



Willamette # 7 Work Party Notes

Historic Museum Fort Missoula, Missoula, MT

6/8/19 to 6/12/19 - # 2 – 2A

Weather was a bit unsettled so we had a little less of a turn out than expected. Started to work on valve gear part by removing links and pins for cleaning. Added additional grease to crank shaft bearings and noted that it was starting to flow into the galleys. Remove oil cup on # 1 cylinder (previous work party), made new cover for oil cup that had been missing.



Location of Missing Oil Cup on # 1 main



Crank Shaft taking Grease

Removed links from Tumbling Shaft, loosen bolts on Shaft bearings, and reconnected to Johnson Bar (had been disconnected at some time in the past). This allowed Johnson Bar and Tumbling Shaft to move freely as intended. Removed all Oil Cups from Tumbling Shaft (4 Total) all were missing parts or damaged beyond use. Identical replacements are available from several sources new. It would appear that Anaconda filled the cups with Wool Waste and drilled a 1/4" hole in the top for easy service/oiling. This is the case on all of the oil cups on the locomotive.

We removed all of the links for inspection and cleaning. Found that all parts are well numbered by Willamette during construction, and renumbered during its life by Anaconda. In the case of the pins and a number of bolts this is very important as that are "tapered" fit and appears that all of the nuts are "hand fit" to their threaded counterpart. All parts removed were inspected and cleaned for reinstallation (6/22/19). As in the past we found loads of sand (from previous sand blasting operation) in all openings, and care was taken to have it removed.



Oil Cup with hole (typical)



Link and Pin after removal



Cleaned Links ready for installation



Willamette Numbering on Pin Nut and Rod

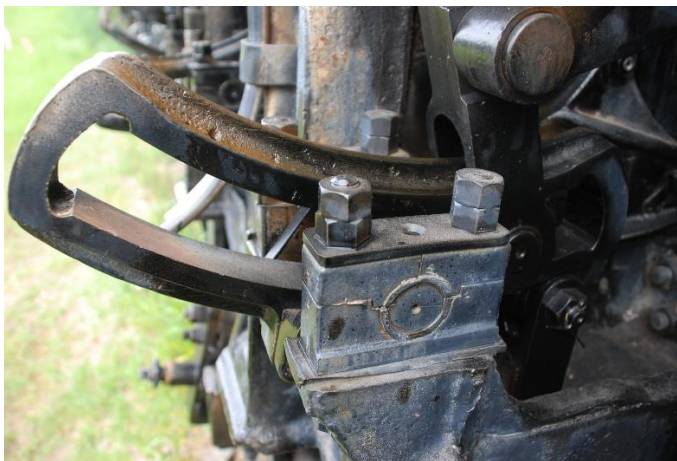
Found in cleaning links that the bushing on the big end of # 2 had been installed 180 degrees out with oil passage holes not in alignment. Pressed out the bushing (about 1 ton pressure) and reinstalled with proper alignment. No sign of it "rotating" in place more likely an error in installation.

Caps were removed from rockers on the links, and cleaned and reinstalled. It was noted that several were broken but serviceable. This is very old damage, more than likely cause by a weak design in the cap. There is a notation in the Willamette spare parts ordered, that one link block and bearings was ordered in 1929 (Anaconda Ownership). Anaconda made straps to hold the bearing caps in place for 4 of the caps. One of the broken caps was "brazed" as per Anaconda practice, and 2 additional cap/straps were made.

We removed the plugs on all three lubricating lines to the valve chests and sprayed in penetrating oil, same as was done on the pistons through the timing ports on the previous work party. Made a cover for main crank bearing # 4 which was missing and installed. Added lube oil to all points on the locomotive. We have not as yet installed new wool packing yarn to the oil points. We are wanting the oil to flow freely into all bearing surfaces.



Crew working on valve Gear



Link prior to taking apart and cleaning



Cap reading for brazing repair



New plate for cap, Anaconda plate on left



Link Block ready for cleaning cap removed



Link and blocks reinstalled after cleaning