



Australian Government

Department of Education, Employment and Workplace Relations

MEA270A Lay out avionic systems

Revision Number: 2

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Modification History

Minor formatting and editorial changes made.

Unit Descriptor

This unit is part of Diploma and Advanced Diploma training pathways. It covers the basic design and layout to block diagram level of avionic systems.

Application of the Unit

This unit requires application of basic knowledge of avionic system function, design and layout.

Applications include typical electrical and instrument systems.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA101B	Interpret occupational health and safety practices in aviation maintenance
MEA107B	Interpret and use aviation maintenance industry manuals and specifications
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

1. Lay out to block diagram level an aircraft electrical system
 - 1.1. The ***functions of aircraft electrical systems*** are identified
 - 1.2. ***Aircraft electrical system components*** are identified
 - 1.3. A typical aircraft electrical system is sketched at block diagram level
 - 1.4. Aircraft electrical system maintenance requirements are identified
2. Lay out to block diagram level an instrument measuring system
 - 2.1. The various ***instrument measuring systems*** are identified
 - 2.2. ***Measuring system components*** are identified
 - 2.3. A typical instrument measuring system is sketched at block diagram level
 - 2.4. Measuring system maintenance requirements are identified
3. Lay out to block diagram level a pressurisation control system
 - 3.1. ***Pressurisation control system components*** are identified
 - 3.2. A typical pressurisation control system is sketched at block diagram level
 - 3.3. Pressurisation control system maintenance requirements are identified
4. Lay out to block diagram level an aircraft oxygen system
 - 4.1. The various ***types of oxygen system*** are identified
 - 4.2. ***Oxygen system components*** are identified
 - 4.3. A typical oxygen system is sketched at block diagram level
 - 4.4. Oxygen system maintenance requirements are identified

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- sketching typical avionic systems at block diagram level

Required knowledge

Look for evidence that confirms knowledge of:

- DC and AC power generation, control and distribution
- aircraft electrical systems and their components
- aircraft electrical system maintenance requirements
- the atmosphere
- use of synchros and servos
- basics of analogue electronics
- aircraft instrument measuring systems and their components
- aircraft instrument measuring system maintenance requirements
- air conditioning and pressurisation systems
- air conditioning and pressurisation system maintenance requirements
- types of aircraft oxygen systems and their applications
- oxygen system maintenance requirements and related cleanliness and safety precautions

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 identify avionic systems and their components, lay out typical systems at block diagram level and identify related maintenance requirements. Competency in this unit cannot be claimed until all prerequisites have been satisfied.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts. Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.
Context of and specific resources for assessment	This unit may be assessed off the job in a training environment equipped to provide exposure to the range of system types and components. The candidate must have access to all tools, equipment, materials and documentation required and must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials. The assessment environment should not disadvantage the candidate.
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.

Application	Application of this unit may relate to individual or team-related activities
Functions of aircraft electrical systems	Functions of aircraft electrical systems may include: • power generation, control and distribution • lighting • electrically operated systems, such as doors, flap and landing gear systems • system control (e.g. hydraulic, pneumatic, air conditioning, propeller control and anti-skid) • warning systems • ice and rain protection • engine systems
Aircraft electrical system components	Aircraft electrical system components may include: • the major components of each of the above systems that would be shown in a block diagram or schematic
Instrument measuring systems	Instrument measuring systems may include: • engine indication • transmitter/indicator measuring (pressure, temperature and position) • fuel quantity indication and flow indication
Measuring system components	Measuring system components may include: • the major components of each of the above systems that would be shown in a block diagram or schematic
Pressurisation control system components	Pressurisation control system components may include: • the major components of a pressurisation control system that would be shown in a block diagram or schematic
Types of oxygen system	Types of oxygen system may include: • gaseous • liquid • chemical

Oxygen system components may include:	Oxygen system components may include: the major components of each of the above systems that would be shown in a block diagram or schematic
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Unit Sector(s)

Avionic engineering

Competency field

Co-requisite units

Not applicable