

Section G

SAFE LOADING OF FREIGHT

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G1. SAFE FREIGHT LOADS

G1.1 General requirements

This section identifies general loading and securing requirements for those involved in train preparation and operation to enable identification of any actual or potential hazards with freight loads. This applies to all types of freight traffics whether:

- (a) bulk – for example coal, ballast, aggregate
- (b) commodities – for example steel, timber, vehicles
- (c) intermodal – for example load units, piggyback.

The requirements for loading and securing particular freight, load unit and vehicle combinations and the associated competence requirements for those involved are determined and published by:

- (a) freight train operators for the traffic they carry
- (b) Network Rail for infrastructure traffic, which may be carried by any train operator.

G1.2 Potentially unsafe loads or incidents

If there is any doubt in about the way in which traffic has been loaded or secured, advice must be sought from a person competent in loading for the traffic involved.

Any incidents or potential hazards must be dealt with as in GE/RT8000 Module Rule Book and section F of this Working Manual.

G1.3 Routing and destination

A check must be made to ensure that a loaded vehicle can be moved to its intended destination. It must meet line of route limitations such as loading gauge or axle load. It must be able to be dealt with at the destination.

G1.4 Dangerous goods

Dangerous goods requirements are contained in GO/RM3053 Working Manual for Rail Staff – Handling and Carriage of Dangerous Goods, which includes placard requirements. When load units carry dangerous goods they must themselves be placarded according to the dangerous goods they contain.

G2 Basic principles of loading

These details are intended to enable those involved in train preparation and operation to recognise actual or potential hazards with freight loads.

- G2.1** Before vehicles are loaded they are examined by a competent person to ensure they are fit to be loaded. Special attention must be given to door securing mechanisms, bolsters and stanchions.

Before being placed on a rail vehicle, a load (or load unit) is identified by a competent person as suitable for acceptance as shown in train operator or Network Rail loading instructions. These will require even loading within the permitted vehicle capacity and the application of appropriate securing.

After vehicles are loaded, they are examined by a competent person to ensure that the loading meets train operator/Network Rail instructions.

- G2.1.1** If at any time during transit there are any concerns about the safety of the load a competent person must be involved to advise on safety for continued operation.

G2.2 Formation of load

With loads of differing lengths, for example rails, steel beams and timber, the longer pieces are placed on the bottom of the load. Where possible longer pieces are used to contain shorter pieces.

When traffic has differing weights, the light traffic is loaded in a position that avoids it being damaged.

Loads should:

- (a) be distributed as uniformly as possible to ensure all wheels are evenly loaded
- (b) not be positioned diagonally across a vehicle.

G2.3 Long or wide loads.

G2.3.1 General requirements

Loads should rest on one vehicle only unless otherwise provided for in train operator or Network Rail loading instructions. Where bolsters or timber packing are used the load is to be distributed evenly.

Loads on two bolsters should have a minimum of two thirds of the weight positioned between the two bolsters. These loads should overhang the outside edge of the bolster by a minimum of:

- 300 mm provided the securing winch strap is on the opposite side of the bolster to the overhang

OR

- 900 mm if the securing winch strap is on the same side of the bolster as the overhang.

G2.3.2 Loads projecting beyond vehicle sides or ends.

Loads that project beyond the sides or ends of vehicles are inspected and labeled by a competent person (see section K3). If the load projects more than 450 mm beyond the vehicle end (headstock) a runner vehicle is used. The permitted tare weight of this runner vehicle is 10.5 tonnes minimum. Two axle vehicles must not be used for loads projecting over the vehicle ends.

Where runners are employed the part of the load projecting beyond the carrying vehicle is arranged to allow free movement of the runner vehicle. A minimum clearance of 100 mm between the load and the runner vehicle allows for any sag or flexing of the load ends.

Vehicles may be coupled together with the overhanging portions facing each other, as long as one or both overhanging portions do not exceed 300 mm. For longer overhangs an intermediate runner vehicle is necessary.

Overhanging loads are securely strapped or otherwise secured to the carrying vehicle. Where necessary with flexible loads the overhanging portion is firmly strapped together.

G3 Load restraint, support and securing

Traffic is normally secured to prevent it moving in transit as specified in train operator or Network Rail loading instructions. Some traffic such as long rails carried on multiple vehicles have specific load securing arrangements.

G3.1 Restraint systems

The following load restraint systems are used.

G3.1.1 Stanchions

Where vehicles or load units are fitted with multiple stanchion positions the stanchions are placed as close to the load as possible, except where permitted in train operator or Network Rail loading instructions. They are:

- (a) not to be placed where they infringe the loading gauge
- (b) to be used the correct way up in the stanchion pocket
- (c) normally stowed in the stanchion pockets.

Stanchions may be secured together with tie bars or straps to prevent them becoming out of gauge.

G3.1.2 Other forms of restraint

Other forms of restraint are cradles, saddles and wedges or scotches. Wooden scotches used to prevent lateral movement should be nailed or screwed to bolsters, the floor or other timbers. Special scotches are used on some vehicles, for example car transporters.

G3.1.3 Sideboards

Sideboards are fitted to some vehicles or load units. All sideboards used to support or restrain a load have to be in place. If a vehicle or load unit is empty up to 50% of the sideboards can be missing provided that those missing are equally spread.

G3.2 Dunnage

This is a term used for the various means of supporting loads, and for packing spaces to prevent load movement and damage. Dunnage will be used as identified in the loading specification.

Timber is a common form of dunnage. It is used to:

- (a) raise a bolster height
- (b) provide support between a vehicle floor and a load.
- (c) separate loads stacked in tiers
- (d) fill gaps between stacks or loads and vehicle ends.

Timber used for dunnage should:

- (e) be in good condition
- (f) be adequately secured to the bolster or vehicle floor to prevent movement
- (g) be adequate in strength and numbers to support the load
- (h) be of uniform thickness when supporting tiers.
- (i) be positioned at right angles to the vehicle sides (not diagonally)
- (j) exceed the load width by a minimum of 100 mm but not be foul of the loading gauge
- (k) be shaped to avoid dropping from the required position when used to fill a gap between tiers.

Steel should not be used as dunnage between tiers unless specifically authorized in a loading pattern.

Examples of other materials used as dunnage are tyres, pallets, air bags and polystyrene pieces.

G3.3 Load restraint and securing equipment

G3.3.1 Webbing straps

The type and numbers of straps to be used is identified in train operator or Network Rail loading instructions.

Webbing straps:

- (a) should be protected against rough or sharp edges by anti-abrasion or other suitable material, for example plastic corner pieces or sleeves, making sure these remain in position during strap tightening
- (b) may be used to bind loads together
- (c) should be taken out of use when damaged
- (d) should not be knotted or lengthened by tying two lengths together or modified in any way
- (e) should not be used when twisted
- (f) should not be used for lifting or pulling
- (g) should not be cut to access a load.

Surplus strap

Surplus strap should not be left trailing. It should be disposed of at the vehicle winch by taking the tail end of the strap through the slot in the winch barrel and back up on the inside of the main strap.

G3.3.2 Hand operated ratchet tensioners and straps

The instructions applicable to the protection and use of straps also apply to this type of equipment.

Specific applications of hand operated ratchet tensioners and the types of strap associated with their use are identified in train operator or Network Rail loading instructions.

They are normally used to supplement existing fixed securing equipment, temporarily replace defective fixed equipment or as a method of bundling loads independently of the vehicle.

Hand operated ratchet tensioners and the various hooks used with the tensioners and straps can effectively increase the width of the load.

Chassis or rave hooks should not be used with traffics that tends to 'settle', for example timber or rebar. They can be attached to vehicles with suitable sole bars and under frames. They should only be attached to horizontal parts of the sole bar or under frame or if the hook type allows (for example chassis hook) to 'D' rings. It should be noted that rave hooks should not be attached to 'D' rings.

Tensioners and straps should not be attached to vehicle door pins/locking mechanisms, hinges, hand brakes, springs, any part of the bogie or axle structure, or to any angled part of the sole bar or under frame.

G3.4 Other securing equipment

As with load restraint and securing equipment already identified, other securing equipment should be used only by those competent in its use.

G3.4.1 Rope

Rope may be used to bind loads or secure sheets.

G3.4.2 Malleable wire

3 mm or 4 mm diameter wire may be used with loads of large diameter timber to bind loads and to prevent stanchions from splaying. Wire should not be used as a substitute for tie bars; it may only be used in place of tie straps if the load is large diameter timber. Wire must never be used in conjunction with sheets.

G3.4.3 Chains

These are only used for specific securing applications identified in train operator or Network Rail loading instructions and are not permitted for general use. When not in use they are secured so that they cannot fall from the vehicle.

G3.4.4 Plastic or metal banding

Plastic or metal banding are lengths of pliable plastic or metal strips cut to the required lengths from coils. Cut ends are tensioned and crimped together in position using a crimp sleeve and crimping tool. Excess banding should be trimmed off after crimping. Surplus banding should not be left on or in vehicles.

This type of banding is used to bundle loads or secure loads to pallets but not to secure loads to vehicles or load units.

Plastic or metal banding is prone to breaking. Broken ends are sharp and should be handled with care. Any broken lengths after load discharge should be removed from the vehicle. Those carrying out the removal or attachment of metal banding should wear safety gloves and eye protection.

G4 Weather protection

Loads that require protection against the weather are generally loaded in enclosed vehicles or load units. These may have fixed sides and roofs or be fitted with tilts or curtain sides.

G4.1 Tilts and curtains

Load units with tilts are basically open load units with a tailored sheet fitted over a rigid framework. Curtain sided load units and vehicles generally have fixed ends or conventional doors with side access provided by curtains sliding on runners. Curtain sided load units or vehicles should not be used if the curtain has been removed from its frame.

Curtain sides are not intended to restrain loads. Any evidence that a load has shifted within a curtain sided vehicle or load unit, for example, bulging of the sides or breaking through the curtain, must be reported and the advice of a competent person sought before forward movement is permitted.

Whether or not the load unit or vehicle is loaded, the tilt or curtain should be secured and tensioned in the correct way for the particular equipment before movement is permitted.

There should be no cuts in the leading or trailing end of vehicle sheets. Cuts should not exceed 30 mm length in side sheets.

TIR cords used to secure tilts and curtains should pass through all eyelets and be secured in accordance with train operator or Network Rail loading instructions.

G4.2 Sheets

Sheets are used where fully enclosed vehicles or load units are not used. They may be specially tailored covers, vehicle sheets, polythene sheeting.

They are not used for load retention.

Where used they should :

- (a) be raised to ensure any moisture runs off. Alternatively a load may be sheeted first then another sheet placed over this and the load
- (b) be kept tight by secure fastening to avoid gaps or the sheet being displaced or billowing and fouling overhead lines or other trains
- (c) be protected to prevent damage to the sheet when covering traffic with sharp or projecting corners
- (d) where possible be placed over load securing straps
- (e) when using two sheets to cover a load, be overlapped to prevent ingress of moisture; if possible the overlap should be towards the rear in direction of movement
- (f) be removed carefully to avoid damage and moisture contact with the load
- (g) long bungee cords should always be used doubled up. The use of single long cords is prohibited.

Sheets should be attached to specifically provided attachment points, normally within the vehicle or load unit. They should not be tied to parts of the vehicle such as the under frame, brake handles, tail lamp brackets, door pins, buffers or springs.

G5 Doors general

G5.1 Doors

Doors are not intended to retain loads.

Traffic should not be loaded such that it will be damaged by the door when closed or fall from the vehicle when the doors are opened.

For your safety and the safety of others bear in mind the following points when it is necessary to open or close doors.

G5.2 Doors opening

When opening doors:

- (a) pull rather than push sliding doors to avoid personal injury
- (b) stand to one side of door
- (c) do not use mechanical equipment to open doors
- (d) remember that open doors can infringe the loading gauge
- (e) do not move vehicles with hoods or tilts open
- (f) remember that some spring-assisted doors may lift to the horizontal position and should not be moved if the doors are open.

G5.3 Doors closing

When closing doors:

- (a) ensure all cam locks on load units are engaged, handles are in the keeper and the associated mechanical equipment is firmly secured to the doors
- (b) do not use mechanical equipment to close doors
- (c) make sure that they are properly secured in the closed position.

G6 Unloading

When unloaded, vehicles or load units need to be made safe for future use or movement as follows:

- (a) dunnage and load restraint equipment such as scotches should be removed or, if possible, secured to the vehicle
- (b) there should be no loose material or debris that could fall from a vehicle, for example on vehicle frames, ends or body sides
- (c) securing straps should be secured across vehicles, winch-to-winch, or placed in vehicle storage boxes
- (d) stanchions should be positioned within the loading gauge
- (e) doors, hoods or curtains should be secured in the closed position
- (f) when partially unloaded the load should be evenly distributed or secured before the vehicles is allowed to move
- (g) any residue of material inside a vehicle should be removed so that the vehicle is fit for its next load.