12000 W Franklin Rd, Boise, ID U.S.A. 83709
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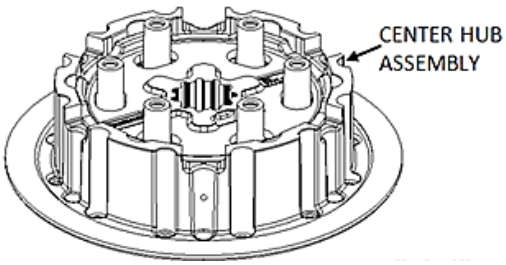
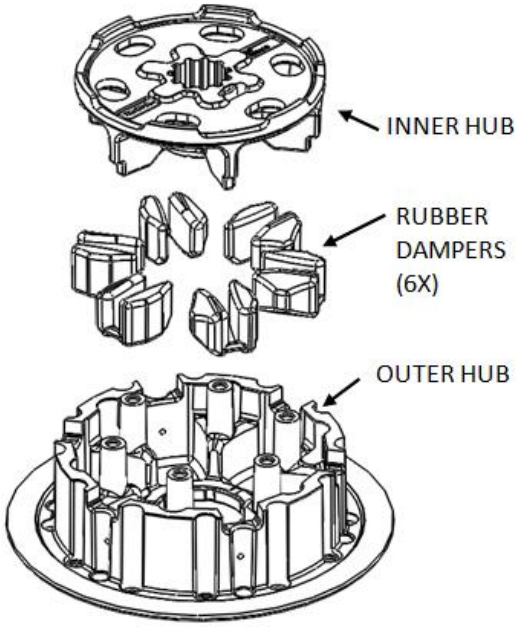
READ ME FIRST

Doc ID: 193-702A
Doc Revision: 022613

The KTM DDS clutch (a.k.a. Belleville spring clutch) employs a 2-piece damped center hub assembly, as shown. Rekluse clutch products employ the same technology and reuse the OEM rubber dampers.





Over time, the rubber dampers will shrink due to heat and use. When this shrinkage occurs, the rotating action between the two hubs becomes loose or sloppy. This can cause hammering between the clutch parts which will reduce the life of the clutch.

KTM recommends inspecting the clutch every 20 bike hours for SX-F models, and every 30 hours for XC, EXC, and XC-W off-road models, and replacing components as necessary. Rekluse has found that these inspection intervals are typically consistent with the expected life of the rubber dampers.
For example: the 450 SX-F (including factory edition) engine operates at high temperatures, and its dampers will require servicing at about 20 hour intervals.

Rekluse recommends inspecting the rubber dampers before installing your new Rekluse clutch product. If your bike has reached or exceeded the recommended inspection interval before installation of this product, perform the clutch installation with **new** rubber dampers. After installation of your Rekluse clutch product, continue to inspect the dampers at these regular intervals and replace if necessary.

The rubber dampers = KTM part #: 78132025100 (6 are required)

See the reverse of this page for damper inspection procedure

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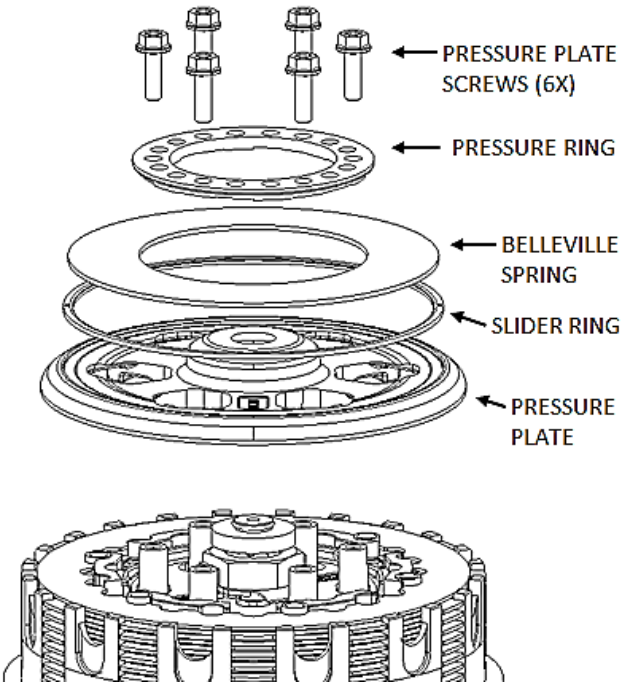
DAMPER INSPECTION

Lay your bike on its left side, then remove the clutch cover and the following components:



With the bike in neutral, place your thumbs on the inner hub, at the location of the embossed part numbers, and try to spin the inner hub back and forth inside the outer hub. Rekluse recommends replacing the dampers if you feel slop between the two hubs.

REKLUSE MOTOR SPORTS

The Rekluse EXP Kit with Adjustable Slave Cylinder

INSTALLATION & USER'S GUIDE

Doc ID: 191-6136A
Doc Rev: 033122

OVERVIEW

- This kit replaces the OEM pressure plate with a high-quality billet component designed for optimal operation and spacing specific to your bike.
- Some of the OEM friction disks will be reused, but all OEM steel drive plates will be replaced with Rekluse slotted drive plates. Also, all 6 of the OEM drive pins will be reused.

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INSIDE THIS DOCUMENT

- INSTALLATION
- SETTING THE INSTALLED GAP
- CHECKING FREE PLAY GAIN
- BREAK-IN
- MAINTENANCE
- EXP TUNING OPTIONS & ENGAGEMENT SETTINGS
- SETUP SHEET (model specific)
- SLAVE CYLINDER APPENDIX (only some models)
- TROUBLESHOOTING GUIDE

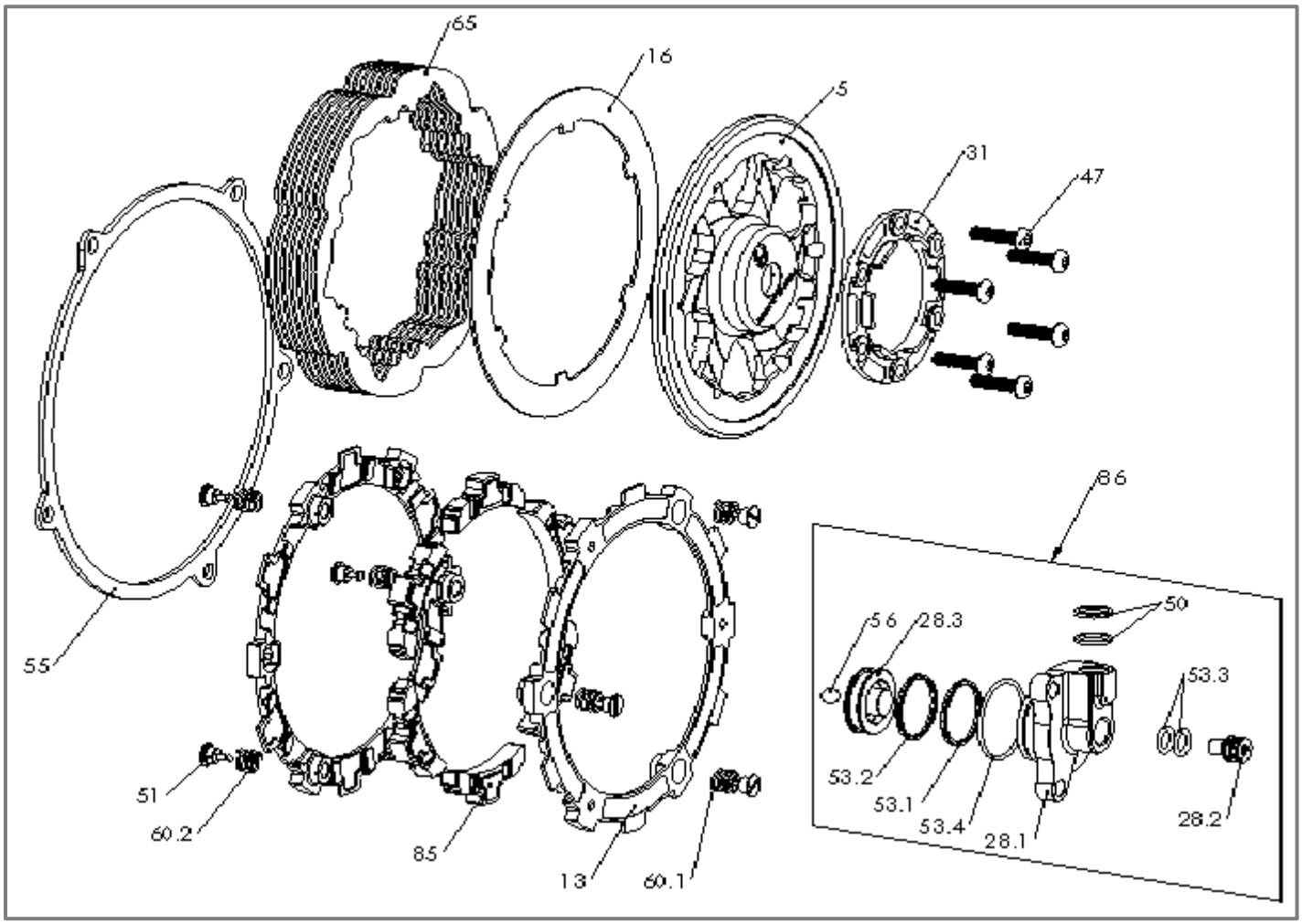
INSTALLATION TIPS

- Watch the “CORE EXP Auto-Clutch Installation Video” by following this QR code or visiting rekluse.com/videos.
- Read this entire document before performing any steps, so you will know what to expect.
- Be sure to use proper eye protection.
- Laying the bike on its left side makes clutch work easier and eliminates the need to drain the oil.
- An air or electric impact wrench works well to remove the center clutch nut, or you can place the bike in top gear and hold the rear brake while loosening the center clutch nut with a socket.
- Channel-lock pliers work best to bend the tabs of the washer up over the center clutch nut.
- 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 to learn more.
- Bikes with taller gearing or modified engines with increased horsepower may require heavier wedges and/or stiffer pressure plate springs which can be purchased separately from Rekluse.

TOOLS NEEDED

- 8mm socket
- 27mm socket (most models)
- 8mm & 12mm end wrenches
- 4mm & 5mm Allen keys
- Torque wrench (in-lb & ft-lb, or N-m)
- Channel-lock pliers
- Hydraulic clutch fluid

INCLUDED PARTS



Item	Item Type	Qty
5	Pressure Plate	1
13	EXP Base *	2
16	Steel Lining Plate	1
31	Pressure Ring Spacer	1
47	Fastener – M5 x 20 T-25 Torx Screw (T-25 Torx bit included)	6
51	Fastener – 1/4-Turn Pin *	6
54	Free Play Gain Rubber Band	1
55	Clutch Cover Gasket (only on 450/500 EXC/XC-W models)	1
60.X	EXP Adjustment Spring * (extra adjustment springs are included, see setup sheet)	6
65	Steel Drive Plate (2-stroke models: see the note in Step 5)	7
85	Wedge Assembly *	6
86	Adjustable Slave Cylinder Assembly (bleed tube included)	1

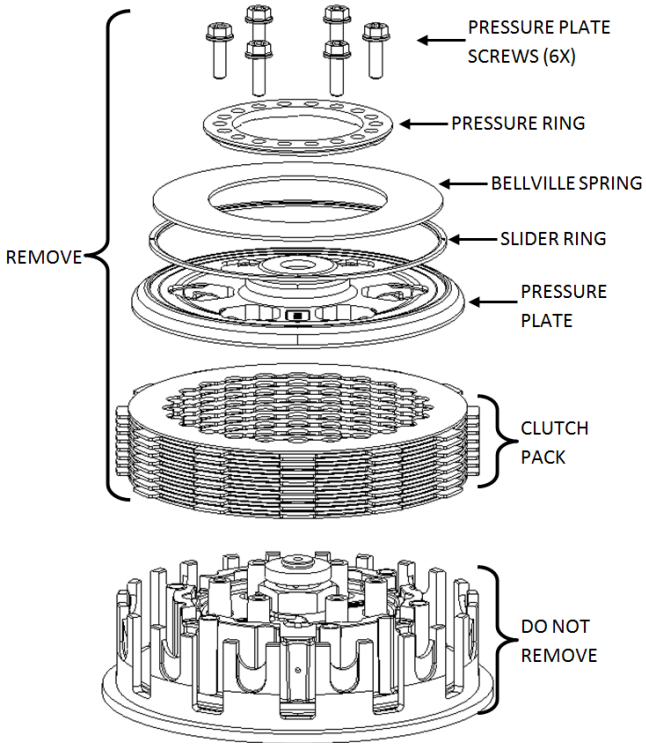
* Denotes parts assembled as part of EXP disk assembly

Visit Rekluse.com/support for a full parts fiche illustration and part numbers.

BIKE PREP & DISASSEMBLY

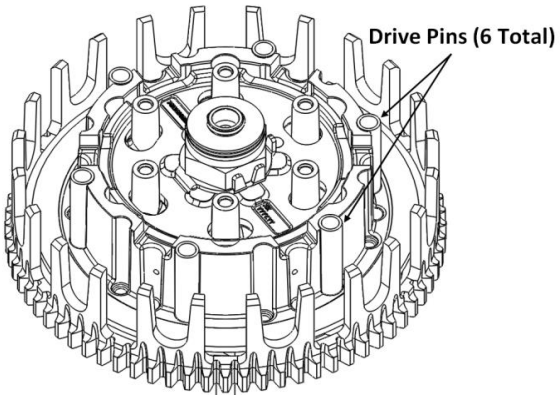
1. Lay the bike on its left side. Catch any fuel that might drain in a suitable container. Remove the clutch cover.

2. Remove the OEM clutch parts named in the following diagram.

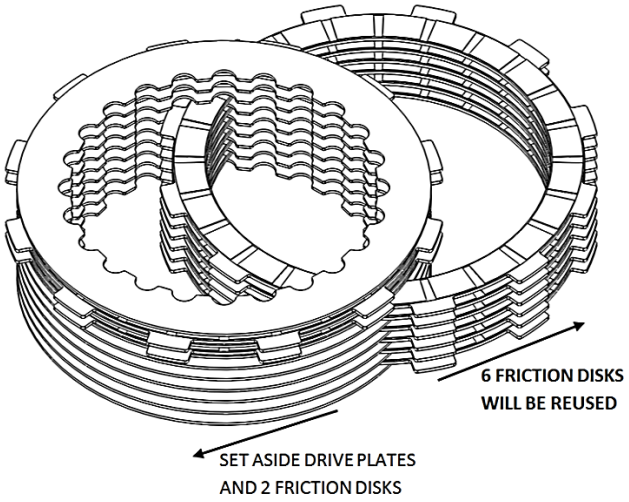


Tip:

a. Be careful the drive pins do not fall into the engine while disassembling.

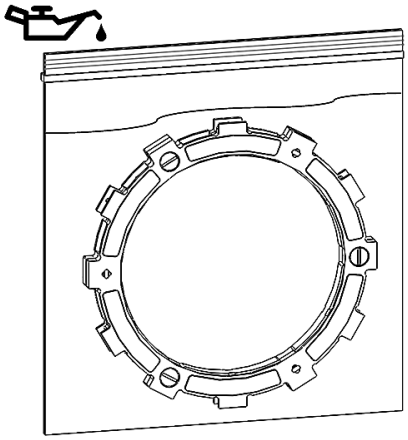


3. Separate the clutch pack.



Inspect the friction disks for signs of heat or wear. Replace if they are burnt or worn.

4. Soak the EXP disk in engine oil for 5 minutes.



INSTALL CLUTCH PACK

2-STROKES only:

If your engine is a 4-stroke, skip to step 5.

Certain friction disks in some 2-stroke models are thicker than the 4-stroke disks, and these differences can greatly affect the overall performance of your clutch and stiffness of your clutch lever pull. The output force of the Belleville spring in your clutch is very sensitive to the clutch pack thickness. Your kit includes 3x extra (thinner) .040" TEC drive plates to compensate for the variation in friction disk thickness if necessary.

Included are 7x .048” [1.2mm] and 3x .040” [1.0mm] drive plates. **Only 7x total** drive plates will be used in the clutch pack, but you must measure the friction disk thickness to determine if any of the thinner plates must be used instead in the final clutch pack to compensate.

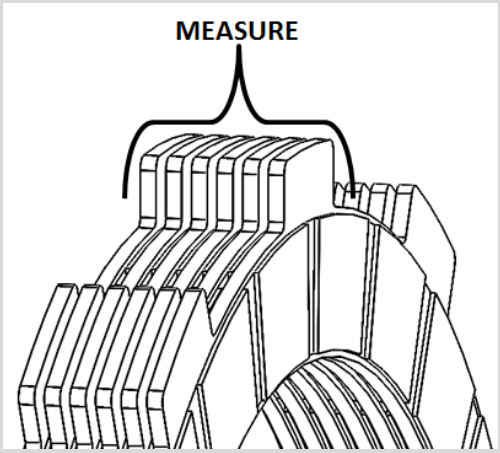
Wipe the excess oil from **6x** of your OEM friction disks and stack them together. Using calipers, measure the overall thickness of this stack to meet the following guidelines:

1. If the measurement is less than .466” (11.84mm), you will use **7x** .048” (1.2mm) and **0x** .040” (1mm) drive plates in your clutch pack.

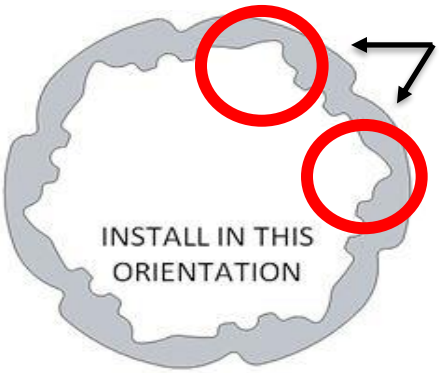
2. If the measurement is between .466” - .474” (11.84-12.04mm), you will use **6x** .048” (1.2mm) and **1x** .040” (1mm) drive plates in your clutch pack.

3. If the measurement is between .474” - .486” (12.04-12.34mm), you will use **5x** .048” (1.2mm) and **2x** .040” (1mm) drive plates in your clutch pack.

4. If the measurement is greater than .486” (12.34mm), you will use **4x** .048” (1.2mm) and **3x** .040” (1mm) drive plates in your clutch pack.



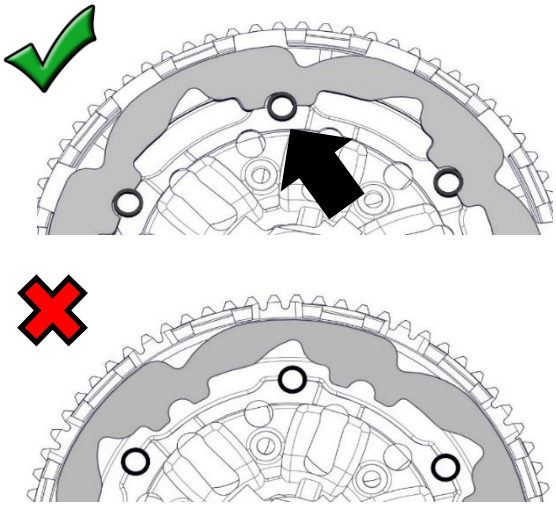
5. Install a TEC drive plate so that the “shark fin” notches face toward the right. ***All the drive plates will follow this orientation.***



Face the “shark fin” to the right.

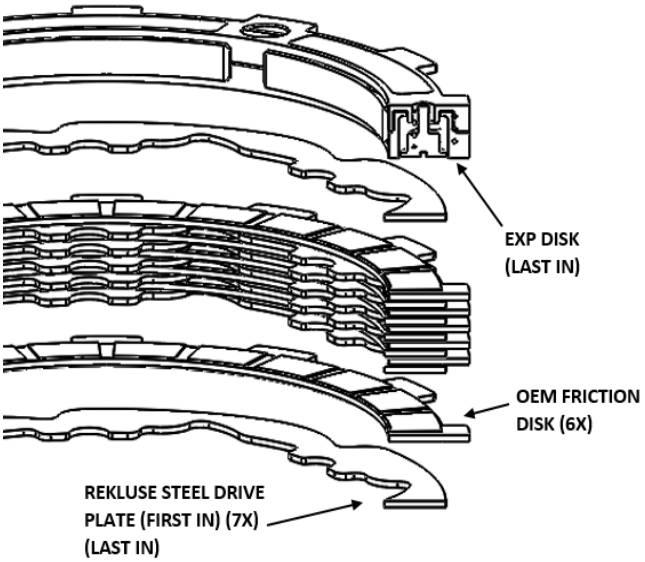
NOTE: Proper orientation of the drive plates is ***critical*** for optimal clutch performance. If you install them backwards, the clutch will still function but will lack proper modulation performance.

Note: Be sure the drive pins sit in the notches of the TEC plate and not in the bigger sections. ALL the TEC plates must be aligned in the drive pins notches or damage may occur. The plates will not move if installed correctly.

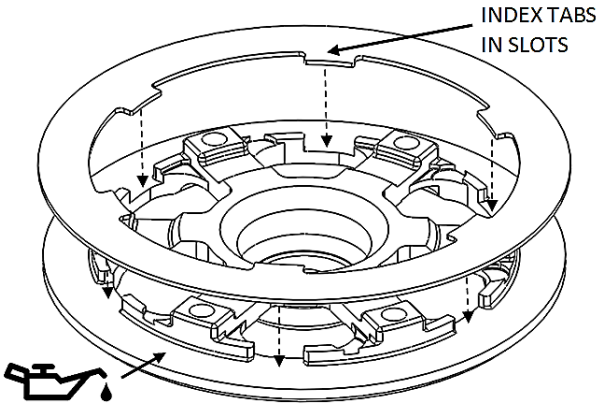


6. On top of the TEC drive plate, install the new clutch pack using 6x OEM frictions, 7x Rekluse drive plates and the EXP disk. See figure below for stack order.

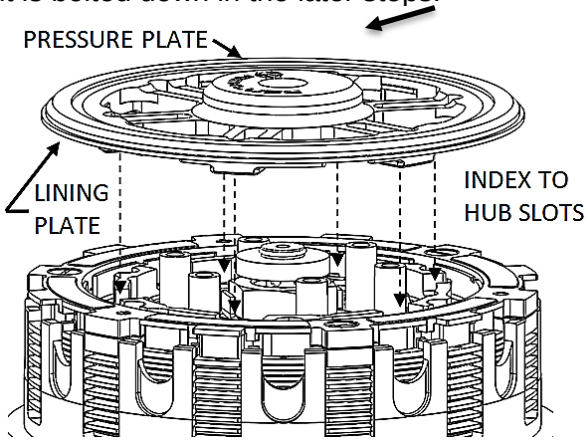
NOTE: 2-Stroke models must use the combination of drive plates determined in the previous step.



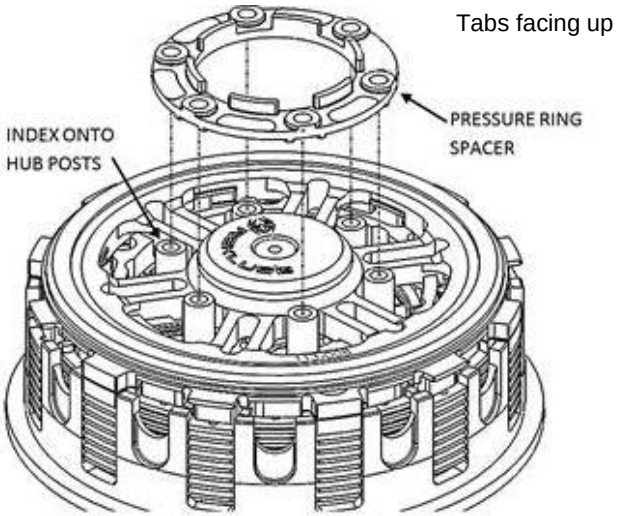
7. Place the lining plate [#16] onto the Rekluse pressure plate [#5]. Adding an oil film between them will help them stick together.



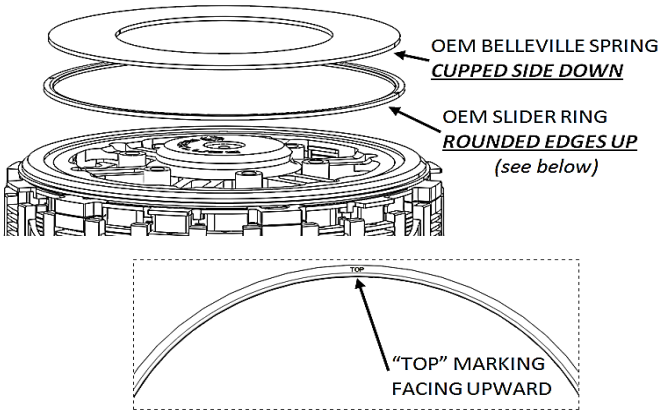
8. Install this pressure plate / lining plate combo, keeping the lining plate against the pressure plate. Hold the pressure plate against the clutch pack until it is bolted down in the later steps.



9. Install the Pressure Ring Spacer with the tabs facing up onto the hub posts.

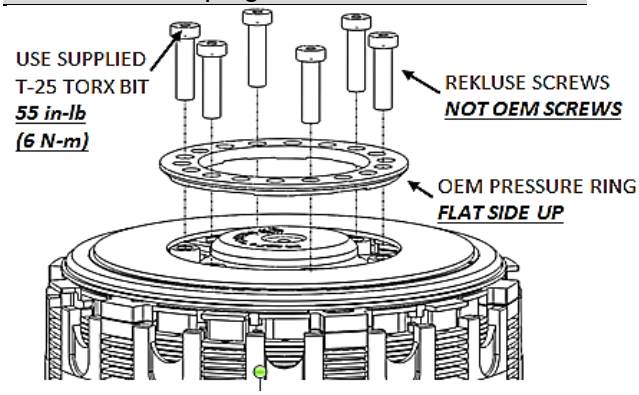


10. Install the OEM slider ring and Belleville spring.



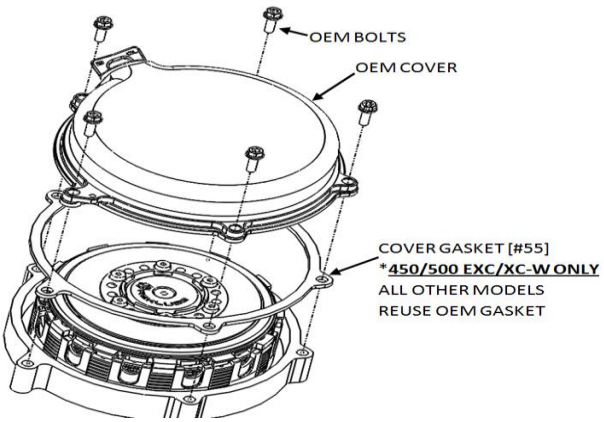
11. Install the OEM pressure ring followed by the Rekluse Pressure Plate Screws [#47].
Do not reuse the OEM screws, or clutch cover interference will occur!

NOTE: There are 3 possible settings on the OEM Pressure Ring. Rekluse recommends setting III (4-strokes) or Z (2-strokes) for maximum clamping force.



12. Install the clutch cover and torque the cover bolts OEM specification.

For 450 & 500 EXC/XC-W models ONLY, install the Rekluse supplied thick Clutch Cover Gasket.

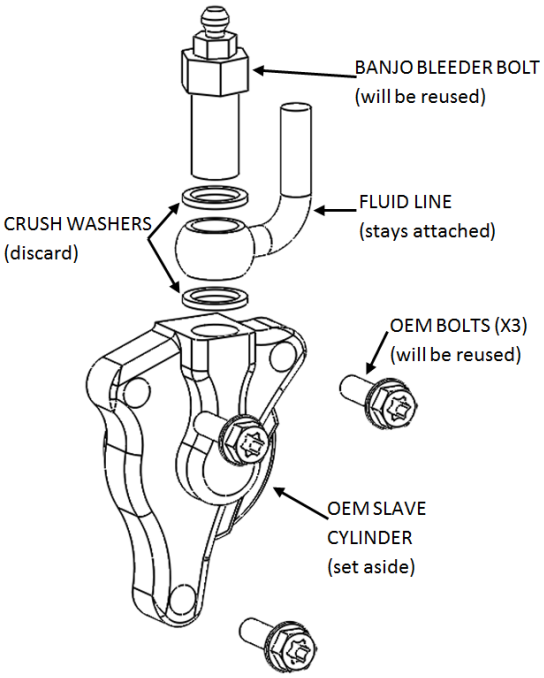


SLAVE CYLINDER INSTALLATION

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.

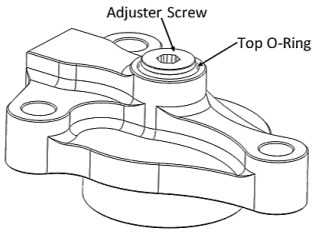
13. Stand the bike up and lean it on its kickstand or place it on a suitable bike stand.

14. Starting at the slave cylinder, remove the OEM parts named in the following diagram beginning with the banjo bolt.

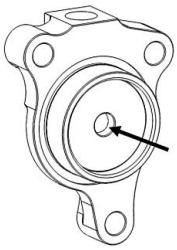


15. On a workbench (still away from the engine), bleed the Rekluse slave cylinder by this procedure:

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



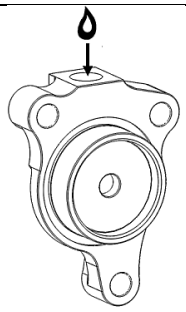
b. Compress the piston [#28.3] until it bottoms.



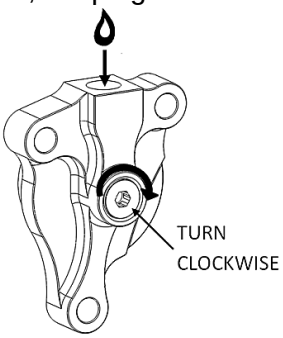
c. Pour clutch fluid into the slave cylinder port.

WARNING

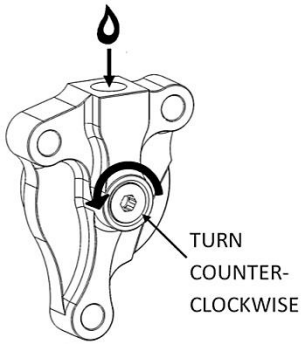
Be sure to use the correct clutch fluid! Check the cap of the clutch master cylinder to determine which clutch fluid to use. Failure to use the correct fluid will result in seal damage and/or failure.



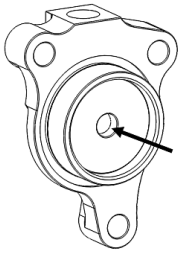
d. Turn the adjuster screw clockwise until it bottoms, keeping the fluid topped off.



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

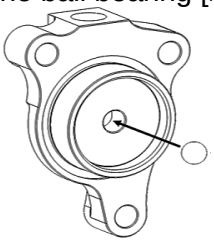


f. Compress the piston until it bottoms out. Repeat the process until there is no longer air escaping from the top port when the piston is compressed.

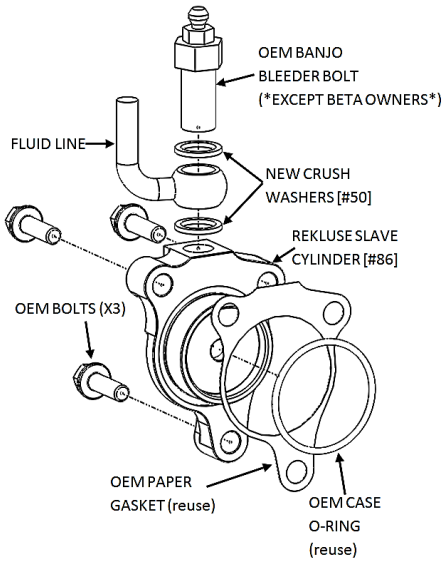


NOTE: When compressing the piston, fluid can shoot out from the slave cylinder port. Be sure to wear eye protection.

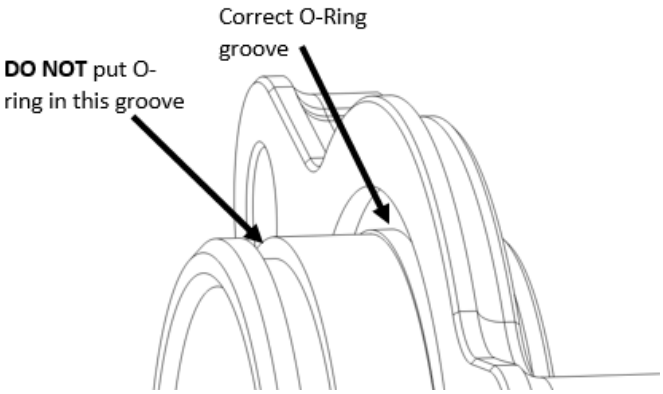
16. Check that the ball bearing [#56] is still in place.



17. Install the Rekluse slave cylinder on the bike using these parts, ending with the banjo bolt.

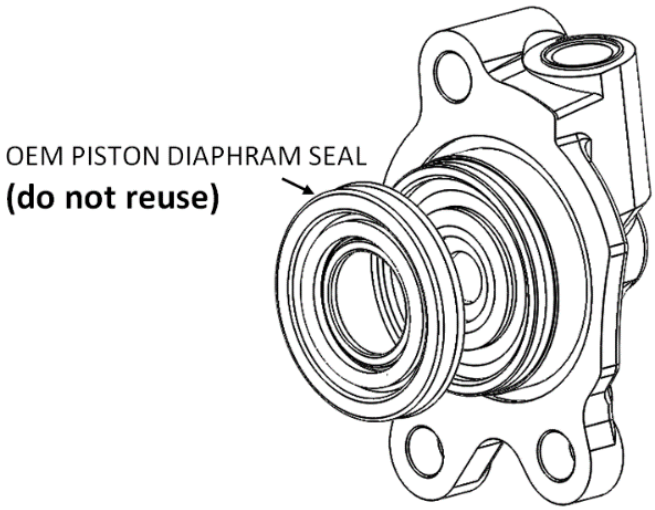


NOTE: Some models have a case sealing paper gasket and/or O-ring seal. Reuse them if OEM equipped.



NOTE: When installing case sealing O-ring seal (OEM or Rekluse supplied) ensure it is seated against slave cylinder flange.

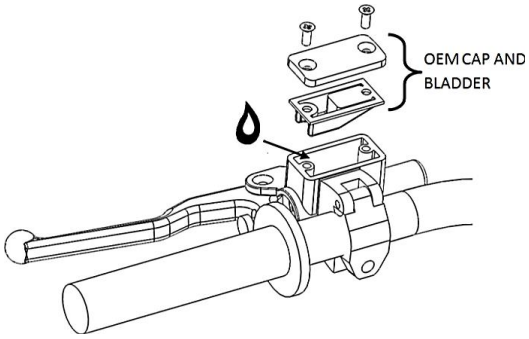
NOTE: Some models have a piston diaphragm seal. DO NOT REUSE them if OEM equipped.



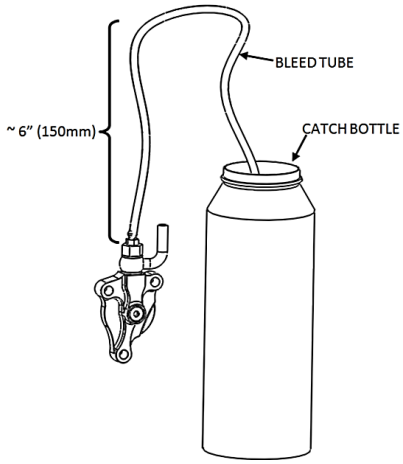
NOTE: If you are installing on the Freeride, see the Slave Cylinder Appendix sheet for fitment instructions.

18. Optional: If you purchased the Rekluse Slave Guard accessory, install it now using the instructions in the kit.

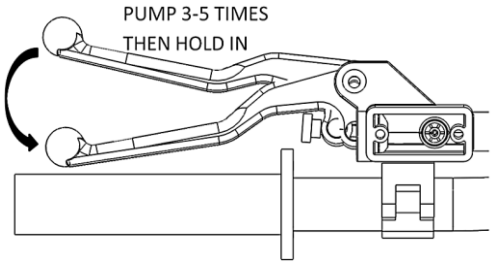
19. Remove the cap and bladder from the clutch master cylinder and top off the clutch fluid.



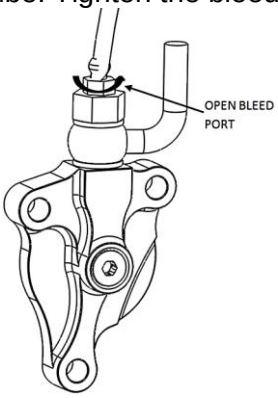
20. Attach the supplied bleed tube to the banjo bolt port and loop it into a suitable catch bottle.



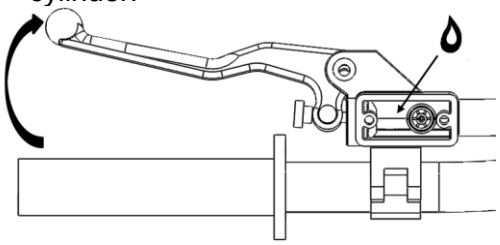
21. Pump the clutch lever 3-5 times then hold it against the bar/grip.



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



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

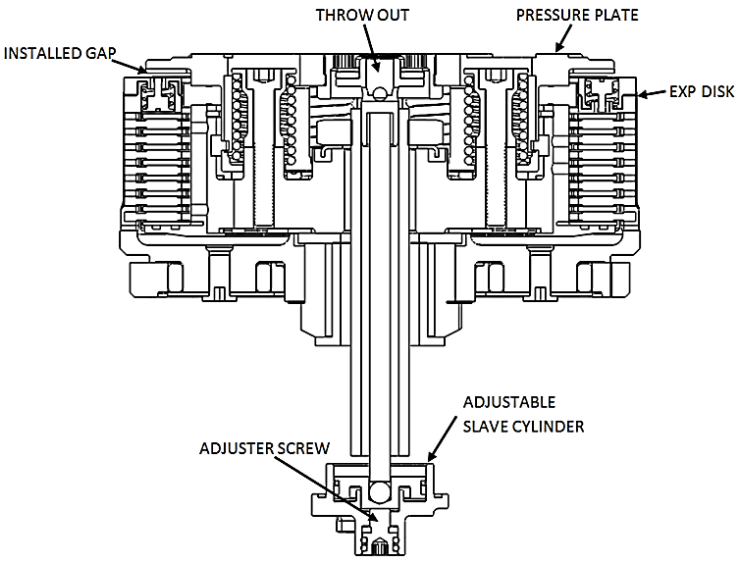


24. Repeat the previous 3 bleeding steps until air no longer comes out of the bleed port. Then, check that the clutch lever functions properly. Repeat the bleeding procedure if necessary.

25. Finally, remove the bleed tube.

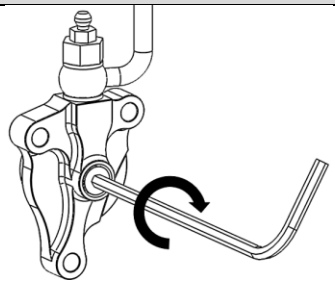
INSTALLED GAP SETTING

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.



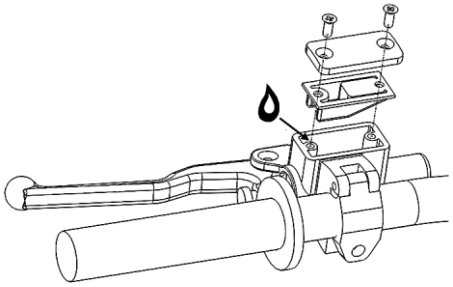
26. Using the long end of a 4mm Allen key, turn the adjuster screw clockwise until it stops under moderate pressure. You are trying to feel for the point at which the throwout will start to lift the pressure plate. This is the "starting point".

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.



27. 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.

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



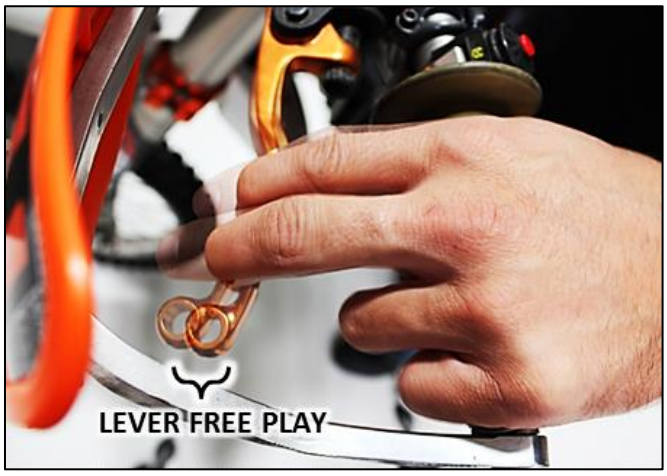
CHECKING FREE PLAY GAIN

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.

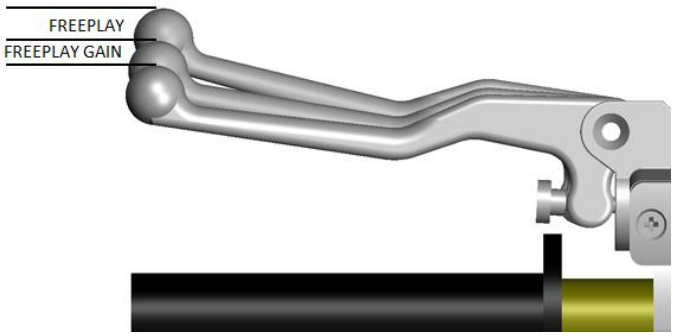
NOTE: Before performing this step, please visit our website at **rekluse.com/support** to view the TECH VIDEO entitled "**How to Check Free Play Gain".**

"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.

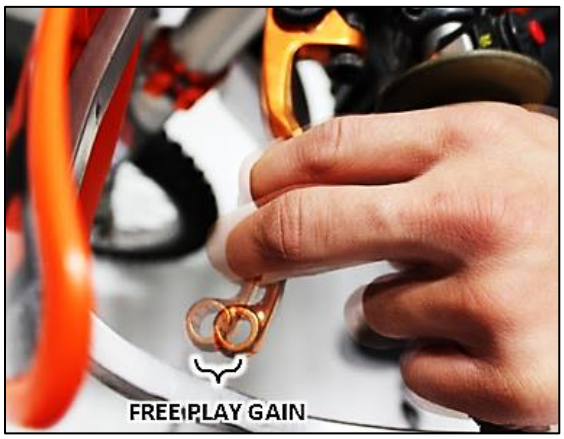


"Free Play Gain" is the increase of lever free play as the auto-clutch engages. This happens when the RPM increase from idle through

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.



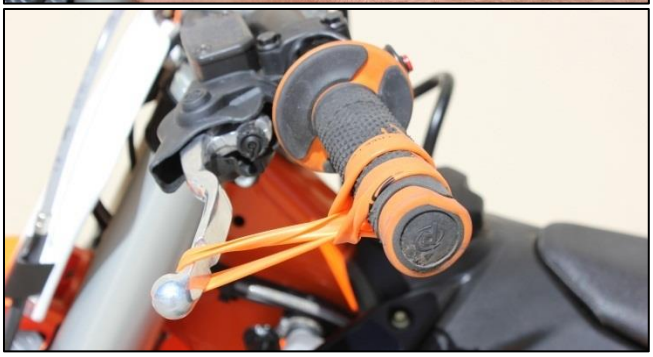
The following steps explain two ways to check Free Play Gain. One will use the rubber band that has been included in the clutch kit and one explains using your hand, which you will perform before every ride.

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

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.

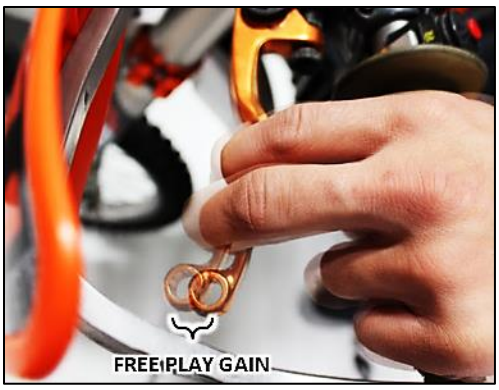


With the bike at idle in neutral, quickly blip (rev) the engine to at least 5,000 RPM and let it return to idle. **The clutch lever should move in about 1/8" (3mm) toward the handlebar as you rev the engine.**

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.**



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 freeplay gain when the bike is warm at the start of every ride.

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.

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

- **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. 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.

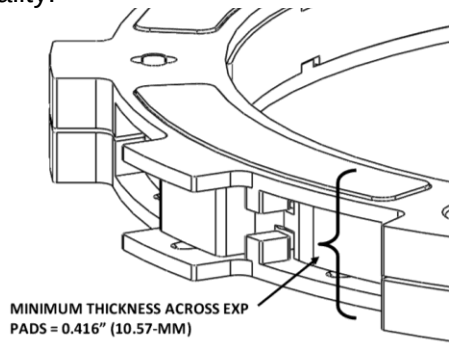
- **Clutch Basket**: Available for some models, a Rekluse Clutch Basket will eliminate clutch squeal and chatter in most cases because it is precision machined from high quality material and includes long-life clutch dampers. A clutch basket that is damaged or has worn-out dampers tends to increase clutch noise.

- **Installed Gap:** Adjusting the Installed Gap will NOT affect clutch squeal or chatter

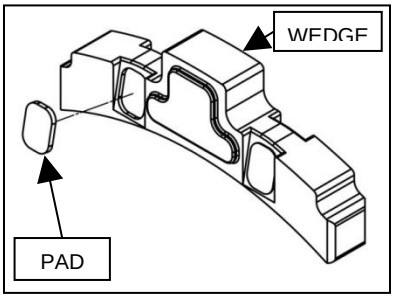
MAINTENANCE

- 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.



  - During EXP disassembly, oil tension may cause wedge pads to stick to the bases and dislodge from the wedge. If the base ramps appear to be in good shape, these pads can be carefully re-inserted into the wedge pockets wtihout affecting EXP performance.



- 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.

- To prolong the life of the clutch, inspect your rubber hub dampers **every 20 hours** for 450 SX-F models (including factory edition), and **every 30 hours** for all other bikes. Replace the dampers if the interaction between the two hubs is loose or sloppy.
  See the “Read Me First” page for inspection procedure.

- Inspect all of your clutch parts **every 40 hours** for signs of wear or excessive heat, and replace components as necessary.

EXP CLUTCH SETUP SHEET – RMS-6130A

Doc ID: 198-6130A

Doc Rev: 120513

OEM SPRING PRESSURE RING SETTING

Note: some spring pressure rings have X, Y, and Z notations on the tick marks instead of I, II, III.

SETTING	CLUTCH CLAMPING FORCE
I (or X)	LOWEST
III (or Z)	HIGHEST

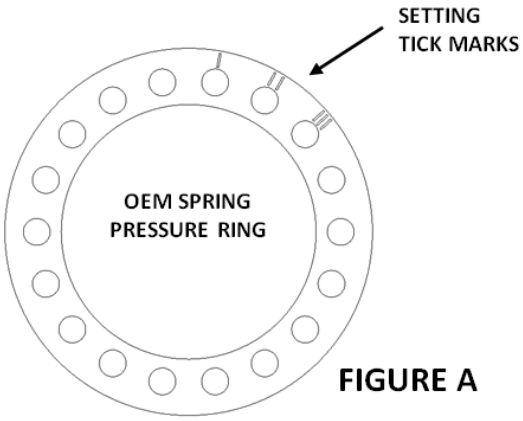


FIGURE A

From the factory, your OEM spring pressure ring will be set on one of three possible settings which will determine the clamping force of the clutch. The pressure ring has adjustment marks for the purpose of compensating for variations between the Belleville (diaphragm) springs used in KTM clutches. **For proper operation, Rekluse recommends using spring setting III for best performance when installing your EXP product.**

EXP TUNING OPTIONS:

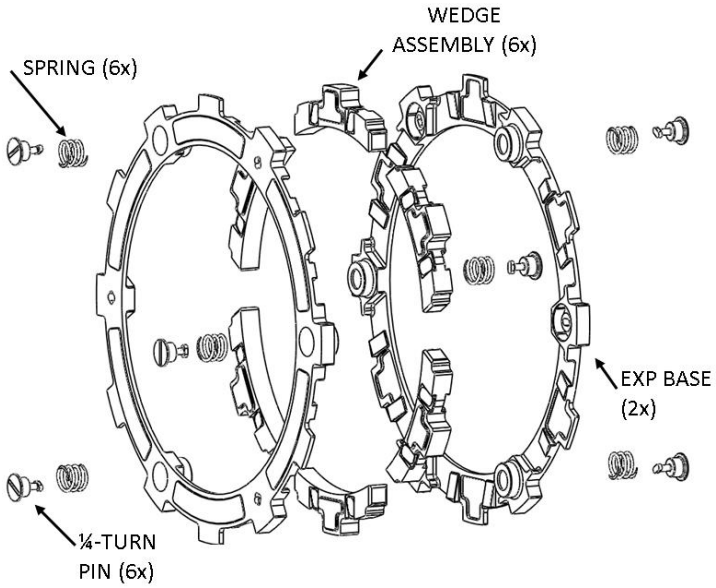
Included are 3 spring options to tune the engagement RPM of the EXP friction disk. The EXP friction disk comes set with the recommended “Medium” setting from Rekluse. See following chart.

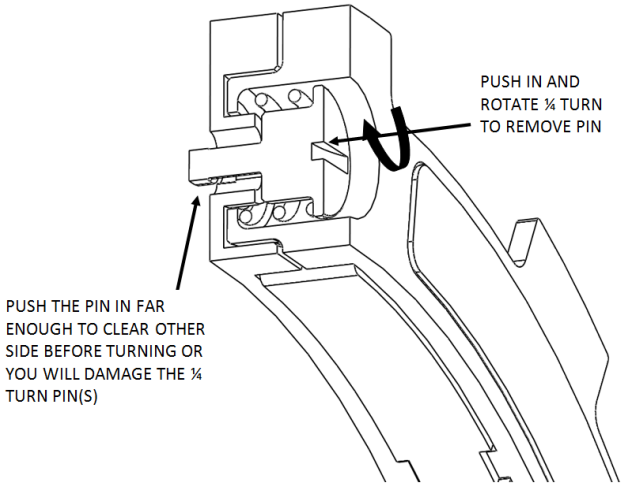
450 SX-F

ENGAGEMENT SETTING	SPRING CONFIGURATION
Low	3 Red and 3 Blue Springs
Medium	6 Blue Springs
High	3 Blue and 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 friction 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.

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 friction disk over and repeat on the other side if necessary. 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.





Auto Clutch TROUBLESHOOTING GUIDE

Rekluse Troubleshooting Guide Terms

Free Play Gain – The additional movement of the clutch lever under slight pressure as the RPMs are raised from idle to approximately 5000 RPM. Free Play Gain should only be checked in neutral as per the instructions.

Worn Friction Plates – Will be thinner than the factory spec

Overheated Friction Plates – Sometimes referred to as glazed. Most of the time measure within spec, but the surface will look darker than new and the friction surface will be smooth like glass. The steel drive plates will also show signs of bluing or darkness

Squeal – Chirping noise under acceleration, or take off

Chatter/Shutter – Vibration or surge under acceleration as the clutch engages

Drag – When stopped or idling in gear, the bike will try pulling, or on a stand the wheel will spin

Chain Slap – Drag at idle, in gear, causing the chain to slap noisily against the swing arm

Low RPM Slip – Considered engagement slip and will make the initial clutch engagement soft

High RPM Slip – Occurs above half throttle while accelerating, as the engine RPMs raise little or no power is transmitted to the rear wheel resulting in a loss of forward drive causing excessive clutch heat

Rekluse troubleshooting chart located on back of this page

Doc ID: 193-707A
Rev: 031417

Note: *The "possible fixes" contained in the chart below are listed in the order of things to try first for each "symptom"*

Core EXP 3.0 & EXP 3.0 Troubleshooting Chart		
Symptom	**Possible Cause**	**Possible Fix**
Drag or Stalling	Clutch break-in	Complete the recommended clutch break-in
	Transmission oil	Change the oil if it's not a clean high quality JASO MA certified oil
	Excessive "Free Play Gain"	Re-adjust the installed gap and re-check "Free Play Gain"
	Center clutch nut too tight	Re-torque the center clutch nut if it is binding when spun in neutral
	EXP engagement adjustment	Change the EXP setting to a higher engagement setting
	Worn or glazed friction disks	Replace friction disks (Rekluse or OEM disks recommended)
Low RPM slip	No "Free Play Gain"	Re-adjust the installed gap and re-check "Free Play Gain"
	Modified motor	Replace wedges with a heavier set if slightly modified
		If running Core EXP - Replace the pressure plate springs with a heavier set if highly modified
		If running EXP – upgrading to Core EXP is recommended
	Worn or glazed friction disks	Replace friction disks (Rekluse or OEM disks recommended)
	Tall Bike gearing	Replace wedges with a heavier set if the gearing is taller than stock
High RPM slip	No "Free Play Gain"	Re-adjust the installed gap and re-check "Free Play Gain"
	Modified motor	If running Core EXP - Replace the pressure plate springs with a heavier set if highly modified
		If running EXP – upgrading to Core EXP is recommended
	Pressure plate springs	Be sure the Rekluse springs are being used
		Inspect the springs, if they are out of spec replace
	Worn or glazed friction disks	Replace frictions disks (Rekluse or OEM disks recommended)
Squeal or Chatter	Transmission oil	Change the oil if it's not clean high quality JASO MA certified oil. Over-used oil may cause squeal or chatter
	Clutch basket	Replace the basket and/or cushions if they are worn (Rekluse basket recommended if available for your model)
		The Rekluse basket is known to eliminate most squeal or chatter, even if no wear is present (Not available for all models)
No clutch override	Excessive "Free Play Gain"	Re-adjust the installed gap and re-check "Free Play Gain"
Chain Slap	Adjust idle	Adjust idle closer to the engagement point of the clutch so there is less delay in clutch engagement
	EXP engagement setting	Raise the EXP engagement setting and adjust the idle accordingly