

How Fast?

Mark Broadhurst runs MB Scooters in Doncaster. Most of his business is tuning them but his interests spread far wider than that, it seems he can be distracted by anything interesting. He did this.....

This is interesting stuff – well if you're into 2 strokes and motorbikes. If you're only into Scooters, music, dressing up for the weekend or mirrors, stop now it will bore you to death.

Here we have a tuning development of a Russian IZH 1950's motorcycle that we have done for a good customer in Norway. We have already tuned his vintage Sachs 2 stroke which we converted to a reed valve and we've also made forged Reed and Piston Port pistons for the same engine which I think was the same used in a Bubble car. He was so impressed with his MB Sachs Reed tuned engine in a conversation last week he thought his IZH could be improved, within 2 days the job was done.



The 350 cylinder is certainly interesting as is the story of the manufacturer. The main strange thing was the sides of the transfer ports unscrew and come off, making transfer tuning a bit easier, but why I have no idea! Next was the twin exhaust ports! A simple way to widen the exhaust ports and gain some power. Our customer supplied a hand made reed manifold that he got from Ukraine, but that didn't fit the Yamaha YPVS 350 it was supposed to, so needed welding up, milling and grinding to suit.

He supplied a Forged Wossner piston that he designed and did his own Cad drawings for Wossner. I do like working with other engineers, but he over looked the strange twin exhaust ports and the piston opened up to the gases at TDC, so I had to weld and trim the piston on two parts for the engine to work.



By using the Reed manifold the tuning could be done to suit the power of the bike. There's no billy bollocks dynos involved, there's no up to date 2 stroke computer programme used. It's tuned by good old fashioned experience from history of doing Reed conversions back to 1985, and after all the Russians/Germans and Eastern Block engineers had no computers to develop their 2 strokes. I was quiet surprised how well the engineering was. By owning some Eastern bloc

Scooters the engineering really was well ahead of the times and ideas are still used today. As my Polish engineers say 'they did really know their stuff back in the 50's.

The idea was to give a bit more power without lifting revs as the bottom end had its limits. Even though it's a 72mm piston it only has a 15mm small end, a limiting factor to power the Japs worked out. Interesting for me was they used 8mm fine threads on

the inlet port studs with a 8mm nut and 11mm across flats..... I know that is sad but I do like my nuts!



With a bit of welding and grinding the Yam reed fitted perfect and I used a reed stuffer to mate with the supplied inlet manifold. The carb from these bikes were copies of old looking Amal carbs, this engine will be running a more modern 60/70's Amal. As with tuning our Lambretta.

Reeds cylinders I bolted this reed assembly to the cylinder and flow it right through so there was no steps. We added two boost ports, squared up the transfer feeds and twin exhaust ports and cleaned and flowed the castings. Over 8 hours later.....



For those still interested (*Are you kidding?*) here is what our customer sent us on the IZH.....

I bought my IZH motorcycle in 2010, as I was looking for something cheap to use during the winter months. Paid only £560 for it, and it was a runner. It was a "bitsa", with parts from several different models and years, but it was built up around an IZH-49, 1956 mod.

The IZH-49 was a development of the IZH 350, which in turn was an USSR version of the German wartime DKW NZ 350/1, identical in most details.



Story behind the IZH 350 was that when the WW2 was over, and the DKW factory in Zschopau ended up in the USSR zone, the Soviets took the DKW factory as a war reparation, and tools/equipment were sent back to the USSR, to the town of Izhevsk and the IZHMASH factory (Kalashnikov, army vehicles, motorcycles etc.) Many of the engineers working at DKW got an offer they could not refuse, so they ended up as IZH-employees, either in Izhevsk or in a design office set up in Zschopau at the IFA/MZ factory, which was built up on the remains of the DKW factory. As a side note, IFA/MZ had a brilliant engineer, Walter Kaaden, whose work became the very foundation for all the modern two stroke

engines & tuning work. Another side note is that the DKW engineers who managed to get to the western zone, re-started DKW as a West-German company, making many interesting and sweet looking DKW motorcycles in the 50's and 60's, before closing the gates in the late 60's. MZ ended their business just after the collapse of the eastern block in the early 90's, was revived as MuZ for a while making some interesting 4-stroke bikes, but went tits up some years ago.

The DKW engineers in Zschopau and Izhevsk however,



continued to develop on the DKW NZ 350/1 design, and the 350 engine was in use until 2008, when the last IZH Planeta 5 left the factory in Izhevsk.

So IZH is a DKW made in USSR, which survived the other "off-springs" of the original DKW. All the way based on the basic German DKW 350 engine design originally 11 bhp, in the latest Planeta version 22-24 bhp.



So, what about my IZH-49? It was an ugly looking thing, especially with that blue front wheel, tank from an IZH-56, rear fender from who knows and much other homemade parts: But then, the salty roads got to it - spokes on the rear wheel started to rust off, and the rest of the bike looked very grim... I decided to do a complete tear down to "winterize" it -

stainless steel nuts and bolts, media blasting and galvanize frame/fenders/frame parts, powder coated all white (winter camouflage).



That was the beginning of what's now 4 years of parts collecting, ideas, setbacks and progress.

It will end up looking very odd, as I have "invented" a custom theme for my IZH, some kind of a soviet era civil defence emergency vehicle, status of the work as it is now: The red tires comes from an Opel Motoclub 500, rare as hen's teeth:

The rest of the red/white theme was

adopted from this very picture. I liked it that much. I'm probably bonkers.

Then I bought a cylinder from a 80's IZH Planeta 4 or 5, specified to have 18 bhp originally. That is the one at your workbench :) I got a custom piston from Wössner in Germany, as the pistons available on the web are dodgy, Chinese scrap metal pistons, seizing completely and disintegrating before 1000km.



I do not know how much it will gain from the job, but the experience from the Sachs engine you did a similar job on last time tells me it may be in the region of +25-30%, and then we're at 22-24bhp, along with bags of torque, which will suit it perfectly, and a bit up from the original 11bhp for the IZH-49. I am looking forward to this, :)

This is easily the most interesting article we've ever had in HV(!) Anxious to know how Torgier, Mark's customer, found the improvement I asked Mark and he said.....



He's had it running and has been asking jetting enquiries as he fitted a MK1 Amal but it started to snow so now running info yet.

I now have the same bike be it the IZH49, I've bought the Planeta 4 alloy cylinder and head, but all I got to is cleaning off the cylinder in my new industrial sonic cleaner that turned up this week. I now have fun Fridays so only work 4 days to give me time to develop these things but I'm working on a Jawa Scooter, but it's taking time I've had to totally rewire it all to get it running before I tune it up.