

Stay safe with gas and electricity

*ELECTRICAL AND GAS SAFETY
REQUIREMENTS FOR CARAVAN,
MOTORHOME, AND BOATING*

June 2019

CONTENTS

1.0	Gas regulations overview	2
1.1	Importing (or manufacturing) gas appliances for recreational vehicles	4
1.2	Manufacturing recreational vehicles with gas installations	5
1.3	Importing recreational vehicles with gas installations	6
1.4	Renting or hiring recreational vehicles with gas installations	7
1.5	Selling recreational vehicles with gas installations (either privately or in trade)	7

2.0	Electricity regulations overview	9
2.1	Appliances supplied with recreational vehicles	10
2.2	Electrical installations in recreational vehicles	10
2.3	Manufacturing recreational vehicles with electrical installations	11
2.4	Importing recreational vehicles with electrical installations	11
2.5	Caution on importation from countries with different power systems	11
2.6	Renting or hiring recreational vehicles with electrical installations	12
2.7	Selling recreational vehicles with electrical installations	12

table

1	Summary of gas obligations	8
---	----------------------------	---

figure

1	Gas Safety Compliance label	4
---	-----------------------------	---

This booklet is designed as a one stop shop on the electricity and gas regulations for gas and electrical installations, and appliances used in caravans, motorhomes, and boats – collectively ‘RV’s or recreational vehicles.

It's important to understand that the terms 'safe' and 'unsafe' used in this document are defined in the regulations and are not opposites. They are better understood as defined points on a spectrum of risk of harm or damage to property. Safe is defined as where there is no significant risk of harm or damage while unsafe is defined as where there is a significant risk of **serious** harm or **significant** damage.

This is a guide and is no substitute for knowledge of the legislation and standards.

1.0 Gas regulations overview

IN THIS SECTION:

- 1.1** Importing (or manufacturing) gas appliances for recreational vehicles
- 1.2** Manufacturing recreational vehicles with gas installations
- 1.3** Importing recreational vehicles with gas installations
- 1.4** Renting or hiring recreational vehicles with gas installations
- 1.5** Selling recreational vehicles with gas installations (either privately or in trade)

The Gas (Safety & Measurement) Regulations 2010 require that all gas appliances and fittings are capable of operating safely when installed correctly and used for their intended purpose.

They also set out a general requirement for safety, defining what is deemed to be unsafe. A person who owns, supplies, sells, hires or operates an installation in a recreational vehicle has an obligation under the general safety provisions of regulation 9 to ensure the installation is not used if it is unsafe.

Installation and connection

The regulations require that every person who designs, installs, commissions, tests and connects a gas installation in a recreational vehicle must do so in accordance with *AS/NZS 5601.2: 2013: Gas installations - LP Gas installations in caravans and boats for non-propulsive purposes*.

All new installs or alterations must comply with the current standard.

If, for any reason, the installation does not fully comply with the relevant standard, then it must comply with a Certified Design (Reg 43) in order to be legal. The Certified Design must demonstrate that the design meets the mandatory essential safety requirements set out in the standard.

Every person who supplies or intends to supply an imported installations, for example caravans imported from the UK, must before supplying the installation ensure that they have proof that the installation complies with the essential safety requirements set out in section 2 of *AS/NZS 5601.2*.

CONNECTION

The person who *connects the installation* to a gas supply must ensure that it is safe, compatible with the gas supply, and if certification is required, that it is certified. Connection is defined as the final gasfitting work to enable to the supply of gas. For instance, the fitting of new gas connection hoses (pig-tails) is connection.

For imported installations the person connecting must also ensure that the installation complies with the essential safety requirements of the standards.

Appliances

The regulations require that the importer or NZ manufacturer ensures appliances are either *certified* or *endorsed* in accordance with the regulations.

In general terms, appliances supplied in bulk must be *certified* to European, Australian, or North American certification regimes. Schedule 2A in the regulations prescribe what certification agencies and what standards are recognised.

The *endorsement* regime provides an alternative for appliances in imported installations whereby the appliances may be *endorsed* by an *Approved Practitioner* (approved by WorkSafe).

Appliances subject to the certification regime must have a supplier declaration and a gas safety compliance label. (The supplier declaration scheme is detailed below).

Gas appliances must have certain data markings on them to provide information for their safe installation. It includes a requirement to identify the supplier making the declaration. This is specified in regulation 71.

There are also responsibilities for those repairing, modifying, adjusting, and hiring gas appliances and fittings as set out in regulations 74 and 75.

Certification of gasfitting

Gasfitting is divided into Low Risk, High Risk and General gasfitting. A 'Certificate of Compliance' is issued by the installer who certifies that the work they carried out is safe. A Certificate of Compliance is mandatory for General and High Risk work and optional for Low Risk.

All gasfitting (carried out in NZ) is required to have a 'Gas Safety Certificate' which states the installation is connected to the gas and is safe to use.

Gasfitting on a RV with sleeping quarters is considered to be High Risk (except for limited maintenance work which is Low Risk). In addition to the certification requirements, all High Risk work must be registered on the [WorkSafe Electricity and Gas High Risk database](#).

1.1 Importing (or manufacturing) gas appliances for recreational vehicles

The majority of gas appliances imported for installation in NZ made recreational vehicles will be required to have all the appropriate certifications as per the certification regime. Small runs of an appliance model may use the endorsement regime (less than 21 per year).

All appliances under the certification regime are required to have a supplier declaration - a public statement from the supplier of the appliance that the appliance complies with regulation 53 and 71.

All suppliers must first register as a supplier on the WorkSafe website. Once the registration has been approved by WorkSafe, you can enter the appliance declarations on the WorkSafe online appliance supplier declaration database.

An appliance certified under the *certification* regime must also have the Gas Safety Compliance label applied to it (figure 1). Retailers of gas appliances are required to ensure the appliance has a Safety Compliance label before they sell the appliance (unless it has been an endorsed in which case it should have an endorsement certificate).



FIGURE 1:
Gas Safety
Compliance label

All importers of gas appliances (requiring certification) must make a supplier declaration before supplying a gas appliance. Even if there is another supplier of the same product who has already made a declaration, you must register and make a declaration.

Appliances that have an electrical supply must also meet the electricity safety regulations.

Key considerations

The following items are critical for gas safety and all importers or manufacturers of gas appliances must, before supplying an appliance:

- take reasonably practicable steps to ensure that the gas appliance is safe (regulation 53)
- ensure the appliance is certified or alternatively, endorsed (regulations 54 and 57)
- ensure that the gas appliance has a compliant data plate and, for certified appliances, has a compliance label (regulations 71 and 72), and
- for appliances other than endorsed appliances, make a supplier declaration (regulation 66).

More details on the appliance safety regime may be found at:

worksafe.govt.nz/topic-and-industry/energy-safety/compliance-guides

1.2 Manufacturing recreational vehicles with gas installations

All recreational vehicle gas installations must be installed according to AS/NZS 5601.2 or (if not fully compliant) also have a Certified Design.

Installers must be satisfied that any gas appliance or fitting they install complies with safety requirements, that it is safe, and correctly marked.

The appliance must also carry a compliance label and be supported by a current and valid supplier declaration on the website. (If you import or manufacture gas appliances you must also comply with the obligations on appliance suppliers).

The regulations require an installer, authorised under the Plumbers, Gasfitters, and Drainlayers Act (PGD Act), to certify that that the General Risk and High Risk gasfitting work they have carried out is compliant with a Certificate of Compliance (CoC).

Note: All installations connected to a gas supply, irrespective of cylinder size, are considered gasfitting and must be done by an authorised person.

Gasfitting on a RV with sleeping quarters is considered to be High Risk (except for limited maintenance work which is Low Risk).

In addition to the CoC, the authorised person must issue a Gas Safety Certificate (GSC) certifying the installation is safe to use. The details must then be lodged on the WorkSafe electricity and gas database.

Key points

A recreational vehicle fitted with a gas appliance or fittings is a gas installation. The regulations identify the following items are critical for safety. For each gas installation, all manufacturers must:

- take reasonably practicable steps to ensure that every gas appliance installed is safe (regulation 53)
- ensure that every gas appliance certified under regulation 53 has a supplier declaration and a compliance label (regulation 70) before installing (or is supplied with an endorsement)
- ensure that the installation meets the AS/NZS 5601.2 standard
- and that all gasfitting is fully certified.

1.3 Importing recreational vehicles with gas installations

Every person who imports a gas installation for supply must ensure that it complies with section two of AS/NZS 5601.2 (the essential safety requirements).

Any imported appliance must be suitable for use with New Zealand's LPG which is a mixture of propane and butane.

Many imported gas installations will only be certified for propane gas. Running a propane-only appliance on the New Zealand mixture may have critical safety consequences.

Never operate an appliance that has not been shown to operate safely on New Zealand's mix of butane or propane.

If you import recreational vehicles equipped with gas installations you must comply with the requirements set out in **Importing (or manufacturing) gas appliances for recreational vehicles**.

An imported installation will often need to have gasfitting carried out on it, such as fitting new pig tails to match NZ cylinders. This must be done by an authorised person and under regulation 51 that authorised person is responsible for ensuring the installation is safe; is compatible with the gas supply and for determining the entire installation complies with section two of AS/NZS 5601.2.

Importers of new installations may find it difficult to obtain the correct documentation and compliance labelling to comply with the certification regime and should consider the endorsement regime.

The performance and safety of appliances in second-hand installations may not be the same as when it originally came from the manufacturer. WorkSafe consider that it is more appropriate for such appliances to be considered a 'one-off' appliance and that the endorsement regime should apply. An endorsement for each and every appliance will need to be completed by an Approved Practitioner.

Key points

The regulations identify the following items are critical for safety:

- take reasonably practicable steps to ensure that a gas appliance is safe (regulation 53)
- ensure that every gas appliance has a supplier declaration or an endorsement (regulations 66 and 57), and
- ensure that the installation meets section 2 of AS/NZS 5601.2.

1.4 Renting or hiring recreational vehicles with gas installations

The owner of an installation in a hired recreational vehicle has an obligation under the general safety provisions of regulation 9 to ensure the installation is not used if it is unsafe.

A person who rents or hires recreational vehicles with gas installations must ensure the installation, as a whole, is in a safe condition and provide instructions to ensure the safe use of the appliance.

The regulations state that the installation is deemed to be safe if it has been assessed as being not unsafe under *NZS 5255* which is the standard of the safety verification of existing installations.

Key points

The regulations identify the following items are critical for safety. A person who rents or hires recreational vehicles with gas installations must:

- take reasonably practicable steps to ensure that a gas appliance is safe (regulation 53)
- take reasonably practicable steps to ensure that the installation is in a safe condition and that instructions are provided (regulation 75).

1.5 Selling recreational vehicles with gas installations (either privately or in trade)

Any person who sells or offers to sell a recreational vehicle that has gas appliances or fittings must take 'reasonably practicable'¹ steps to ensure it is safe.

The regulations do not distinguish between private and commercial sale, but what is considered to be 'practicable' includes the knowledge of that person or what that person ought to know.

Key points

The regulations identify the following items are critical for safety. A person who sells or offers for sale recreational vehicles with gas installations must:

- take reasonably practicable steps to ensure that a gas appliance is safe (regulation 53).

¹ 'Reasonably practicable' is defined in the Gas Act 1992.

IMPORTED RVS	IMPORTER	APPROVED PRACTITIONER	CERTIFYING GASFITTER	RETAILER (NOT IMPORTER)
Installation safety obligations	Before supplying caravan ensure complies with Sect 2 of AS/NZS 5601.2		<p>If carrying out gasfitting work that involves connection (such as fitting pigtails):</p> <ul style="list-style-type: none"> - ensure installation complies with Sect 2 - issue a CoC/GSC - create record on High Risk d/b 	<p>If selling a gas installation must not use or allow another person to use if installation is unsafe.</p> <p>If selling a gas appliance (including those in an installation) must take reasonably practicable steps to ensure appliance is safe.</p>
Appliance safety obligations	<p>Before supplying appliances installed in caravan ensure:</p> <ul style="list-style-type: none"> - meets marking requirements of GSMR, and - all appliances are Endorsed, or all appliances meet certification to Sched 2A/ carry compliance label/ has an SDoC 	Endorse each appliance if the AP is of the opinion that the appliance complies with the GSMR and NZS 5266.	<p>If carrying out gasfitting work that doesn't involve connection:</p> <ul style="list-style-type: none"> - for Low risk work, issue GSC, or - otherwise Issue a CoC/GSC and create record on High Risk d/b. <p>If providing advice to a client on the safety of a caravan ensure that the installation is safe to use (not unsafe) using NZS 5255: Safety Verification of existing installations (using Sect 2 of AS/NZS 5601.2 as the baseline)</p>	<p>To achieve this it is recommended that the retailer engages a certifying gasfitter to carry out a 5255 check.</p>

NZ MANUFACTURED RVS	MANUFACTURER	CERTIFYING GASFITTER	RETAILER (NOT MANUFACTURER)
Installation safety obligations	<p>If selling a gas installation, must not use or allow another person to use if installation is unsafe.</p> <p>To achieve this the person should ensure:</p> <ul style="list-style-type: none"> - installation meets AS/NZS 5601.2 - gasfitting has been properly certified by an authorised person. 	<p>If installing installation ensure:</p> <ul style="list-style-type: none"> - ensure installation complies with AS/NZS 5601.2 - issue a CoC/GSC - create record on High Risk d/b. 	<p>If selling a gas installation must not use or allow another person to use if installation is unsafe.</p> <p>If selling a gas appliance (including those in an installation) must take reasonably practicable steps to ensure appliance is safe.</p>
Appliance safety obligations	<p>If selling a gas appliance (including those in an installation):</p> <ul style="list-style-type: none"> - must take reasonably practicable steps to ensure appliance is safe, - ensure meets marking requirements of GSMR, - ensure appliance has a safety compliance mark or has an endorsement. 	<p>If carrying out gasfitting work on an existing installation:</p> <ul style="list-style-type: none"> - for Low risk work, issue GSC, or - otherwise Issue a CoC/GSC and create record on High Risk d/b. <p>If providing advice to a client on the safety of a caravan ensure that the installation is safe to use (not unsafe) using NZS 5255: Safety Verification of existing installations (using Sect 2 of AS/NZS 5601.2 as the baseline)</p>	<p>If selling new caravan should ask manufacturer for compliance documentation.</p> <p>For second hand it is recommended that the retailer engages a certifying gasfitter to carry out a 5255 check.</p>

TABLE 1: Summary of gas obligations

2.0

Electricity regulations overview

IN THIS SECTION:

- 2.1 Appliances supplied with recreational vehicles
- 2.2 Electrical installations in recreational vehicles
- 2.3 Manufacturing recreational vehicles with electrical installations
- 2.4 Importing recreational vehicles with electrical installations
- 2.5 Caution on importation from countries with different power systems
- 2.6 Renting or hiring recreational vehicles with electrical installations
- 2.7 Selling recreational vehicles with electrical installations

The Electricity (Safety) Regulations 2010 require that any person who designs or does work on recreational vehicle electrical installations (connectable installations) and their fittings or electrical appliances must ensure that it's electrically safe after the work is complete.

The regulations also require that any new or used appliances supplied or sold with recreational vehicles are electrically safe.

2.1 Appliances supplied with recreational vehicles

Some appliances that will be installed into recreational vehicles may require a supplier declaration ('medium risk declared article'), or an approval ('high risk declared article'). The supplier declaration is a declaration of conformity and is prescribed in regulation 83. The supplier of an electrical appliance requiring a declaration must complete and retain the supplier declaration. Information on the levels of compliance may be found on the WorkSafe website: [worksafe.govt.nz/topic-and-industry/electricity/appliances-and-fittings](https://www.worksafe.govt.nz/topic-and-industry/electricity/appliances-and-fittings)

If the appliance is a high risk declared article, then the supplier must be able to provide certification from a recognised agency or make an application for approval from WorkSafe.

Additionally, all low voltage* fittings and electrical appliances must be electrically safe and must comply with *AS/NZS 3820:2009: Essential safety requirements for low voltage electrical equipment*; or the appropriate standard listed in Schedule 4 of the regulations; or comply with the Conformity Cooperation Agreement.²

Second-hand appliances are deemed to be safe if they have been tested, inspected and tagged in accordance with *AS/NZS 5761:2011 (In-service safety inspection and testing - Second-hand electrical equipment prior to sale)*.

There is an additional information sheet on the WorkSafe website that provides specific information on North American RVs: [worksafe.govt.nz/about-us/news-and-media/warrants-of-electrical-fitness-woefs-for-recreational-vehicles-or-caravans-having-electrical-systems-that-operate-at-110-volts](https://www.worksafe.govt.nz/about-us/news-and-media/warrants-of-electrical-fitness-woefs-for-recreational-vehicles-or-caravans-having-electrical-systems-that-operate-at-110-volts)

2.2 Electrical installations in recreational vehicles

The Electricity Act 1992 definition includes a connectable installation as an electrical installation in a vehicle, that may be connected to an external power supply.

Connectable installations may include the following:

- a. Vehicles, including caravans, camper vans, motor homes, camper trailers and livestock or car transporters with or without accommodation included.
- b. Vehicles such as food and drink vending vans and trailers, walk-through educational display caravans and trailers, mobile classrooms and television outside broadcast vans.

Connectable installations must first comply with Part 2 of *AS/NZS 3000: 2007: Electrical installations* and then for all connectable installations (eg caravans and motorhomes) comply with *AS/NZS 3001:2008 (Electrical installations - Transportable structures and vehicles including their site supplies)*.

This standard sets out the additional requirements for electrical installations associated with recreational vehicles that are intended for connection to a low-voltage supply system.

* Any voltage exceeding 50 volts AC or 120 volts ripple-free DC but not exceeding 1,000 volts AC or 1,500 volts DC.

² Part of the China Free Trade Agreement.

2.3 Manufacturing recreational vehicles with electrical installations

Anyone who manufactures connectable installations must ensure that any electrical installation in a vehicle complies with regulation 60.

With certain exceptions the installation and maintenance of conductors, fittings and electrical appliances is prescribed electrical work. As such, it's subject to a number of restrictions, including the requirement for it to be carried out by a suitably licensed person, such as a licensed and registered electrician. The exceptions to the definition of prescribed electrical work are listed in Schedule 1 of the regulations.

A PDF copy of the regulations may be downloaded from: legislation.govt.nz/regulation/public/2010/0036/latest/DLM2763501.html

2.4 Importing recreational vehicles with electrical installations

Recreational vehicles imported from foreign countries must comply with the New Zealand electricity legislation and applicable standards. A licensed and registered electrical inspector will need to assess any imported installation against Part 1 of AS/NZS 3000 before carrying out the usual inspection for a warrant of electrical fitness WoEF.

The WoEF must be issued in accordance with AS/NZS 3001 for caravans and other recreational vehicles. A WoEF using the above standards is verification that an installation is suitable for continued use. It makes an assumption that the installation was installed in accordance with the regulations in force at the time of installation.

It is not possible to issue a WoEF for an imported recreational vehicle that uses any non-Standard NZ socket outlets, such as a UK plug type. This is because the assessment against Part 1 of AS/NZS 3000 for an imported caravan would contravene 1.7.3 of the standard.

The replacement of the foreign configured socket outlets must comply with a NZ type, AS/NZS 3112 socket outlet configuration.

Any work undertaken to replace socket-outlets in New Zealand, must comply with AS/NZS 3000 parts 1 or 2, which would require each outlet to be controlled by a separate switch.

Any Residual Current Device (RCD) protection within the recreational vehicle must also meet NZ requirements (ie if the RCD protection does not trip for residual pulsating direct currents it will be deemed unsafe in NZ).

2.5 Caution on importation from countries with different power systems

Importers should be aware that imports from countries with different power systems such as those from Japan, Canada and the USA that have 110/220Vac 60 Hz electricity systems are unlikely to comply with New Zealand or Australian electrical safety legislation.

Electrical regimes that supply at 110 Vac, (like the United States), have particular safety features associated with them that are reflected down into the appliances, such as earthing. While it is possible to use a transformer to allow the appliances to function, this installation will be UNSAFE as it will not achieve the level of safety expected as it will lack a reliable earthing arrangement. In addition, the transformer will change the system enough to make the operation of some safety components ineffective.

It is important to note that the importer of these installations is also an importer of appliances. An importer of appliances is subject to the obligations placed on appliance suppliers, in particular appliances of a type subject to the supplier declaration or approval requirements.

Appliances made for 110 Vac supply are unlikely to meet the NZ appliance requirements. US equipment is also not likely to be suited or certified and evaluated for safety when operated at 50 Hz.

Importers of second-hand installations will also need to comply with the obligations placed on other suppliers of second-hand appliances. In order to meet these requirements all second-hand appliances should be tested to AS/NZS 5761.

Please see the **Electricity regulations overview** section for more detail.

2.6 Renting or hiring recreational vehicles with electrical installations

It is an offence under the regulations to hire, lease out or offer to hire or lease out an installation that does not have a valid WoEF.

Any person who hires or leases a connectable installation, or any person who supplies electricity to a connectable installation, must ensure the installation has a warrant of electrical fitness (WoEF). A WoEF may be issued by an electrical inspector or the person who certified the installation. The WoEF is valid for four years.

The WoEF must be issued in accordance with AS/NZS 3001 for caravans and other recreational vehicles. A WoEF using the above standards is verification that an installation is suitable for continued use. It makes an assumption that the installation was installed in accordance with the regulations in force at the time of installation.

2.7 Selling recreational vehicles with electrical installations

The owner of an installation in a recreational vehicle has an obligation under the general safety provisions of regulation 15 to ensure the installation is not used if it is unsafe.

Regulation 80 requires that any electrical appliance or fitting (new or used) being sold or offered for sale must be electrically safe.

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