



REKLUSE MOTOR SPORTS

The Rekluse EXP Kit for KTM 690 & Husqvarna 701 - LC4

INSTALLATION & USER'S GUIDE

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Doc Rev: 070716

OVERVIEW

For MY2016 bike owners only: Refer to the [Slave Cylinder Appendix](#) document before installing the Rekluse-provided slave cylinder on your bike. It may be necessary to change the fluid seals.

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

INSIDE THIS DOCUMENT

- DISASSEMBLY
- INSTALLATION
- SETTING THE INSTALLED GAP & BREAK-IN
- TROUBLESHOOTING
- EXP TUNING OPTIONS & ENGAGEMENT SETTINGS
- MAINTENANCE

INSTALLATION TIPS

- Watch the “EXP Auto-Clutch Installation Video” by following this QR code or visiting rekluse.com/support/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

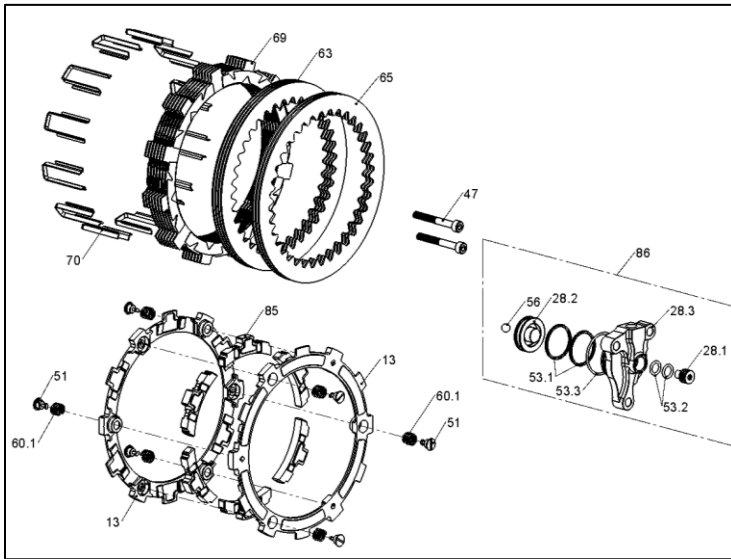


TOOLS NEEDED

- Metric socket set
- 4mm Allen key
- Torque wrench (in-lb & ft-lb, or N-m)
- Metric open-end wrench set

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INCLUDED PARTS

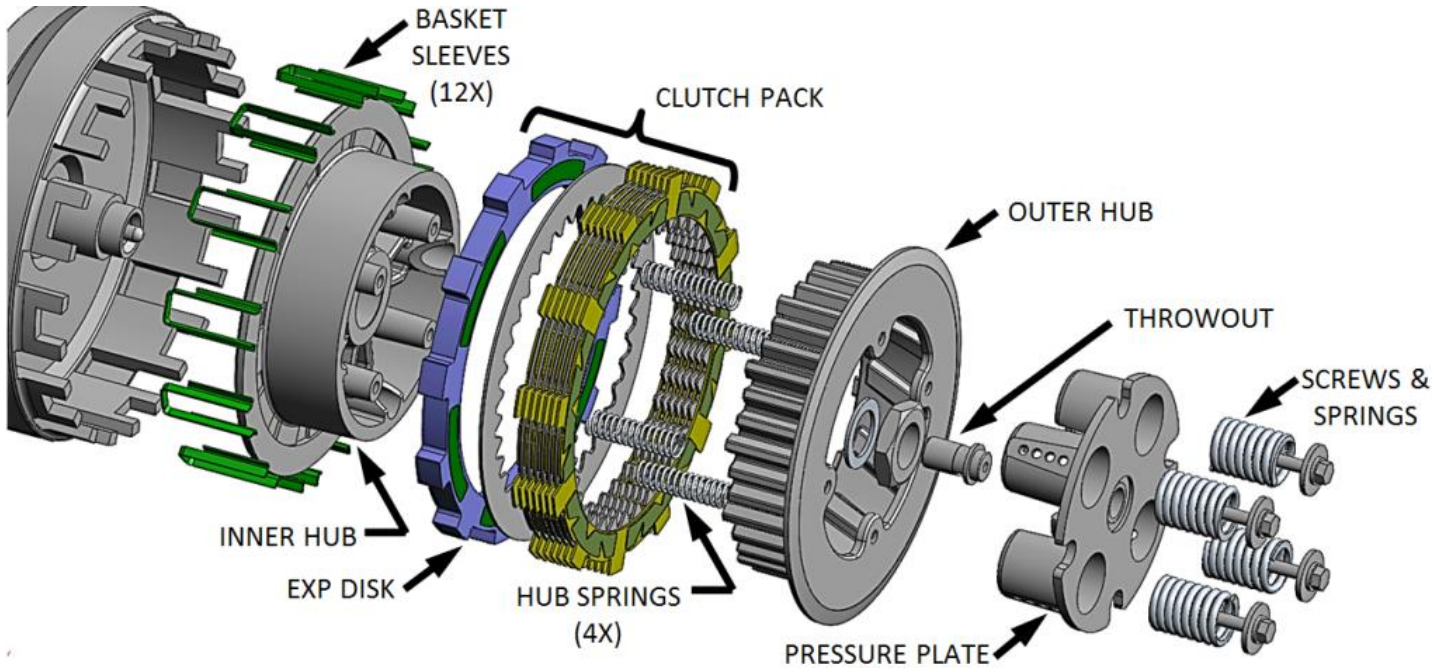


Item	Item Type	Qty
13	EXP Base *	2
47	Assembly Screws (temporary, to aid assembly only)	2
51	Fastener - 1/4-Turn Pin *	6
60.1	EXP Adjustment Spring * (see EXP tuning options)	6
60.2	Pressure Plate Spring (stiffer than stock)	4
63	Drive Plate (.040" [1.0mm] thick)	4
65	Drive Plate (.048" [1.2mm] thick)	3
69	TorqDrive™ Friction Disk	7
70	Basket Lining Sleeve	12
85	Wedge Assembly *	6
86	Slave Cylinder Assembly	1

* Denotes parts assembled as part of EXP disk assembly.

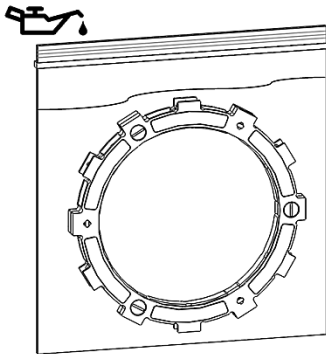
Visit Rekluse.com/support for a full parts fiche illustration and a listing of all part numbers specific to your product.

ASSEMBLY OVERVIEW



PREP & DISASSEMBLY

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



2. To avoid draining the oil, lay the motorcycle on its left side. Alternatively, you can stand the bike vertically on a center stand and drain the oil.

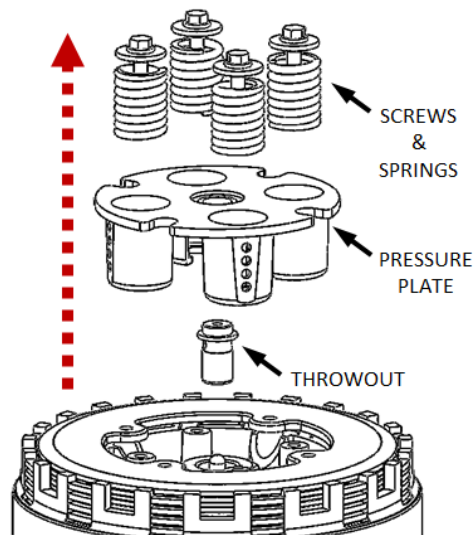


3. Remove the right side swingarm bolt, and move the foot peg assembly out of the way of the clutch cover bolts and clutch cover.
4. Remove the oil filter cover from the engine and move it up out of the way.



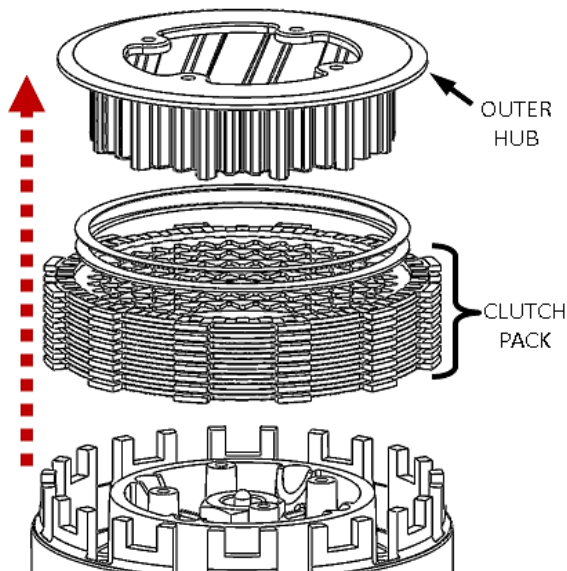
5. Remove the clutch cover bolts and clutch cover, taking care to not damage the cover gasket. Replace this gasket if it is torn or damaged.

6. Remove the OEM screws and springs, followed by the pressure plate and throwout.

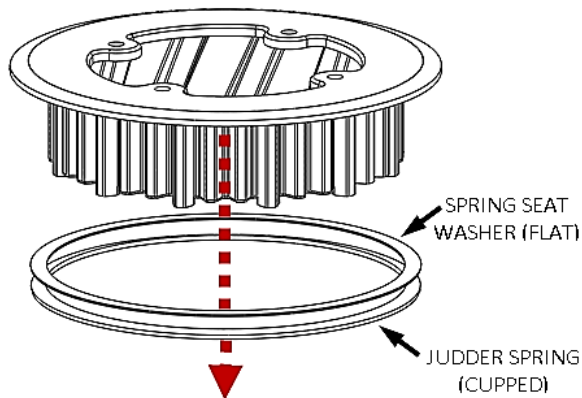


7. Remove the outer hub and the **entire** OEM clutch pack (all clutch plates).

None of the OEM clutch plates will be reused with this kit.



- Remove the judder spring and the spring seat washer from the outer hub and set them aside. These two parts **will not** be reused with the EXP clutch pack.

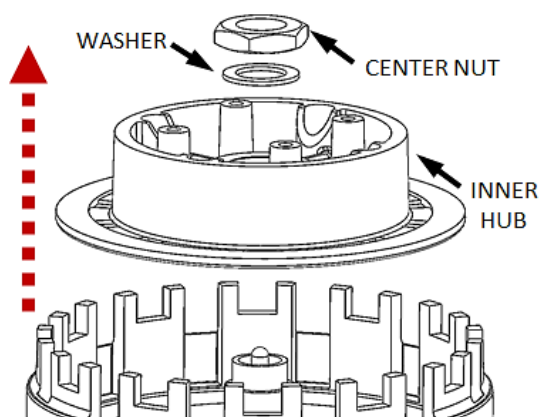


WARNING: It is *critical* that *both* the judder spring (cupped ring) and its seat washer (flat ring) are removed from the outer hub! Often, the spring seat washer will be stuck via an oil film to the outer hub flange.

These two parts **will not** be reused with the EXP clutch pack.

Failure to remove both of these parts before installing the Rekluse clutch plates will result in poor performance or clutch malfunction.

- Remove the inner hub from the engine by loosening the center nut and washer.



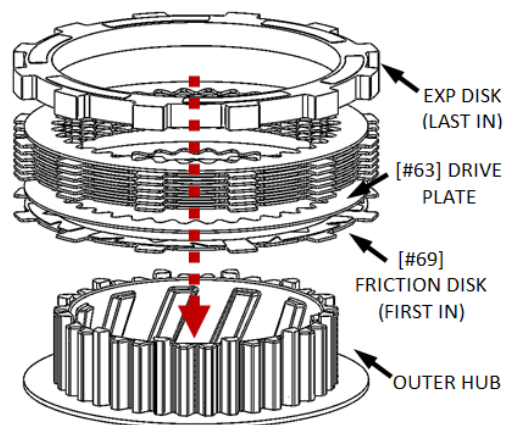
HUB REASSEMBLY

NOTE: Because this bike has a slipper clutch with a “backwards” design, you will assemble the clutch pack between the two hubs before placing this assembly into the bike.

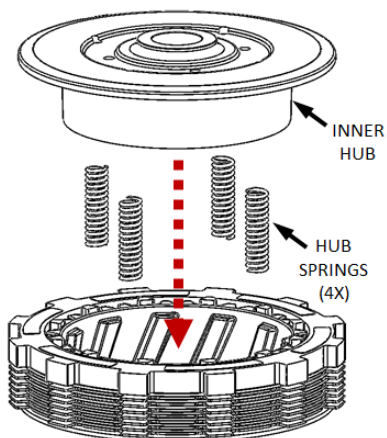
- Place the outer hub on a clean workbench, then install the oil-soaked clutch pack starting with a Rekluse friction disk [#69], followed by a Rekluse drive plate [#63]. Follow this alternating pattern until all the supplied clutch plates are installed.

Be sure to align the tabs on the friction disks with each other. This will make placement into the basket much easier later.

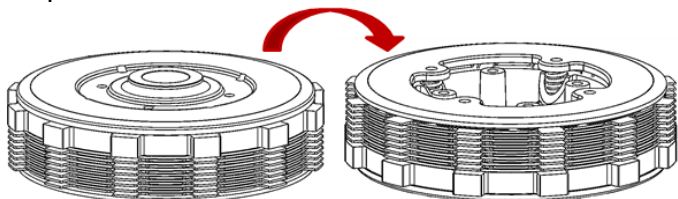
Last in will be the EXP disk. *The EXP disk is unidirectional and can be installed in any orientation.*



- Place the 4x OEM hub springs in their pockets in the outer hub, then install the inner hub, taking care to align the arrows of the two hubs.



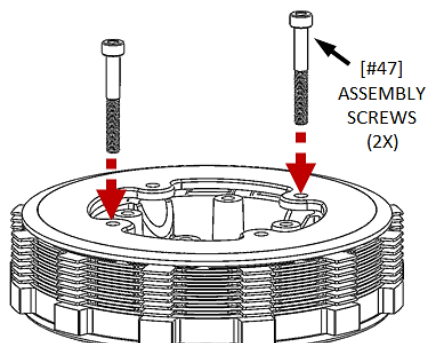
- With your hands, compress this assembly together and flip it over so that none of the plates become unindexed from the outer hub.



- Using a 4mm Allen key, thread the 2x provided assembly screws [#47] through opposing spring pockets. Tighten just until the springs are compressed enough to *contain* the clutch pack, but not fully clamping the clutch pack.

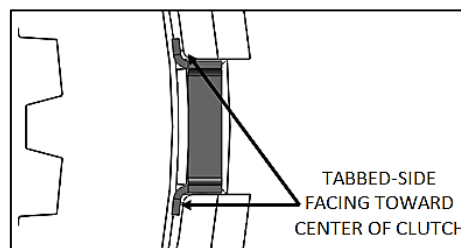
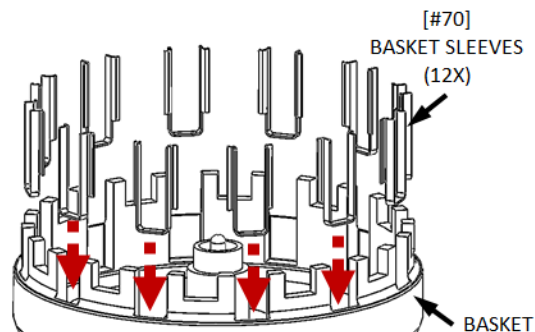
Do not over-tighten!

This step is designed to make it easier to drop the assembly into the bike as one unit.

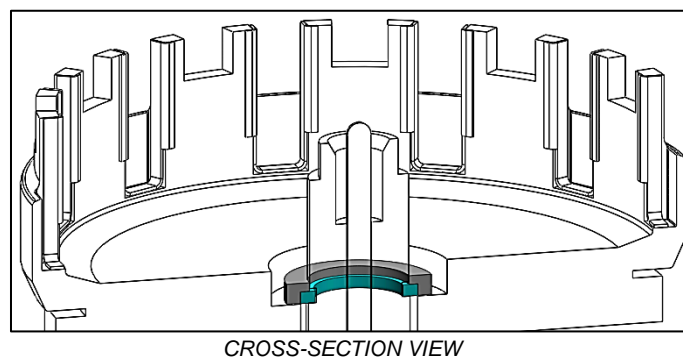
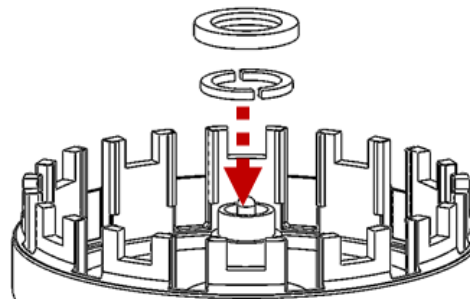


INSTALLATION

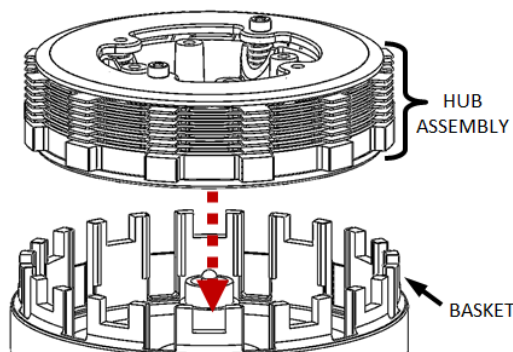
- Install the 12x Basket Sleeves [#70] into the tang slots of the basket, pushing them down until they contact the bottom of the basket. When properly installed, they will be nearly flush with the top of the basket.



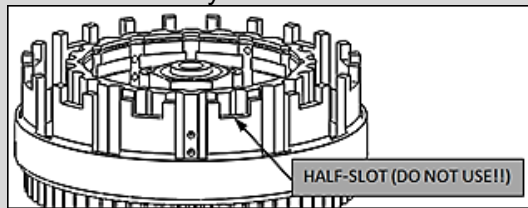
- Check to ensure that the 3-piece thrust washer assembly is correctly in place on the mainshaft. These may have moved when the hubs were removed from the bike.



3. Install the hub assembly into the clutch basket, making sure that all of the friction disk tabs index into the steel basket sleeves and the inner hub spline indexes correctly to the mainshaft.



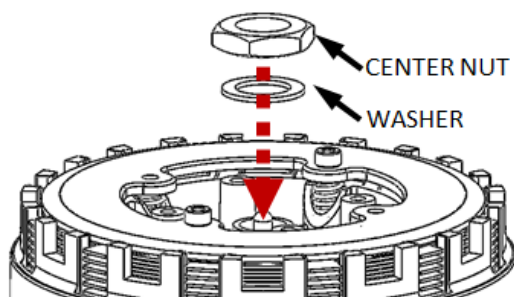
NOTE: Use only the full tang slots.
Never install any disks into the half-slots.



4. Reinstall the OEM washer and center nut, applying Loctite® 243 or equivalent thread-locking compound to the threads.

Use a torque wrench to tighten the center nut to **74 ft-lb (100 N-m)**, but do not over-torque!

This may require placing the transmission in the highest gear and having a friend hold the brake pedal to keep the clutch from spinning.



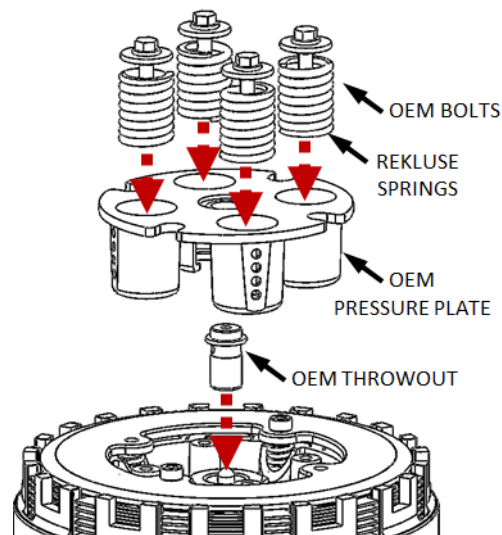
WARNING: Do not over-torque the center nut! Over-torquing will cause drag and can damage your engine's bearings or transmission components.

5. Reinstall the OEM throwout and pressure plate, followed by the springs [#60.2] and OEM bolts.

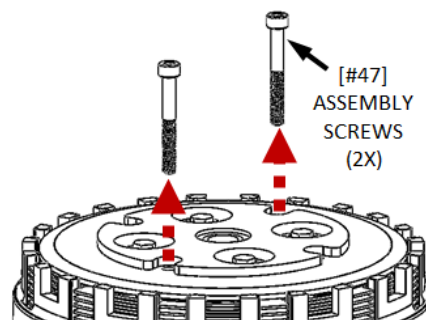
NOTE: The Rekluse-provided pressure plate springs (white) are stiffer than the OEM springs, and they have been found to significantly help improve overall clutch performance in the form of positive engagement and hookup. It is recommended to install them at this time.

Due to the light nature of the clutch lever with the stock springs, the stiffer springs should not adversely affect the clutch lever effort or feel.

Torque the spring bolts to **4.4 ft-lb (6 N-m)**.



6. With the clutch installed, you can now remove the screws that were used to hold the assembly together during installation.



7. Reinstall the clutch cover and oil filter cover, torquing the bolts to the OEM spec:

Clutch Cover Bolts: **7.4 ft-lb (10 N-m)**
Oil Filter Cover Bolts: **4.4 ft-lb (6 N-m)**

8. Reinstall the foot peg assembly and swingarm bolt, applying thread-locking compound to the swingarm bolt and torquing to **59ft-lb (80N-m)**.

SLAVE CYLINDER INSTALLATION

Handle with care! During assembly there is a small ball bearing [#56] installed in the slave piston [#28.3] with a small amount of grease. When installing the Rekluse slave cylinder, make sure the ball does not come loose.

1. Stand the bike up and lean it on its kickstand or place it on a suitable bike stand.



2. Remove the plastic chain guard that covers the slave cylinder.



IMPORTANT CLUTCH FLUID NOTE:

For MY2016 bike owners only:

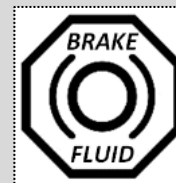
Refer to the *Slave Cylinder Appendix* document before installing the Rekluse-provided slave cylinder on your bike. It may be necessary to change the fluid seals in the cylinder housing and piston.

For all other model-years:

Read the fluid information located on the reservoir cap of your bike's clutch master cylinder. This will inform you of which clutch fluid to use in the following steps, either mineral oil or DOT brake fluid.

Generally:

- MY2015 and older: uses **mineral oil**
- MY2016 and newer: uses **brake fluid**



Adjustable Slave Cylinder Access:

To ensure access to the adjuster screw on the new Rekluse slave cylinder, there are 3 options:

1. Modify the OEM plastic chain guard by drilling a small hole.
2. Purchase an aftermarket chain guard which allows access to the adjuster screw.
3. Remove the OEM chain guard when making adjustments (however, the guard must be securely in place to start the engine or it will leak oil).

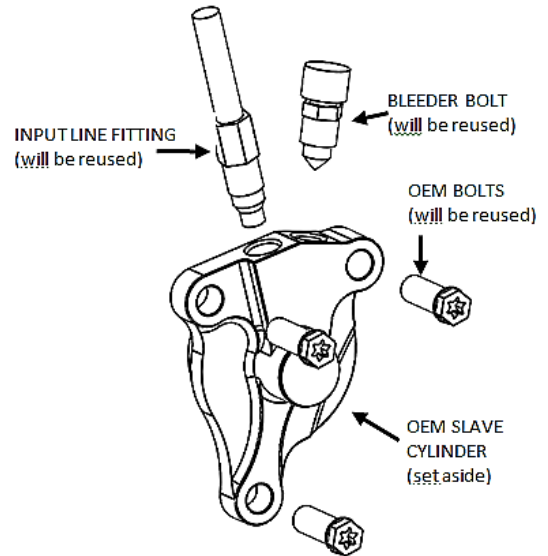
3. To modify the OEM plastic guard, follow these steps. If performed correctly, this modification will not affect or compromise the safety or integrity of the part.
 - a. Measure 1.20" (30.5mm) from the center of the bolt sleeve and make a mark in the center of the valley between embossments as shown below.



- b. Drill a ~5/16" (~8mm) hole at this location.

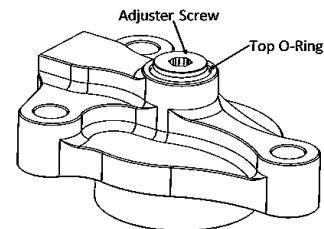


4. Starting at the slave cylinder, remove the OEM parts named in the following diagram beginning with the input line fitting. Your slave cylinder will have a separate bleeder bolt that will be reused.

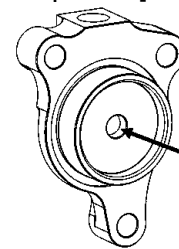


5. On a workbench (away from the engine), bleed the Rekluse slave cylinder by this procedure:

- c. Use a 4mm Allen key to make the top O-Ring [#53.1] visible on the adjuster screw [#28.2].



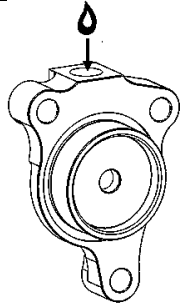
- d. Compress the piston [#28.3] until it bottoms.



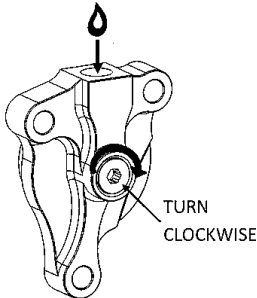
e. Pour clutch fluid into the slave cylinder port.

WARNING

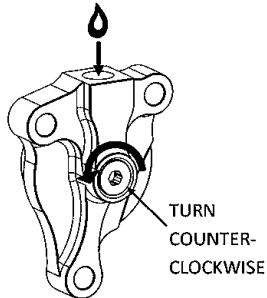
Be sure to use the correct clutch fluid! Check the cap of the clutch master cylinder to determine which clutch fluid to use. Failure to use the correct fluid will result in seal damage and/or failure.



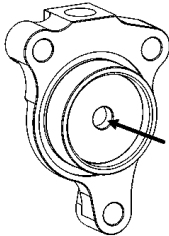
f. Turn the adjuster screw clockwise until it bottoms, keeping the fluid topped off.



g. Turn the adjuster screw back to the initial position with the top O-ring visible.

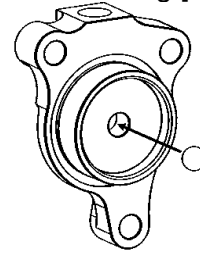


h. Compress the piston until it bottoms out. Repeat the process until there is no longer air escaping from the top port when the piston is compressed.

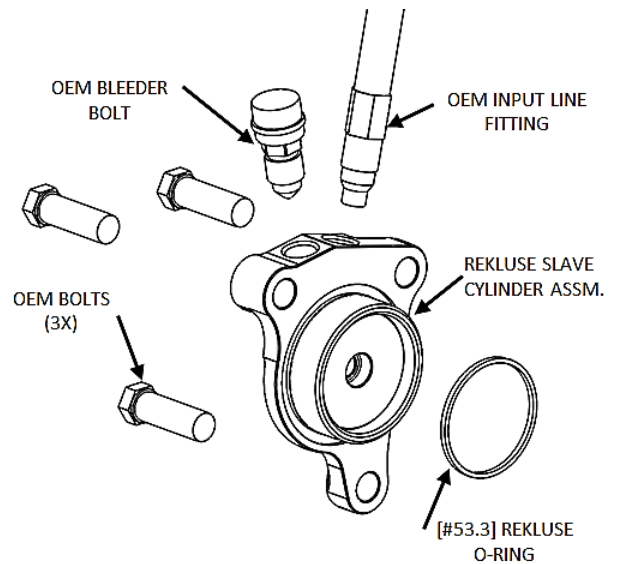


NOTE: When compressing the piston, fluid can shoot out from the slave cylinder port. Be sure to wear eye protection.

6. Check that the ball bearing [#56] is still in place.



7. Install the Rekluse slave cylinder on the bike using OEM bleeder bolt and input line fitting, and the provided case O-ring [#53.3].



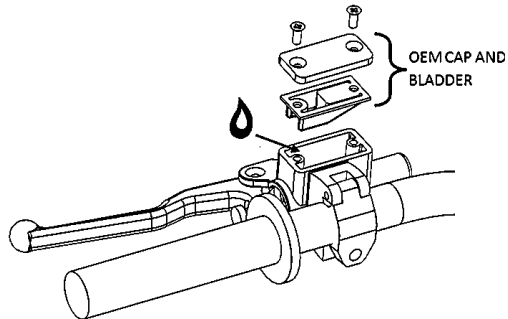
NOTE: Some models employ a paper gasket as well as the O-ring to seal the slave cylinder to the engine. Reuse it if OEM-equipped.



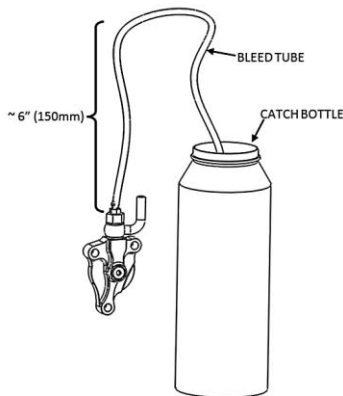
8. Reinstall the modified chain guard.



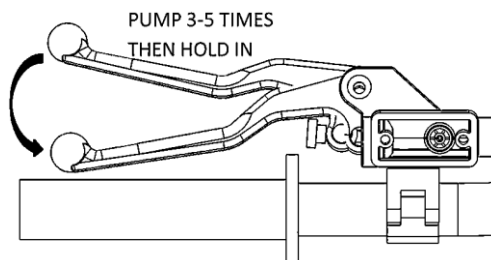
9. Remove the cap and bladder from the clutch master cylinder and top off the clutch fluid.



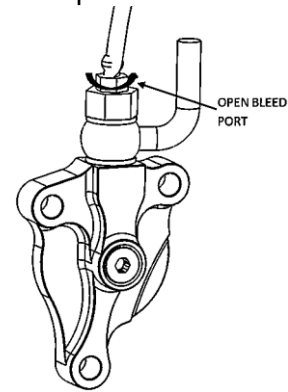
10. Attach the supplied bleed tube to the bleeder bolt port and loop it into a suitable catch bottle.



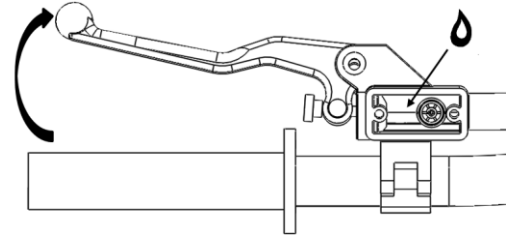
11. Pump the clutch lever 3-5 times then hold it against the bar/grip.



12. Using an 8mm wrench, open the bleed port. Air and fluid should come out of the bleed tube. Tighten the bleed port.



13. Slowly release the clutch lever and check the fluid level in the clutch master cylinder.



14. Repeat the previous 3 bleeding steps until air no longer comes out of the bleed port. Then, check that the clutch lever functions properly. Repeat the bleeding procedure if necessary.

15. Finally, tighten the bleed port and remove the bleed tube.

INSTALLED GAP SETTING

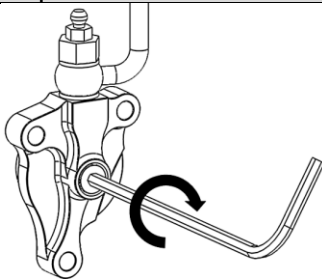
DEFINITION: “Installed Gap” is the separation in the clutch pack created by the adjustment of the Adjuster Screw in the Slave Cylinder. This gap is what allows the clutch to spin freely until the desired RPM is reached for engagement; it must be set correctly for optimal performance.

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.

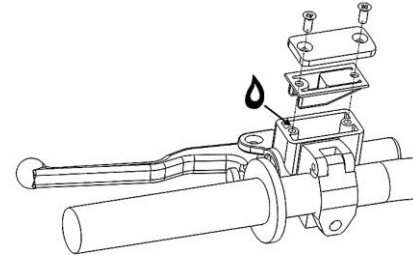
1. Using the long end of a 4mm Allen key, turn the adjuster screw clockwise until it stops under moderate pressure. You are trying to feel for the point at which the throwout will start to lift the pressure plate. This is the “starting point”.

NOTE: It may take a few tries to find the point at which the system is bottomed out. You should feel a distinguishable change in turning effort at this point.



2. Once you have found the starting point, turn the adjuster clockwise 1 full turn plus 5 marks (or “1+5”). **This is NOT your final setting**, but it is a good reference point for using free play gain to find the correct setting.

3. Top off the master cylinder with clutch fluid and reinstall the OEM cap and bladder.



CLUTCH LEVER STICKER

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



CHECKING FREE PLAY GAIN

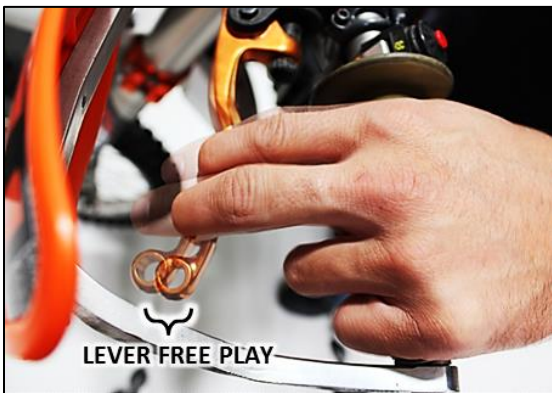
WARNING

Always make sure 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.

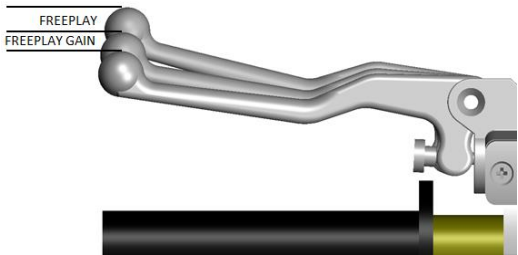
NOTE: Before performing this step, please visit our website at rekluse.com/support to view the TECH VIDEO entitled “How to Check Free Play Gain”.



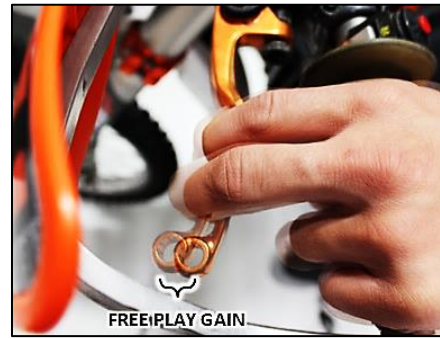
“**Lever Free Play**” is essentially the “slack” in the clutch lever before it starts actuating the clutch. Applying a light finger pressure will take up this slack.



“**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 5000 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.



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.

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.



With the bike at idle in neutral, quickly blip (rev) the engine to at least 5,000 RPM and let it return to idle. **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 at least 5,000 RPM.

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 tick mark at a time. After each adjustment, repeat the rev-cycle until optimal free play gain is achieved.

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: Turn the Adjuster Screw inwardly (clockwise) 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: Turn the Adjuster Screw outwardly (counter-clockwise) 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 or 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 5,000 RPMs and come to a stop—repeat this 5 times. Next, starting in 2nd gear, accelerate moderately to approximately 5,000 RPMs 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.

CLUTCH NOISE & DRAG

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. For bike models 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 surfaces, the clutch may drag more than stock and possibly may drag more noticeably when cold. If this occurs, warm the bike up by allowing it to idle for a few minutes before riding. If drag persists and your installed gap is correct, inspect your clutch plates.
- **EXP Spring Setting:**
If your oil is warm and the clutch plates configuration is in spec, yet your bike wants to drag, pulse, or chatter during idle or takeoff, it may be necessary to tune the EXP springs for a higher-RPM clutch engagement. See the “EXP Tuning Options” section on the following pages for instructions.

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 unwanted 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

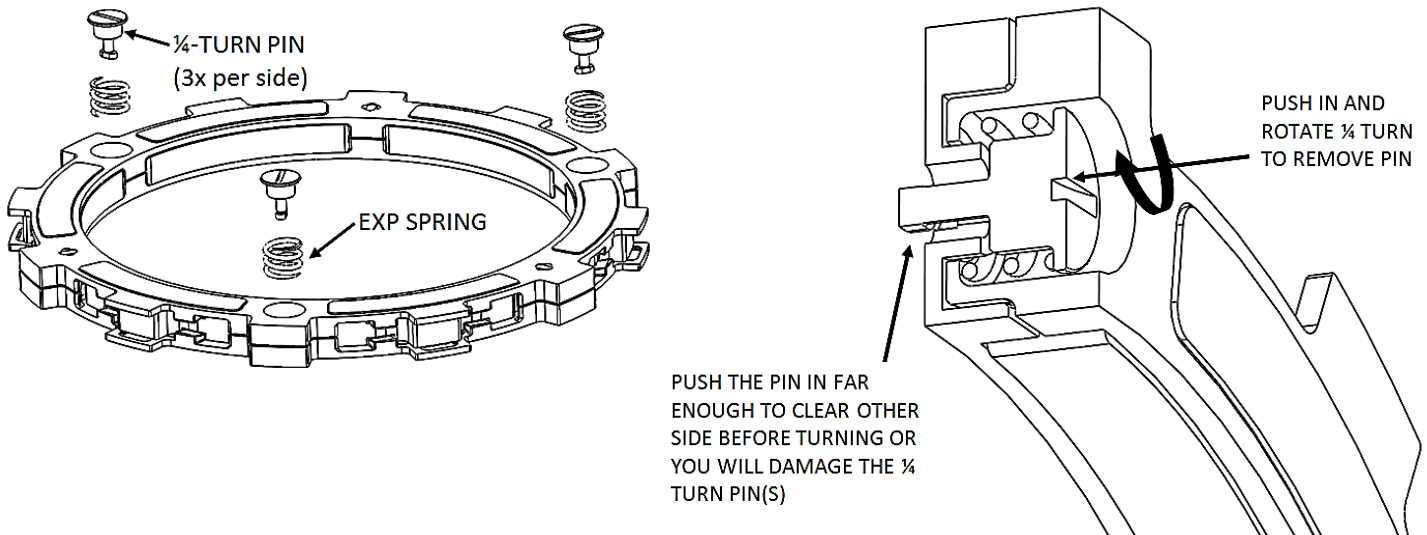
Included are spring options to tune the engagement RPM of the EXP friction disk. The EXP friction disk comes set with the recommended “Medium” setting from Rekluse. See the following chart for settings.

KTM 690

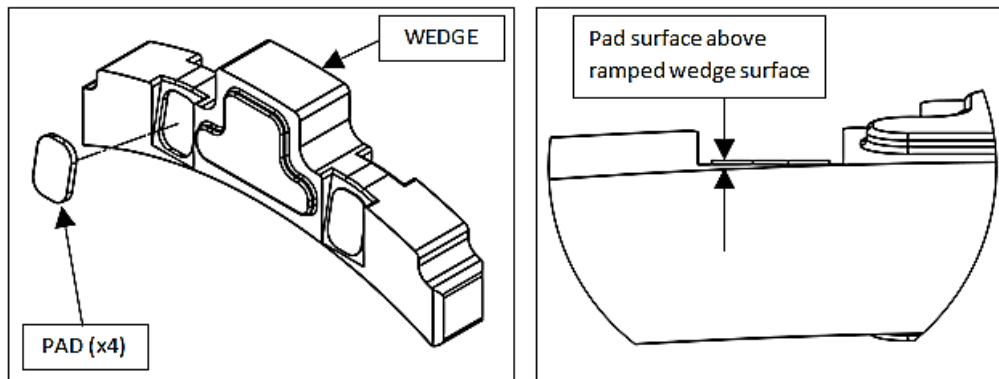
ENGAGEMENT SETTING	SPRING CONFIGURATION
Low	3 Red & 3 Blue Springs
Medium	6 Blue Springs
High	3 Blue & 3 Gold Springs

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. 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.

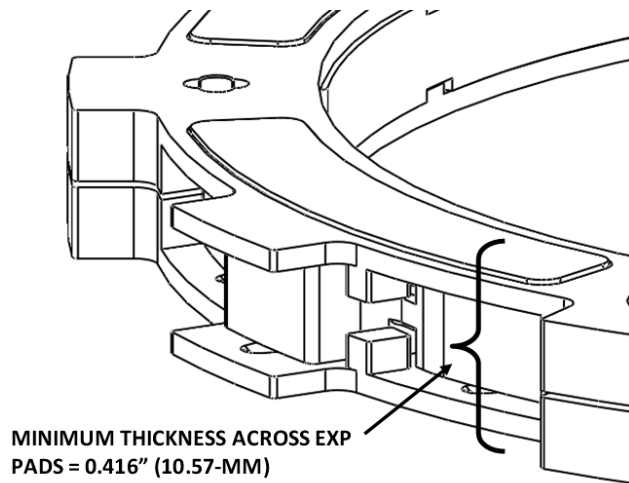


CAUTION: If you disassemble the EXP, bearing pads may fall out or be stuck to the ramp surfaces of the EXP bases. Take care to ensure all pads are correctly placed into wedge pockets using gentle pressure to avoid damage to the pad surfaces before reassembling the EXP. Properly seated pads will be secured 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 **every 40 hours** for signs of wear or excessive heat, and replace components as necessary.



- o Rekluse TorqDrive friction disk minimum allowable thickness at friction pads = **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.

BUMP-STARTING INSTRUCTIONS

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. Use a 4mm Allen key to turn the slave cylinder adjustment screw counter-clockwise until the O-ring is just starting to show, thus collapsing the installed gap in the clutch pack.
2. Bump-start the bike. The clutch will function like a manual clutch at this point.
3. Once the bike is started, reset the Installed Gap by readjusting the slave cylinder adjuster for optimal free play gain as per the prior instructions.

