



Australian Government

MEA292 Remove and install advanced aircraft instrument system components

Release: 1

MEA292 Remove and install advanced aircraft instrument system components

Modification History

Release 1. Supersedes and equivalent to MEA205 Remove and install advanced aircraft instrument system components. Revised as a result of changed prerequisites. Unit codes updated.

Application

This unit of competency describes the skills and knowledge required to remove and install general instrument system components in the more advanced types of aircraft. It involves the application of hand skills and the use of maintenance documentation and publications when removing and installing aircraft system components. Work may be performed individually or as part of a team.

The unit applies to work on fixed and rotary wing aircraft during scheduled and unscheduled maintenance. 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).

This unit forms part of the CASA requirement for maintenance certification licences under Civil Aviation Safety Regulation (CASR) Part 66. Where a CASA licensing outcome is sought, users must refer to the licensing provisions in the MEA Aeroskills Companion Volume Implementation Guide.

Pre-requisite Unit

Nil.

Competency Field

Aviation maintenance

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1. Remove advanced aircraft instrument system components

PERFORMANCE CRITERIA

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

- 1.1 Render system safe and prepare for removal according to applicable maintenance manual
- 1.2 Fit isolation tags, where necessary, to ensure personnel safety

ELEMENTS**PERFORMANCE CRITERIA**

- | | |
|--|---|
| | 1.3 Remove instrument component according to applicable maintenance manual and work health and safety (WHS) requirements |
| | 1.4 Complete required maintenance documentation and process according to standard organisational procedures |
| | 1.5 Tag and package removed components according to specified procedures |
| 2. Install advanced aircraft instrument system components | 2.1 Check instrument components to be installed to confirm correct part numbers, modification status, serviceability, and shelf life |
| | 2.2 Perform physical installation of instrument components according to maintenance manual and regulatory requirements, and carry out required adjustment and alignment |
| | 2.3 Reinstall system to correct operational condition in preparation for testing, as necessary |
| 3. Finalise removal and installation documentation | 3.1 Complete required maintenance documentation |
| | 3.2 Process maintenance documentation according to organisational procedures |

Foundation Skills

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

Unit Mapping Information

Release 1. Equivalent to MEA205 Remove and install advanced aircraft instrument system 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 MEA292 Remove and install advanced aircraft instrument system components

Modification History

Release 1. Supersedes and equivalent to MEA205 Remove and install advanced aircraft instrument system components. Revised as a result of changed prerequisites. Unit codes updated.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, which must include the ability to demonstrate to the satisfaction of the workplace assessor that the elements and performance criteria are being achieved under routine supervision on at least one of the following components or systems from each of the following:

- pitot/static system components, airspeed indicators (ASIs), vertical speed indicators (VSIs), air data system components, machmeters, altimeters, including servo and encoding altimeters, outside air temperature gauge (OAT) angle of attack and stall warning/avoidance systems
- turn and slip, directional gyros (DGs), artificial horizons (AHs), attitude and heading reference system (AHRS) components where applicable to organisation, remote reading gyro compass system components, and direct reading compasses
- turbine engine indication system
- transmitter/indicator measuring instrument systems (pressure, temperature, and position)
- fuel quantity indication and flow systems components
- ground proximity warning system (GPWS), which may be omitted where not applicable to the organisation
- flight data recorder (FDR), which may be omitted where not applicable to the organisation.

In the course of the above work, the candidate must:

- prepare for work in line with safety and quality requirements and according to industry, regulatory and organisational requirements, procedures, and methods
- locate and identify flight instrument system components comprising:
 - engine system temperature, pressure (including thermocouples, sensor units, and transmitters), speed (including mechanical or electrical tachometers), thrust (fan, propeller and jet), torque, fuel flow, and vibration
 - auxiliary systems, including hydraulic pressure and temperature, transmission pressure and temperature, fuel storage quantities, fuel remaining/used, component position, i.e. flaps, landing gear, speed brakes and door/pylon locking
 - flight systems, including attitude, altitude, air speed, OAT and GPWS (where applicable to the enterprise)

- locate and identify direct reading compasses, remote compass system components (flux valve, gyro, amplifier and indicator), and AHRS components
- locate and identify FDR system components (where applicable to the organisation)
- apply correct handling procedures and maintenance precautions relating to gyroscopes, gimbals, pitot/static systems (connections, heating and protrusions)
- apply required work health and safety (WHS) practices
- complete and process maintenance documentation
- comply with cleanliness requirements and safety precautions applicable to system being maintained, as well as with work practices associated with electrostatic sensitive devices.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- industry standard procedures specified by manufacturers, regulatory authorities, and the organisation relating to the work described in the performance evidence
- maintenance manual requirements relating to:
 - performing physical installation of instrument components
 - rendering system safe for removal
 - removing instrument components
 - adjusting and aligning instrument components and systems
- industry, regulatory and organisational requirements, procedures and methods relating to the work described in the performance evidence, including:
 - WHS processes and practices, including handling precautions for electrostatic sensitive devices
 - completing and processing required maintenance documentation
 - tagging and packaging removed components
 - attaching components, including attachment methods
 - connecting hardware and plugs
 - adjusting and calibrating system operation
 - using approved maintenance documentation and aircraft publications relating to basic and advanced instrument systems
- operating principles of basic instrument systems and components, including:
 - atmospheric and barometry
 - terminology and unit of measurement conversion
 - aircraft instrumentation requirements
 - instrument panel layout
 - pressure sensing elements
 - pitot static systems and testing requirements
 - gyroscopic principles
 - direct reading compasses
 - temperature sensors
 - fluid quantity indication systems

- general layout and components of the following systems:
 - flight systems, including:
 - altitude (direct reading, servo and encoding altimeters)
 - attitude, including DG and AH (both air and electrically driven) and turn and slip, and AHRS
 - airspeed, including ASI, machmeters and air data systems
 - VSI
 - angle of attack and stall warning/avoidance
 - OAT
 - GPWS
 - engine indication systems, including:
 - temperature and pressure, including thermocouples, sensors, and transmitters
 - speed, including mechanical and electric tachometers
 - thrust, including fan, propeller and jet
 - torque
 - fuel flow
 - vibration
 - auxiliary transmitter/indicator measuring systems, including:
 - hydraulic pressure and temperature
 - pneumatic pressure
 - transmission oil pressure and temperature
 - fuel remaining/used
 - fuel quantity indication
 - component position
 - remote compass systems
 - FDR systems.

Assessment Conditions

Competency must be assessed in the workplace or simulated workplace using tools and equipment specified in maintenance manuals. Where assessment occurs in a simulated workplace, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations encountered during the removal and installation of advanced aircraft instrument system components. It is also expected that general-purpose tools, test and ground support equipment found in most routine maintenance situations would be used as appropriate to the evidence requirements specified above.

The candidate must be permitted to refer to relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals, and reference materials.

Candidate capability of providing the required performance and knowledge evidence must 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).

Candidates being assessed who have already attained MEA204 Remove and install basic aircraft instrument system components or MEA275 Maintain basic light aircraft instrument systems and components will have covered a significant amount of the skill and knowledge requirements for this unit plus part of the performance criteria for Elements 1, 2 and 3. The Log of Industrial Experience and Achievement records relating to MEA204 Remove and install basic aircraft instrument system components or MEA275 Maintain basic light aircraft instrument systems and components may be accepted as also meeting the evidence requirements for this unit in the applicable areas.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Where the unit is to be used for Civil Aviation Safety Authority (CASA) licensing purposes the assessor must also meet the criteria specified in the Civil Aviation Safety Regulation (CASR) Part 147 Manual of Standards.

Links

Companion Volume implementation guides are found in VETNet -

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