

Electrical safety and your recreational vehicle

Recreational vehicles, such as motorhomes and caravans (and other vehicles such as 5th wheelers) are a wonderful lifestyle and holiday option. The luxury and comfort of having your own accommodation, wherever you go, is the perfect holiday for many. When holidaying with friends and family, it is important to make sure your motorhomes' and caravans' energy supply is as safe as it possibly can be.

Energy Safety¹ takes safety seriously and wants you to be safe when using your motorhomes and caravans. This article contains important information you need to know about staying safe with electricity in your recreational vehicle.

For your safety the New Zealand Electricity Regulations require that the electrical installations, "connectable installations", in motorhomes and caravans are manufactured and used so that they operate safely.

Motorhomes and caravans are considered to comply with these requirements when they comply with the joint New Zealand and Australian standard for electrical installations in these types of vehicles. To ensure your ongoing safety a motorhome or caravan must have a valid Warrant of Electrical Fitness (WoEF) before it is connected to an electrical supply. These WoEFs must be issued by a licensed Electrical Inspector who has inspected and tested the caravan or motorhome for its electrical safety.

North American and Japanese imports

Energy Safety is concerned that motorhomes and caravans imported from overseas may contain wiring systems and appliances that are not designed to meet New Zealand's safety rules. This creates unacceptable electrical safety risks.

Caravans and motorhomes imported from North America (USA and Canada) and Japan are of particular concern. These countries have an electrical supply system that is different to New Zealand's, in terms of both voltage and frequency. The safety performance of the wiring of these installations and the electrical safety aspects of the design of the appliances is also different.

Appliance and equipment (fittings) safety

New Zealand has requirements for the safe construction of electrical appliances and fittings that extend the relevant international standards. The safety of motorhomes and caravans are of particular concern, as the sleeping and living areas are combined and are relatively confined.

These additional requirements include heat (fire) resistance; basic insulation requirements and plug configuration. Appliances and fittings designed to operate at 110 volts alternating current (ac), 60 Hz in the North American, Japanese and other markets, are unlikely to be compatible with New Zealand's electrical supply system. If they aren't compatible their use is unsafe.

¹ Energy Safety is part of the Ministry of Economic Development and administers the Gas and Electricity Act and the Gas and Electricity Regulations in New Zealand.

Safe installations

New Zealand has electrical safety requirements for the construction of installations that are different to North American and Japanese electrical safety standards. Caravans or motorhomes converted from 110 volts ac, to operate at 230 volts ac, are likely to have safety deficiencies that flow from these differences such as:

- With a transformer fitted, circuit breakers may not operate safely in the event of a fault;
- Residual current devices (RCDs) from North America (known there as ground fault circuit interrupter or GFCIs) are unlikely to meet NZ requirements;
- Single strand cable may not be acceptable;
- Depending on the configuration of the transformer or voltage converter, special requirements will be needed in regard to switches and earthing.

Issuing a Warrant of Electrical Fitness (WoEF)

When issuing a WoEF, an electrical inspector must follow the inspection and testing criteria set out in the connectable installation section of the New Zealand standard for in-service testing. Energy Safety believes that in 110 volts ac caravans or motorhomes the testing of the continuity and polarity of socket outlets, and the correct operation of RCDs, are of special importance.

Energy Safety published an article in the October 2007 issue of Electron (the magazine published by the Electrical Workers Registration Board), reflecting concerns regarding the safety of these imported caravans and motorhomes. This magazine is sent to all licensed electrical workers including the Electrical Inspectors who issue WoEFs. The article set out Energy Safety's approach to imported 110 volts ac motorhomes and caravans and their compliance with the requirements of the Electricity Regulations. In particular, on whether an installation meets the WoEF requirements.

Energy Safety expects that Electrical Inspectors will apply these guidelines from 30 November 2007. Caravans and motorhomes with an existing WoEF may require additional work when their WoEF comes up for renewal. If you are at all concerned about the safety of your current installation then contact your local licensed electrical inspector.

Demonstrating safety

To be a safe installation, any motorhome or caravan must meet all of the mandatory requirements of the Electricity Regulations, and its companion standards.

All the appliances that form part of a connectable installation, or are supplied with it, must comply with the appliance essential safety standard and the Declared Article and Supplier Declaration provisions of the Regulations. Where this is not the case, the supplier, and user, and any party supplying electricity to the motorhome or caravan, risk compliance and enforcement action.

Follow these safety rules for safe and happy motorhome and caravan use.

This article is intended to be used for guidance purposes only. It is not a substitute for understanding and complying with the legislation and standards. A technical bulletin (along with other bulletins applicable to motorhomes and caravans is available on Energy Safety's website at:

www.energysafety.govt.nz/templates/ContentTopicSummary____18111.aspx.

*A safety pamphlet, **Gas and Electrical Safety for Caravans and Motorhomes**, is also available on the Energy Safety's website at*

www.energysafety.govt.nz/templates/MultipageDocumentTOC____18081.aspx

Or you can write to us at Energy Safety, PO Box 1473, Wellington requesting a printed copy.

*For safety alerts and other Energy Safety news, you can subscribe to our free electronic Business Update newsletter at <http://news.business.govt.nz/subscribe/> (click on the "Refine" link beside **Energy & Resources** to select Energy Safety only news updates).*