ULTIMA 2mm/N MODELS
2mm Scale Coach Kit & Accesories for Locomotives,Coaches & Wagons

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UM/E 1221 GWR (Drg No.31874A Lot 1037 Built 1930) BREAKDOWN TENDER VAN [ASSEMBLY INSTRUCTIONS]

IMPORTANT

Before starting this kit it is strongly recommened that the instructions are read from start to finish.Please familiarise yourself with the parts of the kit and relate them to the drawings included. Please note this kit produces a complete body shell with roof and underframe details only.

Wheels,couplings,paint, transfers(UM/T 2110 Brown Vehicles Insignia sheet available August 1997) and adhesives are required to complete this kit.

SOLDER AND GLUE

These instructions refer to the use of liquid solders (liquid is prefered as it is easier to apply and produces less excess solder) Types recommened are **CARR's** 243 and 188 (high and medium temperatures). Use epoxy adhesives for gluing the white metal components e.g. **ARALDITE.** N.B.**Wash your hands** after handling white metal components as there is a lead content in the castings.

CONTENTS

1-off etched brass fret containing : Integral floor and sides(N.B. The ends attached are short in length due to a design error.Correct ends are provided in a separate fret. Remove faulty ends by carefully bending along the fold line until this fractures),2 Solebars, 6 Foot boards, 2 Pivot Boxes, 4 Washers, 4 Truss Frames,2 Buffer Beams, 3 Types of window bolections with a spare one for each size, 2 Foot Boards, 2 Coupling Boxes, 2 Bogie Supports, 15 Footsteps for the ends, 6 Doors with window details & 4 Roof Lights.**2-off** 9' etched American Bogies. **1-off** aluminium roof. **4-off** turned brass buffers. **1-set** white metal castings for the underframe; vacuum cylinders(2) and gas tanks(2). **8-off** shell vents. **6-off** gas lamp tops. **1-off** stove flue (pin) .**2-off** 2 x 1/4 self tapping screws. **200mm** Nickel Silver wire 0.33mm. **100 x 10mm** clear glazing strip.

HISTORY/LIVERY NOTES

The GWR built and kept these vans specifically for accidents. The 62' design first appeared in 1890 Lot 542 and continued through to the 1930's. The model is based on Drawing No 31874A Lot 1037 Running No 174 which was based at Stafford Road-Wolverhampton. No 174 was designed as a combined brake van and tender with extensive storage for all sorts of rescue equipment needed to deal with accidents and breakdowns. Most of the time these vans were stored at Loco Depots and probably only covered 20,000 miles during their working life. They were maintained to a very high standard, because when in use, they were a second home to the workmen who, at short notice, could be away from the depot for several days. The interior comprised 1 Officals compartment, 1 Workmens compartment, 1 Tool stowage compartment, 1 Guard compartment and a Toilet/Lavatory compartment. The van carried a headboard on each side of the roof LOCO,CARRIAGE & WAGON DEPT.STAFFORD ROAD mounted just behind the outer pair of roof rain strips. When built the vans received 9' American bogies and used incandescent lighting via two gas tanks under the van. These were removed in the mid-50's and replaced by a standard BR propane gas tank/box.The external end steps were removed when overhead electrification was introduced. Fortunately No 174 has been preserved at Birmingham-Tysley Steam Railway Museum and is in use today as a workshop to help restore two diesels (Class 40 & 50) for use on the SVR.

Details on this van and others are contained in GREAT WESTERN COACHES APPENDIX Vol II by J.H.RUSSELL (OPC).When built the sides were painted GW Brown and the ends bright post office red(buffer beam red). The roof was medium grey and the underframe/buffer beam/bogies were painted black. During early BR days the van was painted in full carmine. It is possible that the van received the engineers dark green livery in the mid 60's but this can't be confirmed. It was withdrawn from service in 1976 and arrived at Tysley museum 1978/79.

INSTRUCTIONS STAGE 1 THE BODY SHELL

1.1 This kit is based on the principle of an integral floor with fold up sides. **Before** removing the etched parts from the frets, first check that the etched slots are cleanely formed and, if not, then open with a knife (100% cleanly etched slots cannot be guaranteed due to the sensitive nature ot the chemical etching process). Now remove the main body section from the fret (**do not** attempt to fold the body at this stage until the doors and windows have been fitted as it is almost impossible to fit them at a later stage).As mentioned in the contents there is an error with the ends.These need to be carefully removed by bending until they break away. Corrected ends are provided in a separate etch fret. Proceed to remove the window bolections with care from the fret (in case of an accident a spare window bolection is provided for each of the three sizes).The modeller can now either solder or glue these in place (recesses are etched for each window to aid fitting). Soldering with liquid solder paste is recommended as this produces a stronger bond with a longer life that far outlasts glues.

1.2 Remove the doors and associated inner window frames from the smaller fret .The door frames must be soldered in place and set 0.25mm(0.010") from the floor fold line (the 0.25mm allows the door to fold up with the side and not become trapped against the floor. Failure to observe this will mean the sides will not cleanly fold to 90 degrees and severe distortion to the fold under the doors would occur). With the doors set 0.25mm back from the fold there is a consequential 0.25mm projection above the top edge of the sides. When all six doors are soldered in place, dress file the projecting sections until flush with the top edge. The inner door window frames can now be glued or soldered in place.Clean the outside details where soldered with a fibre glass brush (this is easier to do while the sides and floor are flat). With aid of a 12" steel rule fold up the sides on a clean and firm surface. You may experience a small amount of distortion under the doors. This can be smoothed out by using e.g. the side of a plastic ball point pen, by carefully pushing along the surface until flat.

1.3 Remove the corrected ends from the fret and solder or glue the window bolections into the one end.Cut the steps out from the smaller fret (there are two spares) and solder in place(a smooth nosed pair of pliers is a useful tool to help fit these in place). Use Bluetack as support aid to hold the ends in place while soldering to secure(It may be necessary to file a small chamfer on the bottom back edge of each end to achieve a good fit).The van's body is now taking shape. Check that the body is square on a flat surface and that all the details are correctly aligned & adjust if required.

INSTRUCTIONS STAGE 2 DETAILING THE BODY SHELL

2.1 Turn the body over, preferably in a cradle, and solder the underframe details in place. Remove the solebars, foot steps (4 small & 2 large), buffer beams, and truss frame from the frets.Fit and solder (use 243 temperature solder) the brass buffers to the buffer beams. It is recommendeed that the buffer faces be flash soldered and then polished with wet and dry paper. The advantage of the solder is that, after painting, should any paint flake away the dull metal on the buffer head will represent a prototypical apperance**.** Now assemble the foot steps to the solebars(N.B. the relationship with each side and the truss framing). The outer truss frames are best assembled with the large footsteps; see location slots(use 243 temperature solder). Check that the solebars fit and solder in place with 188 temperature solder. Now locate and solder with 188 the buffer beam assemblies. Finally fit the inner pair of truss frames with 188 solder or glue.

2.2 Remove the bogie pivot boxes and fold up the sides. Cut from scrap plasticard to produce a filling blank 1.5mm thick (0.060") that fits inside the box (an alternative is to us Milliput epoxy putty). Solder the boxes in place and drill through with a 1.75mm or equivalent drill to suit the self tapping screws provided. Screw the No 2x1/4 self tapping screws in place to establish the thread and remove.

2.3 Finish the underframe by gluing(epoxy) the vacuum cylinders in place and the gas tanks. Using the wire provided fabricate the brake linkage. Drill 0.4mm holes in the vacuum cylinder castings to accept the wire and solder the linkage to the truss frames with 188 solder (the middle lower foot boards provided with 3 support brackets are best left until last prior to painting due to their delicate shape).

2.4 Etched spot marks are provided to show where to drill 0.4mm holes for the grab handles fitted arround each door .Also provided are spot marks for the bottom of each curved pair of end grab rails that went onto the roof (a GWR feature). The grab handles are fabricated and soldered in place with the wire provided.

INSTUCTIONS STAGE 3 ROOF DETAIL

3.1 The aluminium roof can now be asssesed for fitting.The vans when first built had twin rain strips fitted as shown on the roof drawing. Fabricate these either from Slaters micro-rod or use 0.5mm self adhesive lining tape (Letraline black or from Freestone Model Supplies).Take care in applying this as it is one of the most

noticeable features seen on the model.

3.2 The side location strip on the aluminium roof needs cut outs formed by filing to accomodate the recessed doors.Use the roof drawing to drill holes for the shell vents (0.75mm) and mark out the position for the gas lighting vents(top hat bearings) and the very destinctive roof lights. Glue the gas and shell vents in place and check the roof for overall length and fit with the ends .File the roof and/or ends to achieve an acceptable fit. The etched roof lights are not the easiest of parts to assemble. The modeller might prefer to scratch build from clear plasticard to which the rooflight window section could be glued, instead of using the etched sides and ends provided with the rooflight section. which should be assembled with super glue. Glue the rooflights in place ensuring that the four are correctly in line and check that the roof fits correctly.

3.3 The roof can now be painted and stored before final fitting *N.B. CONSIDERABLE CARE IN THE CONSTRUCTION OF THE ROOF IS IMPORTANT AS THIS THE MOST NOTICEABLE FEATURE ON THE MODEL.....A BAD ROOF DETRACTS FROM APPEARANCE*

INSTRUCTIONS STAGE 4 ASSEMBLING THE BOGIES

4.1 The bogies provided are the original Cav'ndish 9' American type.One of the problems with this bogie was that the sides could easily splay outwards. To overcome this a bogie support has been provided. The original etch is faulty in length and width and a corrected fret is provided with six washers. The support is used at the non-coupling end of the bogie. The thin `T' with tabs is designed to solder to the inside of the ends of the bogie frame while the main structure locates on the underside of the bogie stretcher with pivot holes aligned to the pivot holes and also soldered in place.

4.2 The bogies are provided with overlays (2 layers) that form the axleboxes. These are best soldered or glued in place while the bogie is still flat. Turn over and drill with a 1.0mm to deepen the pivot hole to accept an axle.

4.3 The original coupling for the bogie was clumsy and heavy. An etched pivot box is provided that will accomodate a standard PECO coupling (not provided). Remove the original coupling slot and fit the pivot box instead. After folding and assembling, fit a piece of scrap brass strip from the frets to join the other ends of the bogies.

4.4 Now fit the bogies with the wheels of your choice(not included with the kit)) and test the model on the track before final fitting and painting

INSTRUCTIONS STAGE 5 PAINTING AND GLAZING.

5.1 Remove the bogies and roof . Clean the model thoroughly (if the model has only been assembled with solder then it should be washed with care, in hot soapy water, to remove flux residues with an old tooth brush and allowed to dry) .The best results are achieved by spray painting with thin coats. Use a red oxide primer all over followed by the desired colour for the sides ,ends,roof and underframe (apply sparingly in coats to the roof so as not to lose any details)

5.2 Cut and fit the glazing to the windows and paint the interior a darker shade (brown) if desired.

INSTRUCTIONS STAGE 6 FINAL ASSEMBLY .

6.2 RE-FIT the roof checking the interior is clean and glue in place.Fit the bogies and wheels and test on a piece of track.(The N Gauge Society Shop is recommended as the best source for purchasing wheel sets). You should now be ready to place your completed model on the track. It is hoped that you have enjoyed constructing the kit and that the model provides you with years of good service.*(to make use of the standard kit box for storing the finished model cut from 1mm thick card e.g art mounting board internal packers. These lift the lid high enough to accomodate the model. Cut two pieces* ***23mm x 60mm*** *and two pieces* ***23mm x 209mm.*** *Fit the long side pieces first and glue if desired. The end pieces are a good push fit that holds the sides in place)*

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