

Rekluse Motor Sports

Break-in Tuning and Maintenance Guide

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Initial Break-in

The z-Start requires a small amount of break-in time before it will operate smoothly. The break-in time allows the balls to “wear” into their grooves, reducing friction.

Place the bike in neutral and start your bike, allowing it to warm up for 2-3 minutes or until you can begin to feel some warmth from the clutch cover. Shut off the bike and place it in second gear. Roll the bike back and forth to work some warm oil between the clutch plates. Place the bike back into neutral and start it again. Make sure the bike comes down to a reasonable idle speed (1500 to 2000 RPM's). Apply the front brake and click the bike into gear. If the bike stalls, place the bike back into neutral and tighten the nut on the *External Adjuster Bolt* further increasing the external spring pressure. (non-hydraulic clutches only) Try the starting procedure again. If you cannot get the bike to idle in gear after three or four tries, you will need to re-check your installation.

Once you have the bike idling with first gear engaged, slowly apply the throttle to begin moving. To break-in the z-Start, in first gear, slowly accelerate to 4000 RPM and slowly come to a stop—repeat this 10 times. Next, in first gear, slowly accelerate to 6000 RPM and slowly come to a stop—repeat this 10 times. These 20 acceleration cycles will complete the break-in process of the z-Start.

If you continue to have problems with stalling, make sure your idle speed is set correctly (1800-2000 RPM's) and your fuel screw is set correctly. If you continually have problems with stalling, re-check your installed gap to make sure the measurement is correct.

Tuning

The z-Start can be adjusted to suit a wide range of riding styles and terrain. The z-Start has provisions to adjust the stall speed of the clutch (the engine speed at which the clutch begins to engage) and it's engagement rate (how quickly the clutch engages fully). The stall speed is adjusted by tightening the nut on the *External Adjuster Bolt* or if you purchased the External Perch Adjuster by turning the Barrel Adjuster. The engagement rate is adjusted by using a stronger or weaker spring. Tightening the adjuster increases the stall speed and to a lesser extent, slows down the engagement rate. Using a stronger spring delays full engagement of the clutch to a higher RPM. Using a weaker spring allows the clutch to become fully engaged more quickly. Although everyone has different preferences, in testing we have found the following guidelines to be a good rule of thumb:

- For Motocross and any aggressive riding situation primarily running in the mid to upper RPM ranges on harder, slippery surfaces and that lacks slow technical maneuvering, we recommend a higher stall speed and a slow engagement rate (strong spring). These settings allow the rider to launch smoothly and very quickly without “feathering” the clutch for MX starts and around tight corners. This setting should not be used when riding for longer periods at lower engine RPM's or in deep sand or mud due to the potential for excessive clutch slipping. A high stall speed makes negotiating slow, technical terrain more difficult and can cause the z-Start to disengage prematurely going down steep hills causing a lack of engine braking.
- For riding situations that include slower, technical sections, a lower stall speed with a faster engagement rate (weak spring) is desirable. A lower stall speed makes it easier to move slowly through extremely technical sections of trail. However, too low of a stall speed can lead to the engine stalling under hard braking if the z-Start can't disengage the clutch quickly enough.

Another thing to consider when adjusting your stall speed is engine braking. When the stall speed of the z-Start clutch is set very near idle, the z-Start will reengage the clutch from engine braking. For example, if you are descending a steep hill in second gear and lock the rear tire with the rear brake, the z-Start will automatically disengage the clutch to prevent the engine from stalling. When you release the brake, the rear wheel spinning the transmission will cause the z-Start to spin faster causing reengagement and engine braking will resume. For most riders, especially in trail situations, this is a desirable trait.

There are other situations and riding styles where engine braking may be an undesirable trait. For example, if you charge up a steep jump in 2nd gear at high RPM's, release the throttle in the air and tap your rear brake, the engine will come down to idle speed and the z-Start will disengage. If you do not apply the throttle before landing, when the bike hits the ground and the rear wheel is accelerated, the z-Start will reengage the clutch, potentially causing severe, unexpected engine braking and a possible crash.

Kickstarter Bolt

If you lose your kickstarter with an automatic clutch you will not be able to bump-start your bike. It is a good idea to Loctite your kickstarter bolt to make sure it does not fall off on a long ride.

Clutch Abuse

An automatic clutch does not turn your motorcycle into a Continuously Variable Transmission. Although it is possible to put your bike in 4th gear and ride around smoothly at almost any speed between 1 MPH and 50 MPH, this type of riding is very hard on your clutch and could cause your engine to overheat. In the lower gears, load on the clutch is lower and full engagement of the clutch comes at relatively low engine speeds on flat, hard ground. In the higher gears, load on the clutch is much higher and full engagement of the clutch does not come until much higher speeds. Riding conditions also play a significant role in load on the clutch and the potential for excessive slipping. Riding in sand, mud or snow will increase load on the clutch significantly. Riding uphill will also increase load on the clutch. Using a strong adjustment spring will also cause your clutch to slip more at higher engine RPM's.

Checking for Full Clutch Engagement

If you suspect the z-Start is not engaging your clutch fully, it is important to check your installed gap measurement to make sure the z-Start is able to apply full pressure into the clutch. Checking the installed gap is described in the Installation Guide.

Note: the following test should only be performed by experienced riders that are familiar with the motorcycle and the z-Start clutch.

Acceleration testing is a quick way to check for full clutch engagement. Find a safe, open area that you are familiar with and that has good traction. Put your bike into 3rd gear. At a speed of 5 to 10 MPH, slowly apply full throttle while applying the rear brake. The clutch should engage positively by 4K to 5K RPM's causing the engine to "lug". The engine RPM's should not rise rapidly into the RPM's without corresponding acceleration. If the engine RPM's rise rapidly without a corresponding rise in acceleration, the clutch is slipping too much and the installed gap needs to be re-measured

Maintenance

During normal operation, the z-Start components should last hundreds of hours of use without replacement. However, improper setup or very aggressive riding can increase wear. The installed gap measurement described in the installation manual should be checked once every 25 hours of use for aggressive riding and once every 50 hours of use for moderate riding. If you notice any excessive slipping of the clutch, especially at medium to higher engine speeds, check the installation guide to reference the installed gap measurement.

Every 100 hours of aggressive riding or every 200 hours of moderate riding, the z-Start should be completely disassembled and inspected for wear and deterioration of all parts. Remove the z-Start from the bike and carefully check each component for excessive wear and cracks

The *Top Plate* will have wear marks where the *Balls* travel. These wear marks should not exceed .075" wide. Replace the *Top Plate* if the wear marks are wider than .075" or you find any cracks or other signs of damage to the *Top Plate*

Clutch Drag

Some models suffer from excessive clutch drag at low engine speeds. If your bike tends to want to creep forward with the engine at idle in first gear or you have difficulty finding neutral at idle, your bike may have excessive clutch drag. If the clutch drag is very high, it can cause stalling problems during sudden braking or when quickly shutting off the throttle in sand or while hill climbing.

For many bike owners, the clutch drag problem diminishes as the bike breaks-in. If your bike has excessive clutch drag you may have warped metal clutch plates. Refer to your owner's manual for metal clutch plate specifications. Also, certain oils can contribute to unsatisfactory clutch performance. Rekluse recommends Shell Rotella T, which is an oil designed for diesel engines. From testing Rekluse has conducted, we have found that Shell Rotella T increases clutch performance best. Contact Rekluse Motor Sports if your dragging issue goes unresolved.

Important Note: whenever you replace clutch plates, be sure to recheck your z-Start installation after a short clutch break-in period. Some clutch plates will "seat-in" initially, increasing the installed gap between the z-Start and the rest of your clutch plates. After riding with the new clutch plates for 20 minutes, recheck your installed gap as outlined in your Installation Guide.