KDX200220 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.

‘95-on Kawasaki KDX 200/220 Installation Manual

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

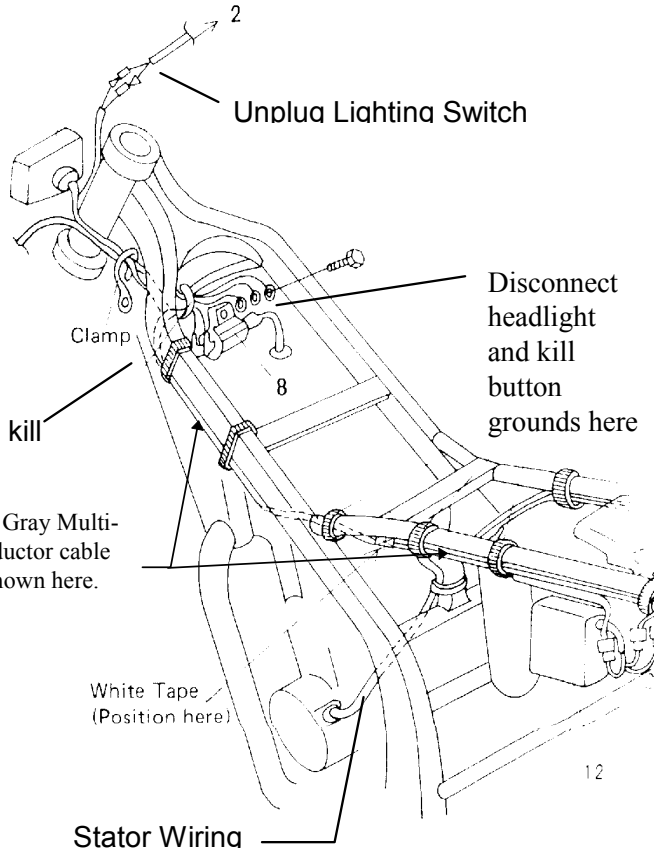
2. Remove the seat, side panels, radiator shrouds, and gas tank.

3. Unplug the taillight from the stock wiring harness, remove the taillight lens, and remove the taillight socket and wiring.

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 and remove headlight. 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.

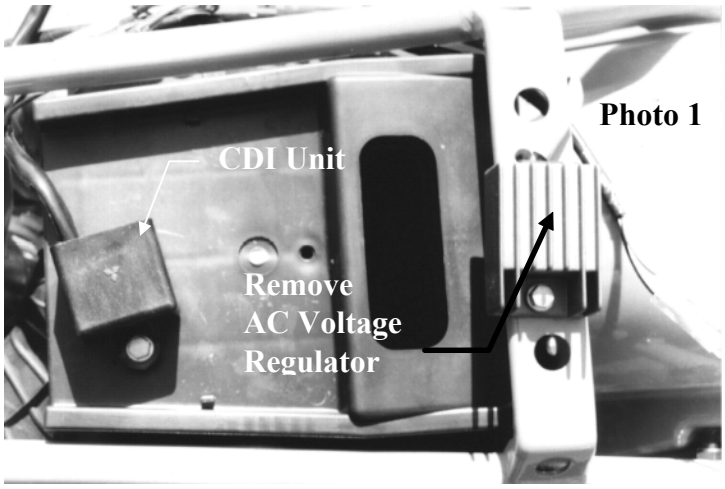


Photo 1

6. Locate the AC voltage regulator found mounted to the top of the airbox lid. It is a silver finned aluminum box measuring approximately 1-1/4" x 2" (Photo 1) with two wires exiting it . Unplug the regulator from the wiring harness and remove regulator.

7. The stock stator on the KDX is good for about 40 watts of lighting output. This is not enough to run the full street lighting system. The stator will have to be rewound and the ground floated for the kit to work properly. If you have not already done so, remove the stator plate by removing the shifter, left mag cover, flywheel, and the two screws which secure the stator plate. Make note of the timing marks on the stator plate and how they are referenced to the timing index on the case so that you can reinstall the stator plate in the same position. You will need a flywheel puller to remove the flywheel.

Once the stator has been rewound, reinstall and run its wiring back up to the front right corner of the airbox.

8. Taillight Installation: Install the Acerbis DOT taillight over the empty well left in the stock fender using the two small sheet metal screws and 6 x 16 mm bolt found in the parts bag. Position the Acerbis taillight so that the top two mounting holes line up with the top edge of original taillight well as shown in Photo 2. Transfer the hole locations for the top mounting holes onto the fender with a felt pen or snap punch. Drill two 1/16 inch holes for the top mounts. Attach the taillight with the two small Phillips head sheet metal screws in the parts bag. Once in place, drill the bottom mounting hole using a 1/4" drill. When installing the lower mounting bolt, 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. Bring the ends of the taillight leads up on top of the rear fender to the area that is below the seat.

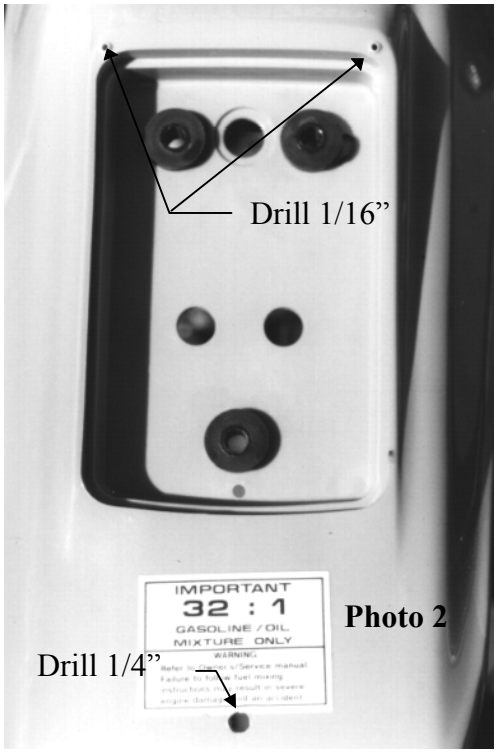
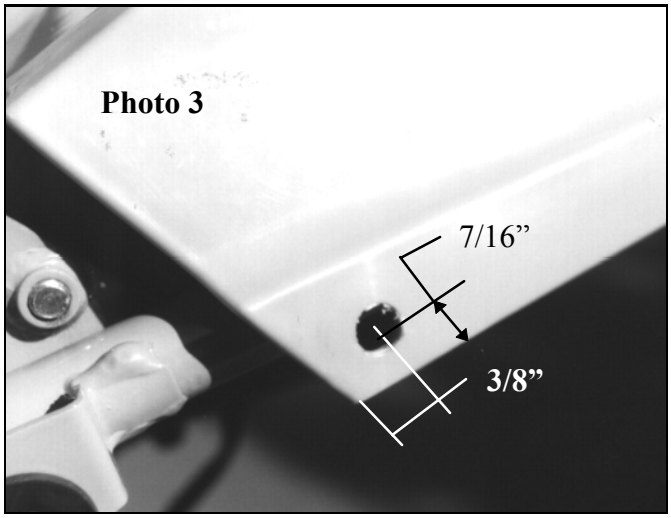
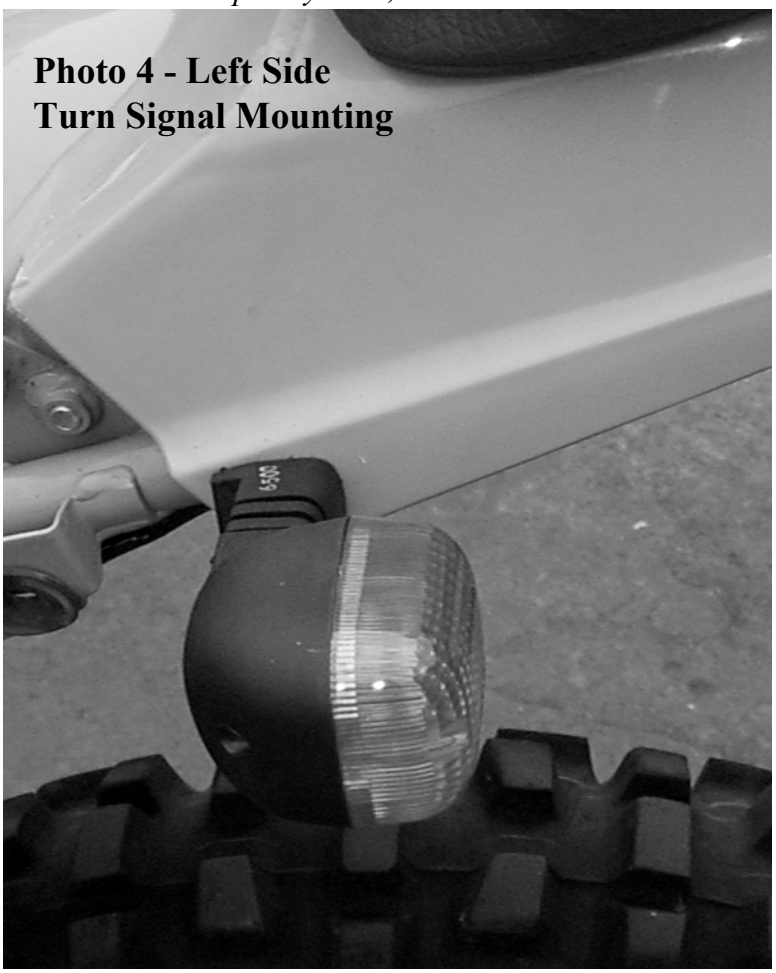


Photo 2



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. You can achieve a clean, durable installation using this mounting location.. Mount the rear turn signals by drilling a 3/8" hole in the rear fender in the location shown in Photo 3, three eighths of an inch back from the front edge. *If you desire the turn signals to be completely level, use a 3/8 inch diameter bolt and nut to sandwich two fender washers on the inside and outside of the fender. Carefully heat the* ***inside*** *of the fender with a heat gun until you can pull the bolt down to horizontal. Reinstall turn signals.*

Run the left turn signal wires along with the taillight wiring forward along the left frame rail to the area just behind the airbox and above the fender. Run the right turn signal wires forward along the right frame rail, and up to the same location behind the airbox.



10. Brake Light Switch:
The KDX 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 render the brake inoperable.

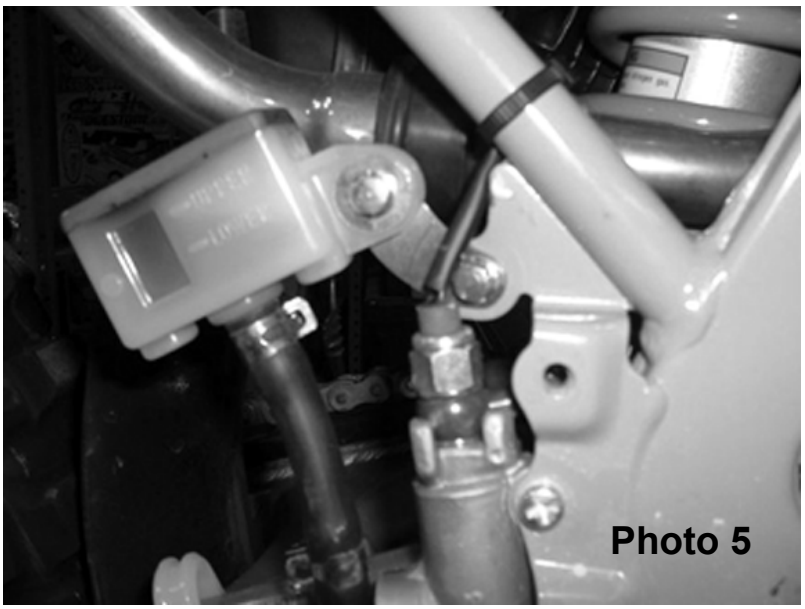
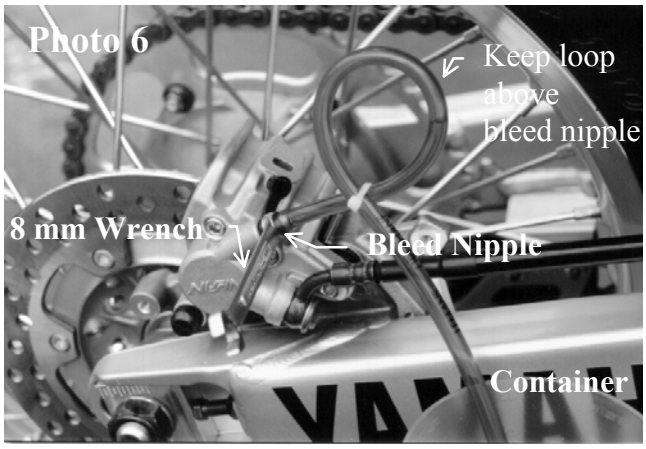
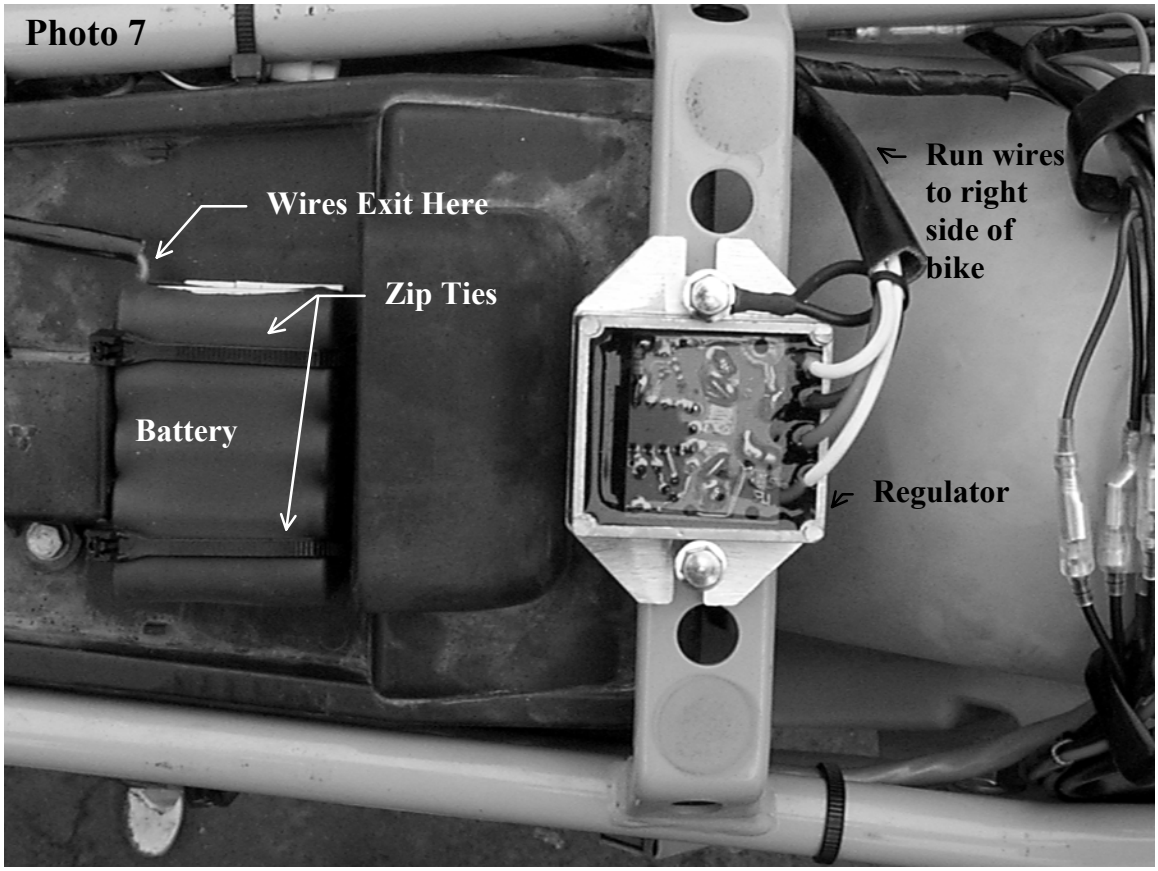


Photo 5

Remove the bolt holding the brake fluid reservoir to provide access to the master cylinder.
Loosen the banjo bolt that secures the rear brake line to the master cylinder. Typically, this bolt will be very tight and loosening it will bend the hanger for the master cylinder if not supported.
Remove the banjo bolt and replace with the hydraulic switch. You may need to bend the tab that mounts the reservoir back slightly to make clearance for the brakeswitch. **Make sure to install the copper crush washer from the stock bolt under the switch.** Torque the switch assembly to 25 lbf-ft. Once the switch is installed, reattach the reservoir using the provided extension bracket as shown in Photo 5.
Locate the red and blue wire extension in the parts bag. Attach the end with both females to the two males from the brakeswitch. Route this extension up the subframe to the area behind the airbox. We'll attach this extension to the wiring harness in a later step.

Bleeding the Brakes: (Do not begin this process unless you have a fresh can of brake fluid) Re-install the brake fluid reservoir and
remove the lid. 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 6 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.**





11. Voltage Regulator Installation: Install the voltage regulator as shown in the Photo 7. Use the 6 x 40 mm flange bolts and 3/4" long spacers to attach it where the original AC regulator sat. Mount the regulator so that the wires exit the regulator towards the rear of the motorcycle. Run the large bundle of wires from the regulator down underneath the right side seat frame rail toward the front right corner of the airbox to be plugged in at a later step.

12. Battery Mounting: The battery mounts to the airbox lid with double sided foam tape and two 11 inch zip ties just in front of the airbox opening and behind the CDI unit as shown in Photo 7. Position the battery so that the wires exit at the top right as shown. Use the double sided tape to adhere the battery to the airbox lid. Drill two 3/16" holes in the airbox lid just in front of the battery to allow you to further secure it with the two 11" zip ties enclosed.

13. Front Turn Signals: The turn signals now come pre-attached to the Baja Designs dual-sport kit headlight.

14. Turn Signal Switch Installation: Install the turn signal switch on the left handlebar next to the grip as shown in Photo 8. 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 8

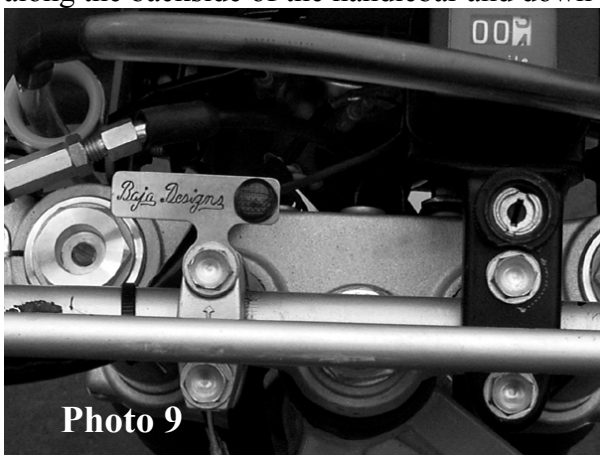
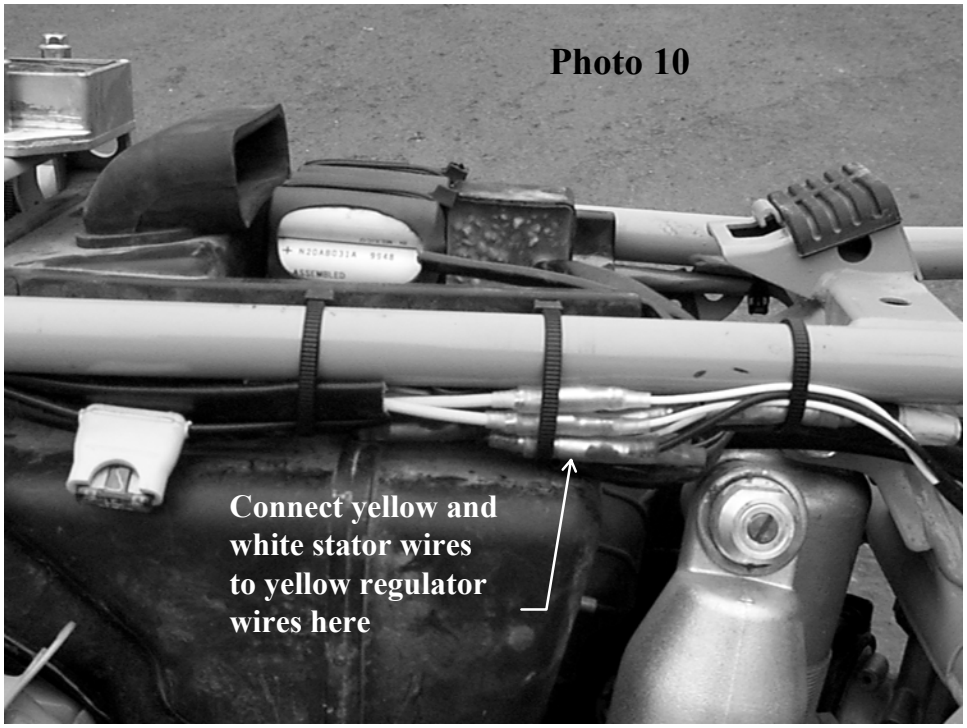


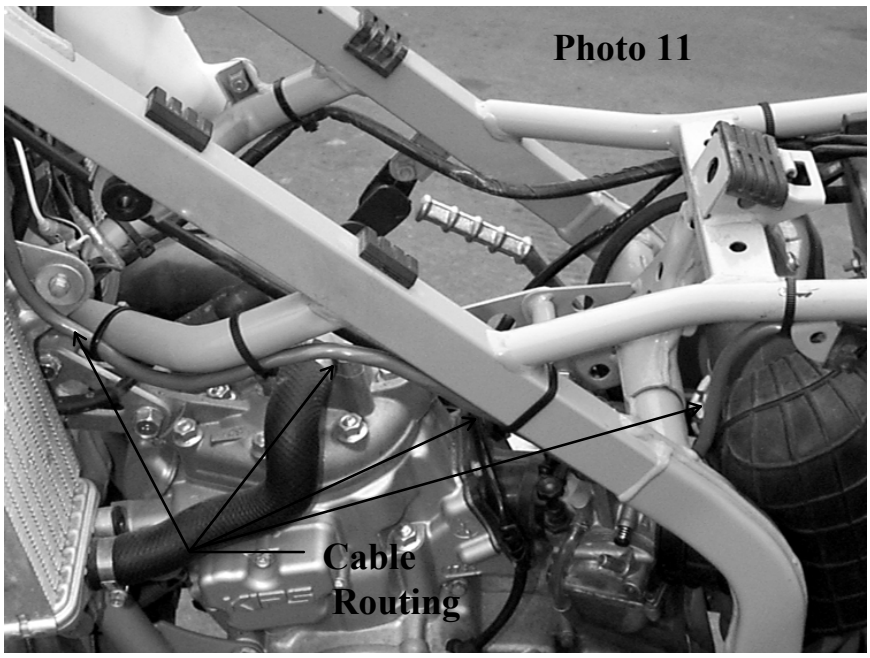
Photo 9

15. Hi Beam Indicator and Bracket: Install the high beam indicator bracket under the left hand handlebar pinch clamp bolt as shown it Photo 9.

16. Stator Connections: Reinstall your stator assembly at this point if you haven't done so already. Run the stator wire as before to the connections near the front right corner of the airbox. Plug the **black wire** from the stator into the **black wire from the CDI unit** (Refer to Photo 1 for CDI Unit location). Plug the **red/white wire** from the stator back into its **red/white mate from the CDI. Leave the black/yellow and blue wires from the CDI plugged into the stock harness.**



Connect the **yellow wire and the new white wire** from your rewound stator to the two yellow leads with male connectors coming from the Baja Designs rectifier/ regulator. They should connect just below the seat rail at the right hand side of the airbox as shown in Photo 10 and the color photo.

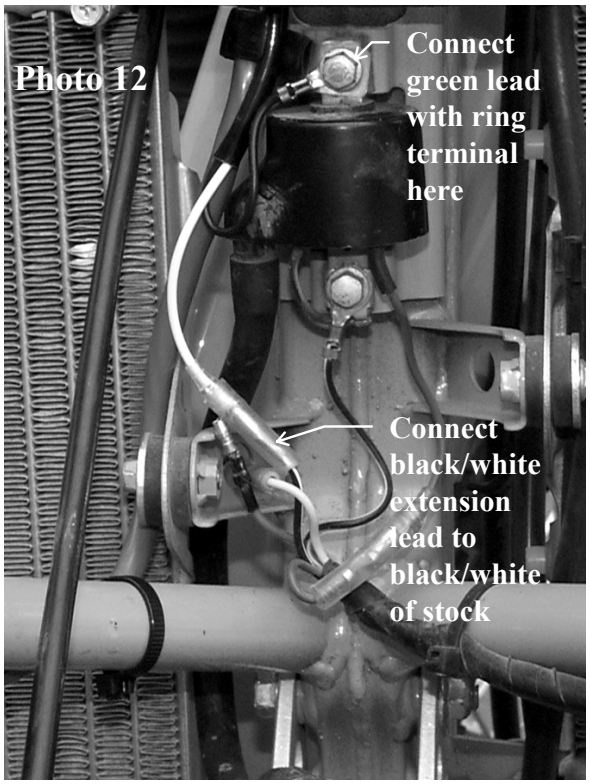


17. Wiring Harness Installation: Locate the long multi-conductor cable with the nylon multi-pin connector at one end. Gently plug this connector together with the one in the front wiring harness. **Do not force.** If you have trouble plugging the two together, realign the **male** pins with a small screwdriver 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 wire down along the stock wire guides, past the ignition coil , along the front cross-member to the rectangular

frame tube that the tank rests on, back along the left side of the airbox to the area behind the airbox and above the rear fender (Photo 11).

18. 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 KDX'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 12).

Attach the green lead with the ring terminal to chassis ground at the coil as shown in Photo 12.

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.

A. 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.

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

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

D. 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 **red/green and orange wires** to the **flasher**. The red/green wires go 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.**

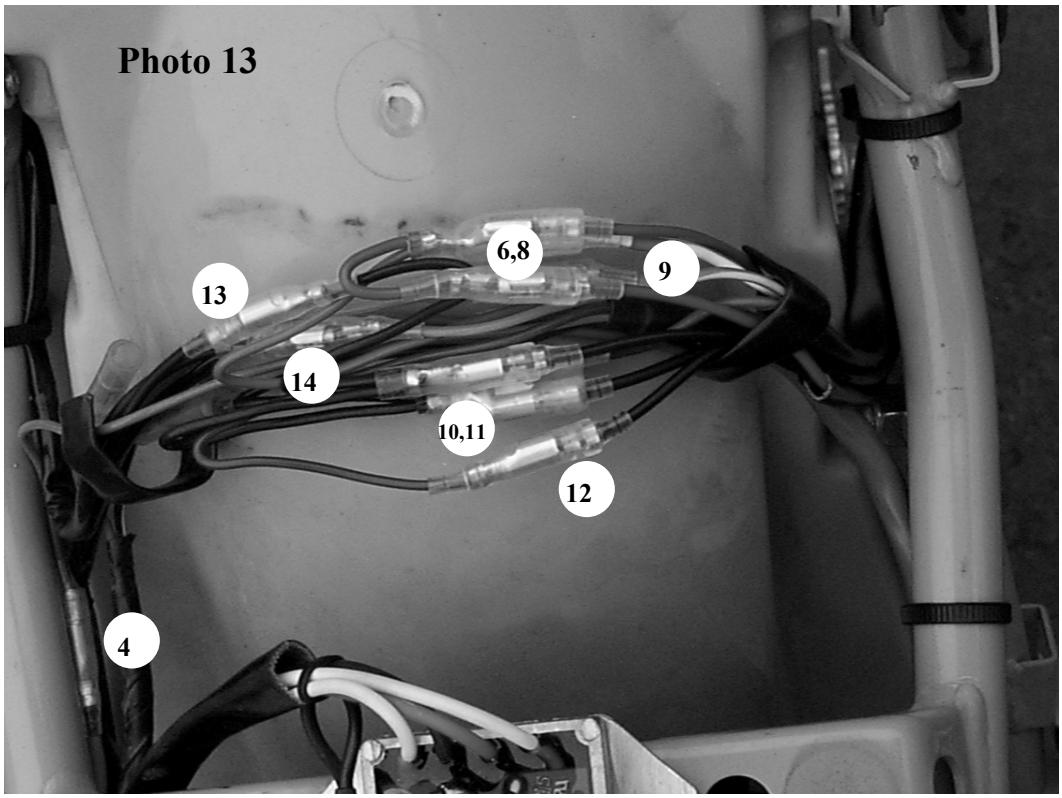
Note that the headlight bulb is a standard H4 35/35 watt automotive unit. **Do not replace this bulb with a 55/60 watt bulb.** The stator does not produce enough power to run this bulb and the rest of the lighting system without discharging the battery. (See Battery Maintenance Section).

19. 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 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).

1. Run the red and black leads from the battery around the front right corner of the airbox. At this time we recommend you remove the fuse from the rectifier/regulator wiring temporarily until the installation is complete. Plug the **black male lead from the battery** into the **black female lead from the rectifier/regulator**. Plug the **red female lead from the battery** into the **red male lead from the rectifier/regulator.**

2. Locate the black ground lead from the voltage regulator and install the ring terminal underneath one of the regulator mounting bolts (if you haven't done so already).

In the next few steps we will connect the main gray multi-conductor cable to the rest of the wiring harness. The end of this cable should be above the fender in the area behind the airbox as shown in the color photos.



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

5. Locate the **black male lead from the gray multi-conductor cable** and connect it to the **black/yellow lead of the stock wiring harness** that formerly connected to the stock taillight. Note that the stock red wire will not be used in this installation.

6. Plug the **red male terminal from the taillight** into one of the **red female connectors from the wiring harness.**

7. Run the red and blue brake light switch wires up to the area behind the airbox.

8. Plug the **red wire from the brake switch** into the open slot of the **red double female connector of the gray multi-conductor harness**. Do this by doubling the red wire of the brake switch back on itself for a clean wire run.

9. Plug the **blue lead from the taillight** into the **blue lead from the brake light switch.**

10. Plug the black lead from the taillight into one side of the **black double female connector.**

11. Plug one of the leads from the left turn signal into the other side of the black double female connector.

12. Plug the other lead from the **left turn signal** into the **brown wire of the wiring harness.**

13. Connect the **black single female terminal from the wiring harness** to one side of the **right turn signal.**

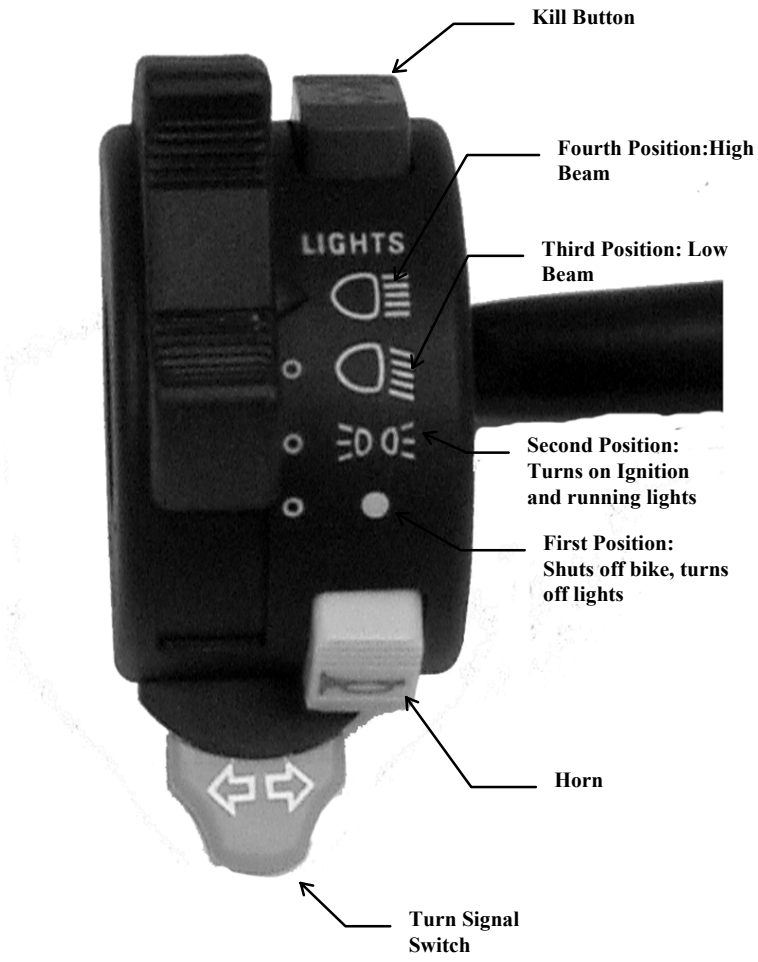
14. Connect the **green lead from the wiring harness** to the other side of the **right rear turn signal.**

Route wires as shown in the photos for a clean and secure installation. Zip tie the wire in place to limit their movement.

15. Install the fuse in the fuse block.

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

16. 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.

17. 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

- Adjust brake switch position.
- Maybe it's on already. Check adjustment. The actuating arm on the switch must be depressed for the brake light to shut off.
- 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 blue and red taillight connections.

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.

If you are doing a lot of slow trail riding where you are on the brakes a lot, the battery may slowly discharge (if the headlight selector is on high or low beam).
The rewound KDX stator is capable of a total of 72 watts at 4000 rpm. This is just enough to support the lighting system under normal riding conditions. If the bike is ridden a lot a low engine speed, the output of the alternator may not be great enough to support the charging system and the battery will slowly discharge. If the bike is to be operated for an extended time at low rpms, run the headlight in the running lamp position to minimize battery drain.

If you want to run a 55/60 watt headlamp or other accessories, Baja Designs builds a 120 watt lighting coil for the KDX for $130.

Riding the bike will recharge a drained battery (good excuse for riding, huh?) or you can recharge it with a small trickle charger. Do not charge it with more than 0.5 amperes, and keep an eye on the amount of time and charging voltage. When the battery becomes warm to the touch, it is fully charged. Do not connect it to a charger overnight.

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.

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 light bulbs take a beating on a dirt bike, especially the rear taillight's. The continuous vibration and impact can cause the bulb contact to prematurely oxidize, causing the bulb to fail. Occasionally remove the bulbs (taillight and turnsignals) and scrape the soft contact at the base of the bulb and clean its mating contact in the lamp assembly.

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