

SOLIDWORKS

ASTON MARTIN TUTORIAL



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eBook #1
Romain Ginestou

| Blueprints

About the author

Hi, my name is Romain Ginestou. I am a French engineering student who specializes in computer simulations and is currently pursuing a master's degree in Mathematics. I started using SolidWorks in 2009 and since then I have developed a real passion for Computer Aided Design.

I first wrote a tutorial on [OpenClassrooms](#), a very popular training platform here in France. I've also released the [SolidWorks Aventador Tutorial](#) on YouTube, which has been viewed more than a hundred thousand times so far. I also released a first version of the Aston Martin One-77 tutorial. However, this tutorial was only suitable for very advanced SolidWorks users.

Two years ago, I met Jan Zuyderduyn. Jan is the founder of LearnSolidWorks.com. Jan is the author of the SolidWorks Chopper and Yacht tutorial and works as a Lead Product Designer in the Netherlands. Jan and I both have the ambition to share our SolidWorks knowledge with the maximum number of people we could reach.

Since Jan has a wide reach through his website LearnSolidWorks.com and is very experienced with developing tutorials for SolidWorks users of all levels, Jan and I decided to join our forces and introduce a brand new version of the SolidWorks Aston Martin tutorial. Jan provided me with feedback to **improve the user experience** of the tutorials and facilitated the branding and marketing for this tutorial.

The SolidWorks Aston Martin tutorial I am presenting to you here is the result of **several years of work, feedback and revisions**. It covers a lot of features and teaches you how to model the outside of this amazing car.

The *One-77* is a sports car built by Aston Martin, a British manufacturer. Only 77 of these cars were produced and they sold for as little as £1.15 million (!). This supercar provides us, the users of SolidWorks, with a very interesting subject to model, as its design includes both large curves and surfaces as well as more tricky areas.

The tutorial is divided into **20 eBooks**, each of which covers a certain part of the car.

Today, we will start with the blueprints.

Happy reading!

Romain



[Click here to download free astonishing wallpapers of the final car](#)

Blueprints are one of the most useful things for modelling a car using any 3D software.

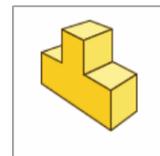
They are basically orthogonal drawings of the car in every direction (front, top, side and rear). They allow us to draw curves over a picture so that we can be precise and match the real shape of the car.

[Click here to download your blueprints](#)

► Open a new part

Open SolidWorks, go to **File > New...**

Select the **Part** icon and click OK.



This part will be the main file of the tutorial. Most of the modelization process will take place here.

► Change the units

When creating a new part in SolidWorks, the default unit system is set to *millimeter, gram, second*.

For this tutorial, we will need to change it to *centimeter, gram, second*.

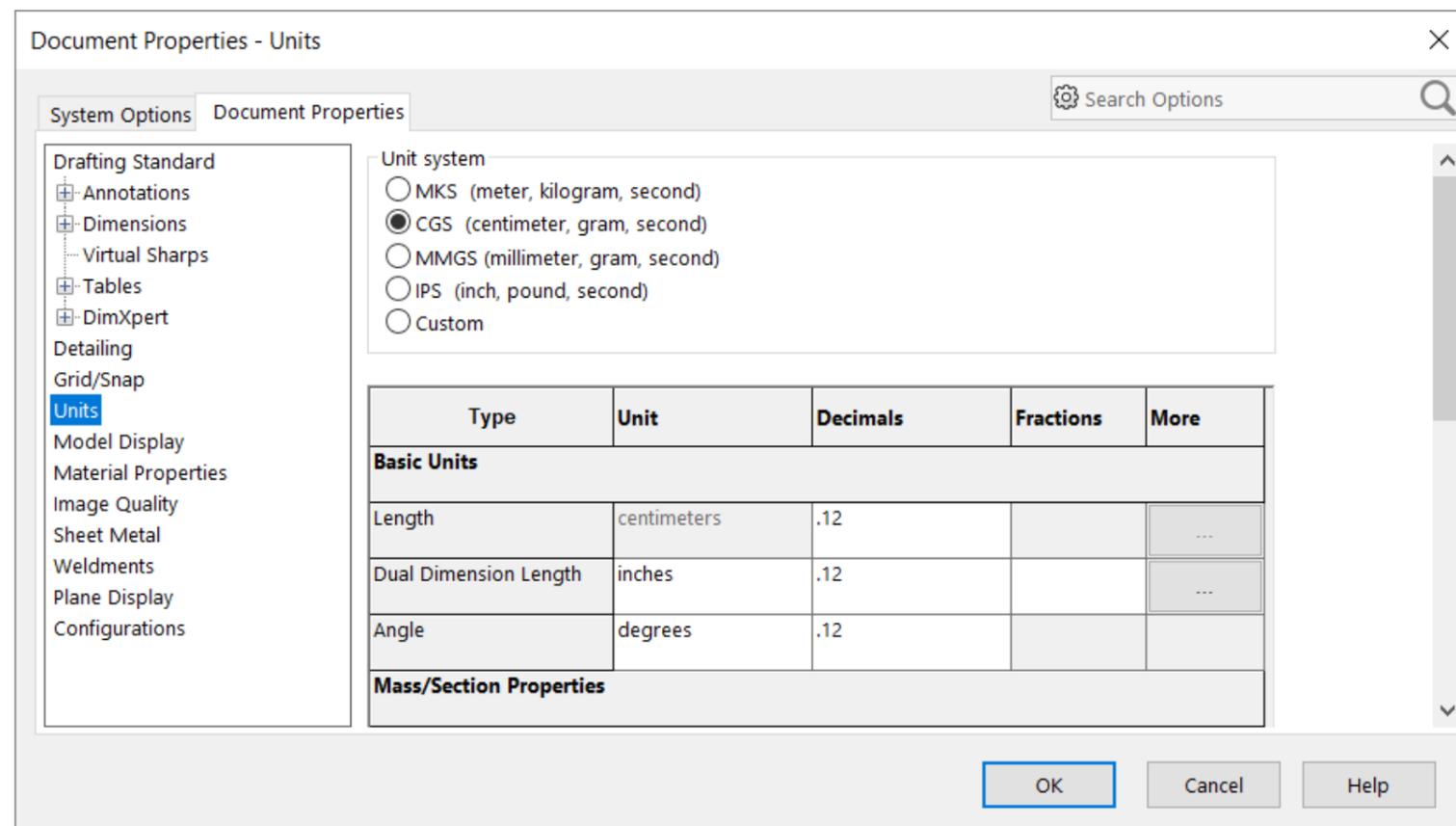
Locate the **Options** icon (it looks like a gear) at the very top of the screen.



Go to the **Document Properties** tab then click on **Units**.

Check the **CGS** unit system.

Click OK.

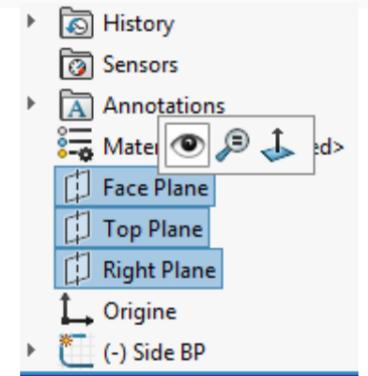


► Show the default planes

The *Features Manager* can be found on the left-hand side of the screen. Despite being pretty empty now, some basic geometry is present.

While holding the *Shift* key, select all three planes. A pop-up will appear.

Click on the **Show** icon. The three planes should now be visible in the viewport.



Having the basic planes visible makes it easier to figure out where the model stands in space, and allows us to start any new sketch on these planes merely by clicking on them and clicking on the **Sketch** icon in the pop-up.

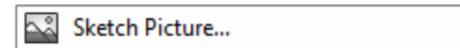
These three planes will be used to support the blueprints.

► Create a new sketch on the side (right) plane

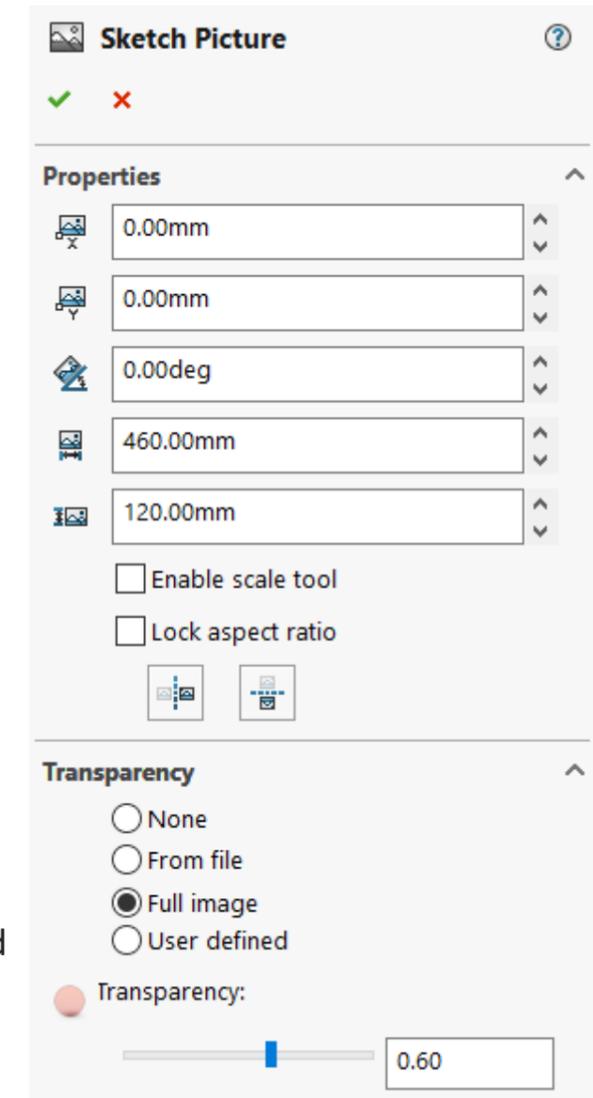
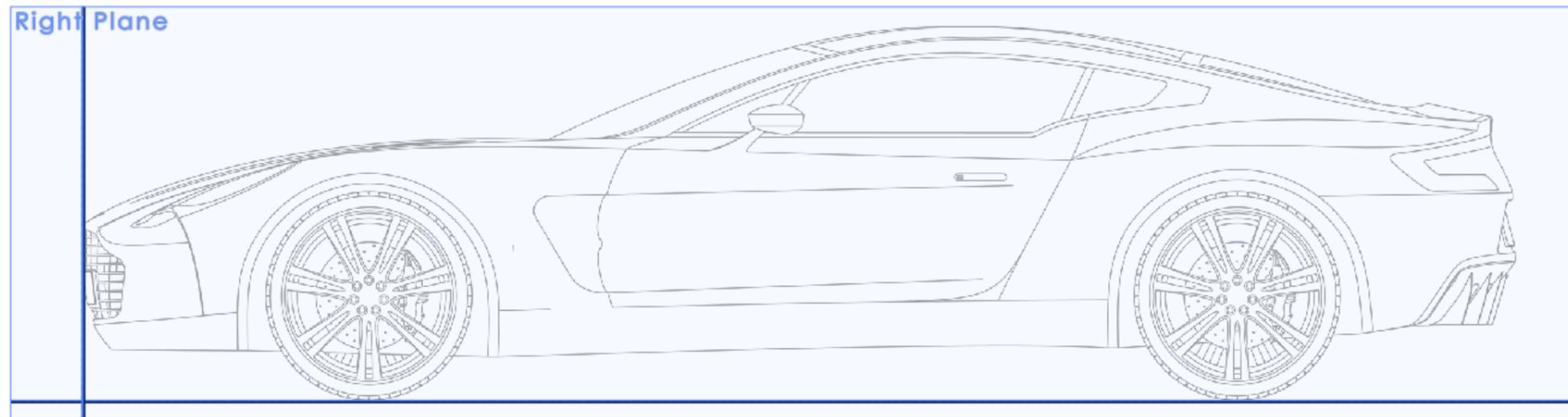
Click on the right plane (which will be called the **side** plane in future) and start a new sketch by clicking on this icon in the pop-up. 

► Add the side blueprint picture

Under the SolidWorks menu, go to **Tools > Sketch Tools > Sketch Picture...** and import the **side blueprint** from your hard drive.



The picture should then appear in the viewport.



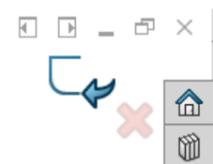
Untick the **Lock aspect ratio** box and fill in the left-hand side section with the parameters present in this screenshot.

For convenience, add some transparency to the image so that we can see the car's model through the blueprint later on.

You may rename this sketch **Side BP** by slowly double-clicking on the sketch, or by hitting the *F2* key once you've selected it.

Click OK to validate. ✓

Exit the sketch by clicking on the icon in the top-right corner of the viewport, or by clicking on the **Exit Sketch** icon at the left of the *Command Manager* on top of your screen. ✓



► Add the top blueprint picture

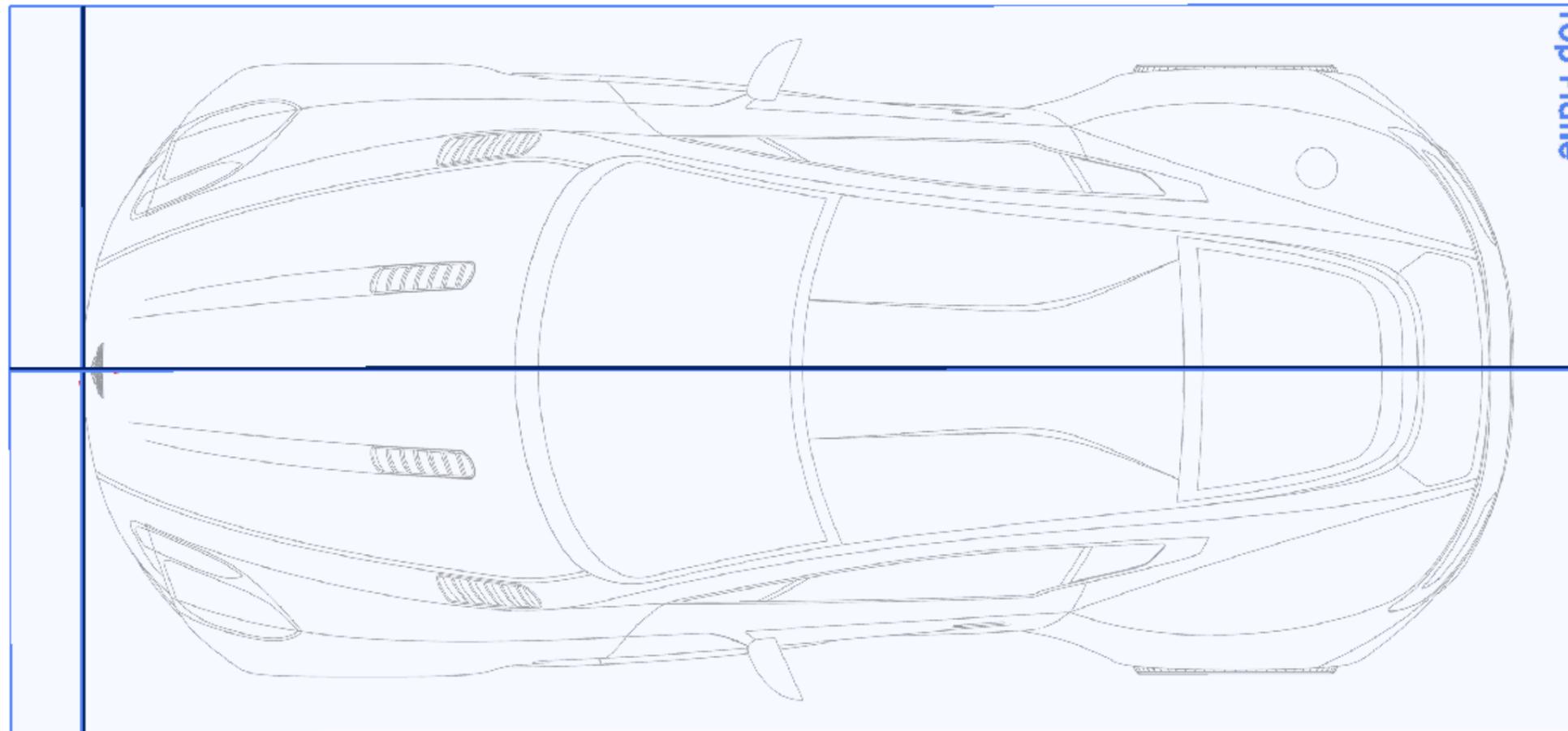
The same process applies for the top blueprint.

Select the **top** plane and start a new sketch. 

Add the **top blueprint**.

The image needs to be rotated to be aligned with the model. To do so, enter **90°** in the third input box.

In order to have the side plane through the middle of the car, you need to add an offset to the image (**106cm**, first box).



Sketch Picture 

✓ ✗

Properties 

-  106.00cm 
-  0.00cm 
-  90.00deg 
-  460.00cm 
-  212.00cm 

Enable scale tool

Lock aspect ratio

Transparency 

None

From file

Full image

User defined

● Transparency:  0.60

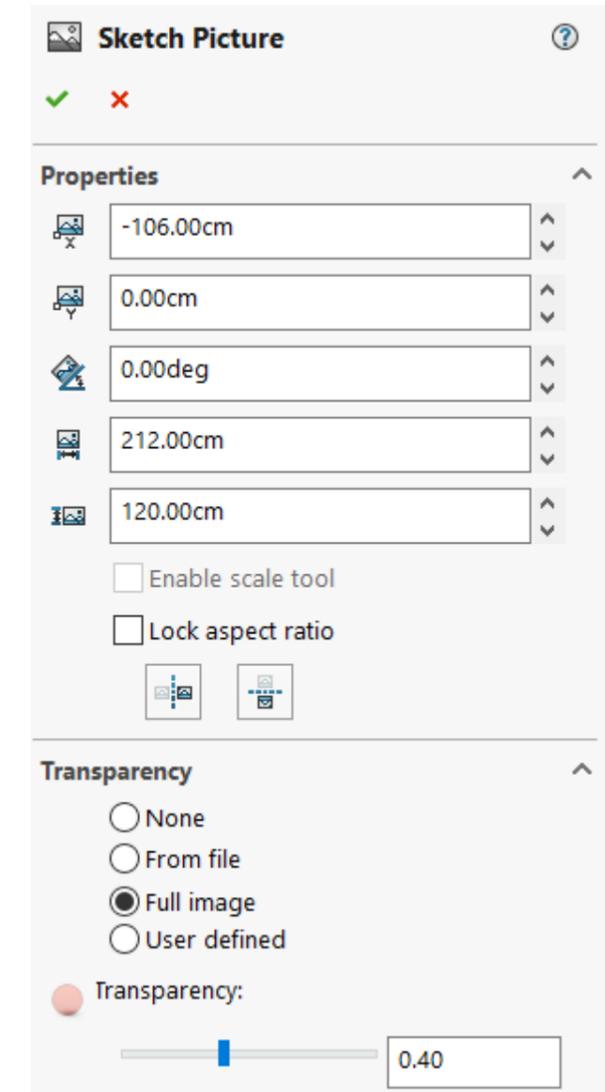
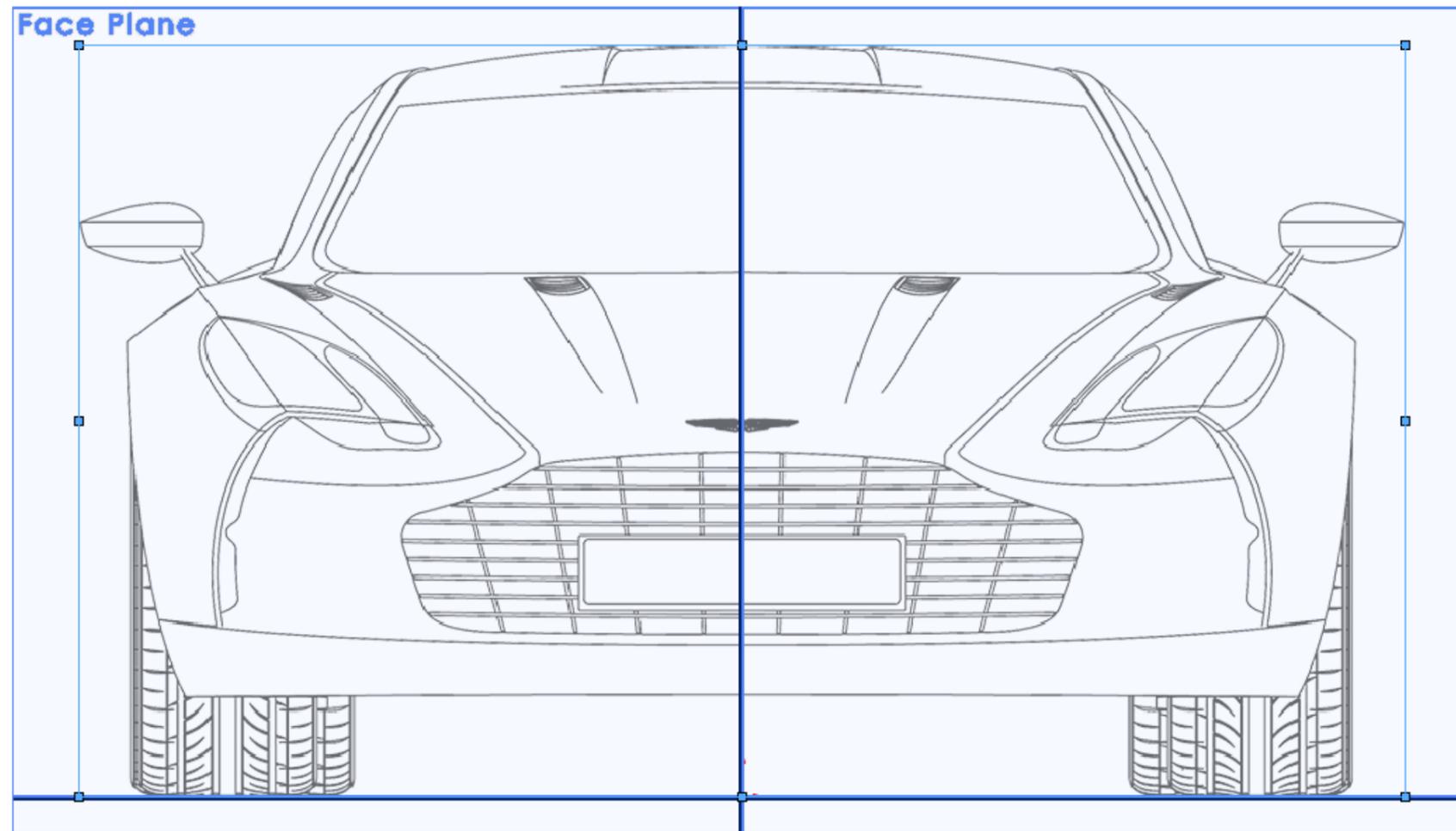
Click OK and exit the sketch. ✓

► Add the front blueprint picture

Select the **front** plane and start a new sketch. 

Add the **front blueprint**.

Add an offset of **-106cm** in the first input box of the panel to center the blueprint within the symmetry plane.



Compared to the previous ones, we decreased the transparency of this blueprint because, when seen from the front view, it will be on top of the rear blueprint. Since we want to make sure the blueprint is easy to understand, we avoid to have the lines drawn on both blueprints mixed.

Click OK and exit the sketch. ✓

► Add the rear plane

Unlike the previous images, the rear blueprint has to be supported by an extra plane behind the car.

Recall that the car has a length of 460cm. Therefore, our goal here is to add a plane 460cm away from the front plane.

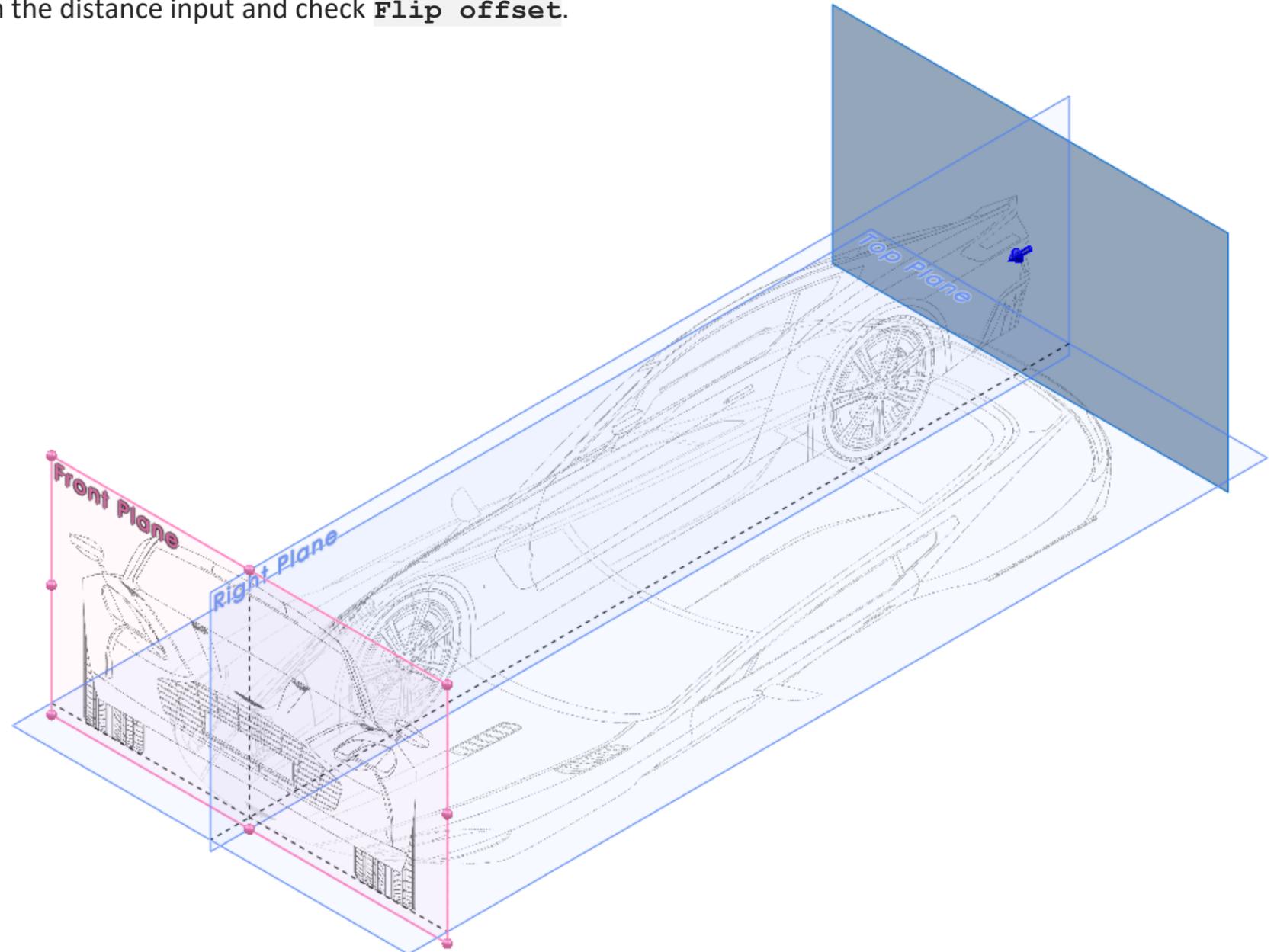
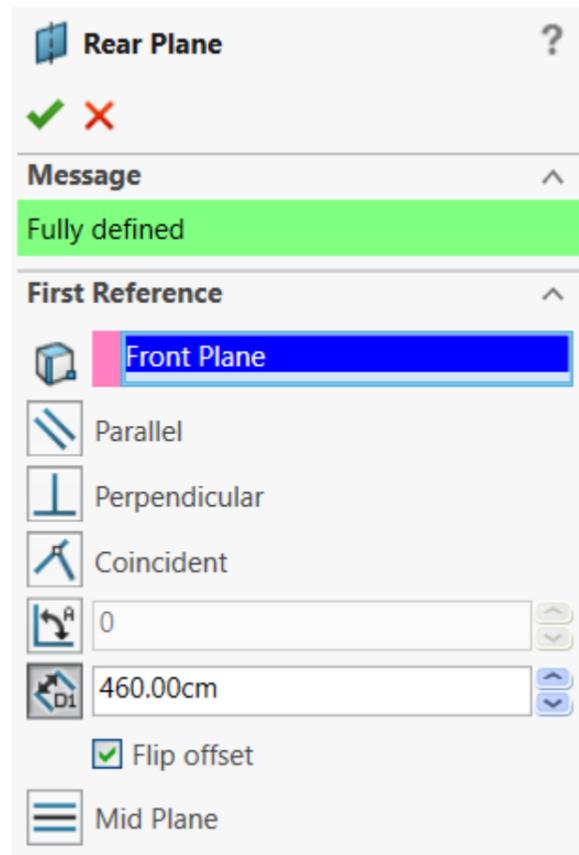
In the **Features** ribbon under **Reference Geometry** (or under **Insert > Reference Geometry**), locate and click on the **Plane** button.



As **First Reference**, select the front plane. Enter **460cm** in the distance input and check **Flip offset**.

Click OK. ✓

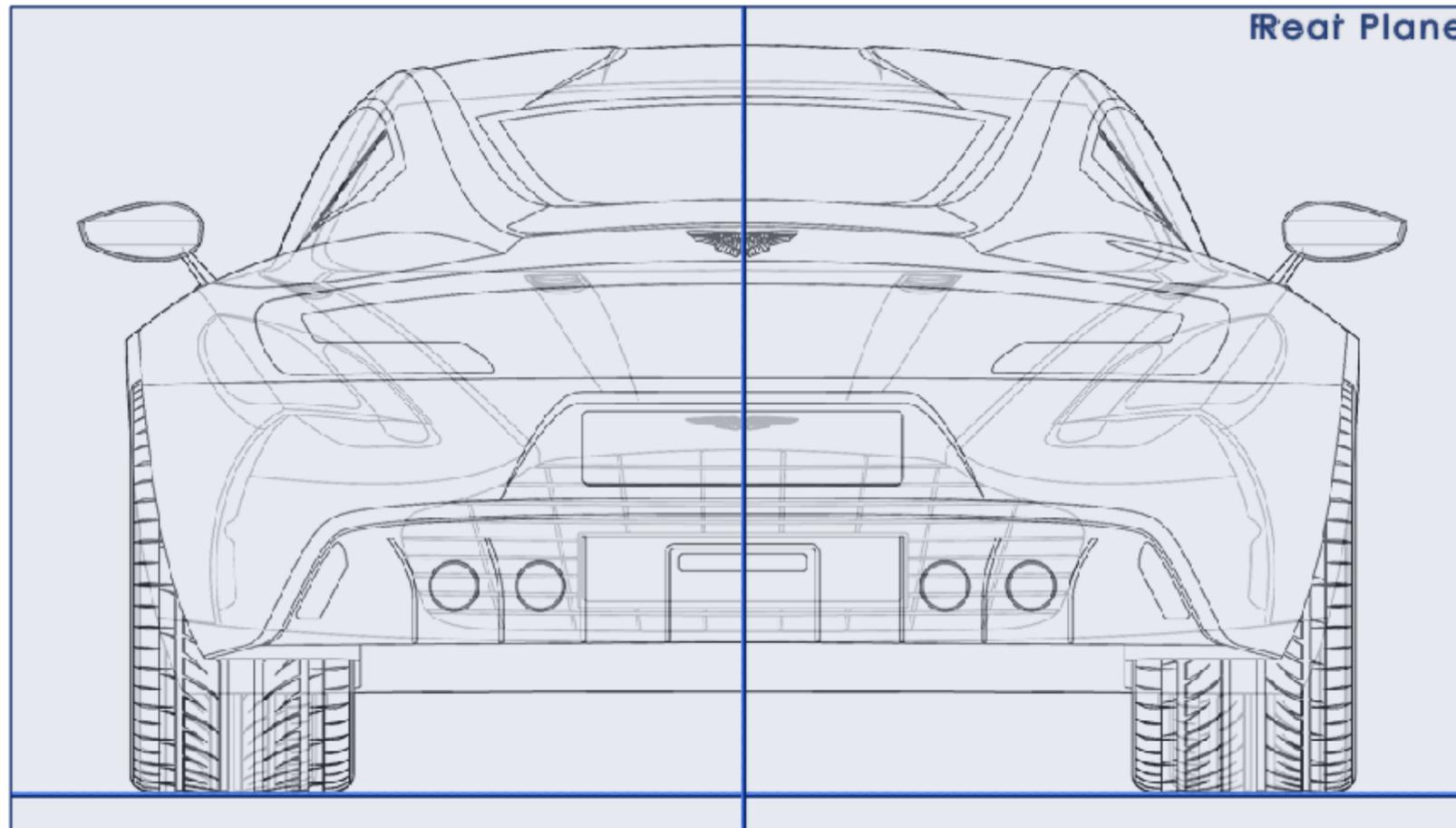
You may rename this new plane **Rear Plane**.



► Add the rear blueprint to the rear plane

This new plane is now able to welcome the rear blueprint.

Repeat the same process to add the rear blueprint image to a new sketch on the rear plane. 



Sketch Picture 

✓ ✗

Properties 

-  -106.00cm 
-  0.00cm 
-  0.00deg 
-  212.00cm 
-  120.00cm 

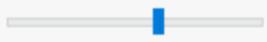
Enable scale tool

Lock aspect ratio

Transparency 

- None
- From file
- Full image
- User defined

● Transparency:  0.60

Click OK and exit the sketch. ✓

► Group everything together!

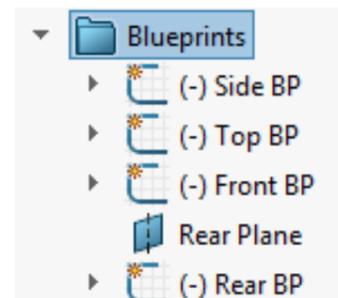
To make things cleaner, let's group everything we have created so far inside a blueprint **folder**.

In the *Features Manager*, right-click on the first sketch and choose **Add to New Folder**.



Call this folder **Blueprints**.

Finally, drag and drop everything inside.



The blueprints are now set up!

