Australian Government

Department of Education, Employment and Workplace Relations

MEA283A Repair or overhaul aircraft display, control and distribution system components

Release: 2

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Modification History

Minor formatting and editorial changes made. Minor clarification made to the unit descriptor.

Unit Descriptor

This unit of competency is part of the Avionic Certificate IV (Component Workshop Maintenance Stream) training pathway. It covers the competencies required to repair or overhaul components of aircraft control and distribution systems. Repair of circuit boards is covered by MEA262B Modify/repair aircraft component single layer printed circuit boards and MEA263B Modify/repair aircraft component multi-layer printed circuit boards. This unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and CASA.

Application of the Unit

This unit requires application of hand skills, test equipment and knowledge of pulse, analogue and digital theory to repair or overhaul pulse system components from aircraft control and distribution systems.
Applications include control and distribution system components from fixed and rotary wing aircraft that are repaired or overhauled in aviation maintenance workshops.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable

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. Determine requirements	1.1. ***Display***, ***control and distribution system*** component defect reports (remov order are correctly interpreted and matched by part and serial numbers 1.2. Circuitry is correctly prepared and connected to the applicable test equipm functionally tested or cycled through the prescribed test procedures in acco maintenance documentation for evidence of serviceability or malfunction 1.3. Modification status is clearly established to assist in determining the overh the components 1.4. Extent of overhaul or repair is correctly identified and documented
2. Troubleshoot display, control and distribution system components	2.1. Available information from maintenance records and inspection and test re necessary, to assist in fault determination 2.2. Maintenance manual fault diagnosis guides and logic processes are used to accurate troubleshooting 2.3. Faults are located and the causes of the faults are clearly identified and cor maintenance documentation, where required 2.4. Fault rectification requirements are determined
3. Dismantle and inspect display, control and distribution system components	3.1. Component parts are dismantled in accordance with maintenance manuals 3.2. Component parts are assessed for serviceability in accordance with the rele documentation 3.3. Parts requiring specialist repair are tagged and repair instructions are accur 3.4. Parts lists are compiled and processed in accordance with standard enterpri
4. Repair and/or modify display, control and distribution system components	4.1. Component parts are repaired or replaced in accordance with the relevant m documentation 4.2. Modification of components or parts is undertaken, where required, by rele bulletins or procedures
5. Assemble, test and adjust display, control and distribution system components	5.1. Assembly of component parts is carried out in accordance with specified to applicable maintenance documents 5.2. Assembled components are tested and adjusted/aligned in accordance with maintenance documentation using the appropriate test equipment 5.3. Required maintenance documentation and modification records are comple accordance with standard enterprise procedures

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- applying relevant OHS practices
- using approved repair/overhaul manuals, procedures and processes relating to aircraft display, control and distribution system components
- recognising the serviceability state and repair or overhaul requirements for components from:
  - digital electronic instruments/display systems
  - digital flight controllers and directors
  - digital AFCS/autopilot systems
  - flight management systems
  - analogue components of control and distribution systems
- applying logic processes, using test equipment and appropriate wiring diagrams and manuals to isolate component faults
- performing component testing to isolate/confirm component fault and assess post-repair/overhaul serviceability
- correctly aligning components listed above to operate within prescribed specifications
- correctly interpreting digital instrument display indications, information and symbols

Required knowledge

Look for evidence that confirms knowledge of:

- component and system operation
- explaining the basic function and operation of components as follows to enable testing for fault isolation/confirmation, to determine repair or overhaul requirements, and serviceability status post-repair or overhaul:
  - digital electronic instruments/display system components
  - digital flight controllers and directors
  - digital AFCS/autopilot system components
  - flight management system components
  - analogue components of control and distribution systems
- explaining basic principles/functions, relating to the above systems/components and associated with:
  - advanced analogue fundamentals including video display generation techniques
  - digital fundamentals
- AC and DC electrical systems

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, troubleshoot and align/adjust circuitry of components from aircraft display, control and distribution systems in accordance with maintenance manuals and regulatory/industry procedures 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 testing, aligning and troubleshooting applications (including the timely involvement of supervisors or other trades) associated with aircraft display, control and distribution system component repair and overhaul. Ability to interpret inspection and testing procedures and specifications (allowable limits) and apply them in practice is critical. It is essential that testing procedures, cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with. Evidence of transferability of skills and knowledge related to testing, aligning and troubleshooting is essential. This may be demonstrated through application across a representative range of the components listed in Groups 1 to 5 in the Range Statement. The application of testing procedures should also clearly indicate knowledge of system operation before undertaking any action. Knowledge of system operation and the relationship of individual components will be necessary to supplement evidence of ability to troubleshoot component faults. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards. Use of high precision, high reliability soldering techniques and handling of components, including application of anti-static equipment, must be demonstrated. 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 a representative range of components from systems listed in Groups 1 to 5 in the Range Statement that are applicable to the enterprise. 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 work environment, using tools and equipment specified in maintenance documentation. It is also expected that general and special purpose tools and test equipment would be used where appropriate.
Method of assessment	Assessment should be made across a sufficient number of components to establish the ability to apply attained skills and knowledge across the full range of display, control and distribution system components with the aid of applicable maintenance manuals and data.
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
Display, **control and distribution system components**	Display, control and distribution system components may be from the following aircraft systems: 1. Display systems, including EFIS, EICAS and ECAM 2. Automatic flight control 3. Autopilots (digital and analogue) 4. Flight director (digital and analogue) 5. Flight management
Application	Application of this unit may relate to: • scheduled or unscheduled maintenance • individual or team-related activities • complex testing and adjusting of components, and where this is undertaken, may be carried out under supervision at the appropriate level
Procedures and requirements	Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Aviation maintenance

Competency field

Co-requisite units

MEA260B Use electrical test equipment

MEA261C Use electronic test equipment