Australian Government

Department of Education, Employment and Workplace Relations

MEA368A Shot peen aircraft components

Release: 1

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Modification History

New unit

Unit Descriptor

This unit of competency is part of the Mechanical Certificate IV training pathway. It covers the competencies required to perform peening operations on a range of aircraft 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 and the use of relevant process documentation to shot peen aircraft components, such as structural components and components of engines, propellers and landing gear shock struts.
Applications include fixed and rotary wing aircraft components.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA101B	Interpret occupational health and safety practices in aviation maintenance
MEA103B	Plan and organise aviation maintenance work activities
MEA105C	Apply quality standards applicable to aviation maintenance processes
MEA107B	Interpret and use aviation maintenance industry manuals and specifications
MEA108B	Complete aviation maintenance industry documentation
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.

Elements and Performance Criteria

1 Prepare for shot peening task	1.1 Process documentation is obtained and correctly interpreted
	1.2 Shot peening equipment is prepared in accordance with the applicable process
2 Apply shot peening process to Almen strip	2.1 The correct Almen strip is selected and fitted and equipment set up with the correct stand-off distance and regulated air pressure or spindle speed in accordance with the process documentation
	2.2 The process is correctly applied to the Almen strip
	2.3 The Almen strip distortion is measured to ensure that it is within the specified tolerance
	2.4 Equipment settings are adjusted and the Almen strip test repeated, if required
	2.5 Settings that produce specified Almen strip distortion are recorded and the test strip is presented for inspection
3 Apply shot peening process to component	3.1 The component is cleaned and masked in accordance with process documentation
	3.2 Shot peening is applied in accordance with the process documentation using equipment settings derived from Almen test strip
	3.3 The shot peened surface is checked for required density and coverage and re-peened, if necessary
	3.4 The shot peened component is checked for cleanliness to ensure that all contaminants have been removed in accordance with the process documentation

4 Complete shot peening task	4.1 Task completion is recorded in accordance with standard enterprise procedures
	4.2 Shot peened component is presented for inspection, along with Almen test strip and completed documentation
	4.3 Where applicable, the component is tagged, sealed or packaged in accordance with specified procedures

Required Skills and Knowledge

Look for evidence that confirms knowledge of:

- how to obtain relevant MSDS
- the correct use of PPE
- OHS procedures
- the reasons for shot peening
- the types of aircraft component and the materials that are shot peened
- shot peening equipment and processes applicable to aircraft components
- the uses of different types of shot peening media
- the use of process documentation
- the types of Almen test strips and their uses
- setting up and calibrating equipment for use
- preparation of surfaces for peening and cleaning after peening
- environmental requirements associated with disposal of used media

Look for evidence that confirms skills in:

- applying relevant OHS procedures, including the use of MSDS and applicable items of PPE
- using relevant process documentation relating to shot peening of component surfaces to:
  - select and set up the required shot peening equipment
  - select and set up the Almen test strip
  - adjust equipment settings to obtain the required Almen strip distortion
  - prepare component surfaces for shot peening
  - shot peen surfaces to obtain the specified intensity and coverage
  - remove surface contaminants from shot peened surfaces
- correctly disposing of waste shot peening media

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 shot peen surfaces of aircraft components to obtain the intensity and coverage specified in process documentation 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 across a range of shot peening applications associated with aircraft components. It is essential that the relevant procedures are interpreted and applied to ensure quality and safety standards are achieved. Evidence of transferability of skills and knowledge related to shot peening is essential. This may be demonstrated through application across a number of different aircraft components. Ability to obtain and correctly interpret shot peening process documentation will be necessary 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 shot peening tasks. 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 simulated work environment using equipment specified in process documentation. It is also expected that general and special purpose tools and test equipment found in most routine situations would be used where appropriate.
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.	
Shot peening equipment	Peening operations may be carried out using air pressure or rotor propulsion of shot and either fixed or portable shot peen units
Stand-off distance	Stand-off distance can apply to: • nozzle distance from surface for air pressure shot peening processes, or • spindle distance from job for rotor shot peening
Regulated air pressure or spindle speed	Regulated air pressure or spindle speed refers to the specified air pressure applied to the shot nozzle or the specified revolutions per minute (r.p.m.) of the spindle in the rotor peening process
Application	Application of this unit may relate to: • scheduled or unscheduled maintenance • 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

Custom Content Section

Not applicable.