REKLUSE®
EXP™

REKLUSE MOTOR SPORTS

The Rekluse EXP kit for Suzuki DL 650 & SV650 Models

INSTALLATION & USER'S GUIDE

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Doc Rev: 010516

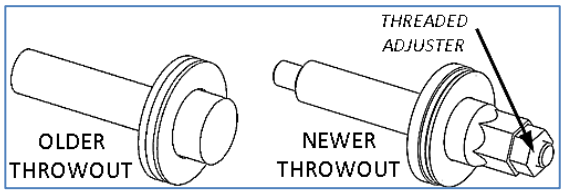
OVERVIEW

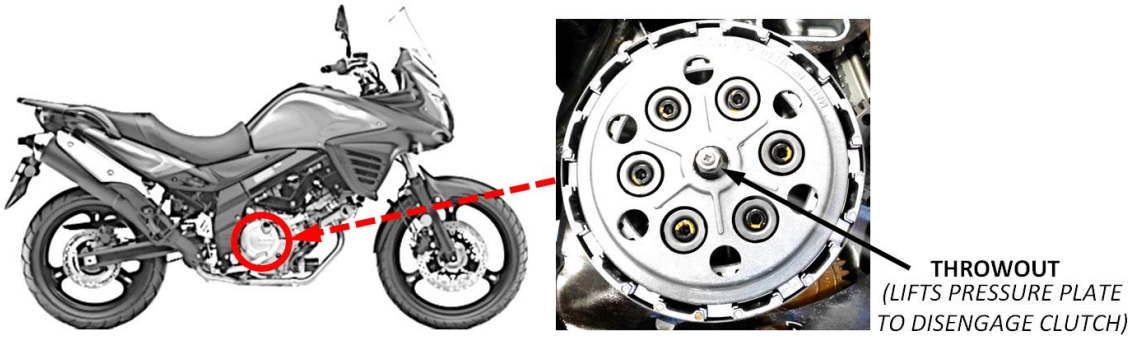
This kit replaces the OEM clutch pack with a Rekluse-made clutch pack designed for optimal operation specific to your bike.

NOTE:

For **SV650** models, this kit does NOT fit the Gen-1 (1999-2002) bike model-years, as they have a radically different clutch design than the newer models. For Gen-1 bikes, there are no Rekluse products available.

The DL650 (aka V-Strom 650) and SV650 models received a change to their throwout design between 2009 and 2012, depending on the specific model. This change, which arrived between 2009-2010 for SV650 models, and in 2012 for DL650 models, provides added adjustability to the throwout so that more clutch cable stretch can be accommodated. See the ASSEMBLY OVERVIEW on **page 3** for a depiction of the throwout's location in the clutch assembly.





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INSIDE THIS DOCUMENT

INSTALLATION TIPS

- For reference, watch installation videos for your model or others 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 wear proper eye protection.
- It is recommended to replace any gaskets or O-rings that you may remove during installation.
- Laying the bike on its side allows for easy clutch access and eliminates the need to drain oil
- When reinstalling components, use the torque specifications found in your OEM service manual.
- Use clean, quality JASO-MA certified oil for motorcycle transmissions for best performance.

NOTE: Refer to your motorcycle owner's manual for proper instructions regarding coolant and oil draining, recommended types, and fluids disposal.

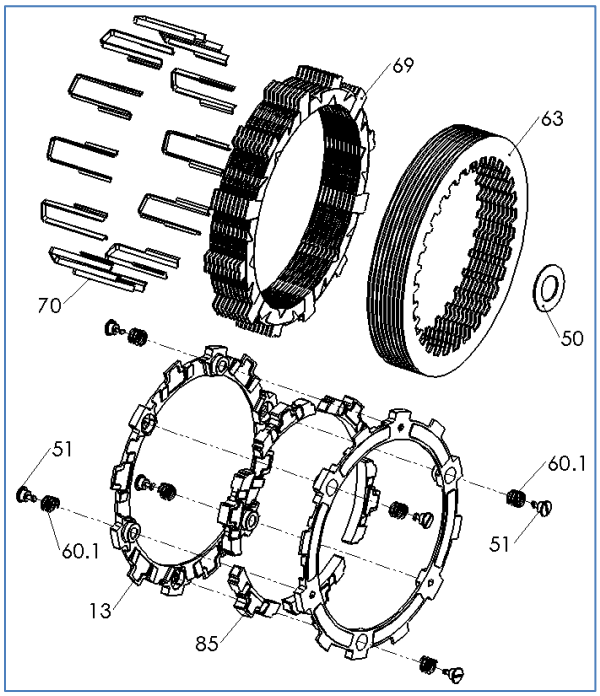
USE OF OTHER AFTERMARKET PRODUCTS

- If your bike is equipped with an aftermarket clutch cable, 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 necessary 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 adjustment for installed gap.

TOOLS NEEDED

- Metric socket set
- 2x Dental Pick Tools
- Metric Allen key set
- Metric end wrenches
- Torque wrench (in-lb, or N-m)
- New engine coolant & engine oil
- Phillips-head screwdriver (for adjustable throwouts only)

INCLUDED PARTS

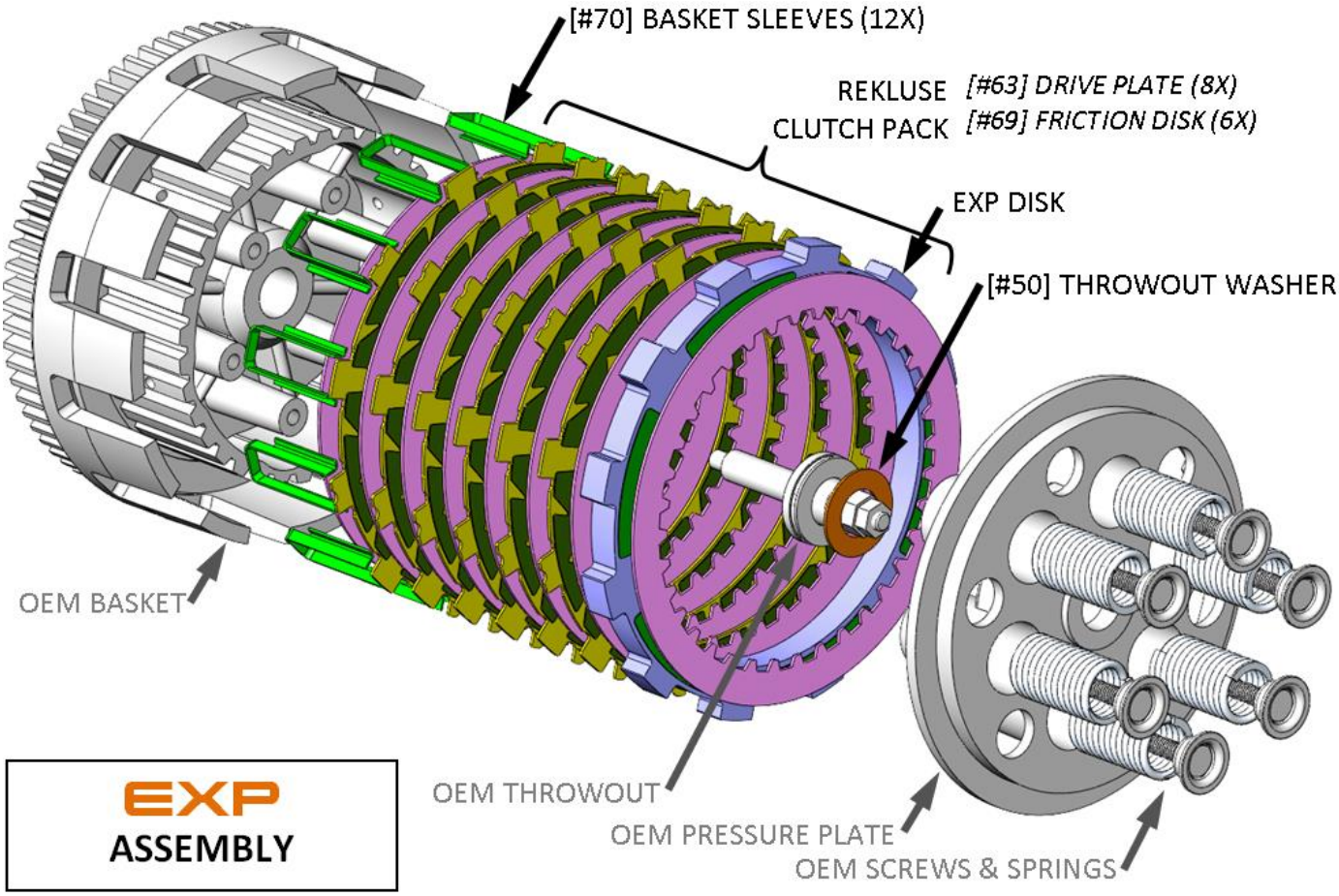


Item	Item Type	Qty
13	EXP Base *	2
85	Wedge Assembly *	6
50	Throwout Spacing Washer (may not require both)	2
51	Fastener - 1/4-Turn Pin *	6
60.1	EXP Adjustment Spring * (see EXP tuning options)	6
63	Drive Plate	8
69	TorqDrive™ Friction Disk	6
70	Basket Lining Sleeve	12

* Denotes parts assembled into the EXP disk assembly

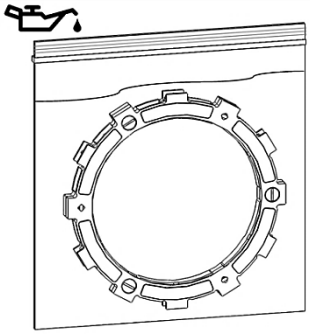
Visit Rekluse.com/support for a full parts fiche illustration and part numbers

ASSEMBLY OVERVIEW



PREP & DISASSEMBLY

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

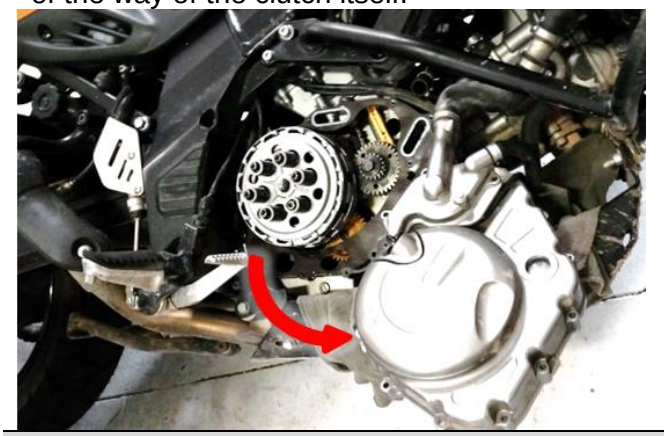


2. With the bike standing upright, drain the engine coolant via the water pump housing's drain bolt.

3. To avoid having to drain the engine oil, lay the motorcycle on its left side. Alternatively, you can opt to stand the bike vertically and drain the oil.

4. Using pliers to squeeze the hose clamp, remove the TOPMOST coolant hose from the clutch cover, but do NOT remove the other two hoses that run from the water pump housing.

5. Remove the clutch cover bolts. Then lift the cover and swing the whole cover assembly out of the way of the clutch itself.

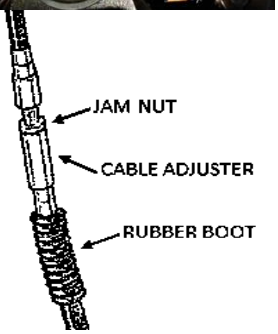


NOTES:

1. You DO NOT have to remove the two hoses from the water pump housing.
2. You may need to loosen or remove the right foot peg from the frame to achieve enough clearance to remove the clutch cover.

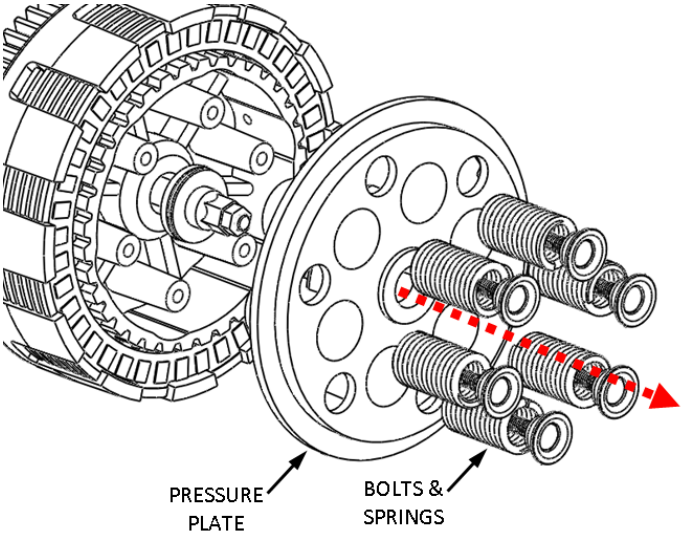
6. Using the in-line cable adjuster near the steering stem, loosen the tension in the clutch cable so that the lever becomes sloppy at the perch.

NOTE: The location of the threaded adjuster may vary depending on your model-year.

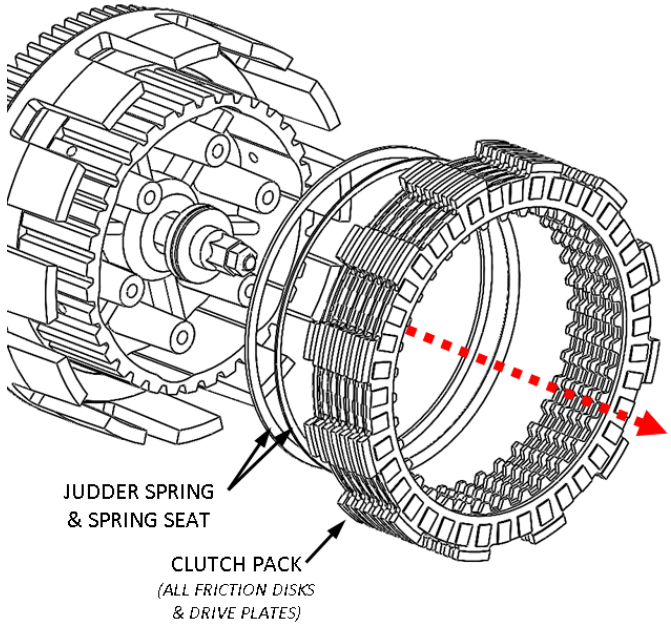


7. Remove the OEM springs followed by the pressure plate:

NOTE: Check the backside of the pressure plate to ensure that the OEM throwout washer & bearing did not stick to, and come out with, the pressure plate.

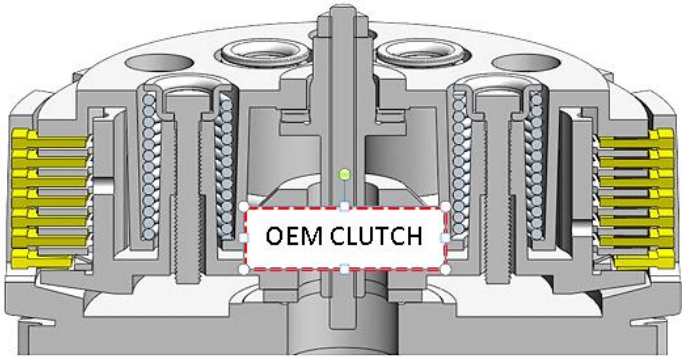


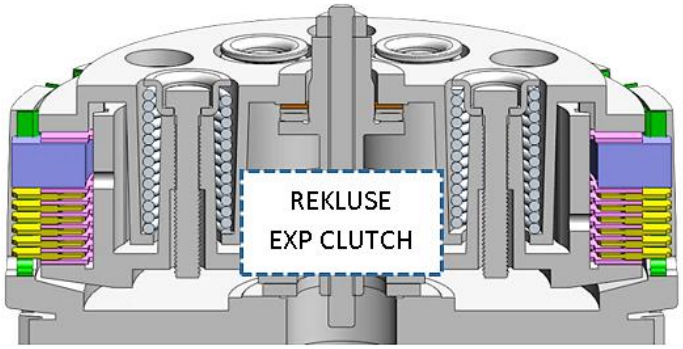
8. Remove the entire OEM clutch pack (**all plates**) and the judder spring & spring seat (2 rings at the bottom of the hub) from the clutch. You will NOT be reusing any of these clutch plates or spring components with the Rekluse EXP clutch product.



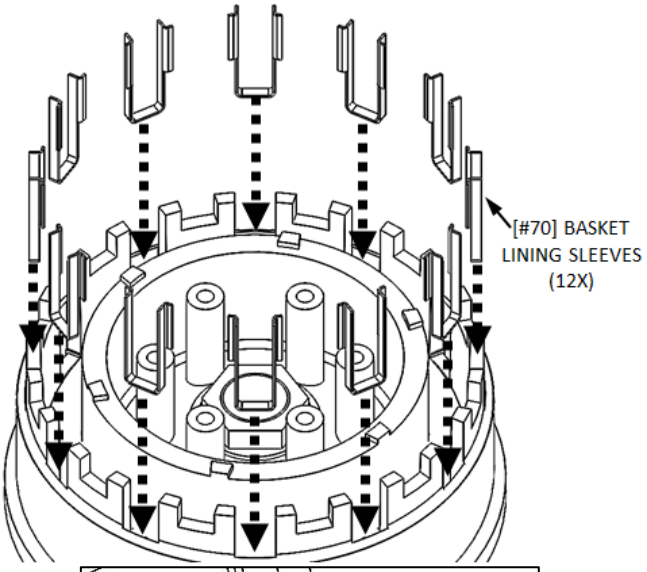
INSTALLATION

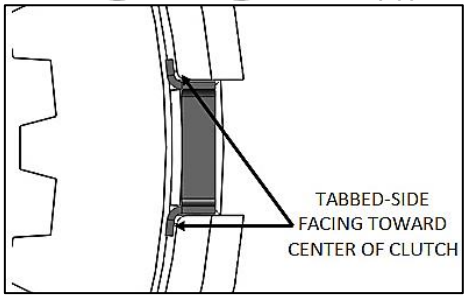
Cross-Sectional Overview:



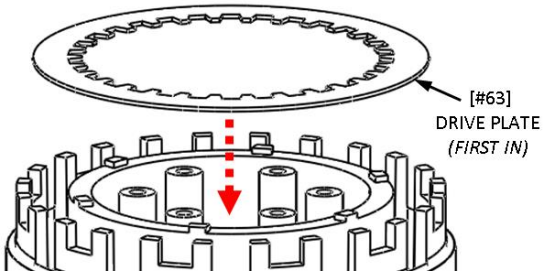


1. First, install the 12x Basket Sleeves [#70] into the tang slots of the basket, pushing each down until they seat in the bottom of each tang slot.

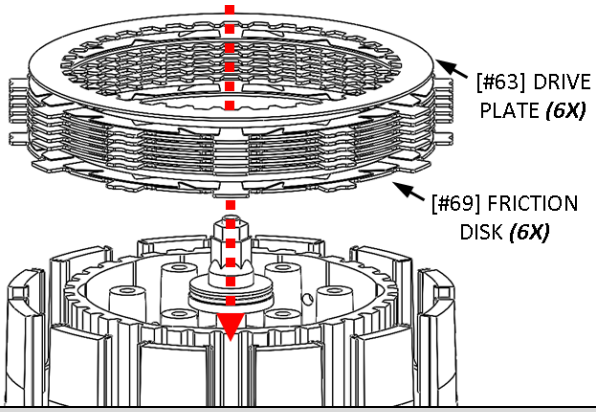




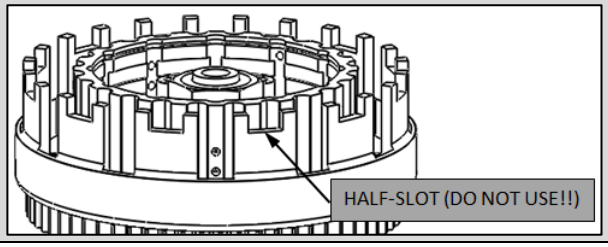
2. The first clutch disk to be installed into the clutch will be a Rekluse drive plate [#63].



3. Next, install the *intermediate* clutch pack as shown, starting with a friction disk [#69], then alternating drive plates [#63] with frictions [#69].

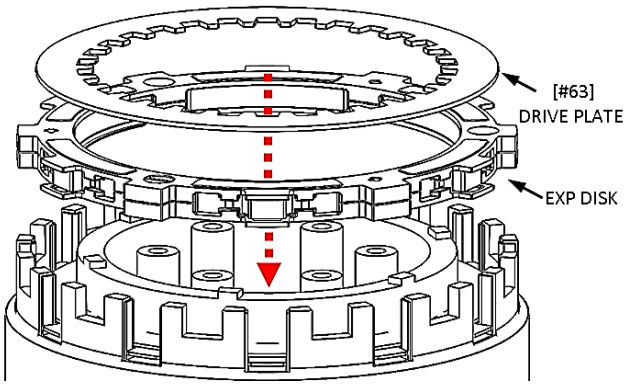


NOTE: Use only the full tang slots for friction disks. Never install disks into the basket half-slots.

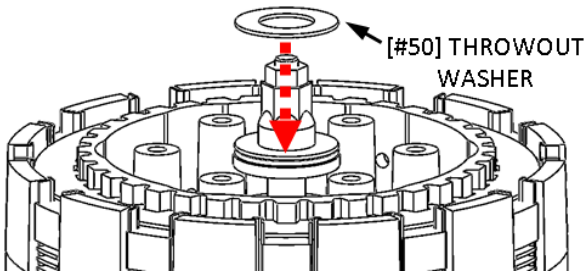


4. Install the Rekluse EXP disk, followed by the **final** Rekluse drive plate [#63].

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

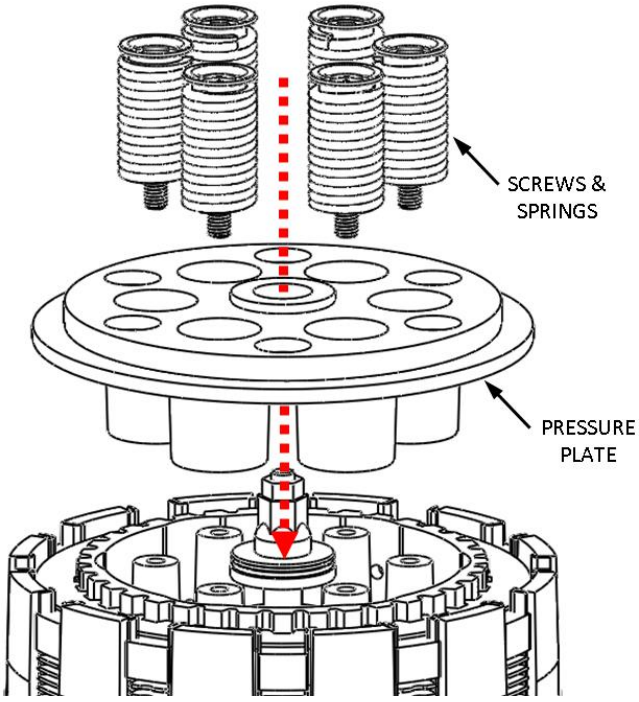


9. Install ***ONE*** of the two provided extra throwout washers [#50]. This will ensure that you have enough clutch cable adjustment available to achieve the proper cable tension for operation.



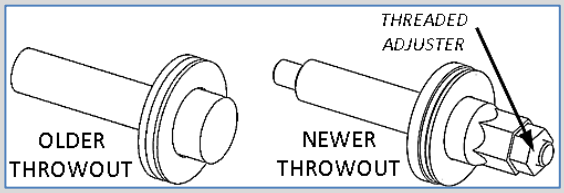
NOTE: There are ***two*** throwout washers [#50] provided with your clutch kit, but you will likely only need to use ***one***. If--after putting the bike back together—there is not enough clutch cable adjustment to achieve the correct installed gap, then you might need to add another to the throwout. See the *"Free Play Gain Troubleshooting"* section for details.

10. Reinstall the OEM pressure plate, followed by the springs and screws. Torque to OEM spec.



11. *For models with the adjustable throwout* ***ONLY:***

NOTE: Refer to the OVERVIEW section on the first page to understand which model-year range your bike falls within.



If you have the older (non-adjustable) throwout, skip to ***Step 12****.*

Per these steps, you will make an adjustment at the throwout to ensure enough usable cable adjustability is leftover to achieve the necessary cable tension.

a. First, add tension to the clutch cable – extending the in-line cable adjuster – to the point where the lever *just* becomes tight to the perch, and the lever freeplay is minimal or gone.

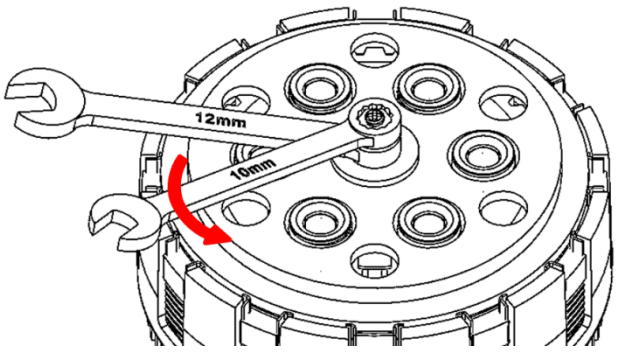
b. Check your in-line adjuster to see how much of the available adjustment you have used to achieve this tension.

If you have used over half of the available threads, go to sub-step **c**.

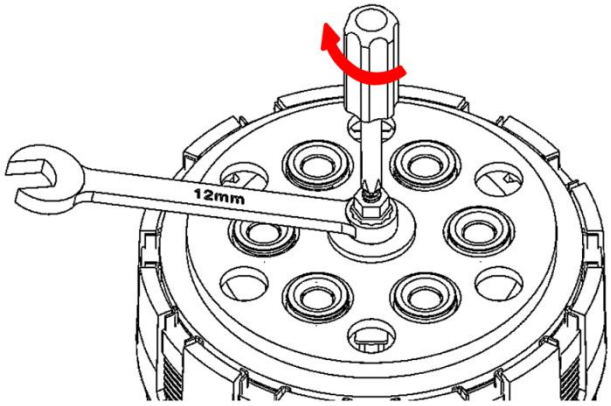
If you have more than half of the cable's adjustability range leftover, skip to ***step 12****.*

c. If you have used over half of the available threads on the in-line cable adjuster, you must adjust the throwout by doing the following:

- Loosen the in-line cable adjuster until about ¾ of the available threads are exposed.
- Using 12mm & 10mm wrenches, loosen the jam nut on the clutch throwout.



- While using the 12mm wrench to keep the throwout from spinning, turn the adjuster screw clockwise with a Phillips-head screwdriver until the throwout lifts far enough to tighten the clutch cable.



- Tighten the jam nut at this new set position.

12. Reinstall the clutch cover, ensuring that everything is aligned correctly with the engine case. Torque the cover bolts in a star pattern to OEM specification.

NOTE: It is recommended to use a new clutch cover gasket any time you reinstall the cover to avoid leaks.

13. Reinstall the clutch cover assembly, taking care to correctly align the water pump gear before tightening the cover bolts to OEM spec.

14. Stand the bike up, supporting it on its kickstand or center stand, in preparation for the next steps.

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.

In this bike model, the installed gap is established by using cable tension to lift the pressure plate a certain amount. In the following steps, you will fine-tune the gap adjustment based on free play gain (explained in the next section)—using the threaded in-line cable tension adjuster, and the adjuster at the lever perch on the handlebar if necessary.

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.

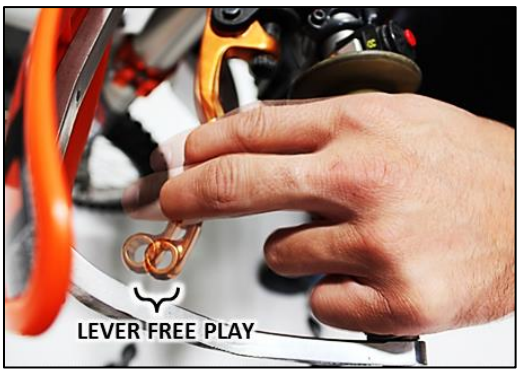
CHECKING LEVER FREE PLAY GAIN

WARNING

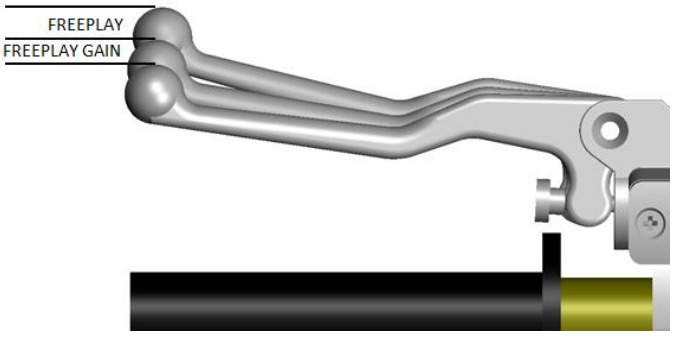
Always make sure that the bike is in NEUTRAL before checking Free Play Gain. Failure to do so may result in the bike lurching forward, and loss of control and/or injury may result.

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".**

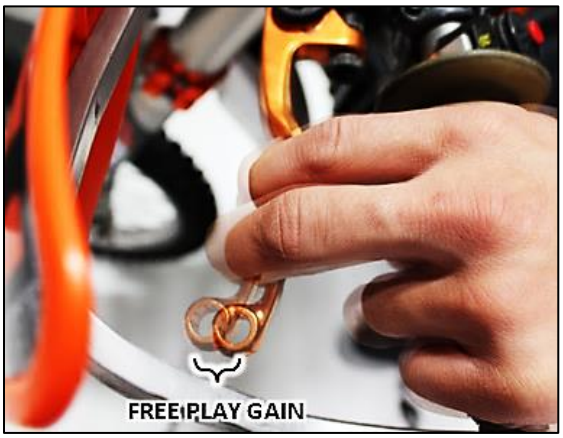
"Lever Free Play" is essentially the "slack" in the clutch lever before it starts actuating the clutch. Applying a light finger pressure will take up this slack. *With this clutch kit installed, there will be NO lever free play, as the cable is always under tension*.



"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 5,000 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.

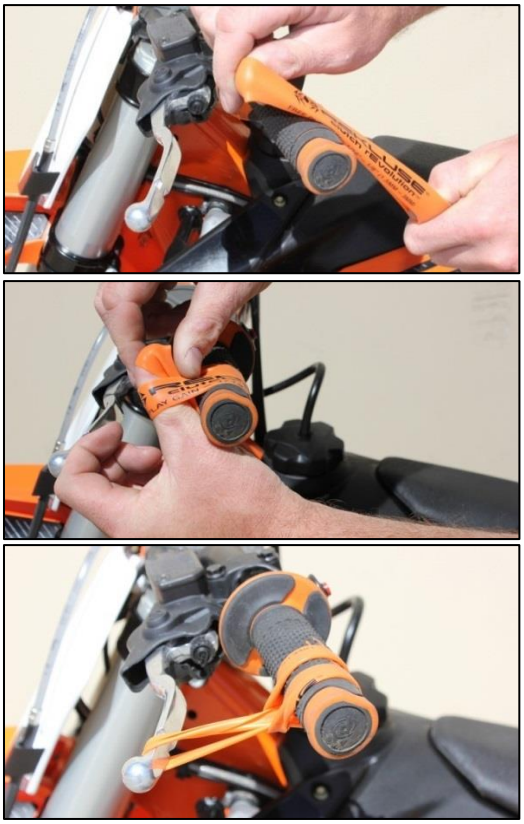
Motorcycles equipped with a Rekluse auto-clutch can move suddenly and unexpectedly and cause riders to lose control.

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.

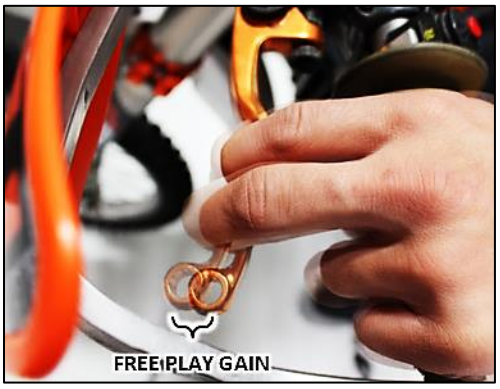


With the bike at idle in neutral, quickly blip (rev) the engine to at least 5,000 RPM and let it return to idle. **The clutch lever should move in about 1/8" (3mm) toward the handlebar as you rev the engine.**

NOTE: If you are not getting the correct lever movement, see the "Free Play Gain Troubleshooting" section 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 turn of the threaded adjuster—at the in-line adjuster—at a time). After each adjustment, repeat the rev-cycle until optimal free play gain is achieved.

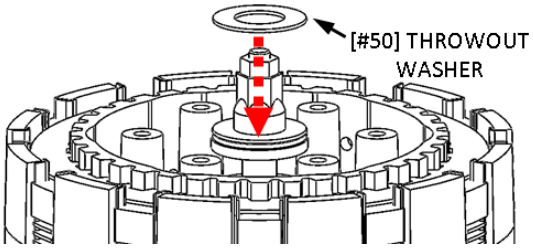
Symptom:

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

Answer: Installed Gap is too small

Solution: TIGHTEN THE CABLE by turning the threaded in-line adjuster to **ADD tension** to the cable, thus increasing the Installed Gap.

If both the threaded in-line adjuster and perch adjuster are maxed-out—meaning you have threaded them out as far as possible while maintaining at least 3 threads engaged—and yet there is still too much free play gain, then install the 2nd provided throwout washer onto the throwout and reassemble the bike.



If that does not solve the problem, your cable might be stretched too much and you may need to purchase a new cable.

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 turning the threaded in-line adjuster to reduce the cable tension, and thus reduce the Installed Gap.

If that does not solve the problem, the clutch pack was likely installed incorrectly or in the wrong order. Remove the entire clutch pack and reinstall from scratch using the steps in the *"Installation"* section.

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

WARNING: DO NOT RIDE WITHOUT SUFFICIENT FREE PLAY GAIN!

Checking free play gain is easy and takes only a few seconds to perform. For optimum clutch performance and longevity, check free play gain when the engine is warm at the start of every ride.

NO FREE PLAY GAIN MEANS THE CLUTCH WILL SLIP!

CLUTCH LEVER STICKER

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

CLUTCH NOISE & DRAG

Noise:
Although it is harmless, some bikes may have "squeal" or "chatter" coming from the clutch at idle or 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.

EXP TUNING OPTIONS

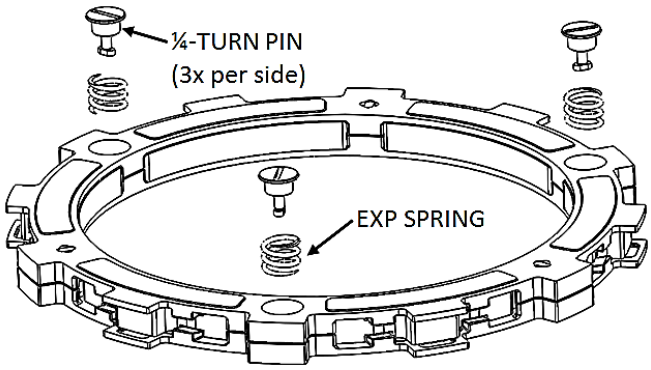
Included are spring options to tune the engagement RPM of the EXP friction disk. The EXP friction disk comes set with the recommended **"Medium"** setting from Rekluse. See the following chart for settings.

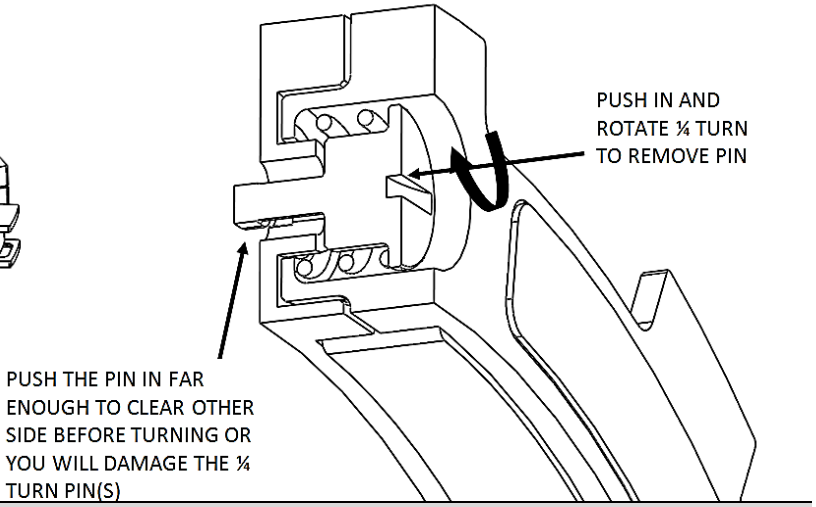
Suzuki DL/SV 650 Twin

ENGAGEMENT SETTING	SPRING CONFIGURATION
Medium	6 Silver Springs
High	3 Silver & 3 Red Springs

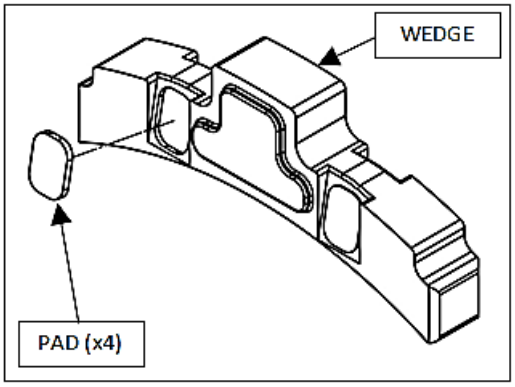
Adjusting the engine idle speed to match your engagement setting is important and greatly affects the overall feel of how the EXP disk engages. To prevent freewheeling and maximize engine braking, set the idle so there is a slight amount of drag while the bike is idling in gear and warmed up. The idle 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.

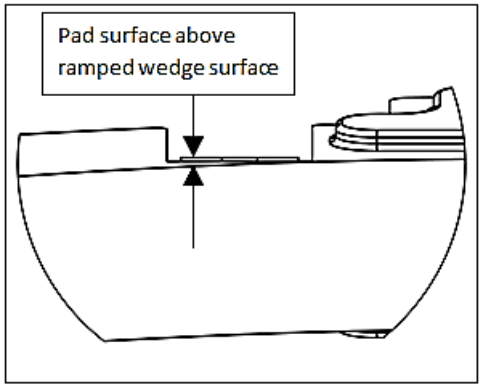
It is **NOT necessary** to disassemble the EXP halves to change springs! To change springs, remove 3 of the ¼-turn pins from one side of the EXP, replace springs, and re-install ¼-turn pins. Next, flip the EXP disk over and repeat on the other side if necessary. To maintain even pressure when using two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



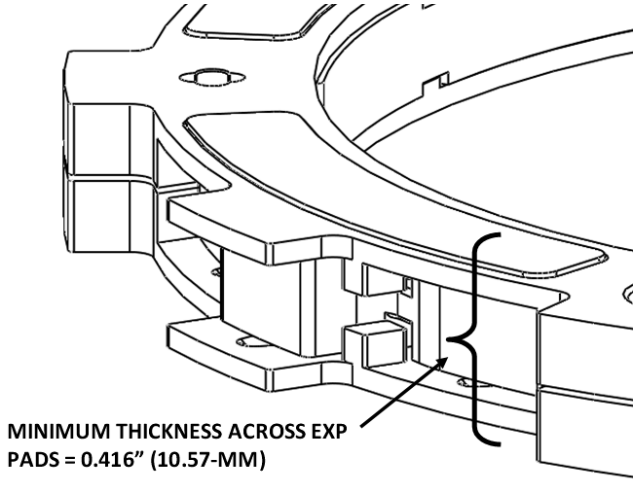


MAINTENANCE

- 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.



- 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.

    - Rekluse EXP disk minimum allowable thickness = **0.416" (10.57mm)**
    - 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. Insect 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.

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.

WARNING

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.