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# K1200LT LED Saddlebag Reflector Conversion Kit

## Wiring Details

### Introduction

This document explains the theory behind how the Saddlebag Reflector Kit is wired to your BMW. This may help you troubleshoot your system in case your LEDs are not operating as they're supposed to.

### How they're supposed to work

Your saddlebag reflectors should be on whenever your taillights are on. When you turn on your turn signal, the LEDs should flash alternately with the rear turn signals. When flashing, they should go from on to completely off.

### Why they flash

It's actually quite clever how they work (unfortunately, I can't take credit for figuring this out). The hot wire (red) from the LEDs is connected to the wire feeding the taillights. The negative wire (black) from the LEDs is connected to the hot wire feeding the turn signal (on each side of the bike). **Neither wire is connected directly to ground!**

When the taillights are on, the current flows from the taillight wire, through the red wire to the positive side of the LEDs. The negative lead on the LEDs, which is connected to the black wire, is connected to the hot turn

signal wire. This is the clever part—*the LEDs are grounded through the filament of the turn signal bulb.* This arrangement turns the LEDs on when the taillights are on.

However, when you turn on your turn signal, the black wire now “sees” 12 volts (closer to 13.8 volts, actually) and is no longer grounded so the LEDs turn off. Consequently, when the turn signal is on, the LEDs are off, and vice versa. This is why the LEDs “wig-wag” with the turn signals.

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