

Engine cylinder head and injector refurbishment and damper plate replacement



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Project aim

The aim of my project is to refurbish the engine cylinder head and recondition the injectors and replace the damper plate on my case mxm 140 tractor. I am doing this work on the tractor as it has high hours and it is precautionary maintenance.



Background

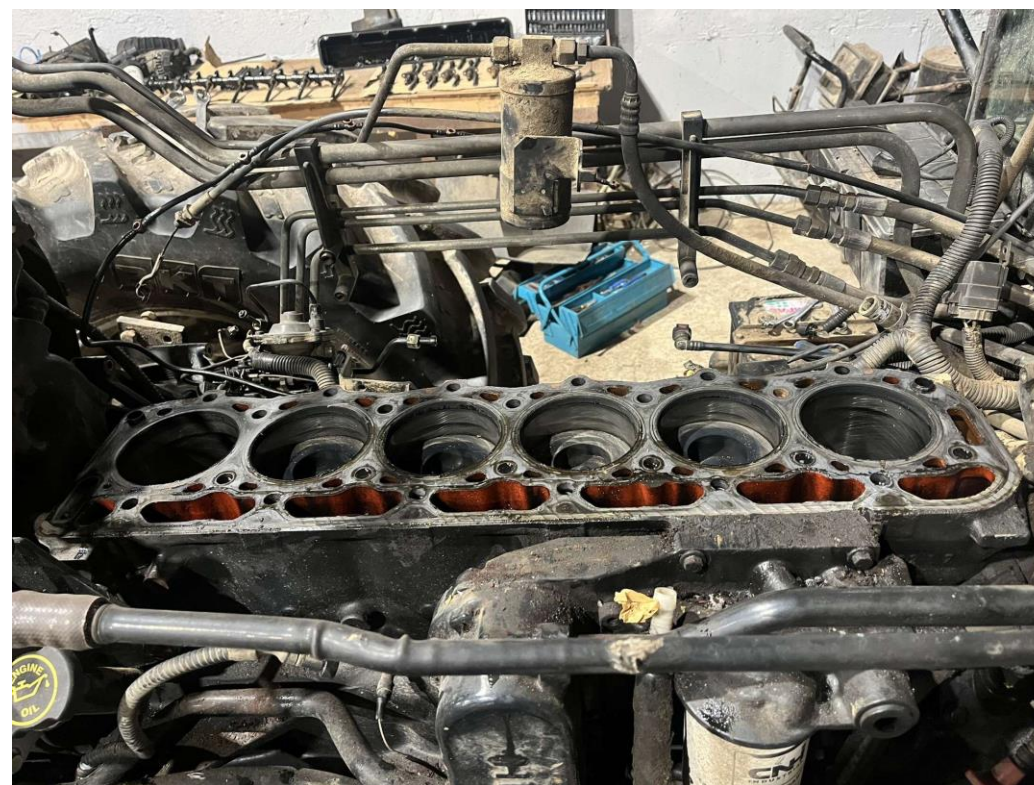
It is a commonly known fault in the mxm series tractor that the engine cylinder valves drop on to the engine block. This is caused by wear on the valve seats, valve guides and collets. By getting the head reconditioned, the machine shop will put new guides, valve seats and will also skim the surface to machine tolerance. The damper plate takes the place of a clutch, but instead of a dry clutch system seen in older tractors, it has wet clutched inside the gearbox. The damper plate takes the drive from the engine to the transmission and dampens out any bangs or unnecessary torsion.



Picture of the input shaft going to gearbox

Process

The first process of my project was to get the engine cylinder and injectors removed from the tractors engine. This involved taking off all the air filters, diesel filters and exhaust brackets. This took a lot of time and work. Once I had them parts off I was able to send the engine head and the 6 injectors away to engine re in co mayo who specialise in this work.



Picture of case mxm with the engine cylinder head removed

Parts

To rebuild the head, Engine Re machined the suraces, fitted new valve seats, valve guides, collets, springs, valves and cleaned it out. They also refurbished the 6 injectors. The cost of this was 1500.00 euro. The parts I acquired myself were the damper plate, seals for water pump, gasket for water pump, head gasket set, rocker cover seal, exhaust gasket, exhaust manifold bolts and damper plate bolts. The price for all these parts came too 890 euro. These parts were sourced off WR shaw in Tullamore Offaly

Splitting the tractor

The next step in the project was to split the tractor to allow access to the damper plate. The tractor was split at the bell housing and rolled apart. There was 8 bolts holding the tractor together on the bell housing. The starter was also removed. The tractor was then jacked at the front and at the back and rolled out. Upon inspection it was found that the damper plate was broken as there was 4 springs that had fallen out of the damper plate. If another spring had fallen out, then there would be no drive transmitted to gearbox.



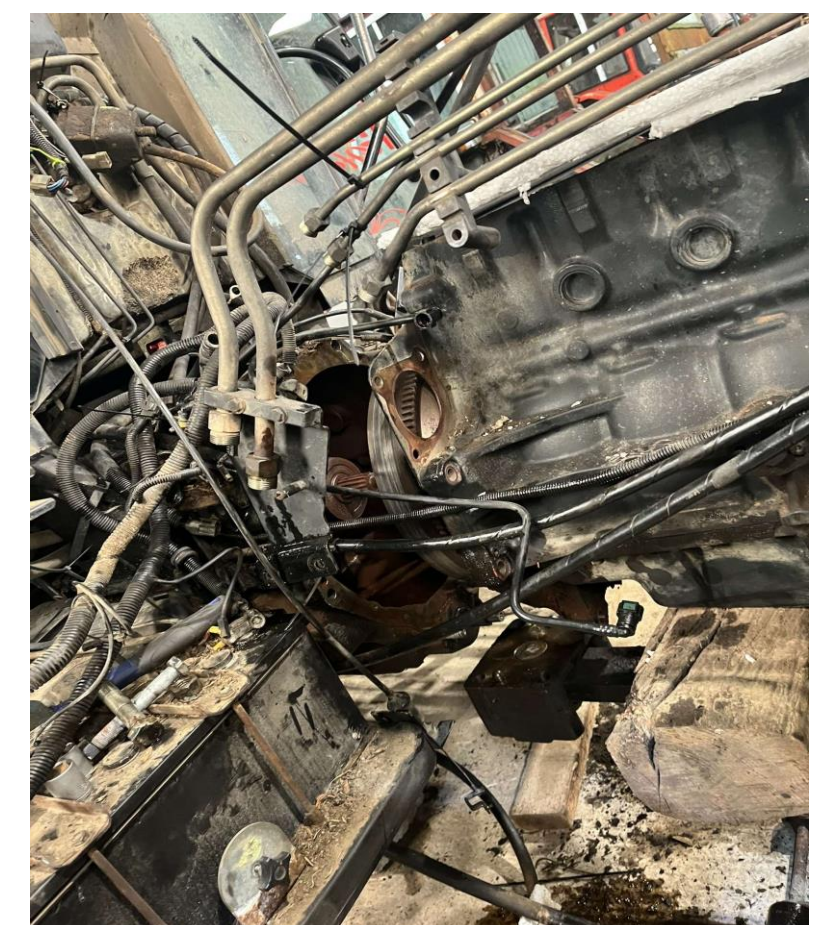
In the picture above, you can see that there are springs missing from the old damper plate. The new damper plate was put onto the flywheel and I rolled it back together and all the hard ware put back together.



Picture of bottom of engine head after resurfacing

Progress

As of 25/03/25 I have the damper plate replaced and I currently have the head on the tractor after being reconditioned. Nothing is tightened down yet but I hope to have it complete in the coming weeks. Putting everything back together will take time as everything must be torqued to spec.



Picture of tractor split at bell housing

Conclusion

In conclusion my project is going to plan so far, and I am keeping within time constraints. I am enjoying my time working on the tractor as I am gaining more experience and learning all the time. I have faced a few challenges such as lifting the head off the engine as it was very heavy, separating the 4wd shaft and the carrier and figuring out all the wiring looms and pipes and where they go.