

SECTION 23 TRACK MATERIALS

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- 23.2 Loading Used sleepers
- 23.3 Loading New Sleepers
- 23.4 Concrete Sleepers
- 23.5 ETC wagon loading
- 23.6 Transportation of Welded Rails

23.1 SECURING SLEEPERS IN BUNDLES

Some methods of securing sleepers in bundles have proved to be suspect.

BUNDLING WOODEN SLEEPERS

DO...

- ✓ Place into bundles of **25 maximum**.
- ✓ Band with **two metal strapping bands** placed 300 mm from each end of the sleepers.

DO NOT...

- ✗ DO NOT use a **single metal band**
- ✗ DO NOT use single or double **No. 8 wire**.
- ✗ DO NOT use **plastic/nylon (blue) strapping**.

Single banding and No. 8 wire may allow sleepers to work loose. Plastic / nylon strapping wears against the sleepers and can break in transit.

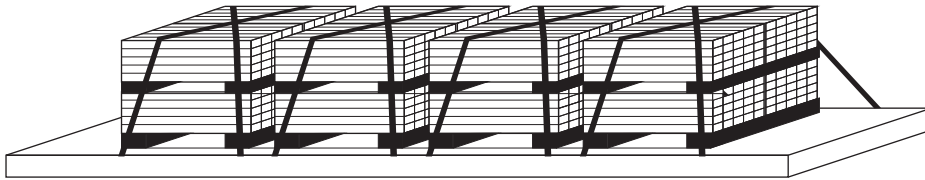
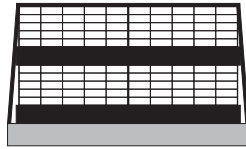
23.2 LOADING USED SLEEPERS

TPR sleepers are more uniform in section than recovered hardwood sleepers, so different stacking methods are employed. These are shown in Diagram 23.1.

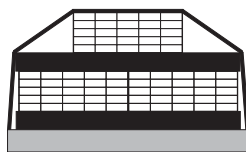
DO...

- ✓ **TPR SLEEPERS:** Load in stacks of **four** to the wagon (**US**).
- ✓ **HARDWOOD SLEEPERS:** Load in stacks of **three**. Two bundles form the base of the stack with one bundle on top in the centre of the wagon. Refer to Diagram 18.2
- ✓ Use good quality dunnage on the wagon floor and between layers. Dunnage must **extend completely** across the load with no short lengths.
- ✓ Load up to **4 stacks** per wagon on wagons with **8 bond chains**. Load up to **3 stacks** per wagon on wagons with **6 bond chains**.
- ✓ Ensure **stanchions** and **headboards** are in place.
- ✓ Secure the load by **double cross chaining** (two chains per stack crossing over the load).
- ✓ Lace unused chains across the wagon deck.

DIAGRAM 23.1 METHODS OF LOADING USED SLEEPERS



TPR Sleepers



Hardwood Sleepers

23.3 LOADING NEW WOODEN SLEEPERS (EX STORES)

All new sleepers range in length from 2.1 m (7 feet) to 5.76 m (19 feet) and are packed in bundles varying from 20 to 34. Bundles are to be banded with two metal strapping bands placed approximately 300 mm from each end of the sleeper.

DO...

- ✓ Load bundles of **25 or less** in stacks of **up to three bundles** in **two layers**, with two bundles on the bottom and one bundle on the top.
- ✓ Load bundles of **26 to 34** in stacks of **two bundles** in **one layer**.
- ➔ **Another bundle** on top of these means the wagon **chains will not secure** the load correctly.

DO...

- ✓ Use good quality **dunnage** on the wagon floor and between layers. Dunnage must extend **completely across** the load with no short lengths.
- ✓ Load up to **4 stacks** per wagon on wagons with **8 bond chains**. Load up to **3 stacks per wagon** on wagons with **6 bond chains**.
- ✓ Ensure **stanchions** and **headboards** are in place.
- ✓ Secure the load by **double cross chaining** (two chains per stack crossing over the load).
- ✓ Lace unused chains across the wagon deck.

23.4 LOADING NEW CONCRETE SLEEPERS (EX STORE)

Concrete sleepers are arranged in bundles of 24—four layers of six. The layers are separated by 75 × 50 mm wooden dunnage. **Wider dunnage of 125mm x 50mm or two pieces of 75mm x 50mm placed side by side may also be used.**

➔ It is essential that the bundles are evenly spaced.

The maximum loading for different classes of wagon is shown in Diagram 23.2.

DIAGRAM 23.2 MAXIMUM LOADING OF WAGON CLASSES WITH CONCRETE SLEEPERS

Wagon Class	Sleepers per Bundle	Bundles per Wagon	Sleepers per Wagon	Sleeper Lay on Wagon	Strapping per Bundle	Tare (kg)	Gross (kg)
ES	24	6	144	Across	Nil	15 780	56 780
US	24	5 max.	120	Along	2	14 980	55 980

LOADING **ES** WAGONS

DO...

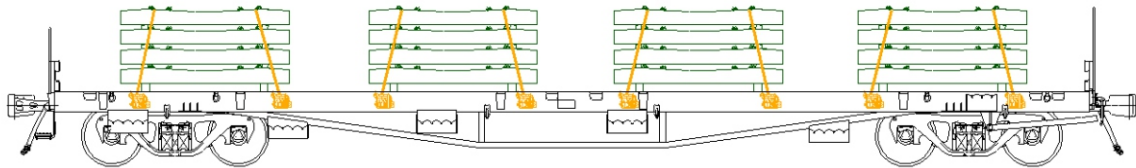
- ✓ Ensure the stanchions are raised fully vertical before loading
- ✓ Lay out the chains alongside the wagon on the ground
- ✓ Load end two first. The wagon only has a load sensor on end one so skids can occur if end one is loaded and end two is empty.
- ✓ Load the sleepers so they are centred for clearance of the gantry crane legs.
- ✓ Flick the chains up over the sleepers, between the Pandrol clip eyes
- ✓ Tighten the chains using the turnbuckles
- ✓ Ensure the chain is between the pandrol clip eyes and is sufficiently tight to prevent lateral movement
- ✓ See M9203-60 ES Operating Quick Guide for additional instructions

LOADING US WAGONS

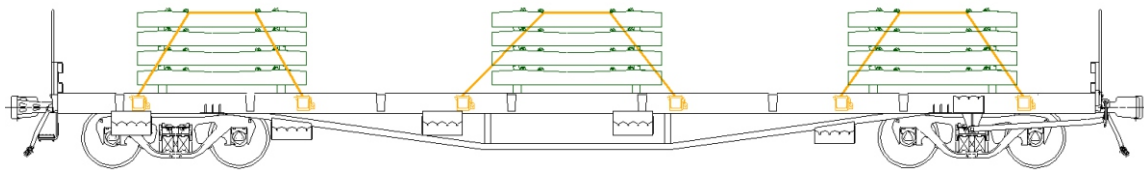
Stanchions are not required on **US** wagons loaded with concrete sleepers. These wagons may be placed on express freight trains (80 km/h max.).

DO...

- ✓ Thread rubber brake hose onto chains to corners of the concrete sleeper packs.
- ✓ Ensure sleeper packs are banded with a minimum of two steel bands. **The bands should be located in the shoulder area between the rows of Pandrol clip eyes.**
- ✓ Tighten chains from both sides of the wagon using the chain winches provided.
- ✓ Wagons with 8 sets of chains (maximum of 4 packs per wagon): Run chains straight over the sleeper packs through the pandrol shoulder area.

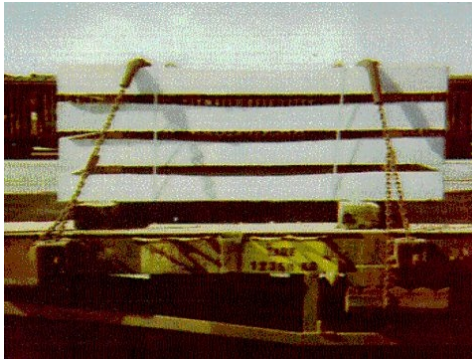


- ✓ Wagons with 6 sets of chains (maximum of 3 packs per wagon): Run chains diagonally over the sleeper packs **with the chains passing inside the inner row of Pandrol Clip eyes as shown below. Use the queen posts instead of the chain winches, to centre the middle pack.**



- ✓ Load sleepers on sound TPR sleepers as dunnage.
- ➔ Stanchions are not required on wagons loaded with concrete sleepers.
- ➔ Wagons with only one chain securing any sleeper pack will NOT be accepted for transit.

DIAGRAM 23.3 SECURING CONCRETE SLEEPER PACKS



Top left: Chains running straight over sleeper packs.

Top right: Chains running diagonally over sleeper packs.

Left: Side view: two chains per sleeper pack.

23.5 ETC WAGON LOADING

ETC Wagon Loading Quick Guide

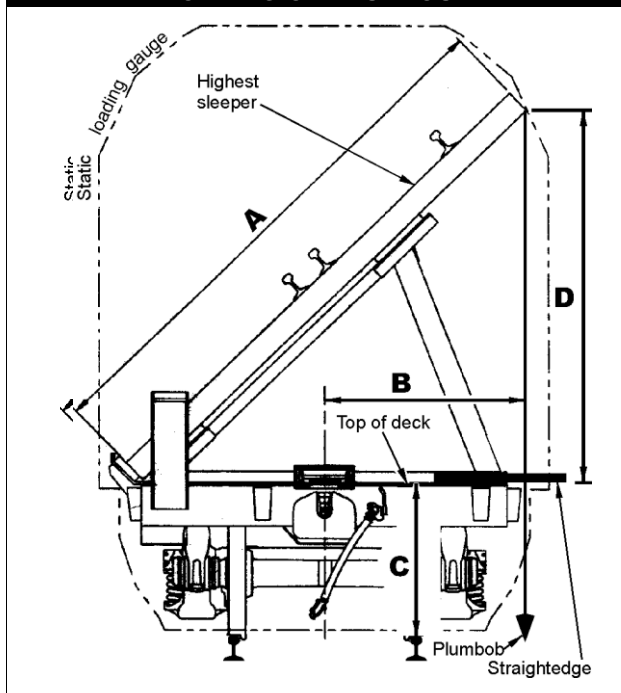
DESCRIPTION

The ETC wagon may carry up to two turnouts at express speed (80 km/hr). The load must be less than 40980 kg and be within the static loading gauge. This Quick Guide shows how to measure the load and determine whether it is within gauge.

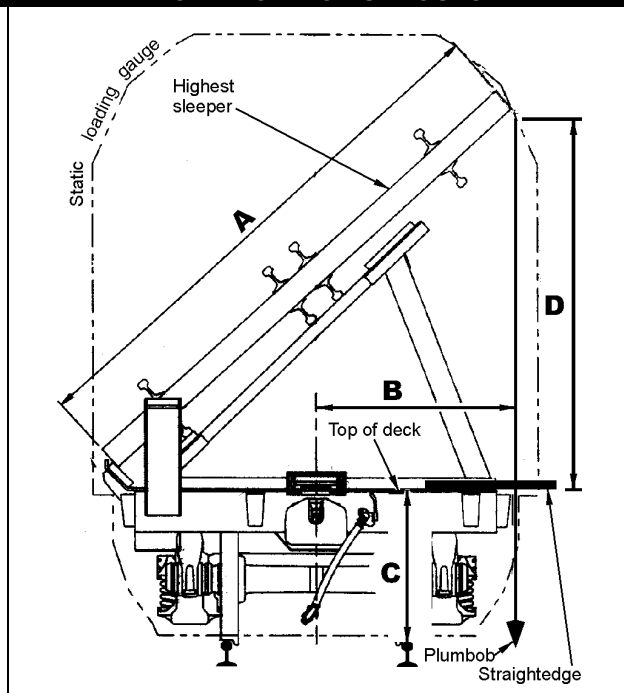
WARNING

Out of gauge loads may cause damage to tunnels, platforms and other structures, and result in serious injury or death.

LOADING ONE TURNOUT



LOADING TWO TURNOUTS



Maximum length of sleepers in assembled turnouts (Distance A) is 3300 mm. Sleepers over 3300 mm must be removed and carried separately.

1. Secure the sleepers with bondchains on the LOWER side first, ensuring they are properly seated in the cradle, then secure the sleepers with bondchains on the UPPER side.
2. Make sure the wagon is on a straight and level track.
3. Measure the width of the deck, divide by two and mark the centreline.
4. Hang a plumbbob from the highest sleeper; measure from the centreline to the plumbbob string (Distance B).
5. Measure from the top of rail to the deck (Distance C).
6. Measure from the outside edge of the sleeper to the wagon deck (Distance D). Use a straightedge.

7. **One turnout:** Contact Mechanical Design if:
Distance B is more than 1274 mm, or
Distance C plus Distance D is more than 3290 mm.

7. **Two turnouts:** Contact Mechanical Design if:
Distance B is more than 1251 mm, or
Any dimension in the following pairs is exceeded:

B	850	950	1050	1150	1250
C + D	3735	3640	3545	3450	3355

23.6 TRANSPORTATION OF WELDED RAIL

Welded rail is produced and dispatched from the Railweld depot at Otahuhu. The rails are generally 75m in length but can also be produced in lengths up to 150m.

Welded rails are transported around the rail network by way of specially designed EWR wagons that have cranes fitted to them to enable static discharge to take place.

The following regulations must be adhered to regarding the loading and transportation of welded rails:

- ➔ Welded rails must be transported by way of EWR wagons
- ➔ EWR wagons must have endboards securely fastened to the first and last wagons of the rake
- ➔ Timber dunnage must be placed between each layer of welded rail. Dunnage must be 150mm x 77mm x 1040mm in profile.
Do not use dunnage if it is broken or substandard
- ➔ When chaining the rails down, it is allowable for the chains to be slightly loose to enable the rails to move laterally when the wagons travel around curves
- ➔ It is allowable for the chains to touch the rails (steel on steel) and not have to use rubber between the chain and the rail
- ➔ Rails must not be stacked more than three layers high
- ➔ Rails must not be stacked more than six wide on each side of the wagon
- ➔ Rails must be stacked evenly on each side of the wagon to prevent the risk of out of balance loading
- ➔ Loaded EWR wagons must travel at a restricted speed of 55 km/h when transported on the rail network
- ➔ If longer rails are being stacked atop of shorter rails due to order of unloading, rail dollies must be used to support the longer lengths of rail on top
- ➔ Crane hooks must be secured to wagons and wire rope tensioned before travel