

Justification:
Instruction

(Maintenance)

Private Owner Circular Letter 562 Issue 2

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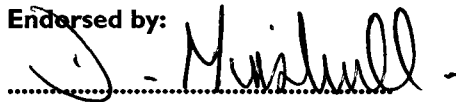
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Title

Identification and
Reporting of Axle
Bearing
Defects/Damage

ENDORSEMENT & AUTHORISATION

Endorsed by:



D. Minshull, Senior Standards Engineer

Authorised by:



K. Stannard, International Vehicle Engineer

1. INTRODUCTION

POCL 562 Issue 2 details how to identify and report defects, damage and components of the various types of axle bearings fitted to Private Owner wagons. The issue of this POCL supersedes:

POCL 340 "Locking of bolts/studs on front covers of SKF axleboxes".

POCL 341 "Timken roller bearing axleboxes".

POCL 392 "SKF roller bearing axle boxes fitted on 100 ton GLW bogie wagons".

POCL 418 "Fastening of axle end caps on cartridge roller bearing units".

2. SCOPE

This instruction applies to all axle roller bearings/cartridge bearing units fitted to PWRA vehicles. In accordance with the requirements of Railway Group Standard GM/RT2030 it defines:

- a) The types of defect/failure found during inspection/overhaul and the limits of acceptability for further service.
- b) The method of reporting the condition of all axle roller bearings and cartridge bearing units found at overhaul.

Note: The acceptance of axle roller bearings and cartridge bearing units for further service shall also be in accordance with any additional requirements quoted in the relevant process specification or bearing overhaul documentation for the specific types of bearing.

3. FASTENING & LOCKING OF END CAPS

In the past failures in service have resulted from end caps loosening. Experience has shown that such problems are avoidable by ensuring:

- a). Only those components applicable to that particular bearing application are used.
- b). Fasteners are tightened to the correct torque settings.
- c). The correct locking device is used in the manner approved.

Note: Locking plates (rather than wire) shall be the preferred locking option.

4. EXAMINATION OF GREASE CONDITION

Good and serviceable grease should, when a sample is held between forefinger and thumb, stretch to form peaks on both finger and thumb as they are separated.

Its colour ranges from transparent yellow (resembling thick Vaseline) when new, through grey, brown and towards black as the grease is worked and ages.

If any of the defects listed in Table 1 are identified, the grease shall be considered unserviceable and the axleboxes marked with a white cross. The wheelsets concerned shall be removed from service and sent for overhaul.

Note: Care shall be exercised not to describe the state of the surplus unworked grease in the front cover when considering the grease condition.

Grease Appearance	Defect	Possible Cause
Grease has lost its consistency. A sample held between forefinger and thumb does not pull to form pyramids on parting. It feels thin and oily. Free oil may also be seen to have pooled in bottom of box/cover.	Grease is life expired.	Old, overworked grease which has not been replenished. Grease may also have suffered overheating.
Grease is black and oily and smells burnt. Only blackened or solid material remaining. Free oil may be seen to have separated and be running out at bottom of the box.	Grease has burnt.	Bearing has overheated either from internal (bearing failure) or external source or bearing has been over greased.
Evidence of foreign matter in grease – in worst cases grease may feel 'gritty' and thickened.	Grease contaminated with dust/dirt (eg. coal dust, ash etc.)	Axle bearing has been exposed to contamination, e.g. front cover may have been lost in service at some time.
Evidence of metal particles in grease.	Grease contaminated with metal.	Chippings from wheel turning or internal wear/defect.
Grease appears milky, resembles mayonnaise or has water droplets present. Rust staining may be observed.	Water contamination and grease emulsification.	Front cover leaking or was previously removed/missing in wet conditions. Failure of the rear seals, or vehicle has been subject to flooding or high pressure washing.

Table 1 **Condition of used grease**

5. DEFECT DEFINITIONS & LIMITS OF ACCEPTABILITY AT OVERHAUL

See TF/TT0025 "Axle Roller Bearing Overhaul Acceptance Standard".

6. RECORDING & REPORTING OF AXLE BEARING EXAMINATIONS

The owner shall ensure that records of all axle bearing examinations are retained to comply with the requirements of GE/RT8250 for safety performance monitoring. The data shall be analysed by the Owner to determine any corrective actions necessary to reduce rejection rates.

All axle bearing examinations shall be recorded using the form shown in Appendix A. The records shall be available at all times for audit, however, the owner shall provide a summary report every six months which shall show the total number of axle bearings examined and the number rejected in each category. These summary reports shall be sent to the Senior Standards Engineer, PWRA Management Group at Derby.

7. IMPLEMENTATION

This document shall be implemented immediately.

In the event of any query arising, or clarification required, please contact:

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