AUSTRALIAN RAIL INDUSTRY STANDARDS ORGANISATION

Inspection, Maintenance and Repair of Locomotive Boilers

CODE OF PRACTICE

Advancing safety and productivity

Notice to users

This ARISO product has been developed using input from rail experts from across the rail industry and represents good practice for the industry. The reliance upon or manner of use of this ARISO product is the sole responsibility of the user who is to assess whether it meets their organisation's operational environment and risk profile.

Development of this product was prepared by a Australian Rail Industry Standards Organisation (ARISO) Development Group consisting of representatives from the following organisations:

City of Hobart; Victorian Goldfields Railway; Gleesons; West Coast Wilderness Railway; SteamRanger Heritage Railway; Puffing Billy Railway; Mornington Tourist Railway and Locomotive Restoration Group; ATHRA - Association of Tourist & Heritage Railways Australia

The Rolling Stock Standing Committee verified that ARISO's accredited process was followed in developing the product, before the ARISO Board approved the document for publication.

ARISO wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comments on a draft of the Standard during the open review.

I commend this Code of Practice to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.

Alan Fedda
Chief Executive Officer
Australian Rail Industry Standards Organisation

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Preface

This Code of Practice was prepared by the Inspection, Maintenance and Repair of Locomotive Boilers Development Group, overseen by the ARISO Rolling Stock Standing Committee.

This Code has been significantly updated to reflect current practices used for boiler maintenance and repair. Key changes include:

- clearer definitions of key roles in boiler maintenance and repair;
- changes to the definitions of inspections, when there are carried out, and who is responsible for the inspections;
- restructuring of the document to improve readability;
- removal of information that is now known to be unsafe or not best practice in boiler repair.

Objective

The objective of this Code of Practice is to fill the gap left by the loss of experience as the use of steam locomotives continues into the 21st Century. This document provides a practical guide for rolling stock operators (RSOs) to assist them to meet their statutory responsibilities on steam locomotive boilers, which might be summarized as operating a boiler that is fit for service and presenting the minimum possible risk to any person with the minimum possible risk to the object so far as is reasonably practical (SFAIRP).

This is typically achieved by inspecting, repairing and maintaining boilers appropriately.

Commentary

Commentary *C Preface*

This Code of Practice includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by 'C' preceding the clause number and is printed in italics in a box. The commentary is for information and guidance.

Document details

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Document history

Publication Version	Effective Date	Reason for and Extent of Change(s)
2026	18 June 2026	This document has been reviewed to ensure it remains relevant and applicable. The latest review assessed the content, confirming that while updates were made to align with current industry practices, technologies, and regulatory requirements, the original authorship and copyright have been acknowledged as required.

Approval

Name	Date
Australian Rail Industry Standards Organisation	18 June 2026

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Section 1 Scope and general

1.1 Scope

During the 1990s, the federal and state governments transferred direct responsibility for boiler inspections by starting self-regulation through transferring responsibility to the rolling stock operator (RSO) through the *Rail Safety National Law and Regulations*.

This change required RSOs to implement comprehensive inspection, maintenance and repair programs to ensure ongoing fitness for service within their safety management systems (SMS). This has also typically resulted in the use of independent boiler inspectors.

Each state still requires boilers to be registered with the responsible authority. These authorities can audit RSOs at any time to determine whether they are meeting their statutory responsibilities.

The Australian rail industry has recognized that steam locomotive boiler expertise is diminishing.

One of the sources of technical support services for the RSOs operating steam locomotives are independent boiler inspectors. There is also a range of familiarity and experience in the design and construction, and typical faults found in locomotive boilers used in railway service in the RSO organisations. In some cases, experienced practitioners can be sourced to provide technical advice, but they are rare.

With the advent of tourist and heritage railways, some of the larger organisations have established engineering workshops and begun reinvesting in and developing know how to help the construction, maintenance and inspection of the steam locomotive continue.

Importantly, each RSO is responsible for understanding their regulatory responsibilities set out by the laws and regulations that apply to them (i.e. *Rail Safety National Law and Regulations*, work, health, and safety legislation and regulations). This document does not intend to inform or instruct the RSO on the specifics of those responsibilities.

This document provides heritage RSOs with the necessary information to inspect, repair and maintain locomotive boilers.

The document aligns with the *ONRSR Rail Locomotive Boilers Guideline* and is intended to be read in conjunction with that guideline.

This document is intended to be used in its entirety. RSOs are encouraged to not pick and choose clauses to suit their requirements. Where exceptions or deviations from this document are made, it is the responsibility of the RSO to ensure those exceptions or deviations do not increase risk so far as is reasonably practical.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document:

- AS 1200:2015, *Pressure Equipment*
- AS 1210:2010, *Pressure Vessels*
- AS 1228:2016, *Pressure Equipment – Boilers*
- AS 1271:2003, *Safety valves, other valves, liquid level gauges and other fittings for boilers and unfired pressure vessels*
- AS 1349:1986, *Pressure and vacuum gauges*
- AS 1365:1996, *Tolerances for flat rolled steel products*
- AS 1565:1996, *Copper and copper alloys - Ingots and castings*