



## **Poka-Yoke at Prattville Machine: Workers Prevent Their Own Future Mistakes**

*A GBMP Client Case Study*

Poka-Yoke, the Japanese term for inadvertent error prevention, is a tool that helps employees avoid mistakes. Errors are part of human nature; defects are not. Defects arise from undetected mistakes which often happen when we shift our attention. The goal of Poka-Yoke is to respect the efforts of our workers by taking the judgement out of repetitive tasks or actions where errors can occur. Shigeo Shingo was quoted as saying “We are trying to prevent the act of forgetting what we have forgotten.”

During a recent training course at Prattville Machine & Tool Company, Inc., in Peabody Massachusetts, GBMP Continuous Improvement Manager Bob Elliott, was teaching a team of managers, engineers and shop floor employees about Poka-Yoke. The students learned there are two types of Poka-Yoke devices, a Defect Poka-Yoke and a Prevent Poka-Yoke. Prevent Poka-Yokes are more powerful than defect Poka-Yokes, so it is best to identify improvements that will prevent mistakes from happening. Once the basic training was completed Bob and the team went to the floor to apply what they discussed during class.

The team was asked to think about a recent time where an error occurred and was not identified before it moved on to the next operation. The group quickly recalled a family of parts in which this was the case. These parts required that the part number be engraved in a specific location. The error occurred when the operator removed the parts from the fixture, became distracted, and then loaded them for the engraving operation incorrectly.

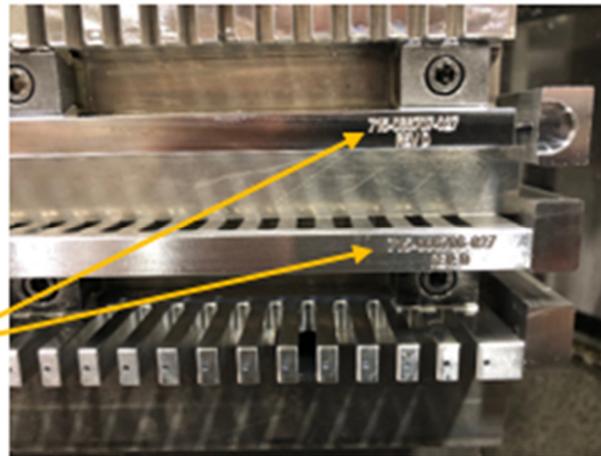


First Operations  
Holes inserted.

Operation for part  
engraving, using the hole for  
alignment

Al Spinali, Prattville's Operations and Production Manager, said: "We had this issue come up a couple of times. There is not a clear definition on the drawing as to exact location. We have sent some parts with the engraving in the wrong locations, and we thought Poka-Yoke could certainly help us here."

The picture to the right shows examples of the parts and the engraving.



The parts were asymmetrical which presented an opportunity to identify a Prevent Poka-Yoke. The team first looked at which features could be used and what modifications, if any, would need to be made to the fixtures or perhaps the computer program. They decided to look at using a pin and hole configuration to make it so that the pin would have to align with the hole thus ensuring that the part could only be loaded one way. The problem they ran into was that the part had holes on each end so it still might be possible to load it incorrectly. One person suggested they could re-program the part so that the holes were put in only on one end until the part was engraved, then the remaining holes could be drilled. The single hole/pin configuration could then be used during the engraving process to make sure the part was loaded correctly.

Prattville Machine Manufacturing Engineering Tom Fannon observed: *“During the class it seemed that one of our operators was sitting in the background and not really paying attention. But, a few days after the class he came and told me we were all set, he had added the pin configuration to the fixturing and reprogrammed the parts. The operator did a great job!”*

After hearing this Bob Elliott commented: *“It was great to see that the operator knew what we were trying to do and took it upon himself to make the changes, after all he is the expert.”*

Vinny Spinali, General Manager: *“I was asked by Bob Elliott our CI Manager to take a look at the improvement the team had implemented, this is exactly the type of improvement that is going to help us delight customers with great quality and keep our costs down. I was really impressed with what the team had done.”*

Prattville Machine was awarded an Express Grant through the Massachusetts Workforce Training Fund, administered by the Commonwealth Corporation, in 2016. Other courses supported by their grant included: Introduction to Continuous Improvement, 5S Workplace Organization, Setup Reduction, Pull Systems and Kanban/Pull Systems. With the grant and assistance from GBMP Continuous Improvement Manager Bob Elliott, Prattville was able to improve their quality, cost and on-time delivery metrics.



**About Prattville Machine:** *Prattville Machine is a full-service job shop that was started in 1967 and has been dedicated to flawless execution of quality controlled manufactured parts and on-time delivery for the military, semiconductor and medical industries to name a few. They are registered with the US State Department and ISO 9001 certified since 2004. Prattville's Philosophy: “There is only one boss. The customer. And he can fire everybody in the company from the chairman on down, simply by spending his money somewhere else.” – Sam Walton.* For more information about Prattville Machine please [visit their website](#)

**About GBMP:** *The Greater Boston Manufacturing Partnership is a not for profit offering customized Lean and Six Sigma training with a mission to increase global competitiveness and employment opportunities in the United States. GBMP is a licensed affiliate of The Shingo Institute with 4 certified*



*instructors on staff. GBMP also produces the annual Northeast L.E.A.N. Conference which attracts more than 600 manufacturing professionals from around the country each autumn in New England, now in its 12th year. GBMP provides a membership community for Lean practitioners from manufacturing, healthcare, insurance and other industries and produces an award-winning library of Lean training materials comprised of more than 30 DVDs (available streaming by subscription at [www.leanflix.org](http://www.leanflix.org)), games, manuals and workbooks, including Toast Kaizen, the #1 selling Lean training video in the world. For more information about GBMP please visit [www.gbmp.org](http://www.gbmp.org)*

For more information about the Massachusetts Workforce Training Fund Grant please visit [workforcetrainingfund.org](http://workforcetrainingfund.org)

