



DUAL SPORT KIT INSTALLATION MANUAL
FOR HUSQVARNA & HUSABERG
ELECTRIC-START MOTORCYCLES

Baja Designs • 185 Bosstick Blvd. • San Marcos • CA • 92069

Phone 760.560.2252 • Fax 760.560.0383

www.bajadesigns.com



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Street Riding: Riding a motorcycle on the street is very different than off-road riding and requires special skills not learned off-road. Most states require an additional license beyond an automobile driver's license to operate a motorcycle on the street. Make sure to have the proper licensing and skills before riding your bike on the street. Baja Designs recommends contacting the Motorcycle Safety Foundation (800 446 9227) for a rider course near you.



Important – Please Read First:

NOTE: 09 FE450 Models do not require any stator modification so skip step 3 and disregard pages 11-14.

In stock form, the Kokusan K3 stators on Husqvarna & Husaberg electric-start models are not powerful enough to charge the stock battery and effectively run a full DC powered dual sport lighting system. For this kit to function properly, a modification must be performed on these bikes' stock stators. KTM, Husqvarna, & Husaberg all use the same type of stator so the same modification instructions apply to all. **If this is not done the battery will discharge anytime the headlight is on.**

Baja Designs has provided the necessary stator modification instructions for these bikes beginning on page 10 of this manual as well as the necessary hardware in the kit parts bag. Please read these instructions in their entirety before beginning. This is a delicate modification that requires soldering and crimping to the stator wiring. If you do not have the proper tools or are not comfortable performing this type of work, do not begin. Baja Designs can perform this modification for you for \$30 (call 760.560.2252 for an order number.) If you choose to perform this modification yourself it is critical that you be able to follow the instructions exactly. Any errors will cause the stator to have to be rewound completely.

Note that the stators on these bikes bolt into the engine's case cover and do not require a flywheel puller for removal.

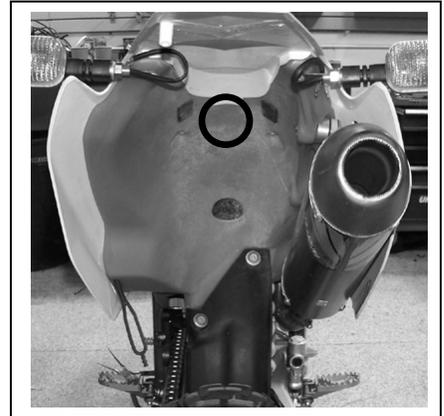
If you have any questions regarding this installation please call Baja Designs at 760.560.2252 or email info@bajadesigns.com.



1. Remove the seat, fuel tank, side panels, & stock headlight/front number plate.
2. Unplug & remove the stock kill button. *Note that you may leave the stock kill button in place if you do not wish to use the kill feature on the provided switch panel assembly.*
3. If not done already, reinstall the modified stator. Attach the stator wires to their corresponding mates from the stock wiring harness. (except EFI bikes)
4. **Taillight Installation:** *Note that the stock taillight on Husqvarnas & Husabergs (with factory lighting) can typically be used with the dual sport kit. If you choose to use the stock taillight you may skip this step.*

Attach the provided LED taillight to the underside of the rear fender using the provided countersunk mounting hardware. Position it so the rear edge of the LED cluster lines up with the rear edge of the fender. Route the taillight wires forward to the area on top of the airbox along the side of the fender that offers the best clearance. Secure the taillight wires to the side of the taillight plastic using zip-ties so the tire cannot make contact.

Note: FE450 Models require that you drill a hole for the wires to pass through in the grey plastic fender panel. Drill the hole in an area as shown so that when the seat is installed it will not crush the wires.



5. **Turn Signal Installation:** Attach the rear turn signals to either the taillight or directly to the rear fender. Make sure the mounting location you choose is out of the path of the exhaust flow. Route the turn signal wires forward to the area on top of the airbox securing with zip-ties.

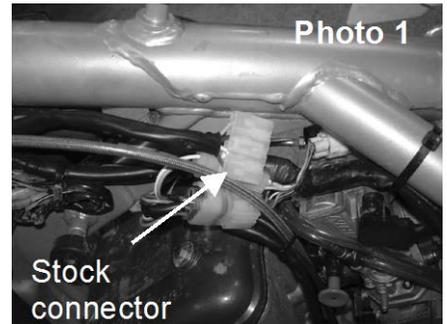
Note: FE450 Models will mount the turn signals using the supplied brackets as shown in picture.



6. **Brake Light Switch Installation:** *This step requires bleeding the rear brake. If you do not feel comfortable performing this step please refer it to a qualified mechanic.*

Installation: Remove the bolt that holds the banjo fitting to the top of the rear master cylinder. Replace this bolt with the provided hydraulic brake switch retaining the upper & lower crush washers on both sides of the fitting.

Bleeding: *Do not begin this process without a fresh bottle of brake fluid.* Remove the cap from the rear brake fluid reservoir. Put a box-end wrench over the bleed nipple and install the supplied tubing tightly over the nipple. Position a loop in the hose above the nipple with the other end of the hose in the container to catch the fluid. Crack the bleed nipple open about a quarter turn keeping the loop in the hose vertical. Slowly depress the brake pedal to fill the hose with fluid. Pump slowly until you have brake fluid extending up into the loop, then you can pump the pedal fairly aggressively to drive air out of the system. The fluid above the bleed nipple will prevent air from re-entering the system. Do not let the reservoir go dry – add fluid as needed. Pump the pedal until there are no more bubbles then close the nipple. When done, double check that the pedal is firm and works properly.



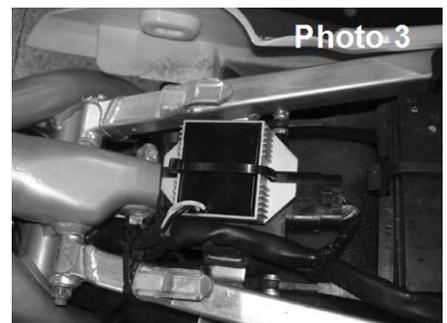
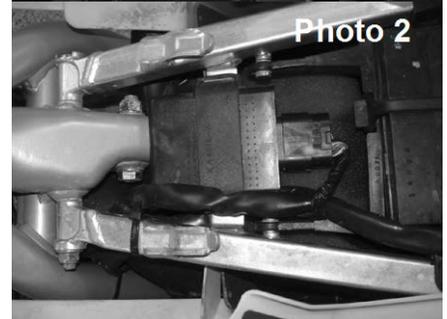
7. **Rectifier/Regulator Installation:** *The stock Husqvarna & Husaberg rectifier/regulator is not compatible with the modified stator. It must be replaced with the Baja Designs rectifier/regulator for the battery to charge. 2009 FE450 EFI models do not require this (skip to step 8).*

Husqvarna: Unplug and remove the stock rectifier/regulator. It is a metal finned box mounted to the

frame in front of the right radiator. Route the flat plastic connector that attached to it toward the rear of the bike as shown in Photo 1. Because of its size and shape, the Baja Designs regulator cannot mount to the same location the stock regulator was removed from. The new regulator will mount on top of the CDI module at the front of the airbox instead. To do this, flip the CDI module as shown in Photo 2 then zip-tie the regulator into place as shown in Photo 3. Attach the wire terminals from the

Baja Designs rectifier/regulator to the plastic connector that you unplugged from the stock rectifier/regulator as shown in Photo 4. The two yellow wires from the rectifier/regulator attach to the yellow and white wires in the connector. Polarity is unimportant. The red wire from the rectifier/regulator attaches to the red wire and black wire attaches to the blue wire. Secure these connections with zip-ties so they cannot slip out of the connector.

Husaberg: Unplug and remove the stock



rectifier/regulator. It is a metal finned box mounted to the frame under the fuel tank. Attach the Baja Designs regulator to the same location in its place. Attach the wire terminals from the Baja Designs rectifier/regulator to the plastic connector that you unplugged from the stock rectifier/regulator. The two yellow wires from the rectifier/regulator attach to the yellow and white wires in the connector. Polarity is unimportant. The red wire from the rectifier/regulator attaches to the yellow/red wire and black wire attaches to the brown wire. Secure these connections with zip-ties so they cannot slip out of the connector.

8. **Switch Panel Installation:** Install the switch panel assembly on the left handlebar next to the grip. The switch has two screws that mate the two halves together. Do not over tighten these screws, as too much force can strip the body of the switch. The clutch perch may have to be moved to the right to make room for the switch. Zip-tie the wires along the bottom of the handlebar (so tie-downs can't crush them) and over the front of the top triple clamp. Note that to install this switch panel on bikes with hydraulic clutches, the clutch perch and switch assembly must be carefully positioned so they don't interfere with each other's operation.

9. **Middle Wiring Harness Installation:** Locate the black cable with the white plastic multi-pin connectors at both ends provided with the dual sport kit. Position one of the multi-pin connectors (doesn't matter which – both ends of the middle harness are identical) just to the left of the steering head (right of the steering head on FE450 EFI models) near the black connector from the switch panel assembly. With the handlebars turned fully to the right, route the harness back along the left side of the frame following the stock wiring harness. The connector at the end of the middle wiring harness should end up at the area on top of the airbox (or the area where the airbox would be on Husabergs).

Note: on the FE450 install the Baja Designs harness below the factory harness and closely follow the routing.



Photo 5

10. Rear Wiring Harness Installation and Connections:

- Locate the rear wiring harness provided with the kit. It has a white plastic 6-pin connector with several sheathed power leads extending from it. Attach the 6-pin connector from the rear harness to its corresponding mate from the middle harness.
- Attach the ring terminal from the fused lead to the positive side of the battery.

- Attach the remaining black un-fused ring terminal to the negative side of the battery.
- Attach the white plastic 3-pin connector from the rear wiring harness to its corresponding mate from the taillight.
- Attach the green & black wire pair to the two wires from the right rear turn signal. Polarity is unimportant.
- Attach the brown & black wire pair to the two wires from the left rear turn signal. Polarity is unimportant.
- Route the red & blue wire pair down to the brake light switch and attach the two wires. Polarity is unimportant.

NOTE: on 2009 FE450 EFI models you must remove the battery box, turn signal, brake light, and brake-switch wiring must be installed between the battery box and rear fender.

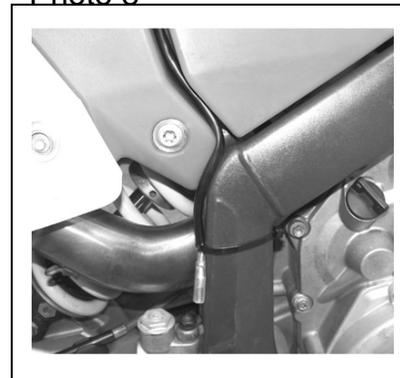
Photo 6



Photo 7



Photo 8



The rear wire connections are now completed. Secure your wiring with zip-ties.

11. Kill Wire Extension Installation (optional): *Depending on what bike this kit is being installed on; attachment of this extension may require clipping and re-crimping a different wire terminal to make it plug into the stock wiring harness. If you left the stock kill button installed and you are not going to use the kill function on the provided switch panel assembly, you may skip this step.*

- Locate the black/white and green 2-wire extension provided with the dual sport kit in the parts bag.
- Attach the ring terminal from the green wire to the chassis under the fuel tank.
- Attach the black/white wire with the male terminal to the wire you unplugged your stock kill button from; often a black wire with a yellow tracer. On some bikes you will need to change the terminal on the extension to a female to make this connection.
- Route the other end of the extension (both female) to the area behind the headlight.
- Attach the black/white wire female from this extension to the black/white wire from the front harness assembly. Attach the green wire from the extension to the blue/white wire from the front harness assembly.

12. Front Wiring Connections & Headlight Installation:

- Attach the black multi-pin connector from the headlight to its corresponding mate from the switch panel assembly.
- Attach the white multi-pin connector from the headlight to its corresponding mate from the middle wiring harness.
- Attach the light green 4 pin connector to the key switch assembly.
- Attach the headlight to the fork tubes. Turn the steering from side to side to verify that the wiring does not bind or get caught in the steering stops.

The following connections have been pre-made prior to shipping:

Flasher: The orange w/white tracer and the red & green pair attaches to the two terminals from the flasher unit labeled “X” and “L” respectively.

Horn: The red and the red & purple pair attach to the two terminals from the horn. Polarity is unimportant.

Front Turn Signals: The green and black wire pair attach to the two wires from the right turn signal. The brown and black wire pair attach to the two wires from the left turn signal.

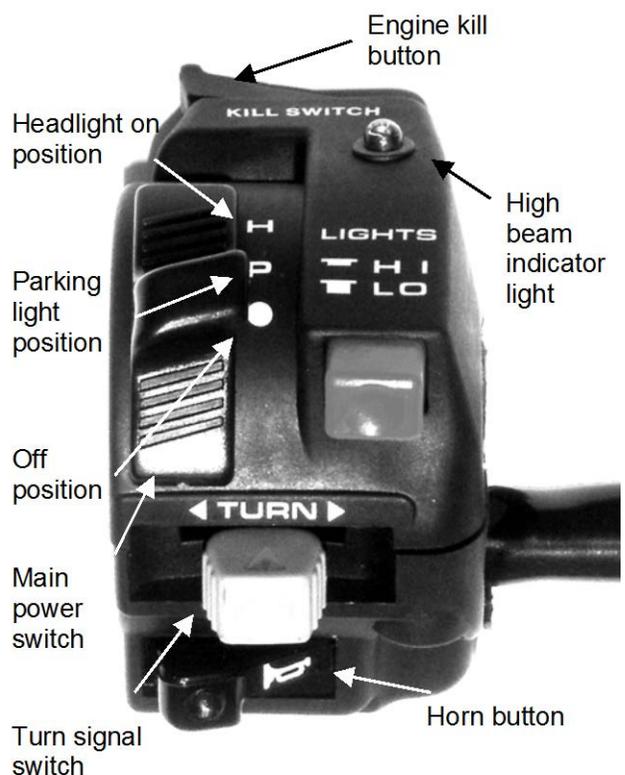
The wiring installation is now completed. Proceed to the next section to test your work.

The Baja Designs switch panel assembly controls all of the electrical functions of the dual sport kit. The main power switch, high/low switch, turn signal switch, horn button, kill button, & high beam indicator light are all integrated into this unit.

Photo 9

The three-position switch marked with the solid circle, the “P”, & the “H” is the main power switch for the dual sport kit.

- The lowest (solid circle) position turns off the lighting and ignition. The lights will not function and the bike will not start with the switch in this position.
- The second (“parking light”) position allows the bike to start and turns on the dual sport lighting system except for the main headlight. Use this position in low RPM riding situations when the headlight is not necessary to help achieve better battery charging.



- The third (“headlight on”) position turns on the main headlight bulb and allows the red high/low button to function.

The “engine kill” trigger button can be used to kill the ignition as well as the off position on the three-position switch. Baja Designs recommends using the three-position switch to kill the ignition, as this will prevent you from accidentally leaving the lights on and discharging the battery.

Go through the functions of the switch panel assembly and verify that everything works properly. Test the back brake to make sure the brake light comes on.

If every thing is working properly congratulate yourself on a job well done. You may now reassemble the bike. If not, don't worry, it's not rocket science and we should be able to figure it out. See the trouble-shooting list in a later section.

Wrapping it up: It is important that all the wires be properly routed and secured. Make sure the wires do not pass over any sharp edges, are pulled overly tight, or can be crushed by the seat, tank, fender, etc. Use all the zip ties provided to securely fasten the wires. Make sure all the silicone rubber connector boots and the connectors are pushed firmly together and no bare metal is exposed.

Removing and reinstalling the kit: To remove the kit, simply unplug the connector that mates the middle harness to the rear harness and the connector that joins the battery leads to the rear harness. Remove the “dual sport rear fender” with the rear harness still attached to it and reinstall a stock fender (not supplied.) The middle harness stays on the bike. The front signals can unbolt and unplug individually.

TROUBLESHOOTING

Nothing Happens When You Turn the Power Switch On.

- Main fuse is blown. Check for bare wire or terminal shorting against the frame or another wire.
- Multi-pin connector not properly connected.
- Battery connection is poor. Make sure the battery terminals are securely connected.
- Battery is dead. Measure voltage with voltmeter, or connect a 12-volt light across it. A fully charged battery should measure around 13.2 volts.

The Turn Signals Won't Come On, or Won't Flash

- **The** wires on the flasher are connected backward. The red wire goes to the terminal labeled "X".
- Check the turn signal wire connections.
- Make sure you have connected the correct wires to the turn signals. Check instructions.
- Battery voltage is low. If the battery voltage is low, the turn signals won't flash, or will flash very slowly. Running the bike will cure this as well as charge the battery.
- If only one signal lights and does not flash, it means that the other signal is not properly plugged in, or the bulb is burned out.

If you still need assistance, call Baja Designs at (760) 560-2252.

Maintenance: Occasionally examine the wires in your lighting system to make sure they are not chaffing or binding so that they don't cause you a problem when you're out on the trail or on the road. A well-routed, properly secured wiring system is key to getting long life and trouble free performance from your conversion kit. The brake light switch can become somewhat sticky after repeated exposure to water, dirt and mud. You can take the switch apart by removing the rubber cap and can lube the inside liberally with dielectric grease.



Husqvarna & Husaberg Electric-Start Stator Modification Instructions

READ THESE INSTRUCTIONS IN THEIR ENTIRETY BEFORE BEGINNING. This is a very delicate modification that requires crimping and soldering to the stator wiring. If you do not have the proper tools or are not comfortable performing this type of work, **DO NOT BEGIN.** Baja Designs can perform this modification for you for \$30 (call 760.560.2252 for an order number.) If you choose to perform this modification yourself it is critical that you be able to follow these instructions exactly. Any errors will cause the stator to have to be rewound completely.

*'00-on KTM EXC/MXC stators are wound with two separate coil outputs from the factory. One output charges the battery for the electric-start and the other output powers the stock lighting (on EXC's) via its own AC circuit with no battery backup. In stock form the battery cannot be used to power any lighting without becoming discharged. This modification joins the two existing stator outputs together into one and is necessary anytime the stock battery will be used to power a lighting system (such as an HID system.) **Once the stator has been modified, the lighting system must be powered via DC from the battery. The stock headlight connector can no longer be used as a lighting power source. Using the stock headlight connector will result in the battery discharging.***

STATOR REMOVAL

1. Remove the seat and fuel tank.
2. Unplug the connectors from the stator that plug into the main harness under the fuel tank. Clip the factory zip-ties and un-route the stator wires so they hang from the left engine case cover.
3. Lay the bike on its right side (to avoid draining the engine oil) and remove the left case cover.
4. The stator is bolted into the left case cover. Remove the small retaining bracket and the stator from the case cover.

STATOR MODIFICATION

1. Lay the stator down on a flat work surface with the solder connections facing up. Locate the tab shown in Photo 1 that has the single copper wire soldered to it (the red/white wire passes over this copper wire.)

Photo 1

Locate this tab on the stator



2. Using a soldering iron, melt the solder and push up on the copper wire at the same time to release it from the tab. Try not to bend the copper wire sharply as this will weaken it and cause it to break. You can temporarily move the red/white wire from its guide to allow the unsoldered copper wire to pass under it easier. See Photo 2.

Photo 2

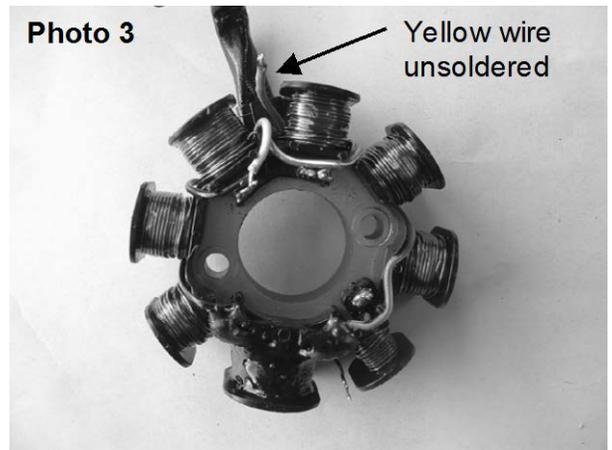
Copper wire unsoldered



3. Locate the tab on the stator that the yellow wire attaches to. Unsolder the yellow wire from this tab. Do not unsolder the two copper wires attached to the same tab. Strip the end of the yellow wire so 1/4" of bare wire is showing. See Photo 3.

Photo 3

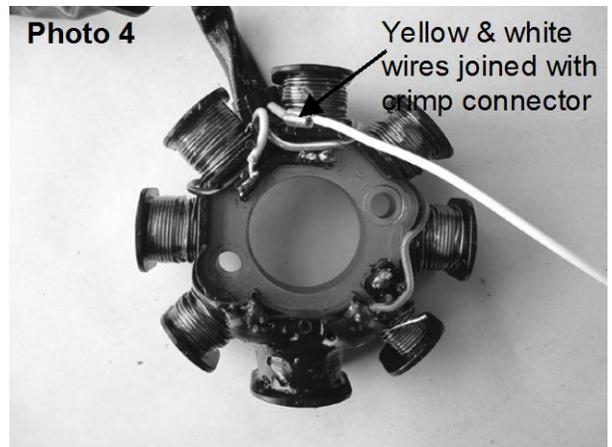
Yellow wire unsoldered



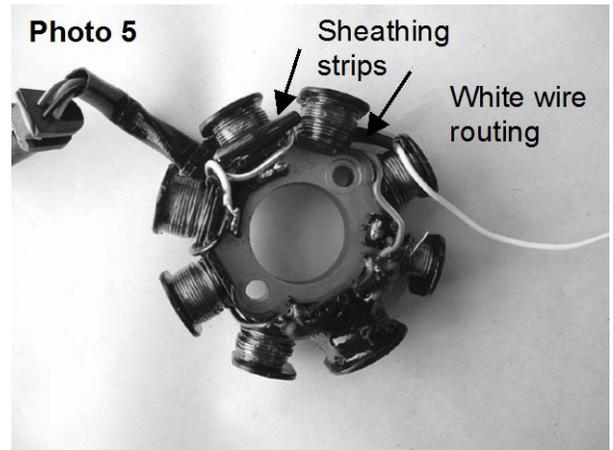
4. Locate the short length of white wire, two crimp connectors, and the two strips of black sheathing in your parts bag. Strip one end of the white wire 1/4" and use one of the crimp connectors to join it to the yellow wire from the stator as shown in Photo 4. Solder this connection after it has been made.

Photo 4

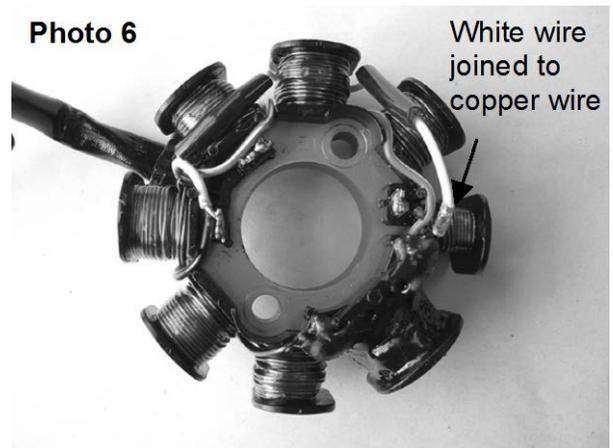
Yellow & white wires joined with crimp connector



- Slide one of the strips of sheathing over the new white wire so it covers the crimp connection you just made. Route the white wire along the same path as the white/red wire as shown in Photo 5. Slide the second piece of sheathing over the white wire.



- This step is the trickiest. You must cut the white wire to length, strip the end $\frac{1}{4}$ ", and attach it to the freed copper wire using the remaining crimp connector. Hold up the white wire and cut it to length so that you have just enough slack to join the two wires. The goal is to leave as little slack in the white wire as possible once both are joined. See Photo 6.



- Slide the second sheathing strip over the crimp connection you just made. Route the new white wire so it follows the same molded guides as the red/white wire. Try to take as much loose slack out of the white wire as possible so it wraps tightly around the coil windings. The sheathing strips should be trapped against the sides of the windings so they cannot move. See Photo 7. You can also remove slack by pulling the yellow wire through the factory sheathing and bunching it up before the grommet. You may add some epoxy or use small zip-ties to help secure the white wire in place if you wish.



The modification is now complete. Before reinstalling the stator you can check your work by verifying with an Ohmmeter that the yellow and white wires from the stator have continuity only with each other and not with the metal body of the stator. There should be very low resistance (approximately .5 Ohm) between the yellow and white wires. If it looks good, go ahead and reinstall the stator onto the motorcycle.

The stock rectifier/regulator MUST be replaced with a Baja Designs unit once this modification has been performed. If not, the battery will not charge.



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