

Maintaining portable electric equipment in offices and other low-risk environments



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This leaflet sets out the precautions which can be taken to prevent danger from portable electrical equipment in those premises where risks are generally low, eg offices or libraries. The precautions are similar to those for electrical equipment used in other premises, but are matched to low-risk environments.

I've been told I have to have my desk lamp tested every six months. Is this correct?

No. The law requires it to be maintained. It does not require an elaborate and frequent system of electrical testing.

But I have quite a lot of electrical equipment in my offices, what do I have to do to maintain it?

For the most part, visually inspect it. By concentrating on a simple inexpensive system of looking for visible signs of damage or faults, and putting them right, you will prevent most electrical accidents from occurring.

What is portable electrical equipment?

Generally, equipment that has a lead (cable) and plug and which is normally moved around or can easily be moved from place to place, eg vacuum cleaners, kettles, heaters, fans, televisions, desk lamps; and also equipment that could be moved, eg photocopiers, fax machines, and desktop computers.

Are there risks from portable electrical equipment used in offices etc?

Yes, but they are low compared to most other workplaces. However, if you have never had an inspection system, or if maintenance has been neglected, there is a greater chance that some of the equipment has become dangerous and you will need to take some action.

What can go wrong?

The leads and plugs, or sometimes the equipment itself, can become damaged. This may result in an electric shock. Electric shocks can kill. Damaged equipment can also cause fires.

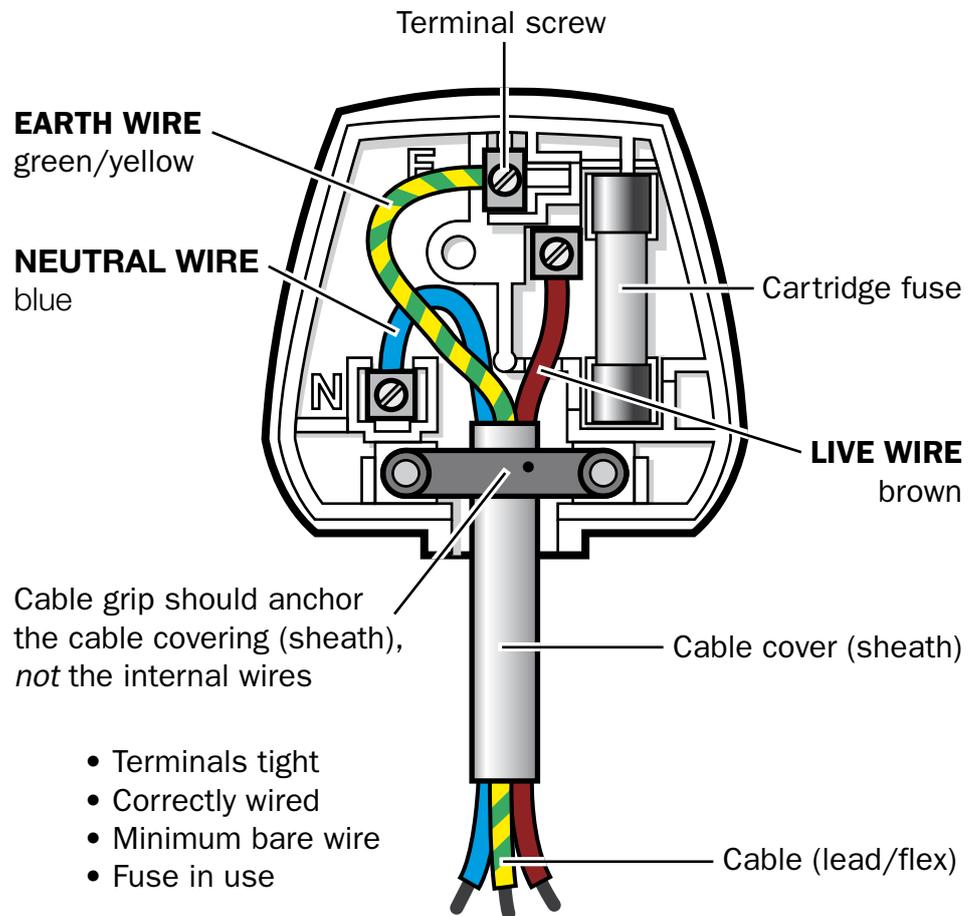
How can I tell if it is damaged?

By looking! This is the most important maintenance precaution. Around 95% of faults or damage can be found just by looking (visual inspection).

First, identify your equipment and where and how it is used. The things you are looking for on the equipment, the cable and plug (after disconnecting it) are signs of:

- damage, eg cuts, abrasion (apart from light scuffing) to the cable covering;
- damage to the plug, eg the casing is cracked or the pins are bent;

Figure 1 A correctly wired plug



- non-standard joints including taped joints in the cable;
- the outer covering (sheath) of the cable not being gripped where it enters the plug or the equipment. Look to see if the coloured insulation of the internal wires is showing;
- equipment that has been used in conditions where it is not suitable, eg a wet or dusty workplace;
- damage to the outer cover of the equipment or obvious loose parts or screws; and
- overheating (burn marks or staining).

In addition, formal inspection could include removal of the plug cover and checking that:

- a fuse is being used (ie it is a proper fuse not a piece of wire, a nail etc);
- the cord grip is holding the outer part (sheath) of the cable tightly;
- the wires, including the earth where fitted, are attached to the correct terminals (see Figure 1);
- no bare wire is visible other than at the terminals;
- the terminal screws are tight; and
- there is no sign of internal damage, overheating or entry of liquid, dust or dirt.

This does not apply to moulded plugs where only the fuse can be checked.

Most of these checks also apply to extension leads and their plugs and sockets.

It seems so easy, but I have been told that I have to have an electrician do this.

That is not necessary for the kind of equipment normally used in low-risk environments. Any sensible (competent) member of staff can do it if they have been given enough knowledge and training.

What is enough knowledge and training?

They need to know what to look at, what to look for and what to do, but more importantly they should be able to avoid danger to themselves or others. So, they should have basic electrical knowledge together with common sense, eg switch off and unplug the equipment first! Simple training can cover all of this.

How often should we look?

That depends on the type of equipment and how it is used. For example, the cable to a kettle will probably be handled and moved several times each day, while the cable to a computer may only be moved when the office furniture is rearranged. Table 1 suggests intervals that can be used to start with until you have enough experience to decide this for yourself.

What can users do?

You should encourage them to look critically at the electrical equipment which they use, and look for damage to the outside of the equipment and its lead and plug before they use it, but they should not take the plug apart.

What happens if they find something wrong?

They should tell somebody (a supervisor or manager) and the equipment should be labelled as faulty and taken out of use to be repaired. (The plug could be taken off to stop it being used.)

What about testing, I had thought that was essential?

Not for all equipment. However, some faults cannot be seen just by looking, particularly lack of continuous earths. For some equipment the earth is essential to safety. Therefore all earthed equipment, and most leads and plugs connected to equipment, should also have an occasional combined inspection and test to look for these and other faults. Suggested intervals are shown in Table 1.

Combined inspection and testing can be carried out at the start of a maintenance system to establish the initial condition of the equipment.

Combined inspection and testing should be carried out:

- where there is reason to suspect the equipment may be faulty, damaged or contaminated but this cannot be confirmed by visual inspection; and
- after any repair, modification or similar work to the equipment, when its integrity needs to be established.

Can I group different types of equipment together for inspection or testing?

Yes. If you find it easier to carry out the inspection or testing of all the equipment at the same time you are free to do so, but you should use the shortest table interval in the group, not the longest.

How do I know if equipment is earthed or not?

Equipment which is not earthed is usually called 'double insulated' or 'Class II' and is marked with the 'double square' symbol . The cable has two wires. Equipment not marked with this symbol is usually earthed and is called 'Class I'. The cable has three wires.

**Table 1 Offices and other low-risk environments only.
Suggested initial* intervals**

Equipment/environment	User checks	Formal visual inspection	Combined inspection and testing
Battery-operated: (less than 20 volts)	No	No	No
Extra low voltage: (less than 50 volts AC), eg telephone equipment, low-voltage desk lights	No	No	No
Information technology: eg desktop computers, VDU screens	No	Yes, 2–4 years	No if double insulated, otherwise up to 5 years
Photocopiers, fax machines: NOT hand-held. Rarely moved	No	Yes, 2–4 years	No if double insulated, otherwise up to 5 years
Double insulated equipment: NOT hand-held. Moved occasionally, eg fans, table lamps	No	Yes, 2–4 years	No
Double insulated equipment: HAND-HELD, eg some floor cleaners	Yes	Yes, 6 months–1 year	No
Earthed equipment (Class 1): eg electric kettles, some floor cleaners	Yes	Yes, 6 months–1 year	Yes, 1–2 years
Cables (leads) and plugs connected to the above. Extension leads (mains voltage)	Yes	Yes, 6 months–4 years depending on the type of equipment it is connected to	Yes, 1–5 years depending on the type of equipment it is connected to

*NB: Experience of operating the maintenance system over a period of time, together with information on faults found, should be used to review the frequency of inspection. It should also be used to review whether and how often equipment and associated leads and plugs should receive a combined inspection and test.

What about testing other equipment?

Some equipment does not need testing, eg battery-operated or extra low voltage. Other equipment itself should not need testing but occasionally its lead (cable) and plug will. Intervals of up to 5 years are suggested but your experience will determine what is best.

Some types of business equipment, eg computers, VDUs or printers, can be damaged by inappropriate tests. Guidance on testing this type of equipment is listed at the end of this leaflet. Detachable power leads for this type of equipment can be safely tested when not connected to it.

Does the combined inspection and test have to be carried out by an electrician?

Not necessarily. A member of staff can do this if they have had suitable training. Greater knowledge and experience is needed than for inspection alone, and they need to have the right equipment to do the tests. They should know how to use the equipment correctly and how to interpret the results.

Do I have to keep records?

The law does not require this. But you may find it helpful if you have a lot of electrical equipment to keep track of and also to help you review your maintenance procedures. Experience of faults found will determine whether inspection intervals can be lengthened and whether and how often there should be a combined inspection and test.

What else do I need to do?

Occasionally review your monitoring system once you have experience to work on. Check what is being found and that action is being taken and decide whether frequencies are correct.

What about equipment that employees have brought to work themselves?

Ideally you should not let them bring it to work. This is sometimes difficult to prevent and you may need to include it in the visual inspection.

What does the law say?

Regulation 4(2) of the Electricity at Work Regulations 1989 says 'As may be necessary to prevent danger, all systems shall be maintained so as to prevent, so far as is reasonably practicable, such danger'.

I also have a small factory, where clearly the risks are greater; what other guidance is there?

Some additional publications from HSE and other organisations giving guidance on maintaining electrical equipment are listed below. The tables of frequencies for inspection and testing given in them are recommendations and are not legal requirements.

Maintaining portable and transportable electrical equipment HSG107
(Second edition) HSE Books 2004 ISBN 978 0 7176 2805 6
www.hse.gov.uk/pubns/books/hsg107.htm

Maintaining portable electrical equipment in hotels and tourist accommodation
INDG237(rev1) HSE Books 2011 (priced packs of 10 ISBN 978 0 7176 6430 6)
www.hse.gov.uk/pubns/indg237.pdf

Code of Practice for In-service Inspection and Testing of Electrical Equipment (Third edition) The Institution of Electrical Engineers 2008 ISBN 978 0 86341 833 4

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This leaflet is available in priced packs of 10 from HSE Books, ISBN 978 0 7176 6429 0. Single copies are free and a web version can be found at www.hse.gov.uk/pubns/indg236.pdf.

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