Rekluse Motor Sports

The z-Start™ Clutch

RM 250

Installation Guide

z-Start Revision 3.000

RMS163 – RM 250

191-263
Manual Revision: 011405

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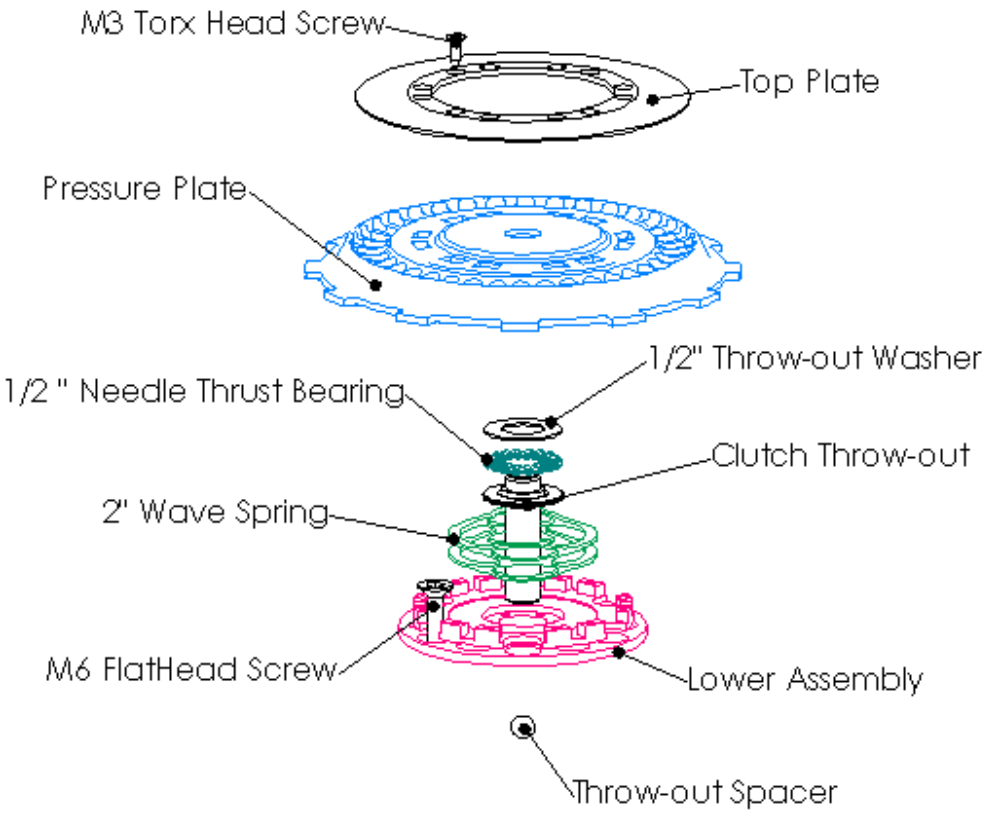
Required Tools

8mm socket	2 Sets of feeler gauges
10mm socket	Inch Pound Torque Wrench
4mm allen key socket	Torx T10 driver tip (included)
3mm allen	Blue Loctite 243 (oil resistant)
1/4 inch driver (for included Torx T10 driver tip)	

z-Start Overview



Note: The Lower Assembly is packaged underneath the Pressure Plate and held in place with two screws through the Top Plate.

Included Parts for the z-Start Clutch

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

Top Plate	6 x M5 Flat Head Screws
Pressure Plate	6 x M5 Threaded Studs (to assist mounting)
Lower Assembly	24 x .010” (0.25mm) Mounting Shims
7 x .047 (1.2mm) Drive Plates	2" (51mm) Wave Spring (CS200L1)
9/32” (7.14mm) ball Throw-Out Spacer	12 x M3 #10 torx screws
Clutch Throw-out	30 x 3/8" (9.53mm) balls
½” (12.7mm) Throw-out Needle Thrust Bearing	1 x .055 (1.4mm) Drive Plate – for wear adjustment
½” (12.7mm) Flat Throw-out Thrust Washer	2 Clutch Cover Gaskets

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 Pressure Plate to engage the clutch pack.

Installation Tips

In order for the z-Start Clutch to perform properly, it must be mounted properly.

- 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.

- Recognize that the Pressure Plate travels along the tabs of the Lower Assembly as it engages and disengages. Anything preventing this travel will prevent full engagement and cause the clutch to slip excessively.

- If you will be installing the Rekluse *Perch Adjuster* as a manual override for your z-Start Clutch, it is critical to have the cable slack adjusted properly. First complete the installation of the z-Start Clutch using this manual and ensure proper installed gap. Then refer to the Rekluse *Perch Adjuster* manual to ensure proper cable slack adjustment.

- ***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.

Attention Rekluse Customers: The following outlines Clutch Basket Dampener Failure. Some Clutch baskets will last a season, and some last only hours. If the dampeners go unchecked clutch damage will result. After reading through the following continue on with the z-Start installation and inspect basket.

Background for Clutch Basket Dampener Failure:

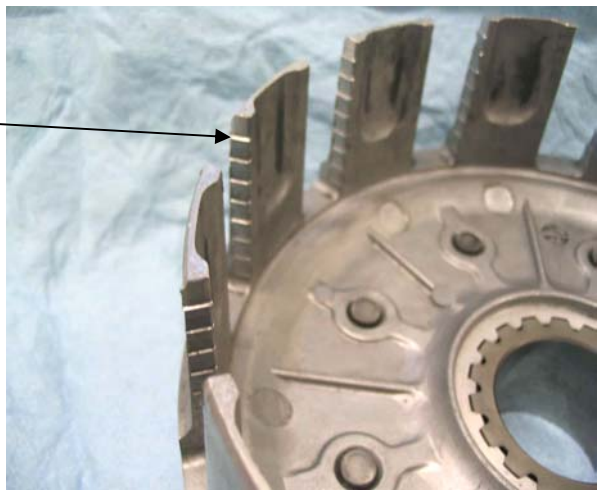
Many OEM Clutch Baskets use elastomer dampeners to protect the clutch from shock loading applied to the basket by the drive train and/or engine during normal operating conditions (refer to your owners manual). The dampeners are located inside the clutch basket behind the ring gear. The dampeners take up the slack between the ring gear and clutch basket so that under normal loading they rotate as one. Under extreme loading the dampeners provide a cushion so the ring gear and basket can float independently and keep shock loads from being transferred to the clutch.

As the dampeners wear the system gains slack and shock loads start getting transferred to the clutch. This creates a hammering effect between the clutch basket and ring gear. The hammering transfers to the clutch plates and causes the plates to wear away at the clutch basket and center clutch hub. If the dampeners continue to go unchecked, the hammering progresses until the clutch fails.

Checking Your Clutch Basket for Dampener failure:

Prior to installing the z-Start, it is recommended that you check the condition of your Clutch Basket and Center Clutch Hub. An indication of failing clutch basket dampeners is grooving or notching of the Clutch Basket Ears—where the tabs of the friction discs index into the clutch basket. Another indication of failing dampeners is notching of the center clutch hub where the steel drive plates index to it. **See the following picture.**

Notching along Clutch Basket Ears because of dampener failure.



Maintaining Clutch Basket Dampeners:

Unfortunately the OEM clutch basket does not provide a means to maintain the dampeners. After the dampeners wear out, the clutch basket must be replaced. The choice is either an OEM clutch basket, or an after market basket. The advantage of an after market basket is that the dampeners are serviceable. Barnett, Hinson, and Wiseco all offer replacement clutch baskets with serviceable dampeners.

Warning: Installing the z-Start into a worn out clutch basket can greatly reduce clutch performance, and damage the z-Start Pressure Plate.

Bike Preparation and Disassembly

1. Disconnect your clutch cable at your clutch lever.

2. 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 it's 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.

3. Lay the motorcycle over on its left side.

4. Remove the clutch cover bolts with an 8mm socket and carefully remove the clutch cover.

5. Using an 8-mm socket, remove the bolts holding the stock pressure plate to the inner clutch hub. Lift off the pressure plate and the clutch lifter assembly. The clutch lifter assembly consists of the ***Clutch Throw-out*** and a ***needle bearing with built in washer.***

Stock Pressure plate, 6 bolts and springs, and stock clutch lifter assembly are not reinstalled.

Clutch Pack Configuration

6. Remove 7 of the stock .062 (1.6mm) steel drive plates from the clutch pack and replace them with 7 of the provided *Rekluse .047 (1.2mm) steel drive plates*.

Note: At this point you will have 7 stock drive plates removed from you clutch pack.

Warning: The top of the clutch pack must be a **friction disk**.

Installing the Lower Assembly

7. Place the included M6 studs into the bike's center clutch standoffs and place 4 Mounting Shims over each standoff. **See picture below.**

Install M6 studs and carefully place exactly 4 *Mounting Shims* over each stud.

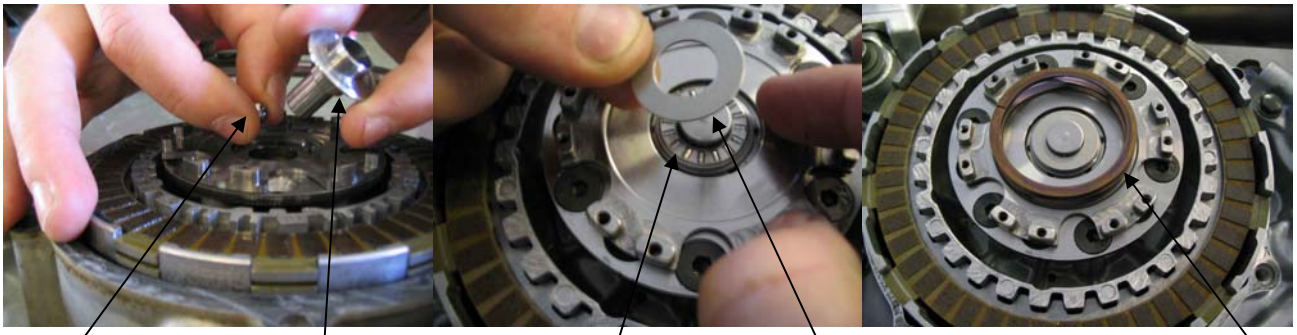
8. Place the z-Start *Lower Assembly* over the M5 Threaded Studs so the Threaded Studs pass through the corresponding set of 6 countersunk holes in the z-Start *Lower Assembly*.

9. Carefully remove M5 Threaded Studs one at a time and replace them with M5 Flat Head Screws**. Apply a small amount of blue Loctite 243 to each screw** and torque to 96 inch pounds with a torque wrench. **Make sure none of the M*ounting Shims* fall out from under the z-Start *Lower Assembly*.** After the screws are torqued-down, check to ensure the top part of the *Lower Assembly* spins freely.

Assembling the Rekluse Throwout, Pressure Plate, and Top Plate

10. Guide the ***9/32" Rekluse throw-out spacer ball bearing*** followed by the ***Rekluse Clutch throw-out*** into the hole in the transmission input shaft. Be sure that the spacer is in place between the Rekluse Clutch throw-out and the throw-out rod.

    Place the *Needle Thrust Bearing* on top of the *Throw-out* followed by the *Throw-out Thrust Washer*. Place the *Wave Spring* on top of the Lower Assembly. **See following pictures.**



Throw-out Spacer → Throw-Out → Needle Thrust Bearing → Flat Throw-out Thrust Washer → Wave Spring

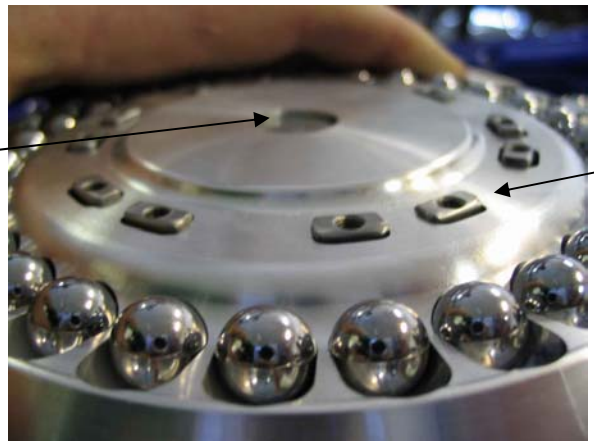
Warning: Perform the next step away from the bike to keep the balls from falling into the transmission.

11. Place a small amount of oil into the ball slots of the *Pressure Plate* and insert the 30 *3/8" Balls.*

12. Place the *Pressure Plate* with the 30 Balls in place over the z-Start *Lower Assembly*. Index the outer tabs of the *Pressure Plate* into the windows of the clutch basket. **The outer tabs of the Pressure Plate must rest in the same clutch basket windows that the outer tabs of the friction disks do.**

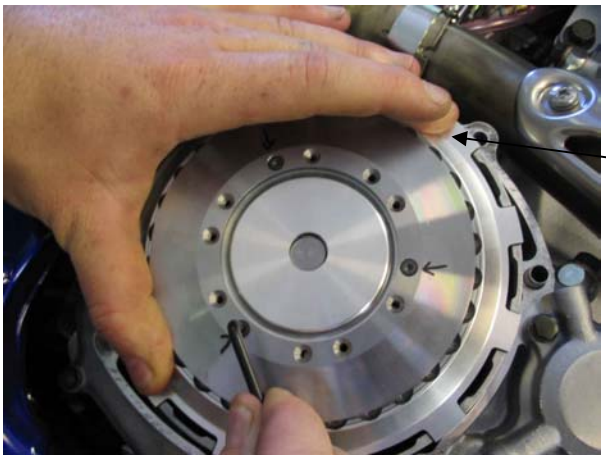
    Also insure that the tabs of the *Lower Assembly* pass through the associated cut-outs in the *Pressure Plate.* Make sure the top of the *Rekluse Throw-out* assembly passes through the hole in the center of the z-Start *Pressure Plate*. **See following picture.**

Throw-out assembly passing through center of *Pressure Plate.*



Tabs Passing through *Pressure Plate.*

13. While holding the *Pressure Plate* down place the *Top Plate* over the *Pressure Plate* and fasten it to the tabs of the Lower Assembly with three of the M3 screws, through the three marked holes in the *Top Plate.* Lightly tighten each screw using a 1/4-inch driver and the included Torx T10 driver tip. **See following picture.**



Holding down *Pressure Plate* until *Top Plate* is securely fastened.

Note: You will have to overcome the z-Start *Wave Spring* and hold the Pressure Plate down until the 3 screws are securely fastened in order to tighten the Top Plate down properly.

Determine the installed gap of the Z-Start

14. Measure the installed gap of the z-Start. 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 top-most **steel drive plate** in the clutch pack 180 degrees apart. **See following pictures**.

    Note: Insert the 2 sets of feeler gauges directly across from one another (180 degrees 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 operating range for the z-Start is between .030" (0.76-mm) and .042" (1.07-mm). The ideal Installed Gap, after Break-in, is 0.035" (0.89-mm). Adjusting the Installed Gap closer to 0.030" will give you more running time between clutch pack wear adjustments.

If the gap is within the above specification, move on to the next step. If the installed gap measurement is off, then the installed gap needs to be adjusted due to manufacturing variances in the bike's center clutch. If the measurement is *greater than .042"* replace one *Rekluse .047" (1.2mm) drive plate* with a stock .062 (1.6mm) drive plate.

Note: 1 x .055" Drive Plate is included to make finer wear adjustments between stock and Rekluse .047" drive plates.

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

Final Installation Steps

Note: Use 243 Loctite (Blue, oil resistant) to secure all M3 Torx screws

15. Using a small amount of Blue Loctite 243, install the rest of the M3 torx head screws and torque to 10 inch/pounds. 10 inch-pounds requires a good crank with the included Torx T10 driver tip, but be careful not to bend the head of the T10 driver tip. Remove the three marked M3 screws, add Loctite, and tighten.

16. Re-install your clutch cover with both of the included Rekluse *Clutch Cover Gaskets*. Hand-tighten each of the clutch cover bolts, then torque to 6 to 8 foot/pounds in 2 steps.

Warning: Both Rekluse gaskets must be used or considerable clutch damage will result.

17. Proceed to the z-Start Perch Adjuster Instructions included with the Perch Adjuster.

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.