



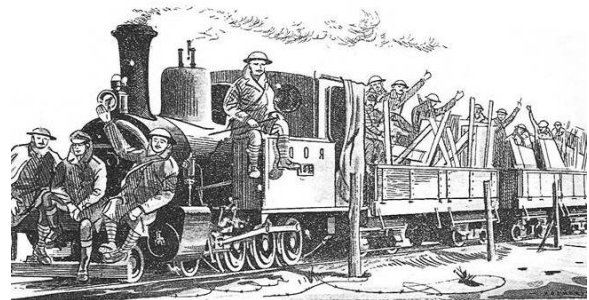
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5 inch gauge war department Hunslet

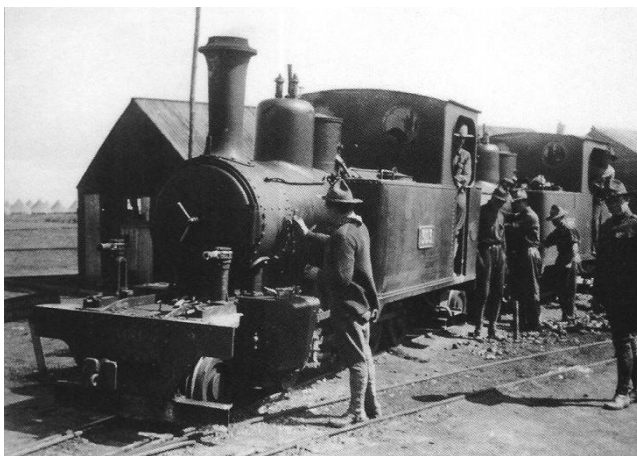
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This year marks the centenary of the start of the Great War. To us oldies it seems unbelievable that an event within recall of our parents is now definitely classified as "History", and I find it scarcely credible that a quarter of this time has passed since my Myford was turning out bits for a model "WD Hunslet".

This is probably an appropriate moment to have a look at the little 60cm gauge 4-6-0Ts designed and built in Hunslet, Leeds by the company of that name to the order of the War Department. Most people are aware of the extensive use made of the French 60cm gauge light agricultural railways by all combatants in supplying materiel to the front, and large numbers of locomotives both steam and internal combustion were built specially to cover the huge increase in traffic above that for which the lines were originally laid. The most often mentioned engines are the 2-6-2Ts built by various American companies, one of which is preserved on the Leighton Buzzard railway and another on the Ffestiniog in modified form as "Mountaineer". Don Young fell for this latter to the extent that he worked up a 3½"G model which, while not being wildly popular, is seen from time to time and an example can be found in our own club.



Less well known is the English equivalent that was produced by the Hunslet Engine Company based on a 0-6-0T for use in Southern Rhodesia. The axle loading stipulated by the WD was rather limiting but it was met by the addition of a bogie, this allowed for an increase in tank capacity and a rearward extension accommodating a proper coal bunker, additionally the weight of frame stretchers and axles was reduced by employing inside frames. The first batch was turned out in 1916 and in all 70 engines were sent to France.



The final order for 40 was placed too late for use at the front and engines were adapted to various gauges and sold to railways and other enterprises throughout the world, as were many of the other engines that made it back home after the conflict.

Luckily one example has been repatriated from Australia and is undergoing restoration. In 1982 ME featured a 3½"G model called "Spencer" at 1⅞" to the foot based on a re-gauged 1 metre engine but I thought little of it until a few years later when the completion of an engine then under construction was approaching. After cutting my teeth on two small typical inside cylinder British locomotives to designs by Don Young my mind turned towards

something different in the form of a hunky narrow gauge engine, but the usual 0-4-0Ts did not appeal to me at all, on the other hand I found the lines of the Hunslet 4-6-0T quite pleasant, it seemed more like a "proper engine". My initial reaction was simply to double up "Spencer" and move the frames inwards to the original prototype position to make it a 5"G model, but then I decided it would be better to go the whole hog and

prepare a new set of drawings to $2\frac{1}{8}$ " scale more representative of the original. The ME series referred to some prototype drawings that had appeared in Model Railway magazine in 1976 and its publishers were kind enough to send me copies of the original article without charge. The plans were not just outlines but included motion parts, valve gear and a cab view with the arrangement of the controls. Being a very simple engine I was able to prepare a full set of drawings relatively easily with the detail design of components such as axleboxes taken from some of Don Young's models. I found that his 5"G "Pom-Pom" (GCR 0-6-0) had a Belpaire boiler of just the diameter needed for the Hunslet so I redrew it with a shortened barrel and longer firebox to meet my requirements and rearranged the positions of fittings.

The dimensions of the full size and model engines are:

Length	18' 5½"	3' 3½"
Width	6' 3½"	13½"
Height	9' 0"	19"
Driving wheel dia	2' 0"	4¼"
Cylinders	9½" x 12"	1¾" x 2¼"
Boiler dia	2' 9"	5½"
Grate area	4 ft ²	23 in ²
Empty weight	11 tons	156 lb

It can be seen, that the original is a really small engine standing a mere 9 feet to the top of the chimney so the "Spencer" model is minute. On the other hand the one sixth scale version is quite a passenger hauler at 3' 3½" long with 1¾" diameter cylinders powering 4¼" diameter wheels that carry about 140lb adhesive weight when in working order.

Before deciding on construction, I searched around to see what castings could be adapted from existing models. The coupled wheels are quite distinctive with 7 spokes and a balance web between spokes opposite the crankpin, I compromised using 5"G Edward Thomas castings that are similar in appearance but have only 6 spokes. Bogie wheels were easy as they are disks with holes in them and split axleboxes were made from cast iron bar and brass with simple separate horns. Cylinders were taken from Don Young's 7¼"G Rail Motor, quite a bit of heavy hacksaw work was needed to remove excess and adapt them to lean outwards at the top as well as to achieve the sloping steam chests that are taller at the back than the front. This would be a doddle with a big mill but I did not possess one in those days. There was no need for stretcher and motion bracket castings as they were simple steel plate fabrications silver soldered together, and the sand dome was made in the same way. This left the chimney and dome cover to be cast as special items: I made a pattern for the chimney and had two cast in aluminium (to cover a possible scrapper as they were cast solid and at 7" rather long to bore out, the spare still exists), and another pattern was prepared for a foreshortened solid dome in brass which was used for top and bottom extremities with a tube between to get the correct height. Incredibly these castings were produced at a foundry located in the centre of Brighton!

Although the original engine had under slung leaf springs on the coupled axles and overhead leaves on the bogie, I decided to have simple coil springs all round. This worked out well on the bogie but the engine rolls considerably on the coupled axles, this can look alarming but in practice it has never derailed in its years of use. The prototype was reported as being more than usually lively due to the use of inside frames on such a narrow gauge so perhaps it is permissible for the model to behave in a similar fashion.

Being my first foray into valve gear design I had a good look at the Walschaert layouts used by Don Young on some of his engines, especially "Mountaineer" and "Rail Motor".

Of course, the overall arrangement had to be close enough to the prototype to fit the space available but there was some design latitude in lap and valve travel, luckily things were simple as it was to the "all square" American type layout. The ports were made $\frac{3}{16}$ " wide and the valves given 0.140" lap, and following Don's principles I arranged for 0.027" lead, a decision I have never regretted and something I repeated successfully in a subsequent model. The valve travel was a bit overdone as at that time I mistakenly thought the ports should open wide to steam, in practice I just run well notched up. The boiler turned out well as



the shortening of the tubes and increase in grate area vis-à-vis the design it was based on makes it a prolific steam raiser, probably at the expense of efficiency, but then a trench supply engine is not supposed to be an IMLEC contender. All told I have been very happy with "Hunslet" as she is easy to drive and maintain and doesn't seem to worry about load, ideal for passenger hauling. Of course, she does seem a bit rough compared with a 4-cylinder express locomotive but what else would you expect from an industrial engine designed for use in wartime? It has certainly given me many hours of enjoyment over the years.