Australian Government

MEA271 Lay out avionic flight management systems

Release: 1

MEA271 Lay out avionic flight management systems

Modification History

Release 1 - New unit of competency

Application

This unit of competency requires application of basic knowledge of avionic flight management systems function, design and layout including typical instrument, radio and electronic 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

MEA101 Interpret work health and safety practices in aviation maintenance

MEA107 Interpret and use aviation maintenance industry manuals and specifications

MEA109 Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

MEA270 Lay out avionic systems

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 a flight instrument system	1.1 The various aircraft flight instrument systems are identified
		1.2 Flight instrument system components are identified
		1.3 A typical advanced flight instrument system is sketched at block diagram level
		1.4 Flight instrument system maintenance requirements are identified
2.	Lay out to block diagram level an instrument navigation system	2.1 The various instrument navigation systems are identified
		2.2 Instrument navigation system components are identified
		2.3 A typical instrument navigation system is sketched at block diagram level
		2.4 Instrument navigation system maintenance requirements are identified
3.	Lay out to block diagram level an aircraft communication system	3.1 Aircraft communication systems are identified
		3.2 Communication system components are identified
		3.3 A typical communication system is sketched at block diagram level
		3.4 Communication systems maintenance requirements are identified
4.	Lay out to block diagram level an aircraft pulse system	4.1 Aircraft pulse systems are identified
		4.2 Pulse system components are identified
		4.3 A typical pulse system is sketched at block diagram level
		4.4 Pulse system maintenance requirements are identified

5.	Lay out to block diagram level an aircraft radio navigation system	5.1 Aircraft radio navigation systems are identified
		5.2 Radio navigation system components are identified
		5.3 A typical radio navigation system is sketched at block diagram level
		5.4 Radio navigation system maintenance requirements are identified
6.	Lay out to block diagram level an aircraft electronic system	6.1 Aircraft electronic systems are identified
		6.2 Electronic system components are identified
		6.3 A typical electronic system is sketched at block diagram level
		6.4 Electronic 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.

Aircraft flight instrument systems include:

- Airspeed indication
- Pitot static systems
- Vertical speed indication
- Air data
- Machmeter
- Altimeters, including servo and encoding
- Angle of attack and stall warning/avoidance
- Turn and slip
- Directional gyros (DGs)
- Artificial horizons (AHs)
- Attitude heading reference

Flight instrument system components include:

- The major components of each of the above systems that would be shown in a block diagram or schematic

Instrument navigation systems include:

- Remote reading gyro compass
- Direct reading compass
- Ground proximity warning
- Flight data recording
- Inertial navigation

Instrument navigation system components include:

- The major components of each of the above systems that would be shown in a block diagram or schematic

Aircraft communication systems include:

- High frequency (HF) radio
- Very high frequency (VHF) radio
- Ultra-high frequency (UHF) radio
- Satellite communications
- Communications addressing and reporting
- Audio integration and intercommunications
- Cockpit voice recording
- Emergency location

Communication system components include:

- The major components of each of the above systems that would be shown in a block diagram

Aircraft pulse systems include:

- Navigation radar
- Search radar
- Weapons system radar
- Radar altimeter

	• Air traffic control transponder • Distance measuring equipment • Tactical air navigation • Doppler • Collision avoidance
Pulse system components include:	• The major components of each of the above systems that would be shown in a block diagram
Aircraft radio navigation systems include:	• Instrument landing • Automatic direction finding • VHF omni range • Global navigation
Radio navigation system components include:	• The major components of each of the above systems that would be shown in a block diagram
Aircraft electronic systems include:	• Automatic flight control • Automatic engine control • Electronic instrument display • Flight management
Electronic system components include:	• The major components of each of the above systems that would be shown in a block diagram

Unit Mapping Information

Release 1 – equivalent to MEA271A Lay out avionic flight management systems

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371