

Clutch assembly and tuning for “Push Type” or “Centax Type” Clutch systems

Proper assembly and set-up of the clutch is one of the most important parts of running a nitro powered vehicle. Many times people have come to me asking why their engine isn't running right or generating the power they want coming off the corners. Over 75% of the time the tune on the engine isn't the problem. They are losing power because the clutch isn't set-up properly. Here are some building and tuning instructions in order to get your push type/centax clutch to perform like it should so you can get the most out of your nitro engine.

When you put the flywheel on the engine make sure that the flywheel won't drag on the engine case. Some flywheels require that you place a shim behind the flywheel collet. Put on the flywheel nut making sure to tighten this nice and tight.

Next, put the clutch weights (centrifugal shoes) into the flywheel. These should be clean and with no burs – this is important to proper engagement and disengagement of the clutch.

Take the clutch shoe and place it into the clutch shoe ring aligning the holes. Make sure it fits all the way down in the ring. The next thing I always do is check the clutch shoe and ring's fit on the flywheel pins. These should line up and the clutch shoe and ring should move nice and free over the flywheel pins – If it doesn't, clean up the holes with an x-acto blade – be careful not to take off too much material (and don't cut yourself!).

Install the spring cup into the clutch shoe, making sure that this is pressed all the way down into the clutch shoe. Slide the clutch spring on and thread on the clutch spring adjuster down so that about .5mm of thread is showing. We will come back to adjusting this for proper engagement later....

Thread the pinion gears onto the clutch bell. You need to get these tight but don't over do it or you will struggle to get them off if you want to change gears later.

Now is where the clutch set-up comes into play through the rest of assembly. Here's how I build my clutches to get the most power and drivability out of them. First, I'll put the clutch bell on – WITHOUT – the inner bearing and assemble the rest and tighten things down (thrust bearing, thrust bearing retainer, outer bearing). Now, there should be some play in the clutch bell. I usually shim my clutches to have .3-.4mm of end play. It's recommended if you measure this with calipers or some sort of gauge. Some people shim the clutch behind the flywheel if there is too much end play. I prefer to put shims on the thrust retainer before I put the thrust bearing on – this allows me to shim the clutch without taking the whole assembly off the engine.

Once the end play is set to .3-.4mm I will take the clutch bell off and install the inner bearing into the clutch bell. Now, I add shims on to the crank shaft. These are used to space the inner bearing out which pushes the clutch bell away from the shoe. This is very

important!!!! The clutch bell needs to be spaced away from the clutch shoe, if it is not then the clutch will always be dragging – making your brakes work harder, you will have to set your engine's idle higher since the clutch is dragging the rpm down, creating lots of excess heat that makes the clutch slip and wear out pre-maturely. After adding shims and re-assembling the clutch you should have .1-.2mm of end play left.

After all that assembly is complete I will bolt the engine into my car and fire it up so I can set the clutch spring adjuster. Listen to the engine, listen for the point in which the clutch engages and the tires start to move. When using this type of clutch system you should be applying about 1/8-1/10 throttle when the clutch engages. If you rev the engine (slowly), it zings up to a hi rpm and the wheels aren't moving or it's making a slipping sound (you will know when you hear it!!) then you have the spring adjuster too tight and you need to loosen it. On the contrary, if you rev the engine and the wheels move immediately then you need to tighten the spring adjuster. The engine should have a nice crisp sound all the way through acceleration. If you are used to your clutch you will get the hang of this and be able to do it on the bench. I think the best way to learn is to throw it out on the track and drive a few laps, come in and adjust on it. This will get you used to how much to adjust, the sounds and what your adjustment feels like on the track.

I wish there were exact measurements I could tell you to build a perfect clutch every time, but the small differences in each of the parts requires you to take your time and set-up your clutch step by step. Be patient and have fun!!!!

Good Luck!!!
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