



## **ENGINEERING ACCEPTANCE - TECHNICAL NOTE**

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**Subject:** **Possession-only rail vehicles prevention of derailment assessment**

**Advice to:** VABs

**Reference:** Standard: RIS-1530-PLT Issue: 1 Clause: 5.2

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**Applies when:** Carrying out Engineering Acceptance of Possession-only rail vehicles.

**Note's Purpose:** To clarify and standardise the requirements relating to dynamic stability testing. Note that RIS-1530-PLT has been mandated on the industry by Network Rail, as this TN is clarification of the standard (and not changing the existing requirements) no further mandate will be given by Network Rail to implement this TN.

**Background:** The clause 5.2 requires a vehicle to be capable of traversing specified track conditions without stating exactly how that is to be assessed.

**Requirements:** The responsibility of the EA signatory when assessing the derailment potential of a possession only rail vehicle is to ensure that:

### **For vehicles whose maximum speed is $\leq 20$ mph**

- 1.1 Initially the static testing of wheel loads as shown in 5.5.2.1 should be carried out by the manufacturer for all the track conditions shown in:
  - a) 5.2.1.1 - for the vehicle in travelling mode, excluding Items (b), (d), (e) and the curvature components of (g) and (h)and
  - b) 5.2.2.1 - for vehicle in working mode.
- 1.2 The manufacturer should produce, for the EA signatory scrutiny, a cross sectional diagram showing position of centre of gravity on maximum cant.
- 1.3 After static wheel load testing has proven that wheels do not unload unacceptably (as set out in 1.1 above) the vehicle should be physically tested on a track to prove the flange climb susceptibility and that guide wheels will successfully negotiate switches, crossings and checkrails. The track tests should be carried out with the vehicle in worst case tare or laden condition as set out in 5.2.1.1 and amplified in GN68.

A suitable test track to enable the above tests to be completed is located at Wyvern Rail, Wirksworth, Derbyshire, using the route shown on the map detailed in Appendix A. Other test tracks are permissible if agreed by the VAB.



- 1.4 The above tests detailed in 1.1 to 1.3 remove the need to dynamically test the machine in accordance the specific track combination requirements detailed in Clause 5.2.1.1 (Items (g) and (h) and Clause 5.2.2.1 (d).

**For vehicles whose maximum speed is > 20 mph**

- 2.1 Initially the static testing of wheel loads as shown in 5.5.1.5 should be carried out by the manufacturer for all the track conditions shown in:
  - a) 5.2.1.1 for the vehicle in travelling mode, excluding Items (b), (d), (e) and the curvature components of (g) and (h)and
  - b) 5.2.2.1 for vehicle in working mode.
- 2.2 The manufacturer should produce, for the EA signatory scrutiny, a cross sectional diagram showing position of centre of gravity on maximum cant.
- 2.3 After static wheel load testing has proven that wheels do not unload unacceptably (as set out in 2.1 above.) the vehicle should be physically tested on a track to prove that guide wheels will successfully negotiate switches, crossings and checkrails.
- 2.4 The vehicle should then be physically tested on a track in accordance with the requirements of GM/RT2141 Issue 2 Appendix D. The track tests should be carried out with the vehicle in worse case tare or laden condition as set out in 5.2.1.1 and amplified in GN68.. Note that this testing negates the need for completion of 5.5.1.2 and 5.5.1.4.

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## Appendix A

### Route to be taken if testing at Wirksworth

1. Place vehicle on line at road-rail access point (RRAP) in Wirksworth station yard (A)
2. Route vehicle across points, crossings, slips and 60mm high check rail in station yard to northbound line (B)
3. Travel up gradient, (C) to end of line and return down gradient to station yard
4. Route vehicle from gradient line to Down (southbound) line (D)
5. Travel to Duffield and return
6. Route vehicle from southbound line to RRAP.

