



Defence
Infrastructure
Organisation

Safety Alert Part A, B, & C

Subject: Overheating of Electrical Fan Motors & Electrical Invertor Motor Drives

Number: SA 2018/07

DIO Sponsor: Bryan Dunn

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This Safety Alert is to be read by the following so appropriate action can be taken:

1. DIO Service Manager (or equivalent for non-NGEC contracts)
2. DIO's Maintenance Management Organisations
3. Others

Others interested in the content of this Safety Alert might include:

Prime Contractors, Private Finance Initiatives, Public-Private Partnership and other traditionally procured contracts, Infrastructure Managers and Property Managers with responsibility for MOD projects and Property Management Works Services (including the legacy work of EWCs/WSMs), Health & Safety Advisors, Accommodation Managers and providers of Alternative Living Accommodation.

When it takes effect: Immediately

When it is due to expire: When updated or rescinded.

Health and Safety

This Safety Alert does not necessarily cover all aspects of the subject matter and readers should make themselves aware of other potential issues. Readers should also not rely on DIO publications as their only means of becoming aware of safety, operational or technical issues, but they should consult widely across other media to maintain awareness.

Aim

1. To bring to the attention of appropriate person's the importance of undertaking Planned Preventive Maintenance (PPM) tasks on electrical supply and extraction fan motors, and inverter motor drive units. When undertaking PPM tasks there is a need for vigilance to ensure that filters, cooling fins, and fans etc. are free from accumulated dust that reduce cooling performance and can result in the equipment overheating posing a fire risk.

Introduction

2. Compliance with the contents of this Safety Alert (SA) will enable compliance with the Health & Safety at Work etc. Act 1974 and its subordinate Regulations.
3. The appropriate MOD officer shall arrange for and ensure the Maintenance Management Organisation (MMO) contractor to carry out all actions in accordance with this Alert.
4. Any work required because of this Safety Alert must be carried out in accordance with JSP 375 Part 2 Volume 3 – High Risk Activities on the Defence Estate.
5. 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 Safety Alert.

Background

6. This Safety Alert follows the investigation of a number of recent incidents involving electrical supply and extraction fan motors and inverter motor drive units for heating ventilation and air conditioning (HEVAC) systems overheating causing burning and smoking of the units.
7. The investigation failed to find evidence of routine inspection or maintenance expected for these types of units. This subsequently resulted in dust building up on the motors and inverter drives which contributed to the units overheating. It was also identified that better selection and use of air filters could have prevented the ingress of dust.



Photograph 1 showing the damage resulting from the overheating of the electrical Inverter Drive Motor



Photograph 2 showing dust build-up in the Air Handling Unit

Requirement

8. All electrical motors and inverter drives used with in HEVAC systems, should be subject to PPM which will include as a minimum, electrical and mechanical inspection, testing and cleaning and any other manufactures requirements.
9. HEVAC systems must have the correct filtration installed and maintained to prevent dust build-up giving rise to environmental hazards.
10. During maintenance and inspection activities any non-standard components or unapproved modifications to the system should be identified.
11. Any work incurring expenditure of MOD funding requires appropriate authority from the MOD officer responsible for the establishment.

Part A

12. The MMO, on direction from the DIO Service Manager or Equivalent, shall initiate the following tasks:
 - a. Identify all the systems and their locations where electrical supply and extraction fan motors and inverter motor drive units are installed.
 - b. Confirm that the units are on the asset register and are subject to an appropriate PPM schedule and that the maintenance, inspection and testing is in date.
 - c. Where units are found that have not been subject to PPM, or where unapproved modifications are identified, or where non-standard components such as incorrect air filters, have been fitted, a risk assessment should be undertaken and recorded to determine:
 - The risk of continued operation prior to necessary rectification;or
 - That isolation and taking out of service is necessary until the appropriate rectification has been completed.
13. The MMO is to notify the DIO Service Manager, the HoE, and the establishment 4Cs Duty Holder where defects are identified with the details of any isolated units. The 4Cs risk register should be suitably annotated.
14. The MMO is to notify the DIO Service Delivery Performance Management Team, DIO SD-Perf Mgt Team (MULTIUSER) account, through their respective DIO Service Manager

identifying the location, quantity and model number of units with defects. A nil return is required.

15. The data requested in **Part A** is required by 30th September 2018, and will be reviewed on the 15th October 2018.

Part B.

16. Any electrical supply and extraction fan motors and inverter motor drive units isolated under **Part A** of this Safety Alert are not to be returned to service until it has been subject to appropriate maintenance, testing and inspection and all defects identified are rectified.
17. Where the risk assessment results in the system being left in service, any control measures identified by the risk assessment must be put in place and monitored until the required rectification has been undertaken.
18. The MMO is to notify the DIO Service Manager, the HoE, and the establishment 4Cs Duty Holder when any unit is returned to service.

Part C.

19. The MMO is to notify the DIO Service Delivery Performance Management Team, DIO SD-Perf Mgt Team (MULTIUSER) account, through their respective DIO Service Manager of the date action detailed in **Part B** was completed.