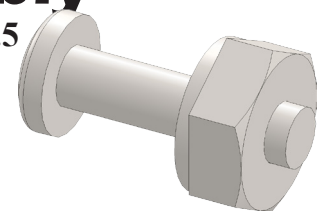
Chapter 20 Machine Screw Assembly

Nut #5-40 Washer #6 Machine Screw #5-40 x .5



A. Nut #5-40.

Step 1. Click the **Design Library** tab in the Task Pane, **Fig. 1**.

Step 2. In the **Toolbox** Toolbox

Expand **ANSI Inch** folder ANSI Inch

Expand **Nuts** folder Nuts

Click **Machine Screws** folder Machine Screws

Step 3. In the lower pane, **right click Machine Screw Nut Hex** and click **Create Part**, **Fig. 1**.

Step 4. In the Property Manager set:
under Properties, **Fig. 2**
Size #5-40
click OK .

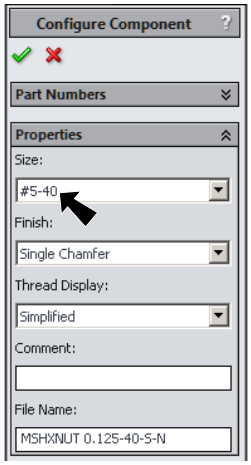


Fig. 2

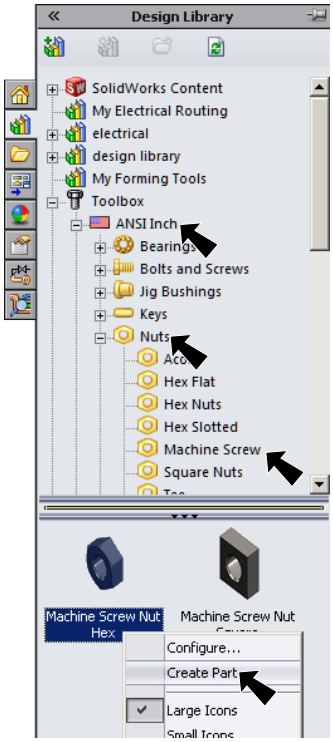


Fig. 1

B. Material Plain Carbon Steel.

Step 1. **Right click Material** in the Feature Manager and click **Edit Material**, **Fig. 4**.

Step 2. **Expand Steel** in the material tree and select **Plain Carbon Steel**. Click **Apply** and **Close**.

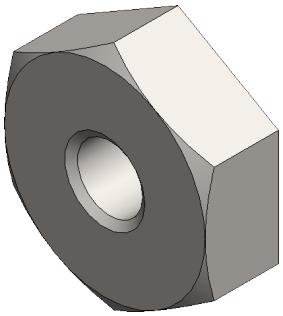


Fig. 3

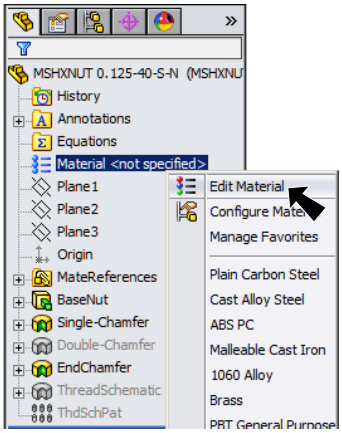


Fig. 4

C. Save as.

Step 1. Click File Menu > Save As.

Step 2. Redirect file path to your **JSS folder** in your Tech Ed 14-15 folder and click Save.

© Cudacountry.net Tech Ed
http://www.cudacountry.net email:cudacountry@hotmail.com

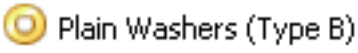
D. Washer #6.

Step 1. Click the **Design Library** tab in the Task Pane, **Fig. 5**.

Step 2. In the **Toolbox**

Expand **ANSI Inch** folder

Expand **Washers** folder

Click **Plain Washer (Type B)** folder 

Step 3. In the lower pane, **right click Narrow Flat Washer Type B** and click **Create Part**, **Fig. 5**.

Step 4. In the Property Manager set:
under Properties, **Fig. 6**
Size #6
click OK .

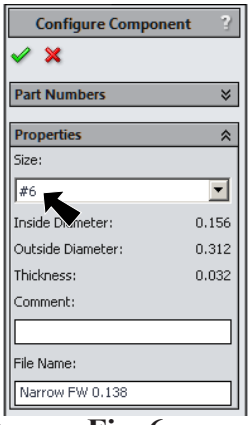


Fig. 6

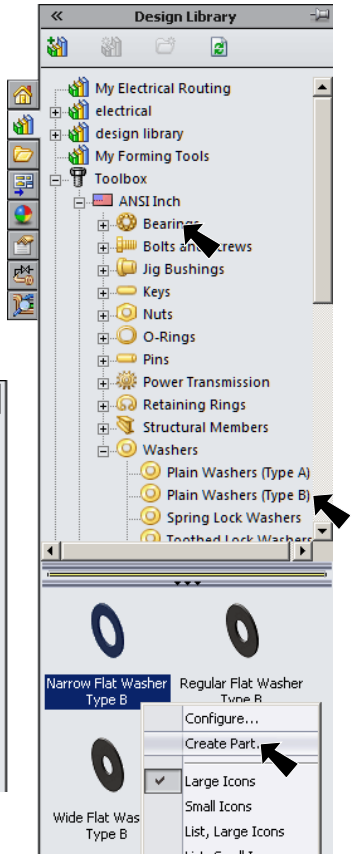


Fig. 5

E. Material Plain Carbon Steel.

Step 1. **Right click Material** in the Feature Manager and click **Edit Material**, **Fig. 8**.

Step 2. **Expand Steel** in the material tree and select **Plain Carbon Steel**. Click **Apply** and **Close**.

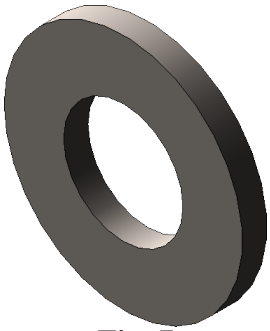


Fig. 7

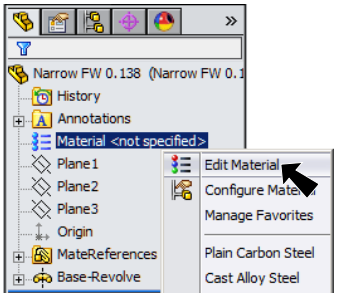


Fig. 8

F. Save as.

Step 1. Click File Menu > Save As.

Step 2. Redirect file path to your **JSS folder** in your Tech Ed 14-15 folder and click Save.

G. Machine Screw #5-40 x .5.

Step 1. Click the **Design Library** tab in the Task Pane, **Fig. 9**.

Step 2. Expand the **Toolbox**

Expand **ANSI Inch** folder

Expand **Bolts and Screws** folder

Click **Machine Screws** folder

Step 3. In the lower pane, **right click Pan Cross Head** and click **Create Part**, **Fig. 9**.

Step 4. In the Property Manager set:
Size #5-40, **Fig. 10**
Length .5
click OK .

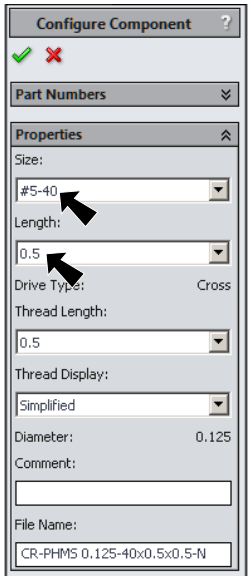


Fig. 10

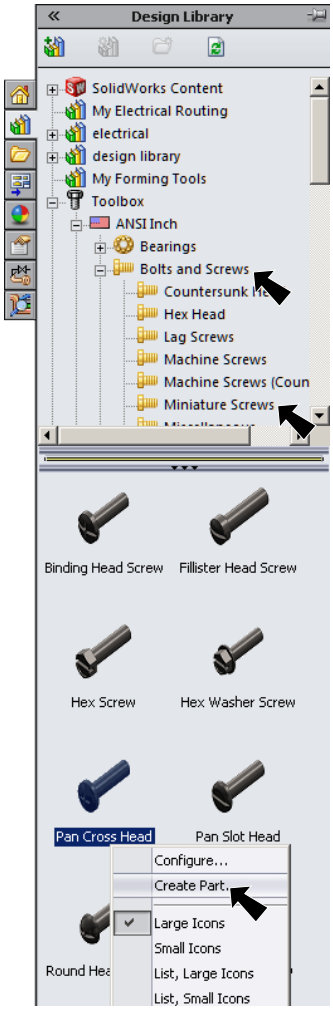


Fig. 9

H. Material Plain Carbon Steel.

Step 1. **Right click Material** in the Feature Manager and click **Edit Material**, **Fig. 12**.

Step 2. **Expand Steel** in the material tree and select **Plain Carbon Steel**. Click **Apply** and **Close**.

I. Save as.

Step 1. Click File Menu > Save As.

Step 2. Redirect file path to your **JSS folder** in your Tech Ed 14-15 folder and click Save.

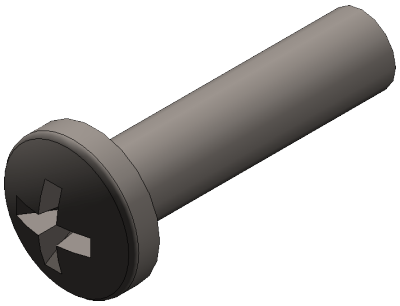


Fig. 11

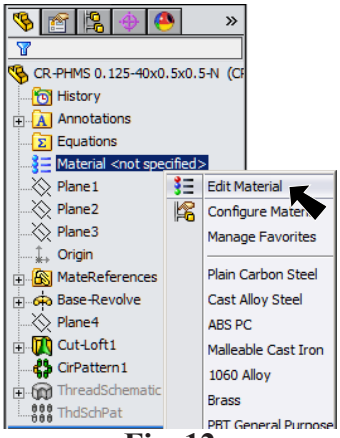


Fig. 12

J. Assembly.

Step 1. Click File Menu > **Make Assembly from Part**.

Step 2. Click **Assembly Metric** in the New SOLIDWORKS Documents dialog box and OK.

Step 3. Click OK in Begin Assembly Property Manager, **Fig. 13** and **Fig. 14**.

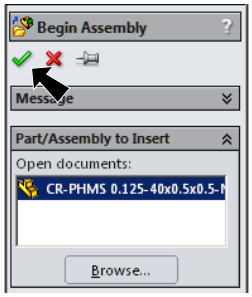


Fig. 13

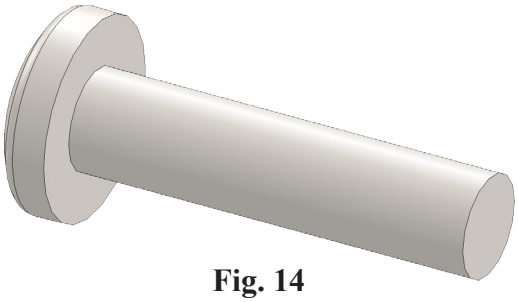


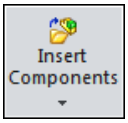
Fig. 14

K. Save as "MACHINE SCREW ASSEMBLY".

Step 1. Click File Menu > Save As.

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

L. Insert Nut and Washer.

Step 1. Click **Insert Components** 

on the Assembly toolbar.

Step 2. Click **Keep Visible** in the Property Manager, **Fig. 15**.

Step 3. Click **Browse** in the Property Manager.

Step 4. Select your **Washer**, **Narrow FW 0.138** file and click Open.

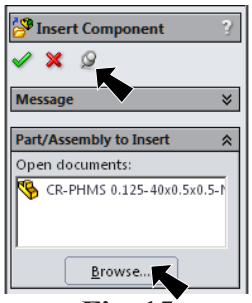


Fig. 15

Step 5. Position cursor **near shaft of machine screw at underside of head**, **Fig. 16**. When Washer snaps into screw shaft, against underside of head and cursor changes to indicate a Concentric and Coincident mate, click to release Washer.

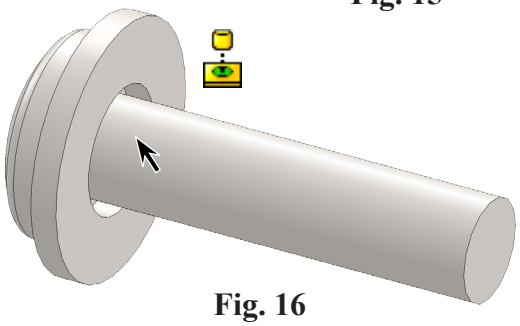


Fig. 16

Step 6. Click **Browse** in the Property Manager.

Step 7. Select your **Nut MSHXNUT** file and click Open.

Step 8. Position cursor **near shaft of machine screw at Washer**, **Fig. 17**. When Nut snaps into screw shaft, against Washer (not against screw head) and cursor changes to indicate a Concentric and Coincident mate, click to release Nut.

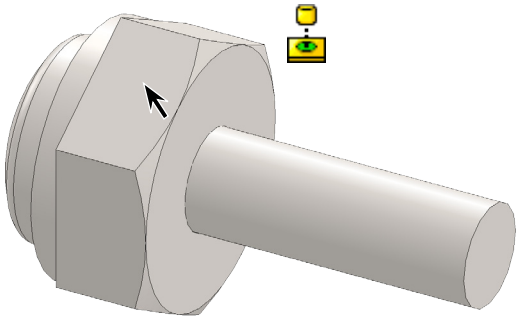


Fig. 17

Step 9. Click OK in the Property Manager.

Step 10. Save. Use **Ctrl-S**.

M. Edit Mate to Distance.

Step 1. Click the **Washer** in graphics area and click **View Mates** on the Context toolbar, **Fig. 18**.

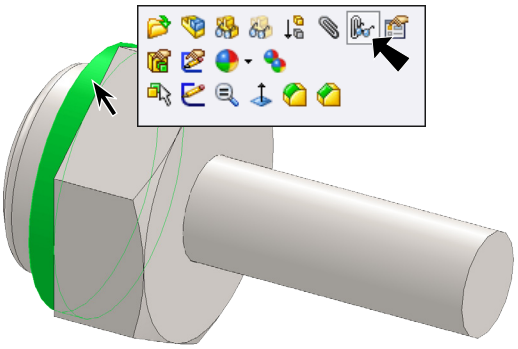


Fig. 18

Step 2. Click the **first Coincident Mate** in the View Mates window and click **Edit Feature** in the Context toolbar, **Fig. 19**.

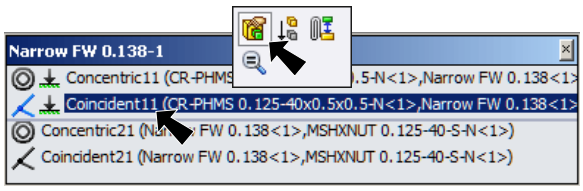


Fig. 19

Step 3. In the Mate Property Manager, **Fig. 20**

click **Distance**

set **distance to 7.8** and press ENTER. The Washer should slide down screw, **Fig. 21**.

Click OK **twice** .

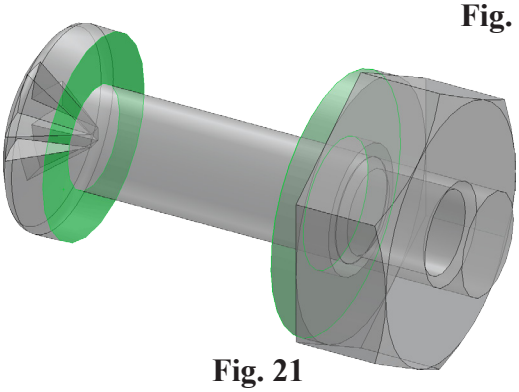


Fig. 21

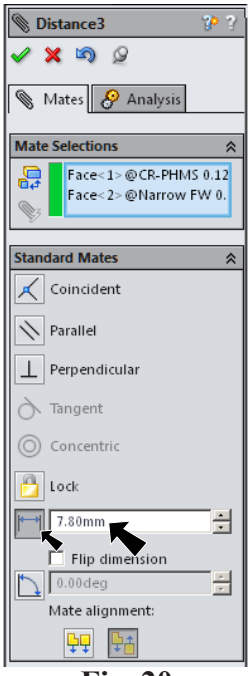


Fig. 20

Step 4. Click **Close** in the View Mates window, **Fig. 22**.

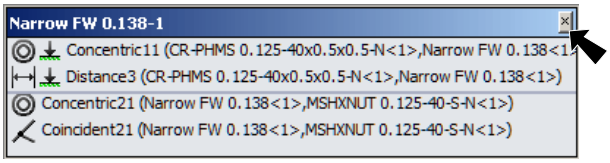


Fig. 22

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

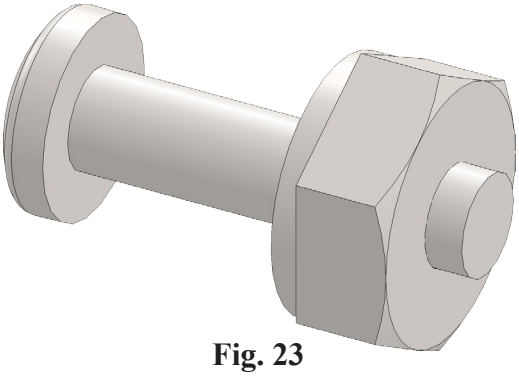


Fig. 23