

TYPES OF MAINTENANCE

- i. Daily Routine maintenance.
- ii. Weekly Routine maintenance.
- iii. Monthly Routine maintenance.
- iv. Yearly Routine maintenance.

CLASSIFICATION OF MAINTENANCE:

1. PLANNED MAINTENANCE It improves uptime and quality of output and reduces repair maintenance costs through the continuous quality improvement of equipment operation. Planned Maintenance provides guidelines for a total system of activities in which all employees work to improve the quality of product output, increase production uptime, reduce costs of operations and reduce the amount and complexity of machinery required. It includes scheduled and unscheduled maintenance programs with strategies for responding to machinery and equipment failures.

Planned maintenance includes two main activities:

A) PREVENTIVE MAINTENANCE: It is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures. The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs. It is designed to preserve and enhance equipment reliability by replacing worn components before they actually fail. Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication and so on. In addition, workers can record equipment deterioration so they know to replace or repair worn parts before they cause system failure. Recent technological advances in tools for inspection and diagnosis have enabled even more accurate and effective equipment maintenance. The ideal preventive maintenance program would prevent all equipment failure before it occurs.

B) CORRECTIVE MAINTENANCE: Corrective maintenance consists of the action(s) taken to restore a failed system to operational status. This usually involves replacing or repairing the component that is responsible for the failure of the overall system. Corrective maintenance is performed at unpredictable intervals because a component's failure time is not known a priori. The objective of corrective maintenance is to restore the system to satisfactory operation within the shortest possible time.

Corrective maintenance is typically carried out in three steps:

1. Diagnosis of the problem. The maintenance technician must take time to locate the failed parts or otherwise satisfactorily assess the cause of the system failure.
2. Repair and/or replacement of faulty component(s). Once the cause of system failure has been determined, action must be taken to address the cause, usually by replacing or repairing the components that caused the system to fail.

3. Verification of the repair action. Once the components in question have been repaired or replaced, the maintenance technician must verify that the system is again successfully operating.

2. ROUTINE MAINTENANCE: Routine maintenance is such activities as cleaning, dusting, lubricating, checkup of important parts such as battery. These activities are to be performed on a daily or weekly basis. Some of these form part of scheduled maintenance. Routine maintenance, normally does not involve any replacement of parts

3. SCHEDULED MAINTENANCE:

Scheduled maintenance is a maintenance activity undertaken on equipments as per a plan of action, which gives the sequence in which various jobs would be attended. The schedule gives the calendar day and time at which a particular job is undertaken. A maintenance schedule is prepared for a week. As the job content of maintenance activity is variable, the schedule for the next day is usually firmed up at the end of each day. The scheduled maintenance activities may be preventive or break down in nature. The maintenance schedule is prepared based on certain rules such as:

1. First come first served
2. Emergency priority job first
3. Shortest competition time job first.
4. Longest competition time job first
5. Random

4. PREDICTIVE MAINTENANCE:

Predictive maintenance allows plant management to control the machinery and maintenance programs rather than vice versa.

In a plant using predictive maintenance, the overall machinery condition at any time is known, and much more accurate planning is possible.

Predictive maintenance utilizes many different disciplines, by far the most important of which is periodic vibration analysis.

It has been shown many times over that of all the non-destructive testing that can be done on a machine; the vibration signature provides the most information about its inner workings.

The resulting benefits of preventive maintenance are many. Some of them are listed below:

Safety. Machinery that is not well maintained can become a safety hazard. Preventive maintenance increases the margin of safety by keeping equipment in top running condition.

Lower cost. A modern and cost-effective approach to preventive maintenance shows that there is no maintenance cost optimum. However, maintenance costs will decrease as the costs for production losses decreases. No preventive maintenance action is performed unless it is less costly than the resulting failure.

Reduction in failures and breakdowns. Preventive maintenance aims to reduce or eliminate unplanned downtime, thereby increasing machine efficiency. Downtime is also reduced when the preventive maintenance process gives maintenance personnel sufficient warning so repairs can be scheduled during normal outages.

Extension of equipment life. Equipment that is cared for will last longer than equipment that is abused and neglected.

Improved trade-in/resale value of equipment. If the equipment is to be sold or traded in, a preventive maintenance program will help keep the machine in the best possible condition, thereby maximizing its used value.

Increased equipment reliability. By performing preventive maintenance on equipment, a firm begins to build reliability into the equipment by removing routine and avoidable breakdowns.

Increased plant productivity. Productivity is enhanced by the decrease in unexpected machine breakdown. Also, forecast shutdown time can allow the firm to utilize alternate routings and scheduling alternatives that will minimize the negative effect of downtime.

