

Rekluse Motor Sports

The z-Start™ Clutch

KX 65 / RM 65

2000-2009

Installation Guide

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z-Start Revision 3.000
RMS140 – KX65/RM65

191-240

Manual Revision: 102209

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Required Tools

| | |
|-------------|----------------------------------|
| 8mm socket | 10mm wrench |
| 10mm socket | 2 Sets of feeler gauges |
| 14mm socket | Torque Wrench |
| 8mm allen | Blue Loctite 243 (oil resistant) |
| 2.5mm allen | |

Included Parts for the z-Start Clutch

Note: spare screws, balls and shims may be included with your clutch

| | |
|---|-------------------------------------|
| Top Plate | Loctite 243 |
| Pressure Plate Assembly | 2.188" (55mm) Needle Thrust Bearing |
| Stand-offs | 2.188" (55mm) Flat Thrust Washer |
| 3 x 1.1" x 0.040" (28mm x 1mm) Washers | 30 x 5/16" (7.94mm) balls |
| 1 x .047" (1.2mm) Drive Plates | Rekluse Clutch Basket Kit |
| 1 x .055" (1.4mm) Drive Plates | Center Clutch Guide Block |
| 1 x .070" (1.78mm) Drive Plates | Center Clutch Sanding Disk |
| M10 x 40mm Hex Flange Bolt | C150L4 Wave Spring |
| | C150M3 Wave Spring |



Basic z-Start Clutch Operation

The z-Start Auto Clutch functions through centrifugal force. As engine RPM increases, the balls contained in the z-Start Pressure Plate travel up the ball ramps and push against the Top Plate. This action forces the clutch to engage.

Installation Tips

- Measuring and maintaining the Installed Gap is **critical**. If the Installed Gap is too big the clutch will slip excessively and cause rapid clutch wear. If the Installed Gap is too small, the clutch will drag and cause engine stall.
- In order for the z-Start to be installed properly, you will need to replace your stock basket with the included Rekluse Clutch Basket. Be sure to reference the included basket manual at step 14.
- If you damage the water pump cover gasket or clutch cover gasket during disassembly you will need to order replacement gaskets from you dealer.
- ***Be very careful not to drop any screws, washers, balls, or springs into the crankcase opening!*** It is surprisingly easy to drop a little screw or washer down into your crankcase. It is not always so easy to get it out. Make sure all parts going in and coming out are accounted for before you finish the installation. A strong magnetic probe can often be used to retrieve little parts if you happen to drop something in.

Bike Preparation and Disassembly

1. Using an 8mm socket, remove the drain bolt from the water pump cover and drain the bike's coolant into a suitable container so it can be re-used. Removing the radiator cap will allow the coolant system to vent and drain faster.
2. Disconnect your clutch cable at your clutch lever and from the mounting point on the clutch cover and remove the cable from the bike.
3. Turn the gas petcock to the off position and route the gas cap vent tube into the air. When you lay the bike over on its side the gas in the bowl will drain out of the overflow tube. Be prepared to catch the gas in a suitable container to prevent a fire hazard.
4. Place the bike in 3rd gear and lay the motorcycle over on its left side.
5. Using an 8mm allen key, remove the bolt holding the rear brake lever and rotate to the left away from the clutch cover.
6. Remove the kick-starter.

7. Loosen the 2 hose clamps attaching the 2 coolant lines to the water pump cover and disconnect the lines. See following picture.



3 bolts to remove water pump cover.

Both Coolant Lines disconnected.

8. Remove the water pump cover using an 8mm socket. If careful when removing the cover, you may be able to re-use the gasket.
9. Remove the impeller using an 8mm socket. Be sure to keep track of the bolt, impeller, and washer because they will be re-installed. See following picture.

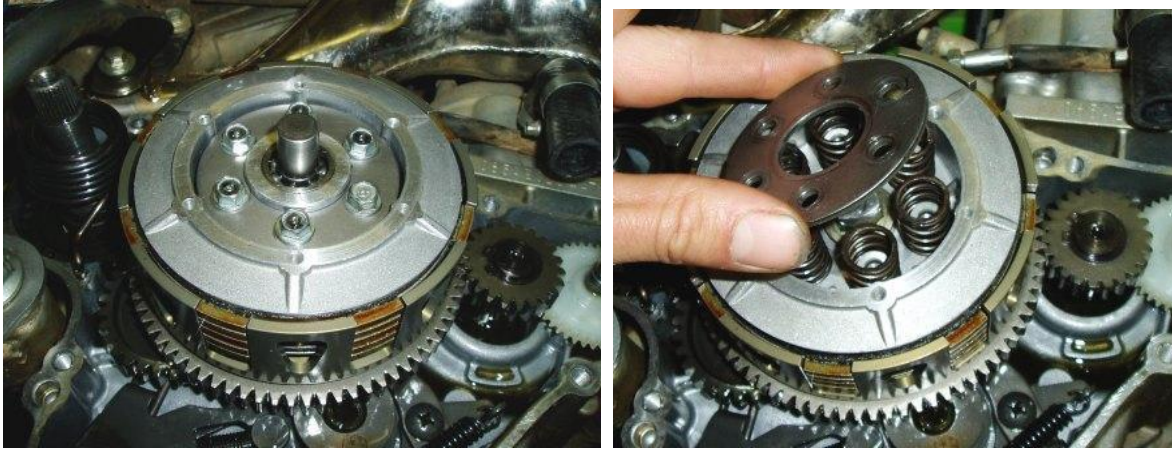


Remove the impeller

10. Remove the clutch cover bolts with an 8mm socket and carefully remove the clutch cover. If careful when removing the cover, you may be able to re-use the gasket.

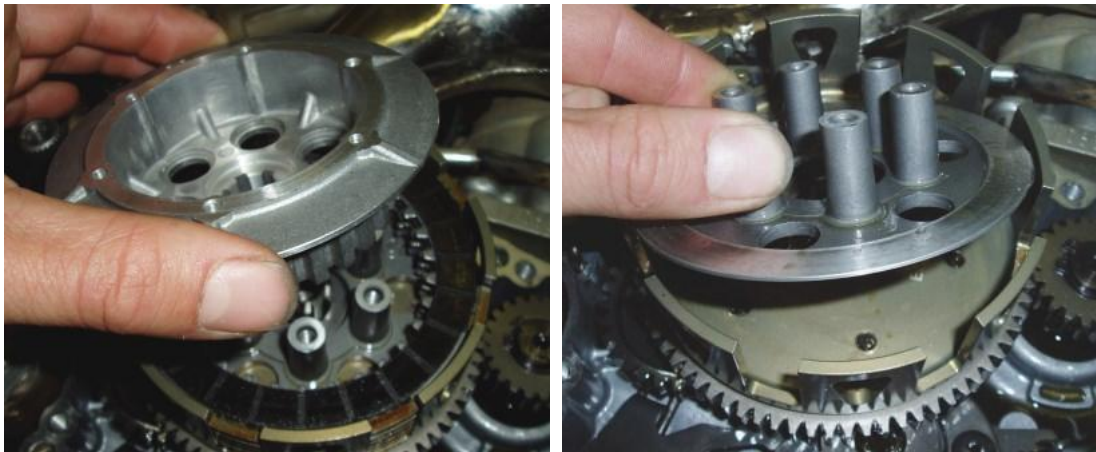
11. Using an 8mm socket, remove the bolts holding the stock spring plate and clutch springs. Lift off the spring plate, clutch springs, and the clutch throw-out assembly.

The clutch throw-out assembly consists of the bearing hub, throw-out, and washer. See following picture.



12. Using a 14mm socket, remove the center clutch bolt. Temporarily re-install the rear brake, and by applying the rear brake with the bike in 3rd gear, you can easily remove the bolt.

13. Remove the center clutch, clutch pack, and pressure plate from the bike and set aside. See following picture.



14. Locate the center clutch spacing washer that was between the clutch basket and center clutch hub. The spacing washer will be re-used.

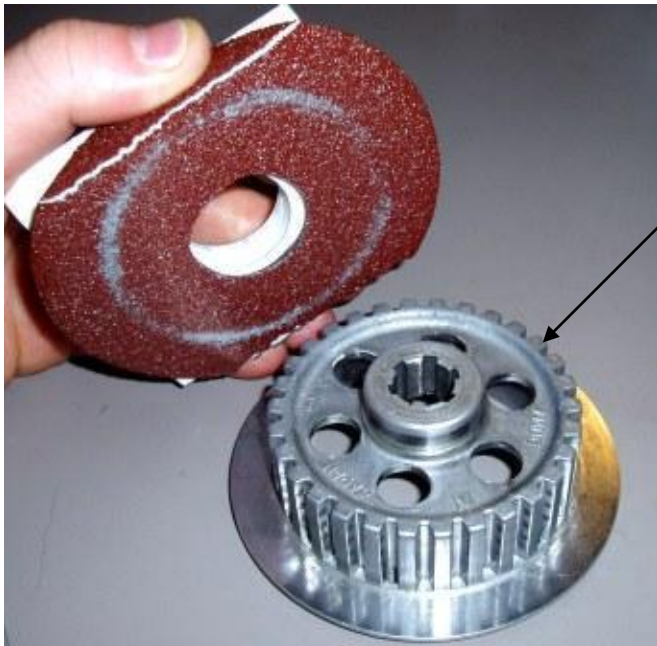
15. Remove the clutch basket.

Configuring the Rekluse Clutch Basket

16. Refer to the included Rekluse Clutch Basket instruction manual and then proceed to step 17 in this manual.

Modifying the Stock Center Clutch

17. Take the center clutch to a place where no filings can be dropped into the engine case opening.
18. Place the included *Sanding Disk* on top of the included *Guide Block* and fold the edges of the sanding disk over the edges of the Guide Block to index the two together. See following picture.

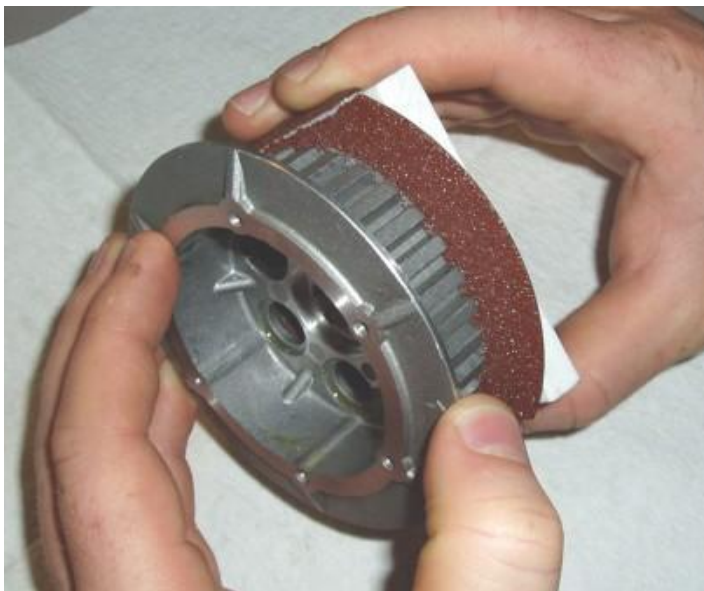


The goal is to machine/sand the outer ring down about 0.060-inches (1.5-mm)

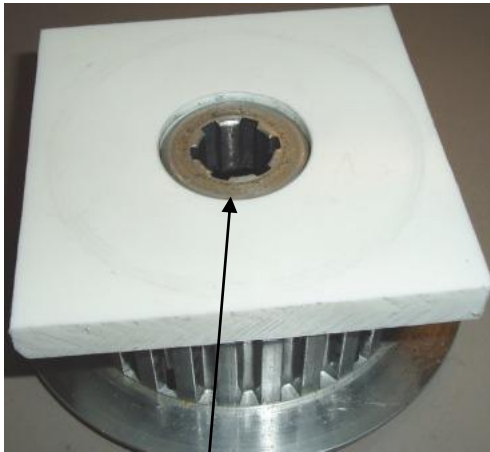
19. Next, place the center clutch against the sanding disk so the hub of the center clutch indexes into the hole in the middle of the Guide Block.

Rotate the center clutch against the Sanding Disk and Guide Block, sanding the ring of the center clutch down. The goal is to remove about .060" from the height of the ring. **See following picture.**

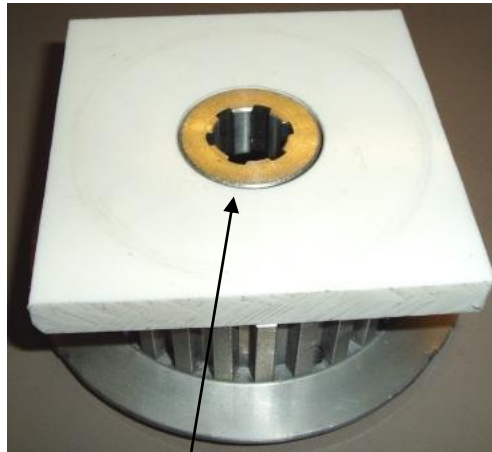
Note: Modified Hub can be re-used with the stock clutch



20. Use the Guide Block to track your progress. Set the Guide Block without the Sanding Disk over the Center Clutch and when the Inner Hub of the center clutch is nearly flush with the Guide Block, you have modified the center clutch enough. See following pictures.



Prior to modifying.



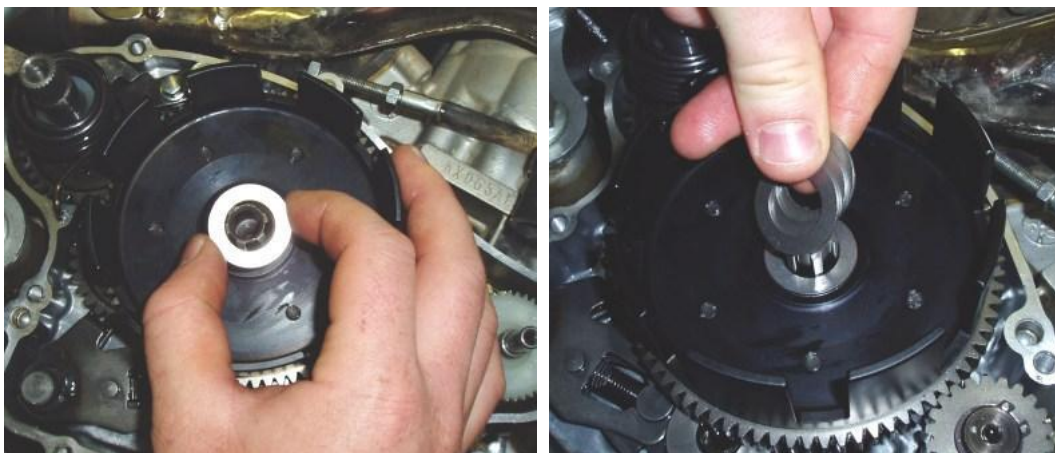
Inner Hub nearly flush with Guide Block.

Installing the Basket, Pressure Plate Assembly, Top Plate, and Bearings

21. Install the Rekluse Clutch Basket. Ensure that the mainshaft bushing is in place. You may have to rotate the basket back and forth to get it to slide down into the proper position. See picture below.



22. Install the stock basket spacing washer followed by the 3 Rekluse spacing washers over the main shaft against the basket. See following pictures.



Note: You will be installing 4 spacing washers total.

Warning: Perform the next step away from the bike to keep the balls from falling into the transmission.

23. Place a small amount of oil into the ball slots of the *Pressure Plate* and insert the 30 5/16" Balls.
24. Slide the Pressure Plate Assembly, with balls, into the clutch basket so it is all the way down against the bottom of the clutch basket. See following picture.



25. Install the Top Plate with the machined pocket facing up towards you. Ensure the 4 outer tabs are located in the open basket slots. See following picture.

Warning: The outer tabs of the Pressure Plate Assembly and Top Plate cannot be in the same basket slots or severe clutch damage will result.



4 Top Plate tabs and 4 Pressure Plate tabs located in **different** basket slots.

Machined bearing pocket faced up.

26. Place the needle thrust bearing into the machined pocket on top of the Top Plate followed by the flat thrust washer. See following picture.

Note: It is best to install the needle thrust bearing so the sharper side/edge of the cage is facing up towards the flat thrust washer.



Clutch Pack Configuration

27. Remove the 1 stock .062" (1.6mm) steel drive plate from the clutch pack and set aside.

Note: The stock .062" (1.6mm) steel drive plate will be re-used over time for clutch pack wear adjustment.

Note: Measure the friction plates for wear; refer to the manufacture's manual for service limits.

28. Using the included Rekluse 0.055" (1.4mm) steel drive plate and the 3 stock 0.062" (1.6mm) steel drive plates, reconfigure the clutch pack according to the chart below.

New Clutch Pack Configuration from top to bottom:

| | |
|-----------------------------------|----------------------------|
| 0.125" Friction Disk | Top (outer most) |
| 0.055" Rekluse Drive Plate | |
| 0.125" Friction Disk | |
| 0.062" Stock Drive Plate | |
| 0.125" Friction Disk | |
| 0.062" Stock Drive Plate | |
| 0.125" Friction Disk | |
| 0.062" Stock Drive Plate | |
| 0.125" Friction Disk | Bottom (inner most) |

29. Next, insert the newly configured clutch pack from step 28 into the clutch basket. See following picture.

Warning: The first and last disk of the clutch pack must be a **friction disk**.



Installing the Center Clutch

30. Install the newly modified center clutch down through the clutch pack and over the mainshaft against the 4 spacing washers. You will have to rotate the center clutch back and forth to get all the steel drive plates lined up and the splines of the mainshaft lined up to allow the center clutch to slide down into the proper position. See following picture.



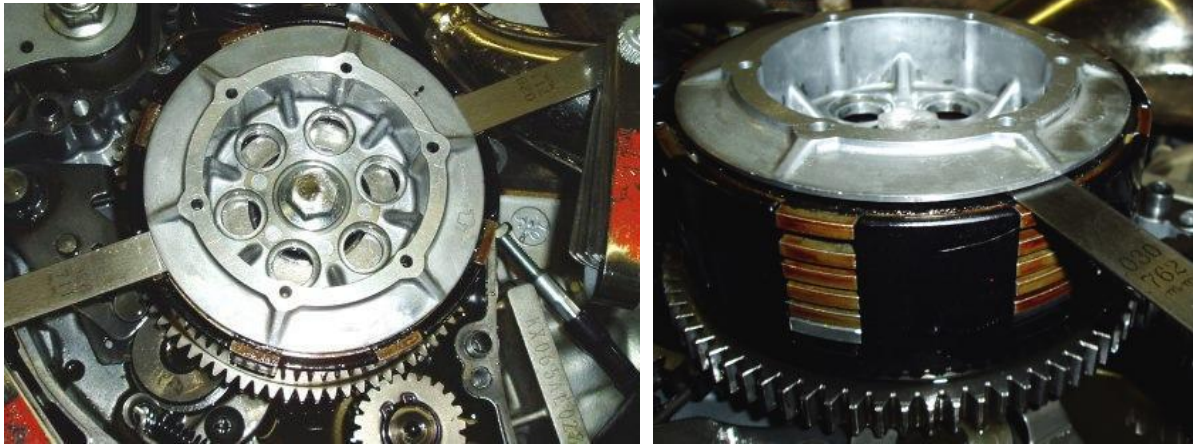
31. Install the Rekluse Center Clutch Bolt and lightly tighten so you can measure the Installed Gap in the next step.



Measure the installed gap of the z-Start

32. To measure the installed gap, use 2 sets of feeler gages. Two sets of feeler gauges are required to measure the Installed Gap. The feeler gauges must be placed between the top most **friction disk** and the underside surface of the **center clutch** 180° apart. **See following pictures.**

Note: Insert the 2 sets of feeler gauges directly across from one another (180° apart) to avoid the clutch pack from rocking resulting in an inaccurate measurement. Find the thickest feeler gauge that still slides back and forth with slight resistance.



The installed gap should be between .025" (0.76mm) and .035" (1.07mm). After Break-in, .028" is ideal. If the gap is correct, move on to the next step. If the installed gap measurement is off, then the installed gap needs to be adjusted.

If the measurement is *greater than .035"* replace the *Rekluse .055" (1.4mm) drive plate* with one stock *.062" (1.6mm) drive plate*.

If the measurement is less than *.025"* replace the *Rekluse .055" (1.4mm) drive plate* with a *Rekluse .047" (1.2mm) drive plate*.

To exchange plates you will need to remove the Rekluse Center Clutch Bolt, and slide out the center clutch to access the clutch pack.

Note: 1 x .070" Drive Plate is included for further wear adjustments if the .062" is insufficient.

Note: Be sure to review the included Break-in and Maintenance Guide for clutch pack wear adjustments.

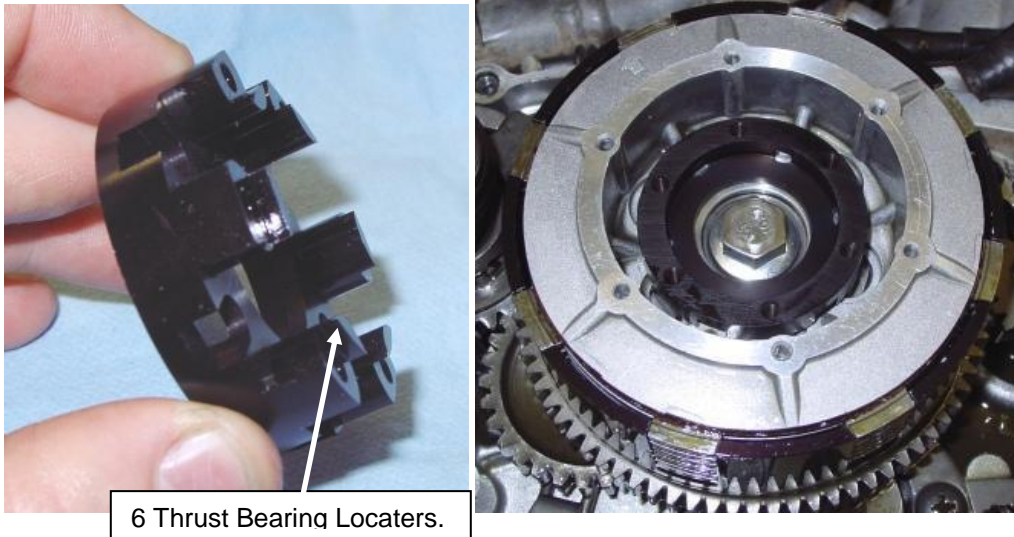
Installing the Rotating Standoffs and Throw-out Assembly

33. Once the installed gap is adjusted to specification, apply blue Loctite 243 to the Rekluse Center Clutch Bolt and tighten to the specified torque listed in your owner's manual.

To torque the bolt it's easiest to place the bike in 3rd gear and apply the rear brake—this will keep the clutch from spinning as you tighten the bolt.

34. Next, install the Rekluse Standoff so that the 6 posts slide through the 6 holes in the center clutch; also ensure that the bearing locator tabs at the end of each post index into the inner bore of the thrust washer and needle thrust bearing on top of the top plate.

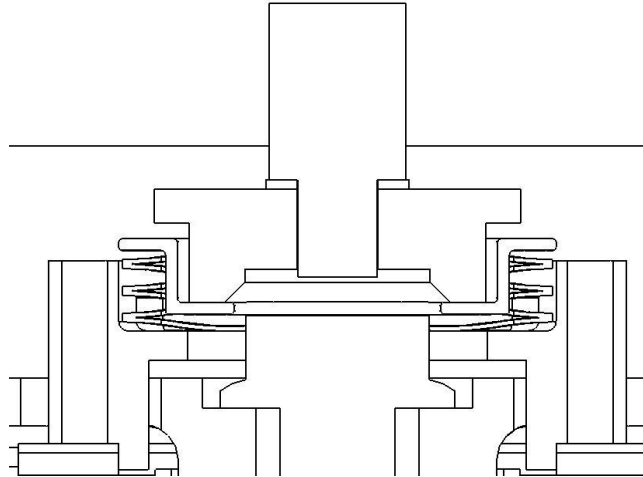
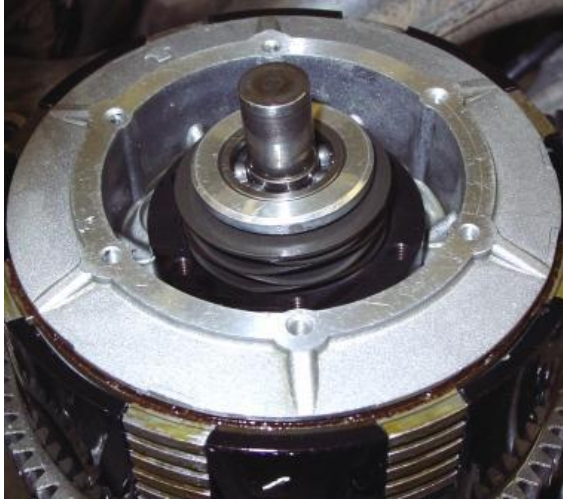
You may have to rotate the standoffs back and forth to get the bearing locator tabs to seat all the way down. See following picture.



35. Install the Wave Spring on top of the Rekluse Standoff. Choose the wave spring by referring to the following tuning chart.

| Wave Spring | Engagement Point |
|-------------|------------------|
| C150L4 | Lower |
| C150M3 | Higher |

36. Install the Rekluse Spring Hat over the wave spring.
37. Install the stock Throw-out Bearing Hub, stock Throw-out Washer, and stock Throw-out into the bore of the Rekluse Spring Hat. See following pictures.



Final Installation Steps

38. Install the clutch cover. You may have to rotate the actuator-arm slightly to get the actuator-arm cam to locate against the throw-out properly, allowing you to get the clutch cover completely on against the engine case. You will have to disconnect the rear brake lever if you re-installed it to torque the center clutch bolt.
39. Using blue Loctite 243, install the impeller with the impeller bolt onto the water pump shaft.
40. Install the water pump cover.
41. Install the rear brake lever and spring.
42. Install the kick-starter.
43. Stand the bike up and place on a suitable stand.
44. Re-fill the bikes coolant to the level specified in the owners manual.
45. Set clutch cable slack according to steps on following page.

IMPORTANT: Cable slack adjustment is **critical**. The cable slack must be adjusted properly and maintained frequently. Failure to do so will result in clutch failure.

Adjusting cable slack is different with a z-Start Pro Clutch installed. Cable slack adjustment requires starting the motor in neutral and revving to a minimum of 4500 RPMs (approximately ½-throttle) while checking for lever free play. **There must be clutch lever free play while holding a minimum of 4500 RPMs.**

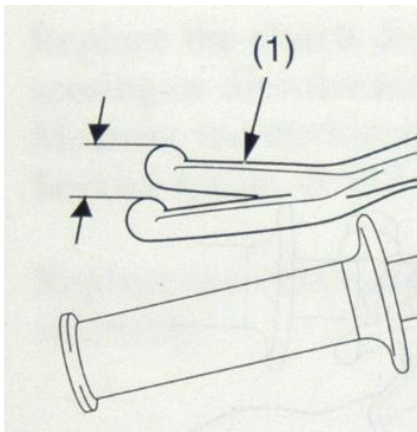
If there is not enough cable slack, the clutch will slip excessively causing the clutch to fail.

Too much cable slack reduces the ability to disengage the clutch at higher RPMs.

WARNING: Ensure the bike is in neutral or it could lunge forward unexpectedly when revving the engine.

Place the bike into neutral and start the engine. While holding a minimum of 4500 RPMs, check for 1/2" (1cm) of play at the end of the clutch lever before you feel significant resistance. Adjust cable slack accordingly using stock cable slack adjuster(s).

In other words, when revving the engine, clutch lever free play should be similar to stock.



Tip: Use one finger with light pull when checking for lever free play. This will make it easier to distinguish between the light resistance of the lever return spring and the significant resistance felt when disengaging the Rekluse pressure plate.

Note: Be sure to review the included Break-in and Maintenance Guide for clutch pack wear adjustments.

WARNING: After a 20 minute break-in period, the clutch plates will seat in and you must re-measure the Installed Gap to guarantee the Installed Gap is within the prescribed range—make drive plate adjustments if necessary. Clutch break-in re-measurement of the Installed Gap is necessary whenever new clutch plates are installed.

Refer to the “Safety Warnings” and “Break-in Tuning and Maintenance Guide” before operating the z-Start Pro clutch.

46. **Optional:** If you want to run bike without the clutch lever, remove lever, perch, and cable.

WARNING: After a 20 minute break-in period, the clutch plates will seat in and you must re-measure the Installed Gap to guarantee the Installed Gap is within the prescribed range—make drive plate adjustments if necessary. See step 14.

Clutch break-in re-measurement of the Installed Gap is necessary whenever new clutch plates are installed.

WARNING: Refer to the “Safety Warnings” and “Break-in Tuning and Maintenance Guide” before operating the z-Start clutch.