

Title	Prepare and operate a steam boiler		
Level	3	Credits	10

Purpose	<p>This unit standard covers knowledge of the functions of a steam boiler and the skills required for its safe operation.</p> <p>People credited with this unit standard are able to carry out preliminary start-up procedures on a steam boiler, prepare a steam boiler for operation, rise steam pressure, shut down and lay up a steam boiler and complete documentation.</p> <p>The holder of this unit standard is competent to undertake the duties of a fireman on a rail-mounted vehicle.</p>
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Classification	Commercial Road Transport > Steam Driven Vehicles
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Available grade	Achieved
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Explanatory notes

1. A *boiler* includes pressure vessels. It may be a stationary or portable boiler with no machinery attached and used primarily for steaming purposes. It may be vertical, horizontal or a locomotive type boiler. Steam boilers not exceeding 50 litres water capacity are excluded.
2. All tasks are to be carried out in accordance with the Land Transport Rule: Traction Engines 2010 (the Rule) <http://www.nzta.govt.nz/resources/rules/traction-engines-2010-index.html>.
3. Definitions
Organisational requirements include any legal requirements, standards, codes of practice, organisational and/or site policies and procedures, industry best practice and manufacturers' instructions. These must be available to candidates, providers, and assessors. The applicable standard is the highest standard specified. Where the boiler is permanently fixed, organisational requirements may also be site specific.
4. Before assessment commences, the boiler must be checked to ensure it has a current boiler certificate.

Outcomes and evidence requirements

Outcome 1

Carry out preliminary start-up procedures on a steam boiler.

Evidence requirements

1.1 Steam boiler and auxiliary equipment are checked in accordance with organisational requirements.

Range items to be checked may include but are not limited to – steam boiler, structural components, auxiliary equipment; documentation to be checked may include but is not limited to – regulatory documents, steam pressure gauge certificate, current boiler certificate, fault sheets.

1.2 Availability of sufficient supplies of fuel and water is checked and confirmed in accordance with organisational requirements.

1.3 Pre-start maintenance and lubrication checks are carried out on boiler in accordance with organisational requirements.

Range steam boiler, structural components, auxiliary equipment.

Outcome 2

Prepare a steam boiler for operation.

Evidence requirements

2.1 Steam boiler is lit up and brought to working pressure in accordance with organisational requirements.

Range may include but is not limited to – funnel cap removed, ash pan emptied, grate cleared, tubes brushed, boiler water level checked in both gauge glasses, fires lit when checks indicate it is safe to do so, air purged, leakage checked, boiler water level gauges checked.

2.2 Control, monitoring, and safety devices are checked in accordance with organisational requirements.

Range may include but is not limited to – safety valves, crack detection grooves on lap seam boilers, fusible plug, boiler water level gauges, pressure gauge, whistle, feed injectors, feed check valves, dampers, steam and water leakage.

2.3 Steam boiler is warmed up and prepared for operation in accordance with organisational requirements.

Range may include but not limited to – heated, brought to steam operating pressure.

2.4 Procedures to deal with contingencies are explained in accordance with the Rule and organisational requirements.

Range may include but is not limited to – excessive steam pressure, low steam pressure, shortage of water, priming, steam and water leakage, fractured gauge glass, leaking tubes, injector and feed pump operation.

Outcome 3

Raise steam pressure.

Evidence requirements

3.1 Steam boiler is raised in accordance with organisational requirements.

Outcome 4

Shut down and lay up a steam boiler and complete documentation.

Evidence requirements

4.1 Steam boiler is shut down in accordance with organisational requirements.

Range may include but is not limited to – blowing down, checking for faults and defects, banking or drawing the fire, cooling down, removing the ashes, draining, drying out, capping chimney.

4.2 Laying up procedures are carried out in accordance with organisational requirements.

Range short-term, long-term.

4.3 Documentation is completed in accordance with organisational requirements.

Range log books, fault report sheets, inventories.

Planned review date	31 December 2019
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 May 2005	31 December 2016
Rollover and Revision	2	18 March 2011	31 December 2016
Review	3	16 July 2015	N/A

Consent and Moderation Requirements (CMR) reference

0092

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 NZ Motor Industry Training Organisation (Incorporated) info@mito.org.nz if you wish to suggest changes to the content of this unit standard.