

St Albans & District MES

The Boiler Men - Nothing is Simple

So here we are boiler testing. Boiler Man 2 arrives at 10:30 to find Boiler Man 1 and The Third Man from next door already setting things up. We only have two marine pot boilers and a 3½" gauge loco to do so we should be finished by lunch time - or so we thought.

The first pot boiler is just a steam test so we check the pressure gauge reads OK and fire it up for the test. We don't get far because an 'O' ring in the safety valve has split and it takes half an hour to find a new one the right size and then the valve needs re-setting. That's not easy because the adjusting nut is inside the boiler (its a mad design but very common!) so we fire it up, no good, cool down, take it out and adjust it, fire up again, no good, cool down again, take it out, adjust it, fire it up again - and so on. It takes us about five goes to get it right but at last it's OK, the test is a pass and the owner is happy.

The next pot boiler is less than 3 bar-litres but there is no previous paperwork for a hydraulic test so we have to do both a hydraulic and a steam test. Good news is the owner, lovely man that he is, has brought all the necessary blanking plugs so we don't have to find any. It passes the hydraulic no problem so we check the pressure gauge and reassemble it all for the steam test. Lets just say we have a bit of trouble with the gas burner but we get around it and eventually it comes up to pressure, the safety valve blows spot on the working pressure and the gauge stops rising so it's a pass. Lovely.

Now we do the refillable gas tank that goes with the pot boiler (Note that the rules for testing gas tanks have changed since this was written). We put a bit of gas in it and dunk it in the bowl of tepid water - and it leaks. Just a little leak at the filler valve but it needs sorting. We put a bit more gas in to try to reseal the valve core but it still leaks. What we need to do is tighten the valve body down on its seal to the tank but we don't have the special tool to do it (it needs a thing like a plain screwdriver blade with a notch ground out of the middle). The Third Man nips next door and comes back with what we need (we suspect he has sacrificed one of his own screwdrivers) and, thankfully, its now OK. We fill the tank with water, do the hydraulic test, which is OK, squirt some gas in again to expel the water and then check it in the bowl of tepid water again. Its OK so we and the owner are happy and he takes it away to get the last couple of drops of water out of it at home. If you think that's easy please let us know how to do it!

Now the loco test. First we do the hydraulic test but the owner, who is not present, has given us the loco and nothing else - no blanking plugs. It takes us a good half an hour to find suitable plugs and prepare it for the test. We pump it up with fingers crossed and its OK - no leaks in the smokebox, none inside the firebox, no water dripping out anywhere apart from a tiny weep from the top nut of the water gauge. That will doubtless seal itself when it is fired up so we are happy with it and it's a pass. While Boiler Man 1 fills in the paperwork Boiler Man 2 gets the loco ready for the steam test on his rolling road. We check the pressure gauge - its OK - put it back on the loco and go for a sit down and lunch, confident that we are nearly finished. Ha, Ha!

St Albans & District MES

After lunch we realise the owner has not given us his blower, or any wood, or any coal, or a shovel. So we have to use Boiler Man 1's blower, which doesn't fit the chimney. Hmmm! Boiler Man 1 disappears into his shed and comes back with a bit of rolled up tin can which we squeeze into the chimney and we perch the blower on top of that. We also cut up some of Boiler Man's 5" gauge wood soaked in paraffin so it fits the little 3½" gauge firebox and break up some 5" gauge coal into smaller bits (it goes everywhere and crunches under foot until we sweep up). Full of confidence that we are on the last lap we fire it up - which it does astonishingly quickly, using a tea spoon to put the coal in. We check the water pumps: hand pump is excellent (one of the best we've seen); the axle pump is a bit on the weak side (perhaps could do with a new seal?) but it does the job so we let it go and put a note on the certificate to have it looked at; there is an injector but as usual it doesn't want to know so we give up on it. We only need two means of putting water into the boiler so its OK.

We open the steam blower to get the fire bright, full pressure, and check the safety valve operation. There are two safeties on this loco: the back one is popping open a treat with the gauge on the red line but there is not a peep from the front one. We give it a tweak and it pops open nicely at the working pressure of 80 psi. Fine. No, wait a minute. Not fine. The valve core is unscrewing itself every time the valve pops open! With it still popping open at less than 60 psi we decide that its no good and screw it down again. Same thing happens: as soon as it pops open it starts unscrewing itself. We do this several times with the same result. We are not happy with this as it could come right out and we want both safety valves working properly. We let the fire go out and pressure decay away while we have a think.

What the valve needs is a thin lock nut on the valve core, but it doesn't stick up above the valve body enough. We can't wrap it in PTFE tape because we would risk blocking the steam passages. The pressure gauge drops to the stop and we gingerly remove the valve - its still jolly hot - and dismantle it in the hope of finding a solution. Then, DINK! the light bulb in the brain comes on. Its 'coarse engineering' but if we put a little dent half way up the valve core thread it might just make it bind enough not to unscrew itself. We swallow our engineering pride and do it very carefully with a centre punch because we don't want to damage it too much and its very small so we don't want it to ping off the bench never to be seen again! We reassemble the valve and hope it works.

We put the valve back on the boiler, cut some more wood, break up some more coal and fire it up again. We do this on top of the previous fire because the grate and ash pan are too hot to drop and put back in again - they are fiddly enough when they are cold, never mind hot. There is a risk it will not fire up like this but we are in luck and, again, it fires up in double quick time. After a bit of tweaking we have two safety valves blowing off at the red line and neither of them are unscrewing themselves. It's a pass! So we have saved the owner some trouble and ourselves the bother of doing it all over again on another day.

Feeling rather pleased with ourselves we start packing up. At 5:00pm Boiler Man 2 sets off for home leaving Boiler Man 1 to clear up the last few bits. We've been at it for 7½ hours, including lunch, and dealt with just three models. Like it says at the top of this article, 'nothing is simple'!