

<b>Title</b>	<b>Rework through-hole printed circuit boards</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>This unit standard covers reworking of printed circuit boards using through-hole components. Reworking includes replacement of components and addition of new components.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> <li>–set up the printed circuit board repair environment;</li> <li>–remove components from printed circuit boards; and</li> <li>–replace components on printed circuit boards.</li> </ul>
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<b>Classification</b>	Electronic Engineering > Electronic Manufacturing
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Definition  
*through-hole components* – electronic components intended for insertion into holes in printed circuits and soldered in place.
- 2 Range  
evidence of six reworked through-hole printed circuit boards is required, including active and passive components.
- 3 References  
Health and Safety in Employment Act 1992;  
Hazardous Substances and New Organisms Act 1996;  
IPC-7711B/7721B, *Rework, Modification and Repair of Electronic Assemblies*, November 2007, published by IPC – Association Connecting Electronics Industries.
- 4 The following apply to all outcomes of this unit standard:
  - a all activities are to be completed and reported within agreed timeframes;
  - b all work practices must meet worksite's documented quality management requirements;
  - c all activities must comply with policies, procedures and requirements of the enterprises involved; and any relevant legislative and/or regulatory requirements, which include, but are not limited to, the Health and Safety in Employment Act 1992 and the Hazardous Substances and New Organisms Act 1996.

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## Outcomes and performance criteria

### Outcome 1

Set up the printed circuit board repair environment.

#### Performance criteria

- 1.1 The workplace layout conforms to enterprise safety standards and presents no uncontrolled hazards to any person.
- 1.2 The selected equipment, settings, and materials are suitable for the type of rework.  
  
Range equipment – thermal capacity, tip shape and size;  
settings – temperature, gas flows, solder removal;  
materials – flux, cleaning materials, paste, solder.
- 1.3 Measures to prevent damage from electrostatic discharge are applied.

### Outcome 2

Remove components from printed circuit boards.

#### Performance criteria

- 2.1 The removal process causes no damage to printed circuit boards or adjacent components.

### Outcome 3

Replace components on printed circuit boards.

#### Performance criteria

- 3.1 Placement and soldering of components do not damage printed circuit boards, the components being replaced, or adjacent components.
- 3.2 Reworked boards meet IPC and enterprise standards.

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**This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	23 November 2003	31 December 2021
Rollover and Revision	2	19 March 2010	31 December 2021
Review	3	26 July 2018	31 December 2021

**Consent and Moderation Requirements (CMR) reference**

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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.