



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

## **FREIGHT AUSTRALIA VHGF BULK GRAIN HOPPER WAGON**

### **Prototype Notes:**

Tulloch Limited of Rhodes, N.S.W., constructed an initial batch of one hundred aluminium wheat hopper wagons in 1966. These wagons bore code/numbers GJX 1 to 20 and GJF 21 to 100. A similar design, but featuring steel construction, was prepared and one hundred steel hoppers were constructed in 1968/69 by Steelweld of Victoria. These wagons continued the GJF code, being numbered 101 to 200. Further GJF wagons were fabricated in steel at Newport and Ballarat Workshops which extended the number series. The various batches of steel hoppers varied in details such as type and arrangement of brake equipment, including hand brake, filling hatches, discharge outlets, walkways and sidesill cross section. This kit is representative of wagon numbers 381 to 635 constructed from 1984 to 1987 at Ballarat Workshops. These wagons were originally coded VHGY but were changed to VHGF in more recent years.



*Model illustrated has been fitted with shunter's steps and couplers (not included).*

### **Necessary Equipment:**

Tools required are a sharp knife such as X-acto or surgeon's scalpel, an assortment of needle files, a pair of fine pointed tweezers for applying small parts, a tube of superglue and your choice of liquid plastic cement such as Testors or Microscale Microweld and a #2 sable brush for application.

### **Preparation of Parts:**

Figure 1 identifies the parts on the runner systems. Parts should be removed, only as required, by cutting through the gates then cleaning up parting lines and flash with a sharp knife and/or small files. Some components, such as the roofwalks, also feature moulded hooks on the back which must be removed with a sharp knife.

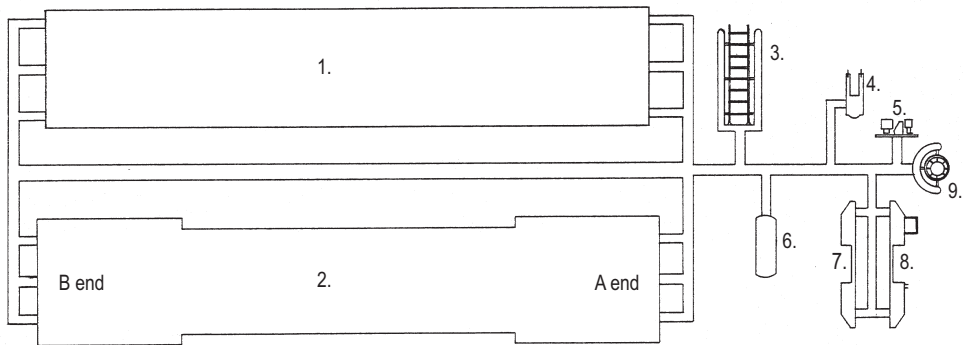
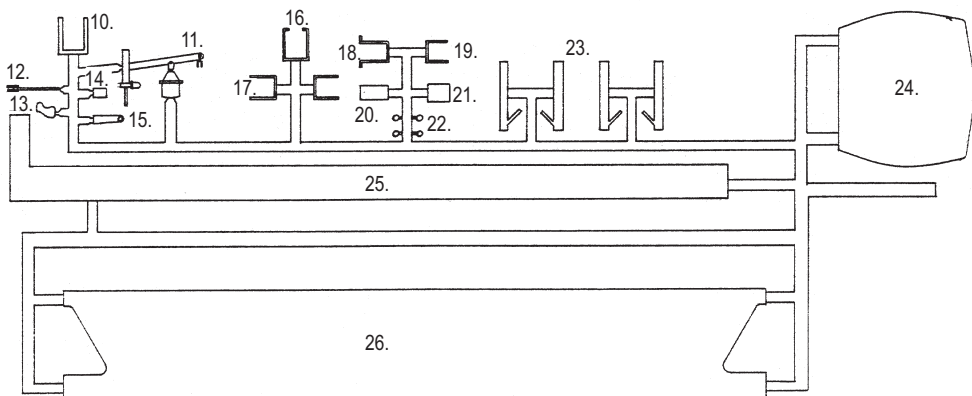


Figure 1



- |     |                      |     |                                  |
|-----|----------------------|-----|----------------------------------|
| 1.  | Roof                 | 14. | E.L. Valve                       |
| 2.  | Floor                | 15. | Brake Lloor                      |
| 3.  | Ladder               | 16. | Reservoir Support                |
| 4.  | Handbrake Stand      | 17. | Step                             |
| 5.  | Triple Valve         | 18. | Slack Adjuster Support (Hat)     |
| 6.  | Air Reservoir        | 19. | Brake Lever Support              |
| 7.  | A end Headstock      | 20. | Slack Adjuster Support (Channel) |
| 8.  | B end Headstock      | 21. | Brake Cylinder Support           |
| 9.  | Handbrake Wheel      | 22. | Hopper Door Drive Socket         |
| 10. | E.L. Valve Bracket   | 23. | Hopper Door Slide                |
| 11. | Brake Cylinder/Lever | 24. | End                              |
| 12. | Handbrake Pullrod    | 25. | Walkway                          |
| 13. | Handbrake Bellcrank  | 26. | Side                             |

**NOTE:** Because of their assymetrical cross sections, the sides and roof develop a slight bend when cooling. The ribs moulded on the back of the sides ensure that the body will be straight and true when assembled. **Do not** attempt to straighten these components by **over bending** them before assembly.

## Assembly of Floor and Brake Equipment:

Identify the 'B' end of the floor (it has two small notches moulded in the edge of the end and more holes in the top surface). Cement the headstocks to the lower faces of the floor at appropriate ends. The floor sheets will overhang by about 0.2mm. Cement the brake cylinder base, brake lever support and the channel shaped slack adjuster support to the floor, using the small pins on the parts and the holes in the floor surface to aid positioning. Refer to figures 2 and 3. Cement the brake cylinder to its base and also secure the lever and slack adjuster to their respective supports. Cement the 'hat' shaped slack adjuster support to both the floor and the slack adjuster. Position the vertical brake lever in the hole in the floor with the upper end between the clevis moulded on the end of the horizontal brake lever and secure with a little cement. The same procedure applies to both A and B ends although they are oppositely handed assemblies.

Cement the air reservoir supports to the floor at the B end and then cement the triple valve and its brackets to these supports. Refer to figures 2 and 3 for position. When secure, install the air reservoir on top of its supports, orientated as shown in figure 3.

Cement the hand-brake stand to the floor and headstocks. The gussets moulded as part of the uprights fit in the notches in the edge of the floor.

Cement the hand-brake bellcrank into the clevis on the lower edge of the headstock, orientated as shown in figure 4. While the cement is still soft, secure the hand-brake chain to both the bellcrank and the lower face of the hand-brake housing. It may be necessary to adjust the bellcrank position. Cement the handwheel to the spindle of the hand-brake.

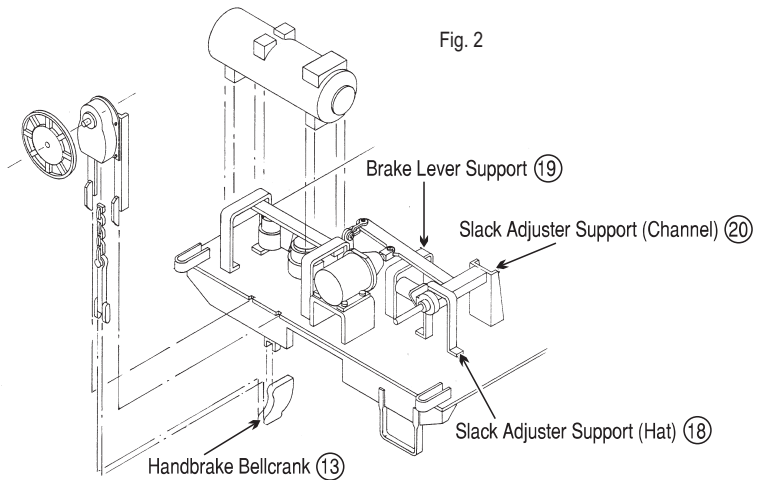


Fig. 2

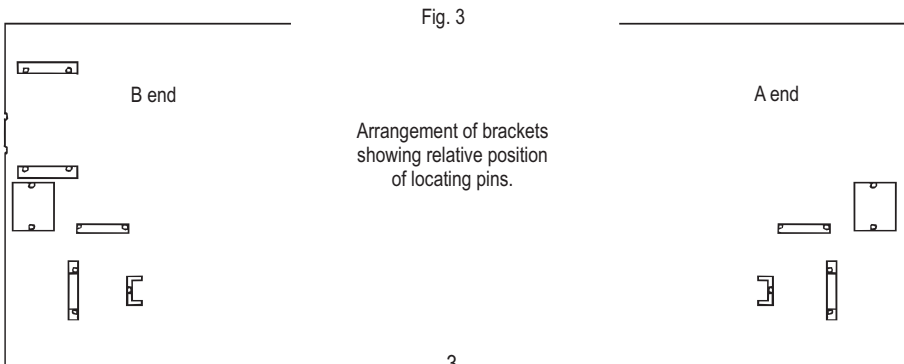


Fig. 3

Arrangement of brackets showing relative position of locating pins.

## Handrails:

From the wire supplied, cut and bend a handrail to each of the shapes drawn in figure 4. Secure the railings to the back of the headstocks with a little superglue.

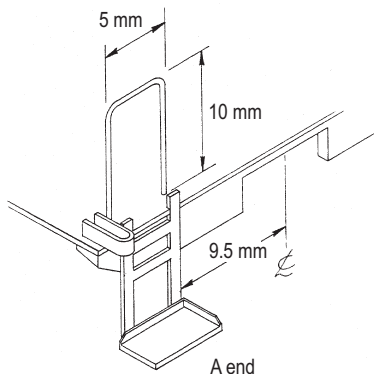
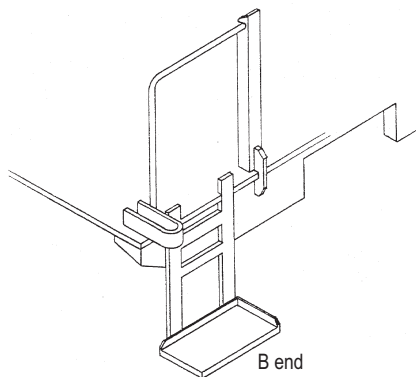
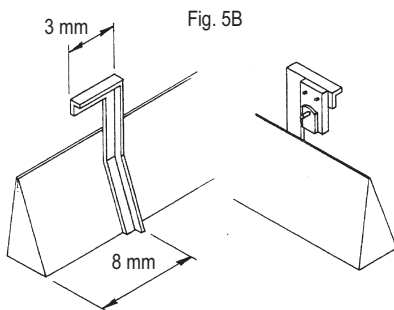
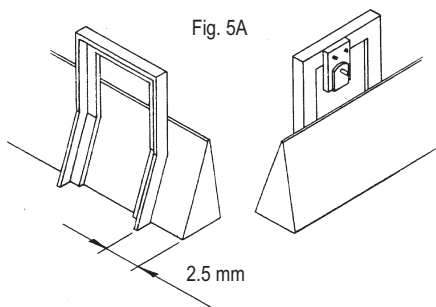


Fig. 4.



## Body:

Cement one E.L. valve bracket to the inside face of the sidesill of one side, as shown in figure 5 A. Trim the second E.L. valve bracket and install it on the back of the side sill of the other side, as shown in figure 5B. Cement the E.L. valves to the brackets in the locations shown in these diagrams.



Cement an end to one side. The end locates against the shoulder moulded on the back of the side. Make a similar assembly of the second side and end. After allowing a little time for the cement to harden, cement these subassemblies together to make an open box. Locate the roof so that it fits between the sides but overhangs the ends. Make sure that the handles securing the roof hatches are on the right side when viewed from the end with the E.L. valves (B end).

At this stage, the brake equipment on the ends of the underframe and the ends of the body can be painted. It is difficult to paint the model when completed, particularly the B. end, because of all the brake equipment and associated bracketry. Either mask or scrape the paint off the region of floor where the sidesills will sit so that a good bond will be achieved on final assembly.

Locate the body on the underframe with the E.L. valves at the B. end. Secure with a run of cement along the edges of the sidesills.

Cement the two walkway sections to each other to form an open frame. Check the fit of this assembly on the roof. It will be necessary to trim some of the little walkway brackets to clear the handles of the roof hatches. When a satisfactory fit is achieved, cement the walkway to the supports moulded to the roof, so that it is spaced evenly from the roof hatches. The little brackets moulded along the edge should be positioned above the supports.

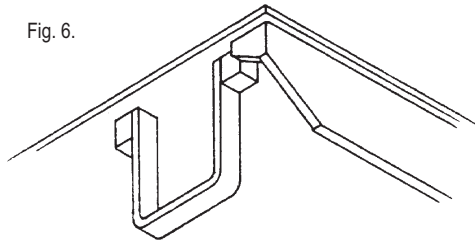
### **Detailing the Underframe:**

Cement the hopper door slides to the steps moulded in the bottoms of the hoppers, orientated as shown in figure 8. The ends of the angled braces should also be cemented to the hopper slope sheets. Cut four 16mm long lengths of the 0.020" plastic rod supplied and secure in the notches moulded in the ends of these slides. The same amount of rod should project from each side.

As an optional extra, small hollow cylinders have been moulded to represent the drive sockets on the ends of these shafts. Secure one on each end with a touch of cement.

Cement the steps to the brackets moulded to the floor as shown in figure 6. If the inside faces of these brackets are firstly shaved with a sharp knife to remove the slight taper or draft angle, a much stronger assembly will result.

Fig. 6.



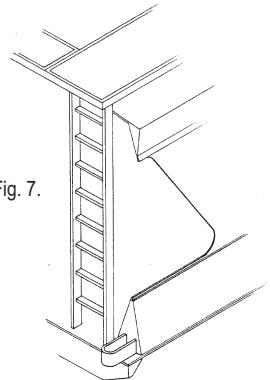
### **Final Details:**

Kadee No 5 or No 58 couplers may be cemented directly to the lower face of the floor. It will be necessary to file down the lip on the top face of the draft gear box so that it doesn't hit the projecting edge of the floor sheet. Use the #2 screws supplied to secure the bogies to the floor.

One end of the ladder has small pins moulded on the ends of the side pieces. These pins locate in the holes moulded in the floor sheet at the right side of the 'B' end. Carefully trim the ladder to length so that it is a neat fit to the walkway. The side of the ladder is flush with the side of the walkway. Cement in position as shown in Figure 7.

Etched brass shunters' steps are available in Steam Era Models' detail kit E.6. Apply the steps with a little Superglue to the headstocks as shown in Figure 4. It will be necessary to notch the edge of the floor sheet to clear the frame of these steps.

Fig. 7.



## Paint and Decals:

Before painting, wash the assembled model in warm, soapy water to remove residues of mould release and finger marks.

The colour scheme is a green body with red oxide bogies, handrails, stirrup steps and shunter's step frames are painted white.

We recommend Steam Era Models Wagon Red and Freight Australia Green spraying enamel.

Refer to figure 8 for placement of lettering. With the introduction of four letter codes and computerisation of records, a check letter is written after the wagon number. To determine this letter, write down the wagon code and number so that they fill nine places.

for example - V H G F    4 3 6  
                  - - - - -

Assign numbers to each letter so that A = 1, B = 2, etc. ...

                  V H G F \_ \_ 4 3 6  
becomes     22, 8, 7, 6, 0, 0, 4, 3, 6.

Multiply the numbers in successive place by number of that place. Add these numbers up, i.e.,  $22 \times 1 + 8 \times 2 + 7 \times 3 + 6 \times 4 + 0 \times 5 + 0 \times 6 + 4 \times 7 + 3 \times 8 + 6 \times 9 = 189$

Divide this number by 23 and note the remainder.

for example -  $189 \div 23 = 8 \frac{5}{23}$

i.e., Remainder of 5. Add 1 to this remainder and convert the result to a letter where 1 = A, 2 = B, 3 = C, etc. Note that x replaces l and y replaces O in this sequence. So VHGF 436 becomes VHGF 436 F.

Clear as mud?! Exactly the same procedure applies to any other wagon code/number. After applying decals, overspray the model with a clear flat finish and weather to taste.

1. Trim decals close to lettering to remove excess film.
2. Immerse in water for ten to fifteen seconds, then set aside on a tissue until decal straightens out.
3. Slide 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 tissue to soak up excess water.
5. The use of a decal setting agent such as a Solvaset is recommended to assist decals in snuggling down over rivets etc.
6. A flat finish such as DDV or estapol matt applied to the entire model will give a uniform dull finish.

NOTE DECALS ADHERE BEST TO A GLOSS SURFACE.

Reflective yellow patches are supplied as small self adhesive stickers. Simply peel these stickers from their backing and press them onto the model.

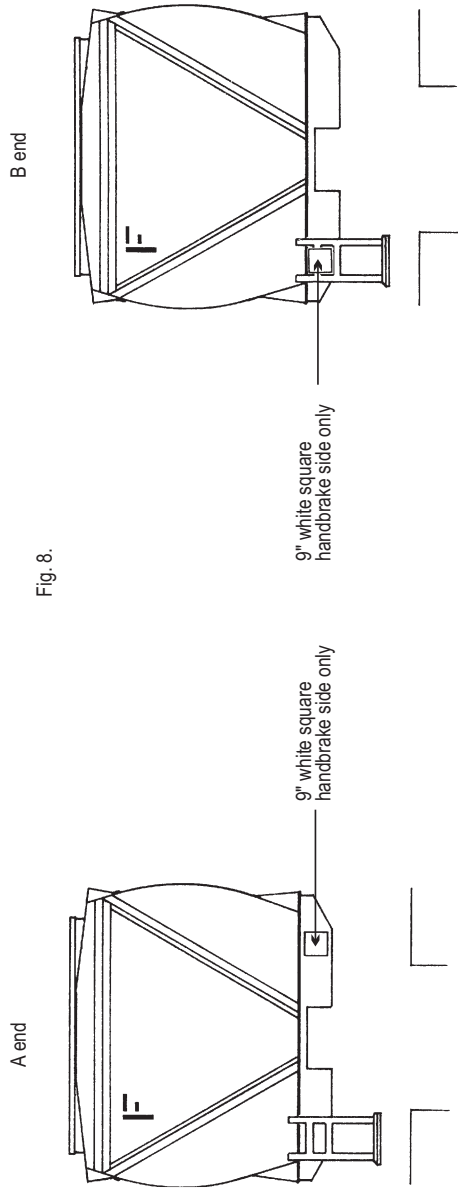
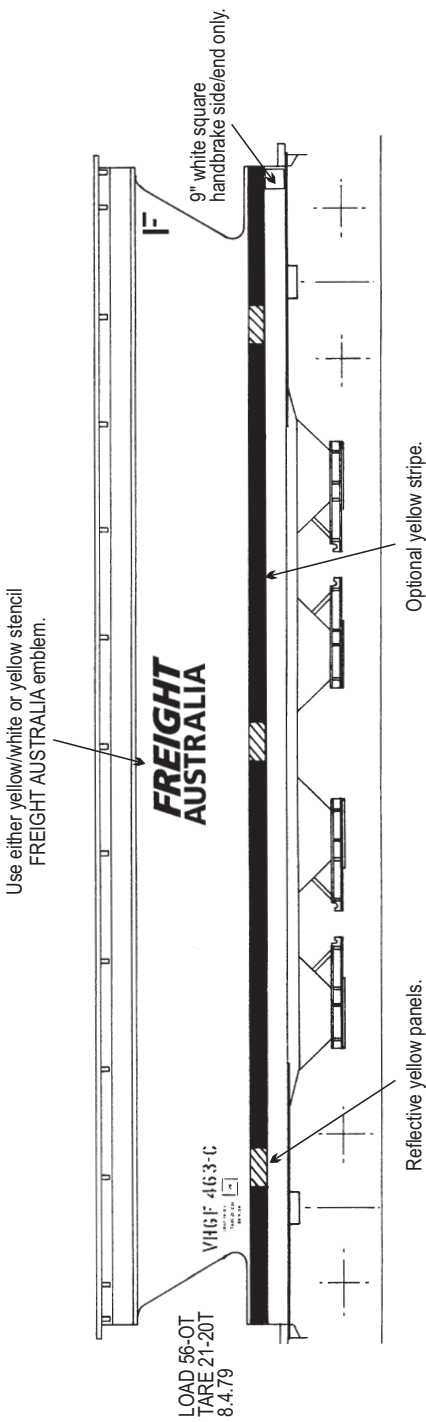


Fig. 8.