REKLUSE MOTOR SPORTS

The Rekluse Core EXP Clutch

USER'S GUIDE

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OVERVIEW

Thank you for purchasing the Rekluse Core EXP Clutch. We hope you enjoy the product as much as we enjoyed designing, testing and making the product.

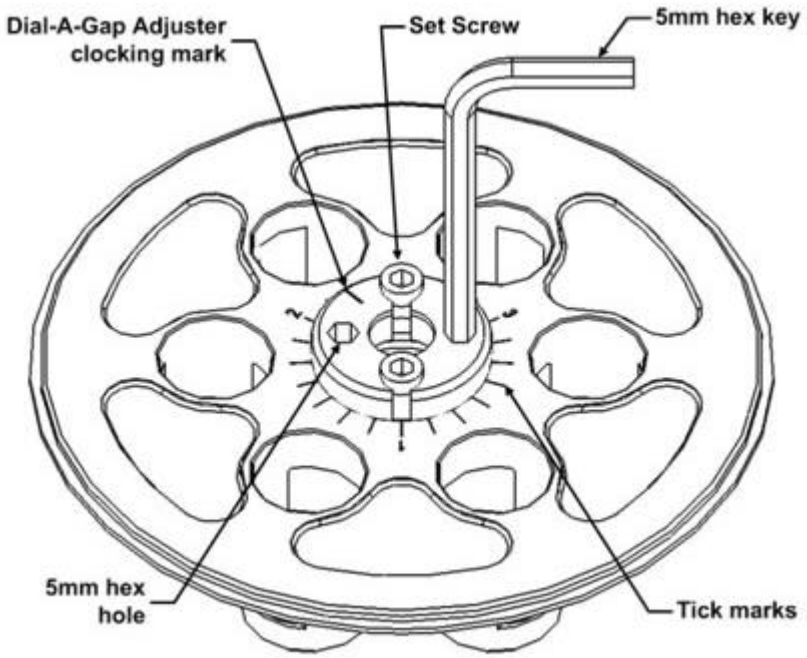
It is very important that you understand how to set your installed gap and check for a proper installed gap using the free play gain method. **Setting, break-in and resetting the installed gap after installing new friction disks is CRUCIAL.** Failure to properly maintain your installed gap can result in premature wear or failure of your friction disks including the EXP friction disk.

SETTING THE INSTALLED GAP

The installed gap allows the Core EXP clutch to automatically disengage the clutch at engine idle speed. The installed gap is set with the Dial-A-Gap adjuster. The Dial-A-Gap adjuster has two functions:

1. Lift and hold the pressure plate away from the clutch pack to create the installed gap
2. Provide a surface for the clutch throw-out to push against to manually disengage the clutch with the clutch lever

The Dial-A-Gap adjuster threads into the center of the pressure plate. Turning the Dial-A-Gap adjuster clockwise moves the Dial-A-Gap adjuster towards the center clutch nut. Continuing to turn the Dial-A-Gap adjuster clockwise after it makes contact with the center clutch nut will lift the pressure plate creating the installed gap.



If the clutch is cable actuated, start by increasing the free play in the clutch lever at the clutch perch. The lever should come in freely at least half-way to the bar. No changes at the clutch lever are necessary for a hydraulic clutch.

Loosen the 2 set screws in the Dial-A-Gap adjuster that lock it in place. Insert the 5-mm hex key into either of the two 5-mm hex holes in the Dial-A-Gap adjuster and turn the Dial-A-Gap adjuster counter clockwise until it turns freely.

Insert the long end of the 5-mm hex key into either of the two 5-mm hex holes. Turn the short end of the hex key with your hand clockwise to thread the Dial-A-Gap adjuster inward. Turn the adjuster until it comes to a stop with moderate pressure. The object is not to turn the adjuster as hard as you possibly can but to get the Dial-A-Gap adjuster firmly seated against the center clutch nut. This is the **starting point**.

To set the installed gap, you will need to turn the Dial-A-Gap adjuster the specified amount past the starting point. Rekluse recommends an installed gap setting of 1 full turn + 3 tick marks. Refer to the section ***Installed Gap Options*** (page 8) for more information on installed gap settings.

After the installed gap is set, tighten the 2 set screws to 30 inch pounds (3.5 Nm). If you do not have a torque wrench, moderate pressure using a 4mm allen key will suffice.

SETTING THE INSTALLED GAP WITH A HOT ENGINE

The **installed gap should be set with the engine cold**. If you need to reset your installed gap after riding, allow the clutch to cool with the clutch cover off for at least 20 minutes before setting the installed gap. If you must reset your installed gap with the engine hot, set the installed gap to 1 full turn + 1 tick mark. Be sure to reset the installed gap with the engine cold when you are able to.

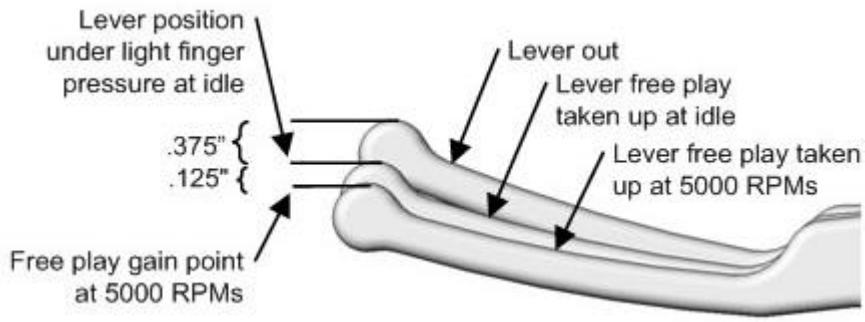
If you are trying to “fine-tune” your installed gap setting, this can be done without waiting for the engine to cool. You may move the Dial-A-Gap adjuster in or out from the installed gap position it was set to cold. Be sure to keep track of your cold setting and any adjustments made hot so as not to exceed the recommended installed gap range (see ***Installed Gap Options*** page 8).

CHECKING THE INSTALLED GAP

The installed gap can be checked at any time by verifying the **free play gain**. Checking for free play gain at the start of each ride is quick, easy and ensures the clutch plates will become fully engaged under heavy load preventing premature wear or failure of the clutch plates.

Clutch lever free play gain is created when the EXP friction disk expands and lifts the pressure plate and Dial-A-Gap adjuster off the center clutch nut. By applying light pressure to the clutch lever with your finger, the throw-out will rest against the pressure plate. When the engine is revved, the EXP friction disk will expand and the pressure plate should move outward, allowing the throw-out to move outward and the clutch lever to come inward towards the handlebar slightly.

With the engine at idle, apply light inward pressure with your finger on the clutch lever; enough pressure to take up any slack but not enough to lift the pressure plate. While continuing to apply a light inward pressure on the clutch lever, rev the engine to at least 5000 RPMs.



The clutch lever should move in slightly under light finger pressure as the engine revs. This movement is called **free play gain**. Free play gain is your indicator that the pressure plate is being lifted by the EXP friction disk, allowing the force of the clutch springs to be transferred to the clutch pack.

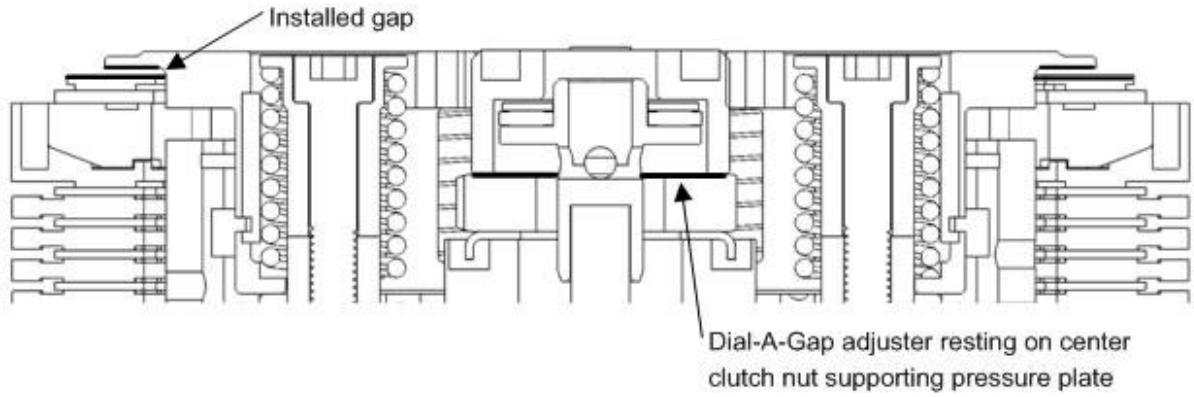
With the recommended installed gap setting and the engine at normal operating temperature, the **free play gain** when measured at the end of the lever should be approximately 1/8" (3mm). When the engine is very hot, there will be more free play gain.

IMPORTANT NOTE: if you ever suspect your clutch is slipping while riding, stop for a moment, put the bike in neutral and check for free play gain. If you cannot detect free play gain, stop and reset your installed gap.

If resetting your installed gap is not possible, ride gently to get the bike home by reducing acceleration and staying in lower gears with higher RPMs. Try not to "lug" the engine as this puts a larger load on the clutch.

UNDERSTANDING THE INSTALLED GAP

The installed gap is the distance between the Rekluse pressure plate and the clutch pack when the EXP friction disk is in a collapsed state at idle (automatically disengaged). The installed gap allows the clutch to automatically disengage when the engine comes down to idle speed and the EXP friction disk is in its collapsed state.



When the engine is at idle, the force of the pressure plate springs rests on the center clutch nut. As the engine is revved, the EXP friction disk expands, lifting the pressure plate. When the installed gap is set properly, the pressure plate is lifted a small amount, transferring the force of the pressure plate springs from the center clutch nut to the clutch pack.

If the clutch pack thickness shrinks, through wear or initial break-in of the friction disks and/or EXP components, the installed gap will grow. If the installed gap grows too far, the EXP friction disk will not be able to expand enough to lift the pressure plate and Dial-A-Gap adjuster completely off the center clutch nut and the spring pressure transferred to the clutch pack will be reduced. A reduction in spring pressure to the clutch pack will cause the clutch to slip, perhaps imperceptibly and possibly leading to a clutch pack failure.

The clutch pack will shrink most when a new set of friction disks is first installed or when the Core EXP components are new. When first installing the Core EXP components or new friction disks, the installed gap should be set to the break-in setting of 1 full turn. After the new components are broken in, **the installed gap must be reset**.

After break-in, Rekluse recommends the installed gap be set to 1 full turn + 3 tick marks.

CLUTCH LEVER FREE PLAY vs. FREE PLAY GAIN

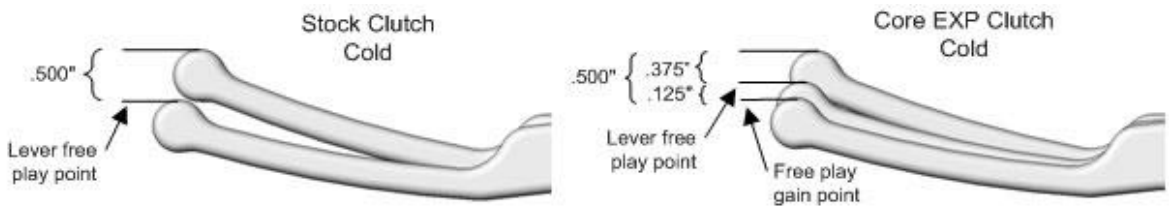
Clutch lever free play is the amount of free movement in the clutch lever before the clutch begins to disengage. For cable actuated clutches, lever free play is adjusted at the clutch perch.

Hydraulic clutches typically have a built-in amount of free play and the clutch lever position is typically set with an adjuster between the lever and the plunger.

Free play gain is additional inward movement of the clutch lever caused by the EXP friction disk lifting the pressure plate slightly as the engine is revved. Free play gain can only be felt by applying light pressure on the clutch lever as the engine is revved from idle.

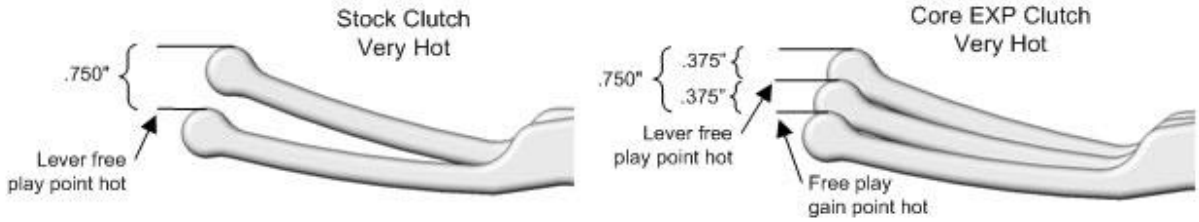
On a cable actuated clutch with Core EXP installed, the lever free play point should be moved out slightly to accommodate the free play gain. If you typically run .500” (12mm) of lever free play and your free play gain with Core EXP installed is .125” (3mm), then your lever free play should be set to .375” (9mm). In this way your clutch lever will be in a comfortable position while riding with the Core EXP clutch.

Because hydraulic clutches self-adjust, no change in lever position adjustment is typically necessary when Core EXP is installed. You will only feel free play gain if you apply light pressure on the clutch lever while the engine is revved from idle.



When a clutch gets very hot, thermal expansion causes the lever free play to increase. For a stock clutch, the increase in lever free play can be felt regardless of engine speed. For a Core EXP clutch, the increase in lever free play due to thermal expansion will only be felt when the engine is revved. Even when the engine is very hot, with a Core EXP clutch, the lever free play point will not change from its cold position when the engine is at idle. However the lever free play gain will increase as the engine is revved when the engine is hot.

When the clutch is very hot, the increase in lever free play due to thermal expansion will be the same for both the stock clutch and for the Core EXP clutch - when the engine is revved. When the engine is at idle and the clutch is very hot, a stock clutch will have an increase in lever free play, the Core EXP clutch will not.



If you typically get your stock cable-actuated clutch hot enough to require an adjustment of lever free play while riding, you will likely need to do the same with the Core EXP clutch. Just keep in mind that the increase in free play will only be felt with the engine revved. Just like the stock clutch, **you must back out any lever free play adjustment made due to thermal expansion as the clutch cools back to normal temperature**.

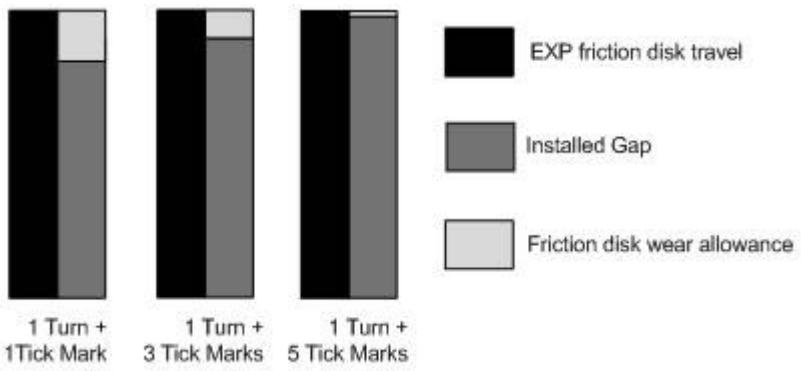
INSTALLED GAP OPTIONS

Although Rekluse recommends an installed gap setting 1 full turn + 3 tick marks, there may be situations where you want to set your installed gap differently. The installed gap setting represents a trade-off between maintenance required for friction disk wear and the amount of clutch lever free play gain felt as the engine is revved.

By setting the installed gap smaller, for example 1 turn + 1 tick mark, the clutch has more room for wear before the installed gap needs to be reset. This reduces maintenance intervals and provides insurance against clutch plate failure during a long race situation if the clutch were to overheat and begin to wear rapidly.

The downside to a smaller installed gap is more free play gain at the clutch lever as the engine is revved. Riding with a finger on the clutch lever, you may notice the clutch lever moving in and out as the engine goes from idle speed to higher RPMs while riding.

Conversely, by setting the installed gap larger, for example 1 full turn + 5 tick marks, the clutch has less room for clutch plate wear before the installed gap needs to be reset. The benefit to this setting is that free play gain is minimized.



Dial-A-Gap Setting	Free Play Gain	Notes
1 Turn + 1 Dial Mark	More	Less maintenance, better durability in long tough race situations, free play gain may be distracting during riding, especially if clutch gets very hot
1 Turn + 3 Dial Marks	Less	**Recommended setting**, good balance between durability/maintenance and free play gain
1 Turn + 5 Dial Marks	Very Little	Maximum setting, more maintenance, not well suited to long difficult races, difficult to detect free play gain

The minimum recommended installed gap setting is 1 turn + 1 tick mark and the maximum installed gap setting is 1 turn + 5 tick marks. Any installed gap setting between these two points is a valid setting.

FRICTION PLATES AND WEAR

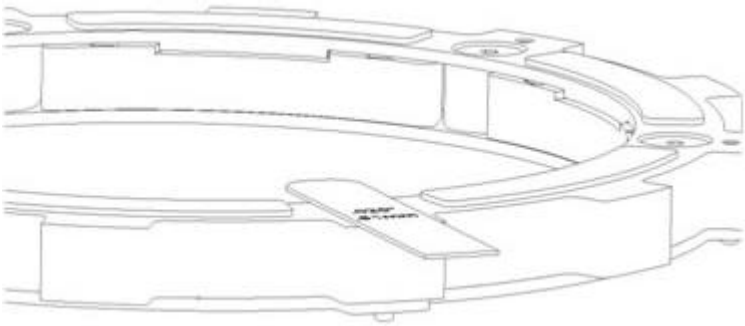
Modern friction plates have a remarkable ability to withstand hard use with little or no wear. However, some OEM and aftermarket friction plates trade-off an increase in wear for other benefits. To minimize maintenance and maximize the durability of your clutch, we recommend Rekluse friction plates when your clutch pack has worn. Rekluse friction plates are OEM quality or better and are designed for minimum wear under hard use: a perfect match for your Core EXP clutch.

When clutch plates are new, they will break-in and the clutch pack height will shrink substantially in the first 10-30 minutes of riding. Break-in of the clutch plates can continue much longer depending on use. **When clutch plates are new, the installed gap should be set to just 1 full turn**. After break-in, the **installed gap must be re-set**. Be prepared to reset your installed gap immediately following break-in and possibly again after the first one or two rides. The complete break-in procedure can be found in the Rekluse Core EXP *Installation Guide*.

The steel drive plates generally do not need to be replaced unless they become warped from excessive heat.

The EXP friction disk and the EXP pressure plate lining plate have friction pads bonded to them that wear and will need replacement. The friction pads can also be overheated requiring replacement.

The friction pads should be a green to dark green color. If the friction pads are black in color, they have been overheated and must be replaced. The minimum thickness of the friction pads is 0.020” (0.51mm). The friction pad thickness can be approximated by placing a 0.020” (0.51mm) feeler gauge between two friction pads as shown below. The friction pads must be taller than the feeler gauge.



Rekluse has a complete replacement Core EXP friction disk set available. The Core EXP friction disk set includes all new friction disks including the EXP friction disk wear components. Contact Rekluse or your authorized Rekluse dealer for more information on replacement Core EXP friction disk sets.

SPARE FRICTION DISK SET

If you need to keep a spare set of friction disks ready for racing situations, pre break-in the friction disk set. Start by soaking the friction disks in oil for at least 20 minutes. Install the friction disks in the bike and perform a break-in ride. The best way to break in a set of friction disks is to allow them to slip moderately at low temperatures and low engine speeds. Slowly starting and stopping from second and third gear for 10 to 20 minutes is an ideal way to break-in the friction disks.