

Midwestern Region

Setup Reduction: Building Block in Time-Based Improvements

Lea A.P. Tonkin

When several American National Can Company plants began setup reduction efforts a few years back, they were hoping for more than cycle time improvements. "People look at shorter changeover times as one tool that will help them improve overall productivity and decrease costs," said Robert K. Hall, manager of time-based strategy for the company. This article reflects some of his comments about setup reduction, presented during a recent Rosemont, IL seminar on "Time-Based Strategies."¹

Improvements Under Way

"Over the past three years, more than 70 setup reduction teams have been started within American National Can," Hall said. Two plants slashed changeover time by 82 percent, another dozen facilities cut 50 percent or more, and other teams report improvements "in progress."

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Success factors contributing to continuing, effective setup reduction efforts, according to Hall, include:

- Management must be involved in effective setup reduction efforts. "Management leadership has to be hands-on," Hall said. "Setup reduction and other time-based improvements must be part of their goals and objectives; otherwise it gets put on the back burner. Pick an area that's critical to the plant, recognize it, talk about it, support the team — that's total leadership."
- Provide needed training in problem-solving

and team activities. A facilitator from off-site (from another company facility, corporate staff, or another external facilitator) will help teams (and management) bring objectivity to improvement efforts.

- Good housekeeping is essential. Locate only necessary items near machines. Make sure needed tools, etc. are readily available at the work station.
- Corrective action teams (CAT) help to build employee involvement. Look for team members who are "doers" — willing to challenge specific quality, etc. problems. Involve employees from all functions usually associated with setup. Team leaders may not be from management; they should be trained how to coach and facilitate meetings, problem-solving activities, etc.
- There's never enough positive recognition. Bulletin boards, employee luncheons, newsletters, hats and jackets, team meetings, etc. can encourage participation in improvement activities.
- Videotape setups. Actively involve employees in discussing and planning the videotaping activities. The tape may be viewed many times; each element of the setup can be identified and studied for improvements.
- Use quick changeover charts (see Figure 1).

Internal and external changeover improvement ideas can be posted on the chart, initially using self-stick notes (some people hesitate to write on a chart). As team members discover downtime spent looking for tools, materials, and supplies, these activi-

Quick Changeover Chart

Elements									
Time									
Additional Details									
Internal									
External									
Converting Internal to External									
Ideas to Streamline Internals									
Ideas to Streamline Externals									
New Standard Procedures									

Figure 1. Quick changeover chart. (Source: Robert K. Hall)

Analysis Sheet

Clock Time	#	Element Description	Internal Time	External Time

Figure 2. Analysis sheet. The first column should show the running clock time for an element of the changeover process. The elements are numbered and described in the next columns, and the time for each element is noted in the internal or external time column. Then specific elements can be studied using the quick changeover chart. (Source: Robert K. Hall)

ties can be noted on the chart. It's suitable for setups involving up to about 15 steps.

- Use an analysis sheet for setups involving about 20 or more steps (see Figure 2). After various setup elements are clocked and listed, use the quick changeover chart for specific elements.

Team Ownership

"Ideally, ownership of the list of setup elements resides with the team," Hall said. "It's useful for the team to come up with a list of action items that will make it easy for everyone to see the status of their improvement activities. The objective is for the team to start with ideas that don't cost a lot of money, and then consider other actions if they are needed." (A sample action item list is shown in Figure 3.) Action items might include storing supplies near a machine, preparing a setup cart for all the tools needed for a changeover, etc.

When they analyze setup elements, team members should not take any element of the setup for granted. Brainstorming, a Pareto analysis of setup elements, questions about the purpose of every element (asking "why" five times) and how it is done bring new ideas into the open. Teams then select the best suggestions as action items. At every meeting, teams update each action item as implemented, pending, or canceled. Budgets can be allotted to teams for action items; for example, the team might be empowered to spend up to \$500 on setup improvements with no approval required.

Move Beyond the Plateau

After they've implemented action items for some time, the team eventually reaches a plateau. Improvement ideas slow down. That's when a parallel chart (see Figure 4) can be useful. It's now time to consolidate all the implemented action items into a new standard procedure which would be listed on a parallel chart. Every employee's duties are listed here, along with appropriate clock times for setup elements. A checklist of needed supplies, materials, and tools for the changeover is posted at each machine, along with the parallel chart. Then it's time to declare the teamwork a success, give recognition to team

Action Item List

#	Item	Whose Idea	Date of Idea	Who is Responsible	Current Status	Target Date	Time Saved

Figure 3. Using an action item list, setup reduction team members tackle each element of the changeover process. (Source: Robert K. Hall)

Parallel Chart

Clock Time	Employee 1	Employee 2	Employee 3

Figure 4. (Source: Robert K. Hall)

members for their efforts, and then wait a few months before starting again. If a new team re-videotapes setups and reviews the changeover steps, it should bring fresh

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improvements. Usually 50 percent of the setup reduction results come in the first several months, and another 50 percent is pulled in later. Anyone who says, "We've done quick changeover" as though they've completed the task doesn't understand the concept, according to Hall. "Setup reduction is a continuous, never-ending improvement process," he said.

"The power of the team is the key to setup reduction," Hall concluded. "What you're looking for is all of the ideas that the team brings to the process."

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¹ For a free copy of Robert K. Hall's article, "Setup Reduction," write to Robert K. Hall, American National Can Company, 8770 W. Bryn Mawr 11M, Chicago, IL 60631. This article includes references drawn from Robert K. Hall's article.

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