Marine Information Bulletin

Commercial ships – Electrical standards and licences

Issued 12 January 2007, last reviewed 25 November 2010

Background

Purpose

This bulletin has been raised to answer questions asked by ship owners, operators and masters, ship designers and builders, marine surveyors and others involved with commercial ships regarding the standards applying to electrical installations on ships and work that must be performed by appropriately licensed electrical workers. Monitoring of commercial ships has revealed substandard electrical installations and electrical work not covered by certificates of compliance and apparently performed by unlicensed persons.

Definitions

electrical contractor licence
is a licence issued by the Electrical Safety Office authorising a person to conduct a business or undertaking that includes the performance of electrical work

electrical work licence
is a licence issued by the Electrical Safety Office authorising an individual to perform electrical work

electrical mechanic licence authorises the holder to perform all electrical work

electrical fitter licence authorises the holder to perform all electrical equipment work

electrical work
is work at voltages above extra-low voltage, work on cathodic protection systems and work at extra-low voltage in hazardous locations. Electrical work includes testing and supervising electrical work

voltages

extra low voltage (ELV) means voltage of 50 Volts or less alternating current (a.c.) RMS or 120 V or less ripple-free direct current (d.c.)

low voltage (LV) means voltage greater than extra low voltage but not more than 1000 V a.c. RMS or 1500 V ripple-free d.c.

Questions

What are my responsibilities regarding electrical installations on ships?

Owners and masters, accredited persons and others involved with ships have general safety obligations under sections 40 and 41 of the ***Transport Operations (Marine Safety) Act 1994*** (Act) regarding the condition of ships, including the condition of the electrical installation.

The ***Transport Operations (Marine Safety—Designing and Building Commercial Ships and Fishing Ships) Standard 2006***, made under the Act, provides guidance on complying with the general safety obligations imposed under the Act. This standard requires that a ship's electrical installation and electrical work onboard must comply with the provisions of the ***Electrical Safety Act 2002*** (ESA).

The ESA provides that a person must not perform or supervise electrical work unless the person is the holder of an electrical work licence. Also, a person must not conduct a business or undertaking that contracts for the performance of electrical work other than under a contract of employment unless the person is the holder of an electrical contractor licence. A licensed electrician must ensure that electrical work is in accordance with **Australian/New Zealand Standard 3000** known as the **wiring rules** (AS/NZS 3000).

How can I meet my responsibilities regarding the electrical installation on ships?

Complying with the electrical standards and ensuring that electrical work on ships is performed by a licensed electrician is a way for owners and other persons involved with ship's electrical systems to meet their general safety obligations.

Certificates of compliance issued by accredited ship designers and marine surveyors are required for first commercial or fishing ship registration and for any new electrical work.

What standards apply to electrical installations on ships?

Licensed electricians must ensure that electrical work is in accordance with the wiring rules.

New provisions in AS/NZS 3000: 2007, clause 7.8.2.4, apply to marinas and recreational boats. Note 2 of clause 7.8.2.4, refers to NSCV C 5B Electrical.

The **National Standard for Commercial Vessels – Part C Construction – Subsection 5B Electrical Edition 2** (NSCV C 5B) was published by the National Marine Safety Committee on 1 December 2005. This standard was developed to promote greater reliance on AS/NZS 3000 Electrical

Installations. NSCV C 5B Ed 2 provides additional requirements and variations to AS/NZS 3000 necessary to reflect the requirements of the marine industry and the particular environment on ships while satisfying the safety requirements of section 1 of AS/NZS 3000.

Amendment 6 of the USL code commenced on 1 October 2008. This amendment introduces NSCV C 5B for the design and installation of electrical systems on new ships, and new work on existing ships.

Electrical installations on ships commenced prior to the commencement of the 2008 USL code may continue to be assessed under the USL Code electrical provisions provided the installation complies with the ESA, safety is not compromised and no new work is involved.

Will the electrical installation on an imported ship comply?

Imported ships complying with IEC/ISO standards, classification society rules or other known standards will comply with the fundamental safety requirements of section 1 of AS/NZS 3000. Compliance with section 1 of AS/NZS 3000 is mandatory and if there are issues of conflict between these other standards and AS/NZS 3000 or NSCV C 5B, for example, cable colour codes in low voltage installations of American built ships, if not resolved under AS/NZS 3000: 3.8 will require resolution on a case by case basis by Maritime Safety Queensland in consultation with the Electrical Safety Office before acceptance for compliance.

Any person selling an imported ship, including an import agent, must ensure that the electrical equipment on board complies with Queensland legislation. Prescribed electrical equipment includes such items as circuit breakers, switches, safety switches, refrigerators and microwave ovens. Information about the requirements for approval of electrical equipment and examples of identifying approval marks on electrical equipment is available on the Electrical Safety Office website.

Does a ship under 6 metre in length need to comply?

A ship under 6 metre in length of class 1F, 2C, 2D or 2E operating in smooth or partially smooth waters, or within 15 nautical miles from land, may be registered if the application is accompanied by a statement of positive flotation and a statement that the ship is suitable for its intended use. Owners, operators and accredited persons are reminded that these ships must still comply with the standards and the need for licensed electricians applies to low voltage electrical installations on all ships.

What about maintenance and repairs to the electrical installation on a ship?

Maintenance and repairs to low voltage electrical installations on ships is electrical work and may only be performed by a licensed electrician.

Information

Marine safety legislation is available on the Maritime Safety Queensland website at www.msq.qld.gov.au

Copies of the ***Electrical Safety Act 2002***, the ***Electrical Safety Regulation 2002, Codes of Practice*** and other publications regarding obligations for electrical safety are available as downloads at the Electrical Safety Office website at www.eso.qld.gov.au or from:
Electrical Safety Office
Electrical Safety Office
Department of Justice and Attorney-General,
Level 16, State Law Building, 50 Ann Street, Brisbane QLD 4000
Tel. 1300 650 662

The National Standard for Commercial Vessels is available for free download at the National Marine Safety Committee's website at www.nmsc.gov.au.

Australian Standards are available from SAI Global Ltd. SAI Global can be contacted by phone on 13 12 42, by email at sales@sai-global.com and their website is www.saiglobal.com.

For further information about this Marine Information Bulletin, email msqmail@msq.qld.gov.au.

Other Marine Information Bulletins covering various topics relating to the safe operation of ships can be obtained from Maritime Safety Queensland's website www.msq.qld.gov.au and from the following Maritime Safety Queensland regional offices:

Airlie Beach	(07) 4946 2200
Bundaberg	(07) 4131 8500
Cairns	(07) 4052 7400
Gladstone	(07) 4973 1200
Hervey Bay	(07) 4194 9600
Mackay	(07) 4944 3700
Mooloolaba	(07) 5477 8425
Pinkenba	(07) 3860 3500
Southport	(07) 5539 7300
Townsville	(07) 4726 3400