

Mechanical Department Report

Board of Directors Meeting: July 9, 2021

DS ELEMS – Mechanic

Things continue to be slow in getting things shipped in or out as well as the responses from our typical parts suppliers. Tomorrow I should start to receive some of the parts ordered last month for SP2873, though the upgraded fuel lines and fittings I ordered in May still aren't due to ship until the end of this month. Though the work on the locomotive fleet has barely plodded along I've been able to get work done on other things, namely the cabooses we use for our train rides. At the moment we only have two locomotives in operation; WP1503 and QRR1100.

I've also been working up another list of things for our rubber tired equipment, and come to some conclusions on our two trucks thanks to some work and inspections by Vince B. I'll touch on that in depth later in the report but suffice to say things look grim for the Dodge and the Ford continues to be "functional" in spite of everything. We are at the point we seriously need to ask ourselves if the continued head-beating on these trucks is worth it.

The west half of the shop as well as UP105 are barricaded off, though we set up a gate at the rear of the 105 for easy access of guided tours through the car. Up until today we haven't had any issues with people going where they shouldn't (i.e. moving or rearranging the barricades) and I'm sure Habeck will have given full details on that particular occurrence. At the moment most of the west end on 1 Rail is open, but at some point WP165 will be getting moved around and WP707 will be coming in for work.

We purchased a new-used food grade 330 [US]gallon IBC tote from an outfit in Sparks, NV; final cost after tax was approximately \$152. Aside from the smell of vinegar from its last contents it was in excellent shape and had passed a leak test this April. After some soaking, agitation and rinsing with a sodium bicarbonate solution for three or four days the vinegar odor is gone and it is ready for its intended use; premixed coolant solution for our locomotives.

As we have started dealing with the bad radiators and water leaks in our locomotive fleet I've decided it's time to start using treatment in the cooling systems again once they are reworked and leak free. The use of treated coolant solution will keep our hard water from precipitating out and forming scale and also prevent rust and cylinder liner erosion. It should be pointed out that the mixed solution has a pale fluorescent yellow-green because of the tracing dye, and that it *is not* antifreeze; the active components are sodium nitrite and sodium borate. Currently WP1503 has been filled with the solution since the start of June and no issues have been observed. I plan to use the treatment in most of our fleet moving forward, filling locomotives with premixed solution once the systems are found to be leak free. Due to the solution having a specific working concentration, locomotives filled with treated coolant should not have regular tap water added and the mechanical department must be notified should such locomotives require makeup water; locomotives should not be filled to the overflow level while running.

CABOOSE FLEET

During the week leading up to our opening weekend the five cabooses in the train received complete inspections, and servicing and lubrication as needed. All cars underwent and passed a single car test before being released for service for service. I'm in the process of finishing the stenciling/labeling of the cars (adding the requisite information to the carbody and COTS boxes).

Overall no issues or complications were found that would sideline the cars, though UP25283 & UP25732 show signs of old wreck repairs with the work on the 283 appearing to be quite old and very hasty. A basic breakdown of inspections and work performed is listed below:

1. Underside inspections:
 - Center sill, side sill, underframe, crossmembers, brake rigging and linkages, air brake components, and flooring inspected for cracks, breaks, bends etc.
 - Linkages, beams, rigging, slides, pivots and pins cleaned as needed and all such components lubricated.
2. Trucks, wheels and axles:
 - Cleaned as needed for inspections.
 - All components inspected for excessive wear, cracks, breaks etc.
 - Wear points lubricated as needed
 - Center plates inspected and lubricated
 - Axles and wheels checked for wear and general condition
 - Brake shoes checked for thickness and general condition
3. Handbrakes inspected and lubricated.
4. Couplers & draft gear:
 - Inspected for defects, general condition of wear and proper height.
 - Coupler components removed, cleaned, inspected and lubricated with graphite before reassembly.
 - Lubrication of draft gear components as needed.
 - Inspection of cut levers, lifters etc.
5. Single car test performed.
6. Electrical systems inspected and batteries serviced on all cabooses except SP4706.

All five cabooses are in decent condition, though UP25283 is slow to release and will likely need some work on the brake cylinder before the 2022 season. The battery box on the Rock Island needs a new floor and a door fabricated. The four cabooses with working electricals are locked out with new tagout locks to prevent the public from energizing the systems. Any issues that affect safe operation should be reported to the mechanical department.

Water Cars: WPMW1577 & WPMW1583

I've been renewing talks about pulling out our two MoW water cars for some restoration, as will be brought up in the safety report. In short, we only have the 600 gallon capacity tank trailer to haul around for fire prevention on the greater 37 acres and some of us would feel a lot better if we had a much greater capacity. Each car has a total capacity of 10,000 gallons though car weight capacity limits them closer to 7200 gallons which would still be sufficient.

They both need some work on the fittings and valves on the tanks, but most of what they will need is similar to what we did to the caboose fleet, plus new (better) walkways. The inspections of both cars and repairs/modifications to the water plumbing should only take two or three days.

QRR1100

So far 1100 is still hanging on, though really needs to have an annual inspection performed at some point. I performed several oil pan and crankcase inspection over the winter and early spring to make sure there was no coolant leakage into the oil, and most of the other inspections would be more formal as I typically look over most of the engine at least once a month. There are however several items that need some work or I'd like to finally make operable again, such as renewing all the old water system hoses and finally getting the shutter control system working again. With Phil Schmierer's help we've also sourced a new load regulator, which we need to start working on trying to acquire.

On Thursday (the 8th) I worked on getting the issue with the trainline pressure figured out. Ultimately, I'm not sure what was causing the trainline to approach main reservoir pressure, but I had suspected that either the feed valves were bad or that the secondary brake stand had the automatic valve rotated slightly into the over-pressure position. After an hour of fiddling with the secondary brake valve and cutting both brake stands in and out the trainline now holds 90psi again. 1100 can now be used on the caboose train and switching where trainline air on the cars is needed.

WP1503

I still need to finish cleaning the rear left side of the engine block and the low water button on the engine protection device is still leaking on and off (more on), but 1503 is in service and has already been used for the opening train rides and a couple of rentals. Any engineers that haven't been checked out on the operational procedures will need to do so before operating the locomotive and a procedural guide for inspection, startup and shutdown is being worked on.

As mentioned previously 1503 is filled with coolant treatment not antifreeze. Filling and checking of additive concentration will be handled by the mechanical department. Straight tap water is not to be added. I hope to order a new engine protection device next week, and change out shouldn't require any lengthy downtime. There are also some minor electrical and lighting foibles that we'd like to address but they don't affect the operation of the locomotive, however they do require the removal of the rear number boards.

SP2873

As parts slowly come in, I expect to start back up working on 2873. The air filters came in short order a couple weeks ago and the fuel filters should arrive this weekend. I still need to order some parts and seals for the water system.

2873 has been down since spring 2020, so we'll be restarting annual inspections after the cooling and fuel systems are but back together.