

Mechanical Department Report

May 10, 2019

Acting CMO DS Elems

There's been quite a bit of work going on the last couple of weeks. We just completed the first Steam Dept. work session of the season last weekend that saw the steam crew finish rolling the flues, water the boiler and hook the drawbars between engine and tender among a lot of other work. I completed the work and testing on the Loed material handler which should be good for the season provided we keep an eye on the water-fuel separator and drain out any periphery condensate that may still be in the fuel tank. Some testing was done with the batteries on 1100 as well as its electrical system and there were some grounds to the frame found in several places including the battery casings. The condition of the fleet, particularly QRR1100, has had us discussing options about prioritizing switcher type locomotives for repairs to get another Plan A locomotive operating which would likely mean delaying the overhaul of some other equipment. I'll be going into those last two subjects in detail later in this report. I've included the latest planned work line up at the end of this report.

SP2873 has spent the last several weeks as our only operating locomotive. Last month my work and school scheduling kept me from coming in as often as I'd liked and the steam work session was rapidly approaching and I didn't want to tie up the shop and equipment with the radiator removal work, so the decision was made to put off the radiator work on 1503 and 2873 until after May. There is still a plan to deal with 2873's radiators hopefully at the end of the season and there are some plans being worked on to get some good radiators into (or the current ones repaired) 1503 so it will be operable this season.

There is also the matter of the condition of QRR1100. In years past it has been our go-to locomotive but deferred maintenance is really starting to catch up. This winter saw quite a lot of coolant in the air box so we weren't sure how things would look during the annual inspection. There have also been problems with the batteries off and on over the last couple of seasons. Unfortunately the issue with the batteries which I thought would be the quickest issue to resolve turned out to be the larger issue. Luckily that means that any issues that I thought I'd find with the engine never arose. Due to the amount of coolant leaking into the air box this winter I decided it would be best to perform a coolant system pressure check, which was conducted on Thursday with Ethan Doty's help. The only leaks found were on one of the old coolant return line hoses from the radiators and the a minor leak at the upper of the lower liner seals. The old hose wasn't unexpected but the liner seal leak was a little puzzling since we had just pulled and resealed that liner several years back. The good news is that the leak didn't show up until the system was under 20psi and we were working with a cold engine; I expect that during operation the hot engine block and liner will expand up enough to keep the leak from being a problem. However I'd still like to emphasize the current protocol of idling the engine until it is at operating temperature, otherwise there is the slight possibility that the coolant system will be under high enough pressure before the engine heats up so as to induce leaking. I'd also like for our engineers and firemen (all train crew really) to keep an eye on the discharge from the air box drains; any grey-green sludge mixed in with the usual oil should be written up in the inspection reports and the mechanical department notified.

No on to the batteries. 1100's batteries and battery box were quite filthy. To the point of the grimy buildup allowing several batteries to ground to the frame via their casing. The wood lining at the bottom of the box had broken down into mulch and the batteries were sinking into it and preventing the battery box from draining properly. This week Bil Jackson, Ethan Doty and myself pulled the batteries out which have been thoroughly washed and serviced and the box is currently being cleaned out. I think we've gone through eight 16oz boxes of baking soda while trying to neutralize the crud in the box. There is also the issue that the bottom of the box, which is the top of one of the frame/deck castings has oxidized pretty bad and is delaminating. I expect we'll need to go in there with a needle chipper to descale the box, hopefully we don't lose too much material. Once all the loose crap is cleaned out we'll thoroughly wash the box out and paint it with some rust converting paint and then give it a good layer of rubberized coating. Habeck and I are hopeful that once the work is done and the grounding issues in the battery box are taken care of that 1100 will be more or less service able, electrically at least. Ethan has found a few minor grounds in some of the control circuits and the generator/starter windings but they are ever changing since we've pulled the batteries. With the age of the locomotive and the issue with the batteries grounding we're not too worried though we will keep an eye on the control circuits and the generator this season. We hope to have 1100 back in service sometime this coming week.

In light of all the issues with QRR1100 I had a long discussion with Habeck at the beginning of the week about the need to get another switch engine into operating condition so we'd have another Plan A RAL locomotive to allow us to pull 1100 from service for the needed work. The US Steel Baldwin #20 has some airbrake equipment issues, requires wheel work as well as a few minor parts replaced. WP608 is in the same situation as WP917 and is currently a hazard to operate safely without major work. WP501 is currently being worked on by Seth Adams. The USA1857 could probably run with the problematic #1 traction motor once the fuel system issues are completed but I'm not sure how the motor and its brushes would fair by the end of the season. Then there is the WP512, which mechanically and electrically "ran when parked," and was pulled from service because of the cartoon flanges it had developed. Steve and I talked about the 512 for about an hour and decided that it will receive priority once the current line up of locomotives is completed (see list on last page of report). This will unfortunately push back the work on WP917 likely to next year depending on how the work goes on getting 512 operable.

WP512 will need to have a little more thorough inspection than the standard annual since it's been out of service for so long. The wheel work won't be hard so much as tedious. We will likely lathe the wheel down to a rough profile and ensure that they are all sized to the same diameter and then finish the profile with some truing shoes. As such I'll be getting some price quotes for several different types of truing brake shoes. Most all of our equipment is in need of some form of wheel work so they'll be of benefit for more than just the 512.

Inspection & Service Schedule

The current rotation of locomotives through annual inspections and return to service in order is as follows, effective dates are non-projectable:

1. QRR1100: Finish annual inspection and battery box repairs.
2. WP2001: Finish annual inspection. (first scheduled rental is currently May24)
3. WP707: Needs injectors replaced and associated work, full annual inspection.
4. WP1503: Needs radiators replaced, full annual inspection, fuel injectors and rack adjusted.
5. Inspect and evaluate WP512 for viability. If close enough to operable it will need a full annual and wheel work.