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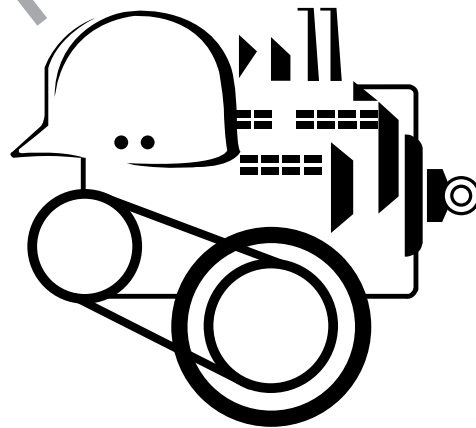
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**MAINTENANCE ORGANIZATION**

**Lesson One**

**Types of  
Maintenance  
Organizations**



**TPC Training Systems**

90101

**Lesson****1*****Types of Maintenance Organizations*****TOPICS**

Maintenance Management  
 Objectives and Priorities  
 Performing Effectively  
 Overcoming Maintenance Problems  
 Types of Maintenance Organizations

Comparing Organizations  
 Who Controls Maintenance?  
 Span of Control  
 Using Organizational Charts  
 Department Changes

**OBJECTIVES**

After studying this lesson, you should be able to...

- Describe the functions of the first-line supervisor, the middle-level supervisor, and the top-level supervisor.
- List some of the common problems that lead to difficulties in operating a maintenance department.
- Outline the differences among functional organizations, area organizations, and the centrally controlled maintenance organizations.
- Explain the chain of command of a company using its organizational chart.
- Identify the elements that make employees resistant to reorganization, and what can be done to counter this resistance.

**KEY TECHNICAL TERMS**

**Line organization** 1.21 an organization having one general supervisor and several first-line supervisors, each with a crew

**Craft-based maintenance organization** 1.24 a type of organization where work load is divided among specific crafts

**Functional maintenance organization** 1.26 an organization where work is divided according to the type or function of equipment being maintained

**Area maintenance organization** 1.28 this organization carries out all maintenance in a specific location and one supervisor has complete responsibility

**Centrally controlled maintenance organization** 1.31 a type of organization where all maintenance requested is processed through a central control center

**Combined organization** 1.33 a labor-efficient combination of centrally controlled and area-based organizations

As a first-line maintenance supervisor, you are under pressure from all sides—from company management, from production departments, and even from your own work crews. To deal effectively with these pressures, you should have some idea of how and why they occur.

You already know that maintenance, like any other department in the company, must follow the rules or guidelines handed down by company management. In fact, one of your jobs as a first-line supervisor is explaining company policies to your crew and seeing that they follow them. Knowing how the company is organized, and how you and the maintenance department fit into the organization, will help you do this.

## Maintenance Management

1.01 There are usually three levels of management within a typical maintenance department. Each level has its own specific responsibilities:

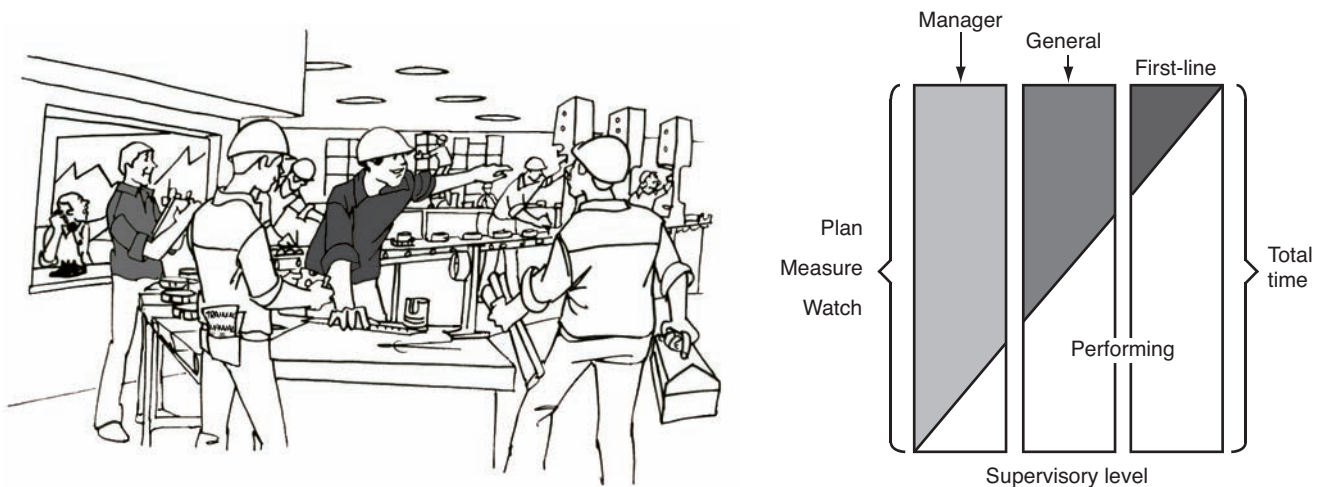
- *First-line supervisor*—directly supervises craft-level personnel.
- *General supervisor*—middle-level supervisor that supervises first-line maintenance supervisors.
- *Top-level supervisor*—controls the entire maintenance function.

Many organizations use the term *foreman* in place of the first-line supervisor. Although supervisor will be used throughout this course, foreman and supervisor are equivalent terms.

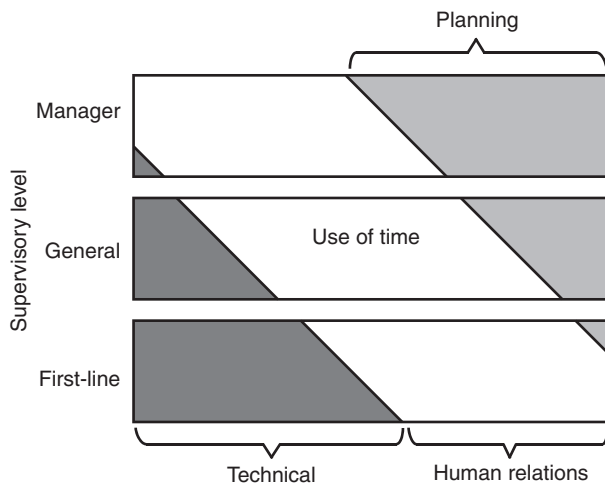
1.02 All three supervisory levels carry out some of the traditional functions of management:

- *Planning*—developing actions, guidelines, and schedules that shape the department's activities.
- *Organizing*—identifying and assigning tasks so that work proceeds in a logical, orderly way.
- *Staffing*—identifying personnel needs and obtaining the people to meet those needs.
- *Leading (motivating)*—convincing personnel that it is in their own best interests to reach the department's objectives.
- *Controlling*—checking actual progress against planned progress.

Fig. 1-1. Relation of management level to type of task



**Fig. 1-2. Skills needed at different management levels**



1.03 The primary task of a *first-line supervisor* is to get the job done on time and on budget. But human relations are an important factor in getting most jobs done. As a first-line supervisor, you should spend most of your time checking completed work, supervising job methods, and training crew. Efficient supervisors tend to move away from doing a job themselves. (In a union shop, this policy is often reinforced by contract.)

**Fig. 1-3. The goal of preventive maintenance is to avoid future problems**



1.04 The responsibilities of a *general supervisor* shift even further from doing the job to supervising the job. Human relations become more important. The general supervisor's tasks include evaluating job performance, training, motivating, and other people-oriented functions. The general supervisor is a watcher—someone who sees that the job gets done.

1.05 The manager is basically a planner. He sets policies and develops work concepts. Instead of working directly with the people performing specific tasks, he controls through his subordinates—the general supervisors. Tomorrow takes precedence over today in his thinking. He is concerned with performance, long-range planning, and the best way to achieve the company's goals. The relationship between each supervisor's position and function is shown in Fig. 1-1 (on the previous page), and the relationship between position and skills in Fig. 1-2.

### Objectives and Priorities

1.06 The primary, overall objective of nearly all maintenance organizations is to keep production downtime to a minimum. They do this by maintaining equipment in a safe and effective operating condition so that production goals can be met economically and on time. This objective automatically sets the priorities of the tasks assigned to the maintenance department. Whatever must be done to keep production operating safely and efficiently has top priority.

1.07 In an ideal situation—no emergency repairs—preventive maintenance would receive top priority. *Preventive maintenance (PM)* simply refers to the regular, scheduled inspection and care of equipment. The aim of PM is preventing future equipment problems by keeping equipment operating efficiently for as long as possible (Fig. 1-3).

1.08 Back in the real world emergencies do happen and emergency repair, always demand immediate attention. Since there is no way to predict when and what emergencies will occur, the most effective action is to try to prevent them. The first step in this direction is to have a strong preventive maintenance program.

1.09 To set up an efficient maintenance organization, the maintenance manager must first determine exactly what tasks are the department's responsibility.

That is, he decides what work is essential and what is not. His list should cover all work necessary to achieve the maintenance department's objective, including all PM, planned repairs, and equipment replacement.

1.10 Once the maintenance manager has decided which jobs are essential, he assigns the individual groups within the department their specific tasks. That is, he gives portions of the essential work to the crews best able to perform the work. (If the crew members are unionized, the manager must take into account any restrictions contained in the union contract.)

1.11 Finally, the manager must consider who is needed for the job. Does he have the necessary personnel—be it full-time employees, temporary personnel, or subcontractors? If not, he must determine the specific skills needed to meet the requirements of the job before hiring additional personnel. This is usually done by preparing job descriptions that list the specific crafts and skill levels required. The manager may decide to meet the department's objective by authorizing overtime for certain tasks instead of hiring new workers.

### Performing Effectively

1.12 Management expects maintenance people to work according to rules covering tasks and use of time. In operation, however, maintenance departments often have significant differences that set them apart from other groups within the company. First, maintenance is service oriented. Second, the service is often provided on an emergency basis. And third, the skills needed are often highly technical, requiring specially trained individuals.

1.13 These factors sometimes cause maintenance to become a "special case"—one that doesn't follow the company's guidelines. But, more often, the differences between maintenance's operation and the company's policies stem from one of the following problems:

- **Failure to identify their real objectives.** Many maintenance groups accept the various tasks thrust on them by other departments or groups. They react rather than schedule their time to fit their objectives (Fig. 1-4).
- **Work not performed in order of importance.** Other than emergency work, most

unscheduled work should be done only after preventive maintenance and other scheduled jobs are completed.

- **Improper workloading.** Dividing the workload solely on the basis of the craft skills and tools needed, or on the location of specific personnel, usually means some people will be overloaded and some may be idle. This happens very often in maintenance organizations.
- **Promotion policy.** While it is usually good practice to promote from within, a good mechanic is not always a good supervisor. The problem is that too many supervisors are craft oriented and end up working shoulder-to-shoulder with the workers instead of supervising them. When promoted, they are not trained or equipped to cope with management responsibilities.
- **Poor reputation.** When word gets around that a maintenance organization is poorly run, qualified people often may refuse to join the organization or quality people may leave.
- **Too many maintenance procedures.** Maintenance procedures that are not based directly on approved policy should either be scrapped or revised.

1.14 **Are you doing what you should be doing?** Maintenance supervisors often see their jobs as being

**Fig. 1-4. Workers may forget their real objectives**



one level—or sometimes two levels—below what they really are. This can happen if the supervisor's responsibility and authority are not clear. This tendency can show up in a number of ways, such as:

- Supervising out in the field, neglecting planning, budgeting, or training.
- Technically trained supervisors who may manage people awkwardly.
- Supervisors who strongly favor the jobs they know best.

1.15 **Delegating authority.** All supervisors must be away from the job occasionally. When this happens, you may decide to use a leadman to guide your crew while you are away. It's true that the job goes more smoothly when a leadman passes on your instructions to the crew. But remember that's where his responsibility ends. Don't expect him to act as a supervisor. He cannot make decisions or discipline his coworkers, which puts him in an uncomfortable position. The fact that a leadman usually draws premium pay may not be enough to make him want the job. Think carefully before deciding to use a leadman, and be sure the person you select really wants the job.

### Overcoming Maintenance Problems

1.16 Certain maintenance work is essential—some simply is not. And the difference must be apparent.

Maintenance's responsibilities depend strongly on company management policy, production goals, and other factors that are not under its control. Usually, input from management, production, quality control—the groups with which maintenance works closely—determine maintenance's essential work.

1.17 There is a clear division between work to be done in the field and work to be done in the shop. This may mean you will have to restructure your organization or try new work control procedures. Question any long-standing department traditions—do they help or hamper your work?

1.18 Honestly evaluate your personnel. What are their individual skills? Can they manage people? Could you realistically promote any member of your group? If not, why not? Don't be afraid to reach down into your organization—or even outside your organization—to get necessary talent.

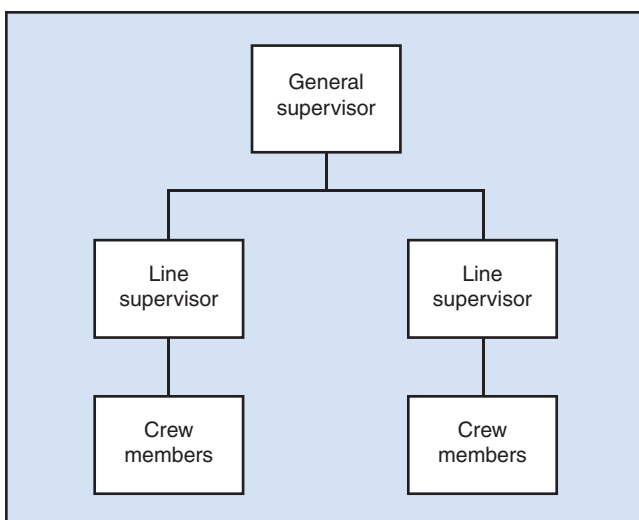
1.19 Obviously, you as a maintenance supervisor, have a very demanding job. To overcome the problems that come with the territory, you must rise above the day-to-day confusion. It is the only way you will be able to plan realistically for the future.

### Types of Maintenance Organizations

1.20 Today's maintenance organizations are the result of many influences acting over many years. Each influence contributed to the general structure, adding up to the wide variety of functioning maintenance organizations that now exist.

1.21 The first maintenance organization probably had one general supervisor and several first-line supervisors, each with a crew (Fig. 1-5). The general supervisor gave orders to the first-line supervisor who, in turn, gave orders to the crew members. This type of structure is usually called a *line organization*. These early line organizations suited small, simple maintenance operations.

**Fig. 1-5. A typical line organization**



**The Programmed Exercises on the following page will tell you how well you understand the material you have just read. Before starting the exercises, remove the Reveal Key from the back of your book. Read the instructions printed on the Reveal Key. Follow these instructions as you work through the Programmed Exercises.**

<p>1-1. Getting the job done is the primary task of the _____.</p>	<p>1-1. FIRST-LINE SUPERVISOR Ref: 1.03</p>
<p>1-2. Job evaluation, training, and _____ are duties of the general supervisor.</p>	<p>1-2. MOTIVATION Ref: 1.04</p>
<p>1-3. The manager _____, sets policies, and develops work concepts.</p>	<p>1-3. PLANS Ref: 1.05</p>
<p>1-4. Maintaining equipment in safe operating condition _____ production line downtime.</p>	<p>1-4. MINIMIZES or DECREASES Ref: 1.06</p>
<p>1-5. Essential work includes _____, planned repairs, and equipment replacement.</p>	<p>1-5. PREVENTIVE MAINTENANCE (PM) Ref: 1.09</p>
<p>1-6. Essential work is determined by input from management, _____, and quality control.</p>	<p>1-6. PRODUCTION Ref: 1.16</p>
<p>1-7. When searching for needed talent, first evaluate your _____.</p>	<p>1-7. PERSONNEL or CREW Ref: 1.18</p>
<p>1-8. A line organization has one general supervisor and several _____ supervisors.</p>	<p>1-8. FIRST-LINE Ref: 1.21</p>



### Types of Maintenance Organizations—Continued

1.22 Eventually, people were needed to keep records, compute payrolls, and monitor inventories. The simple line organization became a *line/staff organization* (Fig. 1-6).

1.23 Today's line/staff organizations are much more complex, as shown in Fig. 1-7. Variations on the basic line/staff maintenance organization exist, and the more common of these are described in the following paragraphs. But notice that they are all still based on the idea that first-line supervisors have final responsibility for maintenance.

1.24 **Craft-based maintenance organizations.** Some maintenance organizations were patterned after specific craft unions. That is, the work was divided into sections appropriate to specific crafts. For example, the electrical supervisor handled all electric motor repairs, and the pipefitting supervisor handled all pumps and flow-controllers. First-line supervisors came up through the ranks of the craftsmen. Apprentice pipefitters became journeymen pipefitters, then crew leaders, and finally line supervisors (Fig. 1-8).

1.25 One of the main drawbacks to craft-based maintenance organizations is that they can be slow to respond to emergencies. This is because it often requires the skills of more than one craft to handle an emergency. Today, craft maintenance organizations

are used mostly to back up specific projects and rarely as general maintenance organizations.

1.26 **Functional maintenance organizations.** Functional organizations probably evolved from craft organizations. In a functional maintenance organization, however, the work is divided according to the type or function of the equipment to be maintained. For example, all maintenance and repair work required to keep a plant's grinders operating may be handled by one crew under the guidance of one supervisor. This differs from the original craft organization in that several different crafts are often under one supervisor (Fig. 1-9 on page 12).

1.27 Even today, union contracts are frequently negotiated along craft lines. This means facilities that want or need a more flexible organization are hampered because contract items, such as overtime, are negotiated differently for each craft.

1.28 **Area maintenance organizations.** Area organizations make a single maintenance supervisor responsible for all maintenance carried out in a specific location. It is essential that the boundaries of the location (or area) be well identified and its size realistic. Even so, the maintenance within any one area usually requires the skills of a number of different crafts. For this reason, most first-line supervisors in area organizations have crews that include different types of craftsmen (Fig. 1-10 and 1-11 on pages 12 and 13).

1.29 It's rare that the workload (or economics) allows any one area to employ all the crafts it needs on a full-time basis. For example, an area crew might need nine or ten mechanics full time, but could use an instrument technician only a few hours a week. In this case, it makes more sense to keep the instrument technician in a centrally controlled group of specialized craftsmen who are loaned to the various areas as they are needed. This helps eliminate costly duplication of special-purpose personnel and facilities.

1.30 Another step in this direction is to limit the on-site work to PM inspections, emergency repairs, and unscheduled work. Other work is performed in the shop or done with support provided by the centrally controlled shops. The biggest advantage of area maintenance organizations is their fast response in the field.

1.31 **Centrally controlled maintenance organizations.** In this type of organization, all maintenance

**Fig. 1-6. A basic line/staff organization**

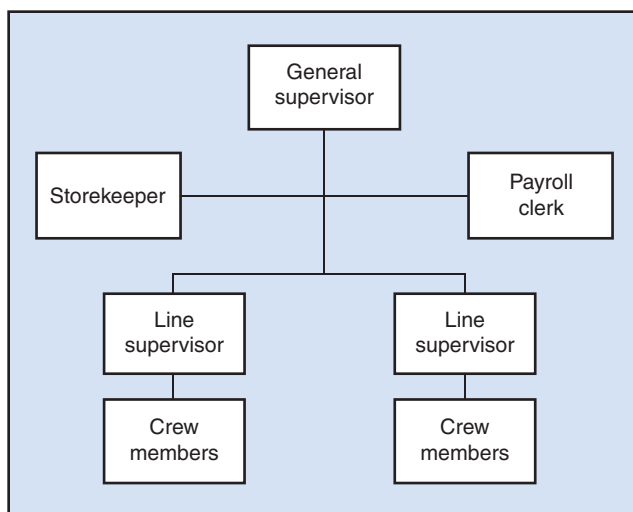
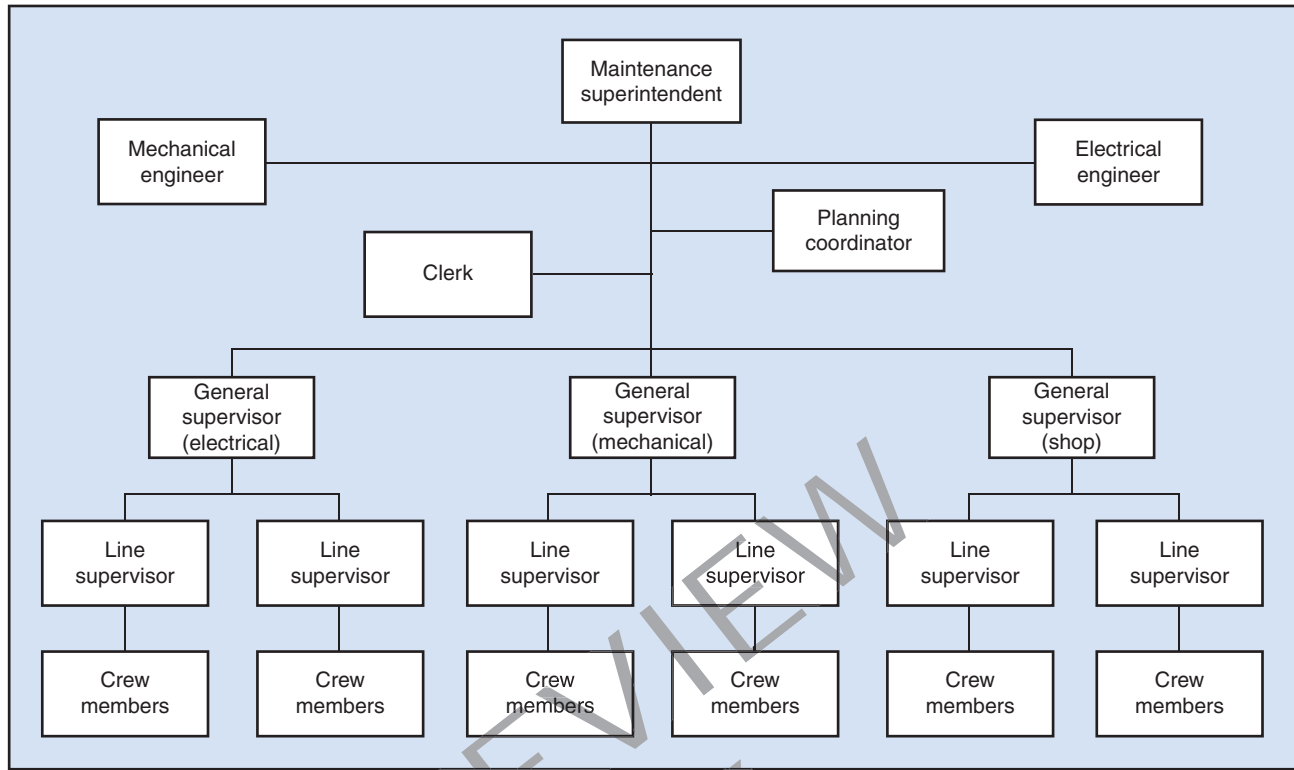


Fig. 1-7. A large line/staff organization



is requested through a central control center. As the service requests are processed and the work is assigned, crews are dispatched singly or in groups. Large projects or work expected to take a long time are usually planned and scheduled separately. In these cases, the supervisor and crew are assigned for however long the work requires.

1.32 Centrally controlled organizations tend to resemble craft/functional organizations (Fig. 1-12 on page 13). The main drawback to centrally controlled organizations is that they are not as readily responsive.

Communications and control are good until the crews are actually sent out into the field. Then the relatively long travel times from the central location results in a loss of coordination and control. Production losses can also be significant—because of the excessive travel time required, the absence of proper craftsmen, and emergencies, as the following story shows.

#### Application 1-1

**A pipefitter crew in a cereal plant was sent to do some routine maintenance on a**

Fig. 1-8. A craft-based maintenance organization

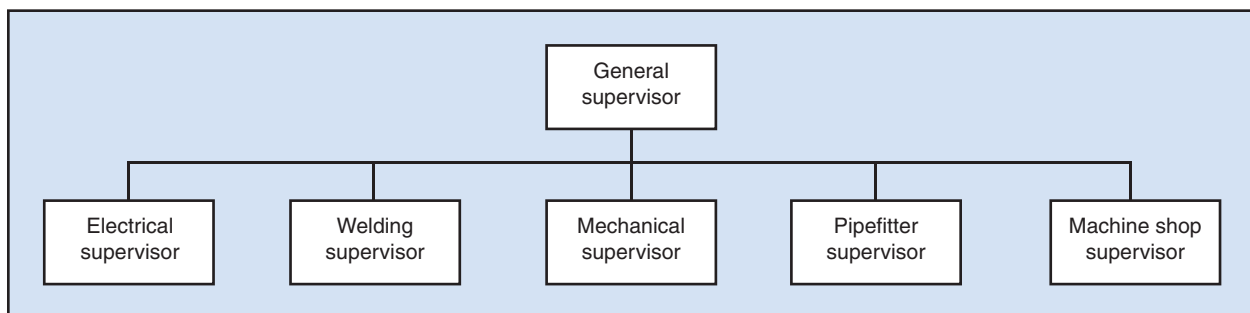
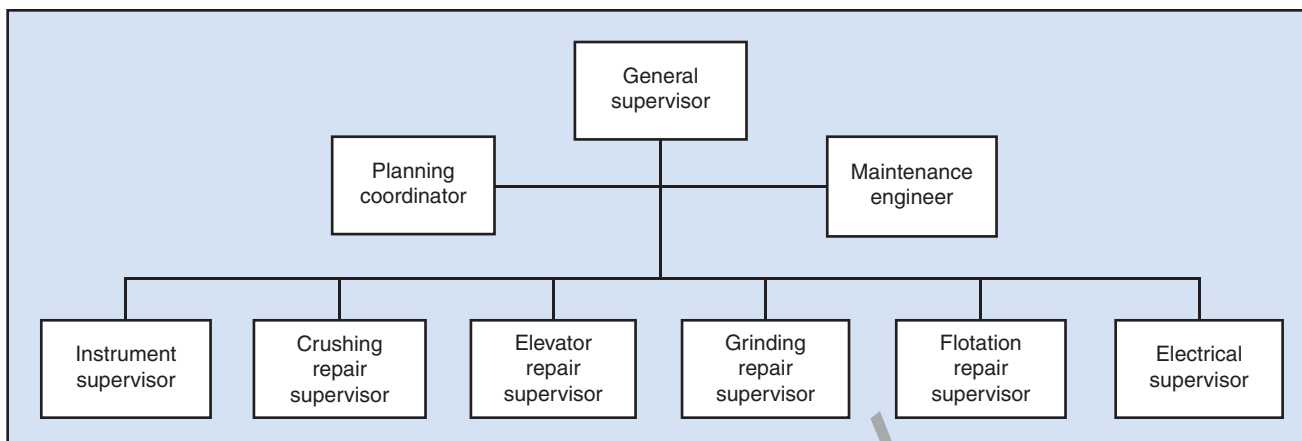


Fig. 1-9. A functional organization

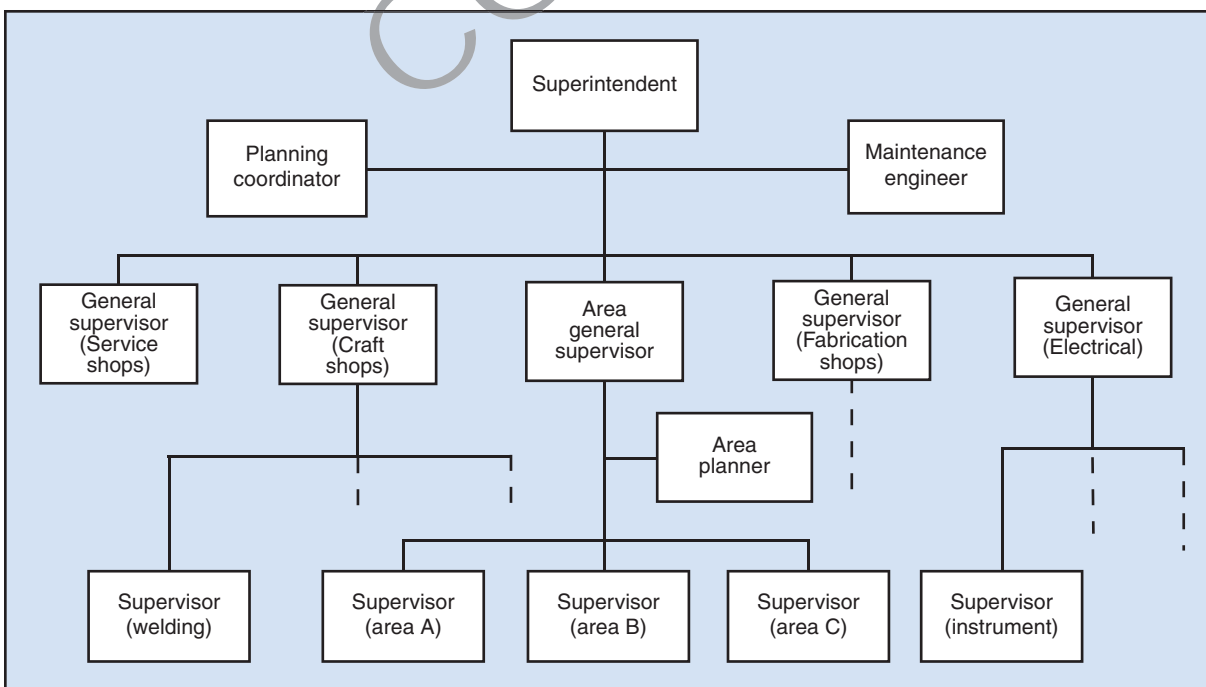


large piece of equipment. Soon the crew discovered a serious problem—a crack in the main water line. Several hours passed before plumbers could get to the work site. This was a Saturday morning, and the plant was closed. Each plumber traveled to the plant from home, which delayed the start of the repair. As a result, the job took much longer than expected. If you were the first-line supervisor, what changes in

the maintenance organization would you suggest to the plant manager?

1.33 Now suppose a centrally controlled organization is combined with an area-based maintenance organization (Fig. 1-13 on page 14). The combined structure uses labor much more efficiently than either of the other two can alone. For instance, it can respond more rapidly than a centrally controlled orga-

Fig. 1-10. An area organization



nization can because a maintenance crew is already on site. Also, the crews can be kept smaller than crews in a standard area maintenance organization. This is because the on-site crew does not have to employ a full-time craftsman for each skill required by the workload—it can call on a central pool of specialized craftsmen to meet peak workloads. Once the work is done, the craftsmen return to the central pool to be assigned elsewhere.

### Comparing Organizations

1.34 The relative performances of maintenance organizations are shown in Table 1-1, on the following page. The factors contributing to an organization's overall effectiveness and efficiency are listed at the left, the types of organizations at the top. Note that each organization is rated for each performance factor on a scale of 1 to 10.

1.35 Is the type of maintenance organization used in your facility listed in Table 1-1? If so, how does it compare to other types of maintenance organizations? If not, remember that your own facility conditions may require a type of organization not shown here.

### Who Controls Maintenance?

1.36 At different times, maintenance may be controlled by the maintenance superintendent, the production manager, or the facility manager. Sometimes the control is divided. For example, facility services might be controlled by the maintenance superintendent and production maintenance controlled by the production manager.

**Fig. 1-11. In the area maintenance organization, several crafts work under one supervisor**

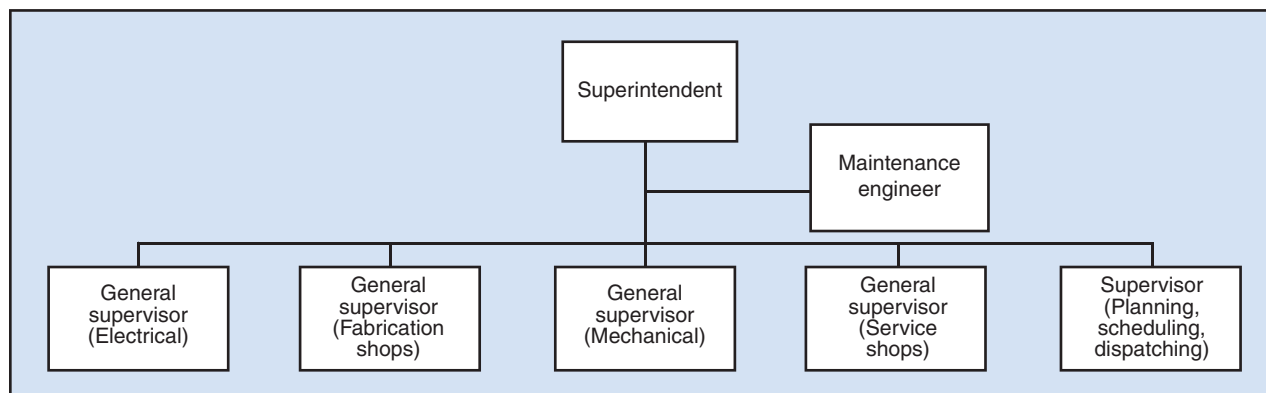


1.37 Like so many other organizations, maintenance is often built around whatever talent is available. But no matter who is at the top of your company's maintenance organization chart, you should remember that the final responsibility for effective maintenance lies with you—the first-line supervisor. This is why your own performance is so important. The productivity of your crew depends upon how you control labor, materials, tools, and time.

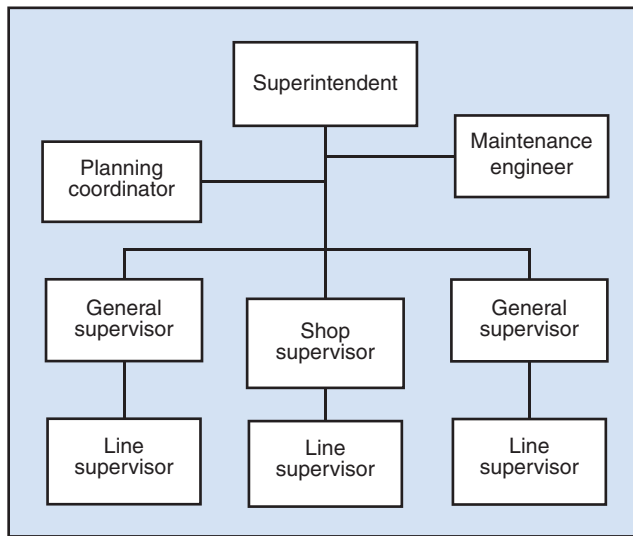
### Span of Control

1.38 How many crew members can a line supervisor supervise properly? How many line supervisors can a general supervisor deal with effectively? There are no clear-cut answers to either of these questions. However, years of experience have established some rough guidelines. In general, a line supervisor should limit crew size to 16 in the field and 25 in the shop. A general supervisor can handle from 4 to 8 first-line supervisors in the field and 6 to 10 in the shop.

**Fig. 1-12. A centrally controlled organization**



**Fig. 1-13. Centrally controlled and area organizations combined**



**Using Organizational Charts**

1.39 The primary purpose of an organizational chart is to present a clear, complete picture of the organization—its structure and function. A good chart contains as much detail as necessary, and no more. Cluttered or incomplete charts are hard to understand.

1.40 Generally, an organizational chart is drawn for each organization in the company. Refer again to Fig. 1-13. The vertical lines indicate the chain of command. Boxes drawn to the side of the vertical line indicate staff personnel.

1.41 Note that the planning coordinator is shown slightly lower than the maintenance engineer. This usually indicates a lower level of responsibility. Although the shop supervisor reports directly to the superintendent, he is shown on a lower scale than the general supervisors because he has less responsibility than the general supervisors. However, the two general supervisors are at the same level, as are all line supervisors. Complete organization charts usually include the names of the people corresponding to each position.

1.42 Dotted lines on an organization chart usually mean that the person on the end of the dotted line is only temporarily in the position shown—he normally fits in somewhere else. Figure 1-14, for example, shows an organization in which the planner is normally supervised by the planning supervisor. But, as the dashed line shows, he currently works for the general supervisor.

**Table 1-1. Comparing maintenance organizations for control and performance factors**

Control/performance factor	Craft organization	Functional organization	Central organization	Area organization	Area organization with craft pool
Avoids duplicate facilities	6	7	10	4	6
Affords tight control	6	7	10	7	8
Responsive to production	5	5	6	10	10
Limits travel time	5	5	2	9	10
Affords responsive supervision	6	7	6	8	9
Conducts PM services	6	7	8	7	7
Efficient use of labor	5	5	3	8	10
Affords good material control	6	6	7	5	5
Allows effective planning	7	7	8	7	8
Coordinates easily with production	5	6	7	9	10
Coordinates with engineering	8	9	10	6	7
Provides recordkeeping	7	6	9	7	7
Allows positive communications	7	7	9	7	7
Makes effective work assignments	5	6	7	7	8

Ratings: 1 to 3 = Poor  
 4 to 6 = Good  
 7 to 10 = Excellent

**Department Changes**

1.43 Rising costs of labor, material, and equipment put constant pressure on most facility maintenance managers to cut costs. But the amount and complexity of most maintenance work continues to increase. Reorganization is one of the steps used to try to cut costs. Typical reorganization attempts involve changes in organization, personnel, and work methods. All levels of personnel may be affected—up to the maintenance manager.

1.44 **Preparing for change.** At the start of any change, individual reactions must be taken into account. Intended changes should be properly

announced—no surprises. Attitudes toward changes can range from enthusiastic support to complete resistance. Efforts to win support for the proposed change must hit all levels of the organization.

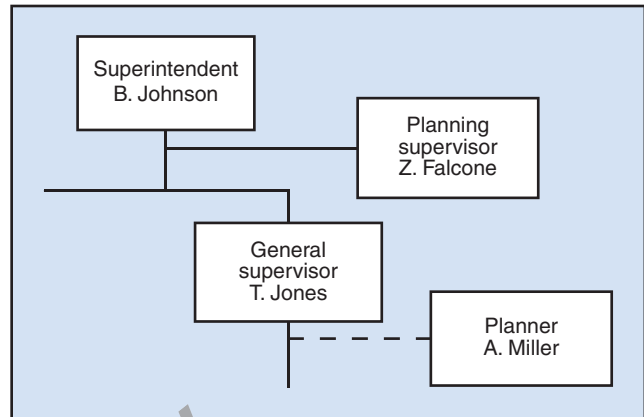
1.45 Resistance to change will occur whenever people misunderstand, feel insecure, or fear loss of power or authority. Most people will react socially (resisting as part of a group), psychologically (changing their work attitudes), or behaviorally (changing their work patterns).

1.46 **Overcoming resistance to change.** The basic tools needed to reduce resistance are:

- **Persuasion.** Offering rewards or bargaining can often reduce resistance to change. But to use persuasion effectively, you must know the actual cause of the resistance.
- **Security.** Does the resistance stem from fear of being laid off? If so, can new jobs be made by reducing overtime, transferring staff to other units of the organization, etc?
- **Understanding.** Are the changes and their consequences fully understood? Face-to-face discussions are best to clarify misunderstandings, since questions can be answered directly.
- **Time.** Changes rarely need to be made suddenly. The time spent preparing for change can be used to condition people to the upcoming adjustments.
- **Flexibility.** Trial runs have several advantages. People involved in the change can test a new system before judging it. Trial runs tend to be less of a threat, lessening resistance.
- **Participation.** Get people involved in the change. Personal involvement is often the best way to reduce fear and misunderstanding.

1.47 For example, refer to the case history shown in Application 1-2. One way is to involve the person by asking for suggestions.

**Fig. 1-14. Organizational chart shows temporary reassignment**



#### Application 1-2

Tim Jones, a first-line supervisor in a small machine shop, was talking to the general supervisor, Ray Smith. “Management want us to reorganize, Tim,” Ray said. “The idea is to cut maintenance costs and increase efficiency by making the crews larger. Do you think you could handle a bigger crew? There would be a pay increase, though I’m not sure how much.”

“I’d like to try,” Tim said, “but what happens if I can’t handle it, Ray? Will I be laid off? Or, say the company continues to cut back, and lets the crew members go. I could lose my job or be transferred to another shop.”

“I imagine the company would try another way out first,” Ray answered. “Management can opt to reduce overtime so as to make more jobs available. At any rate, the change isn’t going to take place overnight. Now how about it? Are you with me?”

“I don’t know, Ray. I’ll have to think about it. I’ll let you know Monday.”

Which of the tactics outlined in paragraph 1.46 would you use to handle Tim’s resistance to change?

## 16 Programmed Exercises

<p>1-9. Craft-based organizations respond _____ to emergencies.</p>	<p>1-9. SLOWLY Ref: 1.25</p>
<p>1-10. One supervisor guides several crafts in a(n) _____ organization.</p>	<p>1-10. FUNCTIONAL Ref: 1.26</p>
<p>1-11. In an area organization, _____ supervisor is responsible for maintenance in a given area.</p>	<p>1-11. ONE Ref: 1.28</p>
<p>1-12. If centrally-controlled and area organizations are combined, crews become part of a(n) _____ labor pool.</p>	<p>1-12. CENTRAL Ref: 1.33</p>
<p>1-13. An organization chart shows maintenance functions and _____.</p>	<p>1-13. STRUCTURE Ref: 1.39</p>
<p>1-14. The chain of command on an organization chart is indicated by _____ lines.</p>	<p>1-14. VERTICAL Ref: 1.40</p>
<p>1-15. Department reorganization results from rising labor, material, and _____ costs.</p>	<p>1-15. EQUIPMENT Ref: 1.43</p>
<p>1-16. People resist change whenever they misunderstand, feel _____, or fear loss of authority.</p>	<p>1-16. INSECURE Ref: 1.45</p>

Answer the following questions by marking an "X" in the box next to the best answer.

- 1-1. Planning is performed by the
- a. first-line and general supervisors
  - b. first-line, general, and top-level supervisors
  - c. first-line supervisor
  - d. top-level supervisor only
- 1-2. Maintain equipment in good operating condition to
- a. meet production goals
  - b. minimize downtime
  - c. operate production lines safely
  - d. all of the above
- 1-3. A leadman's responsibility is limited to
- a. decision-making
  - b. disciplining
  - c. instructing
  - d. negotiating
- 1-4. The first maintenance organization was a/an
- a. area organization
  - b. functional organization
  - c. line organization
  - d. line/staff organization
- 1-5. In a functional organization, work is divided according to
- a. craft
  - b. equipment type
  - c. location
  - d. none of the above
- 1-6. An area organization
- a. avoids costly duplication
  - b. borrows craftsmen as needed
  - c. hires craftsmen for special jobs
  - d. responds slowly in the field
- 1-7. In a centrally controlled organization,
- a. control is limited in the field
  - b. large projects are handled separately
  - c. work is assigned as requests are processed
  - d. all of the above
- 1-8. At different times, maintenance is controlled by the
- a. facility engineer
  - b. first-line supervisor
  - c. maintenance superintendent
  - d. all of the above
- 1-9. An organization chart
- a. always covers the whole facility
  - b. contains all necessary detail
  - c. does not indicate management level
  - d. is purposely incomplete
- 1-10. You can overcome resistance to organization changes by
- a. advance preparation
  - b. bargaining
  - c. discussion
  - d. all of the above



## SUMMARY

First-line, general, and managerial supervisors within a maintenance organization carry out necessary planning, organizing, staffing, leading, and controlling. The duties of all three supervisory levels shift increasingly from doing to supervising. The first-line supervisor spends most of his time checking completed work, supervising job methods, and training crewmen.

A maintenance organization keeps equipment in a safe, effective operating condition in order to reduce production line downtime. It gives top priority to those maintenance procedures that keep production lines in operation.

The line organization, consisting of a general supervisor, first-line supervisor, and crew, was one of the first maintenance organizations. Eventually, a record-keeping staff was added and it

became a line/staff organization. The craft-based maintenance organization resembled specific craft unions.

In a functional organization, work is divided according to the type or function of the equipment being maintained. This means that a single supervisor controls several crafts. The area organization supervisor usually has a multicraft crew to carry out all maintenance in a specific place. The centrally controlled maintenance organization features a central control center that processes service requests and assigns tasks.

Many maintenance departments are being reorganized to overcome rising labor, equipment, and material costs. Organization structure, personnel needs, and work methods are all affected.

## Answers to Self-Check Quiz

- |      |    |   |       |    |  |
|------|----|---|-------|----|--|
| 1-1. | b. | First-line, general, and top-level supervisors. Ref: 1.02 | 1-6.  | b. | Borrows craftsmen as needed. Ref: 1.29   |
| 1-2. | d. | All of the above. Ref: 1.06                               | 1-7.  | d. | All of the above. Ref: 1.31-1.32         |
| 1-3. | c. | Instructing. Ref: 1.15                                    | 1-8.  | c. | Maintenance superintendent. Ref: 1.36    |
| 1-4. | c. | Line organization. Ref: 1.21                              | 1-9.  | b. | Contains all necessary detail. Ref: 1.39 |
| 1-5. | b. | Equipment type. Ref: 1.26                                 | 1-10. | d. | All of the above. Ref: 1.46              |

Contributions from the following sources are appreciated:

Figure 1-3. Press photo BASF