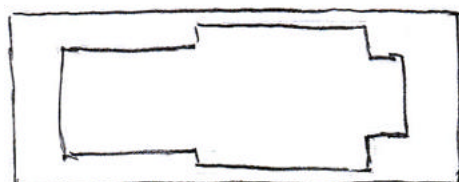
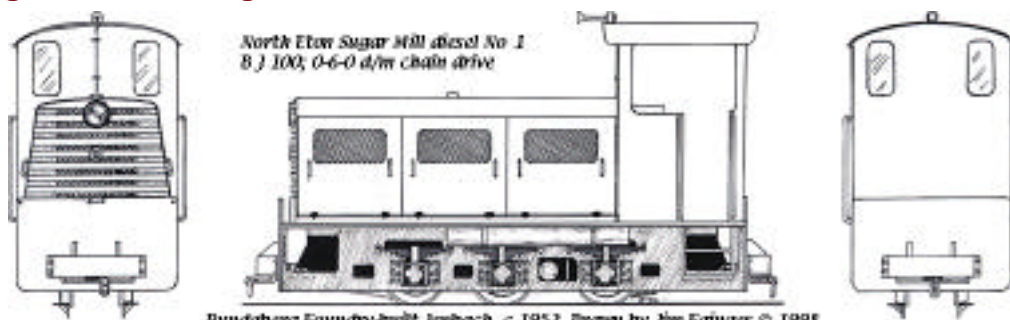




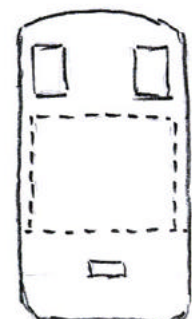
Modelling the Bundaberg Jenbach 0-6-0 Diesel



Deck: 21 x 60 mm x .040, internal cutout to clear mechanism. Must be square and symmetrical.



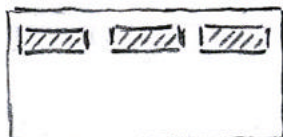
Roof: 20 x 24 mm x .010", corners rounded.



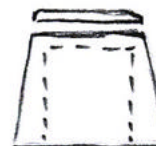
Cab sides: 16 x 25 mm x .020", window side and top edge 2 mm, below window 8 (w) x 14 (h) mm.



Hood sides: 14 x 42 mm x .010", 4 x 10 mm vents 1.5 mm from top edge and 4 mm between.



Hood Top: 18 x 43 mm x .040" and top edges rounded.



Hood Front: 14 x 19 mm x .020", cutout 11 (h) x 12 mm, cut side slope .5 x 14 mm.

Styrene angle shaped for door frame; top notch locates side wall. Uncut side goes to back wall.

Cab front/back: 21 x 35 mm x .020", 2.5 x 5 mm cutout for coupler; front ~26.5 mm (h), with ~14 x 18 mm cutout for mechanism. Buffer plate (12.5 x 21 mm x .020") has same shape as bottom.

The Bundaberg Jenbach (c1952) was the first Australian-built diesel used in the sugar industry. My first scratch-built HO_n30 loco portrays it as built using a Bachmann N gauge Plymouth switcher mechanism. ANGRMS (Australian Narrow Gauge Railway Museum Society, Woodford QLD) has preserved a much rebuilt Jenbach (Netherdale).

Brisbane modeller and light rail enthusiast, Bob Dow, used to build this model for commercial sale and I purchased one at that time. However, that model is on an ANGRMS museum diorama and replacing it provided the inspiration for this note.

The model's basic construction has been outlined in Bob's notes for the 1998 Modelling the Railways of Queensland Convention ['Cane bins and other

things', Convention Notes, pp 64-72] and on Bob's web site [<http://www.ozbob.net>].

This was a relatively quick scratch-building project, even though I also made several templates to assist in constructing future models, taking about a week to complete the model. I started with Bob's notes but also had Jim Fainges drawings in 3.5 and 7 mm scaling and used slightly different component sizes and techniques.

General Notes

A variety of measures are used in this article. HO scale materials, for example, are indicated in material sizes (eg HO scale 2 x 10 for 2" x 10"), styrene sheet is indicated by supplier's thickness (eg .020"), and others are generally in millimetres.

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Bundaberg Jenbach D2 at Eton Sugar Mill c.1970 fitted with Gardner motor; as seen in Gough and Webber (p 18 top).

I used a NWSL Chopper and Dupli-Cutter to ensure components were square and consistently sized. However, don't assume that the Dupli-Cutter, or any other tool, is actually square. The need to reverse items for symmetrical cuts or to cut from the opposite side quickly demonstrates that inaccuracies occur. Cuts must be remeasured and checked 'by eye' instead of relying solely on a tool setting.

I prepared a set of 'standard measures' to speed up cutting and help insure consistency. These are marked 4 to 25 mm lengths of HO scale 4 x 10. Floor and other templates use .040" styrene sheet.

The Chopper uses a single-sided razor blade. I similarly used a single-sided blade for most of my cutting work. Use several light passes with the blade rather than a heavy cut, then bend and 'snap'.

Cut lines were scored for openings, then corner holes (#61 or #70 depending upon opening size and material thickness) were drilled and an 'X' cut all the way through the material from corner to corner. The stock was then clamped in a nylon-jawed vice to 'snap' out triangular pieces to create the opening. This is not a simple task in heavier material but greatly simplifies making rectangular openings.

Some angle cuts, the bottom of the buffer plates, for example, were cut by eye using a Xuron sprue cutter. Others, such as the four under-deck corner braces, were cut on the Chopper with angle guides.

Styrene components were dressed with needle files or fine sandpaper (wet and dry type) after cutting to remove cutting ridges and 'snap line' roughness. They were then test fitted against both the loco plan and mechanism, and adjusted if necessary, before fixing with styrene cement.

I've generally used the thinnest styrene components possible but have also braced the joins with styrene angle stock to provide strength and help ensure squareness.

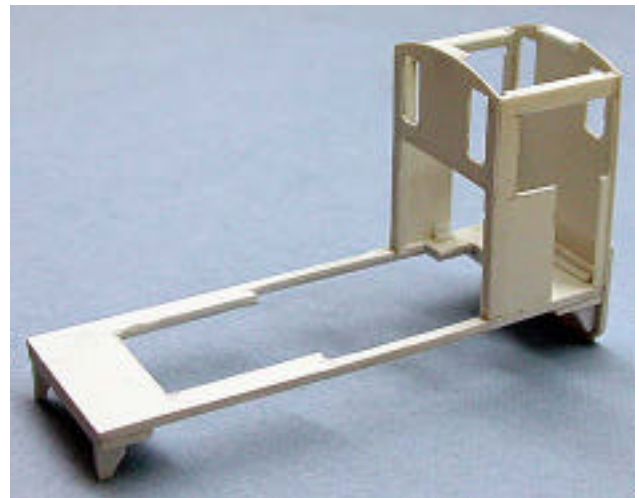
Deck/Frame: 21 x 61 mm x .040" styrene sheet

The deck must fit around and sit level on the mechanism. Fortunately the Bachmann mechanism has a flat ledge at the right height, although its width

means that the deck sides are very narrow around the widest part of the mechanism. This necessitates some adjustment to the hood profile and care in assembly.

Lay out the mechanism opening and drill corner holes. Use the Dupli-Cutter to work from both sides as well as top and bottom to 1) ensure the opening is square and centred, and 2) be able to score from both sides of the stock. Clamp the stock in a vice with the top of the jaws even with the scored line before snapping out each triangular piece from the opening.

The mechanism for my model was slightly different from the one used for the original Dow plans. The wheelbase of the Bachmann mechanism is shorter than the Jenback so I located the middle driver per the prototype plan.



In retrospect the model's appearance might be improved if I had measured from the rear driver instead, although the motor would also have extended further into the cab. And a narrower mechanism might allowed the front hood to have a more prototypical taper and walkway on each side.

Your mechanism may also vary; check the opening closely at this point to ensure that the deck fits around the mechanism, is level, is an acceptable height from the rail and is reasonably located (visually) front to rear.

Under-Deck Spacer: 5 x 21 mm x .040" styrene front and 7 x 21 mm rear

Cut the spacers to size and fix under the deck so that there is a 21 mm x .080" face front and rear for mounting the buffer plate. The deck should rest on the mechanism with the underside of this spacer at the correct height for a coupler box.

Buffer Plate Brace (sand box): scale HO 4 x 10 x 4 mm with clipped corner

The drawings show this component under the deck at each corner but not fastened to the buffer plate. From a modelling point-of-view, however, this has too good a brace potential to ignore. Fix in place

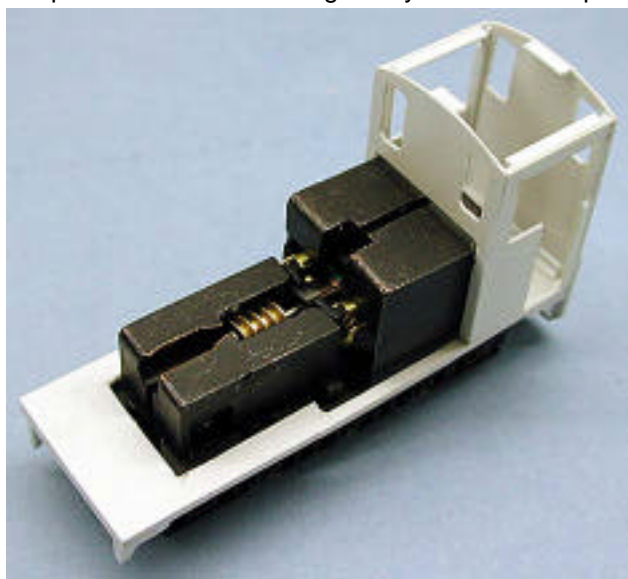
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recessed 1 mm from the side of the deck (spacer) and square with the end.

Buffer Plate: 12.5 x 21 mm x .020" styrene sheet
Cut to size and shape as shown. Mark the coupler box location and use Dupli-Cutter to help score cut lines for removing the excess material.

Cab Front/Back: 21 x 35 mm x .020" styrene sheet
Cut both front and back full length. Drill holes (#70) for window corners and mark coupler and roof curve. Use Dupli-Cutter to help score cut lines for windows and coupler box. Fixing a buffer plate to the cab back at this time will help ensure that all holes are aligned and bottom corner angles consistent.

Use the sprue cutter to remove excess stock prior to sanding for the roof curve. Tape front and back together to sand roof curve to final shape, reversing the pieces at least once to get a symmetrical shape.



Cut the cab front to length; measure the mechanism to determine the opening and cut to size. The width of the mechanism will likely mean that the lower side 'legs' will be no more than 1-1.5 mm wide. Fix 25 mm lengths of styrene angle to the back of the front cab wall, but inset from the edge by the thickness of the cab side (.020"), to provide a brace for the side wall. Trim the mechanism opening as required when fixed.

Fix 25 mm lengths of styrene angle to the front of the back cab wall to make the door frame. Shape with a razor blade and sprue cutter when fixed. Fix 4 mm lengths of 1.5 mm angle to the top inside centre of both front and back walls and lightly sand to the cab top profile when fixed.

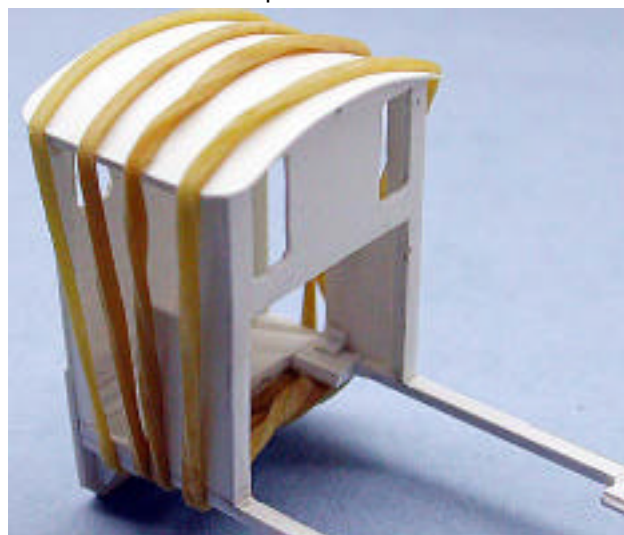
Cab Sides: 16 x 25 mm x .020"

Cut to size as shown. The rear side of the door frame will be provided by the specially shaped angle fixed to the cab back and is not part of the cab side blank.

Fix 2 mm lengths of angle to the top and bottom of the cab sides for deck and roof bracing.

Cab Roof: 20 x 24 mm x .010" styrene sheet
Cut to size and round corners.

Cab Assembly: Fix the rear cab wall to the deck using the door frame angle to ensure the correct height. Fix the side walls to the cab front. Finally, mark the location of the cab front on the deck and fix in place, attaching the sides to the cab back at the same time. Attach the roof with care to ensure that it is both centred and square.



Hood Top: 18 x 43 mm x .040"

The Dow plans show a hood with vertical sides, likely necessary to fit two thicknesses of #50 mesh stainless steel screen with the Bachmann mechanism. I used a thinner screen from a plastic strainer, allowing the hood slides to be slightly slanted for a more prototypical appearance. Your choice of mesh will similarly affect the size and shape of the hood.

Cut the top to width and sand the top corners to the profile shown, then cut to length.

Hood Front: 14 x 19 mm x .020"; scale HO 4 x 4 stock; mesh screen

Use Chopper to cut side profile so that the top is 2 mm narrower than the bottom. This may take two or three attempts to get symmetrical but is worth the effort. Score and cut the 12 x 11 mm hole. [The hood appearance might still be improved by increasing the height of the front and sides by 1 mm.]

Cut 6 lengths of scale HO 4 x 4 about 2 mm longer than the width of the hood front and fix in place with a 1 mm space between each. Use the Chopper to trim the sides to the same angle as the front and .010" longer than the width on each side. The hood sides will then be able to fit flush with the hood front.

Frame inside the hood front with angle stock on all four sides. Cut the front grill screen to size and epoxy in place. Fix the front to the hood top, ensuring that it is square and centred.

Hood Sides: 14 x 42 mm x .010"

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Mark and cut holes for vents. Score, but do not cut, lines for the side doors. Hopefully these will still be apparent after painting.

Frame inside along top and bottom with angle stock as far as the mechanism will allow, leaving a space at the front edge for the front angle framing. Cut the grill screen to size and epoxy in place. Test fit at every opportunity before fixing the hood sides to top and front.



The hood can now be fixed to the deck, taking care to ensure that the hood is centred over the hole in the cab front and there are no gaps between the deck and hood. Small lengths of scale HO 2 x 4 can probably be fitted on the inside of the hood against the cab front to provide added strength.

Buffers: scale HO 8 x 10 x 12 mm; scale HO 4 x 8 cut into triangles

The front buffer plate can now be fitted. My buffers were fabricated from 2 lengths of scale HO 4 x 10 fixed together and shaped with a sprue cutter and sanding. Fix in place, ensuring that they are centred and level, then fix the triangular braces on the top.

Side Tanks: 2.5 mm OD x 24 mm styrene tube

The side tanks on the 2' gauge prototype loco fit under the deck. However, I feel that the side appearance is enhanced sufficiently to tolerate the slight projection on the HOn30 model.

Cut tube to length and plug ends with putty, styrene scrap, etc. I used 'Mr Putty' plastic filler. Fix in place, ensuring that the mechanism fitting is not obstructed. Small lengths of scale HO 2 x 4 can be fixed behind the tank on the front side to provide extra strength.

Stack: 2.5 mm OD x 7 mm styrene tube

Cut to length and fix in place. My stack is longer than shown on the drawings in order for exhaust to clear the top of the loco. Other lengths, shapes and covers would also likely be appropriate.

Steps: scale HO 2 x 4 in 4, 5 & 6 mm lengths

The steps have a 6 mm tread and are tucked under the deck, fitting around the under-deck spacer. Cut to size and fix as shown.

Headlight: 3 mm OD x 1 mm styrene tube

Plug one end of the styrene tube and cut to length when solvent has dried. Fix in place on the front of the loco only.

Handrails: steel staples

Fitting the handrails was actually one of the most difficult parts of building the loco. In particular, I had to work very carefully to avoid breaking the #74 drill in my pin vice and to get the top located correctly in the thin cab side. Drill #74 holes in deck and cab side as required to fit staple. Cut staple ends to length and epoxy in place.

Horn: Bachmann Diesel

Carefully slice one of the horns from the roof of the N gauge Bachmann diesel and fix in place.

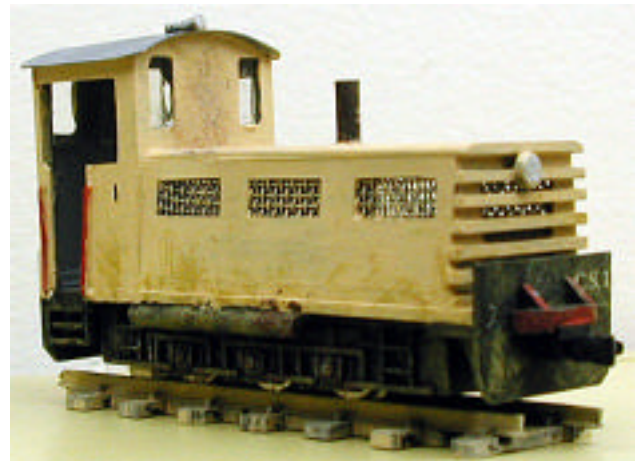
Couplers: as appropriate

Cut coupler box to size and epoxy in place (or drill and screw) if using automatic couplers, otherwise epoxy knuckle couplers in place. Don't do, as I did, and get epoxy into the coupler box or your expensive working couplers become dummies.

Painting and lettering: Remove body from the mechanism and wash in soapy water. Allow to dry thoroughly before painting.

Cane locos tended to have minimal lettering, although many did have a name plate and a manufacturer's number plate. My loco has a number on either side of the cab (#1) and CS1 (Capricornia Sugar) on front and rear buffer plates.

Clean the mechanism sides with methyl hydrate or other cleaner and replace the body prior to weathering.



Window Glazing: .020" clear styrene sheet

Cut to fit window area and epoxy in place after painting but before weathering.

Postscript: Prototype Jenbachs ran very hot in the Queensland tropics, resulting in the removal of the hood doors (see photo pg 2). It would be quite interesting to try modelling this loco with a smaller mechanism or in a larger scale so that the doors can be left open, the hood tapered, etc. However, I'm pleased with my first scratchbuilt HOn30 locomotive.