

Justification:
Instruction
(Maintenance)

Private Owner Circular Letter 636, Issue I

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Title

Axle Bearing
Fitment in TF25
Bogie Radial Arm
Castings

AUTHORISATION

Authorised by:



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1. INTRODUCTION

The investigation of a recent bearing failure on a wagon, with a TF25 type bogie, has identified that several radial arm castings have been produced and allowed to enter service despite not having been machined to the correct tolerances, with respect to the axle bearing seating area. This manufacturing error has created a condition that can cause or allow the bearing to fail to seat correctly, resulting in abnormal loading of the axle bearing in service.

This POCL has subsequently been produced to implement two special checks on wagons fitted with TF25 type bogies to be carried out initially as a one-off in-service visual check, and additionally as an ongoing routine measurement to be undertaken during maintenance events involving removal of wheelsets.

The application of this POCL provides control measures to mitigate the risk identified to railway group members by NIR 2298.

2. SCOPE

This POCL is applicable to all wagons registered under PWRA agreements and fitted with TF25 type bogies.

3. IMPLEMENTATION

- 3.1. The requirements of clause 4.1 of this POCL shall be implemented at either the next planned maintenance event, or as a special check by 31st November 2008, (whichever is the sooner), unless records are available that show an equivalent check has already been undertaken.
- 3.2. The requirements of clause 4.2 of this POCL shall be implemented at maintenance events involving the removal of wheelsets from TF25 bogies.

4. INSTRUCTION

This instruction has two parts.

The requirements of clause 4.1 of this POCL provide an assurance that the seating of axle bearings in radial arm castings is satisfactory based upon a visual inspection.

The requirements of clause 4.2 of this POCL provide an assurance that the seating of axle bearings in radial arm castings is satisfactory following the physical measuring of the radial arm casting. The check mandated by clause 4.2 requires the width of each radial arm casting to be measured internally in the area where the axle bearings seat. Unless a means of permanently identifying on each radial arm casting that this check has been successfully completed, then this measurement check shall be incorporated in the maintenance and overhaul plans as an additional routine task to be carried out at all future maintenance events involving the removal and replaced of wheelsets.

(Notes: The ongoing requirement is included to help ensure that all radial arms, including any that may be held in stores, are compliant with the design requirements).

4.1. In-service special check of bearing adaptor saddle alignment

- 4.1(a) At each wheel position, visually inspect the alignment of the axle bearing in its radial arm casting by comparing the clearance between the axle bearing grease seal housing and the adjacent radial arm casting on both the inner and outer sides of the radial arm.

Figure 1 below shows the inner face of a TF25 radial arm and Figure 2 shows the equivalent clearance as seen on the outer face of the same radial arm. The axle bearing can be considered to be correctly seated if the clearance is equal on each side of the radial arm. If the clearance is considered to be unequal at any wheel position on a wagon then the wagon shall not be allowed to return to traffic until further examination has been undertaken and the underlying cause identified and rectified.



Figure 1

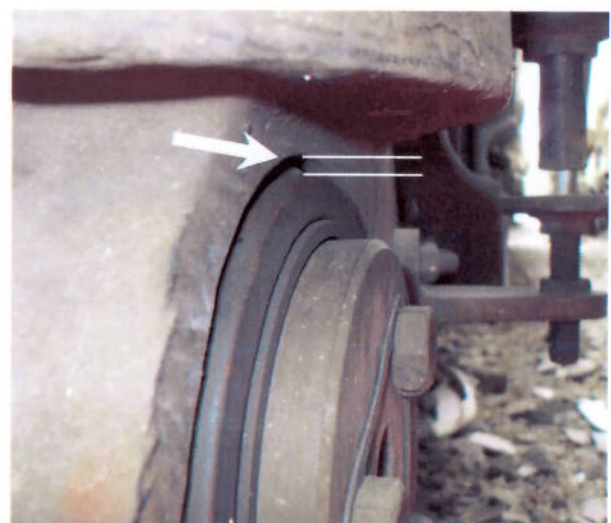


Figure 2

- 4.1(b) Visually inspect the clearance circumferentially around the seal/casting on the outer side of the radial arm. If on inspection the clearance appears to be uneven, (i.e. varying by $>1\text{mm}$) the wagon shall not be allowed to return to traffic until further examination has been undertaken and the underlying cause identified and rectified.

Note: The results of inspections undertaken in accordance with this POCL shall be retained by the Owner or his agent. As an aid, an optional record table is attached at the end of this POCL.

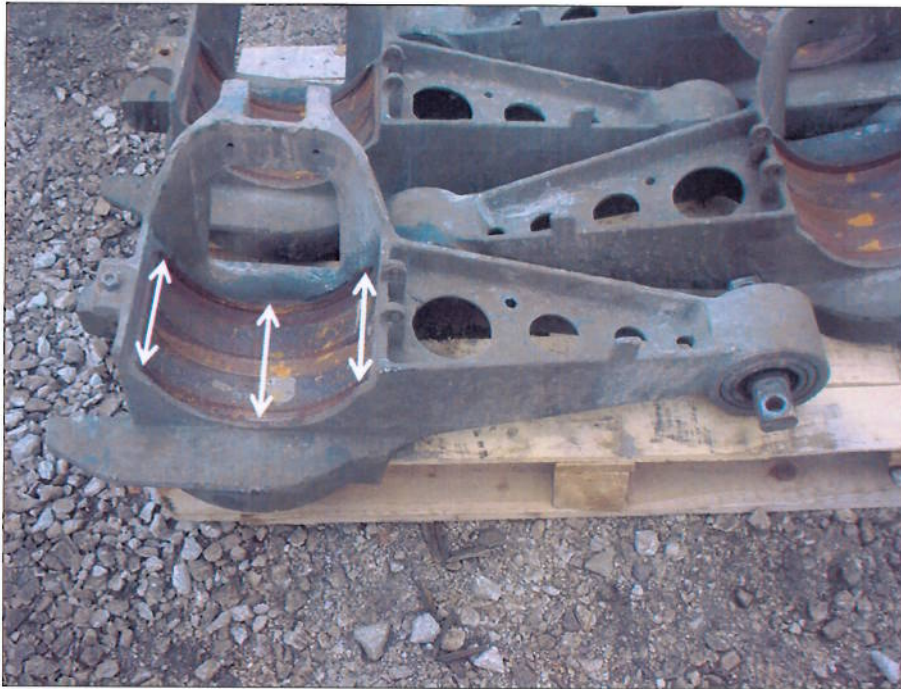


Figure 3

4.2. Measurement of radial arm casting compliance

At the next maintenance event that involves the removal of wheelsets, measure using a vernier calliper (or similar instrument) the width of the internally machined area where the axle bearing seats in three positions, as indicated by the white arrows in Figure 3.

The manufacturer's drawing shows the designed machined width of the bearing seat area to be 163mm +0.5 -0.0

In balancing the need to ensure that non-compliant castings neither import risk to the railway, nor cause wagon Owners unreasonable additional costs, the following criteria has been deemed appropriate to apply initially:

Case 1:- Castings compliant to design (i.e. 163mm +0.5 -0.0)

No conditions apply.

Case 2:- Castings found with machined widths between 161 and 163mm

- (a) Castings to be uniquely marked as non-compliant (e.g. by painting a different colour, or painting a coloured band around the web).
- (b) Special care is to be taken when assembling wheelsets, radial arms and bogies, to ensure axle bearings fit correctly and are not misaligned within the radial arm castings.
- (c) Records of radial arms found meeting the criteria for Case 2 to be forwarded to Network Rail's PWRA Management Group in Derby, utilising the form attached to this POCL, to enable fleet wide analysis to be undertaken.

Case 3:- Castings found with machined widths at or below 161mm

Castings not to be used on wagons in traffic.

Note: Such castings may be re-machined to the manufacturer's design tolerances and re-used thereafter.

If a suitable means of identifying that this measurement check has been undertaken on each individual radial arm casting, then this check need only be carried out once on each radial arm casting.

If a suitable means of permanently identifying this measurement check has been undertaken on each individual radial arm casting cannot be devised then this check shall be incorporated in the maintenance and overhaul plans and documentation as an additional routine task to be carried out at all future maintenance events, involving the removal and replaced of wheelsets. (Note: This ongoing requirement is included to help ensure that all radial arms, including any that may be held in stores, are compliant with the design requirements).

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

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Senior PWRA Engineer
PWRA Management Group
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rtc Business Park
London Road
Derby
DE24 8UP

Optional Record Sheet

Date:			
Wagon No.			
Corner	Wheelset	Inspection Task 4.1(a) (Even across radial arm)	Inspection Task 4.1(b) (Even radially)
1	Inner	OK / Not OK	OK / Not OK
	Outer	OK / Not OK	OK / Not OK
2	Inner	OK / Not OK	OK / Not OK
	Outer	OK / Not OK	OK / Not OK
3	Inner	OK / Not OK	OK / Not OK
	Outer	OK / Not OK	OK / Not OK
4	Inner	OK / Not OK	OK / Not OK
	Outer	OK / Not OK	OK / Not OK

Date:			
Wagon No.			
Corner	Wheelset	Inspection Task 4.1(a) (Even across radial arm)	Inspection Task 4.1(b) (Even radially)
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Date:			
Wagon No.			
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	Outer	OK / Not OK	OK / Not OK
4	Inner	OK / Not OK	OK / Not OK
	Outer	OK / Not OK	OK / Not OK