

Setup Time Reduction

Eliminating the Transporting and Trouble in Your Setup

Part VI

By Jerry W. Claunch

Last month's article examined the tenth and eleventh steps in setup time reduction (10) Eliminating trials and (11) Eliminate the travel during setup. This month's article continues this important series with eliminating the transporting and trouble during setup.

Transportation occurs during most setups and I differentiate between travel (where the setup expert is not carrying or moving anything while leaving the setup, which we discussed in the last article) and transporting. Transporting is when the setup expert is either taking something away from the machine or bringing something to the machine during setup. Your goal should be to eliminate this transportation while the machine is stopped for setup.

Step 12 - Eliminating the transporting during setup.

In most of your documentation of setup you will see a great deal of transporting. This occurs for various reasons. The first reason is "that's the way we have always done it". I'm sure you already know the right response for that reason. Sometimes it's because the setup expert forgot to get something before the changeover began. The solution here is a simple check sheet of the items needed for the setup that is brought to the machine while the previous job is running. Hand tools may be in a tool box and not out and available prior to the setup. This is solved by having the tool cabinet installed that I presented in article 2. Don't accept any transportation during setup even if it is close to the machine.

Most of the transportation I observe during setup includes getting dies, tools, fixtures, molds, (getting change parts to the machine), getting hand tools, paperwork, and taking parts to inspection. It is easy to overlook this opportunity for improvement, except when you consider that the machine is not producing during setup. When you observe the setup expert going to get anything when the machine is stopped, you then understand the cost of the transportation. Figure 6-1 is a listing of items you should be able to transport before the setup begins and return to their storage locations after the new job starts up.

If You are Using Carts for Change Parts:

I have on, many occasions, eliminated a lot of transportation by having two carts for the change parts. An empty cart located as close as possible to the machine for the parts being removed and the cart with the new change parts located as close as possible on the other side of the machine during setup. This usage of carts will reduce and possibly eliminate the transportation during setup. Another method with carts is to have part of the cart for the new parts and part of the cart reserved for the parts being removed.

Step 13 - Eliminating the trouble during setup.

Trouble during setup comes in many forms and should not be accepted or considered normal. When you are documenting your setups or observing a setup being done, be on the lookout for trouble. The first and easiest trouble to identify is that which could be resolved by proper maintenance. Far too often, I have observed both machine trouble and

change part trouble that if maintenance were notified and given the opportunity to fix, the problems caused during setup would be eliminated. Not only would the setup be faster, the start up would be more reliable.

Figure 6-2 shows a picture of two straight line action clamp that I removed from a machine and replaced with a new one for under \$40.00 each. Figure 6-3 shows one of the new replacement clamps installed. These clamps are used to clamp the guide rails in place which are changed during setup. As you can see, the clamps are worn out and can not function properly to hold as originally intended. There were 3 others on the machine and while not quite as bad as these two, should have been replaced long ago. Ironically enough, the person doing the setup was a maintenance employee. Suffice it to say that "some people just accept problems and won't take the steps to correct the situation". That does not, in any way, imply that they are bad employees. Many times employees feel they are saving the company money if they continue to run the machine as is, without investing in the improvements. You must help them understand that these type of problems affect our process capability, setup and delay start up after a setup. Not solving the problem costs your company income and profits. You must instill in employees the understanding that repairing a machine and the change parts is necessary. I recommend you install a "NO FAULT REPORTING" of maintenance problems that affect setup and machine capability.

In some cases, you may have to contact original equipment or component manufacturer and get machine maintenance problems fixed. Many times I hear complaints about the equipment and its age. My response is that a machine does not have to be new, it simply needs to be in a good state of repair. One company told me their goal is to keep their equipment in "mint like condition". Overall, you should not accept maintenance problems nor have them delay your ability to setup.

Another trouble area that needs to be addressed is that of quality. Many times the operators will get the setup just within one of the tolerance limits. This then causes delays, rework and possible scrap due to the variation of the process. In order to resolve this, I recommend you target nominal of the specification during setup. This will allow your process to run the product within the tolerance limit.

Many times employees have trouble during setup because they do not have enough tools, fixtures or gages. Many times you have plenty, they are just hard to find. Typically the items do not have a specific location and are hard to locate. The easiest solution is to buy more which I am not automatically in favor of, since it may be the most expensive solution. The right step to improvement is to give every item a specific clearly identified location while not in use. Once this is done, it will be easy to determine if you need to purchase more.

Somehow you must get your employees to realize that they should not just accept trouble especially during setup. When problems occur, do not accept those problems, eliminate the problems! Doing so will help you reduce setup time.

These two steps, eliminating transportation and trouble during setup will have a positive impact on your setup time. Next month we will examine the use of tape measure and dial indicators for setup and methods to get setup elements to one touch changeover.

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Transport Externally

- Change parts
- Tooling
- Information needed to setup
- Production material
- Return tooling
- Return information
- Return material

Figure 6-1 Transportation items

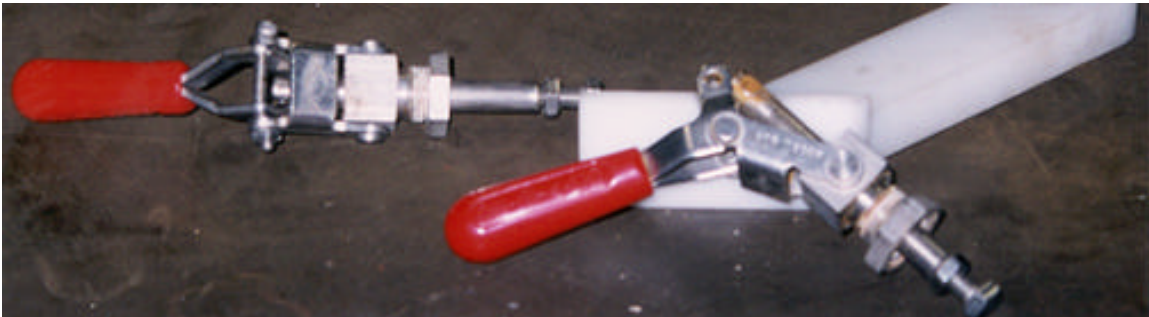


Figure 6-2

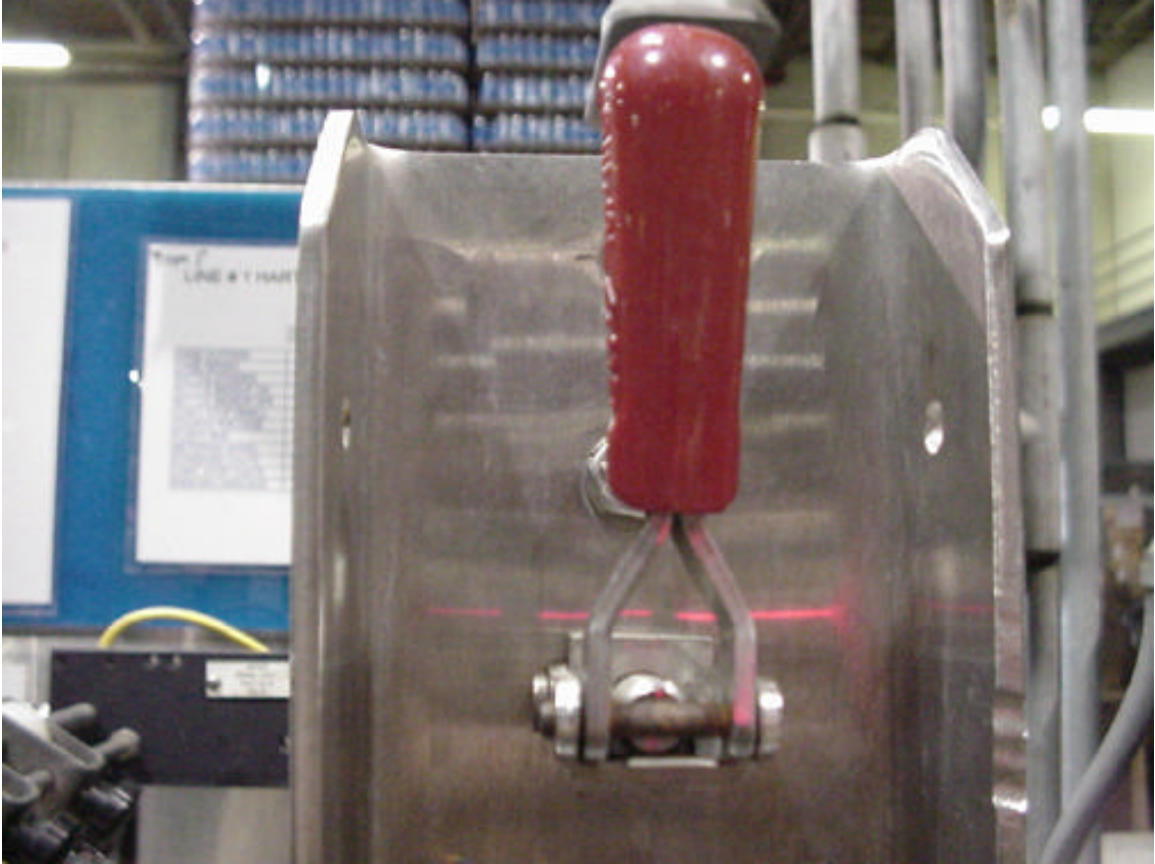


Figure 6-3