From Zero to Hero - MAINTENANCE TECHNOLOGY

Written by Bryan D. Weir, Perspective CMMS Tuesday, 01 February 2005 00:00

Six steps to effective maintenance management for smaller operations

You can see the eyes of many maintenance managers in many small companies glaze over at the mention of CMMS, RCM, TPM, FMEA, and the other maintenance-related acronyms that often are introduced in discussions on maintenance and facilities management. Big companies often employ some of these initiatives in their maintenance organizations because they can afford to do so. The reality for many cash-strapped, smaller businesses is quite different. Most of their maintenance is reactive. Plant and equipment problems get dealt with only as they arise and that is usually when it is too late to avoid the resulting disruption to their production or processes.

Even when a company has both the will and the money to spend, it is difficult to know where to start when considering the implementation of maintenance management systems. Probably the majority of smaller companies are still at this stage, which effectively means the majority of maintenance people. The prospect of developing suitable maintenance control strategies and policies from a standing start is daunting. There are many questions such as how much will it cost, where will the resources come from, and how will we cope.

Well, here is a surprise—the truth is that there is not really a lot to it and I would suggest the following simplified, nonscientific approach. I will not show you any pie charts or fancy graphs and there will be no more three-letter acronyms, but it is a realistic, effective plan and its low cost puts it within the reach of all small companies.

Step 1: Select a low-cost CMMS

The purchase of a low-cost computerized maintenance management system (CMMS) will involve spending some money, but it is the tool for developing an equipment register, arguably the most important component in this process. The good news is that low-cost, Microsoft Access-based systems can fill the bill. If you have \$1000 to spend, you should be able to find a single-user system that will meet your needs.

Step 2: Develop your equipment register

Maintaining an equipment register (a list of all of your maintainable equipment) is a necessity. At the lowest level this may hold only details of your equipment and its location. But most CMMS applications provide space to store all sorts of equipment details. These may include make, model, serial number, equipment history, linked spares, linked drawings, etc. You can decide for yourself what information you want to record. If you are lucky you already may have this in a spreadsheet or database.

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If you have a lot of equipment you may want to consider developing a user-friendly asset numbering system. These are not hard to create, e.g., FAPACK03 could represent the final assembly area (FA), packaging machine (PACK), number 3. You can develop this to meet your needs.

Step 3: Develop a planned preventive maintenance (PM) schedule

Clearly PM schedules are best when they are based on equipment history, but you probably will not have any history available. If you do not have it, your experience should allow you to determine which equipment really must be on your PM schedule. The initial schedule, therefore, will be based on your familiarity with your own equipment but the PM frequencies that you choose initially should be considered no more than educated guesses. Where practical, you also may want to consider the use of metered maintenance that is based on runtime or cycle time as opposed to a fixed time period.

Step 4: Put a good, ad hoc work reporting system in place

Maintenance can be broadly classified as planned or unplanned, where unplanned is breakdown or reactive work. Before a proper maintenance plan is in place, the ratio of unplanned maintenance vs planned maintenance will be high, perhaps 20 to 1, or even more. Your aim must be to reduce this ratio to a more satisfactory level. To do this you must introduce an effective work request system that captures the details of all ad hoc work that is being done. One way to do this is to refuse to accept any work requests unless they are routed through the CMMS. The details of these jobs will then be captured and included in your equipment history.

Step 5: Use the maintenance history to fine tune the schedule

As time passes and equipment history starts to be collected in the CMMS, you can use it to identify the equipment whose performance is causing disruption and downtime. You then can optimize the PM work that is taking place in an effort to minimize this. The CMMS must be capable of producing the specific reports that can identify your improvement areas. For example, if you are in a production environment and reduction of downtime is a problem, a downtime "top ten" report will be important.

Step 6: Convert PM routines to planned inspections

One of the dangers of introducing PM routines is that after some time it can become generally accepted that they absolutely must be done within the specified period. This period was probably chosen by the guesstimate method mentioned in Step 3 and it may not be the optimum interval. For example, a monthly maintenance routine often can be scheduled on

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machinery that may have been used only for a week or two during the previous month. PM periodicity must be reviewed regularly.

You can use your developing equipment history to analyze the PM work that is taking place and ask yourself what it is achieving. Look at the likely failures that could occur on the equipment and try to put in place inspection routines to monitor equipment condition.

With more time and a greater understanding of the problems that are occurring, you should be able to drop many of your PM routines in favor of planned maintenance inspections. These will give you an indication of when a routine really needs to be carried out as opposed to doing it blindly, on a calendar basis.

The advantage of inspections is that many of them can be done quickly, while the equipment is still running (subject, of course, to normal safety regulations). This is basic condition monitoring or condition-based maintenance and even at this grass roots level it can be effective.

What does all this cost?

This scenario is within the reach of almost all maintenance departments. At this stage there is no need to throw money at the problem. You can do it for as little as \$2000. If you can afford \$10,000 you could get yourself a pretty useful CMMS. All you really need is the time and the motivation.

If you do it right you will end up with more time on your hands for analysis and prediction of problems as opposed to reacting to them. If you follow the above rules your returns will be much greater than your investment.

How long does all this take?

It cannot be done overnight. There is a significant amount of work involved and it depends on the resources that you can allocate to it. That said, a small company could put a CMMS in place in a couple of weeks. It will be easier if you already have an equipment register and maintenance procedures.

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Gathering equipment history is a different story and it will be a few months before you have any significant data available. One year down the line you should be able to measure significant performance improvements.

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