

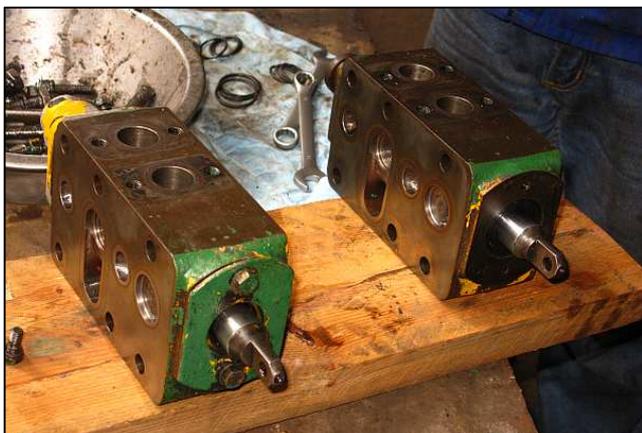
1). YUMBO GRAB – ASSEMBLING THE VALVE BLOCKS – 22 MARCH 2014:



P01 - Our useful self-propelled Yumbo grab has been leaking hydraulic oil lately, especially from the clamshell's actuator cylinder. It has also long been annoying the coal-dock operators with some dangerous sudden movements when lowering a boom (Flow restrictor issues), and not holding steady in certain positions. (Spool valve leaks)



P02 - One of the modular common-rail hydraulic valve blocks is complete and is having indexing studs fitted. Apart from coal grit ingress, detective work showed previous incorrect assembly such as misplaced springs and inverted seals. Looking down the actuator flow ports, you can see the valve spool located in the central control bore.



P03 - The individual valve blocks bolt together in a stack and are mechanically interchangeable, but the valves and porting may be different. Several bags of generic seals were purchased to repair the worn or mis-fitted hardware within the valve blocks. The oval shaped indents are the oil supply ports from the common rail oil gallery. (Bottom).



P04 - The boys found that the block controlling the main boom had been swapped for one without a restrictor – allowing overly-rapid oil drainage. This is why the coal grab's heavy boom drops suddenly and has to be modulated by rapidly pumping the valve's lever. You can see a slotted aperture restrictor insert within the upper port.



P05 - Simon Bennett did the reassembly and refitting work on the valves. Here, he is shuffling a deck of sealing plates which go inbetween the individual valve blocks and the terminator cover. The seals were made up with silicone. (The blocks did not have conventional gaskets fitted.)

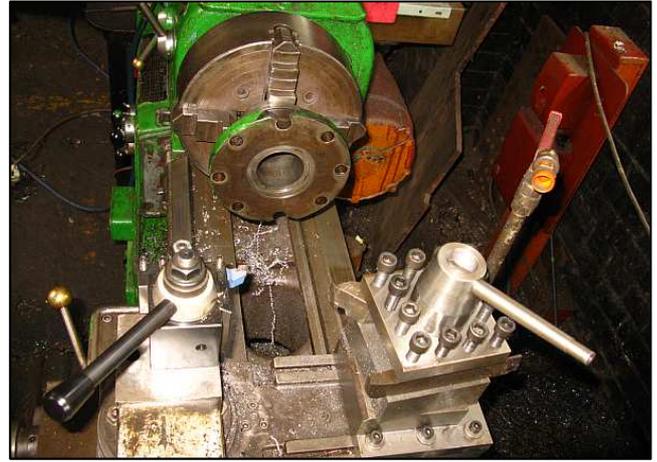


P06 - The three repaired valve blocks are being fitted, with special attention to the proper location to the main boom's block. It is hoped the saving in hydraulic oil leaks will pay for the various supplies in short time – and we won't be denting the top rims of locomotive tenders quite so much!

2). YUMBO GRAB ACTUATOR REPAIR – 22 MARCH 2014:



P07 - Simon is seen remounting the hydraulic valves. You will notice that the Yumbo grab is electrically powered via an extension cord. It was originally built as a diesel powered machine and used the Perkins engine that now drives the light-service generator in the S&B Van.



P08 - The top-hat profile cover for the clam shell's hydraulic actuator has been placed into James's TPS lathe for truing up. It had been quite brutally fitted by past employees and that thick casting was slightly distorted as well as broken in two places.



P09 - The hard steel disk scraper plate had been loosely fitted over the end cap and it was too bent to be of much use. This worn wiper seal shows the results of the constant ingress of abrasive coal grit at the dirty end of the machine!



P10 - Gordon did the honours – making for a pair of Bennetts on the same job. Several of the guys have started wearing Stetson type hats, but remember that I am still the first, the original and the best with my leather Drover's Cap.



P11 - Here is the serviced and reassembled clam-shell actuator rod, piston and cover gear. The new bright blue seal is the wiper seal over the actual hydraulic pressure seal, while the disk plate is the scraper for bigger stuff.



P12 - After uncoupling, the actuator's innards were removed without removing the cylinder, by using the hydraulic pump to force it out. It was quite awkward getting everything back in again through the canted cylinder and then trying to get the worn cover bolts to line up through the scraper, the tightly fitting end cap and the actuator body – and working upside down as well. They managed it!