



Australian Government

Department of Education, Employment and Workplace Relations

MEA252B Test, align and troubleshoot aircraft synchro and servo system components

Release: 2

MEA252B Test, align and troubleshoot aircraft synchro and servo system components

Modification History

Minor formatting and editorial changes made.

Unit Descriptor

This unit of competency is part of the Avionic Certificate IV (Component Maintenance Workshop Stream) training pathways. It covers the competencies required to test, align and troubleshoot aircraft synchro and servo system components. The 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 analogue theory to test, align and troubleshoot synchro and servo components. Applications include synchro and servo system components from fixed and rotary wing aircraft that are repaired or overhauled in aviation maintenance workshops

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA201B	Remove and install miscellaneous aircraft electrical hardware/components
MEA260B	Use electrical test equipment
MEA261C	Use electronic test equipment

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>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.</p>
--	---

Elements and Performance Criteria

- | | |
|--|---|
| <p>1. Test synchro and servo system components</p> | <p>1.1. <i>Synchro and servo system components</i> are correctly prepared and connected to appropriate test equipment/rig in accordance with approved procedures</p> <p>1.2. Components are functionally tested or cycled through the prescribed test procedures in accordance with maintenance manual for evidence of serviceability or malfunction</p> <p>1.3. Faults or unserviceabilities are correctly identified and recorded on appropriate documentation</p> |
| <p>2. Align synchro and servo system components</p> | <p>2.1. Synchro and servo system components are adjusted in accordance with approved procedures and maintenance manuals until operating within prescribed limits/tolerances</p> |
| <p>3. Troubleshoot synchro and servo system components</p> | <p>3.1. Available information from maintenance records and inspection and test reports are reviewed where necessary, to assist in fault determination</p> <p>3.2. Maintenance manual fault diagnosis guides and logic processes are used to determine faults and accurate troubleshooting</p> <p>3.3. Synchro and servo system component faults are located and the causes of faults are clearly identified and correctly recorded in maintenance documentation, where applicable</p> <p>3.4. Fault rectification requirements are determined</p> |

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- applying relevant OHS practices
- using approved repair procedures and processes relating to synchro and servo system components
- recognising the serviceability state and repair requirements for:
 - synchro/servo system error detection devices
 - DC and AC synchronous components
 - gyroscopic instruments (mechanical, electro-mechanical, vacuum/pressure types)
 - flight control servo devices
- performing component testing to isolate/confirm faults and assessing post repair/overhaul serviceability
- correctly aligning synchro and servo system components to prescribed specifications
- applying logic processes to isolate synchro and servo system component faults

Required knowledge

Look for evidence that confirms knowledge of:

- component and system operation
- explaining the basic function and operation of synchro and servo system components to enable testing for fault isolation/confirmation, to determine repair or overhaul requirements and serviceability status post-repair or overhaul
- explaining basic principles/functions, relating to synchro and servo system components and associated with:
 - advanced analogue fundamentals
 - synchronous systems
 - gyroscopes

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 test, align and troubleshoot synchro and servo system components circuitry 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 synchro and servo system components. 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 range of the synchro and servo system components listed in the Range Statement. The application of testing procedures should also clearly indicate knowledge of system operation. System operation knowledge, the relationship of individual components and the links with other systems (if applicable) will be necessary to supplement evidence of ability to troubleshoot the component within the limits of the 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 a representative range of components from each of Group 1 and 2 as 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 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	
Guidance information for assessment	

Range Statement

<p>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.</p>	
Note	Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide
Component testing, alignment and troubleshooting	<p>Component testing, alignment and troubleshooting is assessed in the following Groups:</p> <ol style="list-style-type: none"> 1. Synchro system components 2. Servo system components
Synchro and servo system components	<p>Synchro and servo system components may come from:</p> <ul style="list-style-type: none"> • air data computers, auto pilot servos, remote position indicators and other similar applications
Application	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> • scheduled or unscheduled maintenance activities • individual or team-related activities • complex testing and adjusting of components, and when undertaken, this will be carried out under supervision
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

Not applicable