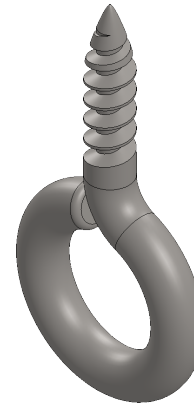




CO2 Shell Car Eye Screw



A. Sweep Path Sketch.

Step 1. Click File Menu > New, click **Part Metric** and OK.

Step 2. Click **Front Plane** in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 1**.

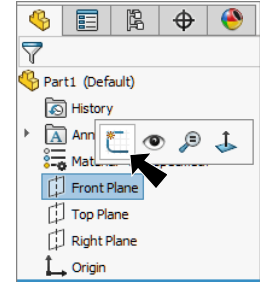


Fig. 1

Step 3. Click **Centerpoint Arc** (S) in the **Arc flyout** on the Sketch toolbar.

Step 4. Sketch a slightly open arc starting from the Origin , **Fig. 2**. To sketch the arc, click the Origin to place the center of the arc. Start the first arc endpoint directly above the Origin, then swing the arc to the right around counterclockwise. Click to place the second endpoint leaving a gap between endpoints.

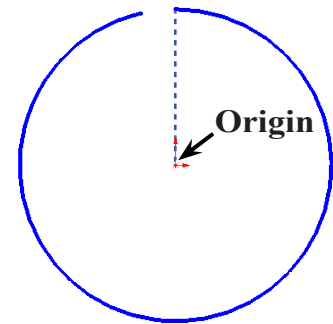


Fig. 2

Step 5. Click **Line** (L) on the Sketch toolbar.

Step 6. Sketch line up from arc endpoint that is directly above Origin, **Fig. 3**.

Step 7. Click **Smart Dimension** (S) on the Sketch toolbar.

Step 8. Add dimensions, **Fig. 4**. To dimension angle between the two arc endpoints, click Origin for vertex of angle and then click the two arc endpoints. Move the cursor and click to place dimension. Key in 13 and press ENTER.

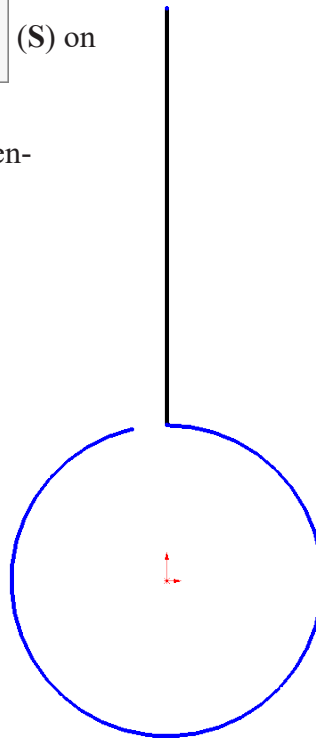


Fig. 3

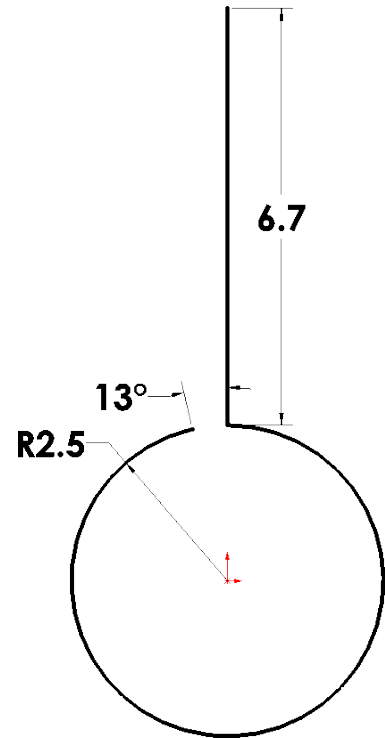


Fig. 4

Step 9. Click **Sketch Fillet**  (S) on the Sketch toolbar.

Step 10. In the Sketch Fillet Property Manager set:
under Fillet Parameters, **Fig. 5**

Radius  **1.5**

click intersection of line and arc,
Fig. 7

click OK  twice.

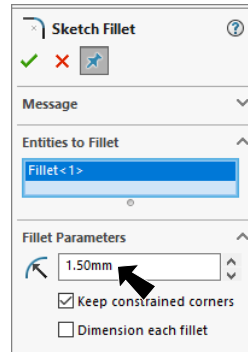


Fig. 5


B. Save as "EYE SCREW".


Step 1. Click File Menu > Save As.

Step 2. Key-in **EYE SCREW** for the filename and press ENTER.

C. Sweep.

Step 1. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 2. Click **Features**  on the Command Manager toolbar.

Step 3. Click **Swept Boss/Base**  on the Features toolbar.

Step 4. In the Swept Boss/Base Property Manager:
under Profile and Path, **Fig. 7**
select **Circular Profile**

Path  click any geometry in Sketch1

Diameter  **1.4**

click OK .

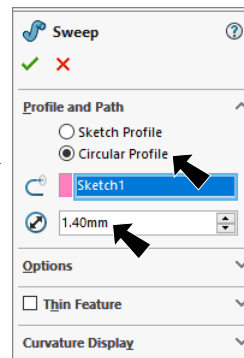


Fig. 7

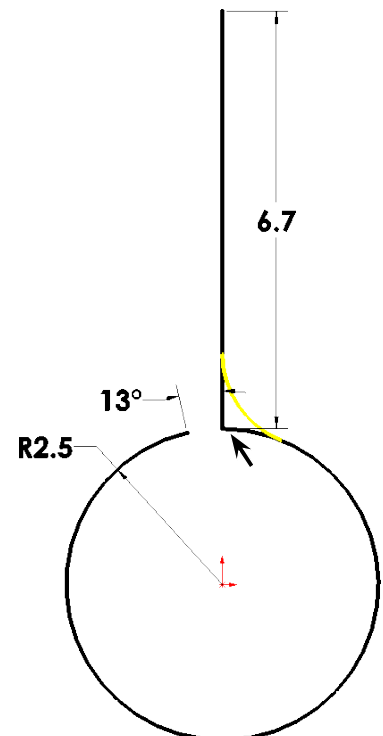


Fig. 6

Step 5. Save. Use **Ctrl-S**.

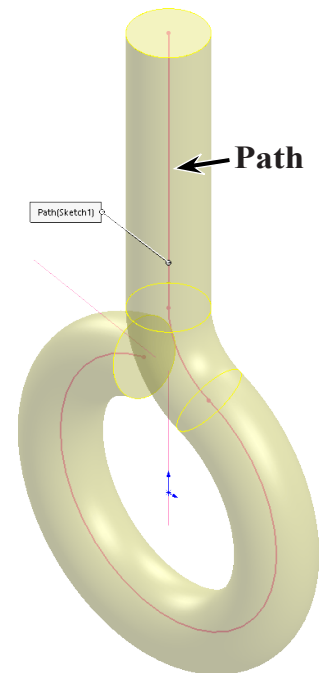



Fig. 8

D. Fillets.

Step 1. Click **Fillet**  on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, **Fig. 9**

Radius  **.2**

click edge at bottom end of sweep,
Fig. 10

click **Apply**

Step 3. In the Fillet Property Manager,
select **Manual**, **Fig. 11**
under Fillet Type

select **Constant Size Fillet** 

click **top edge**, **Fig 12**
under Fillet Parameter
select **Asymmetric**

Distance 1  **.69**

Distance 2  **2.1**

Profile: **Conic Rho**

Ratio ρ **.15**

click **OK** .

Step 4. Save. Use **Ctrl-S**.

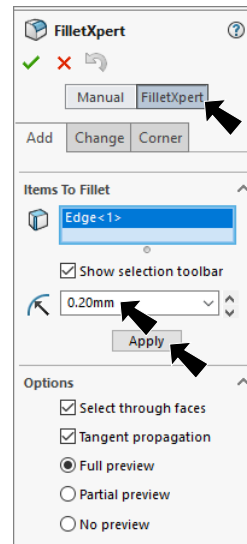


Fig. 9

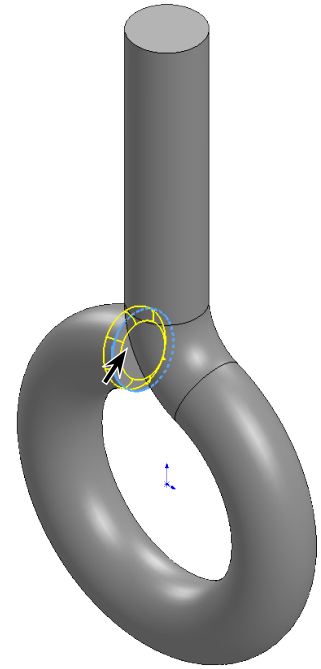


Fig. 10

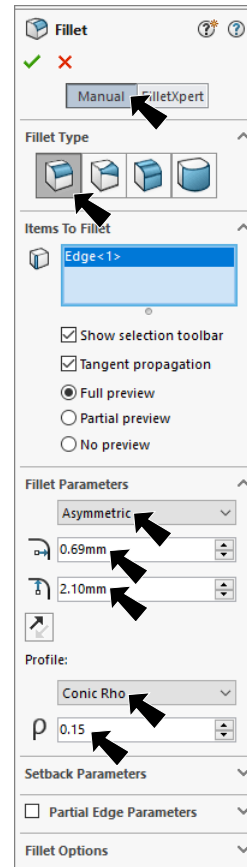


Fig. 11

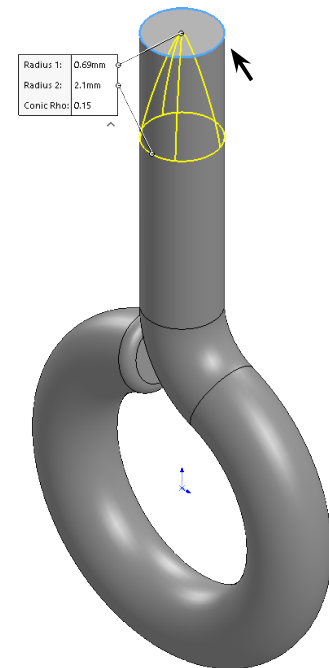


Fig. 12

E. Thread Wizard.

Step 1. Click **Thread**  in the **Hole Wizard** flyout on the Features toolbar.

Step 2. In the Thread Property Manager set:
under Thread Location, **Fig. 13**

for Edge of Cylinder 

click **edge of sweep at sketch fillet**, **Fig. 14**

check **Offset**

Offset Distance **.5**

Start Angle  **180**

under End Condition

Depth  **5**

under Specification

Type **Inch die**

Size **#4 - 40**

click **OK** .

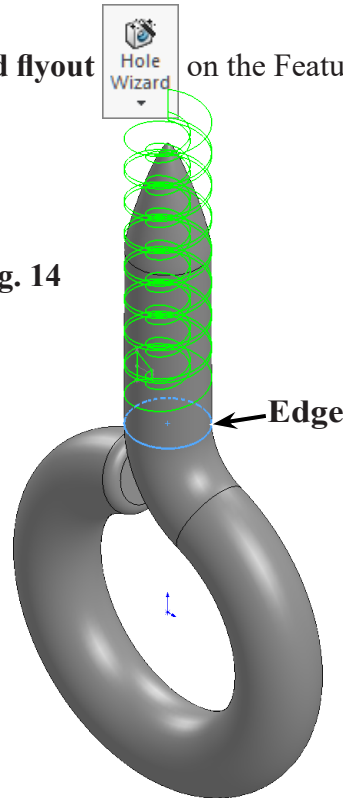


Fig. 14

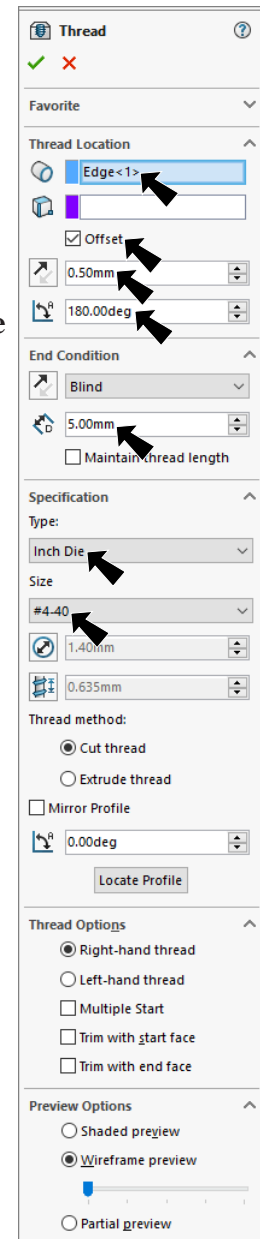


Fig. 13

Step 3. Save. Use **Ctrl-S**.

F. Material Steel 304.

Step 1. **Right click** **Material**  in the Feature Manager and click **Edit Material**, **Fig. 15**.

Step 2. Expand **Steel** in the material tree and select **Steel AISI 304**. Click **Apply** and **Close**.

Step 3. Save. Use **Ctrl-S**.

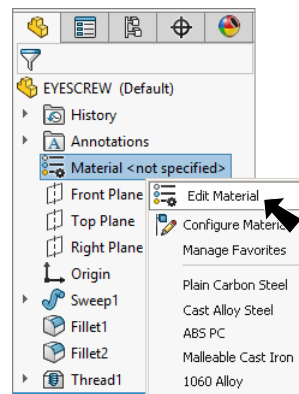


Fig. 15

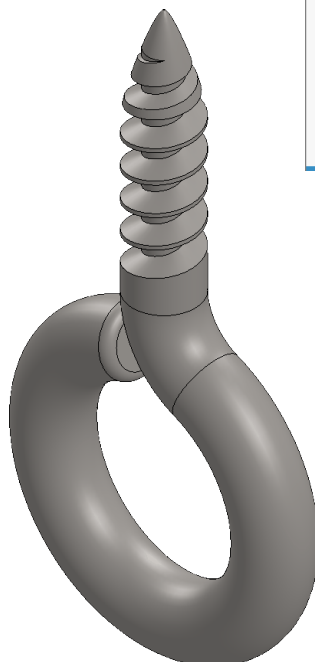


Fig. 16

G. Open Assembly File.

Step 1. Open your SHELL CAR ASSEMBLY file.

Step 2. Click **BODY** in the Feature Manager and click **Open Part**  on the context toolbar, **Fig. 17**.

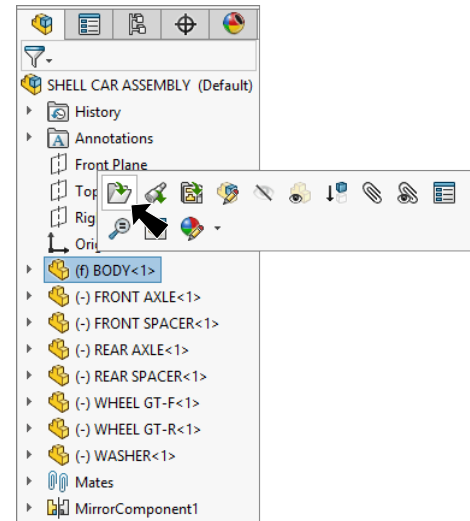
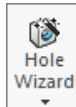




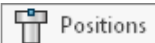
Fig. 17

H. Hole Wizard.

Step 1. Click **Bottom**  on the Standard Views toolbar (**Ctrl-6**).

Step 2. Click **Hole Wizard**  on the Features toolbar.

Step 3. In the Property Manager set: under Hole Type, **Fig. 18**

click **Hole** 
 under Standard:
 select **ANSI Metric**
 under Type:
Drill sizes
 under Size:
 select **.9**
 under End Condition
Blind
Blind Hole Depth  **3**
 click **Positions** tab 

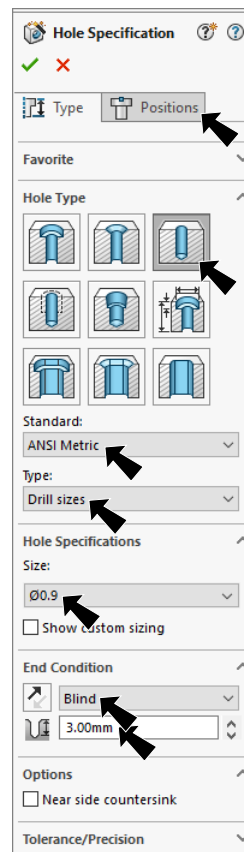


Fig. 18

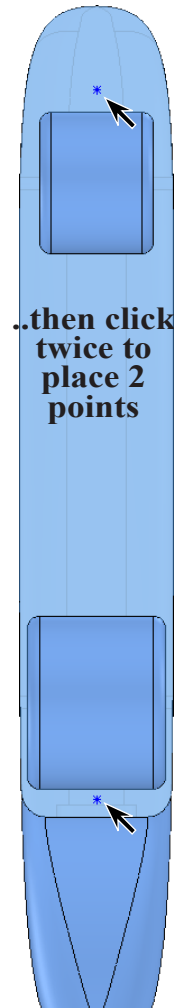
Step 4. Click **bottom face of Body** one time as face for holes, **Fig. 19**.

Step 5. Click to place hole forward of front wheel shell and another just behind rear shell, **Fig. 20**. Be careful not to click any extra Points.

Click top face..





Fig. 19




..then click twice to place 2 points

Fig. 20

Step 6. **Right click graphics area and click Select** from menu to unselect Point tool.

Step 7. **Ctrl click Midpoint**  **of rear edge and both Points.** Release Ctrl key and click **Make Vertical**  on the context toolbar, **Fig. 21.**

Step 8. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 9. Add dimensions, **Fig. 22.**

Step 10. Click OK  in the Hole Wizard Property Manager.

Step 11. Save. Use **Ctrl-S.**

I. Insert Eye Screws into Assembly.


Step 1. Switch back to the ASSEMBLY file. Use **Ctrl-Tab.**

Step 2. Hold down middle mouse button (wheel) and drag to **rotate view to view bottom, Fig. 24.**

Step 3. Click **Insert Components**  on the Assembly toolbar.

Step 4. Click **Keep Visible**  in the Property Manager.

Step 5. Click **Browse** in the Property Manager, select your **EYE SCREW** file and click Open.

Step 6. Insert two Eye Screws approximately where the Eye Screws are positioned in **Fig. 24.** Click OK  in the Property Manager when done.

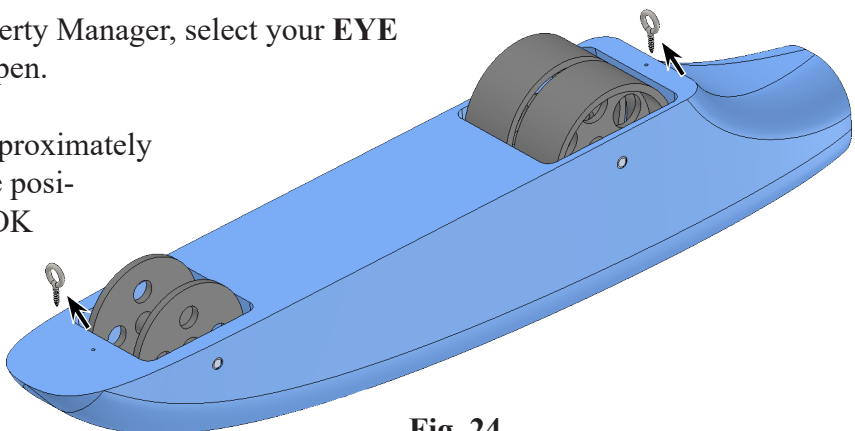
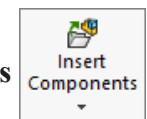
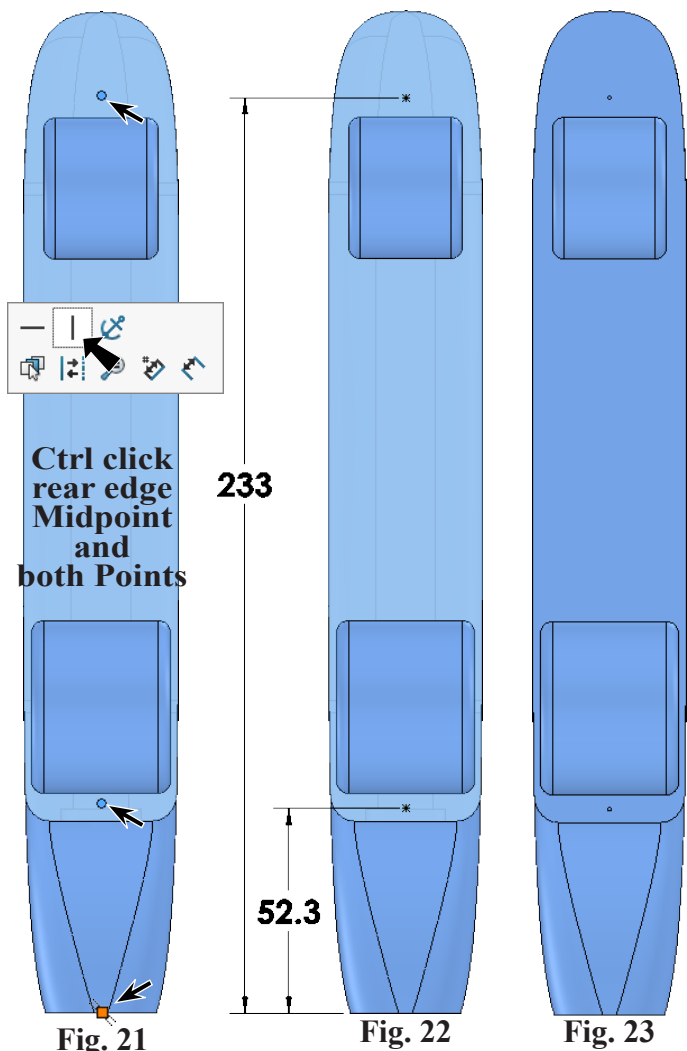


Fig. 24

J. Mate: Eye Screws and Body.

Step 1. Zoom in around **front Eye Screw and hole**, Fig. 25. To zoom, place the cursor over the Eye Screw/hole and spin the wheel on mouse back. While spinning the wheel keep cursor on Eye Screw and hole.

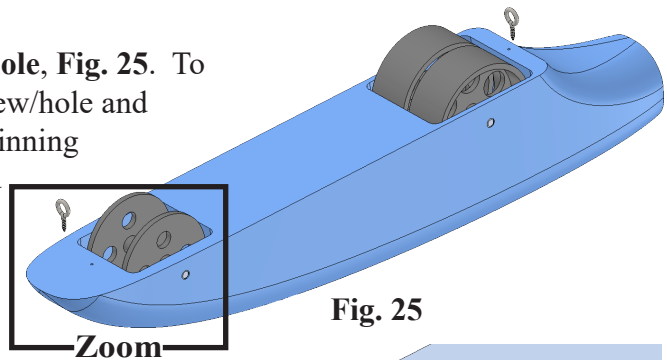



Fig. 25

Step 2. Click **Mate**  on the Assembly toolbar.

Step 3. Click **cylindrical inside face of the hole in Body** and **cylindrical face of Eye Screw**, Fig. 26.

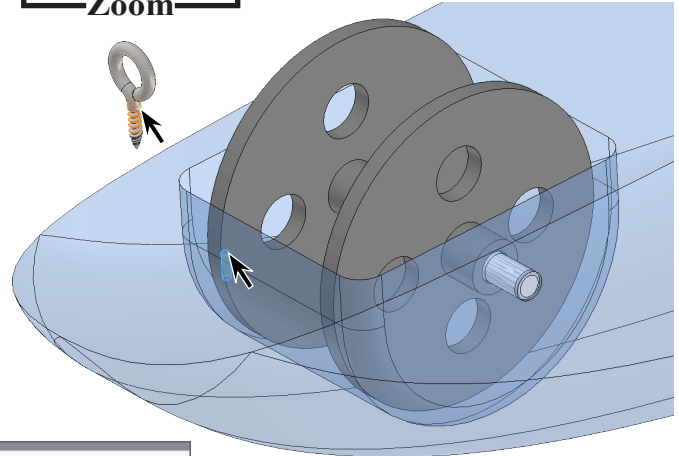



Fig. 26

Step 4. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric** mate, Fig. 27.

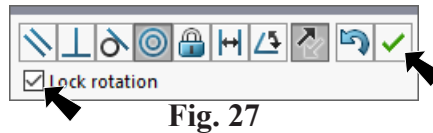


Fig. 27

Step 5. Click **bottom face of the Body** and **circular edge of the Eye Screw**, Fig. 28.

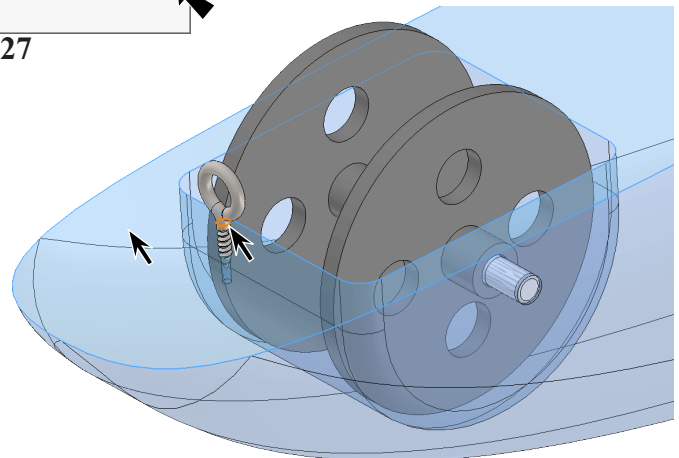



Fig. 28

Step 6. Click Add/Finish Mate  in Mate pop-up toolbar to add a **Coincident** mate, Fig. 29.

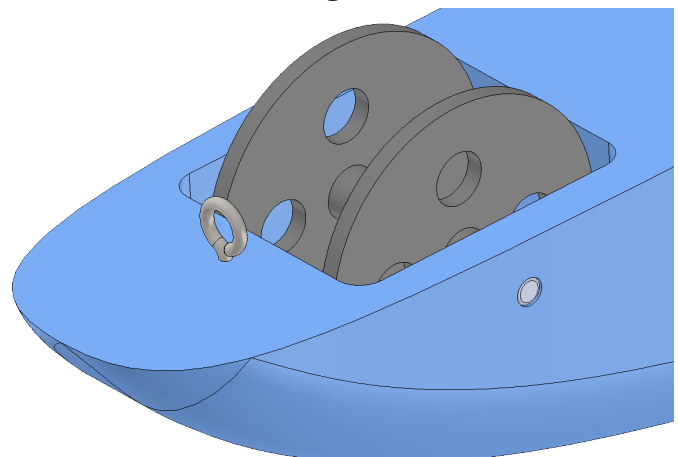
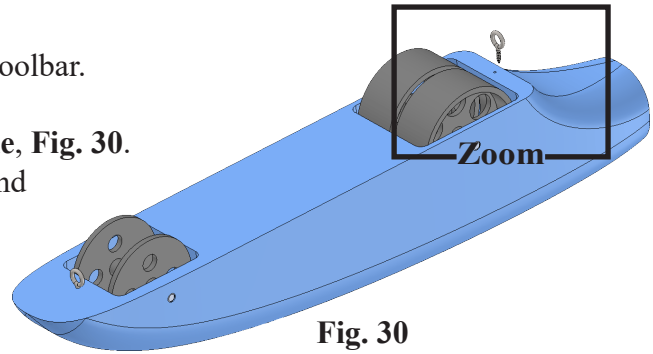


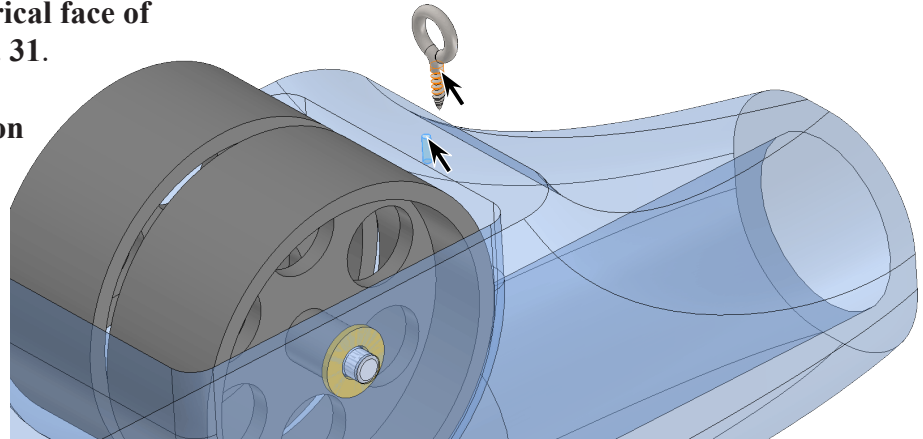
Fig. 29


Step 7. Click Zoom to Fit  (F) on the View toolbar.

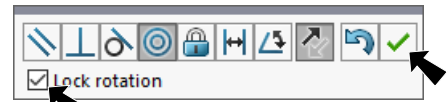
Step 8. Zoom in around **rear Eye Screw and hole, Fig. 30.**
To zoom, place the cursor over the area and spin the wheel on mouse back. While spinning the wheel keep cursor on area.




Step 9. Click **cylindrical inside face of the hole in Body and cylindrical face of Eye Screw<2>**, Fig. 31.

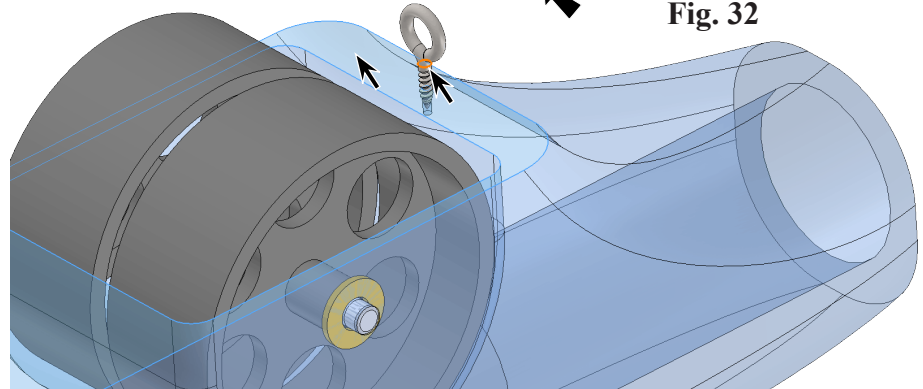



Step 10. Check **Lock Rotation** and Add/Finish
Mate  in Mate pop-up toolbar to add a **Concentric** mate, Fig. 32.



Step 11. Click **bottom face of Body and circular edge of the Eye Screw**, Fig. 38.

Step 12. Click Add/Finish
Mate  in Mate pop-up toolbar to add a **Coincident** mate, Fig. 33.



Step 13. Click OK  in the Property Manager when done.

Step 14. Save. Use **Ctrl-S**.

