



C/- P.O. Rhyll, Victoria, 3923.

## VICTORIAN RAILWAYS QR BOGIE OPEN WAGON

### Prototype Notes

QR number 1 was built at the VR Newport workshops in 1889, being the forerunner of a long lived and useful class of wagon. Wright and Edwards of Braybrook built 150 wagons, numbered 2 to 151 in 1890/91 with a further 50 wagons, numbered 152 to 201 constructed by the VR at Braybrook in 1892. These wagons were built with swing motion diamond frame bogies, a composite steel and wood underframe with truss rods and were rated at 26tons capacity. Construction of QR resumed in 1912 with a further 175 wagons constructed to a slightly altered design, featuring plate frame bogies, in the following two years. During the 1930s the fleet were rebuilt with all steel underframes, auto-couplers and heavier bracing for the ends. The brake equipment on wagons 1-201 was altered from a combination brake cylinder-auxiliary reservoir to a larger brake cylinder with separate auxiliary reservoir. The all steel underframe was stronger and the rated capacity increased to 30 tons, with a further increase to 31 tons in the late 1950s when buffers and truss-rods were removed. The kit represents a wagon as running from the mid to late 1950s until final withdrawal in the 1990s.



QR with bar frame bogies



QR with cast steel bogies



QR with plate frame bogies

*Models illustrated have been fitted with couplers (not included).*

## Assembly

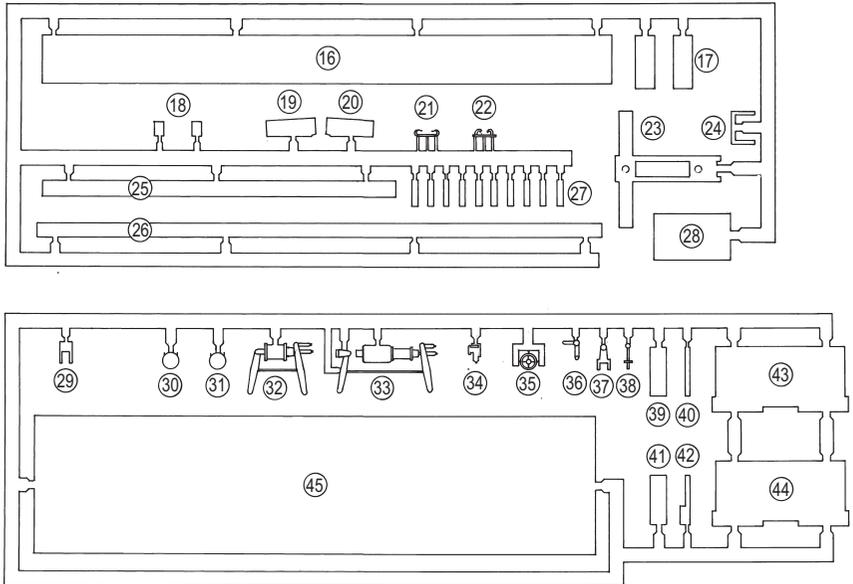
It is recommended that this kit be assembled with a liquid solvent such as Testor's or MEK. Carefully remove parts from the runner system using a sharp knife or sidecutters and do not twist parts off. Trim the 'hooks' moulded on the back of some parts with a small pair of side cutters. Some parts are made from etched brass. Half etched lines are provided where parts are to be folded to shape. As a general rule, where 90° bends are to be made the half etched line goes to the inside of the fold, but where the brass is to be bent double at 180° the half etched line goes to the outside.

The various parts and their arrangement on the runners are illustrated on figure 1.

For reference during assembly we will call wagons 1-201 type I and wagons 202-376 type II.

Note that type I wagons were *not* fitted with plate frame bogies.

Figure 1.



## Detailing the Ends

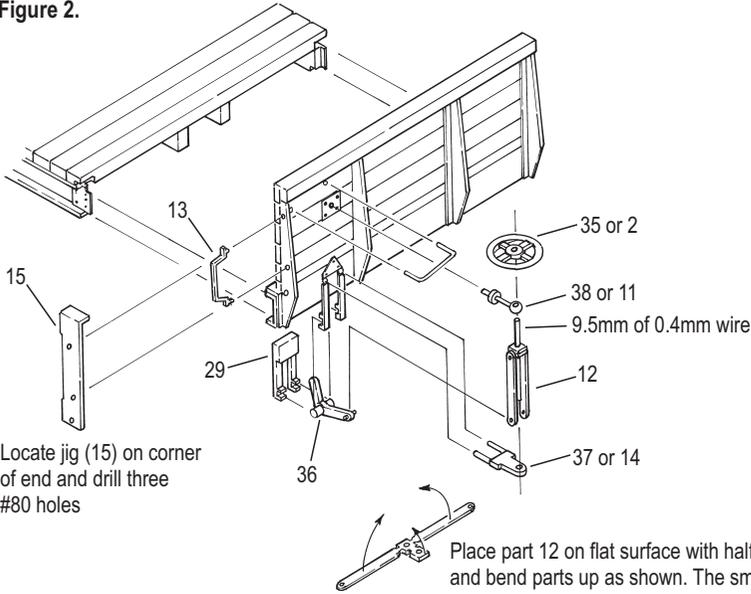
A number of parts need to be added to the ends and this work is best done while the ends are separate. The handbrake is quite delicate and work can proceed on the underframe while the joints on the ends harden. The handbrake detail is quite fiddly and you may choose to omit some parts, such as the pushrods (12), to make life easier. Refer to figure 2.

Bend the tags on the drilling jig (15) at 90° with half etched lines on the inside of each bend. Locate the jig on the left edge of each end and drill 0.35mm or #80 holes for the uncoupling lever and the handrail. Form four handrails from the 0.25mm wire, as shown on figure 3 and trim each rail, using the thickness of the jig as a guide, so that the legs are 1.4mm long. Now secure each handrail in the holes moulded in the ends with a touch of superglue. Add the etched brass handrails to the left edge of each end, locating the tags in the holes drilled earlier.

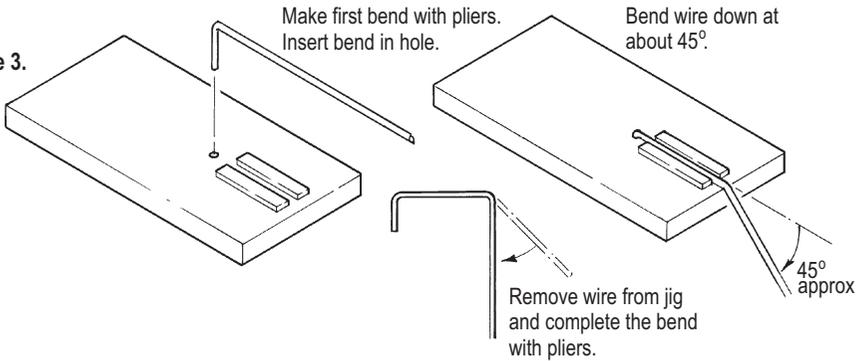
Cement the handbrake bellcrank (36) in the tags moulded in the bottom edge of the handbrake end and then add the support (29) behind. It will help if the arms of the rear support are given a slight bend of about 5°, so that they closely support the bellcrank. Cement the upper and lower supports for the handbrake spindle to the end. Alternative parts are provided in either polystyrene (38&37), with more accurate shape, and etched brass (11&14) which are more robust. Take your pick and secure with cement or superglue respectively. Now would be a good time to go and start on the underframe while the joints harden.

Cut a piece 9.5mm long from the 0.4mm diameter wire and attach a handwheel (2 or 35) to the end; the handwheel provides a useful handle for the wire. Form the pushrods and nut (12) to shape. Note that this is an instance where the half etched lines are on the outside of all the folds. Now pass the wire through the top brake support (11 or 38), through the nut in the centre of the pushrods and into the bottom support (37 or 14). Secure the wire with superglue. Also secure the nut to the wire shaft and the ends of the pushrods to the end of the bellcrank.

**Figure 2.**



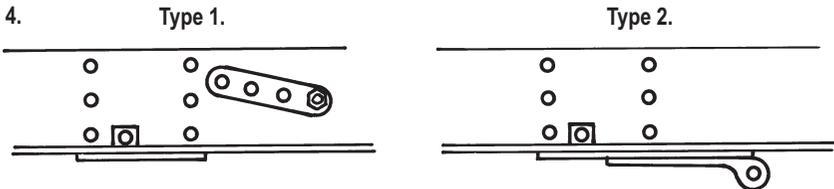
**Figure 3.**



**Underframe**

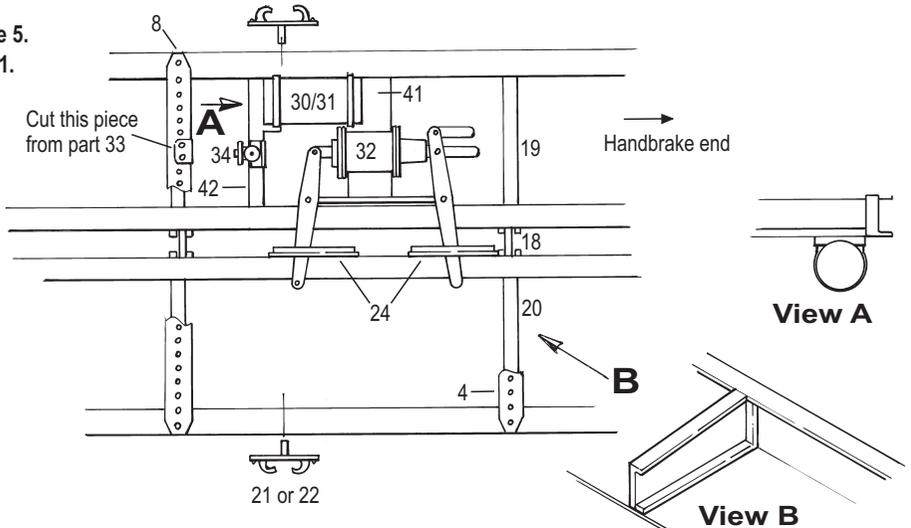
The two types of QR had different anchors for the truss rods and whilst the truss rods were removed in the 1950s, the anchors remained in place. Use a sharp knife to carefully shave off the detail which is not required from the side sill mouldings (26), as shown on figure 4.

**Figure 4.**

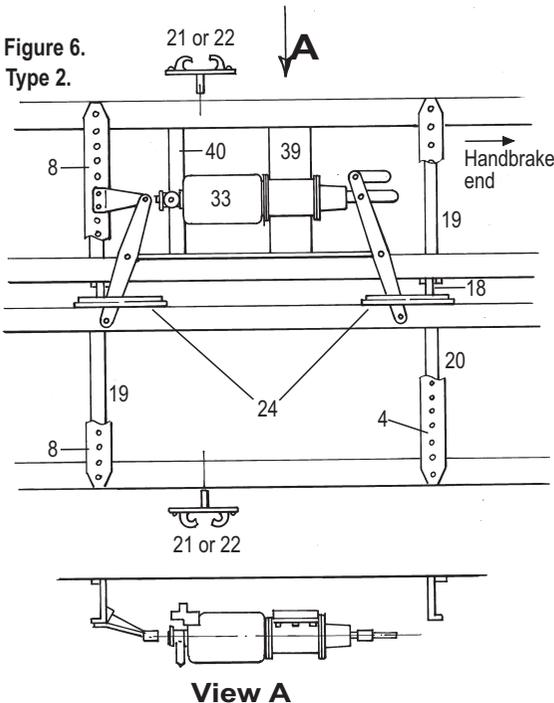


Two holes have been partly moulded through the web of each side sill near the centre, for locating the rope hitches. Use a 0.8mm or #67 drill to open up **one** hole in each side sill, taking care to create one left hand and one right hand part. The arrangement of the underframe and the brake equipment for the two types of wagons are shown on figures 5 & 6.

**Figure 5.**  
**Type 1.**



**Figure 6.**  
**Type 2.**



Cement the two bolster units (23) to the lower face of the floor, ensuring that the ends of the bolsters are flush with the edges of the floor and the ends of the coupler supports are flush with the end of the floor. Cement the two centre sills (25) to the floor between the bolsters, locating them against the raised steps on the floor and add the four spacers (18) in between, to ensure that the centre sills are perpendicular to the floor. Cement the transoms (19 & 20) to the floor, orientated so that the flanges on the bottom edges face towards the adjacent bogie bolsters, as shown on view B of figure 5. Cement the side sills to the floor, located in the groove along each edge and ensure that the web of each side sill is flush with the end of the floor. Add the two bottom plates (17) to each of the bolsters. Add a rope hitch (21 or 22) to each side sill, locating the central pin on the back of each hitch in a hole drilled in the side sills earlier. Two styles of hitches are provided and by the 1950s both types of wagons could be found with either style of hitch.

Cement the appropriate supports (39&40 or 41&42) for the brake equipment between the side sill and the centre sill on one side, taking care to position the brake supports on the correct side, so that the rope hitches will be positioned further from what will become the handbrake end.

## Sides and Ends

Cement the ends in place, ensuring that the end with the extra detail for the handbrake is located at the appropriate end of the floor, as shown on figures 4 & 5.

Bump stops (27) for the sides came in two thicknesses and were always thin on the centre door. The thickness of the stops on the outer doors depended on the style of bogie used. With cast steel or bar frame bogies the stops were thick, but could be either thick **or** thin if the wagon was equipped with plate frame bogies. Cement the stops to the sides, as appropriate for your choice of bogies.

Carefully bend the thin extensions below each door-hinge down at approximately 45°. Set up the floor and ends on edge to make it easier to locate the side in position. Cement the side in place, so that the hinges locate in the notches in the floor and the extensions below each hinge but up against the small squares moulded on the web of the side sill. Refer to figure 7. Once the joint is hard, turn the assembly over and cement the second side in place.

Use the moulded jig to form two uncoupling levers from 0.3mm wire, as shown on figure 8. Thread the handle end through the hole drilled earlier in the end brace. Secure each handle to the support moulded on the end with a drop of contact cement or super glue.

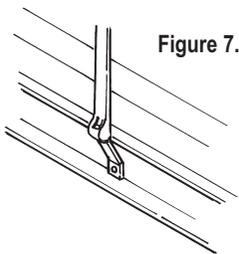


Figure 7.

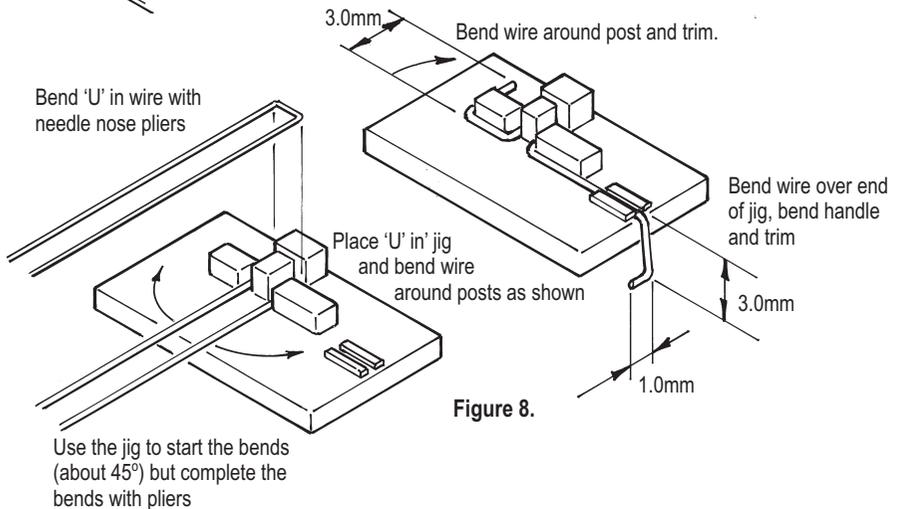


Figure 8.

## Underframe Details

For a type I wagon, assemble the two halves of the auxiliary reservoir (30&31), taking care to keep the moulded on strapping orientated the same way for both sections. Cement the reservoir to the half saddles, as shown on figure 5 and its detail view A. Add the triple valve (34), located in the two ridges moulded on the narrow support and cement the brake cylinder (32) to the wide support.

For a type II wagon, bend a small joggle in the dead lever support, as shown in detail view A, on figure 6, before cementing the combined brake cylinder and auxiliary reservoir (33) to the supports. Cement the dead lever support to the transom and the joggle should be sufficient to keep both levers at the same height.

Now add the two etched brass cover straps (4&8) to the transoms, attached with contact cement or superglue. For a type I wagon, trim the end from the dead lever support incorporated in the combined brake cylinder (33) intended for a type II wagon and cement it to the transom, as shown on figure 5. Add the brake lever support stirrups (24), cementing each one to the back of a centre sill in the positions shown on Figures 5 & 6 and cement the brake levers to the supports.

Form the bump springs (1) to shape and secure them in the notches moulded in the back of each sidesill, using contact cement or superglue. Refer to figure 9.

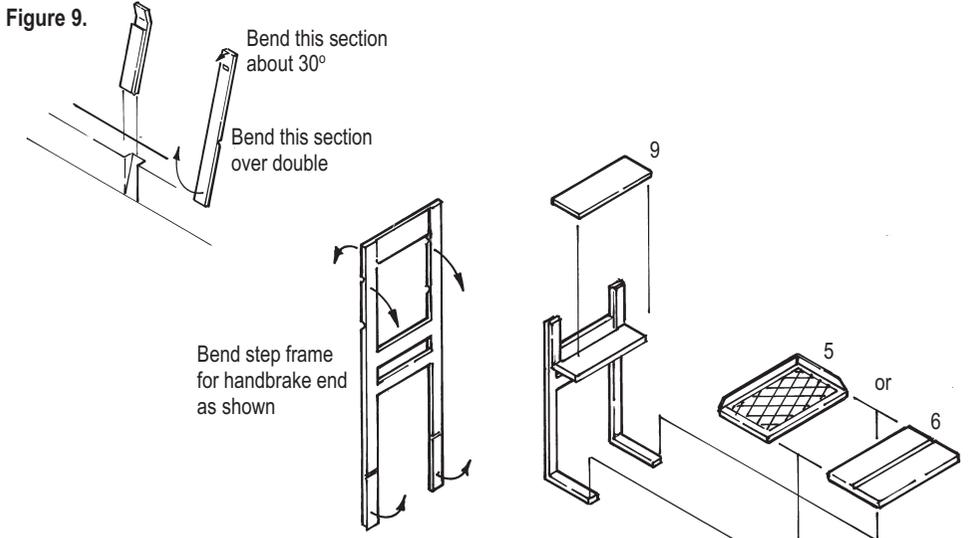


Figure 9.

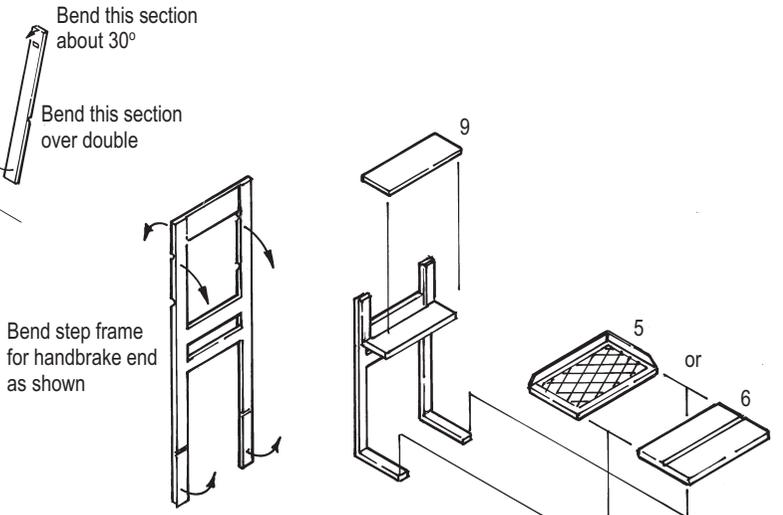


Figure 10.

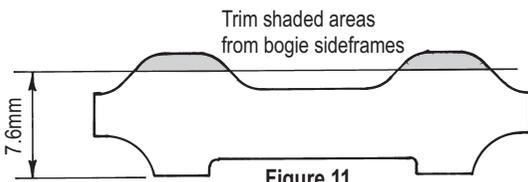


Figure 11.

**Final Details**

Alternative etched brass shunter's steps are provided. The wooden variety was used from the mid 1950s until the late 1960s, with the steel mesh step being used from that date onwards. If using the later design of step, remove a tread from the fret and fold the edges as shown on figure 10. Form the step frames to shape and add the treads, including the extra tread for the step at the handbrake end, by soldering or contact cement. Attach the assembled steps to the wagon headstocks with contact cement or superglue.

The underframe is designed to accept either Kadee #5 or #58 couplers. The draft gear boxes may be cemented directly to the floor, or they can be attached with #2 x 3/16" screws (not included).

If the model is to be equipped with plate frame bogies it will be necessary to trim the frames as shown on figure 11, to allow clearance for the bogies to pivot on curves sharper than about 3' 0" radius. Fortunately this subterfuge is not noticeable from normal viewing angles. Attach the bogies with the #2 x 3/16" screws provided, but place one of the etched washers (10) between the bogie pivot and the underframe if the model has bar frame or cast steel bogies. If the plate frame bogie catches on one of the bump springs, try removing the bogie and turning it 180°.

## Painting and Decals.

The model should be painted overall wagon red, although the paint tended to wear off the interior, so this should be painted to represent weathered wood. Sometimes odd planks were painted on an otherwise unpainted interior, where a plank had been replaced in a repair.

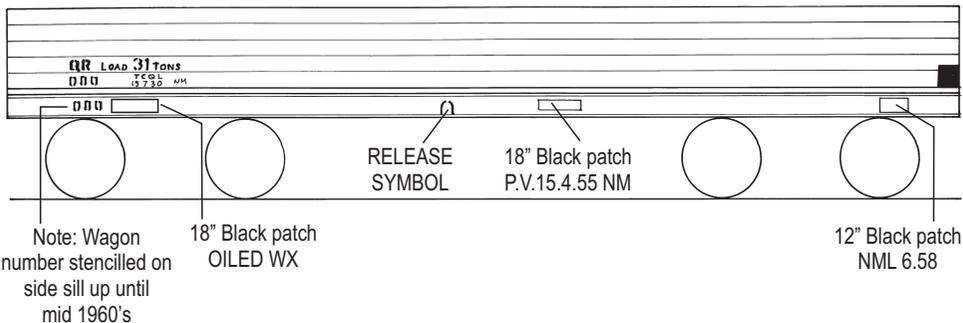
Decals are provided which cover various periods in the wagon's history. Refer to figure 12 for the placement of lettering. The decals will adhere best to a gloss paint finish.

**Figure 12.**

Note: LOAD 30 TONS  
prior to about 1958

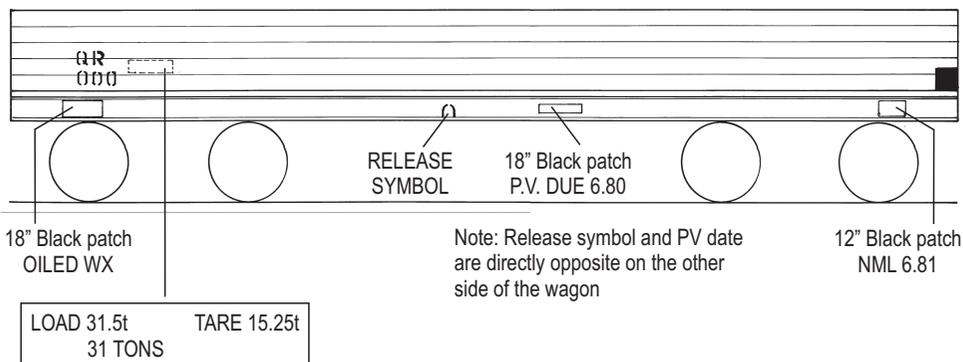
**1958 - 1972 Style, Code and Number 5"**

9" White square on  
handbrake side only.  
9" white square on both  
ends on handbrake side.



**Post 1972 Style, Code and Number 7"**

Note: Code changed to  
VOWA from 1980 onwards



## To Apply Decals

1. Trim the decals close to lettering to remove excess film.
2. Immerse in water for ten to fifteen seconds and then set aside on a tissue until the decal straightens out.
3. Slide the decal into position. If it is necessary to adjust the final position, use a small brush that has been dipped in water.
4. Use a damp cloth to soak up excess water.
5. Use a decal setting agent such as Solvaset to assist the decals to snuggle down over rivets and other raised details.
6. A flat finish such as Testor's Dulcote applied to the entire model will give a uniform flat finish and hide the decal film.