



Australian Government

Department of Education, Employment and Workplace Relations

MEA235B Perform advanced troubleshooting in aircraft avionic maintenance

Revision Number: 2

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Modification History

Minor formatting and editorial changes made.

Unit Descriptor

This unit covers competencies required to progress from an Aircraft Maintenance Engineer at Certificate IV to the granting of a B2 Aircraft Maintenance Engineer Licence or Aircraft Maintenance Specialist Certificate under Civil Aviation Safety Regulation (CASR) Part 66, in accordance with the licensing provisions in the Assessment Guidelines.

The skills and knowledge covered by the units of competency listed in the Aeroskills Training Package for Aircraft Maintenance Engineer (Avionics or Mechanical as applicable) at Certificate IV are pre-requisite to the attainment of the elements of competency specified in this unit. This includes full coverage of the CASR Part 66 Avionics or Mechanical Syllabus subjects/topics listed in the Assessment Guidelines.

Application of the Unit

This unit requires application of hand skills and the use of fundamental system/component knowledge and applicable maintenance publications and test equipment to troubleshoot faults in avionic systems that are beyond the bounds of maintenance manual fault diagnosis guides.

Applications include fixed and rotary wing aircraft

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable

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. Verify the defect | 1.1. Available information from flight crew, such as flight phase, aircraft configuration, maintenance documentation both current and previous history, is used as ne
fault determination
1.2. Inspection of the affected <i>system</i> is carried out to check both physical integ
operation
1.3. Information gained from Central Maintenance Systems is verified against p
and correct operation, where applicable
1.4. The effects on a system from interfaces/integration with other systems are |
| 2. Isolate the defect | 2.1. Logical processes including the application of basic principles and system l
known facts are used to augment maintenance manual fault diagnosis guide
efficient and accurate <i>troubleshooting</i>
2.2. Specialist advice is obtained, where required and/or available, to assist with
troubleshooting process
2.3. Faults are located and the causes of the defects are clearly identified and co
maintenance documentation including any other systems disturbed, where r |
| 3. Determine defect rectification requirements | 3.1. Defect rectification requirements are determined and the necessary repair a
verification and isolation of the defect are confirmed |
| 4. Verify defect rectification | 4.1. Defect is rectified in accordance with approved maintenance data
4.2. All systems disturbed or accessed during troubleshooting are restored as ap
maintenance manuals, repair schemes or approved maintenance data
4.3. All check(s) required by approved maintenance data to ensure correct oper
disturbed systems are performed |

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- the diagnosis of faults that are beyond the coverage of maintenance manual fault diagnosis guides in simulated applications in the training environment and/or in the workplace across a representative range of systems and components.=

Required knowledge

For systems and components relevant to the scope of the licence/ratings sought as per CASR Part 43 Manual of Standards, look for evidence that confirms knowledge of:

- theory related to system operation and interfaces between systems and with electrical/electronic control media to a level that will facilitate the diagnosis of faults beyond the level of maintenance manual fault diagnosis guides using reported symptoms and functional test results
- component construction and theory of operation to a level that will facilitate the diagnosis of faults beyond the level of maintenance manual fault diagnosis guides using reported symptoms and functional test results
- advanced fault diagnostic techniques
- condition monitoring and trend analysis techniques

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	<p>A person who demonstrates competency in this unit must be able to diagnose a range of system faults that are beyond the bounds of maintenance manual fault diagnosis guides while observing all relevant safety precautions.</p>
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>The underlying skills inherent in this unit should be transferable across a range of inspection, testing and troubleshooting applications related to avionic systems, and where applicable other system interfaces/integration. It is essential that system testing procedures, cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical, as is the demonstrated ability to apply fundamental system theory in the logical diagnosis of complex faults.</p> <p>Evidence of transferability of skills and knowledge related to performance and supervision of inspection, testing and troubleshooting is essential. This must be demonstrated through application across a number of aircraft avionic systems, including system interfaces/integration. The troubleshooting approach should clearly demonstrate an in-depth knowledge of underpinning theory of a system, with this knowledge being used in a logical process to augment and extend the scope of the aircraft/system fault finding guide. The fault rectification work plan should take account of applicable safety (including safe handling of heavy components) and quality requirements in accordance with the industry and regulatory standards.</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 supervision without intervention and the ability has been demonstrated to identify the causes of defects not covered fully by maintenance manual fault diagnosis guides. Competency shall be assessed via simulated activities at the CASR Part 147 Maintenance Training Organisation and through performance during observed</p>

	workplace activities.
Context of and specific resources for assessment	Competency is assessed in the workplace or simulated workplace and shall involve successfully dealing with a number of maintenance and fault scenarios across a range of avionic systems listed as Groups 1 to 5 in the Range Statement and related system components.
Method of assessment	
Guidance information for assessment	

Range Statement

<p>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>	
Note	Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide
Systems and related components	<p>Systems and related components to be covered include:</p> <ol style="list-style-type: none"> 1. Electrical systems 2. Electronic systems 3. Instrument systems 4. Radio communication and navigation systems 5. Autoflight systems
Troubleshooting	<p>Troubleshooting, for the purpose of this unit, is defined as:</p> <ul style="list-style-type: none"> the troubleshooting from first principles, of defects beyond available maintenance data in the systems of fixed or rotary wing aircraft types <p>Troubleshooting must be demonstrated across a range of typical systems and system components that includes, but is not limited to:</p> <ul style="list-style-type: none"> airframes, engine(s) and other systems (and parts thereof) operated by inherently electrical, electronic, instrument or radio principles or means. Coverage is not required of specific type systems that are included in type training and PCT activities leading to a specific type licence rating
Application	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> scheduled or unscheduled maintenance activities individual activities or troubleshooting tasks performed during the supervision of other personnel
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