Australian Government

Department of Education, Employment and Workplace Relations

MEA109B Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

Release: 2

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Modification History

Minot formatting and editorial changes made. Prerequisite unit version updated.

Unit Descriptor

This unit of competency is applicable to all Aeroskills Maintenance training pathways. It covers the competencies required to perform basic hand skills, apply standard trade practices and fundamentals relevant to the maintenance of aircraft and aircraft components. Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen Aircraft Maintenance Engineer Licence under CASR Part 66, in accordance with the licensing provisions in the Assessment Guidelines.

Application of the Unit

This unit requires application of basic hand skills and standard trade practices in the maintenance of aircraft and aircraft components.
Applications include the use of hand and power tools, and the selection and use of aircraft hardware.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA105C	Apply quality standards applicable to aviation maintenance processes
MEA108B	Complete aviation maintenance industry documentation

Employability Skills Information

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

1. Assess task requirements	1.1. Available information from relevant documentation and/or other sources, in communication with other personnel, is interpreted and assessed to determi tooling requirements
2. Select tools and/or equipment	2.1. Hand and/or power tools or equipment are selected for appropriate applicat task 2.2. All tools and/or equipment to be used are checked for condition or calibrati 2.3. Unsafe or faulty tools or equipment are identified and marked for repair acc procedures
3. Use tools and/or equipment	3.1. Tools and/or equipment are used according to standard practices to ensure t is produced 3.2. Tools and/or equipment use is carried out without damage to components o and efficient manner 3.3. Operational maintenance of tools or equipment is undertaken according to s procedures
4. Store tools and/ or equipment	4.1. Tools and/or equipment are stored safely and securely in accordance with e
5. Apply standard trade practices	5.1. Simple items are manufactured using basic engineering hand skills 5.2. Common types of aircraft attachment hardware are correctly selected and u 5.3. Common types of safety locking devices and fasteners are correctly selecte 5.4. Aircraft components, devices and hardware are lockwired in the correct ma appropriate wire gauge 5.5. Common types of aircraft connectors and plumbing are accurately assembl

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- the correct identification, inspection of, application, use and storage of general and purpose specific hand tools (i.e. spanners, screwdrivers, pliers, hammers, cutting devices, files, punches, drills and marking out tools) that may be found in an aircraft engineering workshop or hangar
- the correct identification, inspection of (including calibration), application, use and storage of precision measuring tools (i.e. micrometers, vernier instruments, feeler gauges, go/no-go gauges) that may be found in an aircraft engineering workshop or hangar. Reading instrument scales must be clearly demonstrated during application of instruments to ensure compliance with specifications
- the correct identification, inspection of, application, operation and storage/servicing of portable and fixed power and machine tools (i.e. drills, presses, grinders, shears, pan breaks) that may be found in an aircraft engineering workshop or hangar
- identification, inspection and use of lubrication equipment
- determination of correct lubricants for specified applications
- identification of common ferrous and non-ferrous aircraft materials
- identification of common aircraft composite and non-metallic materials (other than wood)
- identification of aircraft hardware by markings, part numbers, size, shape and material
- the installation of aircraft hardware using standard practices/techniques to ensure safe security and includes:
  - minimum thread engagement
  - split pinning
  - lockwiring
  - application of locking compounds
  - locking tabs, spring washers
  - lock nuts
- the installation of aircraft hardware using tightening, torquing and tensioning techniques. Calculating setting, reading scales and setting up of torque wrench and/or tensioning devices must be clearly demonstrated before application of wrench or device
- identification of various types of aircraft rigid and flexible plumbing and their connectors
- identification of aircraft control cables and related cable system hardware

Required knowledge

Look for evidence that confirms knowledge of:

- types of standard aircraft hardware and methods of identification, including bolts,

nuts, washers, pins (cotter, 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, aircraft flexible control systems
- types and characteristics of lubricants
- types and uses of lubrication equipment
- fits and clearances
- hand and power tool storage and maintenance requirements
- tool calibration requirements
- OHS requirements relation to the use of hand and power tools

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 use aviation maintenance hand and power tools to lay out and fabricate simple items, correctly assemble items and apply safety locking devices.
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 aircraft. It is essential that all OHS requirements are met and understood. Evidence of knowledge about how tools and equipment are selected, used and maintained is essential. The ability to manipulate tools and equipment correctly in the performance of tasks is necessary to demonstrate transferability of hand skills across a variety of applications. 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 the tasks listed in Groups 1 to 4 in the Range Statement. 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, using tools and equipment specified by aircraft manuals as well as general purpose tools and test equipment found in most routine situations. It is expected that the person operating these tools and equipment would be able to demonstrate a broad application of their skills.
Method of assessment	
Guidance information for assessment	

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
Application of competency	The competency applies to the selection and use of hand and power tools and equipment associated with on-aircraft or workshop related activities in the aircraft maintenance environment that involve: 1. Laying out and fabricating simple items from common aircraft materials 2. 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 3. Assembling/connecting a range of common aircraft connectors and plumbing, applying safety locking devices, where applicable 4. Assembling/connecting aircraft control cables and applying safety locking devices, where applicable
The use of tools and equipment	The use of tools and equipment includes the related manipulative skills required to perform maintenance
Application	Application of this unit may relate to: • scheduled or unscheduled maintenance activities • individual or team-related activities
Procedures and requirements	Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Aviation maintenance

Competency field

Co-requisite units

Not applicable