

Detailed engineering specifications should be acquired for each machine or structure. For machinery, these give dimensions, weights, sizes of plant service connections, lubrication requirements, details on bearings, and power transmission or motor drive data. For buildings they include data on general layout, services available, floor load capacities, ceiling clearances, column spacing, and many other features.

After a supervisor has made an analysis of his maintenance responsibilities, an organization chart should be formulated for the selection and safe assignment of workers. The safety man helps in this. Such a chart gives the supervisor a comprehensive picture of his force, pointing out the status of trained keymen and reserves. Outside specialists who can be called in for unusual or very hazardous jobs should be listed. In layoff periods or in emergencies when men are needed in a hurry, this information is quite valuable.

Work control is necessary for efficient and safe maintenance operation and involves planning, scheduling, and follow-up of the job. A smooth-flowing paper work system will help to control each job all the way.

Work plans should indicate the nature of each job, how it is to be done, the material needed, and the safety precautions required. The type of records that should be kept will depend on plant operations, operating time of machines, number of maintenance crews, and schedules.

A work schedule is successful only if there is a follow-up system to see that it is being adhered to and to determine reasons for delay. Delays may be an indication of faulty materials or wrong procedures. Where work schedules are rigid, it is better to hire additional help than to increase the work tempo of the crew.

Equipment inspections

An inspection schedule based on the potential trouble points listed on maintenance records is essential to preventive maintenance. The schedule can be determined by the number of inspection reports turned in by regular full-time inspectors or by the men of the maintenance crews.

An inspector must know what to look for. He must be something of an expert on, or at least thoroughly familiar with, the equipment

under his care. This knowledge is particularly important for electrical equipment inspectors. Electrical equipment usually gives few obvious indications of impending trouble, and is likely to stop altogether with little advance warning. Mechanical equipment often warns of deterioration by such easily recognized signs as noise, unusual appearances, or substandard output. But there are some warnings that are more subtle.

It is important that inspectors be equipped with suitable instruments for making their observations. While there is no difficulty in recognizing burned contacts on a motor starter or in hearing the pounding of a worn gear, checking insulation resistance of a motor or measuring the wear on a shaft requires the correct instruments.

Personal protective equipment

Maintenance men should dress properly for their specific job. Garments should be snug-fitting, with a few small pockets. Breast pockets are often sewn closed to prevent items from dropping into machinery or inaccessible places when the wearer leans over. Rings, watch chains, wristwatches, and other jewelry should not be worn.

Neckties and loose clothing should not be worn by maintenance men. Loose rags must be kept clear of moving machinery.

If a man carries so few tools that he does not need a tool bag, he should wear a special belt fitted with tool carriers. To prevent back and spine injuries in case the worker should fall, tools should be carried at the side instead of in the back portion of the belt.

Gloves or hand leathers should be worn by a man handling rough or sharp objects. Welding gloves, rubber gloves for electrical insulation, and rubber gloves for handling acids should be used as needed, but never worn around moving machinery.

Goggles should be in every maintenance tool kit. Moreover, unless the repairman knows the exact conditions he is to work under, his equipment should include several types of goggles to provide protection against flying objects and molten metal, injurious heat and light rays, dust and wind, and acid splashes.

When a man needs to work in high places or to enter a manhole, bin, or tank, he should wear a life belt, with the lifeline either at-