



Australian Government

Department of Education, Employment and Workplace Relations

ICTTC102D Repair communication system faults

Release: 1

ICTTC102D Repair communication system faults

Modification History

Not applicable.

Unit Descriptor

This unit applies to all telecommunications applications including telephony, wireless, data, video and multi media.

This unit applies to repairs to equipment covering re-calibrate, adjust, and/or replace hardware.

This unit applies to computer systems including Local Area Networks (LANs) and Wide Area Networks (WANs).

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

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Application of the Unit

Not applicable.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains employability skills.

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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where **bold italicised** text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

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Elements and Performance Criteria

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Element	Performance Criteria
1 Prepare for equipment repairs	1.1 Where equipment is located on premises not owned by enterprise, appropriate consultation is undertaken in accordance with enterprise policy 1.2 Warranties and service agreements are checked to establish if any identified repair / alteration requirement is covered by such documents 1.3 The need for replacement or repair is assessed or confirmed in accordance with enterprise guidelines, site requirements and type of equipment 1.4 Any required additional skills are identified and assistance arranged as appropriate 1.5 Site access and security arrangements are made where required 1.6 Customers and / or other affected parties are notified of works to be undertaken 1.7 Occupational health and safety legislation, enterprise procedures and site specific safety requirements are observed 1.8 Repair equipment is obtained, and materials are ordered to be on site at the required time 1.9 Electronic equipment is taken out of commission

- for repair or replacement
- 2 **Re-calibrate electronic equipment**
 - 2.1 Electronic equipment settings are ascertained from manufacturer's instructions
 - 2.2 Electronic equipment is re-calibrated to accord with pre-set readings
 - 2.3 Electronic equipment is functionally tested and, where necessary, cut back into commission and retested
 - 3 **Adjust electronic equipment**
 - 3.1 Nature and extent of required adjustment is re-checked
 - 3.2 Adjustments are made to electronic equipment as determined and within manufacturer's guidelines
 - 3.3 Electronic equipment is functionally tested and, where necessary, cut back into commission and retested
 - 4 **Replace hardware**
 - 4.1 Tools required for the repair or replacement are selected and obtained
 - 4.2 Any replacement of parts or equipment is compatible with existing parts and equipment
 - 4.3 Repair or replacement is undertaken in accordance with manufacturer's specifications
 - 4.4 Electronic equipment is functionally tested and, where necessary, cut back into commission and retested
 - 5 **Complete works on site**
 - 5.1 All appropriate records are completed, signed, and stored in accordance with enterprise guidelines
 - 5.2 Any changes to equipment are clearly noted on the appropriate records and stored in accordance with enterprise guidelines
 - 5.3 All tools and equipment are cleaned, adjusted and stored in accordance with enterprise guidelines and manufacturer's specifications
 - 5.4 Waste and debris are removed from worksite and disposed of in accordance with environmental requirements and enterprise guidelines

- 5.5 All parties notified prior to works are notified of fault repair in accordance with enterprise guidelines

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Select from the following list to suit the learning and assessment context

Codes refer to the Skills and Knowledge Register in Volume 3 of this Training Package that has detailed content guidelines for each code outlined.

CI410 Communication 4

CO410 Computer Skills 4

EL420 Impedance Matching 4

EN420 Enterprise Information Systems 4

EN450 Enterprise Policy and Practice

MA210 Basic Telecommunications Mathematics

OH410 Occupational Health and Safety 4

PK410 Product Knowledge 4

PR410 Problem Solving 4

PS410 Plans and Specifications 4

RA420 Radio Frequency Theory and Hazards 4

RE235 Regulations for CAN

RE310 Working on Non-enterprise Land 3

SU470 Project Management 4

TE410 Basic Telephony 4

TF310 Test Equipment 3

TF320 Test Analysis and Diagnosis 3

TF410 Test Equipment 4

TF430 Fault Finding 4

TO310 Use of Tools 3

TO320 Anti-static Procedures 3

TO330 Installation Practices 3

TO410 Use of Tools 4

TR310 Basic Transmission Theory

Computer Systems

The following relate specifically to the Computer Systems group of qualifications

CN421 Installing And Managing A Graphical User Interface

CN422 Configuring And Optimising A Graphical User Interface

CN430 Digital Electronics 1
CN431 Digital Electronics 2
CN435 Digital And Computer Systems
CN440 Database Fundamentals
CN460 Fault-Finding And Diagnostic Skills

Required knowledge

The relevant required knowledge is articulated in the above guidelines contained in the Skills and Knowledge Register included in this Training Package.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

Repair of fault and conduct of tests to verify outcomes.

Documentation of fault including: nature, location, likely causes, repair methodology.

Application of enterprise escalation and outage procedures.

Calibration or re-calibration of equipment.

Adjustment of equipment.

Hardware replacement.

Ability to prioritise, operate in a timely manner and report progress.

Recognition of potential causes.

Ability to read, interpret and use equipment/system manuals and specifications and relevant enterprise policy and documentation.

Interpersonal skills related to customers, employer, work associates, team members, individuals and other contractors.

Application of all related occupational health and safety requirements and work practices.

Customer focus and consideration of customer needs.

Context of and specific resources for assessment

Assessment must ensure:

A workplace conducting the operations covered by this competency unit, equipment and resources relevant to the context of the work (See Range Statement) and support from a competent supervisor or mentor.

OR

A simulated environment with similar provisions which conforms to the Assessment Guidelines.

Guidance information for assessment

Access must be provided to appropriate learning and assessment support when required.

Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.

In all cases where practical assessment is used it will be combined with targeted questioning to assess underpinning knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. **Bold italicised** wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Systems	Can include telephony networks, data networks, computer systems including Local Area Networks (LANs) and Wide Area Networks (WANs)
Adjustments required	May include programming change, different calibration setting, movement of hardware / connections
Checks / tests made	May include visual check, functional test, aural test
Consultation regarding maintenance procedures	May include discussions regarding: time, location, duration, nature of works, access arrangements
Customer	May not need to be notified of repair if fault report did not originate from customer
Equipment on which fault may occur	Includes: line conditioning, optic transceiver, multiplexer, concentrator, antenna, radio system, transmission equipment, switching equipment, satellite receiver

Faults	May be identified during initial installation or when a system is operational May be reported by: customers, system managers, information technology managers / operators, building owners, enterprise technicians, alarm information systems
Industry standards	May include: enterprise codes of practice, ACMA and Spectrum Management Authority standards, Manufacturer's specifications
Manufacturer's specifications	May be found in: printed instruction leaflets, pre printed on materials or product packaging
Methods for fault finding	Include: equipment testing, visual inspections, component replacement
Permits	May be required and may relate to the following: heritage, environment, restricted area, quarantined areas
Reason for repair	May include: broken casing, intermittent electronic failure, operation out of specifications
Records	May be stored on either enterprise or customer premises and at equipment site or central enterprise location

Suitability of test equipment	May include: Equipment calibration certification is current to reduce possibility of unreliable test data and ensure traceability
Tools	May include: hand tools, manufacturer's tool, personal computer
Variables that impact on equipment or system faults	May include: recent additions to system, building works, power supply, software problems, time of fault, atmospheric/environmental conditions
Relevant legislation, codes, regulations and standards may include:	Australian Standards Australian Building Codes and Regulations Occupational Health and Safety Environmental protection Heritage legislation

Unit Sector(s)

Not applicable.