PICO MES

Case Study

Tier 1 auto supplier **passes safe launch in 2 weeks** by digitizing assembly processes

In just 12 months, Pollington has digitized their assembly operations

18 workstations connected

100 processes migrated from paper to digital

56 tools integrated for error-proofing

ABOUT POLLINGTON MACHINE TOOL

Pollington Machine Tool is headquartered in Marion, Michigan and is contract manufacturer with fabrication, metalworking, and final assembly capabilities that serves customers in the aerospace, defense, and automotive industries. They have been family-owned and operated since 1966.

Small and medium-sized factories make up 98 percent of the American manufacturing industry, and over 90 percent of these still manage operations with paper-based systems. As labor shortages and skill gaps hurt manufacturers, and production demand for electric vehicles (EVs) increase as America tries to meet electrification goals, it is critical for factories to have the error-proofing capabilities.

Pollington Machine Tool is a Tier 1 automotive supplier for an EV original equipment manufacturer (OEM), responsible for the final assembly of EV side rails. Vital to a car's structural integrity, side rails are vehicle chassis that contain batteries, motors, electronic components, suspensions, wheels, and base structures. The assemblies of these parts themselves are quite complex, consisting of 30 parts that range from long, machined extrusions to small clips and crush tubes. To begin manufacturing the side rails, Pollington had to first meet safe launch qualifications.

WHAT IS SAFE LAUNCH?

Most often used in the automotive industry, safe launch is a set of manufacturing processes and practices that ensure the successful launch of a product while maintaining quality requirements.

Pollington needed to manufacture 4,000 assemblies with zero defects – 2,000 for the left side and 2,000 for the right. Essentially, they had to prove a consistent, repeatable process for production. This proved to be a challenge, after three months of trying.

Pollington Manufacturing Engineer Chris Stewart said, “We’d complete hundreds of assemblies only for one to be missing a clip. That reset the counter to zero, and we’d start over to assemble 2,000 units.” Despite having a well-documented process, improvements were needed to expedite the completion of safe launch as production volumes ramped up.

Paper instructions in physical binders proved insufficient for employees in assembly to learn and maintain consistency when building these complex assemblies. To complicate things more, skilled labor is difficult to find in the tiny town of Marion, Michigan with an approximate population of 900 people.

Pollington also needed to improve and increase the speed of traceability in the event of a quality issue. Traceability ensures that every step is meticulously recorded – from the torque applied to the measurements taken – and all tied to a specific date and tool calibration. This provides a detailed account of the assembly and validates critical parameters. A lack of traceability poses a significant challenge in ensuring that each facet of the production cycle adheres to the required standards and protocols.

“As a Tier 1 in automotive, you must have tight traceability. If there’s a quality concern, you need to be able to react very quickly to identify and isolate those parts. The OEMs need answers in minutes to keep their production lines running.”

ENGINEERING MANAGER BRIAN PRIDDLE

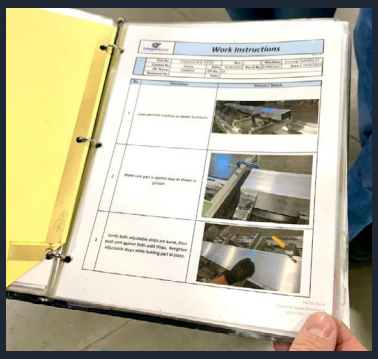
Stewart added “Through the old way of doing everything on paper, it’s kind of hard to find the information you need if there are questions.” Searches could take hours.

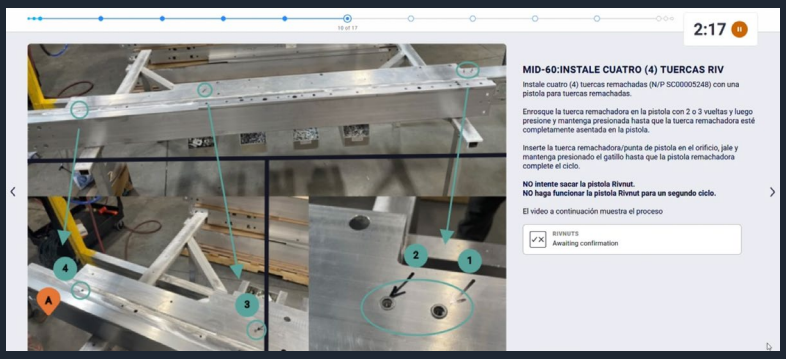
DIGITAL WORK INSTRUCTIONS THAT GUIDE NON-ENGLISH OPERATORS

To modernize its assembly processes to meet new business expectations, Pollington implemented digital work instructions from Pico MES. The software enables images with annotations and video explanations, along with Spanish work instructions to guide operators through each step of the side rail assembly. Before advancing to the next operation, the software verifies that all steps have been correctly followed. Stewart said, “It is easy to follow along with the instructions. You could build the assembly without any prior training.”

The old way of doing things: Paper-based work instructions, which are commonly used by many SMB factories for assembly operations.

Pollington has migrated to Pico MES, which enables digital work instructions to be translated into Spanish, with visual aids and annotations to guide its operators. There's built-in error-proofing into the assembly process, with 100% backwards traceability.





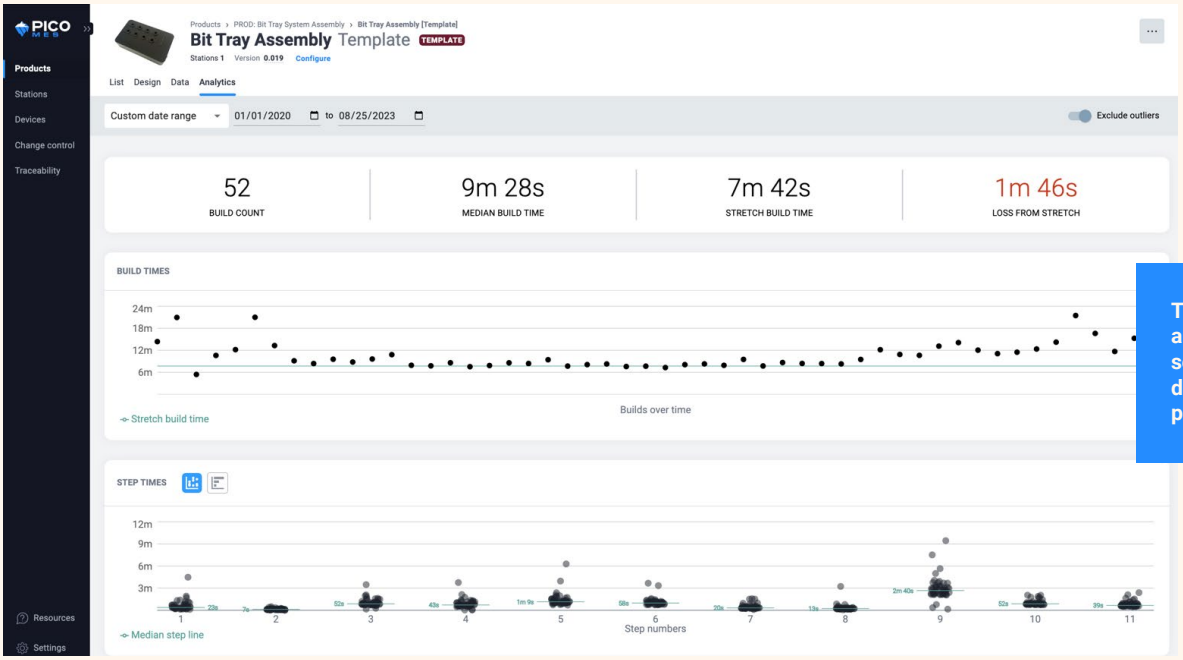
At the pilot station for Pico MES' implementation, Stewart said, "We spent about a week developing our system. Then, we spent two to three days making sure everything was in place, including training. In less than two weeks, we were analyzing the manufacturing data."

Priddle said, "The digital work instructions helped us pass the safe launch within 2 weeks. That was a big deal." The digital work instructions also helped immensely with on-the-fly training.

The visual worker guidance prompts the factory operator on what to do next and if they are building the product correctly. It is a gatekeeper in the background and not disrupt their daily flow of things.

“Now, I can just go into Pico MES and plug in a serial number or a lot number, and the data is all there. That has saved so much time, and it’s such a streamlined, easy process. We get a lot of value from using Pico. It’s really helped make us more efficient.”

CHRIS STEWART, MANUFACTURING ENGINEER



Trace by serial number and operator and easily search for historical job data, process times, and productivity data

TRACEABILITY UNLOCKS A NEW EXPERIENCE FOR AUTOMOTIVE CUSTOMERS

Pollington plans to integrate more off-the-shelf tools into its digital workflow.

“We’re going to start collecting every piece of data we can in Pico MES,” Priddle said. “This high level of traceability with digital data records is opening up many possibilities for continuous improvement.”

Pollington also plans to leverage Pico to improve the customer experience. When Pollington has a robust traceability dataset, it plans to allow customers to access some information directly to get answers immediately. Priddle said, “They wouldn’t even have to call us at that point.”