

Clutch Maintenance

Clutch maintenance is an often overlooked part of a lot of racing programs until the green flag drops on race day. Just a few minutes a week and some simple steps can insure a good performing clutch when the chips are down.

Step 1

Under no circumstance should your clutch get wet with water. Never. The only possible exception I can imagine is if you are racing and it begins to rain. Always remove your clutch to wash your kart. Besides, you cannot perform your weekly maintenance with it on the kart.

Step 2

With the clutch on your worktable, remove the snap ring retaining the sprocket and bell, and separate the bell from the rest of the clutch. Look for any areas of concern, and with a supply of dry compressed air, blow the center section enough to remove all dust and particles from within the clutch. On occasion, brake cleaner can be used to assist with this, however I don't believe in using it weekly, and carb cleaner should not be used. Carb cleaner is more aggressive than brake cleaner, and can attack the cement that holds the friction material to the plates and that can lead to more problems.

Step 3

Take the bell and sprocket assembly and thoroughly wash out the inside of the bell, as well as the needle bearing in the sprocket. Brake cleaner does a good job with this and carb cleaner is ok in this case as well. When the parts are clean, a good drying with compressed air prepares us for reassembly. Taking one drop of a heavy weight oil or a VERY small dab of a lightweight grease, such as Vaseline, rub this into the needle bearing thoroughly to distribute it throughout. Note: Excess amounts of oil will find its way into the plates, and slipping is the result. Excessive chain lube can also attribute to this, so be careful with that as well.

Step 4

Before assembling your parts again, take a moment to check the air gap between the internal plates of the clutch center section. Factory specifications usually state between a .032 to a .038 air gap as optimal. However, as the clutch is raced, wear is increasing this number. Using a feeler gauge, measure this gap. I recommend the gap to remain below .055, as high gaps cause elevated engagement speeds and erratic jerking and snapping that can lead to further damage and poor starts. If your clutch falls outside these parameters, it needs to be rebuilt, and JRPW will be happy to re-machine and set your clutch specifically for your class and weight. These settings are for the stock and restricted classes, and the higher horsepower classes require higher engagement speeds

and have another set of numbers that I will be happy to share with you upon request. Providing your numbers fall within spec, begin reassembly.

Step 5

It is very important that the bell/ sprocket assembly has movement on the drive hub. It may be necessary to add or remove thrust washers to achieve this. Usually, .015-.030 end play is sufficient. This is important because as the clutch heats up, this gap decreases, causing a tight clutch. Note, the flat thrust bearing inside the clutch should NOT be lubricated. Run this bearing dry, inspect weekly, and replace as needed. Any oil here will find its way to the plates, and create problems.

General Clutch Notes

If you find it necessary to fully disassemble your clutch, (which I discourage) be sure to reassemble everything in the exact order and direction in which it was originally assembled. As a clutch is used, a wear pattern develops in the plates and discs, and if this is disturbed, it may not properly function.

Even spring height is critical, any movement of one spring requires the same movement on each and every spring. Uneven spring load causes warping of the pressure plate and poor engagement. JRPW can easily set these to the correct settings. Contrary to the belief of some, there is not a “magic number” for the spring height. Many factors contribute to this and we can help you determine the numbers for your clutch.

Engagement speed is a recommended number based on your class. Your JRPW engine spec sheet will have the number for your engine and class. If you don't know where you need to be, give me a call, I will be happy to help. Engagement speed must be checked on the ground with the driver in the kart. Checking on the stand is not accurate.

Engagement RPM is changed by changing the spring preload. To increase engagement speed, tighten each spring, (clockwise direction) and to lower decrease the spring tension, or turn in a counter-clockwise direction. Each ¼ turn makes approx a 75 RPM adjustment on most clutches.

Your clutch should easily slide onto your crankshaft, and the key should enter freely as well. Forcing either will only create much more work later, or as I have experienced, the need for removal with little time to spare. If it does not move freely, a bit of emery cloth or a small file will usually fix the problem. Some clutch keys have burrs that need to be filed down before the key can be used. Most crankshaft burrs, especially on Animal engines, are on the top of the keyway in the crank. A flat file across the top of both sides of the keyway will usually eliminate the problem

It is suggested that your clutch bolt and washer tighten to the crankshaft and not the clutch. This is accomplished by using a small diameter washer below the flat clutch washer. This washer should be small enough to fall inside the clutch bore and it will allow the clutch to float on the crankshaft. I personally like about .035-.060 float in my clutch. This helps the clutch sprocket and the rear sprocket to maintain alignment as the frame flexes.