



# Marine Safety Information Bulletin

Ninth CG District Commander  
U.S. Coast Guard  
Inspections and Investigations Branch  
1240 E. Ninth St.  
Cleveland, OH 44199-2060

MSIB Number: 001-16  
Date: March 21, 2016  
Contact: LT Michael J. Collet  
Phone: (216) 902-6051  
Email: Michael.J.Collet@uscg.mil

## Electrical Systems

**BACKGROUND:** Coast Guard marine inspectors in Sector Lake Michigan have discovered that a number of vessels have had significant electrical deficiencies. Some of the discrepancies noted pose significant hazards. A recent marine casualty causing nearly \$4 million dollars in damage revealed multiple electrical deficiencies which are believed to have been significant contributing factors to the casualty. Some examples of discrepancies include:

- *Dead ended wiring:* When equipment is changed and/or removed new wiring is installed. Often the old wiring is not removed or properly put in a junction box. This poses a shock hazard if the wiring is still energized.
- *Compromised watertight integrity:* When wiring that penetrates a watertight bulkhead is replaced the penetration must be made watertight. If it is not properly address the watertight integrity and fire boundary of the space becomes compromised.
- *Wire Chafing:* Wire runs that are susceptible to vibrations and movements need adequate protection in way of pinch points and rub hazards. Excessive wear can compromise the sheathing and insulator. This can cause a circuit short or fault and in some cases result in a component failure and/or fire.
- *Deteriorated wiring:* wiring exposed to water can become deteriorated over time compromising the integrity of the sheathing and insulator. This can cause a circuit short or fault and in some cases result in a component failure and/or fire.

**RESPONSIBILITY:** Ultimately, the master is responsible for the vessel's safety. Routine inspections of the vessel's electrical systems should be conducted. It should not be assumed that all discrepancies are identified during fit-out exams. Some items require attention and troubleshooting beyond the scope of an annual exam. Wiring and cable trays exposed to the weather or water pose a greater risk. Any issues found should be corrected immediately. Servicing and maintenance of electrical systems should be conducted by appropriately trained personnel and in accordance with applicable regulations and standards.

**ACTION:** Vessels with electrical deficiencies pose a serious safety risk. The Officer in Charge of Marine Inspection has considerable discretion in expanding examinations when deficiencies are found. In light of a recent marine casualty and various electrical deficiencies found during the lay-up period Coast Guard marine inspectors in Sector Lake Michigan will spend additional time examining electrical systems to ensure they are satisfactory. They may require additional testing and demonstrations if not satisfied with the condition of the equipment in question.

**Below:** (Left) Wiring exposed to weather on main decks and super structures are susceptible to deterioration. Wires were heavily deteriorated on side that was in contact with steel framing. (Right) Deterioration was not noticeable until wires were pulled away from deck.



**Below:** (Left) Watertight integrity between SPAR deck and upper walking tunnel compromised. Wiring was being exposed to water and subsequently deteriorating over time. Wiring group from distribution panel passes through sheet metal penetration to overhead wire way. (Right) Chafing can cause excessive wear to sheathing and insulator and ultimately failure of the wire.



**REFERENCES:** 46 CFR Subchapter J; ABS Steel Vessel Rules, Part 7, CH 6/Section 2

**CONTACTS:** Questions about electrical requirements should be directed to Sector Lake Michigan at (414)-747-7100.

*This release has been issued for public information and notification purposes only.*