



## Leaf Spring Manufacturing Dayton Parts vs. Original Equipment Manufacturer (OEM)

Bulletin #2047

Dayton Parts primarily manufactures leaf springs for the aftermarket. Often the question is asked: How does Dayton's materials, manufacturing methods and quality standards compare to that of an Original Equipment Manufacturer (OEM) of leaf springs?

To answer this question it must be first understood that virtually no truck manufacturer actually manufactures their own springs. Like many other truck components, springs are purchased from companies specializing in supplying parts to truck manufacturers. In other words, a comparison of spring quality is not a comparison between Dayton Parts and, for example, Freightliner or Kenworth but instead, a comparison of materials and techniques used by Dayton Parts with those of a typical spring manufacturer specializing in supplying the vehicle manufacturer.

The following is a comparison between Dayton Parts and a typical OEM spring manufacturer. For each major area in leaf spring manufacturing the process used by Dayton Parts is briefly described and any differences in the processes used by a typical OEM are noted.

Dayton Parts, LLC	Typical OEM Spring Manufacturer
<b>1. Material</b>	
Light Springs: SAE 5160	Same
Medium to Heavy Springs: SAE 5160H	Same
Heavy Springs: SAE51B60H	Same
High Stress: SAE6150H	Same
All raw steel is manufactured by US and Canadian mills that use a continuous cast process.	Same
<b>2. Shear and Forge</b>	
Standard SAE tolerances or per shop print	Same
Statistical Process Control (SPC)	Same
Temperature controlled forge furnaces (1750°F - 2000°F)	Same
<b>3. Taper Rolling</b>	
Temperature controlled high heat furnace	Same
Computer controlled rolling mill	Same
Statistical Process Control (SPC)	Same

*(Continued)*

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Dayton Parts, LLC	Typical OEM Spring Manufacturer
<b>4. Heat / Form / Quench</b>	
<b>High Volume Runs -</b>	
Temperature Controlled high heat continuous furnaces	Same
Fixture forming	Same
Fixture Quench in highly agitated oil maintained at constant temp.	Same
<b>Low Volume Runs -</b>	
Temperature Controlled high heat batch furnaces	OEM Spring manufacturers by definition do not have low volume production runs.
Free Quench in highly agitated oil maintained at constant temp.	Same
<b>5. Tempering</b>	
Temperature controlled tempering furnace	Same
<b>6. Shot Peening</b>	
Each leaf shot peened to specific intensity and coverage	Same
<b>7. Stress Peening (Full Taper Springs Only)</b>	
Each leaf stress peened to specific intensity and coverage	Same

The basic processes are very similar. This is not to say that all aftermarket spring manufacturers offer similar quality to that of an OEM spring manufacturer. It is Dayton Parts' goal to meet or exceed the quality of an OEM. Other aftermarket manufacturers may not share this commitment; in particular, shortcuts are often taken in steel quality and shot peening.

For more information concerning aftermarket spring quality, Dayton Parts has available the following bulletins:

**Bulletin #2046 - Shot Peening and Spring Life**

This bulletin shows the dramatic increase in spring life due to shot peening and the importance of shot peening all spring leaves is illustrated.

**Bulletin #2049 - Taper Spring Quality... Meeting OEM Specifications**

This bulletin shows that not all aftermarket full taper spring are of OEM quality.

**Bulletin #2050 - Spring Quality - You Have A Right To Know**

In this bulletin the general issue of aftermarket spring quality is disclosed.

Why then does Dayton Parts manufacture most of their springs for the aftermarket? The demands of the aftermarket require a very flexible manufacturing facility that can produce the thousands of different part numbers customers require in quantities as low as one unit. In contrast, an OEM spring manufacturer may only produce one hundred part numbers in extremely high volumes. These differing requirements, many part numbers at low volume or few part numbers at high volume, make it very difficult for a spring manufacturer to be strong in both aftermarket and OEM spring production. This is one of the major reason why an OEM based spring manufacturer, if it sells into the aftermarket at all, will only supply the highest volume part numbers.

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