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Level 2

Design and Installation of Carriage Washing Machines

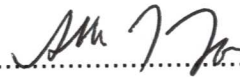
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Issue record

Issue	Date	Comments
1	December 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
GL/RT1254	Electrified Lines Traction Bonding
NR/SP/TRK/049	Track Design Handbook

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1 Purpose

This specification defines the standard against which any new carriage washing machines to be installed within Light Maintenance Depots owned by Network Rail shall be procured, whether the depot is operated by Network Rail or through a third party lease arrangement.

2 Scope

This specification covers the design, manufacture, installation; testing, commissioning and ongoing cleaning performance of new installations at Network Rail owned Light Maintenance Depots (LMDs).

3 Definitions

Straight Through

A wash process whereby the train receives a full wash whilst travelling in one direction only, passing through two discrete stages for chemical application and water wash off.

Through and Back

A wash process whereby the train passes through the machine in one direction to receive a chemical application and then passes back through in the opposite direction to receive a water wash.

4 Requirements

4.1 General

The carriage washing machine shall be designed to be fully automatic, with controls for the timely start up and shut down of the machine. Positioning of the machine controls will be agreed during the design stage with the Depot Franchise Operator.

The machine shall be designed to achieve the required levels of cleaning performance (see Clause 5.2) for any class of rolling stock at a given location. Details of the type of rolling stock and the areas of the vehicle to be cleaned, will be as detailed in the site specific documentation for that location and should be established at the project remit stage.

The machine shall be designed to employ components that are of a standard modular construction.

The machine design shall take into consideration, the following factors:-

- The type and profile of rolling stock to be cleaned
- The areas of the rolling stock to be cleaned, i.e. bodyside, skirts, roofs, eaves, nose ends.
- The type of soiling presented by the rolling stock
- The operational characteristics of the depot and
- The space available within the depot.

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4.2 Cleaning Performance

The machine shall be designed to clean the daily throughput of vehicles as detailed in the contract documentation, taking due cognisance of the peak demand throughput.

The cleaning efficiency of the machine shall be measured utilising the “Scientifics Ltd” patented “On Board Panel Test” which produces a numeric value for the percentage reflectance achieved on test panel affixed to the relevant part of the rolling stock to be cleaned.

The minimum cleaning levels to be achieved are as follows:-

Vehicle Area	% Reflectance on commissioning	Minimum % Reflectance to be maintained after defects liability period.
Bodyside	75	75
Door Recesses	30	30
Vestibule Ends	65	65
Cant Rail	65	65
Skirts	65	65

The above scores assume an optimum train throughput speed of 3 mph.

The contractor will be responsible for all costs and arrangements associated with the on-board assessments carried out during the commissioning process and a second test to be carried out just prior to the completion of the defects liability period.

4.3 Machine Layout

Machines shall be designed to operate on the “straight through” or “through and back” principle, dependent on the operational constraints of the depot in which the machine is to be installed. Wherever possible, the straight through principle shall be adopted.

Where acidic cleaning chemicals are used, the chemical application and water wash stages shall be so positioned as to allow at least a 3 minute dwell time between the cleaning chemical and the vehicle bodyside. If this cannot be achieved by physical separation of the 2 wash stages then a timed signal shall be used to hold the train in front of the wash section until the 3 minutes has elapsed.

Where detergent is the only cleaning chemical to be used at a particular location. the interval between the chemical application and water wash sections may be reduced to the minimum necessary to meet the required cleaning performance.

The use of modular components shall enable a machine layout that can be standardised and a common apron footprint to be adopted, eliminating the need for repetitive apron redesign.