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**GM/RC2495**  
**Recommendations for Railway Wheelset Manufacture and Assembly**  
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**Railway Group Recommendations for GM/RT2466**



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# Recommendations for Railway Wheelset Manufacture and Assembly

## Issue Record

| Issue | Date        | Comments                                                                                                      |
|-------|-------------|---------------------------------------------------------------------------------------------------------------|
| One   | August 2008 | Original document<br>Supersedes GM/RT2466 sections F2, F3 and Part G and GM/RC2566 sections F2, F3 and Part G |

## Superseded documents

The following Railway Group documents are superseded, either in whole or in part as indicated:

| Superseded documents                                                     | Sections superseded        | Date when sections are superseded |
|--------------------------------------------------------------------------|----------------------------|-----------------------------------|
| GM/RT2466, issue one, June 2003<br>Railway Wheelsets                     | Sections F2, F3 and Part G | 04 October 2008                   |
| GM/RC2566, issue one, June 2003<br>Recommendations for Railway Wheelsets | Sections F2, F3 and Part G | 04 October 2008                   |

Other parts of GM/RT2466 issue one are superseded by GM/RT2466, issue two, Railway Wheelsets, GM/RC2494, issue one, Recommendations for Railway Wheelset Design and GM/RC2496, issue one, Recommendations for Railway Wheelset Maintenance.

GM/RT2466 issue one and GM/RC2566 issue one cease to be in force and are withdrawn as of 04 October 2008.

## Supply

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# Recommendations for Railway Wheelset Manufacture and Assembly

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# Recommendations for Railway Wheelset Manufacture and Assembly

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## Part 1 Introduction

### 1.1 Purpose and structure of this document

This document has been published by Rail Safety and Standards Board (RSSB) to give details of a recommended method which, if followed, would meet the requirements of Railway Group Standard GM/RT2466.

Should an infrastructure manager or railway undertaking choose not to follow the recommended method of meeting the requirements of GM/RT2466 laid out in this document, it should assure itself that the method it is following is as effective, and no less safe, than the method that is recommended here.

Relevant requirements in GM/RT2466 are reproduced in the sections that follow. Recommendations are provided as a series of sequentially numbered clauses prefixed 'RC'.

Specific responsibilities and compliance requirements are laid down in the Railway Group Standard itself.

### 1.2 Copyright

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### 1.3 Approval and authorisation of this document

The content of this document was approved by:

Rolling Stock Standards Committee on 04 April 2008.

This document will be authorised by RSSB on 16 June 2008 [proposed].

# Recommendations for Railway Wheelset Manufacture and Assembly

## Part 2 Recommendations for Railway Wheelset Manufacture and Assembly

### 2.1 Materials

#### GM/RT2466 Railway Wheelsets

#### 3.2 Materials

##### 3.2.1 Steel properties

- 3.2.1.1 All materials shall be sampled to demonstrate that the material from which the component is manufactured is homogeneous and free from macro-segregation that is likely to have a detrimental effect on performance. The metallurgical content shall be consistent with material grade. Failure to satisfy the requirements of the specified tests shall result in the complete batch of components being rejected.

##### 3.2.2 Axle material

- 3.2.2.1 Axles shall be manufactured using the material defined by its design.

##### 3.2.3 Monobloc wheel material

- 3.2.3.1 Monobloc wheels shall be manufactured using the materials defined by the design.

##### 3.2.4 Wheel centre material

- 3.2.4.1 Wheel centres shall be manufactured to the requirements of BS 5892 Part 2. The approved grade of steel is Grade U.

- RC001 Wheels and axles manufactured in accordance with the British Standards do not include a requirement to control the hydrogen content as specified by the European standards. It is recommended that all wheels and axles manufactured in accordance with the British Standards have a hydrogen content not exceeding 2 ppm.
- RC002 Vacuum argon degassing is a technique that is used to manufacture steel having hydrogen content less than 2 ppm.
- RC003 Where non-vacuum argon degassed steel is proposed a minimum sulphur content requirement could be agreed according to the steel making process, in order to safeguard against hydrogen cracking.
- RC004 The absorption of hydrogen into steel during the manufacturing process can lead to hydrogen cracking of the completed product. The failure may not occur until some time after assembly of the wheelset. It is therefore important to control the amount of hydrogen that is present in the material. Where there is concern that the steel manufacturing processes could introduce hydrogen, it could be appropriate to add sulphur. The addition of sulphur can reduce the effects of hydrogen in the steel but will increase the formation of inclusions that could compromise the cleanliness requirements.

#### GM/RT2466 Railway Wheelsets

#### 3.2 Materials

##### 3.2.5 Tyre material

- 3.2.5.1 Replacement tyres to be fitted to wheelsets of existing designs shall be manufactured to the requirements of BS 5892 Part 4.
- 3.2.5.2 The approved grades of steel are either B5E or B6E, dependent upon the application.

- RC005 A hydrogen content of 2 ppm should not be exceeded. A further recommendation with respect to hydrogen content is given in RC002 and RC003.