

What does TB118 mean for gas engineers?

Paul Collins, technical services manager at NICEIC, provides further clarification on the guidance issued in the revised TB 118 – Safe electrical isolation of gas appliances.

Technical Bulletin (TB) 118 was updated in January 2018. The updated TB includes new guidance in relation to electrical safety when working with electrical equipment, including gas appliances. TB 118 has been an industry bulletin for more than 10 years and contains guidance to help gas engineers understand the legal requirements relevant to working on equipment that has an electrical supply.

The TB is based on Best Practice and provides information and guidance in relation to:

- Electrical shock
- Legislation
- Safe isolation
- Test areas
- Test equipment
- Power supply earthing
- Safe to touch.

The aim of this article is not to review the whole bulletin, but to look at some of the changes in more detail.

Electric shock

The guidance in TB 118 should be considered seriously by all gas engineers to assess whether additional training needs to be taken, or to make any changes necessary in operational procedures.

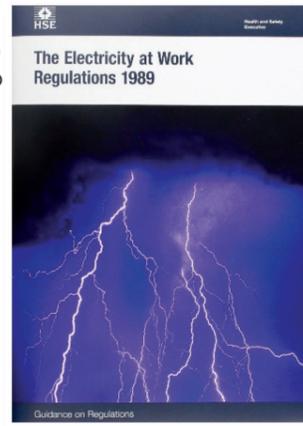
An electric shock can be fatal and a number of registered gas engineers have lost their lives because of issues with the electrical supply to the appliance they were working on. Legislation, such as the Health and Safety at Work etc Act (HSWA) and Electricity at Work Regulations (EWR), contain high-level requirements to ensure people are kept safe while at work.

The EWR provides regulations under the HSWA, which include:

- Regulation 13 – Precautions for work on equipment made dead
- Regulation 14 – Work on or near live conductors
- Regulation 16 – Persons to be competent to prevent danger and injury.

Test areas

When working, it is essential that



you have sufficient room for access and egress. This means making sure the area you are working in is controlled, and could require the use of a temporary barrier or barriers. It is also important to let people in the vicinity know what work is going to be undertaken and any dangers associated with it.

Equipment standards

The tools a gas engineer uses when working need to be constructed to the relevant product standard. This applies particularly to electrical test equipment, such as voltage indicators, multi-meters and test leads. When purchasing electrical test equipment, you should ensure it has been manufactured and certified to meet the relevant standard listed in TB 118.

Power supply earthing

One of the main changes in the latest version of TB 118 is around checking the electrical supply to the gas appliance is earthed. This is vitally important when working on metal-cased equipment such as a boiler, which is reliably

connected to earth. This type of equipment is generally referred to as Class 1 equipment.

The guidance contained in HSE Engineering Information Sheet No 35 (Revision 1) – Safety in electrical testing – service and repair of domestic appliances provides the following information: "When working on Class 1 (earthed enclosure) equipment it is important that the earthing of the power supply to the equipment is adequate and efficient. In customers' premises, this is likely to be unknown, so it is important to carry out a test to demonstrate the efficacy of the earthing.

"The safe way to do this is to measure the **earth loop impedance** of the power supply, using an instrument designed for that purpose. Make sure you know how to use the testing device and how to interpret the results obtained. If the test

indicates an inadequate earth, the customer must be informed that the work cannot continue until it has been rectified."

The main reason for earth loop impedance testing is to verify that, if a fault occurs in an electrical installation/equipment, sufficient current will flow to operate the fuse or circuit breaker, protecting the faulty equipment within a predetermined time. The objective is to make sure that the circuit is disconnected fast enough to prevent danger to the person working on the equipment, or any people in the vicinity, and the appliance itself.

The measurement should be taken at the appliance's electrical connection. The person undertaking the work MUST be competent to do so and care MUST also be taken when undertaking the test. Appropriate protective equipment may be needed.

"A number of gas engineers have lost their lives because of issues with the electrical supply to the appliance."



Make sure you measure the earth loop impedance of the power supply with the correct equipment.



Safe isolation equipment

Safe isolation

The guidance in relation to safe isolation is unchanged and requires the use of warning notices and 'locking off' the supply to the gas appliance being worked on, as well as using a voltage indicator to prove it is

Registered gas engineer Paul Willett died following an accident at a house in Ardleigh, Essex on 9 June, 2010. The father of three was carrying out routine maintenance work on a central heating system at the property.

The HSE investigated the accident and found a fault with a towel rail in the property's downstairs bathroom. A metal screw, which had been drilled into a supply cable, caused a 230v current to run through the pipework Mr Willett had been working on, causing an electric shock when he touched it.

electrically dead.

Locking off can be achieved a number of ways, including the use of proprietary lock off kits. These contain a number of devices that can be used when isolating an appliance. ■

Competence

Training courses are available to help gas engineers gain the relevant competence in relation to TB 118. NICEIC has developed an *Electrical testing & Fault Finding for Gas Engineers* training package, to help engineers achieve competence in safe working practices when working on electrically controlled gas equipment. It also covers other topics, such as how systems and appliances work from an electrical perspective, as well as fault-finding techniques.

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