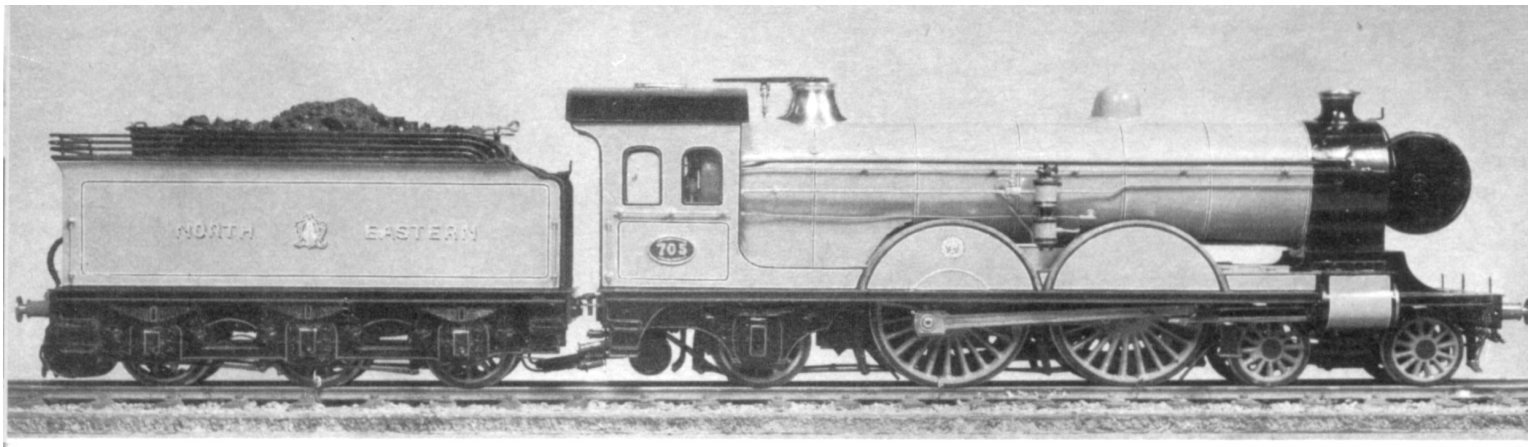


CLASS 'V' ATLANTIC

CONCLUDING THE STORY OF NEIL ROSE'S O GAUGE FINE SCALE LOCOMOTIVE

The Running Plate

This running plate supports the cab sides, spectacle plate and roof, the driving wheel splashers and the cab backhead fittings. The cab roof and backhead are removable, everything else being soldered up as a strong unit. The running plate was first cut from 0.030in. brass sheet and marked out for motor and wheel clearances, etc. This left a very flimsy structure which, with care, was fitted and fixed down to the chassis. Once clearance had been established the running plate was removed on to a flat piece of marine ply to have the superstructure built up. The splashers were added first. These are fabricated as a section of a disc with the curved splasher tops as a separate piece. The second driving wheel splashers are different in that they have a portion removed to clear the con-rod. This clearance hole has a smaller splasher soldered over it. This secondary splasher was formed by turning a shallow end-cap the same depth and radius as required and cutting it in two, one for each side of the engine. Once all four splashers were soldered up square they were transferred to the running plate and sweated firmly in place.

The cab sides were cut from two pieces of thin gauge brass which had been sweated together. The handrail knob holes were drilled after the shape and window apertures had been formed. The sides were unsweated and cleaned up. The beading around the windows was produced by carefully soldering in 1mm wide strips of copper shim. It sounds like a delicate operation but it is easier done than said. The hand railknobs and handrails were then sweated in position and the two sides were offered up to the running plate to see if a fit was guaranteed. A little filing at the point where the cab side extensions join the splashers and all was well.

The spectacle plate was then marked out and shaped. At the point where the centre-line of the boiler met the spectacle plate, a hole was drilled 2BA clearance. The completed article was then transferred to the running plate and placed in position between the cab sides. The only area needing fitting was where the curved roof line of the spectacle plate joined the tops of the sides. Once this had been achieved and everything was right the three articles were soldered together to the running plate.

The box section which runs from the cab along the running plate and through the splashers was completed next. This was simply a matter of trimming strips of tinplate to fit the gaps and soldering up.

The cab roof was cut out flat and rolled to the correct radius. The ventilation hatch was produced by cutting a rectangular hole in the centre of the roof and sweating in, either side of it, two inverted 'L' sections of copper shim. The ventilator was simply a piece of tinplate with a handrail knob soldered to the underside. The roof was made removable for reasons you will see later. Some very simple springtags were fabricated and soldered to the underside of the roof; these ensures that the roof stays on even if the engine is turned upside down.

The backhead fittings were left until the last and are a mixture of copper wire, brass strip, dressmakers' studs and fine BA fittings. The layout was gleaned from Ken Hoole's book 'The North Eastern Atlantics' and one of the views from 'Engineering'. The fittings are mounted on a 1/32in. brass plate, preshaped, which in turn is mounted on a piece of $\frac{1}{8}$in. thick tufnol. A 2BA clearance hole is drilled through the centre of this sandwich lining up with the hole in the spectacle plate. At this point the soldered assembly, now quite strong, was fitted back on the running plate and proved a very satisfying sight.

The next and final job was the fitting of the running plate valance, a matter of soldering a tinplate strip 2.5mm × 0.5mm just inboard of the edge of the running plate. The soldering was done in the sequence, middle, cab end, cylinder end, then the gaps in between. This resulted in a good soldered joint and, more important, a dead flat running plate.

The boiler was developed and rolled up from a piece of tinplate (those 1 gall oil cans have some very practical end uses). The boiler proper, on the model, extends from the cab to just behind the chimney. Once rolled into its final diameter it was supported on a soft wood mandrel and a soldered seam joint was formed where the edges overlapped slightly. The various holes for handrails and support brackets were then marked out and drilled, likewise the position of the boiler bands.

The Boiler and Smokebox

The boiler and smokebox between them contain an array of turned parts, all of which were not available commercially. The most distinctive are the brass safety-valve casing and Westinghouse-pump assembly, followed by chimney, dome, inspection plugs, smokebox door and handwheel. The smokebox was a separate unit and was joined to the boiler using epoxy adhesives. The smokebox door opens and reveals the interior which includes the front tube plate cylinder steam pipes, blast pipe, blower and associated pipework.

The chimney, dome and safety-valve casing were formed by fly-cutting a seat on a brass bar blank and then forming the contours of the part. Once parted off they were seated on the wooden mandrel with a simple clamp and the flare of the skirt finished off.

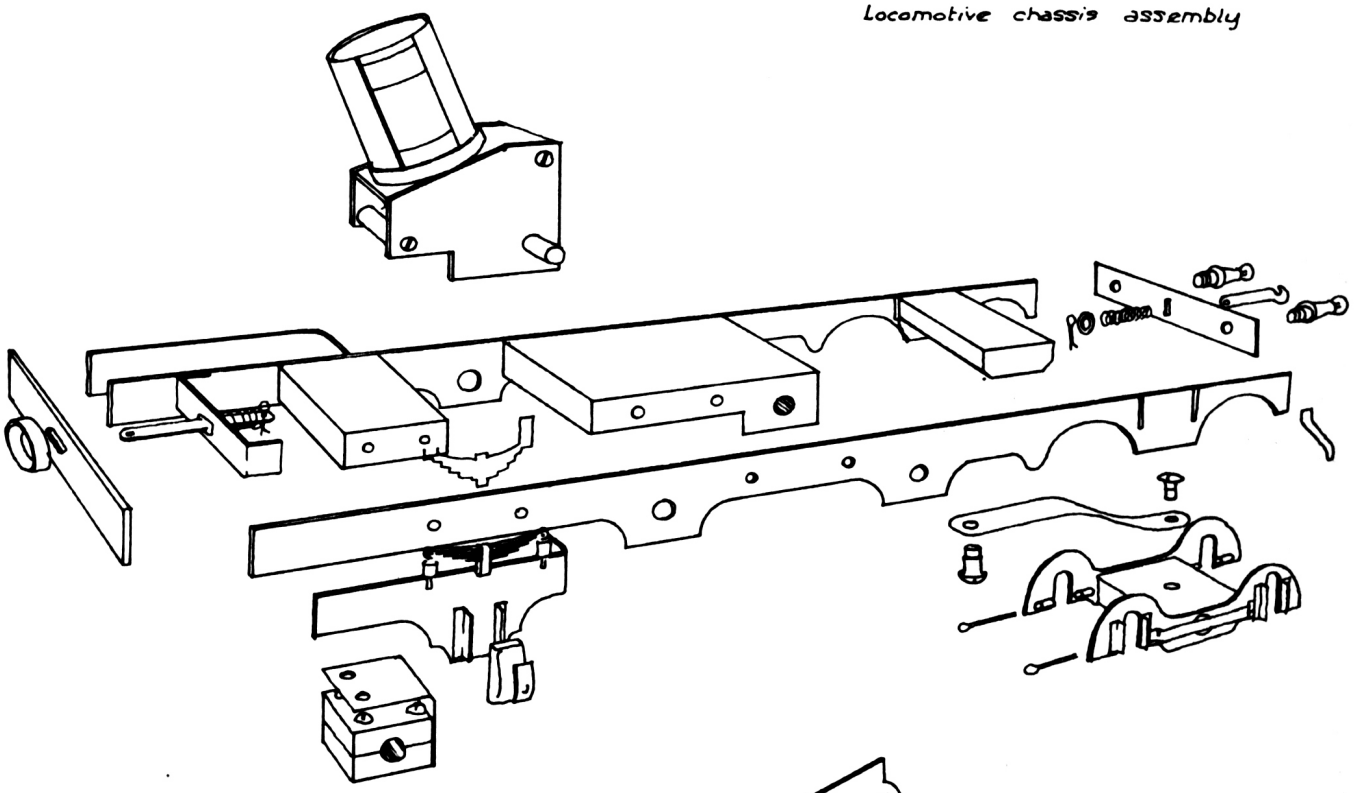
Coming back to the smokebox, the door was hinged on to the front and secured by a simple dart arrangement. The smokebox wrapper was then formed around it and soldered up, checking for squareness at every stage.

The front tube plate, which had previously been 'flued' (I lost count after 73 holes) was then sweated inside the wrapper. This was perhaps the trickiest operation since if it was not square in both planes the disjoint resulting between boiler and smokebox would have stuck out like a sore thumb. As it was, some difficulty was experienced resulting in a great deal of sweating and unsweating (of the model and of the builder) but at the end of the day satisfaction was obtained. The smokebox internal base, which is a rectangle, was formed from a block of rigid PVC into which the blast pipe is fixed and 'cemented' with epoxy.

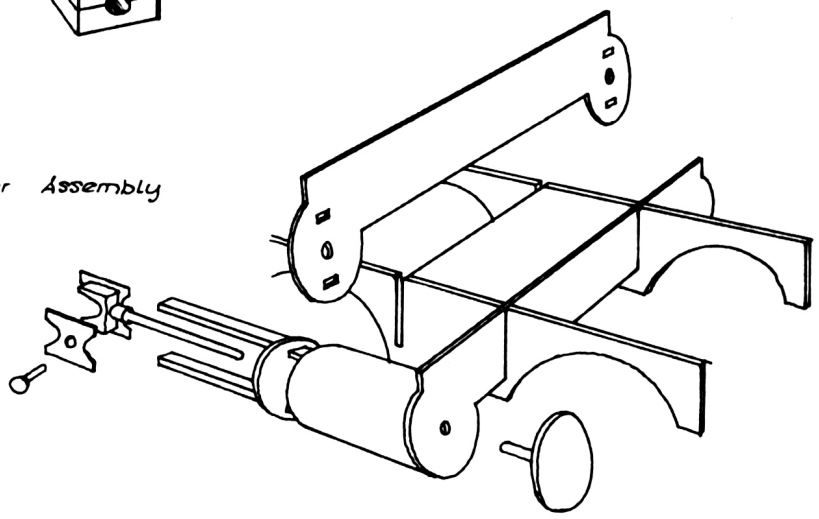
The firebox end, in section, is shaped like a keyhole and had to be fixed to the spectacle plate of the cab in such a way that it could be removed easily yet be re-located exactly in the same position every time. The solution was simple enough. A piece of 0.030in. brass was marked out to the internal dimensions of the firebox cross-section, cut and filed to shape and then drilled 2BA clearance through the boiler centre line. A 2BA full-nut (brass) was sweated on the inside face of the hole. This little assembly was then soldered carefully in the inside face of the firebox and once the joint had been cleaned up, the boiler/smokebox unit was located between the splashers of the running plate and, as luck would have it, fitted perfectly first time.

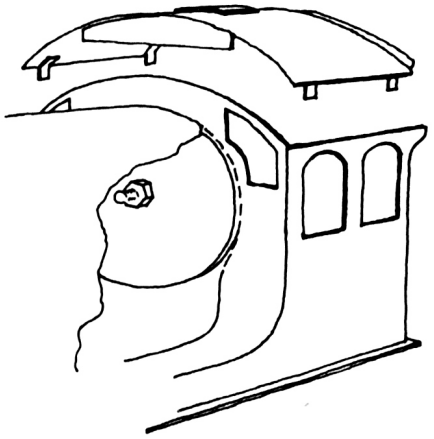
When things go together so easily as these parts did I prefer to plod on and get as much done as possible, whether it be marking out or turning, since it heightens one's expectations of a good job and, strangely enough,

Locomotive chassis assembly



Cylinder Assembly





Assembly of Cab Roof and Boiler/Firebox to Cab.

Neil Rose 12/74

seems to minimise mistakes. Conversely, when mistakes start to occur it is a sure sign of either a lack of concentration or tiredness, or both, and it is nearly always futile to press ahead with further work.

With the boiler in place, not only horizontal but square in plan view, it was ready for the boiler fittings. I prefer to fix the chimney safety valves and dome in that order. I use this sequence because the chimney location can ruin or enhance a model's final appearance. This, as lovers of the steam locomotive will know, happened in full size practice where mistakes are made even more grotesque. I am referring here to the practice of superheating locomotives, involving extending the smokebox which, in the majority of cases, left the design in a permanent state of imbalance. On the model, time spent on accurate location of the chimney pays dividends. Usually I whittle a piece of soft dowel, press it in to the chimney bore and this aids handling because the chimney gets unbearably hot during the soldering operation. When the location had been accepted and it was vertical in both planes, a generous fillet of solder was run around the flare and cleaned up at the same time as the other fittings. The safety-valves and casing came next. The same principles of location apply to these and being at the opposite end of the boiler, to the chimney, it is good practice to line them up by eye with each other, tack soldering as you go, until a firm location has been agreed. The safety valve casing was an interesting exercise in itself because the flare of its 'sides' changes profile twice, as it turns through one revolution. This had to be formed by using a combination of half-round and round, second-cut files and various grades of wet and dry paper supported by selected section Needle files. A final polish with 'Brasso' and 'wet and dry' produced a dazzling little item. Obviously it was important not to get solder on any part of its surface so when the base had been tinned the case was pressed into a piece of modelling clay and soldered to the firebox top, soldering from inside the casing. When secure, the valve assembly, including the pair of graceful tails, was fixed inside with epoxy adhesive. The dome was placed in position and lined up by eye between the chimney and safety-valve assembly and when everything was satisfactory it was soldered in position. The model was now assuming proportions of grandeur and was becoming more impressive with every additional fitting.

The final fittings were the Westinghouse pump assembly, inspection plugs, boiler bands, handrails and external pipework. The pump appears complicated but is simply an assembly of turned parts and is best explained by the relevant sketch. The plugs, three on one side of the firebox and two on the other, were also simple turnings. They were pressed in pre-drilled holes and secured by epoxy. Boiler bands are strips of copper shim, spot soldered at three points around their circumference. Shim is very easy to work with and strips are obtainable easily by marking a sheet with a craft knife and bending it once or twice (in a similar manner to cutting Plastikard). They do not curl or distort and give a crisp, clean edge. Handrail knobs are commercial products; they are such delicate items and those available commercially are so good, I don't consider making my own worth the effort. The knobs were threaded on to the handrail (which had been previously formed around a wooden former) and located in pre-drilled holes in the boiler. By tinning the handrail-knob spigots carefully it was possible to sweat them in their respective holes without getting solder everywhere. For extra security the handrail was also soldered to each individual knob. Pipe-work was a mixture of copper conductor wire of various gauges soldered at strategic points for security.

Finish

At this point the model was complete except for painting and number plates. Now North Eastern Railway engine green, like all liveries, is not easily reproduced and initially my thoughts were leaning towards the NER locomotives in York Museum. There it would be possible to match colour charts and samples, next to the actual item. But the engines in question have received such copious layers of varnish that the actual shade (is there such a thing?) was difficult to determine. At this point, my good friend Bill Tate lent me a NER paint sample panel which had originated in Darlington Works many years ago and showed the original shade of green and the lining details. This panel was taken to a small paint company in Manchester—Marcel Guest of Collyhurst—who mixed up a one pint sample in brushing cellulose for the princely sum of 12 shillings That was about late 1971; I've no idea what the price is today. The model was then dismantled and every part received a thin spray coat of primer (the car spray type). This was allowed to harden for about a week: the areas to be painted green were masked and the cellulose was thinned slightly before loading it in an Airbrush. The engine and tender areas were given about a dozen thin coats, allowing each one to harden in the cooker on a low setting. The final coat was an approximate mixture of 50/50 per cent paint and thinners. This has to be sprayed carefully to avoid runs and, if successful, gives a smooth hard gloss finish. Some time later the black areas were sprayed using the car spray system. One can of paint gave adequate coverage. The wheel treads and flanges were cleaned up and the various parts reassembled.

Number plates came via Bill Tate. Some years ago he had some master stencils drawn in Indian Ink which give exquisite reproductions of the real thing, when reduced to a definite scale and photo-engraved on thin brass. And this, folks, is where the howler comes in. As I said at the beginning of this article the 'V' Class were built in two batches, separated by time (six years), by designation (V and V/09) and by physical differences (splasher thickness, etc.) However, armed with a formidable array of information, including a complete list of 'Atlantic' types with corresponding numbers, I still went ahead and gave the engine the wrong number. It should be one of the original batch with steam reversing gear and as time and energy permit I will change it. (I might add that nobody has spotted it up to now; perhaps people are being kindly diplomatic.) The plates were trimmed, cleaned up and sprayed black. When dry, the raised border, number and legend were scraped carefully with a scalpel blade to reveal the brass underneath. They were fitted to the cab sides with a spot of Evostik, so I hope they don't present too much of a problem when they have to be removed.

Lining and the legend on the tender sides was carried out by Howell-Dimmock. It was the first time I had used their services and they made a really first class job of it.

With any achievement, it is rare if it has been made possible using one's own, single-handed talents and this case is no exception. My thanks go to the following, for assistance either unknowingly or very positively; Arthur Peake for blunt encouragement and tips on turning cast-iron wheels. Arthur Hicks for donating the screw couplings for tender and engine. Bob Mills who told me that the 'V' had four safety valves, not two. The late Ross Pochin who donated the number plates. Bill Tate for constant supplies of information and for the introduction to Bob Hunter who, with other members of the North Eastern Railway Association, filled in most of the 'unknowns' on the prototype. And finally to my ever-patient wife, Anne, who typed this manuscript with one finger, sometimes two!