

Health and Safety Executive OC 483/23

Field Operations Division

To

Agricultural, Factory & Quarries Inspectors

FCG Specialist Inspectors (Electrical)

MERLIN GERIN TYPE DA 415V SWITCHGEAR

The purpose of this OC, which is based on THSD Minute A1/T/2/1992, is to alert electrical specialists to the latest advice on this type of switchgear and to inform Agricultural, Factory and Quarries inspectors of the potential problems associated with this equipment.

1 In June 1987, following incidents off-shore, THSD issued Minute TD1B/T/13/1987 detailing problems on this type of equipment.

2 It is understood that many hundreds of units of this type of switchgear are installed on-shore. These may be found in all situations, ie both in industry and commerce. Unfortunately there is no composite list of locations/sites available from the manufacturer.

3 Further advice in the form of a safety notice is now available from the manufacturer. It is reproduced in the appendix and emphasises the importance of correct maintenance handling procedures. The manufacturer has also produced a service manual supplement covering the problems.

Action

4 Where Agricultural, Factory and Quarries inspectors learn that this type of switchgear is installed at premises they should check that the user is aware of the latest advice issued by the manufacturer. They should also inform their FCG electrical inspector who will contact the user to establish that the required maintenance procedures are in place.

5 A full copy of the report from Merlin Gerin resulting from the investigations by PED in 1987 and subsequently is retained by THSD A1B.

10 March 1992

(1311/FOD/1992)

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ASI headings

Switchgear.

APPENDIX

(para 3)

INVESTIGATION INTO THE CAUSE OF DAMAGE TO MERLIN GERIN DA AIR CIRCUIT BREAKERS INSTIGATED BY THE DEPARTMENT OF ENERGY ISSUING A SAFETY NOTICE

P D GALBRAITH

EPO26/1 DECEMBER 1991

SAFETY NOTICE

Merlin Gerin 415V Type DA Circuit Breakers

Safety Notice 2/87 is withdrawn and superseded by this safety notice.

The investigation into the failure of Merlin Gerin DA circuit breakers has been completed. Merlin Gerin have issued their final report dated December 1991 together with a supplement to their service manual.

No one single cause for the failure was identified. It became clear during the investigation that distortion of the female contacts leading to failure could arise for a variety of reasons, e.g.

- 1 Incorrect handling of the devices
- 2 Damage to the clusters
- 3 Overtightening of the cluster fixing screws
- 4 Contact pressure springs mis-aligned
- 5 Distortion in the enclosures
- 6 Incorrect maintenance

Owners should ensure that the personnel carrying out maintenance of MG DA circuit breakers are aware of the correct maintenance handling procedures, that lifting equipment is in use when carrying out maintenance of these circuit breakers, and that the female contacts are inspected prior to placing the circuit breaker carriage into the cubicle.

Problems found with ndistortion of the circuit breaker frame, charging handles and shuttering appear to relate to handling and quality control during construction and commissioning and these issues should have been addressed in precommissioning procedures.

This type of circuit breaker is no longer in production.

Information regarding the investigation report, maintenance procedures or training should be obtained directly from

Merlin Gerin Ltd

Stafford Park 5

Telford, Shropshire TF3 3BL

Tel: (0952) 290029 Fax (0952) 290534

Address all enquiries to

Mr P D Galbraith, Technical Manager LVCB

ENGINEERING INFORMATION

DA
circuit-breaker
service manual
supplement

BULLETIN NO 1

**THE PROBLEM**

In February 1987 the Department of Energy (DOE) issued Safety Notice 2/87 as a result of the discovery of physical damage to the main female busbar connections (CLUSTERS) of a DA drawout type Air Circuit Breaker installed on an Off-Shore Installation. The notice did however state that no conclusion had been reached and that it was recommended that the owners should discuss the maintenance and handling routines directly with Merlin Gerin.

The problem being related to Off-Shore installations only.

INVESTIGATIONS

Merlin Gerin were instructed by the DOE to address the problem and collect the information fed back from the Oil Companies in order that remedial action could be agreed upon and recommendations made to the DOE for circulating to the Off-Shore Operators.

PROBLEM IDENTIFIED

Investigation into the problem revealed a number of contributory factors, the majority being physical damage to the circuit breaker, mainly in the area of the Clusters. This was due to the mis-handling of the breakers during maintenance and in some cases during the original installation and commissioning.

REMEDIAL ACTIONS

Having identified the area which could lead to problems, a

programme of remedial actions had to be agreed upon and recommendations made to the Off-Shore Operators.

SITE SERVICE AND MAINTENANCE

All Off-shore Installations which were identified as having DA breakers on-board were inspected and a report prepared in accordance with Merlin Gerin "Site Service and Maintenance Instructions" either by Merlin Gerin or the Operator's personnel. This information was the basis for the report later to be forwarded to the DOE.

A repeat visit at 6/12 months later revealed no change in any of the installations.

INVESTIGATION REPORT

Upon completion of the investigation into the Clusters fitted to DA Air Circuit Breakers on Off-Shore Installations a report was presented to the DOE. As a result of that report Merlin Gerin have prepared a supplement to their DA circuit breaker Service Manual.

FUTURE ACTIONS

The DA Circuit Breaker Service Manual Supplement gives in detail the recommended procedures for the handling and inspection of Merlin Gerin DA Air Circuit Breakers when carrying out maintenance together with details of special tools and spare parts required, in accordance with the revised DOE/HSE Safety Notice.