



Magnys Helps Fire Truck OEM Exceed Lean Manufacturing Expectations

A leading manufacturer of fire trucks and rescue vehicles faced significant manufacturing and assembly challenges. Its fire truck division was manufacturing and then transporting vehicle systems and sub-assemblies between three facilities separated by hundreds of miles, and furthermore, two of their facilities were plagued by inefficient processes that limited production levels.

Management turned to Magnys Innovative Solutions to help them identify opportunities for improved operational efficiency and to develop actionable recommendations on how to establish processes that would simultaneously lower costs and boost production.

Magnys is a full-service manufacturing engineering firm providing customers with an unmatched combination of engineering expertise, project management experience and software innovation to help companies improve manufacturing efficiency and increase profitability. Magnys professionals have been recognized as results-focused industry leaders since 1980, and add value with complete design, engineering, project management, assembly and delivery services.

This company's assembly process begins by building stripped fire truck chasses in one facility and shipping them to a second facility, more than 600 miles away. There, workers install a ladder assembly and a temporary cab on each chassis, and the trucks are then driven more than 1,200 miles to a third facility for final assembly and testing. Fuel costs, plus additional expenses for drivers and special permits to drive vehicles in this condition add thousands of dollars in costs per vehicle, but for a variety of internal reasons our recommendation to consolidate production and eliminate shipping sub-assemblies and vehicles between three widely-separated plants was not an option.

Our team turned next to the second and third plants in this manufacturing and assembly process, where low production was causing problems for our customer with dealers and end-users waiting to take delivery of their fire trucks. As is the case at many facilities we work with, our team found poorly documented processes –and in many instances, no processes at all– in all phases of the operation.

With this company, the challenges started in engineering. Customers are encouraged to customize their vehicles in almost every way imaginable, providing a great marketing advantage but also making life extremely complicated for engineering and manufacturing associates. Compounding this is the fact that there were no established processes to organize information on the myriad ways that they had outfitted and accessorized trucks. Decisions on where to place a piece of equipment were often left to the floor, meaning substantial time was lost as each operator went through a trial-and-error decision-making process to determine how best to build out the vehicle.

In addition, the mistaken assumption that assembly line manufacturing was incompatible with the high level of customization created further inefficiencies. This thinking led to a manufacturing process in which the company statically built trucks –in other words, a manufacturing team worked on a vehicle, performing a series of tasks before moving on to the next truck. The result was teams moving out of sequence, getting ahead of one another, standing around and waiting for other teams to finish their process before they could start their own work, etc.

Finally, when trucks were ready for testing they were driven outside, where lights, sirens and water pressure could be tested. This disturbed businesses near the plant and led to the expense and hassle of regular tickets being issues by local law enforcement. And, to make matters worse, there were no documented processes for this testing –the quality team relied on memory to test every function, which is rarely a recipe for success.

Magnys offered multiple options to resolve our customer's efficiency issues, including outlining how to replace the current production system with an assembly line system. We also developed scenarios that reworked their current facilities and offered options for investing in new buildings; a common thread in all scenarios was the need to document all processes.

Our customer chose to adopt our recommended assembly line manufacturing system, and results are exceeding expectations. In fact, the first quarter after the new system was in place proved to be the most profitable in the company's history, and management told us that all metric trends are moving in a positive direction.

As the company continues to realize the benefits of higher quality and efficiency levels, they expect continued market share growth. This will lead to an expanded relationship with Magnys when it's time to expand existing plants or build additional facilities.

To learn more about how Magnys can help your company, please contact Mark Masters at mmasters@magnys.com.