Australian Government

Department of Education, Employment and Workplace Relations

MEA231C Inspect, test and troubleshoot rotary wing aircraft automatic flight control systems and components

Release: 1

MEA231C Inspect, test and troubleshoot rotary wing aircraft automatic flight control systems and components

Modification History

Knowledge statements expanded - equivalent to previous unit.

Unit Descriptor

This unit of competency is part of the Avionic Certificate IV (Aircraft Maintenance Stream) training pathway and is an alternative unit to MEA225C Inspect fixed wing aircraft automatic flight control systems and components and MEA230C Test and troubleshoot fixed wing aircraft automatic flight control systems and components. It covers the competencies required to inspect, test and troubleshoot automatic flight control systems and components fitted to rotary wing aircraft. The unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and CASA.
Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the B2 maintenance certification licence under CASR Part 66, in accordance with the licensing provisions in Section 3, Assessment Guidelines.

Application of the Unit

This unit requires application of hand skills and the use of system/component knowledge and applicable maintenance publications and test equipment to inspect, test and troubleshoot rotary wing automatic flight control systems and components.
Applications include rotary wing aircraft that have automatic flight control systems.

Licensing/Regulatory Information

Refer to unit descriptor

Pre-Requisites

MEA207C Remove and install aircraft electronic system components

MEA246C Fabricate and/or repair aircraft electrical components or parts

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.

Elements and Performance Criteria

1	Inspect automatic flight control system and components	1.1	Isolation tags are checked and aircraft configured for safe syst operation in accordance with the applicable maintenance manu
		1.2	***Automatic flight control system*** is visually or physically chec of defects in accordance with applicable maintenance manual
		1.3	Defects are correctly identified and reported
2	Test/adjust automatic flight control system	2.1	Aircraft and system are prepared, in accordance with applicab manual, for the application of power/system operation
		2.2	Automatic flight control system is functionally tested, in acco maintenance manual, for evidence of serviceability or malfunc
		2.3	System calibration or adjustments are performed in accordanc manual, as appropriate
3	Prepare for troubleshooting	3.1	Relevant maintenance documentation and modification status, defect reports, where relevant, are used to identify an unservic
4	Troubleshoot automatic flight control system	4.1	Available information from maintenance documents and inspe is used, where necessary, to assist in fault determination
		4.2	Maintenance manual fault diagnosis guides and logic processe efficient and accurate ***troubleshooting***
		4.3	Specialist advice is obtained, where required, to assist with the process
		4.4	Automatic flight control system faults are located and the caus clearly identified and correctly recorded in maintenance docu required
		4.5	Rectification requirements are determined

Required Skills and Knowledge

Look for evidence that confirms knowledge of:

- component attachment methods
- explaining the basic layout (block diagram level), function and operation of:
  - flight director components and interface
  - flight control components and interface
  - flight data recorders and interface
- explaining basic principles/functions relating to the above systems and associated with:
  - basic AC and DC circuit theory
  - digital fundamentals
  - analogue fundamentals
  - rotary wing flight theory
  - inner and outer loop control
  - rotary wing flight control system (mechanical, hydraulic and electro-mechanical types, trim and stabil
  - flight control modes/channels
- OHS requirements
- system and component maintenance requirements and troubleshooting procedures
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures

Look for evidence that confirms skills in:

- applying relevant OHS practices
- using approved maintenance documentation and aircraft publications relating to the automatic flight contr being maintained
- recognition of system and component defects/external damage, correct installation, connection of plugs, t attaching hardware (including cabling/harnesses) and security in:
  - flight director components and interface
  - flight control components and interface
  - flight data recorders and interface
- applying logic processes, taking and interpreting system measurements, using test equipment and appropr and manuals to accurately and effectively isolate malfunctions in the above systems
- testing systems to isolate system malfunctions and assess post-maintenance serviceability

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 inspect, test and troubleshoot rotary wing automatic flight control systems and components while observing all relevant safety precautions.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The underlying skills inherent in this unit should be transferable across a range of inspection, testing and troubleshooting applications (including the timely involvement of supervisors or other trades) associated with rotary wing aircraft automatic flight control systems and components. 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. Evidence of transferability of skills and knowledge related to inspection, testing and troubleshooting is essential. This is to be demonstrated through application across a range of rotary wing automatic flight control systems and components listed in the Range Statement. The application of testing procedures should clearly indicate knowledge of system operation, the relationship of individual components and the links with other systems (if applicable) within the limits of the aircraft/system fault-finding guide before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards. 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 routine supervision on at least one item from each of Groups 1 to 3 listed 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.
Context of and specific resources for assessment	Competency should be assessed in the workplace or simulated workplace using tools and equipment specified

	in the maintenance manuals. It is also expected that general and special purpose tools, test and ground support equipment 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.	
Note	Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide
Automatic flight control system	Automatic flight control system may include: 1. Flight director – includes indicators, computers, control boxes and interfaces with other systems 2. Flight controls – includes servo actuators (roll, pitch, yaw and trim) computers and sensors 3. Autopilot system – includes computers, sensors (gyros and/or accelerometers), controllers, mode selectors and system interface, CWS, disconnect, go around and trim switches
Troubleshooting	Troubleshooting involves the use of fault-finding charts or similar, to line replacement level
Application	Application of this unit may relate to: • scheduled or unscheduled maintenance activities • individual or team-related activities
Procedures and requirements	Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Aviation maintenance

Custom Content Section

Not applicable.