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INSTRUCTIONS

MOTION PRO REV3™ Installation Instructions



Thank you for purchasing the Rev3™ Variable Rate Throttle Kit

The Rev3™ throttle will help you set the amount of throttle twist to suit your style and riding conditions. This throttle kit is meant for off-road and closed course track use ONLY. This kit should only be installed by a professional mechanic and must be installed and maintained in accordance to these instructions to work properly.

WARNING: Incorrect installation or maintenance of this product could result in great bodily injury or death. Always refer to a factory service manual in conjunction with these instructions when installing or maintaining this throttle assembly.


Familiarizing Yourself With The Components Of The Kit




Kit includes:

1. Rev3™ throttle assembly with throttle tube
2. Cables specifically designed for your bike
3. Five reels: 35 mm, 40 mm, 45 mm, 50 mm and cam reel (orange street/road race or gray MX/off-road)
4. Motion Pro grips RoadControl™ or DirtControl™ II grips


The throttle consists of a two piece throttle housing, the tube and five included throttle reels (straight rate 35 mm, 40 mm, 45 mm, 50 mm and a progressive cam profile). The throttle reels are designed so that they will only fit in one direction on the throttle tube and the throttle tube has a locating ring to position it in the throttle housing. The throttle housing has a stop built into the recess for the throttle tube locating ring. Always make sure the throttle is properly assembled when installing it. If the components don't fit easily together, something is in the wrong position. Never mix the components of this kit with any other throttles or cables. This kit is a standalone assembly and any other components from any other assembly can cause the throttle not to operate or possibly stick or drag, resulting in possible injury or death. Replacement Rev3™ throttle parts and Rev3™ cables are available through your local dealer or Motion Pro. Some motorcycles have the engine kill and starter switches built into the throttle housing. If this is the case with your motorcycle, you will need to purchase the accessory handlebar switch to replace the stock switch assembly. The replacement switch is not included in this kit.




Easily find a plug and play start/stop switch for your street/road race motorcycle at MotionPro.com below.



OEM style Connectors

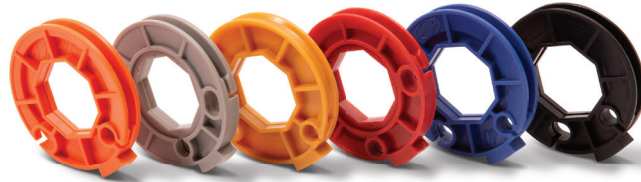


USE MOBILE CAMERA TO SCAN

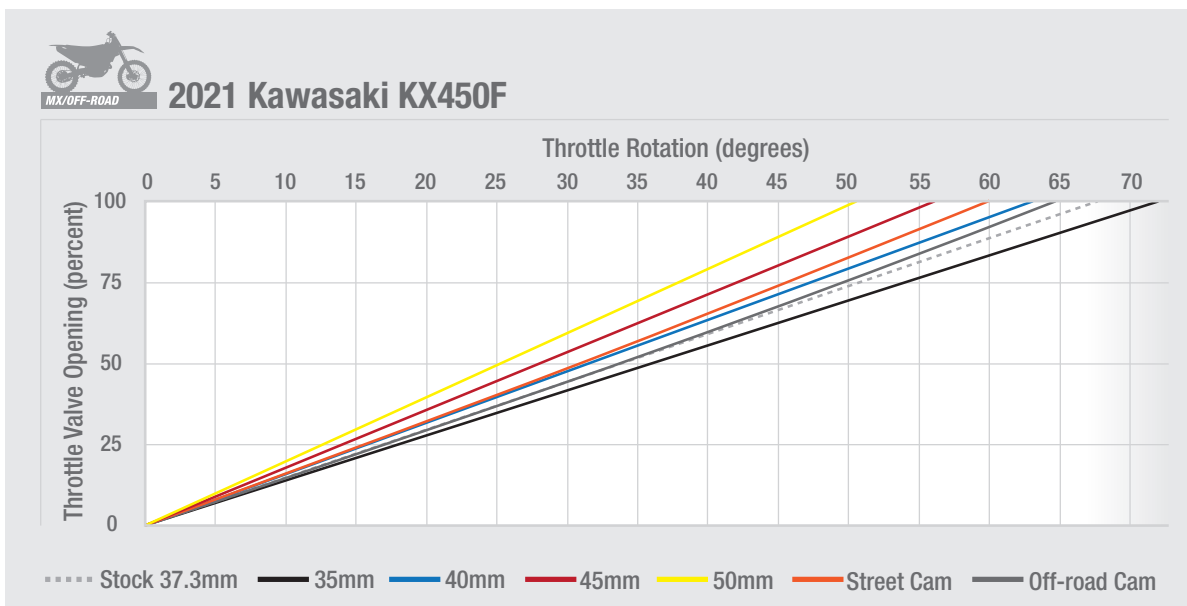
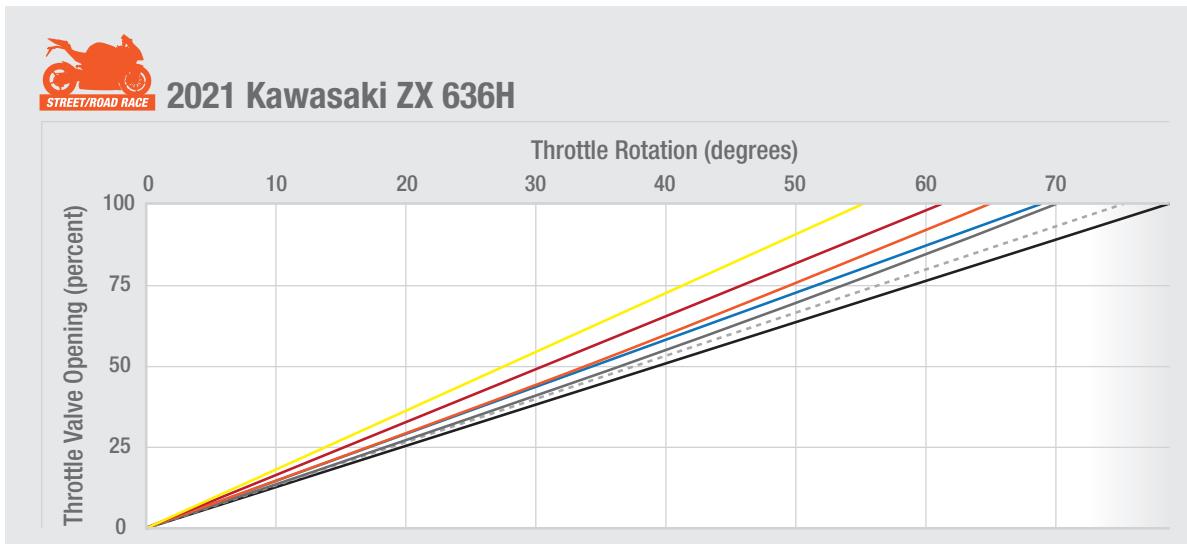


How the Rev3™ Throttle Works

The Rev3™ throttle has several different size reels that will change how much twist is necessary for the throttle to completely open the carbs or throttle bodies on a motorcycle. The larger the reel is, the shorter the twist. Each reel size will shorten the twist by about 10 degrees. If your stock throttle has a 40 mm reel and stock twist is 90 degrees (1/4 turn), the 45 mm reel will reduce the twist to 80 degrees and the 50 mm reel will reduce it to 70 degrees. The 35 mm reel will increase the throttle twist to approximately 100 degrees. This is just an example; every model of motorcycle is different. The included cam reel has a progressive profile that allows the throttle to act like a sensitive, long twist throttle during the initial small throttle openings for precise control and then acts like a more aggressive short twist throttle at large throttle openings, progressively shortening the amount of twist needed to reach full throttle.



Reel Curve Samples



Go to [MotionPro.com](https://www.motionpro.com) and enter your motorcycle info (year, make, model) on the Rev3™ page to see your customized graph showing how the Rev3™ reels will help tune the throttle performance of your motorcycle.

Installation Instructions

Step 1: Removing the Stock Throttle and Cables

Consult your factory service manual for disassembly procedures for your particular motorcycle. On most motorcycles, it will be necessary to remove the seat, gas tank and airbox to access the throttle cables on the carbs or the throttle bodies. Some bikes will require additional disassembly. Once you are able to access the cables on the carbs or the throttle bodies, remove the bar end on the throttle side (if there is one), disassemble the throttle housing on the handlebar and remove the housing, the stock throttle tube and the cables. Keep the stock throttle tube handy for use later in the installation. Make note of how the stock throttle cables are routed and then remove the stock cables from the carbs or throttle bodies.



Step 2: Installing the Rev3™ Cables

Before installing the new cables, first lubricate the cables. We recommend using Motion Pro Cable Luber part no. 08-0182 and our premium blended Motion Pro Cable Lube part no. 15-0002. The cables are not lubed at the factory, so this is an important step for best feel and cable life. Install the Rev3™ cables using the same routing as stock and connect them to the carbs or throttle bodies. Make sure that the pull cable is attached to the pull side of the throttle bodies or carbs and the return cable to the return side. If you reverse them, the throttle will operate backwards. Do not tighten the adjusters all the way on the cable mounts at this time.

Step 3: Installing the Rev3™ Throttle

Measure the diameter of the stock reel (refer to fig.1 the illustration for the proper method to measure the diameter of the reel on your stock tube). Then select a Rev3™ reel from the kit that is closest in size to your stock reel, a larger diameter if you want to have a faster turning throttle, or a little smaller diameter if you would like a slightly slower turning throttle and install it on the Rev3™ throttle tube.

Apply a light coating of grease where throttle cable contacts reel



Apply a light coating of grease to barrel mounting points

WARNING: Always select the closest size first. NEVER install the largest reel right away. Making a major change in how your throttle operates could result in loss of control of your bike and serious injury or death. Always work one size at a time and ride the bike long enough to get used to how the throttle operates before making another change.



Make sure the Rev3™ tube flange fits inside the recess on the Rev3™ reel. Install the throttle tube on the handlebar. Use some high quality grease on the barrels of the Rev3™ cables and fit the push and pull cables into the Rev3™ reel. The cable wires will wrap around the reel and attach to the reel on the opposite side from the cable elbows. The pull cable barrel hole will fit very closely to the barrel, while the return barrel hole in the reel is slightly oval. Use a small amount of grease on the outside diameter of the reel as well, where the cable wires ride. Install the two halves of the throttle housing around the throttle tube, reel and cable elbows. The housing halves should fit snugly together and the throttle should operate smoothly. If not, double-check to make sure the elbows are snapped together and aligned correctly and that the wires are routed properly on the outside of the reel. Once everything is fitted correctly, install the two

housing screws and tighten them evenly to clamp the housing on the handlebar. Do not exceed 90 kg/cm torque (78 lb/in or 6 lb/ft) on the housing screws. At this time, the cables will still be slightly loose, but the throttle should operate smoothly and snap back quickly to the closed position.

Step 4: Cable Adjustments

The aluminum inline adjusters on the cable housing near the throttle should be closed all the way before starting this step. Some motorcycles have threaded adjusters on the throttle body or carb cable mounts. If so, this is where you will start. If there are only slip-on fittings at the carb or throttle bodies, the adjustments will be made at the inline adjusters only. Start with the pull cable and adjust the adjuster until there is approximately 1-2 mm of free play in the cable. The throttle should be able to rotate a few degrees before starting to open the carbs or throttle bodies. Once this adjustment is complete, twist the throttle and let go several times. The throttle should snap back closed very quickly. If it does not, double check all of your previous work to determine the problem. DO NOT continue until the throttle snaps back quickly on its own once released. Adjust the return cable after the pull cable is adjusted. The return cable should have 2-3 mm of free play. If you are able to access the exposed wire of the return cable at the carbs or throttle bodies, you should be able to deflect it from straight by a millimeter or so if it is adjusted properly. Open the throttle and release again and it should snap back as quickly as before. If not, the return cable is too tight. Adjust and operate the throttle again, until it snaps back quickly.



Step 5: Installing the Grips

Install grips using grip glue (we recommend Motion Pro Grip Glue part no. 15-0003). Make sure that the throttle side grip does not contact the throttle housing, which will cause drag. Reinstall any bar ends that may have been on the handlebars and test the throttle again to make sure the grip does not drag on the bar end and the throttle still snaps back quickly.

Step 6: Reassemble the Rest of the Bike

Reassemble the airbox, gas tank, seat and anything else that was removed when you started. Make sure to make all the proper hose and electrical connections, while referring to the factory service manual for details.

Step 7: Stationary Idle Testing

With the bike on its side stand, or a paddock stand turn the bars all the way left and all the way right. While doing this, check that the cables are not pulled too tight and that they are routed properly. Check the throttle operation at full left and then again at full right to make sure that it does not drag and that there is some free play. Without turning the throttle, start the motorcycle. It should start and idle normally. If the idle is very high, something was not adjusted properly or was not assembled correctly. Turn off the motorcycle and recheck your work. If the idle is normal, turn the handlebars from full left to full right with the engine running. The idle should not change. If the idle rises when the bars are turned, there is not enough free play in the cables. Readjust the cables to allow more free play and repeat until the idle is steady no matter where the bars are turned. Then twist the throttle to raise the engine speed above idle and release the throttle. The engine should return quickly to a normal idle. After installation of the Rev3™ throttle and any switches on the handlebar, test the brake lever to make sure that it has adequate travel without contacting the throttle or switch housing. Some motorcycles have adjustable span brake levers, that when set at the closest position to accommodate someone with small hands may contact the throttle or switch housing before full brake pressure is applied. If this is the case, move or rotate the throttle and/or switch housing concerned to provide proper clearance. When testing the motorcycle for the first time, pay close attention to brake function to make sure they are 100% functional. If there is a problem, do not operate the motorcycle further until proper brake lever clearance is obtained.



WARNING: Failure to install this kit properly could cause great bodily injury or death.

Step 8: The Test Ride

The best place for a test ride is at a closed course racetrack. Make sure to ride the bike for sufficient time at low speeds and under no more than moderate acceleration to get a good feel for the different throttle response before going back to normal use of your motorcycle.

Changing Reels

The Rev3™ throttle is designed so that you can easily change reels of the throttle to adapt to different riding situations. A fast turning throttle can be used for high-speed tracks and a slower turning throttle for more technical riding where greater control of the throttle is necessary. To change reels, all that is necessary is to remove the throttle housing, unhook the cables from the throttle reel and remove the reel from the tube and replace it with the size desired. Assembly is the reverse. A slight cable adjustment might be necessary (see step 4).

Maintaining the Rev3™ Throttle

There is not much to maintaining the Rev3™ throttle, but like all of your controls, it will benefit from regular preventative maintenance. Before each ride, you should do a quick cable check to make sure cable slack is correct and the throttle always snaps back quickly. Once or twice a year, the throttle should be disassembled, cleaned and lubricated, including lubricating the cables. Give the cables and throttle a visual inspection for any wear, cracks or other signs of wear or damage. Always immediately replace any component that is worn.

Warranty

The Rev3™ throttle kit carries a one-year limited warranty against defects in materials or workmanship only. This guarantee is limited to repair or replacement only. Repair or replacement is subject to Motion Pro determining that the product is defective and that it was not subject to abuse or misuse and that it was properly installed and maintained. The above is the customer's exclusive remedy. This warranty is expressly in lieu of all other warranties express or implied and of all other obligations or liabilities. In no event shall Motion Pro, Inc. be liable for any incidental or consequential damages arising from the breach of any warranties, improper installation, or any other breach of contract or duty. To make a warranty claim contact: Motion Pro Warranty Department at 650-594-9600 to get an RGA number before returning product.

