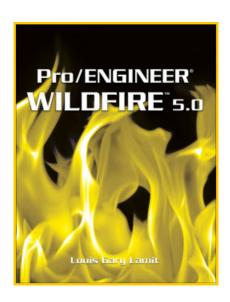
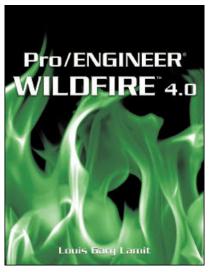
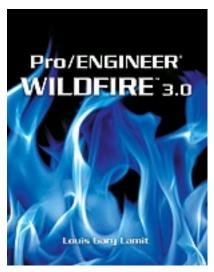
# Pro/ENGINEER Wildfire Projects







# **CDI CAD**

# **CAD PROJECTS**

## CLICK ON SHADED PAGES TO ENTER 3D PDF



## **Project for Wildfire 4.0 (Extrusion)**

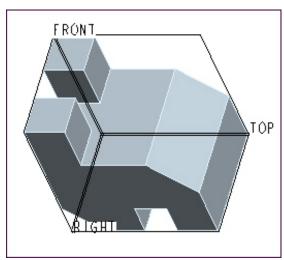


Figure Angle Block 1 Angle Block

#### **Angle Block**

This lesson project is a simple block that requires many of the same commands as the Clamp. Using the default datums create the part. Sketch the protrusion on datum FRONT. Sketch the cut on datum RIGHT and align it to the upper surface/plane of the protrusion.

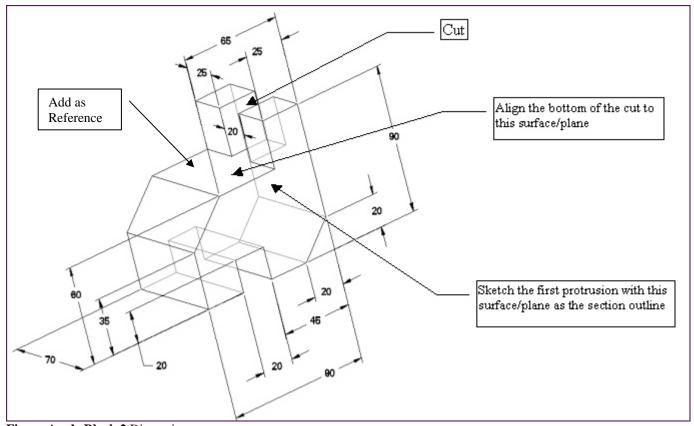
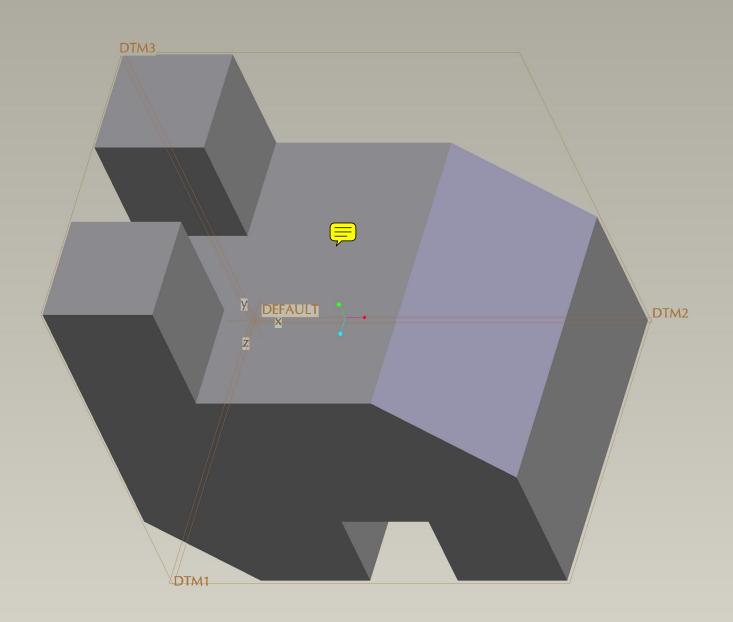


Figure Angle Block 2 Dimensions



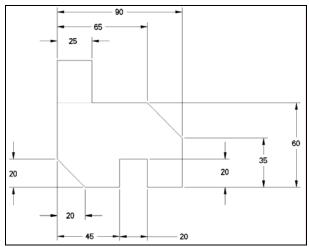


Figure Angle Block 3 Protrusion Sketch Dimensions

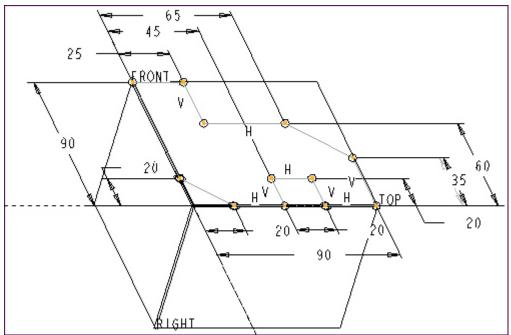
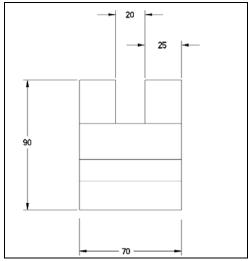


Figure Angle Block 4 Sketch



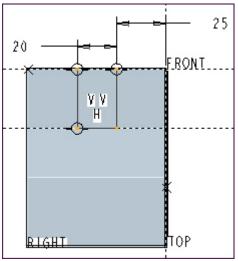


Figure Angle Block 5 Cut Drawing Dimensions Figure Angle Block 6 Cut Sketch Dimensions

## **Project for Wildfire 4.0 (Extrusions)**

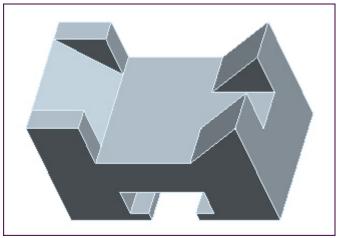


Figure T-Block 1 T-Block

Figure T-Block 2 T-Block ECO

#### **T-Block**

This lesson project is a simple block that is created with commands similar to those for the BASE\_ANGLE. Sketch the protrusion on datum FRONT.

After the T-Block is modeled, you will be prompted to edit and redefine a number of features from an ECO (T-BLOCK\_ECO)

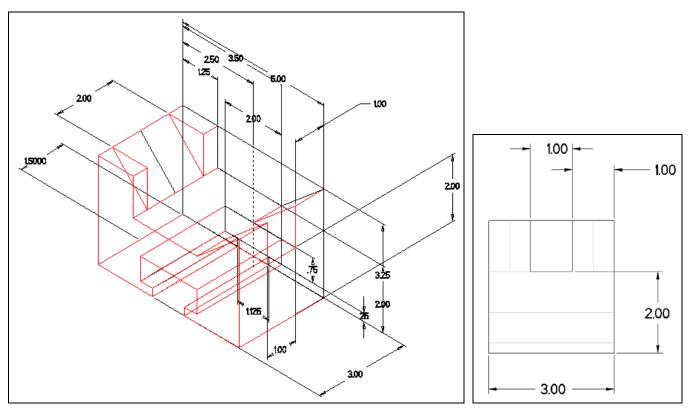
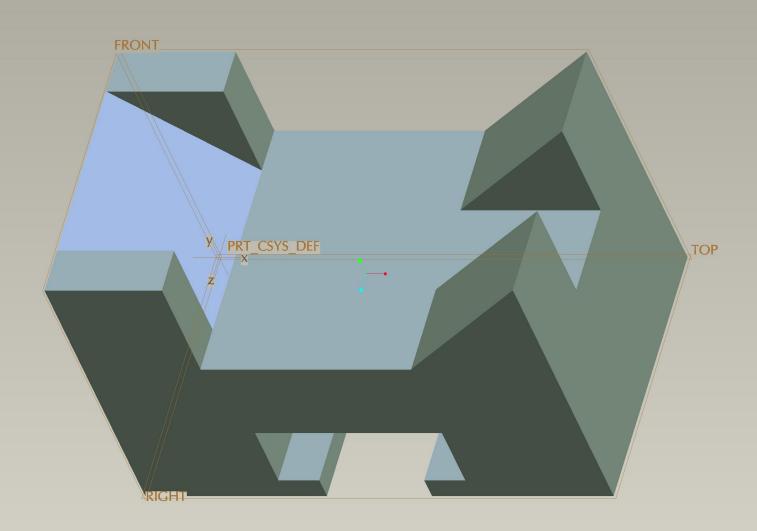
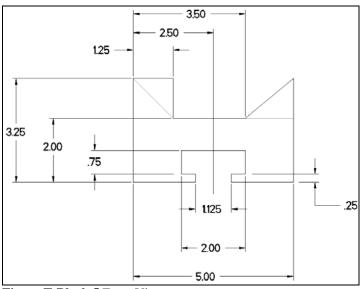


Figure T-Block 3 Dimensions

Figure T-Block 4 Right Side View







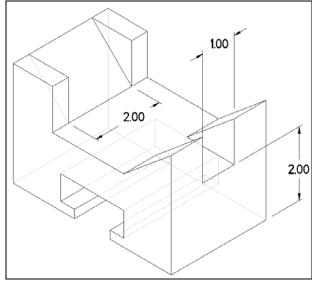


Figure T-Block 5 Front View

Figure T-Block 6 Pictorial View

Use **Edit Definition** and **Edit** to complete the ECO after you save it to another name. Figures 3.88 though 3.92 provide the ECO and feature redefinition requirements. The T-shaped slot is symmetrical and is located at the center of the part. When completing the ECO, be careful not to assume that this condition still applies.

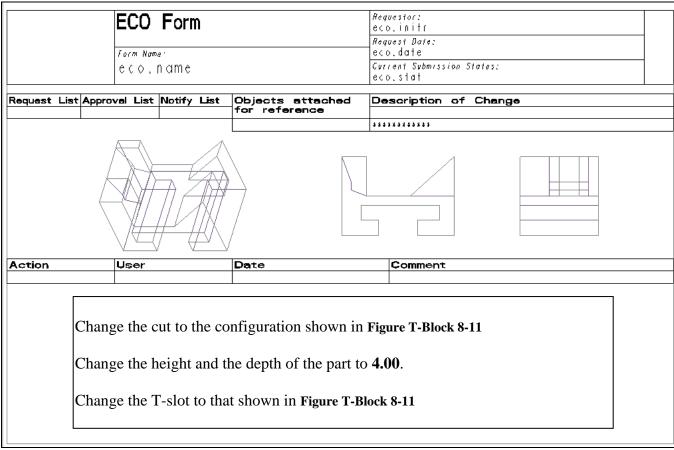
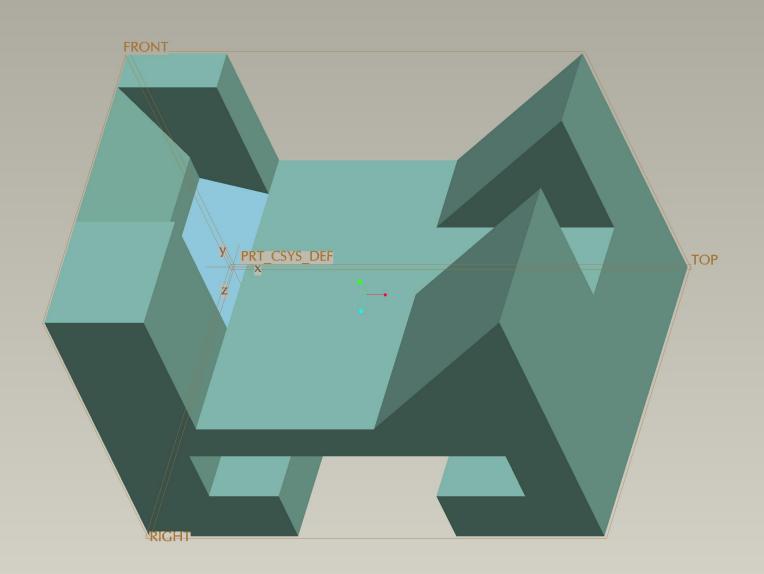


Figure T-Block 7 ECO



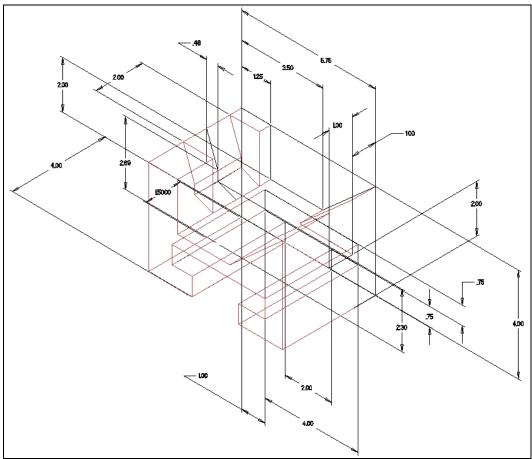


Figure T-Block 8 Modified Dimensions

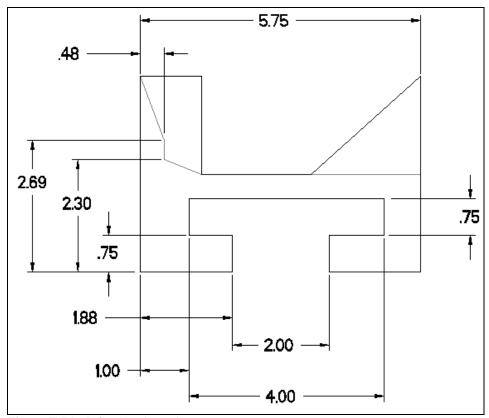


Figure T-Block 9ECO Dimensions

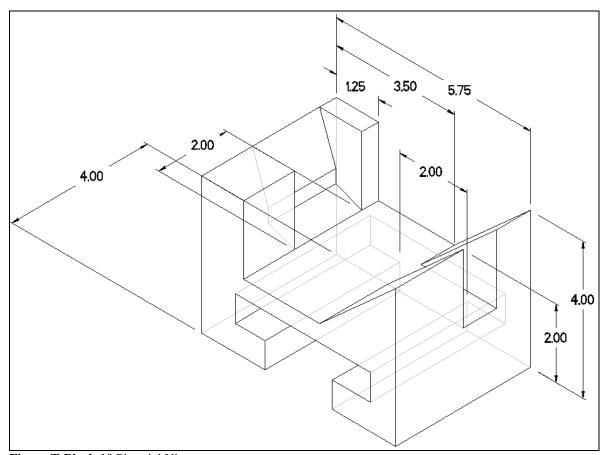


Figure T-Block 10 Pictorial View

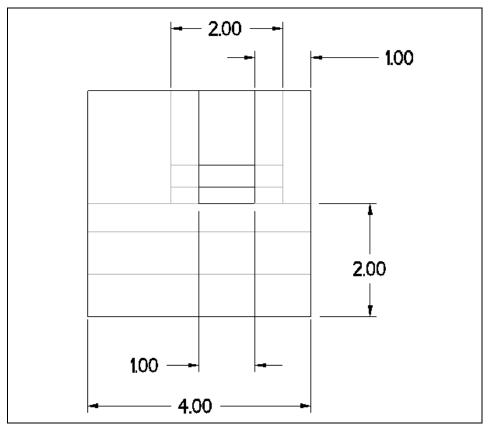


Figure T-Block 11 Cut Dimensions

#### **Project for Wildfire 4.0 (Extrusions and Holes)**

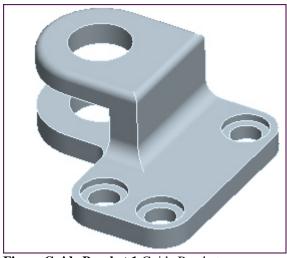


Figure Guide Bracket 1 Guide Bracket

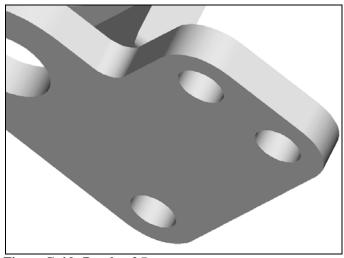


Figure Guide Bracket 2 Bottom

#### **Guide Bracket**

The Guide Bracket is a machined part that requires commands similar to the Breaker. Simple rounds and straight and sketched holes are part of the exercise. At this stage in your understanding of Pro/E, you should be able to analyze the part and plan the steps and features required to model it. You must use the same dimensions and dimensioning scheme, but the choice and quantity of datum planes and the sequence of modeling features can be different.

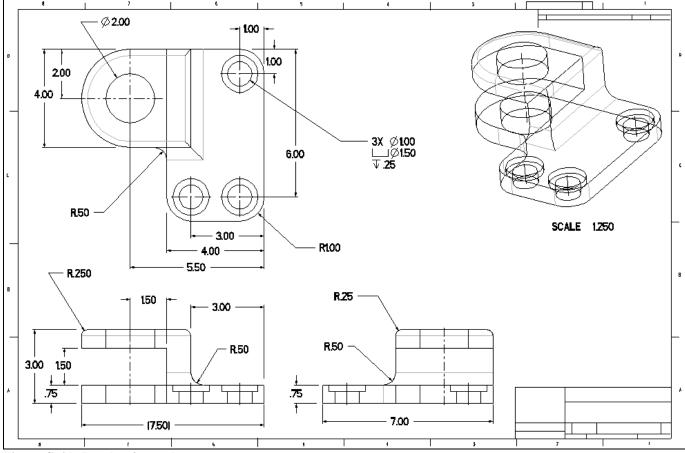
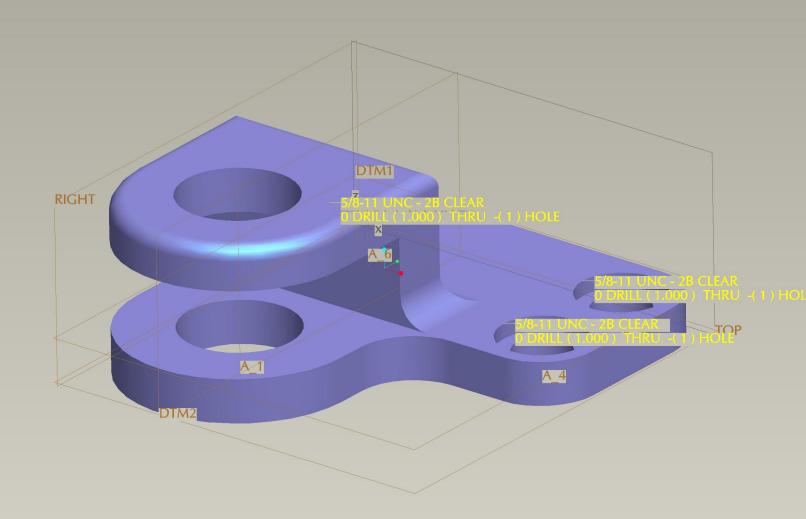


Figure Guide Bracket 3 Drawing



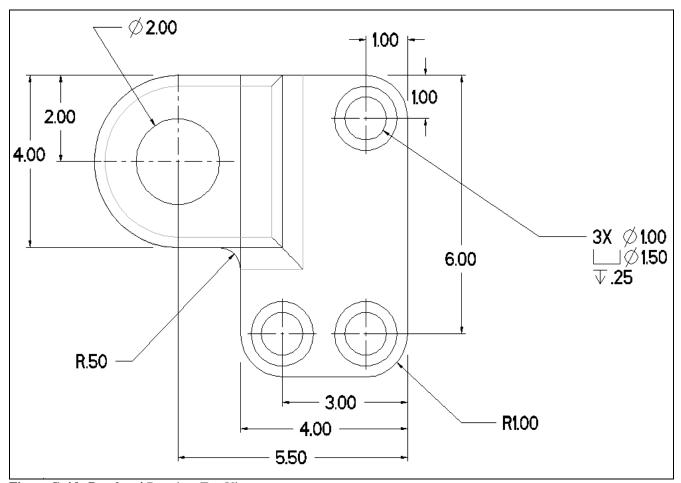


Figure Guide Bracket 4 Drawing, Top View

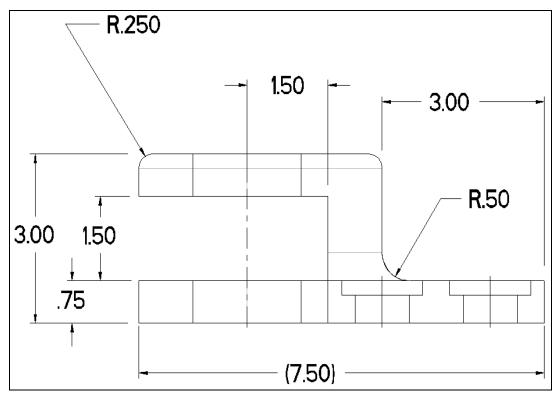


Figure Guide Bracket 5 Drawing, Front View

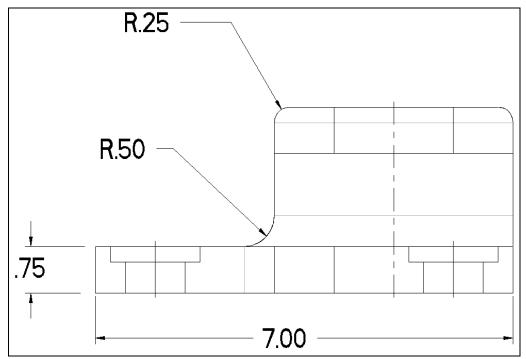


Figure Guide Bracket 6 Guide Bracket Drawing, Right Side View

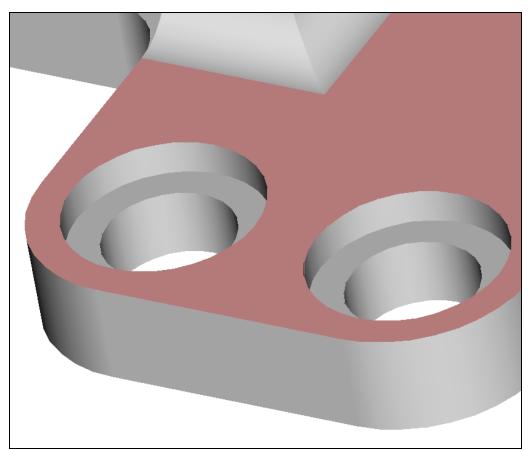


Figure Guide Bracket 7 Guide Bracket Counterbore Holes

#### **Project for Wildfire 4.0 (Datums)**

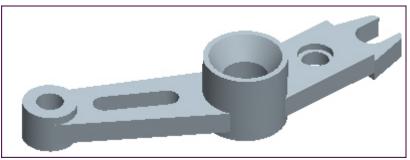


Figure Angle Frame 1 Angle Frame

#### **Angle Frame**

The Angle Frame is a machined part that requires the use of a variety of datum planes and a layering scheme. You will also add a relation to control the depth of the large countersink hole at the part's center. Analyze the part and plan the steps and features required to model it. Set the units and the material (aluminum 6061) for the part. Set the datums as Basic, and rename to A, B, C, and so on.

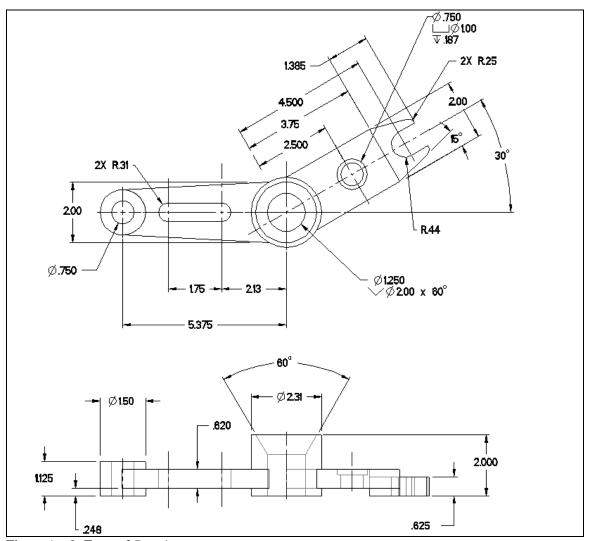
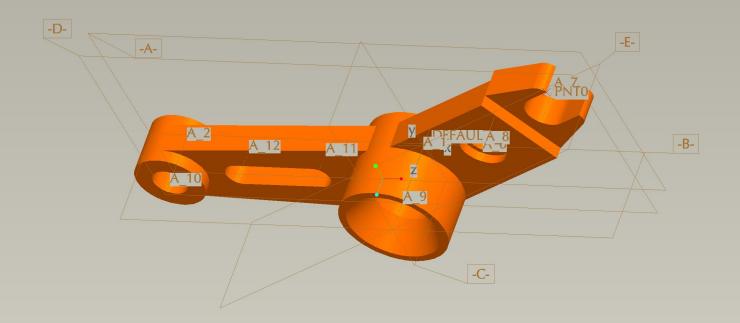
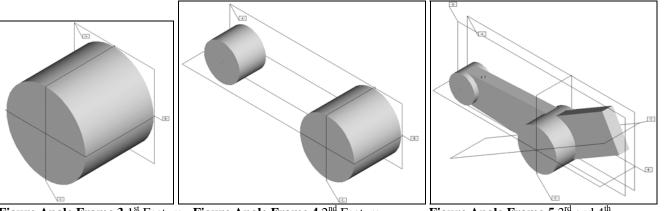


Figure Angle Frame 2 Drawing





**Figure Angle Frame 3** 1<sup>st</sup> Feature **Figure Angle Frame 4** 2<sup>nd</sup> Feature

**Figure Angle Frame 5** 3<sup>rd</sup> and 4<sup>th</sup> (create separately)

Set the datums with the appropriate geometric tolerance names: A, B, C, and so on. Create two *sections* through the Angle Frame to be used later in a Drawing Lesson. For the sections, use datum planes B and E, which pass vertically through the center of the part. Name the cross sections A (SECTION A-A) and B (SECTION B-B).

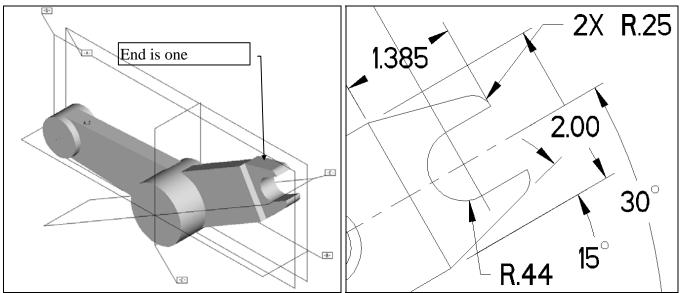


Figure Angle Frame 6 Steps

Figure Angle Frame 7 Dimensions

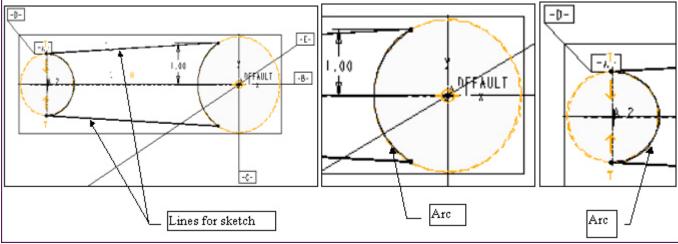


Figure Angle Frame 8 Sketching the Third Feature

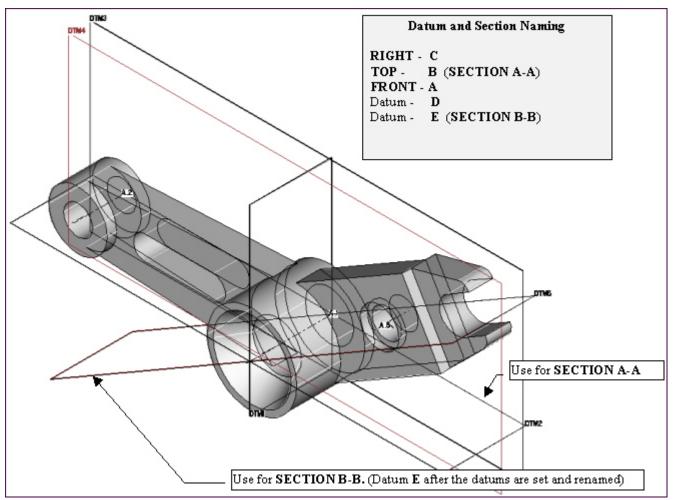


Figure Angle Frame 9 Datums. Datum E is through the axis of the first protrusion, and at an angle to Datum B.

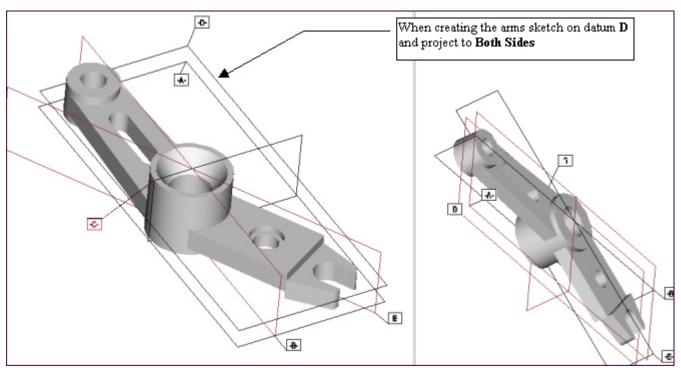


Figure Angle Frame 10 Using the Datums to Create Features. Set the datum planes and change their names to A, B, C.

Modify the thickness of the boss from **2.00** to **2.50**. Note that the hole does not go through the part. Modify the boss back to the original design dimension of **2.00**. Add a relation to say that the depth of the hole should be equal to the thickness of the boss.

Your **d**# symbols will probably be different from the ones shown here. Change the thickness of the boss (original protrusion) to see that the hole still goes through the part. No matter what the boss thickness dimension changes to, the hole will always go completely through it. This relation controls the *design intent* of the hole.

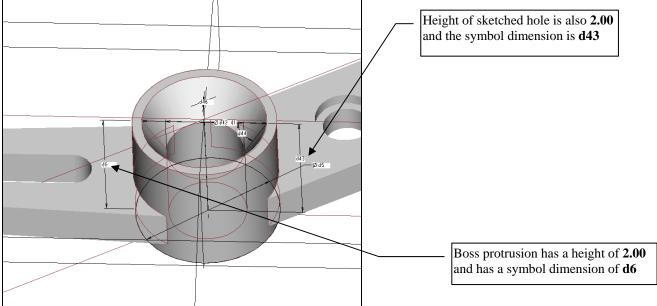


Figure Angle Frame 11 Adding a Relation to Control the Hole Depth

Relations are used to control features and preserve the *design intent* of the part.

Create the sections required to describe the part while you are in Part Mode so that they will be available for use when you are detailing the part in Drawing Mode.

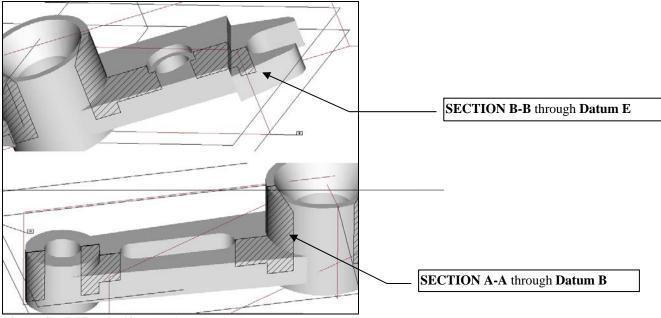


Figure Angle Frame 12 X-Sections Through Datums

# The following projects are for the Coupling Assembly



## **Project for Wildfire 4.0 (Revolve)**

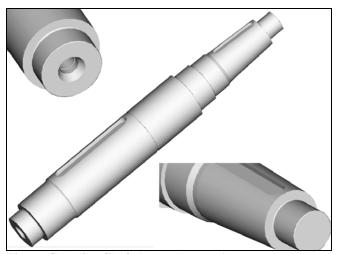


Figure Coupling Shaft 1 Coupling Shaft

#### **Coupling Shaft**

Remember to set up the environment, set datum planes, and add layers to the project parts.

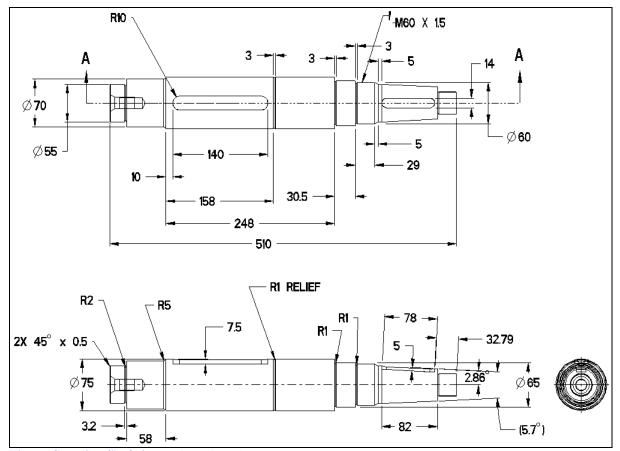
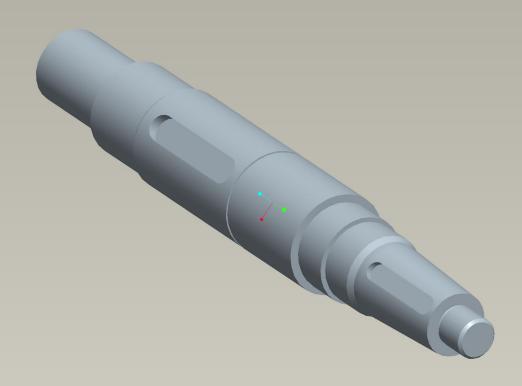


Figure Coupling Shaft 2 Drawing, Sheet One



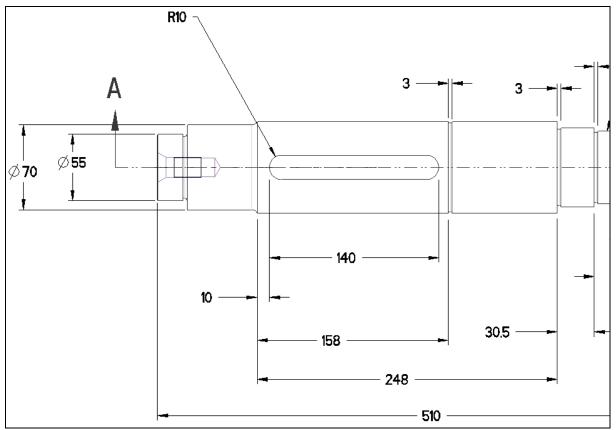


Figure Coupling Shaft 3 Drawing, Top View, Left Side

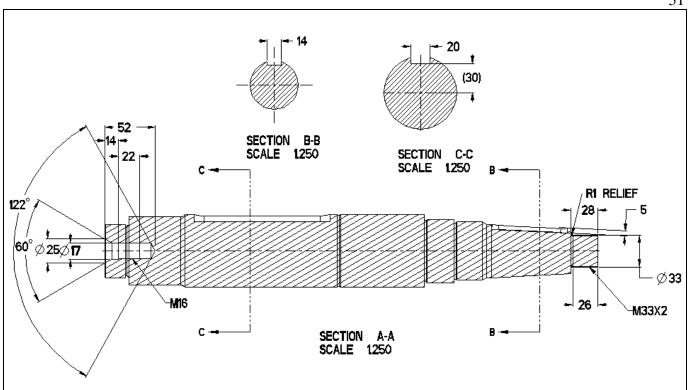


Figure Coupling Shaft 4 Drawing, Sheet Two

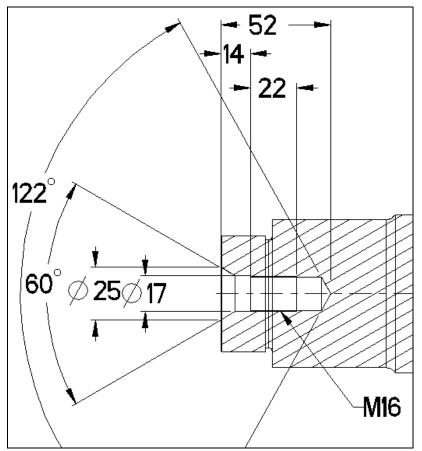


Figure Coupling Shaft 5 M16 X 2 Thread

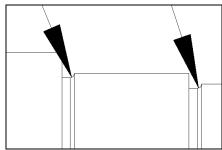


Figure Coupling Shaft 6 Reliefs

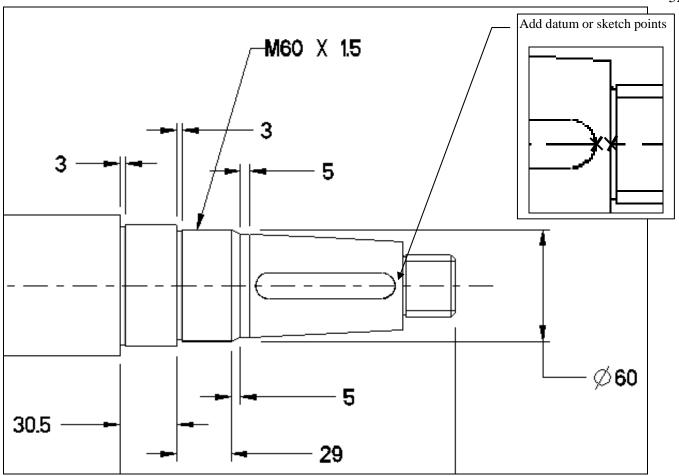


Figure Coupling Shaft 7 Drawing, Top View, Right Side

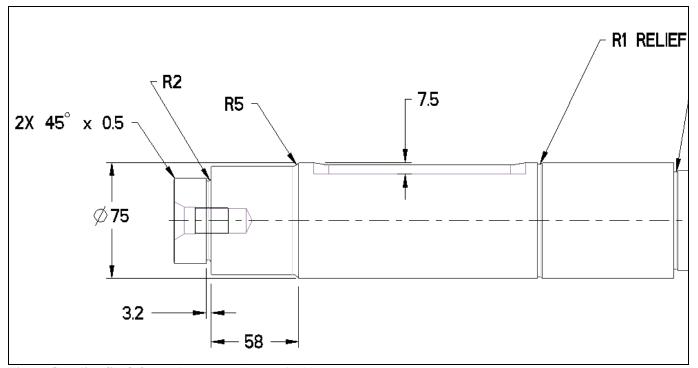


Figure Coupling Shaft 8 Drawing, Front View, Left Side

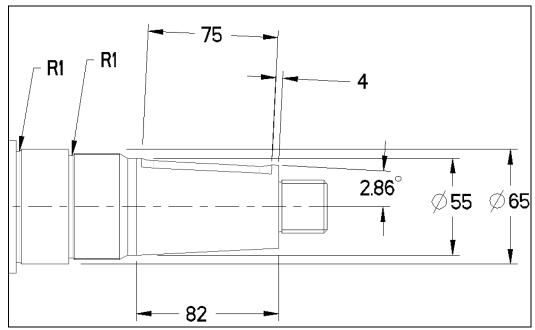


Figure Coupling Shaft 9 Drawing, Front View, Right Side

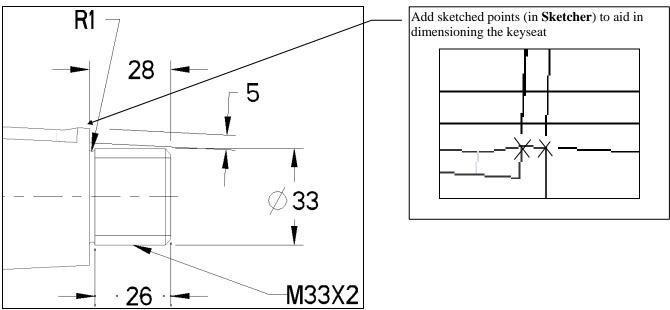


Figure Coupling Shaft 10 Drawing, M33 X 2 Threads

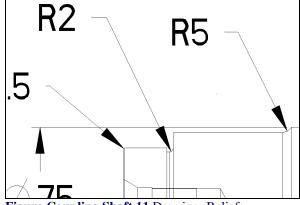


Figure Coupling Shaft 11 Drawing, Reliefs

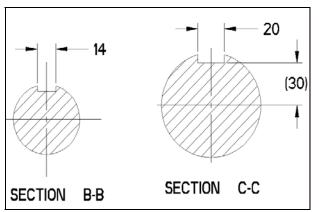


Figure Coupling Shaft 12 SECTION B-B and SECTION C-C

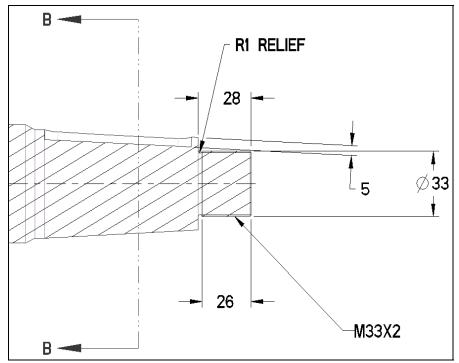


Figure Coupling Shaft 13 Drawing, Sheet Two, SECTION A-A Right Side

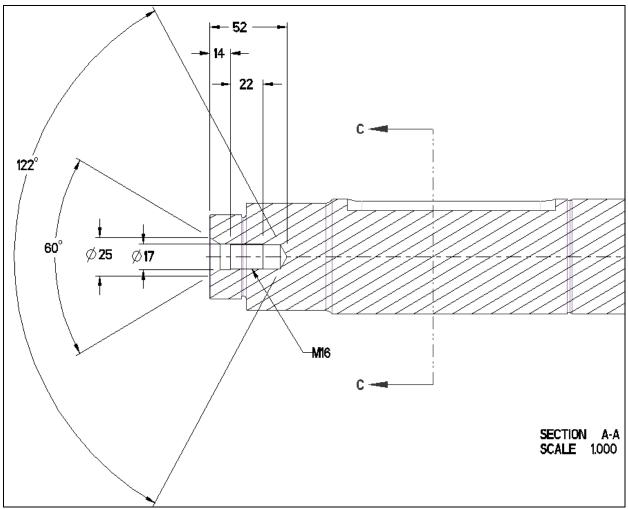


Figure Coupling Shaft 14 Drawing, Sheet Two, SECTION A-A Left Side

## **Project for Wildfire 4.0 (Revolve and Holes)**

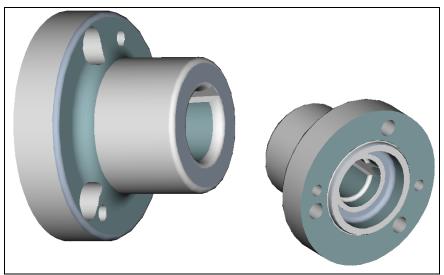
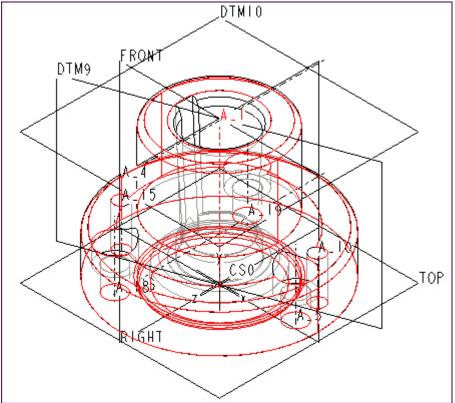


Figure Taper Coupling 1 Taper Coupling

#### **Taper Coupling**

Plan the feature creation and the parent-child relationships for the part. The machined face of the coupling mates with and is fastened to a similar surface when assembled. Plan your geometric tolerancing requirements accordingly. Set the datums to anticipate the mating surfaces.





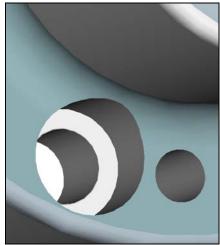
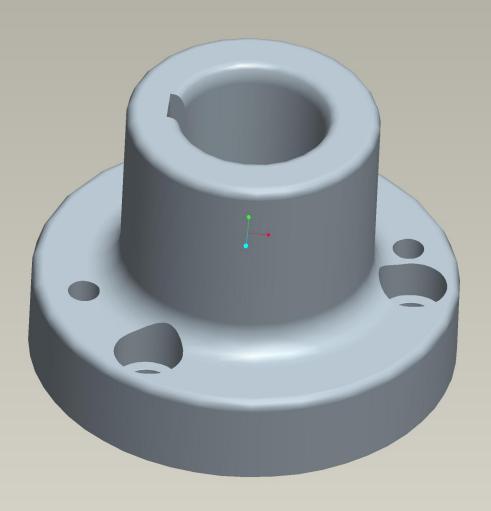


Figure Taper Coupling 3 Counterbore



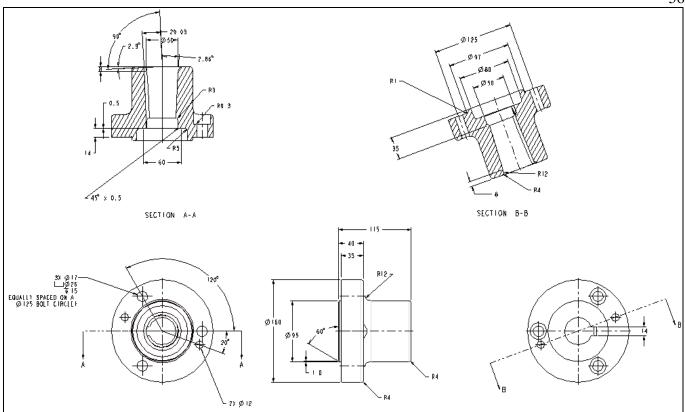


Figure Taper Coupling 4 Drawing

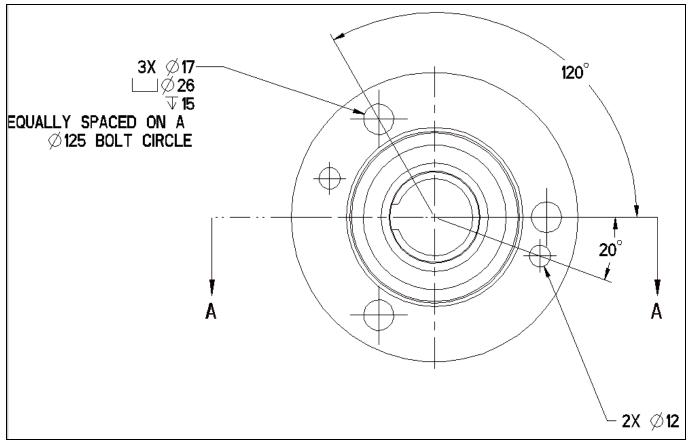


Figure Taper Coupling 5 Drawing, Bottom View

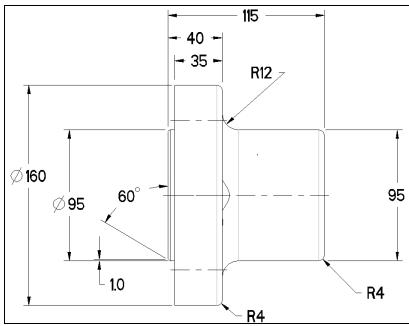
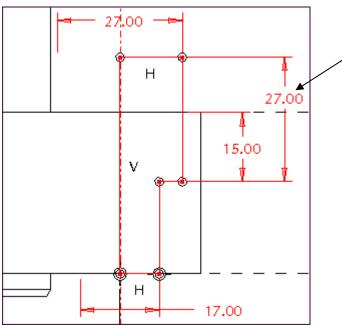




Figure Taper Coupling 6 Drawing, Side View

Figure Taper Coupling 7 Counterbore



Write a relation that will keep this dimension equal to the depth of the counterbore plus the radius of the large round (**R12**).

#### Dim=15+Radius

#### d18=d9+d6

Your dim values (d#'s) may differ.

Figure Taper Coupling 8 Section, Counterbore

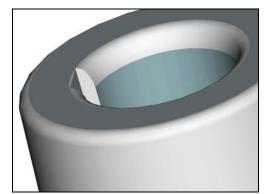
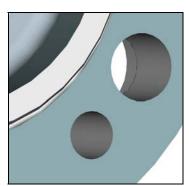
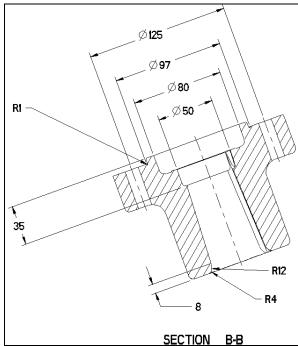
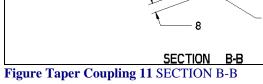


Figure Taper Coupling 9 Taper and Keyseat (14mm Wide)



**Figure Taper Coupling 10** Holes





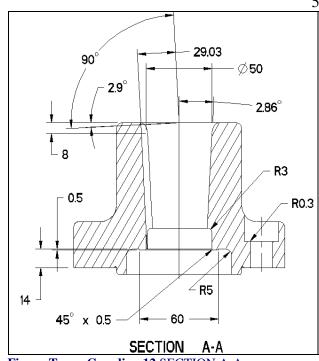
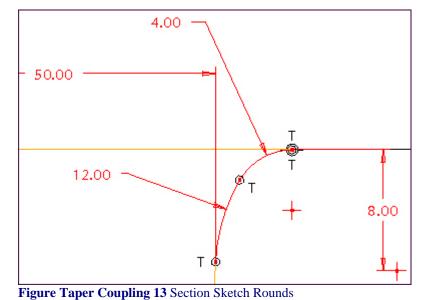


Figure Taper Coupling 12 SECTION A-A



When creating the assembly you may need to modify this dimension to 54 for the taper coupling and the shaft to correctly seat

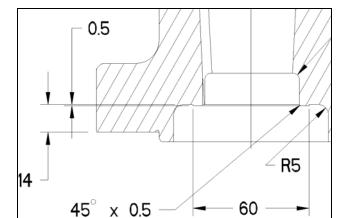


Figure Taper Coupling 14 Drawing, SECTION A-A

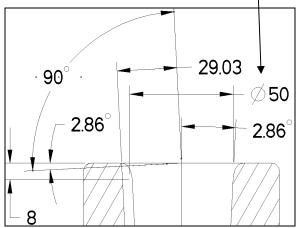


Figure Taper Coupling 15 SECTION A-A, Close-up

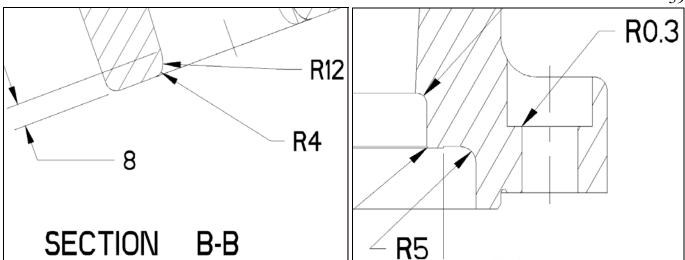


Figure Taper Coupling 16 Drawing, Radii

Figure Taper Coupling 17 Rounds

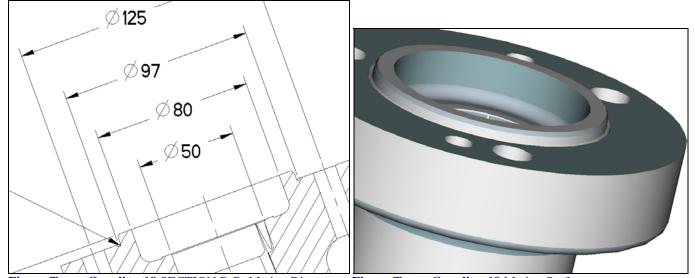


Figure Taper Coupling 18 SECTION B-B, Mating Diameters Figure Taper Coupling 19 Mating Surface

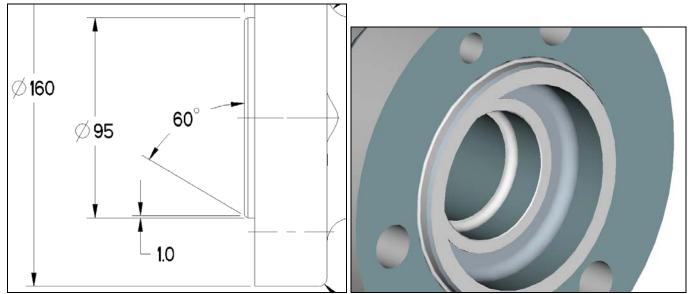
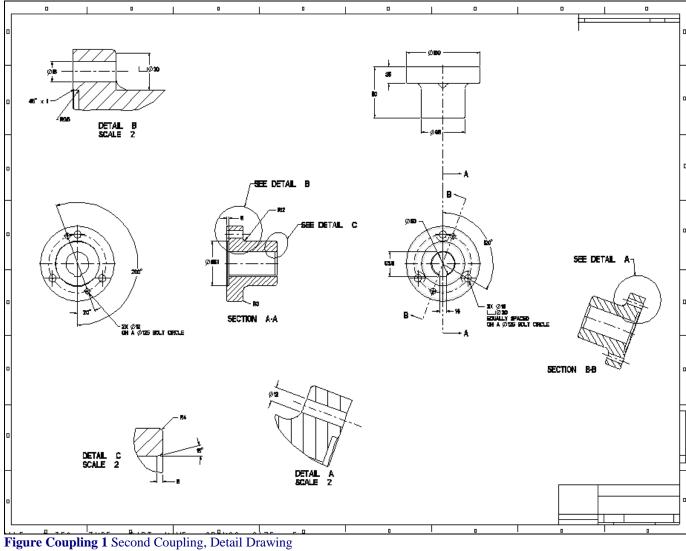
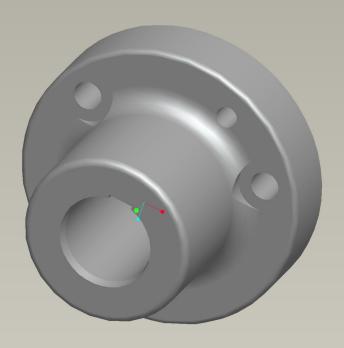


Figure Taper Coupling 20 Side View, Close-up

Figure Taper Coupling 21 Internal View

# **Project for Wildfire 4.0 (Revolve)**





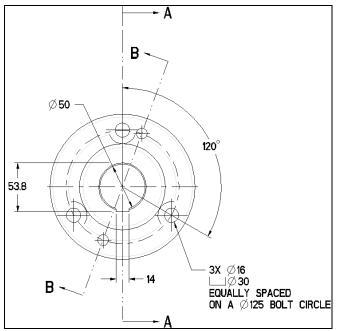


Figure Coupling 2 Second Coupling, Detail Drawing, Front View

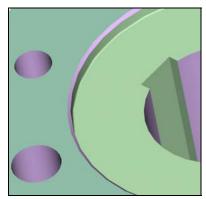


Figure Assembly 3 Holes

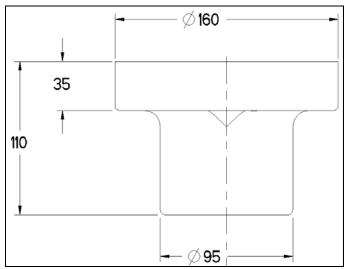


Figure Coupling 4 Second Coupling, Top View

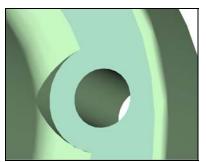


Figure Coupling 5 Hole Cutting Round

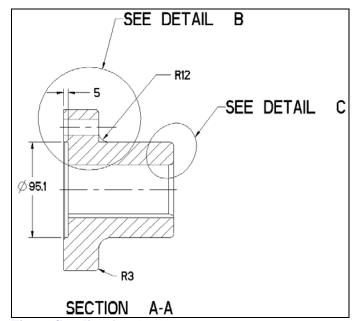


Figure Coupling 6 SECTION A-A

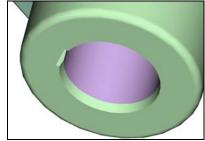


Figure Assembly 7 Tapered Hole

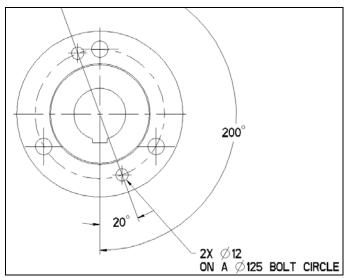


Figure Coupling 8 Detail, Back View

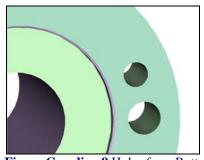


Figure Coupling 9 Holes from Bottom

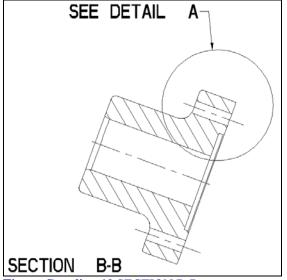


Figure Coupling 10 SECTION B-B

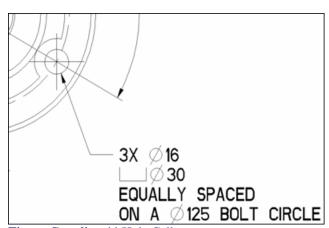
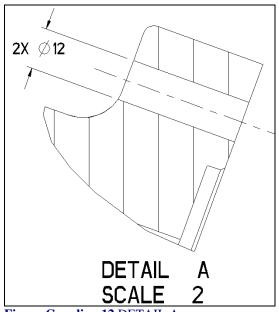


Figure Coupling 11 Hole Callout



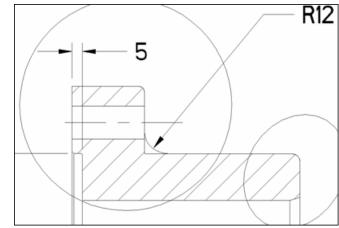
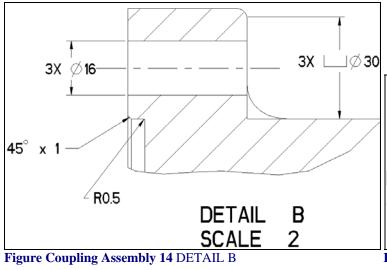


Figure Coupling 12 DETAIL A

Figure Coupling 13 Round R12



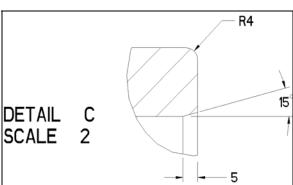


Figure Coupling Assembly 15 DETAIL C

### **Project for Wildfire 4.0 (Assembly)**

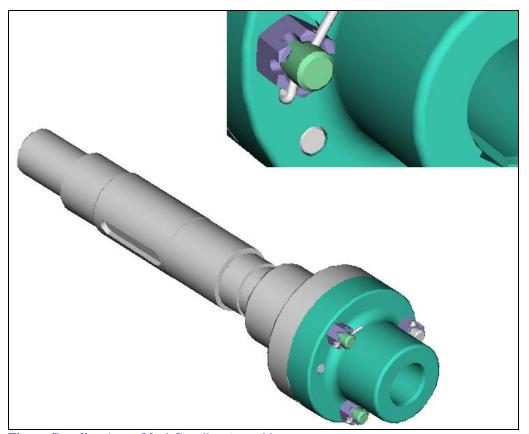


Figure Coupling Assembly 1 Coupling Assembly

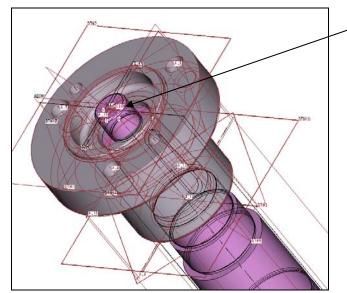
### **Coupling Assembly**

The Coupling Assembly requires commands similar to those for the Swing Clamp Assembly. Model the parts and create the assembly. Analyze the assembly and plan the steps required to assemble it. Plan the assembly component sequence and the parent-child relationships for the assembly. After completing the assembly, do an Analysis using Global Interference. If there is interference between the shaft and the key, modify the key to the correct size.

You will use the **Coupling Shaft** to be the first component assembled. The **Taper Coupling** is also used in the assembly. Model the second coupling *before* you start the assembly. Depending on the library parts available on your system, you may need to model the **Key**, the **Dowel**, and the **Washer**.

Because not all organizations purchase the libraries, details are provided for all the components required for the assembly, including the standard *off-the-shelf* parts available in Pro/E's library. Pro/LIBRARY commands to access the standard components are provided for those of you who have them loaded on your systems. The instance name is given for every standard component used in the assembly. The **Slotted Hex Nut**, **Socket Head Cap Screw**, **Hex Jam Nut**, and **Cotter Pin** are all standard parts from the library. The Cotter Pin is in *inch* units, and the remaining items are *metric*.

For this project, do not assemble the library parts directly from the library. Save each library part in your own directory with a new name, and then use the new part names in the assembly.



**Redesign** the length of the threaded end to accommodate the washer and nut. *You* decide the new length based on the combined thickness of the two components.

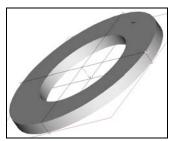


Figure Coupling Assembly 2 Assemble the Taper Coupling to the Coupling Shaft Figure Coupling Assembly 3 Washer

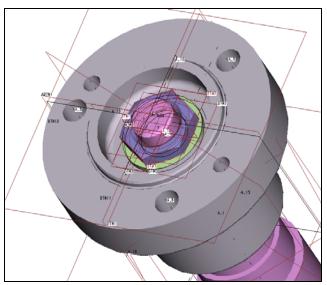


Figure Coupling Assembly 4 Hex Jam Nut and Washer

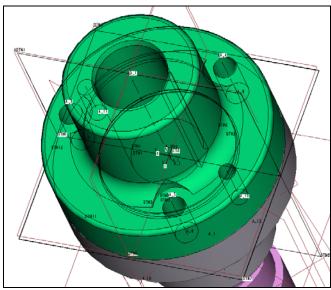


Figure Coupling Assembly 6 Second Coupling Assembled

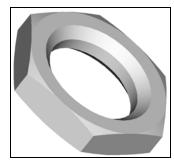


Figure Coupling Assembly 5 Hex Jam Nut

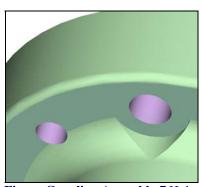
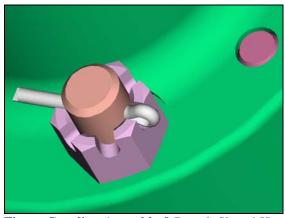
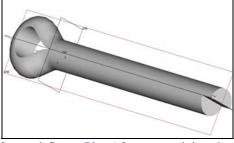


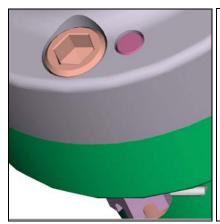
Figure Coupling Assembly 7 Holes

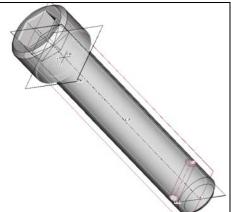






**Figure Coupling Assembly 8** Dowel, Slotted Hex Nut, and Cotter Pin. After constraining the cotter pin, try redefining (the trajectory) it to bend one or both of its prongs.





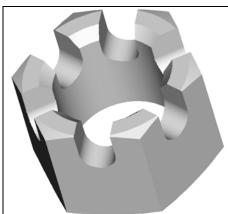


Figure Coupling Assembly 9 Socket Head Cap Screw and Slotted Hex Nut

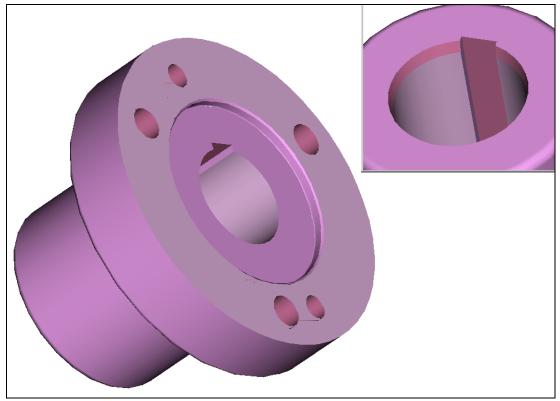


Figure Coupling Assembly 10 Second Coupling, Part Model

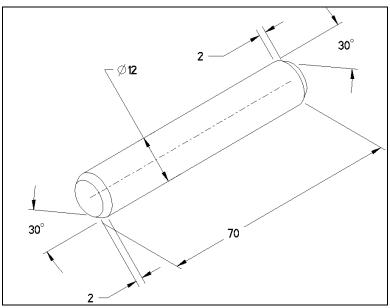


Figure Coupling Assembly 11 Dowel (model this component)

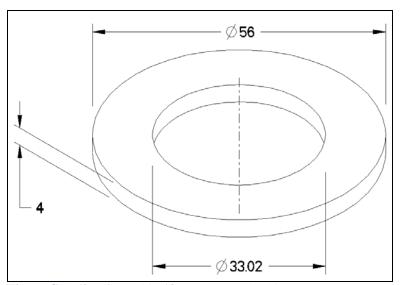


Figure Coupling Assembly 12 Washer (model this component)

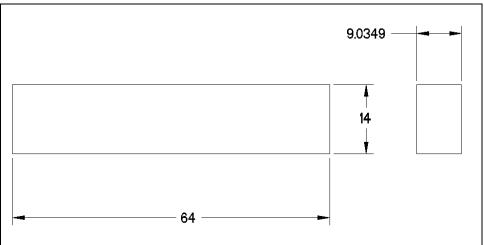


Figure Coupling Assembly 13 Key (model this component)

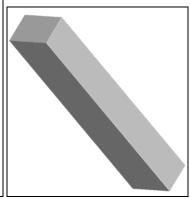


Figure Coupling Assembly 14 Key

Note: your directory structure may be slightly different. Consult your instructor or system administrator for the proper library path.

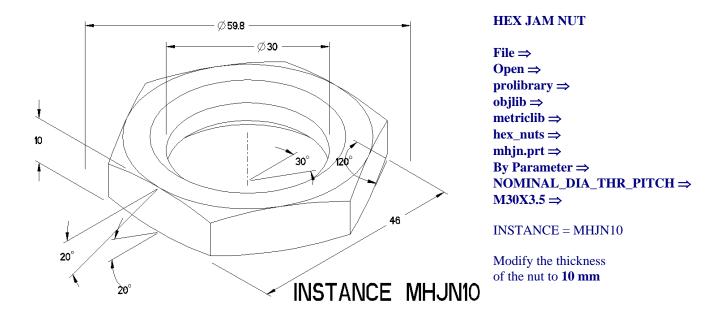


Figure Coupling Assembly 15 Hex Jam Nut

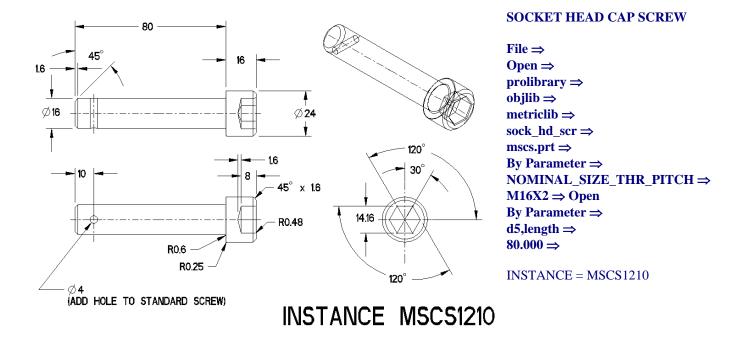


Figure Coupling Assembly 16 Socket Head Cap Screw

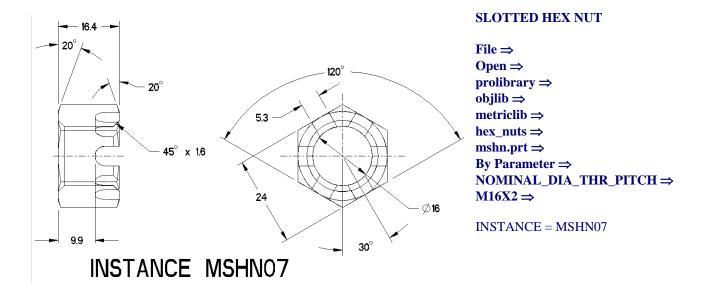


Figure Coupling Assembly 17 Slotted Hex Nut

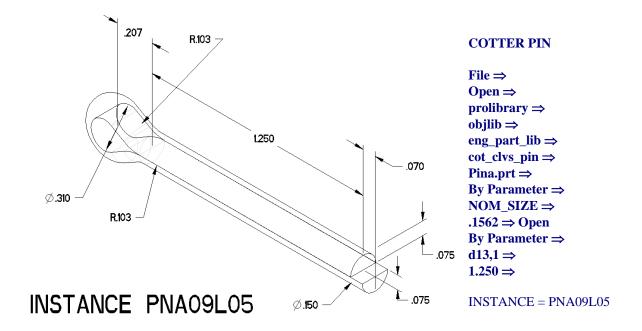


Figure Coupling Assembly 18 Cotter Pin

# **Lesson 16 Project (Exploded Assembly)**

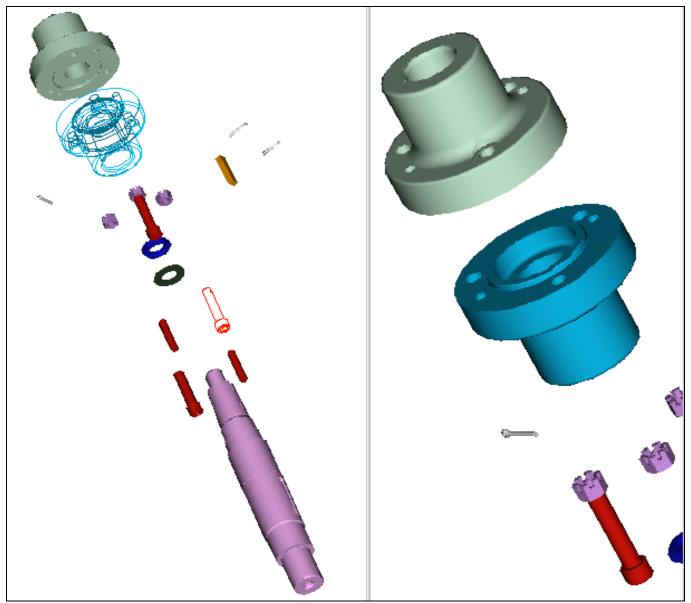
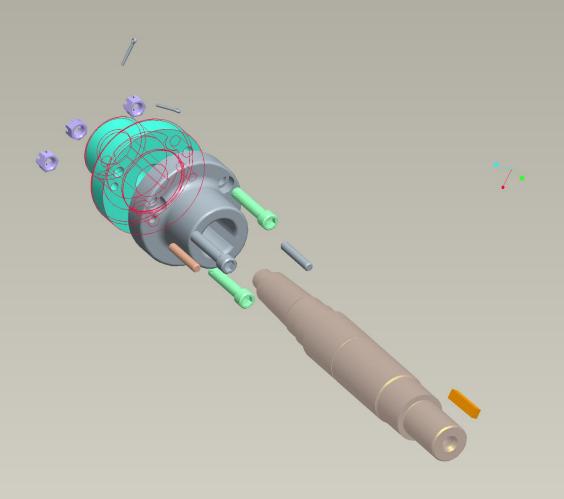


Figure Coupling Assembly 19 Exploded Coupling Assembly

An exploded view needs to be created. Varieties of other views are suggested, including a section of the assembly, a perspective view, and an exploded view with a different component (display) style variation. Each component should have its own color. If you did not color the components during the part creation, bring up each part in Part mode, define, and apply a color. Create three or four View States. You do not need to match the examples.



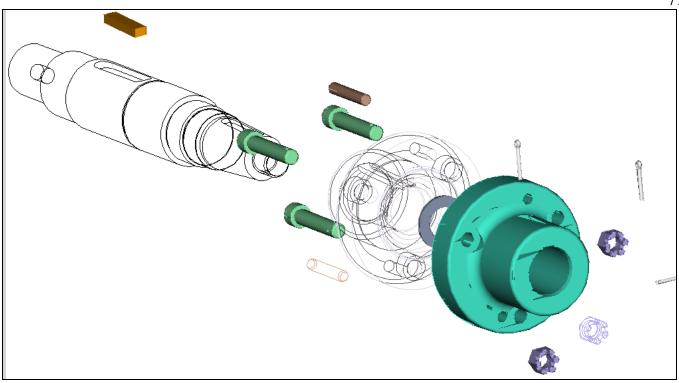


Figure Coupling Assembly 20 Perspective View of Exploded Coupling Assembly with a Variety of Component Style States

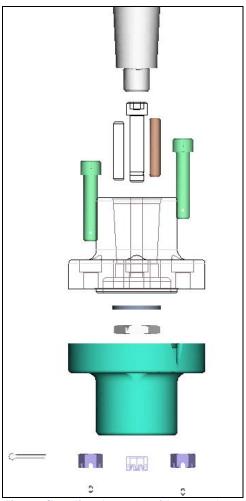


Figure Coupling Assembly 21 Front View

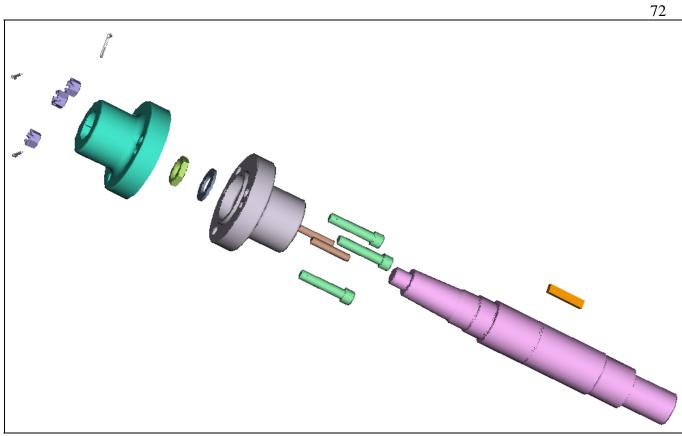


Figure Coupling Assembly 22 Shaded Exploded Coupling Assembly

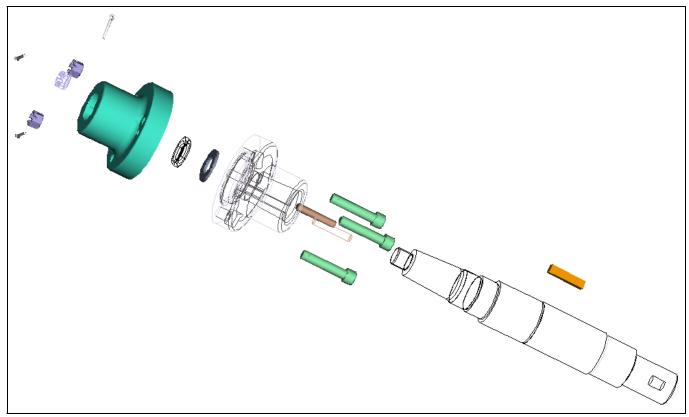


Figure Coupling Assembly 23 Exploded Coupling Assembly with a Different Component Style States

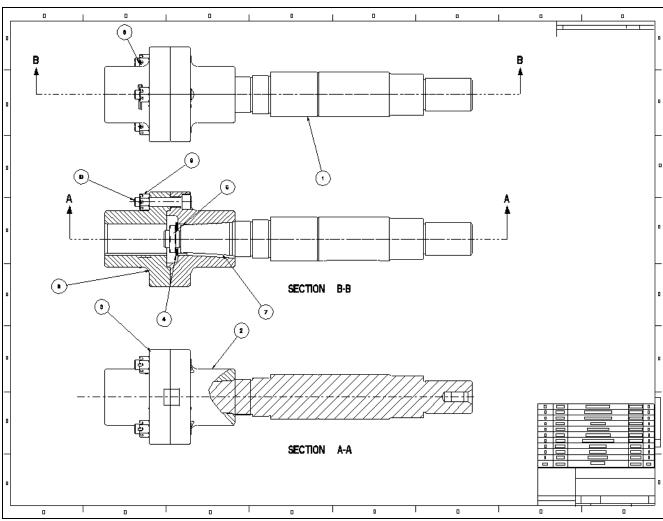


Figure Coupling Assembly 24 Coupling Assembly Drawing

Create a complete documentation package for the Coupling Assembly. The ballooned assembly drawing will have three views and a parts list. Assign parameters to the parts in the assembly so that they can be displayed on a parts list in the assembly drawing. Some of the items listed here have been created in other lessons. Create or extract existing models and drawings, and plot/print the following:

- Part Models for all coupling assembly components
- **Detail Drawings** for each nonstandard component, for example, the Coupling Shaft
- Assembly Drawing and Parts List (BOM) using standard orthographic ballooned views
- Exploded Assembly Drawing of the ballooned assembly

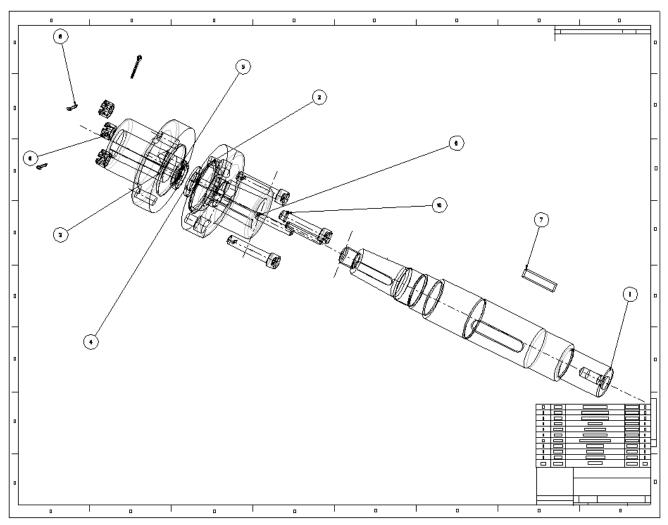


Figure Coupling Assembly 25 Exploded Coupling Assembly Drawing

10	110-2C\$	SOC HD CAP SCREW	purchased	3
9	109-2 <b>SN</b>	HEX SLOT NUT 16 X 2	PURCHASED	3
8	108-2CP	COTTER PIN .150 X 1.25	PURCHASED	3
7	107-2KY	KEY 14 X 61	PURCHASED	1
6	10 <b>6</b> -2DW	DOWEL 120D X 70	PURCHASED	2
5	105-2HN	HEX NUT M30 X 3.5	PURCHASED	1
4	1042WA	WASHER 33ID X 500D X 4	PURCHASED	1
3	103-2CP2	COUPLING TWO	1040 CR\$	1
2	102-2CP1	COUPLING ONE	1040 CR\$	1
1	101-2 <b>S</b> H	COUPLING SHAFT	1020 CR\$	1
ITEM	PT NUM	DESCRIPTION	MATERIAL	QTY

Figure Coupling Assembly 26 BOM

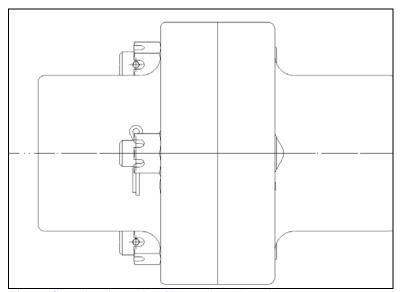


Figure Coupling Assembly 27 Drawing, Slotted Hex Nut

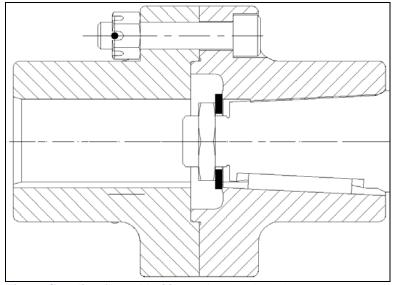


Figure Coupling Assembly 29 Drawing, Section Close-up

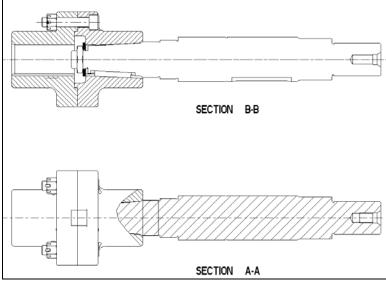


Figure Coupling Assembly 31 Drawing, Sections A-A and B-B

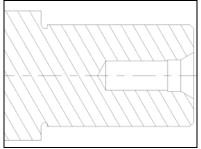


Figure Coupling Assembly 28 Tapped Hole

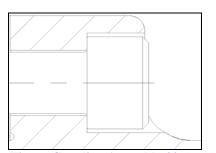


Figure Coupling Assembly 30 SHCS

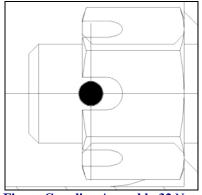
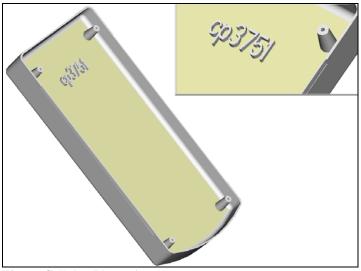


Figure Coupling Assembly 32 Nut

# **Project for Wildfire 4.0 (Draft)**



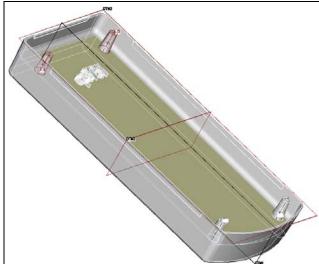


Figure Cellular Phone 1 Cellular Phone Bottom

Figure Cellular Phone 2 Datum Features

#### **Cellular Phone Bottom**

The Cellular Phone Bottom requires commands similar to those used in the Enclosure. Analyze the part and plan the steps and features required to model it. Plan the feature creation sequence and the parent-child relationships for the part. Thickness is .040 on its sides and .500 on its inside bottom.

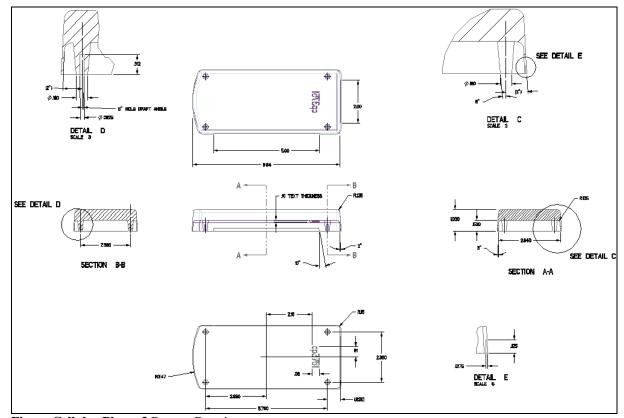


Figure Cellular Phone 3 Bottom Drawing

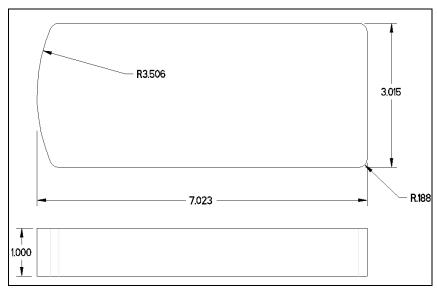


Figure Cellular Phone 4 Dimensions for First Protrusion



Figure Cellular Phone 5 Bottom Drawing, Top View

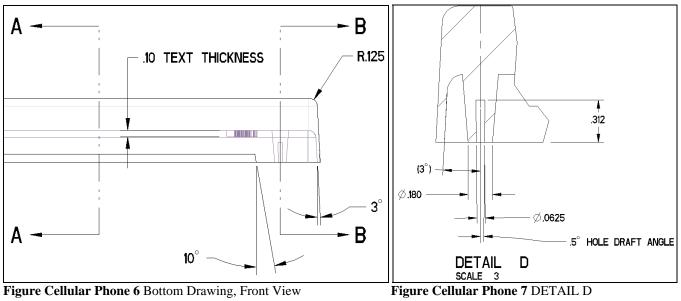


Figure Cellular Phone 6 Bottom Drawing, Front View

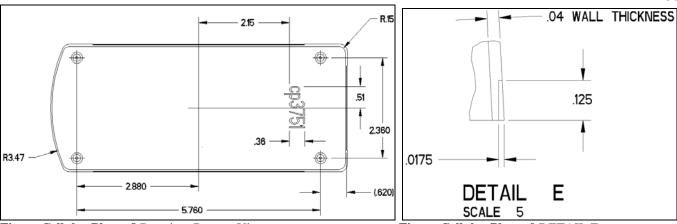


Figure Cellular Phone 8 Drawing, Bottom View

Figure Cellular Phone 9 DETAIL E

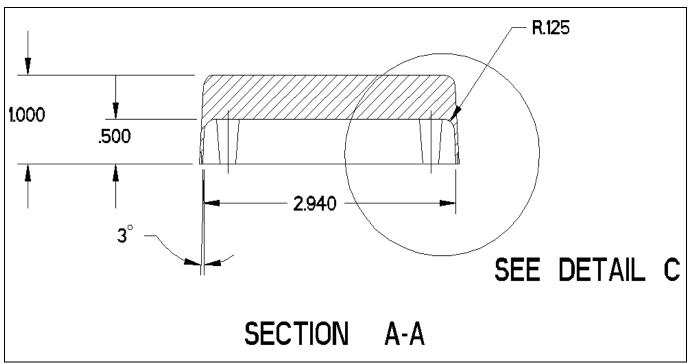


Figure Cellular Phone 10 SECTION A-A

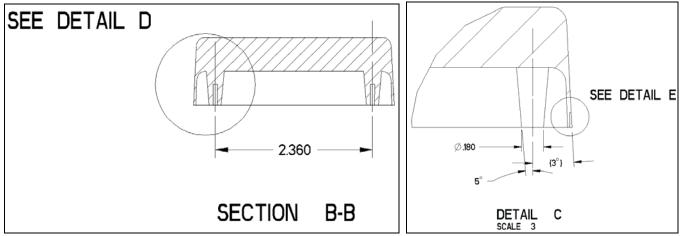


Figure Cellular Phone 11 SECTION B-B

Figure Cellular Phone 12 DETAIL C

### **Project for Wildfire 4.0 (Shell)**

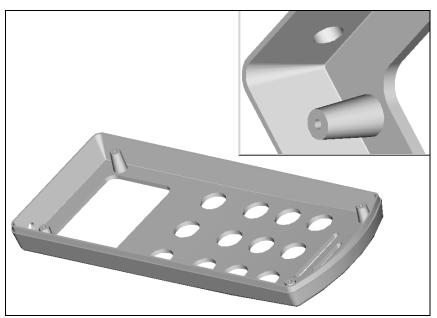


Figure Cell Phone 1 Cellular Phone Top

#### **Cell Phone Top**

The Cell Phone Top is one of two major components for a cellular phone. The part is made of the same plastic as the Cellular Phone Bottom. If time permits, try to assemble the two pieces (you may need to modify these parts to attain a proper fit). Analyze the part and plan the steps and features required to model it.

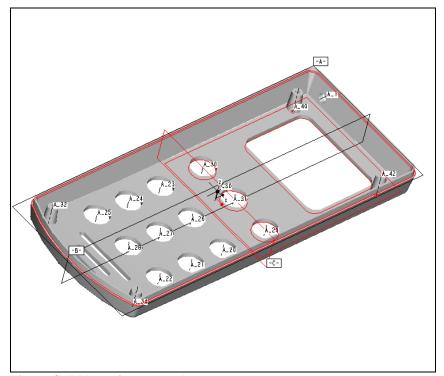


Figure Cell Phone 2 Top Showing Datum Planes

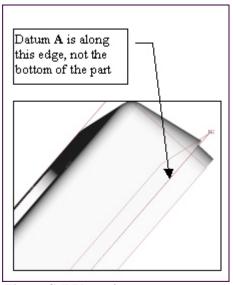


Figure Cell Phone 3 Datum A



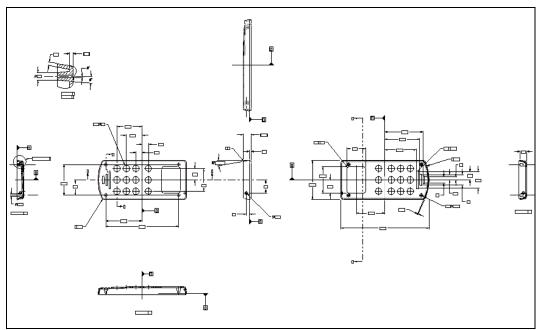


Figure Cell Phone 4 Detail Drawing

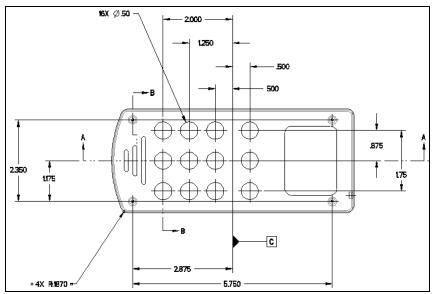


Figure Cell Phone 5 Front View

R10 (6250)

10° DRAFT

A (2.9335)

100

Figure Cell Phone 7 Right Side View

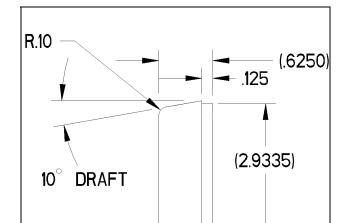


Figure Cell Phone 8 Section

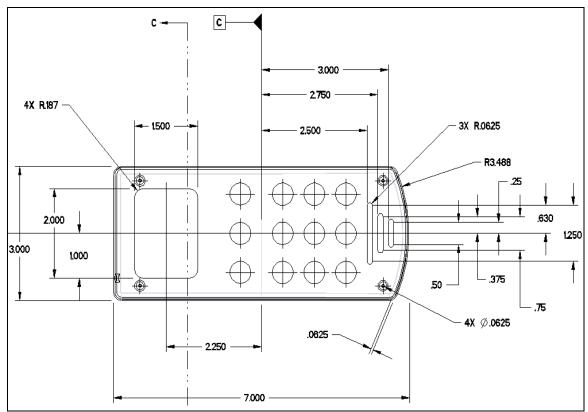


Figure Cell Phone 9 Bottom View

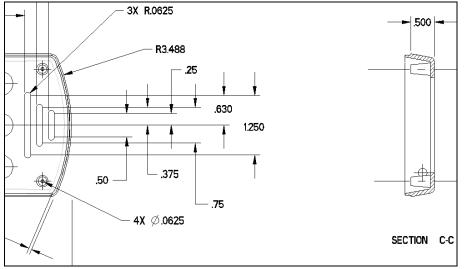


Figure Cell Phone 10 SECTION C-C

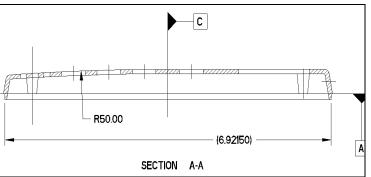


Figure Cell Phone 12 SECTION A-A

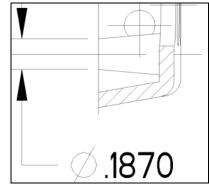


Figure Cell Phone 11 Diameter

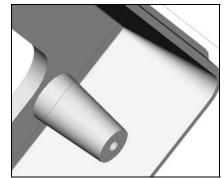


Figure Cell Phone 13 Tapered Boss

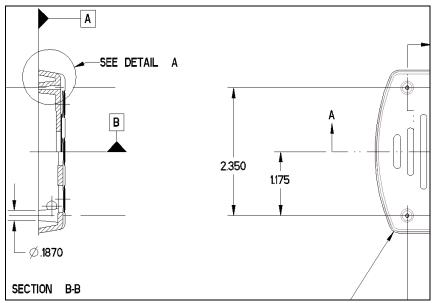




Figure Cell Phone 14 SECTION B-B

Figure Cell Phone 15 Grill

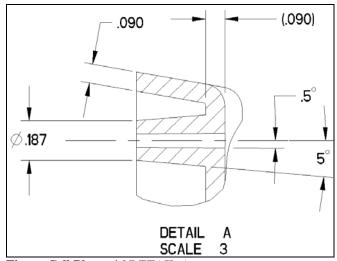


Figure Cell Phone 16 DETAIL A

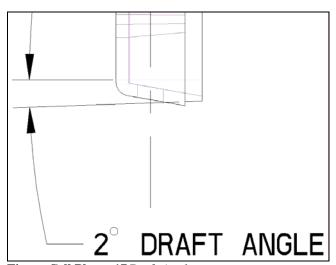


Figure Cell Phone 17 Draft Angle

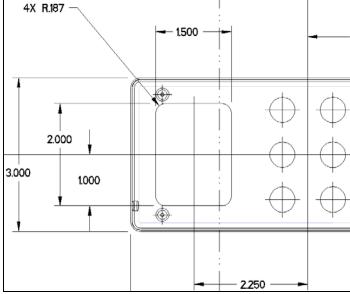


Figure Cell Phone 18 Opening

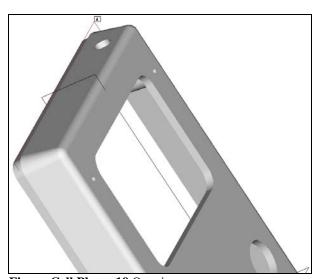


Figure Cell Phone 19 Opening

# **Lesson 12 Project (Sweep)**

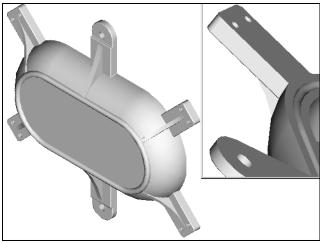


Figure Cover Plate 1 Cover Plate

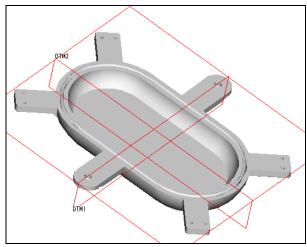


Figure Cover Plate 2 Cover Plate Bottom View

#### **Cover Plate**

The Cover Plate is a cast-iron part. The sweep will have a *closed trajectory* with *inner faces included*. Analyze the part and plan the steps and features required to model it. Establish the feature creation sequence and the parent-child relationships for the part. Add rounds on all non-machined edges.

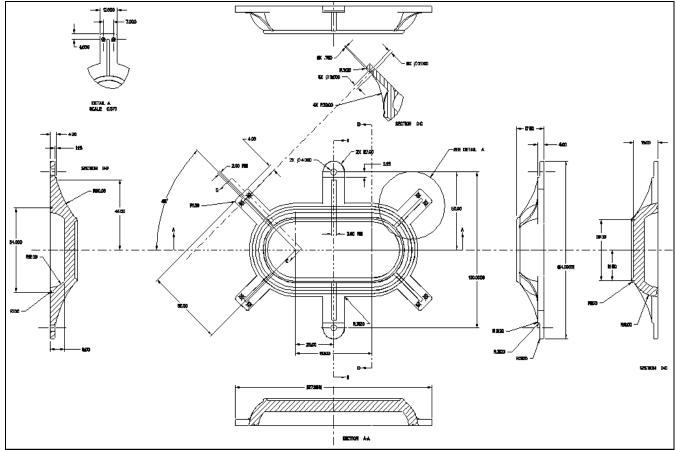
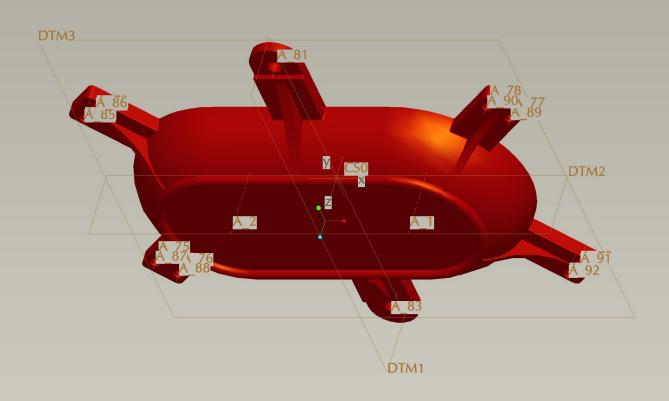


Figure Cover Plate 3 Detail Drawing, Sheet One



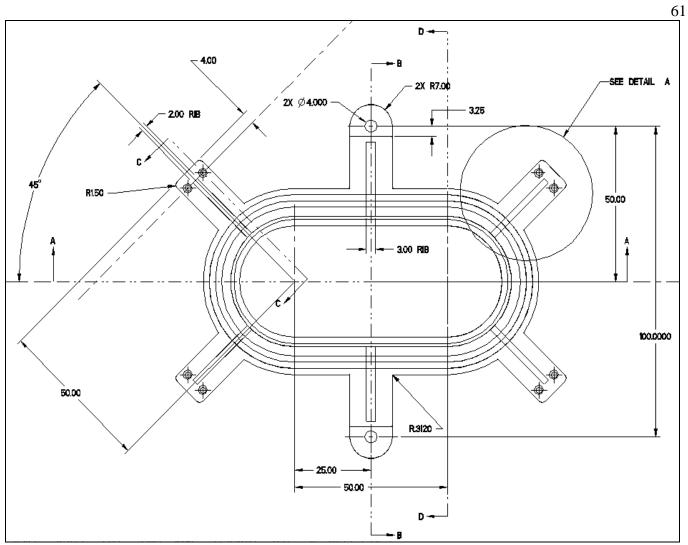


Figure Cover Plate 4 Drawing, Top View

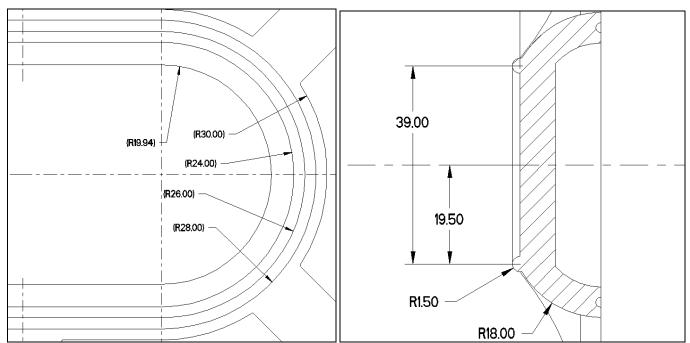


Figure Cover Plate 5 Sheet Two, Bottom View

Figure Cover Plate 6 SECTION D-D

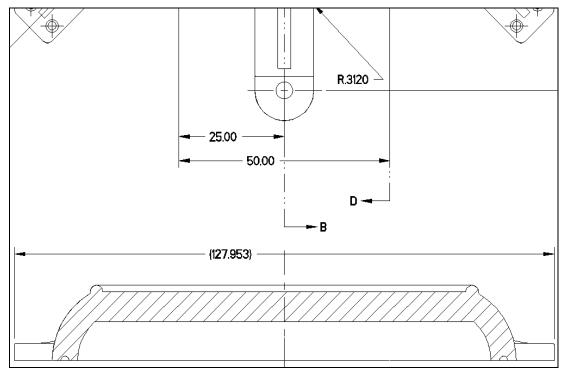
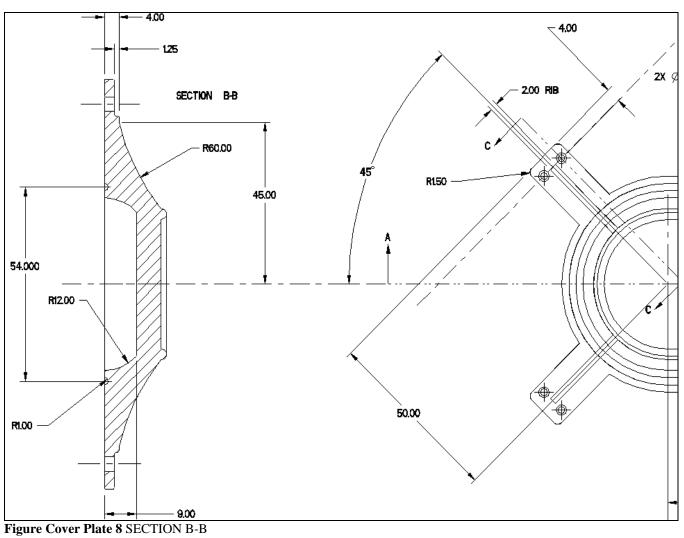


Figure Cover Plate 7 SECTION A-A



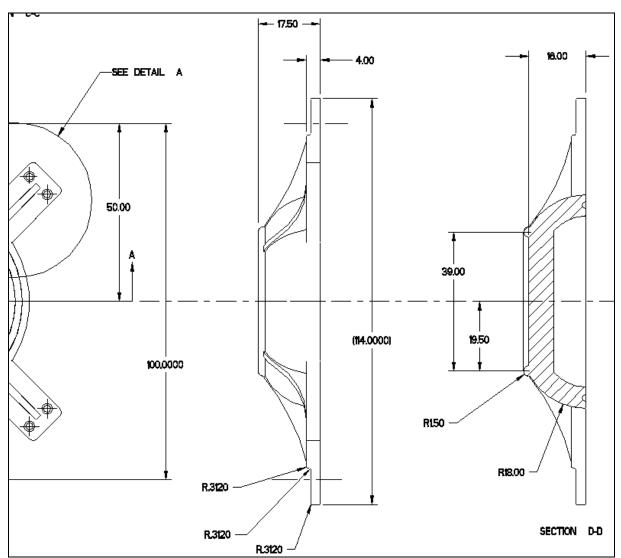


Figure Cover Plate 9 SECTION D-D

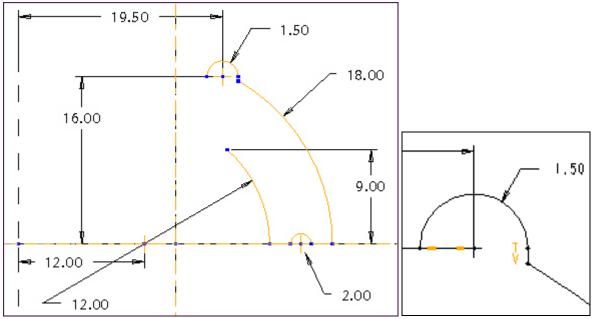


Figure Cover Plate 10 Cover Plate Sweep Section Sketch

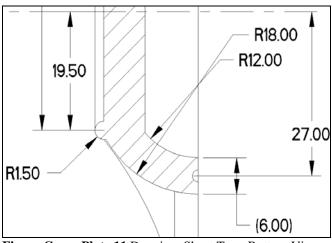
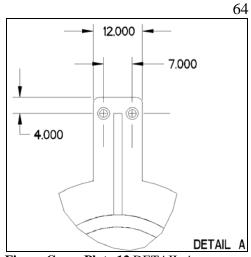


Figure Cover Plate 11 Drawing, Sheet Two, Bottom View



16.00

Figure Cover Plate 12 DETAIL A

39.00

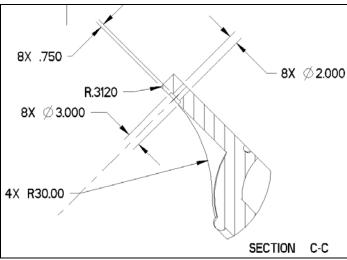


Figure Cover Plate 14 Dimensions

4.00



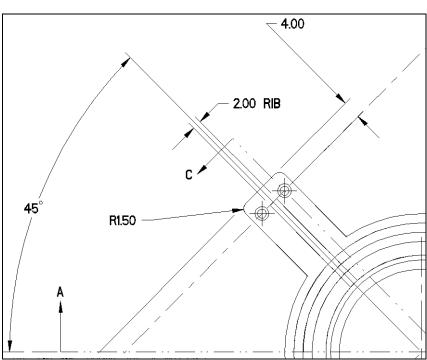


Figure Cover Plate 15 Close-up of Top Left

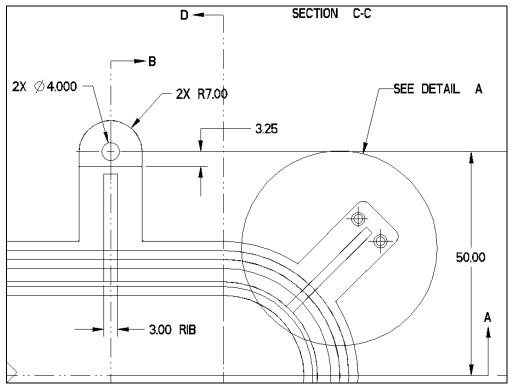


Figure Cover Plate 16 Close-up of Top Right

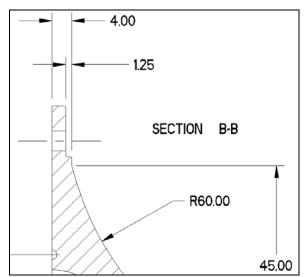


Figure Cover Plate 17 SECTION B-B

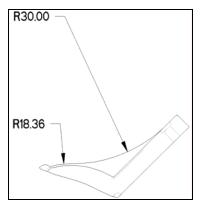


Figure Cover Plate 19 Legs

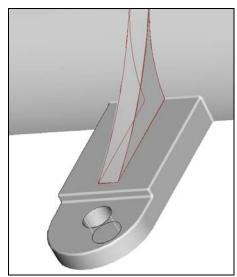


Figure Cover Plate 18 Rounded Leg

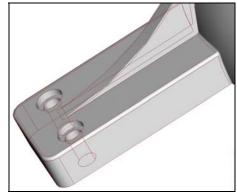
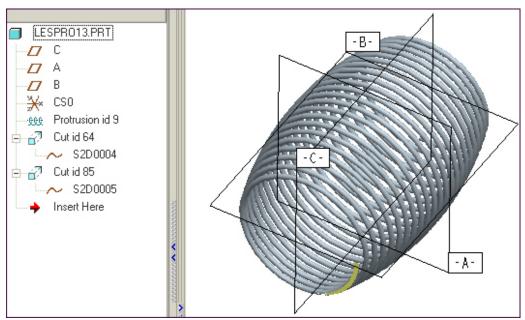


Figure Cover Plate 20 Rectangular Leg

# **Project for Wildfire 4.0 (Helical Sweep)**



**Figure Convex Compression Spring 1** 

#### **Convex Compression Spring**

This lesson project is a Convex Compression Spring. This project uses commands similar to those for the Helical Compression Spring. Analyze the part and plan the steps and features required to model it. The spring is made of *spring steel*. Add 3D Notes describing the spring.

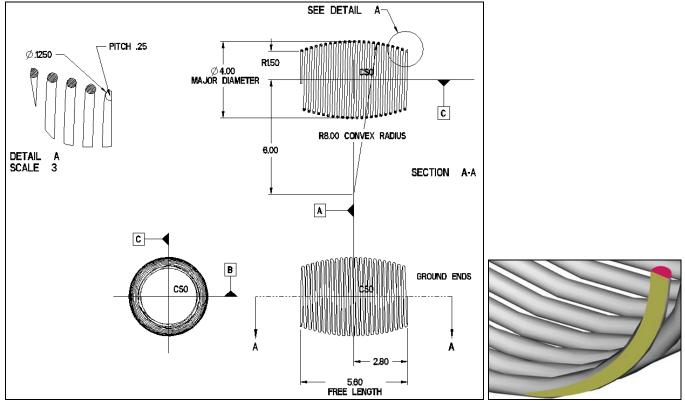
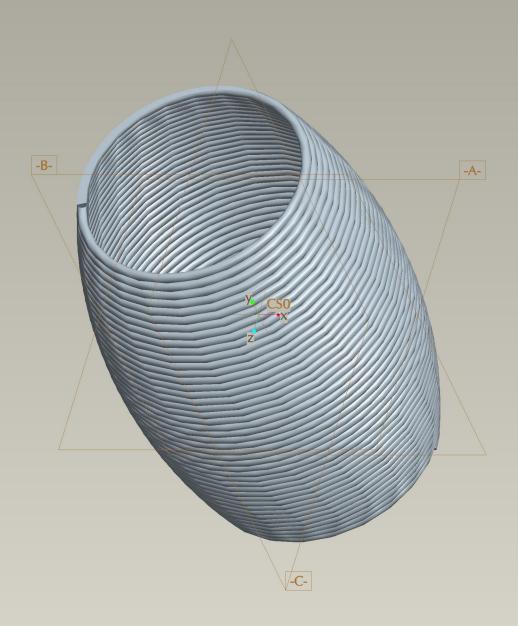


Figure Convex Compression Spring 2 Detail Drawing (ground ends) Figure Convex Compression Spring 3 Ground Ends



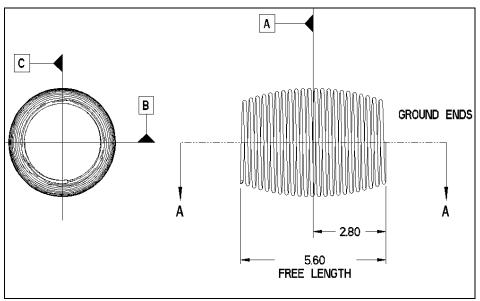


Figure Convex Compression Spring 4 Front and Left Side Views

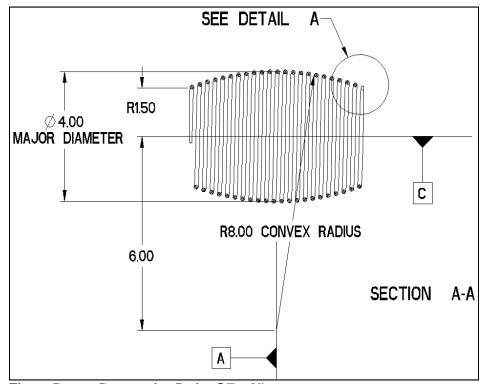
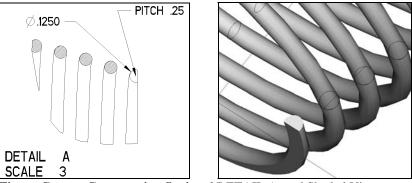


Figure Convex Compression Spring 5 Top View





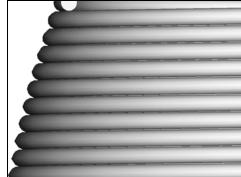


Figure Convex Compression Spring 6 DETAIL A, and Shaded Views

The ECO does not alter the Convex Compression Spring you just created. The ECO requests that a different extension spring be designed with hook ends instead of ground ends. The same size and dimensions required in the Convex Compression Spring are to be used in the new spring.

Save the Convex Compression Spring under a new name-- CONVEX\_COM\_SPR\_GRND\_ENDS. Rename the active part to something like CON\_EXT\_SPR\_HOOK\_ENDS. Delete the ground ends, and design machine hooks for both ends of the new spring. Refer to your Machinery's Handbook or your engineering graphics text for acceptable design options and dimensions for the hook ends. Create 3D Notes to describe the spring.

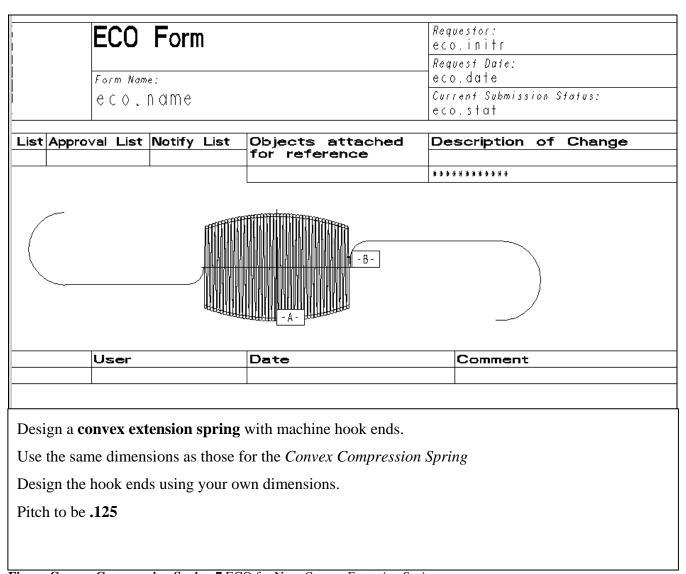


Figure Convex Compression Spring 7 ECO for New Convex Extension Spring

#### **Advanced Project for Wildfire 4.0 (Swept Blend)**

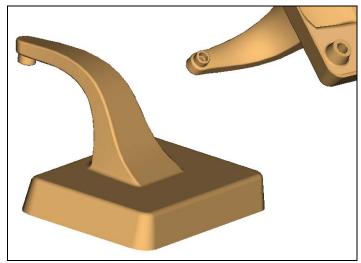


Figure Bathroom Faucet 1 Bathroom Faucet

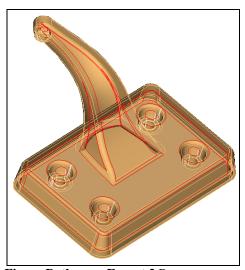


Figure Bathroom Faucet 2 Bottom

#### **Bathroom Faucet**

This is an advanced lesson project. Because you have created over twenty parts, you should be able to use that knowledge to model the Swept Blend required to create the Bathroom Faucet. Some instructions accompany this lesson project, but you will be required to research documentation (Pro/HELP) and learn about Splines and Swept Blends. After the model is complete, create a number of sections that can be used in Drawing mode when you are detailing the Faucet.

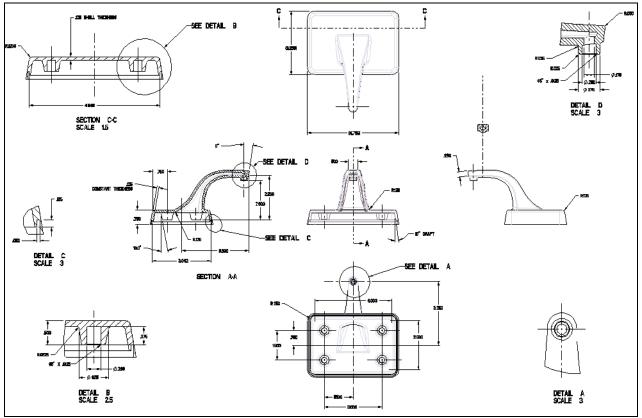
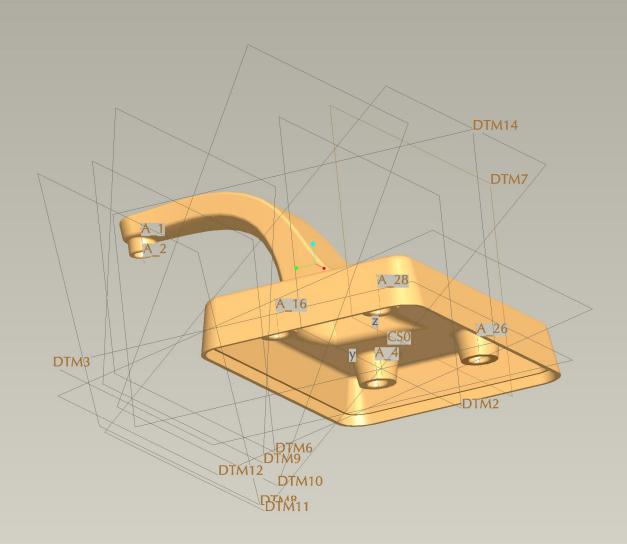


Figure Bathroom Faucet 3 Detail Drawing



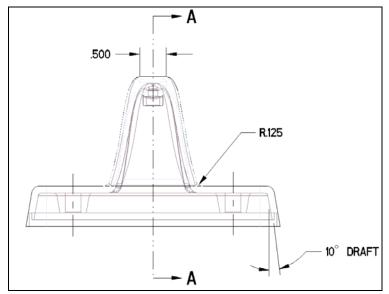


Figure Bathroom Faucet 4 Front View

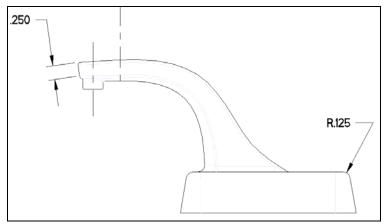


Figure Bathroom Faucet 6 Right Side View

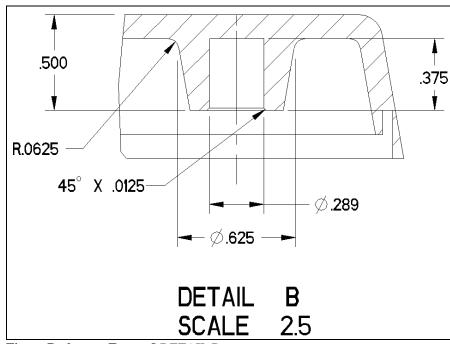


Figure Bathroom Faucet 8 DETAIL B

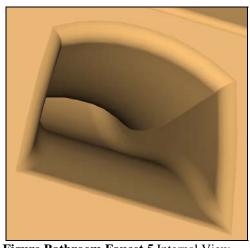
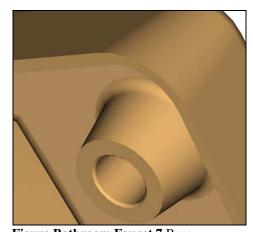


Figure Bathroom Faucet 5 Internal View



**Figure Bathroom Faucet 7** Boss

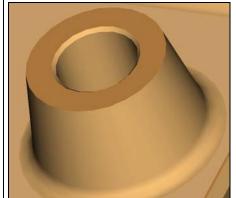


Figure Bathroom Faucet 9 Draft

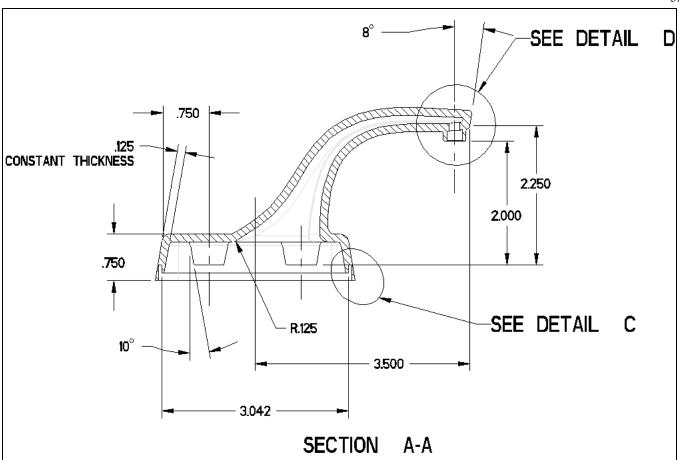


Figure Bathroom Faucet 10 SECTION A-A

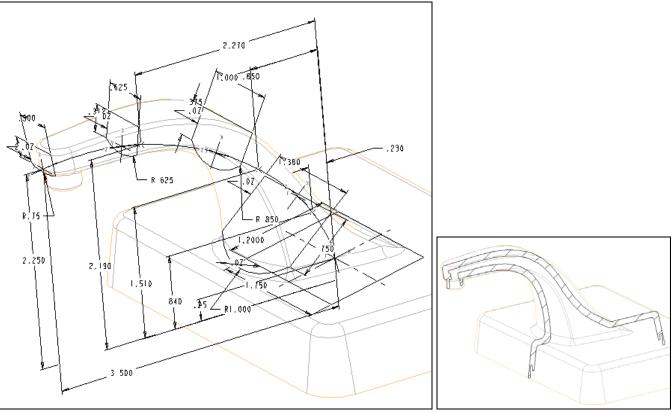
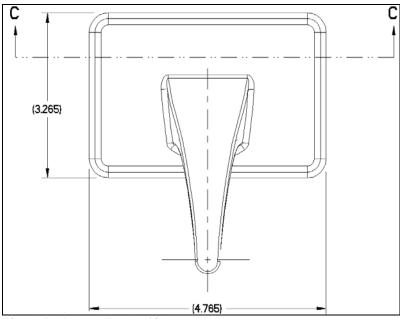


Figure Bathroom Faucet 11 Sweep Sections

Figure Bathroom Faucet 12 Sectioned Spout



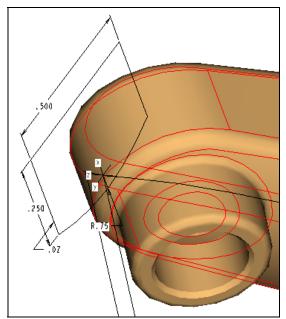
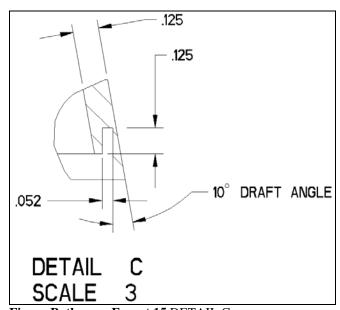


Figure Bathroom Faucet 13 Top View

Figure Bathroom Faucet 14 End Section



**Figure Bathroom Faucet 15** DETAIL C

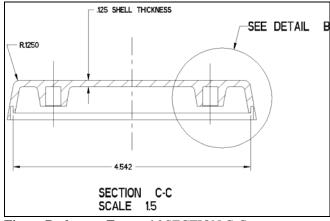


Figure Bathroom Faucet 16 SECTION C-C

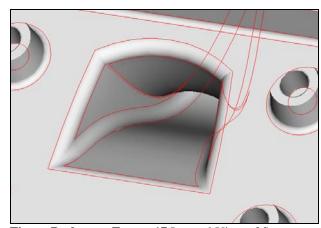


Figure Bathroom Faucet 17 Internal View of Spout

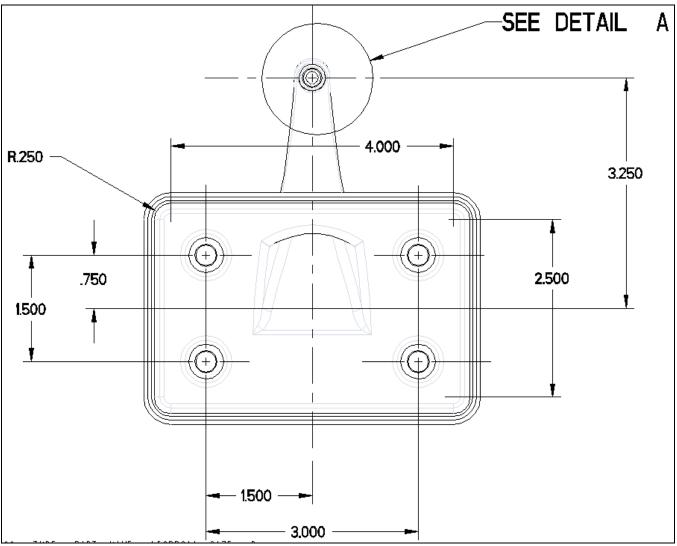


Figure Bathroom Faucet 18 Bottom View

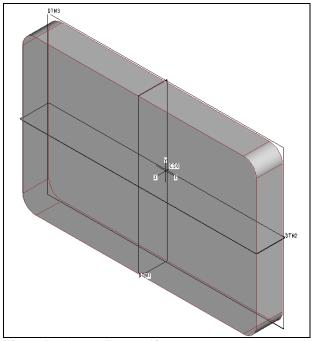


Figure Bathroom Faucet 19 First Protrusion

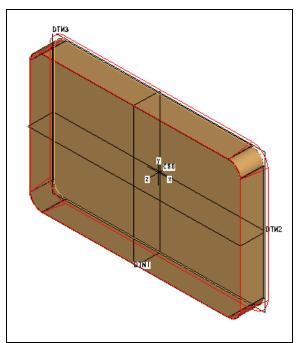


Figure Bathroom Faucet 20 Previewed Draft

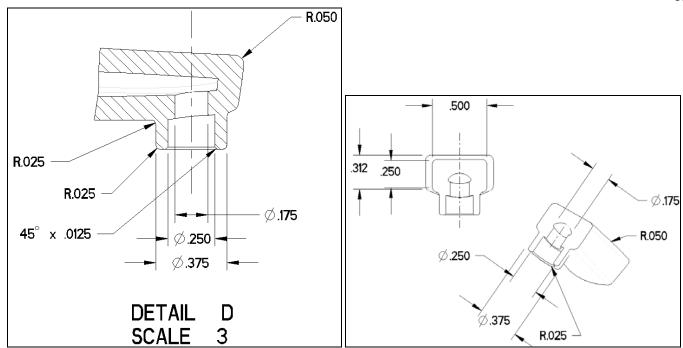


Figure Bathroom Faucet 21 DETAIL D

Figure Bathroom Faucet 22 Bathroom Faucet Drawing, Spout Section

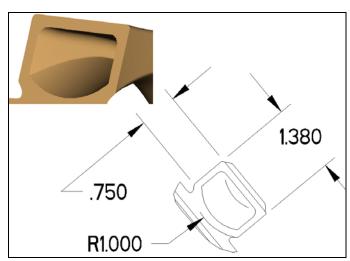


Figure Bathroom Faucet 23 Second Blend Section

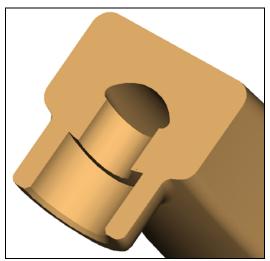
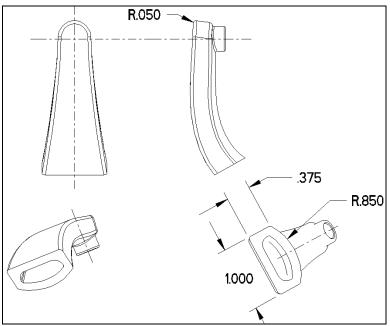


Figure Bathroom Faucet 24 Sectioned End



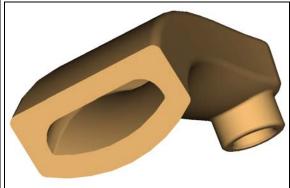
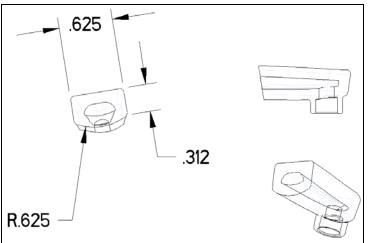


Figure Bathroom Faucet 25 Third Blend Section

Figure Bathroom Faucet 26 Third Section



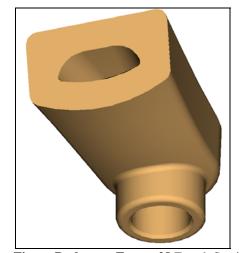
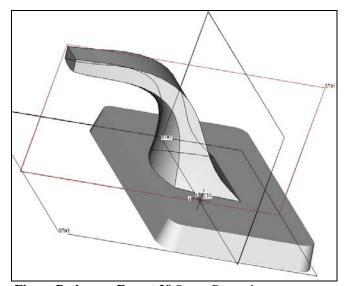


Figure Bathroom Faucet 27 Fourth Blend Section

Figure Bathroom Faucet 28 Fourth Section



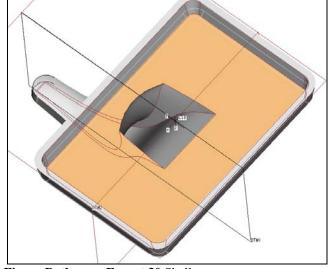


Figure Bathroom Faucet 29 Swept Protrusion

Figure Bathroom Faucet 30 Shell

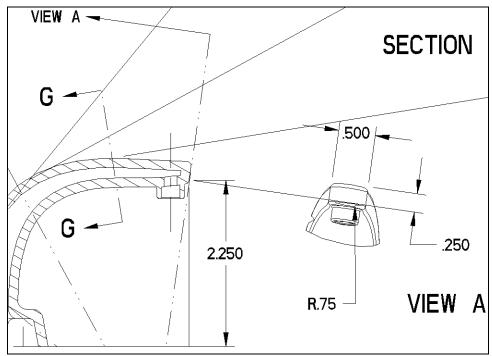




Figure Bathroom Faucet 31 Fifth Blend Section

Figure Bathroom Faucet 32 End

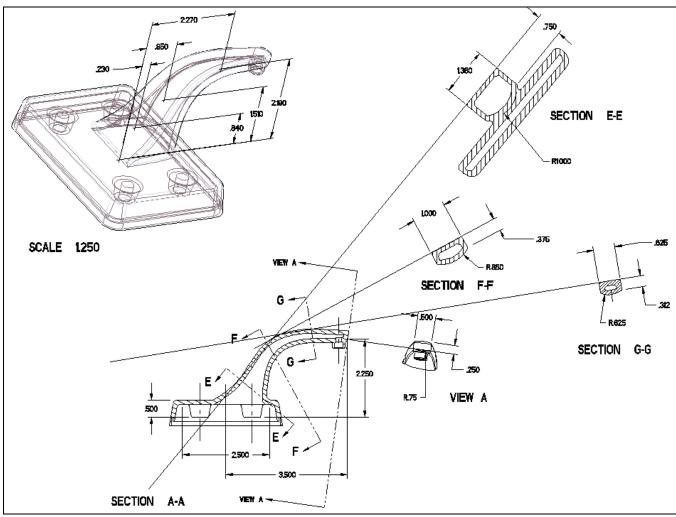


Figure Bathroom Faucet 33 Sections

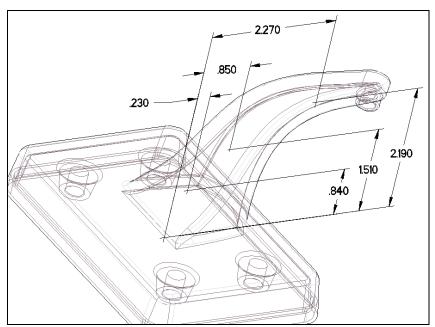
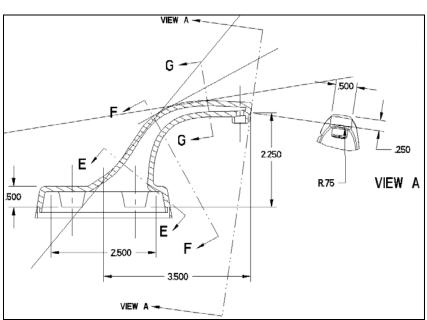


Figure Bathroom Faucet 34 First Three Blend Section Locations



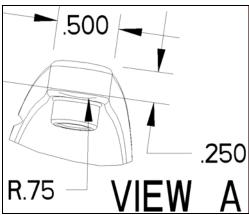
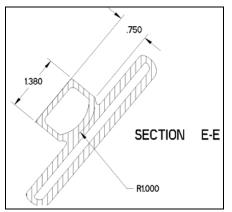


Figure Bathroom Faucet 35 SECTION A-A

Figure Bathroom Faucet 36 VIEW A



**Figure Bathroom Faucet 37 SECTION E-E** 

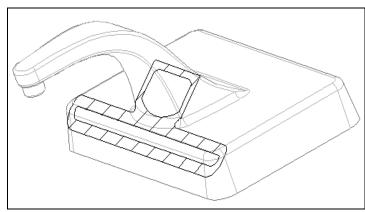


Figure Bathroom Faucet 38 Pictorial of SECTION E-E

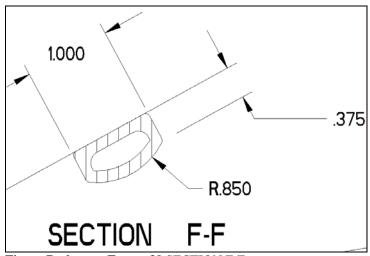


Figure Bathroom Faucet 39 SECTION F-F

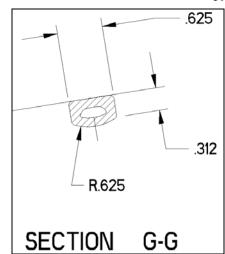


Figure Bathroom Faucet 40 SECTION G-G

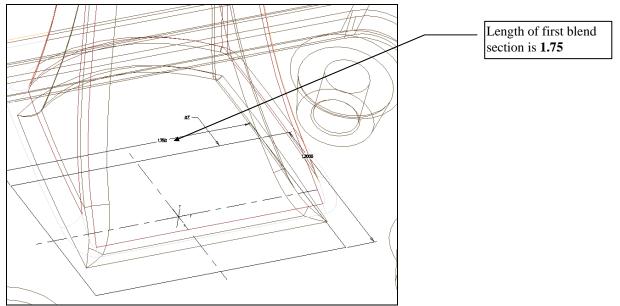


Figure Bathroom Faucet 41 Bathroom Faucet Drawing, First Section

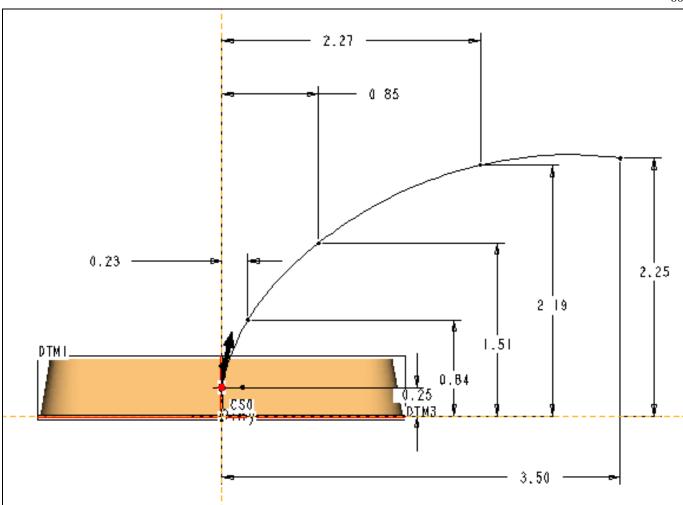


Figure Bathroom Faucet 42 Trajectory Dimensions

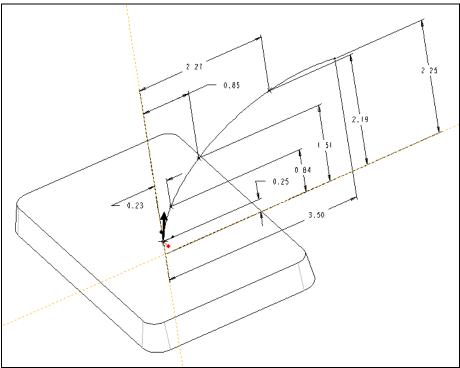


Figure Bathroom Faucet 43 First Section: Pictorial

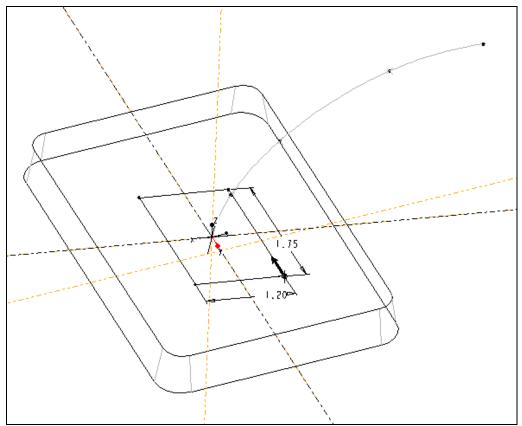


Figure Bathroom Faucet 44 First Section Dimensions

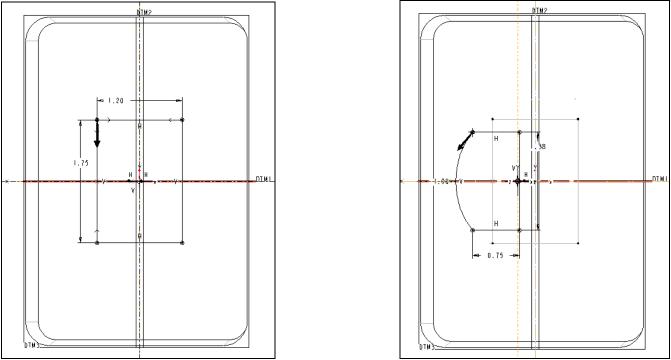


Figure Bathroom Faucet 45 First Section: 1.75 X 1.20 Figure Bathroom Faucet 46 Second Section: 1.380 X .75 X R1.00

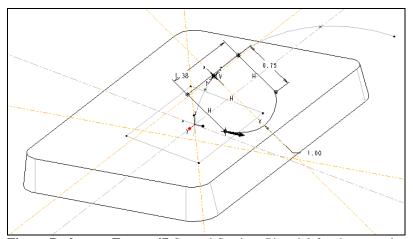


Figure Bathroom Faucet 47 Second Section: Pictorial for the second section, align the arc center to the colored crosshairs (starting point)

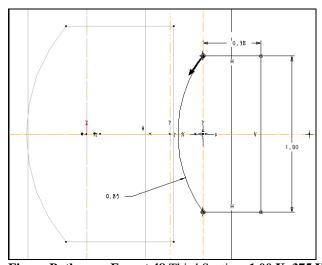


Figure Bathroom Faucet 48 Third Section: 1.00 X .375 X R.850

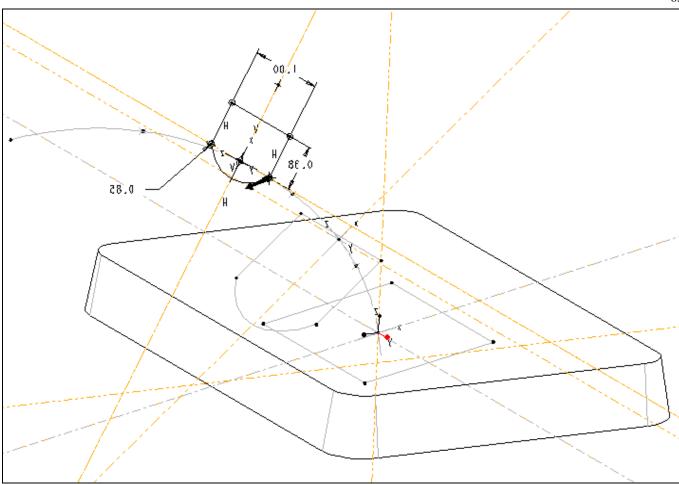


Figure Bathroom Faucet 49 Third Section: Pictorial

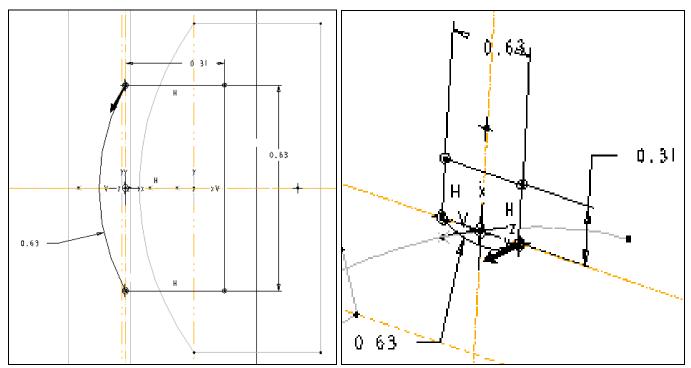


Figure Bathroom Faucet 50 Fourth Section: .625 X .312 X R.625

Figure Bathroom Faucet 51 Fourth Section

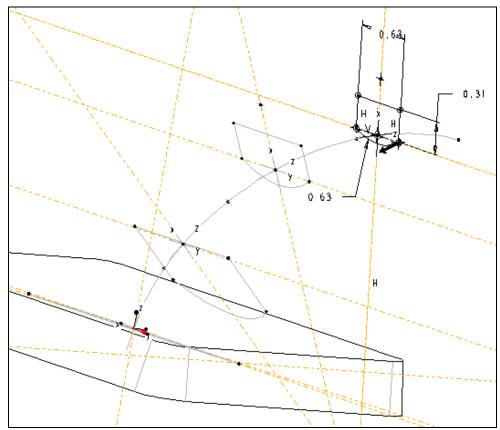


Figure Bathroom Faucet 52 Fourth Section: Pictorial

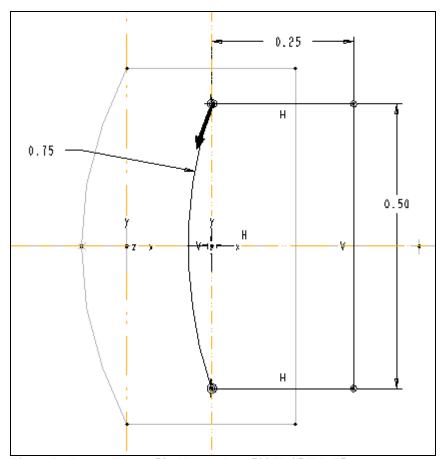


Figure Bathroom Faucet 53 Fifth Section: .500 X .25 X R.75

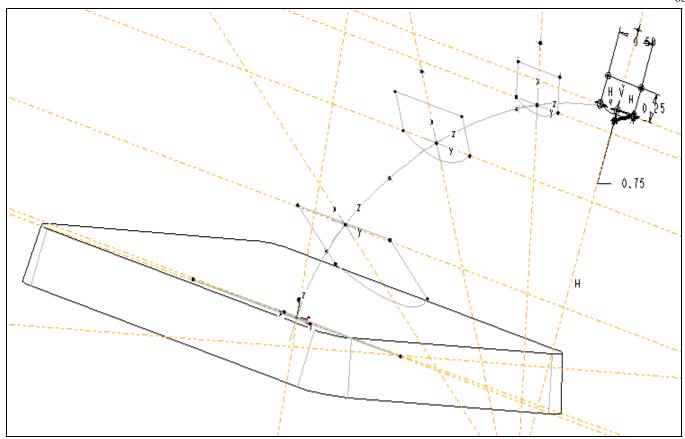


Figure Bathroom Faucet 54 Fifth Section: Pictorial

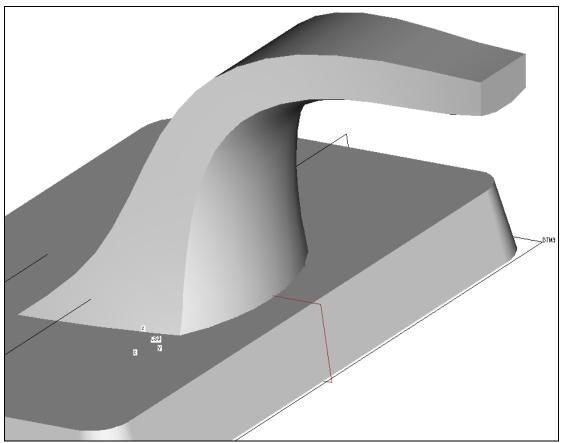
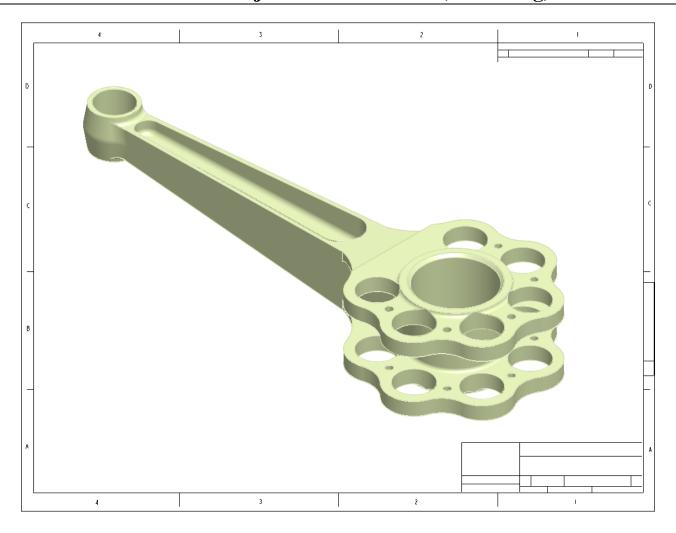
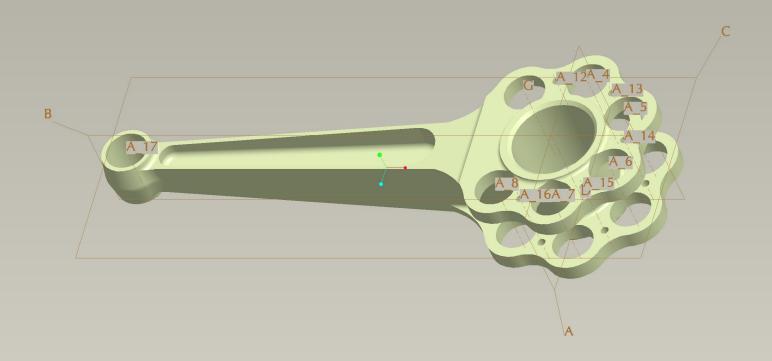
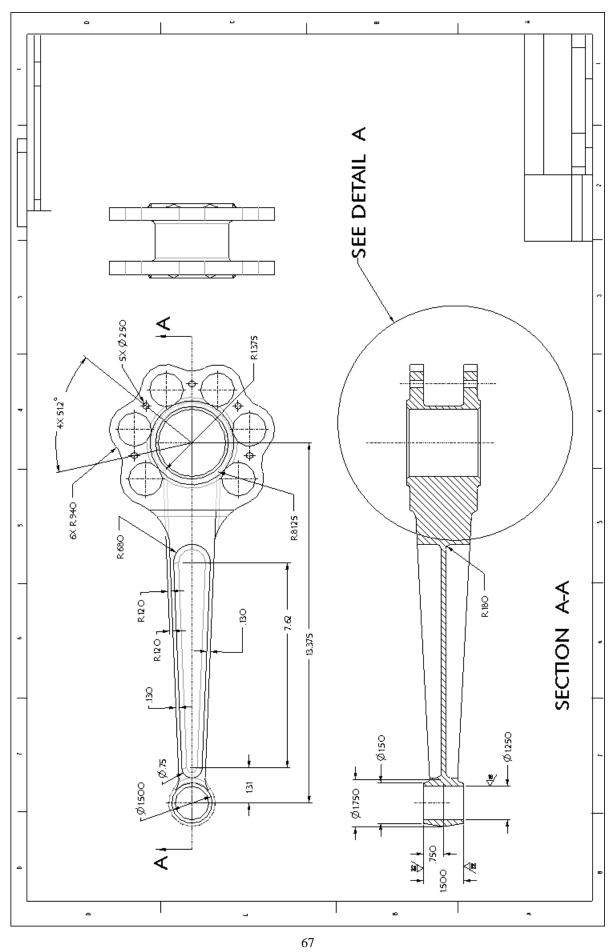


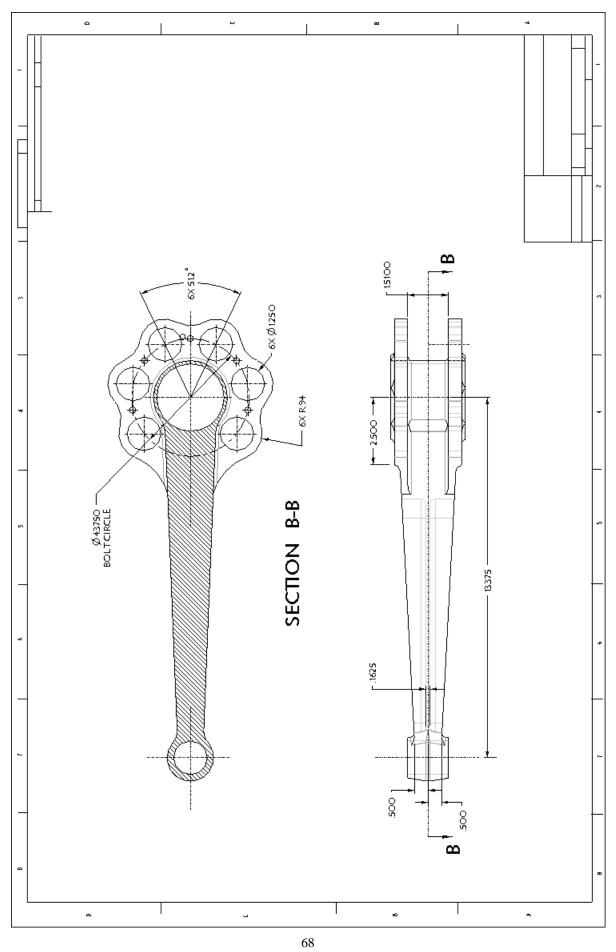
Figure Bathroom Faucet 55 Completed Swept Blend

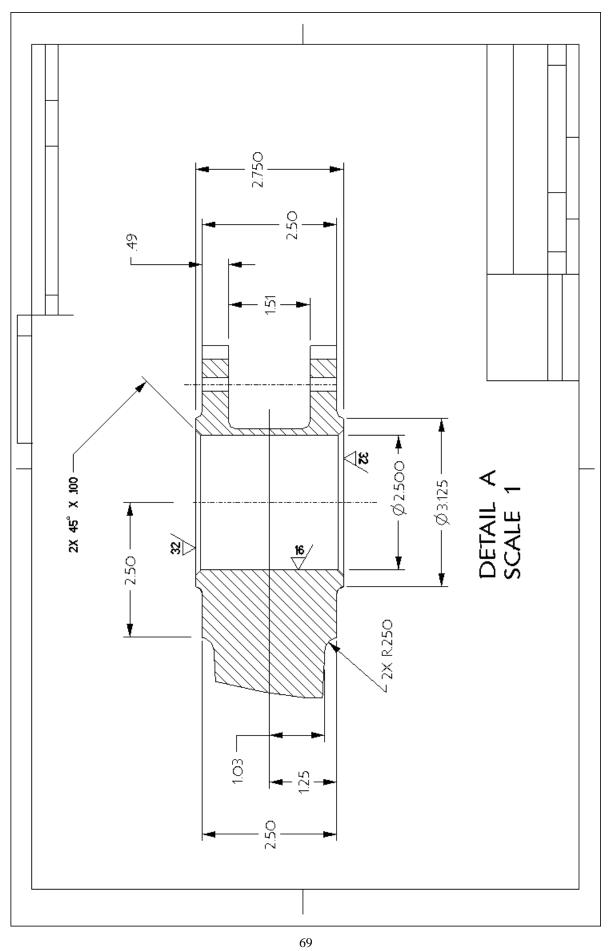
### **Advanced Project for Wildfire 4.0 (machining)**

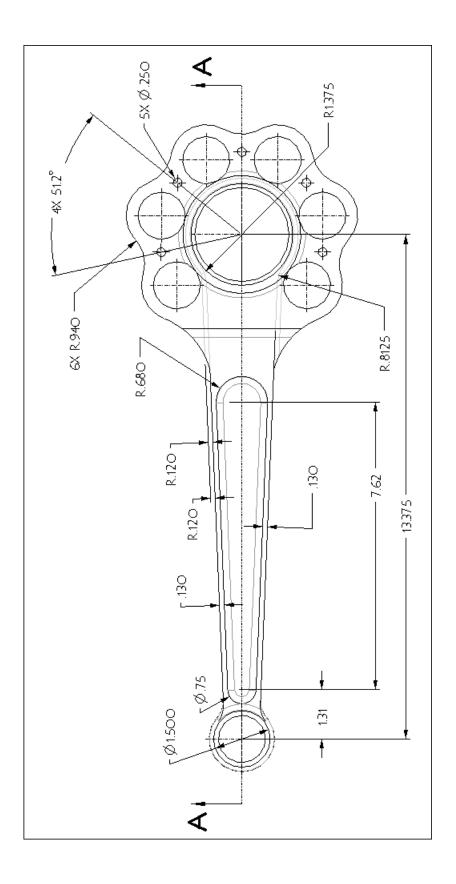


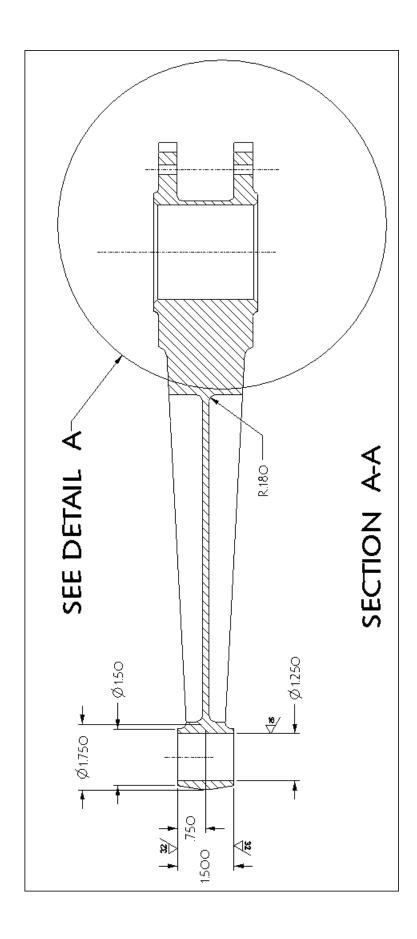


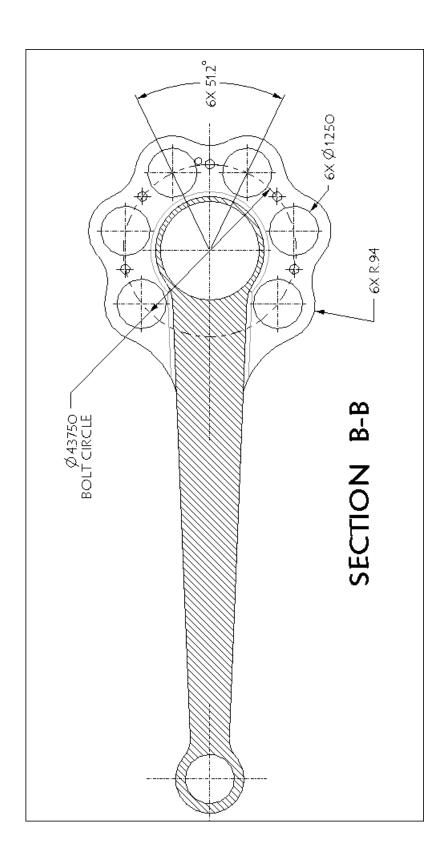


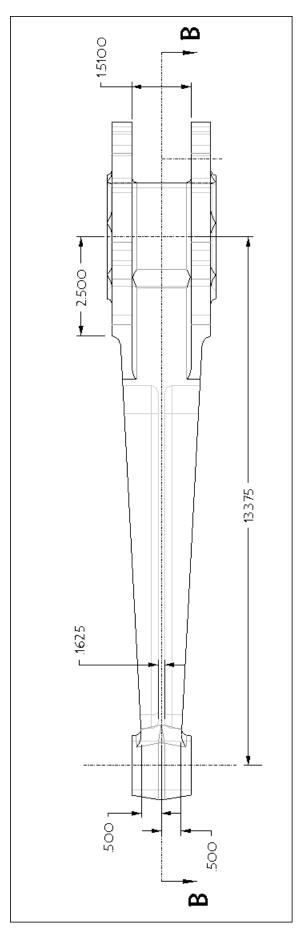




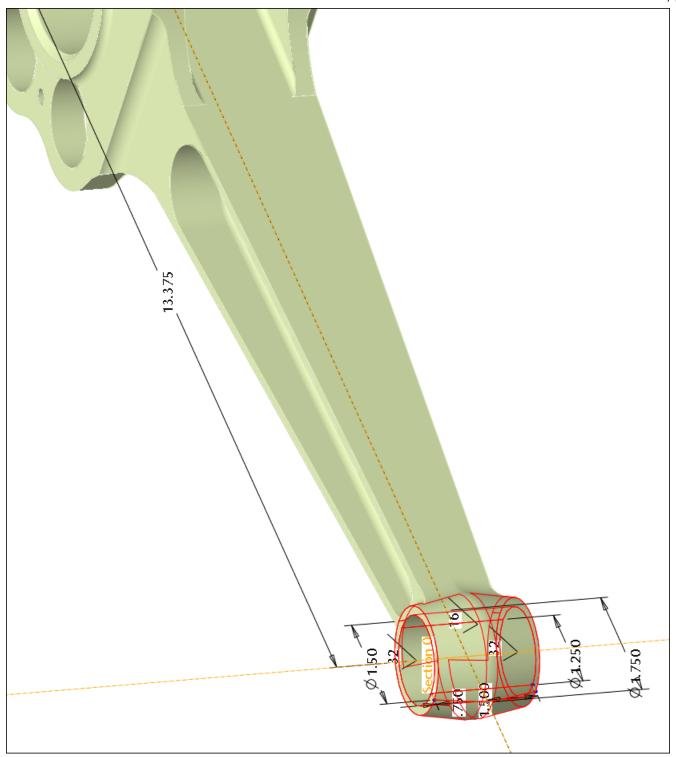


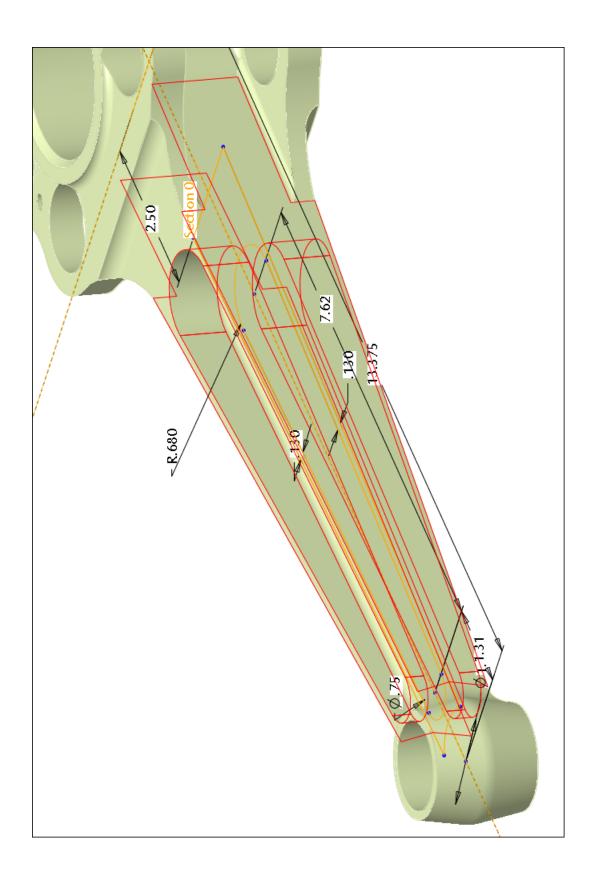


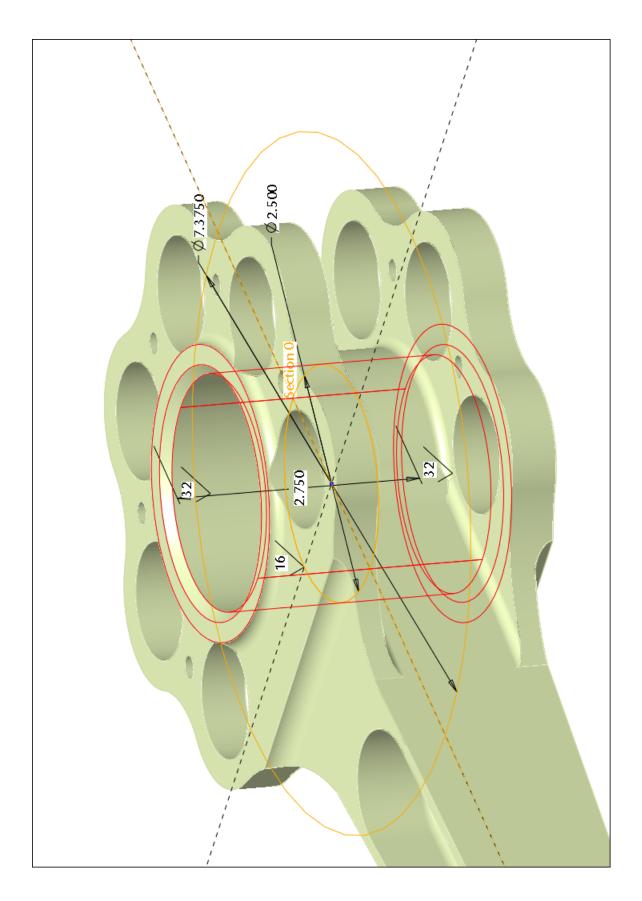


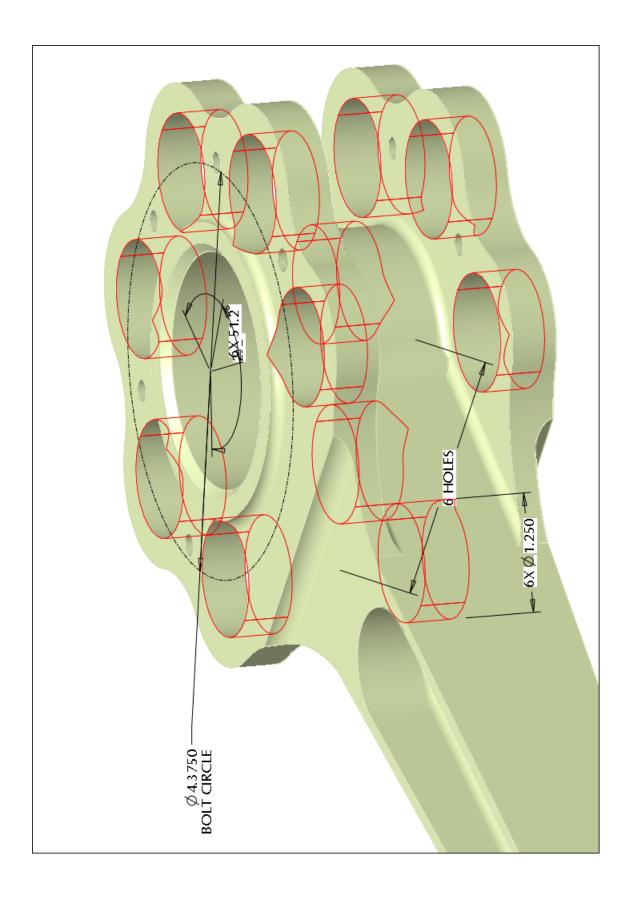


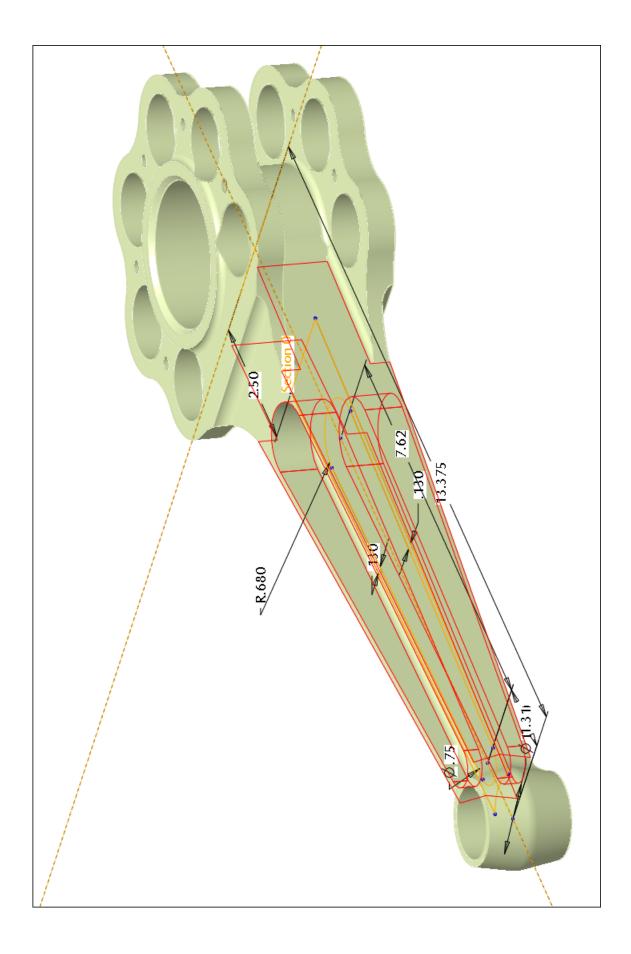


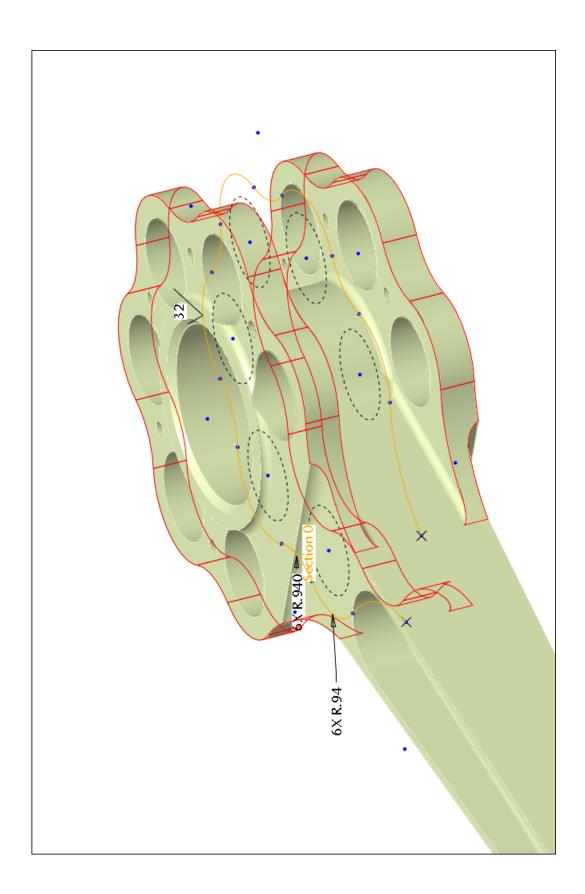








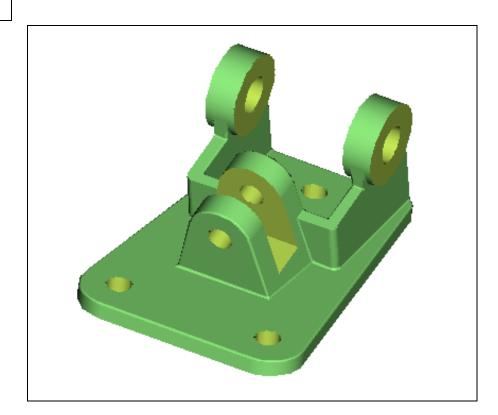




# Appendix A

**Casting Cover** 

# Advanced **Projects**



**Figure A.1** Casting

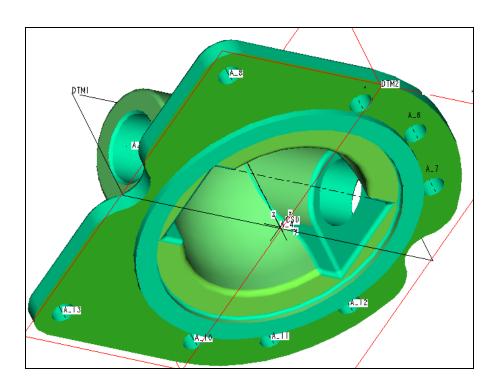


Figure A.2
Cover

**Figure A.3** Casting Drawing

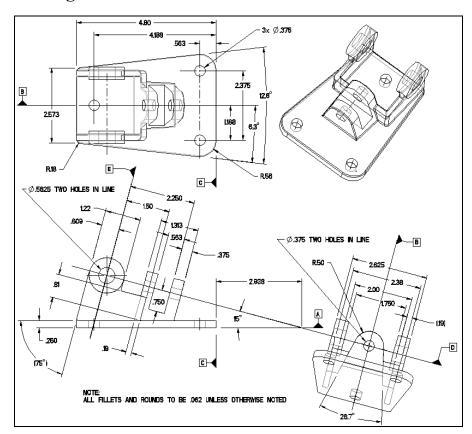


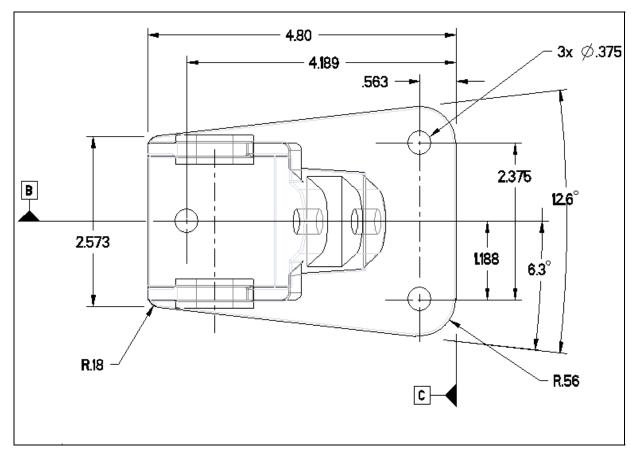
# **EGD REFERENCE**Fundamentals of Engineering

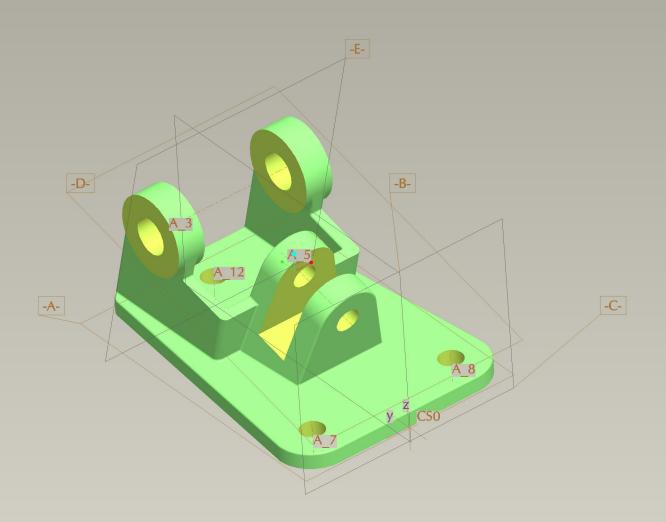
Fundamentals of Engineering Graphics and Design by L. Lamit and K. Kitto See page 411, Problem 12.13.

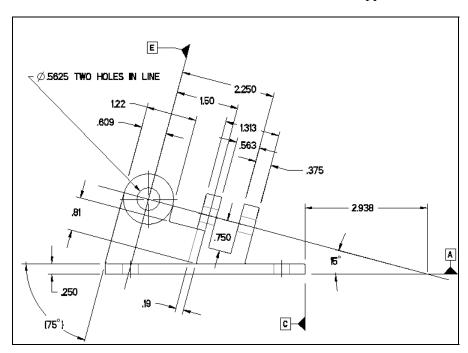
**Figure A.4**Casting Drawing,
Top View

#### **Casting**



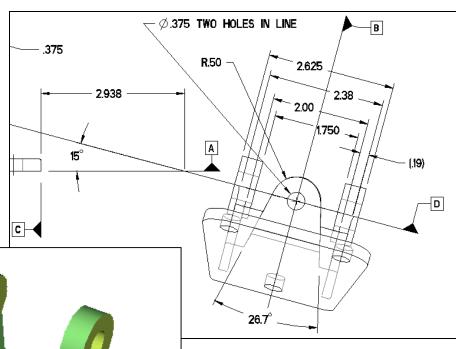


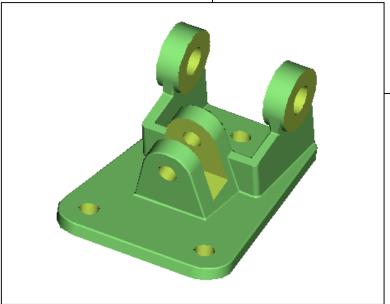




**Figure A.5** Casting Drawing, Front View

**Figure A.6**Casting Drawing,
Auxiliary View





## NOTE

Model the casting, save it under a new name, and continue modeling the machine part.

When it is complete, you will have two separate parts, a casting (workpiece) and a machined part (design part), that can be used to create the *manufacturing model* for use in Pro/NC.

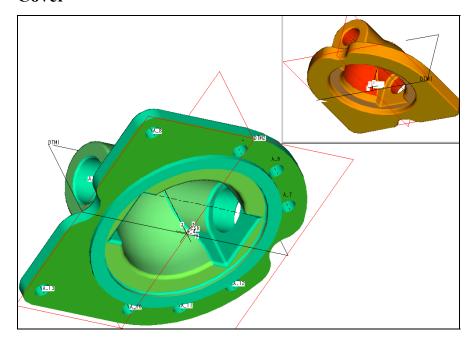
**Figure A.7**Cover Machined Part and Cover Casting (inset)

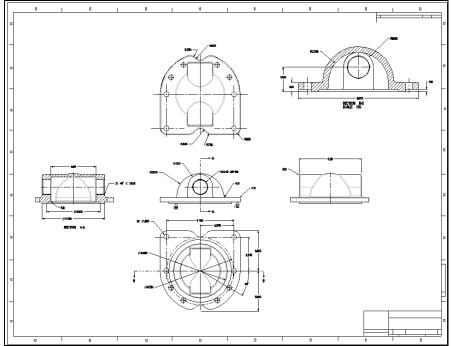
#### **EGD REFERENCE**

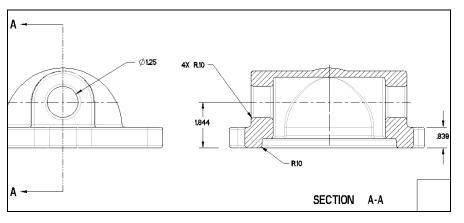
Fundamentals of Engineering Graphics and Design by L. Lamit and K. Kitto See page 338. Problem 10.33.

Figure A.8
Cover Drawing

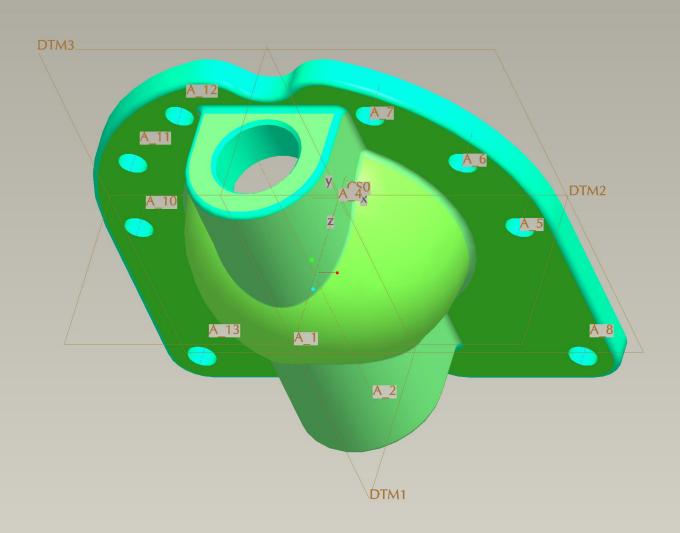
#### Cover

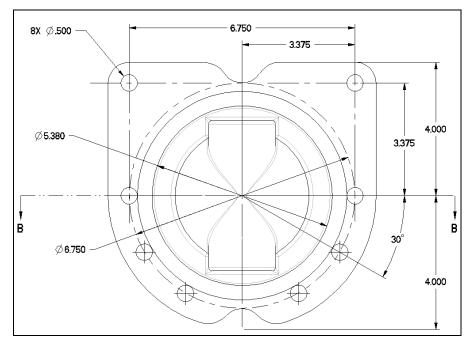




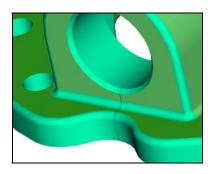


**Figure A.9** Cover *Casting* Dimensions

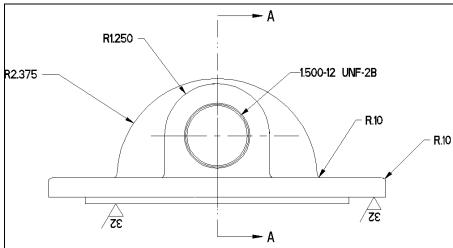


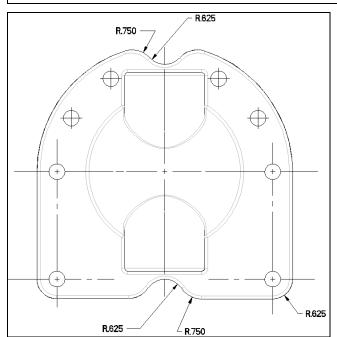


**Figure A.10**Cover Drawing, Bottom View



**Figure A.11**Cover Drawing,
Front View





**Figure A.12** Cover Drawing, Top View

#### A-6 Advanced Projects

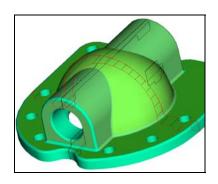
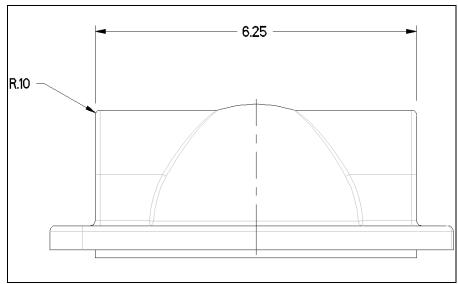
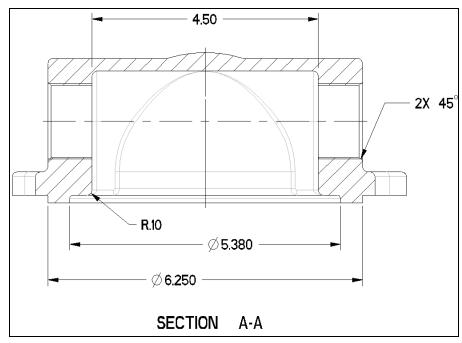


Figure A.13 Cover Drawing, Right Side View



2X 45° X .0625

Figure A.14
Cover Drawing,
SECTION A-A



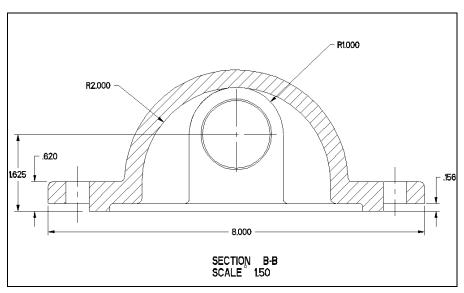


Figure A.15 Cover Drawing, SECTION B-B