



1 SCOPE

This document details the application of SOP 206 issued by the Electricity Association.

2 ISSUE RECORD

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| October 2000 | 1 | Esther Stewart | Initial Issue in New Format: 3 Page Document |

3 ISSUE AUTHORITY

| Author | Owner | Issue Authority |
|----------------|--------------|--|
| Esther Stewart | Roger Bracey | Roger Bracey Group Head, Standards |



4 SOP DETAILS

TYPE: REYOLLE LMT23T 11kV CIRCUIT BREAKER

ORIGINATING REC: Yorkshire Electric

DATE: 16/06/98

NO. INSTALLED IN MANWEB: 872

NO. INSTALLED IN SCOTLAND:

STATUS: RESTRICTION.

The following restriction to apply to all substations containing equipment of the above type:

- (1) Access to switchrooms containing equipment of the above type to be restricted to short periods for essential operational purposes only until remedial action has been undertaken. Access may only be permitted in order to restore supplies or other valid and pressing reasons for such time as necessary to carry out operational duties.
- (2) Live opening and closing of the CB shall be carried out from a remote point where possible. (e.g. from a separate control room, from the PSMC or by using a remote control unit). Where this cannot be achieved then live local operation shall only be sanctioned after the following precautions have been taken.
 - (a) Opening to be carried out with feeder side isolated from all load by remote switching so that negligible current is interrupted. (e.g. cable charging current)
 - (b) Before closing the CB then wherever reasonably practicable the remedial action shall first be undertaken. When this is not practicable, the moving portion shall be racked down and withdrawn. The interlock shall be moved to the "locked " position and the isolated CB closed. The electrical resistance across each phase shall then be measured using a micro ohmmeter such as a Ducter to ensure that all three contacts are making successfully. The resistance value across all three phase contacts must be of similar value and in any case should be less than 200 micro ohms. The CB may then be returned to the service position and closed.
- (3) Racking a CB into or out of the service position is permitted as moving the interlock to the "free" position proves the contacts open with adequate clearance.



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- (4) Before circuit breaker is to be used as a Circuit Main Earth (CME) then wherever reasonably practicable, the remedial action shall first be undertaken. In exceptional circumstances, then the precautions described in 2(b) above shall be carried out.

UPDATE:

REASON:

Investigation into the disruptive failure of an LM23T CB (DIN 98/17) indicated that the circuit breaker was partially open following previous operation four weeks earlier. Subsequent passage of fault current through partially open contacts caused burning, arcing, and subsequent failure. The partially open condition was caused by a seizure of the damping dashpot piston within the dashpot assembly. The seizure is believed to be related to the deterioration of PVC buffer washers within the dashpot. NEDERS 02/0015 issued in 1984 (SEEBOARD) also relates.

REMEDIAL ACTION:

The Dashpot assembly to be inspected and the buffer washer replaced with a new washer manufactured from a superior material with the trade name "Gaco" as described in PSB 36 issue C (Jul 1998).

Note In accordance with this restriction any remedial work shall be carried out in a location remote from the switchroom. Unless all other LMT23T CB's in the switchroom have been previously modified or have been made dead.