

# Health and Safety Executive OC 483/15

Field Operations Division

To

FCG Specialist Inspectors (Electrical)

## **ELECTRICITY SUPPLIERS - USE OF NON-STANDARD CUT-OUT ENCLOSURES**

### **Introduction**

1. This OC, which is based on TD Minute TD/1B/T/20/1990, gives details of an incident involving a non-standard 3 phase cut-out arrangement.

### **Background**

2. The installation concerned was in factory premises. In 1976 the factory load rose in excess of the capacity of the existing 350 amp 415 V 3-phase supply. At that time an additional 350 amp 415 V 3-phase supply was installed. The second cut-out was installed alongside the existing unit. The outgoing cable tail entries into the top of each cut-out were protected by a single non-standard cover fabricated from 4 mm perspex. This cover was in place of the usual wooden or paxolin cover plates. A "Danger Live" notice was secured to the front edge of the cover by 2 screws. This fabricated cover rested on the top of the cut-outs, it was not secured in any way.

3. The 2 cut-outs were sealed with a single length of sealing wire looped from the top left-hand cover fastening-screw of the left-hand cut-out (when viewed from the front) to the top right-hand cover fastening-screw of the right-hand cut-out. The 2 sides of the loop thus formed passed behind the "Danger Live" notice secured to the non-standard top-plate.

4. The main factory supply was turned off to permit work to take place on the main factory switchboard but good temporary lighting had been installed in the switchroom. The main infeed to the metering was still live. An electricity board distribution foreman was instructed to go to the site and remove the cut-out fuses to permit the work to take place. The foreman raised the non-standard top cover to release the sealing wire so that he could cut it. It is presumed that one strand of the loop broke as he pulled the wire clear to cut it, the broken end entered the gap between the top-plate which he had lifted up and the metal case of the cut-out, this caused a short-circuit between red and yellow phases in the right-hand cut-out. The foreman suffered flash burns to his hands and face. No fuses blew either in the cut-out or at the substation, the arc self-extinguished.

5. The main factors involved were:

- 1) a non-standard loose top-cover. The normal covers (wood or paxolin) are retained by a slot in the front cover of the cut-out and can only be removed when the front cover is open;
- 2) the presence of excessive lengths of sealing wire; and
- 3) incorrect removal technique for long sealing wires.

6. The electricity board concerned have issued the following recommendations:

- 4) self-adhesive tape is to be used to secure long lengths of sealing wire against uncovenanted movement during cutting and removal;
- 5) paper or plastic adhesive seals are to be used on all metal-clad cut-outs; and
- 6) all non-standard covers are to be replaced by properly engineered covers. (Meter readers are to be trained to recognise and report inadequate covers).

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## **ASI headings**

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