



1025 - Victorian Railways ABE 71ft 1st & 2nd class passenger carriage.

Requires 6 wheel bogies to complete.

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



12 ABE Courtesy Geoff Winkler

Basic history notes: These cars are a composite of First & Second class seating arrangements, i.e half AE/BE cabin configurations. When first built between 1906-1910 the cars were lavishly appointed with decorative bevel edge mirrors above the windows, polished woodwork and many gleaming brass fittings that matched the other 'E' cars in the series being constructed by the railways. However, in service, the ornate fittings were troublesome to maintain and were quickly painted over. Construction consisted of 16 cars featuring a corridor along one side with four First and four Second class compartments separated by a centrally located Ladies compartment with WCs and lavatories. The internal configuration was altered later on and the Ladies Lavatory and WC's were rationalised to the area in the centre of the car and two central compartments became full compartments. One of the Gent's WC and Lavatory was eliminated and replaced with a two-person passenger seat. For over 75 years they have formed the backbone of the Victorian Railways passenger service. The kit is based on units running from the 1960s-until withdrawn in the mid-1980s whilst some have been retained in running order by preservations societies.

The kit can be put together in under 3 hours (when pre-painted) over a week. Only minimal tools and basic/intermediate skills are all that is required to build a very accurate model of a VR 'ABE' passenger car. It is suggested that you **read through** the instructions first to become familiar with the components and the essence of construction. There are a few steps that require close attention and they are highlighted in **bold and italics!** Parts referred to in the text are marked **(P1), (P2)** etc. **Please become familiar with the prototype by studying the photos with the instructions before commencing the kit.**

Equipment & Materials:

Exacto knife (blade no 16 or similar), 800-grit aluminium oxide sandpaper, small flat needle file. Fast-drying wood glue like MDF PVA (which is sandable and goes off in under 5 minutes), Sellys 'Kwik Grip' water-based and super glue are the three required for completion (all recommended: usual disclaimers). Also available which aids in dropping precise amounts of glue into fine lines or droplets is the 'Ultra-Fine Glue Applicator' available separately from Spirit Design



General assembly instructions: The kit sides and end walls should be painted before assembly with only minor touch-ups needed after assembly (see painting general notes below). The reasoning behind this is that it's easy to paint the window frames whilst the components are still lying flat or in the lasered sheet. Decaling should commence

once the carriage sides are dry. If you want to spray your entire undercarriage in one hit then decal after painting the underframe so that your masking won't peel the decals off. The roof, underframe and other components can be painted at any time. Any piece cut from the laser sheet should have the holding tag sanded slightly as there is always a slight bump when a knife cuts it free from the surrounding area.

Painting general:

The main laser etch should be **lightly coated** (2 passing light coats not 1 heavy one) with a pale grey primer, Tamiya Surface Primer is ideal for this step. This will enhance the top colours.

Steam Era passenger car red or similar: sides, end walls and doors

Humbrol 40 with a few drops of dark brown: window surrounds

Humbrol Matt 29, or pale grey for the 1960s: roof including clerestory parts, water hatches, vents and covers

Matt Black or Grimy Black: Vestibule end closures, underframe, generator, air reservoir, truss rods and generator stitch panel

Masking the window surrounds for painting: On a red-painted side, take the 'Quick Mask' sheet and peel the 'Smokey Grey' adhesive vinyl off the backing paper whilst making sure the window inserts remain behind on the backing paper.

Hold the far left and right ends of the masking between your thumbs and fingers, and place it over the carriage side whilst looking through the window cutouts for alignment. The top row of window cutouts should be positioned so that edges match the window frames. You should now have a window frame exposed on two sides and a bottom for each window opening. Repeat on the other side. Once in position, apply pressure on the film over the window area with your finger.

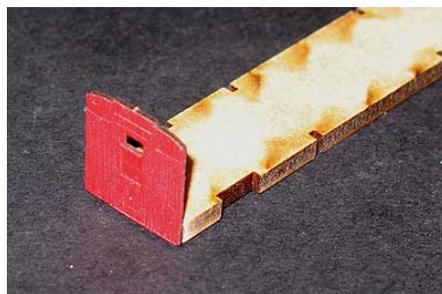
Do not rub, as it may distort the fine lines between the window pairs. The alignment down the two sides and bottom of the window frames must be approx. 0.5mm open area for painting. When the paint has been applied, the resulted finish will resemble a squared bottomed "U" shape in the windowsills. Once the paint has been applied, wait about 30 seconds and gently peel the masking off and discard. Proceed with the assembly instructions below.

No paint should be across the top of the window frame – see prototype photo above for reference.

Assembly Instructions

Carriage body:

1. Sand the MDF floor (**P1**) edges ever so slightly to remove the minor laser staining and to make the edges are a little more vertical. Turn the floor over so the marking 'U' shaped ones are facing the desk surface you are about to assemble on. These are the guides for the underframe.
2. Glue a carriage end wall (**P2**) to the MDF floor (**P1**) keeping it square and vertical



3. Glue doors (**P3**) in behind each opening of a carriage side (**P4**) & (**P6**). Make sure each door sits symmetrically around its opening. Its best viewed from the front of the carriage side to aid positioning

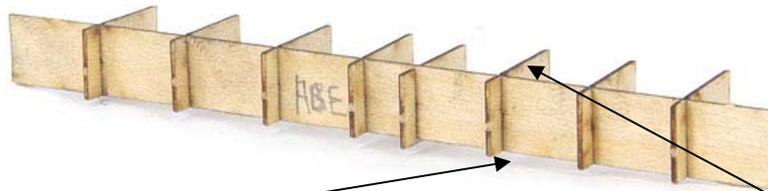


4. Glue a carriage side (**P4**) to the end wall edge (**P2**) and up against the MDF floor (**P1**) making sure the sidewall covers the end wall edge and stays in contact with the floor. Use weights or clamps if needed

- Repeat the above procedure for the other end wall (**P2**) and carriage side wall (**P6**)



- Once dry lightly sand the entire carriage base to make sure it is flat and square with the sides
- Breakoff / separate 2 long sets of windows 8.5mm high x104mm long (**P12**) from the clear celluloid (These have been pre-scored on the clear sheet and a few gentle bends will free them). Use Selly's 'Kwik Grip' to glue these in behind the carriage sides. Make sure that the glue does not creep into the area shown in the window proper. There should be a small dab of glue between each set of window compartments
- Break off 4 door glasses 5mm highx8.5mm long (**P12**) and glue these in behind each door using 'Kwik Grip'
- Break off 4 windows and glue these into the remaining (**P12**) single window openings of the carriage sides
- Break off 2 windows (**P12**) for the end door of the carriage ends (**P2**)
- Paint the toilet windows either white or grey on the inside of the carriage using the photo of 4 ABE below as a guide. Note the First-class end and the spacing between the windows on the prototype. See parts diagram
- Glue the partition units (**P23**) to the partition corridor (**P24**) using the slots provided. See the picture below



- Note that the corridor partition is on the opposite side of the toilet windows. The partitions themselves should line up in the middle of each set of the windows and as the spacing is different between the 'First' and 'Economy' compartments. Glue once satisfied for orientation See picture below or the parts diagram



- Add a minimum of 10 grams of weight to the floor using lead, nuts or discarded wagon weights. It is best to have the weight as close to the bogie pivot points for better running qualities

Carriage Roof:

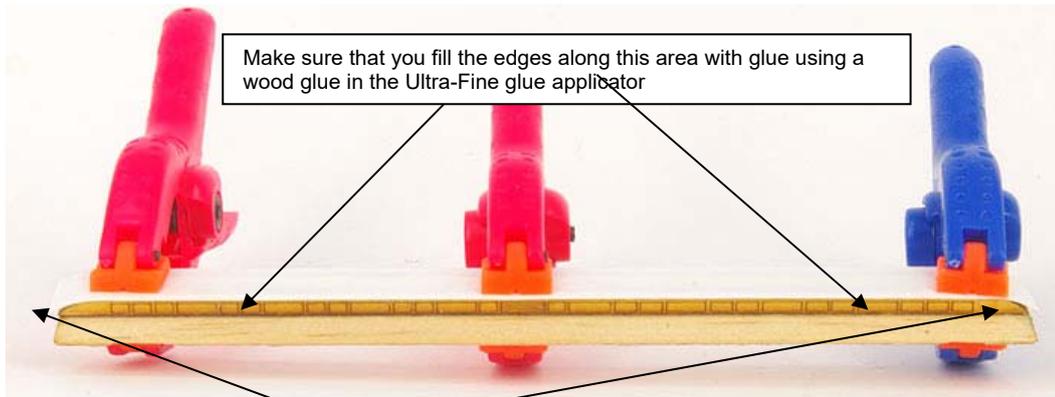
- The main roof (**P13**) is milled from 'Clear Pine' and the edges are prone to damage before gluing into the semi-completed passenger carriage. Where the doors of the carriage butt up against the underside of the roof you may need to remove a small section of timber so that the roof sits snugly down in the carriage
- Glue the clerestory side (**P9**) with its base unit (**P11**) making sure that the (**P11**) is glued centrally towards the top (rounded corners) of the (**P9**) or 4mm in from the edge. Repeat the same with the other side (**P10**)



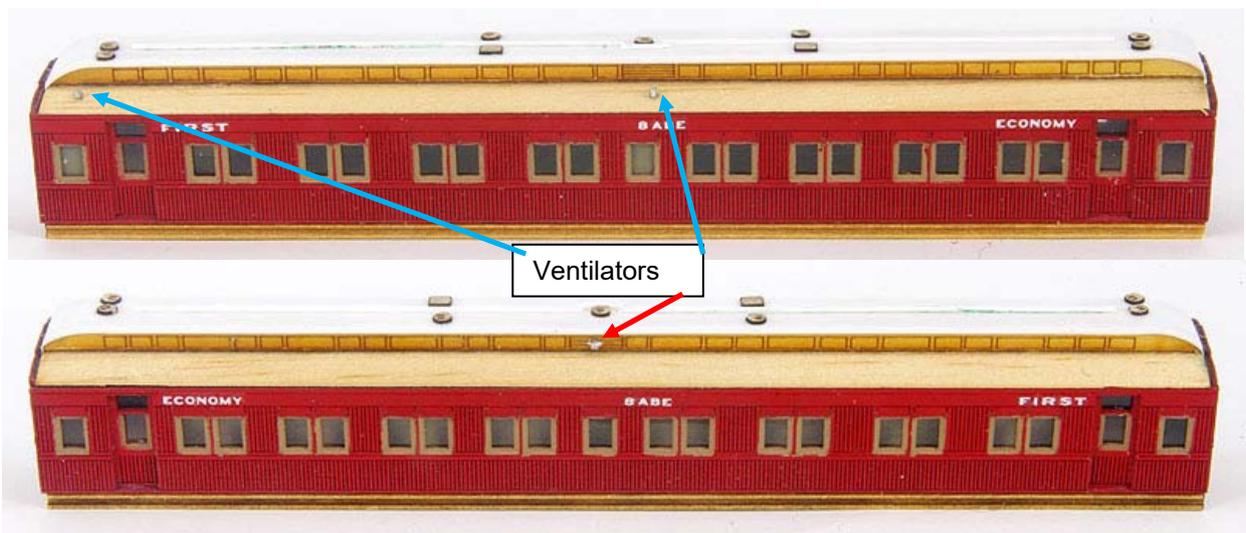
- Glue the entire complete clerestory section centrally along the main roof (**P13**) making sure that there is an even spacing around the sides



18. **The scored lines of the card roof (P14) face you when it is glued to the clerestory unit.** The scribed line deviates around the central water filling hatch. **This hatch should line up with each of the (P9) parts so that the hatch sits directly over the central clerestory vent with the holes marked in it.** It will be off centre if you have it around the wrong way
19. The styrene part in the picture has now been replaced by a cardboard piece as it makes it easier to assemble using glue you already (PVA) You can still clamp the part as in the photo if you wish



20. Using a toothpick, smear PVA along the rounded ends of the clerestory section and using your fingers hold the rounded end down until bonded. Repeat for the other end and then put a large rubber band around the styrene section lengthways to hold the styrene to the curved ends
21. Glue the supplied 15 x 30 card styrene strip (P7) centrally to (P14) along and around where the scribed line is etched
22. Glue a white metal ventilator (P21) into a hole provided in the clerestory side wall above the single window on only the corridor side. See second photo below (red arrow)
23. Using the RHS side of the window frame painted toilet window as a guide, drill a hole 0.5mm and space it 5mm in from the edge of the roof near the end wall (P2) and centrally between the outer roof edge and the clerestory side wall (P9). Repeat for the other vent 59mm from the end wall edge. Then glue the two remaining white metal ventilators (P21) into the drilled holes. See the first photo below (blue arrows) as a guide
24. Glue the round water hatches (P15) and the small square roof hatches (P16) onto the outlines of the styrene roof. Normal styrene glue will also do the job as it melts and bonds the timber to the styrene
25. Trial fit the roof into the carriage, make any adjustments deemed necessary for a nice fit
26. Paint the entire roof, Humbrol Matt, no 29 before gluing into the completed carriage



Carriage underframe and details:

27. Glue the underframe (P5) to the MDF floor using the 'U' shaped markings as a guide and with the aid of toothpicks line up the bogie holes. Note the position of the ribs by using the parts diagram as a guide
28. Trim the 'U' channel (P8) to the length of the underframe if necessary and then glue it to the MDF base so that the 'U' shape faces you when viewed side-on and the outer edge of the channel is flush with the outer edge of the carriage side

29. Using the parts diagram, glue the battery boxes (**P17**) to the underframe where there two scored lines are across 3 ribs. The rounded corners face away from the underframe and the detail markings on the units should face towards you when the carriage is viewed from side-on. If modelling later 70's-80's era do not glue the battery box on the toilet window side but I will leave it up to the modeller to decide using actual photos of their carriage
30. Glue generator switch panel (**P18**), air reservoir (**P19**), and generator (**P20**) onto the underframe using the parts diagram as a guide
31. Trial fit the truss rods (**P25**) into the MDF base behind the U channel. They should be pushed down until the sloped section just touches the underframe and the turnbuckle dimple should face the viewer. When satisfied with the fit, place a small dab of glue around each leg and where the sloped section touches the underframe. Take care when doing this as they are fragile
32. Glue the end wall door vestibules (**P22**) onto the carriage end walls (**P2**) matching the scribed line



Completed 8 ABE before some weathering

Decals: Using the prototype photos and the photo of the finished model, position the decals accordingly. Also, you can make use of the spare ABE sets from the numbers provided.

Weathering: Use pastels or paint to weather the carriage as per photos or to your liking. Don't forget the roof as smoke and diesel fumes stained it.

Bogies: Most builders have been using American Pullman cars (Lima etc) and their 6-wheel bogie is a good match for the Victorian 'E-Car bogie. Micro trains also have the same bogie available (1018) as well as a 6-wheel bogie that would be suitable. Note there are 2 bogie holes in the plywood underframe for both 4 and 6 wheel bogies.

Couplers: The best couplers to fit are MicroTrains 1015s. Packing pieces can be made from scrap timber leftover from the kit if they are needed

For more information and photos see www.spiritdesign.com.au, Rob O'Regan's website <http://www.robx1.net/> or Mark Bau's <http://www.victorianrailways.net/> or Peter Vincent's <http://www.pjv101.net/index.htm>.



4 ABE Courtesy of Geoff Winkler – Note the two painted out windows of the toilets.



1 ABE Courtesy of Geoff Winkler



10 ABE Courtesy of Geoff Winkler



15 ABE Courtesy of Geoff Winkler

