LYCOMING ENGINES’ LEAN TRANSFORMATION
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Abstract
This teaching case documents the radical transformation of Lycoming Engines from an organization losing millions of dollars to a Shingo Silver Medallion in just 4 years through the rigorous implementation of Lean Six Sigma philosophy and methodology.

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Introduction
This case was inspired by a field trip taken by students in Bloomsburg University’s Operations Management courses to Lycoming Engines in December 2007. At the time, Lycoming Engines, an aircraft engine manufacturer, was embarking upon its’ most aggressive operations-based Lean improvement efforts. Upon arrival, the students were greeted by leaders and employees of Lycoming, who displayed passion and humility as they relentlessly pursued a vision that would transform it from a failing operation to a leading example of the transformative power of Lean principles and tools.

Lycoming’s Lean success was affirmed in 2008, when it was awarded the prestigious Shingo Silver Medallion, perhaps the most rigorous external validation of Lean in the country. In evaluating Lycoming’s performance for the award, lean experts spent days turning over every stone of their operation for the assessment. When we learned of the award, we approached Lycoming and asked if we could tell their story.

This case fills a gap in the management case literature particularly in the area of Operations Management by affording students and opportunity to engage in decision making, analyze management’s actions, and apply their disciplinary knowledge in the context of a Lean transformation. The case examines the cultural enablers of a Lean transformation, the use of Lean Six Sigma principles and tools, the time horizons of a Lean transformation, the leadership qualities embodied by transformational leaders, and the use of policy deployment. It is targeted for use in upper-level, undergraduate business courses such as Operations Management, and it is also appropriate for Organizational Behavior, Supply Chain, Labor Relations, and other undergraduate and graduate Management courses.

Overview of the Case
This case describes Lycoming Engines, the world’s leading producer of piston aviation engines, as it emerges from a company on the brink of failure to a premier manufacturer. In 2004,
Lycoming was a fairly typical example of the mass production orientation. There were large batch sizes, mountains of inventory, long lead times, little in the way of long-term supplier relationships, and lengthy product development cycles. Sixty percent late on orders was considered normal, and nearly 80% of engines that were delivered to customers had at least one quality issue. Furthermore, Lycoming had recently experienced a crisis of failed engines that resulted in a surge of liability costs from less than .5% to over 10% of gross earnings and an impending loss of their reputation.

Lycoming also had a broken relationship with its unionized workforce. Massive outsourcing and a union strike in the 1990s resulted in a hostile relationship between the workers and management. The two sides had failed to agree to a contract for nearly 9 years. Excuses, finger-pointing, lack of respect, and poor safety records dominated the workplace. It was so bad that former employees once said that they had “escaped Lycoming.”

Combined with the effects the 2001 9/11 attacks had on the aviation industry, Lycoming was decimated. The company was losing tens of millions of dollars per year, incurring its biggest operating loss of $40 million in 2002. When compared to a roughly $125 million annual revenue base, the prospects for reversing the losses were dim.

In 2004 Ian Walsh was hired as the Senior Vice President and General Manager of Lycoming. He started the company’s transformation by bringing in a new leadership team, developing insight into the company’s problems, crafting a new vision for the future, and rebuilding the relationship with the workforce. He initiated and sustained a rigorous Lean Six Sigma program that radically changed the culture, mindset and outcomes at Lycoming. The results were record revenue levels, superior competitive positioning, and the celebrated Shingo Silver Medallion in 2008.

However, the lull in challenges facing Lycoming since its transformation would be short lived. The dramatic economic declines that accompanied the recent recession hit Lycoming hard once again. It had to layoff roughly 25% of its workforce at a time when the employees had finally regained confidence in management and bought in to Lean Six Sigma. Confronted with these severe new realities, Ian Walsh and his leadership team debated the next courses of action, and Walsh must now decide how to guide Lycoming through the new challenges presented by the economic downturn.