



BIOGRAPHY

Timothy J. Shaw

Associate, Munro & Associates, Inc.

With more than 15 years of manufacturing engineering experience, Timothy Shaw offers Munro & Associates' clients extensive expertise in Manufacturing.

Prior to joining Munro & Associates, Inc., Tim held a position as a Lead Process Engineer & Project Team Leader for Ford Motor Company designing, specifying, developing and delivering competitive manufacturing processes. Tim successfully conceived, planned and implemented labor reduction programs in several Ford manufacturing facilities. Through the addition of automation, eliminating processing waste and balancing operator workloads across assembly lines, Tim was able to eliminate 12 heads (43%) from Ford's starter manufacturing operation.

While at Ford, Tim also worked as an Advanced Manufacturing Engineer within an Advanced Product Design group providing manufacturing guidance to the product design team. In this position, Tim applied his extensive knowledge of lean manufacturing principles to provide cutting-edge manufacturing process designs. These process designs included plant layouts, operator work standards, Plan For Every Part (PFEP), operator work patterns, Ergonomic studies, PFMEA's, Control Plans, Process Sheets and complete Equipment Specifications.

Prior to this, Tim worked for Evana Tool & Engineering, an automation equipment supplier for major manufacturing companies. Tim was a lead machine builder and was responsible for equipment build and implementation as well as field service. His responsibilities included supervising up to 15 personnel and managing equipment build schedules, fabricating machine parts through the use of milling machines, surface grinders, metal lathes and CNC equipment. Tim was also responsible for machine wiring, pneumatic and hydraulic plumbing, design & build of safety guarding, machine controls, and overall machine debug and performance.

Tim also worked for a fabrication company as a sheet metal fabricator. Tim's responsibilities there included cabinet design, custom sheet metal fabrication, artistic Tig welding and small machine build.

Tim holds an Associates degree in General Science from Washtenaw Community College. He has also received extensive professional training, receiving certificates for the following: Visual Factory, Theory of Constraints, Mistake-

1140 Centre Road Auburn Hills, Michigan 48326

Tel: 248-362-5110

Fax: 248-362-5117

Proofing, Failure Mode & Effects Analysis (FMEA), Lean Manufacturing Practices, U-Shaped Cell Manufacturing, Project Management, Microsoft Project 4.0 Applications, Equipment Reliability & Maintainability, Total Preventative Maintenance, Energy Control and Power Lockout (ECPL), Hazardous Materials (HAZCOM), AutoCAD – Introduction, AutoCAD – Intermediate, Introduction to Programmable Controllers, Allen-Bradley PIC-5 Programmable Controllers and Allen-Bradley SLC500 Programmable Controllers.

Companies that have recently benefitted from Tim's knowledge and expertise are:

Racemark International: Tim lead a team of Racemark employees which included the owners, VP of Operations, Plant Manager, Middle Managers and Operators as they completely reorganized Racemark's entire 100,000 square foot assembly operation into a lean manufacturing one-piece flow process. This process was to replace the old "batch and queue" system of manufacturing which created huge amounts of waste and added cost to Racemark's bottom line. The new lean system reduced labor costs, floor space, and in-process inventory, while increasing material flow through an organized pull system, value added processes and throughput. Significant cost savings and increased efficiencies were realized throughout the facility. For example, the Mercedes cell doubled its production while reducing manpower requirements from 11 operators to 7.

Bowe Bell Howell: Tim worked with every level of management as well as the shop floor operators to analyze their assembly process for the BBH mail sorting machines. Through detailed analytical study and applying the correct lean tools, Tim and his team identified a significant number of opportunities for waste elimination and created recommendations for a cost reduction strategy across the entire assembly plant. The cost reduction strategy is currently being embraced and implemented by BBH management and employees with periodic overview by Munro.

ATK: Tim worked with ATK at two different processing plants, helping to design and implement lean manufacturing principles into their critical assembly processes. Along with creating cost saving layouts, Tim is working with ATK engineers and operators to create PFMEA's in order to identify "critical characteristics" and then design and implement special controls into the existing process in order to catch defects before passing them on to the next operation. Included in the layout designs are; operator load balancing, optimized operator head counts for various production volumes, operator and equipment utilization calculations, equipment OEE calculations, and lists of recommendations for improving process and equipment performance.

Active Burgess: Tim worked with management and plant personnel to plan and implement kaizen activities that included relocating six CNC machines to improve material flow and eliminate unnecessary transportation costs. He also created a new test station area to assure quality targets are met, and created new sub-assembly cells to create a pull system based on customer demand and

optimization of labor. In total, these kaizen events reduced the mould build hours by 30%. All this was accomplished in only two weeks. As a result of these huge savings, Tim was contacted by Active Burgess to focus on other parts of their business in order to obtain similar results.

NECCO: Tim worked with Aramark's maintenance crew and outside equipment suppliers to identify and fix multiple causes of equipment downtime and process bottlenecks.

Autodom: The Autodom Woodville Plant is a major supplier to Holden for critical vehicle subassemblies and components. Tim worked with production management, quality management, and plant personnel to improve significant quality problems which had been detected by the customers and resulted in the loss of future business. These problems were exacerbated by issues with manufacturing scheduling and materials management that caused major swings in production schedules, significant problems with staffing, and subsequent delivery failures to customers.

Tim focused on a rapid execution of improvements using proven lean manufacturing techniques for the manufacturing process as well as for operations in order to achieve a robust and capable manufacturing process, meet customer delivery demand, and reduce overall operations costs. One major area of analysis for Tim was the review of the documented quality issues to determine specific areas of focus for improvements.

FEV: FEV provides powertrain systems design and development as well as vehicle integration and calibration services to the automotive and heavy-duty manufacturing industries. Tim has worked alongside FEV's manufacturing engineering staff to support costing activities for the Environmental Protection Agency (EPA) who is a major FEV client.

PFMEA Review

Tim worked with Autodom's quality management team to ensure that all potential failure modes were addressed for each subassembly and/or component involved in the quality issues. Particular emphasis was placed on processes which were known causes of quality issues.

Control Plan Review

Tim worked with Autodom to ensure that the control plans addressed all potential failure modes. A particular emphasis was placed on those processes that were causes of quality issues. Control plan elements that rely on operator judgment or visual inspection were replaced with methods that are repeatable and error proofed.

Process Review

Tim also examined each process for capability and for error proofing. One Piece-One Touch Flow was implemented and replaced buffers wherever possible and appropriate.

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As part of the improvement process, Tim implemented 5S principles throughout the complete production area to improve station layout and operator functionality.