

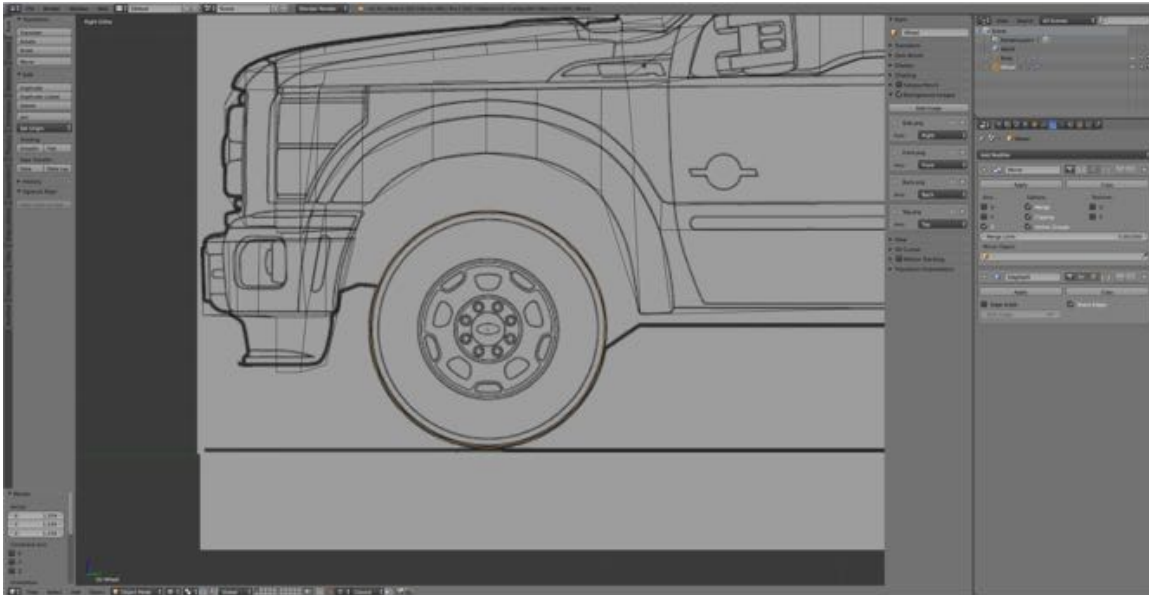
# Modeling the 2010 Ford F250

## Step 10

### Modeling – Wheels

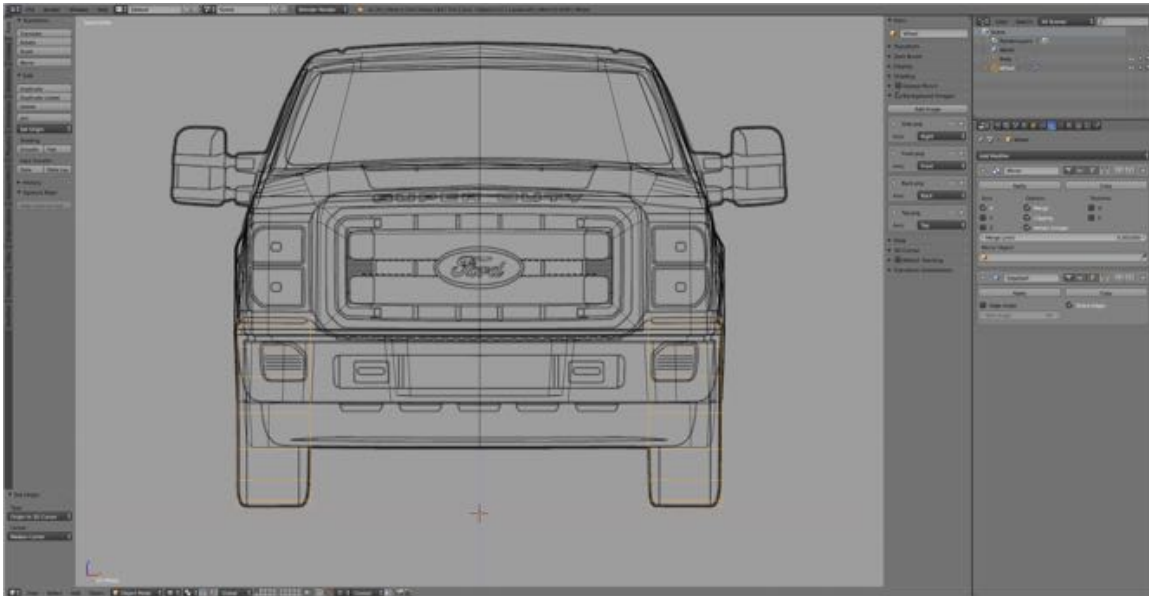
We'll model the wheels as separate objects from the body then join all the parts later.

- **Switch to Left Side View (NUMPAD-3-KEY)** and **position** the cursor at the **center of the front wheel**.
- **Add a cylinder** and in the **Operator Panel** at the bottom of the Tool Shelf **reduce** the number of **vertices to 16**.
- With the cylinder still selected **make it a separate object (P-KEY > Selection)**.
- In the Properties Panel under the Item Pane, **change the name** from **“Body.001”** to **“Wheel”**.
  
- **Switch to Object Mode (TAB-KEY)** and move the origin to the center of the geometry (**CTRL + SHIFT + ALT/OPT + C-KEY > select Origin to geometry**).
  
- In the Properties Editor, **hide mirror modifier (LMB click on the Eye Icon)**.
- **Rotate** the cylinder about the **Y-axis 90° (R-KEY > Y-KEY > enter 90)**.
- **Scale down** to the wheel circumference (**S-KEY > Drag**).



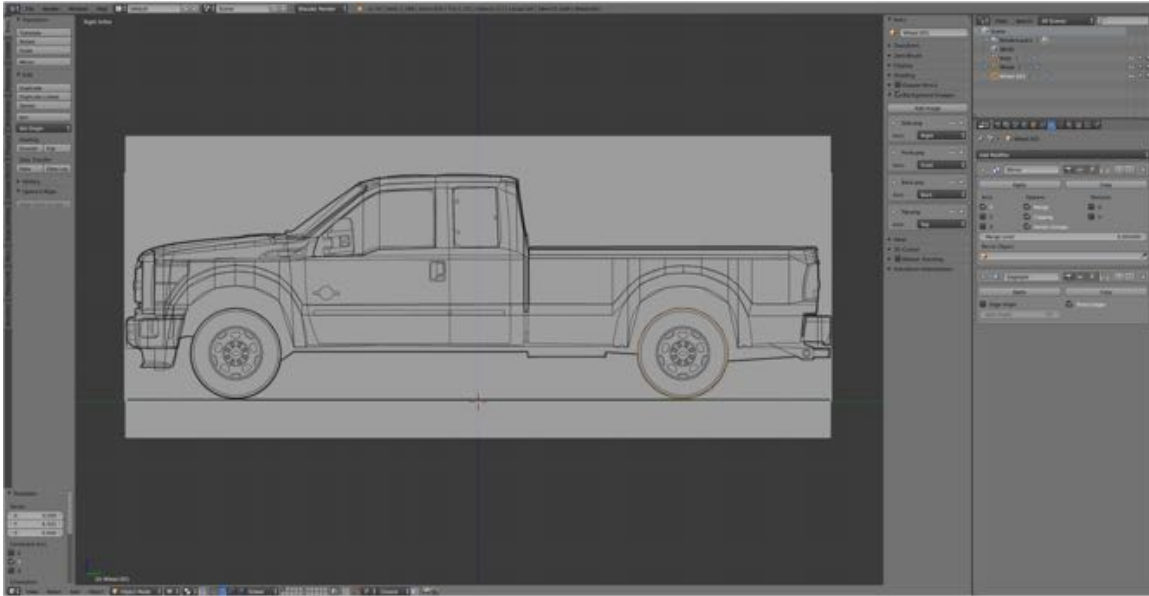
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- **Switch to Front View (NUMPAD-1-KEY).**
- **Scale on the X-axis (S-KEY > X-KEY > Drag) to set the width of the tire and move (G-KEY > Drag) to align.**
- **Move the cursor to the origin (X = 0, Y = 0, Z = 0) (SHIFT + C-KEY).**
- **Switch to Object Mode (TAB-KEY) and move the origin of the 3D cursor (CTRL + SHIFT + ALT/OPT + C-KEY > select Origin to 3D cursor).**
- **In the Properties Editor unhide the mirror modifier (LMB click on the Eye Icon) and mirror around the X-axis (uncheck Z-axis, check X-axis).**



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- **Switch to Side View (NUMPAD-3-KEY).**
- **Duplicate (SHIFT + D-KEY > Enter) the Wheel object and drag the duplicate and position as the rear wheels.**

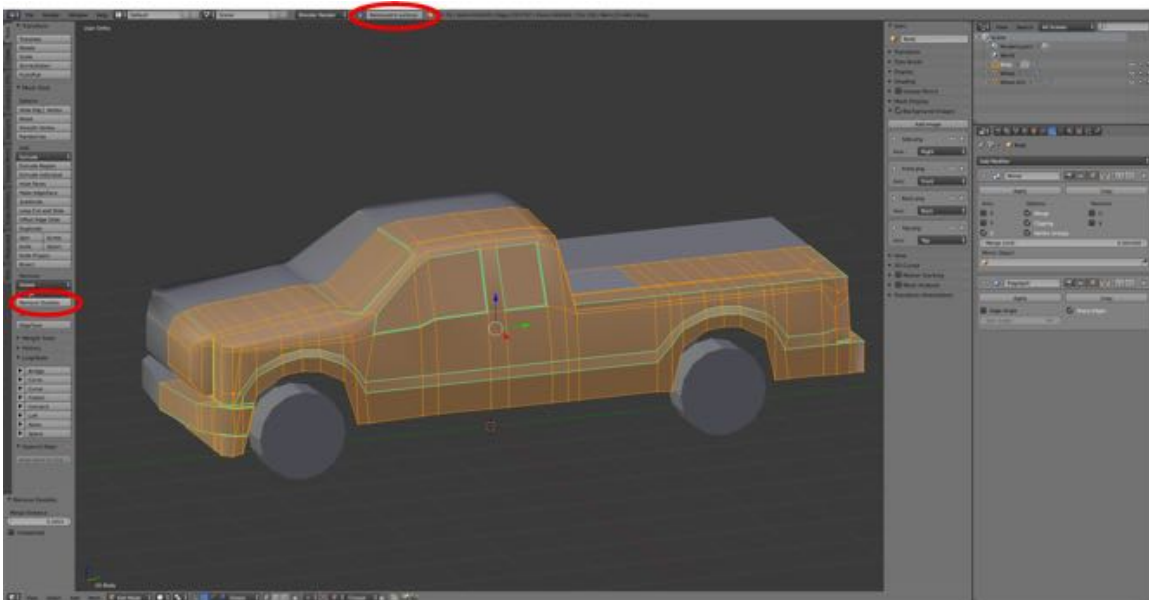


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## Cleanup

It's a good idea to periodically clean up your model by checking for “doubles”, two or more vertices in the same location.

- In the **Outline Editor**, select the **Body Object**.
- In the **3D Editor**, switch to **Edit Mode** and **Vertex Selection Mode**, and select the whole **body (A-KEY)**.
- In the Tool Shelf Tools Tab's Remove pane, select Remove Doubles. (I had 6 doubles removed as indicated in the Information Editor.)



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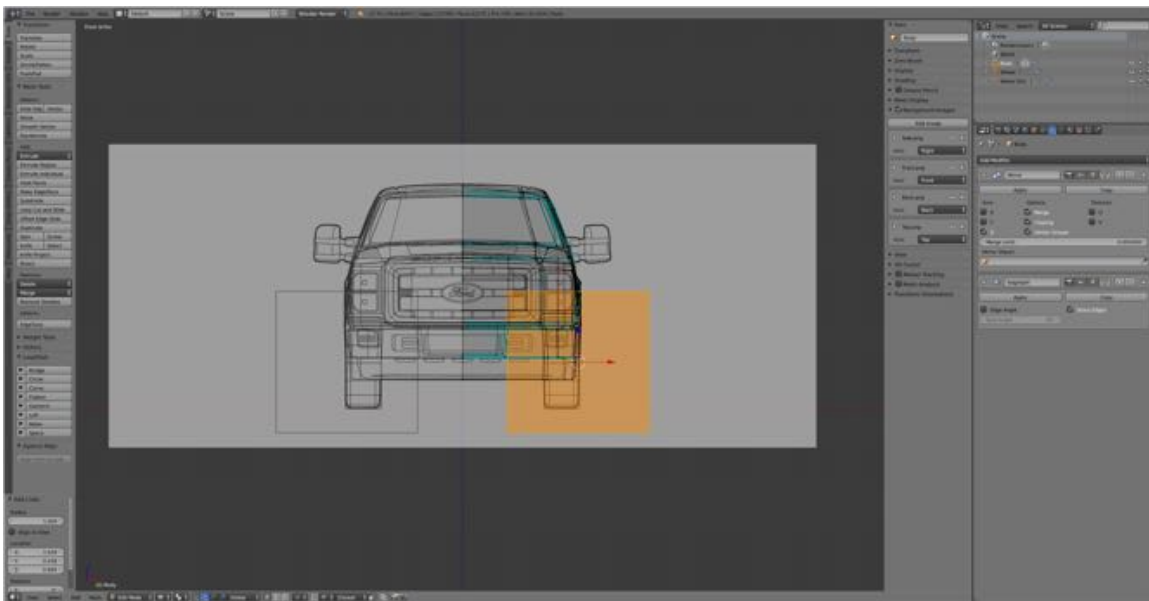
Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase** your file name “**FordF250\_11.blend**”.
- **Save** the file to a folder named “**2010 Ford F250 Blender Files**”.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.

## Wheel Wells

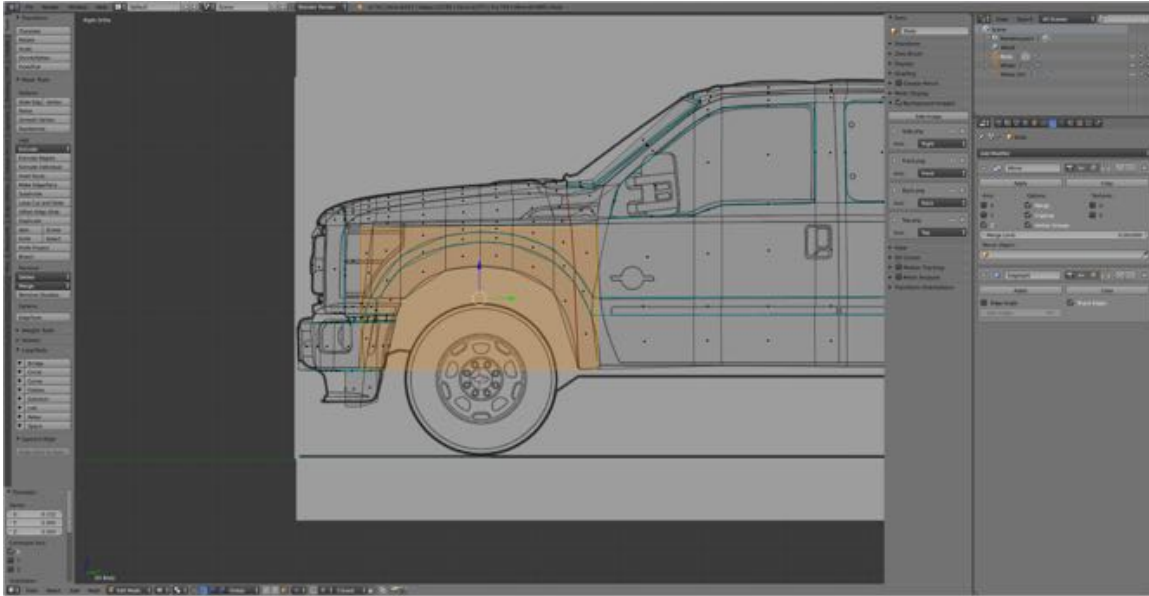
We next need to create some wheel wells so that one cannot see through the model from a side view.

- In the **Outline Editor**, **hide** the **wheels** (Wheel and Wheel.001 Objects) (**LMB on the Eye Icons**).
- In the **3D Editor**, position the cursor in the **center of the front wheel** from both the **Side (NUMPAD-3-KEY)** and **Front (NUMPAD-1-KEY) Views**.
- **Add a cube** (which will be mirrored on the other side).



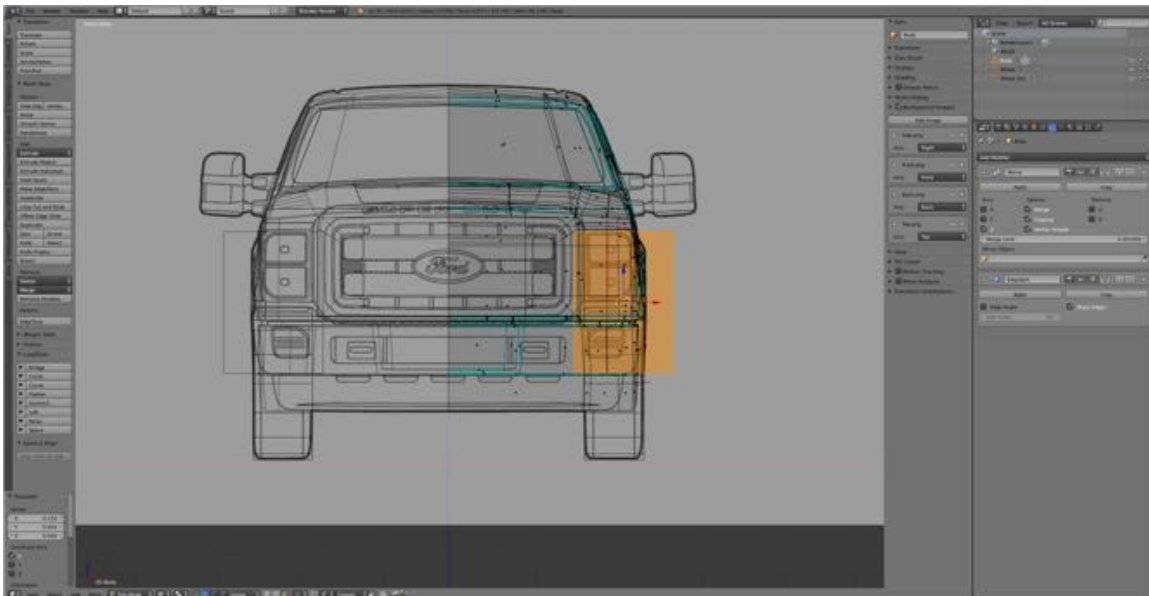
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- In the Properties Panel’s Item Pane, change the **name** from “Body.001” to “**Wheel Wells**”.
- **Scale** the cube on the **Z-axis (S-KEY > Z-KEY > Drag)** and move up (**G-KEY > Z-KEY > Drag**).



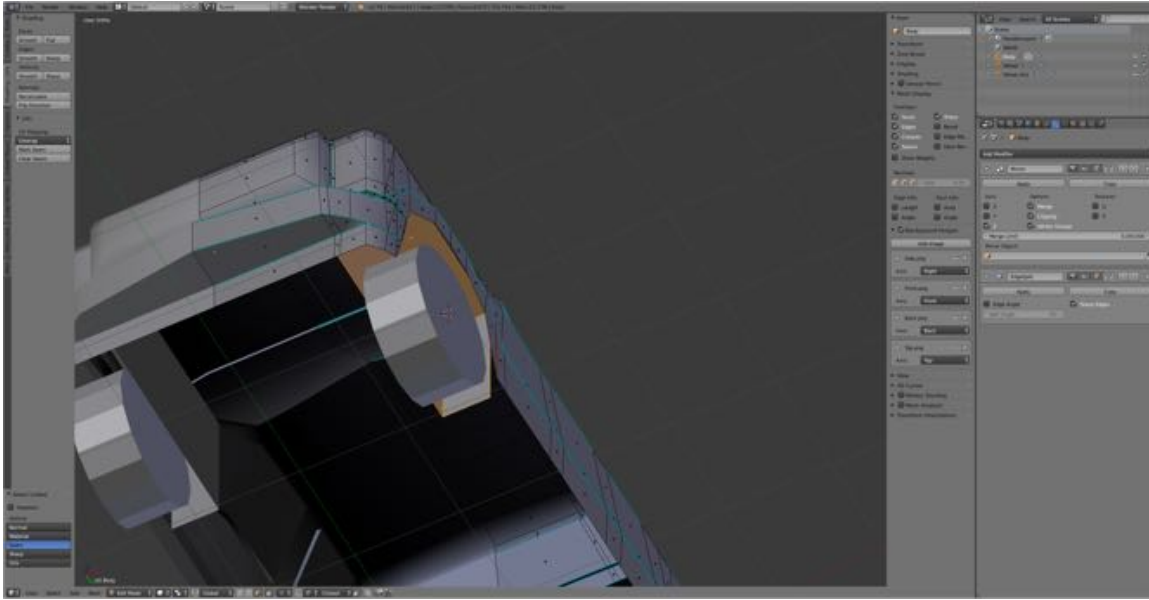
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- **Switch to Front View** and **scale** and **position** on the **X-axis**.



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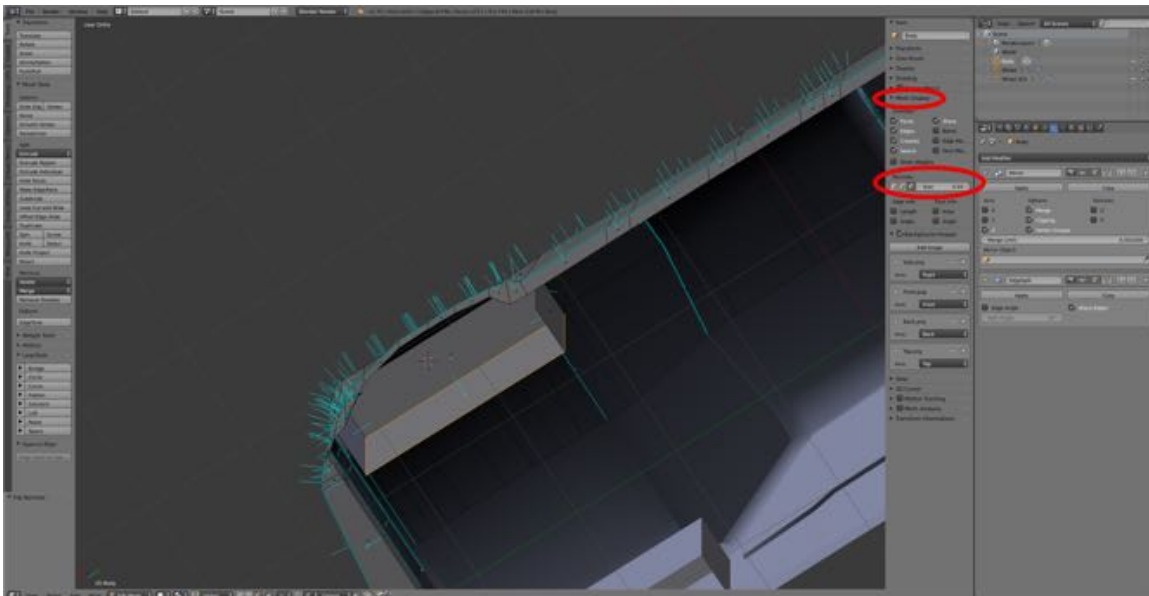
- **Switch to Face Selection Mode** and remove the bottom and side faces (**X-KEY > Faces**).
- **Switch to Edge Selection Mode** and move (**G-KEY > Drag**) the **side edges inward** out of view.



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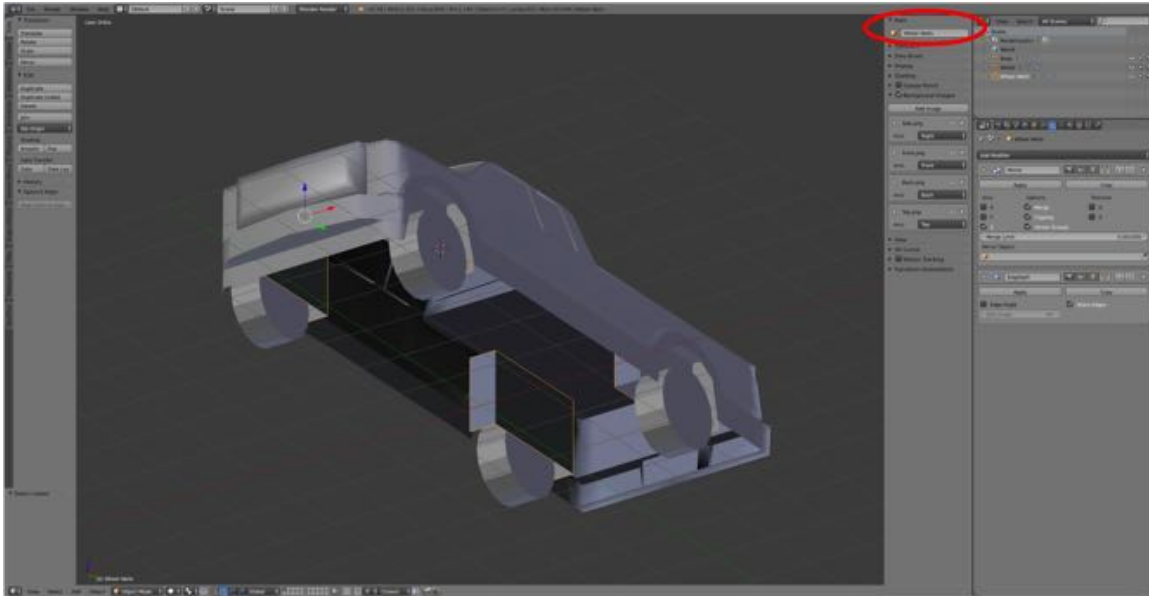
Check to see that the faces of the Wheel Well are facing inwards and adjust.

- In the **Outline Editor**, **hide** the **Wheel** (**LMB click on the Eye Icon**).
- In the **Properties Panel's** (**N-KEY**) **Mesh Display Pane** under **Normals**, **LMB click** on the **Face Icon**, to show the Face Direction Indicators (turquoise lines), and lengthen the **Size** of the indicators to **0.50**.
- In the **Tool Shelf's** **Tool Shading UVs Tab** under **Normals** select **Flip Direction** (if need be).
- After you are done, hide the Face Direction Indicators (**Properties Panel > Mesh Display Pane > Normals > LMB Face Icon**).



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- **Duplicate (SHIFT + D-KEY > Enter)** and **position (G-KEY > Drag)** at the rear wheel.
- **Select both the front (L-KEY) and back (L-KEY) wheel wells and make into a separate object (P-KEY > Selection).**
- **In the Properties Panel's Item Pane change the name from "Body.001" to "Wheel Wells".**



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Next, we are going to combine (join) the wheels and wheels.001 into one object then the Wheel Wells, Wheels and Body into one object.

- In the **Outline Editor**, select the **Wheels.001 Object** then the **Wheels Object** and with the mouse cursor hovering over the 3D Editor, **press the CTRL + J-KEY**.
- **Select Wheel Wells, Wheels and Body (select the Body Object last)** and with the mouse cursor hovering over the 3D Editor **join** the objects in to one under the name "Body" by pressing the **CTRL + J-KEY**.

Finally, we are going to apply the Mirror Modifiers and Edge Split Modifiers.

- **Select the Wheel Wells Object** and in the Properties Editor under Modifier and **EdgeSplit** select **Apply** and under **Mirror** select **Apply**.
- **Select the Wheels Object** and in the Properties Editor under Modifier and **EdgeSplit** select **Apply** and under **Mirror** select **Apply**.
- **Select the Body Object** and in the Properties Editor under Modifier and **EdgeSplit** select **Apply** and under **Mirror** select **Apply**.





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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase** your file name **“FordF250\_12.blend”**.
- **Save** the file to a folder named **“2010 Ford F250 Blender Files”**.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.