



# Practice Note No 9

## CONSERVING STEAM LOCOMOTIVES

**This Practice Note provides advice on conserving steam locomotives. The advice supports the Tasmanian Heritage Council's Works Guidelines, which provides guidance on seeking approval from the Heritage Council for works to a place entered in the Tasmanian Heritage Register.**

### Introduction

The conservation of locomotives is required to meet both sound heritage conservation practices and engineering parameters for safety, structural adequacy, serviceability and durability as defined by present day standards which were unknown at the time of original construction.

This practice note has been prepared to assist designers and construction workers to balance cultural heritage needs with engineering requirements for an operating railway.

The approach details basic principles against which all proposed processes are to be evaluated. Specific examples are used as an aid in understanding the process.

### Basic conservation principles

- All work is to be in accordance with the *Historic Cultural Heritage Act 1995* and the principles of the *Burra Charter*.
- Conservation shall be to the original design with adaptation only as needed to comply with present day engineering standards, practices and legislative requirements.
- The original configuration will be taken as the configuration at the time of removal from service in 1963.
- All proposals for departure from the original design are to be justified against the criteria of current engineering standards using the performance requirements of strength, serviceability and durability. Safety is part of the serviceability assessment. All departures are to be documented and justified against the principles.
- Cultural heritage assessment ratings are as detailed in Table 1.

### For further information contact

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## Definitions

**The Historic Cultural Heritage Act 1995 and the Burra Charter:** The *Historic Cultural Heritage Act 1995* is the statutory basis for management of places entered on the Heritage Register. It contains a number of definitions. It is based on principles of the *Burra Charter* which provides a basis for the understanding of conservation principles, processes and practice.

**Conservation** includes the retention of the historic cultural significance of the place; and any maintenance, preservation, restoration, reconstruction or adaptation of the place (the Act).

**Maintenance** means the continuous protective care of the fabric and setting of a place. It is not the same as repair which involves reconstruction or restoration (the *Burra Charter*).

**Preservation** means retaining the fabric in its existing state and retarding deterioration (the *Burra Charter*). For locomotives, it means keeping their fabric in its present condition with no action except maintenance.

**Restoration** means returning the existing fabric of a place (in this case, a locomotive) to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material (the *Burra Charter*). For locomotives, it would require finding and replacing original parts to replace alterations and the removal of non-original additions.

**Reconstruction** means returning a place (locomotive) to a known earlier state and is distinguished by the introduction of new materials (the *Burra Charter*). For locomotives, reconstruction allows the use of new parts or old parts from other locomotives. It involves returning a locomotive to a known earlier form.

**Adaptation** means modifying to suit proposed compatible uses (the *Burra Charter*). For locomotives it may involve changing parts to meet the requirements of a new use whilst keeping the significant features.

## Application of principles - some examples

**Design and dimensions:** Where practical and desirable, standardisation of design and dimensions of components, eg shafts, piston rods and bushes, is acceptable provided that the external appearance and heritage significance is not impacted.

**Materials:** Adaptation to comply with present day engineering standards or practices is acceptable provided that external appearance, design intent and heritage significance is not impacted.

**Vacuum brakes, pin couplings and buffers:** Reuse of existing systems is preferred.

**Injectors:** Installing a flooded suction injector is acceptable provided that it is installed out of direct sight and the disused manual injector is retained as a dummy.

**Boiler:** The use of a present day welded boiler design using the original dimensions, cladding, fittings, external pipe work and oil firing but without superheating is acceptable. Dummy rivets and bolts are to be provided in exposed locations in accordance with the original design.

ASPECT	CULTURAL HERITAGE ASSESSMENT				
	To the Public	To Engineering	To Train Enthusiasts	To Heritage	Overall Assessment
<b>External appearance</b> Physical, paint colour, paint lining, nameplates, lights, whistle, chimney	low	high	high	high	High <sup>1</sup>
<b>Couplings &amp; Buffers</b>	low	medium	high	high	High <sup>1</sup>
<b>Vacuum brakes</b>	low	low	high	high	High <sup>1,2</sup>
<b>Connecting rods and external bearings</b>	low	low	high	high	High <sup>1</sup>
<b>Internal gear (Unseen)</b>	low	low	low	medium	low
<b>Rack drive gear</b>	high	high	high	high	High <sup>3</sup>
<b>Cab layout</b>	low	low	high	high	High <sup>2</sup>
<b>Smell/sound/speed</b>	medium	medium	high	high	High <sup>1</sup>

**NOTES:** <sup>1</sup>High significance to most; thus no departure from original design is desirable; <sup>2</sup>High significance to most; but acceptable if changes are essential to comply with engineering standards or safety; no external changes should be obvious; <sup>3</sup>High significance to all; generally no departure would be permissible.