

Tie Bars

Tie-bars are straps of metal that join together the bottoms of the W irons on 4-wheel wagons. This article arose from a query on an email group "Why did some wagons have them, and which wagons ones ought to have them?"



Many wagons only have 4 brake shoes, one on the inside of each wheel. This works with manual brakes, but vacuum brakes exert a greater force and tend to push the wheels apart.

Therefore on fitted wagons the GWR, SR, and until the late 50s BR added tie bars between the W irons to hold them together, as shown on the above picture of a GWR MOGO van. The SR used circular section tie bars, flattened at the end, as did the GWR early on. BR and most GWR wagons had tie bars made of flat strip, as above.

A better but more expensive solution was to fit 8 brake shoes (called clasp brakes) that press equally on each side of the wheel. These were used by the LMS, LNER, the SR on its early 9 ft wheelbase vans, and on later BR stock.

All companies built a mix of unfitted and unfitted vans though proportions varied. During WW2 (from the early 40s) all new vans were built unfitted as an austerity measure. The SR and GWR built roughly equal numbers of each type; the LMS only about 25% fitted, and the LNER 75% fitted. BR built almost all vans and at least 90% of opens fitted. In the mid 50s BR decided that it wanted all its van fleet to XP standards with 10 ft wheelbase and vacuum brakes. Therefore they started fitting vacuum brakes to all reasonably new unfitted vans by adding a vacuum cylinder to operate the existing 4-shoe brakes. These vans had flat section tie bars added, so for example, LMS vans did not have tie bars when built but many had them added by BR.

Open wagons were usually unfitted, although BR built many fitted ones and also fitted some of the older wagons. Conflats were usually built fitted.

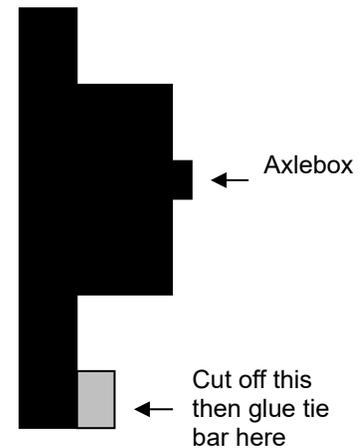
Thus for layouts set in the mid-60s tie bars ought to be on all SR and GWR fitted stock (the SR ones about half round and half flat), most BR stock, three quarters of LMS stock, but only a few ply LNER vans and some opens, as the LNER built all its vans fitted except during WW2. There are exceptions, for example an occasional 4-shoe fitted van without a tie bar.

The above applies to 9 ft and 10 ft wheelbase wagons. 12 ft wheelbase wagons usually had tie-bars whether fitted or not, perhaps because the longer brake levers exerted more force. Wagons and vans with even longer wheelbase sometimes had tie bars, or often trussing underneath the floor instead or in addition.

Adding Tie Bars to N Gauge models

The 10 ft steel chassis from Peco, Farish and Dapol are all 4-shoe without tie bars (except for a few recent Farish).

To add a tie bar of the flat type you need some thin plastic strip. Slater's do 0.020" square strip in black, or you can use white 0.010" x 0.20" strip which is closer to scale but not as strong and needs painting black. The bottom of the W irons have a small outward projection: cut this off with a knife flush with the front of the W iron. Then cut a length of strip about 2.3 – 2.4 cm long, that is the distance across the outsides of the W irons at the bottom, and simply glue in place with polystyrene glue. You ought to also glue a vacuum cylinder to the underside of the chassis, the correct place is over the P in Peco on their chassis. Most plastic wagon kits come with more vacuum cylinders than you need so you soon build up a stock!



For the SR circular cross section tie bars use a length of brass rod about 0.4 mm diameter. Cut a 2.3 cm length then squeeze about 3mm at each end flat using smooth jawed pliers, and glue on using superglue after removing the lip from the bottom of the W irons as before.



The Parkside Dundas 12 ft chassis includes a tie-bar. This is correct for most wagons, even unfitted ones. The only exception I have found are the fitted 21T mineral wagons built in the early 60s – note these are not the same as NGS kit 19 which is the earlier unfitted version without top flaps and these did have tie-bars.

The Peco 9 ft chassis has no tie-bars, correct for most open wagons and 16T minerals. A few fitted minerals had tie bars although most of fitted ones had clasp brakes. However, the iron ore tippler and pig iron wagons did have tie bars.