Introduction

The sugar mills began dieselising their tramlines in the 1950s and many now use quite heavy, usually regauged and rebuilt ex-mainline, locomotives. However, small internal combustion locomotives shifted bins around the mills and had other light duties before ending their days on navvy duty.

This 'taller than long' Comeng Model G (right) is arguably one of the most modelled cane locos in Queensland since a Brisbane club had a scratch-building project for their young members. The 7mm (1:43) model used an HO power unit (half of an older style Bachmann 44 ton loco) and locally produced castings. It may not be a contest quality model but the youths involved have continued on to become avid railfans and heritage volunteers as well.

This article documents the construction of a 1:48 scale (ie smaller but still running on 16.5mm track) freelance model inspired by the same prototype. *Boulder Valley* resin castings simplified chassis construction while providing detail. The result is obviously not a Comeng Model G, but it provided an opportunity to explore construction techniques before tackling a more authentic model.

Fairymead Mill's #72 (formerly 71 and 7)

This 4wDM loco was built by Comeng (Commonwealth Engineering (Qld) Pty Ltd) in 1961 (Model GA, b/n 1148) for the Commonwealth Department of Supply in NSW, and rebuilt by Fairymead Mill when it was acquired in 1971.

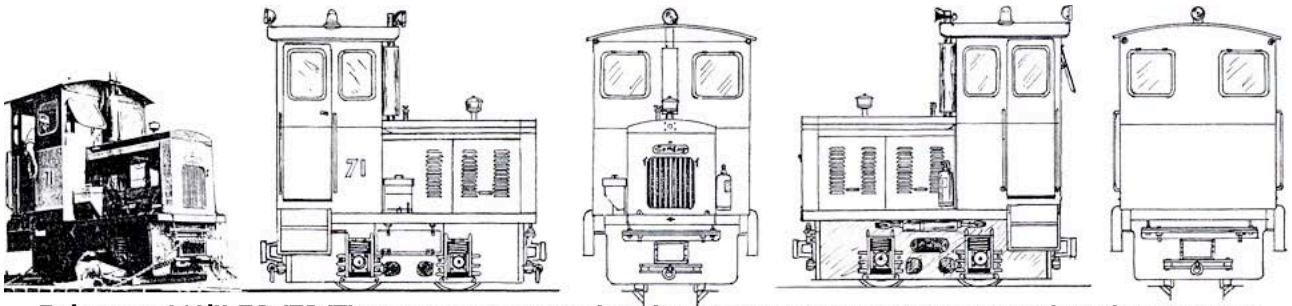
[Photos: Lynn Zelmer, c 1990 left; Greg Stephenson, undated but likely an earlier period, below]

The 4-8 ton loco was apparently designed to be the equivalent of the ex-miliitary Malcolm Moore 4wPM locos used by some mills for light duties. It was in a competitive market: some mills used Simplex (Motor Rail Ltd, UK) or Ruston and Hornsby (UK) locos and EM Baldwin (NSW) built a very similar looking 5 ton 4wDH loco (1963, Farleigh Mill) as well as heavier and more powerful 4w units.

In any event, only one Comeng Model G ended up with the sugar mills. Comeng did supply a significant number of 0-6-0 DM and DH locos to the cane mills.

The loco is now numbered 72 and sports its most recent colour scheme in this 1999 photo by Greg Stephenson. Cane locos often received significant modifications over time, a change in paint scheme being a relatively minor alteration. The removal of the ventilated hood cover on at least one side suggests that the loco runs too hot, a common occurrence with older locos of any size in tropical conditions.

Fairymead #72 interior: top image shows dual throttles (one on each side on the shelf) and brake handle ('L' shaped handle) with vacuum brake behind); bottom image shows forward/reverse (big central lever with release), clutch (comes out of the floor at an angle) and sand (smaller lever close to the wall) levers. Lincoln Driver photos.



Fairymead Mill 72 (71/7); Commonwealth Engineering, Class G. Scale: 1:87. Drawn by Jim Fainges © 1997

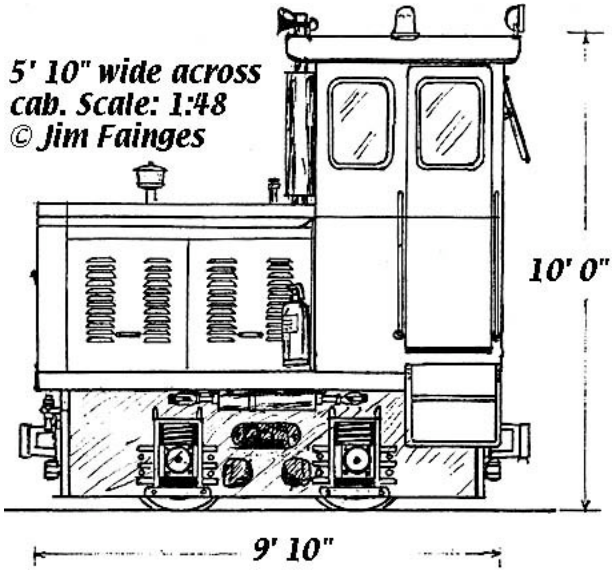
Building the Freelance Model

Motivation and research are the first steps in any model building, especially if it involves scratch-building. For me the motivation is in the size of this loco and others of its type. I like small 'critters'.

As for the research, I already had several photos, although I soon discovered that some of them were actually of Farleigh mill's EM Baldwin 4wDH, rather than a sister to Fairymead's Comeng. The interior photos were commissioned as part of a work project and Jim Fainges supplied a set of plans in 7mm, a 7mm card model of the loco (see *CaneSIG* web site) and the 7mm project model on the previous page.

At that time I was working in HOn30 but rescaling the plans to 3.5mm (as above) quickly showed the difficulty of my building a working model in that scale. Once I switched to On30 the project became

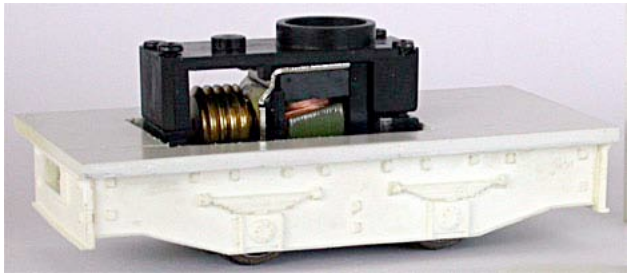
feasible and I again rescaled the drawings. I also acquired a couple of the older style Bachmann 44 ton locos for their 4w drive units, a *Boulder Valley Models* 'Mighty Midget' 5 ton switcher On30 conversion kit (for inspiration and possible use for parts), and two 31mm wheelbase Tenshodo 'spud' units to power additional locos.



Here is the loco scaled to 1:48 scale (1/4" = 1') with minimal dimensions. This would result in a loco roughly 10% smaller than the 7mm scale O-16.5 model in the photo on the first page. Note that the drawings (above and on the previous page) have a gauge of 610mm (2' 0"). A 7mm model actually looks more authentic on 16.5mm track as the gauge compromises don't appear as extreme as they do with smaller On30 models.

The Bachmann drive is light but the Tenshodo spud is even lighter. When I find a suitable O scale diesel engine model I'll consider making another loco, power it with a spud and leave the hood sides open. In the meantime I likely need all the weight I can get since I'll be using styrene for most of the model.

Using the *Boulder Valley* kit's chassis resin castings saved me a fair bit of design work as I haven't yet fabricated a sideframe complete with springs, axle ends, etc. Once the couplers are in place I should be able to add weight under the chassis to improve operation. The negatives are that the resulting model will be almost a foot longer and the frame will be a different shape to the Comeng.



The *Boulder Valley* resin chassis and *Bachmann* power unit, cab end to the right. The 5' 0" x 10' 6" floor of .080" styrene is still removable at this point and will allow me to construct the superstructure as a unit on a flat base. It may make sense to screw the floor to the chassis, rather than gluing.

I feel that the cab walls are too thick on the 7mm model, thus I used thinner materials (.020" styrene), even though I had to add corner bracing, etc. Other materials, sizes and techniques may prove to be more appropriate for subsequent models.

The front and back of the cab are fabricated from .020" styrene with 10mm square windows (the size of a wood chisel used to cut them out). The 'out' label indicates which side should face out for the back and front to match (the hand shaped roof curve is not exactly symmetrical).

Clearance has been left for the motor and bracing (HO scale 6 x 6 strips) added to ensure that the joints between floor and walls are square. Boxes will be built within the cab to hide the motor opening and strobe wiring (above the dash), and bracing will be added to other joints as appropriate.

The intention at this point is to fabricate the front and back windows from clear styrene and mount them in place (as if hinged at the top) so that all are open. Representative interior details (dash, brakes, seats, etc.) will be added, and likely painted, before the sides are glued in place. Side windows should probably be closed (no photographs show them open) and will be fitted/fixed in place after painting the cab/doors.

The cab sub-roof is.040" styrene, with bracing around the sides. However, the bracing doesn't extend to the corners, leaving openings to fit around the corner bracing on cab walls. The sub-roof subsequently received two progressively shorter layers of styrene sheet glued in place and roughly shaped to the roof curve before adding the overhanging roof. An operating strobe light is planned to the roof if space for the battery and electronics can be made under the hood.

The cab sides are also .020" styrene, with all windows cut out before the doors were removed. Care has to be taken when cutting to keep the thin sections at the door side and bottom to ensure the cab assembles squarely. Doors can be glued in place, open or closed, after the cab walls are fixed. Hand rails were made from 24 gauge copper wire *Super Glued* in place.

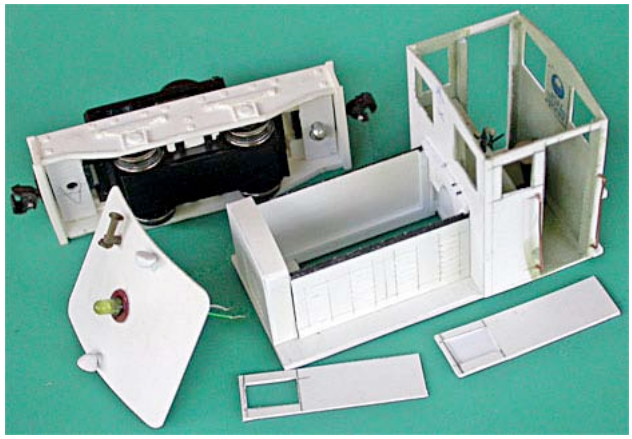
The interior details were fabricated using three sizes of wire from the scrap box and glued in place using *Super Glue Gel* (gap filling, non-gassing cyanoacrylate). Knobs on the end of throttle and other levers were formed from the same glue. Non-

gassing varieties of Super Glue are essential for use in tropical climates to avoid 'blooming' and rapid joint deterioration (unless immediately painted).

Cab with one side installed and interior painted with contrasting colours for details. There are dual throttles, a brake lever, clutch and forward-reverse lever. A single stool is mounted near the centre of the cab (the dual stools of the prototype weren't possible due to the over-wide dash). The instrument panel is a 1:72 aircraft maintenance kit decal, but the safety notice on the back wall (hard hat poster) is a homemade decal. The next step is to fabricate and install the fourth side, then the roof and lights. Doors and windows will be installed once the loco has been fully painted.

A .010" styrene roof was not successful; it looked great but would have split/bent under pressure. Instead I used .020" styrene with a 6" overhand front and back and 4" on each side (some dimensions are by eye, the plans being from photos and limited field dimensions). Headlights were hand shaped from styrene rod with a short length of wire glued into a #70 hole to help in mounting. The air horn is an HO *Diesels West* 'blat' type single chime.

The muffler and exhaust pipe are lengths of styrene and copper tubing respectively; the air cleaner is two different sizes of plastic rod. The sand box was fabricated from styrene and the air tank is a short length of styrene tubing with HO scale 1 x 4 straps. The *Berkshire Valley* fire extinguisher and other tools came from my details box or were fabricated (end of rake markers). A (cast metal) driver could be added to provide additional weight.



Relatively complete, but unpainted; the superstructure will attach to the chassis using the coupler mounting screws.

The hood was a major challenge as it needs to hide the flasher unit and permit access to the battery. The grill is fabricated from HO scale 2 x 2s behind the .005" front sheet; the sides are a laminate (.020 base) with air vents cut in the .010" outer layer; corners are reinforced with HO scale 4 x 6 and 6 x 6 strips. The curved top formers are shaped from HO scale 4 x 12s; the top overhangs the sides for a friction fit.

A Final Word

The model differs from the Comeng in ways beyond those indicated above. For example, the cab floor should be thicker, probably a layer of concrete for weight at the cab end. This changes the door height, the position of the steps and the overall appearance. However, it's a reasonable model and I did learn new techniques. Perhaps my next model may even be true to the prototype, rather than freelance.

Acknowledgments: While the errors are mine, thanks are due to Bob Dow, who got me scratchbuilding again, Greg Stephenson (photos), Jim Fainges (drawings), John Browning (technical data), and all the individuals, particularly at Queensland's sugar mills and CaneSIG supporters, who have assist me as I continue to learn about and model Queensland's cane railways.