



1 SCOPE

This document details the application of SOP 207 issued by the Electricity Association.

2 ISSUE RECORD

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Issue Date	Issue No	Author	Amendment Details
October 2000	1	Esther Stewart	Initial Issue in New Format: 4 Page Document

3 ISSUE AUTHORITY

Author	Owner	Issue Authority
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4 SOP DETAILS

TYPE: GEC types VMX (forms B and C), OX36, and HMX36 circuit breakers.

Serial number range: For defect (a): 66396 to 71600
For defect (b): 66396 to 68088

(Note that Alstom (Nee GEC) use sequential serial numbers across the range of equipment VMX, OX36 and HMX36).

ORIGINATING REC: MANWEB

DATE: 20/06/98

NO. INSTALLED IN MANWEB: Total 1192

NO. INSTALLED IN SCOTLAND:

VMX	–	11kV indoor extensible vacuum circuit breakers	959
OX36	–	33kV outdoor open terminal vacuum circuit breakers	214
HMX36	–	33kV indoor extensible metal clad vacuum circuit breakers	19

STATUS: RESTRICTION.

The following restriction to apply to all switchgear of the above type:

All operational staff should be aware of the possibility of incorrect indication on this type of switchgear.

For defect (a): serial number range 66396 to 71600

The "ON/OFF" indication on the front of the circuit breaker is not to be relied upon as being accurate for operational purposes. The operational state of the CB must be confirmed by other means (Ammeter reading, remote/NMS indication, state of interlocks etc.).

Where a CB is to be used as a PRIMARY EARTH it can be confirmed closed by checking the interlock mechanism after closing.

It should be noted that this fault affects the "ON/OFF" indication on the front of the circuit breaker only. The correct operation of the circuit breaker mechanism and contacts, and that of the interlock mechanism is not in question. All other "ON/OFF" indications will still be operative.



For defect (b): serial number range 66396 to 68088

The drive mechanism for the circuit breaker auxiliary switches uses a similar star clip for retention of components. An incorrect factory assembly procedure may result in the star clip falling off and the drive to the auxiliary switch being lost. This may cause the circuit breaker to fail to trip or close electrically. Additionally, the accuracy of remote indication cannot be relied on. For equipment within this serial number range the following additional restriction will apply:

Before any local "CLOSE" operation, the circuit breaker shall be isolated, the mechanism cover removed, and the security of the star clips securing the drive linkages checked. Any such defect shall be rectified before returning the circuit breaker to service.

Before any live line work is undertaken on a circuit controlled by a circuit breaker within this range, the same check shall be completed.

Where a CB is to be used as a PRIMARY EARTH it can be confirmed closed by checking the interlock mechanism after closing.

REASON:

Following a number of failures in service of the "ON/OFF" indicator drive linkage on GEC type VMX circuit breakers. The mechanical indication on the front of the CB cannot be relied upon to provide a true indication of the CB status.

UPDATES:

21/07/98: Report from GEC limits the restriction to Form B and Form C VMX and extends it to Type HMX and OX within the serial number range 66396 to 71600.

28/04/99: Restriction now extended following the discovery that the "star clip" method used to secure the ON/OFF indicator drive linkage is also used to secure the auxiliary switch drive linkage on some units. **There are now two separate defects to consider:**

Defect (a) The mechanical "ON/OFF" indication on the circuit breaker mechanism cannot be relied on to provide a true indication of circuit breaker status.

Defect (b) On some units the mechanism drive to the auxiliary switches may also be lost.

Additional to this restriction a programme of inspection is to be undertaken for circuit breakers in the range 66396 and 68088. Total in company 696.



The full inspection and rectification procedure is detailed in Alstom document IMP97 – 012/B

REMEDIAL ACTION:

In the failed units the drive rod connecting the "ON/OFF" indicator to the CB main contact mechanism had become detached at a pivot as a result of excessive movement and the failure of a spring cap or "star clip" to hold the drive rod on its pin. Alstom are to provide a modification procedure and new star clips. This may be a batch related problem but Alstom have still to confirm this possibility. NEDER will be issued soon.

The restriction on operational practice may be removed following the inspection and/or rectification of the circuit breakers for this possible defect.