August 2015 Mechanical Report
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SP 2873

Defects

- Fuel tank sight gauge shows incorrect fuel level
- There is a sticky hydraulic lash adjuster on either the #1 or #2 cylinder that needs to be replaced; parts are already on hand.
- Front sanders are cutout due to electrical issue; sanders were continuously on.
- Leaks
    1. Oil
        a. Various lower inspection covers, need new seals; none in inventory
        b. Water-oil inter-cooler, leaks at lower gaskets; there may be some in inventory
        c. Blower seals, both blowers; none in inventory

    2. Water
        a. Water pump seals, both water pumps
        b. Rear right side radiator
        c. Coolant tank, bottom left side (above aux. fuel pump)

    3. Fuel
        Both globe sights need new seals

    4. Air
        Air leaks air located all over the system, most too small to be an immediate issue. There are still several that need to be traced down under the cab and in the electrical cabinet.

Recommendations and Solutions

The fuel gauge may just need to be removed and cleaned/adjusted, I wont know until I remove the unit. There are plenty of hydraulic lash adjusters in stock, but we lack the tool to remove the part *correctly*. I can probably make the tool. Fixing the issues with the front sanders *should* only require some time to trace down the electrical problem causing the sanders to stay on.

As far as the leaky oils seals go, we may have to order new gaskets and seals. I am very positive that we are out of any inspection hatch gaskets/seals for the EMD567C blocks. I will have to look up the part number for the gaskets on the oil inter-cooler, and then go see what we have in stock, but I'm not optimistic that we have any; the same goes for the globe sights on the fuel system. Changing the gaskets on the inter-cooler will take a couple of days at a minimum. Changing the blower oil seals will be a fairly long and complex task, as the blowers must be removed in order to *properly* replace the seals. To the best of my knowledge, we don not have any bower seals on hand.

I am currently fabricating an impeller puller so that we can *properly* rebuild the water pumps on our 567 engined equipment. The leak on the coolant tank only seems to be a pinhole at the moment, but the size of the rust spot has the potential to become a

real problem. I will keep an eye on it and patch the hole when the locomotive is winterized. Fixing the leaky radiator will be an arduous task, requiring the removal of the top hatch with bot radiator fans. So far adding ginger root has only had minimal success at slowing the leak.

WP 917D

Defects

- The #9 cylinder still knocks and fills the upper deck with smoke
- The flange on the right side wheel of the #4 axle (R4) is very sharp; appears to be beyond lathing or dressing.
- Leaks
    1. Oil
        a. Various lower inspection covers, need new seals; none in inventory
        b. Blower seals, both blowers; none in inventory

    2. Water
        a. Water pump seals, both water pumps
        b. Front right side radiator

    3. Air
        Air leaks air located all over the system, most too small to be an immediate issue. There are still several that need to be traced down under the cab and in the electrical cabinet. The rear angle cock needs to be replaced.

Recommendations and Solutions

The #9 cylinder may need to have the exhaust valves timed, or there may be a cracked valve(s). I will check the valve timing and test for cracked valves when I have a chance, and time them if needed. If the problem persists, or there are cracked valves then the head will need to be removed for inspection and/or valve replacement.

The blower seal and water pump issues are practically identical to those encountered on SP 2873.

So far adding ginger root to the cooling system has had no effect on slowing the radiator leaks. The problem with the leak is that because of it's location, water is running down the front of the engine block, left bank blower, and sometimes dripping onto the alternator. Removing the radiator for repair or replacement would require the removal of the central roof hatch. This central hatch is a little longer than the length of the prime mover and contains the four radiator fans and motors.

The issue with the flange will likely have to wait for now. There will be quite a bit of staging and prep work to be done before we can deal with it. My recommendation is to replace the axle. That would mean removing the truck from locomotive, dropping the axle-motor combo from the truck, and replacing the axle. There are five or six good axles properly geared for the motor.

QRR 1100

Defects

- The engine blows oil out the stacks in a dramatic fashion, this could be from a problem cylinder (possibly #2) or from excessive oil in the air boxes (see below)
- The air brakes are getting old and starting have problems (see below)
- Leaks
    1. Oil
       Blower seals; none in inventory

    2. Water
       Possible water leaks at the lower liner seals, winter issue only

    3. Air
       Air leaks air located all over the system, most too small to be an immediate issue. There are still several that need to be traced down under the cab. The air brakes are having issues. The control stand(s) and valves are most likely crudded up and are also in need of servicing.

Recommendations and Solutions

The issue with excessive oil from the exhaust could be a couple of different things. The #2 cylinder looks as though there is excessive oil getting into it, but an initial inspection didn't show any immediately apparent flaws/defects. There is enough oil that it was too hard to tell if the compression rings were cracked, but I have a couple of other methods for checking beyond a visual inspection. The other possible cause of oily exhaust could be from excessive oil in the air box from the leaky blower seals.

There is one remaining blower on WP 708 that is of the same type as on 1100. I would like to remove it and rebuild it in the shop with new seals. That would allow a change over with minimal down time, and could likely be done this winter when the locomotive rarely in use. To the best of my knowledge we are out of blower oil seals, and they would need to be ordered to complete the above recommendation.

I would recommend that the brake valves be removed and sent off to be rebuilt and serviced, since this locomotive sees so much use. This is not something that can be done “in house” in any practical means. If done here, we would have to order the parts, and the work would be performed by people not certified to rebuild air brakes; this raises concerns of reliability and liability. Wabtech has a facility in Kansas City that still does old air brakes, and there may be a few other places as well, it is something I will be looking into.

I am also looking at installing automatic drain valve onto the locomotive. The number one reservoir requires constant draining of condensate, to the level that it is hard for the engineers to keep up with. The installation of automatic drain valves *should* keep the level of condensate down once the tanks are initially blown down.

USA 1857

Defects

- All the sanding hoses need to be replaced along with the installation of some new pipes
- There is excessive oil in the exhaust manifolds
- Left side cab door is in need of repair, rusted badly and falling apart
- Traction motor brushes are in need of replacement; no brushes in inventory, new brushes are being sourced
- The handbrake needs to be heavily serviced or rebuilt/replaced
- Leaks
    1. Fuel
        a. Fuel tank sight glasses leak; parts have been ordered
        b. Aux. Fuel pump leaks at packing; a replacement pump is being rebuilt

    2. Water
        There is a small water leak on the #4 cylinder at the left injector, leak stops once the engine has warmed up the the liner expanded

Recommendations and Solutions

The oily exhaust manifolds could be from old or cracked compression rings, or from leaky blower seals. I would like to check the rings regardless, as I believe that they have not been renewed since we received the locomotive twenty plus years ago.

The fireman side cab door is in rough shape. The bottom half has almost completely rusted out, and is splitting along the seam. It appears to be salvageable, but would take some time to rebuilt the lower half of it. I would like to do more than just weld or bolt a plate over the rusted section, as that would not halt or prevent further rusting, and would fail to address the structural failure of the door. There should be ample time to rebuild the door as the engine is currently out of service because of the issue with the traction motor brushes.

The traction motor brushed are worn down to the point of replacement, and many have one or both leads burnt off. I am currently sourcing out new brushes. The locomotive requires a total of forty-eight brushes. I will not know the cost of the brushes until I can actually find a source.

The leak in the #4 cylinder currently poses no issues, but it is something that we need to continually keep an eye on and be aware of.