Help for Diagnostic tools Version 3

Transparency

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.

If one part is selected all of the constraints is shown for that part, if two or more parts are selected; only the constraints connecting between those parts are shown.

Columns:

Heading and Purpose of Column:

1. Direction: Changes the direction and solves the constraint.
2. Suppress: Shows the suppression and changes it between True and False.
3. Run: Solves the constraint.
4. Name: Name of the constraint;
5. Prt1 feat: Name of the attaching feature on the first part.
6. Prt2 feat: Name of the attaching feature on the second part.
7. F1. If part 1 is fixed this will show "T" for True or "F" for False.
8. Part1: Name of part one.
9. F2: If part 2 is fixed this will show "T" for True or "F" for False.
10. Part2: Name of part two.

Buttons:

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

2 Clears the table.

3 Clears the yellow highlights from the tree.

4 Runs the A2plus solver.

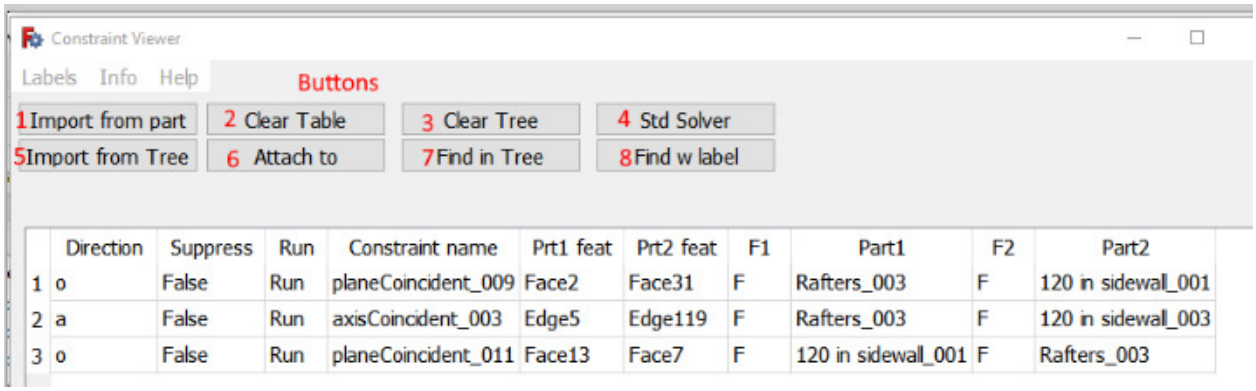
5 Select one or more constraints in the tree, pressing "Import from Tree" will add these constraints to the table.

6 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.

7 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.

8 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.

Fig1:



	Direction	Suppress	Run	Constraint name	Prt1 feat	Prt2 feat	F1	Part1	F2	Part2
1	o	False	Run	planeCoincident_009	Face2	Face31	F	Rafters_003	F	120 in sidewall_001
2	a	False	Run	axisCoincident_003	Edge5	Edge119	F	Rafters_003	F	120 in sidewall_003
3	o	False	Run	planeCoincident_011	Face13	Face7	F	120 in sidewall_001	F	Rafters_003

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 Rebuild 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.

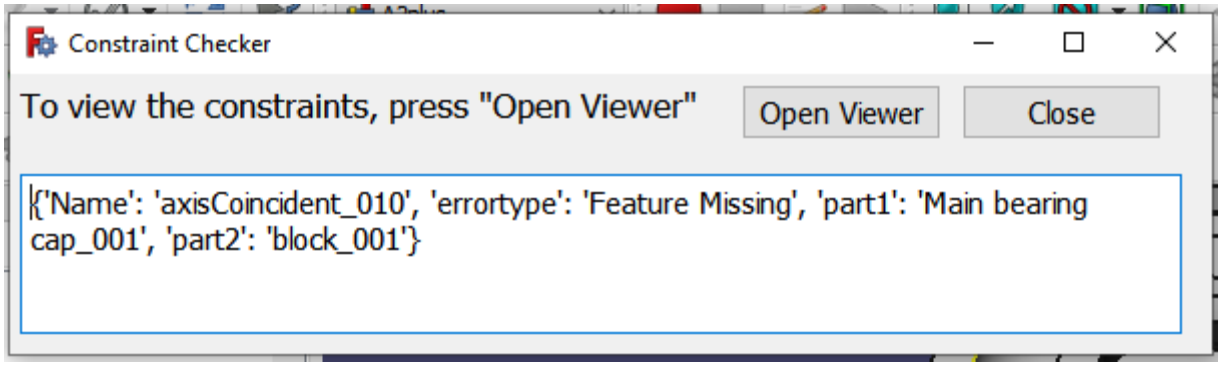
Labels:

Pressing "Labels", then "Open Dialog", in the menu 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.

Constraint Checker:

This tool runs through all of the constraints in the assembly. If it finds a conflicting constraint or a constraint where both parts are fixed it will show a report Fig Report. Click open viewer to view and fix the constraints.

Figure of Constraint Checker Report



 Auto mouse:

This feature allows you to select two part features without using the control key. After two features are selected the constraint dialog will show with the most common constraint for those features. If you want a different constraint you can select a feature use the control key to select the second feature as you normally do - or – if the dialog has shown, click the “Delete this Constraint” button and select the desired constraint icon. When using the control key the program asks as normal. Selecting the first feature for the next constraint clears the features from the last feature.

 Select hidden parts.

When this icon is clicked a dialog form will show. Clicking on a part will bring up a list of the features below the curser. With the assembly in transparent mode you can see the different features highlight as you pass the curser over the list. When the feature that you want is highlighted, click in the cell to select that feature. If you are using the control key to select your parts you can use this for only the first feature. If you are using the auto mouse you can use it for both features. Features must be selected from the table when this is on. First feature is the one that was clicked on, then second, etc.

Fig2:

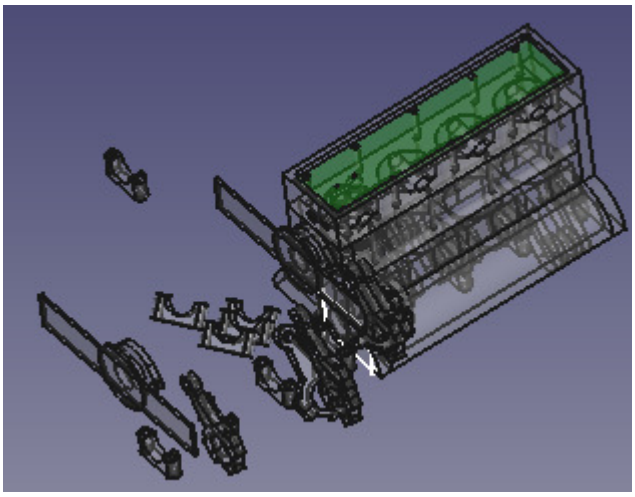


Fig3:

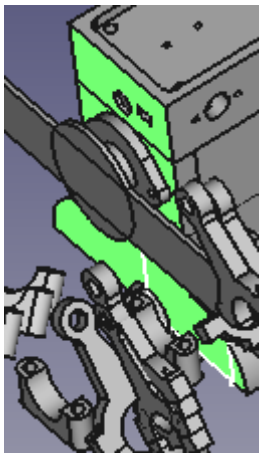


Fig4:

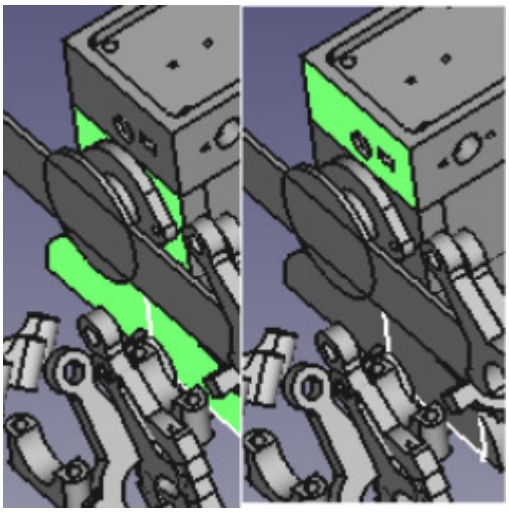


Fig5:

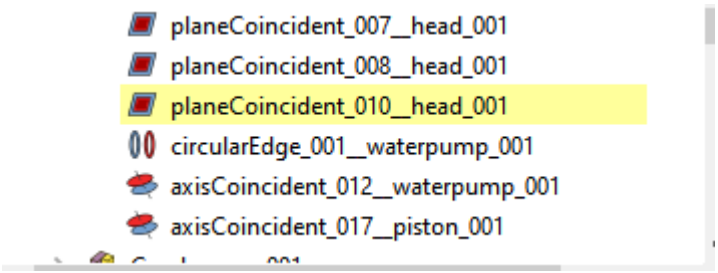


Fig6