

<b>Title</b>	<b>Demonstrate and apply knowledge of mechanical fitting</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to: demonstrate knowledge of safety in fitting work, a general maintenance fitting procedure, scraping, keys and pins, seals, and bearing failures and fitting procedures; and perform fitting activities.
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<b>Classification</b>	Mechanical Engineering > Engineering Core Skills
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<b>Available grade</b>	Achieved
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<b>Entry information</b>	
<b>Recommended skills and knowledge</b>	Unit 19873, <i>Demonstrate knowledge of bearings used in machines and equipment.</i>

**Explanatory notes**

- 1 References  
Health and Safety in Employment Act 1992.  
Culley, Ron, ed. *Fitting and Machining*. ISBN 0724138196 (Melbourne: RMIT Publishing, 2009).
- 2 Definition  
*Industry practice* – safe and sound trade practice generally accepted by competent persons within the mechanical engineering industry.

**Outcomes and evidence requirements**

**Outcome 1**

Demonstrate knowledge of safety in fitting work.

**Evidence requirements**

- 1.1 Potential hazards in the performance of fitting work are identified, and their management outlined, in accordance with industry practice.

**Outcome 2**

Demonstrate knowledge of a general maintenance fitting procedure.

**Evidence requirements**

- 2.1 A systematic procedure for carrying out maintenance fitting work is outlined in accordance with industry practice.

**Outcome 3**

Demonstrate knowledge of scraping.

**Evidence requirements**

- 3.1 The purpose of scraping is explained in accordance with industry practice.
- 3.2 A procedure for scraping a surface flat to a surface plate is outlined in accordance with industry practice.
- 3.3 A procedure for scraping a halved bearing to fit a shaft is outlined in accordance with industry practice.

**Outcome 4**

Demonstrate knowledge of keys and pins.

**Evidence requirements**

- 4.1 Keys and pins are identified and described with reference to features and uses.
- Range keys – plain tapered, gib head tapered, feather, sliding, Woodruff, saddle, scotch;  
pins – taper, grooved, spring, shear.

**Outcome 5**

Demonstrate knowledge of seals.

**Evidence requirements**

- 5.1 The purpose of seals is explained with reference to the difference between static and dynamic seals.
- 5.2 Static seals are described with reference to features, uses, and jointing materials.
- Range gaskets, spiral wound gaskets, O-rings, T-rings;  
evidence of three is required.
- 5.3 Dynamic seals are described with reference to features, uses, and materials.
- Range oil seal, stuffing box and gland, V-ring packing, mechanical seal, O-ring, J-seals, U-cups, labyrinth;  
evidence of four is required.

**Outcome 6**

Demonstrate knowledge of bearing failures and fitting procedures.

**Evidence requirements**

6.1 Causes of bearing failures are identified by inspection of bearings or pictorial representations.

Range evidence of three commonly occurring failures.

6.2 Procedures for dismounting and fitting bearings are outlined, with reference to method, tools, fit, and precautions.

**Outcome 7**

Perform fitting activities.

Range activities should reflect understanding of the techniques involved according to industry practice, in given applications.

**Evidence requirements**

7.1 Two different types of keys are fitted.

7.2 A gasket is made and fitted.

7.3 An oil seal and a mechanical seal are fitted.

7.4 Two different bearings are dismounted and fitted.

**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	20 June 2006	31 December 2016
Review	2	17 November 2011	31 December 2022
Review	3	17 August 2017	31 December 2022

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

0013

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

**Please note**

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

**This unit standard is expiring**