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**AUTOMOTIVE WORKSHOP  
ENGINEERING**  
**Use an oxy-acetylene welding plant in  
the motor industry**

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<b>level:</b>	<b>2</b>
<b>credit:</b>	<b>3</b>
<b>planned review date:</b>	December 2009
<b>sub-field:</b>	Motor Industry
<b>replacement information:</b>	This unit standard and unit standard 21682 replaced unit standard 230 and unit standard 3885.
<b>purpose:</b>	This unit standard is for people who are at pre-employment level or who have recently started work in the motor industry. People credited with this unit standard are able to prepare to weld a piece of steel, weld two pieces of steel at least 20 cm long, and join metal using brazing in the motor industry.
<b>entry information:</b>	Recommended: Unit 21682, <i>Demonstrate knowledge of an oxy-acetylene welding plant in the motor industry</i> , or demonstrate equivalent knowledge and skills.
<b>accreditation option:</b>	Evaluation of documentation by NZQA and industry.
<b>moderation option:</b>	A centrally established and directed national moderation system has been set up by the NZ Motor Industry Training Organisation.
<b>special notes:</b>	<ol style="list-style-type: none"><li>1 Legislation relevant to this unit standard includes but is not limited to Health and Safety in Employment Act 1992.</li><li>2 <i>Company guidelines</i> include workplace standards, practices, and procedures, which must comply with current legislative requirements. It is assumed the policy also meets product manufacturer's specifications, recommendations, and standards.</li></ol>

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**Elements and Performance Criteria**

**element 1**

Prepare to weld a piece of steel.

**performance criteria**

- 1.1 The gas cylinders, pressure regulators, hoses, and torch are inspected visually for serviceability and assembled so that there are no gas leaks, no internal dust and dirt, no traces of oil or grease, and the flash-back arrestors are in place.
- 1.2 A welding tip for the job is selected in accordance with the equipment manufacturer's chart and fitted to the torch according to the plant manufacturer's specifications.
- 1.3 Metal is prepared for welding according to the plant manufacturer's specifications.
- Range: no contaminants on the surface to be welded, abutting ends square, suitable gap between joint edges, metal positioned securely.
- 1.4 Protective clothing is worn according to company guidelines, the plant manufacturer's specifications, and legislative requirements.
- Range: protection for eyes, hands, hair, clothing, feet, lungs.

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**element 2**

Weld two pieces of steel at least 20 cm long.

Range: lap weld, tee fillet.

**performance criteria**

- 2.1 The metal is welded in position according to the plant manufacturer's specifications and company guidelines.
- Range: no undercutting, full penetration, consistent width and height, neat appearance, no holes.
- 2.2 The welded component is cooled in a manner which ensures that any harmful effects on the component that could result from the way in which it is cooled, are kept to a minimum.
- 2.3 The welded component is suitably positioned and marked while cooling, to reduce the risk of any personnel getting burnt.
- 2.4 Safe working practices are carried out throughout the task according to legislative requirements.
- Range: personal safety, safety to others, tools, workshop and equipment safety.
- 2.5 Welding equipment is shutdown after use and stored safely with no damage to equipment or injury to people according to the plant manufacturer's instructions and company guidelines.

**element 3**

Join metal using brazing in the motor industry.

**performance criteria**

- 3.1 The welding plant is assembled, a welding tip for the job is selected in accordance with the equipment manufacturer's chart and fitted to the torch according to the plant manufacturer's specifications.

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- 3.2 Metal is prepared for brazing according to the plant manufacturer's specifications and company guidelines.
- Range: surface is clean, suitable gap between joint edges, metal positioned securely.
- 3.3 Protective clothing is worn according to the plant manufacturer's specifications and company guidelines.
- Range: protection for eyes, hands, hair, clothing, feet.
- 3.4 The metal is brazed having a neat appearance and minimal distortion of metal.
- Range: flux application, brazing technique, strength.
- 3.5 The welded component is cooled in a manner which ensures that any harmful effects on the component that could result from the way in which it is cooled, are kept to a minimum.
- 3.6 The welded component is suitably positioned and marked while cooling, to reduce the risk of any personnel getting burnt.
- 3.7 Safe working practices are carried out throughout the task according to legislative requirements.
- Range: personal safety, safety to others, tools, workshop and equipment safety.
- 3.8 Welding equipment is shutdown and stored safely according to the plant manufacturer's instructions and company guidelines, and with no damage to equipment or injury to people.

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**Comments on this unit standard**

Please contact the NZ Motor Industry Training Organisation [jlane@mito.org.nz](mailto:jlane@mito.org.nz) if you wish to suggest changes to the content of this unit standard.

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**Please Note**

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0014 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.