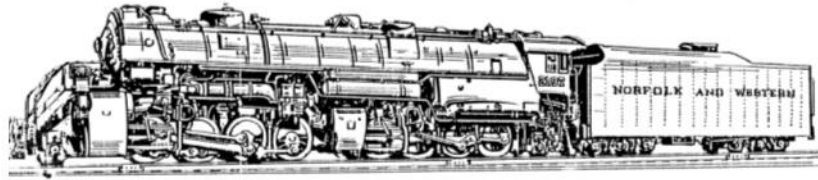


Scheduling – the Engine that Drives Maintenance Management

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The Maintenance Management Express



Planning: The rails that **guide the process over the roughest terrain.**

Scheduling: The engine that **drives the process toward world-class professionalism**

In my forty-six years of experience with maintenance departments – well over 150 of them in the paper, food, chemical, fertilizer, textile, and other industries – I have made many observations on the conditions I found in these departments. Here are two of them:

- Maintenance tends toward chaos.
- The typical Maintenance Manager can't schedule what his people will be doing this afternoon, much less for the next week.

These two problems are closely related, and I strongly believe correcting the second problem will solve the first. This article will address scheduling as the engine that drives maintenance toward world class. First, let's look at a couple of typical situations.

Maintenance Manager Bill is swamped. He's in chaos, fighting fires all day, every day. He has no PM program, because he doesn't have the resources. Likewise, he works most of his crew six to seven days a week, and uses outside contractors extensively. The overtime and contract costs are killing his budget. He has no weekly schedule of backlog work. He knows the productivity of his department is poor, but he cannot dig his way out of the hole he is in. He has a chronic backlog of deferred maintenance.

Plant Engineer Paul is methodical in the midst of chaos. Every Thursday he faithfully meets with his Planner and two Supervisors, and reviews the current week's schedule. Since the schedule consists of about two weeks work for every technician in the maintenance department, the theoretical best they can do would be to complete about 50% of the schedule. In actuality, the average completion rate averages about 10%. It takes about ninety minutes for these four to review the schedule.

"Work order number 23814: will it be completed this week?"

"Nope."

"Schedule it next week?"

“Yep.”

“Work order number 23818: will it be completed this week?”

“Nope.”

“Schedule it next week?”

“Yep.”

And so on.

At the end of this mostly fruitless sixty-minute exercise, Paul produces a list of the new work orders received this week, and these four valuable employees spend another thirty minutes discussing these: what is needed, do we have the parts, is downtime required, and so on. The result? Another gigantic schedule for next week, of which maybe ten percent will be completed.

Both of these scenarios – no scheduling and over-scheduling – are all too common, and both are disastrous. The credibility of the Maintenance Department is nil. The productivity gains of effective planning are not available. Excessive costs due to overtime, outside contracts, and downtime are the rule, not the exception.

So how do you move from chaos to control? With scheduling – done the right way.

We'll start by talking with Maintenance Manager Bill.

“Bill, you tell me you can't schedule this afternoon, much less next week. What if I asked you to schedule hanging that picture on the wall next week. Could you do that?”

“Well, of course I could Pete. What are you getting at?”

“What I'm getting at is that you can schedule – you just can't schedule very much.

“Bill, I want you to pick one or two or three work orders – no more – and put them on a written schedule for next week. I want you to pick jobs that you can complete without even trying hard: jobs where you already know exactly what is to be done, you already have the parts, jobs that don't depend on having a machine down, and that don't require any special skills. I don't want you to specify what day of the week they will be done, nor who will do them – just that they will be done next week during the normal work week, not the weekend. Definitely include PM inspections on the schedule.

“Now mind you, that's not all you will do next week. You must handle emergencies, or your job is in jeopardy. And you should do PMs, or you'll never get out of the hole you're in.

“You are not to announce that you are starting to schedule your work. With only a couple of work orders, you'd be the laughing stock of the plant. This schedule is your private commitment to yourself – to your professional pride. I want you to complete every work order on the schedule – 100%.”

Here's the point of this approach: Bill must learn to crawl before he can walk, and walk before he can run. Every week, he'll add a small amount of additional work. At first, he'll complete 100% of the schedule, while scheduling only a small percent of his available manpower. But as he adds to the percent scheduled, inevitably he won't complete 100%. From that point on, his new target is 90% complete. If he ever drops below 90% complete,

he will decrease the percent scheduled the next week, to enable him to meet the 90% complete target.

When only a few jobs ***don't*** get completed, it's easy to identify what went wrong, unlike Paul's situation, where 90% of his jobs were not completed. When you identify what went wrong, you get the problems out on the table where you can deal with them: the planner missed something, the Plant Manager pulled rank, there was a flood, etc. In some cases, they can be permanently dealt with, so they're not likely to happen again. In others, forget about it – you can't schedule around a flood.

Over time, as the percent scheduled increases, and the percent completed remains over 90%, Bill starts asking Production, "What would you like me to schedule next week?" He should accept only a few jobs from each department – those which are ready to schedule. Then he completes at least 90% of them, and those few that are not completed this week are the first to be done next week. Remember: the schedule is not all Maintenance will do next week – as time permits other jobs will be done. But the schedule gets the top priority of all non-emergency jobs,

As Maintenance begins completing PM inspections, what happens to the number of emergencies? They decrease. What happens to Maintenance credibility as it begins completing the jobs Production really wants? It increases. Squeaky wheels stop squeaking, duplicate work orders are reduced, as is "crying wolf".

As important as planning is to Maintenance Management, planning cannot be measured. But scheduling ***can*** be measured, and is the best measure of overall maintenance productivity. The metrics for scheduling are critical, but easy. For percent scheduled, use the hours in a normal work week [not weekends] for every technician who carries tools, even emergency crew and off-shift personnel. For example, 25 technicians @ 40 hours/week = 1,000 man-hours available. Schedule 10 hours, $10/1,000 = 1\%$ scheduled. Scheduled hours are, of course, estimated, not actual, hours. The long term goal for percent scheduled is 70%.

For percent completed, 9 hours completed out of 10 hours scheduled = 90% complete. Since the 10 hours scheduled is estimated hours, the 9 hours completed must also be estimated hours – apples to apples. Whatever actual hours are used to complete the 9 estimated hours is immaterial – only 9 hours were completed and removed from the backlog.

[We don't have space to go into greater detail on the metrics here. If you want to debate it or get further clarification, e-mail me: Little.Pete@MPACTLearning.com]

Any maintenance department that is scheduling 70% and completing 90% of that schedule must have good planning and supervision, a good work order system, the proper organizational structure, and well-trained technicians – in short, excellent Maintenance Management. It can't happen by accident. Like a long freight train that slowly picks up speed and momentum, scheduling will drive the Maintenance Management train toward world class.

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