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**Manufacturers, Wholesalers and Retailers of Quality Australian Model Railways**

**PO Box 252 Warwick, Queensland, 4370 Australia**

**Phone/Fax: 617 4667 1351 Website: [www.arkits.com](http://www.arkits.com) Email: [info@arkits.com](mailto:info@arkits.com)**

## **NSWGR FRH 28914 Powdered Cement Hopper**

### **Prototype Data:**

The FRH/NPBF and other variants of this type were converted from BCH coal hoppers by the addition of a roof which has six hatches which slide under the walkway. They first entered service in 1953 and were initially used for the transport of wheat. Although most are now out of service 50 were acquired by Freight Australia and with some modification are used for rice traffic from the north of Victoria and the Riverina area of Southern NSW. A very good reference document for this wagon is available from Data Sheets. Variants of the BWH have been used for the transport of Cement, Fertilizer, Clinker, Lime Powder and virtually anything that required a robust reliable covered hopper. Some FRH Wagons were adorned with the Blue Circle Southern Cement Logo and were sometimes painted wagon red. Although most times you could not tell as the wagon was so dirty that it was nearly white/grey. This is a model of a FRH that lacked the NSWGR lettering on the side and nothing in the stencils were regimentally placed. The wagon specific model is produced from photos taken of the real thing at Clyde in 1976

### **Assembling the model**

**Note: remember all parts have a draw angle of 1 degree around the outer edge to allow removal from the die tool. A light filing or sanding will remove this angle and allow a better fit of all parts.**

1. Identify all parts against the parts list diagram. Cut parts from the sprue, remove flash and sprue runner remnants.
2. Fit side (part 1) to floor (part 3). The floor fits into the recess in the bottom of the side. Cement in position.
3. Fit side (part 2) to the other side of the floor and cement in position.
4. Fit the end slope sheets (parts 4) in position ensuring that the bottom of the sheets are level with and touch the floor. Cement in position. Slight filing maybe necessary to ensure a good fit.
5. Fit the two vertical bulkheads (parts 5) between the two sides, the floor and the underside of the end slope sheets. There are two reinforcing ribs on the underside of the end slope sheets and a vertical rib on the floor. Lay the bottom (square end) of the bulkhead against the floor rib and lightly push until the angled end is behind the end slope sheet reinforcing ribs. Cement in place.
6. Now is the time to trim the top combing on the sides. The ends of each top combing angles back toward the inside 14.5mm from each end. Trim back the top combing by laying a snap off blade against the end corner post and the first reinforcing rib. By working the blade in a rocking motion while the combing is on a hard surface a triangular piece will be trimmed off. Finish off with a file and clean up.

7. Let all cemented joins cure for about an hour. Turn the hopper upside down and in a figure of eight fashion on a sheet of 400 grade wet and dry paper on a flat surface sand the top combing until the sanding marks are visible on all top surfaces.

8. The hopper discharge doors (parts 6) are cemented to the four outer discharge chutes facing the centre of the hopper. This model kit now contains 6 Discharge Hopper Door Release Handles Parts 21. Position as marked on the enclosed diagram. The other side is a mirror image. Glue in place with Superglue.

9. The two large inner discharge hopper doors (parts 7) are cemented to the centre hoppers facing the brake end.

10. Trim four end angle support bars (parts 8) to length so that they fit between the top end combing and the floor. With the angles facing inwards line the bars up with the underside ribs on the end slope sheets and cement in position. To ensure that these bars line up with the back of the corner posts I generally cement the top of the bars in position first and then while the joint is still soft I hold a small flat piece of plastic against the back of the corner posts. This will make the bars line up automatically. Ensure that the bars line up with the reinforcing ribs and are vertical to the floor and cement the bottoms in position.

11. On all vehicles the ladders are centrally located either between the right or left hand corner post and the right or left hand inner bar. Trim the ladders to length and cement in position. The original BCHs had them fitted on the right side.

12. Fit the air reservoir (part 10), brake cylinder (part 11) and auxiliary air reservoir (part 12) in position in accordance with the diagram at assembly hints. Cement the brake lever (part 13) to the front of the brake cylinder, the floor and the underside of the end slope sheet in line with the right hand underside reinforcing rib and the right hand inner end angle support bar.

13. You have four hand brake spiders in the kit (parts 14). Two are spares. Cement the mounting pin to the underside of the floor just inside the inner line of the end corner posts with the handles diagonal to the floor.

**Take particular care when your are making the roof for this model and read the instructions and drawings.**

14. Construct the roof (part 16) by first sanding the end square and removing the draw. Cement the roof ends (parts 17) to the roof. You will note that the roof ends do not go all the way to the side of the roof. With the ends cemented on place the roof centrally on top of the body and mark with a pencil line where the top chord had been trimmed on the angle. File or sand the roof edge on an angle from this point to the end of the roof ends. Now file the angled edges to the same profile as the remainder of the roof.

15. Even though the roof has a bow it can now be cemented to the body. Make a note of the two vents on the roof. These are always opposite the walkway but the photos viewed prior to writing these instructions would indicate the walkways can be on either side of the wagon. **This hopper is one where the roof has been put on in reverse. The roof walk when looking at the brake gear end is on the left as well as the ladder. This is opposite to most of the models made.** Locate centrally again and cement one end in position. Hold there with a rubber band. Bring the other end down to the top of the body and cement in position. Hold with a rubber band. Let the cemented joints cure for about an hour and remove the rubber bands. Run cement along the joint line between the roof and the body.

16. Clean up and add the two separate sliding hatches (parts 18) to the centre of the roof. Use the

blade of a snap off knife to space the hatches correctly. Spaced correctly there should be a slight lip above the roof ends.

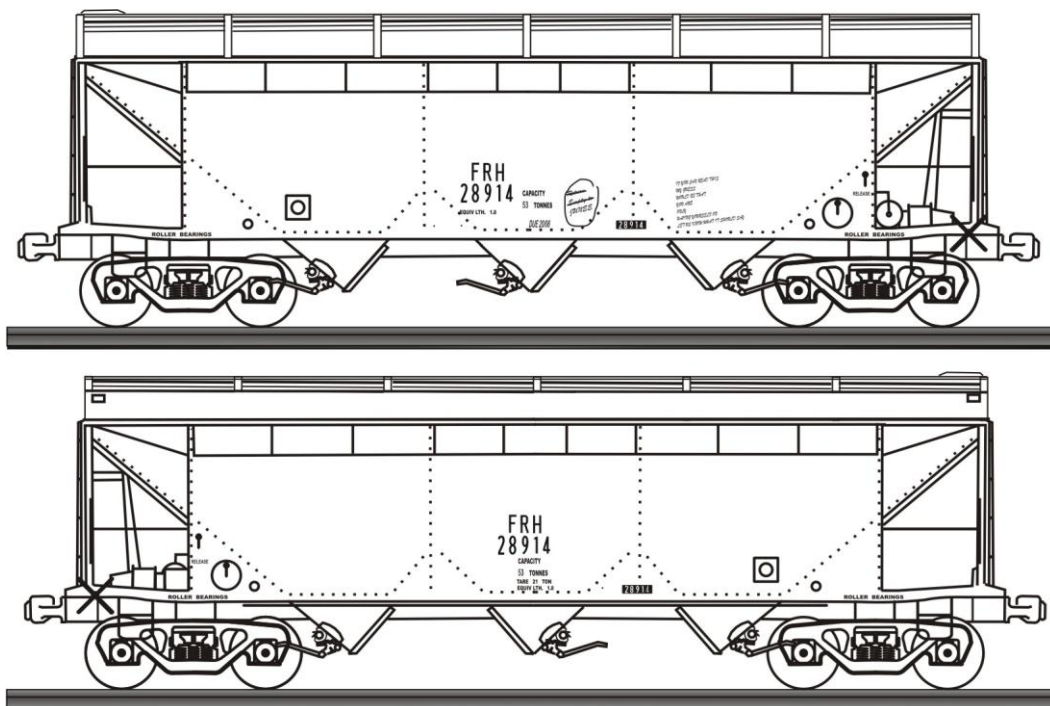
17. Remove all walkway support brackets (parts 19) and especially on the cross member remove the draw. If you do not remove the draw warping of the walkway can occur. Locate five of the brackets with the pointed end just in the spaces between the roof hatches. The other two are located at the ends and rest on the lip. When satisfied with the location cement in position.

18. Initially test fit one of the walkway boards (parts 20) with the inner edge on the walkway brackets where they begin to taper. Cement to the five inner supports first. Ensure they are straight by putting a steel rule along one edge and while the joints are soft nudge into position. Using the steel rule locate the walkway board on the outer cross members and glue in position. Let this board cure for a short while and then using a snap off blade as a spacer locate and cement into position the remaining boards.

19. If you are going to use the bogie pins (parts 15) to hold the bogies on do not use them now. If you want to be able to remove the bogies later cement the pins in the bogie mounting holes and let cure. After curing cut the top of the pins off and drill the centre of the pin with a 1.5mm drill. Work the bogie screws into the hole by screwing in ½ a turn and the backing off and then tighten and screw a ½ turn again until the screw is as deep as you want it to go.

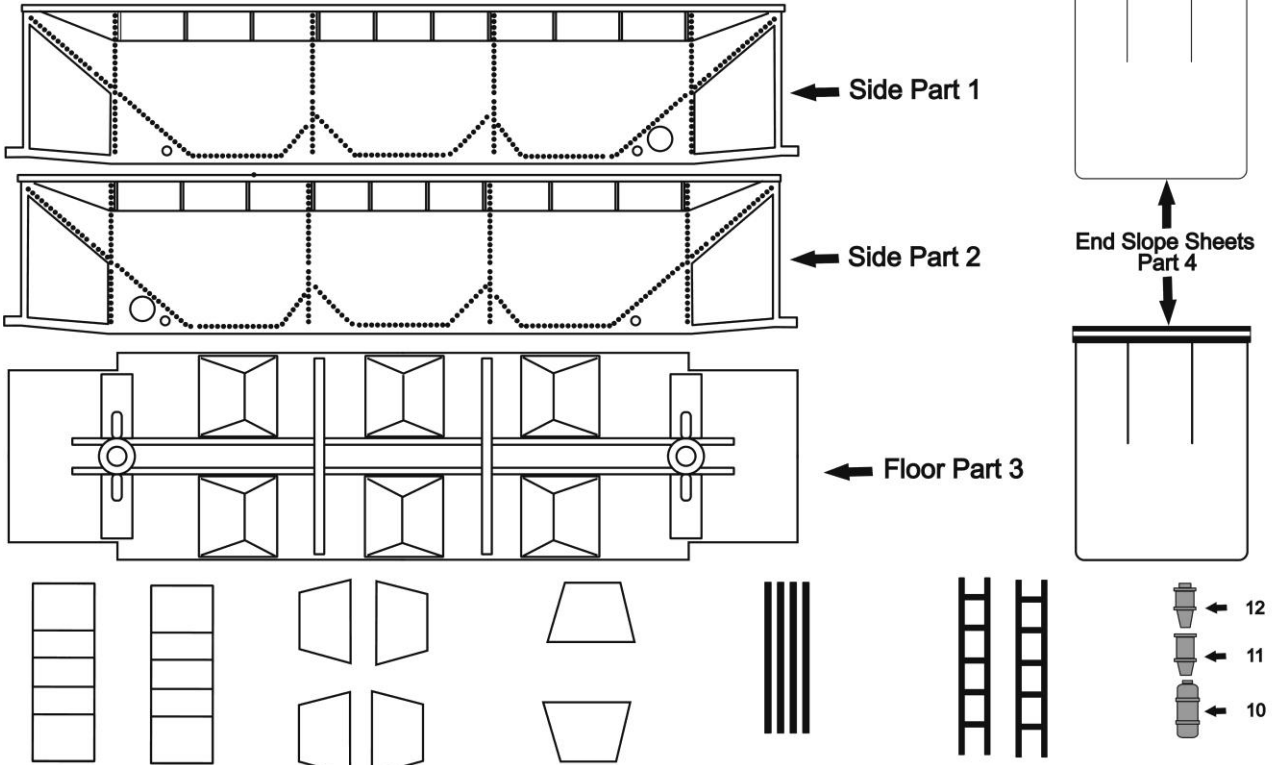
20. Wash the model in warm soapy water. To get best colour prime first with a grey primer coat and paint a weathered black. Apply decals per diagram and instructions. Seal decal on with a flat/satin clear finish and glue couplers in place. Glue couplers in place and attached bogies.

### Decaling Guide



Note placement of decals with relation to brake end and the location of the discharge hopper door release handles

**BWH - FWH - HRH - FRH  
Parts List Diagram**



Vertical Bulkheads Part 5

Small Outer Discharge Hopper Doors Parts 6

Large Inner Discharge Hopper Doors Parts 7

End Angle Support Bars Parts 8

End Ladders Parts 9

Air Reservoir, Brake Cylinder and Aux Air Reservoir Parts 10, 11 & 12



Brake Lever Part 13



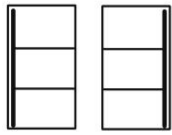
Handbrake Spiders Parts 14



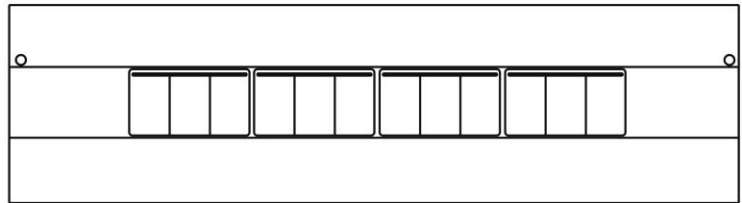
Bogie Pins Parts 15



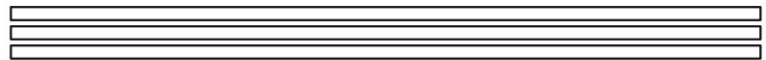
Roof ends Parts 17



Sliding Hatches Part 18



Roof Part 16



Walkway boards Parts 20



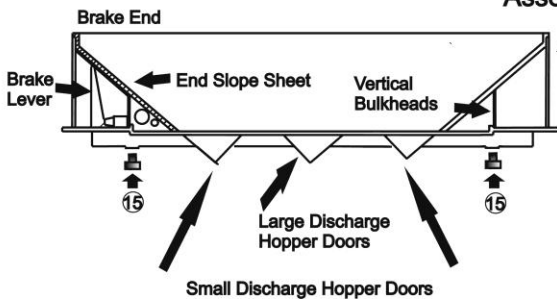
Walkway support brackets Parts 19

**Additional Parts**  
2 X Bogies  
2 X Bogies Screws



**Discharge Hopper Door Release Handles White Metal Part 21**

**Assembly Hints**



Trim End Angle Support Bars to Fit

