



Australian Government

Assessment Requirements for UEEEC0036 Fault find and repair sonar apparatus 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.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- applying logical diagnostic methods
- using fault scenarios to test the source of system faults
- identifying faults and competency needed to rectify them
- rectifying faults in system electronics
- verifying that the system operates correctly
- documenting fault rectification
- applying relevant risk identification, assessment, reporting and control requirements
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- coordinating work with relevant person/s
- dealing effectively with unplanned events
- determining live testing/measurement requirements
- determining scope of work
- identifying and accessing materials, tools, apparatus and testing devices
- isolating circuits/machines/systems.

Knowledge Evidence

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

- sonar apparatus and system fault finding and repair, safe working practices and relevant standards codes and regulations, including:
 - electronic communications, sonar system operating principles:
 - the purpose and application of sonar systems
 - sonar equipment encompassing:
 - types and their applications

- sub-system components (i.e. functional blocks) and their function encompassing:
 - transducer
 - input amplifier
 - sonar interface unit
 - beam forming network (transmit/receive)
 - signal processing
 - own Doppler nullification
 - display system
 - headset
 - interfaces
 - transmitter
 - T/R switch
 - timer/timing
- sonar operating parameters
- sonar transmission characteristics
- electronic communications, sonar transducers and arrays:
 - hazards and risk control measures
 - transducer types, their operating principles and parameters
 - transducer array encompassing:
 - types and their construction
 - applications
 - transducer hull outfits
 - beam forming principles and requirements
 - transducer installation and operational maintenance
- electronic communications, sonar measurement and set-up:
 - sonar parameters and measurements
 - sonar physical parameters
 - constraints and consequences
- electronic communications, radar and sonar displays devices:
 - types and their applications – cathode-ray tube (CRT), plasma, liquid-crystal display (LCD), monochrome, colour and touch screen
 - sub-system components (i.e. functional blocks) and their operating parameters encompassing:
 - extra high tension (EHT) transformers
 - detectors
 - video distribution
 - time base generators
 - phase locked loops
 - microprocessors
 - memory devices

- demodulators
- focusing/deflection devices
- delay lines
- bleed resistors
- high voltage (HV) generation
- calibration testing and maintenance procedures
- typical fault finding, their symptoms and cause
- advanced electronic (sonar) testing and measuring devices and techniques:
 - test/measuring devices and their application - frequency counters, and synthesisers, spectrum analysers, noise and distortion meters and radio frequency (RF) communications service monitor
 - connection of test/measuring devices into a circuit encompassing:
 - safety procedures
 - loading and matching
 - storage and delay
 - circuit arrangement of test/measuring devices
 - taking and interpreting readings
 - notion of decibels, including dBm, dBr, dBu and dBo
- fault finding and repair:
 - typical faults, their symptoms and cause
 - fault diagnosis procedures and testing
 - component replacement
 - equipment adjustments
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to diagnosing and rectifying faults in sonar apparatus and systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

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