

Inspection and Testing Guidance for Electrical Equipment

Amendment record

This Annex has been reviewed by Directorate of Defence Safety & Support (DDSS) together with relevant subject matter experts and key safety stakeholders. Any suggestions for amendments to this chapter **should** in the first instance be directed to the Defence Area's [Safety Centre/Team Group Mailbox](#) and with their approval, sent to DDS at: People-DDS-GroupMailbox@mod.gov.uk.

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1.4	21 Oct 26	Annex split from main chapter.	DDSS

Minimum Advised User Visual Checks

1. User checks **should** include but not be limited to checking for:
 - a. damaged, poorly maintained or poorly installed plugs or cables;
 - b. correct connectors used to join cables (no twisted wires or taped joints);
 - c. incorrect use of extension leads (e.g., two or more connected together);
 - d. signs of scorching or burn marks;
 - e. loose wires or missing or damaged insulation;
 - f. damaged equipment casing; and
 - g. correct marking (e.g., in-date test labels).

Formal Visual Inspections

2. Visual checks do not have to be undertaken by a qualified electrician. Visual inspections can be carried out by a member of staff with the relevant competence. A visual inspection **must** be conducted with the equipment isolated, and is undertaken to make sure that:

- a. there is no damage, cuts, and abrasions (apart from light scuffing) to any cable covering;
- b. there is no damage to any plug e.g., the casing is not cracked or none of the pins are bent or misaligned;
- c. the outer covering (sheath) of the cable is securely gripped where it enters the plug or the equipment, and that the coloured insulation of the internal wires are not visible without removing the plug or equipment cover;
- d. the equipment shows no sign of having been used in an environment where it is not suitable (e.g., wet or muddy);

- e. there is no damage to the outer cover of the equipment, e.g., obvious loose parts, screws missing or cracks in the casing; and
- f. there are no signs of overheating (burn marks or staining).

3. Checks may also include checking that:

- a. the cable terminations are secure and the correct polarity; and
- b. the correct rated fuse is fitted.

Minimum Advisory Testing

4. Formal testing of electrical equipment **must** only be performed by a competent person. A person not skilled in electrical work but trained in the use of and routinely using a simple 'pass / fail' type of electrical equipment tester (EET) and the knowledge to calculate the correct fuse rating may be adequately competent for testing equipment. When undertaking such tests the appropriate test procedures **must** be rigorously followed and the acceptance criteria **must** be clearly defined. The testing of any equipment / system that is hard-wired to an electrical supply above ELV **must** be carried out by a competent, qualified electrician and in accordance with JSP 375, Volume 3, or as instructed by the appropriate Safety Case and specific regulations.

Recommended Inspection / Testing Intervals for Electrical Equipment

Equipment/environment	Daily User visual checks	Formal visual inspection	Combined inspection and test
Power leads, Extension leads, plugs, and cables.	Yes	As per category used with below	As per category used with below
Heavy industrial use, high risk of equipment damage, e.g., circular saws, and angle grinders.	Yes	Yes, Weekly	Yes, 6-12 months
Residual Current Devices (RCDs).	Yes Functional Test (socket outlet & portable RCDs)	Yes, Weekly	Yes, If fixed on site, before first use, then 3 monthly (portable RCDs-monthly)
Light industrial use, e.g., bench mounted diagnostic and test equipment.	Yes	Yes, 6 months	Yes, 6-12 months
Earthed equipment (incl Class 1) e.g., electric kettles, some floor cleaners.	Yes	Yes, 6 months-1 year	Yes, 1-2 years
Hard wired equipment: cooker, engineering workshop machines (e.g., lathe or power-press).	Yes	Yes, 1 year	Yes, 1-5 years.
Information technology (incl Class 2FE) e.g., desktop computers, VDU screens.	No (Yes if used in a harsh operating environment)	Yes, 2-4 years or after reconfiguration	Yes, 1-5 years if not double insulated

Fixed systems and earthed equipment only moved occasionally, NOT hand-held, e.g., photocopiers and fridges.	No	Yes, 1-4 years	Yes, 1-5 years
Double insulated equipment frequently moved or hand-held e.g., phone / laptop chargers, irons, hair dryers.	Yes	Yes, 6 months-1 year	No
Equipment/environment	Daily User visual checks	Formal visual inspection	Combined inspection and test
Double insulated, moved occasionally, NOT hand-held, e.g., fans, table lamps, slide projectors.	No	Yes, 2-4 years	No
Battery operated (less than 40 volts).	No	No	No
Extra low voltage: (less than 50 volts AC) e.g., telephone equipment, low voltage desk lights.	No	No	No

5. Risk assessments and / or formal reliability studies **must** be used to identify changes to the above requirement and frequency of inspection and testing. This will depend upon the equipment type, its usage, and the operating environment (some ELV specialist equipment will require daily user checks and frequent formal inspections, for example, Ex-rated torches). Where the inspection / testing regime is picking up a number of faults then consideration **must** be given to increasing the frequency of inspection and testing.

Testing electrical equipment

6. All electrical equipment and systems **must** be tested in accordance with the manufacturer or industry guidance, and this **must** only be performed by a competent person. The competent person will decide how to undertake the testing necessary for the specific electrical equipment that requires testing and this may vary, however a typical (non-exhaustive) electrical test **should** include:

- a. a protective conductor continuity test;
- b. an insulation resistance test;
- c. if required, a protective conductor continuity test; and
- d. a functional check of the equipment.

7. It is important to recognise that it may not be possible to perform certain tests on all electrical equipment some (non-exhaustive) examples are:

- a. electrical equipment **should** not be subjected to test voltages and currents that would result in damage;
- b. some electrical testing devices may not be appropriate and may cause damage to the electrical equipment and may also lead to a degradation in the safety of that electrical equipment; and

c. some electrical equipment **must** not be subjected to tests such as dielectric strength testing (also known as 'flash testing' or 'hi-pot testing').

8. It is the competent persons responsibility to make sure that all electrical testing is carried out in a safe system of work and the appropriate testing devices are used.

Records

9. Formal inspection and testing records **should** as a minimum include:

- a. the description of the piece of equipment;
- b. an asset number or equipment serial number (unique identifier);
- c. location of the equipment;
- d. name of person and details of person carrying out the test;
- e. date of next inspection / test;
- f. inspection / test Pass or Fail; and
- g. details of any inspection / test failures.