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# MODEL RAILWAY JOURNAL



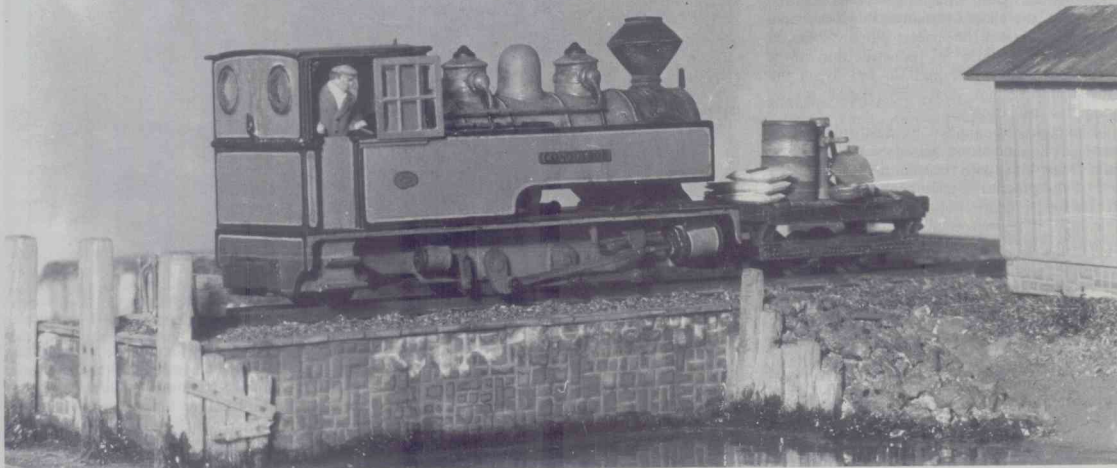
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Catering for the finescale modeller  
in the smaller scales (2mm to 7mm)*

**For the Finescale  
Modeller**

## PAPERMILL INDUSTRIAL in 4mm



We spotted FRANCIS SAMISH'S 4mm Bagnall making a brief 'guest appearance' at the 1987 IMREX exhibition and immediately had it noted as one of the nicest examples of industrial narrow gauge we had seen for some time. Francis was persuaded that some biographical details were in order — and here they are:

Working in 009 can be a very frustrating business. Unlike the fortunate N-Gauger, our trains have to creep slowly along grass-grown rights of way instead of flashing past at a generous mixed traffic trot. As if that were not enough, 009 practitioners face an almost insuperable problem through the penchant of most UK engine-building firms for outside frames.

About the only plus point — and a dubious one at that — lies in the scale/gauge's combination favouring bigger motors than one would normally use with 9mm — providing you pick the right prototype, which in this case happened to be a Bagnall 0-6-2, as supplied to Lloyd's papermills at Sittingbourne. For me, the choice of *Conqueror* was also coloured by it being the first steam locomotive that I was allowed to drive (at Whipnade in the mid-70s).

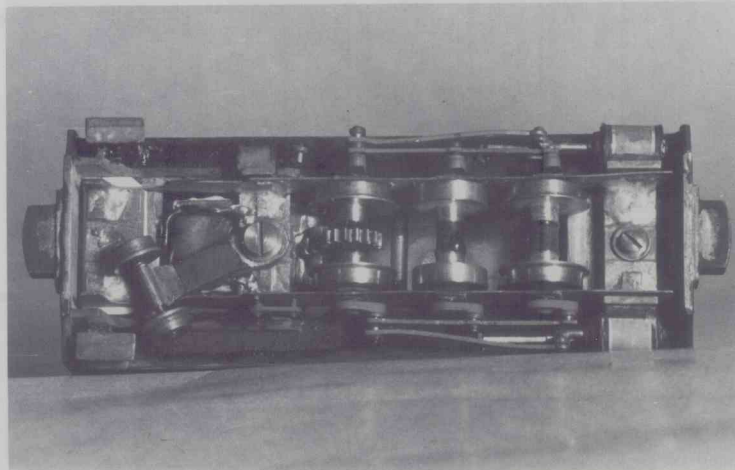
The superstructure is based around a Chivers Finelines kit, intended to mount onto a Minitrix chassis. The cast cab roof was replaced with a sheet of 20 thou brass, and the various sand pipes and actuating levers were added from brass wire and square rod. The slider channels for the windows — presumably fitted to the real thing to shut out the worst of North Kent's weather — were also tacked in using square brass section. Lamp irons and an under-tank balance pipe completed the picture. All in all, a relatively simple and worthwhile procedure.

For the chassis, I had by me an unused Salford Models kit for the Snailbeach & District Railway, *Dennis*, bought through the 009 Society. On opening this kit, I had been put off because it was somewhat underscale for 4mm. However, it included all the bits necessary for

a six-coupled chassis — with the all important outside frames! It was relatively easy to take some thin 20-thou sheet and solder two strips of the required height together for the frames. Then, a pair of nickel-silver rods were fashioned, tack soldered atop the frames, marked out, and the whole lot drilled through with a 1/32 in bit for the pilot. After separating off the embryo coupling rods, a 3/32 in bit was run through to give the required clearance for the axles. The

frames and rods were then profiled to the shape of the prototype.

Salford Models use a very cunning form of construction in which a turned disc wheel has integral stub axles for the outside return cranks, and an insulated muff to join it to the other one of the pair. Current collection is therefore through the frames — no wipers, no plungers, no problems. Or that is the theory. To keep the two frames apart — or together, depending on your viewpoint — spacers are needed. In the case of the Bagnall, there are three in all, made from copper-clad Paxolin point sleeper. These were first drilled through the middle and

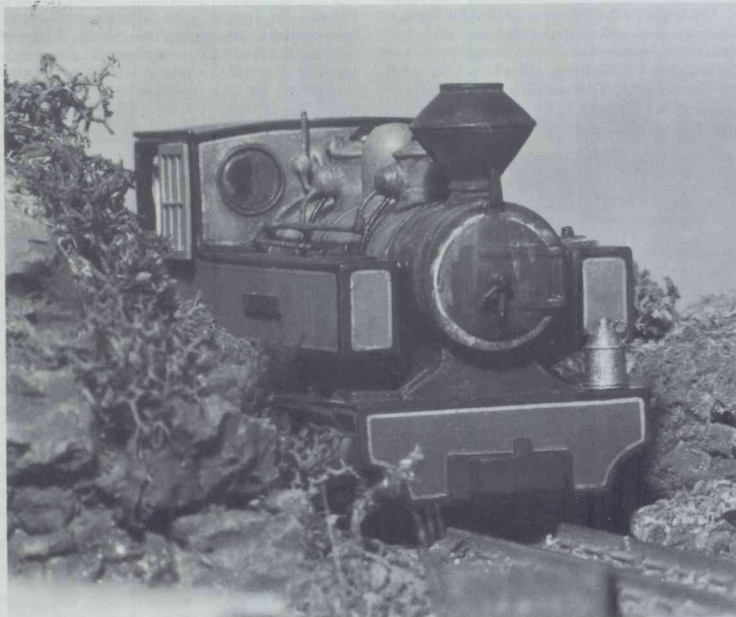


Exposed — the split chassis components on which the Bagnall runs.

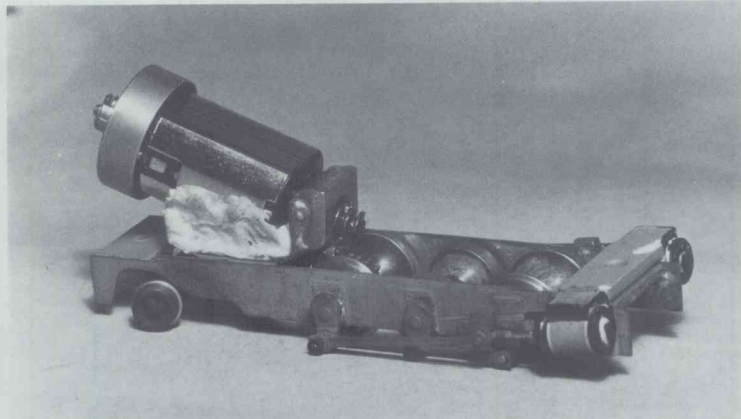
then carefully gapped, the two outer spacers being used to mount the chassis to the body, and the middle one carrying the motor and rear pony truck pivot. These were a nominal  $\frac{1}{2}$  in wide by  $\frac{1}{4}$  in long, and drilled  $\frac{3}{32}$  in for clearance. When everything was ready, the assembled and glued wheelsets were set into the axle holes, the chassis turned upside down on a sheet of glass, and the spacers quickly soldered in. With this form of construction, it is imperative that the frames do not touch the superstructure, nor that any fixing screws bridge the insulation gap.

Flycranks, as supplied by Salford Models, come with a crankpin already cast onto the face. Being brass with ready-bored holes for the end of the protruding axle, some can be a loose fit. By lightly centre-popping a pip next to the axle hole, it proved possible to achieve a stiff fit which could still be rotated for quartering – not a process that Salford approve, but it seems to work. After that, quartering is carried out in the time-honoured way by fiddling with one side, then setting the other to match until there is no binding. Once done to taste, Superglue was used as a locking agent. Slivers of brown wire insulation are used as retaining washers.

Cylinders were constructed around a 60-thou plastic stretcher, to which were glued sections of  $\frac{1}{4}$  in Plastruct tube. To make things a little more interesting, these are at an inclination to the horizontal. More plastic card, in the form of 10-thou discs were used for end-covers, together with a brass insert carrying a single crosshead guide to finish things off, the square section nickel-silver rod coming from a long-forgotten Jamieson LNER valve gear kit, though the crosshead proper is scratchbuilt.



*Nosing through the undergrowth.*



*Chassis, showing motor and flywheel in a cradle of bath sealant.*

Motorisation is courtesy of a Kent Panel Controls 'Motor for N Gauge', which has 'W Germany' stamped on the brushgear, and is a five-pole unit. As this would not fit happily within the frames and the pony truck, a spur gear – part of Salford Models' motor mounting bracket DRV/8 – is employed between the worm proper, and the actual gear on the third (driving) axle, which is 18-tooth. To mesh this unlikely combination, the complete idler gear and its bracket is soldered to a brass 'L' bracket, which had a cut-out for the motor shaft and the gear – rather like a two-pronged fork! A 12BA tapped hole serves as the sole mounting for the entire assembly, to the centre frame spacer.

Adjusting the mesh is simply done by bolting the bracket to the chassis, and moving the 'L' either forwards or backwards. Sounds easy, but it took a total of three brackets to get it right . . . after which, mounting the motor and worm with silicone rubber bathtub sealant seemed almost child's play. For icing on the cake, a flywheel was made up from an old brass tap washer filled with solder, and then dished to clear the brushgear. Luckily, everything worked out so as to allow enough room for the inclined motor, though the flywheel does take up most of the cab.

The whole chassis (except for cylinders) was chemically blackened, after which frames were covered in a thin wash of dark green. The body was first prepared with car cellulose grey primer, and then covered with a coat of Vauxhall 'Grass green' – both from cans. Lining out posed a problem, since the original scheme called for black panel edging, separated by a single pale line from the green. Accordingly, a single-edged razor blade was used to cut away the second grey strip from LNER grey/black/grey waterslide lining transfers. Then, each strip was fixed to the appropriate places around the loco's superstructure, and the corners lined in by hand with a number 00 brush. Black areas – tank tops, etc. – were then filled in by brush, with the paint edge being lost in the black part of the transfer. This left only the corners to be done by hand, and sharp grey lining. Generous flooding with Walthers' Solvaset made the transfers conform to the surface. After a coat of matt varnish, everything looked almost as good as hand-lining. Weathering was principally a mixture of thinned greys and browns, streaked vertically down the sides and ends of the tanks, and across the boiler top.

So, how does it run? Very well indeed. The loco will crawl along at a little above scale walking pace, using a simple electronic controller. It is tempting to dismiss the success of this engine as being down to stored momentum in the flywheel, and weight. Agreed, the Bagnall scales in at a little over 3 oz, but I have seen a number of heavier 009 locos built onto proprietary N gauge mechanisms which did not run as well.