Special Loads on the QR

by Peter Kennedy

The theme of this session is "Special Loads on the QR"

The word **Gauge** immediately conjures up a Railway Modeller's thought - go to HO, O, standard, narrow etc. i.e. the distance between the rails. To enable us to expand our thinking I will introduce us to other **"Gauges"** as used by Queensland Rail and other rail systems:-

Loading GaugeDiagram.

QUEENSLAND RAIL - ROLLINGSTOCK ENGINEERING SECTION

RECOMMENDED PRACTICE

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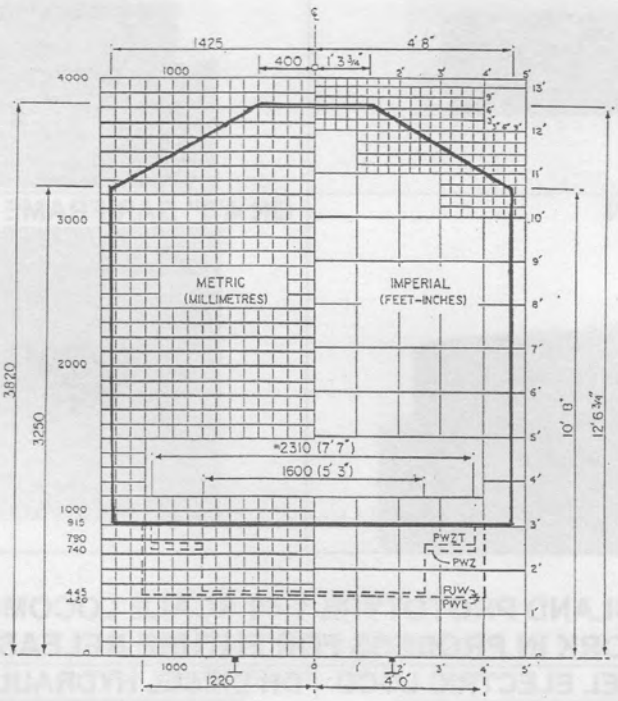

(a) The full Outline indicates the maximum limits permitted for movable loads conveyed on flat or in sided wagons, and the dotted outline the extension permitted for movable loading placed and conveyed on special "low load" wagons. Lashings, chains, and all other equipment used for securing the loading for conveyance must be within this outline.

(b) Loading exceeding the limits of both the full and/or dotted Outline is defined as "Out-of-Gauge" loading and may only be accepted for conveyance under the special conditions set out in the publication "General Instructions for the Acceptance and Marshalling of Out-of-Gauge, Exceptional Long and/or Heavy Loading."

(c) Care must be taken in using this diagram to allow for the floor height of wagons which may vary from 915 mm to 1070 mm above rail. Floor heights for well wagons are shown in dotted outline.

(d) These dimensions apply only to loads which are contained within the length of the wagon body. Maximum width dimensions must be reduced for loads which extend beyond the end of the wagon.

(e) Enquiries regarding loading which exceeds the dimensions shown on this diagram should be directed to the 'Out-of-Gauge' loading section Brisbane Telecom Phone 235 1738/235 1751 or Railway Phone 81 1738/81 1751 or to the Divisional/District Civil Engineer's office in the area concerned.

FIGURE 5.1
QUEENSLAND RAIL - STANDARD LOADING OUTLINE

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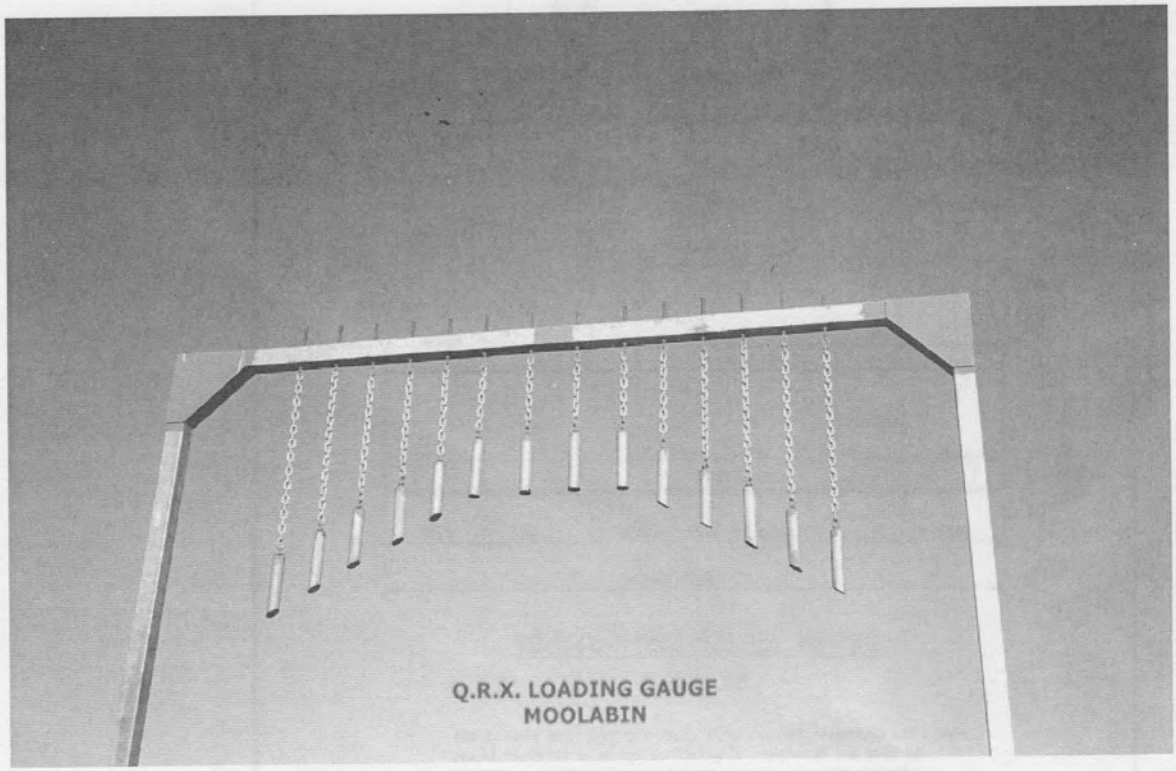
This diagram represents the dimensional limits within which all loading must conform with the exception of Special authorized **"Out of Gauge"** loads.

There are a variety of means by which a load is checked dimensionally to ensure it is within the loading gauge:-

(a) Visual
(b) Measurement
(c) A loading gauge structure

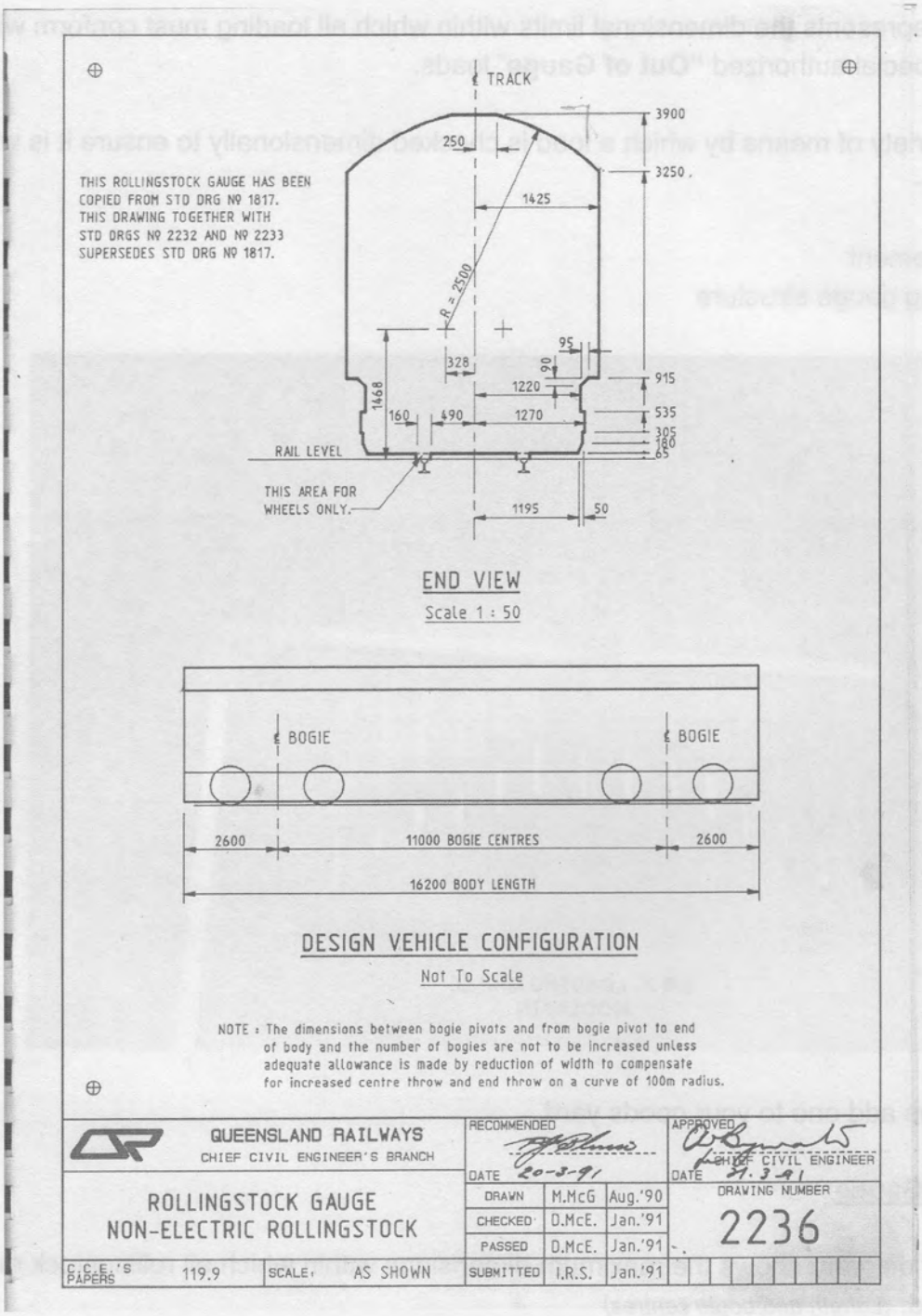


You can always add one to your goods yard.

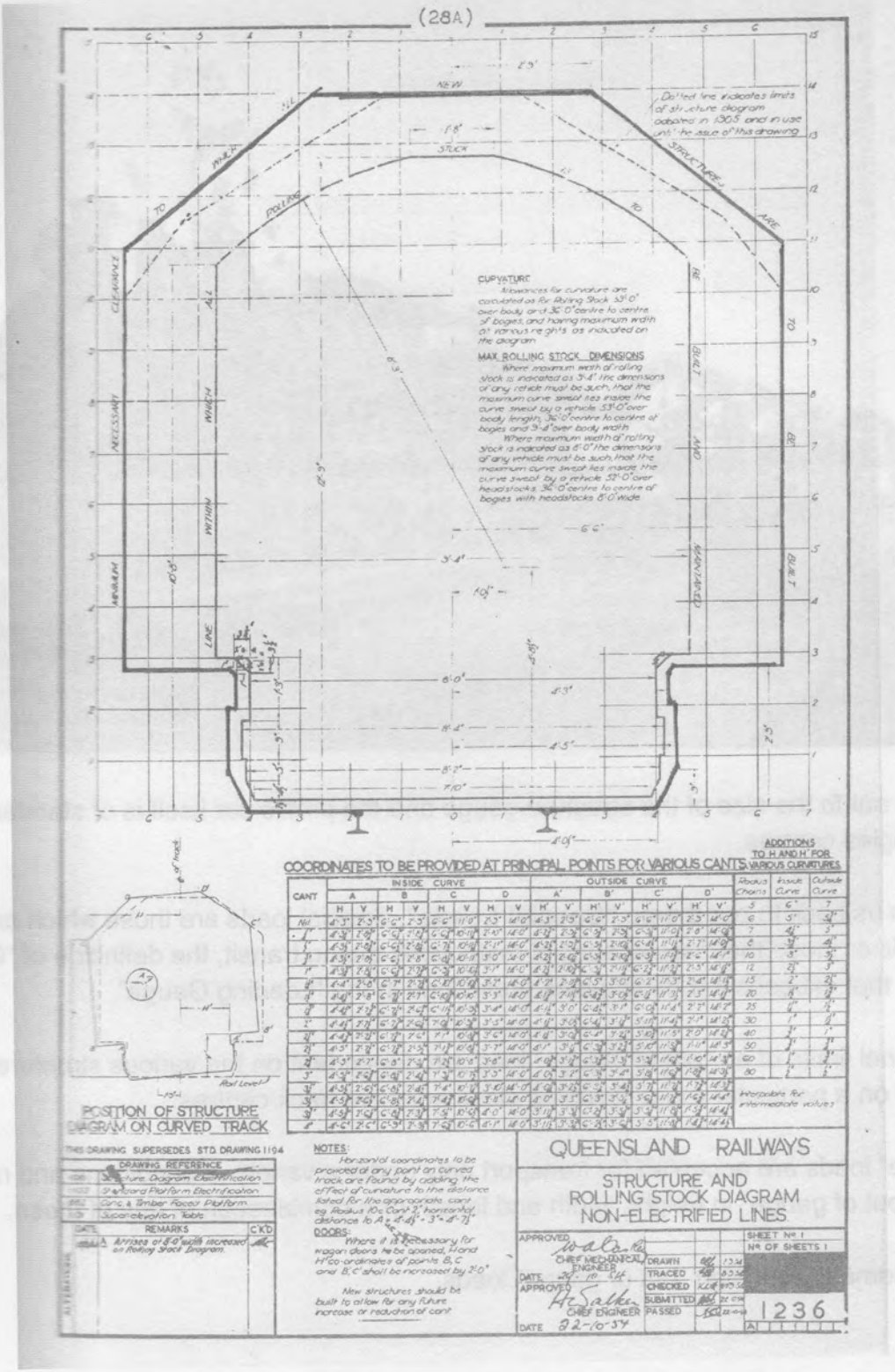
Rollingstock Gauge:

This Gauge or diagram shows the maximum dimensions within which all rollingstock must be built and maintained. *(Length and bogie centres)*

Queensland Rail used separate Loading and Rollingstock Gauges, some railways use only the "Loading Gauge" for both loading and rollingstock dimensions.



Structure Gauge: This gauge shows the dimensions outside which all structures are to be built. Many older structures infringe on this diagram, e.g. Tunnels on the Toowoomba and Cairns Range and the old tunnels at Central



Checks on Structure Gauge clearances are made from time to time using the Profile Car Train.

This car folds out to the size of the structure gauge and the profile car itself is of standard design length and bogies centres.

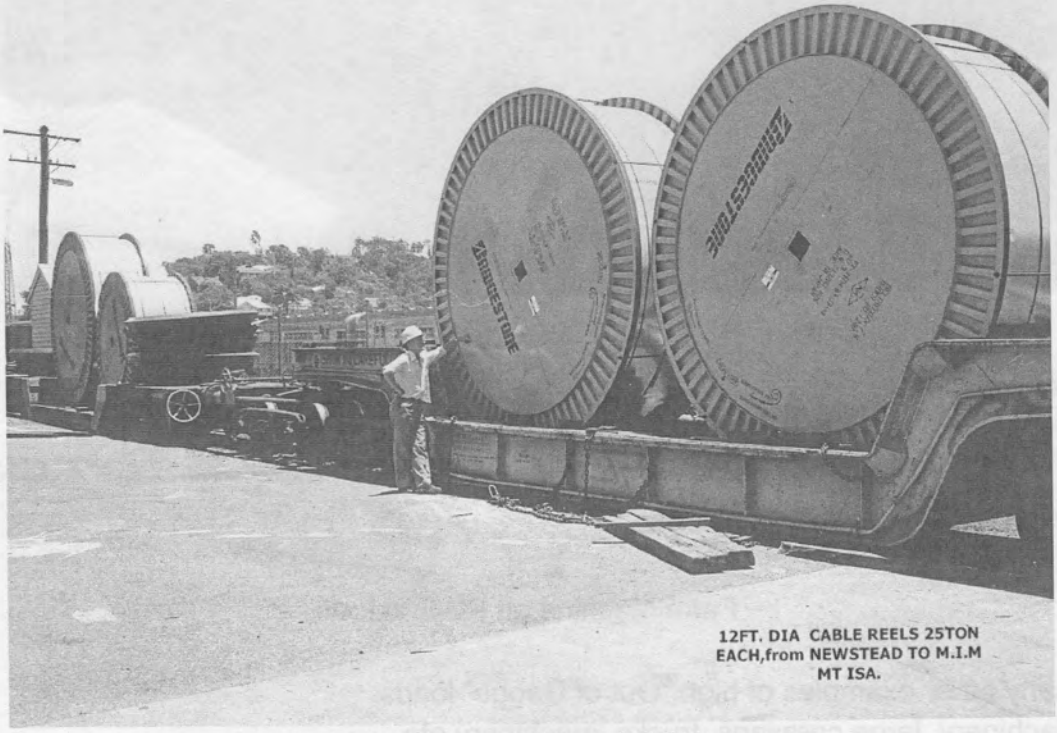
So that brings us back to our theme **"Special Loads".** Special loads are those which are "either" out-of-gauge loads or those that require special restrictions during transit, the definition of "Out of Gauge" load is a load that exceeds the dimensions prescribed in the "Loading Gauge"

The dimensional limits of an "out of Gauge" load are dependant on the various structure gauge infringements on a particular route including close adjacent track centres.

"Out of Gauge" loads are accepted for transport only under a variety of conditions and restrictions. A load can be "out of gauge" in height, width and length or a combination of any of these.

Let's look at some typical high "out of gauge" loads.

2 Transformers on PWZ and PE wagons.



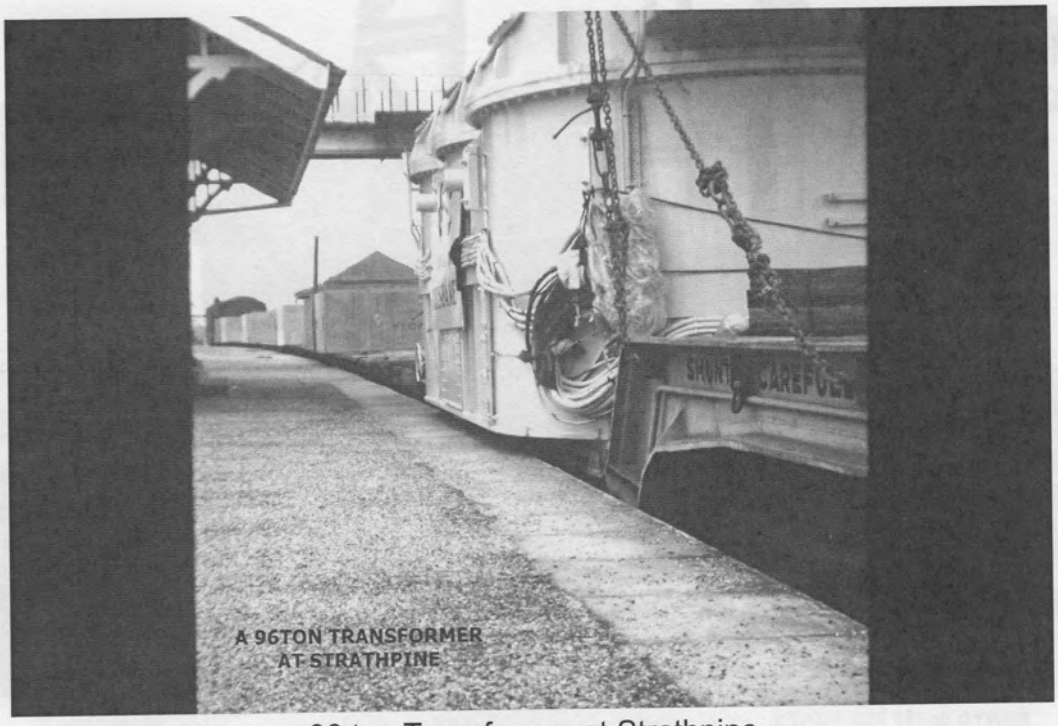
Reels of Cable on PWZ and PJW wagons.

PWE 39303, Hay Baler from Roma Street to Biloela. (2 tonnes) 22nd September, 1983.

Farm Machine on PWE wagon.

There are many other examples of high "Out of Gauge" loads.
e.g. Farm Machinery, large caravans, trucks, machinery etc.

Let's us now look at some "Wide" Out of Gauge loads, such loads require restrictions, re passing other trains on close adjacent tracks.



96 ton Transformer at Strathpine

Leopard Tanks on QFC wagons at Clapham

Steel Beams on PWZ wagon at Banyo

Generator at Eumundi

We will now look at some "Long" loads which extend beyond the ends of the wagon and while not being "Out of Gauge" on straight track may become so due to the swing of the ends on sharper curves.

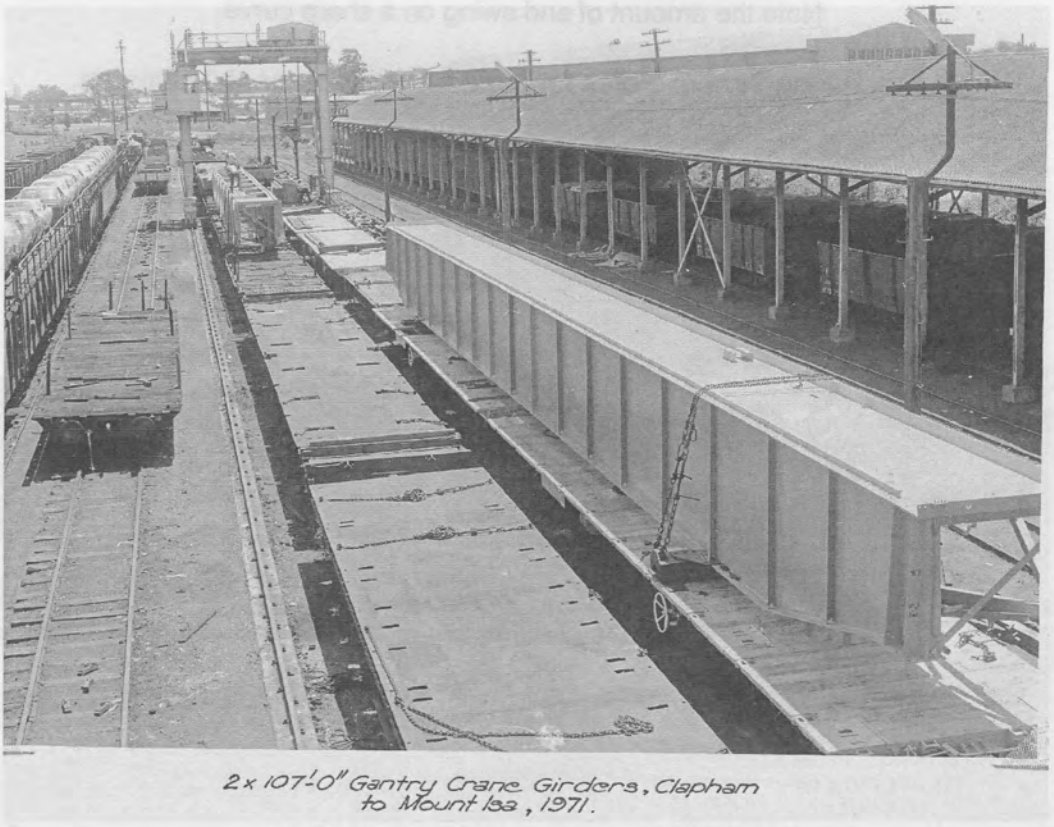
29 Metre long Concrete Poles at Wacol

Note the amount of end swing on a sharp curve.

24 Metre long Timber Poles for Melbourne Harbour at Traveston.

To overcome excessive end swing, swivel bolsters are used, and the load spread over two or more wagons.

Basic swivel bolster load of 100 foot long logs at Roma Street



107 foot long gantry crane at Clapham

The transport of long prestressed concrete girders created a new challenge.

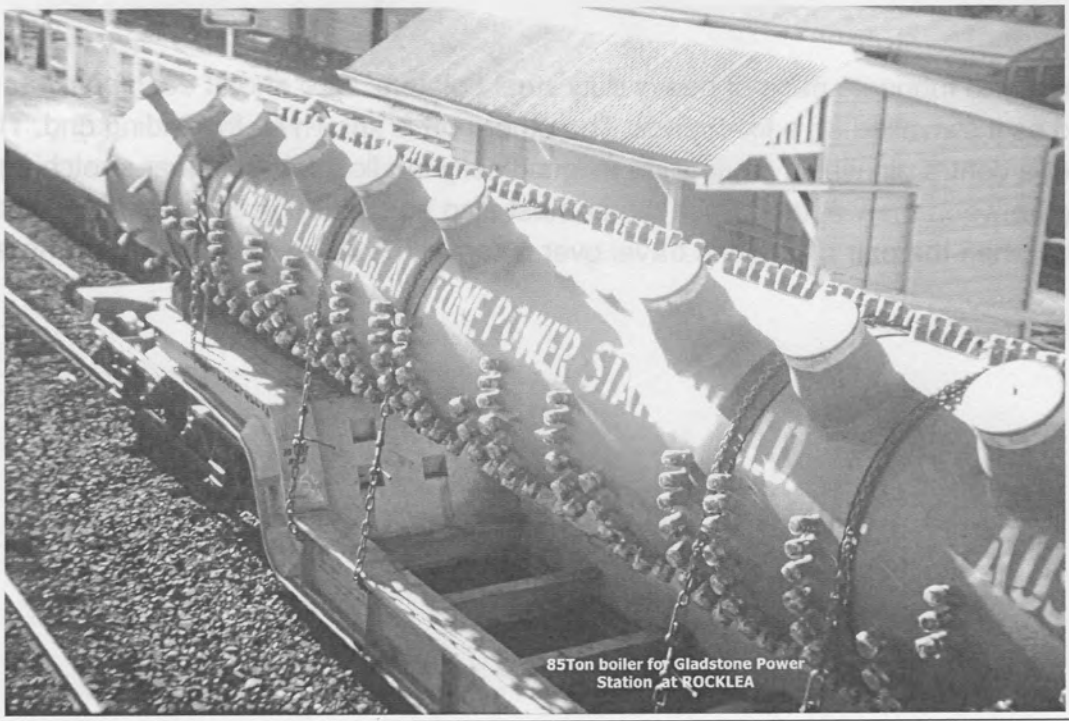
25 Metre P.S. Concrete Girders

It was necessary to fabricate pairs of heavy duty steel bolsters. One end of each pair was known as the fixed end as it swivelled on a fixed pivot. The other end is known as the sliding end. The bolster pivoted about a centre pin which could slide longitudinally to allow for drawgear stretching or compressing between the wagons. Each girder must also be seated on a rocker at the sliding end to offset twisting when the pair of wagons travel over a cant ramp when entering or leaving a curve.

Prestressed Concrete Grider at Wacol

Because, prestressed concrete "I" beams have little lateral strength it was necessary to tie them into a stiffener to overcome this problem. Note the overhang at the centre and the use of a runner wagon between the pair of swivel bolster wagons.

Some loads which although not "Out of Gauge" required special handling because of mass, high centre of gravity or other reasons.

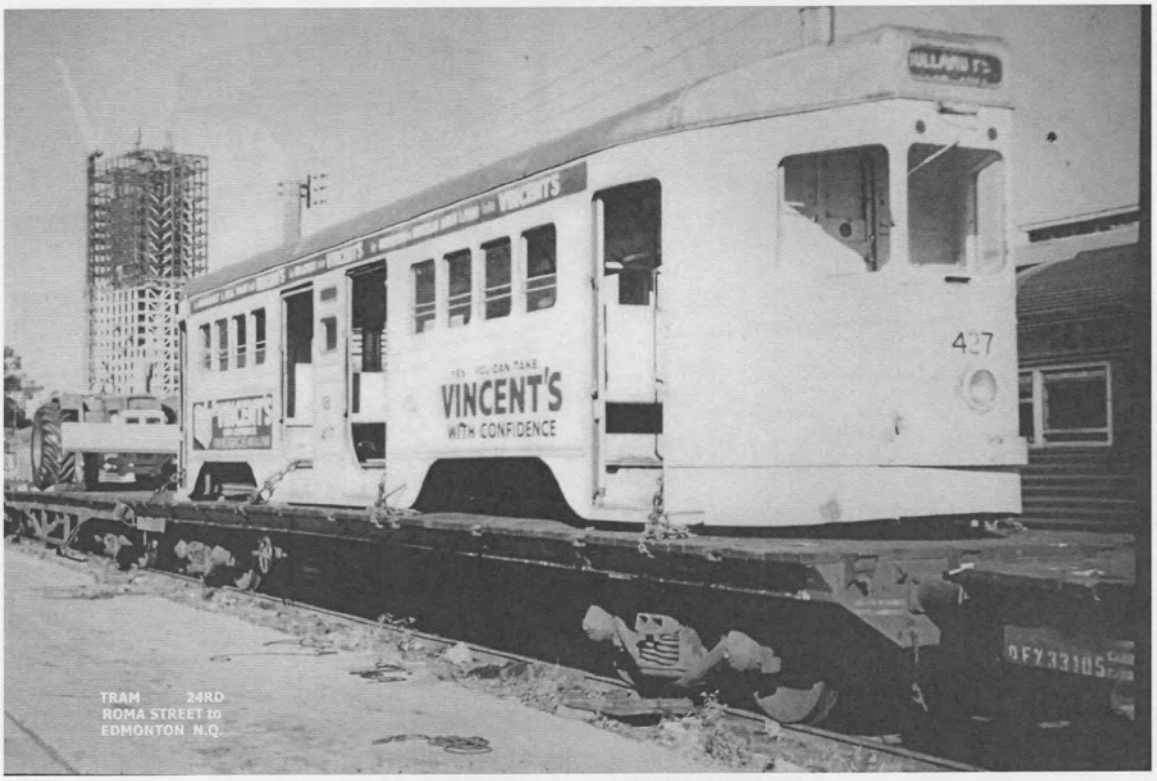


85 t boiler on PWZ at Rocklea.

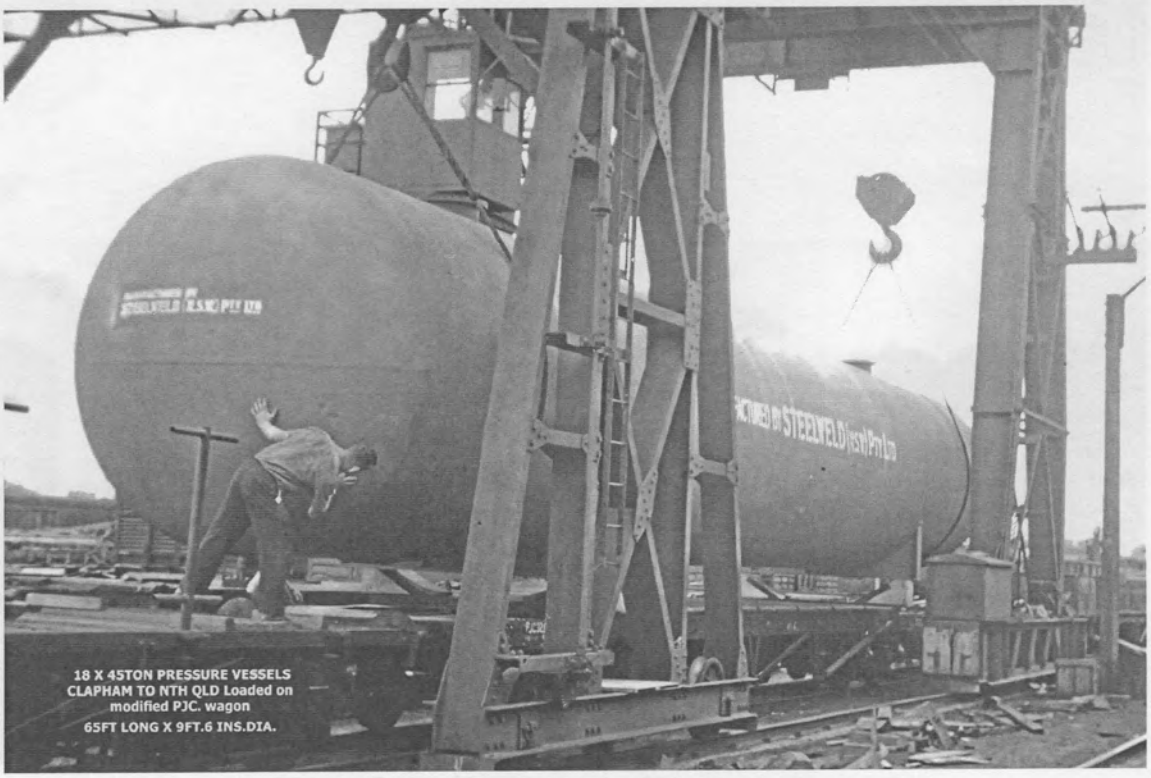
3 x 24 t steel rolls at Hamilton.

Here are a few more interesting "Out of Gauge" loads moved by Queensland Rail:-

Train of Leopard Tanks on the North Coast Line.



A Brisbane Tram at Roma Street.



A 44 t Pressure Vessel at Clapham.

Finally a few Interstate loads loaded ex Brisbane:-

Transformer on Beam Wagon at G.E.C. Siding, Rocklea.

DD17's & AC 16 for Zig Zag at Acacia Ridge.

145 ft tower at Acacia Ridge.

In conclusion I hope that these photos have given you all some encouragement to add interesting loads to your wagons or perhaps around your goods yard on your model railway.

Finally our theme for this convention was QR then and now. All that I have covered about "Out of Gauge" loads in this session have been in the "Then" period 1960 – 1980 when QR activily sought and won freight business.

Sadly, there is NO Now. Only the rusty relics of well wagons, swivel bolsters, etc. remain along with my photos and memories.

Thank you all for your attention.

All photographs by the author