



Australian Government

MEA385 Repair and/or overhaul gas turbine engine turbine and exhaust section components

Release: 2

MEA385 Repair and/or overhaul gas turbine engine turbine and exhaust section components

Modification History

Release 2. Equivalent to MEA385 Repair and/or overhaul gas turbine engine turbine and exhaust section components with amended prerequisite codes.

Application

This unit of competency requires application of hand skills, theory knowledge and maintenance publication procedures to repair and overhaul aircraft gas turbine engine turbine and exhaust section components in workshops during the performance of scheduled or unscheduled maintenance. Maintenance may be performed individually or as part of a team.

Applications include turbine and exhaust section components from turbo-jet, turbofan, turboshaft, turboprop engines and engine modules, or auxiliary power units.

The unit is part of the Mechanical Certificate IV (Component Workshop Maintenance Stream) training pathway. It 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.	
1.	Determine requirements	1.1	Component defect reports (removal tags) or customer order are correctly interpreted and matched by part and serial numbers
		1.2	Turbine and exhaust section components are inspected and/or operated through prescribed test procedures to establish serviceability and confirm defects, if necessary
		1.3	Modification status is clearly established to assist in determining the overhaul requirements for the components
		1.4	Extent of overhaul or repair is identified and documented in accordance with standard enterprise procedures
2.	Troubleshoot turbine and exhaust section components	2.1	Available information from maintenance records and test results is used, where necessary, to assist in fault determination
		2.2	Logical processes are used to ensure efficient and accurate troubleshooting
		2.3	Specialist advice is obtained, where required, to assist with, or confirm, the fault and rectification requirement
		2.4	Turbine and exhaust section component faults are located and the causes of the faults are clearly identified
		2.5	Fault rectification requirements are determined to assist in planning the repair
3.	Dismantle and inspect turbine and exhaust section component parts	3.1	Turbine and exhaust section component parts are dismantled in accordance with maintenance manual while observing all relevant work health and safety (WHS) requirements, including the use of material safety data sheets (MSDS) and items of personal protective equipment (PPE)

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| | 3.2 | Component parts are assessed for serviceability in accordance with the relevant maintenance documentation |
| | 3.3 | Parts requiring specialist repair are tagged and repair instructions are specified in accordance with standard enterprise procedures |
| | 3.4 | Parts requiring non-destructive testing are prepared for testing in accordance with the relevant maintenance documentation |
| | 3.5 | Parts lists are compiled and processed in accordance with standard enterprise procedures |
| 4. | Repair and/or modify turbine and exhaust section components or parts | <p>4.1 Component parts are repaired or replaced in accordance with the relevant maintenance documentation</p> <p>4.2 Modification of components is undertaken, where required, by reference to relevant manufacturers' bulletins or procedures and/or customer requirements</p> |
| 5. | Assemble and adjust turbine and exhaust section components | <p>5.1 Turbine and exhaust section component parts are balanced where required and assembled within specified tolerances and in accordance with the appropriate maintenance documents while observing all relevant WHS requirements, including the use of MSDS and items of PPE</p> <p>5.2 Support/safety equipment, where fitted, is removed at the appropriate time</p> <p>5.3 Components are adjusted to ensure that fits and clearances are within prescribed specifications</p> <p>5.4 Finished components are tagged, sealed and packaged in accordance with standard enterprise procedures</p> <p>5.5 Required maintenance documentation and modification records are completed and processed in accordance with standard enterprise procedures</p> |

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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| Turbine and exhaust section components include: | <ul style="list-style-type: none"> • High and low pressure turbine assemblies • Free turbine (where applicable to the enterprise) • Automatic turbine rotor clearance control system (where applicable to the enterprise) • Engine tail cone and exhaust struts • Jet pipe that is part of the engine change unit or module • Thrust reversers (where applicable to the enterprise) • Afterburner system where it is part of the engine change unit or module (where applicable to the enterprise) |
| Repair of component parts include: | <ul style="list-style-type: none"> • Finishing or re-finishing of metal surfaces through processes, such as polishing and lapping • Removal of corrosion within maintenance manual limits • Replacement of seals and gaskets • Replacement of bearings |
| Testing and adjustment: | <ul style="list-style-type: none"> • Complex testing and adjusting of components, where required, will be carried out under supervision at the appropriate level |
| 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 MEA385 Repair and/or overhaul gas turbine engine turbine and exhaust section 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 MEA385 Repair and/or overhaul gas turbine engine turbine and exhaust section 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 PPE
- using relevant maintenance documentation, specifications and aircraft/component manuals to:
 - recognise state of serviceability and overhaul or repair requirements for turbine and exhaust section components
 - test and accurately and efficiently troubleshoot turbine and exhaust section component unserviceabilities and document the causes
 - dismantle and inspect turbine and exhaust section component parts for serviceability and identify repair requirements as applicable
 - repair/replace/modify turbine and exhaust section component parts
 - assemble and adjust turbine and exhaust section components
- correctly tagging, sealing and packaging completed components.

The underlying skills inherent in this unit should be transferable across a range of repair and/or overhaul applications associated with gas turbine engine components and/or modules. It is essential that the maintenance procedures (including the use of correct fuels and lubricants) are interpreted and applied to ensure quality and safety standards are achieved.

This shall be demonstrated through application across a number of different gas turbine engine components and/or modules. Ability to assess component/module serviceability and interpret parts requirements will be necessary to supplement the required evidence. Capability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical.

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 use of applicable items of PPE
- WHS procedures
- fault diagnosis techniques

- turbine and exhaust section and component operation
- repair and overhaul procedures and processes, including inspection, rework, repair and reclamation, assembly, balancing of rotating assemblies and final adjustment.

Assessment Conditions

- Competency should be assessed in the work environment, or simulated work environment, using tools and equipment specified in maintenance documentation. It is also expected that general-purpose tools and test equipment found in most routine situations would be used where appropriate.
- The application of testing procedures should clearly indicate knowledge of system operation. Knowledge of system operation and the relationship of individual components will be necessary to supplement evidence of ability to troubleshoot component faults before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.
- 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 at least one (1) item from each of the following groups:
 - high and low pressure turbine assemblies
 - free turbine (may be omitted where not applicable to the enterprise)
 - automatic turbine rotor clearance control system (may be omitted where not applicable to the enterprise)
 - engine tail cone and exhaust struts
 - jet pipe that is part of the engine change unit or module
 - thrust reversers (may be omitted where not applicable to the enterprise)
 - afterburner system where it is part of the engine change unit or module (may be omitted where not applicable to the enterprise).
- This must include demonstration of the following repair processes:
 - finishing or re-finishing of metal surfaces through processes, such as polishing and lapping
 - removal of corrosion within maintenance manual limits
 - replacement of seals and gaskets
 - replacement of bearings.
- 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).

Links

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