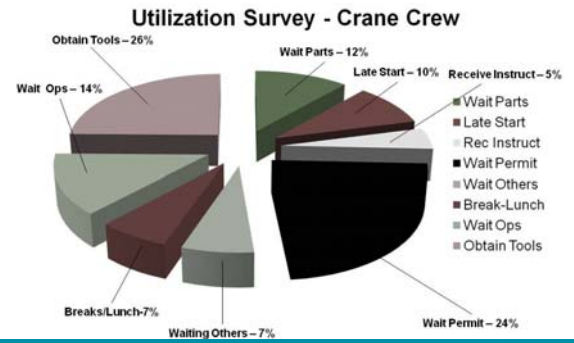


# Tool Box Talk – Wrench Time Study

## “Utilization Survey”

### “Work Sampling: Why Is It Needed?”



#### What Is Wrench Time?

Wrench Time is defined as the actual amount of time a crafts person spends doing value added work. A Wrench Time Study, or Work Sampling Study, is aimed at identifying and then eliminating or mitigating the time spent on non-value added tasks.

World Class Wrench Time is 55-65%; most companies' Wrench Time is between 18-30%.

**“Your system is perfectly designed to deliver precisely the results you’re getting.”**

– W. Edwards Deming, PhD

#### Guiding Principles of Wrench Time Studies

Identify the percent of time maintenance personnel are delayed due to one of these specific reasons:

- Traveling to and from the workplace: items not in the plan
- Breakdown Planning: (emergencies or urgent work) waiting for parts, people, etc.
- Training: technical, safety, etc.
- Meetings: training, safety, etc.
- Work Execution: waiting on parts, waiting on someone, etc.
- Breaks: lunch, heat breaks, etc.
- Waiting: waiting on supervisor, another maintenance person, production, etc.
- Administrative: Union issues; personnel issues; discussion with supervisor about vacation, work orders, etc.

#### WARNING:

**“Drive out fear, so that everyone may work effectively for the company.”**

– W. Edwards Deming, PhD

We never want our employees to fear any actions we take as managers. If a wrench time study is to be

conducted, it is necessary to discuss the reasons for the study and its value.

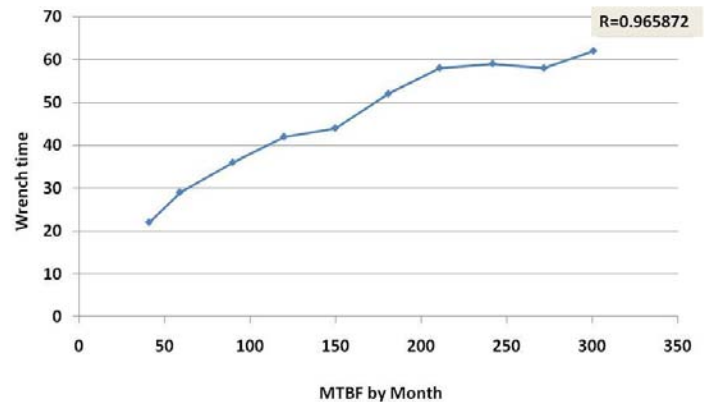
Do not follow the “just do it” approach. You want your maintenance personnel to buy in to the process.

“The only reason for conducting a Wrench Time Study is to identify the delays causing maintenance to be less efficient”

#### Pay Attention to This Message:

***A Wrench Time Study is not about finding personnel who are inefficient, making mistakes, or performing poorly. It is about the quality of the planning process and how the organization uses the planning process.***

#### Planning / Scheduling Impact on MTBF



#### How Is a Work Sampling Study Conducted?

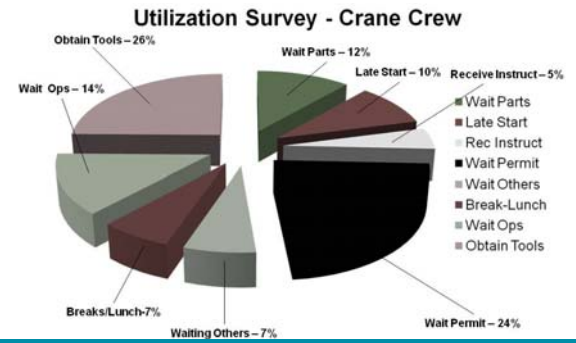
Over the years, Work Sampling Studies have taken many forms. The most infamous is the Industrial Engineer following someone around all day with a clipboard and stop watch. This technique rarely achieves accurate results.

I prefer a different method. Personnel conduct the study on themselves by means of carrying around a Palm©

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Personal Digital Assistant (PDA) and answering some simple questions each time it signals.

With this method, no one is following anyone around; each person logs his/her own responses to the PDA when prompted. Each day, the PDA is given to a different person who carries it around and, when the PDA signals, responds with what he/she is doing at that moment. This process minimizes the fear Dr. Deming was talking about.

#### What Does the Data Tell Us?

All of the efficiencies and inefficiencies that an organization exhibits are reflected in the effective wrench time of a maintenance crafts person. When there is poor interdepartmental communication, it will be reflected in wrench time. Where the stores function is not efficiently managed, it will be reflected in wrench time. Where the planning process is insufficient, it will be reflected in wrench time.

Essentially, the purpose of a Work Sampling Study is to measure the level of effectiveness of the planning and scheduling function within an organization, although the study goes beyond the efficiency of the planners and schedulers. A Work Sampling Study measures the way the organization uses the information that comes from the planners. It measures how each of the departments within an organization works together to accomplish work. It measures the planning and scheduling function of the organization. In other words, a Wrench Time Study is used to determine what the typical day for a maintenance crafts person looks like at a particular facility.

#### How Many Observations Are Required for a Statistically Valid Study?

2,000 – 3000. Sorry; if it were easy, everyone would be doing it!

#### Awareness of a Problem

The more an organization is aware of its problems, the easier those problems are to fix. By participating in a Work Sampling Study, and being as accurate as possible about activities during the study, system inefficiencies will be easy to identify.

Once these are identified and addressed, the daily stress that people, especially maintenance crafts people, have will be reduced.

Imagine going to a job and the parts are already kitted and waiting for you. The machine is already shut down, cleaned out, and locked out by the operator. The job plan contains all the necessary detail required for the job, and maybe even a little more... just in case you need it for reference. How much easier would life be? This is the goal of any maintenance organization, and the Work Sampling Study is a tool that can help accomplish this goal.

Finally, motivation is high, reliability is optimized, and everyone is happy. This is a fact and has been seen many times by managers around the world.

#### Outcomes of the Wrench Time Study

What happens if Wrench Time is improved?

- Maintenance work is completed on time.
- Production capacity increases.
- Everyone is happier.

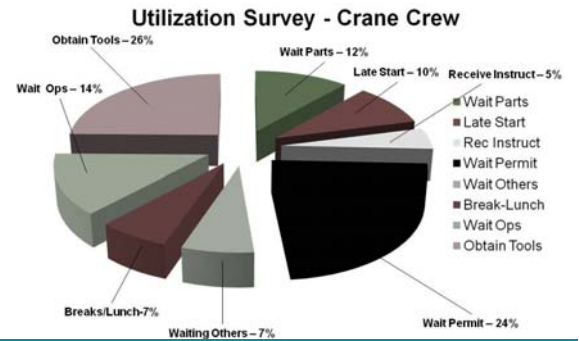
What could happen as a result of increased Wrench Time?

- Maintenance personnel could now be used as planners and schedulers.
- Maintenance personnel could be trained as Maintenance Engineering Technicians (they make the best problem solvers).
- Human-Induced Failures are rare.

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- Production operates the equipment to specification and as such cost is reduced and capacity increases beyond expectations.
- The culture of the site is more motivated and open to change.