

## The Merits of Maintenance Planning

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**Maintenance planning is the key to improving maintenance productivity. But how do you go about adding a maintenance planner to your staff? These guidelines should give you a good idea of where to start.**

Controlling maintenance resources is the goal of all maintenance managers. But what exactly are maintenance resources? You can divide maintenance resources into three areas: Labor, materials and miscellaneous expendables. The maintenance labor portion is the largest part of the maintenance resources dollar.

How do maintenance managers get optimum use from the labor portion of their budgets? Primarily through the planning and scheduling of labor resources. Published studies show that in a reactive or emergency type of maintenance organization, craft workers usually are 25-35 percent productive. In organizations where good planning and scheduling disciplines are in use, productivity is much higher and can often can achieve levels of 60 percent or greater.

But maintenance productivity seems to be a nebulous term to most maintenance managers, financial managers and even plant managers. To give yourself an understandable definition of maintenance productivity, you need to analyze present conditions and set an ideal goal for your organization.

By becoming a planned organization and increasing productivity, you will have twice the output that reactive (unplanned) organizations have. The difference in dollars is the difference in actual hours multiplied by the hourly rate of the employees. This is the potential difference. It is the potential difference, because it will never be realized unless you eliminate the productivity losses caused by craft workers waiting for job instructions, looking for supervisors or waiting for approval to start (or finish) a job. Equally unproductive is time spent waiting on (or looking for) spare parts, making multiple trips from job site to the store room (particularly when a crew of workers is involved), checking out the job, looking for missing tools or trying to use improper tools for the job.

How are these delays eliminated? By good maintenance job plans. Maintenance job plans include the following six items:

- The required craft and skill level
- The required spare parts
- The required tools and equipment
- Detailed job instructions
- Any special instructions
- Any safety instructions

How are these job plans transmitted to the craftsmen? By the use of a good work-order control system. The work order is the document that allows the development of the job plans. Without the work-order document, you cannot describe the job plans effectively and communicate it to the craft workers.

### **Who develops the job plans?**

In small organizations – those with fewer than 10 craft workers – the craft supervisor may develop job plans. In larger organizations, planners should develop job plans. One frequent mistake in starting a planning program is trying to use the supervisor for supervision and planning. You will never achieve the full benefits of maintenance planning using this arrangement. A comparison of the job descriptions of the supervisor and the planner will help to illustrate this point. A typical job description for a front-line maintenance supervisor should include:

- Motivating the craft personnel
- Determining the skill level for the job
- Coordinating and following-up the job
- Monitoring the safety and quality of the job
- Reviewing the assigned employees (including hiring, firing, and pay recommendations)
- Recommending improvements and cost reductions
- Identifying causes of equipment failures and repetitive repairs
- Recommending skill levels and training for assigned employees

Performance of this job description requires the front-line supervisors to spend most of their time in the field with their assigned craft workers. It is helpful to use the six/two rule for the front-line supervisor: six hours per shift on the floor and two hours per shift on paperwork. If an organization has this reversed, the maintenance supervisor is being used as little more than a clerk. Yet, the supervisor's job description shows little time is available for clerical assignments.

The typical job description for the planner should include the following:

- Reviewing the work requests as they are received
- Visiting the job site for clarification of the request
- Conferring with the requester for additional clarification
- Estimating the craft and the amount of labor required
- Identifying and reserving the stock materials required
- Identifying and ordering any non-stock materials required
- Ensuring all required resources are available before the work is scheduled
- Developing and tracking craft/crew backlogs
- Determining labor capacity for weekly schedule
- Preparing weekly schedule for management approval (Note: The supervisor is concerned with daily schedule' the planner is concerned with the weekly schedule)
- Tracking the work order to completion
- Developing standards for repetitive jobs
- Developing historical job estimates
- Keeping completed work order file by equipment number
- Keeping all equipment information, including spare parts and manuals
- Working with engineering to establish and monitor preventive/predictive maintenance programs

The performance of this job description requires planners to spend most of their time involved in paperwork/computer work. It also is helpful to use the six/two rule for the planners: six hours per shift involved in paper/computer work and two hours in the field checking out jobs. If an organization has

the six/two rule reversed, the planner is spending his time in the wrong activities. The planner's job description shows that most of his or her time will be involved in tracking and controlling work activities.

What are the qualifications for a good maintenance planner? A good planner should have all of the following (six) characteristics:

1. Good craft skills. It would be difficult to produce a job plan if you had never performed the specific task or similar task. Job plans also must be accurate and realistic, or craft workers will lose confidence in the system. This can lead to their checking and re-checking the plan, which will decrease productivity.
2. Good communications skills. These are necessary since the planner will be the maintenance interface with various levels of the corporate organization. Production, engineering and craft workers are three groups with whom the planner commonly will interface. On the one hand, failure to communicate properly with any of these groups can lead to misunderstandings and, consequently, hardships for maintenance organization. On the other hand, good communication skills can enhance rapport and produce long term support for maintenance projects.
3. Good aptitude for paper (or computer) work. These activities are important, since – according to the job description – most of the planner's activities involve tracking. Depending on the status of the organization, you can accomplish such tracking with a manual paper system or a computerized maintenance management system. A problem you may encounter in finding an applicant with this skill is that many craft workers have difficulty making the change from performing the jobs to describing how to do the jobs. Also, craft workers move around the shop area; planners are confined to the relative restrictions of a desk or computer terminal for most of their shift. You need to analyze individual candidates carefully to determine whether they are capable of making the transition.
4. Good sketching ability. This ability is important, since many times a simple diagram is necessary to explain exactly what is wanted. Creating such a diagram may be in addition to the engineering drawings that often are required. Good sketching ability can contribute to considerable time savings when dealing with a group that does not understand engineering drawings.
5. Good understanding of and the ability to communicate instructions. Being able to communicate instructions clearly is a talent that must be developed. While this is related to good communication skills, the ability to communicate with the written word is different. Training in effective writing skills can be invaluable to a planner who is weak in this area.
6. Good understanding of and ability to work within the maintenance organization structure. Understanding and working within the maintenance organization requires diplomatic skills. Building and maintaining effective lines of communication are important. Planners can accomplish many tasks, but they should not be dependent on the maintenance manager to force certain tasks to be performed. Understanding priorities, work flow and objectives of the organization can help the planner make the workflow smooth. Failure to work within proper channels can cause disruptions to and certain failure of the planning program.

## **Why maintenance planning programs fail**

The four most common reasons planning programs fail are:

1. **Overlapping job responsibilities.** In organizations where you have more than one planner, the chance exists that the lines of responsibility are not clearly defined. Is the planning assignment by craft, equipment, department, supervisor, crew, cost center or building? Without clear definition, you could overlook some work requests. When this occurs, the planning program "gets the blame." Too many overlooked work requests can be disastrous for the program. Good, clearly defined lines of responsibility are important.
2. **Unqualified planners.** Planners without the proper training are certain to hinder any attempt to start a planning program. If you give careful attention to selecting a planner – using the criteria mentioned previously – you can eliminate this problem.
3. **Careless planners.** You must treat careless planners as you would treat any other careless employee. Restraining and encouragement can be the first steps. If problems continue, you must take appropriate disciplinary action. This, however, is the least common reason for planning program failures.
4. **Overworked planners.** By a wide margin, the most common reason for planning program failures is overworked planners. Simply stated, this means too few planners on staff. Recent surveys show that only one-third of all organizations even have maintenance planners.

While the average actual supervisor-to-craft worker ratio generally is acceptable, the average planner-to-craft worker ratio is unbalanced. A 1:15 planner-to-craft worker ratio is optimum: a 1:20 ratio is acceptable. However, a 1:35 (or higher) ratio is unworkable. It is impossible for a planner to plan effectively for too many employees. If a planner tries, details are missed that affect the efficiency of the plans. If the plans are not complete, productivity and the integrity of the planning program suffer. Eventually, the program is halted. Using the proper ratio of planners to craft workers will end this problem.

## **Convincing management of the value**

Often, it is difficult to get management to commit to starting a planning program. The following analogy has helped many maintenance managers who are attempting to start a planning program.

Consider financial planning. When was the last time you saw a company add a product to their present product line without market research to find out:

- What the market volume will be?
- What the manufacturing cost will be for:
  - Equipment required?
  - Labor required?
  - Raw materials required?
- What the competition produces and their prices?

The forecasting and financial planning for a new product is considerable, since no company has unlimited resources to waste.

Next, consider production design and manufacture. When was the last time a company began the manufacture of a product without someone planning:

- The material it takes to make it?
- The labor required to produce it?
- The equipment necessary to manufacture it?
- The time necessary to complete it?

It would be ridiculous to imagine someone even suggesting you could run a company in such a manner! Take this line of reasoning a step further. Could you find a company where:

- Each operator waited every day for someone to tell them what piece of equipment to operate?
- Each operator told management the product and amount of that product they were going to produce?
- Each operator went to the storeroom/warehouse to get the material needed to make the product as required by the process?
- Each operator ordered material directly from the supplier when it was out of stock, and then sat down by the equipment and waited until it was delivered?
- Operators waited in line to use the equipment required to make their product, because other operators needed the same equipment to make their product?
- Operators stood beside a piece of equipment, watching another operator run it, because no one knew the correct number of operators required to run the equipment?

If you could find such a company, would you invest your money in it? The obvious answer is no. The reason is that, in this competitive world marketplace, the inefficiencies of operating a company in this manner would raise the cost of the product, making the product too expensive to be competitive. The company soon would go out of business.

Any company that knowingly wastes its resources is doing a disservice to its owners and investors. The bottom line is, if planning is so important in product planning, product design, product engineering and product manufacturing, why is planning the most neglected part of a maintenance program?

Adding planners to the maintenance staff usually is a matter of moving the most qualified maintenance craft worker to the position. The justification could appear as follows:

The total hours achieved are "hands-on" hours. Better planning and scheduling can allow you to eliminate the wastes mentioned earlier. The result will be increased productivity, as shown in the example. You would have to measure the actual productivity levels (using time studies) for each site to do this type of justification. You should note that these increases do not occur automatically. Unless the work-order plans are carried out, the increased productivity will not be achieved. This is a discipline that must be learned and enforced.

### **Getting your priorities straight**

Maintenance planning, whether manual or computerized, is the single most important part of optimizing maintenance operations. However, the key work is part. Many disciplines are necessary to enable maintenance to contribute to the profitability of an organization. From work-order control systems to preventive/predictive programs, maintenance planning programs and computerized maintenance management systems, all are required to optimize maintenance resources successfully. Are you taking advantage of these maintenance tools in your organization?

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