

Ref:	NR/L2/ELP/21088/06
Issue:	1
Date:	5 th December 2015
Compliance date:	1 st March 2016

NR/L2/ELP/21088

Module 06 – Mark 3B Maintenance Parameters

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Published and Issued by Network Rail, 2nd Floor, One Eversholt Street, London. NW1 2DN.



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1 Scope

This module of NR/L2/ELP/21088 covers:

- a) Equipment Design;
- b) Equipment Design Variations;
- c) Equipment Design Designations;
- d) Environmental Conditions;
- e) Maximum Pantograph Operational Speeds;
- f) Continuous Current Carrying Capacity;
- g) Design Staggers and Deviation;
- h) Minimum Staggers;
- i) Design Heights;
- j) Heel Settings;
- k) Track Tolerances;
- l) Maximum Dropper Spacing;
- m) Conductor Particulars;
- n) Conductor Tensions;
- o) Factor of Safety.

2 Definitions

See Glossary (NR/L2/ELP/21088/01)

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3 Equipment Design

The Mk3B design is defined as a Simple Catenary system for main lines, and a single contact wire system (Tramway) for sidings.

The Mk3B system design is an updated replacement to the Mk3A system which was used on electrification schemes from the introduction of the St. Pancras – Bedford electrification in 1982. The major changes being the introduction of metric fastenings and the increase in tension of the contact wire for higher train speed operation.

4 Equipment Design Variations

There are a total of 5 different variations of the Mk3B equipment design.

Variation	Description
Mark 3B-00	Original design.
Mark 3B-01	Improved free contact wire uplift (250 mm) at support points, required for higher speeds.
Mark 3B-02	The increased sway values of class 371/1 traction units operating over routes including North Pole and West London Line require a limitation to the stagger and deviation allowance of the contact wire.
Mark 3B-03	In the Dollands Moor area, near Folkestone, the introduction of various traction units, previously not used in Great Britain, with increased sway values and/or insulated pantograph horns, require a limitation to the stagger and deviation of the contact wire.
Mark 3B-04	Simple auto-tensioned equipment with a maximum encumbrance of 900mm introduced in Scotland.

Table 1 – Equipment design variations

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5 Equipment Design Designations

The equipment design designations are detailed in table 2.

Variation	Designation
Mark 3B-00	Mk3B-00-AT-S
	Mk3B-00-AT/T
	Mk3B-00-FT-S
	Mk3B-00-AT-T
	Mk3B-00-FT/T
	Mk3B-00-FT-T
Mark 3B-01	Mk3B-01-AT-S
Mark 3B-02	Mk3B-02-AT-S
Mark 3B-03	Mk3B-03-AT-S
Mark 3B-04	Mk3B-04-AT-S

Table 2 – Equipment designations

6 Environmental Conditions

The Equipment is designed for the following environmental conditions:

Designation	Temperature Ranges (Deg C)		Design/ Setup	Wind Speed (m/s)
	Min	Max		
Mark 3B-00	-18	38	10	31.3
Mark 3B-01	-18	38	10	31.3
Mark 3B-02	-18	38	10	31.3
Mark 3B-03	-18	38	10	31.3
Mark 3B-04	-18	38	10	31.3

Table 3 – Environmental Conditions