

<b>Title</b>	<b>Apply knowledge of piston engines to the certification of aeronautical maintenance</b>		
<b>Level</b>	<b>6</b>	<b>Credits</b>	<b>20</b>

<b>Purpose</b>	<p>This knowledge-based unit standard is one of a series intended for people certifying the release to service of aircraft or aeronautical components following maintenance or repair.</p> <p>People credited with this unit standard are able to apply knowledge of piston engine: operation, design and construction, ignition systems, fuel systems, lubrication systems, forced induction systems, starting systems, starting and ground operation, control systems, fire protection systems, and propeller systems to the certification of aeronautical maintenance.</p>
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<b>Classification</b>	Aeronautical Engineering > Aeronautical Maintenance Certification
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 The Civil Aviation Authority of New Zealand (CAA) Aircraft Maintenance Engineer Licence – Examination Subject 7, Piston Engines is the national standard, and is linked to international standards.
- 2 This unit standard is aligned with the Civil Aviation Authority of New Zealand Advisory Circular AC66-2.7, Examination Syllabus for Subject 7, Piston Engines and will be evidenced by meeting these requirements. This is available on the CAA website at <http://www.caa.govt.nz>.
- 3 *Applied knowledge* – will be in the context of aeronautical maintenance as defined by Civil Aviation Rules Part 1 as follows: ‘in relation to an aircraft or aircraft component, means all work and inspections performed to ensure the continued airworthiness of the aircraft or component, and all modifications’; will include making judgements regarding the scope, processes, and quality of maintenance for release to service certification; and will be in accordance with industry texts as defined by the candidate’s workplace or enterprise.
- 4 *Industry texts* include but are not limited to –  
published aeronautical training manuals or text books;  
enterprise exposition;  
manufacturer publications;  
government and local body legislation;  
airworthiness or regulatory authority requirements.

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## Outcomes and performance criteria

### Outcome 1

Apply knowledge of piston engine operation to the certification of aeronautical maintenance.

#### Performance criteria

- 1.1 Knowledge of piston engine operation fundamentals is applied.
- 1.2 Knowledge of piston engine performance is applied.

### Outcome 2

Apply knowledge of piston engine design and construction to the certification of aeronautical maintenance.

#### Performance criteria

- 2.1 Knowledge of piston engine design principles is applied.
- 2.2 Knowledge of piston engine construction principles is applied.
- 2.3 Knowledge of piston engine maintenance is applied.
- 2.4 Knowledge of piston engine inspection and certification is applied.

### Outcome 3

Apply knowledge of piston engine ignition systems to the certification of aeronautical maintenance.

#### Performance criteria

- 3.1 Knowledge of piston engine ignition systems and components is applied.
- 3.2 Knowledge of piston engine ignition system and component maintenance is applied.
- 3.3 Knowledge of piston engine ignition system and component inspection and certification is applied.

### Outcome 4

Apply knowledge of piston engine fuel systems to the certification of aeronautical maintenance.

#### Performance criteria

- 4.1 Knowledge of piston engine fuels is applied.

- 4.2 Knowledge of piston engine fuel systems and components is applied.
- 4.3 Knowledge of piston engine fuel system and component maintenance is applied.
- 4.4 Knowledge of piston engine fuel system and component inspection and certification is applied.

### **Outcome 5**

Apply knowledge of piston engine lubrication systems to the certification of aeronautical maintenance.

#### **Performance criteria**

- 5.1 Knowledge of piston engine lubricants is applied.
- 5.2 Knowledge of piston engine lubrication systems and components is applied.
- 5.3 Knowledge of piston engine lubrication system and component maintenance is applied.
- 5.4 Knowledge of piston engine lubrication system and component inspection and certification is applied.

### **Outcome 6**

Apply knowledge of piston engine forced induction systems to the certification of aeronautical maintenance.

#### **Performance criteria**

- 6.1 Knowledge of piston engine forced induction systems and components is applied.
- 6.2 Knowledge of piston engine forced induction system and component maintenance is applied.
- 6.3 Knowledge of piston engine forced induction system and component inspection and certification is applied.

### **Outcome 7**

Apply knowledge of piston engine starting systems to the certification of aeronautical maintenance.

#### **Performance criteria**

- 7.1 Knowledge of piston engine starting systems and components is applied.
- 7.2 Knowledge of piston engine starting system and component maintenance is applied.

- 7.3 Knowledge of piston engine starting system and component inspection and certification is applied.

### **Outcome 8**

Apply knowledge of piston engine starting and ground operation to the certification of aeronautical maintenance.

#### **Performance criteria**

- 8.1 Knowledge of piston engine starting and ground operation is applied.
- 8.2 Knowledge of piston engine testing, inspection and certification is applied.
- 8.3 Knowledge of piston engine storage criteria is applied.

### **Outcome 9**

Apply knowledge of piston engine control systems to the certification of aeronautical maintenance.

#### **Performance criteria**

- 9.1 Knowledge of piston engine control systems and components is applied.
- 9.2 Knowledge of piston engine control system and component maintenance is applied.
- 9.3 Knowledge of piston engine control system and component inspection and certification is applied.

### **Outcome 10**

Apply knowledge of piston engine fire protection systems to the certification of aeronautical maintenance.

#### **Performance criteria**

- 10.1 Knowledge of piston engine fire protection systems and components is applied.
- 10.2 Knowledge of piston engine fire protection system and component maintenance is applied.
- 10.3 Knowledge of piston engine fire protection system and component inspection and certification is applied.

### **Outcome 11**

Apply knowledge of piston engine propeller systems to the certification of aeronautical maintenance.

**Performance criteria**

- 11.1 Knowledge of piston engine propeller systems and components is applied.
- 11.2 Knowledge of piston engine propeller system and component maintenance is applied.
- 11.3 Knowledge of piston engine propeller system and component inspection and certification is applied.

<b>Planned review date</b>	31 December 2027
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	19 August 2004	31 December 2020
Review	2	9 December 2010	31 December 2020
Review	3	28 September 2017	31 December 2024
Review	4	27 October 2022	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0028
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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 Ringa Hora Services Workforce Development Council [qualifications@ringahora.nz](mailto:qualifications@ringahora.nz) if you wish to suggest changes to the content of this unit standard.