

***TECHNICAL BULLETIN / METHOD
STATEMENT***

All tests are carried out in strict accordance with the Electricity at Work Regulations 1989 and British Standard Regulations covering the following categories : -

- (a) Hand Held Appliance BS 2769
- (b) Information Technology Equipment BS 7002
- (c) Industrial Equipment BS 5415

METHOD : - Using SEAWARD Equipment & Software.

All appliances are tested in-situ to minimise disruption to the working environment.

Tests carried out include : -

(a) **FULL VISUAL INSPECTION**

- (1) **The flex** – is it in good condition? Is it free from cuts, fraying and damage? Is it in a location where it could be damaged, is it too long, too short or in any other way unsatisfactory? Does it have adequate joints & correct polarity?
- (2) **The Plug** – Does it conform? Is the flexible cable secure in its anchorage? Is it free from any signs of overheating? Is it free from cracks or damage? Is it suitable for the environment? Is the fuse correctly rated?
- (3) **The socket outlet or flex outlet** – is there any sign of overheating? Is it free from cracks and other damage?
- (4) **The appliance** – does it work? Does it switch on and off properly? Is it free from cracks, contamination damage to the case, or damage, which could result in access to live parts? Can it be used safely?

(b) **FULL ELECTRICAL TEST**

- (1) **Earth Bond Test** – up to two times full AC load current is passed at low voltage between the earth pin of the appliance and exposed metalwork, the resistance is measured and recorded.
- (2) **Insulation Test** – A potential of 500volts DC is applied for a specified time (10 sec, 30 sec or 60 sec) between the earth pin of the appliance and the live and neutral connections joined, and the resistance is measured and recorded.
- (3) **Fuse Test**- A low voltage is applied between the live and neutral connections of the appliance to check that excessive current would not flow when the voltage is increased to the rated working voltage of the appliance, i.e. that there is no short circuit.
- (4) **Run Test** – if the fuse rating test is satisfactory, the voltage between the live and neutral connections of the appliance is increased to the rated voltage of the appliance and the load (kVA) is measured and recorded. An electronic current limiting circuit and backed up fuse protect the test instrument and the appliance under test.

- (5) **Earth Leakage** – The current flowing in the earth lead is measured and recorded in the conditions of the Run Test to check that no unacceptable earth leakage paths are created under normal operating conditions.
- (6) **Cord Test** – this test is carried out as when the appliance lead is detachable from the appliance by the provision of a 3-pin connector. It checks the continuity of each core in the lead, including the fuse fitted in a standard BS 1363A plug. It will show up any cross connections and open or short circuits. A short 10-second duration insulation test is also carried out.
- (7) **IT Earth Test** – This test is applied to Business Information Technology equipment only, as an alternative to the Earth Bond Test. The test is similar but the current is limited to 100mA DC.
- (8) **Flash Test** – (optional) – A high potential is applied for a specified time between exposed metal work and the live and neutral connections of the appliance electrically joined together, and the current is measured and recorded. The level of the high potential is either 1.5kV or 3kV AC according to the classification of the appliance under test. *It is recommended that flash testing should not be carried out as part of a regular on-site maintenance schedule.*

- **Action taken on Faulty or Damaged Equipment**
 - (1) Switched off and unplugged from supply
 - (2) Labelled to identify that it must not be used.
 - (3) Reported to the responsible person
- The order in which these tests are carried out is important. If the correct sequence is not followed then dangers could arise and the tester or appliance could be damaged. Out computer controlled Portable Appliance Tester's provide a pre-set automatic sequence for testing and should the appliance fail at any stage during the test, the sequence is brought to a halt and the reason recorded.
- All appliances will be labelled appropriately, showing Identification No., PASS/FAIL status, Test and Expiry dates with Test Engineers signature. All appliance test information is downloaded to PC based software system and a printout of this information is provided in Data Sheet Format. The results can also be provided in disc form if required.
- **In effect FIREHAWK provide a managed, computerised Inspection & Test System, which takes on board the whole responsibility of the HSE requirements with regard to Portable Appliances.**
- All we would ask of you in return is that you settle our account when submitted.

DEFINITION : - Portable Appliance : - Any Electrical Appliance, which is plugged into a mains supply and either uses, stores or transmits the electricity.

LEGAL DUTY : - the Electricity at Work Regulations 1989 (EAW) state that maintenance inspections must be carried out at set frequencies to control risks which could arise from the use of Electricity. The Duty Holder (employer in this case) must select precautions appropriate to the risk i.e. Regulation 4 (2) requires that **“As may be necessary to prevent danger, all systems shall be maintained so as to prevent, as far as is reasonably practicable, such danger”**.

It can be seen that it is a defence under Regulation 29 of the Electricity at Work regulations for a duty holder to **“prove that he took all reasonable steps and exercised due diligence to avoid the commission of that offence”**. Unlike other laws the onus is on the defendant to prove his innocence, as he is assumed guilty until proven otherwise. Clearly the most effective method by which a duty holder can prove this in a court of law would be by producing records of the measures taken to avert the danger. Without such records it would be extremely difficult to convince a court of law that the defendant had indeed acted within either the letter or spirit of the law. Therefore records are essential if a proper and organised system of testing is to be established and maintained.

The keeping of records then is essential as they provide evidence in the event of prosecution, but more practically they enable the close monitoring of the equipment highlighting potential faults or adverse trends caused by equipment usage and ageing.