Australian Government

# MEA40711 Certificate IV in Aeroskills (Mechanical)

**Release 2**

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

# MEA40711 Certificate IV in Aeroskills (Mechanical)

## Modification History

Release 2 - Licensing requirements clarified. Additional electives for component workshop training pathway. Elective unit MEA388A not carried forward (subsumed by elective units MEA392A, MEA393A, MEA394A, MEA395A, MEA396A and MEA397A) - equivalent
Release 1 - Additional electives for component workshop training pathway. Unit codes updated as required - equivalent

## Description

This qualification may apply to employees of civil aviation maintenance organisations or to members of the ADF who perform scheduled inspections, fault diagnosis and repair, and modification of airframes and airframe mechanical, hydraulic and pneumatic systems and components, and of aircraft engines and (where applicable) propellers.
The qualification defines the exit from an apprenticeship and may apply to either aircraft maintenance performed on flight lines/ramps and in hangars, or to airframe and engine component repair and overhaul performed in workshops. These outcomes are defined in two streams:

- aircraft maintenance stream
- component maintenance workshop stream.

The qualification consists of:

- common units that apply to all Aeroskills specialist streams at AQF Certificate III and IV levels
- mechanical and structures technical stream units relating to airframe and engine system and component maintenance
- mechanical technical stream units and a small number of avionic stream units that are applicable to the aircraft component maintenance workshop stream.
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## Pathways Information

Because of the wide application of this qualification there is considerable flexibility in the selection of technical stream units and individuals should be mindful of their future career aspirations when selecting units for, in particular, the aircraft maintenance stream. Provided that the correct elective units are selected, the qualification articulates with the MEA50211 Diploma of Aeroskills (Mechanical) which qualifies individuals for the grant by CASA of a B1 Aircraft Maintenance Engineer Licence.
The qualification also provides credits towards the MEA50411 Diploma of Aviation Maintenance Management (Mechanical) and the MEA60211 Advanced Diploma of Aviation Maintenance Management (Mechanical).

# Licensing/Regulatory Information

This qualification complies with airworthiness regulatory requirements of CASA and the ADF.

# Entry Requirements

Not applicable.

# Employability Skills Summary

| Employability Skill | Industry/enterprise requirements for this qualification include: |
|---|---|
| Communication | • Understanding work and organisational instructions<br>• Understanding input from specialist personnel and technical representatives<br>• Providing guidance to others and clearly describing faults, problems and spares requirements<br>• Negotiating with other team members or supervisors regarding timing and progress of work activities and access to sections of the aircraft, or to equipment<br>• Understanding and interpreting regulations, procedures, instructions and maintenance publications<br>• Completing maintenance documentation and component tags<br>• Interpreting wiring diagrams and system schematics, and reading drawings relating to maintenance activities<br>• Using computers to obtain maintenance data and complete documentation<br>• Networking with other team members regarding work planning and execution |
| Teamwork | • Performing tasks as an individual while being responsive to supervisors and allowing for relevant human factors<br>• Working effectively with others who may be of different ages, gender, race, religion and political persuasion<br>• Assisting other team members with tasks and providing advice on work processes and troubleshooting |
| Problem solving | • Identifying problems in a timely manner and developing practical solutions to maintenance problems not fully covered by maintenance data<br>• Proposing solutions to problems as modifications or amendments to specified maintenance processes<br>• Constantly reviewing problem solving skills and ability to effectively apply competencies to solve problems within the limits permitted by regulatory and organisational guidelines<br>• Responding to emergencies or accidents in accordance with regulatory and organisational requirements<br>• Using mathematical techniques to relate test results to system or component performance and to convert values between systems of measurement |
| Initiative and enterprise | • Adapting to new situations that arise as a consequence of regulatory changes, revised maintenance data, practices and procedures<br>• Varying work practices and behaviour as a result of performance feedback from peers and supervisors |

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| | • Evaluating ideas to ensure that technical and regulatory aspects have been fully covered before proposing action that may result in modifications or changes to work processes<br>• Applying human factors to avoid maintenance errors and maintain quality standards<br>• Adapting competencies to the performance of a wide range of maintenance tasks<br>• Contributing to a process of continuous improvement and a willingness to support and participate in the effective introduction of new work practices |
| Planning and organising | • Clarifying task objectives and required outcomes through discussion with supervisors and other team members<br>• Monitoring the time taken to complete tasks against team requirements or targets provided by supervisors<br>• Collecting, analysing and organising information relating to assigned maintenance tasks and confirming the purpose and required work outcomes<br>• Identifying the extent of impact on assigned work of changes in procedures, work instructions or regulatory requirements |
| Self-management | • Accepting responsibility for managing individual workload to meet target completion times or fit in with team milestones<br>• Assessing personal knowledge and skills with the aid of the self-assessment work sheets in the Log of Industrial Experience and Achievement and preparing for competency assessments<br>• Actively seeking opportunities to develop competencies and to apply them across a range of tasks and monitoring performance using indicators, such as the extent of oversight exercised by supervisors<br>• Identifying career paths and training opportunities that will assist in attaining career goals |
| Learning | • Taking advantage of learning opportunities that arise through training courses provided by the organisation or external providers and through mentoring and on-the-job training<br>• Adapting competencies to accommodate new ideas and techniques<br>• Using feedback from supervisors and peers to identify ways in which competence can be improved<br>• Mentoring new or more junior personnel<br>• Interpreting units of competency and applying them to attainment of identified career goals |
| Technology | • Operating aircraft and avionic systems, test equipment and ground support equipment, ground running engines and troubleshooting faults<br>• Using on-board maintenance systems and using maintenance-related software |

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|---|---|
| | • Maintaining aircraft systems, components and test stands<br>• Performance testing of aircraft systems and engines<br>• Storing and caring for components, parts, tools, test equipment and support equipment<br>• Amending various forms of maintenance data<br>• Using computers and microfiche to obtain maintenance data and using computers to complete documentation |

# Packaging Rules

To be awarded the MEA40711 Certificate IV in Aeroskills (Mechanical), competency must be demonstrated in:

- **Aircraft Maintenance Stream**
  - Core common and imported units: **eight (8)** units
  - Elective technical stream units from Group A: **thirteen (13)** units
  - Total: **twenty one (21)** units.

**OR**

- **Component Maintenance Workshop Stream**
  - Core common and imported units: **eight (8)** units
  - Elective technical stream units from Groups B and C: **six (6)** units
  - Total: **fourteen (14)** units.

**Core units of competency (common to both streams)**

| Unit code | Unit title | Prerequisites |
|---|---|---|
| MEA101B | Interpret occupational health and safety practices in aviation maintenance | Nil |
| MEA103B | Plan and organise aviation maintenance work activities | MEA101B, MEA105C, MEA107B, MEA108B |
| MEA105C | Apply quality standards applicable to aviation maintenance processes | MEA101B, MEA107B |
| MEA107B | Interpret and use aviation maintenance industry manuals and specifications | Nil |
| MEA108B | Complete aviation maintenance industry documentation | MEA105C |
| MEA109B | Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance | MEA105C, MEA108B |
| MEA118A | Conduct self in the aviation maintenance environment | Nil |
| MSAENV272B | Participate in environmentally sustainable work practices | Nil |

**Elective units**

**Group A (Aircraft Maintenance Stream)**

Choose **thirteen (13)** of the elective mechanical and structures technical stream units listed below while observing the unit selection guidelines in column four.

| Unit code | Unit title | Prerequisites | Unit selection guidelines |
|---|---|---|---|
| MEA201B | Remove and install miscellaneous aircraft electrical hardware/components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA246C | Fabricate and/or repair aircraft electrical hardware or parts | MEA201B<br>MEA260B | |
| MEA260B | Use electrical test equipment | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA301C | Perform aircraft flight servicing | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA302C | Remove and install aircraft hydro-mechanical and landing gear system components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA303D | Remove and install aircraft pneumatic system components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B | |

| Unit code | Unit title | Prerequisites | Unit selection guidelines |
|---|---|---|---|
| | | MEA108B<br>MEA109B | |
| MEA304C | Remove and install non-pressurised aircraft structural and non-structural components | MEA302C | Do not take with MEA317C |
| MEA305C | Remove and install aircraft fixed wing flight control system components | MEA302C | |
| MEA306C | Remove and install engines and engine system components | MEA302C | |
| MEA307C | Remove and install propeller systems and components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA308C | Remove and install rotary wing rotor and flight control system components | MEA302C | Alternate to both MEA305C and MEA307C – count as two units |
| MEA309C | Inspect, test and troubleshoot aircraft hydro-mechanical and landing gear systems and components | MEA302C | Do not take with MEA318C and MEA320C |
| MEA310C | Inspect, test and troubleshoot aircraft pneumatic systems and components | MEA303D | Do not take with MEA318C and MEA320C |
| MEA311D | Inspect and repair/modify aircraft structures | MEA304C or MEA317C | Do not take with MEA339C or both MEA401C and MEA410C – count as 3 units |
| MEA312C | Inspect, test and troubleshoot aircraft fixed wing flight control | MEA305C | Do not take with MEA318C and |

| Unit code | Unit title | Prerequisites | Unit selection guidelines |
|---|---|---|---|
| | systems and components | | MEA321C |
| MEA313C | Inspect, test and troubleshoot piston engine systems and components | MEA306C | |
| MEA314C | Inspect, test and troubleshoot gas turbine engine systems and components | MEA306C | Do not take with MEA319C and MEA322C |
| MEA315C | Inspect, test and troubleshoot propeller systems and components | MEA307C | |
| MEA316C | Inspect, test and troubleshoot rotary wing rotor and control systems and components | MEA308C | Alternative to both of MEA312C and MEA315C – count as two units |
| MEA317C | Remove and install pressurised aircraft structural and non-structural components | MEA302C<br>MEA303D | Do not take with MEA304C |
| MEA318C | Inspect aircraft hydro-mechanical, mechanical, gaseous and landing gear systems and components | MEA302C<br>MEA303D<br>MEM305C | Do not take with MEA309C or MEA310C |
| MEA319C | Inspect gas turbine engine systems and components | MEA306C | Do not take with MEA314C |
| MEA320C | Test and troubleshoot aircraft hydro-mechanical, mechanical, gaseous and landing gear systems and components | MEA318C | Do not take with MEA309C or MEA310C |
| MEA321C | Test and troubleshoot aircraft fixed wing flight control systems and components | MEA318C | Do not take with MEA312C |
| MEA322C | Test and troubleshoot gas turbine engine systems and components | MEA319C | Do not take with MEA314C |
| MEA327B | Fabricate and/or repair aircraft mechanical components or parts | MEA101B | Do not take with MEA328C |

| Unit code | Unit title | Prerequisites | Unit selection guidelines |
|---|---|---|---|
| | | MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA328C | Maintain and/or repair aircraft mechanical components or parts | MEA302C<br>MEA303D | Do not take with MEA327B |
| MEA339C | Inspect, repair and maintain aircraft structures | MEA304C or MEA317C | Do not take with MEA311D or MEA401C and MEA410C – count as 2 units |
| MEA351A | Maintain airframe systems of basic light fixed wing aircraft | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | Applicable only to basic light aircraft maintenance |
| MEA352A | Maintain basic rotary wing aircraft systems | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | Applicable only to basic helicopter maintenance |
| MEA353A | Maintain basic light aircraft engines and propellers | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | Applicable only to basic light aircraft and basic helicopter maintenance |

| Unit code | Unit title | Prerequisites | Unit selection guidelines |
|---|---|---|---|
| MEA354A | Maintain light aircraft pneumatic systems | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | Applicable only to small aircraft maintenance |
| MEA355A | Maintain light aircraft air cycle air conditioning systems | MEA201B<br>MEA246C | Applicable only to small aircraft maintenance |
| MEA356A | Maintain light piston engine aircraft pressurisation systems | MEA201B<br>MEA246C | Applicable only to small aircraft maintenance |
| MEA357A | Inspect, test and repair aircraft fabric surfaces | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA358A | Re-cover aircraft fabric surfaces | MEA357A | |
| MEA359A | Inspect and repair aircraft wooden structures | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | |
| MEA360A | Maintain aircraft diesel engines | MEA353A | |
| MEA361A | Maintain aircraft two stroke petrol engines | MEA353A | |
| MEA362A | Maintain aircraft vapour cycle air conditioning systems | MEA201B<br>MEA246C | |
| MEA363B | Inspect, repair and maintain structures and related components | MEA101B | Do not take with MEA304C, 311C or |

| Unit code | Unit title | Prerequisites | Unit selection guidelines |
|---|---|---|---|
| | of non-pressurised small aircraft | MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | 339B – applicable only to small aircraft – count as two units |
| MEA364A | Maintain and/or repair small aircraft mechanical components or parts | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | Do not take with MEA328C – applicable only to small aircraft |
| MEA366A | Perform borescope inspections | MEA313C or MEA314C or MEA322C or<br>MEA387A or<br>MEA388A | Additional unit where CASA borescope inspection authority required |
| MEA401C | Inspect aircraft structures | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B | Do not take with MEA311D or MEA339C |
| MEA410C | Maintain aircraft structure/components | MEA401C | Do not take with MEA311D or MEA339C |

**Groups B and C (Component Workshop Stream)**

Choose at least **three (3)** of the elective technical stream units listed in Group B and make up to a total of **six (6)** units with units from Group C.

**Group B**

| Unit code | Unit title | Prerequisites |
|---|---|---|
| MEA380A | Repair and/or overhaul aircraft hydraulic system components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA381A | Repair and/or overhaul aircraft pneumatic system components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA382A | Repair and/or overhaul aircraft fuel system components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA383A | Repair and/or overhaul gas turbine engine air inlet and compressor components and/or modules | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA384A | Repair and/or overhaul gas turbine engine combustion section components and/or modules | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |

| | | |
|---|---|---|
| MEA385A | Repair and/or overhaul gas turbine engine turbine and exhaust section components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA386A | Repair and/or overhaul gas turbine engine ancillary section components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA387A | Test gas turbine engines and engine modules after overhaul or repair | MEA383A<br>MEA384A<br>MEA385A<br>MEA386A |
| MEA389A | Repair and/or overhaul propellers | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA390A | Repair and/or overhaul rotary wing dynamic components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA391A | Repair and/or overhaul aircraft mechanical system components | MEA101B<br>MEA103B<br>MEA105C |

| | | |
|---|---|---|
| | | MEA107B<br>MEA108B<br>MEA109B |
| MEA392A | Disassemble aircraft piston engines | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA393A | Repair and/or overhaul aircraft piston engine cylinder assembly components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA394A | Repair and/or overhaul aircraft piston engine crankcase assembly components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA395A | Reassemble aircraft piston engines | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA396A | Assemble aircraft piston engine quick engine change unit | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B |

| | | |
|---|---|---|
| | | MEA109B |
| MEA397A | Test aircraft piston engines after repair or overhaul | MEA392A<br>MEA393A<br>MEA394A<br>MEA395A<br>MEA396A |

**Group C**

| Unit code | Unit title | Prerequisites |
|---|---|---|
| MEA201B | Remove and install miscellaneous aircraft electrical hardware/components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA246C | Fabricate and/or repair aircraft electrical hardware or parts | MEA201B<br>MEA260B |
| MEA260B | Use electrical test equipment | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEA368A | Shot peen aircraft components | MEA101B<br>MEA103B<br>MEA105C<br>MEA107B<br>MEA108B<br>MEA109B |
| MEM24002B | Perform penetrant testing | MEM18001C<br>MEM24012C |

| | | |
|---|---|---|
| MEM24004B | Perform magnetic particle testing | MEM18001C<br>MEM24012C |
| MEM24012C | Apply metallurgy principles | Nil |

## Custom Content Section

Not applicable.