Mechanical Report - August 2025

This report of mechanical progress and equipment status that includes all changes since the July 2025 update.

The operational locomotives are running well, the Yale forklift has been returned to service, and progress has been made on the WP707 evaluation. A preliminary inspection of the leaks in the Cat electric forklift was also made. See below for details.

I would like to recognizing a very generous donation from Director Charlie Spikes. Charlie donated a new inch-pound torque wrench to supplement the museum collection of wrenches. Thanks again to Charlie!

QRR1100 - in service for switching, caboose train and RAL

This locomotive is running well with no major issues or concerns. We found a car body filter cage for this locomotive in one of the parts boxcars. We can use this as a template for fabrication of the other 12, assuming we don't find more.

New issues reported since last update:

- None reported

Work performed since last update:

- No mechanical work performed

Deferred maintenance and repair list:

- Fuel sight glass gasket replacement (parts received)
- Gauge light repair
- Front headlight repair (only has one brightness setting)
- Headlight selector switch needs cleaning
- 'Stop' button near isolation switch needs replacement
- Needs car body filters
- Oil change

WP1503 - in service for switching, caboose train and RAL

This locomotive is running well with no major issues or concerns. The additional sealant applied to the engine block mating surface edges has greatly reduced oil leakage and should hold us over until next annual when we can tighten the bolts for the top deck frame and the oil sump. Crews should notice a clean engine during inspections.

New issues reported since last update:

- Brake piston on engineer's side, third axle from the front is occasionally sticking on retraction/release. Monitoring for recurrence and brake shoe thickness

Work performed since last update:
- No mechanical work performed

Deferred maintenance and repair list:
- The fireman side cab heater is malfunctioning
- The left front ditch light bulb is oscillating, perhaps burning out
- The fan shaft forward bearing is making noise and may need replacement (investigating)
- David reported the engine protection device needs to be replaced (improper unit that has occasional malfunction)
- Brake piston on engineer's side, third axle from the front is occasionally sticking on retraction/release

SP2873 - Out of service (awaiting paint)

This locomotive ran well with no major issues or concerns prior to its removal from service for painting.

Although we have received no formal report, progress has been noted on paint prep but the rate of change makes it unlikely the painting will be completed before operating season ends. We will plan to perform a full annual on this locomotive next April. It will be returned to service next season, so hopefully the painting is complete this year.

New issues reported since last update:
- None

Work performed since last update:
- Oil sample taken and sent in for analysis

Deferred maintenance and repair list:
- Needs annual inspection and maintenance

WP707 - Out of service

We have removed all injectors from 708, except for one that is rusted to the power assembly and refuses to move. We have also removed one injector from 707 to review its condition. Unfortunately, it has a frozen rack, indicating possible internal corrosion like we have seen with the injectors from 707. We should be able to overcome this, but it is not ideal nor a good sign of the stored condition of the top deck components. We still hope to overhaul 16 good injectors using the 707 and 708's combined injector inventory. Parts have been ordered and are expected to be delivered this week.

We are also looking to replace the valve bridges / lash adjusters in 707. These are in the same condition as the injectors (sticky) and appear to be quite old. EMD establishes a 14,000 hour life limit for these parts, so they are likely well beyond due for replacement. Failed lash adjusters can lead to valve failure, which in turn will at least ruin a power assembly, possibly a rod, two rods, the crankshaft and, in the bonus round, the engine block. In other words, we should avoid failed lash adjusters.

We explored replacing the lash adjusters ourselves. We have eight on hand, enough to refresh four valve bridges, but we do not have the required special tools to do the job. Each 16 cylinder engine has 32 valve bridges, so we would also need to buy 24 additional lash adjusters. Assuming we could fashion tools, lash adjusters would cost approximately $35 per bridge, plus our labor to clean the bridge and remove and replace the adjusters. This compares to a cost of $70 for an exchange bridge, which would also assure us a good bridge spring and seat. Given the expense, exchanges are the logical choice. Total bridge replacement cost for a 16 cylinder engine would be $2240, plus tax, shipping and our cores. Although we did not budget for this work specifically, there are adequate savings in other Mechanical budget categories to cover this, assuming we can re-allocate. Performing this work at the same time as the injector replacement would be the most efficient use of our time.

Regarding the needed oil change, I made a mistake in my last report where I mentioned we would need to purchase two barrels of oil. I forgot about a barrel that is stashed away, so we only need one new barrel at an approximate cost of $1,250, not the $2,500 I reported.

I am still looking for a member volunteer to come forward and assist the mechanical department with waste oil removal. We have had no contact from any members on this task. **Until this task is performed, we cannot complete the 707 project.** Current Mechanical department members have already donated several hundred hours so far this year, so I don't feel this ask of others is unreasonable. There is no need to get dirty or crawl under a locomotive and I anticipate this work can be done mostly from the comfort of home. The waste oil and filters are ready for pickup. If you know someone who would like to help get the 707 running again and has time for some phone calls and a meetup with the servicer at the museum on the scheduled pickup day, please contact me at cmo@wplives.org

LiftAll Forklift - In service

New issues reported since last update:

- None

Work performed since last update:

- None

Deferred maintenance and repair list:

- Broken accelerator pedal (new pedal received)
- Steering cylinder leaking
- Multiple leafs of rear spring packs broken
- Steering cylinder leakage increasing

Yale Forklift - In service

This lift was returned to service on July 21.

New issues reported since last update:

- None

Work performed since last update:

- Ignition coil replaced

Deferred maintenance and repair list:

- The engine temperature gauge and sensor need replacement (parts received)
- The mast lift cylinder discharges fluid at full extension
- The steering is stiff unless moving

Cat Electric Forklift - In service

Once we had the Yale in service, we used it to raise this lift and gain access to the underside for investigation. The leak is from accumulated oil on the right transaxle case and it does appear to be gear oil. Given we have no manuals for this lift or experience with this machine, we have reached out to Director Spikes to see if he can arrange a service call with Reno Forklift for a proper diagnosis and bid for repair. This lift is vital for usage inside the shop, so we don't want to damage it further attempting repairs we aren't properly equipped to perform. Use of this lift should be limited until the leaks are addressed.

New issues reported since last update:

- None

Work performed since last update:

- None

Deferred maintenance and repair list:

- Fluid leaks from right transaxle

Telehandler - Out of service

New issues reported since last update:

- None

Work performed since last update:

- None

Deferred maintenance and repair list:

- Thermostat needs replacement (parts received)
- The radiator neck is cracked
- The radiator overflow tube is crushed
- The temperature gauge needs replacement and sender installation (parts received)
- The oil pressure gauge needs replacement and sender installation (parts received)
- The battery needs a hold down installed (parts received)

Backhoe - In service

New issues reported since last update:

- None

Work performed since last update:

- None

Deferred maintenance and repair list:

- The hoses that run the backhoe bucket are badly worn and one has a large leak
- One of the hoses for the transmission cooler was replaced with an aftermarket hose that lacks the 90 degree fitting of the original. To make it work, it is bent against the frame, which is wearing a hole through the hose and has managed to remove over 1/8" of material so far
- We need to start a program of hose replacement and cylinder rebuild

Light Plant, Kubota - In service

New issues reported since last update:

- None

Work performed since last update:

- None

Deferred maintenance and repair list:

- None

Light Plant, Mitsubishi - In service

New issues reported since last update:

- None

Work performed since last update:

- None

Deferred maintenance and repair list:

- None

Shop

I am now cleaning the mechanic's bay to eventually make it a workshop and locomotive supply storage area. Shelves have been installed and the tool boxes have been moved in.

I have submitted an article for the train sheet that updates membership on the mechanical status, similar to this report. In it, I included the following:

> "Please respect this area by not removing any tools or supplies, as they are all designated for specific mechanical work. Please do not create a situation where a scheduled work session is scuttled due to missing supplies or tools - this will only result in fewer repairs being completed and fewer locomotives being operational. Unless your name is listed as a mechanic in the org chart, please stay out of this area.. "

I have already noted supply loss, with no sign of subsequent replacement. I hope I will not have to lock everything up, as this will only slow down work, further limiting what we are able to accomplish. I ask everyone to help spread the word that a convenience of the moment (taking the supply) comes at a much elevated cost later and only transfers the inconvenience from one person to another. I budgeted and purchased the quantity and type of supplies necessary for the work of the mechanical department, many at my own expense. I didn't buy sufficient quantity for other uses.

Planning for 2026

The 2026 Mechanical Department preliminary budget request has been prepared and forwarded to each board member directly, via email. It is based upon the following plan for 2026:

- WP1503 and SP2873 will be placed in caboose train and RAL service at the beginning of the 2026 season
- QRR1100 will remain out of service in the 2026 season for the following work:
  - Injector overhaul
  - Valve bridge replacement
  - Various electrical repairs
  - Load regulator and/or governor repair/replacement
  - Restore automatic shutter control
  - Engine oil change
- We will attempt to return WP707 to RAL service in 2026 (early in the season) assuming:
  - No major unknown issues encountered on startup
  - Injectors are overhauled, valve bridges replaced and engine oil changed this year
    - ~$3,500 spend from this year's allocated budget
- WP805A will be re-started and evaluated for return to service. The following work will be scheduled for 2026, after work on WP707 is completed:
  - Injector overhaul
  - Valve bridge replacement
  - Oil pump(s) repair/rebuild
  - Automatic brake component swap with 921

All items are contingent upon approval of the funds requested and sufficient volunteer labor to complete the work.

Next year's main work session is currently planned to take place April 6th to April 23rd. With current staffing, we can only commit to servicing and maintaining the support vehicles and two locomotives during this session. Each additional locomotive increases our labor need by 40 volunteer hours.

We must add volunteers to the department to complete the plans for 2026. I have tentative commitment from two additional long-time volunteers to join us next season and an appeal will be published in the next Train Sheet. Eric also made contact with an RAL patron on August 3rd that seems very knowledgable about both engine and electrical systems and seems interested in joining our department.

We remain hopeful we can add the additional people we will need for next season, but we must also be realistic about what can be accomplished if the help does not arrive.

Nicholas Manos
CMO