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| Title | Prepare and operate a steam boiler | | |
| Level | 3 | Credits | 10 |

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| Purpose | 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; raise steam pressure; and shut down and lay up a steam boiler and complete documentation. |
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| Classification | Commercial Road Transport > Steam Driven Vehicles |
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| Available grade | Achieved |
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Guidance Information

- 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 must 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 Definition
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 performance criteria

Outcome 1

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

Performance criteria

- 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.

Performance criteria

- 2.1 Steam boiler is lit up and brought to working pressure in accordance with organisational requirements.
- Range may include – 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 – 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 – heated, brought to steam operating pressure.
- 2.4 Preparations to deal with contingencies are carried out in accordance with the Rule and organisational requirements.
- Range may include – 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.

Performance criteria

3.1 Steam boiler is raised in accordance with organisational requirements.

Outcome 4

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

Performance criteria

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

Range may include – 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 logbooks, fault report sheets, inventories.

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| Planned review date | 31 December 2025 |
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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 | 31 December 2022 |
| Review | 4 | 29 April 2021 | N/A |

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| Consent and Moderation Requirements (CMR) reference | 0014 |
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

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