Sub InsertManwayIntoAssembly()

' This code places the selected manway into our assembly, if applicable

' Manways are always place on the rear dish head plate

' We first need to calculate the Z-value to place our manway so it doesn't interfere with the dish head plate

Dim dblHorizontalOffset As Double

' This calculates our initial horizontal offset based on the length of the tank, and placement on the dish head plate

If MANWAY\_VERT\_OFF < 0 Then

dblHorizontalOffset = -(TANK\_L / 2 - (MANWAY\_VERT\_OFF / (TANK\_OD / 2)) \* DISH\_DEPTH + MANWAY\_HOR\_OFF)

Else

dblHorizontalOffset = -(TANK\_L / 2 + (MANWAY\_VERT\_OFF / (TANK\_OD / 2)) \* DISH\_DEPTH + MANWAY\_HOR\_OFF)

End If

' Even though we made an initial calculation for horizontal placement, there was some interference with the dish head plate

' With more time, I could have come up with a better calculation than the one above that would have been more accurate

' For the sake of timing and getting this done, I added different offset values based on empirical testing

' First, we start with the code to place a 21 inch manway, if that has been selected

If MANWAY\_SIZE = 21 in Then

If TANK\_OD >= 54 in And TANK\_OD <= 90 in Then dblHorizontalOffset -= 6 in

If TANK\_OD >= 96 in And TANK\_OD <= 102 in Then dblHorizontalOffset -= 4 in

If TANK\_OD >= 108 in And TANK\_OD <= 114 in Then dblHorizontalOffset -= 2.5 in

If TANK\_OD = 120 Then dblHorizontalOffset -= 1 in

If TANK\_OD = 138 Then dblHorizontalOffset += 1 in

If TANK\_OD = 144 Then dblHorizontalOffset += 2 in

' In order to locate where to put the manway assembly in our master assembly file, we will use matrix positioning

' See presentation included in this kit that explains how matrix positioning works - it's easier than it looks or sounds

Dim matrixD = ThisDoc.Geometry.Matrix(-1, 0, 0, 0, 0, 1, 0, MANWAY\_VERT\_OFF, 0, 0, -1, dblHorizontalOffset, 0, 0, 0, 1)

' This can be taken from an iLogic snippet, and is used to insert components into assemblies

' This code inserts the selected manway assembly into our master tank assembly file

' Instead of placing at the origin, it places it based on our input matrix we created (matrixD)

' Note that we are grounding all geometry, and we are not using any constraints to place the manway

Dim componentD = Components.Add("Manway 21 Inch:1", LIBRARY\_PATH & "Manways\21 Inch\21 in Manway.iam", \_

position := matrixD, grounded := True, visible := True, appearance := Nothing)

' Next is the code to place the 22 inch manway, if that has been selected

ElseIf MANWAY\_SIZE = 22 in Then

If TANK\_OD >= 54 in And TANK\_OD <= 60 in Then dblHorizontalOffset -= 3 in

If TANK\_OD >= 66 in And TANK\_OD <= 78 in Then dblHorizontalOffset -= 4 in

If TANK\_OD >= 84 in And TANK\_OD <= 90 in Then dblHorizontalOffset -= 2 in

If TANK\_OD >= 96 in And TANK\_OD <= 102 in Then dblHorizontalOffset -= 1 in

If TANK\_OD >= 132 in And TANK\_OD <= 138 in Then dblHorizontalOffset += 2 in

If TANK\_OD = 144 Then dblHorizontalOffset += 3 in

' In order to locate where to put the manway assembly in our master assembly file, we will use matrix positioning

' See presentation included in this kit that explains how matrix positioning works - it's easier than it looks or sounds

Dim matrixE = ThisDoc.Geometry.Matrix(0, 0, 1, 0, -1, 0, 0, MANWAY\_VERT\_OFF, 0, -1, 0, dblHorizontalOffset, 0, 0, 0, 1)

' This can be taken from an iLogic snippet, and is used to insert components into assemblies

' This code inserts the selected manway assembly into our master tank assembly file

' Instead of placing at the origin, it places it based on our input matrix we created (matrixE)

' Note that we are grounding all geometry, and we are not using any constraints to place the manway

Dim componentE = Components.Add("Manway 22 Inch:1", LIBRARY\_PATH & "Manways\22 Inch\22 in Manway.iam", \_

position := matrixE, grounded := True, visible := True, appearance := Nothing)

Else

If TANK\_OD >= 114 in And TANK\_OD <= 126 in Then dblHorizontalOffset += 2 in

If TANK\_OD >= 132 in And TANK\_OD <= 138 in Then dblHorizontalOffset += 3 in

If TANK\_OD = 144 in Then dblHorizontalOffset += 4.5 in

' In order to locate where to put the manway assembly in our master assembly file, we will use matrix positioning

' See presentation included in this kit that explains how matrix positioning works - it's easier than it looks or sounds

Dim matrixF = ThisDoc.Geometry.Matrix(0, 0, 1, 0, -1, 0, 0, MANWAY\_VERT\_OFF, 0, -1, 0, dblHorizontalOffset, 0, 0, 0, 1)

' This can be taken from an iLogic snippet, and is used to insert components into assemblies

' This code inserts the selected manway assembly into our master tank assembly file

' Instead of placing at the origin, it places it based on our input matrix we created (matrixF)

' Note that we are grounding all geometry, and we are not using any constraints to place the manway

Dim componentF = Components.Add("Manway 25 Inch:1", LIBRARY\_PATH & "Manways\25 Inch\25 in Manway.iam", \_

position := matrixF, grounded := True, visible := True, appearance := Nothing)

End If

End Sub