Modelling Cane Railways

A C Lynn Zelmer, CaneSIG coordinator

28 Modelling Netherdale

CaneSIG: http://www.zelmeroz.com/canesig

Modelling Netherdale, a 7/8" scale bogie DH; notes and model photos by Jim Russell

Introduction

Jim lives in the USA and his 7/8" scale model, of mostly styrene construction, illustrates how Internet resources make building a model easier.

Jim's techniques are appropriate for any scale and show that even in larger scales it is not necessary to work in metal to achieve a very credible model.

The Locomotive

Mackay Sugar 24 Netherdale started life as a New South Wales Government Railway standard gauge 73 Class diesel hydraulic locomotive manufactured by Walkers Engineering in 1972 (b/n 699). Mackay Sugar purchased the loco as government surplus in 1993 and Walkers performed the conversion to narrow gauge for Farleigh Mill in 1997.

The conversion involved re-gauging the trucks, shortening the frame, installing a new engine and reducing the weight from 50 to 40 tons. More recently, a new cooling system has been installed which altered the appearance of the hood. [Photos of Netherdale and similar locos on last pages.]

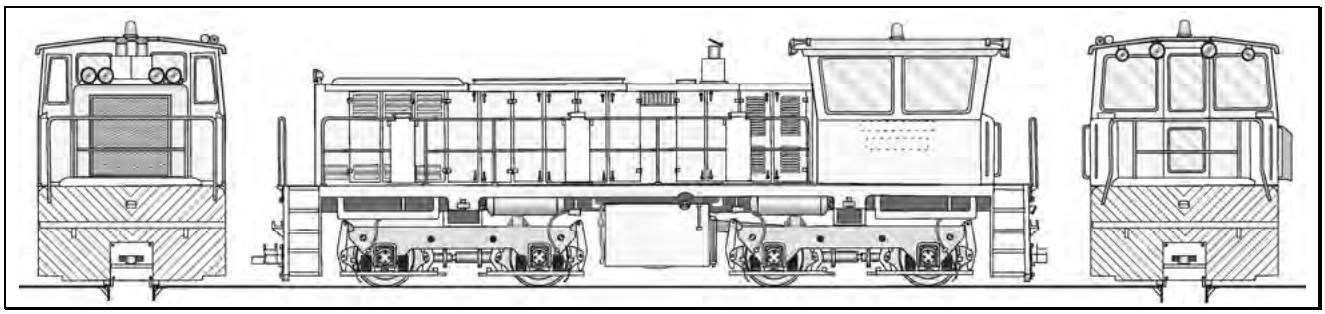
Incidentally Netherdale is the name of a small community at the base of the Eungella Range on the now closed Cattle Creek Mill portion of the Mackay Sugar system.

Mackay Sugar has converted seven 73 Class DH locomotives and re-designated them as 94 Class locomotives. Each conversion has a slightly different outward appearance. Tannalo and Netherdale are the only two Class 94 locomotives that were designed to run cab forward and both have different cab designs. Netherdale has an offset cab door with a large windshield as well as other minor differences.

Modelling Resources and Construction

The model started with an exploration of modelling possibilities using information from the web. Web sites such as CaneSIG and Canetrains.net provided overall photos while detail shots of the ARHS 73 class were a great help to me in fleshing out some of the detail [www.ardp.net/topic253.html has 73 of Keiran Ryan's detail photos of ARHS ACT's 73 Class DH 7315]. I would love to see similar photos of other cane locos.

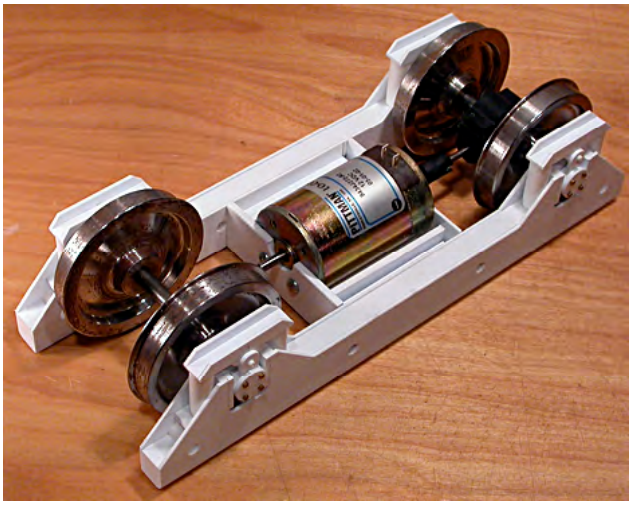
7/8" scale styrene mock-ups of Baldwin locos which Jim built to assess modelling potential. The Walkers 73 class loco is much larger, even when rebuilt for 2' (610mm) gauge.



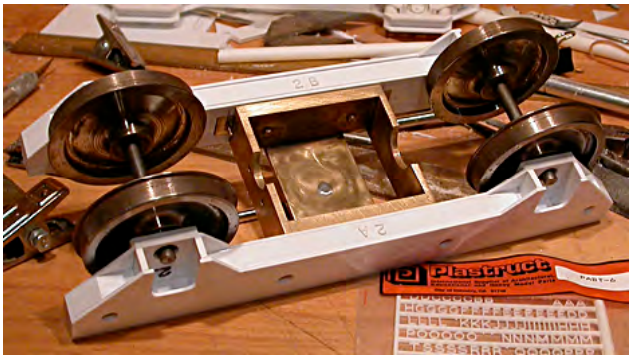
Farleigh Mill conversion of 73 Class DH from standard to 2' (610mm) gauge. CaneSIG drawing by Jim Fainges

Jim Fainges drawing of the Farleigh Sugar Mill 73 class DH conversion was the starting point for my model. The drawing was expanded to 7/8" scale (24" gauge on G/#1 gauge track) and modified to reflect Netherdale's latest appearance. Using online information and photographs the drawing was cut, pasted and modified until it resembled Netherdale.

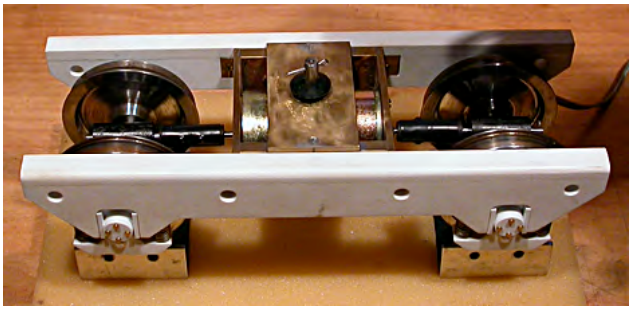
Once the drawing was cobbled together, I built a styrene mock-up of the power truck in order to work out the details of my motor/gearbox design. Building the mock-up led to changes that simplified the final design.



Truck mock-up

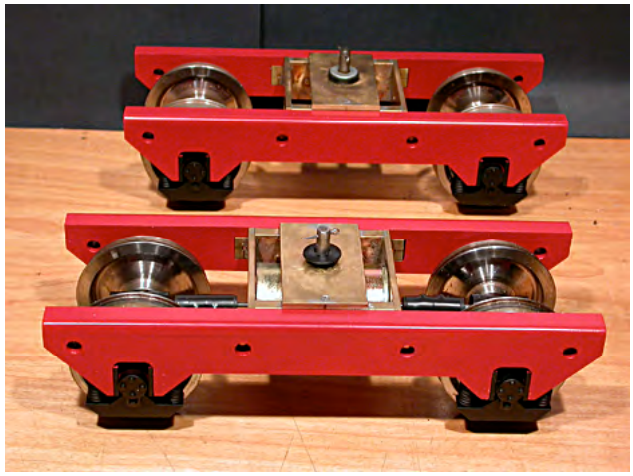


Partially finished truck bottom



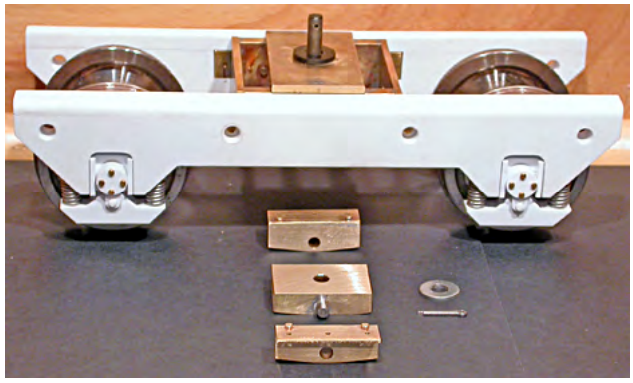
Truck with u-joints connected to power train

Both trucks are identical with a brass motor mount/bolster combination and styrene side frames. Only one of the units is powered at the present but the second unit could also be powered. The power train includes a Pittman (40mm by 61mm) motor, North West Short Line 0.6 mod gearboxes and custom wheels. The . 250" axles ride in ball bearing journals. Shrink tubing is used to stabilize the u-joints and gearboxes.

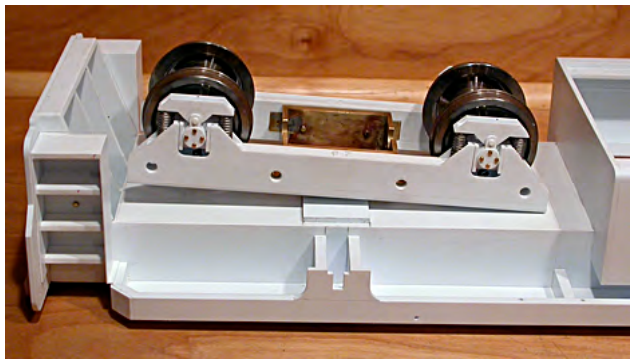


Trucks finished, with front (powered) truck showing bearing

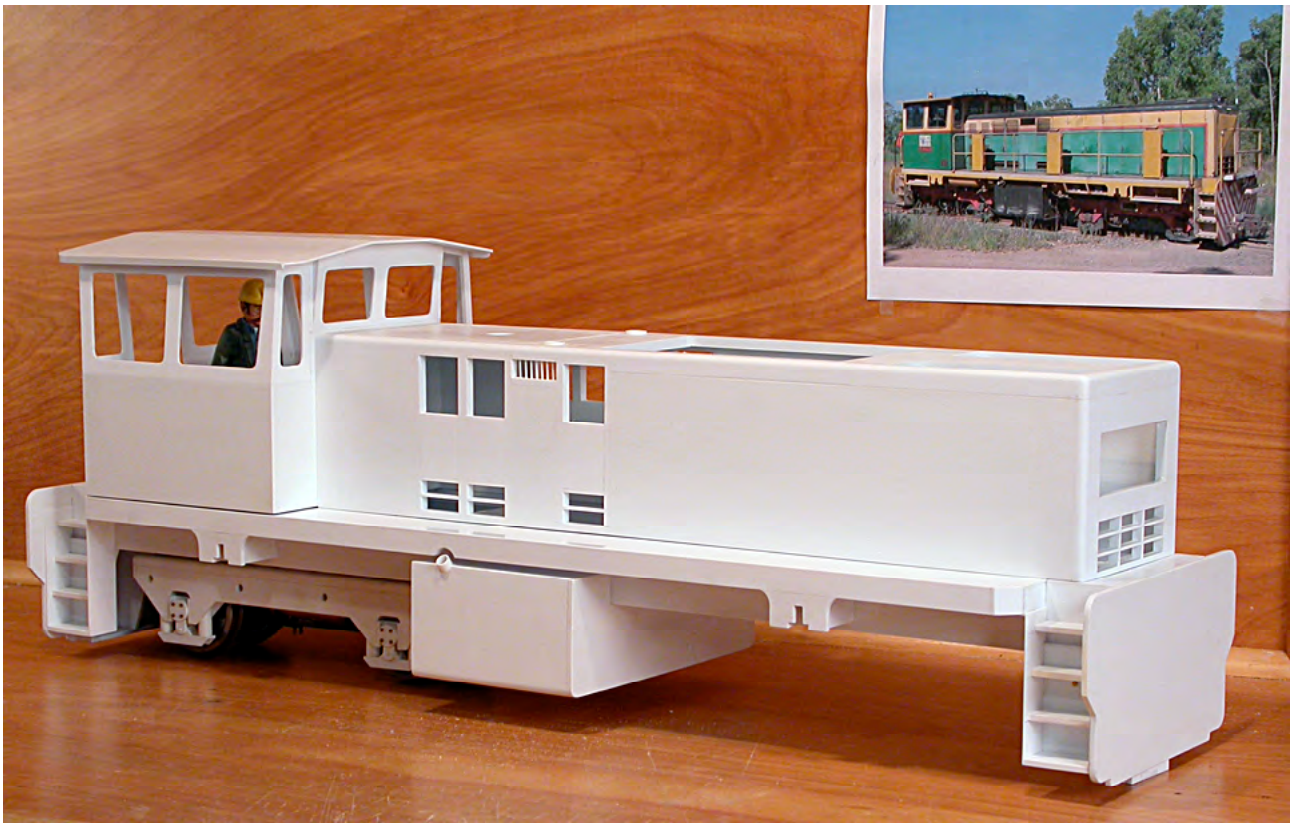
Since the trucks are not sprung, the bolsters on the frame are designed to keep the trucks in contact with the track. The front bolster allows the truck to pivot, pitch and roll by using a conical shaped bearing machined from Delrin. The rear bolster allows the rear truck to pivot and pitch only. This keeps the body from flopping side to side and provides the necessary flexibility for good traction over uneven track.



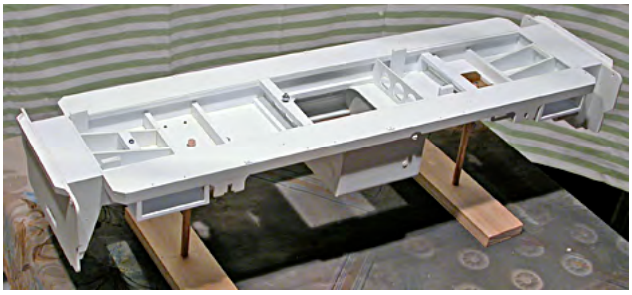
Rear truck and bolster (above & below), ball bearing journals

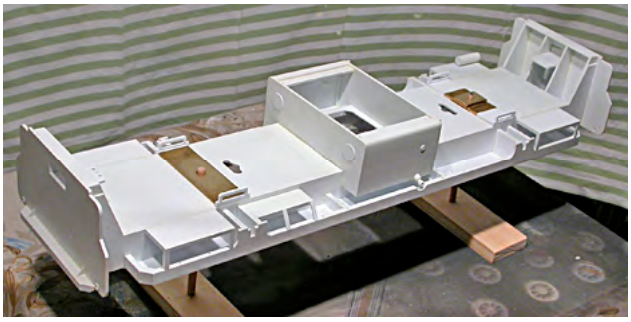


Rear truck bolster, view from top of chassis

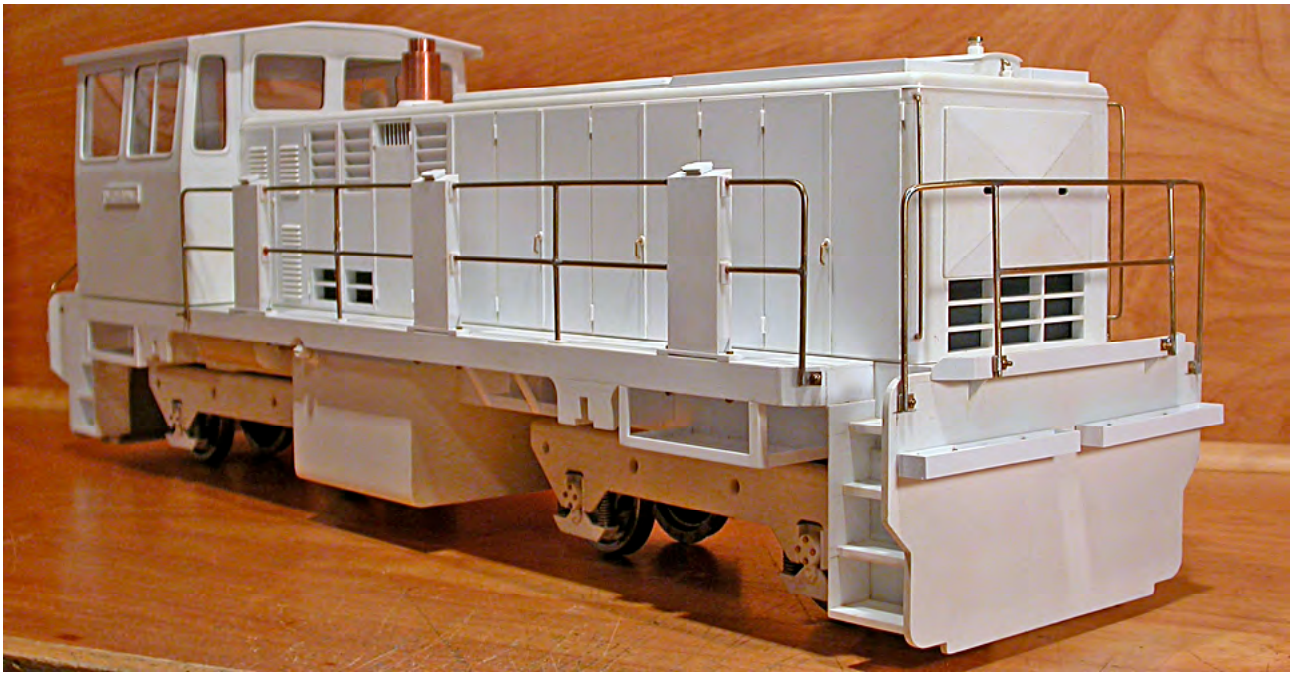


Loco's basic body 'box' shapes under construction (above and left column next page) with holes left for windows, louvres, etc.

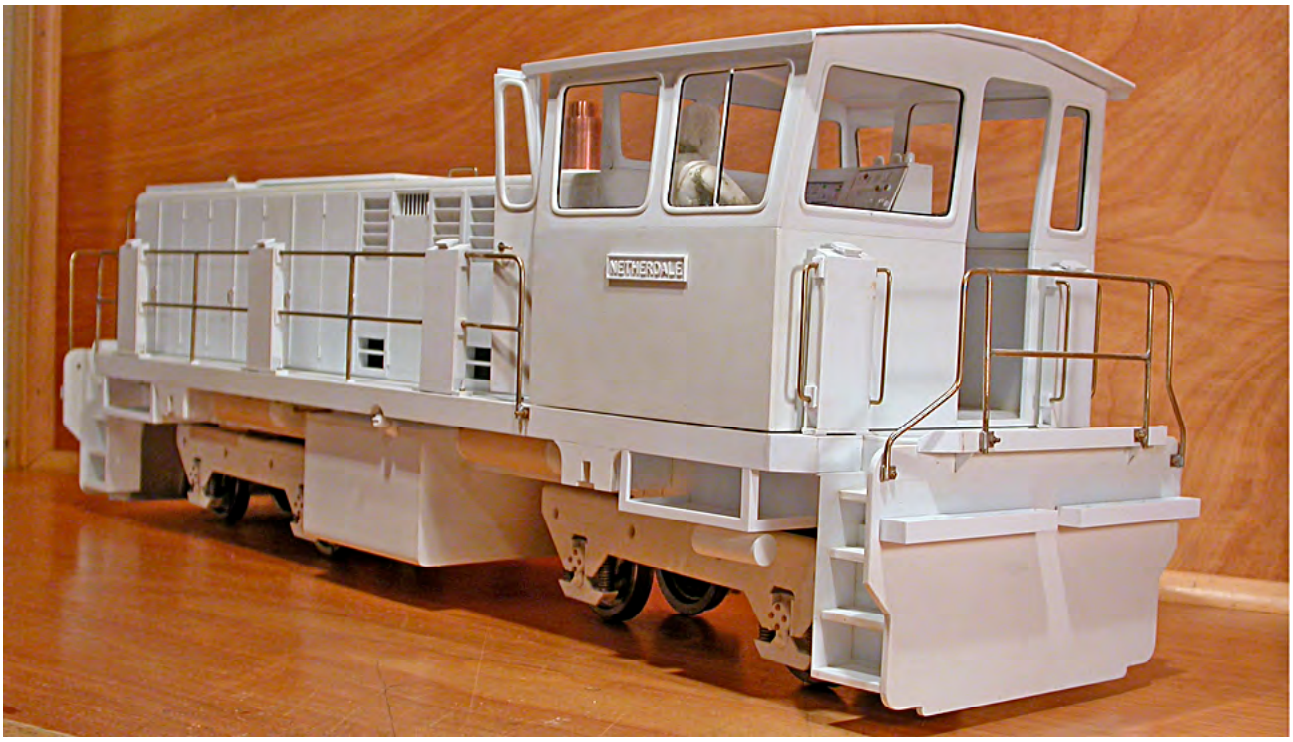




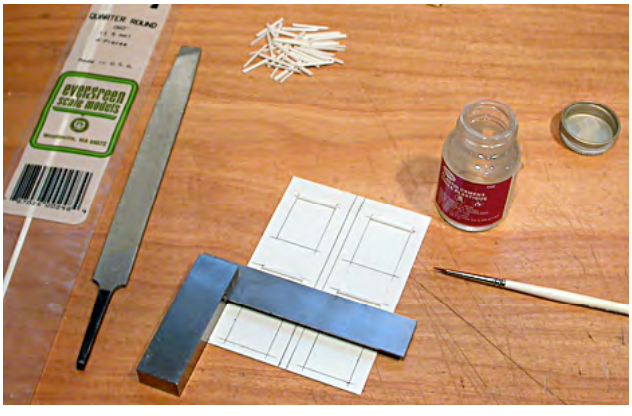
Chassis, from top (above) and underneath (right)



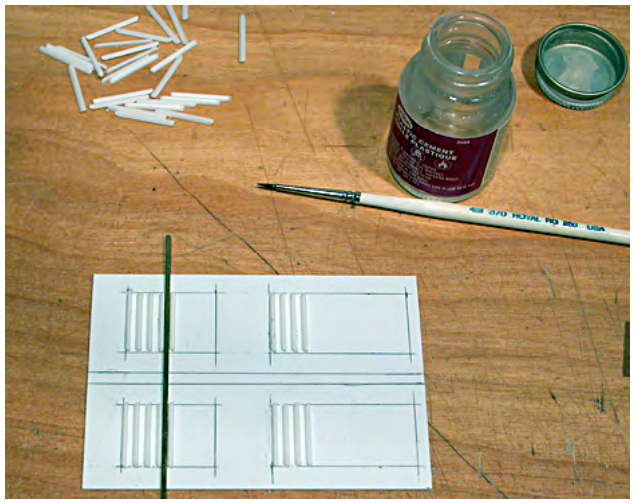
Chassis, body and trucks nearing completion. Details include sand boxes, railings, louvres, muffler and exhaust, etc.



The chassis and body were built primarily of .060" styrene with other sizes (.030" to .250") used as necessary. Additional bracing was incorporated into the design and all major joints were double glued. Testors liquid plastic cement was used for assembly, allowed to set and then a gap filling super glue (cyanoacrylate) applied to the inside of all structural joints. I hope the use of additional bracing and super glue compensate for the tendency of styrene joins to become brittle with age. Continued use and exposure to the elements over a long period of time will determine if this method really works.

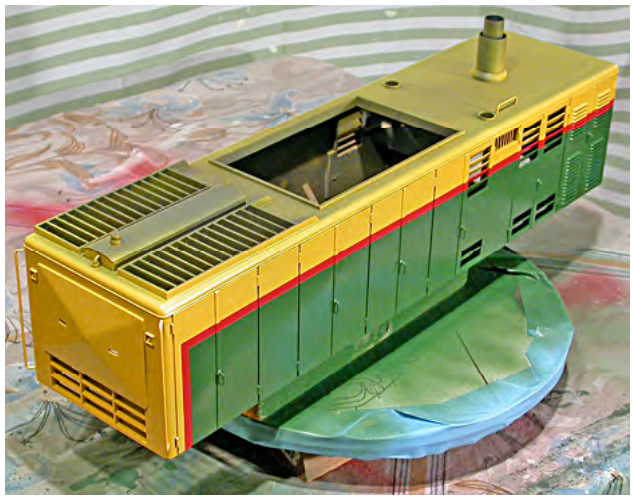


The louvers are made with Evergreen quarter round styrene strips. The strips are cut to length, the ends are rounded and then glued to the hood doors. I used a square and a brass strip to maintain proper spacing.

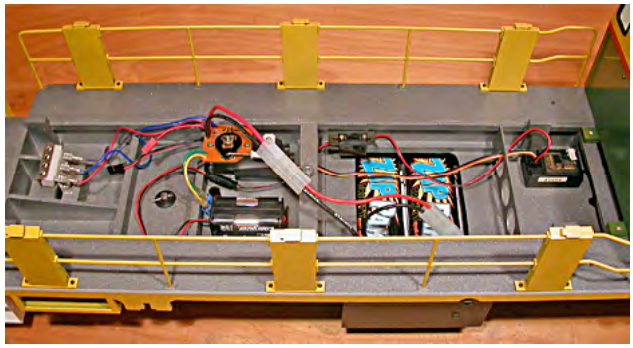


The cab interior is an educated guess. I used online photos of a standard 94 Class interior and rearranged/modified the components to reflect my image of Netherdale's cab forward layout. The engineer is a resin figure from Carlo Spirito that has been modified to sit at the controls. The clear styrene windows slide between the cab's double wall construction.

The multi-color paint scheme was applied with spray cans. The sequence of paint application was yellow, red, green and black. Each layer was carefully masked to create a clean line between colors. The final results can be seen in the photos. (Completed and painted loco next page.)



The radio control system is scavenged from a 1/16 scale Tamiya tank. It will be replaced with an Aristo-craft Train Engineer system as finances permit. This is a big locomotive and measures almost 31" (787mm) long. Design and construction took about 18 months and represents the information that I had at the time of construction.



I thoroughly enjoy working in 7/8" scale. It offers a wide range of possibilities from live steam to small industrial equipment and from garden railroads to micro-layouts. If you like building your own equipment, take a look at 7/8" scale and give it a try.

Editor's Note: Additional photos, drawings and related modelling materials can be found on the CaneSIG web site. For example, use 'cw_walkers' (without the quotes) to search the Image Collection.

Netherdale after painting. 7/8" scale is large enough that painting with spray cans is possible without obscuring detail.

Farleigh Mill's 24 Netherdale (Walkers 699 of 1972 for State Rail Authority of NSW, rebuilt from 1435mm gauge 1997 by Walkers), assigned to both Pleystowe and Marian Mills, 7 Nov 2006. The distinctive sandboxes reveal the origins of conversions from ex-NSW locos. John Browning, photographer.

Farleigh Mill's 21 Tannalo (Walkers 705 of 1972, rebuilt BFE 7343 of 1995) at Harvos Loop, 21 Sep 2002. Although both have been converted from ex-NSW locos there are obvious differences in the cabs, louvers, etc. Brad Peadon, photographer.