IDLER PULLEY LESSON

It is a variation of a drafting assignment form an old Mechanical drawing book. The objectives of this lesson are visualization, interpretation of drawings, planning and sequencing. This lesson is designed to test the student’s ability to read and interpreting a set of drawings and to reproduce these drawings in a CAD format to prepare them for machining. The students have already been introduced to extruding, revolving and assembly drawings. This lesson is sufficiently complex to challenge the faster students and yet doable by the slower student. I encourage the student to help each other out. The faster student learn more helping and the slower student need the help.

Lesson requirements are:

1. Complete a file for individual part, base plate, support bracket, shaft, bushing and pulley.
2. Complete an assembly drawing.
3. Complete and a final set of final drawings.

Look at the final assembly before you start. Develop a plan, what part do you draw first. What part is next, etc. Visualize what the function of this part is. What is it intended to do? What is the function of an idler pulley?
Create a separate folder in my documents, complete lessons and call it idler pulley. Keep all files in that folder only. It is your responsibility. I will not hunt through to find your files. If you do not store your files in the assigned folder I will not grade them.

Start with drawing the base plate. Decide which is best way to start, from the top view or from the side view. Study the part, What operations will you need to complete? Extrude, extrude cut, fillet and dimensioning, in what order.
I choose to the pulley support bracket next because it will mate to the base plate. You may choose a different, simpler part next, it is your choice. The support bracket will require several extrusions and cuts. This is a complicated part, it is very important to plan your sequence before you start. Remember there are 2 brackets, they are the same, so you need only draw one.
The bushing is an important part of the function in this assembly. This device has no bearings. The bushing serves the same function as a bearing. It is lubricated by the oil or grease passing through hole in the center of the shaft. It is a simple but very important part. Again there are 2 bushings, they are the same so you need only draw one.
The shaft will require several extrusions and cuts. Observe the two lubrication holes, one down the center of the shaft and the lub hole from the center hole out. Forget the last and it will not lubricate. The chamfer is not there for looks. It is much easier to assemble the part if the end is chamfered.
The pulley looks allot more complicated than it really is. It is a simple revolve problem. Draw the cross section and revolve. Watch your dimensions, start in the middle and work you self out.
When constructing the Assembly drawing you will have problems if you try to do it in one single assembly. The mating process will not work well. Try a separate assembly of the pulley, shaft and bushings first. Save hat as a separate file. Then make the final assembly.

Open a drawing file with a page for each drawing. There are 5 parts and an assembly page. Put the assembly page first. Do not forget the dimensions.