

PHOTO ETCH – Entire Workforce Engaged in Lean!

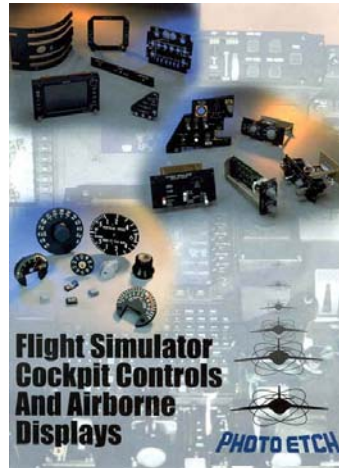
Photo-Etch, designs and manufactures the industry's most sophisticated integrally lighted displays and control panels for military and commercial airborne and ground communications and navigations systems. Established in 1960, Photo Etch employs 90 in a state-of-the-art 50,000 square foot facility.

Situation

Photo Etch was in the process of divesting itself of an unprofitable division and implementing a new ERP system. In addition they also needed to cut operating costs, improve the scheduling process and shorten lead times. Management had some experience with Lean Manufacturing concepts and saw opportunities for improvements. With these challenges on their plate, several planning sessions with Photo Etch's top management and staff with the Texas Manufacturing Assistance Center (TMAC) were held to determine a swift but sure plan to prioritize objectives and to develop a systematic approach to Lean Manufacturing. These planning sessions resulted in the development of a strategy to improve cycle times and to reduce costs. The strategy included a lean manufacturing approach combined with defining scheduling and ERP implementation requirements. Four teams: Estimating, Manufacturing Operations, Sales & Order Entry, and Engineering were commissioned to focus on the Lean initiatives.

Realizing that lean concepts and some *out of the box* thinking were required for ultimate results, the first order of business was to schedule extensive training. TMAC provided Value Stream Mapping (VSM) training for 21 team members and later taught introductory Lean Manufacturing principles with hands-on simulation to 90 percent of the managers and hourly work force. The next order of business was to Value Stream Map the entire business

from Estimating through Engineering, Order Entry and Manufacturing. The value stream map indicated significant opportunity for impact existed in the order-entry and manufacturing processes. This led to the application of proven lean techniques to the front-end office functions as well as focusing on work in process (WIP) reduction and evaluating inventory pull systems on the shop floor.



Teams were instructed to ignore existing organization structure and eliminate non-value added processes and to focus on best possible delivery of value-added and necessary information and processes. In a parallel effort, the office and plant layouts were updated and flow diagrams were developed

to track, measure and quantify distances traveled and access between processes. A graduate Industrial Engineering student from UT-Arlington was retained to support TMAC's efforts. The student developed an optimal facility layout to identify potential for better workflow and floor space utilization. Extensive data gathered by process owners for analysis included: time between operations, waiting time between office processes, in-basket and work-in-process queues, actual process times, travel times and total time from order entry to shipping. Based on opportunities identified in the current state model, each team was charged with cutting cycle time in half through their respective functions.

Solution

Mike Dishman, Photo Etch's Production Manager, was not comfortable when the company was asked to give up 50% of work in progress and cut the manufacturing cycle time in half. Dishman stated "there is no way we can meet our customers' commitments if we do as you suggest. We believe our on-time performance will suffer." TMAC responded "trust us; it has to be a leap of faith." Photo Etch and TMAC had an initial overall plan that

included reducing work in progress between operations, eliminating buffer between purchased parts stock room and the production floor, combining operations into cells and going from a push to pull system. The actual implementation required a leap of faith by production. They learned how important scheduling is when you don't have any buffer between operations or a queue outside the stockroom. Photo Etch learned how to balance workloads as bottlenecks surfaced.

There was some resistance in the office and on the floor when major tasks and workloads were reassigned. Employees were encouraged to embrace *out of the box* thinking and reduce the number of sequential functions and instead work multiple steps simultaneously. They were also encouraged to think beyond their individual departmental requirements and perform more cross-functional assignments. Photo Etch found that running on a fast track means you might get derailed if you can't work outside your comfort zone and don't act quickly and decisively to change.

Results

The team exceeded targets within the allotted timelines and overall cycle time was cut in half. Photo Etch's CEO, Randy Fry, sent a letter to the company's customers committing to a 50% reduction in delivery time. The elimination of one-third of the steps and 65% of the time involved within the order-entry process greatly impacted the overall results. Additional improvements included:

- ***20% reduction in manufacturing costs***
- ***30% increase in capacity (without any capital expenditure) because of improved utilization***
- ***25% reduction in total inventory with expectations of additional gains***
- ***Drastic reduction in expediting***
- ***99.9% on-time delivery – an increase of 29.9%***

These impacts as well as other improvements were possible because of an extremely high level of commitment from the CEO down through management and the hourly work force. Results

came mostly from good management, enthusiasm throughout the organization and basic blocking and tackling through many individual tasks. The timeframe for these accomplishments was six months. No magic, no buzz words, no high tech or capital investment. Photo Etch's owners are extremely pleased with the results proven to date.

The Future

Teams continue to produce results; continuous improvement is now part of Photo Etch's culture. The long-range facility and office plan developed from the plant layout study is under review. Additional process changes and cellular manufacturing improvements are targeted for implementation.. Scheduling processes are being refined to balance production to demand. As additional improvements occur, the teams will continue to fill the pipeline with new ideas and suggestions. Weekly planning sessions explore new business management concepts and probe at the existing culture to challenge and improve the way business is done. CEO Randy Fry declared "The success of our project with TMAC has helped Aircro focus on moving from a *good* to a *GREAT* company!"

For More Information

Photo Etch – visit www.photo-etch.com or call 1.817.332.3806.

TMAC – visit www.tmac.org or call 1.800.625.4876.

