Australian Government

Department of Education, Employment and Workplace Relations

MEA145A Conversion from allied trades for employment in aviation maintenance workshops

Release: 1

INDUSTRY SKILLS COUNCILS

Creating Australia's Future

MEA145A Conversion from allied trades for employment in aviation maintenance workshops

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency 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 parts of common core competencies required of all individuals employed on the maintenance of items of aeronautical product that are aviation maintenance specific and would not have been covered in allied trade units that relate to similar areas of expertise.

Application of the Unit

Application of the unit	This unit 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. The skills and knowledge will be applied during the maintenance of items of aeronautical product in aviation maintenance workshops.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and access aviation industry manuals, specifications and drawings	1.1. ***Appropriate manuals*** are identified and accessed for the 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*** 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

ELEMENT	PERFORMANCE CRITERIA
	standards and practices

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- accessing, interpreting and applying informationfrom 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 occupational health and safety (OHS) regulations/precautions specific to the work activity and others working in the vicinity of the planned work activity,

REQUIRED SKILLS AND KNOWLEDGE
particularly with regard to electricity, gases (especially oxygen), oils and chemicals • using material safety data sheets (MSDS) • applying human factors in planning maintenance activities
Required knowledge
Look for evidence that confirms 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 OHS 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

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	A person who demonstrates competency in this unit must be able to correctly apply common core skills and knowledge covered by this unit that are specific to the maintenance of items of aeronautical product in aviation maintenance workshops.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	This unit must be linked in its assessment and application to those units that apply to actual maintenance of items of aeronautical product. It is essential that all OHS 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. Evidence of underlying knowledge and skills associated with the interpretation and use of manuals is required to supplement understanding of the structure and regulatory requirements associated with the aircraft maintenance environment in this area. 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. A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements of the unit of competency are being achieved under routine supervision on at least one manual from each of Groups 1, 2 and 3 listed in the Range Statement and on the tasks listed in Groups 4 to 7. This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry .
Context of and specific resources for assessment	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

EVIDENCE GUIDE	
	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.
Method of assessment	
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Note	Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide.
Appropriate manuals	*Appropriate manuals may include*: 1. Aircraft publications, maintenance instruction manuals, process specifications, servicing or service bulletins or structural repair manuals 2. Tooling or equipment manuals, manufacturer's manuals, standard practices, enterprise aviation regulations and publications 3. Illustrated parts catalogues, aircraft wiring manuals or drawings
Application of standard aviation trade practices	Application of standard aviation trade practices applies to the selection and use of hand and power tools and equipment associated with workshop-related activities in the aircraft maintenance environment that involve: 4. Laying out and fabricating simple items from common aircraft materials 5. 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 6. Assembling/connecting a range of common aircraft connectors and plumbing, applying safety locking devices where applicable 7. Assembling/connecting aircraft control cables and applying safety locking devices where applicable
Regulatory and enterprise procedures	*Regulatory and enterprise procedures may be found in*: • civil aviation regulations or civil aviation

RANGE STATEMENT	
	safety regulations • maintenance organisation manual • procedures manuals • work instructions • quality manuals • safety manuals • applicable defence regulations and instructions • standing instructions
Human factors	*Human factors are*: • the factors relating to human behaviour and performance in aviation maintenance environments that are defined by either CASA or the Australian Defence Force
Documentation	*Documentation may include*: • 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 Sector(s)

Unit sector	

Competency field

Competency field	Aviation maintenance

Co-requisite units

Co-requisite units		
	MEA108B	*Complete aviation maintenance industry documentation*

Co-requisite units		