

Rekluse Motor Sports, Inc.

The z-Start™ Clutch

Husaberg

(1989-2003)

Installation Guide

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z-Start Revision 3.000

RMS125 – Husaberg 89-03

191-225

Manual Revision: 012805

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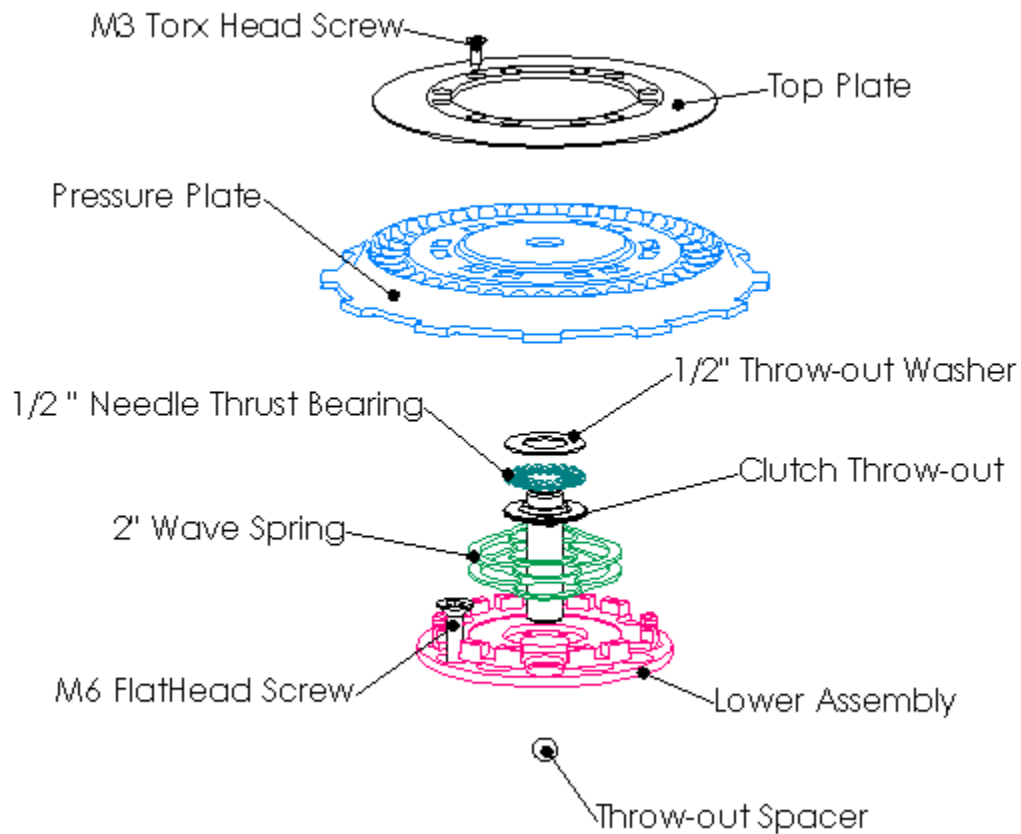
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Required Tools

8mm socket	Fine tooth metal file
10mm socket	2 Sets of feeler gauges
27mm socket	Inch Pound Torque Wrench
4mm allen key socket	T10 torx head driver (included)
3mm allen	Blue Loctite 243 (oil resistant)
5mm allen	

z-Start Overview



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

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

Top Plate	1.5" (38mm) Wave Spring (C200L2)
Pressure Plate	2 x 2" (51mm) Wave Spring Adjustment Washer
Lower Assembly	12 x M3 #10 torx screws
Clutch Throw-out	6 x M6 Threaded Studs (to assist mounting)
4 x .047 (1.2mm) Drive plates	30 x 3/8" (9.53mm) steel balls
6 x M6 Flat Head Screws	15 x 3/8" (9.53mm) Tungsten Carbide Balls
9/32" (7.15mm) ball Throw-out Spacer	18 x .010" (0.25mm) Mounting Shims
1/2" (12.7mm) Throw-out Needle Thrust Bearing	0.045" (1.14mm) Center Clutch Guide
1/2" (12.7mm) Flat Throw-out Thrust Washer	12 x M6 – 1.52mm washers (to go back to stock clutch setup)
1 x 0.625" (15.9mm) Bellville Spring Washer	External Adjuster
2" (51mm) Wave Spring (C200L2)	Light External Adjustment Spring
2" (51mm) Wave Spring (CS200L1)	Heavy External Adjustment Spring

Prior to installing the z-Start it is recommended that you purchase an extra clutch cover gasket. In addition to the cover gasket, if you own a 01'-03' Husaberg, we also recommend getting an extra water pump cover gasket, and a water pump impeller shaft seal. It is easy to damage these parts when installing the z-Start.

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.
- The z-Start only applies pressure to the hydraulic clutch system when the engine is running. **Pulling the clutch lever repeatedly during the install, or when the motorcycle is off and the z-Start is installed can damage your clutch system.**
- **Be very careful not to drop any screws, washers 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. 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.

89'-99' Remove the Clutch Lever, Clutch Cable, and Clutch Perch. Unhook the return spring on the clutch actuator arm located on top of your engine case on the left side of the bike. Use a flat blade screwdriver to push the hook of the spring off of the clutch actuator arm so the spring no longer pushes against the clutch actuator arm.

00'-03' Remove the Silencer and Mid-pipe of the exhaust system. Drain the bikes coolant into a suitable container so it does not cause a hazard.

2. Carefully lay the bike on its right side so the clutch-cover faces up.
3. **89'-99'** Remove the kickstart and shifter lever. Remove the clutch cover bolts with an 8mm socket or 5mm allen key and carefully remove the clutch cover.

00'-03' Remove the kickstart and shifter lever. Remove the water pump cover, water pump impeller, and impeller drive pin. Refer to your owner's manual for schematics. Remove the clutch cover bolts with an 8mm socket or 5mm allen key and carefully remove the clutch cover.

4. Using a 5 mm allen key or a 10 mm socket, remove the bolts holding the 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**, a **bearing**, and a **washer**. (Do not remove the Throw-out shaft).

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

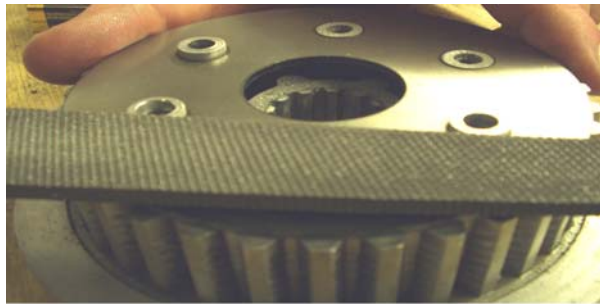
5. Remove your clutch pack and set it aside. Try to keep it in order because it will be re-installed.

Modifying the Stock Center Clutch

6. Remove center clutch with snap ring pliers. The center clutch may require heating to aid in sliding it off of the transmission input shaft. Take the center clutch to a place where no filings can be dropped into the crankcase opening.
7. Place the included *0.050" Center Clutch Guide* over the studs on the center clutch and use a fine tooth file to file the studs down smooth with the Center Clutch Guide. Remove the guide and use some emery cloth to smooth the studs' edges.

Note: 12 x M6 x 0.06" washers are provided so the clutch can be re-assembled to the stock configuration.

File studs down so they are flush with the included Center clutch guide.



8. Re-install the center clutch and secure by re-inserting the snap ring.

Installing the Lower Assembly

9. Insert the included *M6 Threaded Studs* into the bike's center clutch stand-offs 2-3 turns. Carefully place 2 *Mounting Shims* over each of the studs **see picture below**

Install M6 studs and carefully place exactly 2 *Mounting Shims* over each stud.



10. Place the z-Start *Lower Assembly* over the M6 studs. (There are two sets of holes in the *Lower Assembly*. Use the inner set.)
11. Carefully remove M6 studs one at a time and replace them with the M6 flat head screws—**apply a small amount of blue Loctite 243 to each screw**. Make sure none of the *Mounting Shims* fall out from under the z-Start *Lower Assembly*. Torque the M6 screws to 96 inch pounds with a torque wrench. After screws are torqued-down, the *Rotating Hub* should spin freely.
12. Replace your clutch pack so it matches the stock configuration in your manual. Remove the top most steel drive disk so that the top of your clutch pack is a friction disk.

Note: The top steel drive disk does not go back into your clutch pack.

Warning: The top of your clutch pack must be a friction disk or you will damage the z-Start Pressure Plate.

Assembling the Rekluse Throwout, Pressure Plate, and Top Plate

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

Place the 1/2" **Needle Thrust Bearing** on top of the **Rekluse Throw-out** followed by the 1/2" **Throw-out Thrust Washer**. Place the **Wave Spring** on top of the rotating hub.

89'-99'

Place the 2" **CS200L1 Wave Spring** on top of the Lower Assembly (the top part of the Lower Assembly). The **CS200L1 Wave Spring** is the shorter of the two 2" wave springs provided with the kit.

00'-03'

Place the Belleville Spring washer, curve side down, on top of the flat Thrust Washer on top of the Throw-out.

Place the 2" **CS200L2 Wave Spring** on top of the Lower Assembly. The **CS200L2 Wave Spring** is the taller of the two 2" wave springs provided with the kit. **Next, place the 1.5" C150L2 Wave Spring on top of the Lower Assembly so it is located inside of the 2" Wave Spring.** This is our recommended setting—refer to the chart on the last page of these instructions for other adjustment settings. **See pictures below.**



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.

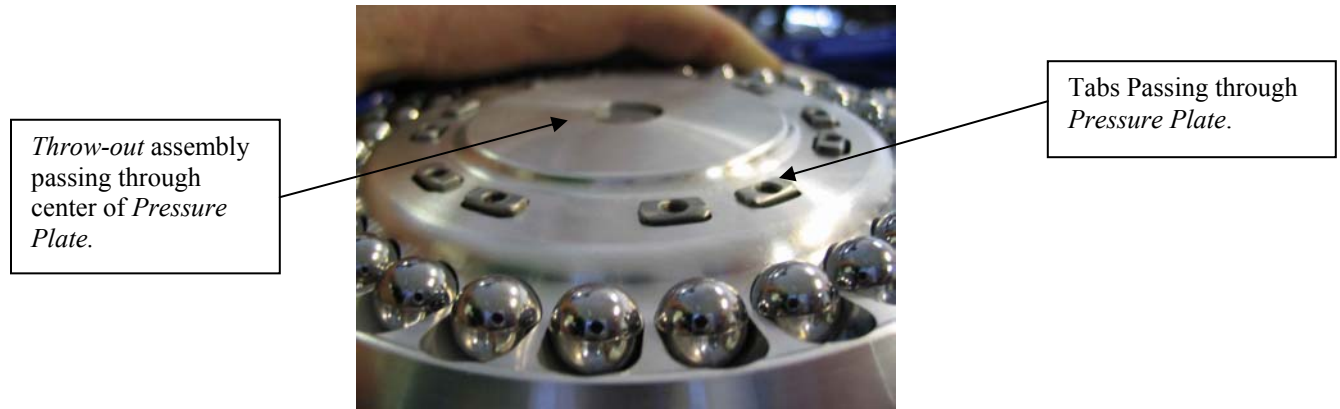
14. Place a small amount of oil in each of the **Pressure Plates** ball grooves. Place 1 **Tungsten Carbide ball** followed by 1 **steel ball**. Repeat the pattern until all slots contain a ball. **It is very important to have the Tungsten Carbide balls spaced evenly around the Pressure Plate.**

Note: Tungsten carbide balls are twice as heavy as the steel balls and have a slightly duller gray color.

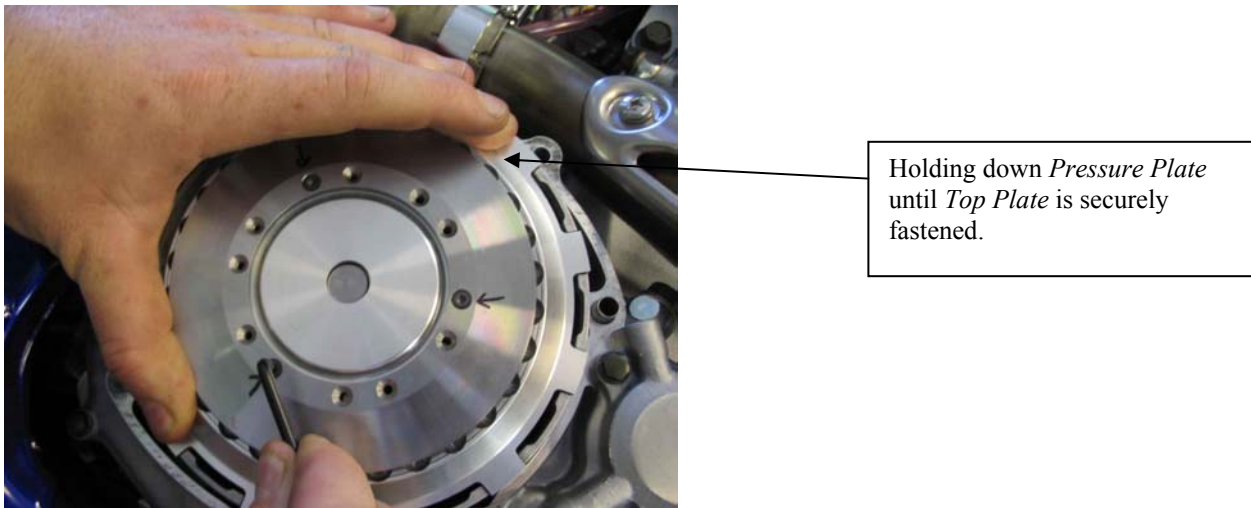
Note: The remaining steel balls are used for adjustment.

15. 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.**



16. 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 on the *Top Plate*, and lightly tighten each screw. **See following picture.**



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

17. 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 should be between .030" (0.76mm) and .042" (1.07mm). 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 due to manufacturing variances in the bike's center clutch. If the gap is greater than .042", you need to remove one of the Stock .040" (1.0mm) drive plates in the clutch stack and replace it with a *Rekluse .047" (1.2mm) drive plate*. Exchange stock .040" (1.0mm) drive plates with *Rekluse .047" (1.2mm) drive plates* or vice versa as needed to get the correct measurement. Repeat steps 16 and 17 until measurement is within range.

Final Installation Steps

18. Using a small amount of Blue Loctite 243, put in the rest of the torx head M-3 screws and, torque M3 torx screws to 10 inch/pounds. 10 inch-pounds requires a good hard crank with the included T10 key, but be careful not to bend the head of the T10 key. Remove the three marked M-3 screws, add Loctite, and tighten.

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

89'-99' Re-install the clutch cover with a stock gasket and Torque cover bolts to 6 - 8 foot/pounds in 2 steps. Re-install the kick-start and shift lever.

00'-03' Re-install your clutch cover without the water pump seal in place. To provide enough clearance for the z-Start, **you must reuse the stock gasket.** Torque cover bolts to 6 - 8 foot/pounds in 2 steps. Install Water Pump seal and be careful not to damage it when sliding it down the impeller shaft. Reinstall impeller drive pin, impeller, impeller surclip, and water pump cover as described by the owner's manual. Re-install the kick-start and shift lever.

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

19. **89'-99'** (cable clutch) Refer to the External Adjuster Installation on the last page.

00'-03' (hydraulic clutch) Refer to the chart on next page for adjustment recommendations.

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

Adjusting the z-Start Engagement RPM for Hydraulic Clutched Systems.

The engine speed at which the z-Start begins to engage the clutch, also called the stall speed, can be adjusted. Included with the z-Start are two 2” *Wave Springs* and two 2” *Flat Steel Washers* to fine tune the z-Start stall speed. The *Wave Springs* and *Flat Steel Washers* are located inside the z-Start between the *Pressure Plate* and *Lower Assembly*. To adjust the stall speed, it is necessary to remove the engine side cover and the M3 screws holding the z-Start *Top Plate* to access the *Wave Spring and Flat Steel Washers*. Refer to the z-Start Parts View and the installation instructions for detailed information on how to change the *Wave Spring and Flat Steel Washer* configuration.

Use the following chart as a guideline for setting the stall speed. Remember many factors can affect the stall speed from bike to bike so the following chart is only a guideline. You can also make fine tuning adjustments by adjusting your idle speed.

CS200L1 & C150L2 Wave Springs	0 x Flat Washers	Very Low Stall Speed (generally below a low idle)
CS200L1 & C150L2 Wave Springs	1 x Flat Washer	Low Stall Speed (typically just above idle)
CS200L1 & C150L2 Wave Springs	2 x Flat Washers	Medium Stall Speed
C200L2 & C150L2 Wave Springs	0 x Flat Washers	Medium Stall Speed (very near previous setup)
C200L2 & C150L2 Wave Springs	1 x Flat Washers	High Stall Speed

Note: do not use more than 1 Flat Washer with the *CS200L2 Wave Spring*.

Adjusting the z-Start Engagement RPM for 89' – 00' Husaberg.

Basic External Adjuster Install

Use one of the extension springs provided. The lightest spring will give a narrow adjustment range for stall speed and a rapid engagement. The medium spring will allow for a reasonable range of stall speeds and a medium engagement rate. Adjust engagement with the spring anchor.



Slip one end of the spring into the portion of the bike's clutch actuator arm that holds the clutch cable. Thread the other end of the spring into the *External Adjuster Bolt*. Slide the *External Adjuster Bolt* into the clutch bracket and screw down one of the nuts onto the adjuster bolt. After you've made your initial adjustments, you will use the other nut to lock the *External Adjuster Bolt* into place.

Insure that you unhook the return spring on the clutch actuator arm. Use a flat blade screwdriver to push the hook off of the clutch actuator arm so the spring no longer pushes against the clutch actuator arm.