



# Electricity Industry Bulletin No: 55 September 2004

FOR THE ATTENTION OF ALL ELECTRICAL WORKERS

## 1. NEW AUSTRALIAN STANDARD TO IMPROVE THE SAFETY OF ELECTRICAL TEST EQUIPMENT

Following industry concerns around the safety of multimeters, clamp meters and voltage testers, Standards Australia has released a new Australian Standard to help improve the level of safety for electricians and others who use electrical test equipment.

The new Australian Standard, AS 61010.1 *Safety of Electrical Equipment for Measurement, Control and Laboratory Use (for voltages up to 1,000V)*, specifies minimum design safety and testing criteria for equipment connected to a circuit being measured or controlled.

Electricity Standards and Safety (ESS) would like to advise the electrical industry that it needs to be aware of the changes. Electricians need to remember that when they are purchasing electrical test equipment, price is not always the best guide.

The new Australian Standard sets out equipment labelling guidelines, which gives each product a measurement category from I-IV (one to four). The categories relate to the prospective fault current levels in the circuit to be measured and a voltage level (150, 300, 600, 1000V) that the test equipment is designed to safely withstand.

Selecting the category according to the application	
Category I – <b>low</b> energy circuits	Electronics use (Not on 240V circuits)
Category II – <b>medium</b> energy circuits	Domestic use + cars
Category III – <b>high</b> energy circuits	Industrial use
Category IV – <b>very high</b> energy circuits	Industrial use



The higher the category rating, the more robust the equipment needs to withstand the higher fault currents. The following is provided for guidance.

When selecting the voltage level it is also important to consider the voltage level above that of which you will be measuring. For example, for 240V circuits you need to select 300V or higher or for 415V circuits you need to select 600V or 1000V. Therefore, a multimeter required for industrial use that needs to measure 415V will be a "CAT III 600V" meter.

One way of helping to ensure a safer product is to look for conformity to the Australian Standard AS 61010.1 or IEC 61010.1, and ask the supplier for any supporting certification details.

As well as looking for compliance with the Australia Standard, you should always use the product in accordance with the manufacturer's operating and maintenance instructions.

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## 2. AUDITS OF ELECTRICAL CONTRACTORS

The 2003/04 round of electrical contractor audits revealed some areas of non-compliance.

Many contractors do not have all three amendments to the AS/NZS 3000 *Wiring Rules* and their *Aurora Service and Installation Guides* were out of date. Part 2 of the Guide (Regulatory Requirements) is available on the ESS website. Aurora Energy plan on making Part 1 available online around the end of the year.

Contractors are not always lodging EINs stating that the installation complies with Regulatory requirements (see the next article in this bulletin). In some cases, EWR forms are submitted to Aurora Energy but no EIN (for example when a new heat pump is installed).

ESS intends to cross-reference these two documents submitted to Aurora Energy and if anomalies exist, investigate why.

This area of non-compliance will not be tolerated and blatant breaches will be either:

- presented to the Disciplinary Panel which may recommend to the Delegate of the Regulator for action against the licence holder, or
- present the case to the Director for Public Prosecutions.

Some proactive contractors have created an area on the invoice in which to write the applicable EIN number. This can serve as a reminder to lodge notices and make it easier for you to cross-reference later.

## 3. NOTIFICATION OF ELECTRICAL WORK

The proposed amendments to the *Electricity Industry Safety and Administration Regulations 1999* that relate to the notification of electrical work are currently on hold, pending the development of the new Occupational Licensing Act.

The current legislative requirement to lodge Electrical Installation Notices (EINs) is stated in By-law 5 of the *Hydro-Electric Commission By-laws 1993* (S.R. 1993 No. 165) and By-law 5 of the *Hydro-Electric Commission By-laws 1994* (S.R. 1994 No. 110).

Historically it has been the practice of some electrical contractors to only lodge notices for work above a certain level of complexity.

In the absence of more definitive regulations, ESS advises that:

- the requirement to lodge notices for all electrical work remains, although it is not the intention of ESS (or

Aurora Energy inspectors) to insist on lodgement or pursue matters in relation to electrical work that is considered to be 'minor electrical work'

- 'minor electrical work' includes (but is not limited to) repairs and maintenance on existing installations, replacing equipment or components 'like with like' (generally less than 30 amps per phase) and adding electrical accessories to an existing circuit such as socket outlets or light fittings. Replacing a domestic upright stove with a similar single unit could also be considered to meet these criteria. Replacing an individual circuit breaker could be considered a repair
- 'minor electrical work' does not include (and is not limited to) installing a new circuit that originates at a switchboard, installing new equipment on a dedicated circuit installed by others, replacing a customer's switchboard and any alteration to consumers' mains or submains. Replacing a low-pressure hot water cylinder with a mains-pressure cylinder or replacing a domestic upright stove with a cooktop and oven as a split unit, is not considered to be 'minor electrical work'
- the requirement for all electrical work to comply with relevant standards remains
- electrical contractors must keep records of all electrical work performed regardless of how 'minor' it may appear.

Failure to comply with the above requirements will place you or your business in breach of current requirements.

## 4. DANGERS OF ROOF CABLING

ESS warns electrical technicians and contractors to beware of the potential for electric shock and fire in roof cavities due to the effects of thermal insulation. This is a timely reminder as there have been two fatalities after workers have been exposed to live parts.

Recently, an electrical contractor noticed a cable that was severely damaged and covered in insulation (see picture).



## CPR COMPETENCE

Employers and electrical workers are reminded of the importance of ensuring all electrical technicians have a current competence in Cardio Pulmonary Resuscitation (CPR). Please refer to the *Workplace Health and Safety Act 1995* (Section 9) and the *Workplace Health and Safety Regulations 1998* (Regulation 19) for further information on the obligations of employers and workers to ensure that they are working in a safe workplace and working environment.

The cable had exposed live parts posing a serious hazard – and didn't comply with clause 3.3 of the AS/NZS 3000 Wiring Rules.

ESS would like to remind electrical contractors of the requirements of AS/NZS 3000 *Wiring Rules*.

## 5. LIAISON AMONG TASMANIA POLICE, AURORA ENERGY AND ESS CONTINUES TO GET GOOD RESULTS

On 27 June 2003, Aurora Energy officers visited the Gardeners Bay home of Robert Charles Cook.



After liaison with officers from Tasmania Police and ESS, Mr Cook was charged with a string of offences:

- taking electricity without proper authority contrary to section 111(1) of the *Electricity Supply Industry Act 1995* (the ESI Act);
- unlawfully attaching an object to a transmission contrary to section 109 (1) (a) of the EIS Act;
- unlawfully interfering with an electricity supply from a distribution network contrary to section (109 (1) (b) of the EIS Act
- carrying out electrical work when not authorised by an appropriate licence or licence holder contrary to section 19 of the *Electricity Industry Safety and Administration Act 1997*.

On 14 April 2004 Mr Cook appeared in the Magistrates Court Hobart where Magistrate Willee, taking all charges together for the purposes of penalty, fined Mr Cook \$5,000 and ordered him to pay court costs of \$38.50.

## 6. AS/NZS 4836:2001 SAFE WORKING ON LOW-VOLTAGE ELECTRICAL INSTALLATIONS

This Standard outlines principles and procedures of safe work, organisation and performance on or near, low-voltage electrical equipment. It provides a minimum set of procedures, safety requirements and recommendations for a safe working environment on or near electrical equipment, installation or systems.

This Standard is a must for all businesses to include in their safety management portfolio. We expect that electrical contractors and electricians will adopt this

standard to provide direction towards setting minimum safety criteria when working on low-voltage installations.

This Standard will be used as a guide when assessing compliance, should an investigation be warranted for a serious electrical accident.

To order your copy, call Standards Australia on 6224 2380.

## 7. NEW PUBLICATIONS AVAILABLE

ESS has produced a new guide to being safe with electricity with RCD's: *A Switch to Safety*. This guide describes what RCDs are and how they protect you. The guide also explains:

- how RCDs should be installed in the workplace; how risk management can be used to remove or reduce the risk of electrical hazards in the workplace; and the legal requirements that are in place
- how RCDs can be used to protect you in the home.

A new safety bulletin has been produced called *A Guide to the operation of Mobile Plant or Equipment near Overhead Powerlines*. This safety bulletin:

- informs of the hazards associated with operating mobile plant and other equipment near overhead power lines and conductors
- provides guidance in the safe use and operation of plant and equipment near overhead powerlines and conductors
- provides general information regarding duties and obligations under the *Workplace Health and Safety Act 1995* and the *Workplace Health and Safety Regulations 1998* for safe systems of work associated with operating plant near power lines.

For a free copy of the *RCDs: A Switch to Safety*, and *A Guide to the operation of Mobile Plant or Equipment near Overhead Powerlines* call the Workplace Standards Helpline on 1300 366 322 or go to [www.workcover.tas.gov.au/node/PubsGeneral.htm](http://www.workcover.tas.gov.au/node/PubsGeneral.htm)



## SKILLS SURVEY

The Electrical Licensing Board (ELB) recognises that there will soon be a skills shortage of licensed electrical workers in Tasmania, and that this situation needed to be addressed.

The ELB has asked ESS to formulate a survey for employers, electrical contractors and licensed electrical workers to help identify the number of licensed workers that remain fully active in the trade, and those who are either part-time or non-active. This information can then be used to determine budget needs for future training programs, to assist those who may be looking to re-enter the industry, and to provide assistance in other training areas.

The survey will be mailed out to participants. It will also be available from the ESS website.

## 8. ELECTRICAL INVERTERS

Workplace Standards Tasmania has produced a safety alert on Electrical Inverters.

### Details

The above inverter is an electronic device that when connected to a 12 volt or 24 volt battery, changes the electrical characteristics to 240 volts. This enables the use of 240 volt electrical appliances.

Inverters are normally used where a 240 volt electricity supply is unavailable.

Reports have been received of incidents and a fatality (not in Tasmania) where, under certain conditions, a hazardous voltage can develop between the battery terminals and the exposed metal of electrical appliances or the inverter.

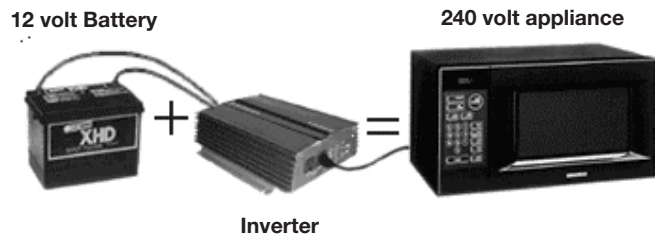
There is no national electrical standard that applies to inverters at present. Standards Australia is looking at developing requirements for inverters to address this anomaly.

### Contributing Factors

- Inverters may have not been properly maintained, or may have become damaged during use.
- Inverters may have been used contrary to the design specifications or manufacturers' instructions.
- Some inverters' design do not ensure appropriate isolation between the battery and 240 volt output supply.

### Recommendations

- Electricity Standards *and* Safety strongly recommends that that until electrical safety requirements are developed, inverters should not be used in the workplace.
- Other users of inverters are urged to be cautious when selecting an inverter, especially those with warnings such as 'improper use can result in fatal voltages on the battery terminals, failure of the inverter, or fire'. Guidance should be obtained from the manufacturer or supplier to enable you to select a safe type for your intended use. Inquiries can also be made to Electricity Standards *and* Safety on 6233 7585.



## 9. IS YOUR ELECTRIC FENCE INSTALLED PROPERLY?

A recent fatality in Tasmania has prompted ESS to remind installers and users of electric fences of hazards that can arise from prolonged contact with and energised fence.

While the number of human fatalities associated with livestock electric fences is low, it is important for farmers and members of the public to recognise that contact with an electric fence can result in tragedy. In most cases, such contact results in a relatively harmless shock, and usually the force of the first shock triggers awareness of the electric fence so that contact is broken and other shocks do not follow. However, there is a risk of serious injury or even death if you receive multiple shocks over a long period (minutes to hours rather than seconds).

Further information can be found in the Australian Standard AS/NZS 3014:2003 *Electrical installations – Electric fences* which sets out the requirements for constructing, installing and operating electric fences and for connecting them to associated equipment. You can obtain a copy of AS/NZS 3014 from Standards Australia on (03) 6224 2380.

ESS has produced an information sheet which is available on the ESS website. If you are a contractor living in a rural area and would like to help distribute the information sheet amongst your community, please contact Tony Millhouse on (03) 6233 7585 for copies.

*ESS Electrical Safety Officer Tony Millhouse advising an Agfest patron of the dangers of incorrectly installed electric fences.*



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