Australian Government

MEA41011 Certificate IV in Aeroskills (Mechatronics)

Release 2

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

MEA41011 Certificate IV in Aeroskills (Mechatronics)

Modification History

Release 2 - Licensing requirements clarified - equivalent
Release 1 - New qualification

Description

This is a competency-based training means of complying with small aircraft maintenance certification licensing requirements during the four year period 2011 to 2015 while the CAR 31 Basic Examination/Schedule of Experience avenue to licensing for small aircraft maintenance certification remains in operation. It should be noted that this qualification alone will not qualify individuals for the grant of a licence and successful completion of the Basic Examinations will still be required. However, it provides a sound foundation that would complement the examination requirements and would facilitate their completion during an apprenticeship.

Changes may be made to the qualification once a final decision is taken on the form of small aircraft maintenance certification licensing to ensure that it is able to become the pathway to licence after 2015.

Pathways Information

The qualification applies to individuals involved in the maintenance of small aircraft within the General Aviation industry sector and should not be regarded as a pathway to the grant of a B1 or B2 licence for regular public transport aircraft maintained by a CASR Part 145 MTO. The pathways to these licences are the MEA50211 Diploma of Aeroskills (Mechanical) for the B1 or the MEA50111 Diploma of Aeroskills (Avionics) for the B2. A number of units in this qualification would provide credits towards those qualifications and towards other qualifications at AQF Certificate IV, Diploma and Advanced Diploma levels.

Licensing/Regulatory Information

This qualification meets the requirements of CASA for the grant of an Aircraft Maintenance B1 or B2 Licence limited to the maintenance of small aircraft.

Entry Requirements

Not applicable.

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Employability Skills Summary

Employability Skill	Industry/enterprise requirements for this qualification include:
Communication	• Understanding work and organisational instructions • Understanding input from professional engineers, specialist personnel and technical representatives • Liaising with maintenance personnel, aircrew and specialists regarding maintenance problems • Talking to senior managers and aircraft owners/operators about maintenance needs and problems • Providing guidance to others and describing clearly faults, problems and spares requirements • Negotiating with team members, senior managers and aircraft owners/operators regarding timing and progress of work activities • Understanding and interpreting regulations, procedures, instructions and maintenance publications • Giving written instructions and completing maintenance documentation and component tags • Interpreting wiring diagrams and system schematics, and reading drawings relating to maintenance activities • Using computers to obtain maintenance data, complete documentation and correspond using email • Networking with other maintenance managers and with maintenance controllers
Teamwork	• Performing tasks as an individual while being responsive to supervisors and allowing for relevant human factors • Working effectively with others who may be of different ages, gender, race, religion and political persuasion • Assisting other team members with tasks and providing advice on work processes and troubleshooting • Providing leadership and development of team commitment and dynamics • Providing mentoring and performance feedback • Providing team members with the opportunity for ongoing competency development
Problem solving	• Identifying problems in a timely manner and developing practical solutions to maintenance problems not fully covered by maintenance data • Proposing solutions to problems as modifications or amendments to specified maintenance processes • Assisting with the resolution of complex problems • Constantly reviewing problem solving skills and ability to effectively apply competencies to solve problems within the

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

	limits permitted by regulatory and organisational guidelines • Responding to emergencies or accidents in accordance with regulatory and organisational requirements • 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, technology, contractual requirements, operational circumstances, revised maintenance data, practices and procedures • Varying work practices and behaviour as a result of performance feedback from subordinates, peers and managers • 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 • Applying human factors to avoid maintenance errors and maintain quality standards • Adapting competencies to the performance of a wide range of maintenance tasks • 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 managers and team members • Planning the use of resources and allocating personnel and resources to tasks • Monitoring the time taken to complete tasks against team requirements or targets provided by management • Assessing work requirements for quotations • Collecting, analysing and organising information relating to assigned maintenance tasks and confirming the purpose and required work outcomes • Identifying contingency situations and taking action to resolve problems • 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 • 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 • 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

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

	• 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-job training • Adapting competencies to accommodate new ideas and techniques • Using feedback from managers and peers to identify ways in which competence can be improved • Mentoring and providing on-job training and induction training to team members • 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 • Using on-board maintenance systems and using maintenance-related software • Testing the performance of aircraft systems and engines • Maintaining aircraft systems and components • Storing and caring for components, parts, tools, test equipment and support equipment • Amending various forms of maintenance data • Using computers and microfiche to obtain maintenance data and using computers to complete documentation

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Packaging Rules

To be awarded the MEA41011 Certificate IV in Aeroskills (Mechatronics) competency must be demonstrated in **twenty seven (27)** units of competency, as follows:

- **Sixteen (16)** Core common, technical stream and imported units that are applicable to all B1 and B2 licences that are limited by exclusions to release to service of basic small aircraft
- **Eleven (11)** Elective Group A technical stream units where a limited B1.1 licence is sought
- **Eight (8)** Elective Group B technical stream units where a limited B1.2 licence is sought
- **Nine (9)** Elective Group C technical stream units where a limited B1.3 licence is sought
- **Eight (8)** Elective Group D technical stream units where a limited B1.4 licence is sought
- **Nine (9)** Elective Group E technical stream units where a limited B2 licence is sought
- Elective Group F technical stream units chosen according to the requirements of the aircraft types being maintained to bring the total unit count to twenty seven (27).

Core units of competency

All **sixteen (16)** units must be taken if a B1 or B2 licence applicable to basic small aircraft maintenance is being sought.

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
MEA111C	Perform administrative processes to prepare for certification of civil aircraft maintenance	All applicable Certificate IV units
MEA112B	Plan and implement civil aircraft maintenance activities	All applicable Certificate IV units

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

MEA113C	Supervise civil aircraft maintenance activities and manage human resources in the workplace	All applicable Certificate IV units
MEA116B	Apply occupational health and safety procedures at supervisor level in aviation maintenance	Nil
MEA118A	Conduct self in the aviation maintenance environment	Nil
MEA201B	Remove and install miscellaneous aircraft electrical hardware/components	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA246C	Fabricate and/or repair aircraft electrical hardware or parts	MEA201B, MEA260B
MEA260B	Use electrical test equipment	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA301C	Perform aircraft flight servicing	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MSAENV472B	Implement and monitor environmentally sustainable work practices	Nil

Elective units Group A

All **eleven (11)** units must be taken if a B1.1 licence applicable to basic small aircraft maintenance is being sought.

Unit code	**Unit title**	**Prerequisites**
MEA274A	Maintain basic light aircraft electrical systems and components	MEA246C
MEA275A	Maintain basic light aircraft instrument systems and components	MEA246C
MEA276A	Maintain basic light aircraft communication and radio navigation systems and components	MEA246C
MEA306C	Remove and install engines and engine system components	MEA302C

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

MEA307C	Remove and install propeller systems and components	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA314C	Inspect, test and troubleshoot gas turbine engine systems and components	MEA306C
MEA315C	Inspect, test and troubleshoot propeller systems and components	MEA307C
MEA351A	Maintain airframe systems of basic light fixed wing aircraft	MEA101B, MEA 03B, MEA105C, MEA107B, MEA108B, MEA109B
MEA363B	Inspect, repair and maintain structures and related components of non-pressurised small aircraft	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA364A	Maintain and/or repair small aircraft mechanical components or parts	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA365A	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Certificate IV units listed for applicable licence

Elective units Group B

All **eight (8)** units must be taken if a B1.2 licence applicable to basic small aircraft maintenance is being sought.

Unit code	**Unit title**	**Prerequisites**
MEA274A	Maintain basic light aircraft electrical systems and components	MEA246C
MEA275A	Maintain basic light aircraft instrument systems and components	MEA246C
MEA276A	Maintain basic light aircraft communication and radio navigation systems and components	MEA246C
MEA351A	Maintain airframe systems of basic light fixed wing aircraft	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA353A	Maintain basic light aircraft engines and	MEA101B, MEA103B,

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

	propellers	MEA105C, MEA107B, MEA108B, MEA109B
MEA363B	Inspect, repair and maintain structures and related components of non-pressurised small aircraft	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA364A	Maintain and/or repair small aircraft mechanical components or parts	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA365A	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Certificate IV units listed for applicable licence

Elective units Group C

All **nine (9)** units must be taken if a B1.3 licence applicable to basic small aircraft maintenance is being sought.

Unit code	**Unit title**	**Prerequisites**
MEA274A	Maintain basic light aircraft electrical systems and components	MEA246C
MEA275A	Maintain basic light aircraft instrument systems and components	MEA246C
MEA276A	Maintain basic light aircraft communication and radio navigation systems and components	MEA246C
MEA306C	Remove and install engines and engine system components	MEA302C
MEA314C	Inspect, test and troubleshoot gas turbine engine systems and components	MEA306C
MEA352A	Maintain basic rotary wing aircraft systems	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA363B	Inspect, repair and maintain structures and related components of non-pressurised small aircraft	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA364A	Maintain and/or repair small aircraft mechanical components or parts	MEA101B, MEA103B, MEA105C, MEA107B,

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

		MEA108B, MEA109B
MEA365A	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Certificate IV units listed below for applicable licence

Elective units Group D

All **eight (8)** units must be taken if a B1.4 licence applicable to basic small aircraft maintenance is being sought.

Unit code	Unit title	Prerequisites
MEA274A	Maintain basic light aircraft electrical systems and components	MEA246C
MEA275A	Maintain basic light aircraft instrument systems and components	MEA246C
MEA276A	Maintain basic light aircraft communication and radio navigation systems and components	MEA246C
MEA352A	Maintain basic rotary wing aircraft systems	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA353A	Maintain basic light aircraft engines and propellers	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA363B	Inspect, repair and maintain structures and related components of non-pressurised small aircraft	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA364A	Maintain and/or repair small aircraft mechanical components or parts	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA365A	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Certificate IV units listed for applicable licence

Elective units Group E

All **nine (9)** units must be taken if a B2 licence applicable to basic small aircraft maintenance is being sought.

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Unit code	Unit title	Prerequisites
MEA202C	Remove and install basic aircraft electrical system components	MEA201B
MEA204C	Remove and install basic aircraft instrument system components	MEA201B
MEA207C	Remove and install aircraft electronic system components	MEA201B
MEA210C	Inspect, test and troubleshoot basic aircraft electrical systems and components	MEA202C, MEA246C
MEA212C	Inspect, test and troubleshoot basic aircraft instrument systems and components	MEA204C, MEA246C
MEA289A	Maintain basic light aircraft avionic systems and components	MEA246C
MEA290A	Fit avionic modification sheetmetal components	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B
MEA291A	Inspect, test and troubleshoot fixed wing single axis autopilot systems and components (Refer to Group F – MEA217B may be taken instead of this unit)	MEA207C, MEA246C
MEA302C	Remove and install aircraft hydro-mechanical and landing gear system components	MEA101B, MEA103B, MEA105C, MEA107B, MEA108B, MEA109B

Elective units Group F

Except for the B1.1 licence, take two (2) or three (3) of the listed units as required by the aircraft types being maintained and the unit selection guidelines in column four to bring the total unit count to twenty seven (27).

Unit code	Unit title	Prerequisites	Unit selection guidelines
MEA202C	Remove and install basic aircraft electrical system components	MEA201B	Applicable to electrical retractable undercarriage
MEA206C	Remove and install aircraft basic radio communication and	MEA201B	Includes HF radio

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Unit code	Unit title	Prerequisites	Unit selection guidelines
	navigation system components		
MEA210C	Inspect, test and troubleshoot basic aircraft electrical systems and components	MEA202C MEA246C	Applicable to electrical retractable undercarriage
MEA214C	Inspect, test and troubleshoot aircraft basic communication and radio navigation systems and components	MEA206C MEA246C	Includes HF radio
MEA216C	Inspect, test and troubleshoot instrument landing systems and components	MEA206C MEA207C MEA246C	Required for ILS
MEA217C	Inspect, test and troubleshoot fixed wing autopilot systems and components	MEA207C MEA246C	Required for 3 axis autopilot system – may be taken instead of Group E unit MEA291A
MEA218C	Inspect, test and troubleshoot rotary wing autopilot systems and components	MEA207C MEA246C	Required for helicopter autopilot system
MEA220C	Inspect, test and troubleshoot aircraft primary radar systems and components	MEA207C MEA246C	Applicable to weather radar
MEA221C	Inspect, test and troubleshoot aircraft secondary radar systems and components	MEA207C MEA246C	Covers RADALT, DME, Doppler and ACAS
MEA277A	Maintain twin engine aircraft electrical systems and components	MEA210C	Mandatory for maintenance of light twin piston engine aircraft
MEA278A	Inspect, test and troubleshoot instrument display systems and components	MEA207C MEA246C	Applicable to electronic display systems
MEA279A	Inspect, test and troubleshoot piston engine full authority digital engine control systems	MEA207C MEA246C	Required for FADEC system maintenance
MEA302C	Remove and install aircraft	MEA101B	Applicable to hydraulic

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Unit code	Unit title	Prerequisites	Unit selection guidelines
	hydro-mechanical and landing gear system components	MEA103B MEA105C MEA107B MEA108B MEA109B	retractable undercarriage and systems with engine driven pump
MEA306C	Remove and install engines and engine system components	MEA302C	Applicable to piston and gas turbine engines
MEA307C	Remove and install propeller systems and components	MEA101B MEA103B MEA105C MEA107B MEA108B MEA109B	Covers variable pitch and constant speed propellers
MEA308C	Remove and install rotary wing rotor and flight control system components	MEA302C	Applicable if helicopter has powered flight controls
MEA309C	Inspect, test and troubleshoot aircraft hydro-mechanical and landing gear systems and components	MEA302C	Applicable to hydraulic retractable undercarriage and systems with engine driven pump
MEA313C	Inspect, test and troubleshoot piston engine systems and components	MEA306C (may be deemed to be covered if MEA353A is held)	Covers turbo and supercharged engines
MEA314C	Inspect, test and troubleshoot gas turbine engine systems and components	MEA306C	For gas turbine engine maintenance
MEA315C	Inspect, test and troubleshoot propeller systems and components	MEA307C	Covers variable pitch and constant speed propellers
MEA316C	Inspect, test and troubleshoot rotary wing rotor and control systems and components	MEA308C	Applicable if helicopter has powered flight controls

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Unit code	Unit title	Prerequisites	Unit selection guidelines
MEA325B	Weigh aircraft and perform aircraft weight and balance calculations as a result of modifications	All applicable Certificate IV units	Elective
MEA351A	Maintain airframe systems of basic light fixed wing aircraft	MEA101B MEA103B MEA105C MEA107B MEA108B MEA109B	Elective if not required by choice of Group A to E
MEA352A	Maintain basic rotary wing aircraft systems	MEA101B MEA103B MEA105C MEA107B MEA108B MEA109B	Elective if not required by choice of Group A to E
MEA353A	Maintain basic light aircraft engines and propellers	MEA101B MEA103B MEA105C MEA107B MEA108B MEA109B	Elective if not required by choice of Group A to E
MEA354A	Maintain light aircraft pneumatic systems	MEA101B MEA103B MEA105C MEA107B MEA108B MEA109B	Elective
MEA355A	Maintain light aircraft air cycle air conditioning systems	MEA201B MEA246C	Elective

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Unit code	Unit title	Prerequisites	Unit selection guidelines
MEA356A	Maintain light piston engine aircraft pressurisation systems	MEA201B MEA246C	Elective
MEA357A	Inspect, test and repair aircraft fabric surfaces	MEA101B MEA103B MEA105C MEA107B MEA108B MEA109B	Required for aircraft with fabric surfaces
MEA358A	Re-cover aircraft fabric surfaces	MEA357A	Elective
MEA359A	Inspect and repair aircraft wooden structures	MEA101B MEA103B MEA105C MEA107B MEA108B MEA109B	Required for aircraft with wooden structure
MEA360A	Maintain aircraft diesel engines	MEA353A	Required for aircraft types with two or four stroke diesel engines
MEA361A	Maintain aircraft two stroke petrol engines	MEA353A	Required for aircraft types with two stroke petrol engines
MEA362A	Maintain aircraft vapour cycle air conditioning systems	MEA201B MEA246C	Elective
MEA367A	Repair/modify aircraft composite structure using cold bonding	MEA401C or MEA339C or MEA363B	Required for repairs to composite primary or secondary structure using cold bonding only
MEA405B	Repair/modify aircraft composite material structure/components	MEA401C (may be deemed to be covered if MEA363B is held)	Required for repairs to composite primary or secondary structure using hot or cold bonding

© Commonwealth of Australia, 2013 Manufacturing Skills Australia

Custom Content Section

Not applicable.

© Commonwealth of Australia, 2013 Manufacturing Skills Australia