



Australian Government

MEAMEC0033 Apply basic aircraft power plant design characteristics

Release: 1

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Modification History

Release 1. Application changed. 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 MEA342 Apply basic aircraft power plant design characteristics.

Application

This unit describes the skills and knowledge required to apply basic knowledge of propulsion and power plant selection for aeroplanes and rotary wing aircraft, piston engines and propellers/rotors, turbo prop, gas turbines and gas turbine/rotor.

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

MEA107 Interpret and use aviation maintenance industry manuals and specifications

MEA154 Apply work health and safety practices in aviation maintenance

MEA158 Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

Competency Field

Aeronautical engineering

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. Research and evaluate the types of aeroplane and rotary wing aircraft power plant and their relative advantages and	1.1 Identify the types of aeroplane and rotary wing aircraft power plant and compare in terms of relative advantages and disadvantages 1.2 Identify the types of propeller and compare in terms of relative advantages and disadvantages 1.3 Compare turbojet and turboprop performance in terms of relative

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
disadvantages	advantages and disadvantages 1.4 Identify maintenance requirements for aircraft power plants
2. Apply basic power plant and propulsion system selection processes	2.1 Determine appropriate type of power plant according to required aeroplane use and performance characteristics 2.2 Select an appropriate type of propulsion system 2.3 Determine appropriate type of power plant according to required rotary wing aircraft use and performance characteristics

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 documentation, procedures and manufacturer's instructions.
- Writing skills to complete documentation and reports
- Numeracy skills to interpret and communicate data and technical information.

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 MEA342 Apply basic aircraft power plant design characteristics.

Links

Companion Volume implementation guides are found in VETNet – -

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>

Assessment Requirements for MEAMEC0033 Apply basic aircraft power plant design characteristics

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Performance Evidence

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

- identify the different types of aircraft power plant and their relative advantages and applications, including the following:
 - piston engine (petrol or diesel)
 - rotary
 - turboprop or gas turbine and rotor
 - turbofan
 - turbojet
- identify power plant maintenance and monitoring requirements
- identify different types of propellers and their applications, including:
 - fixed pitch
 - adjustable pitch
 - constant speed
 - contra-rotating
 - tractor
 - pusher
- select power plants for aeroplanes and rotary wing aircraft given the applicable performance characteristics.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- basic power plant characteristics
- basic propeller theory and characteristics
- use of non-destructive testing (NDT) in power plant maintenance
- power plant maintenance requirements including the use of engine condition monitoring.

Assessment Conditions

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

Skills must have been demonstrated under routine supervision in the workplace or in a simulated environment that reflects workplace conditions and contingencies and is equipped to provide exposure to the relevant aircraft design characteristics and to theory of flight.

The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - tools, equipment, materials
 - documentation, workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials required to support analysing and selecting power plant on design

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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