



Australian Government

MEA368 Shot peen aircraft components

Release: 2

MEA368 Shot peen aircraft components

Modification History

Release 2. Equivalent to MEA368 Shot peen aircraft components with amended prerequisite codes.

Application

This unit of competency 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 from fixed and rotary wing aircraft during scheduled or unscheduled maintenance.

The unit is part of the Mechanical Certificate IV training pathway and is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation Safety Authority (CASA).

Pre-requisite Unit

MEA107	Interpret and use aviation maintenance industry manuals and specifications
MEA154	Apply work health and safety practices in aviation maintenance
MEA155	Plan and organise aviation maintenance work activities
MEA156	Apply quality standards during aviation maintenance activities
MEA157	Complete aviation maintenance industry documentation
MEA158	Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

Competency Field

Aviation maintenance

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| 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 | Applicable work health and safety (WHS) provisions are observed, including the use of material safety data sheets (MSDS) and personal protective equipment (PPE) |
| | | 2.3 | The process is correctly applied to the Almen strip |
| | | 2.4 | The Almen strip distortion is measured to ensure that it is within the specified tolerance |
| | | 2.5 | Equipment settings are adjusted and the Almen strip test repeated, if required |
| | | 2.6 | 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 and while observing all WHS requirements, including use of MSDS and PPE |
| | | 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

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

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| Shot peening equipment includes: | <ul style="list-style-type: none">• Air pressure or rotor propulsion of shot and either fixed or portable shot peen units |
| Stand-off distance applies to: | <ul style="list-style-type: none">• 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: | <ul style="list-style-type: none">• 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 |
| Procedures and requirements include: | <ul style="list-style-type: none">• Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise |

Unit Mapping Information

Release 2. Equivalent to MEA368 Shot peen aircraft components

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>

Assessment Requirements for MEA368 Shot peen aircraft components

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Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- applying relevant WHS 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.

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 shall be demonstrated through application across a number of different aircraft components.

Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- how to obtain relevant MSDS
- the correct use of PPE
- WHS 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.

Assessment Conditions

- 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.
- The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards. Ability to obtain and correctly interpret shot peening process documentation will be necessary before undertaking any action.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under routine supervision on a representative range of shot peening tasks that are performed within the enterprise.
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).
- Where the unit is to be used for CASA licensing purposes the Assessor must also meet the criteria specified in the CASR Part 147 Manual of Standards.

Links

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