

## 1. SCOPE

This document details the application of SOP 119 (Applicable to Switchgear & Cowans RA04 and RA4 RMUs) issued by the Energy Networks Association.

## 2. ISSUE RECORD

This is a Reference document. The current version is held on the EN Document Library.

**It is your responsibility to ensure you work to the current version.**

Issue Date	Issue No.	Author	Amendment Details
October 2000	1	Esther Stewart	Initial issue in New Format 2 Page Document
November 2023	2	Patrick Dolan	Update to SOP pre-operation checks, revision enables withdrawal of SOP 48 and SOP 72 which this document supersedes

## 3. ISSUE AUTHORITY

Author	Owner	Issue Authority
Patrick Dolan Lead Engineer	Jon Ruiz de Aguirre Substations Manager	Fraser Ainslie Head of Engineering Design and Standards

## 4. REVIEW

This is a Reference document which has a 5 year retention period after which a reminder will be issued to review and extend retention or archive.

## 5. DISTRIBUTION

This document is not part of a Manual maintained by Document Control and does not have a maintained distribution list. It is published on the SP Energy Networks website.

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**7. SOP DETAILS**

<b>EQUIPMENT TYPE</b>	Switchgear & Cowans RA04, and RA4 RMUs
<b>ORIGINATING COMPANY</b>	London Electricity
<b>DATE</b>	22 <sup>nd</sup> July 1992
<b>NUMBER INSTALLED IN ENERGY NETWORKS NORTH</b>	0
<b>NUMBER INSTALLED IN ENERGY NETWORKS SOUTH</b>	349
<b>REASON</b>	<p>Failure during an operation from the ON to OFF was the original SOP reason.</p> <p>Revised SOP applied for the following reasons:</p> <ul style="list-style-type: none"><li>• Failure during an operation from the ON to OFF due to contact align issues</li><li>• Potential to manual dependant operation if using switch handles which have not been modified</li><li>• Potential to manual dependant operation when switch aperture pins get damaged or become loose</li></ul>
<b>STATUS IN INITIATING COMPANY</b>	Operational Restriction
<b>SPEN APPLICATION</b>	Live operation prohibited until pre-switching checks completed
<b>ADDITIONAL INFORMATION</b>	Pre-switching checks detailed in Appendix 1
<b>UPDATE</b>	SOP 119 Issue 2 supersedes SOP 48 and SOP 72
<b>REMEDIAL ACTION</b>	SOP permanent

**8. SOP HEADER**

Field Name	Field Value	Field Size
<b>Name (SOPXXX)</b> *	<b>SOP119</b>	6
<b>The reason for the Operational Restriction</b> *	RSW Operating Issues	30
<b>Nature of the Operational Restriction</b> *	Live op prohibited pending pre-switching checks	50
<b>Comments</b> *	Live Operation of the RSW permitted upon confirmation of no issues after pre-switching checks.	200
<b>Restricted Access to Substation Flag</b> *	N	1
<b>SOP Impact Code</b> * (highlight or underline the appropriate code)	0 Temporary/Impact under assessment <u>1 Very minor operational/network impact</u> 2 Moderate operational/network impact 3 Significant impact on system perf./measurable business costs 4 Inoperable without intervention 5 Inoperable – no cost effective solution/must be replaced	N/A
<b>SOP component type</b> * (highlight or underline the appropriate code)	01 Bushing only 02 Circuit Breaker 03 Fixed Portion only 04 Moving Portion only 05 Switch <u>06 RMU</u> 07 Transformer only 08 Tap Changer only 09 Transformer & Bushing 10 Transformer & Tap Changer	N/A
<b>Search Criteria</b> *	Manufacturer: "Switchgear & Cowans" OR "GEC" Text Model: "RA4" and "RAE4"  Restriction applied to RMU RSW operations	N/A

\* This denotes a Mandatory Field

## 9. APPENDIX 1: PRE-SWITCHING CHECKS

Before any Live operation can be considered, the following checks must be completed on equipment with satisfactory results.

- Unit Temperature Check
- Operating Handle Check
- Switch Operating Aperture Check

### 9.1 Unit Temperature Check

A condition can occur when contacts on the Switch do not align correctly after previous close operation. Under this condition, there will be a high resistance connection, which may cause the equipment to heat up; cause carbonisation on the contacts; and, degrade the oil such that the equipment is unsafe to operate.

This condition is unlikely to occur but should be possible to detect if it were to arise by assessing if the temperature of the unit is normal or abnormal.

Under normal conditions, the surface of the units (at the ring switch tank) should not be warm to touch. It should be comparable to other surfaces (which are not subjected to heat sources).

There should be no differential in temperature between one side of the units to the other.

Where there is a functional temperature strip fitted, the unit cannot be operated if the temperature is greater than 40°C. The unit temperature is expected to be much lower than 40°C under normal conditions.

If there is any concern that the temperature equipment is abnormal, it shall not be operated live. Under this condition, the entire unit shall be isolated remotely and investigated by intrusive maintenance under permit conditions.

### 9.2 Operating Handle Check

RA4 and RA04 of different vintages may come with slightly different styles of operating handle. With these equipment designs, operation of switches with defective handles may result in manual dependant operation.

On all cases, generic checks on condition of the operating handle should be conducted as per normal practice.

Swan neck operating handles like the one pictured in **Figure 1** below should be reviewed prior to operation. There should be a stiffening brace present on these operating handles (this item is indicated by the red arrow in **Figure 1**).



*Figure 1: Swan Neck Handle with Stiffening Brace*

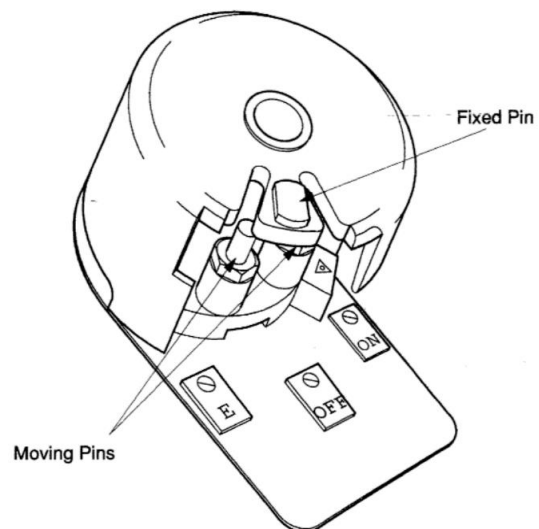
Any Swan Neck operating handles found without the stiffening brace should not be used for operation of the equipment, these should be recovered to be repaired or scrapped and a suitable replacement handle sourced for the equipment.

### 9.3 Switch Operating Aperture Check

Prior to any live operation of the switch, it is essential to inspect the operating pins in the handle aperture as shown in the picture.

**Note:** The pins can become loose and / or damaged after operations which can make subsequent operations manual dependant if unresolved.

- Where pins are found to be damaged, they must be replaced and adequately tightened in position before any live operation can be carried out
- Where pins are found to be loose but not damaged, they must be adequately tightened before any live operation can be carried out
- Where pins are found to be secure and undamaged any live operations can be completed assuming that there are no other issues found.



#### Further Notes

- All pin adjustments must be completed with approved tooling
- Replacements for damaged pins can currently only be sourced from recovered spares as the OEM is no longer available
- Please check pins again after operation, report any issues found to control