Shay - First Run

Nelson Riedel NARiedel@Adelphia.net

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The first run was on April 28th, 2004. It was a very sunny warm day. My son accompanied me ---- I suspect he didn't want to miss the explosion. We arrived at the track about noon.

Filling Boiler: The blowdown discharge pipe has a 1/8" NPT thread. The clear plastic fitting has a 1/8" nipple on one end and a female garden hose fitting on the other end. It only took a couple minutes to fill the boiler via the open blowdown valve. About 1 oz of LSB 8000 was poured in the clear plastic hose before the garden hose was connected. That's the LSB 8000 bottle on the fuel tank.

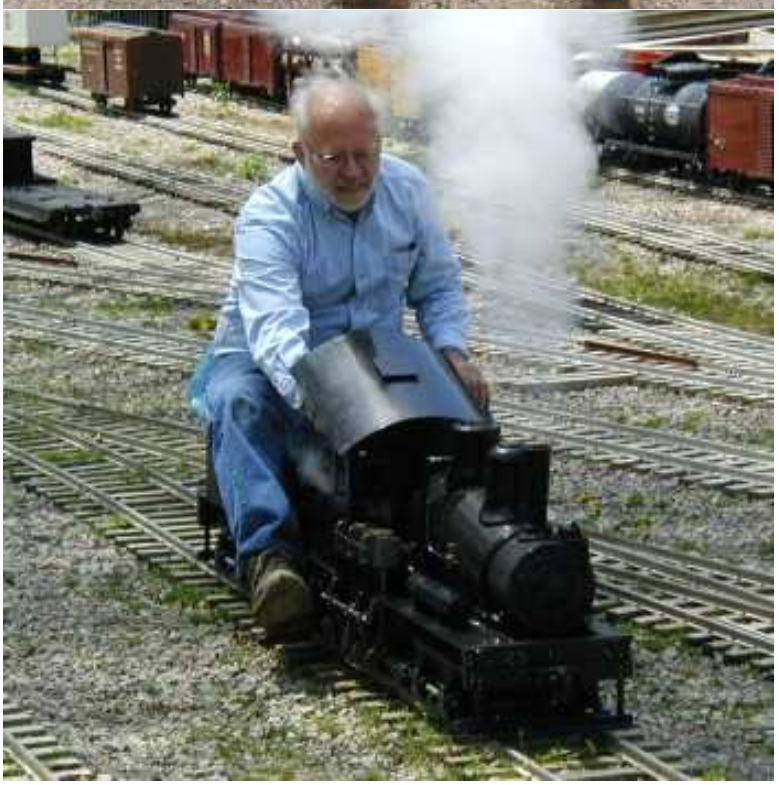
Filling the Tender: That's Dan Staron filling the tender. About 1 oz of LSB 8000 was also added to the tender.

Building Steam: The fuel tank was topped off, the air line connected, the atomizer and blower turned on, and the burner lit with a small propane torch. Then it was a 15 minute wait to get steam up. Not sure why I was holding my head ---- maybe I remembered that I promised to mow the lawn.

Steam Is Up: That's the safety valve going off. I'm switching from air to steam for the atomizer and blower. The air line was then disconnected.

Moving to the ramp: Dan & I pushed the transfer table over to the ramp.

Moving the locomotive to the ramp track: This was the first use of the brakes --- to hold it on the ramp while the engineer got on board.



It Runs: Yes it ran quite well. I ran around the yard area for about 15 minutes. This was my first time operating a locomotive so there was a lot to get used to. On the flat it moved very easily and excess speed was a concern.

Pulling some Cars: The next step was to add a couple cars ---- no sweat.

Crossing The Creek: We connected a couple more cars and headed out to the mainline. It ran great on the flats and down hill. Going up the grades proved to be more of a challenge.

In the woods: What could be more appropriate than a shay in the woods? That's my son Andy and Dick McCloy riding (and probably dragging their feet when I wasn't looking). This is coming out of a wye. The track is roughly level here.

We then started up the long ~ 3% grade. It made it --- but very slowly. The engine has plenty of power, the problem was producing enough steam.

Lubricator: The lubricator check valve started leaking and threw oil everywhere as seen in this photo. (The guys said "bet that photo doesn't make it on the website").

Cab Fire: We returned to the yard and shut off the burner for a few minutes to add fuel and see if anything was amiss. The burner wouldn't relight. Compressed air was connected but that didn't help. The firebox door was opened and the fire finally started --- at least the accumulated fuel in the fire pan. The flames came out of the open door and overheated the pressure gauge as seen in the photo. That was my error --- I didn't realize how sensitive the gauge is to ambient temperature --- I could have closed the door much quicker and avoided any damage. Lesson learned.

Repaired Gauge: Dick McCloy gave me a glass lens to replace the melted plastic one. The gauge was tested later to make sure that it still worked, but it only hissed. This was a $32 US Gauge sold for use with steam models. A $10 replacement was ordered from McMaster -Carr. After the new gauge arrived the damaged gauge was opened. The trouble was that the solder

joints at each end of the bourdon tube were leaking. The joints were repaired with higher temperature solder. The face should have been covered with a wet towel to prevent the scorched paint on the lower left side of the dial. It now works and is accurate so the only damage was the plastic lens and the scorch marks.

During the process of looking for a new gauge I found that MSC sells US Gauges that look just like this one for less than $5. A future project is to get a couple of those, take them apart and compare them to this $32 gauge and the $10 gauges from McMaster-Carr.

Other Problems:

- The foot boards on the front are too low and dragged several times. They need to be raised about a half inch.
- The tender water hoses hang down a little too far ---- should be shortened about an inch.
- The foot pegs are too low --- I had them about an inch above the rail. That was a temporary arrangement ----- some operational data was needed before making them permanent.
- The tender brakes were dragging slightly --- minor adjustment required.
- The steam brakes were very slow to respond ---- the cylinders have too far to travel. That will require more study. If the throttle is open, the reversing lever brakes it very quickly.
- The steam powered water pump worked very slow ----- much slower than the week before --- maybe a lubrication scheme is required.

Summary: The good news is that the locomotive seemed to run very well. We did one test where we were pulling a couple cars uphill with Dan and Andy riding. Dan was able to stop the locomotive with his feet ---- but he said it wasn't easy. The wheels will stop without spinning. The operation seemed to deteriorate with use. That is more evident now than it was at the time. The problem was with the steaming --- it became more difficult to maintain pressure. I also see from several of the photos above that it was smoking indicating that the burner was too rich. After I got it home I found that several of the blower holes were plugged which explains why the burner couldn't be lit. Also, there was quite a bit of soot in the tubes. The next step is to enlarge those blower holes so that they don't plug so easily. Then a a bit of effort to optimize the steaming capability.

Special thanks to Dick McCloy and the gang at Mill Creek Central for their help and support. Thanks also to Dan Sharon who has been a great resource as we a both building a shay. Dan took many of the photos on this page.

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