How Three Basic Maintenance Practices Boost Reliability and Uptime

reliamag.com/articles/how-three-basic-maintenance-practices-boost-reliability-and-uptime

Ricky Smith, CMRP, CMRT October 25, 2025

Maintenance in many plants has found that by executing a few new ideas, they can make a major difference in the reliability and reduction in failures and downtime of their equipment. I hope this article is easy to understand and will be key to your site's success.

> It isn't what you know that will kill you; it is what you don't know that will.

There is an old saying, "you cannot eat an elephant all in one bite, but you can eat it one bite at a time." Let's begin by looking at some of the known problems that maintenance and reliability managers encounter on a daily basis:

1. Breakdowns are frequent – the causes and reasons are many.
2. Not enough maintenance is performed – cutbacks typically hit maintenance staff first.

Do these two problems drive you crazy? These problems, and many others, always drove me crazy when I was in maintenance management. Then I found a few steps that made all the difference between success and failure, which is not as drastic a difference as you may

think. In fact, I have learned over the years that the difference between these two outcomes is exactly as shown in Figure 1.

Trust me, I have been where you are. As a Maintenance Supervisor, I had to know the truth about where my program stood and develop a plan to overcome our primary obstacles so that my crew could be successful:

1. Performing preventive maintenance on equipment that continues to break down.
2. The planner is constantly chasing parts.
3. Not enough staff to complete all of the daily work.
4. Completing a repair to see it happen again next week.
5. Production blames maintenance for equipment problems.

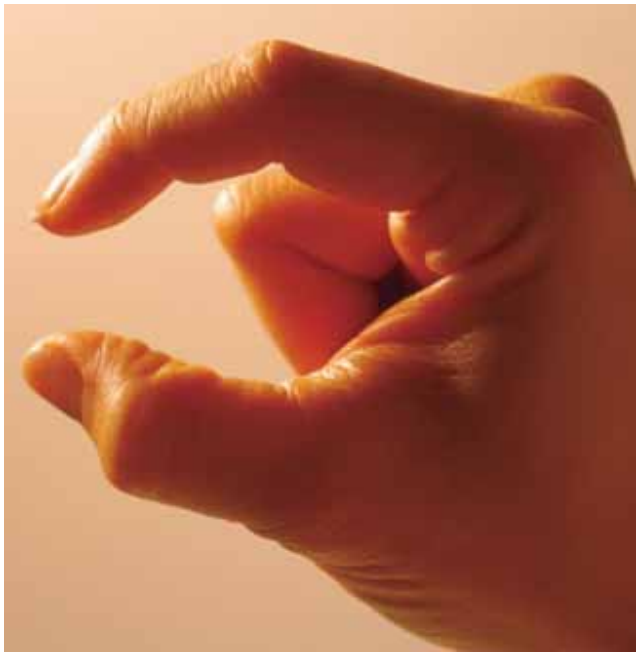

Figure 1: The Distance Between Success and Failure

Based on all I have stated, I developed a few key questions to ask myself. This took a while; I am not a fast thinker or a quick learner. However, once I resolved these questions and overcame these problems, the reliability and maintainability of our assets went up, immediately making my life, production's life, and my crew's life easier.

So, what are the three ideas that, if answered, will make a significant impact on the maintainability and reliability of your equipment?

Simple Idea #1: The first step is to upgrade the reliability and maintainability of your assets.

After thinking about this idea, I knew there was only one thing a maintenance person would focus on: making the equipment maintainable and thus reliable to meet the end user's intent, which is production.

Listed below is the process I followed to achieve this goal:

1. Identify, with production management, what is the "most critical equipment in the worst condition". Remember that it does not matter what we consider critical; rather, it is what production management considers critical and can deliver immediate results if it were reliable.

2. Develop a plan with your maintenance crew and production to upgrade this equipment to a maintainable and reliable level.
3. Identify all of the problems with this equipment using all techniques and technologies available at the time, including production data on the equipment.
4. Write a Work Order to plan and schedule to restore an asset to like-new condition.
5. Execute your plan together with production and your crew, ensuring that all repairs are made using effective, repeatable procedures with specifications and standards. Perform a QA/QC check to validate that the work was completed to specifications. At this time of need, all egos must be checked at the door.
6. Once all of the work is complete, commission the equipment using as many predictive maintenance technologies as possible, along with production process data. Since a person cannot predict failure, condition-based monitoring is a much more accurate representation of what is truly being performed.
7. When the equipment is in a Maintainable Condition, post a warning sign on the equipment that states: “Warning: Maintainable Equipment in this Area”. Establish an agreement between your crew and production to maintain this equipment to “like new” conditions, no matter what. The results will shock you, so record the increase in production output once the equipment is up and running. If a patch must be applied, a Work Order will be written to restore the asset to a Maintainable level through Planning and Scheduling.
8. Since people’s memory is very short, post the results you achieve with the equipment and track to make sure they are updated daily by your production partner. One of the best items to display is Mean Time Between Failure (MTBF); measure this by equipment type or components (based on maintenance parts by type every week, as shown in Figure 2.

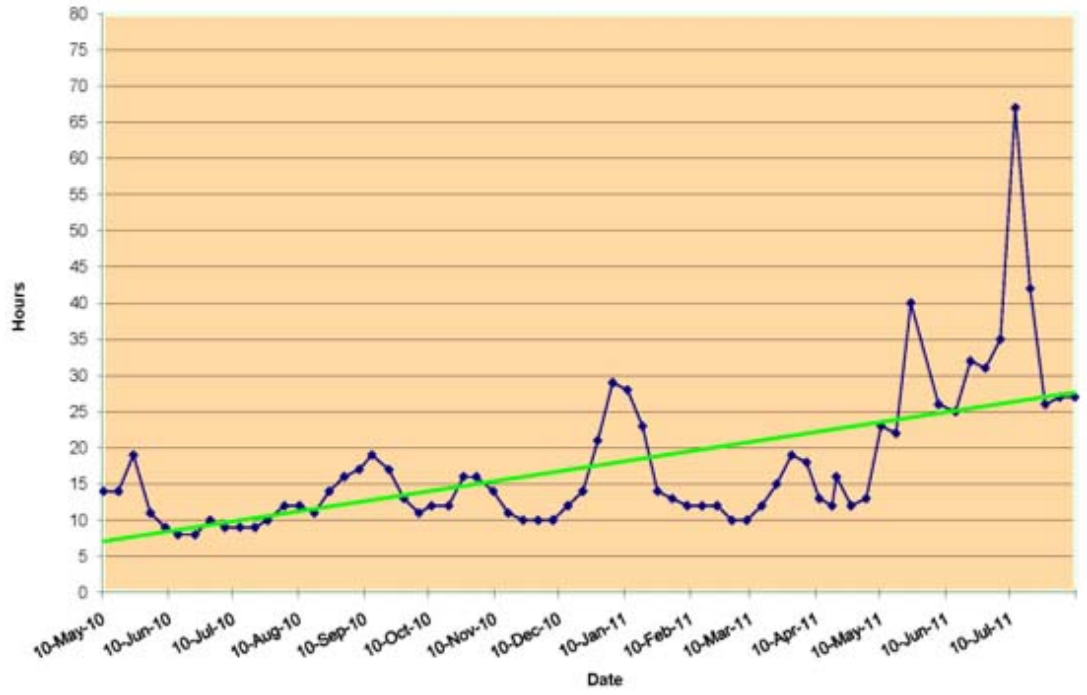

Figure 2: Electric Motor Mean Time Between Failure (MTBF)

9. Develop an effective Failure Modes Driven Strategy for the equipment, identifying failure modes, causes of failures, etc., to build a solid maintenance plan using preventive maintenance and condition-based monitoring.
10. Move to the next piece of equipment based on production management's input and complete the steps the same way you did for the last one.

If you follow this same process, you will be successful in improving the reliability and maintainability of your assets while meeting production requirements.

Simple Idea # 2: Identify where you are and where you are going by using simple metrics that measure effectiveness

> The problem with management is that they are always measuring the wrong things. – Peter Drucker, 1960s

Having the right effectiveness metrics in place and focused on continuous improvement is the answer. A great example is measuring PM Compliance: it is above 98%, yet the equipment continues to fail, which does not make sense.

Have you ever thought about using a line graph that shows the correlation between PM Labor Hours and Emergency Labor Hours to measure PM Effectiveness?

You must know where you are before you can begin a journey. If the results are not acceptable, you may want to review Idea #1 again. PM Compliance is a metric that only measures if PMs are completed on time and is a joke.

With this one metric, you will know where you are with your current PM Program. Try it out and let me know what you find. Once you know where you are, you can begin to develop a plan to head in the right direction.

Simple Idea #3 – Create Balance Scorecards to manage an Area or Function

The next idea is to develop a maintenance dashboard that has a live comparison of specific KPIs that validate each other. This is like driving down the road in your car and looking at all the gauges; if one is flashing red, you may need to stop and solve the problem.

The KPI Dashboard Concept is the same. This specific one can be fed by an Excel program, which is populated by your CMMS/EAM or other data source.

To build the dashboard, begin by identifying three questions you would like to know the answer to on a weekly or monthly basis, which would confirm or deny that all KPIs are accurate.

See the Planner Dashboard below in Figure 3.

Figure 3. Planning and Scheduling Dashboard

The objective of a balanced scorecard is to provide information that an organization needs to determine whether the Planning and Scheduling process is managed accurately or effectively, and thus increase wrench-time.

What is Wrench-Time?

Wrench time —the time your people are actually “turning wrenches” or performing proactive work —is one indicator of whether planning and scheduling functions are meeting requirements. If your wrench time is 25% and you improve it to 50%, you just increased the amount of proactive work being conducted by 100%.

A team of 10 maintenance personnel is now performing twice as much work with less stress and greater capacity for the plant.

See the example in Figure 4, which shows the delays or distracters that could be caused by a lack of effective planning (Planning Function: Identifying the parts, tools, procedures, and standards/specifications required for effective maintenance work, increasing wrench time) and scheduling (Scheduling Function: Scheduling of maintenance, operations, contractors, engineering, and safety personnel to be at the right place at the right time performing the right work synchronized together, which is intended to minimize interruption to operations and production.

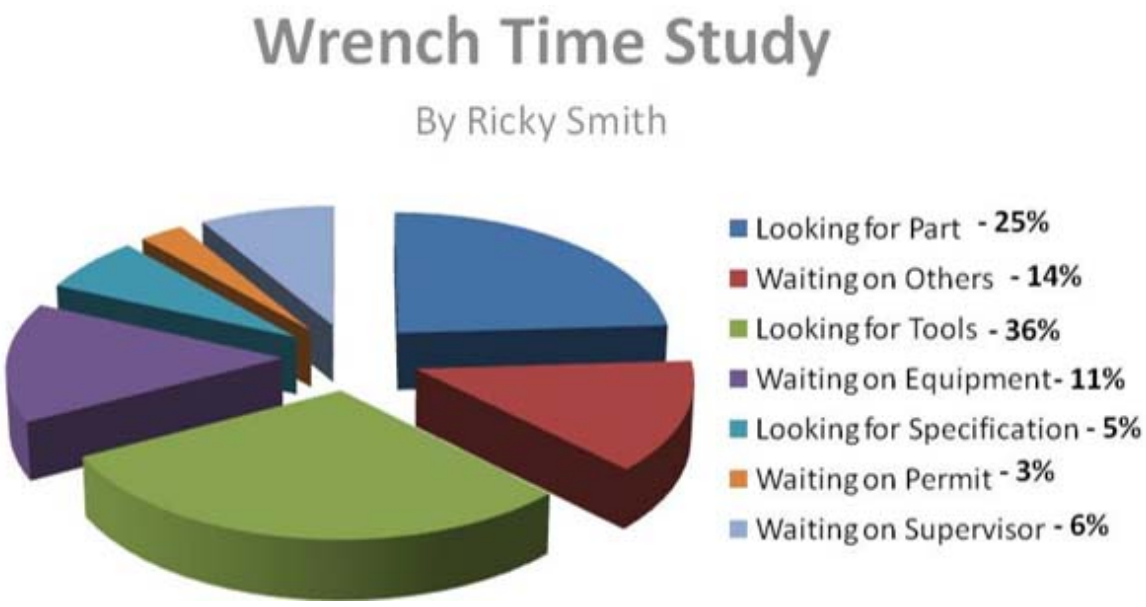

Figure 4: Results of Wrench Time Study

Maintenance Planning is critical to success, and if effective, rework will be reduced and wrench time will increase.

Planned Work % is the percent of work orders that have all the defined fills filled in. A planned job at a minimum should have:

- Repeatable, Effective Work Procedures
- Equipment Specifications and Standards
- Required Parts and Potential Parts
- Coordination Required and with whom, and when
- Warning and Cautions
- Craft and Estimated Labor Hours
- Actual Prep and Execution Time

(Planned Work Objective: Enabling success in PM, Repair, Rebuild, and effective Lubrication, etc.)

Scheduled Compliance: The scheduling of maintenance labor in coordination with operations, contractors, engineering, and safety personnel to minimize interruption to operations and production and to ensure the work is completed on time and effectively.

Scheduled Compliance is measured by dividing the total available labor hours (all maintenance labor hours, excluding those on vacation or sick leave) by the total labor hours completed by day and by week. I know people like to move the work around because of day-to-day issues. That is acceptable; however, you do not receive compliance for it. Items removed from scheduled compliance will be identified in a Wrench Time Study.

If you want to succeed, take things one step at a time as I stated in my article and stay FOCUSED. People love to be successful, and these ideas allow a maintenance crew to be successful.

I am telling you these things, having been in Maintenance Management myself. I have seen many companies succeed worldwide by following these recommendations. I would like to add you to the list. Do not strive to be “World Class”, strive to be the best you can be. Let me know if you run into problems, and I will try to help you solve them.

Author

Ricky Smith, CMRP, CMRT
Ricky Smith, CMRP, CMRT is the Vice President of World Class Maintenance and a leading Maintenance Reliability Consultant with over 35 years of experience. He holds certifications such as Certified Maintenance and Reliability Professional (CMRP) and Certified Maintenance and Reliability Technician (CMRT). Ricky has worked with global companies like Coca-Cola, Honda, and Georgia Pacific, delivering expert maintenance solutions across 30 countries. His career began in the U.S. Army, advancing to leadership roles, including a position at the Pentagon as Facility Investigator for the Secretary of Defense. Ricky is also the co-author of *Rules of Thumb for Maintenance and Reliability Engineers* and *Lean Maintenance: Reduce Costs, Improve Quality, and Increase Market Share.*

View all posts