

Show and Tell – Assembly Drawings

Assembly Drawings

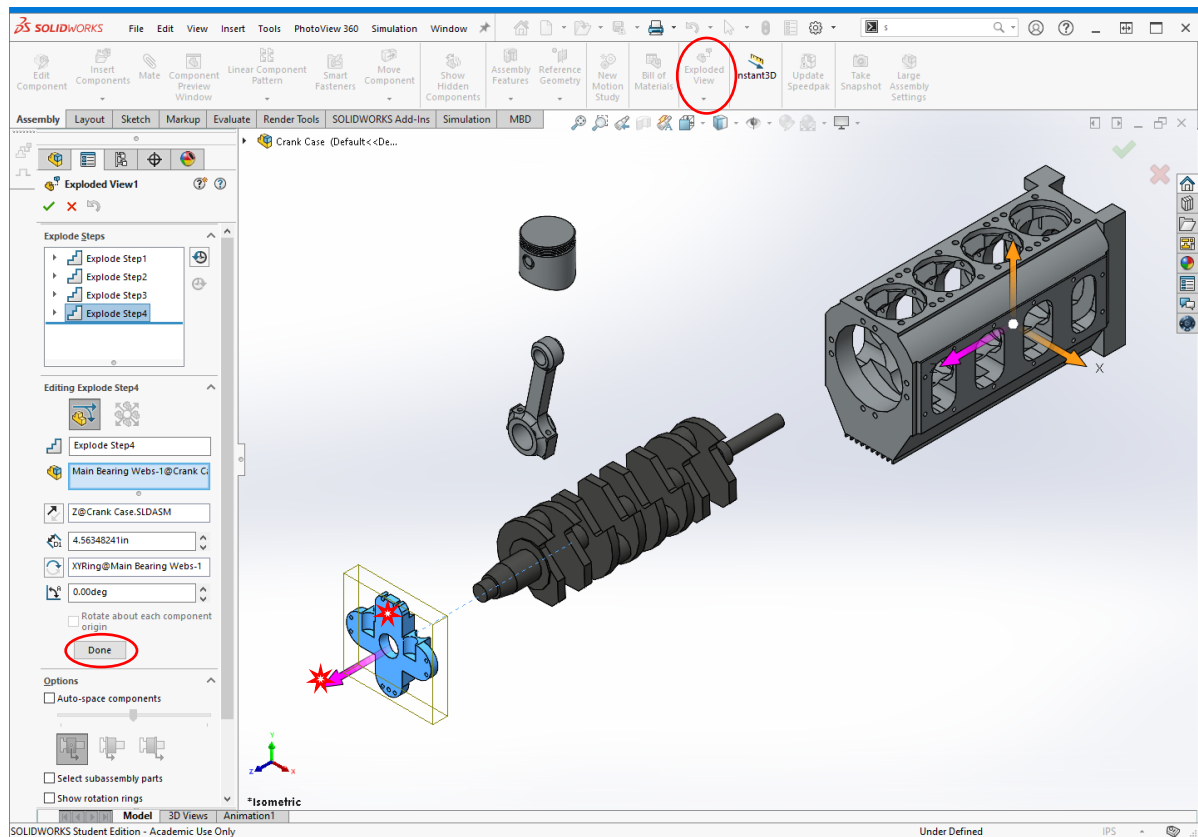
Objective:

Know how to:

1. Create explode steps
2. Add explode lines
3. Make drawing from assembly
4. Insert exploded model view
5. Add/edit BOM table
6. Add balloons

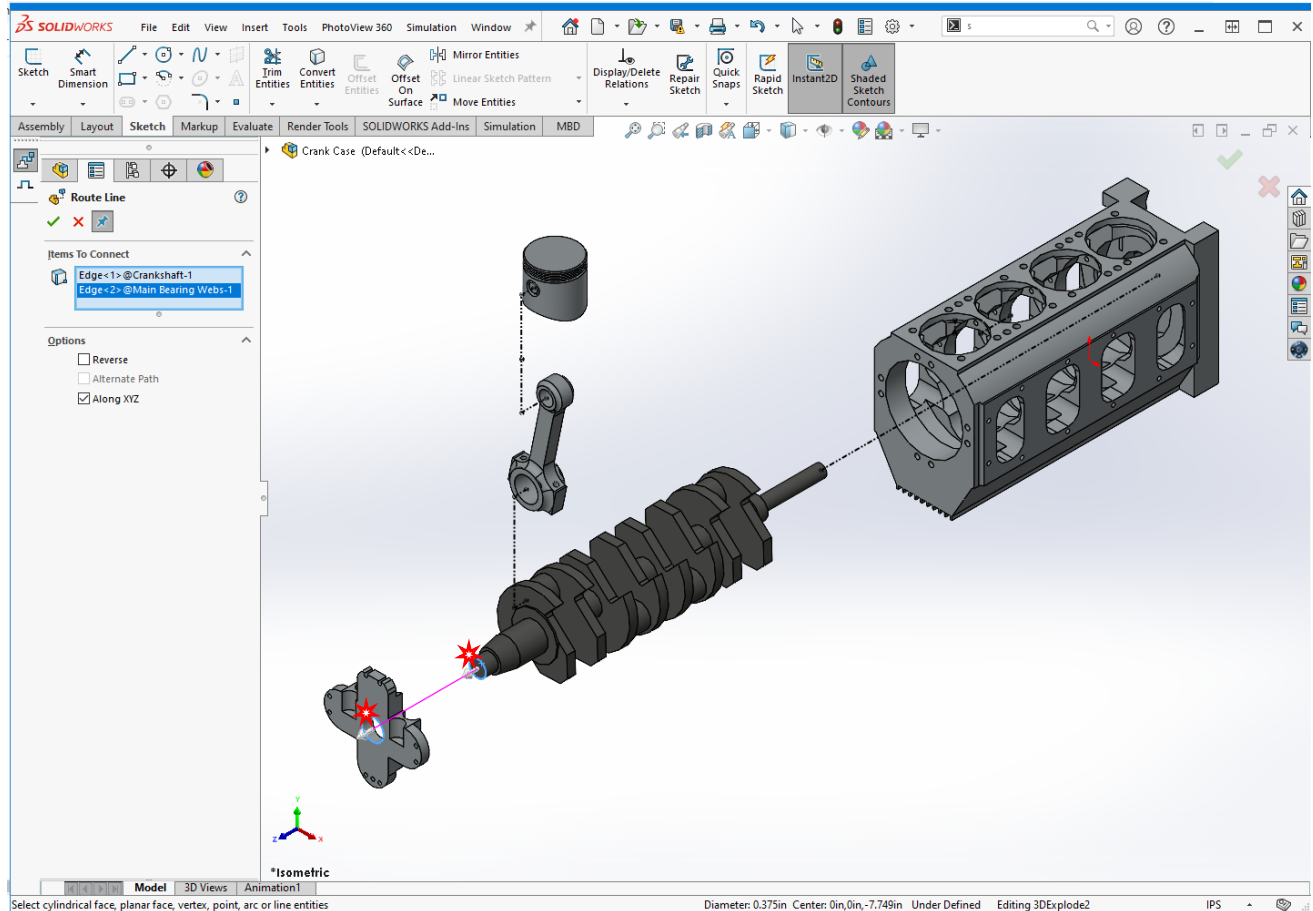
Creating an Exploded View

- To create an exploded view, open the assembly file and select *Exploded View* in the Assembly tab.
- Select the component(s) you would like to explode and drag them in the desired direction using the axis arrow in the corresponding direction.



Show and Tell – Assembly Drawings

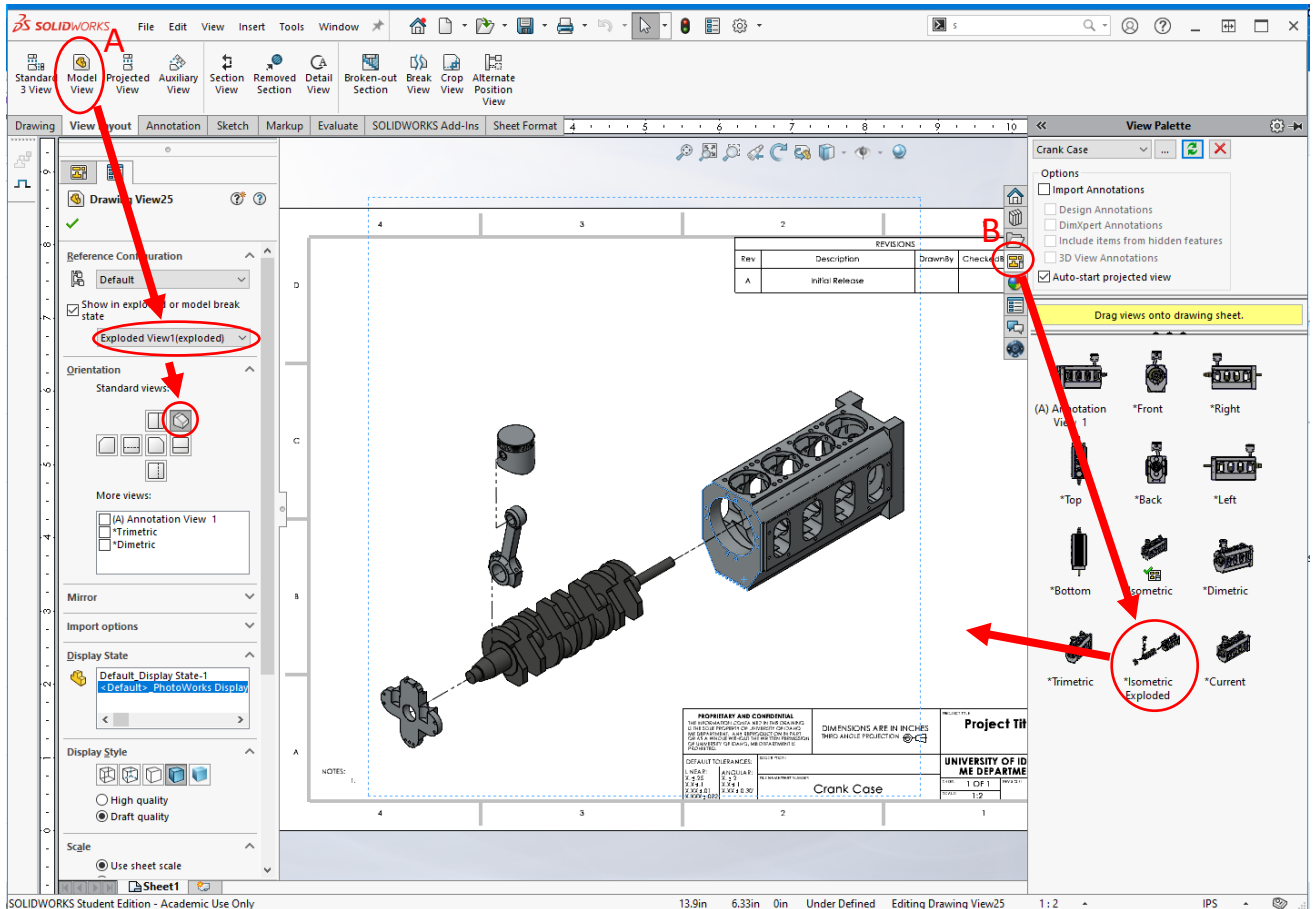
- To create exploded line sketches, select *Exploded Line Sketch* from the *Exploded View* dropdown menu and create a path in the direction desired by selecting features or feature edges sequentially. Change direction of the lines by clicking on the arrows located at the beginning or end of each selection.



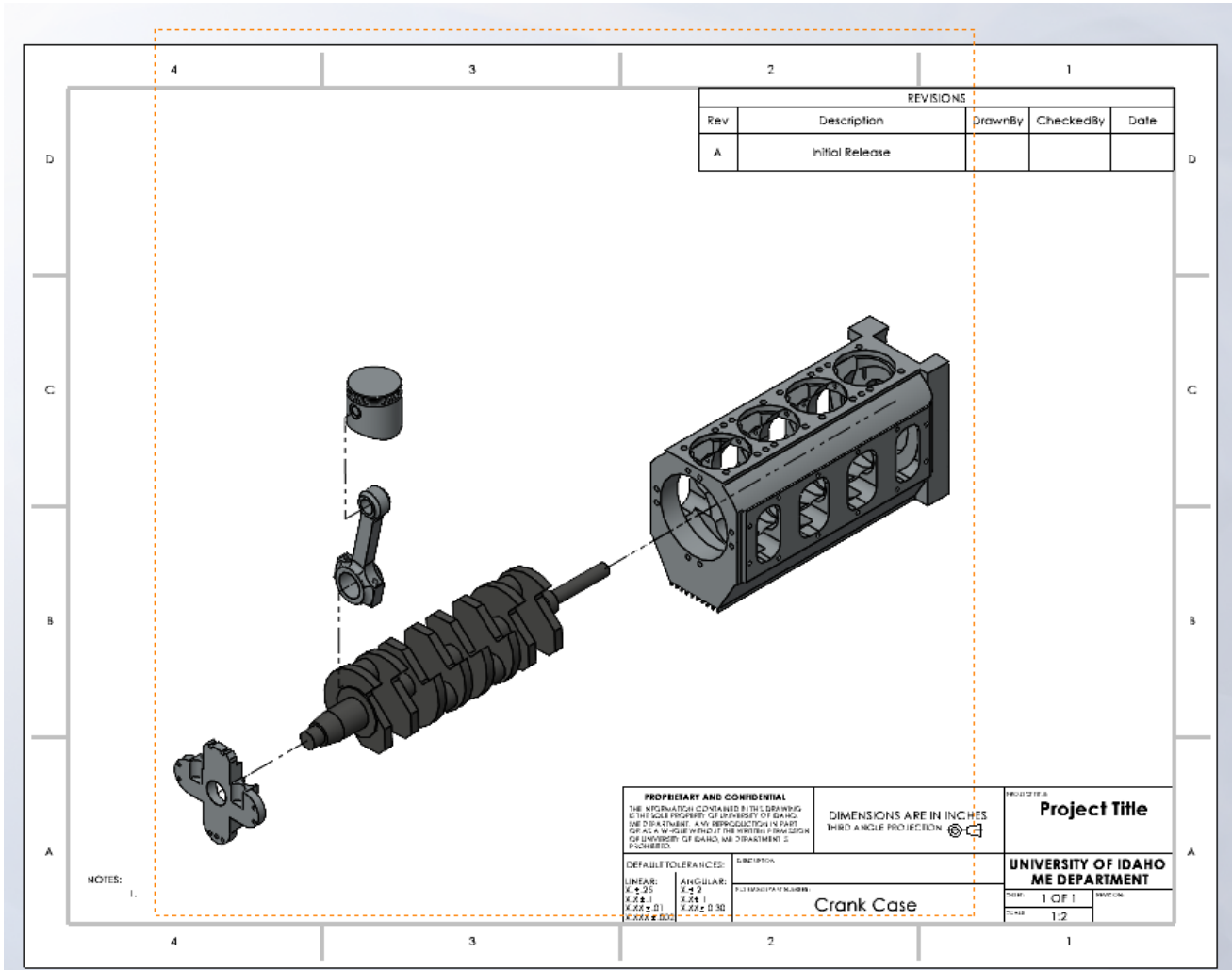
Show and Tell – Assembly Drawings

Make Drawing From Assembly

- While in the Assembly file, go to *File* → *Make Drawing From Assembly*. Open the UI Drawing Template.
- A) Select *Model View* in the View Layout Tab and import the Isometric view of assembly **OR** B) click on the View Palette on the right side of the screen and drag in the isometric view.



Show and Tell – Assembly Drawings



Show and Tell – Assembly Drawings

Bill of Materials (BOM) and Balloons

Adding BOM Table:

- Go to Insert → Tables → Bill of Materials. Click anywhere inside the previously inserted isometric model view.
- Select desired BOM properties in Property Manager. Defaults are usually the best option. Click the check mark and then place the table in the upper left corner of the drawing sheet.

Editing BOM Table:

- Remember to add Quantity if you haven't already added into your default bill of materials template. Right-click on the blue bar at the top of a column to the left of where you want to place Quantity and select *insert* → *column right*.

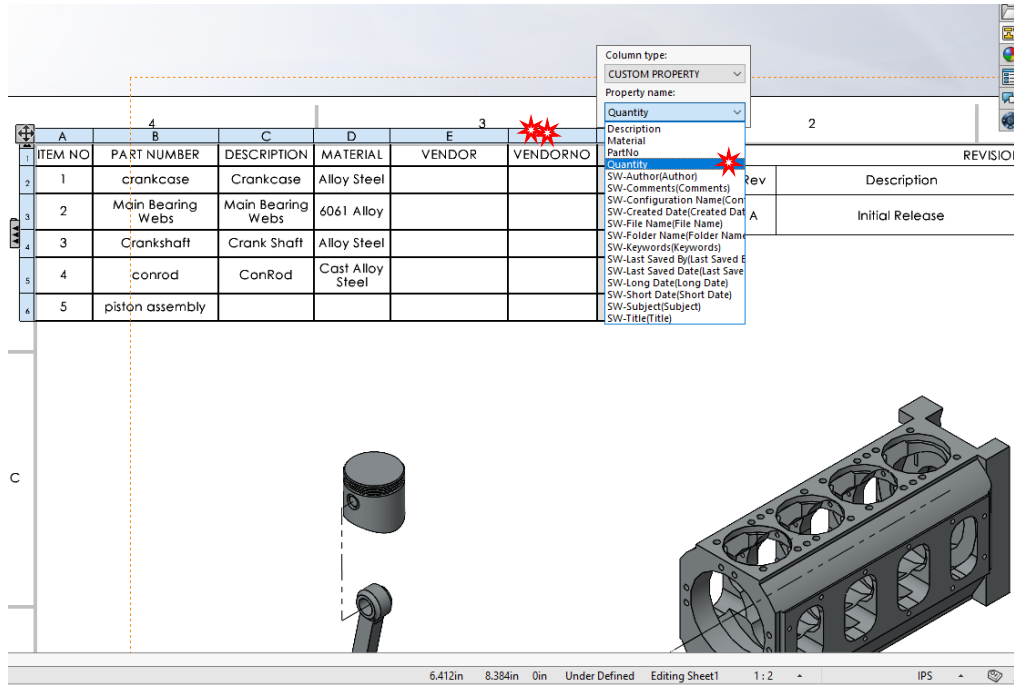
The screenshot displays a CAD software interface with a Bill of Materials (BOM) table and a context menu. The BOM table is as follows:

ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	VENDOR	VENDOR
1	crankcase	Crankcase	Alloy Steel		
2	Main Bearing Webs	Main Bearing Webs	6061 Alloy		
3	Crankshaft	Crank Shaft	Alloy Steel		
4	conrod	ConRod	Cast Alloy Steel		
5	piston assembly				

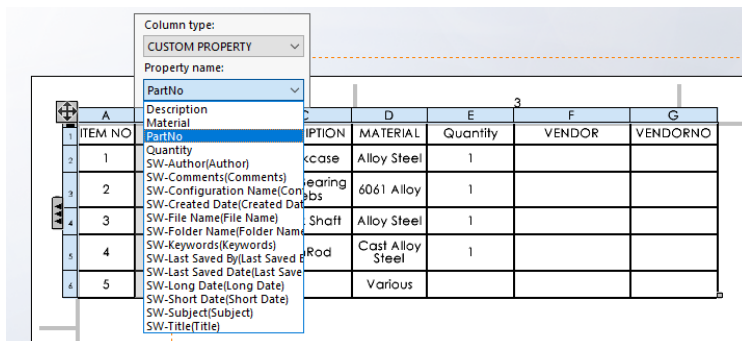
The context menu is open over the table, showing options such as Selection Tools, Zoom/Pan/Rotate, Recent Commands, Insert, Select, Delete, Hide, Hide selected, Shgw Row/Column, Formatting, Split, Sort, Edit multiple property values, Insert - New Part, Save As..., Selected Entity (DetailItem 125), Change Layer, and Customize Menu. The 'Insert' option is highlighted, and a sub-menu is visible with 'Column Right' and 'Column Left' options. A red star icon is next to 'Column Right'. The background shows an isometric view of a crankcase assembly.

Show and Tell – Assembly Drawings

- Now double-click on the blue bar at the top of the new column and make sure Column type is set to *CUSTOM PROPERTY*, and set Property name to *Quantity*. The part Quantities should now propagate into the table.



- If properties from the part file are not displaying as desired, the property linked in each column can be edited by double-clicking the blue column header and selecting alternate properties. PART NUMBER, for example, displays the filename, but if you want to display just the part number, you can select *PartNo* instead, making sure *PartNo* is a property in the corresponding part file's *file properties*.



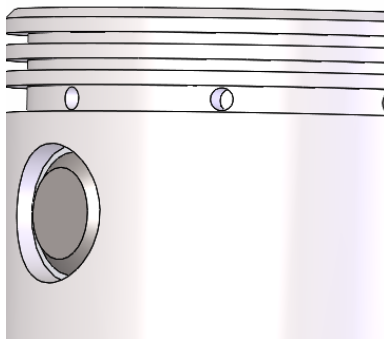
- Table cells can also be edited manually, but this will break the dynamic link between the cell and the part properties, such that future changes in the part file's *file properties* will not update in the BOM table.

Show and Tell – Assembly Drawings

ITEM NO	PartNo	DESCRIPTION	MATERIAL	VENDOR	VENDORNO
1	01-05	Crankcase	Alloy Steel		
2	01-03	Main Bearing Webs	6061 Alloy		
3	01-04	Crank Shaft	Alloy Steel		
4	01-06	ConRod	Cast Alloy Steel		
5			Various		

- Item No. 5 is a sub-assembly for which the file properties for PartNo and Description have not yet been added. You can open the sub-assembly file and add them **OR** double-click the cell in the table and select the option “Keep Link” in order to maintain a dynamic link between the cell and the sub-assembly. Type the desired text and hit enter (or click outside the table). If edited in the table, the properties will be added to the corresponding file’s *Configuration Specific* tab of *File Properties*.

ITEM NO	PartNo	DESCRIPTION	MATERIAL	VENDOR	VENDORNO
1	01-05	Crankcase	Alloy Steel		
2	01-03	Main Bearing Webs	6061 Alloy		
3	01-04	Crank Shaft	Alloy Steel		
4	01-06	ConRod	Cast Alloy Steel		
5	02-00	Piston Assembly	Various		



Summary Information

Summary Custom Configuration Specific

Apply to: BOM quantity:

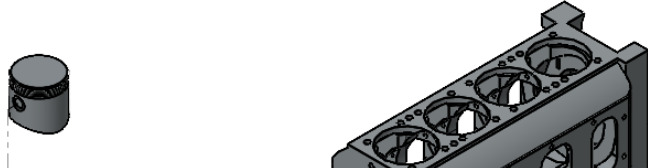
	Property Name	Type	Value / Text Expression	Evaluated Value
1	PartNo	Text	02-00	02-00
2	Description	Text	Piston Assembly	Piston Assembly
3	<Type a new property			

Show and Tell – Assembly Drawings

- For consistency between headers, “PartNo” can be edited to visually display “PART NUMBER”, but the dynamic links will remain connected to the property PartNo in the Piston sub-assembly file.

ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL
1	01-05	Crankcase	Alloy Steel
2	01-03	Main Bearing Webs	6061 Alloy
3	01-04	Crank Shaft	Alloy Steel
4	01-06	ConRod	Cast Alloy Steel
5	02-00	Piston Assembly	Various

REVISIONS				
Rev	Description	DrawnBy	CheckedBy	Date
A	Initial Release			



The image shows a 3D CAD model of a piston assembly. A callout line points from a specific part of the assembly to a small 3D model of a cylindrical component, likely a piston pin or a similar part. The assembly is shown in a perspective view, highlighting the combustion chamber and the cooling surfaces.

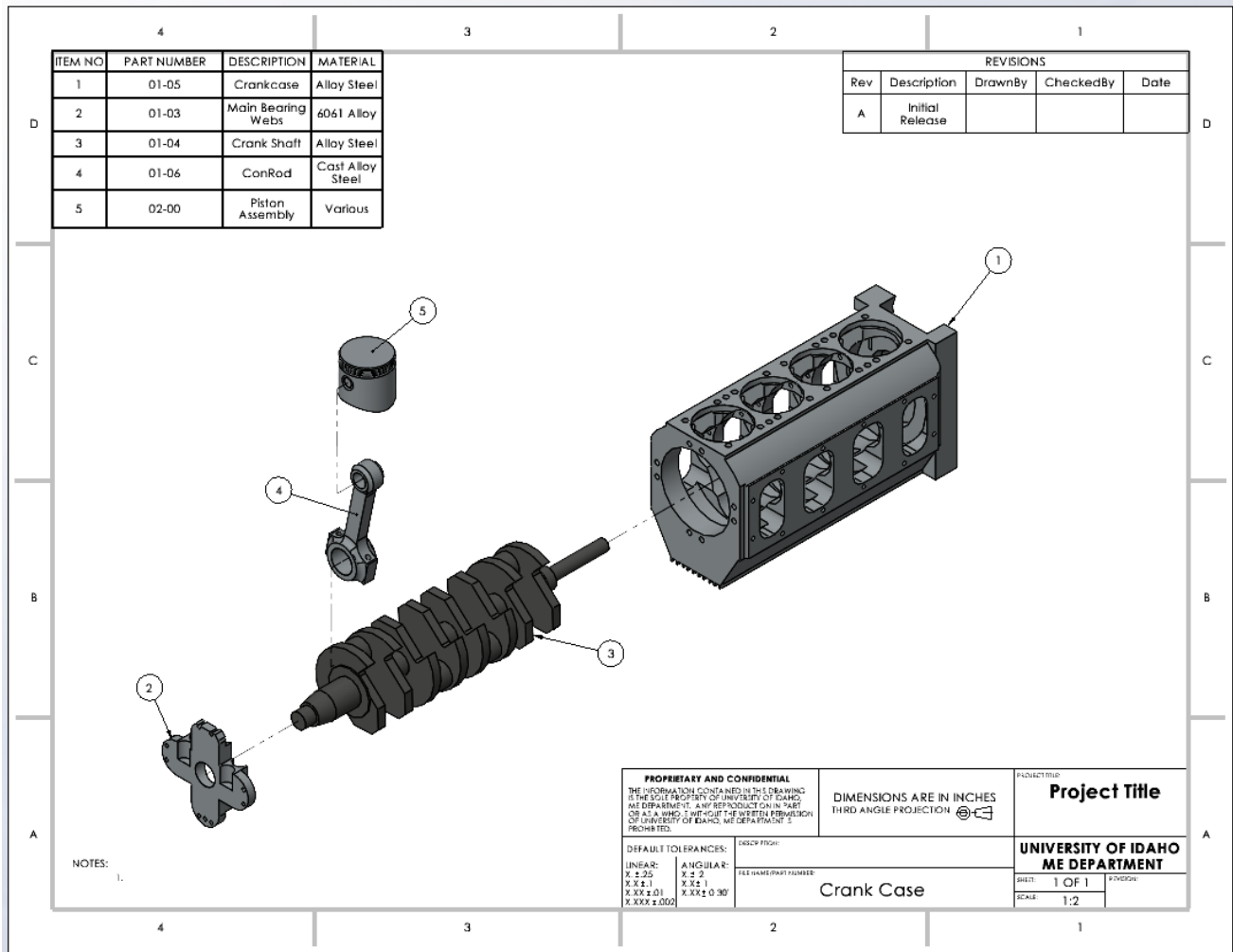
General Table-Editing Tips:

- New fields can be added by right-clicking and adding columns or rows similar to other spreadsheet programs.
- Rows and columns can be moved by dragging the headers.
- Unneeded columns can be deleted (like VENDOR and VENDORNO when no purchased parts are present)

Show and Tell – Assembly Drawings

Adding Balloons:

- Balloons can be added by either selecting *Balloon* and manually selecting each part in the assembly or by clicking *AutoBalloon* in the *Annotation* tab.

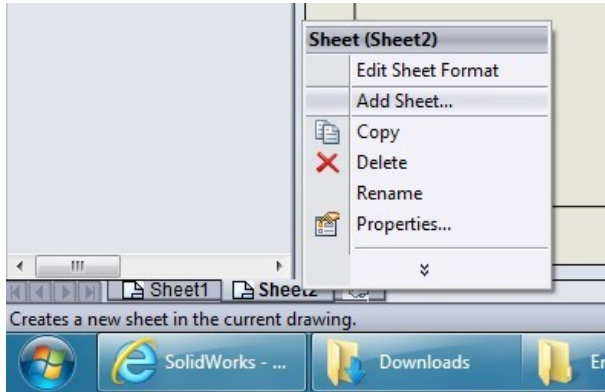


- If you have a lot of balloon, try using the Magnetic Line tool to organize multiple balloons easily into straight lines.

Show and Tell – Assembly Drawings

Adding Sheets:

- To show first a collapsed view and then an exploded view, add an additional sheet, drag it before the first sheet and repeat the process of adding an isometric view, but this time select the collapsed isometric view or uncheck the box that says “Show in exploded or model break state”.
- When creating drawing packages for complex parts, add additional sheets for extra views. You can do this by right clicking on a sheet tab on the bottom left of the screen.



- Rename sheets for better drawing file organization.