



Certificate of Derogation from a Railway Group Standard

(in accordance with part 6 of the Railway Group Standards Code)

1. Type of deviation

Derogation

Deviation Number: **12/222/DGN**

2. Details of applicant:

Fleet Production Engineer, Freightliner Heavyhaul Ltd, Floor 3, The Podium, 1 Eversholt Street, London, NW1 2FL

3. Your reference number:

FL/EC/033 July 2010

4. Status of applicant:

Railway Undertaking, RSSB Member

5. Title of certificate:

Reduction of Operational Diameter for wheels of 102 tonne GLW Wagons with TF25 Bogies.

6a. Details of Railway Group Standard (RGS):

RGS Number:	Issue No:	Issue Date:	Title:
GM/TT0088	One	October 1993	Permissible Track Forces for Railway Vehicles

6b. RGS clause(s):

5.2 c)

6c. RGS clause requirements:

"5.2 Except as in Clause 5.3, the following requirements apply:

...

c) the static wheel load shall not exceed the lower value of the following:

$Q = 0.130D$ or $Q = 125\text{kN}$

where Q = maximum static wheel load (kN)

D = wheel tread diameter (mm)"

7. Scope of deviation:

102 tonne GLW HAA and MJA wagons fitted with TF25 bogie operated by Freightliner Ltd.

8. Impacts of complying with the current RGS requirement:

This is an extension upon derogation Certificate Number 01/082/DGN (issued 23/04/2001) allowing operation at 25.4 tonne axle load on wheel diameters of between 840 mm and 790 mm giving a Q/D value of 0.158 at the lower diameter, and an extension to the previously granted temporary non-compliance 09/127/TNC. It is proposed to reduce the permitted wheel diameters from 790 mm to 770 mm last turning and from 778 mm to 764 mm at scrapping, giving a Q/D value of 0.165 at the scrapping diameter.

Currently, Freightliner holds a derogation (Certificate Number 01/082/DGN issued 23/4/2001) for these vehicles to operate at full load on wheel diameters of between 840 mm and 790 mm (which would demonstrate non-compliance to clause 5.2(c)).

9. Proposed alternative actions:

Freightliner wishes to prolong the life of existing wheels by reducing their last turning diameter to 770 mm and 764 mm at scrapping.

To ensure the safe operation of the Wheel pan, the following have been evaluated:

- Contact patch stresses (the subject of this application).
- Structural integrity of the wheel under laden and braking conditions (thermal effects have been evaluated on both brake drag and braking duty and have been shown to be suitable on certain routes).
- Brake efficiency (evaluation of the block load effects through additional wheel wear).

Only the Contact patch stress is the subject of this application.

Freightliner Heavyhaul Safety Management System has been controlling the route restrictions referred to above on vehicles with wheel diameters in the range 790 – 764 mm since 08/157/TNC was granted, with no issues.

The temporary non-compliance proposed has been justified on the grounds of minimal contact stress increase over that for the previous derogation (Interfleet Report ITLR –T22695-002) and 24 months successful operation incident under 08/157/TNC and 09/127/TNC.

10. Impacts of the alternative actions:

Investigations undertaken (Interfleet Report ITLR-T22695-002 refers) show that reducing the wheel diameter to this level will have minimal deviation from the allowances made in the previous derogation (Certificate Number 01/082/DGN issued on 23/4/2001) and further to show that such a derogation will have negligible effect on the rail contact stress.

Previously, the derogation application was declined in favour of a temporary non-compliance by Infrastructure Standards Committee due to the lack of knowledge relating to Q/D ratios as an effective measure of contact stress.

Freightliner understands that a research project is underway.

11. What other options have been considered?

None. The effectiveness of the TNCs (09/127/TNC and 08/157/TNC) has demonstrated the control measures in place to be effective and appropriate.

12. Consultation with affected parties

Previously, Freightliner has consulted with Network Rail. The support was tabled on application 08/157/TNC and was re-affirmed at the 03/07/2009 Rolling Stock Standards Committee.

13. Additional actions/observations:

Upon receipt, the applicant is required to identify affected, interfacing parties and copy this certificate, together with supporting information, to those parties.

This deviation make permanent the temporary non-compliance 11/193/TNC, which was granted pending the results of an RSSB investigation in the area of track wear and damage specific to the traffic of freight wagons with a non-compliant Q/D ratio.

Attachment:

- Interfleet Report ITLR-T22695-002 dated 28/08/2008 (submitted with 11/193/TNC).

14. Method of elimination:

N/A

15. Start and end date:

N/A

16. Signature of applicant:

Fleet Production Engineer

Date of application:

26/07/2012

17. Lead Standards Committee details:

Name of Committee:

Rolling Stock

Date of meeting

26/07/2012

Minute reference:

12/RST/07/205

Authorised by:

Signed by Cliff Cork on 06/12/2012

Date of Authorisation:

06/12/2012

Cliff Cork
Head of Delivery, Infrastructure and Rolling Stock