



Federation of Model Engineering Societies

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2.5 inch gauge locos and stock

This document was written by Dr. John Sayer and was originally published by Worthing and District SME in their newsletter in the Autumn of 2014 and Spring of 2015.

Part 1:

In 2012 I had to give up my "big engines". I found an alternative in a Roundhouse narrow gauge kit that could be converted into a 2½ inch gauge Industrial Standard gauge saddle tank with Walschaerts valve gear, capable of running on the club track. New frames, wheels, axles, axle boxes & springs, buffer beams & buffers were made, and the cab was altered. A water gauge and whistle were fitted to the boiler. Two valve chest lubricators were fitted, and cylinder drain-cocks added.



I found that gas firing is convenient, but less satisfactory than coal. I decided to fit radio control, if the engine ran satisfactorily, and felt the electrical bits would function more reliably if mounted in a separate cooler vehicle. I remember watching North Eastern Railway 0-4-0 side tanks shunting in Leith docks around 1947. They had open-back cabs and were coupled to match-trucks; old coal wagons with the end next to the engine cut out, and a large water tank at the back. I also found some useful photos in "The Scottish Shale Industry and Mineral Railway Lines" by Harry Knox. My match truck is based on these illustrations.

The truck is a short wheelbase 4-plank dropside mineral wagon built about 1910 with brake handles on either side. It has the large galvanised water tank with filler at the rear, a coal bunker to carry four tons, a tool box for spare couplings, a jack, a pair of re-railing ramps, small baulks of timber & crowbars, and of course a heavy sledge hammer to deal with derailments. Another box contained a bucket of dry sand and firewood. In a separate compartment steam oil, lubricating oil, grease and rags were kept. A spare shunting pole and chain for fly shunting, and the enginemen's bicycles also found room in the match truck. Full length footboards and handrails for the shunters were provided; these also allowed the fireman to climb down to apply the brakes on the match truck to supplement the handbrake on the engine.

For my model, the axle guards came from a Marklin garden railway truck while all the rest is scratch built, including working brake gear. The body of the wagon is detachable so that I can change to a brake van or even four-wheeled coach. The coal and water sections lift off to give access to the radio batteries and receiver, and an on-off switch is hidden in the left hand frame.

I have found a supplier of good wheels and fittings for 2½ inch garden railways and hope to build some more wagons, a brake van, and hopefully a Railmotor based on the Lancashire and Yorkshire Railway prototype.

Part 2:

In 2011 I became interested in the Brewery railways of Burton-on-Trent. This extensive system belonged to three major breweries. They used small engines adapted to the particular conditions of frequent short journeys, a great deal of shunting, very sharp curves, and short steep inclines. Having earlier decided that I needed to 'downsize' my modelling activities, I wanted to build a model to run on the club's 2½" gauge track, able to complete at least one circuit (about 400 yards), capable of pulling a short train of trucks loaded with barrels - alas rather small, and empty.

I chose a fairly modern Hudswell-Clarke 0-4-0 saddle tank to a scale of 13 mm/foot. I found that many parts from a 16mm/foot narrow gauge prototype 0-4-0 ST "Katie", sold as a kit by Roundhouse Engineering could be used. My workshop time has now become very limited, so a kit had advantages, but there was still a lot of work to do. The frames' shape had to be greatly altered. New axleboxes, hornstays, and springs were made. New flitched wooden buffer beams, couplings, and cross-stretchers went to make up a new chassis for 2½" gauge. As part of the outside motion of the engine, two pairs of old spoked wheels 36 mm dia. (= 3' 0" prototype) were fitted with new centres to take crankpins. New footplating, grab handles and sandboxes needed to be added.



Modifications to the cab included changes to the roofline and side cut-outs, and the addition of beading. Turned brass spectacle frames to hold thin Perspex glazing were made; also a pillar and handle for screw-down brake shoes to all four driving wheels.

The dummy saddle tank was fitted with steps to the filler, and brackets at the front to attach to the smoke box. A small cut out at the rear end of the tank allowed for an over-size working whistle. To give the correct shape of the firebox, sections were added to the boiler cladding and a brass beading fitted to the boiler backplate.



I cut the smokebox door off, and remounted it on working hinges, with brackets inside of the box to carry a door-bar and T-screw. The boiler has one flue with the burner inside, and I fitted a taller manifold to take the whistle mounting and the top pipe connection to a water gauge with blow-down valve. (see photo 2).

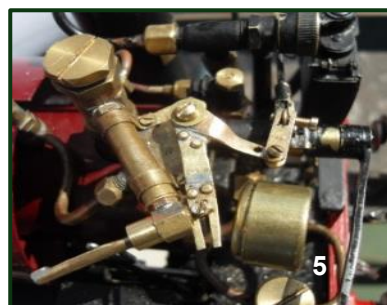
The Roundhouse cylinders, valves, and motion were used, but "fined" down to give greater realism. In retrospect a bottom slide bar and proper crosshead would have been an improvement. I did add a union link and combination lever, to give the appearance of Walschaert's valve gear when running. Valve chest lubricators and cylinder drain cocks were also fitted.



Radio control entailed making a match truck to carry the receiver and batteries, with model aircraft type plugs, sockets and leads to connect to the servo motors on the engine footplate (photos 3&4). A fine-threaded regulator was obtained from Roundhouse to connect to a servo mounted on a braced frame at the rear of the cab. For the reversing rod, the servo is located at the



front left side of the footplate. An extra reach rod with clip and set-screw connect the servo to the weighshaft arm and allow for adjustment to obtain the best running position for the die blocks. The whistle control was linked to the regulator servo to give a 'pip' as the regulator begins to open, but before the engine moves off. (photo 5). Since the photograph was taken, I have been able to simplify this linkage. I must finish painting and lining the engine; and I would like to fit two further servos with control channels; one



for a separate whistle control, and the other for a gas control arm to avoid waste of steam when running downhill.