

KS021

NZR BP91

‘Addington’ car kitset



Welcome to the NZFinescale Addington car kit. The kit takes advantage of (at the time of writing) the latest digital technologies to produce high fidelity parts that are hopefully relatively easy to build.

These instructions and associated information are provided in soft copy. This enables far fuller information than is practical in print form. Using the zoom feature on your pdf reader will allow closer inspection of the photographs.

As always I welcome comment and feedback. If you need any help we will always do what we can.

The BP91 cars were long lived. They came in a number of floor plans and their layouts and seating arrangements changed over time. The original elliptical mouldings over the windows and wide planking were sometimes removed/replaced. The end windows were generally planked over at a fairly early date and the kit does not have these. Likewise the clerestory roof was boarded over (or replaced) and various ventilator arrangements added. Bogies varied.

The kit comes in 3 versions based on West Coast examples toward the end of their lives, but not atypical of others elsewhere:

A40. Centre lavatory, elevated roof, longitudinal all 2nd seats. Wide planking, but lacking elliptical mouldings. B60 bogies.

A161. End lavatory, elevated roof, two compartment longitudinal all 2nd seats. Wide planking with original mouldings. B60 bogies.

A214. Centre lavatory, turtleback roof, longitudinal all 2nd seats. 3" T&G siding, lacking elliptical mouldings. B60 bogies.

Other variants may be issued later. If there is some variation not covered that you would like, please get in touch. As these are digital patterns it should be relatively simple to produce other combinations of siding/moulding/lavatory arrangement.

Contact me at lawrence@nzfinescale.com. To contact me by mail or phone, look at the website (www.nzfinescale.com) for current contact details.

Parts Key

Note that unlabelled parts are either duplicates, spares, redundant or self-evident. With small parts, generally more are supplied than are required.

3D printed parts:

- 1 Body
- 2 Floor/underframe
- 3 Handbrake end platform
- 4 end platform
- 5 Roof
- 6 Elevated roof (clerestory)
- 7 Verandah end (2)
- 8 Seats
- 9 Brake set
- 10 Bogie side frames (4)
- 11 Bogie bolsters (2)
- 12 Roof vents (set)
- 13 Handbrake handwheel
- 14 Coupler boxes (2)
- 15 End railing and gate jigs

0.25mm Brass etched parts:

- 1 1' 10" Window etch (ES092)
- 2 Bogie frame etch
- 3 Car gates (ES001)
- 4 Class plates

Cast brass parts:

- 1 Footstep sprue
- 2 Small parts sprue
- 3 Brake cocks

Other parts:

- 1 NY wheelsets (4)
- 2 Pinpoint bearings (8)
- 3 M1.4 x 6 screws (10)
- 4 M1.4 x 4 screws (2)
- 5 M1.4 threaded inserts (12)
- 6 M2 screws (2)
- 7 M2 threaded inserts (2)
- 8 0.1mm glazing
- 9 1.0mm wire (dowels, 50mm)
- 10 0.6mm wire (handbrake 50mm)
- 11 0.5mm wire (end railings 200mm)
- 12 0.4mm wire (handrails 200mm)
- 13 0.3mm wire (handrails & gates 600mm)
- 14 0.8mm tube (handbrake 10mm)
- 15 0.5mm monofilament (truss rods)
- 16 Chain
- 17 0.8mm OD Plastic tube

General comments

The kit is a representation of the NZR BP91 'Addington' car. The artwork and patterns were derived from copies of the original NZR prints obtained from various sources and photographs of the prototype. This style of car was covered in detail in an article by John Agnew in *NZRailfan* December 2010. Numerous colleagues have helped with drawings, photos and comment and the kit would not be as good without their input.

Many of these cars were built, and they were quite long lived, so the real thing had many variations. For the modeller, the main things to look out for are the presence and location of a lavatory (and it's external fitting) and the style of mouldings applied to the external sheathing. The kit comes in a number of versions reflecting some of these differences. Other variants are possible to special order.

There is a wealth of detail in this kit, most of which is integrated into the major parts. Don't be afraid to leave out the brake rigging, and smaller parts if this is not your thing. Without doubt there are small and fiddly parts to assemble. However, these should all fit, and where possible jigs, guides, slots or tabs/spigots are provided to assist fixing.

In general, the specification for this kit has been exacting. Pattern work has been proven over many iterations.

Please consider following the instructions. There has been some learning on my part, and I'd hate you to have to repeat all the mistakes I made. In the photos, views are generally taken in progress and many are 'warts and all' rather than cleaned up. This is how the model really looked as I was building it. The order of the instructions is hopefully logically laid out, but where something really does need to precede another step I have tried to highlight this.

Technical preliminaries

Specification: This kit has been designed to finescale standards and incorporates a compensated bogie design. This not only helps keep the car on the track, but also reduces running noise and produces realistic movement when in motion. It is intended to take scale couplers. It is possible to carve the headstocks to take Kadee couplers if desired.

3D prints: The 3d printing process is able to capture levels of detail and precision that have been hitherto impossible in short run kits. However, all techniques have their limitations. 3D prints need to be supported and the sides with supports may show some scarring from their removal. In addition the supported faces are typically softer in resolution. These limitations can generally be worked around in the design, which is why the model may seem unusual in its division into parts.

There are advantages to printing parts directly on the build plate, but this has the downside that they may feature an 'elephant foot' or swelling within the first few layers. This problem is much reduced with recent techniques. I generally arrange parts so this can be cut back invisibly.

Generally the resin used for these prints is quite tough but can be brittle. If cutting the print use an appropriate saw and abrasives rather than a knife or other cutter. Cut off discs can work quite well, but fast. Use with caution and avoid overheating the resin or breathing dust. Contrary to the preceding advice, supports, if present, can generally be snapped off or scored and snapped.

If printed parts are distorted they can be straightened by immersion in hot water, followed by cooling against a true edge. Use boiling water with caution as the parts will become excessive soft and hard to control.

Sometimes print artefacts (layering etc) may be visible. If these are a concern I suggest spraying with surface primer and reassessing. Most, if not all, such artefacts disappear after the first layer of paint. If any remain, they are easier to remove from a primed model.

Naming conventions for parts: I have used what I consider to be a rational naming of parts, based on my fairly superficial knowledge. The aim is to guide the builder in construction of the model, not

provide an accurate historical reference to mechanical nomenclature. I may not always be entirely consistent, but reference to the pictures and drawings should make matters clear. Reference to up, down, lower etc assume the vehicle is on its wheels in running condition.

Additional parts: The kit is complete apart from couplers, since NZR modellers use a variety of these that are not always compatible. Beautiful cast brass couplers to suit are available from NZFinescale.com.

Soldering: There are one or two soldering tasks in the kit. I make extensive use of Carr's 188 solder paint. This enables sparing application of solder, requires no additional flux and melts at a relatively low temperature. It also cleans up well with water or alcohol. If I need a bit more body to the joint I wet the iron tip with conventional solder. Many modellers have their own preferred soldering techniques and these may work as well (or better) than mine. If you are unsure have a practice off the model before committing to something irreversible.

Important note

The modelling hobby is supposed to be fun. If disaster strikes, don't be afraid to get in touch for help, guidance or replacement parts. Where possible we will endeavour to replace parts gratis or for a nominal charge. We get a kick out of seeing models built, not languishing in a drawer, so we do what we can to see that happen.

Body preparation

The body is supplied as a one piece resin print. Exercise caution in handling prints as detail parts will be vulnerable.

First remove all supports and remnants. Small conical supports can be carefully trimmed flush with a scalpel or similar. The larger knife edge supports are best scored with a knife and then carefully snapped off.

The mating surfaces between the body and underframe require very careful cleanup to fit precisely.

Smooth the tops of window openings with an appropriate abrasive (sanding stick/needle file etc), taking care not to remove too much material and keeping the openings square. This should take very little work.

Smooth the body side lower edges. Very little needs to be removed, just make them flat and true (yellow).

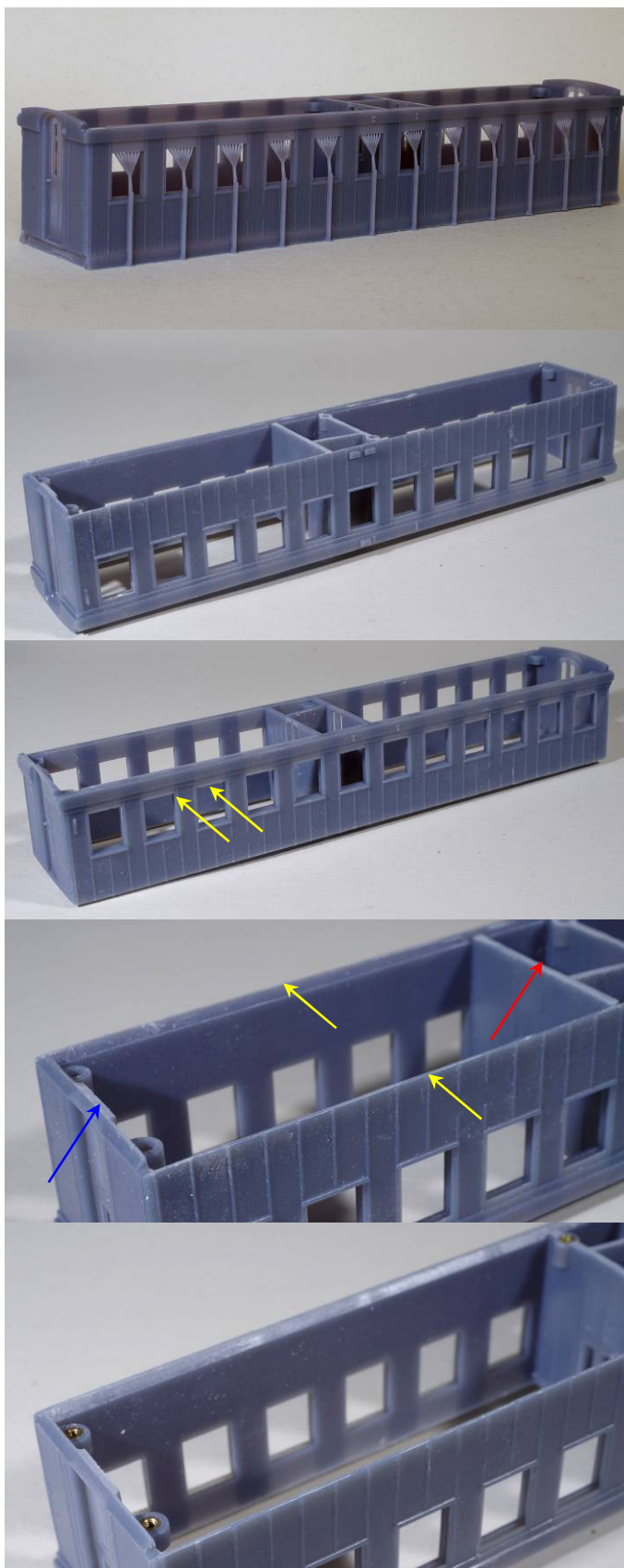
Note that the ends sit lower than the sides (blue). These may need a bit of adjustment later to mate with the platforms.

The lavatory partitions (red) need to be flattened smooth. This is a little fiddly as they sit somewhat higher than the sides. The important thing is that the floor locates onto them without distortion.

Fit 4mm M1.4mm threaded inserts at each lower body corner and centre.

Inserts should be a good fit, but if necessary open out holes 2.5mm. Make sure inserts are flush, or fully home (centre). CA/epoxy glue in place.

Note that if centre inserts end up too proud they can be ground back with a cutting disc in a motor tool.



Underframe/floor and platforms

Carefully clean up the ends of the solebars removing any elephant foot (Blue).

Open 6x mounting holes 1.5mm. Also open bogie pivot holes 3.5mm if required and fit M2 threaded inserts (not shown).

Clean up the 45° chamfer on the upper edges of the floor (yellow). Note that this is just removing any elephant foot and cleaning up the chamfer, NOT cutting a new one. DO NOT chamfer the solebar ends where they are visible outside the body.

Clean up floor ends, checking fit against body. The aim is a good fit without distortion.

Test fit floor to body with M1.4 screws noting that the 2 central screws are shorter (4mm).

The parts should fit easily, but it is worth taking some time assessing everything to make sure it is true, flat and gap free. Carefully sand mating surfaces to perfect fit if necessary.

Clean up platforms. Carefully clean up headstock outside surfaces to remove minor support scars. Remove elephant foot on inside edges, taking particular care that the mating surface is flat (arrow).

Make sure coupler pocket has clearance on coupler and/or make suitable modifications for your coupler of choice.

Drill for end railings 0.5mm at the dimples in the headstock top. Also drill the top of the hand brake mechanism 0.6mm (see handbrake detailing for more info).

Make sure that the platform is tight to the body avoiding gaps at the yellow arrows.

Sand the body ends until a good fit is obtained. The body ends should not be proud of the underside of the floor. Note that material can be removed freely BELOW floor/platform top level as this will not show after assembly.

Note that the platform with the handbrake gear goes to the end of the underframe marked 'H'. For A161 it is uncertain which end the brake was, but for similar cars it was at the lavatory end.

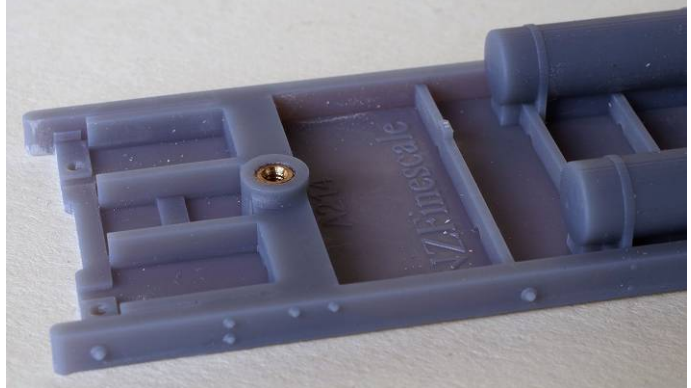


Check fit and truth by capturing the platforms with the body fixing screws as shown.

CA glue the platforms to the underframe being careful not to fix the screws or body. Glue initially at the point indicated, and reinforce after glue has set with body disassembled.

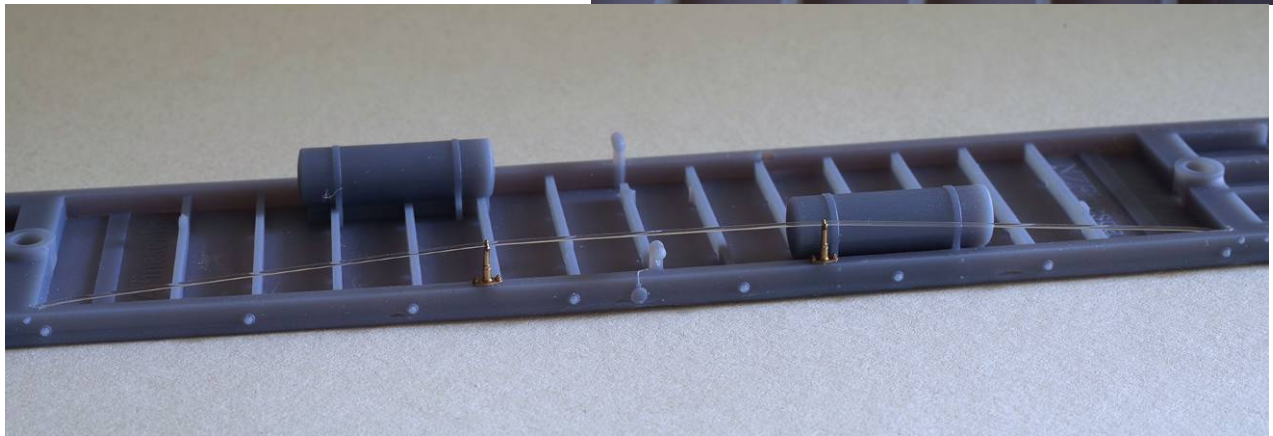


Fit M2 threaded inserts to bogie pivot points. (3.5mm OD)



Cut queen post castings leaving much of the square spigot intact.

Attach to recesses in solebar with 5 minute epoxy.



Drill (0.5/0.6mm) floor for truss rods in the corners between the solebars and the bogie transverse bearers.

Glue a length of monofilament into the floor with CA glue and allow to harden, stretch over the pedestals and through the hole in the other end of the car to form the truss rod, maintaining light tension. Glue the free end while maintaining tension. A weight clipped to the line makes this easy.

Roof

Clean up the roof by carefully removing any elephant foot around the lower external edges (arrows). Be careful not to remove the moulding.

Make sure roof end faces are flat.

Fit 3mm M1.4 threaded inserts (after checking threads) to each corner of the roof at the recessed locations. Note that these need to remain proud as the roof is not deep enough to fully recess them.

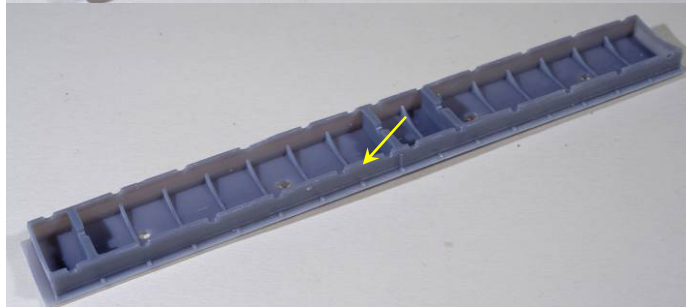
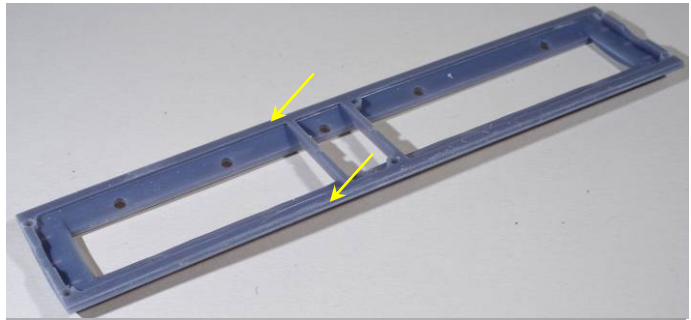
Clean the 3 dowelling holes in each end face 1mm.

Test fit roof to body with underframe removed. This should be a very neat fit.

Clean up elevated roof. This needs to sit inside the main roof part, so remove any elephant foot around the outside edges (arrow) and chamfer slightly.

Test fit elevated roof to main roof. This should be a snug press fit. DO NOT fix for now.

Fit dowels from 1mm wire into roof end face.



Prepare verandah ends by drilling 1mm for dowels (blue arrows).

CAREFULLY drill for end railings (best to drill 0.3-0.4mm and then open up to 0.5mm to preserve the printed ferules – yellow arrows).

Elevated roof verandah on left, turtleback on right.

Press fit verandah end to main roof and check alignment and truth. The important thing is that the edges of the roof and mouldings are continuous

Test fit to body. Some sanding and adjustment will be required to get a good fit. This will be VERY minor, BUT you will need to remove any material that is preventing perfect mating. Once satisfied screw the roof into place and recheck.

CA glue verandah to roof, taking care not to attach to body.

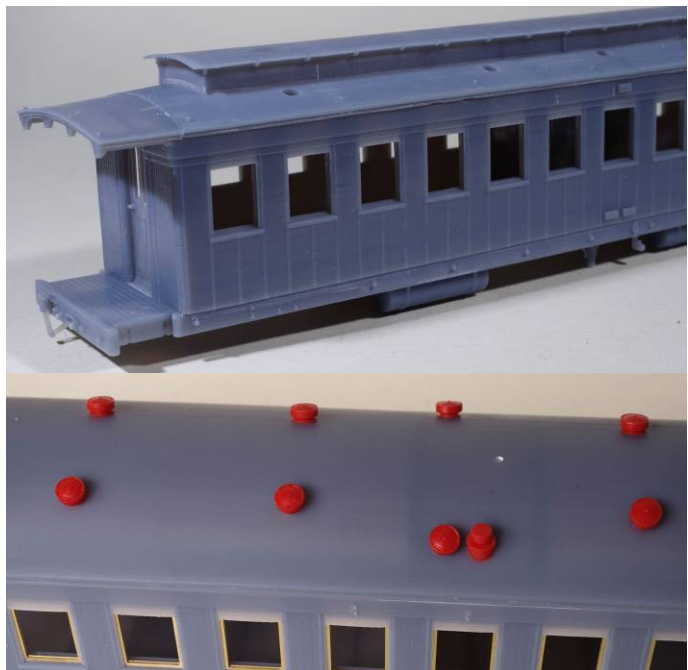
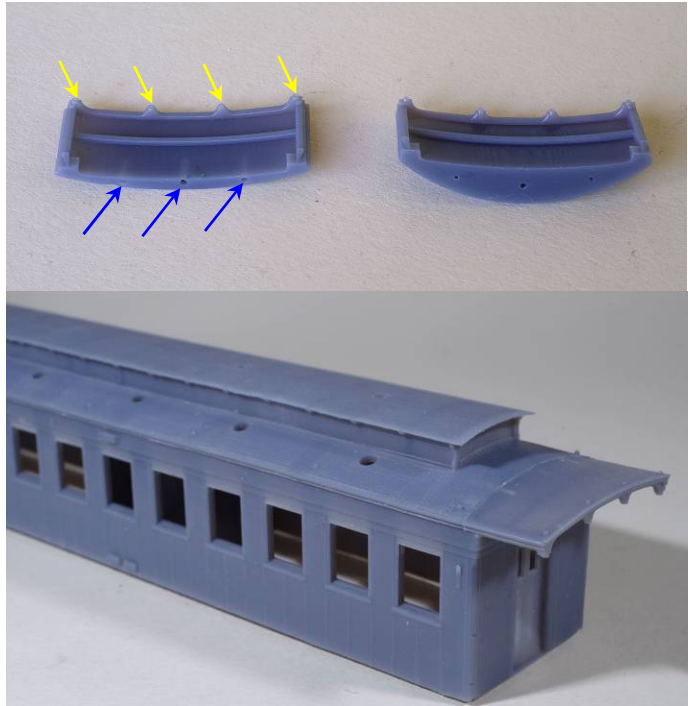
Note. This dowelling generally works well, but if holes have been drilled/formed crooked then the dowels may need gentle bending to get the right alignment. If this is insufficient use smaller (0.8mm) dowels and fix with 5 minute epoxy to fill the gaps.

Test assemble the body, underframe and roof and assess.

The major parts are all in place and this is a good time to assess any fit issues that may have persisted.

Remove roof from car and separate elevated section. Fill and sand the roof smooth avoiding the bolt detail. It can be worth spraying with surface primer before sanding as this will fill some gaps. The filling and sanding required should be relatively minor, but it is worth taking the time to do a nice job.

Open out location holes in roof if required and fit printed vents to suit. (A214 with the turtleback roof shown right)



Window frames

Window frames are etched and intended to fold up with an integral slot to take the glazing in a clean and simple manner.

Separate frames from the fret being careful not to distort the brass. Don't worry about cleaning up the rags at this point.

Fold 180° as shown with the half-etched void to the inside.

Clamp the frame so that the lower edges are exposed for soldering. (This is an oversized craft peg from Spotlight trimmed to suit).

Note that the lower edges will not be flush (to represent the chamfer of the prototype).

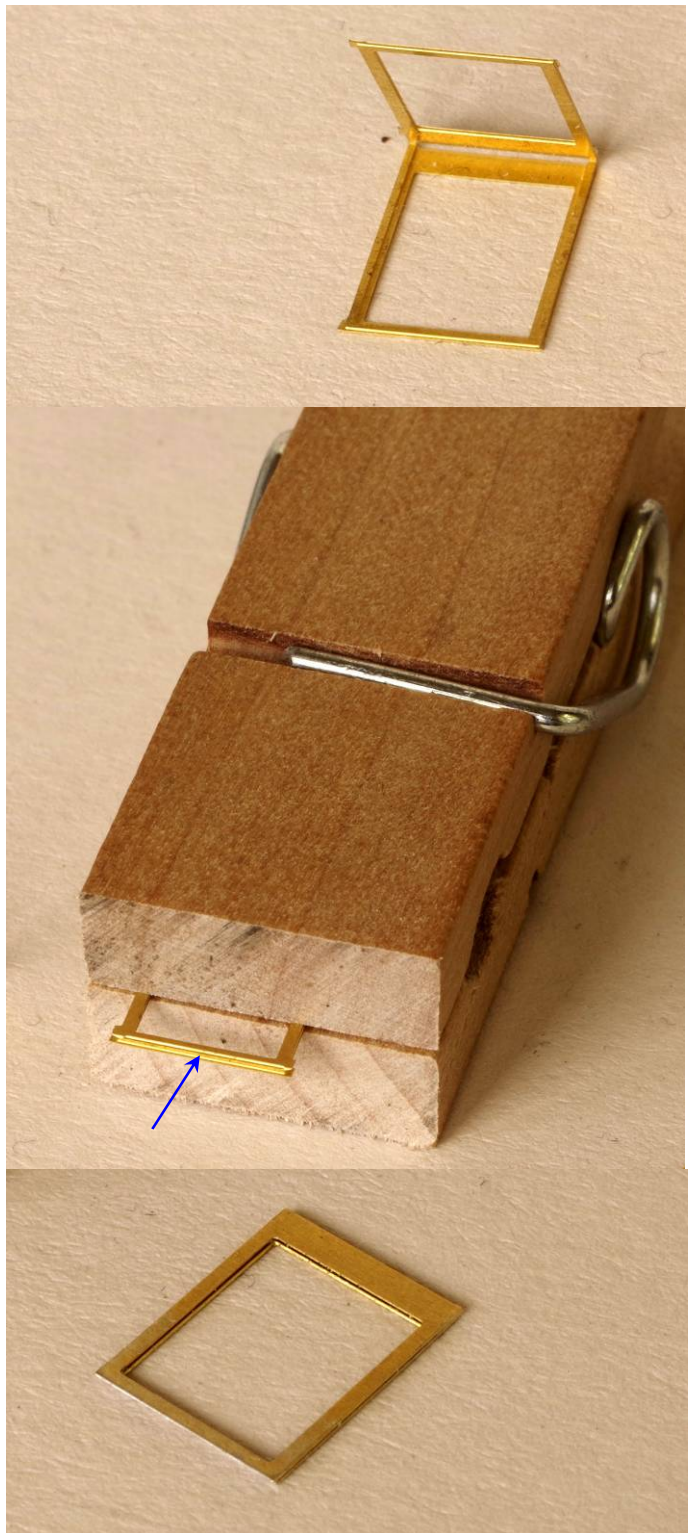
Apply a little solder paint very sparingly along the lower edge indicated and solder.

Gently clean up the sides with a good needle file and/or abrasive stick making sure to keep things square and true.

The finished frame should appear as shown. Make sure that they are a nice fit in the body slots.

Repeat for the other 23 frames...

Give them a good wash to remove flux residue.



Bogies

Note: Parts may vary from those shown depending on bogie type.

Clean up etched bogie sideframes. If stretchers have them fold, the angles 90° (as shown). Fold bearing hangers 90° and reinforce sparingly with solder.

Glue/solder pinpoint bearings in place.

B60 bogies shown, other types are similar.

Clip in wheelsets and check free running.

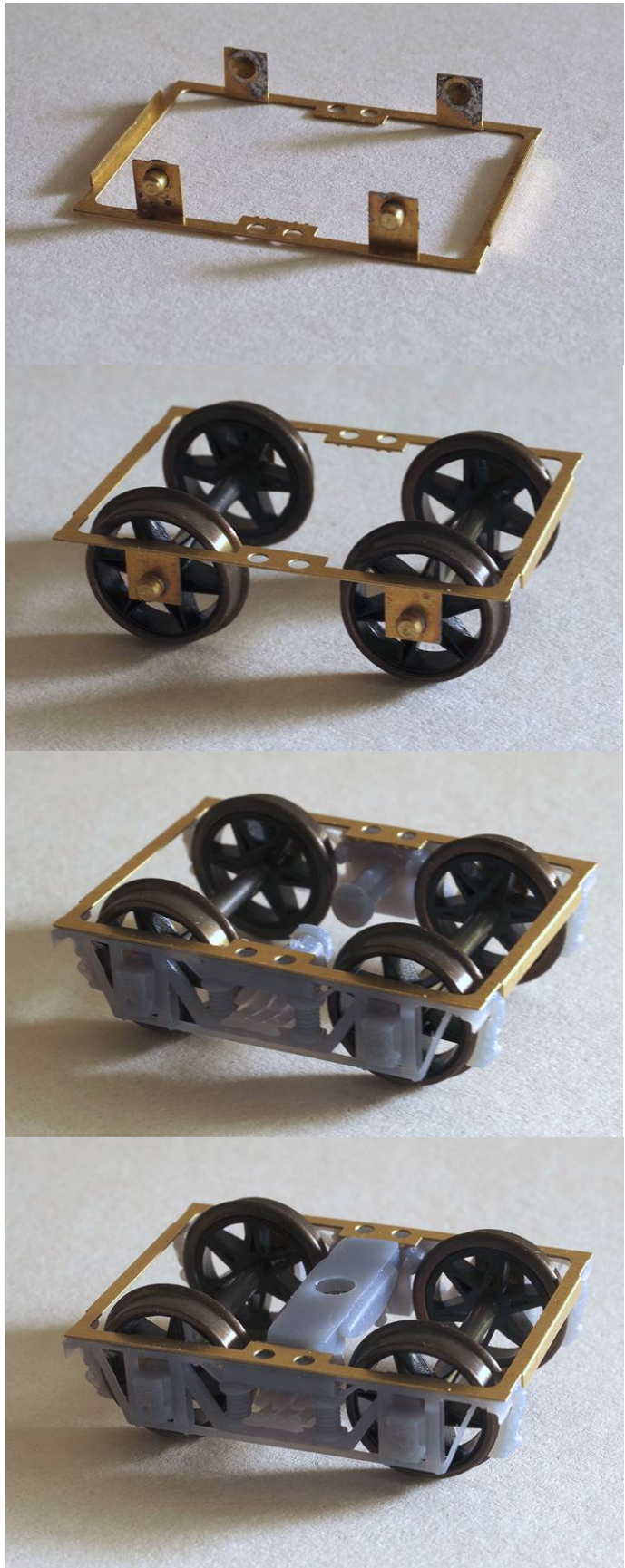
Clean up cosmetic sideframes, making sure the areas that sit against the etched parts are flat.

Glue sideframes in place at bearings and along top edge.

Clip bolster in place taking care not to put force on the printed sideframe details. This is best done by forcing the spigots on the sideframes into the bolster with a thumbnail.

Wheelsets can be removed if required by removing the bolster and gently flexing the bogie.

Stretchers for the brakes are also supplied. Fold these 180°, solder and clip behind the brake shoes.



Detailing

Steps: If not done earlier, drill mounting holes (0.6mm) at the printed dimples in the recesses within the platform sides.

Fit cast steps, with the cast spigots locating in the drilled holes.

Seats: Temporarily screw underframe to body with roof removed so it is tight and in final position. Fit and glue seats to body sides taking care that the underframe is not glued to the body.

Westinghouse set: Clean up the Westinghouse set and glue in place on the underframe at the printed guides. If you want to do the brake rodding, open up the ends of the clevises 0.4mm first.

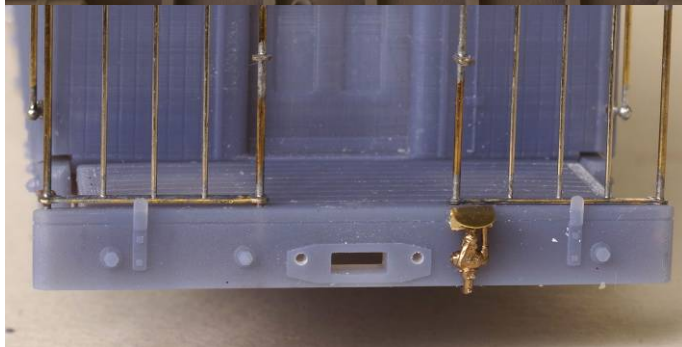
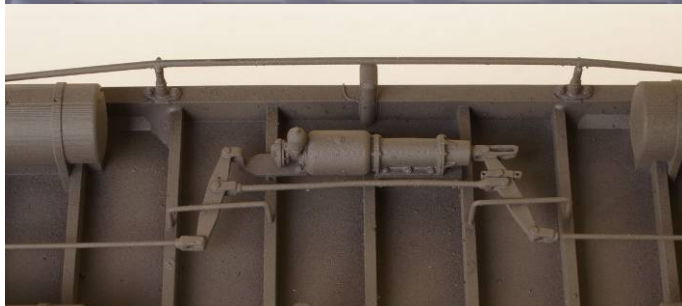
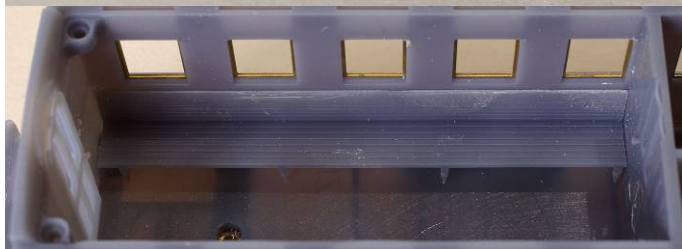
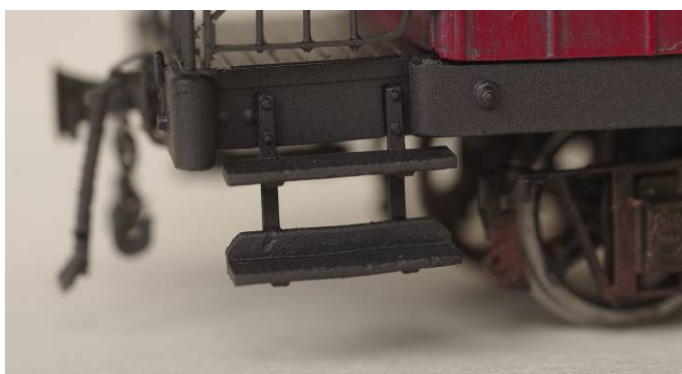
Brake rodding may be added from 0.4mm wire as shown. Terminate on the bogie pivot housings to represent the bogie connection.

Form and fit safety loops from 0.4mm wire as shown.

Remove brake cock castings from sprue leaving the mounting and hose attachment spigots long. Open out the holes in the headstock 0.6mm and glue in place so that the mounting spigot locates in the headstock hole and the brake pipe tucks under the headstock.

In this example I've also added the etched coverplate. If doing so I suggest pinning it rather than just gluing it in place.

Open out holes for chain eyebolts 0.6mm. Clean up and fit cast eyebolts, gluing from behind. Fit chains with 3 links and hooks. Add hose during finishing as described later.



If you want to go the whole hog on underframe detail, add the brake pipe and various rods (wire not supplied). All this stuff is not particularly visible in the finished car, but if you have high bridges or other areas that allow a low viewing angle their presence really adds to the realism.

Handrails

Handrails are of 0.4mm wire through cast brass knobs. Neatly forming the handrails is probably one of the trickier parts of the kit. Handrails are formed and fixed to knobs, but not permanently fixed to the vehicle until after painting.

Cast knobs generally have a well formed hole, but this is typically neither truly round nor of sufficient diameter. This is partly intentional to improve print/cast success. The holes may be cleaned up with root canal reamers, broaches and/or drills. Broaching/reaming is preferred as the holes tend to stretch rather than break. Be careful not to abuse and fatigue the knob shanks.

There is a printed dimple in the body to locate a drill for knob location.

Initially drill all holes 0.6mm. Lubricating the drill with spit or water gives a cleaner result.

Note that the holes in the corner members should be drilled at an angle of around 30° as shown by the bits of brass wire in the photo.

Open out the upper pair of holes 0.8mm.

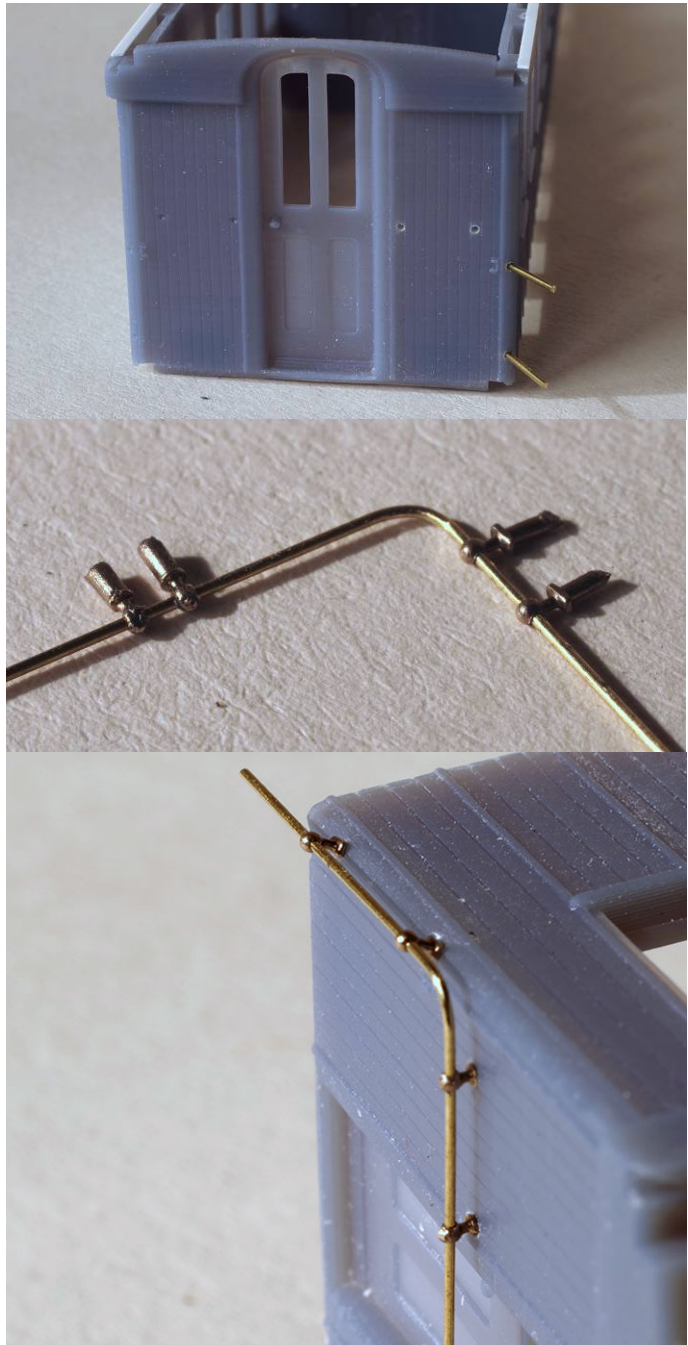
Sharpen the end of a length of 0.4mm wire to make fitting knobs easier.

Form a 90° bend in the wire around a 2mm drill shank.

Feed on 2x round based knobs (on left here) and two rectangular base knobs.

Fit to holes in car end. It is generally easier to fit the corner member knobs with the rectangular feet first.

Make sure the horizontals and verticals are nice and true.



Apply solder paint sparingly around knobs and touch with a soldering iron to fix the knobs to the wire.

The resin is quite heat prove, but avoid roasting it.

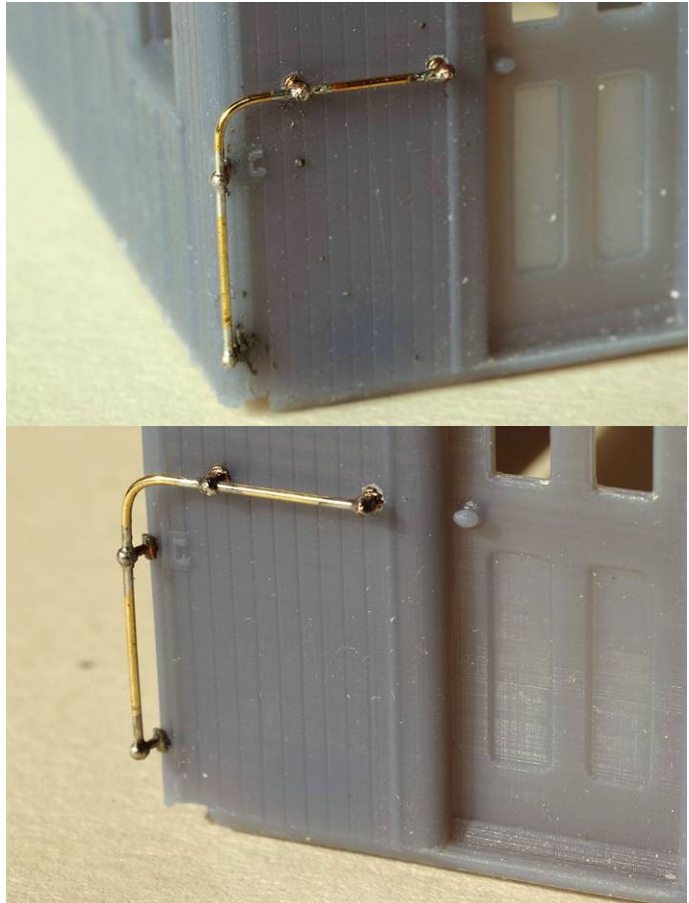
Clip the hand rail to length with flush cutters.

Once done wash the car end with rail in place. The flux is not very good for the resin or the metal long term.

The hand rail will still be removable, and I tend to do so for painting.

If your soldering has been a little excessive you can clean them up a bit off the model. I used a wire mop in the mini drill to give the knobs a little buff for this pic.

Repeat for the other three corners.



End railings

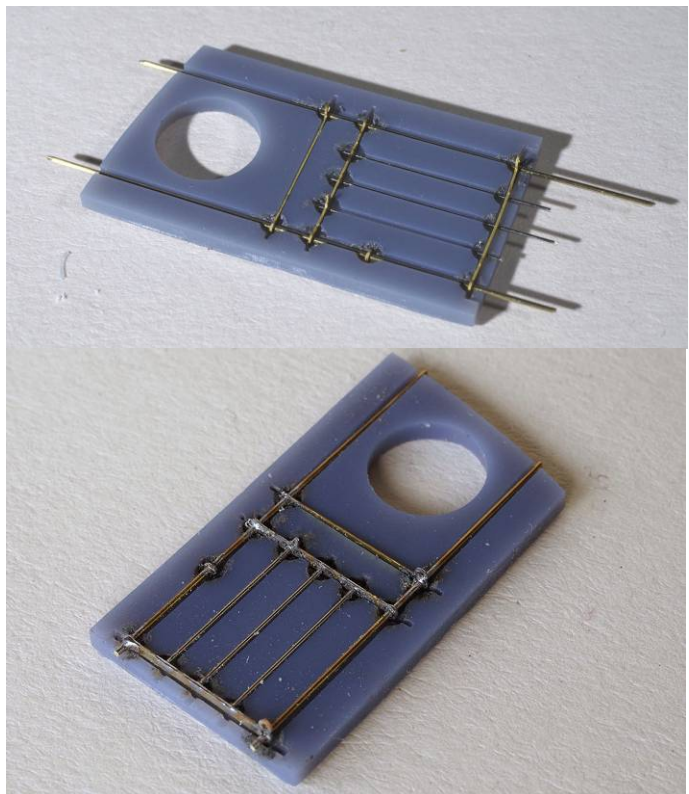
Railings are assembled from the etched horizontals with 0.5mm wire main verticals and 0.3mm minor verticals.

The main difficulty here is making sure everything is in the right place and the right way around. The railings should be assembled in the jig so that the inside faces outwards.

Check:

- On the short side (outside of car) there should be a gate hinge eye facing out of the jig at top and bottom.
- The middle horizontal has a little triangular gate latch and this should face out of the jig.
- On the long side (toward car centre) the top rail should have an eye facing into the jig for the telescopic handrail. The little figure 8 that carries the lower telescopic railing should protrude into the jig

Apply solder paint sparingly and solder up while holding all parts firmly in place with a fingertip.



Clip verticals to length flush with the jig to give a good allowance for insertion into the roof and platform.

Wash and clean up the assembled railings, which should look like the example shown.

Hand brake: Do this bit when you have reached the point where you can assemble the underframe, body, roof and end railings together.

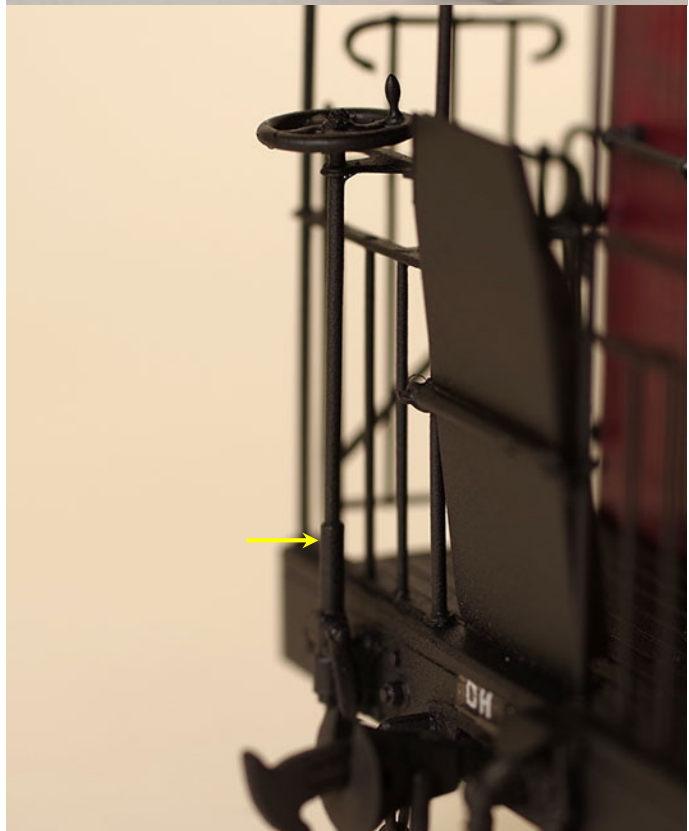
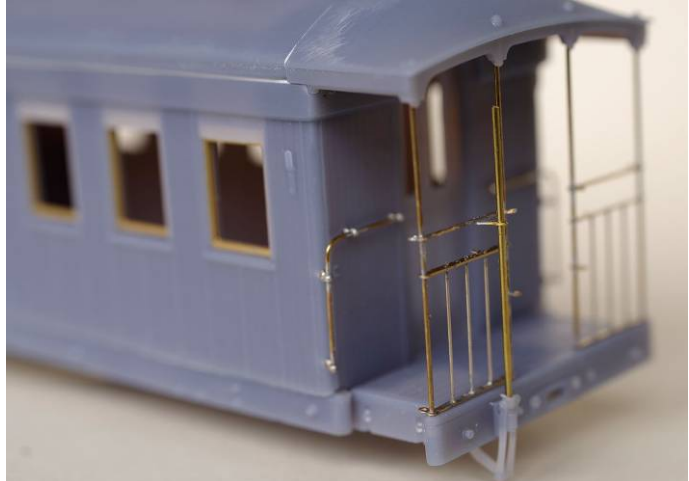
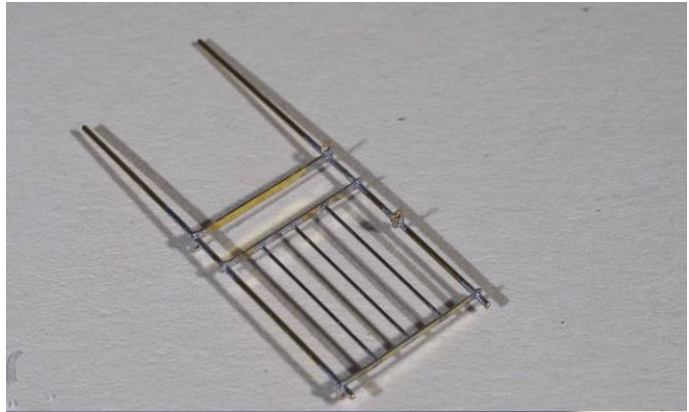
There's a bit of fabrication required for it. Firstly you need to attach the etched bracket to the end railing to line up with the handbrake mechanism. Hopefully you have drilled out the top of the handbrake mechanism to take a 0.6mm wire. It just needs to be deep enough to enable a good glue bond.

I assembled the bracket onto a piece of 0.6mm brass wire. The wire was then fitted to the handbrake mechanism and held in place with one hand holding the car with a finger on the top of the wire. The bracket was coated with solder paint and then soldered up. Not as hard as it sounds.

Finish the handbrake once you have finally glued the end railings to the platform. I tend to do this at the final detailing stage.

Fit a 0.6mm wire from the hand brake mechanism vertically, to pass through the railing bracket. Add a short length (4mm) of 0.8mm tube to represent the shroud that covers the thread (arrow).

Finally glue on the 3d printed handwheel.



Gates

Gates are formed from the standard NZFinescale car gate etch (ES001) available separately and supplied with assembly jigs.

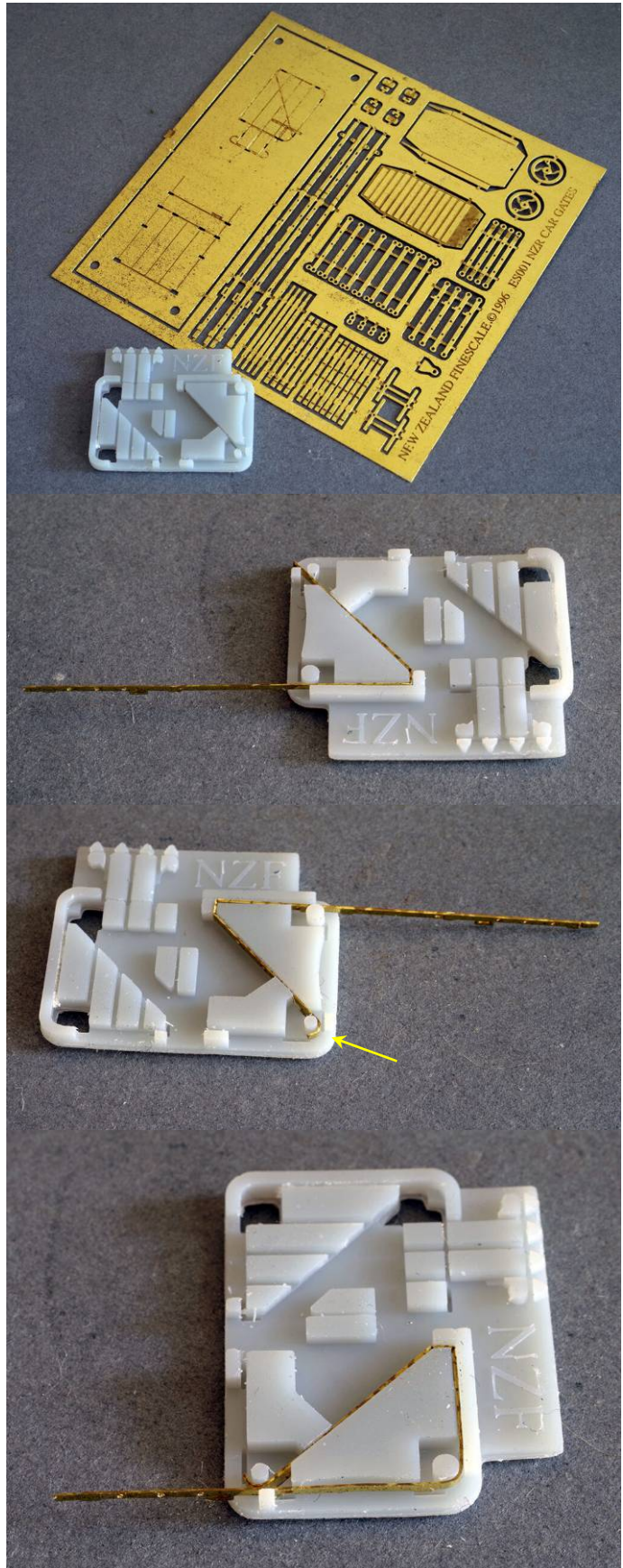
Cut the main frame, extension top and hinge bar parts from the fret and open holes 0.33mm. Note that the holes in the diagonal need to be oval, so clean them out with the drill/broach at an angle.

Make the first fold in the main frame with the half etched lines to the inside. Place in the folding jig as shown.

Note that these folds are defined by the half etch guides and positively locate in the jig.

With the part in the jig, form curve at the top of the diagonal. Carefully form the curve around the jig spigot with tweezers.

Gently form the gate to shape around the various guides. This can be a bit of a fiddle as there are some protrusions in the etch. These do sit into depressions in the jig, but a little care and patience are needed. Note that at this stage the general form and position of the curves is enough – we will tweak later.



The basic gate frame folded to shape.

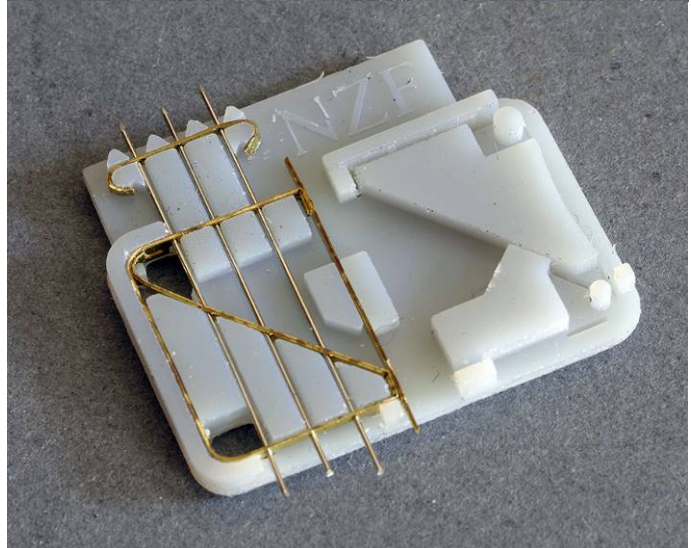


The shaped frame is the carefully removed from the shaping jig and placed into the finishing jig as shown. At this point the curves can be tweaked by squeezing the frame into the curves of the jig.



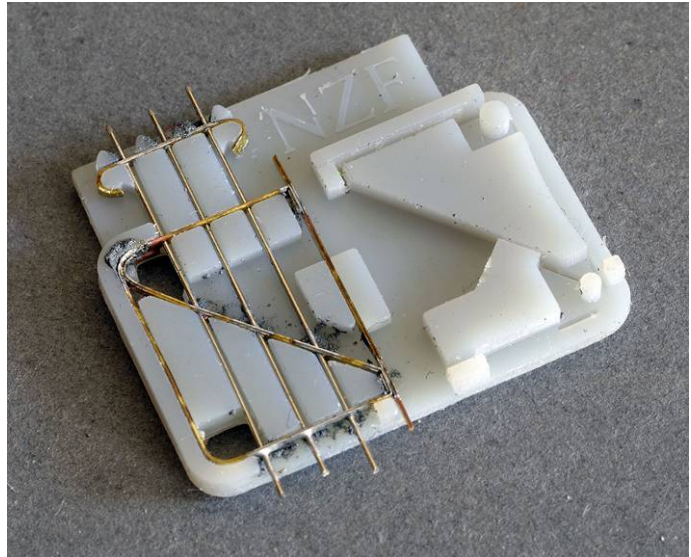
Next the extension top, vertical wires (0.3mm) and hinge bar are added. It pays to sharpen the wires to ease their passage. Once the parts are in position, form the curled ends to the extension top.

Note that for pragmatic reasons the wires run right through. In fact they should stop at the gate top with the extensions added from strap. The etch provides parts to do this, but this jig does not explicitly allow that.

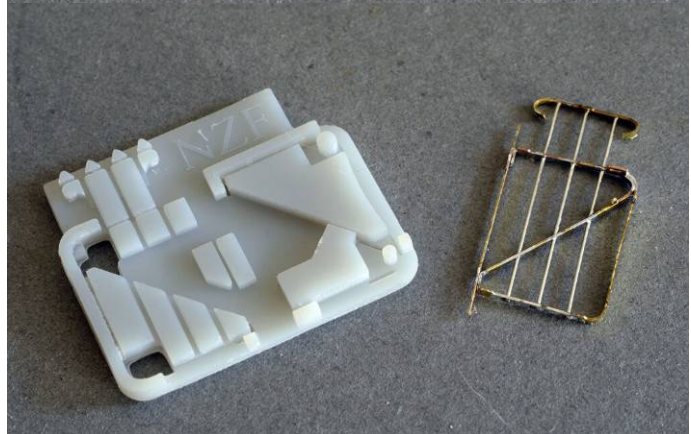


Add some Carr's 188 solder paint sparingly to all joints and touch with a hot iron.

The image shows all parts soldered up. Parts are held quite firmly so there is no need for additional clamping other than some finger pressure.



Remove the gate and solder at gate top (inaccessible while in the jig). Trim wires, and then wash both gate and jig.



Fold up latch hinge and fit latch on a 0.3mm shaft.

The latch needs to be joggled to fit through the slot in the vertical part of the gate frame.

When finished give the gates a good wash. Sand blasting is a good idea too if you have it.

Clip gates in place on end railings at hinges.



Other detailing options

Couplers: Couplers need to be consistent (or at least compatible) throughout your fleet, and are therefore not supplied. NZFinescale couplers (available separately) work well and a coupling box to mount them is supplied.

Roof gas piping: I made mine from 0.15mm invisible thread (monofilament). Brackets from tissue paper.

Telescopic handrails: Easily made from telescopic micro tube and wire if desired.

Gangway: An etched gangway is supplied. Working gangways are probably impractical, so modeller's choice whether to mount these vertically or leave them off.

Painting

I suggest doing the majority of painting prior to final assembly. This will assist in separation of colours and make the job considerably easier. Refer Kevin Crosado 30' van articles in *NZMRJ* from Issue 361 - Issue 363 (2007) for definitive painting variation and colour description.

Paint roof, bogies, handrails, gates, railings and underframe black (preferably dark grey).

Paint body carriage red (depending on period this varied and pre-1926 Pullman green).

Paint ceiling white (or preferably pale grey)

Paint interior walls and surfaces varnished wood.

Paint the etched window frames body colour. I fit masking blanks into the glazing slots and paint in place. If modelling windows open be sure to paint the slots in the frames

Paint floor mid brown (linoleum).

Decalling. Always a problem as the majority of lettering on NZR vehicles relates to place (ie the shopping code letter) and date. Thus if you want to do it right you need to be doing it character by character or getting custom decals. I have always taken the latter approach. So decals are not supplied, but will hopefully be available from NZFinescale in future.

Painting plates

I suggest leaving the plates attached to the brass fret until painted as this makes handling easier. Prime and paint with yellow. I strongly suggest an enamel or lacquer paint for this as it needs to be hard when dry. I used PA10 etch primer followed by Humbrol yellow (both airbrushed). Having the paint properly dry is important.

The next step is to apply black paint and then squeegee it off to leave the proud detail free of black paint. Make the squeegee by cutting the finger from a nitrile rubber glove to provide a wide band, and stretching this around a suitable piece of plasticard/styrene sheet (as shown).

For the black paint, I used Vallejo Air black with a bit of retarder in it. The technique works best with thin paint that doesn't dry too quickly. If the black isn't dense enough you can always repeat the step. Generously apply the black by brush (you want to do the edges too), leave to dry for a bit (30 seconds or so, but will depend on your thinning regime), and then squeegee off. I use the squeegee at a fairly shallow angle and it may take a few passes in different directions to evenly reveal the lettering. You can get a clean rubber edge by rotating the rubber sleeve on the plastic.

The result is very sharp (shown here on a 30' van), and it doesn't take any great skill to do it.

Attach plates using a little matt varnish.



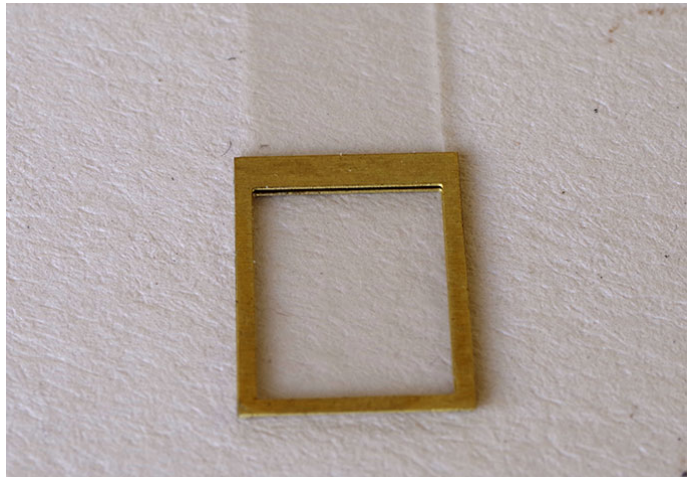
Glazing

Glaze all windows using 0.1mm acetate sheet cut to a 7.5mm wide strip.

This is a little time consuming, but worth the effort. I generally first make sure the slots in the window frames are clear using a strip of 0.1mm brass shaped to suit.

Fit the glazing over length and trim to size once firmly seated in the frames.

Doors: Cut glazing to suit and fit into slots within the doors (3.3mm wide strip).



Brake hoses

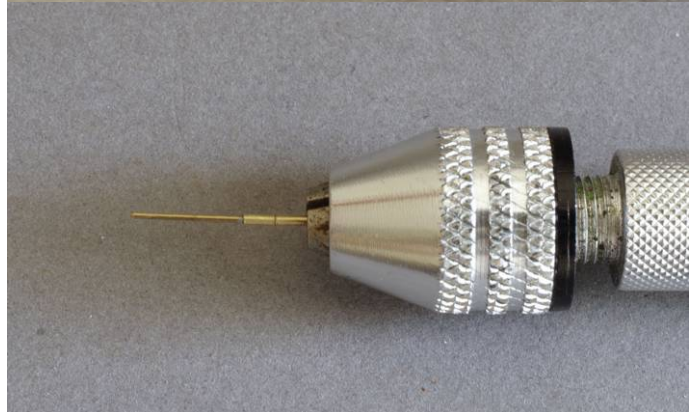
The brake cock castings incorporate a spigot to securely mount the valve and a short length of brakepipe leading under the headstock. Castings need to be cleaned up and fitted to the vehicle more or less as per the prototype. I generally use a metal blackening compound on the glad hands.

The 'hose' is a 0.8mm outside diameter, 0.5mm inside diameter plastic tube. This is soft and flexible with a smooth surface. To represent early linen bagged hoses (pre about 1930) or later internally reinforced hose (diesel era) this can be used as is. It probably doesn't replicate the softer look of the linen bags perfectly, but it may be possible to distress it a little to achieve that. It certainly needs work to look like the externally reinforced hose of the later steam era (post 1930).

Early standard hoses were 24" long, later reduced to 22" or 9.5/8.7mm in scale. For the period 1930-1970 a wire wrapped hose 22" long is correct. Reduce the hose 1mm to allow for the clamped ends that are part of the casting.

Scrapped relay coils or fine electrical cable are an excellent source of fine wire for the wrapping (not supplied): 0.06mm in this example.

My wirewound hose jig. Basically a piece of 0.5mm diameter hard brass wire ground to a point. A length of 0.8mm tube is soldered over the wire so that 7mm or so of wire protrudes. The whole thing is sized overall so that the jig can be conveniently held in a pin chuck.

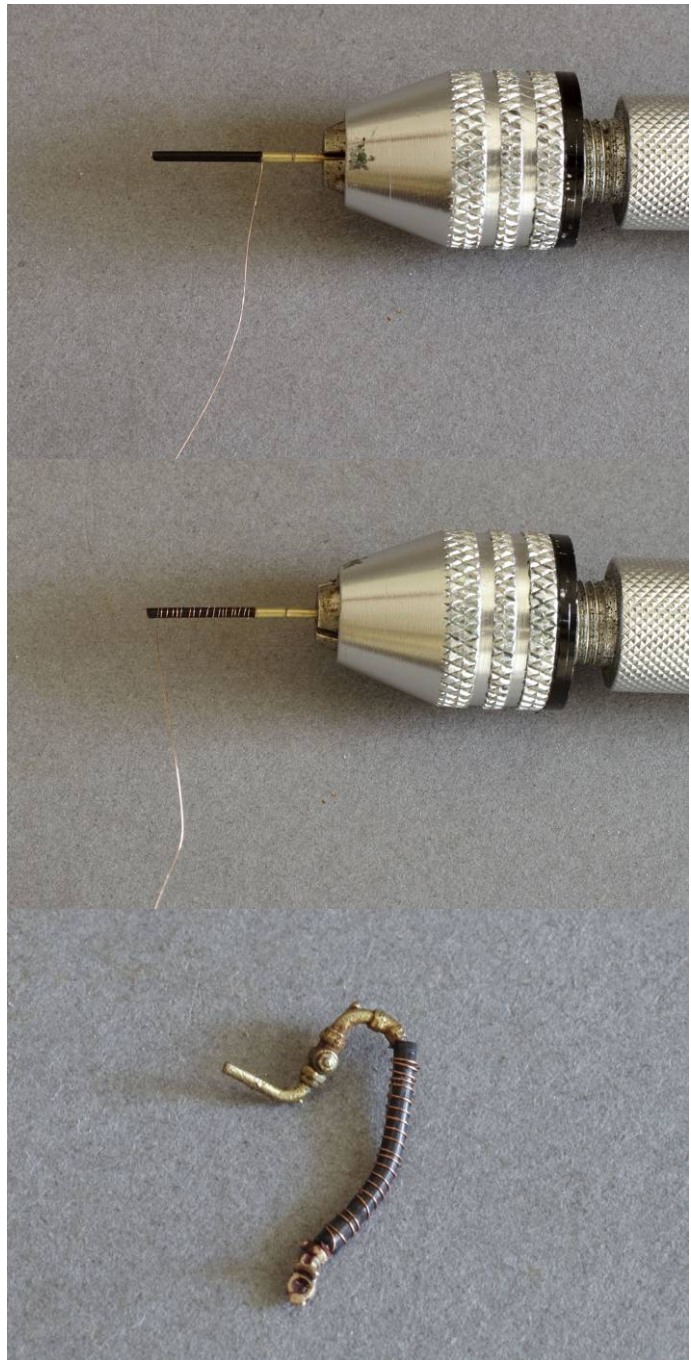


A length of wrapping wire is slipped into a length of plastic tube trimmed to 7.7mm and the tube pushed onto the wire as shown. This is a convenient way to retain the wrapping wire.

With gentle tension on the wrapping wire, the chuck is rotated to form the wrap. I then trim the excess and apply a little low viscosity CA glue to fix the wrap in place.

The finished hose can be slid off the jig and fitted to the spigots on the valve and gladhand.

An additional step that can be worthwhile is to place a length of soft copper wire (10A fuse wire) inside the hose to hold the hose in position once shaped to taste.





My pilot model of A40 in 1940 West Coast condition.