



Australian Government

Department of Education, Employment and Workplace Relations

MEA342A Apply basic aircraft power plant design characteristics

Revision Number: 2

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Modification History

Minor formatting and editorial changes made.

Unit Descriptor

This unit of competency is part of Diploma and Advanced Diploma training pathways. It covers the basics of aircraft power plant selection and propulsion.

Application of the Unit

This unit requires application of basic knowledge of propulsion and power plant selection.

Applications include aeroplanes and rotary wing aircraft, piston engines and propellers/rotors, turbo prop, gas turbines and gas turbine/rotor.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA101B	Interpret occupational health and safety practices in aviation maintenance
MEA107B	Interpret and use aviation maintenance industry manuals and specifications
MEA109B	Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

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

1. Research and evaluate the types of aeroplane and rotary wing aircraft power plant and their relative advantages and disadvantages
 - 1.1. The ***types of aeroplane and rotary wing aircraft power plant*** are identified and compared in terms of relative advantages and disadvantages
 - 1.2. ***Types of propeller*** are identified and compared in terms of relative advantages and disadvantages
 - 1.3. Turbojet and turboprop performance is compared in terms of relative advantages and disadvantages
 - 1.4. Maintenance requirements for aircraft power plants are identified
2. Apply basic power plant and propulsion system selection processes
 - 2.1. Given required aeroplane use and performance characteristics, an appropriate type of power plant is determined
 - 2.2. An appropriate type of propulsion system is selected
 - 2.3. Given required rotary wing aircraft use and performance characteristics, an appropriate type of power plant is determined

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- applying basic power plant and propulsion system design characteristics

Required knowledge

Look for evidence that confirms knowledge of:

- basic power plant characteristics
- basic propeller theory and characteristics
- use of NDT in power plant maintenance
- power plant maintenance requirements, including the use of engine condition monitoring

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 identify and apply basic power plant and propulsion system design characteristics. Competency in this unit cannot be claimed until all prerequisites have been satisfied.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts. Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, teacher's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.
Context of and specific resources for assessment	This unit may be assessed off the job in a training environment equipped to provide exposure to the relevant aircraft design characteristics and to theory of flight. The candidate must have access to all tools, equipment, materials and documentation required and must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials. The assessment environment should not disadvantage the candidate.
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.

Application	Application of this unit may relate to: individual or team-related activities
Types of aeroplane and rotary wing aircraft power plant	Types of aeroplane and rotary wing aircraft power plant may include: - piston engine (petrol or diesel) - rotary - turboprop or gas turbine and rotor - turbofan - turbojet
Types of propeller	Types of propeller may include: - fixed pitch - adjustable pitch - constant speed - contra-rotating - tractor - pusher

Unit Sector(s)

Aeronautical engineering

Competency field

Co-requisite units

Not applicable