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Level 2

Design and Installation of Underfloor Wheel Lathes

Endorsement and Authorisation

Endorsed by:

.....

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Issue record

Issue	Date	Comments
1	Dec 2008	First Issue

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 1st March 2009.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

Reference documentation

GI/RT7007	Low Voltage Electrical Installations
GI/GN7607	Guidance on Low Voltage Electrical Installations
GM/RT2466	Railway Wheelsets
GM/RC2566	Recommendations for Railway Wheelsets
NR/L2/RVE/0134	Shunting Vehicles for use with Underfloor Wheel Re-profiling Machines
BS 1134-1	Assessment of Surface Texture Methods and Instrumentation
BS 5378	Safety Signs and Colours
BS 5892-6	Railway Rolling Stock Materials. Specification for Wheelsets for Traction and Rolling Stock
BS EN 953	Safety of Machinery. Guards. General Requirements for the Design and Construction of Fixed and Moveable Guards
BS EN 982	Safety of Machinery. Safety Requirements for Fluid Power Systems and their Components. Hydraulics.
BS EN 13788	Machine tools. Safety. Multi spindle Automatic Turning Machines
BS EN 60204 - 1	Safety of machinery. Electrical Equipment of Machines.
BS EN 60529	Specification for Degrees of Protection Provided by Enclosures (IP Rating)
BS EN ISO 12100 - 1	Safety of Machinery. Basic concepts, General Principles for Design, Basic Terminology, Methodology.
BS EN ISO 12100 - 2	Safety of Machinery. Basic concepts, General Principles for Design, Technical Principles
BS EN ISO/IEC 17050	Conformity Assessment. Suppliers Declaration of Conformity
89/336/EEC	Electro-Magnetic Compatibility Directive

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1 Purpose

This specification defines the requirements for the design, manufacture, installation, testing, commissioning and handback of new underfloor wheel re-profiling facilities procured by, or on behalf of Network Rail for use within their Light Maintenance depots (LMD's).

2 Scope

This specification applies to any new re-profiling facility that Network Rail owns outright, or has a management or engineering responsibility for, under various finance lease or hire agreements. These facilities are either operated by Network Rail or, under contractual or lease agreement, by a third party Train Operator.

3 Definitions

Depth of Cut
The amount by which the radius of a wheel is reduced in a single cutting pass.

Diameter Parity
The maximum permissible variation on diameter between one wheel and another on the same axle when measured at the specified gauging plane.

Flange Height
The difference between the radius of the wheel at the tip of the flange, and the radius of the wheel at the tread datum position.

Flange Thickness
The thickness of the flange at a point 13mm above the tread datum position.

Minimum Metal
The least amount of metal which would be required to be taken off the smallest wheel set in order to re-profile that wheel leaving a witness mark of maximum width 10mm.

Radial Run Out
The variation of position of the considered feature with respect to a fixed point during one complete revolution about the datum axis without axial movement.

Re-profile
To machine a wheel or wheels on a wheelset to restore the wheel rim to its original profile or if so desired, a new profile.

Section of Cut
The area of metal being removed at the point of cut (sq. mm.) derived from the depth of cut (mm) x feed rate (mm/rev).

Surface Finish
The specified limit of surface roughness in accordance with BS 1134.

Wheel Rim
The whole of the wheel periphery from and including the chamfer at the outer edge of the wheel up to the point of blending of the flange crown radius with the inside face of the wheel.

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Wheelset
A complete unit comprising an axle and two complete wheels together with any gear wheels, brake discs, etc, but without axle bearings and their end caps, spacers seals and other associated fittings.

Wheelset Back-to-Back Dimension
The dimension between the wheelset flange-back faces, measured parallel to the axle centreline with the wheelset in the free (unloaded) condition.

Wheel Wobble
The total axial displacement of the wheel tread when the wheelset is rotated, measured at the flange back.

Witness Mark
An area of unmachined material which can remain after re-profiling a previously worn tread to demonstrate that the minimum of material has been removed.

NOTE No witness mark will be acceptable if thermal damage is present.

All other terms used within this document shall have their meaning as described in the relevant Railway Group Standards or other applicable Network Rail document.

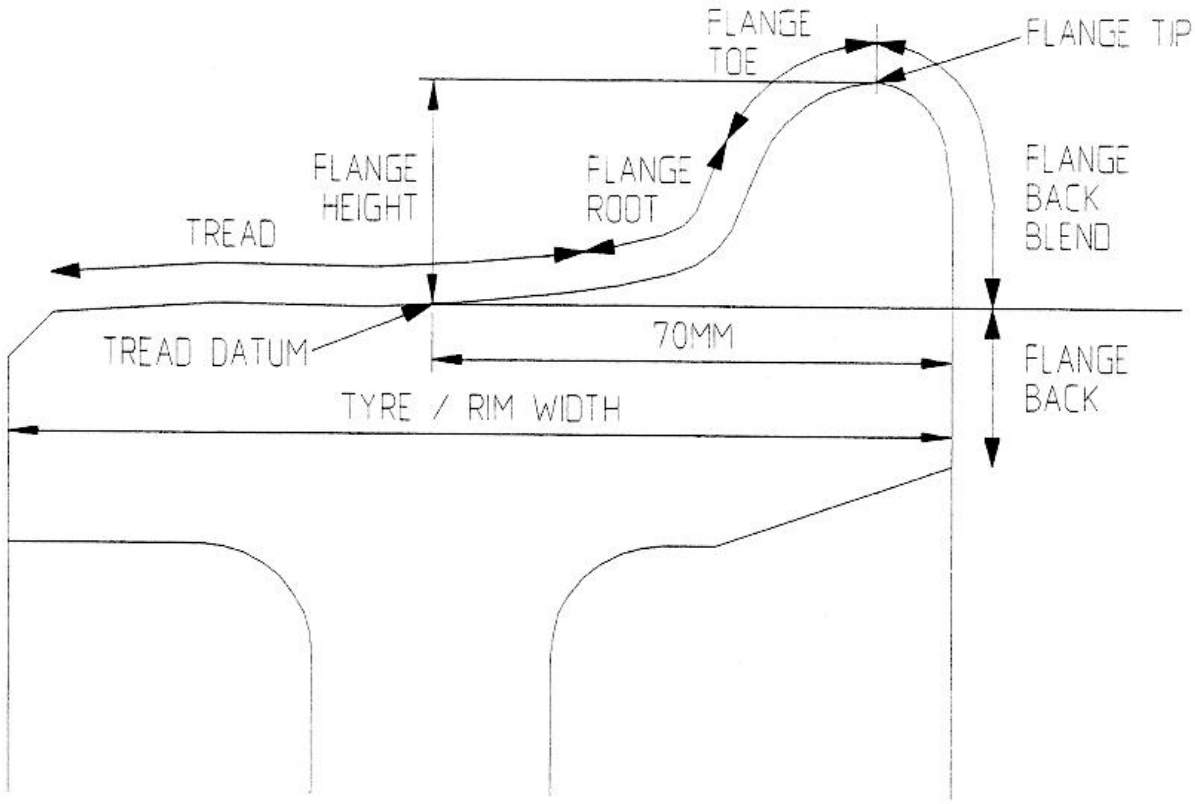

Figure 1 – Definition of Profile

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