Tarpaulins

by Arthur Hayes

This presentation is based around Queensland Rail operations, but the information will be helpful to modellers of any rail system.

Tarpaulins have been keeping goods and freight dry from wet weather over many eras of railway operations. The early year's tarps were made of canvas. From the early 1970's after some trials, poly tarps became the norm.

I heard one historian indicate that tarps were used as a save weight method of transporting goods. Tarps on open wagons were lighter than using a box wagon. I think tarps were used to protect goods that could not be placed or loaded in a box wagon or it was easier to place the load in an open wagon. Just think of loading wool into a box wagon by hand or trying to feed a 30 feet length of timber through the door of a box wagon.

Each railway operator had their own colour for tarps, Queensland Railway canvas tarps were green. After the trials in the late 60's, yellow became the standard colour for poly tarps in the early 1970's. Today, tarpaulins are still in use on our rail networks mainly on containerized freight. Bright coloured company tarpaulins cover flat rack containers and some containers have side curtains and tops made from PVC so freight is quickly loaded and unloaded.

Various railway documents provide instructions for the use and care of tarpaulins on their networks. To keep things in context, some extracts are provided across various time frames. Some you will find as general knowledge and most likely will never read again. Yet, others you will hang onto to assist you to make that fair dinkum model.

Goods & Livestock Rate Book. 1973

The Goods Rate Book provides some information on the business side of things. This section most likely falls into general information.

Tarpaulins will not be provided to cover goods which from their nature are not considered to require such protection (refer Clause 567 of the General Appendix to the Book of Rules and to the Working Time Tables for all Divisions). Where tarpaulins are supplied for covering goods in transit, no charge will be made for one tarpaulin in the case of a four-wheeled wagon, two tarpaulins for an eight-wheeled wagon having an inside length up to 9750 mm, or three tarpaulins for an eight-wheeled wagon having an inside length in excess of 9750 mm, but a charge of $ 2.00 will be made for additional tarpaulin required in excess of these limitations. When wagons are fully loaded with straw, hay and chaff one additional tarpaulin may be provided without charge.

A charge of $ 2.00 per tarpaulin will be made for the use of any tarpaulin ordered for the covering of dressed sawn timber, “ready-to-erect” houses including the necessary timber for the building, i.e., moulding, dressed, tenoned, mortised, etc., timber shooks for making cases, firebricks, and fireclay, but where timber is concerned such tarpaulins must not be used nor be permitted to be used for the covering of the ends of timber. Tarpaulins will however be provided for consignments of seasoned pine case timber cut to box lengths and ready to assemble in accordance with the basis outlined in the preceding paragraph.

The aforementioned charge will be applied on each tarpaulin used to cover the undermentioned commodities when conveyed Interstate, viz:-

Ashes	Asphalt	Bark (other than ground bark)	Bricks (common fire clay)
Boilers	Bones	Bottles	Boats
Clay	Coal	Coke	Circus material
Contractor’s plant	Ferns	Firewood	Fowl manure
Gravel	Gypsum	Hardwood (unseasoned)	Hardwood (unseasoned), cut to approved sizes for case making
Iron or ironwork	Limestone	Livestock	Mallee roots
Mining timber	Ores	Pipes	Potatoes (old)
Pyrites	Roof slates	Sand	Scrap metals
Stable manure	Stones	Terra cotta	Tiles (other than ornamental or tessellated)
Wagons	Wheelbarrows		

Tarpaulins for these commodities will be supplied only at the request of the consignor and the Commissioner reserves the right to refuse to cover any of these commodities, which are likely to damage tarpaulins. Separate charges will be made in each State and the charge in New South Wales and on the Uniform Gauge Railway from South Brisbane to Border Tunnel will be in accordance with the New South Wales’ By-laws in force for the time being.

When it is necessary to calculate the freight on a railway wagon weighbridge weight (mass), the weight (mass) of railway tarpaulins covering the goods will not be charged for. The allowance made for tarpaulins shall be 28kg per small tarpaulin, 37 kg per large tarpaulin with the exception that the allowance for tarpaulins in respect of WH and WHE class wagons shall be 46 kg for canvas tarpaulins and 38 kg for green and yellow PVC coated nylon tarpaulins. In making allowances for tarpaulins where wagons are overloaded the weight (mass) of the tarpaulin will be deducted from the total weight (mass) of the consignment including tarpaulin, and the overload then calculated in accordance with clause 23.

Instructions found in the General Appendix

Below, is an extract from the 1962 General Appendix. On the instruction part, not much changed over the years. Information that would assist you to model a set era has been shown separately.

The greatest care must be exercised in the use of tarpaulins. In covering loading in wagons care must be taken to see that the tarpaulin is so placed as to reduce liability to damage from friction on the corners of cases or projection loading. Sharp portions of loading must be covered in such a manner as to avoid damage to the tarpaulin. All tarpaulins must be placed over loading with the running number outwards.

Tarpaulins must be carefully examined before being used. On receipt of inwards loading, the tarpaulin covering the loading must be inspected before removal from the wagon, also when tarpaulins are received spare from other stations or depots they are to be unfolded and inspected. In all instances, the employee examining the tarpaulins must keep a record of any defect or damage to each tarpaulin, together with number of and year of manufacture.

Defective tarpaulins must be forwarded without delay to the Tarpaulin Shops, Ipswich, for repairs.

When tarpaulins are taken off wagons they must, if dry, be carefully folded and immediately placed under cover for protection from the sun and rain; they must not be folded up when wet, but spread out in such a position that they are well clear of a running set of rails or roadway. In Station Yards frequented by vehicular traffic; care should be taken to see that they are not folded when they are damp as this causes mildew and consequent rot.

Tarpaulins must not be allowed to remain loose and unfolded in wagons and under no circumstances must be left in empty wagons marked off for repairs, or wagons being allotted to Collieries or supplied to stations from which it is intended to load rough loading not required to be covered.

Tarpaulins received at depots and stations from other places when off-loaded from trains, must be removed from the platform or yard and placed in a neat stack under cover. They must not be allowed to remain out in the open.

At isolated sidings and at places where a woman only is in charge, guards must see tarpaulins not required for immediate use are taken to the depot station. Inspectors, gangers and fettlers when running the road, should see that any tarpaulins at isolated sidings are folded up and placed in conspicuous positions for lifting by the first train.

Tarpaulin ropes must not be tied to the bogie frame of a wagon, but to the proper hooks or bars provided for the purpose. In the event of a wagon not being fully equipped, the number should be taken and the District Officer advised. The staff cannot be too strongly impressed with the necessity for

securing all ropes and lashings. Guards must report instances of neglect on their time and occurrence sheet.

In some instances tarpaulins are tied very loosely, and during transit become unfastened and have to be retied, with the result that the train is delayed; also, that frequently when wagons are covered with two tarpaulins the top tarpaulin is placed on the trailing end instead of the leading end and insufficient overlap at the centre.

The placing and securing of tarpaulins on “WH” and “WHX” wagons must have particular attention to avoid the tarpaulins sagging between supports of wagons. The correct method for securing of tarpaulins on these class of wagons is to be tie the four inside ropes at one end of the tarpaulin to bar and rings provided at end of the wagon, then pull tarpaulin tight over the supports at the opposite end of the wagon and tie. The side and corner ropes can then be tighend securely.

Special care must be taken by all employees to ensure that tarpaulins are not removed from “WH” and “WHX” wagons.

Tarpaulins are not to be provided to cover goods, which from their nature are not considered as requiring such protection. Goods which are not to be covered include:-

Agricultural or farming implements and machinery	Bottles – loose or bagged	Boxes and cases – empty, of wood or iron	Clay, except where otherwise specially authorised
Bitumen	Bones	Bricks	Charcoal in bags
Coke, bulk or bagged	Earthenware articles packed in straw	Empty cases, casks, drums, gas cylinders	Fencing wire and wire netting
Firebricks, except where otherwise specially authorised	Gravel, stone, screening, sand, ashes, ore marble, gypsum	Livestock loading in cattle wagons or sheep vans	Log timber
Lump rock salt not in bags	Machinery for outdoor use	Melons and pumpkins, loose or bagged	Motor cars and other motor vehicles
Motor chassis	Motor spirit, oil etc in drums	Pipes of all descriptions	Sawdust, loose or bagged
Sawn timber and shooks (bundles of timber) except as approved	Tallow	Tractors	

Sawn timber generally is not to be covered and on no account must new or comparatively new tarpaulins be used for this purpose. Other classes of tarpaulins may be supplied for the consignment consisting of the following descriptions:-

1. Dressed sawn timber
2. Consignment for “ready-to-erect” houses.
3. Timber shooks for making cases.

Special tarpaulins are provided for covering trucks of dressed sawn timber and these are branded “Timber only” on both sides and “Timber” on one side only, in the centre of the sheet. When not in use they must be folded at the receiving station and advice sent to the District Officer.

Station Master and others should not wait until inwards wagons are completely unloaded to dispose of the tarpaulins; providing the weather is fine the tarpaulin should be folded up immediately unloading commences and placed at the disposal of the District Officer without delay.

Tarpaulins should be forwarded from one station to another or from one district to another by passenger trains when this possible, to avoid delays en route. .

1950 General Appendix

The standard size of tarpaulins are as follows

Small (distinguished by letter “A” before the number) 20’ 5” by 14 ‘
Large 23’ 3” by 17’ (eight canvases)

Special Tarps 26’ 2” by 17’ (nine canvases) (branded and numbered in red paint to distinguish them from other tarpaulins) in use in the Maryborough & Mackay sugar traffic.

Numbering of Tarpaulins
Tarpaulins are numbered consecutively and a record is kept of each. In addition to letter distinctions shown in paragraph under heading “Standard size of tarpaulins” the index letter “C” before the number will indicate those manufactured in the year 1950, “D” those made in 1951, “E” in 1952, with the alphabetical progression continuing to show those issued in years thereafter. The branding will appear on each side of the tarpaulin.

Q ↾ G
C
A1448

1962 General Appendix

The standard size of tarpaulins are as follows

Small (distinguished by letter “A” before the number 20’ 5” by 14 ‘
Large 23’ 3” by 17’ (eight canvases)

Tarpaulins are numbered consecutively and a record is kept of each. In addition to letter distinctions shown in paragraph under heading “Standard size of tarpaulins” the index letter “M” before the number will indicate those manufactured in the year 1960, “N” those made in 1961, “O” for tarpaulins manufactured up to and including March 1962. As from April 1962, newly manufactured tarpaulins will have the serial number prefixed by the year of manufacture. The branding will appear on each side of the tarpaulin.

Q ↟ G
C
A1448

Q ↟ G
62
25561

Bulk Wheat Wagons (WH WHX) are fitted with one tarpaulin 48’ by 14’
Branded as

Q ↟ G
62 WH 29512

In about 1963, WHX wagons were reclassed to WHE.

1982 General Appendix

PVC Tarps (Yellow in Colour)

Standard size tarp for general purpose 6 700 mm x 5 200 mm
Bulk Grain GVJM 5 490 mm x 3 660 mm
Bulk Grain HSAG 11 280 mm x 4 000 mm
Bulk Grain WH, WHA, WHE 13 700 mm x 4 000 mm
Fertilzer in HOF wagons 16 500 mm x 4 000 mm

Numbering QR Logo
82-112

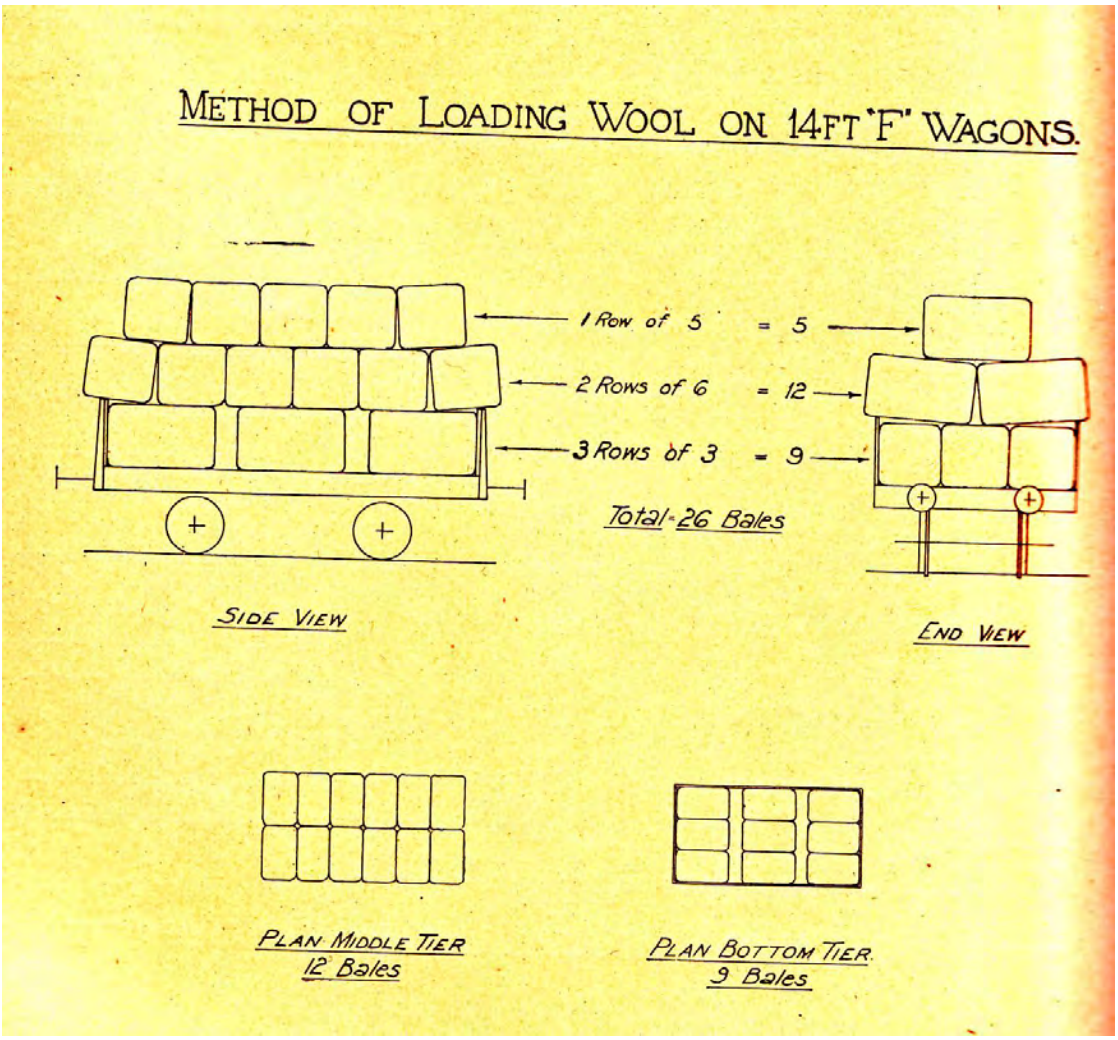
1989 General Appendix
Standard size tarp for general purpose - 6 700 mm x 5 200 mm
Bulk Grain VAOS wagons - 10 000 mm x 1 200 mm
Bulk Grain WHA, WHE - 13 700 mm x 4 000 mm
Ryneboard for use on PB wagons - 15 000 mm x 5 950 mm and
15 000 x 6 550 mm.

During the mid 1990’s Wool Tarps was made up by joining two tarps and used to cover wool consignments from western centres. These were short lived due to the use of flat rack containers then wool was loaded into QLX box wagons.

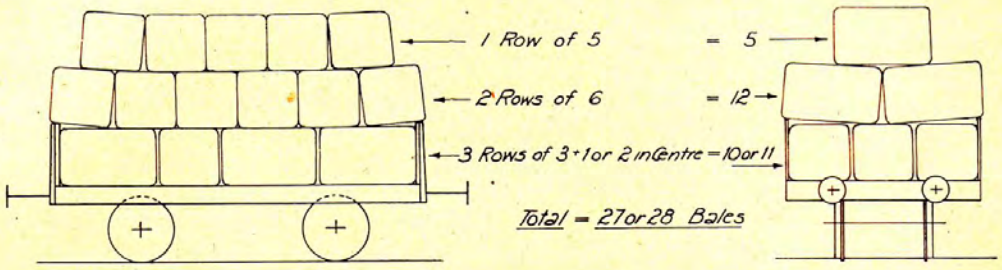
As a general rule, tarpaulins were not to be used to secure a load, except wool and hay.

The 1950 and 1972 General Appendix's provide the same loading diagram for wool bales. For some reason, the 1972 General Appendix did not show a FJS wagon ?.

The diagrams were based on a wool bale being 4 feet long, 2 feet 6 inches wide and 2 feet 4 inches high.



METHOD OF LOADING WOOL ON 15 FT. "F" WAGONS.



SIDE VIEW

END VIEW

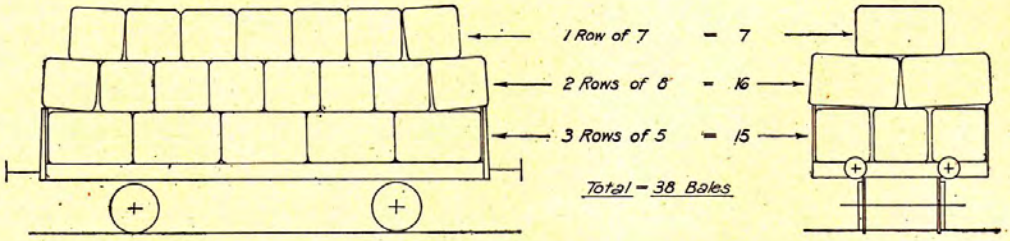
PLAN MIDDLE TIER
12 Bales

PLAN BOTTOM TIER
10 or 11 Bales

NOTE
The Middle Tier could be loaded with 3 at each end lengthwise and 6 crosswise in centre = 12
This gives a small overhang permitting 6 to be loaded on Top Tier instead of 5.

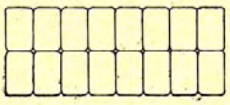
G.H. 4-3-48

METHOD OF LOADING WOOL ON "F.G." AND "F.G.M." WAGONS



SIDE VIEW

END VIEW

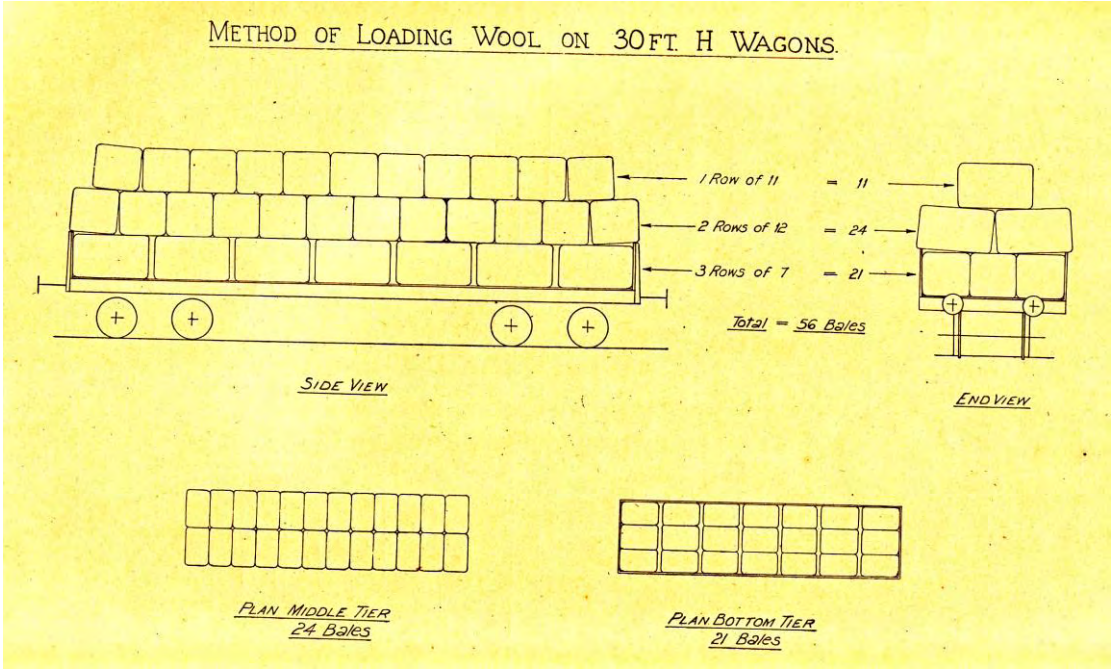


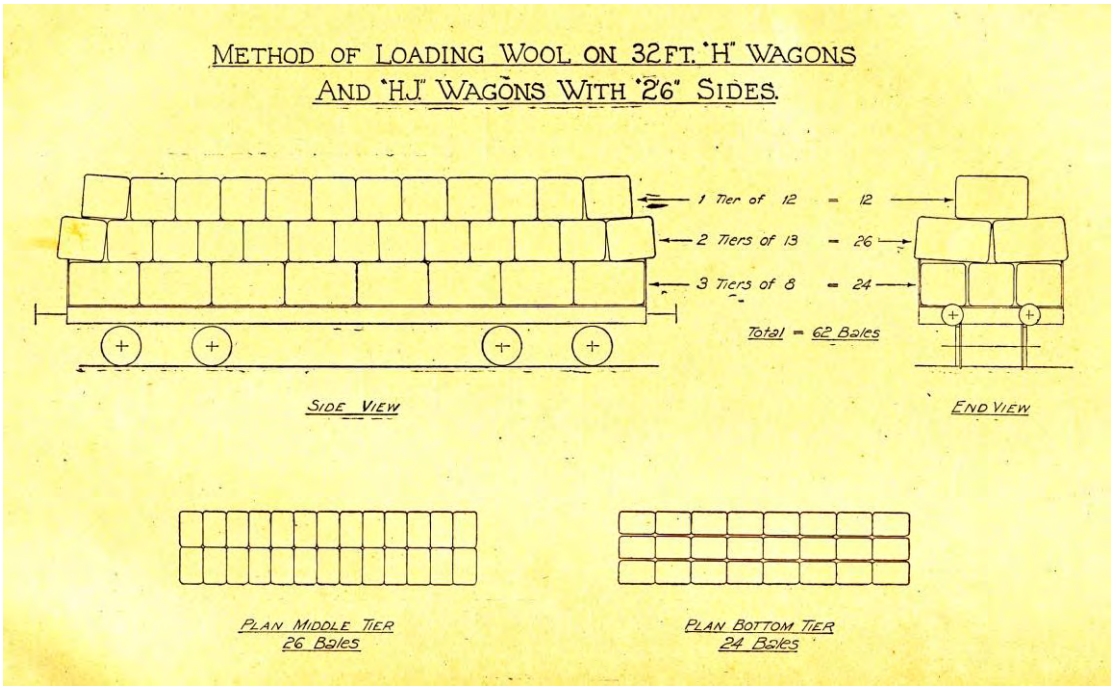
PLAN MIDDLE TIER
16 Bales

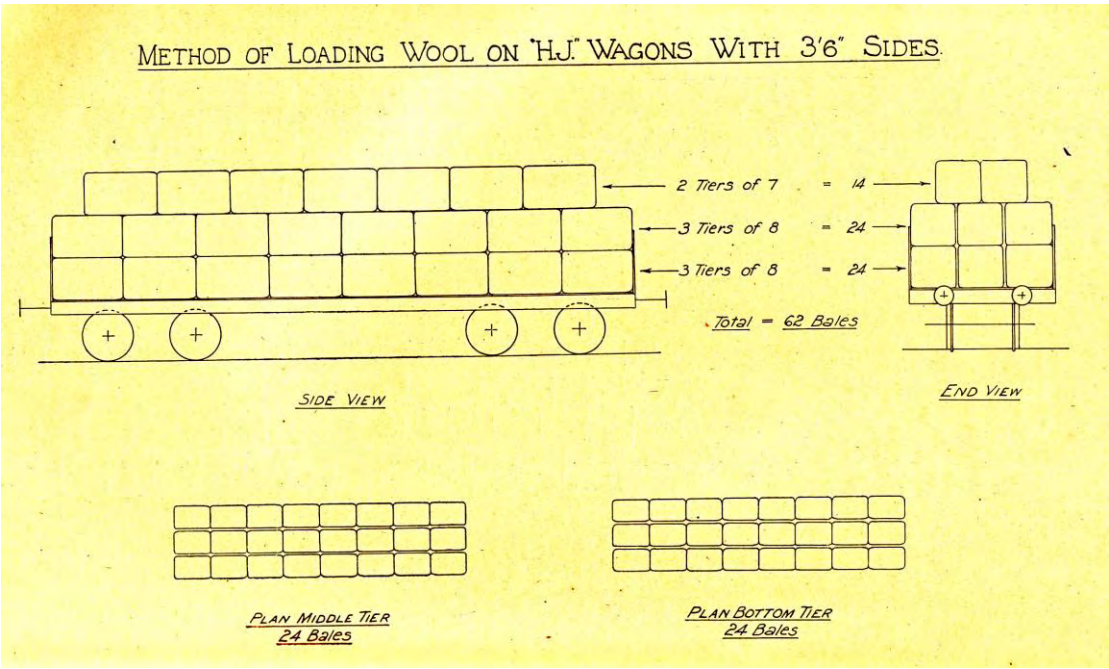
PLAN BOTTOM TIER
15 Bales

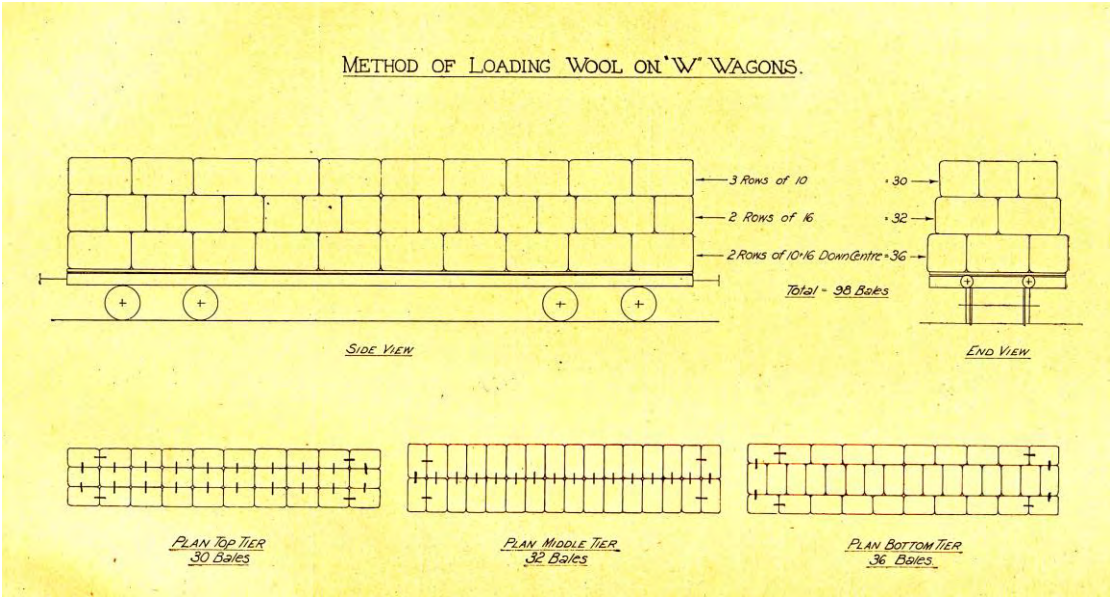
NOTE
The middle tier could be loaded with 3 lengthwise at each end = 6 + 2 rows of 5 crosswise = 10. Total = 16
This gives a 3" overhang at each end.
8 could then be loaded crosswise on top.

G.H. 8-3-43


METHOD OF LOADING WOOL ON 30 FT. H WAGONS.
1 Row of 11 = 11
2 Rows of 12 = 24
3 Rows of 7 = 21
Total = 56 Bales
SIDE VIEW
END VIEW
PLAN MIDDLE TIER
24 Bales
PLAN BOTTOM TIER
21 Bales


METHOD OF LOADING WOOL ON 32 FT. "H" WAGONS
AND "HJ" WAGONS WITH "26" SIDES.
1 Tier of 12 = 12
2 Tiers of 13 = 26
3 Tiers of 8 = 24
Total = 62 Bales
SIDE VIEW
END VIEW
PLAN MIDDLE TIER
26 Bales
PLAN BOTTOM TIER
24 Bales





When loading “W” wagons or wagons without sides, the bales in all three tiers must be hooked as shown in diagram.

“W” wagons or any wagon without sides should not be sent specially to load wool, but when returning from wool-loading centres may be used for such loading.

The tarpaulin ropes must be securely tied, and after wagons have travelled some miles and the load has settled down, the ropes must be retightened at the first opportunity.

In later years, the material used for wool bales changed from hemp to a poly product. The surface of the poly bales being smooth made the bales prone to moving in transit.

In December 1999, the Loading and Securing of Freight Manual shows the size of wool bales being 1370 mm long, 760 mm wide and 760 mm high with a weight of 175 kilograms. The load for a HWA, HSA and 9.7 m wagons has 21 on the bottom, 26 middle layer with 150 mm overhang on the headstock and 100 mm overhang on the sides. 12 bales on the top layer making a total load of 59 bales.

Not all loads were full loads as shown above.

Other types of loads were lower than the side of the wagon too. QR tarpaulins had a flap with an eyelet about 2 foot up from the side. By passing the ratline (rope) through the eyelet you could shorten the sides of the tarp on both side. Tarpaulin support frames were available to place on top of the wagon door/side. This made the tarp look like a tent on top of the wagon. This allowed the rain to run off the wagon.

Wagon fitted with tarpaulin support and tarp length shorten.

If the frame was not used, the weight /mass of the water would push the tarp down allowing a large pool of water to form on top of the tarp between the wagon sides. In draw hook days, this was a hazard to the Shunter, during shunting as the wagons came together, a large volume of water would spill over the ends, drowning the poor shunter as he was trying to throw the coupling. It was much the same for unloading staff, with the fold in the tarp about floor level. During rain, the fold would fill with water. On undoing the tarp ropes, the water would be released. If one were not careful, one's boot would be filled with water.

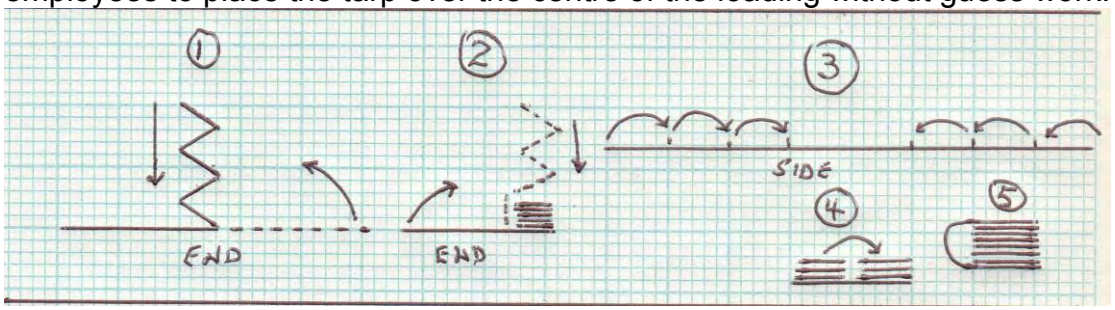
In later years, QR had a wool tarp which, covered the whole load.

Early 2000's the loading of wool was transferred to flat rack containers. Later on wool was loaded into box containers to reduce handling on the coast.

Today, tarpaulins are still being used in the container world. Some containers have side curtains, other have tarpaulin roof (soft tops), some containers used for transporting glass have tarpaulin sides and roof. Flat Rack containers often have their loads covered by a tarp.

Wagon Report
DEMO was the Telegraph code used in the daily 8 AM wagon report given by stations to the General Manager advising of the number of tarps on hand.

Folding
Tarpaulins were folded in a set manner, this allowed porters/loading employees to place the tarp over the centre of the loading without guess work.

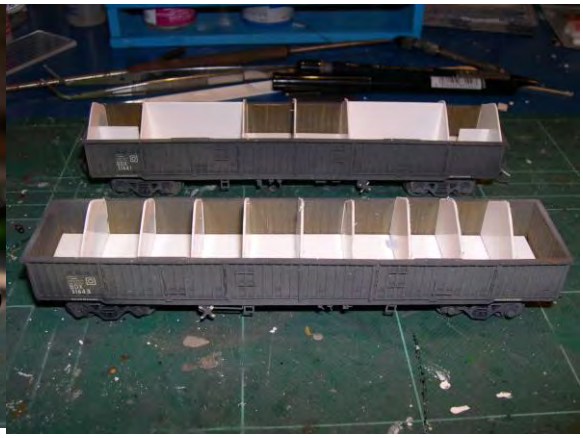


Modelling a Tarpaulin load.

First, consideration must be given into the load to be covered by the tarpaulin. A good picture/photo will help no end. Parts of high loads could be visible between the top of the wagon sides and the bottom of tarp. For example, wool or bales of hay. If this is the case, the load needs to be modelled also as you will be able to see it.

If the tarp covers the load and the bottom comes down over the sides/ends of the wagon, a simple frame will fill the bill as the load itself will not be visible.

Generally, expanded poly foam (coolite) makes a good foundation for a wool/hay load. At times, I made a load using styrene. If a wagon is fitted with tarpaulin supports, you have a choice of using wire or styrene cut to shape. Blocks of wood or a paint roller cut down can give you a good representation for a load.



Modelling the Tarpaulin

You have two choices, some manufactures provide a selection of tarpaulins. If not, you can DIY your tarp.

Commercial

If you model British Rail in 4mm scale there is a range of tarpaulins available from Roger Smith. They introduced a very useful range of pre-printed paper tarpaulins in the 1970s, these disappeared for a time and were re-introduced by Howes of Oxford and are currently being marketed as a 'Smiths' product again. These are very easy to use, simply cut them out, crumple them up to give a more used appearance and glue them in place.

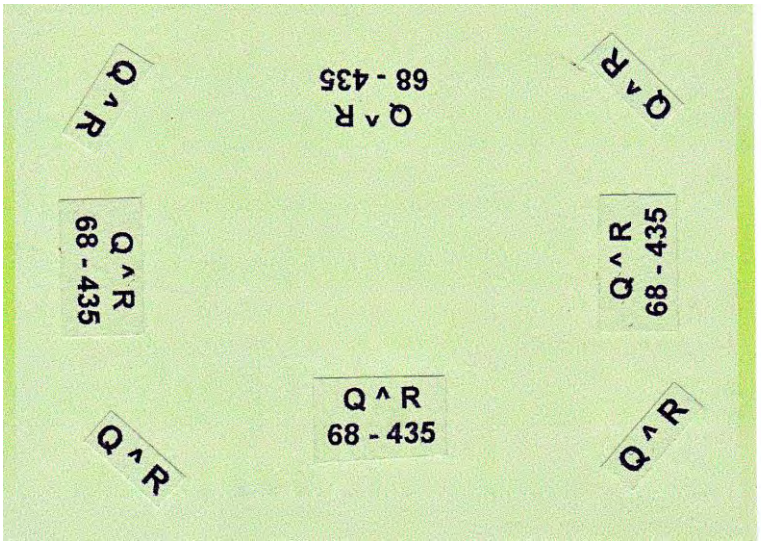
DIY Tarpaulins

Cloth
Many years ago, I used cloth to make tarpaulins. The best was old handkerchief, thin cotton cut to size. I used PVA glue to stick it into place, and then dry applied Humbrol Paint. 30 years on, some are still in service.

Paper Tissues
I have used “Kleenex” tissues to form a tarpaulin. Cut to size, stick into place using PVA. To get a fall into the tarp, diluted PVA glue in an eyedropper was carefully placed on the tissue. Don’t overdo it, as it can get messy. Again, once dry, paint was used to colour the tarp.

Tissue Wrapping paper.
For a dollar, about 5 sheets in a packet can be purchased from the cheap shops or newsagents. Most likely it will last a life time. Process is the same as the previous paper. If you get a rip in it later, a patch can be made to repair it.

Paper
Given the various drawing programs available on our computers, we could produce at home much the same as our British mates buy.



Tea Bag.
Save your tea bag and wash it out after a cuppa. Once dry, the bag can be opened out. You may find some better than others. I used Liptons, which were OK. Toss the tea, Although, I heard of some using it for their scenery. Follow the same process as for the other paper headings. OK for the smaller scale and small size tarpaulins.

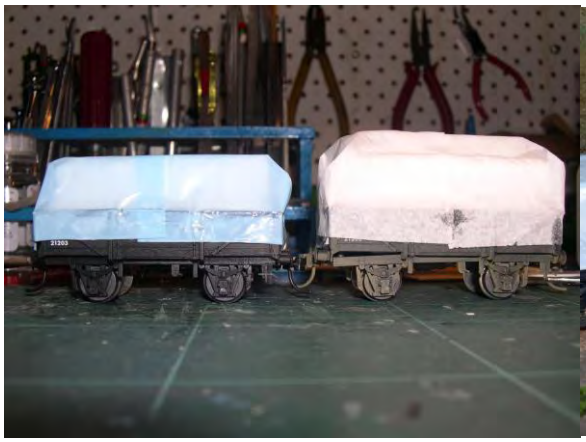
Aluminium Foil
A few years back, BGB Models produced NSW and Victoria Railway tarpaulins in foil. I do not see them listed on their website. The foil was painted and branded with numbers etc. It was easy to fold into place. Sometimes, in the folding process, the under side came into view. Much the same could be made at home. Some paints may not stick to the gloss surface. Once folded, the tarp can be removed to make the wagon empty, could be helpful if using a card system on your railway.

Aluminium Can.
I have heard of the humble aluminium can being cut up and used much the same as the foil.

Plastic bags
Check the bag before starting out, some are biodegradable, you may find in a few years time your tarp is falling apart.

Plastic bag can be cut to size and glued to the wagon much the same as paper. Once again, some paints work better than others. I tried spraying the bag before cutting it to size. I found Humbrol gloss works the best. Other paints come off when cutting to size and applying.

Medical Dressing Mats
Some treatment pads used by hospitals contain both a plastic sheet and tissue paper. These pads can be separated and material of your choice can be used. The pads come in a couple of sizes, the smaller one are 400 mm x 270 mm, thus can be used by large scale modellers.



Other uses for Tarps.
Back in the good old days, railway tarpaulins were used for covering house roofs following a storm. If a roof was ripped off during a storm, the Police would rock up to the local railway station looking for spare tarpaulins. Numbers were recorded and the General Manager advised.

I made a gravel truck into a bulk wheat track by adding a tarpaulin.

I trust you enjoyed the presentation and you can now give your railway an added purpose that is realistic and uniquely yours.

Other Reading

Narrow Gauge Downunder Oct 2011 Quick & Easy wagon Tarpaulins
Branchline Modeller No 1. Tea-bag Tarpaulins
Australian Model Railway Magazine # 100 Jan/Feb1980. Tarpaulins
Australian Model Railway Magazine # 156 June1989. Tarpaulins
Australian Model Railway Magazine # 283 August 2010 Tarp your Load.