

Pitstop Your Changeovers

By John Henry

Publish date: August 2010 Superfactory www.superfactory.com

The most interesting part of auto racing is the pitstop and I am always amazed at how much is accomplished in such a short time. In a 15 second NASCAR pitstop the car gets fuel, 4 new tires, a windshield change, suspension adjustment and a drink of Powerade for the driver. Formula 1 racing, with different rules, does it in half that time.

Changeover is the process of changing a machine or process from running one product to another which many manufacturers do daily. It must be done with a pitstop mentality. The reason for rapid pitstops and changeovers is the same on the track or in the plant: Money! Each second in the pits costs the racecar 250-300 feet in position. The difference between 1st and 2nd place is often inches and a hundred thousand dollars or more.

Each second lost to changeover can cost Each hour lost to changeover typically costs the manufacturer \$1 to \$10 (\$5-50,000/hr) or more. Even at \$5,000/hr, slashing 30 minutes a day from changeover dead time will generate \$600,000/yr of additional profit. More importantly, no product is produced during changeover. Some plants will never be able to replace this lost production, sending customers to the competition.

So the motivations are the same but what about the techniques? These too are the same:

Preparation – When the car arrives in the pits, all the materials have been staged and are ready to go. There is no time lost going back to the warehouse to fetch materials or part. Instead of being loose, lug nuts are glued to the wheels. Instead of cleaning the windshield, they apply several layers of film that can be quickly peeled off in the pits. Most importantly the pit team is in position and raring to go when the car arrives.

Compare this to a changeover. When the production run finishes, the line may sit idle waiting for the changeover to begin. When the team shows up, they may not know what product they are to change to or need to go fetch materials, tools or parts. Much time is wasted just getting started.

Training and teamwork – In the pits, each person has an assigned task and knows the best way to perform it. No time is lost deciding who will do what. No time is lost because a team member is not sure what to do or how to do it. No task is duplicated or left undone.

In a plant, improvement begins by identifying the changeover best practices. Once identified, these must be documented via SOP's and checklists. Once documented, the team members must be trained to carry them out. Each team member needs to know their job before, not after, the line stops.

Proper tools – The pit crew has the proper tools to perform their tasks. Not just the right tools but specialized tools such as quick-lift jacks to maximize their effectiveness. Only the required tools are present minimizing confusion and the risk of using the wrong tool.

Changeover teams must be sure they have the right tools. When appropriate, they need specialized tools. Best of all is to simplify changeover so that no tools at all are required.

Precision – Quality is defined as the absence of variation. Pit crews do quality pitstops by performing them precisely the same way time after time after time. The changeover team needs

to perform precisely as well. In some plants, the longest part of changeover is not the time the line is dead, it is the time the line is running inefficiently after it restarts. This start-up or ramp-up time is largely due to imprecision in changeover and must be eliminated. Every adjustment must be capable of being set to an identified setpoint and must be made to that setpoint.

Management support – The pit crew has the support of its management which realizes how critical this is. The changeover team needs the same support. Management must make reducing changeover dead time a primary goal. It must provide the resources and encouragement to achieve it.

Does your plant do changeovers or pitstops?

If the former, you must convert to the pitstop mentality and pitstop methods. You need to do it now, not next month or next year.

Your competition is. How many times will you let them lap you before you begin?

The presentation on which this article is based is available online at:

www.changeover.com/pitstops.pdf

Additional information about changeover may be found at www.changeover.com

++++
John Henry is The Changeover Wizard with over 35 years of SMED and manufacturing experience. His company, changeover.com, provides training, coaching, documentation and assessment services to help manufacturers reduce changeover time.

He may be contacted at 787-550-9650 or johnhenry@changeover.com

Visit www.changeover.com/newsletter.html for a free subscription to the Lean Changeover Newsletter.