



Australian Government

Department of Education, Employment and Workplace Relations

MEA306C Remove and install engines and engine system components

Revision Number: 2

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Modification History

Minor formatting and editorial changes made. Additional assessment advice provided in the Evidence Guide.

Unit Descriptor

This unit of competency is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathway. It covers the competencies required for the removal and installation of both fixed and rotary wing aircraft engines and engine system components. 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 chosen Aircraft Maintenance Engineer 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 maintenance publications to remove and install gas turbine or piston engines and engine system components.

Applications include fixed and rotary wing aircraft.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA302C	Remove and install aircraft hydro-mechanical and landing gear system components
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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.
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Elements and Performance Criteria

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|-------------------------------------|---|
| 1. Remove engine | <ul style="list-style-type: none">1.1. Aircraft is prepared and supported and rendered safe in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure the safety of personnel and freedom from damage during engine removal1.2. Removal is carried out in accordance with the applicable maintenance manual1.3. Engine is tagged and prepared for transport or storage in accordance with the specified procedures1.4. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures |
| 2. Remove engine system components | <ul style="list-style-type: none">2.1. Aircraft and/or engine system is prepared and rendered safe in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure the safety of personnel2.2. Removal is carried out in accordance with the applicable maintenance manual2.3. Engine system component is tagged and prepared for transport or storage in accordance with the specified procedures2.4. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures |
| 3. Install engine | <ul style="list-style-type: none">3.1. Engine to be installed is checked to confirm correct part or model numbers, modification status and serviceability3.2. Installation is carried out in accordance with the applicable maintenance manual3.3. Support/safety equipment is removed at the appropriate time to ensure personnel safety and freedom from structural damage3.4. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures |
| 4. Install engine system components | <ul style="list-style-type: none">4.1. Engine components to be installed are checked to confirm correct part or model numbers, modification status and serviceability4.2. Installation is carried out in accordance with the applicable maintenance manual4.3. Support/safety equipment is removed at the appropriate time to ensure personnel safety and freedom from structural damage4.4. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures |

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- applying relevant OHS practices, including lifting and handling heavy components
- using MSDS and PPE
- using relevant maintenance documentation and aircraft manuals to:
 - correctly remove and install engines, engine change units and APUs
 - prepare removed engines for transportation and/or storage
 - locate and correctly remove and install the range of engine system components listed in the Range Statement
- identifying the requirement for adjustment and rigging of systems and controls after the installation of engines or system components

Required knowledge

Look for evidence that confirms knowledge of:

- removal and installation procedures for aircraft:
 - engines
 - engine change units
 - APUs
- engine inhibiting and de-inhibiting procedures
- layout, installation and connection of components of:
 - fuel systems
 - lubrication systems
 - air systems
 - super and turbo charging systems
 - exhaust systems
 - ignition and igniter systems
 - starting systems
 - fire protection systems
- accessories and associated drives
- engine control system component removal and installation including the requirement for rigging and for the independent inspection of work performed
- engine maintenance documentation and manuals
- relevant OHS practices, including those relating to the lifting and handling of heavy items
- how to obtain MSDS
- use of PPE
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures

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 apply hand skills and use maintenance publications to remove and install engines and engine system components on fixed or rotary wing aircraft while applying 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 into other units that require similar techniques. It is essential that safety precautions applicable to engines and engine systems being maintained are fully observed, understood and complied with, including allowance for the effect on aircraft centre of gravity when engines are removed. Awareness must be demonstrated of dual inspection requirements associated with work on engine control systems. Evidence of transferability of skills and knowledge related to removal and installation is essential. This may be demonstrated through removal and installation of a representative range of engines and engine system components. An understanding of component attachment methods and the need for adjustment, rigging and system operation as it relates to the work must be demonstrated 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 7 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, or by the use of simulated activities, using tools and equipment specified in aircraft maintenance manuals. It is also expected that general purpose tools, test and ground support equipment found in most routine

	situations would be used where appropriate.
Method of assessment	
Guidance information for assessment	Individuals being assessed who have already attained MEA353A Maintain basic light aircraft engines and propellers, will have satisfied the requirements of this unit with regard to common Range Statement variables. Log of Industrial Experience and Achievement records relating to MEA353A Maintain basic light aircraft engines and propellers, may be accepted as also meeting the evidence requirements for this unit in the applicable common areas.

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
Engines and engine system components:	Engines and engine system components may include: 1. Engine change unit or auxiliary power unit (turbo-prop, turbofan, turboshaft, turbojet and piston) 2. Fuel, oil and air system (or induction and super/turbo charger systems in the case of piston engine) components 3. Engine control system components 4. Ignition or igniter system components 5. Starting system components 6. Fire protection system components 7. Accessories and associated drives
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

Competency field

Co-requisite units

Not applicable