

Title	Rework surface mount printed circuit boards		
Level	3	Credits	10

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

- 1 **Definition**
surface mount devices (SMD) – components that are bonded directly to the surface of a printed circuit board, without the use of holes.
- 2 **Range**
 evidence of six reworked SMD 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-A-610D, *Acceptability of Electronic Assemblies*, 2005, published by IPC – Association Connecting Electronics Industries;
 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.

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.
- 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 bonding or soldering of components do not damage printed circuit boards, the components being added, or adjacent components.
- 3.2 Reworked boards meet IPC and enterprise quality standards.

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	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

This unit standard is Expiring