



# INSTALLATION & USER'S GUIDE

RadiusX

For Hayabusa Gen II (2008-2019)

**Pre-installation note:**

- Be aware that installing the clutch requires the removal of the side cowlings to access the clutch and slave cylinder. Consult the OE service manual for these instructions.

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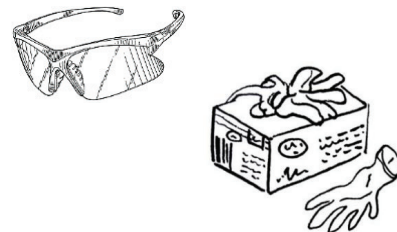
## **OVERVIEW**

This kit replaces the OE (Original Equipment) or “stock” clutch pack with a Rekluse-designed high quality clutch pack designed specifically for your bike model. The following is a summary of what is replaced:

- All OE steel drive plates will be replaced with Rekluse drive plates
- All OE friction disks will be replaced with Rekluse TorqDrive® disks
- The OE slave cylinder and the pressure plate springs will be replaced.

## **INSTALLATION TIPS**

- Read the safety information sheet included with your kit.
- If you install this product for a customer or another person, instruct them to read the **Safety Information** document and the **Installation and User Guide** before operating the bike with the product.
- Protect eyes and skin – wear safety glasses and thin disposable work gloves. Work in a well ventilated area.
- Read this entire document before performing any steps.

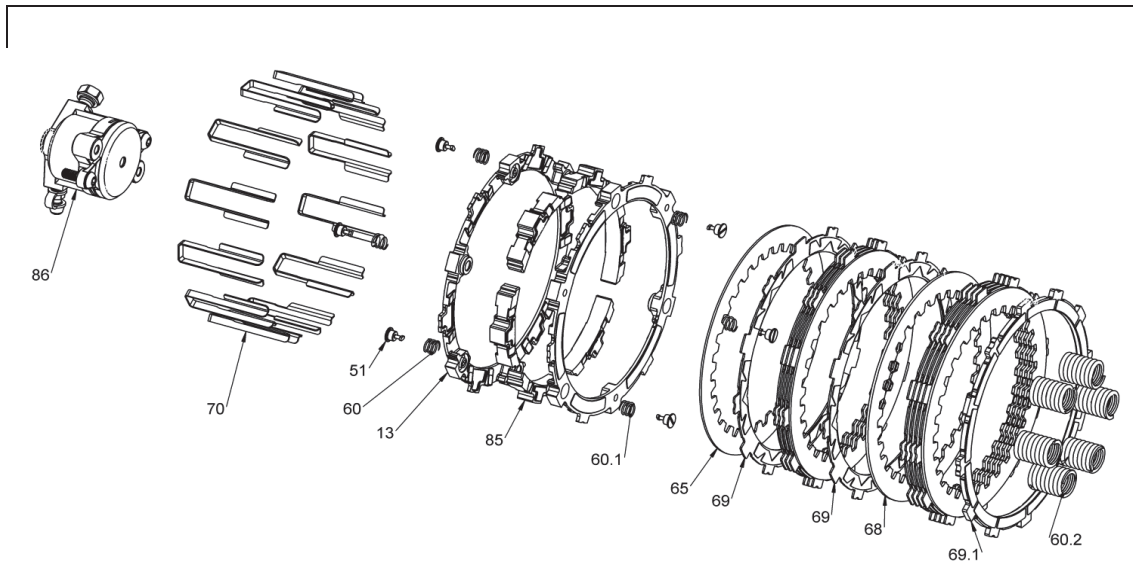


- For optimal clutch performance Rekluse recommends using fresh, clean oil that **meets JASO-MA** oil rating requirements. Rekluse offers Factory Formulated Oil™ developed specifically for Rekluse products. Rekluse Factory Formulated Oil is a perfect complement to any OEM or aftermarket wet clutch. Visit [www.rekluse.com](http://www.rekluse.com) to learn more.
- Use the torque values listed in the instructions. Otherwise, use the torque specifications found in your OE service manual.

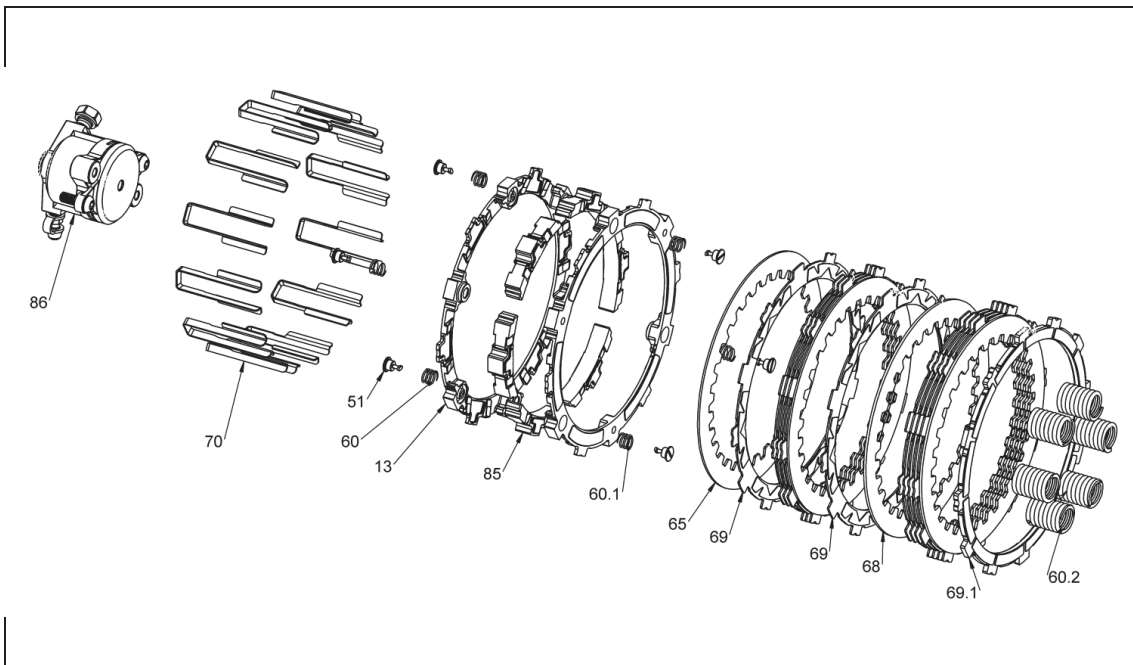
## **TOOLS NEEDED**

- 4 mm Hex key
- Metric socket set
- Fluid catch container
- Clutch fluid (DOT 4 Brake Fluid)
- Torque wrench
- Metric end wrench set

# INCLUDED PARTS



Item	Description	Qty.
86	Slave cylinder assembly (including 2 crush washers and bleed syringe)	1
70	Basket sleeves	12
69.1	Thick friction disk – .150" (3.8 mm)	1
69	TorqDrive® friction disks	9
68	Thick steel drive plates - .065" (1.6 mm)	5
65	Steel drive plates - .048" (1.2 mm)	5
60.2	Pressure plate springs	6
13	EXP bases	2
85	Wedge assembly	6

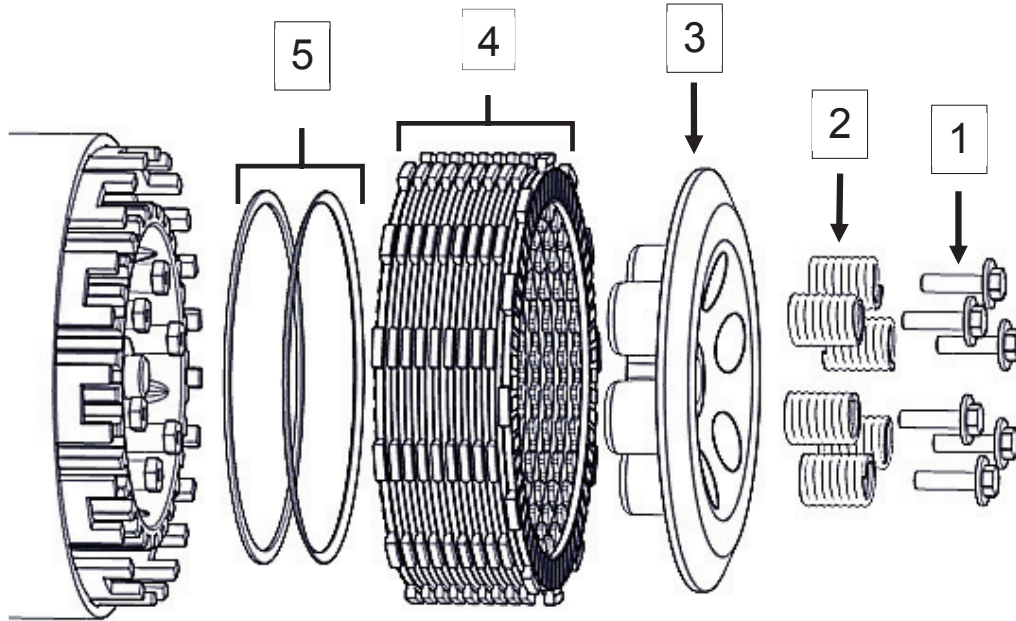


51	Fastener - 1/4-Turn Pin ( includes 2 extra)	8
60	EXP adjustment spring – green	6
60.1	EXP adjustment spring – white	6
Not Shown	Velcro straps	2
Not Shown	Orange Free Play Gain rubber band	1
Not Shown	Clutch lever warning label	1

Visit [www.rekluse.com/support](http://www.rekluse.com/support) for a full parts fiche illustration and part numbers.

# **DISASSEMBLE THE CLUTCH**

1. Remove the side cowling on the right side of the bike according to the OE service manual.
2. With the bike on its side stand, use an 8 mm socket to remove the clutch cover.
3. Use a 10 mm socket to remove the following OE parts:



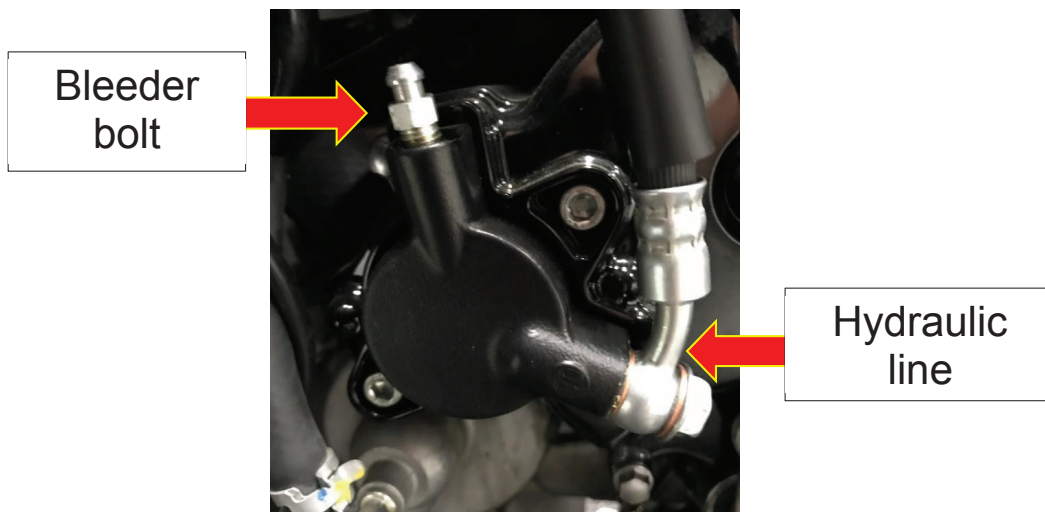
1	Pressure plate bolts
2	Pressure plate springs
3	Pressure plate
4	Clutch pack
5	Judder seat and spring

# **SLAVE CYLINDER INSTALLATION**

Installing the new Rekluse slave cylinder takes several steps. Please read the entire section before beginning the process to ensure you have the right equipment and clutch fluid needed for the replacement. Rekluse recommends wearing gloves and safety glasses for the installation.

## **Step 1: Remove OE slave cylinder**

1. Remove the side cowling, shift lever, shift rod, and speed sensor from the left side of the bike according to the OE service manual.
2. Remove the OE bleeder bolt and hydraulic fluid line from the OE slave cylinder. *Some fluid may leak when the hydraulic line is removed. Be sure to catch any fluid into a suitable container.*



3. Remove the engine sprocket cover and place it on a workbench.

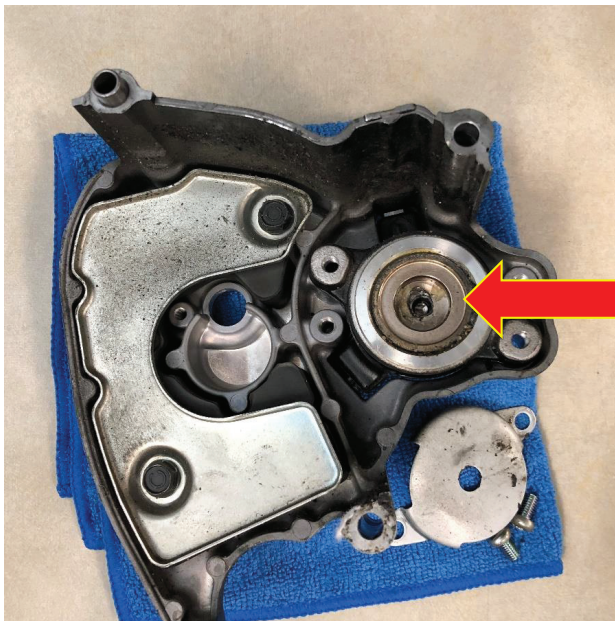
**NOTE:** Use caution when removing the sprocket cover. The cover has 4 dowel pins that can fall out when the cover is removed. 2 dowel pins are used for locating the slave cylinder and 2 dowel pins are used for locating sprocket cover to the engine. If any of the dowel pins fall out you will need to reinstall these pins before the cover is reinstalled.



4. On the backside of the engine sprocket cover, remove the slave guard, then remove the OE slave cylinder.



Slave guard

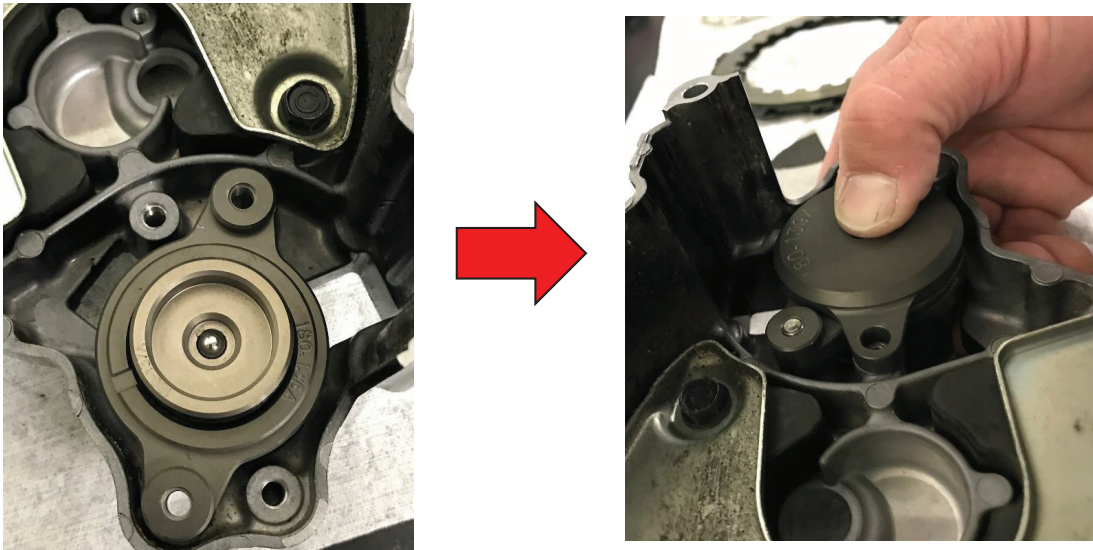


OE Slave Cylinder

## Step 2: Replace OE slave cylinder

In this step, the OE slave cylinder is replaced with the Rekluse slave cylinder.

1. Install the new Rekluse slave cylinder into the engine sprocket cover. *Be sure to line up the dowel pins as you install the slave cylinder.*
2. Install the new Rekluse slave guard on top of the slave cylinder.



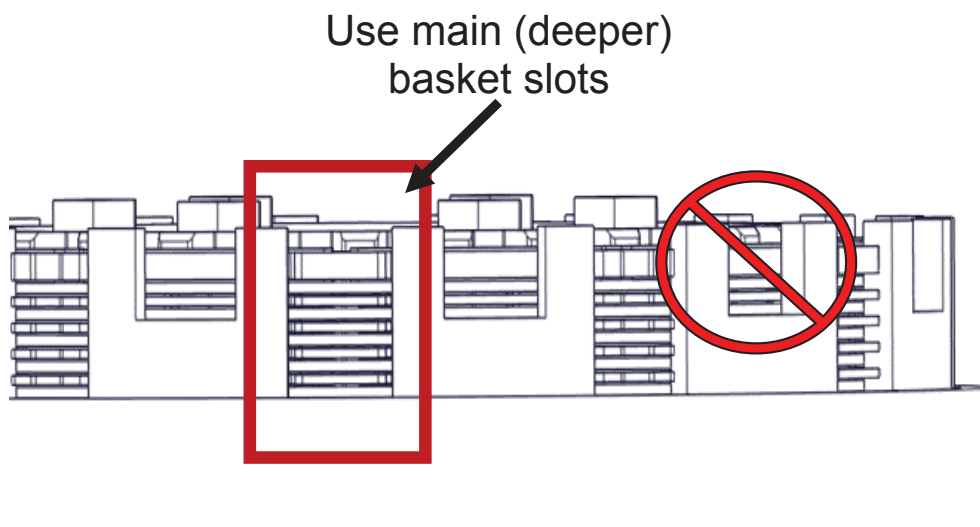
3. Install the new Rekluse screws into the slave guard, then **lightly tighten** the guard to hold it in place.
4. Turn the sprocket cover over, align the slave cylinder in the opening, then reinstall the slave cylinder screws.
5. Once the slave cylinder is installed, turn the sprocket cover back over and fully tighten the slave guard.
6. Reinstall the engine sprocket cover. Be sure that the dowel pins are still in the case.

7. Install the new Rekluse bleeder bolt.
8. Attach the clutch fluid line to the Rekluse slave cylinder using the OE banjo bolt and the 2 new crush washers provided. Make sure the banjo fitting is sandwiched between the 2 crush washers.
9. Tighten the banjo bolt with your hand until snug. (You will torque it to spec once installed on the bike.)
10. Tighten both slave cylinder bolts to **7.5 ft-lb (10 N-m)**.
11. Torque the banjo bolt to **18 ft-lb (25 N-m)**.

## **CLUTCH PACK INSTALLATION**

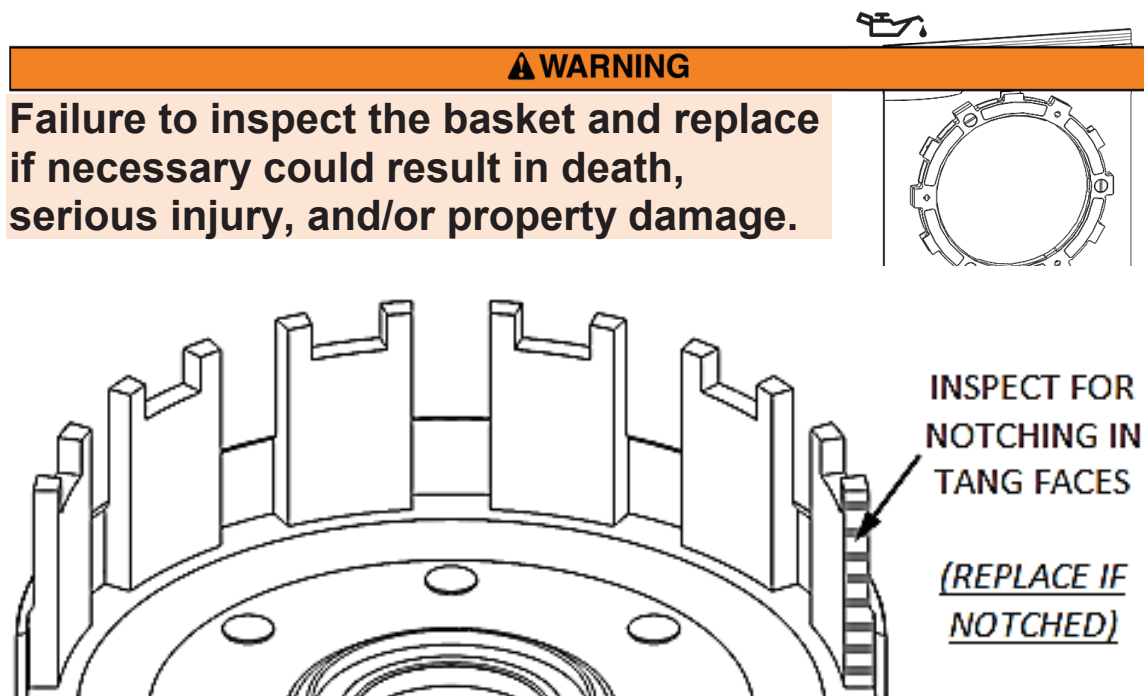
### **Notes for installation**

- *Some friction disks are marked with a small colored dot. This mark is used for processing and can be ignored.*
- *Some OE basket have “half slots” at the top of the basket tangs. Rekluse products require the entire clutch pack be installed into the MAIN (deeper) basket slots. Installing the clutch pack into the “half slots” will cause performance issues. See the following picture for reference.*

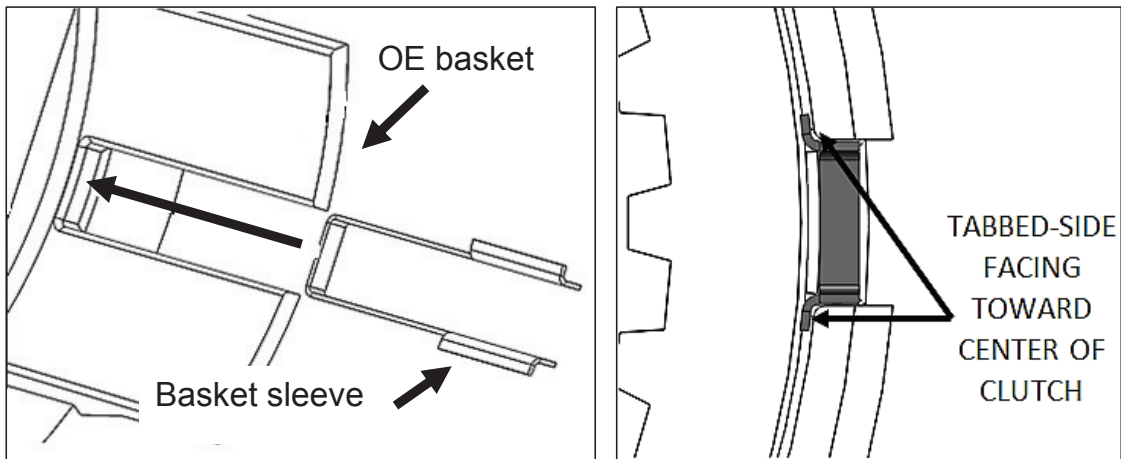


## Clutch pack

1. Soak the EXP disk and all friction disks in engine oil for 5 minutes. Make sure the EXP and friction disks are coated on both sides.
2. Inspect the clutch basket for notching. Do not install sleeves or use product with a notched basket. Notched basket tang faces can cause the sleeves to break. Do not use baskets that have been filed, machined, or modified on the tangs. Replace basket if necessary.



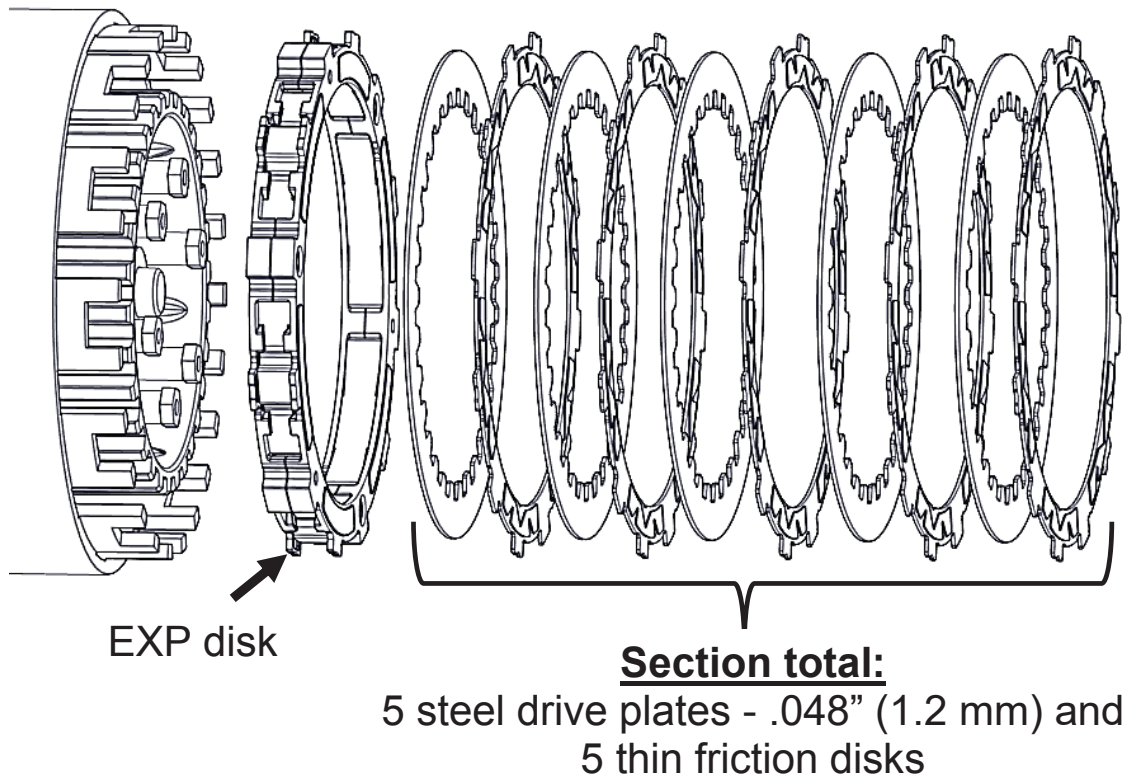
3. Install **ALL** the Rekluse basket sleeves into the basket slots. Make sure the sleeve tabs sit against the inside of the basket, then push the sleeves down until they contact the bottom of the tang slot. See pictures for reference.



**NOTE:** When seated in the basket slots, the sleeves will sit slightly below flush with the top of the basket tangs. This is normal.

4. Install the EXP into the clutch basket.
5. Install a .048" (1.2 mm) steel drive plate, then install a thin friction disk.

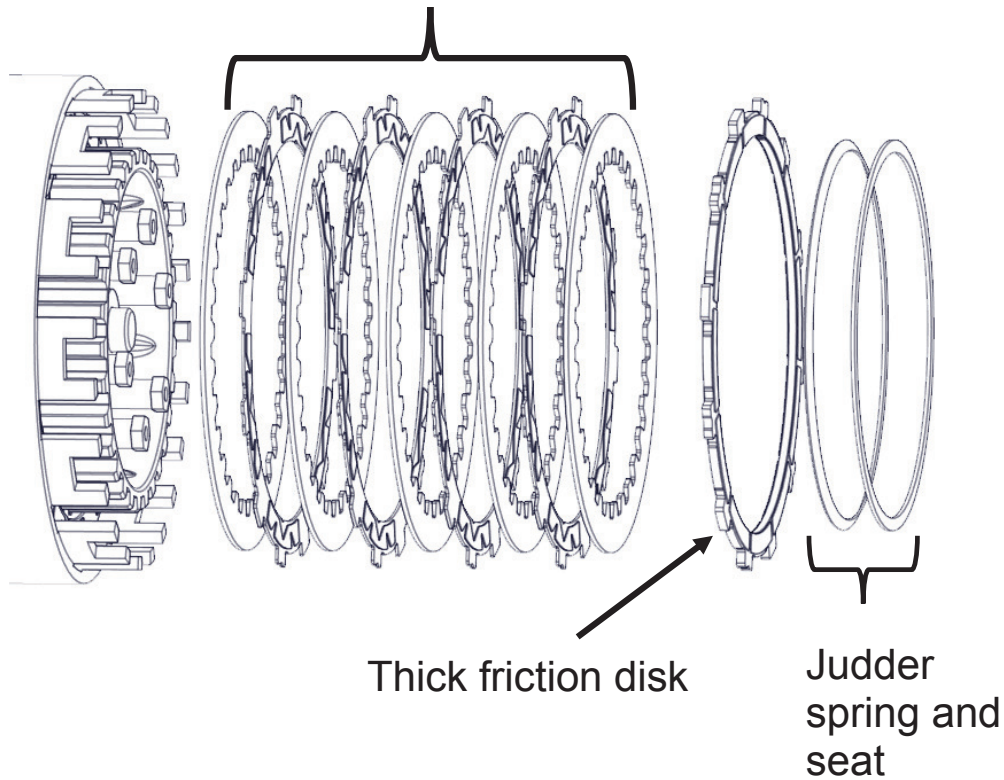
6. Continue to alternate four .048" (1.2 mm) steel drive plates with 4 thin friction disks.



7. On top of the last friction disk, install a .065" (1.6 mm) steel drive plate, then install a thin friction disk.
8. Continue to alternate four .065" (1.6 mm) steel drive plates with the remaining 3 thin friction disks.
9. On top of the last steel drive plate, install the thick friction disk.
10. Reinstall the judder spring **cupped side in**, then reinstall the judder seat.

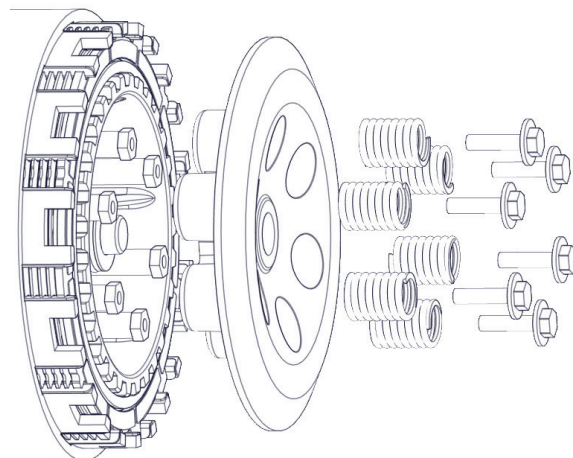
**Section total:**

5 steel drive plates - .065" (1.6 mm) and 4 thin friction disks



## **PRESSURE PLATE INSTALLATION**

1. Reinstall the OE pressure plate.
2. Install 6 green pressure plate springs.
3. Reinstall the OE pressure plate bolts.

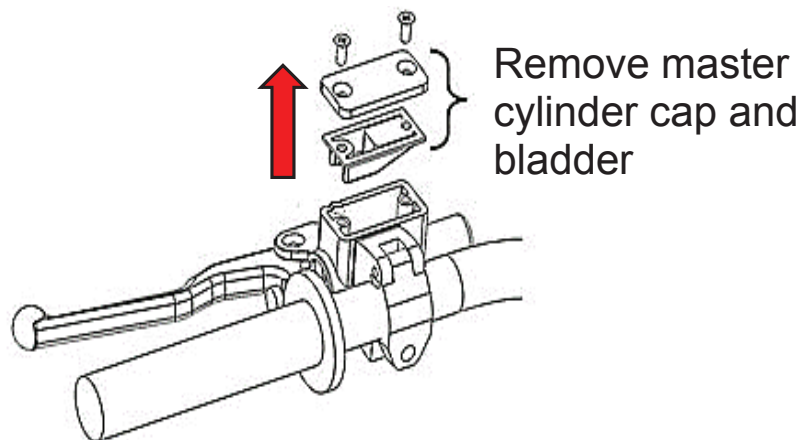


4. Loosely tighten the bolts, then torque them in a star pattern to **7 ft-lb (10 N-m)**.
5. Reinstall the clutch cover, then lightly tightening the cover bolts in a star pattern. Tighten bolts in small increments before torquing the cover bolts to OE specifications.

## **SLAVE CYLINDER BLEEDING**

Please read the entire section before beginning the process to ensure you have the right equipment and clutch fluid needed for the replacement. Rekluse recommends wearing gloves and safety glasses for the installation.

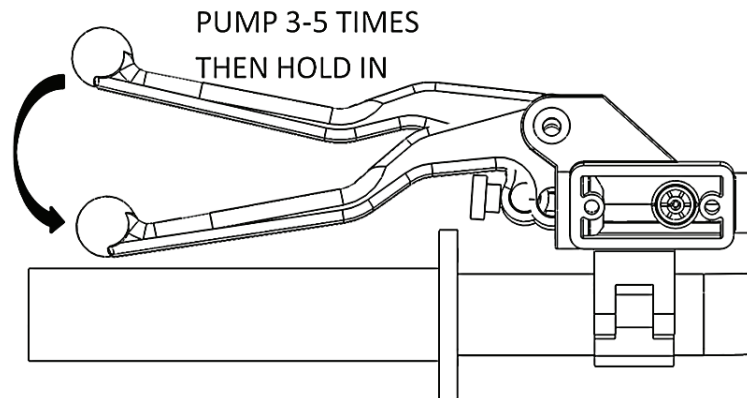
1. Remove the cap and bladder from the clutch master cylinder.



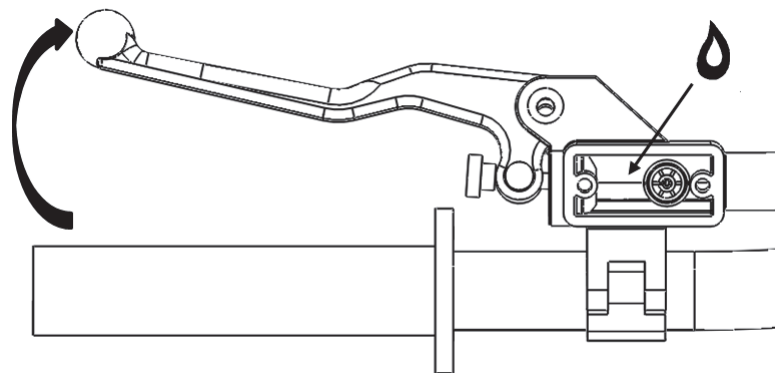
2. Attach the syringe tube to the bleeder screw.
  - a. Pump the clutch lever 3-5 times then hold it against the bar/grip.



- b. While holding the clutch lever to the bar, open the bleed port screw on the slave cylinder. Air and fluid should come out of the bleed port and flow into the syringe tube. Tighten the bleed port.

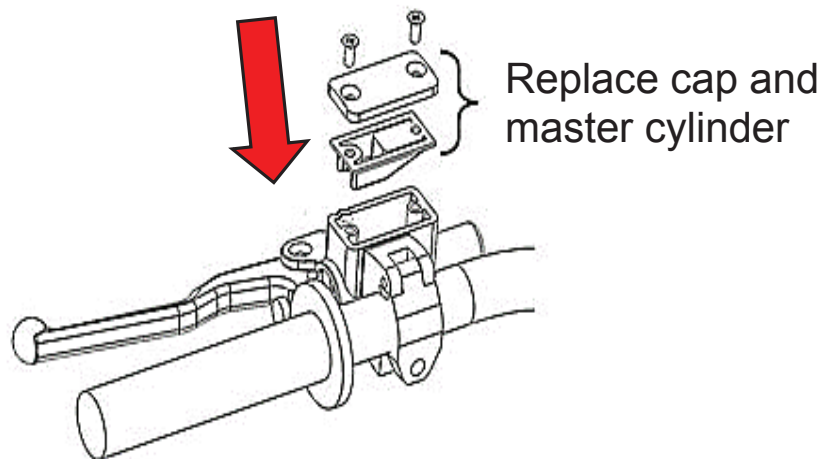


- c. Slowly release the clutch lever and recheck the fluid level in the clutch master cylinder.



- d. Repeat the previous 3 bleeding steps until air no longer comes out of the bleed port and the clutch lever functions properly. Repeat the back-bleeding or top-bleeding procedures if necessary.

3. Check that the clutch master cylinder is 75% full, and then replace the cap and bladder on the clutch master cylinder.



4. Remove the bleed tube from the bleed port screw.
5. Torque the bleed screw to **12 ft-lb (16 N-m)** with a socket or the closed end of an 8 mm wrench.

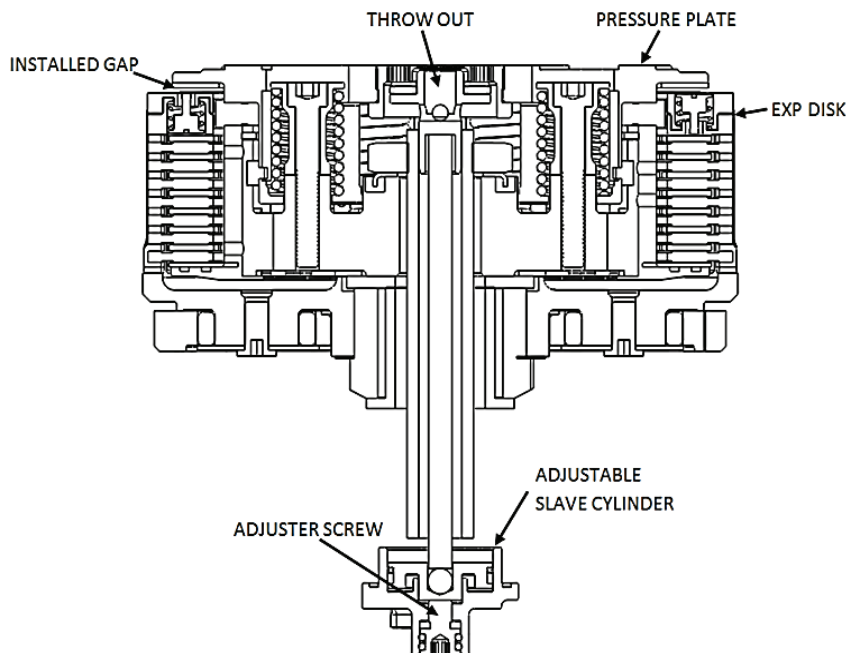
**Note:** *Be sure to use a socket or closed end wrench when torqueing the bleed screw. Using an open-ended wrench can strip the hex screw.*

# **SET THE INSTALLED GAP AND** **VERIFY BY CHECKING FREE PLAY** **GAIN**

It is very important that you understand how to set the installed gap in your new clutch, and be able to verify the installed gap by checking Free Play Gain.

Setup, break-in, and rechecking the installed gap is **CRUCIAL**. Failure to properly maintain your installed gap can result in premature wear or failure of your clutch.

The “installed gap” is the free space in the clutch pack when the EXP disk is disengaged (collapsed). This gap allows the clutch to spin freely until the engagement RPM is reached and the EXP disk expands to close the gap and apply pressure to the pressure plate, which in turn drives the motorcycle forward.



The installed gap is what allows the auto function of the product to perform properly. Use the following steps to set the installed gap and check the Free Play Gain.

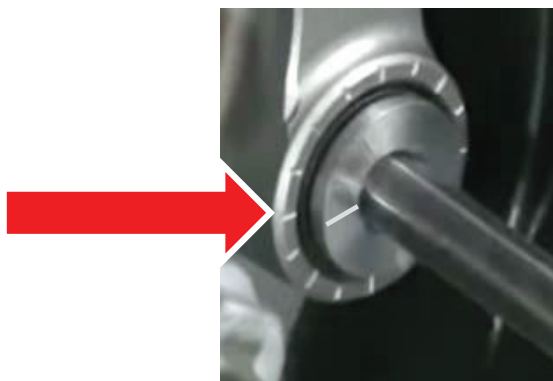
## ⚠ WARNING

Failure to check and verify Free Play Gain can cause failure or damage to this product. Setting the correct installed gap is critical for clutch performance.

Setting the installed gap and checking Free Play Gain is a 4-step process. It is important to follow each step to ensure that your new clutch functions as designed.

### Step 1: Find the starting point

- a) With the bike standing up, locate the adjuster screw in the center of the adjustable slave cylinder.
- b) With the O-ring showing, use a 4 mm Allen wrench to turn the adjuster screw clockwise until it stops under light pressure. This is your “starting point.”



**Note:** *The resistance you feel is where the throw-out begins to lift the pressure plate. Finding the right starting point may take a few tries, but you will feel a noticeable change in turning effort once you reach that point. Stop when you feel the pressure increase. The “starting point” will change as the clutch pack wears over time.*

- c) Once you have found the starting point, note the position of the Allen wrench using the tick marks on the slave cylinder housing and the small etch mark located on the screw. You will begin here to adjust the installed gap.



Use the tick marks on the cylinder and the etch mark on the screw to remember the starting point for adjusting the gap.

- d) Use a 4 mm Allen wrench to turn the adjuster screw clockwise 1 full turn + 1 tick marks from your starting point. **This may NOT be your final setting**, but it is a beginning adjustment for finding the correct setting.
- e) Continue with Step 2 to check for Free Play Gain.

### **⚠ CAUTION**

*Do not ride your bike without the adjusting the installed gap. You will not be able to disengage the clutch until you set the installed gap.*

## **Step 2: Learn how to check Free Play Gain**

Feeling Free Play Gain with the beginning adjustment to the slave cylinder aids in learning to recognize Free Play Gain.

If you are familiar with Free Play Gain, check for Free Play Gain then skip to Step 3 -“Break-in the new clutch.”

If Free Play Gain is new to you, follow the instructions below to help you learn this important step. You can also view the

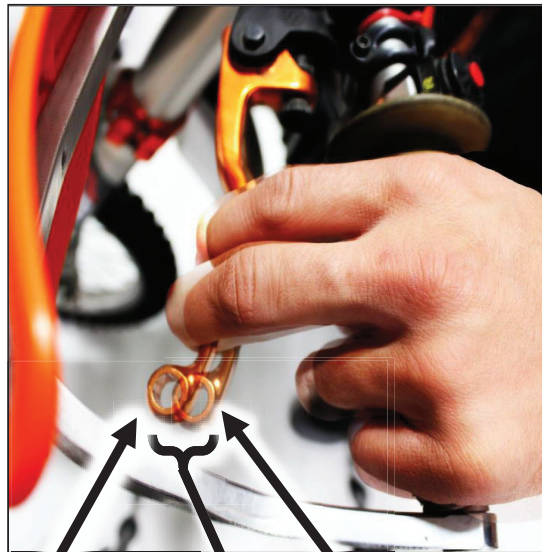
video entitled “How to Check Free Play Gain” on our website at [www.rekluse.com/support/videos](http://www.rekluse.com/support/videos).

Free Play Gain is different from the “normal” free play (slack) you are used to with your stock clutch. With the Rekluse auto clutch, Free Play Gain is the result of the EXP disk expanding and lifting the pressure plate to engage the clutch.

Free Play Gain happens when the engine’s RPM increases from idle to above approximately 5,000 RPM and the EXP closes the installed gap. The amount of Free Play Gain you feel in the lever corresponds to the amount the pressure plate has been lifted by the EXP disk expansion.

Checking Free Play Gain allows you to externally monitor the installed gap so you can know when to make an adjustment if the installed gap is too large or too small.

The correct installed gap is verified by observing and feeling the increased free play movement in the clutch lever. This extra movement is called “Free Play Gain.”



Lever with “slack” removed

Lever position around 5,000 RPM

**Free Play Gain**  
1/8”-1/4” (3 mm-6 mm)  
lever movement

If there is **too much Free Play Gain**, the installed gap is too small.

- The bike may drag and stall because it has difficulty disengaging the clutch.
- It may also be difficult to shift.
- Too much Free Play Gain will not hurt the clutch, but it will negatively affect clutch performance.

If there is **too little or no Free Play Gain**, the installed gap is too large. This means when the EXP is fully expanded it does not lift the pressure plate.

- The clutch may slip and make the bike seem like it is losing power.
- The bike may not move forward even though the engine RPM increases as if the clutch lever is slightly pulled.
- Too little Free Play Gain will cause the clutch system to burn up.

**Optimal Free Play Gain yields 1/8” to 1/4” (3 mm-6 mm) of clutch lever movement**, measured at the ball end of the lever. This measurement at the lever correlates to achieving the ideal installed gap.

## **Two Ways to Check for Free Play Gain**

The following steps explain **2 ways** to check Free Play Gain. One way uses the rubber band Rekluse includes in the clutch kit, and one uses your hand. You can use either method to check for Free Play Gain.

Rekluse recommends that you begin with the rubber band method first to check for Free Play Gain and then learn the hand method. The rubber band will help you learn how to recognize Free Play Gain until you are comfortable with the hand method. Learning to check Free Play Gain by hand effectively and comfortably can make it easy to check Free Play Gain every time you ride.

## **The Rubber Band Method**

Use the rubber band method for the initial set up. It can also be used before each ride until you feel comfortable checking the Free Play Gain using the hand method.

### **⚠ WARNING**

**BEFORE YOU BEGIN**, verify that the bike is in **NEUTRAL** before checking Free Play Gain. Failure to do so may result in the bike lurching forward, and loss of control and/or injury may result.

**A Rekluse auto-clutch can make your motorcycle appear to be in neutral when in gear, even when the engine is running and clutch lever released.**

**Motorcycles equipped with a Rekluse auto-clutch can move suddenly and unexpectedly and cause riders to lose control. To avoid death, serious injury, and/or property damage, always sit on the motorcycle to start it.**

a) Before you begin, place the bike in **NEUTRAL**, start the engine and let it warm up for 2-3 minutes to idle down and warm the engine oil.

b) Stretch the included rubber band between your thumbs, then place the top end of the rubber band on the outer end of the left handlebar grip.





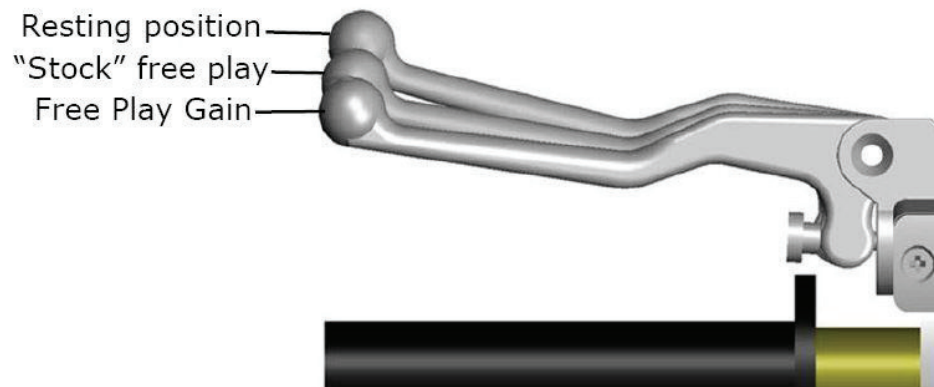
- c) While holding the top end of the rubber band against the handlebar, stretch the band downward, then loop it through itself.



- d) Pull the band through the loop, then attach it to the outside end of the clutch lever. This will take up the initial free play (slack) and put the lever in a position to detect the Free Play Gain.



- e) While still in **NEUTRAL**, quickly rev the engine between 5,000-7,000 RPM ( $\frac{1}{2}$  to  $\frac{3}{4}$  throttle), then let it return to idle. Notice the movement in the clutch lever when the engine is revved. This is your Free Play Gain.



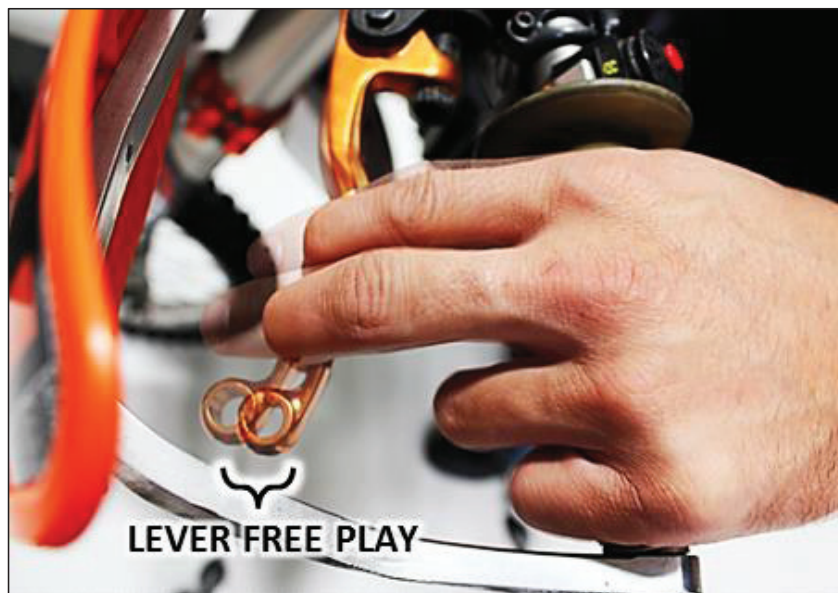
**Note:** *It is very important the motor returns to idle before revving the engine again or Free Play Gain will not be correct.*

- f) When the bike returns to idle, rest your hand across the clutch lever. Rev the engine again to 5,000-7,000 RPM so you can observe the movement while feeling for Free Play Gain with your hand.

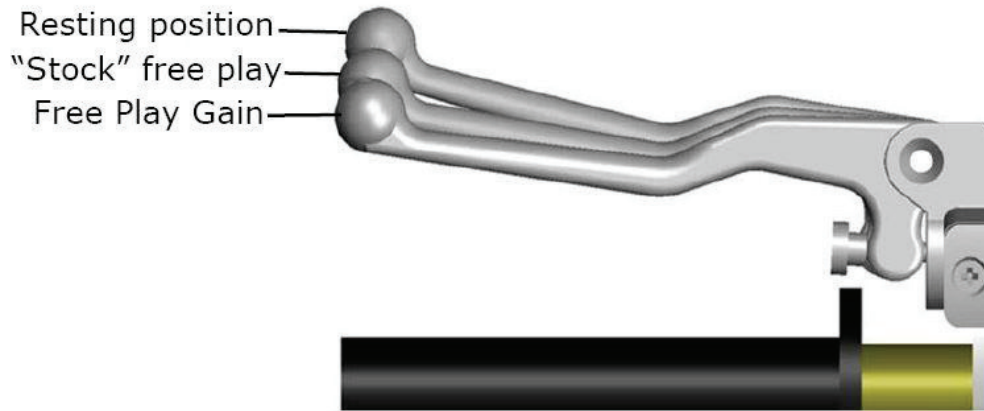
## **The Hand Method**

Use the hand method to check Free Play Gain before the start of every ride for optimum performance and longevity of your new clutch.

- a) Before you begin, place the bike in **NEUTRAL**, start the engine and let it warm up for 2-3 minutes to idle down and warm up the engine oil.
- b) With the bike at idle, apply enough pressure to the clutch lever to take up the initial free play (slack) in the clutch lever.



- c) While still in **NEUTRAL**, continue to apply light pressure and quickly rev the engine between 5,000-7,000 RPM (1/2 to 3/4 throttle), then let it return to idle. Notice the movement in the clutch lever when the engine is revved. This is your Free Play Gain.




- d) When the bike returns to idle, rev the engine between 5,000-7,000 RPM a second time to feel the Free Play Gain again.
- e) Continue with Step 3 to break-in the new clutch.



### **Step 3: Break-in the new clutch**

Once you install your new clutch, it is important to break it in. A series of roll-on starts are used to break in the clutch. Follow these procedures for breaking in your clutch and any time new friction disks, EXP bases, Teflon pads, or wedges are installed.

#### **⚠ WARNING**

**Failure to follow the break-in procedure and oil screen inspection process could cause motor oil delivery failure which can result in motor failure, serious injury, or death.**

Break-in Procedure	Number of times
<p><b>Rev Cycles:</b></p> <ol style="list-style-type: none"> <li>Place the bike in <b>NEUTRAL</b>.</li> <li>With your hand <b>off</b> the clutch lever, rev the engine 10 times, being sure to let it <b>return to idle</b> between each rev cycle.</li> </ol>	<p>① <b>N</b> ② ③ ④ ⑤</p> <p>10 rev cycles</p>
<ol style="list-style-type: none"> <li>With the engine still running, pull in the clutch lever, then click the bike into 1<sup>st</sup> gear. Slowly release the clutch lever. The bike should stay in place or have a slight amount of forward creep.</li> <li>With the bike idling in first gear, slowly apply throttle to begin moving.</li> <li>Without using the clutch lever, accelerate moderately to approximately 5,000 RPM to fully lock up the clutch and come to a complete stop. Repeat 10 times.</li> </ol> <p><b>Note:</b> <i>If the engine wants to stall or the creep is excessive, the idle may be too high or the installed gap may be too small. Make necessary adjustments before proceeding.</i></p>	<p>① <b>N</b> ② ③ ④ ⑤</p> <p>10 roll-on starts</p> <p><b>Continued on next page</b> </p>

<p>6. Without using the clutch lever, start in 2<sup>nd</sup> gear, then accelerate moderately to approximately 5,000 RPM and come to a complete stop. Repeat 10 times.</p>	 <p>10 roll-on starts</p>
<p>7. Place the bike in <b>NEUTRAL</b> and recheck Free Play Gain.</p> <p>8. Continue to step 4 to adjust the installed gap until the Free Play Gain of the clutch lever is 1/8" to 1/4" (3 mm-6 mm).</p>	 <p>Recheck Free Play Gain and adjust the installed gap</p>

**Note:** *Your clutch pack will expand with heat, so final adjustment to Free Play Gain should be made when the bike is warm. Remember not to ride without sufficient Free Play Gain.*

 **CAUTION**

Do not perform 3<sup>rd</sup> gear starts with this product. Starting in 3<sup>rd</sup> gear will burn up the clutch and decrease the performance of this product in a short amount of time.

## Step 4: Adjust the installed gap and Recheck Free Play Gain

Once you have learned how to check Free Play Gain, you need to finish adjusting the installed gap, then recheck the Free Play Gain until the clutch lever moves only 1/8" to 1/4" (3 mm-6 mm). The gap is adjusted by turning the slave cylinder screw.

- a) With the bike running and in **NEUTRAL**, locate the adjuster screw in the center of the adjustable slave cylinder.
- b) Use a 4 mm Allen wrench to turn the adjuster screw clockwise 1 tick mark from the last setting, then recheck Free Play Gain.

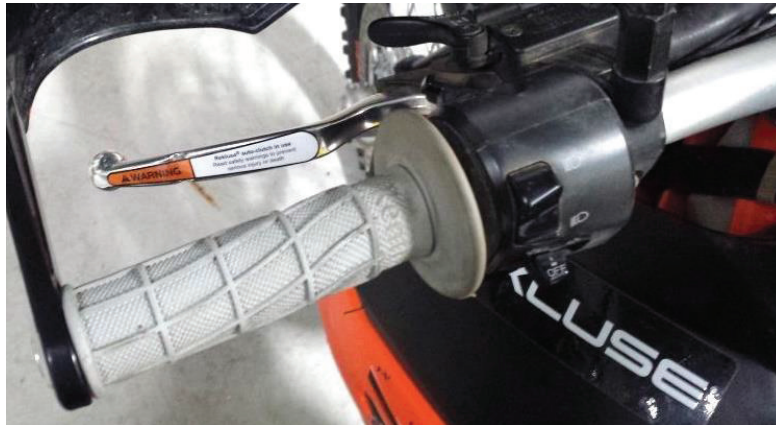


Tick marks are located on the slave cylinder, and an etch mark is on the screw. If you need to re-position the Allen wrench, you can use these marks for reference.

- c) Continue to adjust the slave cylinder 1 tick mark at a time until optimal Free Play Gain is achieved.
- d) Refer to the following pictures and chart in the next section for additional adjustment information.
- e) The Free Play Gain will change as the clutch pack wears over time.
- f) Checking the Free Play Gain is easy and indicates when the install gap needs adjusting.

## Clutch lever sticker

Install the provided warning sticker on the backside of the clutch lever, such that it is visible to the rider.



## FAIRING INSTALLATION

- Reinstall the side cowling according to the OE service manual.

## LEVER SAFETY STRAPS

Your kit includes 2 Velcro-type straps to be used to secure both the clutch and front brake levers when the bike is parked.

These straps are intended to reduce the risk of injury or damage that may occur from the bike rolling or launching unexpectedly with or without a rider. Use the lever safety straps every time you park or leave the bike. **Refer to the Safety Information sheet for more information.**

1. Pull the lever tight against the handlebar.

2. Wrap the Velcro safety strap around the lever and handlebar, pull it tight, then fasten it.



**Clutch Lever Strap:** to prevent unwanted launching.



**Brake Lever Strap:** for use as a parking brake.



# **FREE PLAY GAIN ADJUSTMENTS**

Make each adjustment in small increments - one tick mark at a time. After each adjustment, recheck Free Play Gain until you achieve the optimal 1/8" to 1/4" (3 mm-6 mm) of clutch lever movement.



<b>Symptom</b>	<b>Reason</b>	<b>Solution</b>
<ul style="list-style-type: none"> <li>• Clutch lever moves in too far (too much Free Play Gain)</li> <li>• Clutch has excessive drag or stalls</li> <li>• It is difficult to fully override the clutch with the lever</li> </ul>	<p>Installed gap is too small</p>	<p>Turn the adjuster screw clockwise 1-2 marks to increase the installed gap and decrease Free Play Gain. Recheck Free Play Gain.</p>
<ul style="list-style-type: none"> <li>• Clutch lever only moves slightly or does not move at all (too little Free Play Gain)</li> <li>• Clutch slips</li> <li>• Bike seems to lose power</li> </ul>	<p>Installed gap is too large</p>	<p>Turn the adjuster screw counterclockwise 1-2 marks to reduce the installed gap and increase Free Play Gain. Recheck Free Play Gain.</p>

# **MAINTENANCE**

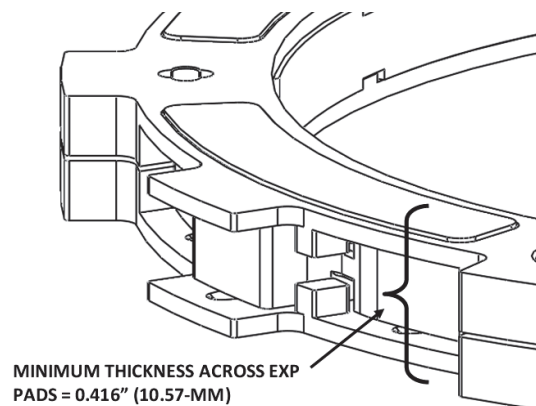
## **Clutch wear**

Rekluse clutches are built using high quality materials but do wear based on the rider's use, type of terrain, and natural wear and tear. To keep your clutch performing at its best, perform regular maintenance on your bike and clutch based on your riding style.

- Maintain adequate Free Play Gain. Check before every ride and adjust as necessary.
- Repeat the break-in procedure anytime you replace any components of the EXP disk or frictions disks. Always soak new friction disks in fresh oil before installing.

## **Clutch parts**

- Inspect all of your clutch parts at regular intervals for signs of wear or excessive heat, and replace components as necessary. Rekluse recommends inspecting after the first 10 hours of use, then every 20 hours after that.
- Measuring the clutch pack and/or the EXP disk can help determine if the components need replacing.
- Replace friction disks or drive plates if they are glazed and/or burnt.
- Keep up with regular oil changes as per the bike manufacturer's recommendations. Clutch performance and longevity depend on oil quality.

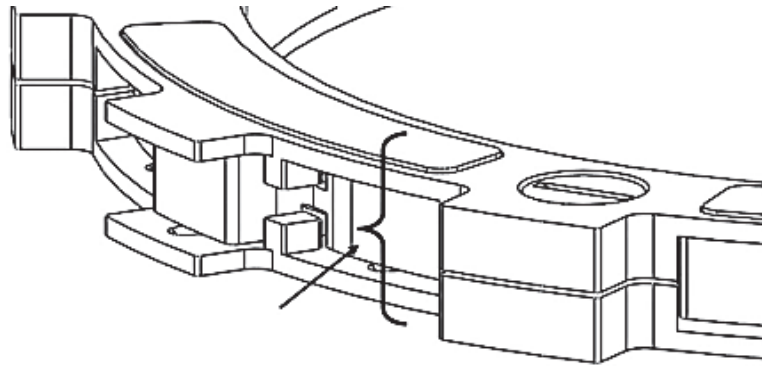


## Basket

- Inspect the basket dampers and/or springs by checking the play between the ring gear and the basket. Replace the dampers/springs if you feel any play in the assembly.
- Inspect and replace basket sleeves if they appear to be notched from friction disks. Rekluse recommends replacing them every 25 hours for abusive riding/racing, every 50 hours for moderate riding, or every time friction disks are replaced.

## Disk Measurements

If you find yourself making frequent slave cylinder adjustments to fix free play gain, drag, or performance, it is likely time to replace worn clutch disks. Measure your friction disks and replace as necessary.



- Rekluse thin friction disk minimum allowable thickness = **0.067" (1.70mm)**
- Rekluse thick friction disk minimum allowable thickness = **0.147" (3.48mm)**
- EXP disk minimum allowable thickness = **0.590" (15.0mm)**

**Note:** *Measure all disks from pad to pad*

## Disk inspection examples

When inspecting the clutch pack, the following pictures can be used as a reference. **These are best viewed in color by**

viewing this install document from  
[www.rekluse.com/support](http://www.rekluse.com/support).

### Drive Plates

If the clutch pack is getting high amounts of heat, purple, blue, or black color can be seen on the drive plate teeth. See pictures below. Not all drive plates look the same and may look different than pictured.



Normal Heat

High Heat  
(Blue)

Excessive Heat  
(Black)

### Friction Disks

Due to the dark color of the friction material, the friction disks will appear almost black as soon as they are put in oil. During inspection, look for glazing of the friction material. Glazing will appear shiny and feel like glass, even after oil is cleaned from the friction disk. Not all friction disks look the same and may look different than pictured.



Normal  
Friction



Glazed  
Friction

# TROUBLESHOOTING

## **Performance issues**

If you find yourself adjusting the slave cylinder to fix Free Play Gain or drag, the clutch disks might be worn. Excessive heat or clutch slip can cause premature clutch failure as well. Once extreme temperatures are reached, irreversible damage will occur.

- Inspect all of your clutch parts for signs of wear or excessive heat, and replace components as necessary. Clutch wear is dependent on the riders use.
- Measuring the clutch pack and/or the EXP disk can help determine if the components need replacing.

## **Clutch noise**

Although it is harmless, some bike models may have “squeal” or “chatter” coming from the clutch at low RPM as it engages. Clutch squeal is caused by the clutch components vibrating as the clutch engages and can become more audible as the clutch gets hot. Adjusting the installed gap will NOT affect clutch squeal or chatter.

For bike models that have clutch squeal or chatter here are some recommendations to reduce or eliminate it:

- Change the oil: For optimal clutch performance Rekluse recommends using fresh, clean oil that **meets JASO-MA** oil rating requirements. Rekluse offers Factory Formulated Oil™ developed specifically for Rekluse products. Rekluse Factory Formulated Oil is a perfect complement to any OEM or aftermarket wet clutch. Visit [www.rekluse.com](http://www.rekluse.com) to learn more.

# EXP TUNING OPTIONS

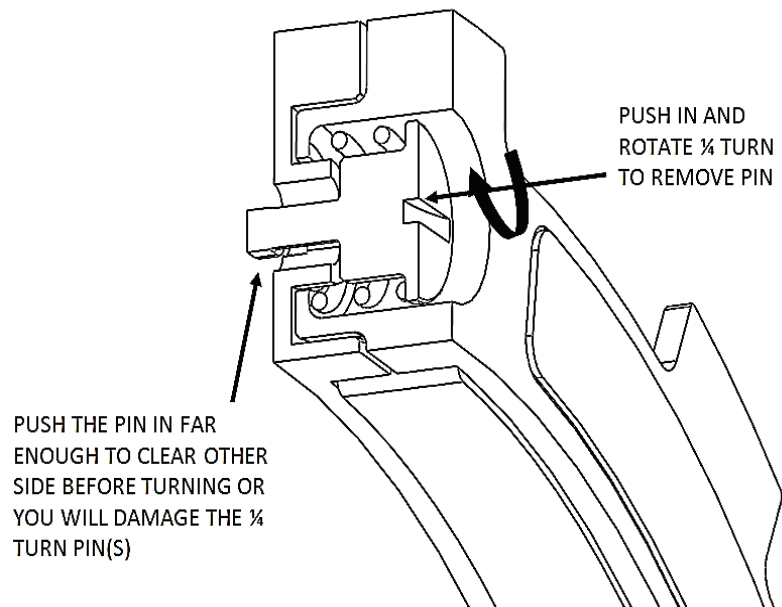
Adjusting the engine idle speed to match your engagement setting is important and greatly affects the overall feel of how the EXP disk engages. To prevent freewheeling and maximize engine braking, set the idle so there is a slight amount of drag while the bike is idling in gear and warmed up. The idle should not be so high as to move the bike forward in gear with the throttle closed. However, with a small opening of the throttle the bike should move forward.

You can tune the engagement RPM of the EXP disk by changing the spring configuration. \*The EXP disk comes set with the recommended “**Medium**” setting from Rekluse. Use the following steps to change the springs. It is **NOT necessary** to disassemble the EXP halves to change springs!

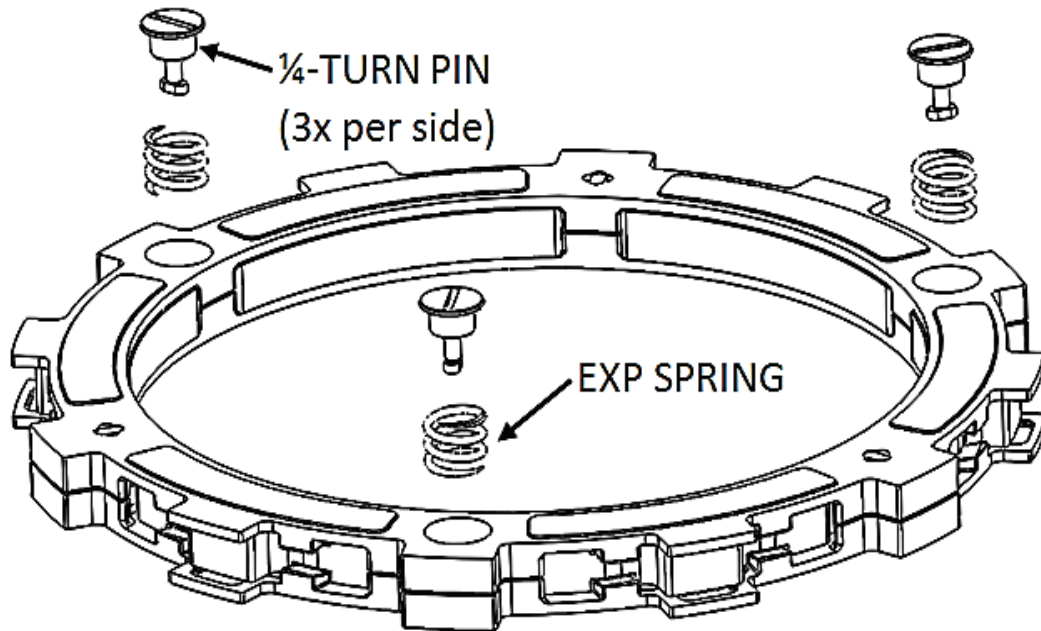
Engagement setting	Spring configuration
Low	6 Green Springs
Medium*	3 Green & 3 White Springs
High	6 White Springs

## Changing the springs

1. Using a flat-blade screwdriver, push the ¼ turn pin in far enough to clear the opposite side of the EXP to unlock the pin.
2. With the pin still pushed past the base, turn 90° to remove the pin and spring.



3. Remove the remaining 2 pins and springs from the same side of the EXP base.
4. Drop a new spring into the spring slot on the base, then add the  $\frac{1}{4}$  turn pin.



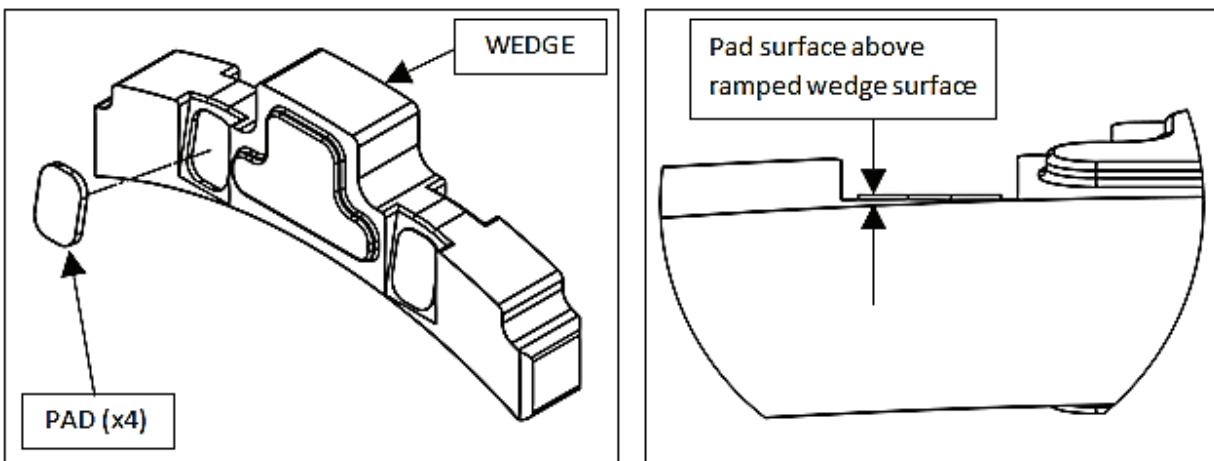
5. Push the turn pin in far enough to clear the base, then turn  $90^\circ$  and release the pin. The pin should sit almost flush with the EXP base.

6. Flip the EXP friction disk over, and repeat on the other side depending on engagement preference.
7. If you need to disassemble the EXP disk, you can watch the video on our website under Tech Tips at [www.rekluse.com/support/videos/atv-mc-support-videos](http://www.rekluse.com/support/videos/atv-mc-support-videos).

**Note:** To maintain even pressure, when using two different color spring sets, install one set of 3 on one side of the EXP and the remaining set of 3 on the other side.

**⚠ CAUTION**

***If you disassemble the EXP, the Teflon pads may fall out or be stuck to the ramp surfaces of the EXP bases. Take care to ensure all pads are correctly placed into wedge pockets using gentle pressure to avoid damage to the pad surfaces before reassembling the EXP. Properly seated pads will be secured in place once the EXP is reassembled. Operating the clutch without the pads in place will cause part damage or failure.***





# **BUMP-STARTING**

If your bike needs to be bump-started due to a dead battery or any other reason, follow the steps below to quickly bump-start your bike.

1. Turn the slave cylinder adjuster screw counterclockwise to collapse the gap until no resistance is felt.
2. Bump start the bike. The clutch will function like a manual clutch at this point, but the clutch will not be fully over-ridable at high RPMs.
3. Once the bike is started, readjust the installed gap to achieve optimal free play gain.

# **NEED ADDITIONAL HELP?**

## **Website**

[www.rekluse.com/support](http://www.rekluse.com/support)

## **Frequently Asked Questions**

[www.rekluse.com/faq](http://www.rekluse.com/faq)

## **Support Videos**

[www.rekluse.com/support/videos](http://www.rekluse.com/support/videos)

## **Phone**

(208) 426-0659

## **Technical Support**

Contact Technical Support for questions related to product installation, tuning, and performance.

Technical Support hours:

Monday thru Friday: 8:00 a.m. - 5:00 p.m.

Mountain Time zone

Email: [tech@rekluse.com](mailto:tech@rekluse.com)

## **Customer Service**

Contact Customer Service for additional product information, orders, and returns.

Customer Service hours:

Monday thru Friday: 8:00 a.m. - 5:00 p.m.

Mountain Time zone

Email: [customerservice@rekluse.com](mailto:customerservice@rekluse.com)



# RIDER'S GUIDE

## How to get the most out of your new clutch

### **LET'S RIDE**

This guide is to help get the best experience riding with your new Rekluse RadiusX centrifugal auto clutch.

It doesn't matter if you, a mechanic, or a dealer installed your new clutch, take a moment to read this Rider's Guide. It will help you understand some important points about how to shift with the new clutch, how the auto clutch functions, some important safety information, and how to check Free Play Gain.

### **What it does**

The Rekluse auto clutch is designed to eliminate the need for clutching when starting and stopping. The auto clutch provides smooth acceleration without loss of power. It also prevents stalling when riding at slower speeds or maneuvering through traffic. You retain full control of shifting and can continue to use the clutch lever if you like.

### **What it doesn't do**

The Rekluse auto clutch is not an automatic transmission. You still need to shift to maintain the proper gear selection when accelerating, cruising, and decelerating.

### **Items to Note**

- Thoroughly read and understand the **Safety Information** before operating any vehicle with this product.
- Videos related to this product can be viewed online at <https://rekluse.com/support/videos>.
- **Do not "rev" the throttle while in gear and not moving.** Revving the engine without the clutch lever pulled in will lurch the bike forward or move it unexpectedly.
- Check your Free Play Gain before the 1<sup>st</sup> ride of the day. Instructions for checking Free Play Gain are included in the guide.
  - If Free Play Gain is not correct, adjust the installed gap and recheck Free Play Gain before continuing. Continuing to ride when the clutch is not adjusted properly may cause damage to the clutch.
  - If Free Play Gain cannot be corrected (too much or too little), stop riding the bike until the issue can be resolved.

### **GETTING STARTED**

There are a few basic steps you need to know when shifting with your new auto clutch. Learning these steps will keep your ride smooth and prevent damage to the clutch.

- Always start your bike in **Neutral** and let the engine warm up. If the bike is cold, there may be clutch drag. Clutch the bike manually until it is warm.

- **Always shift your bike from Neutral to 1<sup>st</sup> gear with the clutch lever pulled in.**
- To move or start, let the clutch lever out and slowly roll on the throttle.
- Upshift gears as you normally would, using the clutch lever as you shift.
- Your Rekluse auto clutch engages during normal riding from idle to 4,500 RPM. See section 3 below for suggestions regarding optimal RPM for riding conditions.

## **SHIFTING**

### 1. Upshifting:

- For normal riding situations, upshift as you normally would.

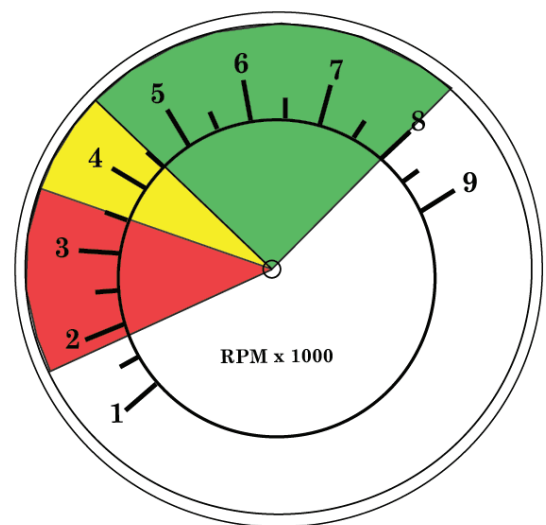
### 2. Downshifting:

- For normal riding situations—including slowing down from a tall gear—**downshift as you normally would.** Downshift if the engine is jerking or “lugging.”
- Downshift one gear at a time and allow the engine braking to engage like normal.
- When downshifting, apply a small amount of throttle then slowly release the clutch lever to reactivate the clutch.
- If you are traveling at a high rate of speed in a tall gear, you **MUST** apply a small amount of throttle to reactivate the clutch. If you pull the clutch lever in or allow the RPM to drop to idle without reactivating the clutch, free-wheeling occurs.
- Do not ride in a gear higher than you need. Adjust your gear selection to match your ground speed, engine RPM, and terrain.
- When you slow down to stop, you do not need to touch or modulate the lever. The EXP disk will release the clutch automatically when the RPM drops below the engagement point.
- **Once you are stopped, shift into 1<sup>st</sup> gear using your clutch lever before accelerating again.**

### 3. Maintaining proper RPM for best performance :

Shift points will vary by bike and your riding style. However, these are some general guidelines to help you get the most out of your clutch and reduce slipping.

- Red Zone: This zone is from idle to around 3,500 RPM. This is a caution zone where the clutch is in a transitional state. Cruising below 3,500 RPM should only be done in 1<sup>st</sup> gear or below ¼ throttle. Cruising in a tall gear without downshifting is hard on your clutch as well as your engine.
- Yellow Zone: This zone is from about 3,500-4,500 RPM. This is a healthy zone for easy trail riding and cruising situations. It is acceptable to cruise in this range unless you are carrying a heavy load, riding uphill, riding into the wind, or riding well above 1/3-1/2 throttle.
- Green Zone: For best clutch performance and longevity, it is best if most riding is done above



4,500 RPM. The clutch is fully clamped at this point. Any technical trail riding or ascending a grade should be done in this range. Upshift and downshift as you normally would using the clutch lever.

## **PARKING WITH YOUR AUTO CLUTCH**

Your kit includes 2 Velcro-type straps to be used to secure both the clutch lever and front brake lever when the bike is parked.

To keep your bike from rolling away without you, use the 2 Velcro lever safety straps every time you park or leave your bike. Using these straps will reduce your risk of injury and/or damage. Refer to the Safety Information sheet for more information.

1. Pull the brake lever tight against the right grip.
2. Wrap the Velcro safety strap around the front brake lever and grip, pull it tight, then fasten it to use as a parking brake.
3. Wrap the other strap around the clutch lever and the grip in the same way to prevent unwanted launching.

## **LONG LIVE YOUR CLUTCH**

In order to keep your clutch functioning properly and prevent damage, you need to check your Free Play Gain before the 1<sup>st</sup> ride of the day.

Don't know how to check your Free Play Gain?

- **Watch the video:**  
<https://rekluse.com/support/videos>
- **Read about it:**  
Read the following instructions in this guide and/or the Information Guide that came with your kit.

### **⚠ WARNING**

**BEFORE YOU BEGIN, verify the bike is in NEUTRAL before checking Free Play Gain. Failure to do so may result in the bike lurching forward, and loss of control and/or injury may result.**

## **CHECK FREE PLAY GAIN**

Optimal Free Play Gain yields **1/4 - 3/8" (6 mm - 9 mm)** of clutch lever movement, measured at the end of the lever. This measurement at the lever correlates to achieving the ideal installed gap.

- a) Before you begin checking Free Play Gain, place the bike in **NEUTRAL**, start the engine and let it warm up for 2-3 minutes to idle down and warm the engine oil.
- b) Stretch the included rubber band between your thumbs, then place the top end of the rubber band on the outer end of the left handlebar grip.
- c) While holding the top end of the rubber band against the handlebar, stretch the band downward, then loop it through itself.

- d) Pull the band through the loop, then attach it to the outside end of the clutch lever. This will take up the initial free play (slack) and put the lever in a position to detect the Free Play Gain.



- e) While still in **NEUTRAL**, quickly rev the engine to about 5,000 RPM, then let it return to idle. Notice the movement in the clutch lever when the engine is revved. This is your Free Play Gain.

**Note:** It is very important the motor returns to idle before revving the engine again or Free Play Gain will not be correct.



When the bike returns to idle, rest your hand across the clutch lever. Rev the engine again to 3,000-5,000 RPM so you can observe the movement while feeling for Free Play Gain with your hand.

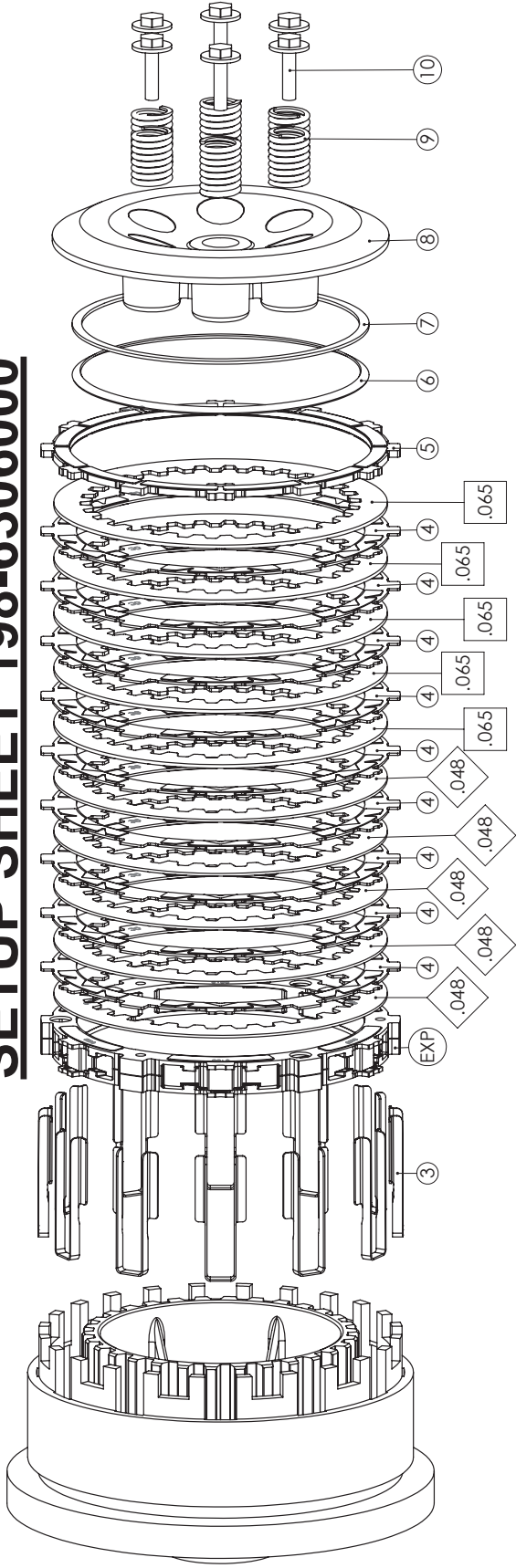
- f) If your Free Play Gain is correct, then enjoy the ride. If you have too little or too much Free Play Gain, adjust the installed gap and recheck Free Play Gain. Instructions for adjusting the gap are found in the Information Guide that came with your kit or on our website.

## **NEED ADDITIONAL HELP?**

Visit our website at [www.rekluse.com/support](http://www.rekluse.com/support) or call us at (208) 426-0659.



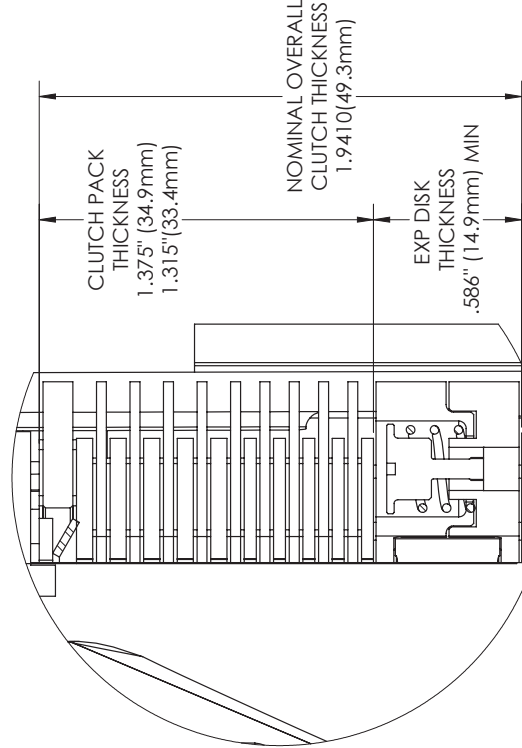
# SETUP SHEET 198-6306000



ENGAGEMENT RPM SETTING	SPRING CONFIGURATION
LOW	6 WHITE
MEDIUM *	3 GREEN & 3 WHITE
HIGH	6 GREEN

\* MEDIUM SETTING IS PREINSTALLED IN THE EXP DISK

ITEM NO.	DESCRIPTION	QTY.
.065	DRIVE PLATE - 0.065" THICK	5
.048	DRIVE PLATE - 0.048" THICK	5
3	BASKET SLEEVE	12
4	FRICION DISK	9
5	THICK FRICTION DISC	1
6	OEM JUDDER SEAT	1
7	OEM JUDDER SPRING	1
8	OEM PRESSURE PLATE	1
9	REKLUSE PRESSURE PLATE SPRINGS	6
10	OEM PRESSURE PLATE BOLTS	6
EXP	EXP DISK	1



DETAIL A  
SCALE 2 : 1

