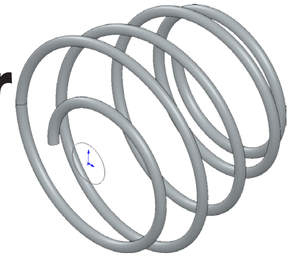
Chapter 21 Cluster Wheel Vehicle

Spring for Battery Holder



A. Circle for Helix.

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**.

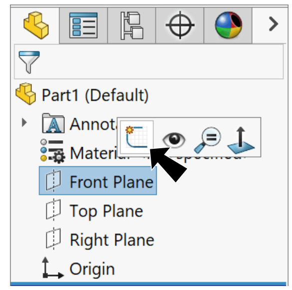


Fig. 1

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

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

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

Step 6. Dimension **diameter 4.3**, **Fig. 2**.

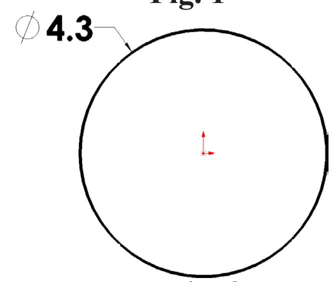


Fig. 2

B. Helix for Sweep Path.

Step 1. Click **Trimetric** on the Standard Views toolbar.

Step 2. Click Insert Menu > Curve > Helix/Spiral.

Step 3. In the Helix/Spiral Property Manager set:
under Defined By: **Fig. 3**
select **Pitch and Revolution**
under Parameters
select **Variable Pitch**
under Region Parameters set:

use **Tab key** to move to next field

	P	Rev	Dia
1	1.27	0	4.3
2	1.02	1	10.6
3	3.05	2	9.65
4	3.05	3	8.9
5	.75	4	7.6
6	.25	5	6.35

check **Reverse direction**
Start angle 180
check **Clockwise**
click OK .

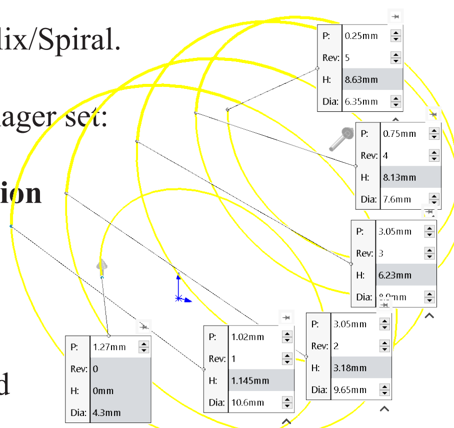


Fig. 5

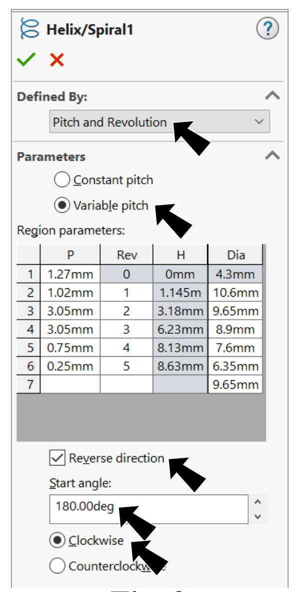


Fig. 3

Use Tab key to move to next field

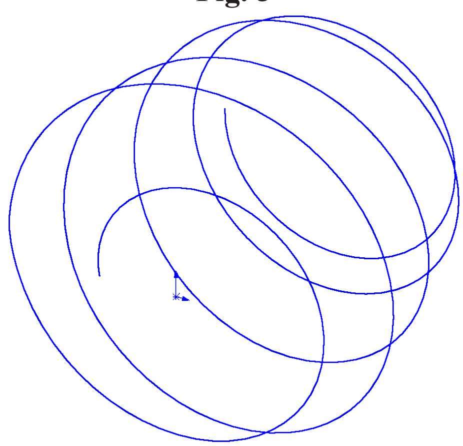


Fig. 6

C. Save as "SPRING".

Step 1. Click File Menu > Save As.

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

D. Sweep.

Step 1. Click **Features** [Features] on the Command Manager toolbar.

Step 2. Click **Swept Boss/Base** [Swept Boss/Base] on the Features toolbar.

Step 3. In the Swept Boss/Base Property Manager:
under Profile and Path, **Fig. 6**
select **Circular Profile**
Diameter **.5**
Path click **helix**
click OK .

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

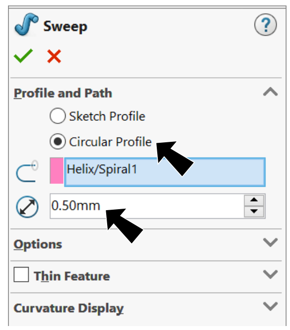


Fig. 6

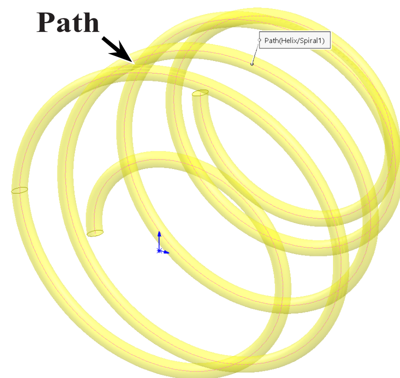


Fig. 7

E. Sketch for Mate.

Step 1. **Hide Helix**. To hide, click **Helix/Sprial1** in Feature Manager and **Hide** on the context toolbar, **Fig. 8**.

Step 2. Click **Front Plane** in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 9**.

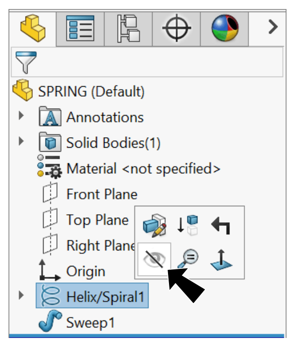


Fig. 8

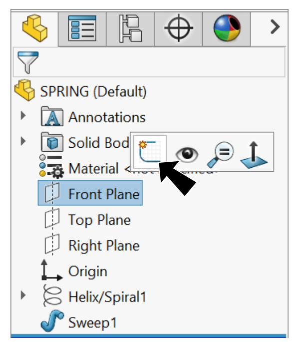


Fig. 9

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

Step 4. Sketch circle at Origin , **Fig. 10**.

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

Step 6. Dimension **diameter 2**, **Fig. 10**.

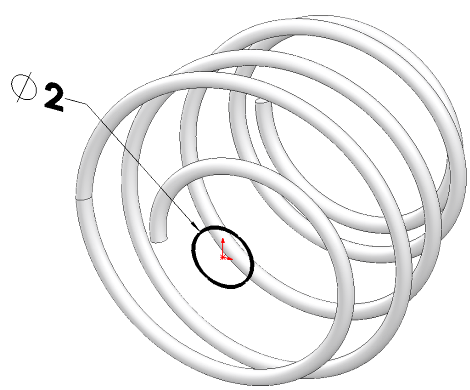


Fig. 10

Step 7. Click **Exit Sketch** [Exit Sketch] on the Sketch toolbar.

F. Appearance: Chrome.

Step 1. Click Spring to select the part, click **Appearance Callout** on the context toolbar and click **SPRING**, **Fig. 11**.

Step 2. In the Appearances Task pane, expand **Metal**, click **Chrome** and in the lower pane select **chromium plate**, **Fig. 12**. Click OK in the Property Manager.

Step 3. Save **(Ctrl-S)**.

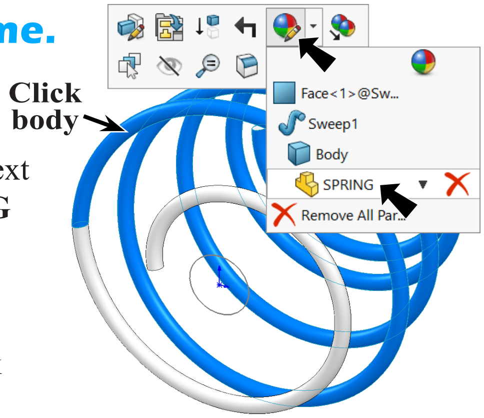


Fig. 11

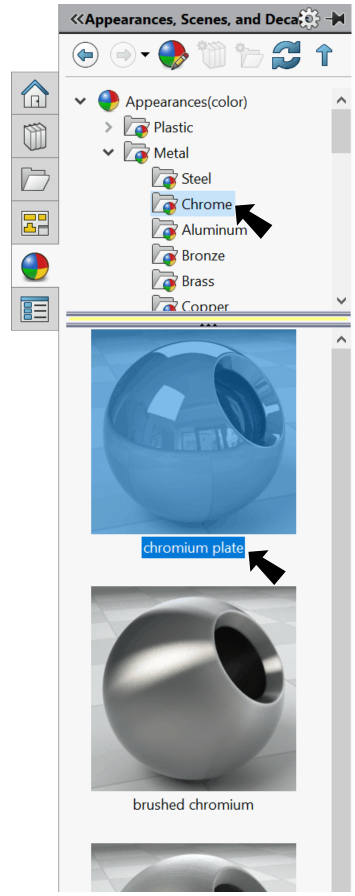


Fig. 12

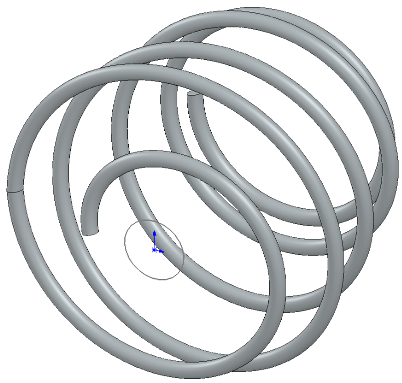


Fig. 13