EPICS 151 SKETCHING PROJECT FALL 2009

This project will create the dimensions, material, and all required specifications on a professional drawing that represents the part. This professional drawing could then be given to a machine shop which would be able to duplicate the part exactly if the drawing is correct. This means that you must measure the part with the calipers furnished to obtain the required dimensions. Then you must include the necessary notes, tolerances, and specifications for duplication of the part.

1. Start with the title block paper that is included in your text or from the Handouts Folder. Use the paper in portrait mode.

2. Select the proper views to describe the part. The correct orthographic views are part of the sketching project. The picture shows the front and right side views. Make the right side view an offset section that contains both holes and the countersink.

3. Use a scale factor that will allow the part to be drawn neatly and to accommodate all dimensions and notes.

4. Use your EPICS textbook and the reference materials for correct dimensioning techniques. The Reference Material in the Library will assist you with dimensioning practice. Notes and dimensions are an equal feature with the geometry of the part.

5. Use a tolerance of plus or minus 0.02 inch for linear dimensions and +/- 2 degrees for angles. Use 2 place decimals for all dimensions. The dimensions are to be shown as decimal inches.

6. You must describe the material of the part. The part is made from 6061 T6 aluminum. 6061 describes the alloy and T6 represents the temper of the material.

7. Drawing Notes There are several notes (at least 4) that must be used to describe manufacture of the part. The surface finish of the part is important. Create notes that states the part must be finished all over to insure that all tool marks are removed. i.e., “Finish All Over”. The part is to be anodized. Include the anodizing note: “Anodize per MIL 8625. Thickness 0.00005 - 0.001 inch. Color is blue”. Provide a safety note regarding sharp edges, i.e. “Break all edges” or “debur all part completely”. Use a note to specify that all dimensions are decimal inches. See the examples in the Library reference materials.

9. Use the Title Block to specify tolerances, the scale used, and the material. Call the part Fall 2009 Project. Make sure the title block is completely filled in.

10. Make sure you Letter (not print) all notes and dimensions. Neatness counts.

11. The Design Intent is as follows: The countersink is centered on the larger hole. The two holes are located (dimensioned) relative to each other. The smaller hole is located relative to the lower left corner of the part. Dimension inclined planes as angles. Your book and the library documentation provide examples.

If you have any questions or do not understand the instructions, please see me in class or contact me via e-mail: smathers@mines.edu
An example-----Spring 2009
Thanks to Yaozhong Zhou

NOTES:
1. FINISH ALL OVER.
2. ANODIZE PER MIL 8625. THICKNESS 0.00003-0.001 INCH. COLOR IS BLUE.
3. BREAK ALL EDGES.
4. ALL DIMENSIONS ARE DECIMAL INCHES.
Thanks to Shay Robinson

NOTES:
1. MATERIAL: GOBI TO ALUMINUM
2. ANODIZE PER MIL. BOLTS GOLD
3. THICKNESS .005 -.001 INCH
   - BOLTS -.001 INCH
4. BREAK ALL EDGES

This is an excellent example of a professional sketch.

Courtesy of Shay Robinson

Point A
Thanks to Kristina Foley
NOTES:
1. FINISH ALL OVER.
2. ANODIZE PER MIL 8625. THICKNESS 0.0005-0.001 INCH. COLOR IS BLUE.
3. BREAK ALL EDGES.
4. ALL DIMENSIONS ARE DECIMAL INCHES.