

Title	Perform hand soldering in aerospace avionics manufacturing		
Level	3	Credits	25

Purpose	People credited with this unit standard are able to: select soldering equipment; produce manual solder connections for avionics manufacturing; and maintain soldering equipment.
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Classification	Aeronautical Engineering > Aerospace Engineering
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Available grade	Achieved
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Guidance Information

1 Definition

Enterprise procedures – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.

2 Range

Competence may be demonstrated on one or more of the following – printed circuit board assemblies using active and passive components with leads, signal wiring, power wiring, terminations, connectors, screening, avionic components, product assemblies.

3 References

- Health and Safety at Work Act 2015;
- ANSI/IPC J-STD- 001H, *Requirements for Soldered Electrical and Electronic Assemblies*, January 2021, published jointly by IPC – Association Connecting Electronics Industries and the Electronic Industries Alliance;
- ANSI/IPC J-STD- 001HS, *Space and Military Applications Electronic Hardware Addendum to IPC-STD-001H Requirements for Soldered Electrical and Electronic Assemblies*, January 2021, published jointly by IPC – Association Connecting Electronics Industries and the Electronic Industries Alliance;
- IPC-A-610H, *Acceptability of Electronic Assemblies*, January 2020, published by IPC – Association Connecting Electronics Industries.

All ANSI/IPC references are available at

https://webstore.ansi.org/?_ga=2.101822977.1417427167.1676497801-1251871341.1676497800.

- 4 The following apply to all outcomes of this unit standard:
- a all activities are to be completed and reported in accordance with enterprise procedures;
 - 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 at Work Act 2015.

Outcomes and performance criteria

Outcome 1

Select soldering equipment.

Performance criteria

- 1.1 Equipment and material that are suitable for the soldering application on avionics components are selected.
- Range suitability may include but is not limited to – temperature requirement, tip size, tip shape, solder material, fluxes, cleaning material.
- 1.2 Soldering equipment is set up and operated in accordance with enterprise quality and safety standards.

Outcome 2

Produce manual solder connections for avionics manufacturing.

Performance criteria

- 2.1 Component performance is not affected by the soldering process.
- Range physical, heat, electrostatic damage.
- 2.2 Soldered connections are produced that comply with the required connection and quality standards for the application of aerospace avionics.
- Range standards include – IPC standards, physical appearance, mechanical strength, electrical properties, component placement, cleanliness of joint, application of heat, solder materials.

Outcome 3

Maintain soldering equipment.

Performance criteria

- 3.1 Soldering equipment is turned off when not in use for long periods.

- 3.2 Corroded or damaged tips are repaired or replaced.
- 3.3 Sponge is kept clean and damp.
- 3.4 Coating of solder is left on the tip when soldering iron is not in use.
- 3.5 Work area is left in a state that enables the next task to begin.

Planned review date	31 December 2027
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	30 March 2023	N/A
Rollover and Revision	2	27 June 2024	N/A

Consent and Moderation Requirements (CMR) reference	0028
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Ringa Hora Services Workforce Development Council qualifications@ringahora.nz if you wish to suggest changes to the content of this unit standard.