



Australian Government

MEAAVI0014 Inspect, test and troubleshoot fixed wing autopilot systems and components

Release: 1

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Modification History

Release 1. Application changed. Elements and Performance Criteria changed. Foundation Skills made explicit. Range of Conditions removed, and relevant information moved to Assessment Requirements. Assessment Requirements clarified. Supersedes and is equivalent to MEA217 Inspect, test and troubleshoot fixed wing autopilot systems and components.

Application

This unit describes the skills and knowledge required to apply hand skills and use system and component knowledge, maintenance publications and test equipment to inspect, test and troubleshoot fixed wing multi-axis autopilot systems and components of fixed wing aircraft that have multi-axis autopilot systems, including those incorporating a radio-coupled flight director, during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Civil Aviation Safety Authority (CASA) and the Defence Aviation Safety Authority (DASA).

Any other relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

MEA246 Fabricate and/or repair aircraft electrical hardware or parts

MEA293 Remove and install aircraft electronic system components

Competency Field

Aviation maintenance

Elements and Performance Criteria

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

1. Inspect fixed wing autopilot systems and components	1.1 Identify specific inspection requirements using maintenance documentation and modification status, including relevant system defect reports 1.2 Check isolation tags and configure aircraft for safe system inspection and operation in accordance with maintenance manual 1.3 Visually or physically check autopilot systems and components for external signs of defects in accordance with maintenance manual while observing all relevant work health and safety (WHS) requirements 1.4 Identify and report defects in accordance with standard enterprise procedures
2. Test or adjust fixed wing autopilot systems and components	2.1 Prepare aircraft and system for application of power or system operation in accordance with maintenance manual 2.2 Perform functional testing of autopilot systems for evidence of serviceability or malfunction in accordance with maintenance manual 2.3 Perform required calibration or adjustments to system in accordance with maintenance manual
3. Troubleshoot fixed wing autopilot systems	3.1 Use available information from maintenance documentation, inspection and test results to assist in fault determination of identified issues 3.2 Troubleshoot to line replacement level using maintenance manual fault diagnosis guides and logic processes 3.3 Obtain required specialist or supervisory advice to assist with the troubleshooting process 3.4 Locate autopilot system faults and identify and record causes of faults in required maintenance documentation in accordance with standard enterprise procedures 3.5 Determine requirements for rectification of faults

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret maintenance manuals, inspection procedures and specifications (allowable limits).
- Writing skills to record and report on defects and faults and their causes.

- Numeracy skills to interpret and communicate technical information and take and interpret system measurements.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEA217 Inspect, test and troubleshoot fixed wing autopilot systems and components.

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 MEAAVI0014 Inspect, test and troubleshoot fixed wing autopilot systems and components

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Performance Evidence

There must be evidence the candidate has completed all the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- perform inspection, testing and troubleshooting on a three-axis fixed wing autopilot system incorporating a radio-coupled flight director and its components during scheduled or unscheduled maintenance at least once
- recognise system and component defects, external damage, correct/incorrect installation, connection of plugs, terminations, attachment hardware (including cabling/harnesses) and security in each of the following:
 - flight director components and interface
 - multi-axis autopilot system components
- perform functional testing by applying logic processes, taking and interpreting system measurements and using test equipment and appropriate wiring diagrams and manuals to accurately and effectively isolate malfunctions in the above systems and assess post-maintenance serviceability
- apply testing procedures, cleanliness requirements and safety precautions at all times, and as relevant to the system/s being maintained.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- component attachment methods
- the basic layout (block diagram level), function and operation of:
 - flight director components and interface
 - three-axis autopilot system components
- integration with other avionic systems, e.g. flight management systems and navigation systems
- flight director and autopilot system maintenance requirements and troubleshooting procedures
- work health and safety (WHS) practices for fixed wing autopilot systems and components
- basic principles/functions relating to the listed systems and associated with:
 - basic alternating current (AC) and direct current (DC) circuit theory

- digital fundamentals
- analogue fundamentals
- fixed wing flight theory
- inner and outer loop control
- flight control modes/channels
- maintenance manuals for fixed wing autopilot systems and components
- relevant regulatory requirements and standard procedures.

Assessment Conditions

The following conditions of assessment represent the requirements of the regulators (DASA and CASA) and maintenance stakeholders and must be rigorously observed.

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies encountered in inspecting, testing and troubleshooting fixed wing autopilot systems and components. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - workplace procedures, manufacturing specifications, codes, standards, manuals, and reference materials relevant to inspecting, testing and troubleshooting fixed wing autopilot systems and components
 - tools and equipment specified in the maintenance manuals
 - general and special-purpose tools and items of ground support and test equipment.

Evidence of tasks demonstrating competency must be recorded in a log of industrial experience and achievement.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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