Health&Safety recap

the law

England, Scotland and Wales
Provision and Use of Work Equipment Regulations 1998

Northern Ireland
Provision and Use of Work Equipment Regulations (Northern Ireland) 1999

Plant and Equipment Maintenance

Maintenance on plant and equipment is carried out to prevent problems from arising, to put faults right and to ensure equipment is working effectively.

Maintenance may be part of a planned programme, or it may have to be carried out at short notice after a breakdown. It always involves non-routine activities and can expose those involved to a range of risks.

Why is maintenance of plant and equipment important?

An effective maintenance programme will make plant and equipment more reliable. Fewer breakdowns will mean that less dangerous contact with machinery is required, and will also have the cost benefits of better productivity and efficiency.

Hazards can occur when machinery becomes unreliable and develops faults. Planned maintenance allows these faults to be diagnosed early to manage any risks. However, maintenance needs to be carried out correctly. Unsafe maintenance has caused many fatalities and serious injuries either during the maintenance or when using the badly maintained or repaired equipment.

The Provision and Use of Work Equipment Regulations (PUWER) require work equipment and plant to be maintained so they remain safe; PUWER also requires the maintenance operation to be carried out safely.

What do I have to do?

If you provide equipment for use, from hand tools and ladders to electrical power tools and larger plant, you need to have arrangements in place to make sure they are maintained in a safe condition. The following hazards can occur during maintenance:

- Tools break during use
- Machinery starts up unexpectedly
- Contact with materials that are normally enclosed within the machine

Failing to communicate clear instructions and information before starting maintenance can lead to confusion and can cause accidents. This is especially a problem if maintenance happens during normal production work or if there are contractors who are unfamiliar with the site.

Extra care is also required if maintenance involves:

- Working at height
- Doing work that requires access to unusual parts of the building
- Entering vessels or confined spaces where there may be toxic materials or a lack of air

Some items of plant and equipment may have safety-critical features where deterioration would cause a risk. You must have arrangements in place to make sure the necessary inspections take place.

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How can I carry out maintenance?

Establishing a planned maintenance programme is a valuable step towards reducing risk, as is having a reporting procedure for workers who may notice problems while working on machinery. There are other steps to consider as well.

Before you start maintenance

- Decide whether the work should be done by specialist contractors. Never take on work for which you are not prepared or competent.
- Plan the work carefully before you start, ideally using the manufacturer's maintenance instructions, and produce a safe system of work. This will avoid unforeseen delays and reduce the risks.
- Make sure maintenance staff are competent and have appropriate clothing and equipment.
- Try to use downtime for maintenance. You can avoid the difficulties in co-ordinating maintenance and production work if maintenance work is performed before start-up or during shutdown periods.

Safe working areas

- You must provide safe access and a safe place of work.
- Don't just focus on the safety of maintenance workers—take the necessary precautions to ensure the safety of others who may be affected by their work, such as other employees or contractors working nearby.
- Set up signs and barriers and position people at key points if they are needed to keep other people out.

Making plant and equipment safe

Plant and equipment must be made safe before maintenance starts.

Safe isolation

- Ensure moving plant has stopped and isolate electrical and other power supplies. Most maintenance should be carried out with the power off. If the work is near un-insulated, overhead electrical conductors, cut the power off.
- Lock off machines if there is a chance the power could be accidentally switched back on.
- Isolate plant and pipelines containing pressured fluid, gas, steam or hazardous material. Lock off isolating valves.

Other factors you need to consider

- Release any stored energy, such as compressed air or hydraulic pressure, that could cause the machine to move or cycle.
- Support parts of plant that could fall. For example, support the blades of down-stroking bale cutters and guillotines with blocks.
- Allow components that operate at high temperatures time to cool.
- Place mobile plant in neutral gear, apply the brake and chock the wheels.
- Safely clean out vessels containing flammable solids, liquids, gases or dusts, and check them before hot work is carried out to prevent explosions. You may need specialist help and advice to do this safely.

- Avoid entering tanks and vessels where possible. This can be very high-risk work. If required, get specialist help to ensure adequate precautions are taken.
- Clean and check vessels containing toxic materials before work starts.

Dos and don'ts of plant and equipment maintenance

Do:

- Ensure maintenance is carried out by a competent person (someone who has the necessary skills, knowledge and experience to do the work safely).
- Maintain plant and equipment regularly. Use the manufacturer's maintenance instructions as a guide, particularly if there are safety-critical features.
- Have a procedure that allows workers to report damaged or faulty equipment.
- Provide the proper tools for the maintenance person.
- Schedule maintenance to minimise the risk to other workers and the maintenance person wherever possible.
- Make sure maintenance is done safely, that machines and moving parts are isolated or locked and that flammable/explosive/toxic materials are dealt with properly.

Don't:

- Ignore maintenance.
- Ignore reports of damaged or unsafe equipment.
- Use faulty or damaged equipment.

Case Study #1:

Scenario	**What Caused It?**
A worker received crush injuries to his head and neck while he was undertaking maintenance work when the hoist he was working on started up.	The power supply to the hoist had not been isolated before work started. This was because workers had not been given adequate training or instruction on safe isolation procedures. It was also found that isolation by the interlocked gates could be bypassed.

Case Study #2:

Scenario	**What Caused It?**
Maintenance staff removed a section of grating to gain access to plant located below a walkway. A worker fell through a gap in the walkway, seriously injuring his shoulder.	The fall happened because there was nothing to make workers aware of the dangers caused by machinery maintenance. Barriers, guards and signs should have been used to indicate that maintenance was taking place.