



Maritime and Coastguard Agency

MGN 132 (M+F)

Electrical Equipment, Maintenance and Incidents

Notice to Shipowners, Masters and Ships Officers.

This M Notice supersedes M 1163

Summary

This Marine Guidance Notice is to draw attention to incidents involving electrical equipment, maintenance responsibilities and the use of thermographic imaging as a maintenance tool.

1. Attention is drawn to the need for all electrical equipment used in ships to be maintained with due considerations to the conditions of service and in particular, vibration and mechanical shock to which it might be subject in normal shipboard service.
2. A number of incidents reported to the Agency indicate that ships and personnel have been placed in unnecessary danger due to connections and parts of electrical equipment becoming loose in service. In one such incident an electrical Officer was injured whilst removing debris from an overheated fuse assembly on a High Voltage Switchboard. Overheating was the result of a loose cable connection.
3. Incidents illustrated in previous M Notices and in recent casualty reports highlight the need for more reliable equipment. Equipment often failed due to either inadequate design, maintenance or failure to utilise the correct equipment:
 - a. A report of a switchboard fire on an offshore stand-by vessel referred to many loose connections.
 - b. Loose connections on the steering gear position transmitter of a general cargo ship caused a failure of the control system and loss of steering, leading to collision with another ship.
 - c. Loose parts of a switch fuse became detached, fell onto bus-bars causing an arc which resulted in a main switchboard fire, complete loss of electrical power and propulsion. This incident involved a passenger ship in severe weather conditions and was potentially extremely serious. Subsequent investigation revealed that similar parts on a number of other switch fuses in the same switchboard were also loose.
 - d. A switchboard fire on a tanker caused by overheating of loose contacts on a motor starter.
4. Once equipment is in service those, responsible for its operation and maintenance should ensure that it is examined at regular intervals so that any wear or other deterioration which could eventually lead to overheating or disintegration, is detected before any serious consequences arise.
5. It is apparent from the number of reported incidents that ships personnel have, at times, been placed in unnecessary danger. In order to identify potential overheating situations in electrical equipment, owners are advised to consider the use of 'thermal-imaging techniques as a means of verifying the security of electrical connections and pin point problem areas at an early stage.

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