

Polini Minimoto Engines

Here you'll find the ins and outs of Polini Engines.

The Basics

Engine Series

Polini makes two types of engines, Series I and Series II. The Series I engine is only used on the 4.2hp models. The Series II engines are for 6.2hp and up. There is one visual difference between Series I and Series II, that is that the Series I intake connects flat on the engine, and the Series II connects at an angle, below I have two pictures to show the difference.

Series I Series II

The real difference between the two is in reed blocks. Polini's Series I engine has a single petal reed on a flat reed block, while the Series II engine has a triangle shaped reed block with two reeds.

More Info

Here just good to know stuff about the engine.

Tech Stuff

If you ever rip apart your motor make sure you have a access to a torque wrench, the right torque is very important to prevent vacuum leaks and over tightening. If you have a metric wrench the measurement is .8Kgm and for the head and 1Kgm for the case bolts. That's about 5.79 foot-pounds for the head and about 7.24 foot-pounds for the case in the standard system.

If you ever rebuild your top-end or change the gaskets you need to check and set the squish clearance. The squish clearance is the distance from the top of the piston to the bottom of the head. It should be set to 0.5mm for 40cc engines and 0.45mm for 50cc engines.

Breaking in

Your engine's first steps are very important; if you don't break in right you could seize your motor in a hurry, and you greatly reduce your engines life. The most common method of breaking in is through "heat-cycling" the engine. Heat-cycling is running the engine at idle, or just above idle, for about 5-10 minutes. This gets the engine to a little lower than operating temperature. After running the engine for around 10 minutes you need to turn off the engine and let it cool completely. After the engine has cooled, you should repeat the above steps 3-4 more times. After you have completed the heat-cycling, you should run the bike easy, avoiding high RPM, and avoiding stress on the engine. You want to continue to run the bike easy for about 1 full tank of gas. After you have completed this you are just about done.

The other method of break in is quite simple, it's called "racing break in". Allow the engine to warm up for five minutes. After the bike as warmed up, hit the track. Do one lap to warm up your tires, then hit the gas. Take a normal 10-15 minute session. The varying RPMs and combination of acceleration and deceleration of riding on the track will break in the engine. This method is less common, but when done correctly has shown no ill effects the the engine. Just make sure the engine has warmed and you should be all set.

Many people will tell you that you should run more oil during break in; it's usually not the best idea since adding more oil will lean your fuel/air mixture, and that can cause your engine to run hotter than normal; using the normal 50:1 gas:oil ratio is best at all times. But during break in it is best to use non-synthetic oil, as full or semi-synthetic oils can cause the piston ring to not seat fully because they are too slippery. So it is recommended to use regular, non-synthetic oil for break in and full or semi-synthetic oil thereafter.

Engine Codes

If you just bought a used bike from someone and you want to make sure you've got the power they claim, the best way to check is by looking at the cylinder code which is across the side of it. Cylinder Codes are also helpful if you are looking to upgrade your cylinder and want to know the next level up.

"315" 40cc three port air-cooled cylinder

"315A" 40cc five port air-cooled cylinder (out of production)

"316" 40cc three port water-cooled cylinder

"316A" 40cc five port water-cooled cylinder

"316B" 50cc five port water-cooled cylinder

This is all I have for Polini Minimoto Engines, I hope it helped.