

REKLUSE



REKLUSE MOTOR SPORTS

ProStart Clutch

Hydraulic Clutch Harley-Davidson Big Twin 1998-2008

INSTALLATION GUIDE

RMS682A– H-D Big Twin - Hydraulic
195-262

Manual Revision: 071707

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Rekluse Motor Sports, Inc.
110 E. 43rd Street
Boise, Idaho 83714
208-426-0659
support@rekluse.com

REQUIRED TOOLS

- ProStart Installation Kit – Sold Separately
- 3/16" Hex Key
- 7/32" Hex Key
- 5/16" Hex Key
- 4mm Hex Key
- Snap Ring Pliers
- 2 sets of feeler gauges
- Torque Wrench
- Blue Loctite 243 (oil-resistant)
- Safety Glasses
- Vacuum

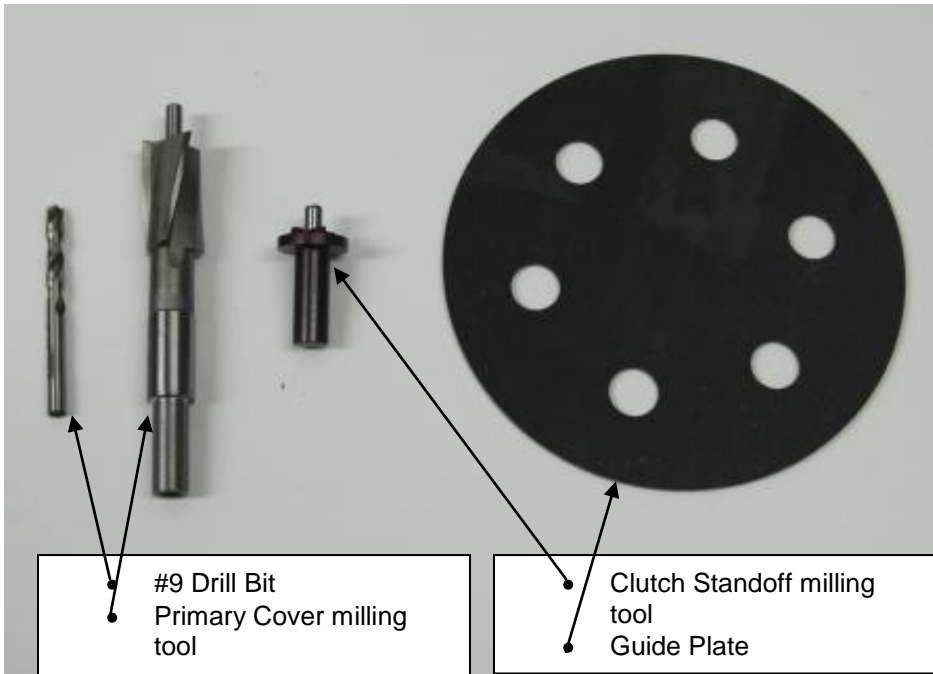
INCLUDED PARTS FOR THE PROSTART CLUTCH

- ProStart Clutch Assembly
- 6 x M6 Button Head Screws-assembled inside the ProStart Clutch Assembly
- 9 x .047" (1.2mm) Drive plates
- 3 x .055" (1.4mm) Drive plates
- Rekluse 12 Tab Friction Disk
- Rekluse 6 Tab Friction Disk
- Rekluse Bib
- 2 x 6mm Washers (Not used on '07 Models)



RMS 263 INSTALL KIT – PURCHASED SEPARATELY

- Guide Plate
- Clutch Standoff milling tool
- #9 Drill Bit
- Primary Cover Milling Tool



BASIC PROSTART CLUTCH OPERATION

The ProStart Clutch functions through centrifugal force. As engine RPM increases, the balls contained in the ProStart 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

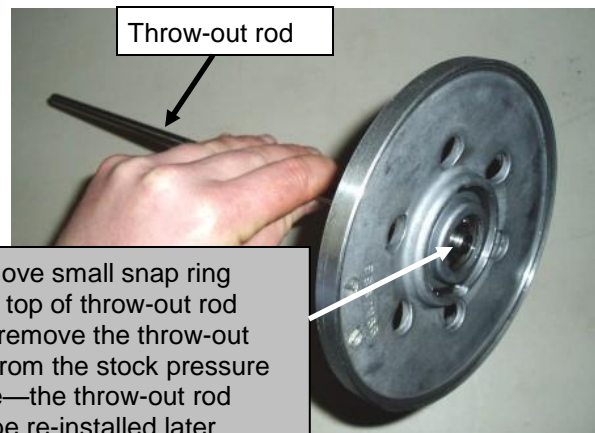
- In order for the ProStart Clutch to perform properly, it must be installed properly—read each step of this manual to guarantee proper installation.
- The ProStart Clutch comes assembled and should never be disassembled.
- Measuring and maintaining the Installed Gap is critical. If the Installed Gap is too large 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.
- A pair of calipers is helpful for measuring steel drive plates.
- In order to install the ProStart Clutch you will need to purchase the install kit, RMS263.

BIKE PREPARATION AND DISASSEMBLY

1. Place the motorcycle on a suitable lift in an upright, level position.
2. Following the guidelines in the H-D Service Manual, drain the Primary chaincase oil.

REMOVING THE PRIMARY COVER AND STOCK PRESSURE PLATE

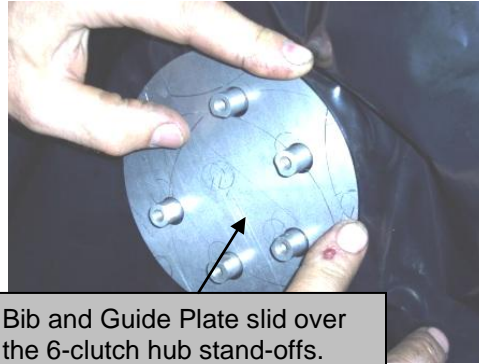
3. Following the guidelines in the H-D Service Manual, remove the Primary chain inspection cover, the clutch inspection (derby) cover and Primary cover. On some models this will require you to remove the shift lever and foot peg.
4. Following the guidelines in the H-D Service Manual, remove the 6 bolts holding the diaphragm spring retainer, diaphragm spring, and pressure plate to the clutch hub.
5. Using a pair of snap ring pliers remove the stock throw-out rod from the pressure plate. **See picture at right.**
6. Remove the clutch pack (9 friction disks and 8 drive plates) and set aside. It is not necessary to remove the damper spring or damper spring seat.



CLUTCH HUB STAND-OFF MODIFICATION

WARNING: WEAR EYE PROTECTION TO PREVENT METAL CHIPS FROM CAUSING INJURY.

7. Clean the center clutch and 6 clutch hub stand-offs with contact cleaner so that any residual oil won't attract metal chips.
8. Place the Rekluse Bib over the clutch hub, lining up the 6 holes with the 6 clutch hub stand-offs. Position the bib so it covers the entire primary cavity.
9. Slide the Rekluse Guide Plate over the 6 clutch hub stand-offs until it bottoms out against the clutch hub and hold it in that position. **See picture at right.**

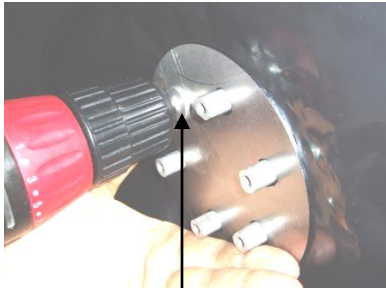


Bib and Guide Plate slid over the 6-clutch hub stand-offs.

10. Using the Rekluse milling tool with a 3/8" drill, machine down each of the 6 clutch hub stand-offs until the milling tool bottoms out against the guide plate. Maintain pressure against the guide plate so that it is seated against the clutch hub. **See following pictures.**

Note: 6 spacers/bushings are included to return the 6 stand-offs to stock height in the event that you want to re-install the stock clutch.

Tip: Place a suitable container beneath the clutch to catch chips as you machine down the stand-offs.



Machine stand-offs down until the Rekluse milling tool bottoms out against the guide plate.



Maintain pressure against the guide plate so that it remains seated against the clutch hub, guaranteeing each stand-off is milled down equally.

11. Once the 6 stand-offs have been milled down, remove the guide plate and bib, being careful not to let any metal chips get into the clutch. If any chips get behind the bib and into the clutch housing, use a vacuum to suck them out. **See following picture.**

12. Place the Guide Plate back over the clutch hub and use the milling tool to make sure that each stand-off has been machined down evenly. Use a vacuum to suck out any metal chips. **See following picture.**



NOTE: To revert your bike to stock configuration, contact Rekluse or your distributor to get the Return-to-Stock Kit.

CONFIGURING THE CLUTCH PACK

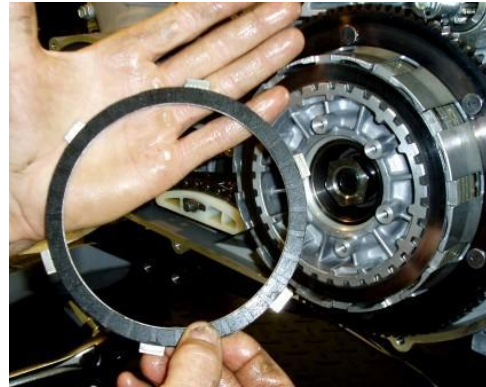
13. Remove the 8 stock steel drive plates (steel disks) and the top-most (outermost) stock friction disk from the clutch pack and set aside.
14. Install the 8 remaining stock friction disks with 1 Rekluse .047" (1.2-mm) steel drive plate between each one. **Make sure the first friction disk installed is the "Narrow friction plate"—it has a larger inner diameter which accommodates the clutch dampener spring.** If you removed the clutch dampener spring, refer to your service manual for proper installation.



15. Install 1 Rekluse .047" (1.2-mm) steel drive plate on top of the top stock friction disk followed by the Rekluse 12-Tab friction disk. **See following picture.**



16. Install 1 Stock .062" (1.6-mm) steel drive plate on top of the Rekluse 12-Tab Friction disk. Then install the Rekluse 6-Tab friction disk—the Rekluse 6-Tab friction disk must be at the top of the clutch pack. **See Chart on following page.**



Note: The top most clutch plate must be the Rekluse 6-Tab friction disk.

New Clutch Pack Configuration

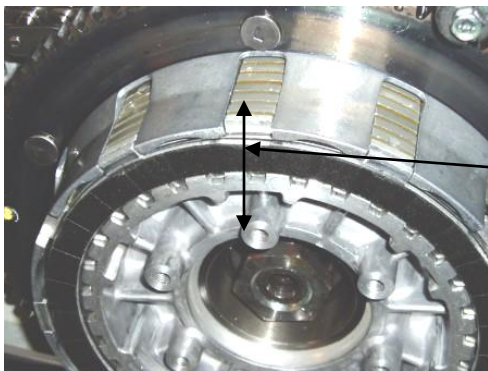
- (1) **Stock Friction Disk (narrow friction disk)**
Rekluse .047" steel drive plate
- (2) **Stock Friction Disk**
Rekluse .047" steel drive plate
- (3) **Stock Friction Disk**
Rekluse .047" steel drive plate
- (4) **Stock Friction Disk**
Rekluse .047" steel drive plate
- (5) **Stock Friction Disk**
Rekluse .047" steel drive plate
- (6) **Stock Friction Disk**
Rekluse .047" steel drive plate
- (7) **Stock Friction Disk**
Rekluse .047" steel drive plate
- (8) **Stock Friction Disk**
Rekluse .047" steel drive plate
- (9) **Rekluse "12-Tab" Friction Disk**
Stock .062" steel drive plate
- (10) **Rekluse "6-Tab" Friction Disk**

Innermost disk (1st disk installed)



Outermost disk (last disk installed)

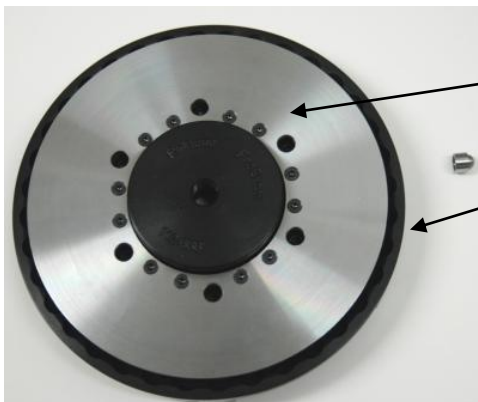
17. To install the ProStart clutch assembly you will need to rotate the clutch hub so the 6 stand-offs line up with the 6 outer basket slots left open by the Rekluse 6-Tab friction disk. **See following picture.**



Stand-off lined up with open basket slot from the Rekluse 6-Tab friction disk.

INSTALLING THE PROSTART ASSEMBLY

See the following picture for part identification.



ProStart Top Plate

ProStart Pressure Plate

18. Insert the stock throw-out rod into the hole in the center of the mainshaft. **See following picture.**



19. Push the Throw-out Rod all the way in as far as it will go towards the center of the motor. To do so you will have to overcome the hydraulic pressure in the system. This will make installing the ProStart Clutch easier. **See following picture.**



20. Apply a small amount of Blue Loctite 243 (included) to the threads of each of the 6 standoffs.

21. Line the heads of the M6 button head screws (contained inside the ProStart Assembly) with the access holes in the Top Plate of the ProStart Assembly. **See picture below.**



Screws lined up with access holes in the ProStart Top Plate

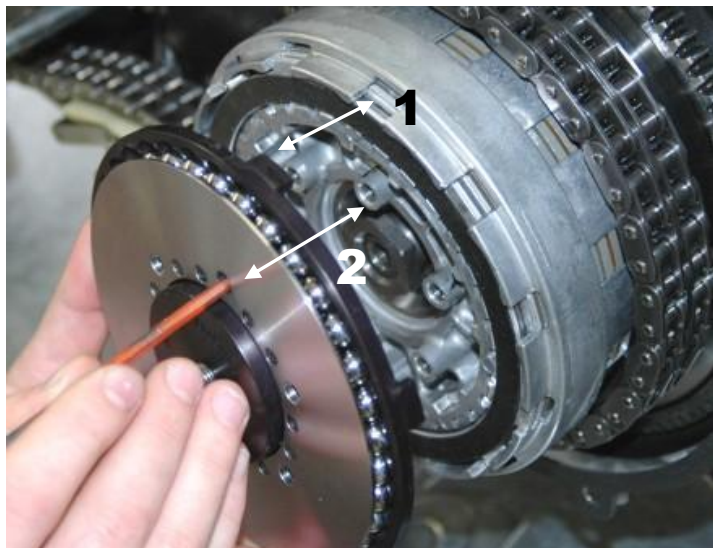
1. Tabs of Pressure Plate lined up with the open basket slots.
2. Using a 4-mm hex key to keep the screws lined up with the stand-offs.

22. Place the ProStart Assembly over the clutch hub and index the 6 outer tabs of the ProStart Pressure Plate with the 6 outer basket slots left open by the Rekluse 6-Tab friction disk.

Using a 4-mm hex key, line the 6 button head screws up with the 6 stand-offs and thread each screw into one of the stand-offs a couple of turns.

Index the end of the stock throw-out rod into the Rekluse Spacer in the center hole of the Rekluse Pressure Plate.

Tighten each of the 6 screws down in two steps, go around once threading each screw in about halfway, then go around threading the screws in the rest of the way. **Torque each screw to 8 ft-lbs.** **See picture at right.**



DETERMINE THE INSTALLED GAP OF THE PROSTART CLUTCH

23. Measure the installed gap of the z-Start using 2 sets of feeler gauges. The feeler gauges must be placed between a **friction disk** and a **steel drive plate** in the clutch pack 180° apart. You should feel a slight resistance, but do not **force** the gauges in. Once the gauges are inserted, place thumbs on pressure plate directly in line with gauges. Press down with thumbs in a rocking motion. If **pressure** plate moves up and down, gap is too large. **See following pictures.**

Note: It is easiest to slide the feeler gauges in between the top most steel drive plate, and the friction disk behind it using a light prying motion to push the friction disk in towards the center of the engine.

Your installed gap measurement needs to be between **.025" (0.71mm)** and **.032" (0.89mm)**. Ideal is **.025"**.



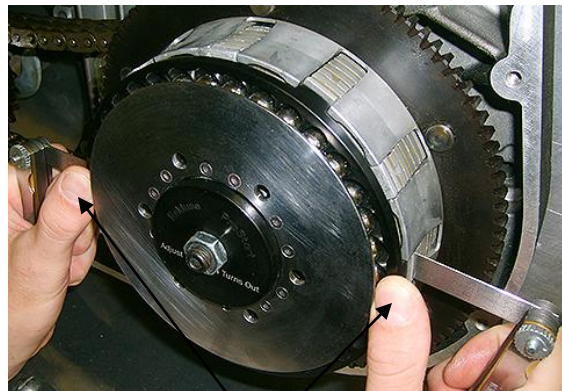
Use 2 sets of feeler gauges directly across from one another to get an accurate measurement

Adjustment: If the gap is greater than **.030"**, remove one of the *Rekluse .047" (1.2mm)* drive plates in the clutch pack and replace it with a *Rekluse .055" (1.4mm)* drive plate.

For further adjustment, exchange a stock **.062" (1.6mm)** drive plate with a *Rekluse .047" (1.2mm)* drive plate to get the correct measurement. Repeat step 23 until measurement is within range.



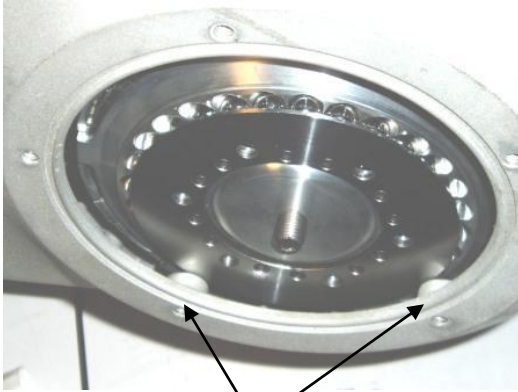
Slide the feeler gauge in behind the top steel plate with a light prying motion



Press down with thumbs in a rocking motion

RELIEVING THE PRIMARY COVER

24. Place the Primary cover over the case to see where it interferes with the ProStart Clutch. See pictures below and right.



2 lower derby cover screw bosses interfering with the ProStart.



The 2 lower screw bosses that need to be modified

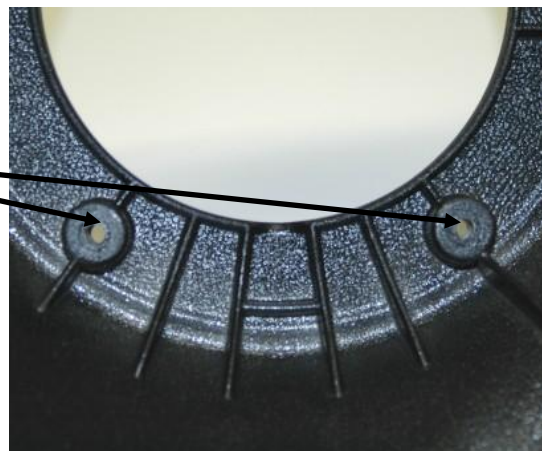
25. Using the included #9 Drill and the existing threaded holes, drill the holes through in the bottom 2 clutch inspection cover screw bosses that are interfering. Be careful not to damage the threads for the derby cover screws. See picture at right.

26. Once the holes have been drilled through, you can use the Primary Cover Milling Tool to machine down the 2 bosses. The holes you just drilled will allow you to index the tool to the boss(es) when machining.



Using the #9 Drill to make through holes in the bottom 2 Screw Bosses.

Holes drilled in 2 bottom screw bosses.



27. Use the included Primary Cover Milling Tool to mill the 2 bottom bosses down:

- **'07-'08 Models (and '06 Dyna):** Mill the bosses down so they are 0.375" tall.
- **'98-'06 Models:** Mill the bosses down so they are 0.06" tall. **See pictures at right.**

Indexing the milling tool into the previously drilled hole to machine down the boss.



28. See below:

- **'07-'08 (and '06 Dyna) Models** Machine bosses down so they are about 0.375" tall.

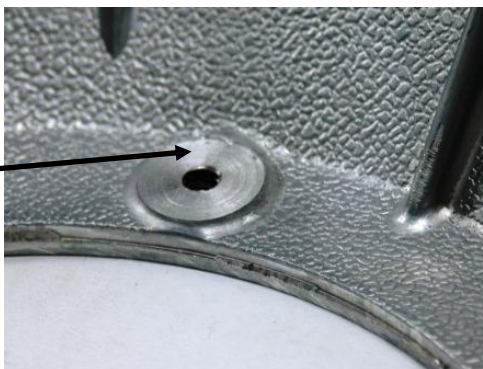
Boss machined down to 0.375" tall.

'07-'08 Touring Bikes Note: Boss is oval-shaped. Use milling tool to machine center of boss to 0.375", then use a rotary tool to machine remainder of boss to 0.375".



- **'98-'06 Models** Machine bosses down so they are .060" tall.

Boss machined down to .060" tall.



29. Remove any chips or shavings from the inside of the primary cover when finished modifying for clearance.

FINAL INSTALLATION STEPS

Note: Steps 30-32 are for '98-'06 customers only. '07-'08 (and '06 Dyna) customers skip to step 33.

30. Following the guidelines in the H-D Service Manual, re-install the Primary cover, Primary chain inspection cover, shift lever, and foot peg. You may need to replace the primary gasket if it was damaged upon removal.
31. Modify the Derby Cover Gasket by cutting at least a 5-3/8" hole out of the center of it. **Not necessary on models with o-ring style gaskets. See following picture.**



32. Install the Derby cover (clutch access cover) with the modified gasket. Use 1 of the included 6-mm spacing shims behind both of the bottom 2 screws corresponding to the 2 modified primary cover bosses. The Spacing shims ensure that when the screws are tightened, they don't interfere with the ProStart. **See following pictures.**

WARNING: Spacing shims must be used behind the bottom 2 Derby Cover screws or clutch damage will result.



Derby cover screw with 6mm spacing washer added behind the head



Bottom two Derby cover screws installed with one 6mm spacing washer added

33. Following the guidelines in the H-D Service Manual, re-install the Primary cover, Primary chain inspection cover, shift lever, and foot peg. You may need to replace the primary gasket if it was damaged upon removal.
34. Following the guidelines in the H-D Service Manual, fill the primary chaincase to the proper level with the proper oil.
35. Install the Derby Cover. If you have an aftermarket Derby Cover, check for interference—the OEM Derby Covers are concave (dished out) on the backside. If your aftermarket Derby Cover is flat across the backside, it cannot be used.
36. Take the motorcycle down off of the lift and ensure the transmission is in neutral.
37. Start the motorcycle and allow it to warm up.
38. The engine idle speed affects when the ProStart engages and disengages. Higher idle speeds increase clutch drag at low RPMs. Engine idle speeds between 900 and 1050 RPM work best. If necessary, adjust the engine idle speed according to the H-D Service Manual.
39. Please refer to the ProStart owner's guide for operation, break-in, and maintenance of the ProStart clutch.