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NSWGR Class FR Second Class Passenger Car Kitset in 7mm Scale

Prototype Information

The FR coach was a 1930s rebuild of the side door LFX cars. They contained six second class compartments. Two types were produced, an intermediate car which had end doors and independent cars which had no end doors. This kit reflects the later. While most intermediate cars were used in interurban services, the independent cars were generally allocated to regional depots.

FR Passenger Car Kit Parts List

Resin Castings
2 x car end castings
2 x car side castings
2 x roof castings
1 x floor casting
12 x second class seat castings
1 x battery box casting

Brass Etch Components
4 x Marker lamp brackets

Pewter Castings
1 x brake cylinder
1 x air tank
1 x generator
2 x brake lever brackets
4 x buffers
4 x queen posts
4 x truss rod brackets
17 x mushroom vents (with resin seals)

Brass Castings
2 x Brake hoses
2 x Cross style brake wheels
4 x step support brackets
2 x turnbuckles
2 x door handles

2AA Bogies
4 x Bogie Sideframes
2 x Bogie Bolsters
8 x Brake Shoe castings
2 x M2 8mm screws
4 x spoked wheelsets
8 x brass bearings

Wire
1 x 300mm lengths Dia 0.8mm brass
3 x 300mm lengths Dia 0.6mm brass
1 x 300mm length Dia 0.5mm brass

Styrene
2 x 360mm lengths .040” half round strip
1 x 90mm length .040” x .125” strip
700mm of .040” x 42mm sheet
2 x 300mm lengths 25mm wide .015” clear strip

Instruction Sheet and Decals

You will need to supply couplers of your choice.

Tools Required

Large files and needle files
Superglue
Pin vice and/or 'Dremel' motor tool
Drills 0.5mm, 0.8mm 1.2mm, 1.6mm & 1/8”, + one to suit the screws for attaching bogies
Soldering iron (variable temperature)
Low melt and resin cored solder
Craft knife, tweezers, small pliers, side cutters, scissors
Fine wet or dry paper
Modelling putty
Decal setting solution

ASSEMBLY SEQUENCE

Read ALL instructions before commencing assembly to understand the correct sequence.
All flash on the castings should be removed before assembly.
Some castings may have air bubbles - these are easily puttied if desired and will not affect the end result.
Occasionally a casting may be warped. This problem is easily rectified by placing in hot water in a flat bottomed container for a couple of minutes and allowed to cool on a flat surface.
The instructions for the assembly of this kit assumes that the person assembling the kit has some basic kit building skills.
The quality of the finished product is dependent on the care taken in its assembly.
If you have any problems please feel free to contact O-Aust Kits direct.
The resin parts in this kit are manufactured using a wax based release agent which needs to be removed to enable glue and paint to adhere properly. Either scrub the parts in lukewarm soapy water (not hot - heat may distort the parts) and rinse with clean cold water or wash the parts in clean white spirit. In either case take care with fine details to avoid breaking them off and ensure the parts are dry before continuing with assembly.
Similarly, pewter parts should be washed in warm soapy water and rinsed and dried to remove casting residues that may not be visible.
The manufacturing process may give rise to a small variation in parts size. Critical parts have been matched at time of packing to ensure a good fit between them. If you are assembling more than one of these kits at a time do not intermix parts between kits – keep them separate.

Some tools that are particularly useful in resin kit assembly, apart from drills and a sharp craft knife, are abrasive blocks. A stout piece of MDF to which abrasive paper has been attached either by gluing with a thin film of contact adhesive or double sided clear tape is great for sanding large flat areas or long components. Manicure abrasive boards are good for touch up work .

BODY ASSEMBLY

Step 1
Clean Flash from all castings taking particular care around window and door frame openings.
The tops of the car side castings should be filed to a smooth edge in preparation for the roof attachment at a later stage.
The corners of the sides and ends should be filed to a smooth surface to ensure a clean join in the corners.

Step 2
It is recommended that you drill all holes required for handrails now, using a 0.5mm diameter drill in a pin vice, while the castings are still in their flat state. You will need to provide handrails each side of the entry door and in two locations on the end castings. You will notice on the end castings there is a handrail bracket moulded on, so locate the dimple for the handrail and drill there. Refer to figures 1 and 2. Referring again to figure 2 and also to figure 3, drill 0.6mm dia.holes for the pipework located on the ends. Note that there is a hole passing through the left side end stiffening member. Also drill 0.5mm holes for the door handle castings.

Step 3
Attach one of the side castings to an end casting with the side butting onto the end and noting that the sides fit between the ends. Take care that it is flush along the bottom edge and at the corners and square. When happy with the position, apply glue and hold firmly in place until the glue sets.
Repeat the process for the other side and end.

Step 4
Make up the body by joining the two ends/sides together ensuring that the joints are square and the corners are flush.
Ensure the corners are square using the floor as a guide. When happy with the position, apply glue and hold firmly in place until the glue sets. Reinforcing the inside of the four corner joints is also recommended. Note: do not glue the floor in place at this stage.

Step 5
There are two identical castings that are moulded oversize in length that will need to be joined together to form the roof of the car. Care is required in joining the two pieces together, to ensure that they are square and true. It is recommended that two ends be squared, then butt jointed, using some scrap styrene strips underneath to reinforce the joint. It will be necessary to shorten the entire assembly to fit the body. Note the roof fits in between the body ends. Clean and square one end of the roof assembly, checking its fit against one end of the body assembly. Now check the roof against the body castings already assembled and trim the difference from the roof length, again ensuring a neat fit against the remainder of the body sides and end. The seam from the roof joint should be offset from the centre door, which is the weakest part of the car body side. Drill holes in the roof casting for the vents. Refer to figure 4 for vent layout.
Attach the roof assembly to the sides/ends assembly to form the coach body ensuring that the joints are square and flush. When happy with the position, apply glue and hold firmly in place until the glue sets. Puttying and sanding will be required to achieve a smooth finish, at both the centre seam in the roof castings and at the join with the car body ends. When happy with the finish, roof vents may now be applied.
Each vent is in 2 pieces; the resin roof seal and the actual pewter vent. Apply the roof seals centred about the holes and insert the vents, securing from the inside using your favourite brand of superglue.

Step 6
Glue a strip of .040" half round styrene along the joint between the body sides and the roof to represent the fascia board drip strip.

Step 7
Check that the dimensions of the floor casting match those of the assembled body. Make adjustments to the floor casting where necessary, keeping in mind that any adjustments need to be made equally to each side or end. located at the floor ends, there is an excess amount of resin cast onto the buffer mounting block. This is due to the process of casting and its limitations. This excess will need to be removed a distance down to the level at the top of the solebar. Refer to figure 11. This will give the body something to rest on for the next stage.
At this point consideration needs to be given to how you wish to join the body to the floor .The options are to screw the two pieces together (recommended) or to glue it in place. If the screw option is preferred, securing lugs should be fitted at this stage. The recommended location for these is in the toilet areas at each end of the carriage and in the centre entry/exit corridor.
Do not permanently fit the floor to the body at this stage.

Step 8
Refering to figures 2 and 3 bend lengths of 0.6mm dia. Brass wire into the desired shape to form the end piping. It is recommended to form this piping in 3 separate pieces, and either soldering or glueing them together after placement on the carbody end. Again refer to figure 3 for guidance.
The brass etch containing the marker lamps can now be cut out and folded. Refer to figure 2 for position of the lamps and install them on the carbody end using the dimensions shown.

Step 9
The body is now ready for painting and it is recommended that you refer to prototype photos for the various schemes applied to these cars.

Step 10
Ensure the paint is thoroughly dry and dust free for application of the decals.
The decals will adhere better to a glossy surface.
Trim margins around lines letters and numbers as close as possible, place in warm water until transfer is almost ready to release from backing paper, then place on paper towel to absorb excess water. Wet area with decal setting solution, place transfer on model and slide transfer off backing paper into position. Apply decal setting solution over transfer, mop up excess solution with edge of kitchen paper and allow 24 hours drying time. To protect transfers and paint work, spray a thin coat of clear flat paint eg. Testor's Dull Cote or similar brand over entire model. Allow 24 hours drying time in a dust free area.

Step 11
Windows should be glazed using the clear styrene provided. Note that the windows in the toilet compartments are opaque white. This can be achieved either by painting the inside of the clear styrene with flat white paint or alternatively by using some thin white styrene sheet.

BOGIE ASSEMBLY

Step 12
To assemble the bogies firstly add two brass bearings to each bogie side frame casting. Ensure a correct fit and when happy attach and glue in place. Pair up each bogie stretcher with two side frames and temporarily attach. The brake shoe assembly castings may require adjusting to sit correctly and not foul the wheel rotation. Check and adjust the castings as necessary.
When satisfied, reassemble including the wheels and test to ensure they run smoothly, adjusting the alignment where necessary. Paint and set aside for final assembly.

UNDERBODY ASSEMBLY

Step 13
Referring to figures 10 and 11, drill appropriate holes in the floor castings to enable fixing of the buffers, brake hoses and truss rod support structure.

Step 14
Strips of styrene sheet 42mm high have been supplied for the interior walls and should be cut to appropriate lengths using the drawings in figures 5, 6, 7 and 8 as a guide. Windows will also need to be cut into the walls using the supplied dimensions as a guide. Next, locate the centre of the floor as per figure 9 and transfer the wall layout, using a pen, onto the floor casting. Assemble the previously cut walls in the configuration shown. Paint the walls and floor in appropriate colours and allow to dry. While drying, paint the supplied seats and when satisfied install them as per figure 9. Any additional interior details are up to the individual modellers taste. The partitions are painted in a colour to simulate the varnished timber of the prototype and the seat covers dark green.

Step 15
Using the 0.6mm brass wire supplied, fabricate the truss rods refering to figure 12. Clean out the holes in the cast truss rod brackets, queenposts and the turnbuckles. Fit these components to the previously bent wire and dry fit assembly in place on the underframe. When satisfied, secure assembly firmly in place with superglue, remembering to secure the turnbuckle. Once in place, add 0.6mm brass wire cross bracing rods between the queenposts, placing them across the car body and fix in place.

Step 16
The brake brackets can now be fitted in their appropriate locations on the underframe, placing them on the cast mounting block. For yard brake assembly the ratchet handle is on the outside of the bracket and pointing to the end of the coach. A length of 0.6mm brass wire forms the yard brake shaft between the two spider wheels, the ratchet shaft is also 0.6mm brass wire. Refer to figure 13 for the dimensions of these assemblies.

Step 17
Fit the brake cylinder, air tank, battery boxes and generator to the floor, locating these components onto their appropriate cast mounting blocks on the underframe and as per figure 13.

Step 18
Build the steps from styrene strip and brackets supplied and glue in place to the support brackets cast in the solebar on each side refering to figures 10 and 13 as a guide.

Step 19
Fit the buffers in the holes in each buffer beam. To enhance the model you may prefer to substitute sprung buffers for the solid ones supplied.

Step 20
Couplers of your choice should now be fitted as per the manufacturer's instructions. (not supplied)

Step 21
Glue the train pipe hoses to the right of the coupler as per figure 11.

Step 22
The underframe is now ready for painting. Mask the interior partitions and seats previously painted and paint the underframe a grimy black.

FINAL ASSEMBLY

Step 23
Fit the completed body to the assembled floor/underframe using the method of attachment chosen at Step 7.

Step 24
Drill suitable holes in the floor casting and attach the bogies to the wagon using the M2 screws provided.

Weathering to your requirements is recommended. You are ready to roll after lubricating the axles.

REFERENCES

Coaching Stock of the NSW Railways; Cooke, Estell, Seckold & Beckhaus; Eveleigh Press; 1999
Carriages – A Century of NSW Locomotive hauled railway carriages; Matthews; 2005.