



# **INSTALLATION & USER'S GUIDE**

RadiusX Clutch

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## **OVERVIEW**

The parts in this kit are designed specifically for your motorcycle to optimize performance. This kit will replace several OE (Original Equipment) components with high-quality Rekluse components.









- The OE friction disks and drive plates will be replaced with a Rekluse thin friction EXP clutch pack.

# INSTALLATION TIPS

- Read the included **Safety Information** document before operating the vehicle with the product installed.
- Read this entire document before performing any steps.
- 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 vehicle with the product.
- Protect your eyes and skin – wear safety glasses and work gloves.
- Block the rear tire up to help tilt the bike. This eliminates the need to drain the oil. Catch any fuel that may drain from the bike.
- Use the torque specifications found in your OE service manual.
- 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.



## TOOLS NEEDED

			
10 mm socket	8 mm socket	6 mm socket	Metric Wrench
			
Pick	Fluid Catch Container	5 mm Hex key	Torque Wrench

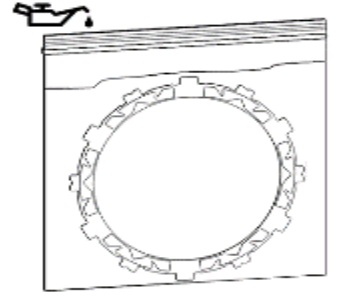
## INCLUDED PARTS

The parts included in the kit depend on the bike model. See the included sheet **Setup Sheet** for a list of included parts and a complete diagram.

You can also visit our website at [www.rekluse.com/support](http://www.rekluse.com/support) for a full parts fiche diagram and part numbers.

# **DISASSEMBLING THE CLUTCH**

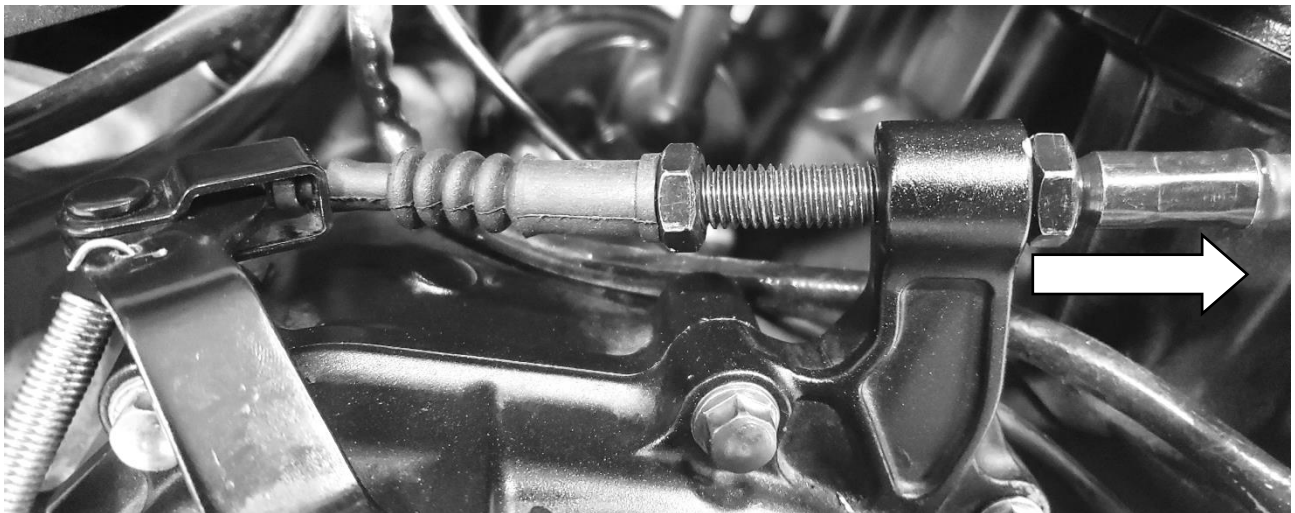
1. Soak the Rekluse friction disks and EXP in new oil for at least 5 minutes. Make sure the friction disks are coated on both sides.



2. Remove any fairings or guards that prevent access to the clutch cover.

**Note:** *The water pump cover is not necessary to remove, but removal will help with clutch cover removal.*

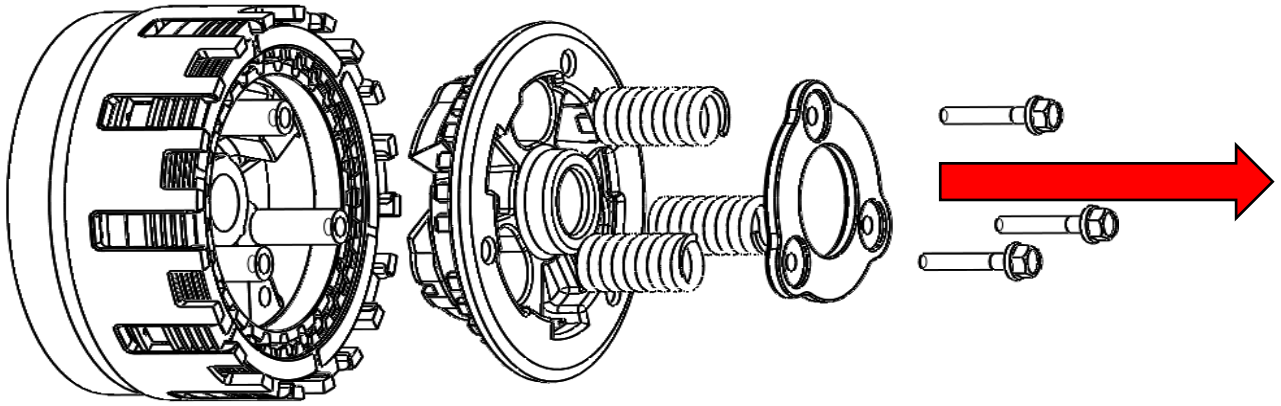
3. Make note of the position of the actuator arm before removing the clutch cover.
4. Collapse the inline clutch adjuster to put slack in the cable at the perch.



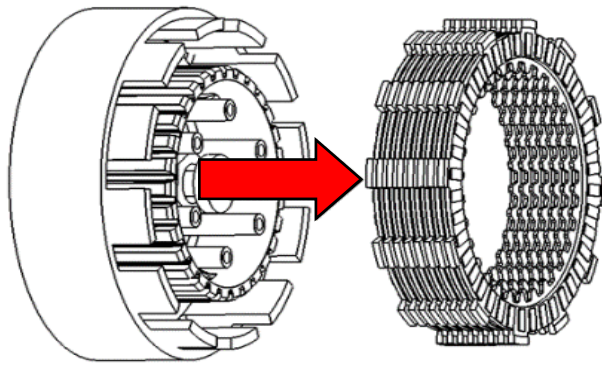
5. Disconnect the clutch cable from the perch and then at the actuator arm.
6. Remove the OE clutch cover. Set it aside.

**Note:** *Replace the cover gasket if there is damage from removing the cover.*

7. Remove the OE pressure plate bolts, spring ring, springs, and pressure plate. **Set them aside; they will be reused.**



8. Remove the clutch pack including the OE judder spring and seat. These will not be reused.





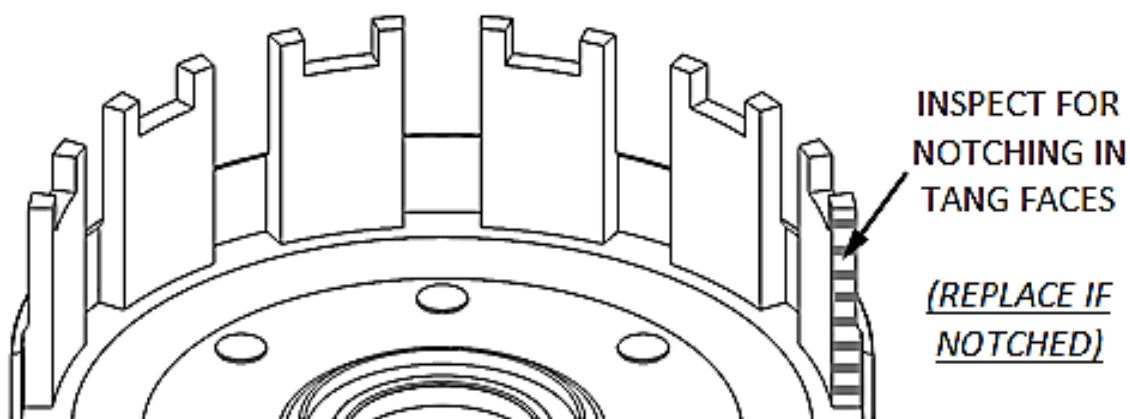
# INSTALLING THE CLUCK PACK

## Notes for Clutch Pack Installation

- Some OE baskets have “half slots” at the top of the basket tangs. Rekluse products require the entire clutch pack to be installed into the MAIN (deeper) basket slots. Do not use the “half slots” (see below).



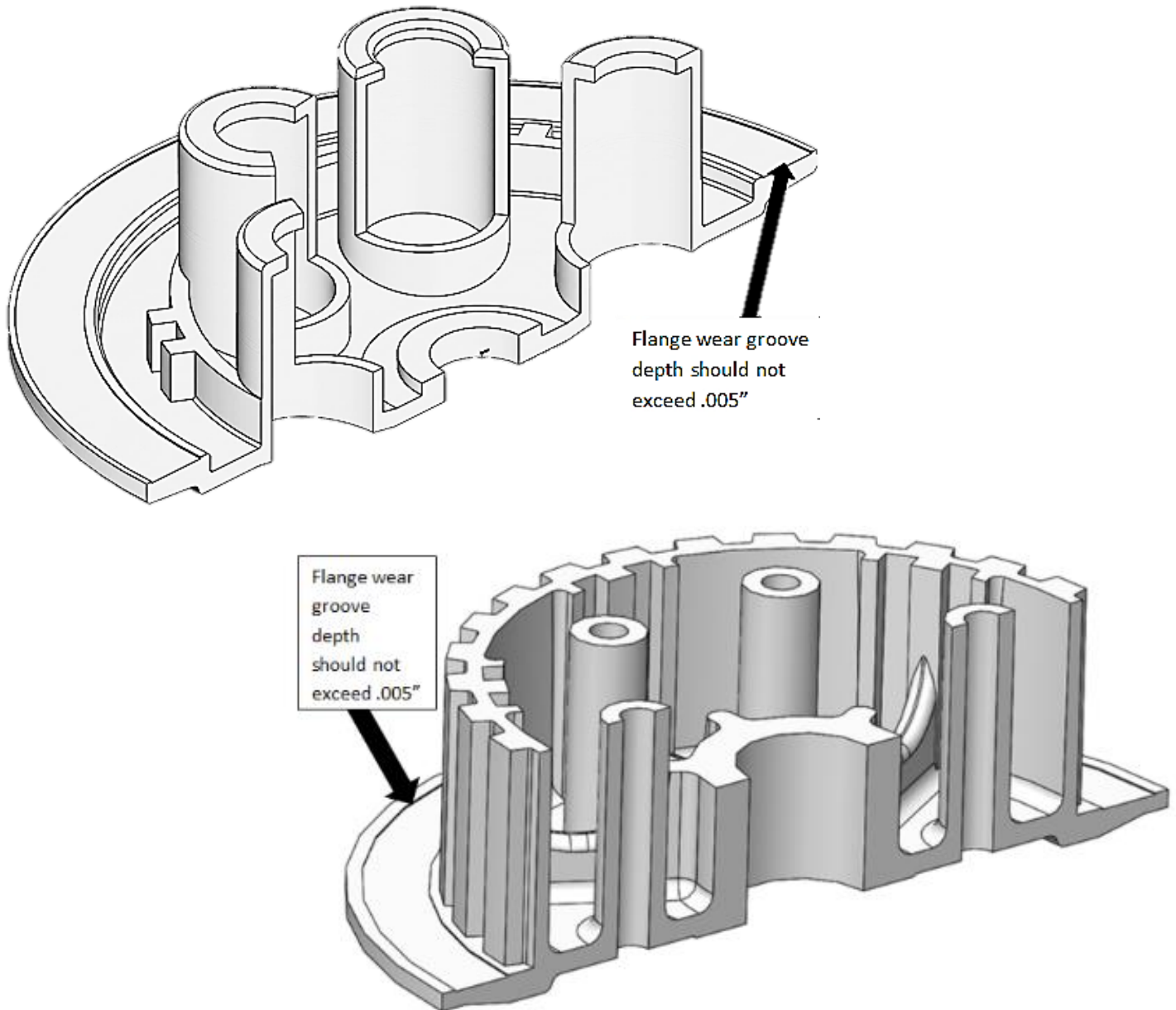
- Inspect the clutch basket for damper and/or spring play.
- Inspect the clutch basket for notching. Do not install sleeves or use this product with a notched basket. Notched basket tang faces can cause the sleeves to break. Do not use baskets that have been filed, machined, or modified on the tangs. Replace the basket if necessary.



### **⚠ WARNING**

**Failure to inspect the basket and replace it if necessary, could result in death, serious injury, and/or property damage.**

- *Inspect your OE center hub and pressure plate flanges for excess wear. If wear is visible use a drop gauge to verify that the wear across the flange does not exceed .005" (.12mm).*



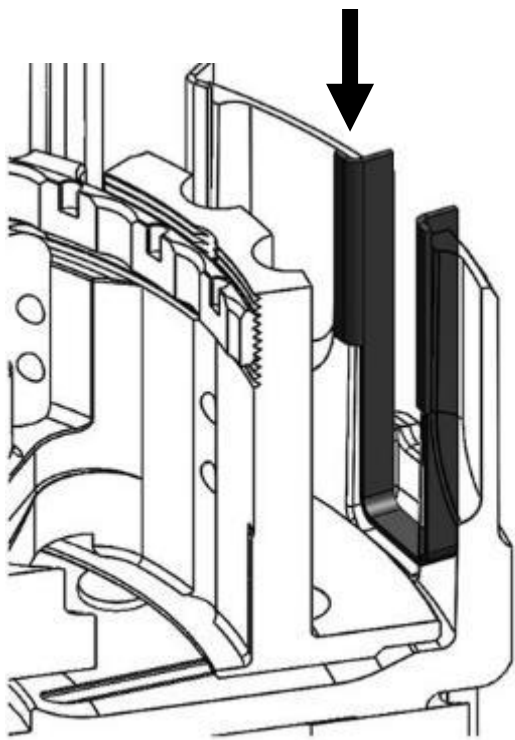
- *Some friction disks are marked with a small colored dot. This mark is used for processing and can be ignored.*



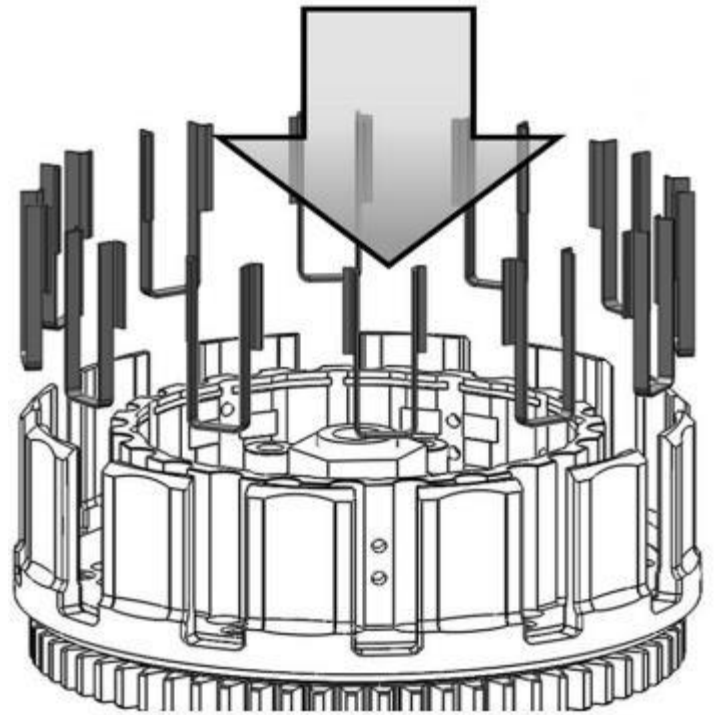
# Install Clutch Pack

1. Install all the Rekluse basket sleeves into the basket slots. Make sure the bottom of the sleeve is facing down, and the sleeve tabs sit against the inside of the basket.

Sleeve tabs sit inside the basket



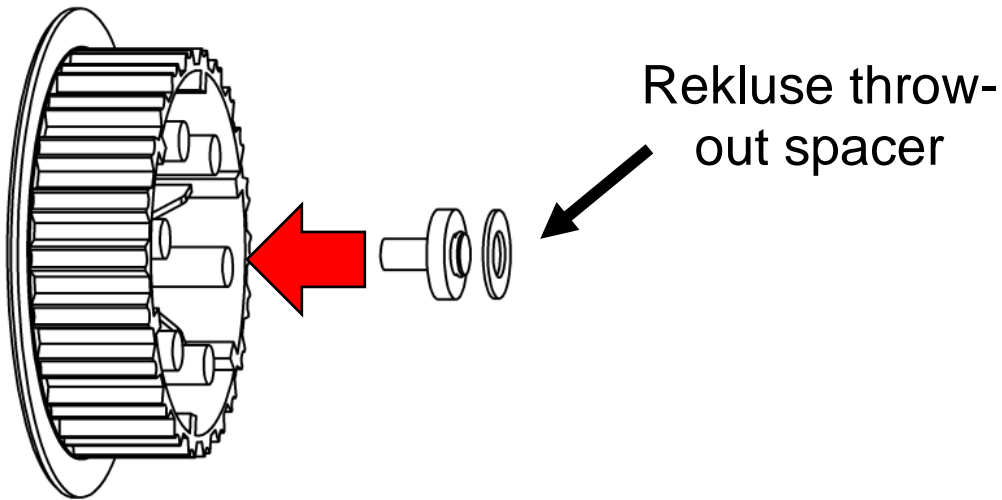
Install all the basket sleeves



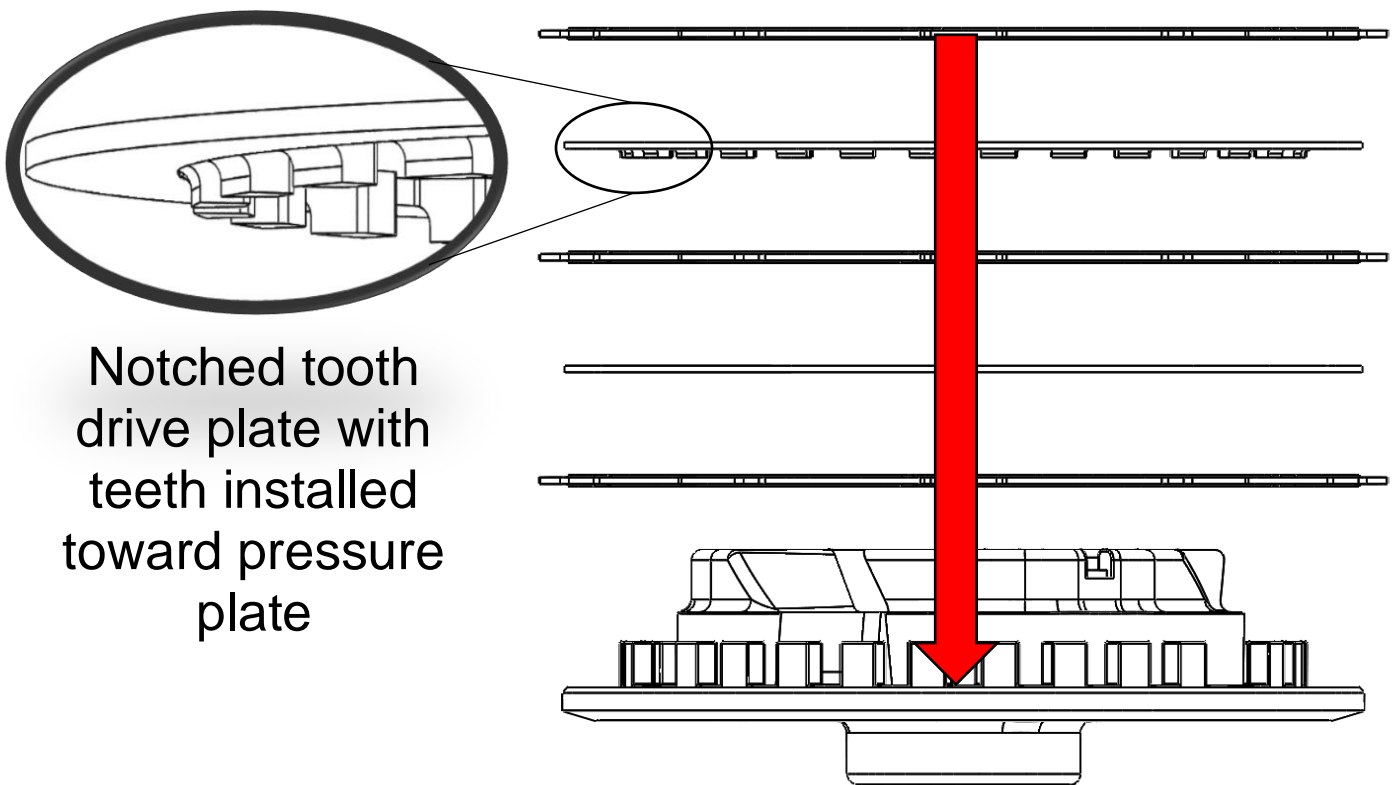
**Note:** When seated in the basket, the sleeve tops may sit slightly above or below the top of the basket.

2. Install the Rekluse clutch pack. **See the included Setup Sheet at the back of the manual for the proper clutch pack configuration.**

3. Install the Rekluse throwout spacer onto the throwout if one is included in your kit.



4. Turn the pressure plate over and install one of the narrow pressure plate frictions and then the flat pressure plate drive plate. Then follow the drive plate with another pressure plate friction
5. Install the notched tooth pressure plate drive plate with the teeth facing toward the pressure plate. The third narrow pressure plate friction can go on top of the clutch pack



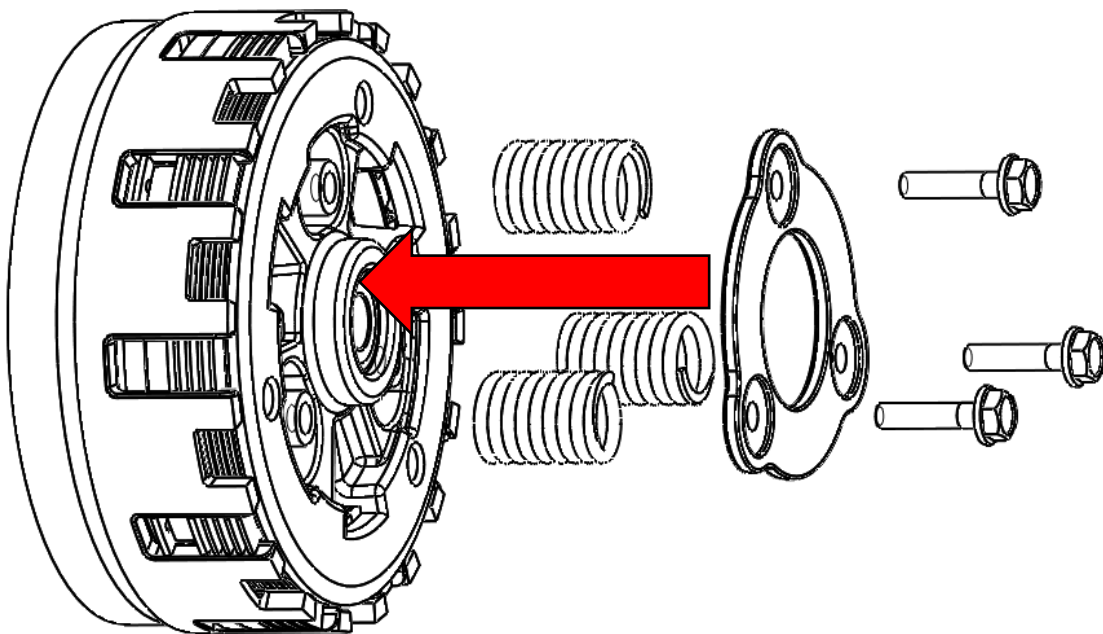
**⚠ WARNING**

**Failure to install the notched tooth drive plate in the correct orientation can result in damage to the product and the loss of clutch function.**

6. Reinstall the pressure plate onto the clutch pack. Verify the drive plates have not come unindexed to the pressure plate after installation by moving the friction tabs up and down to check for a gap. A properly indexed clutch pack should not have a gap or move freely.

**Note:** Oil on the drive plates and positioning your fingers in the half slots of the basket when installing can help keep the drive plates indexed to the pressure plate.

7. Install the OE pressure plate springs, spring ring, and OE bolts.



8. Tighten the pressure plate bolts to the OE torque specifications. Tighten each bolt in small increments to prevent bending of the spring ring.
9. Reinstall the OE clutch cover gasket.
10. Verify the actuator arm position is the same as noted before clutch cover removal, then reinstall the clutch cable.
11. Reattach the clutch cable at the perch.
12. Remove all cable slack so the clutch lever is tight against the perch using the inline adjuster
13. Reinstall any guards or farings that were removed.

# **SETTING THE INSTALLED GAP**

1. The clutch lever should be tight against the perch. If not, adjust the cable so that the lever is tight against the perch. This may require using the inline adjuster
2. Turn the cable and/or perch adjuster 3-5 turns tighter. Tightening beyond the initial perch adjustment creates the installed gap.
3. Continue the installation by checking for Free Play Gain.

## **CHECKING FREE PLAY GAIN**

The proper installed gap is verified by checking Free Play Gain.

**Correct Free Play Gain = Correct installed gap**

Setting up, breaking in, and rechecking the installed gap is **CRUCIAL**. Failure to properly maintain the installed gap can result in premature wear or failure of the clutch.

### **⚠ 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.**

## **Learning How to Check the Free Play Gain**

If you are familiar with checking Free Play Gain, skip to the “*Adjusting the Installed Gap*” section.

If Free Play Gain is new to you, follow the instructions below. You can also view the video titled “*How to Check Free Play Gain*” on our website at [www.rekluse.com/support/videos](http://www.rekluse.com/support/videos).

**Optimal Free Play Gain yields 1/8”-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 Methods to Check Free Play Gain

There are two ways to check for 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.

## The Rubber Band Method

Use the rubber band method for the initial setup. 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 or vehicle is in NEUTRAL before checking Free Play Gain. Failure to do so may result in the bike or vehicle lurching forward, and loss of control and/or injury may result.**

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

**Motorcycles or vehicles 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, and 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, and then loop it through itself.



d) Pull the band through the loop, and then attach it to the outside end of the clutch lever.



e) While still in **NEUTRAL**, 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.

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

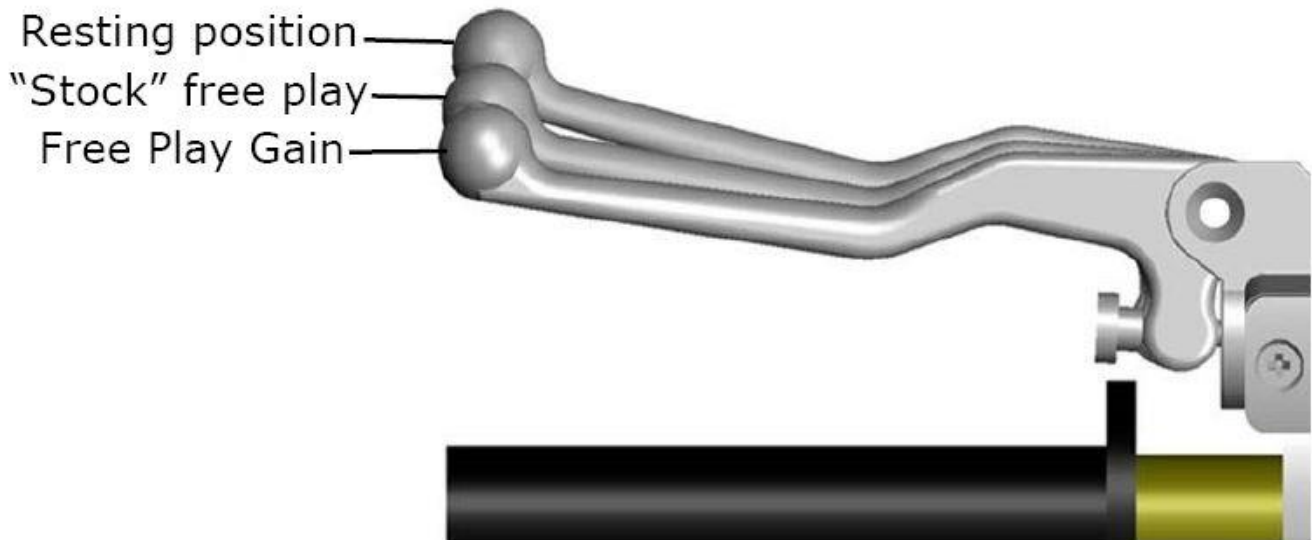
f) When the bike returns to idle, rest your hand across the clutch lever. Rev the engine again to 5,000-7,000 RPM so you can observe the movement while feeling for Free Play Gain with your hand.

## The Hand Method

- 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, use one finger to apply pressure at the end of 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 verify the Free Play Gain again.



## **ADJUSTING THE INSTALLED GAP**

After checking for Free Play Gain, you may need to adjust the installed gap. If the Free Play Gain is optimal, continue to "Breaking-In the New Clutch". If the Free Play Gain is not optimal, the installed gap needs to be adjusted.

The installed gap should be fine-tuned in small increments and then recheck Free Play Gain. Refer to the table below to set the proper installed gap based on your Free Play Gain.

**Notes:** *If you are unable to obtain the correct Free Play Gain or are nearly out of cable adjustment after performing the adjustment, your cable may be worn or stretched from wear or use. If this is the case, the cable should be replaced.*

## Adjust the Installed Gap

Symptom	Reason	Solution
<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>Tighten the cable: increase the length of the in-line cable adjuster housing until the correct amount of Free Play Gain is achieved.</p> <p>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>Loosen the cable: Reduce the length of the cable housing (collapse the adjusters) until the correct amount of Free Play Gain is achieved.</p> <p>Recheck Free Play Gain.</p>

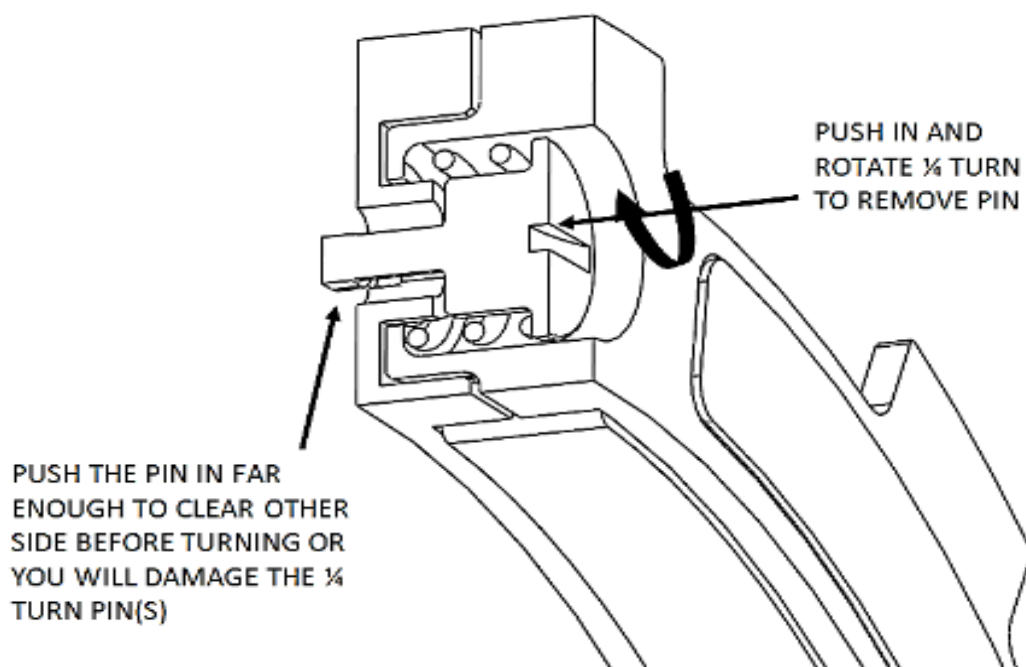
# **TUNING THE EXP**

This kit includes multiple spring settings to adjust the engagement RPM of the EXP friction disk. The EXP friction disk comes preinstalled with the recommended “Medium” setting. See the included Setup Sheet for a chart of the available EXP spring configurations.

You may have to adjust the engine idle speed to prevent free-wheeling and maximize engine braking. There should be a slight amount of drag when the bike is warmed up and idling in gear. The idle should not be so high that the bike moves forward while in gear with the throttle closed. However, with a small opening of the throttle, the bike should move forward.

## **Changing the EXP Springs**

1. Using a flathead screwdriver, push the  $\frac{1}{4}$  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  $90^\circ$  to remove the pin and spring.



3. Remove the remaining 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.

**Notes:** *If adjusting spring setting with two different colored springs alternate springs every other post.*


5. Push the  $\frac{1}{4}$  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. If necessary, repeat this process on the other side of the EXP to complete the spring configuration.
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).

# **BREAKING-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 steps 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.**

<b>Break-in Procedure</b>	<b>Number of times</b>
<p><b>Rev Cycles:</b></p> <ol style="list-style-type: none"><li>1. Place the bike in <b>NEUTRAL</b>.</li><li>2. 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>3. 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>4. With the bike idling in first gear, slowly apply the throttle to begin moving.</li></ol>	<p><b>Continued on next page</b> </p>

5. 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.



10 roll-on starts

**Note:** *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.*

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.



10 roll-on starts

7. Place the bike in **NEUTRAL** and recheck Free Play Gain.



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).

Recheck Free Play Gain and adjust the installed gap

**Note:** *Your clutch pack will expand with heat, so the final adjustment of 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.**



# **MAINTENANCE**

To keep your clutch performing at its best, perform regular maintenance on your bike and clutch.

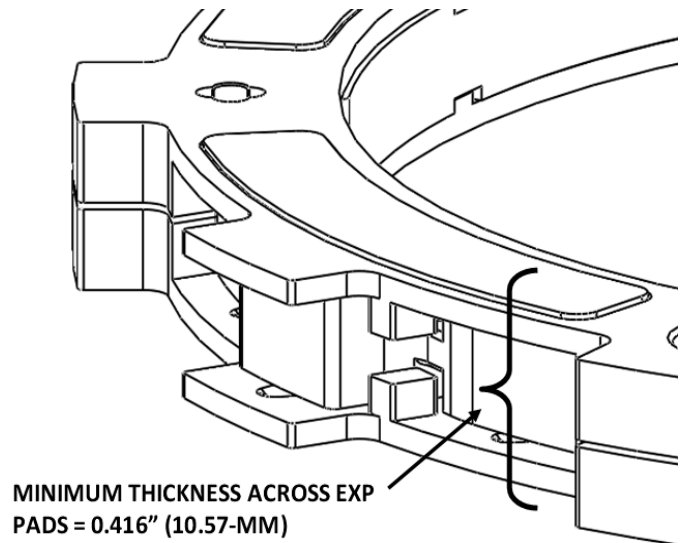
## **Clutch Wear**

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 when you replace any components of the EXP disk or friction disks. Always soak new friction disks in fresh oil before installing them.

# Clutch Parts

- Regularly inspect and replace all clutch components showing signs of wear or excessive heat. Rekluse recommends inspecting after the first 10 hours of use, then every 20 hours after that.
- Measuring the clutch pack and the EXP disk can help determine if the components need to be replaced.
- Replace friction disks or drive plates if they are glazed or burnt. See the following section for examples.
- Regularly change the oil as per the bike manufacturer's recommendations. Clutch performance and longevity depend on oil quality. Oil recommendations can also be viewed under Tech Tips on our website at [www.rekluse.com/support/videos](http://www.rekluse.com/support/videos).



## Basket

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

# 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 at:**

[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 the 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 the oil is cleaned off the friction disk. Not all friction disks look the same and may look different than pictured.



Normal  
Friction



Glazed  
Friction

# **NEED ADDITIONAL HELP?**

## **Website**

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

## **Phone**

(208) 426-0659

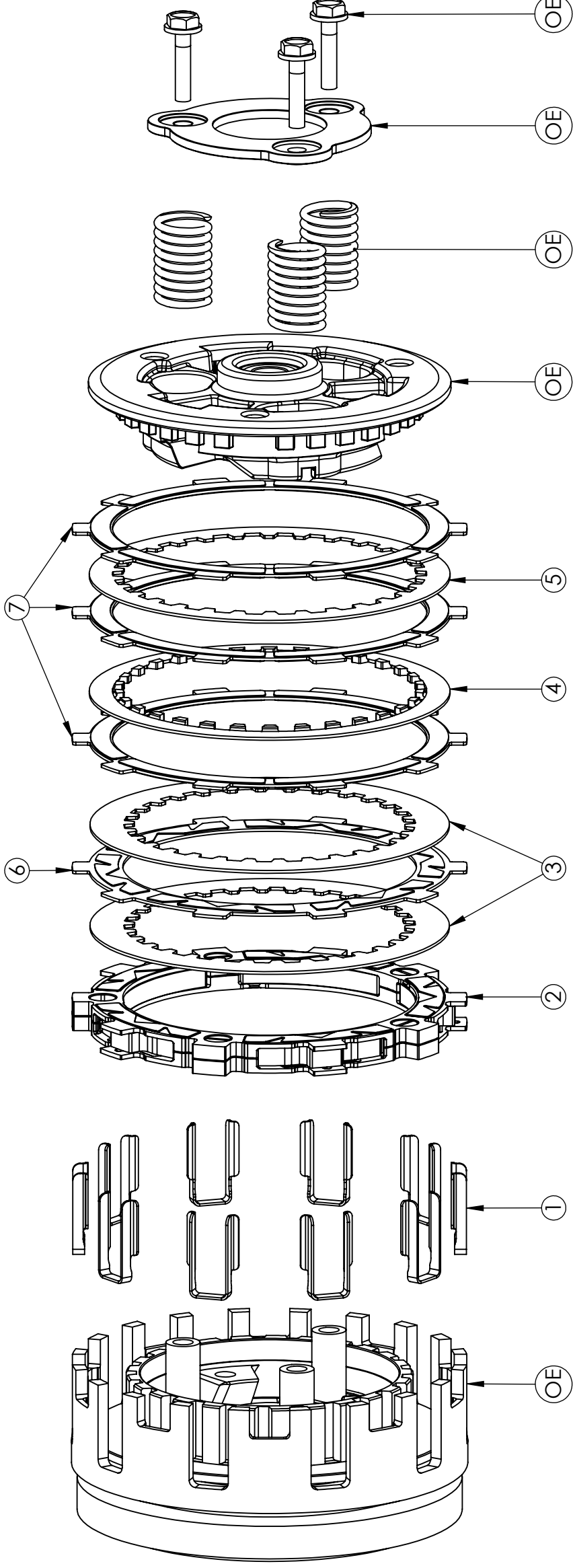
Monday thru Friday: 8 am – 5 pm Mountain Time

## **Email**

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



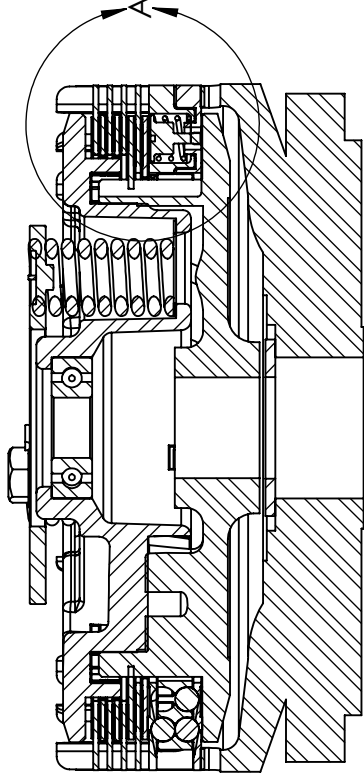
# SETUP SHEET 198-8304004



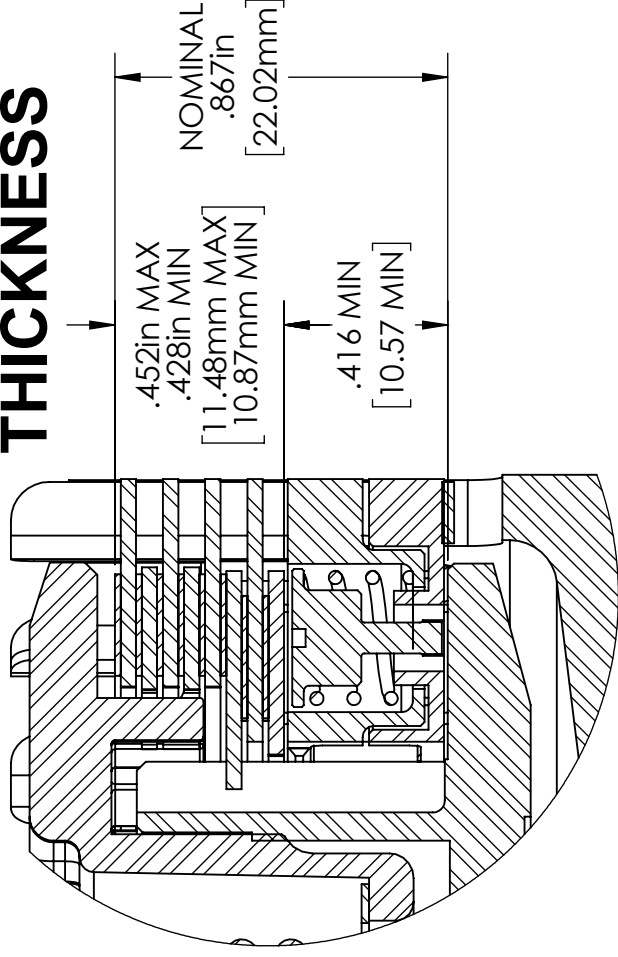
## TUNING OPTIONS

ENGAGEMENT RPM	EXP SPRINGS
LOW	2 RED & 3 SILVER
MEDIUM*	3 RED & 2 SILVER
HIGH	5 RED

\* MEDIUM SETTING IS PREINSTALLED IN THE EXP DISC



## CLUTCH PACK THICKNESS



## SERVICE LIMITS

COMPONENT	STANDARD	SERVICE LIMIT
TORQDRIVE FRICTION	.068-.072in 1.73-1.83mm	.065in 1.65mm
EXP	.426-.446in 10.8-11.3mm	.416in 10.6mm

## COMPONENTS

ITEM NO.	DESCRIPTION	QTY.
1	BASKET SLEEVE	10
2	EXP DISC	1
3	DRIVE PLATE 0.040" (1mm)	2
4	NOTCHED TOOTH DRIVE PLATE	1
5	PRESSURE PLATE DRIVE PLATE 0.040" (1mm)	1
6	TORQDRIVE FRICTION	1
7	PRESSURE PLATE TORQDRIVE FRICTION	3
OE	OE PRESSURE PLATE	1
OE	OE PRESSURE PLATE SPRING	3
OE	OE SPRING PLATE	1
OE	OE PRESSURE PLATE SCREW	3
OE	OE HUB AND BASKET	1