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Here Come the “X”-Men

So, the reader, if he or she has been following, now knows that Shed 75H has to get engines ready, then put them away before and after each day’s running.

But there is much, much more to be done in between times. Our roster is broken down into a list of engine duties for all three grades, and a number of duties which are non-engine turns. These tasks can be anything from cleaning engines, to acting as “spare” men (working as required as spare drivers, etc.), to organising the yard and staff at weekends as a Running Foreman, to acting as “X”-Men.



Badly burned fire-bars from No. 847.

Before we go running off to look and see who plays “Professor Xavier” and “Magneto”, a short breath to explain why this duty has the title, the “X” turn. In the old sheds, engines would go out on a rostered tour of duty and be available for a fixed period of time, 14 to 20 days might be typical. But after that time they were booked to spend a day on shed so that any number of odd jobs could be done to keep them up to scratch, and these were called “X” days in some places. Take a look at “YouTube” for a film called “Wash and Brush up”, made by the British Transport Commission film unit in the early 50s, which looks at part of what these days entailed.

Thus, some years ago we at shed 75H set up a system whereby this work was shared around all those who were granted the privilege of showing off at the front of a train, racing through the countryside on a thoroughbred. Nothing comes from nothing, as “Thénardier” observes in a well-known musical—we should all play our part, and in our shed, these duties are known as “X” turns.

My last “X”-Man duty was in the run up to No. 847’s latest visit to the wash-out pit, and as I arrived at nine o’clock, Andy Sabin (“Horace” to his friends) was delighted to explain that the day stretching out in front of me was likely to be in the firebox, sorting out the grate.

Locomotive grates come in the form of cast iron bars; on some big engines they are arranged in three longitudinal sections from front to back and set in rows across the width of the fire box (by the way, on a steam engine the “front” is always the bit nearest the chimney, and furthest away from you!)

Every bar rests at each end in a lateral heavy casting called a “comb bar” (so called because it looks like a comb for a particularly large giant with bad hair). The teeth of the comb help keep the fire bars upright and at a set distance from their neighbours, to provide an air way. Not obvious, until you consider it, is the fact that these bars must be a very loose fit when cold, to allow for expansion in the temperatures encountered in a firebox (some 1600 degrees C for an optimum fire at full chat).

However, because these bars are loose, edges pop-up into the fire bed, attract deposits of clinker, get burned or get broken, and they all shuffle down a sloping grate towards the front, so every day they must be inspected, cleaned off with fire irons, and re-arranged. Periodically someone (me this time) has to come along, get rid of the old fire, and climb in—if they’re lucky the engine might be cold!

Whatever the state of the boiler, air is of primary importance to anyone going in. A flow is needed to provide fresh air, as well as a draft to help blow dust away from the fire-box. Thus, we open the dampers and smoke box door as well. And whatever the weather, working in a firebox is warm work and one swells up inside and sweats; thus a supply of water to hand is essential. And, be sure, if it’s a squeeze getting in, you may well not get out! For that reason we rarely enter a firebox when on our own and never without telling someone where we are.



A brand new fire-bar.

So, face mask on, leather gloves donned, full overalls buttoned up, and in I go feet first and face down, cramming my not inconsiderable corporation through the fire-hole and start the business at hand.

With this engine, it's best to cramp down under the brick arch first and fully remove the bars at the front and make a gap that allows tall fellows like me to stand up in the ash-pan. Then with a brush, a hammer, and an old screwdriver, we start to remove bars at from the middle and back sections to inspect them. Badly burned or broken ones are got right out for replacement, or for possible attention with a grinder and eventual re-use. But all the spaces underneath the grate and above the ash pan that collect old fire are swept, the comb bars are cleaned off, and the bars put back, after having got the worst of any clinker chipped off.



A "comb" bar.

While there, the crown stay nuts get swept. These attract no end of deposits dragged up from the fire bed by the blast to stick there; ash and dust also blows up from the fire to drop down on top of the brick arch and must also be swept into the ash pan. Tube ends must be inspected for "bird nesting" (clinker deposits that build up and eventually will block the opening and restrict the flow of hot gasses through the boiler barrel) and swept off. I also look for anything else untoward that must be reported to fitters for further inspection; these items might be leaking tubes or stays or seams, but they could be anything that doesn't look right.

When all that is done—and it takes until lunch time with breaks for tea and leg stretching—it is time to go and find replacement fire-bars. (By the way, getting in and out is almost as exhausting and the rest of the job.)

Firebars weigh about a stone (14lbs) each. This is an estimate based on my experience of humping 56lbs sacks of spuds back in the day, so I would not carry more than two or three bars at a time. On this day, I replaced twelve bars at £80 each, so a whole grate will cost about £1,500, and will weigh about 8¼ cwt, slightly more than one third of a real ton.

So, back in the fire box, with mask, etc. at the ready, and I start to joggle bars and get the new ones in. Ideally, I place new bars together; it's a pain trying to fit a new bar

into an old hole, because the existing bars have grown old together to become remarkably friendly with their neighbours, and they don't take kindly to fitting in with strangers. Getting the grate back together again is the worst part of the day, because just when you think you have finished, you find the last bar won't go in and you have to start the game of moving first one bar then another to satisfy everyone. Fire bars are like people on training courses—they all want to sit with their friend.



The firebox of No. 541 after the X-Man

All that said, the start of replacing the grate is reasonably easy. Having removed the front third to allow you to stand in the ash pan, you have the remainder in front of you at a reasonably convenient working height. However, when you start to put the front section back, you gradually reduce your working space until you are left lying on the mostly re-assembled grate trying to juggle bars around while working, head downhill and in the restricted space between the grate and the brick arch.

Then you find that you have missed something behind you, so now you are working the other way up, laying on one side with one leg at a peculiar angle and the other straight out, and your right hip joint threatening to go into cramp any moment. But eventually you get the whole thing in, and it's time at last to hoik the tools out through the fire-hole, followed by your arms, head, shoulders, and the aforementioned corporation, and finally legs. There is no dignified way of doing this. On No. 847 the fire-hole is about two feet off the floor, so having got your waist out, one has to get hands on the floor to push shoulders up to keep the body level and hand walk, like playing "wheelbarrows" with a child, until the last foot emerges gasping for air into the clear blue afternoon.

But looking back in, you see a grate that is clean and in reasonable repair and with a good crop of air spaces between the bars ready for the next fire. Job done.

Tomorrow, another set of men will set about the boiler to wash it out and get rid of the accumulated deposits of scale, and some lucky soul will have the pleasure of wiping his face around the inside of the smokebox, to clean that up. Fitters also will be using the time out of steam to attend to any number of running repairs that drivers have reported, which need the engine out of steam to deal with properly. The shed foremen

also use wash-out time to allow a bevy of cleaners to descend and give the engine a heavy clean, which is the subject of another piece I think.

So we “X”-Men carry out important but less enthralling work than “Professor Xavier” or “Magneto”. Had we their powers, the job might be easier and less messy. But then it would not add to the “Romance of Steam”, a nice wash-up, and a cup of builder’s tea.

By Russell Pearce, Driver