



Australian Government

Department of Education, Employment and Workplace Relations

MEA239B Fabricate aircraft electrical looms and harnesses

Revision Number: 2

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Modification History

Minor formatting and editorial changes made. Prerequisite unit version code updated.

Unit Descriptor

This unit of competency is part of the Avionic Certificate II training pathway. It covers the competencies required to fabricate and test, under qualified person guidance, a range of aircraft electrical looms and harnesses. The unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and CASA.

Application of the Unit

This unit requires application of hand skills and maintenance publications to fabricate aircraft electrical looms and harnesses under qualified person guidance for general use in electrical systems.

Applications include aircraft hangars and workshops.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA101B	Interpret occupational health and safety practices in aviation maintenance
MEA103B	Plan and organise aviation maintenance work activity
MEA105C	Apply quality standards applicable to aviation maintenance processes
MEA107B	Interpret and use aviation maintenance industry manuals and specifications
MEA108B	Complete aviation maintenance industry documentation
MEA109B	Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

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.
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Elements and Performance Criteria

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| 1. Prepare to fabricate aircraft electrical looms and harnesses | 1.1. Appropriate materials, tools and equipment are selected and prepared for the particular task in accordance with applicable maintenance documentation, enterprise procedures and under qualified person guidance
1.2. Assembly or fabrication jigs, where applicable, are aligned to ensure accurate fabrication of components |
| 2. Fabricate aircraft electrical looms and harnesses | 2.1. Components or parts are fabricated in accordance with qualified person guidance, applicable maintenance documentation and enterprise procedures |
| 3. Perform routine tests on aircraft electrical looms and harnesses | 3.1. Under qualified person guidance test equipment and rigs are used, where applicable, to confirm serviceability of finished components |
| 4. Complete the fabrication process with regard to aircraft electrical looms and harnesses | 4.1. Fabricated components are tagged, sealed and packaged within specified procedures |

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- applying relevant OHS practices
- using approved fabrication procedures and processes relating to electrical looms, cables and harnesses
- recognising the integrity/security of electrical component crimps, joints and plug/connector pins
- fabrication of cables, harnesses and looms, including wire marking, to approved industry standards
- under qualified person guidance performing testing to assess post construction serviceability according to enterprise procedures

Required knowledge

Look for evidence that confirms knowledge of:

- electrical wire gauges and standards
- wire marking conventions and procedures
- wire terminations, soldering and crimping

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.

<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to fabricate aircraft electrical looms, harnesses and cables for general electrical system use while observing all relevant safety precautions.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>The underlying skills inherent in this unit should be transferable into other areas that require similar techniques. It is essential that the general aspects of material specification and selection, measurement and fabrication be related to specific aircraft component applications to the extent necessary to unambiguously understand expert guidance.</p> <p>Evidence of knowledge about individual components and their links with systems will be necessary to supplement evidence of ability to interpret qualified person guidance and enterprise procedures to fabricate looms, harnesses and cables before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.</p> <p>Safety precautions applicable to the manufacturing of electrical looms, harnesses and cables are to be fully observed. An understanding of system operation as it relates to the work must be demonstrated before undertaking any action, to ensure safety and quality issues are addressed.</p> <p>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 qualified person guidance on a representative range of electrical loom, cable and harness fabrication tasks as provided for 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 Evidence Guide.</p>
<p>Context of and specific resources for assessment</p>	<p>Competency should be assessed in the work environment, using tools and equipment specified by aircraft in the maintenance manuals. It is also expected that general purpose tools and test equipment found in</p>

	most routine situations would be used where appropriate.
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.

<p>Application</p>	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> • routine scheduled or unscheduled maintenance activities performed under qualified person guidance in accordance with enterprise procedures and applicable maintenance documentation • work undertaken either autonomously or as part of a team and under the guidance of a qualified person. Routine work is carried out using basic operational knowledge and a defined range of skills ('routine' work is that which follows a customary or regular course of procedure). All work outcomes are achieved by applying known solutions chosen from a limited range of pre-determined options consistent with enterprise procedures. This includes accepting responsibility for own work in terms of quality of outcomes using pre-determined specifications of quality • note that the scope of any fabrication and the procedure to be followed will be provided by the qualified person, and be within the scope of the skills and knowledge included in unit MEA109B Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance
<p>Components or parts</p>	<p>Components or parts include:</p> <ul style="list-style-type: none"> • electrical looms, harnesses and cables except for: <ul style="list-style-type: none"> • data bus cables • co-axial cables • fibre optic cables • fire detection/extinguishing systems • oxygen systems • fuel tanks and integrated hardware

Unit Sector(s)

Aviation maintenance

Competency field

Co-requisite units

Not applicable