

The background of the slide features a 3D CAD model of a mechanical assembly, likely a hose or pipe fitting, rendered in orange and yellow. The model is set against a light gray grid background with faint circular and radial lines, suggesting a technical drawing or design environment. The text is positioned on the left side of the image.

AUTODESK **INVENTOR** Trial Projects

Tube and Pipe Design

Design a flexible hose assembly

PART 1: TUBE AND PIPE DESIGN

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1.



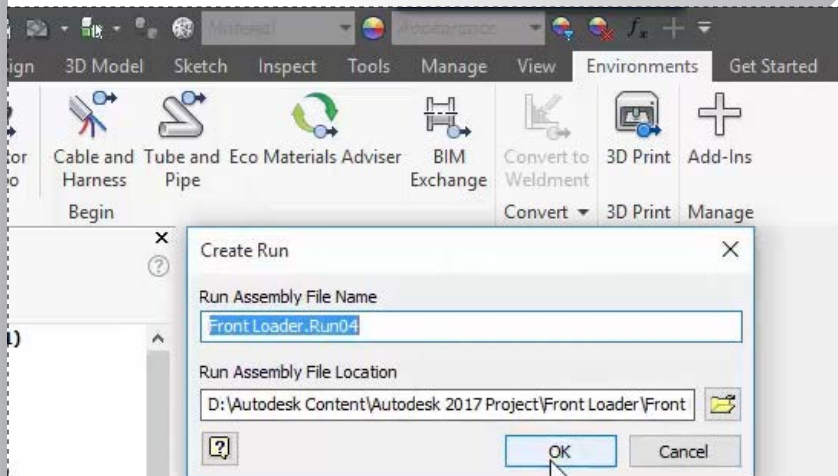
In Inventor, click the 'Projects' icon in the ribbon. Navigate to where you saved the project files and select **Front loader.ipj**. Then open **Front Loader.iam**.

2.



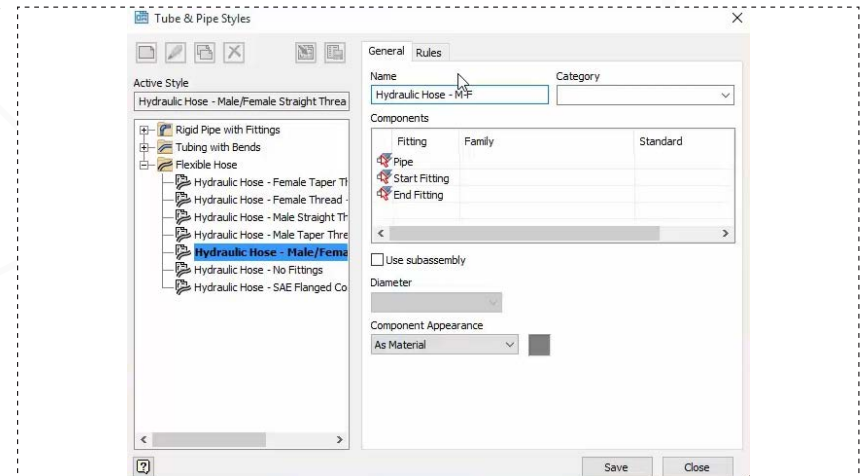
Right-click the 'Level of Detail' listing in the browser and select 'Activate'.

3.



Access the 'Environments' tab in the ribbon, select the 'Tube and Pipe' environment, and then click 'OK' to create the new run.

4.

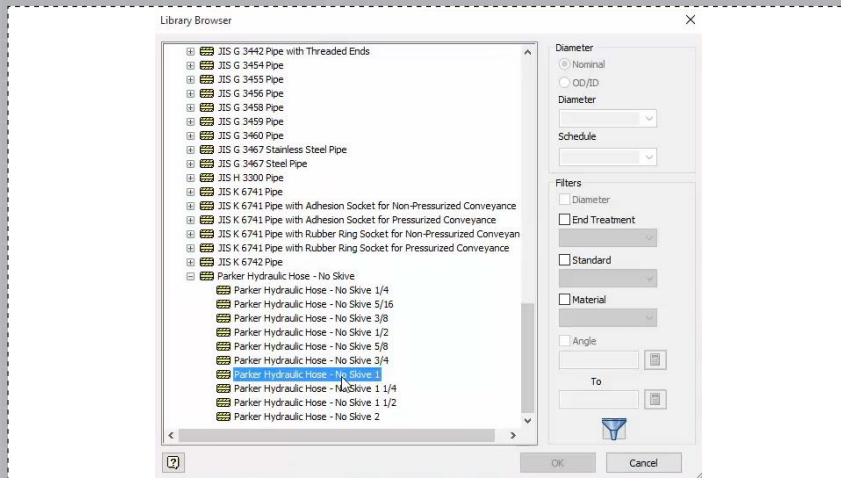


In the ribbon, select 'Tube & Pipe Styles', and then start a 'New Style.' For the new style name, enter 'Hydraulic - M-F' (for Male/Feamale).

PART 1: TUBE AND PIPE DESIGN

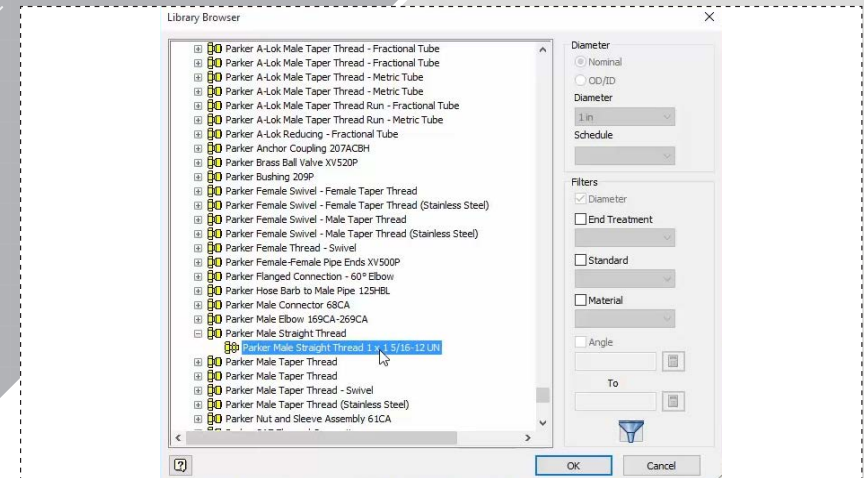
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5.



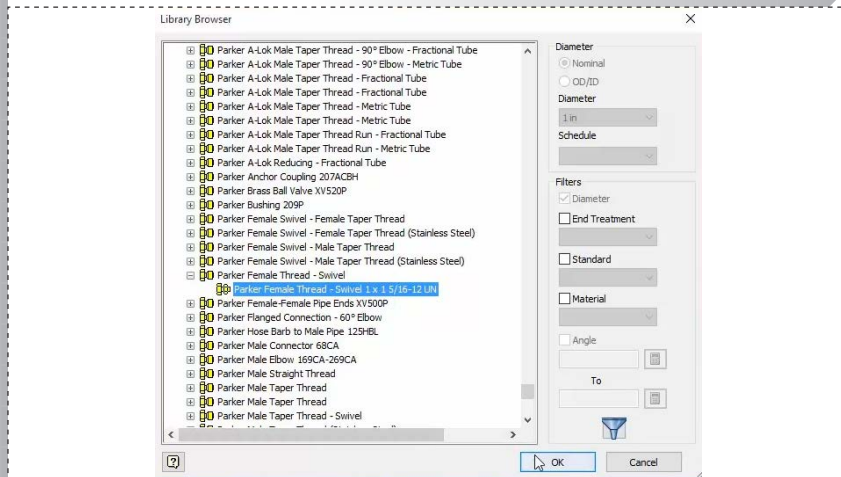
Under 'Fitting', double-click the 'Pipe' listing and apply the 'Parker Hydraulic Hose – No Skive 1' definition from the library.

6.



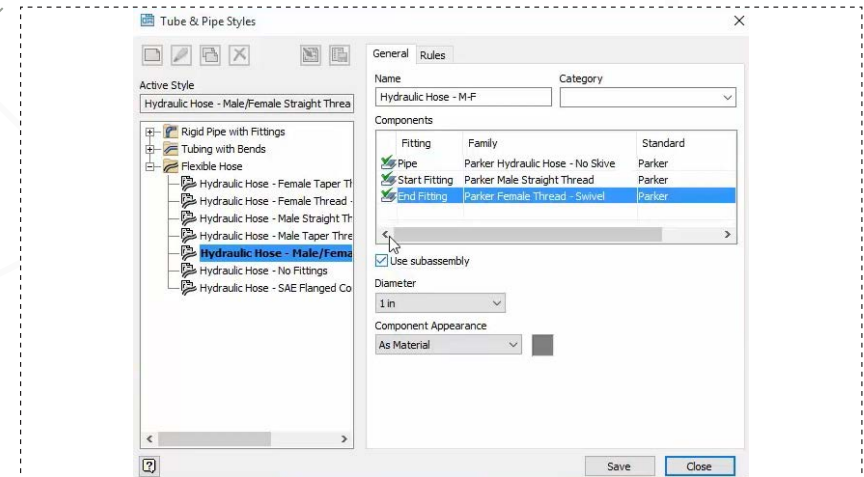
Double-click the 'Start Fitting' listing and apply the 'Parker Male Straight Thread 1x1 5/16-12 UN' definition. (Note only the 1in option is populated due to the 1in pipe defined earlier.)

7.



Double-click the 'End Fitting' listing and apply the 'Parker Female Thread – Swivel 1x1 5/16-12 UN' definition.

8.

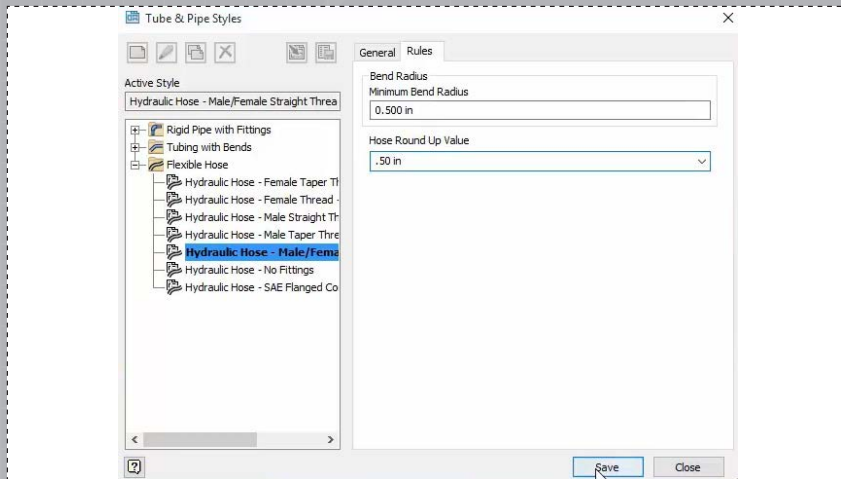


In the 'General' tab for 'Tube & Pipe Styles', check 'Use subassembly' to define the route as a subassembly.

PART 1-2: TUBE AND PIPE DESIGN

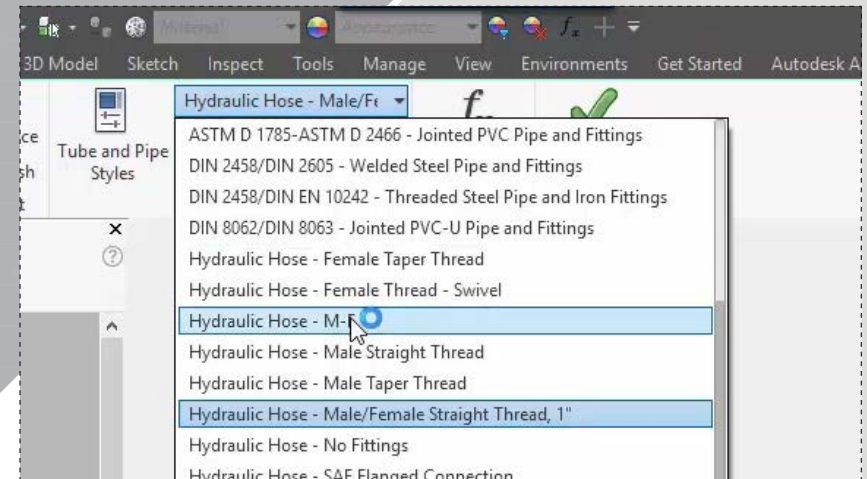
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9.



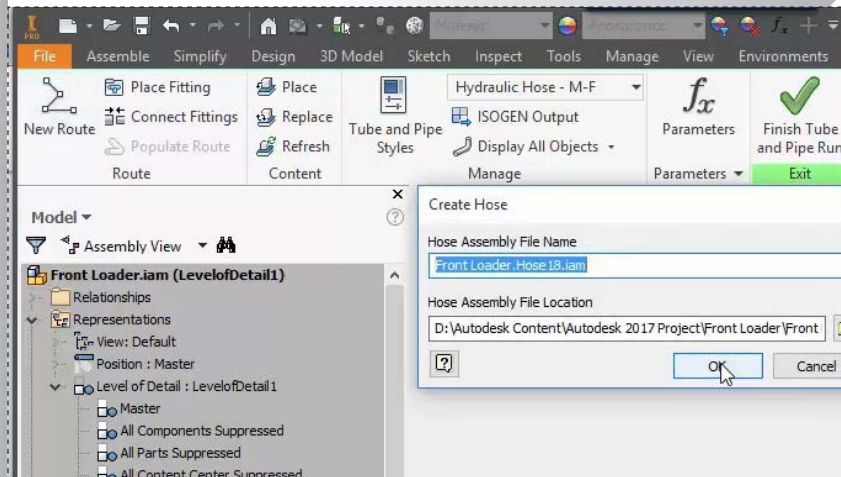
In the 'Rules' tab for 'Tube & Pipe Styles', set both the 'Min Bend Radius' and 'House Round Up Value' settings to 0.50in., and then Save.

10.



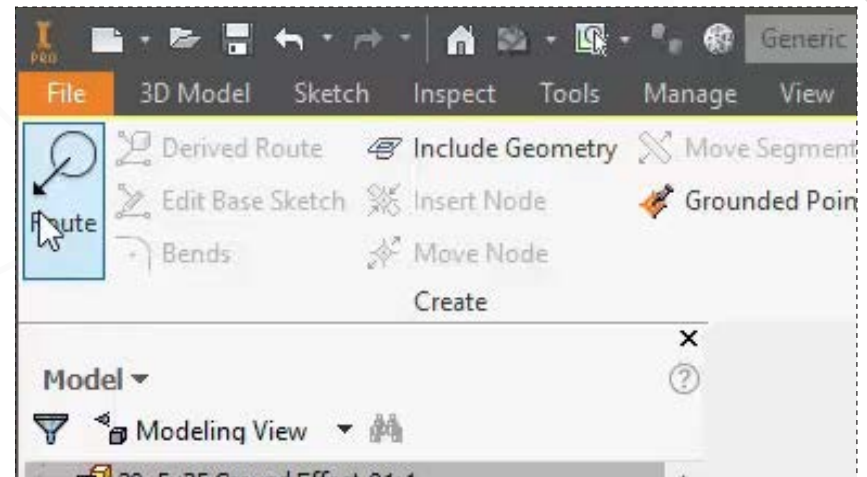
Access the 'Manage' section of the ribbon and select the style you just created from the drop-down to activate the style for a new route. Save your progress.

11.



To begin creating the new route, select 'New Route' in the ribbon, and then click 'OK' to accept the default name and location.

12.

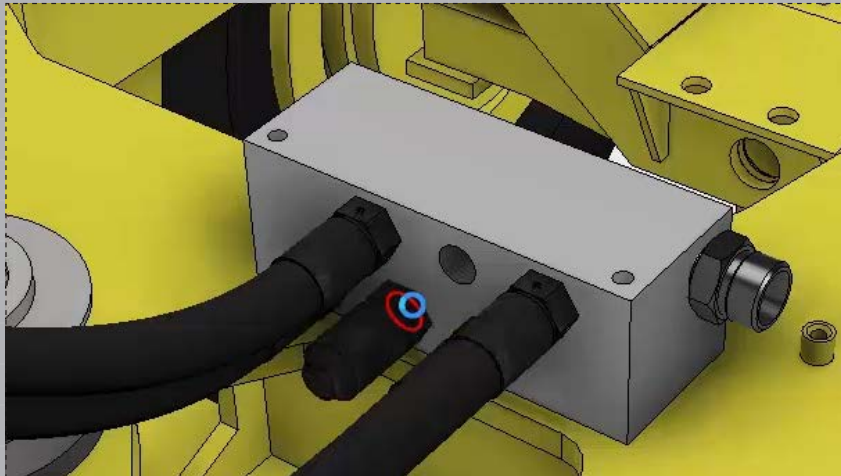


Click 'Route' in the ribbon to begin creating the new route.

PART 2: TUBE AND PIPE DESIGN

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13.



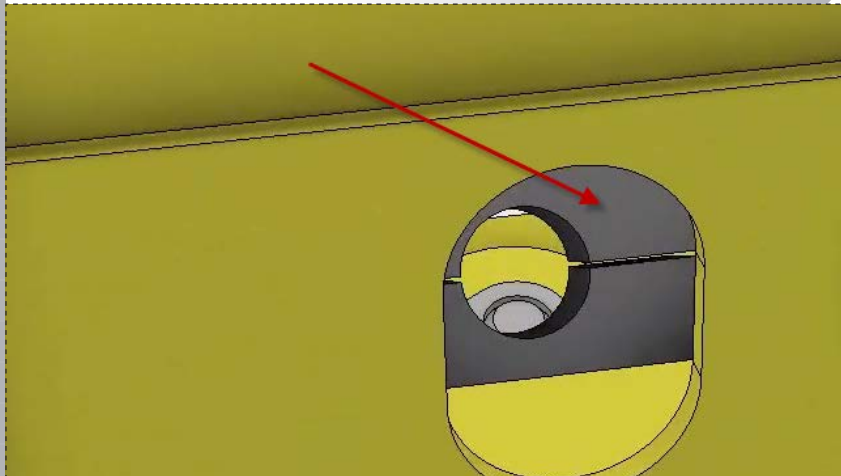
First, place the male fitting at the hole shown on the manifold.

14.



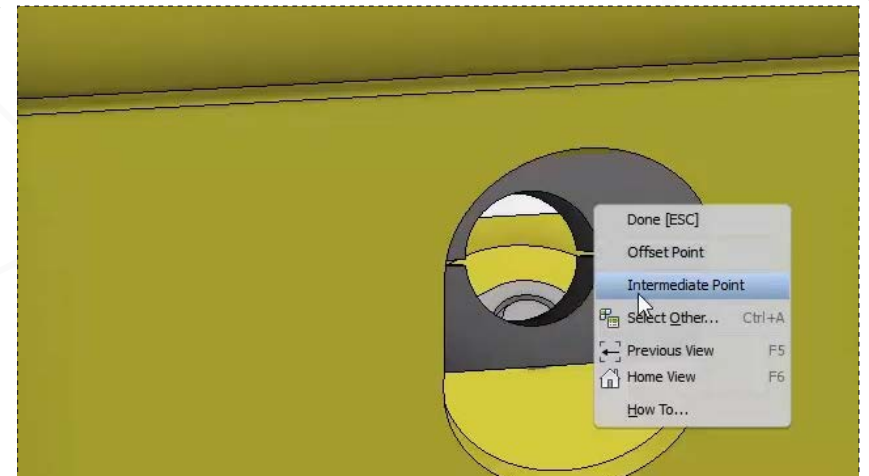
Then, place the female fitting as shown on the main hydraulic.

15.



Zoom into the mounting block shown, located on the positive-X side of the hydraulic.

16.

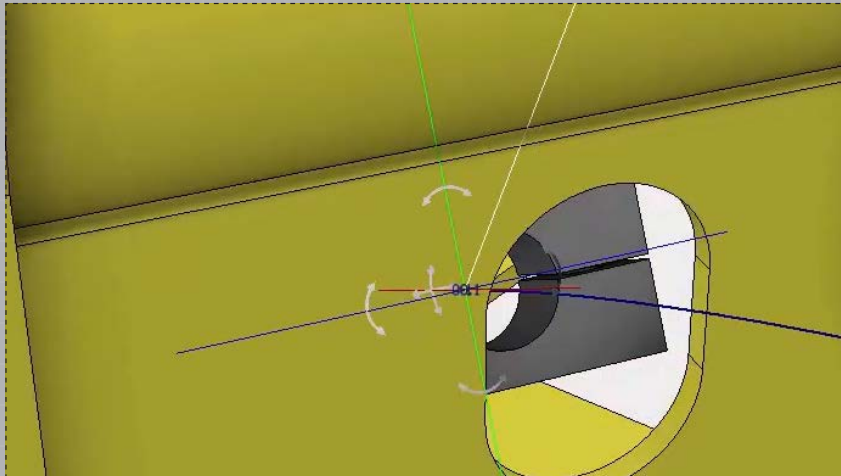


Right-click in the block opening and choose 'Intermediate Point'.

PART 2: TUBE AND PIPE DESIGN

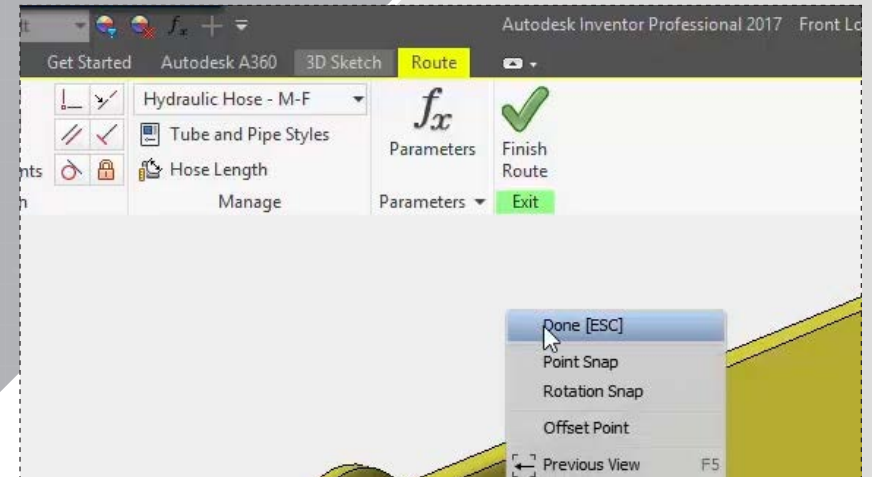
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17.



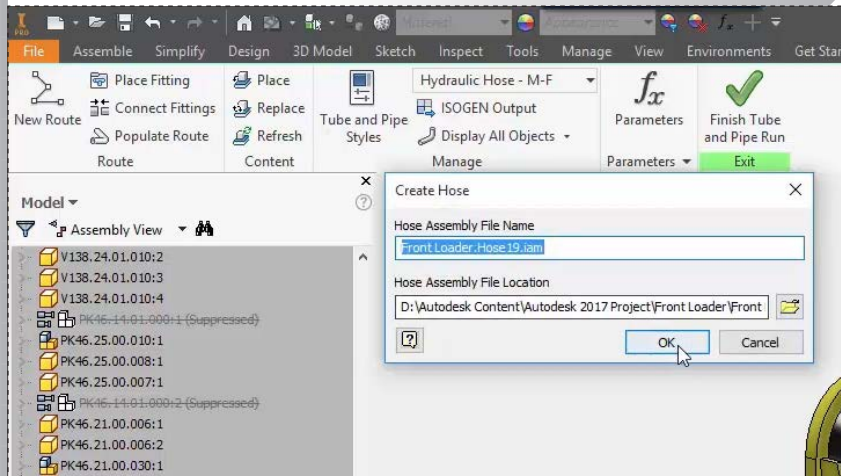
Hover an edge on the hole to select the back's centerpoint. Note the route is then redirected.

18.



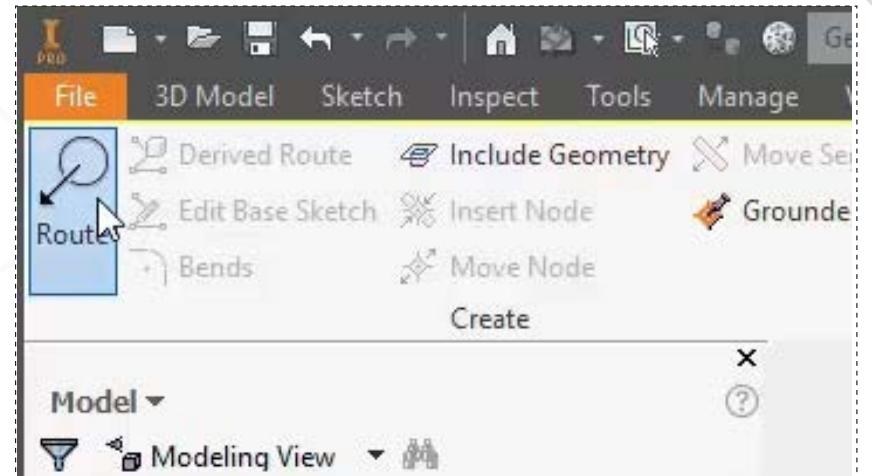
Right-click and choose 'Done' to end the route, and then click 'Finish Route' to complete the first hose path.

19.



To start the second route, select 'New Route' in the ribbon, and then click 'OK' to accept the default name and location.

20.

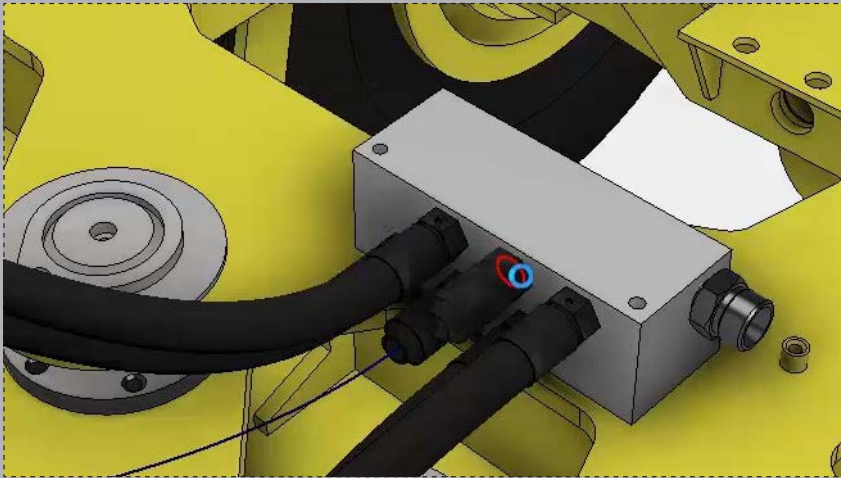


Click 'Route' to begin creating the new route.

PART 2: TUBE AND PIPE DESIGN

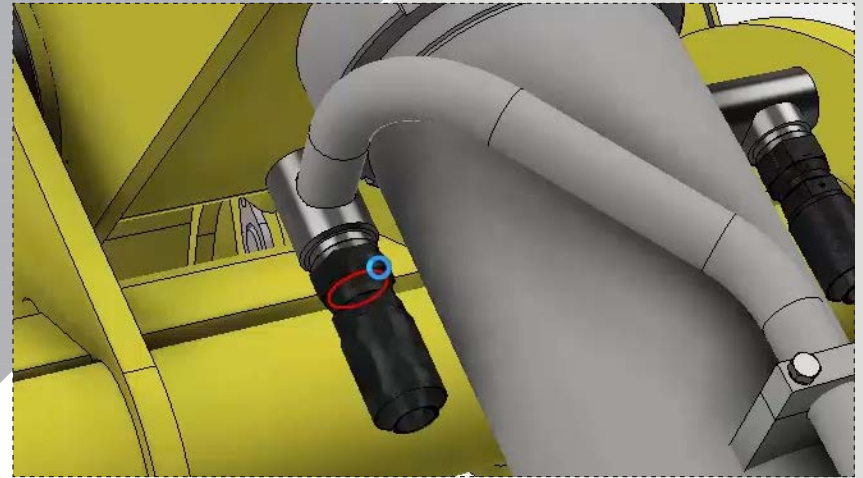
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21.



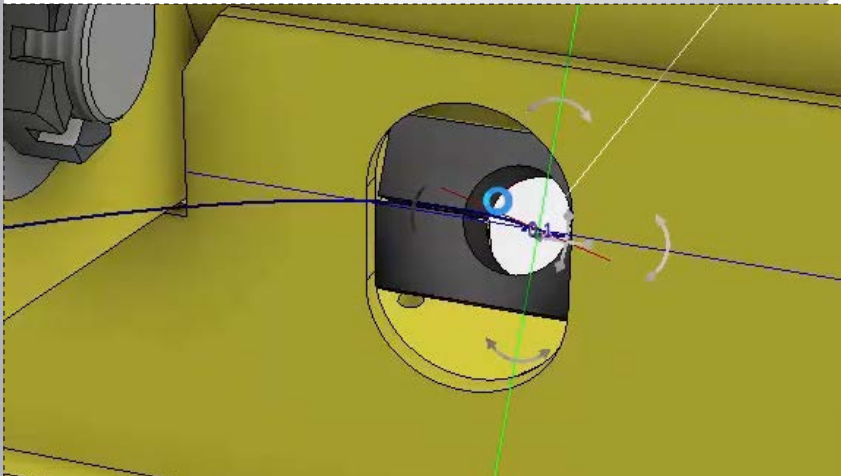
Place the first fitting at the remaining hole in the manifold.

22.



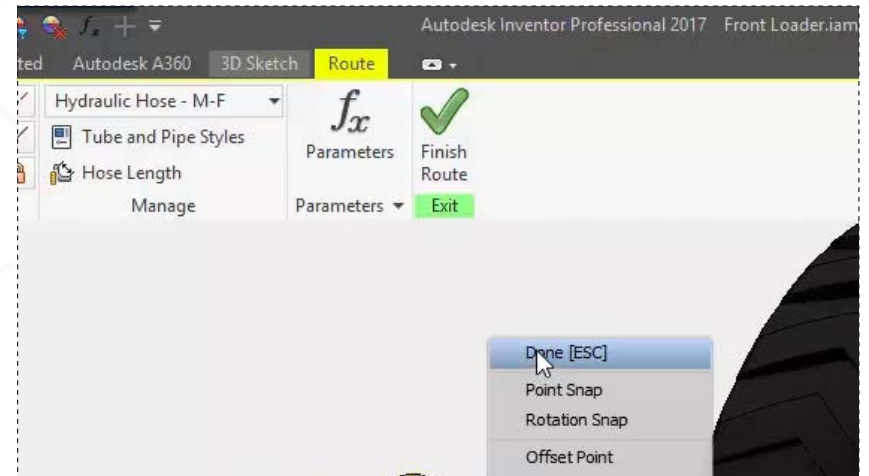
Place the second fitting onto the hydraulic cylinder as shown. Note that you can press the SPACEBAR to flip the fitting alignment if needed.

23.



Repeat steps 16 & 17 to redirect the route through the block on the negative X side of the hydraulic.

24.

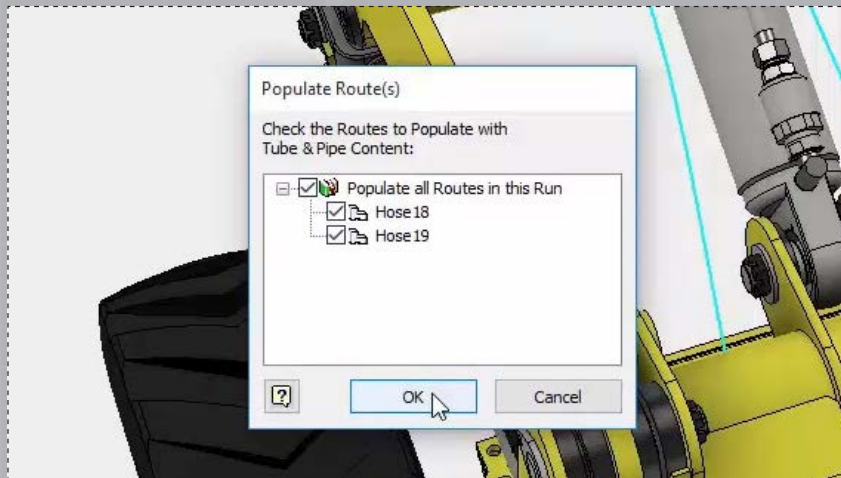


Right-click and choose 'Done' to end the route, and then click 'Finish Route' to complete the second hose path.

PART 2: TUBE AND PIPE DESIGN

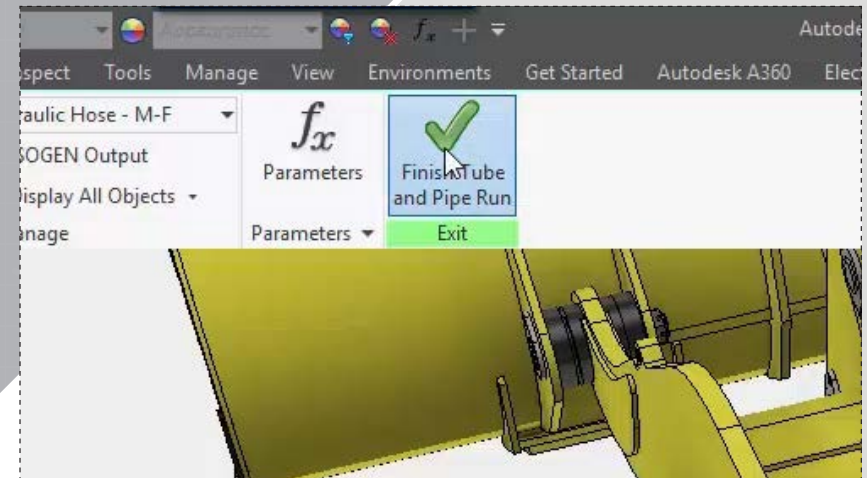
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25.



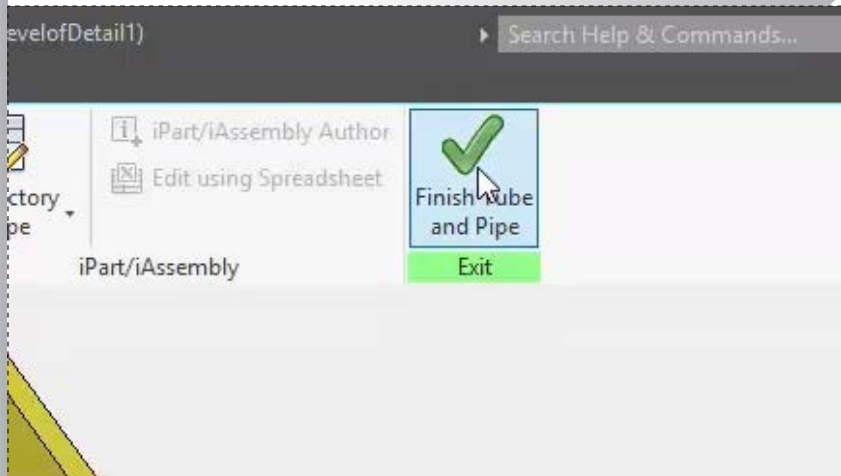
Select 'Populate Route' in the ribbon and note that the two new route paths are automatically selected. Click 'OK' to apply the two hoses in the model.

26.



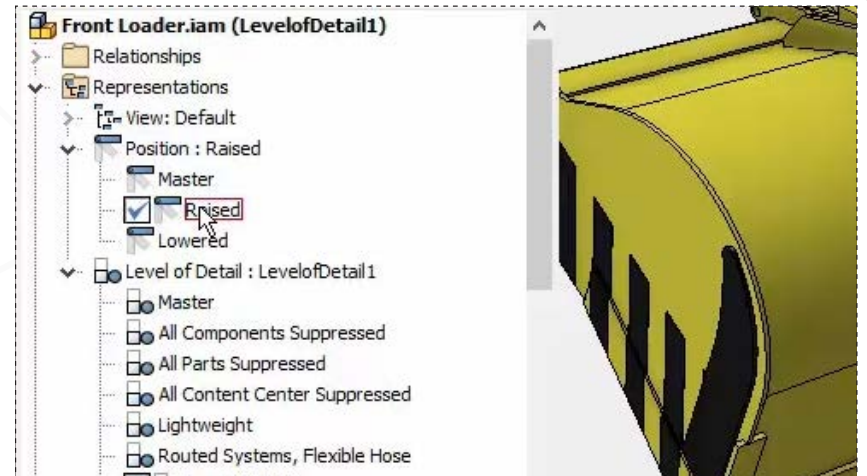
Click 'Finish Tube and Pipe Run' to complete the route run.

27.



Click 'Finish Tube and Pipe' to exit the tube and pipe environment.

28.



Test route flexibility by double-clicking the 'Raised' and 'Lowered' position references in the browser. The route should update correctly for each position if done correctly. Save your model to finish.



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