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Boilers can Fail

This document was written by Vernon Lidstone and was published in the Southern Federation newsletter in June 2007.

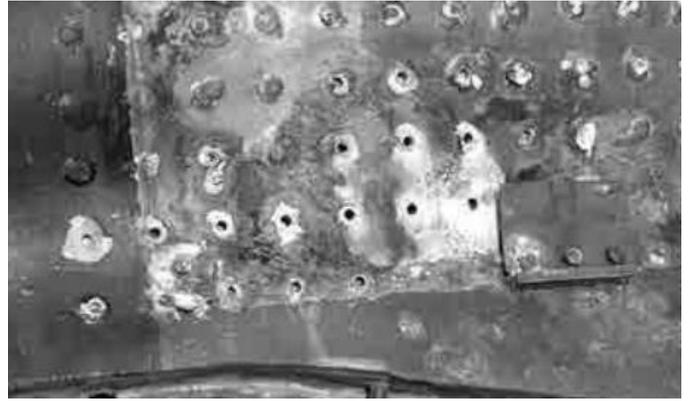
On Saturday, March 25th 2007 the Pike House Railway Steam Day was well under way with some twenty enthusiastic visitors, their grandchildren and some excellent visiting locos. Penny's cottage pie had gone down a treat and I was building up steam on my 5" gauge B1 'Mayflower'. The water gauge was showing around 'half a glass', the pressure was approaching 80 psi - working level - and the safety valves beginning to blow. We were just getting ready to put the engine on the track when a large cloud of steam blew out of the right hand side of the boiler. It blew the cleading out which fortunately deflected the steam downward. (See photo below). Recovering from the surprise I opened the blow-down valve and dropped the fire.



According to the inscription on the boiler, it was built in 1980 by 'TW' who is thought to be a professional. The engine was apparently sold by a shop to the previous owner who only ran it some ten times before selling it to me a couple of years ago. Because it had no paperwork it was tested at Cheltenham SME last year at double working pressure (160psi) and certified as having passed both hydraulic and steam tests. It ran satisfactorily, last year, on a number of occasions on the Pike House Railway.

The boiler was removed from the chassis, photographed and taken to Trevor Tremblen, of Swindon Boilers, who examined it. Later the same day two CSME boiler inspectors came and also examined the boiler. They all arrived at the same conclusion that "the silver solder had failed to penetrate the firebox stays". The firebox stays were measured and were 1/8" diameter, in accordance with the drawing, had rivet heads inside the firebox and were at 3/4" centres. Trevor also spotted that the crown of the firebox

had come down about 1/4". You can see from the photo above that a dozen or so firebox stays have pulled out. It has been pointed out that crown stay arrangement is not according to Martin Evan's drawings, which shows a girder stay rather than rod stays. Trevor Tremblen also said that there would be many more crown stays when building a B1 boiler today. All the correct procedures were followed and it is hard to know what could have been done differently, thankfully the boiler failed relatively safely, it did not split



and the cleading deflected the steam effectively, so that fortunately no one was hurt. People have been very supportive despite this serious failure and Swindon Boilers have kindly agreed to build me a new boiler very soon. Many thanks to all involved. Remember, when you are building your next boiler, do pickle your stays and ensure there is enough space for the silver solder to penetrate thoroughly!

