



Australian Government

MEA145 Conversion from allied trades for employment in aviation maintenance workshops

Release: 2

MEA145 Conversion from allied trades for employment in aviation maintenance workshops

Modification History

Release 2. Equivalent to MEA145 Conversion from allied trades for employment in aviation maintenance workshops with amended prerequisite codes.

Application

This unit of competency requires application of common core skills and knowledge that are aviation maintenance specific and meet the requirements of the two Regulators, the Civil Aviation Safety Authority (CASA) and the Australian Defence Force (ADF). The skills and knowledge will be applied during the maintenance of items of aeronautical product in aviation maintenance workshops.

The unit is applicable to individuals with Certificate III or Certificate IV qualifications in allied trades (primarily automotive, electrotechnology or metals and engineering) who are to be employed in aviation maintenance workshops. It covers aviation maintenance-specific parts of common core competencies that must be applied by all individuals employed on the maintenance of items of aeronautical product and which would not have been covered in allied trade units that relate to similar areas of expertise.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and CASA.

This unit applies to MEA Skill Sets and must not be included in any AQF qualification.

Pre-requisite Unit

MEA157 Complete aviation maintenance industry documentation

Competency Field

Aviation maintenance

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| 1. Identify and access | 1.1 Appropriate manuals are identified and accessed for the |
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	aviation industry manuals, specifications and drawings		type of aircraft or component to be maintained
		1.2	Amendment status is clearly established to ensure the correct specifications and procedures are applied
2.	Amend manuals, specifications or drawings	2.1	Manual, specification or drawing changes and/or amendments are incorporated and documented correctly in accordance with statutory regulations and/or enterprise procedures
3.	Store manuals, specifications or drawings	3.1	Manuals, specifications or drawings are stored appropriately to ensure prevention of damage, ready access and updating of information, when required, in accordance with regulatory and/or enterprise procedures
4.	Apply standard trade practices	4.1	Common types of aircraft attachment hardware are correctly selected and used
		4.2	Common types of safety locking devices and fasteners are correctly selected and used
		4.3	Aircraft components, devices and hardware are lockwired in the correct manner, using the appropriate wire gauge
		4.4	Common types of aircraft connectors and plumbing are accurately assembled or connected
5.	Interpret and apply quality standards in the aviation maintenance environment	5.1	Standards or specifications set out in maintenance documents and process specifications are identified and interpreted
		5.2	Enterprise quality requirements are identified, confirmed and applied
6.	Plan steps and organise work to complete task	6.1	Steps are planned in conjunction with the work of other personnel to allow achievement of practical outcomes in accordance with relevant aircraft publications/maintenance regulations/orders and standards and practices
		6.2	Human factors and work health and safety (WHS) requirements, including the use of material safety data sheets (MSDS), are allowed for in planning of steps
		6.3	Work activity is organised with other involved personnel, allowing for relevant human factors and using relevant communication processes to ensure safe and appropriate sequencing of tasks

- 6.4 All necessary documentation related to job planning and progress is completed and recorded in accordance with relevant aircraft publications/maintenance regulations/orders and standards and practices

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.	
Appropriate manuals include:	• Aircraft publications, maintenance instruction manuals, process specifications, servicing or service bulletins or structural repair manuals • Tooling or equipment manuals, manufacturer's manuals, standard practices, enterprise aviation regulations and publications • Illustrated parts catalogues, aircraft wiring manuals or drawings
Application of standard aviation trade practices includes:	• The selection and use of hand and power tools and equipment associated with workshop-related activities in the aircraft maintenance environment that involve: • laying out and fabricating simple items from common aircraft materials • assembling items using a representative range of common types of aircraft attachment hardware for which relevant fits and clearances, appropriate safety locking devices and fasteners, including lockwire, are correctly selected and applied • assembling/connecting a range of common aircraft connectors and plumbing, applying safety locking devices, where applicable • assembling/connecting aircraft control cables and applying safety locking devices, where applicable
Regulatory and enterprise procedures are found in:	• Civil Aviation Regulations (CARs) or Civil Aviation Safety Regulations (CASRs) • Maintenance organisation manual

	• Procedures manuals • Work instructions • Quality manuals • Safety manuals • Applicable Defence Regulations and instructions • Standing instructions
Human factors include:	• The factors relating to human behaviour and performance in aviation maintenance environments that are defined by either CASA or the ADF
Documentation includes:	• Maintenance logs, overhaul test/check sheets, job history sheets, traveller cards, maintenance reports, irregularity reports, serviceable tags or removal tags • MSDS or material record sheets

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>

Assessment Requirements for MEA145 Conversion from allied trades for employment in aviation maintenance workshops

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Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- accessing, interpreting and applying information from industry manuals, including paper-based, microfiche or computer-based media, relating to work activities, including determination of manual amendment status, knowledge of manual structures and locating relevant information/instructions for work activity
- amending industry manuals to reflect current/approved amendment status
- identifying and interpreting information from drawings and diagrams in aircraft maintenance manuals, including component scaling, section, assembly, location, drawing applicability and amendment status from the title block
- correct handling and storage of drawings, manuals and industry media, i.e. microfiche and digital formats
- determining correct lubricants for specified applications
- identifying common ferrous and non-ferrous aircraft materials
- identifying common aircraft composite and non-metallic materials (other than wood)
- identifying aircraft hardware by markings, part numbers, size, shape and material
- installing aircraft hardware using standard practices/techniques to ensure safe security and includes:
 - minimum thread engagement
 - split pinning
 - lockwiring
 - application of locking compounds
 - locking tabs and spring washers
 - lock nuts
- installing aircraft hardware using tightening, torquing and tensioning techniques
- identifying various types of aircraft rigid and flexible plumbing and their connectors
- identifying aircraft control cables and related cable system hardware
- applying workplace hazard reporting and identification procedures
- being able to differentiate the elements which constitute the quality system and the ability to identify processes, workplace regulations and ISO 9000 compliant documentation and specifications within the workplace environment

- interpreting information relating to the work activity from a range of industry manuals, industry and enterprise regulations and industry documentation
- considering WHS regulations/precautions specific to the work activity and others working in the vicinity of the planned work activity, particularly with regard to electricity, gases (especially oxygen), oils and chemicals
- using MSDS
- applying human factors in planning maintenance activities.
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Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- the types of industry manuals used in aviation maintenance and types of media
- requirements for custody and upkeep of industry manuals
- techniques for obtaining and applying data contained in industry manuals
- types of standard aircraft hardware and methods of identification, including bolts, nuts, washers, pins (cotter and tapered), and fasteners (rivets and camlocs)
- materials from which hardware is manufactured and its applications, including plain, corrosion resistant and temperature/heat resistant
- types of safety locking devices and their application
- common ferrous and non-ferrous aircraft materials, heat treatment and testing
- characteristics and properties of common composite and non-metallic materials (other than wood)
- types of aircraft cable, turnbuckles, end fittings, tensiometers, pulleys and cable system components, and aircraft flexible control systems
- types and characteristics of lubricants
- typical quality systems and their operation in the workplace
- workplace quality documentation, such as quality manuals, procedures manuals, work instructions and worksheets
- the relationship between the quality system and WHS requirements, such as workplace hazard reporting
- the relationship between the quality system and identification systems for aircraft hardware, materials and components
- the impact of human factors on the safe and effective performance of maintenance on aircraft and aircraft components
- MSDS.

Assessment Conditions

- Competency should be assessed in the work environment, or by use of simulated activities, covering the use of publications/maintenance regulations/orders and standards and practices, the application of aviation maintenance specific standard trade practices, and of task planning and quality system application in the aeronautical product maintenance environment.

- This unit must be linked in its assessment and application to those that apply to the actual maintenance of items of aeronautical product. It is essential that all WHS requirements are met and understood.
- The transferability of general manual interpretation and use in accordance with relevant aircraft component publications/maintenance regulations/orders and standards and practices must be clearly established. This includes evidence of underlying knowledge and skills associated with the interpretation and use of manuals to supplement understanding of the structure and regulatory requirements associated with the aircraft maintenance environment for aeronautical product maintenance.
- Evidence of knowledge about how aircraft materials, standard items of hardware and fittings are used in component maintenance and the application of quality systems and work planning must be demonstrated. The ability to apply the skills and knowledge across a variety of applications must also be demonstrated.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance of the unit of competency are being achieved under routine supervision on at least one manual from each of:
 - aircraft publications, maintenance instruction manuals, process specifications, servicing or service bulletins or structural repair manuals
 - tooling or equipment manuals, manufacturer's manuals, standard practices, enterprise aviation regulations and publications
 - illustrated parts catalogues, aircraft wiring manuals or drawings
- and on representative tasks from:
 - laying out and fabricating simple items from common aircraft materials
 - assembling items using a representative range of common types of aircraft attachment hardware for which relevant fits and clearances, appropriate safety locking devices and fasteners, including lockwire, are correctly selected and applied
 - assembling/connecting a range of common aircraft connectors and plumbing, applying safety locking devices, where applicable
 - assembling/connecting aircraft control cables and applying safety locking devices, where applicable.
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
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