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# CENTER FOR AUTO SAFETY

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202-328-7700  www.autosafety.org

May 13, 2011

Mr. Frank Borris, Director  
Office of Defects Investigation  
National Highway Traffic Safety Administration (NHTSA)  
1200 New Jersey Avenue, SE  
West Building  
Washington, DC 20590

Dear Mr. Borris:

Attached please find two data CD's containing reports, data, photos, and video of the August 5, 2010 Federal Highway Administration 70 MPH rear impact of a 2003 Ford Taurus into a 1995 Ford Explorer with 70% engagement in which the Explorer suffered no breaching of the fuel system or fuel leakage. This was the test which was attended by staff of the Office of Defects Investigations and the Office of Chief Counsel. The 1995 Ford Explorer showed vastly better fuel system integrity than its contemporary peer 1995 Jeep Grand Cherokee given that the Explorer saw a 39 mph velocity change versus a 23 mph velocity change for the Grand Cherokee which had the fuel filler hose separate from the fuel tank. (Please note the one data sheet has an obvious typo for Grand Cherokee in that 37.0 mph should be 37.0 kph as shown in the velocity traces data which are attached.)

Additionally, CAS has uploaded video from the Karco and FHWA data CD's provided to NHTSA during our April 21 meeting. The reports and video from these tests is located on our website at <http://www.autosafety.org/jeep-grand-cherokee-crash-tests>.

CAS requests that these materials be placed in the investigatory file for PE10-031. Please contact me at 202) 328-7700 or by email at [mbrooks@autosafety.org](mailto:mbrooks@autosafety.org) if you have any questions or issues with the enclosed materials.

Sincerely,

Michael Brooks  
Staff Attorney



## VEHICLE PARAMETERS

**Veh No:** Bullet-Taurus                      **Test No:** 10011                      **Date:** 08/05/10

<b>Make:</b> <u>Ford</u>	<b>Measured Curb mass (Kg)</b>
<b>Model:</b> <u>Taurus</u>	<b>LF:</b> <u>464.00</u>
<b>Year:</b> <u>2003</u>	<b>RF:</b> <u>464.50</u>
<b>Color:</b> <u>Burgandy to Blue</u>	<b>LR:</b> <u>239.50</u>
<b>Engine:</b> <u>3</u>	<b>RR:</b> <u>217.50</u>
<b>Vin No.:</b> <u>1FAFP55263A177881</u>	

<b>Location of Vehicle CG (cm)</b>		<b>Measured Test Inertial Mass (Kg)</b>	
<b>X-Axis (from LF to LR):</b>	<u>103.50</u>	<b>LF:</b>	<u>445.00</u>
<b>Y-Axis (From LF to RF):</b>	<u>75.80</u>	<b>RF:</b>	<u>438.50</u>
<b>Z-Axis (From Ground):</b>	<u>43.00</u>	<b>LR:</b>	<u>275.50</u>
		<b>RR:</b>	<u>255.00</u>

**Location of CG Accelerometer (cm)**

<b>X-Axis (from LF to LR):</b>	<u>87.50</u>
<b>Y-Axis (From LF to RF):</b>	<u>93.20</u>
<b>Z-Axis (From Ground):</b>	<u>32.00</u>

Items Removed	Mass (Kg)	Added	Mass (Kg)
<u>1 Oil</u>	<u>5.50</u>	<u>Data Acquisition</u>	<u>6.00</u>
<u>2 Coolant</u>	<u>7.00</u>	<u>Battery Box</u>	<u>15.50</u>
<u>3 Transmission Fluid</u>	<u>5.00</u>	<u>Instrument Tray</u>	<u>19.00</u>
<u>4</u>	<u> </u>	<u>Brake System</u>	<u>5.50</u>
<u>5</u>	<u> </u>	<u> </u>	<u> </u>
<u>6</u>	<u> </u>	<u> </u>	<u> </u>
<u>7</u>	<u> </u>	<u> </u>	<u> </u>
<u>8</u>	<u> </u>	<u> </u>	<u> </u>
<u>9</u>	<u> </u>	<u> </u>	<u> </u>
<u>10</u>	<u> </u>	<u> </u>	<u> </u>
<u>11</u>	<u> </u>	<u> </u>	<u> </u>
<u>12</u>	<u> </u>	<u> </u>	<u> </u>
<b>Total Mass Removed (Kg) =</b>	<u>17.50</u>	<b>Total Mass Added (Kg) =</b>	<u>46.00</u>

**Measured Curb Mass =** 1,385.50  
**Removed Total =** 17.50  
**Stripped Vehicle Mass =** 1,368.00  
**Added Mass =** 46.00  
**Calculated Test Inertial Mass =** 1,414.00  
**Measured Test Inertial Mass =** 1,414.00

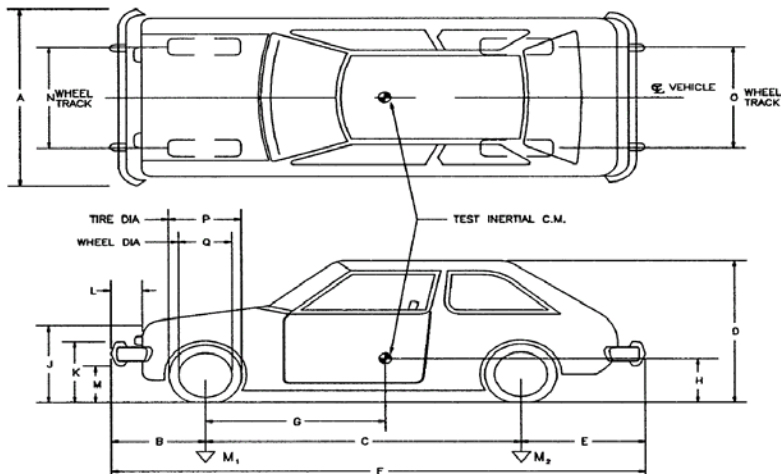
*\*All weights are in Kg*

**TEST NO.:** 10011      **DATE:** 8/5/2010      **ODOMETER:** 131417  
**MAKE:** Ford      **MODEL:** Taurus      **YEAR:** 2003  
**VIN NO.:** 1FAFP55263A177881      **TIRE SIZE:** 215 60 R16  
**TIRE INFLATION PRESSURE:** 32  
**MASS DISTRIBUTION (KG):**      **LF** 445.00      **RF** 438.50  
    **LR** 275.00      **RR** 255.00

**DESCRIBE ANY DAMAGE TO VEHICLE PRIOR TO TEST:**

\_\_\_\_\_

\_\_\_\_\_



**Engine Type:** 6CYL      **Optional Equipment:** \_\_\_\_\_      **Dummy Data:**  
**Engine CID:** 3      \_\_\_\_\_      **Type:** \_\_\_\_\_  
**Transmission Type**      \_\_\_\_\_      **Mass:** \_\_\_\_\_  
 **Auto**      \_\_\_\_\_      **Seat Position:** \_\_\_\_\_  
 **Manual**      \_\_\_\_\_      \_\_\_\_\_

**GEOMETRY - (CM)**

<b>A</b>	<u>178.50</u>	<b>D</b>	<u>145.00</u>	<b>G</b>	<u>87.50</u>	<b>K</b>	<u>55.00</u>	<b>N</b>	<u>155.20</u>	<b>Q</b>	<u>43.80</u>
<b>B</b>	<u>99.00</u>	<b>E</b>	<u>117.00</u>	<b>H</b>	<u>32.00</u>	<b>L</b>	<u>10.80</u>	<b>O</b>	<u>157.00</u>	<b>R</b>	_____
<b>C</b>	<u>276.00</u>	<b>F</b>	<u>492.00</u>	<b>J</b>	<u>72.50</u>	<b>M</b>	<u>28.20</u>	<b>P</b>	<u>63.50</u>	<b>S</b>	_____

<b>MASS - (KG)</b>	<b>CURB</b>	<b>TEST INERTIAL</b>	<b>GROSS STATIS</b>
<b>M1</b>	<u>928.50</u>	<u>883.50</u>	_____
<b>M2</b>	<u>457.00</u>	<u>530.00</u>	_____
<b>M3</b>	<u>1,385.50</u>	<u>1,414.00</u>	_____

## VEHICLE PARAMETERS

<b>Veh No:</b> <u>Target-Explorer</u>	<b>Test No:</b> <u>10011</u>	<b>Date:</b> <u>08/05/10</u>	
<b>Make:</b> <u>Ford</u>	<b>Measured Curb mass (Kg)</b>		
<b>Model:</b> <u>Explorer</u>	<b>LF:</b> <u>488.50</u>		
<b>Year:</b> <u>1995</u>	<b>RF:</b> <u>453.50</u>		
<b>Color:</b> <u>Red</u>	<b>LR:</b> <u>408.50</u>		
<b>Engine:</b> <u>4</u>	<b>RR:</b> <u>371.50</u>		
<b>Vin No.:</b> <u>1FMCV24X65SUB74635</u>			
<b>Location of Vehicle CG (cm)</b>		<b>Measured Test Inertial Mass (Kg)</b>	
<b>X-Axis (from LF to LR):</b>	<u>118.70</u>	<b>LF:</b> <u>515.00</u>	
<b>Y-Axis (From LF to RF):</b>	<u>68.80</u>	<b>RF:</b> <u>466.50</u>	
<b>Z-Axis (From Ground):</b>	<u>34.10</u>	<b>LR:</b> <u>439.50</u>	
		<b>RR:</b> <u>391.00</u>	
<b>Location of CG Accelerometer (cm)</b>			
<b>X-Axis (from LF to LR):</b>	<u>95.30</u>		
<b>Y-Axis (From LF to RF):</b>	<u>75.50</u>		
<b>Z-Axis (From Ground):</b>	<u>61.50</u>		
<b>Items Removed</b>	<b>Mass (Kg)</b>	<b>Added</b>	<b>Mass (Kg)</b>
1 <u>Oil</u>	<u>4.00</u>	<u>Battery Box</u>	<u>15.00</u>
2 <u>Trans Fluid</u>	<u>3.50</u>	<u>Data Acquisition</u>	<u>6.00</u>
3 <u>Antifreeze</u>	<u>10.50</u>	<u>Brake System</u>	<u>5.50</u>
4 _____	_____	<u>Dummy</u>	<u>81.50</u>
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
9 _____	_____	_____	_____
10 _____	_____	_____	_____
11 _____	_____	_____	_____
12 _____	_____	_____	_____
<b>Total Mass Removed (Kg) =</b>	<u>18.00</u>	<b>Total Mass Added (Kg) =</b>	<u>108.00</u>
<b>Measured Curb Mass = <u>1,722.00</u></b>			
<b>Removed Total = <u>18.00</u></b>			
<b>Stripped Vehicle Mass = <u>1,704.00</u></b>			
<b>Added Mass = <u>108.00</u></b>			
<b>Calculated Test Inertial Mass = <u>1,812.00</u></b>			
<b>Measured Test Inertial Mass = <u>1,812.00</u></b>			
<i>*All weights are in Kg</i>			

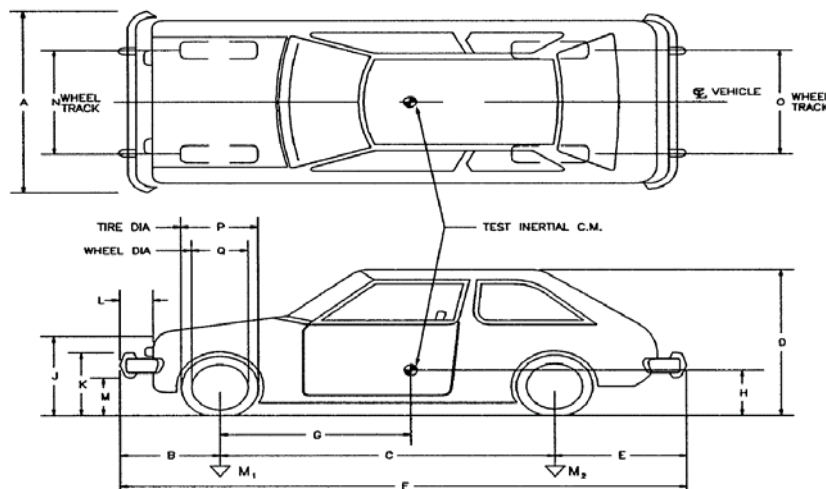
**TEST NO.:** 10011      **DATE:** 8/5/2010      **ODOMETER:** 203660  
**MAKE:** Ford      **MODEL:** Explorer      **YEAR:** 1995  
**VIN NO.:** 1FMCU24X6SUB74635      **TIRE SIZE:** P235 75R15  
**TIRE INFLATION PRESSURE:** 32  
**MASS DISTRIBUTION (KG):**      **LF** 515.00      **RF** 466.50  
    **LR** 439.50      **RR** 391.00

**DESCRIBE ANY DAMAGE TO VEHICLE PRIOR TO TEST:**

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**Engine Type:** 6 CYL      **Optional Equipment:** \_\_\_\_\_      **Dummy Data:**  
**Engine CID:** 4      \_\_\_\_\_      **Type:** \_\_\_\_\_  
**Transmission Type**      \_\_\_\_\_      **Mass:** \_\_\_\_\_  
 **Auto**      \_\_\_\_\_      **Seat Position:** \_\_\_\_\_  
 **Manual**      \_\_\_\_\_      \_\_\_\_\_

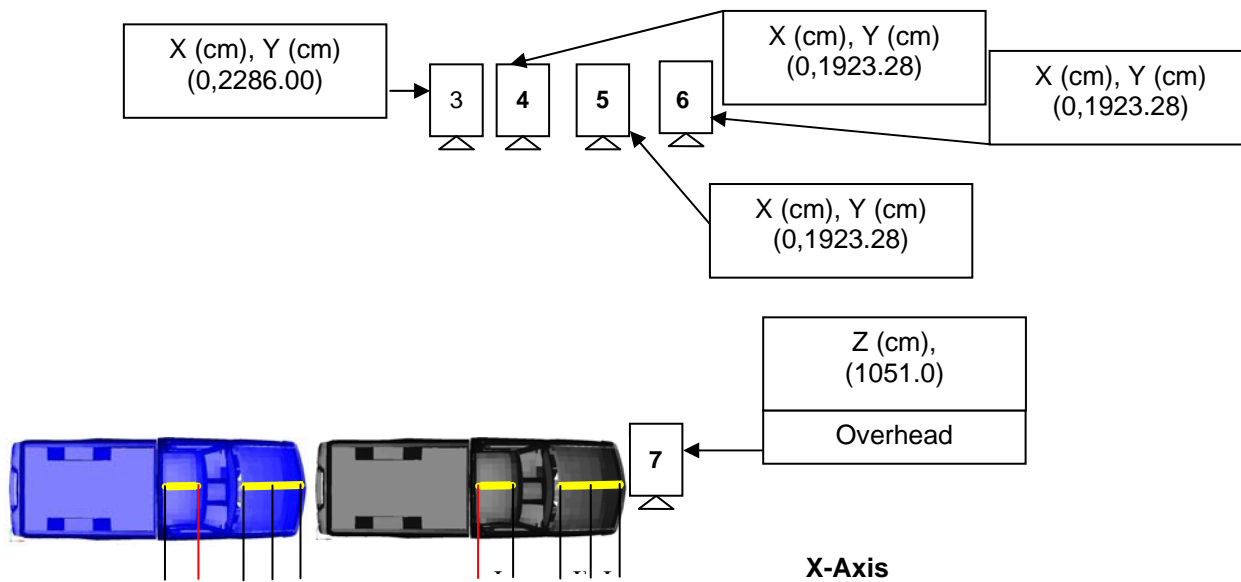
**GEOMETRY - (CM)**

<b>A</b>	<u>172.00</u>	<b>D</b>	<u>169.50</u>	<b>G</b>	<u>95.30</u>	<b>K</b>	<u>65.30</u>	<b>N</b>	<u>145.50</u>	<b>Q</b>	<u>41.60</u>
<b>B</b>	<u>80.20</u>	<b>E</b>	<u>102.30</u>	<b>H</b>	<u>61.50</u>	<b>L</b>	<u>8.80</u>	<b>O</b>	<u>149.00</u>	<b>R</b>	_____
<b>C</b>	<u>259.00</u>	<b>F</b>	<u>441.50</u>	<b>J</b>	<u>103.50</u>	<b>M</b>	<u>33.10</u>	<b>P</b>	<u>72.00</u>	<b>S</b>	_____
<b>MASS - (KG)</b>		<b>CURB</b>		<b>TEST INERTIAL</b>		<b>GROSS STATIS</b>					
<b>M1</b>		<u>942.00</u>		<u>981.50</u>		_____					
<b>M2</b>		<u>780.00</u>		<u>830.50</u>		_____					
<b>M3</b>		<u>1,722.00</u>		<u>1,812.00</u>		_____					

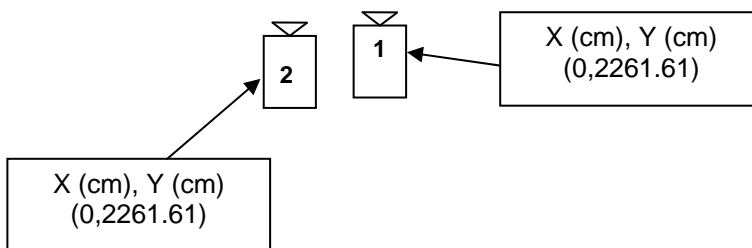
## CAMERA PARAMETERS

NO.	CAMERA	LENS	LENS (MM)	RESOLUTION (PIXELS)	SPEED (FPS)	LOCATION
1	K3R	Nikon	25	1280X1024	500	Right Perp
2	CI	Canon	16-100	640X480	500	Right Perp Close
3	K3	Nikon	25	1280X1024	500	Left Perp
4	K3	Nikon	50	1280X1024	500	Left Perp Close 1
5	CI	Toyo Optics	12.5-75	640X480	500	Left Perp Close 2
6	CI	Toyo Optics	12.5-75	640X480	500	Left Perp Close 3
7	K3R	Nikon	14	1280X1024	500	Overhead

## CAMERA PARAMETERS



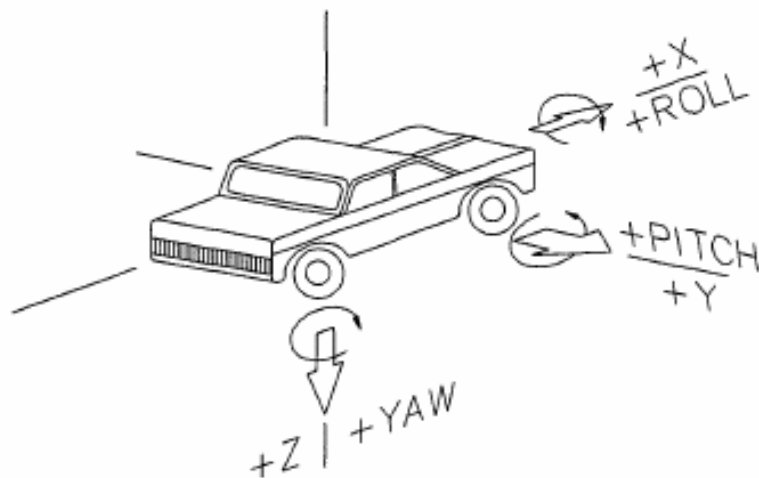
Y-Axis





### ACCELEROMETERS LOCATIONS TAURAS

CH.	LOCATION	X (cm) From frt. axle	Y (cm) From lft frt. hub	Z (cm) From ground	SERIAL NO.	AXIS
1	Center of Gravity	117.20	78.30	37.70	6DX0013 ACC1	X
2	Center of Gravity	117.20	78.30	37.70	6DX0013 ACC2	Y
3	Center of Gravity	117.20	78.30	37.70	6DX0013 ACC3	Z
4	Center of Gravity	117.20	78.30	37.70	6DX0013 ARS1	Roll
5	Center of Gravity	117.20	78.30	37.70	6DX0013 ARS2	Pitch
6	Center of Gravity	117.20	78.30	37.70	6DX0013 ARS3	Yaw
7	Center of Gravity	117.20	78.30	37.70	D12130	X
8	Center of Gravity	117.20	78.30	37.70	D12748	Y
9	Center of Gravity	117.20	78.30	37.70	D12899	Z



## ACCELEROMETERS LOCATIONS EXPLORER

CH.	LOCATION	X (cm) From frt. axle	Y (cm) From lft frt. hub	Z (cm) From ground	SERIAL NO.	AXIS
1	Center of Gravity	124.60	76.80	62.20	6DX0014 ACC1	X
2	Center of Gravity	124.60	76.80	62.20	6DX0014 ACC2	Y
3	Center of Gravity	124.60	76.80	62.20	6DX0014 ACC3	Z
4	Center of Gravity	124.60	76.80	62.20	6DX0014 ARS1	Roll
5	Center of Gravity	124.60	76.80	62.20	6DX0014 ARS2	Pitch
6	Center of Gravity	124.60	76.80	62.20	6DX0014 ARS3	Yaw
7	Center of Gravity	124.60	76.80	62.20	6DX0015 ACC1	X
8	Center of Gravity	124.60	76.80	62.20	6DX0015 ACC2	Y
9	Center of Gravity	124.60	76.80	62.20	6DX0015 ACC3	Z
10	Center of Gravity	124.60	76.80	62.20	6DX0015 ARS1	Roll
11	Center of Gravity	124.60	76.80	62.20	6DX0015 ARS2	Pitch
12	Center of Gravity	124.60	76.80	62.20	6DX0015 ARS3	Yaw

