

Train Axles




Engineering Standard

Rail Commissioner

RS1-DOC-000374

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TABLE OF CONTENTS

| | |
|--|----------|
| 1. Introduction | 4 |
| 2. Purpose | 4 |
| 3. Scope | 4 |
| 4. References | 4 |
| 5. Acronyms | 4 |
| 6. Australian Standard for Axles | 5 |
| 7. DPTI Addendum to Australian Standard | 5 |
| 7.1. Section 1.2 (Scope) Clause 1 | 5 |
| 7.2. Section 5.1 (Identification and Records – New Axles) Clause 3 | 5 |
| 7.3. Section 5.1 (Identification and Records – New Axles) Clause 6 | 5 |
| 7.4. Section 5.2 (Existing Axles) Clause 2 | 5 |
| 7.5. Section 7 (Inspection) Clause 9 | 5 |
| 7.6. Section 7 (Inspection) Clause 10 | 5 |
| 7.7. Section 8 (In-service defects) Clause 2..... | 5 |
| 7.8. Section 9 (Action Following Derailments) Clause 1 | 6 |
| 7.9. Section 10 (Repair) Clause 1 | 6 |

1. Introduction

The Department of Planning, Transport and Infrastructure (DPTI) owns, operates and maintains the Adelaide Metropolitan Passenger Rail Network (AMPRN) under the Rail Accreditation assigned to the Rail Commissioner. This standard is intended to ensure that the design, manufacture and maintenance of train axles on the AMPRN does not create any risks not deemed to meet So Far As Is Reasonably Practicable (SFAIRP) principles under Rail Safety National Law (RSNL) Act 2012

2. Purpose

The purpose of this standard is to provide technical requirements for design, manufacture and maintenance of train axles.

3. Scope

This standard applies to all train passenger rolling stock operating on the AMPRN

4. References

- Rail Safety National Law (SA) Act 2012
- AS 7515:2014 Rolling Stock Standard Axles
- PTS-MS-10-XM-STD-00000084 Rail Car Wheel Inspection and Defects Standard

5. Acronyms

| ACRONYM | FULL NAME |
|---------|--|
| DPTI | Department of Planning, Transport and Infrastructure |
| AMPRN | Adelaide Metropolitan Passenger Rail Network |

6. Australian Standard for Axles

DPTI adopts all mandatory requirements as specified in *AS 7515:2014 Railway Rolling Stock – Axles* unless modified as shown in Section 7.

DPTI adopts all recommended requirements as specified in *AS 7515:2014 Railway Rolling Stock – Axles* as mandatory, unless modified as shown in Section 7. If the applicable clause contains the word should, it is to be read as the word shall. This is to eliminate any doubt as to the requirements of the clause.

7. DPTI Addendum to Australian Standard

DPTI modifies the following requirements contained within AS 7515:2014.

7.1. Section 1.2 (Scope) Clause 1

Sections 2, 3 and 4 only applies to “new designs” i.e. not applicable for replacement axles on existing AMPRN rolling stock.

7.2. Section 5.1 (Identification and Records – New Axles) Clause 3

If a wheelset or bogie assembly will obscure axle ends, the axle supplier shall clearly paint the axle serial number on a part of the axle barrel that will remain visible after assembly.

7.3. Section 5.1 (Identification and Records – New Axles) Clause 6

Axle suppliers shall provide records of chemical and physical test results for each batch of steel used in axle manufacturing.

7.4. Section 5.2 (Existing Axles) Clause 2

All existing axles shall be clearly branded with at least one end with the information in accordance with *AS 7515:2014 Railway Rolling Stock – Axles*.

7.5. Section 7 (Inspection) Clause 9

Visual inspection according to the criteria defined in Section 8 shall be included in the vehicle planned preventative maintenance regime.

7.6. Section 7 (Inspection) Clause 10

Visual inspection according to the criteria defined in Section 8 and wheelset back to back measurements according to *PTS-MS-10-XM-STD-00000084 Rail Car Wheel Inspection and Defects Standard* shall be carried out after all collisions.

7.7. Section 8 (In-service defects) Clause 2

Designers of new axles shall provide, with justification, criteria that define when a vehicle should be removed from service due to axle defects.

Where no design defect criteria exist, DPTI adopts the following criteria:

- Nicks, gouges, scratches or grooves greater than 3mm deep;
- Visible cracks in the axle;
- Any defect with sharp edges or points;
- Bent, damaged due to over heating or bearing failure, or otherwise distorted;

- Defects that after remedial grinding cause the axle diameter to fall below the condemning diameter.

Vehicles with axles that meet or exceed the above criteria shall be removed from service.

7.8. Section 9 (Action Following Derailments) Clause 1

Visual inspection according to the criteria defined in Section 8 and wheelset back to back measurements according to *PTS-MS-10-XM-STD-00000084 Rail Car Wheel Inspection and Defects Standard* shall be carried out after all derailments.

7.9. Section 10 (Repair) Clause 1

Designers of new axles shall provide, with justification, minimum diameters for each part of the axle.