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GM/GN2646

Guidance on Axle Bearing Maintenance
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Rail Industry Guidance Note for GM/RT2004 Issue Four



Documents

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Guidance on Axle Bearing Maintenance

Issue Record

Issue	Date	Comments
One	5 March 2011	Supersedes GM/RT2030 issue two (All except Parts C1.1 and C3.1 first paragraph, (no bullets)) and GM/RC2516 issue two

Superseded documents

The following Railway Group documents are superseded, either in whole or in part as indicated:

Superseded documents	Sections superseded	Date when sections are superseded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/RT2030 issue two October 2002 Axle Bearing Maintenance	All except Parts C1.1 and C3.1 first paragraph, (no bullets)	4 June 2011
GM/RC2516 issue two October 2002 Approved Code of Practice - Training Requirements for Personnel who Undertake Maintenance and Overhaul of Axle Bearings	All	4 June 2011

GM/RT2030 issue two (All except Parts C1.1 and C3.1 first paragraph, (no bullets)) and GM/RC2516 issue two cease to be in force and are withdrawn as of 4 June 2011.

Supply

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Guidance on Axle Bearing Maintenance

Part 1 Introduction

1.1 Purpose of this document

- 1.1.1 This document gives guidance for the maintenance of rail vehicle axle bearings. There is also detailed guidance for the training and competence assessments of personnel and supervisors, who influence, maintain or overhaul axle bearings.
- 1.1.2 Relevant requirements in GM/RT2004 are reproduced in the sections that follow. Guidance is provided as a series of sequentially numbered clauses prefixed 'GN' immediately below the text to which it relates. Where there is no guidance given, this is stated.
- 1.1.3 Specific responsibilities and compliance requirements are laid down in the Railway Group Standard itself.

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1.3 Approval and authorisation of this document

- 1.3.1 The content of this document was approved by Rolling Stock Standards Committee on 21 January 2011.
- 1.3.2 This document was authorised by RSSB on 27 January 2011.

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Part 2 Guidance on Axle Bearing Maintenance

GM/RT2004 issue four

3.2.2 Axle bearings

- 3.2.2.1 The maintenance plan shall contain maintenance and overhaul instructions for axle bearings.
- 3.2.2.2 The maintenance plan shall, as a minimum, set out the requirements for:
 - a) Floats, clearances.
 - b) Grease (if applicable).
- 3.2.2.3 Further guidance for axle bearing maintenance is given in GM/GN2646.

2.1 General recommendations

- GN01 To assist in meeting the requirements of GM/RT2004, a railway undertaking should have an axle bearing maintenance policy. Axle bearings should be maintained and overhauled in accordance with that policy.
- GN02 Where the maintenance and / or overhaul of axle bearings is contracted to a third party, the railway undertaking should ensure that they are qualified suppliers. Axle bearings are safety-critical equipment. Incorrect maintenance or overhaul can introduce faults which have the potential to cause wheelset seizure and possible derailment.

2.2 Axle bearing maintenance policy

- GN03 The purpose of the axle bearing maintenance policy is to ensure that the axle bearings remain in a safe and reliable operating condition at all times whilst in use. The objective is to ensure that the axle bearings remain in a safe and reliable operating condition. This should be identified by means of a structured process and should be stated in the maintenance policy. The policy should also define each of the following and state how it is to be implemented:
 - a) Objectives and targets for the safety performance of all axle bearings fitted to all rail vehicles used by the railway undertaking should be developed from a safety assessment of the vehicles and axle bearings used by the railway undertaking.
 - b) A procedure defining how the safety performance of the axle bearings should be monitored. This should identify:
 - i) The information that is to be recorded and kept, including the information which defines the performance of the assembly in service and the condition of the axle bearing parts when they are overhauled.
 - ii) How the information on the axle bearings and parts is to be processed and analysed.
 - iii) The actions to be taken if the axle bearings fail to operate within the target level set.
 - c) The maintenance policy for determining and reviewing:
 - i) The criteria (bearing age, mileage or distance) at which the axle bearings should be scrapped.
 - ii) The periodicity of maintenance attention.
 - iii) The periodicity of overhaul.

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- d) Where applicable, the procedures for assuring continued safe operation of axle bearings which are condition monitored by rail vehicle mounted equipment.
- e) The involvement of any third parties carrying out work associated with axle bearing maintenance activities covered by the maintenance policy and how they are qualified and controlled.
- f) Measures to maintain the axle bearings in a safe condition if they are stored unfitted, or are fitted to a wheelset which is unused for an extended period of time.
- g) States the maximum time before the maintenance policy is reviewed and updated and any specific circumstances which will trigger an early review.
- h) The basis on which a review of the maintenance policy will be undertaken.
- i) Identify the maintenance plan for each type or family of axle bearings covered by the maintenance policy.
- j) Identify the procedure for review and updating the maintenance plan(s).
- k) State the maximum time before the maintenance plan(s) are normally reviewed and updated and any specific circumstances which will trigger an early review.

GN04 The axle bearing maintenance policy should be produced by competent personnel and identify the manager(s) or representative responsible for executing the policy.

2.3 Rail vehicle maintenance plan

GN05 Rail vehicle maintenance plans, approved in accordance with the requirements set out in GM/RT2004, should contain specific axle bearing maintenance and overhaul requirements applicable to each individual type or family of axle bearings used by the railway undertaking. The purpose of the rail vehicle maintenance plan is to state all the actions and standards that are necessary to meet the requirements of the maintenance policy, for that type of bearing fitted to a particular rail vehicle type.

GN06 Each rail vehicle maintenance plan should identify the following:

- a) The maximum time or distance between visual examinations of the complete assembly on the wheelset.
- b) Where applicable, the maximum time or distance between rotational and end float checks.
- c) The method to be used and the maximum interval between the injection of a measured quantity of new grease into a cartridge bearing, or introduction of new grease into an axlebox bearing.
- d) The maximum time or distance at which the axle bearings should be overhauled.
- e) The grease type to be used.
- f) The criteria (if any) at which the axle bearings should be scrapped.
- g) The documents specifying the relevant standards for examination and acceptance at overhaul.
- h) Where applicable, the documents specifying the working instructions for each action in the maintenance plan.
- i) The minimum engineering maintenance facilities required for the specified maintenance and overhaul of the axle bearings.
- j) The minimum level of competence for staff engaged in the execution of the specified maintenance and overhaul of axle bearings.

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Part 3 Competence of Personnel Involved in Axle Bearing Maintenance

3.1 Competence

3.1.1 Levels of competence

- GN07 Personnel should be competent for the duties in which they are employed when maintaining or overhauling axle bearings. This should be done in accordance with the following:
- Level 1 Competence for personnel and supervisors responsible for the overhaul of axle bearings (see Appendix A).
 - Level 2 Competence for personnel and supervisors responsible for the maintenance of axle bearings or any activities which may disturb the axlebox / axle bearing assembly (see Appendix B).
 - Level 3 Competence for personnel and supervisors responsible for work activities which may influence the condition of axle bearings (see Appendix C).
- GN08 To provide appropriate training to those who influence, maintain or overhaul axle bearings and to cover all needs, it is recommended that the persons covered by this document are identified against the most appropriate category shown in 3.1.2 to 3.1.9 and receive the training recommended for that level.

3.1.2 Training - general

- GN09 Classroom and workshop training modules should be developed which are appropriate to the tasks to be performed. The content and duration of the training may be scaled to match the competence requirements and the specific needs of individual candidates. The training need should include, as a minimum, only those axle bearing type(s) and manufacturer(s) which are part of the work carried out.
- GN10 Competence gained in this way should be limited to the axle bearing type(s) and manufacturer(s) for which there has been training and assessment. Personnel should only be permitted to work on the axle bearing type(s) and manufacturer(s) for which they are competent, except as part of further training.
- GN11 Level 1 and level 2 training should:
- a) Be split into classroom and workshop sessions.
 - b) Be in modules to cover each axle bearing type and level of attention.
 - c) Give both general and specific instructions.
- GN12 Practical training may be carried out between classroom sessions, if appropriate.
- GN13 All classroom and workshop training should be given by a competent trainer.
- GN14 Level 1 and level 2 classroom training should be made effective by use of the following aids and teaching techniques, where appropriate:
- a) Axle bearing models and specimens.
 - b) Films and video.
 - c) Visual aids.
 - d) Question and answer sessions.
 - e) Expert descriptions of axle bearing topics.