

Title	Demonstrate knowledge of MIG welding in the motor industry		
Level	3	Credits	2

Purpose	This theory-based unit standard is for people who wish to enter or are employed in the motor industry. People credited with this unit standard are able to demonstrate knowledge of MIG welding in the motor industry, and the MIG welding process.
----------------	---

Classification	Motor Industry > Automotive Workshop Engineering
-----------------------	--

Available grade	Achieved
------------------------	----------

Explanatory notes

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable manufacturer's specifications, service information, company and legislative requirements (this includes the knowledge and/or use of suitable tools and equipment).
- 2 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of including updated amendments to, and replacements of – Health and Safety at Work Act 2015.
- 3 Definitions
Company requirements refer to instructions to staff on policy and procedures which are documented in memo or manual format and are available in the workplace. These requirements include but are not limited to – company specifications and procedures, work instructions, manufacturer specifications, product quality specifications and legislative requirements.
Service information may include but is not limited to – technical information of a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions and specifications; technical terms and descriptions; and detailed illustrations. This may be accessed from the manufacturer.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of MIG welding in the motor industry.

Evidence requirements

1.1 How a MIG welder works is described.

Range producing heat for welding, the wire drive system operation, transferring the current from the power source and producing the arc, gas shielding, earthing principles.

1.2 Power supply and capacity ratings are identified.

Range amperage rating, duty cycle.

1.3 Shielding gases used for different metals are identified.

Range argon, helium, oxygen, carbon dioxide (CO₂); coated steel, mild steel, high strength steel (HSS), aluminium alloy.

1.4 Electrode wires are identified.

Range metal gauge; coated steel, mild steel, high strength steel (HSS).

1.5 Types of joints used when welding vehicles are identified.

Range lap joint, offset butt joint, butt joint with insert, plug joint, open butt joint.

1.6 Effects of MIG welding on vehicle electronics are identified.

1.7 Safety precautions are identified.

Range personal safety; safety of other people; vehicle safety; workshop safety; environmental safety; tool, equipment, and machine safety.

Outcome 2

Demonstrate knowledge of the MIG welding process.

Evidence requirements

2.1 Methods of preparing metal for welding are described.

Range no contaminants on the surface to be welded, abutting ends square, suitable gap between joint edges, metal positioned securely.

2.2 Procedures to set up a MIG welder for welding are described.

2.3 Procedures to protect adjacent vehicles, tools, and machine components are described.

Range damage, risk of fire, explosion.

2.4 Welding procedures are described.

Range stick-out length, travel speed, nozzle angle.

2.5 Welding faults and causes are identified and described.

Range undercutting, lack of penetration, lack of fusion, porosity, excessive splatter, irregular weld shape.

2.6 Procedures for shutting down welding equipment are described.

Range gas shutoff, power leads disconnected, stored in a safe place.

Replacement information	This unit standard and unit standard 21684 replaced unit standard 3884.
--------------------------------	---

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	27 July 2005	31 December 2018
Review	2	21 April 2016	N/A

Consent and Moderation Requirements (CMR) reference	0014
--	------

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 (CMRs). 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 the MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.