

## 1. Bulk Loading - General Requirements



1.1 The carriage of bulk loads in open or hopper wagons brings with it the risk that heavier items can fall out of the wagon. For lighter traffics, the risk is that items can be blown away. In principle, the larger the individual items of material being carried, the less high above the wagon sides they may be loaded.

1.2 Sheets or nets shall not be used as load restraint. They are for weather or blow-off protection only. Blow-off can also be controlled by the use of chemical spray after loading is completed. This forms a skin on top of the load.

1.3 Loading/unloading buckets, grabs, magnets or other mechanical equipment shall not be allowed to forcefully strike the ends or sides of wagons. Buckets shall be flat and not have 'ripper teeth' fitted.

1.4 Wagons shall not be overloaded under any circumstances. Wagons shall also be loaded evenly throughout. If a wagon has been part discharged, then the unloading agent shall redistribute the load evenly throughout the vehicle before being released back to traffic.

Overloading of wagons can occur in several ways:

- By exceeding the gross laden weight for the type of wagon being loaded.
- By exceeding the cubic capacity (volume) of the wagon being loaded and thus risking material spilling over sides of the wagon.
- By loading the bulk of the load to one end or one side of the wagon thereby overloading axles, bogies or bearings.
- By a combination of any of the above.

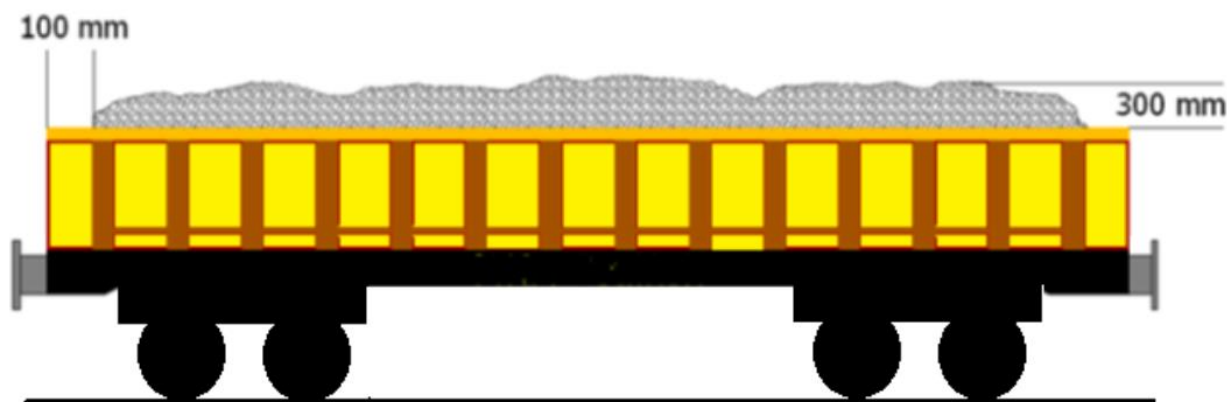
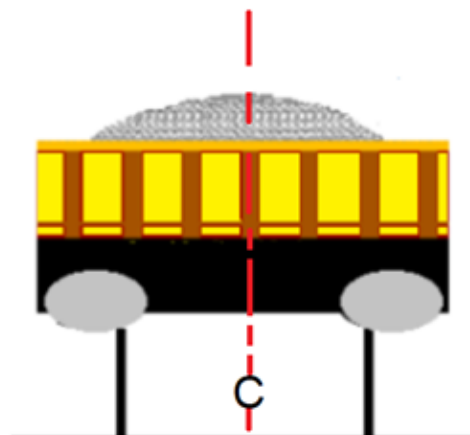
1.5 Wagons shall always be loaded evenly throughout the length of the wagon and across the width of the wagon. This is to maintain even weight distribution over each bogie and the wheels.

1.6 A maximum 5t weight differential end to end is permitted for wagons fitted with bogies.

1.7 There is no permitted tolerance for off centre loads. Some wagon types have a white centre line on the wagon ends to assist the loader in maintaining an even and central load.

1.8 Wagons can either be loaded level with the top of the wagon raves (top of the sides and ends of the wagon) or have a small amount of load above the rave. This is called a peak.

1.9 As a guide for normal railway ballast, wagons are permitted to have a peak above the wagon rave of approximately 300 mm. There shall however be a recess below the rave of at least 100 mm. This allows for any settlement of the peak to fall and remain in the wagon. If material is larger than normal railway ballast, the peak shall be reduced. Peaks shall be considered to be an integral part of the load.



1.10 When loading high sided box wagons, the product shall not be visible above the sides or ends of the wagon. Remove any loose material from wagon sides or ends.

1.11 Any larger items for example sleepers or tree branches, shall not be loaded as part of the peak. They shall be loaded in separate wagons.

1.12 Wagons with drop side doors (e.g. FEA Super Tench) are not suitable for loading with loose bulk material. (Refer to Loading Pattern LP 1.2 for the loading of bulk material contained in bags)

1.13 Average density of bulk loads:

Material	Density (kg per cubic metre)
Ballast Limestone/Granite	1800/1920
Spoil	2100
Sand Dry/Wet	1600/1930
Earth	1540

## 2 Control methods

2.1 Traffic shall not be accepted by rail unless there is robust documented system so that wagons are not overloaded.

Control Methods can be:

- A calibrated rail weighbridge.
- Portable weighing equipment.
- Mechanical loading equipment fitted with calibrated weighcells.
- Load indicators.
- Large high sided box type wagons shall only be loaded to 50% of their volume capacity, i.e. half way unless there are acceptable markings on the wagon suspension. The exception to this rule is the MBA wagon, where there shall be documented evidence of the weight being conveyed. These wagons shall not be used for unmeasured loads such as spoil from engineering worksites.

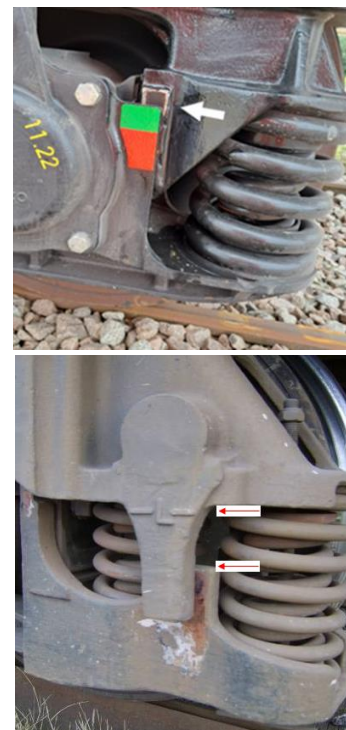
### 2.2 Load indicators and 50% lines

When no weighing facilities are available, load indicators shall be used. There are several forms of indicator markings:

A red and green section painted on the wagon bogie with a white indicator line. When the white line shows in the green section, weight is at an acceptable level. When the white line is in the red section, the wagon is considered overloaded.

Two arrows or loading line, one is painted on the wagon suspension and another on the axle guides.

When lines are level, the wagon is loaded to its maximum. If line on the suspension is below the line on the axle guides, the wagon is overloaded.





Another type of indicator is a line marked on the outside of the wagon showing maximum volume the wagon may be loaded to.



### 3 Discharge of Bulk Traffics from Hopper and Side Tipper wagons.

3.1 Only wagons with remotely operated discharge doors can be partially discharged of aggregate materials.

3.2 Report any door that is found to be difficult to operate to the relevant wagon owner.

3.3 After wagons or compartments have been fully discharged, all loose material shall be cleaned from the wagon frame, chutes and doors.

3.4 It is permissible to unload one compartment on MRA Side tipper wagons whilst leaving the opposite end compartment fully loaded.

3.5 Any hopper type wagons shall not be discharged in such a way that would lead to unacceptable weight distribution across the wagon.

3.6 MRA Side tipping wagons shall not be discharged by bucket loading plant. It is also prohibited to load MRA wagons with spoil or other material when returning from work sites unless authorised by Network Rail.



### 4 Unloading from Sided Wagons

4.1 Unload wagons evenly so as any remaining weight is evenly distributed over the wheels/axles.

4.2 Clean any loose material off the wagon sides, ends, buffers & couplings.

## **5 Duties of the loading / unloading company**

5.1 The loading/unloading company shall apply the following criteria before trains are handed over for haulage:

- All doors are fully closed and secured.
- All loose material has been swept clear of walkways, wagon ends, wagon frames, raves and body sides.
- All traffic is loaded and secured as per approved loading pattern, i.e. load is evenly distributed across and along the wagon.
- No wagon is loaded beyond it's carrying capacity by either volume or weight. On completion of unloading, there shall not be residue product left in wagon corners as this may cause instability of the wagon during transit.

5.2 On T3 Engineering Work Sites, upon completion of the checks detailed in this loading pattern, a competent person in loading will complete and sign a Certificate of Readiness. (COR) This will be issued to the Freight Operating Company (FOC) train preparer prior to the train being permitted to depart the work site.

For further information on COR responsibilities refer to NR L3 SCO 308 or GERT 8000 TW4

For further information on general bulk loading procedures refer to NFSG (National Freight Safety Group) COP-004 Loading Bulk Wagons