

The repair of a Massey Ferguson 399 head gasket Done by Tomás O'Boyle\ K00286640

Aim of project

To repair the head gasket on a Massey Ferguson 399.

Background

This tractor belongs to my grandfather. It is often used during the summer on a wrapper where it wraps bales of grass or hay to make them into silage or haylage. The tractor had been giving trouble the last 3 years. It would use up excess amounts of water when she would be running. It was also blowing underneath through the breather pipe. This was a tell tale sign something was wrong.

I also choose this for my third year individual project as I fabricated a log splitter for my first year project and I didn't want to do the same thing again. We also have plenty of allocated time to do it and I seen this as a opportunity as if it was to be done at home it would never get done as there is always something else to be at.



Process

To get to the head gasket there was many components that had to be disassembled and removed. I started with the two manifolds the exhaust and the intake these didn't come off without a struggle as the bolts over years of work and heat were worn down and the head of the bolts where non existent. I then removed the rocker cover and the rocker shaft this allowed me into the head bolts. The injectors were next they came out without any major fuss. I then began removing the head bolts. Once the bolts where loosened and removed I could take up the head. The gasket was in bad shape so it was a good idea to replace it. I sent the head away to be skimmed this took about a week. It also got new valves and springs. I fitted a new gasket and put the head back on and began to refit new head bolts. For this I required a torque wrench. The rocker shaft was then fitted where I had to begin to time the tappets using a feeler gauge. Once this was done I could then start to fit all the parts like water pump and manifolds back to eventually start the tractor with the hopes everything is in the correct location and all is running smoothly

Pictures of new components



New head bolts from Perkins:



Bottom face of the head that has been skimmed and fitted with new valve:

Conclusion

I feel this was a good project to complete as I have been able to put into practice what we have been shown the last 3 years of this course. Having chosen this as my project I am glad to be able to do it for my grandfather saving him a considerable amount of money and time. It is nice to be able to keep these tractors on the road as they are reliable and were built to last.

Acknowledgments

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New head gasket fitted: