

A Global Leader in Truck Manufacturing Steers Work Management to World-Class Levels

The Need

A global leader in truck manufacturing wanted to take their maintenance organization to world-class levels of efficiency and cost by overhauling their work management and materials management processes.

The Solution

Life Cycle Engineering worked with the plant's management to identify gaps in their processes, pinpoint underlying issues, and develop a Maintenance Master Plan (MMP) to standardize work processes and implement a planned, proactive approach.

The Benefit

Over a two-year period, the manufacturer realized an average annual savings of \$8.2 million, efficiency improvement of \$4.1 million, and a 10% reduction in standard costs.

A goal for most automotive manufacturing operations is to increase speed and efficiency while keeping costs as close to the floor as possible. However, for one of the world's leading truck manufacturers, this group didn't just want to improve efficiency, they wanted to be recognized as a world-class leader in this category. Responsible for all production of the organization's engines and transmissions, the plant's team strived for operational excellence and in order to achieve that mark they knew their work management and materials management needed an overhaul. "To their credit, the organization had one of the best reactive cultures I've seen. However, in order to be an industry leader in workforce efficiency and costs, you need to transform from reactive to proactive," said LCE's Managing Principal, Bruce Wesner.

Investing in operational reliability to drive production

The manufacturer began working with Life Cycle Engineering to identify the key areas for improvement within their current productivity framework. While on-site, the LCE team identified two core problems within their work stream that were disrupting both their work management and materials management processes:

1. Work management streams were experiencing inefficiencies because there were too many people assigned to fix a single point of failure
2. There was no active preventive maintenance plan in place to address continuously failing equipment

Working together, the manufacturer and LCE were also able to identify underlying issues such as a missing storeroom for materials, excessive work orders and resistance to change. After completing the maintenance assessment, the Maintenance Master Plan (MMP) was developed using a gap analysis as their guide to change.

Evolving operational processes with reliability excellence

With the MMP in place, both sides worked together to address ongoing failures with the plant's automated guided vehicles (AGVs)

Reduced department average annual spend by \$8.2 million and reduced the standard cost of sales by 10%.

and their crankshaft milling center. It was estimated that the AGV-related disturbances were classified as a “major” loss within the facility. To correct these reoccurring issues, LCE first performed a Criticality Analysis on each of these assets as well as a Failure Modes and Effects Analysis. These assessments were essential in identifying the critical assets and the necessary parts the organization needed to have in-stock within their developing storeroom to reduce downtime for each asset. From there, LCE developed Asset Management (AM) plans for the plant and assigned routine preventive maintenance to properly support the AM plan moving forward.

Next, LCE performed and completed the Reliability Excellence Assessment at the powertrain facility. The facility scored as “emerging” with a few key elements in place, but still needed additional work and support. The plant’s maintenance, repair, and operations (MRO) needed an immediate overhaul, SAP was underpopulated and underutilized, and there was an excess in emergency work orders (EWOs). To address these elements, LCE established Work Management and Materials Management Focus Teams to develop these integral work processes. The adoption of ADKAR, an action-oriented framework for taking control of change, as the Change Management tool for supervisors and the newly created partnerships within the manufacturing facility streamlined the plant’s management processes and established a true Reliability Excellence model.

Overall, the plan to transform from a reactive maintenance strategy into a proactive preventive approach consisted of the following procedures:

- Evolving the plant’s EWO System
- Creating a partnership with production units to institute the proper planning and scheduling techniques and routines for preventive maintenance
- Creating a centralized storeroom for materials
- Generating a plan with Human Resources to address UAW contractual needs for project success
- Developing an external benchmark and assessment value against world-class standards

Realizing the benefits of a proactive strategy

After two years of successful implementation of the MMP, the results have catapulted the plant into world-class leaders in operational efficiency. With vast improvements made in the areas of department spending, materials management, consolidation in maintenance work centers, planning and scheduling for preventive maintenance, controlling overtime spend, and driving skilled trades

efficiency, the manufacturer now has a plan in place positioning them as an industry leader in productivity.

Business impacts include:

- **Increased average overall equipment effectiveness by 18%** (*currently 96%*)
- **Reduced department average annual spend by 30%**
- **Reduced standard cost of sales by 10%**
- **Reduced engine manufacturing cost by 12%**
- **Reduced overtime spend to 5%** (*a best-in-class statistic*)
- **Efficiency improvement of \$4.1 million**
- **Finished 2013 at 8.63% of value add for the plant, just shy of world-class standards**

Additional Information

For more information about improving operational and financial performance, please email us at info@LCE.com or visit www.LCE.com.

About LCE

Life Cycle Engineering (LCE) (www.LCE.com) provides consulting, engineering, applied technology and education solutions that deliver lasting results for private industry, the Department of Defense and other government organizations. The quality, expertise and dedication of our employees enable Life Cycle Engineering to serve as a trusted resource that helps people and organizations to achieve their full potential. Founded in 1976, LCE is headquartered in Charleston, South Carolina with offices across North America and experience around the globe.

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