Help for Diagnostic tools   Version 1

The viewer imports constraints from an assembly part or from the tree and highlights the constraints or the separate entities the constraint is connected to. It also allows rebuilding of one constraint and changing the entities that the constraint is attached to.

The viewer icon:

This table in fig1 was created by clicking on the head in the assembly file in Fig2 and clicking button2 "Import from Part". Three constraints hold the head in place so all three constraints were loaded into the table. When I clicked on the constraint's name in column4 row3 both entities of the constraint show in the graphics window Fig3. Clicking in column 5 or 6 shows the separate entities for that constraint, in this case the front of the head and the front of the block Fig4.

Column 3 solves the constraint in that row.

Column 1 changes the direction and solves the constraint'

Columnn2 Toggles between suppressing or un-suppressing the constraint.

Buttons:

1 Toggles the transparency of the assembly on and off.

2 Imports the constraints from a selected part into the table.

3 Clears the table.

4 Runs the A2plus solver.

5 Selecting the constraint name in the table and pressing "Find in tree" will highlight the constraint in the tree yellow, scroll to find them Fig5.

6 Selecting the entities name in columns five or six and clicking "Find with label, will attach a label to the entity in the graphics window Fig6. Pressing again will erase the label.

7 Select one or more constraints in the tree, pressing "Import from Tree" will add these constraints to the table.

8 To change the entity the constraint is attached to: Select the entity's cell in the table, select "Attach to" then select another entity in the same part, press "Run" to resolve the constraint.

9 No Function.

10 Clears the yellow highlights from the tree.

Fig1:

	Direction	Suppress	Run	Constraint name	Prt1 feat	Prt2 feat	F1	Part1	F2	
1	a	False	Run	planeCoincident_007	Face9	Face3	T	block_001	F	h
2	o	False	Run	planeCoincident_008	Face5	Face4	F	head_001	T	b
3	a	False	Run	planeCoincident_010	Face5	Face7	T	block_001	F	h

Using the Diagnostics rebuild tool.

Why this tool was created:

Entitles are vertexes, edges or surfaces but for this example I will use a surface.

When a constraint is created the constraint's "legs" are linked to a surface using the surface's name. When features, such as a hole, is added to or removed from a part the surface or entity names often change and, when updating the part in A2plus, the constraints will often link to the wrong surface and produce rebuild errors. If the only size of a feature is changed I don't think the names change and I recommend using the original rebuild tool.

Original rebuild tool.

New Diagnostic tool.

When importing an edited part with this program, it first examines the surfaces that the constraints are linked to and records the size of the surfaces. It then imports the edited part and searches for a surface that matches the recorded surface. If the surface is found it links the constraint to new surface using the new name, if it doesn't find a matching surface it opens the Diagnostics viewer and colors the unfound surfaces in yellow. You can then examine the constraint and attach the missing surface by using the "Attach to' button in the viewer.

This program can import only one part at a time.

I recommend saving before you use this program. If it doesn't work, use undo or reload the assembly.

Labels:

Pressing "Labels", then "Open Dialog", in the menus buttons, opens a small dialog. Select a part in the graphics screen and selecting the "Face", Edge" or Vertex button applies labels to the features of the part that you selected.
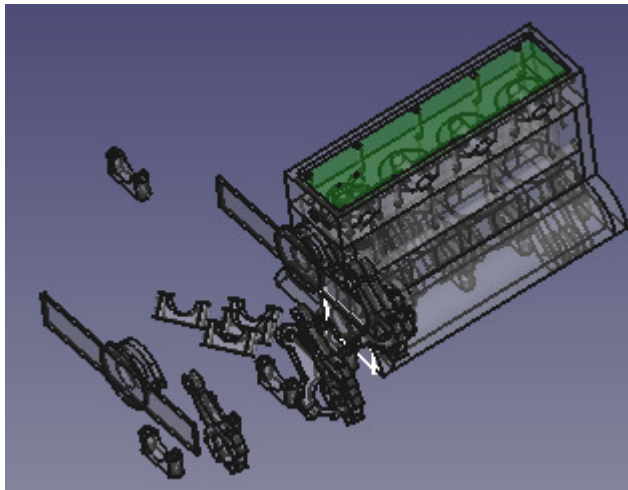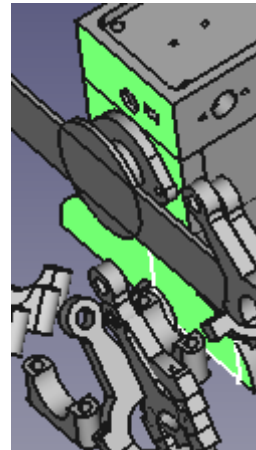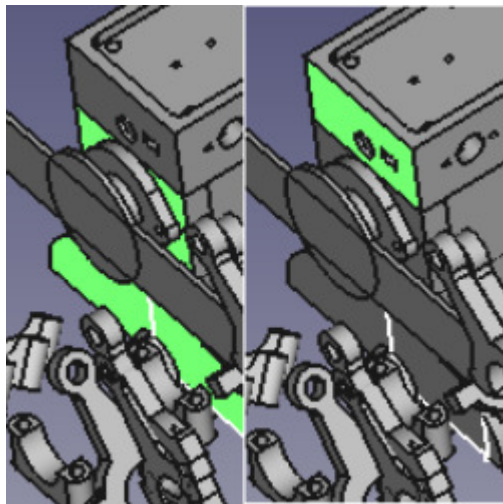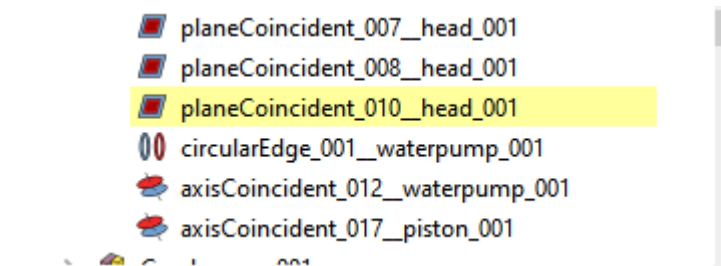
Fig2:

Fig3:

Fig4:

Fig5:

planeCoincident_007__head_001
planeCoincident_008__head_001
planeCoincident_010__head_001
circularEdge_001__waterpump_001
axisCoincident_012__waterpump_001
axisCoincident_017__piston_001

Fig6

Face7