

1. SCOPE

This document details the **Approved** interim procedure to be adopted for 33kV Ring Main Units (RMUs) that have no separate locking off facilities for the *Oil Switch* and *Earth Switch* Disconnectors. The procedure applies to RMUs manufactured by A.E.I. and Ferguson-Palin with IVS type *Oil Switches*.

This procedure confirms in writing the method of applying *Safety Padlocks* to establish a **Point of Isolation** and the application of **Primary Earths** in order to allow the issue of a **Safety Document** for work or testing.

Plant Modification Instruction SWG-19-085 was issued in 2008 to provide a permanent solution by creating separate locking points for the *Oil Switch* and *Earth Switch* Disconnectors.

As of December 2010 all recorded RMUs in Energy Networks have been modified in this way and will not require the application of this interim procedure. See Appendix 1, Photograph 6.


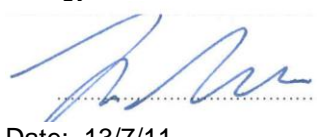
This procedure remains available for use if an unmodified RMU is discovered.

2. ISSUE RECORD

This document is not controlled. The current version is held on the Energy Networks Intranet.

Issue Date	Issue No	Author	Amendment Details
Apr 06	1 Published to Intranet Only	Geoff Ryan / Raymond Nelson	Initial Issue
Dec 2010	2	Phil Currie / Dave Naylor	Logo and format update. Update to reflect modification status of Energy Networks RMU population.

3. ISSUE AUTHORITY

Author	Owner	Issue Authority	Issue Authority
Name Phil Currie Title Operational Safety Manager	Name Phil Currie Title Operational Safety Manager	Name Andy Bird Title Health & Safety Director  Date: 7/7/11	Name Frank Mitchell Title Managing Director Energy Networks  Date: 13/7/11

4. REVIEW

This document shall be reviewed as dictated by business change. The proposed revision date can be viewed in the Management Safety Procedures Document Index DOC-00-238.

5. CONTENTS

1. SCOPE	1
2. ISSUE RECORD.....	1
3. ISSUE AUTHORITY	1
4. REVIEW	1
5. CONTENTS.....	2
6. RELATED DOCUMENT.....	2
7. DEFINITIONS	3
8. PROCEDURE	3
8.1 ISOLATION	3
8.2 EARTHING.....	3
8.3 SAFETY DOCUMENT ISSUE.....	4
8.4 RESTORATION	4
9. PERMANENT MODIFICATION.....	4

6. RELATED DOCUMENT

SWG-19-085 Modification of IVS 33kV *Oil Switches* to comply with operational practices

7. DEFINITIONS

Terms printed in bold type are as defined in the ScottishPower Safety Rules (Electrical and Mechanical) 4th Edition.

Terms printed in italics are as defined in the Definitions document (OPSAF-11-002) of the Management Safety Procedures.

The following terms, also printed in italics, are used in this document, as these are the descriptions used on fixed labels on the switchgear:

Oil Switch – The Circuit Switch Disconnecter (commonly referred to as the Ring Switch).

Earth Switch – The Earth Switch Disconnecter.

8. PROCEDURE

This interim procedure shall be implemented for 33kV RMU *Oil Switch* Disconnecters that have no separate locking off facilities for the *Oil Switch* and *Earth Switch*. The procedure is required for RMUs manufactured by A.E.I. and Ferguson-Palin with IVS type *Oil Switch* Disconnecters.

Refer to attached photographs – Appendix 1.

8.1 Isolation

- i) Where practicable, establish the first **Point of Isolation** at the remote end from the *Oil Switch*.
- ii) Open the *Oil Switch*.
- iii) Turn and remove Castell Key (A) from the *Oil Switch* (Position 1) and insert it into the *Earth Switch* mechanism (Position 2). Turn Castell Key (A) to lock it into the keyway. See Photographs 1 & 2, Appendix 1.
- iv) Apply a red *Safety Padlock* and **Caution Notice** to the shaft of the Castell Key (A) and place the **Safety Key** in the **Key Safe**. See Photograph 3, Appendix 1. This does not prevent the operation or removal of the Castell Key but serves as an indication that it must not be interfered with.

8.2 Earthing

- i) Confirm a **Point of Isolation** has been established at the remote end of the circuit.
- ii) Close the *Earth Switch* to “EARTH” (Circuit Earth Position).
- iii) Remove the Castell Key (B) from the *Earth Switch* and place in the **Key Safe**. See Photograph 4, Appendix 1.
- iv) Close the switch access cover.
- v) Apply a yellow *Safety Padlock* to the locking point of the switch access cover and place the **Safety Key** in the **Key Safe**.

8.3 Safety Document Issue

a) Permit for Work

When a **Permit for Work** is to be issued:

- **Safety Keys** and Castell Key (B) shall remain in the **Key Safe**.

b) Sanction for Test

When a **Sanction for Test** is to be issued either:

- The Castell Key (B); or
- Both the Castell Key (B) and the **Safety Key** of the yellow *Safety Padlock* can be issued with the **Safety Document** depending on the testing to be carried out.

Examples:

- i) For cable identification or phasing, only the Castell Key (B) is required as this allows the test access cover to be opened without giving access to the *Earth Switch*. See Photograph 5, Appendix 1.
- ii) For cable identification or phasing, fault location, or pressure testing from the remote circuit breaker, both the Castell Key (B) and the **Safety Key** of the yellow *Safety Padlock* must be issued to allow the *Earth Switch* to be opened.

8.4 Restoration

Restoration is the reverse of the above process.

9. PERMANENT MODIFICATION

A permanent modification to the *Oil Switch* mechanism was issued in SWG-19-085. The modification involves drilling a hole in the switch casing to allow a *Safety Padlock* and **Caution Notice** to be applied. This restricts the insertion of the operating handle into the *Oil Switch* mechanism on most units. On some units, due to tolerances, the handle can still be inserted but the *Safety Padlock* prevents operation.

RMUs modified in this way will not require the application of this interim procedure. See Photograph 6, Appendix 1.

APPENDIX 1 – PHOTOGRAPHS OF STAGES IN THE PROCEDURE



Photograph 1:

Identifying the Castell Keys and Positions.

Notes:

The white labels in the photos are not permanent features on the switchgear.

Castell Key "A" is captive when the *Oil Switch* is "ON".

Castell Key "B" is captive when the *Earth Switch* is "OFF".

Photograph 2:

Oil Switch in "OFF" Position and Castell Key "A" moved to Position 2.

Notes:

The removal and insertion of the Castell Keys may require some manipulation of the mechanism to allow the keys to turn easily.



Photograph 3:

Red *Safety Padlock* and **Caution Notice** applied to the shaft of Castell Key "A". The **Safety Key** of the Red *Safety Padlock* is placed in a **Key Safe**. This does not prevent the operation or removal of the Castell Key but serves as an indication that it must not be interfered with.



Photograph 4:

The *Earth Switch* has been closed to “Earth” position and Castell Key “B” turned and removed. A Yellow *Safety Padlock* has been applied to the switch access door. The **Safety Key** of the Yellow *Safety Padlock* and Castell Key “B” are placed in a **Key Safe**.

Photograph 5:

Under a **Sanction For Test**, Castell Key “B” may be required to gain access to the “Injection Test Terminals” located on the side of the RMU Switch Disconnecter.



Photograph 6:

The permanent modification involves drilling a hole in the switch casing to allow a *Safety Padlock* and **Caution Notice** to be applied. This restricts the insertion of the operating handle into the *Oil Switch* mechanism on most units. On some units, due to tolerances, the handle can still be inserted but the *Safety Padlock* prevents operation. RMUs modified in this way will not require the application of this interim procedure.