Title	**Demonstrate knowledge of, and skills for, winter flying**		
Level	**5**	**Credits**	**5**

Purpose	People credited with this unit standard are able to demonstrate knowledge of: preparation for aircraft operation in winter conditions; ice protection systems; winter pre-flight checks and procedures; winter aircraft take-off procedures; hazards occurring in-flight during winter conditions; landing procedures for winter flying conditions; and securing an aircraft post-flight for winter flying conditions.

Classification	Aviation > Aircraft Operation

Available grade	Achieved

Prerequisites	Industry requirements are that the candidate must meet the eligibility requirements of the Civil Aviation Act 1990 and the Civil Aviation Rules Part 61 for a pilot licence.

Guidance Information

1 This unit standard is aligned with the relevant parts of *Winter Flying* (2005) (Good Aviation Practice) published by the Civil Aviation Authority (CAA).

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 GAP publications, operator exposition.

6 For the purpose of this unit standard, *knowledge* refers to the knowledge, understanding, and application of the subject matter.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of preparation for aircraft operation in winter conditions.

Performance criteria

1.1 The purpose of checking heating and defrosting systems is described in accordance with industry texts and standards.

Range includes but is not limited to – carbon monoxide emissions.

1.2 Water accumulation and measures to alleviate it are described in accordance with industry texts and standards.

Range includes but is not limited to – internal structures, control surfaces, fuselage bulkheads, pitot-static systems.

1.3 Fuel contamination, and measures to minimise it, are described in accordance with industry texts and standards.

Range may include but is not limited to – condensation, fuel checks.

1.4 Preventative care for aircraft batteries is described in accordance with industry texts and standards.

Range includes but is not limited to – charge, storage.

1.5 Problems associated with mud and slush in relation to aircraft operation are described in accordance with industry texts and standards.

Range includes but is not limited to – spats, fairings, undercarriage bays.

1.6 Cleaning procedures are described in accordance with industry texts and standards.

Range includes but is not limited to – frequency, method, lubrication.

1.7 Use of covers is explained in accordance with industry texts and standards.

1.8 Use of tie-downs is explained in accordance with industry texts and standards.

1.9 Personal preparation is described in accordance with industry texts and standards.

Range includes but is not limited to – survival kit.

Outcome 2

Demonstrate knowledge of ice protection systems.

Performance criteria

2.1 Aircraft ice protection systems are described in accordance with industry texts and standards.

Range systems may include but are not limited to – pneumatic boots, propeller de-icing, windscreen de-icing, rotor-blade anti-icing.

Outcome 3

Demonstrate knowledge of winter pre-flight checks and procedures.

Performance criteria

3.1 Pre-flight checks and procedures are described in accordance with industry texts and standards.

Range includes but is not limited to – weather (departure, enroute, destination); covering of snow, ice, or frost; pitot-static systems.

3.2 Engine start and warm-up procedures are described in accordance industry texts and standards.

Outcome 4

Demonstrate knowledge of winter aircraft take-off procedures.

Performance criteria

4.1 Taxiing techniques are described in accordance with industry texts and standards.

Range includes but is not limited to – ice, snow, heavy rain, fog, windscreen misting.

4.2 Potential hazards to aircraft during take-off are stated in accordance with industry texts and standards.

Range includes but is not limited to – snow, ice, slush, mud, wet grass.

4.3 Take-off techniques are described in accordance with industry texts and standards.

Range may include but is not limited to – runway position, abort decision point.

Outcome 5

Demonstrate knowledge of hazards occurring in-flight during winter conditions.

Performance criteria

5.1 The causes of induction icing are described in accordance with industry texts and standards.

5.2 Preventative measures to resolve induction icing are described in accordance with industry texts and standards.

5.3 Actions in the event of loss of visibility are described in accordance with industry texts and standards.

5.4 Actions in the event of freezing rain are described in accordance with industry texts and standards.

5.5 Hazards associated with snowfall are described in accordance with industry texts and standards.

5.6 The effects of whiteout, and actions to be taken in the event of encountering whiteout, are described in accordance with industry texts and standards.

Outcome 6

Demonstrate knowledge of landing procedures for winter flying conditions.

Performance criteria

6.1 Approach and landing procedures in fog are described in accordance with industry texts and standards.

6.2 Approach and landing procedures on to wet surfaces are described in accordance with industry texts and standards.

6.3 Approach and landing procedures on snow are described in accordance with industry texts and standards.

6.4 The effects of snow ingestion on aircraft engines are described in accordance with industry texts and standards.

Outcome 7

Demonstrate securing an aircraft post-flight for winter flying conditions.

Performance criteria

7.1 Aircraft is secured in accordance with industry texts and standards.

Range includes but is not limited to – covering, topping up tanks, control locks, tie-down.

Planned review date	31 December 2021

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
Revision	2	9 December 2010	31 December 2018
Review	3	20 October 2016	N/A
Revision	4	30 August 2018	N/A

Consent and Moderation Requirements (CMR) reference	0169

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

Comments on this unit standard

Please contact ServiceIQ qualifications@serviceiq.org.nz if you wish to suggest changes to the content of this unit standard.