

## **Victorian Railways FCF/VQDW skeletal container wagon.**

**Web site:** <http://www.spiritdesign.com.au>

Thank you for purchasing one of my many kits and I hope you get many hours of enjoyment from it. Chris Pearce (Spirit Design)

**Brass etch notes:** *when removing any item with an Exacto knife please take care. Cutting should be done on a self-healing mat using a few score marks rather than the cut once method. Make sure that the brass is clean before soldering by using a brass cleaner like Tarnoff, very fine wet and dry sandpaper or using a fine wire brush in a Dremel to lightly polish the surface front and rear whilst taking care not to damage the etch itself. Depending on your skills some soldering is required but you could use superglue or Selley's water-based Kwik Grip to glue items on. It's up to you the modeller to decide your skill level. It is assumed if you use solder you will also be fluxing the joints with Carr's Red label flux or equivalent.*

The design was prompted by the use of larger than normal containers that were starting to be used in Australia around the early 1970s. These monster wagons (84ft plus) represent the third generation of wagons designed for TNT in Australia and were designed in consultation between TNT and the Victorian Railways systems. The railways were used to running goods wagons of sizes between 50-60ft. Other states built very similar units to the VR ones for TNT in both SA (coded SCFW) and NSW (coded JCW). Thomas Nation Wide Transport desired to increase the size of their containers in line with the size/tonnages that were appearing overseas.

Their newer trucks were designed to handle these larger containers but at railway yards, the current facilities and wagons were going to prove inadequate and to the Victorian Railways' credit, they were able to overcome many design obstacles to satisfy their customers' needs. TNT itself spent many millions re-equipping its yards in various states as the result of the new container loads.

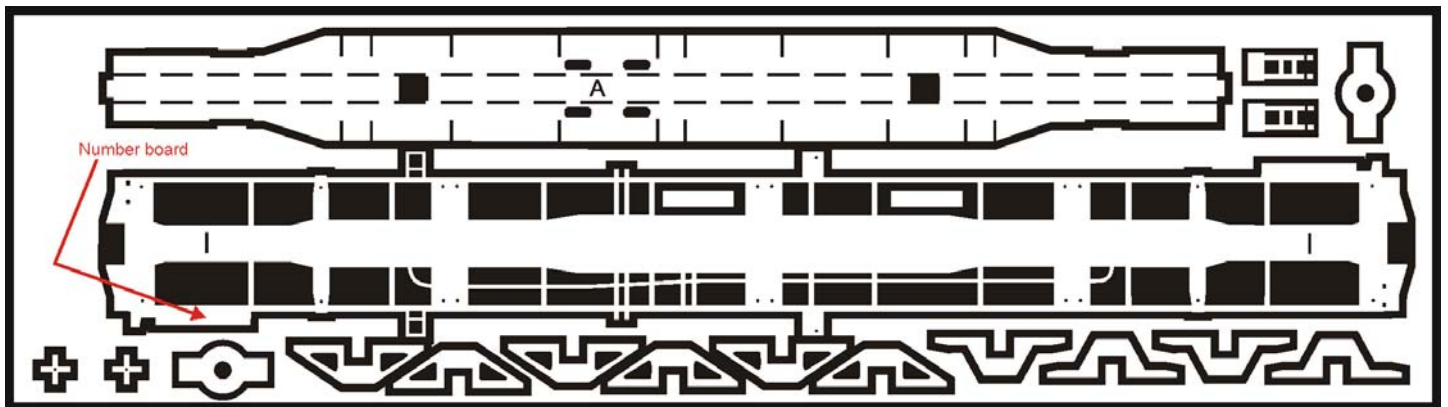
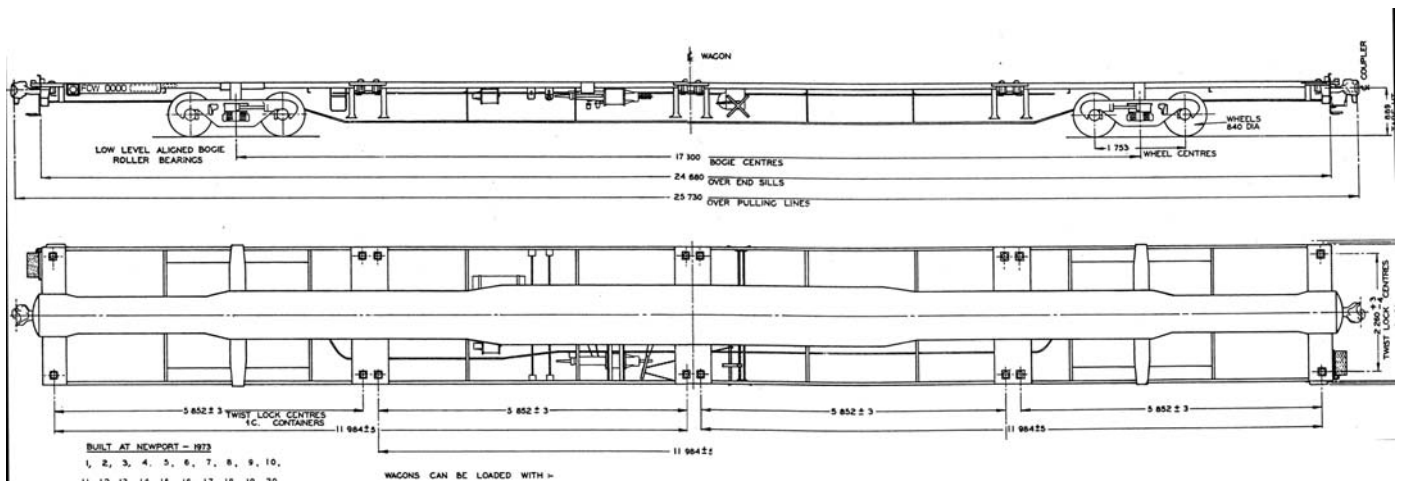
One of the major criteria was that the wagon had to hold a projected container height of 2.82m and all fit within loading gauges and pass beneath tunnels and other railway structures without hindrance. Considerable difficulties were also encountered in the two jumbo-sized containers that had to fit on the wagon and the wagon itself had to fit around minimum radius curves.

The design problems were gradually overcome between consultations between both parties and in 1973 the first of the massive 25.73m (84ft plus) wagons appeared. The wagon featured a special drop centre frame mounted on 840mm diameter wheels with bogies mounted along the way back from the buffer ends so they could negotiate tight curves. They also featured a special gooseneck type automatic coupler. Their tare weight was 23.5 tonnes and had a payload of 53 tonnes. The first batch of 3 wagons proved successful and the group's numberings were increased to 25 with subsequent builds. Initially, they were grouped in sets of five for safety reasons because of the large overhang when shunting through tight yards.

Originally they were coded FCF, as they were not going to be bogie exchanged, as the containers would be transshipped between similar wagons at each state's borders. This was later altered for through running and then re-classed as FCW between 1977 and 1978. 1979 saw the group obtain the four-letter code of VQDW. The increase in traffic beyond the initial TNT contract saw the construction between 1983 and 1986 of another fifty vehicles. These carried the numbers VQDW 26 - 75. In the late 1980s, a large number of the wagons were leased out to the NSW railway system and not long after were re-coded to their numbering system until taken over by the NRC who again re-coded them.

They can be seen all over the Australian continent hauling multiples of container sizes because of their versatile deck space and container locating systems. They are a regular feature on the APM train to Maryvale with their colourful Reflex paper containers.

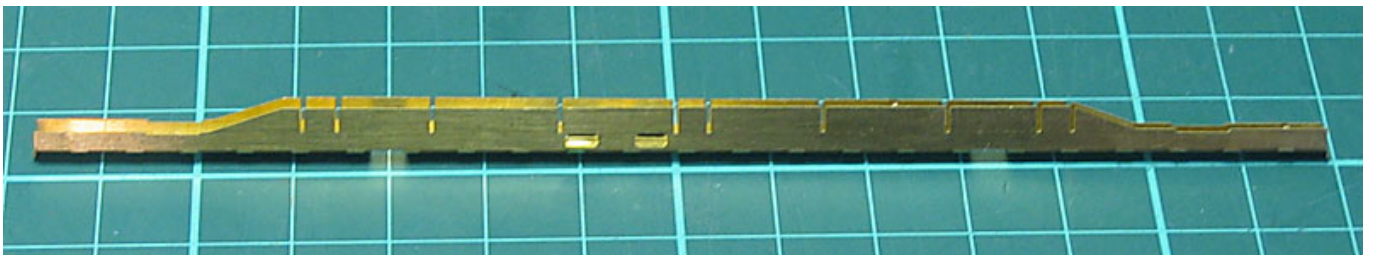
**Paint schemes:** They were painted standard VR wagon red. A good match is Steam Era wagon red. Later painted Freight Australia green and some have recently been seen as Pacific National blue.



1. Begin by removing the fish belly underframe from the etch. Whilst looking at the "A" marked on the underframe bend the two sides down using a folder or flat nose pliers. You may have to gently fold down side sections a bit at a time working from one end to another eliminating folds or creases you introduce with this method.

2. Looking down on the underframe ("A" facing you) gently bend the small end locating tabs up. These will help guide the deck plate into position.

**Photo below: the folded underbelly prior to being soldered into the deck plate.**



3. Carefully remove the decking plate from the etch paying close attention to the ladders that you don't cut them away from the main deck piece. Only remove the tabs at the bottom left and right-hand sides securing the ladder. Don't fold up the ladder yet.

4. *Number boards:* Using a pair of needle-nose pliers grip the decking at the ends making sure that you cover the decking between the gaps and the number boards. You will be protecting a 1mm wide section of the deck from twisting whilst folding the number board. Using your fingernail gently fold the number board down. Looking at the etch diagram above, the number boards are in the bottom left-hand corner and the top right-hand corner of the main deck, i.e. near where the couplers are mounted. Interstate modellers if using the other number boards provided in the deck solder these into position as per photos of your state's wagon. **Victorian modellers remove the two extra number boards that are between the holes in the middle of the decking and discard them.**

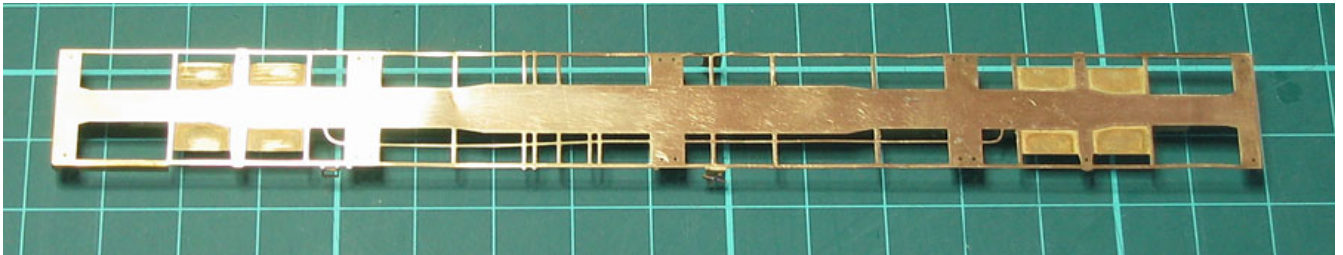
5. Position the 2 pieces together so that both "A's" marked on the etches are facing each other. With the underframe belly centrally positioned in the deck make sure that the slots in the underframe line up

opposite the brass legs in the deck. *This must be lined up as you will later be soldering the supports for the deck into the slots in the underframe and these should line up with the deck legs.*

6. Apply flux, solder or solder paste along the base of the frame where it meets the deck and solder each end paying attention to the points mentioned above. Once the ends are soldered the entire length can then be soldered up.

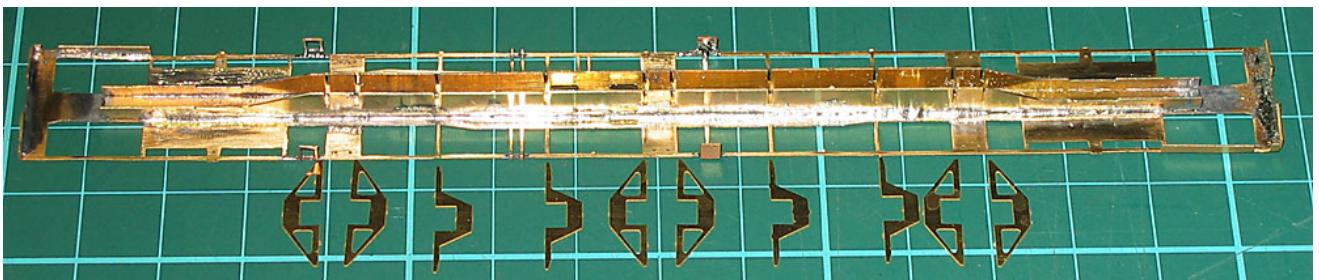
7. Fold the end sills up at 90 degrees and run a bead of solder around the coupler area and the number board sections.

**The photo below: The finished decking with pipework after having the underbelly soldered into position.**



8. There are six underbelly support pieces (they have triangular cutouts in their arms) that are soldered beneath the twin holes in the deck representing the container locating lugs. The first two are to the right of the small ladders (31mm from edge) in the etch above. Each unit slots into a slot provided in the sill belly. Carefully apply a small amount of solder making sure that each arm of the brace does not protrude past the decking proper. Repeat for the next support piece. The next two are approximately 76mm and 80mm from the left-hand edge. The last two are 114 mm and 118mm from the left-hand edge.

**The photo below shows the bracing supports opposite their respective slots in the fish belly.**



9. The last four supports, once again working from the left-hand edge, are soldered in place at approximately 52mm, 65mm, 92mm and 106mm positions. Note make sure that you centralize the arms over the 1/2mm deck struts so they don't protrude left or right of these as it could spoil the appearance of the unit when viewed right side up. This will take a bit of care to achieve but it is well worth the results.

10. The bogie holes are approximately 24mm in from both ends of the wagon. Bend the two tabs on the bogie washer to approximately 45 degrees and these will aid you by positioning them between the belly frame, whilst lowering the round part of the bogie washer into the small recess in the belly frame. Solder the two bogies bolster washers centrally in place

11. Fold up the small ladders and the brake wheel support plates and run solder over the fold lines for strength.

12. Halfway between the wagon ladders and the two handwheel brackets are two-grade control valves on each side of the wagon. Bend these at 90 degrees and solder.

13. Solder the handwheel brakes to the support brackets using a small piece of wire to aid in lining up the holes. If you would like free-spinning hand wheels you could attach them with a plastic rod.

14. Fold up the shunter step bottom plate so that the fold is in front of the ladder section of the step (i.e. the fold line faces you when looking from the front). Bend the two tiny support lugs at 90 degrees to the ladder support so that can be positioned into the end holes of the wagon sill. The shunter step side



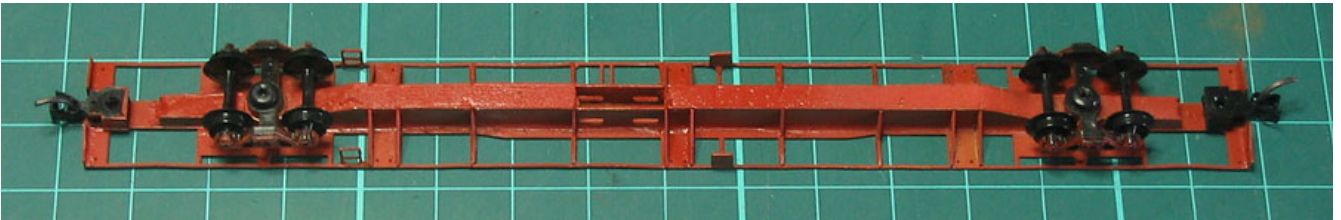
should look 'Z' shaped. With care solder, the shunter steps to the wagon.

15. Clean up any messy solder joints, removing excess solder before filling the underbelly base with weight in the form of 'Plastibond' or a similar compound. Try to keep the four elongated holes and the two bogie holes in the underbelly free from the 'Plastibond'.

**Side on view of the finished soldered wagon before cleaning and taking any kinks out of the decking.**



Pre-production sample showing 'Plastibond' filled belly with space left around the four elongated holes mentioned above. Shunter steps have yet to be fitted.



16. Paint the wagon 'Steam Era' red, decal (paper ones provided), weather to taste, attach bogies.

**The completed weathered model with detail extras by John Miller.**



**Web site:** <http://www.spiritdesign.com.au>

**Other kits in the range include. Also, a Laser cutting/etching service is available.**

FJ 4-wheel bulk flour wagon. Also available are special decal packs for the different flour mills.

J class cement large domes. LCL containers, BHP 20ft containers

Brass etch ladders, Brass etch shunter steps and stirrup steps, Brass etch wagon handwheels (3 types)

Brass etch spider handwheels, brass etches Southern Cross IZ pattern windmill. U van decals, KC, P van, M van 4 wheel wagon kits. See future projects as they are being made, with photos of test shots and pilot models. Laser-cut number plates & numerous kits.



Why not join a club like the Victorian N Scale Collective and meet fellow modellers with the same interests. <http://home.vicnet.net.au/~vnsc/>