | 1005        |
| 7          | Onboard Windshield Passenger | 18.3                       | 13.9 | 42.9 |             |                           | 13        | 866         |

Reference\* X = Front of sled carriage  
 Y = Center of sled carriage  
 Z = Top of sled carriage

## Occupant Injury Data

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Vehicle NHTSA No.: C30207      Test Date: April 29, 2003

| MAXIMUM ACCELERATION<br>VALUES: (g's) | DRIVER<br>DUMMY #312 | PASSENGER<br>DUMMY #340 |
|---------------------------------------|----------------------|-------------------------|
| Head Channel X                        | -68.0                | -26.5                   |
| Head Channel Y                        | 21.1                 | -22.5                   |
| Head Channel Z                        | -41.7                | -27.7                   |
| HEAD RESULTANT                        | 70.6                 | 33.9                    |
| Chest Channel X                       | -32.8                | -32.9                   |
| Chest Channel Y                       | 7.6                  | -6.7                    |
| Chest Channel Z                       | 19.0                 | 17.6                    |
| CHEST RESULTANT                       | 36.7                 | 34.5                    |

### HEAD INJURY CRITERIA (HIC) VALUES:

|                |       |       |
|----------------|-------|-------|
| HIC            | 261   | 174   |
| $t_1$ = (msec) | 114.4 | 92.7  |
| $t_2$ = (msec) | 132.0 | 128.7 |

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

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

|                       |       |      |
|-----------------------|-------|------|
| CLIP                  | 35.6  | 33.3 |
| $t_1$ = (msec)        | 116.5 | 96.4 |
| $t_2$ = (msec)        | 119.5 | 99.4 |
| CHEST DEFLECTION (in) | 0.4   | 0.3  |

Occupant Injury Data (Cont.)

| MAX. COMPRESSIVE FEMUR FORCES: | DRIVER<br>DUMMY #312 | PASSENGER<br>DUMMY #340 |
|--------------------------------|----------------------|-------------------------|
| Left Side (lbs)                | 1218                 | 1055                    |
| Right Side (lbs)               | 1127                 | 1312                    |

NECK INJURY CRITERIA:

|                                                                 |      |      |
|-----------------------------------------------------------------|------|------|
| Peak Flexion Bending Moment about the Occipital Condyle (N-m)   | 20.5 | 37.6 |
| Peak Extension Bending Moment about the Occipital Condyle (N-m) | 14.2 | 17.2 |
| Peak Axial Tension (N)                                          | 1464 | 852  |
| Peak Axial Compression (N)                                      | 1107 | 993  |
| Peak Fore Shear (N)                                             | 1041 | 843  |
| Peak Aft Shear (N)                                              | 172  | 291  |

Seat Belt Warning System Data

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207; Technician: Chad Gadberry; Date: April 2, 2003

Complete the following to determine which seat belt warning system option (S7.3(a)(1) or S7.3(a)(2)) is used. (Manufacturers may use either option.)

A. With occupant in driver's position and lap belt in stowed position and ignition switch placed in "Start/On" position:

A.1 S7.3(a)(1)

Time duration of audible warning signal = 6 seconds  
(4 to 8 seconds)

Time duration of reminder light operation = 65 seconds  
(no less than 60 seconds)

A.2 S7.3(a)(2)

Time duration of audible warning signal = \_\_\_\_\_ seconds  
(4 to 8 seconds)(see 49 USCS @ 30124)

Time duration of reminder light operation = \_\_\_\_\_ seconds  
(4 to 8 seconds)

B. With occupant in driver's position and lap belt in use and ignition switch placed in "Start/On" position:

B.1 S7.3(a)(1)

Time duration of audible warning signal = 0 seconds  
(audible warning not required)

Time duration of reminder light operation = 0 seconds  
(reminder light not required)

B.2 S7.3(a)(2)

Time duration of audible warning signal = \_\_\_\_\_ seconds  
(audible warning not required)

Time duration of reminder light operation = \_\_\_\_\_ seconds  
(4 to 8 seconds)

C. Note wording of visual warning:

Fasten seat belt

Fasten Belt

Symbol 101

X

## Readiness Indicator

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207 ; Technician: Chad Gadberry ; Date: April 2, 2003

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation)

1. Is the system totally mechanical?      ( )Yes      (X)No  
**(If YES this Data Sheet is complete.)**
2. Describe the location of the readiness indicator: Left side of instrument panel  
\_\_\_\_\_
3. Is the readiness indicator clearly visible to the driver?  

(X)Yes-Pass      ( )No-FAIL
4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided?  

(X)Yes-Pass      ( )No-FAIL

## Air Bag Labels Data

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207; Technician: Chad Gadberry; Date: April 2, 2003

1. Air bag maintenance label and owner's manual instructions (S4.5.1(a)):
  - 1.1. Does the manufacturer recommend periodic maintenance or replacement of the airbag?  
( ) Yes, go to 1.2 (X) No, go to 2
  - 1.2. Does the vehicle have a maintenance or replacement label?  
( ) Yes-Pass ( ) No-FAIL
  - 1.3. Does the label contain one of the following?  
( ) Yes-Pass ( ) No-FAIL  
( ) Schedule on label specifies month and year (Date: \_\_\_\_\_)  
( ) Schedule on label specifies vehicle mileage (Mileage: \_\_\_\_\_)  
( ) Schedule on label specifies interval measured from date on certification label (Date: \_\_\_\_\_)
  - 1.4. Is the label permanently affixed within the passenger compartment?  
( ) Yes-Pass ( ) No-FAIL
  - 1.5. Is the label lettered in English?  
( ) Yes-Pass ( ) No-FAIL
  - 1.6. Is the label in block capitals and numerals?  
( ) Yes-Pass ( ) No-FAIL
  - 1.7. Are the letters and numerals at least 3/32 inches high?  
( ) Yes-Pass ( ) No-FAIL
  - 1.8. Does the owner's manual set forth the recommended schedule for maintenance or replacement?  
( ) Yes-Pass ( ) No-FAIL
2. Does the owner's manual (S4.5.1(f)):
  - 2.1. Include a description of the vehicle's airbag system in an easily understandable format?  
(X) Yes-Pass ( ) No-FAIL
  - 2.2. Include a statement that the vehicle is equipped with an airbag and a lap/shoulder belt at the front outboard seating positions?  
(X) Yes-Pass ( ) No-FAIL

### Air Bag Labels Data (Cont.)

- 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions?  
(X)Yes-Pass ( ) No-FAIL
- 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an airbag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?  
(X)Yes-Pass ( ) No-FAIL
- 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to insure maximum safety protection for those occupants?  
(X)Yes-Pass ( ) No-FAIL
- 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?  
(X)Yes-Pass ( ) No-FAIL

3. Does the vehicle:

- 3.1. Provide an automatic means to ensure that the airbag does not deploy when a child seat or child with a total mass of 30 kg or less is present on the front outboard passenger?  
( )Yes (X) No
- 3.2. Incorporate sensors, other than or in addition to weight sensors, which automatically prevent the passenger air bag from deploying in situations in which it might have an adverse effect on infants in rear-facing child seats, and unbelted or improperly belted children?  
( )Yes (X) No
- 3.3. Have a passenger air bag designed to deploy in a manner that does not create a risk of serious injury to infants in rear-facing child seats, and unbelted or improperly belted children?  
( )Yes (X) No

If yes to 3.1, or 3.2, or 3.3, the vehicle is not required to have a sunvisor warning label (S4.5.1(6)), an airbag alert label (S4.5.1(c)) or a label on the dash (S4.5.2(e)) and this check sheet is complete (S4.5.1). If no to 3.1, 3.2, and 3.3, go to 4.

4. Sun Visor Warning Label

- 4.1. Is the label permanently affixed (may be permanent marking or molding) to either side of the sunvisor at each front outboard seating position with an airbag?  
(S4.5.1(b)(2))
- |                  |                     |             |
|------------------|---------------------|-------------|
| Driver Side -    | (X)Yes-Pass         | ( ) No-FAIL |
| Passenger Side - | ( ) N/A (X)Yes-Pass | ( ) No-FAIL |

Air Bag Labels Data (Cont.)

- 4.2. Does the label conform in content (vehicles without back seats may omit the statement: "The back seat is the safest place for children.") (S4.5.1(b)(2)(v))) to either label shown on the next page as appropriate at each front outboard seating position with an air bag? (S4.5.1(b)(2))

4.2.1 **Dual air bags:**      ☐ Not Applicable  
Driver Side -              ☒ Yes-Pass              ☐ **No-FAIL**  
Passenger Side -      ☒ Yes-Pass              ☐ **No-FAIL**

4.2.2 **Vehicle with driver air bag ONLY - either 4.2.2.1 or 4.2.2.2 is applicable, not both.** (S4.5.1(b)(2)(iv))

4.2.2.1 Does the label conform in content to either label shown on the following page as appropriate?  
☒ Not Applicable  
Driver Side -              ☐ Yes-Pass              ☐ **No-FAIL**

4.2.2.2 Does the label conform in content to the first label shown on the following page where the label can be modified to omit the pictogram and the message text may read:

DEATH or SERIOUS INJURY can occur.

- Sit as far back as possible from the air bag.
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS
- The BACK SEAT is the SAFEST place for children.

☒ Not Applicable  
Driver Side -              ☐ Yes-Pass              ☐ **No-FAIL**

## Air Bag Labels Data (Cont.)

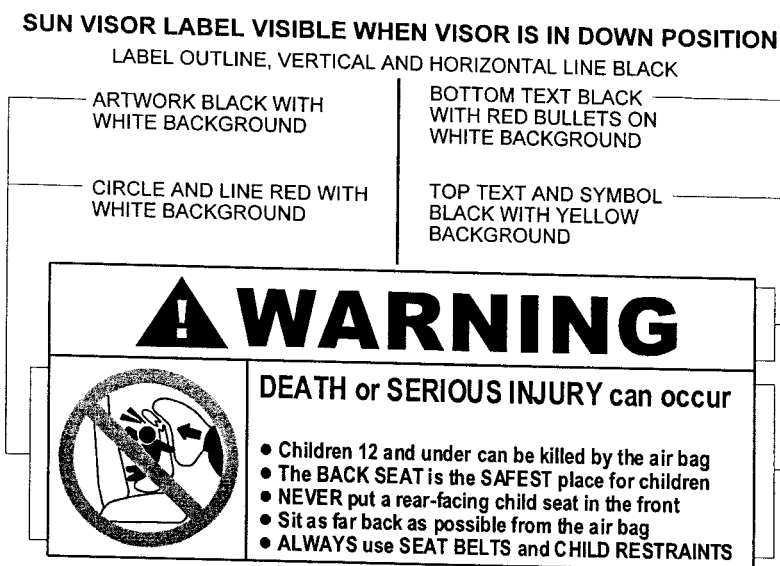


Figure 6a (S4.5.1(b)(2))

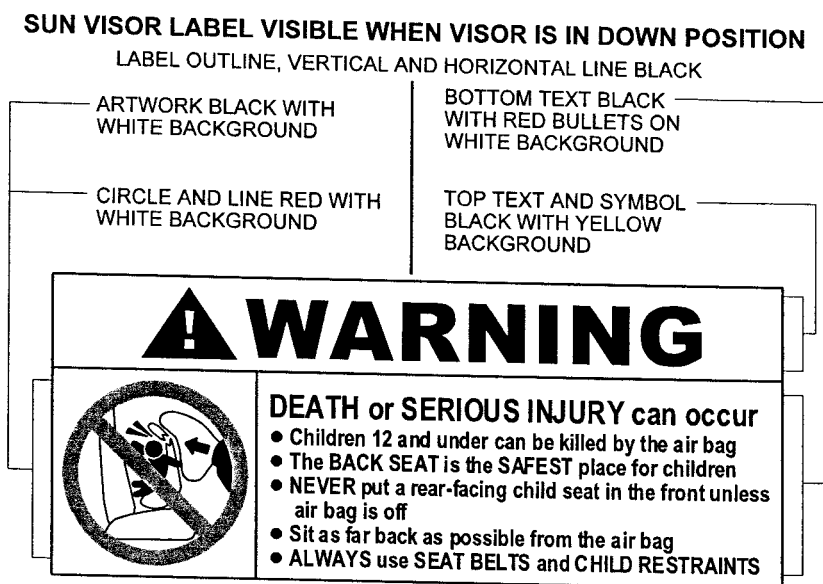


Figure 6b (S4.5.1(b)(2))

- 4.3 Is the label heading area yellow with the word "warning" and the alert symbol in black? (S4.5.1(b)(2)(i))
- |                  |                |              |
|------------------|----------------|--------------|
| Driver Side -    | (X) Yes-Pass   | ( ) No-FAIL  |
| Passenger Side - | ( ) No air bag | (X) Yes-Pass |
|                  |                | ( ) No-FAIL  |
- 4.4 Is the message white with black text? (S4.5.1(b)(2)(ii))
- |                  |                |              |
|------------------|----------------|--------------|
| Driver Side -    | (X) Yes-Pass   | ( ) No-FAIL  |
| Passenger Side - | ( ) No air bag | (X) Yes-Pass |
|                  |                | ( ) No-FAIL  |

## Air Bag Labels Data (Cont.)

- 4.5 Is the message area at least 30 cm<sup>2</sup>? (S4.5.1(b)(2)(ii))  
Actual message area: 30.6 cm<sup>2</sup>
- |                                 |             |             |
|---------------------------------|-------------|-------------|
| Driver Side -                   | (X)Yes-Pass | ( ) No-FAIL |
| Passenger Side - ( ) No air bag | (X)Yes-Pass | ( ) No-FAIL |
- 4.6 Is the pictogram black with a red circle and slash on a white background?  
(S4.5.1(b)(2)(iii) & (S4.5.1(b)(2)(iv)))
- For vehicles with driver side air bag ONLY ( ) Not Applicable
- |                                 |             |             |
|---------------------------------|-------------|-------------|
| Driver Side -                   | (X)Yes-Pass | ( ) No-FAIL |
| Passenger Side - ( ) No air bag | (X)Yes-Pass | ( ) No-FAIL |
- 4.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))  
Actual diameter: 30 mm
- For vehicles with driver side air bag ONLY ( ) Not Applicable
- |                                 |             |             |
|---------------------------------|-------------|-------------|
| Driver Side -                   | (X)Yes-Pass | ( ) No-FAIL |
| Passenger Side - ( ) No air bag | (X)Yes-Pass | ( ) No-FAIL |
- 4.8 Is the same side of the sun visor to which the sun visor label is affixed free of other information with the exception of an air bag maintenance label?  
(S4.5.1(b)(3))
- |                                 |             |             |
|---------------------------------|-------------|-------------|
| Driver Side -                   | (X)Yes-Pass | ( ) No-FAIL |
| Passenger Side - ( ) No air bag | (X)Yes-Pass | ( ) No-FAIL |
- 4.9 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label or the utility vehicle label?  
(S4.5.1(b)(3))
- |                                 |             |             |
|---------------------------------|-------------|-------------|
| Driver Side -                   | (X)Yes-Pass | ( ) No-FAIL |
| Passenger Side - ( ) No air bag | (X)Yes-Pass | ( ) No-FAIL |
5. Air Bag Alert Label
- 5.1 Is the Sun Visor Warning Label visible when the sunvisor is in the stowed position?
- |                                 |                 |        |
|---------------------------------|-----------------|--------|
| Driver Side -                   | (X)Yes, go to 6 | ( ) No |
| Passenger Side - ( ) No air bag | (X)Yes          | ( ) No |
- 5.2 Does the label conform in content to the label shown below? (S4.5.1(c)(2))
- |                                 |             |             |
|---------------------------------|-------------|-------------|
| Driver Side -                   | ( )Yes-Pass | ( ) No-FAIL |
| Passenger Side - ( ) No air bag | ( )Yes-Pass | ( ) No-FAIL |
- 5.3 Is the message area black with yellow text? (S4.5.1(c)(2)(i))
- |                                 |             |             |
|---------------------------------|-------------|-------------|
| Driver Side -                   | ( )Yes-Pass | ( ) No-FAIL |
| Passenger Side - ( ) No air bag | ( )Yes-Pass | ( ) No-FAIL |

### Air Bag Labels Data (Cont.)

- 5.4 Is the message area at least 20 cm<sup>2</sup>? (S4.5.1(c)(2)(i))  
Actual message area: \_\_\_\_\_ cm<sup>2</sup>  
Driver Side - ( ) Yes-Pass ( ) **No-FAIL**  
Passenger Side - ( ) No air bag ( ) Yes-Pass ( ) **No-FAIL**
- 5.5 Is the pictogram black with a red circle and slash on a white background?  
(S4.5.1(c)(2)(ii))  
For vehicles with driver side air bag ONLY ( ) Not Applicable  
( ) Yes-Pass ( ) **No-FAIL**
- 5.6 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)(ii))  
Actual diameter \_\_\_\_\_ mm  
For vehicles with driver side air bag ONLY ( ) Not Applicable  
( ) Yes-Pass ( ) **No-FAIL**

#### **SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION**

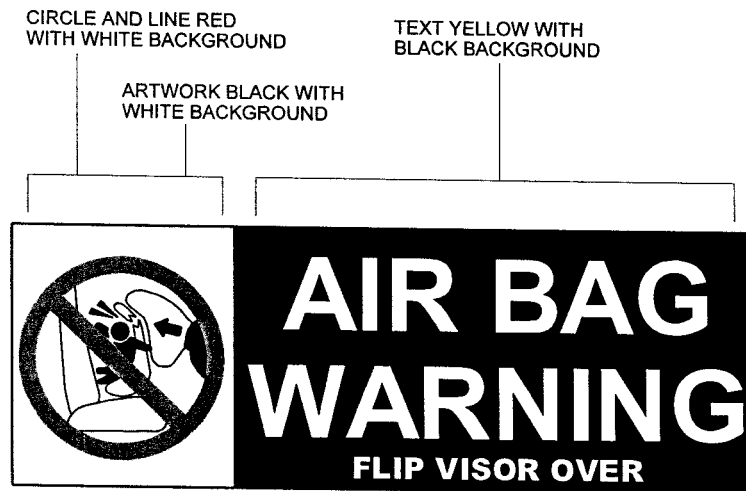


Figure 6c (S4.5.1(c)(2))

6. Label On the Dash
- 6.1 Does the vehicle have a passenger side air bag?  
(X) Yes ( ) No, check sheet is complete.
- 6.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e))  
( ) Yes-Pass (X) **No-FAIL\***
- \* Label was attached to the gear shift lever with an elastic cord.
- 6.3 Does the label conform in content (vehicles without back seats may omit the statement: "The back seat is the safest place for children 12 and under." (S4.5.1(e)(iii)) to the label shown below. (S4.5.1(e))  
(X) Yes-Pass ( ) **No-FAIL**

Air Bag Labels Data (Cont.)

- 6.4 Is the heading area yellow with the word “warning” and the alert symbol in black?  
(S4.5.1(e)(i)) (X)Yes-Pass ( ) No-FAIL
- 6.5 Is the message white with black text? (S4.5.1(e)(ii))  
(X)Yes-Pass ( ) No-FAIL
- 6.6 Is the message area at least 30 cm<sup>2</sup>? (S4.5.1(e)(ii))  
Actual message area: 50.5 cm<sup>2</sup> (X)Yes-Pass ( ) No-FAIL

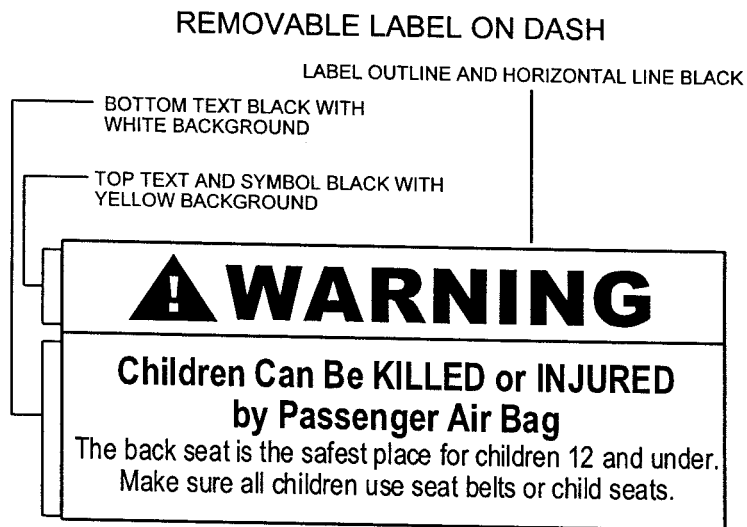


Figure 7 (S4.5.1(e))

Rear Outboard Seating Position Seat Belt Data

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207; Technician: Chad Gadberry; Date: April 2, 2003

Do all rear outboard seating positions have type 2 seat belts?

☒ Yes

☐ No

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a type 2 belt was not installed.

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## Lap Belt Lockability Data

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207; Technician: Chad Gadberry; Date: April 2, 2003

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

Designated Seating Position (DSP): Right Front

1. Record the seating position. Fully rearward  
(S7.1.1.5(c)(1))  
(Any position is acceptable.)
2. Buckle the seat belt. (S7.1.1.5(c)(1))
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?  

(X)Yes, go to 6.1      ( ) No, go to 7.

  - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))  

(X)Yes-Pass      ( ) No-FAIL
7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

### Lap Belt Lockability Data (Cont.)

8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B is 72.9 inches.

11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

The measured force application angle = 10 (spec. 5-15 degrees)

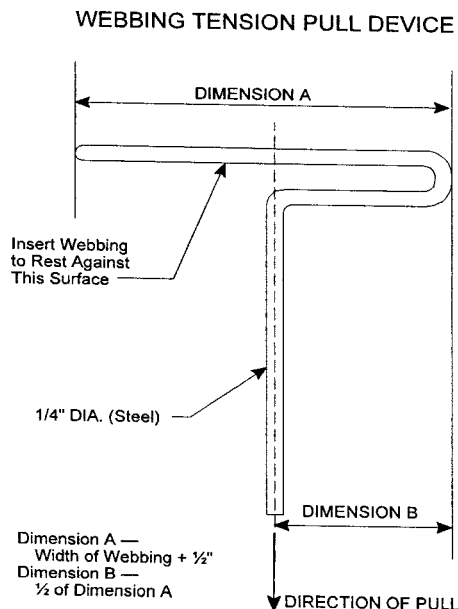


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B is 34.6 inches.

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 10 lb/sec (Spec. 10 to 50 lb/sec)

Measure distance between points A and B 35.0 inches (S7.1.1.5(c)(6))

15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 0.4 inches

(X)Yes-Pass

( ) No-FAIL

16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 37.9 inches

(X)Yes-Pass

( ) No-FAIL

REMARKS: None

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207; Technician: Chad Gadberry; Date: April 2, 2003

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

Designated Seating Position (DSP): Left Rear

1. Record the seating position. Non-adjustable  
(S7.1.1.5(c)(1))  
(Any position is acceptable.)
2. Buckle the seat belt. (S7.1.1.5(c)(1))
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?  

(X)Yes, go to 6.1      ( ) No, go to 7.

  - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))  

(X)Yes-Pass      ( ) No-FAIL
7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

### Lap Belt Lockability Data (Cont.)

8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B is 69.8 inches.

11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

The measured force application angle = 10 (spec. 5-15 degrees)

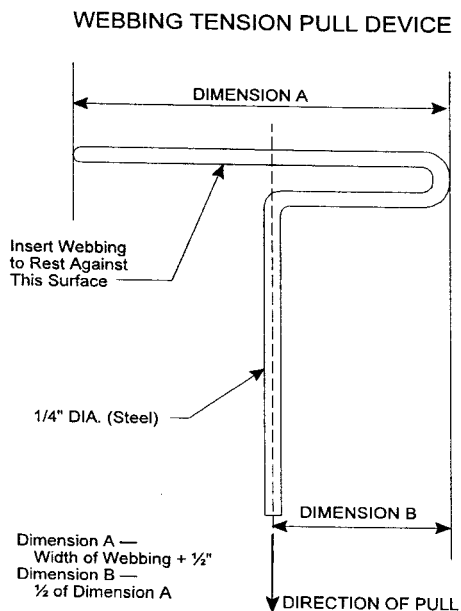


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B is 39.1 inches.

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 10 lb/sec (Spec. 10 to 50 lb/sec)

Measure distance between points A and B 40.1 inches (S7.1.1.5(c)(6))

15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 1.0 inches

(X)Yes-Pass

( ) No-FAIL

16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 29.7 inches

(X)Yes-Pass

( ) No-FAIL

REMARKS: None

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207 ; Technician: Chad Gadberry ; Date: April 2, 2003

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

Designated Seating Position (DSP): Center Rear

1. Record the seating position. Non-adjustable  
(S7.1.1.5(c)(1))  
(Any position is acceptable.)
2. Buckle the seat belt. (S7.1.1.5(c)(1))
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?  

(X)Yes, go to 6.1      ( ) No, go to 7.

  - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))  

(X)Yes-Pass      ( ) No-FAIL
7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

### Lap Belt Lockability Data (Cont.)

8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B is 68.2 inches.

11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

The measured force application angle = 10 (spec. 5-15 degrees)

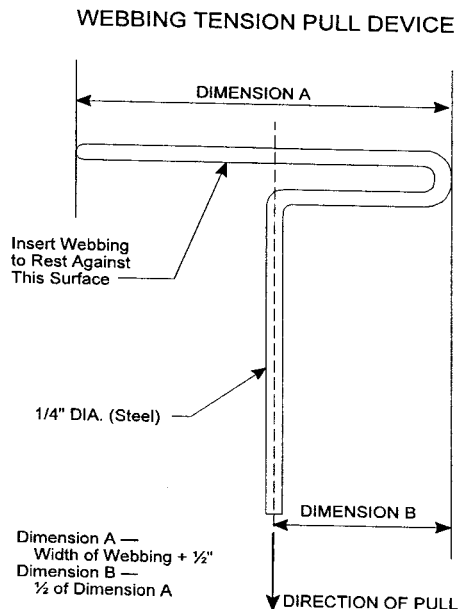


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B is 30.7 inches.

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 10 lb/sec (Spec. 10 to 50 lb/sec)

Measure distance between points A and B 31.9 inches (S7.1.1.5(c)(6))

15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 1.2 inches

(X)Yes-Pass

( ) No-FAIL

16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 36.3 inches

(X)Yes-Pass

( ) No-FAIL

REMARKS: None

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

NHTSA No.: C30207; Technician: Chad Gadberry; Date: April 2, 2003

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

Designated Seating Position (DSP): Right Rear

1. Record the seating position. Non-adjustable  
(S7.1.1.5(c)(1))  
(Any position is acceptable.)
2. Buckle the seat belt. (S7.1.1.5(c)(1))
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
5. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))  

(X)Yes-Pass      ( ) No-FAIL
6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing? (X)Yes, go to 6.1      ( ) No, go to 7.
  - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))  

(X)Yes-Pass      ( ) No-FAIL
7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

### Lap Belt Lockability Data (Cont.)

8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B is 71.0 inches.

11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

The measured force application angle = 10 (spec. 5-15 degrees)

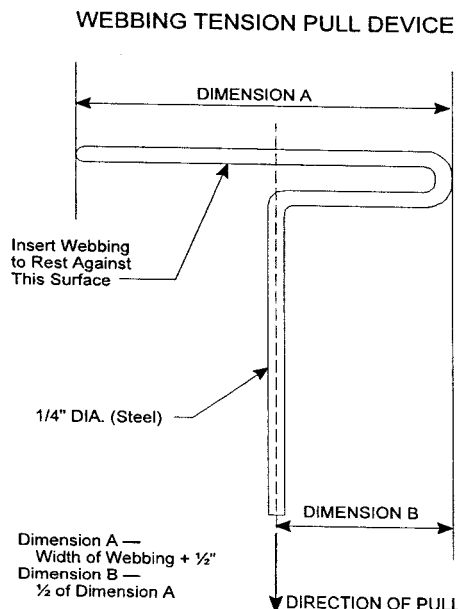


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B is 37.3 inches.

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 10 lb/sec (Spec. 10 to 50 lb/sec)

Measure distance between points A and B 38.3 inches (S7.1.1.5(c)(6))

15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 1.0 inches

(X)Yes-Pass ( ) No-FAIL

16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 32.7 inches

(X)Yes-Pass ( ) No-FAIL

REMARKS: None

## Seat Belt Comfort and Convenience Data

### 1. **BELT CONTACT FORCE (S7.4.3)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: Left Rear

Date of Comfort/Convenience Check: April 2, 2003

Technician Performing Check: Chad Gadberry

GVWR: 3665 lb

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 1.1 Does the vehicle incorporate a webbing tension-relieving device?  
( ) Yes - go to latchplate access  
(X) No - continue with this check sheet
- 1.2 Adjustable seats are in adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)  
( ) Check  
(X) N/A
- 1.3 If separately adjustable in a vertical direction, the seats are at the lowest position.  
( ) Check  
(X) N/A
- 1.4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.  
( ) Check  
(X) N/A
- 1.5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.  
( ) Check  
(X) N/A
- 1.6 Place each adjustable head restraint in its highest adjustment position.  
( ) Check  
(X) N/A

## Seat Belt Comfort and Convenience Data (Cont.)

- 1.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)  
( ) Check  
(X) N/A
- 1.8 Position the test dummies according to dummy position placement instructions in Appendix B.  
(X) Check
- 1.9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds.  
Contact Force 0.7 lb. (X) 0.0 to 0.7 pounds - Pass  
( ) greater than 0.7 pounds - FAIL\*
- \* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Seat Belt Comfort and Convenience Data (Cont.)

**1. BELT CONTACT FORCE (S7.4.3)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: Center Rear

Date of Comfort/Convenience Check: April 2, 2003

Technician Performing Check: Chad Gadberry

GVWR: 3665 lb

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 1.1 Does the vehicle incorporate a webbing tension-relieving device?  
( ) Yes - go to latchplate access  
(X) No - continue with this check sheet
- 1.2 Adjustable seats are in adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)  
( ) Check  
(X) N/A
- 1.3 If separately adjustable in a vertical direction, the seats are at the lowest position.  
( ) Check  
(X) N/A
- 1.4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.  
( ) Check  
(X) N/A
- 1.5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.  
( ) Check  
(X) N/A
- 1.6 Place each adjustable head restraint in its highest adjustment position.  
( ) Check  
(X) N/A

## Seat Belt Comfort and Convenience Data (Cont.)

- 1.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)  
( ) Check  
(X) N/A
- 1.8 Position the test dummies according to dummy position placement instructions in Appendix B.  
(X) Check
- 1.9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds.  
Contact Force 0.7 lb. (X) 0.0 to 0.7 pounds - Pass  
( ) greater than 0.7 pounds - FAIL\*
- \* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

## Seat Belt Comfort and Convenience Data (Cont.)

### 1. **BELT CONTACT FORCE (S7.4.3)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: Right Rear

Date of Comfort/Convenience Check: April 2, 2003

Technician Performing Check: Chad Gadberry

GVWR: 3665 lb

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 1.1 Does the vehicle incorporate a webbing tension-relieving device?  
( ) Yes - go to latchplate access  
(X) No - continue with this check sheet
- 1.2 Adjustable seats are in adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)  
( ) Check  
(X) N/A
- 1.3 If separately adjustable in a vertical direction, the seats are at the lowest position.  
( ) Check  
(X) N/A
- 1.4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.  
( ) Check  
(X) N/A
- 1.5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.  
( ) Check  
(X) N/A
- 1.6 Place each adjustable head restraint in its highest adjustment position.  
( ) Check  
(X) N/A

## Seat Belt Comfort and Convenience Data (Cont.)

- 1.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)  
( ) Check  
(X) N/A
- 1.8 Position the test dummies according to dummy position placement instructions in Appendix B.  
(X) Check
- 1.9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds.  
Contact Force 0.7 lb. (X) 0.0 to 0.7 pounds - Pass  
( ) greater than 0.7 pounds - FAIL\*
- \* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

## Seat Belt Comfort and Convenience Data (Cont.)

### 2. **LATCHPLATE ACCESS (S7.4.4)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: **Not applicable - passenger car**

Date of Comfort/Convenience Check: \_\_\_\_\_

Technician Performing Check: \_\_\_\_\_

GVWR: \_\_\_\_\_

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 2.1 Position the seat in its forward most adjustment position.  
( ) Check
- 2.2 Position the test dummy using the procedures in Appendix B. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position.)  
( ) Check
- 2.3 Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.  
( ) Check
- 2.4 Attach the inboard and outboard reach string following the instructions on Figure 1C.  
( ) Check
- 2.5 Place the latch plate in the stowed position.  
( ) Check
- 2.6 Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?  
( ) Yes-Pass ( ) **No-FAIL**
- 2.7 Using the clearance test block, specified in Figure 2C, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?  
( ) Yes-Pass ( ) **No-FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

3. **RETRACTION (S7.4.5)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: **Not applicable - passenger car**

Date of Comfort/Convenience Check: \_\_\_\_\_

Technician Performing Check: \_\_\_\_\_

GVWR: \_\_\_\_\_

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 3.1 Is the vehicle a passenger car or walk-in van-type vehicle?  
( ) Yes      If yes, go to seat belt guides and hardware.  
( ) No
- 3.2 Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)  
( ) Check
- 3.3 If separately adjustable in a vertical direction, the seats are at the lowest position.  
( ) Check
- 3.4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.  
( ) Check
- 3.5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.  
( ) Check
- 3.6 Place each adjustable head restraint in its highest adjustment position.  
( ) Check
- 3.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position (S8.1.3)  
( ) Check

Seat Belt Comfort and Convenience Data (Cont.)

- 3.8 Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B.  
( ) Check
- 3.9 Restrain the dummies using the belt systems for the position being tested.  
( ) Check
- 3.10 Stow outboard armrests which are capable of being stowed.  
( ) Check
- 3.11 Check the statement that applies to this test vehicle:
- (A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.  
( ) Pass
- (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.  
( ) Pass
- (C) Neither A or B apply.  
( ) **FAIL**
- 3.12 With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?  
( ) Yes - Pass  
( ) **No - FAIL**
- 3.13 If this test vehicle has an open body (without doors) and has a seat belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?  
( ) N/A  
( ) Yes - Pass  
( ) **No - FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

4. **SEAT BELT GUIDES AND HARDWARE (S7.4.6)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: Left Rear

Date of Comfort/Convenience Check: April 2, 2003

Technician Performing Check: Chad Gadberry

GVWR: 3665 lb

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

- A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b))
- B. Seats which are removable.
- C. Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above determine the following:

- 4.1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
  - ( ) Yes - Go to 4.2.
  - (X) No - this form is complete
- 4.2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
  - ( ) Yes - Pass
  - ( ) **No - FAIL**
- 4.3 Are the remaining two seat belt parts accessible under normal conditions?
  - ( ) Yes - Pass
  - ( ) **No - FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

- 4.4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. ☐ Check
  - (B) The seat is moved to any position to which it is designed to be adjusted. ☐ Check
  - (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☐ Check
- ☐ Yes - Pass  
☐ **No - FAIL**
- 4.5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?
- ☐ Yes - Pass  
☐ **No - FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

4. **SEAT BELT GUIDES AND HARDWARE (S7.4.6)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: Center Rear

Date of Comfort/Convenience Check: April 2, 2003

Technician Performing Check: Chad Gadberry

GVWR: 3665 lb

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

- A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b))
- B. Seats which are removable.
- C. Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above determine the following:

- 4.1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
  - (X) Yes - Go to 4.2.
  - ( ) No - this form is complete
- 4.2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
  - (X) Yes - Pass
  - ( ) **No - FAIL**
- 4.3 Are the remaining two seat belt parts accessible under normal conditions?
  - (X) Yes - Pass
  - ( ) **No - FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

- 4.4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (X) Check
  - (B) The seat is moved to any position to which it is designed to be adjusted. (X) Check
  - (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. (X) Check
- (X) Yes - Pass  
( ) No - **FAIL**
- 4.5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?
- (X) Yes - Pass  
( ) No - **FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

4. **SEAT BELT GUIDES AND HARDWARE (S7.4.6)**

Test Vehicle NHTSA No.: C30207

Vehicle Model Year/Make/Model/Body Style: 2003/Ford/Focus/3 Door Hatchback

Designated Seating Position Tested: Right Rear

Date of Comfort/Convenience Check: April 2, 2003

Technician Performing Check: Chad Gadberry

GVWR: 3665 lb

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

- A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b))
- B. Seats which are removable.
- C. Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above determine the following:

- 4.1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
  - ( ) Yes - Go to 4.2.
  - (X) No - this form is complete
- 4.2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
  - ( ) Yes - Pass
  - ( ) **No - FAIL**
- 4.3 Are the remaining two seat belt parts accessible under normal conditions?
  - ( ) Yes - Pass
  - ( ) **No - FAIL**

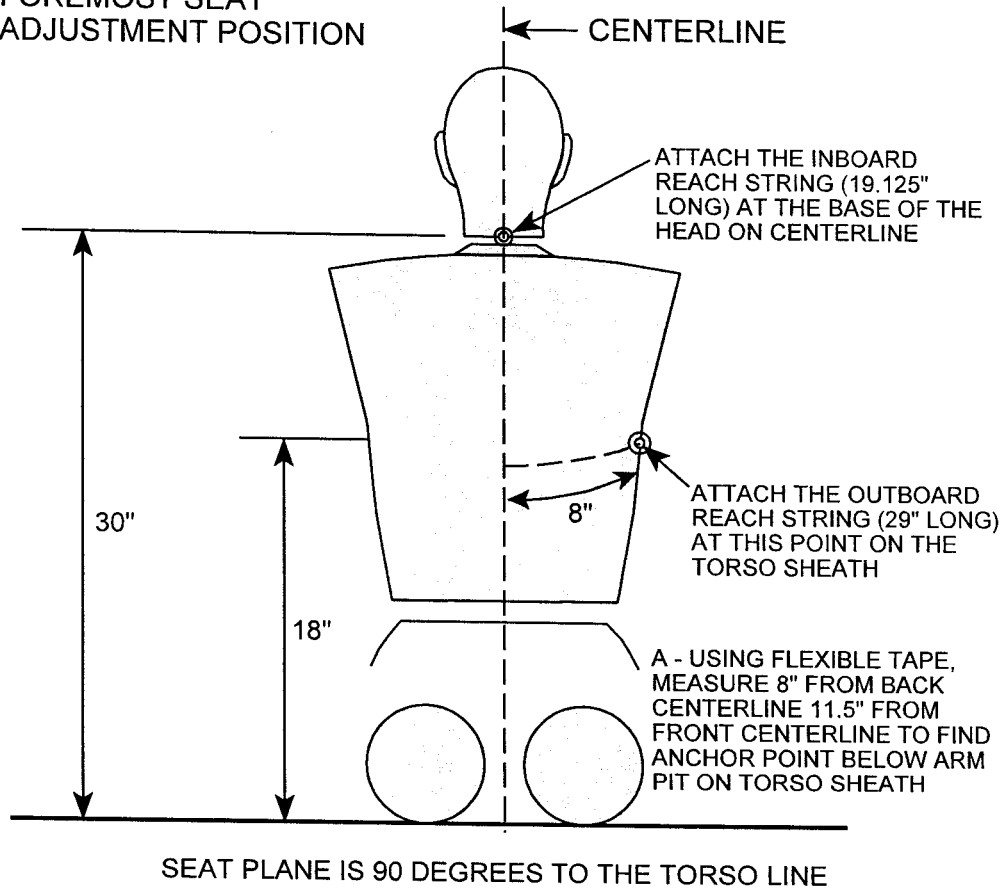
Seat Belt Comfort and Convenience Data (Cont.)

- 4.4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. ☐ Check
  - (B) The seat is moved to any position to which it is designed to be adjusted. ☐ Check
  - (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☐ Check
- ☐ Yes - Pass  
☐ No - **FAIL**
- 4.5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?
- ☐ Yes - Pass  
☐ No - **FAIL**

# LOCATION OF ANCHORING POINTS FOR LATCHPLATE REACH LIMITING CHAINS OR STRINGS TO TEST FOR LATCHPLATE ACCESSIBILITY

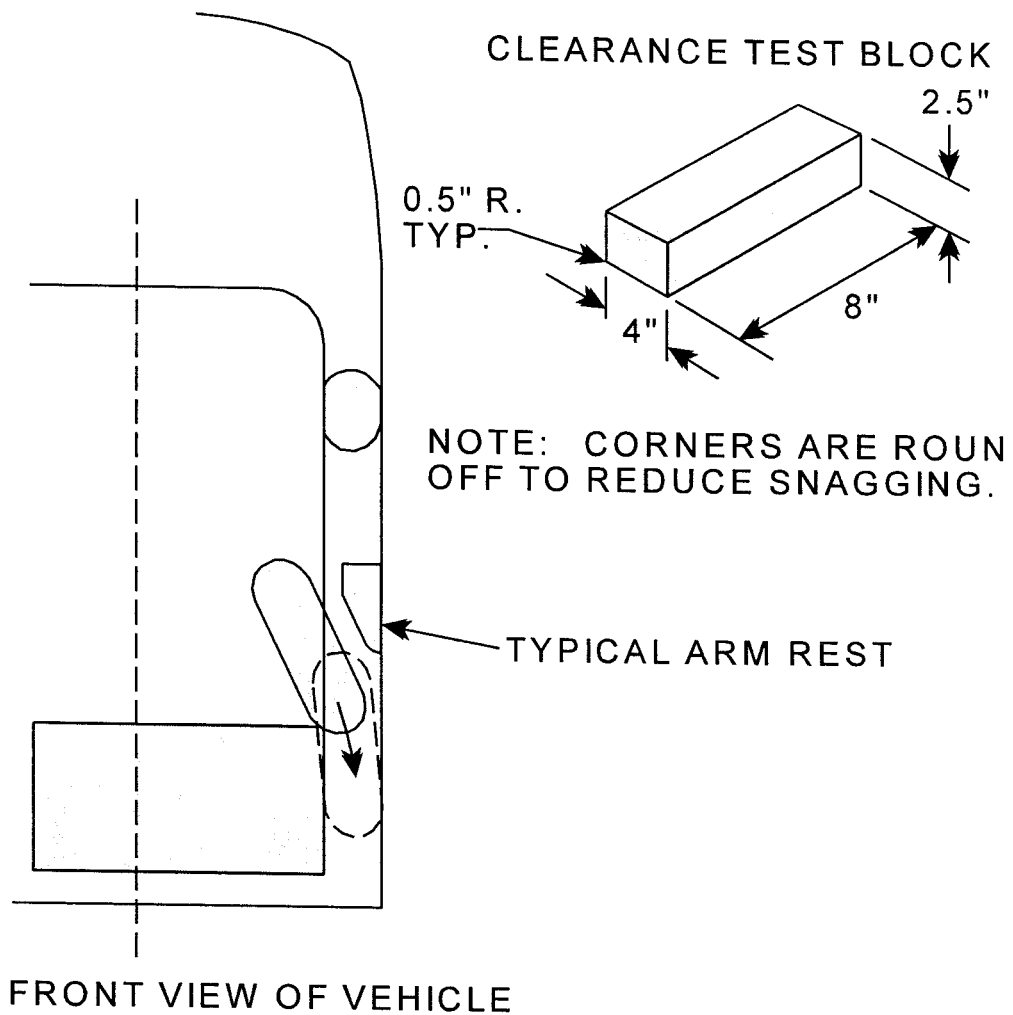
## PART 572E DUMMY

50TH PERCENTILE  
DUMMY SEATED IN  
FOREMOST SEAT  
ADJUSTMENT POSITION



## REAR VIEW

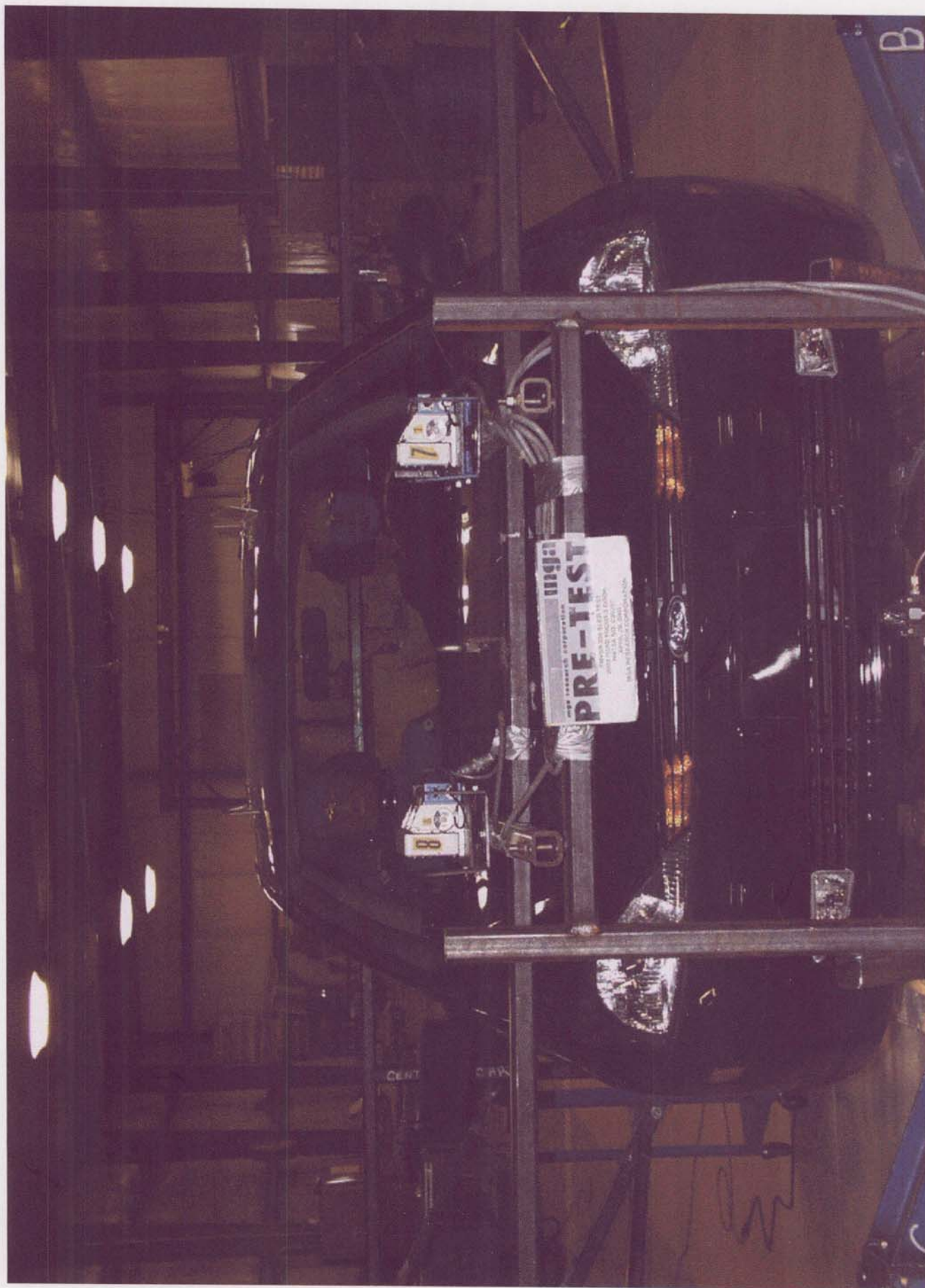
# USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS



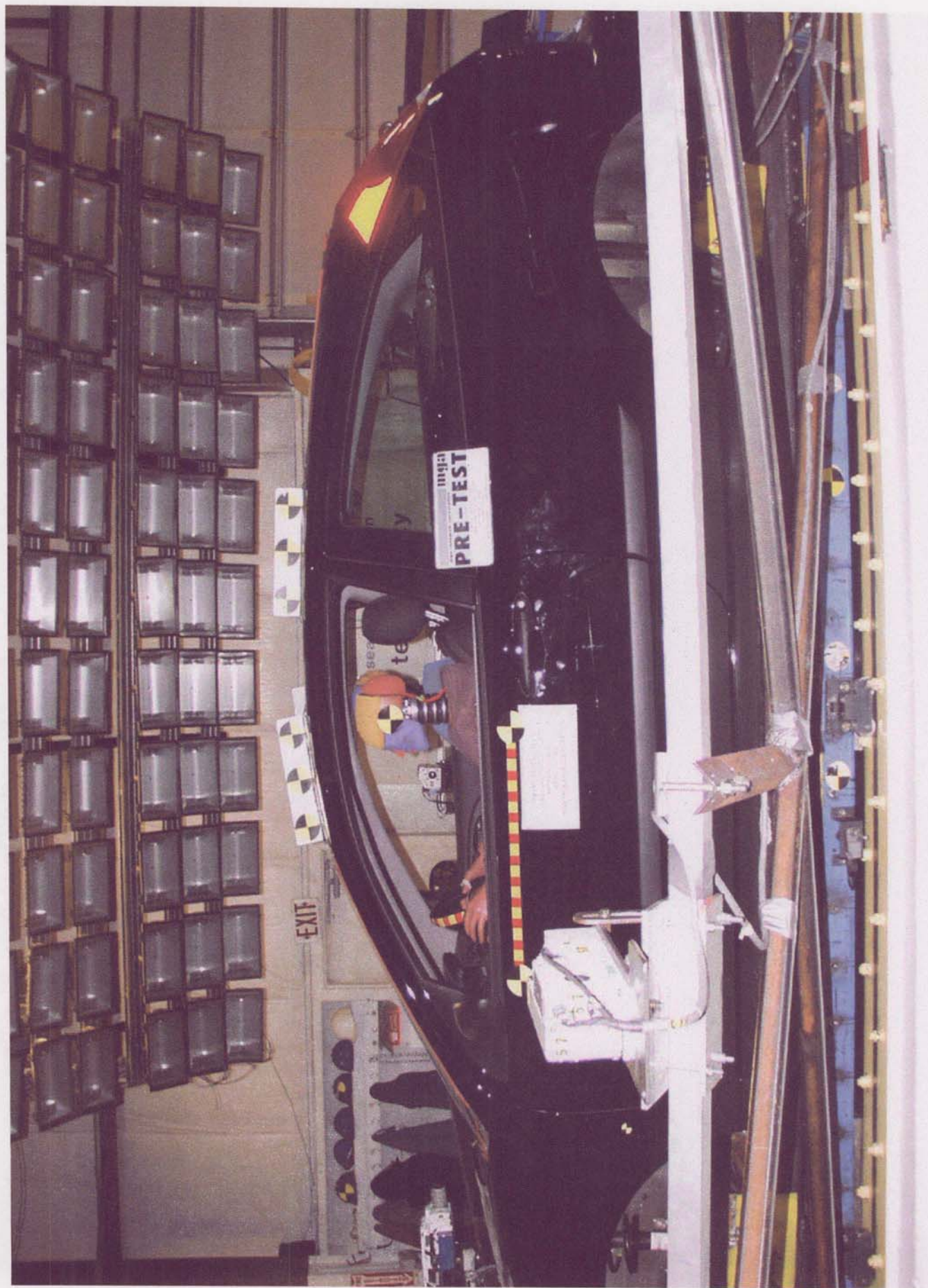
APPENDIX A  
PHOTOGRAPHS

## TABLE OF PHOTOGRAPHS

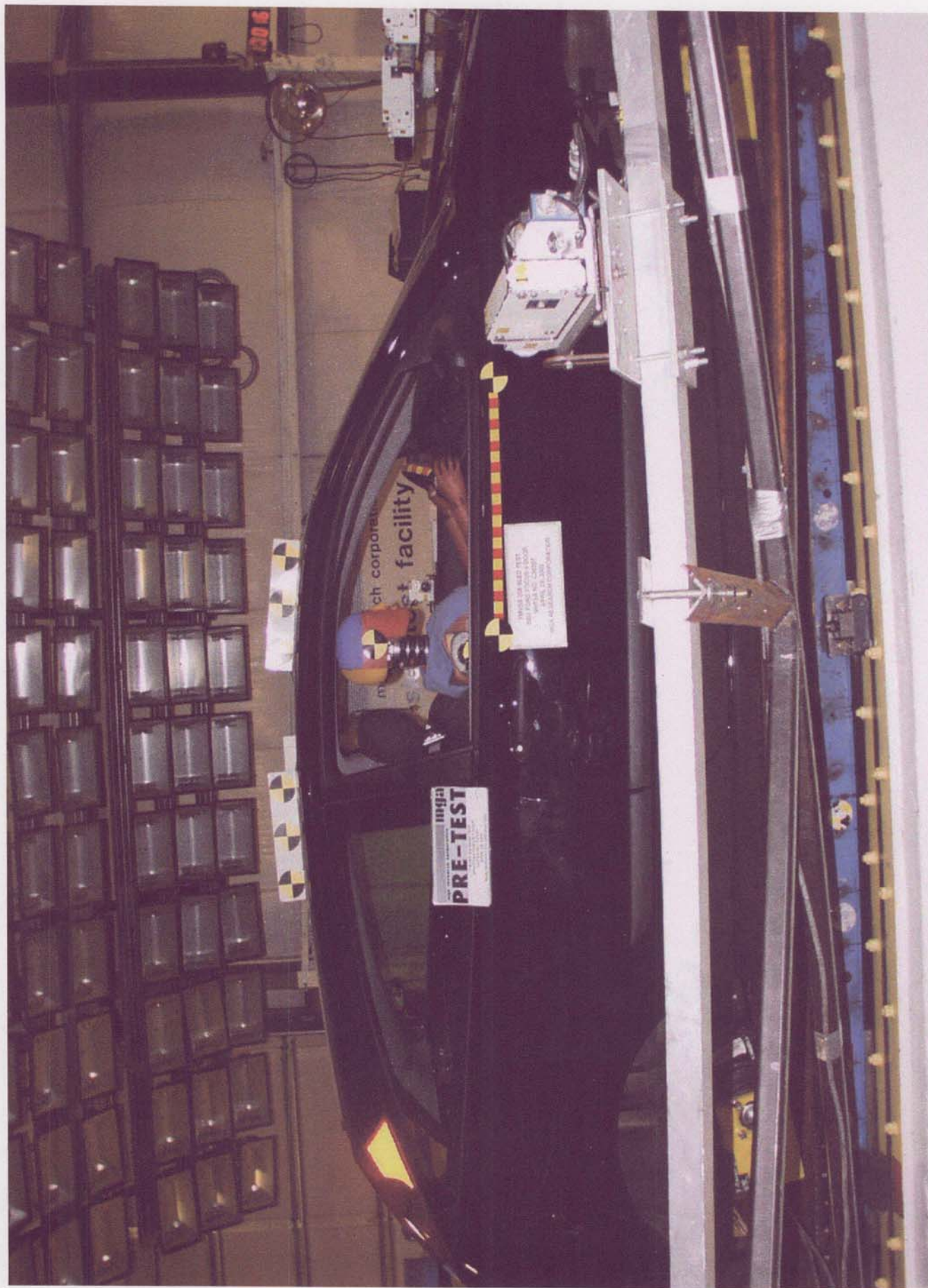
| <u>Description</u>                                                        | <u>Page No.</u> |
|---------------------------------------------------------------------------|-----------------|
| Photo No. A-1 - Pre-Test Frontal View                                     | A-1             |
| Photo No. A-2 - Pre-Test Left Side View                                   | A-2             |
| Photo No. A-3 - Pre-Test Right Side View                                  | A-3             |
| Photo No. A-4 - Pre-Test Windshield View                                  | A-4             |
| Photo No. A-5 - Post-Test Windshield View                                 | A-5             |
| Photo No. A-6 - Pre-Test Driver Dummy Position View (Door Open)           | A-6             |
| Photo No. A-7 - Post-Test Driver Dummy Position View (Door Open)          | A-7             |
| Photo No. A-8 - Pre-Test Driver Dummy Position View                       | A-8             |
| Photo No. A-9 - Post-Test Driver Dummy Position View                      | A-9             |
| Photo No. A-10 - Pre-Test Passenger Dummy Position View (Door Open)       | A-10            |
| Photo No. A-11 - Post-Test Passenger Dummy Position View (Door Open)      | A-11            |
| Photo No. A-12 - Pre-Test Passenger Dummy Position View                   | A-12            |
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| Photo No. A-14 - Post-Test Driver Dummy Airbag View                       | A-14            |
| Photo No. A-15 - Post-Test Driver Dummy Head Contact View (windshield)    | A-15            |
| Photo No. A-16 - Post-Test Passenger Dummy Airbag View                    | A-16            |
| Photo No. A-17 - Post-Test Passenger Dummy Head Contact View (visor)      | A-17            |
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| Photo No. A-22 - Post-Test Passenger Knee Bolster View                    | A-22            |
| Photo No. A-23 - Pre-Test Driver Seat Position View                       | A-23            |
| Photo No. A-24 - Post-Test Driver Seat Position View                      | A-24            |
| Photo No. A-25 - Pre-Test Passenger Seat Position View                    | A-25            |
| Photo No. A-26 - Post-Test Passenger Seat Position View                   | A-26            |
| Photo No. A-27 - Vehicle Certification Label and FMVSS 110 Label          | A-27            |



Pre-Test Frontal View



Pre-Test Left Side View



Pre-Test Right Side View



Pre-Test Windshield View



Post-Test Windshield View



Pre-Test Driver Dummy Position View (Door Open)



Post-Test Driver Dummy Position View (Door Open)



Pre-Test Driver Dummy Position View



Post-Test Driver Dummy Position View



Pre-Test Passenger Dummy Position View (Door Open)



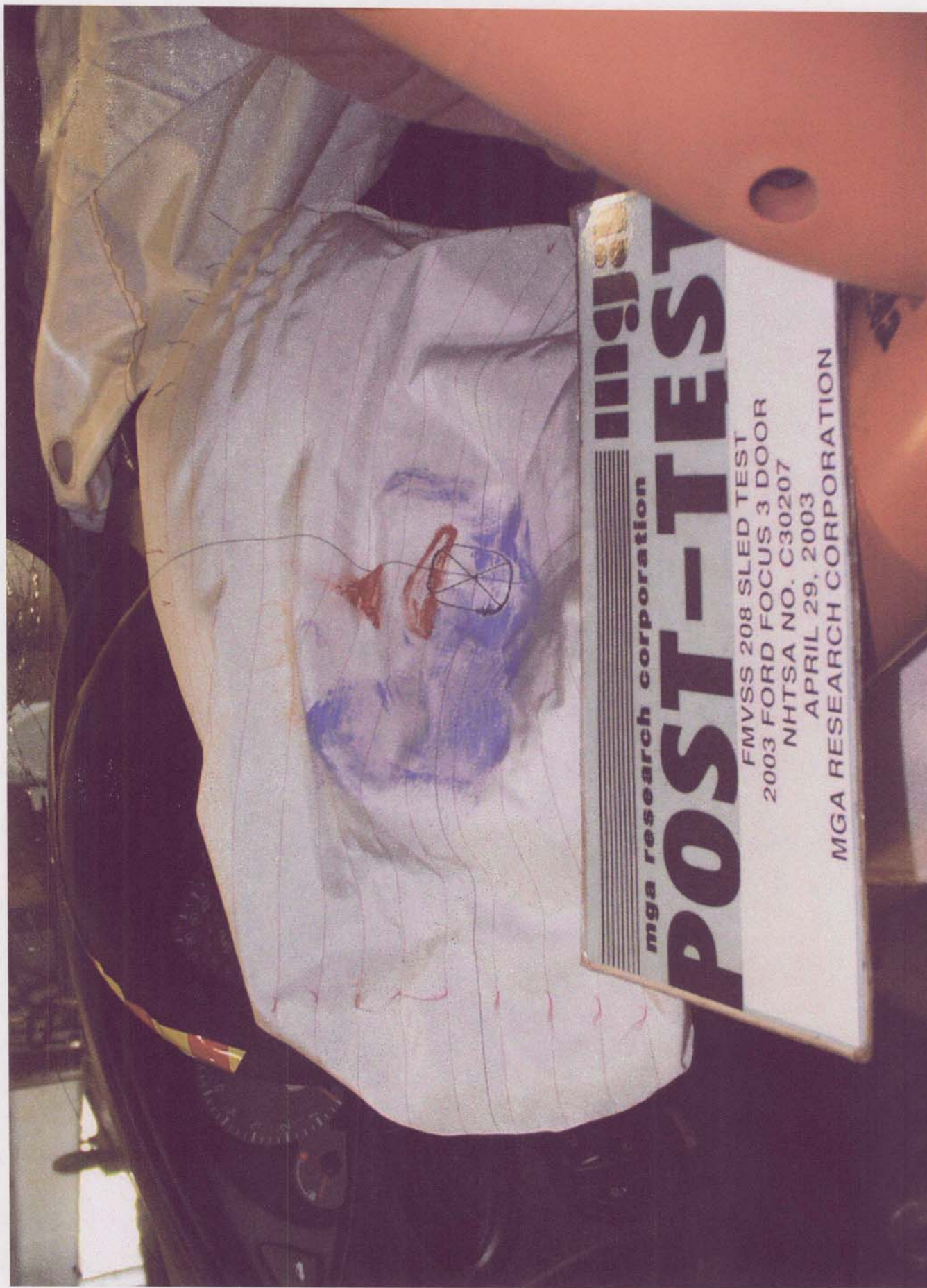
Post-Test Passenger Dummy Position View (Door Open)



Pre-Test Passenger Dummy Position View



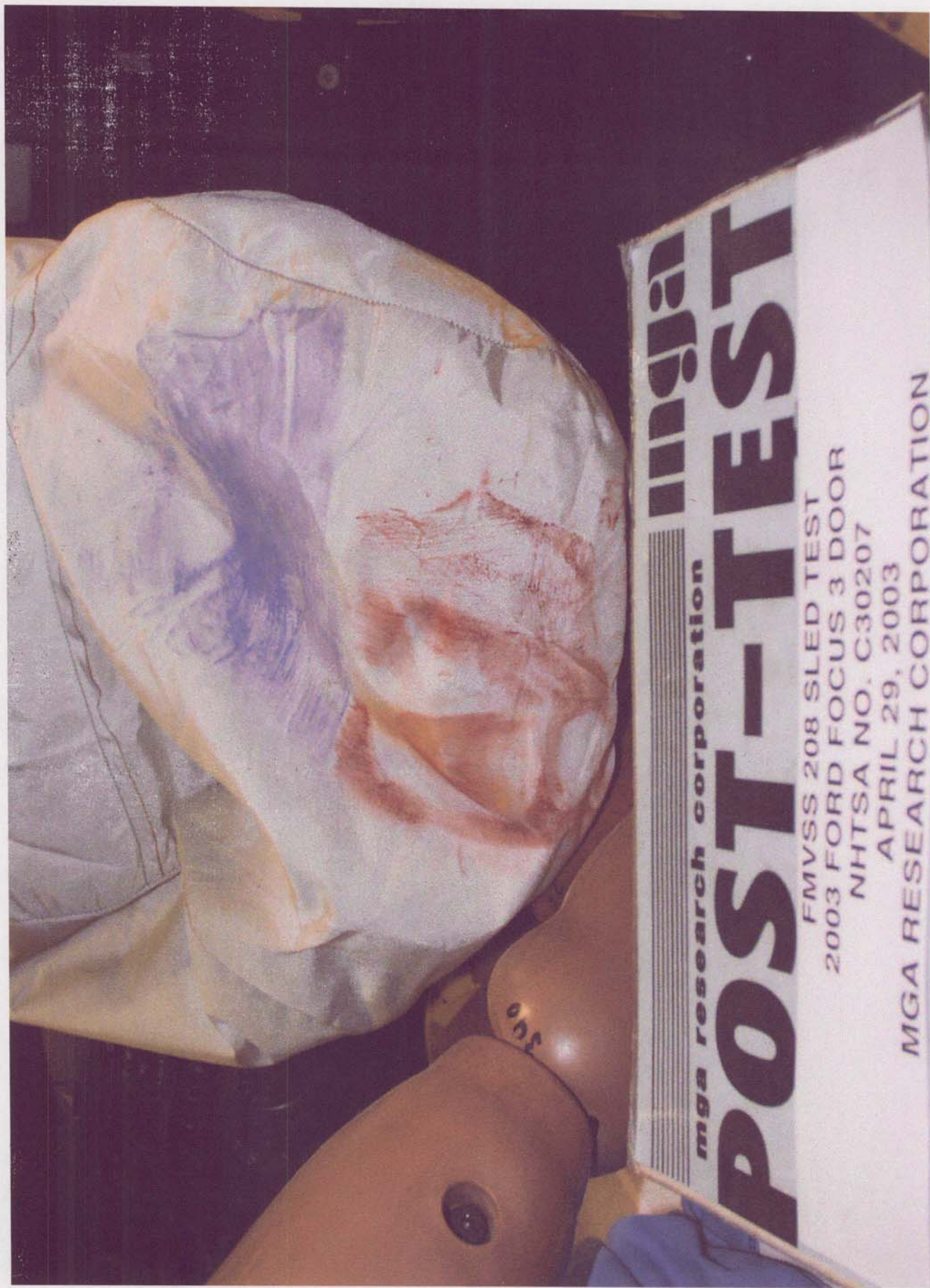
Post-Test Passenger Dummy Position View



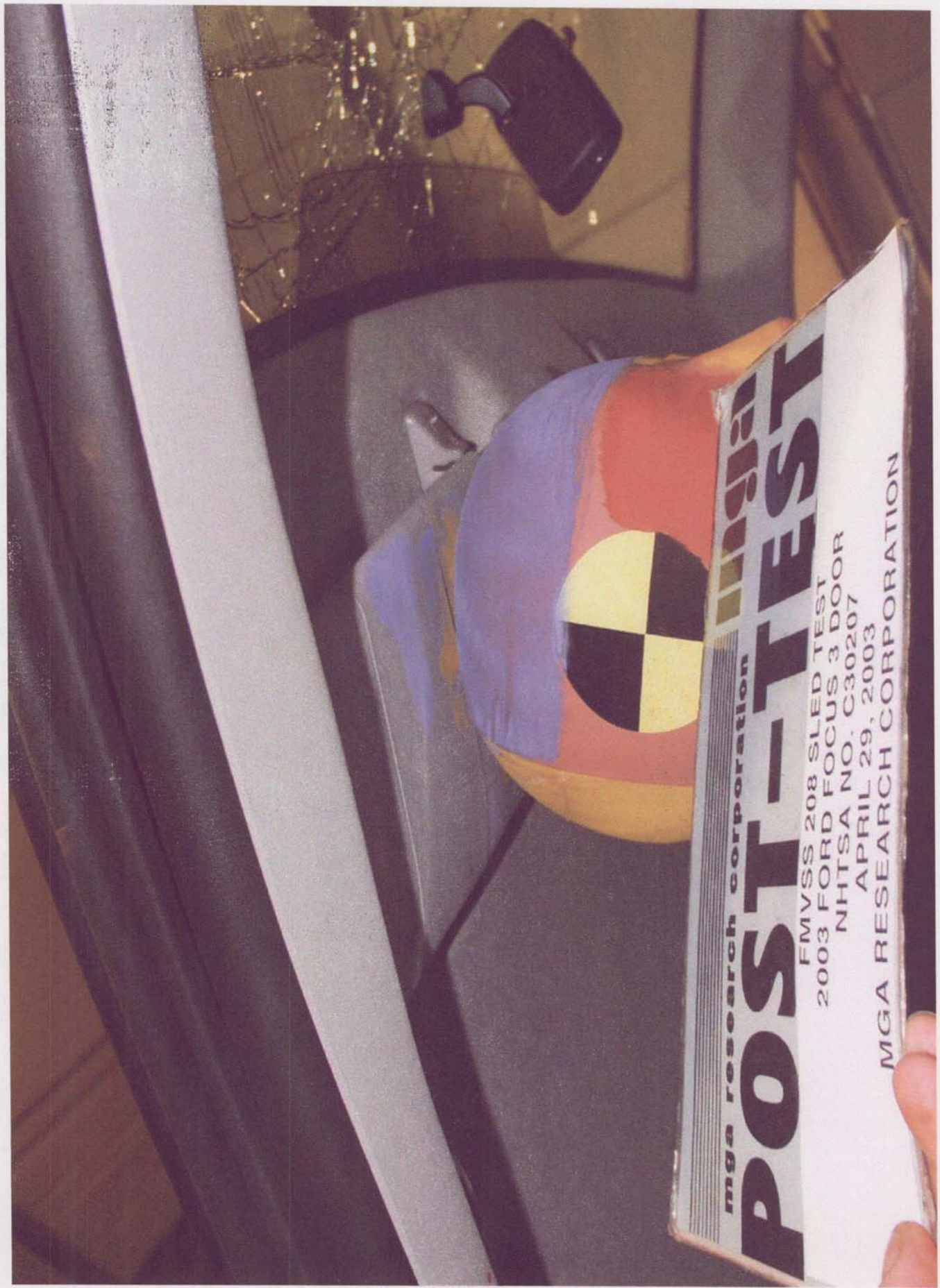
Post-Test Driver Dummy Airbag View



Post-Test Driver Dummy Head Contact View (windshield)



Post-Test Passenger Dummy Airbag View



Post-Test Passenger Dummy Head Contact View (visor)



Post-Test Passenger Dummy Head Contact View (windshield)



Pre-Test Driver Knee Bolster View



Post-Test Driver Knee Bolster View



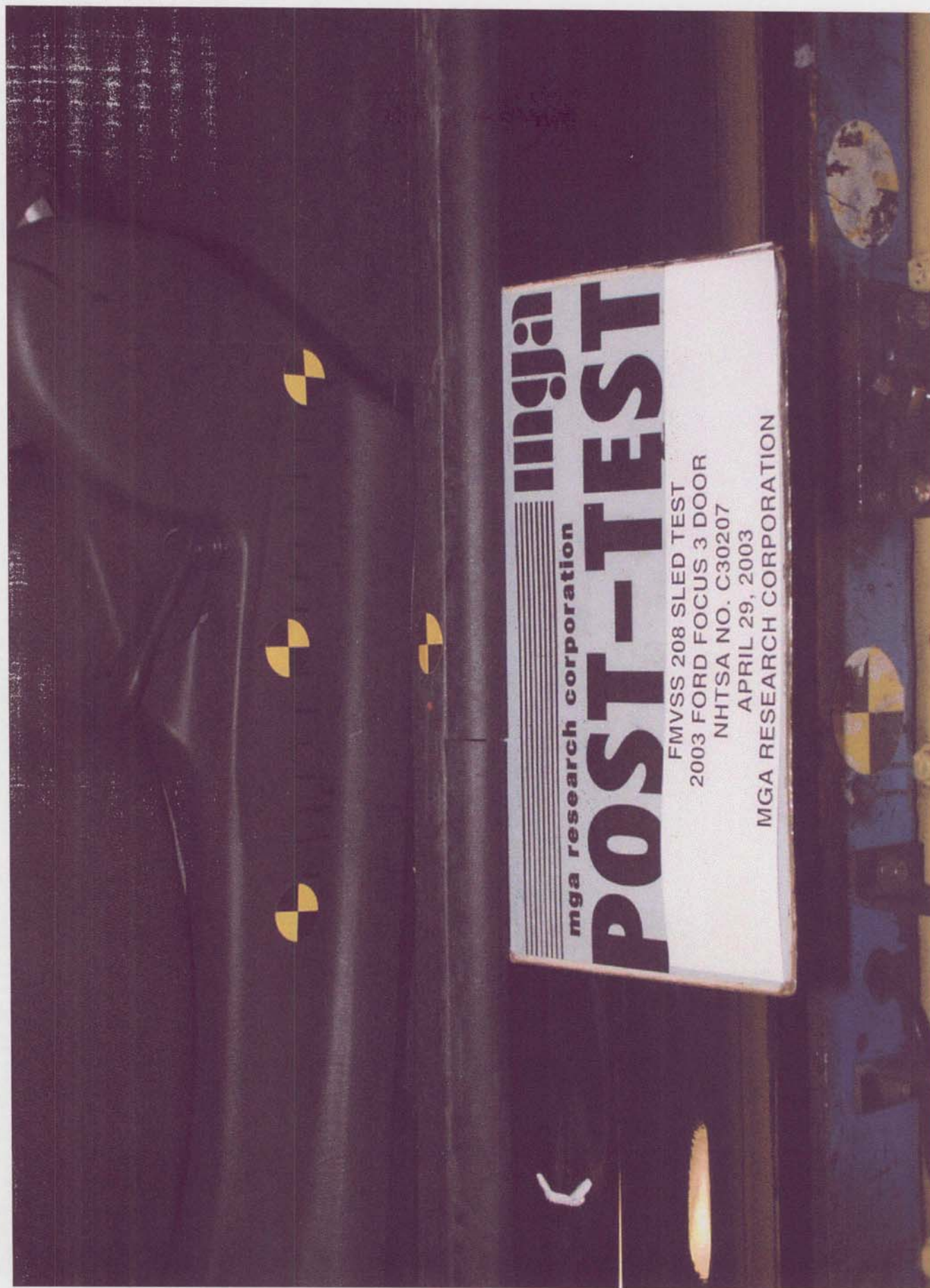
Pre-Test Passenger Knee Bolster View



Post-Test Passenger Knee Bolster View



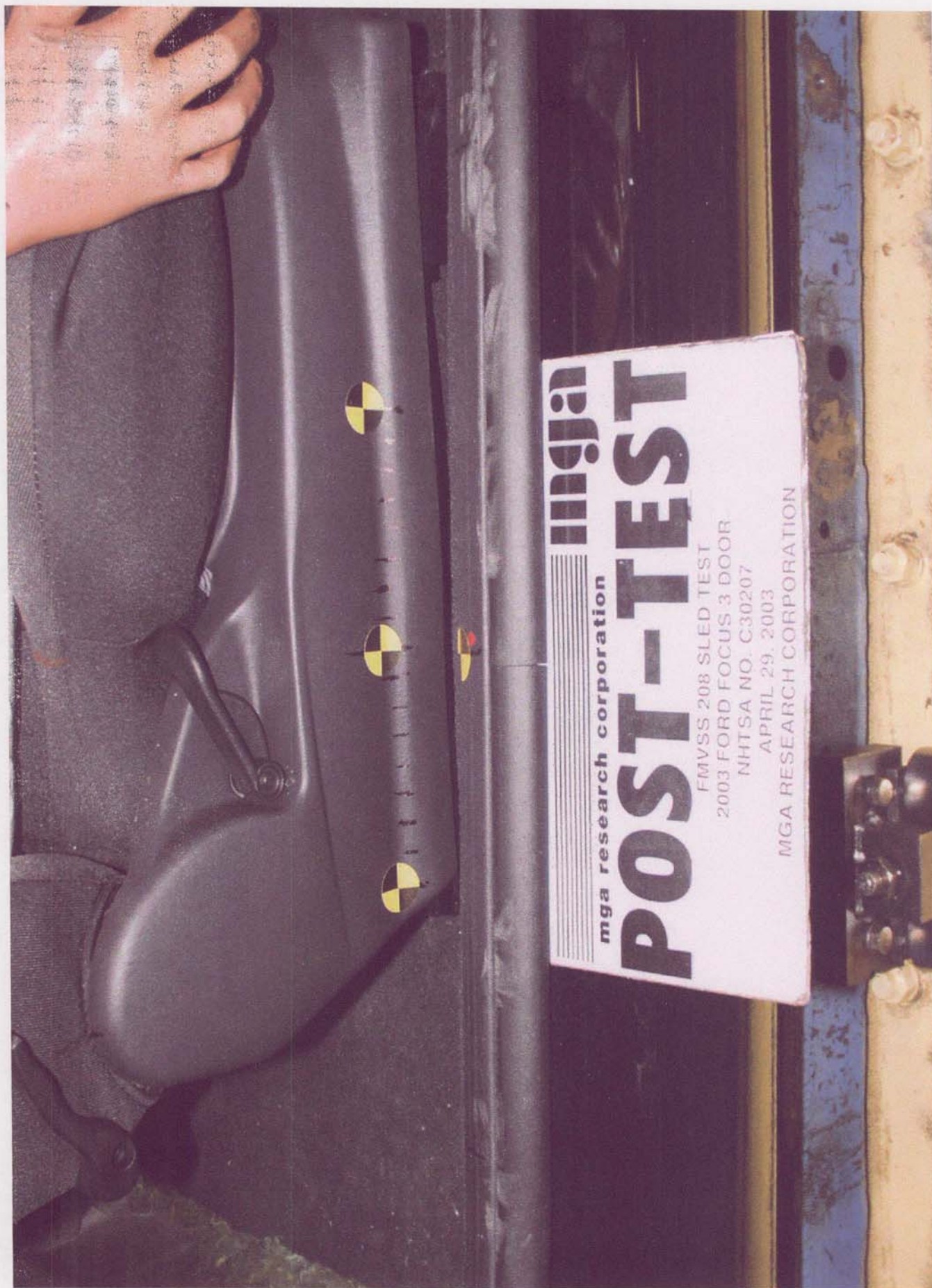
Pre-Test Driver Seat Position View



Post-Test Driver Seat Position View



Pre-Test Passenger Seat Position View



Post-Test Passenger Seat Position View

# MFD. BY FORD MOTOR CO.

GVWR: 1662KG/3665LB  
 REAR GAWR: 766KG/1690LB

DATE: 11/02  
 FRONT GAWR: 895KG/1975LB  
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR  
 VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS  
 IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: 3FAPF313X3R123332 TYPE: PASSENGER  
 MAXIMUM LOAD = OCCUPANTS + LUGGAGE = 375KG/827LB  
 OCCUPANTS LUGGAGE  
 035KG/0077LB

TIRE: P195/60R15S PSI COLD  
 PRESSURE(FR): 221 kPa/32 PSI COLD  
 PRESSURE(RR): 221 kPa/32 PSI COLD



3FAPF313X3R123332

TRAILER TOWING - SEE OWNER GUIDE

EXT PN: UA  
 BRK INT TR TP/PS R  
 A SW  
 MADE IN MEXICO

41 DSO: 3AK2A  
 Z MBU 205A5420472-AA  
 F0143  
 R0068

**APPENDIX B**  
**DATA PLOTS**

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| Figure B-46 - Passenger Left Femur Force vs. Time             | B-46            |
| Figure B-47 - Passenger Right Femur Force vs. Time            | B-47            |

Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)

TestNumber: H03086

Test Date: 04/29/03

Chn Name: SLED X ACCELERATION

CFC: 60

File Name: H03086AF.A01

Sensor S/N: 764077

MGA Research Corp

Accelerator Sled Facility

5000 Warren Road,

Burlington, WI 53105

Ph #: 262-763-2705

Fax #: 262-763-0934

Maximum: 17.7 G  
Time: 58.8 msec

Minimum: -1.5 G  
Time: 126.6 msec

Value at T0: 0.4 G

Plotted By: C. Gadberry

On: 04.29.2003 09:01:15



Test Desc: **FMVSS 208 SLED** Chn Name: **SLED X VELOCITY**

Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **180**

TestNumber: **H03086** File Name: **H03086AI.V01**

Test Date: **04/29/03** Sensor S/N: **764077**

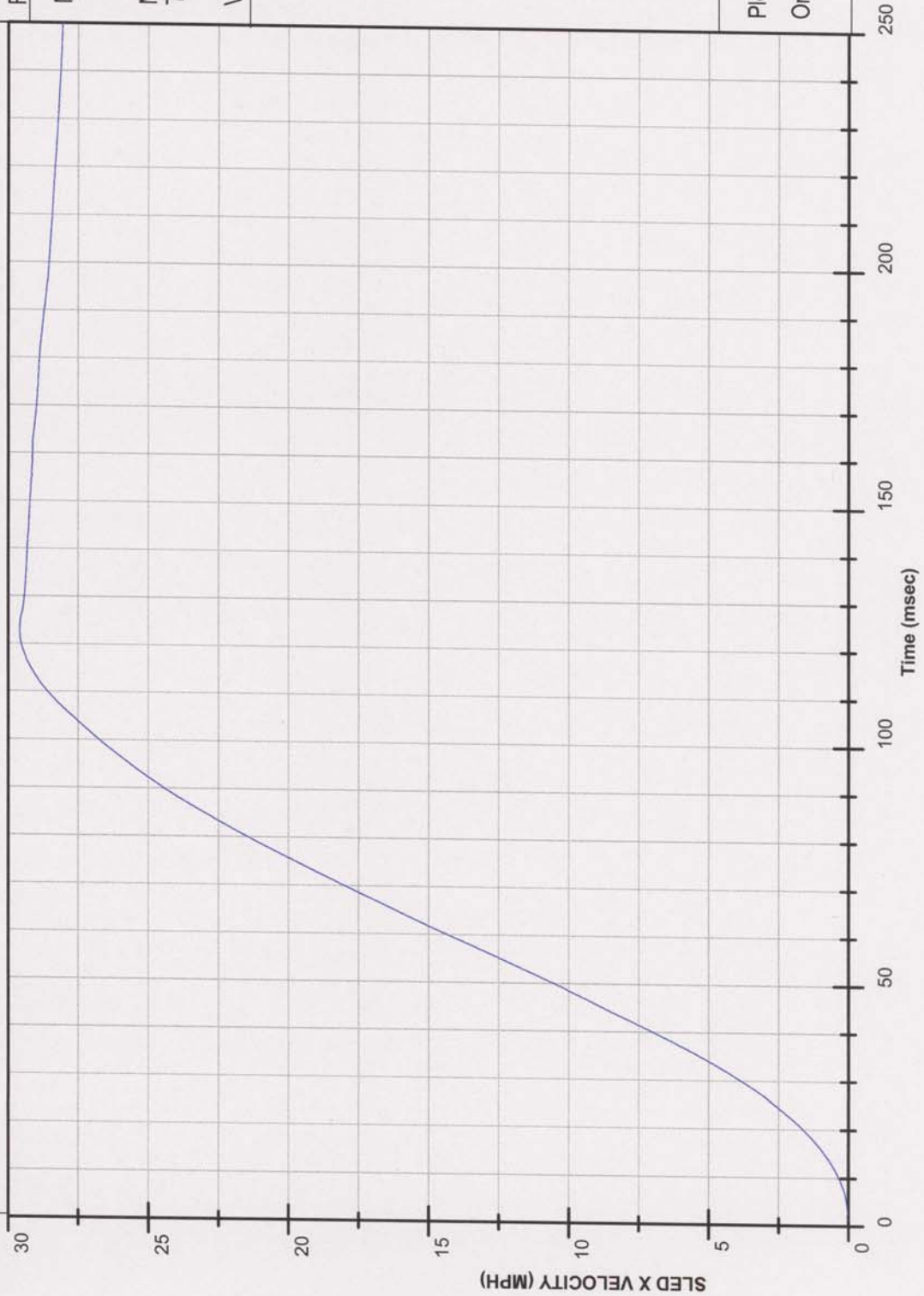
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: **29.6 MPH**  
Time: **122.9 msec**

Minimum: **0.0 MPH**  
Time: **0.0 msec**

Value at T0: **0.0 MPH**

Plotted By: **C. Gadberry**  
On: **04.29.2003 09:01:40**



Test Desc: FMVSS 208 SLED

Chn Name: SLED X DISPLACEMENT

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 180

TestNumber: H03086 File Name: H03086A.D01

Test Date: 04/29/03 Sensor S/N: 764077

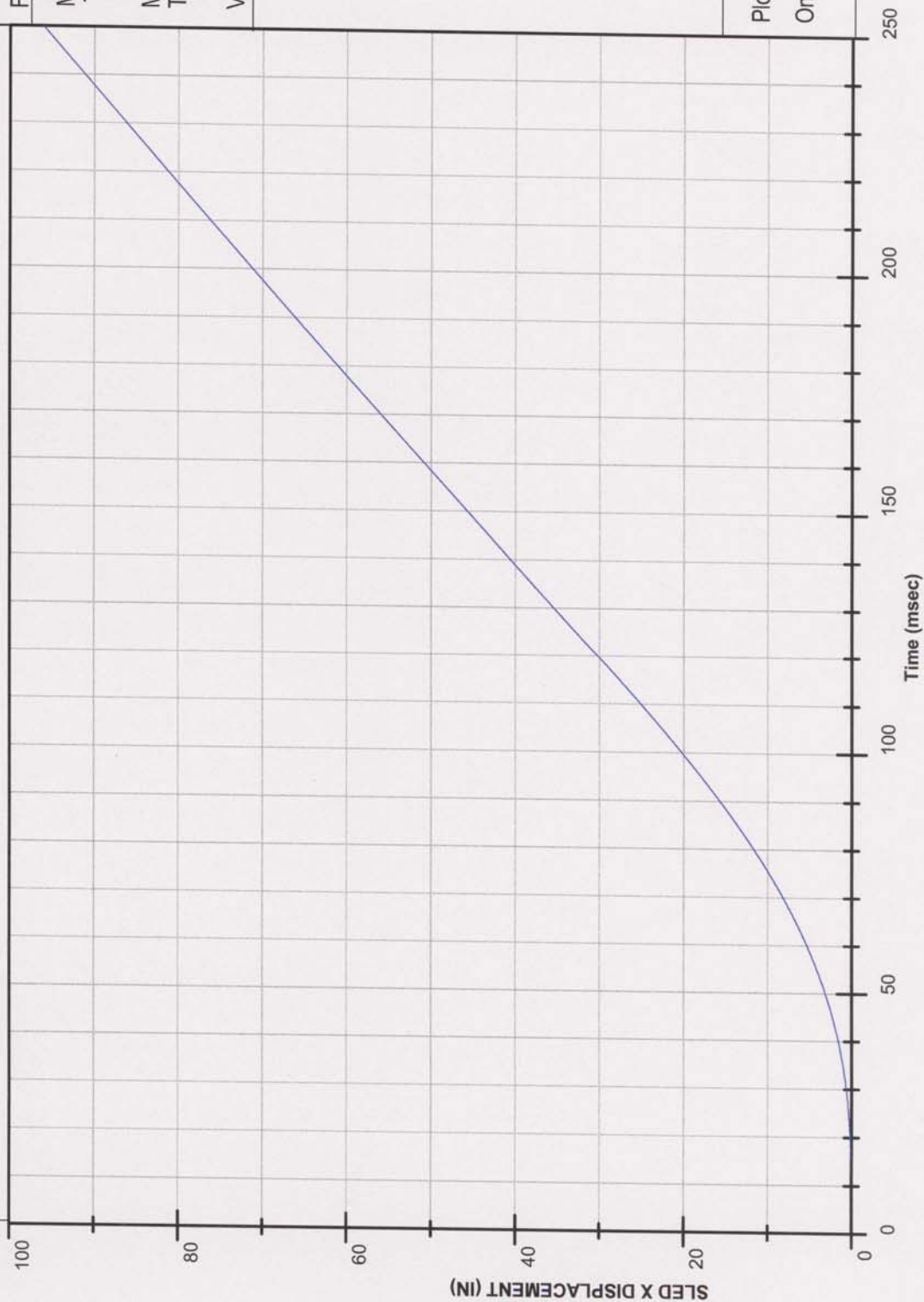
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

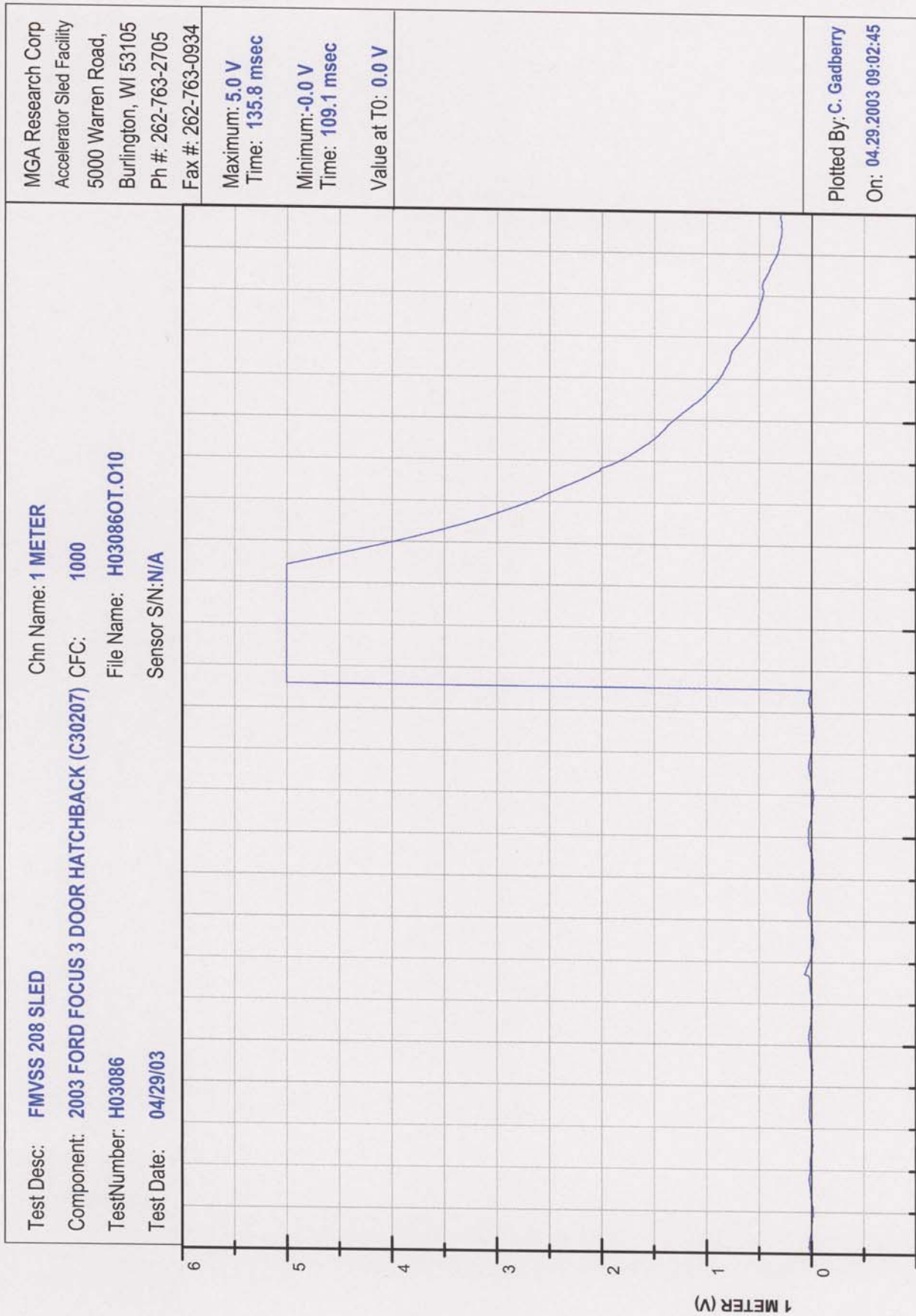
Maximum: 96.0 IN  
Time: 249.9 msec

Minimum: 0.0 IN  
Time: 0.0 msec

Value at T0: 0.0 IN

Plotted By: C. Gadberry  
On: 04.29.2003 09:01:37





Test Desc: FMVSS 208 SLED Chn Name: 1ST STAGE AIRBAG VOLTAGE

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086 File Name: H03086OT.051

Test Date: 04/29/03 Sensor S/N: N/A

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

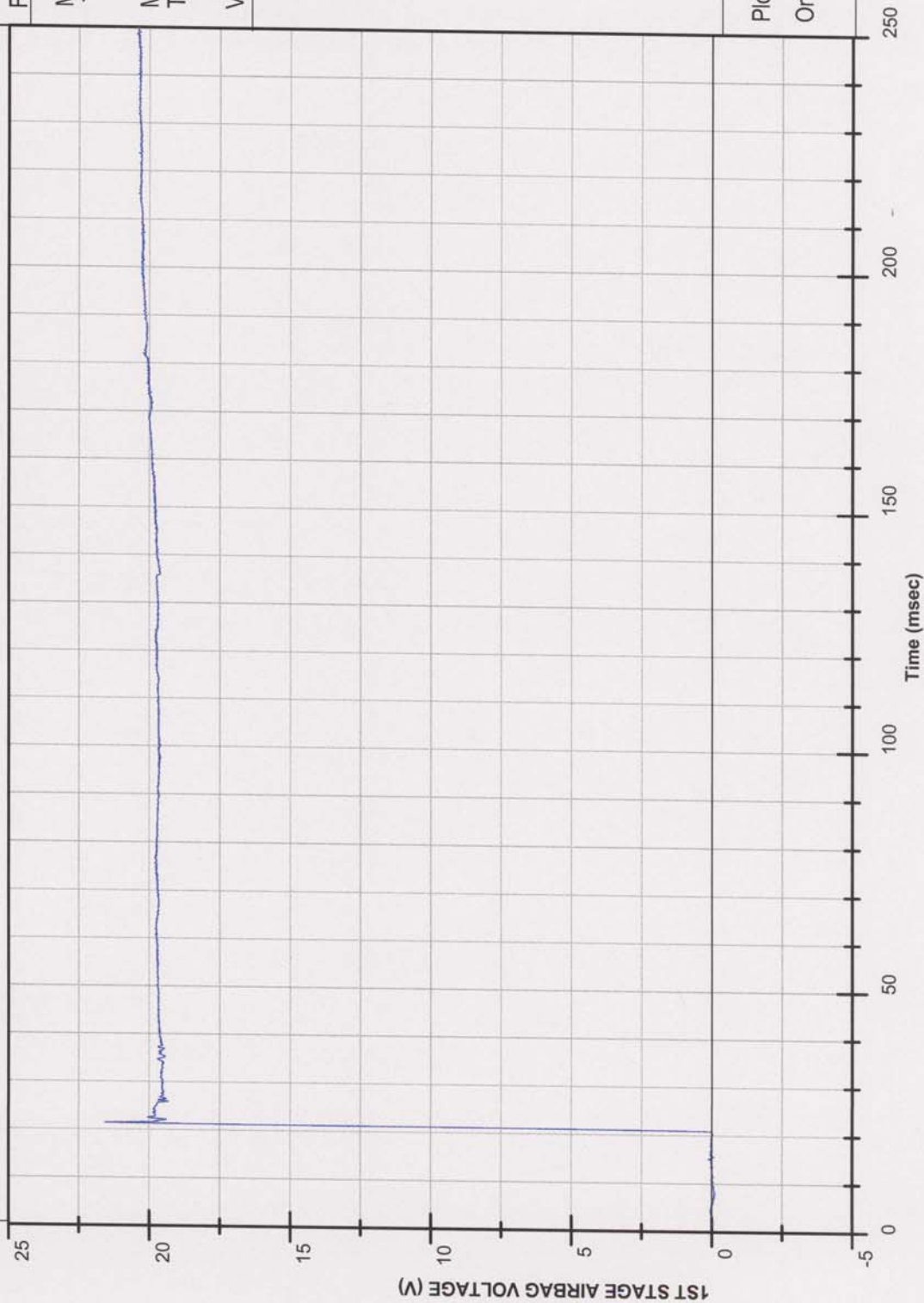
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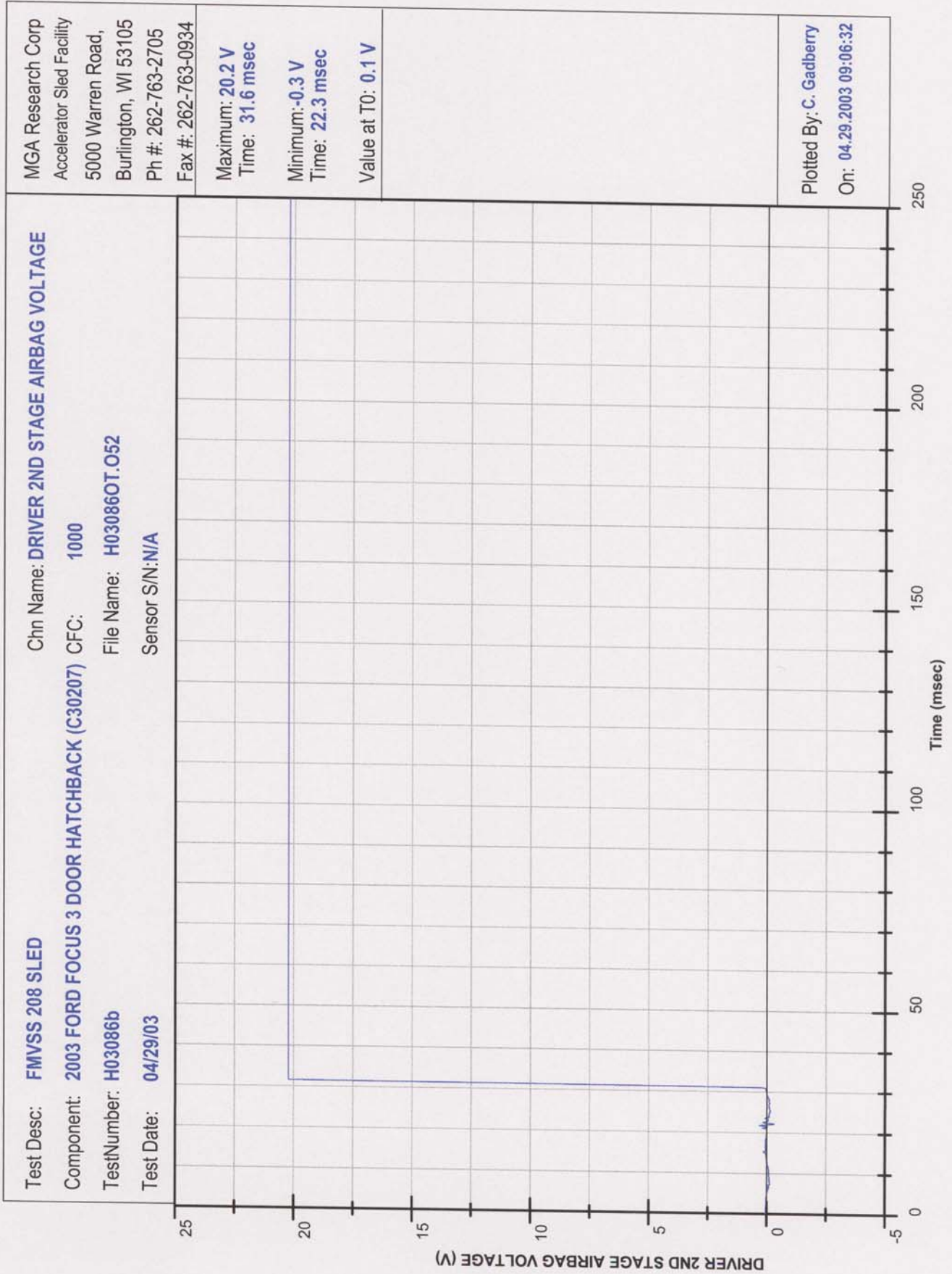
Minimum: -0.1 V  
Time: 8.1 msec

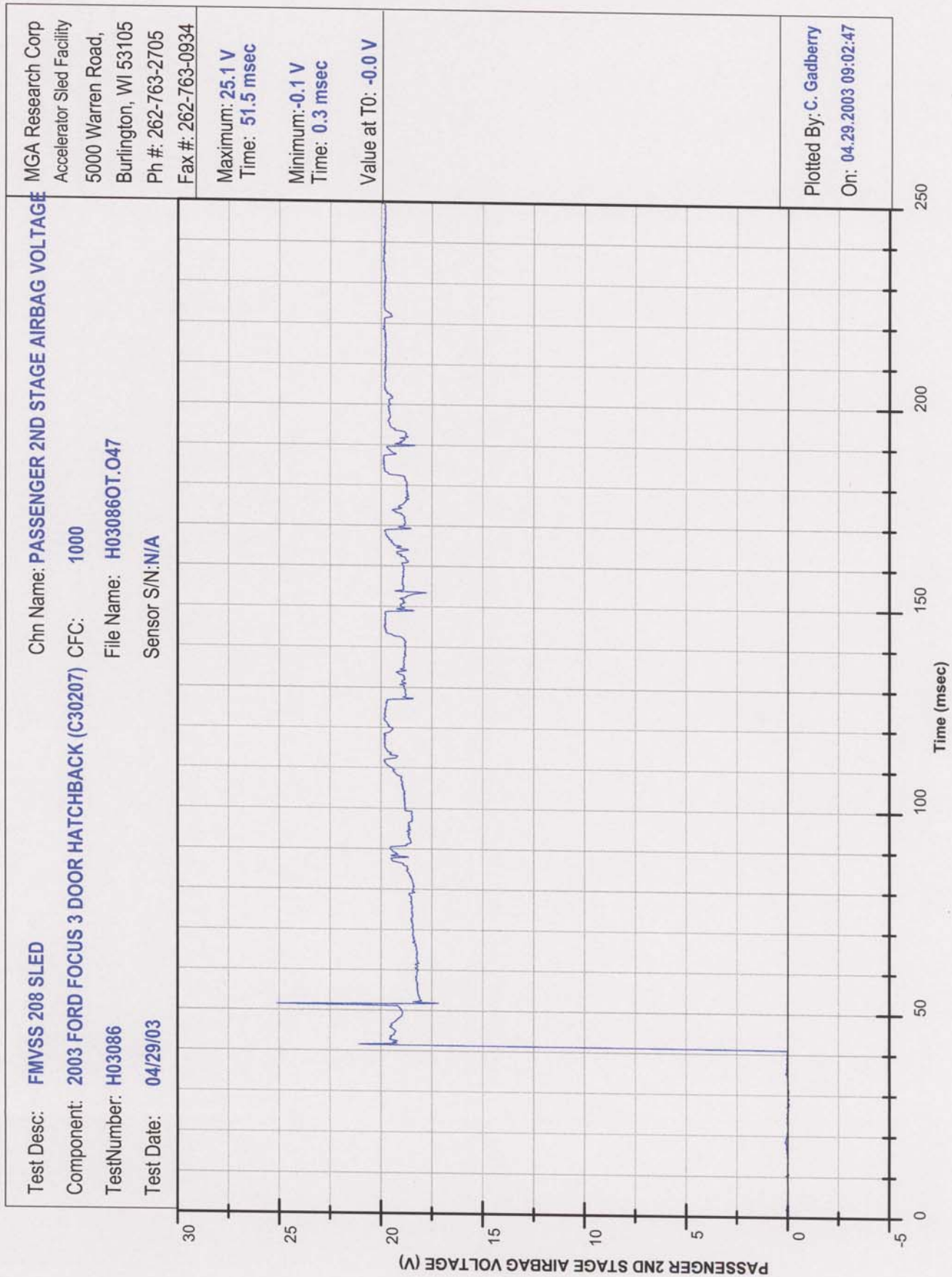
Value at T0: 0.0 V

Plotted By: C. Gadberry

On: 04.29.2003 09:02:49







LEFT REAR SEAT CROSSMEMBER X ACCELERATION VS. TIME

NO VALID DATA COLLECTED

Test Desc: **FMVSS 208 SLED** Chn Name: **RIGHT REAR CROSSMEMBER X**

Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **60**

TestNumber: **H03086** File Name: **H03086AF.A45**

Test Date: **04/29/03** Sensor S/N: **L23-A09**

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

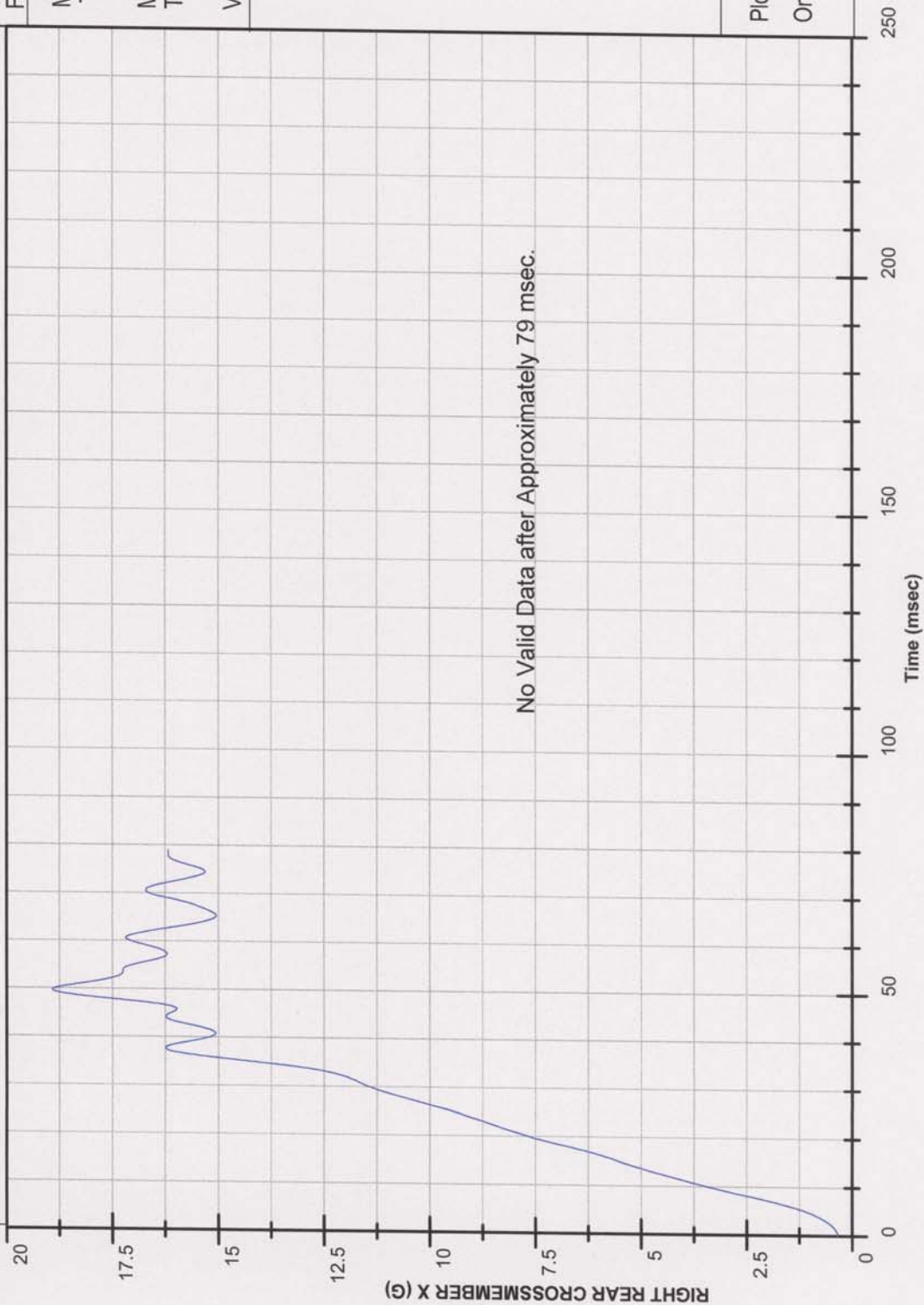
Maximum: **18.9 G**  
Time: **49.7 msec**

Minimum: **0.3 G**  
Time: **0.0 msec**

Value at T0: **0.3 G**

Plotted By: **C. Gadberry**

On: **04.29.2003 09:01:36**

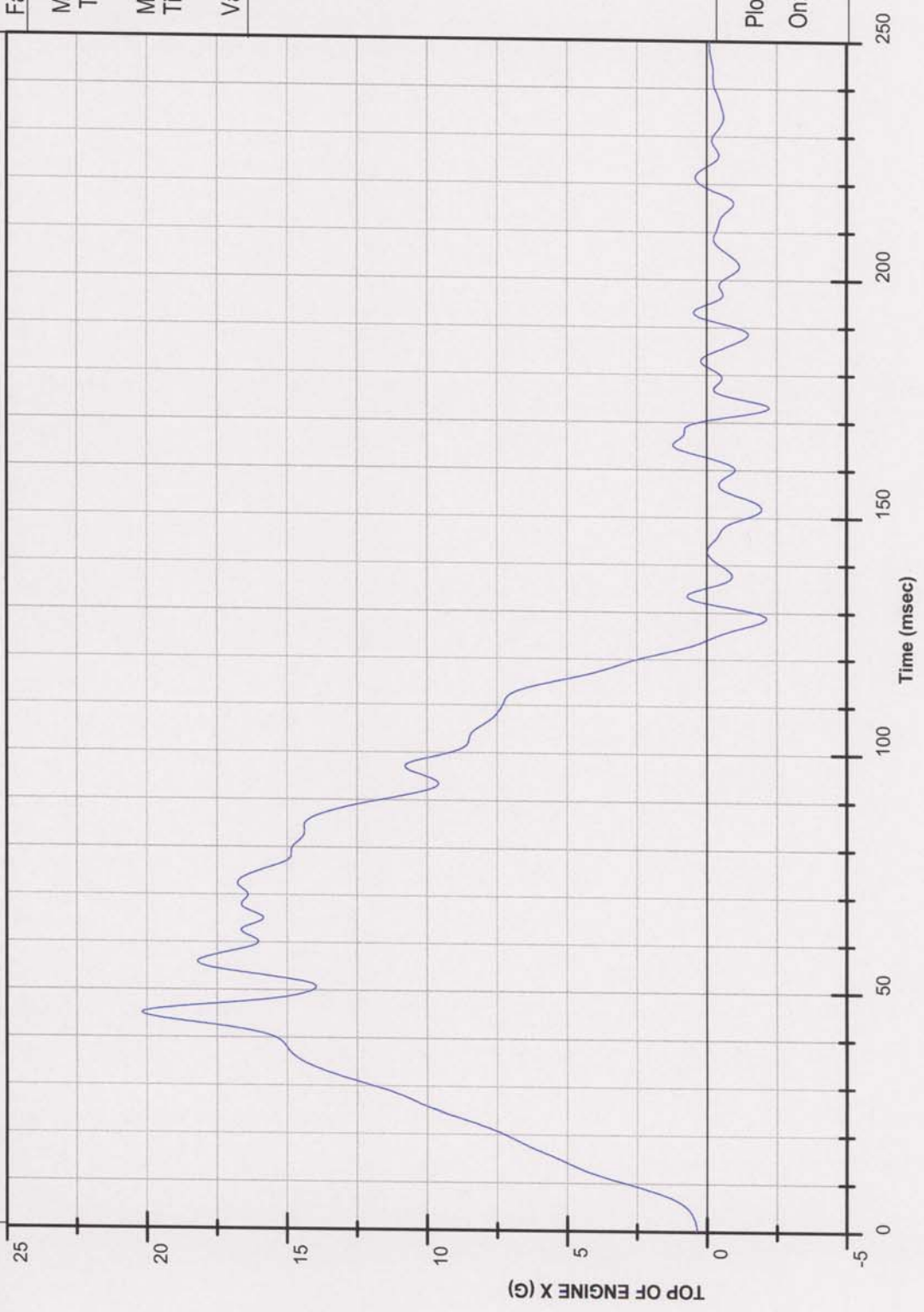


MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

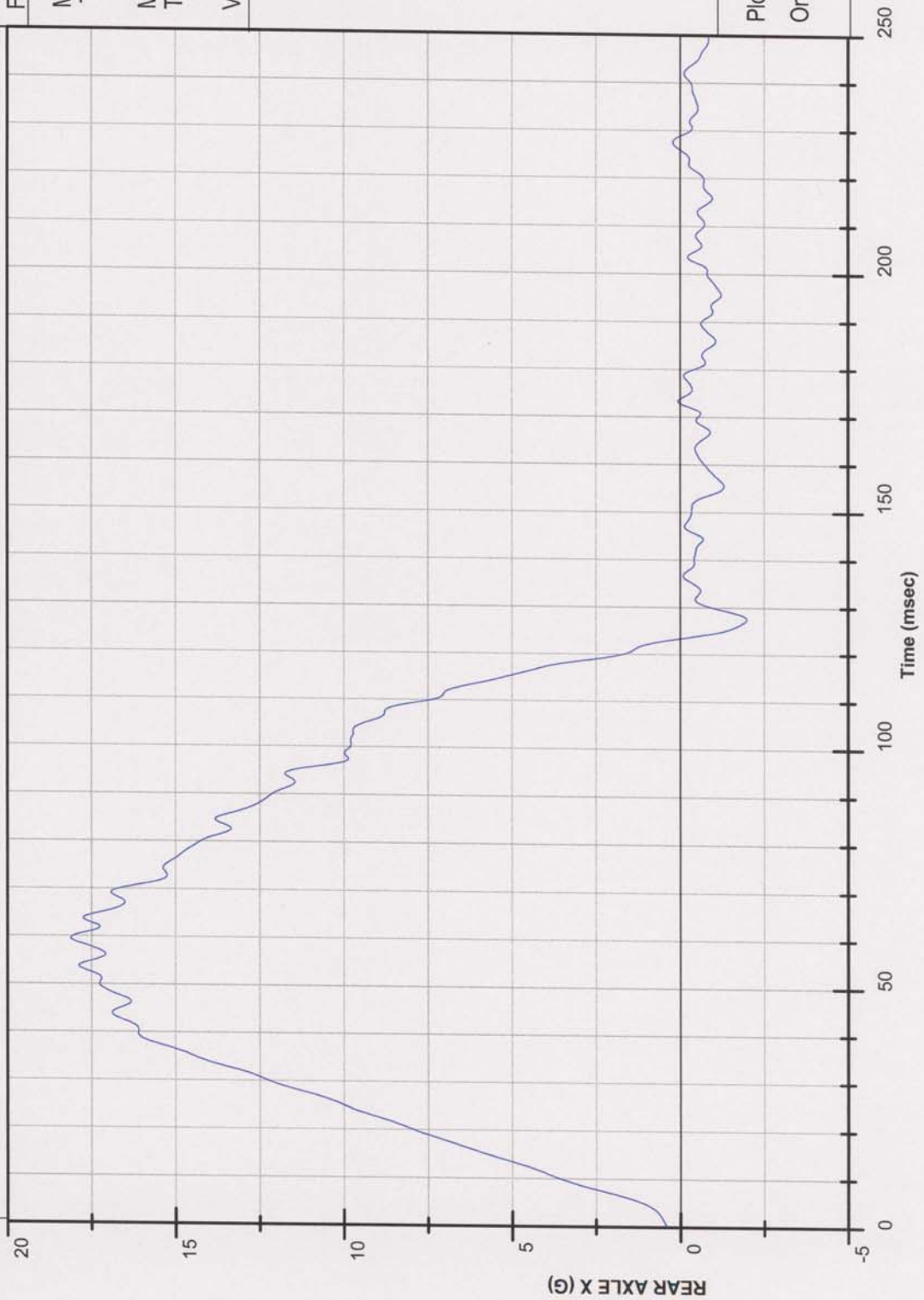
Maximum: **20.2 G**  
Time: **45.2 msec**  
Minimum: **-2.2 G**  
Time: **173.3 msec**  
Value at T0: **0.4 G**

Plotted By: C. Gadberry  
On: 04.29.2003 09:01:19

Test Desc: **FMVSS 208 SLED** Chn Name: **TOP OF ENGINE X**  
Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **60**  
TestNumber: **H03086** File Name: **H03086AF.A18**  
Test Date: **04/29/03** Sensor S/N: **99F272**



|                                                                                                                                                            |                                                                                                                |                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Desc:</b> FMVSS 208 SLED<br><b>Component:</b> 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)<br><b>TestNumber:</b> H03086<br><b>Test Date:</b> 04/29/03 | <b>Chn Name:</b> REAR AXLE X<br><b>CFC:</b> 60<br><b>File Name:</b> H03086AF.A43<br><b>Sensor S/N:</b> J07-X16 | <b>MGA Research Corp</b><br>Accelerator Sled Facility<br>5000 Warren Road,<br>Burlington, WI 53105<br>Ph #: 262-763-2705<br>Fax #: 262-763-0934 |
| <b>Maximum:</b> 18.1 G<br><b>Time:</b> 59.6 msec<br><b>Minimum:</b> -2.0 G<br><b>Time:</b> 127.6 msec<br><b>Value at T0:</b> 0.4 G                         |                                                                                                                | <b>Plotted By:</b> C. Gadberry<br><b>On:</b> 04.29.2003 09:01:33                                                                                |



Test Desc: **FMVSS 208 SLED**  
 Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **1000**  
 TestNumber: **H03086**  
 Test Date: **04/29/03**  
 Chn Name: **DRIVER HEAD X**  
 File Name: **H03086AT.A03**  
 Sensor S/N: **C12883**

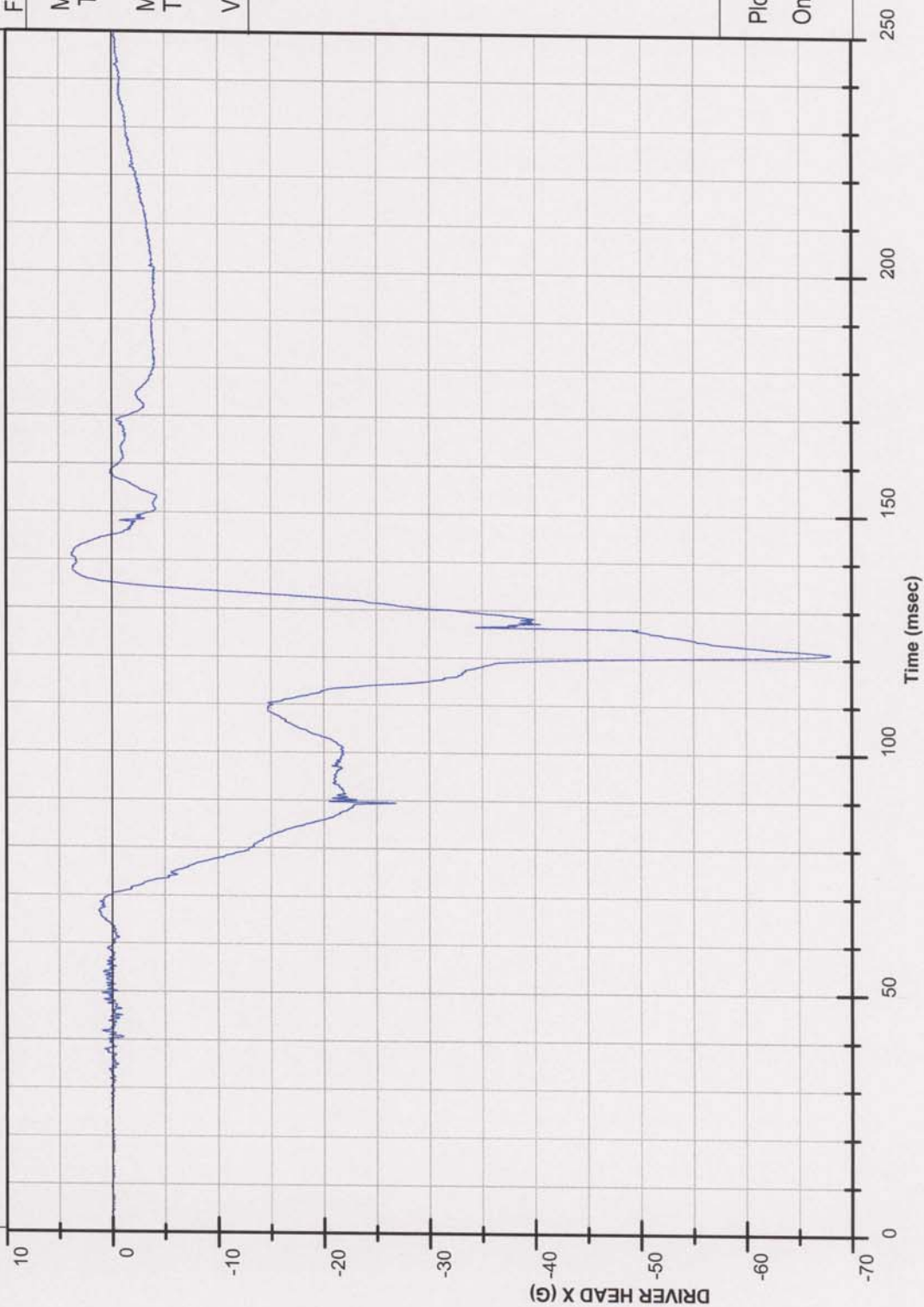
MGA Research Corp  
 Accelerator Sled Facility  
 5000 Warren Road,  
 Burlington, WI 53105  
 Ph #: 262-763-2705  
 Fax #: 262-763-0934

Maximum: **3.8 G**  
 Time: **140.8 msec**

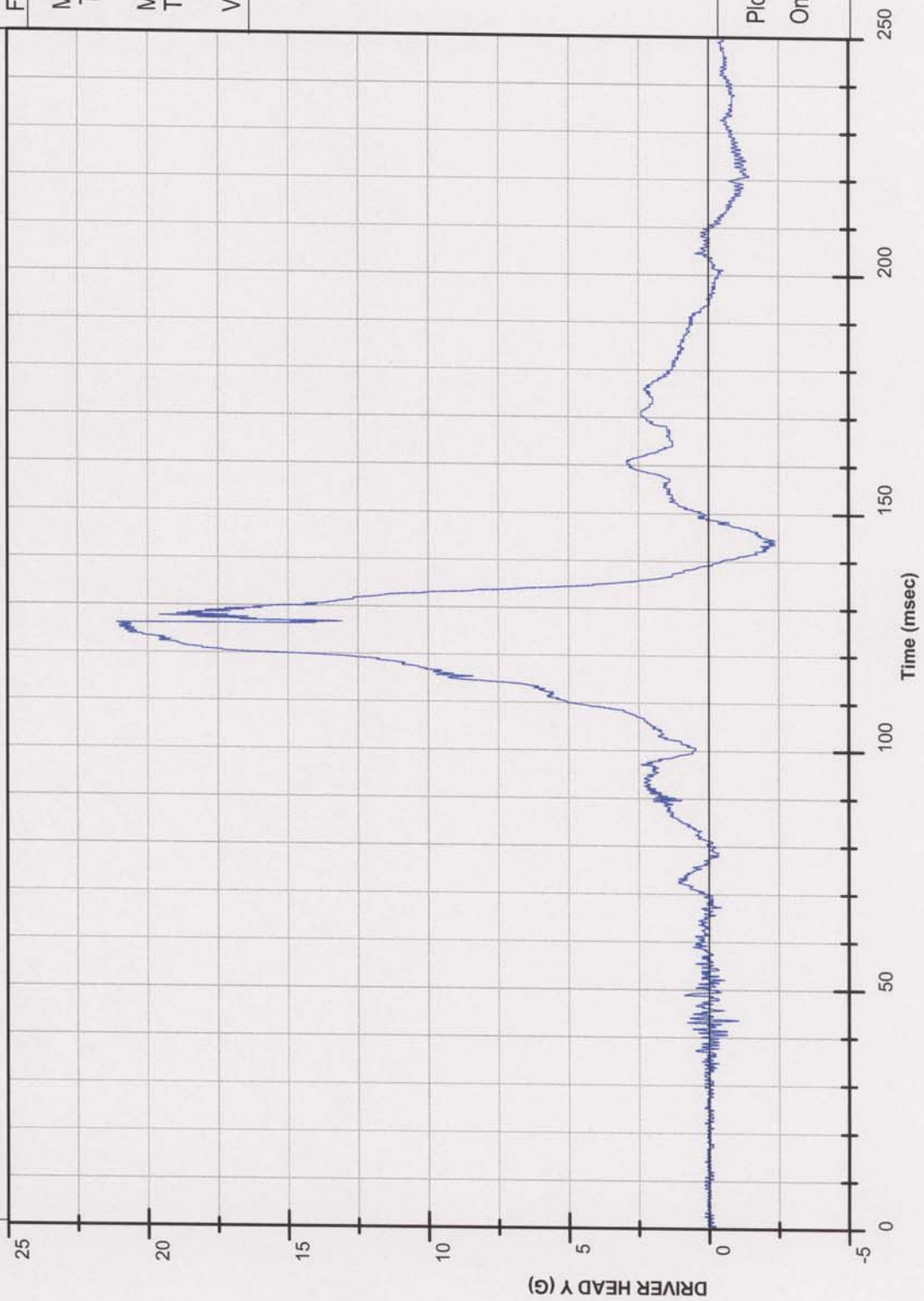
Minimum: **-68.0 G**  
 Time: **121.2 msec**

Value at T0: **-0.0 G**

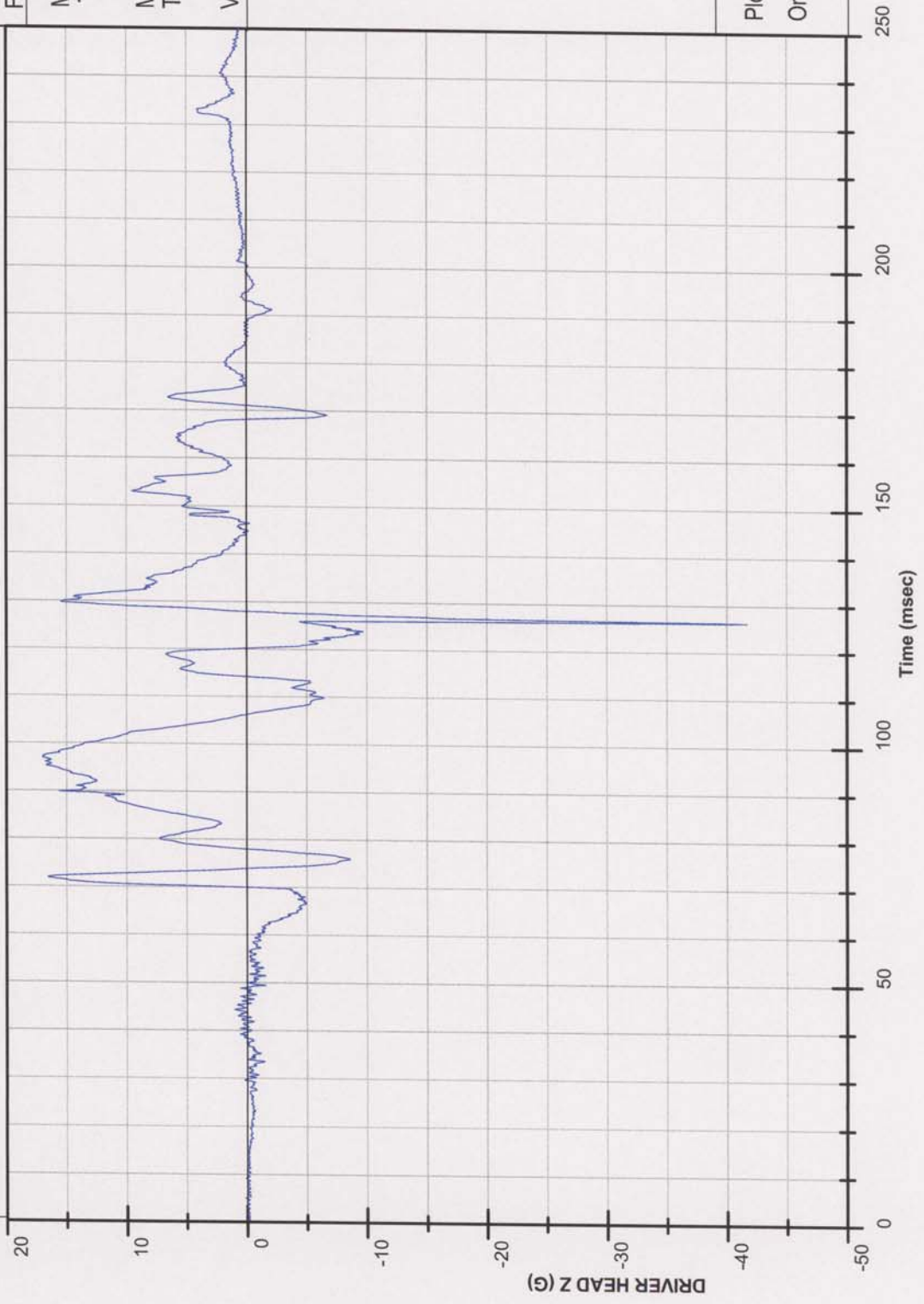
Plotted By: **C. Gadberry**  
 On: **04.29.2003 09:01:42**



|                                                                                                                                                                             |                                                                                               |                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Test Desc: <b>FMVSS 208 SLED</b><br>Component: <b>2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)</b> CFC: <b>1000</b><br>TestNumber: <b>H03086</b><br>Test Date: <b>04/29/03</b> | Chn Name: <b>DRIVER HEAD Y</b><br>File Name: <b>H03086AT.A05</b><br>Sensor S/N: <b>C13081</b> | MGA Research Corp<br>Accelerator Sled Facility<br>5000 Warren Road,<br>Burlington, WI 53105<br>Ph #: 262-763-2705<br>Fax #: 262-763-0934 |
| Maximum: <b>21.1 G</b><br>Time: <b>126.2 msec</b><br>Minimum: <b>-2.4 G</b><br>Time: <b>143.7 msec</b><br>Value at T0: <b>-0.0 G</b>                                        |                                                                                               | Plotted By: <b>C. Gadberry</b><br>On: <b>04.29.2003 09:01:44</b>                                                                         |



|                                                                                                                                                                             |                                                                                               |                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Test Desc: <b>FMVSS 208 SLED</b><br>Component: <b>2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)</b> CFC: <b>1000</b><br>TestNumber: <b>H03086</b><br>Test Date: <b>04/29/03</b> | Chn Name: <b>DRIVER HEAD Z</b><br>File Name: <b>H03086AT.A06</b><br>Sensor S/N: <b>C12881</b> | MGA Research Corp<br>Accelerator Sled Facility<br>5000 Warren Road,<br>Burlington, WI 53105<br>Ph #: 262-763-2705<br>Fax #: 262-763-0934 |
| Maximum: <b>17.0 G</b><br>Time: <b>97.0 msec</b><br>Minimum: <b>-41.7 G</b><br>Time: <b>126.4 msec</b><br>Value at T0: <b>-0.0 G</b>                                        |                                                                                               | Plotted By: <b>C. Gadberry</b><br>On: <b>04.29.2003 09:01:46</b>                                                                         |



Test Desc: FMVSS 208 SLED

Chn Name: DRIVER HEAD RESULTANT

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)

CFC: 1000

TestNumber: H03086

File Name: H03086AV.A03

Test Date: 04/29/03

Sensor S/N: C12881

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 70.6 G  
Time: 121.3 msec

Minimum: 0.1 G  
Time: 0.0 msec

Value at T0: 0.1 G

HIC VAL: 266.2

T1: 84.9 msec

T2: 133.2 msec

HIC36 VAL: 260.9

T1: 114.4 msec

T2: 132.0 msec

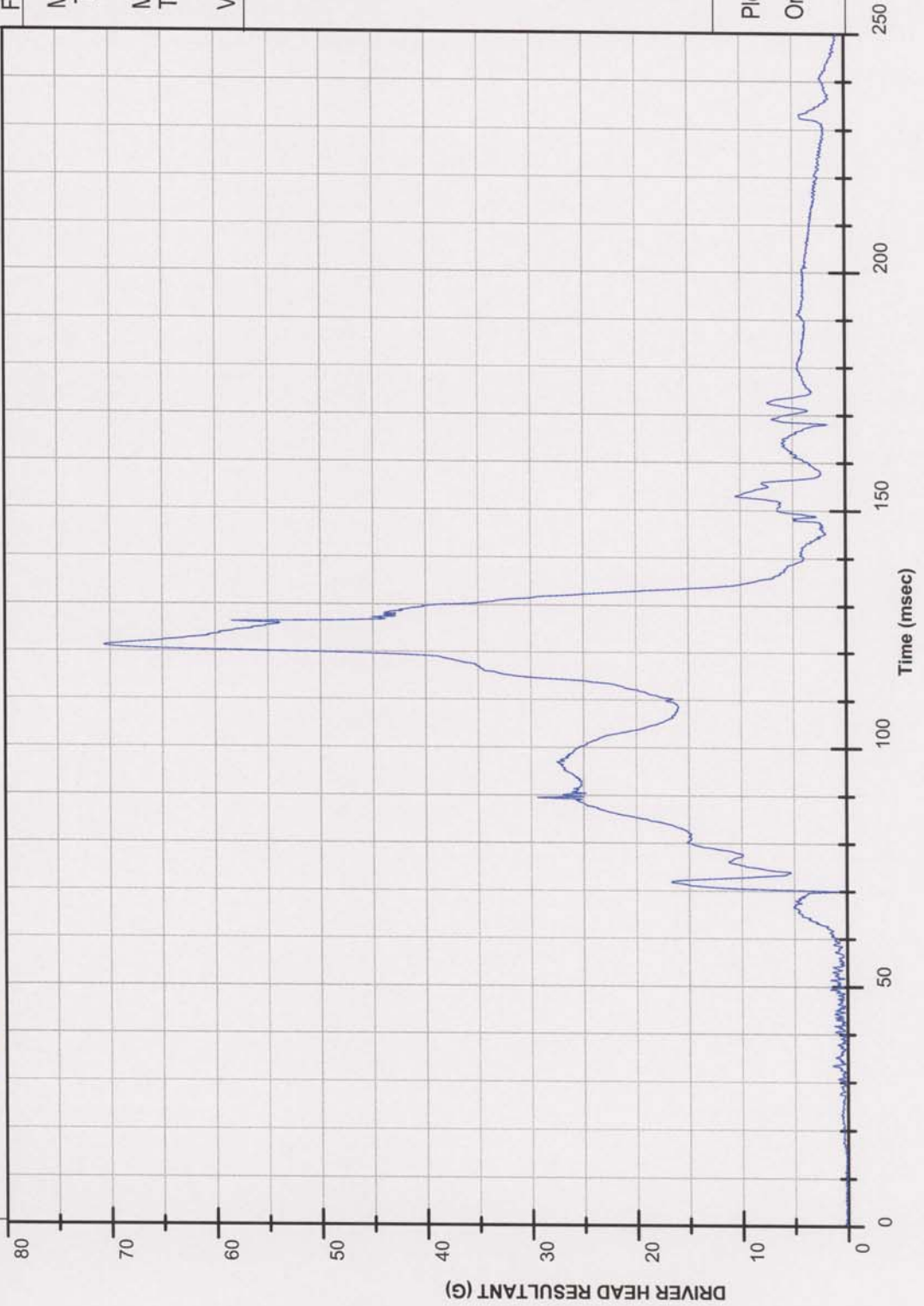
HIC15 VAL: 255.3

T1: 115.8 msec

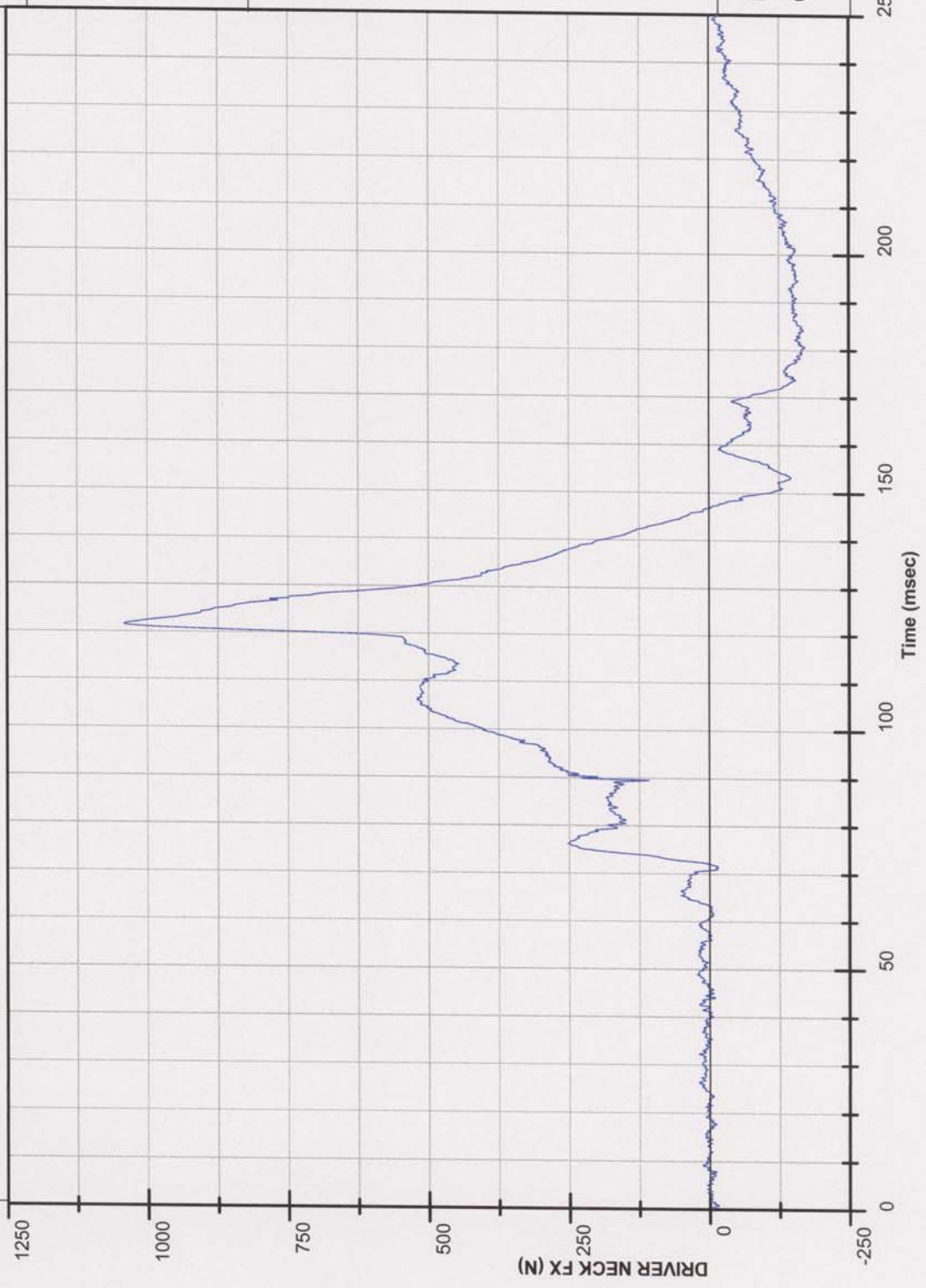
T2: 130.8 msec

Plotted By: C. Gadberry

On: 04.29.2003 09:01:55



|                                                                                                                                                            |                                                                                                                    |                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Desc:</b> FMVSS 208 SLED<br><b>Component:</b> 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)<br><b>TestNumber:</b> H03086<br><b>Test Date:</b> 04/29/03 | <b>Chn Name:</b> DRIVER NECK FX<br><b>CFC:</b> 1000<br><b>File Name:</b> H03086FT.F12<br><b>Sensor S/N:</b> N253FX | MGA Research Corp<br>Accelerator Sled Facility<br>5000 Warren Road,<br>Burlington, WI 53105<br>Ph #: 262-763-2705<br>Fax #: 262-763-0934 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|



Plotted By: C. Gadberry  
 On: 04.29.2003 09:02:16

Test Desc: FMVSS 208 SLED

Chn Name: DRIVER NECK FY

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086

File Name: H03086FT.F13

Test Date: 04/29/03

Sensor S/N: N253FY

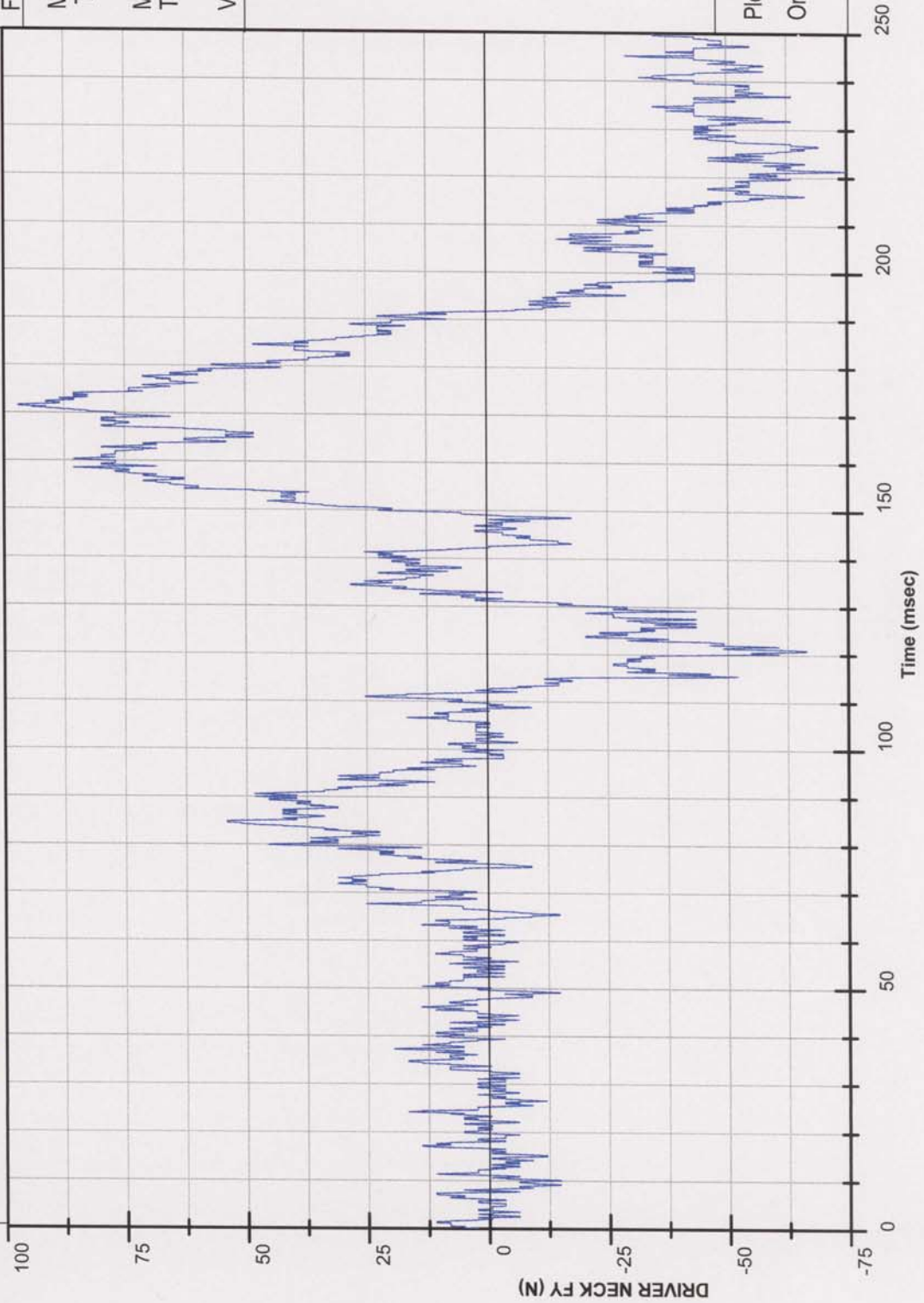
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 97.0 N  
Time: 171.5 msec

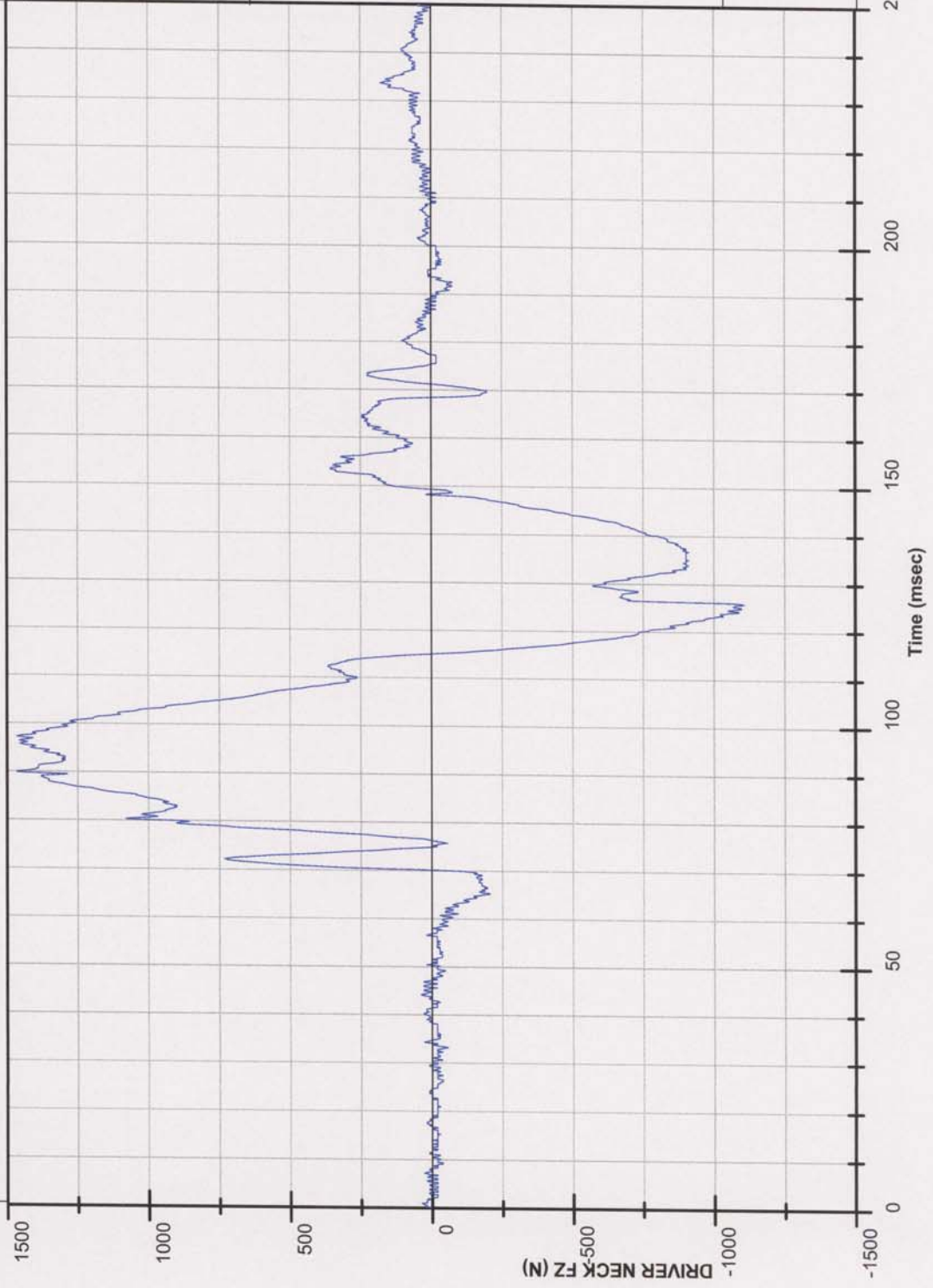
Minimum: -74.9 N  
Time: 221.4 msec

Value at T0: 2.5 N

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:18



|                                                                                                                                           |                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MGA Research Corp<br>Accelerator Sled Facility<br>5000 Warren Road,<br>Burlington, WI 53105<br>Ph #: 262-763-2705<br>Fax #: 262-763-0934  | Test Desc: <b>FMVSS 208 SLED</b><br>Component: <b>2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)</b> CFC: <b>1000</b><br>TestNumber: <b>H03086</b><br>Test Date: <b>04/29/03</b> |
| Maximum: <b>1,464.0 N</b><br>Time: <b>89.9 msec</b><br>Minimum: <b>-1,107.2 N</b><br>Time: <b>126.0 msec</b><br>Value at T0: <b>0.1 N</b> | Chn Name: <b>DRIVER NECK FZ</b><br>File Name: <b>H03086FT.F14</b><br>Sensor S/N: <b>N253FZ</b>                                                                              |
| Plotted By: <b>C. Gadberry</b><br>On: <b>04.29.2003 09:02:20</b>                                                                          |                                                                                                                                                                             |



Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

Test Date: 04/29/03

File Name: H03086MF.M15

Sensor S/N: N253MX

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

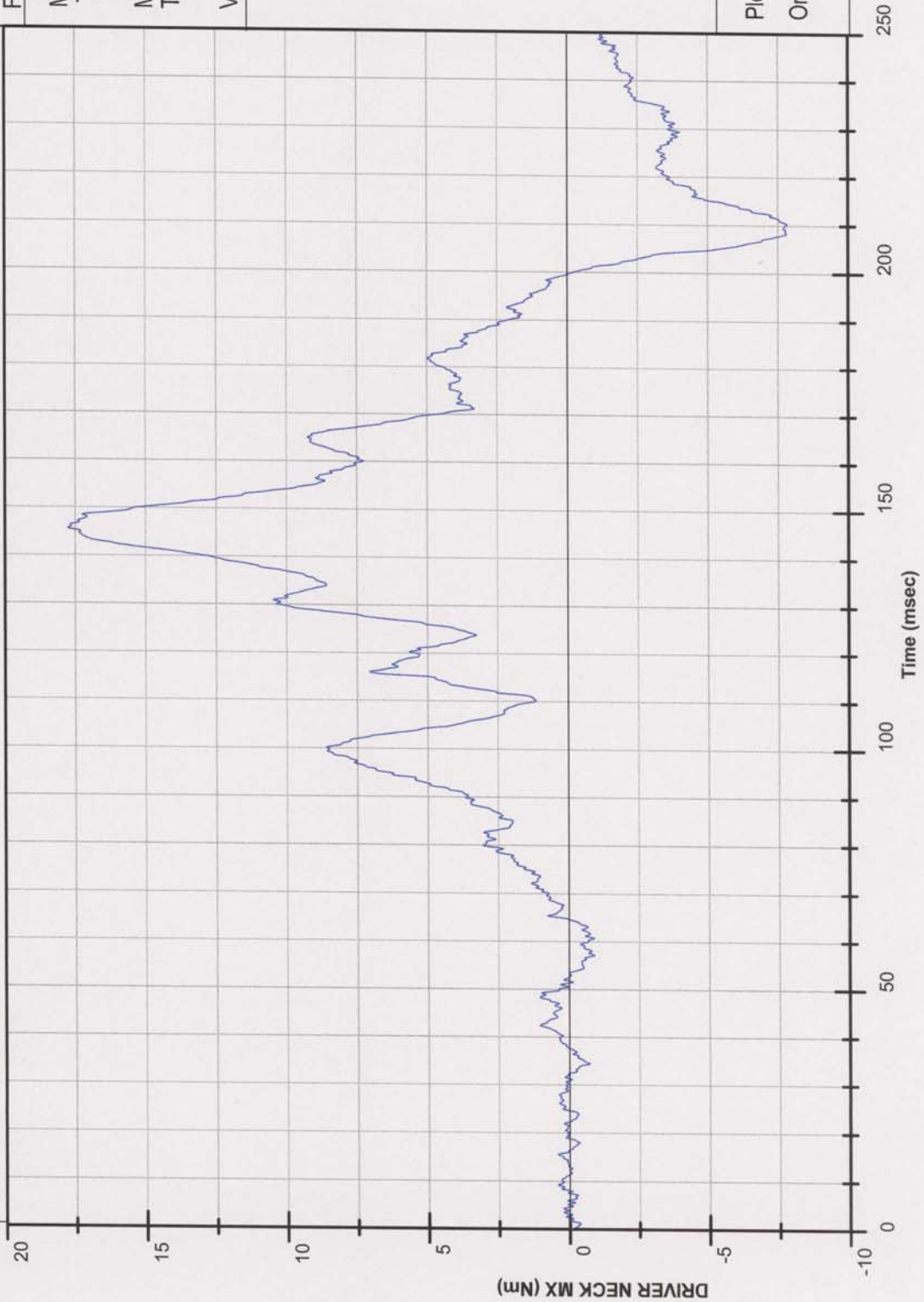
Maximum: 17.8 Nm  
Time: 145.7 msec

Minimum: -7.8 Nm  
Time: 210.3 msec

Value at T0: -0.1 Nm

Plotted By: C. Gadberry

On: 04.29.2003 09:02:28



Test Desc: FMVSS 208 SLED

Chn Name: DRIVER NECK MY

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

File Name: H03086MF.M16

Test Date: 04/29/03

Sensor S/N: N253MY

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

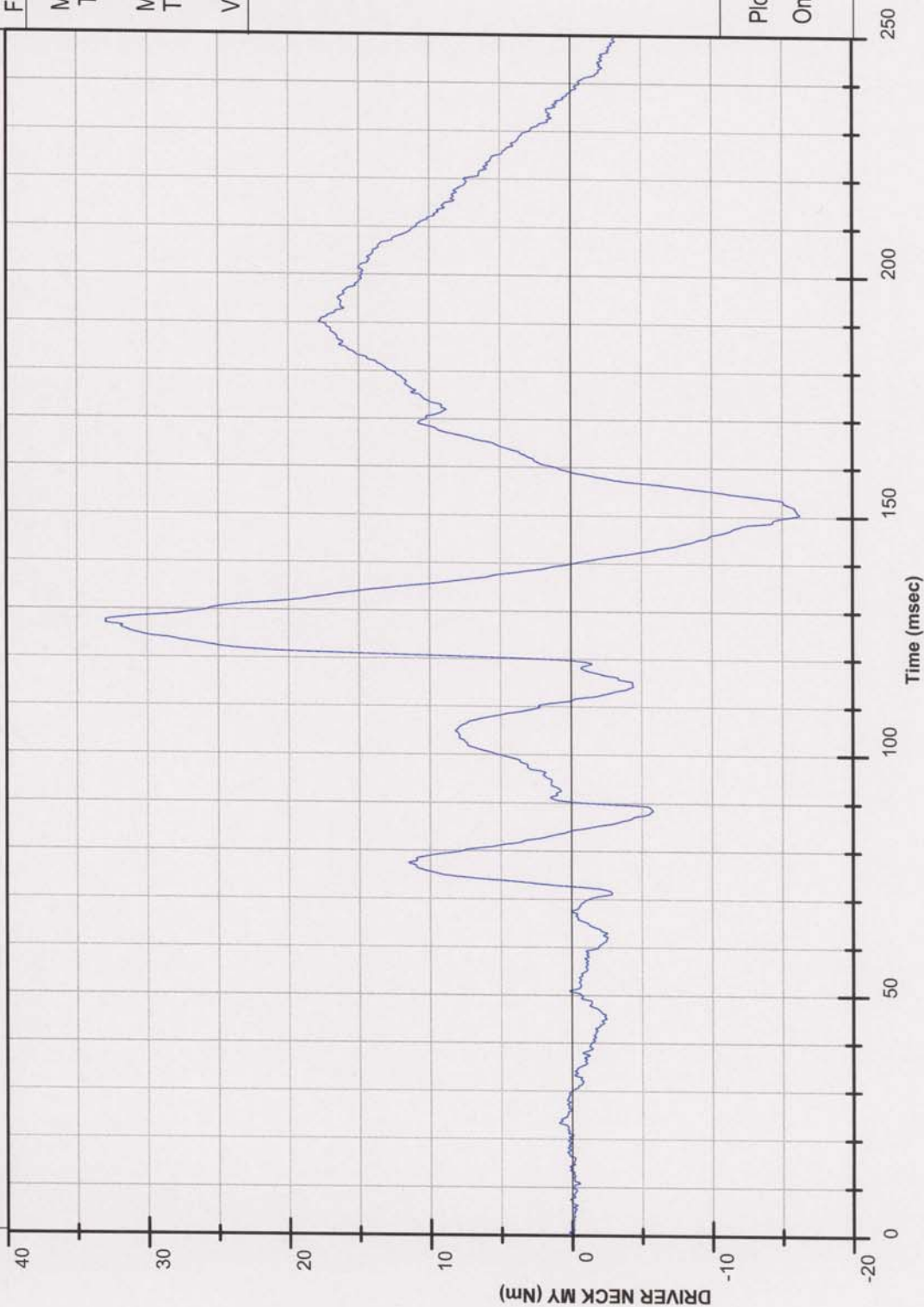
Maximum: 33.0 Nm  
Time: 127.2 msec

Minimum: -16.3 Nm  
Time: 150.5 msec

Value at T0: 0.2 Nm

Plotted By: C. Gadberry

On: 04.29.2003 09:02:30



Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

Test Date: 04/29/03

File Name: H03086MF.M17

Sensor S/N: N253MZ

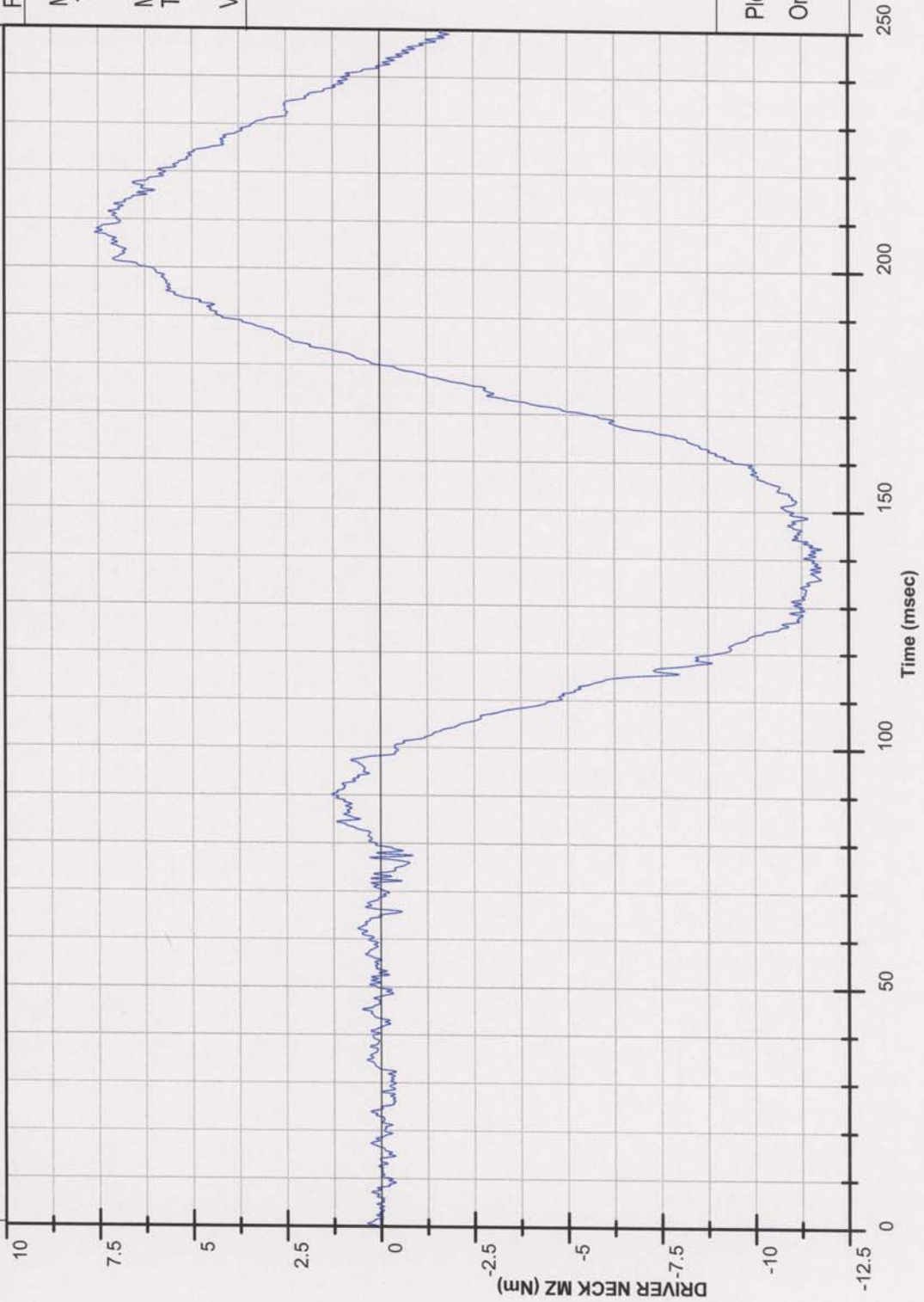
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

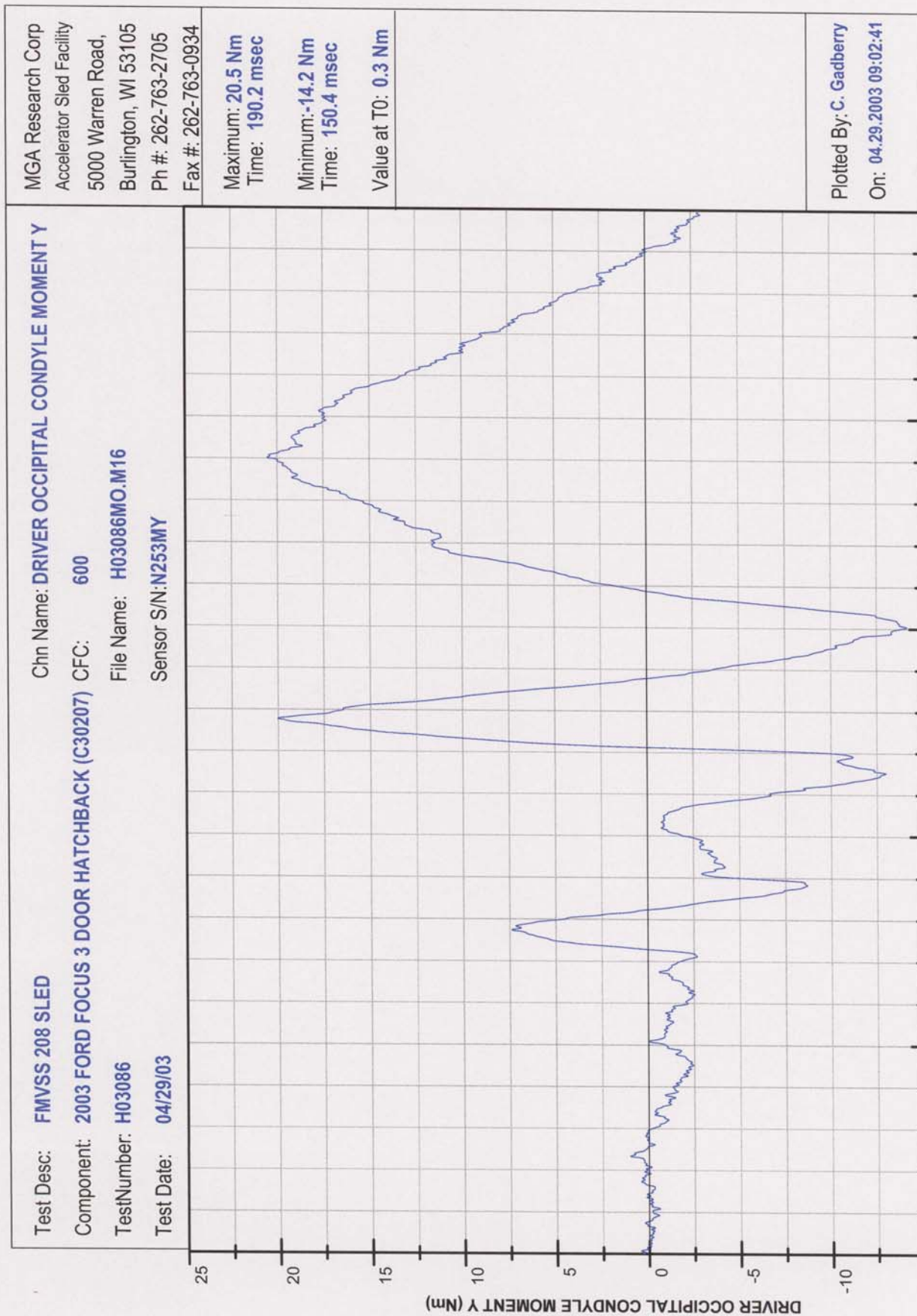
Maximum: 7.6 Nm  
Time: 207.2 msec

Minimum: -11.8 Nm  
Time: 142.4 msec

Value at T0: 0.0 Nm

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:32





Plotted By: C. Gadberry  
On: 04.29.2003 09:02:41

Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 180

TestNumber: H03086

Test Date: 04/29/03

Chn Name: DRIVER CHEST X

File Name: H03086AF.A21

Sensor S/N: AGH79

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

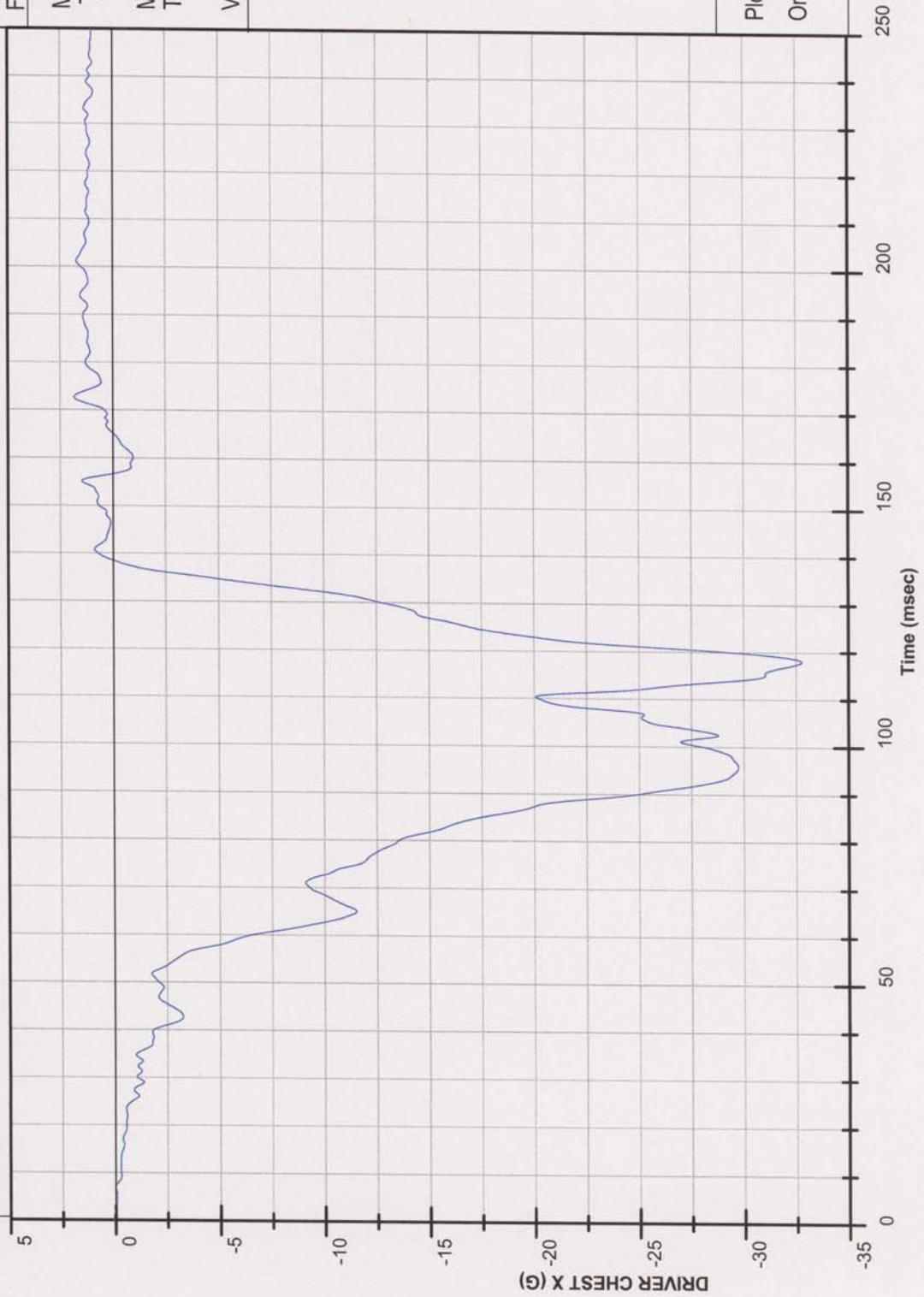
Maximum: 1.8 G  
Time: 172.7 msec

Minimum: -32.8 G  
Time: 118.0 msec

Value at T0: 0.1 G

Plotted By: C. Gadberry

On: 04.29.2003 09:01:21



Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 180

TestNumber: H03086

Test Date: 04/29/03

File Name: H03086AF.A22

Sensor S/N: AGH89

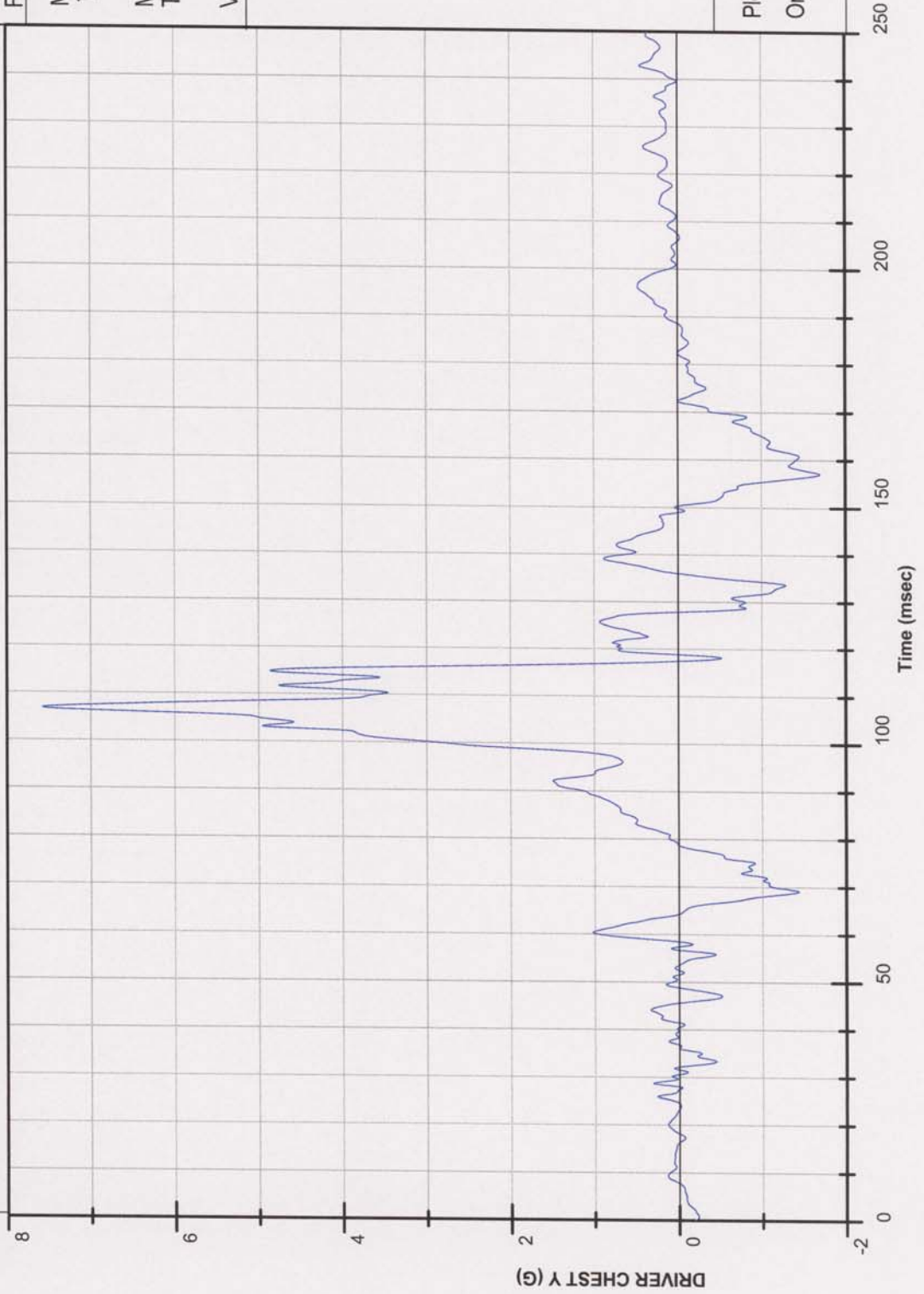
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 7.6 G  
Time: 106.8 msec

Minimum: -1.7 G  
Time: 157.2 msec

Value at T0: -0.2 G

Plotted By: C. Gadberry  
On: 04.29.2003 09:01:23



Test Desc: **FMVSS 208 SLED**  
Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **180**  
TestNumber: **H03086**  
Test Date: **04/29/03**  
Chn Name: **DRIVER CHEST Z**  
File Name: **H03086AF.A23**  
Sensor S/N: **AGH55**

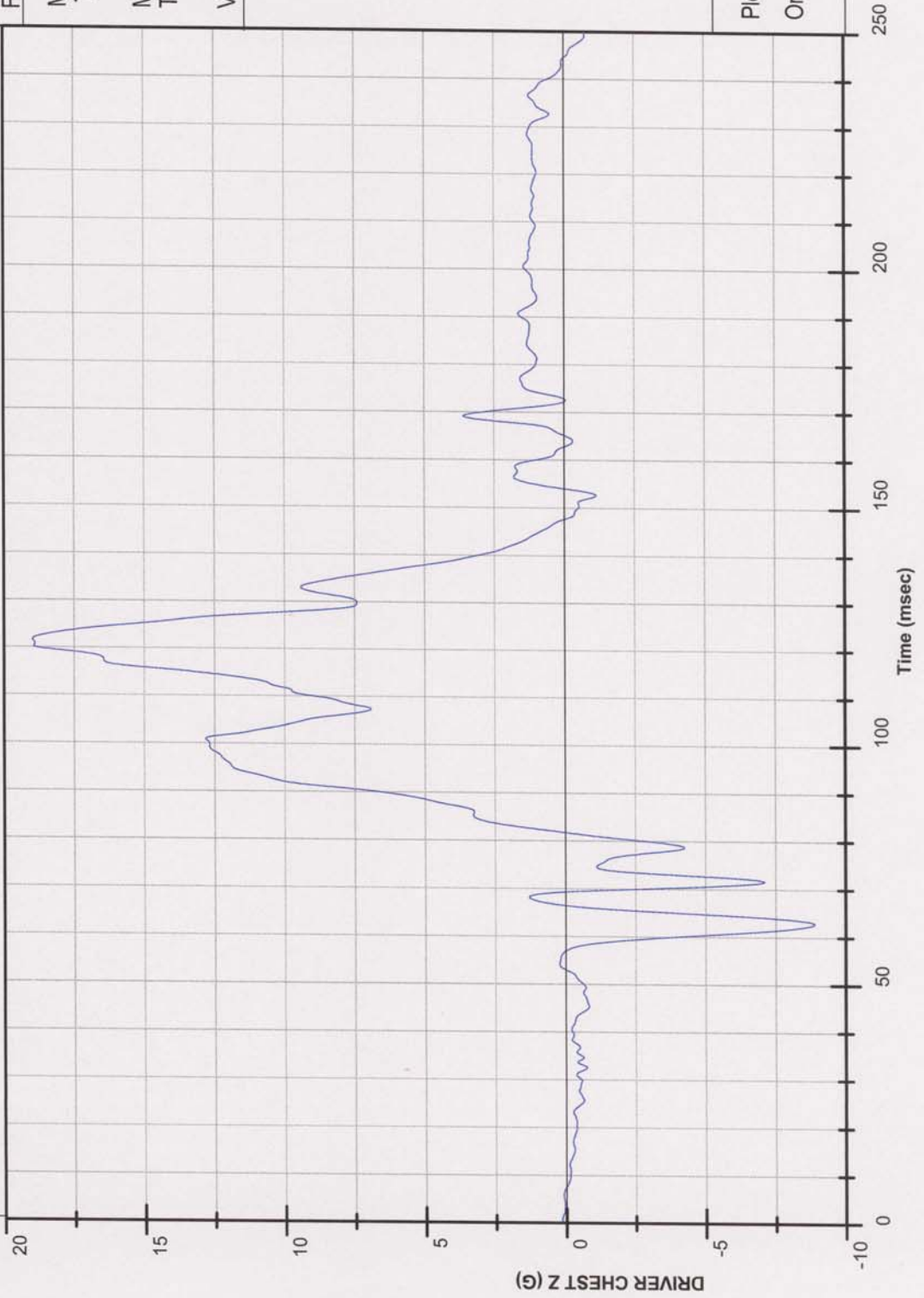
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: **19.0 G**  
Time: **121.7 msec**

Minimum: **-8.9 G**  
Time: **62.9 msec**

Value at T0: **0.1 G**

Plotted By: **C. Gadberry**  
On: **04.29.2003 09:01:25**



Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)

File Name: H03086AV.A21

Sensor S/N: AGH55

Test Date: 04/29/03

Test Number: H03086

Chn Name: DRIVER CHEST RESULTANT

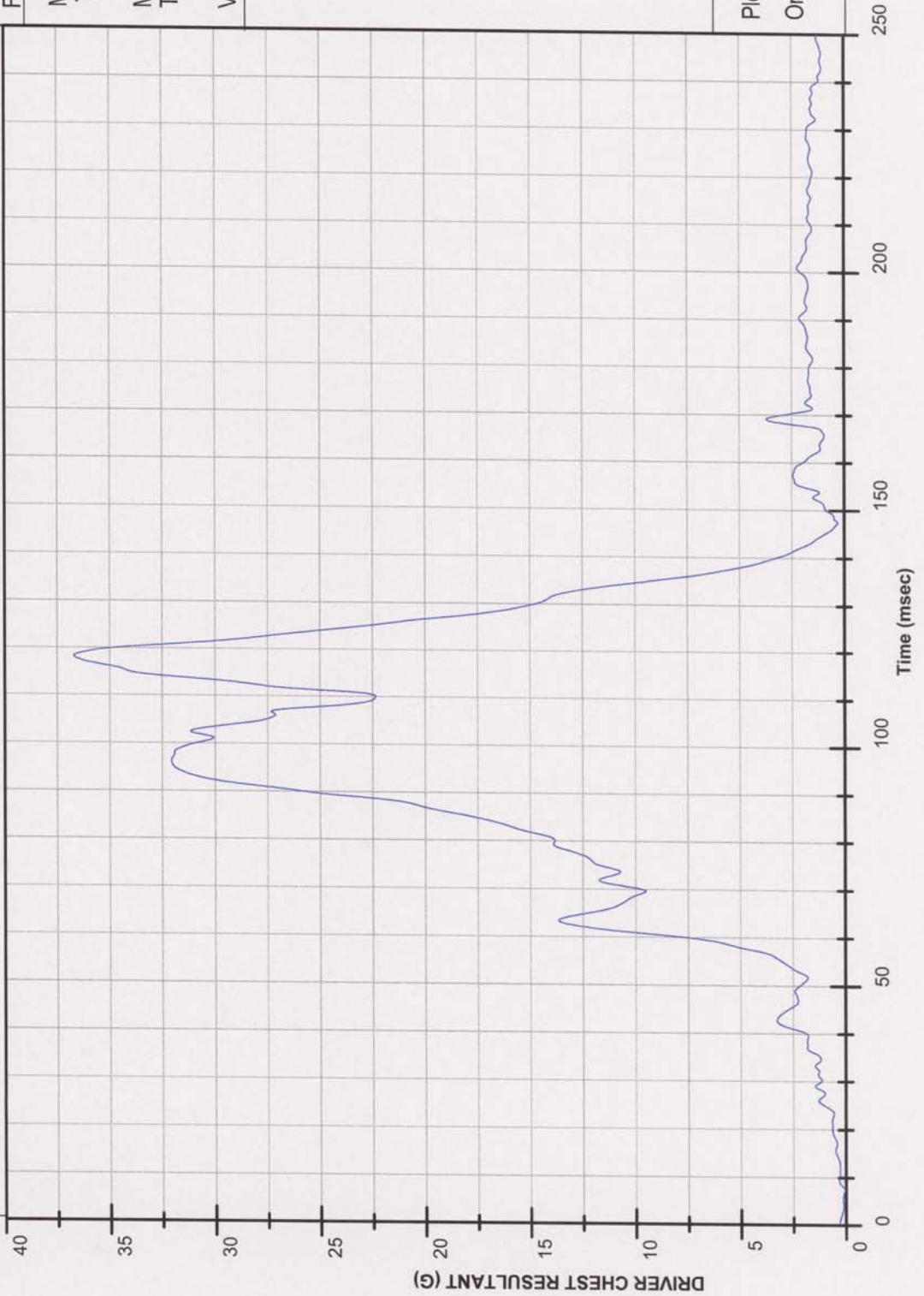
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 36.7 G  
Time: 118.1 msec

Minimum: 0.0 G  
Time: 7.5 msec

Value at T0: 0.2 G

Plotted By: C. Gadberry  
On: 04.29.2003 09:01:57



Test Desc: FMVSS 208 SLED Chn Name: DRIVER CHEST DISP.

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086 File Name: H03086DF.D38

Test Date: 04/29/03 Sensor S/N: D312DX

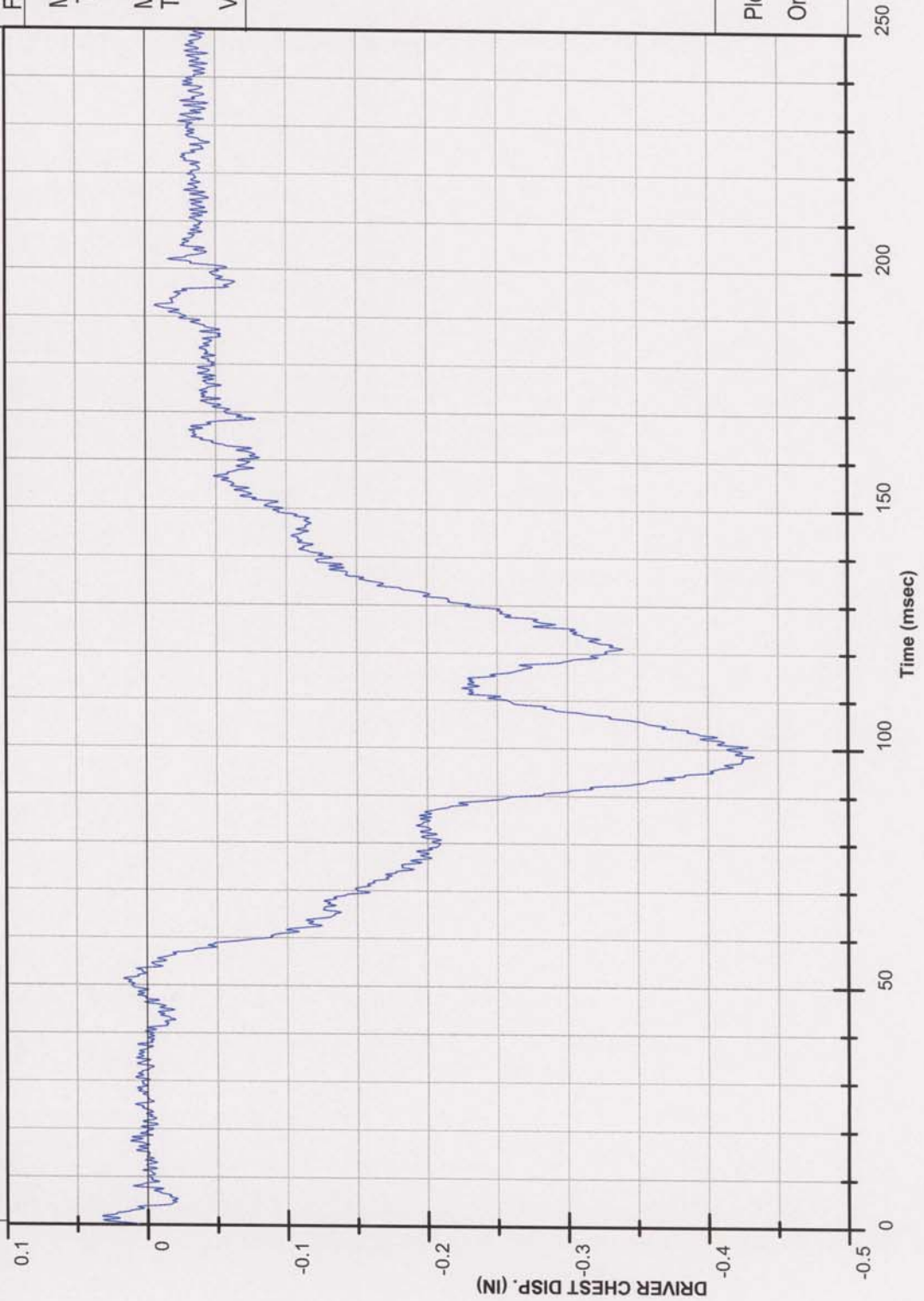
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 0.0 IN  
Time: 1.8 msec

Minimum: -0.4 IN  
Time: 98.6 msec

Value at T0: 0.0 IN

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:04



Test Desc: FMVSS 208 SLED

Chn Name: DRIVER LEFT FEMUR

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086 File Name: H03086FF.F08

Test Date: 04/29/03

Sensor S/N: 86

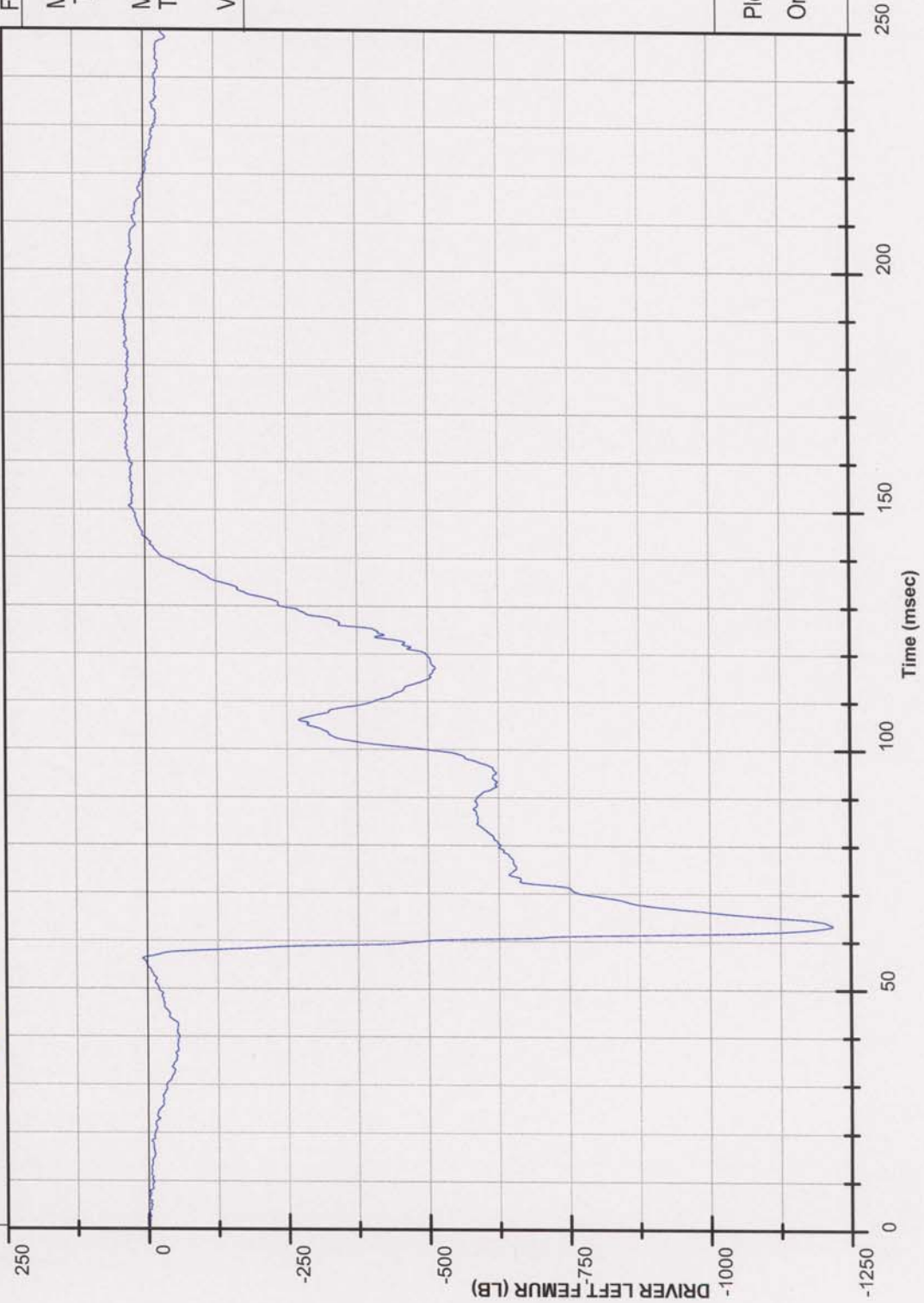
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

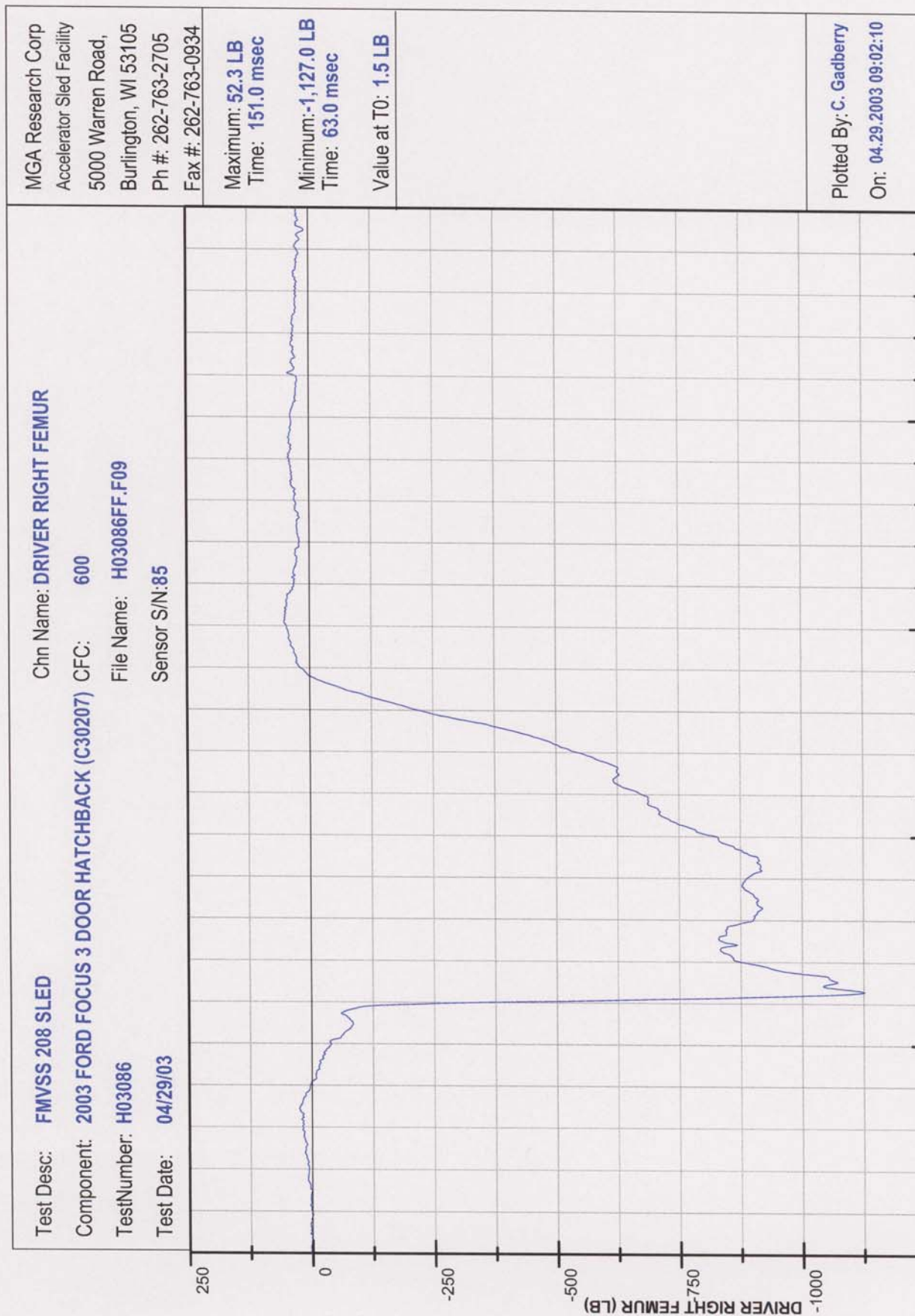
Maximum: 37.0 LB  
Time: 190.5 msec

Minimum: -1,217.9 LB  
Time: 63.4 msec

Value at T0: -2.3 LB

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:08





Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER HEAD X

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086

File Name: H03086AT.A24

Test Date: 04/29/03

Sensor S/N: AH5J3

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

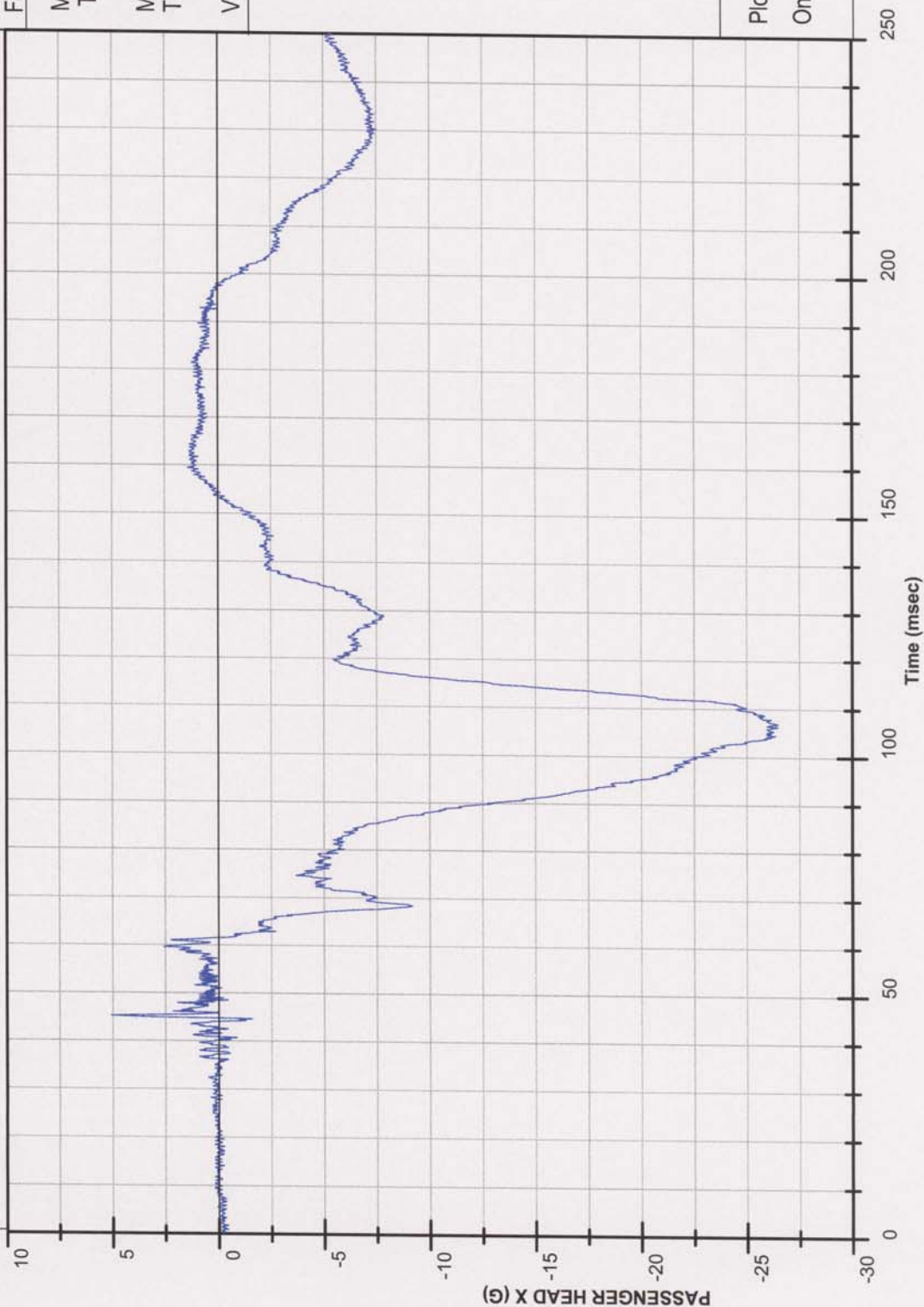
Maximum: 5.1 G  
Time: 45.3 msec

Minimum: -26.5 G  
Time: 106.3 msec

Value at T0: -0.2 G

Plotted By: C. Gadberry

On: 04.29.2003 09:01:48



Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER HEAD Y

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086

File Name: H03086AT.A25

Test Date: 04/29/03

Sensor S/N: AH5H6

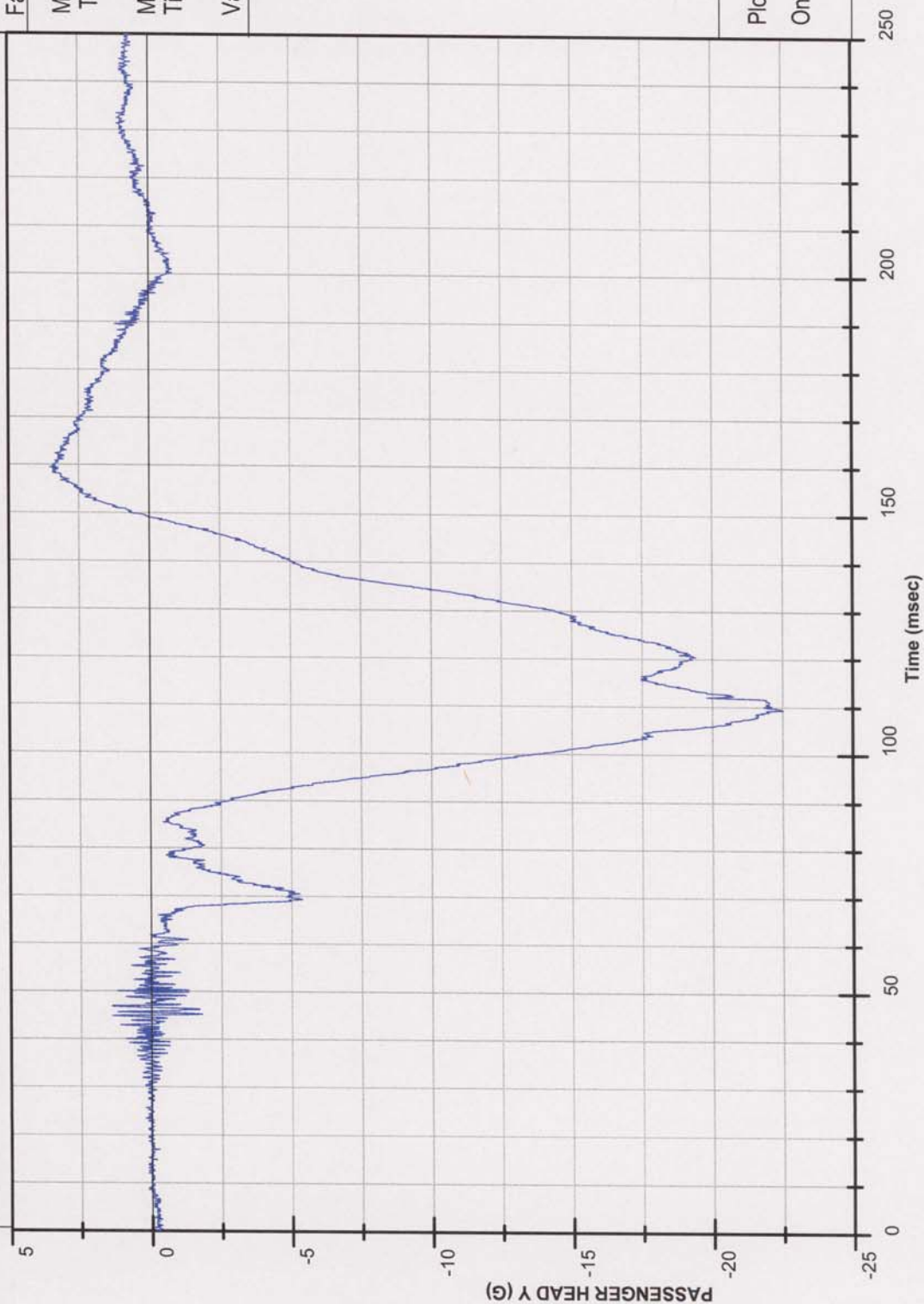
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 3.5 G  
Time: 159.5 msec

Minimum: -22.5 G  
Time: 109.4 msec

Value at T0: -0.2 G

Plotted By: C. Gadberry  
On: 04.29.2003 09:01:50



Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER HEAD Z

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086

File Name: H03086AT.A26

Test Date: 04/29/03

Sensor S/N: AH5L1

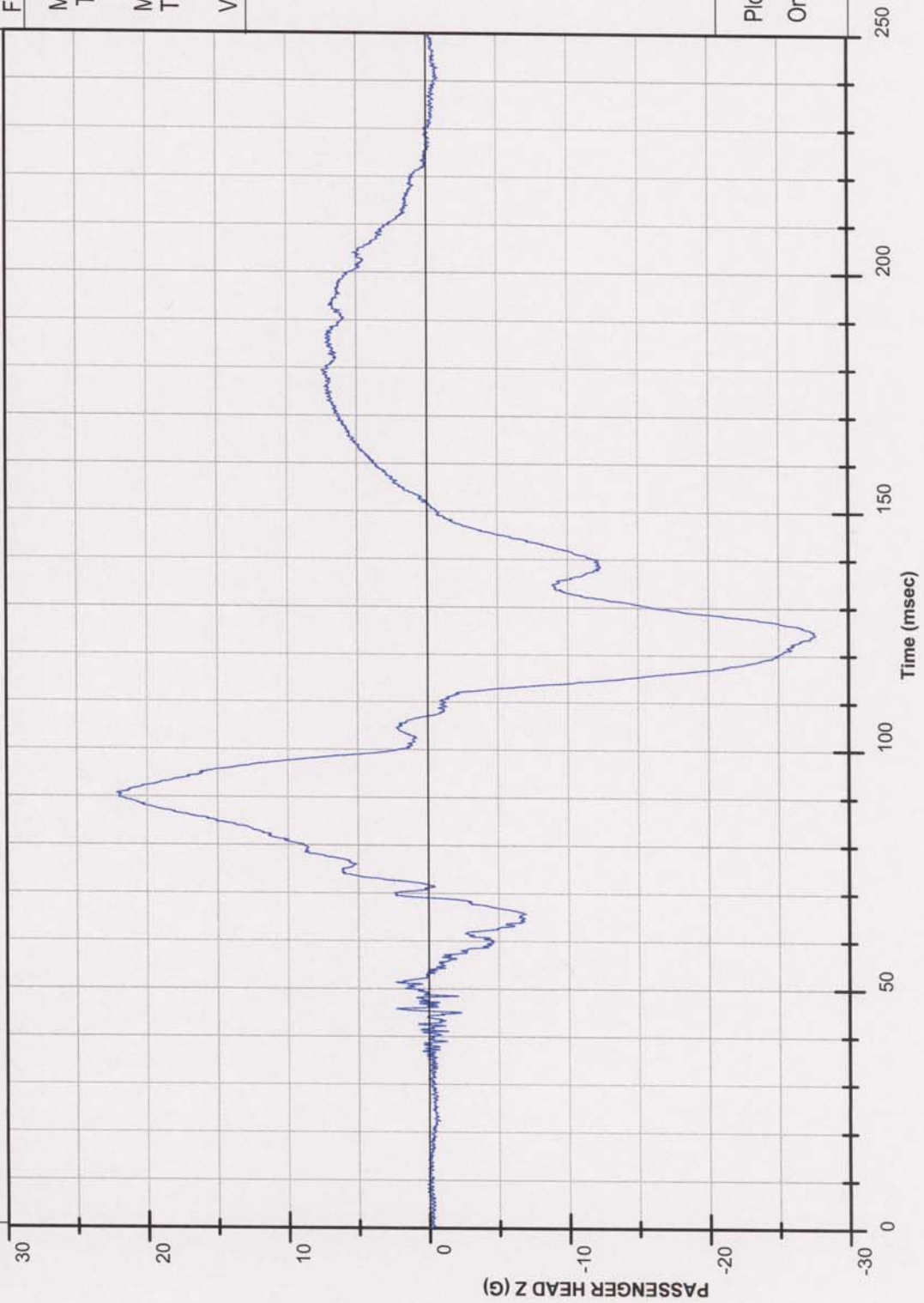
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 22.1 G  
Time: 90.7 msec

Minimum: -27.7 G  
Time: 124.4 msec

Value at T0: -0.2 G

Plotted By: C. Gadberry  
On: 04.29.2003 09:01:52



Test Desc: FMVSS 208 SLED Chn Name: PASSENGER HEAD RESULTANT

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086 File Name: H03086AV.A24

Test Date: 04/29/03 Sensor S/N: AH5L1

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 33.9 G  
Time: 107.9 msec

Minimum: 0.1 G  
Time: 8.9 msec

Value at T0: 0.4 G

HIC VAL: 197.3

T1: 85.3 msec

T2: 132.8 msec

HIC36 VAL: 174.1

T1: 92.7 msec

T2: 128.7 msec

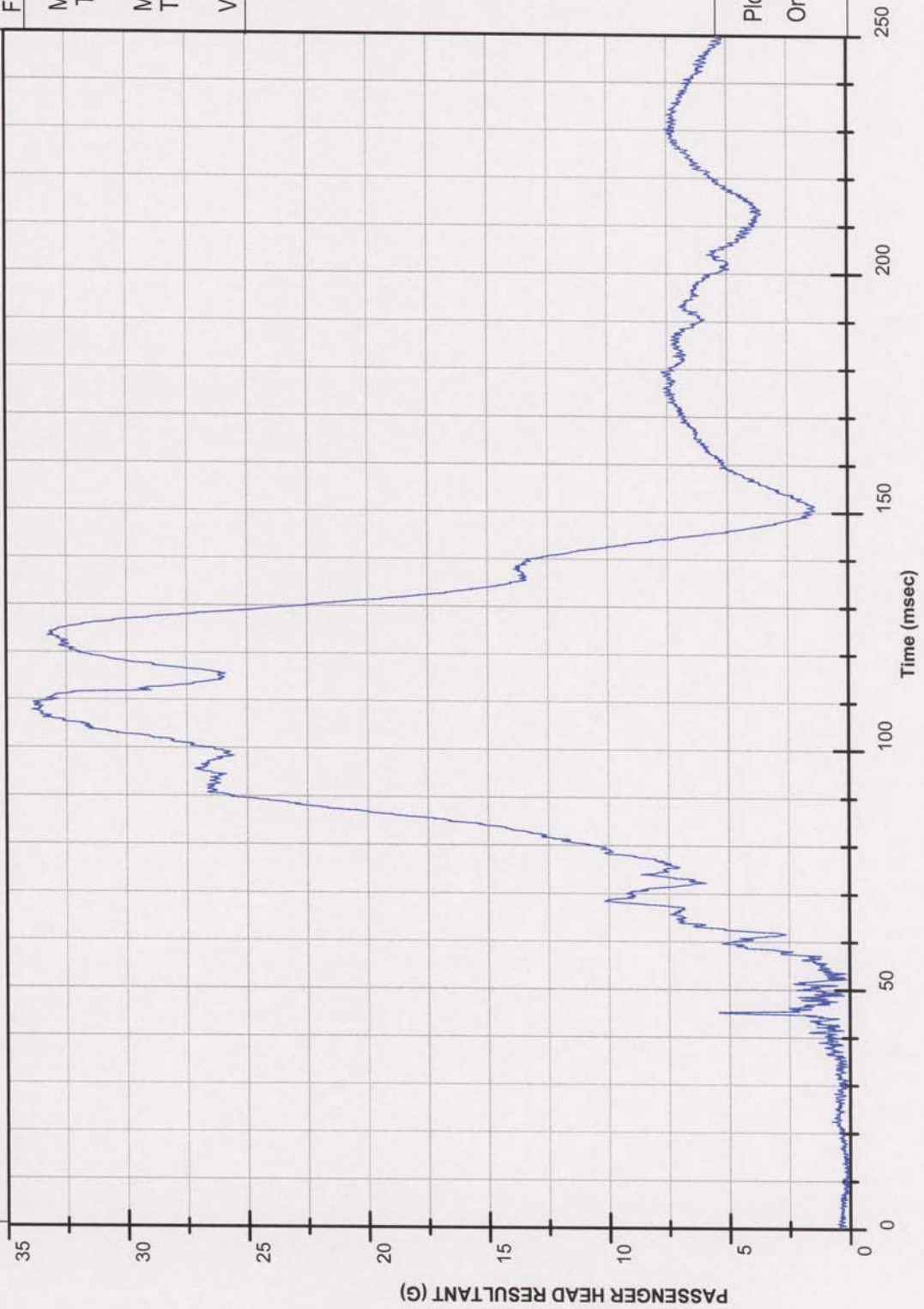
HIC15 VAL: 78.3

T1: 99.6 msec

T2: 114.6 msec

Plotted By: C. Gadberry

On: 04.29.2003 09:02:00



Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086

Test Date: 04/29/03

File Name: H03086FT.F31

Sensor S/N: N1562FX

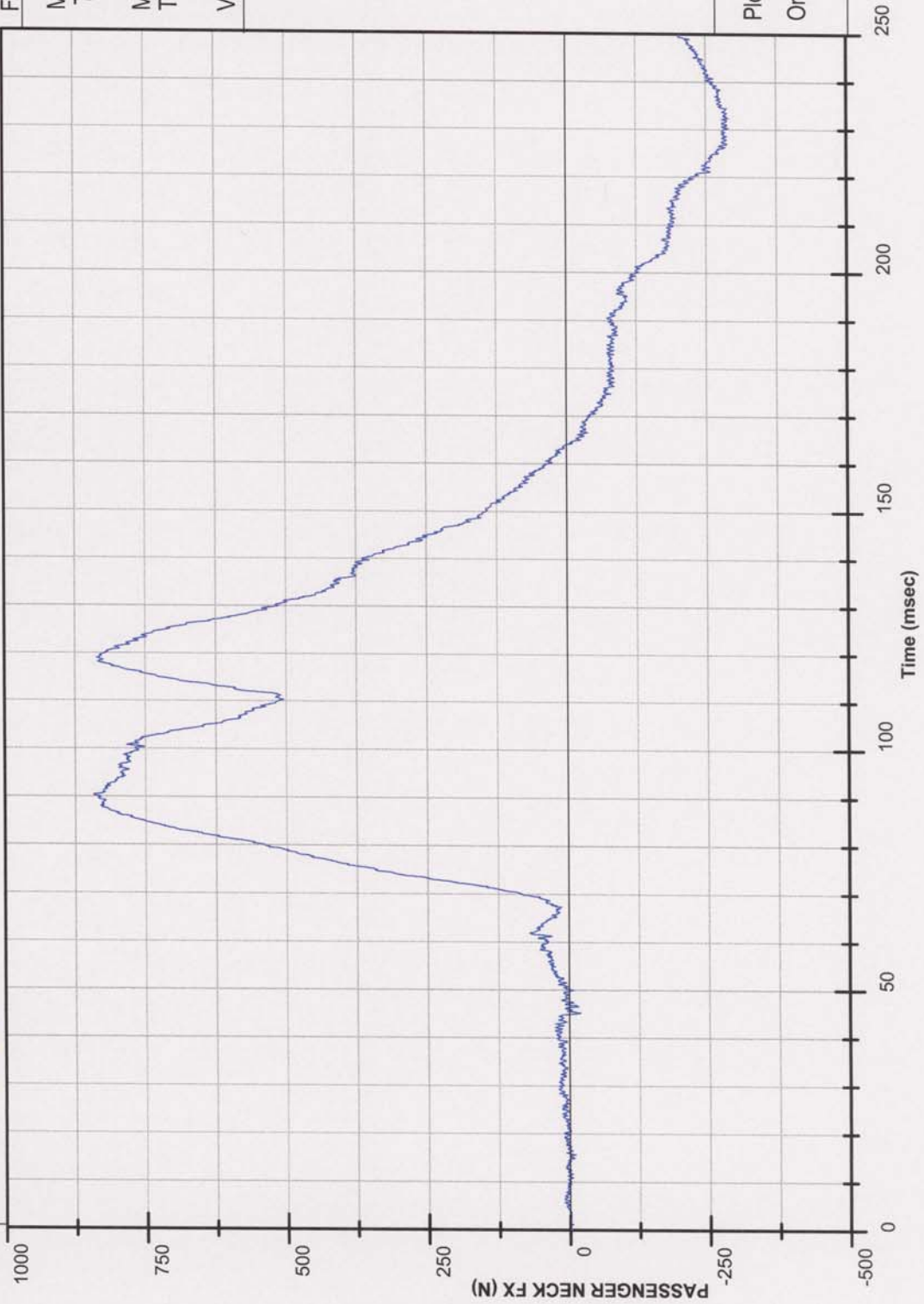
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 842.5 N  
Time: 90.3 msec

Minimum: -290.7 N  
Time: 230.3 msec

Value at T0: -2.2 N

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:22



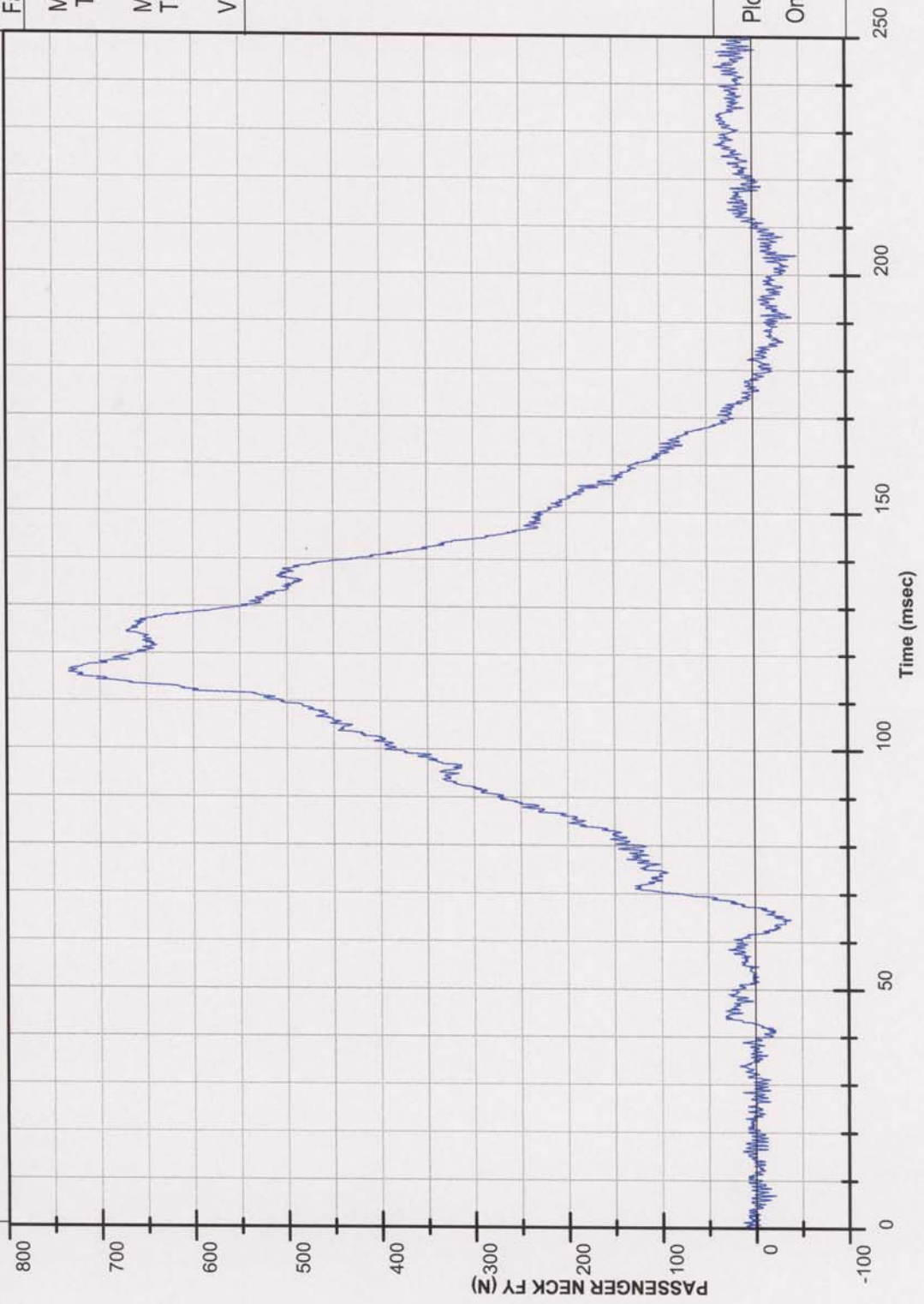
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 733.0 N  
Time: 115.9 msec  
Minimum: -47.7 N  
Time: 204.1 msec  
Value at T0: 2.2 N

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:24

Chn Name: PASSENGER NECK FY  
File Name: H03086FT.F32  
Sensor S/N: N1562FY

Test Desc: FMVSS 208 SLED  
Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)  
Test Number: H03086  
Test Date: 04/29/03



Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER NECK FZ

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 1000

TestNumber: H03086

File Name: H03086FT.F33

Test Date: 04/29/03

Sensor S/N: N1562FZ

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

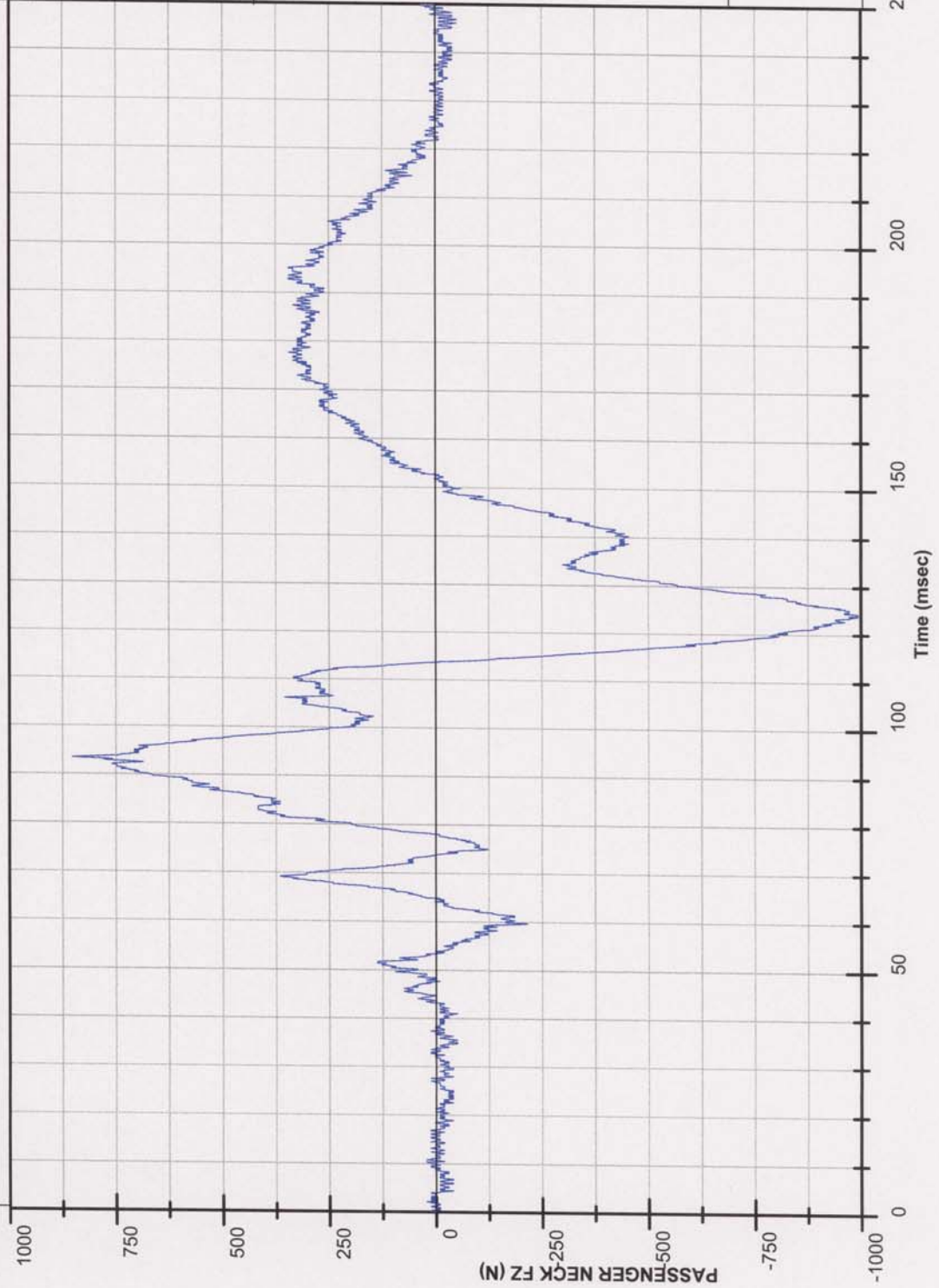
Maximum: 852.0 N  
Time: 93.5 msec

Minimum: -992.8 N  
Time: 124.0 msec

Value at T0: 2.2 N

Plotted By: C. Gadberry

On: 04.29.2003 09:02:26



Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER NECK MX

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

File Name: H03086MF.M35

Test Date: 04/29/03

Sensor S/N: N1562MX

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

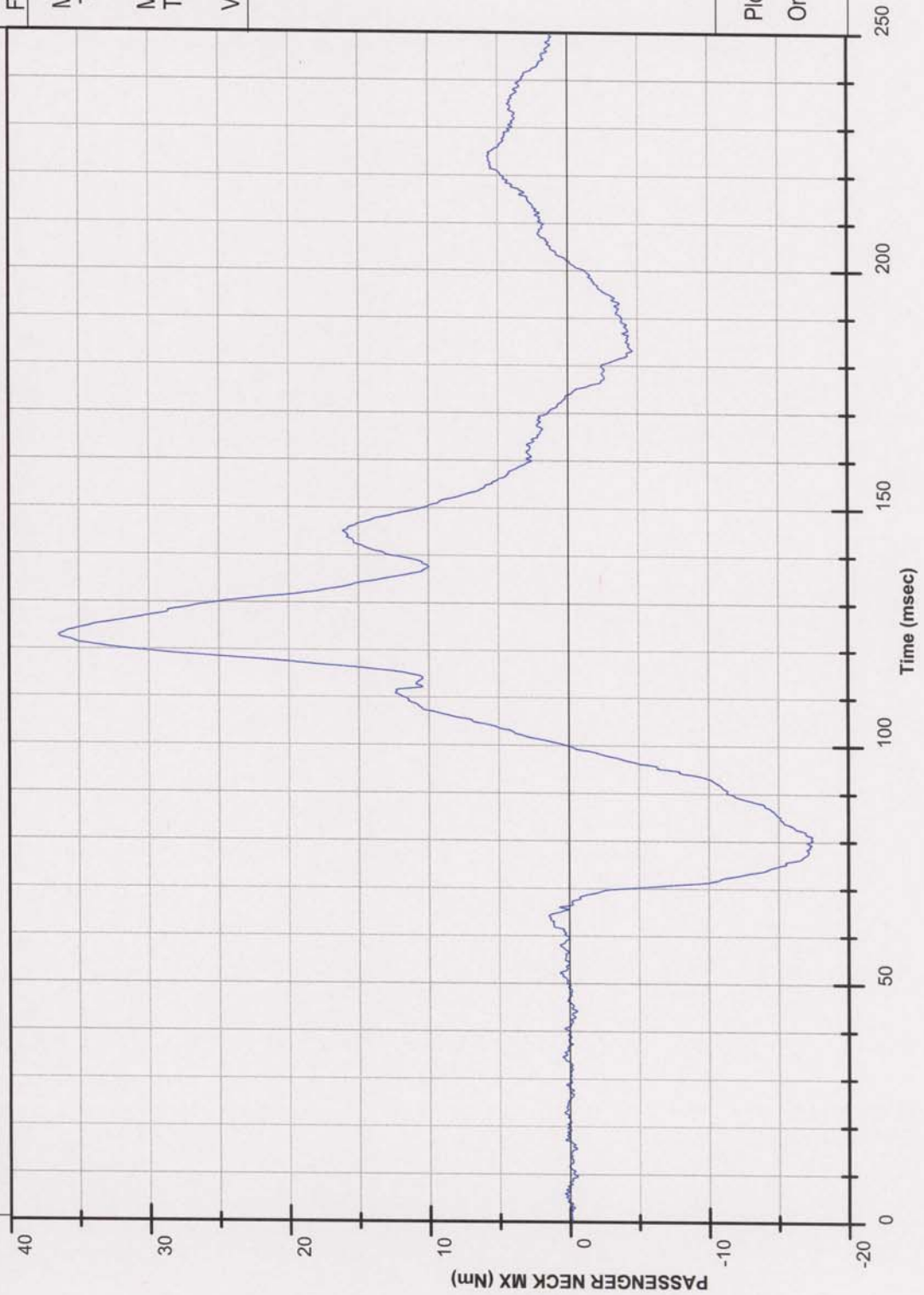
Maximum: 36.4 Nm  
Time: 123.0 msec

Minimum: -17.4 Nm  
Time: 80.4 msec

Value at T0: -0.1 Nm

Plotted By: C. Gadberry

On: 04.29.2003 09:02:34



Test Desc: **FMVSS 208 SLED**  
 Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **600**  
 TestNumber: **H03086**  
 Test Date: **04/29/03**  
 Chn Name: **PASSENGER NECK MY**  
 File Name: **H03086MF.M36**  
 Sensor S/N: **N1562MY**

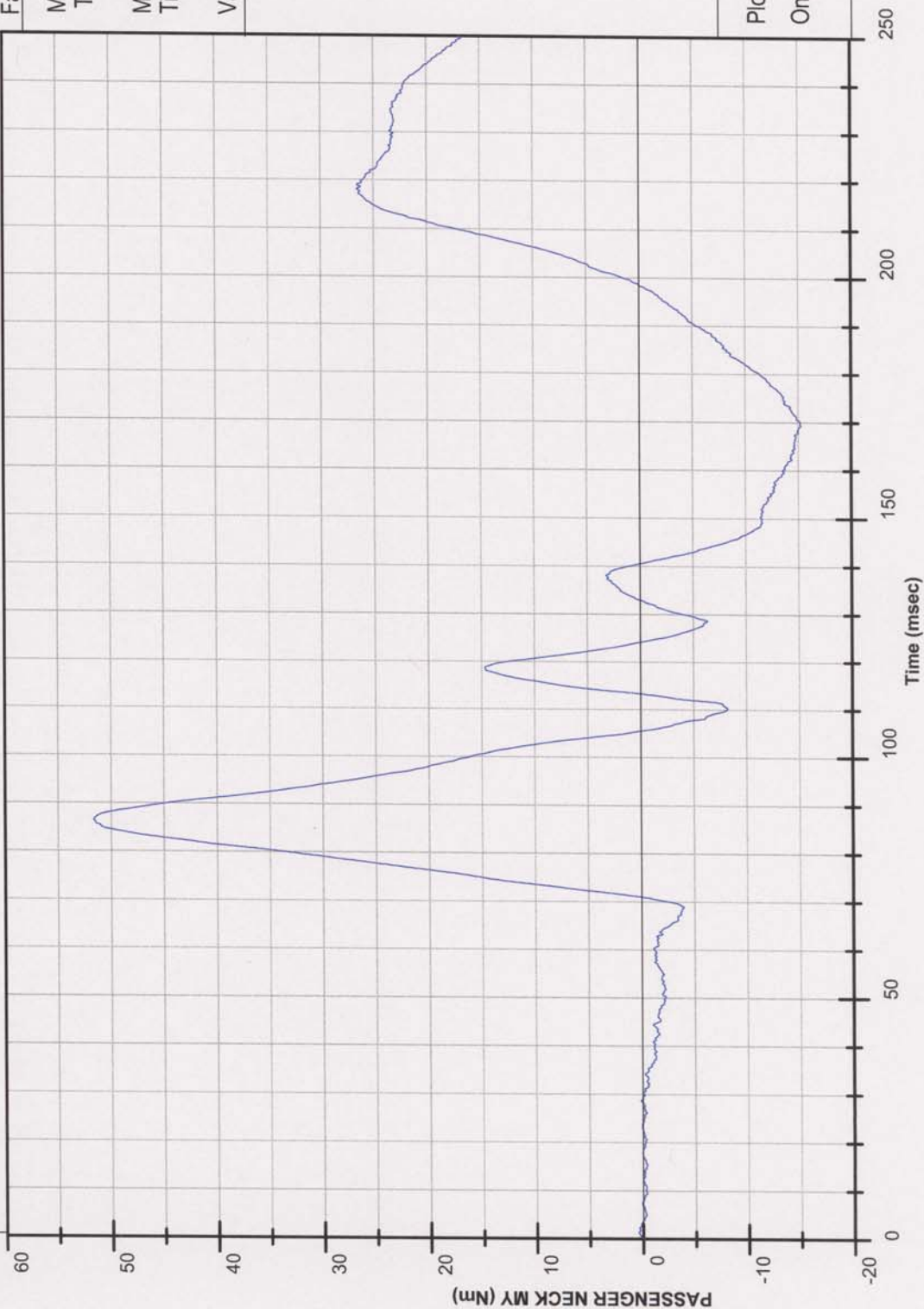
MGA Research Corp  
 Accelerator Sled Facility  
 5000 Warren Road,  
 Burlington, WI 53105  
 Ph #: 262-763-2705  
 Fax #: 262-763-0934

Maximum: **51.6 Nm**  
 Time: **86.5 msec**

Minimum: **-15.3 Nm**  
 Time: **169.4 msec**

Value at T0: **-0.1 Nm**

Plotted By: **C. Gadberry**  
 On: **04.29.2003 09:02:37**



Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER NECK MZ

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

File Name: H03086MF.M37

Test Date: 04/29/03

Sensor S/N: N1562MZ

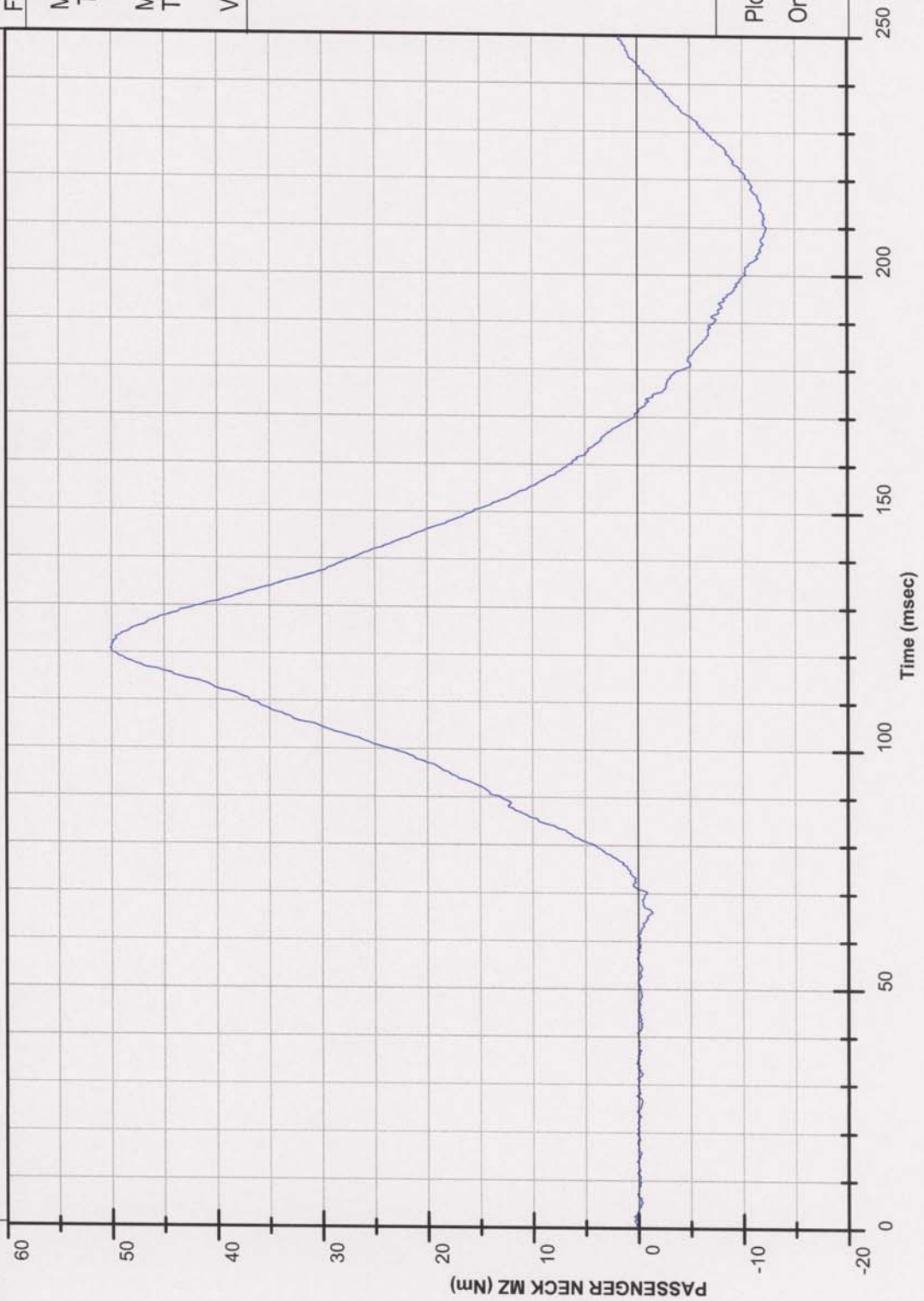
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 50.1 Nm  
Time: 120.9 msec

Minimum: -12.3 Nm  
Time: 210.1 msec

Value at T0: -0.1 Nm

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:39



Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

Test Date: 04/29/03

Chn Name: PASSENGER OCCIPITAL CONDYLE MOMENT

File Name: H03086MO.M36

Sensor S/N: N1562MY

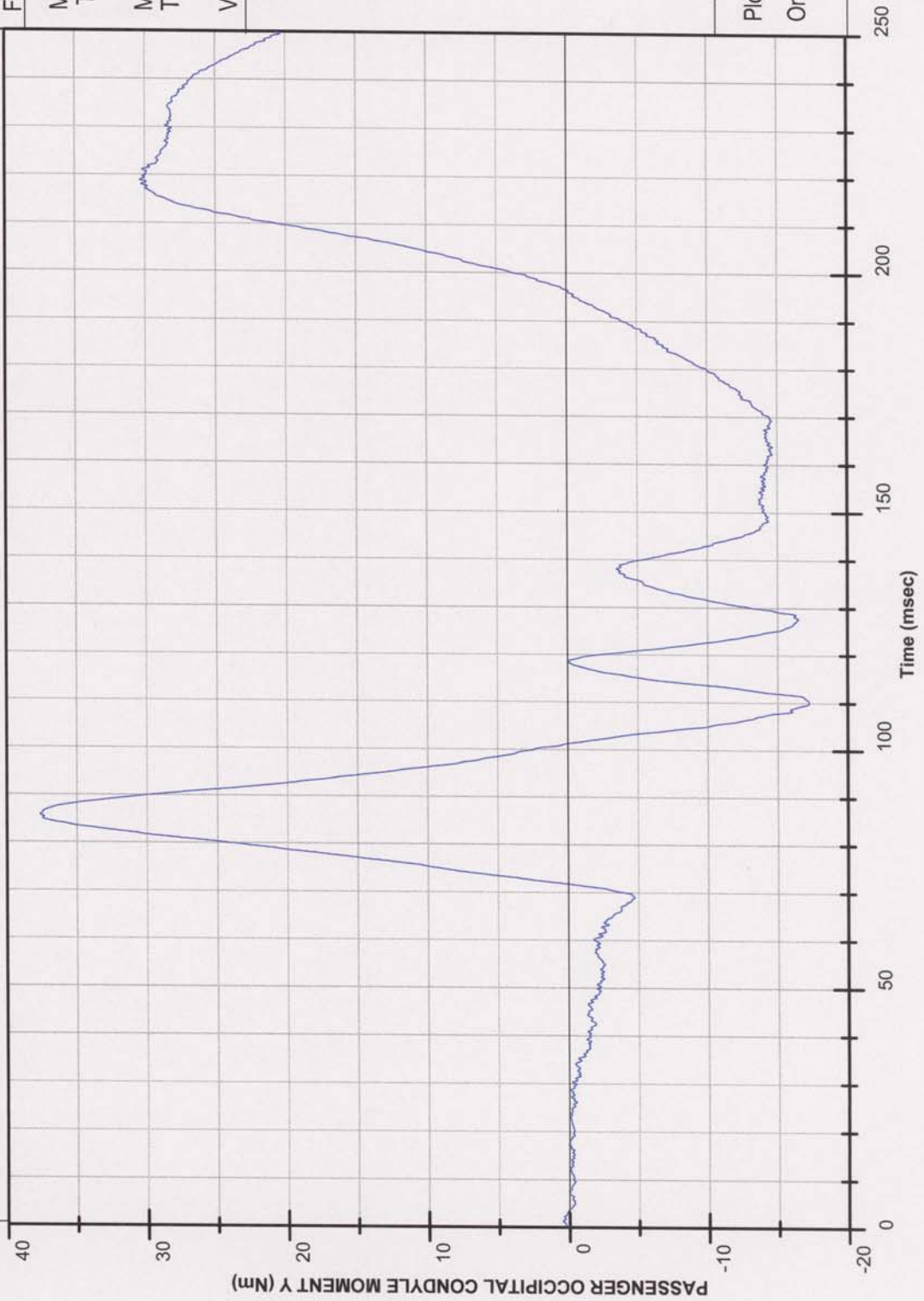
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: 37.6 Nm  
Time: 85.9 msec

Minimum: -17.2 Nm  
Time: 110.3 msec

Value at T0: -0.0 Nm

Plotted By: C. Gadberry  
On: 04.29.2003 09:02:43



Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER CHEST X

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 180

TestNumber: H03086

File Name: H03086AF.A27

Test Date: 04/29/03

Sensor S/N: AGH90

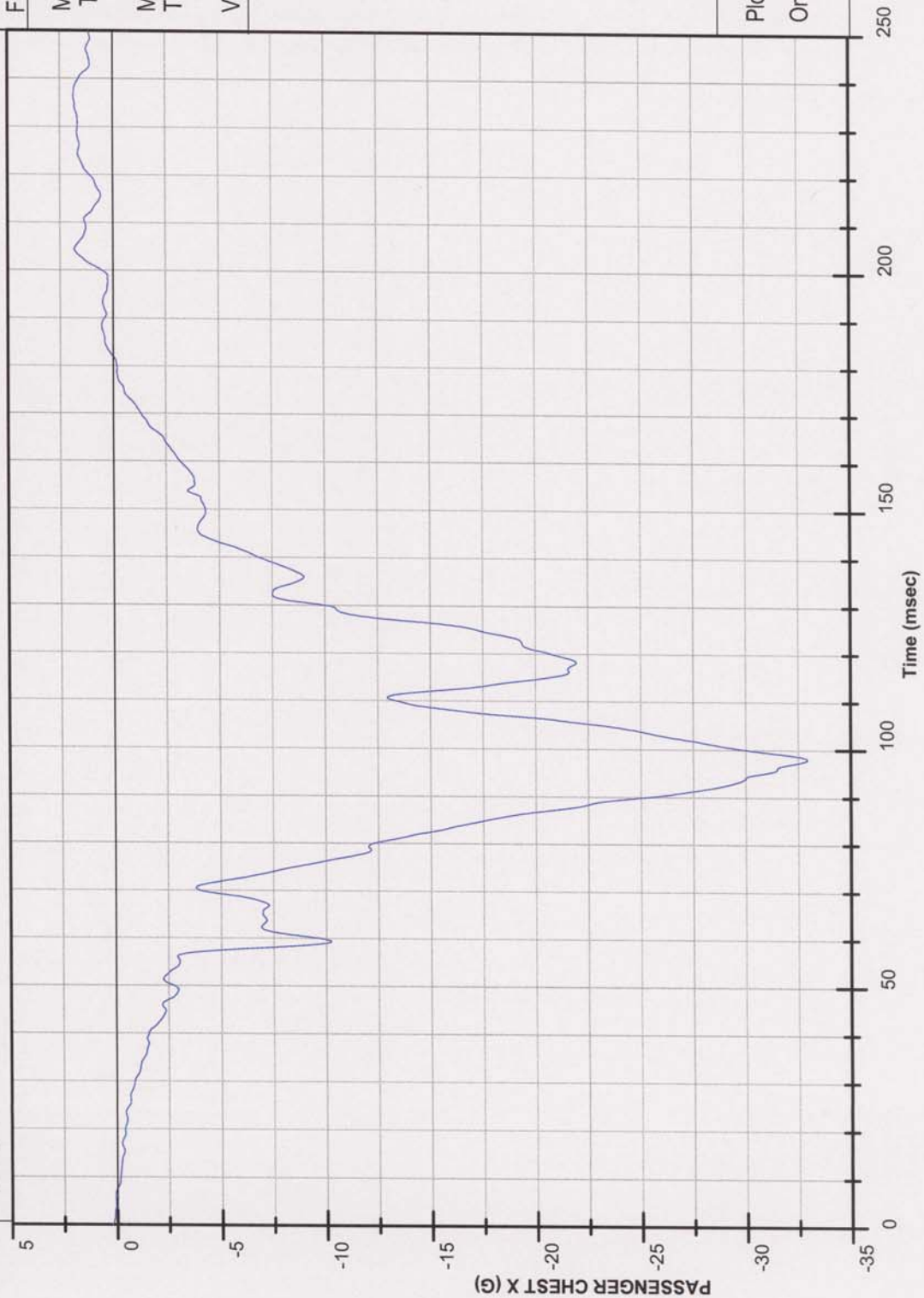
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

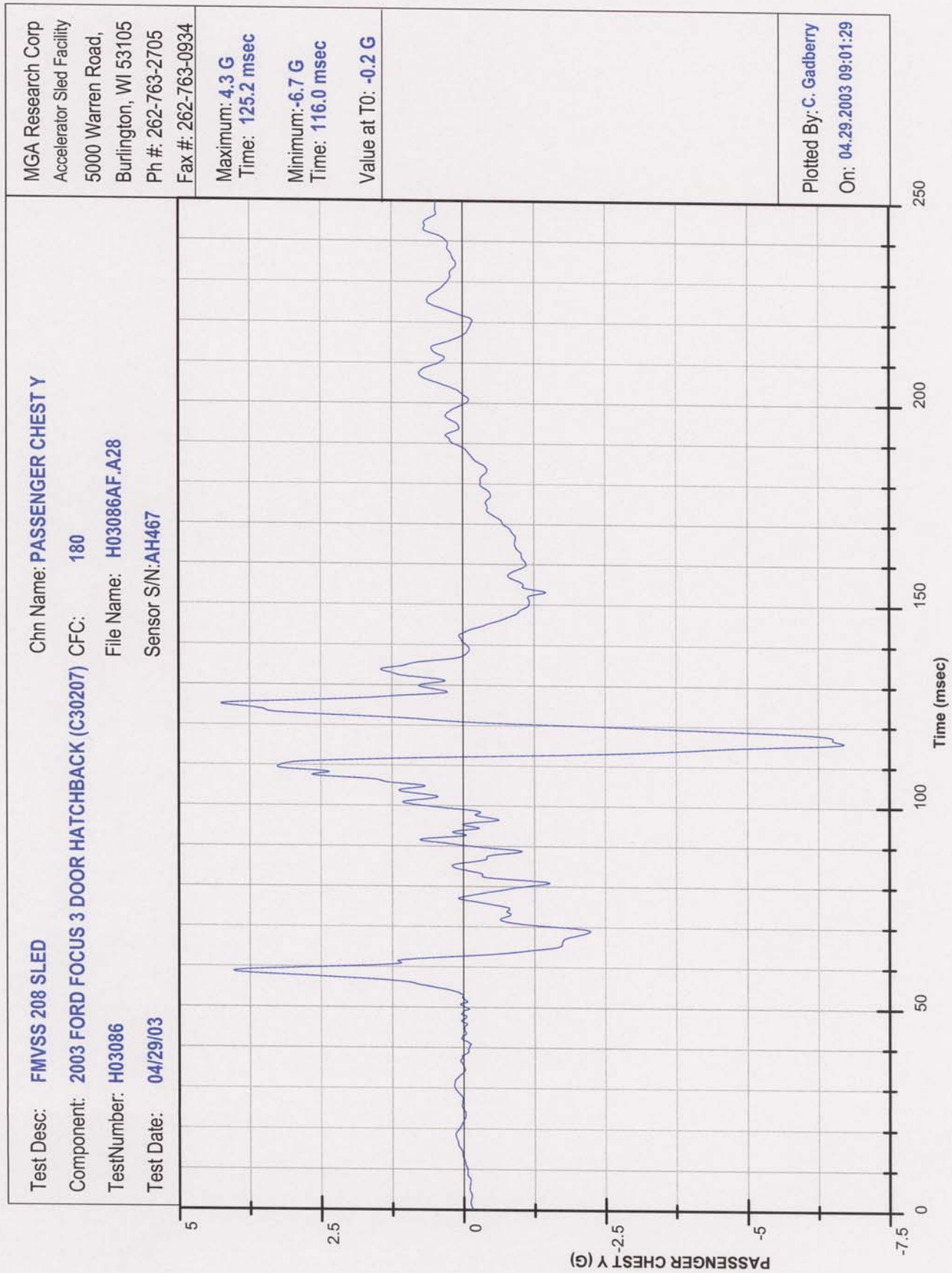
Maximum: 1.9 G  
Time: 236.3 msec

Minimum: -32.9 G  
Time: 98.1 msec

Value at T0: 0.2 G

Plotted By: C. Gadberry  
On: 04.29.2003 09:01:27





Test Desc: **FMVSS 208 SLED**

Chn Name: **PASSENGER CHEST Z**

Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **180**

TestNumber: **H03086**

File Name: **H03086AF.A29**

Test Date: **04/29/03**

Sensor S/N: **AH5P1**

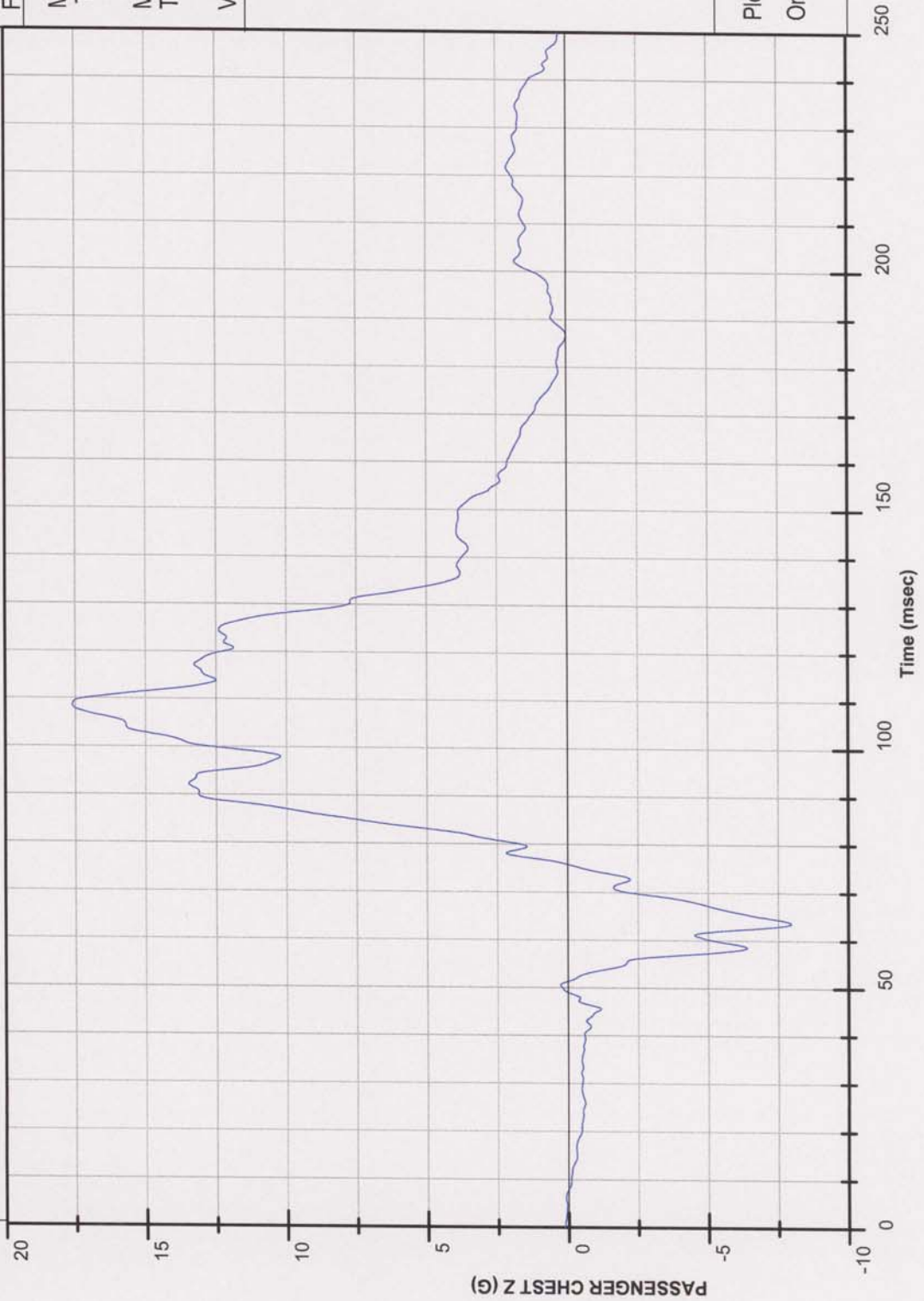
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: **17.6 G**  
Time: **108.6 msec**

Minimum: **-8.0 G**  
Time: **63.7 msec**

Value at T0: **0.1 G**

Plotted By: **C. Gadberry**  
On: **04.29.2003 09:01:31**



Test Desc: **FMVSS 208 SLED** Chn Name: **PASSENGER CHEST RESULTANT**

Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **180**

TestNumber: **H03086** File Name: **H03086AV.A27**

Test Date: **04/29/03** Sensor S/N: **AH5P1**

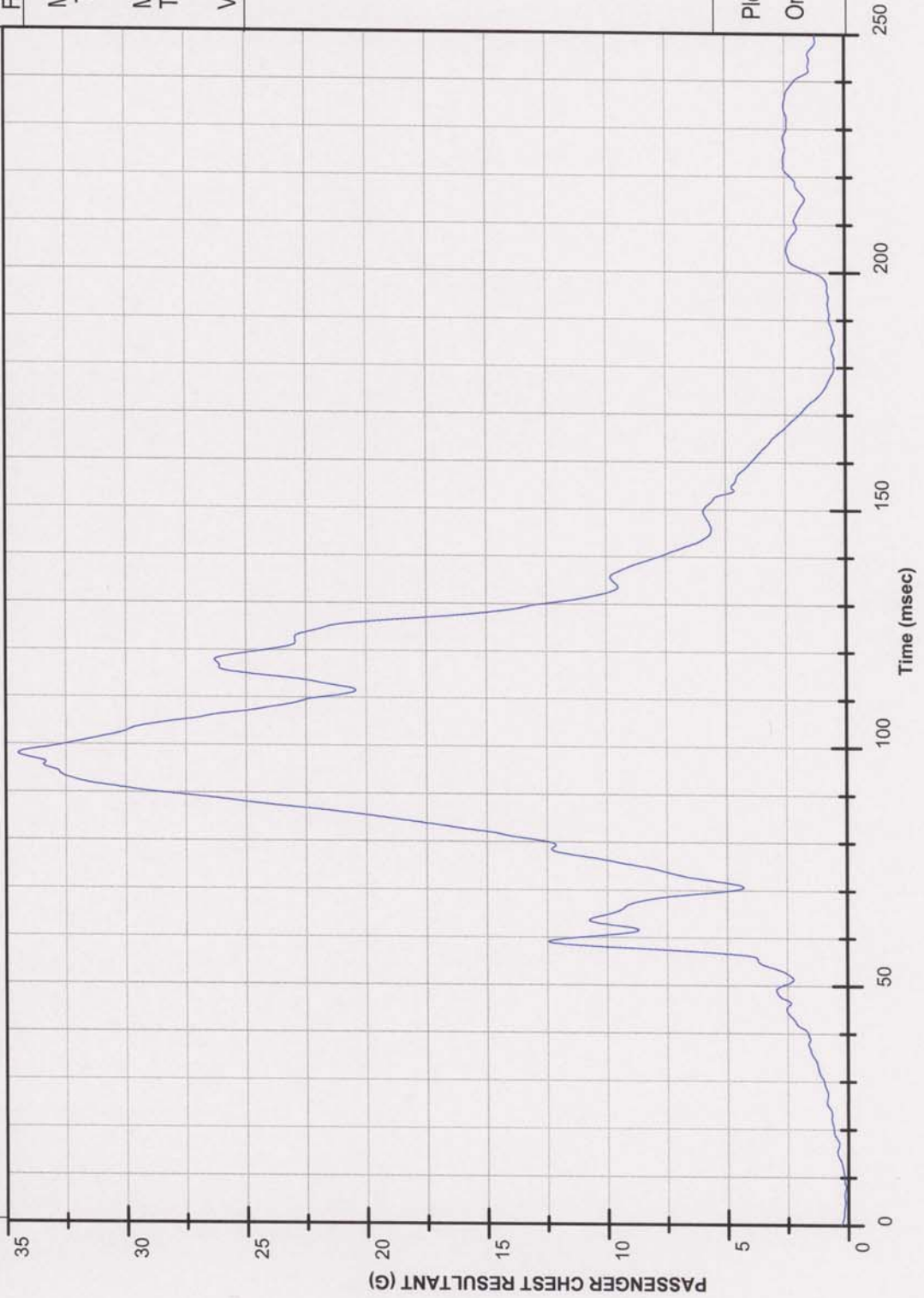
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: **34.5 G**  
Time: **98.1 msec**

Minimum: **0.1 G**  
Time: **8.0 msec**

Value at T0: **0.3 G**

Plotted By: **C. Gadberry**  
On: **04.29.2003 09:02:02**



Test Desc: FMVSS 208 SLED

Chn Name: PASSENGER CHEST DISP.

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

File Name: H03086DF.D39

Test Date: 04/29/03

Sensor S/N: D340DX

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

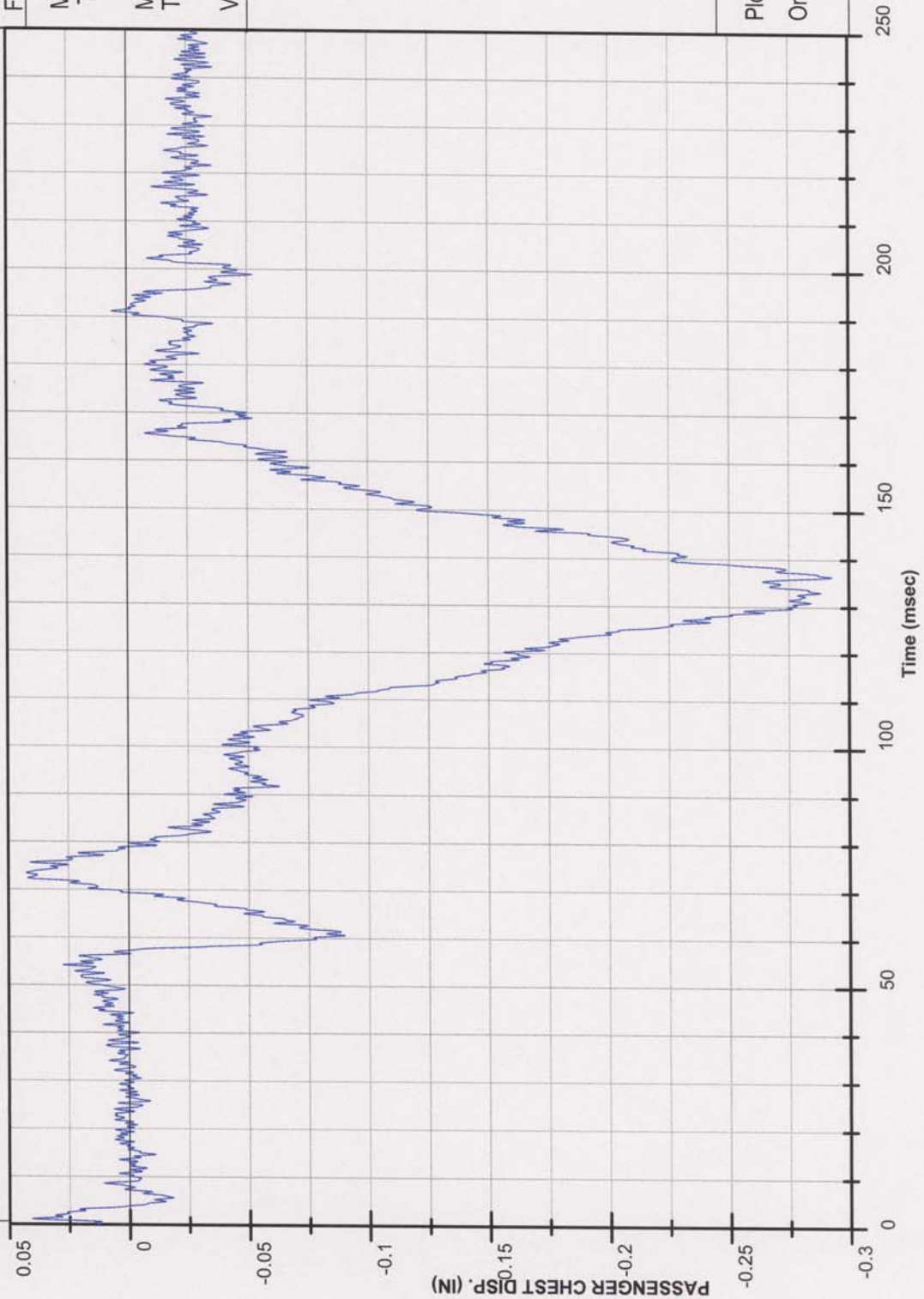
Maximum: 0.0 IN  
Time: 73.5 msec

Minimum: -0.3 IN  
Time: 136.4 msec

Value at T0: 0.0 IN

Plotted By: C. Gadberry

On: 04.29.2003 09:02:06



Test Desc: FMVSS 208 SLED

Component: 2003 FORD FOCUS 3 DOOR HATCHBACK (C30207) CFC: 600

TestNumber: H03086

Test Date: 04/29/03

Chn Name: PASSENGER LEFT FEMUR

File Name: H03086FF.F41

Sensor S/N: 84

MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

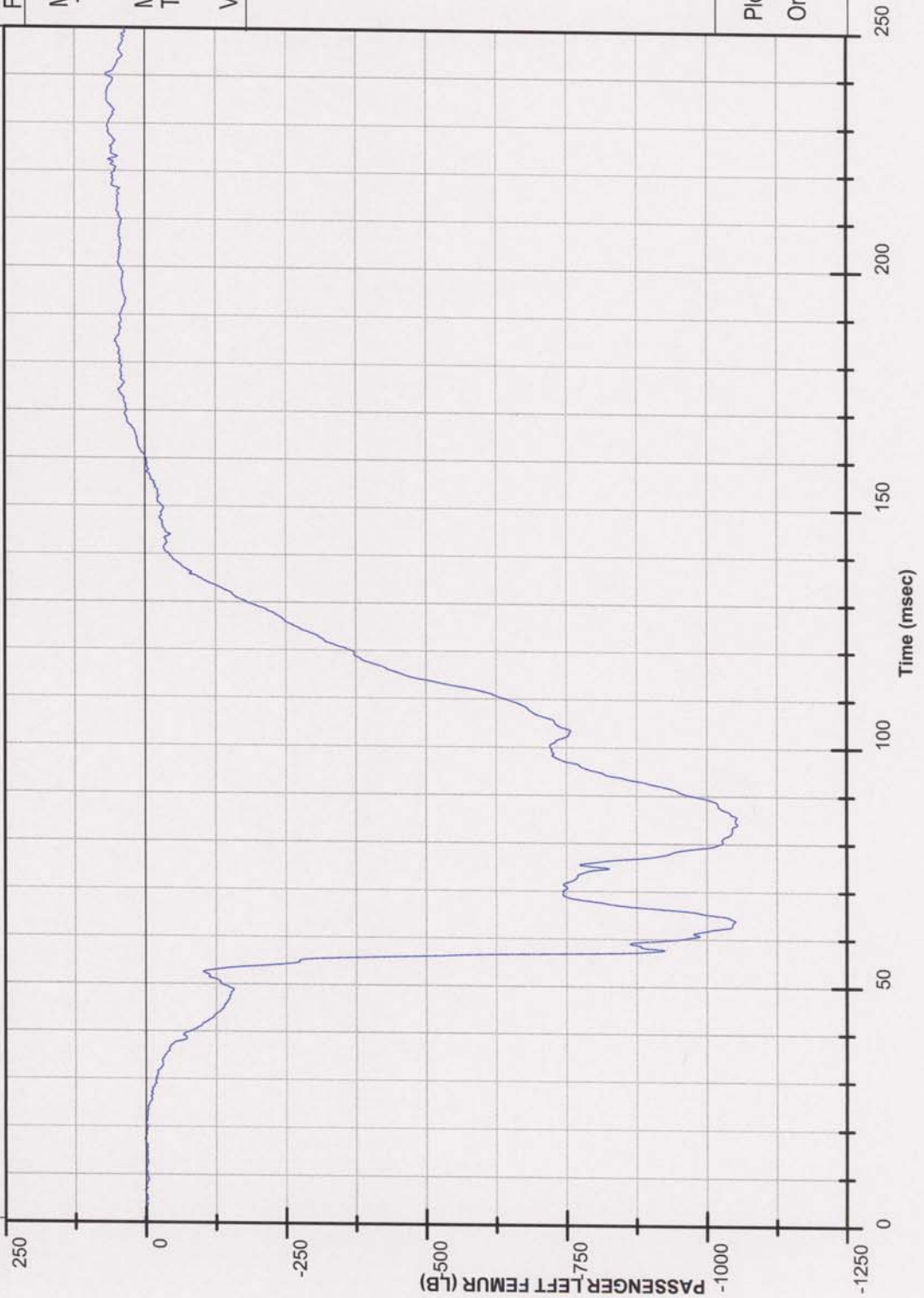
Maximum: 69.3 LB  
Time: 240.3 msec

Minimum: -1,055.2 LB  
Time: 84.1 msec

Value at T0: -0.9 LB

Plotted By: C. Gadberry

On: 04.29.2003 09:02:12



Test Desc: **FMVSS 208 SLED**

Chn Name: **PASSENGER RIGHT FEMUR**

Component: **2003 FORD FOCUS 3 DOOR HATCHBACK (C30207)** CFC: **600**

TestNumber: **H03086**

File Name: **H03086FF.F42**

Test Date: **04/29/03**

Sensor S/N: **83**

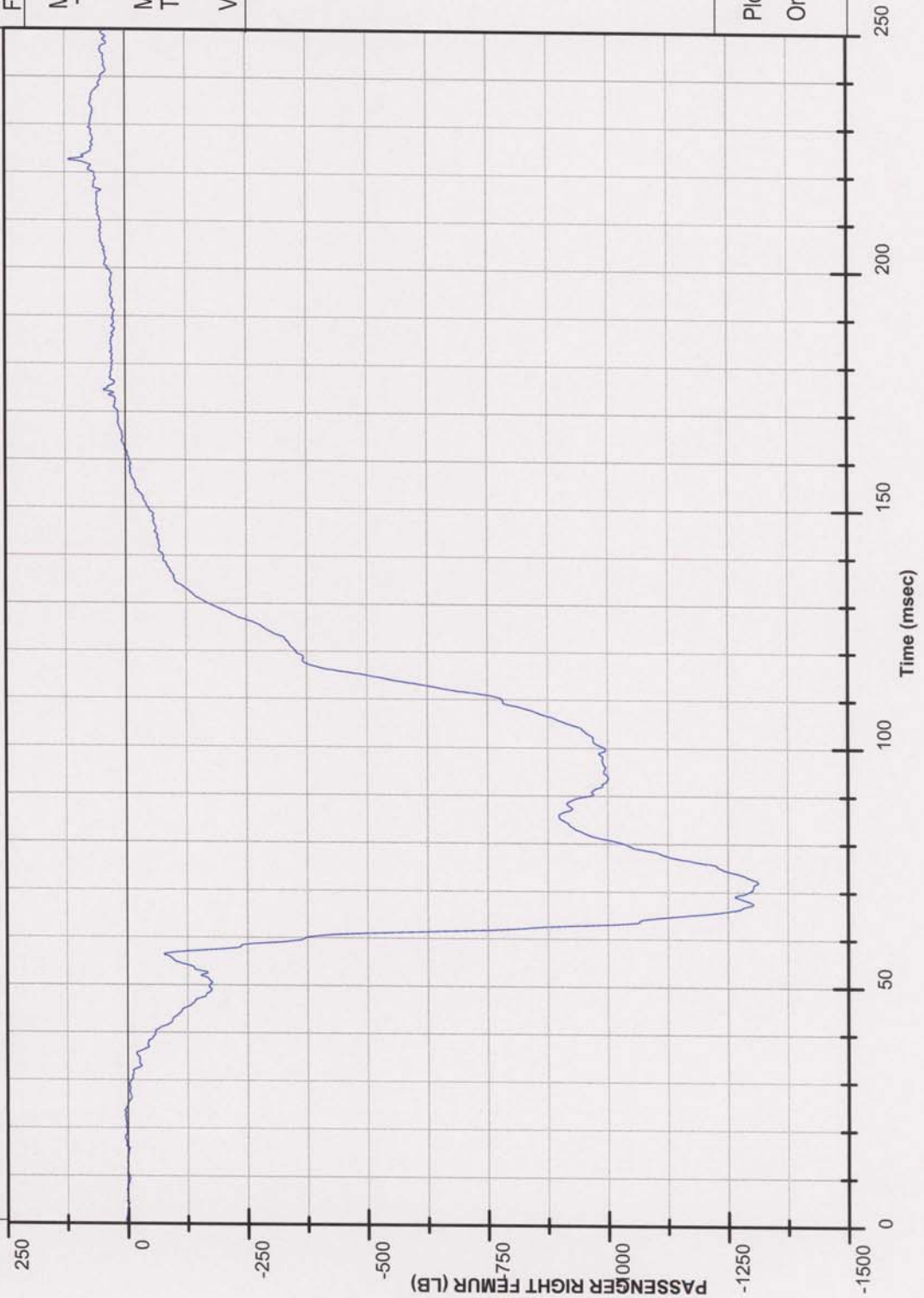
MGA Research Corp  
Accelerator Sled Facility  
5000 Warren Road,  
Burlington, WI 53105  
Ph #: 262-763-2705  
Fax #: 262-763-0934

Maximum: **117.5 LB**  
Time: **222.8 msec**

Minimum: **-1,312.1 LB**  
Time: **72.1 msec**

Value at T0: **-1.0 LB**

Plotted By: **C. Gadberry**  
On: **04.29.2003 09:02:14**



**APPENDIX C**  
**MANUFACTURER'S VEHICLE INFORMATION**

# *Ford Motor Company*

Automotive Safety Office  
Environmental and Safety Engineering

November 6, 2002

Ms. Marilynne Jacobs, Director  
Office of Vehicle Safety Compliance  
National Highway Traffic Safety Administration  
400 Seventh Street, S. W.  
Washington, DC 20590

Dear Ms. Jacobs:

Subject: FMVSS 208 Compliance Test Information Request—2003 Model Year Focus

Reference: NSA-221CCa/OA-208-020916-W

This is in response to your September 27, 2002 letter requesting information for possible agency compliance surveillance testing of the 2003 model year Ford Focus to the requirements of Federal Motor Vehicles Safety Standard (FMVSS) No. 208, "Occupant Crash Protection."

Ford Motor Company (Ford) is listing each request followed by our response to it.

## Request 1

Many options are available for certifications to FMVSS No. 208. Please identify the sections of FMVSS 208 to which the subject vehicles are certified. Provide a copy of the certification test reports for all the applicable impact tests and sled tests with respect to these sections. If the subject vehicles are certified to the low risk deployment requirements of S14, provide a copy of the certification tests. In addition, provide the test reports and any analysis used to determine the air bag inflator stages to trigger for the low risk deployment tests.

If the subject vehicles are certified to any of the air bag suppression sections of S14, provide a representative test report for each type of suppression test (i.e., rear facing child restraint suppression test (12-month-old dummy), 3-year-old dummy or human suppression test conducted with and without using a child restraint, 6-year-old dummy or human suppression test conducted with and without using a child restraint.) Also, provide a test report for reactivation of the air bag system using a 5<sup>th</sup> percentile female.

## Response

The 2003 Focus is designed to meet section S5.1.1(a) for belted barrier crash requirements and section S13 for unbelted sled test requirements of FMVSS No. 208. Appendix A contains a copy of the complete test report for a representative 90° Front Fixed Barrier Impact Test



(Crash Test No. 12227) including photographs and data plots as well as summary test reports for Crash Test Nos. 12202 and 12228, which are used as a basis to demonstrate compliance. Appendix B contains copies of two representative sled test reports (Sled Test Run Numbers H106A2 and H106A3) and photographs associated with these unbelted tests.

Ford relied on the information provided in Appendices A and B of this response as a basis to demonstrate compliance of 2003 Focus vehicles equipped with driver and right front passenger air bag restraint systems to the requirements of FMVSS No. 208.

#### Request 2

Provide the following: (1) describe the difference between the MY 2003 air bag system and the MY 2002 air bag system. (2) explain what other restraint changes have been made. (3) explain what other vehicle changes have been made that may affect FMVSS 208 performance, and (4) describe any features that may affect occupant protection performance with respect to children and out of position occupants.

#### Response

The 2003 Focus is a carryover design from the 2002 Focus. The 2003 Focus is equipped with load-limiting retractors and pretensioners that are carryover from the 2000 Focus. No restraint changes or other vehicle changes were made that affect the performance requirements of FMVSS 208. The load-limiting retractors and pretensioners, driver seat position sensor, and dual stage air bags may improve occupant protection performance with respect to children and out of position occupants.

#### Request 3

If the subject vehicles were certified with unrestrained dummies to meet the requirements of S13, describe how to disconnect the air bags from the vehicle sensors and connect them to the triggering mechanism used in the sled test. Describe the method used in certification to determine when to trigger the air bag and the system used to trigger the air bag.

For air bags with dual stage or multistage inflators describe when the stages are triggered and provide data to show that this is similar to what would occur in a crash of similar severity.

#### Response

The process followed by the Ford test facility for the 2003 Focus is described below:

Each of the air bags was disconnected by locating the squib wires going into the air bag, and then unhooking the connector between the vehicle wiring harness and the air bag. The squib wires were then connected to an extension cable that supplies the firing current from the Programmable Time Fire Unit located in the Hyge sled control room. Appendix C contains a description of the process used to disconnect the air bags from the vehicle sensors and to connect them to the triggering mechanism used in the sled test. The system has an arming circuit and variable time delay (adjustable to 0.1 msec) which starts counting once time zero (T=0) has been triggered. At 20 msec after T=0, the Programmable Time Fire Unit sends current through the extension cable and into the air bag squib.

November 6, 2002

The Programmable Time Fire Unit has the capability of supplying between 12.0 and 12.5 volts with a momentary peak current draw of 20 amps. In testing conducted by Ford, the typical current draw is 3 to 6 amps. An accelerometer is used on the sled to actually trigger T=0 when an acceleration of 0.5g is attained on the sled.

The firing strategy for the sled tests conducted for the Focus were:

Driver side: 20 msec 1st stage; 30 msec 2nd stage

Passenger side: 20 msec 1st stage; 40 msec 2nd stage

All fire times were measured from T=0.

Request 4

For the subject vehicles certified to the advanced air bag requirements, describe how to disconnect the air bags and trigger the appropriate inflator stages for the low risk deployment tests.

Response

The subject vehicles are not certified to the advanced air bag requirements.

Request 5

State for each safety belt system in the subject vehicles 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

The 2003 Focus does not use tension-relieving devices for the driver or front passenger safety belt systems.

Request 6

State for each crash test (frontal, angular, and offset) that the subject vehicles are certified as meeting whether the moveable windows and vents were opened or closed.

Response

The 2003 Focus vehicles were tested with all moveable windows full down. There are no vents on this vehicle.

Request 7

Submit dummy placement measurements, including diagrams or photographs that show exactly where each measurement was taken. For the subject vehicles certified to the advanced air bag requirements provide measurements for both the 50<sup>th</sup> percentile male and the 5<sup>th</sup> percentile female. Enclosed is a diagram of some of OVSC's dummy measurements. Where possible, use each dimension shown in the diagram to provide the individual dummy placement measurements.

November 6, 2002

Response

The dummy placement measurements for the 2003 Focus are provided in Appendix D.

Request 8

For the subject vehicles certified to the advanced air bag requirements, provide the width of the vehicle as defined in S18.2.4, the location at which the maximum dimension was measured, and other information and measurements used to position the vehicle for the certification offset crash test at 40 percent overlap.

Response

The subject vehicles are not certified to the advanced air bag requirements.

Request 9

For the subject vehicles certified to the advanced air bag suppression requirements, describe the telltale to determine air bag activation and deactivation. State whether humans or dummies were used for the suppression tests. If humans were used, provide the method to deactivate the air bag during suppression tests, identify any parts or equipment necessary for deactivation, and provide the method to assure that the same test results would be obtained if the air bag were not deactivated.

Response

The subject vehicles are not certified to the advanced air bag requirements.

Request 10

State whether the subject vehicles have a footrest for the driver.

Response

The 2003 Focus is equipped with a driver side outboard footrest.

Request 11

Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form. If more than one front seating configuration, steering column or fuel tank configuration are available on this vehicle, provide separate information for each. For certification tests using the 5<sup>th</sup> percentile female, provide the seat fore-aft position, seat height, and seat back angle used in the certification test. In addition, provide the seating reference point for each seat for the lockable seat belt requirement in S7.1.1.5.

Response

Appendix E contains the completed form with the requested information. The seating reference point information is also provided in Appendix E.

Request 12

For the subject vehicles certified to the low risk deployment sections of the advanced air bag requirements, provide the location of the "geometric center of the opening through which the air bag deploys into the occupant compartment."

Response

The subject vehicles are not certified to the advanced air bag requirements.

Request 13

If the subject vehicles are equipped with adjustable seat belt anchorages, provide the manufacturer's nominal design position for a 50<sup>th</sup> percentile adult male occupant and, if certified to the advanced air bag requirements, the position for the 5<sup>th</sup> percentile female.

Response

The driver and passenger D-rings are positioned one notch below the up most position when testing 50<sup>th</sup> percentile dummies. The subject vehicles are not certified to the advanced air bag requirements.

Request 14

For all tests that are performed to certify the subject vehicles to injury assessment performance requirements, provide a summary of the injury results. In addition, for crash tests, provide the measured test speed.

Response

Ford is providing the requested information for all certification barrier tests and sled tests for the 2003 Focus in summary tables in Appendix F.

Request 15

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

Response

The following components are removed in the order listed to compensate for the added weight of test equipment. It is assumed that the second row seats and the trim panels rearward of the B-pillar have been removed to facilitate test equipment.

- Rear Bumper
- Spare Tire
- Spare Tire Carrier
- Rear lift gate glass
- Rear lift gate
- Exhaust rearward of the catalytic converters

Ms. Marilynne Jacobs

6

November 6, 2002

Request 16

If the subject vehicles use 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 2003 Focus does not use a pressure vessel to inflate the driver side or passenger side air bags.

Request 17

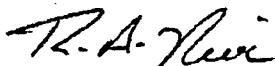
If the subject vehicles use an explosive device to inflate the air bag, provide a copy of the test report or engineering analysis to demonstrate that it meets all the requirements of S9.2.

Response

The 2003 Focus uses carryover 2002 Focus explosive devices to inflate the driver side and passenger side air bags. Ford has provided copies of the test reports that document compliance with S9.2 in Appendix G.

If you have any further questions, please contact me.

Sincerely,



R. A. Nevi

Attachments

## Airbag Firing Process.

1. Observing the warnings, remove 1<sup>st</sup> and 2<sup>nd</sup> stage AC electrical connectors from the passenger airbag module, by following the Passenger Airbag Module (40 701 0) Removal and Installation procedure – *Removal* - Steps 1 to 9.
2. Replace the 1<sup>st</sup> and 2<sup>nd</sup> stage AC connectors with DC 1<sup>st</sup> and 2<sup>nd</sup> stage connectors - DC connectors can be supplied by Ford if required.
3. Replace the passenger airbag module, by following the Passenger Airbag Module (40 701 0) Removal and Installation procedure – *Installation* - Steps 2 to 11.
4. When the all test parts are assembled - Continuity of both the Passenger airbag module 1<sup>st</sup> and 2<sup>nd</sup> stage DC leads and airbag squib circuit's, are checked using a low output voltage meter. Resistance values in the order of 2.5 ohms +/- 0.3 ohms are expected through each loop. Values measured outside these tolerances need to be investigated.
5. Similarly the Driver Airbag Module (40 700 0) Removal and Installation Procedure should be followed, when replacing the driver airbag module AC connectors with DC connectors.
6. The passenger airbag 1<sup>st</sup> stage squib is colored green. The Passenger airbag 2<sup>nd</sup> stage squib is colored violet.
7. The driver airbag 1<sup>st</sup> stage squib is colored black. The driver airbag 2<sup>nd</sup> stage squib is colored green.
8. The passenger airbag module should be fired with a delay of 20ms between 1<sup>st</sup> and 2<sup>nd</sup> stage.
9. The driver airbag module should be fired with a delay of 10ms between 1<sup>st</sup> and 2<sup>nd</sup> stage.

## REMOVAL AND INSTALLATION

## Passenger Air Bag Module (40 701 0)

## Removal

**WARNING:** To avoid accidental deployment, the air bag control module backup power supply must be depleted. Wait at least one minute after disconnecting the battery ground cable(s) before commencing any repair or adjustment to the supplemental restraint system (SRS), or any component(s) adjacent to the SRS sensors. Failure to follow these instructions may result in personal injury.

**WARNING:** Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.

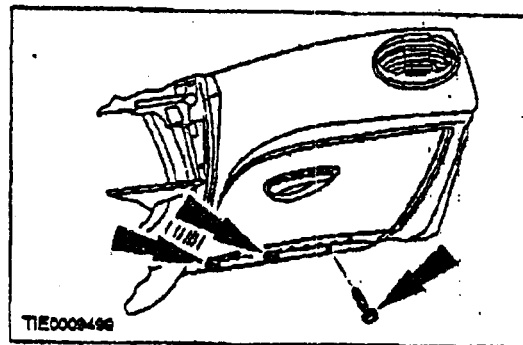
**WARNING:** Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.

**WARNING:** Painting over the driver air bag module trim cover or instrument panel could lead to deterioration of the trim cover and air bags. Do not for any reason attempt to paint discolored or

damaged air bag module trim covers or instrument panel. Install a new component. Failure to follow this instruction may result in injury.

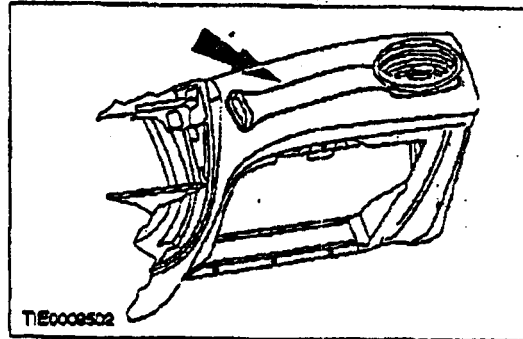
1. Disconnect the battery ground cable. For additional information, refer to Section 414-01.

2. Remove the glove compartment.



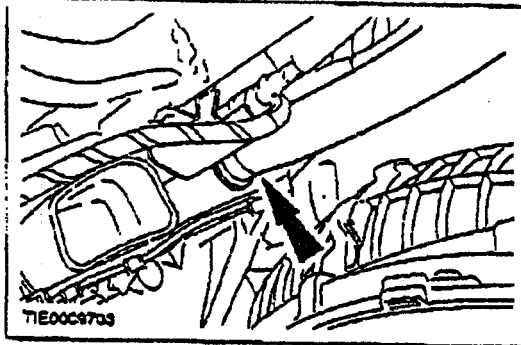
3. Remove the ventilation pipe.

- Detach the retaining clip.

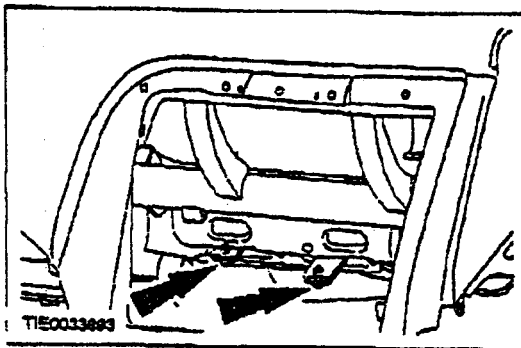


# REMOVAL AND INSTALLATION

4. Detach the demister pipe from the heater housing.

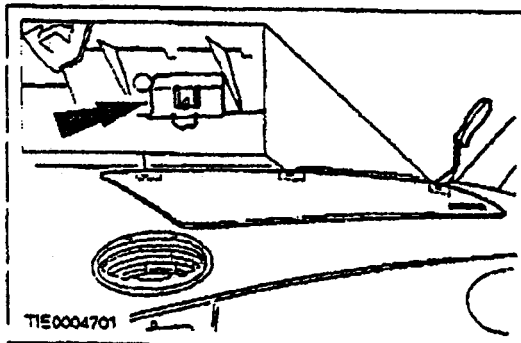


5. Remove the passenger air bag module trim cover retaining bolts.



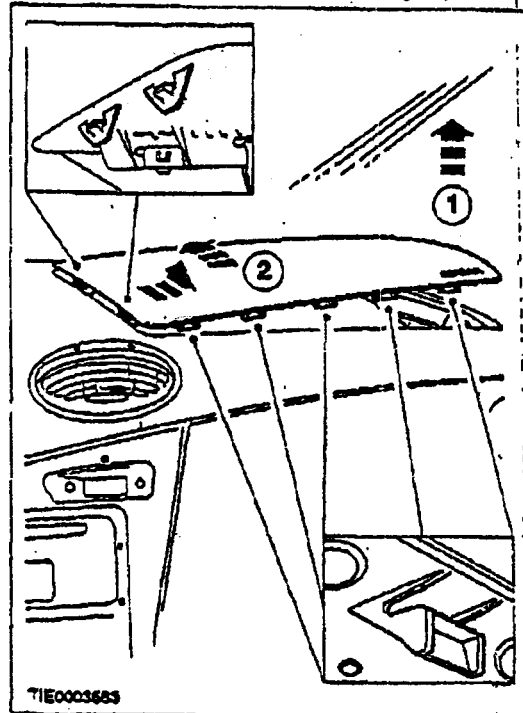
6. Detach the passenger air bag module trim cover from the instrument panel.

- Use a trim tool to carefully release the retaining clips, starting at the front outer edge.

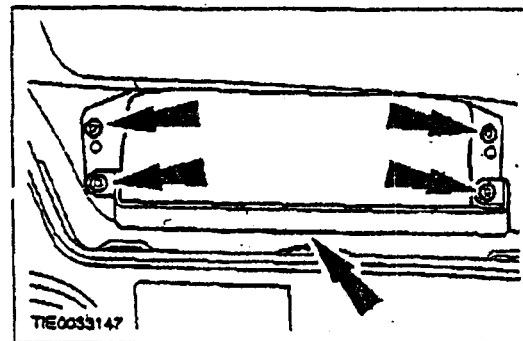


7. Remove the passenger air bag module trim cover.

- Lift the outer edge.
- Lift the cover moving it towards the windshield to disengage the retaining clips.



8. Detach the passenger air bag module and reinforcement bracket from the instrument panel.



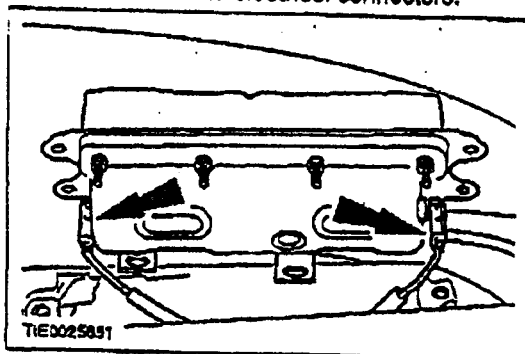
9. NOTE: It may be necessary to use a pair of pointed nose pliers to release the electrical

## REMOVAL AND INSTALLATION

connector locking tangs.

Remove the passenger air bag module.

- Disconnect the electrical connectors.



10. **WARNING:** A new instrument panel must be installed following a passenger air bag deployment. Failure to follow this instruction may result in personal injury.

**NOTE:** If a new passenger air bag module is being installed as a result of the existing passenger air bag module being unserviceable, do not install a new instrument panel.

Remove the instrument panel if necessary. For additional information, refer to Section 501-12.

## Installation

**WARNING:** Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of injury in the event of premature deployment, always carry a live air bag with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.

**WARNING:** Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.

**WARNING:** Painting over the driver air bag module trim cover or instrument panel could lead to deterioration of the trim cover and air bags. Do not for any reason attempt to paint discolored or damaged air bag module trim covers or instrument panel. Install a new component. Failure to follow this instruction may result in injury.

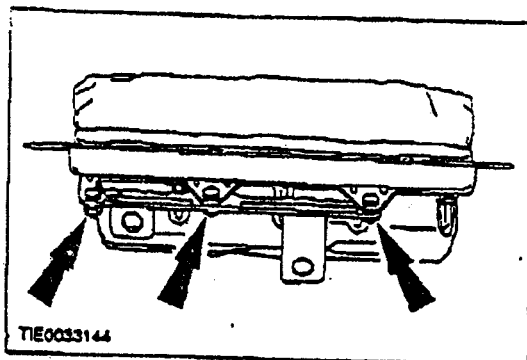
1. **WARNING:** A new instrument panel must be installed following a passenger air bag deployment. Failure to follow this instruction may result in personal injury.

**NOTE:** If a new passenger air bag module is being installed as a result of the existing passenger air bag module being unserviceable, do not install a new instrument panel.

Install a new instrument panel if necessary. For additional information, refer to Section 501-12.

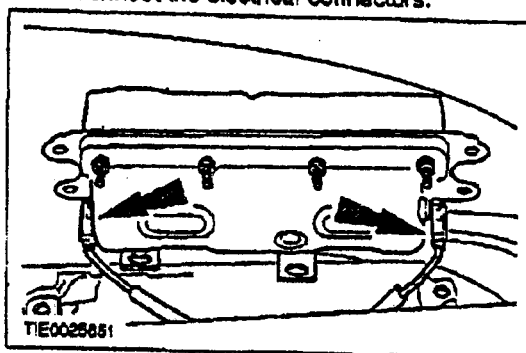
2. If the original passenger air bag is to be installed, loosen the passenger air bag module floating bracket retaining nuts.

## REMOVAL AND INSTALLATION

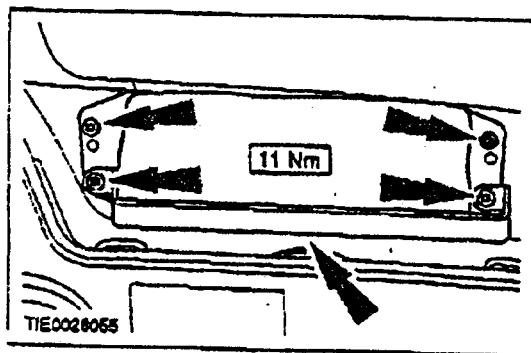


## 3. Install the passenger air bag module.

- Connect the electrical connectors.



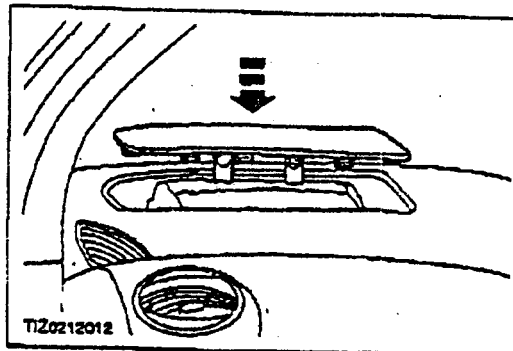
## 4. Attach the passenger air bag module and reinforcement bracket to the instrument panel.



## 5. NOTE: Feed the trim cover brackets down through the passenger air bag module and floating bracket.

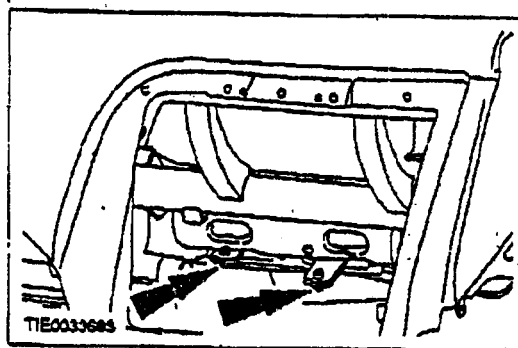
Install the passenger air bag module trim

cover.



## 6. NOTE: Do not fully tighten the passenger air bag module trim cover retaining bolts at this stage.

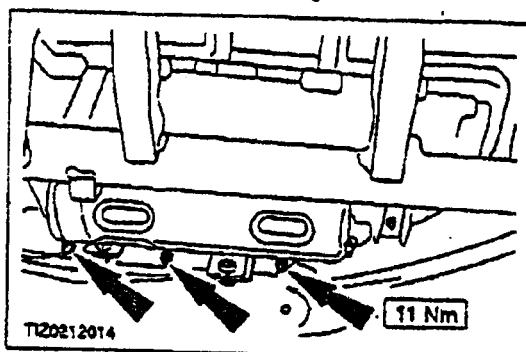
Install the passenger air bag module trim cover retaining bolts.



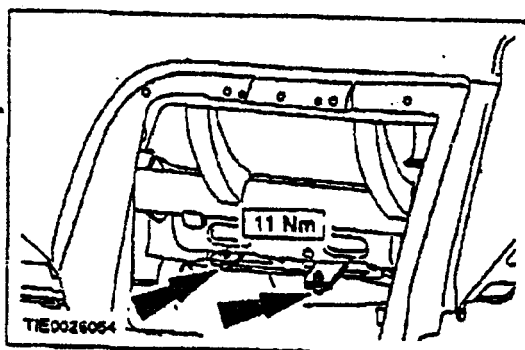
## REMOVAL AND INSTALLATION

7. **CAUTION:** Make sure that all the passenger air bag module trim cover retaining clips are correctly engaged and that the trim cover is flush with instrument panel.

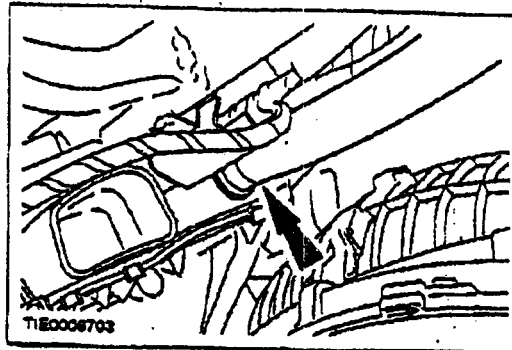
Tighten the passenger air bag module floating bracket retaining bolts.



8. Tighten the passenger air bag module trim cover retaining bolts.

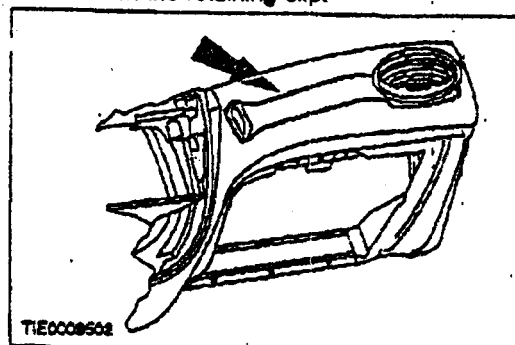


9. Attach the demister pipe to the heater housing.

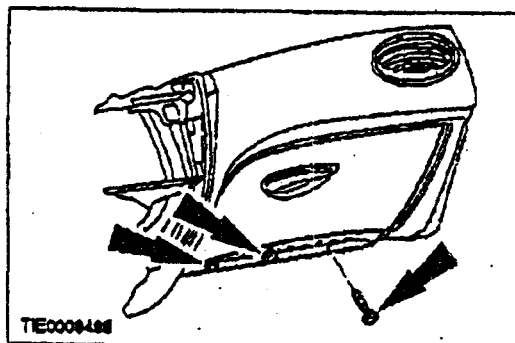


10. Install the ventilation pipe.

- Attach the retaining clip.



11. Install the glove compartment.



12. Connect the battery ground cable: For additional information, refer to Section 414-01.

## REMOVAL AND INSTALLATION

## Driver Air Bag Module (40 700 0)

## Removal

**WARNING:** To avoid accidental deployment, the air bag control module backup power supply must be depleted. Wait at least one minute after disconnecting the battery ground cable(s) before commencing any repair or adjustment to the supplemental restraint system (SRS), or any component(s) adjacent to the SRS sensors. Failure to follow these instructions may result in personal injury.

**WARNING:** Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.

**WARNING:** Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.

**WARNING:** Painting over the driver air bag module trim cover or instrument panel could lead to deterioration of the trim cover and air bags. Do not for any reason attempt to paint discolored or

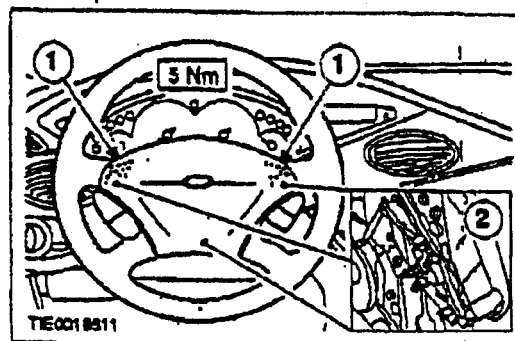
damaged air bag module trim covers or instrument panel. Install a new component. Failure to follow this instruction may result in personal injury.

1. Disconnect the battery ground cable. For additional information, refer to Section 414-01.
2. **CAUTION:** To prevent damage to the driver air bag module, wiring harness or steering wheel do not insert any tool between the driver air bag module and the steering wheel.

**NOTE:** Turn the steering wheel to access the air bag module captive bolts.

Detach the driver air bag module from the steering wheel.

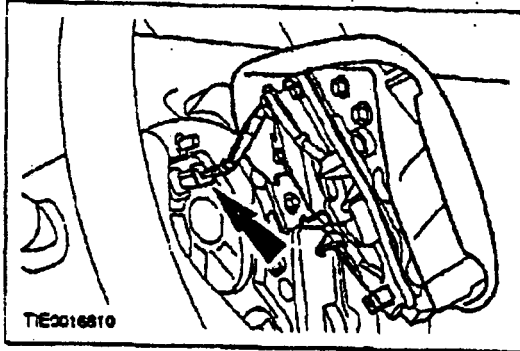
1. Undo the captive bolts.
2. Detach the driver air bag module retaining clips.



## REMOVAL AND INSTALLATION

### 3. Remove the driver air bag module.

- Disconnect the driver air bag module electrical connector.



### Installation

1. **WARNING:** Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.

**WARNING:** To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.

**WARNING:** Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.

**WARNING:** Painting over the driver air bag module trim cover or instrument panel could lead to deterioration of the trim cover and air bags. Do not for any reason attempt to paint discolored or damaged air bag module trim covers or instrument panel. Install a new component. Failure to follow this instruction may result in personal injury.

**WARNING:** The driver air bag module should only be inverted long enough for the horn switch contact plate to be installed. Handle with extreme care making sure that, if for any reason this procedure is interrupted, the driver air bag module is turned the correct way up, with the trim cover side uppermost. Failure to follow these instructions may result in personal injury.

To install, reverse the removal procedure.

**Dummy Measurements for Front Seat Passengers  
Crash Test 12227 (90 degree Front Fixed Barrier)**

**Driver**

|                             |        |
|-----------------------------|--------|
| NR- Nose to Rim             | 450 mm |
| CS- Steering Wheel to Chest | 238 mm |
| KDL- Knee to Dash           | 102 mm |
| KDR- Knee to Dash           | 102 mm |

**Passenger**

|                             |        |
|-----------------------------|--------|
| NR- Nose to Rim             | 599 mm |
| CS- Steering Wheel to Chest | 503 mm |
| KDL- Knee to Dash           | 102 mm |
| KDR- Knee to Dash           | 99 mm  |

# Dummy Measurements in pre Test Position

Test Report No. \_\_\_\_\_

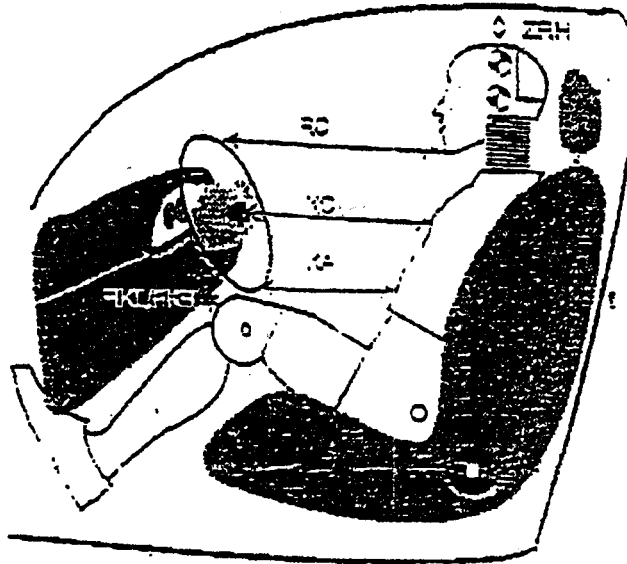
Vehicle No. \_\_\_\_\_

Test No. \_\_\_\_\_

DRIVER

ZRH: \_\_\_\_\_  
 RC: 380 mm  
 XC: 280 mm  
 XA: 205 mm  
 RKL: 100 mm  
 RKP: 110 mm  
sof/str

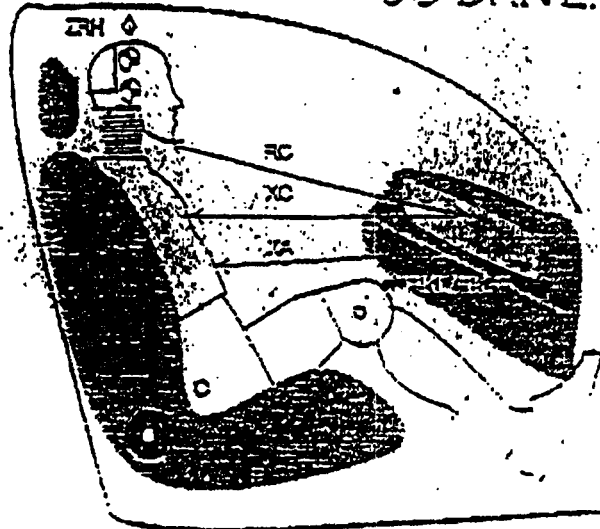
H-Point inner X: \_\_\_\_\_  
 H-Point outer X: \_\_\_\_\_  
 H-Point inner Z: \_\_\_\_\_  
 H-Point outer Z: \_\_\_\_\_  
 Knee distance: \_\_\_\_\_  
 Pelvis angle: 24°



CO DRIVER

ZRH: \_\_\_\_\_  
 RC: 695 mm  
 XC: 625 mm  
 XA: 425 mm  
 RKL: 150 mm  
 RKP: 70 mm  
sof/str

H-Point inner X: \_\_\_\_\_  
 H-Point outer X: \_\_\_\_\_  
 H-Point inner Z: \_\_\_\_\_  
 H-Point outer Z: \_\_\_\_\_  
 Knee distance: \_\_\_\_\_  
 Pelvis angle: 24°



all dimensions in [mm]

# TEST VEHICLE INFORMATION

Page 1 of 2

Vehicle Model Year and Make: 2003 Focus  
 Vehicle Model and Body Style: North American Focus

## 1. NOMINAL DESIGN RIDING POSITION -

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

Seat back angle for driver's seat = 24deg.

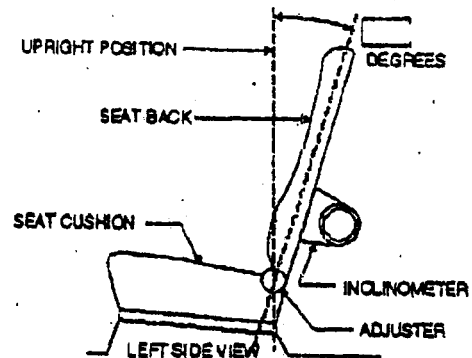
Measurement Instructions:

Seat back angle is measured and adjusted with the manikin in the seat

Seat back angle for passenger's seat = 24 deg.

Measurement Instructions:

See above



## 2. SEAT FORE AND AFT POSITIONS -

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

Position of the driver's seat:

Notch rear ward of geometric mid position is used.

Seat height: Fully down is used with headrest in fully up position.

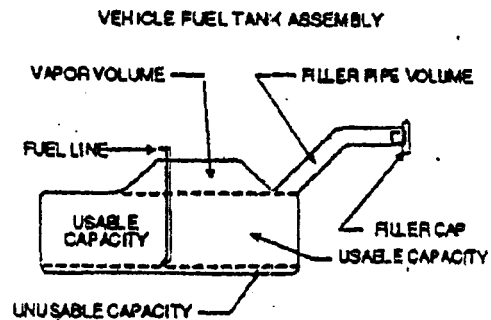
Position of the passenger's seat (if applicable):

See above

## 3. FUEL TANK CAPACITY DATA -

- 3.1. A. "Usable Capacity" of standard equipment fuel tank = 13.2 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = \_\_\_\_\_ gallons.
- C. Capacity used when certification testing to requirements of FMVSS 301 = \_\_\_\_\_ gallons.

Operational Instructions:



FORM 1

Page 2 of 2

- 3.2 Amount of Stoddard solvent added to vehicle for certification test = 12.3 gallons.

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

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

4.    STEERING COLUMN ADJUSTMENTS -

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions.

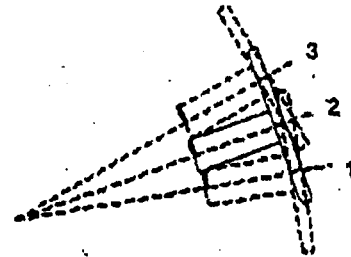
If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:

Geometric mid is calculated from fully up, fully forward and fully rearward, fully down, fully forward, fully rearward; mid position

X=2680, y=338, z=1093

STEERING COLUMN ASSEMBLY



LEFT SIDE VIEW

5.    SEATING REFERENCE POINT (SRP) -

Provide drawing which shows the driver's SRP location.

6.    FUEL TANK LOCATION -

Provide drawing which shows the undercarriage view of the vehicle.

7.    Dummy Measurements for front Seat Passengers

Crash Test 12227 (90° Front Fixed Barrier)

Driver

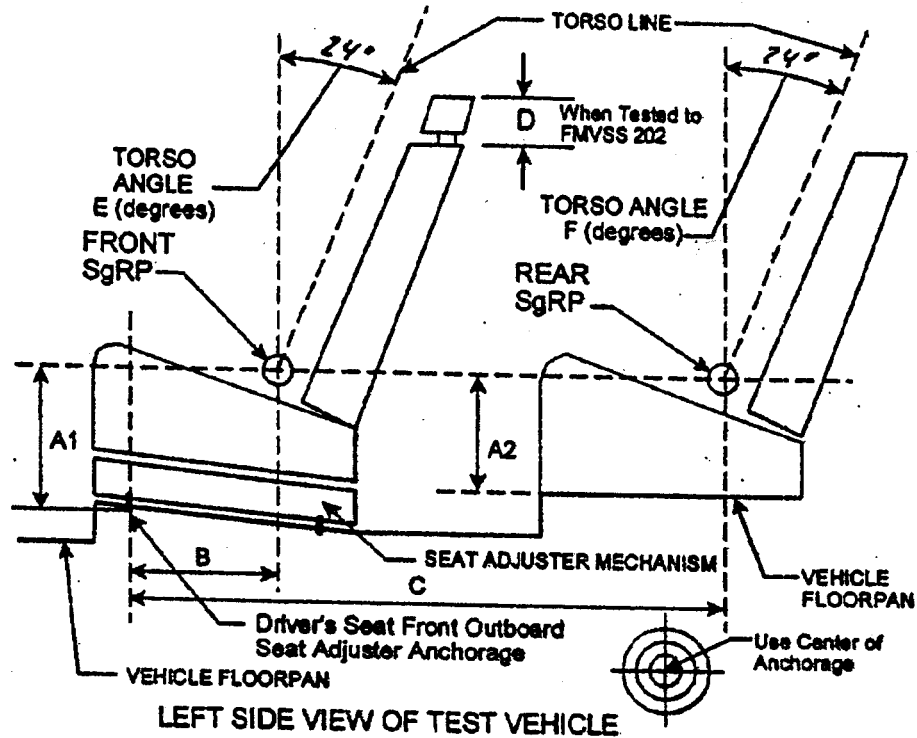
|                              |       |
|------------------------------|-------|
| NR - Nose to Rim             | 450mm |
| CS - Steering Wheel to Chest | 238mm |
| KDL - Knee to Dash           | 102mm |
| KDR - Knee to Dash           | 102mm |

Passenger

|                              |       |
|------------------------------|-------|
| NR - Nose to Rim             | 599mm |
| CS - Steering Wheel to Chest | 503mm |
| KDL - Knee to Dash           | 102mm |
| KDR - Knee to Dash           | 99mm  |

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA  
FOR FMVSS 201, 202, 203, 207 & 210  
(All dimensions in inches)

Model Year: \_\_\_\_\_; Make: Ford ; Model: C170 (Focus)  
Body Style: All Seat Style: All

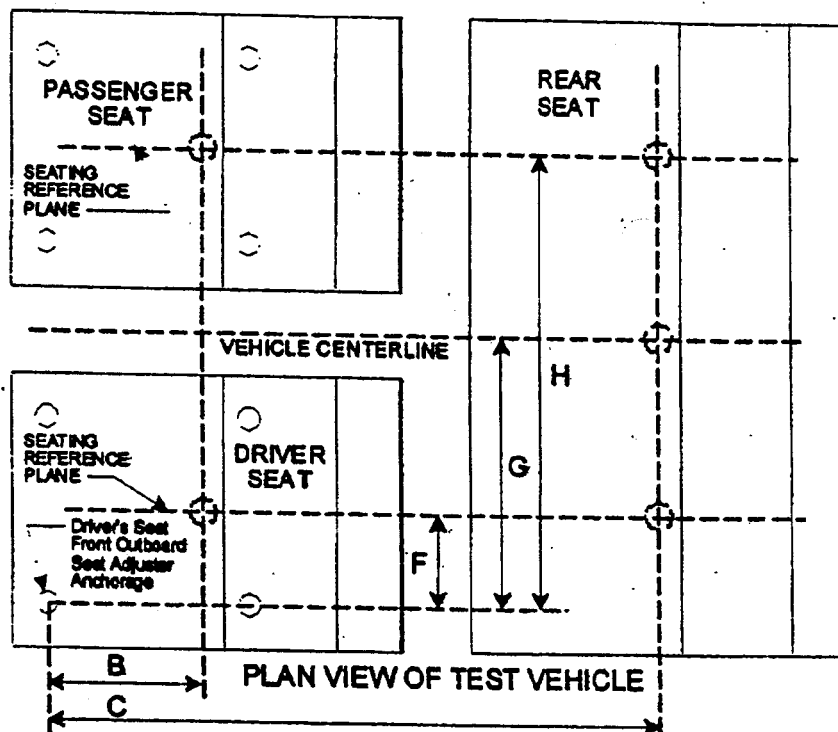


| DIMENSION | FRONT, A1 | REAR, A2 |
|-----------|-----------|----------|
| A         | 258 mm    |          |
| B         |           | 366 mm   |
| C         |           | 1151 mm  |
| D         |           |          |
| E         |           |          |
| F         |           |          |

**SEATING REFERENCE POINT (SRP) AND TORSO ANGLE DATA**  
**FOR FMVSS 201, 202, 203, 207 & 210**  
(All dimensions in inches)

Model Year: \_\_\_\_\_; Make: Ford  
Body Style: All

Model: C170 (Focus)  
Seat Style: All



|    |        |
|----|--------|
| B  | 366mm  |
| C  | 1151mm |
| F* | 249mm  |
| G  | 594mm  |
| H* | 939mm  |

\* Provide all dimensions needed to locate SRP.