

Title	Demonstrate knowledge of maintenance, fault identification and rectification of gas appliances and associated equipment		
Level	4	Credits	15

Purpose	<p>This unit standard is for people who work in the gasfitting industry.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – describe the maintenance of gas appliances and associated equipment; – describe the function and operation of control and safety devices for gas appliances; – demonstrate knowledge of fault identification processes and fault rectification methods of control and safety devices in gas appliances; and – demonstrate knowledge of fault identification processes and fault rectification methods for gas appliances.
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Classification	Plumbing, Gasfitting and Drainlaying > Gasfitting
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Available grade	Achieved
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Guidance Information

- 1 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the:
- Building Act 2004;
 - Electricity Act 1992;
 - Gas Act 1992;
 - Gas (Safety and Measurement) Regulations 2010;
 - Health and Safety at Work Act 2015;
 - Plumbers, Gasfitters, and Drainlayers Act 2006;
 - Plumbers, Gasfitters, and Drainlayers Regulations 2010.

The following standards, which are available at <http://www.standards.govt.nz>:

- AS/NZS 5601.1:2013 *Gas installations – Part 1: General installations*;
- NZS 5266:2014 *Safety of gas appliances*;
- NZS 5255:2014 A1 *Safety verification of existing gas installations*;
- NZS 3604:2011 *Timber-framed buildings*.

The following Building Code clauses, and any related Acceptable Solution and Verification Method documents, which are available at <https://www.building.govt.nz/>:

- New Zealand Building Code Clause E2 External moisture,
- New Zealand Building Code Clause G11 Gas as an energy source.

Any new, amended or replacement referenced standards, codes of practice, guidelines, Building Code Acceptable Solutions and Verification Methods, or authority requirements affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.

2 Definitions

Control and safety devices refer to oxygen depletion cutoffs, tip-over switches, pressure switches, solenoids, overheat protection devices, new and emerging technologies where relevant.

Gas appliances refers to low-input gas appliances that generally have an input rating below 250MJ/h and may be electronically or manually controlled.

Job specifications refer to instructions (oral, written, graphic) and may include any of the following: manufacturer instructions; design drawing detail specifications; specifications from a specialist source such as an architect, designer, engineer, or a supervisor; and site or work specific requirements.

Maintain may refer to all or any of – repair, upgrade, alter, remove, replace.

Maintenance requirements must include maintenance as defined in the manufacturer's instructions.

3 Credit for this unit standard does not entitle the candidate to legally perform certain aspects of this work unless registered or supervised by a registered person under the provisions of the Electricity Act 1992.

4 Candidates must hold a current limited certificate trainee authorisation or exemption under supervision as issued under the Plumbers, Gasfitters, and Drainlayers Act 2006.

Outcomes and performance criteria

Outcome 1

Describe the maintenance of gas appliances and associated equipment.

Range must include – a commercial cooking appliance, a domestic cooking appliance, a flued space heater, a continuous flow water heater; and a minimum of two of the following – laundry dryer, flame effect fire, warm air heating system, hydronic heating system.

Performance criteria

1.1 Describe the process for confirming the correct operation of gas appliances and associated equipment in accordance with maintenance requirements.

1.2 Describe the process for servicing and adjusting gas appliance components in accordance with manufacturer's instructions.

1.3 Describe the recommissioning and retesting process for gas appliances in accordance with maintenance requirements and relevant standards and codes.

Range may include – flue testing, appliance pressures, gas tightness testing.

Outcome 2

Describe the function and operation of control and safety devices in gas appliances.

Performance criteria

- 2.1 Describe flame failure devices in terms of their function and operation in an appliance.
- Range thermoelectric, flame rectification, photocell detection.
- 2.2 Describe ignition devices in terms of their function and operation in an appliance.
- Range piezo, manual spark, automatic spark, hot surface, flash tube.
- 2.3 Describe temperature control devices in terms of their function and operation in an appliance.
- Range snap acting (disk) thermostats, rod and tube, liquid expansion thermostats, electronic temperature control using thermistors.
- 2.4 Describe other control devices in terms of their function and operation in an appliance.
- Range combination control valves, oxygen depletion cutoffs, tip-over switches, pressure switches, solenoids, overheat protection devices, printed circuit boards (PCB), controllers.

Outcome 3

Demonstrate knowledge of fault identification processes and fault rectification methods of control and safety devices in gas appliances.

Range flame failure, ignition, temperature control;
evidence is required of two devices for each type.

Performance criteria

- 3.1 Describe the process for confirming the correct operation of control and safety devices in accordance with maintenance requirements.
- 3.2 Explain how control and safety devices are tested to determine their serviceability in accordance with the type of device.
- 3.3 Explain how to identify faults in terms of the nature of the fault and possible means of rectification.
- 3.4 Explain how faults are rectified in accordance with maintenance requirements.

- 3.5 Describe the recommissioning and retesting process of control and safety devices in accordance with maintenance requirements and relevant standards and codes.

Outcome 4

Demonstrate knowledge of fault identification processes and fault rectification methods for gas appliances.

Range cooking appliance, water heating appliance and heating appliance; evidence is required of one given scenario for each appliance.

Performance criteria

- 4.1 Identify fault finding processes that are appropriate for the appliance's sequence of operation and the given scenario.
- 4.2 Explain fault rectification methods that are appropriate for the given scenario.

Planned review date	31 December 2029
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 July 2024	N/A

Consent and Moderation Requirements (CMR) reference	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Waihangara Ara Rau Construction and Infrastructure Workforce Development Council qualifications@waihangaararau.nz if you wish to suggest changes to the content of this unit standard.