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LEAN Set-ups

It is every production manager's dream to have never-ending production runs of the same product and in few cases, lines can be dedicated to a particular product where volumes justify. These situations are rare and because we live in a land where choice is free and demand for variety is high, we find our production lines are asked to multi task over fairly large product ranges. Especially in the automotive plants, an assembly line will very often satisfy the demand of several varieties of Vehicle. It is futile attempting to dedicate lines when customer demand is insufficient. So changing a process from one size or color or flavor or shape to another will result in lost production time, unless SMED is employed to avoid these losses.

LEAN refers to this as Single Minute Exchange of Dies (SMED) the name implies a challenge not an immediate end result. It is a concept worth striving for and was born in the press shops of the great automotive plants in Japan where utilization of costly equipment became a priority. Classic examples with which we are familiar are the F1 pit stops where a refuel and tire change can be measured in single digit seconds as against you and I struggling to change a flat in 20 mins!

The clever way of approaching this problem is to accept the variety as part of the challenge and to schedule product runs in such a way as to minimize production downtime. Take Nissan South Africa as an example. Between the Tiida, Lavina and very shortly the Renault Megan, Batch quantities of 2's and 3's will travel through the Body Shop sequentially. These are not large batches so adjustments to tooling and line side supply must be highly polished in order to keep the flow uninterrupted.

SMED can be used as a tool whenever changes are made to a production program involving stoppages and consequent losses in production in order to minimize or eliminate the losses.

As a start, measure the down time during changes by taking the time from the last good product on the previous run to the first good product in the new run. This can be surprisingly lengthy! Then, analyze all the activities involved during this non-productive period in some detail and question which of these activities can be performed during the run time of the previous run and which can only be performed during the stoppage time. Capturing this on CD or video can be useful as this allows us to playback the scene over again for analysis. Critical

examination of the change-over process using the why, when, who, where and how questions will help in getting into the heart of the matter.

Very often, much preparation work can be done before production stops, saving time later on. Following these guide lines will help.

- ❖ Make ready for the change-over as much as possible during the previous run.
- ❖ Pre-heat tooling to speed up the settling in period.
- ❖ Employ as many of the production crew as possible during the change over.
- ❖ Modify equipment to eliminate or minimize adjustment of settings. This will achieve big savings and reduce the need decision making at a critical time.
- ❖ If this line is a system constraint, subordinate all else to reducing the set-up time. Remember 'The Goal', a minute saved on a constraint is a minute saved for the entire process.

So, who should get involved with set-up reductions? Certainly the production crew and production supervision but this exercise also needs imagination and vision to see things as they could be so having someone with creative flair and enthusiastic determination will complement the team.

As a challenge, expect to cut the present set-up time by half through a well orchestrated SMED application. Later on, repeat the exercise with the same expectation. Good luck with your efforts.

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