



Resources Safety & Health
Queensland

Recreational Vehicle Gas System

Petroleum and Gas Inspectorate

April 2022 | Project Interim Report

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Purpose statement

This document is intended for industry associations, recreational vehicle manufacturers and gas work licence holders who have, or intend to, participate in the Recreational Vehicle Gas System (RVGS) Project and forms the Interim Report scheduled for April 2022.

It provides an overview of the project to date, identifies current findings, and makes recommendations to improve gas safety and compliance.

Background

Gas safety requirements for recreational vehicles are stipulated in the *Petroleum & Gas (Production & Safety) Act 2004* (PG Act), and Petroleum and Gas (Safety) Regulation 2018 (PG Regulation) administered by the Petroleum and Gas Inspectorate (PGI) within Resources Safety and Health Queensland (RSHQ).

Relevant legislative provisions are outlined below:

- Gas devices (appliances) to be approved for installation and/or use
 - *See section 731AA of the Act.*
- Gas work to only be conducted by appropriately licensed or authorised persons and
 - *See section 726 and 727 of the Act.*
- Gas work to be carried out in compliance with safety requirements
 - *See section 734 of the Act and Schedule 2 of the Regulation.*

The current safety requirement for gas system installation in a recreational vehicle (caravan, camper trailer or motorhome) is the 2020 edition of AS/NZS 5601.2 Gas installations Part 2 LP Gas installations in caravans and boats for non-propulsive purposes.

A unique provision within the Queensland legislation (s113 of the P&G Regulation) requires gas systems in recreational vehicles to be inspected and certified prior to re-sale. This provision generates a large volume of enquiries and complaints, from gas work licence holders and the public, each year in relation to gas safety and compliance.

Project objective

The objective of the RVGS project is to identify if non-compliance exists at the point of original installation (manufacturing stage) and investigate causal factors. The PGI will consider all elements that may affect compliance, including: gas work licence holder (GWLH) training, gas appliance design and gas system installation practices, and data analysis, to determine potential improvements and make recommendations to improve gas safety and compliance in recreational vehicles. Further, it is anticipated that improvements in gas safety and compliance created through the project will result in a future reduction of reactive work.

Project steps and status

The following table outlines the actions taken and progress as at the date of this report.

Table 1. Project steps and status

Project step	Status
1. Compile a list of recreational vehicle manufacturers for a compliance inspection.	<i>Completed 10 inspections of which all identified as non-compliant.</i>
2. Develop a process and checklist for each inspection and engagement. Ensure consistency and relevance to the project objectives.	<i>Implemented iAuditor checklist for each inspection based on AS/NZS 5601.2.</i>
3. Devise a framework for PGI response to non-compliant work practices identified during inspections including appropriate enforcement action.	<i>Adopted principles set out in the RSHQ Compliance and Enforcement Policy.</i>
4. Analyse data and statistics within PGI database.	<i>Ongoing.</i>
5. Survey inspectors and GWLH to obtain feedback and technical advice about the recreation vehicle industry, and potential improvements.	<i>Inspector survey completed. GWLH survey currently under review and to be scheduled for quarter 4 2022..</i>
6. Observe a current Registered Training Organisation (RTO) delivering a Certificate IV in gas fitting and the training module for caravans named, <i>CPCPGS3046A Install LPG systems in caravans, mobile homes, and mobile workplaces.</i>	<i>Attended 1 training provider and reviewed training provided. Additional RTO assessments scheduled for quarter 4 2022.</i>
7. Distribute findings to stakeholders, combined with ongoing education	<i>Coordinated three stakeholder presentations and published interim report. Ongoing development of guidance documents.</i>
8. Provide recommendations for improved gas system compliance and determine how we measure improvements.	<i>Share guidance information with stakeholders.</i> <i>Re-inspections to be planned following guidance information.</i>
9. Collaborate with stakeholders to develop strategies and implement processes to eliminate non-compliance.	<i>Working with CTIAQ to assess solutions.</i>

Current project findings (as of March 2022)

Inspection of ten sample vehicles at eight businesses identified all gas systems as non-compliant with the safety requirement, AS/NZS 5601.2:2020.

Table 2 provides reference to identified common non-compliance and clause reference. A summary of the non-compliance, including images, is provided below.

Note: A potential causal factor for the high percentage of similar non-compliances may be due to individual GWLHs carrying out high volumes of gas work across multiple recreational vehicle manufacturers.

Table 2 Commonly identified non-compliance

Non-compliance	AS/NZS 5601.2:2020 clause
Incorrect clearances from cylinders to ignition sources and openings	3.1.8
Inadequate sealing and separation of LP Gas compartments & lockers	3.3
Drains not terminating to safe location & undersized	3.3.1
Inadequate pipework protection through penetrations	5.2.1
Gas hose assembly not as short as practical	5.2.5
No means to ensure gas cannot flow when appliance is in the stowed position (lids, doors, covers)	6.3.2
Incorrect gas appliance supplied/ installed as part of gas system (Portable hot water system)	6.5
Appliances not installed as per installation instructions	6.5
Ventilation openings and flue outlets obstructed by aftermarket covers	6.5
Annex provisions adversely affecting flueing and ventilation	6.5, 8.4, 6.1.5,
Clearances to combustible materials from cooking appliance	6.11
Labelling and signage missing and not durable	7.7, 10.3.1
GSCC not fully completed.	<i>Approved form PGA734</i>

Summary of non-compliances

- **Incorrect clearances from cylinders to ignition sources and openings** — minimum clearances from gas cylinders to ignition sources (cooking appliances, fridges and electrical equipment) and openings into the vehicles are not being achieved due to the restrictions of space on a small vehicle.
 - *Cylinder compartments and vapour barrier options could be adopted to achieve required minimum clearances.*



- **Cylinder compartments** – lids of compartments/lockers not sealing off the separated compartments. Drain holes undersized or not terminating to a safe location. Incorrect positioning, sizing and labelling of cylinder compartment/ locker vents.
- **Stowed appliances** – no means of stopping gas flow when appliance is in the stowed position and/or when aftermarket lids and covers have been fitted.
 - *Inspections identified examples of stowed appliances where enclosing appliances could create a dangerous situation.*



- **Appliance flue terminals** – installation of aftermarket covers (to reduce dust and water ingress during offroad use) with no safety interlocks or provisions to prevent appliance operation when cover is in place.
 - *This has the potential to damage the gas device or the vehicle, and the possibility of high levels of CO caused by incomplete combustion also an opportunity for any unburnt LP gas to accumulate reaching lower explosive levels.*



- **Ventilation Covers** – installation of aftermarket covers (to reduce dust and water ingress during offroad use) with no safety interlocks or provisions to ensure ventilation is uncovered when gas devices are in use.



- **Annex and awnings** – gas work carried out without considering any annex system supplied with the vehicle, resulting in non-compliance with the requirements for flue terminal location and ventilation requirements.
 - *Provision of an annex may adversely affect the compliance of a gas system. GWLH must consider flueing and ventilation requirements if an annex is supplied with the vehicle.*



- **Gas devices/appliances** – not installed in accordance with manufacturers’ instructions. Specific non-compliances include not following instructions for mounting and securing appliances, their clearances, and locations and ventilation requirements.
- **Gas device approvals** – no unapproved gas devices were identified, however some manufacturers are supplying portable hot water units which are not permitted to be installed in a recreational vehicle.
 - *These portable hot water units are **only** approved as a portable and mobile appliance and must only be used outside and connected directly to a LP cylinder.*



PGI actions in response to identified non-compliance

Regulatory enforcement action is being applied in line with the [RSHQ’s Compliance and Enforcement Policy](#) and in most cases is focused on education and guidance to improve the overall understanding of gas safety and compliance in recreational vehicles.

In particular:

- GWLHs– education and guidance in relation to licence holder obligations, clarification of the safety requirements (AS/NZS5601.2:2020) and the potential for escalating compliance and enforcement action should the level of compliance not improve; and
- Recreation vehicle manufacturers – education and guidance in relation to AS/NZS 5601.2:2020 and a reminder of their obligations and responsibilities under consumer law for non-compliant product and the potential for a product recall if a non-compliance were to be assessed as a safety concern.

The education and guidance being undertaken by PGI includes a commitment to produce guidance and interpretation material in relation to legislated provisions and clauses from AS/NZS 5601.2:2020.

Recommendations

PGI

PGI has engaged with recreational vehicle stakeholders including GWLHs, vehicle manufacturers, industry associations and state and territory gas technical regulators. PGI is committed to improving gas safety and compliance in this sector by focusing on the following activities:

- Provide guidance for stakeholders using the Standards
 - *Produce documents that provide guidance and interpretation of legislation and standards*
 - *Conduct roundtable meetings with GWLH and Qld recreational vehicle manufactures*
- Review training and licencing requirements
 - *Due to initial findings – revisit training delivery to ensure training reflects interpretation of standard*
 - *Consider option to improve skills and knowledge in relation to RVGS*
 - *Consider ‘knowledge test’ – similar to electrical licence renewal requirements*
- Review the gas compliance certificate (paperless forms/E- certificates). (online version)
 - *Consider inclusion of a ‘checklist’ within the new E-Cert gas compliance certificate*
- Follow the [RSHQ Compliance and Enforcement policy](#)
 - *Continue to apply compliance and enforcement actions in line with the policy and recognised risk.*

Gas Work Licence Holders

GWLHs are encouraged to work with PGI, recreational vehicle manufactures and industry associations to improve gas safety and compliance in this sector. The following bullet points are the main areas of focus:

- Meet with the manufacturer to critically assess compliance
- Ensure they have access to and are working to AS/NZS 5601.2:2020
- Use the provided checklist, to assess all RV models, before repeating installation
- Contact paul.brisley@rshq.qld.gov.au to arrange inspection and guidance
- If non-compliance is identified:
 - develop action plan for remediation
 - work with the manufacturer to schedule repair or rectification work
- Consider obligations under consumer law:
 - Office of Fair-Trading Qld
 - Australian Competition and Consumer Commission (ACCC).

Recreation vehicle manufacturers

Recreational vehicle manufacturers are encouraged to continue participation in the project and work with PGI, the industry association, and GWLH to improve gas safety and compliance.

The following bullet points provide a summary of particular areas of focus:

- Verify their GWLH has a copy of AS/NZS 5601.2:2020
- Meet with GWLH to review gas work
- Assess all recreational vehicle models using a checklist (Appendix J, AS/NZS 5601.2:2020)
- Email the GWLH name and licence number to paul.brisley@rshq.qld.gov.au
- Develop an action plan for remediation of any identified non-compliance
- Service schedule or warranty repair
- Ensure safety issues are actioned as per obligations under consumer law:
 - Office of Fair-Trading Qld
 - Australian Competition and Consumer Commission (ACCC).