

Manufacturing Review

Volume 16, 2007

30 Minutes is free?

By James D. Cunningham

I was recently pleasantly surprised by a group of young men who had learned, from scratch, how to set up their equipment. They had all joined their company, only three years previous, as the start up crew with no prior experience (or bad habits) in their industry.

Since this young company had begun its Lean Transformation journey, only seven months ago, I had heard often how long (and difficult) the set up was on this highly automated equipment that was joined together in a high speed printing process for specialized cartons. As the challenges of the production grew, and the company gained more diverse customers, the need for set-up time reduction was pressing on management. The factory manager chartered the team and seeded it with his best operators and support people from tooling and maintenance.

Of course, during day one training we spoke about how set-up reduction was a challenge that could become multi-dimensional and include not just choreography of the set-up crews, but also, included elements of 5S, machine design, and process innovation.

As an experienced Lean Consultant and quite experienced in set up reduction events, I had come to a generalization that I often quote to teams, "Set ups below 30 minutes should be "free"; however, the "holy grail" of single minute exchange of dies (SMED) can quite often get expensive." The response from the team was a challenge (sight unseen) to find wasted time within their standard sequence of change over that could reduce their standard 2 hour "ready to run" time to 30 minutes. My experience (and arrogance) told me I could win a "sure" bet in this case. Our challenge was on!

The first set up was a lesson in humility for me. There was lots of time lost in waiting; however, it had very little to do with their choreography and spaghetti maps. The lost time was caused by machine design limitations.

As we mapped out the set up in detail using our observations we found lots of elements of waste in waiting; however, recovering these wastes and turning those previous internal elements of work into external elements was not going to be free! The team realized that three years ago when these machines were built, little consideration had ever been given with regard to set up. Machine positions for mandrel changes were inconvenient, programs prevented two steps from occurring simultaneously, and "dialing in" adjustments were not fool-proofed: my initial boasting of "30 minutes would be free" needed recalibration.

The team dug into the challenge with gusto. The perseverance of youth overcame the challenges of equipment design and their weaknesses. The innovation from the team provided several break-through's that could overcome equipment design limitations. The group found program adjustments and made modifications that would provide for a below 30 minute set up. Their sequences would change; but they conquered the challenge!

There was more learning and lessons learned; however, "30 minutes is free" had to be recalibrated for this group and their industry. They maintained their pride that their previous process sequences were excellent with the machines' limitations. They had won the bet.

Another lesson: Never believe blindly that the machine builder knows best. They may build them but they don't run their machines. Our people have operational knowledge that is invaluable to

the process. Don't overlook that experience and skill when you purchase new equipment or modify your old. There is no better 'voice' to listen to than the voice of experience. That said, three years ago still would have been the best time to have had operators (even new ones) participate using kaizen methodology in machine design. Perhaps if we had that kaizen team charter, they would have been challenging themselves to SMED now.