



# REKLUSE<sup>®</sup>

## EXP<sup>™</sup>

## REKLUSE MOTOR SPORTS

The Rekluse EXP Kit for Kawasaki KLR 650

# INSTALLATION & USER'S GUIDE

Doc ID: 191-6347A

Doc Rev: 122214

## OVERVIEW

This kit replaces the OEM clutch pack with a Rekluse-made clutch pack designed for optimal function specific to your bike.

### NOTE:

The KLR650 has had two different clutch types over the years. In 2011, Kawasaki changed the clutch design part-way through the model-year. The clutch pack configuration that you will install will depend on your bike's model-year. Use these guidelines to configure your clutch pack:

- **1996 - 2011½** : Configuration A (**9x** thin friction disks, **8x** Rekluse drive plates, **1x** OEM drive plate)
- **2011½ and newer** : Configuration B (**8x** thin friction disks, **8x** Rekluse drive plates)

**For 2011 models:** Determine which configuration to install by one of the following methods:

1. Count the friction disks in your stock clutch as you remove them. If it has 8x friction disks, you will use Configuration A. If your stock clutch has 7x friction disks, you will use Configuration B.
2. Read the engine's serial number to determine the correct configuration. Serial numbers including and before **KL650AEA72319** will use Configuration A, and any serial numbers following this will use Configuration B.

## RESOURCES

- Thoroughly read and understand the **Safety Information** document for this product before installing
- Videos related to this product can be viewed online at [rekluse.com](http://rekluse.com)
- A detailed parts fiche can be found online at [rekluse.com/support](http://rekluse.com/support)



*Engine serial number is located just above the clutch cover and underneath the exhaust on the top surface of the engine.*

## **INSIDE THIS DOCUMENT**

- INSTALLATION
- SETTING THE INSTALLED-GAP
- CHECKING FREE PLAY GAIN & BREAK-IN
- LEVER SAFETY STRAPS
- EXP TUNING OPTIONS & ENGAGEMENT SETTINGS
- MAINTENANCE

## **USE OF OTHER AFTERMARKET PRODUCTS**

- If your bike is equipped with an aftermarket clutch cable, or your OEM cable is old or has stretched, you may find that the adjustment range in your cable is different than depicted in this manual.
- Bar risers may limit the travel necessary for your cable adjustment to achieve the installed-gap.
- If you prefer the use of an aftermarket clutch lever and/or perch, especially the adjustable variety, note that:
  - Some aftermarket lever/perch combos claim “Lighter Lever Pull” which correlates to less lift of the pressure plate (the mechanical advantage is increased, so the distance the pressure plate lifts must decrease). This may have an adverse effect by producing more clutch drag or harder shifts. The lever may be lighter, but you will have to pull the lever in farther to disengage the clutch.
  - Some aftermarket lever/perch combos may provide lever “free play” if desirable.
- This product has not been proven to be compatible with hydraulic conversion kits, as it is difficult to achieve the necessary installed-gap adjustment.

# INSTALLATION TIPS

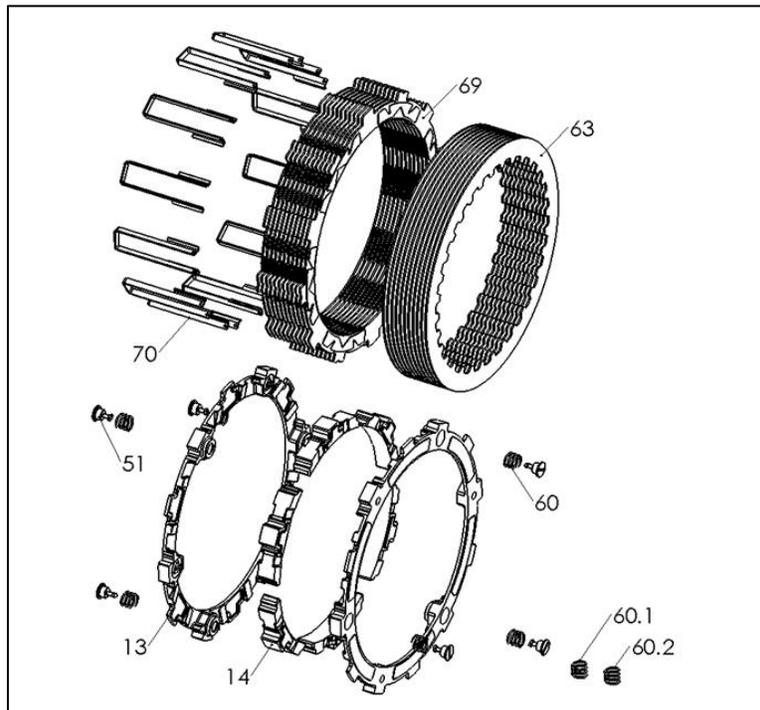


- Watch the “EXP Auto-Clutch Installation Video” by scanning this QR code or visiting [rekluse.com/videos](http://rekluse.com/videos).
- Read this entire document before performing any steps, so you will know what to expect.
- Be sure to wear proper eye protection.
- It is recommended to replace the clutch cover gasket any time the clutch cover is removed.
- Laying the bike on its side allows for easy clutch access and eliminates the need to drain oil
- Use clean, quality JASO MA certified oil for motorcycle transmissions for best performance.
- When reinstalling components, use the torque specifications found in your OEM service manual

# TOOLS NEEDED

- 8 & 10mm Sockets
- 2x Dental Pick Tools
- Needle-Nose Pliers
- 2x 12mm End Wrenches
- Funnel
- 8mm End Wrench

# INCLUDED PARTS



Item	Item Type	Qty
13	EXP Base *	2
14	Wedge Assembly *	6
51	Fastener - 1/4-Turn Pin *	6
60.X	EXP Adjustment Spring * (extra are included, see EXP tuning options)	6
63	Drive Plate	8
69	<b>TorqDrive™</b> Friction Disk**	8,9
70	Basket Lining Sleeve	12

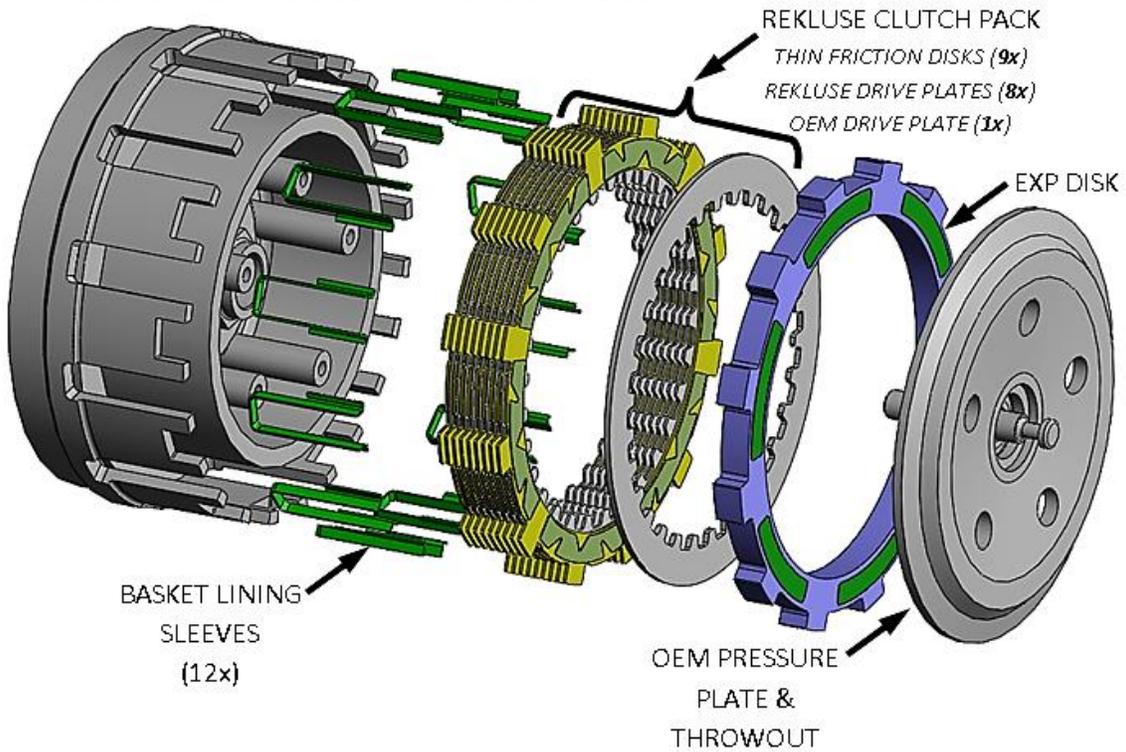
\* Denotes parts assembled as part of EXP disk assembly

\*\* 2011½ and newer models use 8x friction disks

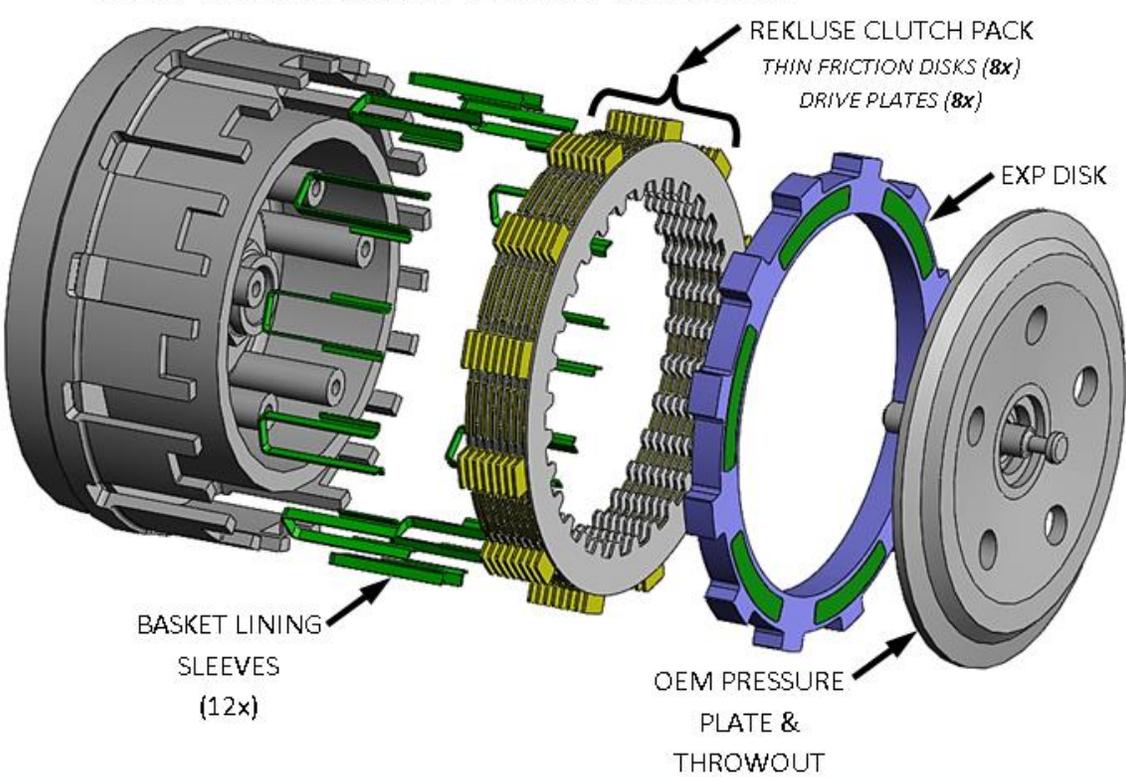
Visit [Rekluse.com/support](http://Rekluse.com/support) for a full parts fiche illustration and part numbers.

# ASSEMBLY OVERVIEW

## CONFIGURATION A: 1996 - 2011½

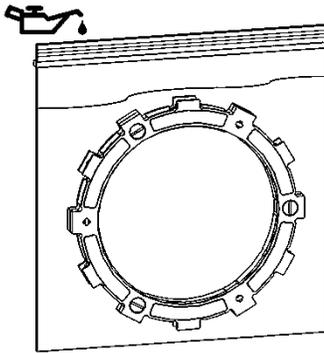


## CONFIGURATION B: 2011½ and newer



# PREP & DISASSEMBLY

1. Soak the EXP disk and Rekluse friction disks in engine oil for at least 5 minutes.



2. With the bike on its kickstand or center stand, drain the engine coolant from the bike.
3. To avoid draining the oil, you can lay the motorcycle on its left side. Otherwise, stand the bike vertically on a center stand and drain the oil.
4. Optional: the next few steps may be made easier by removing the skid-plate.
5. Remove the three water pump cover bolts using an 8mm socket, taking care to not damage the water pump gasket. Replace this gasket if it is torn or damaged.



6. Using a 10mm socket, remove the water pump impeller nut. While removing the impeller be sure to remove both flat washers, one behind the impeller nut and one behind the impeller.



7. Using a 12mm end wrench, loosen the jam nut to produce ample slack in the clutch cable.



8. Using needle-nose pliers, grip and feed the clutch cable through the actuator arm to disconnect the clutch cable from the actuator.

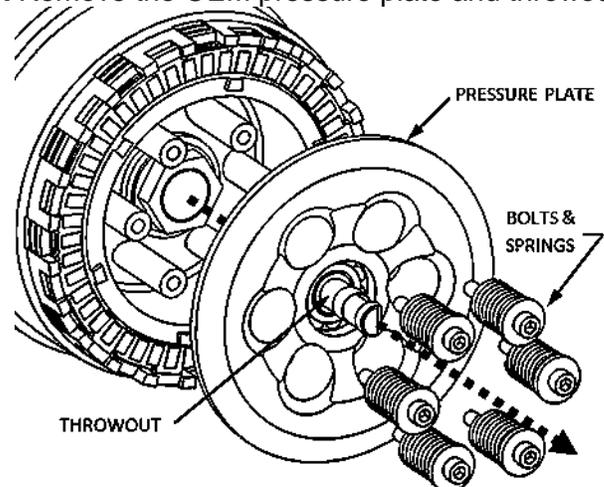


9. Remove the clutch cover bolts and clutch cover, taking care to not damage the cover gasket. Replace this gasket if it is torn or damaged.

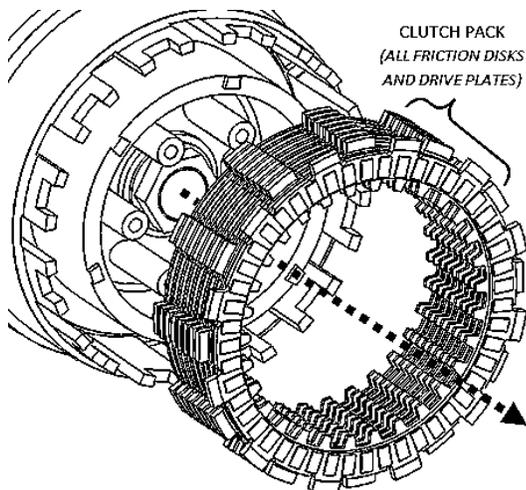
*Removing the rear brake pedal will make removal of the clutch cover easier.*

10. Using a 10mm socket, remove the clutch cable holder so the clutch cover can be fully removed.

11. Remove the OEM pressure plate and throwout:



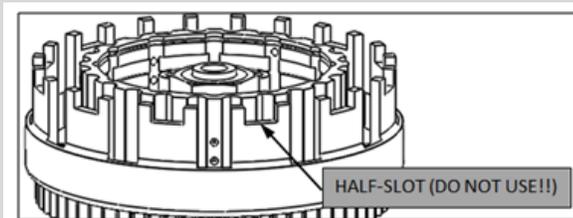
12. Remove the entire OEM clutch pack (all plates).



## INSTALLATION

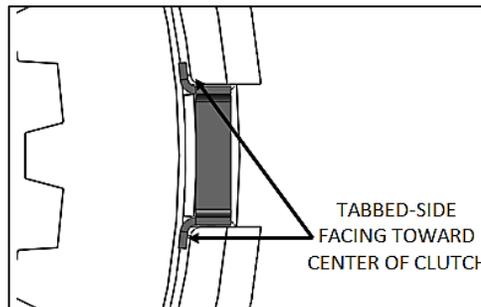
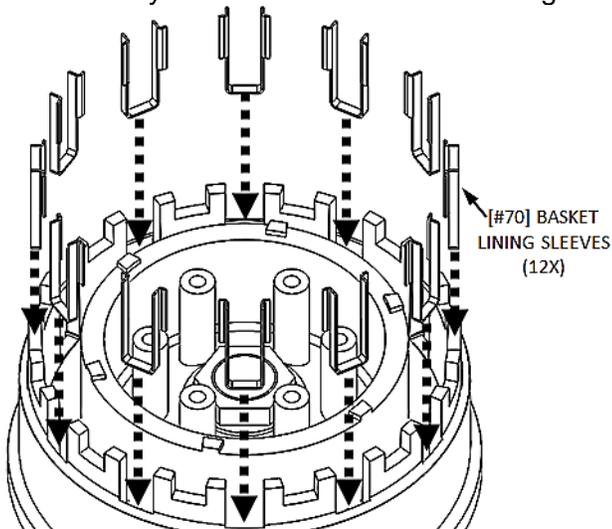
### Clutch Pack Installation Notes:

1. Use only the full tang slots. Never install any disks into the half-slots.

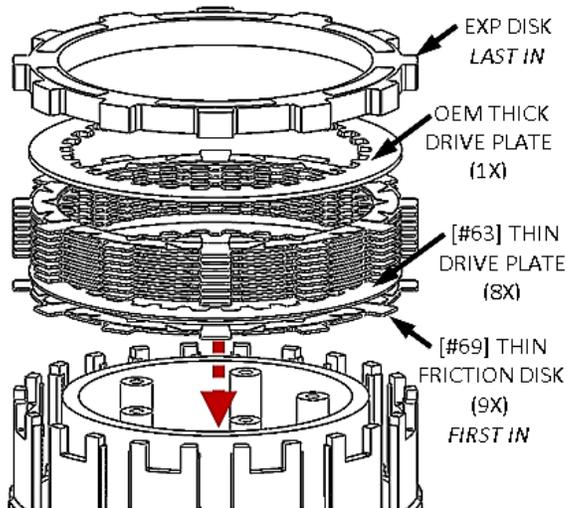


2. The EXP disk is not directional; it can be installed in any orientation.

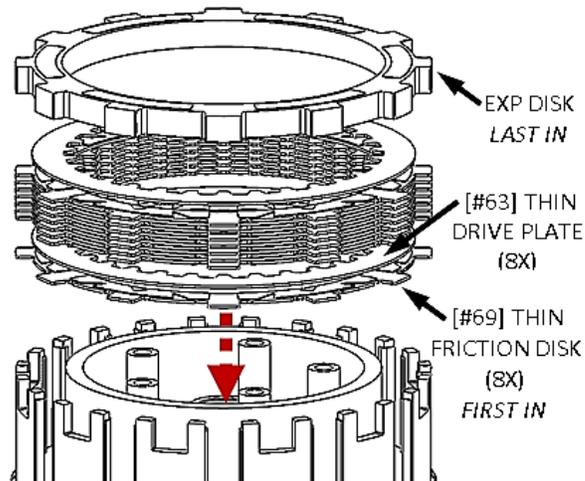
13. Install the 12x Basket Lining Sleeves [#70] into the tang slots of the basket, pushing them down in until they contact the bottom of the tang slots.



14. If installing **Configuration A**: install the Rekluse clutch pack as depicted below.

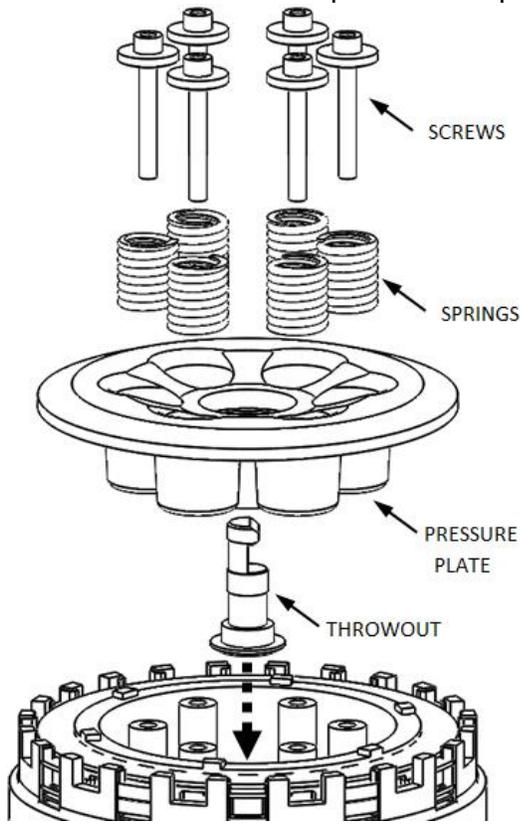


If installing **Configuration B**: install the Rekluse clutch pack as depicted below.



**Note:** With **Configuration B**, 1x Rekluse thin friction disk will be left over after installing the clutch pack.

15. Reinstall the OEM throwout and pressure plate, followed by the springs and screws in the order they were disassembled. Torque to OEM spec.



16. Reinstall the clutch cover, taking care to align the throwout correctly with the actuator mechanism in the cover. Torque the cover bolts to OEM spec.

17. Reinstall the water pump impeller followed by the water pump cover. Torque to OEM spec. *Do not over-torque impeller nut, or damage can occur!*

18. Reinsert the threaded clutch cable end into the support bracket on the clutch cover with the jam nuts loosely in place. Do not tighten the jam nuts.

19. With the bike in a vertical position, either on its kickstand or a center-stand, use a funnel to refill the bike with engine coolant.

## INSTALLED-GAP SETTING

**DEFINITION:** “Installed-Gap” is the separation in the clutch pack created by the tension adjusted into the clutch cable. This gap is what allows the clutch to spin freely until the desired RPM is reached for engagement; it must be set correctly for optimal performance.

### NOTICE

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

20. Locate the two jam nuts at the clutch cable support bracket. The jam nut that is closer to the front of the bike will be used to tighten that cable slack and set the Installed-Gap, while the rear jam nut will be used later to secure the optimal setting once determined.

Tighten the front jam nut so there is no slack in the clutch cable (the clutch lever will become tight against its perch).



21. Once all the cable slack is gone, tighten the front jam nut about 3 more turns, so that the clutch actuator arm starts to move. This is a decent starting point for finding the correct installed gap.



22. In the next section you will make adjustments using the front jam nut and perch adjuster to set the desired Installed-Gap based on the lever free play gain. Once this is established and everything functions well, you will tighten the rear jam nut to secure your cable adjustment setting.

## CLUTCH LEVER STICKER

23. Install the provided warning label on the clutch lever so that the writing is visible to the rider as shown.

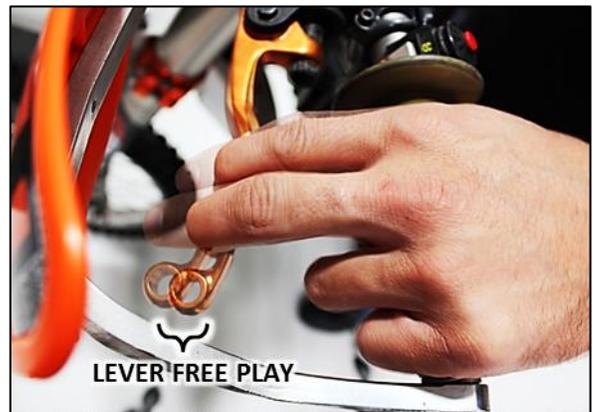


## CHECKING LEVER FREE PLAY GAIN

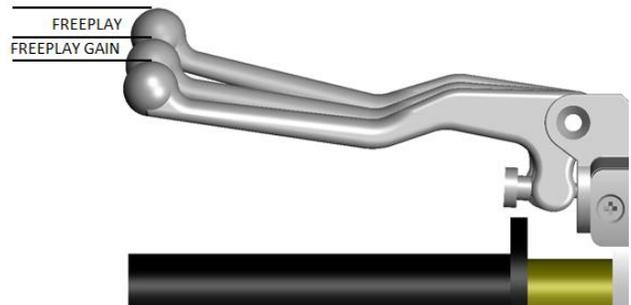
**NOTE:** Before performing this step, please visit our website at [rekluse.com/support](http://rekluse.com/support) to view the TECH VIDEO entitled “How to Check Free Play Gain”.



“**Lever Free Play**” is essentially the “slack” in the clutch lever before it starts actuating the clutch. Applying a light finger pressure will take up this slack. *With this clutch kit installed, there will be NO lever free play, as the cable is always under tension.*



“**Free Play Gain**” is the increase of lever free play as the auto-clutch engages. This happens when the RPM increase from idle through around half-throttle (4,500 RPM). Free Play Gain is caused by the expansion of the EXP disk which lifts the pressure plate away from the throwout assembly.



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



### Rubber Band Method:

It is recommended that you use this method first to find your Free Play Gain so you can see what it is. Then, check it by hand as well so that you can effectively and comfortably check free play gain every time you ride.

Wrap the included rubber band around the outer end of the handlebar grip and attach it to the ball end of the clutch lever.

The following steps explain two ways to check Free Play Gain. One will use the rubber band that has been included in the clutch kit and one explains using your hand, which you will perform before every ride.

Place the bike in neutral, start the engine and let it warm up for 2-3 minutes.

#### NOTICE

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

#### WARNING

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.



With the bike at idle in neutral, quickly blip (rev) the engine to at least half-throttle (~4,500 RPM) and let it return to idle. The end of the clutch lever should move in about 1/8" (3mm) toward the handlebar as you rev the engine.

**NOTE:** If you are not getting the correct lever movement, see the "Free Play Gain Troubleshooting Guide" on the next page.

### Hand Method:

Free play gain should also be checked using your hand, as you will check it by hand before every ride. With the bike at idle, apply enough pressure to the lever to take up the initial freeplay (slack) shown in the photos on the previous page. While continuing to apply light pressure, rev the engine to half-throttle. **The clutch lever should move in 1/8" (3mm) under your finger pressure as you rev the engine and the auto-clutch engages.**



## FREE PLAY GAIN TROUBLESHOOTING

Each adjustment should be done in small increments (one-quarter-turn of the front jam nut at a time). After each adjustment, repeat the rev-cycle until optimal free play gain is achieved.

### NOTE:

If you are unable to obtain the correct free play gain or you are nearly out of cable adjustment after performing the steps below, refer to the CLUTCH PACK ADJUSTMENT section.

### Symptom:

- Clutch lever moves in too far (too much free play gain)
- Clutch has excessive drag
- It is difficult to fully override the clutch with the lever

**Answer:** Installed-Gap is too small

**Solution:** TIGHTEN THE CABLE by turning the Adjuster Nut to increase the Installed-Gap.

### Symptom:

- Clutch lever does not move enough or does not move at all (too little free play gain)
- Clutch is slipping

**Answer:** Installed-Gap is too large

**Solution:** LOOSEN THE CABLE by tuning the Adjuster Nut to reduce the Installed-Gap. It may be helpful to re-find the starting point.

## BREAK – IN

Follow these procedures for a new installation and any time new friction disks, EXP bases, or wedges are installed.

1. Rev cycles: Warm up the bike for 2-3 minutes. With the bike in neutral and your hand **off** of the clutch lever, rev the engine 10 times, being sure to let it **return to idle** between each rev cycle.
2. With the engine running, pull in the clutch lever and click the bike into gear. Slowly release the clutch lever. The bike should stay in place, perhaps with a slight amount of forward creep.
3. Now that the bike is idling in first gear, slowly apply throttle to begin moving. To break in the clutch components, perform the following roll-on starts in 1st and 2nd gear without using the clutch lever: In 1st gear, accelerate moderately to approximately 4,500 RPMs and come to a stop—repeat this 5 times. Next, starting in 2nd gear, accelerate moderately to approximately half-throttle then come to a stop—repeat this 5 times.
4. Now that the EXP is broken-in and the clutch is warm, re-check free play gain at your clutch lever and adjust if necessary. Your clutch pack will expand with heat, so final adjustments should be made when the bike is warm. Now you are ready to ride!

### **WARNING: DO NOT RIDE WITHOUT SUFFICIENT FREE PLAY GAIN!**

Checking free play gain is easy and takes less than a minute to perform. For optimum performance and longevity, check free play gain when the bike is warm at the start of every ride.

**NO FREE PLAY GAIN MEANS THE CLUTCH WILL SLIP!**

## CLUTCH NOISE & DRAG

### **Noise:**

Although it is harmless, some bikes 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. For bikes that tend to have clutch squeal or chatter here are some recommendations to reduce or eliminate it:

- **Oil:** Rekluse recommends that you have fresh, clean JASO-MA rated oil for best clutch performance. Dirty or old oil can make the clutch more likely to squeal or chatter. Some heavy-duty oil stabilizers or other additives have been known to reduce noise and make shifting smoother. Be sure that any additives you might use are approved for use in wet-clutch motorcycles.
- **Installed-Gap:** Adjusting the Installed-Gap will NOT affect clutch squeal or chatter

### **Drag:**

Now that your clutch has more friction disks and therefore surfaces than stock, the clutch may drag more than stock, and possibly may drag more noticeably more when cold. If this occurs, warm the bike up by allowing it to idle for a few minutes before riding.

# CLUTCH PACK ADJUSTMENT

If you are unable to obtain the correct free play gain, or you are nearly out of cable adjustment when correct freeplay gain is achieved, follow the steps below.

**Symptom:** Unable to achieve optimal free play gain before running out of or becoming dangerously low on adjustment travel on the adjustment nut (front) side



**Cause:** Overall clutch pack height may be too short.

**Consequences:** excessive clutch slip and subsequent heat buildup; becoming stranded.

**Solution:** Confirm that the clutch pack configuration was installed correctly with the appropriate number and order of clutch plates.

If the problem persists, measure your friction disks as per the spec on the next page. If they are out of spec, replace as necessary.

**Symptom:** Running out of adjustment travel on the jam nut (rear) side of the cable adjuster



**Cause:** Possible stretched (worn out) cable, or possible incorrect clutch pack configuration.

**Consequences:** Possibly having too much free play gain and no more room for adjustment; you may have to move the rear jam nut to the adjustment (front) side as well if there are not enough threads left for the jam nut on the cable adjuster below the case.

**Solution:** If correct clutch pack configuration is confirmed, options include:

1. Place both nuts on the upper side of the cable holder and tighten against each other.



2. Purchase a new OEM cable if yours is stretched too far to operate optimally.

# LEVER SAFETY STRAPS

This kit includes 2 Velcro-type straps to be used to secure both the clutch and front brake levers when the bike is parked. These 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 on it. Use the straps to pull both levers as tight to the bar as possible as shown in the photos every time you park or leave the motorcycle. Refer to the Safety Information document for more information.

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



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



Rekluse auto-clutch-equipped motorcycles may roll back or move suddenly and unexpectedly and cause riders to lose control.

An auto-clutch-equipped motorcycle will move in gear with the engine off because the clutch is only engaged when engine RPM is greater than the engagement threshold of the auto-clutch. Engine compression will not prevent motorcycles from moving while in gear.

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.

**To avoid death, serious injury, and/or property damage:**

- Use the included brake lever strap to secure the front brake lever to the handlebar as a parking brake.
- Use the included clutch lever strap when the motorcycle is parked to secure the clutch lever to the handle bar, thereby completely disengaging the clutch.

# EXP TUNING OPTIONS

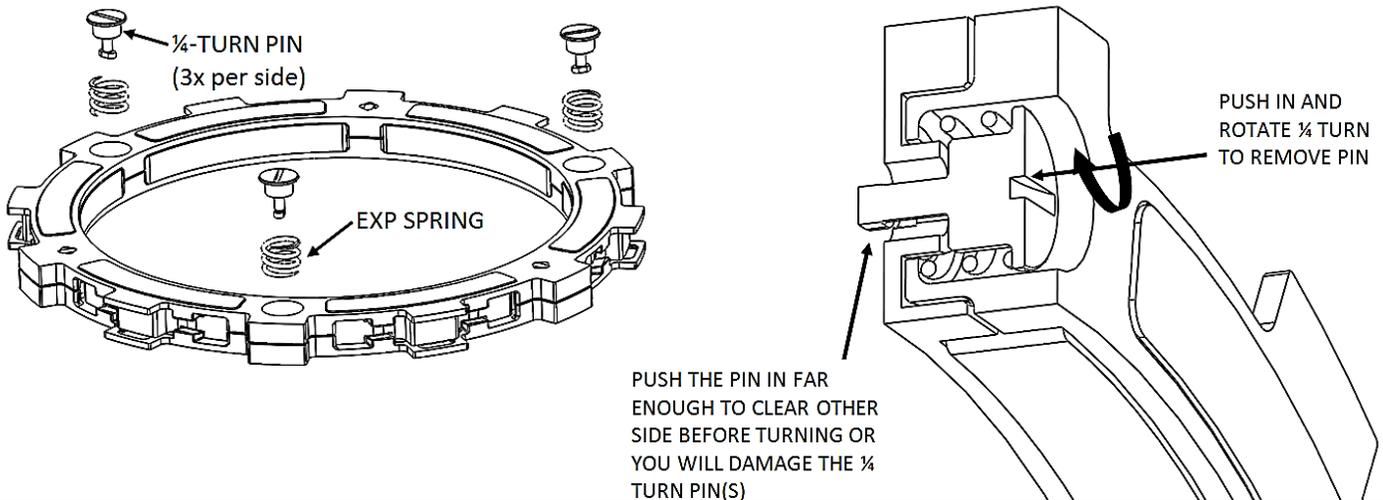
Included are spring options to tune the engagement RPM of the EXP friction disk. The EXP friction disk comes set with the recommended “Low” setting from Rekluse. See the following chart for settings. For bikes that idle above 1300 rpm when hot use “Medium” setting.

**KLR 650: 1996+**

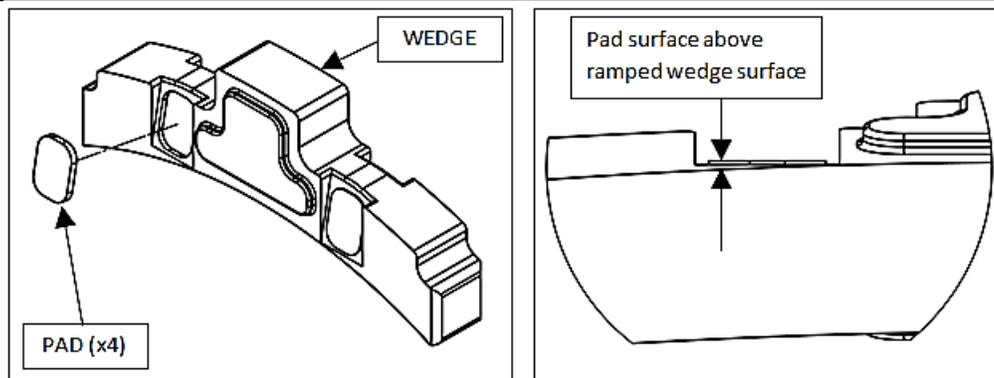
ENGAGEMENT SETTING	EXP SPRING CONFIGURATION
Low	6 Silver Springs
Medium	3 Red and 3 Silver Springs
High	6 Red Springs

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 (approximately 1200 rpm). 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.

It is **NOT necessary** to disassemble the EXP halves to change springs! To change springs, remove 3 of the ¼-turn pins from one side of the EXP, replace springs, and re-install ¼-turn pins. Next, flip the EXP disk over and repeat on the other side if necessary. To maintain even pressure when using two different color spring sets, install one color set of 3 on one side of the EXP and the remaining color set of 3 on the other side.

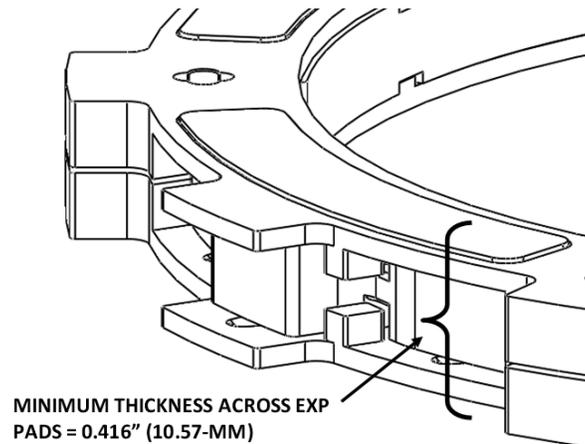


**CAUTION:** If you disassemble the EXP, bearing pads may fall out or be stuck to the ramp surfaces of the EXP bases. Take care to ensure all pads are correctly placed into wedge pockets using gentle pressure to avoid damage to the pad surfaces before reassembling the EXP. Properly seated pads will be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



# MAINTENANCE

- Maintain adequate free play gain, checking before every ride and adjusting if necessary.
- Keep up with regular oil changes as per the bike manufacturer's recommendations. Clutch function and longevity depends on oil quality.
- Inspect all of your clutch parts **as per OEM intervals** for signs of wear or excessive heat, and replace components as necessary.



- If you find yourself making frequent cable 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.
  - o Rekluse friction disk minimum allowable thickness = **0.068" (1.73mm)**Excessive heat or clutch slip can cause premature clutch failure. Once extreme temperatures are reached, irreversible damage will occur. Inspect your clutch plates; if the friction disks look burnt or glazed, or the drive plates are warped, it is best to replace the entire clutch pack.
- Repeat the break-in procedure anytime the friction disks or EXP bases or wedges are replaced. Always soak friction disks or EXP bases in oil for at least 5 minutes before installing.

**REKLUSE®**



©2015 Rekluse Motor Sports  
Rekluse Motor Sports, Inc.  
12000 W Franklin Rd  
Boise, Idaho 83709  
208-426-0659  
support@rekluse.com