

Adequacy of Existing DNO Owned Equipment

Why checking the adequacy of DNO owned equipment is important

Key considerations

- Existing safety and adequacy for continued use, including additions and alterations
- Steps to take if concerns are raised
- The importance of contacting the DNO where possible inadequacies are present

1. Adequacy of Existing DNO Service Heads

Although not part of a consumer's installation, Distribution Network Operator (DNO) service heads are recognised in BS 7671 as items that need visual inspection by the designer, installer or inspector responsible for the installation.

This would make sense, since in many instances, the DNO themselves rarely, if ever have need to check such equipment once installed, with it sometimes being many years in between inspections.

Meter operators have an obligation to inspect their equipment and report back to the relevant DNO if potential dangers are encountered. Due to the smart meter rollout in recent years, there has been a higher than usual activity within this vicinity, but once installed it is not uncommon for meters to remain un-inspected for many years.

2. BS 7671 – Requirements for Electrical Installations

Regulation 132.16 requires that such equipment be inspected for adequacy before any alteration or addition is carried out. Likewise, Chapter 65 requires a visual inspection during any periodic and inspection activity. HSR25 offers guidance to The Electricity at Work Regulations 1989 and makes reference to the requirements for maintenance and inspections of electrical installations, with BS 7671 noted to offer guidance on the process.

3. Ownership issues and responsibilities

3.1. Distributor Network Operator (DNO)

DNO and other equipment found at service entry positions, such as metering and tariff switching equipment, is not under the ownership of the building owner or customer, it should therefore be recognised that any such inspection can only be visual. Indeed, it must be remembered at all times that tampering or physical interference with any such equipment is an offence and may lead to liability issues and subsequent potential prosecution for the building owner or customer, as well as any third party believed to be responsible for the interference.

ECA have received reports of electrical contractors cutting back boards for which DNO and metering equipment is mounted to, in order to complete upgrade works. This is not acceptable practice and would be in breach of Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR) and the Electricity at Work Regulations 1989 (EAWR). ECA strongly discourages such working practices.

3.2 Building Network Operator (BNO)

Within multiple occupancy buildings (e.g., flats, apartments or similar) where a Building Network Operator (BNO) owns or operates the electricity distribution network between the intake position and customers installation. The BNO may be the DNO, another licensed distributor or a third party exempt from an electricity distribution license e.g. a building owner, facilities management company or landlord etc.

4. Visual Inspections

Visual inspections are relatively simple to undertake where a reasonably trained eye, and nose, can often identify issues long before a potential problem may arise.

A good visual inspection should include at least the following:

- i) Physical condition of casings, fuse carriers and enclosures – looking for evidence of thermal or mechanical damage.
- ii) Conditions of fixings that attach the service head to the surface it is secured to.
- iii) Type and condition of cables entering and leaving the service head – particularly looking for any signs of overheating, insulation deterioration, or loose connections.
- iv) Evidence of any tampering, or disturbance / removal of seals, etc.

Where any of these observations are identified, the person undertaking the visual inspection should immediately bring such matters to the attention of the building owner or client, ideally in writing.

The client will need to be advised that it is their responsibility to bring these matters to the attention of relevant parties. For concerns with the supply cable / service head the information must be reported to the DNO. For concerns with the metering equipment the information must be reported to the electricity provider.

5. Legacy service heads

Members should be aware of potential problems that may sometimes be encountered on the older types of plastic service heads, usually those black in colour.

These are sometimes made from a black 'phenolic' resinous material and were typically installed in properties between about 1967 and 1992.

Tests have identified that under some extreme conditions, usually associated with thermal cycling in either normal usage, or during fault conditions, excessive heat can result in carbonisation of the material, causing the service head body itself to become electrically conductive.

The chemical process of this then self-propagates, which if undetected may lead to eventual self-destruction of the equipment, introducing an associated fire risk.

Similar problems have been known to exist where poor environmental conditions within the vicinity of the equipment have led to moisture ingress or absorption.

Members working in close proximity to such equipment, and whilst looking for any obvious visual signs or smells suggesting deterioration, should exercise extreme care to avoid inadvertent physical contact with the equipment.

Some DNOs have given guidance to their staff authorised to work on such equipment, suggesting that a risk assessment process and certain precautionary measures be undertaken. This may include the use of a proprietary **contact voltage detector** to ascertain if a surface voltage is present on the enclosure's outer surface. An example can be seen in Figure 1. Non-contact / proximity voltage detectors would not be suitable to perform such procedures

Should any members have concerns it is recommended that they adopt a similar procedure. Indeed, if this is an area where members are likely to frequently find themselves, it is recommended that they acquaint themselves with the issue and perform their own dynamic risk assessment when in the area. It should be noted that the issues of phenolic material breakdown described, do not generally affect service heads manufactured after 1992. Equipment manufactured after this date can be identified as being now predominantly grey in colour.

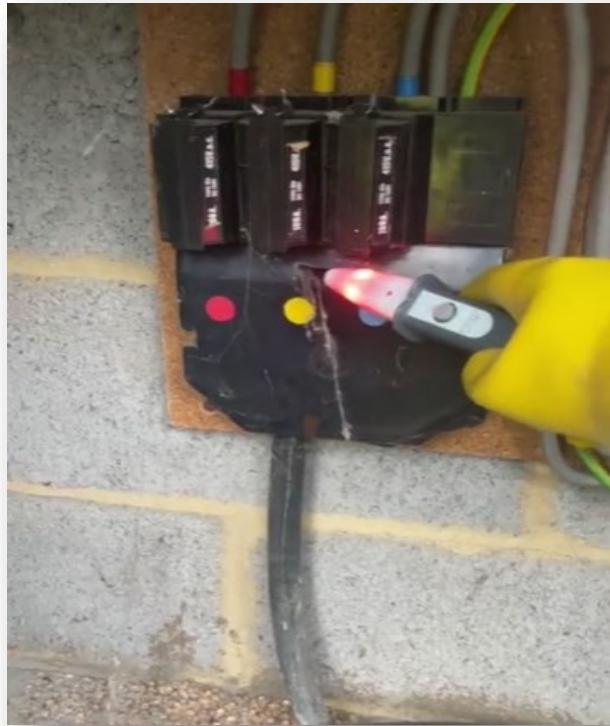


Figure 1 - Contact voltage detector being used to test for a voltage appearing on the outer enclosure of the service head
(Image courtesy of Eddie Clemmens, Pegasus Electrical)

Should any concerns be raised with DNO equipment, it is recommended that the client is made aware and the DNO is contacted without delay by calling the national 24-hour emergency distributor network helpline telephone number – 105. Any concerns relating to equipment in installations under the operation of a BNO should be raised to the client and building operator.

If there is suspected evidence of meter tampering or fraud including energy theft, this should be reported immediately to [Stay Energy Safe](#) ran by Crime Stoppers. No electrical works should commence at that installation.

5. Summary

DNO equipment is required to be visually inspected by the installer or inspector responsible for the installation. Legacy service heads may suffer from a phenolic material breakdown which can impose a potential electric shock risk to personnel and a fire risk to the installation. The procedures detailed within this guide may aid in identifying this issue and if encountered, should be raised to the client, recommending the DNO is contacted as a matter of urgency.



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