Subject

BASIC TECHOLOGY

Topic

MAINTENANCE OF TOOLS AND MACHINES

Class

J.S.S.1

LEARNING OBJECTIVES

At the end of the class, student should be able to;

1. Define maintenance
2. Describe the three types of maintenance practice
3. State the importance of maintenance
4. List at least three suitable cleaning materials for tools and equipment.

WHAT IS MAINTENANCE

Maintenance can be defined as the act of keeping engineering equipment in good condition by regular checking and servicing. Keeping a regular and proper maintenance of our equipment are very important, because if fail keep proper maintenance we experience regular breakdown or the equipment may not function properly. The tools and equipment used in workshops or home should be regularly and constantly maintained and repaired when necessary.

TYPES OF MAINTENANCE

Generally engineering tools and equipment maintenance can be categorized as follows:

1. Preventive maintenance: This is normal order and regular maintenance carried out on equipment to avoid any breakdown.

TYPES OF MAINTENANCE

2. Predictive maintenance: This is the maintenance done on equipment to examine the possibility of breakdown. This helps the experts to recommend if equipment is to be completely serviced or to replace some parts.
3. Corrective maintenance: This is the maintenance carried out when there is breakdown on equipment.

PRECAUTION AND ROUTINE MAINTENANCE

Precaution: Always make sure you read and obey the manufacturer's operational manual and service as directed.

Routine maintenance:

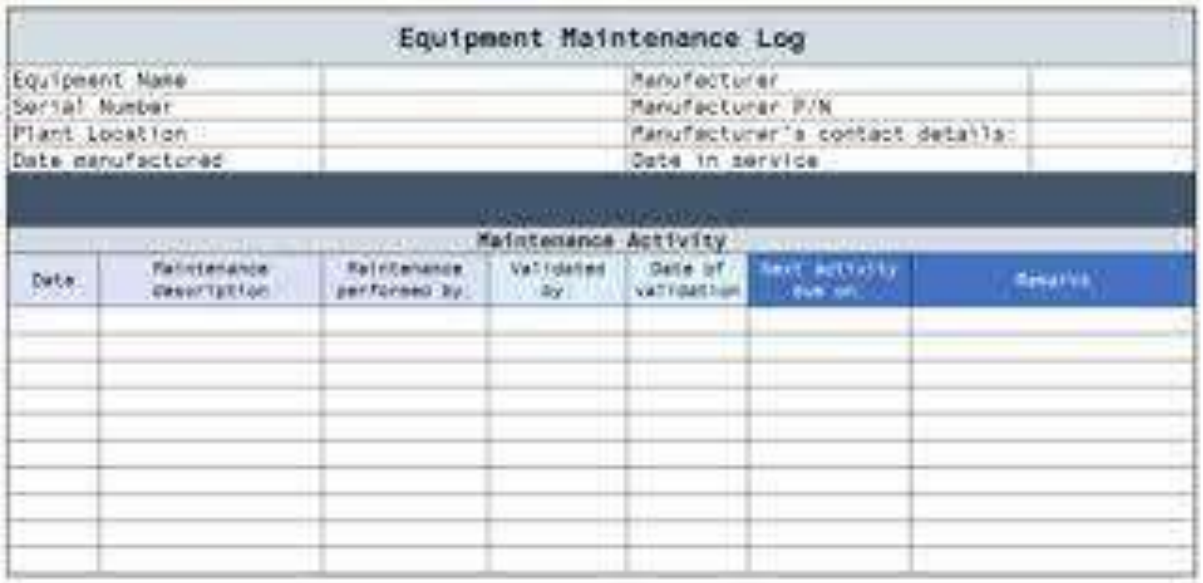
1. Prevents equipment from rust by keeping them away from moisture and direct heat.
2. Check bolts and nuts regularly to ensure that they are properly tightened and oiled.
3. Keep all equipment clean after use.
4. Grease or lubricate all moving parts to reduce friction.
5. Electric equipment must be disconnected or switched off from the main supply.

SIMPLE MAINTENANCE METHODS

The simple maintenance methods include cleaning, dusting, oiling of adjusting selected parts, washing.

KEEPING OF MAINTENANCE RECORDS

This is a record that contains the working state, input, output and services of a machine.



Equipment Maintenance Log			
Equipment Name		Manufacturer	
Serial Number		Manufacturer P/N	
Plant Location		Manufacturer's contact details:	
Date manufactured		Date in service	
Maintenance Activity			
Date	Maintenance description	Maintenance performed by	Validated by	Date of validation	Next activity due on	Remarks

IMPORTANCE OF A PERIODIC MAINTENANCE RECORD

Keeping maintenance records enables one to:

1. Make and prepare budgets.
2. Determine the profitability of the machine.
3. Take appropriate management decisions.
4. Obtain credits from banks
5. Estimate the worth of the machine at any given time.

SUITABLE CLEANING MATERIALS FOR TOOLS AND EQUIPMENTS

1. Abrasives: Abrasives are materials that wear off dirt by rubbing.

2. Alkaline: For removing oxides on surface of metals.

SUITABLE CLEANING MATERIALS FOR TOOLS AND EQUIPMENTS

3. Wire brush

4. Air blower etc

WAYS OF MAINTANING WOODWORK HANDTOOLS

The woodwork hand tools are cared for is the same way metal work tools are also cared for.

In caring for metal work hand tools one must think about the moving parts of machines and tools:

1. **Dusting and cleaning:** Caring for metal work hand tools begins with regular dusting and cleaning using a wire brush, vacuum cleaner. Cleaning may require using damp cloth, detergent and other cleaning agent, to remove dust and accumulated debris that may clog in a machine.

2. **Sharpening and Grinding:** Grinding is the process of sharpening cutting tools like chisels, knives, saws and cutters. To sharpen saw teeth, files are used. Regular sharpening and grinding keep cutting edges sharp and make a machine work efficiently.

3. Greasing and oiling of moving parts:

LUBRICATION

lubrication is the application of grease or oil to metal parts that rub against each other.

Lubricant on the other hand is the chemical used for reducing friction to metal parts in contact. Before lubricating , you must identify which parts of a machine needs to be lubricated for efficiency.

PURPOSES OF LUBRICATION

1. To prevent corrosion or rusting
2. To prevent wear and tear
3. To improve efficiency of the machinery or tool by reducing friction.
4. Reduce heat and transport heat away from moving part of a machine.

TYPES OF LUBRICANT

1. Oils: A general term used to cover all liquid lubricants, whether they are mineral oils, natural oils, synthetics, emulsions or even processed fluids.
2. Greases: Technically there are oils that contain a thickening agent to make them semi-solid.

BASIC MAINTENANCE OF METALWORK HAND TOOLS

1. Oil metallic and moving parts of a hand tools by reducing friction and corrosion.
2. Never use a hand tool without a handle.
3. Files should be cleaned as soon as they get clogged by using a file card.

4. A metal worker must learn to select the right type of tool for a required job.
5. Never use a file on welded joint or on the surface of casting.
6. All metal work hand tools must be kept in their proper shelves, cases, tool boxes or racks.
7. Hacksaw blade should be fixed onto the frame with the teeth pointing away from the handle so that it cut at the forward stroke.

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EVALUATION

1. Define maintenance
2. Describe the three types of maintenance practice
3. State the importance of maintenance
4. List at least three suitable cleaning materials for tools and equipment.

Thank You

For Watching!!!