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NR/L2/ELP/21088

Module 11 – Mark GE/MSW Equipment Parameters

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Contents

1 Scope	3
2 Definitions	3
3 Equipment Design	4
4 Equipment Design Variations	5
5 Equipment Design Designations	5
6 Environmental Conditions	6
7 Maximum Pantograph Operational Speeds	6
8 Continuous Current Carrying Capacity	7
9 Design Staggers and Deviation	7
10 Design Heights	8
11 Heel Settings	9
12 Track Tolerances	9
13 Maximum Dropper Spacing	10
14 Conductor Particulars	10
15 Conductor Tensions	11
16 Factor of Safety	12

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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) Design Heights;
- i) Heel Settings;
- j) Track Tolerances;
- k) Maximum Dropper Spacing;
- l) Conductor Particulars;
- m) Conductor Tensions;
- n) Factor of Safety.

2 Definitions

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

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3 Equipment Design

The GE and MSW design is defined as a compound catenary, fixed termination system for main lines, a simple catenary fixed termination system for medium to slow speed lines and a simple fixed termination system for sidings. The system is used on the Great Eastern route between Liverpool Street (inclusive) and Fenchurch Street (exclusive) to Shenfield. The system is also used on the Manchester/Sheffield/Wath route which has since been shortened to Manchester/Glossop/Hadfield.

The GE route overhead contact system was originally installed in 1948 at an operating voltage of 1500V DC, as part of the electrification programme from Liverpool Street and Fenchurch Street to Shenfield. The MSW route was electrified to the same system designs as for the GE route in 1954.

In the mid 1950's a decision was taken as part of the British Transport Commission modernisation programme to electrify further suburban lines radiating out from Liverpool Street and Fenchurch Street into Essex and Hertfordshire, using 25kV AC at 50Hz. Due to clearances at overbridges and other similar structures the GE equipment was converted to operate at a voltage of 6.25kV, whilst the other outer suburban routes were installed to operate at 25kV.

Between 1976 and 1980 the GE equipment, excluding the branch to Fenchurch Street, was converted to 25kV AC. The Fenchurch branch was later converted to 25kV AC in 1987.

The MSW equipment, on the Manchester/Glossop/Hadfield route was converted to 25kV AC in 1984, the Hadfield to Sheffield and Wath section being closed.

In 1997 some GE route fixed equipment was converted to simple equipment with the contact wire auto-tensioned, in order to improve current collection under an overbridge.

It should be noted that within this document the term main line equipment refers to compound equipment and the term reduced equipment refers to simple equipment.