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# **RAIL**INFRASTRUCTURE CORPORATION

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Category  
**Workshop**

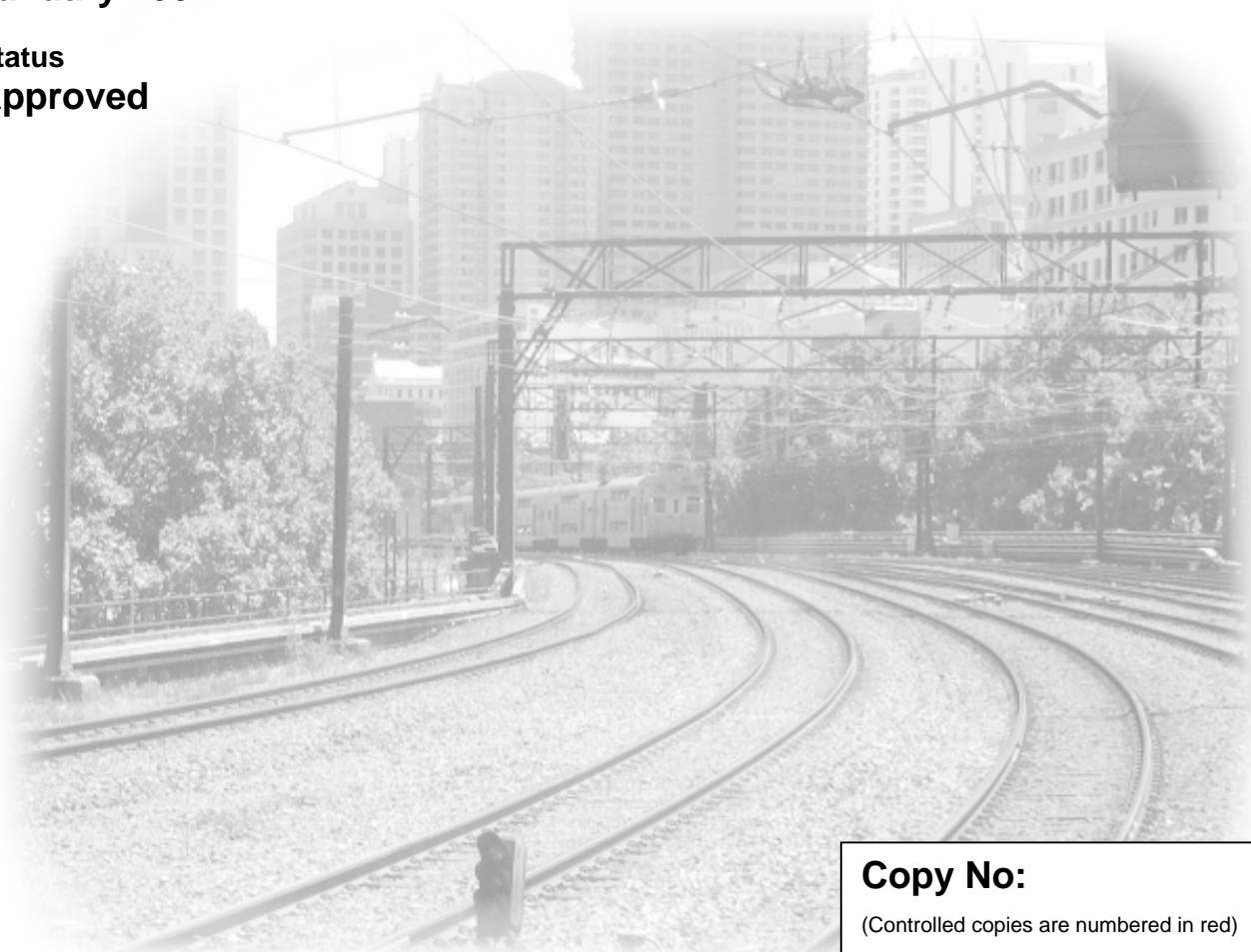
Title  
**Overhaul of Freight Axles**

Reference Number  
**RSS 0036**

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**1.0**

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## **About This Standard**

This standards has been based on TRS 1551.

## **Version History**

**Version 1.0**

**January 2004**

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## 1 Purpose

This standard details the requirements for the overhaul of freight axles.

## 2 Terminology

The axle is described using terms as shown in Figure 1 and Table 1.

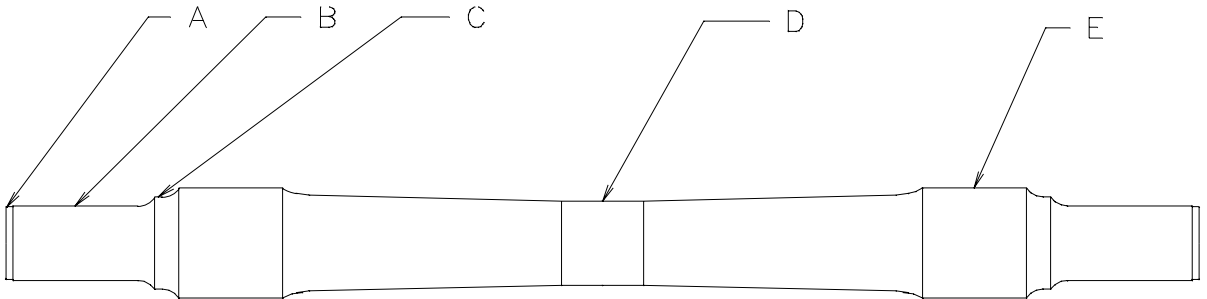


Figure 1

Stepped end or tapered end	A
Bearing journal	B
Dust guard seat	C
Axle Barrel	D
Wheelseat	E

Table 1

## 3 Non destructive testing

The axle shall be non destructive tested according to specification RSS 0033.

## 4 Visual inspection

The axle barrel shall be inspected for damage according to RSS 0031.

Welding of axles or any other method not specified in this specification, is not permitted under any circumstances and any axle showing welding or cutting torch damage is to be scrapped.

## 5 Machining

All axles shall be machined and finished in accordance with the relevant drawings unless detailed otherwise in this specification.

## 6 Wheelseat

All axles shall be closely examined to identify any surface defects. Any axle with a wheelseat defect that cannot be removed either by machining within the prescribed tolerance (i.e. not below the condemning diameter of the axle at the point where the defect was detected) or by precision grinding out all sharp edges and surface discontinuities without reducing the minimum surface contact between the axle wheelseat and wheel bore below 95%, then the axle shall be scrapped. Axles that are to be machined must be segregated with respect to the axles awaiting wheelset assembly. Wheelseats shall not be reclaimed when beyond their condemning diameter, as discussed in Section 9 of this Specification.

Depression, circumferential score or damage or injury to the surface metal of the wheelseat must be removed. Such defects if allowed to remain may result in a broken axle. Any longitudinal channel-way or crack in the wheelseat must also be removed. If a circumferential check or crack is found in the wheelseat the axle must be scrapped unless the checks or cracks can be machined by turning or grinding without going below the axle's serviceable limit.

Each axle wheelseat must be checked in not less than three points equispaced along its length and on two different diameters at each of these points to ensure that it is cylindrical. The variation for any two of these measurements must not exceed 0.05mm (0.002"). Where taper exists within allowable limits (ie: 0.05mm) the small diameter must be on the journal end of the wheelseat.

Wheelseats may be hand polished with a light abrasive material for rust removal and minor surface defect removal. It is preferable that a machine cut, ground or rolled surface be provided to give satisfactory results.

A taper must be turned on the journal end of the wheelseat extending to a maximum of 12 mm (0.5") towards the centre of the axle. This taper shall be started at 0.8 mm (0.032") less than the wheelseat diameter and is intended to ensure true entry of the axle into the wheel bore.

## 7 Bearing journals

Bearing journals are to be requalified according to RSS 0032.



## 8 Threaded holes

Capscrew holes shall be checked with a 2B go no-go thread checking gauge and retapped if necessary.

### 8.1 Repair

Defective capscrew holes may be repaired by drilling and retapping the holes 60 degrees from their original position provided that this repair has not been done previously.

Plug the old capscrew holes with a capscrew that is of sufficient length for it to bottom in the hole. The capscrew should be torqued to 100 foot/lbs over the maximum specified see RSS 0032.

Retap the new holes to the tolerances specified on the drawing for a new axle.

## 9 Axle limits on reconditioning

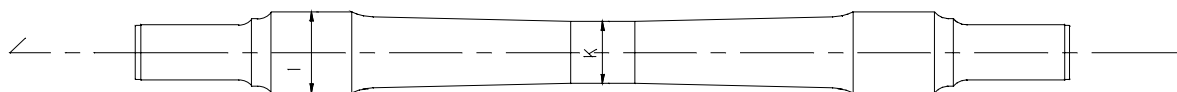


Figure 2

Axle item number	Minimum wheelseat diameter I mm	Minimum axle barrel diameter K mm
A118	189.85	150
A136	180.30	138
A143	206	157
A144	189.85	148
A153	189.85	150
A166	206	157
A201, A203	213	172

Table 2

## 10 Referenced Documents

### 10.1 RIC Standards

RSS 0031	Wheel & Axle Reference Manual
RSS 0032	Axle Bearing Reference Manual
RSS 0033	Non Destructive Testing of Axles