Sweepings from the Shed Floor: How to Prepare a Steam Engine

By Russell Pearce, Driver

Over here in the dimly lit recesses of the shed we are quietly beavering away at the daily task of running the train service about which I gave hint or two in my last offering. In closing I said that I would lift the curtain and reveal what we mean when we talk about “Preparation and Disposal”.

In the “good old days”, among the duties to be carried out by a set of men (i.e., a Driver and Fireman rostered to work together), was a job known as P&D. Not all the men on a roster had the glamour of roaring through the Kent countryside with train loads of jolly cockneys on their way to pick hops. Nor did they get to savour the bucolic joys of ambling along sleepy branch lines to Midhurst on a day excursion from Brighton picking up and setting down goods at way-side stations.

There was always at least one pair of men whose job it was to book on at cockcrow and spend a long day getting engines ready for someone else or putting away someone else’s cast offs. However, it should be noted that it was not their job, when we say that they got an engine ready, to actually light it up. That was done by a man called a “steam-raiser”. He would light a number of engines in one go and tend them until they had about 40lbs of on the clock when they were regarded as “in steam” and ready for a crew.

At 75H we have none of these, our men have to get their own engines ready and look after them from light-up to chuck-out. So here is what they do. Today, we look at “Preparation”.

Works staff usually oversee the initial “warming” of a cold boiler the day before an engine is to be used for the first time. This is a slow process in which steam raising is avoided. The purpose is to warm the water and the platework very gradually and reduce the stress on the plates caused by a fast light up from cold.

So, in the morning the crew will generally arrive about three hours before the time the engine must be off shed, and set about tasks which fall into two categories: 1) the

driver's examination of the engine as fit to run, and its lubrication; 2) the fireman's examination of the smokebox and firebox for leaks with removal of any surplus smokebox ash and of the dead fire from the last day's running. (We leave the fire on the grate at the end of the day to slow the cooling of the platework and again reduce the stresses that this causes.) It is the driver's responsibility to see that all the checks and tasks are completed and be "off-shed" on time.

Some drivers will examine an engine first before getting the oil out; others will do so while walking round with an oil can. It is all down to preference. But in all cases, he or she is looking see that nothing is broken, missing, or loose. This job will be done visually and physically. Some drivers tap around underneath like a woodpecker, in search of broken leaves in a spring pack or a loose bolt or wedge. All the while listening out for Sir Arthur Sullivan's "Lost Chord" that might indicate that all is not well, by the issuing of a "bum note".

At the end of the inspection and oiling, some of which might entail getting a head into the bowels of the engine, or heaving (a not inconsiderable bulk in my case) up behind the driving axle of (say) No. 263, the driver will have satisfied him or herself that all is well, and that all the oil reservoirs are full and clear of contaminants such as water and dirt, and that they are feeding properly.

Meanwhile the fireman will be clearing the old fire off the bars, using a set of long fire-irons. These are three distinct tools: the "pricker", the "dart", and the "slice".

The pricker is a long bar with a blade on the end, set perpendicular to the bar and is used as rake to push fire around the box; turned through 90° it can be used to pull clinker up off the bars. The dart is a long bar with a chisel end and is used to break up sheets of clinker that may have stuck to the bars or pull out that which the pricker cannot get at. We also have a couple of darts which are bent to about 45° or more so that they can get under the firehole door where accumulations of clinker are usually at their worst. The slice is a long shovel which is used to get the fire out the way it went in: through the firehole door.

So, the fireman's job is to clean the firebox out, examine the plates and seams, and be satisfied that all is well before lighting the fire. Lighting up is done in several "best" ways (there are as many best ways of doing anything on a steam engine as there are people doing them!) But we always start with broken up pallet-wood, paraffin-soaked rags, and a means of ignition. There are not many who use tinder-boxes these days (or matches for that matter), so a lighter will do the job. My preference in a hot firebox is to light up

under the brick arch because this helps reduce smoke coming back into the cab, while also helping to protect plate work from sudden heating. And I will “line” the box with cold coal (especially if using Welsh coal; see an article from Tom James in a forthcoming issue of Bluebell News about coal) because the sooner we get on to burning coal the better.

But the aim is to spread the fire over the whole grate as quickly as possible. Once this is achieved the “blower” can be used to artificially draw the fire and speed the process (assuming there is steam in the boiler to use it). If used too soon it will draw cold air in and set up those unwanted stresses, and lose you any steam you already have.

Once the fire is alight, it is the fireman’s job to tend it, while cleaning the cab, trimming the coal in the bunker, and supervising cleaning staff working elsewhere. The next main task (once the driver has finished underneath) is to clear the ash pan. So underneath we go, once the fire is well spread and the blower is in use, opening the dampers on the way so as to play a hose onto the ash and thoroughly soak it to prevent dust from sticking to you and everything else, while you manage another long rake around brake stretchers and motion to push and pull ash out of an ash pan that seems to have been designed as an afterthought.

If you find that you have cleaned the big ends and eccentrics with your face, and that your hands and arms are covered in a nasty mixture of grease, old oil, and ash, you have probably successfully cleaned the ash-pan in the teeth of the opposition. This is an important job because crucial “primary-air” is admitted through it to the under-side of the fire and full pan may permit live fire to fall onto the track, possibly setting off a lineside fire in dry weather.

So, Drivers, with “fitness to run” and oiling complete, with the hydrostatic lubricator ready to blob away at 10 drops a minute to lubricate the cylinders, the fire lit and ash pan done, we should be about one-and-a-half to two hours through the three hours allotted for preparation. The cleaning should be well advanced (dependent upon staff to do it), so the next job is to set back for a bucket or two of coal. This job also reveals the pile of ash cleared out from the ash-pan, so while one crew member sees to the coal, the other (or cleaners if available) will clear the ash out of the pit to allow the boiler to be “blown-down”.

Blowing down is an important part of our regime of boiler maintenance. It permits us to prolong the periods between wash-outs and helps minimise the tendency for water to carried over into the cylinders (called priming). So, the pit is clear of ash and the bunker is full and back onto the pit. The boiler is then filled (which also discharges the mandatory test to see that the injectors are working properly) and the driver dons a set of ear defenders, the fireman does the same, and having warned all and sundry to keep away, a valve is opened that permits boiler water to be ejected at boiler pressure directly into the pit, in welter of steam and white noise. This is the most spectacular of

all the tasks to be done in the morning, and in a sense, it heralds the end of the preparation.

Once about half the boiler contents have been dropped, the fireman will blow the whistle and the driver closes the valve. And it is at this point that the crew will usually get changed out of preparation gear into clean overalls. We ask crews to wear blue overalls, jacket trousers (or bib and brace), a white shirt, and red tie or neckerchief. Some wear a blue tie, but we don't quibble.

Finally, then, with the crew scrubbed up and faces polished, the engine sat at the dummy waiting for the road, the sun catching nicely on her clean running plate and polished dome, the head-code discs and a tail lamp set, and the tea can warming on the hob, preparation is complete.

More next time about the end of the day and "disposal".