

Stripped of Quality

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After 18 months of shot peening on one of our machines, we received a call from the customer. Confused by a problem the customer described as “the machine can no longerpeen at high intensity (10-13A).” We went through the usual phone questions: “What’s your pressure, shot flow, etc.”

Everything seemed to be okay on the surface. I then decided that a trip was in order. During my travel time, I made out a list of everything I could think of that could cause the intensity to drop. It seemed simple to me that any combination of poor velocity, coverage, shot size and shot flow could cause this effect. After my arrival at the work site, I successfully peened a strip at low intensity (6-8A). I then instructed the operator topeen a strip at high intensity. The operator adjusted the air pressure as normal and then peened the strip. The strip arch height was 9A. (10-13A was the specification).

Since the machine was a six-gun unit with MagnaValves and all shot readings seemed normal, I thought it was unlikely a shot flow problem existed. My concentration then went to velocity of shot, or air pressure. The machine had one air regulator matched with one remote air regulator control. A failure here would cause low velocity on all nozzles. After inspecting the air pressure during both low and high intensity runs, all seemed normal.

The next possibility was shot size. After a shot inspection I then took apart the shot classifier to inspect the screens. Everything was in order, the shot was certified and the screens were good. I then did the next best thing—I scratched my head and stared at this machine for about an hour. I ran strips for about another four hours, still no change.

The Almen gage was then questioned. I happened to have a new digital gauge in my car and retrieved it. We ran several more strips while measuring each strip on each gauge. Each gauge measured the same. At this point we used at least 200 Almen strips and the operator was out. It was late but we had time for a few more runs.

Remember the gauge I got out of my car? Well the gauge came with complimentary strips from Electronics Inc. So I proceeded to unpack these strips and load the machine. It only took one run with these strips and **shazam!** an 11A. Immediately we started looking at the difference in the strips. It turns out that the bad strips were heat treated in a roll and then cut and the good strips were cut then heat treated individually. This made the difference between the two readings. The heat-treated coil strips had a harder time arching at the higher intensity. The customer was then informed that his purchasing department changed strip suppliers just two weeks prior to our problem. I am quite certain that the loss of production time for just that day had to be more than a lifetime of savings experienced by buying cheaper strips. ○

