KLX 250/300 Dual Sport Kit Installation Manual

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Dual Sport Kit: Installation of a Baja Designs Dual Sport kit by itself does not make an off-road motorcycle street legal. Each state has different equipment requirements for street legal motorcycles, including but not limited to such items as DOT approved tires, left and right side mirrors, speedometers, quiet exhaust, chain guards, and side reflectors. Contact your state's department of motor vehicles or highway patrol for a comprehensive list of equipment that is required for street motorcycles before riding your bike on the street.

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 drivers 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.

Kawasaki KLX 250/300 Dual Sport Kit
Installation Manual

1. Get a degree in Mechanical and Electrical Engineering. (Just kidding!)

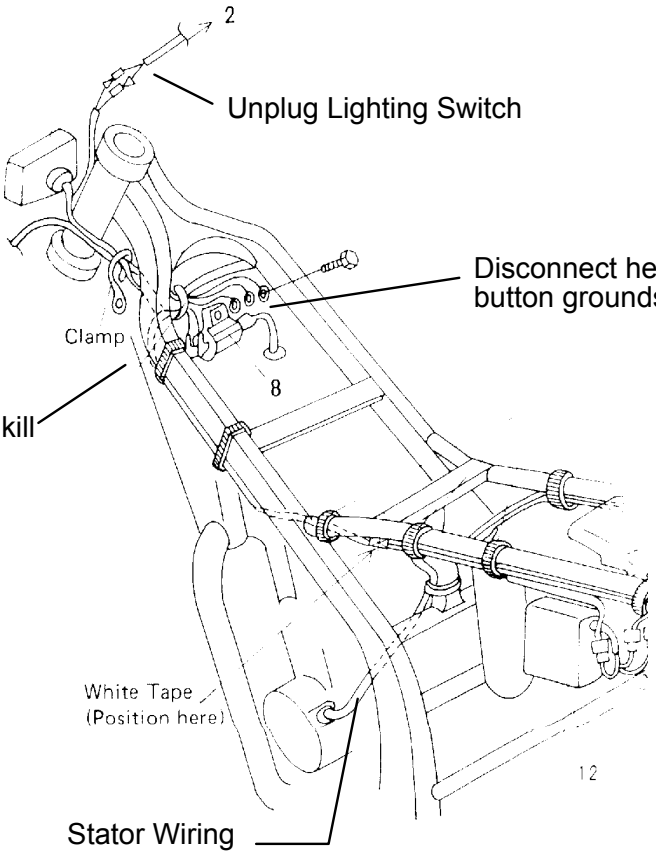
2. Remove the seat, side panels, radiator shrouds, and gas tank.

3. Unplug the taillight from the stock wiring harness, remove the three bolts which secure it from the underside of the fender and remove the taillight. Use the hardware (6x25mm flange head bolts) provided to re-attach the fender to the subframe leaving the wire support in place.

If you are color blind or even think you might be a little color blind, now is the time to get someone to assist you. Successful installation of the kit requires good color recognition. You want to go riding this weekend, don't you?

4. Unplug and remove the head light on/off switch from the wiring harness. Detach the headlight from its wiring at the bulb socket. The headlight wiring unplugs underneath the tank area. Unplug the red and yellow leads of this wiring, remove the ground attachment from the ignition coil and remove this wiring.

Figure 1



5. Remove the kill switch. Unplug the black/white wire from the region below the tank and remove the its ground from the ignition coil. Make sure to reinstall the coil and the remaining ground wire.

6. Locate the AC voltage regulator found mounted to the frame just behind the engine on the left hand side of the bike. It is a black finned aluminum box measuring approximately 1-1/4" x 2" with two wires exiting it (Sorry no photo). Unplug the regulator from the wiring harness and remove regulator.

7. A slight modification to the wiring harness of the bike will have to be made in this step because we do not have a mate to the connector that Kawasaki uses for the stator to voltage regulator connection. Follow the stator wires up from the left side of the engine as shown in Figure 1. Locate the two yellow wires in the stator wiring that terminate in a black connector . Unplug the connector, measure 7/8" back from the connector and cut the two yellow wires (Photo 2). Install two female bullet connectors from the parts bag on these wires after stripping them back about 1/4". Take your time and make sure to do a good job of crimping on these connectors as it is key to the system functioning properly. You might want to practice on a scrap piece of wire first, extra connectors have been provided for practice and botched attempts. We do not recommend soldering as the solder can embrittle the wire if it flows past the joint up the wire.

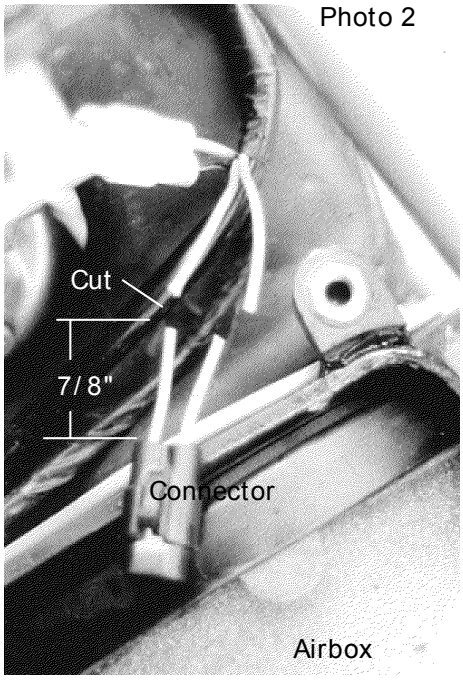


Photo 2

8. Taillight Installation: Install the Acerbis DOT taillight over the empty well left in the stock fender using the two 8-32 x 3/4" bolts and 6 x 16 mm bolt found in the parts bag. Drill a single 1/4 inch hole in the center of the fender 2 and 3/8" inches up from the bottom edge as shown in Photo 3. Position the taillight so that the license plate mount aligns with this hole and transfer the hole locations for the top mounting holes onto the fender with a felt pen or snap punch (Photo 3). Drill two 3/16 inch holes for the top
mounts. When installing the bolts, make sure to install the 6 x 16 mm bolt from the bottom up to minimize the opportunity for the tire to grab it. Run the taillight wires along the left frame rail using the stock wire clamps to support it.

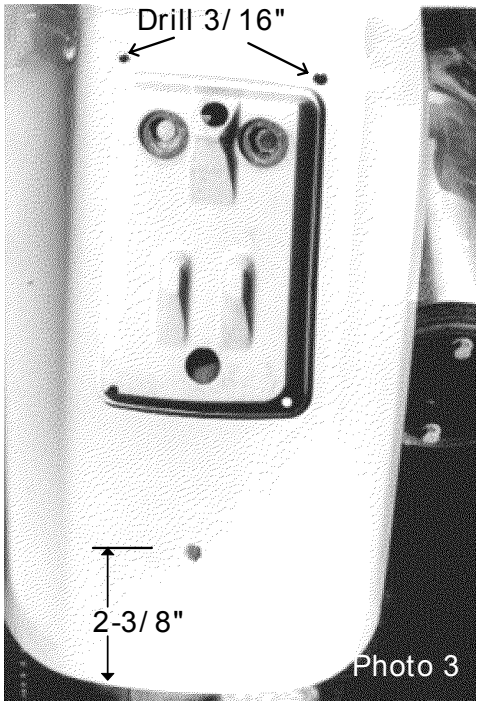


Photo 3


Photo 4

9. Rear Turn Signal Installation: Turn signal mounting requires that you drill a 15/32 inch hole in either side of the rear fender near where it meets the side panels to mount the turn signals. You can actually achieve a clean, durable installation using this mounting location. See the color photograph, Photo 5 and Figure 2 for the mounting location.

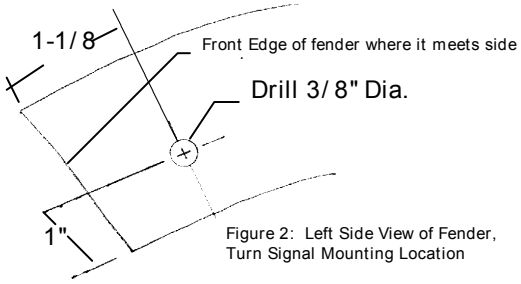


Figure 2: Left Side View of Fender, Turn Signal Mounting Location


Photo 5

To get the turn signals to be perfectly horizontal, carefully heat the fender from the inside with a heat gun. Install a 3/8 inch bolt through the hole in the fender, using the large fender washers to sandwich the fender on each side. Using a vise grip, slowly pull down on the bolt while carefully heating the plastic from the backside until the bolt becomes level.

Run the left turn signal wires along with the taillight wiring forward along the frame rails. Pass the wires through the gap at the left hand side of the fender just above the fender mounting bolt. *Note that the wires of the right rear turn signal are shorter (5-1/2") than those of the left turn signal.*

Run the right hand turn signal wires similarly along the right frame rail to the area behind the airbox.

10. Brake Light Switch Installation: The latest KLX kit uses a hydraulic brake switch. This requires replacing the rear master cylinder banjo bolt with a specially made switch. Installing the switch requires bleeding the rear brake. **If you do not feel competent bleeding your rear brake, please refer this job to a qualified mechanic as failure to do it correctly will make the brake inoperable.**

Remove the banjo bolt from the rear brake master cylinder, and replace with the hydraulic switch as shown in Photo 6. **Make sure to install the copper crush washer from the stock bolt under the switch.** Torque the switch assembly to 25 lbf-ft.

Photo 6

Bleeding the Brakes: (Do not begin this process unless you have a fresh can of brake fluid) Remove the lid from the brake fluid reservoir. Put the box end of 8mm wrench over the brake bleed nipple and install the bleed hose (supplied) tightly over the nipple. Position the loop on the hose above the nipple as shown in **Photo 7** with the other end of the hose in a container to catch the fluid. Crack the bleed nipple open about 1/8 to 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 is no more bubbles, then close the nipple with the wrench. **Double check that the pedal is firm and the brake works properly.**

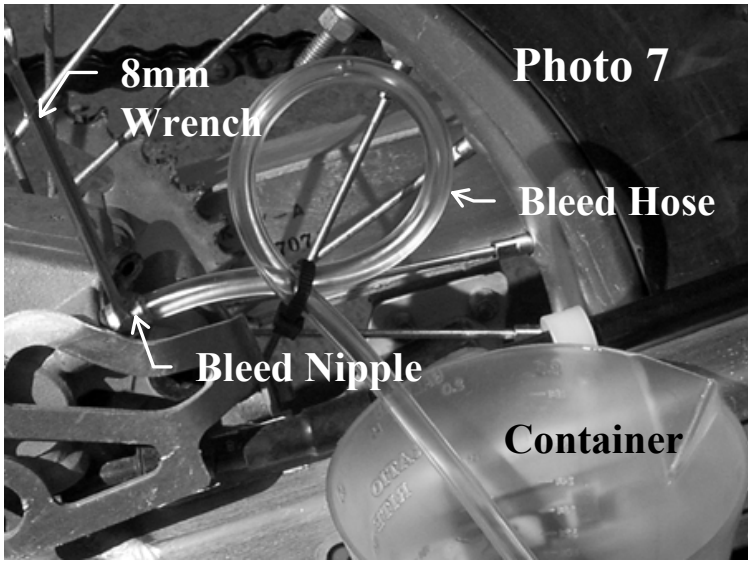


Photo 7

Attach the brake switch leads to the spade terminals at the top of the switch and run the brake switch wires up the rear subframe triangle to the area behind the airbox cross-member.

11. Battery Mounting Holes: Remove the four bolts that secure the lower fender skirt on the KLX 250/300. You are going to drill two mounting holes for the battery. The holes will be drilled through the back of the airbox as shown in the photo below. Exact positioning of the holes is non-critical. Mount battery using one 11" zip tie supplied in small parts bag.

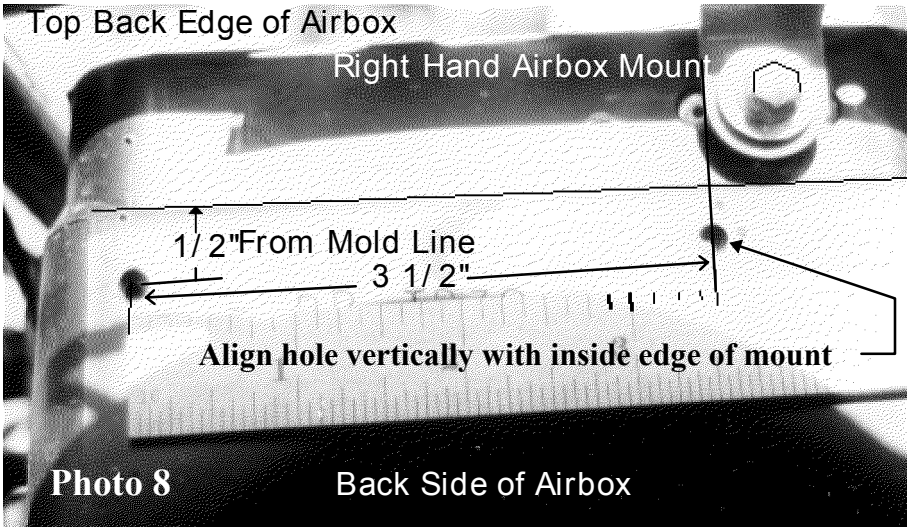
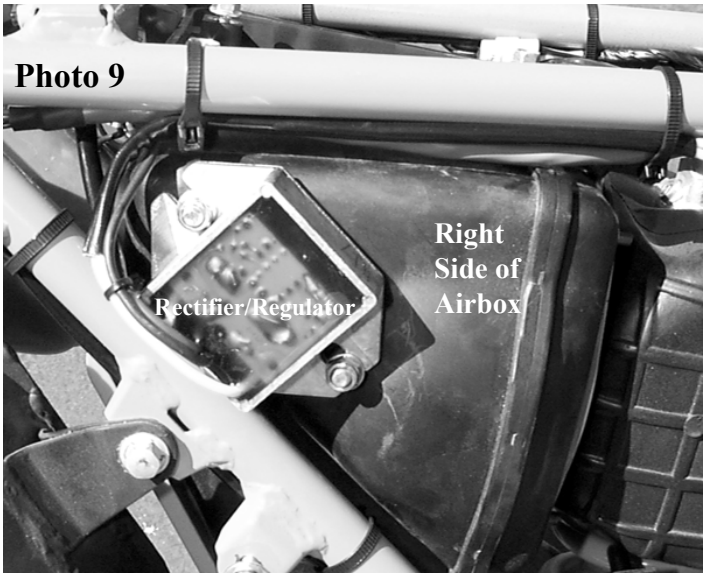
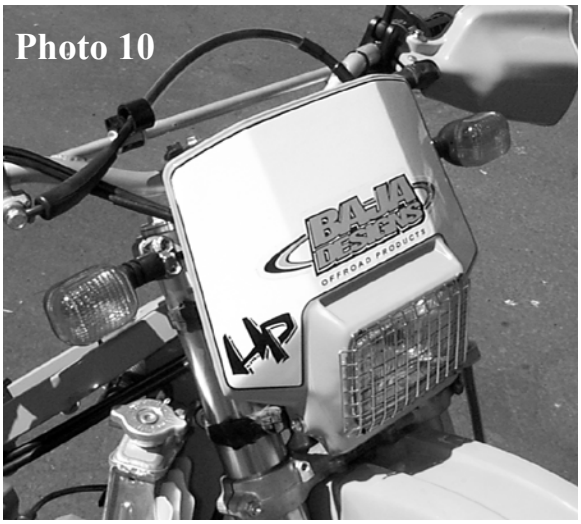


Photo 8

12. Voltage Regulator Installation: Install the voltage regulator as shown in the Photo 9. Use the template provided in the Appendix to determine the mounting hole locations. Align the two edges of the template with the airbox and transfer drill two 1/4" holes. Use the 6 x 20 mm bolts, nylocks and washers to mount the regulator. The wires should exit the regulator toward the rear of the motorcycle. Run the yellow male leads forward along the subframe tube and plug them into the two yellow stator wires where you previously added the female bullet connectors. Run the remaining wires to the area just to the rear of the airbox.

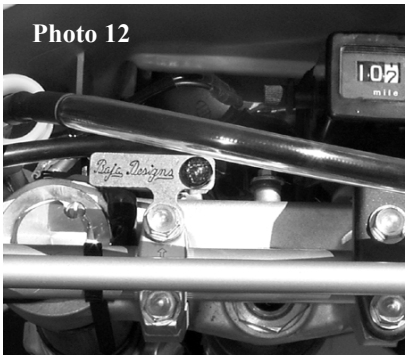




13. The front turn signals are now pre-mounted to the Baja Designs headlight plastic. The photo to the left shows our old style mounting system that utilized brackets on the triple-clamp pinch-bolts. If you prefer this way of mounting, we do sell these brackets.

14. Turn Signal Switch Installation: Install the turn signal switch on the left handlebar next to the grip as shown in Photo 11. The switch has a single screw that pinches it together on one side. Two tabs secure the switch halves on the other side. Remove the screw to separate the halves so that it can be installed on the handlebar. When installing the switch to the handle bar, make sure the tabs are seated in their locating holes and then tighten the pinch screw. **DO NOT OVER TIGHTEN THIS SCREW,** as too much force can strip the body of the switch. The clutch perch will have to be moved to the right to make room for the switch. Run the wires along the backside of the handlebar and down over the front of the triple clamps.

Photo 11



15. Hi Beam Indicator and Bracket: Install the high beam indicator bracket under the left hand handlebar pinch clamp bolt as shown it Photo 12.

16. Wiring Harness Installation: Locate the long multi-conductor cable with the nylon multi-pin connector at one end. Gently plug this connector together with the one in the front wiring harness. **Do not force.** If you have trouble plugging the two together, realign the **male** pins with a small screwdriver to get a good match. *Note that dielectric grease has been applied to the female terminals to help prevent corrosion. This grease can be purchased at any automotive parts store.* With the handlebars fully turned to the right to make sure there is enough slack in the cable, run the

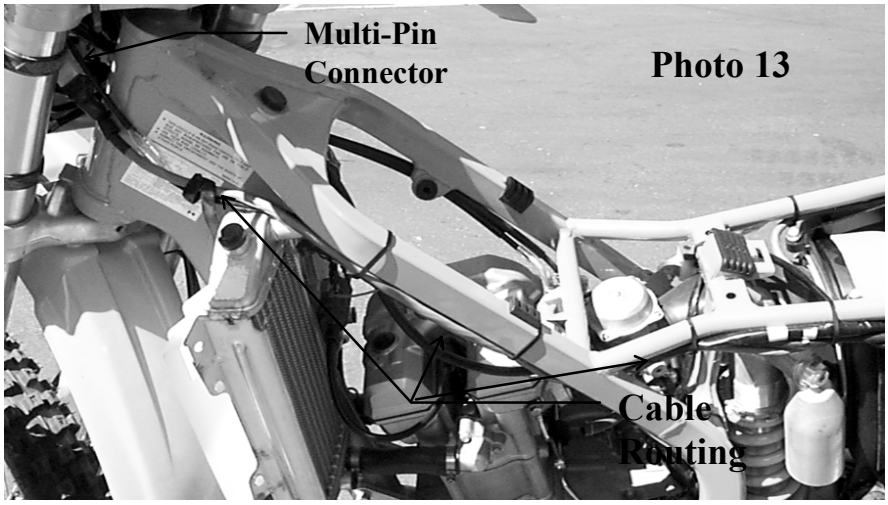
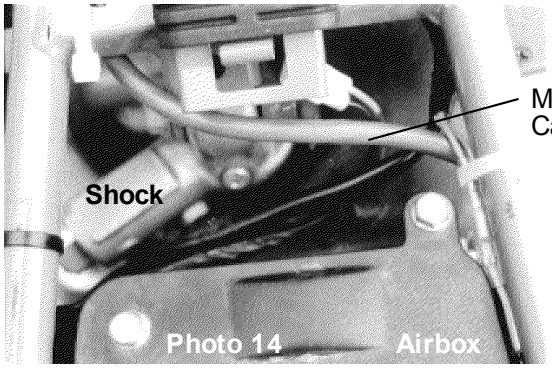


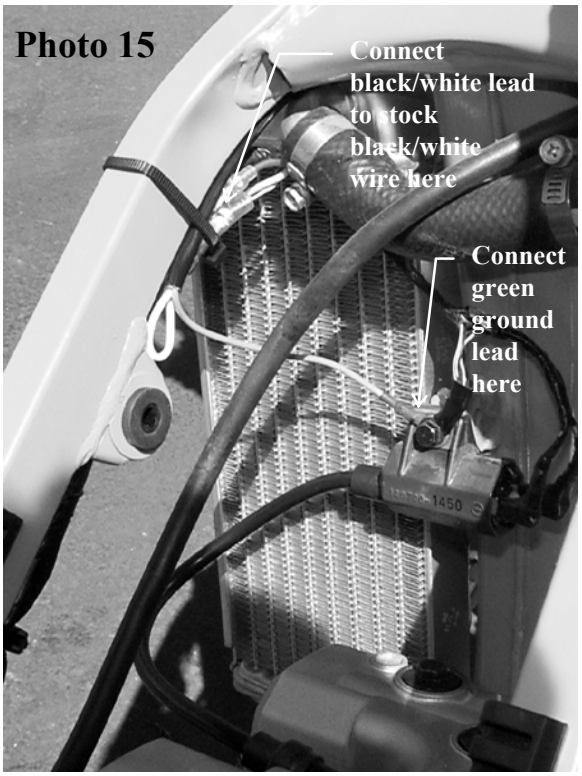
Photo 13

wire back along the stock wiring harness, under the triple clamps, underneath the frame backbone, and cross over to the right hand side of the airbox at the area above the shock (Photo 13 & 14). Run the wires back to the rear of the airbox.



17. Front Wiring Connections: You will now make all the connections required at the front of the bike.

A. Ignition Switch: The only place the Baja Designs kit interfaces with the KLX's ignition system is through the kill button lead. In no other way does this lighting kit effect the operation of the motorcycle's ignition system. The turn signal switch has a built in ignition function that will allow you to shut the bike off via a built in kill switch or selecting the rear most position with the lighting selector. This will prevent you from forgetting to shut off the lights when you turn off the bike, lessening the chance for a dead battery. **Note this switch must now be pushed to the second position for the bike to run (See later description).**



Locate the **black/white lead coming from the turn signal switch**. It should be plugged into a **black/white & green extension lead** found in your small parts bag. The **green/yellow lead from the turn signal switch** should be plugged into a **green lead with a ring terminal on the other end.**

Connect the black/white extension lead to the black/white lead where the stock kill button plugged in originally (Photo 15).

Attach the green lead with the ring terminal to chassis ground at the coil as shown in Photo 15.

Note: Disconnecting this black/white lead will completely isolate the Baja Designs wiring harness from the bike's stock ignition system, and the bike will run whether or not the switch is on or the wiring is damaged.

B. Horn (Pre-installed inside the headlight shell): Connect the gray and purple pair of wires to the two terminals at the back of the horn.

C. Right Turn Signal: Connect the black and green pair of wires to the right turn signal.

D. Left Turn Signal: Connect the black and brown pair of wires to the left turn signal.

E. Headlight, Flasher, Running Light and High Beam Indicator: Plug the headlight connector (white three terminal connector) into the back of the headlight. Connect the **yellow and black wire pair** to the two wires from the **high beam indicator** (May be previously connected). Connect the **orange and red wires** to the **flasher (located in the base of headlight)**. The red wire goes to the terminal labeled "P" and the orange wire connects to the terminal labeled "L". Plug the **brown and green wires from the headlight connector** into the matching **brown and green wires from the headlight running light.**

Install the headlight on the fork tubes using the rubber straps. Note: The large diameter of the Kawasaki's USD fork require you stretch the wee out of the straps to connect them. A suggestion is to pull them straight back before wrapping them around the fork tubes. If you can't stretch them far enough, go get your little sister to help you out. Note that the headlight bulb is a standard H4 35/35 watt automotive unit. **Do not replace this bulb with a 55/60 watt bulb.** The stock stator does not produce enough power to run this bulb without discharging the battery. If

you want increased lighting capability, contact Baja Designs regarding a stator rewind (See Battery Maintenance Section).

18. Rear Wiring Connections: You will now make all the connections required to the wiring harness at the rear of the bike. Take your time to do a neat job here so that you will have a reliable lighting system. Refer to Photo and the color photographs to copy wiring layout. If you make a mistake in the following steps, the worst that could happen is the bike will catch fire and burn to the ground (NOT).

A. Reinstall the lower fender skirt. The battery slides between the fender skirt and frame cross-member as shown in the photographs. A short length of tubing is provided to put along the bottom edge of the frame cross-member between the battery and cross-member. Compress the fender and with wires pointing to the left side of frame slide the battery down until it rest against the airbox. Run a zip tie length-wise around the battery and through the holes you drilled in Step 15. See Color Photo and Photo 12. (Note: New Ni-cad Battery is now used in this kit.)

B. Locate the ring terminals on the black wire of the main harness, the voltage rectifier/regulator and black lead from the battery. Fasten all three ring terminals (Photo 16) under the airbox mounting bolt that is located on the back right hand side of the airbox. Make sure to scrape the paint from the frame to get a good ground before re-installing the bolt.

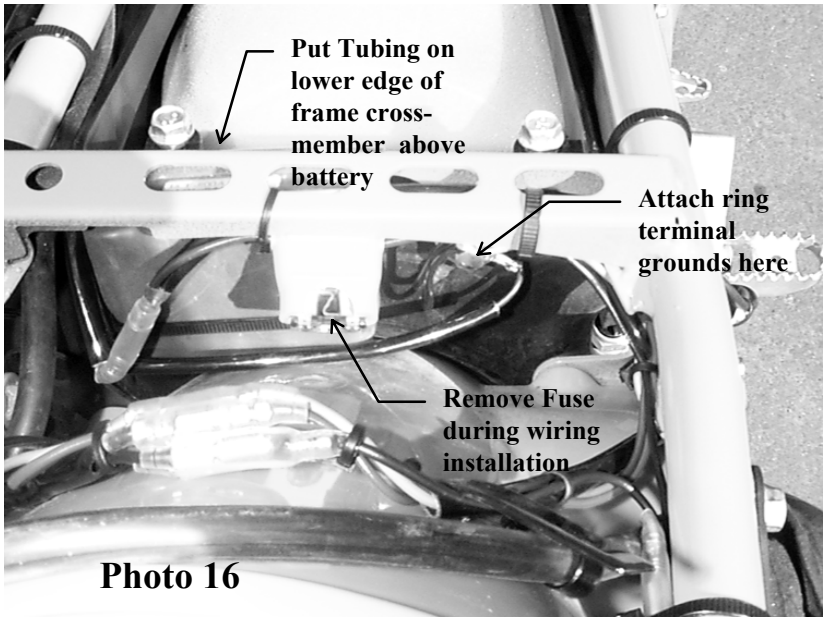


Photo 16

C**. Remove the fuse from the fuse block and connect the red lead from the rectifier/regulator with the male terminal to the positive lead (red) of the battery.**

D. Locate the **blue wire from the gray multi-conductor cable** and connect it to the **black wire with the blue band coming from the fuse block.**

E. Connect the green lead from the wiring harness to one side of the right rear turn signal.

F. Connect the brown lead of the wiring harness to one side of the left turn signal.

G. Connect the black single female terminal from the main wiring harness to the other side of the right turn signal.

H. Connect the black double female connector of the main wiring harness to the other side of the left turn signal and the black wire from the taillight.

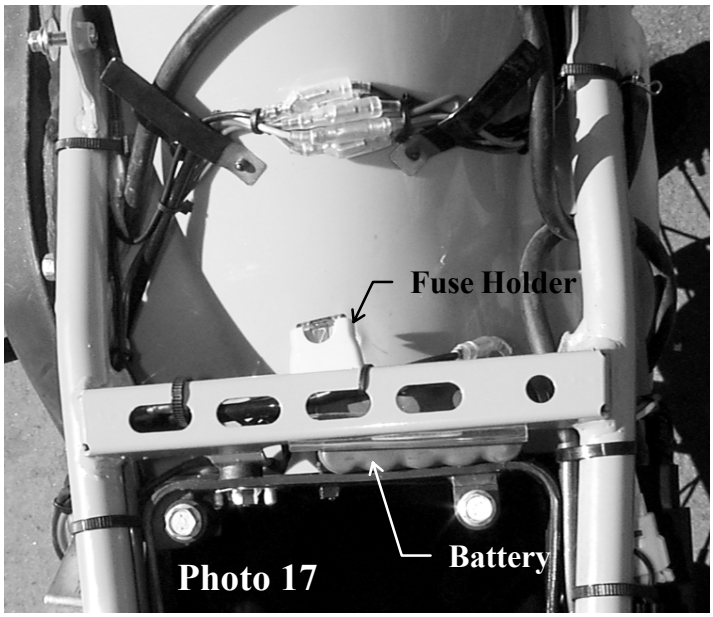


Photo 17

I. Connect the **red double female connector from the harness** to the **red wire from the taillight and the red wire from the brake light switch.**

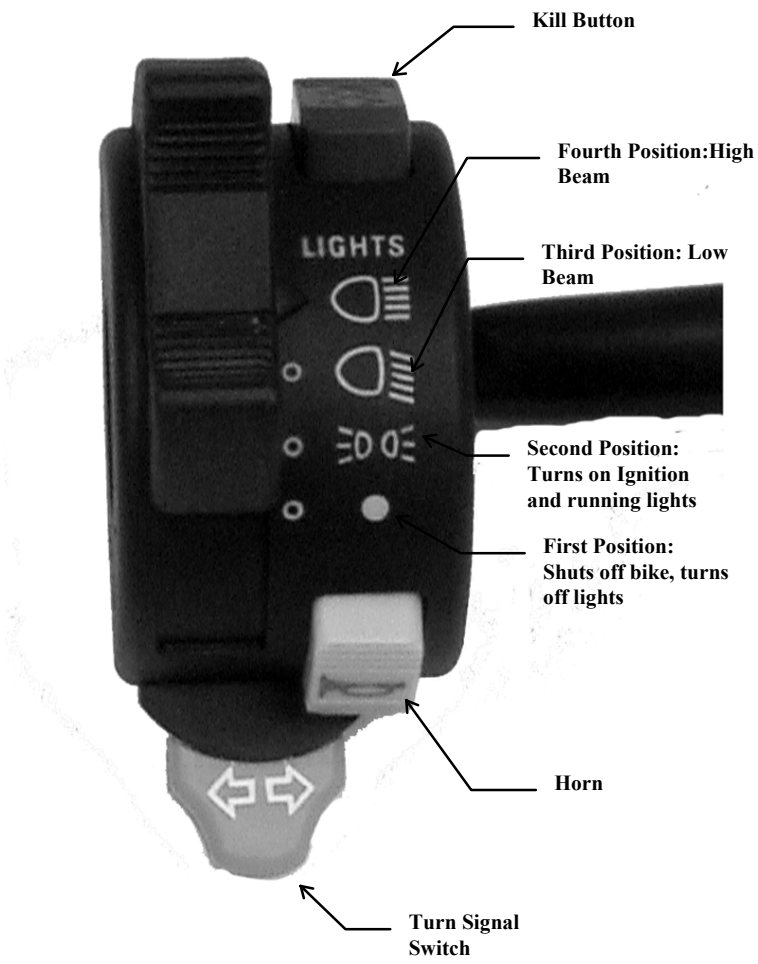
J. Connect the **blue wire from the brake light switch** to the **blue wire from the taillight.**

Route wires as shown in the photos for a clean and secure installation.

19. Install the fuse in the fuse block.

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

20. System Checkout



The turn signal switch in this kit controls both the lighting and ignition functions in one compact package. Using the lighting selector, push the switch to the second position. The rear taillight should come on. Try the turn signal switch to the right and the left. Both the front and the back signal should alternate on and off. Honk the horn (unless its after 11 PM!). **In this second position, the bike will now start, and a headlight running light will come on. Use this position during daytime hours when you don't need full headlight brightness. This position will ensure that the battery stays fully charged even when doing slow technical trail riding when the bikes electrical output is low.**

The third switch position turns on the head light's low beam, and the fourth switch position powers up the high beam. See diagram to left.

Note: The lighting selector switch must be in positions two through four for the bike to run!

If every thing is working properly congratulate yourself on a job well done. If not, don't worry, it's not rocket science and we should be able to figure it out. All the components were checked for operation prior to being shipped to you so something is probably not connected correctly. See the trouble shooting list in a later section.

21. Wrapping it Up: It is important that all the wires be properly routed and secured. Double check the photos and sketches with regards to wire routing. 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. Any unwanted movement or chafing means early failure when off the road. *Note : When zip tying the wires, do so separately of the radiator vent hose to the overflow tank. Make sure you do not cut off the flow in this line with a too tight zip tie.* Make sure all the silicone rubber connector boots and the connectors are pushed firmly together and no bare metal is exposed. Put on the seat, tank, and side panels, slide on down to your local DMV, and then go roost!

TROUBLESHOOTING

Nothing Happens When You Turn the Power Switch On.

- Fuse is blown. Check for bare wire or terminal shorting against the frame or another wire.
- Multi-pin connector not properly connected.
- Battery connection poor. Make sure the connectors are fully seated.
- Battery is dead. Measure voltage with voltmeter, or connect a 12 volt light across it.
- Poor connection at the blue wire junction on the airbox.

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 "B".
- Check 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.

The Brake Light Won't Come On

- The rear brake system is not properly bled.
- Maybe it's on already. Brake and tail connections are reversed. The brake light is already on so their is no increase in light intensity when you activate the brake. Check the yellow and blue taillight connections.
- Short the two leads together at the brake switch. If the brakelight comes on, either the brake switch is defective, or the brake system is not properly bled.

If you still need assistance, call Baja Designs at (858) 578-9111

Care and Feeding of your Battery: Your kit contains a 12 volt 0.8 ampere-hour Ni-Cad battery. These batteries are very durable, require no maintenance, and can be mounted in any position. There are certain things you can do however to maximize its life. The alternator and voltage regulator in your kit keep your battery fully charged

while you are riding, however, when you turn the engine off and the lights are still on the battery is being discharged. With the Ni-Cad battery if you forget and leave the lights on, don't sweat it. You can deep cycle (drain down and charge back up) a Ni-Cad all you want.

Riding the bike will recharge a drained battery (good excuse for riding, huh?) (for best results, disconnect the headlight temporarily while the battery recharges) or you can recharge it with a small trickle charger (we do not recommend this unless absolutely necessary). Do not charge it with more than 0.5 amperes, and keep an eye on the amount of time and charging voltage. When the voltage across the battery gets up to 14.5 to 14.8 or it feels warm to the touch, disconnect the charger. Overcharging will kill a battery faster than anything. A battery measuring 12.9 to 13.2 volts when not connected to a load or a battery charger is fully charged.

If the bike is going to be sitting for more than a month, it is recommended that you disconnect the positive terminal of the battery to prevent it from discharging. There is a small amount of current that leaks back through the rectifier when it is connected.

The KLX 250/300 has a stator capable of a total of 90 watts at 4000 rpm. If you do a lot of night riding or want to run an electric vest or Gold Wing marker lights, consider having your stator rewound. Baja Designs can increase the stator output to 145 watts to allow you to run a 55/60 watt headlight or other electrical accessories. The cost for rewinding is $85.

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.

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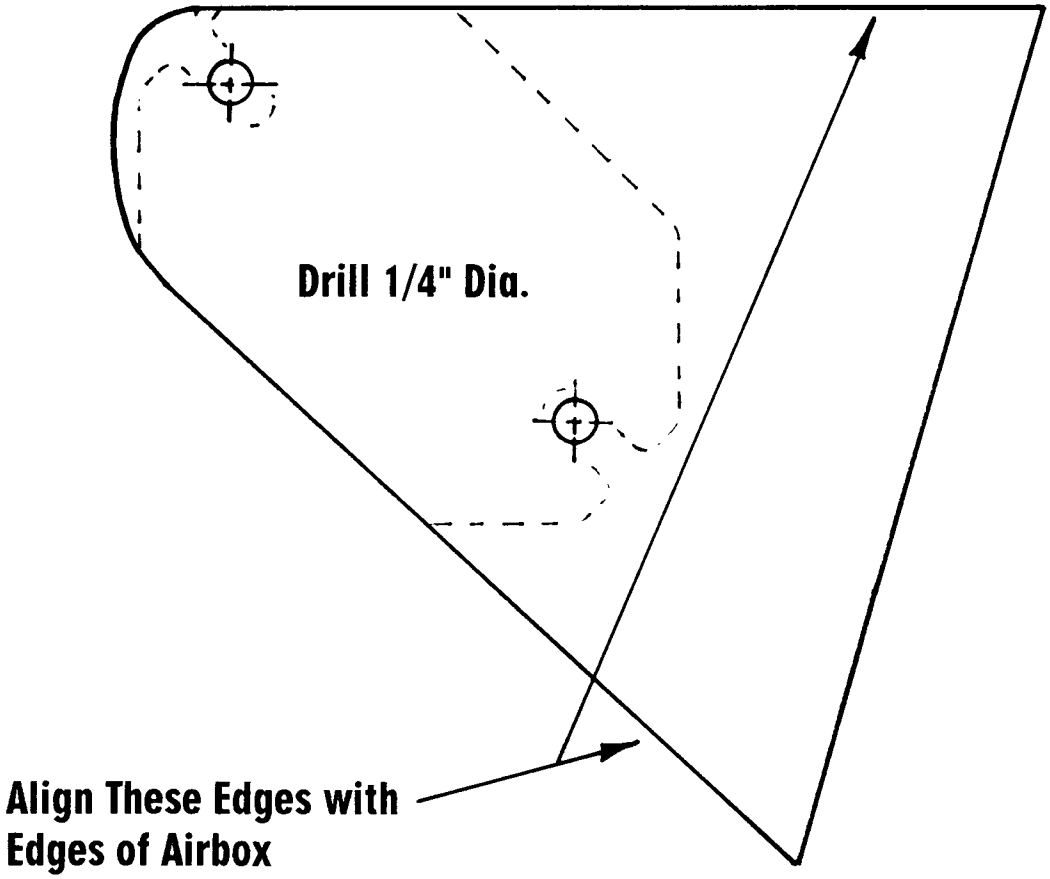
KLX 250/300 Voltage Regulator Mounting Template



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