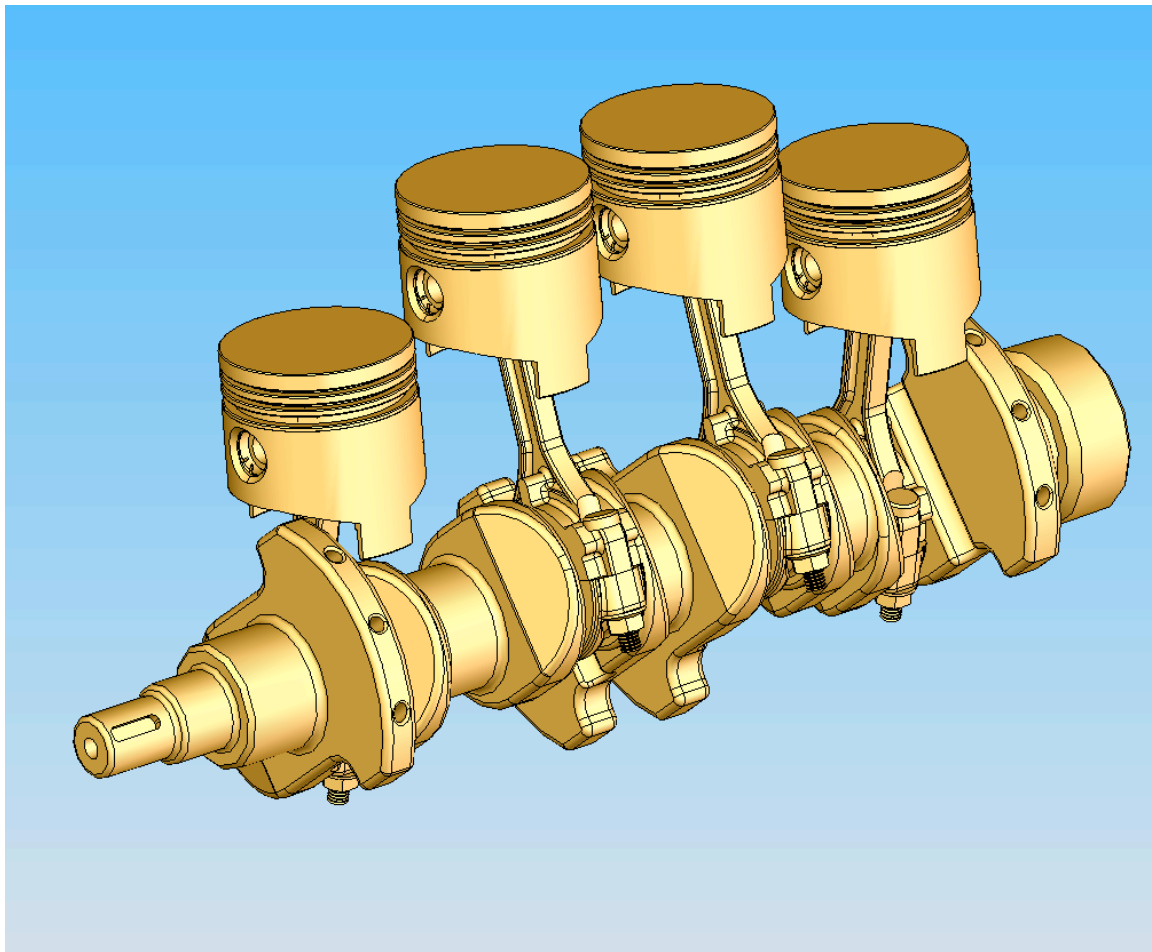


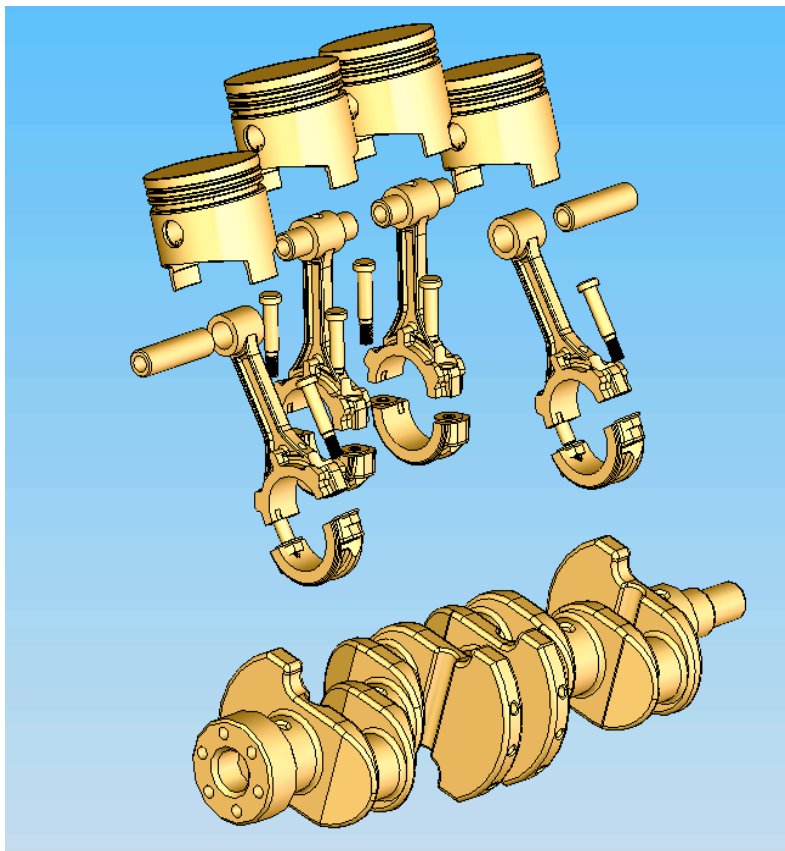
ME 345 Modeling and Simulation

Homework

Create the assembly shown in the next figure. (See the attached files.) SolidWorks files for the Assembly are provided on the Course webpage. Be sure that your final assembly behaves as an engine: inputting linear motion at the pistons should create rotary motion at the crankshaft and vice versa. The pistons should move as if they are contained within cylinders.

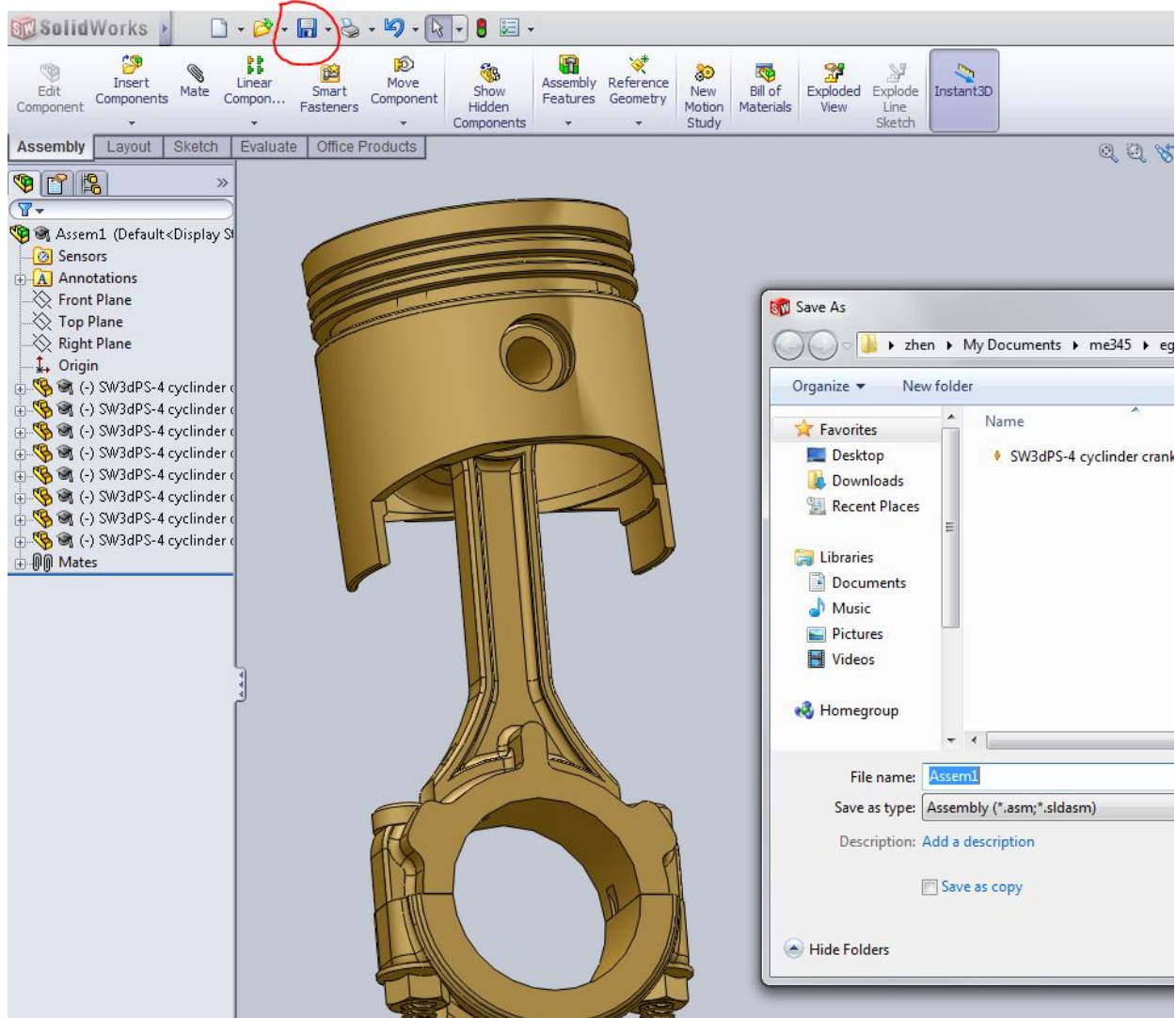
Suggestion: Use the SolidWorks online tutorials to refresh your SolidWorks knowledge.





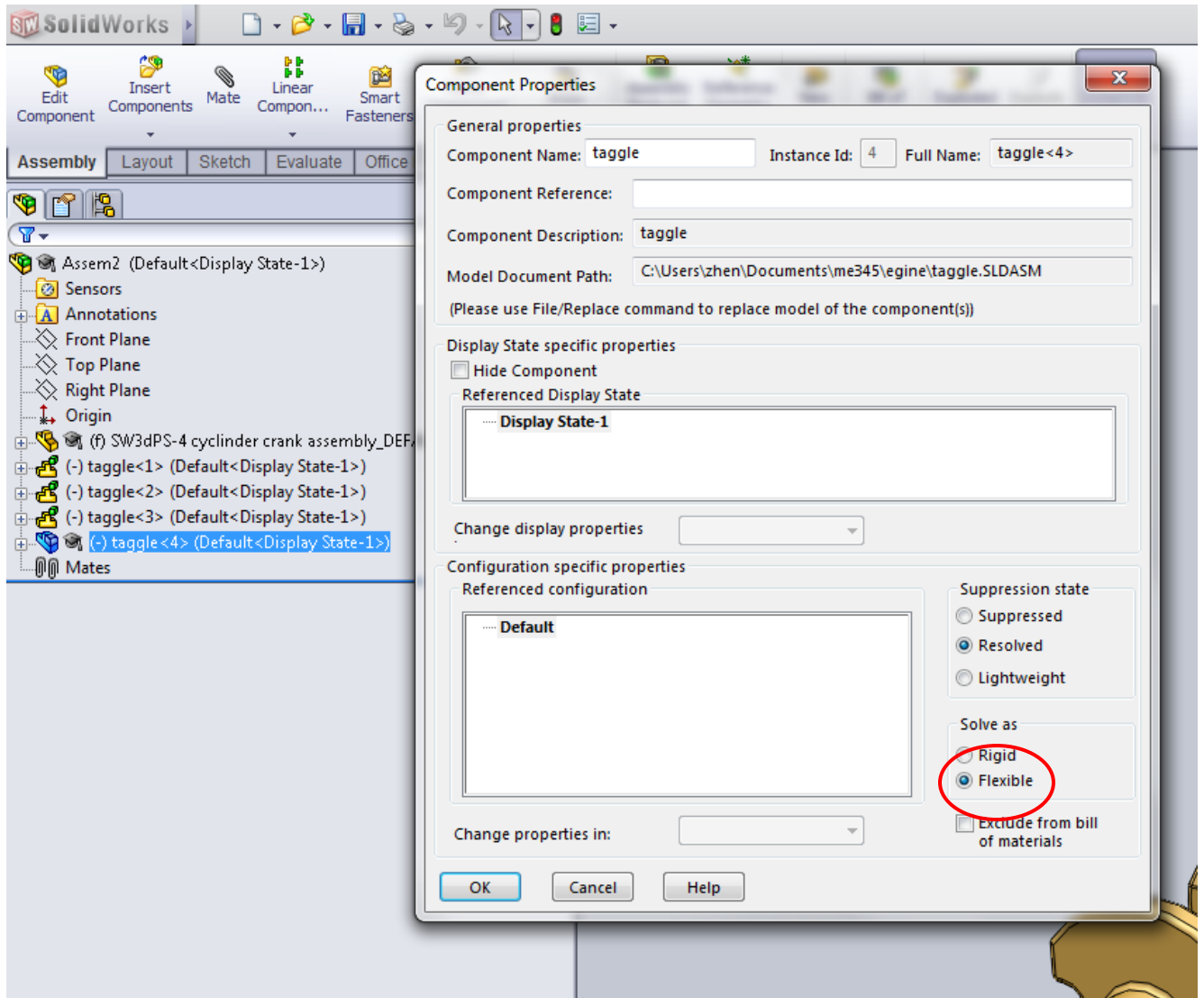
Tip 1

To simplify the assembly, assemble the piston first, and save it as a single subassembly for further combination.



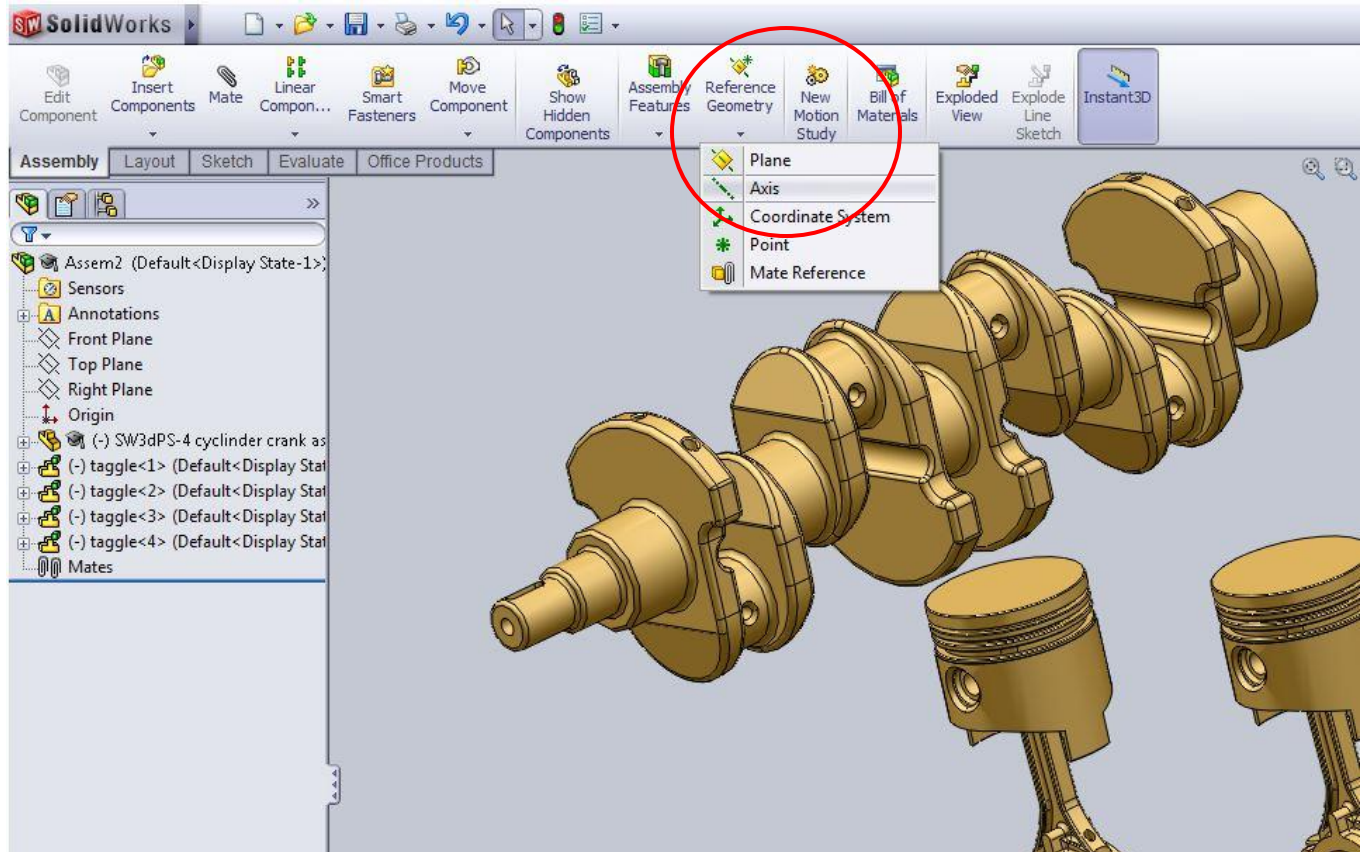
Tip 2

After insert pistons in a new assembly, right click the part, check the “flexible” in component properties window.

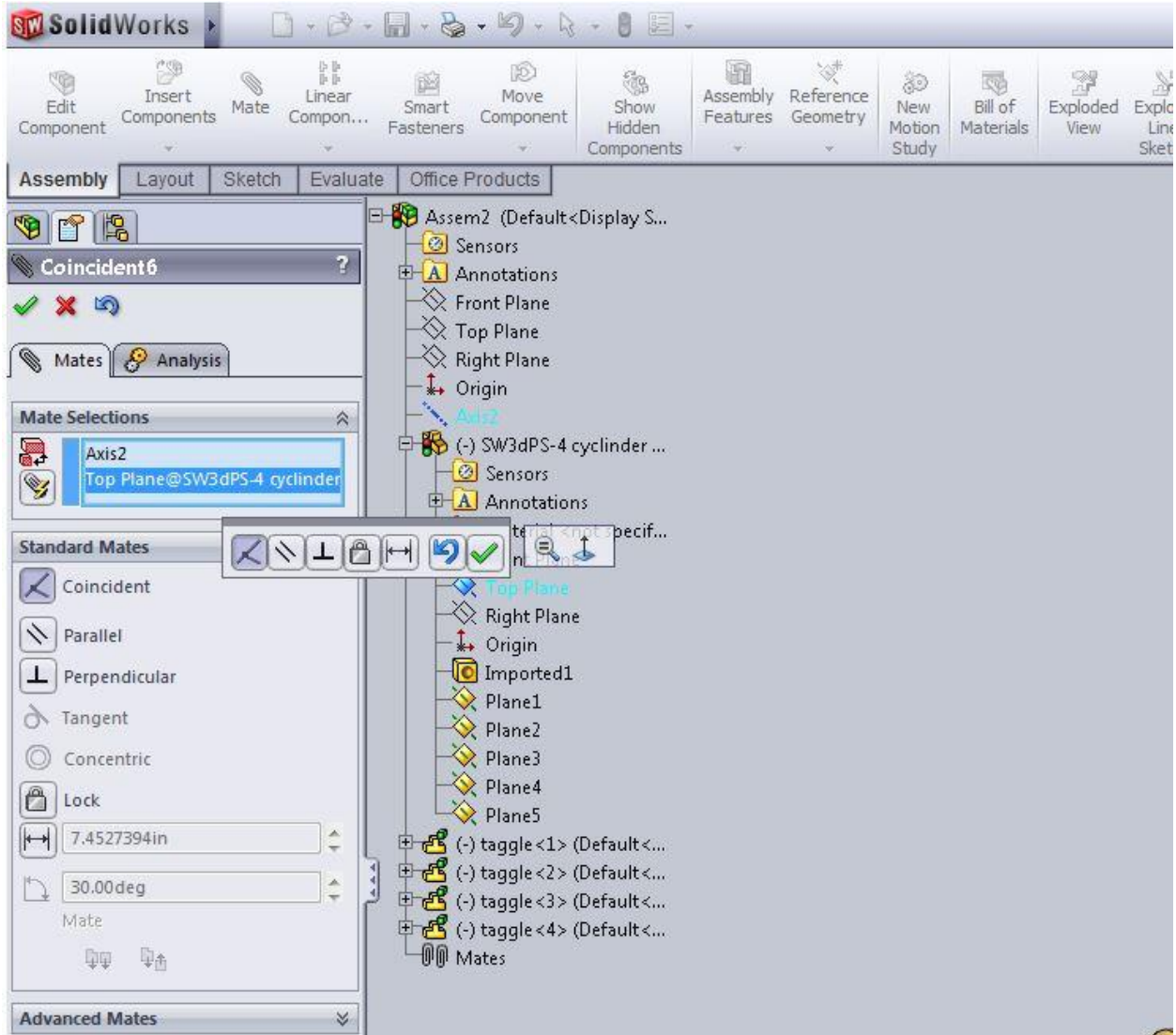


Tip 3

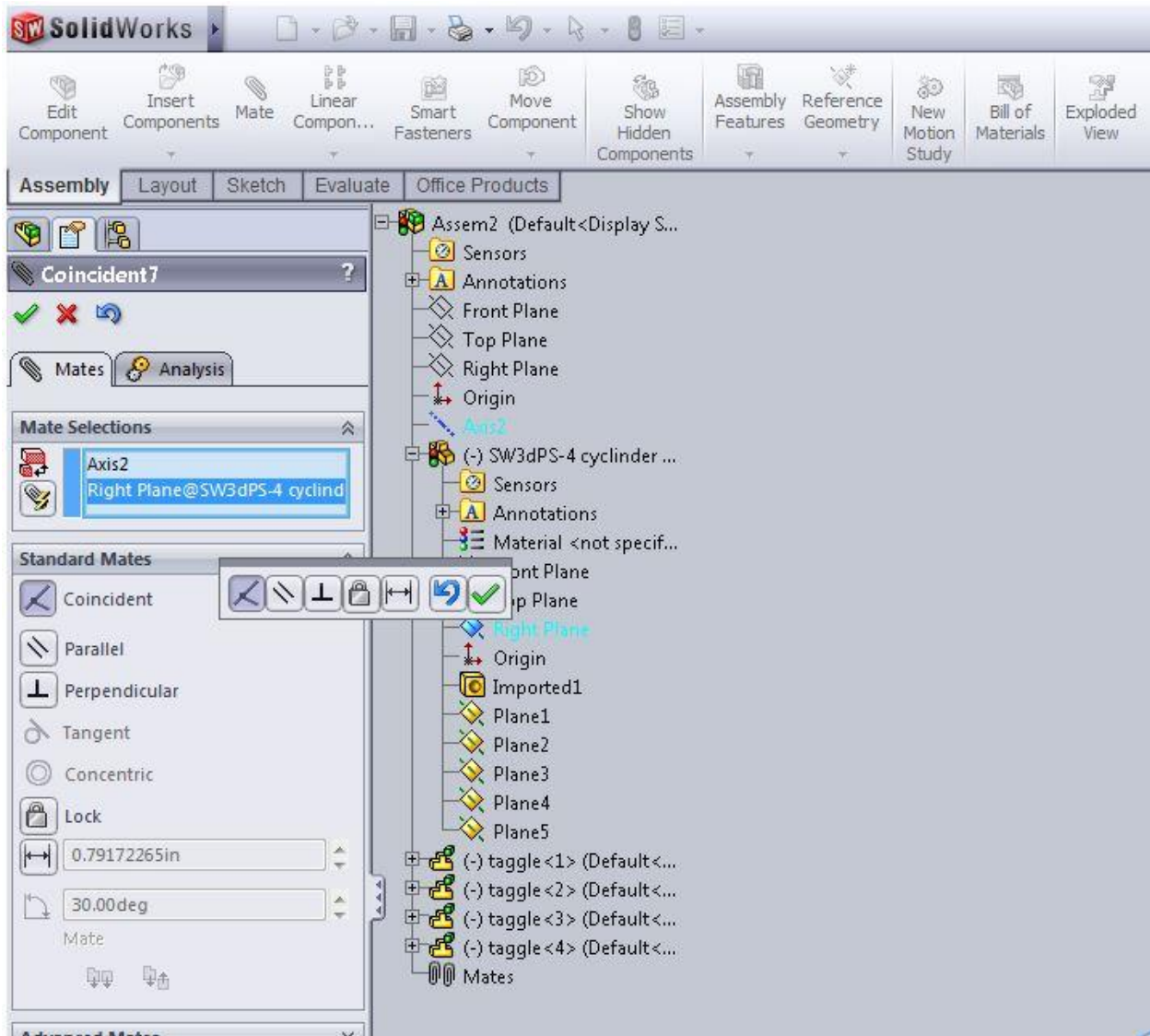
To create rotary motion on the crankshaft, you need to create a reference axis from reference geometry. Make the axis between the top plane and the right plane of the whole assembly.



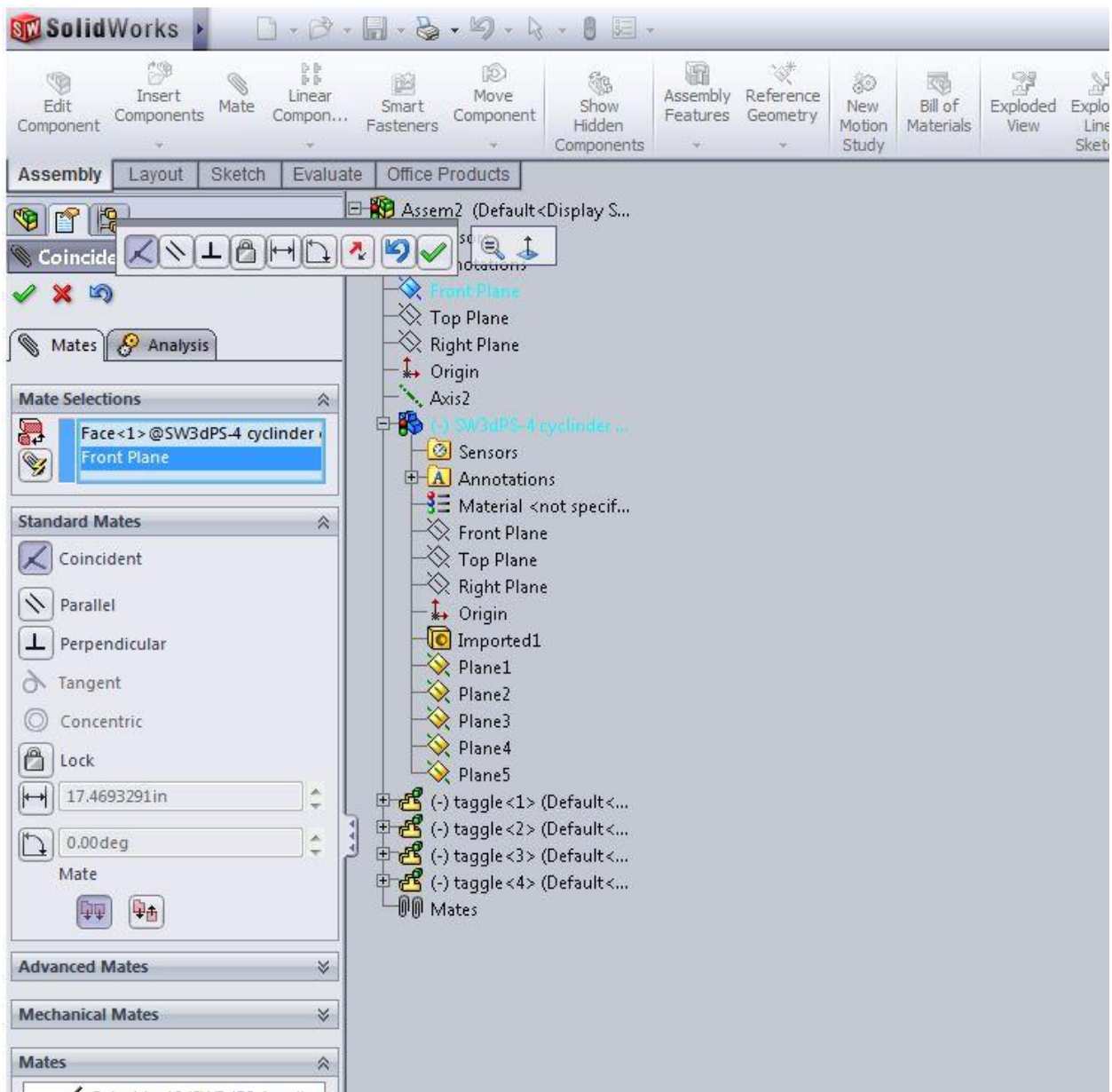
Make a coincident mate between the reference axis and the top plane of the crankshaft.



Make a coincident mate between the reference axis and the right plane of the crankshaft.



Make a coincident mate between front face of the crankshaft and the front plane of the assembly.



Then the crankshaft can be rotated correctly.

Tip 4

After assemble the piston to the crankshaft, make coincident mate between the right plane of the head of piston and the right plane of the whole assembly to make the piston rotate correctly.

