Title	**Assemble fabricated components using mechanical connections**		
Level	**2**	**Credits**	**3**

Purpose	This unit standard is for people working in the mechanical engineering trades involved in the assembly of light or heavy fabricated components using mechanical connections. It is not intended to be used for welded joints, which are covered by unit standards in the *Welding* domain. People credited with this unit standard are able to prepare for the assembly of, and assemble, light or heavy fabricated components to meet job specifications.

Classification	Mechanical Engineering > Engineering Core Skills

Available grade	Achieved

Entry information	
Critical health and safety prerequisites	Unit 21911, *Demonstrate knowledge of safety on engineering worksites*; Unit 21912, *Apply safe working practices on an engineering worksite*; or demonstrate equivalent knowledge and skills.

Explanatory notes

1 References
Health and Safety at Work Act 2015 and supporting Regulations.

2 Definitions
Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.
Mechanical connection refers to joining components using threaded fasteners, rivets or self-securing joints and does not include adhesives or lamination.
Job specifications refers to instructions relevant to the safe completion of the specific task, such as technical specifications, assembly instructions, drawings, parts lists, standards, codes of practice, test and commissioning procedures, and verbal instructions.
Workplace procedures refers to procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – 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.

3 Range
Heavy fabrication involves assembly of components constructed from metal sections or plate with a minimum 3mm thickness using threaded fasteners, and may include heavy pipework.
Light fabrication involves assembly of components constructed from metal sheet or light sections in the thickness range 0.4 - 6mm using threaded fasteners, rivets and self-securing joints, and may include light pipework.
A minimum of four different fabrication projects or tasks and two different materials including at least one project or task involving the alignment of multiple holes such as flanged pipes or joints.
Projects or tasks may include joining fabricated metal components to other materials such as concrete or wood.

4 Assessment information
All four projects or tasks must involve either heavy fabrication only or light fabrication only.

Examples/evidence given must be within the context of mechanical engineering or fabrication and must meet applicable workplace procedures and accepted industry practice.

Numerous reference texts and training manuals on metal fabrication practices are available and may be used; however, no one textbook or source of information is envisaged.

Outcomes and evidence requirements

Outcome 1

Prepare for the assembly of light or heavy fabricated components.

Evidence requirements

1.1 Tools and equipment are selected to meet job specifications.

Range examples of tools and equipment – components, fasteners, lifting equipment, safety equipment.

1.2 Tools and equipment are inspected to ensure readiness for assembly in accordance with job specifications.

Range examples of readiness for assembly – components meet job specifications including placement and size of holes, fasteners meet job specifications.

1.3 Hazards associated with the task are identified and methods are put in place to eliminate or minimise them.

1.4 Weight and size of components are determined and method of assembly and lift is described.

Range examples of methods of lift - single person, multiple person, crane, overhead gantry, hoist.

Outcome 2

Assemble light or heavy fabricated components to meet job specifications.

Evidence requirements

2.1 Components are aligned and held in place.

2.2 Components are joined using mechanical connections.

2.3 Assembled joint is inspected to ensure it meets job specification.

Range includes but is not limited to – any threaded fasteners tightened to correct torque loading.

2.4 Any faults found are rectified or reported in accordance with workplace procedures and/or accepted industry practice.

Planned review date	31 December 2021

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	8 December 2016	N/A

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.

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.