



Australian Government

MEA270 Lay out avionic systems

Release: 2

MEA270 Lay out avionic systems

Modification History

Release 2. Equivalent to MEA270 Lay out avionic systems with amended prerequisite codes.

Application

This unit of competency requires application of basic knowledge of avionic system function, design and layout, including typical electrical and instrument systems, during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

The unit is part of Diploma and Advanced Diploma training pathways. It is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation Safety Authority (CASA).

Pre-requisite Unit

MEA107	Interpret and use aviation maintenance industry manuals and specifications
MEA154	Apply work health and safety practices in aviation maintenance
MEA158	Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

Competency Field

Avionic engineering

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
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
		3.2	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

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Functions of aircraft electrical systems 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 include:	• The major components of each of the above systems that would be shown in a block diagram or schematic
Instrument measuring systems include:	• Engine indication • Transmitter/indicator measuring (pressure, temperature and position) • Fuel quantity indication and flow indication
Measuring system components include:	• The major components of each of the above systems that would be shown in a block diagram or schematic
Pressurisation control system components include:	• The major components of a pressurisation control system that would be shown in a block diagram or schematic.
Types of oxygen system include:	• Gaseous • Liquid • Chemical
Oxygen system components include:	• The major components of each of the above systems that would be shown in a block diagram or schematic

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>

Assessment Requirements for MEA270 Lay out avionic systems

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Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- sketching typical avionic systems at block diagram level.

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.

Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include 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.

Assessment Conditions

- This unit shall 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.

- 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.
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).

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