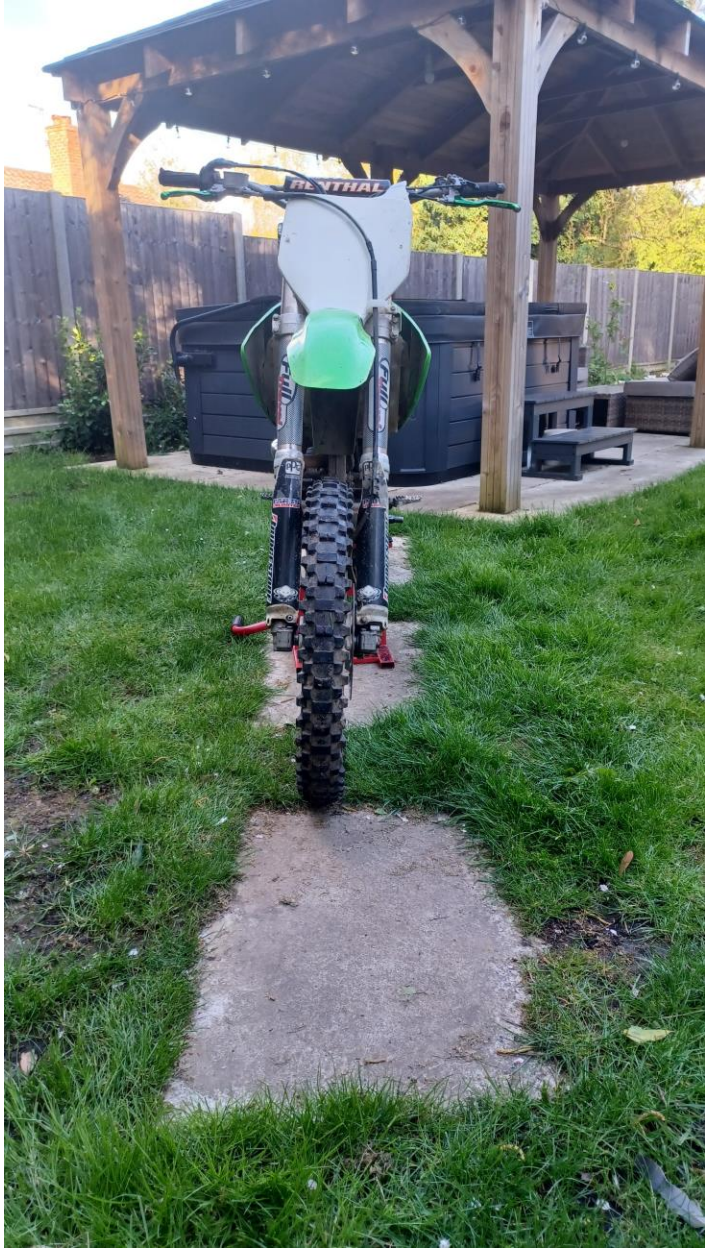


Dirtbike rebuild

After being given the £200 to fix a dirtbike I knew the first step was getting it back to my house. I didn't have access to a van or a trailer and to hire one would be £100 and I didn't want to spend that amount before I had even started working. Luckily enough I found a 250cc 4 stroke Kawasaki dirtbike in Cambridge for sale on facebook. I knew the only way I could get the bike to my house was physically pushing it 8 miles back to my house so thats exactly what I did. After two hours I had pushed the bike all the way back to my house beating the google maps estimate time of 3 hours.

I took these photos the day after I had wheeled it back:

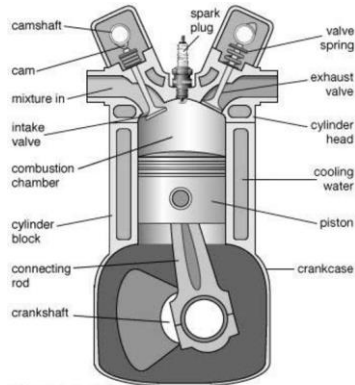






The problem with the bike was that it would barely run and only when the choke was on. The previous owner said it was low on compression but in my experience of repairing dirtbikes 100% of the time there are more issues with the bike that you discover after you have bought it and this time I was again let down. I found out immediately that the kickstart was held together using two hose clamps which lasted about 20 kicks before slipping off the kickstart. I also found that the rear plastic was snapped. But these were minor issues compared to what I was about to find.

At this point I thought the only issue was low compression so I was hoping for an easy fix and that it would just need new valve shims. If the valves of the engine don't close properly on the compression stroke then the engine will lose power and be hard to start as fuel would be escaping the cylinder.



However I would soon find out the biggest issue with the bike and why I got it so cheap. I went to drain the oil and the plug was extremely loose. I immediately felt my heart stop and I went to tighten the bolt to check if it was stripped and sure enough the bolt did not tighten. I thought maybe the bolt was stripped and not the threads on the engine block but once again I was unlucky and the engine block was damaged, it was a 20 year old bike after all. I decided to forget about it for now and worry about it later so I went to drain the coolant and this bolt was also extremely loose. I go to tighten it and sure enough its also stripped. However I wasn't worried as all I needed was a £20 water pump cover, as for the oil to buy a new case it would cost about £300. I didn't feel like spending £300 so I started researching all of the ways to repair the thread. Eventually I decided to go with drilling out the hole and cutting new threads with a tap and die set. This is where I made a mistake that would cost me so much money that it might've been cheaper just to replace the entire engine from the start.

The threads of the oil drain hole were 10mm so I bought an 11mm drill bit and a 12mm thread cutter. The drill bit didn't fit into my drill as it was 1mm too wide and I didn't want to buy a new drill just for 1 job so I grinded down the edges of the drill bit and forced it into the drill, big mistake. The drill bit was wonky inside the drill but I remember being fed up and wanted this thing fixed. I started drilling out the hole and remember it going well but the drill suddenly jolted inside the case. I thought it was fine because it just meant I had fully drilled out the hole right? Wrong. I was unaware of the damage I had just caused. Anyways, I tapped out the hole and managed to get the new screw to tighten to the recommended torque which was a huge win, but at what cost?

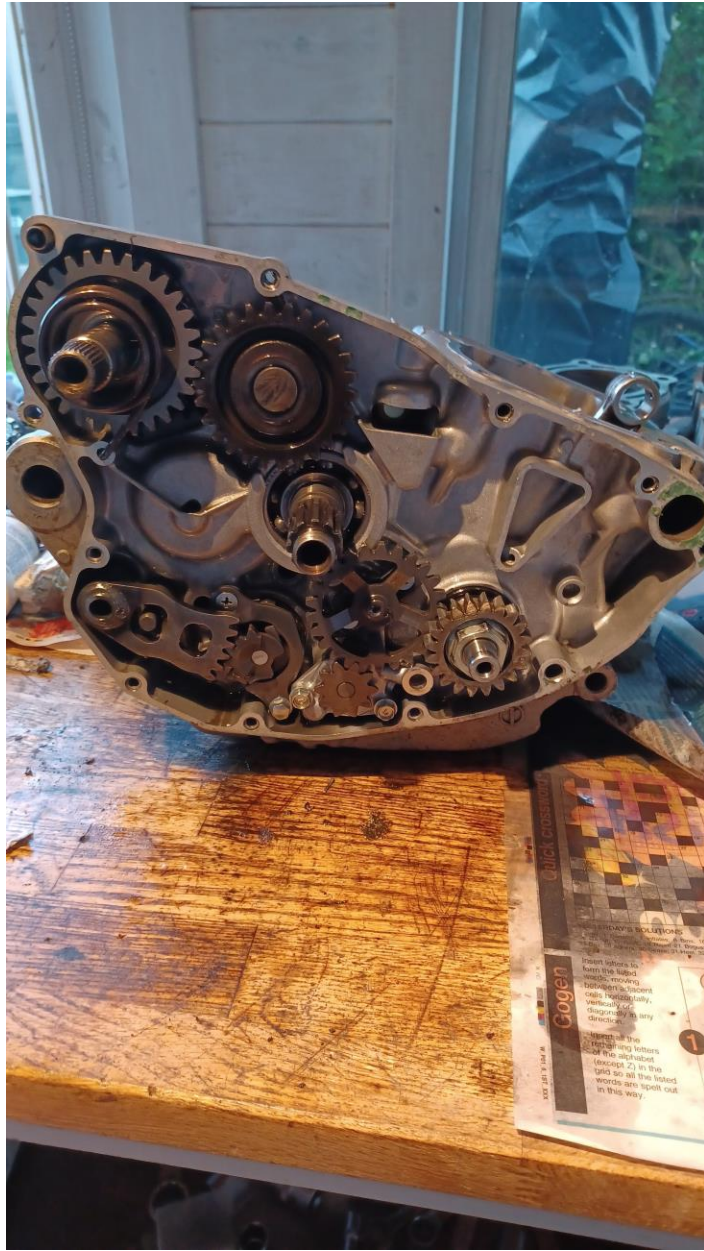
I then started to work on the actual problem with the engine and sure enough after measuring the gaps between the valve drums and cam lobes the distance was way too small and the valves weren't fully closing on the compression stroke. I ordered a £40

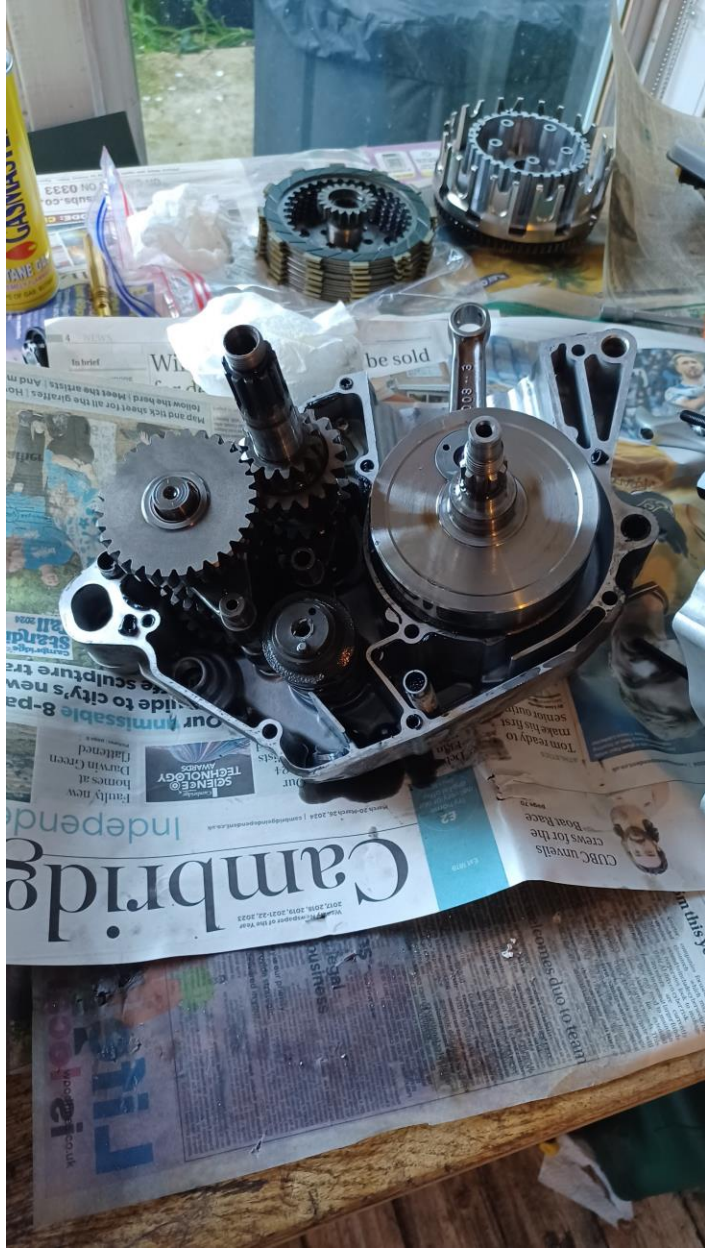
valve shim kit and set the gaps to the correct gap. I also took the head off the cylinder and ordered a new head gasket for £10 as I wanted to be sure of the piston ring gaps which were all perfect but it was worth it to make sure. I ordered a new water pump cover and managed to torque up the drain bolt. The first rebuild was done. I go to start up the bike and it fires after about 30 kicks with the choke on. It runs and idles well and once i had warmed up I went to take the choke off and it still died like before. I thought it might be a fuel mixture issue but after playing around with the adjuster screw for about 2 hours I had no luck. This is when I check through the oil window only to find that the oil is milky and bubbly. This usually means that coolant has leaked into the oil.

This is when I drained the oil to find that coolant had actually leaked and there was an internal issue. I thought I would get away with replacing the water pump seals as these often go bad especially for an old bike. Then I go to check up the oil drain plug hole only to find that a quarter of the thread has been ripped off the engine. This was caused by the wonky steel drill bit going full speed in an aluminum engine. So that meant there was a huge chunk of metal floating around the engine case. Its not like I could use a magnet to fish it out as aluminum is not magnetic. This was when I had to make the decision to either sell it and be honest and lose a lot of money or to split the engine cases and get that metal chunk out before it causes engine failure.

I pulled the engine from the frame and started ordering the tools to split it open.









Case splitter: £30

Clutch holder: £20

Flywheel remover: £20

Gear holder: £10

Blow torch: £20

Gasket maker: £15

After a month of ordering new tools and somehow not giving up and selling the bike I had finally split the cases.

I pulled that peice of metal out and rebuilt the whole engine bolt by bolt. I replaced all of the gaskets and rubber seals aswell which was an extra £50. Once the bike is built back up I go to run it and it starts up with difficulty again but eventually runs on choke only but one good thing was that the oil didn't have coolant in.

This is the point where I take the whole carburettor off and replace all of the rubber seals and drown it in carb cleaner. I rebuilt the carb and put fresh fuel in the bike and after a 10 day holiday wondering if it will run I come back to start it u and it starts 3rd kick. I let it warm up and pray that when I take the choke off it will idle as at this point I didnt know what the problem could possibly be. I take the choke off and the bike idles and revs perfectly. After 6 months of stress I had rebuilt the bike and it worked.

I decided to replace the rer tyre as someone had been doing burnouts and they were pretty ruined. When I replaced the tyre I pinched the inner tube as it is impossible not to so I put a bunch of tyre slime inside the tyre but this didnt fix the flat tyre issue. I take the tyre off and take it to a mechanic but they refused to repair it. When I get back home I pump up the tyre and it holds air. I think that me moving the tyre around spread the slime over the hole and till this day it still holds 30 psi of air.







Money spent on bike and all parts in total:

Stopped counting after £1400

Was it money well spent? Of course. I learned how to rebuild an entire engine from the gearbox up. I will be able to put this on my CV and university application as I want to do a degree in mechanical engineering. This project gave me experience physically and mentally. There were times it was very stressful like when I had rebuilt it for the second time and it still wouldn't run without the choke and wondering if I had just lost all of my money. It was a big risk buying the bike as you can never be sure if the owner is lying or not telling you things. But in the end I managed to persevere and complete the project and I hope to race my bike on the track in the very near future (before it breaks again). Thanks for reading my project review.



