

Title	Demonstrate and apply knowledge of machine levelling and alignment		
Level	3	Credits	3

Purpose	<p>This unit standard, intended for off job assessment, is an introduction for people training in mechanical engineering trades who will need to set up machinery.</p> <p>People credited with this unit standard are able to demonstrate knowledge of machine levelling and alignment, and level and align machines.</p>
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Classification	Mechanical Engineering > Engineering Core Skills
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Available grade	Achieved
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Prerequisite	Unit 21912, <i>Apply safe working practices on an engineering worksite</i> , or demonstrate equivalent knowledge and skills.
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Guidance Information

- 1 References
Health and Safety at Work Act 2015.
- 2 Definition
Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.
- 3 Related unit standards
This unit standard is one of a machinery levelling and alignment set:
 - Unit 22898, *Demonstrate and apply knowledge of machine levelling and alignment* (Level 3), an introductory unit standard that covers basic levelling and alignment knowledge and application.
 - Unit 2408, *Align mechanical machinery* (Level 4), a trade level unit standard for demonstrating practical alignment competence.
 - Unit 2409, *Level mechanical machinery* (Level 3), a trade level unit standard for demonstrating practical levelling competence.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of machine levelling.

Performance criteria

- 1.1 The use of instruments to achieve level is described in accordance with accepted industry practice.
- Range examples are – machine level, dumpy level, laser level.
- 1.2 Systematic procedure for levelling machines is explained in accordance with accepted industry practice. The procedure includes reference to measurements and methods of correction.
- 1.3 Potential causes and symptoms of improperly levelled machinery are identified.
- 1.4 Three potential consequences of not levelling machines to specification or accepted industry practice are identified.

Outcome 2

Demonstrate knowledge of machine alignment.

Performance criteria

- 2.1 The use of alignment measuring systems is explained.
- Range equipment – laser, dial test indicators (DTI);
examples are – alignment of machine components such as shafts of rotating machinery, alignment of pulleys.
- 2.2 Systematic procedure for bringing machines into alignment is explained in accordance with accepted industry practice. The procedure includes reference to measurements and methods of correction.
- 2.3 The terms *soft foot* and *shaft runout* are explained as they apply to machine alignment.
- 2.4 Potential causes and symptoms of improper machine alignment are identified.
- 2.5 Three potential consequences of not aligning machines to specification or accepted industry practice are identified.

Outcome 3

Level and align machines.

Range two machine levelling and two alignment jobs.

Performance criteria

3.1 Level is checked and adjusted to within specified tolerance or accepted industry practice.

Range equipment examples are – machine level, dumpy level, laser level.

3.2 Alignment is checked and adjusted to within specified tolerance or accepted industry practice.

Range equipment must include – laser, DTI.

Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 June 2006	31 December 2016
Review	2	17 November 2011	31 December 2022
Review	3	17 August 2017	N/A

Consent and Moderation Requirements (CMR) reference	0013
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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 Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.