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PW Principles of value analysis

The story of the little pin—Part II

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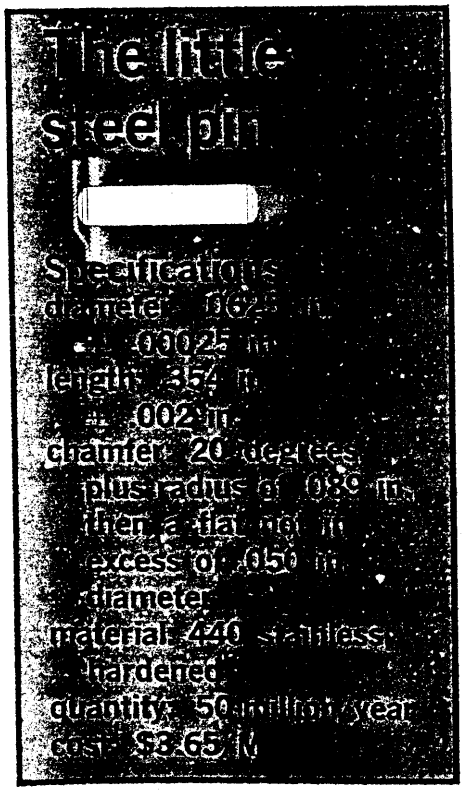
Last month we started to discuss the case of a little steel pin with some rather tight specifications (see chart below). Despite lack of encouragement, the buyer determined to put his newly learned knowledge of value analysis techniques to work.

Performing an exhaustive examination of the manufacturing processes involved in making the pin helped determine which contributed to needed function, and which, possibly, could be changed.



Based on that study, and despite the fact that the manufacturer insisted the part could not be made less expensively (and, in fact, was considering a price hike), the buyer was able to effect many changes. Two of the most significant:

(1) The supplier started the pin making operation with a standard size of stainless wire larger than required. It required three passes through the centerless grinders to bring it down to size and tolerance. This was easily changed. Quantities were so large that the steel mill happily provided the proper size of stainless wire. This meant less poundage to buy, and only one pass through the grinder.

(2) Although exhaustive work had been done to determine just what tolerance range would perform perfectly, and that range was specified, the vendor set his own tolerances at just half those specified. This meant that all of the pins which fell between half of the specified tolerances and the specified tolerances were scrapped. All of the cost for these scrapped pins was built into the job, and charged to the buyer. This practice was stopped, and all pins that were intolerance were shipped and used.

Due to the work done by this buyer, the supplier requoted, lowering his price from $3.65/M to $1.90/M—for an annual cost reduction of $87,000. And a similar pin benefitting from the same study contributed an additional $25,000 to earnings.

The vice president who had discouraged further efforts regarding the pin was startled, to say the least. So much so that he made up a report bulletin that he called "professional purchasing—the story of the little pin." As a result of that report, product VPs throughout the company asked for purchasing value analysts to take a look at the products they bought. Another example that resulted:

A tiny radio frequency transformer, about the size of two grains of wheat, was bought at the rate of 2-million/year at a cost of 39¢ each.

The buyer learned that the function of a transformer is to transfer electrical energy between two adjacent but unconnected coils. One coil normally has more turns of wire than the other so that voltage was changed. He at once saw that the function desired was supplied completely by these two adjacent coils of wire. And he determined that the cost for the insulated coils accounted for 10¢ of the total cost.

His next question, of course, was "how can we secure that function without the other 29¢ of cost?" Or to put it another way: What caused the cost to go up fourfold?

Basically, the additional cost came from the fact that the coils had to be held in proximity to each other, and the assembly had to be mounted to a chassis. So the buyer changed his thinking from the function "change voltage" to the secondary function "fasten adjacent coils and provide mounting."

He observed that, following the industry custom used in making large transformers, a spool was used. The coils were wound on the spool, and microscopic holes were drilled in the spool ends. The tiny wires were then threaded through the holes—a difficult task, absorbing lots of time and adding cost, but contributing nothing to the necessary function.

Checking with some adhesives suppliers, he found that there were products that would hold the wires permanently in position, under all environmental conditions the transformers would encounter.

The use of glue was a perfect solution. Two touches of the adhesive and the coils and mounting tab were secure. No drilling the tiny holes. No threading of the tiny wire through those holes.

The secondary functions—which do not contribute to the user functions—were effectively accomplished for a cost of 9¢—bringing the total cost to 19¢ instead of the original 39¢.

Again, in review, to accomplish this $40,000 contribution to earnings, the buyer sought to buy function. He determined the user function and the essential secondary functions (functions that do not contribute to the user function, but are essential to allow the materials that do perform the user function to operate), and offered qualified suppliers the opportunity to use their knowledge, skills, and equipment to provide the functions needed.

Secondary function is an extremely important aspect of value analysis. So much that we'll take a closer look at it next month.