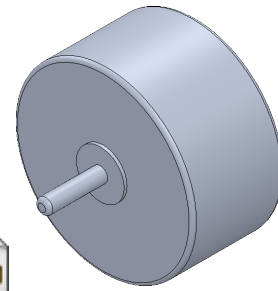




Chapter 3

Solar Train Motor



A. Extrude1.

Step 1. Click **New**  on the Standard toolbar, click **Part Metric**  and OK.

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

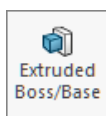
Step 3. Click **Circle**  (S) on the Sketch toolbar.

Step 4. Sketch circle at Origin , **Fig. 2**.

Step 5. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 6. Dimension **diameter 24**, **Fig. 2**.

Step 7. Click **Features**  on the Command Manager toolbar.

Step 8. Click **Extruded Boss/Base**  on the Features toolbar.

Step 9. In the Boss-Extrude Property Manager set:
under Direction 1, **Fig. 3**
End Condition **Blind**
Depth  **12.4**
Reverse Direction 
click OK .

B. Save as "MOTOR".

Step 1. Click File Menu > Save As.

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

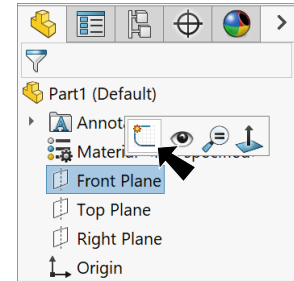


Fig. 1

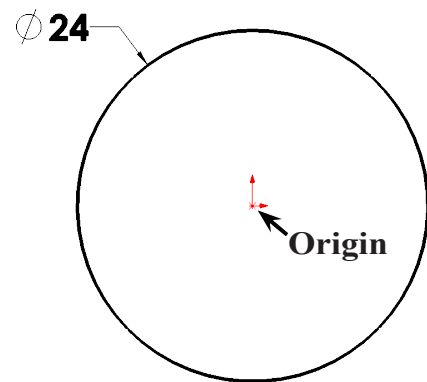


Fig. 2

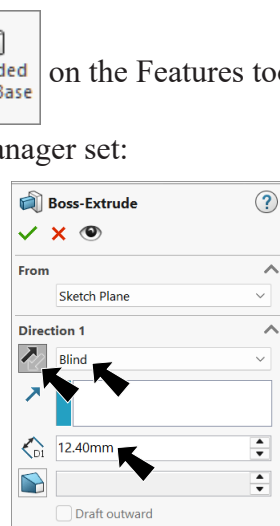


Fig. 3

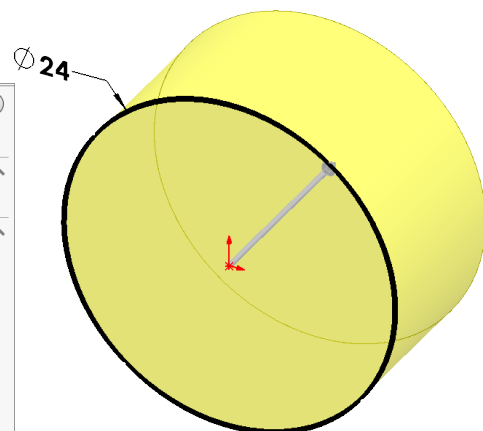


Fig. 4

C. Extrude2 Hub.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 5**.

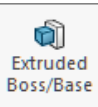
Step 2. Click **Circle**  (S) on the Sketch toolbar.

Step 3. Sketch circle at Origin , **Fig. 6**.

Step 4. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 5. Dimension **diameter 6.4**, **Fig. 6**.

Step 6. Click **Features**  on the Command Manager toolbar.

Step 7. Click **Extruded Boss/Base**  on the Features toolbar.

Step 8. In the Boss-Extrude Property Manager set:
under Direction 1, **Fig. 7**
End Condition **Blind**
Depth  **.4**
click OK .

Step 9. Save  (Ctrl-S).

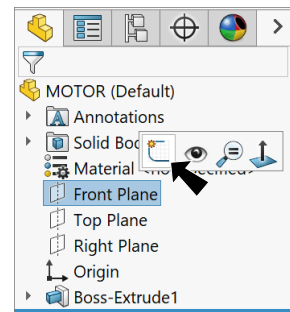


Fig. 5

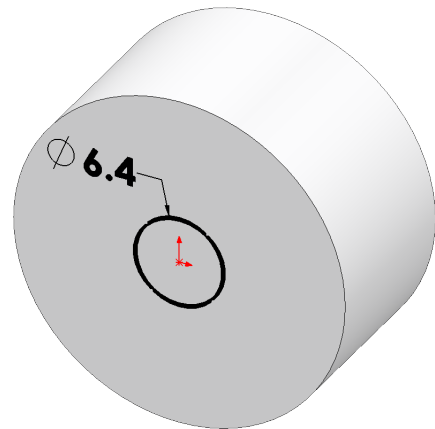


Fig. 6

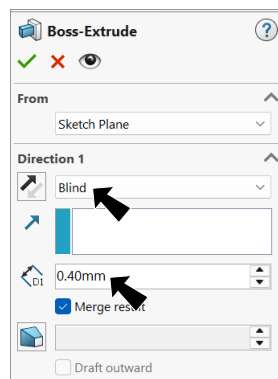


Fig. 7

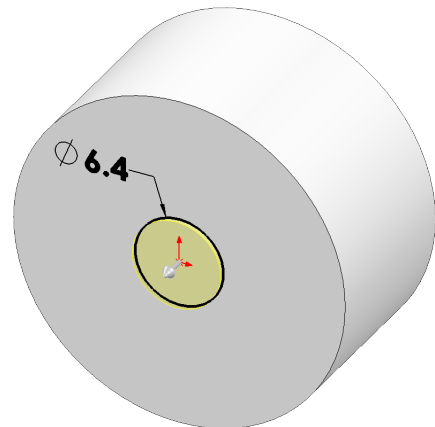


Fig. 8

D. Extrude3 Shaft.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 9**.

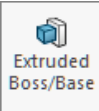
Step 2. Click **Circle**  (S) on the Sketch toolbar.

Step 3. Sketch circle at Origin , **Fig. 10**.

Step 4. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 5. Dimension **diameter 2**, **Fig. 10**.

Step 6. Click **Features**  on the Command Manager toolbar.

Step 7. Click **Extruded Boss/Base**  on the Features toolbar.

Step 8. In the Boss-Extrude Property Manager set:
under Direction 1, **Fig. 11**
End Condition **Blind**
Depth  **8.25**
click OK .

Step 9. Save  (Ctrl-S).

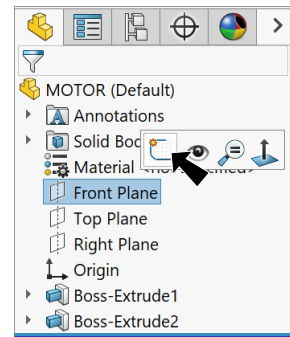


Fig. 9

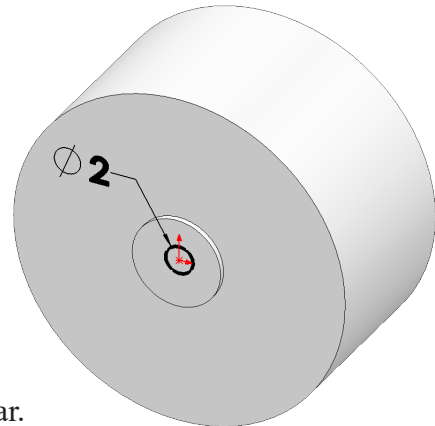


Fig. 10

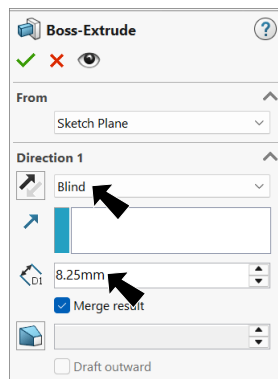


Fig. 11

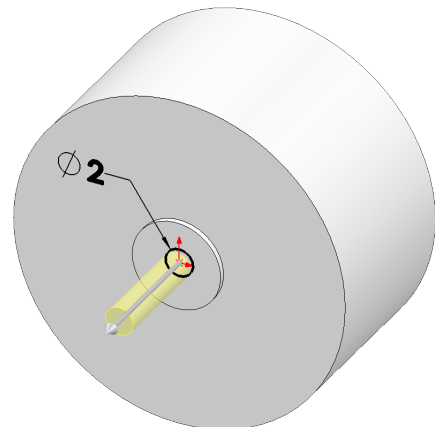


Fig. 12

E. Fillet Edges.

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

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, Fig. 13

Radius  **.5**
click **circular edges (3)**
click OK .

Step 3. Save  (Ctrl-S).

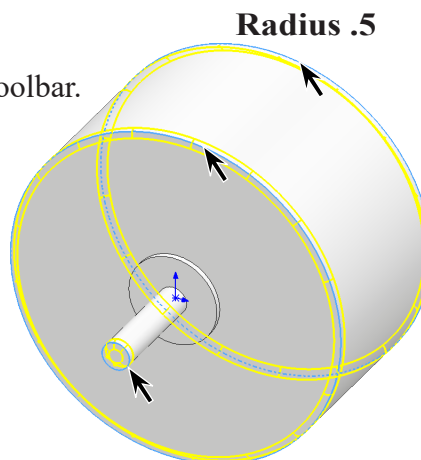


Fig. 14

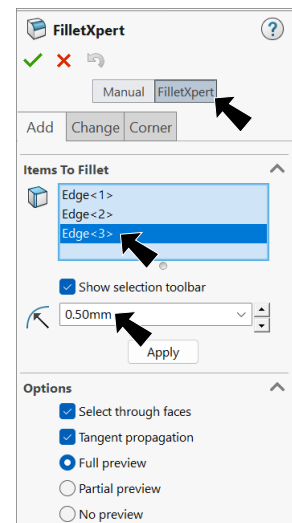
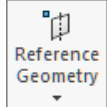


Fig. 13

F. Mate Reference.

Step 1. Click **Reference Geometry**  on the Features toolbar and **Mate Reference** from the menu.

Step 2. In the Mate Reference Manager:
under Primary Reference Entity
click **cylindrical face of shaft**, Fig. 16
click OK .

Step 3. Save  (Ctrl-S).

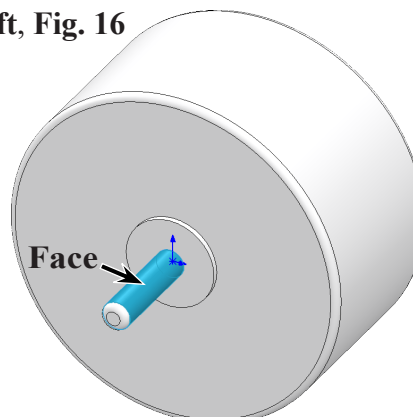


Fig. 16

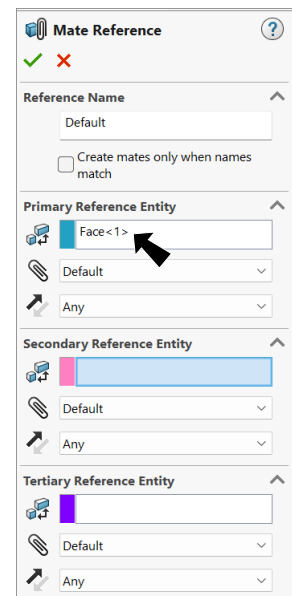


Fig. 15

G. Appearance: Polished Aluminum.

Step 1. Click the Motor to select part, click **Appearances Call-out**  on the context toolbar and click **MOTOR** , **Fig. 17.**

Step 2. In the Appearances Task pane, expand **Metal**, click **Aluminum** and in the lower pane select **polished aluminum**, **Fig. 18.**

Step 3. In the Appearances Property Manager:
under **Color**, **Fig. 19**
set **RGB** values:
R 170
G 178
B 196
click **OK** .

Step 4. Save  (**Ctrl-S**).

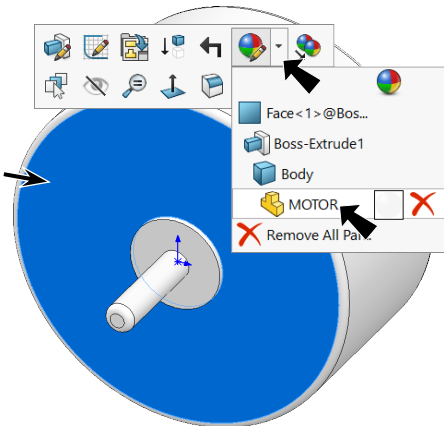


Fig. 17

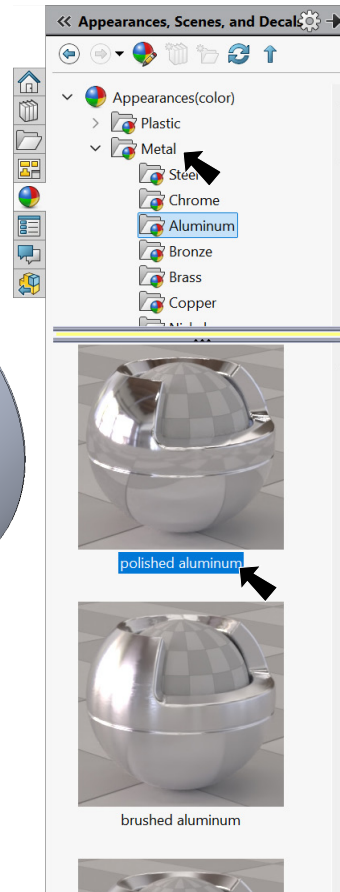


Fig. 10

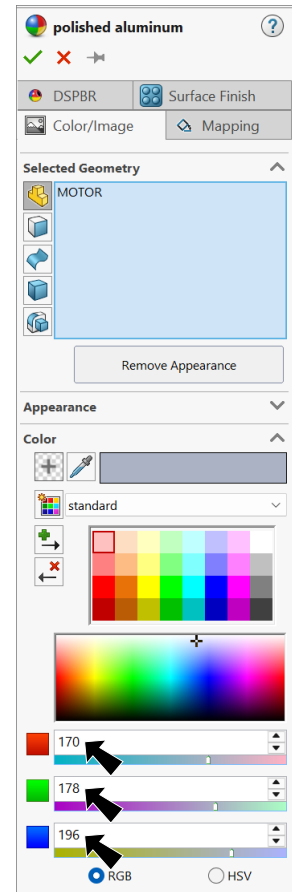


Fig. 11

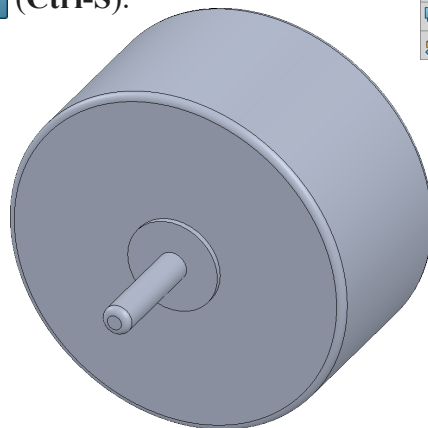


Fig. 20