



Australian Government

UEEEEC0021 Diagnose and rectify faults in air navigation circuits and systems

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to diagnose and rectify faults in aviation navigation circuits and systems in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes diagnosing aviation navigation circuits and system faults, interpreting circuit diagrams, rectifying faults, conducting safety inspections and functional testing, and completing the necessary service documentation.

Permits may be required for some work environments, such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEEEEC0061 Set up and adjust commercial radio frequency (RF) transmission and reception systems

UEEEEC0068 Troubleshoot communication systems

UEEEEC0053 Provide engineering solutions to air traffic control system problems

Competency Field

Electronics and Communications

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Prepare to diagnose aviation navigation circuits and system faults

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified and applied
- 1.2** Aviation operational safety procedures for a given work area are obtained and applied
- 1.3** WHS/OHS risk control measures and workplace procedures are followed in preparation for aviation work activity
- 1.4** Safety hazards that have not previously been identified are documented on job safety assessments, risks assessed and control measures implemented in consultation with appropriate person/s
- 1.5** Extent of faults is determined from reports, circuit diagrams and other relevant documentation, and discussions with appropriate person/s
- 1.6** Appropriate person/s is consulted to ensure the work is coordinated effectively with others involved on the work site
- 1.7** Tools, equipment and testing devices needed to diagnose faults are obtained in accordance with workplace procedures and checked for correct operation and safety

2 Diagnose and rectify aviation navigation system faults

- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out work activities are followed
- 2.2** Need to inspect, test or measure live work is determined in accordance with WHS/OHS requirements and, as required, conducted in accordance with workplace safety procedures
- 2.3** Circuits, machines and plant are checked and isolated in accordance with WHS/OHS requirements and workplace procedures
- 2.4** Logical diagnostic methods are applied to diagnose aviation navigation system faults, employing measurements and estimations of system operating parameters in accordance with system operational requirements

- 2.5 Suspected fault scenarios are tested as being the source of navigation system problems
 - 2.6 Source of the fault is identified and competent person/s engaged to rectify the fault in accordance with workplace procedures
 - 2.7 Faults in the electronic components of the system are rectified in accordance with navigation system operation standards
 - 2.8 Aviation navigation system is inspected and tested to verify the system operates as intended and to specified requirements
 - 2.9 Decisions for dealing with unplanned situations are made from discussions with appropriate person/s and job specifications and requirements
 - 2.10 Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
 - 2.11 Diagnosis and rectification activities are carried out efficiently without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices
- 3 Commission aviation navigation system**
- 3.1 WHS/OHS risk control measures and procedures for carrying out the work are followed
 - 3.2 Testing and measuring devices are connected and set up in accordance with job requirements and the particular air navigational system
 - 3.3 Measuring instruments are set up and adjusted in accordance with transmission/reception requirements and equipment manufacturer instructions
 - 3.4 Adjustments are made to provide optimum transmission/reception performance within regulatory requirements
 - 3.5 Decisions for dealing with unplanned situations are made from discussions with appropriate person/s and job specifications and requirements
 - 3.6 Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises

		risk to personnel and equipment
	3.7	Setting up is carried out efficiently without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy principles
4 Complete and report fault diagnosis and rectification activities	4.1	WHS/OHS work completion risk control measures and workplace procedures are followed
	4.2	Worksite is made safe in accordance with workplace safety procedures
	4.3	Rectification of faults is documented in accordance with workplace procedures
	4.4	Appropriate person/s is notified in accordance with workplace procedures that the aviation navigation system faults have been rectified and recommission

Foundation Skills

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

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Diagnosing and rectifying system faults in electronic air navigation systems must include at least the following:

- four system faults in four of the following systems:
 - non-directional beacon (NDB)
 - very high frequency (VHF) omni directional radio range (VOR)
 - distance measuring equipment (DME)
 - instrument landing system (ILS)
 - global navigation satellite system (GNSS)

Unit Mapping Information

This unit replaces and is equivalent to UEENEEH191A Diagnose and rectify faults in air

navigation circuits and systems.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>