Rekluse Motor Sports
z-Start Pro ATV Tuning Guide

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The z-Start Pro can be tuned to suit a wide range of riders, terrain and Quads. The engagement RPM and engagement rate settings will have a dramatic effect on how the z-Start Pro performs. A lower engagement RPM with a harder engagement rate will have very little slip as the clutch engages. A higher engagement RPM with a softer engagement rate will slip the clutch more as the clutch engages. Choosing the right setting depends on many factors.

The Short Answer

If you don't want to read three pages of technical information on how to set up your z-Start Pro clutch, then here's all you need to know… Go to the **Tuning Chart** included with your z-Start Pro and choose the ***Medium Engagement RPM*** and the ***Harder Engagement Rate***.

The Long Answer

There are three primary tuning options for the z-Start Pro:

Engagement RPM - RPM the clutch first begins to engage the clutch (adjusted with different springs)
Engagement rate - how quickly the clutch engages once it begins to engage (adjusted with number of balls used)
Engine idle speed - engine's steady idle RPM (revolutions per minute) when then engine is warm.

Engagement RPM

The engagement RPM is set using wave springs within the z-Start Pro clutch. There are two engagement speed settings: medium and high. The medium engagement setting begins to engage the clutch just above a normal engine idle speed. The high engagement setting begins to engage the clutch several hundred RPMs above a normal idle speed.

Engagement Rate

There are two engagement rate settings included with your z-Start Pro: softer and harder. The softer engagement rate provides more slip as the clutch engages at low RPMs. The harder engagement rate provides less slip as the clutch engages at low RPMs. If you are looking for even harder engagement rates, contact your authorized Rekluse dealer to purchase a tungsten carbide ball kit.

Engine Idle Speed

Engine idle speed is another very important tuning factor for the z-Start Pro clutch. If the idle speed is below your engagement speed and you lock and then release the rear brake, the z-Start Pro clutch may not automatically re-engage and the ATV may "free-wheel". By "blipping" the throttle to raise the RPMs, the clutch will re-engage and provide normal compression breaking.

Most riders prefer consistent compression braking when the rear tire is locked and then released. To get consistent compression braking after the rear brake is released the

engagement RPM must be below the idle speed. In other words, the clutch should have some engagement drag at idle. Ideally with the ATV in first gear and the engine idling, when the clutch lever is pulled in, RPMs should rise slightly and then drop some when the clutch lever is released.

If you prefer your ATV to free-wheel after the rear tire is locked, make sure your idle speed is well below your engagement speed. Higher engagement speeds work better to get your bike to free-wheel after the rear tire is locked.

Other Considerations

Riding Conditions

Riding in sand or mud creates additional load on the clutch. When riding in sand or mud, Rekluse recommends the harder engagement rate. Be extra careful when riding in sand or mud to use the proper gear for the speed you are traveling. Riding in too high of a gear can cause the clutch to overheat.

Compression Braking

The amount of compression braking the bike gives can be changed slightly with the idle speed and engagement speed. Higher engagement and idle speeds will slightly reduce the level of compression braking. Lower engagement speeds and idle speeds will keep the level of compression breaking very close to stock.

Regardless of engagement speed, the key to consistent re-engagement of compression braking after the rear tire is locked is clutch engagement drag at idle. If you are finding that your bike sometimes freewheels after the rear tire is locked, turn up your idle and/or lower your engagement speed.

Engine Stalling

There are two types of engine stalls associated with the use of an automatic clutch: acceleration stalls and braking stalls. Acceleration stalls are caused by the sudden loading of the engine at low RPMs with an open throttle. Braking stalls are caused by a sudden deceleration of the motor. The deceleration can come from the rear brake or from the rear tire hitting a steep object (like a large rock or a downed tree).

Stabbing at the throttle too quickly from low RPMs in taller gears can cause a “pop-stall”. There are several things you can do to minimize acceleration stalls. On a modern 4-stroke, getting the pilot jet adjusted correctly with the fuel screw is very important. Remember that temperature and elevation have a significant effect on your pilot jet setting. A heavier flywheel weight can also reduce acceleration stalls. Higher engagement speeds and softer engagement rates with the z-Start Pro will tend to reduce the incidence of acceleration stalls. Finally, good throttle control, feeding in the throttle instead of stabbing it open, will reduce acceleration stalls.

Braking stalls are caused by the engine being decelerated very quickly to the idle point and/or the clutch not releasing quickly enough. Again, good low-speed carburetion is key to prevent braking stalls. Higher engagement speeds and idle speeds will also reduce braking stalls. Often times, just slightly raising the bikes idle speed will eliminate braking stalls.

Detail Setting Descriptions

The following descriptions are for the internal spring and ball configurations found on the **z-Start Pro Tuning Chart**.

Medium Engagement RPM, Softer Engagement Rate

On most ATVs, this setting will require a normal to slightly higher idle to get enough engagement drag to maintain consistent compression braking. This setting gives good balance between control in technical riding situations and providing enough slip to maximize traction and acceleration in terrain with poor traction. ***This is a recommended setting.***

High Engagement RPM, Softer Engagement Rate

On most ATVs, this setting will require a very high idle to get enough engagement drag to maintain consistent compression braking. This setting is geared towards maximizing acceleration, especially in low traction situations. This setting may cause the clutch to overheat in high-load, low RPM situations. This is a good setting for someone looking for a setup that will freewheel after the rear brake is locked and released (with a lower idle speed).

Medium Engagement RPM, Harder Engagement Rate

On most ATVs, this setting will require a slightly higher than normal idle to get enough engagement drag to maintain consistent compression braking. This setting still offers good control in technical riding situations and allows the motor to be lugged down low in the RPM range with very little slip. ***This is a recommended setting.***

High Engagement RPM, Harder Engagement Rate

On most ATVs, this setting will require a high idle to get enough engagement drag to maintain consistent compression braking. This setting tends to have a bit of a “hit” to it. This setting is geared towards maximizing acceleration, especially in high traction situations, especially for motors that have lots of torque. This setting is not as well suited to technical riding situations. This is a good setting for someone looking for a setup that will freewheel after the rear brake is locked and released (with a lower idle speed).