INSTALLATION & USER'S GUIDE

TorqDrive® Clutch Pack
KTM 790

Doc ID: 191-2813100B
Revision: 123119

Rekluse Motor Sports, Inc.
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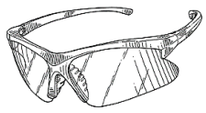
TABLE OF CONTENTS

OVERVIEW

This guide shows you how to replace your OE (Original Equipment) or “stock” clutch parts with your new Rekluse TorqDrive® clutch parts. The following parts are replaced:

- OE Drive Plates
- OE Friction Disks
- OE Pressure Plate Springs

INSTALLATION TIPS

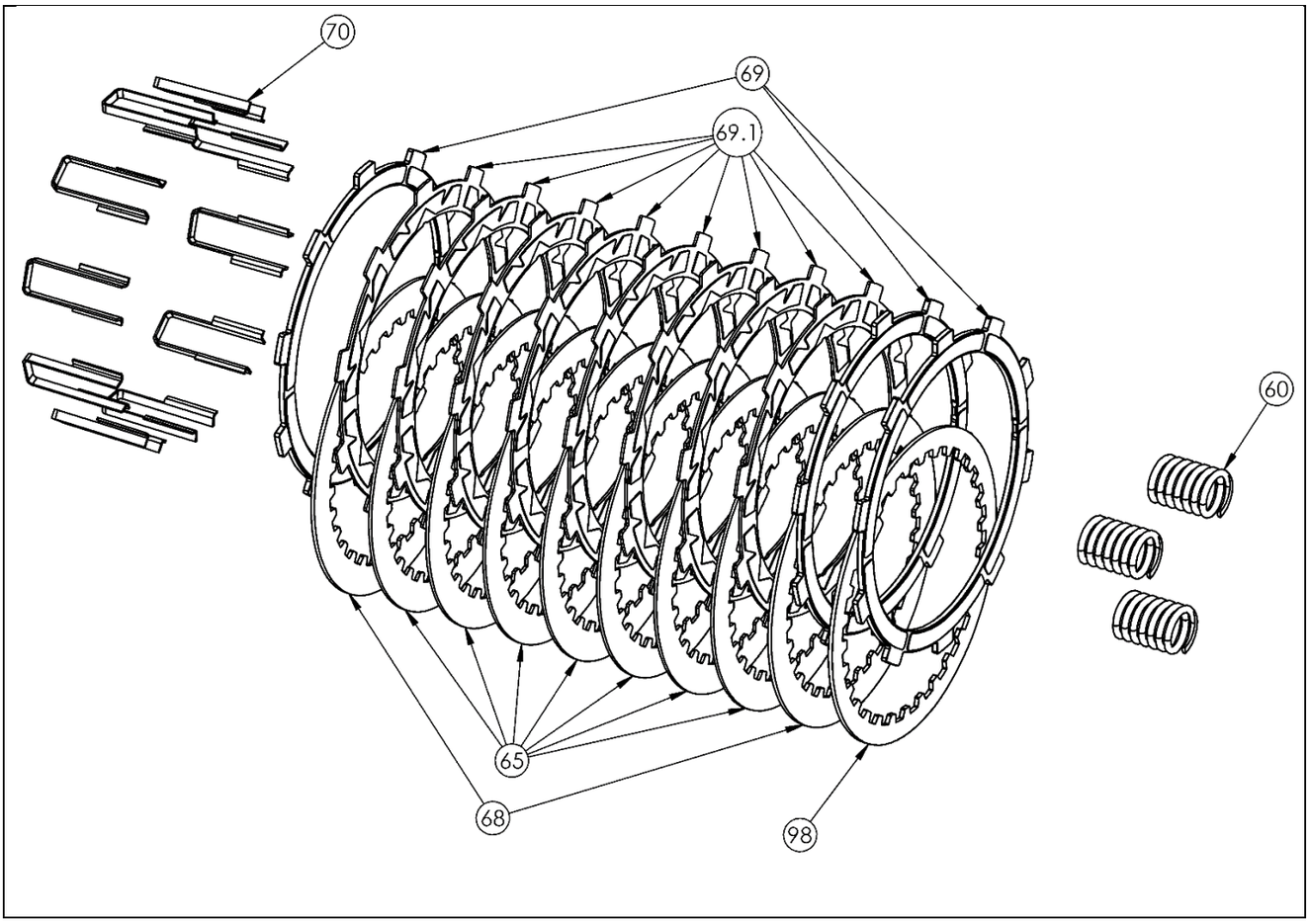


- Read the separate included Safety Information document before operating the vehicle with the product installed.
- Read this entire document before performing any steps.
- If you install this product for a customer or another person, instruct them to read the **Safety Information** document and the **Installation and User Guide** before operating the bike with the product.
- Protect eyes and skin – wear safety glasses and work gloves.
- Use the torque values listed in the instructions. Otherwise, use the torque specifications found in your OE service manual.
- 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.
- Inspect your OE cable for fraying and replace if needed.

TOOLS NEEDED

- 8mm Wrench
- 8mm Socket
- 10mm Socket
- Pick Set
- Torque Wrench

INCLUDED PARTS



Item	Description	Qty.
60	Pressure plate springs	3
65	Steel drive plates - .048 in (1.2 mm)	7
68	Steel drive plates - .060 in (1.5mm)	2
69	Thick TorqDrive® friction disks with larger internal diameter - .118 in (3 mm)	3
69.1	Thin TorqDrive® friction disks - .070 in (1.78mm)	8
70	Basket sleeves	10
98	Thick steel drive plate - .065 in (1.6 mm)	1

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

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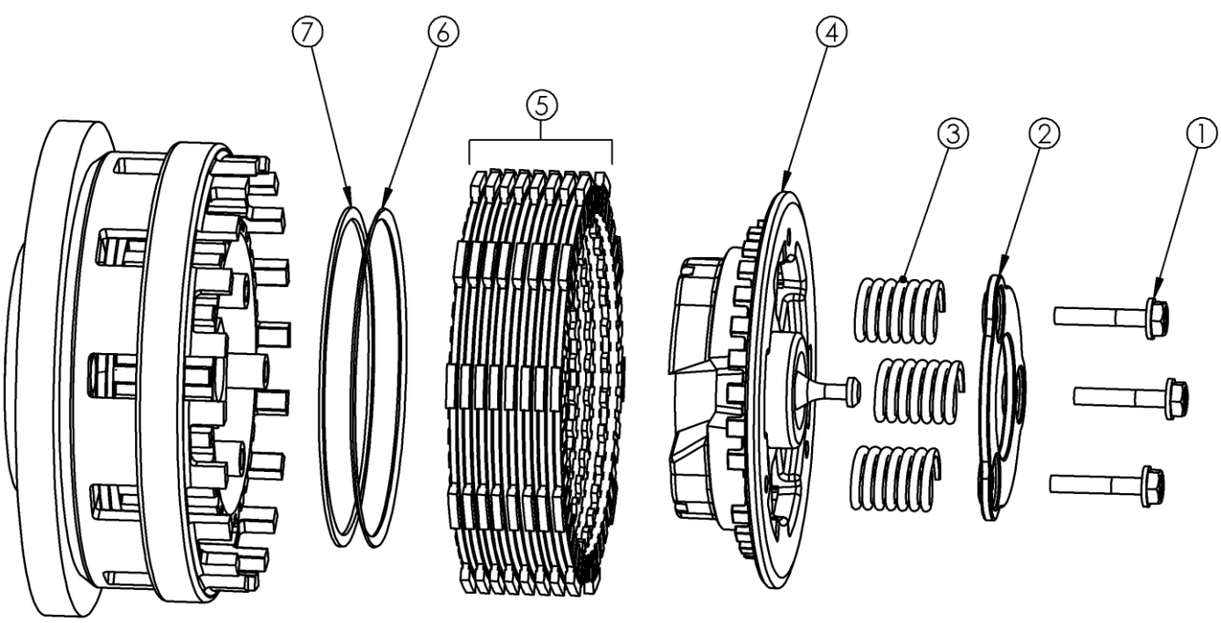
DISASSEMBLE THE CLUTCH

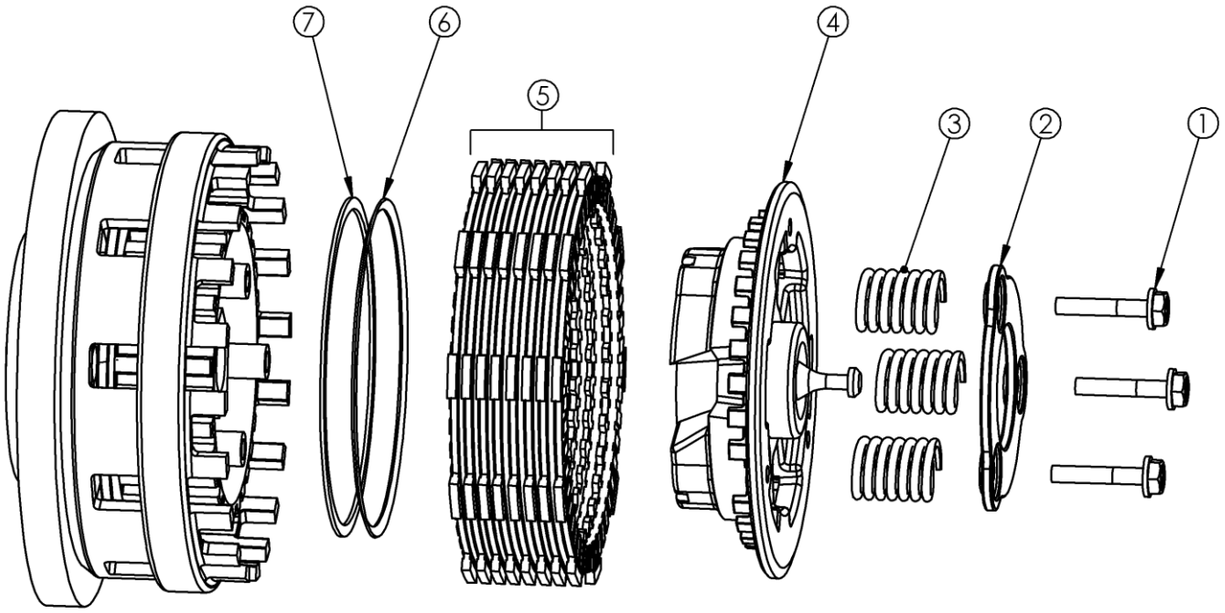
Note: The throwout arm is not splined to the throwout shaft. Do not loosen the throwout arm.

1. With the bike on the side stand, unhook the clutch cable from the throwout arm.
2. Use an 8mm socket to remove the clutch cable bracket.
3. Adventure Models Only: Using the 8mm wrench, loosen and remove the clutch cover bolt under the rear brake master cylinder mount.
4. Using the 8mm socket, remove the remaining clutch cover bolts and the cover.
5. Use a 10 mm socket and pick set to remove the following OE parts:

   NOTE: *The judder spring and seat can remain in the clutch basket.*



1	Pressure plate bolts
2	Spring retaining plate
3	Pressure plate springs

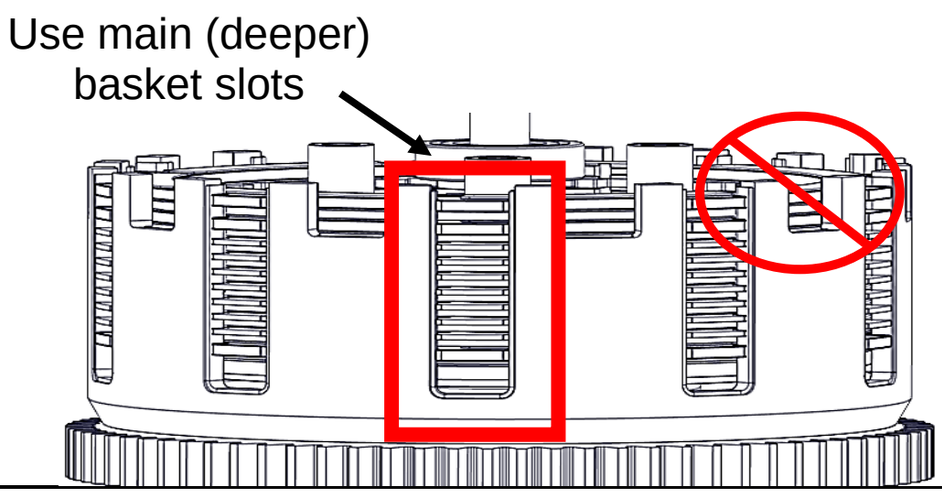


4	Pressure Plate Assembly
5	OE Clutch Pack
6	Judder Spring (cupped)
7	Judder Seat (flat)

INSTALL THE CLUTCH PACK

Notes for clutch pack installation:

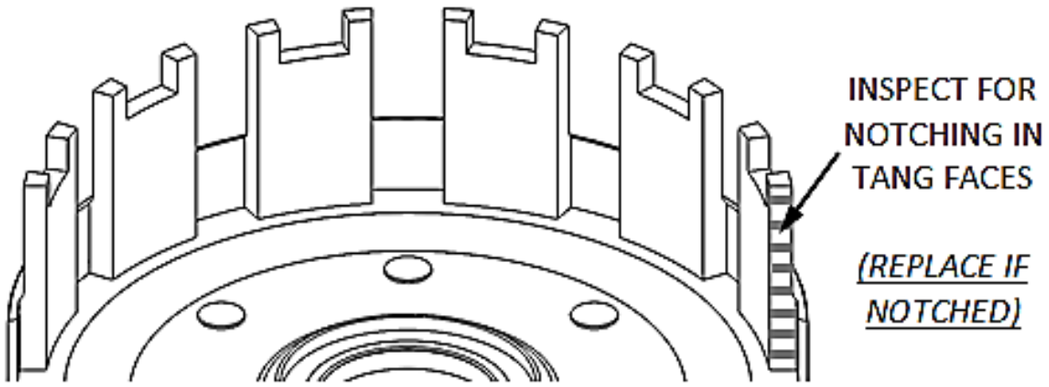
- *Some friction disks are marked with a small colored dot. This mark is used for processing and can be ignored.*
- *The OE basket has “half slots” at the top of the basket tangs. Rekluse products require the entire clutch pack be installed into the MAIN (deeper) basket slots.*



1. Inspect the clutch basket for spring damper play or notching. Do not install sleeves or use product with a notched basket. Notched basket tang faces or worn spring dampers can cause the sleeves to break.

⚠WARNING

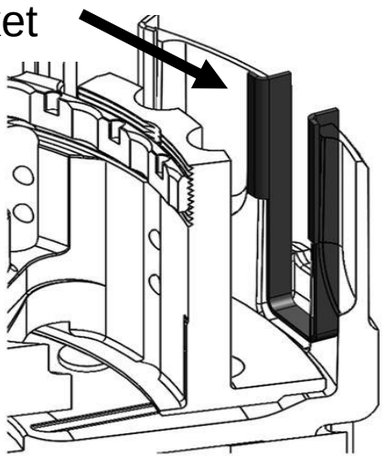
Failure to inspect the basket and replace if necessary could result in death, serious injury, and/or property damage.



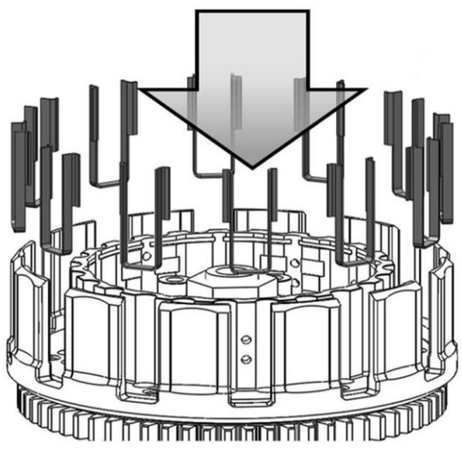
2. Install all the Rekluse basket sleeves into the basket slots. Make sure the bottom of the sleeve is facing down, and the sleeve tabs sit against the inside of the basket.

NOTE: *When seated in the basket, the sleeves will sit below flush with the top of the basket. This is normal.*

Sleeve tabs sit inside the basket

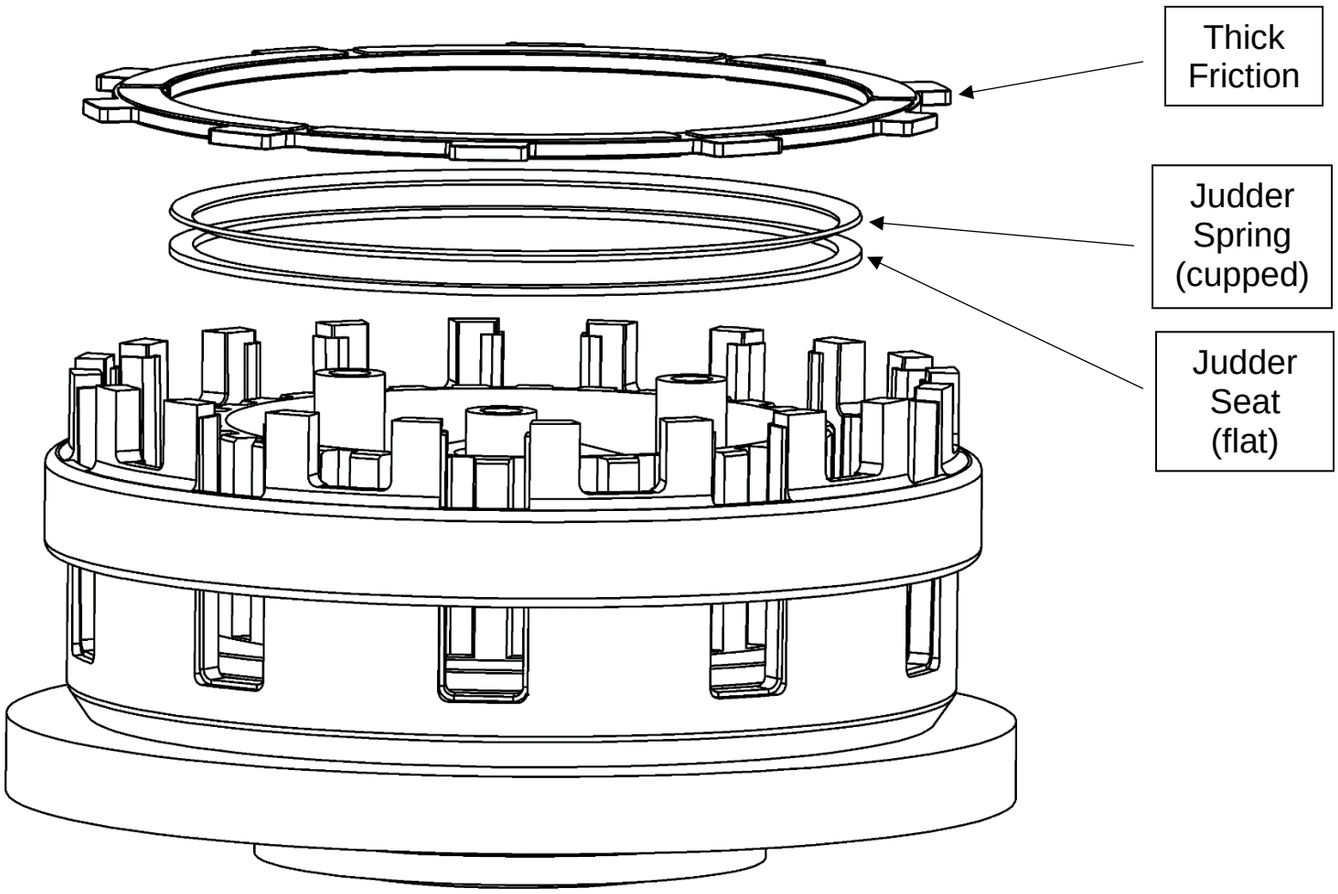


Install all the basket sleeves



3. Double-check that the OE judder seat and spring are installed in the bottom of the basket.

4. Install a thick friction disk - .118 in (3 mm) into the clutch basket. *The friction disk will sit around the judder spring.*



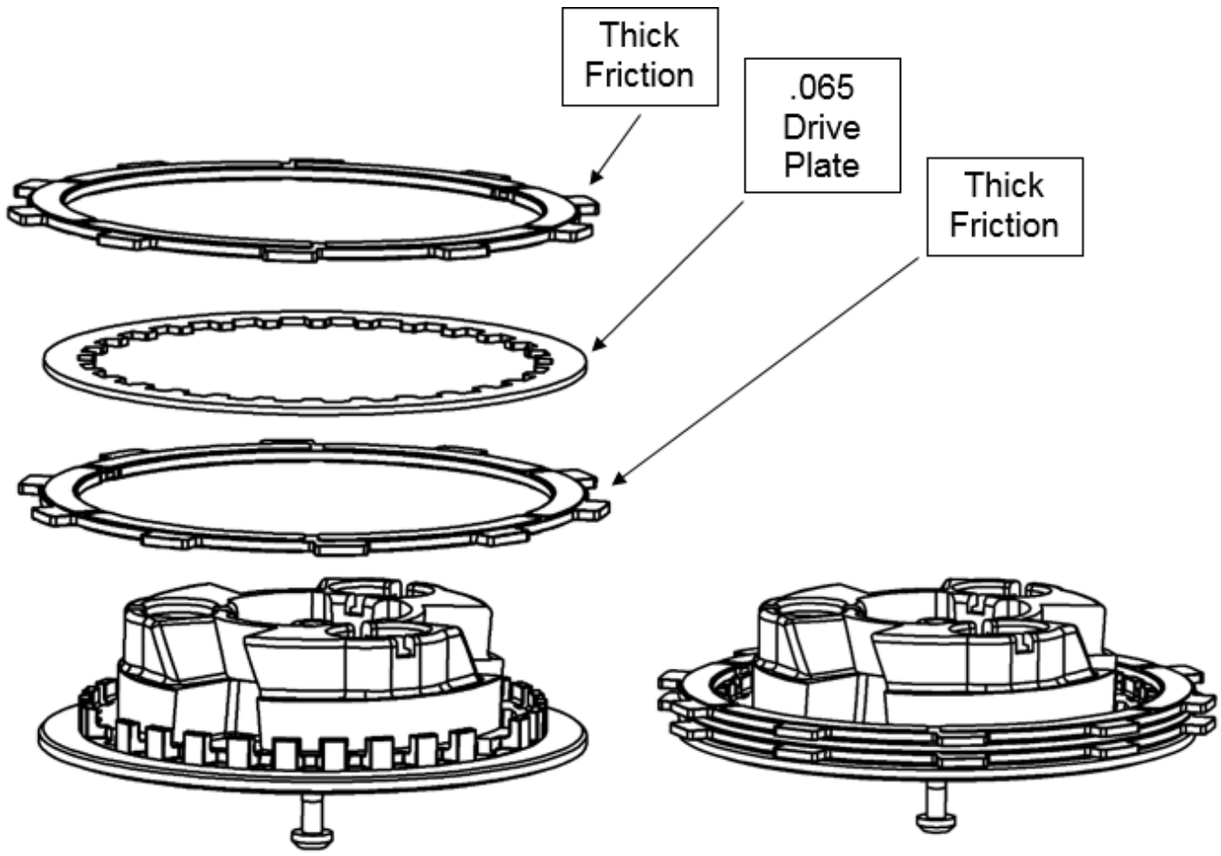
5. Install a steel drive plate - .060 in (1.5 mm) on top of the thick friction disk and the judder spring.
6. Alternate eight thin friction disks - .070 in (1.78mm) with seven thin steel drive plates - .048 (1.2mm).
7. Install the second .060 in (1.5mm) drive plate on top of the last thin friction disk.

   Note: You will have 2 thick frictions and 1 thick steel drive plate left over. These are installed on the pressure plate.

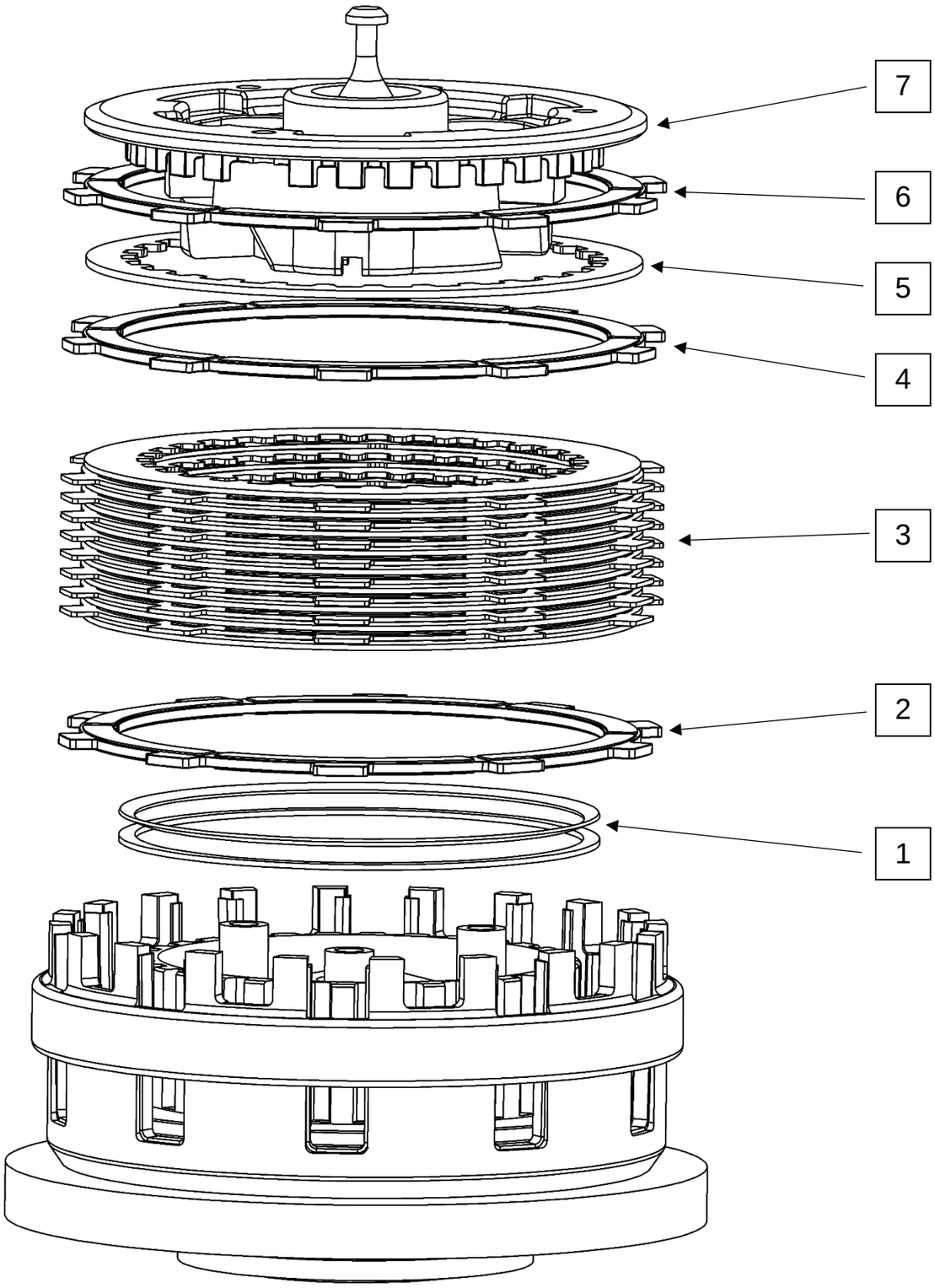
8. Set the pressure plate upside down on a workbench. Install a **thick** friction disk - .118” (3 mm) on top of the pressure plate.

9. Install the **thick** steel drive plate - .065” (1.6 mm) on top of the thick friction. Make sure the drive plate’s teeth index to the pressure plate.

10. Finally, install the last **thick** friction disk - .118” (3 mm) onto the pressure plate.



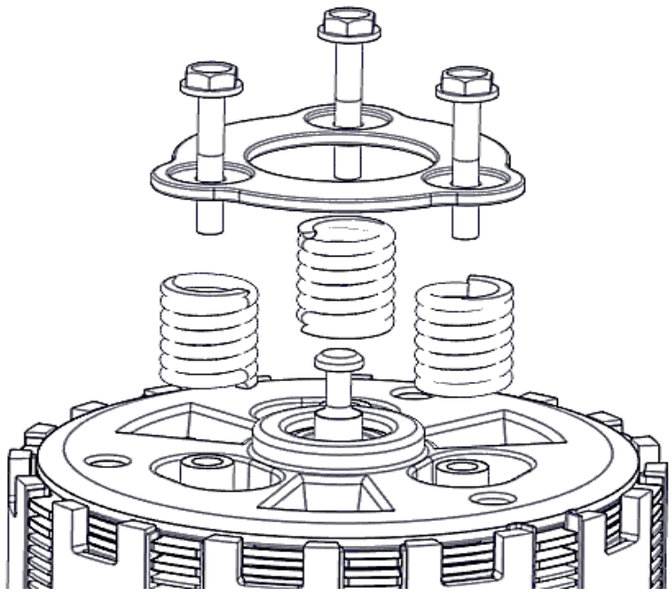
11. Turn the assembled pressure plate right side up, then install it onto the clutch pack. Take care to keep the drive plate indexed to the pressure plate. The friction on top of the drive plate can be used to hold the drive plate in place during installation. Note: A slight counterclockwise rotation will be required to index the pressure plate into the clutch assembly.



1	Judder seat, then judder spring
2	Thick friction disk
3	Alternate thin steel drive plates with thin friction disks
4	Thick friction disk
5	Thick steel drive plate
6	Thick friction disk
7	Pressure plate

12. Install the new Rekluse springs, then reinstall the OE spring ring and OE bolts.

13. Torque pressure plate bolts in small increments to OE specifications.



REINSTALL CLUCTH COVER

1. Reinstall the clutch cover, then lightly tighten the cover bolts in a star pattern. Tighten bolts in small increments before torqueing the cover bolts to OE specifications.

2. Reinstall the clutch cable bracket.

3. Reattach clutch cable to throwout arm.

4. Adjust the clutch lever to have 0.2” (5mm) of free play.

****** NOTE: ******

Lever free play is the amount of lever movement from the perch to clutch lever engagement. Clutch lever free play should measure 0.2” (5 mm).

BREAK-IN

- The clutch will break in within 100-200 miles of normal riding. Until break-in is complete, you may experience more clutch drag than normal.
- It is recommended to do an oil change after the first 1,000 miles to drain any excess clutch debris that occurred from break-in.

TROUBLESHOOTING

Clutch Drag:

If drag occurs only while the bike is cold, oil is the most likely cause. Be sure to warm up the bike before riding and/or racing. Use of lighter weight oil can help to minimize cold drag.

Clutch Slip:

If clutch slip occurs, inspect the clutch for signs of wear or heat.

MAINTENANCE

To keep your clutch performing at its best, perform regular maintenance on your bike and clutch. Clutch longevity and performance is greatly increased with oil quality and other bike factors that reduce engine heat.

- Inspect the clutch parts at regular maintenance intervals for signs wear or excessive heat and replace components as necessary. Clutch wear is dependent on the riders use.
- Measuring the clutch pack can help determine if the components need replacing.
  - Minimum clutch pack height: 1.350 inches
  - Maximum clutch pack height: 1.470 inches
- Inspect and replace basket sleeves if they appear to be notched from friction disks.
- Replace friction disks if they are glazed and/or burnt.
- Keep up with regular oil changes as per the bike manufacturer's recommendations. Clutch performance and longevity depend on oil quality.
- 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.

Disk inspection examples

When inspecting the clutch pack, the following pictures can be used as a reference. **These are best viewed in color by viewing this install document at www.rekluse.com/support.**

Drive Plates – If the clutch pack is getting high amounts of heat, purple, blue, or black color can be seen on the drive plate teeth. See pictures below. Not all drive plates look the same and may look different than pictured.

Normal Heat

High Heat (Blue)

Excessive Heat (Black)

Friction Disks – Due to the dark color of the friction material, the friction disks will appear almost black as soon as they are put in oil. During inspection, look for glazing of the friction material. Glazing will appear shiny and feel like glass, even after oil is cleaned from the friction disk. Not all friction disks look the same and may look different than pictured.

Normal Friction

Glazed Friction

NEED ADDITIONAL HELP?

Website
www.rekluse.com/support

Frequently asked questions
www.rekluse.com/faq

Support Videos
www.rekluse.com/support/videos

Phone
(208) 426-0659

Technical Support
Contact Technical Support for questions related to product installation, tuning, and performance.

Hours:
Monday thru Friday: 8:00 a.m. - 5:00 p.m.
Mountain Time zone

Email: tech@rekluse.com

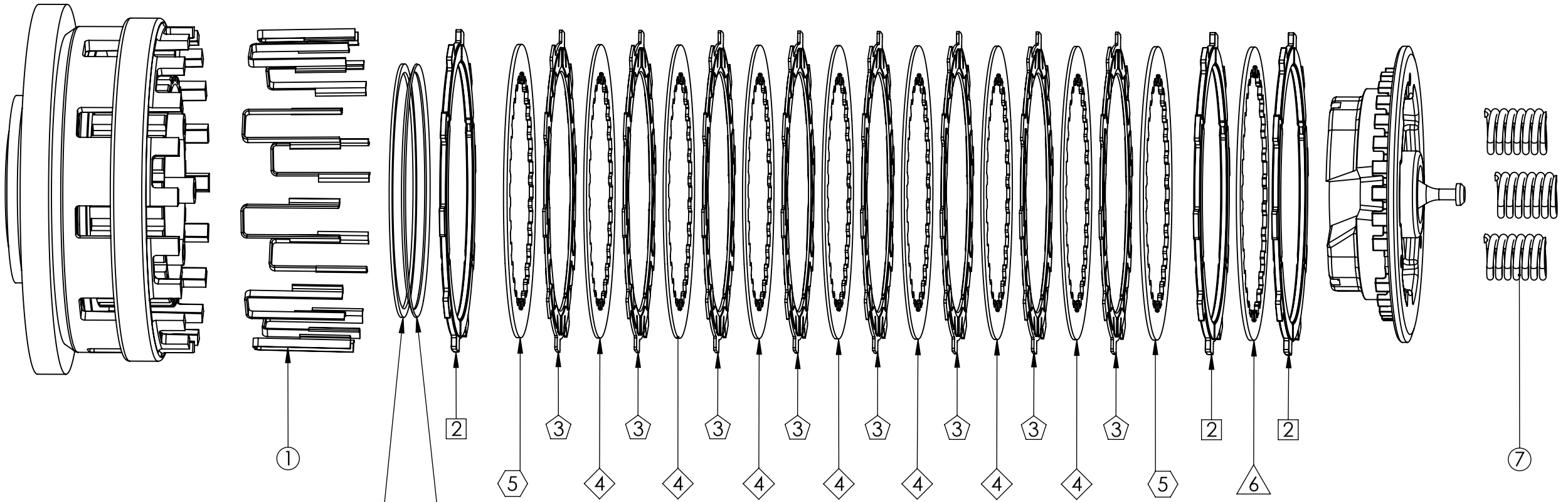
Customer Service
Contact Customer Service for additional product information, orders, and returns.

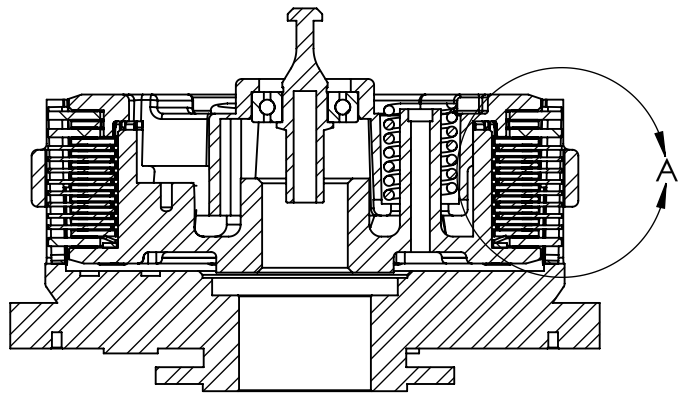
Hours:
Monday thru Friday: 8:00 a.m. - 5:00 p.m.
Mountain Time zone

Email: customerservice@rekluse.com

SETUP SHEET 198-2813100

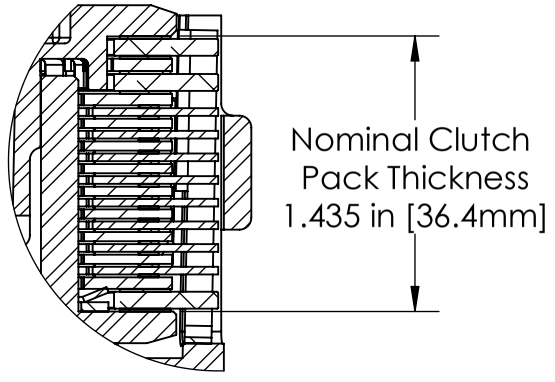
CLUTCH PACK CONFIGURATION





Item Number	Description	Quantity
1	Basket Sleeves	10
2	Friction Disk .118 in [3mm]	3
3	Friction Disk .070 in [1.8mm]	8
4	Drive Plate .048 in [1.2mm]	7
5	Drive Plate .060 in [1.5mm]	2
6	Drive Plate .065 in [1.7mm]	1
7	Springs - Blue/Red	3

CLUTCH PACK SPECS & SERVICE LIMITS



DETAIL A

Clutch Pack
Thickness Limits:
Max: 1.485 in [37.7mm]
Min: 1.395 in [35.4mm]

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RIDER'S GUIDE

How to get the most out of your new clutch

LET'S RIDE

This guide is to help get the best experience riding with your new Rekluse RadiusX centrifugal auto clutch.

It doesn't matter if you, a mechanic, or a dealer installed your new clutch, take a moment to read this Rider's Guide. It will help you understand some important points about how to shift with the new clutch, how the auto clutch functions, some important safety information, and how to check Free Play Gain.

What it does

The Rekluse auto clutch is designed to eliminate the need for clutching when starting and stopping. The auto clutch provides smooth acceleration without loss of power. It also prevents stalling when riding at slower speeds or maneuvering through traffic. You retain full control of shifting and can continue to use the clutch lever if you like.

What it doesn't do

The Rekluse auto clutch is not an automatic transmission. You still need to shift to maintain the proper gear selection when accelerating, cruising, and decelerating.

Items to Note

- Thoroughly read and understand the **Safety Information** before operating any vehicle with this product.
- Videos related to this product can be viewed online at https://rekluse.com/support/videos.
- **Do not "rev" the throttle while in gear and not moving**. Revving the engine without the clutch lever pulled in will lurch the bike forward or move it unexpectedly.
- Check your Free Play Gain before the 1st ride of the day. Instructions for checking Free Play Gain are included in the guide.
    - If Free Play Gain is not correct, adjust the installed gap and recheck Free Play Gain before continuing. Continuing to ride when the clutch is not adjusted properly may cause damage to the clutch.
    - If Free Play Gain cannot be corrected (too much or too little), stop riding the bike until the issue can be resolved.

GETTING STARTED

There are a few basic steps you need to know when shifting with your new auto clutch. Learning these steps will keep your ride smooth and prevent damage to the clutch.

- Always start your bike in **Neutral** and let the engine warm up. If the bike is cold, there may be clutch drag. Clutch the bike manually until it is warm.

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Revision: 080318

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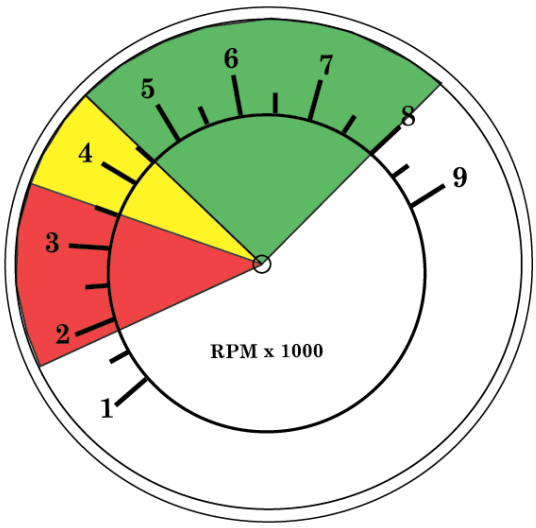
- **Always shift your bike from Neutral to 1st gear with the clutch lever pulled in.**
- To move or start, let the clutch lever out and slowly roll on the throttle.
- Upshift gears as you normally would, using the clutch lever as you shift.
- Your Rekluse auto clutch engages during normal riding from idle to 4,500 RPM. See section 3 below for suggestions regarding optimal RPM for riding conditions.

SHIFTING

1. Upshifting:
   - For normal riding situations, upshift as you normally would.
2. Downshifting:
   - For normal riding situations—including slowing down from a tall gear—**downshift as you normally would.** Downshift if the engine is jerking or "lugging."
   - Downshift one gear at a time and allow the engine braking to engage like normal.
   - When downshifting, apply a small amount of throttle then slowly release the clutch lever to reactivate the clutch.
   - If you are traveling at a high rate of speed in a tall gear, you **MUST** apply a small amount of throttle to reactivate the clutch. If you pull the clutch lever in or allow the RPM to drop to idle without reactivating the clutch, free-wheeling occurs.
   - Do not ride in a gear higher than you need. Adjust your gear selection to match your ground speed, engine RPM, and terrain.
   - When you slow down to stop, you do not need to touch or modulate the lever. The EXP disk will release the clutch automatically when the RPM drops below the engagement point.
   - **Once you are stopped, shift into 1st gear using your clutch lever before accelerating again.**
3. Maintaining proper RPM for best performance :

   Shift points will vary by bike and your riding style. However, these are some general guidelines to help you get the most out of your clutch and reduce slipping.

   - Red Zone: This zone is from idle to around 3,500 RPM. This is a caution zone where the clutch is in a transitional state. Cruising below 3,500 RPM should only be done in 1st gear or below ¼ throttle. Cruising in a tall gear without downshifting is hard on your clutch as well as your engine.
   - Yellow Zone: This zone is from about 3,500-4,500 RPM. This is a healthy zone for easy trail riding and cruising situations. It is acceptable to cruise in this range unless you are carrying a heavy load, riding uphill, riding into the wind, or riding well above 1/3-1/2 throttle.
   - Green Zone: For best clutch performance and longevity, it is best if most riding is done above



4,500 RPM. The clutch is fully clamped at this point. Any technical trail riding or ascending a grade should be done in this range. Upshift and downshift as you normally would using the clutch lever.

PARKING WITH YOUR AUTO CLUTCH

Your kit includes 2 Velcro-type straps to be used to secure both the clutch lever and front brake lever when the bike is parked.

To keep your bike from rolling away without you, use the 2 Velcro lever safety straps every time you park or leave your bike. Using these straps will reduce your risk of injury and/or damage. Refer to the Safety Information sheet for more information.

1. Pull the brake lever tight against the right grip.
2. Wrap the Velcro safety strap around the front brake lever and grip, pull it tight, then fasten it to use as a parking brake.
3. Wrap the other strap around the clutch lever and the grip in the same way to prevent unwanted launching.

LONG LIVE YOUR CLUTCH

In order to keep your clutch functioning properly and prevent damage, you need to check your Free Play Gain before the 1st ride of the day.

Don't know how to check your Free Play Gain?

- **Watch the video**:
  https://rekluse.com/support/videos

- **Read about it:**
  Read the following instructions in this guide and/or the Information Guide that came with your kit.

⚠ WARNING

BEFORE YOU BEGIN, verify 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.

CHECK FREE PLAY GAIN

Optimal Free Play Gain yields **1/4 - 3/8" (6 mm - 9 mm)** of clutch lever movement, measured at the end of the lever. This measurement at the lever correlates to achieving the ideal installed gap.

a) Before you begin checking Free Play Gain, place the bike in **NEUTRAL**, start the engine and let it warm up for 2-3 minutes to idle down and warm the engine oil.

b) Stretch the included rubber band between your thumbs, then place the top end of the rubber band on the outer end of the left handlebar grip.

c) While holding the top end of the rubber band against the handlebar, stretch the band downward, then loop it through itself.

d) Pull the band through the loop, then attach it to the outside end of the clutch lever. This will take up the initial free play (slack) and put the lever in a position to detect the Free Play Gain.



e) While still in **NEUTRAL**, quickly rev the engine to about 5,000 RPM, then let it return to idle. Notice the movement in the clutch lever when the engine is revved. This is your Free Play Gain.

Note: *It is very important the motor returns to idle before revving the engine again or Free Play Gain will not be correct.*

When the bike returns to idle, rest your hand across the clutch lever. Rev the engine again to 3,000-5,000 RPM so you can observe the movement while feeling for Free Play Gain with your hand.

f) If your Free Play Gain is correct, then enjoy the ride. If you have too little or too much Free Play Gain, adjust the installed gap and recheck Free Play Gain. Instructions for adjusting the gap are found in the Information Guide that came with your kit or on our website.

NEED ADDITIONAL HELP?

Visit our website at www.rekluse.com/support or call us at (208) 426-0659.