

Auxiliary Fuse Box - switched on manually on every start

I. OVERVIEW

I've gained a wealth of free info from people on this forum, so I figured I should return the favor. This setup will do the following:

1. install an auxiliary fuse box
2. only have power to the fuse box after the ignition is on and you push a pushbutton switch
3. power to the fuse box automatically turns off when you turn the ignition off and will not come back on until you turn the ignition back on and depress the pushbutton switch
4. (optional) a blinking LED will flash when the ignition is off simulating an alarm

At the time of this project, my 1998 LC had the following relevant modifications:

1. installation of a Harley style ignition switch
2. removal of the charcoal vapor canister located under the right faux cover

I have tried to include some pictures and diagrams but this does not provide you with step-by-step instructions. As with any of the modifications on the forum, change locations, products, etc as much as you desire, and all I can tell you is that this worked for me with my setup. I'm not an electrician so you might fry your bike for all I know which is your own risk. Also, I have not tested the without LED option, but I have no reason to believe it would not work as designed. Lastly, this probably cost me about \$60.00 with nearly 70% of that cost coming from the fuse box I chose, so something cheaper would significantly cut the costs.

II. PARTS & SUPPLIES

A. Parts (* items indicates they're only needed for LED option):

auxiliary fuse block

I used a Blue Sea #5025 with 6 fuses / negative bus / cover
cost w/ S&H: \$38.91



automotive relay #1

30 amp relay, SPST (single pole, single throw) normally open
cost: \$6.79

automotive relay #2

you'll need a second automotive relay just like the one above **OR** if you want the blinking LED light option you'll need get a different type of relay that you'll probably only find at a true electronics place (I couldn't even find these at Radio Shack).

30 amp relay, SPDT (single pole, double throw)

cost: \$3.99

inline fuse, 12 gauge wire, 30 amp

auto parts store or electronic store, a couple of bucks



inline fuse, 12 or smaller gauge wire, 5 amp

auto parts store or electronic store, a couple of bucks

pushbutton switch

a switch that is normally 'off' and is only temporarily 'on' when depressed

cost: \$1.07

*Blinking LED

This setup was easier for me because the LED was wired and the positive and negative sides were already clearly marked by the wires. I just snipped the wires at the box.

Bright-Red Blinking LED Module

Radio shack part #: 276-299

cost: \$3.99



*LED housing

Snap-in Panel Mount LED Holder
Radio shack part #: 276-079
costs: \$1.49 for a five pack



*one resistor

560 Ohm Resistor (1/2 watt)
Radio shack part #: 271-1116
cost: \$0.99 for a five pack



*two diodes

3A 50V barrel diodes
Radio shack part # 276-1141
cost: \$1.49 for a two pack



B. Miscellaneous supplies

Wiring

12 gauge: enough to run from the switched power source you plan to draw power from to the #2 relay and from that relay to fuse block

18 gauge: a fair amount will be needed to run between relays, switch, and LED if you install it as well.

Connectors

Solder all the connections if you wish or use crimp style connectors, that's your call. I did a little of both

Brackets

You have to make your own and they will vary based on where you're installing things. For me, I used some leftover aluminum (flat aluminum 1/8 in. thick by 3/4 in. wide by 3 ft. long) that I bought at either Ace Hardware or Lowes a year or so ago. It was fairly inexpensive from what I recall (\$7 or so).

Bolts

Depending on where you mount stuff depends on the bolts you'll need. Don't forget longer bolts to hold on the switch if you mount it on the mirror / brake bracket.

Alligator clip leads

I bought two packages of these so I could lay everything out on the garage floor, hook it up, test it out, and do all that without having to cut any wire or crimp any plugs. Using some old, short pieces of wire worked just as well too. This is purely optional.



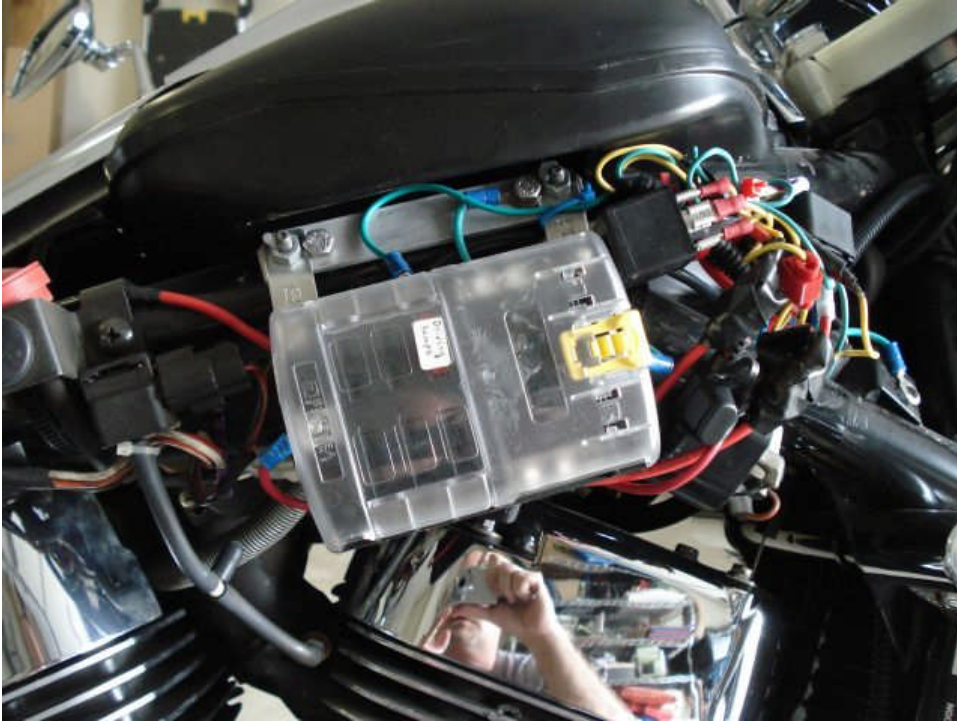
III. SYSTEM LAYOUT

Your Layout

You really need to think through where everything is going and make sure it will fit before you start putting it all together. Also, figure out where you want your switch. You pretty much have the freedom to put it anywhere. Your layout could be very different from mine for a multitude of reasons. If you mount the fuse box where I did, I strongly suggest you put the brackets together with the fuse box installed and try to put the air box, faux cover, and neck cover back on to make sure everything fits. Do this before you try to wire anything. I had to do some reworking to get the bracket to work with the air box.

My System Layout:

1. Using the bolt holes from the charcoal fuel vapor canister, I made a bracket onto which to attach the new fuse box and I made another bracket coming off that one at an angle to hold the two relays. As you can see from the pictures, it's ugly as sin but it's under the jug so I don't care.



2. My pushbutton switch is mounted on the right side of my handle bars using the brake / mirror clamp to hold on the bracket I made. My LED is also located on this bracket. As the picture shows, I'm not so good with drilling holes in a straight line. I plan to make a nicer looking bracket next winter.



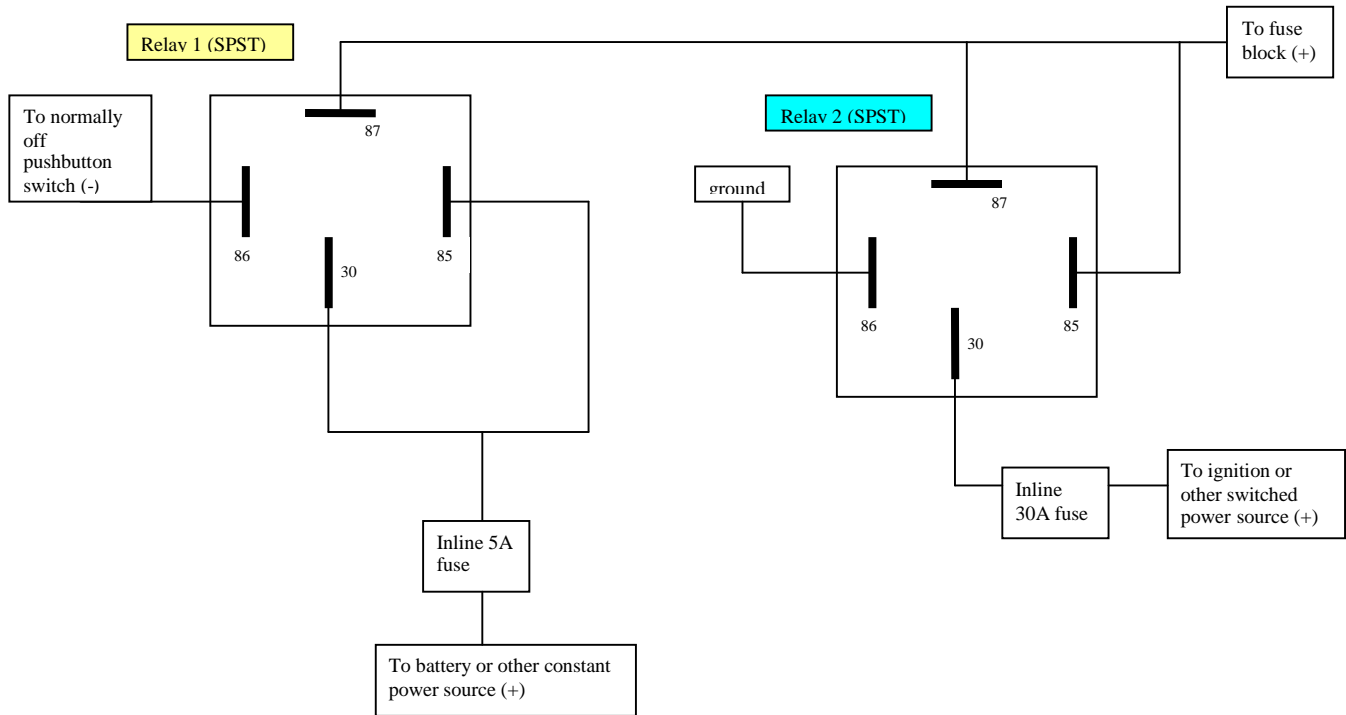
3. I ran a 30 amp in-line fused 12 gauge wire from the second relay to the ignition. This gives me power to the second relay only when I turn on the ignition.
4. I ran a 5 amp in-line fused wire from left side where the ignition relay is located to the first relay.
5. My ground for the second relay is ran to the bolt holding the neck cover on.
6. The ground for the auxiliary fuse box is ran into one of the bolts holding the auxiliary fuse box onto the bracket I made.
7. There is nothing pretty about the wiring, but it works and is hidden under the cover anyway.
8. I put a lawn mower fuel filter on the end of the hose for the charcoal fuel vapor canister.

IV. VARIOUS DIAGRAMS & EXPLANATIONS

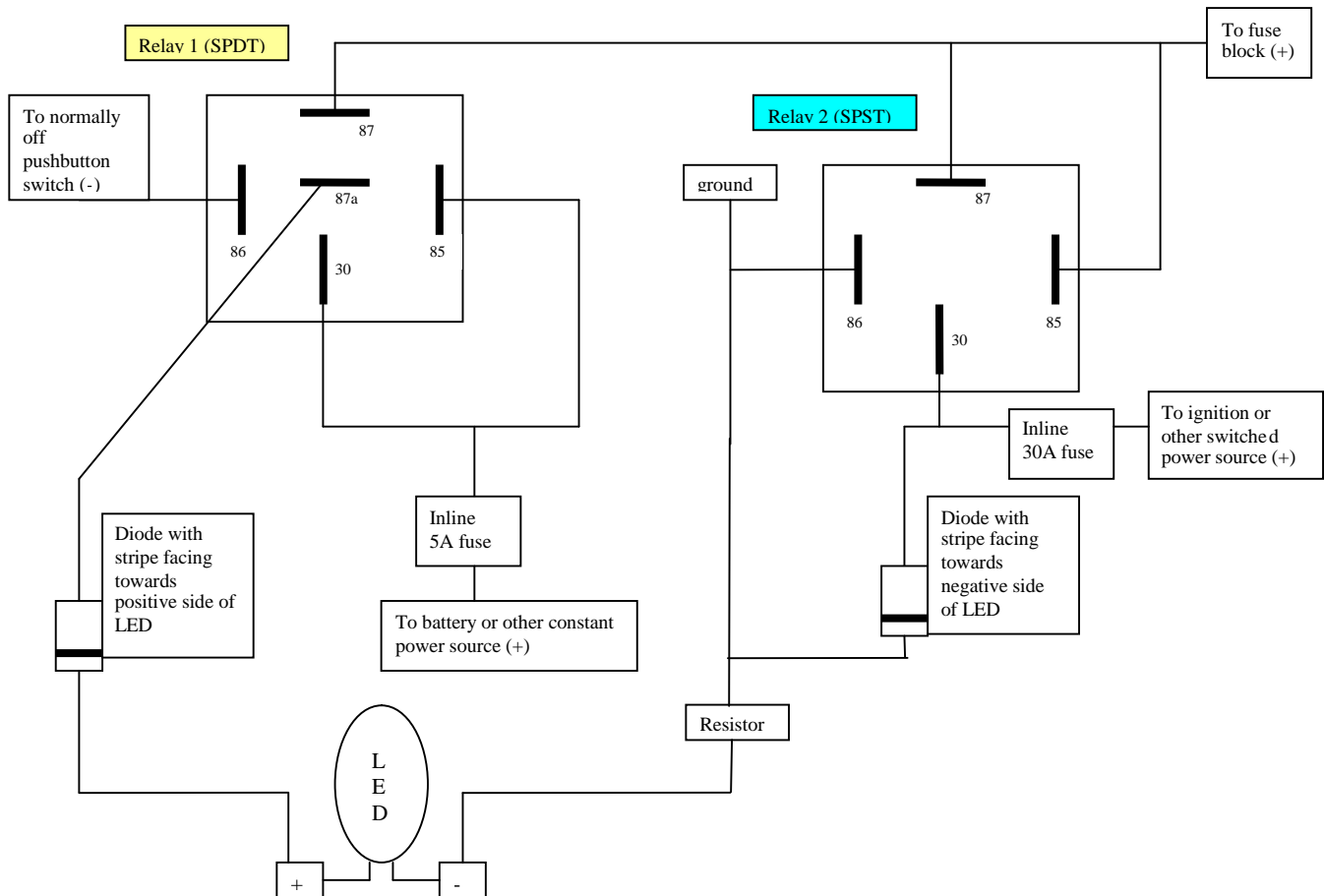
1. Relay setups

These diagrams essentially provide you with everything you need to install the system. If a line crosses another line, that indicates the wires are connected there. The order in which things appear in the diagram does matter. For example, with the LED option, the resistor needs to be placed the way it is with respect to the diode on the second relay. I found out the importance of following my own diagrams the hard way.

A. Relay diagram **without** the LED option:



B. Relay diagram **with** the LED option

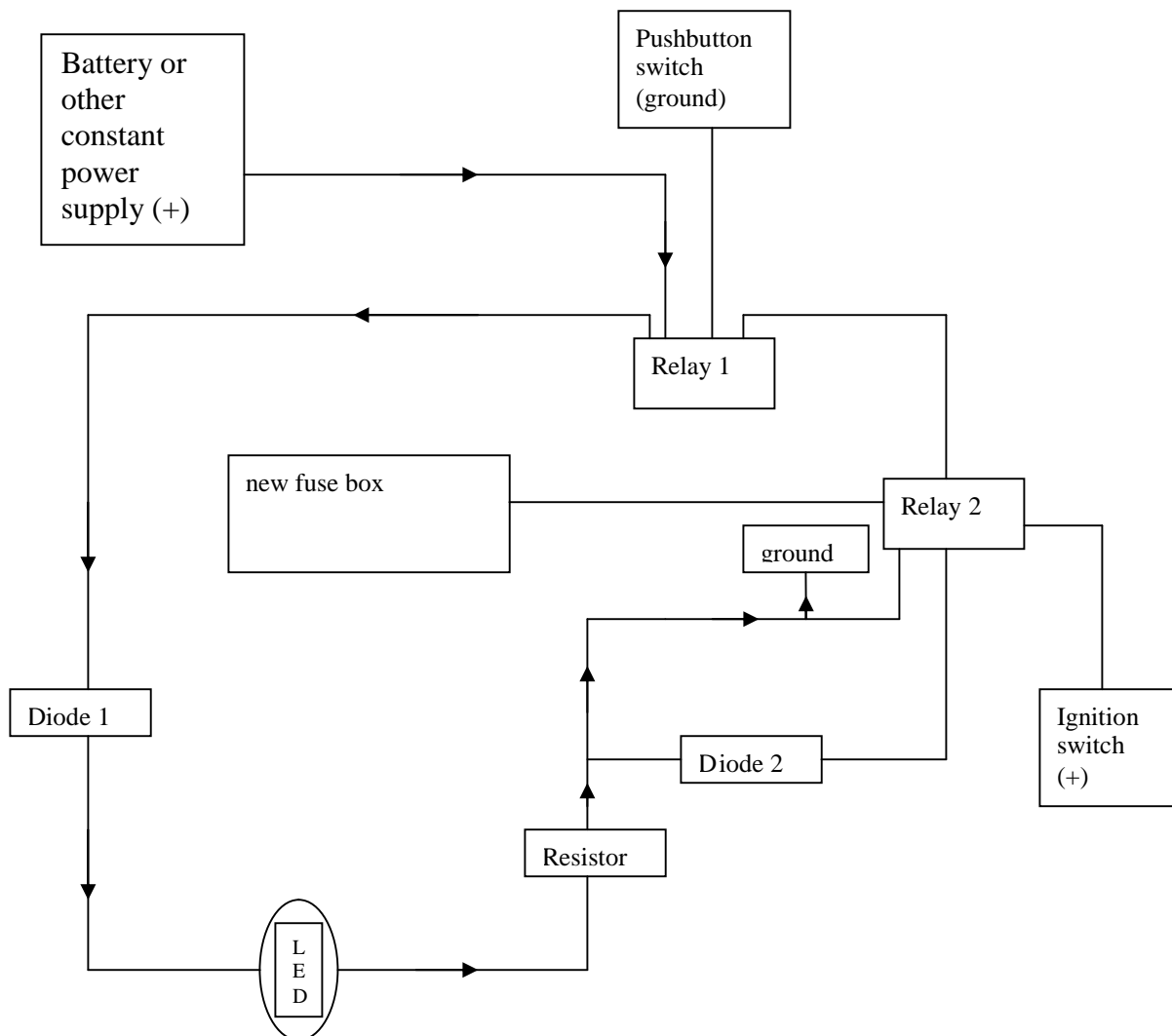


2. Diagrams of LED operation

It's always important to me to know how something works, not just that it does work. So, with that in mind, I've given you some diagrams below showing how things work with the LED option. The arrows show current flow through the system.

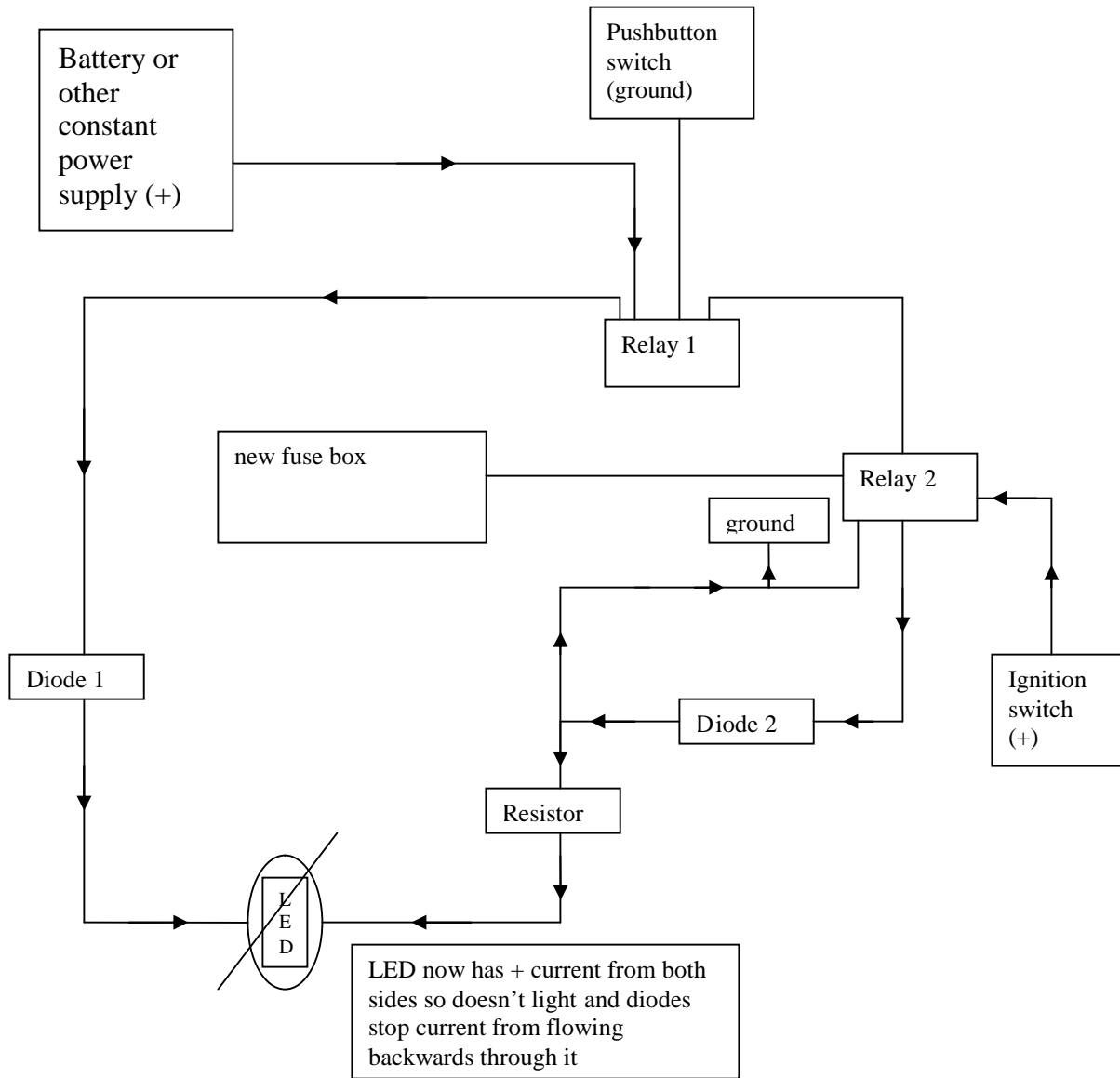
A. Ignition off

Ignition off / no power to fuse block & LED blinking



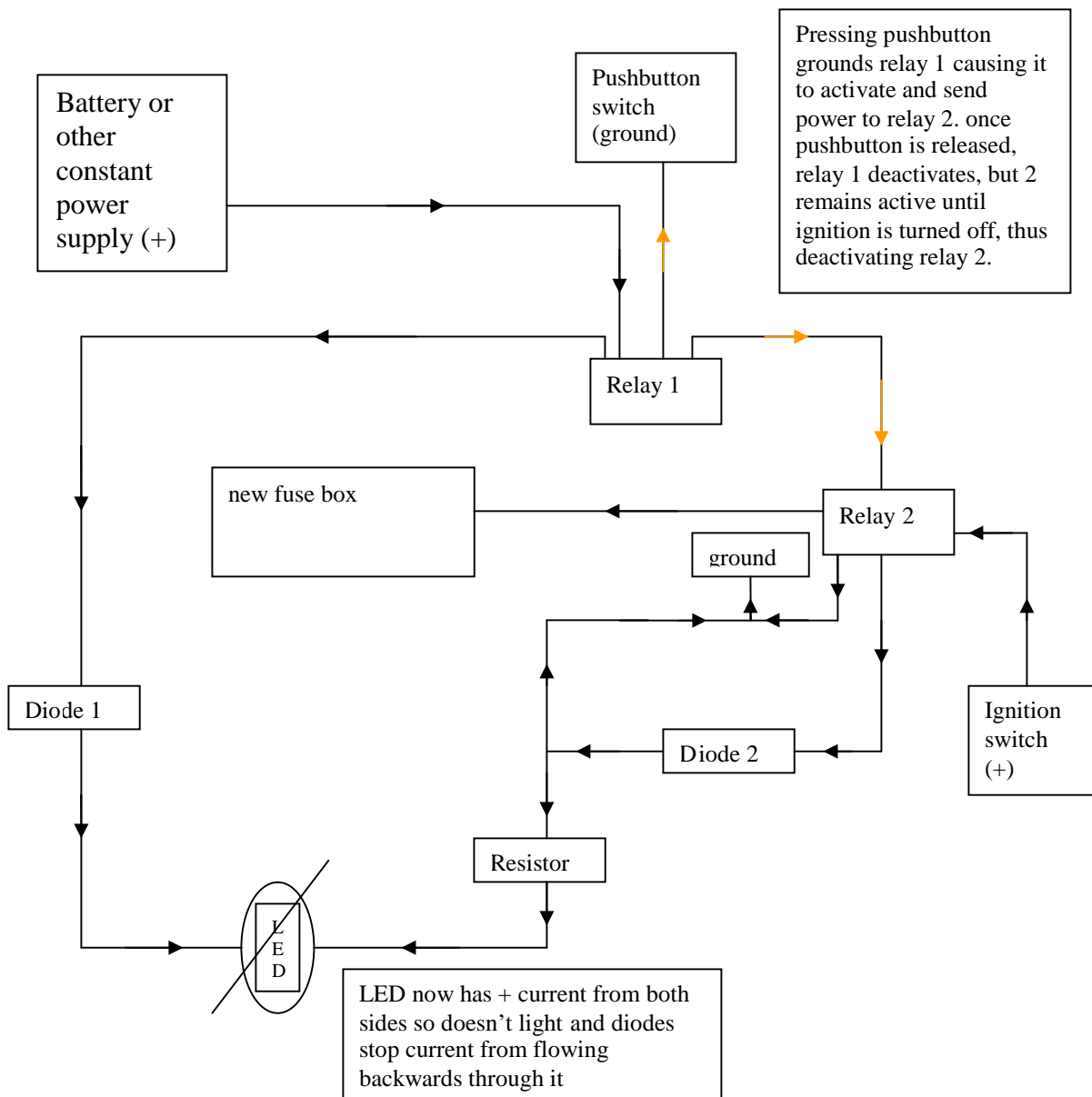
B. Ignition first turned on

Ignition on / no power to fuse block yet & LED off



C. Ignition on & depressing push button

Ignition on / initialization causing power to fuse block & LED off



D. Ignition on & fuse block powered

Ignition on / power to fuse block & LED off

