Safety Notice

Health and Safety Warning Notice 98/16


SUBJECT CONTACT POINT:
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AD Industrial Processes
Technical Standards Directorate
Sutton Coldfield Mil Ext 2169
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NOTICE AUTHORISED BY:
P D Meakin
AD Industrial Processes

Date:
9/7/98

DEFENCE ESTATE ORGANISATION
MINISTRY OF DEFENCE
Safety Notice 98/16

High Voltage 11 kV electricity distribution equipment: Reyrolle LM23T, LM36T and LMI Oil filled Switchgear.

INTRODUCTION

1. THE CONTENTS OF THIS NOTICE ARE TO SECURE COMPLIANCE WITH THE HEALTH & SAFETY AT WORK ETC ACT 1974.

2. This Notice is for the attention of Commanding Officers, Chief Executives, Heads of Establishment, Property Managers, Defence Lands Agents, Establishment Works Consultants (EWCs), Works Services Managers (WSMs), Authorising Engineers, Authorised Persons and Contractors, involved in works for MOD.

3. This Notice is to be read by all persons involved with any works associated with the equipment that is the subject of this Notice. No work involving expenditure on an MOD account is to be carried out without authority from the Property Manager or the appropriate MOD officer for that location or facility.

4. Any work required as a result of this Safety Notice must be carried out in accordance with MOD Safety Rules and Procedures as applicable.

5. The Co-ordinating Authorised Person, or other responsible person, is to notify the Property Manager:

   of the location of any equipment which exists on the establishment and is subject to this notice as soon as it has been identified;

   and

   when the relevant modifications are completed, that the appropriate remedial action has been carried out.

6. Defects are to be immediately reported to the Property Manager and the applicable Authorising Engineer who must impose appropriate operating restrictions on the equipment that is the subject of this Notice, until remedial action is completed.

7. For MOD Establishments occupied by United States Visiting Forces (USVF), the responsibilities of Property Manager, EWC and WSM are jointly held by the USVF and DEO(USF). At base level this jointly managed organisation is to take appropriate action to implement the contents of this Notice. Where this Notice contains procedures which differ significantly from USVF practice, a DEO(USF) Code of Practice section will be issued.
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REQUIREMENT

8. ACTION ADDRESSEES ARE TO ENSURE THAT THIS INFORMATION IS PASSED TO THEIR PROPERTY MANAGERS OR OTHER RESPONSIBLE OFFICERS WITHOUT DELAY

9. Only remote controlled live switching is permitted on this equipment until the manufacturer's recommended procedure has been carried out, and this operational restriction lifted by the Authorising Engineer, or other responsible person.

10. This equipment must not be used for earthing purposes until this operating restriction has been lifted.

RECOMMENDATION

11. The manufacturer's recommended procedure for inspection and appropriate remedial action should be carried out. Full details are attached at Annex A.

BACKGROUND

12. An Electricity Association Notice has been received advising of a suspension of operating practice following a further incidence of a problem which first arose during 1984. During a switch to "off" operation, a damping dashpot assembly seized, preventing the contacts from opening fully and leading to a disruptive failure.

13. Whilst the problem is rare, the consequences can be very serious.

14. Details of remedial action were sent out by Reyrolle in 1984, but clearly not all items of switchgear in this range have had the appropriate modification carried out.

END OF SAFETY NOTICE
Annex A - Information provided by Reyrolle Switchgear
LM23T, LM36T AND LMI SWITCHGEAR

INFORMATION, RECOMMENDATIONS AND INSTRUCTIONS.

SUMMARY
This document relates to EA SOP 206 raised on type LM23T, LM36T and LMI Switchgear circuit breakers and the long term maintenance of dashpot washers.

THIS INFORMATION DOES NOT APPLY TO TYPE LMT2 SWITCHGEAR.
BACKGROUND

1) DASHPOT BUFFER WASHER

SOP 206 was raised following an internal fault on a LM23T circuit breaker manufactured in 1974. Investigation has revealed this was probably due to the opening spring dashpot piston seizing within the cylinder resulting in incomplete travel of the main contacts.

The dashpot contains a PVC buffer washer which is immersed in oil and over a long period of time, the plasticizer in the PVC can migrate into the oil, in some cases causing shrinkage and hardening of the washer. Subsequently the washer could become loose and displaced and due to the impact of the piston it could disintegrate.

LM23T / LM36T / LMI Circuit breakers were manufactured between 1960 and 1976 and can be easily identified from the data label by the article number 861A---- and / or a constructional number X2 to X22.

LMT2 Circuit breakers NOT AFFECTED were manufactured between 1973 and 1997 and can be identified from the data label by an article number 971A---- and / or a constructional number X30, X31, X32 or X33.

RECOMMENDATIONS / INSPECTION / ACTIONS.

Although the incident rate is low (second recorded incident) the consequences could be severe therefore all buffer washers over 12 years old should be replaced.

This affects LM23T LM36T and LMI Switchgear, all use the same type buffer washer.

A replacement buffer washer is now available of superior material which will have a life of at least 20 years:

Instructions for the replacement of buffer washers are attached. For further information please contact:

Dick Richardson
Spares
Reyrolle Switchgear
Tel No. 0191 4019494
Fax No. 0191 4015353
LM23T, LM36T AND LMI SWITCHGEAR

INSTRUCTIONS FOR THE REPLACEMENT OF OPENING SPRING DASHPOT BUFFER WASHERS AND THE INSPECTION OF TURBULATOR POTS

The opening spring dashpot arrangement is accommodated on the underside of the circuit breaker top-plate see Fig. 1. One dashpot is fitted to LM23T and LMI Switchgear. Two dashpots are fitted to LM36T Switchgear.

TO GAIN ACCESS:
1) Remove circuit breaker from enclosure. See IOMS 577 3.9.4

2) Ensure mechanism closing spring is discharged (QM QMRO).

3) With the C.B. in the fully lowered position, use ratchet spanner to lower tank evenly to the floor.

4) Close C.B. main contacts slowly. See IOMS 577 4.4

5) Push C.B. clear of tank and slowly open main contacts.

6) Remove the three turbulator pots by releasing the locking devices and rotating.

TO GAIN ACCESS TO INTERIOR OF DASHPOT

NOTE.
The open position of the moving contacts is set by the location of the dashpot piston within the cylinder therefore, EXTREME CARE MUST BE TAKEN BY MEASUREMENT OR MARKING, TO ENSURE THAT THE PISTON BASE IS RE-FITTED EXACTLY IN ITS ORIGINAL POSITION.

7) Remove nipple screw and OBA fixing screw from base of dashpot to allow removal of retaining bar or plate.

8) Unscrew base of dashpot from cylinder.

NOTE.
Spring is under compression but load will be light.
9) Examine and ensure interior of cylinder and piston moving surfaces are clean and free from corrosion, damage or contamination.

10) Remove existing PVC buffer washer from base, ( ensure groove is clean and free from fragments of old washer ) and replace with GACO rubber washer article No 861A235Y.

11) Valve washer should also be examined but as this is manufactured from nitrile rubber this need not be replaced unless damaged.

12) Screw dashpot base back to original position.

13) Refit dashpot base retaining bar or plate.

14) Refit dashpot locking and nipple screws.

IT IS ASSUMED MECHANISM, HINGE BLOCK AND MAIN CONTACT SETTINGS HAVE NOT BEEN ADJUSTED OR ALTERED DURING OR PREVIOUS TO THIS REPLACEMENT.

15) Refit turbulator pots and tank ( WITH CLEAN OIL TO BS148 ) SPEED CURVES SHOULD BE TAKEN TO VERIFY THAT CORRECT RE-ASSEMBLY OF DASHPOT HAS BEEN CARRIED OUT.
FIG. 1
Cross-section view of a 1,200 ampere 250 MVA 11-kV circuit-breaker.
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Distribution List

ACTIONS:
All TLBHs (please copy and distribute to all your Property Managers).

DEO USF FAO: Safety Manager

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Co-ordinating Authorising Engineers
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D MOD FS
IT(Strat)A2 DGITS
MOD Police - Wethersfield
MOD Police Sec - ESB

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HEALTH AND SAFETY WARNING NOTICES -  
A CUMULATIVE LIST FOR 1998

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Alternatively, single copies may be requested from:

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