



MINISTRY OF DEFENCE

Defence
Infrastructure
Organisation

SAFETY ALERT

Subject: Reyrolle 11 kV Hadrian (SMV) Circuit Breaker

Number: SA 14/11

DIO Secretariat Sponsor: RA Cawthorne

Date of issue:
08 December 2011

Contact if different from above Sponsor:

Hom Limbu

Professional & Technical Services, Hard FM
Defence Infrastructure Organisation
Kingston Road, Sutton Coldfield, West Midlands B75 7RL

Tel: 94421 3214/0121 311 3214 Email: DIOOpsNorth-PTS8d@mod.uk

Who Should Read this:

Who Should Read this: CEstOs, Top Level Budget Holders, Project Sponsors, MOD Project Managers and others within the IPT (for both Prime, PFI/PPP and traditionally procured contracts), Defence Estates Advisors and Property Managers/Site Estate Representatives with responsibility for MOD projects and Property Management Works Services (including the legacy work of EWCs/WSMs) Coordinating Authorising Engineers, Authorising Engineers Electrical, Authorised Persons Electrical, purchasers and installers of final electrical distribution equipment.

When it takes effect: Immediately

When it is due to expire: No Expiry
except on update.

Health and Safety

Document Aim:

To impose immediate operational restrictions on Reyrolle 11 kV Hadrian (SMV) Circuit Breaker.

1. Introduction

- a. COMPLIANCE WITH THE CONTENTS OF THIS ALERT WILL ENABLE COMPLIANCE WITH THE HEALTH & SAFETY AT WORK ETC ACT 1974 AND ITS SUBORDINATE REGULATIONS.
- b. The appropriate MOD officer shall arrange for the Maintenance Management Organisation (MMO) contractor to carry out all actions in accordance with this Alert.
- c. Any work required as a result of this Safety Alert must be carried out in accordance with JSP 375 Volume 3 – MOD's Safety Rules & Procedures.
- d. On MOD Establishments occupied by United States Visiting Forces (USVF) responsibility is jointly held by USVF and DIO (USF). At base level this jointly managed organisation is to take appropriate action to implement the contents of this Alert. Where this Alert contains procedures which differ significantly from USVF practice DIO (USF) code of practice will be issued.

2. Background

- a. This Safety Alert has been raised in response to Dangerous Incident Notification (DIN) 2011/0059/00 dated 10 Nov 11 and Suspension of Operational Practice (SOP) 2011/0375/01 (Update) dated 5 Dec 11 issued by the Energy Networks Association.
- b. DIN 2010/0017/02 (Update) notified the following incident:
 - During isolation of a first leg fault, staff had difficulty in removing the circuit breaker from the housing. With the circuit breaker finally withdrawn it was evident that the busbar shutter had dropped down on to the bushings of the circuit breaker and become wedged at the back of the female contacts.
 - On closer inspection, the field staff found that a split pin and washer had fallen out of a locating dowel allowing the mechanism to fall apart. The busbar shutters fell onto the bushings, which are of metal construction and without epoxy sleeves, leaving exposed metal in contact with earthed metal work. The busbar terminations within the spouts were still live with approximately two to three inches clearance.
 - The field staff repaired the busbar shutter and replaced the washer and split pin.
 - Inspection of two further circuit breakers on the same section identified that both had split pins that had not been bent back and which were starting to fall out.

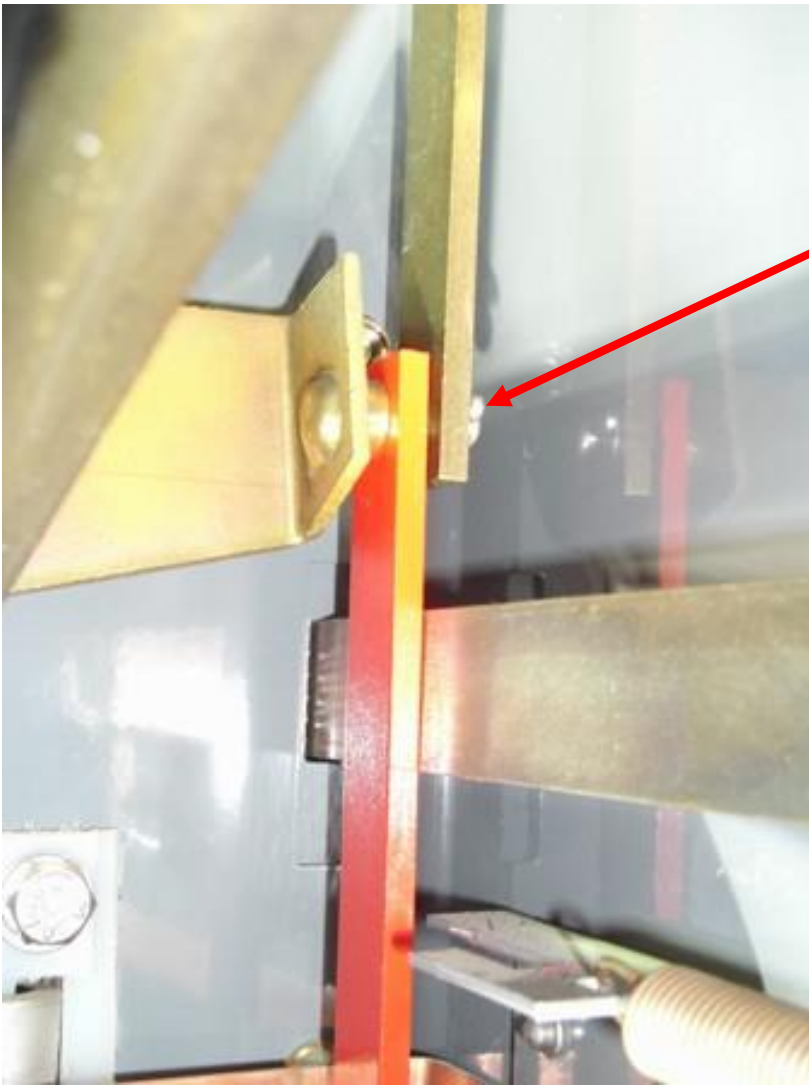
3. Requirement

- a. **URGENT:** Addressees of this Safety Alert are to bring its contents to the attention of their Authorising Engineers (Electrical) (AE(E)), or equivalent, in order to make them aware of the potential risks posed by Reyrolle Hadrian (SMV) Circuit Breaker which may be in service on their sites.
- b. **AE(E)s are to ensure that the restriction identified below is put in place with immediate effect.**

Product	Reyrolle 11 kV Hadrian (SMV) Circuit Breaker.
Manufacturer/Supplier	Reyrolle.
Problem	Split pins located in the shutter mechanisms may not be bent back to prevent the split pins from falling out and the shutter mechanism falling apart.
Scope	<p>The operational restriction shall apply to the Reyrolle 11 kV Hadrian (SMV) circuit breaker.</p> <ul style="list-style-type: none"> • Other bus-section, bus-coupler and transformer circuit breakers have a different design of shutter mechanism and therefore are not affected by the restriction.
Risk	Flashovers could occur while isolating the circuit breaker as a result of the busbar shutters dropping down onto the exposed metal bushings while these are in contact or close proximity to the live busbar or feeder contacts.
Action	<p>With immediate effect the following operational restrictions shall apply:</p> <ol style="list-style-type: none"> 1. The Reyrolle Hadrian (SMV) circuit breakers shall only be withdrawn from the service position when the busbar and feeder contacts are dead. 2. The operational restriction can be removed by the AE(E) once checks on the integrity of the shutter mechanism have been carried out. 3. Checks are to be carried out on the four split pins located in the shutter mechanisms to ensure that they are bent back fully preventing the split pins from falling out and shutter mechanism falling apart. 4. Due to the position of some of the split pins (see photographs below) on the busbar and feeder shutter mechanism, a full inspection cannot be carried out without withdrawing the circuit breaker truck from the housing, and therefore a busbar and circuit outage is required. 5. On both the circuit shutters and busbar shutters, visually check all split pins and dowels on both ends of the feeder and busbar shutter mechanisms to ensure that the split pins: <ul style="list-style-type: none"> • Are located fully in the hole in the dowel; • Are orientated with the legs of the split pin in view; and • Have both legs of the split pin bent firmly round the dowel.



Split pins located here require checking to make sure legs are bent fully.



Lower split pin location for the busbar shutters.



Split pin locations for upper locations