

Designs for new boilers? By Frank Stephen

During a recent visit to New Zealand and the enjoyment of being hosted at a number of miniature railway sites the matter of boiler operation and design inevitably arose. Interest was expressed by modellers in NZ and Australia in the recent implementation of the UK 'Examination and testing of miniature steam boilers' but what did we do regarding the design of new boilers?

This was a good question. The examination document contains advice on 'Design verification'; see section 4 - which comments that design drawings and calculations shall be produced. Due to the apparent suspension of the recent liaison group, BMLEG, a design code for boilers as used throughout the hobby was unfortunately not produced. This leaves a reference void since there is no single document that covers copper and steel boilers available for builders and inspectors alike to verify or produce a 'new design'.

In Australia the Australian Miniature Boiler Safety Committee, AMBSC, have produced two codes for the hobby covering the operation of miniature locomotives, traction engines, marine and stationary engines and other live steam models. The codes cover the design, construction and testing of steel and copper boilers.

For Copper boilers AMBSC Code Part 1 Issue 7 – 2001

For Steel boilers AMBSC Code Part 2 Issue 4 – 1995

It is also worth stating that the codes have been adopted by the hobby in New Zealand and that the codes are also used and referenced in the USA and Canada.

This leaves the UK hobby with a choice, reinvent the boiler and produce our own codes or embrace the Australian codes and seek to incorporate them into the UK hobby. Obviously there is some work to do; the codes may not be directly 'transferable', for example material codes etc, particularly with regard to steel boilers. However, there are a significant number of BS's referenced and these would only require updating. The codes could also incorporate our testing procedure so all details are in one document. We would also require the permission of the AMBSC to use their copyright material!

It is fair to state that a very safe and adequate boiler can be built now in the UK using the AMBSC codes. All procedures and necessary calculations are outlined. There is also the very important fact that the AMBSC codes have years of experience and application behind them, many hundreds of boilers having been built and operated safely.

No doubt there will be the critics on this topic. But rather than continue to talk about the lack of design guidance wouldn't it be more positive to progress and UK'ise the AMBSC codes as necessary. Hopefully matters could be added that could potentially improve the existing codes for UK use. Perhaps an initial task for NAME's boiler sub-committee? Anything we, even as NAME, produce will have to satisfy our boiler sub-committee, our insurers and the delegates, so there is some way to go yet. Hopefully this topic could be on the next appropriate agenda for the delegates meeting.

Points that could be debated – in no particular order!

1. Pressure limits? Is 100 psi sufficient for the UK needs? We had some compound traction engines in NI that forced the pressure up some time ago. 150psi?
2. Remove the requirement for copper specifications, except where specifically required for welding?

3. NAME to possibly start the process – contact other ‘national’ bodies for interest and input? Reconvene the BMELG.
4. Clarify ‘home welding’ with regard to steel boilers – and possible sale.
5. I would love to have the requirement for fusible plugs reduced to advisory! Or removed?
6. Apply to AMBSC for copyright use. In exchange for any input the UK version may have.

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