

## K Bike Headlight Relays

Lots of people add headlight relays to their K bikes. Why?

1) The stock wiring for BMW headlights is rather wimpy. It suffices but given the small gauge of the wire, voltage is lost in the circuit. By upgrading to thicker wire (like 14 gauge or even 12) the amount of voltage lost is much less. More voltage to your headlight means more light.

2) Since, from the factory, the headlight does not use relays this means that all of the current travels through the contacts in the high beam/low beam switch on your left handlebar. Every time you switch between beams a little spark is created. Over time and many uses, these little sparks degrade the switch contacts and eventually cause the switch to fail. When you use relays, the current flowing through the switch is reduced to next to nothing and this greatly increases the longevity of your headlight switch.

3) Once you've upgraded the wiring and added relays you can switch to a higher power bulb. If you tried that with the stock wiring chances are you'd melt the insulation off of the wires and have some potentially serious problems. (I run a 100/90W Xenon H4 headlight bulb which is a massive improvement over the stock halogen H4 bulb.)

You have two options when adding headlight relays:

1) Buy a kit from Jim Davis at Eastern Beaver. If you're not into chasing electrons or just don't feel like making your own, Jim's kits are handy, fairly priced and used by lots of K bike owners. Link: [Eastern Beaver relay kits.](#)

2) "Roll your own"

You can find a couple of write-ups on this over at the IBMWR K Bike Tech Pages:

<http://www.ibmwr.org/ktech.shtml>

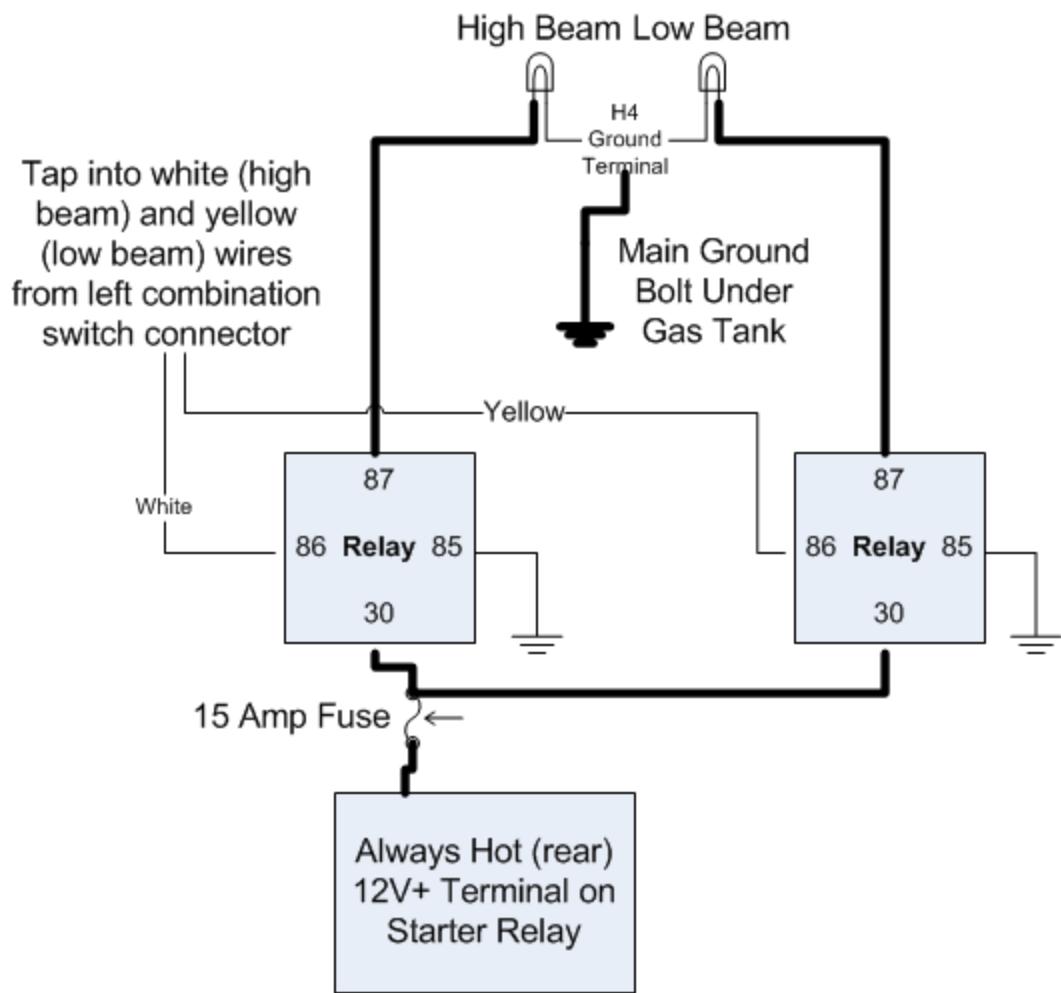
You can either use your existing headlight plug and cut the wires very close to the headlight socket or you can get a new H4 headlight socket and connect your higher gauge wiring to the socket. This is really the

"right" way to do things. To avoid possible heat issues, I use a ceramic H4 headlight socket like the one pictured below.



I recommend using Posi-Taps to tap into the headlight wires from your switch. You'll need two of the PT2022 type. (I do not recommend using ScotchLocks or T-taps - both have a tendency to fail or cut through the wire you're tapping into.)

Here's a wiring diagram that shows how to wire headlight relays using standard Bosch automotive relays. The thicker lines indicate where heavier gauge wire should be used



And be sure to disconnect your battery before doing stuff like this.  
 (Have your radio security code handy if you have an LT.)

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