

Title	Demonstrate technical knowledge of balloons and aerostatics		
Level	5	Credits	5

Purpose	People credited with this unit standard are able to demonstrate balloon technical knowledge and aerostatics as defined in AC 61-5.
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Classification	Aviation > Aircraft Operation
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Available grade	Achieved
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Guidance Information

- 1 This unit standard is aligned with the relevant parts of the prescribed syllabi of the Civil Aviation Authority of New Zealand (CAA) AC 61-5 for a commercial pilot licence. Credit will be awarded on meeting the requirements of the CAA-approved assessment or examination.
- 2 Definitions, abbreviations, and acronyms used in this unit standard are to be found in:
 - a *Civil Aviation Rules Part 1* on the CAA website at <https://www.caa.govt.nz>, and
 - b *Aeronautical Information Publication (AIP)* published by Aeronautical Information Management (AIM), PO Box 294, Wellington 6140 or on the AIM website at <http://www.aip.net.nz>.
- 3 All references to the CAA refer specifically to the Civil Aviation Authority of New Zealand.
- 4 Industry standards and recommended practices are those set in place by the CAA.
- 5 Industry texts may include but are not limited to – aircraft flight manuals, CAA Rules, CAA Advisory Circulars, CAA Flight Test Standards Guides, operator exposition.
- 6 For the purpose of this unit standard, *knowledge* refers to the knowledge, understanding, and application of the subject matter.
- 7 Industry requirements are that the candidate must meet the eligibility requirements of the Civil Aviation Act 1990 and the Civil Aviation Rule Part 61 for a commercial pilot licence.

Outcomes and performance criteria

Outcome 1

Demonstrate balloon technical knowledge and aerostatics as defined in AC 61-5.

Performance criteria

- 1.1 Balloon terminology is defined and described in accordance with industry texts and standards.
- Range includes but is not limited to – true, pressure, and density altitude; temperature; buoyant lift, false lift; dump valve, envelope and deflation systems.
- 1.2 Units of measure are converted in accordance with industry texts and standards.
- Range conversions may include but are not limited to – pounds to kilograms, pounds-inches to kilogram-metres, Fahrenheit to Celsius.
- 1.3 Envelopes and their principles of operation are described in accordance with industry texts and standards.
- Range includes but is not limited to – construction, types of design, materials used, temperature limitations.
- 1.4 Burner and fuel system are described in accordance with industry texts and standards.
- Range includes but is not limited to – burner unit, fuel system, properties of fuel used.
- 1.5 Basket construction, contents, and methods of attachment are described in accordance with industry texts and standards.
- 1.6 Rigging and mooring, and their purpose, are described in accordance with industry texts and standards.
- Range includes but is not limited to – installation of baskets and burners, interchange of baskets and burners.
- 1.7 Flying procedures are described in accordance with industry texts and standards.
- Range includes but is not limited to – site selection, weather limitations, pre-flight, inflation methods, take-off techniques, control in flight, landing techniques, emergency procedures.
- 1.8 Weight calculations are performed in accordance with industry texts and standards.
- Range includes but is not limited to – loading chart, seasonal operating conditions, Langford's formula.

1.9 General maintenance is described in accordance with industry texts and standards.

Range includes but is not limited to – fabric patches, load-bearing tapes, wire ropes, burner, fuel system and piping, pressure gauge, regulator, on-off valve.

1.10 Instruments and their principles of operation are described in accordance with industry texts and standards.

Range includes but is not limited to – altimeters, thermometers, variometers.

1.11 General limitations are described in accordance with industry texts and standards.

Range includes but is not limited to – weather, fuel, permitted damage, safety equipment, hazards.

1.12 Abilities and restrictions of pilot maintenance are described in accordance with industry texts and standards.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 June 2010	31 December 2018
Review	2	20 October 2016	31 December 2027
Review	3	28 September 2023	31 December 2027

Consent and Moderation Requirements (CMR) reference

0169

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.