



**Australian Government**

# **MEA41015 Certificate IV in Aeroskills (Mechatronics)**

**Release 1**

## **MEA41015 Certificate IV in Aeroskills (Mechatronics)**

### **Modification History**

Release 1 - New qualification

### **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 Civil Aviation Regulation (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 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.

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 Civil Aviation Safety Regulation (CASR) Part 145 Maintenance Repair Organisation (MRO). The pathways to these licences are the MEA50215 Diploma of Aeroskills (Mechanical) for the B1 or the MEA50115 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 Certificate IV, Diploma and Advanced Diploma levels.

### **Entry Requirements**

Not applicable

## Packaging Rules

To be awarded the MEA41015 Certificate IV in Aeroskills (Mechatronics) competency must be demonstrated in **thirty (30)** units, as follows:

- **seventeen (17)** core common, technical stream and imported units that are applicable to all B1 and B2 Licences that are limited to release to service of basic small aircraft
- **thirteen (13)** elective Group A technical stream units where a limited B1.1 Licence is sought
- **ten (10)** elective Group B technical stream units where a limited B1.2 Licence is sought
- **eleven (11)** elective Group C technical stream units where a limited B1.3 Licence is sought
- **ten (10)** 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 **thirty (30)** units.

### Core units of competency

- All **seventeen (17)** units must be taken if a B1 or B2 Licence applicable to basic small aircraft maintenance is being sought.

Unit code	Unit title	Prerequisites
MEA101	Interpret work health and safety practices in aviation maintenance	
MEA103	Plan and organise aviation maintenance work activities	MEA101, MEA105 MEA107, MEA108
MEA105	Apply quality standards applicable to aviation maintenance processes	MEA101, MEA107
MEA107	Interpret and use aviation maintenance industry manuals and specifications	
MEA108	Complete aviation maintenance industry documentation	MEA105
MEA109	Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance	MEA105, MEA108
MEA111	Perform administrative processes to prepare for certification of civil aircraft maintenance	All applicable Certificate IV units
MEA112	Plan and implement civil aircraft maintenance activities	All applicable Certificate IV units

MEA113	Supervise civil aircraft maintenance activities and manage human resources in the workplace	All applicable Certificate IV units
MEA116	Apply work health and safety procedures at supervisor level in aviation maintenance	
MEA118	Conduct self in the aviation maintenance environment	
MEA148	Apply mathematics and physics in aviation maintenance	
MEA201	Remove and install miscellaneous aircraft electrical hardware/components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA246	Fabricate and/or repair aircraft electrical hardware or parts	MEA201, MEA260
MEA260	Use electrical test equipment	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA301	Perform aircraft flight servicing	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MSAENV472B	Implement and monitor environmentally sustainable work practices	

### Elective units of competency

#### Group A

- All **thirteen (13)** units must be taken if a B1.1 Licence applicable to basic small aircraft maintenance is being sought.

Unit code	Unit title	Prerequisites
MEA274	Maintain basic light aircraft electrical systems and components	MEA246
MEA275	Maintain basic light aircraft instrument systems and components	MEA246
MEA276	Maintain basic light aircraft communication and radio	MEA246

	navigation systems and components	
MEA306	Remove and install engines and engine system components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA307	Remove and install propeller systems and components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA314	Inspect, test and troubleshoot gas turbine engine systems and components	MEA306
MEA315	Inspect, test and troubleshoot propeller systems and components	MEA307
MEA351	Maintain airframe systems of basic light fixed wing aircraft	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA364	Maintain and/or repair small aircraft mechanical components or parts	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA365	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Cert IV units listed for applicable licence
MEA369	Inspect and maintain structure and related components of non-pressurised small aircraft	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA370	Repair the structure of non-pressurised small aircraft	MEA369
MEA372	Perform mechanical elementary maintenance	MEA301

### Group B

- All ten (10) units must be taken if a B1.2 Licence applicable to basic small aircraft maintenance is being sought.

Unit code	Unit title	Prerequisites
MEA274	Maintain basic light aircraft electrical systems and components	MEA246

MEA275	Maintain basic light aircraft instrument systems and components	MEA246
MEA276	Maintain basic light aircraft communication and radio navigation systems and components	MEA246
MEA351	Maintain airframe systems of basic light fixed wing aircraft	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA353	Maintain basic light aircraft engines and propellers	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA364	Maintain and/or repair small aircraft mechanical components or parts	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA365	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Cert IV units listed for applicable licence
MEA369	Inspect and maintain structure and related components of non-pressurised small aircraft	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA370	Repair the structure of non-pressurised small aircraft	MEA369
MEA372	Perform mechanical elementary maintenance	MEA301

### Group C

- All **eleven (11)** units must be taken if a B1.3 Licence applicable to basic small aircraft maintenance is being sought.

Unit code	Unit title	Prerequisites
MEA274	Maintain basic light aircraft electrical systems and components	MEA246
MEA275	Maintain basic light aircraft instrument systems and components	MEA246
MEA276	Maintain basic light aircraft communication and radio navigation systems and components	MEA246

MEA306	Remove and install engines and engine system components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA314	Inspect, test and troubleshoot gas turbine engine systems and components	MEA306
MEA352	Maintain basic rotary wing aircraft systems	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA364	Maintain and/or repair small aircraft mechanical components or parts	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA365	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Cert IV units listed for applicable licence
MEA369	Inspect and maintain structure and related components of non-pressurised small aircraft	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA370	Repair the structure of non-pressurised small aircraft	MEA369
MEA372	Perform mechanical elementary maintenance	MEA301

### Group D

- All **ten (10)** units must be taken if a B1.4 Licence applicable to basic small aircraft maintenance is being sought.

Unit code	Unit title	Prerequisites
MEA274	Maintain basic light aircraft electrical systems and components	MEA246
MEA275	Maintain basic light aircraft instrument systems and components	MEA246
MEA276	Maintain basic light aircraft communication and radio navigation systems and components	MEA246
MEA352	Maintain basic rotary wing aircraft systems	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109

MEA353	Maintain basic light aircraft engines and propellers	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA364	Maintain and/or repair small aircraft mechanical components or parts	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA365	Assess structural repair/modification requirements and evaluate structural repairs and modifications	All Cert IV units listed for applicable licence
MEA369	Inspect and maintain structure and related components of non-pressurised small aircraft	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA370	Repair the structure of non-pressurised small aircraft	MEA369
MEA372	Perform mechanical elementary maintenance	MEA301

### Group E

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

Unit code	Unit title	Prerequisites
MEA202	Remove and install basic aircraft electrical system components	MEA201
MEA204	Remove and install basic aircraft instrument system components	MEA201
MEA207	Remove and install aircraft electronic system components	MEA201
MEA210	Inspect, test and troubleshoot basic aircraft electrical systems and components	MEA202, MEA246
MEA212	Inspect, test and troubleshoot basic aircraft instrument systems and components	MEA204, MEA246
MEA216	Inspect, test and troubleshoot instrument landing systems and components	MEA206, MEA207 MEA246
MEA289	Maintain basic light aircraft avionic systems and	MEA246



	components	
MEA290	Fit avionic modification sheet metal components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109
MEA291	Inspect, test and troubleshoot fixed wing single axis autopilot systems and components (Refer to Group F – MEA217 or MEA218 may be taken instead of this unit)	MEA207, MEA246

### Group F

- Except for the B1.1 Licence, take between **two (2)** and **four (4)** of the listed units as required by the aircraft types being maintained and the unit selection guidelines in column 4 to bring the total unit count to **thirty (30)** units.

Unit code	Unit title	Prerequisites	Unit selection guidelines
MEA202	Remove and install basic aircraft electrical system components	MEA201	Applicable to electrical retractable undercarriage
MEA206	Remove and install aircraft basic radio communication and navigation system components	MEA201	Includes HF radio
MEA210	Inspect, test and troubleshoot basic aircraft electrical systems and components	MEA202, MEA246	Applicable to electrical retractable undercarriage
MEA214	Inspect, test and troubleshoot aircraft basic communication and radio navigation systems and components	MEA206, MEA246	Includes HF radio
MEA216	Inspect, test and troubleshoot instrument landing systems and components	MEA206, MEA207 MEA246	Required for ILS
MEA217	Inspect, test and troubleshoot fixed wing autopilot systems and components	MEA207, MEA246	Required for 3 axis autopilot system – may be taken instead of Group E unit

Unit code	Unit title	Prerequisites	Unit selection guidelines
			MEA291A
MEA218	Inspect, test and troubleshoot rotary wing autopilot systems and components	MEA207, MEA246	Required for helicopter autopilot system
MEA220	Inspect, test and troubleshoot aircraft primary radar systems and components	MEA207, MEA246	Applicable to weather radar
MEA221	Inspect, test and troubleshoot aircraft secondary radar systems and components	MEA207, MEA246	Covers RADALT, DME, Doppler and ACAS
MEA277	Maintain twin engine aircraft electrical systems and components	MEA210	Mandatory for maintenance of light twin piston engine aircraft
MEA278	Inspect, test and troubleshoot instrument display systems and components	MEA207, MEA246	Applicable to electronic display systems
MEA279	Inspect, test and troubleshoot piston engine full authority digital engine control systems	MEA207, MEA246	Required for FADEC system maintenance
MEA281	Maintain light aircraft AC powered instrument systems and components	MEA246	
MEA302	Remove and install aircraft hydro-mechanical and landing gear system components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Applicable to hydraulic retractable undercarriage and systems with engine driven pump
MEA303	Remove and install aircraft pneumatic system components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Applicable to aircraft types with air cycle air conditioning and pressurisation
MEA306	Remove and install engines and engine system components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Applicable to piston and gas turbine engines

Unit code	Unit title	Prerequisites	Unit selection guidelines
MEA307	Remove and install propeller systems and components	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Covers variable pitch and constant speed propellers
MEA308	Remove and install rotary wing rotor and flight control system components	MEA302	Applicable if helicopter has powered flight controls
MEA309	Inspect, test and troubleshoot aircraft hydro-mechanical and landing gear systems and components	MEA302	Applicable to hydraulic retractable undercarriage and systems with engine driven pump
MEA310	Inspect, test and troubleshoot aircraft pneumatic systems and components	MEA303	Applicable to aircraft types with air cycle air conditioning and pressurisation
MEA313	Inspect, test and troubleshoot piston engine systems and components	MEA306 (deemed to be covered if MEA353 is held)	Covers turbo and supercharged engines
MEA314	Inspect, test and troubleshoot gas turbine engine systems and components	MEA306	For gas turbine engine maintenance
MEA315	Inspect, test and troubleshoot propeller systems and components	MEA307	Covers variable pitch and constant speed propellers
MEA316	Inspect, test and troubleshoot rotary wing rotor and control systems and components	MEA308	Applicable if helicopter has powered flight controls
MEA325	Weigh aircraft and perform aircraft weight and balance calculations as a result of modifications	All applicable Certificate IV units	Elective
MEA351	Maintain airframe systems of basic light fixed wing aircraft	MEA101, MEA103 MEA105, MEA107	Elective if not required by choice

Unit code	Unit title	Prerequisites	Unit selection guidelines
		MEA108, MEA109	of Group A to E
MEA352	Maintain basic rotary wing aircraft systems	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Elective if not required by choice of Group A to E
MEA353	Maintain basic light aircraft engines and propellers	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Elective if not required by choice of Group A to E
MEA354	Maintain light aircraft pneumatic systems	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Elective
MEA355	Maintain light aircraft air cycle air conditioning systems	MEA201, MEA246	Elective
MEA356	Maintain light piston engine aircraft pressurisation systems	MEA201, MEA246	Elective
MEA357	Inspect, test and repair aircraft fabric surfaces	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Required for aircraft with fabric surfaces
MEA358	Re-cover aircraft fabric surfaces		Elective
MEA359	Inspect and repair aircraft wooden structures	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109	Required for aircraft with wooden structure
MEA360	Maintain aircraft diesel engines	MEA353	Required for aircraft types with two or four stroke diesel engines
MEA361	Maintain aircraft two stroke petrol engines	MEA353	Required for aircraft types with two stroke petrol engines
MEA362	Maintain aircraft vapour cycle air conditioning systems	MEA201, MEA246	Elective
MEA367	Repair/modify aircraft composite structure using cold bonding	MEA369	Required for repairs to composite primary or

Unit code	Unit title	Prerequisites	Unit selection guidelines
			secondary structure using cold bonding only
MEA371	Perform major repairs and modifications to small aircraft metal structure	MEA369, MEA370	Elective
MEA372	Perform mechanical elementary maintenance	MEA301	Required for B2 licence holders to perform mechanical elementary maintenance
MEA405	Repair/modify aircraft composite material structure/components	MEA401 (deemed to be covered if MEA369 is held)	Required for repairs to composite primary or secondary structure using hot or cold bonding
MEA512	Maintain general aviation recovery devices with ballistic parachute systems	MEA101, MEA103 MEA105, MEA107 MEA108, MEA109 DEFEO101D	Elective
DEFEO101D	Work safely with explosive ordnance		Elective

## Qualification Mapping Information

Supersedes and is equivalent to MEA41011 Certificate IV in Aeroskills (Mechatronics)

## Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>