

**Final Report Number: NCAP-TRC-24-001**

**New Car Assessment Program (NCAP)  
Frontal Barrier Impact Test**

**FORD MOTOR CO.  
2024 Ford Mustang Coupe  
NHTSA Number: M20240205**

**PREPARED BY:  
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P. O. Box B-67  
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**Report Date: November 4, 2024**

**FINAL REPORT**

**Prepared For:  
U. S. DEPARTMENT OF TRANSPORTATION  
National Highway Traffic Safety Administration  
Office of Crashworthiness Standards  
1200 New Jersey Ave, SE  
Washington, DC 20590**

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Prepared By: ILO Project Operations Group

Approved By: John Shultz

Approval Date: November 4, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

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Division Chief, New Car Assessment Program  
NHTSA, Office of Crashworthiness Standards

Date \_\_\_\_\_

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COTR, New Car Assessment Program  
NHTSA, Office of Crashworthiness Standards

Date \_\_\_\_\_

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|--|--|----------------------------|---|---------------|-----------|-------------------------|------------|--|--|---------------|--|--|-------|-----------|--------|-------|-----------|--------|---|----|-----|---------|----|-----|---------|---------------------------|----|----|---------|----|----|---------|----------------|----|----|--------|----|----|--------|-----|----|---|-------|----|---|-------|--------------|---------|------|---------|---------|------|---------|------------------|---------|------|----------|---------|------|----------|------------------|---------|-------|----------|---------|------|----------|-------------------|---------|-------|-----------|---------|------|----------|
| 4. Title and Subtitle<br>Final Report of NEW CAR ASSESSMENT PROGRAM<br>Frontal Impact Testing of a 2024 Ford Mustang Coupe<br>NHTSA No. M20240205  |  |                            | 5. Report Date<br>November 4, 2024  |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
|  |  |                            | 6. Performing Organization Code<br>TRC Inc.   |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
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| 9. Performing Organization Name and Address<br>Transportation Research Center Inc.<br>10820 State Route 347<br>East Liberty, OH 43319-0367   |  |                            | 10. Work Unit No. (TRAIS)   |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
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| 12. Sponsoring Agency Name and Address<br>U. S. Department of Transportation<br>National Highway Traffic Safety Administration<br>Office of Crashworthiness Standards<br>1200 New Jersey Ave SE<br>Washington, DC 20590  |  |                            | 13. Type of Report and Period Covered<br>Final Report<br>May 7, 2024 –<br>November 4, 2024  |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
|  |  |                            | 14. Sponsoring Agency Code<br>NRM-110   |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| 15. Supplemental Notes   |  |                            |   |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| 16. Abstract<br><br>A 56.0 km/h NCAP Frontal Impact Test was conducted on a 2024 Ford Mustang Coupe, in accordance with the specifications of the Office of Crashworthiness Standards Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing. The test was conducted at the Transportation Research Center Inc. in East Liberty, Ohio on May 7, 2024.<br><br>The impact velocity was 56.33 km/h, and the ambient temperature at the barrier face at the time of impact was 21.0° C. The target vehicle post-test maximum crush was 539 millimeters at vehicle C4. The test vehicle's performance is as follows:   |  |                            |   |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD</th> <th colspan="3">Passenger ATD</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC<sub>15</sub>)</td> <td>NA</td> <td>700</td> <td>126.660</td> <td>NA</td> <td>700</td> <td>161.320</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-18.940</td> <td>mm</td> <td>52</td> <td>-14.400</td> </tr> <tr> <td>3ms Chest Clip</td> <td>Gs</td> <td>60</td> <td>32.250</td> <td>Gs</td> <td>60</td> <td>45.740</td> </tr> <tr> <td>Nij</td> <td>NA</td> <td>1</td> <td>0.221</td> <td>NA</td> <td>1</td> <td>0.288</td> </tr> <tr> <td>Neck Tension</td> <td>Newtons</td> <td>4170</td> <td>939.640</td> <td>Newtons</td> <td>2620</td> <td>820.770</td> </tr> <tr> <td>Neck Compression</td> <td>Newtons</td> <td>4000</td> <td>-104.950</td> <td>Newtons</td> <td>2520</td> <td>-329.780</td> </tr> <tr> <td>Left Femur Force</td> <td>Newtons</td> <td>10008</td> <td>-459.800</td> <td>Newtons</td> <td>6805</td> <td>-660.890</td> </tr> <tr> <td>Right Femur Force</td> <td>Newtons</td> <td>10008</td> <td>-2017.830</td> <td>Newtons</td> <td>6805</td> <td>-549.170</td> </tr> </tbody> </table> |  |                            |   |               |           | Measurement Description | Driver ATD |  |  | Passenger ATD |  |  | Units | Threshold | Result | Units | Threshold | Result | Head Injury Criteria (HIC <sub>15</sub> ) | NA | 700 | 126.660 | NA | 700 | 161.320 | Maximum Chest Compression | mm | 63 | -18.940 | mm | 52 | -14.400 | 3ms Chest Clip | Gs | 60 | 32.250 | Gs | 60 | 45.740 | Nij | NA | 1 | 0.221 | NA | 1 | 0.288 | Neck Tension | Newtons | 4170 | 939.640 | Newtons | 2620 | 820.770 | Neck Compression | Newtons | 4000 | -104.950 | Newtons | 2520 | -329.780 | Left Femur Force | Newtons | 10008 | -459.800 | Newtons | 6805 | -660.890 | Right Femur Force | Newtons | 10008 | -2017.830 | Newtons | 6805 | -549.170 |
| Measurement Description  | Driver ATD   |                            |   | Passenger ATD |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
|  | Units  | Threshold                  | Result  | Units         | Threshold | Result                  |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| Head Injury Criteria (HIC <sub>15</sub> )  | NA   | 700                        | 126.660   | NA            | 700       | 161.320                 |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| Maximum Chest Compression  | mm   | 63                         | -18.940   | mm            | 52        | -14.400                 |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| 3ms Chest Clip   | Gs   | 60                         | 32.250  | Gs            | 60        | 45.740                  |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| Nij  | NA   | 1                          | 0.221   | NA            | 1         | 0.288                   |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| Neck Tension   | Newtons  | 4170                       | 939.640   | Newtons       | 2620      | 820.770                 |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| Neck Compression   | Newtons  | 4000                       | -104.950  | Newtons       | 2520      | -329.780                |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| Left Femur Force   | Newtons  | 10008                      | -459.800  | Newtons       | 6805      | -660.890                |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| Right Femur Force  | Newtons  | 10008                      | -2017.830   | Newtons       | 6805      | -549.170                |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| 17. Key Words<br>56.3 km/h (35 mph) Full Frontal Rigid Barrier Impact Test<br>New Car Assessment Program (NCAP)  |  |                            | 18. Distribution Statement<br>Copies of this report are available from:<br>National Highway Traffic Safety Administration<br>Technical Information Services Division<br>1200 New Jersey Ave, SE<br>Washington, DC 20590 |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |
| 19. Security Classif. (of this report)<br>Unclassified   | 20. Security Classif. (of this page)<br>Unclassified | 21. Number of Pages<br>177 | 22. Price   |               |           |                         |            |  |  |               |  |  |       |           |        |       |           |        |   |    |     |         |    |     |         |                           |    |    |         |    |    |         |                |    |    |        |    |    |        |     |    |   |       |    |   |       |              |         |      |         |         |      |         |                  |         |      |          |         |      |          |                  |         |       |          |         |      |          |                   |         |       |           |         |      |          |

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## **SECTION 1: PURPOSE AND SUMMARY OF THE TEST**

### **PURPOSE**

This 56 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. 693JJ919D000007. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

This 56 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Test Procedure or NCAP Full Frontal Rigid Barrier Impact Testing dated May 2018.

### **SUMMARY**

A load cell barrier consisting of 288 load cells was impacted by a 2024 Ford Mustang Coupe at a velocity of 56.33 km/h. The test was performed at Transportation Research Center, Inc. on May 7, 2024. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time camera and 16 high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

One Part 572E 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572O 5th percentile female ATD was placed in the right-front passenger position according to dummy placement instructions specified in the Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing.

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck transducers, femur load cells, and lower leg instrumentation.

The driver (position 1) ATD (Serial No. 037), and the right-front passenger (position 2) ATD (Serial No. DH1659) were qualified prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 102 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

There was 100.0 percent windshield retention and no intrusion into the protected zone of the windshield during the event. There was no Stoddard solvent leakage (or electrolyte spillage) after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 539 mm and both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: front airbag, headrest, and knee airbag. The passenger's visible contact points were as follows: front airbag and headrest.

The occupant data is summarized below:

| <b>ATD Position</b>                   | <b>HIC<sub>15</sub></b> | <b>Nij</b> | <b>Neck Tension (N)</b> | <b>Neck Compression (N)</b> | <b>3 ms Chest Clip (Gs)</b> | <b>Chest Disp (mm)</b> | <b>Left Femur (N)</b> | <b>Right Femur (N)</b> |
|---------------------------------------|-------------------------|------------|-------------------------|-----------------------------|-----------------------------|------------------------|-----------------------|------------------------|
| Driver<br>(50 <sup>th</sup> Male)     | 126.660                 | 0.221      | 939.640                 | -104.950                    | 32.250                      | -18.940                | -459.800              | -2017.830              |
| Passenger<br>(5 <sup>th</sup> Female) | 161.320                 | 0.288      | 820.770                 | -329.780                    | 45.740                      | -14.400                | -660.890              | -549.170               |

**TEST COMMENTS:**

Passenger Pelvis Accel X: QD 20.0-100.0ms

Top of Engine X: CF at 11.00ms

Bottom of Engine X: CF at 37.0ms

## **SECTION 2: DATA SHEETS**

## DATA SHEET NO. 1 - GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

### TEST VEHICLE INFORMATION

|                             |                           |
|-----------------------------|---------------------------|
| NHTSA No.                   | M20240205                 |
| Model Year                  | 2024                      |
| Make                        | Ford                      |
| Model                       | Mustang                   |
| Body Style                  | Passenger Car             |
| VIN                         | 1FA6P8TH9R5122285         |
| Body Color                  | Dark Matter Gray Metallic |
| Odometer Reading (km/mi)    | 39.9 mi                   |
| Engine Displacement (L)     | 2.3                       |
| Type/No. Cylinders          | Inline/4                  |
| Engine Placement            | Front                     |
| Transmission Type           | Automatic                 |
| Transmission Speeds         | 10                        |
| Overdrive                   | No                        |
| Final Drive                 | RWD                       |
| Roof Rack                   | No                        |
| Sunroof/T-Top               | No                        |
| Running Boards              | No                        |
| Tilt Steering Wheel         | Yes                       |
| Power Seats                 | Yes                       |
| Anti-Lock Brakes (ABS)      | Yes                       |
| Automatic Door Locks (ADLs) | Yes                       |

### TEST VEHICLE OPTIONS

|                                 |     |
|---------------------------------|-----|
| Traction Control System (TCS)   | Yes |
| Power Steering                  | Yes |
| Power Window Auto-Reverse       | Yes |
| Driver Frontal Airbag           | Yes |
| Driver Curtain Airbag           | Yes |
| Driver Head/Torso Airbag        | No  |
| Driver Torso Airbag             | No  |
| Driver Torso/Pelvis Airbag      | Yes |
| Driver Pelvis Airbag            | No  |
| Driver Knee Airbag              | Yes |
| Front Pass. Frontal Airbag      | Yes |
| Front Pass. Curtain Airbag      | Yes |
| Front Pass. Head/Torso Airbag   | No  |
| Front Pass. Torso Airbag        | No  |
| Front Pass. Torso/Pelvis Airbag | Yes |
| Front Pass. Pelvis Airbag       | No  |
| Front Pass. Knee Airbag         | Yes |
| Driver Pretensioner             | Yes |
| Driver Load Limiter             | Yes |
| Front Pass. Pretensioner        | Yes |
| Front Pass. Load Limiter        | Yes |
| Other:                          | No  |

Does owner's manual provide instructions to turn off automatic door locks? No

### DATA FROM CERTIFICATION LABEL

|                     |                |                |                    |
|---------------------|----------------|----------------|--------------------|
| Manufactured by     | FORD MOTOR CO. | GVWR (kg)      | 2050<br>(4520 lbs) |
| Date of Manufacture |                | 12/23          | GAWR Front (kg)    |
|                     |                | GAWR Rear (kg) | 1091<br>(2405 lbs) |

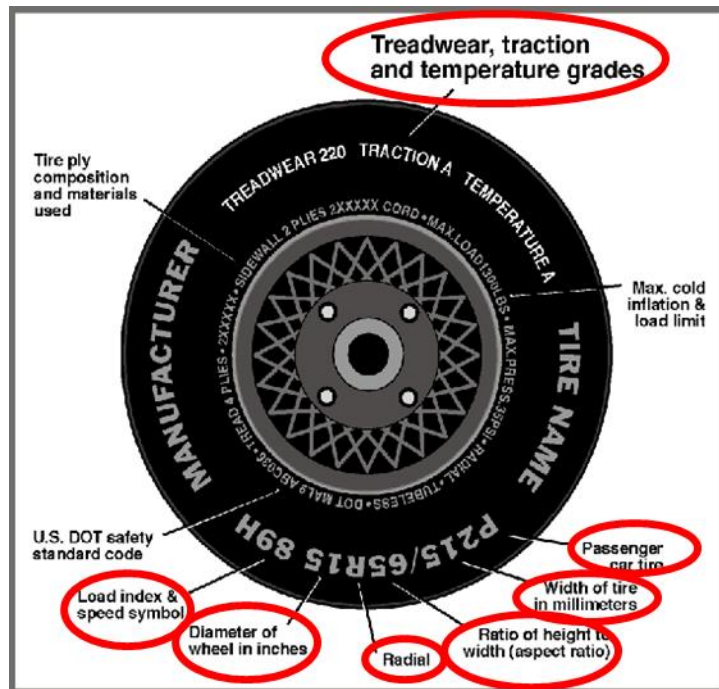
### VEHICLE SEATING AND WEIGHT CAPACITY

| Measured Parameter      | Front  | Rear   | Third | Total |
|-------------------------|--------|--------|-------|-------|
| Type of Seats           | Bucket | Bucket | N/A   |       |
| Number of Occupants     | 2      | 2      | N/A   | 4     |
| Capacity Wt. (VCW) (kg) |        |        |       | 285.0 |
| Cargo Wt. (RCLW) (kg)   |        |        |       | 13.0  |

## DATA SHEET NO. 1 - GENERAL TEST AND VEHICLE PARAMETER DATA (CONT'D)

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024



### DATA FROM TIRE PLACARD

| Measured Parameter          | Front                       | Rear                        |
|-----------------------------|-----------------------------|-----------------------------|
| Maximum Tire Pressure (kPa) | 350                         | 350                         |
| Cold / Test Pressure (kPa)  | 220                         | 220                         |
| Recommended Tire Size       | 235/50R18                   | 235/50R18                   |
| Tire Size on Vehicle        | 235/50R18                   | 235/50R18                   |
| Tire Manufacturer           | Continental                 | Continental                 |
| Tire Model                  | ProContact Rx               | ProContact Rx               |
| Treadwear                   | 400                         | 400                         |
| Traction Grade              | A                           | A                           |
| Temperature Grade           | A                           | A                           |
| Tire Plies Sidewall         | 2                           | 2                           |
| Tire Plies Body             | 4                           | 4                           |
| Load Index/Speed Symbol     | 97W                         | 97W                         |
| Tire Material               | Polyester, Steel, Polyamide | Polyester, Steel, Polyamide |
| DOT Safety Code Right       | 1A3 0FB EF7 4723            | 1A3 0FB EF7 4723            |
| DOT Safety Code Left        | 1A3 0FB EF7 3923            | 1A3 0FB EF7 4723            |

**DATA SHEET NO. 1 - GENERAL TEST AND VEHICLE PARAMETER DATA  
(CONT'D)**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

**TEST VEHICLE WEIGHTS**

|        | Units | As Delivered (UVW) (Axle) |       |        | As Tested (ATW) (Axle) |       |        |
|--------|-------|---------------------------|-------|--------|------------------------|-------|--------|
|        |       | Front                     | Rear  | Total  | Front                  | Rear  | Total  |
| Left   | kg    | 437.8                     | 372.2 |        | 460.4                  | 421.2 |        |
| Right  | kg    | 443.0                     | 372.4 |        | 457.4                  | 434.2 |        |
| Ratio  | %     | 54.2                      | 45.8  |        | 51.8                   | 48.2  |        |
| Totals | kg    | 880.8                     | 744.6 | 1625.4 | 917.8                  | 855.4 | 1773.2 |

**TARGET TEST WEIGHT CALCULATION**

| Measured Parameter                  | Units | Value  |
|-------------------------------------|-------|--------|
| Total Delivered Weight (UVW)        | kg    | 1625.4 |
| Weight of 1 P572E ATD & 1 P572O ATD | kg    | 139.3  |
| Rated Cargo/Luggage Weight (RCLW)   | kg    | 13.0   |
| Vehicle Target Weight (TVTW)        | kg    | 1777.7 |

**TEST VEHICLE ATTITUDES AND CG**

|              | Units | LF  | RF  | LR  | RR  | CG (aft of front) |
|--------------|-------|-----|-----|-----|-----|-------------------|
| As Delivered | mm    | 730 | 737 | 737 | 740 | 1246              |
| As Tested    | mm    | 730 | 731 | 724 | 724 | 1312              |
| Post Test    | mm    | 850 | 830 | 740 | 744 |                   |

**GENERAL TEST VEHICLE DATA**

| Measurement Description                 | Units  | Value                        |
|---|--------|------------------------------|
| Test Vehicle Wheelbase                  | mm     | 2719                         |
| Total Vehicle Length at Left Side       | mm     | 4550                         |
| Total Vehicle Length at Centerline      | mm     | 4800                         |
| Total Vehicle Length at Right Side      | mm     | 4547                         |
| Weight of Ballast in Cargo Area         | kg     | 0.0                          |
| Weight of Vehicle Components Removed    | kg     | 20 kg parts + 19 kg Stoddard |
| Amount of Stoddard Solvent in Fuel Tank | liters | 56.7                         |

**LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT:** Tail lights, bumper,  
bumper skin, 19.0 kg Stoddard (5.9 gallons)

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**DATA SHEET NO. 1 - GENERAL TEST AND VEHICLE PARAMETER DATA  
(CONT'D)**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

**TARGET VEHICLE STRUCTURAL MEASUREMENT**

|    | <b>Elements</b>                       | <b>Pre-Test<br/>(mm)</b> |
|----|---------------------------------------|--------------------------|
| 1  | Total Length                          | 4800                     |
| 2  | Total Width                           | 1921                     |
| 3  | Bumper Top Height                     | 510                      |
| 4  | Bumper Bottom Height                  | 310                      |
| 5  | Longitudinal Member Top Height        | 540                      |
| 6  | Distance Between Longitudinal Members | 798                      |
| 7  | Longitudinal Member Width             | 90                       |
| 8  | Engine Top Height                     | 925                      |
| 9  | Engine Bottom Height                  | 183                      |
| 10 | Engine and Gearbox Width              | 330                      |
| 11 | Front Bumper-Engine Distance          | 810                      |
| 12 | Front Shock Absorber Fixing Height    | 880                      |
| 13 | Bonnet Leading Edge Height            | 767                      |
| 14 | Front Shock Absorber Fixing Width     | 1135                     |
| 15 | Front Bumper – Front Axle Distance    | 950                      |
| 16 | Front Axle – A-Pillar Distance        | 815                      |
| 17 | A-Pillar – B-Pillar Distance          | 1190                     |
| 18 | B-Pillar – Rear Axle Distance         | 720                      |
| 19 | B-Pillar – C-Pillar Distance          | N/A                      |
| 20 | Roof Sill Bottom Height               | 1188                     |
| 21 | Roof Sill Top Height                  | 1350                     |
| 22 | Floor Sill Bottom Height              | 352                      |
| 23 | Floor Sill Top Height                 | 398                      |

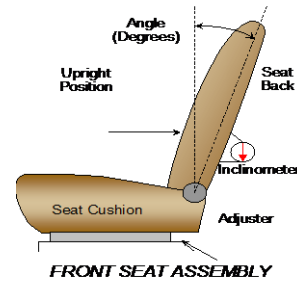
## DATA SHEET NO. 2 - SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING WHEEL DATA

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

### NORMAL DESIGN RIDING POSITION

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



|                            | Degree |
|----------------------------|--------|
| Driver Seat back angle:    | 3.0    |
| Passenger Seat back angle: | 9.2    |

### SEAT FORE/AFT POSITIONS

Describe the method of determining seat fore/aft positions.

Driver: Mid position, Positioned according to Form 1

Passenger: Full forward, Positioned according to Form 1

|                | Total Fore/Aft Travel | Placed in Position No. |
|----------------|-----------------------|------------------------|
| Driver Seat    | 300                   | 150                    |
| Passenger Seat | 258                   | 0                      |

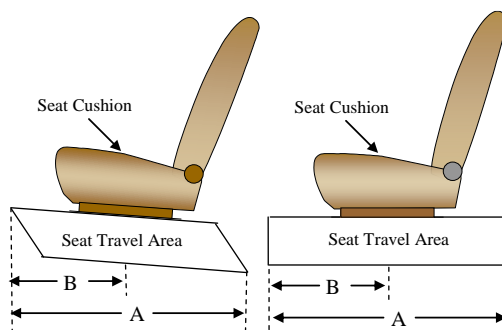
### SEAT BELT UPPER ANCHORAGE

Describe the method of positioning seat belt upper anchorages.

Driver: One below uppermost, Positioned according to Form 1

Passenger: One below uppermost, Positioned according to Form 1

|                | Total No. of Positions | Placed in Position No. |
|----------------|------------------------|------------------------|
| Driver Seat    | Fixed                  | Fixed                  |
| Passenger Seat | Fixed                  | Fixed                  |



**DATA SHEET NO. 2 - SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING  
WHEEL DATA (CONT'D)**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

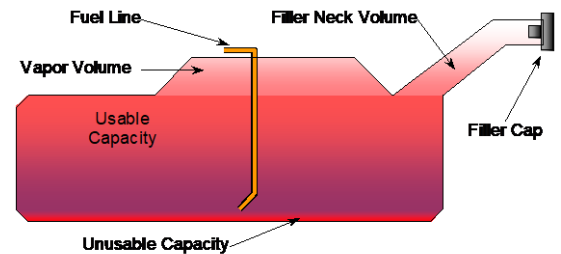
**FUEL TANK CAPACITY**

|                                    | <b>Liters</b>     |
|------------------------------------|-------------------|
| Usable Capacity of "Standard Tank" | 60.9              |
| Usable Capacity of "Optional Tank" | N/A               |
| 92%-94% of Usable Capacity         | 56.7              |
| Actual Amount of Solvent Used      | 56.7 <sup>1</sup> |
| 1/3 of Usable Capacity             | 20.3              |

<sup>1</sup>15.9 gallons of stoddard removed for test weight

Describe the fuel system - what type of fuel pump, details about how it operates, etc.

Fuel pump cycles for a brief period when key is moved to on position, but does not pump fuel unless engine is running. They system also primes at door open for 1 second.

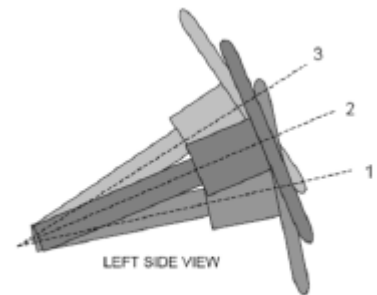


**VEHICLE FUEL TANK ASSEMBLY**

**STEERING COLUMN ADJUSTMENT**

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. Describe how this measurement was taken.

Steel square was placed across the rim of the steering wheel, an inclinometer was placed on plate and the angle was measured. Telescope travel was measured full in and full out and set at the midpoint.



**STEERING COLUMN ASSEMBLY**

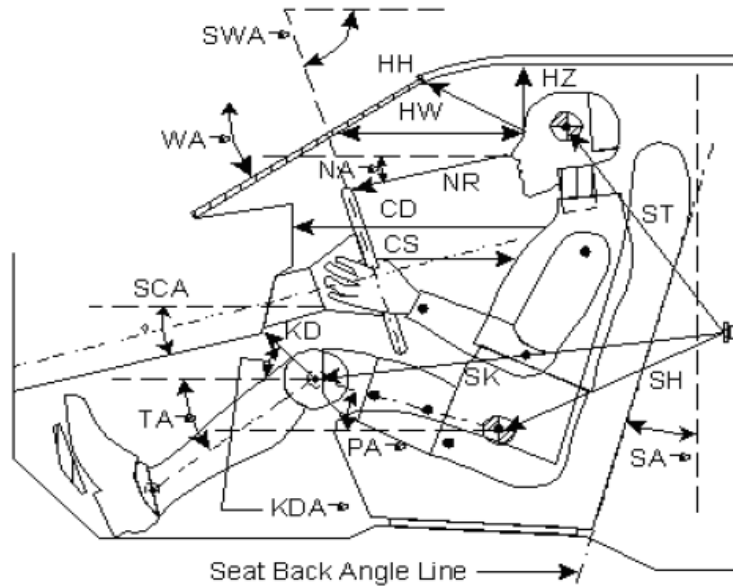
**STEERING COLUMN POSITIONS**

|                                   | <b>Degrees</b> | <b>Fore/Aft Position (mm)</b> |
|-----------------------------------|----------------|-------------------------------|
| Lowermost Position No. 1          | 18.3           |                               |
| Geometric Center Position No. 2   | 21.2           |                               |
| Uppermost Position No. 3          | 24.1           |                               |
| Telescoping Steering Wheel Travel |                | 60.0                          |
| Test Position                     | 21.2           | 30.0                          |

### DATA SHEET NO. 3 - DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

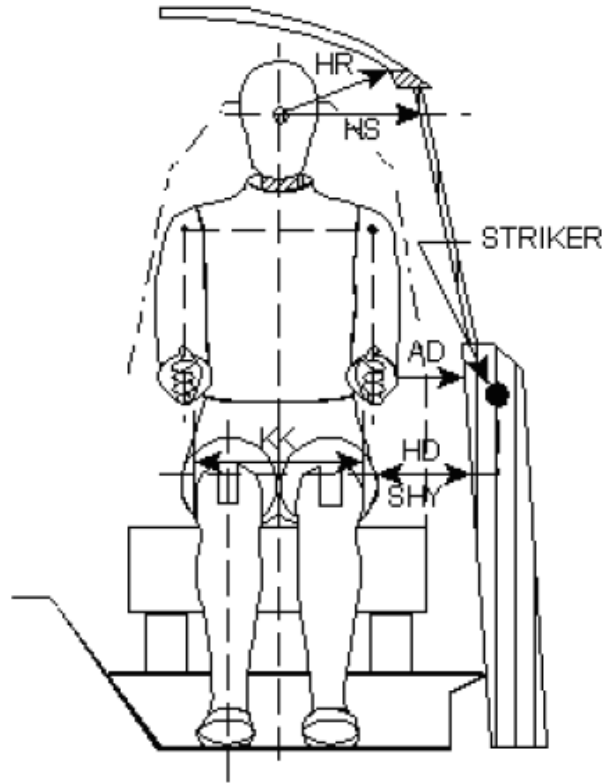


| Code        | Measurement Description             | Driver      |           | Passenger   |           |
|-------------|-------------------------------------|-------------|-----------|-------------|-----------|
|             |                                     | Length (mm) | Angle (°) | Length (mm) | Angle (°) |
| <b>WA°</b>  | Windshield Angle                    |             | 27.2      |             |           |
| <b>SWA°</b> | Steering Wheel Angle                |             | 21.2      |             |           |
| <b>SCA°</b> | Steering Column Angle               |             | 22.2      |             |           |
| <b>SA°</b>  | Seat Back Angle (on head rest post) |             | 3.3       |             | 4.3       |
| <b>HZ</b>   | Head to Roof (Z)                    | 202         |           | 218         |           |
| <b>HH</b>   | Head to Header                      | 323         |           | 303         |           |
| <b>HW</b>   | Head to Windshield                  | 585         |           | 630         |           |
| <b>NR</b>   | Nose to Rim                         | 368         | 6.2       |             |           |
| <b>CD</b>   | Chest to Dash                       | 585         |           | 455         |           |
| <b>CS</b>   | Chest to Steering Hub               | 305         |           |             |           |
| <b>RA</b>   | Rim to Abdomen                      | 203         |           |             |           |
| <b>KDL</b>  | Left Knee to Dash                   | 226         | 11.8      | 160         | 25.5      |
| <b>KDR</b>  | Right Knee to Dash                  | 201         | 11.6      | 175         | 25.9      |
| <b>PA°</b>  | Pelvic Angle                        |             | 24.4      |             | 21.5      |
| <b>TA°</b>  | Tibia Angle                         |             | 33.6      |             | 43.9      |
| <b>SK</b>   | Striker to Knee                     | 887         | 5.6       | 910         | 1.1       |
| <b>ST</b>   | Striker to Head                     | 644         | 49.3      | 555         | 40.0      |
| <b>SH</b>   | Striker to H-Point                  | 540         | 23.4      | 628         | 19.3      |

## DATA SHEET NO. 4 - DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

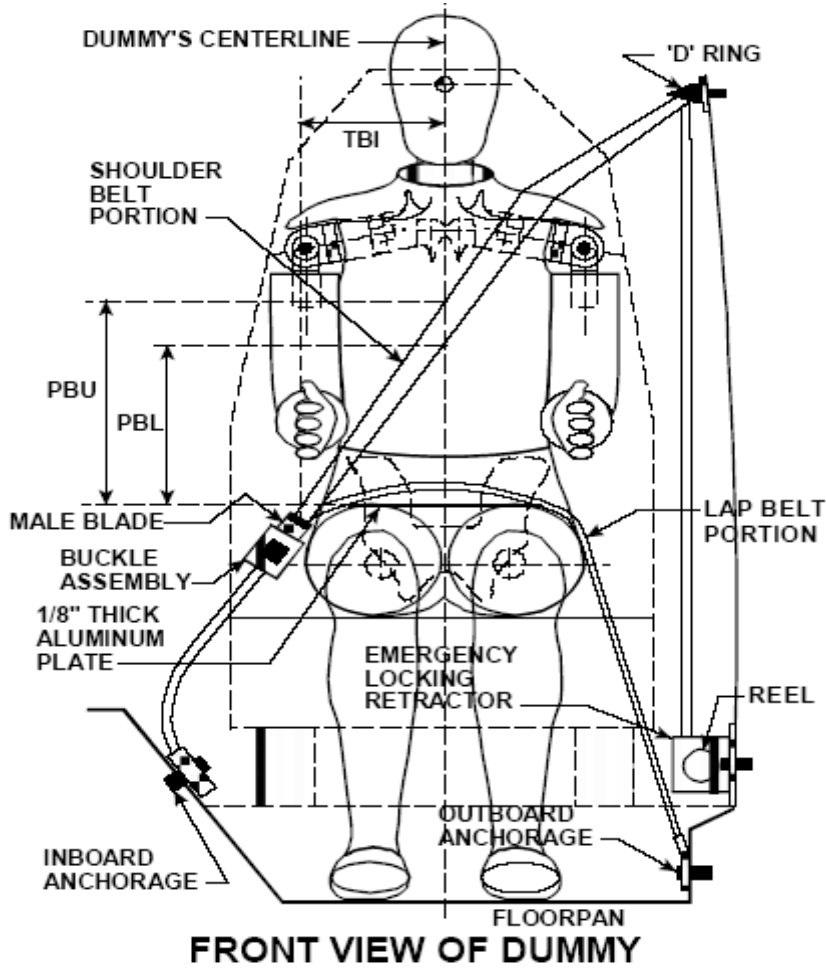


| Code | Measurement Description          | Driver | Passenger |
|------|----------------------------------|--------|-----------|
| AD   | Arm to Door                      | 133    | 80        |
| HD   | H-Point to Door                  | 142    | 205       |
| HR   | Head to Side Header              | 195    | 265       |
| HS   | Head to Side Window              | 334    | 407       |
| KK   | Knee to Knee                     | 284    | 165       |
| SHY  | Striker to H-Point (Y Direction) | 234    | 265       |
| AA   | Ankle to Ankle                   | 286    | 165       |

**DATA SHEET NO. 5 - SEAT BELT POSITIONING DATA**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024



**SEAT BELT POSITIONING MEASUREMENTS**

| Measurement Description                           | Units | Driver | Passenger |
|---|-------|--------|-----------|
| PBU – Top surface of reference to belt upper edge | mm    | 310    | 345       |
| PBL – Top surface of reference to belt lower edge | mm    | 230    | 220       |

**BELT LENGTH DATA**

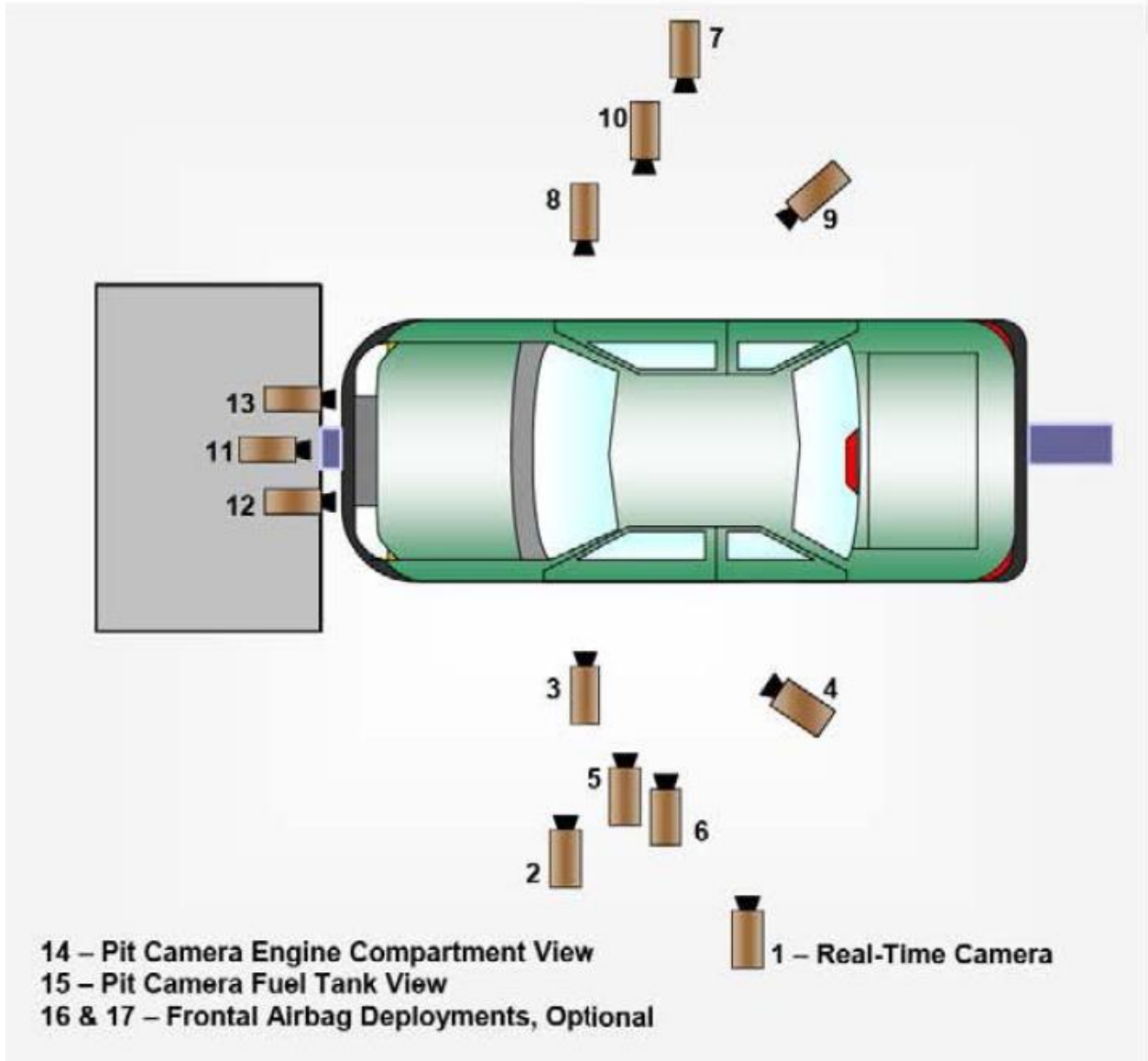
| Measurement Description                          | Units | Driver | Passenger |
|--|-------|--------|-----------|
| Shoulder belt length as measured on ATD          | mm    | 1035   | 1110      |
| Lap belt length as measured on ATD               | mm    | 505    | 610       |
| Remainder of belt on reel                        | mm    | 1500   | 1320      |
| Total belt length for continuous webbing systems | mm    | 3040   | 2540      |

## DATA SHEET NO. 6 - HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2024 Ford Mustang Coupe  
Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
Test Date: 5/7/2024

### CAMERA POSITIONS FOR FRONTAL IMPACTS



**DATA SHEET NO. 6 - HIGH SPEED CAMERA LOCATIONS AND DATA  
(CONT'D)**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

**CAMERA LOCATIONS**

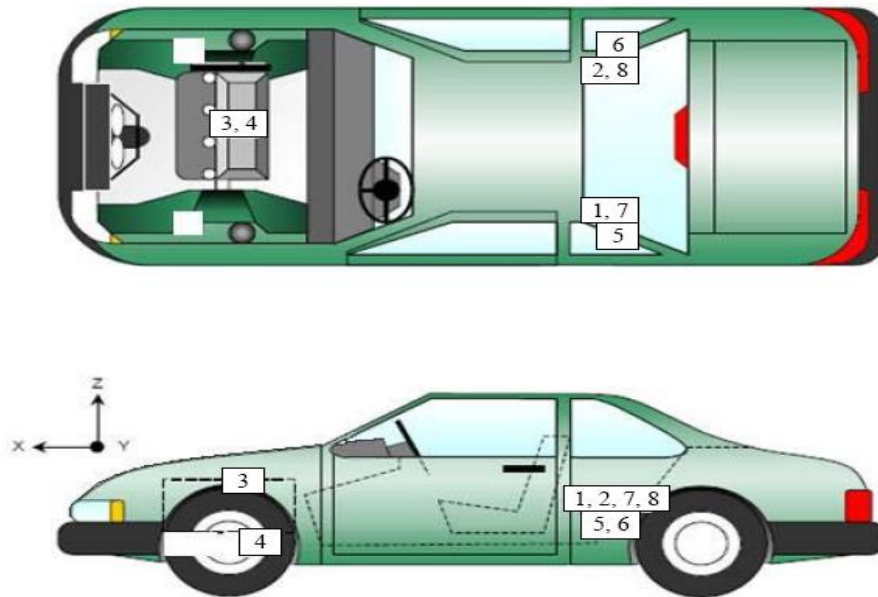
| No. | Camera View            | Location (mm) |       |       | Lens (mm) | Frame Speed (fps) |
|-----|------------------------|---------------|-------|-------|-----------|-------------------|
|     |                        | X             | Y     | Z     |           |                   |
| 1   | REAL-TIME LEFT OVERALL | -990          | -5990 | -1420 | Zoom      | 30                |
| 2   | LEFT OVERALL           | -2644         | -4024 | -1462 | 8.5       | 1000              |
| 3   | DRIVER CLOSE-UP        | -2572         | -4162 | -1699 | 50        | 1000              |
| 4   | LEFT FRONT HALF        | -1573         | -4612 | -1240 | 25        | 1000              |
| 5   | LEFT ANGLE             | -3555         | -2466 | -1790 | 20        | 1000              |
| 6   | STEERING COLUMN        | -2412         | -4799 | -1600 | 50        | 1000              |
| 7   | RIGHT OVERALL          | -2290         | 4312  | -1500 | 8.5       | 1000              |
| 8   | PASSENGER CLOSE-UP     | -2199         | 4600  | -1701 | 50        | 1000              |
| 9   | RIGHT FRONT HALF       | -1500         | 4610  | -1340 | 25        | 1000              |
| 10  | RIGHT ANGLE            | -3150         | 2565  | -1900 | 20        | 1000              |
| 11  | WINDSHIELD             | 0             | 0     | -2615 | 20        | 1000              |
| 12  | DRIVER WINDSHIELD      | 0             | -320  | -2650 | 16        | 1000              |
| 13  | PASSENGER WINDSHIELD   | 0             | 250   | -2670 | 16        | 1000              |
| 14  | PIT FRONT              | -899          | 0     | 3044  | 20        | 1000              |
| 15  | PIT REAR               | -3251         | 0     | 3110  | 20        | 1000              |
| 16  | DRIVER ONBOARD         |               |       |       | 8.5       | 1000              |
| 17  | PASSENGER ONBOARD      |               |       |       | 8.5       | 1000              |

Reference Points: +X – forward of impact plane  
 +Y – right of monorail center  
 +Z – into ground

## DATA SHEET NO. 7 - VEHICLE ACCELEROMETER DATA

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024



### VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

| No. | Accelerometer Location                          | Measurements (mm) |      |      |
|-----|---|-------------------|------|------|
|     |   | X                 | Y    | Z    |
| 1   | Left Rear Accelerometer – X Direction           | 1824              | -326 | -512 |
| 2   | Right Rear Accelerometer – X Direction          | 1820              | 286  | -508 |
| 3   | Engine Top X                                    | 3945              | 40   | -889 |
| 4   | Engine Bottom X                                 | 3870              | 45   | -183 |
| 5   | Left Rear Accelerometer – Z Direction           | 1818              | -321 | -512 |
| 6   | Right Rear Accelerometer – Z Direction          | 1814              | 286  | -508 |
| 7   | Left Rear Accelerometer – X Direction Redundant | 1818              | -326 | -512 |
| 8   | Right Rear Accelerometer- X Direction Redundant | 1814              | -263 | -508 |

Reference Points: X – Rear Surface of Vehicle (+ forward)  
 Y – Vehicle Centerline (+ to right)  
 Z – Ground Plane (+ down)

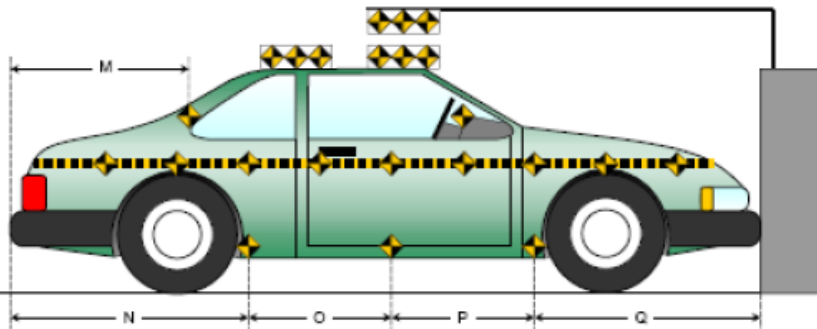
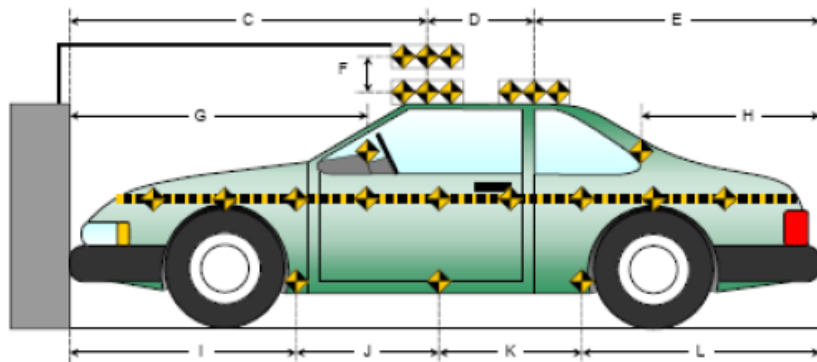
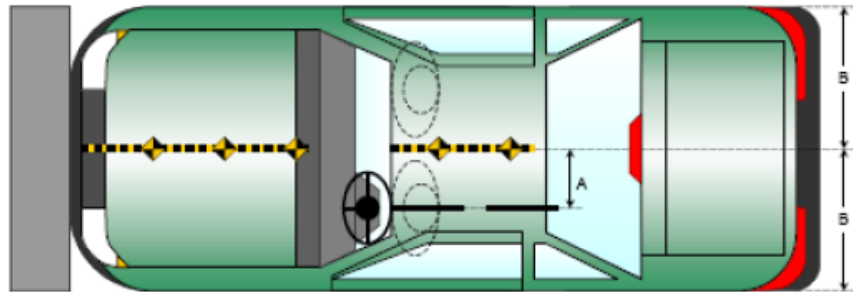
## DATA SHEET NO. 8 - PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

| Item | Value |
|------|-------|
| A    | 295   |
| B    | 96    |
| C    | 2500  |
| D    | 600   |
| E    | 1710  |
| F    | 580   |
| G    | 1980  |
| H    | 1268  |
| I    | 1401  |
| J    | 1157  |
| K    | 656   |
| L    | 1586  |
| M    | 1252  |
| N    | 1581  |
| O    | 667   |
| P    | 1147  |
| Q    | 1405  |

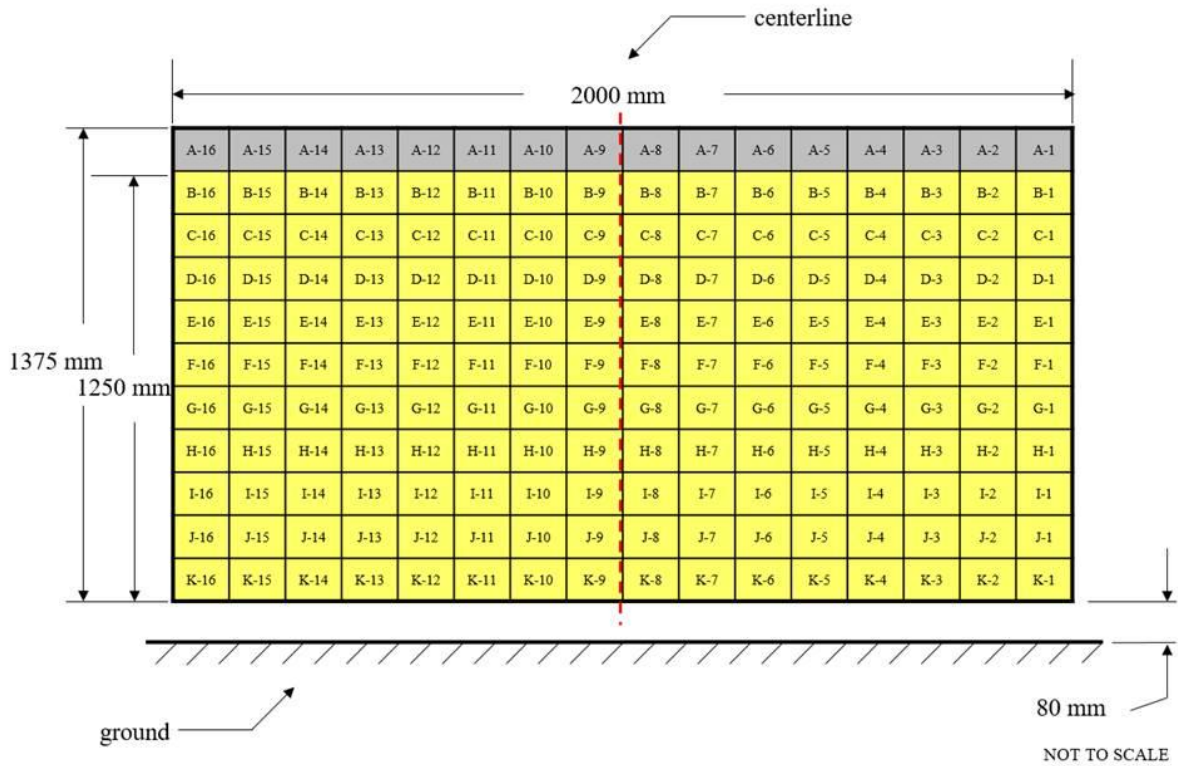
All units in millimeters



## DATA SHEET NO. 9 - LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024



## DATA SHEET NO. 10 - TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2024 Ford Mustang Coupe  
Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
Test Date: 5/7/2024

### INSTRUMENTATION

| <b>Instrumentation</b>           | <b>Number of Channels Collected</b> |
|----------------------------------|-------------------------------------|
| Driver Dummy Accelerometers      | 47                                  |
| Passenger Dummy Accelerometers   | 47                                  |
| Vehicle Structure Accelerometers | 8                                   |
| <b>Total</b>                     | <b>102</b>                          |

### CAMERA COVERAGE

| <b>Type of Camera</b>      | <b>Number Used in this Test</b> |
|----------------------------|---------------------------------|
| High-Speed Vehicle Onboard | 2                               |
| High-Speed Offboard        | 14                              |
| Real-Time Panning          | 2                               |
| <b>Total</b>               | <b>18</b>                       |

**DATA SHEET NO. 11 - POST-TEST OBSERVATIONS**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

**TEST DUMMY INFORMATION AND CONTACT LOCATIONS**

| Description             | Driver                | Passenger               |
|-------------------------|-----------------------|-------------------------|
| Dummy Type / Serial No. | Hybrid III 50th / 037 | Hybrid III 5th / DH1659 |
| Head Contact            | Frontal Airbag        | Frontal Airbag          |
| Upper Torso Contact     | Frontal Airbag        | Frontal Airbag          |
| Lower Torso Contact     | Frontal Airbag        | Frontal Airbag          |
| Left Knee Contact       | Knee Airbag           | Frontal Airbag          |
| Right Knee Contact      | Knee Airbag           | Frontal Airbag          |

**DOOR OPENING, TRUNK OPENING, AND SEAT TRACK INFORMATION**

| Description                                | Driver | Passenger | Other |
|--|--------|-----------|-------|
| Locked/Unlocked Doors**                    | Locked | Locked    |       |
| Front Door Opening**                       | No     | No        |       |
| Rear Door Opening**                        | No     | No        |       |
| Trunk/Hatch/Tailgate Opening**             |        |           | No    |
| Seat Track Shift (mm) **                   | No     | No        |       |
| Seat Back Movement from Initial Position** | No     | No        |       |

**POST- OTHER VEHICLE POST-TEST OBSERVATIONS**

| Critical Areas of Performance | Observations           |
|-------------------------------|------------------------|
| Windshield Damage             | Passenger side cracked |
| Window Damage                 | None                   |
| Other Notable Effects         | None                   |

**VEHICLE REBOUND FROM BARRIER**

| Measured Parameter | Units | Value |
|--------------------|-------|-------|
| Left Side          | mm    | 940   |
| Center             | mm    | 935   |
| Right Side         | mm    | 960   |
| Average            | mm    | 945   |

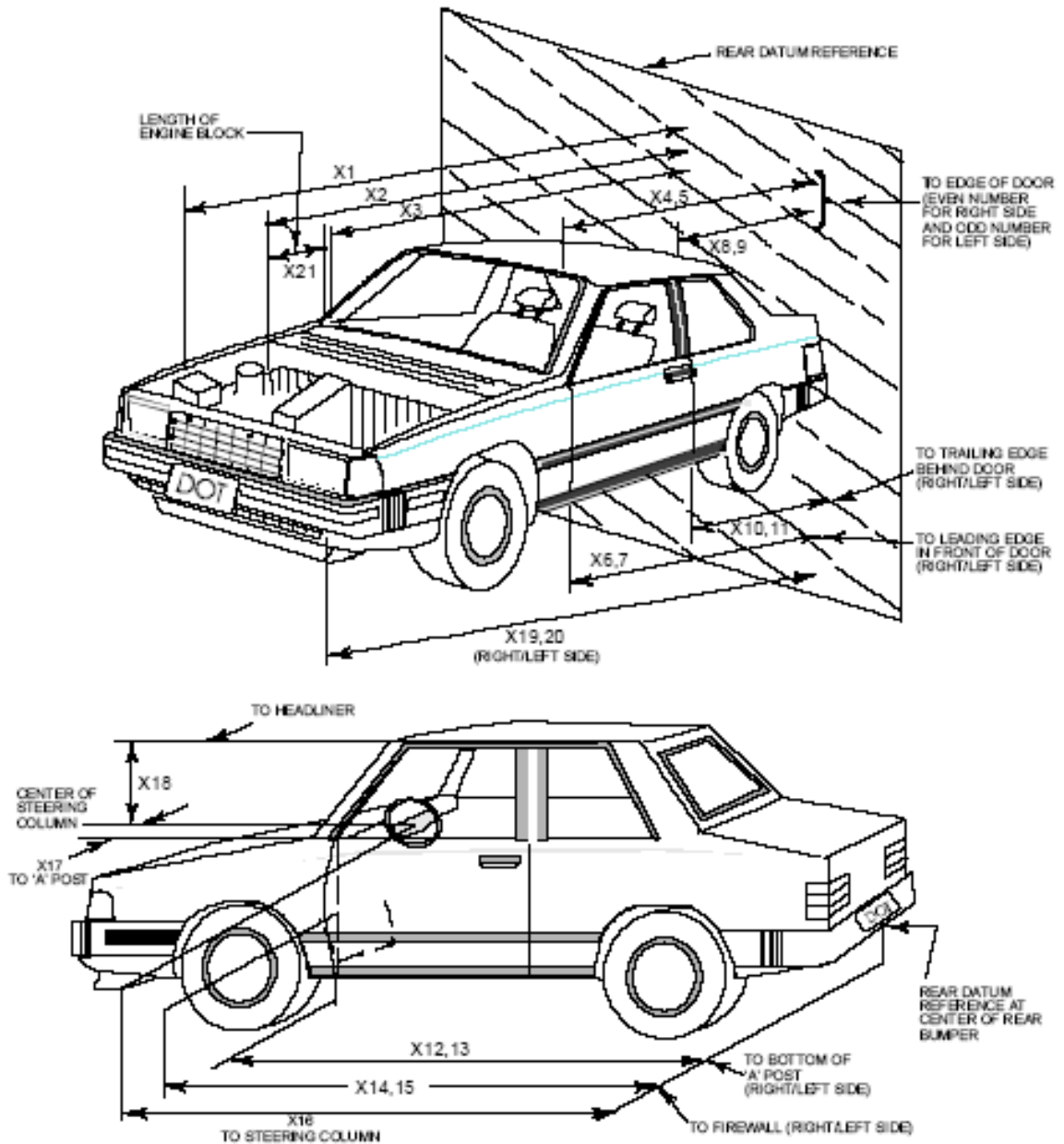
**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

| Restraint Type                | Driver (Occupant 1) |          | Passenger (Occupant 2) |          |
|-------------------------------|---------------------|----------|------------------------|----------|
|                               | Installed           | Deployed | Installed              | Deployed |
| Front Airbag                  | Yes                 | Yes      | Yes                    | Yes      |
| Torso/Pelvis Side Airbag      | Yes                 | No       | Yes                    | No       |
| Curtain Side Airbag           | Yes                 | No       | Yes                    | No       |
| Knee Airbag                   | Yes                 | Yes      | Yes                    | No       |
| Seat Belt Pretensioner        | Yes                 | Yes      | Yes                    | Yes      |
| Seat Belt Load Limiter        | Yes                 | Yes      | Yes                    | Yes      |
| Seat Belt Buckle Pretensioner | No                  | N/A      | No                     | N/A      |
| Other:                        | No                  | N/A      | No                     | N/A      |

## DATA SHEET NO. 12 - VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024



**DATA SHEET NO. 12 - VEHICLE PROFILE MEASUREMENTS (CONT'D)**

Test Vehicle: 2024 Ford Mustang Coupe

NHTSA No.: M20240205

Test Program: NCAP Frontal Impact

Test Date: 5/7/2024

| <b>No.</b> | <b>Measurement Description</b>                    | <b>Pre-Test</b> | <b>Post-Test</b> | <b>Change</b> |
|------------|---|-----------------|------------------|---------------|
| 1          | Total Length of Vehicle at Centerline             | 4800            | 4270             | -530          |
| 2          | Rear Surface of Vehicle (RSOV) to Front of Engine | 4010            | 3905             | -105          |
| 3          | RSOV to Firewall                                  | 3454            | 3375             | -79           |
| 4          | RSOV to Upper Leading Edge of Right Door          | 3048            | 3021             | -27           |
| 5          | RSOV to Upper Leading Edge of Left Door           | 3068            | 3039             | -29           |
| 6          | RSOV to Lower Leading Edge of Right Door          | 3078            | 3053             | -25           |
| 7          | RSOV to Lower Leading Edge of Left Door           | 3073            | 3050             | -23           |
| 8          | RSOV to Upper Trailing Edge of Right Door         | 1816            | 1792             | -24           |
| 9          | RSOV to Upper Trailing Edge of Left Door          | 1817            | 1789             | -28           |
| 10         | RSOV to Lower Trailing Edge of Right Door         | 1989            | 1956             | -33           |
| 11         | RSOV to Lower Trailing Edge of Left Door          | 1996            | 1963             | -33           |
| 12         | RSOV to Bottom of "A" Post-of Right Side          | 3046            | 3020             | -26           |
| 13         | RSOV to Bottom of "A" Post-of Left Side           | 3046            | 3022             | -24           |
| 14         | RSOV to Firewall, Right Side                      | 3467            | 3675             | 208           |
| 15         | RSOV to Firewall, Left Side                       | 3350            | 3386             | 36            |
| 16         | RSOV to Steering Column                           | 2820            | 2685             | -135          |
| 17         | Center of Steering Column to "A" Post             | 336             | 360              | 24            |
| 18         | Center of Steering Column to Headliner            | 383             | 440              | 57            |
| 19         | RSOV to Right Side of Front Bumper                | 4547            | 4220             | -327          |
| 20         | RSOV to Left Side of Front Bumper                 | 4550            | 4226             | -324          |
| 21         | Length of Engine Block                            | 520             | 520              | 0             |
| RD         | RSOV to Right Side of Dash Panel                  | 2853            | 2825             | -28           |
| CD         | RSOV to Center of Dash Panel                      | 2863            | 2842             | -21           |
| LD         | RSOV to Left Side of Dash Panel                   | 2852            | 2828             | -24           |

All Dimensions in mm

**DATA SHEET NO. 13 - ACCIDENT INVESTIGATION DIVISION DATA**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

**VEHICLE INFORMATION**

VIN: 1FA6P8TH9R5122285  
 Vehicle Size Category: Passenger Car

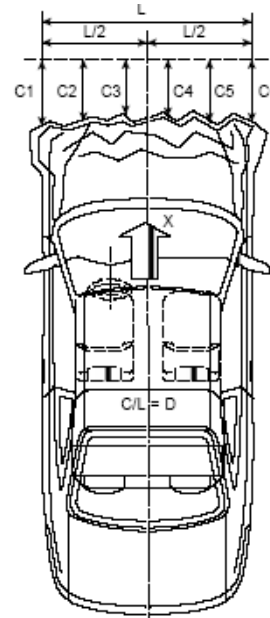
Wheelbase: 2719  
 Test Weight (kg): 1773.2

**ACCELEROMETER DATA**

Accelerometer Locations: As listed on Page 15 of this report.  
 Cal. Procedure/Interval: TRC procedure / 6 month interval  
 Integration Algorithm: Trapezoidal  
 Linearity: > 99%  
 Impact Velocity (km/h): 56.33  
 Velocity Change (km/h): 61.53  
 Time of Separation (ms): 143

**CRUSH PROFILE**

Collision Deformation Classification: 12FDEW2  
 Midpoint of Damage: Centerline  
 Damage Region Length (mm): 1676  
 Impact Mode: Frontal



| No. | Measurement Description    | Units | Pre-Test | Post-Test | Crush |
|-----|----------------------------|-------|----------|-----------|-------|
| C1  | Crush zone 1 at left side  | mm    | 248      | 572       | 324   |
| C2  | Crush zone 2 at left side  | mm    | 53       | 570       | 517   |
| C3  | Crush zone 3 at left side  | mm    | 0        | 533       | 533   |
| C4  | Crush zone 4 at right side | mm    | 0        | 539       | 539   |
| C5  | Crush zone 5 at right side | mm    | 48       | 581       | 533   |
| C6  | Crush zone 6 at right side | mm    | 251      | 578       | 327   |
| L   | C1 to C6                   | mm    | 1676     | 1650      | -26   |

## DATA SHEET NO. 14 - VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

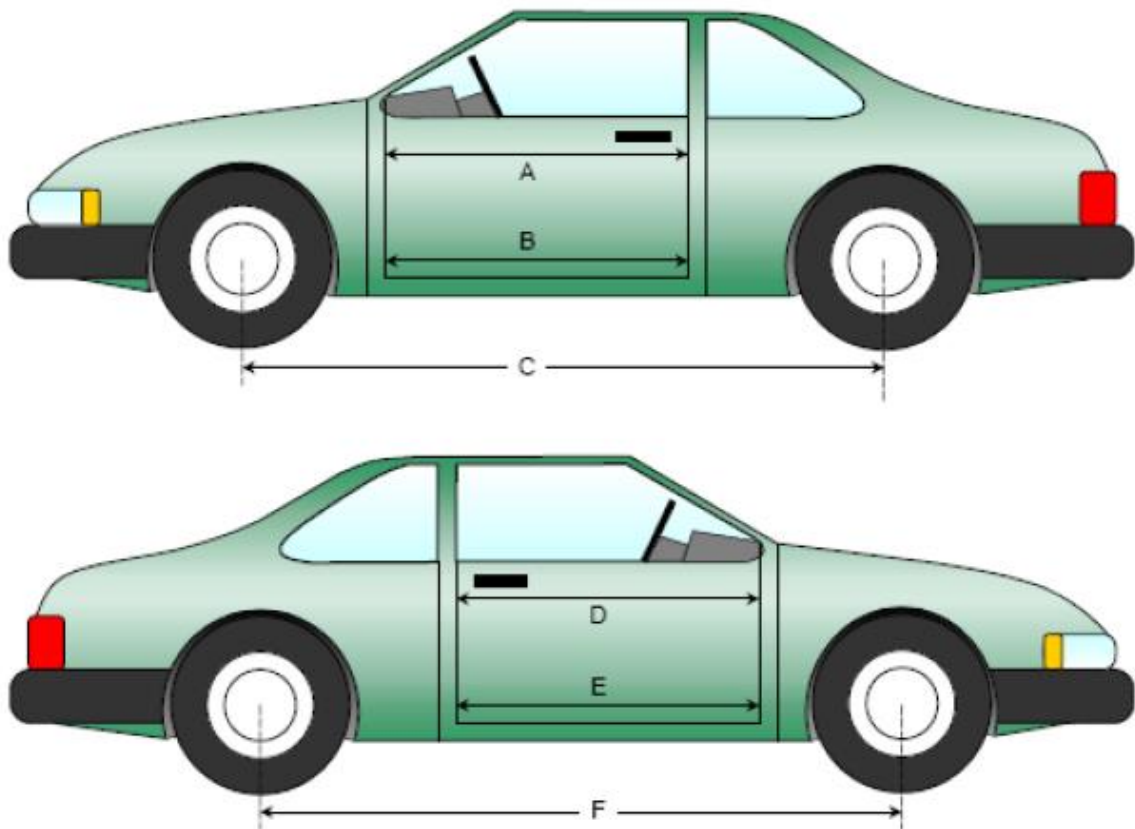
NHTSA No.: M20240205  
 Test Date: 5/7/2024

### DOOR OPENING WIDTH

| No. | Description      | Units | Pre-Test | Post-Test | Change |
|-----|------------------|-------|----------|-----------|--------|
| A   | Left Side Upper  | mm    | 1222     | 1220      | -2     |
| B   | Left Side Lower  | mm    | 1066     | 1067      | 1      |
| D   | Right Side Upper | mm    | 1222     | 1222      | 0      |
| E   | Right Side Lower | mm    | 1052     | 1056      | 4      |

### WHEELBASE MEASUREMENTS

| No. | Description          | Units | Pre-Test | Post-Test | Change |
|-----|----------------------|-------|----------|-----------|--------|
| C   | Left Side Wheelbase  | mm    | 2719     | 2615      | -104   |
| F   | Right Side Wheelbase | mm    | 2719     | 2638      | -81    |



<sup>1</sup> Front suspension damaged and wheels fell off measurements not available

**DATA SHEET NO. 14 - VEHICLE INTRUSION MEASUREMENTS (CONT'D)**

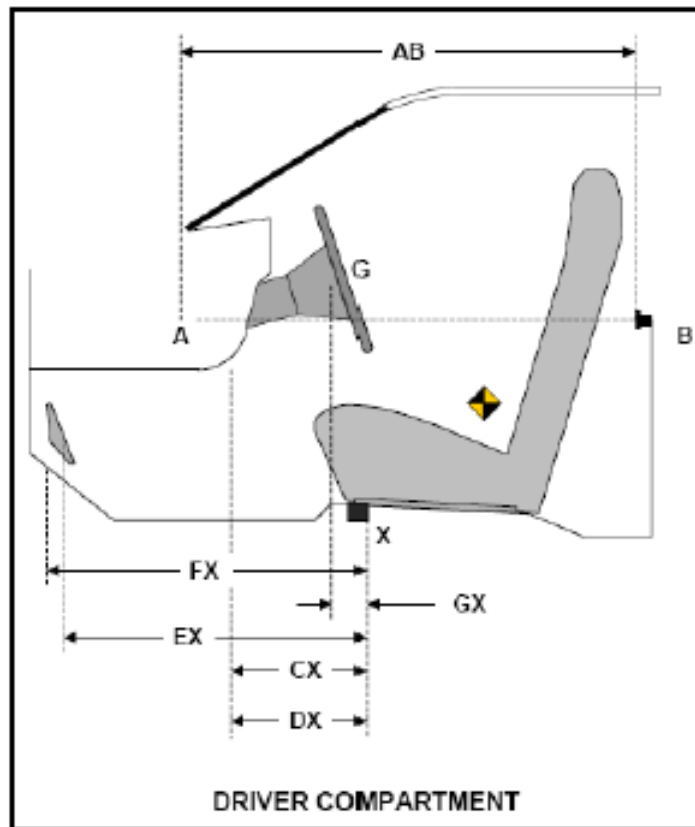
Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

**DRIVER COMPARTMENT INTRUSION**

| Item | Description                              | Units | Pre-Test | Post-Test | Change |
|------|--|-------|----------|-----------|--------|
| AB   | Door Opening (Inside Window Jam)         | mm    | 1190     | 1190      | 0      |
| CX   | Left Knee Bolster to X                   | mm    | 355      | 336       | -19    |
| DX   | Right Knee Bolster to X                  | mm    | 335      | 314       | -21    |
| EX   | Brake Pedal to X                         | mm    | 588      | 583       | -5     |
| FX   | Foot Rest to X                           | mm    | 620      | 618       | -2     |
| GX   | Center of Steering Column Wheel Hub to X | mm    | 292      | 273       | -19    |

X = Front of Seat Track (Stationary)



**DATA SHEET NO. 15 - SUMMARY OF INDICANT FMVSS 212 AND FMVSS 219  
(PARTIAL) DATA**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

Please provide windshield mounting details.

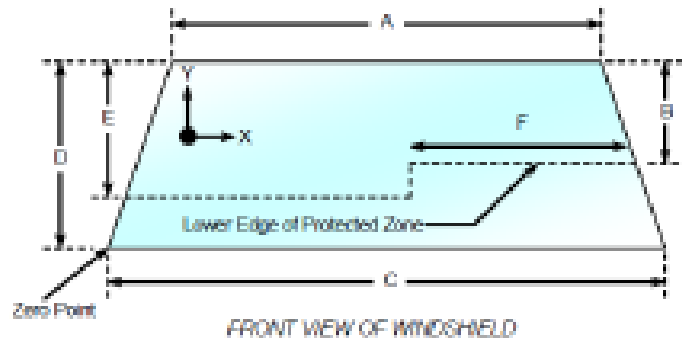
The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicle not equipped with occupant passive restraint and 50% for each side of the windshield for vehicle which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.0°C

**WINDSHIELD PERIPHERY MEASUREMENTS**

| Measurement | Pre-Test (mm) | Post-Test (mm) | % Retention |
|-------------|---------------|----------------|-------------|
| Left Side   | 2125          | 2125           | 100.0       |
| Right Side  | 2125          | 2125           | 100.0       |
| Total       | 4250          | 4250           | 100.0       |

| Item | Units | Value |
|------|-------|-------|
| A    | mm    | 1290  |
| B    | mm    | 330   |
| C    | mm    | 1540  |
| D    | mm    | 710   |
| E    | mm    | 381   |
| F    | mm    | 550   |



**AREAS OF PROTECTED ZONE FAILURES**

A. Provide coordinates of the area that the protected zone was penetrated more than .25 inches by a vehicle component other than one that is normally in contact with the windshield.

| X   | Y   |
|-----|-----|
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |

B. The inner surface of the windshield was penetrated by the hood support beneath the protected zone.

| X   | Y   |
|-----|-----|
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |

**DATA SHEET NO. 16 - FMVSS 301 BARRIER IMPACT AND STATIC ROLLOVER RESULTS**

Test Vehicle: 2024 Ford Mustang Coupe  
Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
Test Date: 5/7/2024

**FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA**

Temperature at Time of Impact: 21.0°C

Test Time: 18:00

Stoddard Solvent Spillage Measurements

- A From impact until vehicle motion ceases: 0 oz.  
(maximum allowable – 1 oz.)
- B For the 5-minute period after motion ceases: 0 oz.  
(maximum allowable – 5 oz.)
- C For the following 25 minutes: 0 oz.  
(maximum allowable – 1 oz./minutes)
- D Spillage: None

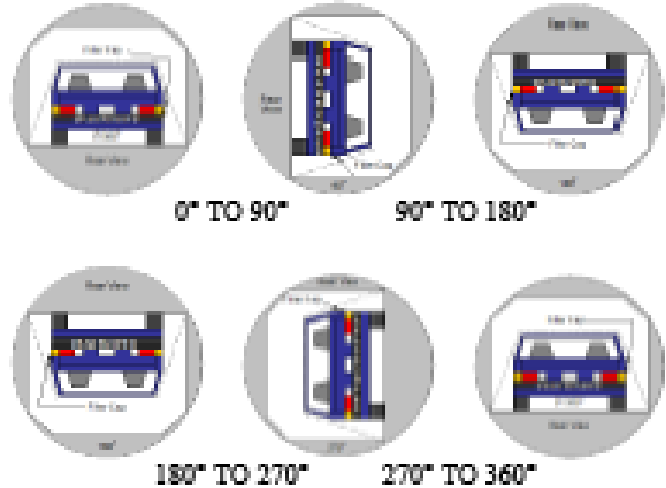
**DATA SHEET NO. 16 - FMVSS 301 BARRIER IMPACT AND STATIC ROLLOVER RESULTS (CONT'D)**

Test Vehicle: 2024 Ford Mustang Coupe  
 Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
 Test Date: 5/7/2024

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage:

None \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**SOLVENT COLLECTION TIME TABLE IN SECONDS**

| Test Phase   | Rotation Time | Hold Time | Total Time |
|--------------|---------------|-----------|------------|
| 0° to 90°    | 90            | 330       | 420        |
| 90° to 180°  | 90            | 330       | 840        |
| 180° to 270° | 90            | 330       | 1260       |
| 270° to 360° | 90            | 330       | 1480       |

**FMVSS 301 SPILLAGE TABLE**

| Test Phase   | First 5 Minutes | Sixth Minute | Seventh Minute | Eighth Minute |
|--------------|-----------------|--------------|----------------|---------------|
| 0° to 90°    | 0               | 0            | 0              | N/A           |
| 90° to 180°  | 0               | 0            | 0              | N/A           |
| 180° to 270° | 0               | 0            | 0              | N/A           |
| 270° to 360° | 0               | 0            | 0              | N/A           |

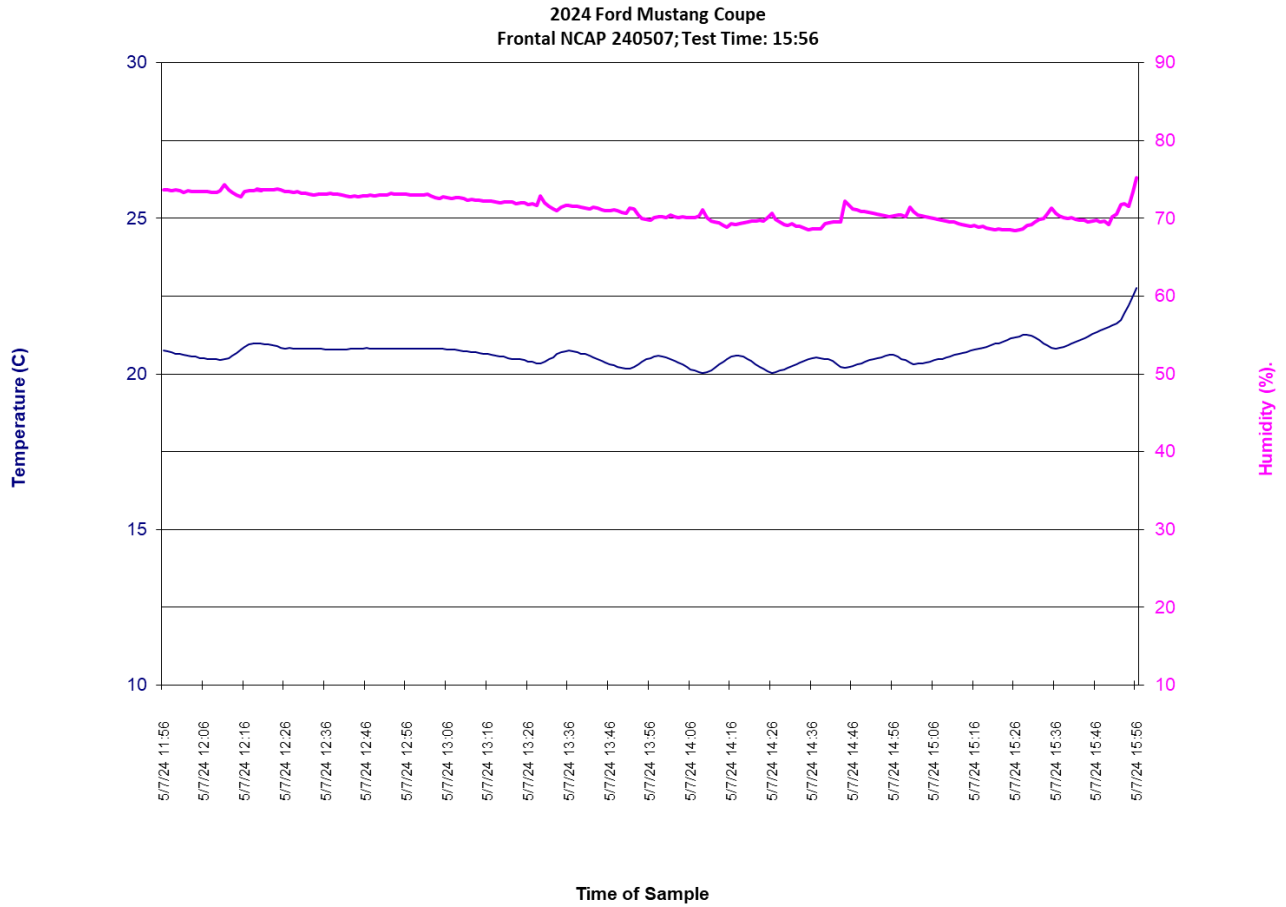
**SOLVENT SPILLAGE LOCATION TABLE**

| Test Phase   | Spillage Location |
|--------------|-------------------|
| 0° to 90°    | None              |
| 90° to 180°  | None              |
| 180° to 270° | None              |
| 270° to 360° | None              |

# DATA SHEET NO. 17 - DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2024 Ford Mustang Coupe  
Test Program: NCAP Frontal Impact

NHTSA No.: M20240205  
Test Date: 5/7/2024



**APPENDIX A**  
**PHOTOGRAPHS**

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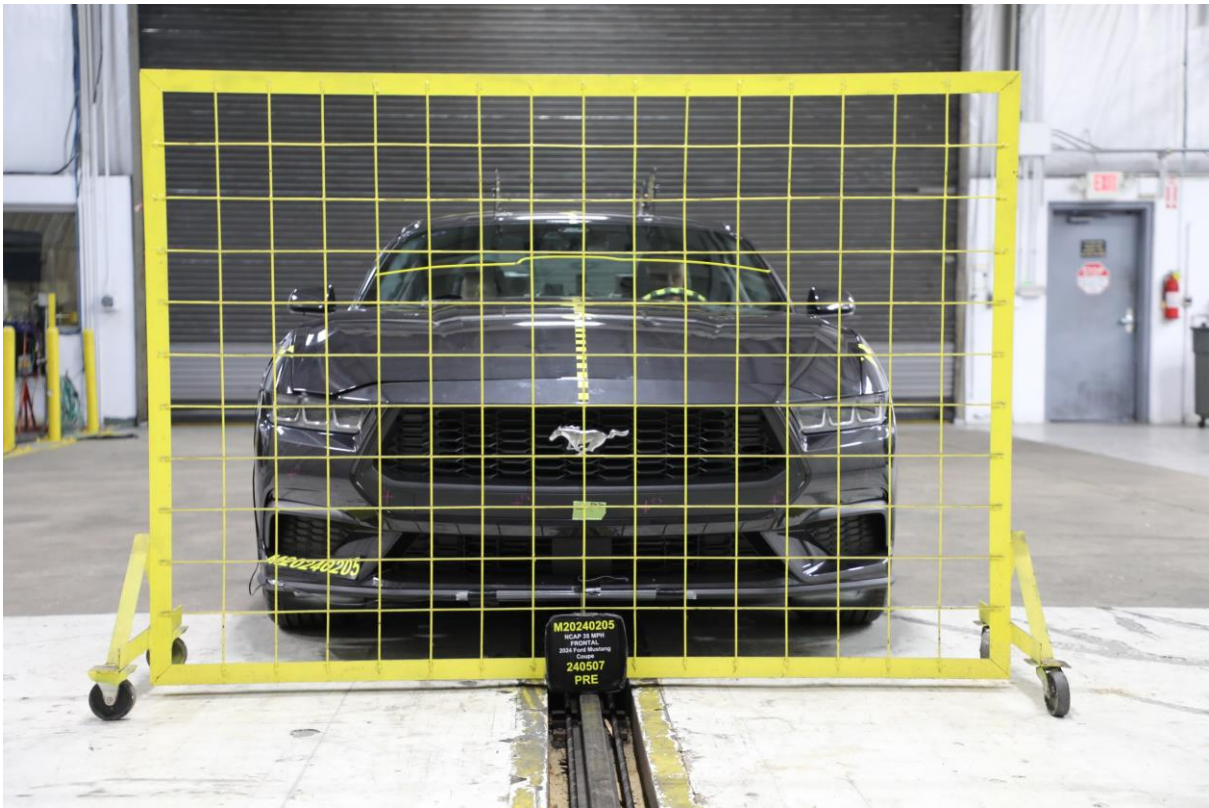
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| <b>33</b>  | Post-Test Driver Dummy Window View           | <b>A-23</b> |

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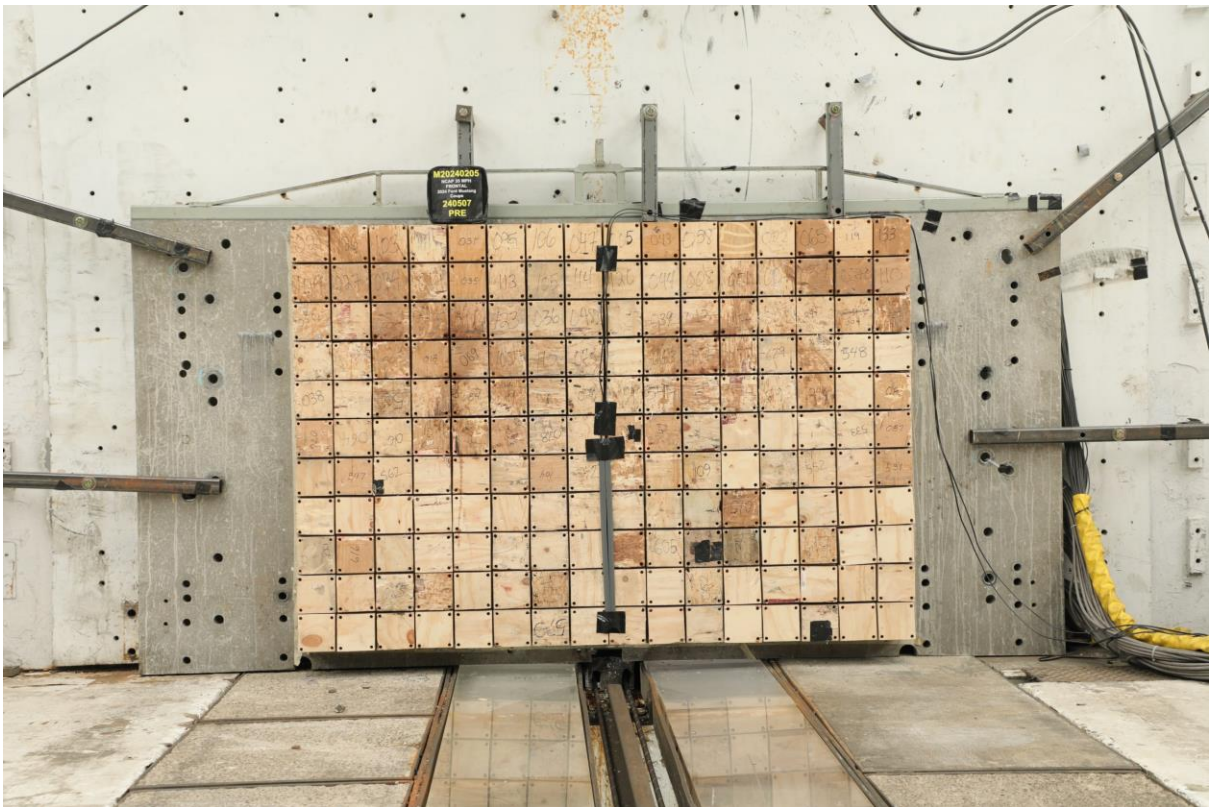
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| 64         | Post-Test View of Belt Buckle and Latch Plate for Passenger Dummy | A-39        |
| 65         | Pre-Test Passenger Dummy Feet                                     | A-40        |
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| 67         | Pre-Test Passenger Side Knee Bolster                              | A-41        |
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| <b>83</b>  | Monroney Label Photograph                                      | <b>A-49</b> |



**001 Load Cell Location**



**002 Pre-Test Load Cell Wall**

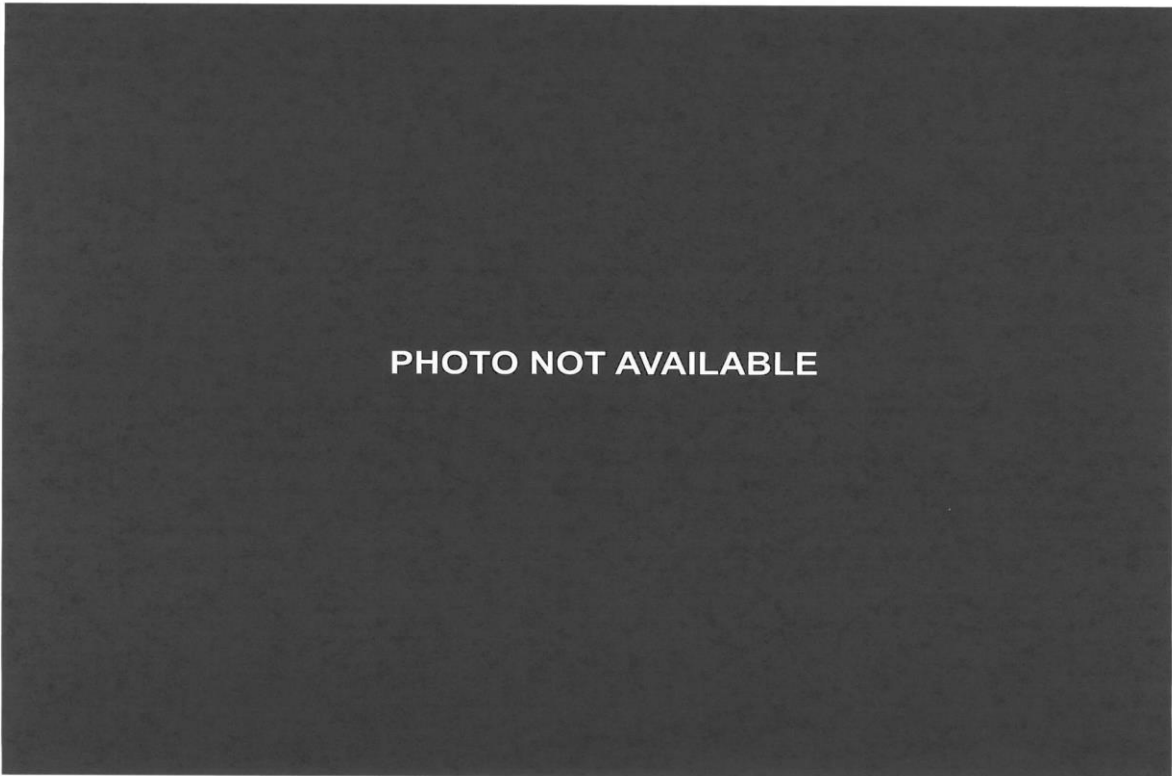


PHOTO NOT AVAILABLE

003 Post-Test Load Cell Wall



MFD. BY FORD MOTOR CO.  
 DATE: 12/23 GVWR: 2050 KG (4520 LB)  
 FRONT GAWR: 1007 KG (2220 LB) REAR GAWR: 1091 KG (2405 LB)  
 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: 1FA6P8TH9R5122285 TYPE: Passenger Car  
 MAXIMUM LOAD = OCCUPANTS + LUGGAGE = 285KG/630LB  
 OCCUPANTS = 4 TOTAL; 2 FRONT, 2 REAR  
 TIRE (FR): 235/50R18 97W RIMS (FR): 18x8.0J  
 (RR): 235/50R18 97W (RR): 18x8.0J  
 PRESSURE (FR): 220 kPa/ 32 PSI COLD (RR): 220 kPa/ 32 PSI COLD  
 1FA6P8TH9R5122285  
 TRAILER TOWING - SEE OWNER GUIDE  
 EXT PNT: HY IRC: 27 IDSO: F0071  
 INT TR TP/PS R AXLE TR SPR R0205  
 2W X YA U BBDD  
 1202312146792 CMC 5USA-5420472-AA

2024 Ford Mustang Coupe  
 M20240205  
 5/7/2024  
 PRE-TEST

004 Manufacturer's Label



005 Tire Placard

Intentionally Left Blank



**006 2024 Ford Mustang Coupe Frontal As Delivered**



**007 Left Rear 3-4 View, as Received**



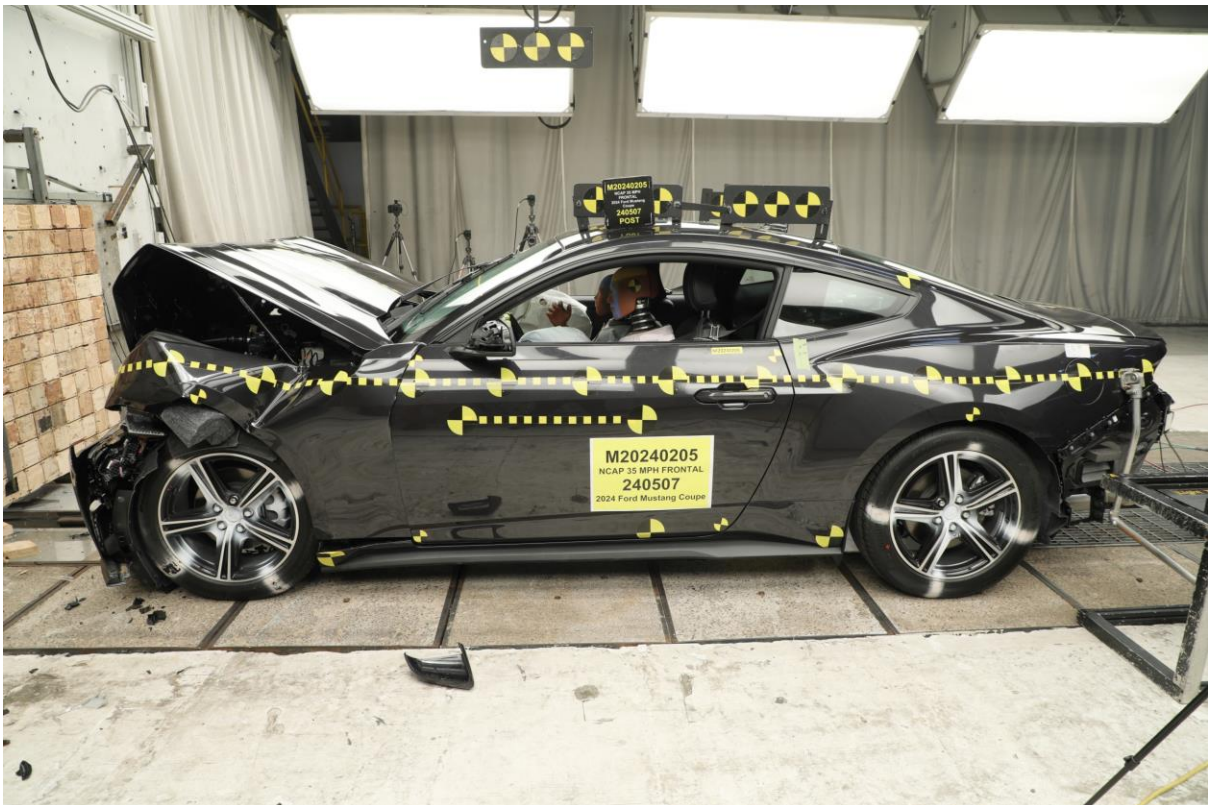
**008 Pre-Test Front View of Test Vehicle**



**009 Post-Test Front View of Test Vehicle**



**010 Pre-Test Left View of Test Vehicle**



**011 Post-Test Left View of Test Vehicle**



**012 Pre-Test Right View of Test Vehicle**



**013 Post-Test Right View of Test Vehicle**



**014 Pre-Test Right Front 3-4 View**



**015 Post-Test Right Front 3-4 View**



**016 Pre-Test Left Rear 3-4 View**



**017 Post-Test Left Rear 3-4 View**



**018 Pre-Test Windshield View**



**019 Post-Test Windshield View**



**020 Pre-Test Engine Compartment View**



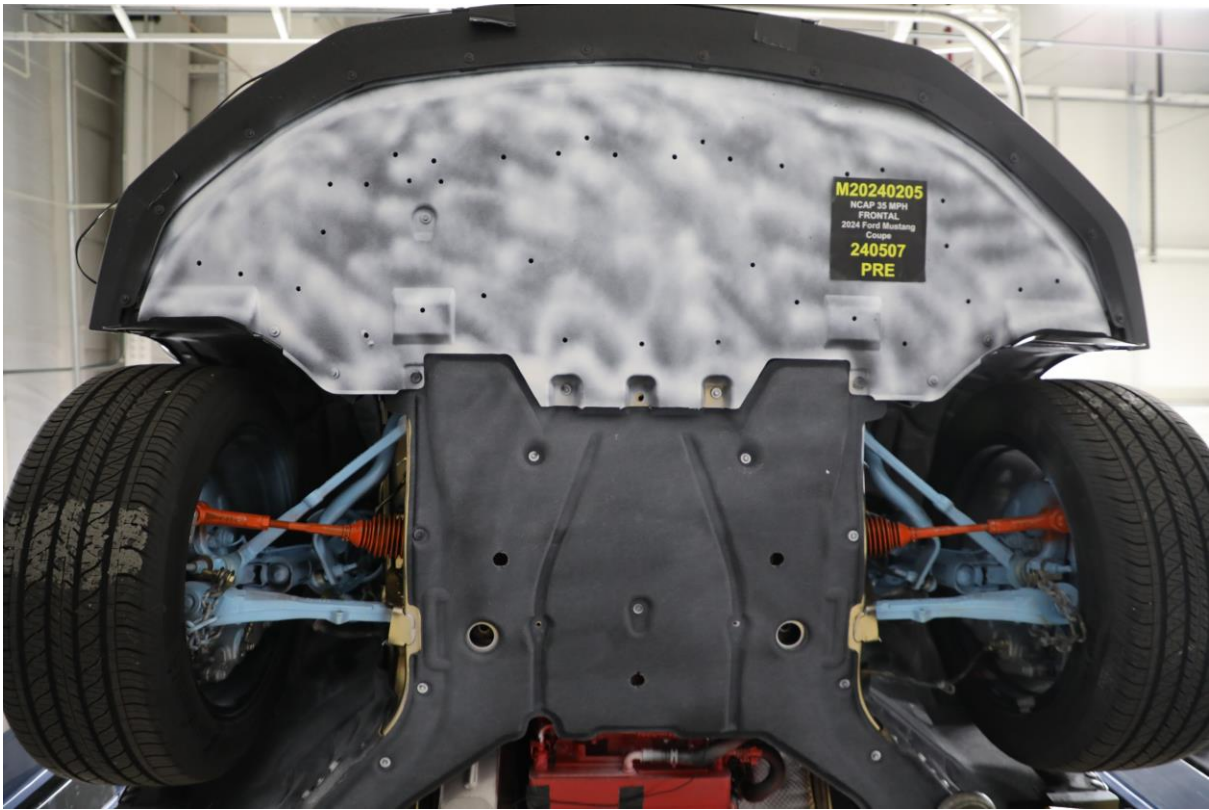
**021 Post-Test Engine Compartment View**



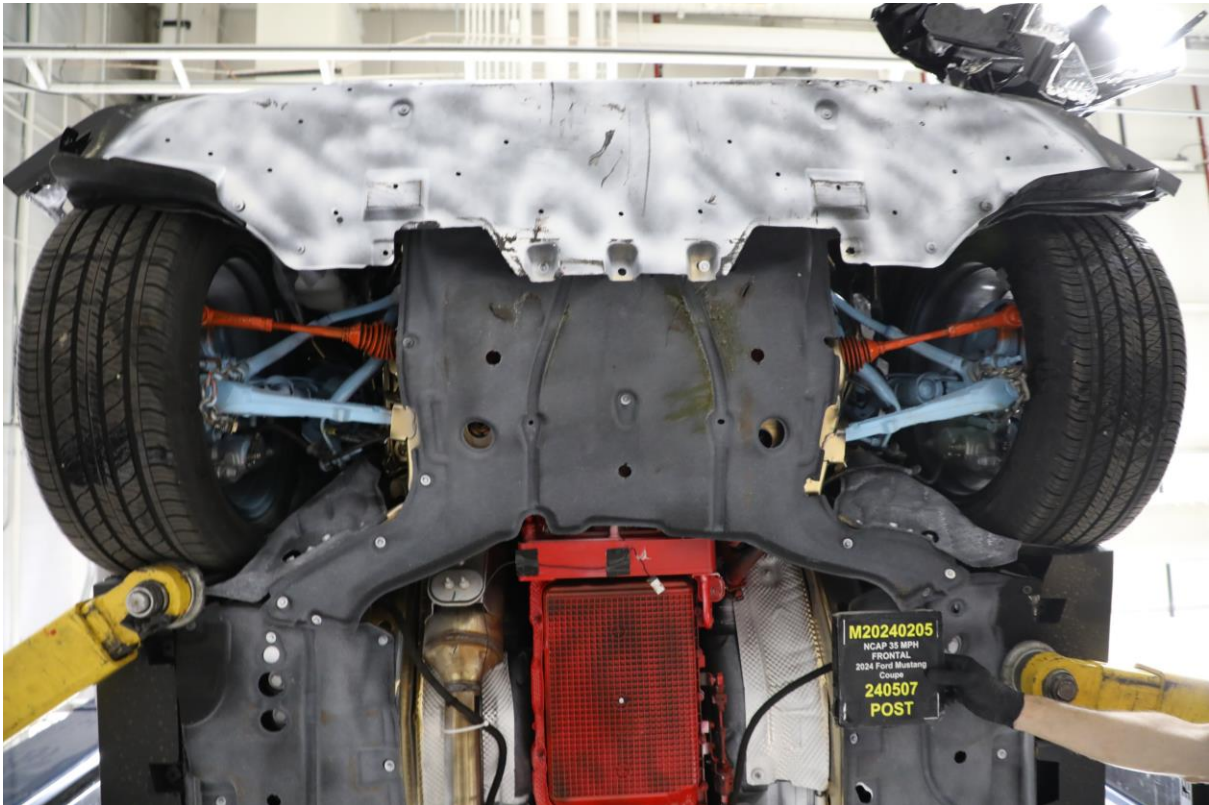
**022 Pre-Test Fuel Filler Cap View**



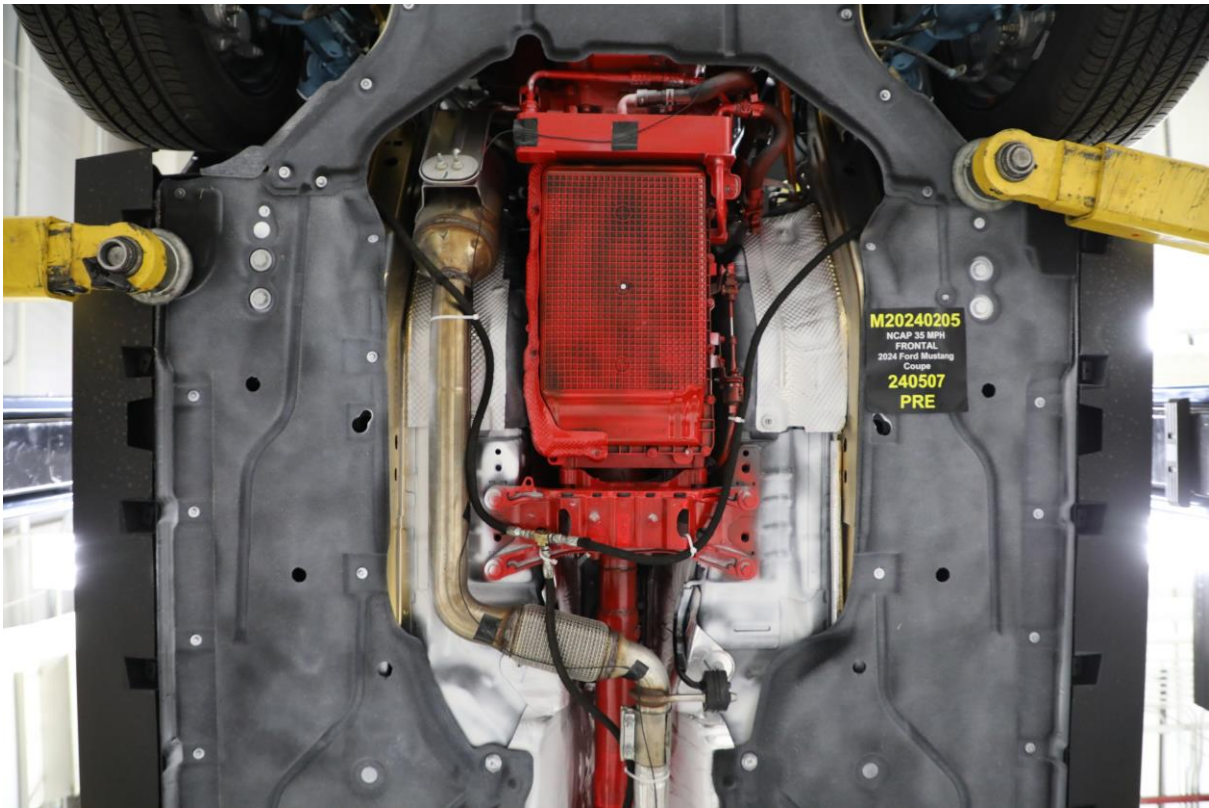
**023 Post-Test Fuel Filler Cap View**



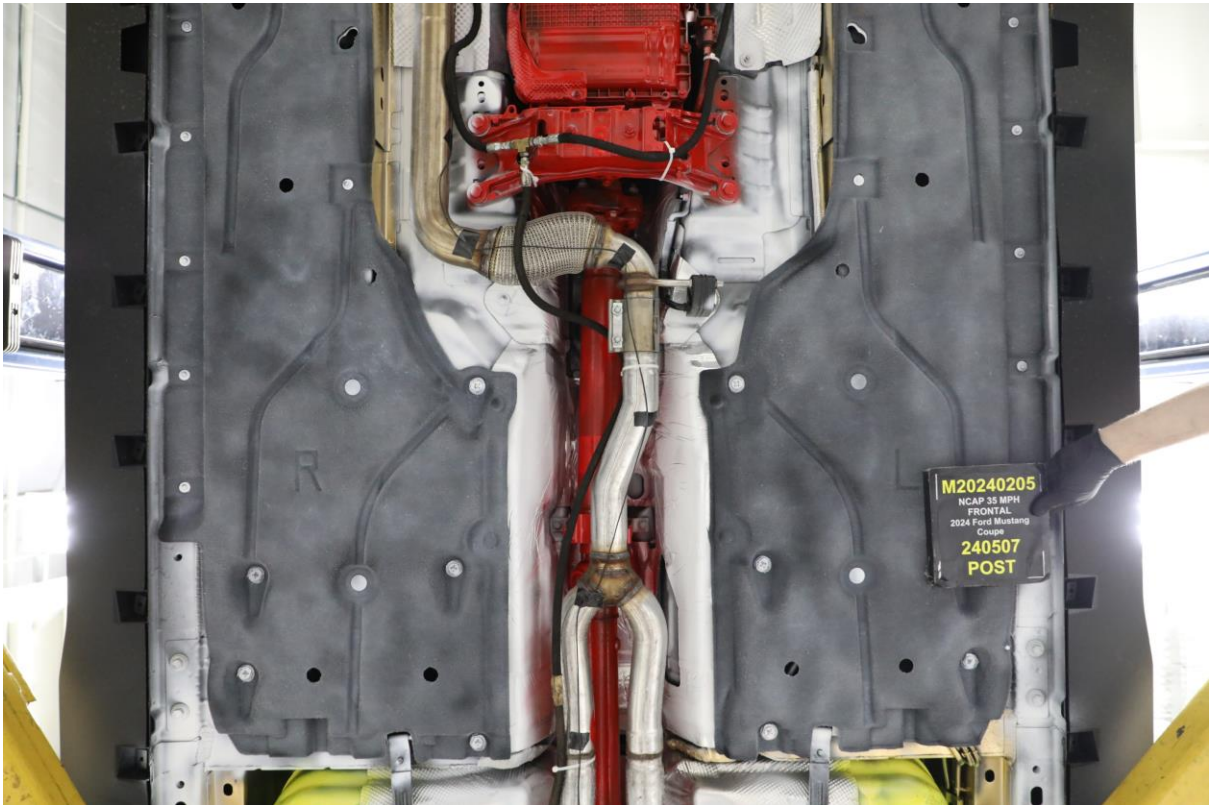
**024 Pre-Test Front Underbody View**



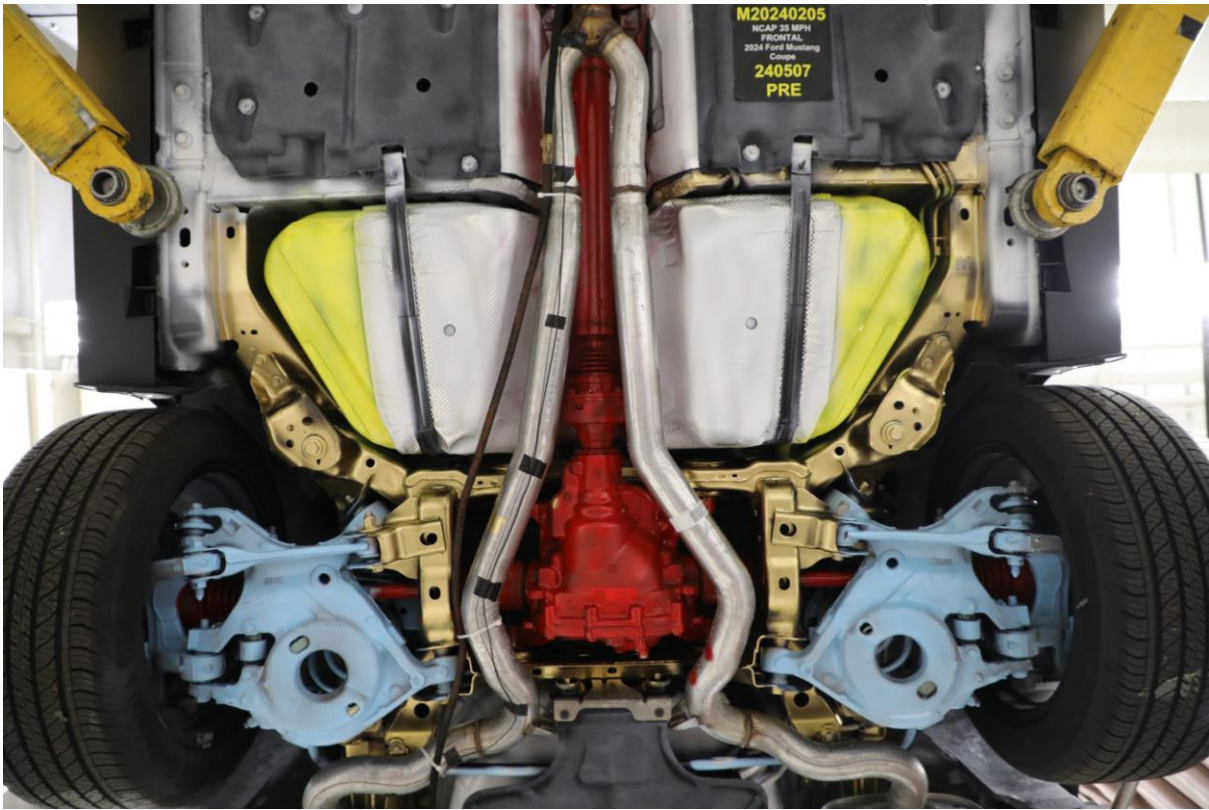
**025 Post-Test Front Underbody View**



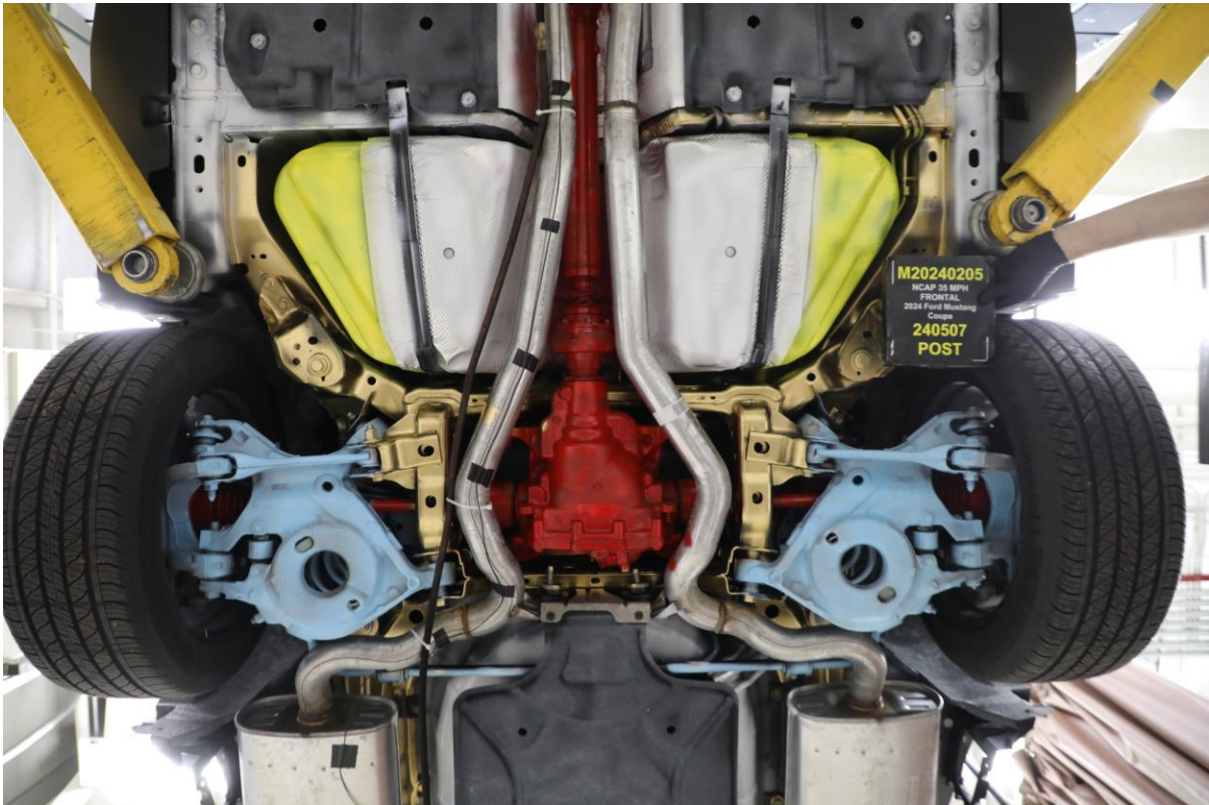
**025a Pre-Test Mid Front Underbody View**



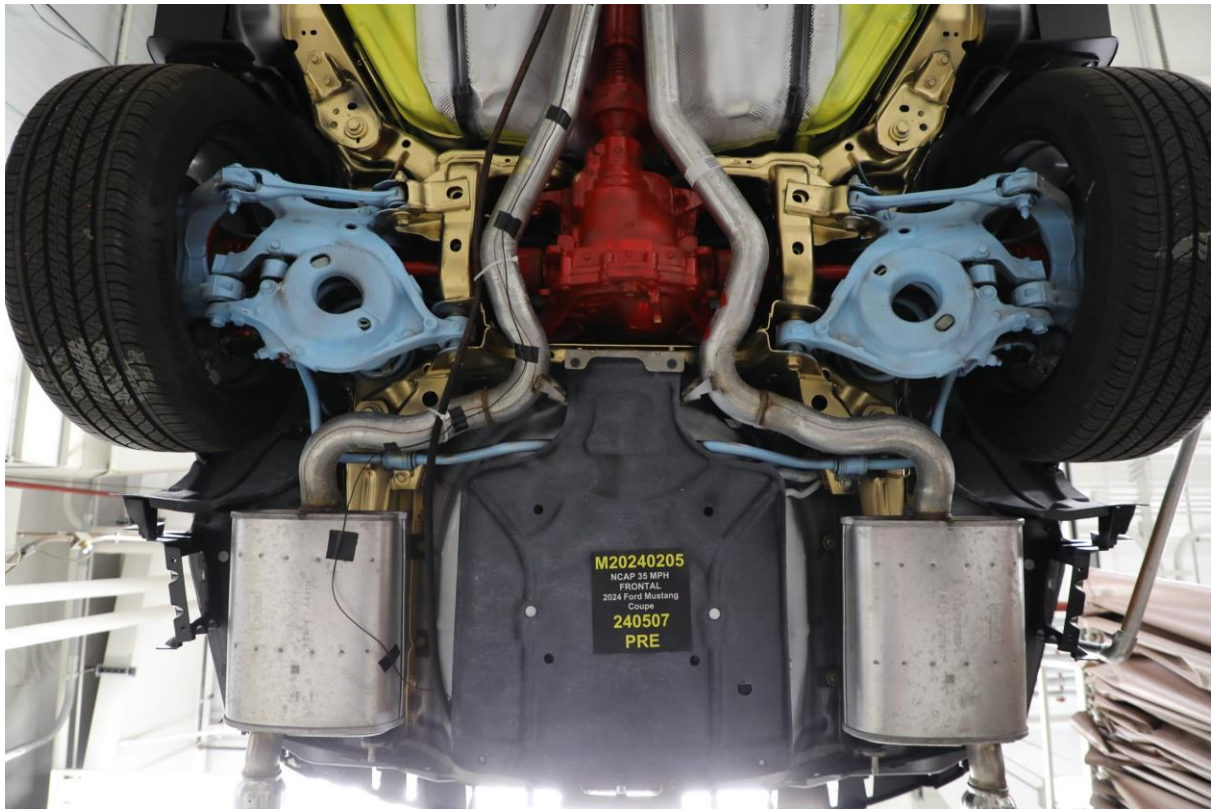
**025b Post-Test Mid Front Underbody View**



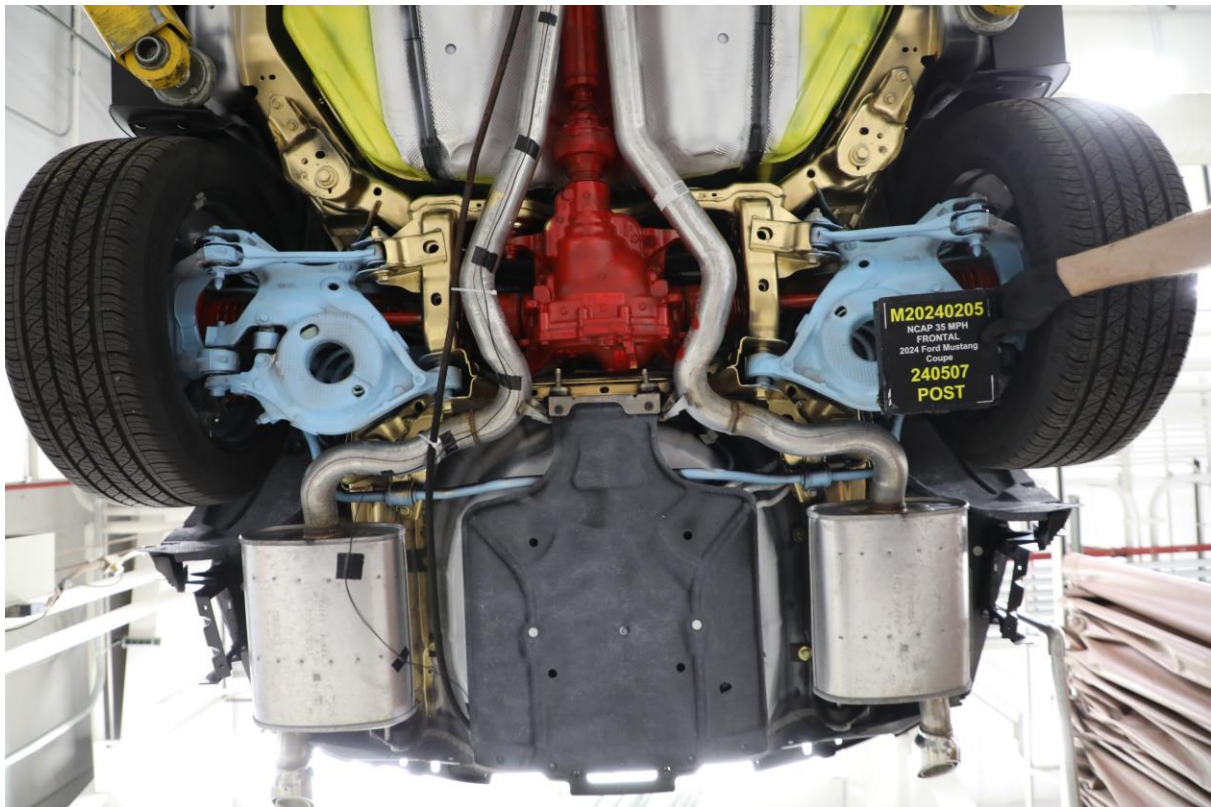
**025c Pre-Test Mid Rear Underbody View**



**025d Post-Test Mid Rear Underbody View**



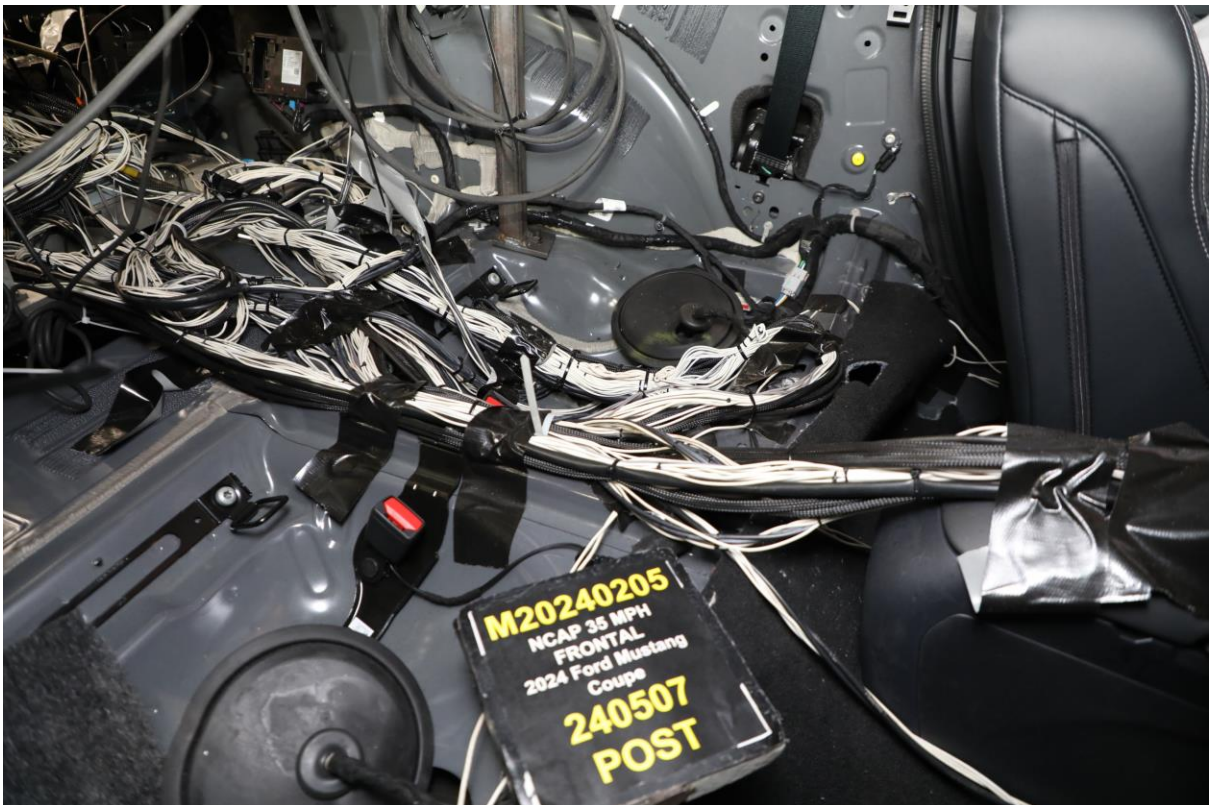
**026 Pre-Test Rear Underbody View**



**027 Post-Test Rear Underbody View**



**028 Pre-Test Dummy Cable Routing**



**029 Post-Test Dummy Cable Routing**



**030 Pre-Test Driver Dummy Front View**



**031 Post-Test Driver Dummy Front View**



**032 Pre-Test Driver Dummy Window View**



**033 Post-Test Driver Dummy Window View**



**034 Pre-Test Driver Dummy and Vehicle Interior View**



**035 Post-Test Driver Dummy and Vehicle Interior View**



**036 Pre-Test Driver's Seat Fore-Aft Markings**



**037 Post-Test Driver's Seat Fore-Aft Markings**



**038 Pre-Test View of Belt Anchorage for Driver Dummy**



**039 Post-Test View of Belt Anchorage for Driver Dummy**



**040 Pre-Test View of Belt Buckle and Latch Plate for Driver Dummy**



**041 Post-Test View of Belt Buckle and Latch Plate for Driver Dummy**



**042 Pre-Test Driver Dummy Feet**



**043 Post-Test Driver Dummy Feet**



**044 Pre-Test Driver's Side Knee Bolster**



**045 Post-Test Driver's Side Knee Bolster**



**046 Pre-Test Driver's Side Floorpan**



**047 Post-Test Driver's Side Floorpan**



**048 Post-Test Driver Dummy Face**



**049 Post-Test Driver Dummy Contact with Airbag**



**050 Post-Test Driver Dummy Contact with Headrest**

**Intentionally Left Blank**



**051 Pre-Test View of the Steering Wheel**



**052 Post-Test View of the Steering Wheel**



**53 Pre-Test Passenger Dummy Front View**



**054 Post-Test Passenger Dummy Front View**



**055 Pre-Test Passenger Dummy Window View**



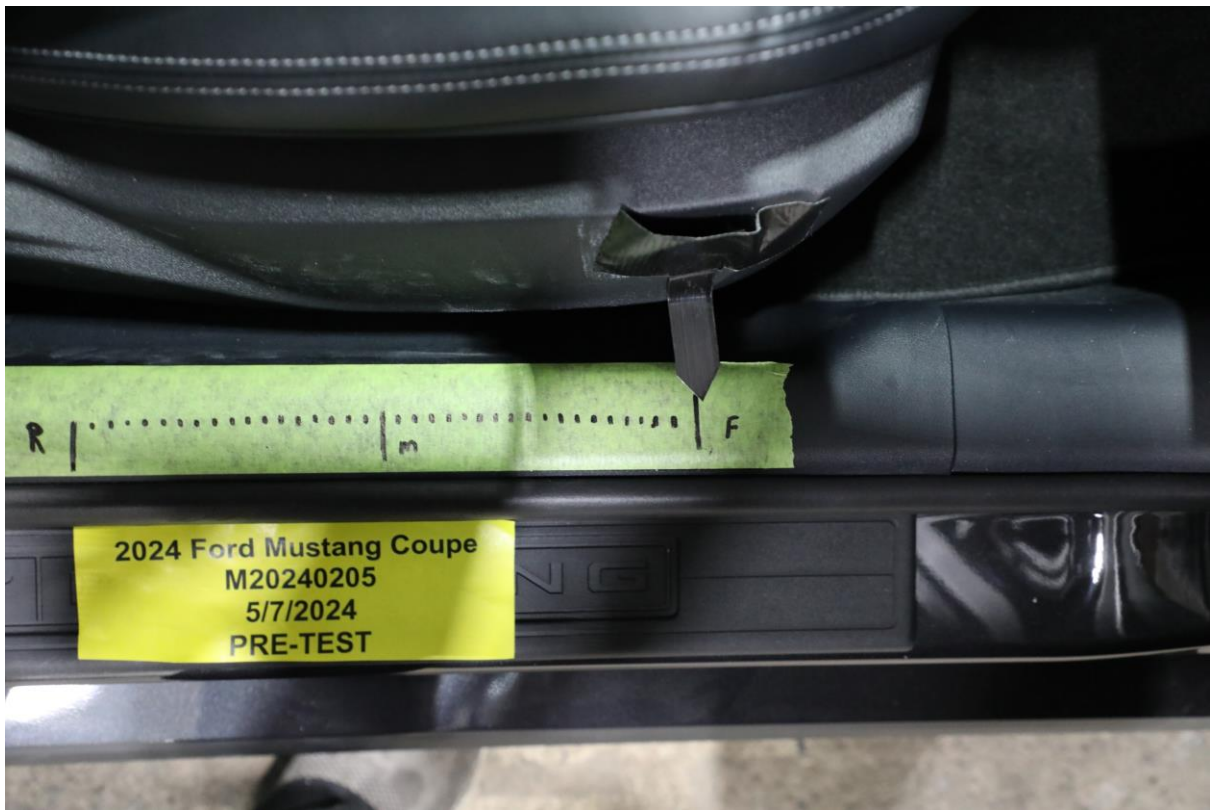
**056 Post-Test Passenger Dummy Window View**



**057 Pre-Test Passenger Dummy and Vehicle Interior View**



**058 Post-Test Passenger Dummy and Vehicle Interior View**



**059 Pre-Test Passenger's Seat Fore-Aft Markings**

**060 Post-Test Passenger's Seat Fore-Aft Markin**



gs



**061 Pre-Test View of Belt Anchorage for Passenger Dummy**



**062 Post-Test View of Belt Anchorage for Passenger Dummy**



**063 Pre-Test View of Belt Buckle and Latch Plate for Passenger Dummy**



**064 Post-Test View of Belt Buckle and Latch Plate for Passenger Dummy**



**065 Pre-Test Passenger Dummy Feet**



**066 Post-Test Passenger Dummy Feet**



**067 Pre-Test Passenger's Side Knee Bolster**

**068 Post-Test Passenger's Side Knee Bolster**





**069 Pre-Test Passenger's Side Floorpan**



**070 Post-Test Passenger's Side Floorpan**



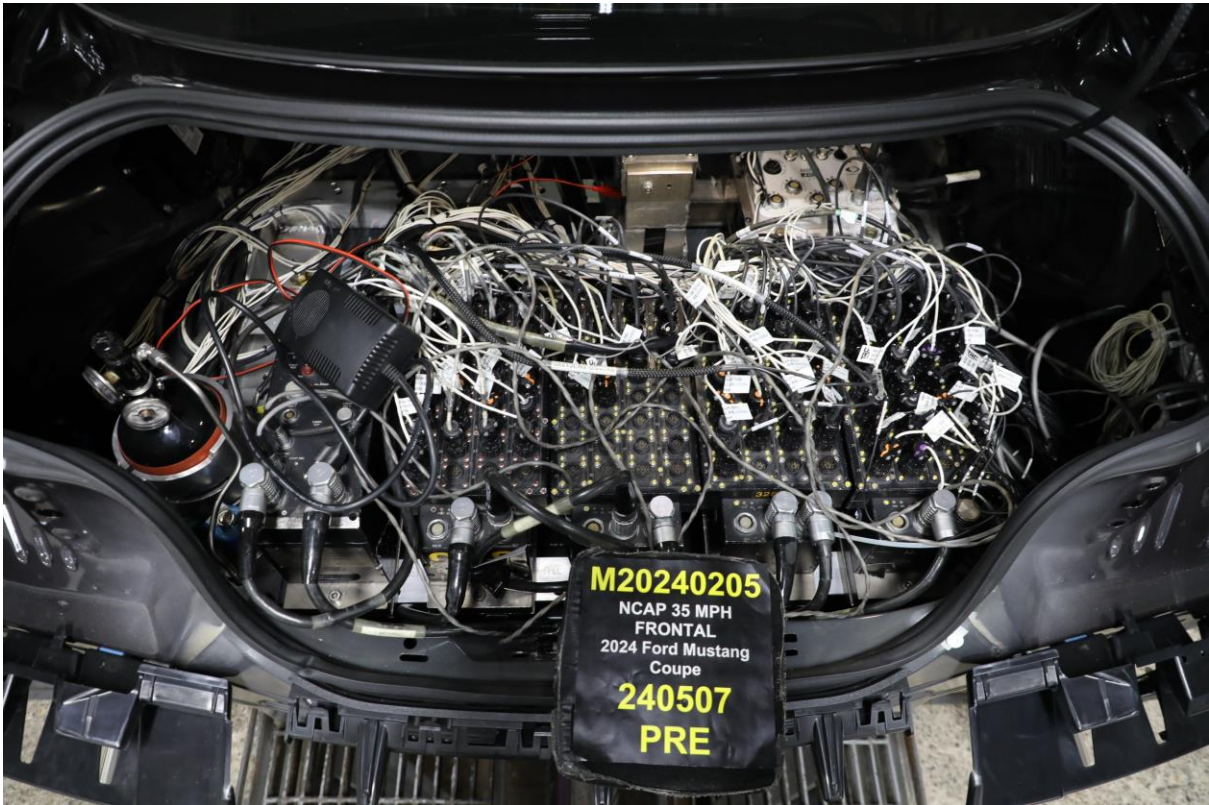
**071 Post-Test Passenger Dummy Face**



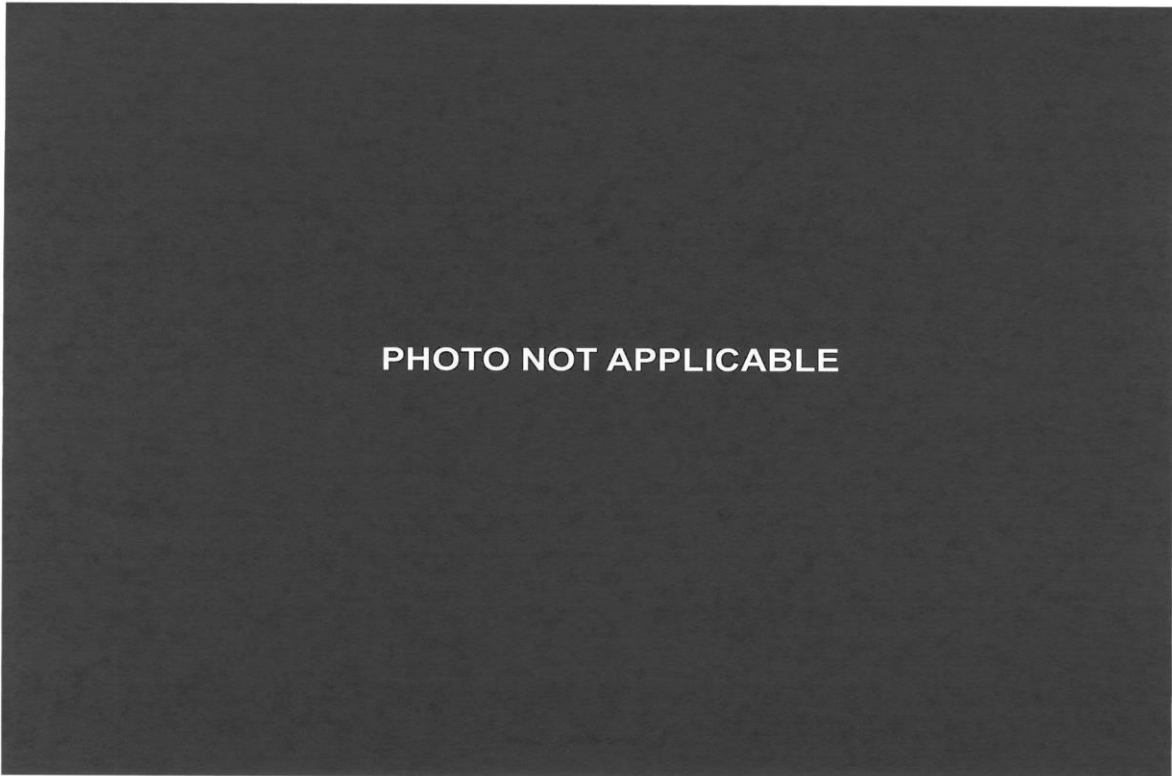
**072 Post-Test Passenger Dummy Contact with Airbag**



**073 Post-Test Passenger Dummy Contact with Headrest**



**074 Photograph of Ballast Installed in Vehicle**



075 Post-Test Stoddard Spillage Location View



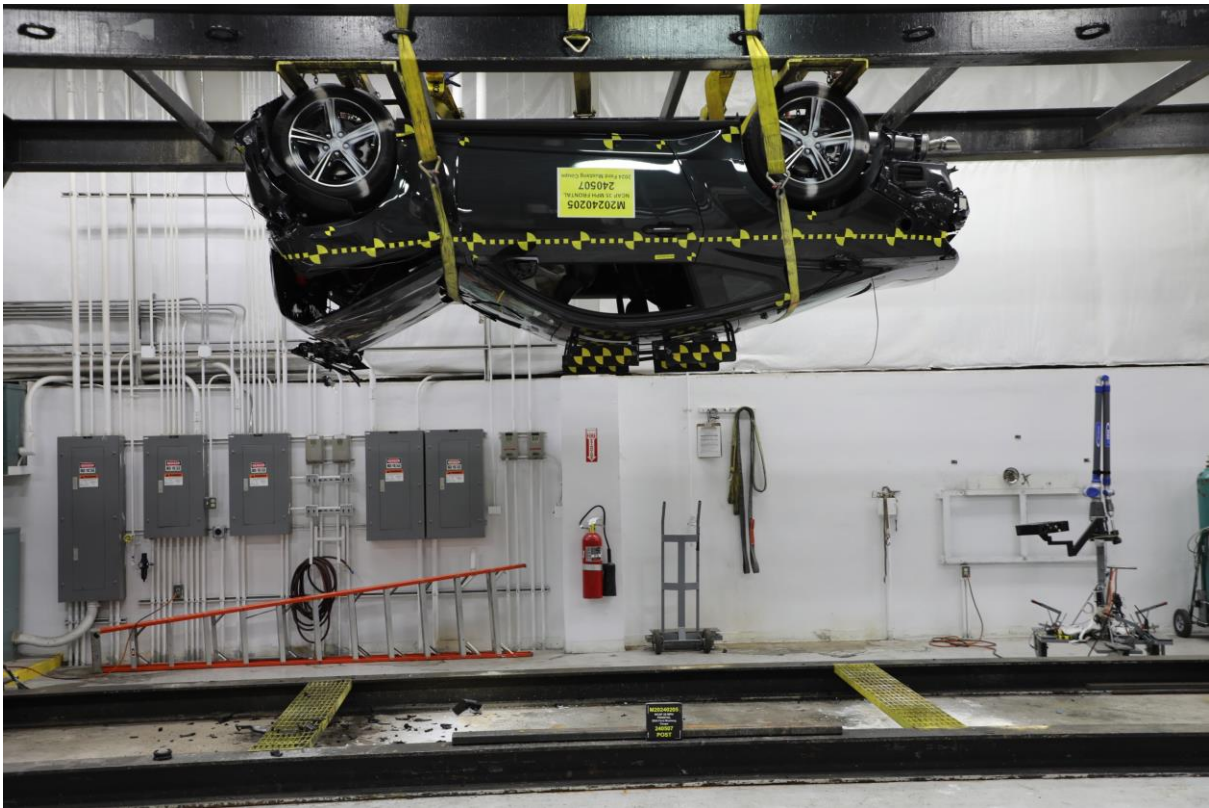
076 Post-Test Speed Trap Read out



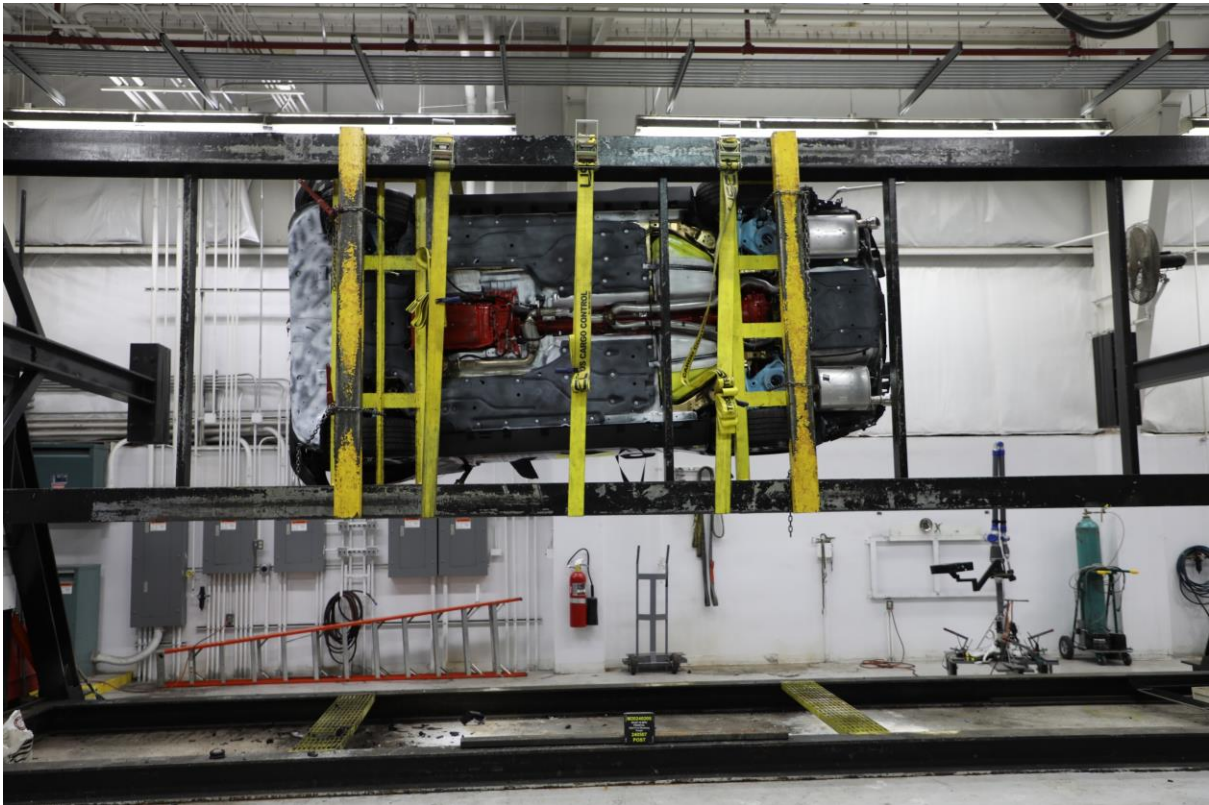
**077 Vehicle at 0° on Static Rollover Device**



**078 Vehicle at 90° on Static Rollover Device**



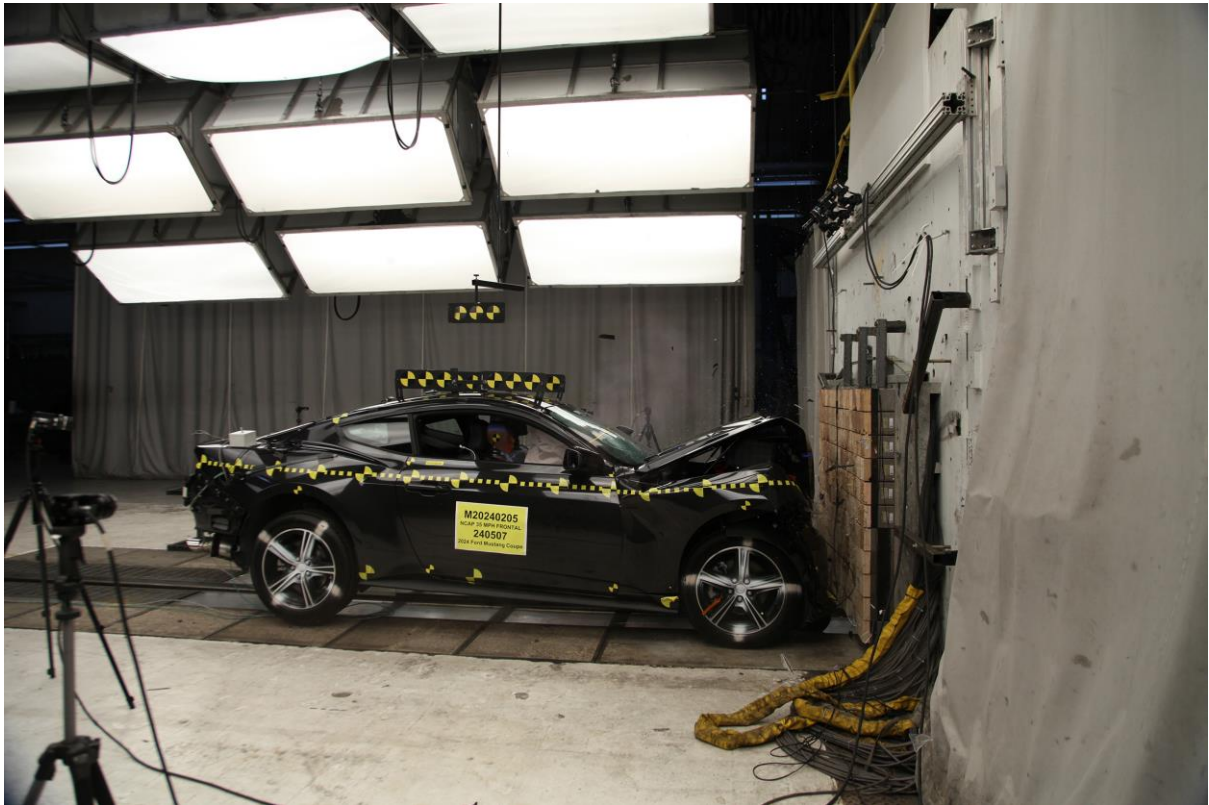
**079 Vehicle at 180° on Static Rollover Device**




**080 Vehicle at 270° on Static Rollover Device**



**081 Vehicle at 360° on Static Rollover Device**



**082 2024 Ford Mustang Coupe Frontal Impact Event**

|  |  |   |  |   |  |  |  |   |  |
|--|--|---|--|---|--|--|--|---|--|
|   |  | <b>VEHICLE DESCRIPTION</b><br><b>MUSTANG</b><br>2024 ECOBOOST COUPE<br>4-PASSENGER SPORTS CAR<br>2.3L ECOBOOST 315HP<br>10-SPEED AUTOMATIC TRANS  |  | <b>R5 122285</b>  |  | <b>EPA DOT Fuel Economy and Emission</b><br>Gasoline Vehicle   |  |   |  |
| <b>STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE</b>  |  | <b>EXTERIOR</b><br>• EASY FUEL® CAPLESS FILLER<br>• HEADLAMPS - AUTO LAMP (ON/OFF)<br>• HEADLAMPS - LED WITH SIGNATURE LIGHTING<br>• MIRRORS - POWER GLASS/MANUAL FOLD<br>• TAILLAMPS-LED W/SEQUENTIAL TURN SIGNAL<br>• WIPERS - RAIN-SENSING |  | <b>INTERIOR</b><br>• 12.4" LCD DIG INSTR CLUSTE<br>• 13.2" LCD CENTERSTACK SCREEN<br>• TOUCH UP/DOWN DRIPASS WIN<br>• CENTER CONSOLE W/ARMREST<br>• FLAT BOTTOM STRD WH - VINYL<br>• SMART CHARGING USB PORT(2)<br>• SPLIT FOLD REAR SEAT<br>• TILT/TELESCOPE STR COLUMN<br>• WINDOWS - GLOBAL OPEN |  | <b>FUNCTIONAL</b><br>• ELECTRONIC PWR ASST STEER<br>• FORD CO-PILOT360™<br>• FORDPASS™ CONNECT 4GM-FI<br>• INDEPENDENT REAR SUSPEN<br>• INTELLIGENT ACCESS W/PUSH BUTTON START<br>• LIMITED SLIP REAR AXLE<br>• REAR PARKING SENSORS<br>• REAR VIEW CAMERA<br>• SELECTABLE DRIVE MODES<br>• SYNC3<br>• TRACK APP3™   |  | <b>SAFETY/SECURITY</b><br>• ADVANCEDTRAC™/ESC<br>• AIRBAG- DRIVER/PASS KNEE<br>• AIRBAGS - DUAL STAGE FRONT<br>• AIRBAGS - FRONT SEAT MOUNTED SIDE IMPACT<br>• AIRBAGS - SIDE AIR CURTAIN<br>• BODY TIE PRESS MOUNT EYE<br>• LATCH CHILD SAFETY SYSTEM<br>• PERIMETER ALARM<br>• SECURILOCK PASS ANTI THEFT<br>• SOS POST CRASH ALERT SYS |  |
| <b>INCLUDED ON THIS VEHICLE EQUIPMENT GROUP 101A</b><br>-DUAL-ZONE ELEC AUTO TEMP CTRL<br>-SIRIUSXM W/ 360L  |  | <b>OPTIONAL EQUIPMENT/OTHER</b><br>18 MCHNO AL W/REAR BL-PTD PKT<br>1.5 RATIO LIMITED SLIP AXLE<br>350RZR 18 BORN ALL-SEAS TIRE<br>*OILER DELETE<br>OIL LICENSE PLATE BRACKET   |  | <b>PRICE INFORMATION (MSRP)</b><br>BASE PRICE \$30,920.00<br>TOTAL OPTIONS/OTHER 2,600.00<br><b>TOTAL VEHICLE &amp; OPTIONS/OTHER DESTINATION &amp; DELIVERY 33,520.00 1,395.00</b>   |  | <b>Fuel Economy</b><br><b>26</b> MPG<br>combined city/hwy<br>22 city<br>33 highway<br>3.8 gallons per 100 miles<br>Subcompact Cars range from 18 to 113 MPG. The best vehicle rates 140 MPG.   |  | <b>You spend \$750 more in fuel costs over 5 years compared to the average new vehicle.</b>   |  |
| <b>Annual fuel cost \$2,100</b>  |  | <b>Fuel Economy &amp; Greenhouse Gas Rating</b> (passenger)   |  | <b>Smog Rating</b> (passenger)  |  | Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs \$9,750 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.60 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.   |  |   |  |
| <b>GOVERNMENT 5-STAR SAFETY RATINGS</b>  |  | <b>Overall Vehicle Score Not Rated</b><br>Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.  |  | <b>Frontal Crash</b><br>Driver: Not Rated<br>Passenger: Not Rated   |  | <b>Side Crash</b><br>Front seat: Not Rated<br>Rear seat: Not Rated   |  |   |  |
| <b>Rollover Not Rated</b><br>Based on the risk of rollover in a single-vehicle crash.  |  | <b>Star ratings range from 1 to 5 stars (*****), with 5 being the highest.</b><br>Source: National Highway Traffic Safety Administration (NHTSA).<br><a href="http://www.safercar.gov">www.safercar.gov</a> or 1-888-327-4236                 |  | <b>1F8P6TH0R5122285</b>   |  | <b>WARNING:</b> Operating, servicing and maintaining a passenger vehicle, pickup, truck, van, or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to <a href="http://www.P65Warnings.ca.gov/passenger-vehicle">www.P65Warnings.ca.gov/passenger-vehicle</a> . |  |   |  |
| <b>SOLD TO:</b><br>Apple Ford<br>8600 Stanford Blvd<br>Columbia MD 21045   |  | <b>27B 030</b>  |  | <b>CA03</b>   |  | <b>FLAT ROCK</b>   |  |   |  |
| <b>SAFETY INFORMATION</b><br>This label is affixed pursuant to the Federal Automobile Information Disclosure Act. Gasoline, License, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless listed above. |  | <b>SAFETY INFORMATION</b><br>Whether you decide to lease or finance your vehicle, you'll find the choices that are right for you. See your dealer for details or visit <a href="http://www.ford.com/finance">www.ford.com/finance</a> .       |  | <b>SAFETY INFORMATION</b><br>Whether you decide to lease or finance your vehicle, you'll find the choices that are right for you. See your dealer for details or visit <a href="http://www.ford.com/finance">www.ford.com/finance</a> .   |  | <b>SAFETY INFORMATION</b><br>Whether you decide to lease or finance your vehicle, you'll find the choices that are right for you. See your dealer for details or visit <a href="http://www.ford.com/finance">www.ford.com/finance</a> .  |  |   |  |

083 Monroney Label Photograph

**APPENDIX B**  
**VEHICLE AND DUMMY RESPONSE DATA PLOTS**

## TABLE OF DATA PLOTS

| <b>No.</b> | <b>List of Data Plots Provided in the Test Report</b>   | <b>Page</b> |
|------------|---|-------------|
| 1          | Driver Head X Acceleration vs. Time Primary             | B-6         |
| 2          | Driver Head Y Acceleration vs. Time Primary             | B-6         |
| 3          | Driver Head Z Acceleration vs. Time Primary             | B-6         |
| 4          | Driver Head Resultant Acceleration vs. Time Primary     | B-6         |
| 5          | Driver Chest X Deflection vs. Time                      | B-7         |
| 6          | Driver Chest X Acceleration vs. Time Primary            | B-8         |
| 7          | Driver Chest Y Acceleration vs. Time Primary            | B-8         |
| 8          | Driver Chest Z Acceleration vs. Time Primary            | B-8         |
| 9          | Driver Chest Resultant Acceleration vs. Time Primary    | B-8         |
| 10         | Driver Upper Neck Force X vs. Time                      | B-9         |
| 11         | Driver Upper Neck Force Z vs. Time                      | B-9         |
| 12         | Driver Upper Neck Moment Y vs. Time                     | B-9         |
| 13         | Driver Nij vs. Time                                     | B-10        |
| 14         | Driver Left Femur Force vs. Time                        | B-11        |
| 15         | Driver Right Femur Force vs. Time                       | B-11        |
| 16         | Passenger Head X Acceleration vs. Time Primary          | B-12        |
| 17         | Passenger Head Y Acceleration vs. Time Primary          | B-12        |
| 18         | Passenger Head Z Acceleration vs. Time Primary          | B-12        |
| 19         | Passenger Head Resultant Acceleration vs. Time Primary  | B-12        |
| 20         | Passenger Chest X Deflection vs. Time                   | B-13        |
| 21         | Passenger Chest X Acceleration vs. Time Primary         | B-14        |
| 22         | Passenger Chest Y Acceleration vs. Time Primary         | B-14        |
| 23         | Passenger Chest Z Acceleration vs. Time Primary         | B-14        |
| 24         | Passenger Chest Resultant Acceleration vs. Time Primary | B-14        |
| 25         | Passenger Upper Neck Force X vs. Time                   | B-15        |
| 26         | Passenger Upper Neck Force Z vs. Time                   | B-15        |
| 27         | Passenger Upper Neck Moment Y vs. Time                  | B-15        |
| 28         | Passenger Nij vs. Time                                  | B-16        |
| 29         | Passenger Left Femur Force vs. Time                     | B-17        |
| 30         | Passenger Right Femur Force vs. Time                    | B-17        |

The following additional dummy and vehicle response data can be found in the R & D section of the NHTSA website at: [www.nhtsa.gov](http://www.nhtsa.gov).

Driver Head Acceleration X Redundant  
Driver Head Acceleration Y Redundant  
Driver Head Acceleration Z Redundant  
Driver Upper Neck Force Y  
Driver Upper Neck Moment X  
Driver Upper Neck Moment Z  
Driver Chest X Acceleration Redundant  
Driver Chest Y Acceleration Redundant  
Driver Chest Z Acceleration Redundant  
Driver Pelvis X  
Driver Pelvis Y  
Driver Pelvis Z  
Driver Left Femur Redundant  
Driver Right Femur Redundant  
Driver Left Upper Tibia Moment X  
Driver Left Upper Tibia Moment Y  
Driver Left Upper Tibia Force Z  
Driver Left Lower Tibia Moment X  
Driver Left Lower Tibia Moment Y  
Driver Left Lower Tibia Force Z  
Driver Right Upper Tibia Moment X  
Driver Right Upper Tibia Moment Y  
Driver Right Upper Tibia Force Z  
Driver Right Lower Tibia Moment X  
Driver Right Lower Tibia Moment Y  
Driver Right Lower Tibia Force Z  
Driver Left Foot Fore Z  
Driver Left Foot Aft X  
Driver Left Foot Aft Z  
Driver Right Foot Fore Z  
Driver Right Foot Aft X  
Driver Right Foot Aft Z

Driver Head Angular Velocity X  
Driver Head Angular Velocity Y  
Driver Head Angular Velocity Z  
Driver Shoulder Belt  
Driver Lap Belt  
Passenger Head Acceleration X Redundant  
Passenger Head Acceleration Y Redundant  
Passenger Head Acceleration Z Redundant  
Passenger Upper Neck Force Y  
Passenger Upper Neck Moment X  
Passenger Upper Neck Moment Z  
Passenger Chest X Acceleration Redundant  
Passenger Chest Y Acceleration Redundant  
Passenger Chest Z Acceleration Redundant  
Passenger Pelvis X  
Passenger Pelvis Y  
Passenger Pelvis Z  
Passenger Left Femur Redundant  
Passenger Right Femur Redundant  
Passenger Left Upper Tibia Moment X  
Passenger Left Upper Tibia Moment Y  
Passenger Left Upper Tibia Force Z  
Passenger Left Lower Tibia Moment X  
Passenger Left Lower Tibia Moment Y  
Passenger Left Lower Tibia Force Z  
Passenger Right Upper Tibia Moment X  
Passenger Right Upper Tibia Moment Y  
Passenger Right Upper Tibia Force Z  
Passenger Right Lower Tibia Moment X  
Passenger Right Lower Tibia Moment Y  
Passenger Right Lower Tibia Force Z  
Passenger Left Foot Fore Z  
Passenger Left Foot Aft X  
Passenger Left Foot Aft Z  
Passenger Right Foot Fore Z  
Passenger Right Foot Aft X  
Passenger Right Foot Aft Z

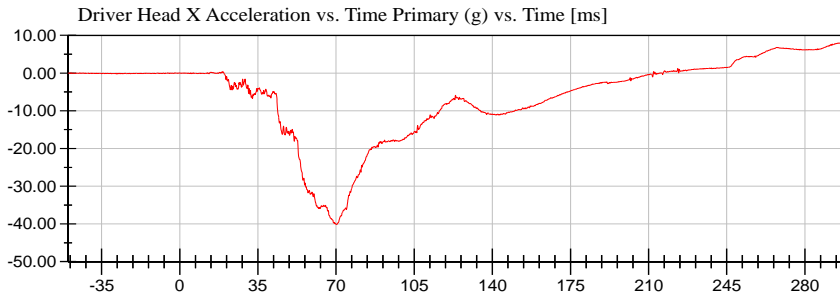
Passenger Head Angular Velocity X  
Passenger Head Angular Velocity Y  
Passenger Head Angular Velocity Z  
Left Rear Seat Crossmember X  
Left Rear Seat Crossmember Z  
Passenger Shoulder Belt  
Passenger Lap Belt  
Right Rear Seat Crossmember X  
Right Rear Seat Crossmember Z  
Left Rear Seat Crossmember X Redundant  
Right Rear Seat Crossmember X Redundant  
Vehicle Engine Top X  
Vehicle Engine Bottom X  
Load Cell Barrier Forces and Moments

# NHTSA

Test Lab: CTF  
Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)  
Position #2 Hybrid III Small Adult Female (DH1659)



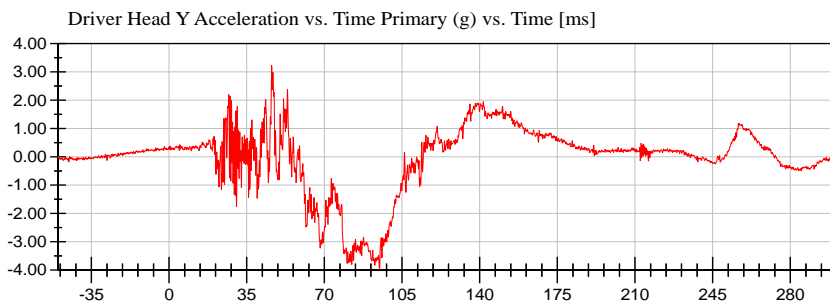
<Max>

8.19 g at 299.44 ms

<Min>

-40.12 g at 70.16 ms

CFC\_1000



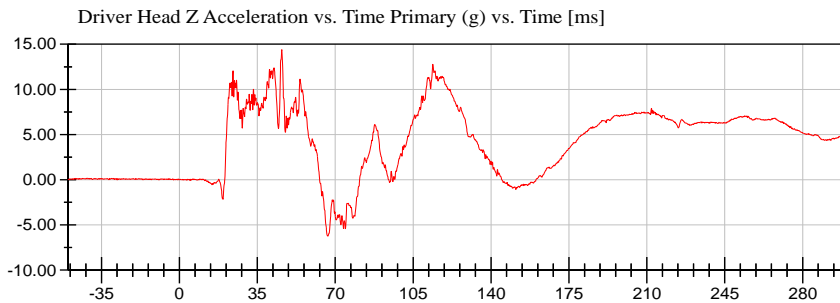
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3.23 g at 46.24 ms

<Min>

-3.97 g at 94.80 ms

CFC\_1000



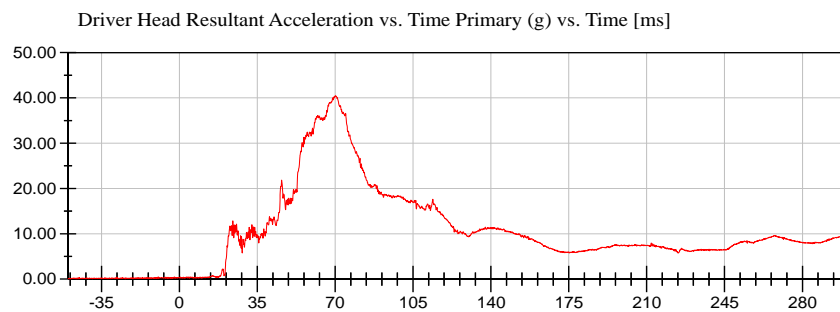
<Max>

14.39 g at 46.00 ms

<Min>

-6.24 g at 66.72 ms

CFC\_1000



<Max>

40.44 g at 70.32 ms

<Min>

0.03 g at -49.76 ms

Prefiltered\_> CFC 1000



**NHTSA**

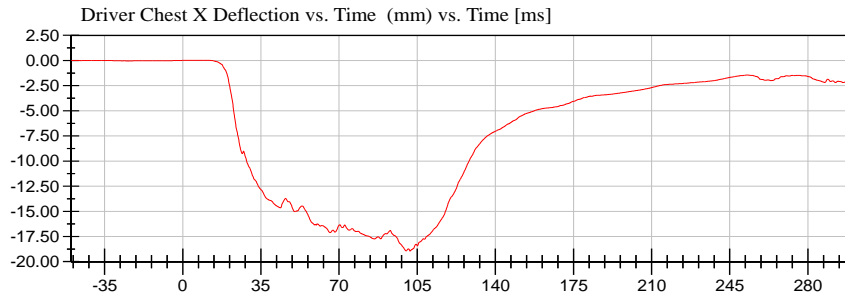
Test Lab: CTF

Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (DH1659)



<Max>

0.02 mm at 5.20 ms

<Min>

-18.94 mm at 101.84 ms

CFC\_600

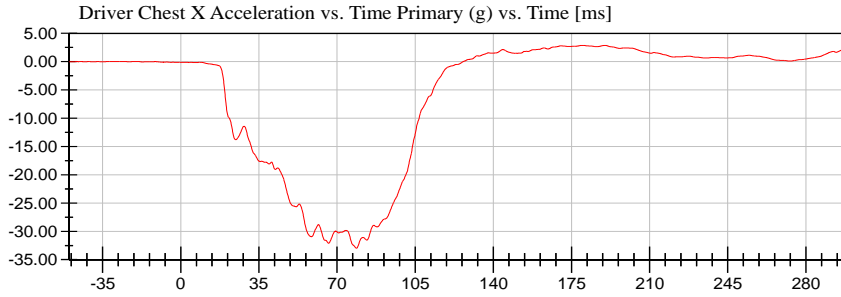


# NHTSA

Test Lab: CTF  
Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)  
Position #2 Hybrid III Small Adult Female (DH1659)



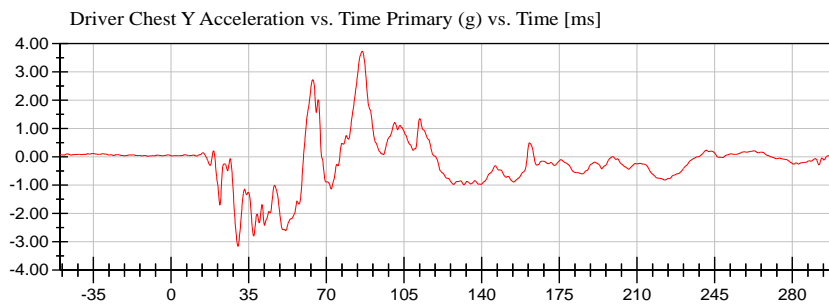
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2.87 g at 180.00 ms

<Min>

-32.98 g at 78.64 ms

CFC\_180



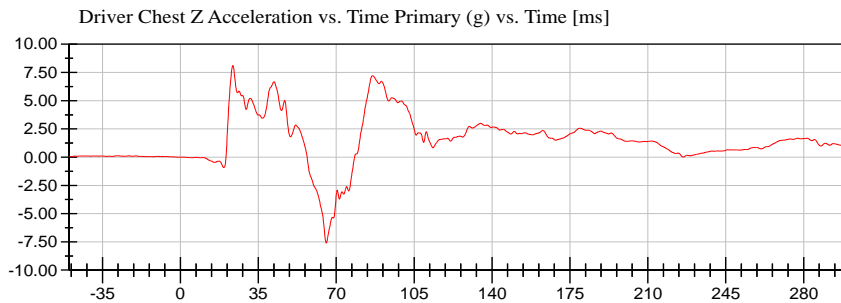
<Max>

3.74 g at 86.16 ms

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-3.16 g at 30.16 ms

CFC\_180



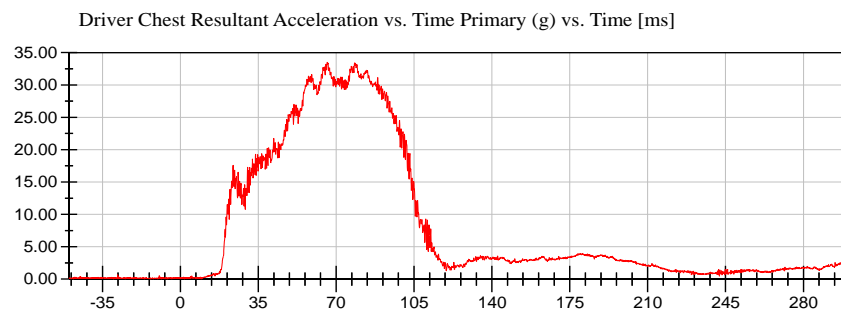
<Max>

8.12 g at 23.52 ms

<Min>

-7.60 g at 65.52 ms

CFC\_180



<Max>

33.51 g at 66.00 ms

<Min>

0.03 g at -48.08 ms

Prefiltered\_> CFC 1000

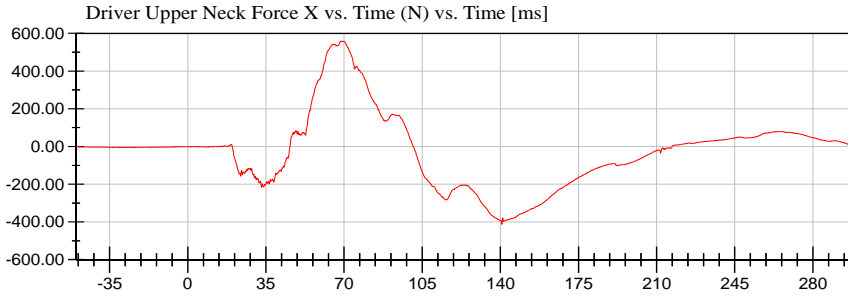


# NHTSA

Test Lab: CTF  
Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)  
Position #2 Hybrid III Small Adult Female (DH1659)



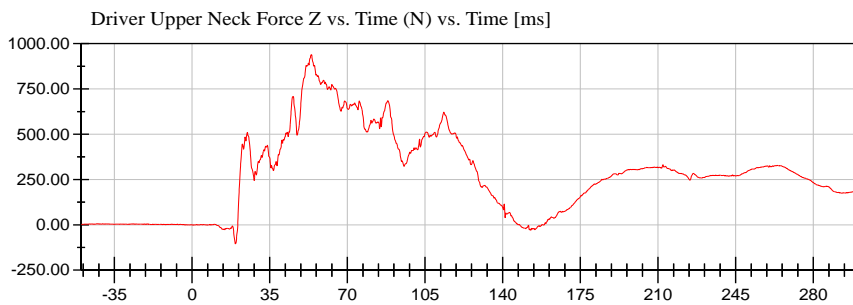
**<Max>**

559.01 N at 69.12 ms

**<Min>**

-412.56 N at 140.72 ms

CFC\_1000



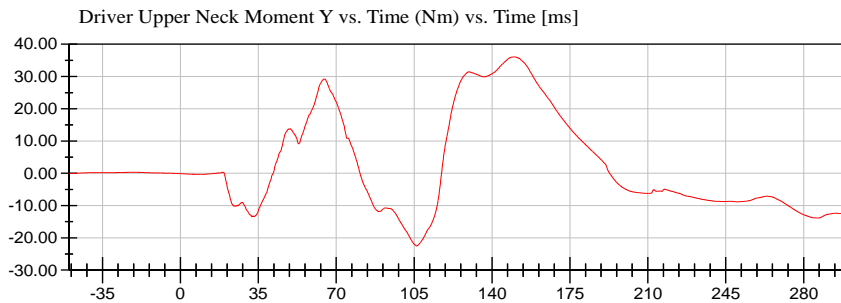
**<Max>**

939.64 N at 53.76 ms

**<Min>**

-104.95 N at 19.52 ms

CFC\_1000



**<Max>**

36.07 Nm at 149.60 ms

**<Min>**

-22.49 Nm at 106.16 ms

CFC\_600



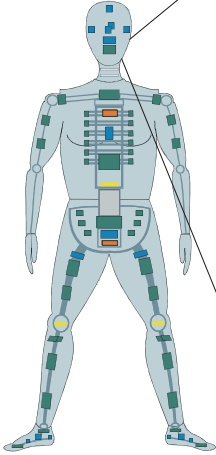


# 2024 Ford Mustang Coupe NCAP 35 mph Frontal Impact Neck Injury Predictor (NIJ)

Date: 05/07/2024  
Time: 15:56

Customer: NHTSA  
Test Number: M20240205

Test Orientation = Frontal  
Fzc(Tension) = 6806  
Fzc(Compression) = 6160  
Myc(Extension) = 135  
Myc(Flexion) = 310

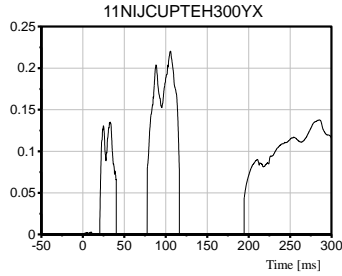
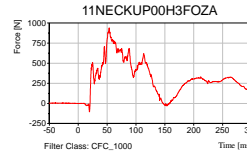
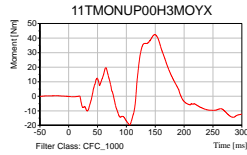


Dummy: HIII 50th Male  
Seating Position:

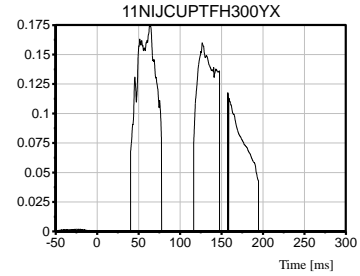
Driver

NIJ Source Code: (Fz/Fzc)+(My/Myc)

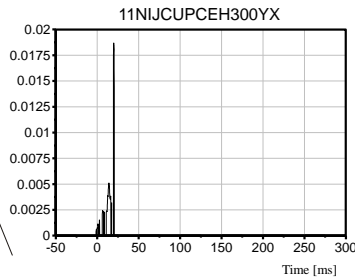
TRC Inc. Test Lab: CTF  
Test Number: 240507



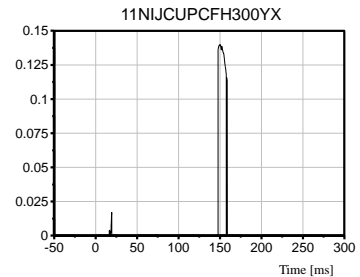
Max [NTE] 0.2205 at 105.76 ms



Max [NTF] 0.1747 at 63.28 ms



Max [NCE] 0.0187 at 19.92 ms



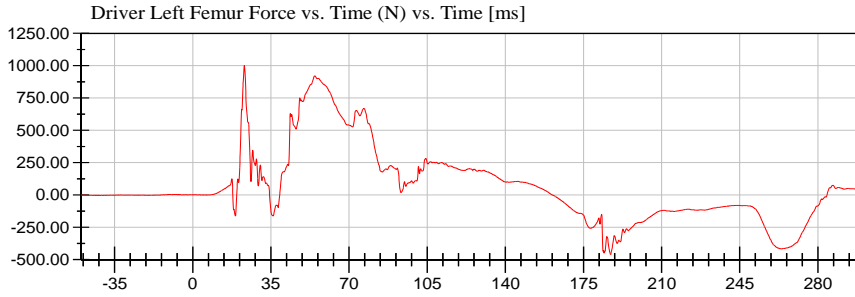
Max [NCF] 0.1398 at 150.40 ms

**NHTSA**

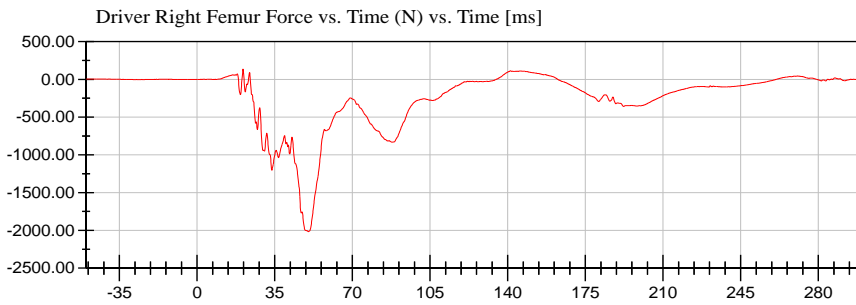
Test Lab: CTF  
Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)  
Position #2 Hybrid III Small Adult Female (DH1659)



**<Max>**  
1,001.65 N at 23.04 ms  
**<Min>**  
-459.80 N at 187.12 ms  
CFC\_600



**<Max>**  
135.38 N at 20.72 ms  
**<Min>**  
-2,017.83 N at 50.24 ms  
CFC\_600

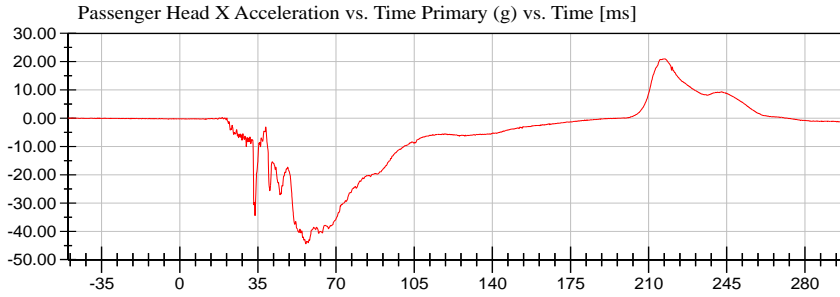


# NHTSA

Test Lab: CTF  
Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)  
Position #2 Hybrid III Small Adult Female (DH1659)



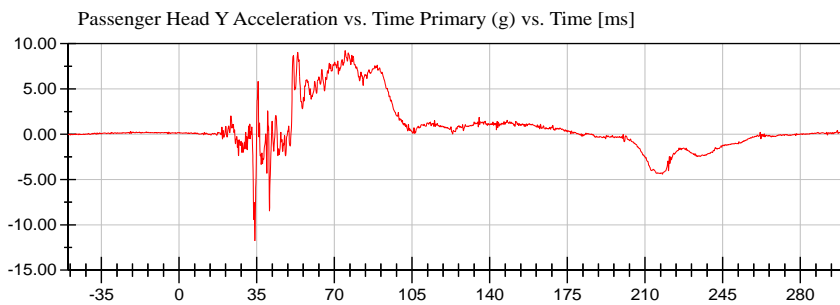
<Max>

20.97 g at 216.96 ms

<Min>

-44.42 g at 56.48 ms

CFC\_1000



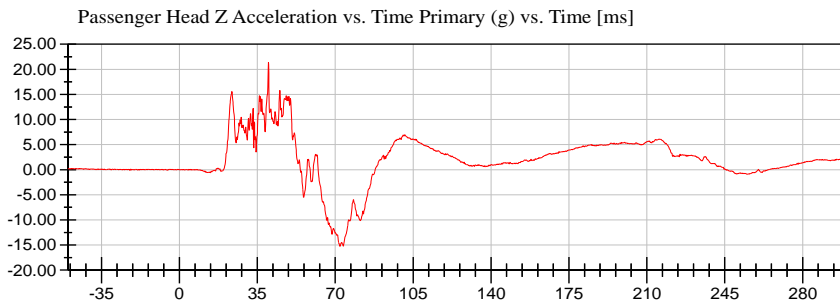
<Max>

9.23 g at 74.88 ms

<Min>

-11.79 g at 34.16 ms

CFC\_1000



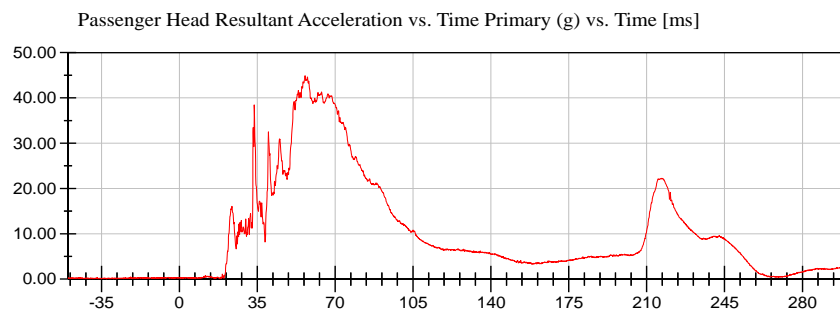
<Max>

21.35 g at 40.00 ms

<Min>

-15.27 g at 72.16 ms

CFC\_1000



<Max>

44.92 g at 56.48 ms

<Min>

0.03 g at -32.64 ms

Prefiltered\_> CFC 1000



**NHTSA**

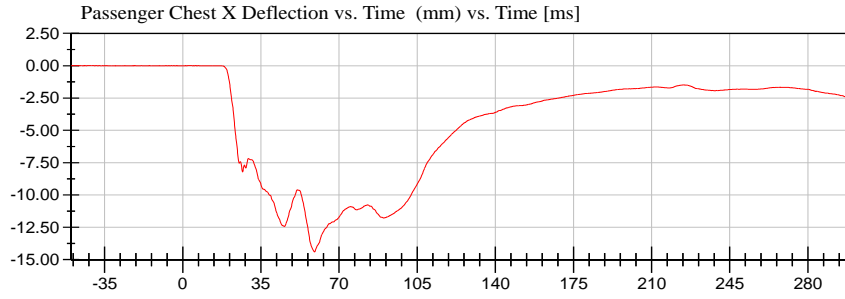
Test Lab: CTF

Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (DH1659)



<Max>

0.00 mm at -45.60 ms

<Min>

-14.40 mm at 59.04 ms

CFC\_600



# NHTSA

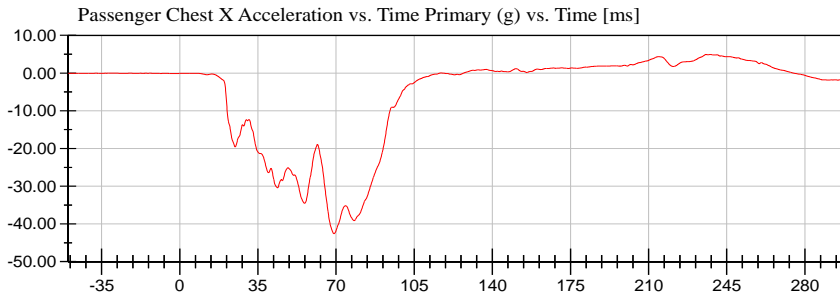
Test Lab: CTF

Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (DH1659)



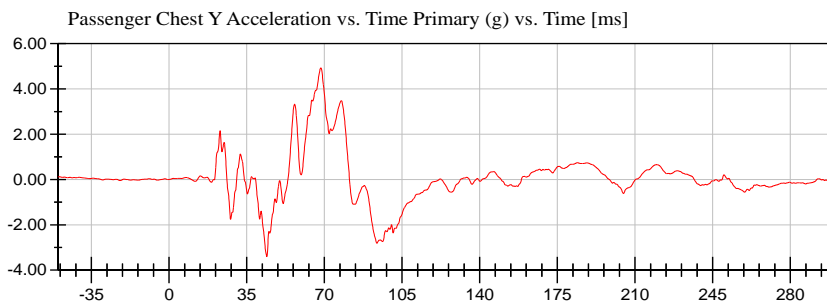
<Max>

4.92 g at 237.60 ms

<Min>

-42.58 g at 69.12 ms

CFC\_180



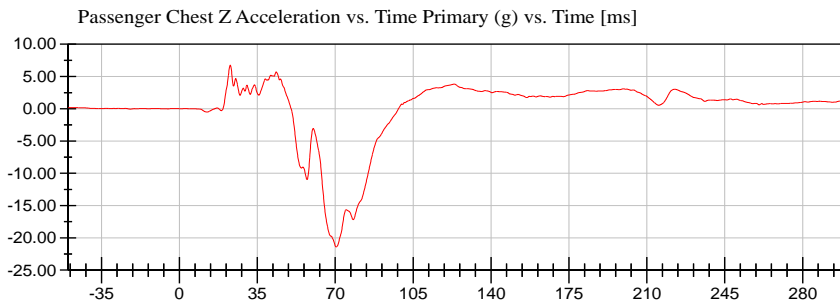
<Max>

4.93 g at 68.40 ms

<Min>

-3.41 g at 44.08 ms

CFC\_180



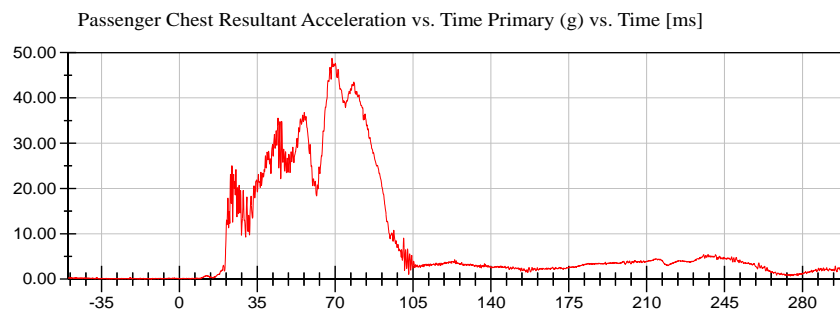
<Max>

6.76 g at 22.88 ms

<Min>

-21.40 g at 70.40 ms

CFC\_180



<Max>

48.77 g at 68.64 ms

<Min>

0.02 g at -31.36 ms

Prefiltered\_> CFC 1000



# NHTSA

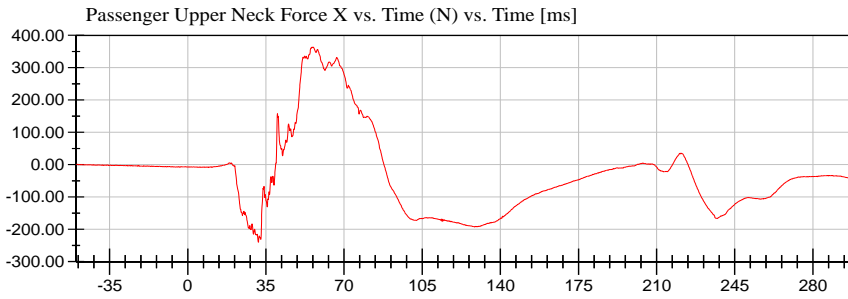
Test Lab: CTF

Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (DH1659)



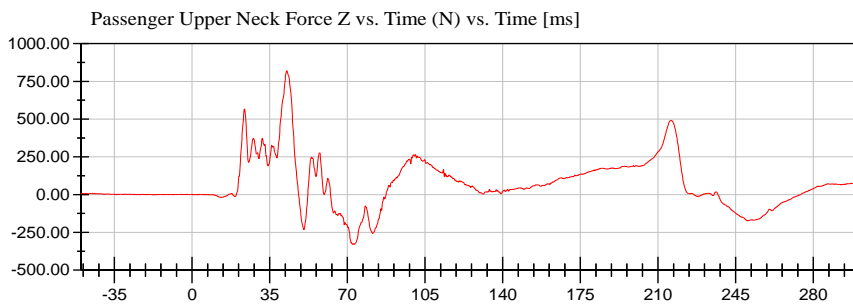
<Max>

363.75 N at 56.24 ms

<Min>

-239.94 N at 31.60 ms

CFC\_1000



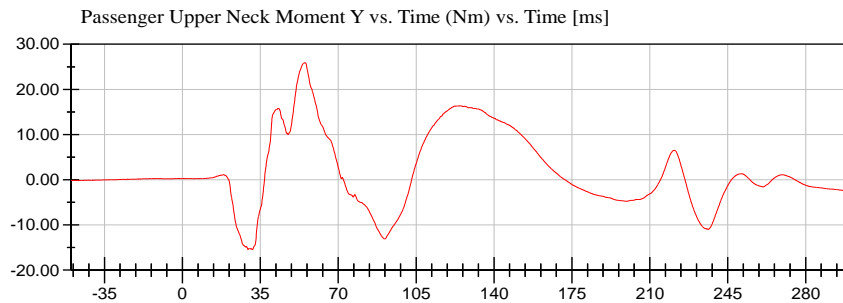
<Max>

820.77 N at 42.72 ms

<Min>

-329.78 N at 72.48 ms

CFC\_1000



<Max>

25.93 Nm at 55.12 ms

<Min>

-15.46 Nm at 31.44 ms

CFC\_600





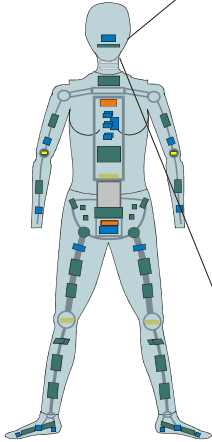
# 2024 Ford Mustang Coupe NCAP 35 mph Frontal Impact Neck Injury Predictor (NIJ)

Date: 05/07/2024  
Time: 15:56

**Customer: NHTSA**  
**Test Number: M20240205**

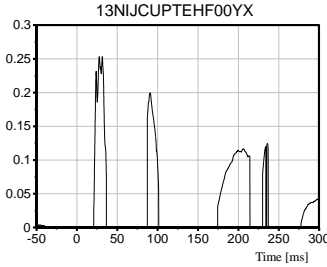
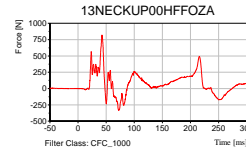
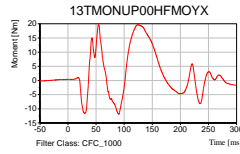
Test Orientation = Frontal  
Fzc(Tension) = 4287  
Fzc(Compression) = 3880  
Myc(Extension) = 67  
Myc(Flexion) = 155

**TRC Inc. Test Lab: CTF**  
**Test Number: 240507**

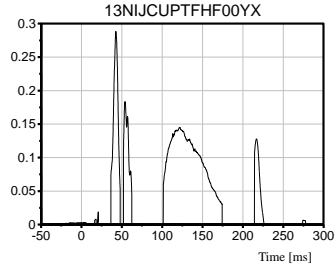


Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

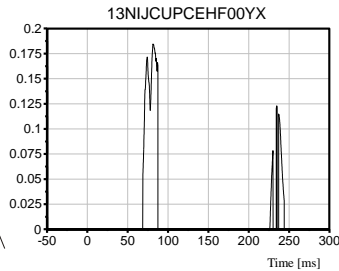
NIJ Source Code: (Fz/Fzc)+(My/Myc)



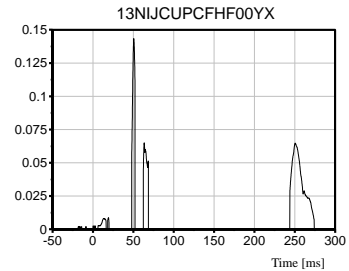
**Max [NTE] 0.2533 at 31.60 ms**



**Max [NTF] 0.2883 at 42.72 ms**



**Max [NCE] 0.1846 at 81.44 ms**



**Max [NCF] 0.1434 at 50.64 ms**

**NHTSA**

Test Lab: CTF

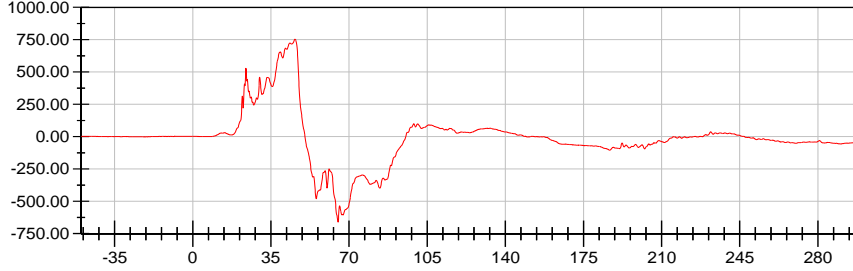
Test Number: 240507 (M20240205)

Test Date: 05/07/2024

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (DH1659)

Passenger Left Femur Force vs. Time (N) vs. Time [ms]



**<Max>**

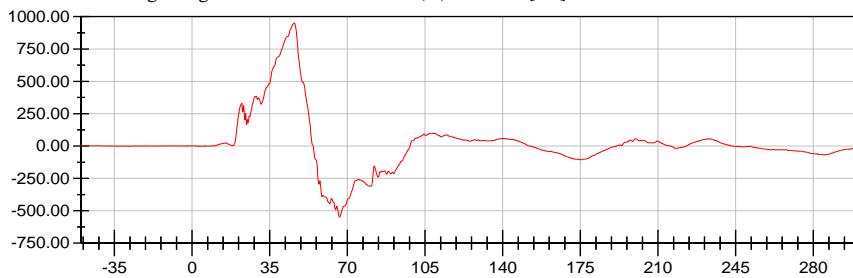
753.36 N at 45.84 ms

**<Min>**

-660.89 N at 65.12 ms

CFC\_600

Passenger Right Femur Force vs. Time (N) vs. Time [ms]



**<Max>**

950.42 N at 46.08 ms

**<Min>**

-549.17 N at 66.48 ms

CFC\_600



**APPENDIX C**  
**DUMMY CALIBRATION AND PERFORMANCE VERIFICATION**

**Pre-Test Calibration Sheets**

**Driver S/N 037**

**Transportation Research Center Inc.**  
**572E HIII 50th Male Dummy**  
**External Dimensions**  
**Serial No. 037**  
**Calibration No. 87**

| Symbol | Description                      | Specification  | Results | Pass |
|--------|----------------------------------|----------------|---------|------|
|        |                                  | mm             | mm      |      |
| A      | Total Sitting Height             | 878.8 - 889.0  | 880     | Yes  |
| B      | Shoulder Pivot Height            | 505.5 - 520.7  | 510     | Yes  |
| C      | H-Point Height                   | 83.8 - 88.9    | 86      | Yes  |
| D      | H-Point From Seatback            | 134.6 - 139.7  | 137     | Yes  |
| E      | Shoulder Pivot From Backline     | 83.8 - 94.0    | 90      | Yes  |
| F      | Thigh Clearance                  | 139.7 - 154.9  | 150     | Yes  |
| G      | Back Of Elbow To Wrist Pivot     | 289.6 - 304.8  | 295     | Yes  |
| H      | Skull Cap To Backline            | 40.6 - 45.7    | 45      | Yes  |
| I      | Shoulder-Elbow Length            | 330.2 - 345.4  | 337     | Yes  |
| J      | Elbow Rest Height                | 190.5 - 210.8  | 198     | Yes  |
| K      | Buttock Knee Length              | 579.1 - 604.5  | 601     | Yes  |
| L      | Popliteal Height                 | 429.3 - 454.7  | 440     | Yes  |
| M      | Knee Pivot Height                | 485.1 - 500.4  | 494     | Yes  |
| N      | Buttock Popliteal Length         | 452.1 - 477.5  | 470     | Yes  |
| O      | Chest Depth                      | 213.4 - 228.6  | 223     | Yes  |
| P      | Foot Length                      | 251.5 - 266.7  | 264     | Yes  |
| V      | Shoulder Breadth                 | 421.6 - 436.9  | 425     | Yes  |
| W      | Foot Breadth                     | 91.4 - 106.7   | 96      | Yes  |
| Y      | Chest Circumference              | 970.3 - 1000.8 | 992     | Yes  |
| Z      | Waist Circumference              | 835.7 - 866.1  | 865     | Yes  |
| AA     | Location For Chest Circumference | 429.3 - 434.3  | 432     | Yes  |
| BB     | Location For Waist Circumference | 226.1 - 231.1  | 229     | Yes  |



Revised 8/10/12

Report Number: 037\_H3F87

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## Transportation Research Center Inc.

Front Head Drop  
HIII 50th Serial No. 037 Certification No. 87-1  
Test Date: 4/17/2024

| Test Parameter                                     | Specification  | Test Results | Pass |
|--|----------------|--------------|------|
| Temperature  | 20.6 - 22.2 °C | 20.8 °C      | Yes  |
| Relative Humidity                                  | 10 - 70 %      | 60 %         | Yes  |
| Peak Head Resultant Acceleration                   | 225 - 275 g    | 254.7 g      | Yes  |
| Peak Head Lateral Acceleration                     | (-15) - 15 g   | -2.0 g       | Yes  |
| Is Acceleration Curve Unimodal within 10% of Peak? | < 10 %         | 0.85 %       | Yes  |

**Test meets specifications.**

**Condition:** Used

**Comments:**

**Head Skin S/N:** N/A

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.17.2024 11:43:54 613

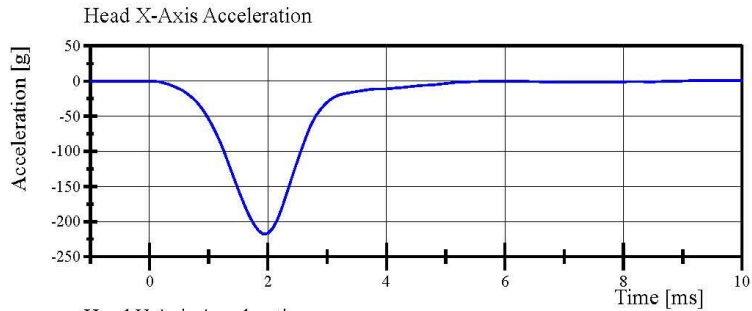


# Transportation Research Center Inc.

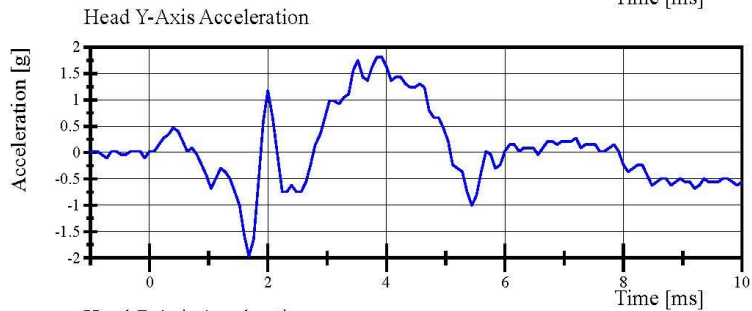
Front Head Drop

HIII 50th Serial No. 037 Certification No. 87-1

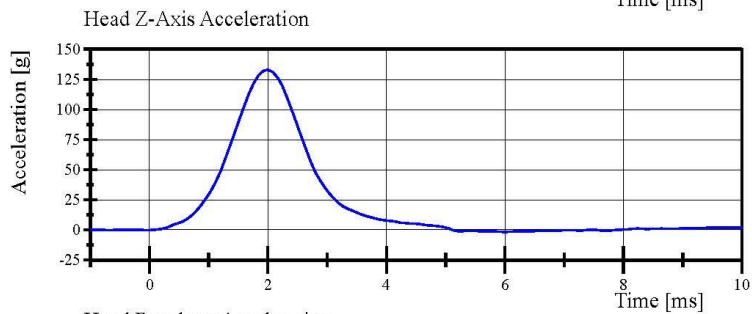
Test Date: 4/17/2024



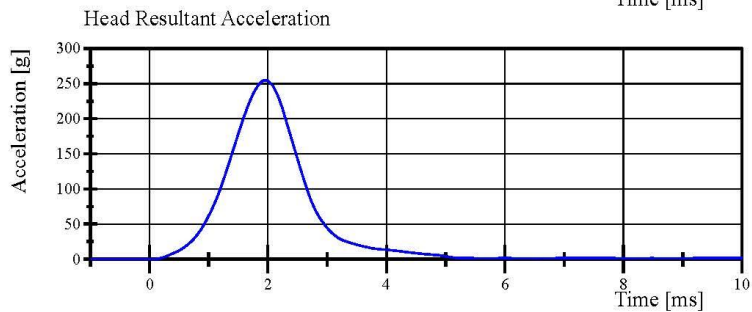
Filter Class: CFC\_1000  
Max: 1.0 g at 9.4 ms  
Min: -217.8 g at 1.9 ms



Filter Class: CFC\_1000  
Max: 1.8 g at 3.8 ms  
Min: -2.0 g at 1.7 ms



Filter Class: CFC\_1000  
Max: 132.9 g at 2.0 ms  
Min: -1.6 g at 6.0 ms



Filter Class: CFC\_1000  
Max: 254.7 g at 1.9 ms  
Min: 0.0 g at -0.6 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.17.2024 11:45:45 613



# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 87-1

Test Date: 4/18/2024

| Test Parameter                            | Specification       | Test Results | Pass |
|---|---------------------|--------------|------|
| Temperature                               | 20.6 - 22.2 °C      | 21.3 °C      | Yes  |
| Relative Humidity                         | 10 - 70 %           | 44 %         | Yes  |
| Pendulum Velocity                         | 6.89 - 7.13 m/s     | 6.979 m/s    | Yes  |
| Pendulum Acceleration Decay Crossing -5g  | 34 - 42 ms          | 37.5 ms      | Yes  |
| Pendulum Acceleration at 10ms             | (-22.5) - (-27.5) g | -23.98 g     | Yes  |
| at 20ms                                   | (-17.6) - (-22.6) g | -22.13 g     | Yes  |
| at 30ms                                   | (-12.5) - (-18.5) g | -15.81 g     | Yes  |
| > 30ms                                    | >= (-29.0) g        | -15.81 g     | Yes  |
| Total Head D-Plane Rotation Peak          | (-64) - (-78) °     | -71.6 °      | Yes  |
| Time of Peak                              | 57 - 64 ms          | 60.0 ms      | Yes  |
| Decay to 0°                               | 113 - 128 ms        | 118.6 ms     | Yes  |
| Total Neck Occipital Condyles Moment Peak | 88.1 - 108.4 N·m    | 99.96 N·m    | Yes  |
| Time of Peak                              | 47 - 58 ms          | 51.1 ms      | Yes  |
| Decay to 0 N·m                            | 97 - 107 ms         | 98.8 ms      | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: 4728**

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.18.2024 09:09:44 1866

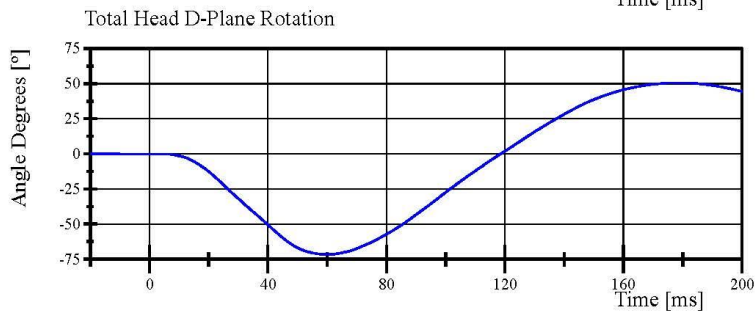
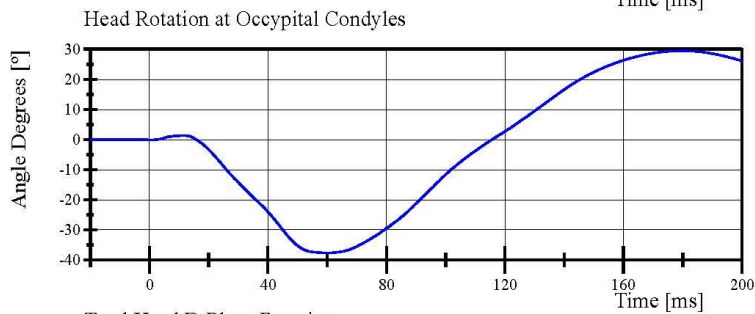
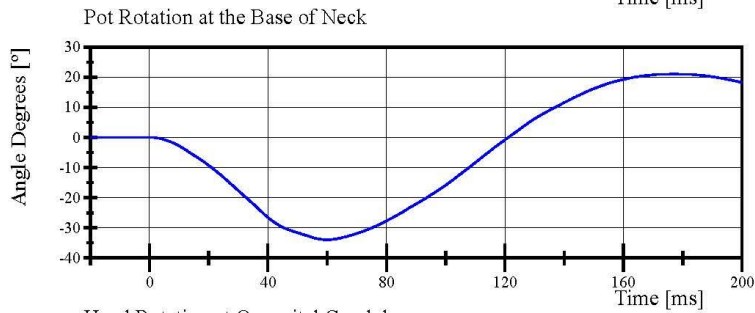
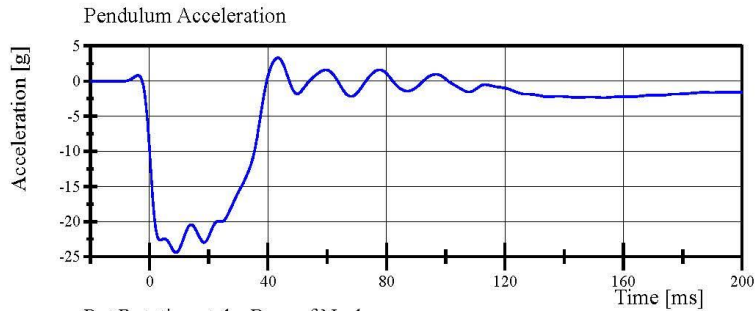


# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 87-1

Test Date: 4/18/2024



Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.18.2024 09:10:11 1866

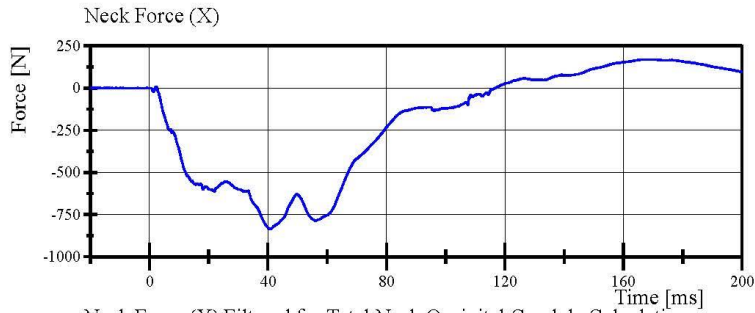


# Transportation Research Center Inc.

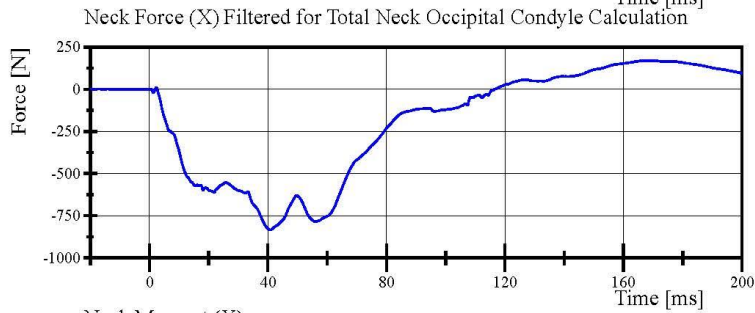
Neck Flexion

HIII 50th Serial No. 037 Certification No. 87-1

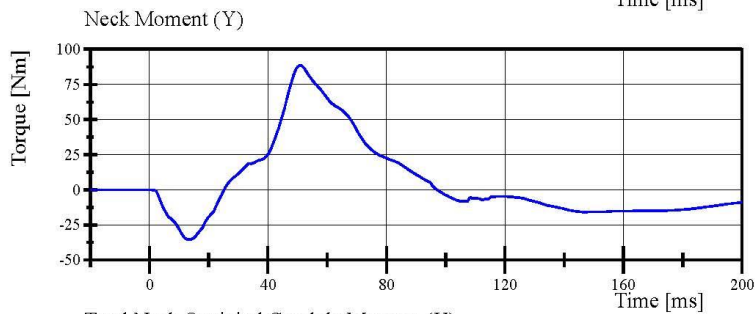
Test Date: 4/18/2024



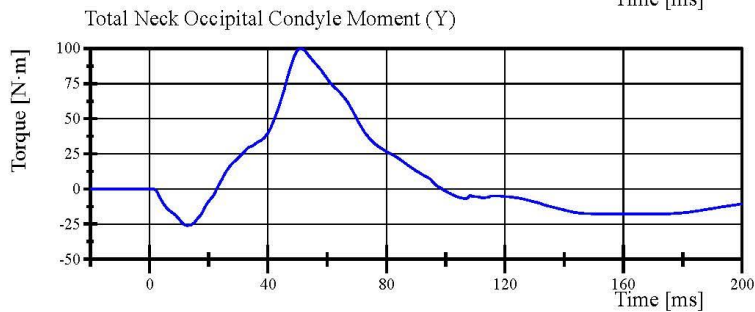
Filter Class: CFC\_1000  
Max: 170.8 N at 169.6 ms  
Min: -834.9 N at 40.6 ms



Filter Class: CFC\_600  
Max: 170.3 N at 169.6 ms  
Min: -834.6 N at 40.7 ms



Filter Class: CFC\_600  
Max: 88.4 Nm at 50.9 ms  
Min: -35.3 Nm at 13.8 ms



Filter Class: Without\_(Constar  
Max: 100.0 N·m at 51.1 ms  
Min: -26.0 N·m at 12.8 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.18.2024 09:10:11 1866



# Transportation Research Center Inc.

Neck Extension  
HIII 50th Serial No. 037 Certification No. 87-3  
Test Date: 4/18/2024

| Test Parameter                               | Specification         | Test Results | Pass |
|--|-----------------------|--------------|------|
| Temperature                                  | 20.6 - 22.2 °C        | 21.4 °C      | Yes  |
| Relative Humidity                            | 10 - 70 %             | 44 %         | Yes  |
| Pendulum Velocity                            | (-5.95) - (-6.18) m/s | -6.009 m/s   | Yes  |
| Pendulum Acceleration Decay<br>Crossing 5g   | 38 - 46 ms            | 41.1 ms      | Yes  |
| Pendulum Acceleration<br>at 10ms             | 17.2 - 21.2 g         | 17.54 g      | Yes  |
| at 20ms                                      | 14.0 - 19.0 g         | 17.31 g      | Yes  |
| at 30ms                                      | 11.0 - 16.0 g         | 14.34 g      | Yes  |
| > 30ms                                       | <= 22.0 g             | 14.34 g      | Yes  |
| Total Head D-Plane Rotation<br>Peak          | 81 - 106 °            | 98.7 °       | Yes  |
| Time of Peak                                 | 72 - 82 ms            | 78.9 ms      | Yes  |
| Decay to 0°                                  | 147 - 174 ms          | 160.1 ms     | Yes  |
| Total Neck Occipital Condyles Moment<br>Peak | (-52.9) - (-80) N·m   | -68.48 N·m   | Yes  |
| Time of Peak                                 | 65 - 79 ms            | 72.2 ms      | Yes  |
| Decay to 0 N·m                               | 120 - 148 ms          | 141.5 ms     | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: 4728**

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.18.2024 11:18:09 2010

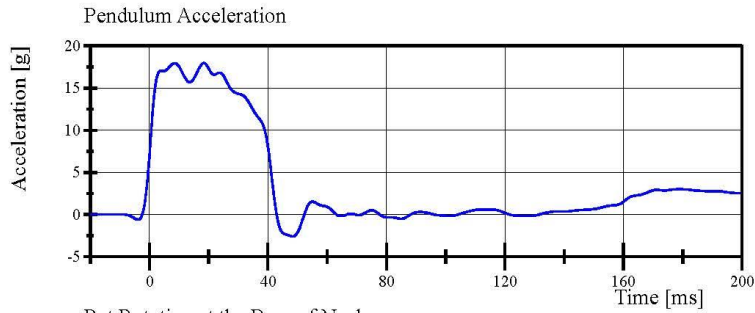


# Transportation Research Center Inc.

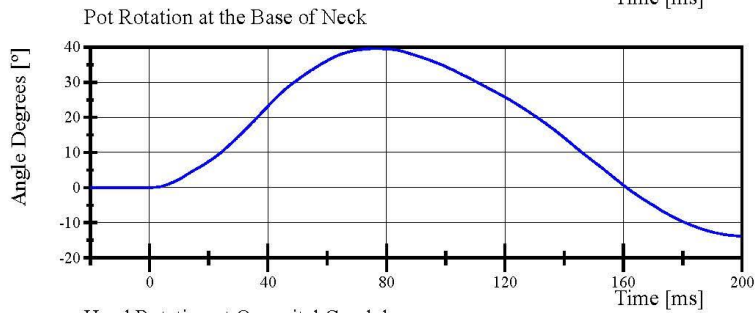
Neck Extension

HIII 50th Serial No. 037 Certification No. 87-3

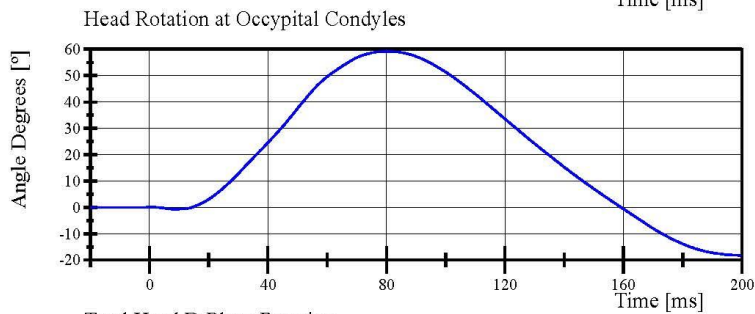
Test Date: 4/18/2024



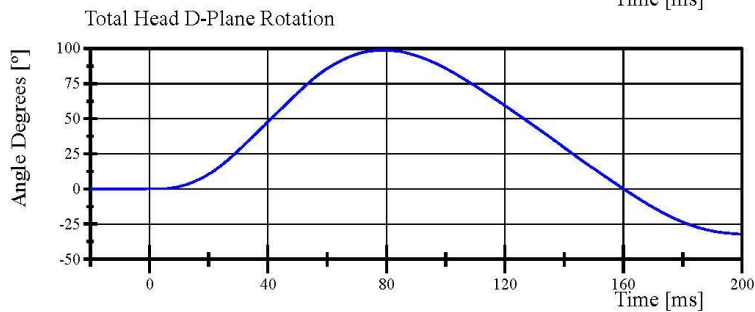
Filter Class: CFC\_60  
Max: 18.0 g at 18.4 ms  
Min: -2.6 g at 48.4 ms



Filter Class: CFC\_60  
Max: 39.6 ° at 76.5 ms  
Min: -13.8 ° at 199.5 ms



Filter Class: CFC\_60  
Max: 59.2 ° at 80.1 ms  
Min: -18.3 ° at 199.5 ms



Filter Class: CFC\_60  
Max: 98.7 ° at 78.9 ms  
Min: -32.1 ° at 199.5 ms

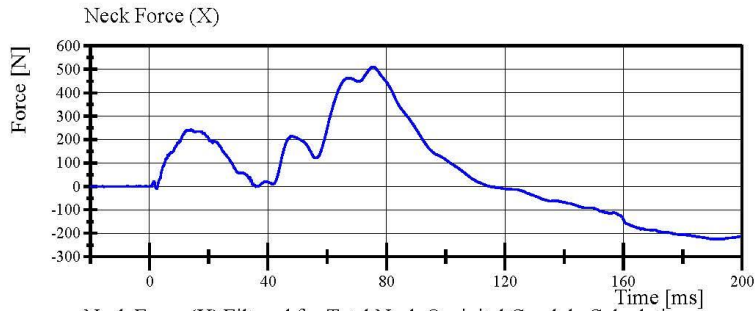
Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.18.2024 11:19:08 2010

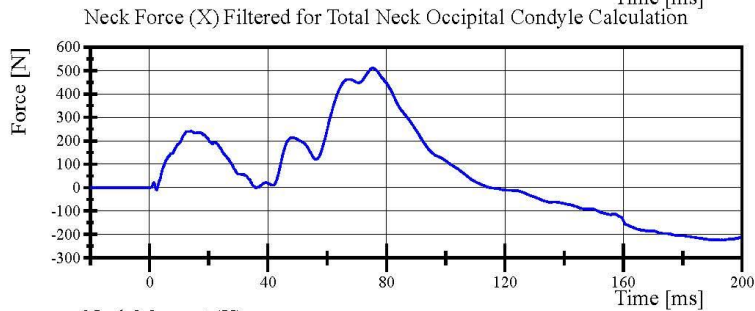


# Transportation Research Center Inc.

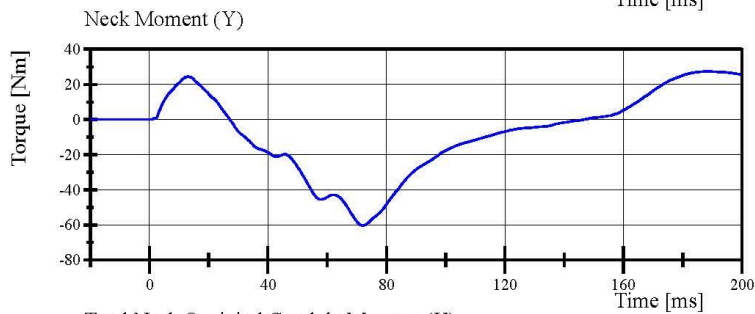
Neck Extension  
HIII 50th Serial No. 037 Certification No. 87-3  
Test Date: 4/18/2024



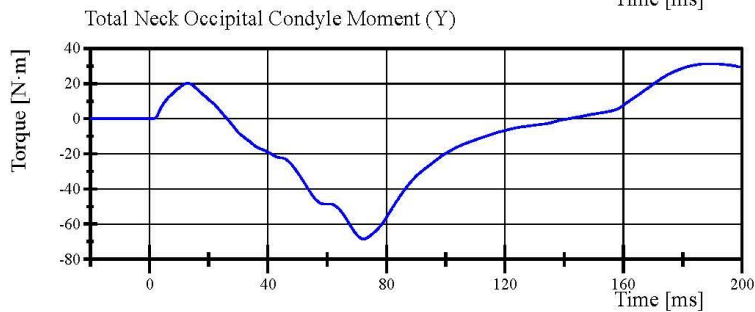
Filter Class: CFC\_1000  
Max: 511.1 N at 75.5 ms  
Min: -224.9 N at 193.6 ms



Filter Class: CFC\_600  
Max: 511.0 N at 75.5 ms  
Min: -224.4 N at 193.6 ms



Filter Class: CFC\_600  
Max: 27.4 Nm at 187.9 ms  
Min: -60.3 Nm at 72.0 ms



Filter Class: Without\_(Constar  
Max: 31.3 N·m at 189.6 ms  
Min: -68.5 N·m at 72.2 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.18.2024 11:19:09 2010



## Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 87-1

Test Date: 4/22/2024

| Test Parameter            | Specification         | Test Results | Pass |
|---------------------------|-----------------------|--------------|------|
| Temperature               | 20.6 - 22.2 °C        | 21.2 °C      | Yes  |
| Relative Humidity         | 10 - 70 %             | 34 %         | Yes  |
| Probe Velocity            | 6.59 - 6.83 m/s       | 6.598 m/s    | Yes  |
| Probe Force Peak          | (-5,160) - (-5,894) N | -5,458.0 N   | Yes  |
| Maximum Chest Compression | (-63.5) - (-72.6) mm  | -68.69 mm    | Yes  |
| Internal Hysteresis       | 69 - 85 %             | 70.0 %       | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Jacket S/N: ER6442**

**Rib Set S/N: 02033121A**

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.22.2024 11:08:56 420

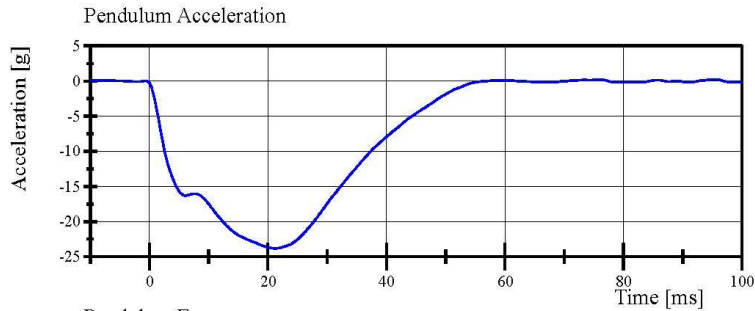


Report Number: 037\_H3F87

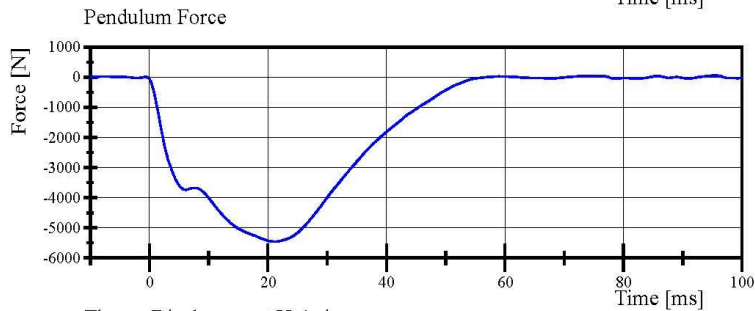
Page 17 of 27

# Transportation Research Center Inc.

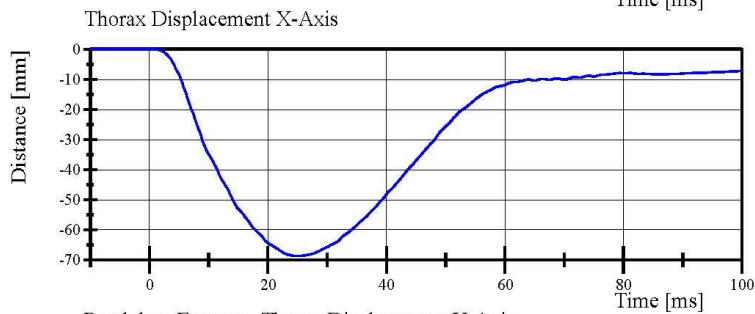
Front Thorax  
HIII 50th Serial No. 037 Certification No. 87-1  
Test Date: 4/22/2024



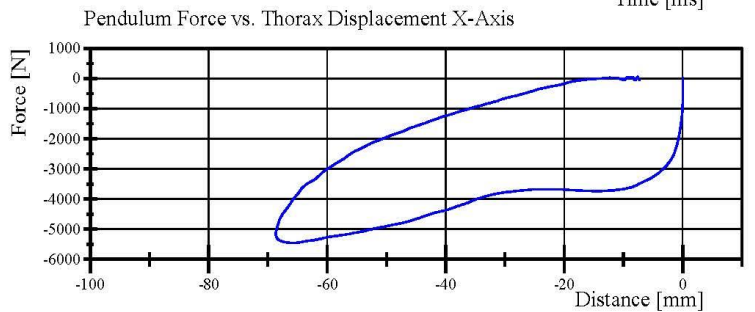
Filter Class: CFC\_180  
Max: 0.3 g at 95.4 ms  
Min: -23.8 g at 21.2 ms



Filter Class: CFC\_180  
Max: 61.9 N at 95.4 ms  
Min: -5,458.0 N at 21.2 ms



Filter Class: CFC\_600  
Max: 0.0 mm at -7.7 ms  
Min: -68.7 mm at 25.1 ms



Filter Class: CFC\_180  
Max: 61.9 N at -7.6 mm  
Min: -5,458.0 N at -65.8 mm

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.22.2024 11:10:04 420

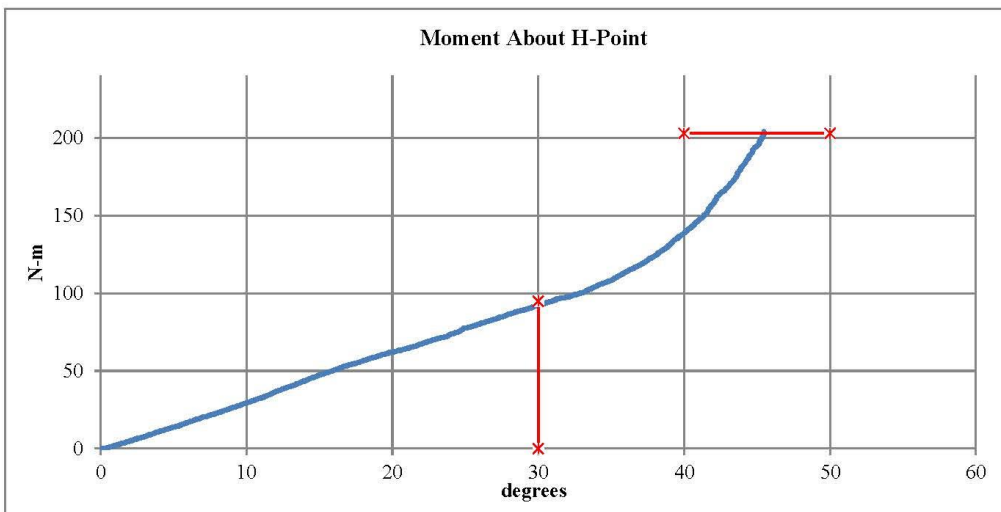


Transportation Research Center Inc.  
Hybrid III 50th Male Hip Range of Motion

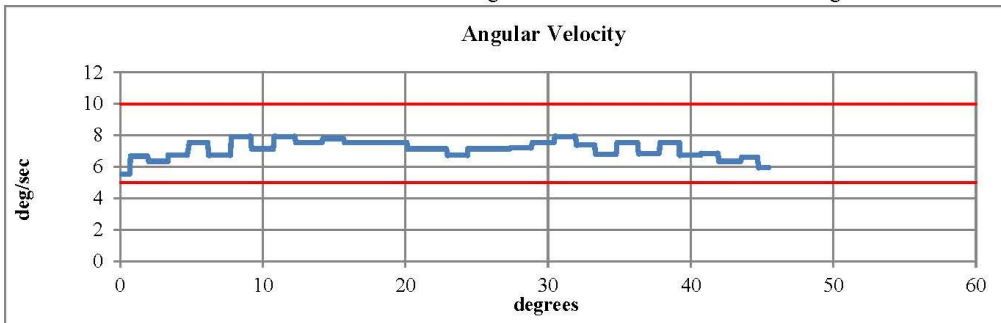


Serial Number: 037 Date: 17-Apr-2024  
Side Tested: Left Hip Time: 9:41  
Test Number: 1

| TEST PARAMETER   | SPECIFICATION | TEST RESULTS      |
|------------------|---------------|-------------------|
| Temperature      | 18.9 - 25.6   | 21.1 °C Pass      |
| Humidity         | 10 - 70       | 62 % Pass         |
| Moment at 30°    | 0 ≤ 94.9      | 92.29 N-m Pass    |
| Angle at 203 Nm  | 40 - 50       | 45.47 deg Pass    |
| Average Velocity | 5 - 10        | 7.13 deg/sec Pass |



Max: 7.93 deg/sec Min: 5.55 deg/sec



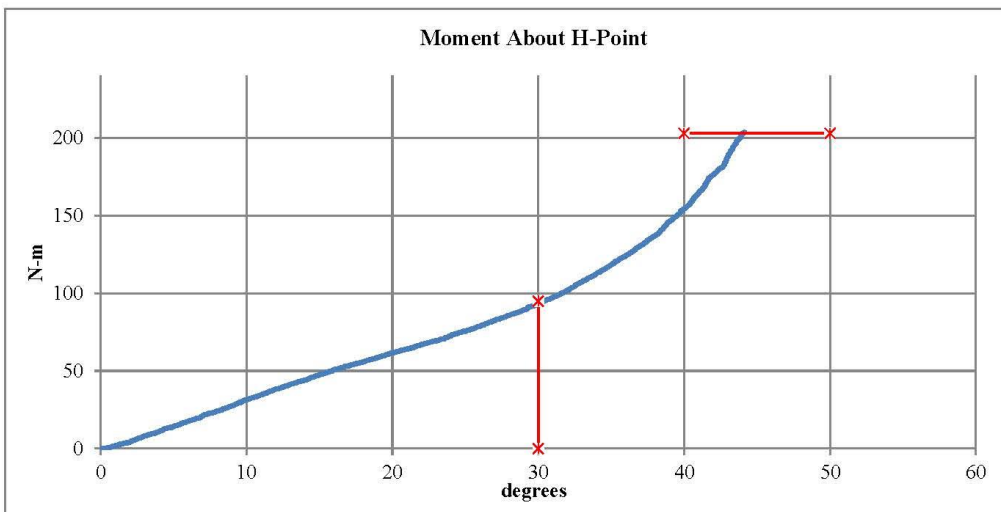
Comments: Pelvis S/N: EU6859

Transportation Research Center Inc.  
Hybrid III 50th Male Hip Range of Motion

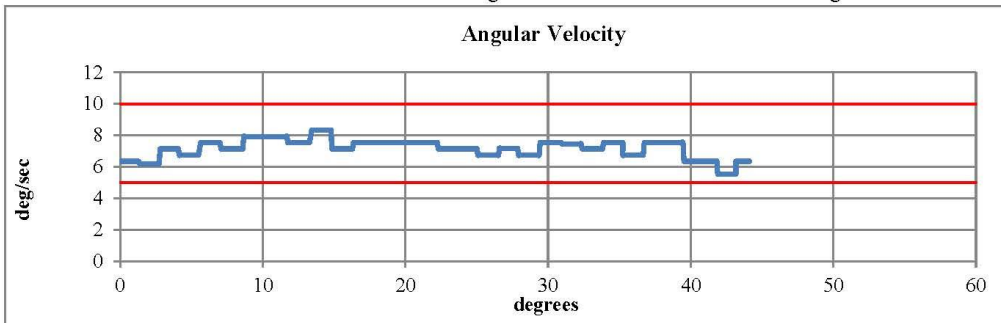


Serial Number: 037                      Date: 17-Apr-2024  
Side Tested: Right Hip                      Time: 10:52  
Test Number: 1

| TEST PARAMETER   | SPECIFICATION | TEST RESULTS      |
|------------------|---------------|-------------------|
| Temperature      | 18.9 - 25.6   | 21.2 °C Pass      |
| Humidity         | 10 - 70       | 61 % Pass         |
| Moment at 30°    | 0 ≤ 94.9      | 93.31 N-m Pass    |
| Angle at 203 Nm  | 40 - 50       | 44.13 deg Pass    |
| Average Velocity | 5 - 10        | 7.14 deg/sec Pass |



Max: 8.33 deg/sec                      Min: 5.55 deg/sec



Comments:  
Pelvis S/N: EU6859

## Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 87-1  
Test Date: 4/17/2024

| Test Parameter    | Specification             | Test Results | Pass |
|-------------------|---------------------------|--------------|------|
| Temperature       | 18.9 - 25.5 °C            | 20.8 °C      | Yes  |
| Relative Humidity | 10 - 70 %                 | 55 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s           | 2.112 m/s    | Yes  |
| Peak Femur Force  | (-4,715.2) - (-5,782.6) N | -5,595.44 N  | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Knee Skin S/N: 2672**

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.17.2024 08:40:04 1821

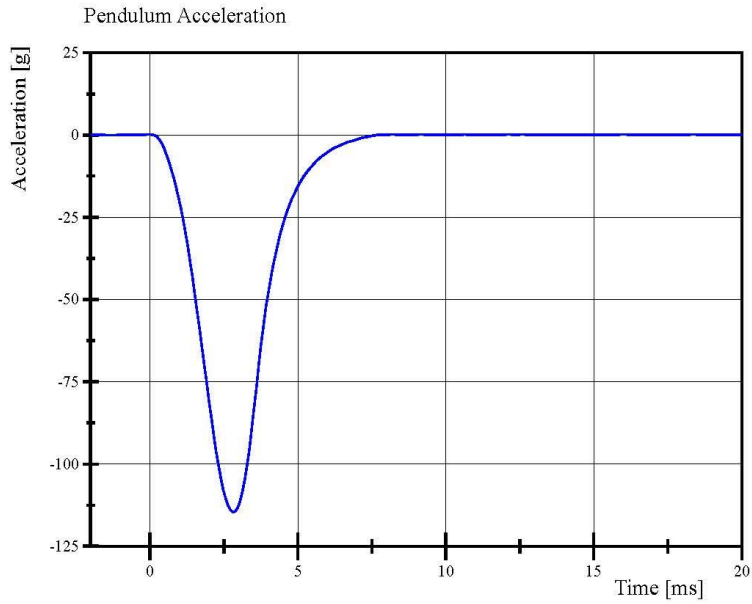


Report Number: 037\_H3F87

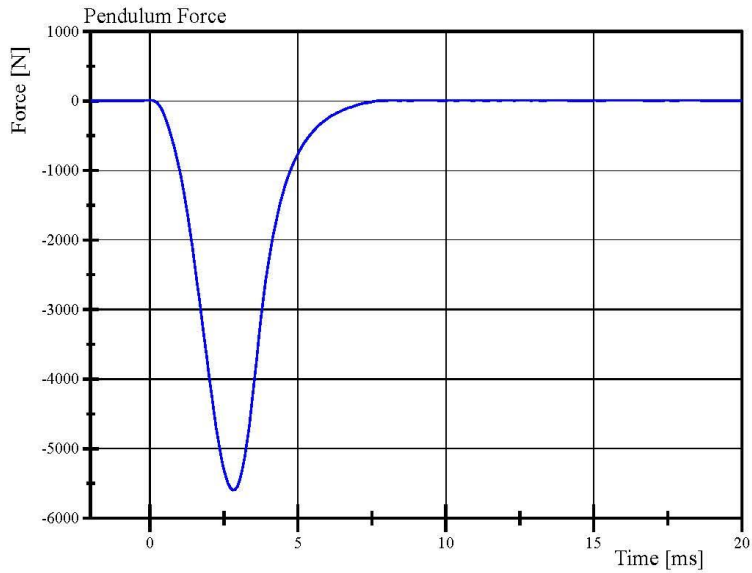
Page 21 of 27

# Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 87-1  
Test Date: 4/17/2024



Filter Class: CFC\_600  
Max: 0.2 g at 0.0 ms  
Min: -114.6 g at 2.8 ms



Filter Class: CFC\_600  
Max: 8.3 N at 0.0 ms  
Min: -5,595.4 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.17.2024 08:41:29 1821



# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 87-1  
Test Date: 4/17/2024

| Test Parameter    | Specification             | Test Results | Pass |
|-------------------|---------------------------|--------------|------|
| Temperature       | 18.9 - 25.5 °C            | 20.8 °C      | Yes  |
| Relative Humidity | 10 - 70 %                 | 57 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s           | 2.113 m/s    | Yes  |
| Peak Femur Force  | (-4,715.2) - (-5,782.6) N | -5,471.47 N  | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Knee Skin S/N: 1248**

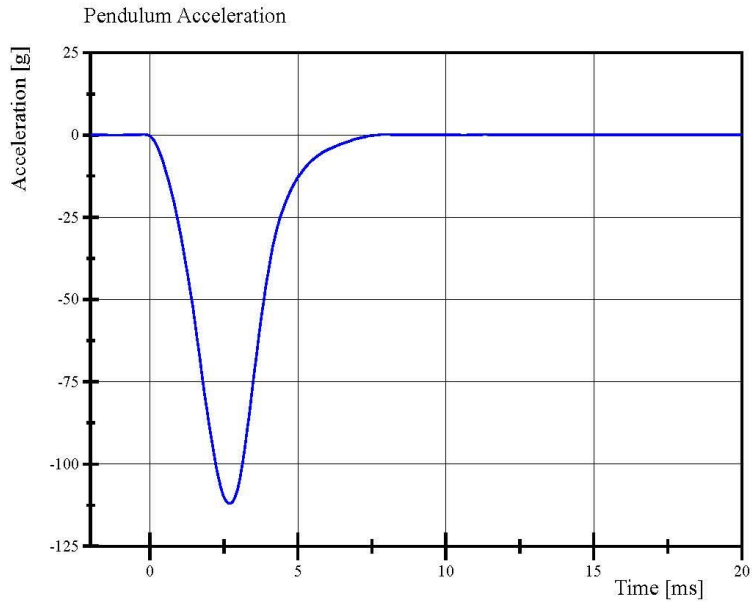
Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.17.2024 08:43:49 1821

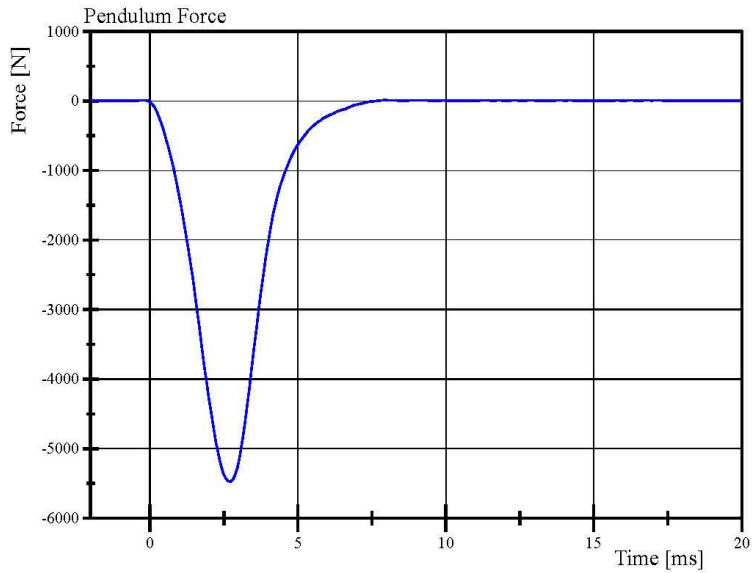


# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 87-1  
Test Date: 4/17/2024



Filter Class: CFC\_600  
Max: 0.2 g at 7.9 ms  
Min: -112.0 g at 2.7 ms



Filter Class: CFC\_600  
Max: 8.7 N at 7.9 ms  
Min: -5,471.5 N at 2.7 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

04.17.2024 08:45:36 1821



**Post-Test Calibration Sheets**

**Driver S/N 037**

**Transportation Research Center Inc.**  
**572E HIII 50th Male Dummy**  
**External Dimensions**  
**Serial No. 037**  
**Calibration No. 88**

| Symbol | Description                      | Specification  | Results | Pass |
|--------|----------------------------------|----------------|---------|------|
|        |                                  | mm             | mm      |      |
| A      | Total Sitting Height             | 878.8 - 889.0  | 881     | Yes  |
| B      | Shoulder Pivot Height            | 505.5 - 520.7  | 510     | Yes  |
| C      | H-Point Height                   | 83.8 - 88.9    | 86      | Yes  |
| D      | H-Point From Seatback            | 134.6 - 139.7  | 137     | Yes  |
| E      | Shoulder Pivot From Backline     | 83.8 - 94.0    | 90      | Yes  |
| F      | Thigh Clearance                  | 139.7 - 154.9  | 150     | Yes  |
| G      | Back Of Elbow To Wrist Pivot     | 289.6 - 304.8  | 295     | Yes  |
| H      | Skull Cap To Backline            | 40.6 - 45.7    | 45      | Yes  |
| I      | Shoulder-Elbow Length            | 330.2 - 345.4  | 337     | Yes  |
| J      | Elbow Rest Height                | 190.5 - 210.8  | 198     | Yes  |
| K      | Buttock Knee Length              | 579.1 - 604.5  | 601     | Yes  |
| L      | Popliteal Height                 | 429.3 - 454.7  | 440     | Yes  |
| M      | Knee Pivot Height                | 485.1 - 500.4  | 494     | Yes  |
| N      | Buttock Popliteal Length         | 452.1 - 477.5  | 470     | Yes  |
| O      | Chest Depth                      | 213.4 - 228.6  | 223     | Yes  |
| P      | Foot Length                      | 251.5 - 266.7  | 264     | Yes  |
| V      | Shoulder Breadth                 | 421.6 - 436.9  | 425     | Yes  |
| W      | Foot Breadth                     | 91.4 - 106.7   | 96      | Yes  |
| Y      | Chest Circumference              | 970.3 - 1000.8 | 991     | Yes  |
| Z      | Waist Circumference              | 835.7 - 866.1  | 865     | Yes  |
| AA     | Location For Chest Circumference | 429.3 - 434.3  | 432     | Yes  |
| BB     | Location For Waist Circumference | 226.1 - 231.1  | 229     | Yes  |



Revised 8/10/12

Report Number: 037\_H3F88

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## Transportation Research Center Inc.

Front Head Drop  
HIII 50th Serial No. 037 Certification No. 88-2  
Test Date: 5/8/2024

| Test Parameter                                     | Specification  | Test Results | Pass |
|--|----------------|--------------|------|
| Temperature  | 20.6 - 22.2 °C | 20.8 °C      | Yes  |
| Relative Humidity                                  | 10 - 70 %      | 66 %         | Yes  |
| Peak Head Resultant Acceleration                   | 225 - 275 g    | 237.9 g      | Yes  |
| Peak Head Lateral Acceleration                     | (-15) - 15 g   | 3.4 g        | Yes  |
| Is Acceleration Curve Unimodal within 10% of Peak? | < 10 %         | 4.04 %       | Yes  |

**Test meets specifications.**

**Condition:** Used

**Comments:**

**Head Skin S/N:** N/A

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 13:38:25 614

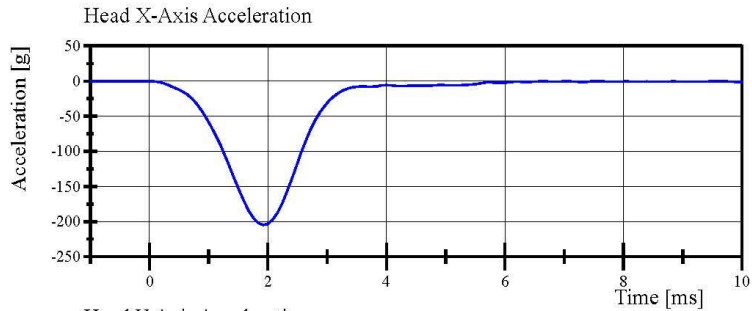


# Transportation Research Center Inc.

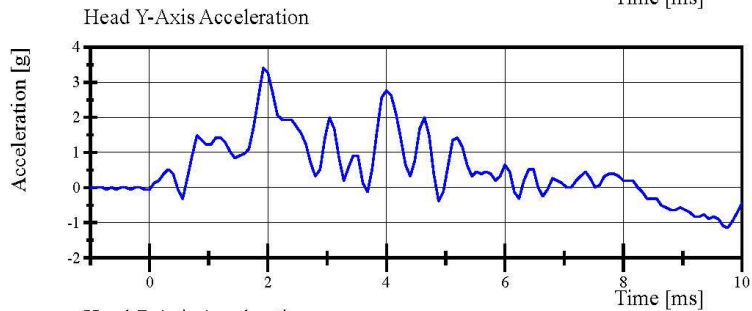
Front Head Drop

HIII 50th Serial No. 037 Certification No. 88-2

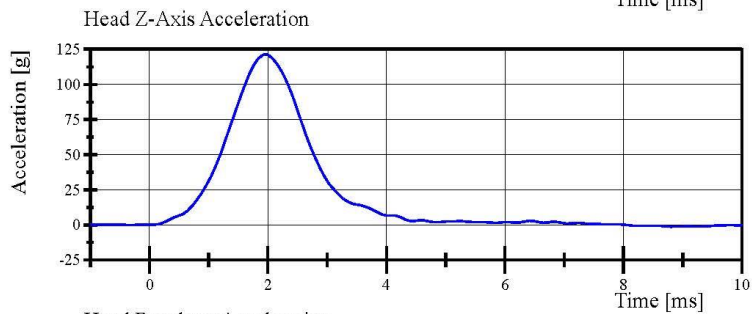
Test Date: 5/8/2024



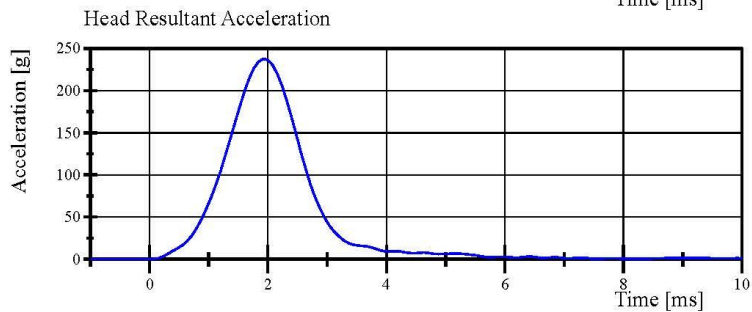
Filter Class: CFC\_1000  
Max: 0.1 g at -0.8 ms  
Min: -204.7 g at 1.9 ms



Filter Class: CFC\_1000  
Max: 3.4 g at 1.9 ms  
Min: -1.1 g at 9.8 ms



Filter Class: CFC\_1000  
Max: 121.1 g at 1.9 ms  
Min: -1.2 g at 8.8 ms



Filter Class: CFC\_1000  
Max: 237.9 g at 1.9 ms  
Min: 0.0 g at -0.9 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 13:38:55 614



# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 88-3

Test Date: 5/8/2024

| Test Parameter                       | Specification       | Test Results | Pass |
|--------------------------------------|---------------------|--------------|------|
| Temperature                          | 20.6 - 22.2 °C      | 20.9 °C      | Yes  |
| Relative Humidity                    | 10 - 70 %           | 67 %         | Yes  |
| Pendulum Velocity                    | 6.89 - 7.13 m/s     | 6.982 m/s    | Yes  |
| Pendulum Acceleration Decay          |                     |              |      |
| Crossing -5g                         | 34 - 42 ms          | 38.1 ms      | Yes  |
| Pendulum Acceleration                |                     |              |      |
| at 10ms                              | (-22.5) - (-27.5) g | -23.01 g     | Yes  |
| at 20ms                              | (-17.6) - (-22.6) g | -21.46 g     | Yes  |
| at 30ms                              | (-12.5) - (-18.5) g | -16.52 g     | Yes  |
| > 30ms                               | >= (-29.0) g        | -16.52 g     | Yes  |
| Total Head D-Plane Rotation          |                     |              |      |
| Peak                                 | (-64) - (-78) °     | -66.1 °      | Yes  |
| Time of Peak                         | 57 - 64 ms          | 59.6 ms      | Yes  |
| Decay to 0°                          | 113 - 128 ms        | 118.9 ms     | Yes  |
| Total Neck Occipital Condyles Moment |                     |              |      |
| Peak                                 | 88.1 - 108.4 N·m    | 102.31 N·m   | Yes  |
| Time of Peak                         | 47 - 58 ms          | 51.4 ms      | Yes  |
| Decay to 0 N·m                       | 97 - 107 ms         | 98.1 ms      | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: 4728**

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 11:44:42 1863

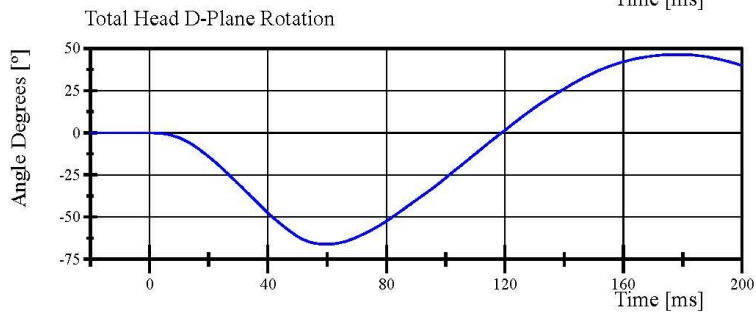
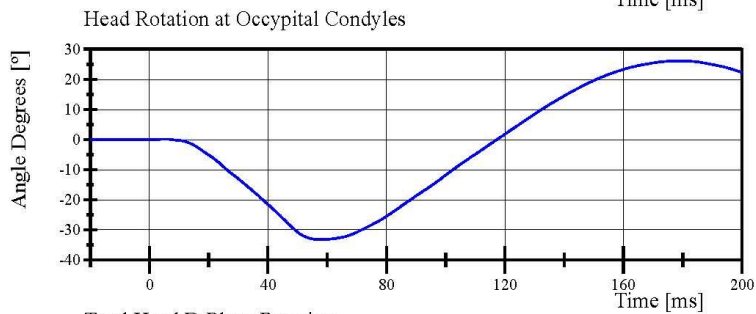
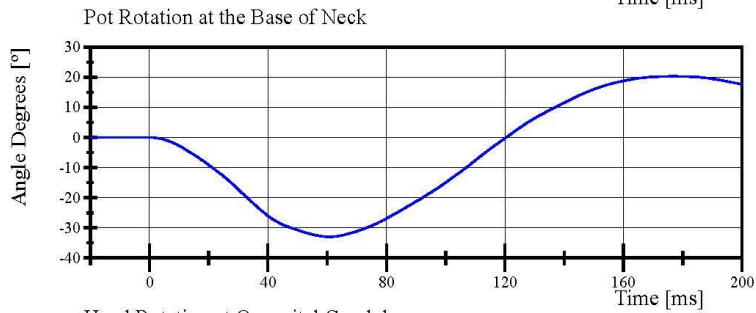
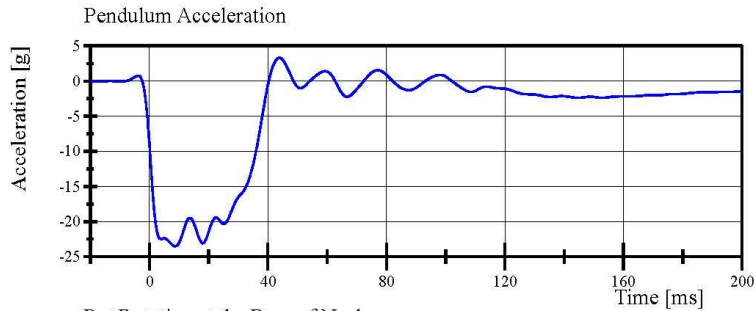


# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 88-3

Test Date: 5/8/2024



Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 11:45:28 1863

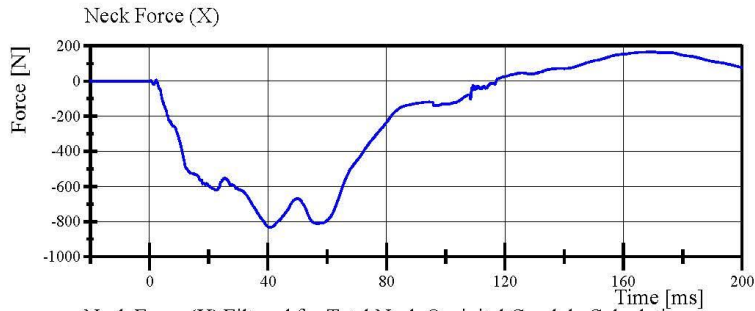


# Transportation Research Center Inc.

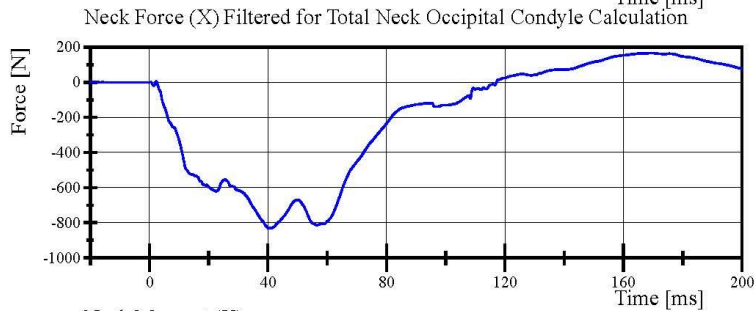
Neck Flexion

HIII 50th Serial No. 037 Certification No. 88-3

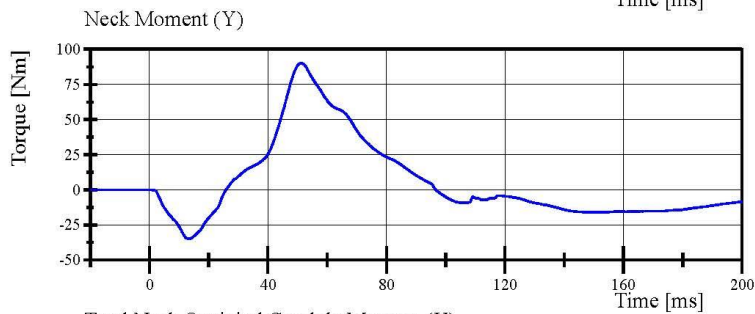
Test Date: 5/8/2024



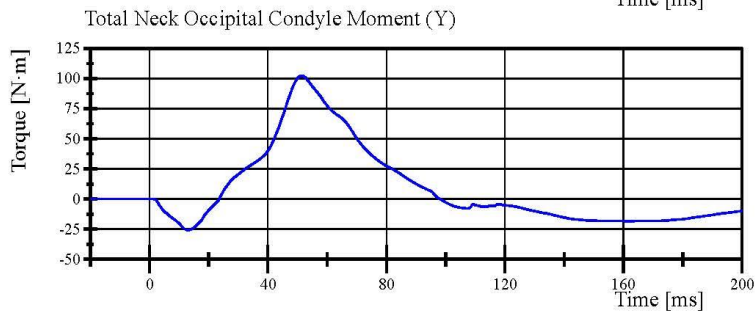
Filter Class: CFC\_1000  
Max: 167.1 N at 169.0 ms  
Min: -832.6 N at 40.5 ms



Filter Class: CFC\_600  
Max: 166.7 N at 169.1 ms  
Min: -832.1 N at 40.6 ms



Filter Class: CFC\_600  
Max: 90.2 Nm at 51.2 ms  
Min: -34.8 Nm at 13.4 ms



Filter Class: Without\_(Constar  
Max: 102.3 N·m at 51.4 ms  
Min: -25.8 N·m at 13.1 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 11:45:29 1863



## Transportation Research Center Inc.

Neck Extension  
HIII 50th Serial No. 037 Certification No. 88-2  
Test Date: 5/8/2024

| Test Parameter                               | Specification         | Test Results | Pass |
|--|-----------------------|--------------|------|
| Temperature                                  | 20.6 - 22.2 °C        | 20.8 °C      | Yes  |
| Relative Humidity                            | 10 - 70 %             | 67 %         | Yes  |
| Pendulum Velocity                            | (-5.95) - (-6.18) m/s | -6.016 m/s   | Yes  |
| Pendulum Acceleration Decay<br>Crossing 5g   | 38 - 46 ms            | 41.0 ms      | Yes  |
| Pendulum Acceleration<br>at 10ms             | 17.2 - 21.2 g         | 17.84 g      | Yes  |
| at 20ms                                      | 14.0 - 19.0 g         | 16.90 g      | Yes  |
| at 30ms                                      | 11.0 - 16.0 g         | 14.76 g      | Yes  |
| > 30ms                                       | <= 22.0 g             | 14.94 g      | Yes  |
| Total Head D-Plane Rotation<br>Peak          | 81 - 106 °            | 92.7 °       | Yes  |
| Time of Peak                                 | 72 - 82 ms            | 77.9 ms      | Yes  |
| Decay to 0°                                  | 147 - 174 ms          | 158.4 ms     | Yes  |
| Total Neck Occipital Condyles Moment<br>Peak | (-52.9) - (-80) N·m   | -67.45 N·m   | Yes  |
| Time of Peak                                 | 65 - 79 ms            | 71.8 ms      | Yes  |
| Decay to 0 N·m                               | 120 - 148 ms          | 141.3 ms     | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: 4728**

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 13:09:29 2010

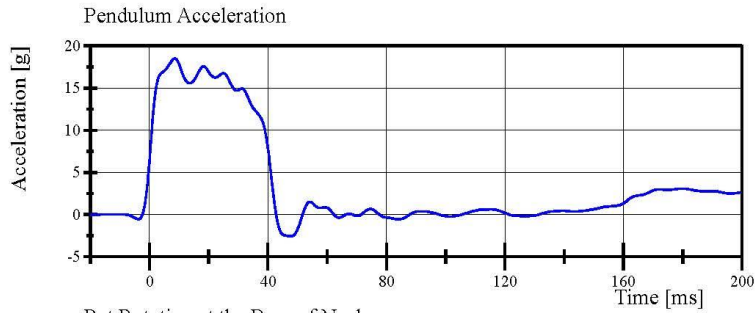


# Transportation Research Center Inc.

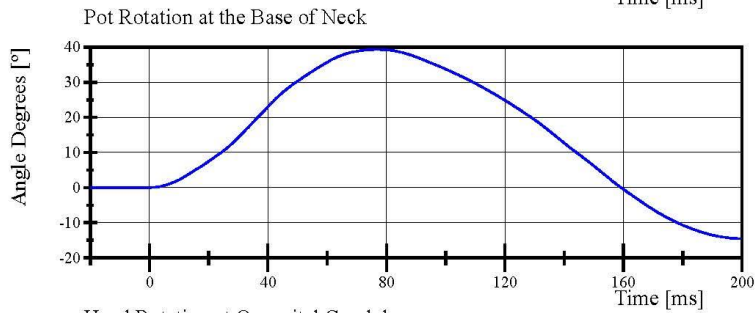
Neck Extension

HIII 50th Serial No. 037 Certification No. 88-2

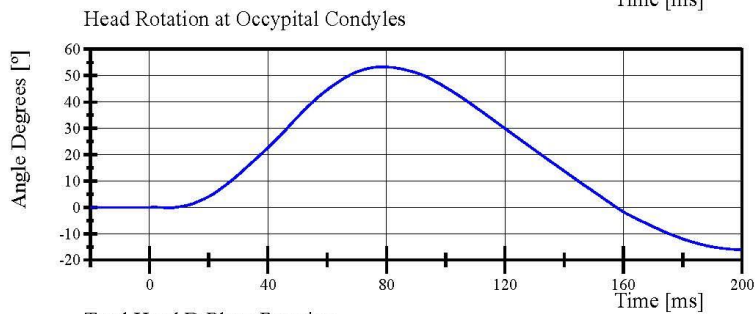
Test Date: 5/8/2024



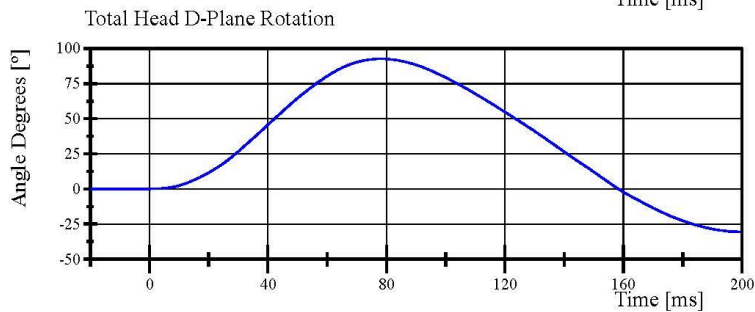
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Max: 18.5 g at 8.6 ms  
Min: -2.6 g at 47.8 ms



Filter Class: CFC\_60  
Max: 39.4 ° at 76.9 ms  
Min: -14.6 ° at 199.5 ms



Filter Class: CFC\_60  
Max: 53.3 ° at 78.5 ms  
Min: -16.0 ° at 199.5 ms



Filter Class: CFC\_60  
Max: 92.7 ° at 77.9 ms  
Min: -30.6 ° at 199.5 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 13:10:19 2010

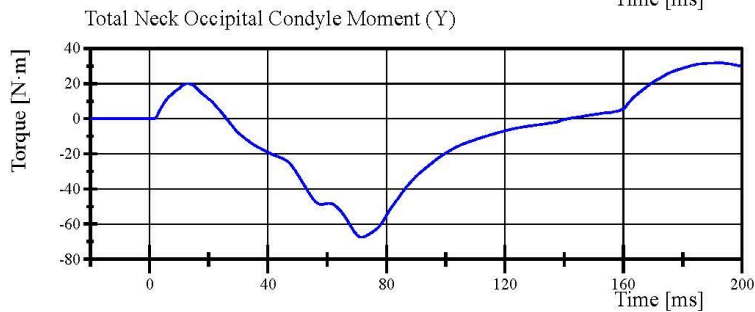
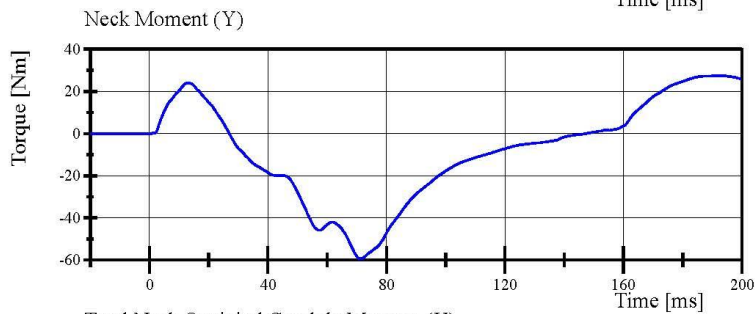
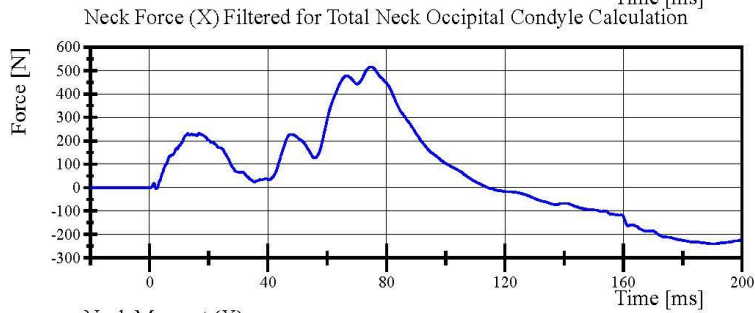
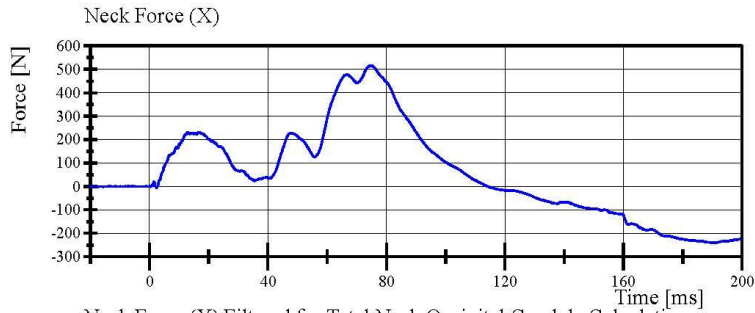


# Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 037 Certification No. 88-2

Test Date: 5/8/2024



Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 13:10:19 2010



## Transportation Research Center Inc.

Front Thorax  
HIII 50th Serial No. 037 Certification No. 88-2  
Test Date: 5/8/2024

| Test Parameter            | Specification         | Test Results | Pass |
|---------------------------|-----------------------|--------------|------|
| Temperature               | 20.6 - 22.2 °C        | 20.8 °C      | Yes  |
| Relative Humidity         | 10 - 70 %             | 66 %         | Yes  |
| Probe Velocity            | 6.59 - 6.83 m/s       | 6.611 m/s    | Yes  |
| Probe Force Peak          | (-5,160) - (-5,894) N | -5,396.5 N   | Yes  |
| Maximum Chest Compression | (-63.5) - (-72.6) mm  | -68.98 mm    | Yes  |
| Internal Hysteresis       | 69 - 85 %             | 69.1 %       | Yes  |

**Test meets specifications.**

**Condition:** Used

**Comments:**

**Jacket S/N:** ER6442

**Rib Set S/N:** 02033121A

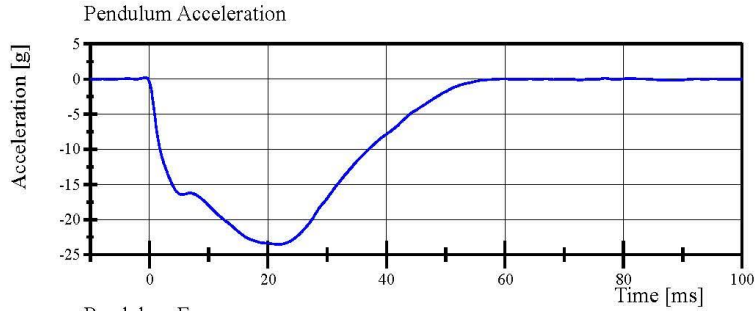
Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 08:57:18 433

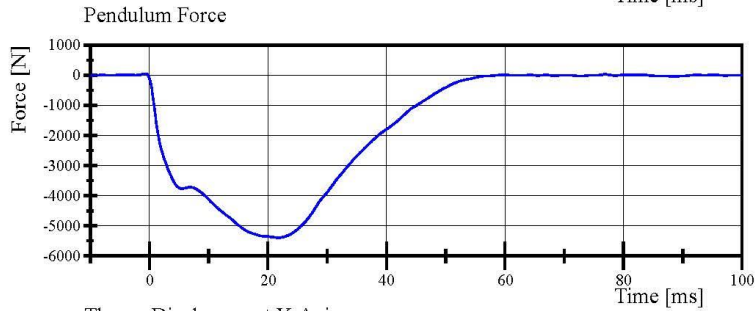


# Transportation Research Center Inc.

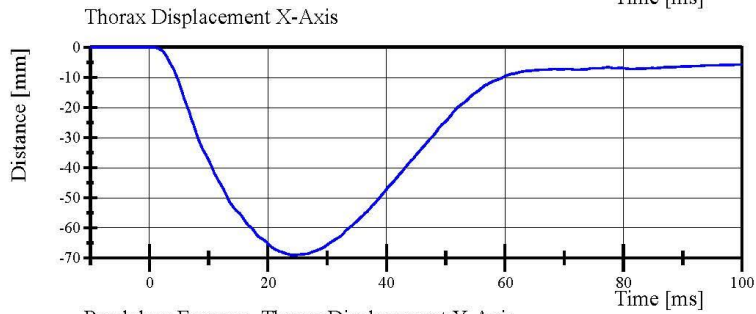
Front Thorax  
HIII 50th Serial No. 037 Certification No. 88-2  
Test Date: 5/8/2024



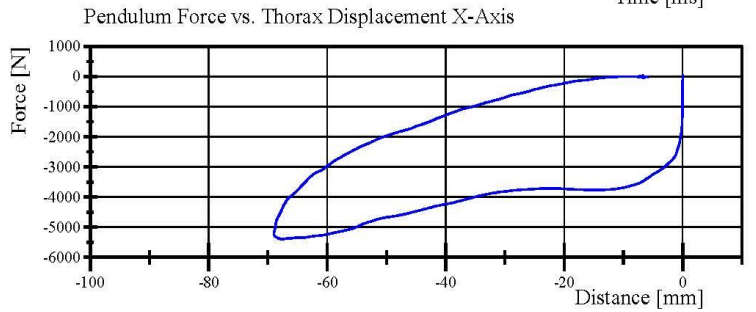
Filter Class: CFC\_180  
Max: 0.2 g at -0.7 ms  
Min: -23.5 g at 21.8 ms



Filter Class: CFC\_180  
Max: 50.1 N at -0.7 ms  
Min: -5,396.5 N at 21.8 ms



Filter Class: CFC\_600  
Max: 0.0 mm at -6.2 ms  
Min: -69.0 mm at 24.2 ms



Filter Class: CFC\_180  
Max: 50.1 N at -0.0 mm  
Min: -5,396.5 N at -67.6 mm

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 08:57:57 433

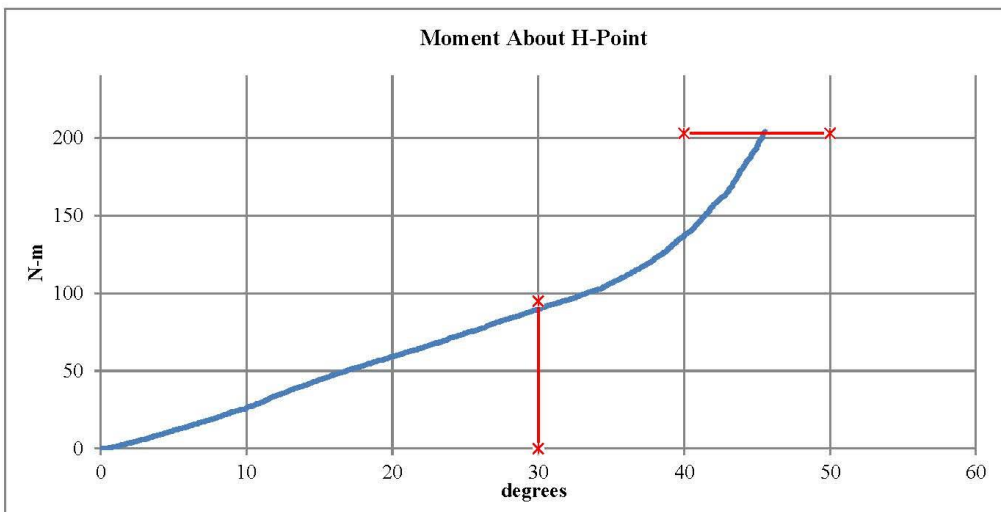


Transportation Research Center Inc.  
Hybrid III 50th Male Hip Range of Motion

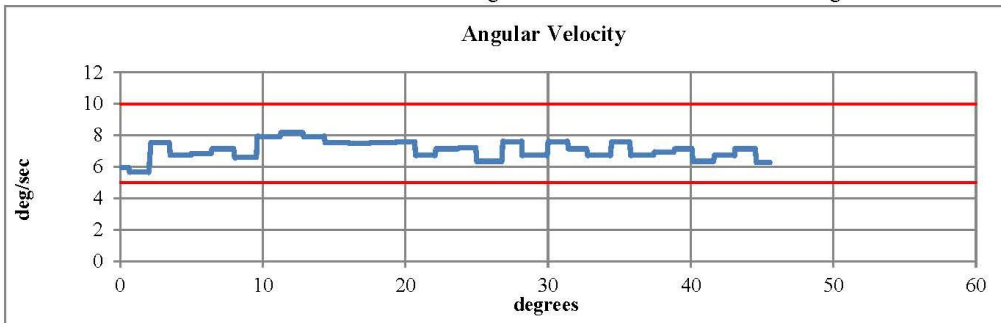


Serial Number: 037                      Date: 08-May-2024  
Side Tested: Left Hip                      Time: 9:42  
Test Number: 1

| TEST PARAMETER   | SPECIFICATION | TEST RESULTS      |
|------------------|---------------|-------------------|
| Temperature      | 18.9 - 25.6   | 20.8 °C Pass      |
| Humidity         | 10 - 70       | 67 % Pass         |
| Moment at 30°    | 0 ≤ 94.9      | 89.55 N-m Pass    |
| Angle at 203 Nm  | 40 - 50       | 45.55 deg Pass    |
| Average Velocity | 5 - 10        | 7.08 deg/sec Pass |



Max: 8.17 deg/sec                      Min: 5.67 deg/sec



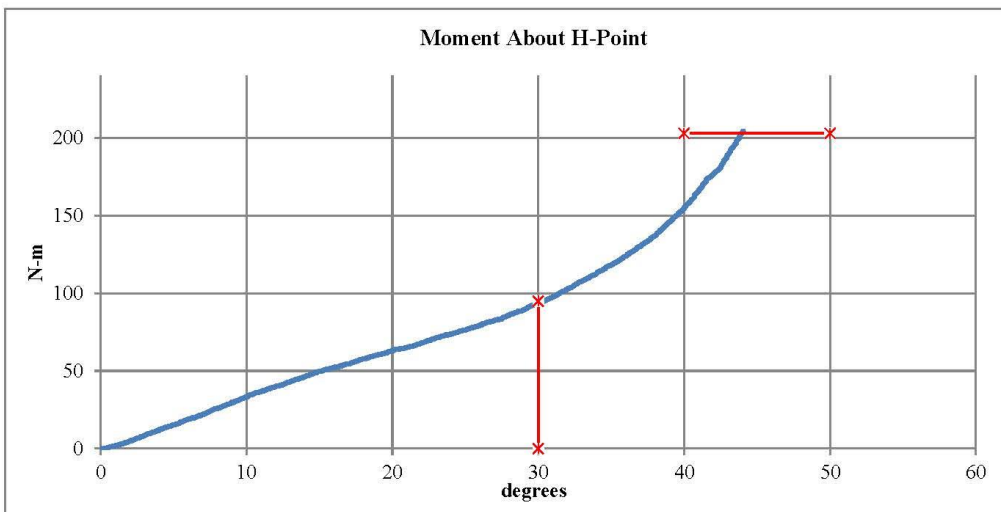
Comments:  
Pelvis S/N: EU6859

Transportation Research Center Inc.  
Hybrid III 50th Male Hip Range of Motion

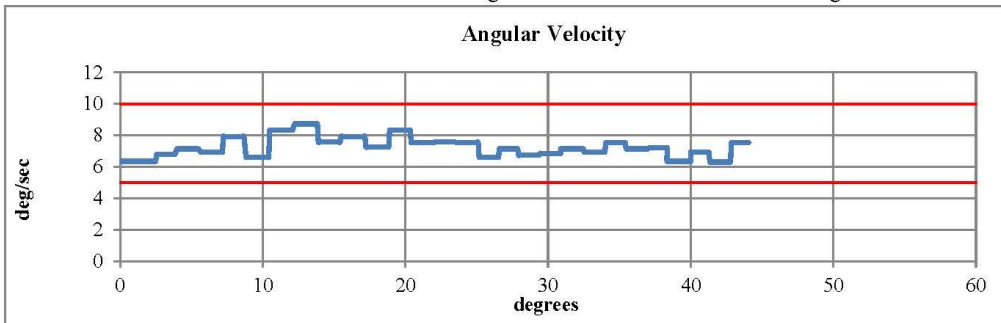


Serial Number: 037                      Date: 08-May-2024  
Side Tested: Right Hip                      Time: 10:24  
Test Number: 1

| TEST PARAMETER   | SPECIFICATION | TEST RESULTS      |
|------------------|---------------|-------------------|
| Temperature      | 18.9 - 25.6   | 20.8 °C Pass      |
| Humidity         | 10 - 70       | 68 % Pass         |
| Moment at 30°    | 0 ≤ 94.9      | 93.65 N-m Pass    |
| Angle at 203 Nm  | 40 - 50       | 44.05 deg Pass    |
| Average Velocity | 5 - 10        | 7.22 deg/sec Pass |



Max: 8.73 deg/sec                      Min: 6.3 deg/sec



Comments:  
Pelvis S/N: EU6859

# Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 88-1  
Test Date: 5/8/2024

| Test Parameter    | Specification             | Test Results | Pass |
|-------------------|---------------------------|--------------|------|
| Temperature       | 18.9 - 25.5 °C            | 20.8 °C      | Yes  |
| Relative Humidity | 10 - 70 %                 | 69 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s           | 2.100 m/s    | Yes  |
| Peak Femur Force  | (-4,715.2) - (-5,782.6) N | -5,377.40 N  | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Knee Skin S/N: 2672**

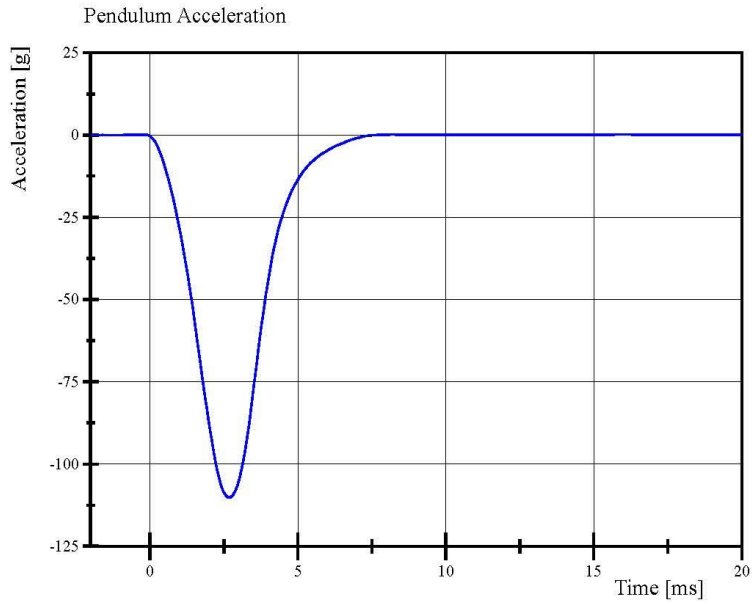
Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 08:32:40 1791

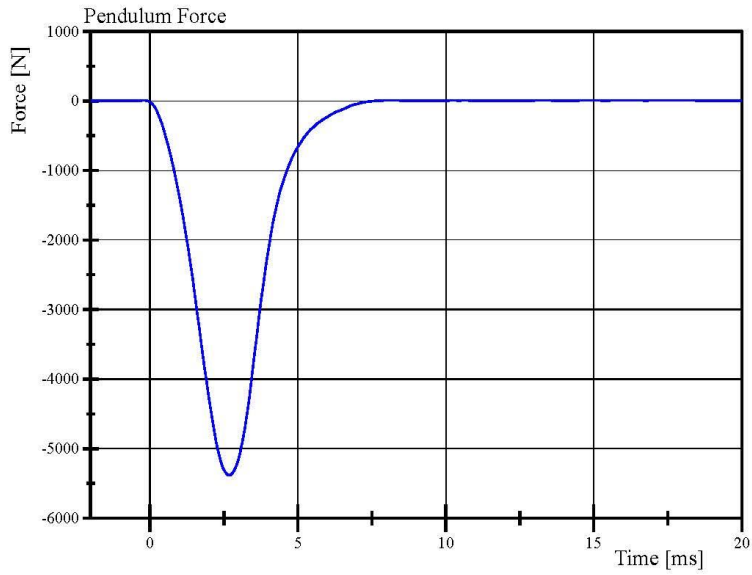


# Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 88-1  
Test Date: 5/8/2024



Filter Class: CFC\_600  
Max: 0.2 g at 16.0 ms  
Min: -110.1 g at 2.7 ms



Filter Class: CFC\_600  
Max: 7.8 N at 16.0 ms  
Min: -5,377.4 N at 2.7 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 08:33:20.1791



# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 88-1  
Test Date: 5/8/2024

| Test Parameter    | Specification             | Test Results | Pass |
|-------------------|---------------------------|--------------|------|
| Temperature       | 18.9 - 25.5 °C            | 20.8 °C      | Yes  |
| Relative Humidity | 10 - 70 %                 | 69 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s           | 2.103 m/s    | Yes  |
| Peak Femur Force  | (-4,715.2) - (-5,782.6) N | -5,360.78 N  | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Knee Skin S/N: 1248**

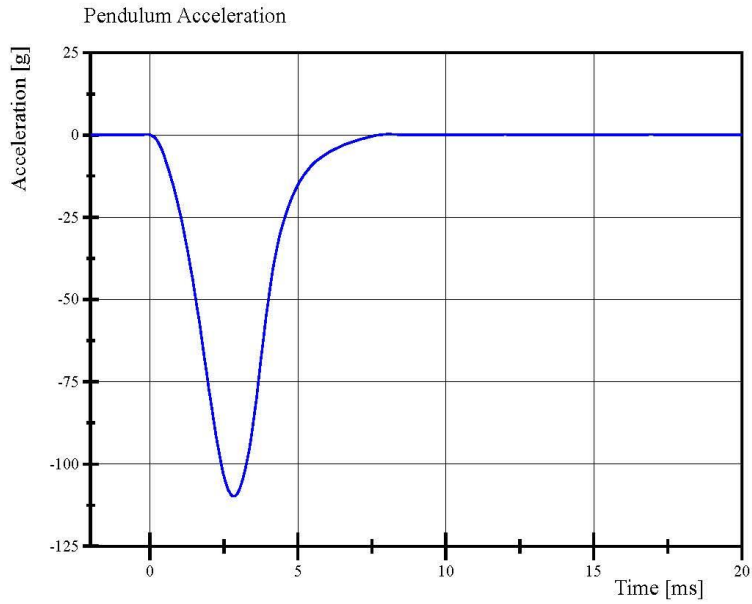
Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 08:35:03 1785

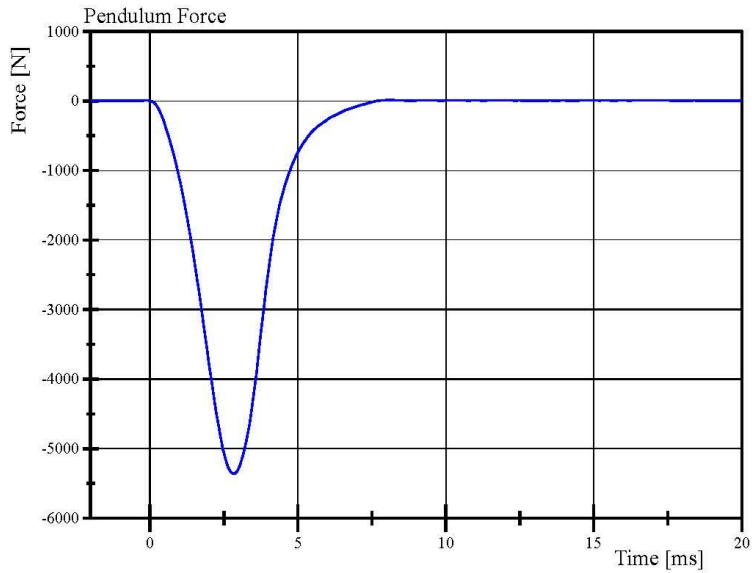


# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 50th Serial No. 037 Certification No. 88-1  
Test Date: 5/8/2024



Filter Class: CFC\_600  
Max: 0.2 g at 8.1 ms  
Min: -109.8 g at 2.8 ms



Filter Class: CFC\_600  
Max: 11.4 N at 8.1 ms  
Min: -5,360.8 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E  
with Polarity in accordance with J211

05.08.2024 08:35:39 1785



**Pre-Test Calibration Sheets**

**Passenger S/N DH1659**

**Transportation Research Center Inc.**  
**5720 HIII 5th Dummy**  
**External Dimensions**  
**Serial No. DH1659 Calibration No. 13**

| Symbol | Description                                | Specification | Results | Pass |
|--------|--|---------------|---------|------|
|        |  | mm            | mm      |      |
| A      | Total Sitting Height                       | 774.7 - 800.1 | 781     | Yes  |
| B      | Shoulder Pivot Height                      | 431.8 - 457.2 | 445     | Yes  |
| C      | Hip Pivot Height                           | 81.3 - 86.3   | 86      | Yes  |
| D      | Hip Pivot from Backline                    | 144.8 - 149.8 | 148     | Yes  |
| E      | Shoulder Pivot from Backline               | 68.6 - 83.8   | 80      | Yes  |
| F      | Thigh Clearance                            | 119.4 - 134.6 | 130     | Yes  |
| G      | Back of Elbow to Wrist Pivot               | 243.9 - 259.1 | 249     | Yes  |
| H      | Head Back to Backline                      | 43.2 - 48.2   | 45      | Yes  |
| I      | Shoulder to Elbow Length                   | 276.8 - 297.2 | 286     | Yes  |
| J      | Elbow Rest Height                          | 182.8 - 203.2 | 198     | Yes  |
| K      | Buttock Knee Length                        | 520.7 - 546.1 | 533     | Yes  |
| L      | Popliteal Height                           | 355.6 - 376.0 | 360     | Yes  |
| M      | Knee Pivot Height                          | 393.7 - 419.1 | 409     | Yes  |
| N      | Buttock Popliteal Length                   | 414.0 - 439.4 | 430     | Yes  |
| O      | Chest Depth without Jacket                 | 175.3 - 190.5 | 185     | Yes  |
| P      | Foot Length                                | 218.5 - 233.7 | 225     | Yes  |
| R      | Buttock to Knee Pivot Length               | 457.2 - 482.6 | 473     | Yes  |
| S      | Head Breadth                               | 137.1 - 147.3 | 141     | Yes  |
| T      | Head Depth                                 | 177.8 - 188.0 | 180     | Yes  |
| U      | Hip Breadth                                | 299.7 - 314.9 | 305     | Yes  |
| V      | Shoulder Breadth                           | 350.5 - 365.7 | 356     | Yes  |
| W      | Foot Breadth                               | 78.8 - 94.0   | 85      | Yes  |
| X      | Head Circumference                         | 528.3 - 548.7 | 539     | Yes  |
| Y      | Chest Circumference with Jacket            | 850.9 - 881.3 | 869     | Yes  |
| Z      | Waist Circumference                        | 759.5 - 789.9 | 776     | Yes  |
| AA     | Reference Location for Chest Circumference | 332.7 - 358.1 | 345     | Yes  |
| BB     | Reference Location for Waist Circumference | 160.0 - 170.2 | 165     | Yes  |

Revised 8/10/12



Report Number: DH1659\_HFH13

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# Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. DH1659 Certification No. 13-3

Test Date: 4/23/2024

| Test Parameter                                     | Specification  | Test Results | Pass |
|--|----------------|--------------|------|
| Temperature  | 18.9 - 25.5 °C | 21.4 °C      | Yes  |
| Relative Humidity                                  | 10 - 70 %      | 36 %         | Yes  |
| Peak Head Resultant Acceleration                   | 250 - 300 g    | 255.3 g      | Yes  |
| Peak Head Lateral Acceleration                     | (-15) - 15 g   | 7.6 g        | Yes  |
| Is Acceleration Curve Unimodal within 10% of Peak? | < 10 %         | 6.58 %       | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Head Skin S/N: 2864**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 12:25:55 613

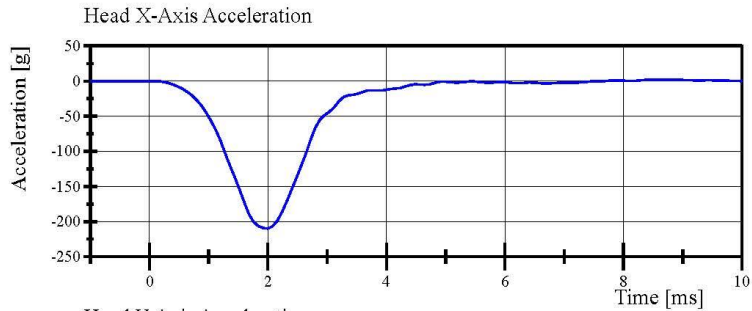


# Transportation Research Center Inc.

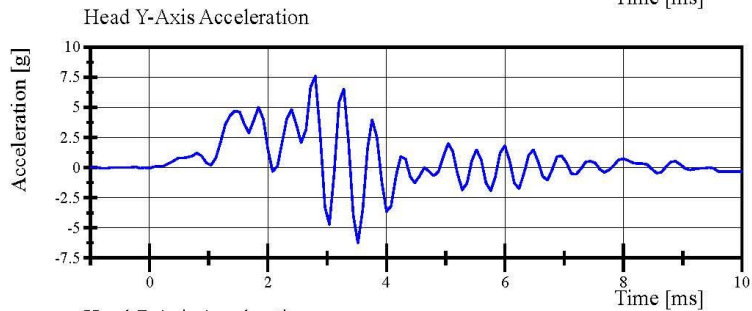
Front Head Drop

HIII 5th Serial No. DH1659 Certification No. 13-3

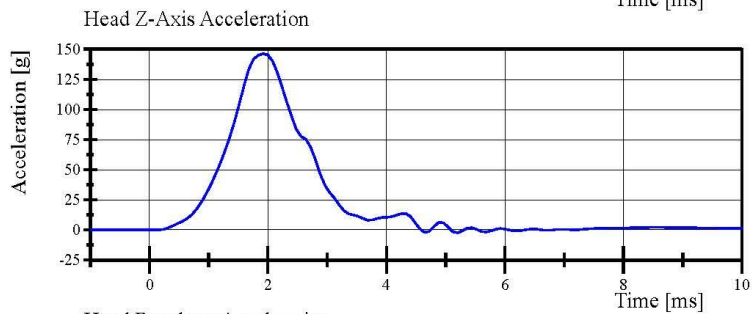
Test Date: 4/23/2024



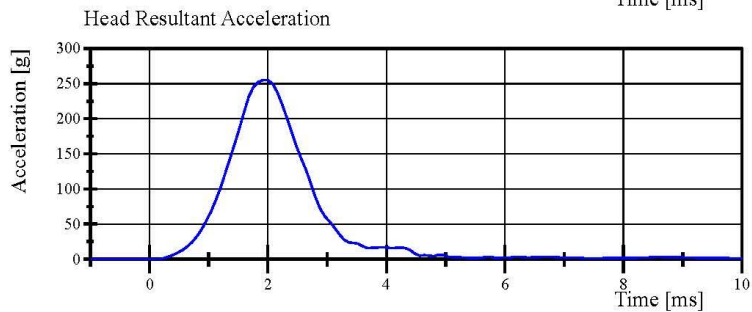
Filter Class: CFC\_1000  
Max: 2.2 g at 8.6 ms  
Min: -209.9 g at 2.0 ms



Filter Class: CFC\_1000  
Max: 7.6 g at 2.8 ms  
Min: -6.3 g at 3.5 ms



Filter Class: CFC\_1000  
Max: 146.3 g at 1.9 ms  
Min: -2.4 g at 5.2 ms



Filter Class: CFC\_1000  
Max: 255.3 g at 1.9 ms  
Min: 0.0 g at -0.6 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 12:26:43 613



# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 13-1

Test Date: 4/23/2024

| Test Parameter                       | Specification       | Test Results | Pass |
|--------------------------------------|---------------------|--------------|------|
| Temperature                          | 20.6 - 22.2 °C      | 20.8 °C      | Yes  |
| Relative Humidity                    | 10 - 70 %           | 35 %         | Yes  |
| Pendulum Velocity                    | 6.89 - 7.13 m/s     | 7.115 m/s    | Yes  |
| Pendulum Integrated Velocity         |                     |              |      |
| Change at 10ms                       | (-2.1) - (-2.5) m/s | -2.32 m/s    | Yes  |
| Change at 20ms                       | (-4.0) - (-5.0) m/s | -4.67 m/s    | Yes  |
| Change at 30ms                       | (-5.8) - (-7.0) m/s | -6.69 m/s    | Yes  |
| Total Head D-Plane Rotation          | (-77) - (-91) °     | -79.8 °      | Yes  |
| Total Neck Occipital Condyles Moment |                     |              |      |
| Between -77° and -91° Rotation       | 69 - 83 N·m         | 70.6 N·m     | Yes  |
| Decay to 10 N·m                      | 80 - 100 ms         | 87.4 ms      | Yes  |

**Test meets specifications.**

**Condition:** Used

**Comments:**

**Neck S/N:** EE9454

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 12:46:42 1848

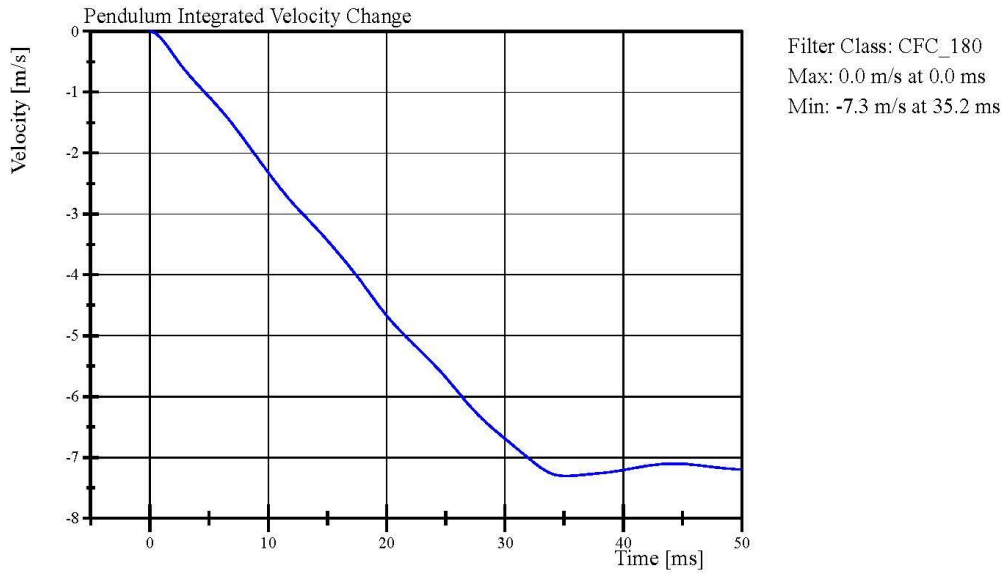
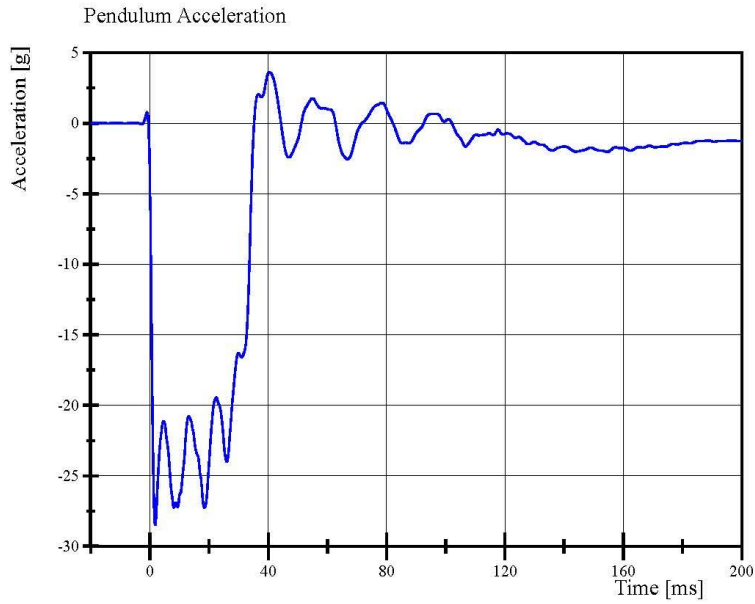


# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 13-1

Test Date: 4/23/2024



Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 12:47:35 1848



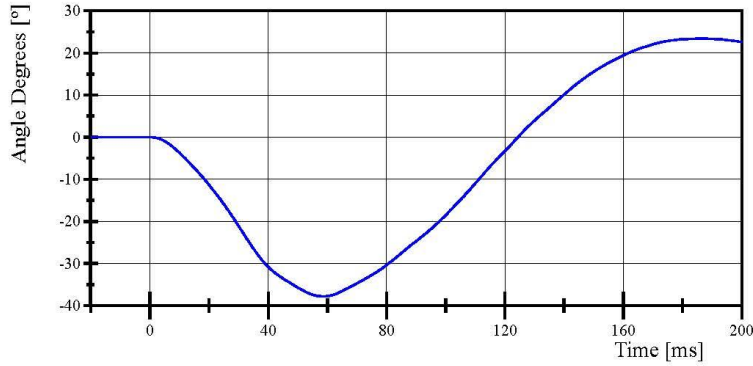
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 13-1

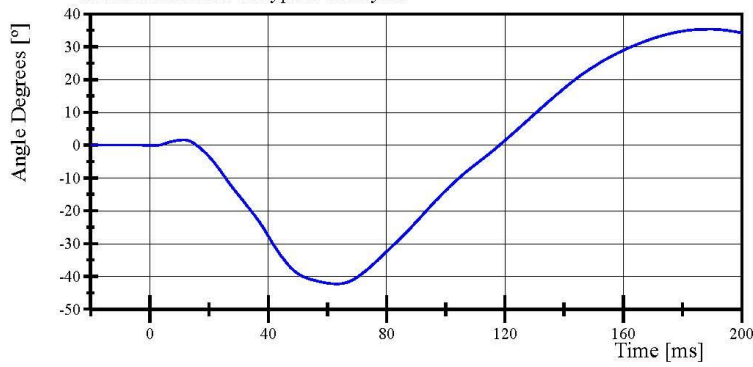
Test Date: 4/23/2024

Pot Rotation at the Base of Neck



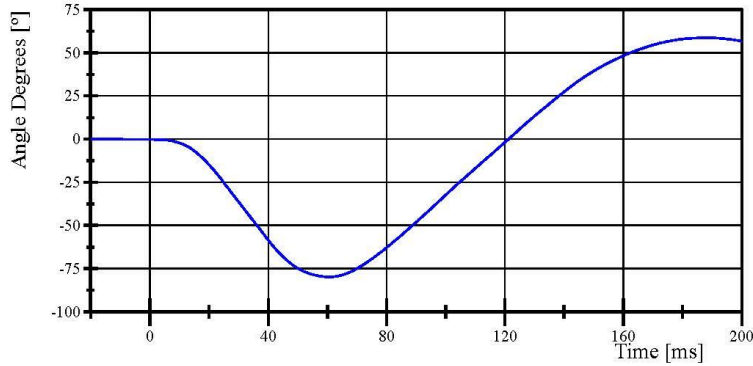
Filter Class: CFC\_60  
Max: 23.4 ° at 186.5 ms  
Min: -37.8 ° at 58.7 ms

Head Rotation at Occypital Condyles



Filter Class: CFC\_60  
Max: 35.4 ° at 189.4 ms  
Min: -42.3 ° at 63.2 ms

Total Head D-Plane Rotation



Filter Class: CFC\_60  
Max: 58.7 ° at 188.3 ms  
Min: -79.8 ° at 60.6 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 12:47:35 1848

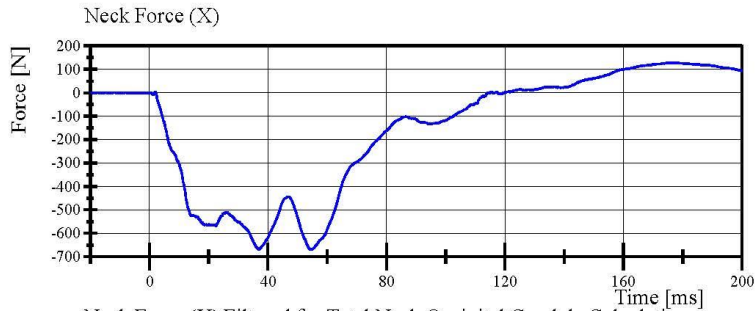


# Transportation Research Center Inc.

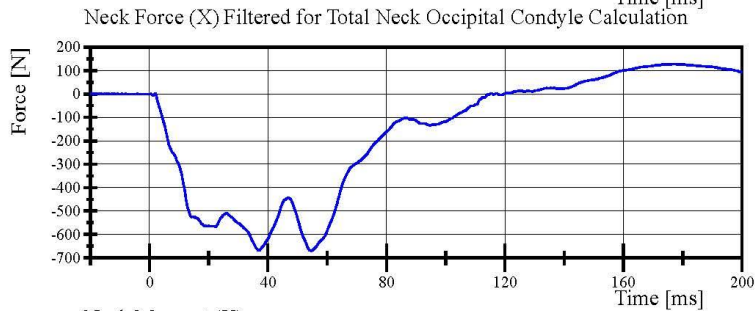
Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 13-1

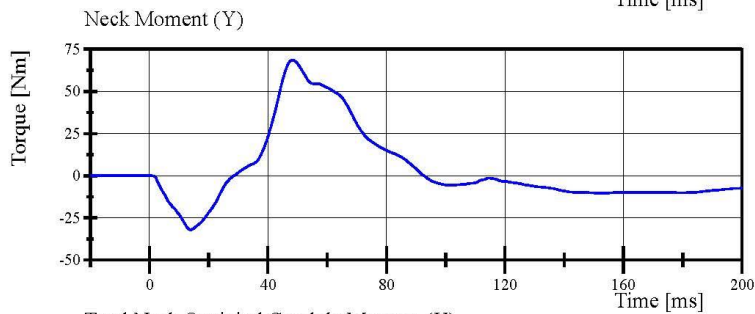
Test Date: 4/23/2024



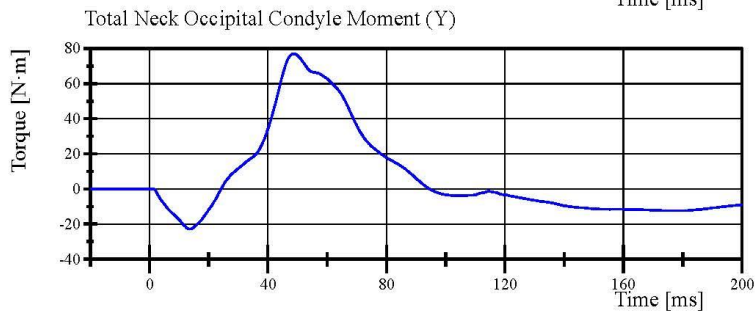
Filter Class: CFC\_1000  
Max: 128.5 N at 177.3 ms  
Min: -669.8 N at 54.7 ms



Filter Class: CFC\_600  
Max: 128.1 N at 176.9 ms  
Min: -669.5 N at 54.7 ms



Filter Class: CFC\_600  
Max: 68.7 Nm at 48.3 ms  
Min: -32.1 Nm at 13.9 ms



Filter Class: Without\_(Constar  
Max: 77.1 N·m at 48.6 ms  
Min: -22.8 N·m at 13.7 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 12:47:35 1848



# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. DH1659 Certification No. 13-2

Test Date: 4/23/2024

| Test Parameter                       | Specification         | Test Results | Pass |
|--------------------------------------|-----------------------|--------------|------|
| Temperature                          | 20.6 - 22.2 °C        | 21.4 °C      | Yes  |
| Relative Humidity                    | 10 - 70 %             | 35 %         | Yes  |
| Pendulum Velocity                    | (-5.95) - (-6.19) m/s | -6.088 m/s   | Yes  |
| Pendulum Integrated Velocity         |                       |              |      |
| Change at 10ms                       | 1.5 - 1.9 m/s         | 1.64 m/s     | Yes  |
| Change at 20ms                       | 3.1 - 3.9 m/s         | 3.26 m/s     | Yes  |
| Change at 30ms                       | 4.6 - 5.6 m/s         | 4.84 m/s     | Yes  |
| Total Head D-Plane Rotation          | 99 - 114 °            | 107.5 °      | Yes  |
| Total Neck Occipital Condyles Moment |                       |              |      |
| Between 99° and 114° Rotation        | (-53) - (-65) N·m     | -54.7 N·m    | Yes  |
| Decay to -10 N·m                     | 94 - 114 ms           | 106.6 ms     | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: EE9454**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 13:46:01 1997



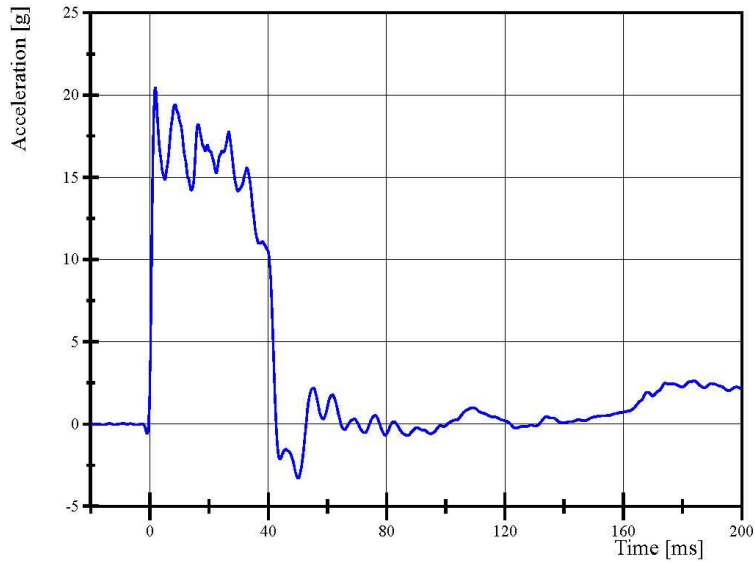
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. DH1659 Certification No. 13-2

Test Date: 4/23/2024

Pendulum Acceleration

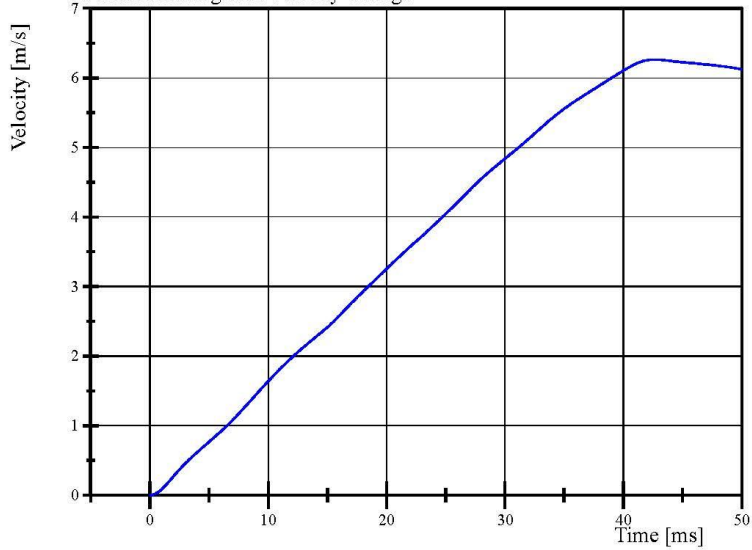


Filter Class: CFC\_180

Max: 20.5 g at 1.9 ms

Min: -3.3 g at 50.1 ms

Pendulum Integrated Velocity Change



Filter Class: CFC\_180

Max: 6.3 m/s at 42.7 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 13:47:01 1997



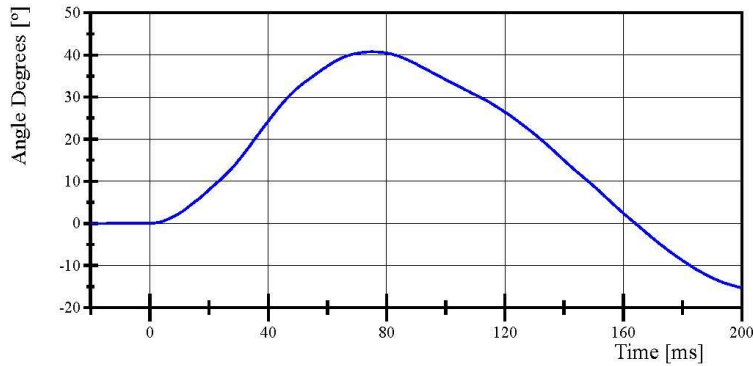
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. DH1659 Certification No. 13-2

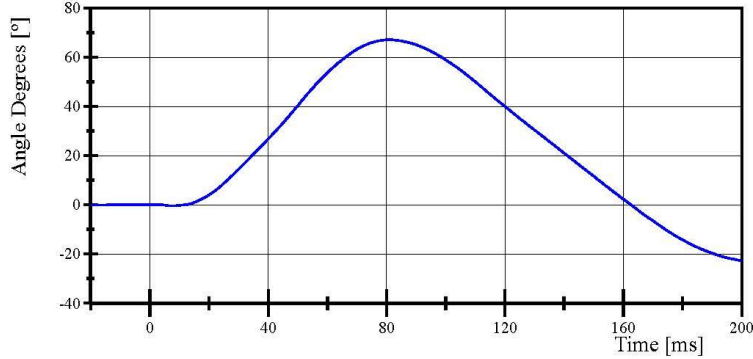
Test Date: 4/23/2024

Pot Rotation at the Base of Neck



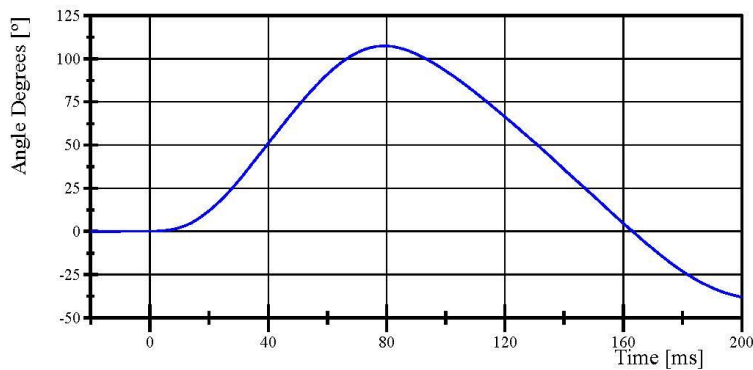
Filter Class: CFC\_60  
Max: 40.8 ° at 75.1 ms  
Min: -15.3 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC\_60  
Max: 67.1 ° at 80.8 ms  
Min: -22.8 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC\_60  
Max: 107.5 ° at 79.4 ms  
Min: -38.1 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 13:47:01 1997

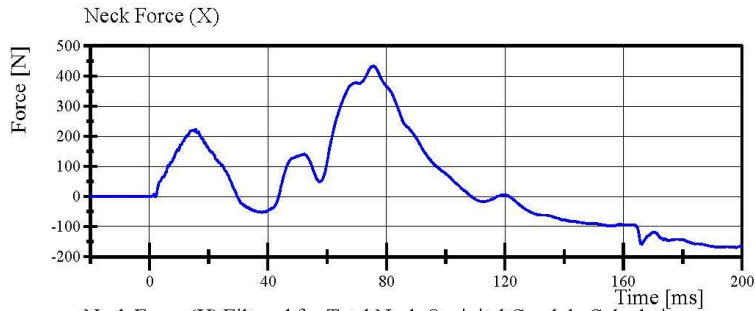


# Transportation Research Center Inc.

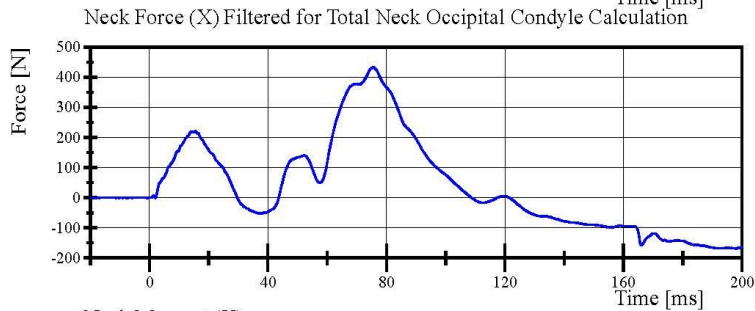
Neck Extension

HIII 5th Serial No. DH1659 Certification No. 13-2

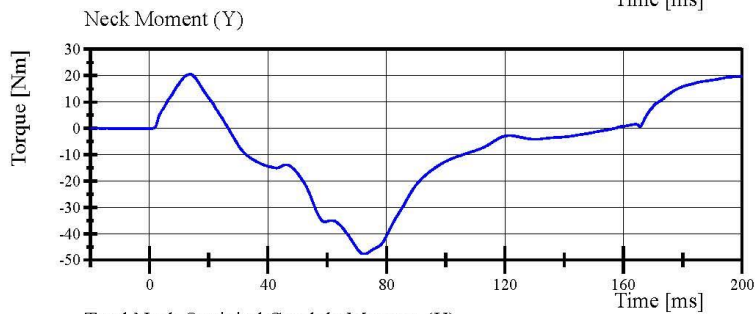
Test Date: 4/23/2024



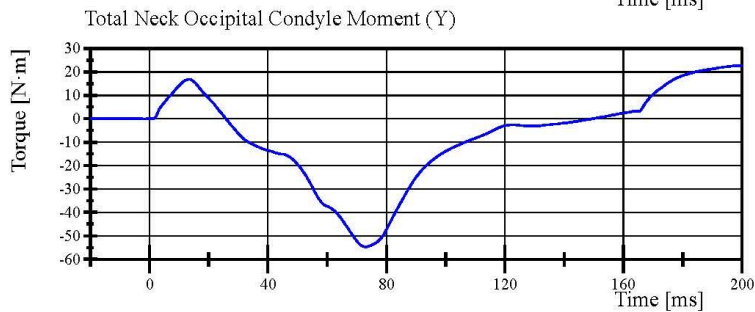
Filter Class: CFC\_1000  
Max: 433.4 N at 75.5 ms  
Min: -170.2 N at 198.0 ms



Filter Class: CFC\_600  
Max: 433.1 N at 75.6 ms  
Min: -169.6 N at 198.0 ms



Filter Class: CFC\_600  
Max: 20.6 Nm at 13.8 ms  
Min: -47.7 Nm at 72.6 ms



Filter Class: Without\_(Constar  
Max: 22.8 N·m at 200.0 ms  
Min: -54.7 N·m at 73.0 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.23.2024 13:47:02 1997



# Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. DH1659 Certification No. 13-4

Test Date: 4/26/2024

| Test Parameter   | Specification         | Test Results | Pass |
|--|-----------------------|--------------|------|
| Temperature  | 20.6 - 22.2 °C        | 21.3 °C      | Yes  |
| Relative Humidity  | 10 - 70 %             | 35 %         | Yes  |
| Probe Velocity   | 6.59 - 6.83 m/s       | 6.824 m/s    | Yes  |
| Probe Force Peak Between 50.0 mm<br>and 58.0 mm Chest Deflection | (-3,900) - (-4,400) N | -4,322.8 N   | Yes  |
| Probe Force Peak Between 18.0 mm<br>and 50.0 mm Chest Deflection | >= (-4,600) N         | -4,521.6 N   | Yes  |
| Maximum Chest Compression  | (-50) - (-58) mm      | -50.5 mm     | Yes  |
| Internal Hysteresis  | 69 - 85 %             | 76.6 %       | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Jacket S/N: EE8365**

**Rib Set S/N: DI5873**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.26.2024 14:16:16 383



Report Number: DH1659\_HFH13

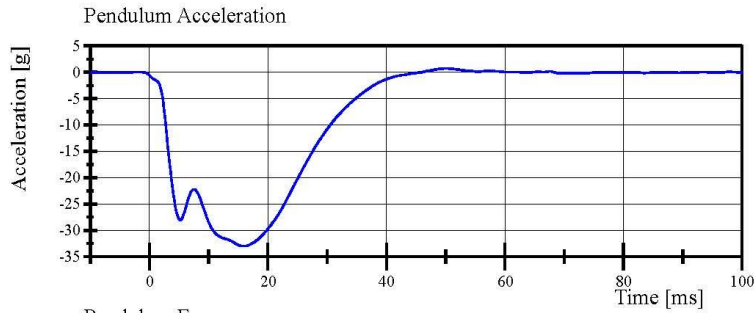
Page 19 of 28

# Transportation Research Center Inc.

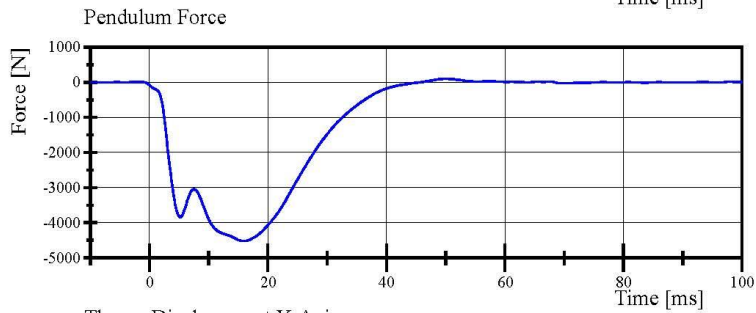
Front Thorax

HIII 5th Serial No. DH1659 Certification No. 13-4

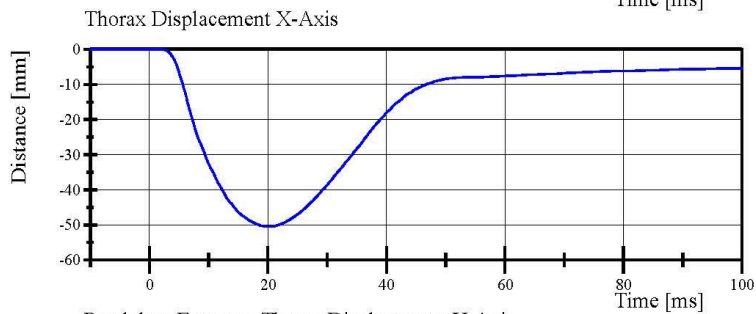
Test Date: 4/26/2024



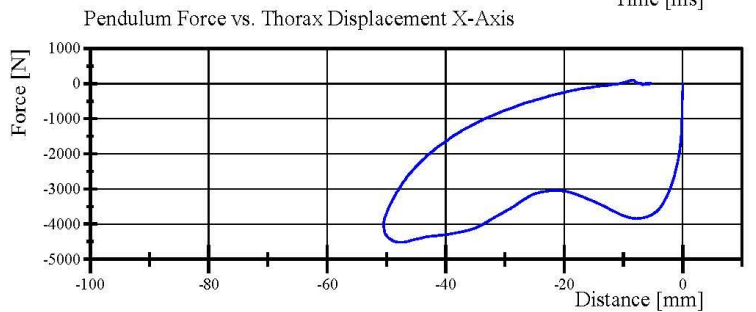
Filter Class: CFC\_180  
Max: 0.7 g at 50.0 ms  
Min: -33.0 g at 15.8 ms



Filter Class: CFC\_180  
Max: 101.8 N at 50.0 ms  
Min: -4,521.6 N at 15.8 ms



Filter Class: CFC\_600  
Max: 0.0 mm at -10.0 ms  
Min: -50.5 mm at 20.4 ms



Filter Class: CFC\_180  
Max: 101.8 N at -8.4 mm  
Min: -4,521.6 N at -47.5 mm

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.26.2024 14:17:21 383

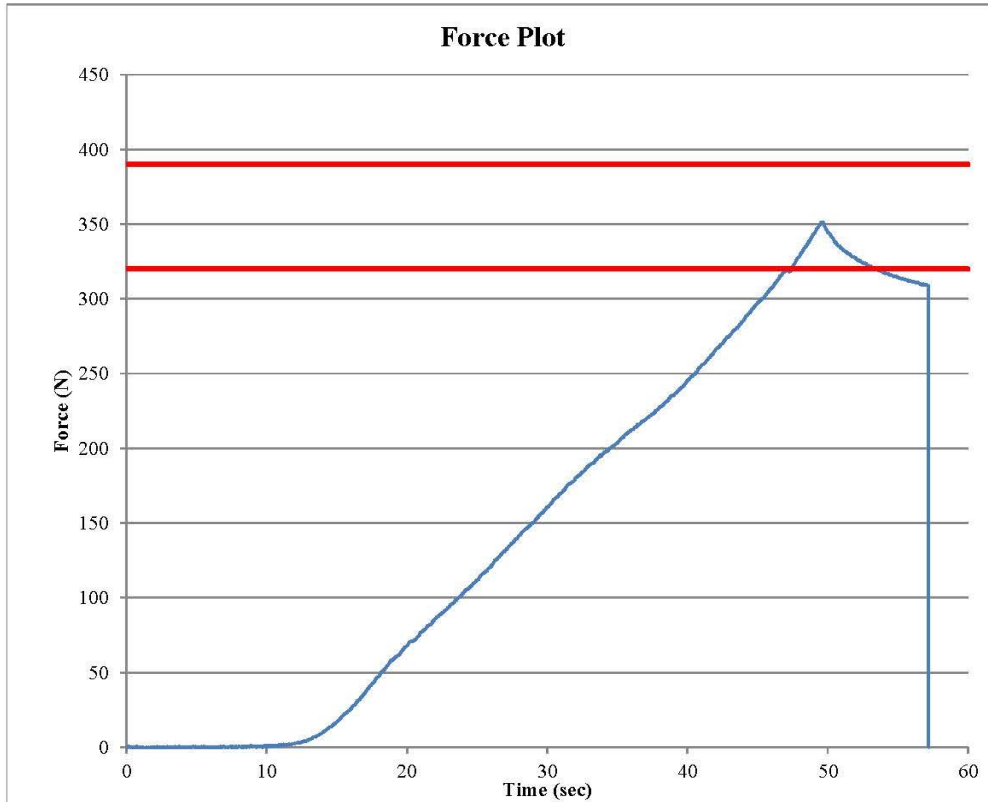


Transportation Research Center Inc.  
Hybrid III Small Female Torso Flexion



Customer: NHTSA  
 Serial Number: DH1659 Date: 4/29/2024  
 Test Number: 1 Time: 8:51

| TEST PARAMETER       | SPECIFICATION | TEST RESULTS     |
|----------------------|---------------|------------------|
| Temperature          | 18.9 - 25.6   | 21.3 °C Pass     |
| Humidity             | 10 - 70       | 60 % Pass        |
| Average Angular Rate | 0.5 - 1.5     | 0.8 deg/sec Pass |
| Initial Angle        | 0 - 20        | 16.79 deg Pass   |
| Peak Force at 45.53° | 320 - 390     | 351.39 N Pass    |
| Final Angle          | -8 - 8        | 3.5 deg Pass     |



Components: Comments:  
 Jacket S/N: EE8385  
 Abdomen S/N: EE8393  
 Lumbar S/N: DG9121

## Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 13-1  
Test Date: 4/26/2024

| Test Parameter    | Specification         | Test Results | Pass |
|-------------------|-----------------------|--------------|------|
| Temperature       | 18.9 - 25.6 °C        | 21.0 °C      | Yes  |
| Relative Humidity | 10 - 70 %             | 36 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s       | 2.106 m/s    | Yes  |
| Peak Femur Force  | (-3,450) - (-4,060) N | -3,850.7 N   | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Left Knee S/N: ED6729**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.26.2024 11:27:42 1727

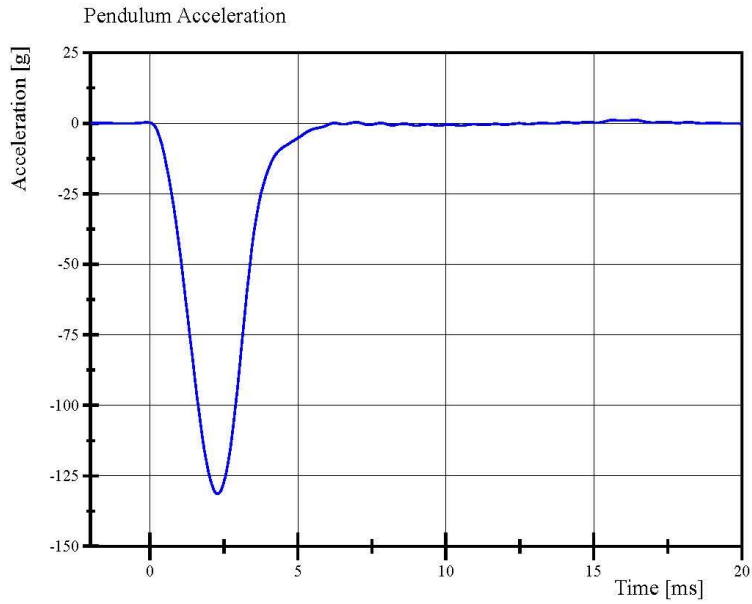


Report Number: DH1659\_HFH13

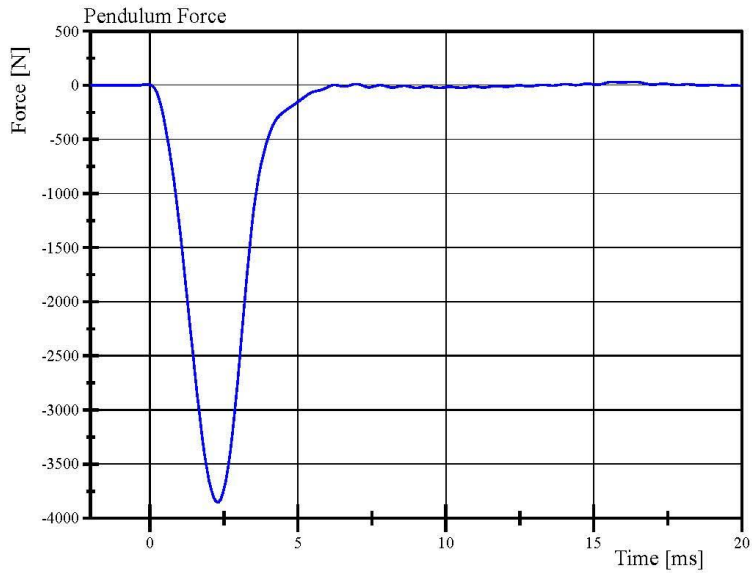
Page 22 of 28

# Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 13-1  
Test Date: 4/26/2024



Filter Class: CFC\_600  
Max: 1.1 g at 16.4 ms  
Min: -131.3 g at 2.3 ms



Filter Class: CFC\_600  
Max: 33.3 N at 16.4 ms  
Min: -3,850.7 N at 2.3 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.26.2024 11:28:43 1727



# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 13-1  
Test Date: 4/26/2024

| Test Parameter    | Specification         | Test Results | Pass |
|-------------------|-----------------------|--------------|------|
| Temperature       | 18.9 - 25.6 °C        | 21.0 °C      | Yes  |
| Relative Humidity | 10 - 70 %             | 36 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s       | 2.105 m/s    | Yes  |
| Peak Femur Force  | (-3,450) - (-4,060) N | -3,808.6 N   | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Right Knee S/N: EC5852**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.26.2024 11:32:59 1726

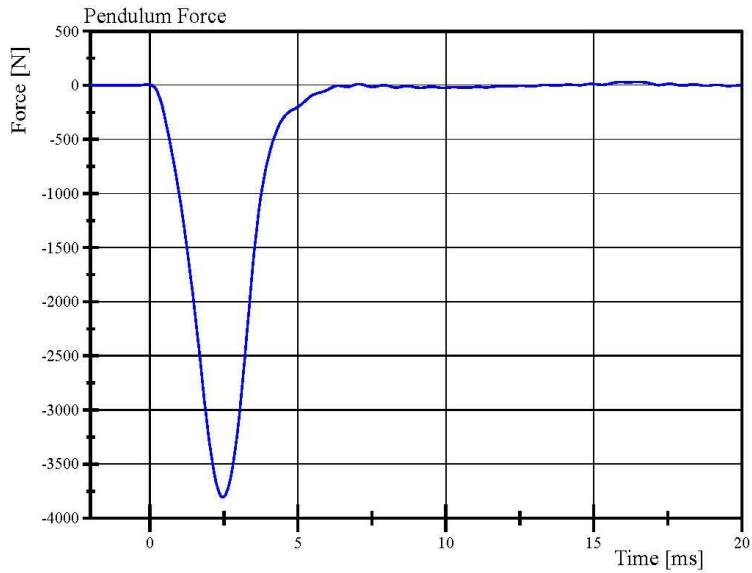


# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 13-1  
Test Date: 4/26/2024



Filter Class: CFC\_600  
Max: 1.0 g at 16.6 ms  
Min: -129.9 g at 2.5 ms



Filter Class: CFC\_600  
Max: 30.7 N at 16.6 ms  
Min: -3,808.6 N at 2.5 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

04.26.2024 11:33:43 1726



**Post-Test Calibration Sheets**

**Passenger S/N DH1659**

**Transportation Research Center Inc.**  
**5720 HIII 5th Dummy**  
**External Dimensions**  
**Serial No. DH1659 Calibration No. 14**

| Symbol | Description                                | Specification | Results | Pass |
|--------|--|---------------|---------|------|
|        |  | mm            | mm      |      |
| A      | Total Sitting Height                       | 774.7 - 800.1 | 780     | Yes  |
| B      | Shoulder Pivot Height                      | 431.8 - 457.2 | 445     | Yes  |
| C      | Hip Pivot Height                           | 81.3 - 86.3   | 86      | Yes  |
| D      | Hip Pivot from Backline                    | 144.8 - 149.8 | 148     | Yes  |
| E      | Shoulder Pivot from Backline               | 68.6 - 83.8   | 80      | Yes  |
| F      | Thigh Clearance                            | 119.4 - 134.6 | 131     | Yes  |
| G      | Back of Elbow to Wrist Pivot               | 243.9 - 259.1 | 249     | Yes  |
| H      | Head Back to Backline                      | 43.2 - 48.2   | 45      | Yes  |
| I      | Shoulder to Elbow Length                   | 276.8 - 297.2 | 286     | Yes  |
| J      | Elbow Rest Height                          | 182.8 - 203.2 | 198     | Yes  |
| K      | Buttock Knee Length                        | 520.7 - 546.1 | 533     | Yes  |
| L      | Popliteal Height                           | 355.6 - 376.0 | 360     | Yes  |
| M      | Knee Pivot Height                          | 393.7 - 419.1 | 409     | Yes  |
| N      | Buttock Popliteal Length                   | 414.0 - 439.4 | 430     | Yes  |
| O      | Chest Depth without Jacket                 | 175.3 - 190.5 | 185     | Yes  |
| P      | Foot Length                                | 218.5 - 233.7 | 225     | Yes  |
| R      | Buttock to Knee Pivot Length               | 457.2 - 482.6 | 473     | Yes  |
| S      | Head Breadth                               | 137.1 - 147.3 | 141     | Yes  |
| T      | Head Depth                                 | 177.8 - 188.0 | 180     | Yes  |
| U      | Hip Breadth                                | 299.7 - 314.9 | 305     | Yes  |
| V      | Shoulder Breadth                           | 350.5 - 365.7 | 356     | Yes  |
| W      | Foot Breadth                               | 78.8 - 94.0   | 85      | Yes  |
| X      | Head Circumference                         | 528.3 - 548.7 | 539     | Yes  |
| Y      | Chest Circumference with Jacket            | 850.9 - 881.3 | 869     | Yes  |
| Z      | Waist Circumference                        | 759.5 - 789.9 | 776     | Yes  |
| AA     | Reference Location for Chest Circumference | 332.7 - 358.1 | 345     | Yes  |
| BB     | Reference Location for Waist Circumference | 160.0 - 170.2 | 165     | Yes  |

Revised 8/10/12



Report Number: DH1659\_HFH14

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# Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. DH1659 Certification No. 14-3

Test Date: 5/9/2024

| Test Parameter                                     | Specification  | Test Results | Pass |
|--|----------------|--------------|------|
| Temperature  | 18.9 - 25.5 °C | 21.2 °C      | Yes  |
| Relative Humidity                                  | 10 - 70 %      | 60 %         | Yes  |
| Peak Head Resultant Acceleration                   | 250 - 300 g    | 269.6 g      | Yes  |
| Peak Head Lateral Acceleration                     | (-15) - 15 g   | 8.1 g        | Yes  |
| Is Acceleration Curve Unimodal within 10% of Peak? | < 10 %         | 1.72 %       | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Head Skin S/N: 2864**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.09.2024 08:08:52 610

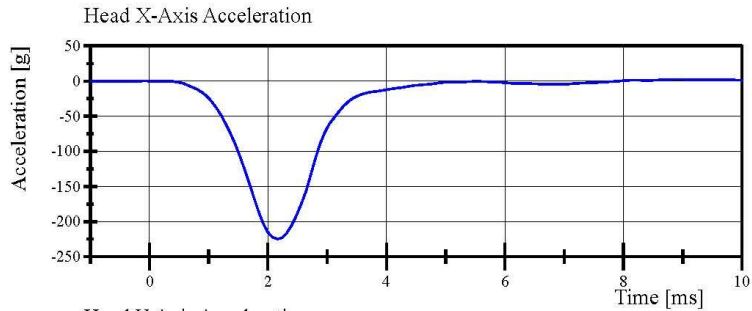


# Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. DH1659 Certification No. 14-3

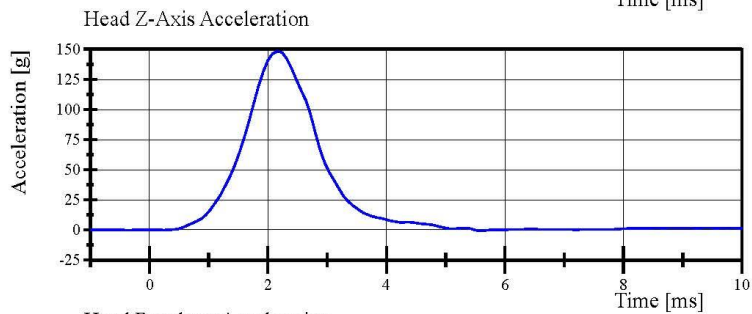
Test Date: 5/9/2024



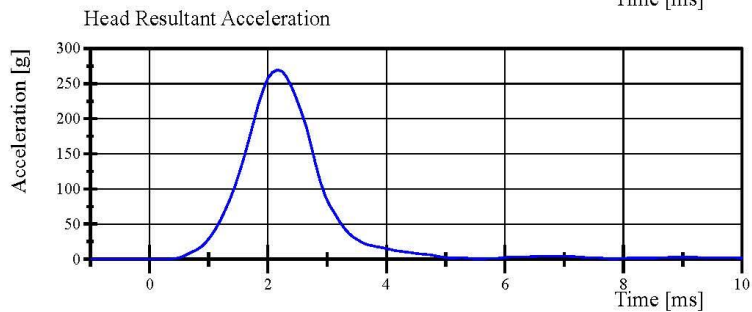
Filter Class: CFC\_1000  
Max: 2.4 g at 8.9 ms  
Min: -225.0 g at 2.2 ms



Filter Class: CFC\_1000  
Max: 8.1 g at 2.2 ms  
Min: -0.5 g at 6.7 ms



Filter Class: CFC\_1000  
Max: 148.4 g at 2.2 ms  
Min: -0.7 g at 5.6 ms



Filter Class: CFC\_1000  
Max: 269.6 g at 2.2 ms  
Min: 0.0 g at -0.6 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.09.2024 08:09:24 610



# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 14-1

Test Date: 5/8/2024

| Test Parameter                       | Specification       | Test Results | Pass |
|--------------------------------------|---------------------|--------------|------|
| Temperature                          | 20.6 - 22.2 °C      | 20.8 °C      | Yes  |
| Relative Humidity                    | 10 - 70 %           | 68 %         | Yes  |
| Pendulum Velocity                    | 6.89 - 7.13 m/s     | 7.114 m/s    | Yes  |
| Pendulum Integrated Velocity         |                     |              |      |
| Change at 10ms                       | (-2.1) - (-2.5) m/s | -2.35 m/s    | Yes  |
| Change at 20ms                       | (-4.0) - (-5.0) m/s | -4.58 m/s    | Yes  |
| Change at 30ms                       | (-5.8) - (-7.0) m/s | -6.65 m/s    | Yes  |
| Total Head D-Plane Rotation          | (-77) - (-91) °     | -82.7 °      | Yes  |
| Total Neck Occipital Condyles Moment |                     |              |      |
| Between -77° and -91° Rotation       | 69 - 83 N·m         | 80.5 N·m     | Yes  |
| Decay to 10 N·m                      | 80 - 100 ms         | 88.3 ms      | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: EE9454**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:06:20 1846

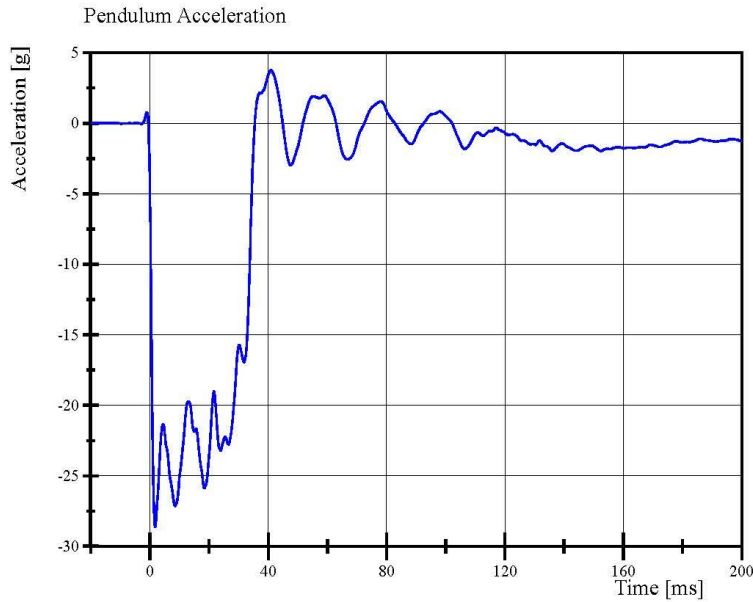


# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 14-1

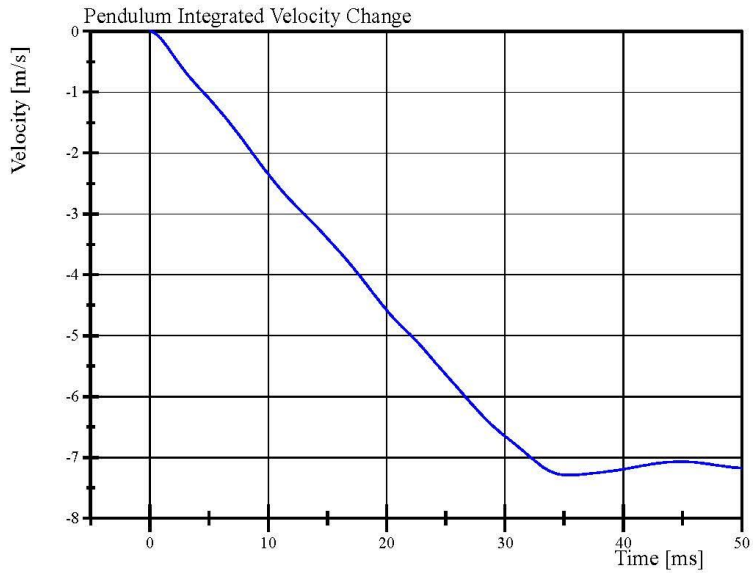
Test Date: 5/8/2024



Filter Class: CFC\_180

Max: 3.8 g at 41.0 ms

Min: -28.6 g at 1.8 ms



Filter Class: CFC\_180

Max: 0.0 m/s at 0.0 ms

Min: -7.3 m/s at 35.5 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:06:49 1846



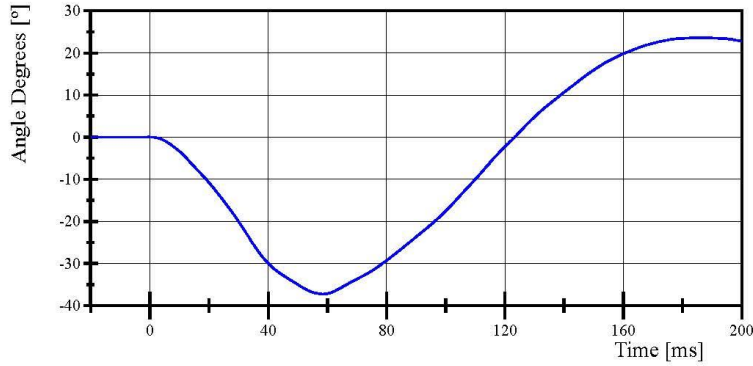
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 14-1

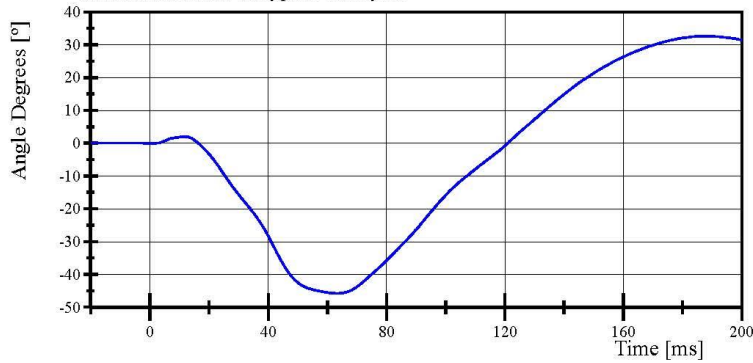
Test Date: 5/8/2024

Pot Rotation at the Base of Neck



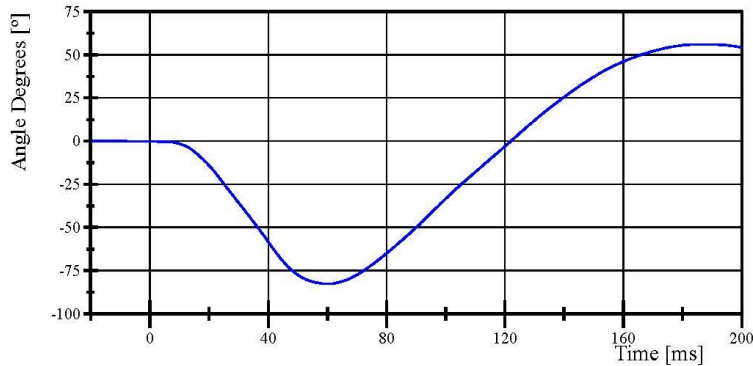
Filter Class: CFC\_60  
Max: 23.6 ° at 186.6 ms  
Min: -37.2 ° at 58.5 ms

Head Rotation at Occypital Condyles



Filter Class: CFC\_60  
Max: 32.6 ° at 187.4 ms  
Min: -45.8 ° at 63.3 ms

Total Head D-Plane Rotation



Filter Class: CFC\_60  
Max: 56.2 ° at 187.2 ms  
Min: -82.7 ° at 60.2 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:06:49 1846

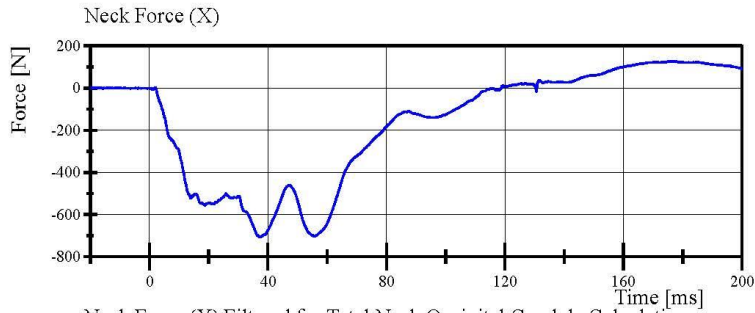


# Transportation Research Center Inc.

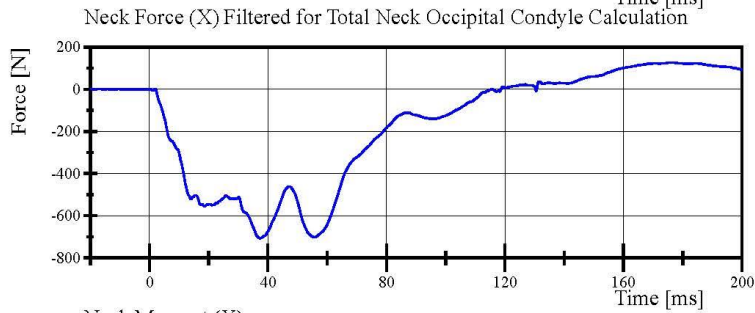
Neck Flexion

HIII 5th Serial No. DH1659 Certification No. 14-1

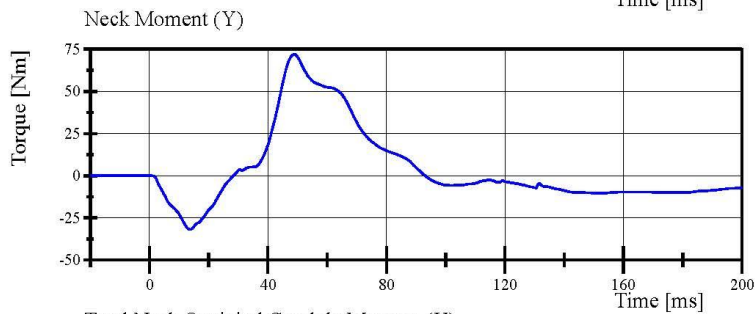
Test Date: 5/8/2024



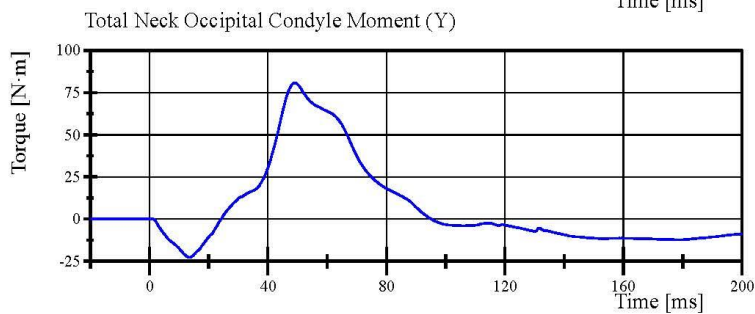
Filter Class: CFC\_1000  
Max: 127.2 N at 176.3 ms  
Min: -706.5 N at 37.2 ms



Filter Class: CFC\_600  
Max: 126.9 N at 176.4 ms  
Min: -706.4 N at 37.3 ms



Filter Class: CFC\_600  
Max: 72.0 Nm at 48.8 ms  
Min: -31.9 Nm at 13.8 ms



Filter Class: Without\_(Constar  
Max: 80.7 N·m at 49.2 ms  
Min: -22.7 N·m at 13.6 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:06:49 1846



# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. DH1659 Certification No. 14-1

Test Date: 5/8/2024

| Test Parameter                       | Specification         | Test Results | Pass |
|--------------------------------------|-----------------------|--------------|------|
| Temperature                          | 20.6 - 22.2 °C        | 20.8 °C      | Yes  |
| Relative Humidity                    | 10 - 70 %             | 65 %         | Yes  |
| Pendulum Velocity                    | (-5.95) - (-6.19) m/s | -6.076 m/s   | Yes  |
| Pendulum Integrated Velocity         |                       |              |      |
| Change at 10ms                       | 1.5 - 1.9 m/s         | 1.66 m/s     | Yes  |
| Change at 20ms                       | 3.1 - 3.9 m/s         | 3.38 m/s     | Yes  |
| Change at 30ms                       | 4.6 - 5.6 m/s         | 5.04 m/s     | Yes  |
| Total Head D-Plane Rotation          | 99 - 114 °            | 103.9 °      | Yes  |
| Total Neck Occipital Condyles Moment |                       |              |      |
| Between 99° and 114° Rotation        | (-53) - (-65) N·m     | -57.2 N·m    | Yes  |
| Decay to -10 N·m                     | 94 - 114 ms           | 105.4 ms     | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: EE9454**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:47:20 2001

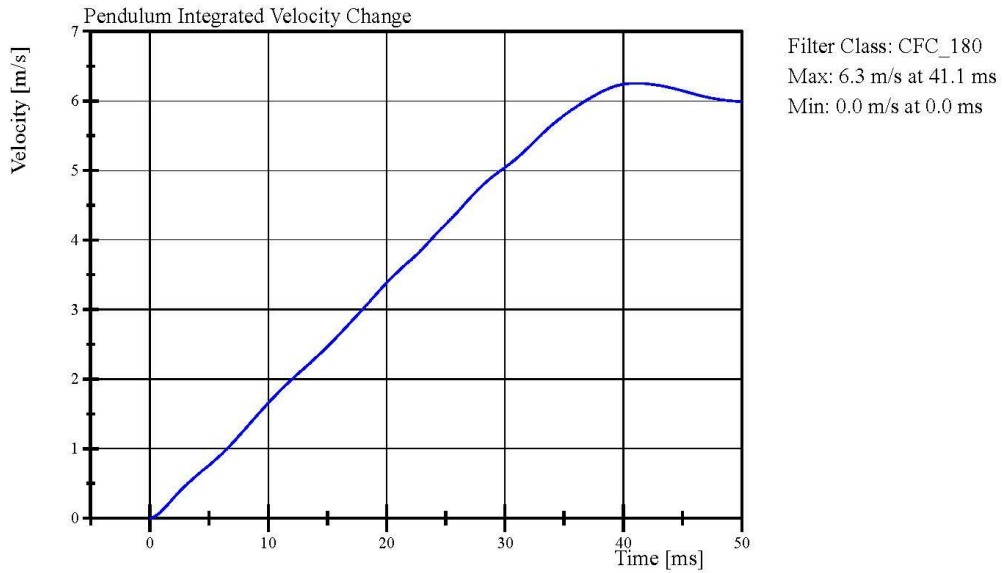
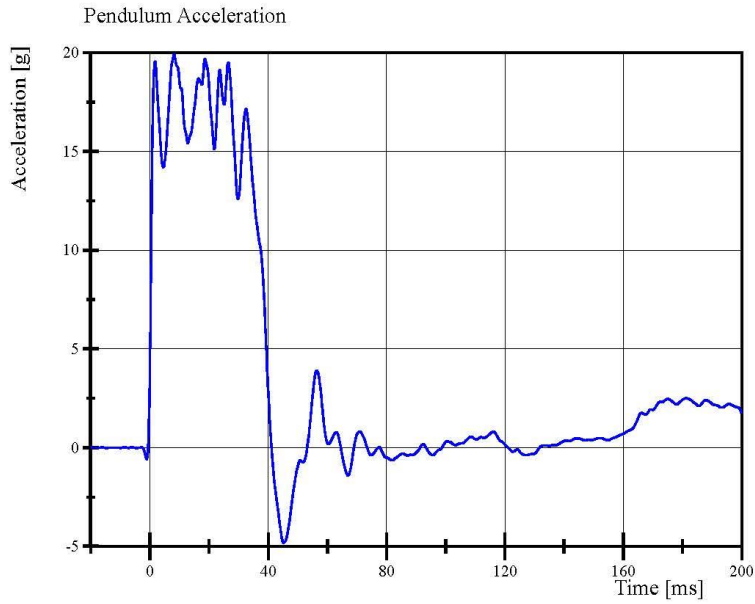


# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. DH1659 Certification No. 14-1

Test Date: 5/8/2024



Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:50:20 2001



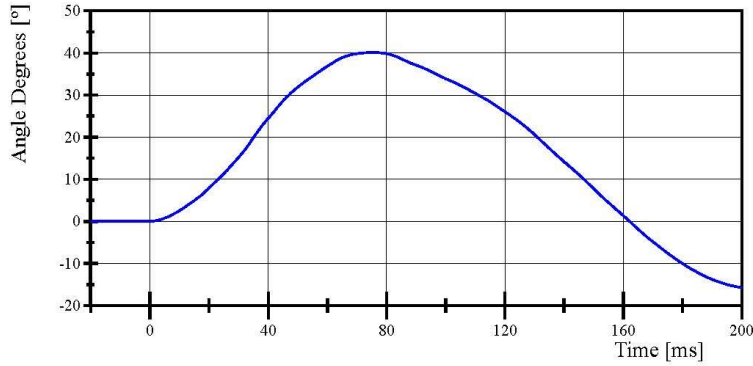
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. DH1659 Certification No. 14-1

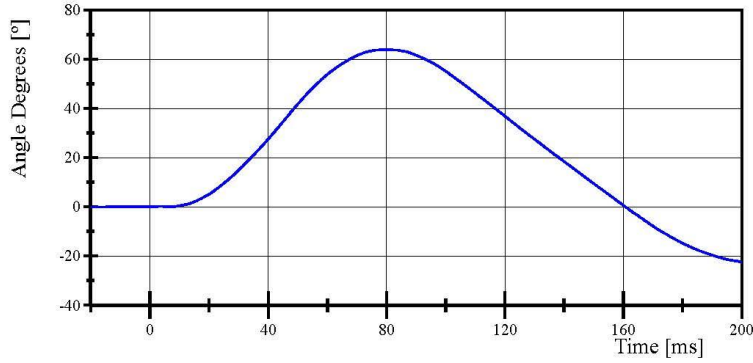
Test Date: 5/8/2024

Pot Rotation at the Base of Neck



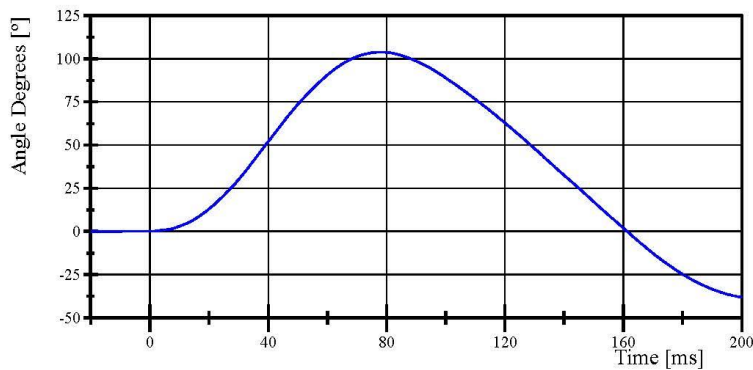
Filter Class: CFC\_60  
Max: 40.1 ° at 75.3 ms  
Min: -15.7 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC\_60  
Max: 63.9 ° at 79.7 ms  
Min: -22.5 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC\_60  
Max: 103.9 ° at 78.1 ms  
Min: -38.2 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:50:20 2001

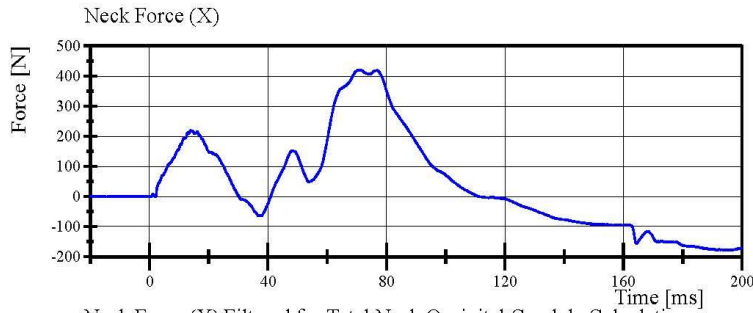


# Transportation Research Center Inc.

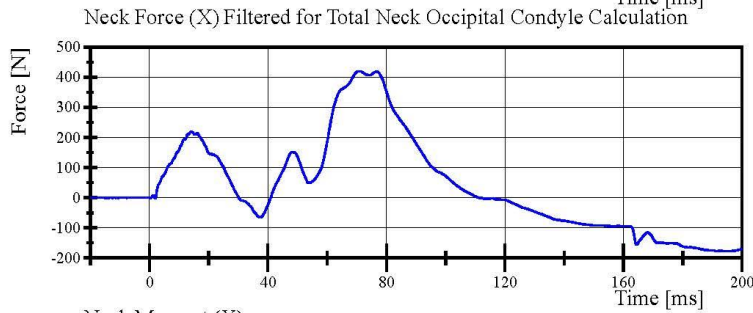
Neck Extension

HIII 5th Serial No. DH1659 Certification No. 14-1

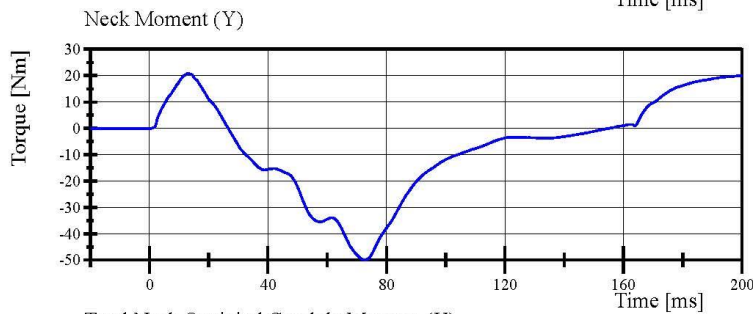
Test Date: 5/8/2024



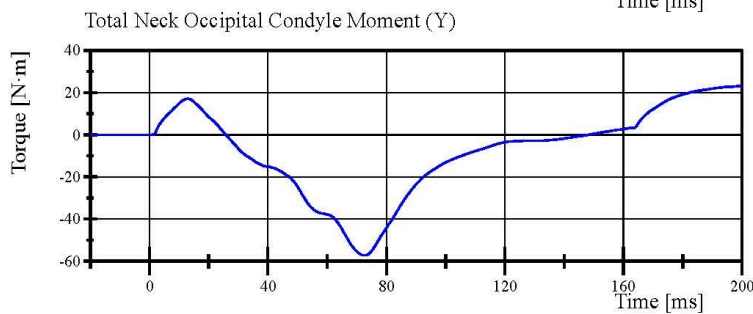
Filter Class: CFC\_1000  
Max: 420.4 N at 71.3 ms  
Min: -178.3 N at 195.4 ms



Filter Class: CFC\_600  
Max: 419.9 N at 70.6 ms  
Min: -177.8 N at 195.4 ms



Filter Class: CFC\_600  
Max: 20.8 Nm at 13.0 ms  
Min: -49.9 Nm at 72.8 ms



Filter Class: Without\_(Constar  
Max: 23.1 N·m at 200.0 ms  
Min: -57.2 N·m at 72.6 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 14:50:21 2001



## Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. DH1659 Certification No. 14-1

Test Date: 5/8/2024

| Test Parameter   | Specification         | Test Results | Pass |
|--|-----------------------|--------------|------|
| Temperature  | 20.6 - 22.2 °C        | 20.8 °C      | Yes  |
| Relative Humidity  | 10 - 70 %             | 59 %         | Yes  |
| Probe Velocity   | 6.59 - 6.83 m/s       | 6.812 m/s    | Yes  |
| Probe Force Peak Between 50.0 mm<br>and 58.0 mm Chest Deflection | (-3,900) - (-4,400) N | -4,345.8 N   | Yes  |
| Probe Force Peak Between 18.0 mm<br>and 50.0 mm Chest Deflection | >= (-4,600) N         | -4,519.6 N   | Yes  |
| Maximum Chest Compression  | (-50) - (-58) mm      | -50.6 mm     | Yes  |
| Internal Hysteresis  | 69 - 85 %             | 75.9 %       | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Jacket S/N: EE8365**

**Rib Set S/N: DI5873**

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 11:37:12 425



Report Number: DH1659\_HFH14

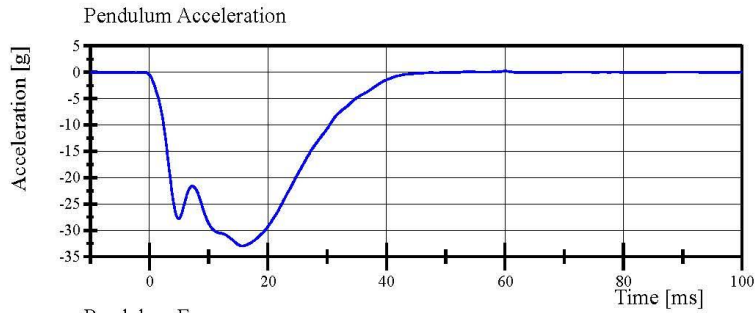
Page 19 of 28

# Transportation Research Center Inc.

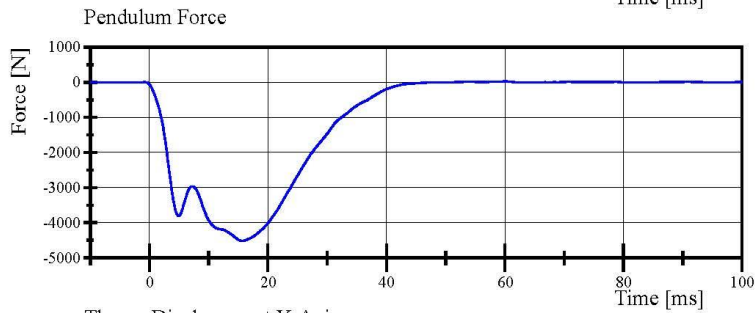
Front Thorax

HIII 5th Serial No. DH1659 Certification No. 14-1

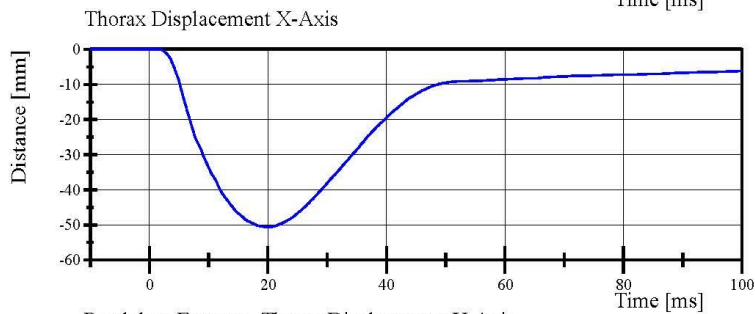
Test Date: 5/8/2024



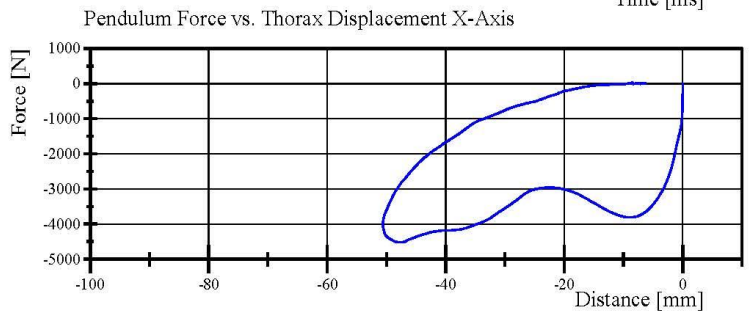
Filter Class: CFC\_180  
Max: 0.2 g at 60.0 ms  
Min: -33.0 g at 15.7 ms



Filter Class: CFC\_180  
Max: 26.4 N at 60.0 ms  
Min: -4,519.6 N at 15.7 ms



Filter Class: CFC\_600  
Max: 0.0 mm at -6.2 ms  
Min: -50.6 mm at 20.0 ms



Filter Class: CFC\_180  
Max: 26.4 N at -8.5 mm  
Min: -4,519.6 N at -47.7 mm

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 11:37:50 425

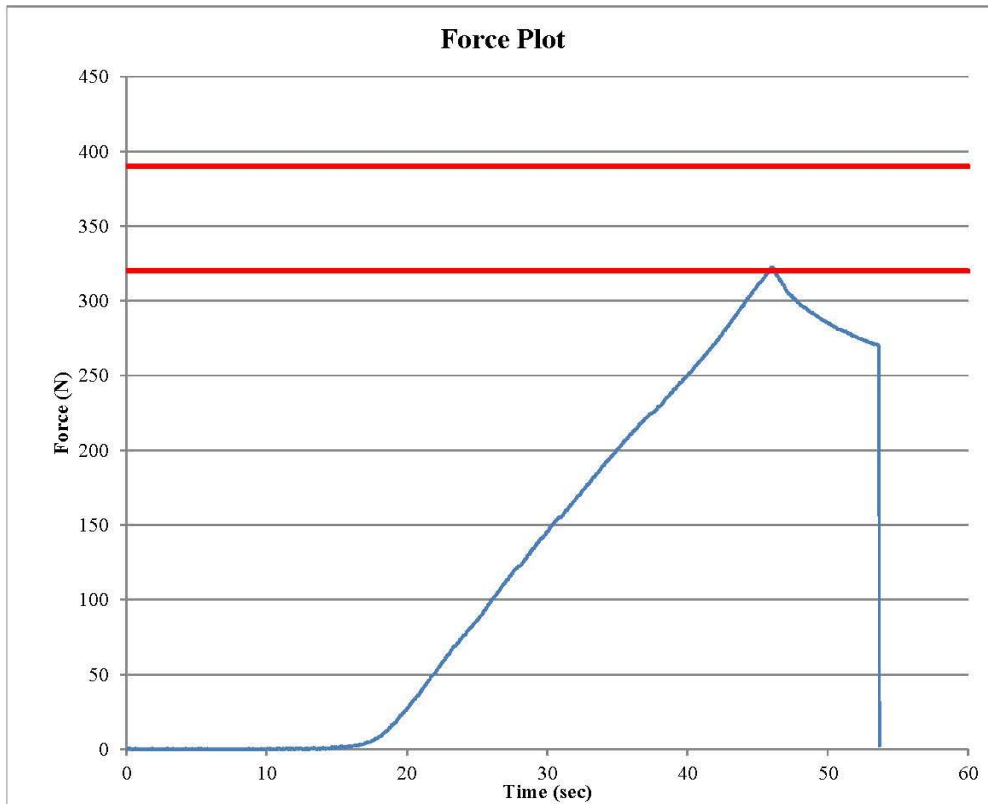


Transportation Research Center Inc.  
Hybrid III Small Female Torso Flexion



Customer: NHTSA  
 Serial Number: DH1659 Date: 5/8/2024  
 Test Number: 1 Time: 9:52

| TEST PARAMETER       | SPECIFICATION | TEST RESULTS      |
|----------------------|---------------|-------------------|
| Temperature          | 18.9 - 25.6   | 20.8 °C Pass      |
| Humidity             | 10 - 70       | 70 % Pass         |
| Average Angular Rate | 0.5 - 1.5     | 0.96 deg/sec Pass |
| Initial Angle        | 0 - 20        | 18.64 deg Pass    |
| Peak Force at 45.63° | 320 - 390     | 322.34 N Pass     |
| Final Angle          | -8 - 8        | 4.22 deg Pass     |



Components: Comments:  
 Jacket S/N: EE8385  
 Abdomen S/N: EE8393  
 Lumbar S/N: DG9121

## Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 14-1  
Test Date: 5/8/2024

| Test Parameter    | Specification         | Test Results | Pass |
|-------------------|-----------------------|--------------|------|
| Temperature       | 18.9 - 25.6 °C        | 20.8 °C      | Yes  |
| Relative Humidity | 10 - 70 %             | 70 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s       | 2.093 m/s    | Yes  |
| Peak Femur Force  | (-3,450) - (-4,060) N | -4,029.3 N   | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Left Knee S/N: ED6729**

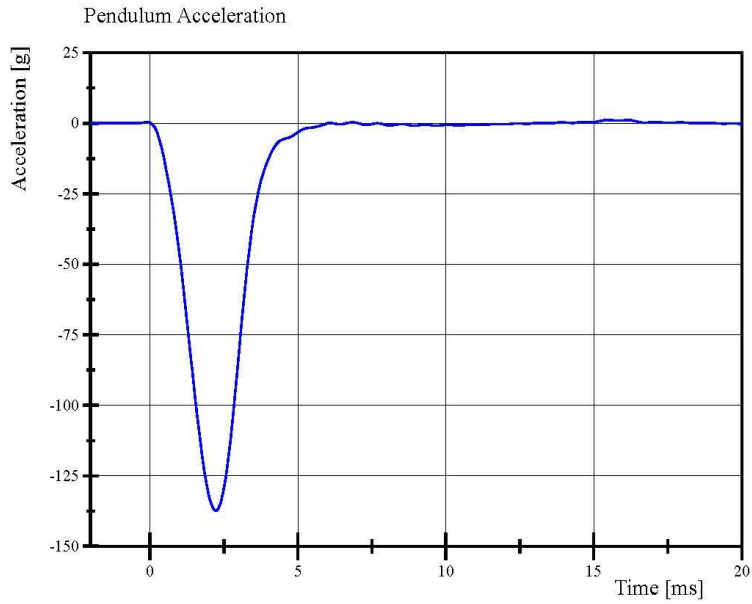
Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 09:05:17 1912

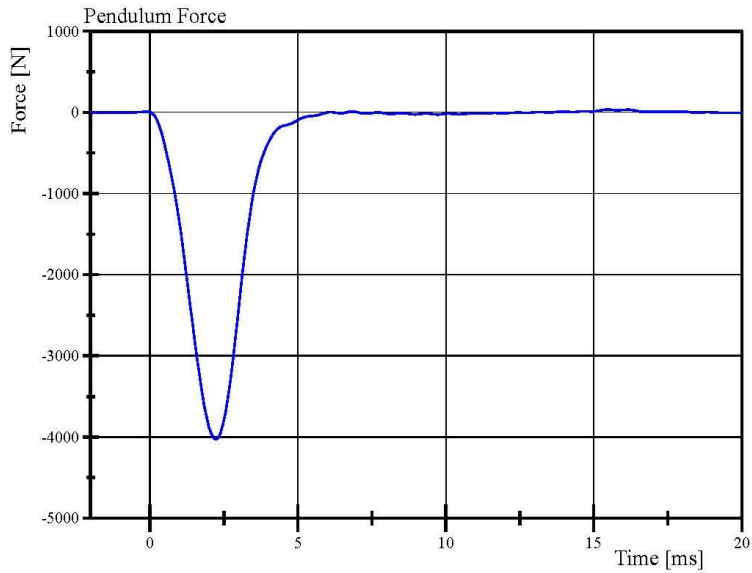


# Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 14-1  
Test Date: 5/8/2024



Filter Class: CFC\_600  
Max: 1.2 g at 15.4 ms  
Min: -137.4 g at 2.2 ms



Filter Class: CFC\_600  
Max: 35.2 N at 15.4 ms  
Min: -4,029.3 N at 2.2 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

05.08.2024 09:06:29 1912



# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 14-2  
Test Date: 5/8/2024

| Test Parameter    | Specification         | Test Results | Pass |
|-------------------|-----------------------|--------------|------|
| Temperature       | 18.9 - 25.6 °C        | 21.1 °C      | Yes  |
| Relative Humidity | 10 - 70 %             | 67 %         | Yes  |
| Probe Velocity    | 2.07 - 2.13 m/s       | 2.094 m/s    | Yes  |
| Peak Femur Force  | (-3,450) - (-4,060) N | -3,723.1 N   | Yes  |

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Right Knee S/N: EC5852**

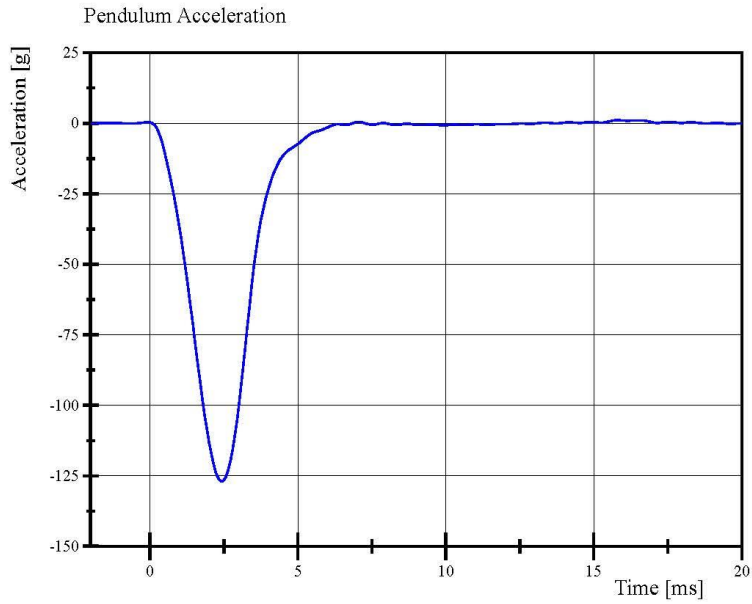
Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

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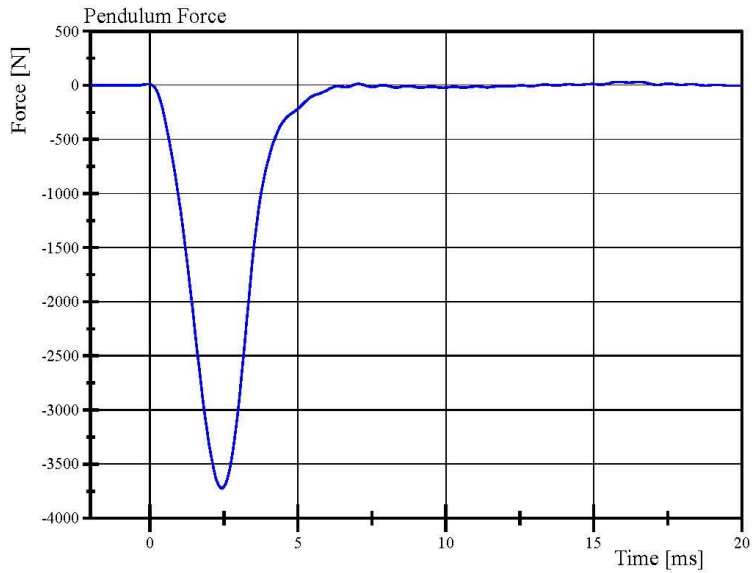


# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 5th Serial No. DH1659 Certification No. 14-2  
Test Date: 5/8/2024



Filter Class: CFC\_600  
Max: 1.1 g at 15.8 ms  
Min: -127.0 g at 2.4 ms



Filter Class: CFC\_600  
Max: 32.8 N at 15.8 ms  
Min: -3,723.1 N at 2.4 ms

Specification Source: CFR49 Part 572 Subpart O  
with Polarity in accordance with J211

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**APPENDIX D**  
**TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION**

**TABLE 1 – Driver Dummy Instrumentation**

| Instrumentation           |           |           | Axis/Location             | Hybrid III 50th S/N 037 |              |                         |             |
|---------------------------|-----------|-----------|---------------------------|-------------------------|--------------|-------------------------|-------------|
|                           |           |           |                           | Serial Number           | Manufacturer | Calibration Date        |             |
| Head Accelerometers       | Primary   | X         | T10650                    | Endevco                 | 19-Apr-2024  |                         |             |
|                           |           | Y         | P94650                    | Endevco                 | 19-Apr-2024  |                         |             |
|                           |           | Z         | P94622                    | Endevco                 | 19-Apr-2024  |                         |             |
|                           | Redundant | X         | P94431                    | Endevco                 | 19-Apr-2024  |                         |             |
|                           |           | Y         | P94487                    | Endevco                 | 19-Apr-2024  |                         |             |
|                           |           | Z         | P94645                    | Endevco                 | 19-Apr-2024  |                         |             |
| Head Angular Rate Sensors |           |           | X                         | ARS14948                | DTS          | 17-Nov-2023             |             |
|                           |           |           | Y                         | ARS14952                | DTS          | 17-Nov-2023             |             |
|                           |           |           | Z                         | ARS14949                | DTS          | 17-Nov-2023             |             |
| Upper Neck Load Cell      |           |           | FX, FY, FZ,<br>MX, MY, MZ | 2021                    | Humanetics   | 18-Apr-2024             |             |
| Chest Accelerometers      | Primary   | X         | P80855                    | Endevco                 | 25-Apr-2024  |                         |             |
|                           |           | Y         | P93546                    | Endevco                 | 25-Apr-2024  |                         |             |
|                           |           | Z         | P57791                    | Endevco                 | 25-Apr-2024  |                         |             |
|                           | Redundant | X         | P73221                    | Endevco                 | 25-Apr-2024  |                         |             |
|                           |           | Y         | T11872                    | Endevco                 | 25-Apr-2024  |                         |             |
|                           |           | Z         | T16784                    | Endevco                 | 25-Apr-2024  |                         |             |
| Chest Potentiometer       |           |           | X                         | CST3410                 | Servo        | 25-Apr-2024             |             |
| Pelvis Accelerometers     |           |           | X                         | P91969                  | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Y                         | P91958                  | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Z                         | P80721                  | Endevco      | 25-Apr-2024             |             |
| Femur Load Cells          | Left      | Primary   | Z                         | DT0997-FZ1              | Humanetics   | 24-Apr-2024             |             |
|                           |           | Redundant | Z                         | DT0997-FZ2              | Humanetics   | 24-Apr-2024             |             |
|                           | Right     | Primary   | Z                         | DS4140-FZ1              | Humanetics   | 24-Apr-2024             |             |
|                           |           | Redundant | Z                         | DS4140-FZ2              | Humanetics   | 24-Apr-2024             |             |
| Tibia Load Cells          | Left      | Upper     | MX, MY, FZ                | 3643-92                 | Denton       | 24-Apr-2024             |             |
|                           |           | Lower     | MX, MY, FZ                | 3644-92                 | Denton       | 24-Apr-2024             |             |
|                           | Right     | Upper     | MX, MY, FZ                | 3643-484                | Denton       | 25-Apr-2024             |             |
|                           |           | Lower     | MX, MY, FZ                | 3644-369                | Denton       | 24-Apr-2024             |             |
| Foot Accelerometers       | Left      | Rear      | X                         | P90866                  | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Z                         | P93533                  | Endevco      | 25-Apr-2024             |             |
|                           |           | Front     | Z                         | P97890                  | Endevco      | 25-Apr-2024             |             |
|                           | Right     | Rear      | X                         | P97640                  | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Z                         | P91471                  | Endevco      | 25-Apr-2024             |             |
|                           |           | Front     | Z                         | P91907                  | Endevco      | 25-Apr-2024             |             |
| Seat Belt Load Cells      |           |           | Lap                       | N/A                     | N100E8       | Measurement Specialties | 24-Jan-2024 |
|                           |           |           | Shoulder                  | N/A                     | X08013       | Measurement Specialties | 24-Jan-2024 |

**TABLE 2 – Front Passenger Dummy Instrumentation**

| Instrumentation           |           |           | Axis/Location             | Hybrid III 5th S/N DH1659 |              |                         |             |
|---------------------------|-----------|-----------|---------------------------|---------------------------|--------------|-------------------------|-------------|
|                           |           |           |                           | Serial Number             | Manufacturer | Calibration Date        |             |
| Head Accelerometers       | Primary   | X         | P44972                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Y         | T11806                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Z         | P69062                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           | Redundant | X         | T11046                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Y         | P97525                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Z         | P73228                    | Endevco                   | 25-Apr-2024  |                         |             |
| Head Angular Rate Sensors |           |           | X                         | ARS6120                   | DTS          | 17-Nov-2023             |             |
|                           |           |           | Y                         | ARS10776                  | DTS          | 17-Nov-2023             |             |
|                           |           |           | Z                         | ARS4732                   | DTS          | 17-Nov-2023             |             |
| Upper Neck Load Cell      |           |           | FX, FY, FZ,<br>MX, MY, MZ | 1874                      | Humanetics   | 24-Apr-2024             |             |
| Chest Accelerometers      | Primary   | X         | P80855                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Y         | P93546                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Z         | P57791                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           | Redundant | X         | P73221                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Y         | T11872                    | Endevco                   | 25-Apr-2024  |                         |             |
|                           |           | Z         | T16784                    | Endevco                   | 25-Apr-2024  |                         |             |
| Chest Potentiometer       |           |           | X                         | CST3410                   | Servo        | 25-Apr-2024             |             |
| Pelvis Accelerometers     |           |           | X                         | P91969                    | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Y                         | P91958                    | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Z                         | P80721                    | Endevco      | 25-Apr-2024             |             |
| Femur Load Cells          | Left      | Primary   | Z                         | DT0997-FZ1                | Humanetics   | 24-Apr-2024             |             |
|                           |           | Redundant | Z                         | DT0997-FZ2                | Humanetics   | 24-Apr-2024             |             |
|                           | Right     | Primary   | Z                         | DS4140-FZ1                | Humanetics   | 24-Apr-2024             |             |
|                           |           | Redundant | Z                         | DS4140-FZ2                | Humanetics   | 24-Apr-2024             |             |
| Tibia Load Cells          | Left      | Upper     | MX, MY, FZ                | 3643-92                   | Humanetics   | 24-Apr-2024             |             |
|                           |           | Lower     | MX, MY, FZ                | 3644-92                   | Humanetics   | 24-Apr-2024             |             |
|                           | Right     | Upper     | MX, MY, FZ                | 3643-484                  | Humanetics   | 25-Apr-2024             |             |
|                           |           | Lower     | MX, MY, FZ                | 3644-369                  | Humanetics   | 24-Apr-2024             |             |
| Foot Accelerometers       | Left      | Rear      | X                         | P90866                    | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Z                         | P93533                    | Endevco      | 25-Apr-2024             |             |
|                           |           | Front     | Z                         | P97890                    | Endevco      | 25-Apr-2024             |             |
|                           | Right     | Rear      | X                         | P97640                    | Endevco      | 25-Apr-2024             |             |
|                           |           |           | Z                         | P91471                    | Endevco      | 25-Apr-2024             |             |
|                           |           | Front     | Z                         | P91907                    | Endevco      | 25-Apr-2024             |             |
| Seat Belt Load Cells      |           |           | Lap                       | N/A                       | N100E8       | Measurement Specialties | 24-Jan-2024 |
|                           |           |           | Shoulder                  | N/A                       | X08013       | Measurement Specialties | 24-Jan-2024 |

**TABLE 3 – Vehicle Instrumentation**

| Instrumentation                      |        |           | Axis | Serial Number | Manufacturer            | Calibration Date |
|--------------------------------------|--------|-----------|------|---------------|-------------------------|------------------|
| Crossmember/Rear Seat Accelerometers | Left   | Primary   | X    | A377512       | Measurement Specialties | 25-Mar-2024      |
|                                      |        |           | Z    | A381839       | Measurement Specialties | 21-Mar-2024      |
|                                      |        | Redundant | X    | A377510       | Measurement Specialties | 25-Mar-2024      |
|                                      | Right  | Primary   | X    | A377506       | Measurement Specialties | 25-Mar-2024      |
|                                      |        |           | Z    | A297045       | Measurement Specialties | 22-Mar-2024      |
|                                      |        | Redundant | X    | A349877       | Measurement Specialties | 21-Mar-2024      |
| Engine Accelerometers                | Top    |           | X    | A381829       | Measurement Specialties | 25-Mar-2024      |
|                                      | Bottom |           | X    | A386358       | Measurement Specialties | 25-Mar-2024      |