## BELT INSTALLATION AND TENSIONING

OBJECTIVE:

Goodyear Pd™ timing belts must be installed and tensioned properly to ensure optimum performance. Sprocket alignment must be preserved while tensioning the drive.

Before beginning, inspect the belt for damage and verify that the sprockets are properly mounted. Refer to sprocket and bushing manufacturer installation procedure. Belts should never be crimped or bent to a diameter less than the minimum sprocket diameter, approximately 2 inches for 8mm belts and 5 inches for 14mm belts.

1. Shorten the center distance or release the tensioning idler to install the belt. Do not pry the belt onto the sprocket.

2. Place the belt on each sprocket and ensure proper engagement between the sprocket and belt teeth.

3. Lengthen the center distance or adjust the tensioning idler to remove any belt slack.

4. Using a tape measure, measure the span length of the drive. Refer to dimension "P" in the diagram below. The span length can be calculated using the below formula.

5. Place a straightedge or reference line across the top of the belt.

6. First determine the proper deflection force to tension the belt. Deflection forces are given in the following tables. Deflection forces are also given on the output of the Maximizer™ computer drive analysis.

   a) If using a tension gauge, the deflection scale is calibrated in inches of span length. Check the force required to deflect the belt the proper amount. There is an O-ring to help record the force. If the measured force is less than the required deflection force, lengthen the center distance. If the measured force is greater than the required deflection force, shorten the center distance. See chart on page 82 for deflection values and tension gauges available.

   b) If using other means to apply force to the belt, adjust the center distance so that the belt is deflected 1/64 per inch of span length when the proper force is applied. See chart on page 82 regarding RSM2000 Belt Tension Meter which calculates belt tension by measuring span vibrations.

7. After the belt is properly tensioned, lock down the center distance adjustments and recheck the sprocket alignment. Recheck the belt tension, alignment, and capscrew torque after eight hours of operation to ensure the drive has not shifted.
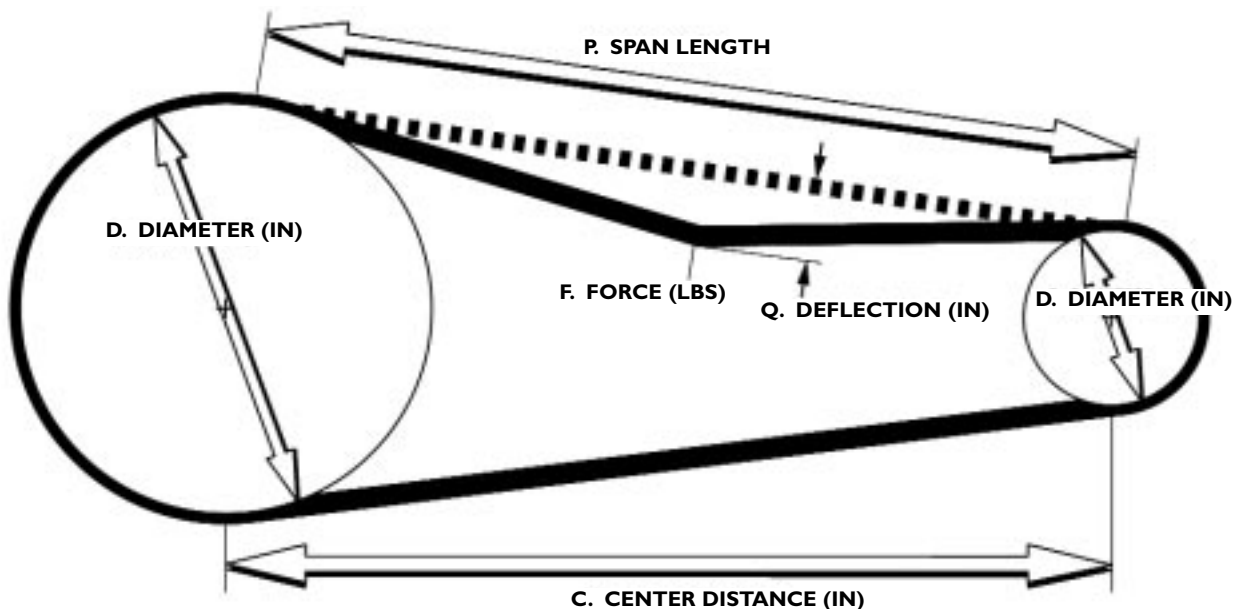
F = Deflection Force
q = Deflection, 1/64" per inch of span length
C = Center Distance
D = Large Sprocket Pitch Diameter
d = Small Sprocket Pitch Diameter
P = Span Length

$$P = \frac{(D - d)}{2 \tan \left[\sin^{-1} \cdot \dfrac{(D - d)}{2C} \cdot \right]}$$

GENERAL